DESIGN DESIGNATION

SB A.A.D.T. - 2023 = 8877
NB A.A.D.T. - 2023 = 7714
D.H.V. = 9%
T = 43%
V = 70 M.P.H.
D = 41/59%
FUNCTIONAL CLASSIFICATION- INTERSTATE

NO NEW R/W REQUIRED

CONVENTIONAL SYMBOLS
(USED IN PLANS)

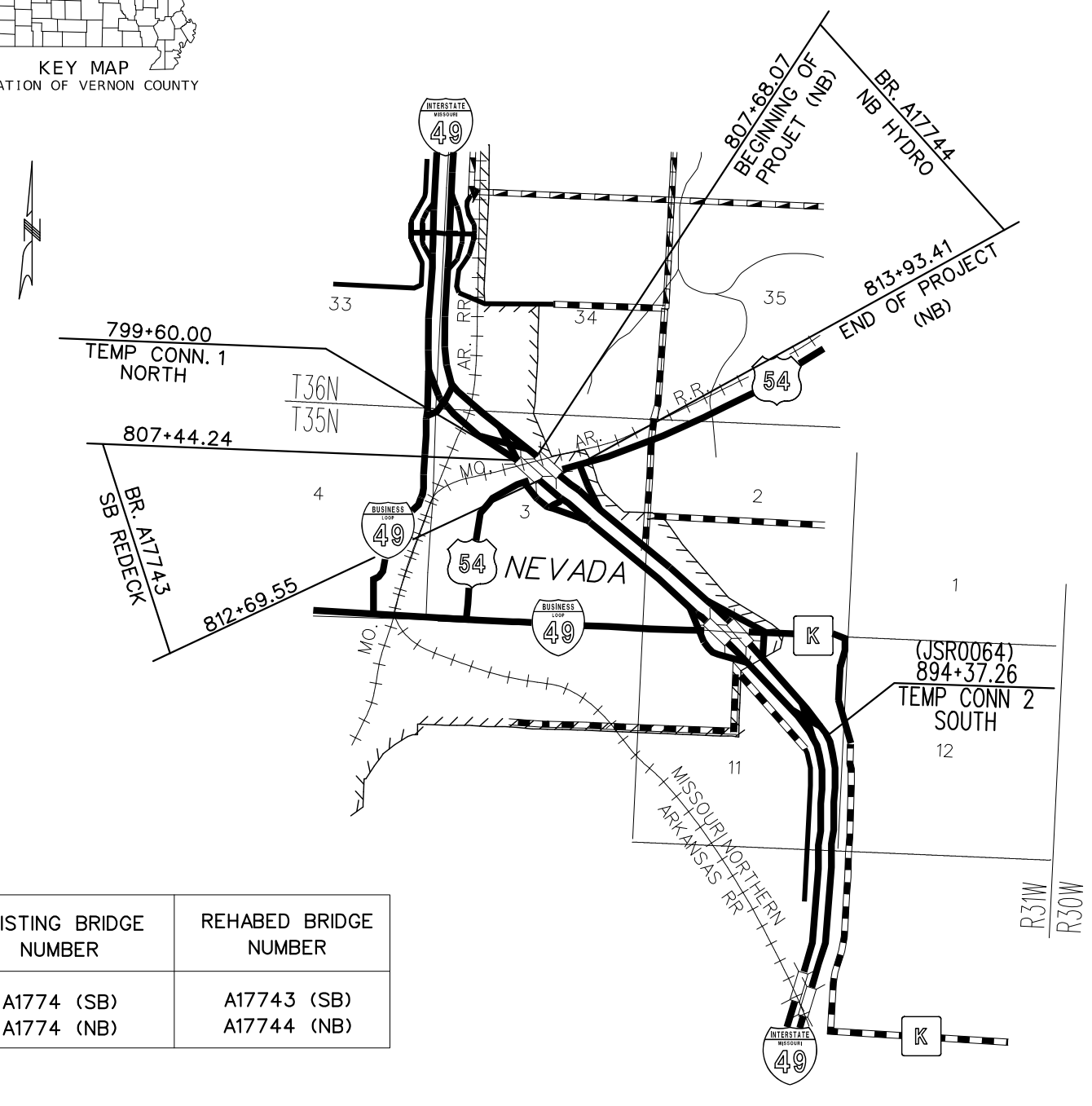
	EXISTING	NEW
BUILDINGS AND STRUCTURES		
GUARD RAIL		
GUARD CABLE		
CONCRETE RIGHT-OF-WAY MARKER		
STEEL RIGHT-OF-WAY MARKER		
LOCATION SURVEY MARKER		
UTILITIES		
FIBER OPTICS	-FO-	FO
OVERHEAD CABLE TV	-OTV-	OTV
UNDERGROUND CABLE TV	-UTV-	UTV
OVERHEAD TELEPHONE	-OT-	OT
UNDERGROUND TELEPHONE	-UT-	UT
OVERHEAD 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	DI	
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

PLANS FOR PROPOSED STATE HIGHWAY VERNON COUNTY

KEY MAP
LOCATION OF VERNON COUNTY



EXISTING BRIDGE NUMBER	REHABED BRIDGE NUMBER
A1774 (SB)	A17743 (SB)
A1774 (NB)	A17744 (NB)

NOT TO SCALE

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

INDEX OF SHEETS

LENGTH OF PROJECT

BEGINNING OF PROJECT	STA. 799 + 60.00	
END OF PROJECT	STA. 813 + 93.41	
APPARENT LENGTH		1433.41 FEET
EQUATIONS AND EXCEPTIONS:		
ROADWAY EXCEPTIONS STA 806+91.82 - 807+44.24		-52.42 FEET
TOTAL CORRECTIONS		-52.42 FEET
NET LENGTH OF PROJECT		1380.99 FEET
STATE LENGTH		0.262 MILES
FOR INFORMATION ONLY ESTIMATED DISTURBED ACRES		1.5 ACRES

STATE OF MISSOURI
SHANNON M. KELLNER
NUMBER PE-2011015763
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED SEALED AND DATED ELECTRONICALLY.

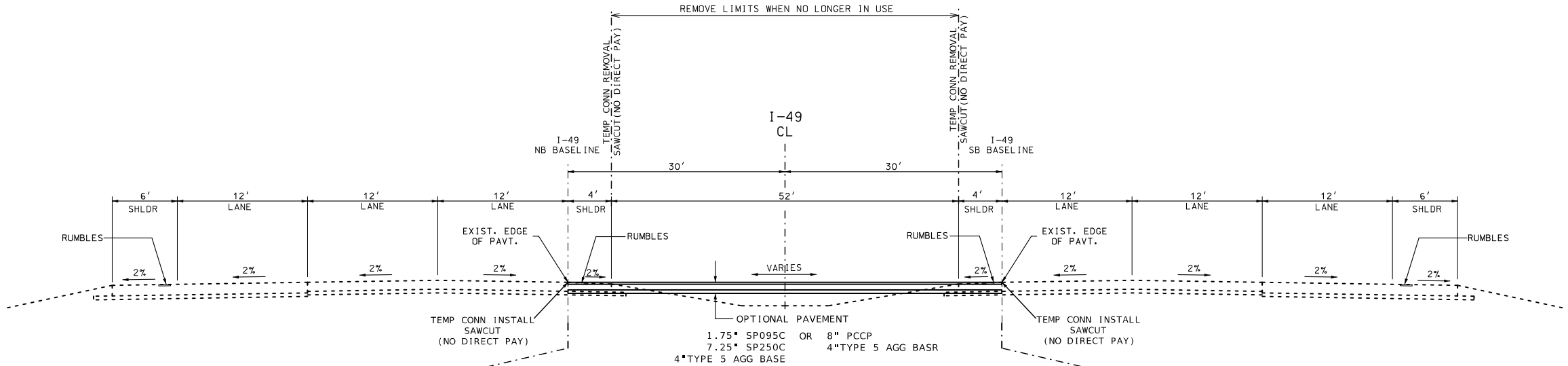
DATE PREPARED: 10/27/2025
ROUTE: I49 | STATE: MO
DISTRICT: SW | SHEET NO.: 1
COUNTY: VERNON
JOB NO.: JSR0063
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: A17743, A17744

DESCRIPTION | DATE

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

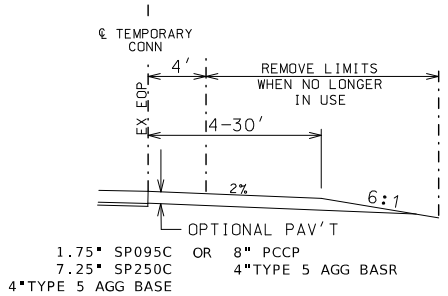
ASPHALT FACTORS	
	COMBINED FACTOR
SP095C (PG76-22)	1.955 TONS/CY
SP250C (PG64-22)	1.970 TONS/CY
TACK COAT	
MILLING	0.10 GAL/SY

UPON REMOVAL OF THE TEMPORARY CONNECTION, LEAVE IN PLACE 4FT OF TEMP CONN PAVEMENT TO SERVE AS NEW PERMANENT MAINLINE SHOULDER AND ADD RUMBLE STRIPS.

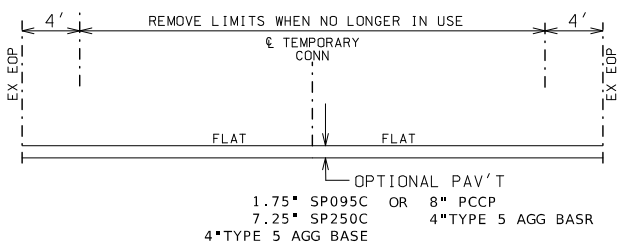


TEMPORARY CONNECTION 1
ROUTE I-49 MEDIAN

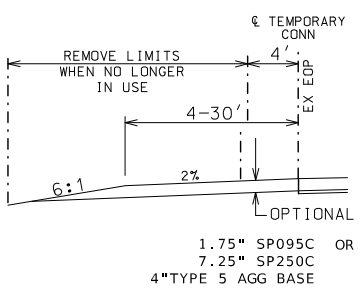
STA. 799+60.00 TO STA. 806+91.82



STA 799+60.00 TO 802+68.75 NB
STA 803+80.86 TO 806+91.82 NB



STA 802+68.75 TO 803+80.86



STA 799+60.00 TO 802+68.75 SB
STA 803+80.86 TO 806+91.82 SB

TYPICAL SECTIONS
SHEET 1 OF 2

STATE OF MISSOURI
SHANNON M. KELLNER
NUMBER PE-2011015763
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED: 11/26/2024

ROUTE	STATE
I49	MO
DISTRICT	SHEET NO.
SW	2

COUNTY: VERNON
JOB NO.: JSR0063
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)

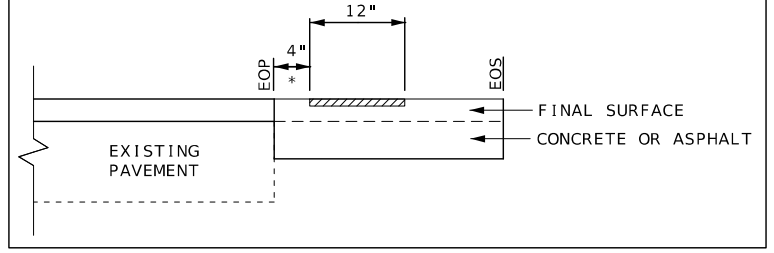
NOTES: LANE WIDTH NOTED IS TYPICAL LANE WIDTH.
ADJUST PAVING WIDTHS TO EXISTING FIELD CONDITIONS.

NO ADDITIONAL PAYMENT WILL BE MADE FOR ADDITIONAL COLDMILLING (UP TO 3") REQUIRED TO REMOVE ENTIRE TOP LIFT DUE TO DELAMINATION. THIS APPLIES TO ENTIRE PROJECT LIMITS.

SURFACE PLACEMENT - ONE PASS PER LANE

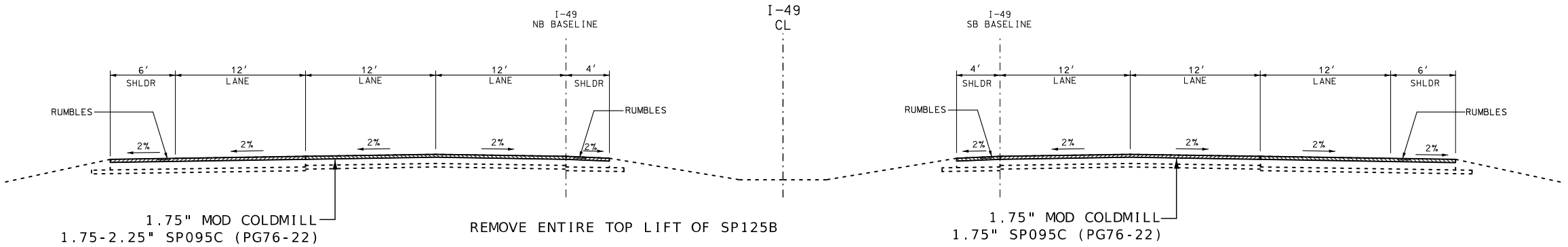
NO S.E. CORRECTION

RUMBLE STRIP DETAILS



* LATERAL DEVIATION SHALL NOT EXCEED ONE INCH IN 100 FEET

ASPHALT FACTORS	
COMBINED FACTOR	
SP095C (PG76-22)	1.955 TONS/CY
TACK COAT	
MILLING	0.10 GAL/SY
IRREGULARITIES:	75 TONS/MI



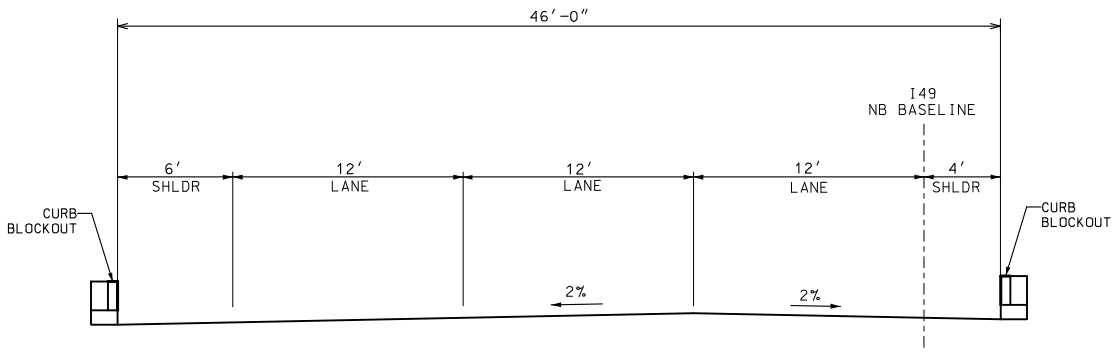
REMOVE ENTIRE TOP LIFT OF SP125B

MODIFIED COLDMILL PAID FOR ANY ADJUSTMENTS REQUIRED TO MATCH BRIDGE REHAB FINAL ELEVATION.

ROUTE I-49 LT (NORTHBOUND)

STA. 807+68.07 TO STA. 808+68.07
STA. 812+93.41 TO STA. 813+93.41

STA. 808+68.07 TO STA. 808+83.07 CONCRETE APPROACH PAVEMENT
STA. 808+83.07 TO STA. 809+03.07 BRIDGE APPROACH SLAB
STA. 812+58.41 TO STA. 812+78.41 BRIDGE APPROACH SLAB
STA. 812+78.41 TO STA. 812+93.41 CONCRETE APPROACH PAVEMENT



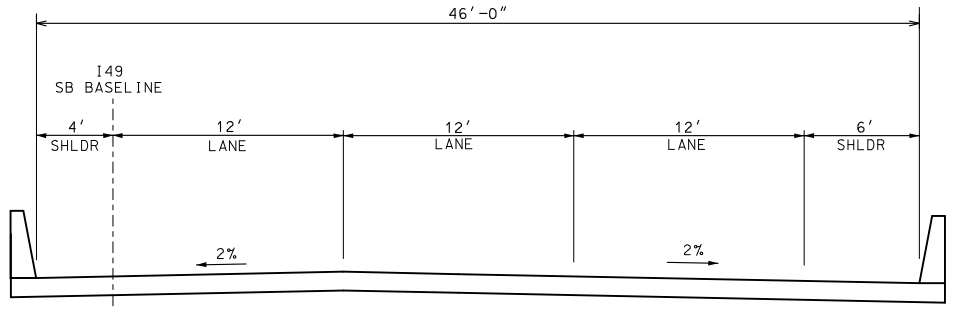
HYDRO & LATEX

ROUTE I-49 LT (NORTHBOUND) BR-A17744
STA. 809+03.07 TO STA. 812+58.41

ROUTE I-49 RT (SOUTHBOUND)

STA. 807+44.24 TO STA. 807+94.24
STA. 812+19.55 TO STA. 812+69.55

STA. 807+94.24 TO STA. 808+09.24 CONCRETE APPROACH PAVEMENT
STA. 808+09.24 TO STA. 808+29.24 BRIDGE APPROACH SLAB
STA. 811+84.55 TO STA. 812+04.55 BRIDGE APPROACH SLAB
STA. 812+04.55 TO STA. 812+19.55 CONCRETE APPROACH PAVEMENT



REDECK

ROUTE I-49 RT (SOUTHBOUND) BR-A17743
STA. 808+29.24 TO STA. 811+84.55

TYPICAL SECTIONS
SHEET 2 OF 2

STATE OF MISSOURI
SHANNON M. KELLNER
NUMBER PE-2011015763
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED
11/26/2024

ROUTE	STATE
I49	MO
DISTRICT	SHEET NO.
SW	2

COUNTY
VERNON

JOB NO.
JSR0063

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)

PAVEMENT							
STATION	STATION	NET LENGTH FT	AVERAGE WIDTH FT	AREA SF	SP095C 1.955 Tons/CY TONS	TACK COAT GAL	REMARKS
I-49 SOUTHBOUND							
807+44.24	812+19.55	50.00	46	2300	24.3	25.56	1.75"
812+19.55	812+69.55	50.00	46	2300	24.3	25.56	1.75"
I-49 NORTHBOUND							
807+68.07	808+68.07	100.00	46	4600	55.5	51.11	1.75-2.25"
812+93.41	813+93.41	100.00	46	4600	55.5	51.11	1.75-2.25"
IRREGULARITIES					4.3		75 TONS/MILE
NORTHBOUND SAFETY EDGE					2.2		2% SAFETY EDGE
TOTALS					166.1	153.34	
USE					166.1	153	

LINEAR GRADING						
STATION	STATION	LOC	MODIFIED STA	CLASS 1 STA	CLASS 2 STA	REMARKS
I-49						
799+60.00	806+91.82	MEDIAN	7.3			TEMP CONN 1 OBLIT-SEE SAW CUTS
I-49 SOUTHBOUND						
807+94.24	808+11.00	RT		0.2		CONC APPR PAV'T/SLOPES FOR DRAINAGE
808+11.00	809+00.00	RT			0.9	BRIDGE END GRADING AND MATERIAL REQUIRED
811+25.00	812+05.00	RT			0.8	BRIDGE END GRADING AND MATERIAL REQUIRED
812+05.00	812+19.55	RT		0.2		CONC APPR PAV'T/SLOPES FOR DRAINAGE
I-49 NORTHBOUND						
808+68.07	808+84.00	LT		0.2		CONC APPR PAV'T/SLOPES FOR DRAINAGE
808+84.00	809+60.00	LT			0.8	BRIDGE END GRADING AND MATERIAL REQUIRED
811+92.00	812+82.00	LT			0.9	BRIDGE END GRADING AND MATERIAL REQUIRED
812+82.00	812+93.41	LT		0.2		CONC APPR PAV'T/SLOPES FOR DRAINAGE
TOTAL			7.3		3.4	

MODIFIED COLDMILL							
STATION	STATION	LOC	LENGTH FT	WIDTH FT	AREA SF	SY	REMARKS
I-49 SOUTHBOUND							
807+44.24	807+94.24	49' RT	50	46	2300	255.56	
812+19.55	812+69.55	49' RT	50	46	2300	255.56	
I-49 NORTHBOUND							
807+68.07	808+68.07	49' LT	100	46	4600	511.11	
812+93.41	813+93.41	49' LT	100	46	4600	511.11	
TOTAL						1533.34	
USE							1534

OPTIONAL PAVEMENT							
STATION	STATION	NET LENGTH FT	AVERAGE WIDTH FT	AREA SF	OPTIONAL 9IN. ASPHALT 81N. PCCP SY	4" TYPE 5 AGG BASE SY	REMARKS
I-49							
799+60.00	806+91.82	731.82	VAR	22257	2473.00	2473.00	TEMP CONN 1 NORTH
TOTALS					2473.00	2473.00	
USE					2473.0	2473	

SUMMARY OF QUANTITIES

SHEET 1 OF 5

EARTHWORK						
STATION	STATION	OFFSET	UNCLASSIFID EXCAVATION CY	EMBANKMENT COMPACTING CY	EMBANKMENT IN PLACE CY	COMPACTING IN CUT STA	REMARKS
TEMPORARY CONN 1							
799+60.00	806+91.82	LT I49 MED CL	132	113	559	7.3	TEMP CONN 1 INSTALL
799+60.00	806+91.82	RT I49 MED CL	112	96	604	7.3	TEMP CONN 1 INSTALL
ROUNDING 500CY/MILE			69				
TOTALS			313	209	1163	14.6	

REMOVAL OF IMPROVEMENTS							
STATION	STATION	OFFSET	ALIGNMENT	ITEM	UNIT	TOTAL	REMARKS
I-49 SOUTHBOUND							
800+44.45	808+44.45	RT	SB I-49	GUARDRAIL	LF	800	SB UPSTREAM INSIDE
807+34.84	808+09.84	RT	SB I-49	GUARDRAIL	LF	75	SB UPSTREAM OUTSIDE
807+93.38	808+13.18	RT	SB I-49	CONC	SY	13	DRAIN BASIN SW CORNER
808+27.93	808+47.83	RT	SB I-49	CONC	SY	13	DRAIN BASIN NW CORNER
808+29.24	808+95.22	RT	SB I-49	CONC	SY	136	SLOPE PROTECTION
811+29.88	811+95.83	RT	SB I-49	CONC	SY	136	SLOPE PROTECTION
811+65.86	811+85.68	RT	SB I-49	CONC	SY	13	DRAIN BASIN SE CORNER
811+69.33	812+44.33	RT	SB I-49	GUARDRAIL	LF	75	SB DOWNSTREAM OUTSIDE
812+00.45	812+20.18	RT	SB I-49	CONC	SY	12	DRAIN BASIN NE CORNER
I-49 NORTHBOUND							
808+67.19	808+87.09	LT	NB I-49	CONC	SY	12	DRAIN BASIN SW CORNER
808+43.26	809+18.26	LT	NB I-49	GUARDRAIL	LF	75	NB DOWNSTREAM OUTSIDE
809+01.68	809+21.62	LT	NB I-49	CONC	SY	13	DRAIN BASIN NW CORNER
809+91.77	809+57.70	LT	NB I-49	CONC	SY	136	SLOPE PROTECTION
811+92.26	812+58.41	LT	NB I-49	CONC	SY	136	SLOPE PROTECTION
812+39.74	812+59.57	LT	NB I-49	CONC	SY	13	DRAIN BASIN SE CORNER
812+43.06	813+18.06	LT	NB I-49	GUARDRAIL	LF	75	NB UPSTREAM INSIDE
812+74.36	812+94.19	LT	NB I-49	CONC	SY	13	DRAIN BASIN NE CORNER
812+77.81	813+52.81	LT	NB I-49	GUARDRAIL	LF	75	NB UPSTREAM OUTSIDE
TOTAL						1 LUMP SUM	

SAW CUTS (INFORMATION ONLY)				
STATION	STATION	OFFSET	SAW CUT LF	REMARKS
I-49				
799+60.00	806+91.82	26-30' LT	4.0	NB INSIDE SHOULDER
799+60.00	806+91.82	30' LT	731.8	NB INSIDE SHOULDER
806+91.82		26-30' LT	4.0	NB INSIDE SHOULDER
799+60.00		26-30' RT	4.0	SB INSIDE SHOULDER
799+60.00	806+91.82	30' RT	731.8	SB INSIDE SHOULDER
806+91.82		26-30' RT	4.0	SB INSIDE SHOULDER
799+60.00	806+91.82	26' LT	731.8	TEMP CONN 1 OBLIT
799+60.00	806+91.82	26' RT	731.8	TEMP CONN 1 OBLIT
TOTAL			2943.2	NO DIRECT PAY

TEMPORARY PIPE			
STATION	OFFSET	15" LF	REMARKS
I-49			
803+24.83	CL	400	TEMP CONN 1-PIPE INSTALL & REMOVAL
TOTAL		400	

CONTRACTOR FURNISHED SURVEYING AND STAKING
1 LUMP SUM

MOBILIZATION
1 LUMP SUM

ADDITIONAL MOBILIZATION FOR SEEDING AND MULCHING
EACH
4

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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

DATE	DESCRIPTION

BRIDGE NO.

PROJECT NO.

CONTRACT ID.

JOB NO. JSR0063

COUNTY VERNON

DISTRICT SW | SHEET NO. 3

ROUTE I49 | STATE MO

DATE PREPARED 9/3/2025

THIS SHEET HAS BEEN SIGNED SEALED AND DATED ELECTRONICALLY.

STATE OF MISSOURI
SHANNON M. KELLNER
NUMBER PE-2010151783
PROFESSIONAL ENGINEER

SHEET 2 OF 5

SUMMARY OF QUANTITIES

PERMANENT AGGREGATE EDGE TREATMENT

STATION	STATION	LOCATION	LENGTH	AGGREGATE 200TONS/MILE	PRIME MC800 590GAL/MILE	REMARKS
			FT	TONS	GAL	
I-49 SOUTHBOUND						
812+19.55	812+69.55	RT	50	1.9	5.6	SB INSIDE
I-49 NORTHBOUND						
807+68.07	808+68.07	LT	200	7.6	22.3	NB INSIDE & OUTSIDE
812+93.41	813+93.41	LT	200	7.6	22.3	NB INSIDE & OUTSIDE
TOTALS				17.1	50.2	
USE				17.1	51	

GUARDRAIL

STA	STA	OFFSET	NET LENGTH FT	BRIDGE APPROACH TRANSITION MGS EACH	GUARDRAIL MGS LF	TYPE A CWT MASH EACH	HEIGHT/BLOCK TRANSITION MGS EACH	SHAPING SLOPES CLASS III 100FT	REMARKS
I-49 SOUTHBOUND									
800+44.45	808+44.45	RT	800.0	1	712.5	1		8.3	SB UPSTREAM INSIDE
807+34.84	808+09.84	RT	75.0	1	12.5		1	0.8	SB UPSTREAM OUTSIDE
811+69.33	812+44.33	RT	75.0	1	12.5		1	0.8	SB DOWNSTREAM OUTSIDE
812+03.95	815+16.45	RT	312.5	1	225.0	1		3.4	SB DOWNSTREAM INSIDE FOR STAGE 3 CONST
I-49 NORTHBOUND									
808+43.26	809+18.26	LT	75.0	1	12.5		1	0.8	NB DOWNSTREAM OUTSIDE
812+43.06	813+18.06	LT	75.0	1	12.5		1	0.8	NB UPSTREAM INSIDE
812+77.81	813+52.81	LT	75.0	1	12.5		1	0.8	NB UPSTREAM OUTSIDE
TOTALS				7	1000.0	2	5	15.7	
USE				7	1000	2	5	16	

PERMANENT EROSION CONTROL

STATION	STATION	OFFSET	TYPE 1 ROCK DITCH LINER FURNISHING CY	TYPE 1 ROCK DITCH LINER PLACING CY	GEOTEXTILE FABRIC SY	CONCRETE SLOPE PROTECTION SY	REMARKS
I-49 SOUTHBOUND							
807+95.74		72.2-156'RT	6	6	38.8		DRAIN FLUME
808+29.24	808+95.22	64-11'RT				135.7	SLOPE PROTECTION REPLACEMENT
808+42.35		0-26.3'RT	2	2	12.2		DRAIN FLUME
811+29.88	811+95.83	64-11'RT				135.7	SLOPE PROTECTION REPLACEMENT
811+71.43		71.9-134'RT	5	5	28.8		DRAIN FLUME
812+27.00	812+47.00	17-1'RT	2	2	12.0		DRAIN FLUME @ TYPE A GUTTER
I-49 NORTHBOUND							
808+41.00	808+61.00	1-17'LT	2	2	11.9		DRAIN FLUME @ TYPE A GUTTER
808+91.77	809+57.70	11-64'LT				135.7	SLOPE PROTECTION REPLACEMENT
809+16.16		71.8-144'LT	5	5	33.4		DRAIN FLUME
811+92.26	812+58.41	11-64'LT				135.7	SLOPE PROTECTION REPLACEMENT
812+45.16		0-26.1'LT	2	2	12.1		DRAIN FLUME
812+79.91		72.1-158' LT	6	6	39.8		DRAIN FLUME
TOTAL			30	30	189.0	542.8	
USE			30	30	189	543	

CONCRETE APPROACH PAVEMENT

STATION	STATION	LOC	LENGTH FT	WIDTH FT	AREA SF	SY	REMARKS
I-49 SOUTHBOUND							
807+94.24	808+09.24	RT	15	46	1487.3	165.26	
812+04.55	812+19.55	RT	15	46	1487.3	165.26	SEE TYPE A CURB FOR DRAIN FLUME
I-49 NORTHBOUND							
808+68.07	808+83.07	LT	15	46	1487.3	165.26	SEE TYPE A CURB FOR DRAIN FLUME
812+78.41	812+93.41	LT	15	46	1487.3	165.26	
TOTAL					1487.3	661.04	
USE						661.0	

TYPE A GUTTER

STATION	STATION	LOC	GUTTER LF	REMARKS
I-49 SOUTHBOUND				
812+04.55	812+19.55	26' LT	16.0	ON CONC APPROACH PAVEMENT FOR DRAIN FLUME
I-49 NORTHBOUND				
808+68.07	808+83.07	26' LT	16.0	ON CONC APPROACH PAVEMENT FOR DRAIN FLUME
TOTAL			32.0	
USE			32	

BITUMINOUS SHOULDER RUMBLE STRIP

STATION	STATION	LOCATION	STA	REMARKS
I-49 SOUTHBOUND				
799+60.00	806+91.82	RT	7.3	INSIDE SHOULDER
807+44.24	807+94.24	RT	0.5	INSIDE SHOULDER
807+44.24	807+94.24	RT	0.5	OUTSIDE SHOULDER
812+19.55	812+69.55	RT	0.5	INSIDE SHOULDER
812+19.55	812+69.55	RT	0.5	OUTSIDE SHOULDER
I-49 NORTHBOUND				
799+60.00	806+91.82	LT	7.3	INSIDE SHOULDER
807+68.07	808+68.07	LT	1.0	OUTSIDE SHOULDER
807+68.07	808+68.07	LT	1.0	INSIDE SHOULDER
812+93.41	813+93.41	LT	1.0	INSIDE SHOULDER
812+93.41	813+93.41	LT	1.0	OUTSIDE SHOULDER
TOTAL			20.6	

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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

DESCRIPTION	DATE

BRIDGE NO.

PROJECT NO.

CONTRACT ID.

JOB NO. JSR0063

COUNTY VERNON

DISTRICT	SHEET NO.
SW	3

ROUTE	STATE
I49	MO

DATE PREPARED 9/3/2025

THIS SHEET HAS BEEN SIGNED SEALED AND DATED ELECTRONICALLY.

STATE OF MISSOURI
SHANNON M. KEULNER
NUMBER PE-2011015762
PROFESSIONAL ENGINEER

TEMPORARY EROSION CONTROL

STATION	STATION	OFFSET	ROCK DITCH CHECK	CURB INLET CHECK	SILT FENCE	SEDIMENT REMOVAL	REMARKS
			LF	EACH	LF	CY	
I-49 INITIAL PHASE							
800+70.50		CL	20			2.00	EX MEDIAN DI TO OUTFALL A
812+60.00		144'LT	10			1.00	EX PIPE UNDER RTE 54
814+01.00		CL	10			1.00	MEDIAN DITCH
I-49 CONSTRUCTION PHASE							
805+30.00		CL	10			1.00	UPPER END TEMP PIPE
805+73.00		CL	10			1.00	MEDIAN DITCH
806+16.00		CL	10			1.00	MEDIAN DITCH
806+59.00		CL	10			1.00	MEDIAN DITCH
807+02.00		CL	10			1.00	MEDIAN DITCH
807+45.00		CL	10			1.00	MEDIAN DITCH
807+80.00		170'RT	10			1.00	EX DITCH RT
807+80.00	809+00.00	LT/RT			503	5.03	
807+88.00		CL	10			1.00	MEDIAN DITCH
808+11.00		72'RT		1		1.00	OUTLET FROM BR A17743S
808+38.00		26'RT		1		1.00	OUTLET FROM BR A17743S
808+78.00		26'LT		1		1.00	OUTLET FROM BR A17744N
809+00.00		167'LT	10			1.00	EX DITCH LT
809+12.00		72'LT		1		1.00	OUTLET FROM BR A17744N
811+77.00		72'RT		1		1.00	OUTLET FROM BR A17743S
811+93.00	812+60.00	LT/RT			425	4.25	
812+10.00		26'RT		1		1.00	OUTLET FROM BR A17743S
812+52.00		26'LT		1		1.00	OUTLET FROM BR A17744N
812+87.00		72'LT		1		1.00	OUTLET FROM BR A17744N
813+15.00		CL	10			1.00	MEDIAN DITCH
813+58.00		CL	10			1.00	MEDIAN DITCH
		TOTALS	150	8	928	32	
		USE	150	8	928	32	

CLASS 2 PAVEMENT MARKING PAINT (25-MIL, TYPE L BEADS)

STATION	STATION	OFFSET	6" SOLID WHITE	6" INT WHITE	6" SOLID YELLOW	REMARKS
			LF	LF	LF	
SOUTHBOUND I-49						
785+00.0	848+00.0	30' RT			6300.0	INSIDE EDGELINE
785+00.0	848+00.0	42' RT		1575.0		CENTERLINE
785+00.0	805+64.0	54' RT	2064.0			OUTSIDE EDGELINE
805+64.0	807+64.0	54-66' LT	200.0			EDGELINE TAPER
805+64.0	816+00.0	54' RT		259.0		DOTTED LANELINE-3'LINE 9'GAP
807+64.0	815+60.0	66' RT	796.0			OUTSIDE EDGELINE
816+00.0	816+67.0	54-81' RT	268.0			2-12" GORE LINES
816+67.0	825+70.0	54' RT	903.0			OUTSIDE EDGELINE
825+70.0	826+48.0	54-67' RT	312.0			2-12" GORE LINES
826+48.0	827+00.0	54' RT	104.0			12" GORE LINE
827+00.0	830+00.0	54' RT		75.0		DOTTED LANELINE-3'LINE 9'GAP
827+42.0	834+34.0	66' RT	692.0			OUTSIDE EDGELINE
834+34.0	837+34.0	66-54' RT	300.0			EDGELINE TAPER
837+34.0	848+00.0	54' RT	1066.0			OUTSIDE EDGELINE
NORTHBOUND I-49						
790+97.8	848+00.0	30' LT			5702.2	INSIDE EDGELINE
790+97.8	848+00.0	42' LT		1425.6		CENTERLINE
790+97.8	801+00.0	54' LT	1002.2			OUTSIDE EDGELINE
801+00.0	804+00.0	54-66' LT	300.0			EDGELINE TAPER
804+00.0	818+50.0	54' LT		362.5		DOTTED LANELINE-3'LINE 9'GAP
804+00.0	818+50.0	66' LT	1450.0			OUTSIDE EDGELINE
818+50.0	818+65.0	54' LT	30.0			12"GORE LINE
818+65.0	819+16.0	54-63' LT	204.0			2-12" GORE LINES
819+16.0	827+86.0	54' LT	870.0			OUTSIDE EDGELINE
827+86.0	829+25.0	54-73' LT	556.0			2-12" GORE LINES
829+25.0	833+41.0	54' LT		104.0		DOTTED LANELINE-3'LINE 9'GAP
829+25.0	833+41.0	74-54' LT	416.0			OUTSIDE EDGELINE
833+41.0	848+00.0	54' LT	1459.0			OUTSIDE EDGELINE
		TOTALS	12992.2	3801.1	12002.2	
		USE	16793		12003	

SEEDING - COOL SEASON GRASSES
TOTAL ACRES
1.2

TEMPORARY SEEDING
TOTAL ACRES
0.3

MULCHING
TOTAL ACRES
1.5

STATE OF MISSOURI
SHANNON M. KELLNER
NUMBER PE-2011015763
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED: 9/3/2025
ROUTE: I49 | STATE: MO
DISTRICT: SW | SHEET NO.: 3
COUNTY: VERNON
JOB NO.: JSR0063
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)

SUMMARY OF QUANTITIES

TEMPORARY ~ CLASS 1 PAVEMENT MARKING PAINT (18-MIL, TYPE P BEADS)

STATION	STATION	OFFSET	LOC	INT 4" WHITE LF	SOLID 4" WHITE LF	SOLID 8" WHITE LF	SOLID 4" YELLOW LF	SOLID 8" YELLOW LF	REMOVAL LF	REMARKS
STAGE 2 SB BRIDGE CLOSURES										
784+94.00	793+34.00	54-42' RT	SB		840				840	REMOVE CL AND PLACE LANE DROP TRANSITION
793+34.00	799+60.00	42' RT	SBL		626					
799+60.00	806+91.82	42'RT-30'LT	SB-NB			1486				XOVER
799+60.00	806+91.82	30'RT-42'LT	SB-NB					1486		XOVER
799+60.00	800+60.00	30-42'LT	NBL				100		100	REMOVE CL AND PLACE END LANE DROP
800+60.00	806+91.82	42'LT	NBL				632			
806+91.82	887+00.00	42'LT	NBL				16016			DOUBLE SOLID YELLOW
887+00.00	894+37.26	42'LT-30'RT	NB-SB					1439		XOVER
887+00.00	893+73.00	30'LT-54'RT	NB-SB			1050				XOVER
887+00.00	913+83.00	42'LT	NBL				2683			
913+83.00	922+23.00	42-30'LT	NBL				840		840	REMOVE CL AND PLACE LANE DROP TRANSITON
SB BRIDGE COMPLETED AND OPENED TO WINTER TRAFFIC										
784+94.00	793+34.00	42' RT	SB	210					840	REMOVE LANE DROP AND PLACE CL
793+34.00	799+60.00	42' RT	SBL	157					626	REMOVE SOLID AND PLACE INT CL
799+60.00	806+91.82	42'RT-30'LT	SB-NB						743	REMOVE XOVER MARKINGS
799+60.00	806+91.82	30'RT-42'LT	SB-NB						743	REMOVE XOVER MARKINGS
799+60.00	800+60.00	42'LT	NBL	25					100	REMOVE LANE DROP AND PLACE CL
800+60.00	806+91.82	42'LT	NBL	158					632	REMOVE SOLID AND PLACE INT CL
806+91.82	887+00.00	42'LT	NBL	2002					8008	REMOVE DBL YELLOW AND PLACE INT CL
887+00.00	894+37.26	42'LT-30'RT	NB-SB						720	REMOVE XOVER MARKINGS
887+00.00	893+73.00	30'LT-54'RT	NB-SB						525	REMOVE XOVER MARKINGS
887+00.00	913+83.00	42'LT	NBL	671					2683	REMOVE SOLID AND PLACE INT CL
913+83.00	922+23.00	42-30'LT	NBL	210					840	LANE DROP TRANSITON AND PLACE CL
STAGE 3 NB BRIDGE CLOSURES										
784+94.00	793+34.00	54-42' RT	SB				840		840	REMOVE CL AND PLACE LANE DROP TRANSITION
793+34.00	806+91.82	42'RT	SBL				1358			
799+60.00	806+91.82	30'LT-42'RT	SB-NB					1473		XOVER
801+78.00	806+91.82	54'LT-30'RT	SB-NB			1057				XOVER
806+91.82	887+00.00	42'RT	SBL				16016			DOUBLE SOLID YELLOW
887+00.00	893+37.26	42'RT	SBL				637			
893+37.26	894+37.26	42'-30'RT	SBL				100			END LANE DROP
887+00.00	894+37.26	30'RT-42'LT	SB-NB			1482				XOVER
887+00.00	894+37.26	42'RT-30'LT	SB-NB					1486		XOVER
894+37.26	913+83.00	42'LT	NBL		1946					
913+83.00	922+23.00	42-54'LT	NBL		840				840	REMOVE CL AND PLACE LANE DROP TRANSITON
784+94.00	793+34.00	54-42' RT	SB						840	STAGE 3 MARKINGS
793+34.00	806+91.82	42'RT	SBL						1358	STAGE 3 MARKINGS
799+60.00	806+91.82	30'LT-42'RT	SB-NB						737	STAGE 3 MARKINGS
801+78.00	806+91.82	54'LT-30'RT	SB-NB						529	STAGE 3 MARKINGS
806+91.82	887+00.00	42'RT	SBL						8008	STAGE 3 MARKINGS
887+00.00	893+37.26	42'RT	SBL						637	STAGE 3 MARKINGS
893+37.26	894+37.26	42'-30'RT	SBL						100	STAGE 3 MARKINGS
887+00.00	894+37.26	30'RT-42'LT	SB-NB						741	STAGE 3 MARKINGS
887+00.00	894+37.26	42'RT-30'LT	SB-NB						743	STAGE 3 MARKINGS
894+37.26	913+83.00	42'LT	NBL						1946	STAGE 3 MARKINGS
913+83.00	922+23.00	42-54'LT	NBL						840	STAGE 3 MARKINGS
			TOTAL	3433	4252	5075	39222	5884	36399	
			USE		12760		45106		36399	

36 IN. SURFACE-MOUNT DELINEATOR POST

STATION	STATION	LOC	YELLOW EACH	REMARKS
I-49 WINTER SEASON BETWEEN STAGE 2 & 3				
801+00.00	805+00.00	26' LT	50	NB INSIDE AT 8FT SPACINGS
801+00.00	805+00.00	26' RT	50	SB INSIDE AT 8FT SPACINGS
888+50.00	892+50.00	26' LT	50	NB INSIDE AT 8FT SPACINGS
888+50.00	892+50.00	26' RT	50	SB INSIDE AT 8FT SPACINGS
		TOTAL	200	

SUMMARY OF QUANTITIES
SHEET 4 OF 5

STATE OF MISSOURI
SHANNON M. KELLNER
NUMBER PE-2011015763
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED 9/3/2025
ROUTE I49 | STATE MO
DISTRICT SW | SHEET NO. 3
COUNTY VERNON
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BRIDGE NO.

DESCRIPTION | DATE

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

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	4	64.00				REVERSE CURVE (SYMBOL LEFT)
WO1-4R	48X48	16.00	4	64.00				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	4	50.00				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	1	16.00				MERGE (LEFT)
WO4-1aR	48X48	16.00	1	16.00				MERGE (RIGHT)
WO5-1	48X48	16.00	2	32.00				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	9	144.00				TWO WAY TRAFFIC (SYMBOL)
WO7-3a	30X24	5.00	6	30.00				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	4	25.00				ADVISORY SPEED (PLAQUE)
WO16-2	30X24	5.00						XXX FEET (PLAQUE)
WO16-3	30X24	5.00						X MILE (PLAQUE)
WO20-1	48X48	16.00	6	96.00				ROAD/BRIDGE/RAMP WORK AHEAD
WO20-2	48X48	16.00	5	80.00				DETOUR AHEAD
WO20-3	48X48	16.00						ROAD CLOSED AHEAD
WO20-4	48X48	16.00						ONE LANE ROAD AHEAD
WO20-5	48X48	16.00	3	48.00				RIGHT/CENTER/LEFT LANE CLOSED AHEAD
WO20-5a	48X48	16.00						2 RIGHT/CENTER/LEFT LANES CLOSED AHEAD
WO20-6a	48X48	16.00	1	16.00				RIGHT/CENTER/LEFT LANE CLOSED
WO20-7a	48X48	16.00						FLAGGER (SYMBOL)
WO21-2	36X36	9.00						FRESH OIL
WO21-5	48X48	16.00	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						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	6	72.00				EXIT CLOSED
GO20-1	60X24	10.00	4	40.00				ROAD WORK NEXT XX MILES
GO20-2	48X24	8.00	4	32.00				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	24	144.00				WORK ZONE (PLAQUE)
MO4-8a	24X18	3.00	3	9.00				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	18	216.00				SPEED LIMIT 6-70, 12-60
R3-1	48X48	16.00						NO RIGHT TURN (SYMBOL)
R3-2	48X48	16.00						NO LEFT TURN (SYMBOL)
R3-3	36X36	9.00						NO TURNS
R3-4	48X48	16.00						NO U-TURN (SYMBOL)
R3-7L	30X30	6.25						LEFT LANE MUST TURN LEFT
R3-7R	30X30	6.25						RIGHT LANE MUST TURN RIGHT
R4-1	36X48	12.00	14	168.00				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	2	12.50				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	3	30.00				ROAD CLOSED
R11-3a	60X30	12.50						ROAD CLOSED XX MILES AHEAD LOCAL TRAFFIC ONLY
R11-4	60X30	12.50						ROAD CLOSED TO THRU TRAFFIC
CONST-3A	60X48	20.00						FINE SIGN
CONST-3X	56X12	4.67						SPEEDING/PASSING (PLATE)
MISCELLANEOUS SIGNS								
CONST-5	48X36	12.00	2	24.00				POINT OF PRESENCE
CONST-5	96X48	32.00						POINT OF PRESENCE
CONST-8	48X36	12.00	4	48.00				WORK ZONE NO PHONE ZONE
DETOUR	36X78	19.50	32	624.00				
DETOUR	36X60	15.00	19	285.00				
SPECIAL	48X48	16.00	2	32.00				RUMBLE STRIPS AHEAD

616-10.05 CONSTRUCTION SIGNS	TOTAL
	2450

616-10.10 RELOCATED SIGNS	TOTAL

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	1	IMPACT ATTENUATOR 70 MPH (SAND BARRELS)
6122020	2	REPLACEMENT SAND BARREL
6122030	1	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	110	CHANNELIZER (TRIM-LINE)
6161026		CHANNELIZER (VERTICAL PANEL)
6161030	17	TYPE 3 MOVEABLE BARRICADE
6161033	30	DIRECTION INDICATOR BARRICADE
6161040	2	FLASHING ARROW PANEL
6161047		TYPE 3 OBJECT MARKER
6161055	30	SEQUENTIAL FLASHING WARNING LIGHT
6161070	426	TUBULAR MARKER
6161095		RADAR SPEED ADVISORY SYSTEM
6161096		CHANGEABLE MESSAGE SIGN, COMMISSION FURNISHED/RETAINED
6161098A		CHANGEABLE MESSAGE SIGN WITHOUT COMM. INTERFACE, CONTRACTOR FURNISHED/RETAINED
6161099	8	CHANGEABLE MESSAGE SIGN WITH COMM. INTERFACE, CONTRACTOR FURNISHED/RETAINED
6162000A		WORK ZONE TRAFFIC SIGNAL SYSTEM
6162002	8	TEMPORARY LONG-TERM RUMBLE STRIPS
6173600D	867	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	1430	RELOCATING TEMPORARY TRAFFIC BARRIER
6175011B		RELOCATING TEMP. TRAFFIC BARRIER ANCHORED
6175013		RELOCATING TEMP. TRAFFIC BARRIER STIFFNESS
6175020A		RELOCATING TEMP. TRAFFIC BARRIER HEIGHT
6208064A	90	TEMPORARY RAISED PAVEMENT MARKER
9029400		TEMPORARY TRAFFIC SIGNALS
9029401		TEMPORARY TRAFFIC SIGNALS AND LIGHTING

EFFECTIVE: 07-01-2025

TEMPORARY TRAFFIC BARRIER, TYPE F

STATION	LOC	STATION	LOC	TYPE F LF	RELOCATE LF
I-49 STAGE 2					
800+60	64' RT	809+03	26' LT	843.0	
I-49 WINTER SEASON BETWEEN STAGE 2 & 3					
802+75	0' LT/RT	805+75	28' RT		300.0
805+75	28' RT	808+64	28' RT		289.0
I-49 STAGE 3					
800+23	64' LT	808+64	26' RT		841.0
887+00	30' LT	887+00	54' LT	24.0	
			TOTAL	867.0	1430.0
FOR LOCATION INFO ONLY					

SUMMARY OF QUANTITIES
SHEET 5 OF 5

STATE OF MISSOURI
SHANNON M. KELLNER
NUMBER PE-2010015763
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED 9/3/2025

ROUTE	STATE
I49	MO
DISTRICT	SHEET NO.
SW	3

COUNTY: VERNON
JOB NO.: JSR0063
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.:

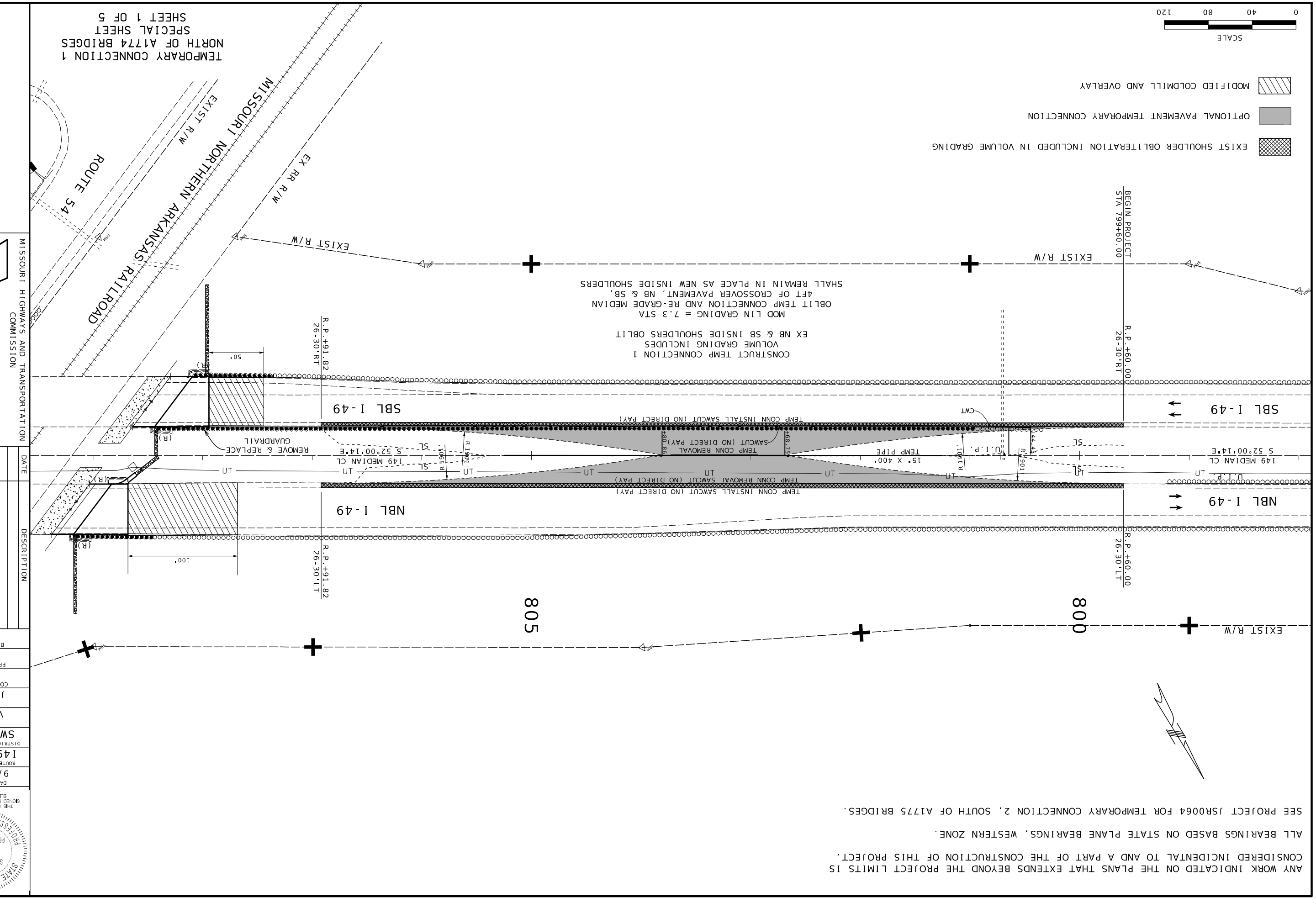
DESCRIPTION	DATE

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

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.

ALL BEARINGS BASED ON STATE PLANE BEARINGS, WESTERN ZONE.

SEE PROJECT JSR0064 FOR TEMPORARY CONNECTION 2, SOUTH OF A1775 BRIDGES.



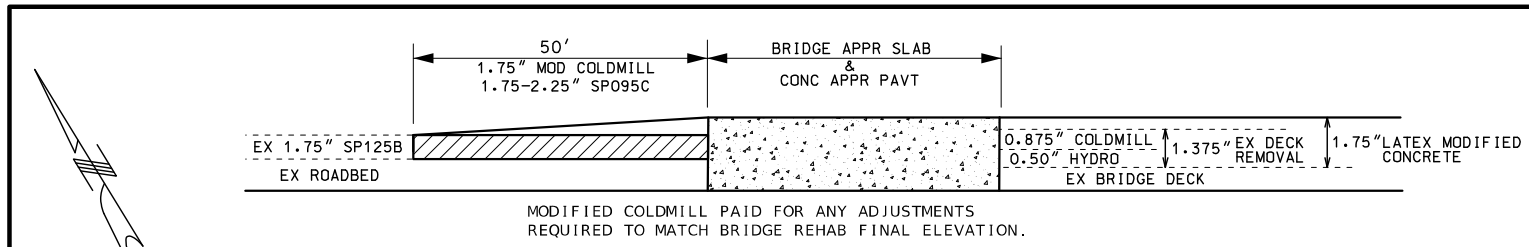
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

DATE	DESCRIPTION

STATE OF MISSOURI
SHANNON M. KELLNER
NUMBER PE-2010157631
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED	9/3/2025
ROUTE	I49
STATE	MO
DISTRICT	SW
SHEET NO.	4
COUNTY	VERNON
JOB NO.	JSR0063
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO.	



MODIFIED COLDMILL PAID FOR ANY ADJUSTMENTS
REQUIRED TO MATCH BRIDGE REHAB FINAL ELEVATION.

DETAIL FOR BR. #A17744 (NBL)

EXIST SHOULDER OBLITERATION INCLUDED IN VOLUME GRADING

OPTIONAL PAVEMENT TEMPORARY CONNECTION

MODIFIED COLDMILL AND OVERLAY

EXIST BRIDGE A1774N - NORTHBOUND I-49
(57'-101'-101'-57') CONT COMP WELDED PLATE GIRDER

BRIDGE A17744 - NORTHBOUND I-49
UIP AND OVERLAY WITH HYDRODEMOLITION &
LATEX MODIFIED CONCRETE WEARING SURFACE
SKEW 37°00'LA
LENGTH: 321'
WIDTH: 46'
YEAR CONSTRUCTED: 1969
CURB BLOCKOUTS & END POST MODIFICATIONS
FIBER OPTIC ATTACHED UNDER SOUTH DECK OVERHANG

805 | 810 | 815

EXIST R/W

809+16.16
71.8-144'LT

EX RR R/W

EXIST R/W

ROUTE 54

812+79.91
72.1-158'LT

TYPE 1 ROCK DITCH LINER

REMOVE & REPLACE GUARDRAIL

807+68.07

808+68.07

812+93.41

813+93.41

EX TYPE A GUARDRAIL U.I.P.

NBL I-49

CONC APPR PAVT

BR APPR SLAB

BRIDGE #A17744N HYDRO

SLOPE PROTECTION (R) & REPLACE

I49 MEDIAN CL
S 52°00'14"E

INSTALL NEW MGS GUARDRAIL
FOR HEAD TO HEAD TRAFFIC CONTROL

+16.45

CWT

SBL I-49

BRIDGE #A17743S REDECK

807+44.24

807+94.24

812+19.55

812+69.55

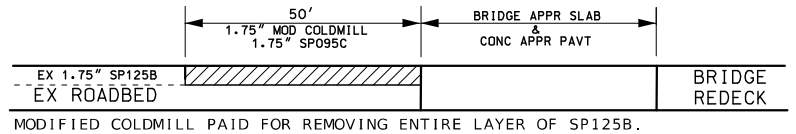
807+95.74
72.2-156'RT

811+71.43
71.9-134'RT

MISSOURI NORTHERN ARKANSAS RAILROAD

RAMP 2

SCALE
0 40 80 120



MODIFIED COLDMILL PAID FOR REMOVING ENTIRE LAYER OF SP125B.

MOD COLDMILLING & OVERLAY
DETAIL FOR BR. #A17743 (SBL)

EXIST BRIDGE A1774S - SOUTHBOUND I-49
(57'-101'-101'-57') CONT COMP WELDED PLATE GIRDER

BRIDGE A17743 - SOUTHBOUND I-49
UIP AND REDECK
SKEW 37°00'LA
LENGTH: 321'
WIDTH: 46'
YEAR CONSTRUCTED: 1969
SAFETY BARRIER CURB

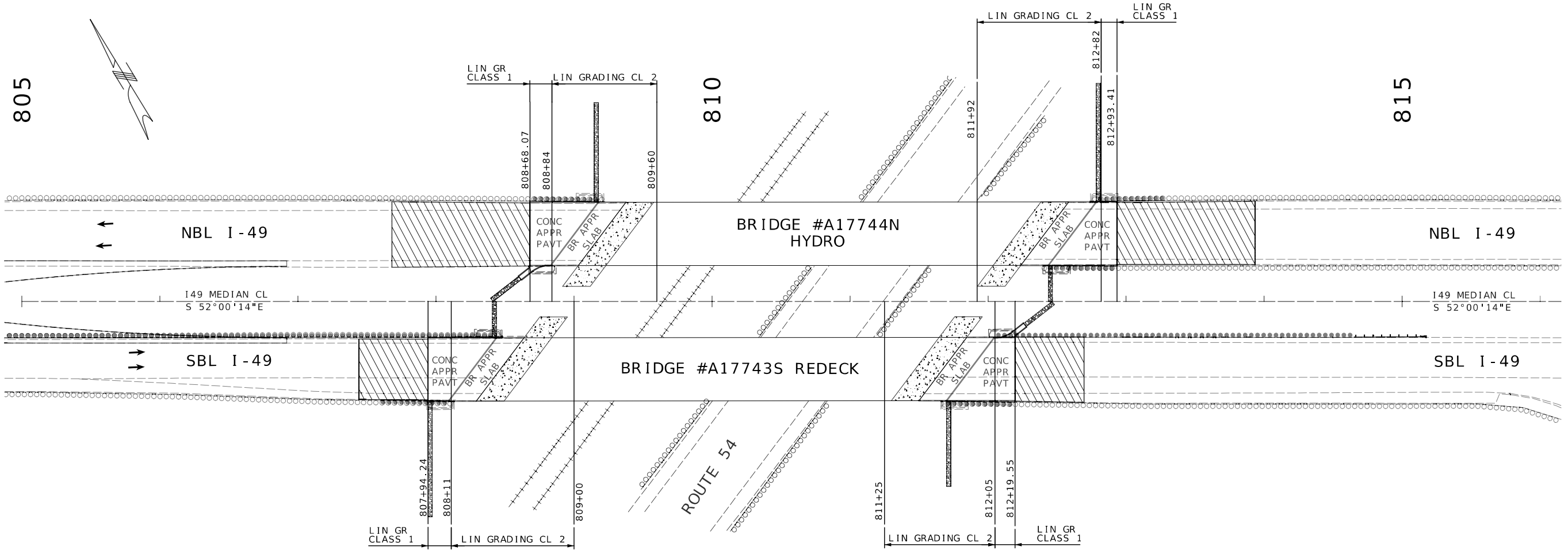
A1774 BRIDGES
SPECIAL SHEET
SHEET 2 OF 5

STATE OF MISSOURI
SHANNON M. KELLNER
NUMBER PE-2011015763
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED: 9/3/2025
ROUTE: I49 | STATE: MO
DISTRICT: SW | SHEET NO.: 5
COUNTY: VERNON
JOB NO.: JSR0063
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



LINEAR GRADING CLASS 1 PAY LIMITS FOR CONCRETE APPROACH PAVEMENT AND SLOPES FOR DRAINAGE

LINEAR GRADING CLASS 2 PAY LIMITS FOR GRADING AT BRIDGE ENDS AND MATERIAL REQUIRED

SCALE

0 40 80 120

GRADING LIMITS
SPECIAL SHEET
SHEET 3 OF 5

STATE OF MISSOURI
SHANNON M. KELLNER
NUMBER PE-2011015763
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED
9/3/2025

ROUTE	STATE
I49	MO

DISTRICT	SHEET NO.
SW	6

COUNTY
VERNON

JOB NO.
JSR0063

CONTRACT ID.

PROJECT NO.

BRIDGE NO.

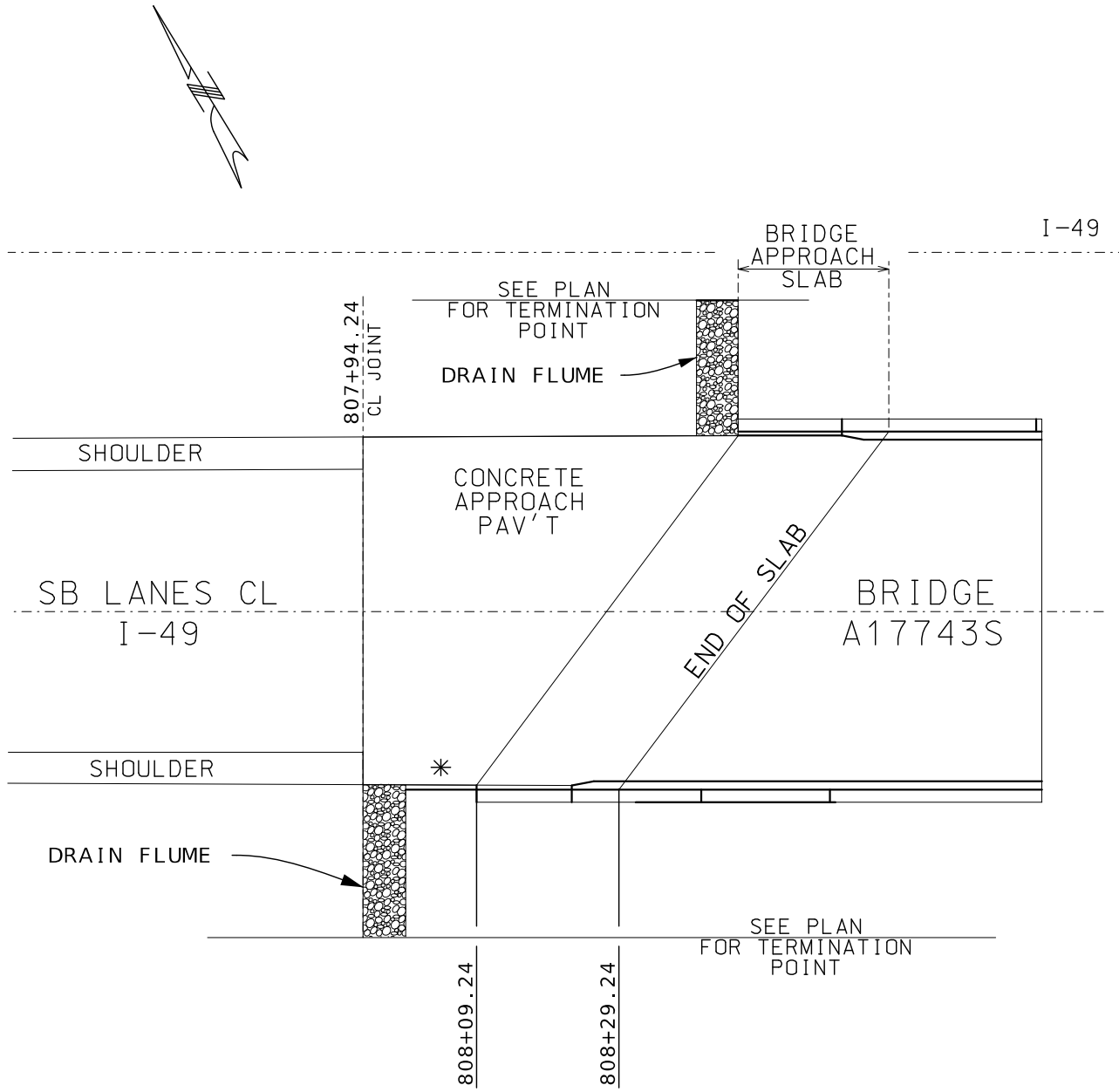
DESCRIPTION	DATE

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

ROUTE I-49 RT (SOUTHBOUND)

STA. 807+94.24 TO STA. 808+09.24 CONCRETE APPROACH PAVEMENT
STA. 808+09.24 TO STA. 808+29.24 BRIDGE APPROACH SLAB
STA. 811+84.55 TO STA. 812+04.55 BRIDGE APPROACH SLAB
STA. 812+04.55 TO STA. 812+19.55 CONCRETE APPROACH PAVEMENT

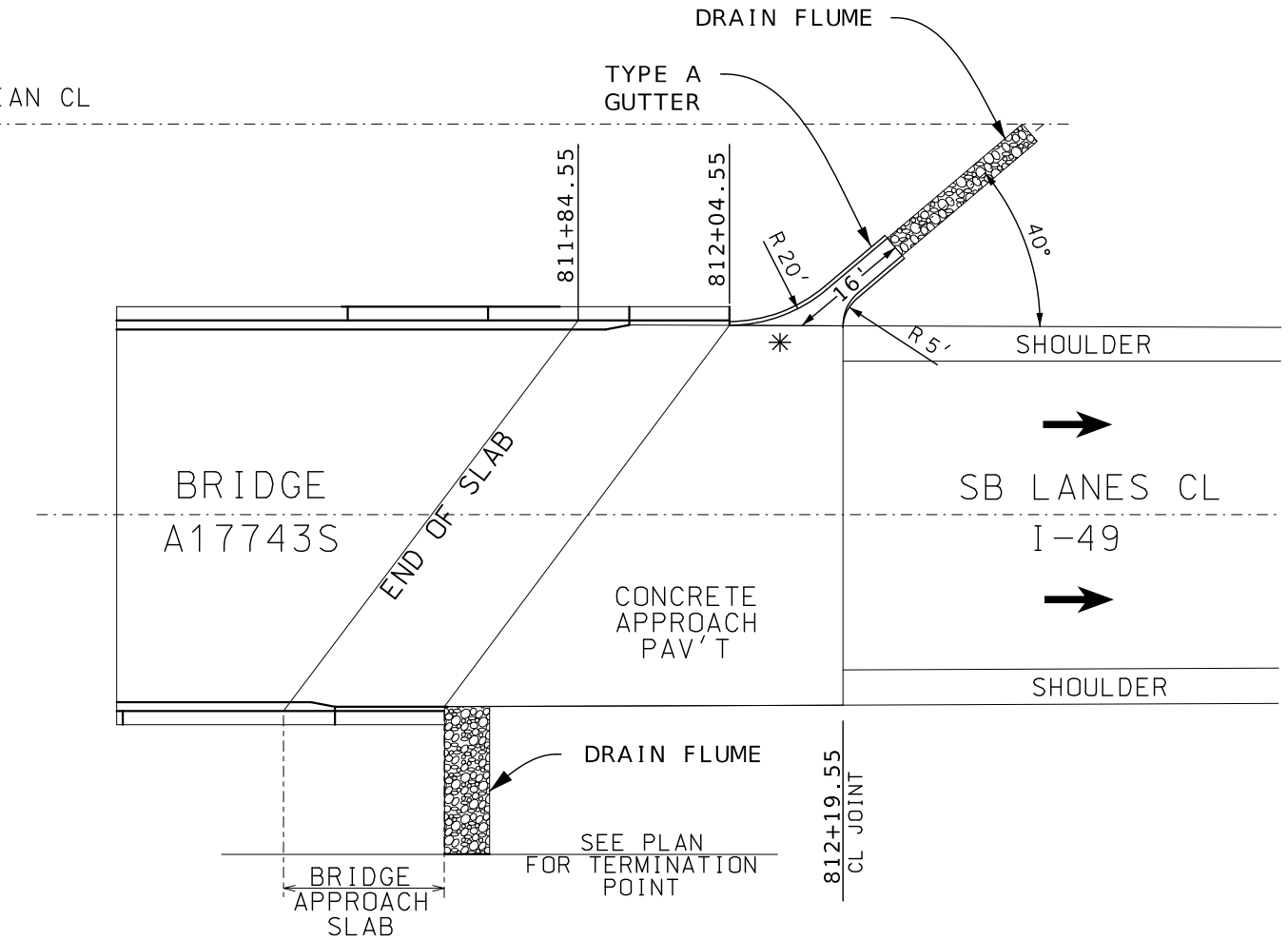
SEE STD 609.40 SHEET 3 OF 3
FOR DRAIN FLUME DETAILS



NON STANDARD DRAIN FLUME LOCATION

✳ NOTE: 4" TYPE A CURB REQUIRED ON CONCRETE APPROACH PAVEMENT ON THE SW CORNER OF BRIDGE A17743S, INCIDENTAL TO CONCRETE APPROACH PAVEMENT.

TYPE A GUTTER REQUIRED AT CONCRETE APPROACH PAVEMENT ON THE NE CORNER OF BRIDGE A17743S.



NOT TO SCALE

DRAIN FLUMES BR A17743S
SPECIAL SHEET
SHEET 4 OF 5

STATE OF MISSOURI
SHANNON M. KELLNER
NUMBER PE-2011015763
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED: 9/3/2025
ROUTE: I49 | STATE: MO
DISTRICT: SW | SHEET NO.: 7
COUNTY: VERNON
JOB NO.: JSR0063
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.:

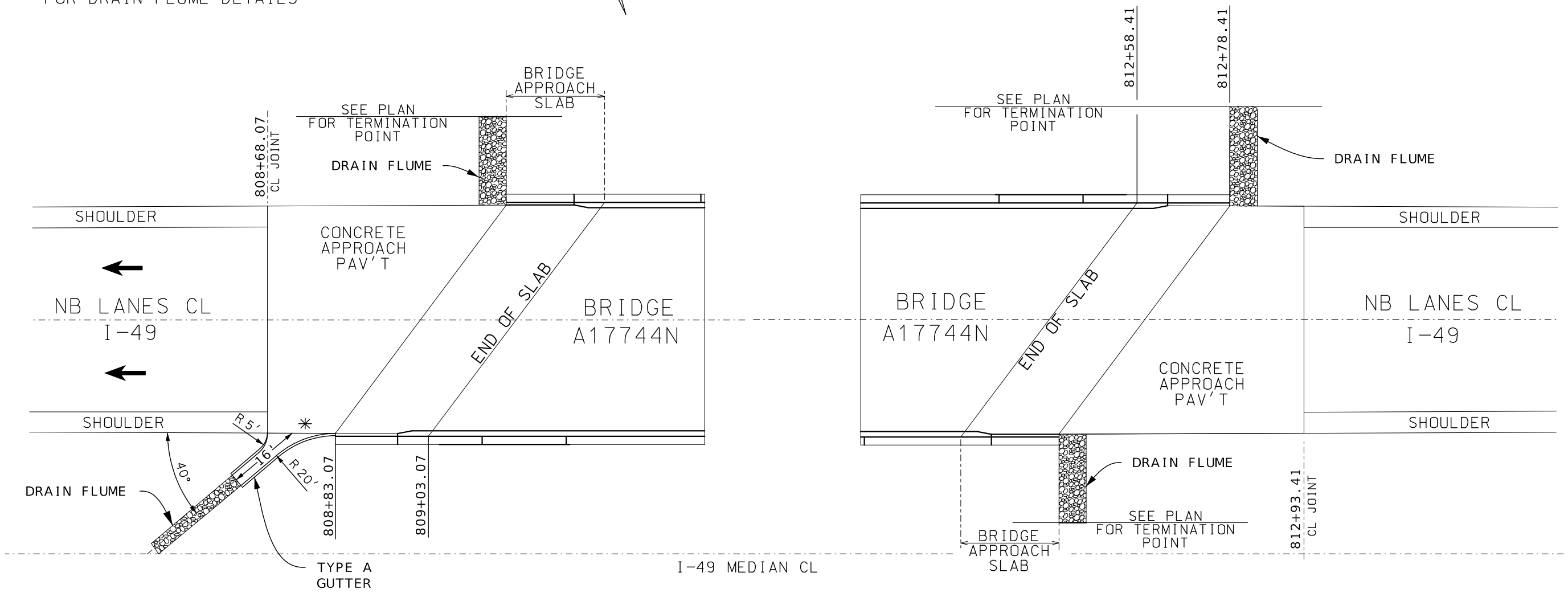
DESCRIPTION | DATE

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

ROUTE I-49 LT (NORTHBOUND)

STA. 808+68.07 TO STA. 808+83.07 CONCRETE APPROACH PAVEMENT
STA. 808+83.07 TO STA. 809+03.07 BRIDGE APPROACH SLAB
STA. 812+58.41 TO STA. 812+78.41 BRIDGE APPROACH SLAB
STA. 812+78.41 TO STA. 812+93.41 CONCRETE APPROACH PAVEMENT

SEE STD 609.40 SHEET 3 OF 3
FOR DRAIN FLUME DETAILS



NON STANDARD DRAIN FLUME LOCATION

✳ NOTE: TYPE A GUTTER REQUIRED ON CONCRETE APPROACH PAVEMENT ON THE SW CORNER OF BRIDGE A17744N.

NOT TO SCALE

DRAIN FLUMES BR A17744N
SPECIAL SHEET
SHEET 5 OF 5

STATE OF MISSOURI
SHANNON M. KELLNER
NUMBER PE-2011015763
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED: 9/3/2025
ROUTE: I49 | STATE: MO
DISTRICT: SW | SHEET NO.: 8
COUNTY: VERNON
JOB NO.: JSR0063
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.:

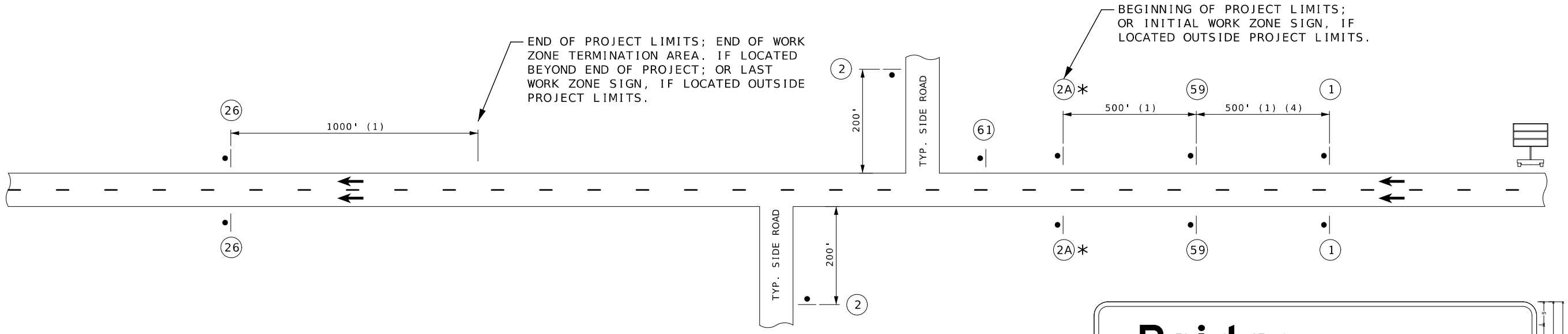
DESCRIPTION | DATE

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

REVISED: 4/10/2024

GENERAL NOTES:

1. ANY EXISTING SIGNS THAT CONFLICT WITH THE TRAFFIC CONTROL SIGNING SHALL BE COMPLETELY COVERED OR REMOVED.
2. TEMPORARY SIGNING SHOWN IS FOR WORK ON ONE SIDE OF THE ROAD. FOR WORK ON THE OTHER SIDE, REVERSE ORDER OF THE SIGNS AND CHANNELIZERS.
3. SIGNING SHOWN SHALL REMAIN IN PLACE UNTIL CONSTRUCTION IS COMPLETE.
4. ALTERNATE TRAFFIC CONTROL MAY BE USED AS NEEDED AT THE APPROVAL OF THE ENGINEER.
5. REFER TO STANDARD DRAWING 616.10, 619.10, AND 620.10 FOR ADDITIONAL DETAILS AND 903.03 FOR SIGN AND SIGN MOUNTING REQUIREMENTS.
6. SPEED LIMIT SIGNS INDICATING THE NORMAL SPEED LIMIT SHALL BE INSTALLED AT THE END OF THE WORK ZONE, PROVIDED NO FURTHER WORK ZONES WILL BE ENCOUNTERED WITHIN THE NEXT 1/2 MILE.
7. TEMPORARY SPEED LIMIT SIGNS SHALL BE COVERED OR REMOVED WHEN THE CONDITIONS REQUIRING REDUCED SPEEDS DO NOT EXIST.
8. NO DIRECT PAYMENT WILL BE MADE FOR THE RELOCATION OF CHANNELIZERS, CONSTRUCTION SIGNS, OR FLASHING ARROW PANEL.
9. ALL SIGNS, EXCEPT "RATE OUR WORK ZONES" SHALL BE PORTABLE MOUNT AND ARE TO BE MOVED AS WORK PROGRESSES, UNLESS OTHERWISE NOTED. ALL TRAFFIC CONTROL ITEMS SHALL BE REMOVED FROM THE ROADWAY DURING NON-WORKING HOURS.
10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR IMPLEMENTING AND MAINTAINING PROPER TRAFFIC CONTROL SETUPS THROUGHOUT CONSTRUCTION AS DESCRIBED IN THESE PLANS OR AS APPROVED BY THE ENGINEER.
11. WHERE MINIMUM LANE WIDTHS CANNOT BE ACHIEVED ON THE SIDE STREETS, THE CONTRACTOR SHALL CLOSE HALF OF THE APPROACH AND POSITION A FLAGGER AT EACH END OF THE WORK AREA. LOCATION TO BE DETERMINED BY THE ENGINEER. ADVANCE FLAGGER SIGNING SHALL BE INSTALLED AS OUTLINED IN THE MUTCD.
12. THE CONTRACTOR SHALL MAINTAIN PUBLIC ACCESS TO ALL BUSINESSES AND STREETS. NO STREET OR ENTRANCE SHALL BE COMPLETELY BLOCKED.
13. SPACING & DISTANCES OF TRAFFIC CONTROL DEVICES ARE APPROXIMATE. THE EXACT LOCATIONS SHALL BE DETERMINED IN THE FIELD & APPROVED BY THE ENGINEER.
14. TRAFFIC CONTROL SHALL CONFORM TO THE LATEST EDITION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD).
15. ADJUST ADVANCE WARNING SIGN SPACING TO AVOID SIGN PLACEMENT WITHIN THE LIMITS OF THE RAILROAD RIGHT OF WAY.
16. ALL TRAFFIC CONTROL DEVICES, CONSTRUCTION SIGNS, AND TEMPORARY PAVEMENT MARKING PAID UNDER PROJECT JSR0063.



(1) DISTANCE MAY BE ADJUSTED ACCORDING TO FIELD CONDITIONS. WHERE TRAFFIC BACKUPS ARE EXPECTED BEYOND THE ADVANCE WARNING AREA, ADDITIONAL SIGNING MAY BE NEEDED.

(2) CONST-5-96 SIGN IS PLACED IN A VISIBLE AREA WITHIN THE PROJECT LIMITS PROVIDED ITS PLACEMENT DOES NOT DISRUPT A SEQUENCE OF SIGNS. IF A VISIBLE LOCATION WITHIN THE PROJECT IS NOT AVAILABLE, THE SIGN MAY BE PLACED 500 FEET BEFORE SIGN CONST-7-72.

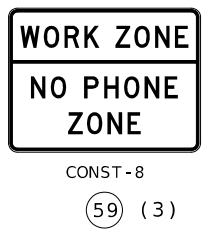
(3) THE "WORK ZONE NO PHONE ZONE" SIGN IS PLACED A MINIMUM OF 500 FEET BEFORE THE ROAD WORK AHEAD SIGN.

(4) CMS PLACEMENT SHALL BE APPROVED BY THE ENGINEER.

TYPICAL BEGINNING AND END OF PROJECT

(DIVIDED HIGHWAY)

(4)

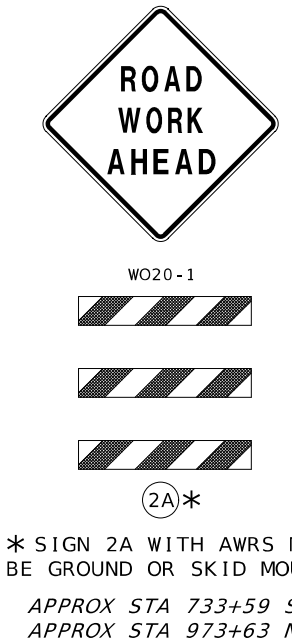


CONST-8

59 (3)

GO20-1

1

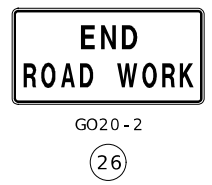


WO20-1

2A*

* SIGN 2A WITH AWRS MUST BE GROUND OR SKID MOUNTED.

APPROX STA 733+59 SBL
APPROX STA 973+63 NBL

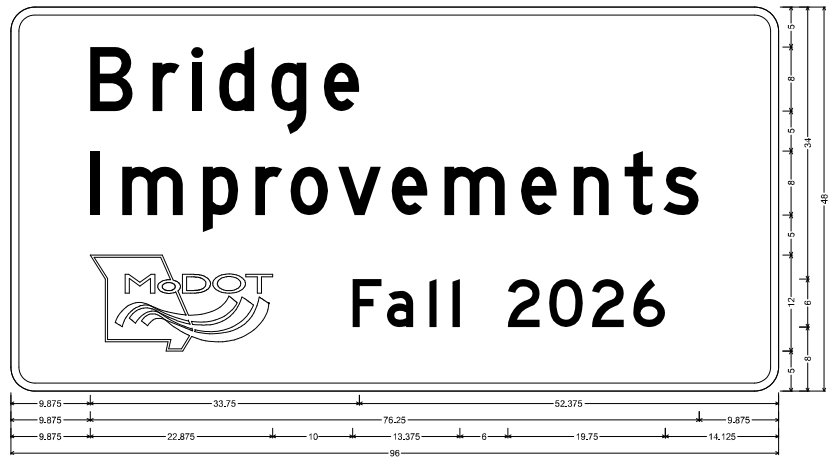


GO20-2

26

WO20-1

2

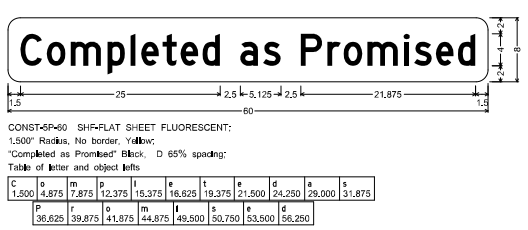


CONST-5 SIGN FLAT SHEET:
3,000" Radius, 1,000" Border, White on, Blue;
"Bridge", D; "Improvements", D; "Fall 2026", D;
Table of letter and object lefts

B 9,875	r 17,750	i 22,750	d 26,000	g 32,625	e 39,125								
f 9,875	m 14,000	p 24,000	r 30,625	o 35,000	v 41,000	e 47,625	m 54,250	e 63,750	n 70,375	t 76,750	s 81,625		
■ 9,875	F 42,750	a 47,000	l 52,375	l 55,250	2 62,125	0 87,375	2 72,625	6 77,875					

CONST-5-96

61 (2)



CONST-SP-60 SIGN FLAT SHEET FLUORESCENT:
1,500" Radius, No border, Yellow;
"Completed as Promised" Black, D 65% spacing;
Table of letter and object lefts

C 1,500	o 4,875	m 7,875	p 12,375	l 15,375	e 16,625	t 19,375	e 21,500	d 24,250	p 29,000	s 31,875			
P 36,625	r 39,875	o 41,875	m 44,875	f 49,500	s 50,750	e 53,500	d 56,250						

NOT TO SCALE

TRAFFIC CONTROL SHEET 1 OF 21

STATE OF MISSOURI
SHANNON M. KELLNER
NUMBER PE-2011015763
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED
11/26/2024

ROUTE	STATE
I49	MO
DISTRICT	SHEET NO.
SW	9

COUNTY
VERNON

JOB NO.
JSR0063

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)

REVISED: 1/9/2024

SHOULDER WORK WITH MINOR TRAVELWAY ENCROACHMENT OR NO ENCROACHMENT (DIVIDED HIGHWAY)

SPEED	SIGN SPACING (FT)	TAPER LENGTH (FT)		OPTIONAL	CHANNELIZER SPACING (FT)	
PERMANENT POSTED (MPH)	DIVIDED HIGHWAYS (S)	SHOULDER(1) (T1)	LANE(2) (T2)	BUFFER LENGTH (FT) (B)	TAPERS	BUFFER/ WORK AREAS
0-35	200	70	245	280	35	40
40-45	500	150	540	400	40	80
50-55	1000	185	660	560	50	80
60-70	SA - 1000 SB - 1500 SC - 2640	235	840	840	60	120

NOTES:

(1) SHOULDER TAPER LENGTH BASED ON 10 FT. (STANDARD SHOULDER WIDTH) OFFSET.
(2) LANE TAPER LENGTH BASED ON 12 FT. (STANDARD LANE WIDTH) OFFSET.
(3) NEXT XX MILES SIGN NOT REQUIRED FOR NARROW LANE SECTIONS LESS THAN ONE MILE.

WO20-1

(2)

WO21-5

(21)

WO5-1

(3)

WO7-3a

(43) *

*OMIT SIGN 43 FOR NO TRAVELWAY ENCROACHMENT.

GO20-5aP

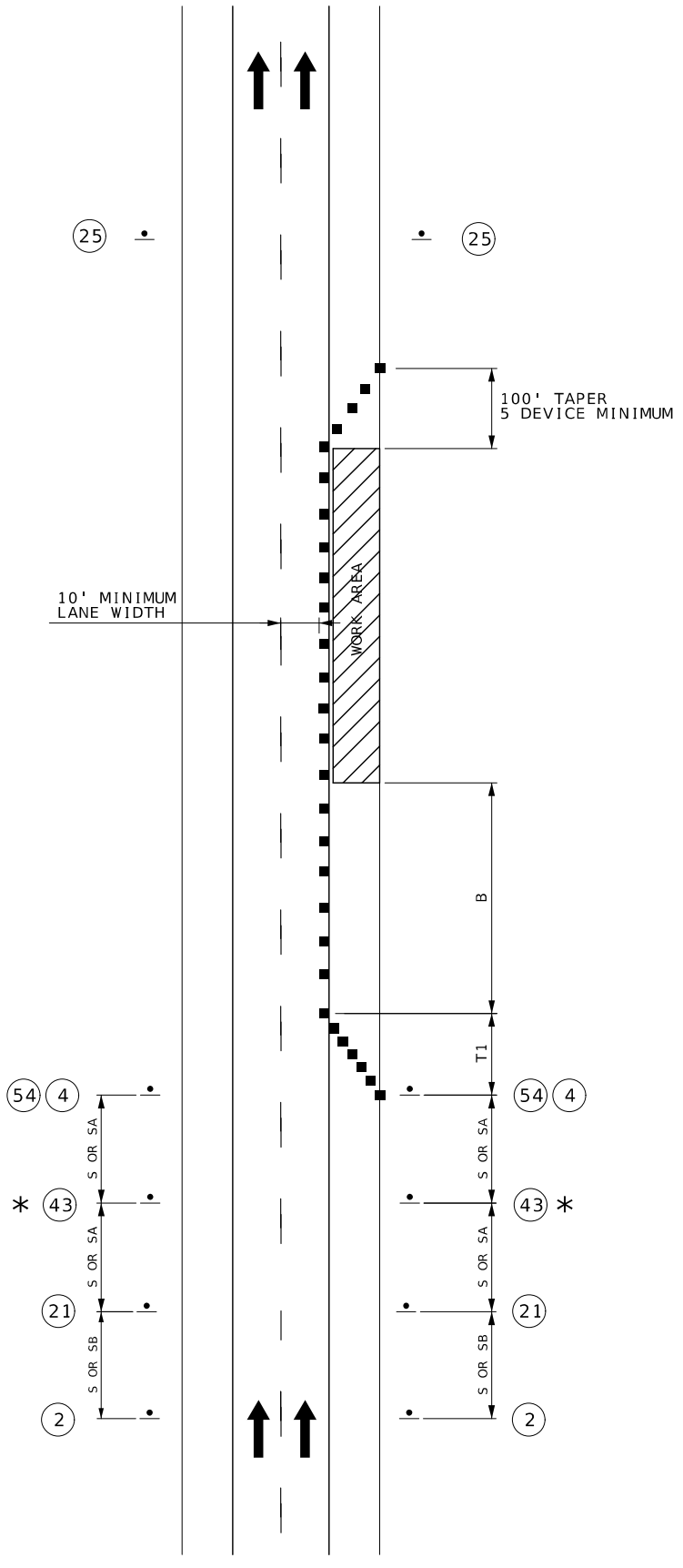
R2-1

(54)
(4)

R2-1

(25)

(NORMAL SPEED)



NOT TO SCALE

TRAFFIC CONTROL
SHEET 2 OF 21

STATE OF MISSOURI
SHANNON M. KELLNER
NUMBER PE-2011015763
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED
11/26/2024

ROUTE	STATE
I49	MO

DISTRICT	SHEET NO.
SW	10

COUNTY
VERNON

JOB NO.
JSR0063

CONTRACT ID.

PROJECT NO.

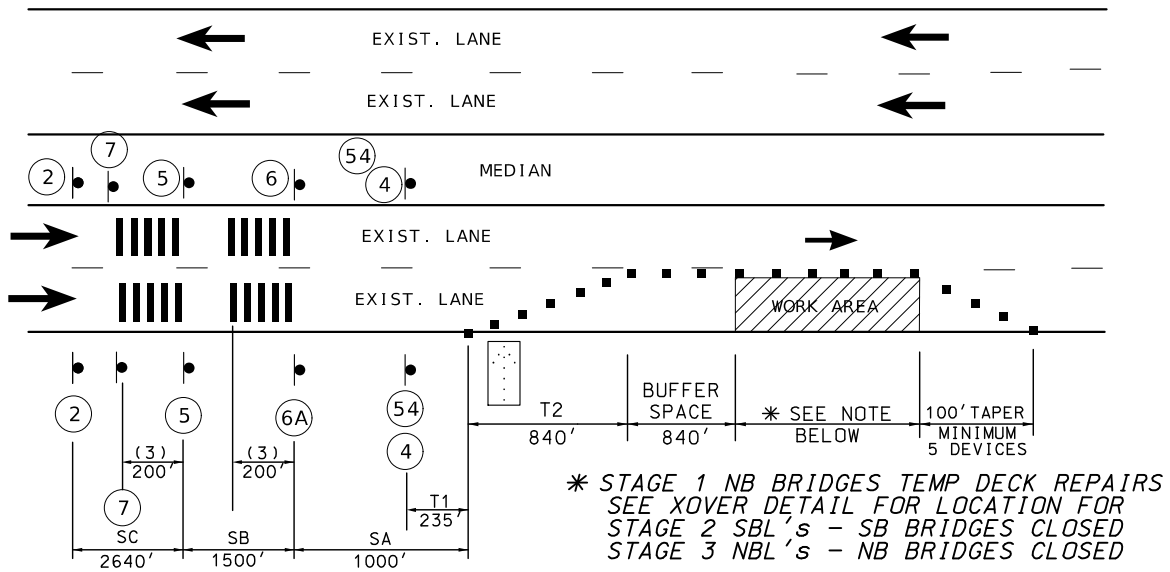
BRIDGE NO.

DESCRIPTION	DATE

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

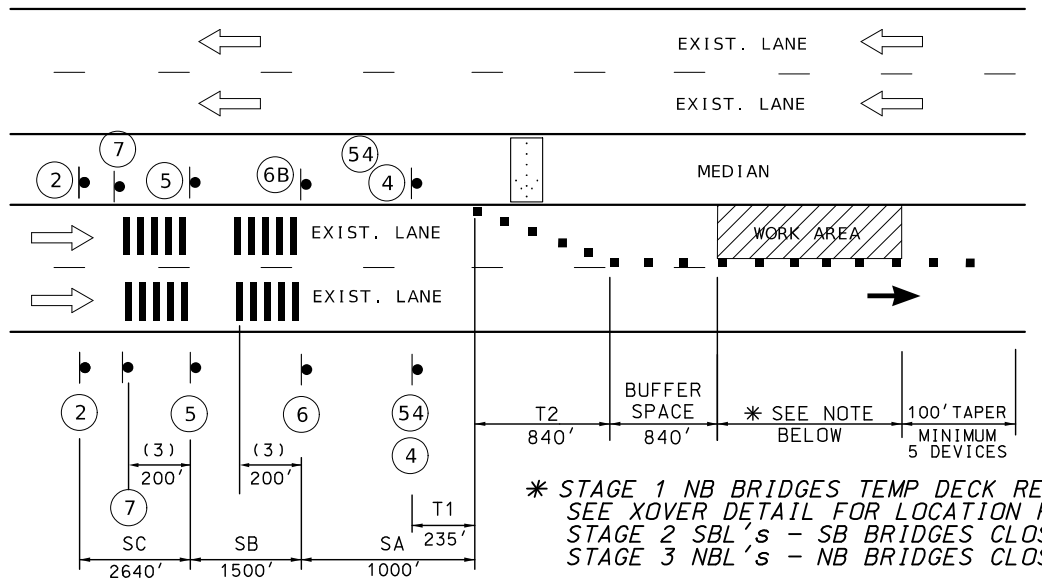
REVISED: 1/9/2024

OUTSIDE LANE CLOSURE



✳ STAGE 1 NB BRIDGES TEMP DECK REPAIRS
SEE XOVER DETAIL FOR LOCATION FOR
STAGE 2 SBL's - SB BRIDGES CLOSED
STAGE 3 NBL's - NB BRIDGES CLOSED

PASSING LANE CLOSURE



✳ STAGE 1 NB BRIDGES TEMP DECK REPAIRS
SEE XOVER DETAIL FOR LOCATION FOR
STAGE 2 SBL's - SB BRIDGES CLOSED
STAGE 3 NBL's - NB BRIDGES CLOSED

SPEED	SIGN SPACING (FT)	TAPER LENGTH (FT)		OPTIONAL	CHANNELIZER SPACING (FT)	
PERMANENT POSTED (MPH)	DIVIDED HIGHWAYS (S)	SHOULDER(1) (T1)	LANE(2) (T2)	BUFFER LENGTH (FT) (B)	TAPERS	BUFFER/ WORK AREAS
0-35	200	70	245	280	35	40
40-45	500	150	540	400	40	80
50-55	1000	185	660	560	50	80
60-70	SA-1000 SB-1500 SC-2640	235	840	840	60	120

NOTES:

(1) SHOULDER TAPER LENGTH BASED ON 10 FT. (STANDARD SHOULDER WIDTH) OFFSET.
(2) LANE TAPER LENGTH BASED ON 12 FT. (STANDARD LANE WIDTH) OFFSET.

SEE BEGIN/END OF PROJECT SIGNING SHEET FOR ADDITIONAL SIGNS.

IN TAPER SECTIONS, QUANTITY OF CHANNELIZERS IS DOUBLED WHEN COMPARED TO MAXIMUM CHANNELIZER SPACING IN CHART.

TEMPORARY PAVEMENT MARKING REQUIRED WITH LONG TERM CLOSURE, NO DIRECT PAY.

NO DIRECT PAYMENT WILL BE MADE FOR RELOCATION OF CHANNELIZERS, SIGNS, AND FLASHING ARROW PANEL.

FOR SHORT TERM OPERATIONS WHERE IT IS NOT FEASIBLE TO MODIFY PAVEMENT MARKING, DEVICE SPACING IS ONE-HALF SPACING SHOWN IN TABLE.

SPEED LIMIT SIGNS INDICATING NORMAL SPEED LIMIT SHALL BE INSTALLED AT END OF THE WORK ZONE, PROVIDED NO FURTHER WORK ZONES WILL BE ENCOUNTERED WITHIN THE NEXT 1/2 MILE.

ALL SIGNS, EXCEPT "RATE OUR WORK ZONE", "NO PHONE ZONE", AND "POINT OF PRESENCE", SHALL BE PORTABLE MOUNT AND ARE TO BE MOVED AS WORK PROGRESSES, UNLESS OTHERWISE NOTED. ALL TRAFFIC CONTROL ITEMS SHALL BE REMOVED FROM THE ROADWAY DURING NON-WORKING HOURS. SEE JOB SPECIAL PROVISIONS.

WORK WILL REQUIRE LANE CLOSURES UNLESS OTHERWISE APPROVED BY THE ENGINEER.

LAYOUT IS TYPICAL FOR EITHER DIRECTION.

SEE STANDARD DRAWING 616.10 FOR ADDITIONAL DETAILS.

WO20-1
2

WO20-5
5

WO20-6a
6

WO4-1aL
6A

WO4-1aR
6B

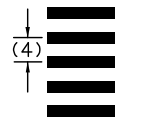
GO20-5aP

R2-1
54
4

R2-1
25
(NORMAL SPEED)

SPECIAL
7

TEMPORARY
LONG TERM
RUMBLE STRIPS



LONG-TERM RUMBLE STRIPS		
PERMANENT POSTED (MPH)	DISTANCE (FT) (3)	SPACING (FT) (4)
0-45 (OPTIONAL)	120	10-12
50-55	160	10-12
60-70	200	10-12

TEMPORARY RUMBLE STRIPS SHALL BE ORANGE IN COLOR.

(3) SEE LOCATION IN ABOVE DETAIL DRAWING.

(4) LONG TERM RUMBLE STRIPS SHALL CONSIST OF 5 STRIPS SEPARATED AT 10-12FT CENTERS OR MANUFACTURER'S RECOMMENDATION, WHICHEVER IS LONGER.

NOT TO SCALE

TRAFFIC CONTROL
SHEET 3 OF 21

STATE OF MISSOURI
SHANNON M. KELLNER
NUMBER PE-2011015763
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED
11/26/2024

ROUTE	STATE
I49	MO
DISTRICT	SHEET NO.
SW	11

COUNTY
VERNON

JOB NO.
JSR0063

CONTRACT ID.

PROJECT NO.

BRIDGE NO.

DATE	DESCRIPTION

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

REVISED: 8/3/2023

INTERIOR LANE CLOSURE ON A FREEWAY

SPEED	SIGN SPACING (FT)	TAPER LENGTH (FT)		OPTIONAL	LONGI-TUDINAL TRANSITION (X)	CHANNELIZER SPACING (FT)	
NORMAL POSTED (MPH)	DIVIDED (S)	SHOULDER(1) (T1)	LANE(2) (T2)	BUFFER LENGTH (FT) (B)		TAPERS	BUFFER/ WORK AREAS
0-35	200	70	245	280	490	35	40
40-45	500	150	540	400	1080	40	80
50-55	1000	185	660	560	1320	50	80
60-70	SA - 1000 SB - 1500 SC - 2640	235	840	840	1680	60	120

NOTES:

(1) SHOULDER TAPER LENGTH BASED ON 10 FT. (STANDARD SHOULDER WIDTH) OFFSET.
(2) LANE TAPER LENGTH BASED ON 12 FT. (STANDARD LANE WIDTH) OFFSET.

REMOVE AND/OR MODIFY ANY EXISTING PAVEMENT MARKING AS NEEDED.

TEMPORARY PAVEMENT MARKING REQUIRED WITH LONG TERM LANE CLOSURES.

WO20-1

(2)

WO20-5

(5)

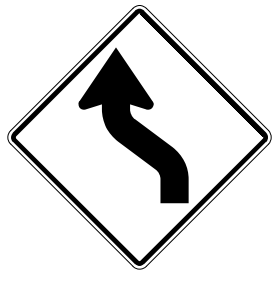
CENTER LANE

WO20-6a

(6)

WO4-1aR

(6B)



WO1-4L

(15)

GO20-5aP

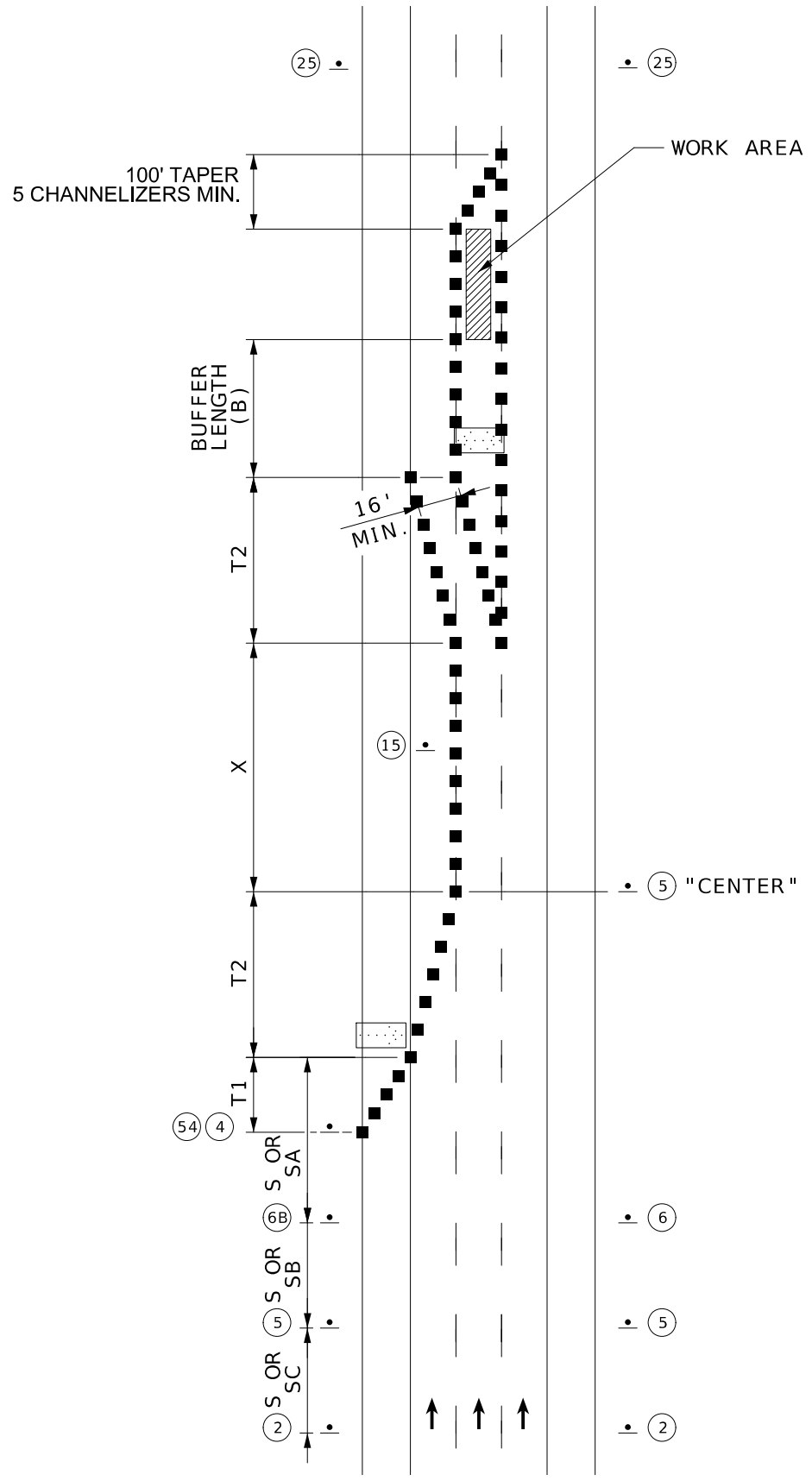
R2-1

(54)
(4)

R2-1

(25)

(NORMAL SPEED)



NOT TO SCALE

TRAFFIC CONTROL
SHEET 4 OF 21

STATE OF MISSOURI
SHANNON M. KELLNER
NUMBER PE-2011015763
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED
11/26/2024

ROUTE	STATE
I49	MO
DISTRICT	SHEET NO.
SW	12

COUNTY
VERNON

JOB NO.
JSR0063

CONTRACT ID.

PROJECT NO.

BRIDGE NO.

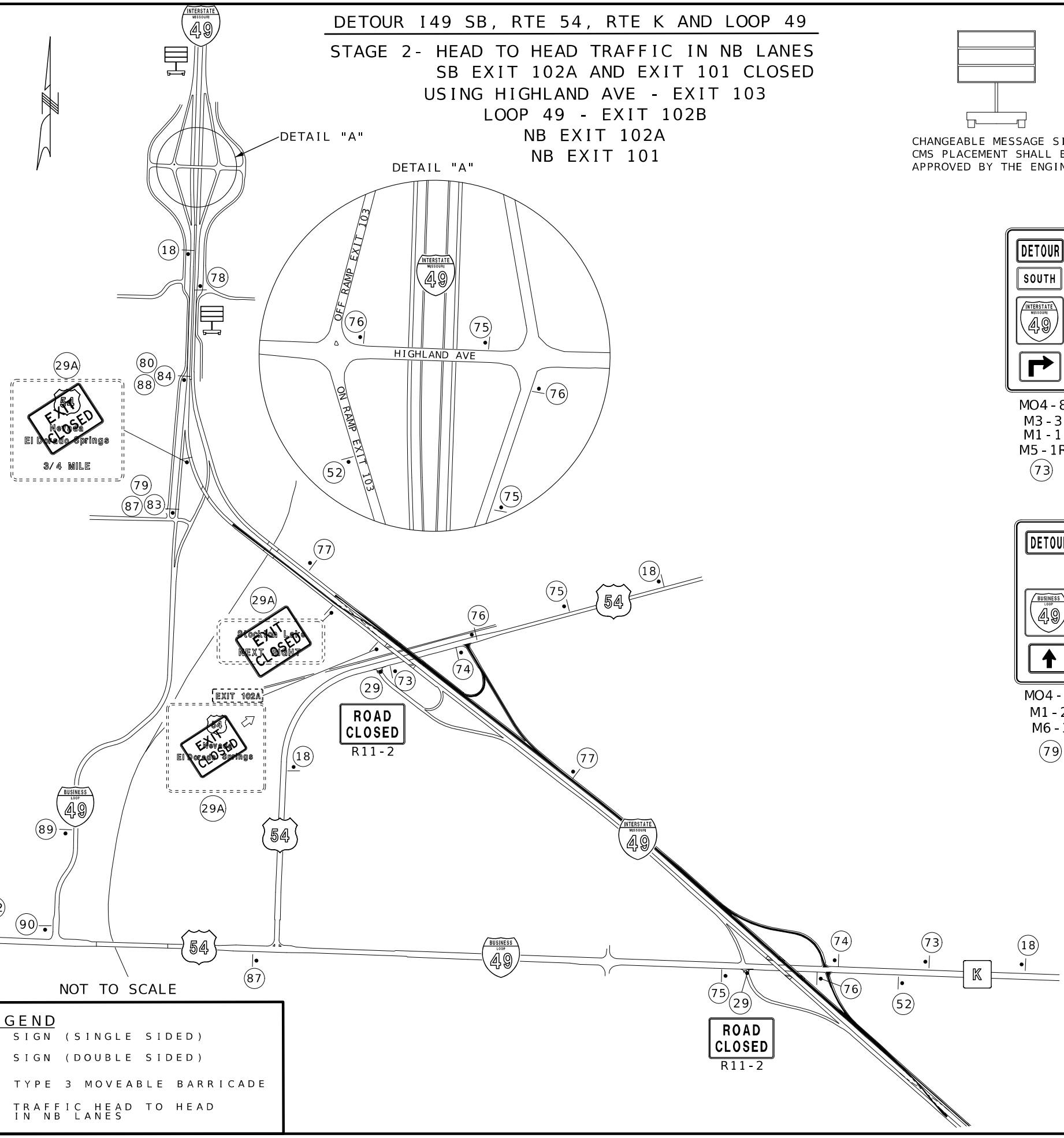
DESCRIPTION	DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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

DETOUR I49 SB, RTE 54, RTE K AND LOOP 49

STAGE 2- HEAD TO HEAD TRAFFIC IN NB LANES
SB EXIT 102A AND EXIT 101 CLOSED
USING HIGHLAND AVE - EXIT 103
LOOP 49 - EXIT 102B
NB EXIT 102A
NB EXIT 101



LEGEND

- SIGN (SINGLE SIDED)
- SIGN (DOUBLE SIDED)
- TYPE 3 MOVEABLE BARRICADE
- TRAFFIC HEAD TO HEAD IN NB LANES

CHANGEABLE MESSAGE SIGN CMS PLACEMENT SHALL BE APPROVED BY THE ENGINEER.

E05-2a (29A)

R11-2 (29)

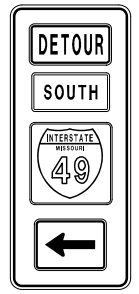
WO20-2 (18)

MO4-8a (52)

MO4-8 M3-3 M1-1 M5-1R (73)

MO4-8 M3-3 M1-1 M6-1 (74)

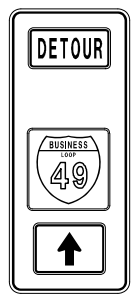
MO4-8 M3-3 M1-1 M5-1L (75)



MO4-8 M3-3 M1-1 M6-1 (76)

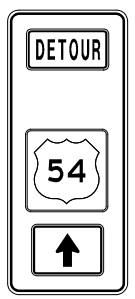
MO4-8 M3-3 M1-1 M6-3 (77)

MO4-8 M3-3 M1-1 M6-2 (78)

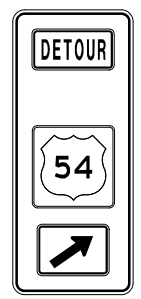


MO4-8 M1-2 M6-3 (79)

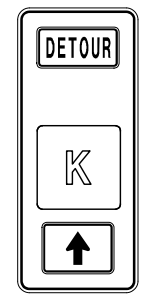
MO4-8 M1-2 M6-2 (80)



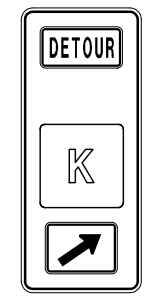
MO4-8 M1-4 M6-3 (83)



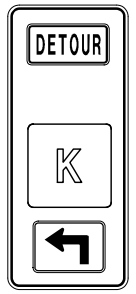
MO4-8 M1-4 M6-2 (84)



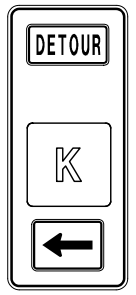
MO4-8 M1-5a M6-3 (87)



MO4-8 M1-5a M6-2 (88)



MO4-8 M1-5a M5-1L (89)



MO4-8 M1-5a M6-1 (90)

TRAFFIC CONTROL
SHEET 5 OF 21

STATE OF MISSOURI
SHANNON M. KELLNER
NUMBER PE-2011015763
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED: 11/26/2024

ROUTE	STATE
I49	MO
DISTRICT	SHEET NO.
SW	13

COUNTY: VERNON

JOB NO.: JSR0063

CONTRACT ID.:

PROJECT NO.:

BRIDGE NO.:

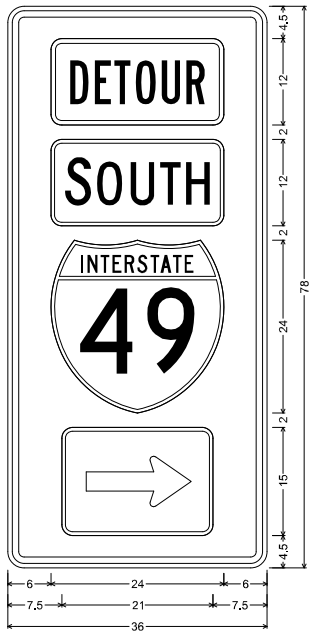
DESCRIPTION	DATE

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

MO4-11-36 SHF-FLAT SHEET FLUORESCENT;
2.250" Radius, 0.875" Border, 0.625" Indent, Black on, Orange;
Interstate 49 12.000" C;
Table of letter and object lefts

6.000	
6.000	
6.000	
7.500	

73



MO4-11-36 SHF-FLAT SHEET FLUORESCENT;
2.250" Radius, 0.875" Border, 0.625" Indent, Black on, Orange;
Interstate 49 12.000" C;
Table of letter and object lefts

6.000	
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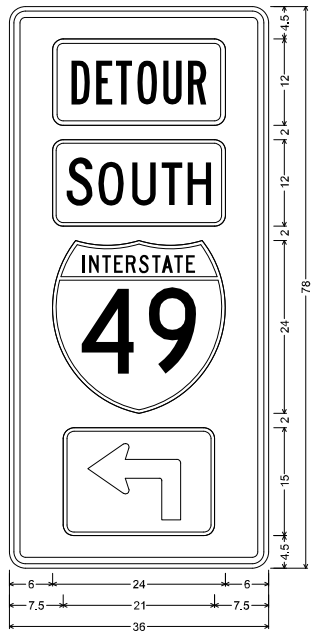
6.000	
7.500	

74



MO4-11-36 SHF-FLAT SHEET FLUORESCENT;
2.250" Radius, 0.875" Border, 0.625" Indent, Black on, Orange;
Interstate 49 12.000" C;
Table of letter and object lefts

6.000	
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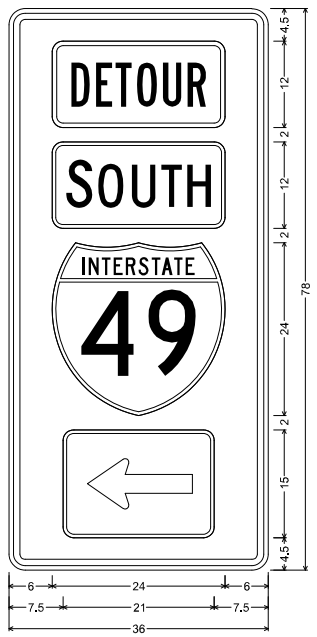
7.500	

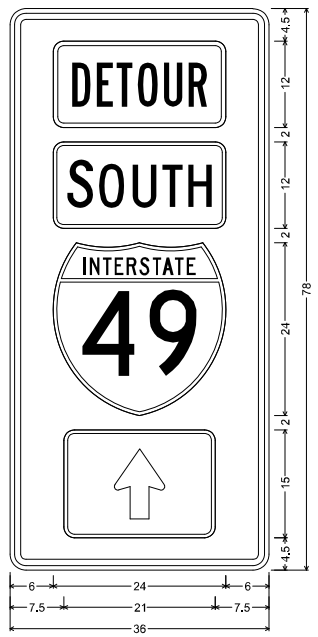
75



MO4-11-36 SHF-FLAT SHEET FLUORESCENT;
2.250" Radius, 0.875" Border, 0.625" Indent, Black on, Orange;
Interstate 49 12.000" C;
Table of letter and object lefts

6.000	
6.000	
6.000	
7.500	

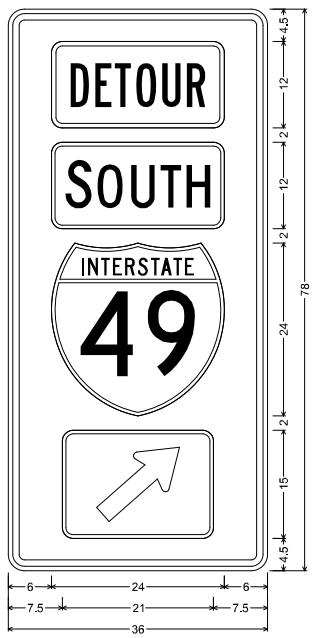
76



MO4-11-36 SHF-FLAT SHEET FLUORESCENT;
2.250" Radius, 0.875" Border, 0.625" Indent, Black on, Orange;
Interstate 49 12.000" C;
Table of letter and object lefts

6.000	
6.000	
6.000	
7.500	

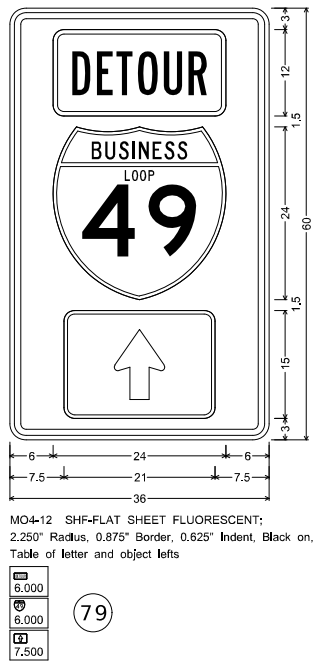
77



MO4-11-36 SHF-FLAT SHEET FLUORESCENT;
2.250" Radius, 0.875" Border, 0.625" Indent, Black on, Orange;
Interstate 49 12.000" C;
Table of letter and object lefts

6.000	
6.000	
6.000	
7.500	

78



MO4-12 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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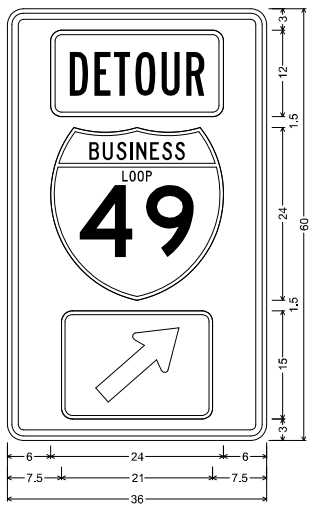
6.000	
7.500	

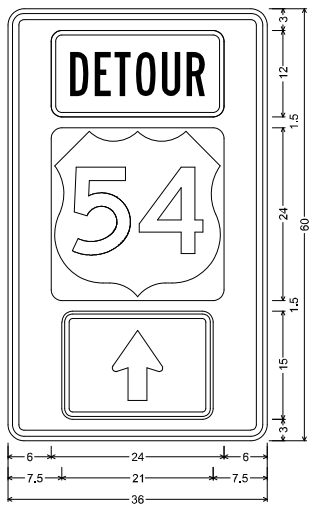
79



MO4-12 SHF-FLAT SHEET FLUORESCENT;
2.250" Radius, 0.875" Border, 0.625" Indent, Black on, Orange;
Table of letter and object lefts

6.000	
6.000	
7.500	

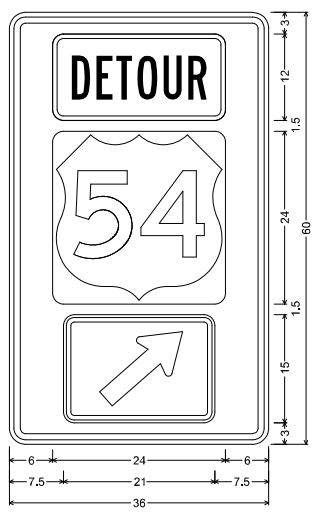
80



MO4-12 SHF-FLAT SHEET FLUORESCENT;
2.250" Radius, 0.875" Border, 0.625" Indent, Black on, Orange;
Table of letter and object lefts

6.000	
6.000	
7.500	

83



MO4-12 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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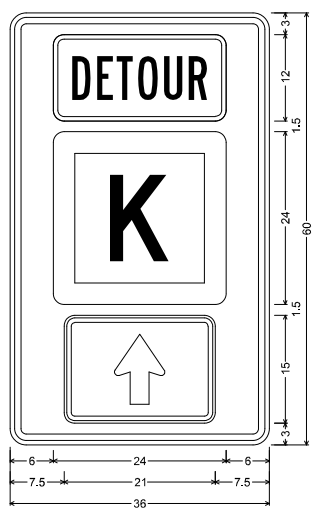
7.500	

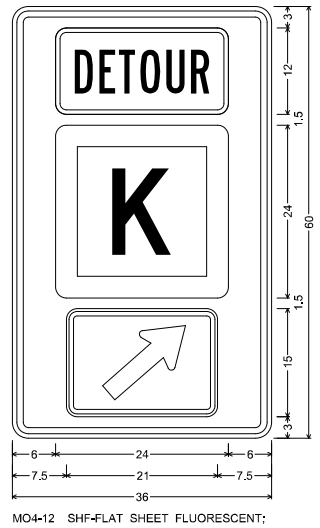
84



MO4-12 SHF-FLAT SHEET FLUORESCENT;
2.250" Radius, 0.875" Border, 0.625" Indent, Black on, Orange;
Table of letter and object lefts

6.000	
6.000	
7.500	

87



MO4-12 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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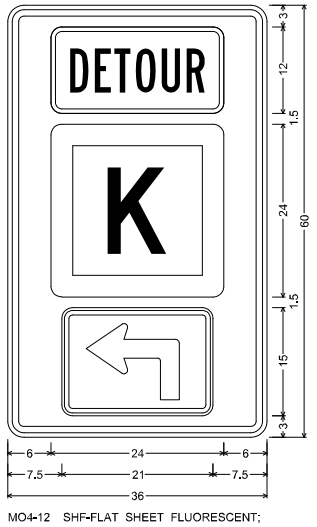
6.000	
7.500	

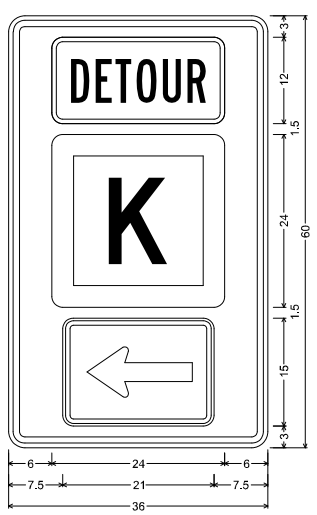
88



MO4-12 SHF-FLAT SHEET FLUORESCENT;
2.250" Radius, 0.875" Border, 0.625" Indent, Black on, Orange;
Table of letter and object lefts

6.000	
6.000	
7.500	

89



MO4-12 SHF-FLAT SHEET FLUORESCENT;
2.250" Radius, 0.875" Border, 0.625" Indent, Black on, Orange;
Table of letter and object lefts

6.000	
6.000	
7.500	

90

STATE OF MISSOURI
SHANNON M. KELLNER
NUMBER PE-2011015763
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED
11/26/2024

ROUTE	STATE
I49	MO
DISTRICT	SHEET NO.
SW	14

COUNTY
VERNON

JOB NO.
JSR0063

CONTRACT ID.

PROJECT NO.

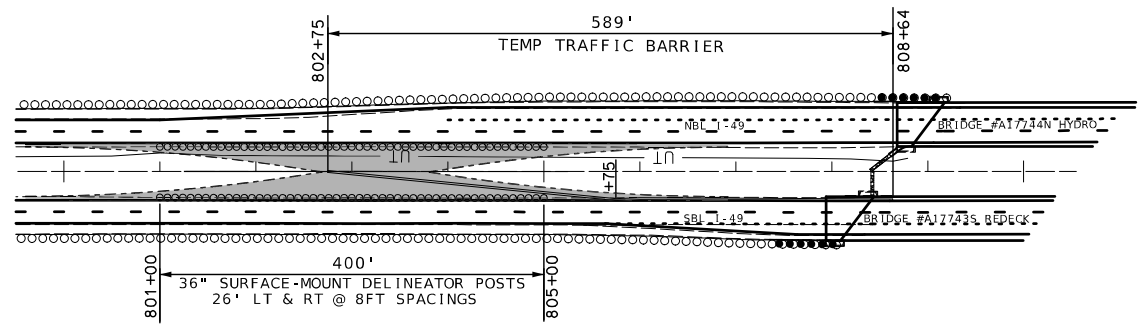
BRIDGE NO.

DESCRIPTION

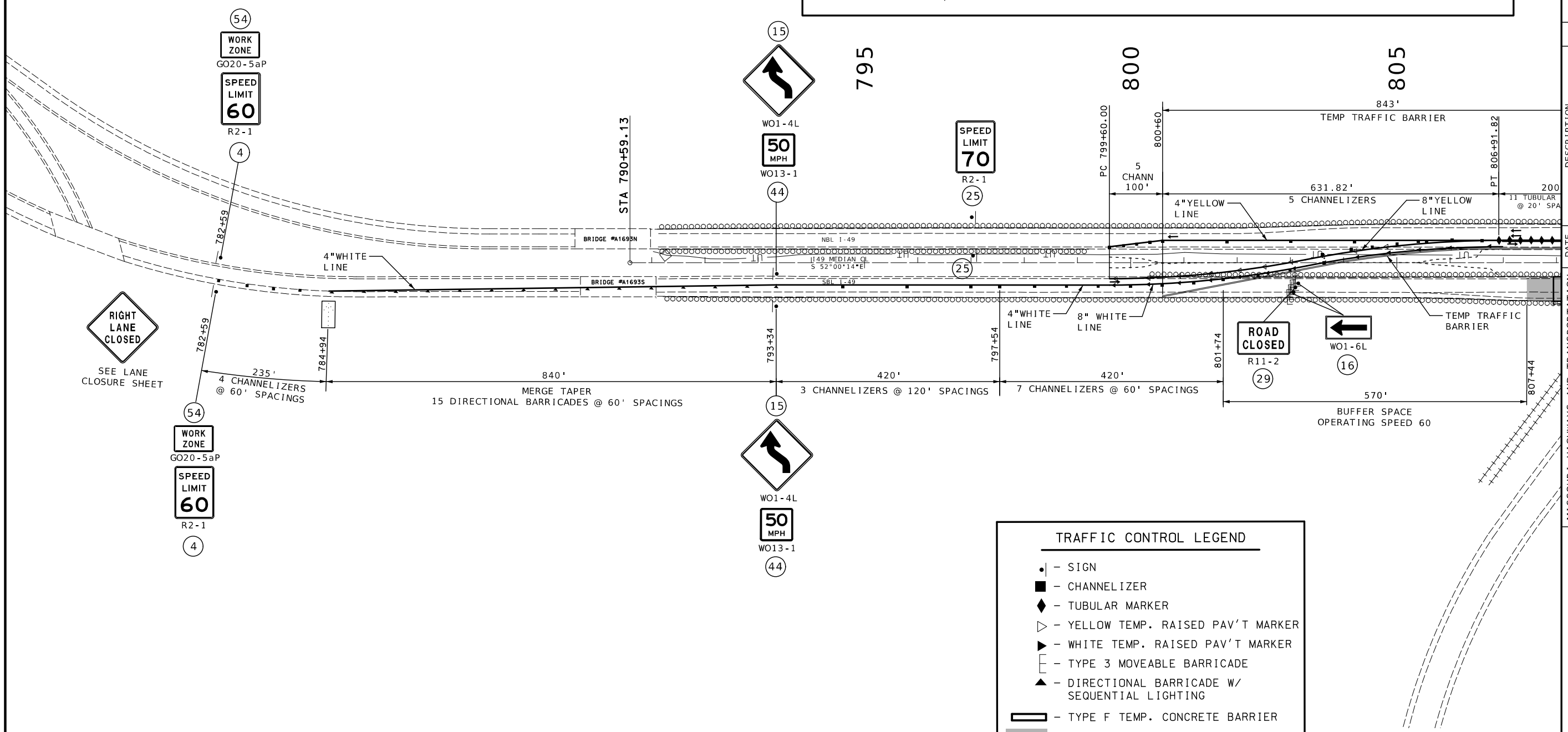
DATE

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

WINTER SEASON BETWEEN STAGE 2 & 3
NORMAL TRAFFIC PATTERN NB & SB LANES



STAGE 2 - HEAD TO HEAD TRAFFIC TO NORTHBOUND LANES
SOUTHBOUND BRIDGE CLOSURES



TRAFFIC CONTROL LEGEND

- – SIGN
- – CHANNELIZER
- – TUBULAR MARKER
- – YELLOW TEMP. RAISED PAV'T MARKER
- – WHITE TEMP. RAISED PAV'T MARKER
- – TYPE 3 MOVEABLE BARRICADE
- – DIRECTIONAL BARRICADE W/ SEQUENTIAL LIGHTING
- – TYPE F TEMP. CONCRETE BARRIER
- – WORK AREA
- – ARROW PANEL

SCALE
0 100 200 300 400 500

TRAFFIC CONTROL
SHEET 7 OF 21

STATE OF MISSOURI
SHANNON M. KELLNER
NUMBER PE-2011015763
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED 11/27/2024

ROUTE	STATE
I49	MO
DISTRICT	SHEET NO.
SW	15

COUNTY VERNON
JOB NO. JSR0063
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

STAGE 2 - HEAD TO HEAD TRAFFIC TO NORTHBOUND LANES
SOUTHBOUND BRIDGE CLOSURES

795 800 805 810 815 820

WO1-4L (15) — 50 MPH WO13-1 (44) — SPEED LIMIT 70 R2-1 (25)

PC 799+60.00 — 800+60 — PT 806+91.82 — 808+91.82 — 809+03

843' TEMP TRAFFIC BARRIER

5 CHANN 100' — 631.82' 5 CHANNELIZERS — 200' 11 TUBULAR MARKERS @ 20' SPACINGS — 191 TUBULAR MARKERS @ 40' SPACINGS TO STA 885+00 — 400'

4"YELLOW LINE — 8"YELLOW LINE — 4"DOUBLE YELLOW LINE

MISSOURI NORTHERN ARKANSAS RAILROAD — ROUTE 54

BRIDGE #A1774N HYDRO — BRIDGE #A1774S REDECK

NBL I-49 — I49|MEDIAN CL S 52°00'14"E — SBL I-49

4"WHITE LINE — 8" WHITE LINE — TEMP TRAFFIC BARRIER

793+34 — 797+54 — 801+74 — 807+44

420' 3 CHANNELIZERS @ 120' SPACINGS — 420' 7 CHANNELIZERS @ 60' SPACINGS — 570' BUFFER SPACE OPERATING SPEED 60

ROAD CLOSED R11-2 (29) — WO1-6L (16)

WO6-3 (31) — NEXT 2 MILES WO7-3a (44A) — WORK ZONE GO20-5aP (54) — DO NOT PASS R4-1 (46)

ROAD WORK AHEAD BRIDGE OR RAMP WO20-1 (2)

RAMP 1 — RAMP 2 — RAMP 3 — RAMP 4

PROJECT JSR0063
BRIDGES #A1774

SPEED LIMIT 60 R2-1 (4)

SCALE
0 100 200 300 400 500

TRAFFIC CONTROL LEGEND

- SIGN
- CHANNELIZER
- TUBULAR MARKER
- YELLOW TEMP. RAISED PAV'T MARKER
- WHITE TEMP. RAISED PAV'T MARKER
- TYPE 3 MOVEABLE BARRICADE
- DIRECTIONAL BARRICADE W/ SEQUENTIAL LIGHTING
- TYPE F TEMP. CONCRETE BARRIER
- WORK AREA
- ARROW PANEL

TRAFFIC CONTROL
SHEET 8 OF 21

STATE OF MISSOURI
SHANNON M. KELLNER
NUMBER PE-2011015763
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED 11/26/2024

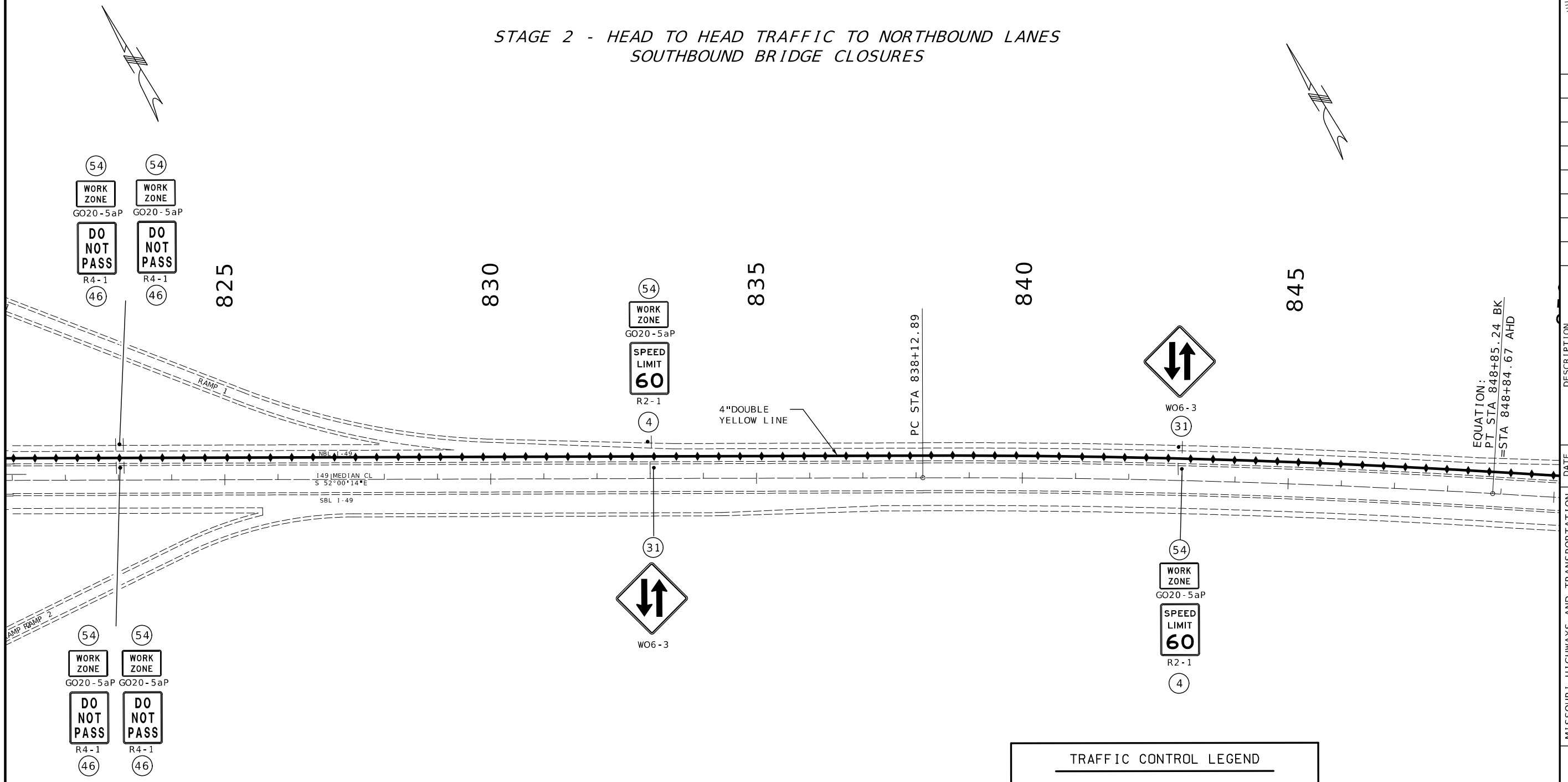
ROUTE	STATE
I49	MO
DISTRICT	SHEET NO.
SW	16

COUNTY VERNON
JOB NO. JSR0063
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)

STAGE 2 - HEAD TO HEAD TRAFFIC TO NORTHBOUND LANES
SOUTHBOUND BRIDGE CLOSURES



TRAFFIC CONTROL LEGEND

- SIGN
- CHANNELIZER
- TUBULAR MARKER
- YELLOW TEMP. RAISED PAV'T MARKER
- WHITE TEMP. RAISED PAV'T MARKER
- TYPE 3 MOVEABLE BARRICADE
- DIRECTIONAL BARRICADE W/ SEQUENTIAL LIGHTING
- TYPE F TEMP. CONCRETE BARRIER
- WORK AREA
- ARROW PANEL

SCALE

0 100 200 300 400 500

TRAFFIC CONTROL
SHEET 9 OF 21

STATE OF MISSOURI
SHANNON M. KELLNER
NUMBER PE-2011015763
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED
11/26/2024

ROUTE	STATE
I49	MO
DISTRICT	SHEET NO.
SW	17

COUNTY
VERNON

JOB NO.
JSR0063

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)

STAGE 2 - HEAD TO HEAD TRAFFIC TO NORTHBOUND LANES
SOUTHBOUND BRIDGE CLOSURES

850 855 860 865 870 875

4"DOUBLE YELLOW LINE

NBL I-49

I49 MEDIAN CL
S 48°25'38"E

SBL I-49

BRIDGE #A1775N HYDRO

BRIDGE #A1775S HYDRO

ROUTE K

RAMP 1

RAMP 2

RAMP 3

RAMP 4

LOOP 49

ROAD WORK AHEAD
BRIDGE OR RAMP
WO20-1
2

54 WORK ZONE GO20-5aP
SPEED LIMIT 60
R2-1
4

54 WORK ZONE GO20-5aP
DO NOT PASS
R4-1
46

31 WO6-3

ROAD CLOSED
R11-2
29

TRAFFIC CONTROL LEGEND

- SIGN
- CHANNELIZER
- TUBULAR MARKER
- YELLOW TEMP. RAISED PAV'T MARKER
- WHITE TEMP. RAISED PAV'T MARKER
- TYPE 3 MOVEABLE BARRICADE
- DIRECTIONAL BARRICADE W/ SEQUENTIAL LIGHTING
- TYPE F TEMP. CONCRETE BARRIER
- WORK AREA
- ARROW PANEL

SCALE
0 100 200 300 400 500

TRAFFIC CONTROL
SHEET 10 OF 21

STATE OF MISSOURI
SHANNON M. KELLNER
NUMBER PE-2011015763
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED 11/26/2024

ROUTE	STATE
I49	MO
DISTRICT	SHEET NO.
SW	18

COUNTY: VERNON
JOB NO.: JSR0063
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)

STAGE 2 - HEAD TO HEAD TRAFFIC TO NORTHBOUND LANES
SOUTHBOUND BRIDGE CLOSURES

880 885 890 895 900 905

15 WO1-4L
50 MPH WO13-1 (44)
54 WORK ZONE GO20-5aP
SPEED LIMIT 60 R2-1 (4)
31 WO6-3
DO NOT ENTER R5-1 (60)
NEXT 2 MILES WO7-3a (44A)

885+00 887+00 889+60
200' 11 TUBULAR MARKERS @ 20' SPACINGS
260' 4 CHANNELIZERS @ 60' SPACINGS
20 CHANNELIZERS @ 120' SPACINGS TO STA 913+83

4"DOUBLE YELLOW LINE
8"YELLOW LINE
4"YELLOW LINE
8" WHITE LINE
894+37.26
893+73
PC STA 896+95.52

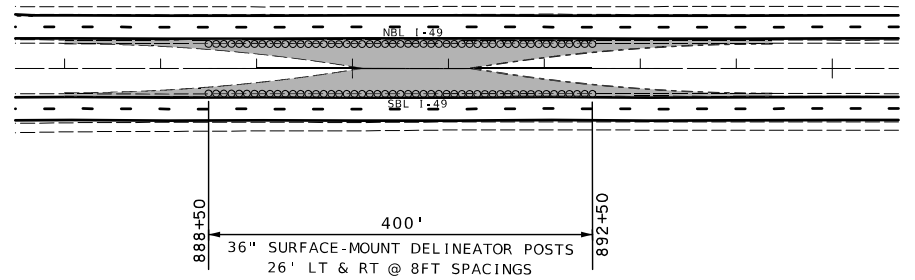
NBL I-49
SBL I-49
I49 MEDIAN CL
S 48°25'38"E

WO1-6R (16) WO1-6R (16)
SPEED LIMIT 70 R2-1 (25)

15 WO1-4L
50 MPH WO13-1 (44)
60 DO NOT ENTER R5-1
31 WO6-3
NEXT 2 MILES WO7-3a (44A)

SCALE
0 100 200 300 400 500

WINTER SEASON BETWEEN STAGE 2 & 3
NORMAL TRAFFIC PATTERN NB & SB LANES



TRAFFIC CONTROL LEGEND

- SIGN
- CHANNELIZER
- TUBULAR MARKER
- YELLOW TEMP. RAISED PAV'T MARKER
- WHITE TEMP. RAISED PAV'T MARKER
- TYPE 3 MOVEABLE BARRICADE
- DIRECTIONAL BARRICADE W/ SEQUENTIAL LIGHTING
- TYPE F TEMP. CONCRETE BARRIER
- WORK AREA
- ARROW PANEL

TRAFFIC CONTROL
SHEET 11 OF 21

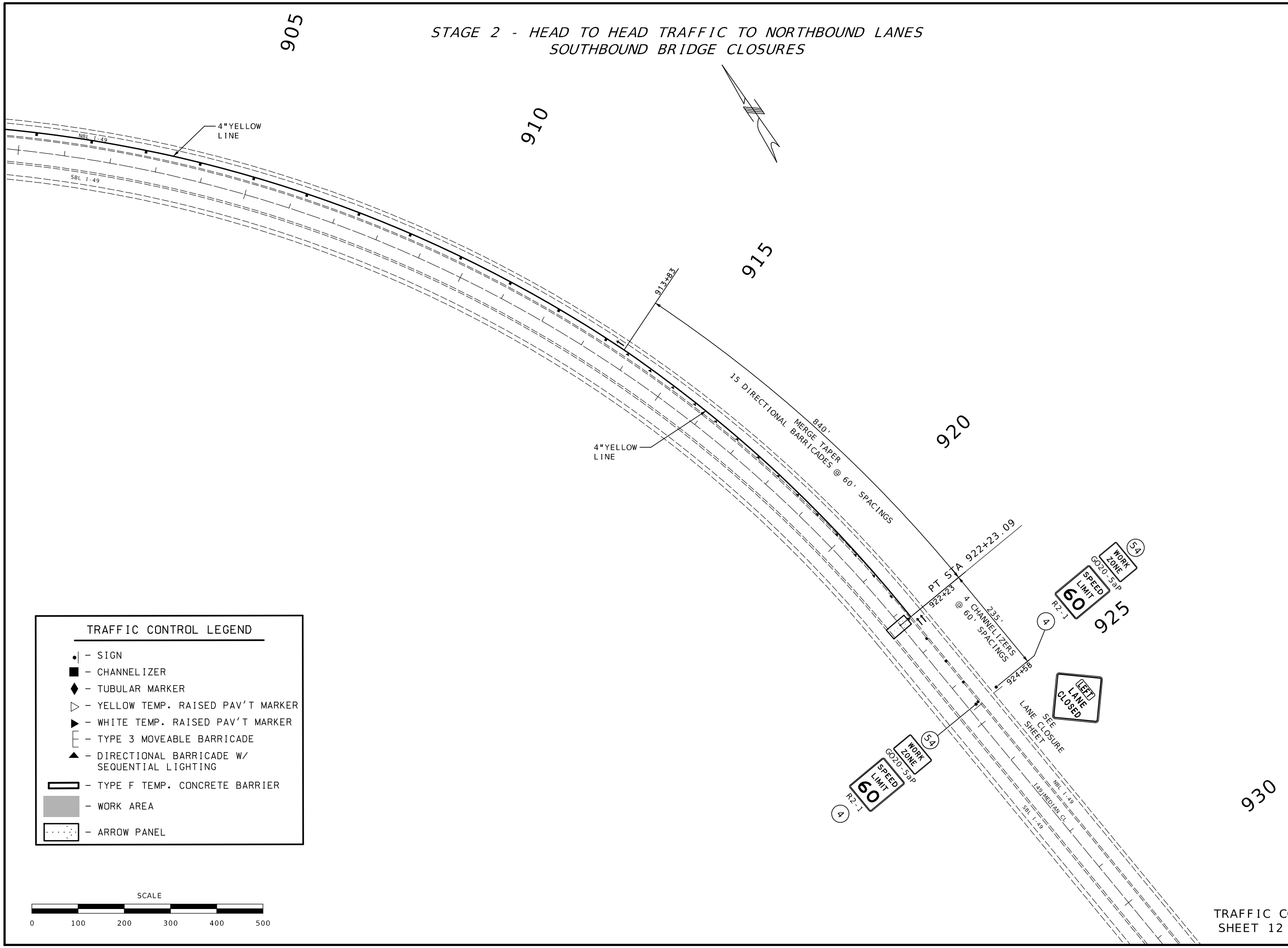
STATE OF MISSOURI
SHANNON M. KELLNER
NUMBER PE-2011015763
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED 11/27/2024
ROUTE I49 | STATE MO
DISTRICT SW | SHEET NO. 19
COUNTY VERNON
JOB NO. JSR0063
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)

STAGE 2 - HEAD TO HEAD TRAFFIC TO NORTHBOUND LANES
SOUTHBOUND BRIDGE CLOSURES



TRAFFIC CONTROL LEGEND

- – SIGN
- – CHANNELIZER
- – TUBULAR MARKER
- – YELLOW TEMP. RAISED PAV'T MARKER
- – WHITE TEMP. RAISED PAV'T MARKER
- – TYPE 3 MOVEABLE BARRICADE
- – DIRECTIONAL BARRICADE W/ SEQUENTIAL LIGHTING
- – TYPE F TEMP. CONCRETE BARRIER
- – WORK AREA
- – ARROW PANEL

SCALE

0 100 200 300 400 500

TRAFFIC CONTROL
SHEET 12 OF 21

STATE OF MISSOURI
SHANNON M. KELLNER
NUMBER PE-2011015763
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED
11/26/2024

ROUTE	STATE
I49	MO
DISTRICT	SHEET NO.
SW	20

COUNTY
VERNON

JOB NO.
JSR0063

CONTRACT ID.

PROJECT NO.

BRIDGE NO.

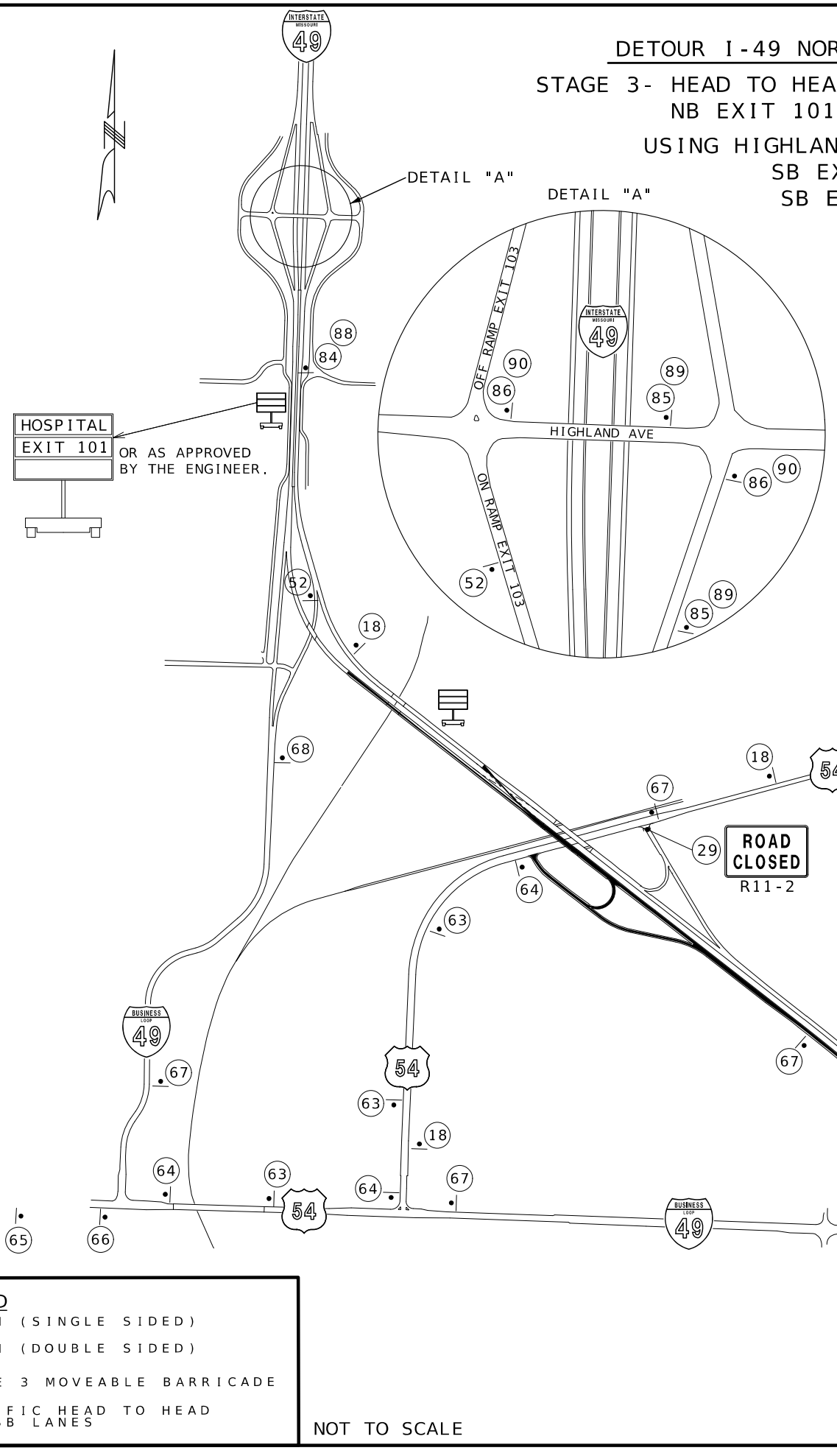
DESCRIPTION	DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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

DETOUR I-49 NORTH AND SOUTH

STAGE 3- HEAD TO HEAD IN SB LANES
NB EXIT 101 AND EXIT 102 CLOSED
USING HIGHLAND AVE - EXIT 103
SB EXIT 102A
SB EXIT 101

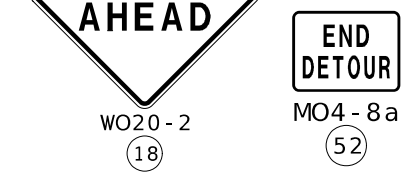


CHANGEABLE MESSAGE SIGN
CMS PLACEMENT SHALL BE APPROVED BY THE ENGINEER.

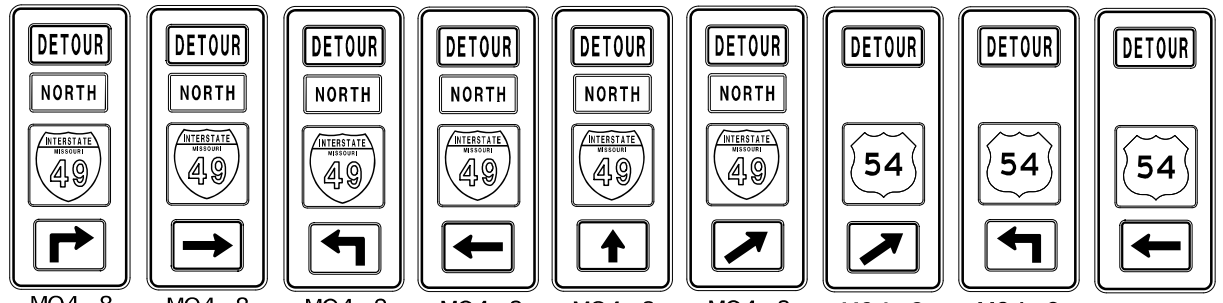
E05-2a
29A

R11-2
29

WO20-2
18



MO4-8a
52



MO4-8
M3-1
M1-1
M5-1R
63

MO4-8
M3-1
M1-1
M6-1
64

MO4-8
M3-1
M1-1
M5-1L
65

MO4-8
M3-1
M1-1
M6-1
66

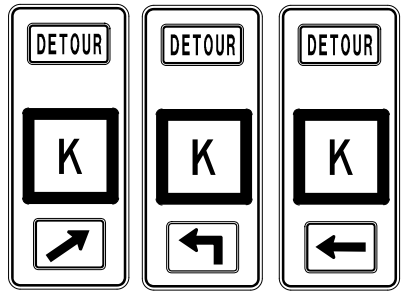
MO4-8
M3-1
M1-1
M6-3
67

MO4-8
M3-1
M1-1
M6-2
68

MO4-8
M1-4
M6-2
84

MO4-8
M1-4
M5-1L
85

MO4-8
M1-4
M6-1
86

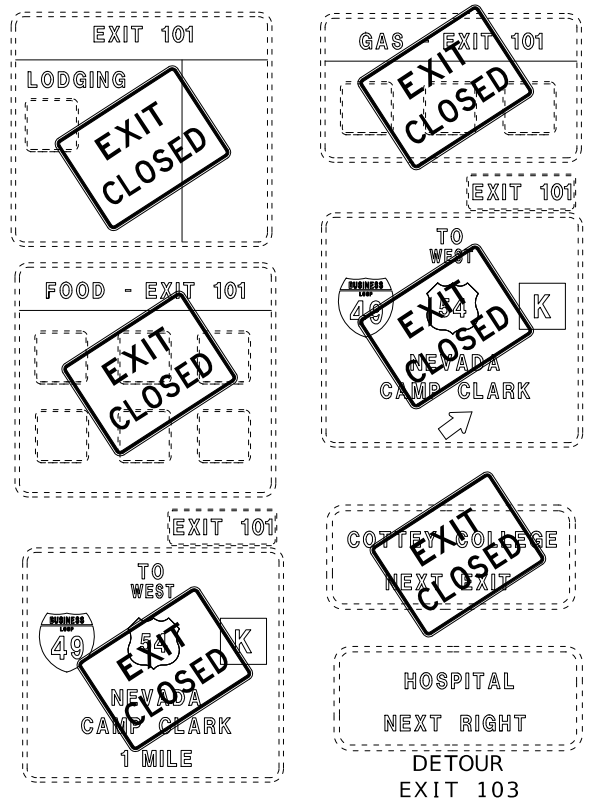


MO4-8
M1-5a
M6-2
88

MO4-8
M1-5a
M5-1L
89

MO4-8
M1-5a
M6-1
90

NBL I-49 EXISTING SIGNS - USE 29A



TRAFFIC CONTROL
SHEET 13 OF 21

LEGEND
- SIGN (SINGLE SIDED)
- SIGN (DOUBLE SIDED)
- TYPE 3 MOVEABLE BARRICADE
- TRAFFIC HEAD TO HEAD IN SB LANES

NOT TO SCALE

STATE OF MISSOURI
SHANNON M. KELLNER
NUMBER PE-2011015763
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED
11/26/2024

ROUTE	STATE
I49	MO
DISTRICT	SHEET NO.
SW	21

COUNTY
VERNON

JOB NO.
JSR0063

CONTRACT ID.

PROJECT NO.

BRIDGE NO.

DESCRIPTION	DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

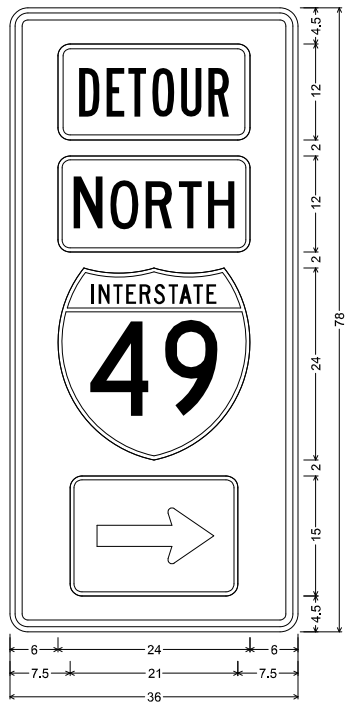
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

MoDOT

MO4-11-36 SHF-FLAT SHEET FLUORESCENT;
2,250" Radius, 0,875" Border, 0,625" Indent, Black on, Orange;
Interstate 49 12.000" C;
Table of letter and object lefts

6.000	
6.000	
6.000	
7.500	

63



MO4-11-36 SHF-FLAT SHEET FLUORESCENT;
2,250" Radius, 0,875" Border, 0,625" Indent, Black on, Orange;
Interstate 49 12.000" C;
Table of letter and object lefts

6.000	
6.000	
6.000	
7.500	

64

MO4-11-36 SHF-FLAT SHEET FLUORESCENT;
2,250" Radius, 0,875" Border, 0,625" Indent, Black on, Orange;
Interstate 49 12.000" C;
Table of letter and object lefts

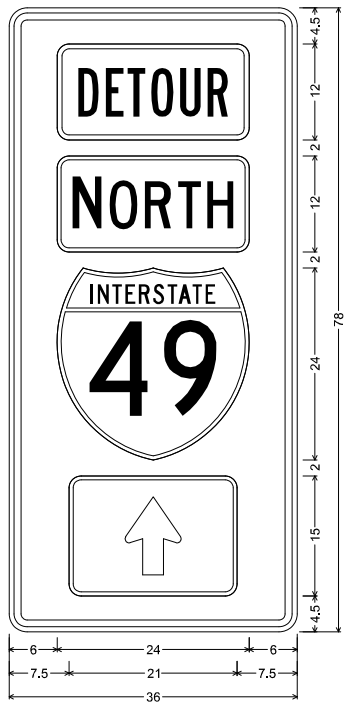
6.000	
6.000	
6.000	
7.500	

65

MO4-11-36 SHF-FLAT SHEET FLUORESCENT;
2,250" Radius, 0,875" Border, 0,625" Indent, Black on, Orange;
Interstate 49 12.000" C;
Table of letter and object lefts

6.000	
6.000	
6.000	
7.500	

66



MO4-11-36 SHF-FLAT SHEET FLUORESCENT;
2,250" Radius, 0,875" Border, 0,625" Indent, Black on, Orange;
Interstate 49 12.000" C;
Table of letter and object lefts

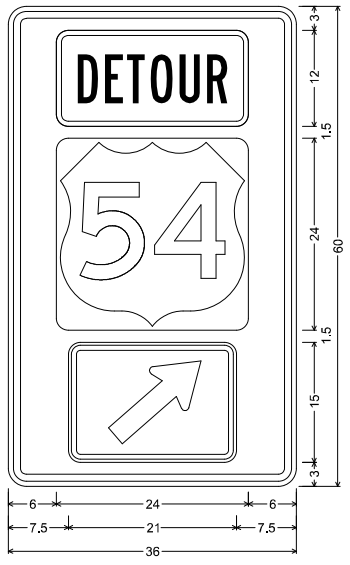
6.000	
6.000	
6.000	
7.500	

67

MO4-11-36 SHF-FLAT SHEET FLUORESCENT;
2,250" Radius, 0,875" Border, 0,625" Indent, Black on, Orange;
Interstate 49 12.000" C;
Table of letter and object lefts

6.000	
6.000	
6.000	
7.500	

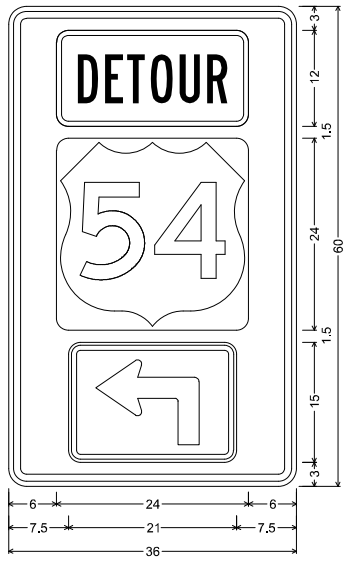
68



MO4-12 SHF-FLAT SHEET FLUORESCENT;
2.250" Radius, 0.875" Border, 0.625" Indent, Black on, Orange;
Table of letter and object lefts

6.000	
6.000	
7.500	

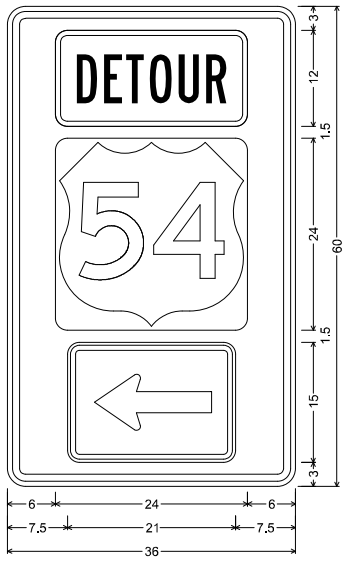
84



MO4-12 SHF-FLAT SHEET FLUORESCENT;
2.250" Radius, 0.875" Border, 0.625" Indent, Black on, Orange;
Table of letter and object lefts

6.000	
6.000	
7.500	

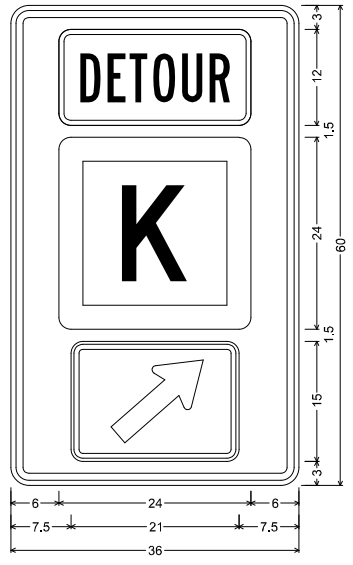
85



MO4-12 SHF-FLAT SHEET FLUORESCENT;
2.250" Radius, 0.875" Border, 0.625" Indent, Black on, Orange;
Table of letter and object lefts

6.000	
6.000	
7.500	

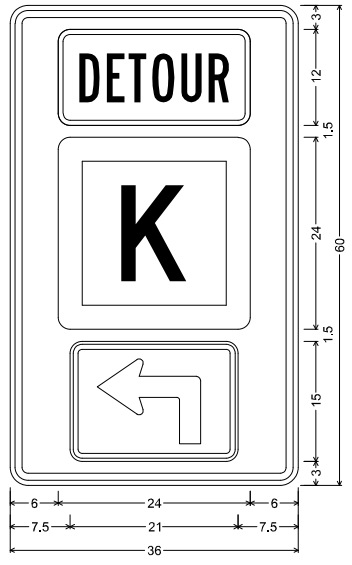
86



MO4-12 SHF-FLAT SHEET FLUORESCENT;
2.250" Radius, 0.875" Border, 0.625" Indent, Black on, Orange;
Table of letter and object lefts

6.000	
6.000	
7.500	

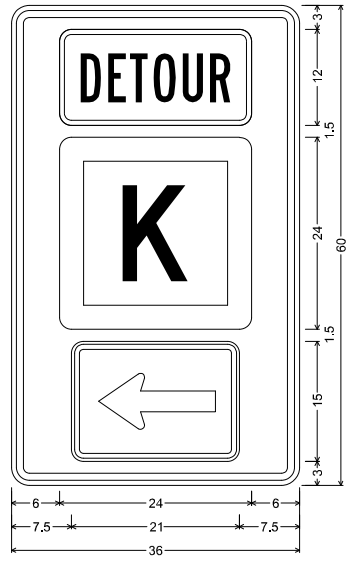
88



MO4-12 SHF-FLAT SHEET FLUORESCENT;
2.250" Radius, 0.875" Border, 0.625" Indent, Black on, Orange;
Table of letter and object lefts

6.000	
6.000	
7.500	

89



MO4-12 SHF-FLAT SHEET FLUORESCENT;
2.250" Radius, 0.875" Border, 0.625" Indent, Black on, Orange;
Table of letter and object lefts

6.000	
6.000	
7.500	

90

STATE OF MISSOURI
SHANNON M. KELLNER
NUMBER PE-2011015763
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED
11/26/2024

ROUTE	STATE
I49	MO
DISTRICT	SHEET NO.
SW	22

COUNTY
VERNON

JOB NO.
JSR0063

CONTRACT ID.

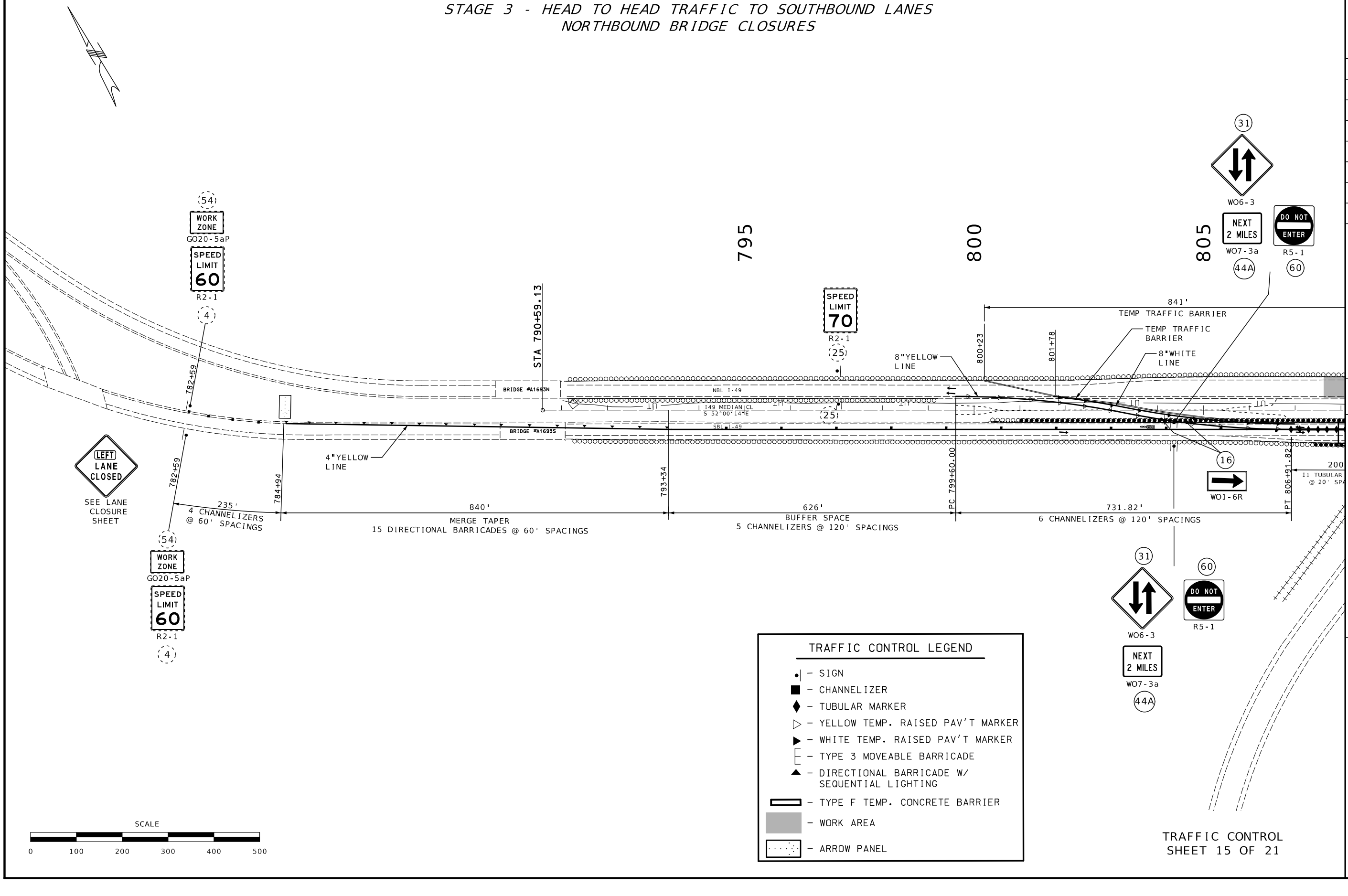
PROJECT NO.

BRIDGE NO.

DESCRIPTION	DATE

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

STAGE 3 - HEAD TO HEAD TRAFFIC TO SOUTHBOUND LANES
NORTHBOUND BRIDGE CLOSURES



TRAFFIC CONTROL LEGEND

- – SIGN
- – CHANNELIZER
- – TUBULAR MARKER
- – YELLOW TEMP. RAISED PAV'T MARKER
- – WHITE TEMP. RAISED PAV'T MARKER
- – TYPE 3 MOVEABLE BARRICADE
- – DIRECTIONAL BARRICADE W/ SEQUENTIAL LIGHTING
- – TYPE F TEMP. CONCRETE BARRIER
- – WORK AREA
- – ARROW PANEL

SCALE

0 100 200 300 400 500

TRAFFIC CONTROL
SHEET 15 OF 21

STATE OF MISSOURI
SHANNON M. KELLNER
NUMBER PE-2011015763
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED
11/26/2024

ROUTE	STATE
I49	MO
DISTRICT	SHEET NO.
SW	23

COUNTY
VERNON

JOB NO.
JSR0063

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)

STAGE 3 - HEAD TO HEAD TRAFFIC TO SOUTHBOUND LANES
NORTHBOUND BRIDGE CLOSURES

795 800 805 810 815 820

SPEED LIMIT 70 R2-1 (25)

31 — WO6-3

NEXT 2 MILES WO7-3a (44A)

DO NOT ENTER R5-1 (60)

841' TEMP TRAFFIC BARRIER

TEMP TRAFFIC BARRIER

8"YELLOW LINE

8"WHITE LINE

800+23 | 801+78 | 808+64

ROAD CLOSED R11-2 (29)

RAMP 1

15 — WO1-4R

50 MPH WO13-1 (44)

RAMP 3

MISSOURI NORTHERN ARKANSAS RAILROAD

ROUTE 54

PROJECT JSR0063
BRIDGES #A1774

BRIDGE #A1774N HYDRO

NBL I-49

I49|MEDIAN CL
S 52°00'14"E

SBL I-49

BRIDGE #A1774S REDECK

4"YELLOW LINE

4"DOUBLE YELLOW LINE

793+34

626'
BUFFER SPACE
5 CHANNELIZERS @ 120' SPACINGS

PC 799+60.00

731.82'
6 CHANNELIZERS @ 120' SPACINGS

16 — WO1-6R

PT 806+91.82

200'
11 TUBULAR MARKERS @ 20' SPACINGS

191 TUBULAR MARKERS @ 40' SPACINGS TO STA 885+00

808+91.82

54 — WORK ZONE GO20-5aP

SPEED LIMIT 60 R2-1 (4)

WO1-4R

50 MPH WO13-1 (44)

RAMP 4

RAMP 2

2 — ROAD WORK AHEAD BRIDGE OR RAMP WO20-1

31 — WO6-3

NEXT 2 MILES WO7-3a (44A)

60 — DO NOT ENTER R5-1

TRAFFIC CONTROL LEGEND

- – SIGN
- – CHANNELIZER
- – TUBULAR MARKER
- – YELLOW TEMP. RAISED PAV'T MARKER
- – WHITE TEMP. RAISED PAV'T MARKER
- – TYPE 3 MOVEABLE BARRICADE
- – DIRECTIONAL BARRICADE W/ SEQUENTIAL LIGHTING
- – TYPE F TEMP. CONCRETE BARRIER
- – WORK AREA
- – ARROW PANEL

TRAFFIC CONTROL
SHEET 16 OF 21

STATE OF MISSOURI
SHANNON M. KELLNER
NUMBER PE-2011015763
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED
11/26/2024

ROUTE	STATE
I49	MO
DISTRICT	SHEET NO.
SW	24

COUNTY
VERNON

JOB NO.
JSR0063

CONTRACT ID.

PROJECT NO.

BRIDGE NO.

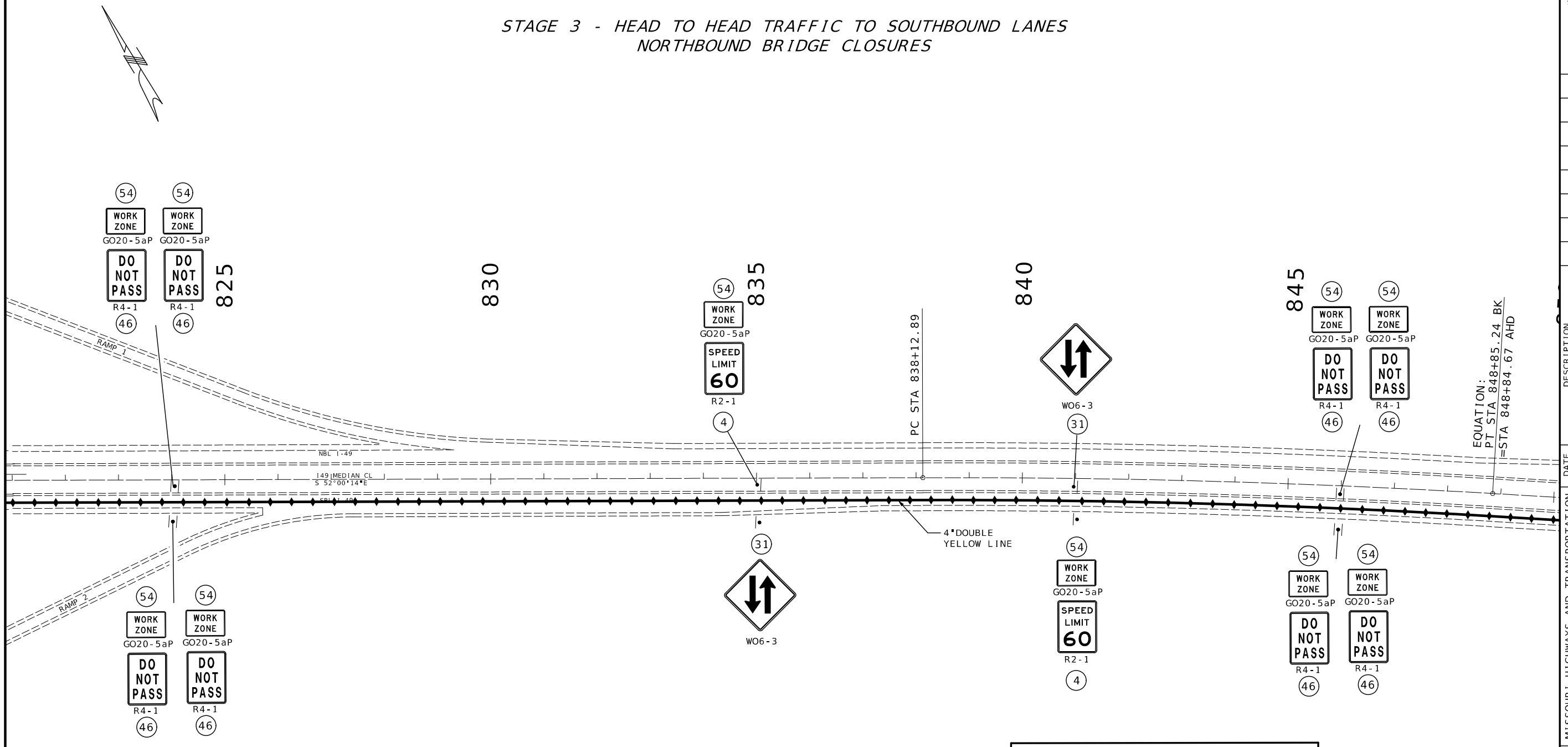
DESCRIPTION

DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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

STAGE 3 - HEAD TO HEAD TRAFFIC TO SOUTHBOUND LANES
NORTHBOUND BRIDGE CLOSURES



TRAFFIC CONTROL LEGEND

- SIGN
- CHANNELIZER
- TUBULAR MARKER
- YELLOW TEMP. RAISED PAV'T MARKER
- WHITE TEMP. RAISED PAV'T MARKER
- TYPE 3 MOVEABLE BARRICADE
- DIRECTIONAL BARRICADE W/ SEQUENTIAL LIGHTING
- TYPE F TEMP. CONCRETE BARRIER
- WORK AREA
- ARROW PANEL

SCALE

0 100 200 300 400 500

TRAFFIC CONTROL
SHEET 17 OF 21

STATE OF MISSOURI
SHANNON M. KELLNER
NUMBER PE-2011015763
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED
11/26/2024

ROUTE	STATE
I49	MO
DISTRICT	SHEET NO.
SW	25

COUNTY
VERNON

JOB NO.
JSR0063

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)

STAGE 3 - HEAD TO HEAD TRAFFIC TO SOUTHBOUND LANES
NORTHBOUND BRIDGE CLOSURES

850 855 860 865 870 875

(54) WORK ZONE GO20-5aP
SPEED LIMIT 60 R2-1
(4)

WO6-3
(31)

(54) WORK ZONE GO20-5aP
DO NOT PASS R4-1
(46)

(54) WORK ZONE GO20-5aP
DO NOT PASS R4-1
(46)

ROAD CLOSED R11-2
(29)

(54) WORK ZONE GO20-5aP
SPEED LIMIT 60 R2-1
(4)

PROJECT JSR0064
BRIDGES #A1775

BRIDGE #A1775N HYDRO

BRIDGE #A1775S HYDRO

NBL I-49

I49 MEDIAN CL
S 48°25'38"E

SBL I-49

4"DOUBLE YELLOW LINE

RAMP 1

ROUTE K

LOOP 49

RAMP 3

RAMP 2

RAMP 4

(54) WORK ZONE GO20-5aP
SPEED LIMIT 60 R2-1
(4)

(54) WORK ZONE GO20-5aP
DO NOT PASS R4-1
(46)

(54) WORK ZONE GO20-5aP
DO NOT PASS R4-1
(46)

(31) WO6-3

(2) ROAD WORK AHEAD WO20-1
BRIDGE OR RAMP

SCALE
0 100 200 300 400 500

TRAFFIC CONTROL LEGEND

- SIGN
- CHANNELIZER
- TUBULAR MARKER
- YELLOW TEMP. RAISED PAV'T MARKER
- WHITE TEMP. RAISED PAV'T MARKER
- TYPE 3 MOVEABLE BARRICADE
- DIRECTIONAL BARRICADE W/ SEQUENTIAL LIGHTING
- TYPE F TEMP. CONCRETE BARRIER
- WORK AREA
- ARROW PANEL

TRAFFIC CONTROL
SHEET 18 OF 21

STATE OF MISSOURI
SHANNON M. KELLNER
NUMBER PE-2011015763
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED 11/26/2024

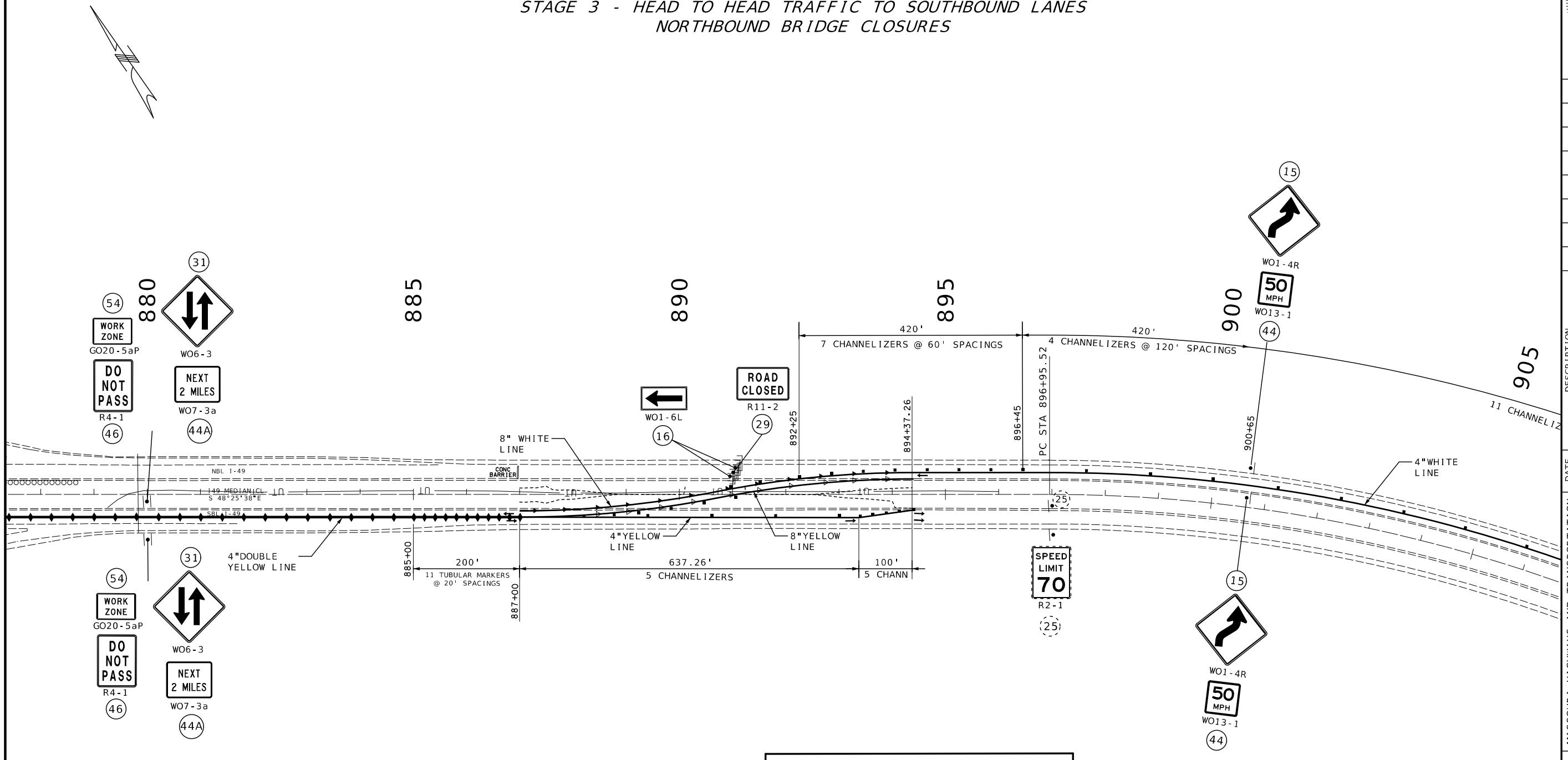
ROUTE	STATE
I49	MO
DISTRICT	SHEET NO.
SW	26

COUNTY VERNON
JOB NO. JSR0063
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)

STAGE 3 - HEAD TO HEAD TRAFFIC TO SOUTHBOUND LANES
NORTHBOUND BRIDGE CLOSURES



TRAFFIC CONTROL LEGEND

- SIGN
- CHANNELIZER
- TUBULAR MARKER
- YELLOW TEMP. RAISED PAV'T MARKER
- WHITE TEMP. RAISED PAV'T MARKER
- TYPE 3 MOVEABLE BARRICADE
- DIRECTIONAL BARRICADE W/ SEQUENTIAL LIGHTING
- TYPE F TEMP. CONCRETE BARRIER
- WORK AREA
- ARROW PANEL

SCALE

0 100 200 300 400 500

TRAFFIC CONTROL
SHEET 19 OF 21

STATE OF MISSOURI
SHANNON M. KELLNER
NUMBER PE-2011015763
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED
11/26/2024

ROUTE	STATE
I49	MO
DISTRICT	SHEET NO.
SW	27

COUNTY
VERNON

JOB NO.
JSR0063

CONTRACT ID.

PROJECT NO.

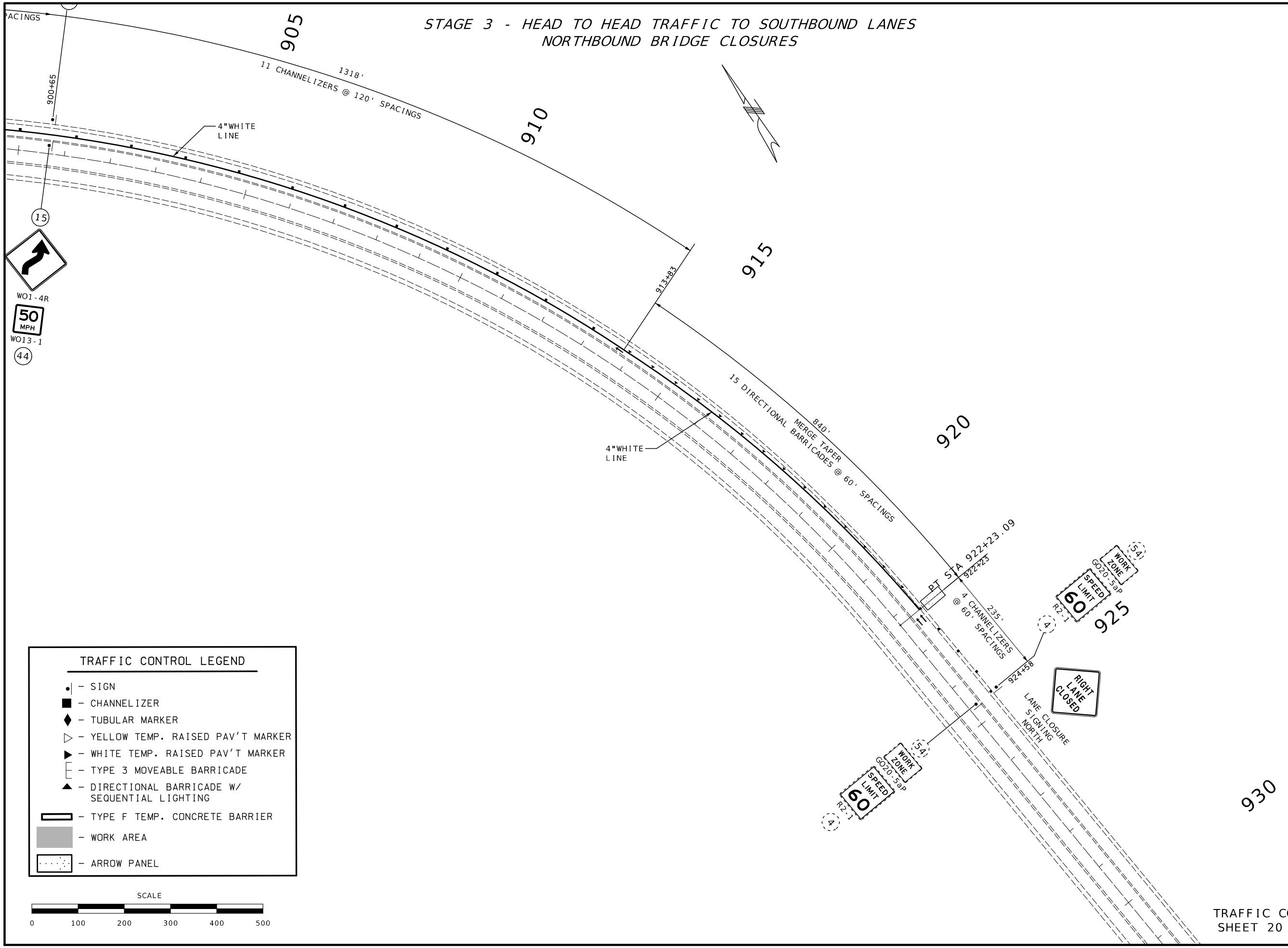
BRIDGE NO.

DESCRIPTION	DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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

STAGE 3 - HEAD TO HEAD TRAFFIC TO SOUTHBOUND LANES
NORTHBOUND BRIDGE CLOSURES



TRAFFIC CONTROL LEGEND

- SIGN
- CHANNELIZER
- TUBULAR MARKER
- YELLOW TEMP. RAISED PAV'T MARKER
- WHITE TEMP. RAISED PAV'T MARKER
- TYPE 3 MOVEABLE BARRICADE
- DIRECTIONAL BARRICADE W/ SEQUENTIAL LIGHTING
- TYPE F TEMP. CONCRETE BARRIER
- WORK AREA
- ARROW PANEL

SCALE

0 100 200 300 400 500

TRAFFIC CONTROL
SHEET 20 OF 21

STATE OF MISSOURI
SHANNON M. KELLNER
NUMBER PE-2011015763
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED
11/26/2024

ROUTE	STATE
I49	MO
DISTRICT	SHEET NO.
SW	28

COUNTY
VERNON

JOB NO.
JSR0063

CONTRACT ID.

PROJECT NO.

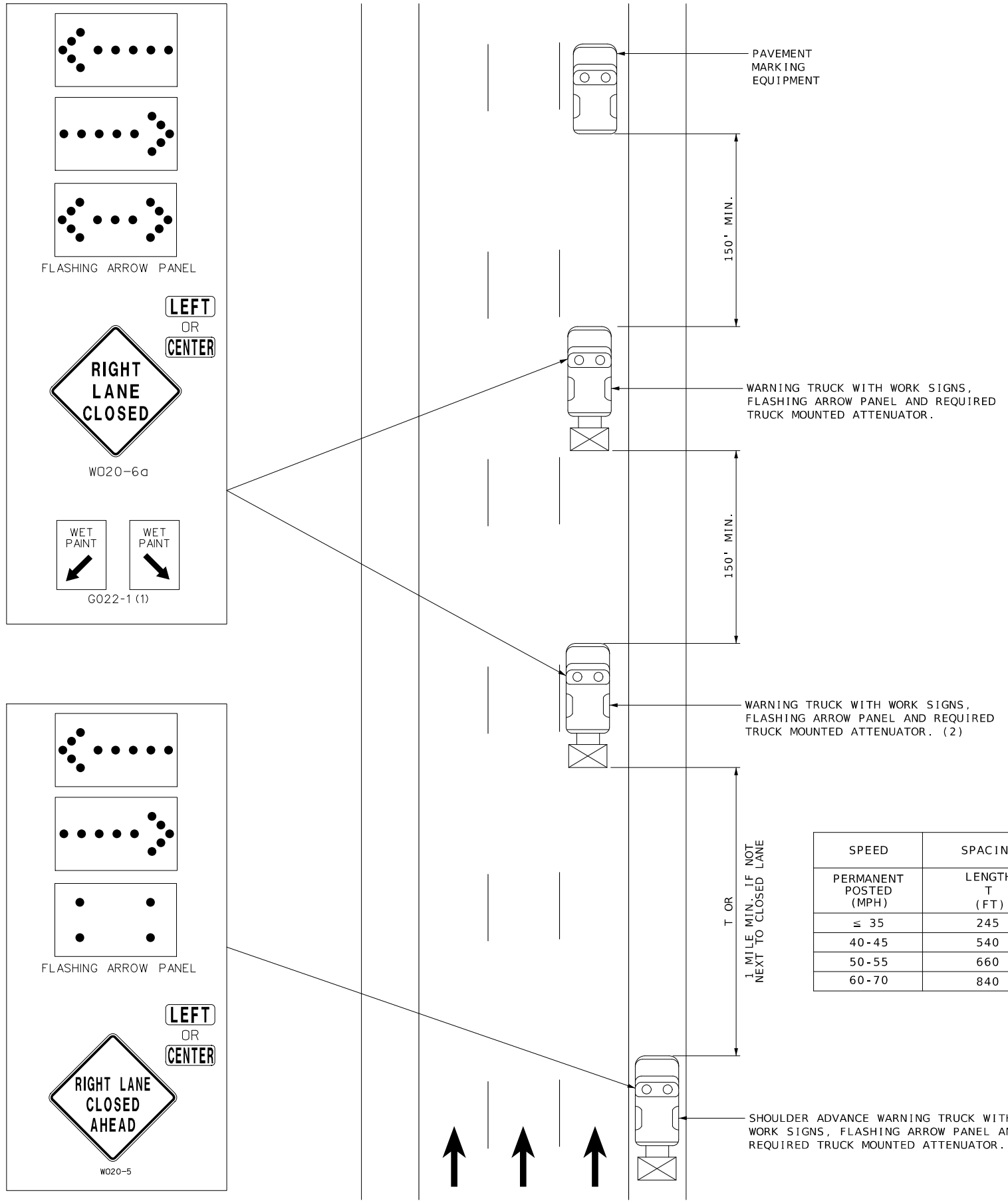
BRIDGE NO.

DESCRIPTION	DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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

REVISED: 11/13/2024



SPEED	SPACING
PERMANENT POSTED (MPH)	LENGTH T (FT)
≤ 35	245
40-45	540
50-55	660
60-70	840

STRIPING ON MULTI-LANE HIGHWAY

NOTES:

UPON APPROVAL OF THE ENGINEER, THE CONTRACTOR MAY PROVIDE ADDITIONAL PROTECTIVE TRUCKS EQUIPPED WITH PROPER WARNING DEVICES.

PROTECTIVE TRUCKS AND WORK VEHICLES SHALL DISPLAY HIGH-INTENSITY ROTATING, FLASHING, OSCILLATING, OR STROBE LIGHTS.

VEHICLE HAZARD WARNING SIGNALS SHALL NOT BE USED INSTEAD OF THE VEHICLE'S HIGH-INTENSITY ROTATING, FLASHING, OSCILLATING, OR STROBE LIGHTS.

VEHICLE-MOUNTED SIGNS SHALL BE MOUNTED IN A MANNER SUCH THAT THEY ARE NOT OBSCURED BY EQUIPMENT OR SUPPLIES. SIGN LEGENDS ON VEHICLE-MOUNTED SIGNS SHALL BE COVERED OR TURNED FROM VIEW WHEN WORK IS NOT IN PROGRESS.

FLASHING ARROW PANELS SHALL BE INCIDENTAL TO TRUCK MOUNTED ATTENUATORS, WHEREVER USED. NO ADDITIONAL PAYMENT WILL BE MADE.

FLASHING ARROW PANELS SHALL, AS A MINIMUM, BE TYPE B, WITH A SIZE OF 60 X 30 INCHES.

A FLASHING ARROW BOARD SHALL BE USED WHEN A FREEWAY LANE IS CLOSED. WHEN MORE THAN ONE LANE CLOSED, A SEPARATE FLASHING ARROW BOARD SHALL BE USED FOR EACH CLOSED LANE.

(1) WET PAINT SIGNS ARE INSTALLED TO INDICATE THE SIDE IN WHICH THE PAVEMENT MARKING MATERIAL IS BEING APPLIED. AT THE CONTRACTOR'S OPTION, A FRONT FACING WET PAINT SIGN MAY BE INSTALLED ON THE LEFT SIDE OF THE PAVEMENT MARKING EQUIPMENT.

(2) WARNING TRUCK IS POSITIONED AT THE NO TRACK POINT OF THE PAVEMENT MARKING MATERIAL, OR SPACING SHOWN, WHICH EVER IS GREATER.

NOT TO SCALE

TRAFFIC CONTROL
SHEET 21 OF 21

STATE OF MISSOURI
SHANNON M. KELLNER
NUMBER PE-2011015763
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED SEALED AND DATED ELECTRONICALLY.

DATE PREPARED
11/26/2024

ROUTE	STATE
I49	MO
DISTRICT	SHEET NO.
SW	29

COUNTY
VERNON

JOB NO.
JSR0063

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)

EROSION CONTROL
INITIAL PHASE
SHEET 1 OF 3

NOTE:
EXACT LOCATION OF DITCH CHECKS
AND SILT FENCE TO BE DETERMINED
IN THE FIELD

0 50 100 150
SCALE

SILT FENCE

ROCK DITCH CHECK

CURB INLET CHECK

TEMPORARY EROSION CONTROL LEGEND

RAMP 2

ROUTE 54

EXIST R/W

EX RR R/W

EXIST R/W

OUTFALL

A

BRIDGE #A1774S REDECK

SBL I-49

I49 MEDIAN CL
S 52°00'14"E

DI U.I.P.

BRIDGE #A1774N HYDRO

NBL I-49

8+14+01.0
RDC

8+12+60.0
RDC

MISSOURI NORTHERN ARKANSAS RAILROAD

ROUTE 54

810

805

800+70.5
12" RDC

EXIST R/W

800

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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

DATE	DESCRIPTION

BRIDGE NO.

PROJECT NO.

CONTRACT ID.
JSR0063

JOB NO.
VERNON

COUNTY
30

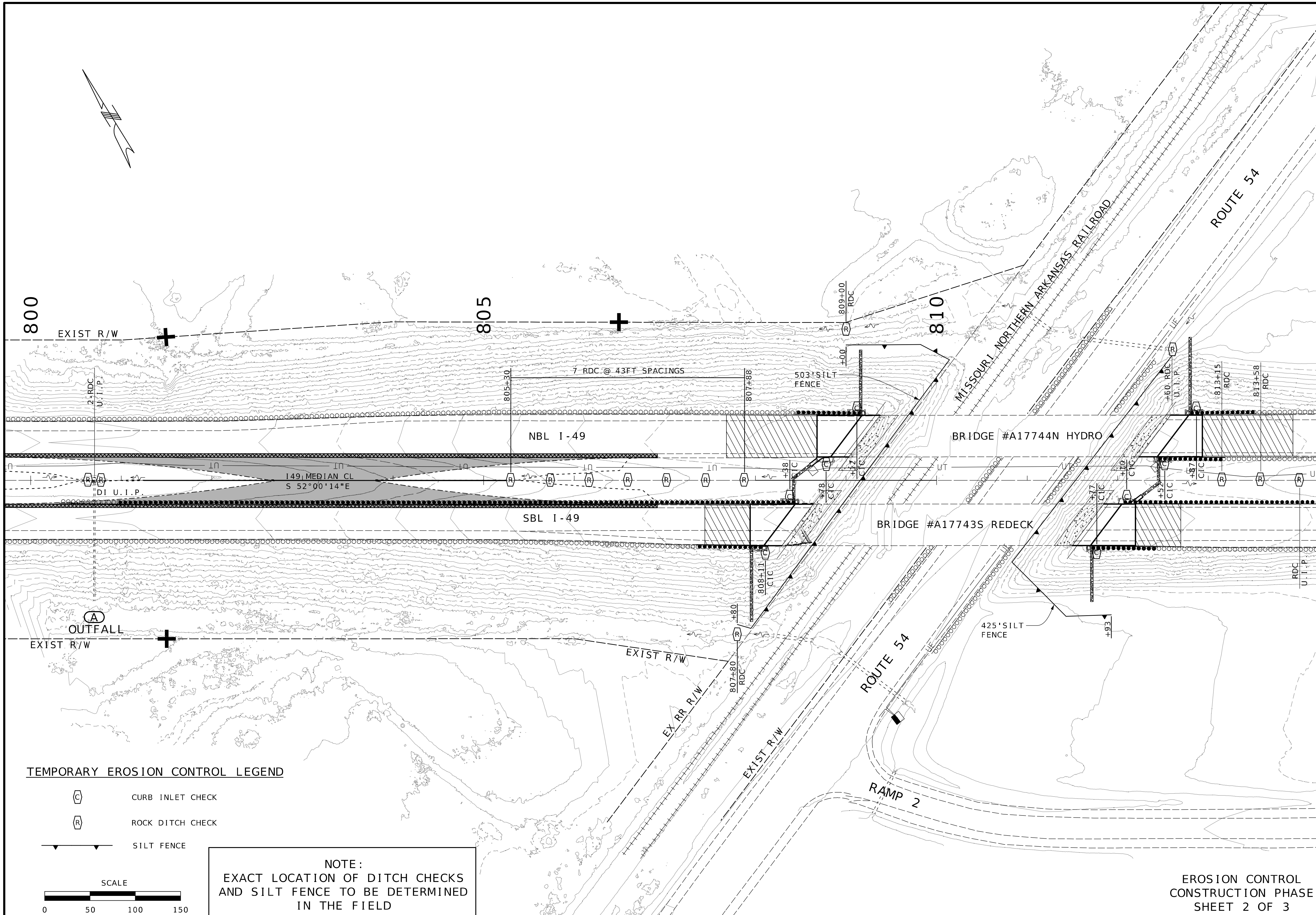
DISTRICT	SHEET NO.
SW	

ROUTE	STATE
I49	MO

DATE PREPARED
11/26/2024

THIS SHEET HAS BEEN
SIGNED SEALED AND DATED
ELECTRONICALLY.

STATE OF MISSOURI
SHANNON M.
KELLNER
NUMBER
PE-2010157693
PROFESSIONAL ENGINEER



TEMPORARY EROSION CONTROL LEGEND

- (C) CURB INLET CHECK
- (R) ROCK DITCH CHECK
- SILT FENCE

SCALE 0 50 100 150

NOTE:
EXACT LOCATION OF DITCH CHECKS AND SILT FENCE TO BE DETERMINED IN THE FIELD

EROSION CONTROL
CONSTRUCTION PHASE
SHEET 2 OF 3

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

MoDOT

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

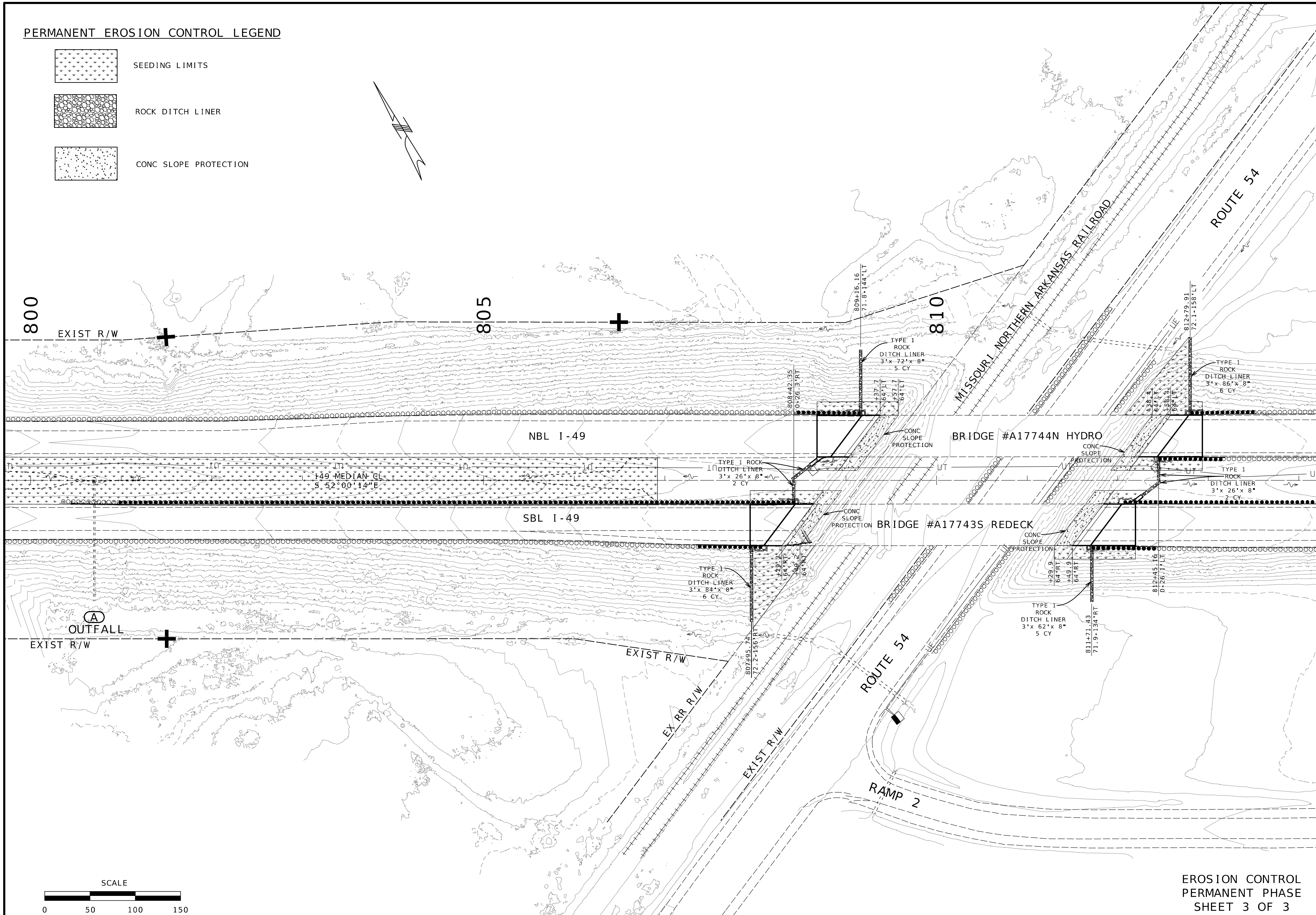
DATE	DESCRIPTION

STATE OF MISSOURI
SHANNON M. KELLNER
NUMBER PE-2011015763
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED	11/26/2024
ROUTE	I49
STATE	MO
DISTRICT	SW
SHEET NO.	31
COUNTY	VERNON
JOB NO.	JSR0063
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO.	

PERMANENT EROSION CONTROL LEGEND

- SEEDING LIMITS
- ROCK DITCH LINER
- CONC SLOPE PROTECTION



EROSION CONTROL
PERMANENT PHASE
SHEET 3 OF 3

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

MoDOT

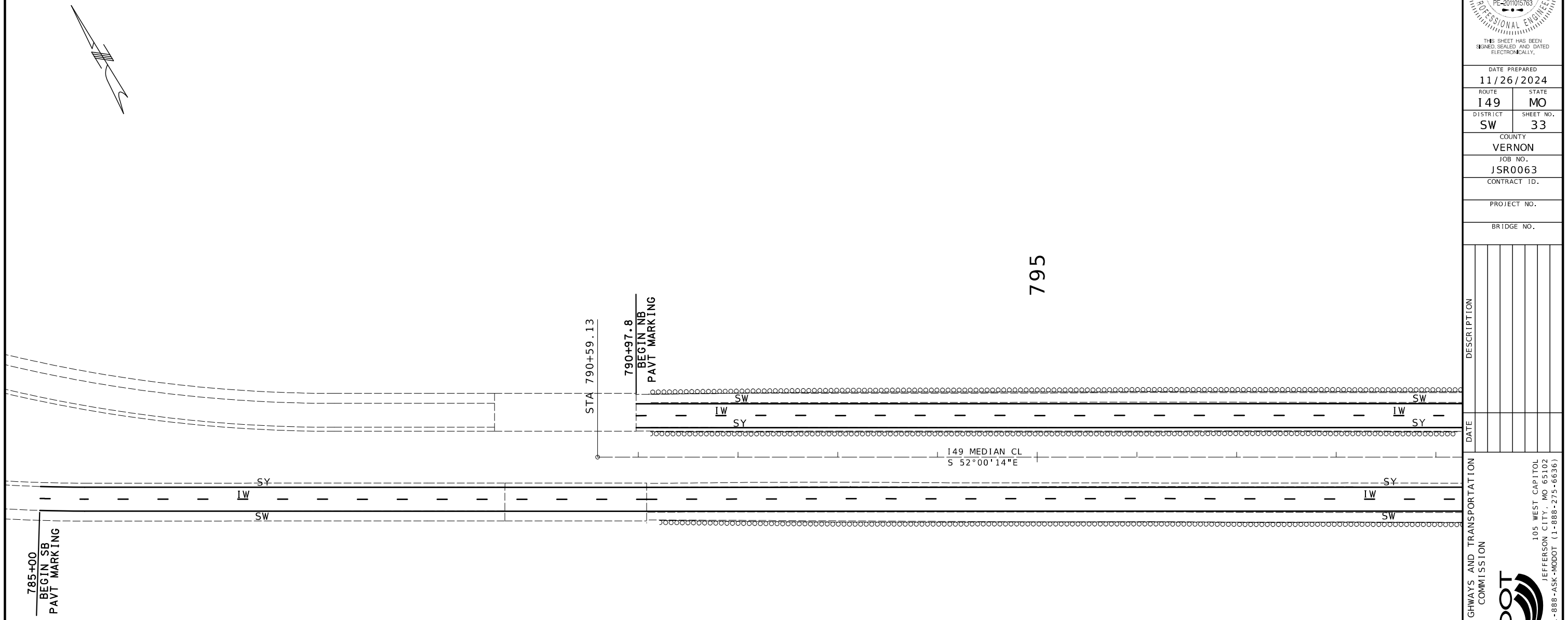
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

DATE	DESCRIPTION

STATE OF MISSOURI
SHANNON M. KELLNER
NUMBER PE-2011015763
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED	11/26/2024
ROUTE	I49
STATE	MO
DISTRICT	SW
SHEET NO.	32
COUNTY	VERNON
JOB NO.	JSR0063
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO.	



PAVEMENT MARKING LEGEND

SW - 6" SOLID WHITE LINE
IW - 6" INTERMITTENT WHITE LINE (10'MARK, 30'SKIP)
SY - 6" SOLID YELLOW LINE
DW - 6" DOTTED WHITE LINE (3'MARK, 9'SKIP)
GL - 12" WHITE GORE LINE

SCALE

0 50 100 150

PAVEMENT MARKING
SHEET 1 OF 4

STATE OF MISSOURI
SHANNON M. KELLNER
NUMBER PE-2011015763
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED
11/26/2024

ROUTE	STATE
I49	MO
DISTRICT	SHEET NO.
SW	33

COUNTY
VERNON

JOB NO.
JSR0063

CONTRACT ID.

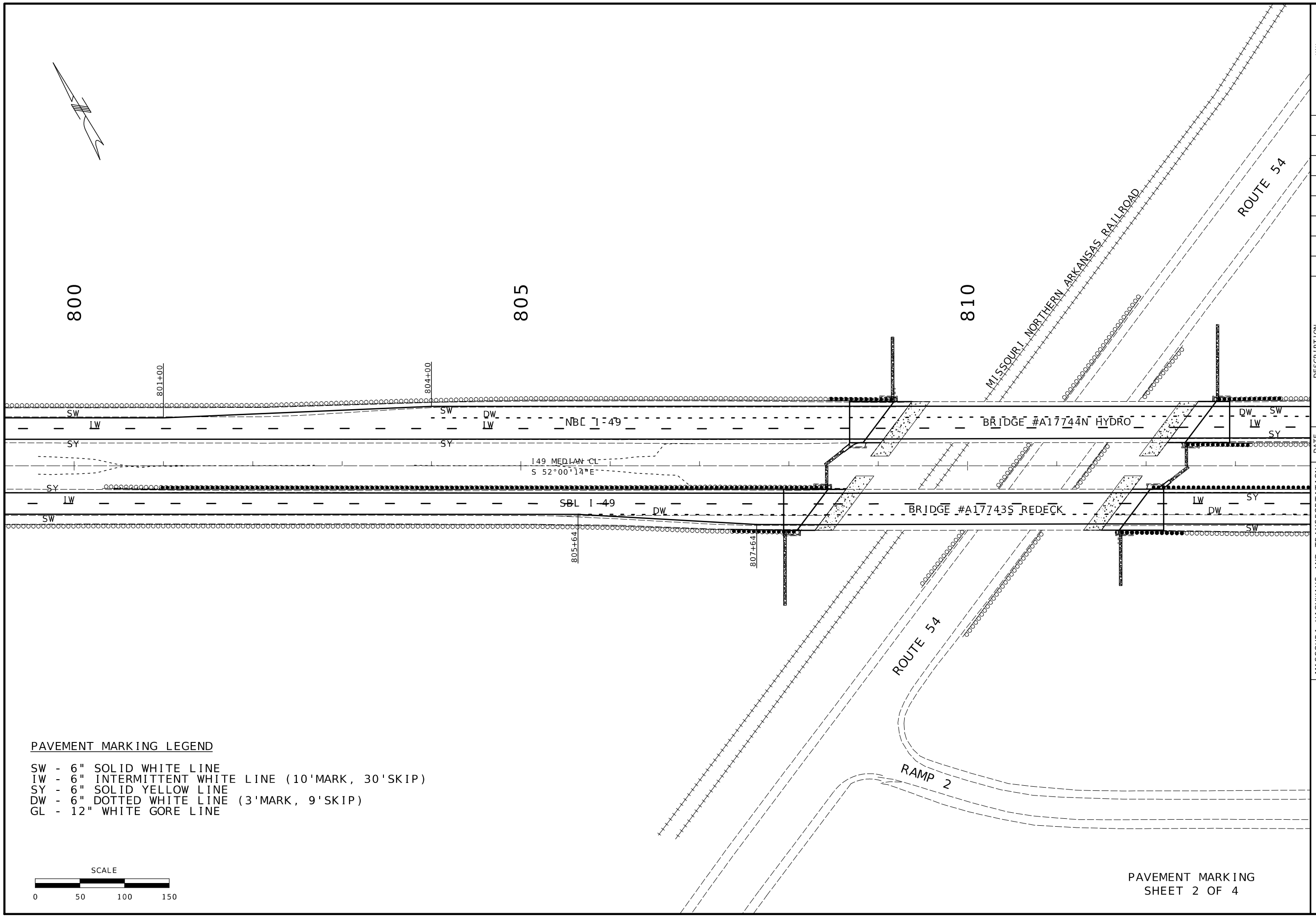
PROJECT NO.

BRIDGE NO.

DESCRIPTION	DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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



PAVEMENT MARKING LEGEND

SW - 6" SOLID WHITE LINE
IW - 6" INTERMITTENT WHITE LINE (10'MARK, 30'SKIP)
SY - 6" SOLID YELLOW LINE
DW - 6" DOTTED WHITE LINE (3'MARK, 9'SKIP)
GL - 12" WHITE GORE LINE

SCALE

0 50 100 150

PAVEMENT MARKING
SHEET 2 OF 4

STATE OF MISSOURI
SHANNON M. KELLNER
NUMBER PE-2011015763
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED
11/26/2024

ROUTE	STATE
I49	MO
DISTRICT	SHEET NO.
SW	34

COUNTY
VERNON

JOB NO.
JSR0063

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)

PAVEMENT MARKING

SHEET 3 OF 4

PAVEMENT MARKING LEGEND

GL - 12" WHITE GORE LINE
DW - 6" DOTTED WHITE LINE (3',MARK, 9',SKIP)
SY - 6" SOLID YELLOW LINE
IW - 6" INTERMITTENT WHITE LINE (10',MARK, 30',SKIP)
SW - 6" SOLID WHITE LINE

SCALE
0 50 100 150

RAMP 2
RAMP 4
RAMP 3
RAMP 1
ROUTE 54
149 MEDIAN CL
S 52°00'14"E
NBL I-49
SBL I-49
825
820
815
827+42
827+00
826+48
825+70
816+67
816+00
815+60
827+86
819+16
818+50
+70
+67
+98
+16
+50

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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

DESCRIPTION	DATE

BRIDGE NO.

PROJECT NO.

CONTRACT ID.
JSR0063

JOB NO.

COUNTRY
VERNON

ROUTE	STATE
I 49	MO
DISTRICT	SHEET NO.
SW	35

DATE PREPARED
11/26/2024

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

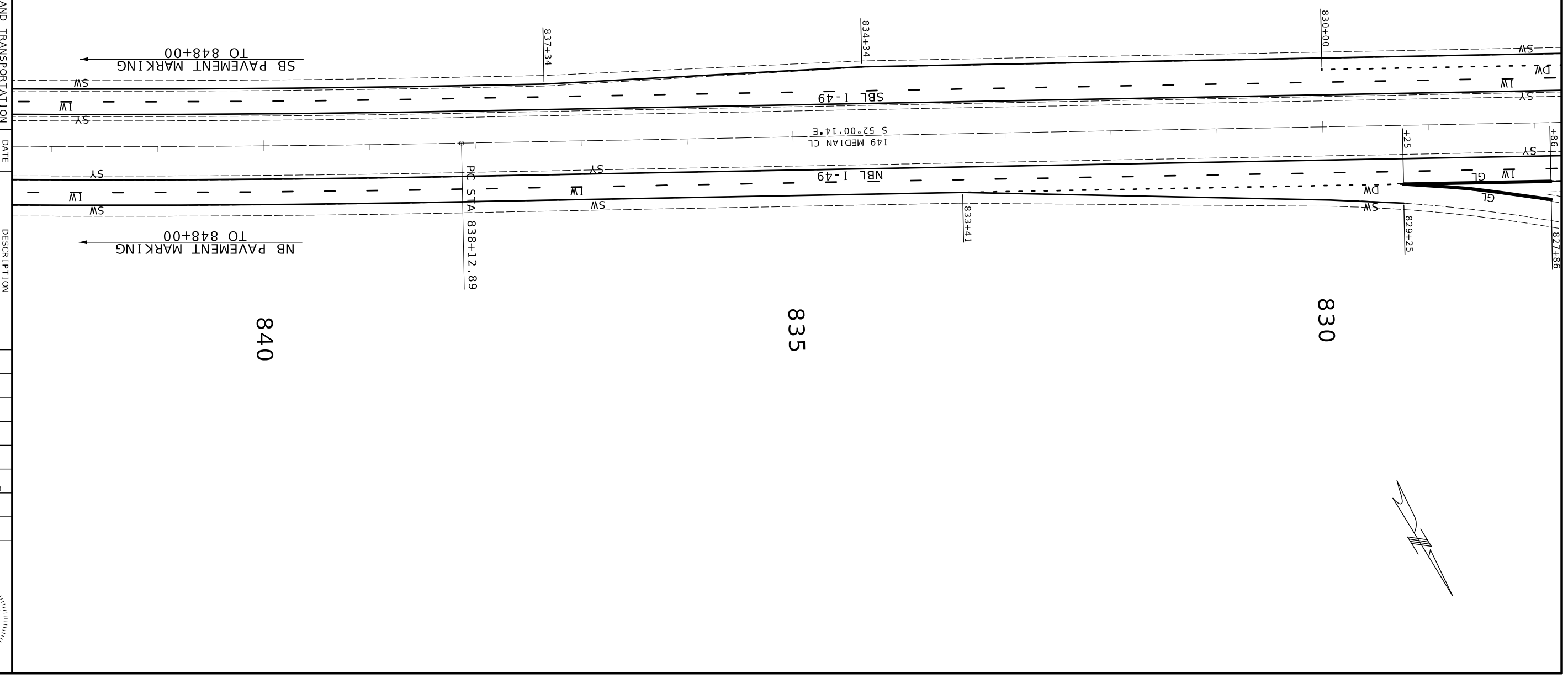
STATE OF MISSOURI
SHANNON M. KELLNER
NUMBER PE-2011015762
PROFESSIONAL ENGINEER

PAVEMENT MARKING
SHEET 4 OF 4

0 50 100 150
SCALE

PAVEMENT MARKING LEGEND

SW - 6" SOLID WHITE LINE
IW - 6" INTERMITTENT WHITE LINE (10',MARK, 30',SKIP)
SY - 6" SOLID YELLOW LINE
DW - 6" DOTTED WHITE LINE (3',MARK, 9',SKIP)
GL - 12" WHITE GORE LINE



MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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

DESCRIPTION	DATE

BRIDGE NO.

PROJECT NO.

CONTRACT ID.
JSR0063

JOB NO.

COUNTY
VERNON

ROUTE	STATE
149	MO

DISTRICT	SHEET NO.
SW	36

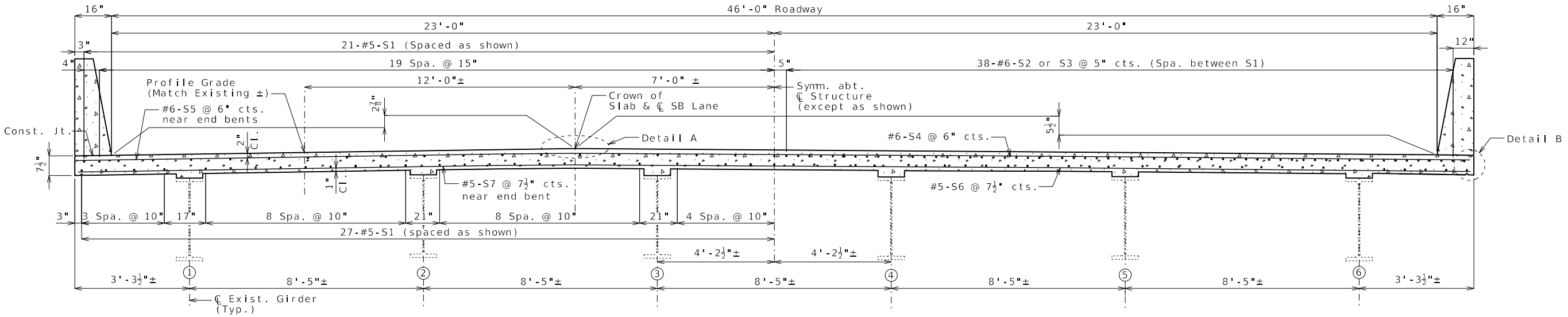
DATE PREPARED
11/26/2024

THIS SHEET HAS BEEN SIGNED SEALED AND DATED ELECTRONICALLY.

STATE OF MISSOURI
SHANNON M. KELLNER
NUMBER PE-2011015763
PROFESSIONAL ENGINEER

U.I.P. AND REDECK EXISTING (57'- 101'- 101'- 57') CONTINUOUS COMPOSITE PLATE GIRDER SPANS (SKEW: 37° L.A.)

SEC/SUR 3 TWP 35 N RGE 31 W



HALF SECTION NEAR MIDSPAN AND END BENT

HALF SECTION NEAR INT. BENT

TYPICAL SECTION THRU SLAB

(Conduit in Barrier not shown for clarity)

General Notes:

Design Specifications:

2002 AASHTO LFD (17th Ed.) Standard Specifications
Seismic Performance Category A

Design Loading:

HS20-44 (1965 & New Construction)
35 lb/sf Future Wearing Surface
Earth - 120 lb/cf, Equivalent Fluid Pressure 45 lb/cf
Fatigue Stress - Case I

Design Unit Stresses:

Class B-1 Concrete (Barrier)	f'c = 4,000 psi
Class B-2 Concrete (End Bents & Superstructure, except Barrier)	f'c = 4,000 psi
Reinforcing Steel ASTM A615 (Grade 60)	fy = 60,000 psi

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.

Miscellaneous:

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

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

Roadway surfacing adjacent to bridge ends shall match new bridge slab surface. (Roadway item)

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

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

The area exposed by the removal of concrete and not covered with new concrete shall be coated with an approved qualified special mortar in accordance with Sec 704.

Traffic Handling:

Structure to be closed during construction. See roadway plans for traffic control.

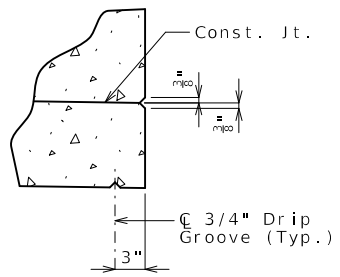
Table Showing S2 and S3 Bar Lengths

Int. Bent No. 2 (S2)		Int. Bent No. 3 (S3)		Int. Bent No. 4 (S2)	
Span 1	Span 2	Span 2	Span 3	Span 3	Span 4
18'-3"	18'-6"	28'-0"	28'-0"	18'-6"	18'-3"

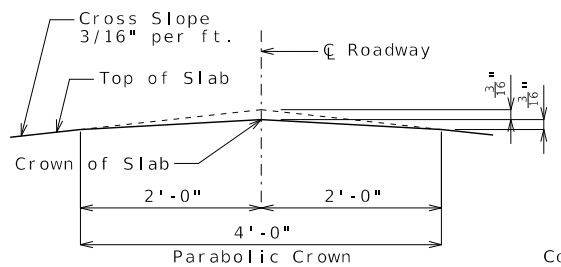
Required Lap Length For Bar Splices **

Bar Size	Splice Length
4	2'-1"
5	2'-7"
6	3'-1"
7	3'-7"

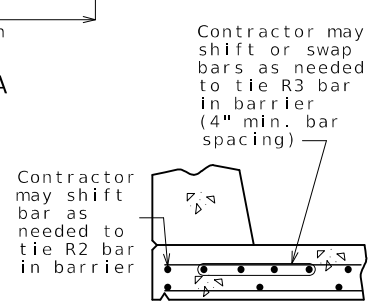
** Unless otherwise shown.



DETAIL B



DETAIL A



OPTIONAL SHIFTING
TOP BARS AT BARRIER

Estimated Quantities for Slab on Steel

Item		Total
Class B-2 Concrete	cu. yard	464.0
Reinforcing Steel (Galvanized)	pound	135,820

Estimated Quantities

Item		Total
Removal of Miscellaneous ACM (Non-Friable)	sq. foot	30
Removal of Existing Bridge Deck	sq. foot	15,634
Removal of Existing Bearings	each	6
Bridge Approach Slab (Major)	sq. yard	210
Slab on Steel	sq. yard	1727
Type D Barrier	linear foot	640
Substructure Repair (Formed)	sq. foot	100
Substructure Repair (Unformed)	sq. foot	50
Epoxy Pressure Injecting	linear foot	20
Protective Coating - Concrete Bents and Piers (Epoxy)	lump sum	1
Vertical Drain at End Bents	each	2
Laminated Neoprene Bearing Pad Assembly	each	6

Cost of any required excavation for bridge will be considered completely covered by the contract unit price for other items.

The table of Estimated Quantities for Slab on Steel 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 stay-in-place corrugated steel forms, conventional steel forms, all concrete and galvanized 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 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.

Slab shall be cast-in-place with conventional forming or stay-in-place corrugated steel forms. Precast prestressed panels will not be permitted.

For Optional Stay-In-Place Form Details, see Sheet No. 2.

REPAIRS TO BRIDGE: INTERSTATE 49 SB OVER US 54 & MNA RR

ROUTE I-49 FROM ROUTE M TO ROUTE K
ABOUT 4.7 MILES SOUTH OF ROUTE M
BEGINNING STATION 808+51.89± (MATCH EXISTING)

STATE OF MISSOURI
TIMOTHY D. LEAF
NUMBER PE-2012000778
PROFESSIONAL ENGINEER
02/05/2025 8:53:27 AM
TIMOTHY D. LEAF - CIVIL
MO-PE-2012000778

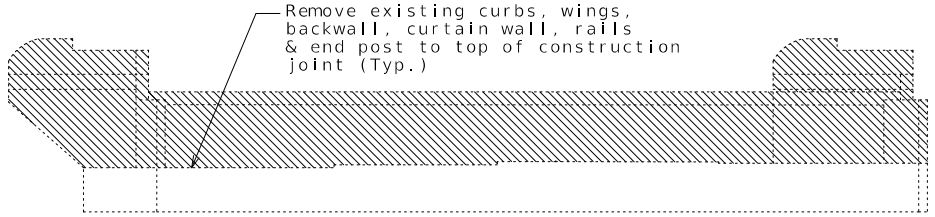
DATE PREPARED 2/5/2025

ROUTE	STATE
I-49	MO
DISTRICT	SHEET NO.
BR	1

COUNTY: VERNON
JOB NO.: JSR0063
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: A17743

DESCRIPTION | DATE

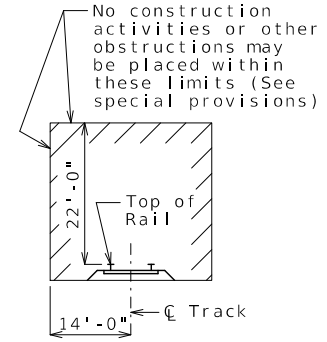
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)



DETAILS OF CONCRETE REMOVAL AT END BENTS

The cost of concrete removal as shown will be considered completely covered by the contract unit price for Removal of Existing Bridge Deck. Vertical backwall and wingwall reinforcement to be cut off one inch below concrete removal surface and the resulting holes shall be filled with a qualified special mortar.

A smooth, level surface shall be provided at Bents No. 1 & 5 removal lines.



MINIMUM CONSTRUCTION CLEARANCES

(Normal to railroad)
(Not to scale)

General Notes:

Stay-In-Place Forms:

Corrugated steel forms, supports, closure elements and accessories shall be in accordance with grade requirement and coating designation G165 of ASTM A653. Complete shop drawings of the permanent steel deck forms shall be required in accordance with Sec 1080.

Corrugations of stay-in-place forms shall be filled with an expanded polystyrene material. The polystyrene material shall be placed in the forms with an adhesive in accordance with the manufacturer's recommendations.

Form sheets shall not rest directly on the top of beam flanges. Sheets shall be securely fastened to form supports with a minimum bearing length of one inch on each end. Form supports shall be placed in direct contact with the flange. Welding on or drilling holes in the beam flanges will not be permitted. All steel fabrication and construction shall be in accordance with Sec 1080 and 712. Certified field welders will not be required for welding of the form supports.

The design of stay-in-place corrugated steel forms is per manufacturer which shall be in accordance with Sec 703 for false work and forms. Maximum actual weight of corrugated steel forms allowed shall be 4 psf assumed for beam loading.

The contractor shall provide a method of preventing the direct contact of the stay-in-place forms and connection components with uncoated weathering steel members that is approved by the engineer.

Pouring and Finishing Slab:

The contractor shall provide bracing necessary for lateral and torsional stability of the beams during construction of the concrete slab and remove the bracing after the slab has attained 75% design strength. Contractor shall not weld on or drill holes in the beams. The cost for furnishing, installing, and removing bracing will be considered completely covered by the contract unit price for Slab on Steel.

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

Alternate pour sequences may be submitted to the engineer for approval. Keyed construction joints shall be provided between pours.

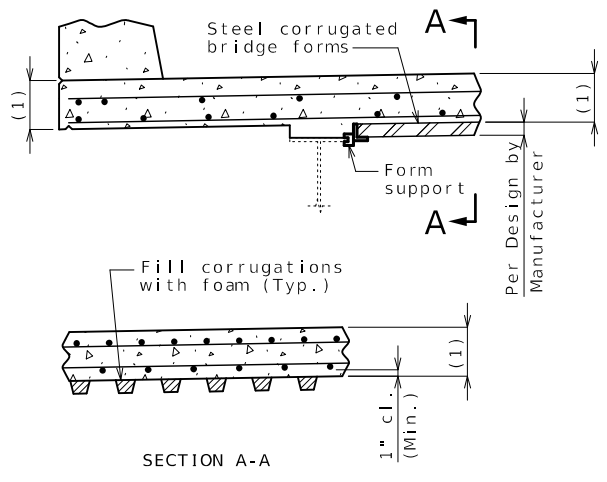
Haunching:

(1) Slab is to be considered a uniform thickness as shown on the plans. Haunching will vary. See front sheet for slab thickness.

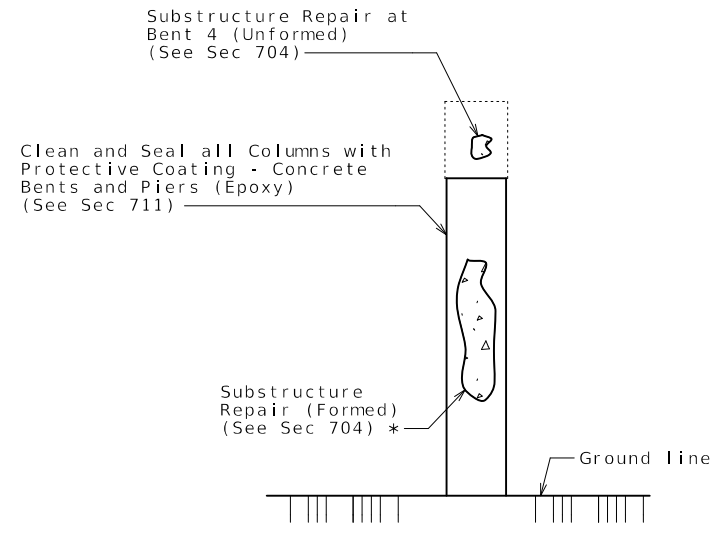
Substructure Repair:

* Provide a minimum 1 1/2" clear cover to existing reinforcing steel when forming substructure repairs at columns.

All concrete repairs shall be in accordance with Sec 704, unless otherwise noted.



OPTIONAL STAY-IN-PLACE FORM DETAILS



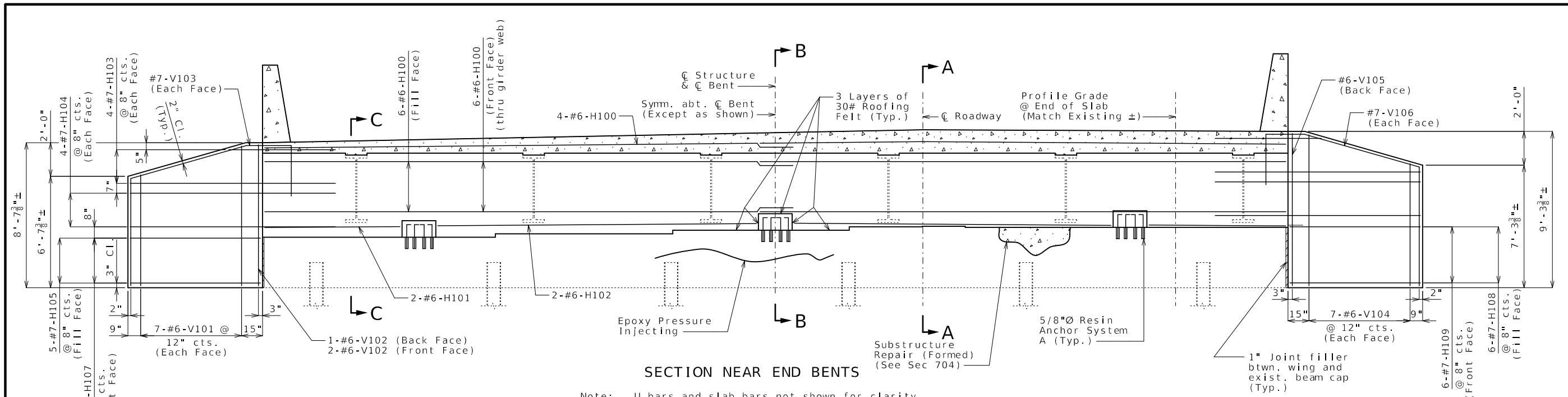
TYPICAL ELEVATION OF INT. BENTS NO. 3 & 4

STATE OF MISSOURI
TIMOTHY D. LEAF
NUMBER PE-2012000778
PROFESSIONAL ENGINEER
02/05/2025 8:53:38 AM
TIMOTHY D. LEAF - CIVIL
MO-PE-2012000778

DATE PREPARED: 2/5/2025
ROUTE: I-49 | STATE: MO
DISTRICT: BR | SHEET NO.: 2
COUNTY: VERNON
JOB NO.: JSR0063
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: A17743

DESCRIPTION | DATE

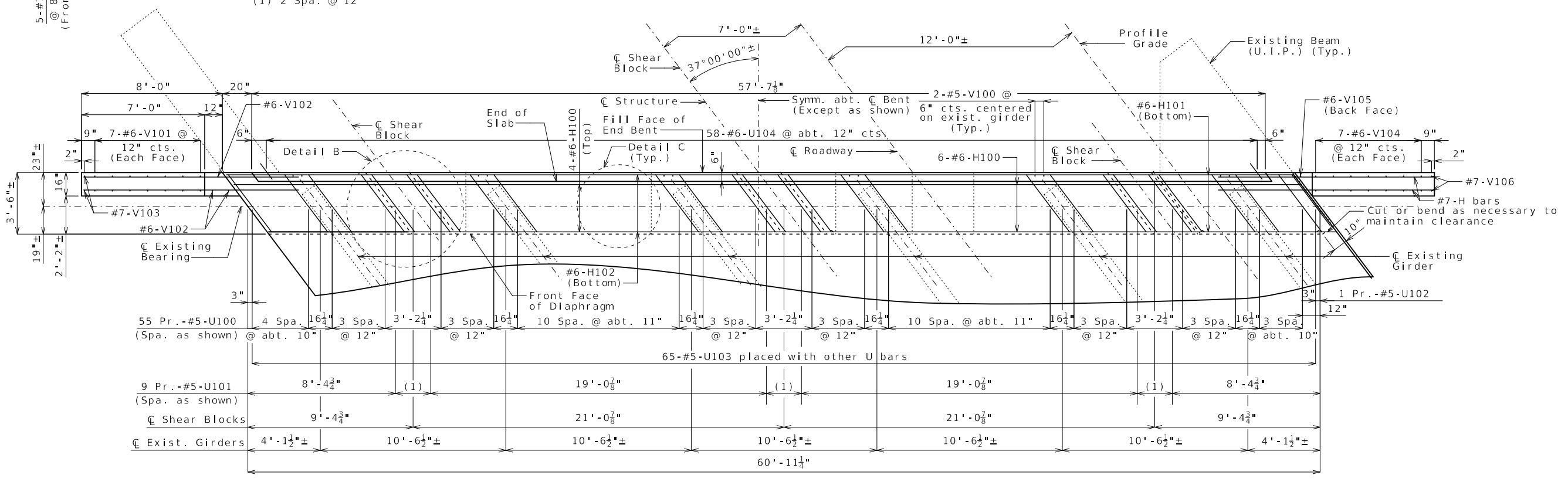
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)



SECTION NEAR END BENTS

Note: U bars and slab bars not shown for clarity.

(1) 2 Spa. @ 12"



PART PLAN

Note: S bars and Resin Anchors not shown for clarity
Above dimensions taken along ℄ of existing bearing
from outside face of proposed diaphragm

DETAILS OF END BENT NO. 1

Notes:

U bars shall clear existing girders by at least 1 1/2 inches.

All concrete and reinforcement in the end bent diaphragm and wings, complete in place, will be considered completely covered by the contract unit price for Slab on Steel, and is included in the Table of Estimated Quanities for Slab on Steel.

The #6-H100 bars are 2 units at 32'-1" with minimum lap of 3'-1". The contractor may use a mechanical bar splice in lieu of a lap splice. When a mechanical bar splice is used, the actual bar segment length will be determined by the contractor to accommodate manufacturer's recommendations for installation and ease of construction. The cost of furnishing and installing the bar splices will be considered completely covered by the contract unit price for Slab on Steel. No adjustment of the quantity of reinforcing steel will be allowed for the use of mechanical bar splices.

Work this Sheet with Sheet No. 4.

Detailed Feb. 2024
Checked Nov. 2024

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

STATE OF MISSOURI
TIMOTHY D. LEAF
NUMBER PE-2012000778
PROFESSIONAL ENGINEER
02/05/2025 8:53:46 AM
TIMOTHY D. LEAF - CIVIL
MO-PE-2012000778

DATE PREPARED
2/5/2025

ROUTE	STATE
I-49	MO
DISTRICT	SHEET NO.
BR	3

COUNTY
VERNON

JOB NO.
JSR0063

CONTRACT ID.

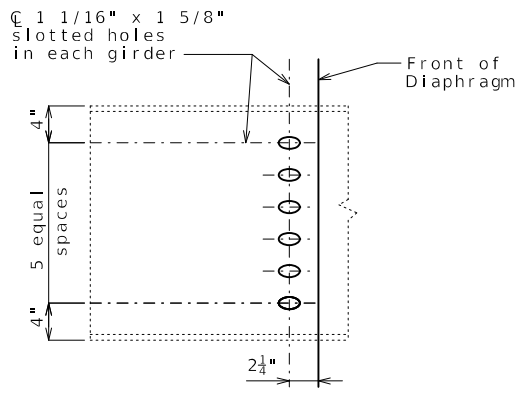
PROJECT NO.

BRIDGE NO.
A17743

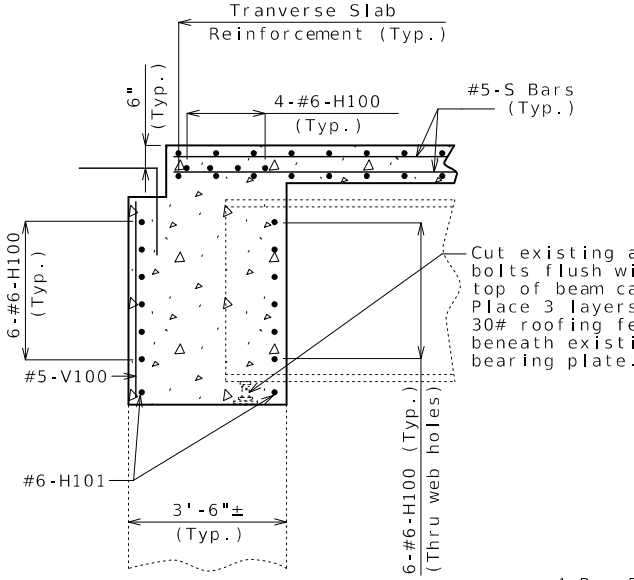
DESCRIPTION

DATE

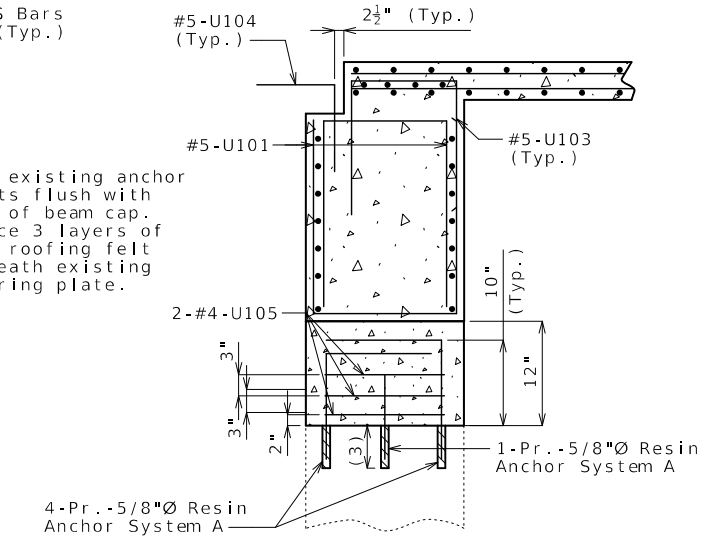
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)



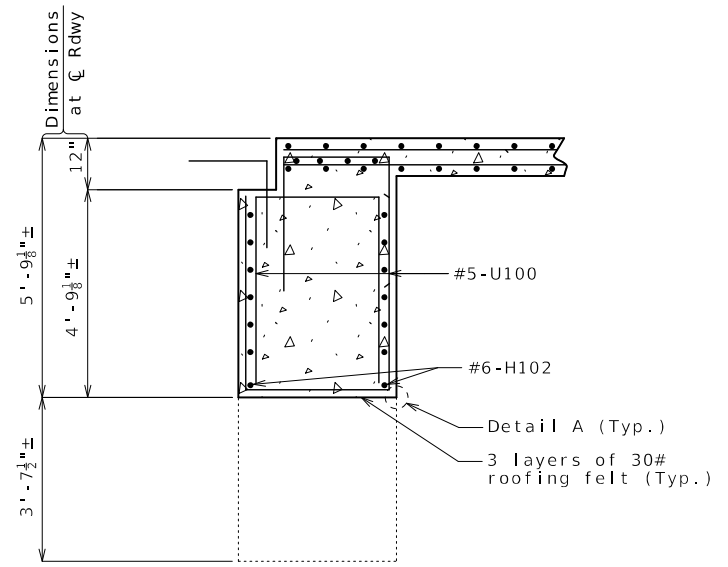
DETAIL OF WEB HOLES
AT END BENTS



SECTION C-C



SECTION B-B



SECTION A-A

Notes:

Work this sheet with Sheet No. 3.

The exposed and accessible surfaces of the existing structural steel and bearings that will be encased in concrete shall be cleaned with a minimum of SSPC-SP-3 surface preparation and coated with a minimum of one coat of gray epoxy-mastic primer (non-aluminum) in accordance with Sec 1081 to produce a dry film thickness of not less than 3 mils before concrete is poured. The surface preparation and coating for girders shall extend a minimum of one foot outside the face of the girder encasement. Payment for cleaning and coating steel to be encased in concrete will be considered completely covered by the contract unit price for Slab on Steel.

Cost of field drilling holes in existing plate girder webs will be considered completely covered by the contract unit price for Slab on Steel.

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

Cost of furnishing and installing the resin anchor systems, complete in place, will be considered completely covered by the contract unit price for Slab on Steel.

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

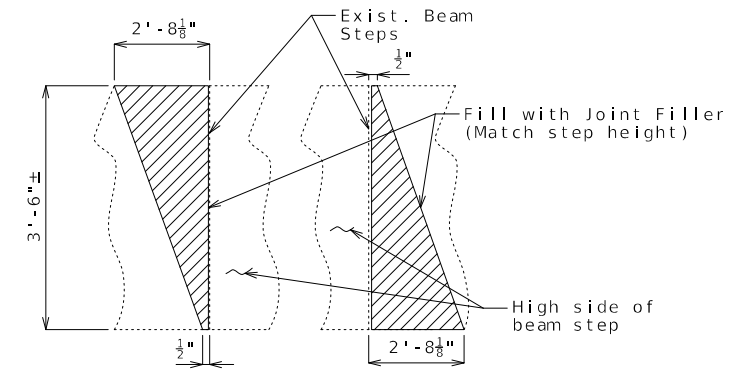
The required temporary support at the end bent shall be capable of safely supporting a service load of 15 kips/girder (factor of load safety not included). This load includes the dead load (without the slab) and a construction load of 50 psf.

A galvanized #5 Grade 60 reinforcing bar shall be substituted for the 5/8" Ø threaded rod for Resin Anchor System A.

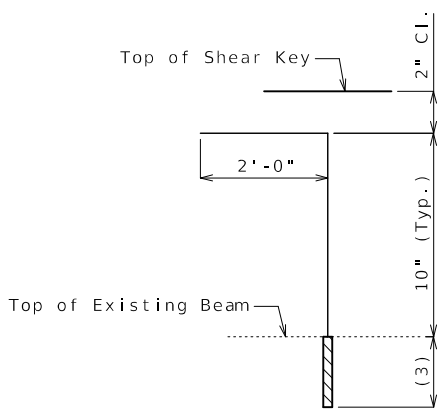
The U bars shall be placed parallel to centerline of roadway.

For details of vertical drain at end bent, see Sheet No. 5.

For details of bridge approach slab, see Sheet No. 11.

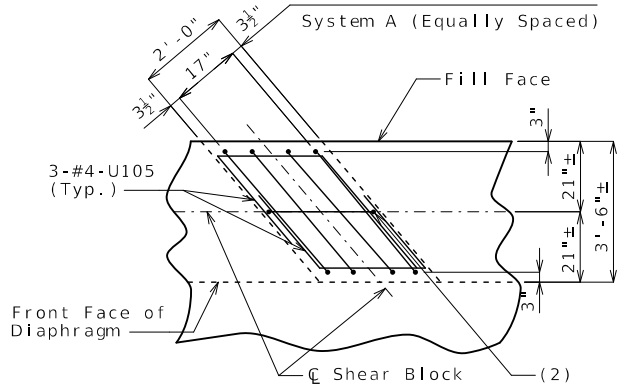


DETAIL C
JOINT FILLER
AT BEAM STEPS



DETAILS OF RESIN
ANCHOR SYSTEM A

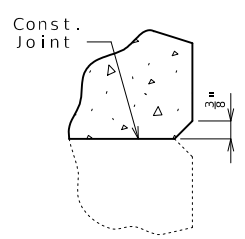
(30 Req'd. per bent)



DETAIL B

(2) Pr.-5/8"Ø Resin Anchor System A

(3) Manufacturer's recommended embedment length (5" min.)



DETAIL A

DETAILS OF END BENT NO. 1

Detailed Feb. 2024
Checked Nov. 2024

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

STATE OF MISSOURI
TIMOTHY D. LEAF
NUMBER PE-2012000778
PROFESSIONAL ENGINEER
02/05/2025 8:53:54 AM
TIMOTHY D. LEAF - CIVIL
MO-PE-2012000778

DATE PREPARED
2/5/2025

ROUTE	STATE
I-49	MO
DISTRICT	SHEET NO.
BR	4

COUNTY
VERNON

JOB NO.
JSR0063

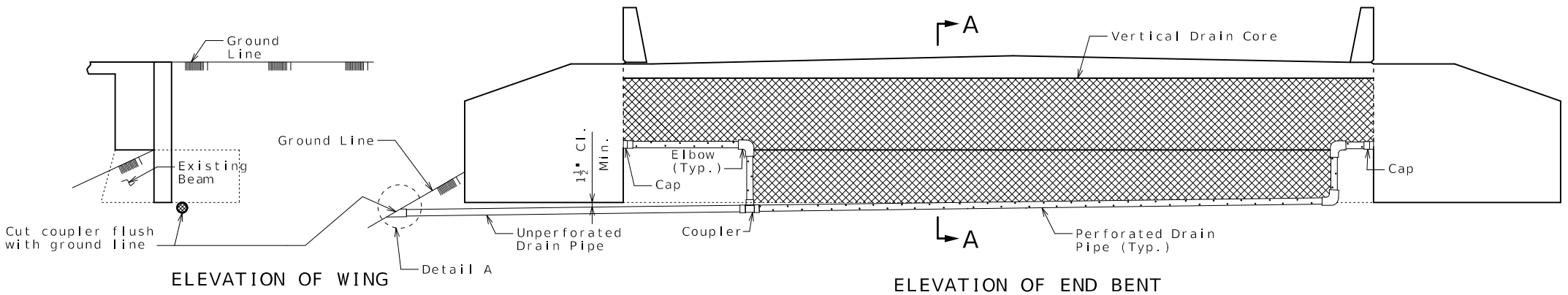
CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A17743

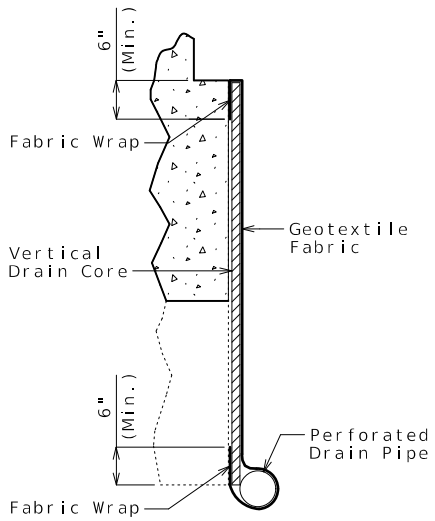
DESCRIPTION	DATE

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

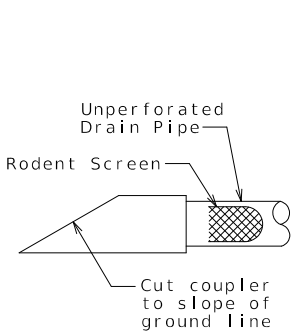


ELEVATION OF WING

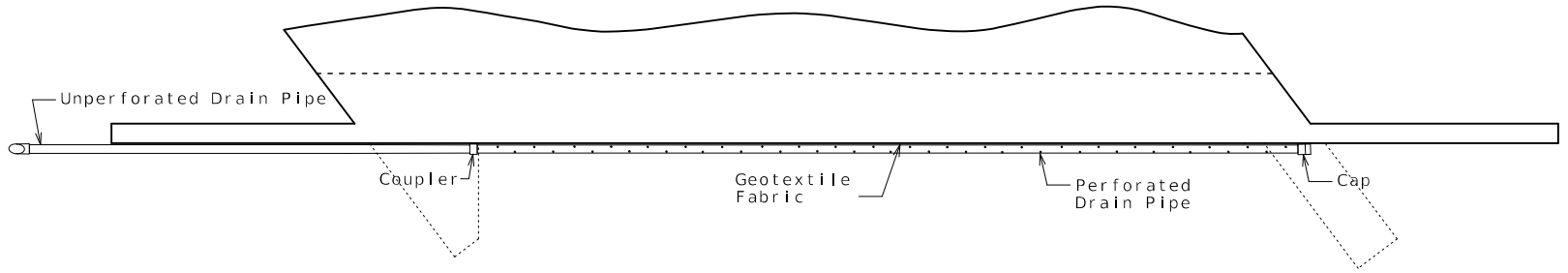
ELEVATION OF END BENT



PART SECTION A-A



DETAIL A



PLAN OF END BENT

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

STATE OF MISSOURI
TIMOTHY D. LEAF
NUMBER PE-2012000778
PROFESSIONAL ENGINEER
02/05/2025 8:54:00 AM
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MO-PE-2012000778

DATE PREPARED: 2/5/2025

ROUTE	STATE
I-49	MO

DISTRICT	SHEET NO.
BR	5

COUNTY: VERNON

JOB NO.: JSR0063

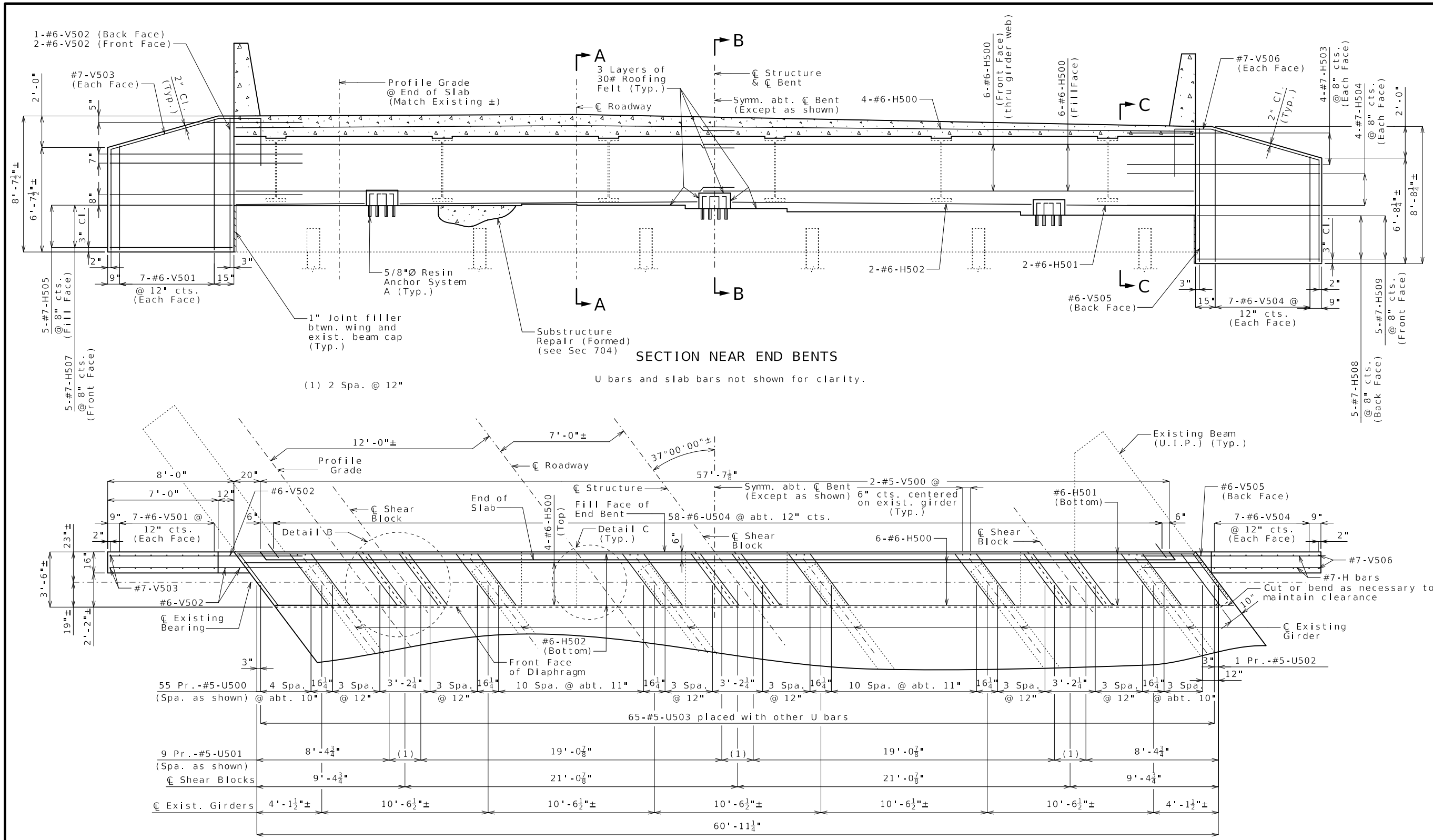
CONTRACT ID.:

PROJECT NO.:

BRIDGE NO.: A17743

DESCRIPTION | DATE

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



SECTION NEAR END BENTS

U bars and slab bars not shown for clarity.

(1) 2 Spa. @ 12"

PART PLAN

Note: S bars and Resin Anchors not shown for clarity
Above dimensions taken along ℄ of existing bearing
from outside face of proposed diaphragm

DETAILS OF END BENT NO. 5

Notes:

U bars shall clear existing girders by at least 1 1/2 inches.

All concrete and reinforcement in the end bent diaphragm and wings, complete in place, will be considered completely covered by the contract unit price for Slab on Steel, and is included in the Table of Estimated Quanities for Slab on Steel.

The #6-H500 bars are 2 units at 32'-1" with minimum lap of 3'-1". The contractor may use a mechanical bar splice in lieu of a lap splice. When a mechanical bar splice is used, the actual bar segment length will be determined by the contractor to accommodate manufacturer's recommendations for installation and ease of construction. The cost of furnishing and installing the bar splices will be considered completely covered by the contract unit price for Slab on Steel. No adjustment of the quantity of reinforcing steel will be allowed for the use of mechanical bar splices.

Work this Sheet with Sheet No. 7.

Detailed Feb. 2024
Checked Nov. 2024

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

STATE OF MISSOURI
TIMOTHY D. LEAF
NUMBER PE-2012000778
PROFESSIONAL ENGINEER
02/05/2025 8:54:06 AM
TIMOTHY D. LEAF - CIVIL
MO-PE-2012000778

DATE PREPARED
2/5/2025

ROUTE	STATE
I-49	MO
DISTRICT	SHEET NO.
BR	6

COUNTY
VERNON

JOB NO.
JSR0063

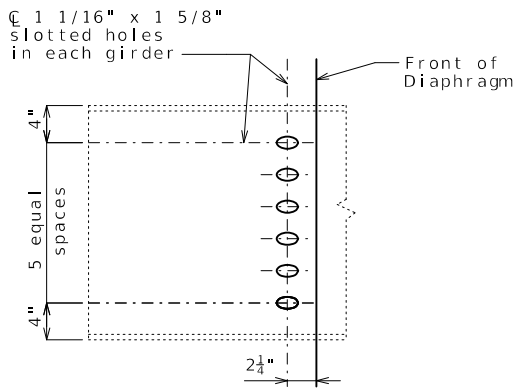
CONTRACT ID.

PROJECT NO.

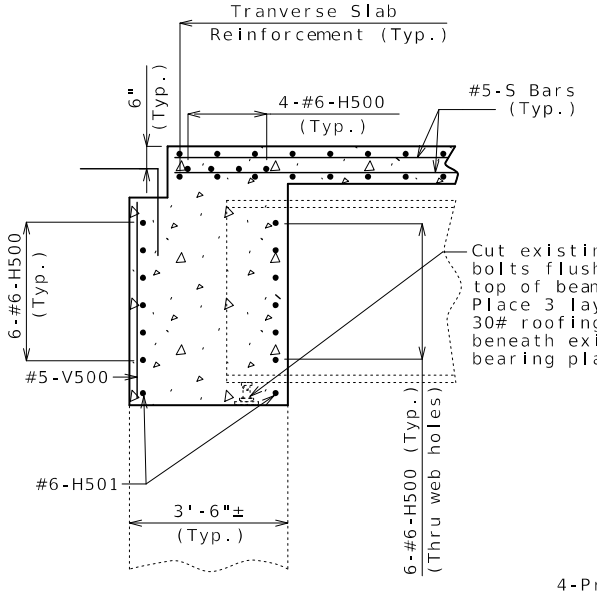
BRIDGE NO.
A17743

DESCRIPTION	DATE

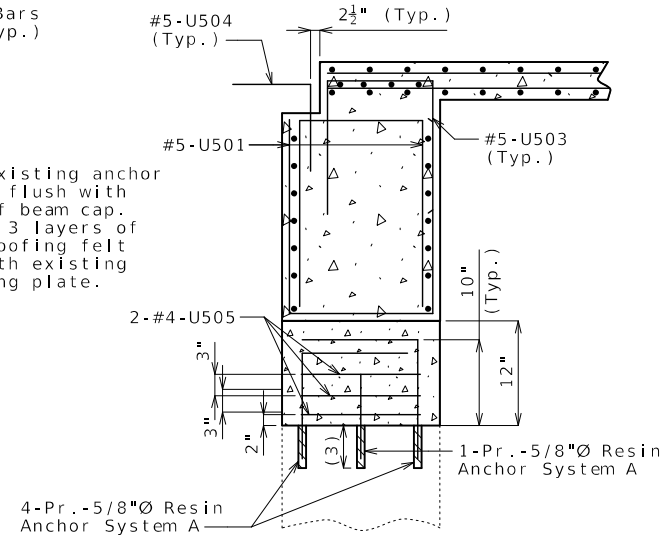
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)



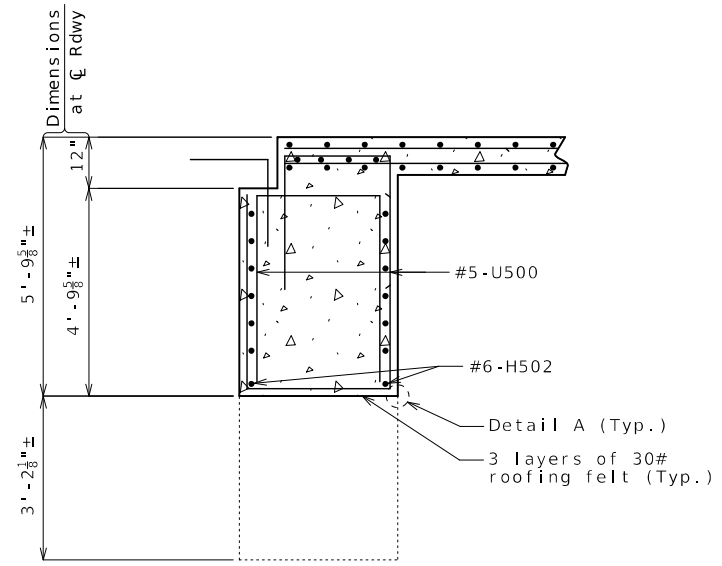
DETAIL OF WEB HOLES
AT END BENTS



SECTION C-C



SECTION B-B



SECTION A-A

Notes:

Work this sheet with Sheet No. 6.

The exposed and accessible surfaces of the existing structural steel and bearings that will be encased in concrete shall be cleaned with a minimum of SSPC-SP-3 surface preparation and coated with a minimum of one coat of gray epoxy-mastic primer (non-aluminum) in accordance with Sec 1081 to produce a dry film thickness of not less than 3 mils before concrete is poured. The surface preparation and coating for girders shall extend a minimum of one foot outside the face of the girder encasement. Payment for cleaning and coating steel to be encased in concrete will be considered completely covered by the contract unit price for Slab on Steel.

Cost of field drilling holes in existing plate girder webs will be considered completely covered by the contract unit price for Slab on Steel.

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

Cost of furnishing and installing the resin anchor systems, complete in place, will be considered completely covered by the contract unit price for Slab on Steel.

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

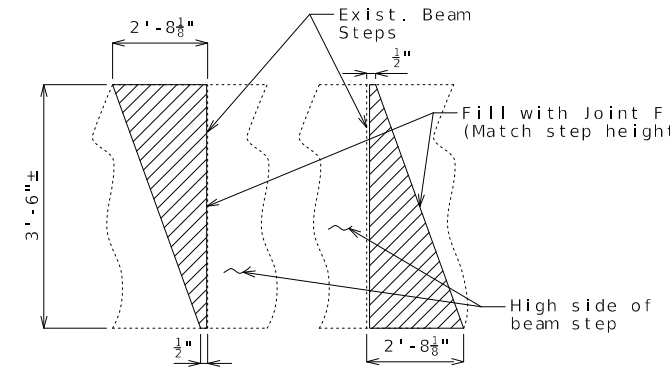
The required temporary support at the end bent shall be capable of safely supporting a service load of 15 kips/girder (factor of load safety not included). This load includes the dead load (without the slab) and a construction load of 50 psf.

A galvanized #5 Grade 60 reinforcing bar shall be substituted for the 5/8" Ø threaded rod for Resin Anchor System A.

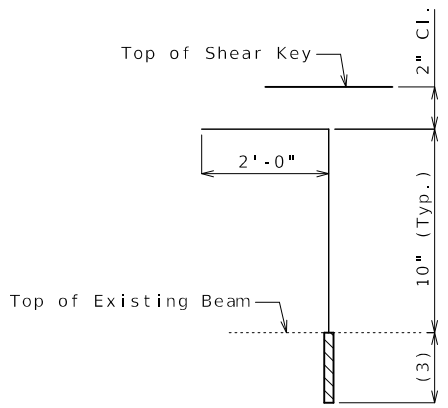
The U bars shall be placed parallel to centerline of roadway.

For details of vertical drain at end bent, see Sheet No. 5.

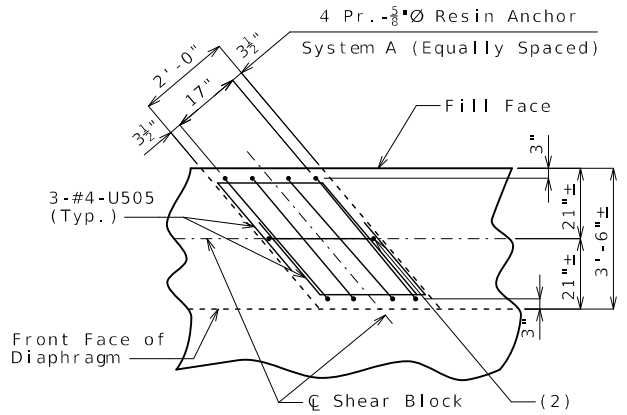
For details of bridge approach slab, see Sheet No. 11.



DETAIL C
JOINT FILLER
AT BEAM STEPS



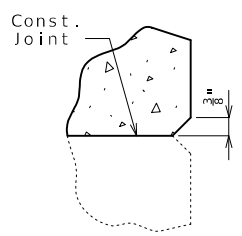
DETAILS OF RESIN
ANCHOR SYSTEM A
(30 Req'd. per bent)



DETAIL B

(2) Pr.-5/8"Ø Resin Anchor System A

(3) Manufacturer's recommended embedment length (5" min.)



DETAIL A

DETAILS OF END BENT NO. 5

Detailed Feb. 2024
Checked Nov. 2024

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

STATE OF MISSOURI
TIMOTHY D. LEAF
NUMBER PE-2012000778
PROFESSIONAL ENGINEER
02/05/2025 8:54:13 AM
TIMOTHY D. LEAF - CIVIL
MO-PE-2012000778

DATE PREPARED
2/5/2025

ROUTE	STATE
I-49	MO
DISTRICT	SHEET NO.
BR	7

COUNTY
VERNON

JOB NO.
JSR0063

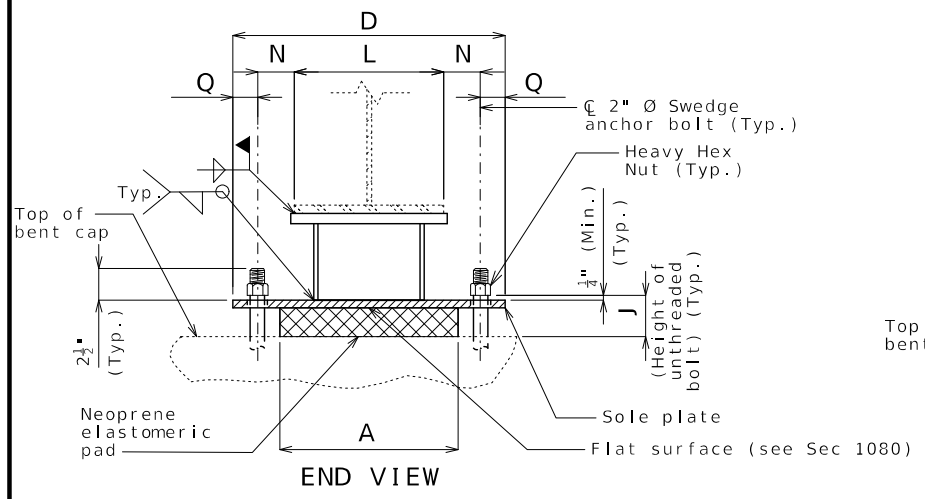
CONTRACT ID.

PROJECT NO.

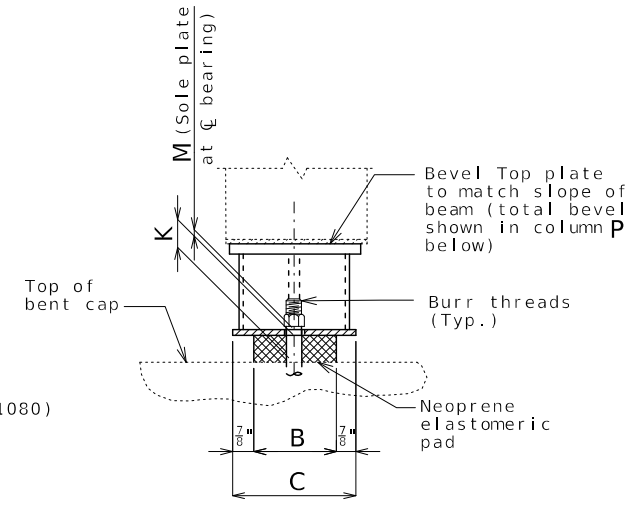
BRIDGE NO.
A17743

DESCRIPTION	DATE

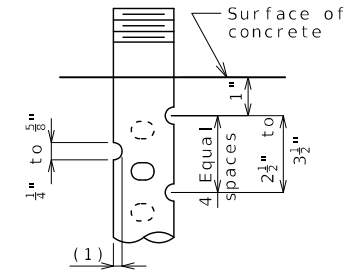
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)



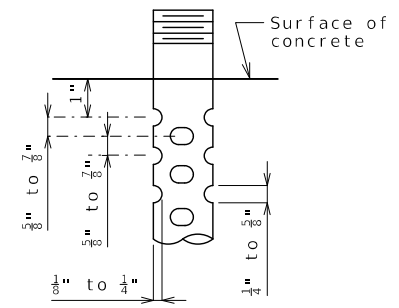
END VIEW



SIDE VIEW



DETAIL OF 3/4"Ø THRU 2 1/2"Ø ANCHOR BOLTS

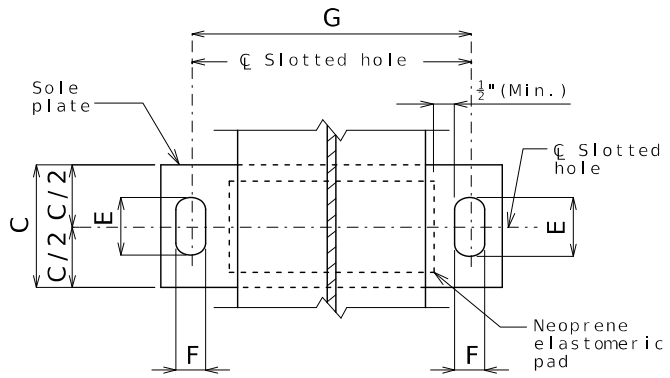


OPTIONAL DETAIL OF 1 3/8"Ø THRU 2 1/2"Ø ANCHOR BOLTS

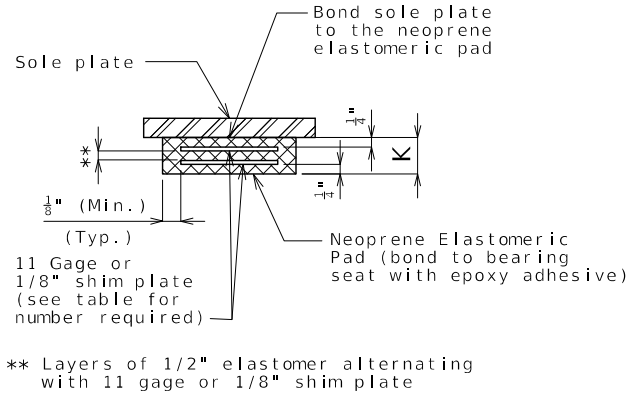
SWEDGE ANCHOR BOLT DETAILS

(1) 1/8" for 3/4"Ø thru 1 1/4"Ø anchor bolts

1/8" to 1/4" for 1 3/8"Ø thru 2 1/2"Ø anchor bolts

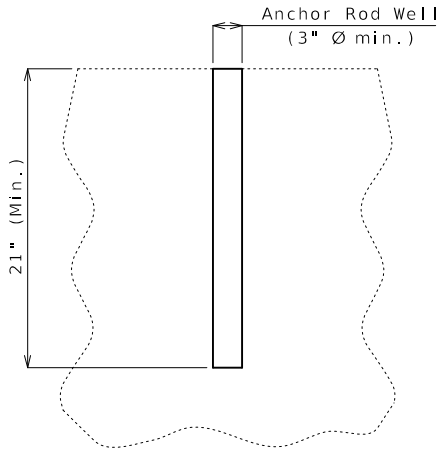


PART PLAN

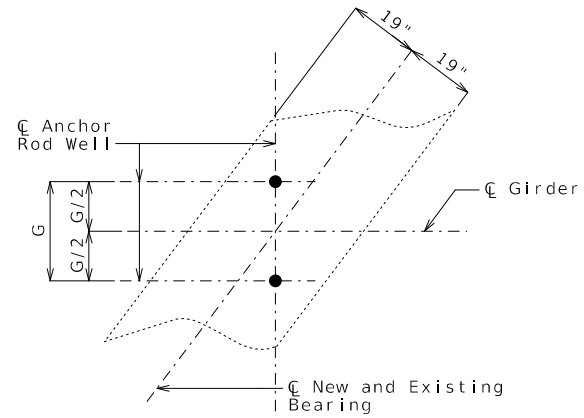


** Layers of 1/2" elastomer alternating with 11 gage or 1/8" shim plate

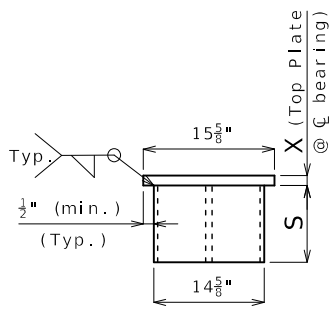
NEOPRENE ELASTOMERIC PAD



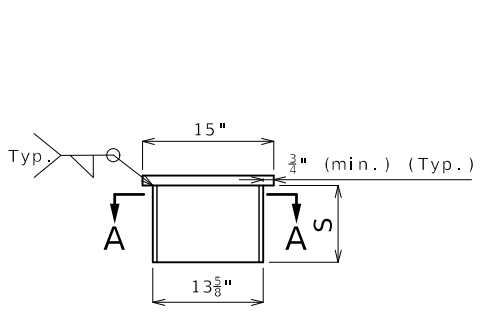
DETAIL OF ANCHOR ROD WELLS



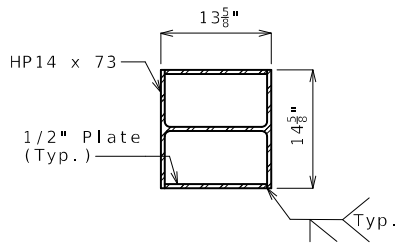
PLAN OF EXISTING INT. BENT SHOWING ANCHOR RODS



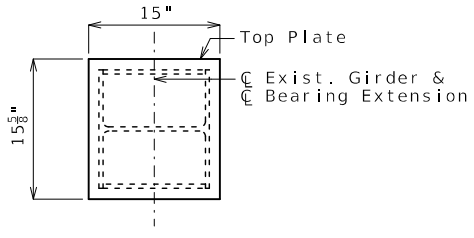
SIDE ELEVATION OF BEARING EXTENSION



END ELEVATION OF BEARING EXTENSION



SECTION A-A



PLAN OF BEARING EXTENSION

EXPANSION BEARINGS																		
BENT NO.	A	B	C	D	E	F	G	J	K	L	M	N	P	Q	R	S	X	NUMBER OF SHIM PLATES *	NUMBER REQUIRED
BENT NO. 2	14"	14"	15 3/4"	25 3/4"	3 1/4"	2 1/8"	19 3/4"	4 1/4"	2 1/2"	14"	1 1/2"	2 7/8"	-	3"	1/16"	9 5/8"	1"	4	6
																		TOTAL BEARINGS	6

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

GENERAL NOTES:

Anchor bolts shall be 2"Ø ASTM F1554 Grade 55 swedged bolts and shall extend 18" into the concrete with ASTM A563 Grade A Heavy Hex nuts. Actual manufacturer's certified mill test reports(chemical and mechanical) shall be provided. Swedging shall be 1" less than extension into the concrete.

Anchor bolt shall be at the centerline of slotted hole at 60°F. Bearing position shall be adjusted R for each 10° fall or rise in temperature at installation.

Anchor bolts and heavy hex nuts shall be coated with a minimum of two coats of inorganic zinc primer to provide a total dry film thickness of 4 mils minimum, 6 mils maximum, or galvanized in accordance with Sec 1081.

Neoprene Elastomeric Pads shall be 60 Durometer.

Structural steel for sole plate and all bearing extension steel shall be ASTM A709 Grade 50 and shall be coated with a minimum of two coats of inorganic zinc primer to provide a total dry film thickness of 4 mils minimum, 6 mils maximum.

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

Cost of bearing extension, complete in place, will be considered completely covered by the contract unit price for Laminated Neoprene Bearing Pad Assembly.

An equivalent sized W shape may be substituted for the HP14x73 or equivalent size plates may be welded together.

The required temporary support at Int. Bent No 2 shall be capable of safely supporting a service load of 48 kips/girder (factor of load safety not included). This load includes the dead load (without the slab) and a construction load of 50 psf.

Retain Bent No. 2 bearings for MoDOT Regional Bridge for future use. Deliver to either the Springfield or Nevada Maintenance shed.

LAMINATED NEOPRENE BEARING PAD ASSEMBLY

STATE OF MISSOURI
TIMOTHY D. LEAF
NUMBER PE-2012000778
PROFESSIONAL ENGINEER
02/05/2025 8:54:22 AM
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DATE PREPARED 2/5/2025

ROUTE	STATE
I-49	MO
DISTRICT	SHEET NO.
BR	8

COUNTY VERNON

JOB NO. JSR0063

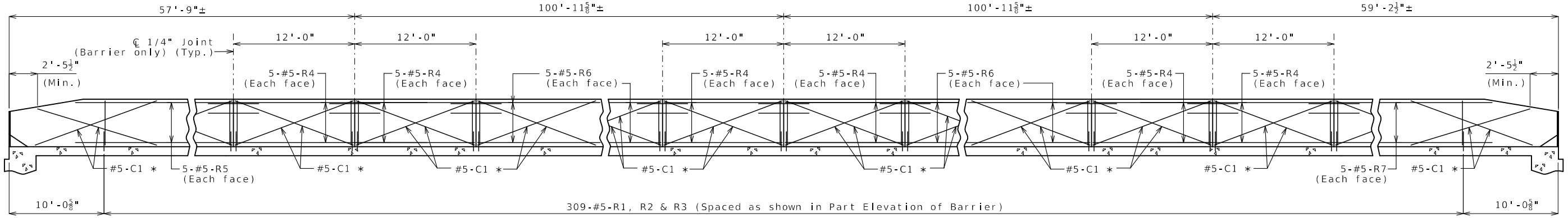
CONTRACT ID.

PROJECT NO.

BRIDGE NO. A17743

DESCRIPTION	DATE

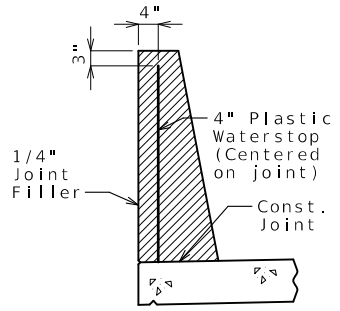
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)



ELEVATION OF BARRIER

(Left barrier shown, right barrier similar)

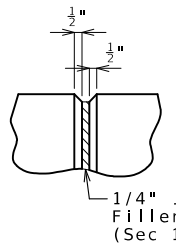
Longitudinal dimensions are horizontal.



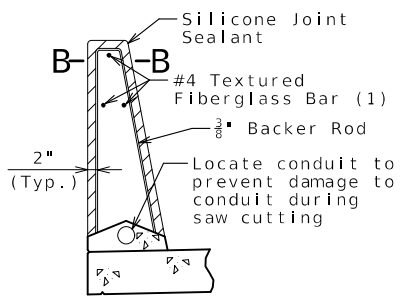
WATERSTOP DETAIL

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

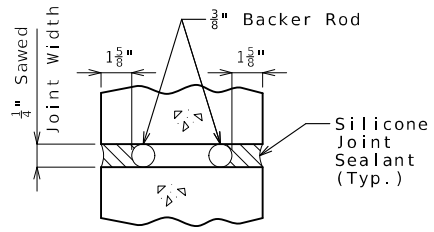
Cost of plastic waterstop, complete in place, will be considered completely covered by the contract unit price for Type D Barrier.



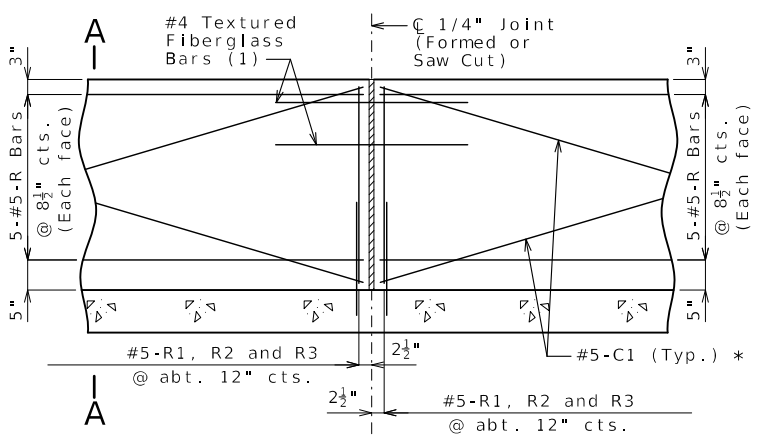
PART ELEVATION AT FORMED JOINT



SECTION THRU SAW CUT JOINT

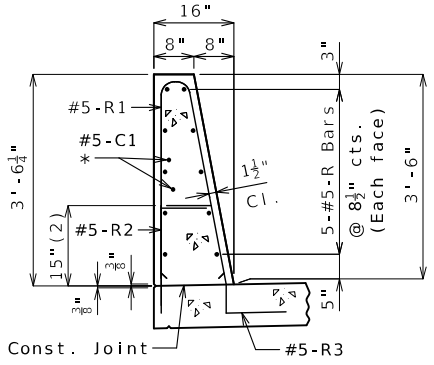


SECTION B-B



PART ELEVATION OF BARRIER

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

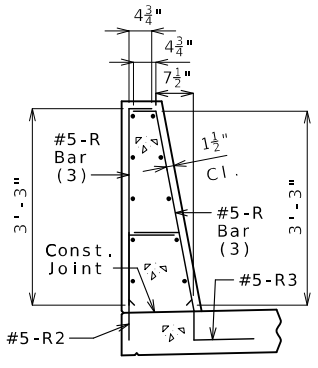


SECTION A-A

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

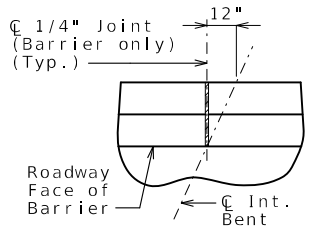
The cross-sectional area above the slab is 3.52 square feet.

(2) To top of bar



R-BAR PERMISSIBLE ALTERNATE SHAPE

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



PART PLAN SHOWING JOINT LOCATION

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 normal to grade.

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

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

Concrete in barrier shall be Class B-1.

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

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

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

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

Plastic waterstop shall not be used with saw cut joints.

TYPE D BARRIER

Detailed Feb. 2024
Checked Nov. 2024

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

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TIMOTHY D. LEAF
NUMBER PE-2012000778
PROFESSIONAL ENGINEER
02/05/2025 8:54:28 AM
TIMOTHY D. LEAF - CIVIL
MO-PE-2012000778

DATE PREPARED 2/5/2025

ROUTE	STATE
I-49	MO
DISTRICT	SHEET NO.
BR	9

COUNTY VERNON

JOB NO. JSR0063

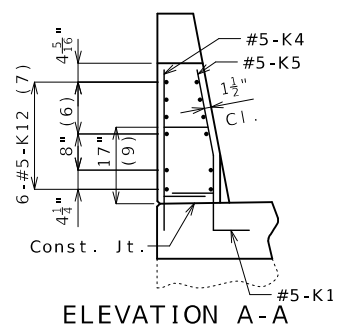
CONTRACT ID.

PROJECT NO.

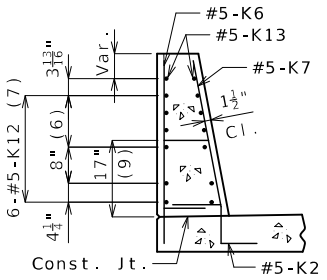
BRIDGE NO. A17743

DESCRIPTION	DATE

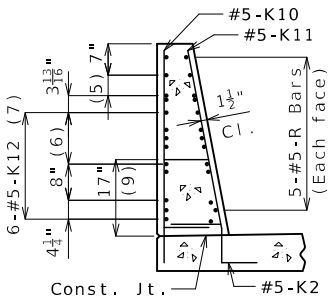
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)



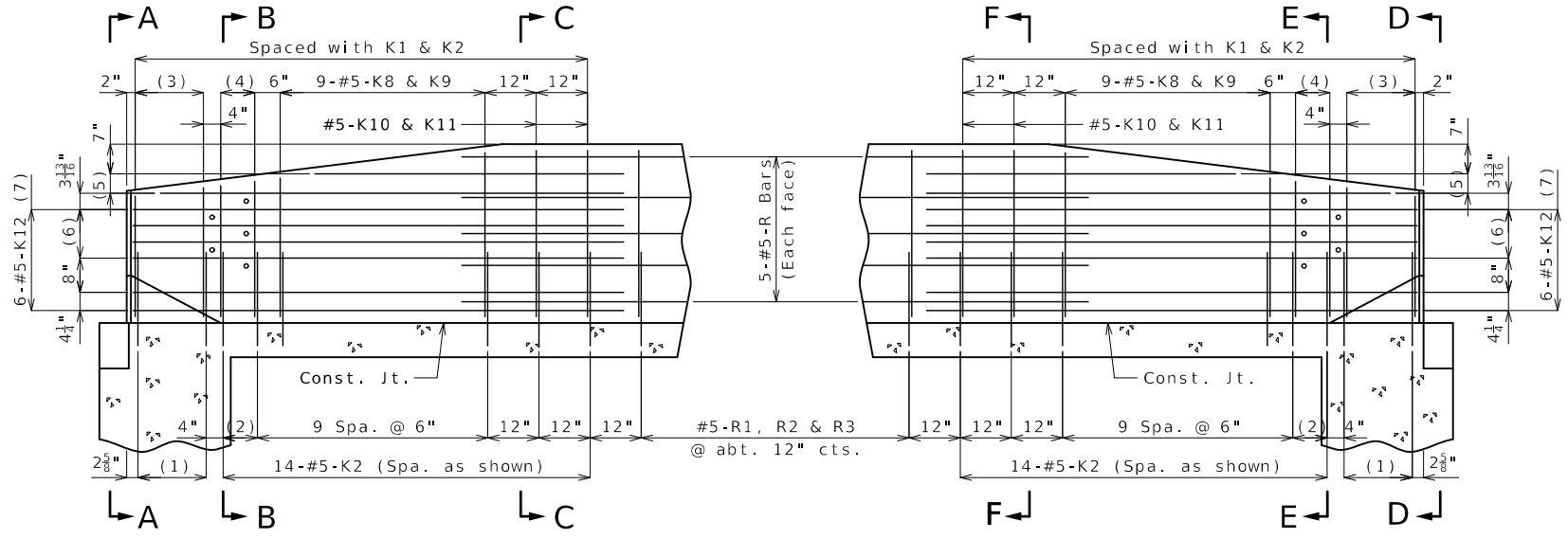
ELEVATION A-A



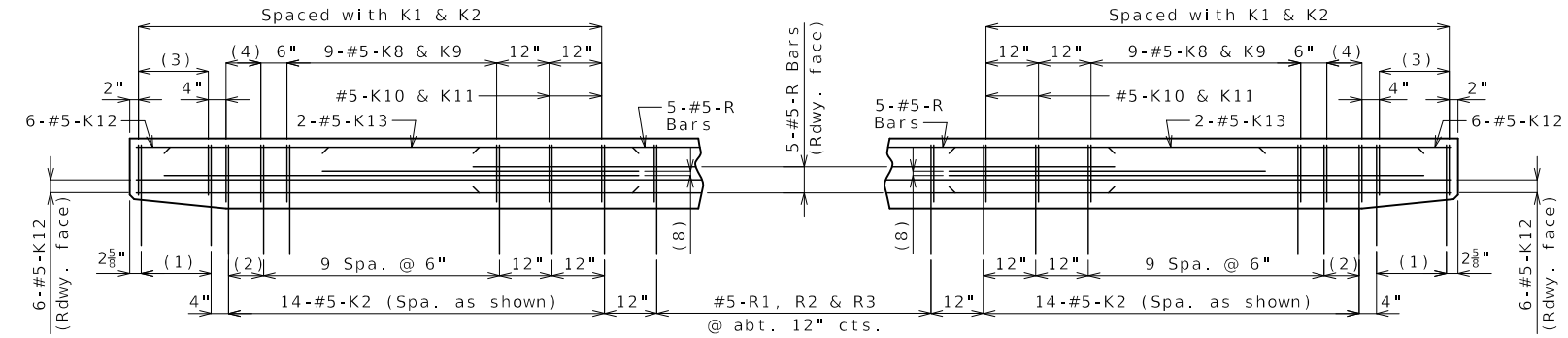
SECTION B-B



SECTION C-C

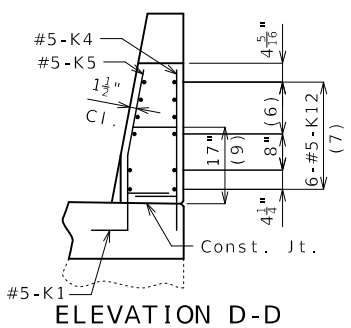


PART ELEVATION

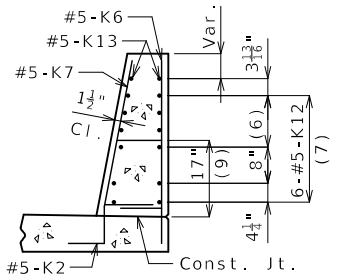


PART PLAN

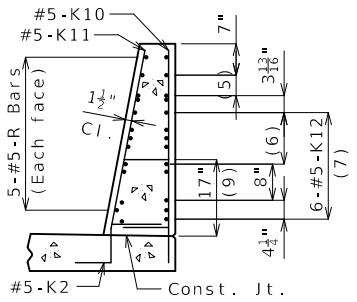
(Top of barrier not shown for clarity.)



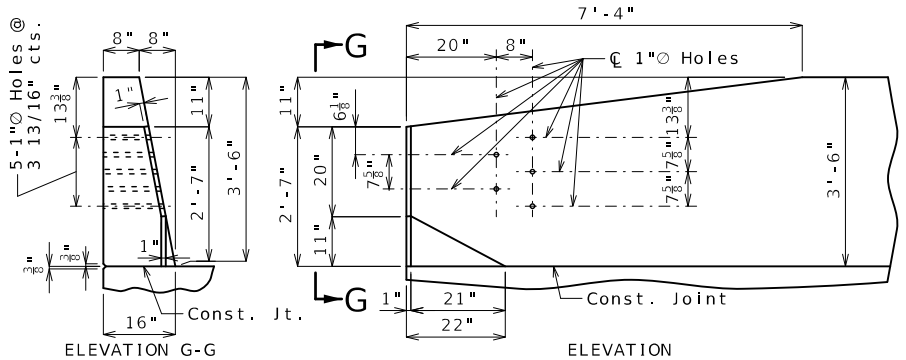
ELEVATION D-D



SECTION E-E



SECTION F-F



DETAILS OF GUARD RAIL ATTACHMENT

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

(2) 2 spaces @ 4"

(3) 5-#5-K4 & K5

(4) 3-#5-K6 & K7

(5) 2-#5-K13 @ 4½" cts., each face

(6) 3 spaces @ 3 13/16"

(7) Spaced as shown, each face

(8) 2-#5-K13 (Roadway face)

(9) To top of bar

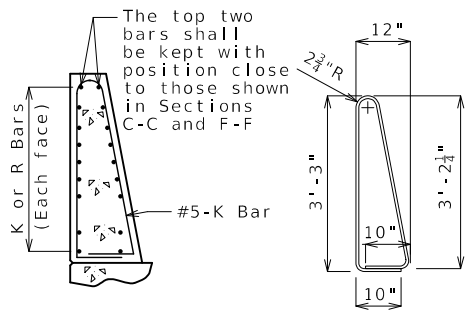
General Notes:

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

Reinforcing Steel:

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

Use a minimum lap of 3'-1" between horizontal K bars and R bars.



K10-K11 BAR PERMISSIBLE ALTERNATE SHAPE

(Other K bars not shown for clarity)

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

All dimensions are out to out.

TYPE D BARRIER AT END BENTS

(Left barrier shown, right barrier similar)

Detailed Feb. 2024
Checked Nov. 2024

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

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TIMOTHY D. LEAF
NUMBER PE-2012000778
PROFESSIONAL ENGINEER
02/05/2025 8:54:34 AM
TIMOTHY D. LEAF - CIVIL
MO-PE-2012000778

DATE PREPARED
2/5/2025

ROUTE	STATE
I-49	MO
DISTRICT	SHEET NO.
BR	10

COUNTY
VERNON

JOB NO.
JSR0063

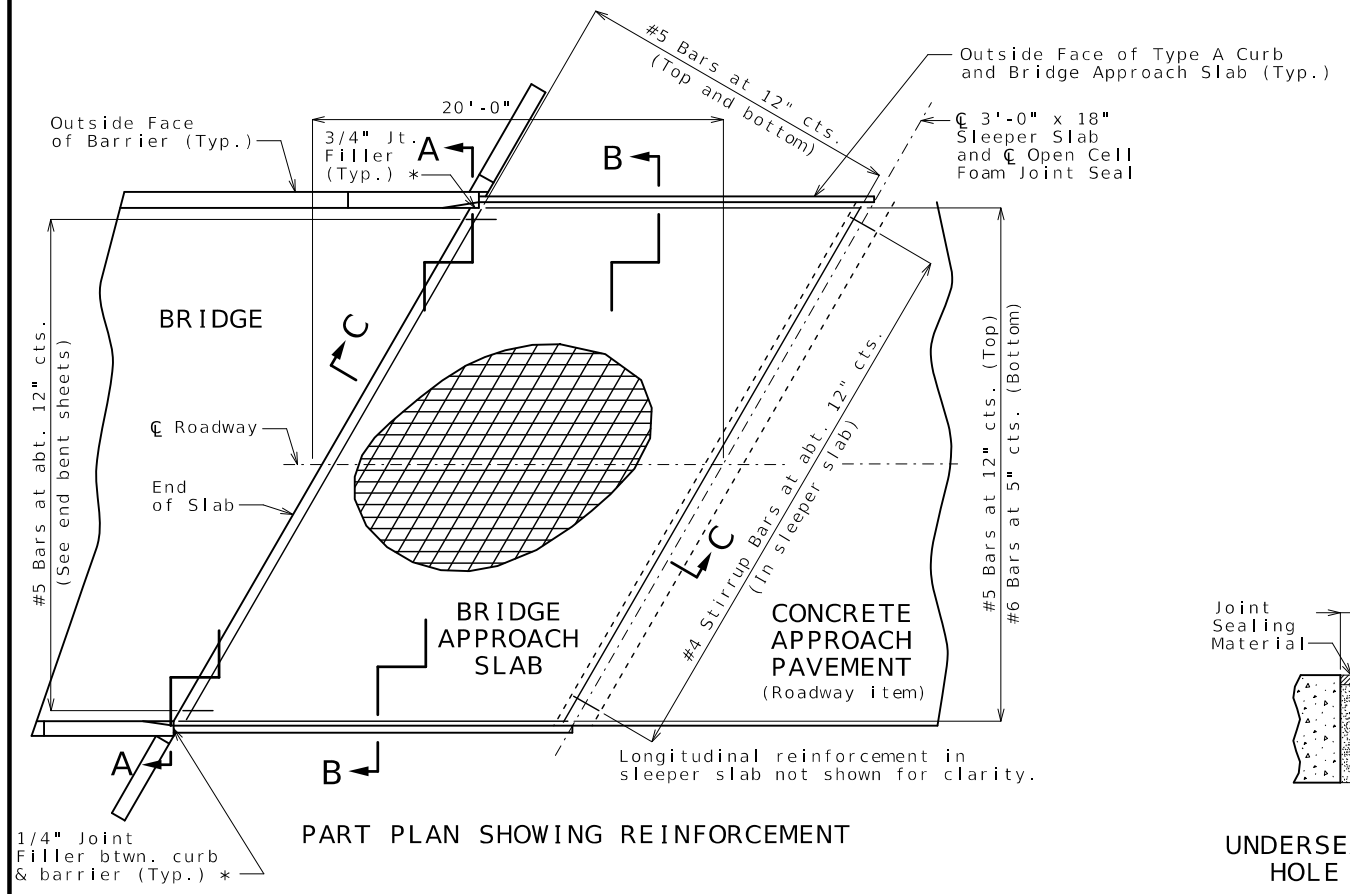
CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A17743

DESCRIPTION	DATE

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



PART PLAN SHOWING REINFORCEMENT

General Notes:

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

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

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

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

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

Mechanical bar splices shall be in accordance with Sec 710.

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

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

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

For concrete approach pavement details, see roadway plans.

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

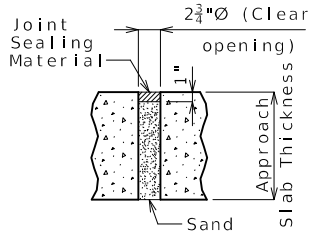
Payment for furnishing all materials, labor and excavation necessary to construct the approach slab, including the timber header, sleeper slab, underdrain, Type 5 aggregate base, joint filler and all other appurtenances and incidental work as shown on this sheet, complete in place, will be considered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

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

Open cell foam joint seal width shall be 3" and depth shall be determined by the manufacturer. Manufacturer recommended seal shall meet the movement and installation gap requirements and skew effect.

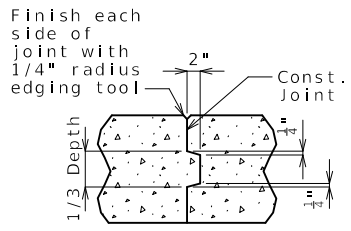
The open cell foam joint seal shall be installed according to the manufacturer's recommdendations.

The Open Cell Foam Joint Seal, complete in place, will be considered completely covered by the contract unit price for Bridge Approach Slab (Major).

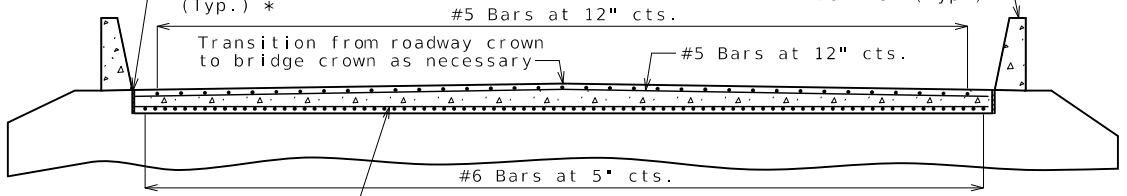


UNDERSEAL ACCESS HOLE DETAIL

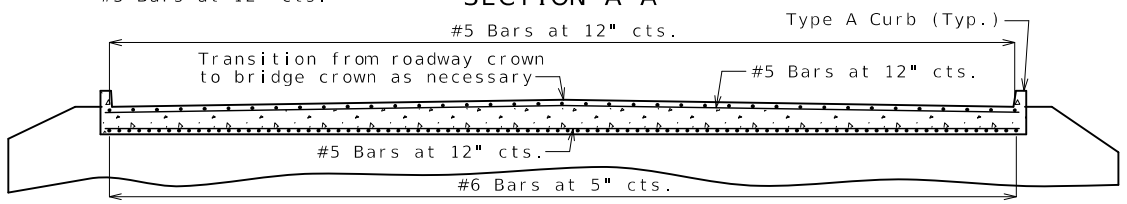
(If required)



CONSTRUCTION JOINT DETAIL

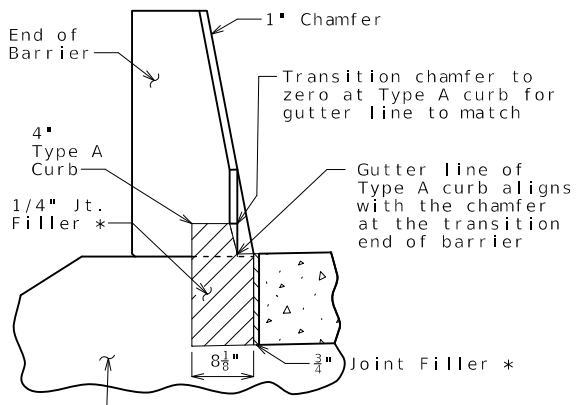


SECTION A-A

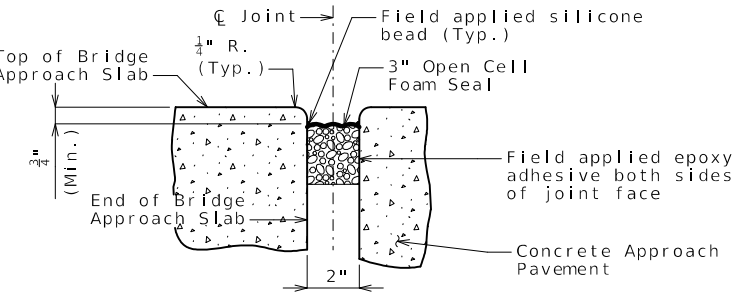


SECTION B-B

The contractor shall crown the bottom of the approach slab to match the crown of the roadway surface.



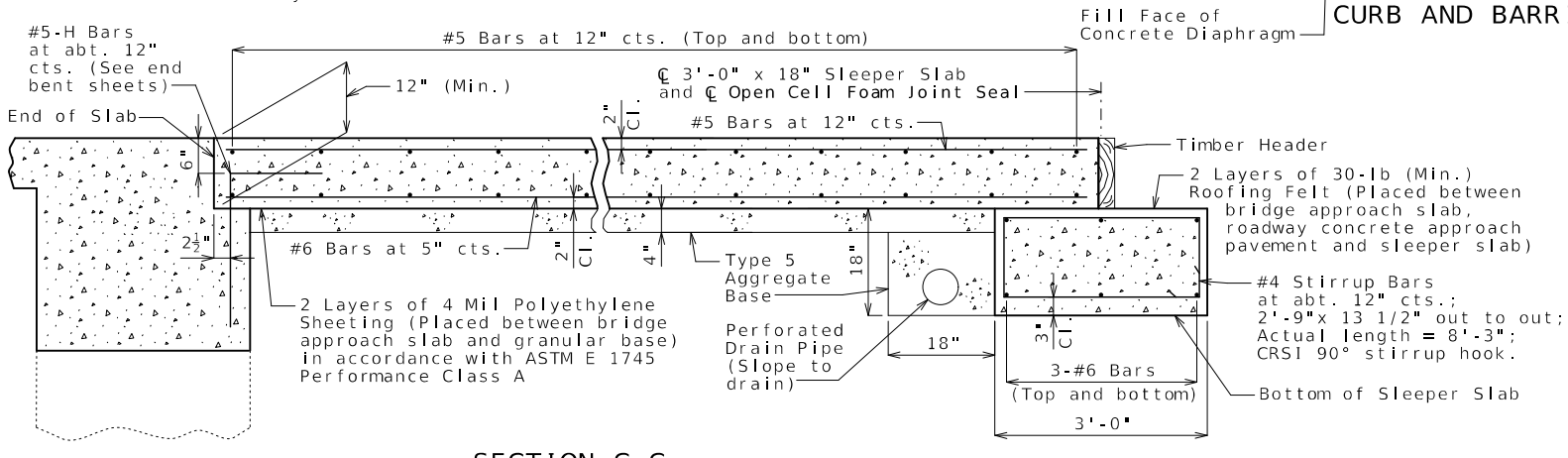
SECTION BETWEEN CURB AND BARRIER



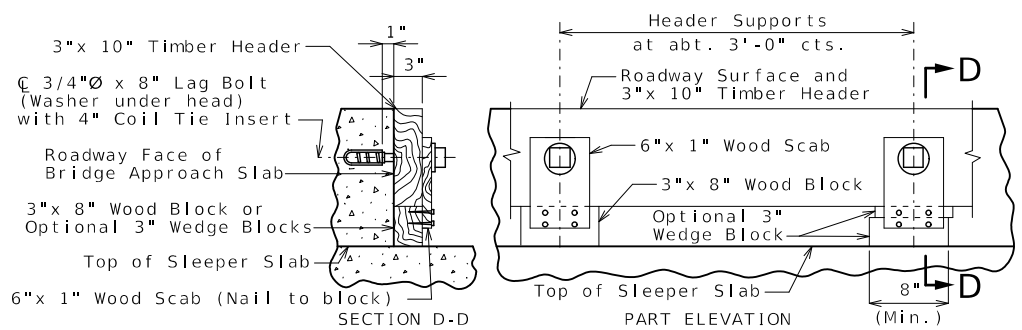
SECTION THRU JOINT AT END OF BRIDGE APPROACH SLAB

SKEW = 37° L.A.

Extend seal full width of approach slab.



SECTION C-C



DETAILS OF TIMBER HEADER

Remove timber header when concrete pavement is placed.

BRIDGE APPROACH SLAB (MAJOR)

Detailed Feb. 2024
Checked Nov. 2024

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

STATE OF MISSOURI
TIMOTHY D. LEAF
NUMBER PE-2012000778
PROFESSIONAL ENGINEER
02/05/2025 8:54:41 AM
TIMOTHY D. LEAF - CIVIL
MO-PE-2012000778

DATE PREPARED
2/5/2025

ROUTE	STATE
I-49	MO
DISTRICT	SHEET NO.
BR	11

COUNTY
VERNON

JOB NO.
JSR0063

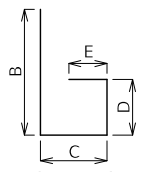
CONTRACT ID.

PROJECT NO.

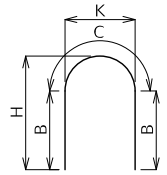
BRIDGE NO.
A17743

DESCRIPTION	DATE

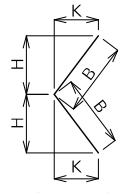
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)



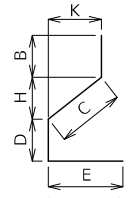
SHAPE 6
or 6S



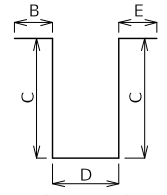
SHAPE 7



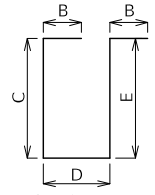
SHAPE 8
or 8S



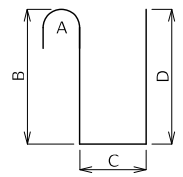
SHAPE 9
or 9S



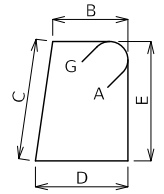
SHAPE 10
or 10S



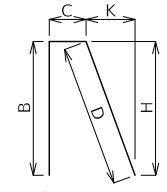
SHAPE 11
or 11S



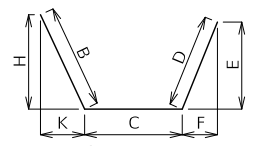
SHAPE 12



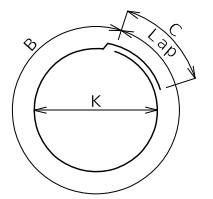
SHAPE 13S



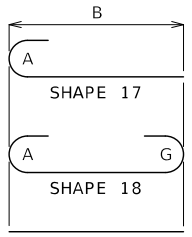
SHAPE 14
or 14S



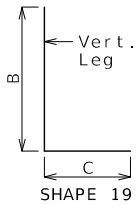
SHAPE 15
or 15S



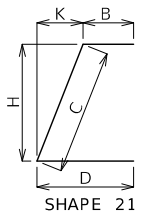
SHAPE 16



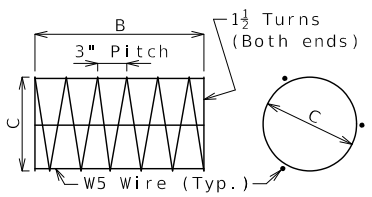
SHAPE 17
SHAPE 18
SHAPE 20



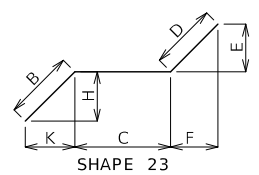
SHAPE 19
or 19S



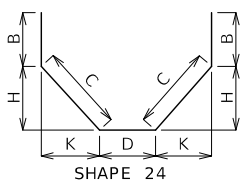
SHAPE 21
or 21S



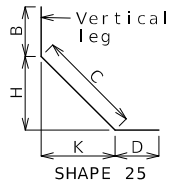
SHAPE 22



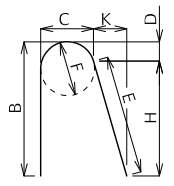
SHAPE 23
or 23S



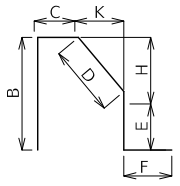
SHAPE 24
or 24S



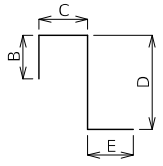
SHAPE 25
or 25S



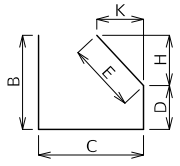
SHAPE 26



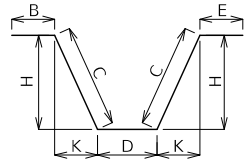
SHAPE 27S



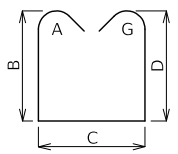
SHAPE 28
or 28S



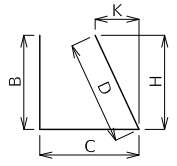
SHAPE 29
or 29S



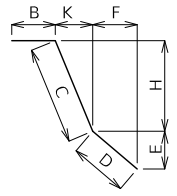
SHAPE 30
or 30S



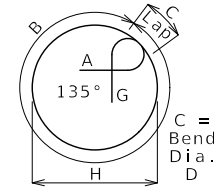
SHAPE 31S



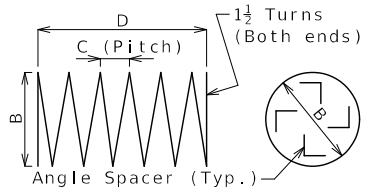
SHAPE 32
or 32S



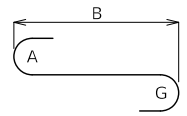
SHAPE 33
or 33S



SHAPE 34S



SHAPE 35 (1)

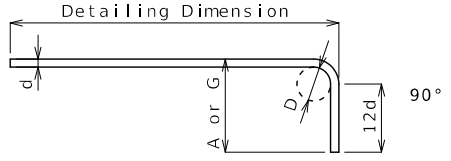


SHAPE 36

Finished Bend Diameters D and Hook Dimensions

Standard Pin Bend Shapes

Size	Case	D	A or G		J
			90°	180°	180°
#4	1	3"	8"	6"	4"
#5	1	3¾"	10"	7"	5"
#6	1	4½"	12"	8¼"	6"
#7	2	5¼"	14"	9⅜"	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"

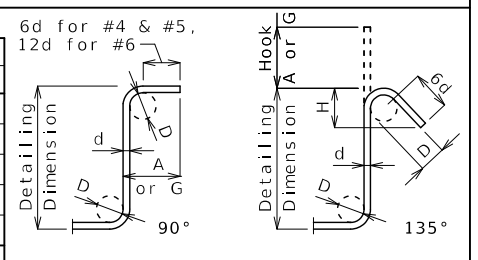


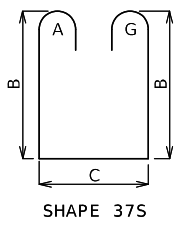
Stirrup Pin Bend Shapes (S)

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"	4⅜"	6"

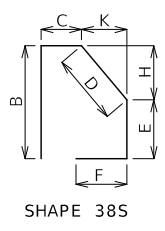
Applicable for all grades of steel.

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	
		Plain	Galv.	Slab	Barrier	Slip Form	Plain	Galv.
By Size	5	0	0	66,366	17,032	725	0	84,123
	6	0	0	67,176	0	0	0	67,176
	7	0	0	2,495	0	0	0	2,495
By Type		0	0	136,037	17,032	725	0	153,794

All superstructure reinforcing steel shall be galvanized unless otherwise specified.

Products used to repair damaged zinc coating shall not contain aluminum.

BENDING DIAGRAMS AND REINFORCING STEEL TOTALS

Detailed Feb. 2024
Checked Nov. 2024

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

STATE OF MISSOURI
TIMOTHY D. LEAF
NUMBER PE-2012000778
PROFESSIONAL ENGINEER
02/05/2025 8:54:48 AM
TIMOTHY D. LEAF - CIVIL
MO-PE-2012000778

DATE PREPARED
2/5/2025

ROUTE	STATE
I-49	MO
DISTRICT	SHEET NO.
BR	12

COUNTY
VERNON

JOB NO.
JSR0063

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A17743

DESCRIPTION	DATE

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

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
		Superstructure													
		End Bent 1													
32	6 H100	DIAPHRAGM	G	20		32 1.00							32 1	32 1	1,586
4	6 H101	DIAPHRAGM	G	20		7 10.00							7 10	7 10	48
4	6 H102	DIAPHRAGM	G	20		18 3.00							18 3	18 3	113
16	7 H103	WING	G	20	4	12 6.00							12 6	12 6	
		Incr. = 21.375"				7 2.00							7 2	7 2	329
16	7 H104	WING	G	20		12 6.00							12 6	12 6	419
5	7 H105	WING	G	20		7 11.00							7 11	7 11	83
5	7 H107	WING	G	20		8 8.00							8 8	8 8	91
6	7 H108	WING	G	20		7 9.00							7 9	7 9	97
6	7 H109	WING	G	20		6 11.00							6 11	6 11	87
110	5 U100	DIAPHRAGM	G	10S			4 3.00	4 0.00					12 6	12 3	1,454
18	5 U101	DIAPHRAGM	G	10S			3 3.00	4 0.00					10 6	10 3	199
2	5 U102	DIAPHRAGM	G	10S			4 0.00	3 6.00					11 6	11 3	24
65	5 U103	DIAPHRAGM	G	10S			4 3.00	3 5.00					11 11	11 8	818
58	5 U104	APPROACH NOTCH	G	19S		2 0.00	15.00						3 3	3 1	193
18	5 U105	SHEAR BLOCK	G	21S		4 0.00	2 1.25	4 0.00			21.00	14.00	10 1	9 8	188
12	5 V100	DIAPHRAGM	G	20		4 5.00							4 5	4 5	57
14	6 V101	DIAPHRAGM	G	20	2	8 2.00							8 2	8 2	
		Incr. = 3.500"				6 5.00							6 5	6 5	158
3	6 V102	WING	G	20		8 3.00							8 3	8 3	38
2	7 V103	WING	G	27		3 0.00	2 8.00	7 1.50	6 2.75		23.50	6 10.25	19	18 8	78
14	6 V104	WING	G	20	2	8 10.00							8 10	8 10	
		Incr. = 3.500"				7 1.00							7 1	7 1	172
1	6 V105	WING	G	20		8 11.00							8 11	8 11	14
2	7 V106	WING	G	27		3 0.00	2 3.50	7 1.50	6 10.25		23.50	6 10.25	19 3	18 11	79
		End Bent 5													
32	6 H500	DIAPHRAGM	G	20		32 1.00							32 1	32 1	1,586
4	6 H501	DIAPHRAGM	G	20		7 10.00							7 10	7 10	48
4	6 H502	DIAPHRAGM	G	20		18 3.00							18 3	18 3	113
16	7 H503	WING	G	20	4	12 6.00							12 6	12 6	
		Incr. = 21.375"				7 2.00							7 2	7 2	329
16	7 H504	WING	G	20		12 6.00							12 6	12 6	419
5	7 H505	WING	G	20		7 11.00							7 11	7 11	83
5	7 H507	WING	G	20		8 8.00							8 8	8 8	91
5	7 H508	WING	G	20		7 9.00							7 9	7 9	81
5	7 H509	WING	G	20		6 11.00							6 11	6 11	72
110	5 U500	DIAPHRAGM	G	10S			4 3.00	4 0.00					12 6	12 3	1,454
18	5 U501	DIAPHRAGM	G	10S			3 3.00	4 0.00					10 6	10 3	199
2	5 U502	DIAPHRAGM	G	10S			4 0.00	3 6.00					11 6	11 3	24
65	5 U503	DIAPHRAGM	G	10S			4 3.00	3 5.00					11 11	11 8	818
58	5 U504	APPROACH NOTCH	G	19S		2 0.00	15.00						3 3	3 1	193
18	5 U505	SHEAR BLOCK	G	21S		4 0.00	2 1.25	4 0.00			21.00	14.00	10 1	9 8	188
14	5 V500	DIAPHRAGM	G	20		4 2.00							4 2	4 2	63
14	6 V501	DIAPHRAGM	G	20	2	8 2.00							8 2	8 2	
		Incr. = 3.500"				6 5.00							6 5	6 5	158
3	6 V502	WING	G	20		8 2.00							8 2	8 2	38
2	7 V503	WING	G	27		3 0.00	2 8.00	7 1.50	6 2.75		23.50	6 10.25	19	18 8	78
14	6 V504	WING	G	20	2	8 2.00							8 2	8 2	
		Incr. = 3.375"				6 6.00							6 6	6 6	159
1	6 V505	WING	G	20		8 3.00							8 3	8 3	13
2	7 V506	WING	G	27		3 0.00	2 3.50	7 1.50	6 10.25		23.50	6 10.25	19 3	18 11	79
		Slab													
564	5 S1	SLAB	G	20		55 7.00							55 7	55 7	33,826
152	6 S2	SLAB	G	20		36 9.00							36 9	36 9	8,630
76	6 S3	SLAB	G	20		56 0.00							56	56	6,576
567	6 S4	SLAB	G	20		48 5.00							48 5	48 5	42,414
138	6 S5	SLAB	G	20	2	47 6.00							47 6	47 6	
		Incr. = 8.000"				2 4.00							2 4	2 4	5,312

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
455	5 S6	SLAB	G	20		48 5.00							48 5	48 5	23,770
110	5 S7	SLAB	G	20	2	46 10.00							46 10	46 10	
		Incr. = 10.000"				2 0.00							2	2	2,898
		Barrier													
		Type D													
20	5 K1	BARRIER	G	27S		3 8.00	9.25	5.25	3 2.75		5.25	1.00	8 1	7 11	171
56	5 K2	BARRIER	G	27S		3 8.00	9.25	14.50	2 5.75		14.25	2.75	8 2	7 11	478
20	5 K4	BARRIER	G	19S	4	2 4.25	10.00						3 2	3 1	67
		Incr. = 0.500"				2 6.25	10.00						3 4	3 3	66
20	5 K5	BARRIER	G	38S	4			18.50	9.50	8.25	18.00	4.00	3	2 10	61
		Incr. = 0.750"						20.50	9.50	8.25	20.00	4.50	3 2	3 1	62
12	5 K6	BARRIER	G	19S		2 6.75	10.00						3 5	3 3	42
12	5 K7	BARRIER	G	21S			10.00	10.00			2 6.00	6.25	3 6	3 4	43
36	5 K8	BARRIER	G	19S	4	2 8.50	10.00						3 7	3 5	133
		Incr. = 0.750"				3 2.50	10.00						4 1	3 11	138
36	5 K9	BARRIER	G	21S	4		10.00	10.00			2 7.75	6.75	3 8	3 6	136
		Incr. = 0.750"					10.00	10.00			3 1.75	7.75	4 2	4	141
8	5 K10	BARRIER	G	19S		3 3.00	10.00						4 1	3 11	34
16	5 K11	BARRIER	G	21S			3 3.00	10.00			3 2.25	7.75	4 1	4	69
48	5 K12	BARRIER	G	20		10 9.00							10 9	10 9	557
618	5 R1	BARRIER	G	26		3 3.00	5.50	2.25	3 1.25	5.50	3 0.75	6.75	7	6 9	4,501
618	5 R2	BARRIER	G	19S		20.50	9.50						2 6	2 4	1,556
618	5 R3	BARRIER	G	27S			9.50	15.25	5.00	12.00	15.00	3.00	3 6	3 3	2,167
120	5 R4	BARRIER	G	20		11 9.00							11 9	11 9	1,521
20	5 R5	BARRIER	G	20		34 8.00							34 8	34 8	748
80	5 R6	BARRIER	G	20		40 1.00							40 1	40 1	3,460
20	5 R7	BARRIER	G	20		40 10.00							40 10	40 10	881
		Slip-Form													
56	5 C1	SLIP FORM	G	20		12 0.00							12	12	725

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. 12.

All bars shall be Grade 60.

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

SH = Required shape, see bending diagrams.

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

Detailed Feb. 2024
Checked Nov. 2024

BILL OF REINFORCING STEEL

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

STATE OF MISSOURI
TIMOTHY D. LEAF
NUMBER PE-2012000778
PROFESSIONAL ENGINEER
02/05/2025 8:54:54 AM
TIMOTHY D. LEAF - CIVIL
MO-PE-2012000778

DATE PREPARED
2/5/2025

ROUTE	STATE
I-49	MO
DISTRICT	SHEET NO.
BR	13

COUNTY
VERNON

JOB NO.
JSR0063

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A17743

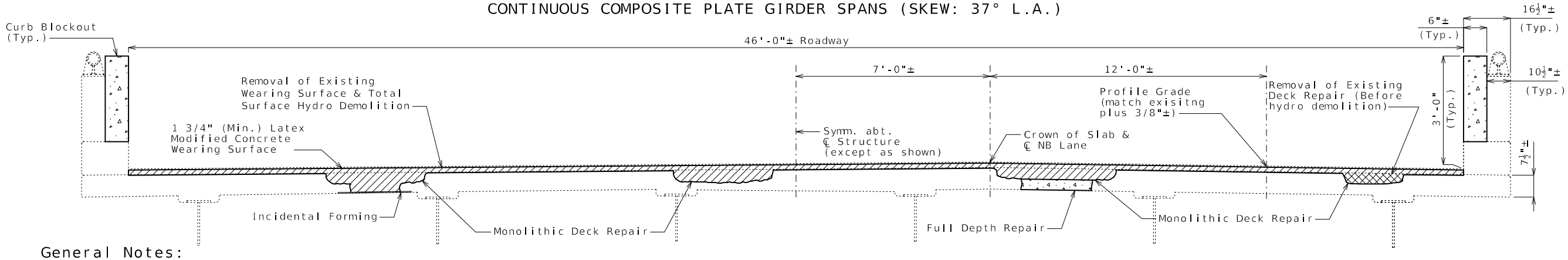
DESCRIPTION	DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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

SEC/SUR 3 TWP 35 N RGE 31 W

U.I.P. AND REHABILITATE EXISTING (57'-101'-101'-57') CONTINUOUS COMPOSITE PLATE GIRDER SPANS (SKEW: 37° L.A.)



TYPICAL SECTION THRU EXISTING DECK

General Notes:

Design Specifications:

2002 AASHTO LFD (17th Ed.) Standard Specifications
Bridge Deck Rating = 5

Design Loading:

HS20-44 (1965 & New Construction)

Design Unit Stresses:

Class B-2 Concrete (Full Depth Repair & End Bents) f'c = 4,000 psi
Class B-1 Concrete (Curb Blockout) f'c = 4,000 psi
Reinforcing Steel (ASTM A615 Grade 60) f'y = 60,000 psi

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.

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

Miscellaneous:

Roadway surfacing adjacent to bridge ends shall match new bridge wearing surface (roadway item).

All concrete repairs shall be in accordance with Sec 704, unless otherwise noted.

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

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

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

Traffic Handling:

Structure to be closed during construction. See roadway plans for traffic control.

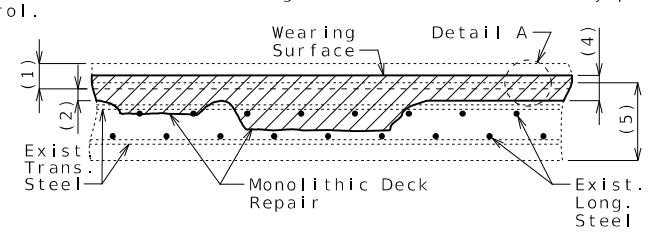
Required Lap Length For Bar Splices **	
Bar Size	Splice Length
4	2'-1"
5	2'-7"
6	3'-1"
7	3'-7"

** Unless otherwise shown.

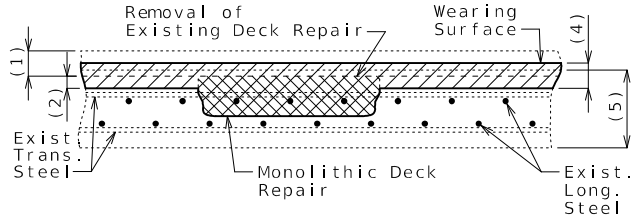
Estimated Quantities

	Item		Total
	Removal of Miscellaneous ACM (Non-Friable)	sq. foot	4
	Total Surface Hydro Demolition	sq. yard	1639
	Removal of Asphalt Wearing Surface	sq. foot	14,752
	Removal of Existing Deck Repair	sq. foot	300
	Partial Removal of Substructure Concrete	lump sum	1
	Removal of Existing Expansion Joint and Adjacent Concrete	linear foot	115
	Removal of Existing Bearings	each	6
	Remove and Replace Barrier	linear foot	88
	Bridge Approach Slab (Major)	sq. yard	210
*	Supplementary Wearing Surface Material	cu. yard	20
	Latex Modified Concrete Wearing Surface	sq. yard	1639
	Diamond Grinding	sq. yard	1639
	Class B-2 Concrete	cu. yard	101.5
	Curb Blockouts	linear foot	615
	Substructure Repair (Formed)	sq. foot	50
	Substructure Repair (Unformed)	sq. foot	50
	Full Depth Repair	sq. foot	500
	Epoxy Pressure Injecting	linear foot	12
	Reinforcing Steel (Galvanized)	pounds	12,620
	Protective Coating - Concrete Bents and Piers (Epoxy)	lump sum	1
	Vertical Drains at End Bents	each	2
	Laminated Neoprene Bearing Pad Assembly	each	6

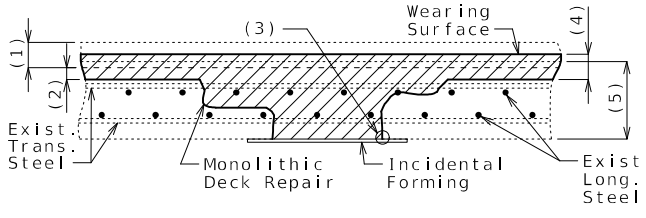
* Supplementary wearing surface material will be paid for at the fixed unit price in accordance with Sec 109.



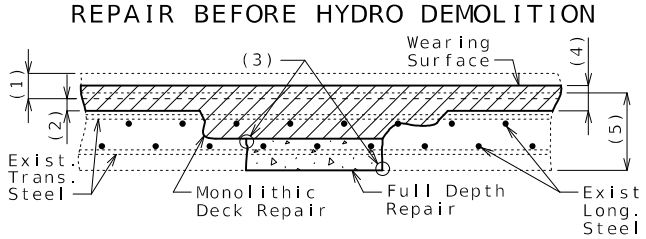
MONOLITHIC DECK REPAIR



REMOVAL OF EXISTING DECK REPAIR BEFORE HYDRO DEMOLITION



MONOLITHIC DECK REPAIR REQUIRING INCIDENTAL FORMING



MONOLITHIC DECK REPAIR REQUIRING FULL DEPTH REPAIR

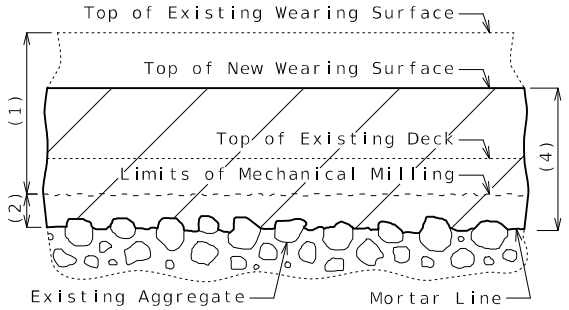
(1) Removal of existing 3/8"± wearing surface plus 1/2" of existing deck

(2) 1/2" minimum total surface hydro demolition of sound concrete, measured to mortar line

(3) 1" vertical side shall be established outside the deteriorated area.

(4) 1 3/4" minimum Latex Modified Concrete wearing surface

(5) Original depth of deck minus previous scarification



MILLING AND HYDRO DEMOLITION LIMITS

DETAIL A

REPAIRS TO BRIDGE: INTERSTATE 49 NB OVER 54 & MNA RR

ROUTE I-49 FROM ROUTE K TO ROUTE M
ABOUT 1.1 MILES NORTH OF ROUTE K
BEGINNING STATION 809+15.19± (Match Existing)

Detailed May 2024
Checked Nov. 2024

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

STATE OF MISSOURI
TIMOTHY D. LEAF
NUMBER PE-2012000778
PROFESSIONAL ENGINEER
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TIMOTHY D. LEAF - CIVIL
MO-PE-2012000778

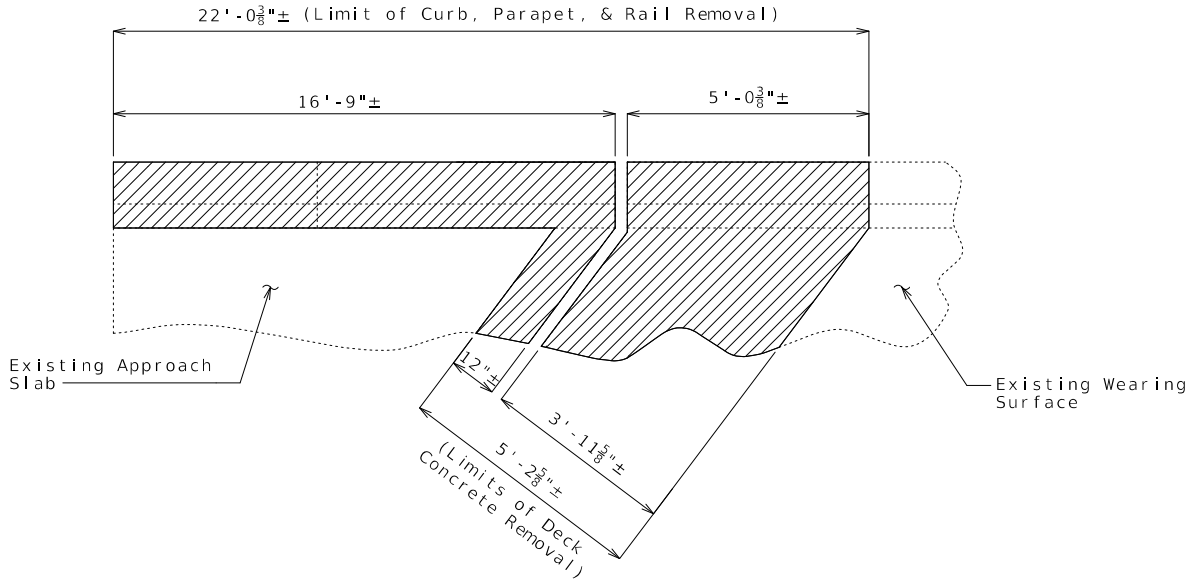
DATE PREPARED 12/1/2025

ROUTE	STATE
I-49	MO
DISTRICT	SHEET NO.
BR	1

COUNTY VERNON
JOB NO. JSR0063
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A17744

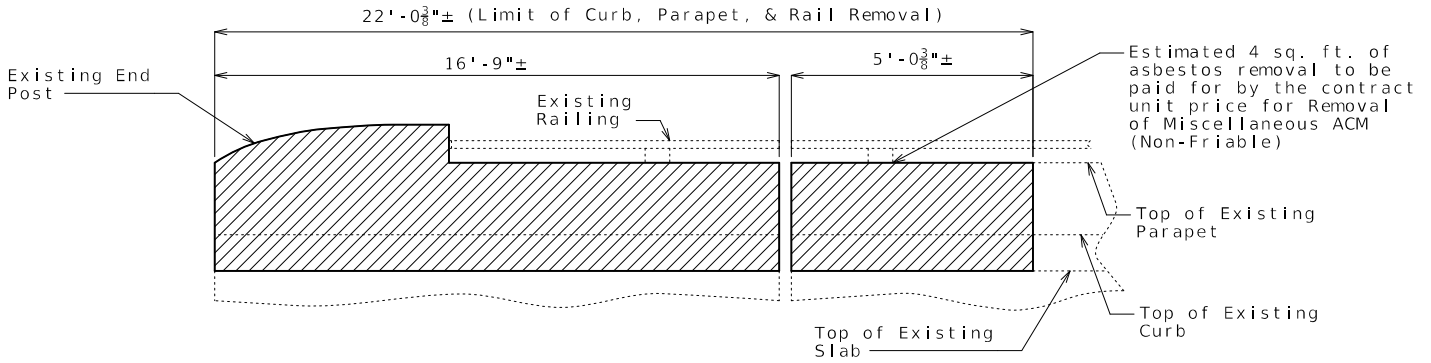
DESCRIPTION	DATE

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



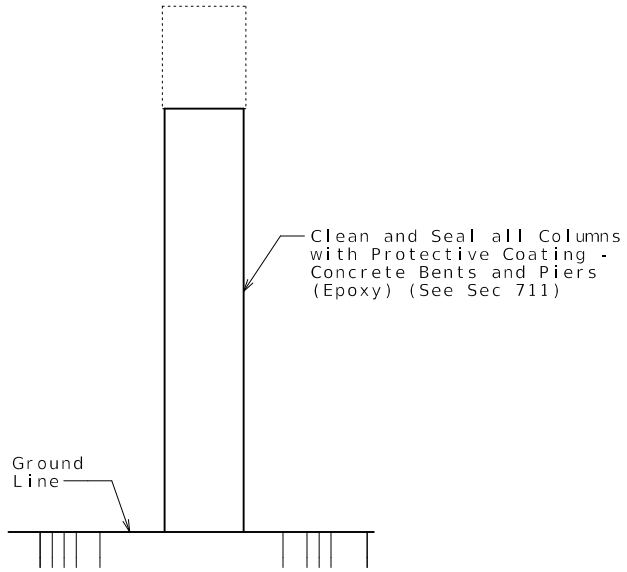
PART PLAN SHOWING
PARTIAL CONCRETE REMOVAL
AT END BENTS NO. 1 & 5

(Existing expansion device not shown for clarity)
(End Bent No. 1 shown, End Bent No. 5 similar)

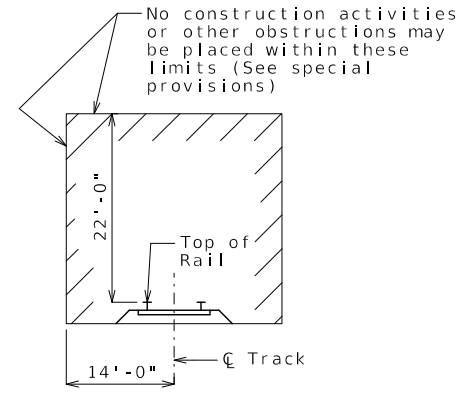


PART ELEVATION SHOWING
PARTIAL CONCRETE REMOVAL
AT END BENTS NO. 1 & 5

(Existing expansion device not shown for clarity)
(End Bent No. 1 shown, End Bent No. 5 similar)

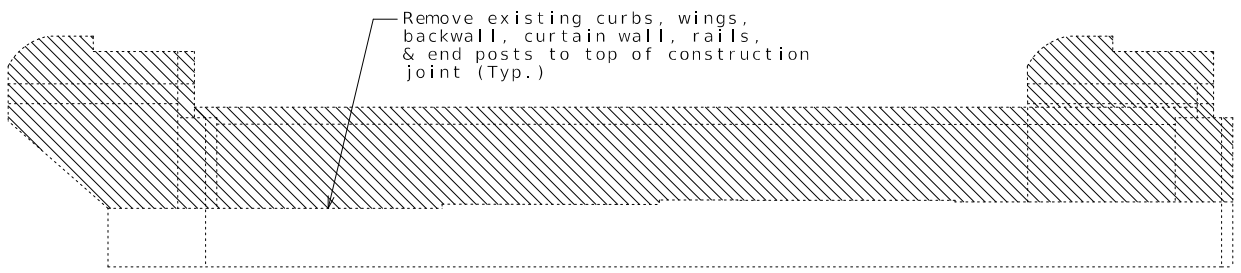


TYPICAL ELEVATION OF
INT. BENTS NO. 3 & 4



MINIMUM CONSTRUCTION
CLEARANCES

(Normal to railroad)
(Not to scale)



DETAILS OF CONCRETE REMOVAL AT END BENTS

Notes:

Asbestos has been detected in the insulation compound between the top of the concrete parapet and the base of the handrail posts. Removal of the handrail and posts, except as shown, is the Contractor's option. Should the Contractor elect to remove the handrail and post, the Contractor will be required to use an Abatement Contractor during the removal. No direct payment will be made for removal of handrail and posts and for asbestos abatement should the Contractor choose to perform this work. Cost for the described work will be considered completely covered by the contract unit price for other items in the contract.

The removal of existing curb, parapet, rails, and end posts as shown will be considered completely covered by the contract price for Remove and Replace Barrier.

The removal of existing deck concrete as shown will be considered completely covered by the contract unit price for Removal of Existing Expansion Joint and Adjacent Concrete.

The removal of existing backwall, curtain walls, and wings as shown will be considered completely covered by the contract unit price for Partial Removal of Substructure Concrete.

Vertical backwall and wingwall reinforcement to be cut off one inch below concrete removal surface and the resulting holes shall be filled with a qualified special mortar.

A smooth, level surface shall be provided at Bents No. 1 & 5 removal lines.

STATE OF MISSOURI
TIMOTHY D. LEAF
NUMBER PE-2012000778
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12/01/2025 10:43:05 AM
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DATE PREPARED
12/1/2025

ROUTE	STATE
I-49	MO
DISTRICT	SHEET NO.
BR	2

COUNTY
VERNON

JOB NO.
JSR0063

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A17744

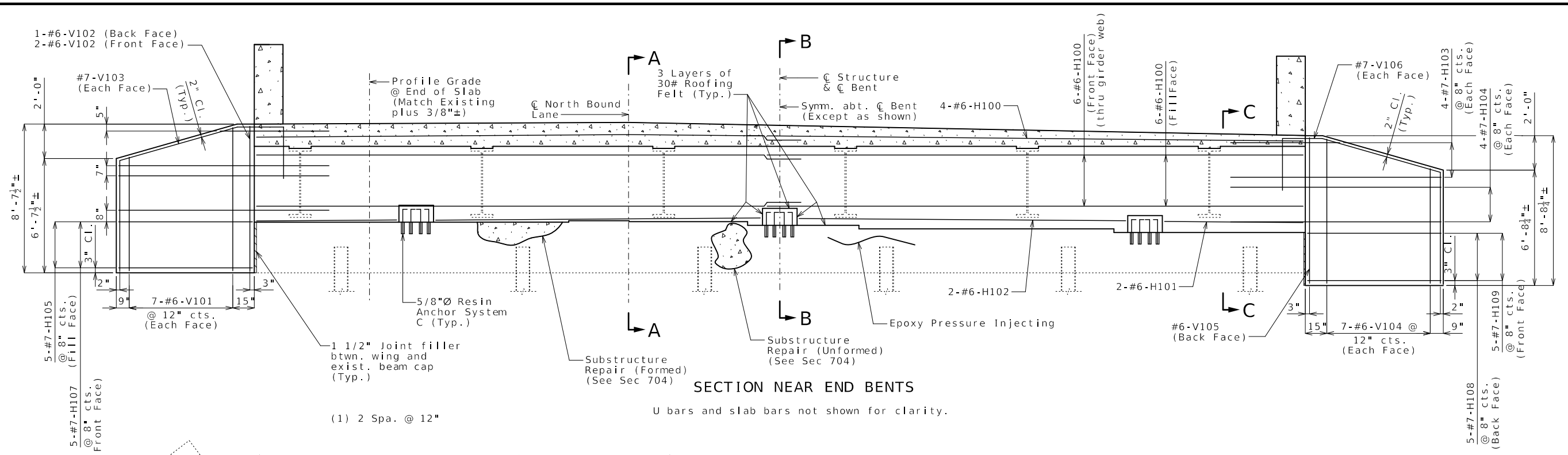
DESCRIPTION	DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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

Detailed May 2024
Checked Nov. 2024

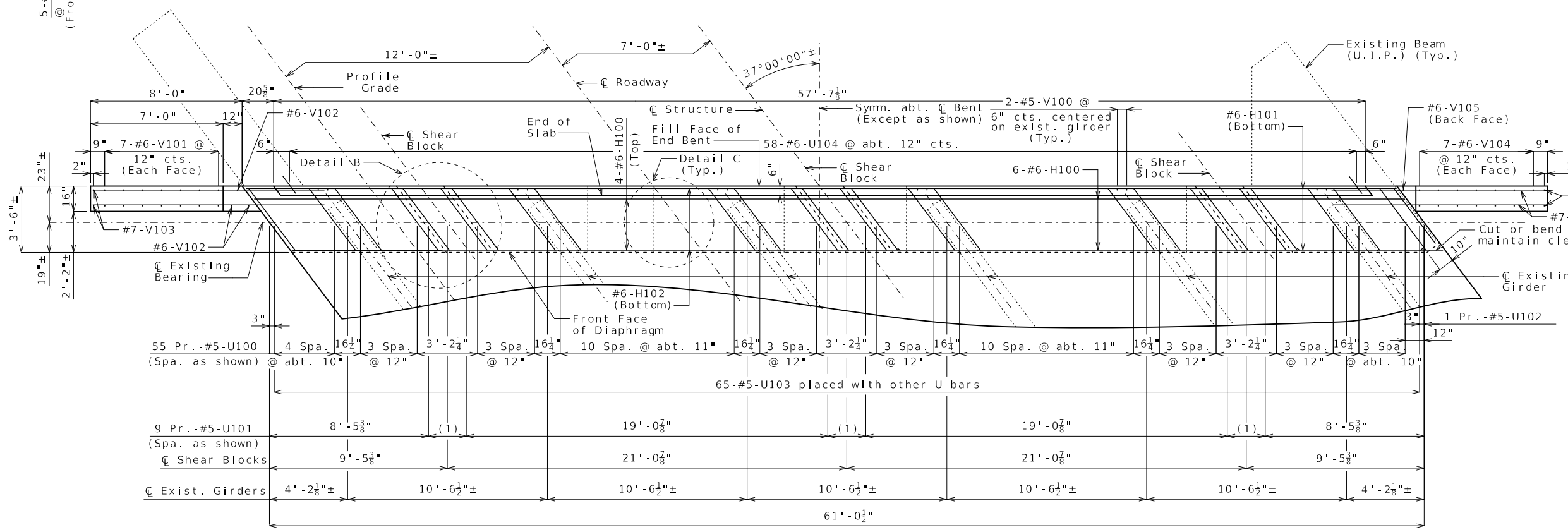
Note: This drawing is not to scale. Follow dimensions.



SECTION NEAR END BENTS

U bars and slab bars not shown for clarity.

(1) 2 Spa. @ 12"



PART PLAN

Note: S bars and Resin Anchors not shown for clarity
Above dimensions taken along ℄ of existing bearing
from outside face of proposed diaphragm

DETAILS OF END BENT NO. 1

Notes:

U bars shall clear existing girders by at least 1 1/2 inches.

All concrete and reinforcement in the end bent diaphragm and wings, complete in place, will be considered completely covered by the contract unit price for Class B-2 Concrete and Reinforcing Steel (Galvanized), respectively.

The #6-H100 bars are 2 units at 32'-2" with minimum lap of 3'-1". The contractor may use a mechanical bar splice in lieu of a lap splice. When a mechanical bar splice is used, the actual bar segment length will be determined by the contractor to accommodate manufacturer's recommendations for installation and ease of construction. The cost of furnishing and installing the bar splices will be considered completely covered by the contract unit price for Reinforcing Steel (Galvanized). No adjustment of the quantity of reinforcing steel will be allowed for the use of mechanical bar splices.

Work this Sheet with Sheet No. 4.

Detailed May 2024
Checked Nov. 2024

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

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TIMOTHY D. LEAF
NUMBER PE-2012000778
PROFESSIONAL ENGINEER
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TIMOTHY D. LEAF - CIVIL
MO-PE-2012000778

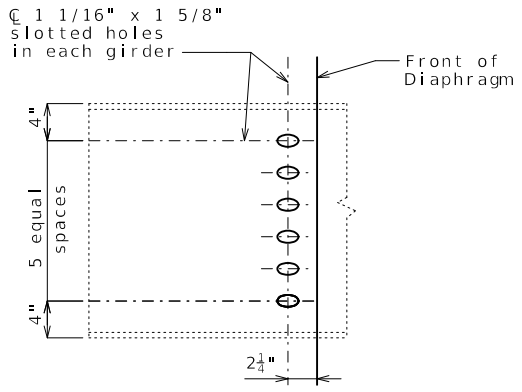
DATE PREPARED: 12/1/2025

ROUTE	STATE
I-49	MO
DISTRICT	SHEET NO.
BR	3

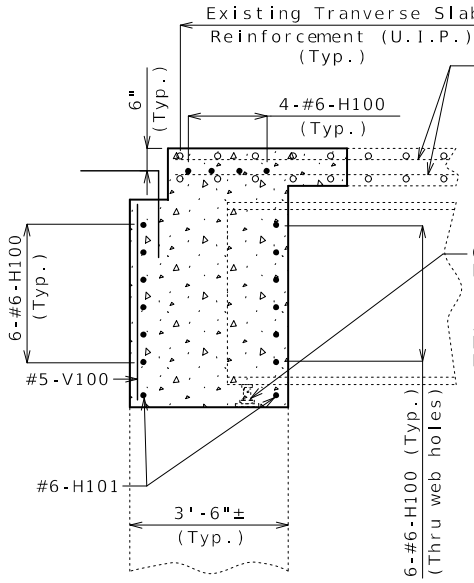
COUNTY: VERNON
JOB NO.: JSR0063
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: A17744

DESCRIPTION	DATE

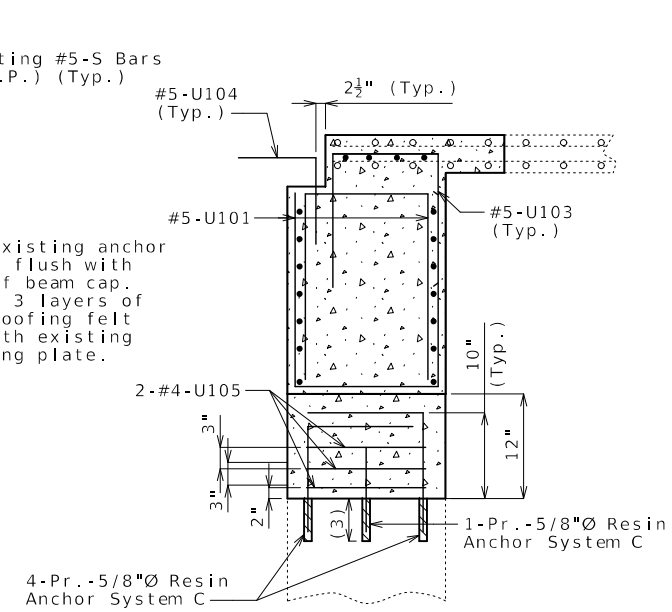
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)



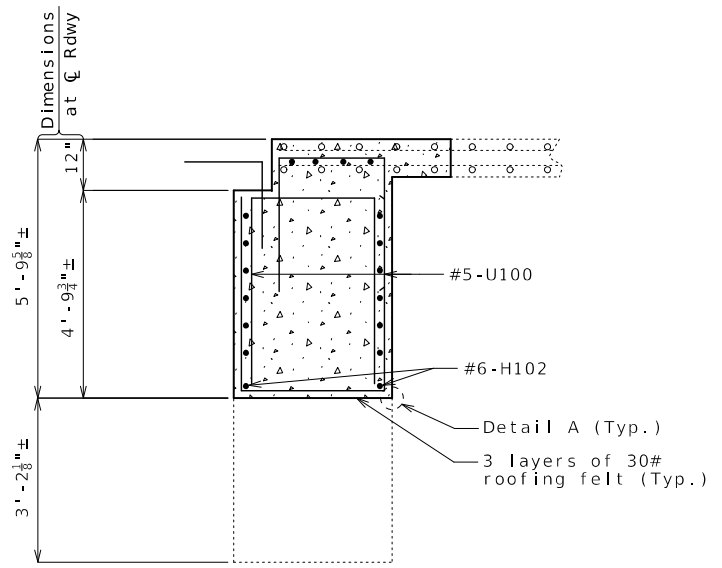
DETAIL OF WEB HOLES
AT END BENTS



SECTION C-C



SECTION B-B



SECTION A-A

Notes:

Work this sheet with Sheet No. 3.

The exposed and accessible surfaces of the existing structural steel and bearings that will be encased in concrete shall be cleaned with a minimum of SSPC-SP-3 surface preparation and coated with a minimum of one coat of gray epoxy-mastic primer (non-aluminum) in accordance with Sec 1081 to produce a dry film thickness of not less than 3 mils before concrete is poured. The surface preparation and coating for girders shall extend a minimum of one foot outside the face of the girder encasement. Payment for cleaning and coating steel to be encased in concrete will be considered completely covered by the contract unit price for Class B-2 Concrete.

Cost of field drilling holes in existing plate girder webs will be considered completely covered by the contract unit price for Class B-2 Concrete.

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

Cost of furnishing and installing the resin anchor systems, complete in place, will be considered completely covered by the contract unit price for Class B-2 Concrete.

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

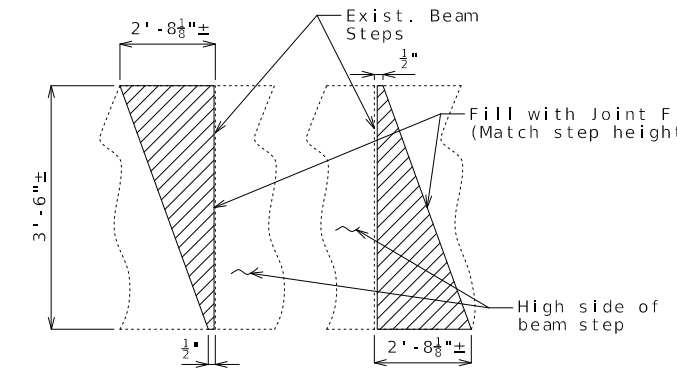
The required temporary support at the end bent shall be capable of safely supporting a service load of 37 kips/girder (factor of load safety not included). This load includes the dead load and a construction load of 50 psf applied to the deck tributary area.

A galvanized #5 Grade 60 reinforcing bar shall be substituted for the 5/8" Ø threaded rod for Resin Anchor System C.

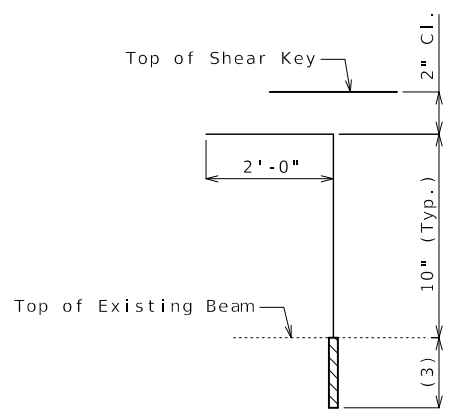
The U bars shall be placed parallel to centerline of roadway.

For details of vertical drain at end bent, see Sheet No. 5.

For details of bridge approach slab, see Sheet No. 11.

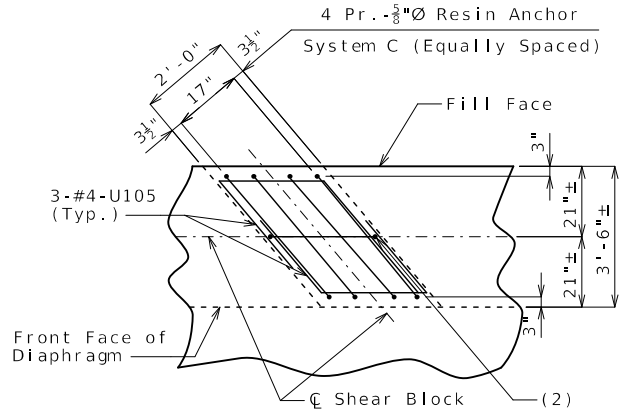


DETAIL C
JOINT FILLER
AT BEAM STEPS



DETAILS OF RESIN
ANCHOR SYSTEM C

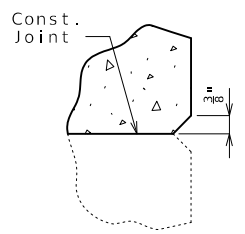
(30 Req'd. per bent)



DETAIL B

(2) Pr.-5/8"Ø Resin Anchor System C

(3) Manufacturer's recommended embedment length (5" min.)



DETAIL A

DETAILS OF END BENT NO. 1

Detailed May 2024
Checked Nov. 2024

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

STATE OF MISSOURI
TIMOTHY D. LEAF
NUMBER PE-2012000778
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12/01/2025 10:43:25 AM
TIMOTHY D LEAF - CIVIL
MO-PE-2012000778

DATE PREPARED
12/1/2025

ROUTE	STATE
I-49	MO
DISTRICT	SHEET NO.
BR	4

COUNTY
VERNON

JOB NO.
JSR0063

CONTRACT ID.

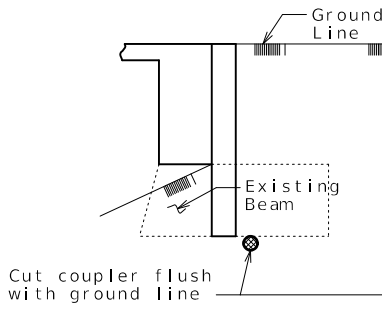
PROJECT NO.

BRIDGE NO.
A17744

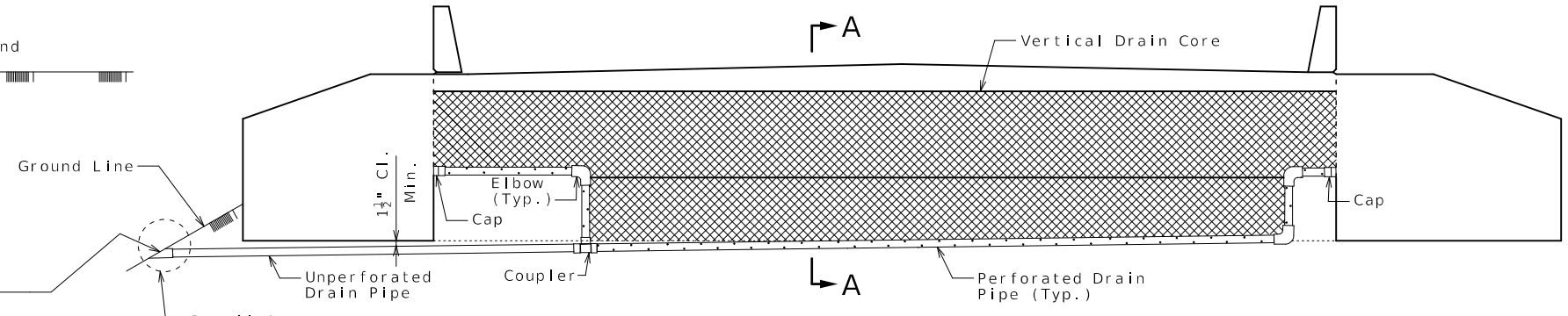
DESCRIPTION

DATE

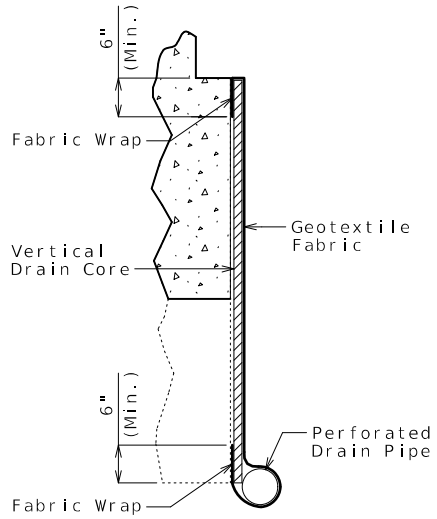
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)



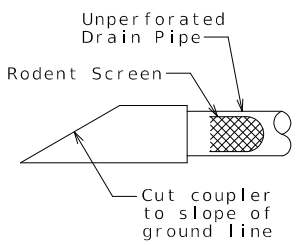
ELEVATION OF WING



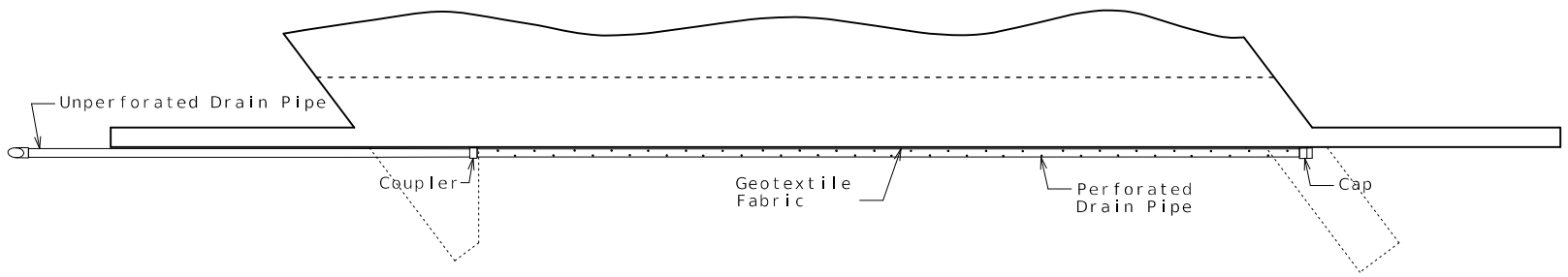
ELEVATION OF END BENT



PART SECTION A-A



DETAIL A



PLAN OF END BENT

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.

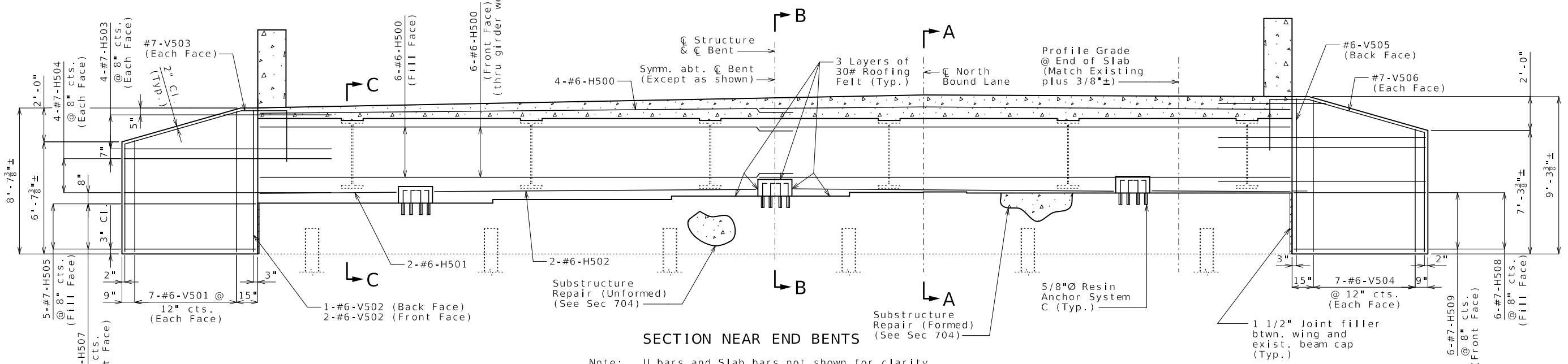
VERTICAL DRAIN AT END BENTS

STATE OF MISSOURI
TIMOTHY D. LEAF
NUMBER PE-2012000778
PROFESSIONAL ENGINEER
12/01/2025 10:43:37 AM
TIMOTHY D LEAF - CIVIL
MO-PE-2012000778

DATE PREPARED: 12/1/2025
ROUTE: I-49 | STATE: MO
DISTRICT: BR | SHEET NO.: 5
COUNTY: VERNON
JOB NO.: JSR0063
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: A17744

DESCRIPTION | DATE

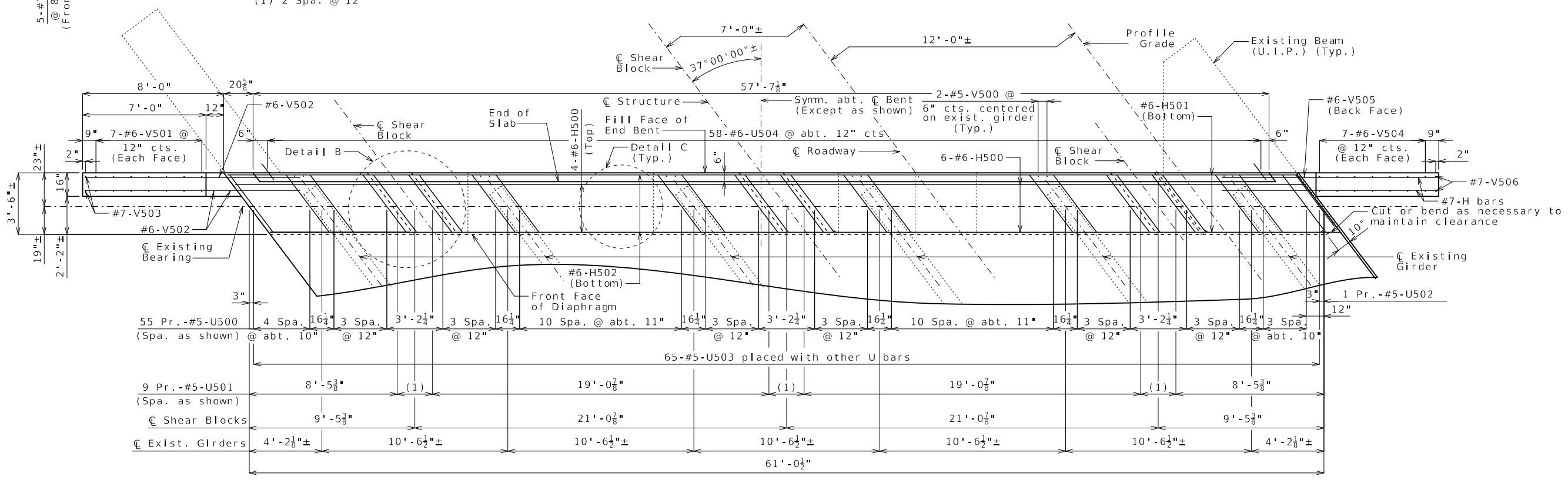
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)



SECTION NEAR END BENTS

Note: U bars and Slab bars not shown for clarity.

(1) 2 Spa. @ 12"



PART PLAN

Note: S bars and Resin Anchors not shown for clarity
Above dimensions taken along ℄ of existing bearing from outside face of proposed diaphragm

Notes:

U bars shall clear existing girders by at least 1 1/2 inches.

All concrete and reinforcement in the end bent diaphragm and wings, complete in place, will be considered completely covered by the contract unit price for Class B-2 Concrete and Reinforcing Steel (Galvanized).

The #6-H500 bars are 2 units at 32'-2" with minimum lap of 3'-1". The contractor may use a mechanical bar splice in lieu of a lap splice. When a mechanical bar splice is used, the actual bar segment length will be determined by the contractor to accommodate manufacturer's recommendations for installation and ease of construction. The cost of furnishing and installing the bar splices will be considered completely covered by the contract unit price for Reinforcing Steel (Galvanized). No adjustment of the quantity of reinforcing steel will be allowed for the use of mechanical bar splices.

Work this Sheet with Sheet No. 7.

DETAILS OF END BENT NO. 5

Detailed May 2024
Checked Nov. 2024

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

STATE OF MISSOURI
TIMOTHY D. LEAF
NUMBER PE-2012000778
PROFESSIONAL ENGINEER
12/01/2025 10:43:47 AM
TIMOTHY D. LEAF - CIVIL
MO-PE-2012000778

DATE PREPARED
12/1/2025

ROUTE	STATE
I-49	MO
DISTRICT	SHEET NO.
BR	6

COUNTY
VERNON

JOB NO.
JSR0063

CONTRACT ID.

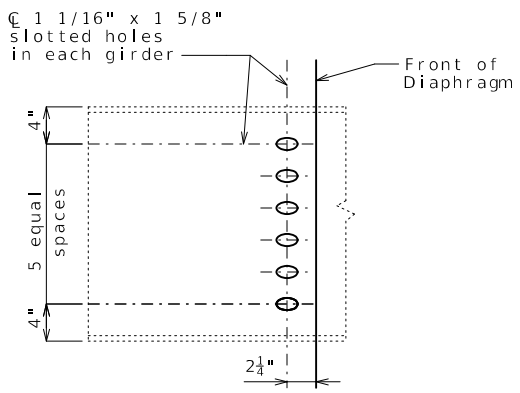
PROJECT NO.

BRIDGE NO.
A17744

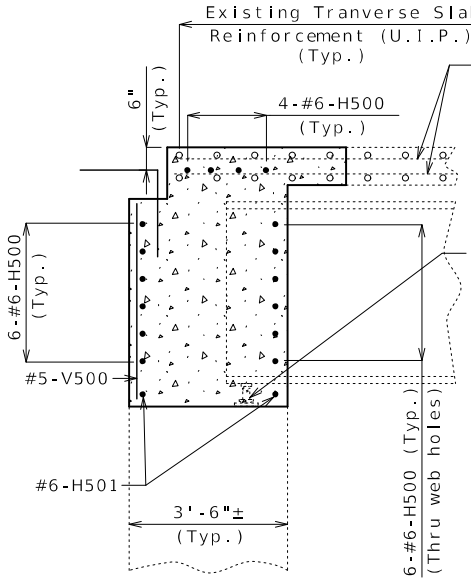
DESCRIPTION

DATE

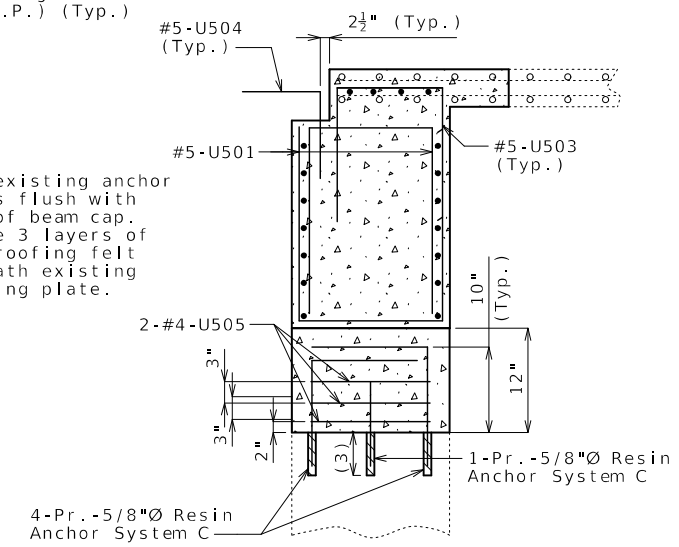
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)



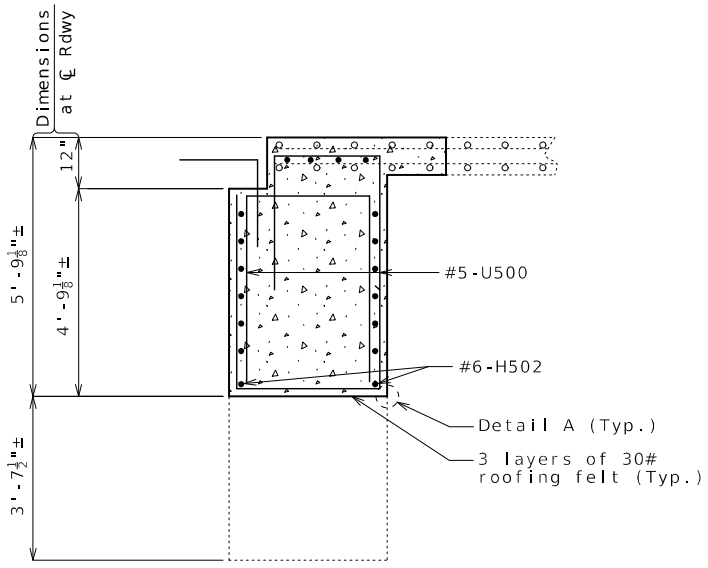
DETAIL OF WEB HOLES
AT END BENTS



SECTION C-C



SECTION B-B



SECTION A-A

Notes:

Work this sheet with Sheet No. 6.

The exposed and accessible surfaces of the existing structural steel and bearings that will be encased in concrete shall be cleaned with a minimum of SSPC-SP-3 surface preparation and coated with a minimum of one coat of gray epoxy-mastic primer (non-aluminum) in accordance with Sec 1081 to produce a dry film thickness of not less than 3 mils before concrete is poured. The surface preparation and coating for girders shall extend a minimum of one foot outside the face of the girder encasement. Payment for cleaning and coating steel to be encased in concrete will be considered completely covered by the contract unit price for Class B-2 Concrete.

Cost of field drilling holes in existing plate girder webs will be considered completely covered by the contract unit price for Class B-2 Concrete.

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

Cost of furnishing and installing the resin anchor systems, complete in place, will be considered completely covered by the contract unit price for Class B-2 Concrete.

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

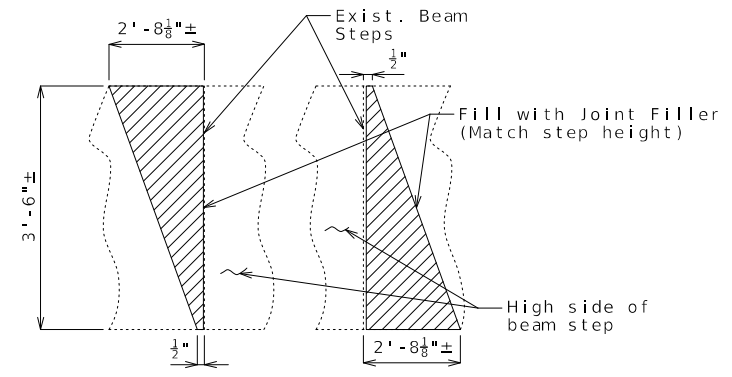
The required temporary support at the end bent shall be capable of safely supporting a service load of 37 kips/girder (factor of load safety not included). This load includes the dead load and a construction load of 50 psf applied to the deck tributary area.

A galvanized #5 Grade 60 reinforcing bar shall be substituted for the 5/8" Ø threaded rod for Resin Anchor System C.

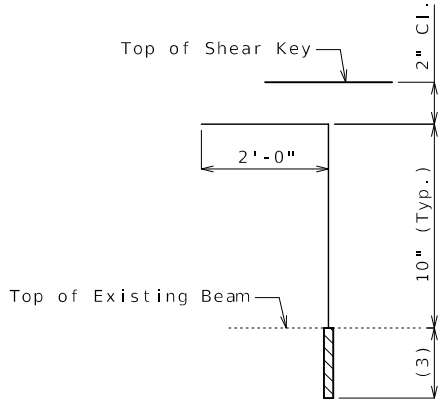
The U bars shall be placed parallel to centerline of roadway.

For details of vertical drain at end bent, see Sheet No. 5.

For details of bridge approach slab, see Sheet No. 11.

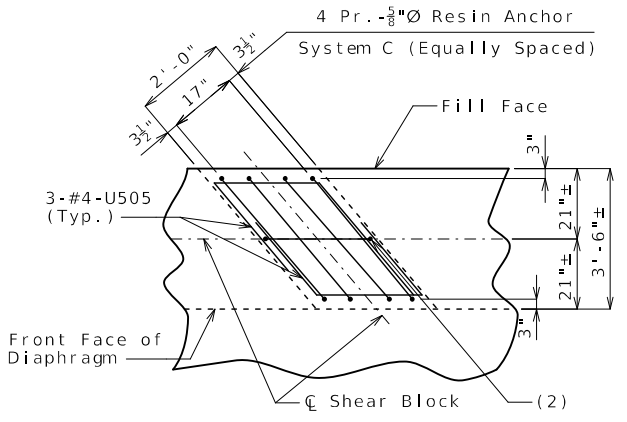


DETAIL C
JOINT FILLER
AT BEAM STEPS



DETAILS OF RESIN
ANCHOR SYSTEM C

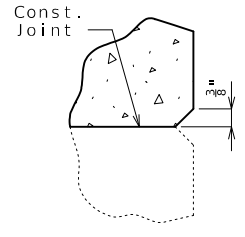
(30 Req'd. per bent)



DETAIL B

(2) Pr.-5/8"Ø Resin Anchor System C

(3) Manufacturer's recommended embedment length (5" min.)



DETAIL A

DETAILS OF END BENT NO. 5

Detailed May 2024
Checked Nov. 2024

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

STATE OF MISSOURI
TIMOTHY D. LEAF
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DATE PREPARED
12/1/2025

ROUTE	STATE
I-49	MO
DISTRICT	SHEET NO.
BR	7

COUNTY
VERNON

JOB NO.
JSR0063

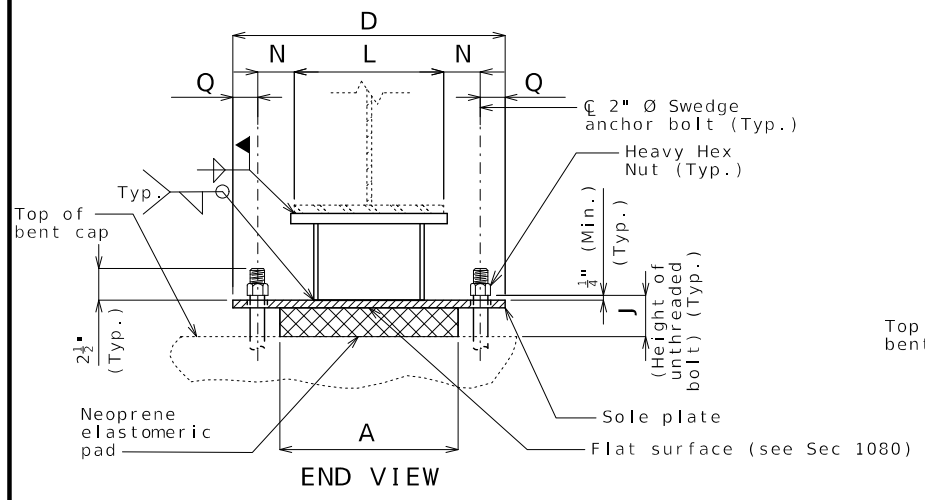
CONTRACT ID.

PROJECT NO.

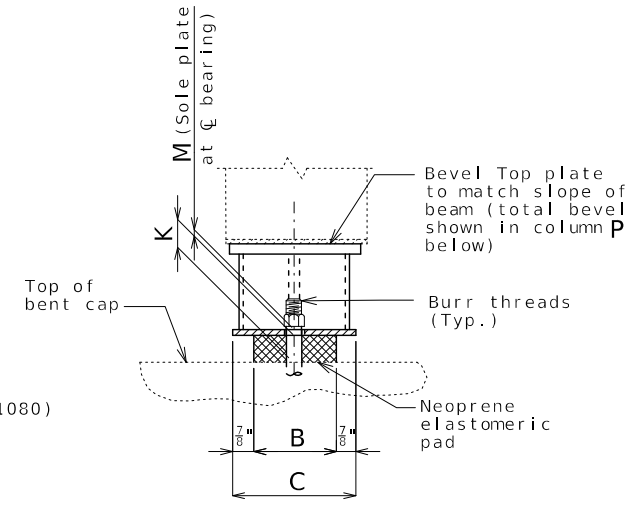
BRIDGE NO.
A17744

DESCRIPTION	DATE

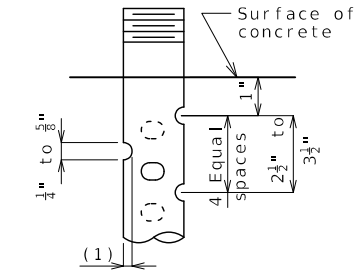
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)



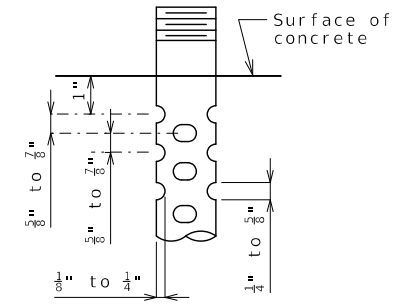
END VIEW



SIDE VIEW



DETAIL OF 3/4"Ø THRU 2 1/2"Ø ANCHOR BOLTS

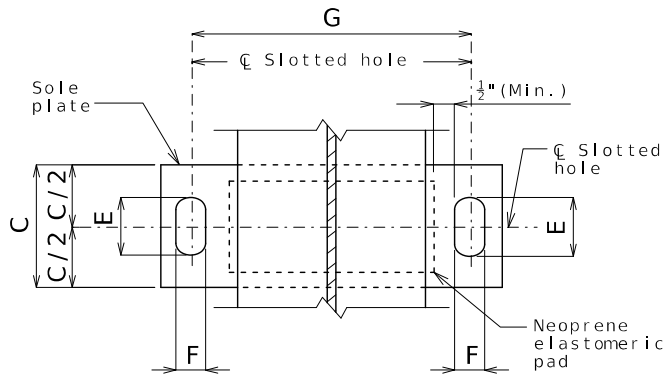


OPTIONAL DETAIL OF 1 3/8"Ø THRU 2 1/2"Ø ANCHOR BOLTS

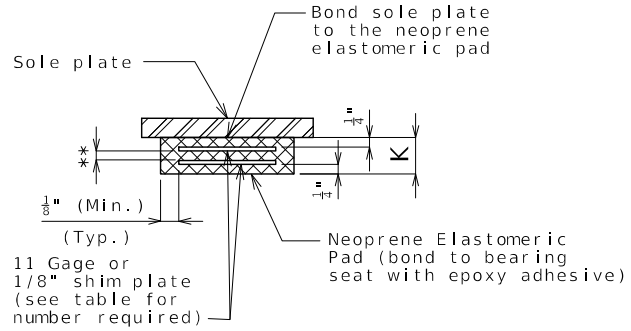
SWEDGE ANCHOR BOLT DETAILS

(1) 1/8" for 3/4"Ø thru 1 1/4"Ø anchor bolts

1/8" to 1/4" for 1 3/8"Ø thru 2 1/2"Ø anchor bolts

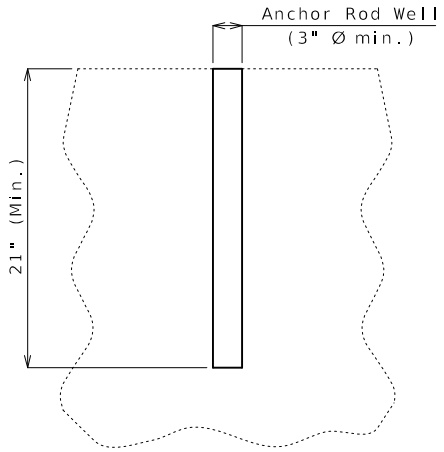


PART PLAN

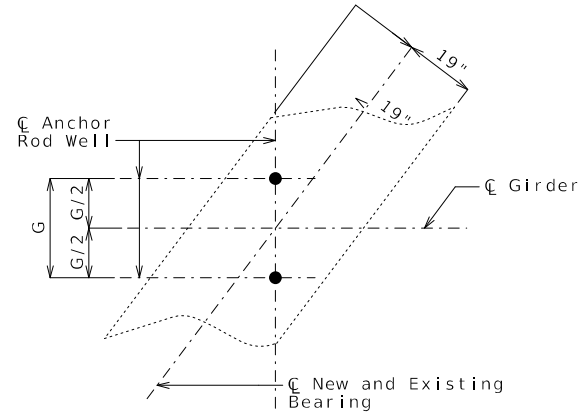


** Layers of 1/2" elastomer alternating with 11 gage or 1/8" shim plate

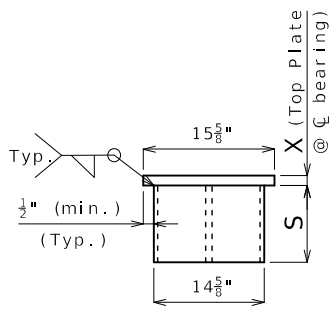
NEOPRENE ELASTOMERIC PAD



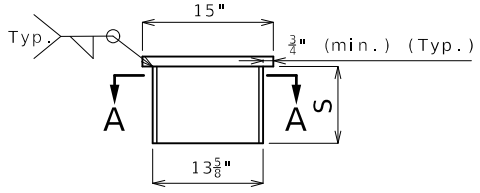
DETAIL OF ANCHOR ROD WELLS



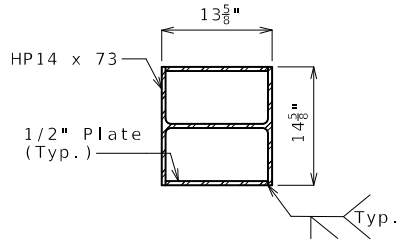
PLAN OF EXISTING INT. BENT SHOWING ANCHOR RODS



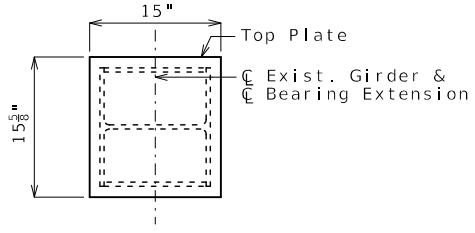
SIDE ELEVATION OF BEARING EXTENSION



END ELEVATION OF BEARING EXTENSION



SECTION A-A



PLAN OF BEARING EXTENSION

EXPANSION BEARINGS																		
BENT NO. 2	A	B	C	D	E	F	G	J	K	L	M	N	P	Q	R	S	X	NUMBER OF SHIM PLATES *	NUMBER REQUIRED
G1-G4, G6	14"	14"	15 3/8"	25 3/4"	3 1/4"	2 1/8"	19 3/4"	4 1/4"	2 1/2"	14"	1 1/2"	2 7/8"	-	3"	1/16"	9 5/8"	1"	4	5
G5	14"	14"	15 3/8"	25 3/4"	3 1/4"	2 1/8"	19 3/4"	4 1/4"	2 1/2"	14"	1 1/2"	2 7/8"	-	3"	1/16"	10"	1"	4	1
																		TOTAL BEARINGS	6

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

GENERAL NOTES:

Anchor bolts shall be 2"Ø ASTM F1554 Grade 55 swedged bolts and shall extend 18" into the concrete with ASTM A563 Grade A Heavy Hex nuts. Actual manufacturer's certified mill test reports(chemical and mechanical) shall be provided. Swedging shall be 1" less than extension into the concrete.

Anchor bolt shall be at the centerline of slotted hole at 60°F. Bearing position shall be adjusted for each 10° fall or rise in temperature at installation.

Anchor bolts and heavy hex nuts shall be coated with a minimum of two coats of inorganic zinc primer to provide a total dry film thickness of 4 mils minimum, 6 mils maximum, or galvanized in accordance with Sec 1081.

Neoprene Elastomeric Pads shall be 60 Durometer.

Structural steel for sole plate and all bearing extension steel shall be ASTM A709 Grade 50 and shall be coated with a minimum of two coats of inorganic zinc primer to provide a total dry film thickness of 4 mils minimum, 6 mils maximum.

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

Cost of bearing extension, complete in place, will be considered completely covered by the contract unit price for Laminated Neoprene Bearing Pad Assembly.

An equivalent sized W shape may be substituted for the HP14x73 or equivalent size plates may be welded together.

The required temporary support at Int. Bent No 2 shall be capable of safely supporting a service load of 158 kips/girder (factor of load safety not included). This load includes the dead load and a construction load of 50 psf applied to the deck tributary area.

Retain Bent No. 2 bearings for MoDOT Regional Bridge for future use. Deliver to either the Springfield or Nevada Maintenance shed.

LAMINATED NEOPRENE BEARING PAD ASSEMBLY

STATE OF MISSOURI
TIMOTHY D. LEAF
NUMBER PE-2012000778
PROFESSIONAL ENGINEER
12/01/2025 10:44:07 AM
TIMOTHY D LEAF - CIVIL
MO-PE-2012000778

DATE PREPARED 12/1/2025

ROUTE	STATE
I-49	MO
DISTRICT	SHEET NO.
BR	8

COUNTY VERNON

JOB NO. JSR0063

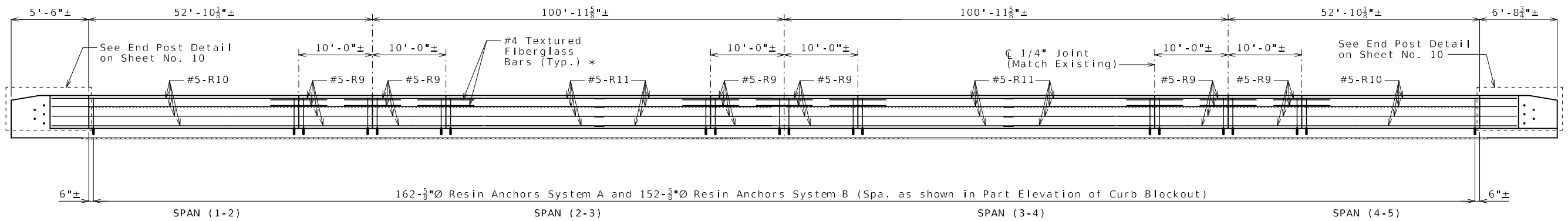
CONTRACT ID.

PROJECT NO.

BRIDGE NO. A17744

DESCRIPTION | DATE

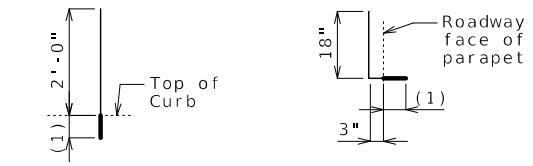
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)



ELEVATION OF LEFT CURB BLOCKOUT

(Right curb blockout similar)

Longitudinal dimensions are along grade and are taken at top outside edge of parapet.

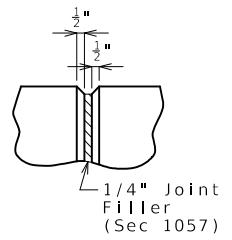


RESIN ANCHOR SYSTEM A
(162 req'd)
(Install in curb)

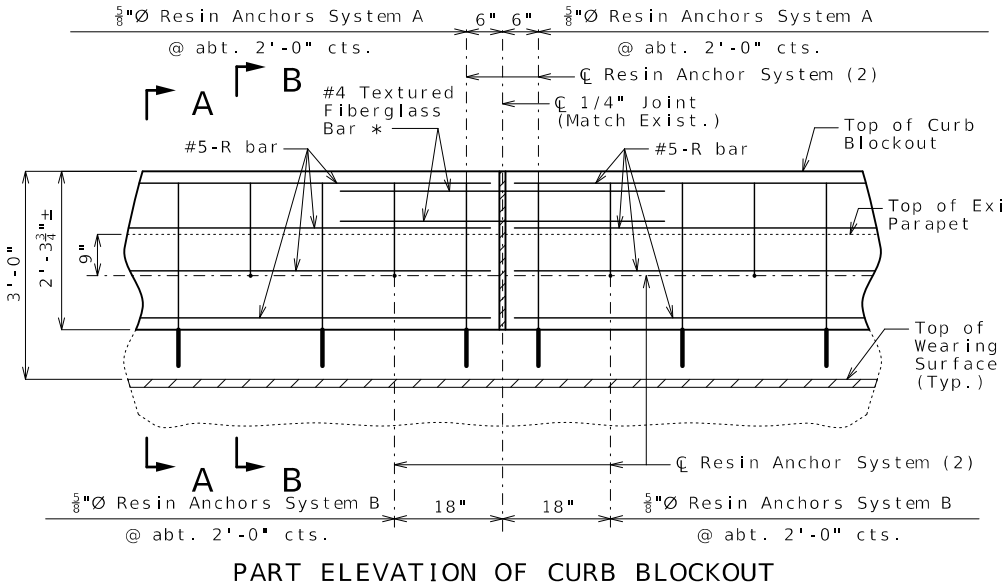
RESIN ANCHOR SYSTEM B
(152 req'd)
(Install in parapet)

(1) Use manufacturer's embedment length (5" minimum embedment).

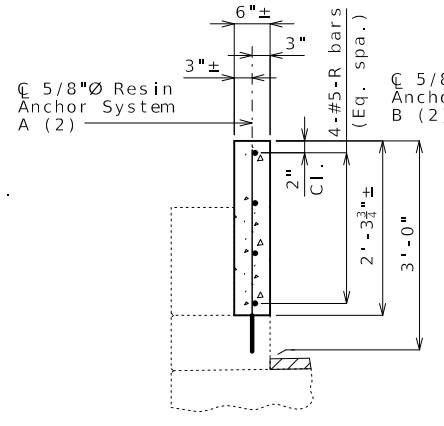
DETAILS OF RESIN ANCHORS



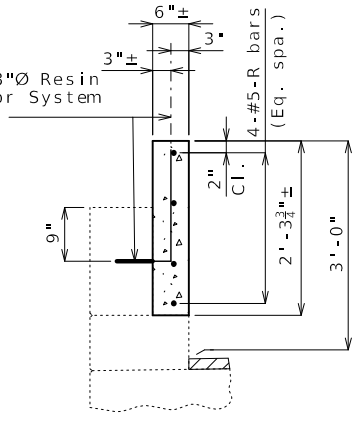
PART ELEVATION AT FORMED JOINT



PART ELEVATION OF CURB BLOCKOUT



SECTION A-A



SECTION B-B

Notes:

* Slip-formed option only.

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

Bridge rail not shown for clarity.

Concrete in curb blockout shall be Class B-1.

Measurement of curb blockout is to the nearest linear foot, measured at the top outside edge of parapet. (Match existing curb and parapet)

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

Payment for concrete, reinforcement, resin anchor systems and any other work incidental to the curb blockout except as noted, complete in place, will be considered completely covered by the contract unit price for Curb Blockout per linear foot.

Cost of any concrete curb or parapet repair will be considered completely covered by the contract unit price for Curb Blockout.

All curb blockout reinforcement shall be Galvanized.

(2) Shift resin anchors where necessary to clear existing anchor bolts for bridge rail, miss curb outlets (if present) and clear existing reinforcement.

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

Concrete traffic barrier delineators shall be placed on top of the curb blockout similarly as shown on Missouri Standard Plans 617.10 and in accordance with Sec 617. Delineators on bridges with two-lane, two-way traffic shall have retroflective sheeting on both sides. Concrete traffic barrier delineators will be considered completely covered by the contract unit price for Curb Blockout.

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

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

A Galvanized #5 Grade 60 reinforcing bar shall be substituted for the 5/8"Ø threaded rod.

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

CURB BLOCKOUT

STATE OF MISSOURI
TIMOTHY D. LEAF
NUMBER PE-2012000778
PROFESSIONAL ENGINEER
12/01/2025 10:44:16 AM
TIMOTHY D. LEAF - CIVIL
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DATE PREPARED
12/1/2025

ROUTE	STATE
I-49	MO

DISTRICT	SHEET NO.
BR	9

COUNTY
VERNON

JOB NO.
JSR0063

CONTRACT ID.

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BRIDGE NO.
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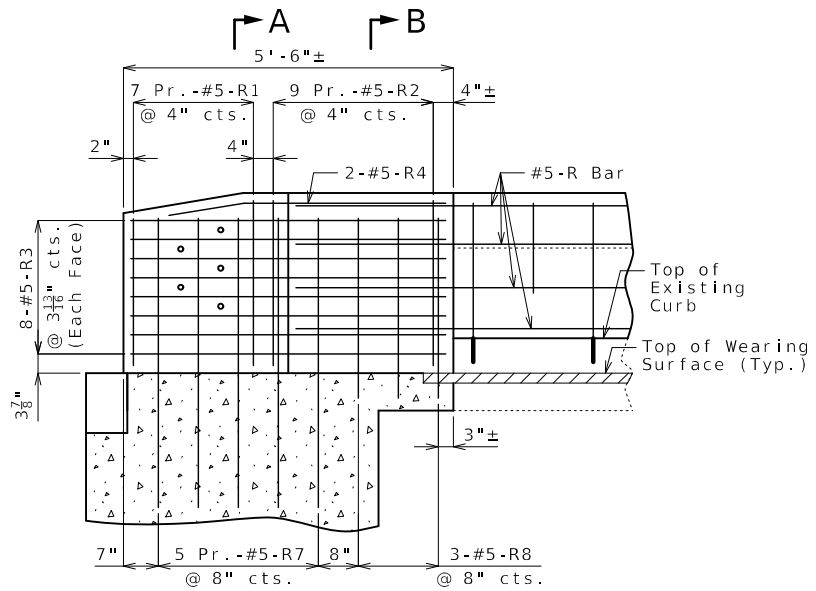
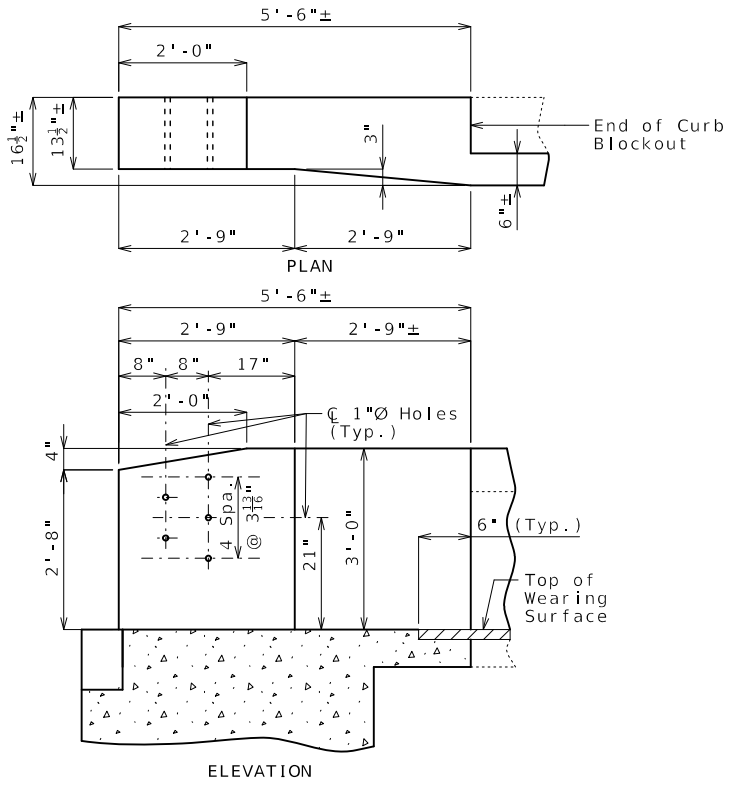
DESCRIPTION	DATE

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

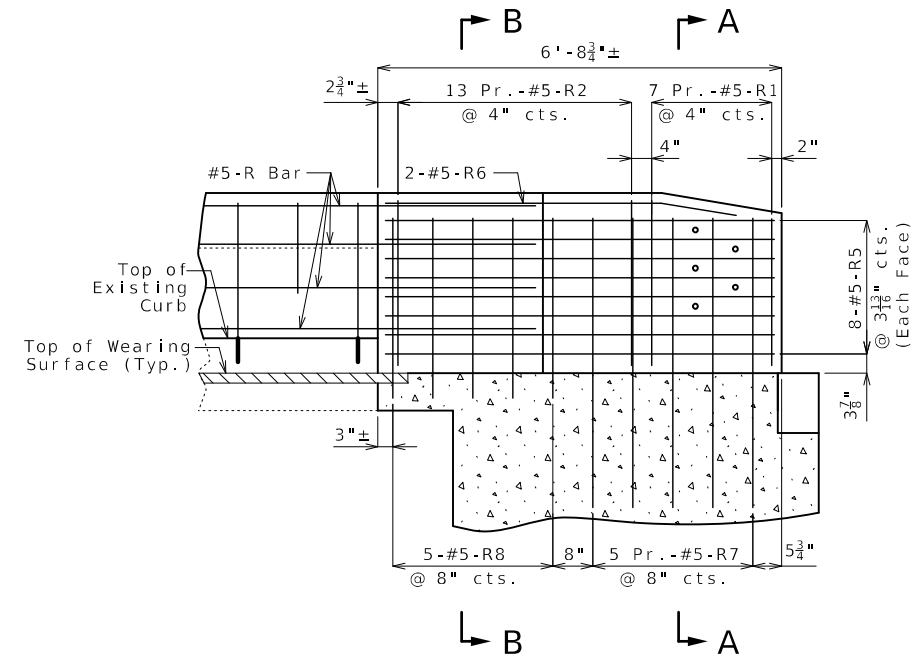


ELEVATION SHOWING REINFORCEMENT

(Right End Post at End Bent No. 5 similar)

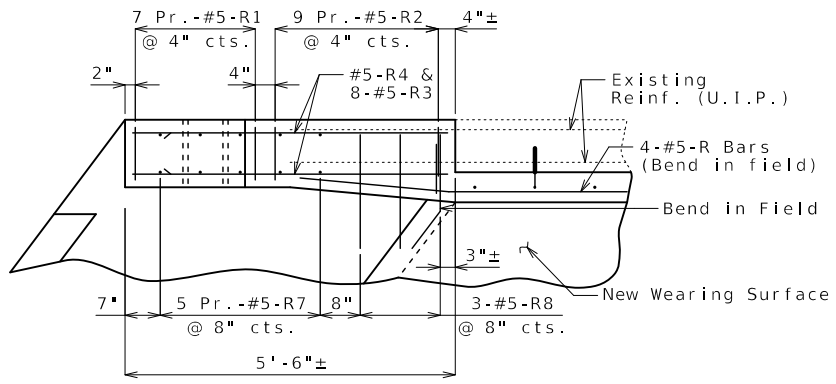


DETAILS OF LEFT END POST AND GUARD RAIL ATTACHMENT AT END BENT NO. 1



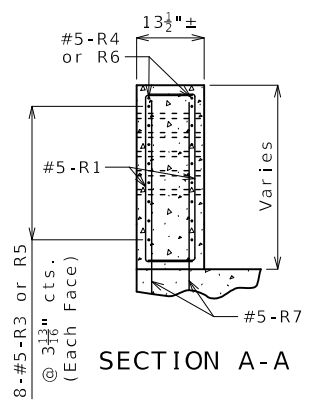
ELEVATION SHOWING REINFORCEMENT

(Right End Post at End Bent No. 1 similar)

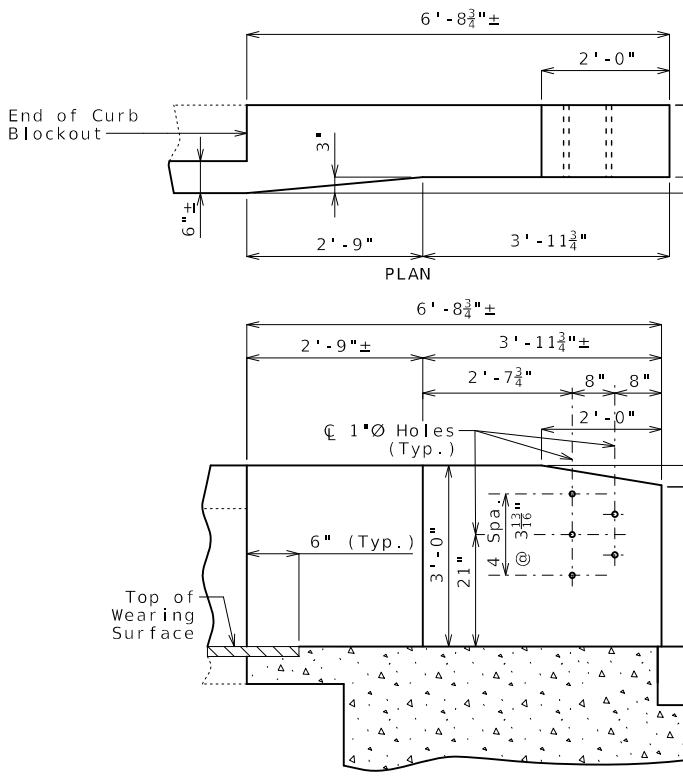


PLAN SHOWING REINFORCEMENT

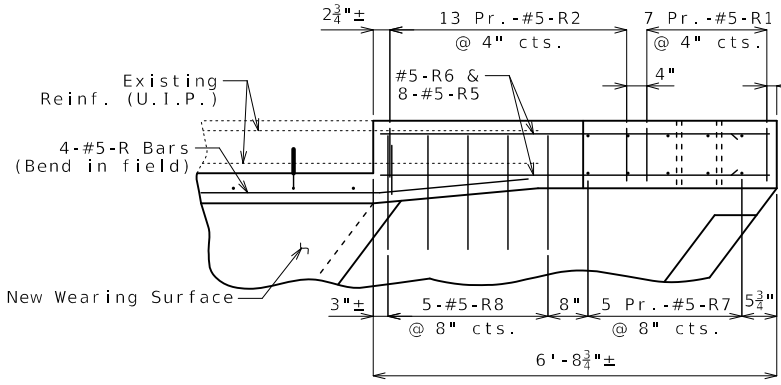
LEFT END POST AT END BENT NO. 1



SECTION A-A

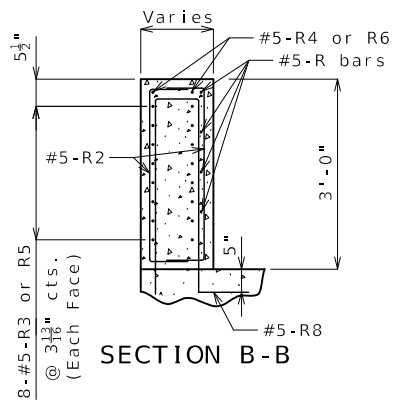


DETAILS OF LEFT END POST AND GUARD RAIL ATTACHMENT AT END BENT NO. 5



PLAN SHOWING REINFORCEMENT

LEFT END POST AT END BENT NO. 5



SECTION B-B

Notes:

Work this sheet with Sheet No. 9.

R-Bars shall be shifted or bent in field to clear one-inch diameter holes by at least 1/2 inch.

Costs for end posts will be considered as completely covered by the contract unit price for Remove and Replace Barrier.

END POSTS

(Left End Posts shown, Right End Posts similar)

STATE OF MISSOURI
TIMOTHY D. LEAF
NUMBER PE-2012000778
PROFESSIONAL ENGINEER
12/01/2025 10:44:24 AM
TIMOTHY D. LEAF - CIVIL
MO-PE-2012000778

DATE PREPARED 12/1/2025

ROUTE I-49 | STATE MO

DISTRICT BR | SHEET NO. 10

COUNTY VERNON

JOB NO. JSR0063

CONTRACT ID.

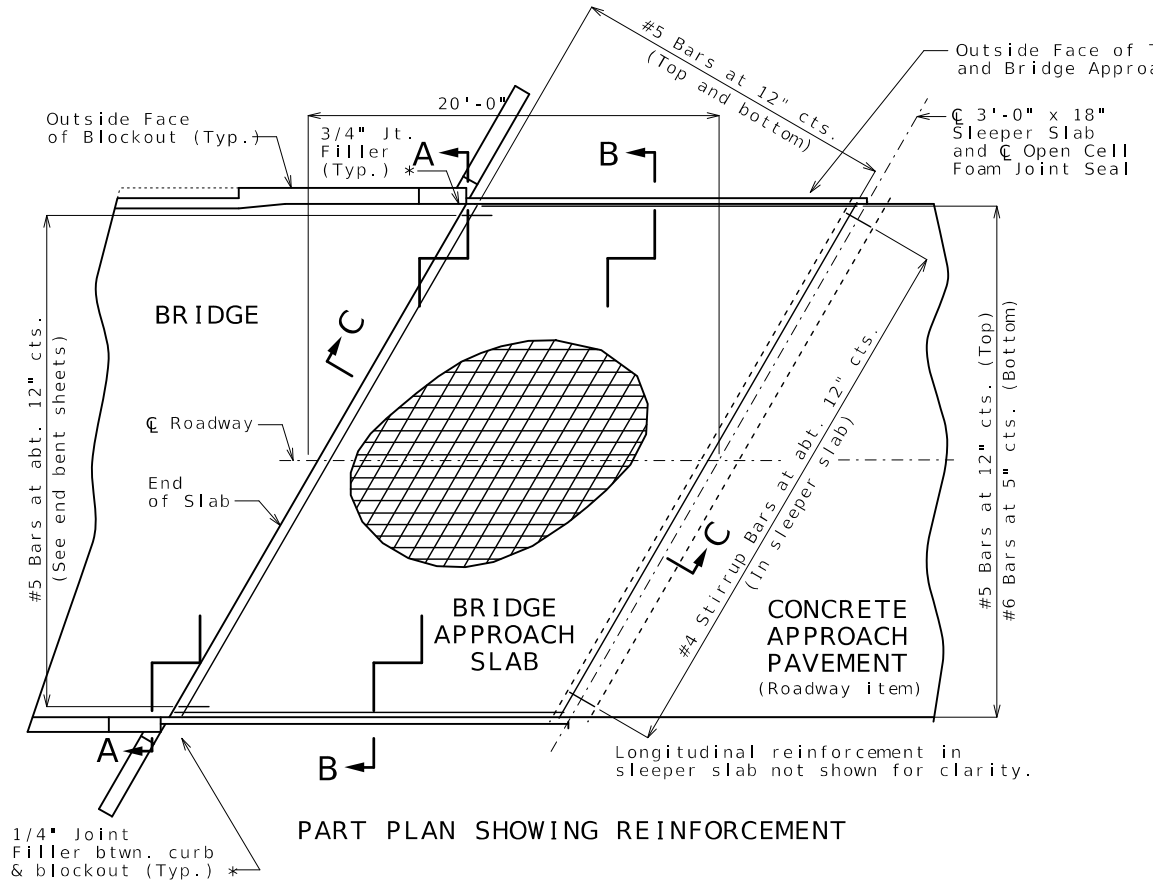
PROJECT NO.

BRIDGE NO. A17744

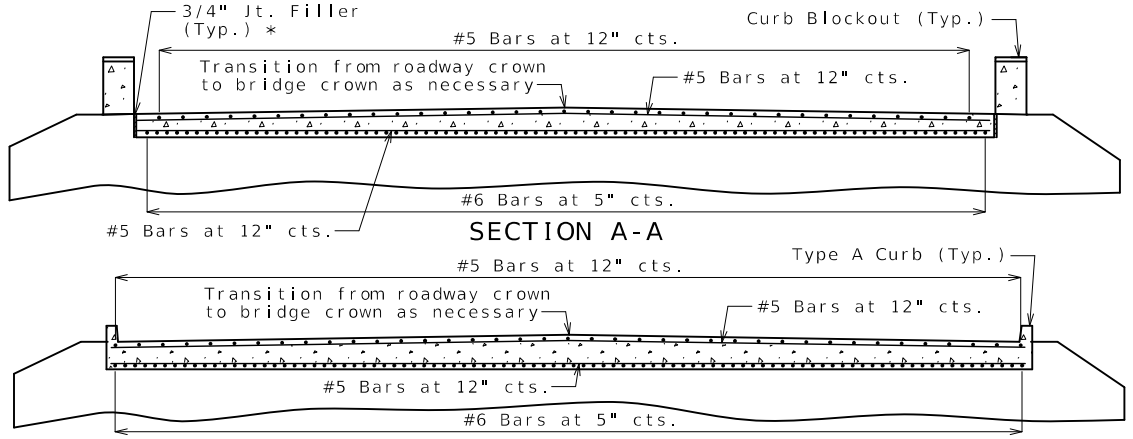
DESCRIPTION

DATE

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



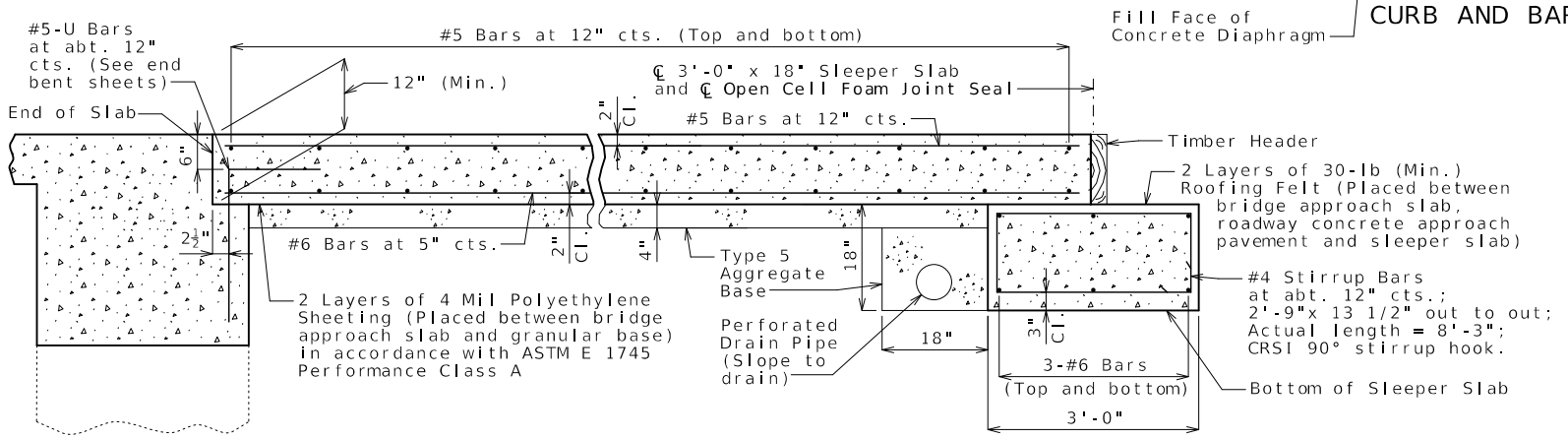
PART PLAN SHOWING REINFORCEMENT



SECTION A-A

SECTION B-B

The contractor shall crown the bottom of the approach slab to match the crown of the roadway surface.



SECTION C-C

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

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

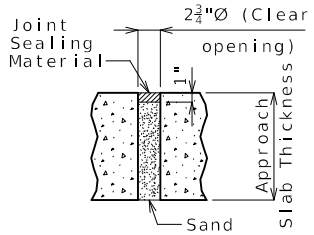
Drain pipe may be either 6" diameter corrugated metallic-coated pipe underdrain, 4" diameter corrugated polyvinyl chloride (PVC) drain pipe, or 4" diameter corrugated polyethylene (PE) drain pipe.

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

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

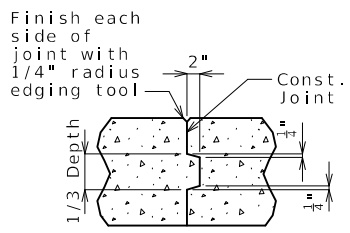
Mechanical bar splices shall be in accordance with Sec 710.

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

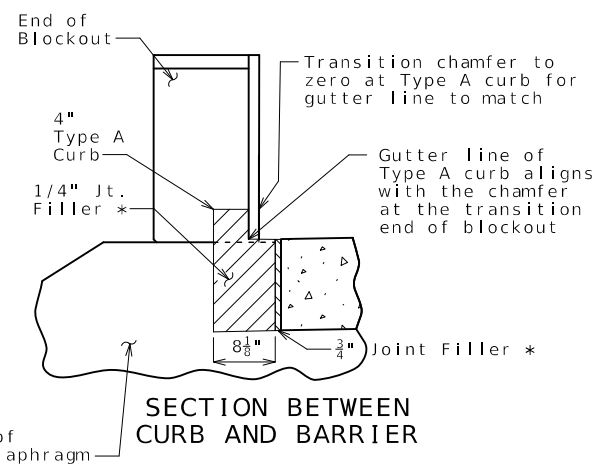


UNDERSEAL ACCESS HOLE DETAIL

(If required)



CONSTRUCTION JOINT DETAIL



SECTION BETWEEN CURB AND BARRIER

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

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

For concrete approach pavement details, see roadway plans.

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

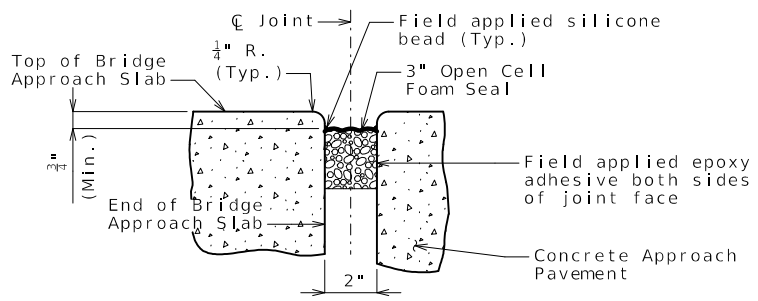
Payment for furnishing all materials, labor and excavation necessary to construct the approach slab, including the timber header, sleeper slab, underdrain, Type 5 aggregate base, joint filler and all other appurtenances and incidental work as shown on this sheet, complete in place, will be considered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

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

Open cell foam joint seal width shall be 3" and depth shall be determined by the manufacturer. Manufacturer recommended seal shall meet the movement and installation gap requirements and skew effect.

The open cell foam joint seal shall be installed according to the manufacturer's recommdendations.

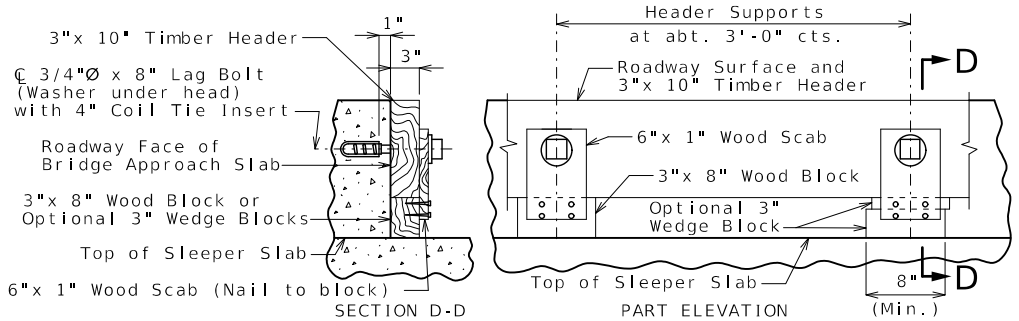
The Open Cell Foam Joint Seal, complete in place, will be considered completely covered by the contract unit price for Bridge Approach Slab (Major).



SECTION THRU JOINT AT END OF BRIDGE APPROACH SLAB

SKEW = 37° L.A.

Extend seal full width of approach slab.



DETAILS OF TIMBER HEADER

Remove timber header when concrete pavement is placed.

STATE OF MISSOURI
TIMOTHY D. LEAF
NUMBER PE-2012000778
PROFESSIONAL ENGINEER
12/01/2025 10:44:32 AM
TIMOTHY D. LEAF - CIVIL
MO-PE-2012000778

DATE PREPARED 12/1/2025

ROUTE	STATE
I-49	MO
DISTRICT	SHEET NO.
BR	11

COUNTY: VERNON

JOB NO.: JSR0063

CONTRACT ID.:

PROJECT NO.:

BRIDGE NO.: A17744

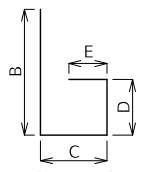
DESCRIPTION	DATE

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

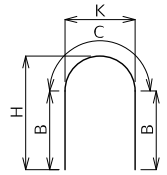
Detailed May 2024
Checked Nov. 2024

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

BRIDGE APPROACH SLAB (MAJOR)



SHAPE 6
or 6S



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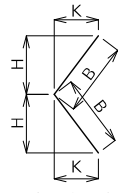
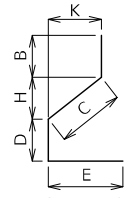
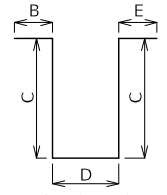


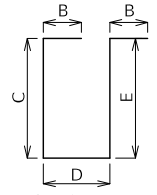
SHAPE 8
or 8S



SHAPE 9
or 9S



SHAPE 10
or 10S



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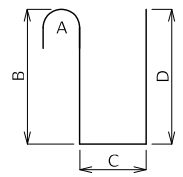
or 11S



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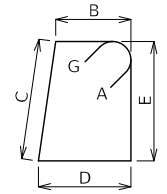
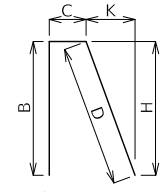


SHAPE 13S



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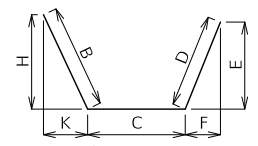

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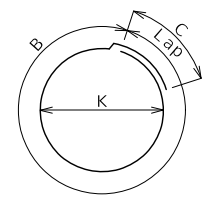
or 15S



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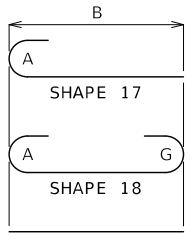
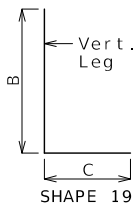


SHAPE 17
SHAPE 18
SHAPE 20



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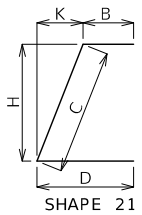

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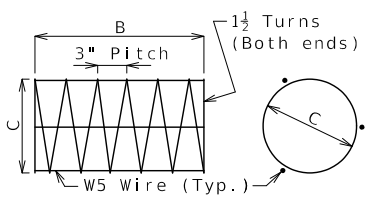
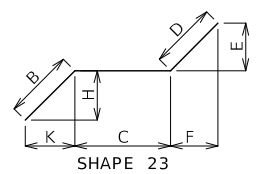
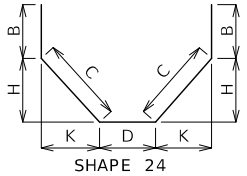
or 21S



SHAPE 22



SHAPE 23
or 23S



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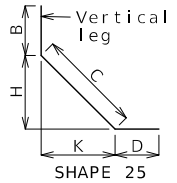

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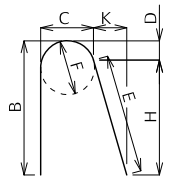
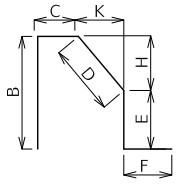
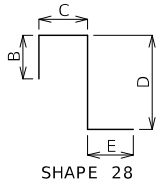
or 25S



SHAPE 26



SHAPE 27S



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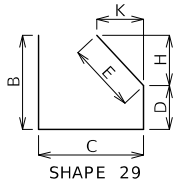

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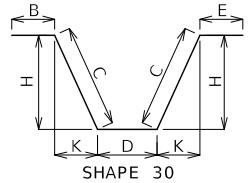

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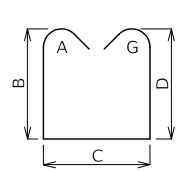
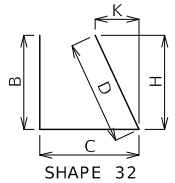


SHAPE 31S



SHAPE 32
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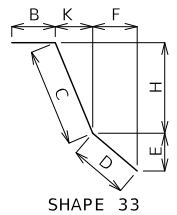

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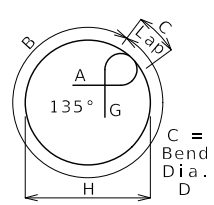
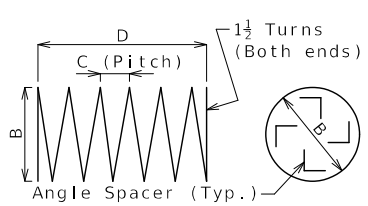
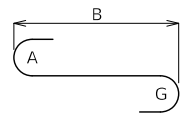
or 33S



SHAPE 34S



SHAPE 35 (1)

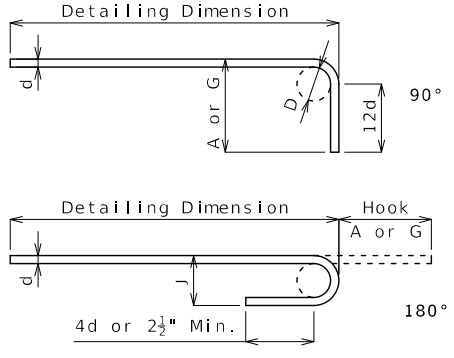


SHAPE 36

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"	9⅜"	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"

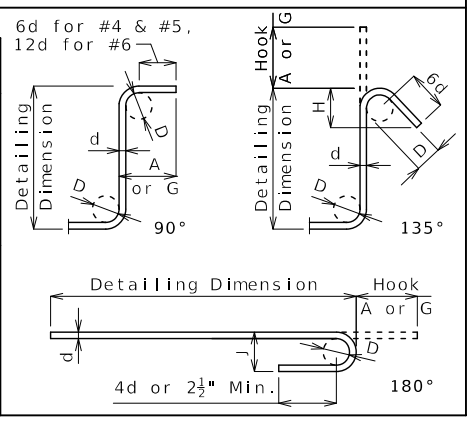


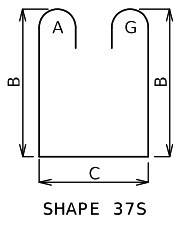
Stirrup Pin Bend Shapes (S)

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"

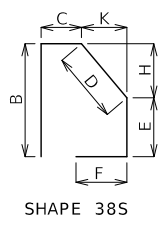
Applicable for all grades of steel.

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	
		Plain	Galv.	Slab	Barrier	Slip Form	Plain	Galv.
By Size	5	0	0	5,872	4,479	0	0	10,351
	6	0	0	4,252	0	0	0	4,252
	7	0	0	2,493	0	0	0	2,493
By Type		0	0	12,617	4,479	0	0	17,096

All superstructure reinforcing steel shall be galvanized unless otherwise specified.

Products used to repair damaged zinc coating shall not contain aluminum.

BENDING DIAGRAMS AND REINFORCING STEEL TOTALS

Detailed May 2024
Checked Nov. 2024

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

STATE OF MISSOURI
TIMOTHY D. LEAF
NUMBER PE-2012000778
PROFESSIONAL ENGINEER
12/01/2025 10:44:43 AM
TIMOTHY D. LEAF - CIVIL
MO-PE-2012000778

DATE PREPARED
12/1/2025

ROUTE	STATE
I-49	MO
DISTRICT	SHEET NO.
BR	12

COUNTY
VERNON

JOB NO.
JSR0063

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A17744

DESCRIPTION	DATE

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

Bill of Reinforcing Steel

No. Req.	Size/ Mark	Location	Codes C	SH	V	Dimensions B	C	D	E	F	H	K	Nom. Length	Actual Length	Weight
						ft in.	ft in.	ft in.	ft in.	ft in.	ft in.	ft in.	ft in.	ft in.	lb
		Superstructure													
		End Bent 1													
32	6 H100	DIAPHRAGM	G	20		32 2.00							32 2	32 2	1,590
4	6 H101	DIAPHRAGM	G	20		7 10.00							7 10	7 10	48
4	6 H102	DIAPHRAGM	G	20		18 3.00							18 3	18 3	113
16	7 H103	WING	G	20	4	12 6.00							12 6	12 6	
		Incr. = 21.375"				7 2.00							7 2	7 2	329
16	7 H104	WING	G	20		12 6.00							12 6	12 6	419
5	7 H105	WING	G	20		7 11.00							7 11	7 11	83
5	7 H107	WING	G	20		8 8.00							8 8	8 8	91
5	7 H108	WING	G	20		7 9.00							7 9	7 9	81
5	7 H109	WING	G	20		6 11.00							6 11	6 11	72
110	5 U100	DIAPHRAGM	G	10S			4 3.00	4 0.00					12 6	12 3	1,454
18	5 U101	DIAPHRAGM	G	10S			3 3.00	4 0.00					10 6	10 3	199
2	5 U102	DIAPHRAGM	G	10S			4 0.00	3 6.00					11 6	11 3	24
65	5 U103	DIAPHRAGM	G	10S			4 3.00	3 5.00					11 11	11 8	818
58	5 U104	APPROACH NOTCH	G	19S		2 0.00	15.00						3 3	3 1	193
18	5 U105	SHEAR BLOCK	G	21S		4 0.00	2 1.25	4 0.00			21.00	14.00	10 1	9 8	188
14	5 V100	DIAPHRAGM	G	20		4 2.00							4 2	4 2	63
14	6 V101	WING	G	20	2	8 2.00							8 2	8 2	
		Incr. = 3.500"				6 5.00							6 5	6 5	158
3	6 V102	WING	G	20		8 2.00							8 2	8 2	38
2	7 V103	WING	G	27		3 0.00	2 8.00	7 1.50	6 2.75		23.50	6 10.25	19	18 8	78
14	6 V104	WING	G	20	2	8 2.00							8 2	8 2	
		Incr. = 3.375"				6 6.00							6 6	6 6	159
1	6 V105	WING	G	20		8 3.00							8 3	8 3	13
2	7 V106	WING	G	27		3 0.00	2 3.50	7 1.50	6 3.00		23.50	6 10.25	18 8	18 4	77
		End Bent 5													
32	6 H500	DIAPHRAGM	G	20		32 2.00							32 2	32 2	1,590
4	6 H501	DIAPHRAGM	G	20		7 10.00							7 10	7 10	48
4	6 H502	DIAPHRAGM	G	20		18 3.00							18 3	18 3	113
16	7 H503	WING	G	20	4	12 6.00							12 6	12 6	
		Incr. = 21.375"				7 2.00							7 2	7 2	329
16	7 H504	WING	G	20		12 6.00							12 6	12 6	419
5	7 H505	WING	G	20		7 11.00							7 11	7 11	83
5	7 H507	WING	G	20		8 8.00							8 8	8 8	91
6	7 H508	WING	G	20		7 9.00							7 9	7 9	97
6	7 H509	WING	G	20		6 11.00							6 11	6 11	87
110	5 U500	DIAPHRAGM	G	10S			4 3.00	4 0.00					12 6	12 3	1,454
18	5 U501	DIAPHRAGM	G	10S			3 3.00	4 0.00					10 6	10 3	199
2	5 U502	DIAPHRAGM	G	10S			4 0.00	3 6.00					11 6	11 3	24
65	5 U503	DIAPHRAGM	G	10S			4 3.00	3 5.00					11 11	11 8	818
58	5 U504	APPROACH NOTCH	G	19S		2 0.00	15.00						3 3	3 1	193
18	5 U505	SHEAR BLOCK	G	21S		4 0.00	2 1.25	4 0.00			21.00	14.00	10 1	9 8	188
12	5 V500	DIAPHRAGM	G	20		4 5.00							4 5	4 5	57
14	6 V501	WING	G	20	2	8 2.00							8 2	8 2	
		Incr. = 3.500"				6 5.00							6 5	6 5	158
3	6 V502	WING	G	20		8 3.00							8 3	8 3	38
2	7 V503	WING	G	27		3 0.00	2 8.00	7 1.50	6 2.75		23.50	6 10.25	19	18 8	78
14	6 V504	WING	G	20	2	8 10.00							8 10	8 10	
		Incr. = 3.500"				7 1.00							7 1	7 1	172
1	6 V505	WING	G	20		8 11.00							8 11	8 11	14
2	7 V506	WING	G	27		3 0.00	2 3.50	7 1.50	6 10.25		23.50	6 10.25	19 3	18 11	79
		Barrier													
		Curb													
56	5 R1	BLOCKOUT	G	10S	8		2 5.00	9.75					5 8	5 5	
		Incr. = 1.500"					2 8.00	13.50					6 6	6 2	350
88	5 R2	BLOCKOUT	G	10S			2 8.00	13.50					6 6	6 2	586
32	5 R3	BLOCKOUT	G	20		5 3.00							5 3	5 3	181

Bill of Reinforcing Steel

No. Req.	Size/ Mark	Location	Codes C	SH	V	Dimensions B	C	D	E	F	H	K	Nom. Length	Actual Length	Weight
						ft in.	ft in.	ft in.	ft in.	ft in.	ft in.	ft in.	ft in.	ft in.	lb
4	5 R4	BLOCKOUT	G	23S		16.25	3 4.00				2.75	16.00	4 8	4 7	20
32	5 R5	BLOCKOUT	G	20		6 5.00							6 5	6 5	222
4	5 R6	BLOCKOUT	G	23S		16.25	4 7.00				2.75	16.00	5 11	5 10	25
40	5 R7	BLOCKOUT	G	20		5 2.00							5 2	5 2	223
16	5 R8	BLOCKOUT	G	28S		2 11.50	10.50	2 11.00	12.00				7 9	7 4	127
48	5 R9	BLOCKOUT	G	20		9 9.00							9 9	9 9	505
16	5 R10	BLOCKOUT	G	20		45 7.00							45 7	45 7	787
32	5 R11	BLOCKOUT	G	20		42 1.00							42 1	42 1	1,453

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. 11.

Detailed May 2024
Checked Nov. 2024

All bars shall be Grade 60.

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

SH = Required shape, see bending diagrams.

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

BILL OF REINFORCING STEEL

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

STATE OF MISSOURI
TIMOTHY D. LEAF
NUMBER PE-2012000778
PROFESSIONAL ENGINEER
12/01/2025 10:44:51 AM
TIMOTHY D LEAF - CIVIL
MO-PE-2012000778

DATE PREPARED
12/1/2025

ROUTE I-49 | STATE MO
DISTRICT BR | SHEET NO. 13
COUNTY VERNON
JOB NO. JSR0063
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A17744

DESCRIPTION | DATE

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

DESIGN DESIGNATION

SB A.A.D.T. - 2022 = 8309
NB A.A.D.T. - 2022 = 8340
D.H.V. = 8%
T = 41%
V = 70 M.P.H.
D = 49/51%
FUNCTIONAL CLASSIFICATION- INTERSTATE

NO NEW R/W REQUIRED

CONVENTIONAL SYMBOLS
(USED IN PLANS)

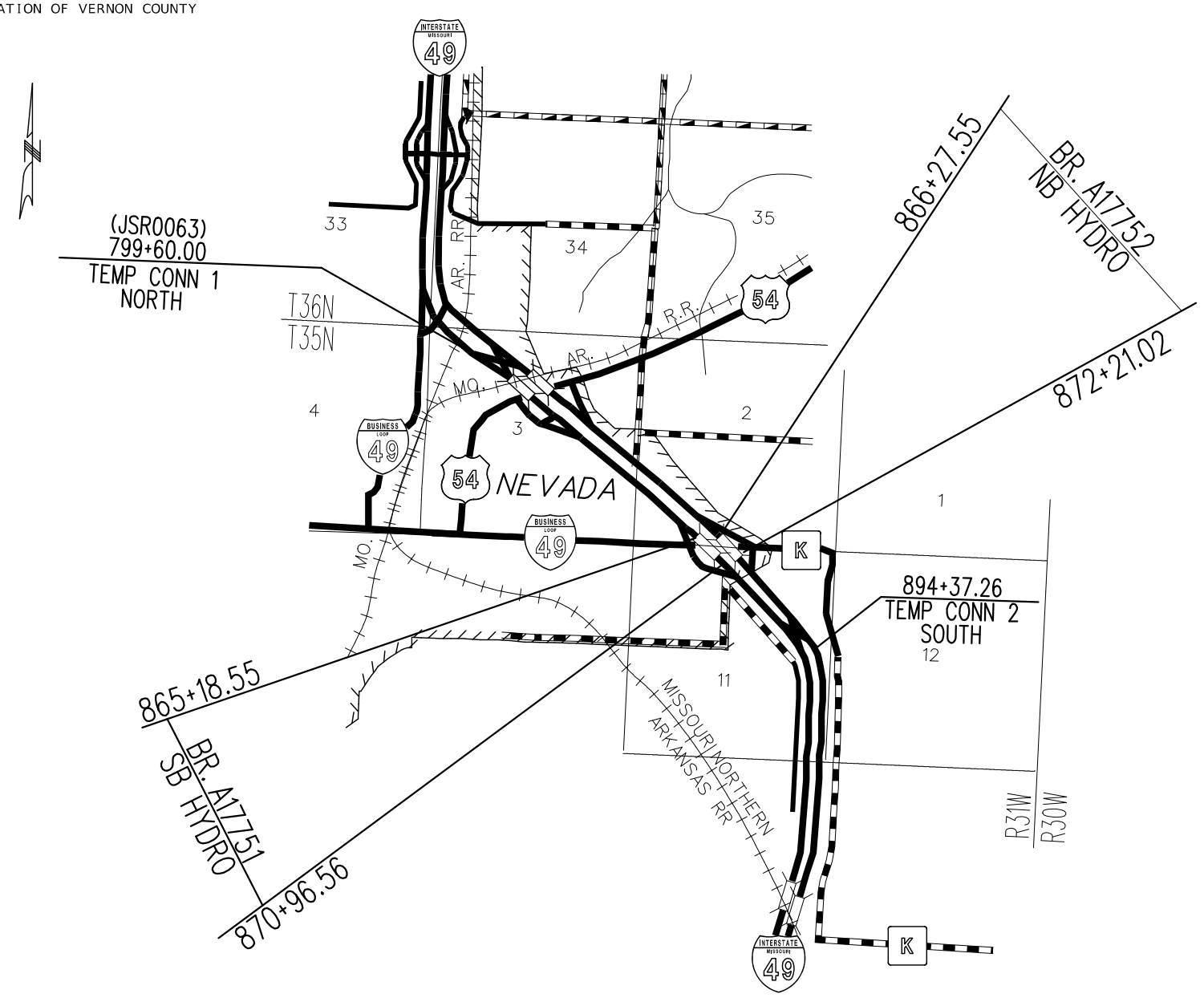
	EXISTING	NEW
BUILDINGS AND STRUCTURES		
GUARD RAIL		
GUARD CABLE		
CONCRETE RIGHT-OF-WAY MARKER		
STEEL RIGHT-OF-WAY MARKER		
LOCATION SURVEY MARKER		
UTILITIES		
FIBER OPTICS	-FO-	FO
OVERHEAD CABLE TV	-OTV-	OTV
UNDERGROUND CABLE TV	-UTV-	UTV
OVERHEAD TELEPHONE	-OT-	OT
UNDERGROUND TELEPHONE	-UT-	UT
OVERHEAD 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		
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

PLANS FOR PROPOSED STATE HIGHWAY VERNON COUNTY

KEY MAP
LOCATION OF VERNON COUNTY



NOT TO SCALE

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

INDEX OF SHEETS

LENGTH OF PROJECT

BEGINNING OF PROJECT	STA.	865 + 18.55
END OF PROJECT	STA.	894 + 37.26
APPARENT LENGTH		2918.71 FEET
EQUATIONS AND EXCEPTIONS:		
ROADWAY EXCEPTIONS STA 872+21.02 - 887+00.00		-1478.98 FEET
TOTAL CORRECTIONS		-1478.98 FEET
NET LENGTH OF PROJECT		1439.73 FEET
STATE LENGTH		0.273 MILES
FOR INFORMATION ONLY ESTIMATED DISTURBED ACRES		1.6 ACRES

STATE OF MISSOURI
SHANNON M. KELLNER
NUMBER PE-2011015763
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

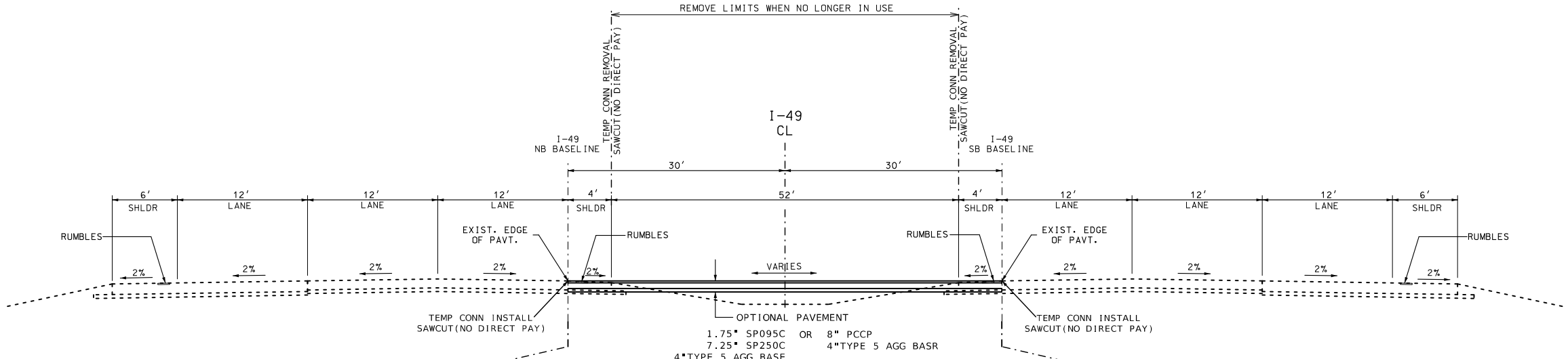
DATE PREPARED: 10/27/2025
ROUTE: I49 | STATE: MO
DISTRICT: SW | SHEET NO.: 1
COUNTY: VERNON
JOB NO.: JSR0064
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.:

DESCRIPTION	DATE

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

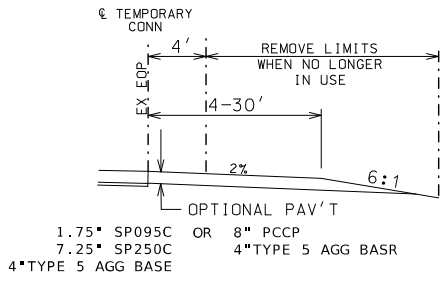
ASPHALT FACTORS	
	COMBINED FACTOR
SP095C (PG76-22)	1.955 TONS/CY
SP250C (PG64-22)	1.970 TONS/CY
TACK COAT	
MILLING	0.10 GAL/SY

UPON REMOVAL OF THE TEMPORARY CONNECTION, LEAVE IN PLACE 4FT OF TEMP CONN PAVEMENT TO SERVE AS NEW PERMANENT MAINLINE SHOULDER AND ADD RUMBLE STRIPS.

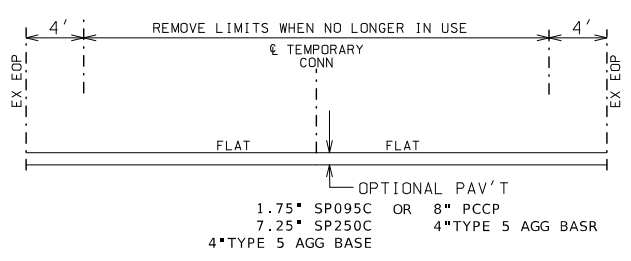


TEMPORARY CONNECTION 2
ROUTE I-49 MEDIAN

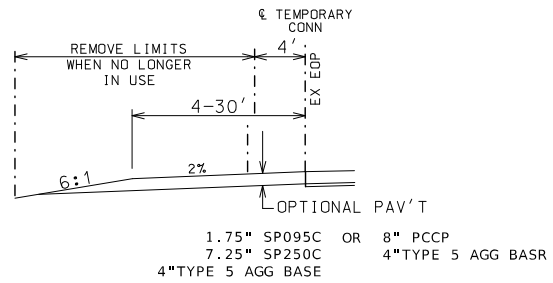
STA. 887+00.00 TO STA. 894+37.26



STA 887+00.00 TO 890+11.02 NB
STA 891+23.29 TO 894+37.26 NB



STA 890+11.02 TO 891+23.29



STA 887+00.00 TO 890+11.02 SB
STA 891+23.29 TO 894+37.26 SB

TYPICAL SECTIONS
SHEET 1 OF 2

STATE OF MISSOURI
SHANNON M. KELLNER
NUMBER PE-2011015763
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED: 1/21/2025
ROUTE: I49 | STATE: MO
DISTRICT: SW | SHEET NO.: 2
COUNTY: VERNON
JOB NO.: JSR0064
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)

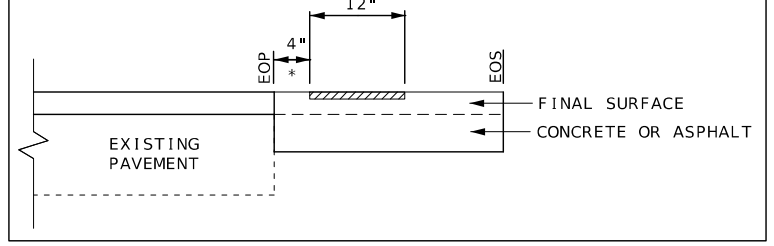
NOTES: LANE WIDTH NOTED IS TYPICAL LANE WIDTH.
ADJUST PAVING WIDTHS TO EXISTING FIELD CONDITIONS.

NO ADDITIONAL PAYMENT WILL BE MADE FOR ADDITIONAL COLDMILLING (UP TO 3") REQUIRED TO REMOVE ENTIRE TOP LIFT DUE TO DELAMINATION. THIS APPLIES TO ENTIRE PROJECT LIMITS.

SURFACE PLACEMENT - ONE PASS PER LANE

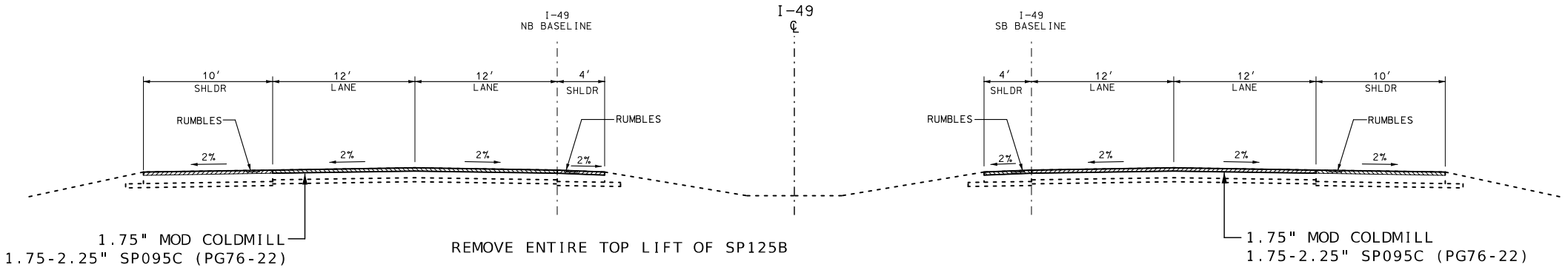
NO S.E. CORRECTION

RUMBLE STRIP DETAILS



* LATERAL DEVIATION SHALL NOT EXCEED ONE INCH IN 100 FEET

ASPHALT FACTORS	
COMBINED FACTOR	
SP095C (PG76-22)	1.955 TONS/CY
TACK COAT	
MILLING	0.10 GAL/SY
IRREGULARITIES: 75 TONS/MI	



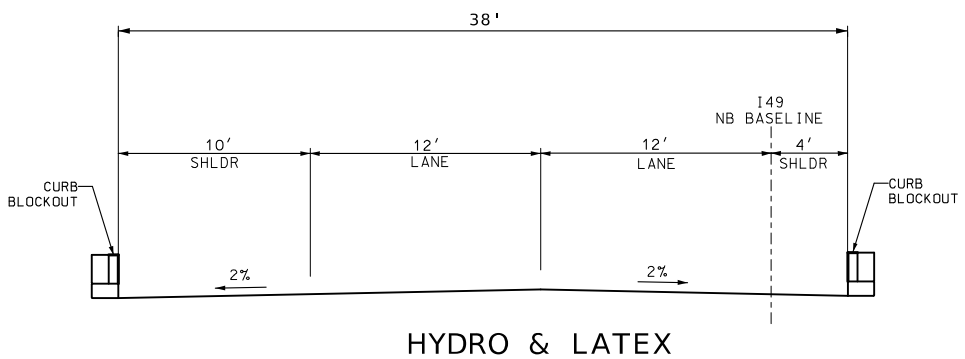
REMOVE ENTIRE TOP LIFT OF SP125B

MODIFIED COLDMILL PAID FOR ANY ADJUSTMENTS
REQUIRED TO MATCH BRIDGE REHAB FINAL ELEVATION.

ROUTE I-49 LT (NORTHBOUND)

STA. 866+27.55 TO STA. 867+27.55
STA. 871+21.02 TO STA. 872+21.02

STA. 867+27.55 TO STA. 867+42.55 CONCRETE APPROACH PAVEMENT
STA. 867+42.55 TO STA. 867+62.55 BRIDGE APPROACH SLAB
STA. 870+71.02 TO STA. 870+91.02 BRIDGE APPROACH SLAB
STA. 870+91.02 TO STA. 871+21.02 CONCRETE APPROACH PAVEMENT



HYDRO & LATEX

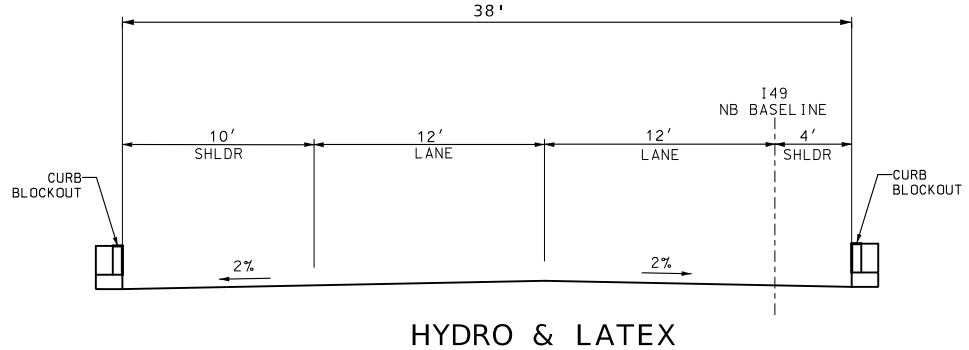
ROUTE I-49 LT (NORTHBOUND) BR-A17752

STA. 867+62.55 TO STA. 870+71.02

ROUTE I-49 RT (SOUTHBOUND)

STA. 865+18.55 TO STA. 866+18.55
STA. 869+96.56 TO STA. 870+96.56

STA. 866+18.55 TO STA. 866+33.55 CONCRETE APPROACH PAVEMENT
STA. 866+33.55 TO STA. 866+53.55 BRIDGE APPROACH SLAB
STA. 869+61.56 TO STA. 869+81.56 BRIDGE APPROACH SLAB
STA. 869+81.56 TO STA. 869+96.56 CONCRETE APPROACH PAVEMENT



HYDRO & LATEX

ROUTE I-49 RT (SOUTHBOUND) BR-A17751

STA. 866+53.55 TO STA. 869+61.56

NOTE: END BENT 4 SLOPE PROTECTION REPAIR REQUIRED
PAID AS CONCRETE SLOPE PROTECTION

TYPICAL SECTIONS
SHEET 2 OF 2

STATE OF MISSOURI
SHANNON M. KELLNER
NUMBER PE-2011015763
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED: 2/19/2025
ROUTE: I49 | STATE: MO
DISTRICT: SW | SHEET NO.: 2
COUNTY: VERNON
JOB NO.: JSR0064
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)

PAVEMENT						
STATION	STATION	NET LENGTH FT	AVERAGE WIDTH FT	AREA SF	SP095C 1.955 Tons/CY TONS	TACK COAT GAL	REMARKS
I-49 SOUTHBOUND							
865+18.55	866+18.55	100.0	38	3800	45.9	42.22	1.75-2.25"
869+96.56	870+96.56	100.0	38	3800	45.9	42.22	1.75-2.25"
I-49 NORTHBOUND							
866+27.55	867+27.55	100.0	38	3800	45.9	42.22	1.75-2.25"
871+21.02	872+21.02	100.0	38	3800	45.9	42.22	1.75-2.25"
IRREGULARITIES					5.7		75 TONS/MILE
SAFETY EDGE					3.7		2% SAFETY EDGE
TOTALS					193.0	168.88	
USE					193.0	169	

LINEAR GRADING					
STATION	STATION	LOC	MODIFIED STA	CLASS 1 STA	REMARKS
I-49 SOUTHBOUND					
866+18.55	866+58.55	RT		0.4	CONC APPROACH PAV'T/SLOPES FOR DRAINAGE OUTSIDE
866+18.55	867+68.55	MEDIAN		1.5	CONC APPROACH PAV'T/SLOPES FOR DRAINAGE MEDIAN
869+06.56	869+96.56	RT		0.9	CONC APPROACH PAV'T/SLOPES FOR DRAINAGE OUTSIDE
I-49 NORTHBOUND					
867+27.55	868+17.55	LT		0.9	CONC APPROACH PAV'T/SLOPES FOR DRAINAGE OUTSIDE
869+61.02	871+21.02	LT		1.6	CONC APPROACH PAV'T/SLOPES FOR DRAINAGE MEDIAN
870+71.02	871+21.02	LT		0.5	CONC APPROACH PAV'T/SLOPES FOR DRAINAGE OUTSIDE
I-49			7.4	5.8	
887+00.00	894+37.26	MEDIAN	7.4		TEMP CONN 2 OBLIT-SEE SAW CUTS
		TOTAL			

MODIFIED COLDMILL								
STATION	STATION	LOC	LENGTH FT	WIDTH FT	AREA SF	SY	REMARKS
I-49 SOUTHBOUND							
865+18.55	866+18.55	RT	100	38	3800	422.22	
869+96.56	870+96.56	RT	100	38	3800	422.22	
I-49 NORTHBOUND							
866+27.55	867+27.55	LT	100	38	3800	422.22	
871+21.02	872+21.02	LT	100	38	3800	422.22	
USE						1689	
TOTAL						1688.88	

SUMMARY OF QUANTITIES

SHEET 1 OF 3

OPTIONAL PAVEMENT							
STATION	STATION	NET LENGTH FT	AVERAGE WIDTH FT	AREA SF	OPTIONAL 9IN. ASPHALT 8IN. PCCP SY	4" TYPE 5 AGG BASE SY	REMARKS
I-49							
887+00.00	894+37.26	737.26	VAR	22047	2449.67	2449.67	TEMP CONN 2 SOUTH
TOTALS					2449.67	2449.67	
USE					2449.7	2450	

TEMPORARY PIPE			
STATION	OFFSET	18" LF	REMARKS
I-49			
890+67.15	CL	350	TEMP CONN 2-PIPE INSTALL & REMOVAL
TOTAL		350	

SAW CUTS (INFORMATION ONLY)				
STATION	STATION	OFFSET	SAW CUT LF	REMARKS
I-49				
887+00.00	894+37.26	26-30' LT	4.0	NB INSIDE SHOULDER
887+00.00	894+37.26	30' LT	737.3	NB INSIDE SHOULDER
894+37.26		26-30' LT	4.0	NB INSIDE SHOULDER
887+00.00		26-30' RT	4.0	SB INSIDE SHOULDER
894+00.00	894+37.26	30' RT	737.3	SB INSIDE SHOULDER
887+00.00	894+37.26	26' LT	737.3	TEMP CONN 2 OBLIT
887+00.00	894+37.26	26' RT	737.3	TEMP CONN 2 OBLIT
TOTAL			2965.2	NO DIRECT PAY

CONTRACTOR FURNISHED SURVEYING AND STAKING
1 LUMP SUM

MOBILIZATION
1 LUMP SUM

ADDITIONAL MOBILIZATION FOR SEEDING AND MULCHING
EACH
4

REMOVAL OF IMPROVEMENTS							
STATION	STATION	OFFSET	ALIGNMENT	ITEM	UNIT	TOTAL	REMARKS
865+59.15	866+34.15	RT	SB I-49	GUARDRAIL	LF	75	SB UPSTREAM OUTSIDE
866+14.47	866+34.29	RT	SB I-49	CONC	SY	13	DRAIN BASIN SW CORNER
866+04.92	866+79.92	RT	SB I-49	GUARDRAIL	LF	75	SB UPSTREAM INSIDE
866+66.52	866+86.42	RT	SB I-49	CONC	SY	13	DRAIN BASIN NW CORNER
868+72.60	869+79.68	RT	SB I-49	CONC	SY	9	SLOPE PROTECTION REPAIR AREA
869+28.66	869+48.59	RT	SB I-49	CONC	SY	13	DRAIN BASIN SE CORNER
869+35.22	870+10.22	RT	SB I-49	GUARDRAIL	LF	75	SB DOWNSTREAM OUTSIDE
869+80.74	870+00.26	RT	SB I-49	CONC	SY	13	DRAIN BASIN NE CORNER
I-49 NORTHBOUND							
867+23.77	867+43.61	LT	NB I-49	CONC	SY	12	DRAIN BASIN SW CORNER
867+14.16	867+89.16	LT	NB I-49	GUARDRAIL	LF	75	NB DOWNSTREAM OUTSIDE
867+75.96	867+95.55	LT	NB I-49	CONC	SY	13	DRAIN BASIN NW CORNER
870+38.13	870+57.86	LT	NB I-49	CONC	SY	13	DRAIN BASIN SE CORNER
870+44.43	871+31.93	LT	NB I-49	GUARDRAIL	LF	88	NB UPSTREAM INSIDE
870+90.07	871+10.05	LT	NB I-49	CONC	SY	13	DRAIN BASIN NE CORNER
870+90.42	871+65.42	LT	NB I-49	GUARDRAIL	LF	75	NB UPSTREAM OUTSIDE
TOTAL						1 LUMP SUM	

EARTHWORK							
STATION	STATION	OFFSET	UNCLASSIFID EXCAVATION CY	COMPACTING EMBANKMENT IN PLACE CY	COMPACTING EMBANKMENT IN CUT STA CY	REMARKS
TEMPORARY CONN 2						
887+00.00	894+37.26	LT I49 MED CL	132	377	7.4	TEMP CONN 2 INSTALL
887+00.00	894+37.26	RT I49 MED CL	139	471	7.4	TEMP CONN 2 INSTALL
			ROUNDING 500CY/MILE			
			70			
TOTALS			341	848	14.8	

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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

DATE	DESCRIPTION

BRIDGE NO.

PROJECT NO.

CONTRACT ID.

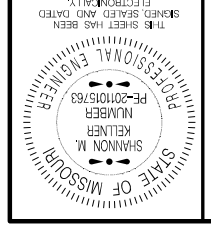
JOB NO. JSR0064

COUNTY VERNON

DISTRICT SW | SHEET NO. 3

ROUTE 149 | STATE MO

DATE PREPARED 2/19/2025



THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

SUMMARY OF QUANTITIES

GUARDRAIL							
STA	STA	OFFSET	NET LENGTH	MGS BRIDGE APPROACH TRANSITION	MGS GUARDRAIL	TYPE A CWT MASH	MGS HEIGHT/BLOCK TRANSITION	SHAPING SLOPES CLASS III	REMARKS
			FT	EACH	LF	EACH	EACH	100FT	
I-49 SOUTHBOUND									
865+59.15	866+34.15	RT	75.0	1	12.5		1	0.8	SB UPSTREAM OUTSIDE
866+04.92	866+79.92	RT	75.0	1	12.5		1	0.8	SB UPSTREAM INSIDE
869+35.22	870+10.22	RT	75.0	1	12.5		1	0.8	SB DOWNSTREAM OUTSIDE
869+80.96	872+93.46	RT	312.5	1	225.0	1		3.5	SB DOWNSTREAM INSIDE FOR STAGE 3 CONST
I-49 NORTHBOUND									
864+30.65	867+43.15	LT	312.5	1	225.0	1		3.5	NB DOWNSTREAM INSIDE FOR STAGE 2 CONST
867+14.16	867+89.16	LT	75.0	1	12.5		1	0.8	NB DOWNSTREAM OUTSIDE
870+44.43	871+31.93	LT	87.5	1	25.0		1	0.9	NB UPSTREAM INSIDE
870+90.42	871+65.42	LT	75.0	1	12.5		1	0.8	NB UPSTREAM OUTSIDE
			TOTALS	8	537.5	2	6	11.9	
			USE	8	538	2	6	12	

CONCRETE APPROACH PAVEMENT

STATION	STATION	LOC	LENGTH FT	WIDTH FT	AREA SF	SY	REMARKS
I-49 SOUTHBOUND							
866+18.55	866+33.55	RT	15	38	1146.9	127.43	
869+81.56	869+96.56	RT	15	38	1146.9	127.43	SEE TYPE A GUTTER FOR DRAIN FLUME
I-49 NORTHBOUND							
867+27.55	867+42.55	LT	15	38	1146.9	127.43	SEE TYPE A GUTTER FOR DRAIN FLUME
870+91.02	871+21.02	LT	30	38	2009.4	223.27	NON STANDARD LENGTH
			TOTAL			605.56	
			USE			605.6	

TYPE A GUTTER

STATION	STATION	LOC	GUTTER LF	REMARKS
I-49 SOUTHBOUND				
869+81.56	869+96.56	26' RT	16.0	ON CONC APPROACH PAV'T FOR DRAIN FLUME
I-49 NORTHBOUND				
867+27.55	867+42.55	26' LT	16.0	ON CONC APPROACH PAV'T FOR DRAIN FLUME
		TOTAL	32.0	
		USE	32	

BITUMINOUS SHOULDER RUMBLE STRIP

STATION	STATION	LOCATION	STA	REMARKS
I-49 SOUTHBOUND				
865+18.55	866+18.55	RT	1.0	INSIDE SHOULDER
865+18.55	866+18.55	RT	1.0	OUTSIDE SHOULDER
869+96.56	870+96.56	RT	1.0	INSIDE SHOULDER
869+96.56	870+96.56	RT	1.0	OUTSIDE SHOULDER
887+00.00	894+37.26	RT	7.4	INSIDE SHOULDER
I-49 NORTHBOUND				
866+27.55	867+27.55	LT	1.0	INSIDE SHOULDER
866+27.55	867+27.55	LT	1.0	OUTSIDE SHOULDER
871+21.02	872+21.02	LT	1.0	INSIDE SHOULDER
871+21.02	872+21.02	LT	1.0	OUTSIDE SHOULDER
887+00.00	894+37.26	LT	7.4	INSIDE SHOULDER
		TOTAL	22.8	

PERMANENT AGGREGATE EDGE TREATMENT

STATION	STATION	LOCATION	LENGTH FEET	AGGREGATE 200TONS/MILE TONS	PRIME MC800 590GAL/MILE GAL	REMARKS
I-49 SOUTHBOUND						
865+18.55	866+18.55	LT/RT	200	7.6	22.3	INSIDE & OUTSIDE
869+96.56	870+96.56	LT/RT	200	7.6	22.3	INSIDE & OUTSIDE
I-49 NORTHBOUND						
866+27.55	867+27.55	LT/RT	200	7.6	22.3	INSIDE & OUTSIDE
871+21.02	872+21.02	LT/RT	200	7.6	22.3	INSIDE & OUTSIDE
			TOTALS	30.4	89.2	
			USE	30.4	90	

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

DESCRIPTION	DATE

BRIDGE NO.

PROJECT NO.

CONTRACT ID.

JOB NO.	COUNTY
J5R0064	VERNON

ROUTE	STATE	DISTRICT	SHEET NO.
I49	MO	SW	3

DATE PREPARED
2/19/2025

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

STATE OF MISSOURI
SHANNON M. KELLNER
NUMBER PE-2011015763
PROFESSIONAL ENGINEER

SUMMARY OF QUANTITIES

SHEET 3 OF 3

MULCHING
TOTAL ACRES
1.6

TEMPORARY SEEDING
TOTAL ACRES
0.3

SEEDING - COOL SEASON GRASSES
TOTAL ACRES
1.3

PERMANENT EROSION CONTROL							
STATION	STATION	OFFSET	TYPE 1 ROCK DITCH FURNISHING	TYPE 1 ROCK DITCH LINER FURNISHING	GEOTEXTILE FABRIC	CONCRETE SLOPE PROTECTION	REMARKS
			CY	CY	SY	SY	
I-49 SOUTHBOUND							
866+32.05		63.9-124'RT	4	4	27.8		DRAIN FLUME
866+77.82		0-26'RT	2	2	12.0		DRAIN FLUME
868+72.60	869+79.68	RT				8.9	SLOPE PROTECTION REPAIR
869+37.32		63.8-120'RT	4	4	26.0		DRAIN FLUME
870+03.00	870+21.00	16-1' LT	2	2	10.7		DRAIN FLUME @ TYPE A GUTTER
I-49 NORTHBOUND							
867+03.00	867+21.00	1-16' LT	2	2	10.8		DRAIN FLUME @ TYPE A GUTTER
867+87.06		64-154'LT	7	7	41.7		DRAIN FLUME
870+46.53		0-26.3'LT	2	2	12.2		DRAIN FLUME
870+92.52		64.2-132' LT	5	5	31.4		DRAIN FLUME
TOTAL			28	28	172.6	8.9	
USE			28	28	173	9	

TEMPORARY EROSION CONTROL							
STATION	STATION	OFFSET	ROCK DITCH CHECK	CURB INLET CHECK	SILT FENCE	SEDIMENT REMOVAL	REMARKS
			LF	EACH	LF	CY	
I-49 INITIAL PHASE							
864+80.00		CL	10			1.00	MEDIAN DITCH
872+60.00		CL	10			1.00	MEDIAN DITCH
885+00.00		CL	10			1.00	MEDIAN DITCH
887+75.00		CL	10			1.00	MEDIAN RELIEF
892+55.00		CL	10			1.00	UPPER END TEMP PIPE
I-49 CONSTRUCTION PHASE							
865+20.00		CL	10			1.00	MEDIAN DITCH
865+60.00		CL	10			1.00	MEDIAN DITCH
866+00.00		CL	10			1.00	MEDIAN DITCH
866+18.00	866+58.00	RT			40	0.40	
866+25.00		64'RT		1		1.00	OUTLET BR DRAIN
866+28.00		133'RT	10			1.00	DITCH
866+40.00		CL	10			1.00	MEDIAN DITCH
866+40.00		246'RT	10			1.00	PROTECT PIPE INLET
866+75.00		26'RT		1		1.00	OUTLET BR DRAIN
867+25.00	868+25.00	LT			100	1.00	
867+35.00		26'LT		1		1.00	OUTLET BR DRAIN
867+85.00		64'LT		1		1.00	OUTLET BR DRAIN
869+00.00	870+00.00	RT			100	1.00	
869+40.00		64'RT		1		1.00	OUTLET BR DRAIN
869+90.00		26'RT		1		1.00	OUTLET BR DRAIN
870+48.00		26'LT		1		1.00	OUTLET BR DRAIN
870+65.00	871+25.00	LT			60	0.60	
871+00.00		64'LT		1		1.00	OUTLET BR DRAIN
871+00.00		CL	10			1.00	MEDIAN DITCH
871+40.00		CL	10			1.00	MEDIAN DITCH
871+44.00		165'LT	10			1.00	PROTECT BOX INLET
872+60.00		CL	10			1.00	MEDIAN DITCH
872+20.00		CL	10			1.00	MEDIAN DITCH
TOTALS			160	8	300	27	
USE			160	8	300	27	

HIGH BUILD WATERBOURNE PAVEMENT MARKING, TYPE L BEADS						
STATION	STATION	OFFSET	6" SOLID WHITE LF	6" INT WHITE LF	6" SOLID YELLOW LF	REMARKS
SOUTHBOUND I-49						
848+00.0	848+85.24	30' RT			85.2	INSIDE EDGELINE
848+00.0	848+85.24	42' RT		21.3		CENTERLINE
848+00.0	848+85.24	54' RT	85.2			OUTSIDE EDGELINE
848+54.0	848+85.24	54-70' LT				EQUATION
848+84.67	848+84.67 AHD					
848+84.67	896+00.0	30' RT			4715.3	INSIDE EDGELINE
848+84.67	896+00.0	42' RT		1178.8		CENTERLINE
848+84.67	851+47.0	54' RT	262.3			OUTSIDE EDGELINE
851+47.0	853+77.0	54-66' RT	230.0			EDGELINE TAPER
851+47.0	858+30.0	54' RT		170.8		DOTTED LANELINE-3'LINE 9'GAP
853+77.0	858+30.0	66' RT	453.0			OUTSIDE EDGELINE
858+30.0	858+95.0	54' RT	130.0			12" GORE LINE
858+95.0	860+00.0	54-73' RT	420.0			2-12" GORE LINES
860+00.0	877+70.0	54' RT	1770.0			OUTSIDE EDGELINE
877+70.0	878+85.0	72-54' RT	460.0			2-12" GORE LINES
878+85.0	879+18.0	54' RT	66.0			12" GORE LINE
879+18.0	881+69.0	54' RT		62.8		DOTTED LANELINE-3'LINE 9'GAP
879+75.0	883+43.0	66' RT	368.0			OUTSIDE EDGELINE
883+43.0	886+43.0	66-54' RT	300.0			OUTSIDE EDGELINE
886+43.0	896+00.0	54' RT	957.0			OUTSIDE EDGELINE
NORTHBOUND I-49						
848+00.0	848+85.24	30' LT			85.2	INSIDE EDGELINE
848+00.0	848+85.24	42' LT		21.3		CENTERLINE
848+00.0	848+54.0	54' LT	54.0			OUTSIDE EDGELINE
848+54.0	848+85.24	54-56' LT	31.2			EDGELINE TAPER
848+84.67	848+85.24 AHD					EQUATION
848+84.67	925+00.0	30' LT			7615.3	INSIDE EDGELINE
848+84.67	925+00.0	42' LT		1903.8		CENTERLINE
848+54.0	851+54.0	56-66' LT	300.0			EDGELINE TAPER
851+54.0	857+50.0	66' LT	596.0			OUTSIDE EDGELINE
855+63.0	858+00.0	54' LT		59.3		DOTTED LANELINE-3'LINE 9'GAP
858+00.0	858+46.0	54' LT	92.0			12" GORE LINE
858+46.0	859+75.0	54-70' LT	516.0			2-12" GORE LINES
859+75.0	877+35.0	54' LT	1760.0			OUTSIDE EDGELINE
877+35.0	878+74.0	54-73' LT	556.0			2-12" GORE LINES
878+74.0	879+13.0	54' LT	78.0			12" GORE LINE
879+13.0	886+66.0	54' LT		188.3		DOTTED LANELINE-3'LINE 9'GAP
879+75.0	884+00.0	66' LT	425.0			OUTSIDE EDGELINE
884+00.0	886+66.0	66-54' LT	266.0			EDGELINE TAPER
886+66.0	925+00.0		3834.0			OUTSIDE EDGELINE
TOTALS			14009.7	3606.4	12501.0	
USE			17617		12501	

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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

DESCRIPTION	DATE

BRIDGE NO.

PROJECT NO.

CONTRACT ID.

JOB NO. JSR0064

COUNTY VERNON

DISTRICT	SHEET NO.
SW	3

ROUTE	STATE
I49	MO

DATE PREPARED 2/19/2025

THIS SHEET HAS BEEN SIGNED SEALED AND DATED ELECTRONICALLY.

STATE OF MISSOURI
PROFESSIONAL ENGINEER
SHANNON M. KELLNER
NUMBER PE-2010105763

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.

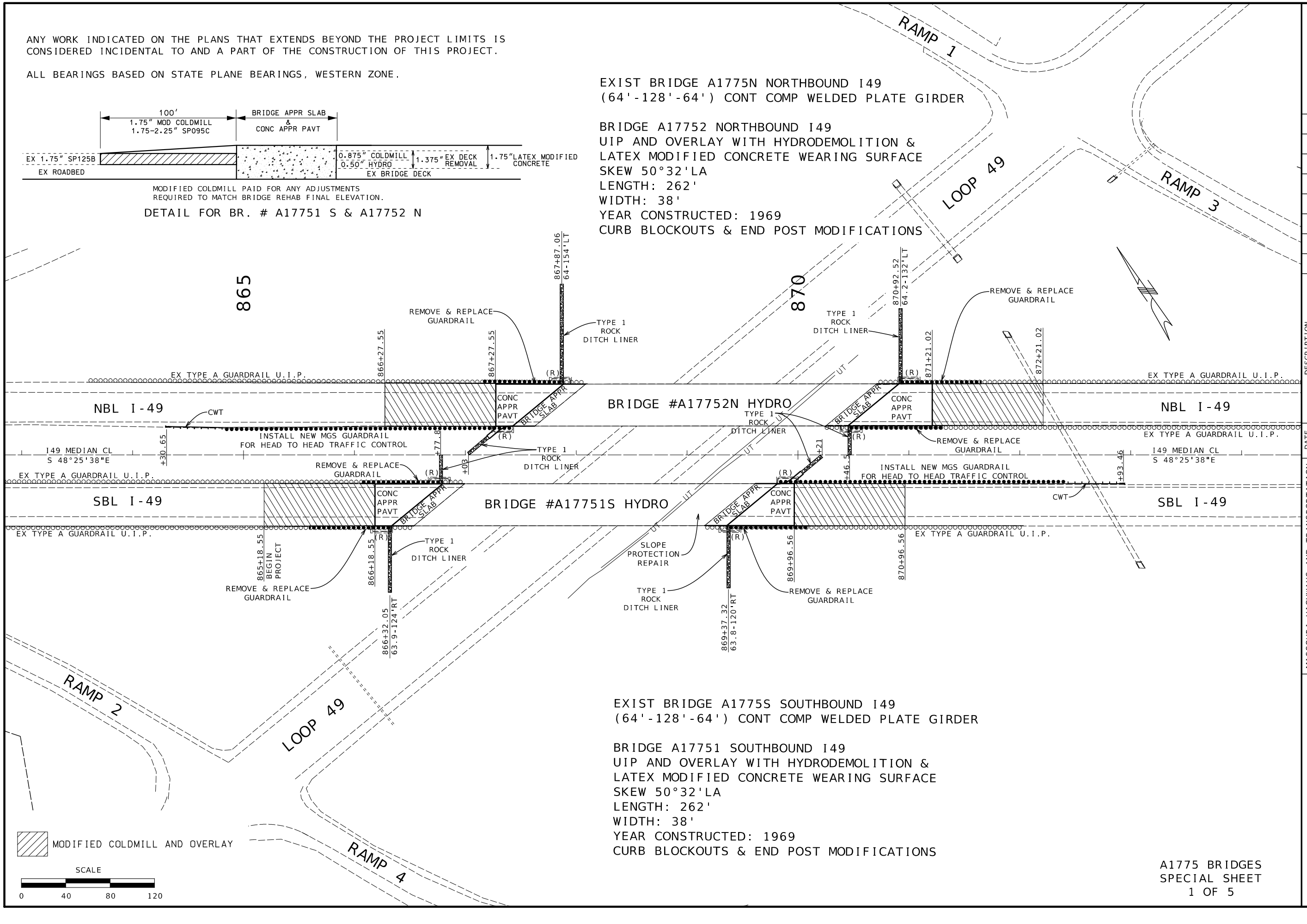
ALL BEARINGS BASED ON STATE PLANE BEARINGS, WESTERN ZONE.

MODIFIED COLDMILL PAID FOR ANY ADJUSTMENTS
REQUIRED TO MATCH BRIDGE REHAB FINAL ELEVATION.

DETAIL FOR BR. # A17751 S & A17752 N

EXIST BRIDGE A1775N NORTHBOUND I49
(64'-128'-64') CONT COMP WELDED PLATE GIRDER

BRIDGE A17752 NORTHBOUND I49
UIP AND OVERLAY WITH HYDRODEMOLITION &
LATEX MODIFIED CONCRETE WEARING SURFACE
SKEW 50°32'LA
LENGTH: 262'
WIDTH: 38'
YEAR CONSTRUCTED: 1969
CURB BLOCKOUTS & END POST MODIFICATIONS



EXIST BRIDGE A1775S SOUTHBOUND I49
(64'-128'-64') CONT COMP WELDED PLATE GIRDER

BRIDGE A17751 SOUTHBOUND I49
UIP AND OVERLAY WITH HYDRODEMOLITION &
LATEX MODIFIED CONCRETE WEARING SURFACE
SKEW 50°32'LA
LENGTH: 262'
WIDTH: 38'
YEAR CONSTRUCTED: 1969
CURB BLOCKOUTS & END POST MODIFICATIONS

A1775 BRIDGES
SPECIAL SHEET
1 OF 5

STATE OF MISSOURI
SHANNON M. KELLNER
NUMBER PE-2011015763
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED
1/21/2025

ROUTE	STATE
I49	MO
DISTRICT	SHEET NO.
SW	4

COUNTY
VERNON

JOB NO.
JSR0064

CONTRACT ID.

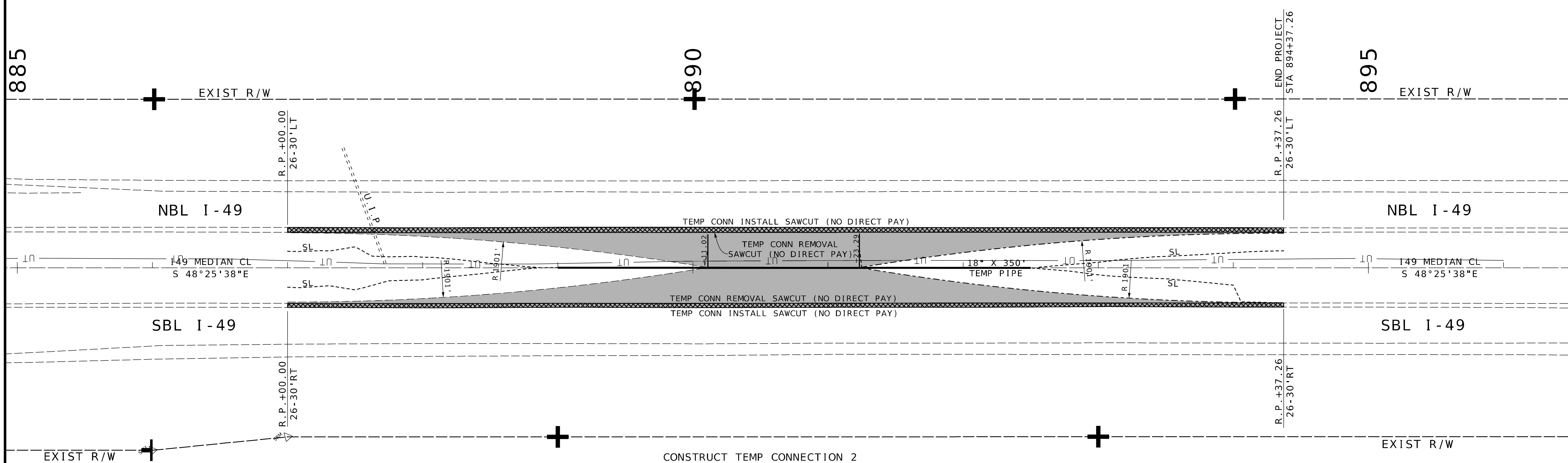
PROJECT NO.

BRIDGE NO.

DESCRIPTION	DATE

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

SEE PROJECT JSR0063 FOR TEMPORARY CONNECTION 1, NORTH OF A1774 BRIDGES.



CONSTRUCT TEMP CONNECTION 2
VOLUME GRADING INCLUDES
EX NB & SB INSIDE SHOULDERS OBLIT

MOD LIN GRADING = 7.4 STA
OBLIT TEMP CONNECTION AND RE-GRADE MEDIAN
4FT OF CROSSOVER PAVEMENT, NB & SB,
SHALL REMAIN IN PLACE AS NEW INSIDE SHOULDERS.

EXIST SHOULDER OBLITERATION INCLUDED IN VOLUME GRADING

OPTIONAL PAVEMENT TEMPORARY CONNECTION

SCALE
0 40 80 120

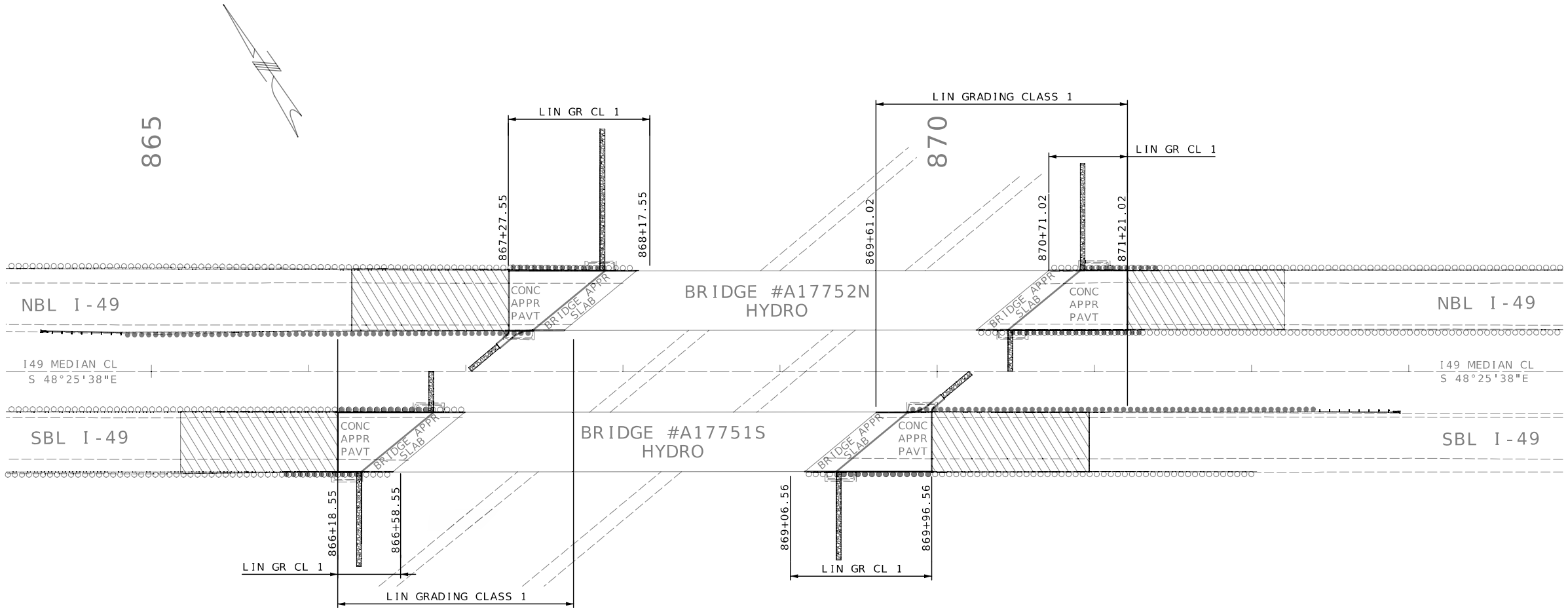
TEMPORARY CONNECTION 2
SOUTH OF A1775 BRIDGES
SPECIAL SHEET
SHEET 2 OF 5

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

DATE	DESCRIPTION

STATE OF MISSOURI
SHANNON M. KELLNER
NUMBER PE-2011015763
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED	11/26/2024
ROUTE I49	STATE MO
DISTRICT SW	SHEET NO. 5
COUNTY	VERNON
JOB NO.	JSR0064
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO.	



LINEAR GRADING CLASS 1 PAY LIMITS FOR CONCRETE APPROACH PAVEMENT AND SLOPES FOR DRAINAGE

SCALE
0 40 80 120

GRADING LIMITS
SPECIAL SHEET
SHEET 3 OF 5

STATE OF MISSOURI
SHANNON M. KELLNER
NUMBER PE-2011015763
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED
1/21/2025

ROUTE	STATE
I49	MO
DISTRICT	SHEET NO.
SW	6

COUNTY
VERNON

JOB NO.
JSR0064

CONTRACT ID.

PROJECT NO.

BRIDGE NO.

DATE	DESCRIPTION

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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

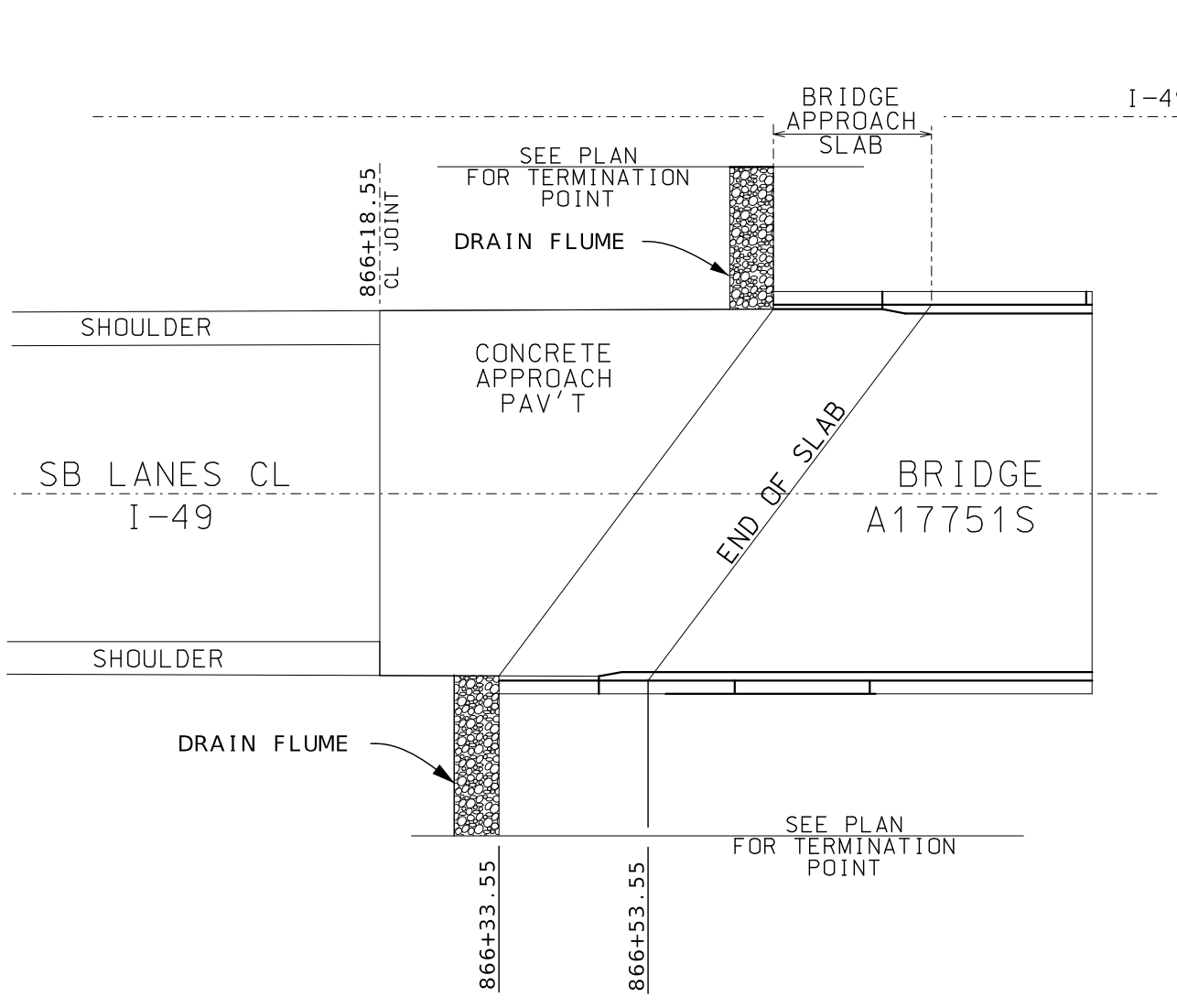
ROUTE I-49 RT (SOUTHBOUND)

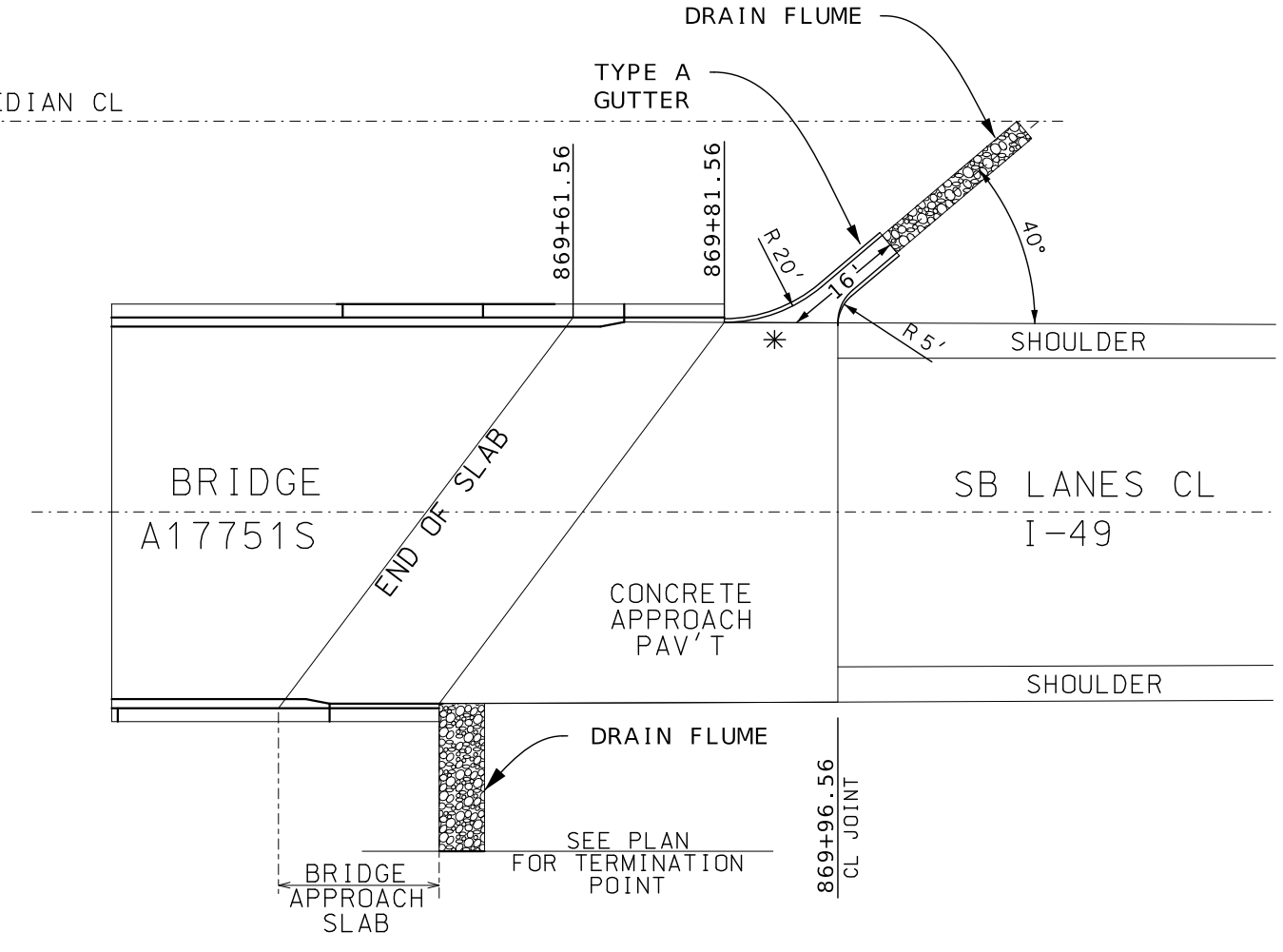
STA. 866+18.55 TO STA. 866+33.55 CONCRETE APPROACH PAVEMENT
STA. 866+33.55 TO STA. 866+53.55 BRIDGE APPROACH SLAB
STA. 869+61.56 TO STA. 869+81.56 BRIDGE APPROACH SLAB
STA. 869+81.56 TO STA. 869+96.56 CONCRETE APPROACH PAVEMENT

SEE STD 609.40 SHEET 3 OF 3
FOR DRAIN FLUME DETAILS

NON STANDARD DRAIN FLUME LOCATION

✳ NOTE: TYPE A GUTTER REQUIRED ON CONCRETE APPROACH PAVEMENT ON THE NE CORNER OF BRIDGE A17751S.





STATE OF MISSOURI
SHANNON M. KELLNER
NUMBER PE-2011015763
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED: 11/26/2024
ROUTE: I49 | STATE: MO
DISTRICT: SW | SHEET NO.: 7
COUNTY: VERNON
JOB NO.: JSR0064
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.:

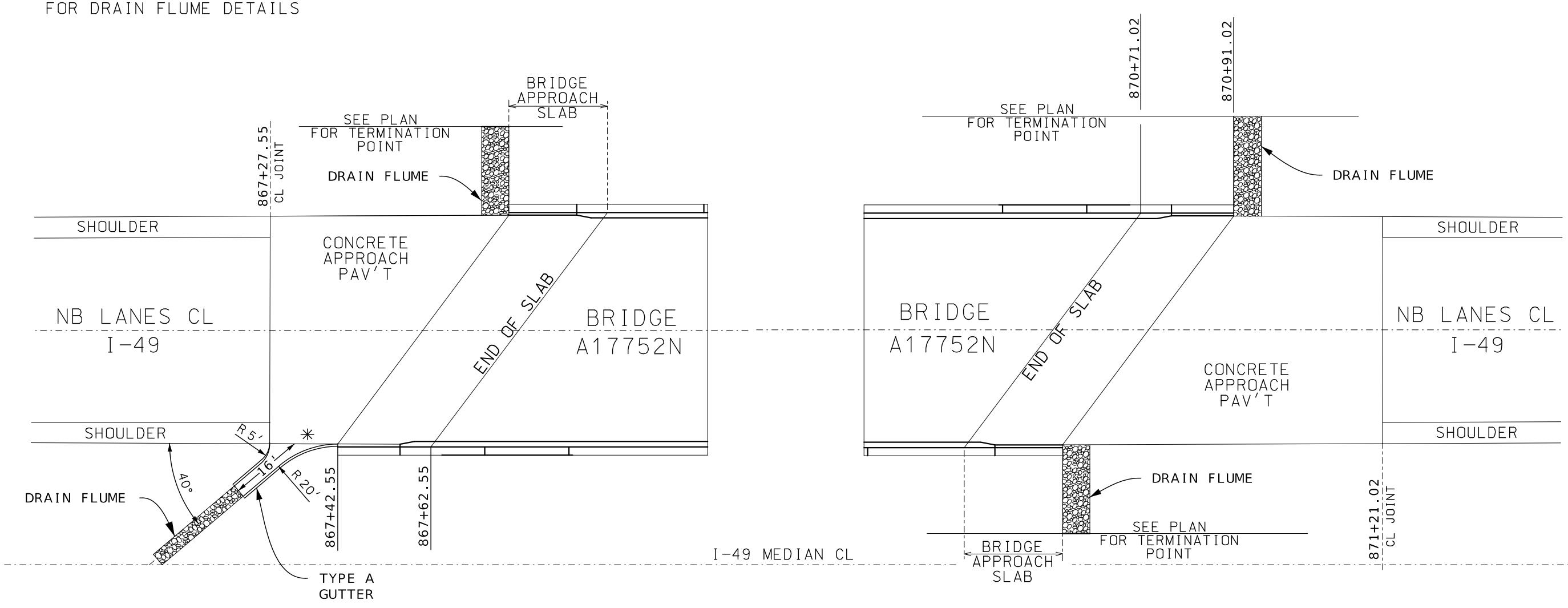
DESCRIPTION | DATE

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

ROUTE I-49 LT (NORTHBOUND)

STA. 867+27.55 TO STA. 867+42.55 CONCRETE APPROACH PAVEMENT
STA. 867+42.55 TO STA. 867+62.55 BRIDGE APPROACH SLAB
STA. 870+71.02 TO STA. 870+91.02 BRIDGE APPROACH SLAB
STA. 870+91.02 TO STA. 871+21.02 CONCRETE APPROACH PAVEMENT

SEE STD 609.40 SHEET 3 OF 3
FOR DRAIN FLUME DETAILS



NON STANDARD DRAIN FLUME LOCATION

✳ NOTE: TYPE A GUTTER REQUIRED ON CONCRETE APPROACH PAVEMENT ON THE SW CORNER OF BRIDGE A17752N.

DRAIN FLUMES BR A17752N
SPECIAL SHEET
SHEET 5 OF 5

STATE OF MISSOURI
SHANNON M. KELLNER
NUMBER PE-2011015763
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED: 11/26/2024
ROUTE: I49 | STATE: MO
DISTRICT: SW | SHEET NO.: 8
COUNTY: VERNON
JOB NO.: JSR0064
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)

EROSION CONTROL
INITIAL PHASE
SHEET 1 OF 6

NOTE:
EXACT LOCATION OF DITCH CHECKS
AND SILT FENCE TO BE DETERMINED
IN THE FIELD

SCALE
0 50 100 150

TEMPORARY EROSION CONTROL LEGEND

- SILT FENCE
- ROCK DITCH CHECK (R)
- CURB INLET CHECK (C)

EXIST R/W

OUTFALL (C)
836+00

RAMP 4
LOOP 49
RAMP 2

SBL I-49
BRIDGE #A17751S HYDRO
SBL I-49

149 MEDIAN CL
S 48°25'38"E

NBL I-49
BRIDGE #A17752N HYDRO
NBL I-49

872+60 RDC
864+80 RDC

875
870
865

EXIST R/W
RAMP 3
LOOP 49
EXIST R/W

OUTFALL (B)

ROUTE K
RAMP 1

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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

DESCRIPTION	DATE

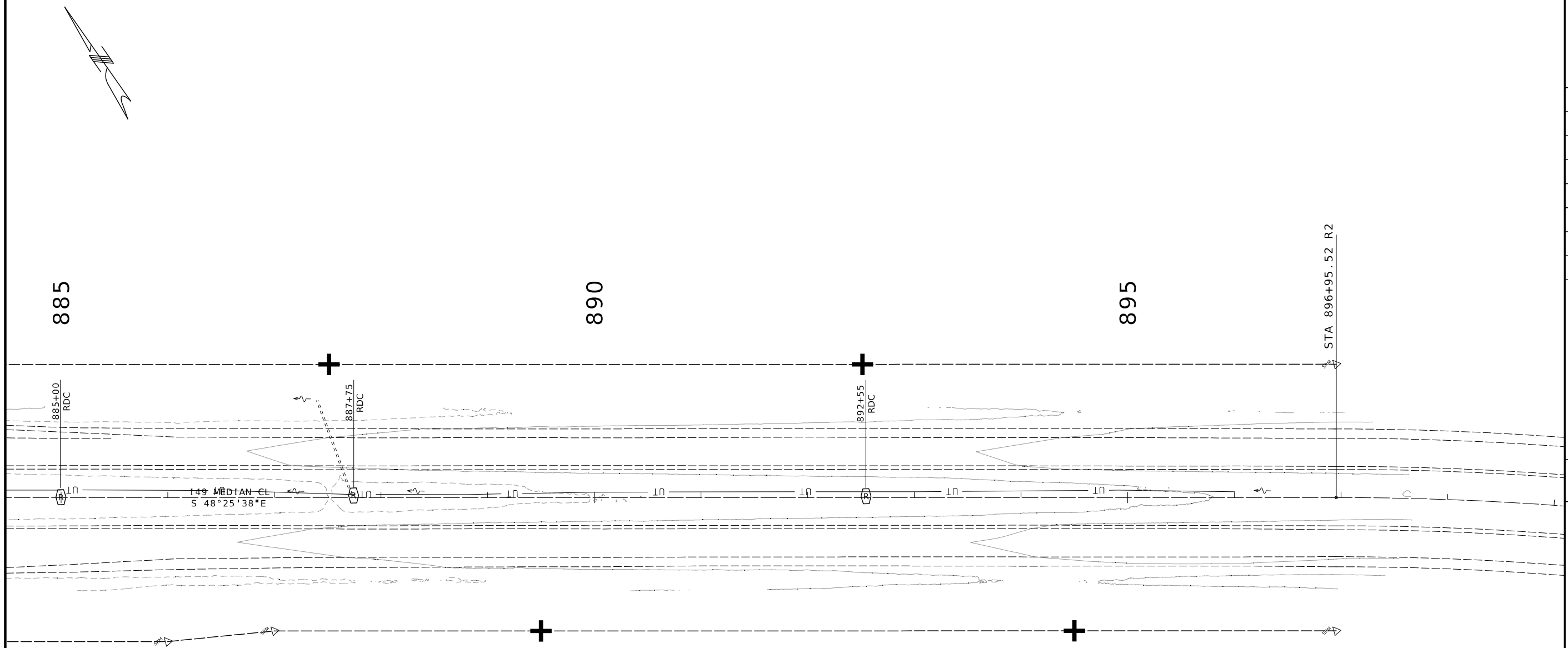
BRIDGE NO.
PROJECT NO.
CONTRACT ID.
JOB NO. JSR0064
COUNTY VERNON

DISTRICT	SHEET NO.
SW	9

ROUTE	STATE
149	MO

DATE PREPARED
11/26/2024

THIS SHEET WAS SEALED AND DATED ELECTRONICALLY.
STATE OF MISSOURI
SHANNON M. KELLNER
NUMBER PE-2010193763
PROFESSIONAL ENGINEER



TEMPORARY EROSION CONTROL LEGEND

- (C) CURB INLET CHECK
- (R) ROCK DITCH CHECK
- SILT FENCE

SCALE

0 50 100 150

NOTE:
EXACT LOCATION OF DITCH CHECKS AND SILT FENCE TO BE DETERMINED IN THE FIELD

EROSION CONTROL
INITIAL PHASE
SHEET 2 OF 6

STATE OF MISSOURI
SHANNON M. KELLNER
NUMBER PE-2011015763
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED
11/26/2024

ROUTE	STATE
I49	MO
DISTRICT	SHEET NO.
SW	10

COUNTY
VERNON

JOB NO.
JSR0064

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)

EROSION CONTROL
CONSTRUCTION PHASE
SHEET 3 OF 6

NOTE:
EXACT LOCATION OF DITCH CHECKS
AND SILT FENCE TO BE DETERMINED
IN THE FIELD

0 50 100 150
SCALE

SILT FENCE

ROCK DITCH CHECK (R)

CURB INLET CHECK (C)

TEMPORARY EROSION CONTROL LEGEND

OUTFALL (C) 836+00

EXIST R/W

RAMP 2

LOOP 49

RAMP 4

866+40 RDC

866+28 RDC

866+75 CIC

866+25 CIC +18

+58

40'SILT FENCE

SBL I-49

BRIDGE #A1775IS HYDRO

872+20

871+00

4 RDC @ 40' SPACINGS

100'SILT FENCE

+00

+00

+48 CIC

+40 CIC

+90 CIC

+35 CIC

+85 CIC

149 MEDIAN CL
S 48°25'38"E

NBL I-49

BRIDGE #A1775ZN HYDRO

872+60 UIP

+25

+65

+00 CIC

60'SILT FENCE

871+44 RDC

+25

100'SILT FENCE

866+40

865+20 UIP

4 RDC @ 40' SPACINGS

864+80 UIP

875

870

865

EXIST R/W

RAMP 3

LOOP 49

ROUTE K

RAMP 1

OUTFALL (B)

EXIST R/W

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

MoDOT

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

DESCRIPTION	DATE

BRIDGE NO.

PROJECT NO.

CONTRACT ID.
JSR0064

JOB NO.

COUNTY
VERNON

ROUTE	STATE
149	MO

DISTRICT	SHEET NO.
SW	11

DATE PREPARED
1/21/2025

THIS SHEET HAS BEEN SIGNED SEALED AND DATED ELECTRONICALLY.

STATE OF MISSOURI
SHANNON M. KELLNER
NUMBER PE-2010157639
PROFESSIONAL ENGINEER

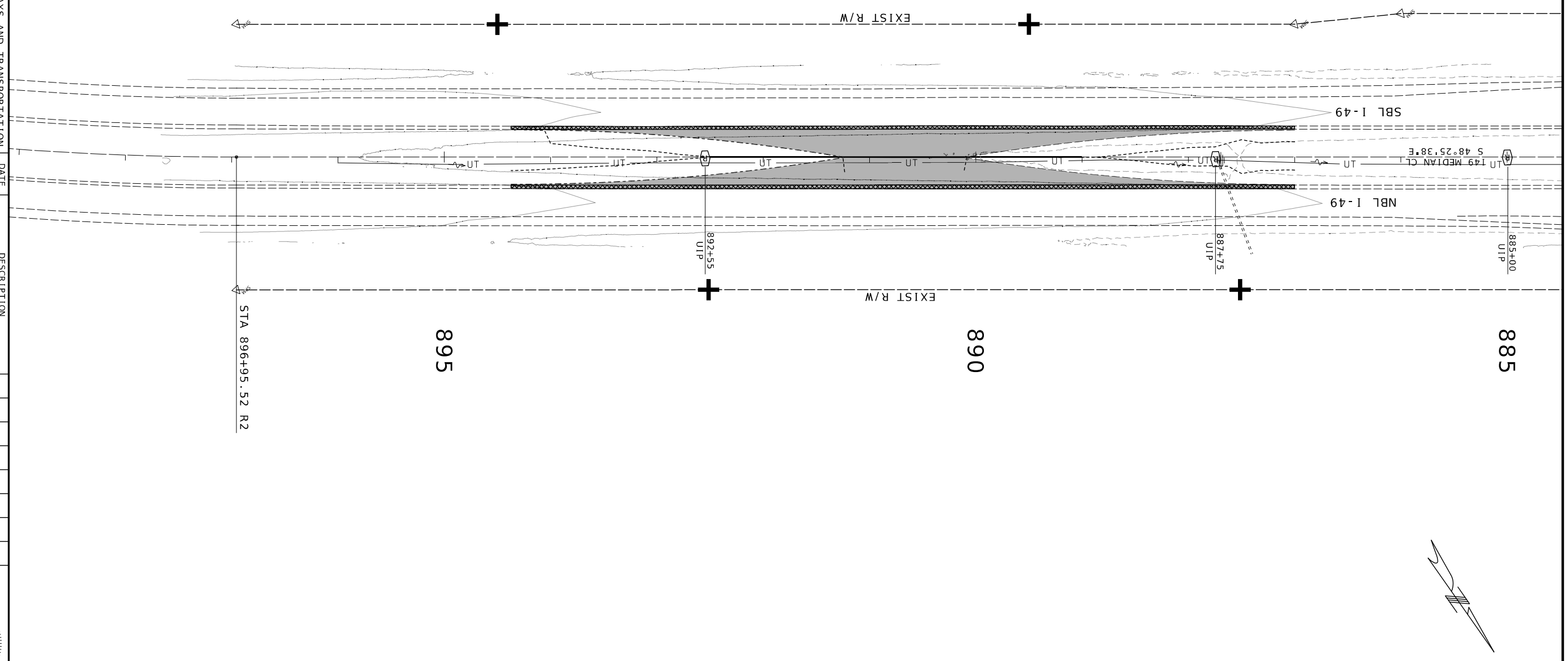
EROSION CONTROL
CONSTRUCTION PHASE
SHEET 4 OF 6

NOTE:
EXACT LOCATION OF DITCH CHECKS
AND SILT FENCE TO BE DETERMINED
IN THE FIELD

0 50 100 150
SCALE

TEMPORARY EROSION CONTROL LEGEND

- CURB INLET CHECK
- ROCK DITCH CHECK
- SILT FENCE



MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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

DATE	DESCRIPTION

BRIDGE NO.

PROJECT NO.

CONTRACT ID.

JOB NO. JSR0064

COUNTY VERNON

ROUTE	DISTRICT
I49	SW
STATE	SHEET NO.
MO	12

DATE PREPARED 11/26/2024

THIS SHEET HAS BEEN SIGNED SEALED AND DATED ELECTRONICALLY.

STATE OF MISSOURI
SHANNON M. KELLNER
NUMBER PE-2011015763
PROFESSIONAL ENGINEER

EROSION CONTROL
PERMANENT PHASE
SHEET 5 OF 6

0 50 100 150
SCALE

CONC SLOPE PROTECTION
ROCK DITCH LINER
SEEDING LIMITS

PERMANENT EROSION CONTROL LEGEND

OUTFALL
836+00
EXIST R/W

RAMP 4
LOOP 49
RAMP 2

869+37.32
63.8-120'RT
TYPE 1 ROCK DITCH LINER 3'x 42'x 8" 4 CY
CONC SLOPE PROTECTION REPAIR

866+32.05
63.9-124'RT
TYPE 1 ROCK DITCH LINER 3'x 60'x 8" 4 CY

BRIDGE #A17751S HYDRO

SBL I-49

149 MEDIAN CL
S 48°25'38"E

NBL I-49

BRIDGE #A17752N HYDRO

TYPE 1 ROCK DITCH LINER 3'x 26'x 8" 2 CY

TYPE 1 ROCK DITCH LINER 3'x 26'x 8" 2 CY

TYPE 1 ROCK DITCH LINER 3'x 68'x 8" 5 CY
869+92.52
64.2-132'LT

TYPE 1 ROCK DITCH LINER 3'x 90'x 8" 7 CY
867+87.06
64-154'LT

875
870
865

EXIST R/W
RAMP 3
LOOP 49
ROUTE K
RAMP 1
OUTFALL
EXIST R/W

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

MoDOT

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

DATE	DESCRIPTION

BRIDGE NO.

PROJECT NO.

CONTRACT ID.

JOB NO. JSR0064

COUNTY VERNON

DISTRICT	SHEET NO.
SW	13

ROUTE	STATE
149	MO

DATE PREPARED 1/21/2025

THIS SHEET HAS BEEN SIGNED SEALED AND DATED ELECTRONICALLY.

STATE OF MISSOURI
SHANNON M. KELLNER
NUMBER PE-2010151763
PROFESSIONAL ENGINEER

EROSION CONTROL
PERMANENT PHASE
SHEET 6 OF 6

0 50 100 150
SCALE

ROCK DITCH LINER

SEEDING LIMITS

PERMANENT EROSION CONTROL LEGEND

EXIST R/W

SBL I-49

UT

UT I49 MEDIAN CL

S 48°25'38"E

NBL I-49

EXIST R/W

STA 896+95.52 R2

895

890

885

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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

DATE	DESCRIPTION

BRIDGE NO.

PROJECT NO.

CONTRACT ID.

JOB NO.
JSR0064

COUNTY
VERNON

DISTRICT	SHEET NO.
SW	14

ROUTE	STATE
I49	MO

DATE PREPARED
11/26/2024

THIS SHEET HAS BEEN SIGNED, SEALED, AND DATED ELECTRONICALLY.

STATE OF MISSOURI
SHANNON M. KELLNER
NUMBER PE-2011015763
PROFESSIONAL ENGINEER

PAVEMENT MARKING
SHEET 1 OF 4

SCALE
0 50 100 150

PAVEMENT MARKING LEGEND
SW - 6" SOLID WHITE LINE
IW - 6" INTERMITTENT WHITE LINE (10',MARK, 30',SKIP)
SY - 6" SOLID YELLOW LINE
DW - 6" DOTTED WHITE LINE (3',MARK, 9',SKIP)
GL - 12" WHITE GORE LINE

STA 848+00
END PAVEMENT MARKING JSR0063
BEGIN PAVEMENT MARKING JSR0064

858+30
853+77
851+47
GL
+95
SW
DW
IW
SY
SBL I-49
S 48°25'38"E
149 MEDIAN CL
NBL I-49
+46
+00
+63
857+50
851+54
848+54
EQ STA 848+85.24 Bk
= STA 848+84.67 Ahd
855
850
845

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

DATE
DESCRIPTION

BRIDGE NO.
PROJECT NO.
CONTRACT ID.
JOB NO. JSR0064
COUNTY VERNON
DISTRICT SW | SHEET NO. 15
ROUTE I49 | STATE MO
DATE PREPARED 11/26/2024

STATE OF MISSOURI
SHANNON M. KEELNER
NUMBER PE-2010150763
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SCALED AND DATED ELECTRONICALLY.

PAVEMENT MARKING
SHEET 2 OF 4

SCALE
0 50 100 150

PAVEMENT MARKING LEGEND
SW - 6" SOLID WHITE LINE
IW - 6" INTERMITTENT WHITE LINE (10',MARK, 30',SKIP)
SY - 6" SOLID YELLOW LINE
DW - 6" DOTTED WHITE LINE (3',MARK, 9',SKIP)
GL - 12" WHITE GORE LINE

RAMP 4
LOOP 49
RAMP 2
RAMP 1
LOOP 49
BRIDGE #A17751S HYDRO
SBL I-49
149 MEDIAN CL
S 48°25'38"E
BRIDGE #A17752N HYDRO
NBL I-49
860+00
859+75
870
865
860
SW
IW
SY
GL

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

DESCRIPTION	DATE

BRIDGE NO.
PROJECT NO.
CONTRACT ID.
JSR0064
JOB NO.
VERNON
COUNTY
16 | SW
SHEET NO. | DISTRICT
MO | 149
STATE | ROUTE
1/21/2025
DATE PREPARED

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.
STATE OF MISSOURI
SHANNON M. KELLNER
NUMBER PE-2011015763
PROFESSIONAL ENGINEER

PAVEMENT MARKING
SHEET 3 OF 4

SCALE
0 50 100 150

PAVEMENT MARKING LEGEND
SW - 6" SOLID WHITE LINE
IW - 6" INTERMITTENT WHITE LINE (10',MARK, 30',SKIP)
SY - 6" SOLID YELLOW LINE
DW - 6" DOTTED WHITE LINE (3',MARK, 9',SKIP)
GL - 12" WHITE GORE LINE

RAMP 4
SBL I-49
886+43
883+43
881+69
879+75
879+18
878+85
877+70
+70
SW
IW
SY
DW
GL
149 MEDIAN CL
S 48°25'38"E
NBL I-49
886+99
884+00
879+75
879+13
878+74
877+35
+35
885
880
875
RAMP 3
ROUTE K

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

DESCRIPTION	DATE

BRIDGE NO.
PROJECT NO.
CONTRACT ID.
JSR0064
JOB NO.
VERNON
COUNTY
SW | 17
DISTRICT | SHEET NO.
149 | MO
ROUTE | STATE
11/26/2024
DATE PREPARED

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.
STATE OF MISSOURI
SHANNON M KELNER
NUMBER PE-2011015763
PROFESSIONAL ENGINEER

PAVEMENT MARKING
SHEET 4 OF 4

SCALE
0 50 100 150

PAVEMENT MARKING LEGEND
SW - 6" SOLID WHITE LINE
IW - 6" INTERMITTENT WHITE LINE (10',MARK, 30',SKIP)
SY - 6" SOLID YELLOW LINE
DW - 6" DOTTED WHITE LINE (3',MARK, 9',SKIP)
GL - 12" WHITE GORE LINE

896+00
END PAVT
MARKING SB

SBL I-49

NBL I-49

149 MEDIAN CL
S 48°25'38"E

NB PAVEMENT MARKING
TO 925+00

STA 896+95.52 R2

900
895
890

SW
IW
SY

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

DESCRIPTION	DATE

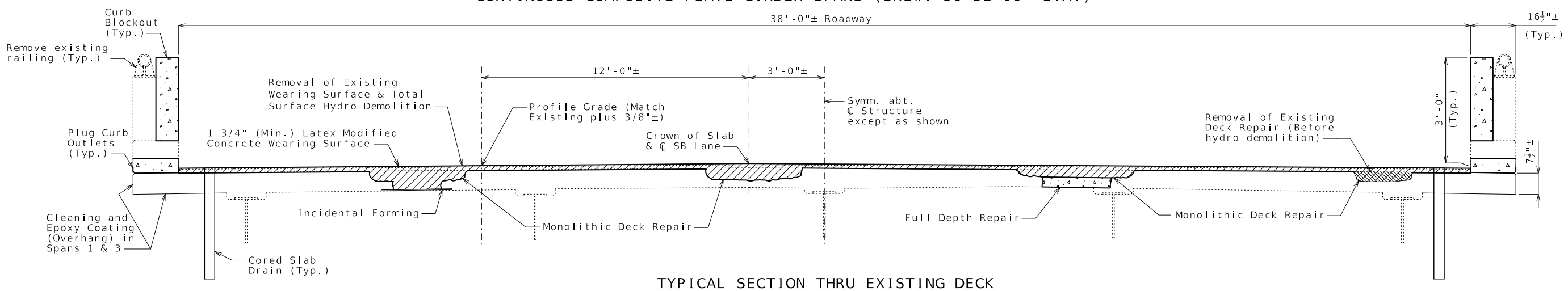
BRIDGE NO.
PROJECT NO.
CONTRACT ID.
JSR0064
JOB NO.
VERNON
COUNTY
SW | 18
DISTRICT | SHEET NO.
149 | MO
ROUTE | STATE
11/26/2024
DATE PREPARED

THIS SHEET HAS BEEN SIGNED, SEALED, AND DATED ELECTRONICALLY.

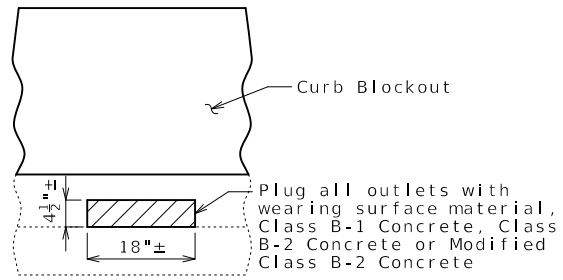
STATE OF MISSOURI
SHANNON M. KELLNER
NUMBER PE-2011015763
PROFESSIONAL ENGINEER

SEC/SUR 2/11 TWP 35N RGE 31W

U.I.P. AND REHABILITATE EXISTING (64'-128'-64') CONTINUOUS COMPOSITE PLATE GIRDER SPANS (SKEW: 50°32'00" L.A.)



TYPICAL SECTION THRU EXISTING DECK



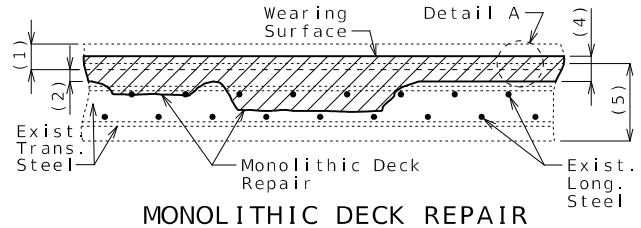
PART ELEVATION SHOWING PLUGGING OF CURB OUTLETS

Notes:

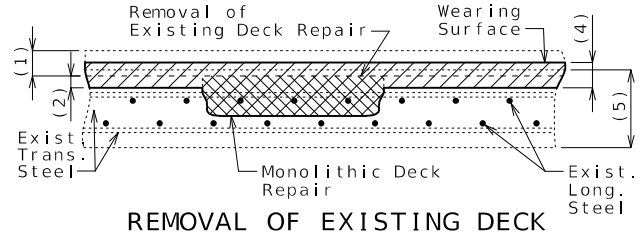
Proposed 1 3/4" Latex Modified Concrete Wearing Surface not shown for clarity.

Cost of labor and materials required to plug existing curb outlets will be considered completely covered by the contract unit price for Curb Blockout.

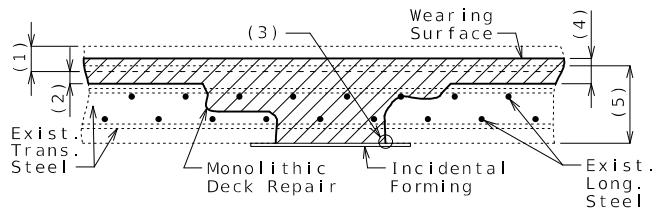
Estimated material required to fill all curb outlets is 1.1 cubic yards (for information only).



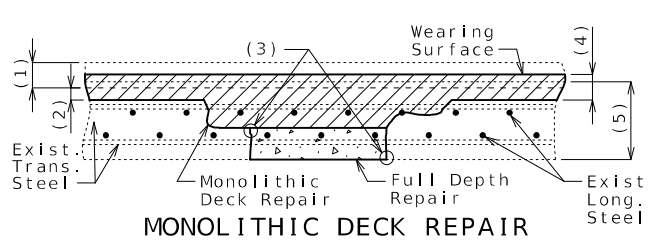
MONOLITHIC DECK REPAIR



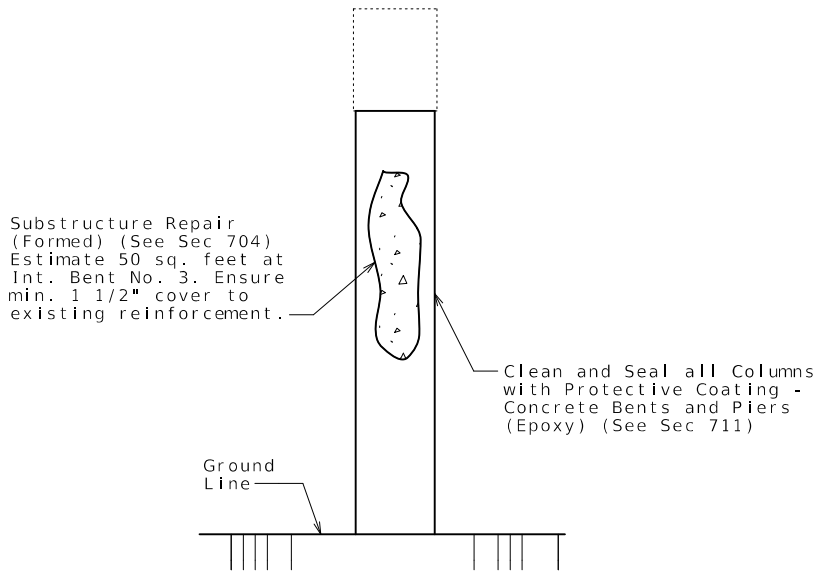
REMOVAL OF EXISTING DECK REPAIR BEFORE HYDRO DEMOLITION



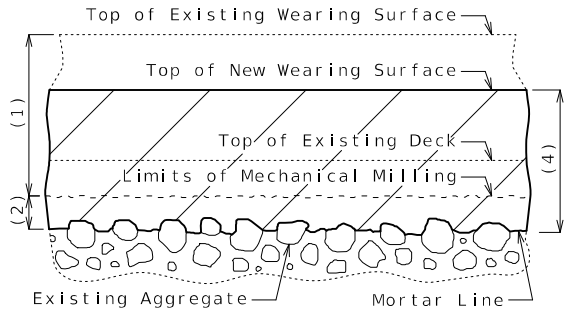
MONOLITHIC DECK REPAIR REQUIRING INCIDENTAL FORMING



MONOLITHIC DECK REPAIR REQUIRING FULL DEPTH REPAIR



TYPICAL ELEVATION OF INT. BENTS NO. 2 & 3



MILLING AND HYDRO DEMOLITION LIMITS

DETAIL A

(1) Removal of existing 3/8"± wearing surface plus 1/2" of existing deck

(2) 1/2" minimum total surface hydro demolition of sound concrete, measured to mortar line

(3) 1" vertical side shall be established outside the deteriorated area.

(4) 1 3/4" minimum Latex Modified Concrete wearing surface

(5) Original depth of deck minus previous scarification

REPAIRS TO BRIDGE: I-49 SB OVER ROUTE K

ROUTE I-49 SB FROM ROUTE 54 TO ROUTE E
ABOUT 1.1 MILES SOUTH OF ROUTE 54
BEGINNING STATION 866+79.99± (Match Existing)

Detailed May 2025
Checked May 2025

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

STATE OF MISSOURI
TIMOTHY D. LEAF
NUMBER PE-2012000778
PROFESSIONAL ENGINEER
12/01/2025 10:49:47 AM
TIMOTHY D. LEAF - CIVIL
MO-PE-2012000778

DATE PREPARED 10/7/2025

ROUTE	STATE
I-49	MO
DISTRICT	SHEET NO.
BR	1

COUNTY VERNON
JOB NO. JSR0064
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A17751

DESCRIPTION | DATE

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

General Notes:

Design Specifications:

2002 AASHTO LFD (17th Ed.) Standard Specifications
Bridge Deck Rating = 5

Design Loading:

HS20-44 (1965 & New Construction)

Design Unit Stresses:

Class B-2 Concrete (Full Depth Repair & End Bent)	f'c = 4,000 psi
Class B-1 Concrete (Curb Blockout)	f'c = 4,000 psi
Reinforcing Steel (ASTM A615 Grade 60)	fy = 60,000 psi
Structural Carbon Steel (ASTM A709 Grade 36)	fy = 36,000 psi

Fabricated Steel Connections:

Field connections shall be made with 3/4" diameter ASTM F3125 Grade A325 Type 1 bolts and 13/16" diameter holes, except as noted.

Recoating Existing Steel:

Protective Coating: System G in accordance with Sec 1081.

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

Prime Coat: The cost of the prime coat will be considered completely covered by the contract lump sum price for Field Application of Inorganic Zinc Primer.

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

Limits of Paint Overlap: System G shall overlap the existing coating between 6 inches and 12 inches in order to achieve maximum coverage at the paint limit of each complete system. The final field coating shall be masked to provide crisp, straight lines and to prevent overspray beyond the overlap required.

Coating New Steel:

Protective Coating: System G in accordance with Sec 1081.

Prime Coat: The cost of the prime coat will be considered completely covered by the contract unit price for the fabricated structural steel.

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

At the option of the contractor, the intermediate field coat and finish field coat may be applied in the shop. The contractor shall exercise extreme care during all phases of loading, hauling, handling, erection and pouring of the slab to minimize damage and shall be fully responsible for all repairs and cleaning of the coating systems as required by the engineer.

Miscellaneous:

The existing vertical clearance shall be maintained during construction when Route K is open to traffic.

Lane closures on Route I-49 and Route K shall be in accordance with traffic control plans.

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

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

The contractor shall verify all dimensions in field before ordering new material.

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

The contractor shall complete a Non-Destructive Test on the connection plate welds at all girder(s) in damaged areas where connection plates will be re-used to confirm suitability of re-use before installing new diaphragm(s). The cost of this work will be considered completely covered by the contract lump sum price for Non-Destructive Testing. See Special Provisions. Required paint removal for this work will be considered completely covered by the lump sum of price for Surface Preparation for Recoating Structural Steel.

The contractor shall heat straighten the damaged portions of girder(s). The cost of this work will be considered completely covered by the contract lump sum price for Heat Straightening (See Special Provisions).

Roadway surfacing adjacent to bridge ends shall match new bridge wearing surface (roadway item).

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

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

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

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

Substructure Repair:

Provide a minimum 1 1/2" clear cover to existing reinforcing steel when forming substructure repairs at columns.

All concrete repairs shall be in accordance with Sec 704, unless otherwise noted.

Traffic Handling:

Structure to be closed during construction. See roadway plans for traffic control.

Estimated Quantities

	Item		Total
**	Removal of Miscellaneous ACM (Non-Friable)	sq. foot	28
	Total Surface Hydro Demolition	sq. yard	1083
	Removal of Asphalt Wearing Surface	sq. foot	9747
	Removal of Existing Deck Repair	sq. foot	400
	Partial Removal of Substructure Concrete	lump sum	1
	Removal of Existing Expansion Joint & Adjacent Concrete	linear foot	60
	Removal of Existing Bearings	each	5
	Remove and Replace Barrier	linear foot	9
	Bridge Approach Slab (Major)	sq. yard	170
*	Supplementary Wearing Surface Material	cu. yard	18
	Latex Modified Concrete Wearing Surface	sq. yard	1085
	Diamond Grinding	sq. yard	1085
	Class B-2 Concrete	cu. yard	72.9
	Curb Blockout	linear foot	588
	Substructure Repair (Formed)	sq. foot	100
	Full Depth Repair	sq. foot	500
	Cleaning and Epoxy Coating	sq. foot	1856
	Reinforcing Steel (Galvanized)	pounds	4030
	Protective Coating - Concrete Bents and Piers (Epoxy)	lump sum	1
	Fabricated Structural Carbon Steel (Misc.)	pounds	790
	Drainage System (On Structure)	lump sum	1
	Surface Preparation for Recoating Structural Steel	sq. foot	2400
	Field Application of Inorganic Zinc Primer	sq. foot	2400
	Intermediate Field Coat (System G)	sq. foot	2400
	Finish Field Coat (System G)	sq. foot	2400
	Heat Straightening	lump sum	1
	Cored Slab Drains	each	37
	Vertical Drain at End Bents	each	2
	Laminated Neoprene Bearing Pad Assembly	each	5
	Misc. Installation of Bearings (pre-owned)	each	5

* Supplementary wearing surface material will be paid for at the fixed unit price in accordance with Sec 109.

** Cost of removal of aluminum tube railing will be considered completely covered by the contract unit price for Removal of Miscellaneous ACM (Non-Friable).

STATE OF MISSOURI
TIMOTHY D. LEAF
NUMBER PE-2012000778
PROFESSIONAL ENGINEER
12/01/2025 10:49:57 AM
TIMOTHY D LEAF - CIVIL
MO-PE-2012000778

DATE PREPARED
10/7/2025

ROUTE	STATE
I-49	MO

DISTRICT	SHEET NO.
BR	2

COUNTY
VERNON

JOB NO.
JSR0064

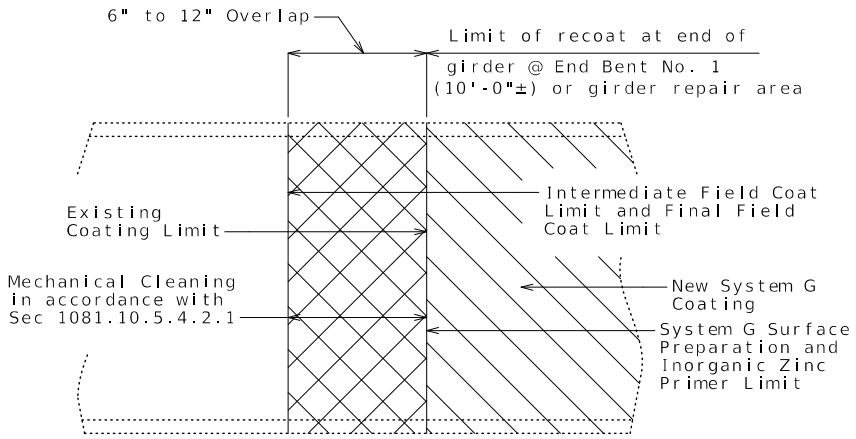
CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A17751

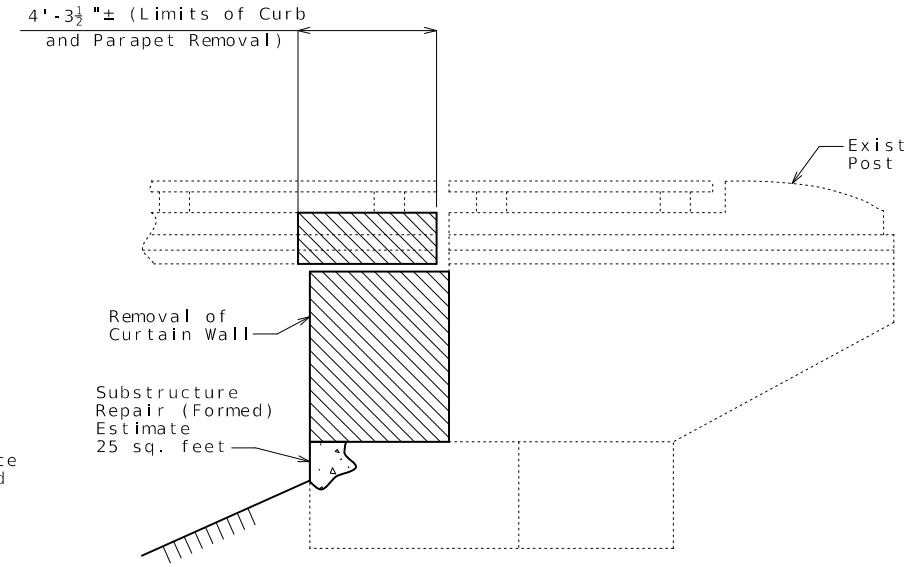
DESCRIPTION	DATE

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



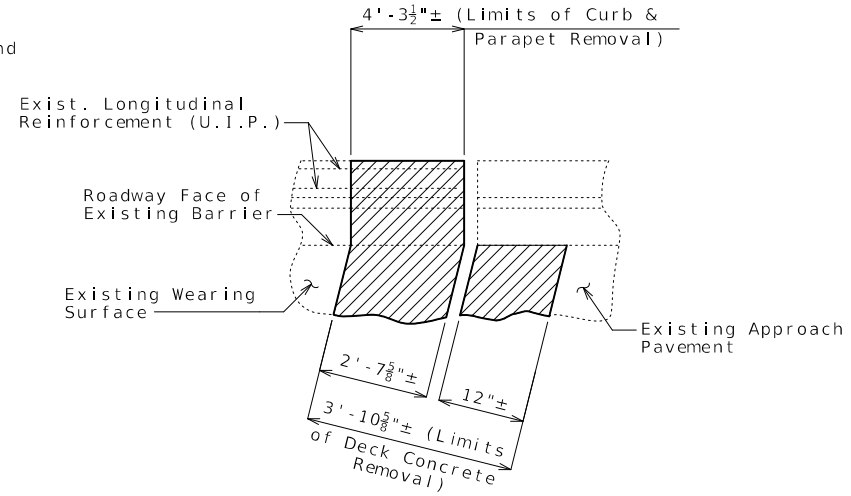
PART ELEVATION SHOWING LIMITS OF PAINT OVERLAP

(Vertical or horizontal paint limit. Horizontal limit shown)



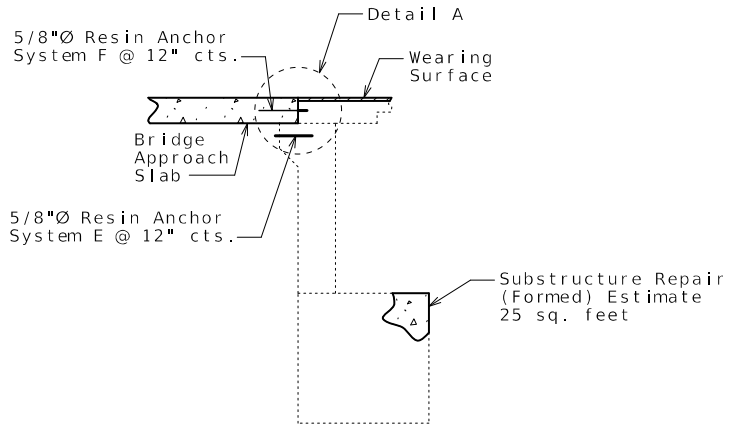
TYPICAL ELEVATION AT END BENT NO. 4

Barrier end post and aluminum tube railing removal and proposed curb blockout not shown for clarity.

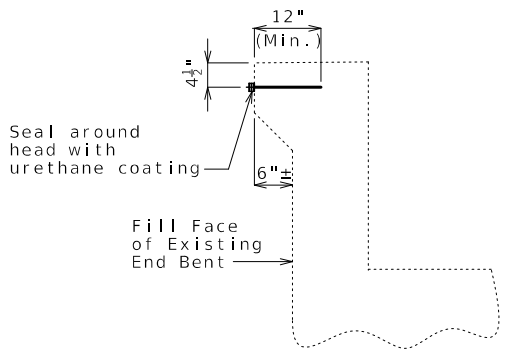


PART PLAN SHOWING PARTIAL CONCRETE REMOVAL AT END BENT NO. 4

Existing expansion device armor not shown for clarity

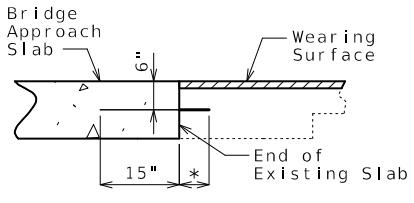


TYPICAL SECTION THRU END BENT NO. 1



DETAIL OF RESIN ANCHOR SYSTEM E

(58 req'd per End Bent)



DETAIL A SHOWING RESIN ANCHOR SYSTEM F

(59 req'd)

* Manufacturer's recommended embedment length (5" minimum)

Notes:

Resin Anchor System E shall be a 5/8"Ø threaded rod with flat washer and two heavy hex nuts (burr threads to prevent loosening). All hardware for Resin Anchor System E shall be galvanized in accordance with ASTM A153.

A galvanized #5 Grade 60 reinforcing bar shall be substituted for the 5/8"Ø threaded rod for Resin Anchor System F.

The contractor shall use one of the qualified Resin Anchor Systems in accordance with Sec 1039.

Cost of furnishing and installing Resin Anchor Systems E and F, complete in place, will be considered completely covered by the contract unit price for Class B-2 Concrete.

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

The removal of existing deck concrete as shown on Sheet No. 3 will be considered completely covered by the contract unit price for Removal of Existing Expansion Joint and Adjacent Concrete.

The removal of existing curtain walls will be considered completely covered by the contract unit price for Partial Removal of Substructure Concrete.

Vertical backwall and curtain wall reinforcement to be cut off one inch below concrete removal surface and the resulting holes shall be filled with a qualified special mortar.

A smooth, level surface shall be provided at Bent No. 4 removal lines.

The removal of existing curb, parapet, and rails as shown 3 will be considered completely covered by the contract price for Remove and Replace Barrier.

STATE OF MISSOURI
TIMOTHY D. LEAF
NUMBER PE-2012000778
PROFESSIONAL ENGINEER
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DATE PREPARED
10/7/2025

ROUTE	STATE
I-49	MO
DISTRICT	SHEET NO.
BR	3

COUNTY
VERNON

JOB NO.
JSR0064

CONTRACT ID.

PROJECT NO.

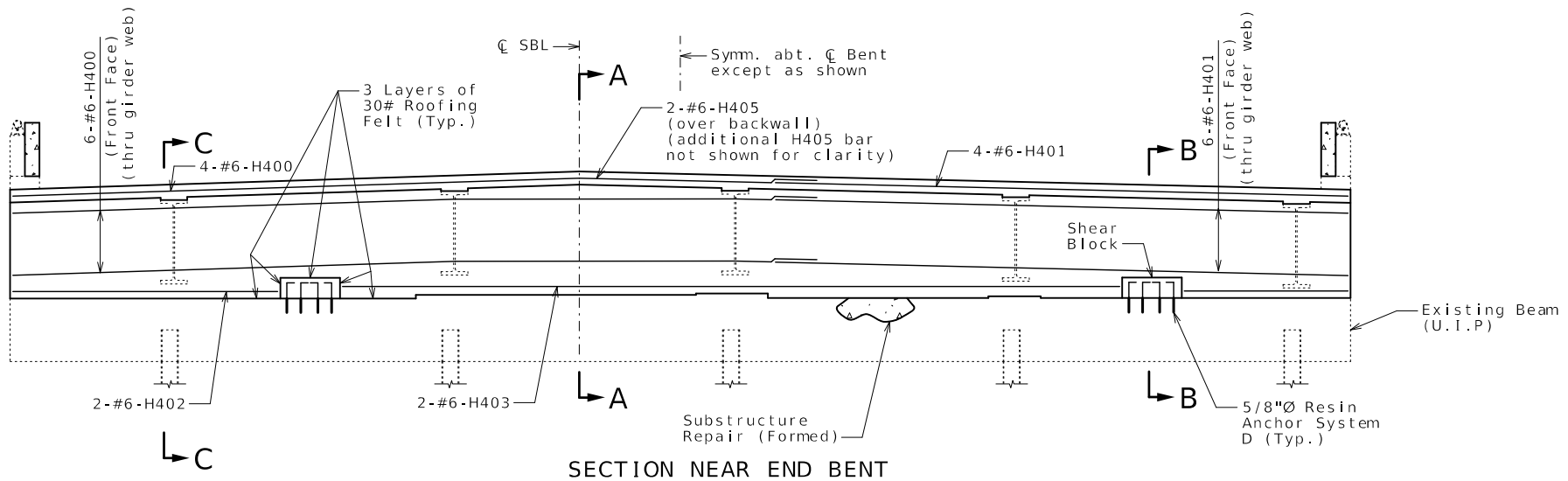
BRIDGE NO.
A17751

DESCRIPTION	DATE

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

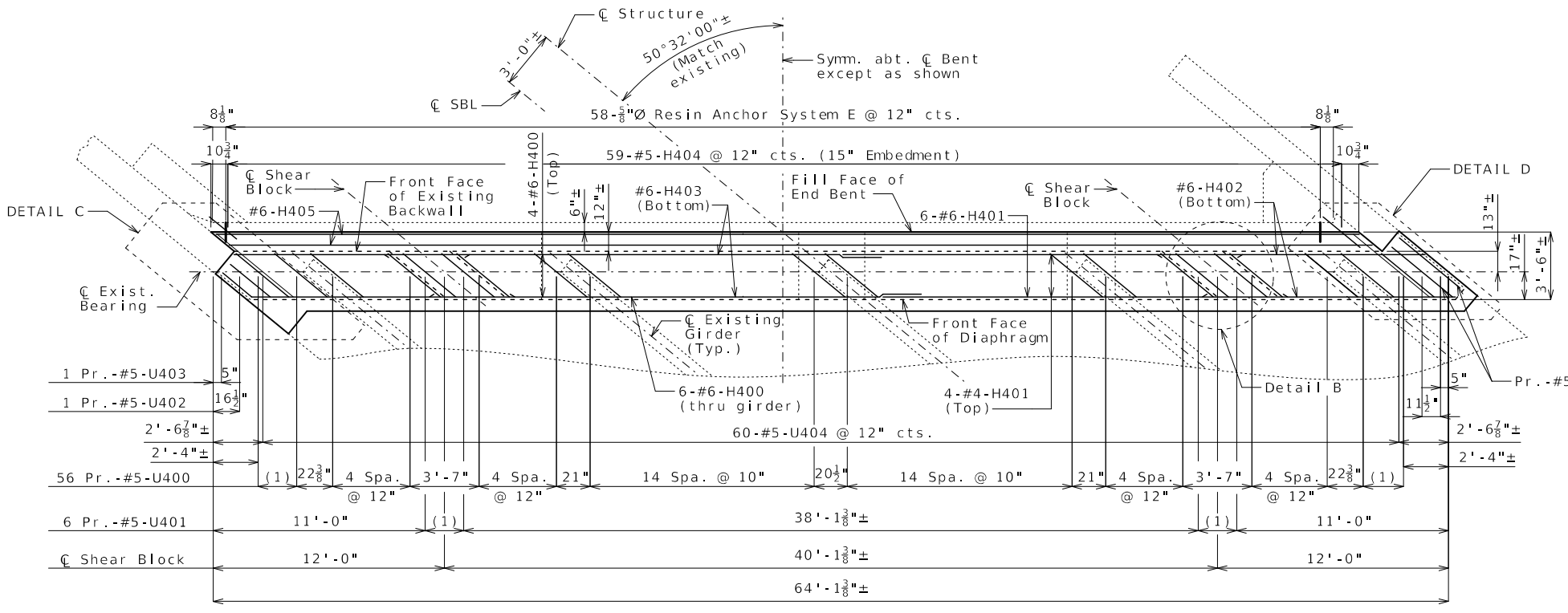
Detailed May 2025
Checked May 2025

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



SECTION NEAR END BENT

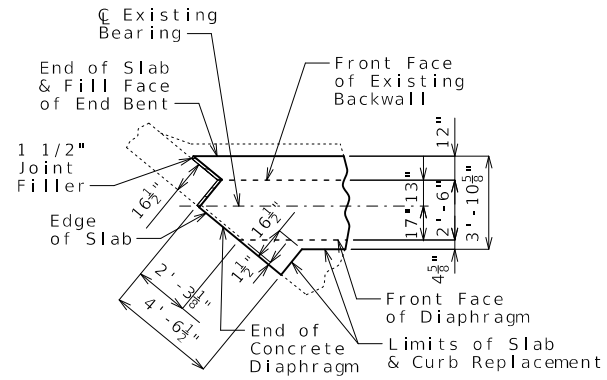
U bars and slab reinforcement not shown for clarity.



PART PLAN

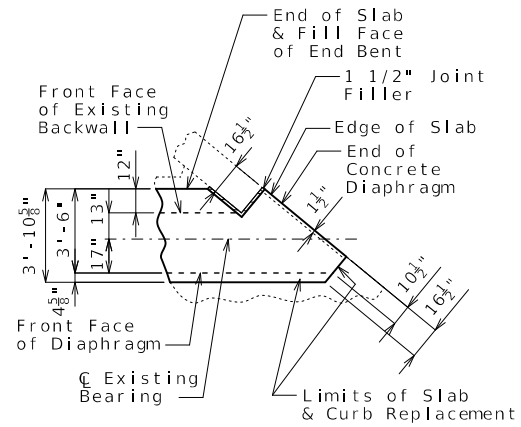
(1) 2 Spa. @ 12"

Slab reinforcement and resin anchors not shown for clarity.
Above dimensions taken along ℄ of existing bearing from outside face of proposed slab.



DETAIL C

All dimensions are plus/minus.



DETAIL D

All dimensions are plus/minus.

Notes:

Work this Sheet with Sheet No. 5.

The exposed and accessible surface of the existing structural steel and bearing that will be encased in concrete shall be cleaned with a minimum of SSPC-SP-3 surface preparation and coated with a minimum of one coat of gray epoxy-mastic primer (non-aluminum) in accordance with Sec 1081 to produce a dry fill thickness of not less than 3 mils before concrete is poured. The surface preparation and coating for girders shall extend a minimum of one foot outside the face of the beam encasement. Payment for cleaning and coating steel to be encased in concrete will be considered completely covered by the contract unit price for Class B-2 Concrete.

The #6-H400 bars are lapped with the #6-H401 bars with a minimum lap of 3'-1". The contractor may use a mechanical bar splice in lieu of a lap splice. When a mechanical bar splice is used, the actual bar segment length will be determined by the contractor to accommodate manufacturer's recommendations for installation and ease of construction. The cost of furnishing and installing the bar splices will be considered completely covered by the contract unit price for Reinforcing Steel (Galvanized). No adjustment of the quantity of reinforcing steel will be allowed for the use of mechanical bar splices.

Cost of field drilling holes in existing plate girder webs will be considered completely covered by the contract unit price for Class B-2 Concrete.

END BENT NO. 4

Detailed May 2025
Checked May 2025

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PROFESSIONAL ENGINEER
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TIMOTHY D. LEAF - CIVIL
MO-PE-2012000778

DATE PREPARED
10/7/2025

ROUTE	STATE
I-49	MO
DISTRICT	SHEET NO.
BR	4

COUNTY
VERNON

JOB NO.
JSR0064

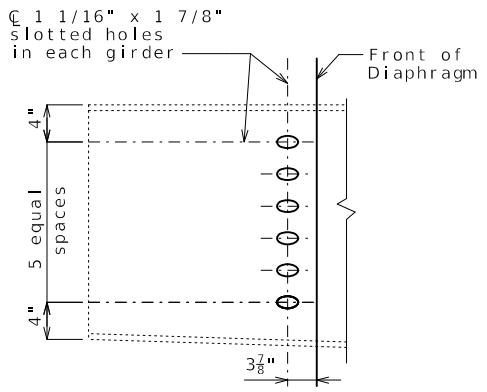
CONTRACT ID.

PROJECT NO.

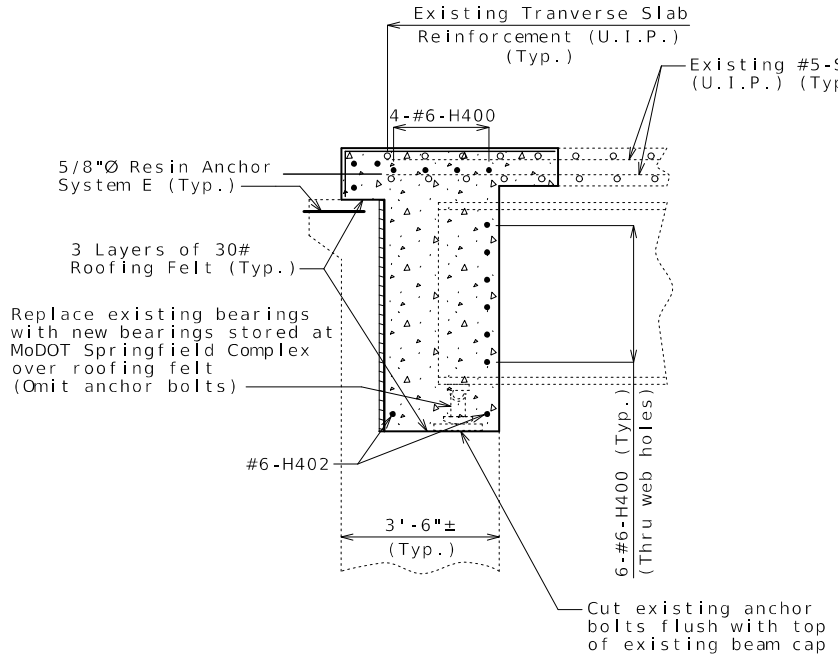
BRIDGE NO.
A17751

DESCRIPTION	DATE

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

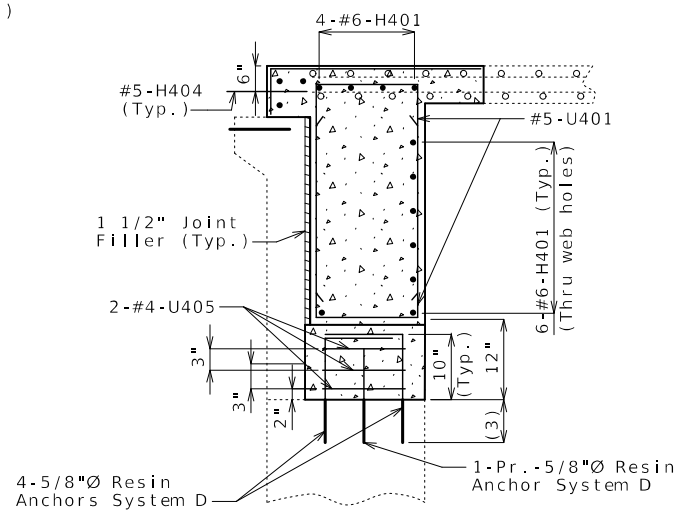


DETAIL OF WEB HOLES
AT END BENTS

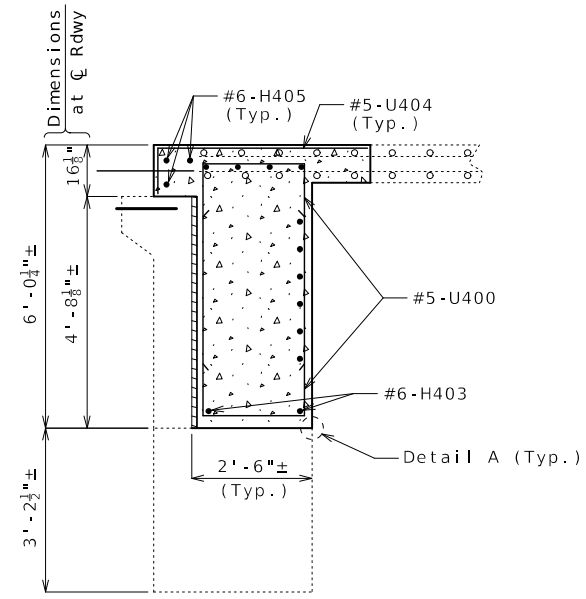


SECTION C-C

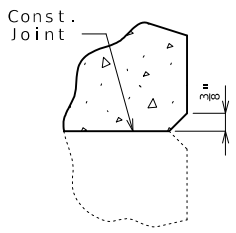
Note: All work to remove existing bearings and install new bearings to be considered completely covered by the contract unit price for Misc. Installation of Bearings (pre-owned).



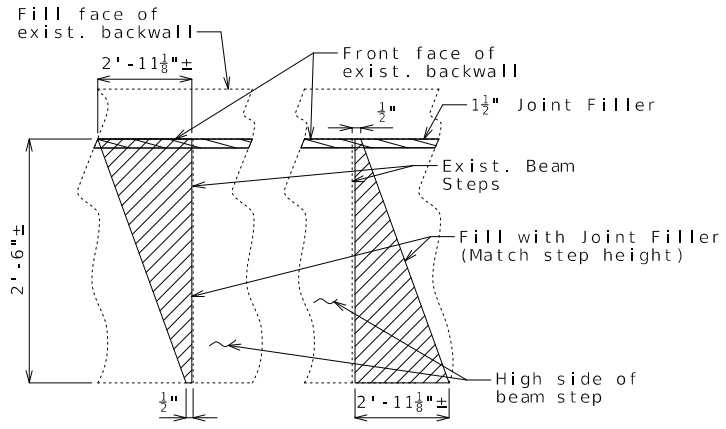
SECTION B-B



SECTION A-A



DETAIL A



DETAIL C
JOINT FILLER
AT BEAM STEPS

Notes:

Work this sheet with Sheet No. 4.

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

Cost of furnishing and installing the resin anchor system D, complete in place, will be considered completely covered by the contract unit price for Class B-2 Concrete.

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

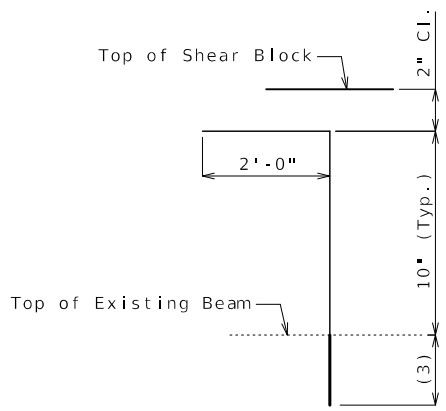
A galvanized #5 Grade 60 reinforcing bar shall be substituted for the 5/8" Ø threaded rod for Resin Anchor System D.

The U bars and H404 bars shall be placed parallel to centerline of roadway.

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

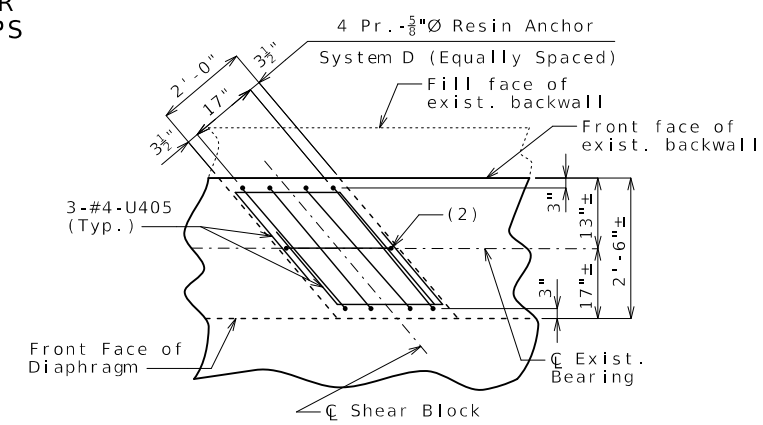
For details of bridge approach slab, see Sheet No. 15.

For details of resin anchor system E, see Sheet No. 3.



DETAILS OF RESIN
ANCHOR SYSTEM D

(20 Req'd.)



DETAIL B

(2) Pr.-5/8"Ø Resin Anchor System D

(3) Manufacturer's recommended embedment length (5" min.)

END BENT NO. 4

Detailed May 2025
Checked May 2025

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

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PROFESSIONAL ENGINEER
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TIMOTHY D. LEAF - CIVIL
MO-PE-2012000778

DATE PREPARED
10/7/2025

ROUTE	STATE
I-49	MO
DISTRICT	SHEET NO.
BR	5

COUNTY
VERNON

JOB NO.
JSR0064

CONTRACT ID.

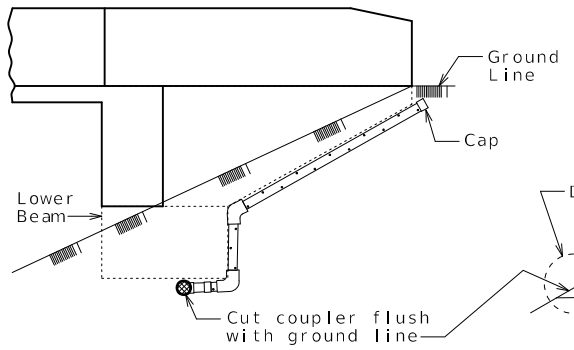
PROJECT NO.

BRIDGE NO.
A17751

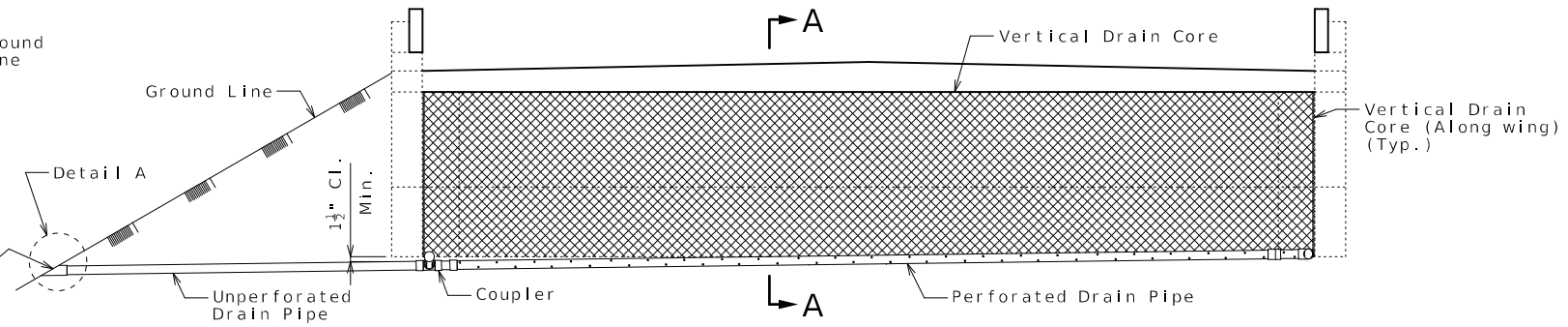
DESCRIPTION	DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

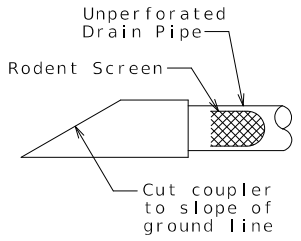
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)



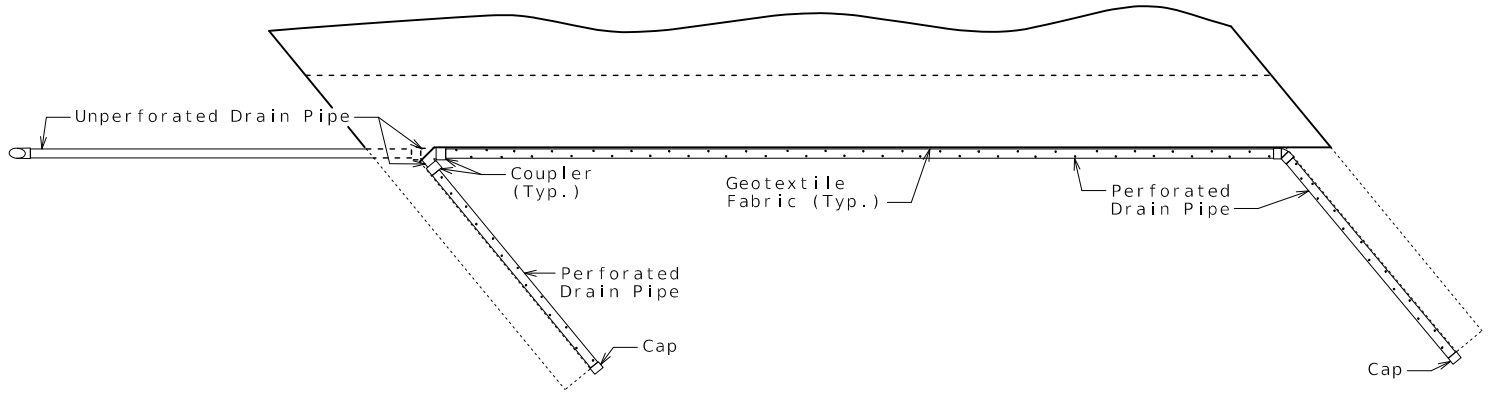
ELEVATION OF WING



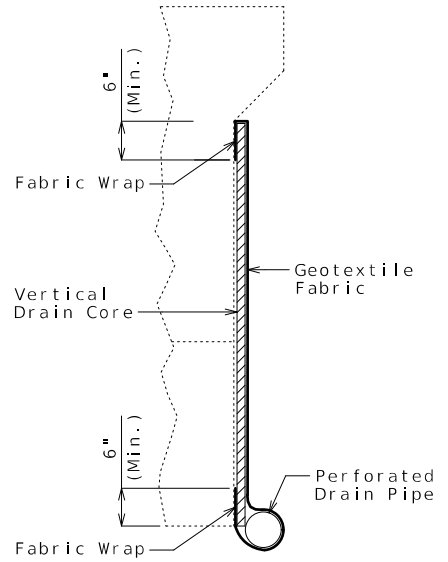
ELEVATION OF END BENT



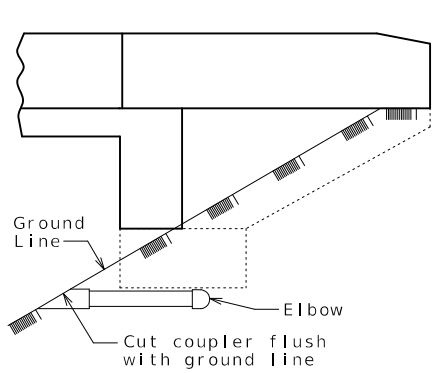
DETAIL A



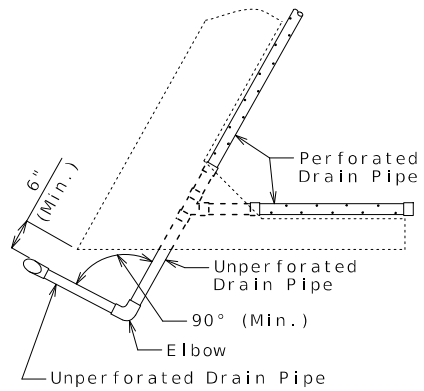
PLAN OF END BENT



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

End Bent No. 4 shown, End Bent No. 1 similar.

Detailed May 2025
Checked May 2025

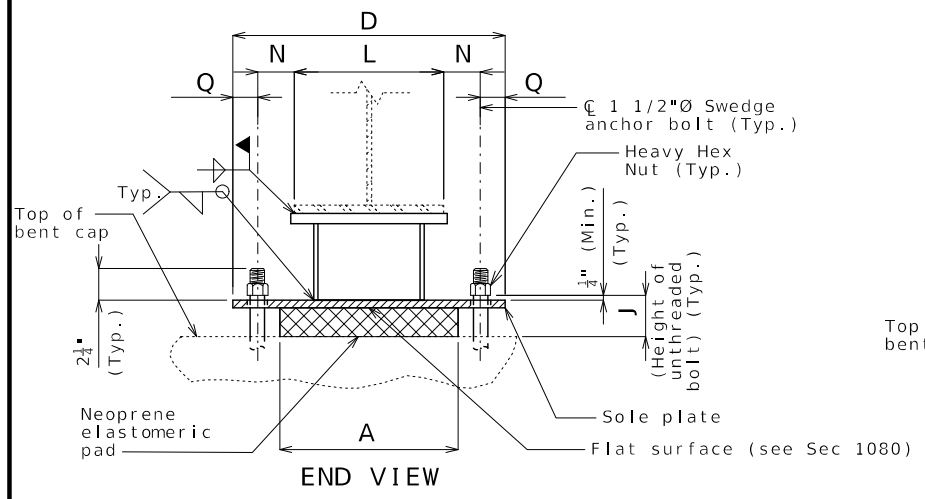
Note: This drawing is not to scale. Follow dimensions.

STATE OF MISSOURI
TIMOTHY D. LEAF
NUMBER PE-2012000778
PROFESSIONAL ENGINEER
12/01/2025 10:50:30 AM
TIMOTHY D LEAF - CIVIL
MO-PE-2012000778

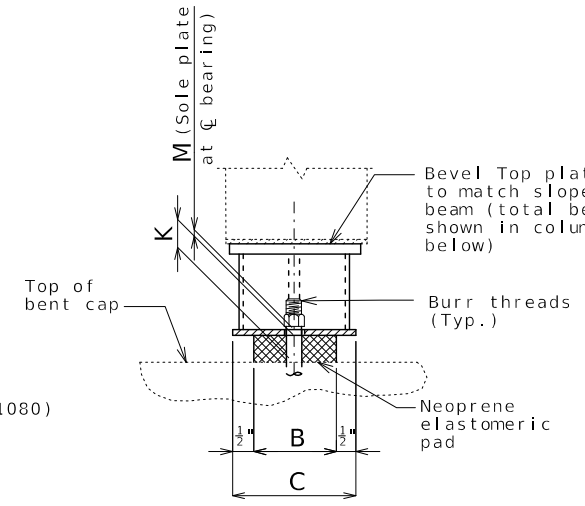
DATE PREPARED: 10/7/2025
ROUTE: I-49 | STATE: MO
DISTRICT: BR | SHEET NO.: 6
COUNTY: VERNON
JOB NO.: JSR0064
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: A17751

DESCRIPTION | DATE

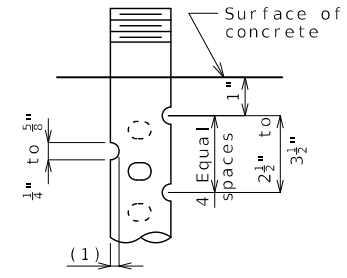
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)



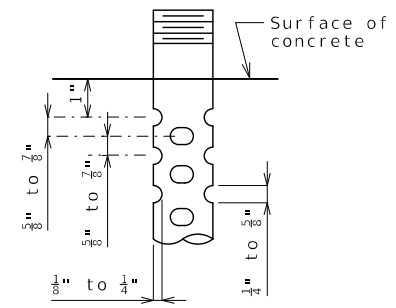
END VIEW



SIDE VIEW



DETAIL OF 3/4"Ø THRU 2 1/2"Ø ANCHOR BOLTS

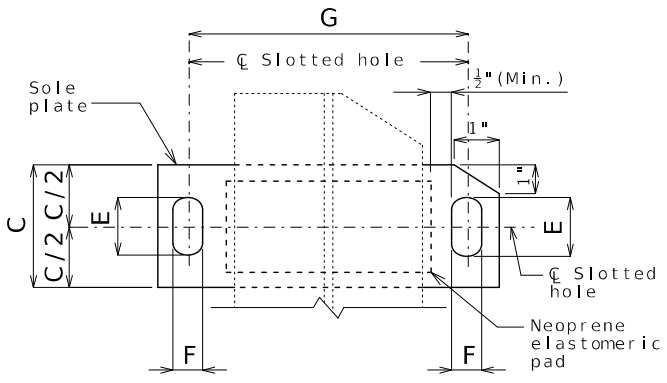


OPTIONAL DETAIL OF 1 3/8"Ø THRU 2 1/2"Ø ANCHOR BOLTS

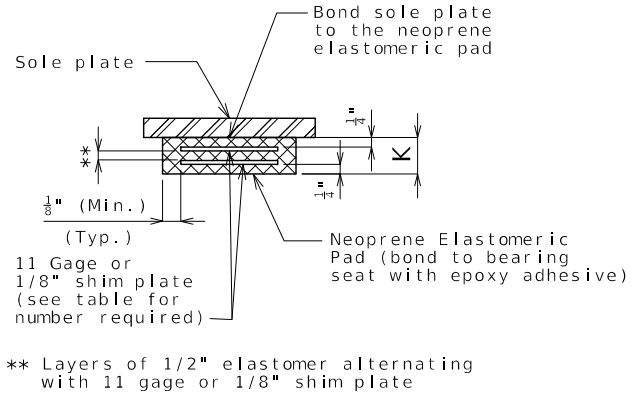
SWEDGE ANCHOR BOLT DETAILS

(1) 1/8" for 3/4"Ø thru 1 1/4"Ø anchor bolts

1/8" to 1/4" for 1 3/8"Ø thru 2 1/2"Ø anchor bolts

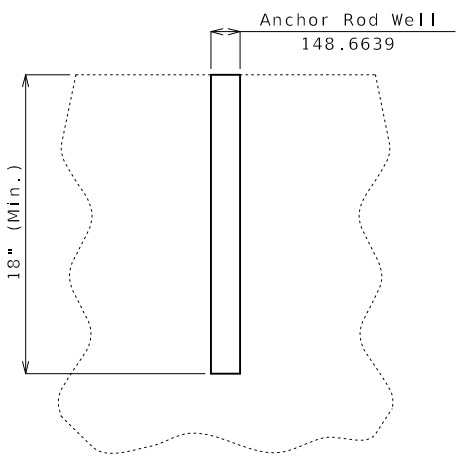


PART PLAN

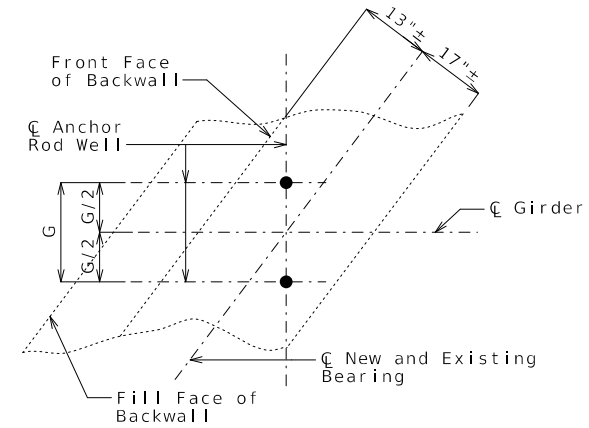


** Layers of 1/2" elastomer alternating with 11 gage or 1/8" shim plate

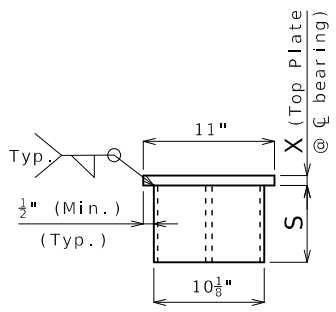
NEOPRENE ELASTOMERIC PAD



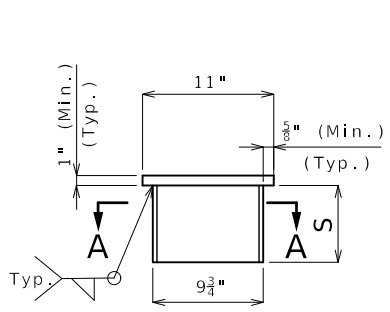
DETAIL OF ANCHOR ROD WELLS



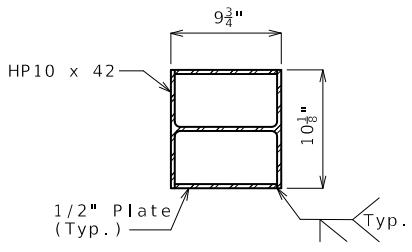
PLAN OF EXISTING END BENT NO. 1 BENT SHOWING ANCHOR RODS



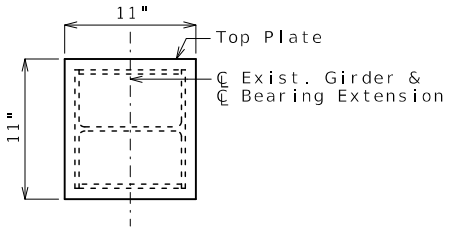
SIDE ELEVATION OF BEARING EXTENSION



END ELEVATION OF BEARING EXTENSION



SECTION A-A



PLAN OF BEARING EXTENSION

GENERAL NOTES:

Anchor bolts shall be 1 1/2"Ø ASTM F1554 Grade 55 swedged bolts and shall extend 18" into the concrete with ASTM A563 Grade A Heavy Hex nuts. Actual manufacturer's certified mill test reports(chemical and mechanical) shall be provided. Swedging shall be 1" less than extension into the concrete.

Anchor bolt shall be at the centerline of slotted hole at 60°F. Bearing position shall be adjusted R for each 10° fall or rise in temperature at installation.

Anchor bolts and heavy hex nuts shall be coated with a minimum of two coats of inorganic zinc primer to provide a total dry film thickness of 4 mils minimum, 6 mils maximum, or galvanized in accordance with Sec 1081.

Neoprene Elastomeric Pads shall be 60 Durometer.

Structural steel for sole plate and all bearing extension steel shall be ASTM A709 Grade 50 and shall be coated with a minimum of two coats of inorganic zinc primer to provide a total dry film thickness of 4 mils minimum, 6 mils maximum.

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

Cost of bearing extension, complete in place, will be considered completely covered by the contract unit price for Laminated Neoprene Bearing Pad Assembly.

An equivalent sized W shape may be substituted for the HP10x42 or equivalent size plates may be welded together.

The required temporary support at End Bent No. 1 shall be capable of safely supporting a service load of 34 kips/girder (factor of safety not included). This load includes the dead load and a construction load of 50 psf.

EXPANSION BEARINGS

BENT NO.	A	B	C	D	E	F	G	J	K	L	M	N	P	Q	R	S	X	NUMBER OF SHIM PLATES *	NUMBER REQUIRED
BENT NO. 1	11"	11"	12"	19 1/2"	4 1/8"	1 3/8"	15"	3 3/8"	1 7/8"	10"	1 1/2"	2 1/2"	3/8"	2 1/4"	1/16"	7 9/16"	1 5/16"	3	5
																		TOTAL BEARINGS	5

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

LAMINATED NEOPRENE BEARING PAD ASSEMBLY

STATE OF MISSOURI
TIMOTHY D. LEAF
NUMBER PE-2012000778
PROFESSIONAL ENGINEER
12/01/2025 10:50:39 AM
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MO-PE-2012000778

DATE PREPARED 10/7/2025

ROUTE	STATE
I-49	MO
DISTRICT	SHEET NO.
BR	7

COUNTY VERNON

JOB NO. JSR0064

CONTRACT ID.

PROJECT NO.

BRIDGE NO. A17751

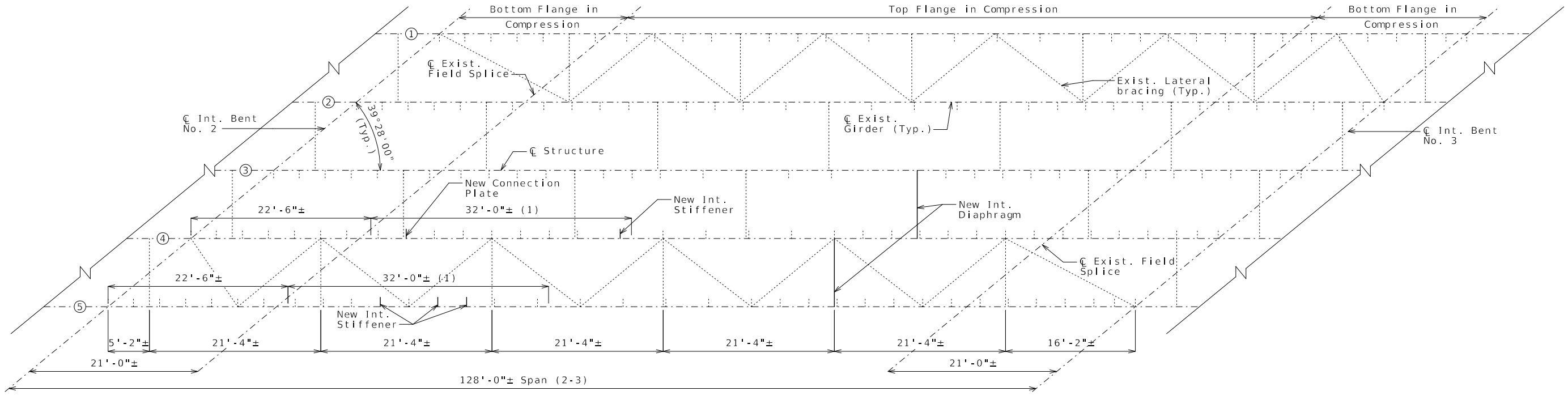
DESCRIPTION

DATE

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

Detailed May 2025
Checked May 2025

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



PART PLAN OF STRUCTURAL STEEL

PHASES OF WORK

Prior to Heat Straightening:

1. Complete surface preparation of existing steel that will be subjected to Non-Destructive Testing (NDT) or heat from the heat straightening process.

2. Remove the intermediate diaphragms and connection plates as indicated in the plans or directed by the engineer. As approved by the engineer, existing connection plates may be re-used. Non-Destructive Testing (NDT) of the connection plate welds are required to assure suitability for re-use; paint shall be removed prior to any NDT of welds. Existing connection plates not re-used shall be removed and the girders ground smooth.

3. Inspect girder in the area of repair for cracks by any non-destructive means. If cracks are identified, repair cracks as directed by the engineer.

Heat Straightening:

1. Heat straighten girders covering the length of the collision damaged girders. The girders shall be heat straightened to remove web and bottom flange twisting. See Special Provisions.

2. The shoulder and adjacent lane of I-49 shall remain closed, and no traffic shall be allowed over the girder(s) being straightened during the heat straightening process.

3. MoDOT has concerns about heat straightening through a splice location. Please consult your heat straightening subcontractor as you prepare your bid.

Post Heat Straightening:

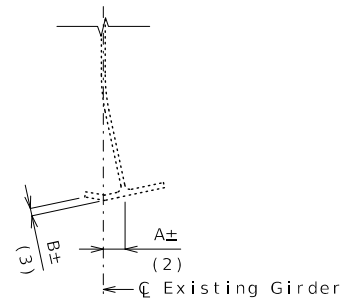
1. Install new connection plates and diaphragms.

2 Recoat girders over the length of damage and where paint was removed during the heat straightening process with System G (Gray).

3. Paint new diaphragms and connection plates with System G (Gray).

Girder No.	Dim. A	Dim. B
4	2"	*
5	2"	*

* Value to be determined by contractor



DETAIL OF GIRDER
SHOWING IMPACT DAMAGE

(1) Approximate collision impact zone and limits of required heat straightening.

(2) Approximate girder sweep at point of impact

(3) Approximate vertical distortion of bottom flange

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ROUTE	STATE
I-49	MO
DISTRICT	SHEET NO.
BR	8

COUNTY
VERNON

JOB NO.
JSR0064

CONTRACT ID.

PROJECT NO.

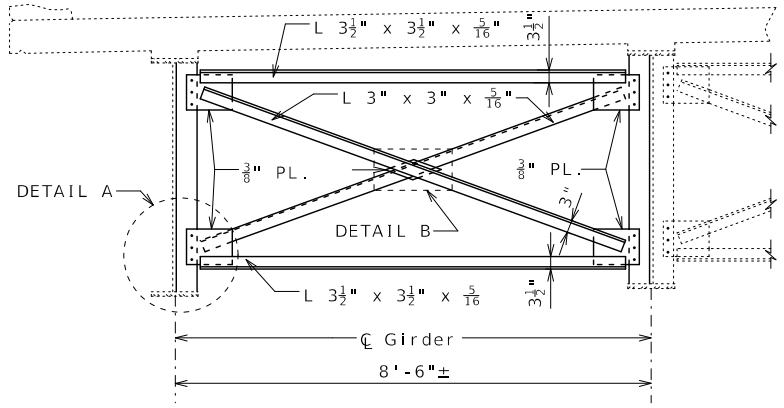
BRIDGE NO.
A17751

DESCRIPTION	DATE

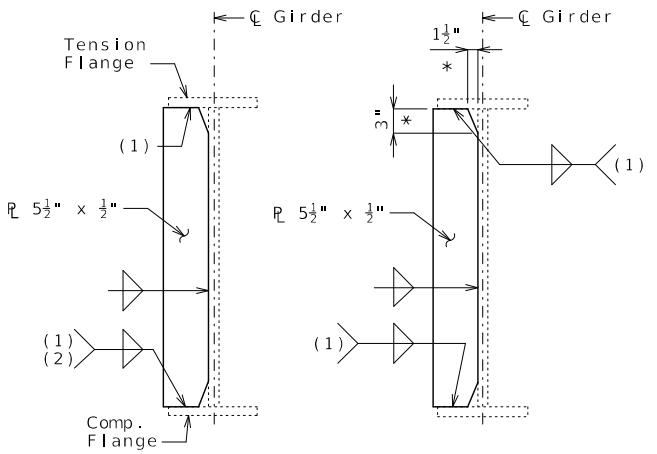
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

Detailed May 2025
Checked May 2025

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



TYPICAL PART SECTION NEW
INTERMEDIATE DIAPHRAGMS



INTERMEDIATE
WEB STIFFENER
(One side only)

INTERMEDIATE DIAPHRAGM
CONNECTION PLATE

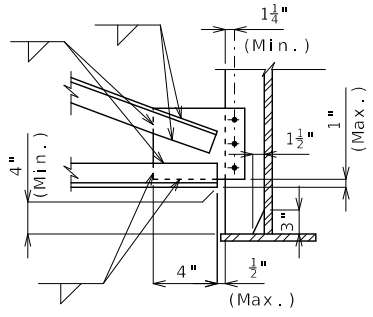
DETAIL OF NEW CONNECTION PLATES

(Longitudinal stiffener(s) not shown for clarity.)

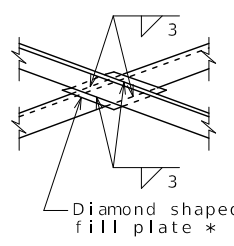
(1) Tight fit

(2) Weld to compression flange as located on Part Plan of Structural Steel.

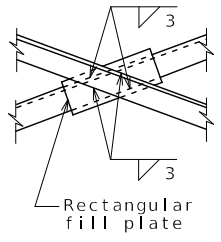
* Typical for all intermediate web stiffeners, intermediate diaphragm connection plates and bearing stiffeners.



DETAIL A
(Bottom flange shown,
top flange similar.)



DETAIL B



OPTIONAL
DETAIL B

* At the contractor's option, rectangular fill plates may be used in lieu of diamond fill plates as shown in Optional Detail B.

Notes:

See Sheet No. 8 for phases of work.

Girders No. 4 & 5 shall be heat straightened to remove web and bottom flange twisting. Cost will be considered completely covered by the contract lump sum price for Heat Straightening. See Special Provisions.

Limits of collision damage vary by girder. Field verify locations and limits of collision damage requiring repairs.

Estimated limits of new System G Coating are equivalent to approximate limits of heat straightening.

The cost of non-destructive testing for connection plate welds evaluated for re-use will be considered completely covered by the contract lump sum price for Non-Destructive Testing. All other Non-Destructive Testing will be completely covered by the contract lump sum price for Heat Straightening.

Remove existing diaphragms and their connection plates to girders per the locations shown. Grind smooth remnants of plates and weldment.

Remove diaphragms and lateral bracing within limits of required Heat Straightening as needed. If removed, replace in kind.

The cost of removing existing diaphragms, connection plates and removal of weld metal with the process of grinding will be considered completely covered by the contract unit price for Removal of Diaphragm (See Special Provisions).

The cost of furnishing and installing new diaphragm, connection plates and intermediate stiffeners will be considered completely covered by the contract unit price for Fabricated Structural Carbon Steel (Misc.). Quantity for Fabricated Structural Carbon Steel (Misc.) includes the weight of connection plates to girders and the steel angles that make up the diaphragm. Filler plates and other materials shall be considered subsidiary to the contract unit price for Fabricated Structural Carbon Steel (Misc.).

Contact surfaces shall be in accordance with Sec 1081 for surface preperation.

Contractor may field drill holes with the approval of the Engineer to facilitate construction.

All longitudinal dimensions are parallel to grade.

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I-49	MO
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PROJECT NO.

BRIDGE NO.
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DESCRIPTION	DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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

Detailed May 2025
Checked May 2025

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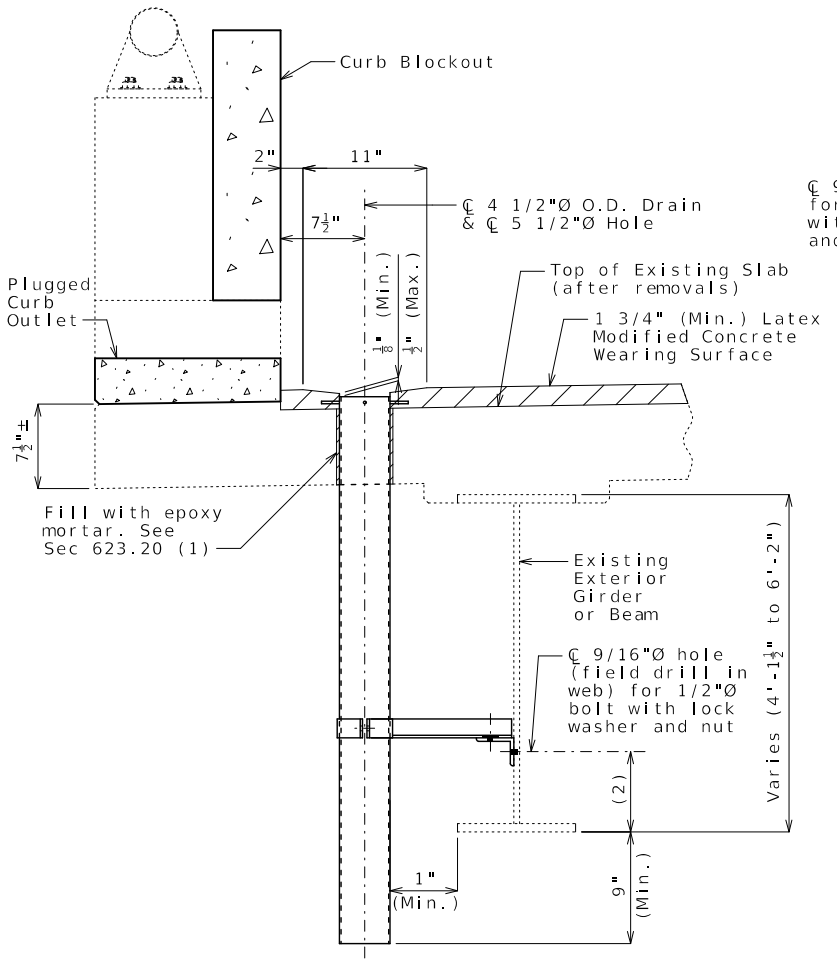
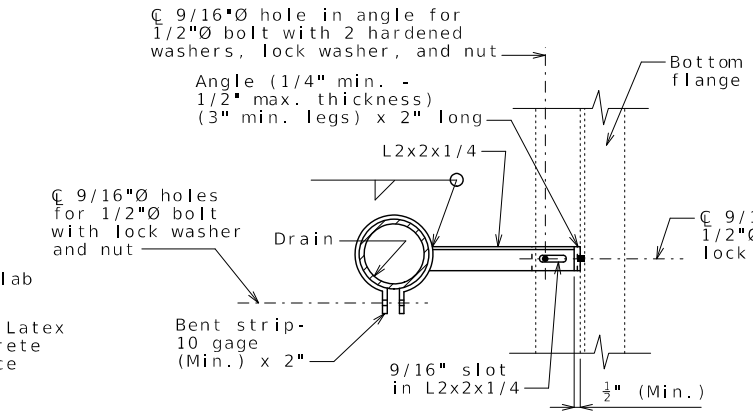


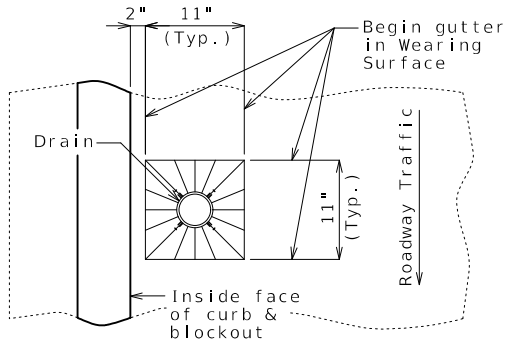
(1) Use backer rod around drain @ bottom of slab and epoxy inject from the top.

(2) Varies (8"-12"). Adjust to avoid longitudinal stiffener.

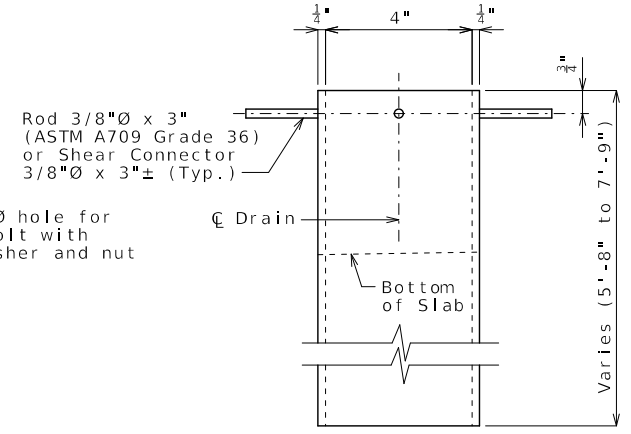
PART SECTION NEAR DRAIN



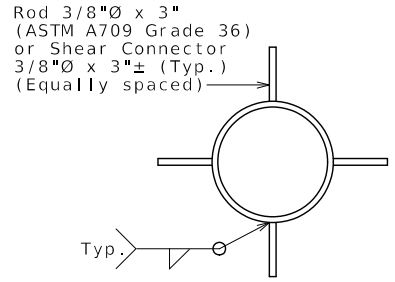
PART SECTION SHOWING BRACKET ASSEMBLY



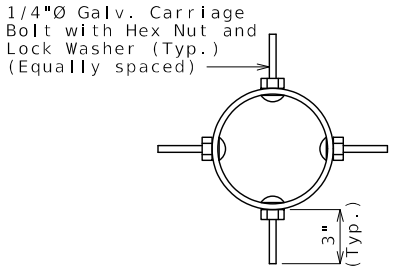
PART PLAN OF SLAB AT DRAIN



ELEVATION OF DRAIN



PLAN OF DRAIN



PLAN OF OPTIONAL FRP DRAIN

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.

The 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 M232 (ASTM A153), Class C.

All 1/2-inch diameter bolts shall be ASTM A307, except as noted.

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

Cost of cored slab drains, complete in place, will be considered completely covered by the contract unit price for Cored Slab Drain per each.

Holes for slab drains shall be cored. Percussion drilling will not be permitted.

Slab drain locations may be shifted the minimum extent necessary to avoid slab reinforcement and to allow for field drilling bolt hole in web of existing beam for bracket assembly attachment.

Cored slab drains shall be placed vertically.

For details of plugging existing curb outlets, see Sheet No. 1.

Notes for Steel Drain:

Slab drains shall be fabricated from 1/4-inch structural steel tubing ASTM A500 or A501.

The drains shall be galvanized in accordance with ASTM A123.

Drains shall be inserted through slab such that damage to galvanized coating is minimized.

Notes for FRP Drain:

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

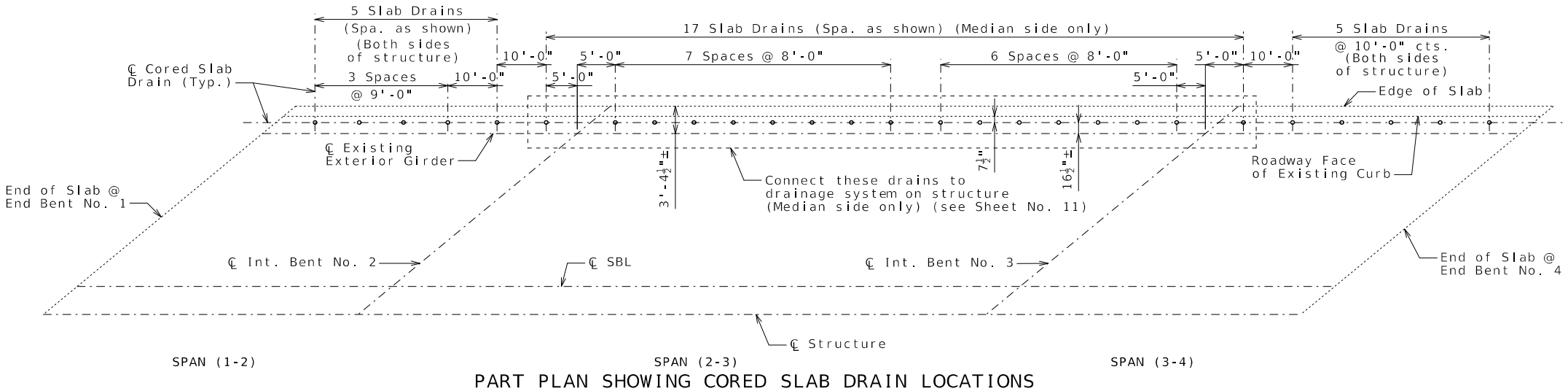
Minimum reinforced wall thickness shall be 1/4 inch.

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. Care shall be taken to avoid damage to exterior coating during installation.

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 drains shall be as recommended by the manufacturer to ensure a smooth, chip-free cut.



PART PLAN SHOWING CORED SLAB DRAIN LOCATIONS

CORED SLAB DRAINS

Detailed May 2025
Checked May 2025

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ROUTE	STATE
I-49	MO
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COUNTY: VERNON
JOB NO.: JSR0064
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PROJECT NO.:
BRIDGE NO.: A17751

DESCRIPTION	DATE

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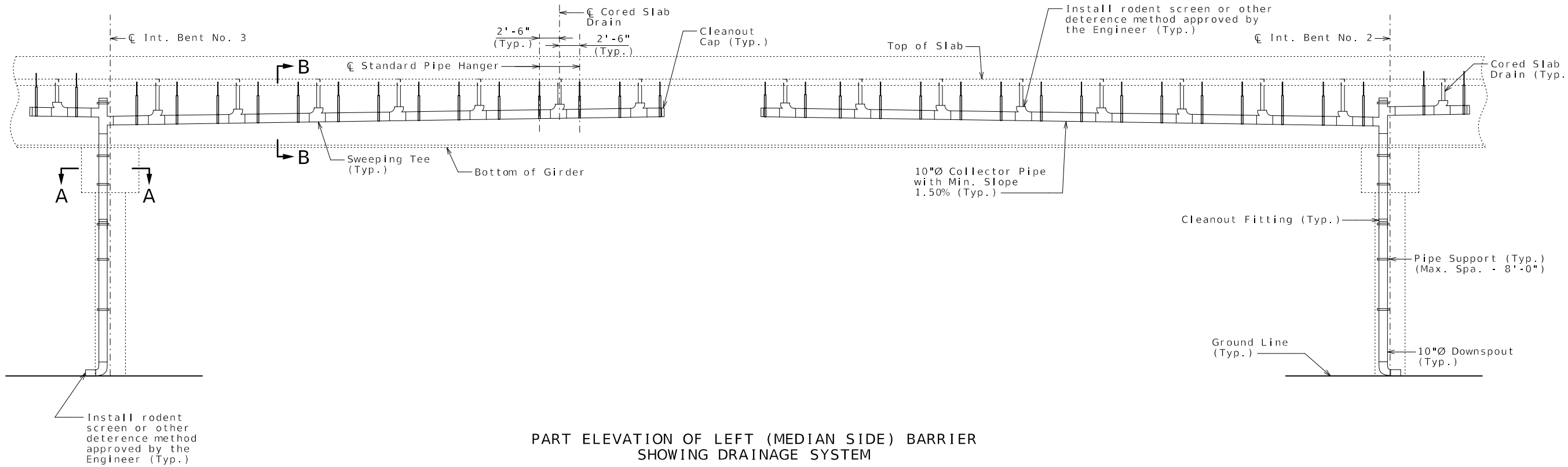
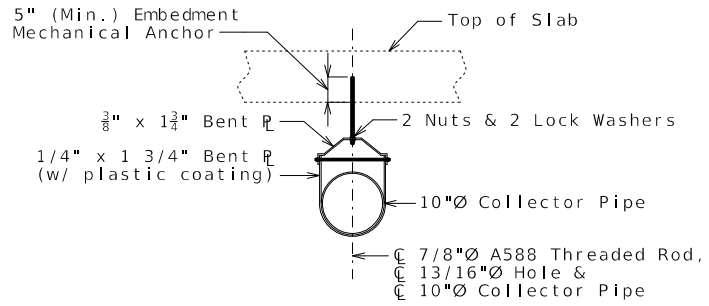
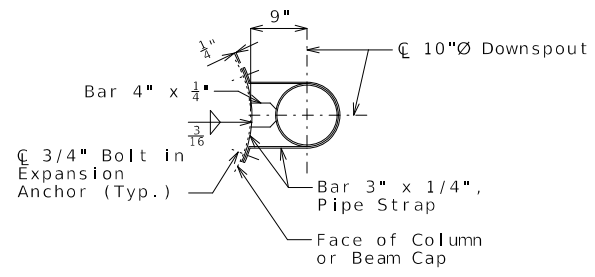


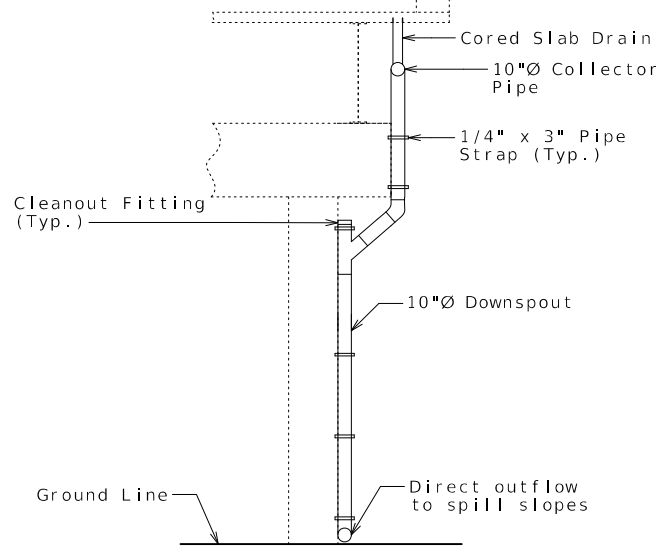
PART ELEVATION OF LEFT (MEDIAN SIDE) BARRIER
SHOWING DRAINAGE SYSTEM



SECTION B-B



SECTION A-A



PART ELEVATION OF MEDIAN END
OF INT. BENT NO. 3

(Int. Bent No. 2 similar)

Notes:

Standard Pipe Hangers shall be placed along ℄ 10"Ø Collector Pipe, offset 16 1/2"± from ℄ Exterior Girder and spaced longitudinally as shown in Elevation.

For materials and construction requirements of Drainage System, see Job Special Provisions.

For location of slab drains see Sheet No. 10.

DRAINAGE SYSTEM ON STRUCTURE

Detailed May 2025
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Note: This drawing is not to scale. Follow dimensions.

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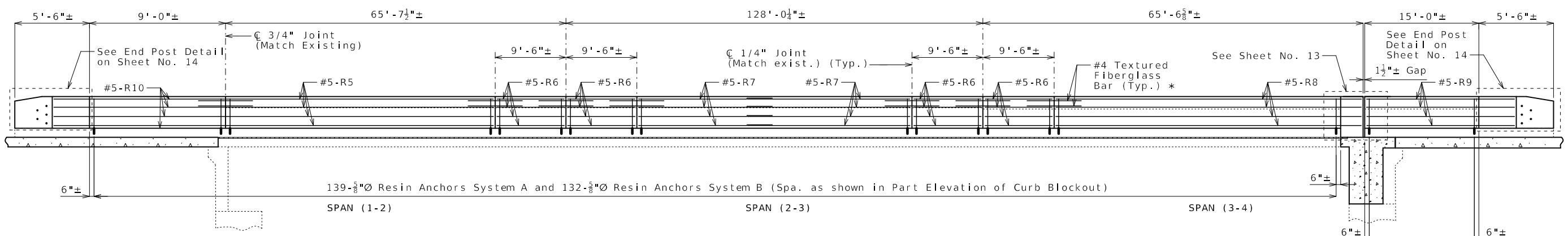
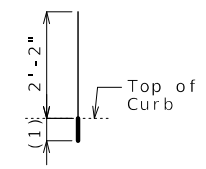


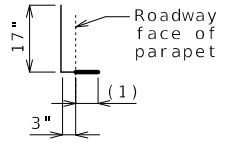
ELEVATION OF LEFT CURB BLOCKOUT

(Right curb blockout similar)

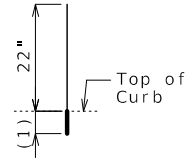
Longitudinal dimensions are along grade and are taken at top outside edge of parapet.



RESIN ANCHOR SYSTEM A
(292 req'd)
(Install in curb)



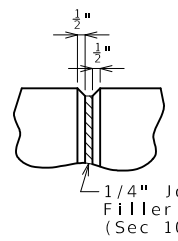
RESIN ANCHOR SYSTEM B
(280 req'd)
(Install in parapet)



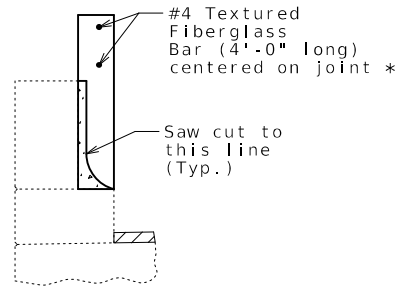
RESIN ANCHOR SYSTEM C
(64 req'd)
(Install in curb at end post)

(1) Manufacturer's recommeneded embedment length (5 inches minimum)

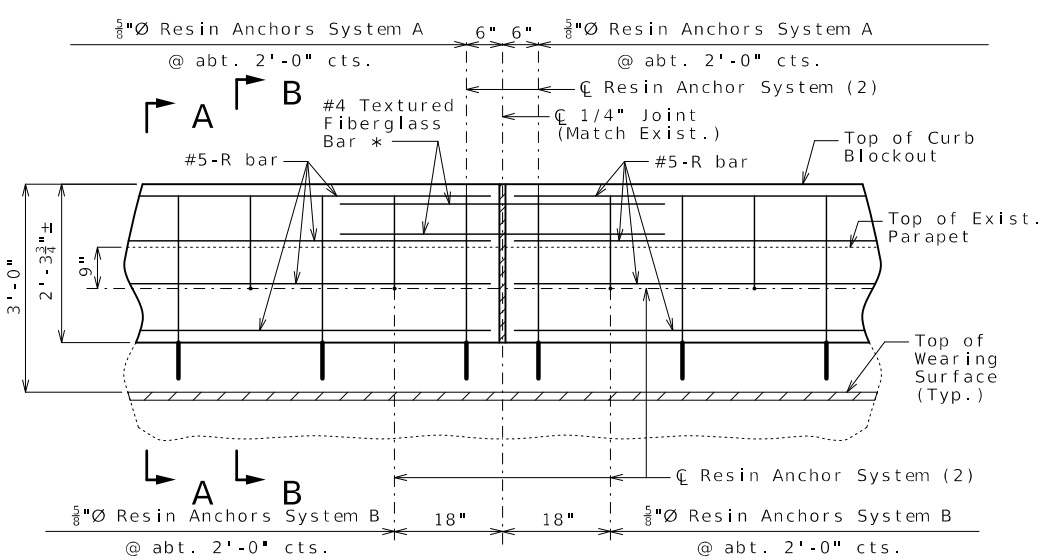
DETAILS OF RESIN ANCHORS



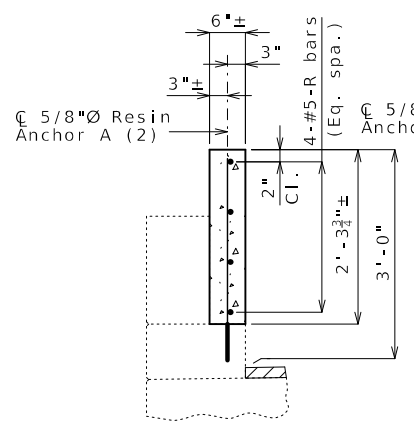
PART ELEVATION AT FORMED JOINT



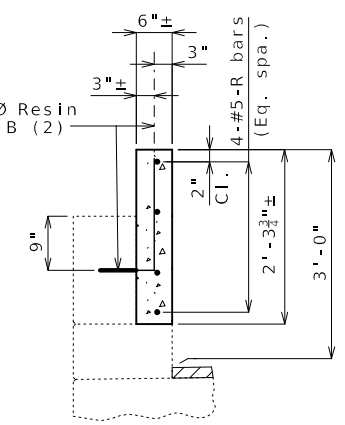
SECTION THRU SAW CUT JOINT



PART ELEVATION OF CURB BLOCKOUT



SECTION A-A



SECTION B-B

CURB BLOCKOUT

Notes:

* Slip-formed option only.

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

Bridge rail not shown for clarity.

Concrete in curb blockout shall be Class B-1.

Measurement of curb blockout is to the nearest linear foot, measured at the top outside edge of parapet. (Match existing curb and parapet)

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

Payment for concrete, reinforcement, resin anchor systems and any other work incidental to the curb blockout, complete in place, will be considered completely covered by the contract unit price for Curb Blockout per linear foot.

Cost of any concrete curb or parapet repair will be considered completely covered by the contract unit price for Curb Blockout.

All curb blockout reinforcement shall be epoxy coated.

(2) Shift resin anchors where necessary to clear existing anchor bolts for bridge rail, miss curb outlets (if present) and clear existing reinforcement.

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

Concrete traffic barrier delineators shall be placed on top of the curb blockout similarly as shown on Missouri Standard Plans 617.10 and in accordance with Sec 617. Delineators on bridges with two-lane, two-way traffic shall have retroflective sheeting on both sides. Concrete traffic barrier delineators will be considered completely covered by the contract unit price for Curb Blockout.

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

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

A galvanized #5 Grade 60 reinforcing bar shall be substituted for the 5/8"Ø threaded rod.

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

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ROUTE	STATE
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BRIDGE NO.
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MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
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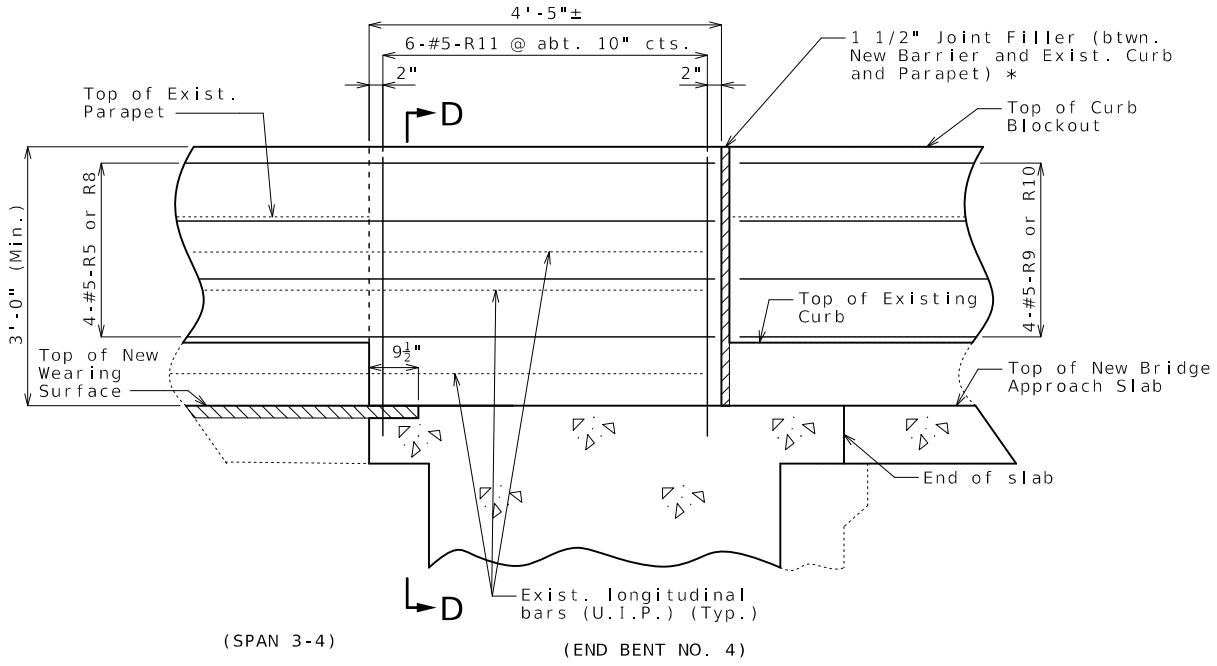
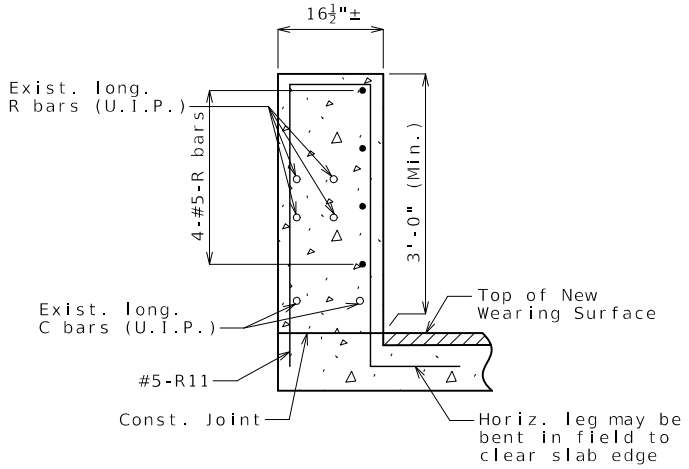
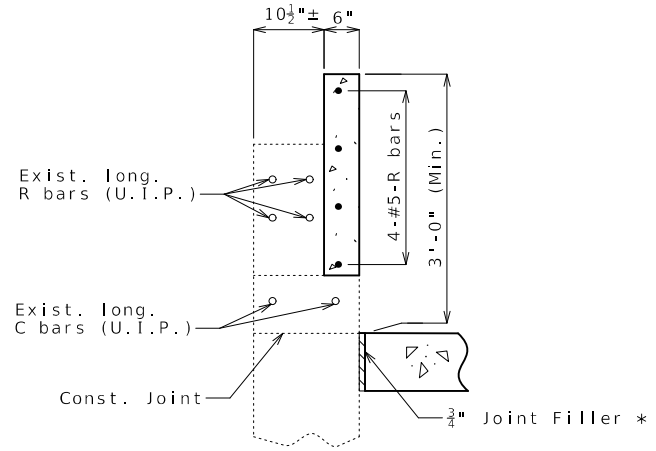


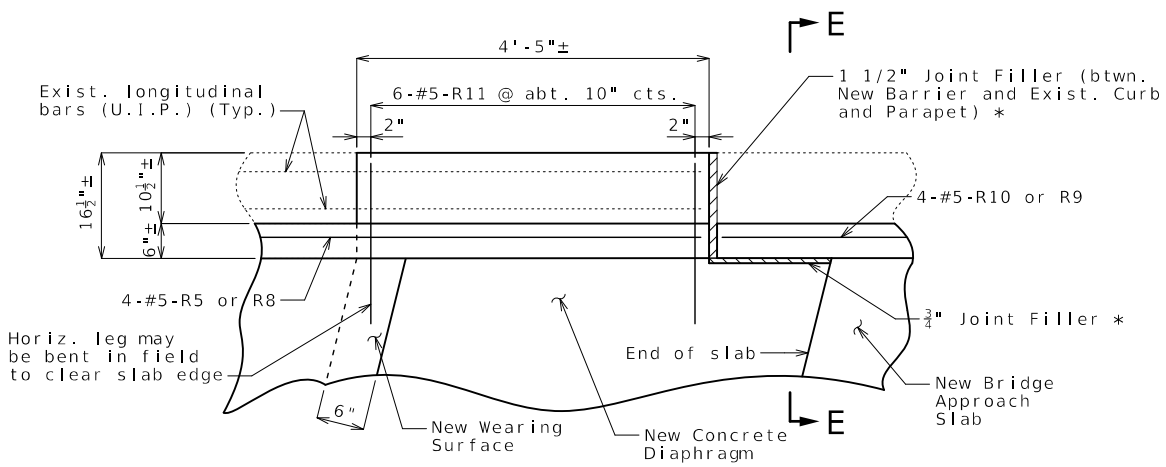
PART ELEVATION OF LEFT CURB
AT END BENT NO. 4



SECTION D-D



SECTION E-E



PART PLAN

Notes:

Payment for all concrete and reinforcement for barrier replacement at End Bent No. 4, complete in place, will be considered completely covered by the contract unit price for Remove and Replace Barrier.

Ends of existing longitudinal reinforcement in curb and parapet may be trimmed as necessary to maintain 1 1/2" clearance to end of curb blockout.

* Seal joint with sealant in accordance with Sec 717 for silicone joint sealant for saw cut and formed joints.

BARRIER REPLACEMENT AT END BENT NO. 4

(Left curb shown, right curb similar)

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

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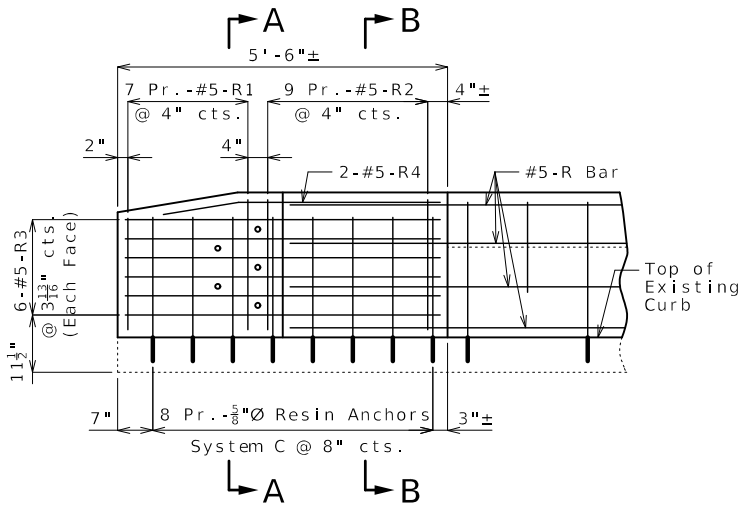
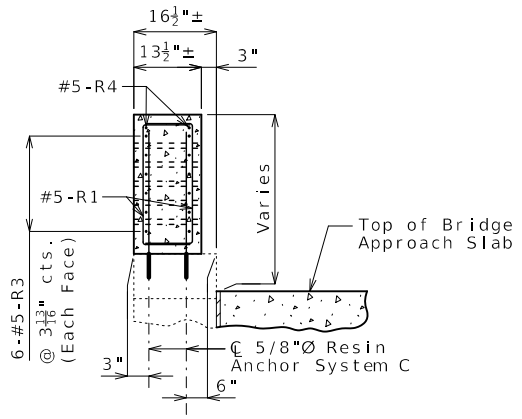
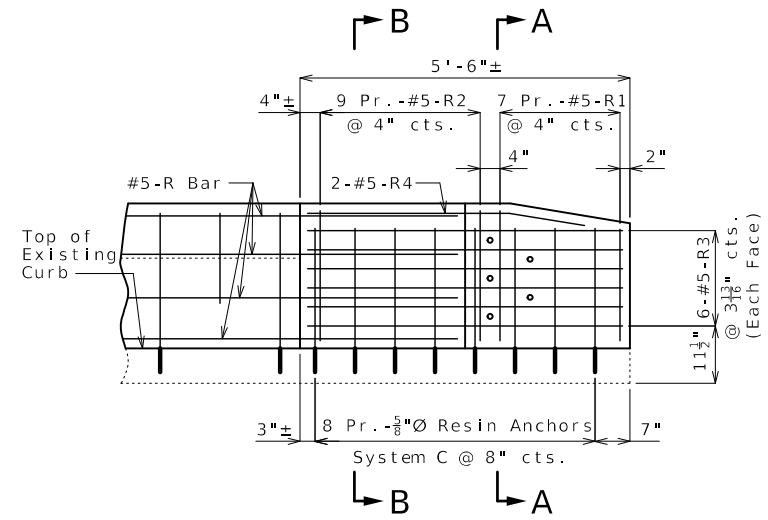


ELEVATION SHOWING REINFORCEMENT

(Right End Post at End Bent No. 4 similar)

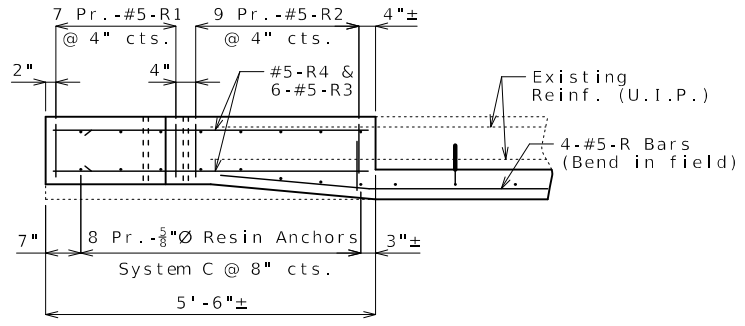


SECTION A-A



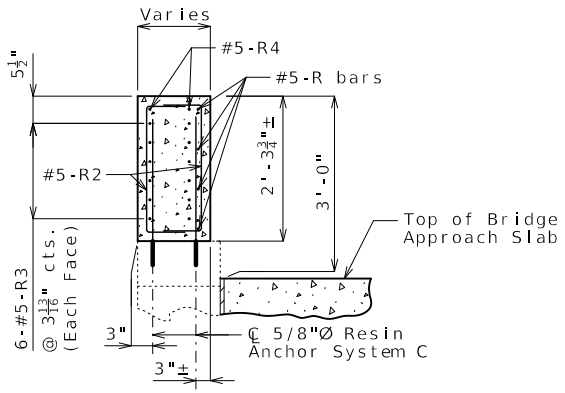
ELEVATION SHOWING REINFORCEMENT

(Right End Post at End Bent No. 1 similar)

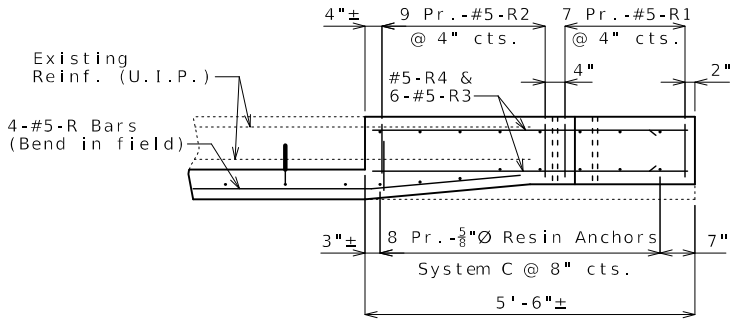


PLAN SHOWING REINFORCEMENT

LEFT END POST AT END BENT NO. 1

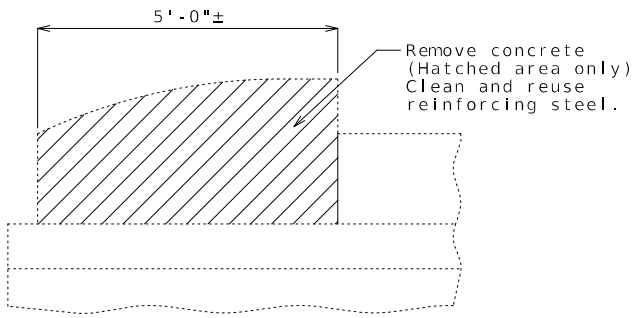


SECTION B-B



PLAN SHOWING REINFORCEMENT

LEFT END POST AT END BENT NO. 4



PART ELEVATION SHOWING END POST CONCRETE REMOVAL

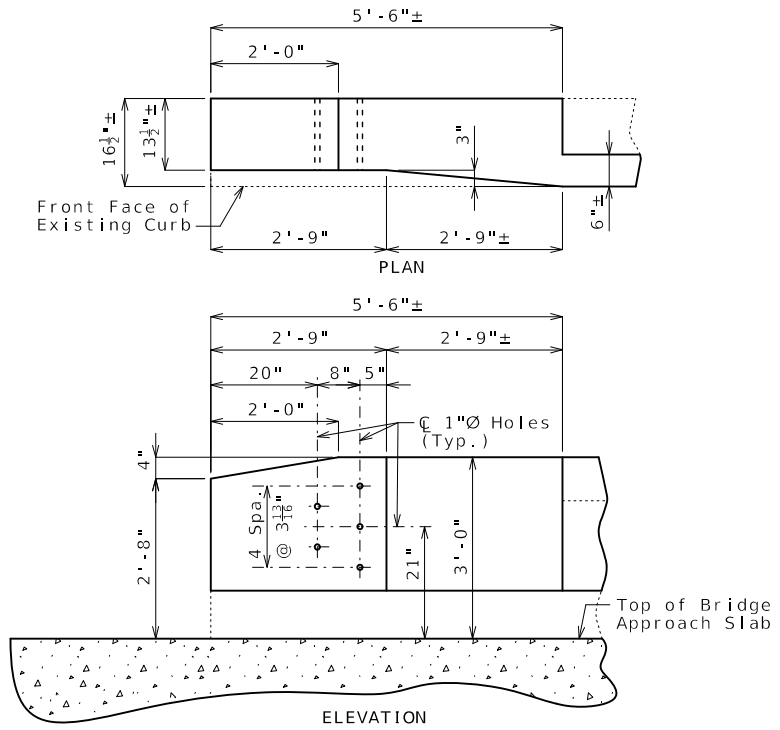
Cost of removing existing end posts will be considered completely covered by the contract unit price for Curb Blockout.

Notes:

Work this sheet with Sheet No. 12.

For details of resin anchors, see Sheet No. 12.

Resin anchors shall be shifted or bent in field to clear one-inch diameter holes by at least 1/2 inch.



CURB BLOCKOUT AT END BENTS

DETAILS OF END POST AND GUARD RAIL ATTACHMENT

Detailed May 2024
Checked May 2025

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

STATE OF MISSOURI
TIMOTHY D. LEAF
NUMBER PE-2012000778
PROFESSIONAL ENGINEER
12/01/2025 10:51:34 AM
TIMOTHY D LEAF - CIVIL
MO-PE-2012000778

DATE PREPARED
10/7/2025

ROUTE	STATE
I-49	MO
DISTRICT	SHEET NO.
BR	14

COUNTY
VERNON

JOB NO.
JSR0064

CONTRACT ID.

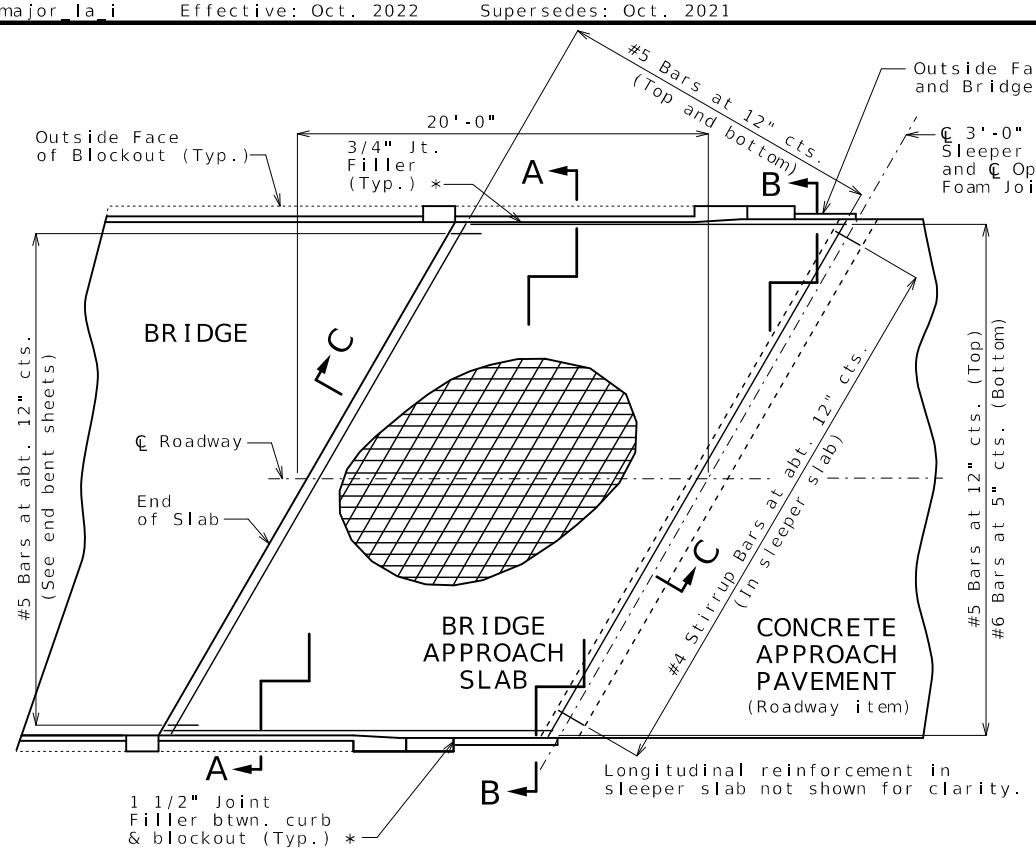
PROJECT NO.

BRIDGE NO.
A17751

DESCRIPTION

DATE

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



PART PLAN SHOWING REINFORCEMENT

General Notes:

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

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

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

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

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

Mechanical bar splices shall be in accordance with Sec 710.

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

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

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

For concrete approach pavement details, see roadway plans.

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

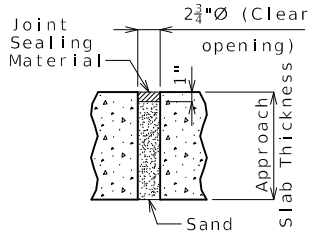
Payment for furnishing all materials, labor and excavation necessary to construct the approach slab, including the timber header, sleeper slab, underdrain, Type 5 aggregate base, joint filler and all other appurtenances and incidental work as shown on this sheet, complete in place, will be considered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

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

Open cell foam joint seal width shall be 4" and depth shall be determined by the manufacturer. Manufacturer recommended seal shall meet the movement and installation gap requirements and skew effect.

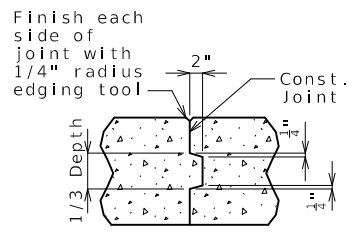
The open cell foam joint seal shall be installed according to the manufacturer's recommdendations.

The Open Cell Foam Joint Seal, complete in place, will be considered completely covered by the contract unit price for Bridge Approach Slab (Major).

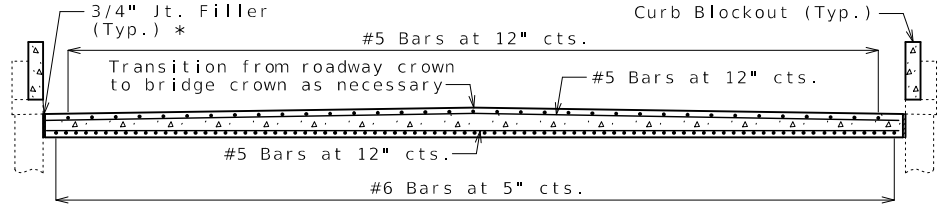


UNDERSEAL ACCESS HOLE DETAIL

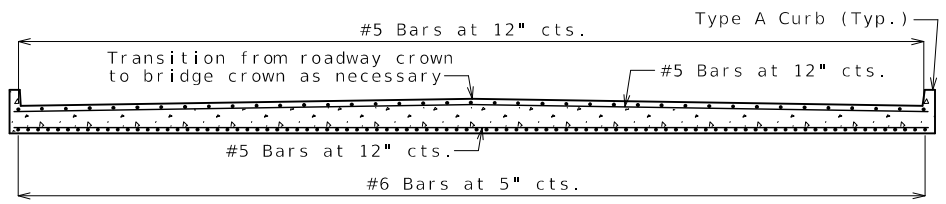
(If required)



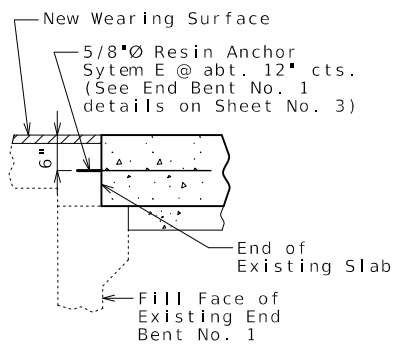
CONSTRUCTION JOINT DETAIL



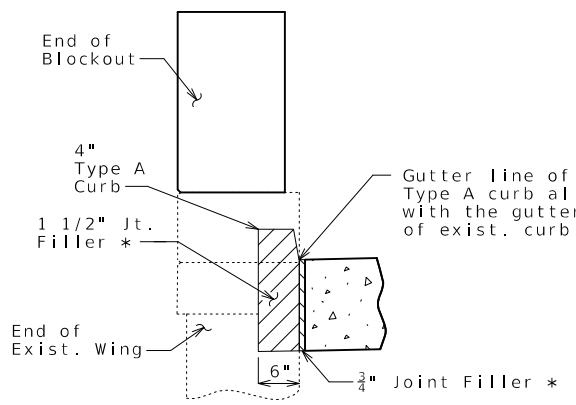
SECTION A-A



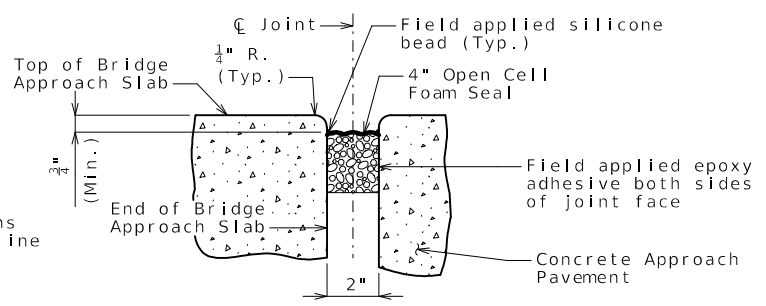
SECTION B-B



DETAIL A (END BENT NO. 1)



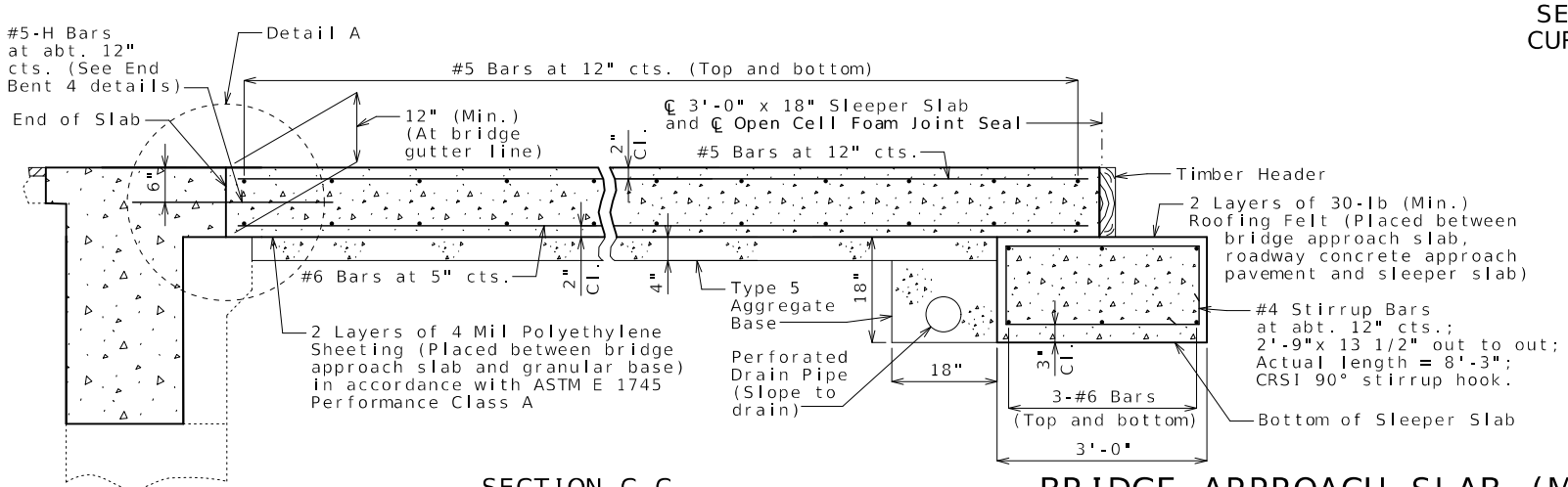
SECTION BETWEEN CURB AND BARRIER



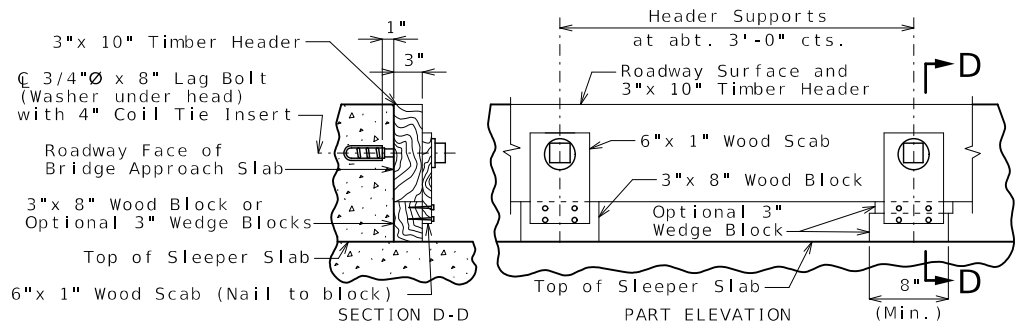
SECTION THRU JOINT AT END OF BRIDGE APPROACH SLAB

SKEW = 50° 32' L.A.

Extend seal full width of approach slab.



SECTION C-C



DETAILS OF TIMBER HEADER

Remove timber header when concrete pavement is placed.

BRIDGE APPROACH SLAB (MAJOR)

(End Bent No. 4 shown, End Bent No. 1 similar except as shown)

Detailed May 2025
Checked May 2025

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

STATE OF MISSOURI
TIMOTHY D. LEAF
NUMBER PE-2012000778
PROFESSIONAL ENGINEER
12/01/2025 11:11:26 AM
TIMOTHY D. LEAF - CIVIL
MO-PE-2012000778

DATE PREPARED: 12/1/2025

ROUTE	STATE
I-49	MO
DISTRICT	SHEET NO.
BR	15

COUNTY: VERNON

JOB NO.: JSR0064

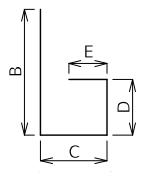
CONTRACT ID.:

PROJECT NO.:

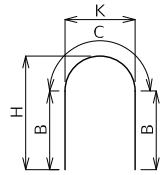
BRIDGE NO.: A17751

DESCRIPTION	DATE

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



SHAPE 6
or 6S



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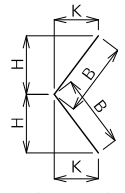

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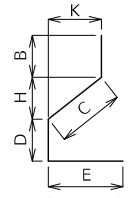

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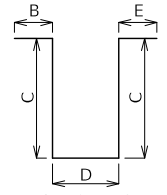
or 9S



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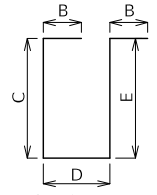
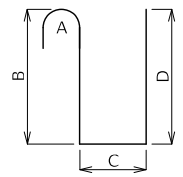
or 10S



SHAPE 11
or 11S



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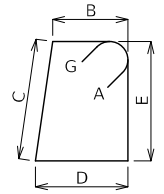

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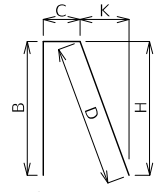

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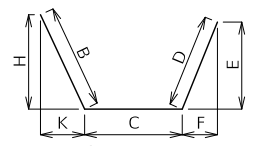

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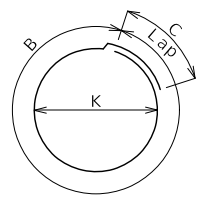

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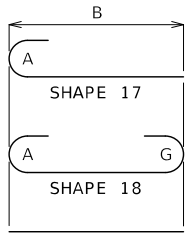
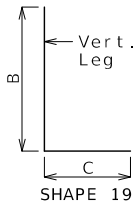


SHAPE 17
SHAPE 18
SHAPE 20



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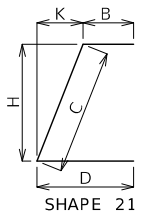

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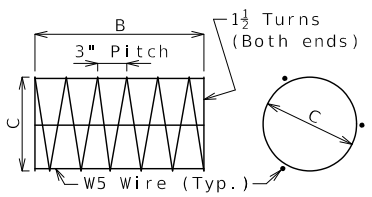
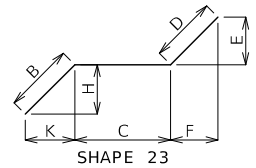
or 21S



SHAPE 22



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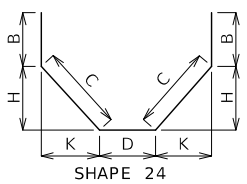

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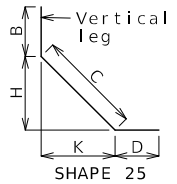

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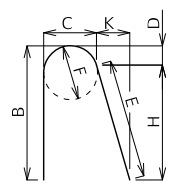
or 25S



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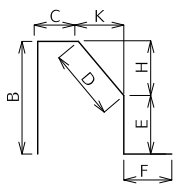

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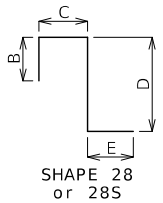

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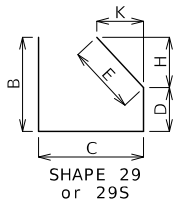

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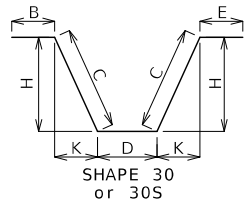

SHAPE 30
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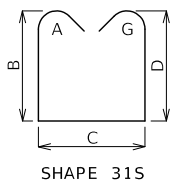

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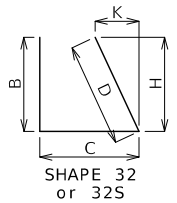

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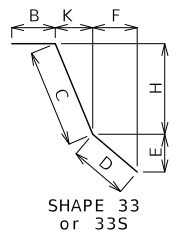

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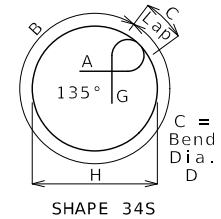

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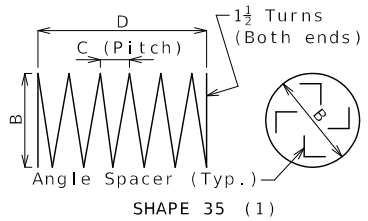
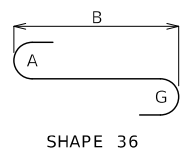


SHAPE 35 (1)

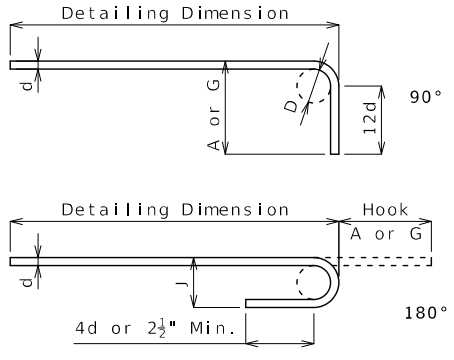


SHAPE 36

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	4¼"	12"	8¼"	6"
#7	2	5¼"	14"	9⅜"	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"

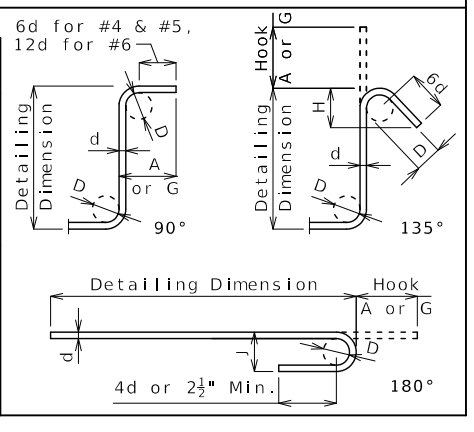


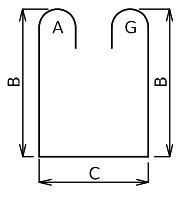
Stirrup Pin Bend Shapes (S)

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"

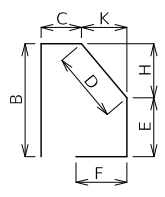
Applicable for all grades of steel.

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	
		Plain	Galv.	Slab	Barrier	Slip Form	Plain	Galv.
By Size	W5	0	0	0	0	0	0	0
	4	0	0	0	0	0	0	0
	5	0	0	2,584	3,582	0	0	6,166
	6	0	0	1,450	0	0	0	1,450
	7	0	0	0	0	0	0	0
	8	0	0	0	0	0	0	0
	9	0	0	0	0	0	0	0
	10	0	0	0	0	0	0	0
	11	0	0	0	0	0	0	0
	14	0	0	0	0	0	0	0
	18	0	0	0	0	0	0	0
By Type		0	0	4,034	3,582	0	0	7,616

All superstructure reinforcing steel shall be galvanized unless otherwise specified.

Products used to repair damaged zinc coating shall not contain aluminum.

BENDING DIAGRAMS AND REINFORCING STEEL TOTALS

Detailed May 2025
Checked May 2025

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

STATE OF MISSOURI
TIMOTHY D. LEAF
NUMBER PE-2012000778
PROFESSIONAL ENGINEER
12/01/2025 10:51:49 AM
TIMOTHY D. LEAF - CIVIL
MO-PE-2012000778

DATE PREPARED
10/7/2025

ROUTE	STATE
I-49	MO
DISTRICT	SHEET NO.
BR	16

COUNTY
VERNON

JOB NO.
JSR0064

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A17751

DESCRIPTION	DATE

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

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
		Superstructure													
		End Bent 4													
10	6 H400	DIAPHRAGM	G	20		39 6.00							39 6	39 6	610
10	6 H401	DIAPHRAGM	G	20		26 0.00							26	26	402
4	6 H402	DIAPHRAGM	G	20		8 5.00							8 5	8 5	52
2	6 H403	DIAPHRAGM	G	20		36 7.00							36 7	36 7	113
59	5 H404	DIAPHRAGM	G	20		2 6.00							2 6	2 6	159
3	6 H405	DIAPHRAGM	G	20		59 0.00							59 0	59 0	273
112	5 U400	DIAPHRAGM	G	10S			5 3.00	3 4.00					13 10	13 7	1,642
12	5 U401	DIAPHRAGM	G	10S			4 4.00	3 4.00					12	11 9	152
2	5 U402	DIAPHRAGM	G	10S			5 3.00	2 8.00					13 2	12 11	28
2	5 U403	DIAPHRAGM	G	10S			5 3.00	23.00					12 5	12 2	26
60	5 U404	DIAPHRAGM	G	19S		9.00	5 8.00						6 5	6 3	405
12	5 U405	SHEAR BLOCK	G	21S		3 3.00	2 9.00	3 3.00			21.00	2 1.50	9 3	8 6	110
4	5 U406	DIAPHRAGM	G	10S			5 3.00	4 1.00					14 7	14 4	62
		Blockout													
56	5 R1	BLOCKOUT	G	10S	8		20.00	9.75					4 2	3 11	
		Incr. = 1.375"					2 0.00	9.75					4 10	4 7	257
72	5 R2	BLOCKOUT	G	10S			2 0.00	13.50					5 2	4 10	375
48	5 R3	BLOCKOUT	G	20		5 3.00							5 3	5 3	272
8	5 R4	BLOCKOUT	G	23S		16.25	3 4.00				2.75	16.00	4 8	4 7	40
8	5 R5	BLOCKOUT	G	20		55 11.00							55 11	55 11	483
32	5 R6	BLOCKOUT	G	20		9 3.00							9 3	9 3	319
16	5 R7	BLOCKOUT	G	20		57 6.00							57 6	57 6	993
8	5 R8	BLOCKOUT	G	20		55 10.00							55 10	55 10	482
8	5 R9	BLOCKOUT	G	20		17 8.00							17 8	17 8	152
8	5 R10	BLOCKOUT	G	20		11 8.00							11 8	11 8	101
12	5 R11	BLOCKOUT	G	10S			3 4.50	11.50	12.00				8 9	8 4	108

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

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. 16.

All bars shall be Grade 60.

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

SH = Required shape, see bending diagrams.

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

Detailed May 2025
Checked May 2025

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

BILL OF REINFORCING STEEL

STATE OF MISSOURI
TIMOTHY D. LEAF
NUMBER PE-2012000778
PROFESSIONAL ENGINEER
12/01/2025 10:51:57 AM
TIMOTHY D. LEAF - CIVIL
MO-PE-2012000778

DATE PREPARED
10/7/2025

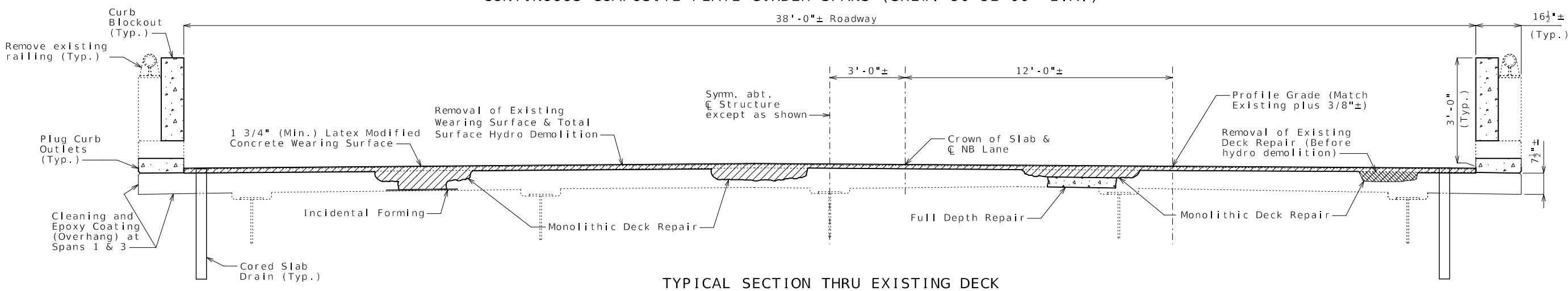
ROUTE I-49 | STATE MO
DISTRICT BR | SHEET NO. 17
COUNTY VERNON
JOB NO. JSR0064
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A17751

DESCRIPTION | DATE

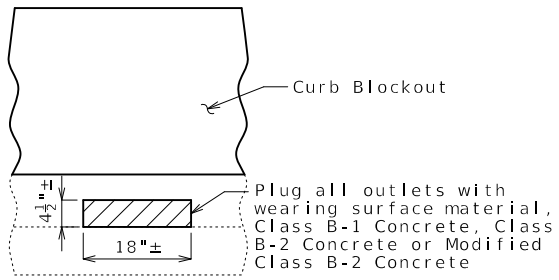
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

SEC/SUR 2/11 TWP 35N RGE 31W

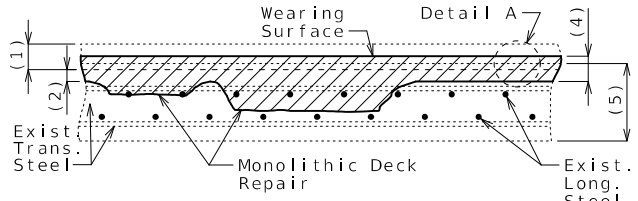
U.I.P. AND REHABILITATE EXISTING (64'-128'-64') CONTINUOUS COMPOSITE PLATE GIRDER SPANS (SKEW: 50°32'00" L.A.)



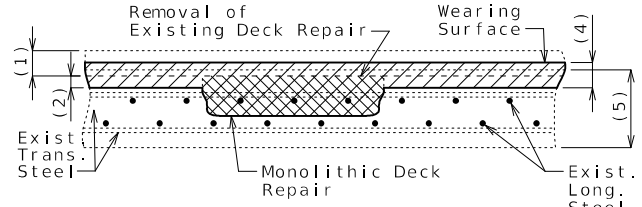
TYPICAL SECTION THRU EXISTING DECK



PART ELEVATION SHOWING PLUGGING OF CURB OUTLETS



MONOLITHIC DECK REPAIR



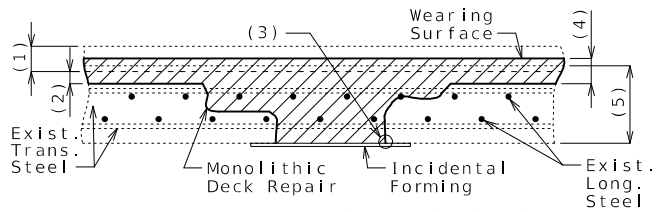
REMOVAL OF EXISTING DECK REPAIR BEFORE HYDRO DEMOLITION

Notes:

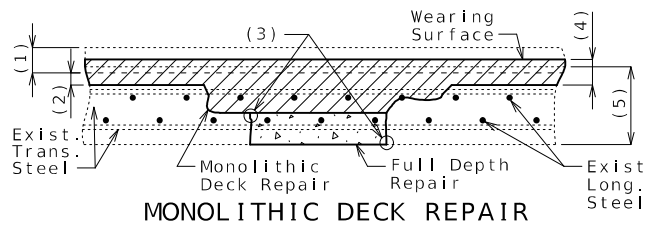
Proposed 1 3/4" Latex Modified Concrete Wearing Surface not shown for clarity.

Cost of labor and materials required to plug existing curb outlets will be considered completely covered by the contract unit price for Curb Blockout.

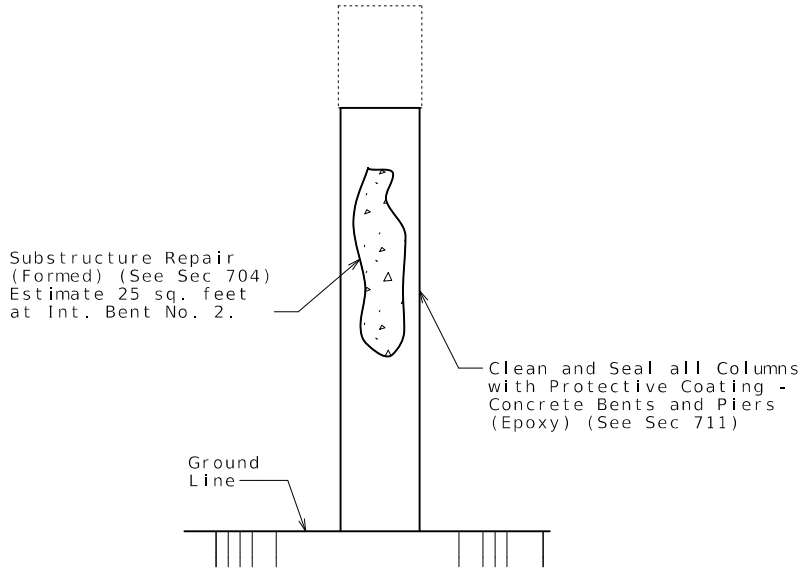
Estimated material required to fill all curb outlets is 1.1 cubic yards (for information only).



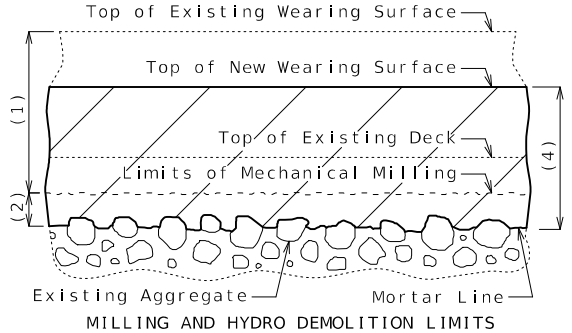
MONOLITHIC DECK REPAIR REQUIRING INCIDENTAL FORMING



MONOLITHIC DECK REPAIR REQUIRING FULL DEPTH REPAIR



TYPICAL ELEVATION OF INT. BENTS NO. 2 & 3



MILLING AND HYDRO DEMOLITION LIMITS

DETAIL A

(1) Removal of existing 3/8"± wearing surface plus 1/2" of existing deck

(2) 1/2" minimum total surface hydro demolition of sound concrete, measured to mortar line

(3) 1" vertical side shall be established outside the deteriorated area.

(4) 1 3/4" minimum Latex Modified Concrete wearing surface

(5) Original depth of deck minus previous scarification

REPAIRS TO BRIDGE: I-49 NB OVER ROUTE K

ROUTE I-49 NB FROM ROUTE E TO ROUTE 54
ABOUT 1.1 MILES SOUTH OF ROUTE 54
BEGINNING STATION 867+82.00± (Match Existing)

Detailed May 2025
Checked May 2025

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

STATE OF MISSOURI
TIMOTHY D. LEAF
NUMBER PE-2012000778
PROFESSIONAL ENGINEER
12/01/2025 10:59:44 AM
TIMOTHY D. LEAF - CIVIL
MO-PE-2012000778

DATE PREPARED 10/7/2025

ROUTE	STATE
I-49	MO
DISTRICT	SHEET NO.
BR	1

COUNTY VERNON
JOB NO. JSR0064
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A17752

DESCRIPTION | DATE

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

General Notes:

Design Specifications:

2002 AASHTO LFD (17th Ed.) Standard Specifications
Bridge Deck Rating = 5

Design Loading:

HS20-44 (1965 & New Construction)

Design Unit Stresses:

Class B-2 Concrete (Full Depth Repair & End Bent)	f'c = 4,000 psi
Class B-1 Concrete (Curb Blockout)	f'c = 4,000 psi
Reinforcing Steel (ASTM A615 Grade 60)	fy = 60,000 psi

Recoating Existing Steel:

Protective Coating: System G in accordance with Sec 1081.

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

Prime Coat: The cost of the prime coat will be considered completely covered by the contract lump sum price for Field Application of Inorganic Zinc Primer.

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

Limits of Paint Overlap: System G shall overlap the existing coating between 6 inches and 12 inches in order to achieve maximum coverage at the paint limit of each complete system. The final field coating shall be masked to provide crisp, straight lines and to prevent overspray beyond the overlap required.

Miscellaneous:

The existing vertical clearance shall be maintained during construction when Route K is open to traffic.

Lane closures on Route I-49 and Route K shall be in accordance with traffic control plans.

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

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

Roadway surfacing adjacent to bridge ends shall match new bridge wearing surface (Roadway item).

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

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

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

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

Substructure Repair:

Provide a minimum 1 1/2-inch clear cover to existing reinforcing steel when forming substructure repair at columns.

All concrete repairs shall be in accordance with Sec 704 unless otherwise noted.

Traffic Handling:

Structure to be closed during construction. See roadway plans for traffic control.

Estimated Quantities

	Item		Total
**	Removal of Miscellaneous ACM (Non-Friable)	sq. foot	28
	Total Surface Hydro Demolition	sq. yard	1083
	Removal of Asphalt Wearing Surface	sq. foot	9747
	Removal of Existing Deck Repair	sq. foot	500
	Partial Removal of Substructure Concrete	lump sum	1
	Removal of Existing Expansion Joint & Adjacent Concrete	linear foot	60
	Removal of Existing Bearings	each	5
	Remove and Replace Barrier	linear foot	9
	Bridge Approach Slab (Major)	sq. yard	170
*	Supplementary Wearing Surface Material	cu. yard	18
	Latex Modified Concrete Wearing Surface	sq. yard	1085
	Diamond Grinding	sq. yard	1085
	Class B-2 Concrete	cu. yard	72.9
	Curb Blockout	linear foot	588
	Substructure Repair (Formed)	sq. foot	50
	Full Depth Repair	sq. foot	500
	Cleaning and Epoxy Coating	sq. foot	1856
	Reinforcing Steel (Galvanized)	pounds	4030
	Protective Coating - Concrete Bents and Piers (Epoxy)	lump sum	1
	Drainage System (On Structure)	lump sum	1
	Surface Preparation for Recoating Structural Steel	sq. foot	1500
	Field Application of Inorganic Zinc Primer	sq. foot	1500
	Intermediate Field Coat (System G)	sq. foot	1500
	Finish Field Coat (System G)	sq. foot	1500
	Cored Slab Drains	each	37
	Vertical Drain at End Bents	each	2
	Laminated Neoprene Bearing Pad Assembly	each	5
	Misc. Installation of Bearings (pre-owned)	each	5

* Supplementary wearing surface material will be paid for at the fixed unit price in accordance with Sec 109.

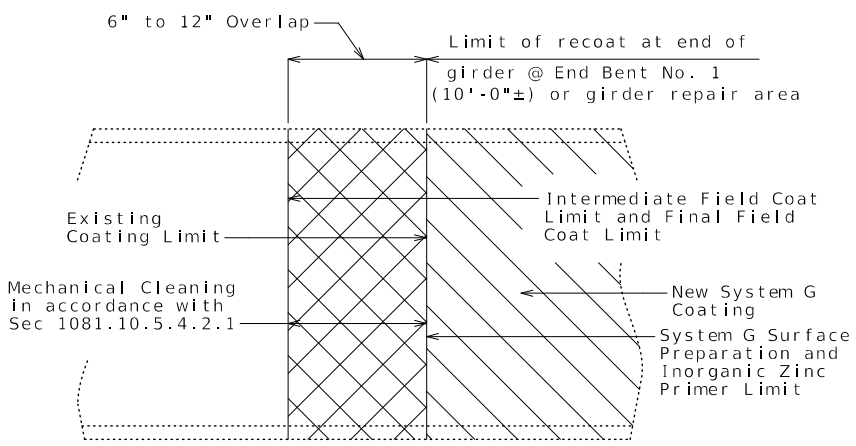
** Cost of removal of aluminum tube railing will be considered completely covered by the contract unit price for Removal of Miscellaneous ACM (Non-Friable).

STATE OF MISSOURI
TIMOTHY D. LEAF
NUMBER PE-2012000778
PROFESSIONAL ENGINEER
12/01/2025 10:59:53 AM
TIMOTHY D LEAF - CIVIL
MO-PE-2012000778

DATE PREPARED: 10/7/2025
ROUTE: I-49 | STATE: MO
DISTRICT: BR | SHEET NO.: 2
COUNTY: VERNON
JOB NO.: JSR0064
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: A17752

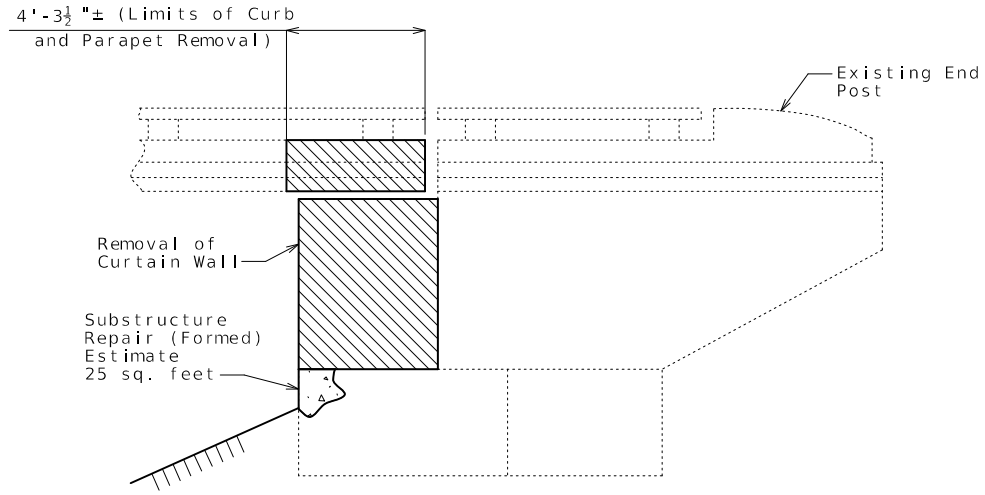
DESCRIPTION | DATE

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



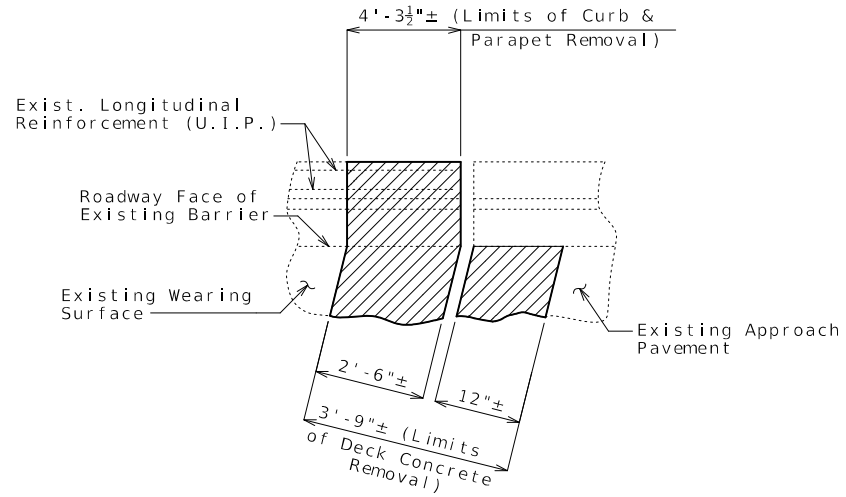
PART ELEVATION SHOWING
LIMITS OF PAINT OVERLAP

(Vertical or horizontal paint limit.
Horizontal limit shown)



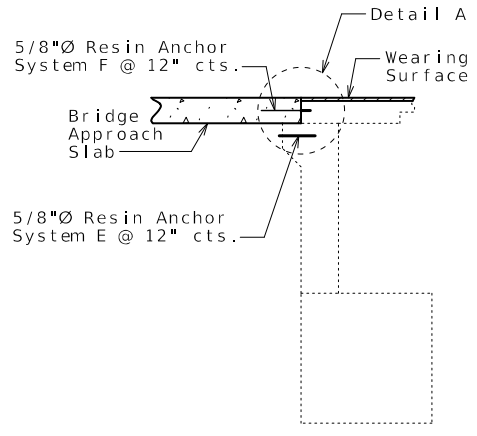
TYPICAL ELEVATION AT
END BENT NO. 4

Barrier end post and aluminum tube
railing removal and proposed curb
blockout not shown for clarity.

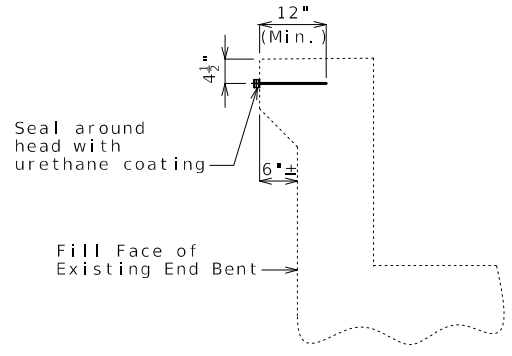


PART PLAN SHOWING
PARTIAL CONCRETE REMOVAL
AT END BENT NO. 4

Existing expansion device
armor not shown for clarity

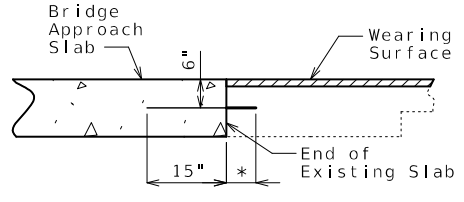


TYPICAL SECTION THRU
END BENT NO. 1



DETAIL OF RESIN
ANCHOR SYSTEM E

(58 req'd per End Bent)



DETAIL A SHOWING RESIN
ANCHOR SYSTEM F

(59 req'd)

* Manufacturer's recommended
embedment length (5" minimum)

Notes:

Resin Anchor System E shall be a 5/8"Ø threaded rod with flat washer and two heavy hex nuts (burr threads to prevent loosening). All hardware for Resin Anchor System E shall be galvanized in accordance with ASTM A153.

A galvanized #5 Grade 60 reinforcing bar shall be substituted for the 5/8"Ø threaded rod for Resin Anchor System F.

The contractor shall use one of the qualified Resin Anchor Systems in accordance with Sec 1039.

Cost of furnishing and installing Resin Anchor Systems E and F, complete in place, will be considered completely covered by the contract unit price for Class B-2 Concrete.

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

The removal of existing deck concrete will be considered completely covered by the contract unit price for Removal of Existing Expansion Joint and Adjacent Concrete.

The removal of existing curtain walls will be considered completely covered by the contract unit price for Partial Removal of Substructure Concrete.

Vertical backwall and curtain wall reinforcement to be cut off one inch below concrete removal surface and the resulting holes shall be filled with a qualified special mortar.

A smooth, level surface shall be provided at Bents No. 4 removal lines.

The removal of existing curb, parapet, and rails as shown will be considered completely covered by the contract price for Remove and Replace Barrier.

STATE OF MISSOURI
TIMOTHY D. LEAF
NUMBER PE-2012000778
PROFESSIONAL ENGINEER
12/01/2025 11:00:02 AM
TIMOTHY D. LEAF - CIVIL
MO-PE-2012000778

DATE PREPARED
10/7/2025

ROUTE	STATE
I-49	MO
DISTRICT	SHEET NO.
BR	3

COUNTY
VERNON

JOB NO.
JSR0064

CONTRACT ID.

PROJECT NO.

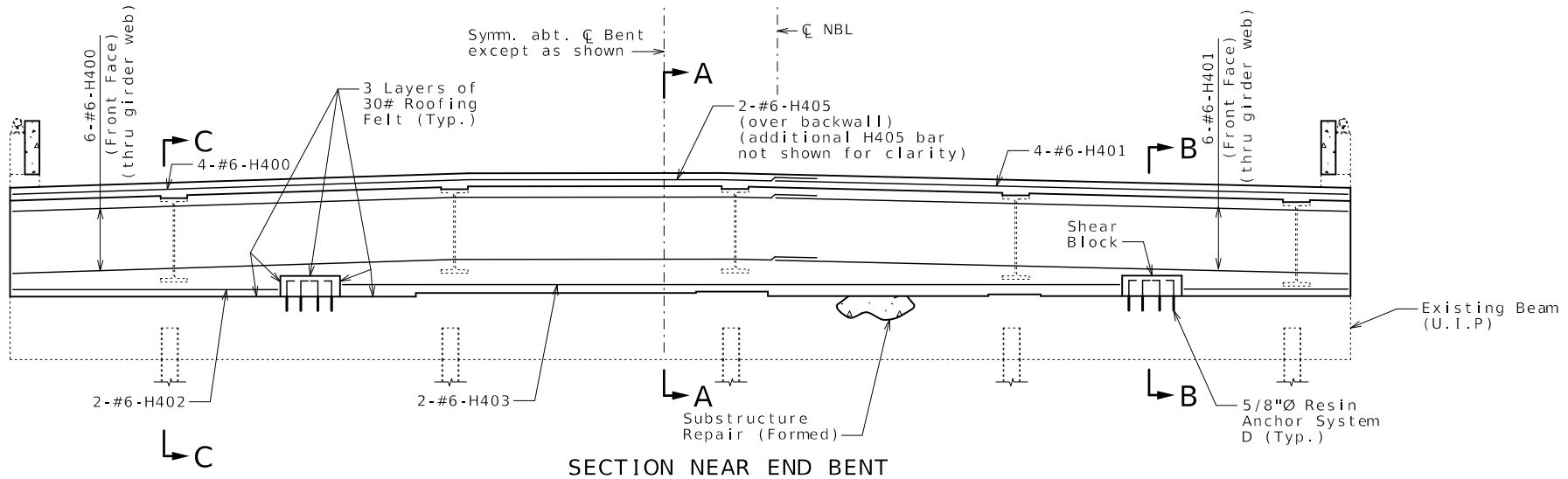
BRIDGE NO.
A17752

DESCRIPTION	DATE

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

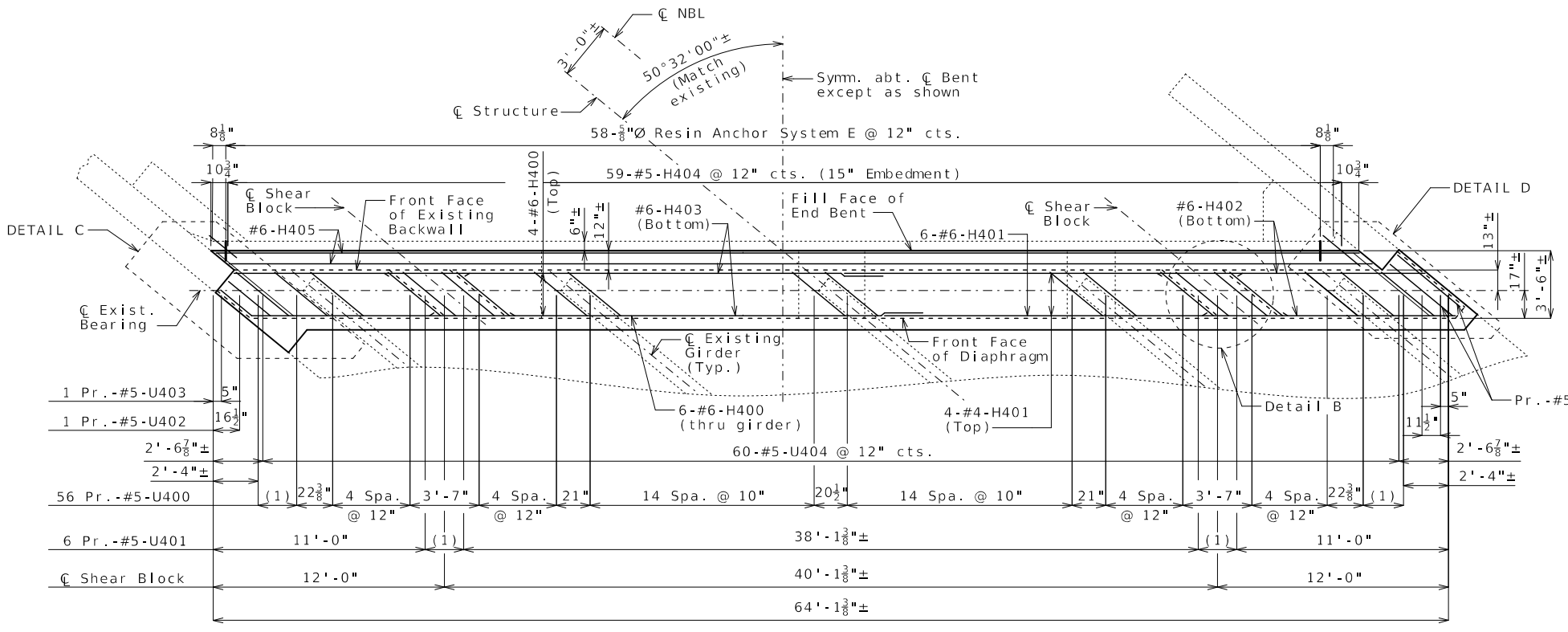
Detailed May 2025
Checked May 2025

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



SECTION NEAR END BENT

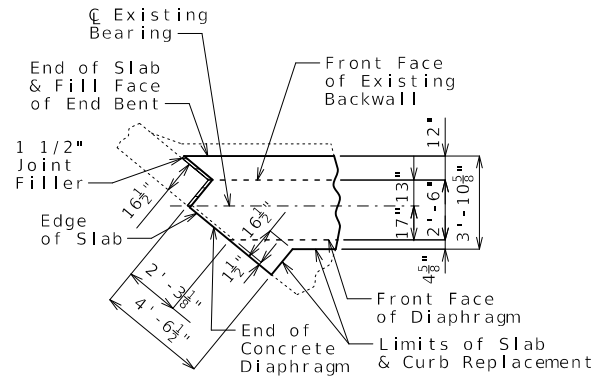
U bars and slab reinforcement not shown for clarity.



(1) 2 Spa. @ 12"

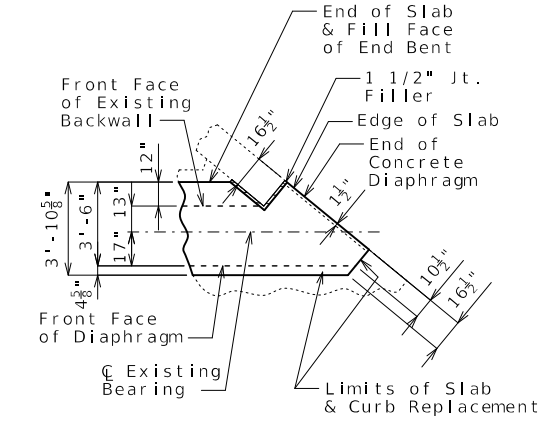
PART PLAN

Slab reinforcement and resin anchors not shown for clarity.
Above dimensions taken along ℄ of existing bearing
from outside face of proposed slab.



DETAIL C

All dimensions are plus/minus.



DETAIL D

All dimensions are plus/minus.

Notes:

Work this Sheet with Sheet No. 5.

The exposed and accessible surface of the existing structural steel and bearing that will be encased in concrete shall be cleaned with a minimum of SSPC-SP-3 surface preparation and coated with a minimum of one coat of gray epoxy-mastic primer (non-aluminum) in accordance with Sec 1081 to produce a dry fill thickness of not less than 3 mils before concrete is poured. The surface preparation and coating for girders shall extend a minimum of one foot outside the face of the beam encasement. Payment for cleaning and coating steel to be encased in concrete will be considered completely covered by the contract unit price for Class B-2 Concrete.

The #6-H400 bars are lapped with the #6-H401 bars with a minimum lap of 3'-1". The contractor may use a mechanical bar splice in lieu of a lap splice. When a mechanical bar splice is used, the actual bar segment length will be determined by the contractor to accommodate manufacturer's recommendations for installation and ease of construction. The cost of furnishing and installing the bar splices will be considered completely covered by the contract unit price for Reinforcing Steel (Galvanized). No adjustment of the quantity of reinforcing steel will be allowed for the use of mechanical bar splices.

Cost of field drilling holes in existing plate girder webs will be considered completely covered by the contract unit price for Class B-2 Concrete.

END BENT NO. 4

Detailed May 2025
Checked May 2025

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

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NUMBER PE-2012000778
PROFESSIONAL ENGINEER
12/01/2025 11:00:10 AM
TIMOTHY D LEAF - CIVIL
MO-PE-2012000778

DATE PREPARED
10/7/2025

ROUTE	STATE
I-49	MO
DISTRICT	SHEET NO.
BR	4

COUNTY
VERNON

JOB NO.
JSR0064

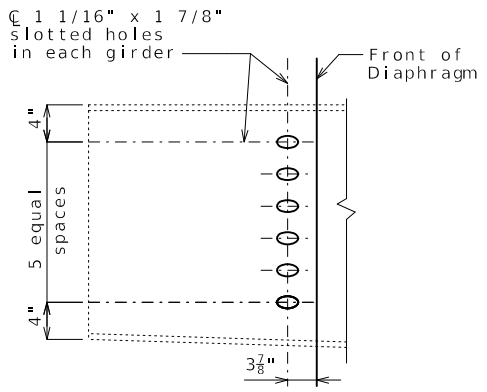
CONTRACT ID.

PROJECT NO.

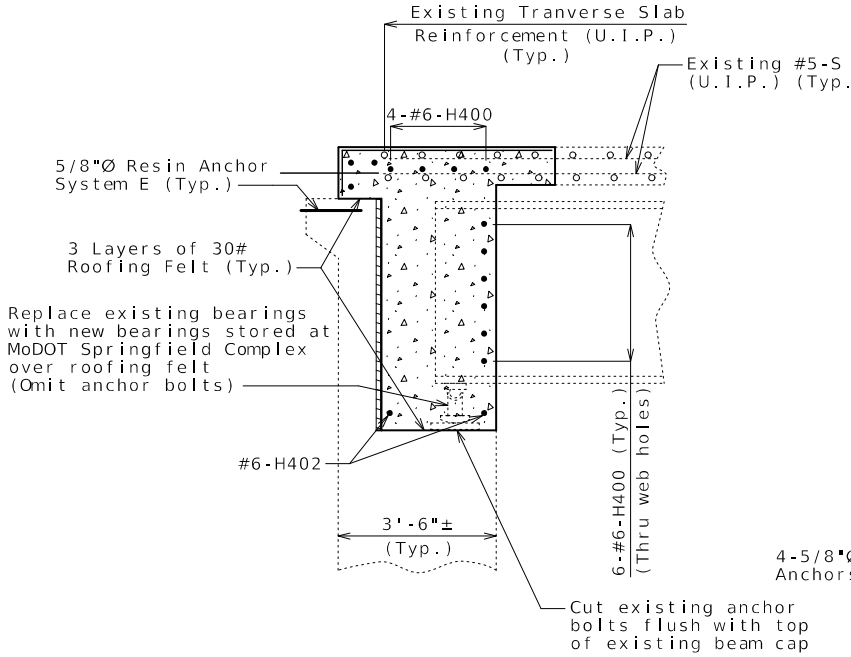
BRIDGE NO.
A17752

DESCRIPTION	DATE

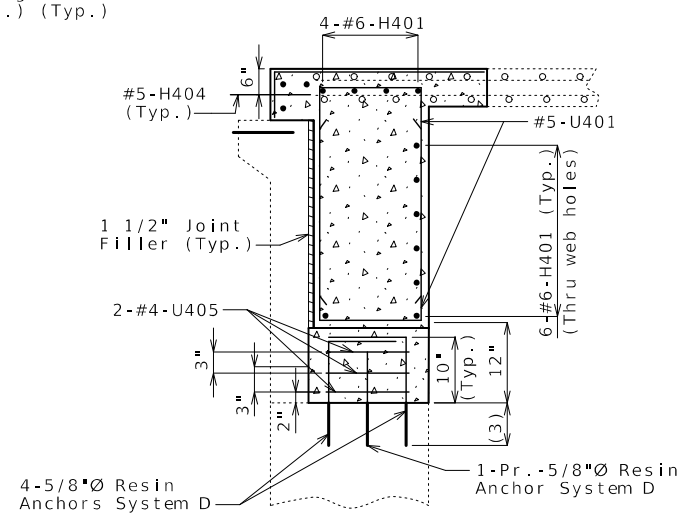
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)



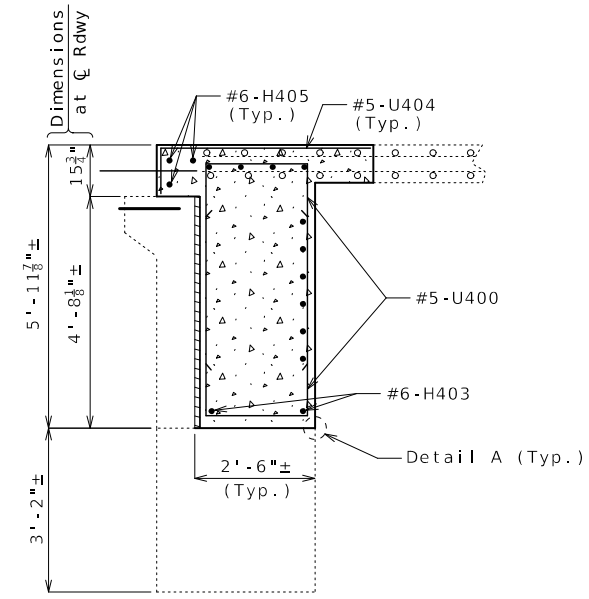
DETAIL OF WEB HOLES
AT END BENTS



SECTION C-C

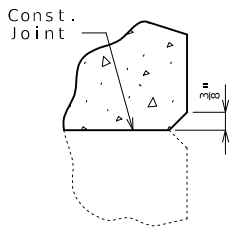


SECTION B-B

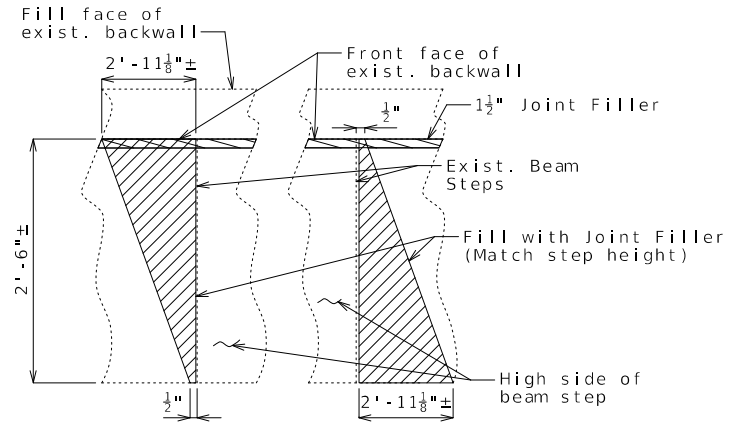


SECTION A-A

Note: All work to remove existing bearings and install new bearings to be considered completely covered by the contract unit price for Misc. Installation of Bearings (pre-owned).



DETAIL A



DETAIL C
JOINT FILLER
AT BEAM STEPS

Notes:

Work this sheet with Sheet No. 4.

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

Cost of furnishing and installing the resin anchor system D, complete in place, will be considered completely covered by the contract unit price for Class B-2 Concrete.

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

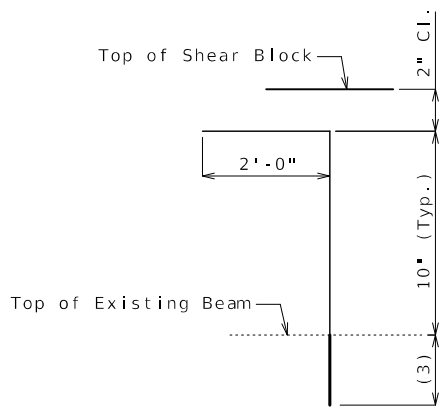
A galvanized #5 Grade 60 reinforcing bar shall be substituted for the 5/8" Ø threaded rod for Resin Anchor System D.

The U bars and H404 bars shall be placed parallel to centerline of roadway.

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

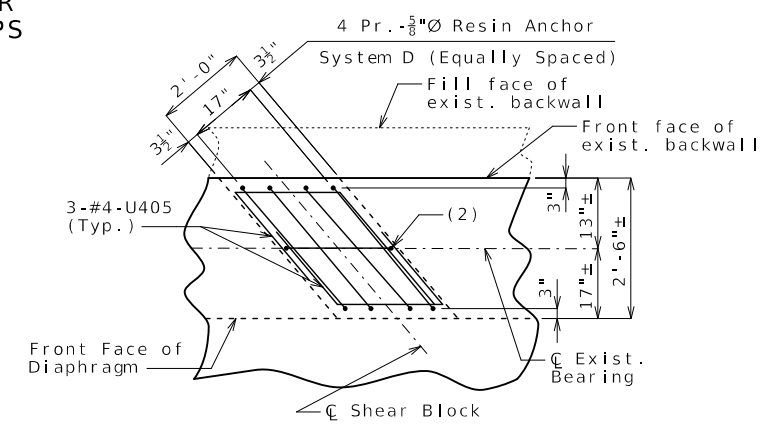
For details of bridge approach slab, see Sheet No. 13.

For details of resin anchor system E, see Sheet No. 3.



DETAILS OF RESIN
ANCHOR SYSTEM D

(20 Req'd.)



DETAIL B

(2) Pr.-5/8"Ø Resin Anchors System D

(3) Manufacturer's recommended embedment length (5" min.)

END BENT NO. 4

Detailed May 2025
Checked May 2025

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

STATE OF MISSOURI
TIMOTHY D. LEAF
NUMBER PE-2012000778
PROFESSIONAL ENGINEER
12/01/2025 11:00:18 AM
TIMOTHY D LEAF - CIVIL
MO-PE-2012000778

DATE PREPARED
10/7/2025

ROUTE	STATE
I-49	MO
DISTRICT	SHEET NO.
BR	5

COUNTY
VERNON

JOB NO.
JSR0064

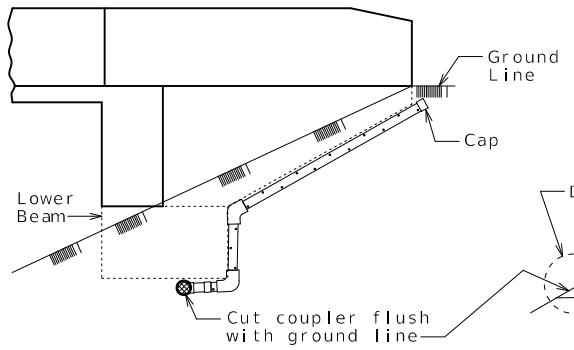
CONTRACT ID.

PROJECT NO.

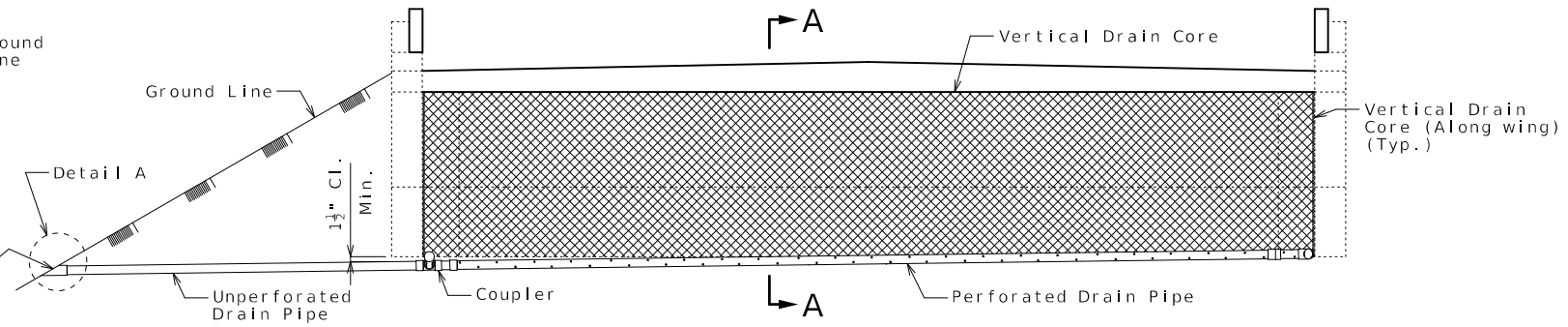
BRIDGE NO.
A17752

DESCRIPTION	DATE

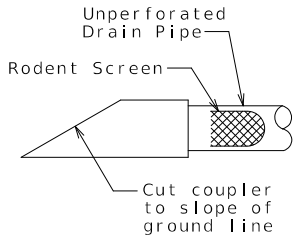
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)



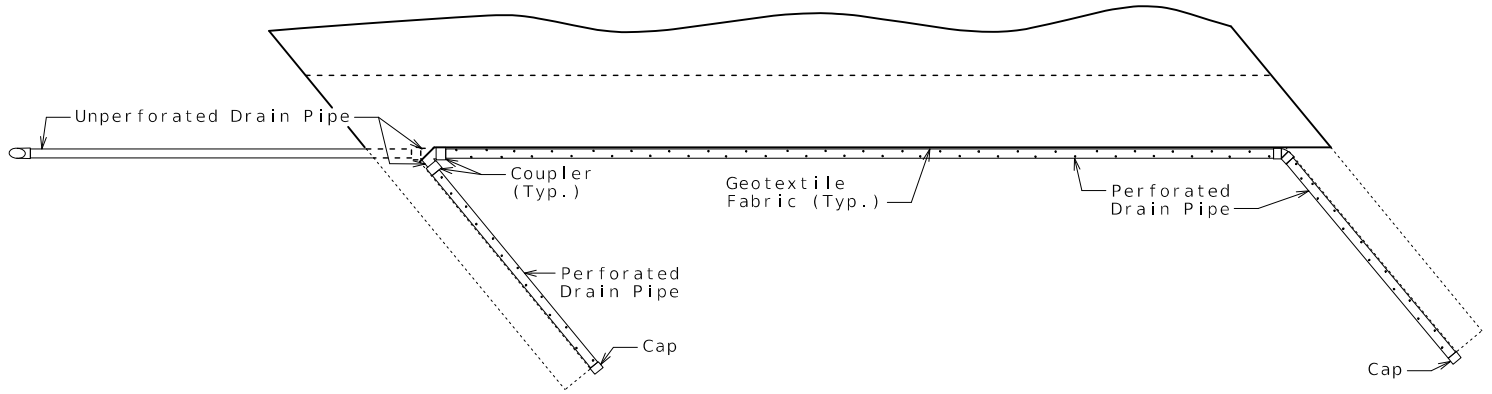
ELEVATION OF WING



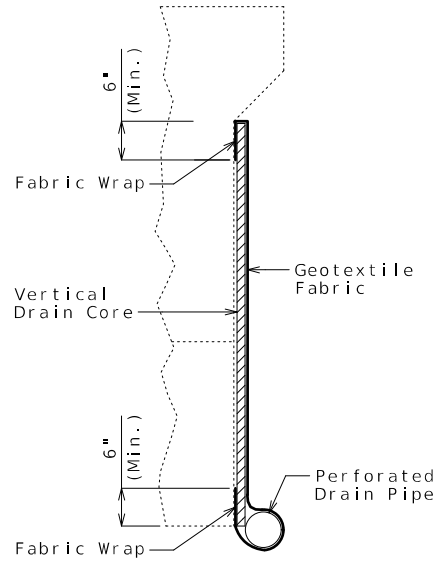
ELEVATION OF END BENT



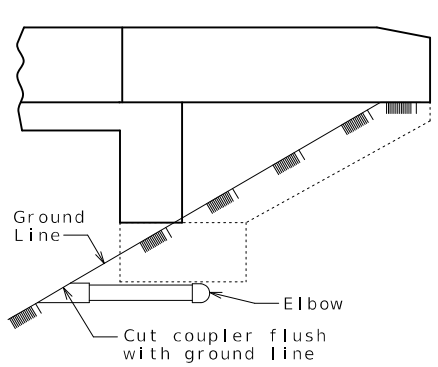
DETAIL A



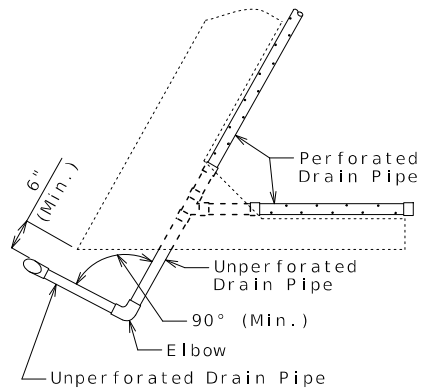
PLAN OF END BENT



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

End Bent No. 4 shown, End Bent No. 1 similar.

Detailed May 2025
Checked May 2025

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

STATE OF MISSOURI
TIMOTHY D. LEAF
NUMBER PE-2012000778
PROFESSIONAL ENGINEER
12/01/2025 11:00:26 AM
TIMOTHY D LEAF - CIVIL
MO-PE-2012000778

DATE PREPARED: 10/7/2025

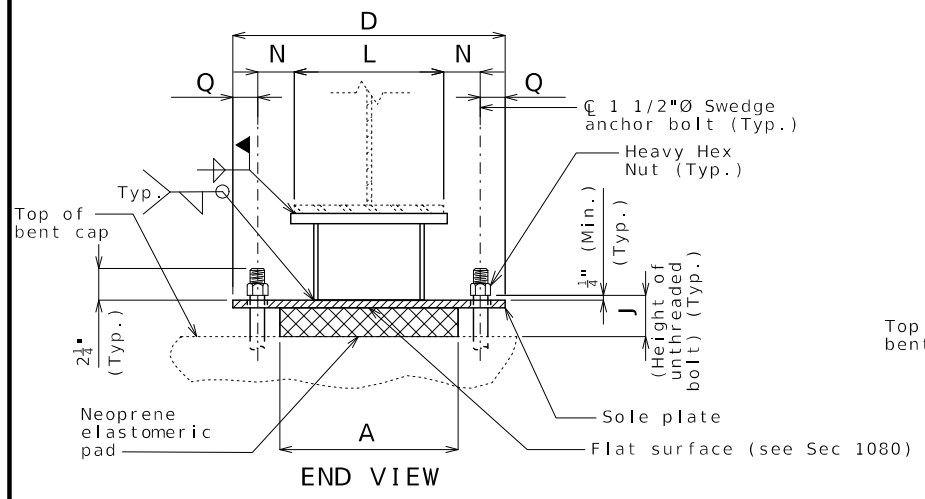
ROUTE	STATE
I-49	MO

DISTRICT	SHEET NO.
BR	6

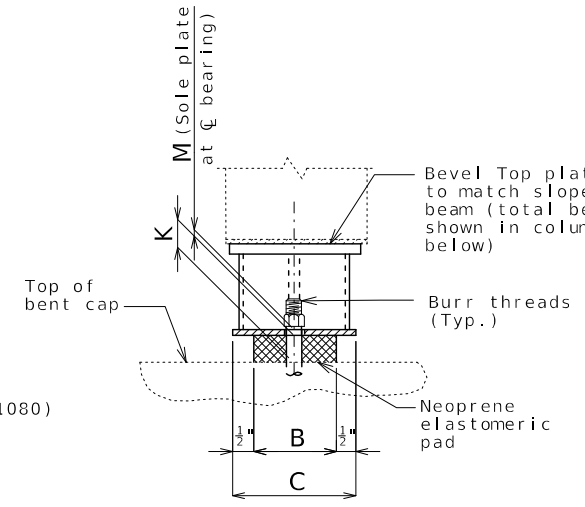
COUNTY: VERNON
JOB NO.: JSR0064
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: A17752

DESCRIPTION	DATE

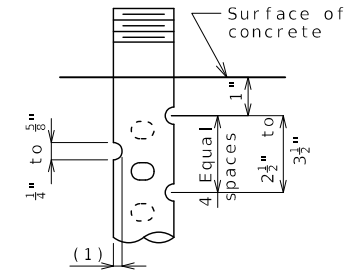
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)



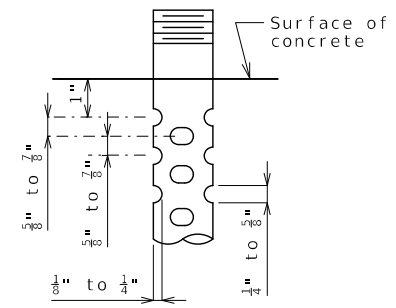
END VIEW



SIDE VIEW



DETAIL OF 3/4"Ø THRU 2 1/2"Ø ANCHOR BOLTS

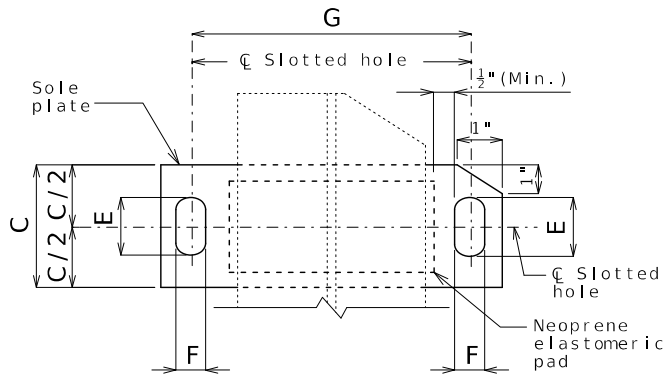


OPTIONAL DETAIL OF 1 3/8"Ø THRU 2 1/2"Ø ANCHOR BOLTS

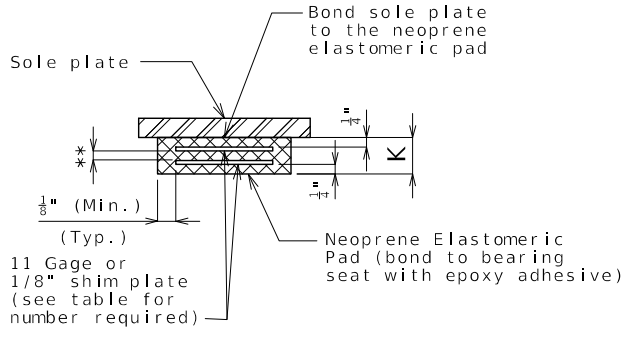
SWEDGE ANCHOR BOLT DETAILS

(1) 1/8" for 3/4"Ø thru 1 1/4"Ø anchor bolts

1/8" to 1/4" for 1 3/8"Ø thru 2 1/2"Ø anchor bolts

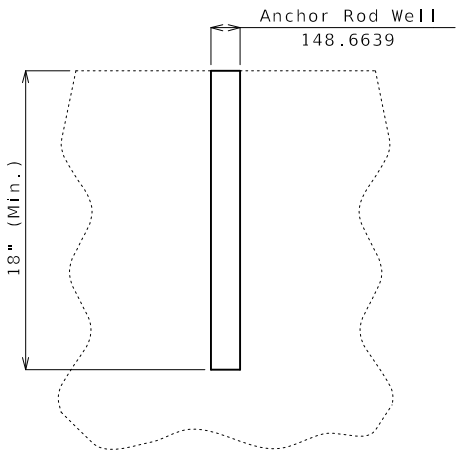


PART PLAN

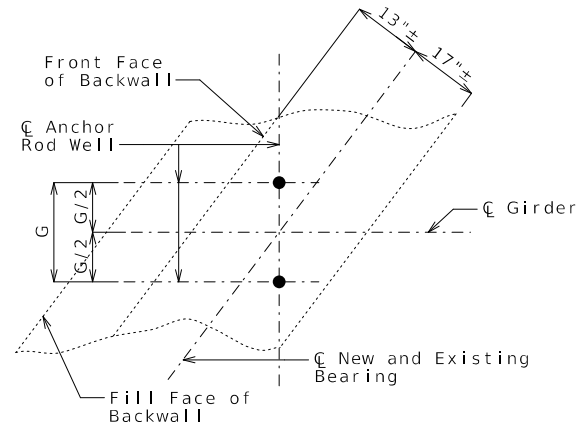


** Layers of 1/2" elastomer alternating with 11 gage or 1/8" shim plate

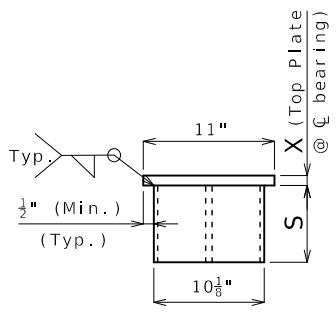
NEOPRENE ELASTOMERIC PAD



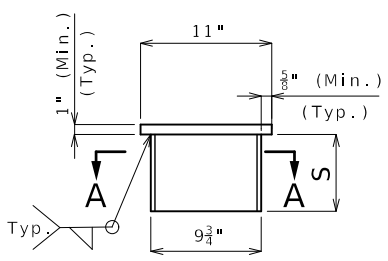
DETAIL OF ANCHOR ROD WELLS



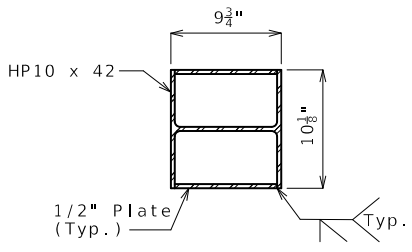
PLAN OF EXISTING END BENT NO. 1 BENT SHOWING ANCHOR RODS



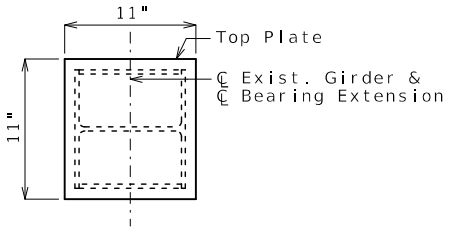
SIDE ELEVATION OF BEARING EXTENSION



END ELEVATION OF BEARING EXTENSION



SECTION A-A



PLAN OF BEARING EXTENSION

GENERAL NOTES:

Anchor bolts shall be 1 1/2"Ø ASTM F1554 Grade 55 swedged bolts and shall extend 18" into the concrete with ASTM A563 Grade A Heavy Hex nuts. Actual manufacturer's certified mill test reports(chemical and mechanical) shall be provided. Swedging shall be 1" less than extension into the concrete.

Anchor bolt shall be at the centerline of slotted hole at 60°F. Bearing position shall be adjusted R for each 10° fall or rise in temperature at installation.

Anchor bolts and heavy hex nuts shall be coated with a minimum of two coats of inorganic zinc primer to provide a total dry film thickness of 4 mils minimum, 6 mils maximum, or galvanized in accordance with Sec 1081.

Neoprene Elastomeric Pads shall be 60 Durometer.

Structural steel for sole plate and all bearing extension steel shall be ASTM A709 Grade 50 and shall be coated with a minimum of two coats of inorganic zinc primer to provide a total dry film thickness of 4 mils minimum, 6 mils maximum.

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

Cost of bearing extension, complete in place, will be considered completely covered by the contract unit price for Laminated Neoprene Bearing Pad Assembly.

An equivalent sized W shape may be substituted for the HP10x42 or equivalent size plates may be welded together.

The required temporary support at End Bent No. 1 shall be capable of safely supporting a service load of 34 kips/girder (factor of safety not included). This load includes the dead load and a construction load of 50 psf.

EXPANSION BEARINGS

BENT NO.	A	B	C	D	E	F	G	J	K	L	M	N	P	Q	R	S	X	NUMBER OF SHIM PLATES *	NUMBER REQUIRED
BENT NO. 1	11"	11"	12"	19 1/2"	4 1/8"	1 3/8"	15"	3 3/8"	1 7/8"	10"	1 1/2"	2 1/2"	3/8"	2 1/4"	1/16"	7 9/16"	1 5/16"	3	5
																		TOTAL BEARINGS	5

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

LAMINATED NEOPRENE BEARING PAD ASSEMBLY

STATE OF MISSOURI
TIMOTHY D. LEAF
NUMBER PE-2012000778
PROFESSIONAL ENGINEER
12/01/2025 11:00:33 AM
TIMOTHY D LEAF - CIVIL
MO-PE-2012000778

DATE PREPARED 10/7/2025

ROUTE	STATE
I-49	MO
DISTRICT	SHEET NO.
BR	7

COUNTY VERNON

JOB NO. JSR0064

CONTRACT ID.

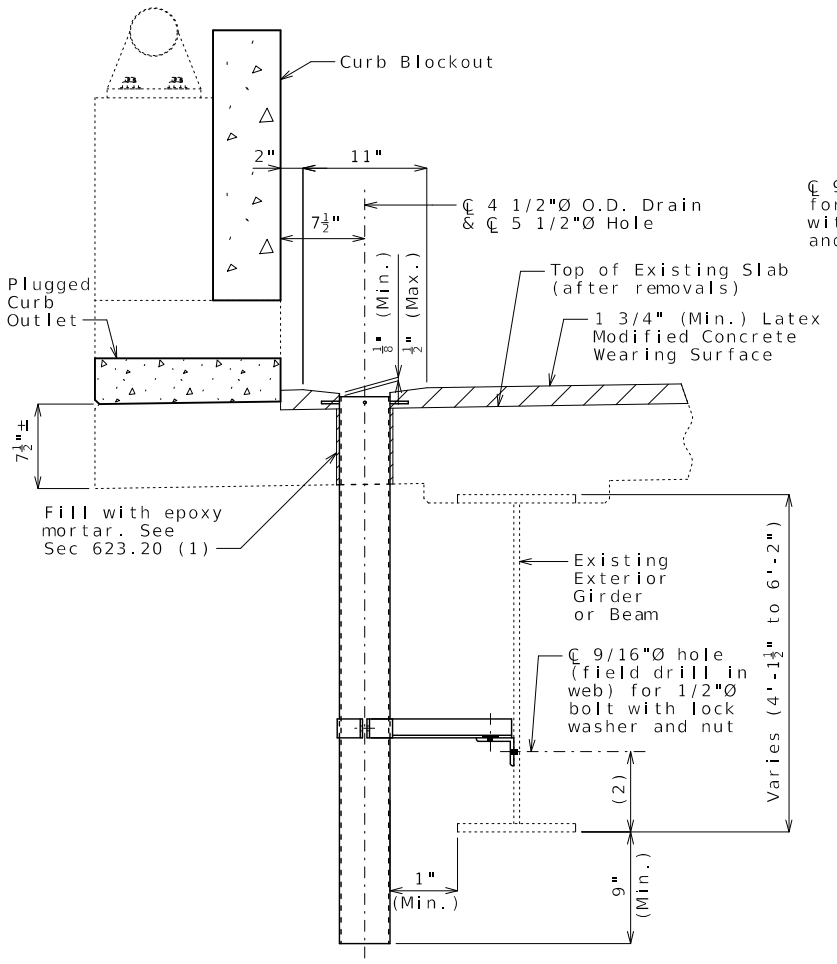
PROJECT NO.

BRIDGE NO. A17752

DESCRIPTION

DATE

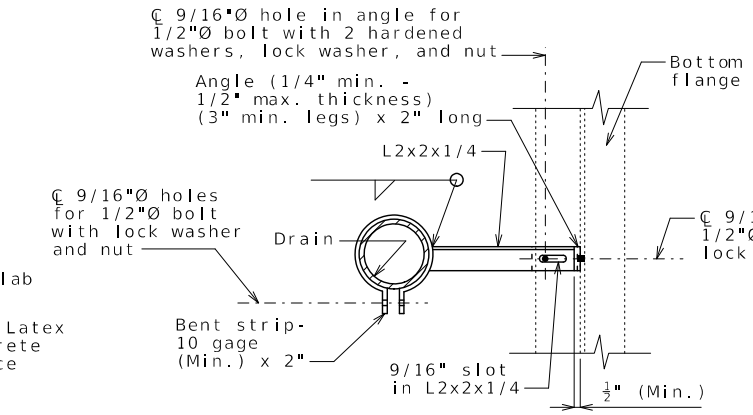
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)



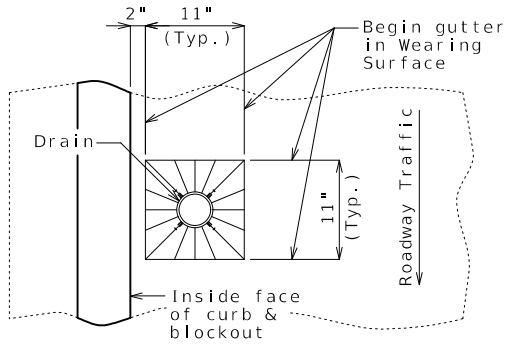
(1) Use backer rod around drain @ bottom of slab and epoxy inject from the top.

(2) Varies (8"-12"). Adjust to avoid longitudinal stiffener.

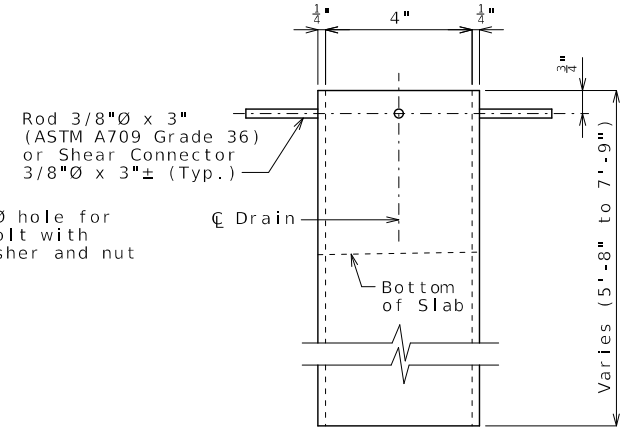
PART SECTION NEAR DRAIN



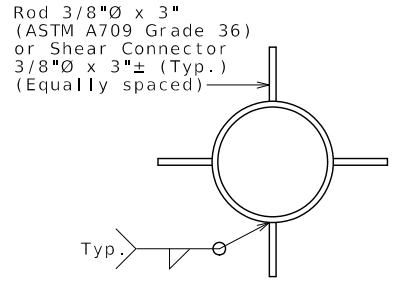
PART SECTION SHOWING BRACKET ASSEMBLY



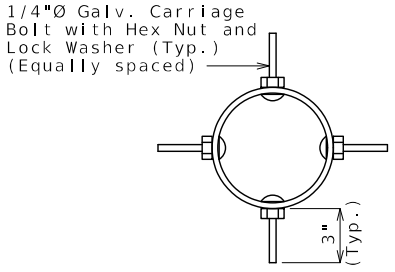
PART PLAN OF SLAB AT DRAIN



ELEVATION OF DRAIN



PLAN OF DRAIN



PLAN OF OPTIONAL FRP DRAIN

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.

The 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 M232 (ASTM A153), Class C.

All 1/2-inch diameter bolts shall be ASTM A307, except as noted.

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

Cost of cored slab drains, complete in place, will be considered completely covered by the contract unit price for Cored Slab Drain per each.

Holes for slab drains shall be cored. Percussion drilling will not be permitted.

Slab drain locations may be shifted the minimum extent necessary to avoid slab reinforcement and to allow for field drilling bolt hole in web of existing beam for bracket assembly attachment.

Cored slab drains shall be placed vertically.

For details of plugging existing curb outlets, see Sheet No. 1.

Notes for Steel Drain:

Slab drains shall be fabricated from 1/4-inch structural steel tubing ASTM A500 or A501.

The drains shall be galvanized in accordance with ASTM A123.

Drains shall be inserted through slab such that damage to galvanized coating is minimized.

Notes for FRP Drain:

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

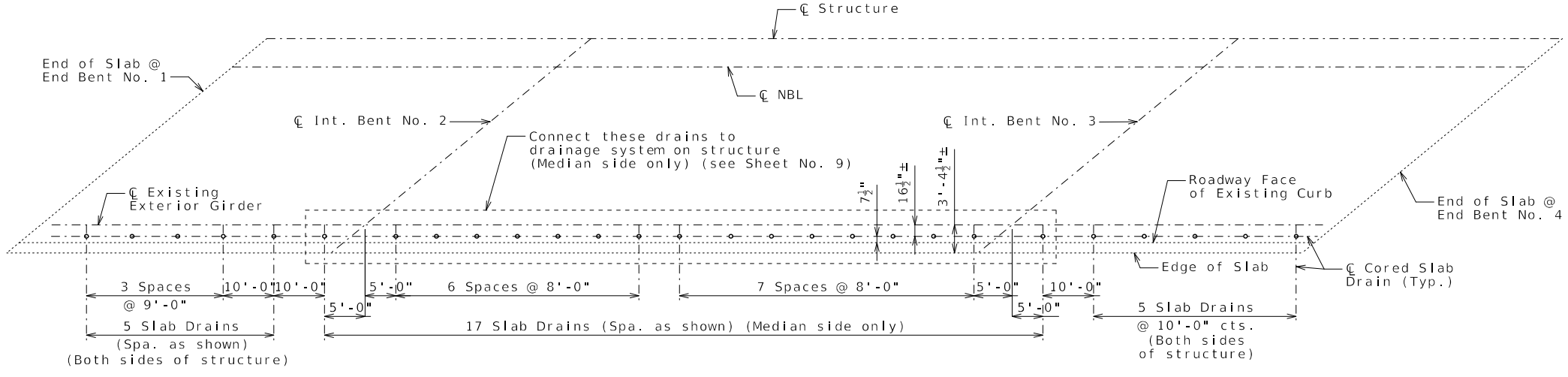
Minimum reinforced wall thickness shall be 1/4 inch.

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. Care shall be taken to avoid damage to exterior coating during installation.

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 drains shall be as recommended by the manufacturer to ensure a smooth, chip-free cut.



PART PLAN SHOWING CORED SLAB DRAIN LOCATIONS

CORED SLAB DRAINS

Detailed May 2025
Checked May 2025

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

STATE OF MISSOURI
TIMOTHY D. LEAF
NUMBER PE-2012000778
PROFESSIONAL ENGINEER
12/01/2025 11:00:41 AM
TIMOTHY D LEAF - CIVIL
MO-PE-2012000778

DATE PREPARED
10/7/2025

ROUTE	STATE
I-49	MO
DISTRICT	SHEET NO.
BR	8

COUNTY
VERNON

JOB NO.
JSR0064

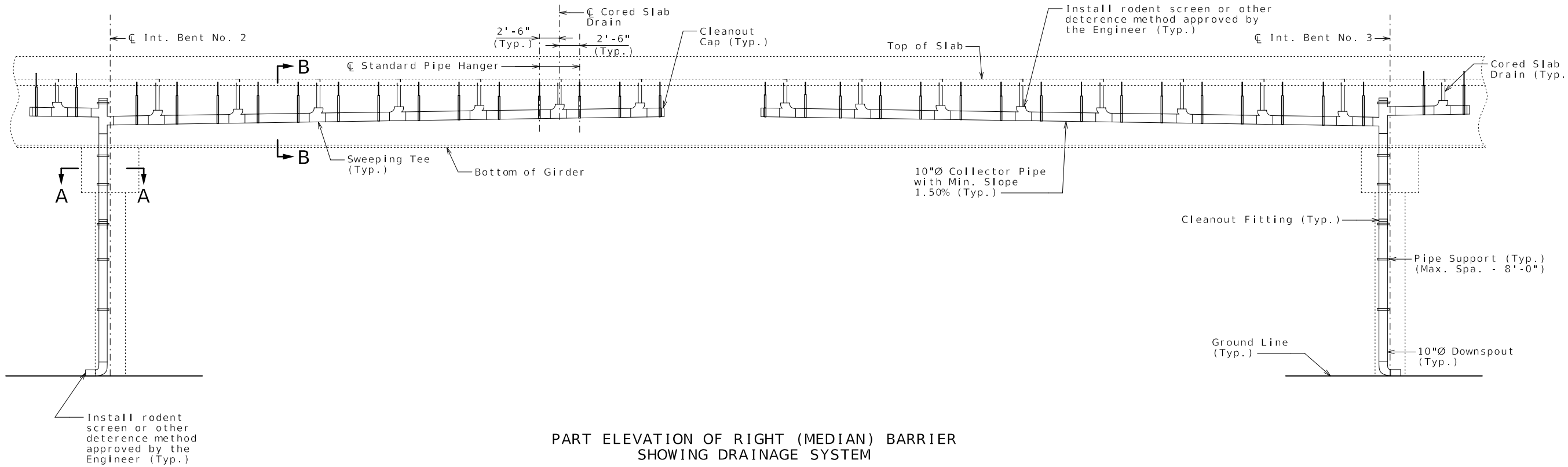
CONTRACT ID.

PROJECT NO.

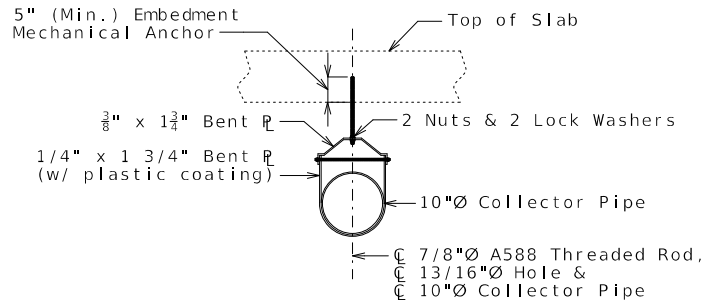
BRIDGE NO.
A17752

DATE	DESCRIPTION

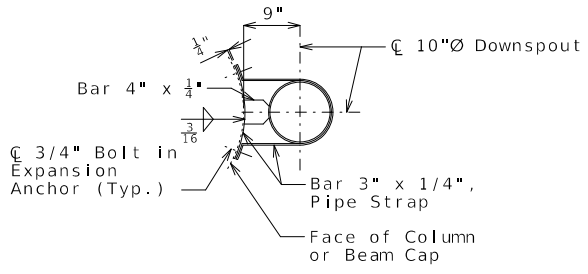
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)



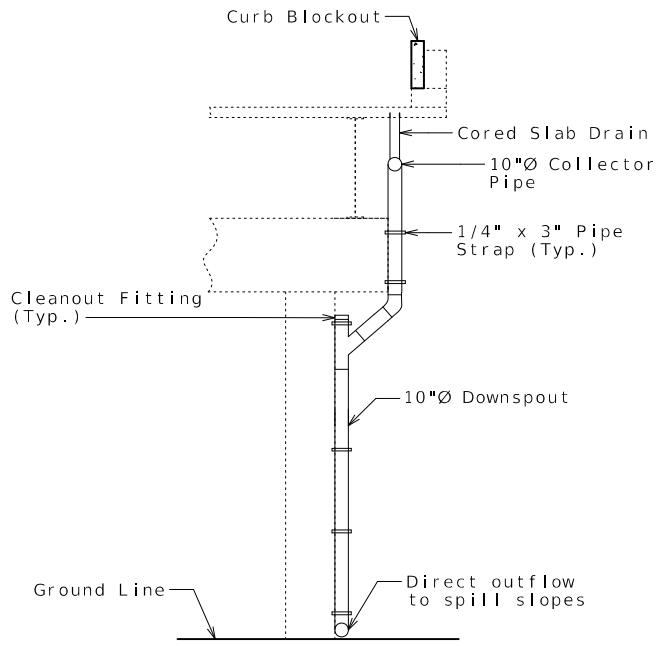
PART ELEVATION OF RIGHT (MEDIAN) BARRIER
SHOWING DRAINAGE SYSTEM



SECTION B-B



SECTION A-A



PART ELEVATION OF MEDIAN END
OF INT. BENT NO. 3

(Int. Bent No. 2 similar)

Notes:

Standard Pipe Hangers shall be placed along ℄ 10"Ø Collector Pipe, offset 16 1/2"± from ℄ Exterior Girder and spaced longitudinally as shown in Elevation.

For materials and construction requirements of Drainage System, see Job Special Provisions.

For location of slab drains see Sheet No. 8.

DRAINAGE SYSTEM ON STRUCTURE

Detailed May 2025
Checked May 2025

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

STATE OF MISSOURI
TIMOTHY D. LEAF
NUMBER PE-2012000778
PROFESSIONAL ENGINEER
12/01/2025 11:00:45 AM
TIMOTHY D LEAF - CIVIL
MO-PE-2012000778

DATE PREPARED
10/7/2025

ROUTE	STATE
I-49	MO
DISTRICT	SHEET NO.
BR	9

COUNTY
VERNON

JOB NO.
JSR0064

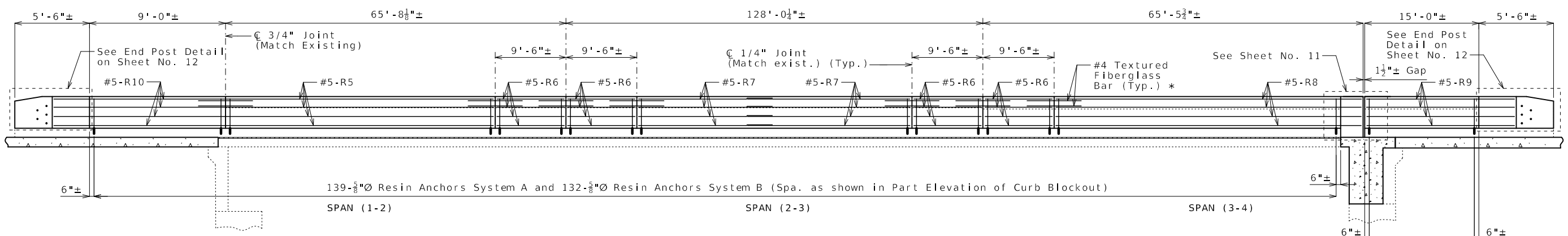
CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A17752

DESCRIPTION	DATE

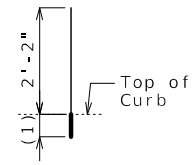
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)



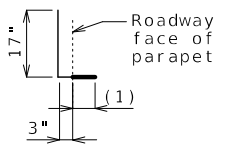
ELEVATION OF LEFT CURB BLOCKOUT

(Right curb blockout similar)

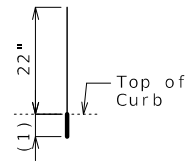
Longitudinal dimensions are along grade and are taken at top outside edge of parapet.



RESIN ANCHOR SYSTEM A
(292 req'd)
(Install in curb)



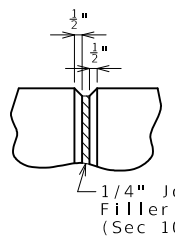
RESIN ANCHOR SYSTEM B
(280 req'd)
(Install in parapet)



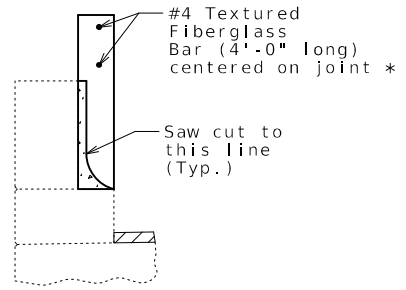
RESIN ANCHOR SYSTEM C
(64 req'd)
(Install in curb at end post)

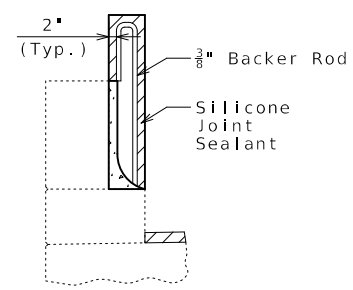
(1) Manufacturer's recommended embedment length (5 inches minimum).

DETAILS OF RESIN ANCHORS

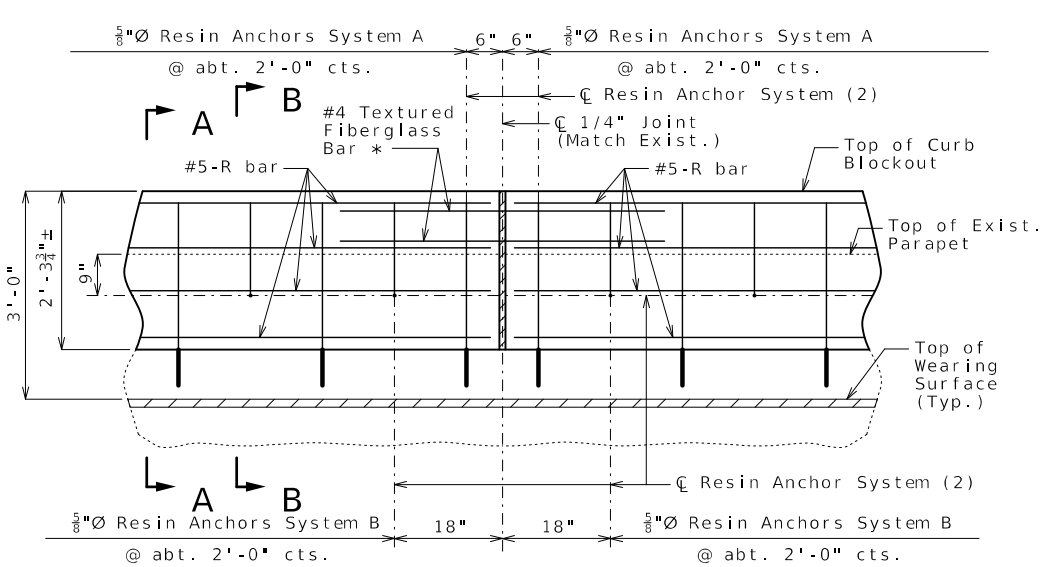


PART ELEVATION AT FORMED JOINT

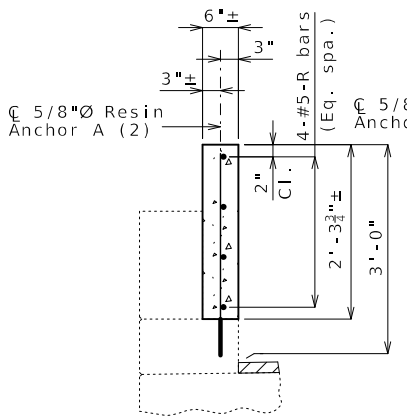




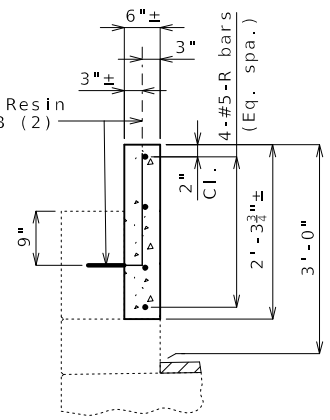
SECTION THRU SAW CUT JOINT



PART ELEVATION OF CURB BLOCKOUT



SECTION A-A



SECTION B-B

CURB BLOCKOUT

Notes:

* Slip-formed option only.

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

Bridge rail not shown for clarity.

Concrete in curb blockout shall be Class B-1.

Measurement of curb blockout is to the nearest linear foot, measured at the top outside edge of parapet. (Match existing curb and parapet)

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

Payment for concrete, reinforcement, resin anchor systems and any other work incidental to the curb blockout, complete in place, will be considered completely covered by the contract unit price for Curb Blockout per linear foot.

Cost of any concrete curb or parapet repair will be considered completely covered by the contract unit price for Curb Blockout.

All curb blockout reinforcement shall be epoxy coated.

(2) Shift resin anchors where necessary to clear existing anchor bolts for bridge rail, miss curb outlets (if present) and clear existing reinforcement.

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

Concrete traffic barrier delineators shall be placed on top of the curb blockout similarly as shown on Missouri Standard Plans 617.10 and in accordance with Sec 617. Delineators on bridges with two-lane, two-way traffic shall have retroflective sheeting on both sides. Concrete traffic barrier delineators will be considered completely covered by the contract unit price for Curb Blockout.

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

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

A galvanized #5 Grade 60 reinforcing bar shall be substituted for the 5/8"Ø threaded rod.

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

STATE OF MISSOURI
TIMOTHY D. LEAF
NUMBER PE-2012000778
PROFESSIONAL ENGINEER
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DATE PREPARED
10/7/2025

ROUTE	STATE
I-49	MO
DISTRICT	SHEET NO.
BR	10

COUNTY
VERNON

JOB NO.
JSR0064

CONTRACT ID.

PROJECT NO.

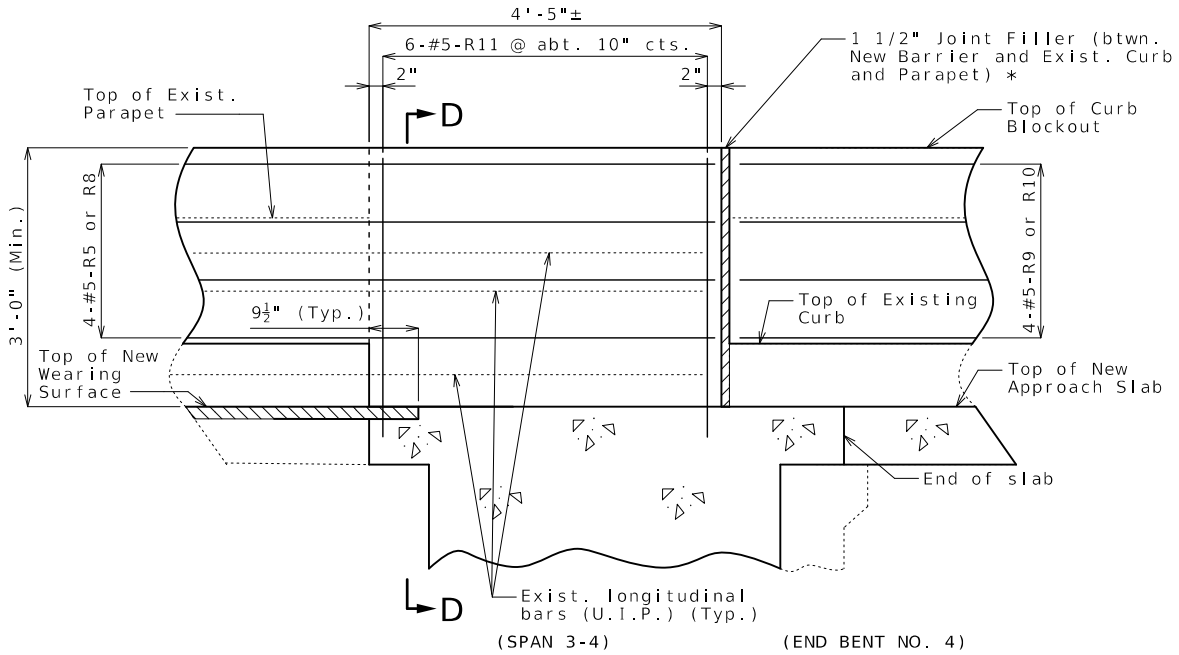
BRIDGE NO.
A17752

DESCRIPTION	DATE

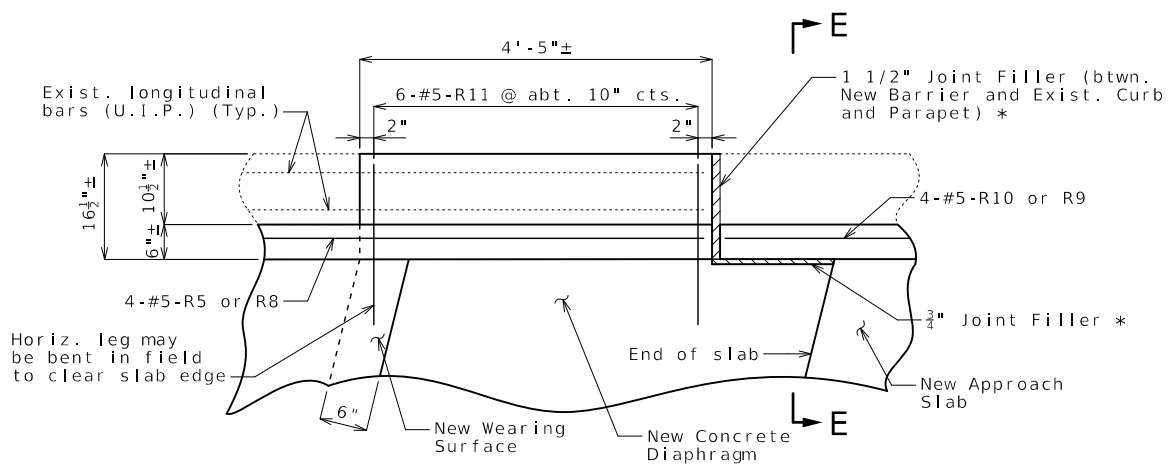
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

Detailed May 2025
Checked May 2025

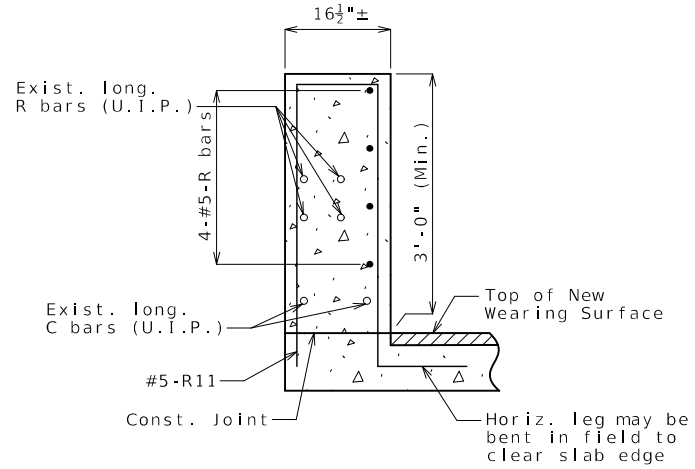
Note: This drawing is not to scale. Follow dimensions.



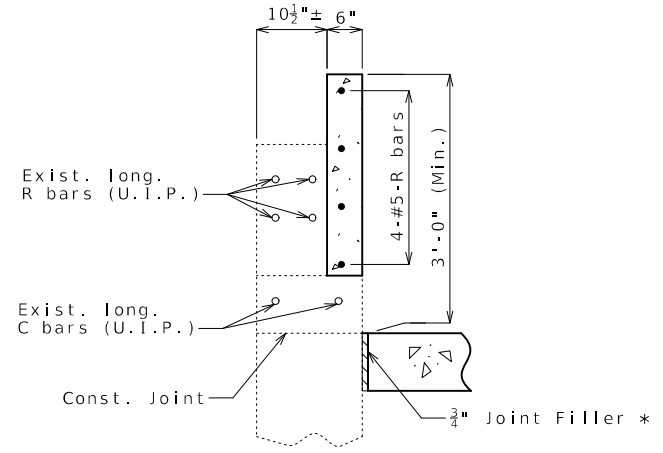
PART ELEVATION OF LEFT CURB
AT END BENT NO. 4



PART PLAN



SECTION D-D



SECTION E-E

Notes:

Payment for all concrete and reinforcement for barrier replacement at End Bent No. 4, complete in place, will be considered completely covered by the contract unit price for Remove and Replace Barrier.

Ends of existing longitudinal reinforcement in curb and parapet may be trimmmed as necessary to maintain 1 1/2" clearance to end of curb blockout.

* Seal joint with sealant in accordance with Sec 717 for silicone joint sealant for saw cut and formed joints.

BARRIER REPLACEMENT AT END BENT NO. 4

(Left curb shown, right curb similar)

Detailed May 2024
Checked May 2025

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

STATE OF MISSOURI
TIMOTHY D. LEAF
NUMBER PE-2012000778
PROFESSIONAL ENGINEER
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TIMOTHY D LEAF - CIVIL
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DATE PREPARED
10/7/2025

ROUTE	STATE
I-49	MO
DISTRICT	SHEET NO.
BR	11

COUNTY
VERNON

JOB NO.
JSR0064

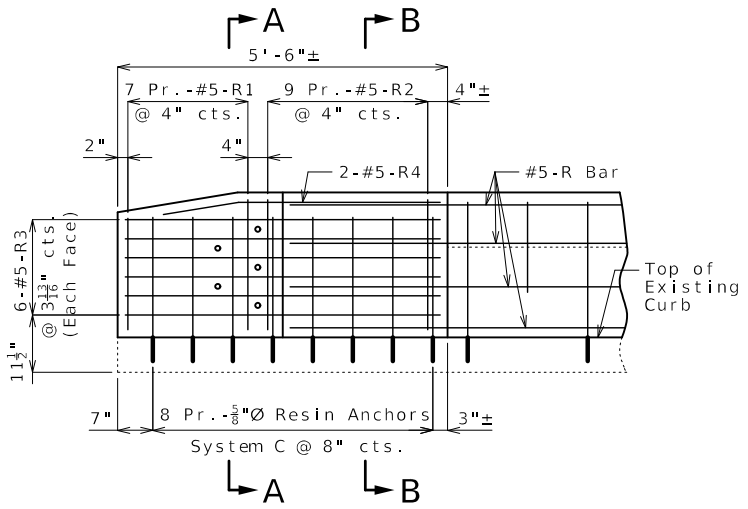
CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A17752

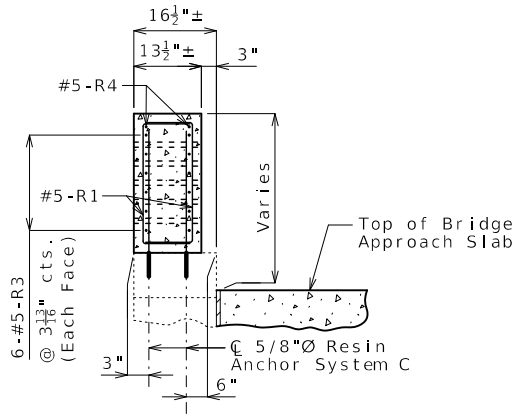
DESCRIPTION	DATE

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

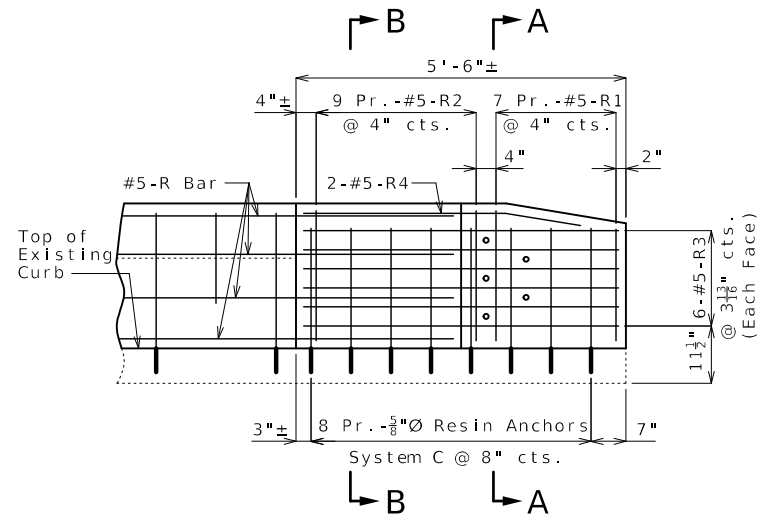


ELEVATION SHOWING REINFORCEMENT

(Right End Post at End Bent No. 4 similar)

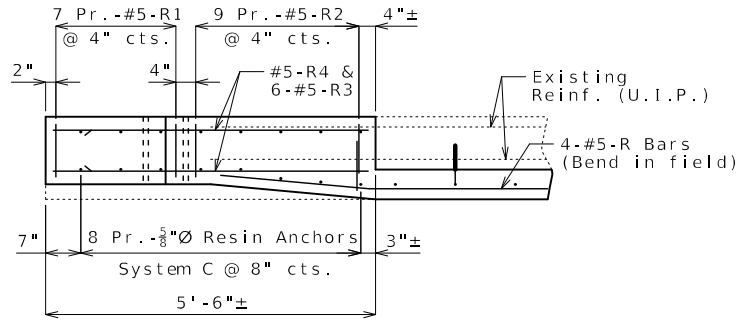


SECTION A-A



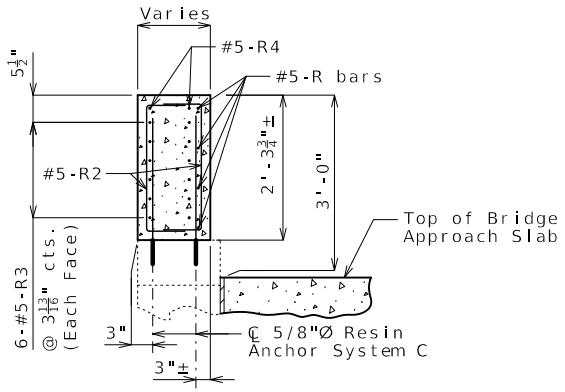
ELEVATION SHOWING REINFORCEMENT

(Right End Post at End Bent No. 1 similar)

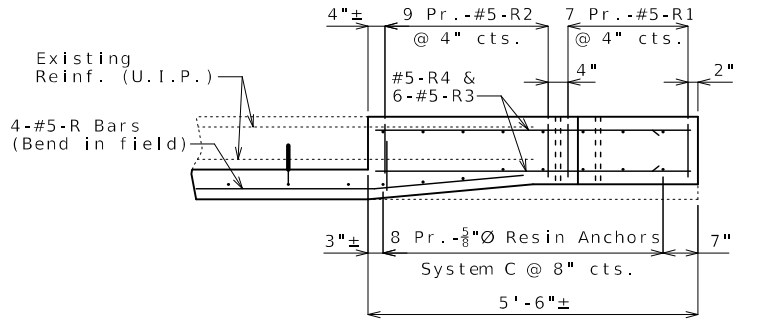


PLAN SHOWING REINFORCEMENT

LEFT END POST AT END BENT NO. 1

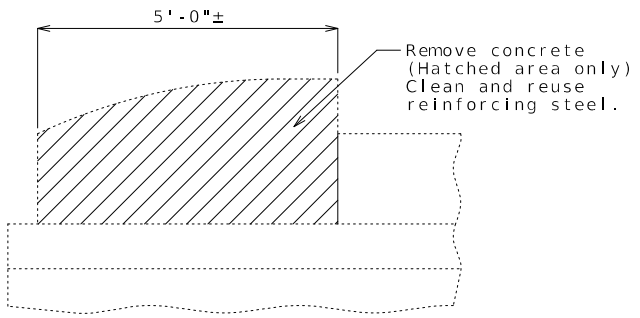


SECTION B-B



PLAN SHOWING REINFORCEMENT

LEFT END POST AT END BENT NO. 4



PART ELEVATION SHOWING END POST CONCRETE REMOVAL

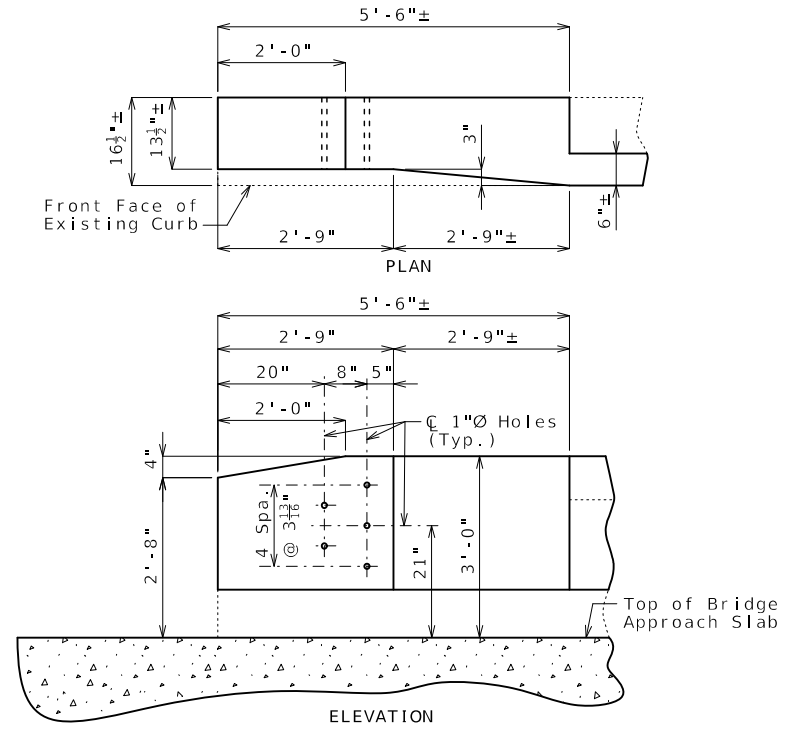
Cost of removing existing end posts will be considered completely covered by the contract unit price for Curb Blockout.

Notes:

Work this sheet with Sheet No. 10.

For details of resin anchors, see Sheet No. 10.

Resin anchors shall be shifted or bent in field to clear one-inch diameter holes by at least 1/2 inch.



DETAILS OF END POST AND GUARD RAIL ATTACHMENT

CURB BLOCKOUT AT END BENTS

Detailed May 2024
Checked May 2025

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

STATE OF MISSOURI
TIMOTHY D. LEAF
NUMBER PE-2012000778
PROFESSIONAL ENGINEER
12/01/2025 11:01:15 AM
TIMOTHY D LEAF - CIVIL
MO-PE-2012000778

DATE PREPARED
10/7/2025

ROUTE	STATE
I-49	MO
DISTRICT	SHEET NO.
BR	12

COUNTY
VERNON

JOB NO.
JSR0064

CONTRACT ID.

PROJECT NO.

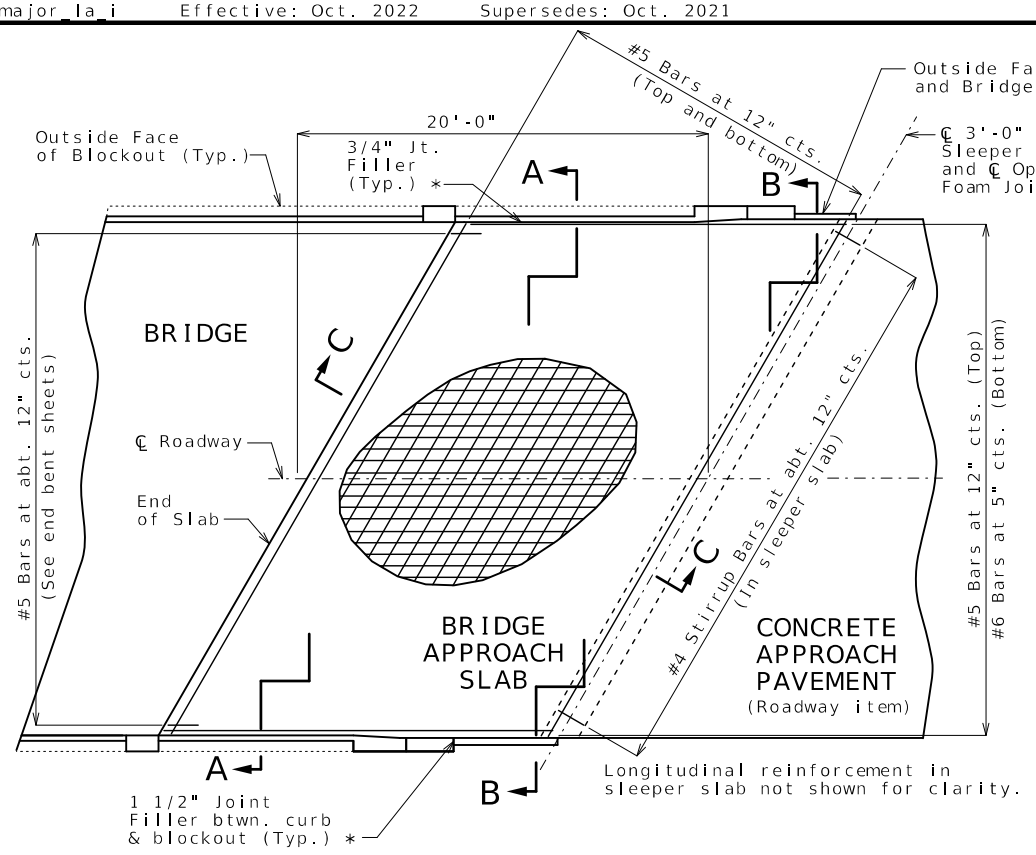
BRIDGE NO.
A17752

DESCRIPTION

DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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



PART PLAN SHOWING REINFORCEMENT

General Notes:

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

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

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

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

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

Mechanical bar splices shall be in accordance with Sec 710.

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

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

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

For concrete approach pavement details, see roadway plans.

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

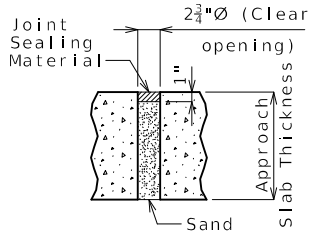
Payment for furnishing all materials, labor and excavation necessary to construct the approach slab, including the timber header, sleeper slab, underdrain, Type 5 aggregate base, joint filler and all other appurtenances and incidental work as shown on this sheet, complete in place, will be considered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

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

Open cell foam joint seal width shall be 4" and depth shall be determined by the manufacturer. Manufacturer recommended seal shall meet the movement and installation gap requirements and skew effect.

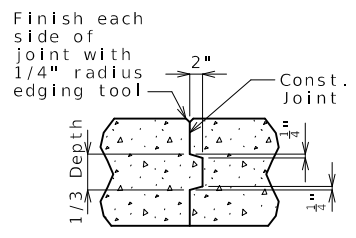
The open cell foam joint seal shall be installed according to the manufacturer's recommdendations.

The Open Cell Foam Joint Seal, complete in place, will be considered completely covered by the contract unit price for Bridge Approach Slab (Major).

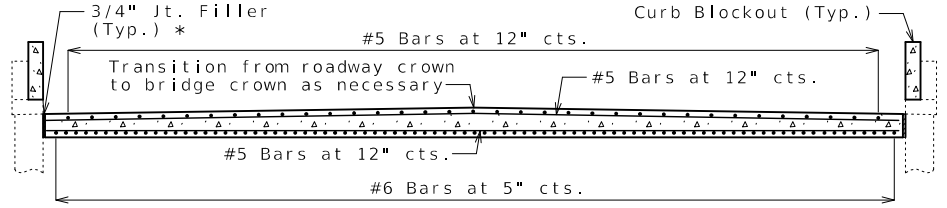


UNDERSEAL ACCESS HOLE DETAIL

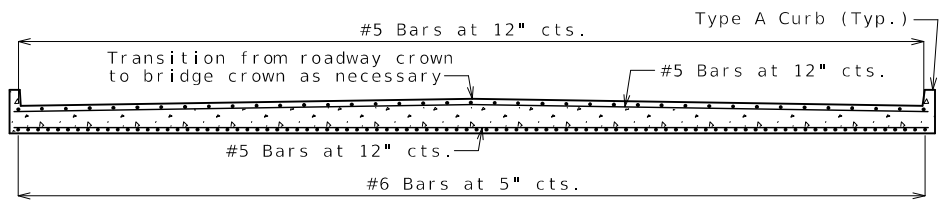
(If required)



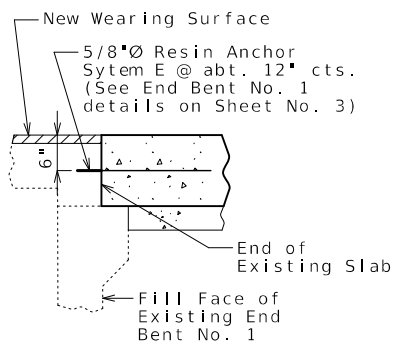
CONSTRUCTION JOINT DETAIL



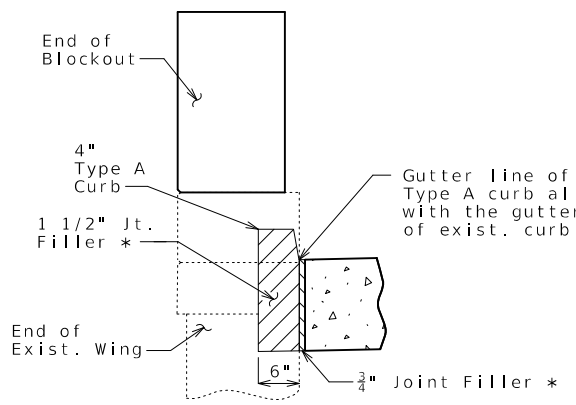
SECTION A-A



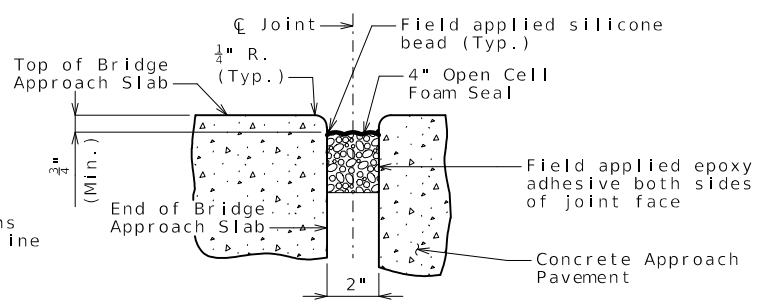
SECTION B-B



DETAIL A (END BENT NO. 1)



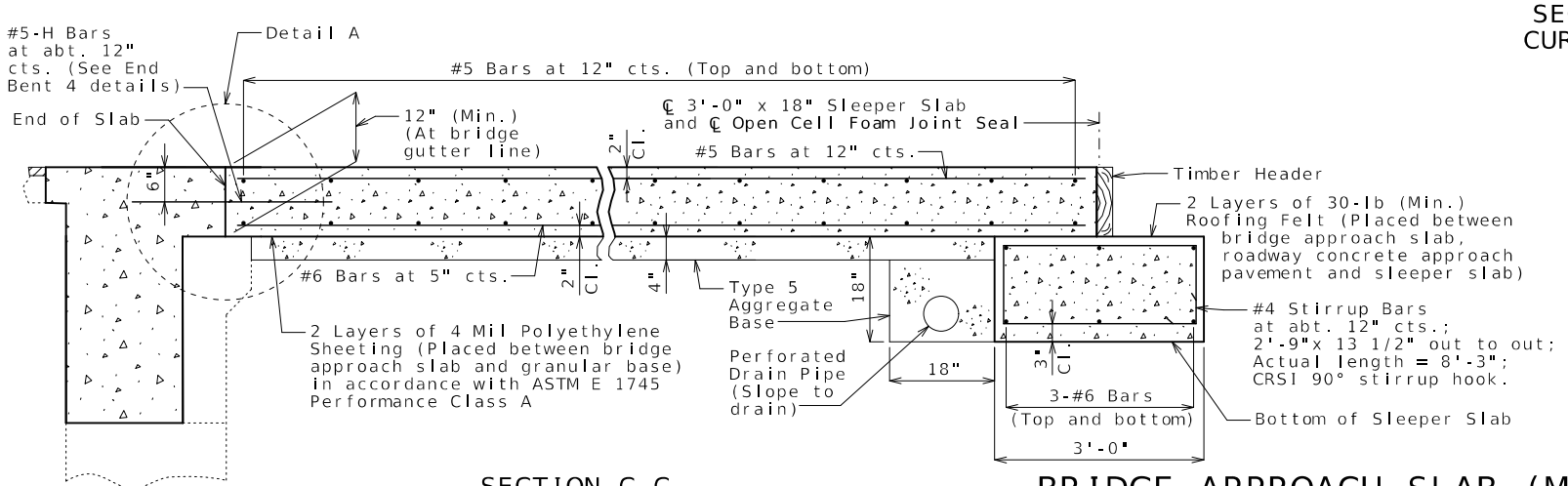
SECTION BETWEEN CURB AND BARRIER



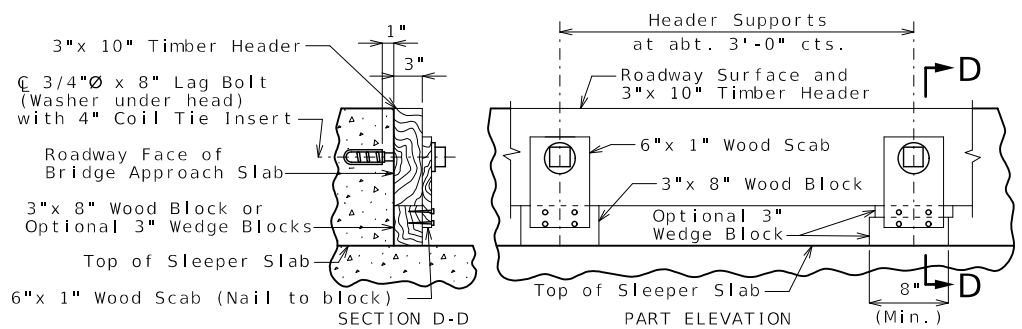
SECTION THRU JOINT AT END OF BRIDGE APPROACH SLAB

SKEW = 50° 32' L.A.

Extend seal full width of approach slab.



SECTION C-C



DETAILS OF TIMBER HEADER

Remove timber header when concrete pavement is placed.

BRIDGE APPROACH SLAB (MAJOR)

(End Bent No. 4 shown, End Bent No. 1 similar except as shown)

Detailed May 2025
Checked May 2025

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

STATE OF MISSOURI
TIMOTHY D. LEAF
NUMBER PE-2012000778
PROFESSIONAL ENGINEER
12/01/2025 10:59:33 AM
TIMOTHY D. LEAF - CIVIL
MO-PE-2012000778

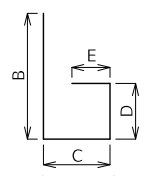
DATE PREPARED 12/1/2025

ROUTE	STATE
I-49	MO
DISTRICT	SHEET NO.
BR	13

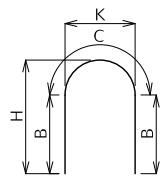
COUNTY: VERNON
JOB NO.: JSR0064
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: A17752

DESCRIPTION	DATE

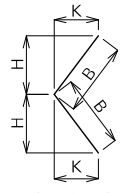
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)



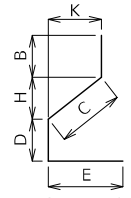
SHAPE 6
or 6S



SHAPE 7



SHAPE 8
or 8S



SHAPE 9
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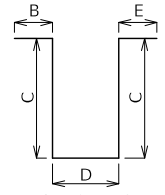
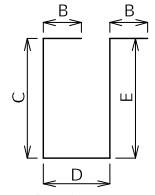
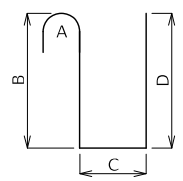


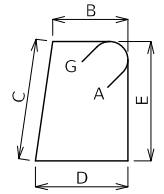
SHAPE 10
or 10S



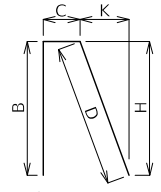
SHAPE 11
or 11S



SHAPE 12



SHAPE 13S



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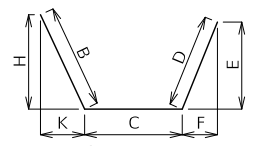
or 14S



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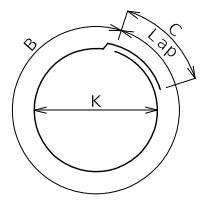
or 15S



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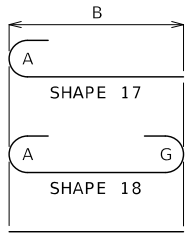
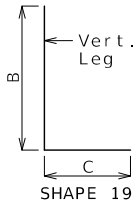


SHAPE 17
SHAPE 18
SHAPE 20



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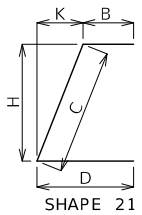
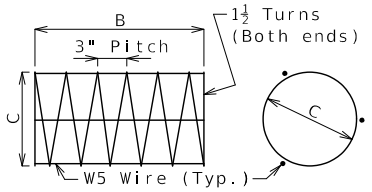
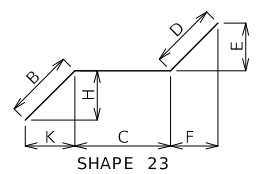
or 19S



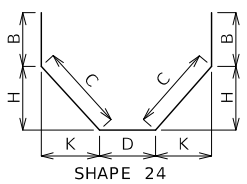
SHAPE 21
or 21S



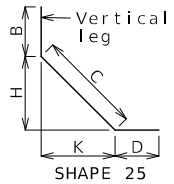
SHAPE 22



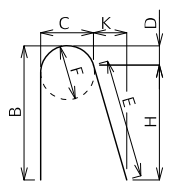
SHAPE 23
or 23S



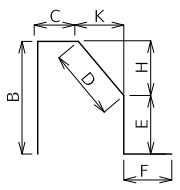
SHAPE 24
or 24S



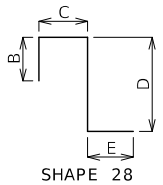
SHAPE 25
or 25S



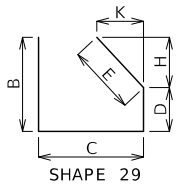
SHAPE 26



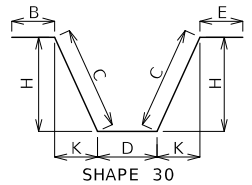
SHAPE 27S



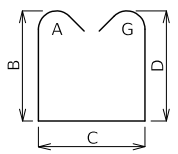
SHAPE 28
or 28S



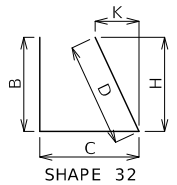
SHAPE 29
or 29S



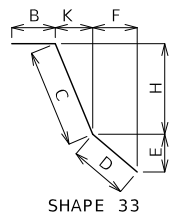
SHAPE 30
or 30S



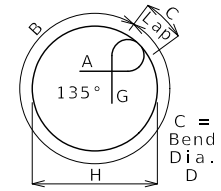
SHAPE 31S



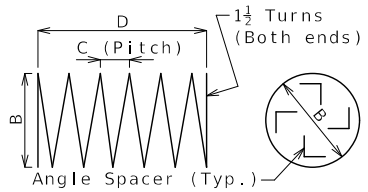
SHAPE 32
or 32S



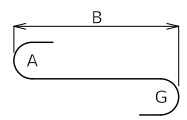
SHAPE 33
or 33S



SHAPE 34S



SHAPE 35 (1)

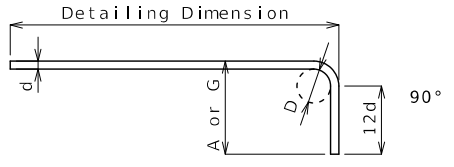


SHAPE 36

Finished Bend Diameters D and Hook Dimensions

Standard Pin Bend Shapes

Size	Case	D	A or G		J
			90°	180°	180°
#4	1	3"	8"	6"	4"
#5	1	3¾"	10"	7"	5"
#6	1	4½"	12"	8¼"	6"
#7	2	5¼"	14"	9⅜"	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"

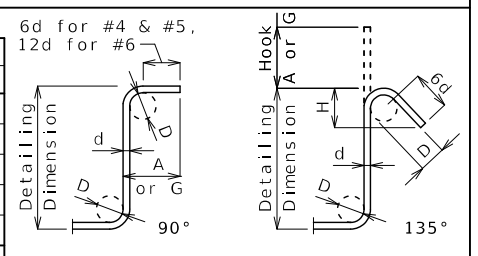


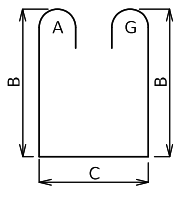
Stirrup Pin Bend Shapes (S)

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"

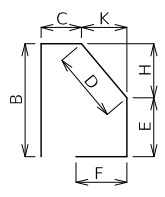
Applicable for all grades of steel.

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	
		Plain	Galv.	Slab	Barrier	Slip Form	Plain	Galv.
By Size	W5	0	0	0	0	0	0	0
	4	0	0	0	0	0	0	0
	5	0	0	2,584	3,582	0	0	6,166
	6	0	0	1,450	0	0	0	1,450
	7	0	0	0	0	0	0	0
	8	0	0	0	0	0	0	0
	9	0	0	0	0	0	0	0
	10	0	0	0	0	0	0	0
	11	0	0	0	0	0	0	0
	14	0	0	0	0	0	0	0
	18	0	0	0	0	0	0	0
By Type		0	0	4,034	3,582	0	0	7,616

All superstructure reinforcing steel shall be galvanized unless otherwise specified.

Products used to repair damaged zinc coating shall not contain aluminum.

BENDING DIAGRAMS AND REINFORCING STEEL TOTALS

Detailed May 2025
Checked May 2025

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

STATE OF MISSOURI
TIMOTHY D. LEAF
NUMBER PE-2012000778
PROFESSIONAL ENGINEER
12/01/2025 11:01:21 AM
TIMOTHY D LEAF - CIVIL
MO-PE-2012000778

DATE PREPARED
10/7/2025

ROUTE	STATE
I-49	MO
DISTRICT	SHEET NO.
BR	14

COUNTY
VERNON

JOB NO.
JSR0064

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A17752

DESCRIPTION	DATE

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

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
		Superstructure													
		End Bent 4													
10	6 H400	DIAPHRAGM	G	20		39 6.00							39 6	39 6	610
10	6 H401	DIAPHRAGM	G	20		26 0.00							26	26	402
4	6 H402	DIAPHRAGM	G	20		8 5.00							8 5	8 5	52
2	6 H403	DIAPHRAGM	G	20		36 7.00							36 7	36 7	113
59	5 H404	DIAPHRAGM	G	20		2 6.00							2 6	2 6	159
3	6 H405	DIAPHRAGM	G	20		59 0.00							59	59	273
112	5 U400	DIAPHRAGM	G	10S			5 3.00	3 4.00					13 10	13 7	1,642
12	5 U401	DIAPHRAGM	G	10S			4 4.00	3 4.00					12	11 9	152
2	5 U402	DIAPHRAGM	G	10S			5 3.00	2 8.00					13 2	12 11	28
2	5 U403	DIAPHRAGM	G	10S			5 3.00	23.00					12 5	12 2	26
60	5 U404	DIAPHRAGM	G	19S		9.00	5 8.00						6 5	6 3	405
12	5 U405	SHEAR BLOCK	G	21S		3 3.00	2 9.00	3 3.00			21.00	2 1.50	9 3	8 6	110
4	5 U406	DIAPHRAGM	G	10S			5 3.00	4 1.00					14 7	14 4	62
		Blockout													
56	5 R1	BLOCKOUT	G	10S	8		20.00	9.75					4 2	3 11	
		Incr. = 1.375"					2 0.00	9.75					4 10	4 7	257
72	5 R2	BLOCKOUT	G	10S			2 0.00	13.50					5 2	4 10	375
48	5 R3	BLOCKOUT	G	20		5 3.00							5 3	5 3	272
8	5 R4	BLOCKOUT	G	23S		16.25	3 4.00				2.75	16.00	4 8	4 7	40
8	5 R5	BLOCKOUT	G	20		55 11.00							55 11	55 11	483
32	5 R6	BLOCKOUT	G	20		9 3.00							9 3	9 3	319
16	5 R7	BLOCKOUT	G	20		57 6.00							57 6	57 6	993
8	5 R8	BLOCKOUT	G	20		55 10.00							55 10	55 10	482
8	5 R9	BLOCKOUT	G	20		17 8.00							17 8	17 8	152
8	5 R10	BLOCKOUT	G	20		11 8.00							11 8	11 8	101
12	5 R11	BLOCKOUT	G	10S			3 4.50	11.50	12.00				8 9	8 4	108

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

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. 14.

All bars shall be Grade 60.

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

SH = Required shape, see bending diagrams.

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

Detailed May 2025
Checked May 2025

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

BILL OF REINFORCING STEEL

STATE OF MISSOURI
TIMOTHY D. LEAF
NUMBER PE-2012000778
PROFESSIONAL ENGINEER
12/01/2025 11:01:25 AM
TIMOTHY D. LEAF - CIVIL
MO-PE-2012000778

DATE PREPARED
10/7/2025

ROUTE I-49 | STATE MO
DISTRICT BR | SHEET NO. 15
COUNTY VERNON
JOB NO. JSR0064
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A17752

DESCRIPTION | DATE

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