DESIGN DESIGNATION

A.A.D.T. - 2026 = 1,216
A.A.D.T. - 2046 = 1,344
D.H.V. = 10.74%
T = 17.25%
V = 55 M.P.H.
D = 49.9%/50.1% (E/W)

FUNCTIONAL CLASSIFICATION - MINOR ARTERIAL

NORMAL RIGHT OF WAY IS TO BE ACQUIRED FOR THIS PROJECT

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	

PERMANENT DRAINAGE EASEMENT	P.D.E.
PERMANENT HIGHWAY EASEMENT	P.H.E.
TEMPORARY CONSTRUCTION EASEMENT	T.C.E.
DO NOT DISTURB	(DND)
REMOVE	(R)
RELOCATE	(RELOC.)
REMOVE AND REPLACE	(R & R)
REMOVE AND RELOCATE	(R & RELOC.)
ADJUST TO GRADE	(ATG)
USE IN PLACE	(UIP)
TO BE ABANDONED	(TBA)
BY OTHERS	(BO)
INTERMITTENT YELLOW	IY
SOLID YELLOW	SY
DOUBLE SOLID YELLOW	DSY
SOLID WHITE	SW

NOTE: DASHED OR OPEN SYMBOLS INDICATE EXISTING FEATURES

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

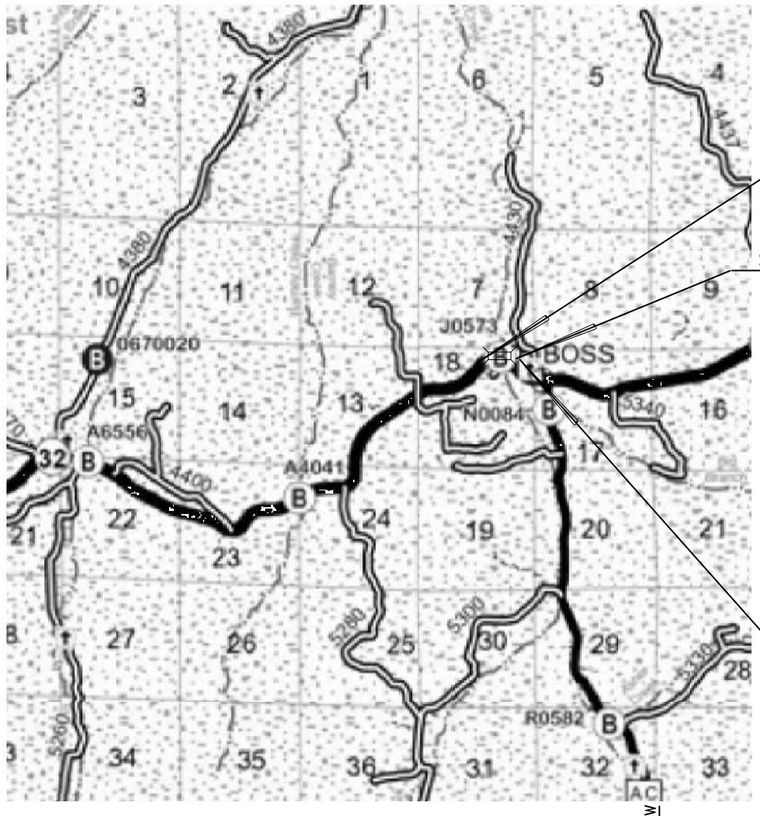
PLANS FOR PROPOSED STATE HIGHWAY DENT COUNTY

TOWNSHIP 34N
RANGE 2W, SECTION 18



KEY MAP
LOCATION OF DENT 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

DESCRIPTION	SHEET NUMBER
TITLE SHEET	1
TYPICAL SECTIONS (TS) (2 SHEETS)	2
QUANTITIES (QU) (2 SHEETS)	3
PLAN SHEETS (PP)	4-5
PROFILE SHEETS (PP)	6-7
RIGHT OF WAY SHEET (RW)	8
REFERENCE POINTS (RP)	9
COORDINATE POINTS (CP)	10
ENTRANCE PROFILES (EP)	11-13
SPECIAL SHEETS (SS)	14-15
TRAFFIC CONTROL SHEETS (TC)	16-28
EROSION CONTROL SHEETS (EC)	29-30
SIGNING & PAVEMENT MARKING	31-37
CULVERT SECTIONS (CS)	38
BRIDGE DRAWINGS (B)	
A9724	1-35
CROSS SECTIONS (XS)	1-18

LENGTH OF PROJECT

BEGINNING OF PROJECT	STA. 1151+30.00	
END OF PROJECT	STA. 1164+40.00	
APPARENT LENGTH	1,310.00	FEET
EQUATIONS AND EXCEPTIONS:		
STA. 1162+65.00 (BK) = STA. 1162+64.23 (AHD)	-0.77	FEET
TOTAL CORRECTIONS	-0.77	FEET
NET LENGTH OF PROJECT	1309.23	FEET
STATE LENGTH	0.248	MILES
FOR INFORMATION ONLY ESTIMATED DISTURBED ACRES	2.18	ACRES

STATE OF MISSOURI
BRIAN D. KIERATH JR.
NUMBER PE-2023008624
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED, AND DATED ELECTRONICALLY

DATE PREPARED: 9/23/2026
ROUTE: 32 | STATE: MO
DISTRICT: CD | SHEET NO.: 1
COUNTY: DENT
JOB NO.: JCD0235
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.:

REV.	DATE	DESCRIPTION

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

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

GBA
16305 SWINGLEY RIDGE RD
ST. 300
CHESTERFIELD, MO 63017
314.231.0100
GBAteam.com

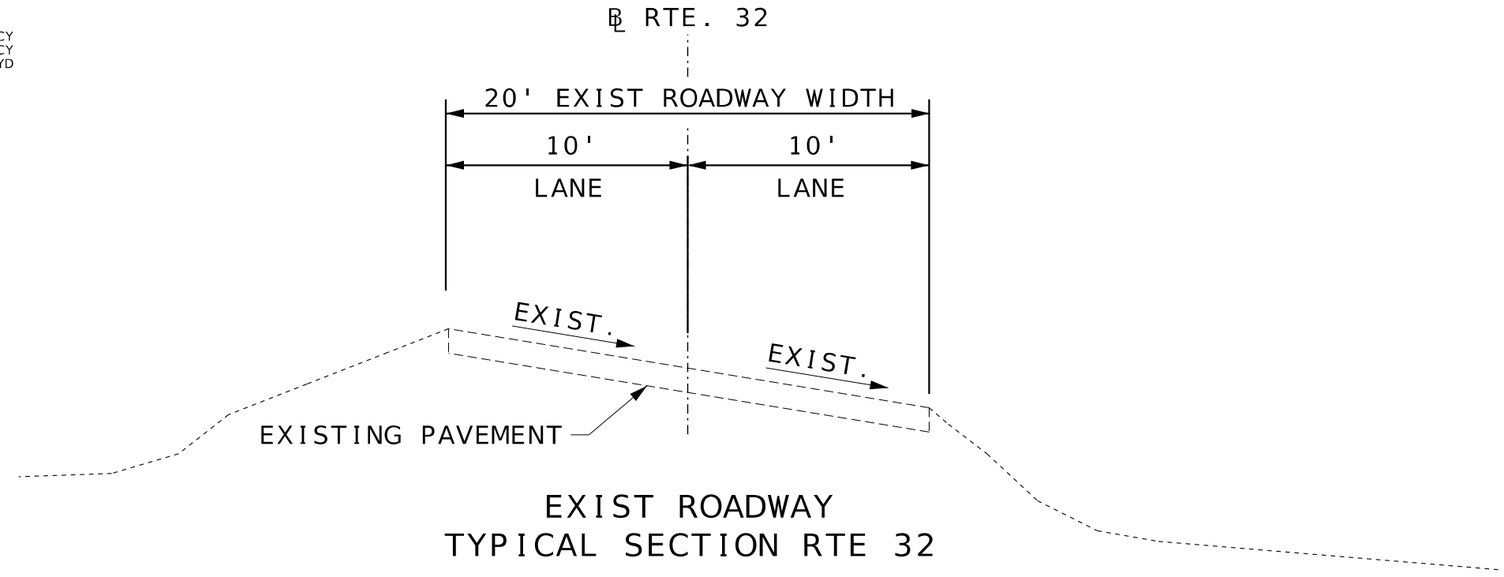
GEORGE BUTLER ASSOCIATES, INC.
PRO. ENGINEER 000133
ARCHITECT 000212
PRO. LAND SURVEYOR 000059

BRIAN KIERATH
PROFESSIONAL ENGINEER
PE-2023008624

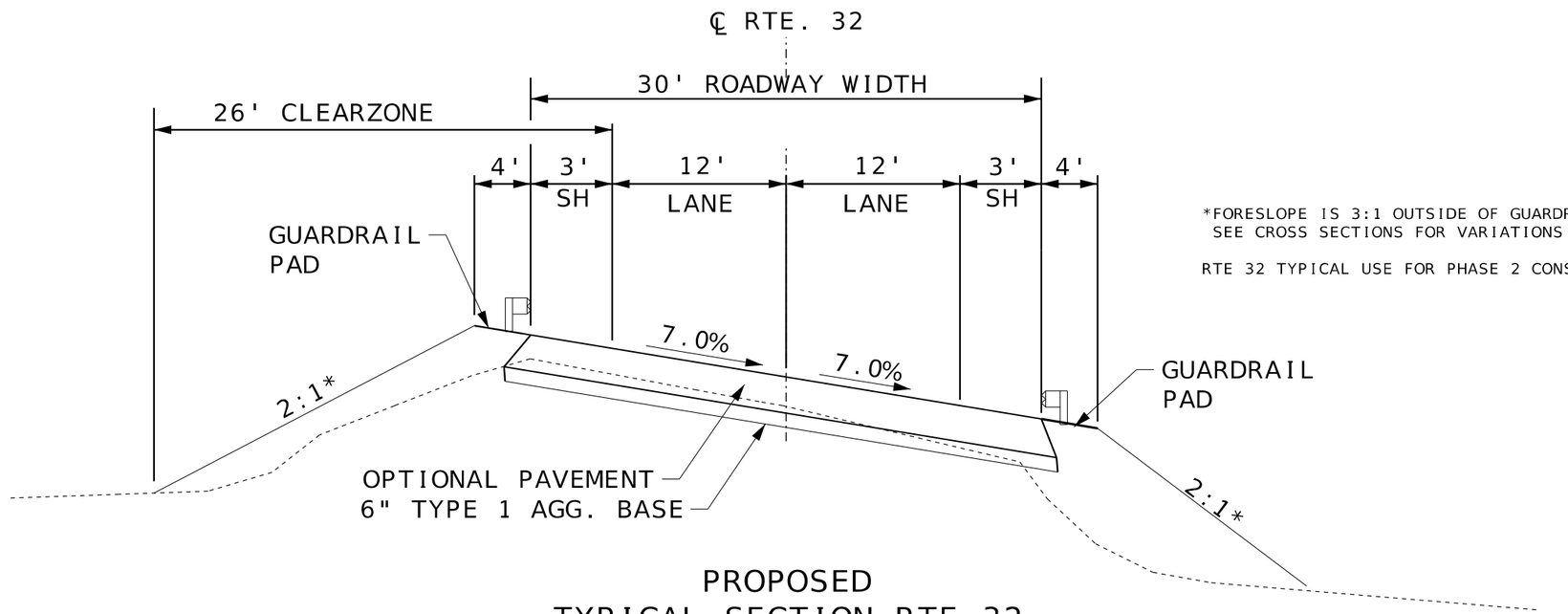
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APPLICATION RATES (FOR INFORMATION ONLY)

BITUMINOUS PAVEMENT MIXTURE PG 64-22(BP-1)	1.948 TONS/CY
BITUMINOUS PAVEMENT MIXTURE PG 64-22(BASE)	1.943 TONS/CY
TACK COAT (NEW ASPHALT SURFACE)	0.05 GAL/SQYD



EXIST ROADWAY
TYPICAL SECTION RTE 32



*FORESLOPE IS 3:1 OUTSIDE OF GUARDRAIL LIMITS
SEE CROSS SECTIONS FOR VARIATIONS

RTE 32 TYPICAL USE FOR PHASE 2 CONSTRUCTION

PROPOSED
TYPICAL SECTION RTE 32

STA 1153+35.00 TO STA 1156+73.75
STA 1159+51.25 TO STA 1162+65.00
BRIDGE APPROACH SLAB STA 1156+73.75 TO 1156+93.75
BRIDGE APPROACH SLAB STA 1159+31.25 TO 1159+51.25

MAINLINE OPTIONAL PAVEMENT

HMA DESIGN:
10" BITUMINOUS PAVEMENT
- 2" BITUMINOUS PAVEMENT MIXTURE PG 64-22 (BP-1)
- 8" BITUMINOUS PAVEMENT MIXTURE PG 64-22 (BASE)
- 6" TYPE 1 AGGREGATE BASE

PCCP DESIGN:
- 8" CONCRETE PAVEMENT (8 IN. NON-REINFORCED, 15 FT. JOINTS)
- 6" TYPE 1 AGGREGATE BASE

ROUTE 32

TYPICAL SECTION
SHEET 1 OF 2

STATE OF MISSOURI
BRIAN D. KIERATH JR.
NUMBER
PE-2023008624
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED, AND DATED ELECTRONICALLY

DATE PREPARED: 9/23/2026

ROUTE	STATE
32	MO
DISTRICT	SHEET NO.
CD	2

COUNTY: DENT
JOB NO.: JCD0235
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.:

DESCRIPTION	DATE

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

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

GBA
16305 SWINGLEY RIDGE RD
ST. 300
CHESTERFIELD, MO 63017
314.231.0100
GBAteam.com

GEORGE BUTLER
ASSOCIATES, INC.
PRO. ENGINEER 000133
ARCHITECT 000212
PRO. LAND SURVEYOR 000059

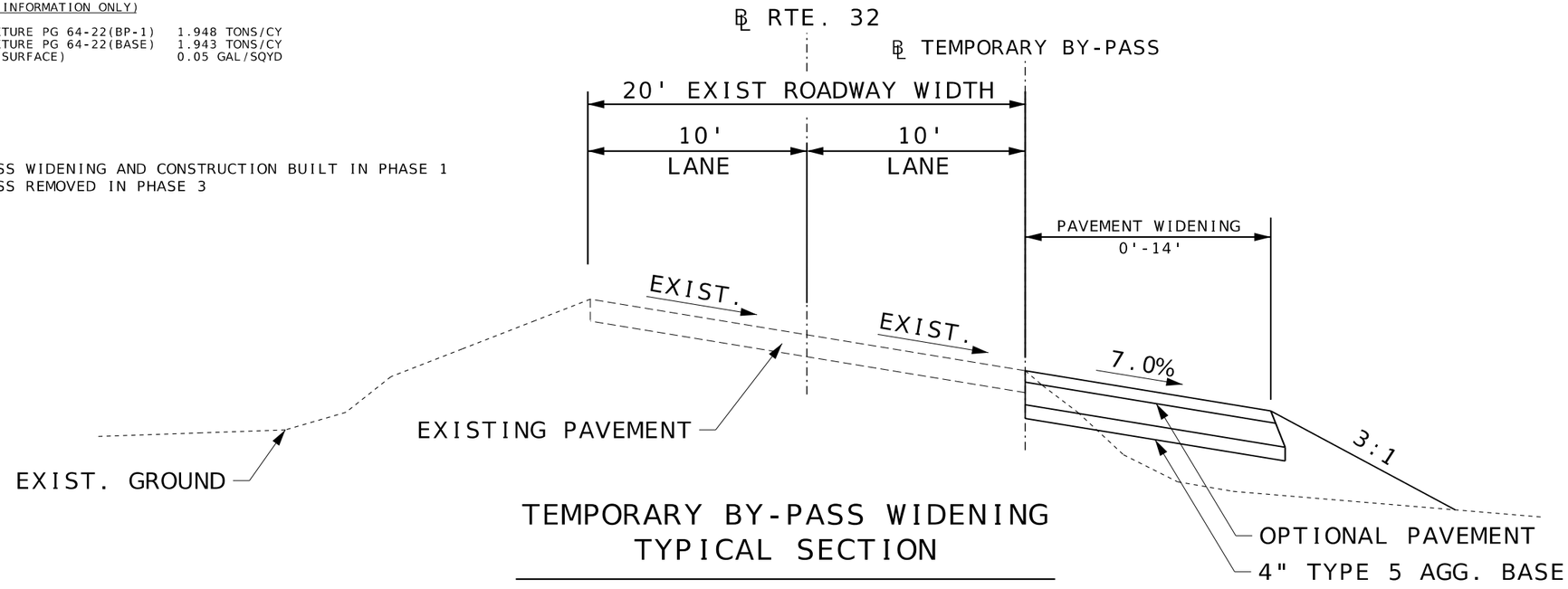
BRIAN KIERATH
PROFESSIONAL
ENGINEER
PE-2023008624

REV.

APPLICATION RATES (FOR INFORMATION ONLY)

BITUMINOUS PAVEMENT MIXTURE PG 64-22(BP-1)	1.948 TONS/CY
BITUMINOUS PAVEMENT MIXTURE PG 64-22(BASE)	1.943 TONS/CY
TACK COAT (NEW ASPHALT SURFACE)	0.05 GAL/SQYD

TEMPORARY BY-PASS WIDENING AND CONSTRUCTION BUILT IN PHASE 1
TEMPORARY BY-PASS REMOVED IN PHASE 3



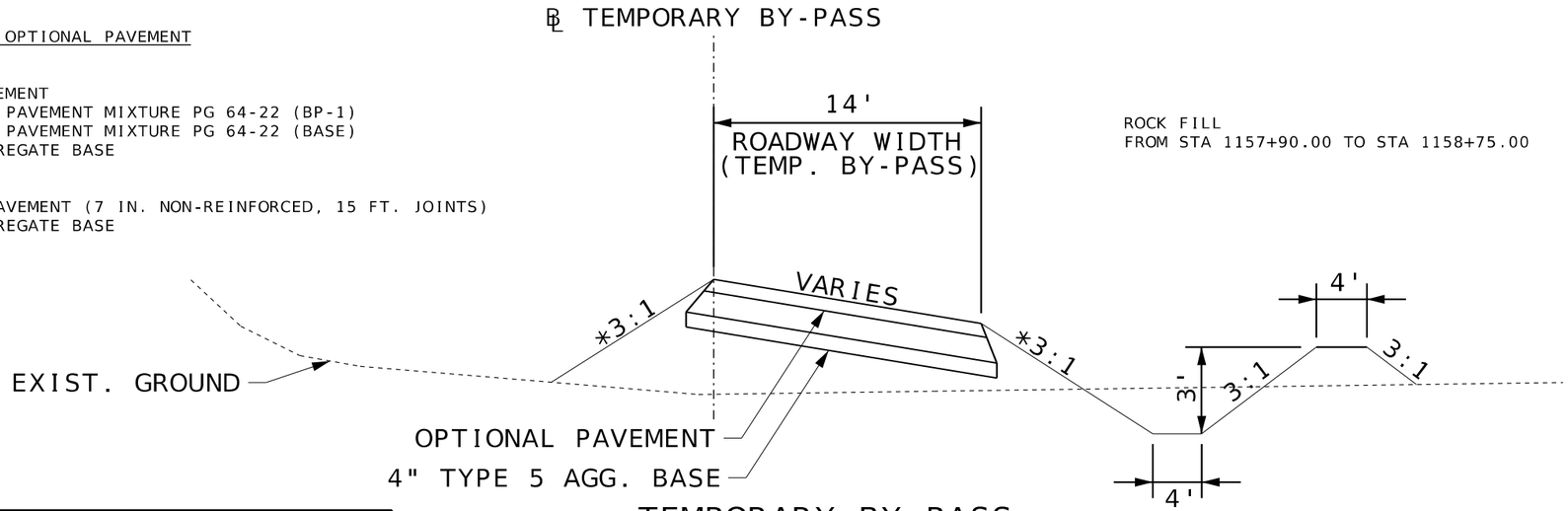
TEMPORARY BY-PASS WIDENING TYPICAL SECTION

STA 1150+18.25 TO STA 1152+33.00
STA 1164+18.68 TO STA 1165+08.73

TEMPORARY BY-PASS OPTIONAL PAVEMENT

HMA DESIGN:
7" BITUMINOUS PAVEMENT
- 2" BITUMINOUS PAVEMENT MIXTURE PG 64-22 (BP-1)
- 5" BITUMINOUS PAVEMENT MIXTURE PG 64-22 (BASE)
- 4" TYPE 5 AGGREGATE BASE

PCCP DESIGN:
- 7" CONCRETE PAVEMENT (7 IN. NON-REINFORCED, 15 FT. JOINTS)
- 4" TYPE 5 AGGREGATE BASE



ROCK FILL
FROM STA 1157+90.00 TO STA 1158+75.00

STA. P.I. CURVE	RADIUS	SUPER %	TRANSITION - (LIN. FT.)		
			L	A	B
1152+48.37	650'	4.4%	127'	42'	85'
1159+48.91	450'	5.4%	47'	16'	31'

TEMPORARY BY-PASS TYPICAL SECTION

STA 1152+33.00 TO STA 1164+18.68
(ALONG BY-PASS)

ROUTE 32

TYPICAL SECTION
SHEET 2 OF 2

BRIAN KIERATH
PROFESSIONAL
ENGINEER
PE-2023008624

STATE OF MISSOURI
BRIAN D. KIERATH JR.
NUMBER
PE-2023008624
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED, AND DATED ELECTRONICALLY

DATE PREPARED: 9/23/2026
ROUTE: 32
STATE: MO
DISTRICT: CD
SHEET NO.: 2
COUNTY: DENT
JOB NO.: JCD0235
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.:

DESCRIPTION | DATE | REV.

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

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GEORGE BUTLER
ASSOCIATES, INC.
PRO. ENGINEER 000133
ARCHITECT 000212
PRO. LAND SURVEYOR 000059

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

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REMOVAL OF IMPROVEMENTS - 1 LUMP SUM

SHEET NO.	ROADWAY	BEGIN STA.	END STA.	LOCATION	LENGTH (FEET)	WIDTH (FEET)	AREA (SQFT)	AREA (SQYD)	EACH	DESCRIPTION OF REMOVAL
5	BY-PASS	1150+18.25	1165+08.73	-	-	-	-	2,023.70	-	BYPASS PAVEMENT REMOVAL
4	RTE. 32	1152+43.00	-	RT	-	-	-	-	1	65' 12" PIPE
4	RTE. 32	1152+63.65	-	RT	-	-	-	-	1	SIGN
4	RTE. 32	1152+65.55	-	RT	-	-	-	-	1	SIGN
4	RTE. 32	1153+35.00	-	-	21.50	-	-	-	-	SAW CUT
4	RTE. 32	1153+35.00	1157+01.00	-	-	-	7,711.41	856.82	-	PAVEMENT REMOVAL
4	RTE. 32	1154+50.00	1155+65.54	LT	130.26	-	-	-	-	FENCE
4	RTE. 32	1156+61.12	-	LT	-	-	-	-	1	SIGN
4	RTE. 32	1157+00.00	-	LT/RT	-	-	-	-	2	SIGN
4	RTE. 32	1159+10.55	1162+65.00	-	-	-	7,634.90	848.32	-	PAVEMENT REMOVAL
4	RTE. 32	1159+11.37	-	LT	-	-	-	-	1	SIGN
4	RTE. 32	1162+65.00	-	-	21.50	-	-	-	-	SAW CUT
4	RTE. 32	1159+11.37	-	-	-	-	-	-	1	12" TEMP PIPE REMOVAL
4	RTE. 32	1162+65.00	-	-	-	-	-	-	6	84" BY-PASS PIPE REMOVAL
PAY TOTAL				1 LUMP SUM						

TEMPORARY EROSION CONTROL

SHEET NO.	ROADWAY	BEGIN STA	END STA	SIDE	NO. OF ROCK DITCH CHECKS	ROCK DITCH CHECK (LF)	SILT FENCE (LF)	SEDIMENT REMOVAL (CUYD)	TYPE C BERM (LF)	SEDIMENT TRAP ROCK (CUYD)	SEDIMENT TRAP EXCAVATION (CUYD)	REMARKS
29	RTE. 32	1150+18.00	1152+50.00	RT	11	110	219	13.19	-	-	-	
29	RTE. 32	1152+70.00	1158+00.00	RT	3	30	452	7.52	-	2.00	1.00	PHASE 1
30	RTE. 32	1152+70.00	1158+00.00	RT	3	-	-	3.00	-	2.00	1.00	PHASE 3
29	RTE. 32	1153+00.00	1153+98.00	LT	-	-	114	1.14	-	-	-	
29	RTE. 32	1154+10.00	1156+20.00	LT	-	-	326	3.26	-	-	-	
29	RTE. 32	1157+00.00	1157+30.00	℄	-	-	-	-	100	-	-	
29	RTE. 32	1158+90.00	1159+20.00	RT	-	-	251	2.51	-	-	-	
29	RTE. 32	1158+90.00	1159+20.00	℄	-	-	-	-	100	-	-	
29	RTE. 32	1161+66.00	1163+63.00	RT	-	-	188	1.88	-	-	-	
29	RTE. 32	1163+80.00	1164+80.00	RT	-	-	108	1.08	-	-	-	
SUBTOTAL						170	1,658	33.58	200	4.00	2.00	
PAY TOTAL						170	1,676	34	200	4.0	2.0	

EARTHWORK

SHEET NO.	ROADWAY	BEGIN STA	END STA	SIDE	CLASS A EXCAVATION (CUYD)	EMBANKMENT IN PLACE (CUYD)	COMPACTING EMBANKMENT (CUYD)	FURNISHING ROCK FILL (CUYD)	PLACING ROCK FILL (CUYD)	COMPACTING IN CUT (STA)	CONSTR. PHASE	REMARKS
5	BY-PASS	1150+18.25	1157+90.00	℄	141	3,392	120	-	-	2.2	1	BYPASS EARTHWORK
5	BY-PASS	1157+90.00	1158+75.00	℄	-	-	-	897	897	-	1	BYPASS EARTHWORK IN CHANNEL
5	BY-PASS	1158+75.00	1165+45.34	℄	12	572	11	-	-	0.8	1	BYPASS EARTHWORK
4	RTE. 32	1153+35.00	1156+95.00	℄	-	1,315	-	-	-	-	2	WEST OF BRIDGE EARTHWORK
4	RTE. 32	1159+30.00	1162+65.00	℄	-	153	-	-	-	-	2	EAST OF BRIDGE EARTHWORK
5	BY-PASS	1150+18.25	1165+08.73	℄	4,898	-	13	-	-	-	3	BYPASS REMOVAL EARTHWORK
SUBTOTAL					5,051	5,432	144	897	897	3.0		
PAY TOTAL					5,051	5,432	144	897	897	3.0		

GUARDRAIL

SHEET NO.	ROADWAY	BEGIN STA	END STA	SIDE	MGS GUARDRAIL (FEET)	MGS BRIDGE APPROACH TRANSITION SECTION (REGUALAR/ NO CURB) (EACH)	TYPE A CRASHWORTHY END TERMINAL (MASH) (EACH)
4	RTE. 32	1155+48.90	1156+86.40	RT	50.0	1	1
4	RTE. 32	1155+98.90	1156+86.40	LT	-	1	1
4	RTE. 32	1159+38.90	1160+26.40	RT	-	1	1
4	RTE. 32	1159+38.90	1160+76.40	LT	50.0	1	1
SUBTOTAL					100.0	4	4
PAY TOTAL					100	4	4

DRIVEWAYS

SHEET NO.	ROADWAY	STATION	SIDE	TYPE 5 AGGREGATE FOR BASE (4 IN.) (SQYD)	GRAVEL (A) OR CRUSHED STONE (B) (TONS)	BITUMINOUS PAVEMENT MIXTURE PG42-22 (BP-1) (TONS)	BITUMINOUS PAVEMENT MIXTURE PG42-22 (BASE) (TONS)	TACK COAT (GAL)	REMARKS
4	RTE. 32	1152+53.00	RT	40.58	16.91	4.39	8.21	2.03	COUNTY RD. 532
4	RTE. 32	1154+00.00	LT	13.36	15.90	1.45	2.70	0.67	PRIVATE ENTRANCE
4	RTE. 32	1161+00.00	LT	16.90	12.15	1.83	3.42	0.85	PRIVATE ENTRANCE
4	RTE. 32	1161+55.00	RT	19.12	25.08	2.07	3.87	0.96	PRIVATE ENTRANCE
4	RTE. 32	1161+76.80	LT	57.11	11.50	6.18	11.56	2.86	COUNTY RD. 4433
4	RTE. 32	1162+30.00	LT	47.11	12.21	5.10	9.54	2.36	PRIVATE ENTRANCE
4	RTE. 32	1163+59.00	RT	70.84	-	7.67	14.34	3.54	PRIVATE ENTRANCE
4	RTE. 32	1165+16.00	RT	-	11.99	-	-	-	PRIVATE ENTRANCE
5	BY-PASS	1152+52.00	RT	-	24.29	-	-	-	TEMPORARY ACCESS
5	BY-PASS	1161+20.00	RT	-	11.37	-	-	-	TEMPORARY ACCESS
5	BY-PASS	1161+45.00	LT	-	12.87	-	-	-	TEMPORARY ACCESS
5	BY-PASS	1163+17.00	RT	-	10.53	-	-	-	TEMPORARY ACCESS
5	BY-PASS	1165+16.00	RT	-	11.75	-	-	-	TEMPORARY ACCESS
SUBTOTAL				265.02	176.65	28.69	53.64	13.25	
PAY TOTAL				*	177	28.7	53.6	13	

*SEE PAVEMENT QUANTITIES TABLE FOR PROJECT TOTAL

PERMANENT EROSION CONTROL

SHEET NO.	ROADWAY	BEGIN STA	END STA	SIDE	PHASE	PLACING TYPE 2 ROCK BLANKET (CUYD)	FURNISHING TYPE 2 ROCK BLANKET (CUYD)	PERMANENT EROSION CONTROL GEOTEXTILE (SQYD)	MULCHING (ACRE)	SEEDING - COOL SEASON GRASSES (ACRE)	REMARKS
29	RTE. 32	1155+58.00	1157+37.00	℄	2	425.20	425.20	637.80			WEST OF BRIDGE
30	RTE. 32	1157+55.00	1158+00.00	RT	3	94.67	94.67	142.00			WEST OF BRIDGE
29	RTE. 32	1159+00.00	1160+85.00	℄	2	259.34	259.34	389.01			EAST OF BRIDGE
29	RTE. 32	1150+18.00	1152+50.00	RT	1&2				0.07	0.07	WEST OF BRIDGE
29	RTE. 32	1152+70.00	1158+00.00	RT	1&2				0.69	0.69	WEST OF BRIDGE
29	RTE. 32	1153+00.00	1153+98.00	LT	1&2				0.06	0.06	WEST OF BRIDGE
29	RTE. 32	1154+14.00	1156+20.00	LT	1&2				0.17	0.17	WEST OF BRIDGE
29	RTE. 32	1158+90.00	1161+80.00	RT	1&2				0.09	0.09	EAST OF BRIDGE
29	RTE. 32	1162+18.00	1163+70.00	RT	1&2				0.03	0.03	EAST OF BRIDGE
29	RTE. 32	1163+70.00	1164+80.00	RT	1&2				0.03	0.03	EAST OF BRIDGE
30	RTE. 32	1150+18.00	1152+50.00	RT	3				0.10	0.10	
30	RTE. 32	1152+70.00	1158+00.00	RT	3				0.83	0.86	
30	RTE. 32	1158+90.00	1161+60.00	RT	3				0.18	0.18	
30	RTE. 32	1161+90.00	1163+70.00	RT	3				0.09	0.09	
30	RTE. 32	1163+84.00	1165+15.00	RT	3				0.06	0.06	
SUBTOTAL						779.21	779.21	1,168.81	2.40	2.40	
PAY TOTAL						779	779	1,169	2.4	2.4	

PAVEMENT QUANTITIES

SHEET NO.	ROADWAY	BEGIN STA	END STA	SIDE	TYPE 5 AGGREGATE FOR BASE (4 IN.) (SQYD)	TYPE 1 AGGREGATE FOR BASE (6 IN.) (SQYD)	OPTIONAL PAVEMENT MAINLINE (SQYD)	OPTIONAL PAVEMENT TEMP. BY-PASS (SQYD)	REMARKS
4	RTE. 32	1153+35.00	1156+73.75	CL	-	906.70	906.70	-	WEST OF BRIDGE
4	RTE. 32	1153+35.00	1156+73.75	RT	-	111.70	111.80	-	SHOULDER
4	RTE. 32	1153+35.00	1156+73.75	LT	-	114.30	114.30	-	SHOULDER
4	RTE. 32	1159+51.25	1162+65.00	CL	-	840.00	840.00	-	EAST OF BRIDGE
4	RTE. 32	1159+51.25	1162+65.00	RT	-	103.50	103.60	-	SHOULDER
4	RTE. 32	1159+51.25	1162+65.00	LT	-	106.00	106.00	-	SHOULDER
5	BY-PASS	1150+18.25	1165+08.73	RT	2,023.70	-	-	2,023.70	TEMP BY-PASS
SUBTOTAL					2,023.70	2,182.20	2,182.40	2,023.70	
DRIVEWAYS SUBTOTAL					266	-	-	-	
PAY TOTAL					2,290	2,182	2,182.4	2,023.7	

RIGHT OF WAY MARKERS - FOR INFORMATION ONLY

SHEET NO.	ROADWAY	BEGIN STA	OFFSET	6 FT. WHITE CARSONITE POST WITH MODOT R/W STICKER (EACH)	LOCATION SURVEY RIGHT OF WAY MARKER (EACH)	REMARKS
8	RTE. 32	1153+12.41	40.00' LT.	1	1	BY OTHERS
8	RTE. 32	1153+14.48	60.00' LT.	1	1	BY OTHERS
8	RTE. 32	1157+00.00	40.00' LT.	1	1	BY OTHERS
8	RTE. 32	1157+00.00	60.00' LT.	1	1	BY OTHERS
SUBTOTAL				4	4	
PAY TOTAL				4	4	

CLEARING AND GRUBBING

SHEET NO.	ROADWAY	BEGIN STA	END STA	SIDE	CLEARING AND GRUBBING (ACRE)
4	RTE. 32	1154+20.00	1156+55.00	LT	0.16
4	RTE. 32	1154+85.00	1157+90.00	RT	0.38
		1158+50.00	1158+85.00	LT	0.03
SUBTOTAL					0.58
PAY TOTAL					1

CONTRACTOR FURNISHED SURVEYING AND STAKING
1 LUMP SUM

ADDITIONAL MOBILIZATION FOR SEEDING
1 LUMP SUM

MOBILIZATION
1 LUMP SUM

PIPE

SHEET NO.	ROADWAY	STA	SIDE	NO. OF PIPES	12 IN. PIPE GROUP C (LF)	18 IN. PIPE GROUP C (LF)	18 IN. OR ALLOWED SUBSTITUTE GROUP C FLARED END SECTION (EA)	84 IN PIPE GROUP B (LF)	CLASS 3 EXACAVATION (CUYD)	REMARKS
4	RTE. 32	1152+52.00	RT	1	39.0	-	-	-	11.97	TEMP ENTRANCE
5	RTE. 32	1152+53.00	RT	1	-	24.0	2	-	9.98	ENTRANCE
5	TEMP BY-PASS	1157+96.00	℄	6	-	-	-	510	-	BY-PASS
SUBTOTAL					39.0	24.0	2	510	21.95	
PAY TOTAL					39	24	2	510	22	

PAVEMENT MARKING

SHEET NO.	ROADWAY	BEGIN STA	END STA	SIDE	CLASS 1 PAVEMENT MARKING (18-MIL, TYPE P BEADS) 4" WHITE *620-60.00D* SOLID (LF)	CLASS 1 PAVEMENT MARKING (18-MIL, TYPE P BEADS) 4" YELLOW *620-60.01D* SOLID (LF)
31 - 35	RTE. 32	1146+05	1172+60	LT		
				RT		
				℄		5,322
31 - 35	RTE. 32	1147+95	1170+70	LT	2,289	
				RT	2,264	
				℄		
SUBTOTAL					4,553	5,322
PAY TOTAL					4,553	5,322

ROUTE 32

SUMMARY OF QUANTITIES
SHEET 1 OF 2

THIS SHEET HAS BEEN SIGNED, SEALED, AND DATED ELECTRONICALLY

BRIAN D. KIERATH JR. NUMBER PE-2023008624 STATE OF MISSOURI PROFESSIONAL ENGINEER

DATE PREPARED 9/25/2026

ROUTE	STATE
32	MO
DISTRICT	SHEET NO.
CD	3

COUNTY: DENT

JOB NO.: JCD0235

CONTRACT ID.

PROJECT NO.

BRIDGE NO.

DESCRIPTION | DATE

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

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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

GBA
16305 SWINGLEY RIDGE RD
ST. 300
CHESTERFIELD, MO 63017
314.231.0100
GBAteam.com

GEORGE BUTLER ASSOCIATES, INC.
PRO. ENGINEER 000133
ARCHITECT 000212
PRO. LAND SURVEYOR 000059

BRIAN KIERATH
PROFESSIONAL ENGINEER
PE-2023008624

REV.

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	1	16.00			15	REVERSE CURVE (SYMBOL LEFT)
WO1-4R	48X48	16.00						REVERSE CURVE (SYMBOL RIGHT)
WO1-4bL	48X48	16.00						DOUBLE ARROW REVERSE CURVE (SYMBOL LEFT)
WO1-4bR	48X48	16.00						DOUBLE ARROW REVERSE CURVE (SYMBOL RIGHT)
WO1-4cL	48X48	16.00						TRIPLE ARROW REVERSE CURVE (SYMBOL LEFT)
WO1-4cR	48X48	16.00						TRIPLE ARROW REVERSE CURVE (SYMBOL RIGHT)
WO1-5R	48X48	16.00	1	16.00			55	WINDING ROAD
WO1-6	60X30	12.50	5	62.50			16	HORIZONTAL ARROW (SYMBOL) (3-LEFT, 2-RIGHT)
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	3	48.00			12	SIGNAL AHEAD (SYMBOL)
WO3-4	48X48	16.00						BE PREPARED TO STOP
WO3-5	48X48	16.00	4	64.00			3	SPEED LIMIT AHEAD (2-25 MPH, 2-40 MPH)
WO4-1L	48X48	16.00						MERGE (SYMBOL FROM LEFT)
WO4-1R	48X48	16.00						MERGE (SYMBOL FROM RIGHT)
WO4-1aL	48X48	16.00						MERGE (LEFT)
WO4-1aR	48X48	16.00						MERGE (RIGHT)
WO5-1	48X48	16.00						ROAD/BRIDGE/RAMP NARROWS
WO5-3	48X48	16.00						ONE LANE BRIDGE
WO5-5	48X48	16.00						NARROW LANES
WO6-1	48X48	16.00						DIVIDED HIGHWAY (SYMBOL)
WO6-2	48X48	16.00						DIVIDED HIGHWAY END (SYMBOL)
WO6-3	48X48	16.00						TWO WAY TRAFFIC (SYMBOL)
WO7-3a	30X24	5.00						NEXT XX MILES (PLAQUE)
WO8-1	48X48	16.00						BUMP
WO8-2	48X48	16.00						DIP
WO8-3	48X48	16.00						PAVEMENT ENDS
WO8-4	48X48	16.00						SOFT SHOULDER
WO8-5	48X48	16.00						SLIPPERY WHEN WET (SYMBOL)
WO8-6	48X48	16.00						TRUCK CROSSING
WO8-6c	48X48	16.00						TRUCK ENTRANCE
WO8-7	36X36	9.00						LOOSE GRAVEL
WO8-7a	36X36	9.00						FRESH OIL / LOOSE GRAVEL
WO8-9	48X48	16.00						LOW SHOULDER
WO8-11	48X48	16.00						UNEVEN LANES
WO8-12	48X48	16.00						NO CENTER LINE
WO8-15	48X48	16.00						GROOVED PAVEMENT
WO8-15P	30X24	5.00						MOTORCYCLE (PLAQUE)
WO8-17L	48X48	16.00						SHOULDER DROP-OFF (SYMBOL LEFT)
WO8-17R	48X48	16.00						SHOULDER DROP-OFF (SYMBOL RIGHT)
WO8-17P	30X24	5.00						SHOULDER DROP-OFF (PLAQUE)
W10-1	42RND.	9.62						RAILROAD CROSSING
WO12-1	24X24	4.00						DOUBLE DOWN ARROW (SYMBOL)
WO12-2	48X48	16.00						LOW CLEARANCE (SYMBOL)
WO12-2x	24X18	3.00						LOW CLEARANCE (PLAQUE)
WO12-2a	84X24	14.00						OVERHEAD LOW CLEARANCE (FEET AND INCHES)
WO12-4	120X60	50.00						LOW CLEARANCE XX FT XX IN XX MILES AHEAD
WO12-5	120X60	50.00						WIDTH RESTRICTION XX FT XX IN XX MILES AHEAD
WO13-1	30X30	6.25						ADVISORY SPEED (PLAQUE)
WO16-2	30X24	5.00						XXX FEET (PLAQUE)
WO16-3	30X24	5.00						X MILE (PLAQUE)
WO20-1	48X48	16.00	3	48.00			2	ROAD/BRIDGE/RAMP WORK AHEAD
WO20-2	48X48	16.00						DETOUR AHEAD
WO20-3	48X48	16.00						ROAD CLOSED AHEAD
WO20-4	48X48	16.00	3	48.00			7	ONE LANE ROAD AHEAD
WO20-5	48X48	16.00						RIGHT/CENTER/LEFT LANE CLOSED AHEAD
WO20-5a	48X48	16.00						2 RIGHT/CENTER/LEFT LANES CLOSED AHEAD
WO20-6a	48X48	16.00						RIGHT/CENTER/LEFT LANE CLOSED
WO20-7a	48X48	16.00	3	48.00			8	FLAGGER (SYMBOL)
WO21-2	36X36	9.00						FRESH OIL
WO21-5	48X48	16.00						SHOULDER WORK / SHOULDER WORK AHEAD
WO22-1	48X48	16.00						BLASTING ZONE AHEAD
WO22-2	42X36	10.50						TURN OFF 2-WAY RADIO AND PHONE
WO22-3	42X36	10.50						END BLASTING ZONE
GO22-1	21X15	2.19	4	8.76			60	WET PAINT (ARROW PIVOTS)

SIGN	SIZE IN.	AREA SQ.FT.	QTY EACH	TOTAL SQ.FT.	QTY RELOC EACH	TOTAL RELOC SQ.FT.	SIGN NO.	DESCRIPTION
GUIDE SIGNS								
E05-1	36X48	12.00						GORE EXIT
E05-2	48X36	12.00						EXIT OPEN
E05-2a	48X36	12.00						EXIT CLOSED
GO20-1	60X24	10.00	2	20.00			1	ROAD WORK NEXT XX MILES
GO20-2	48X24	8.00	2	16.00			26	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	4	24.00			54	WORK ZONE (PLAQUE)
MO4-8a	24X18	3.00						END DETOUR
MO4-9L	48X36	12.00						DETOUR (LEFT)
MO4-9R	48X36	12.00						DETOUR (RIGHT)
MO4-9P	48X12	4.00						STREET NAME (PLAQUE)
MO4-10L	48X18	6.00						DETOUR ARROW (LEFT)
MO4-10R	48X18	6.00						DETOUR ARROW (RIGHT)
REGULATORY SIGNS								
R1-1	48X48	13.25						STOP
R1-2	48TRI.	6.93						YIELD
R1-2a	36X36	9.00						TO ONCOMING TRAFFIC (PLAQUE)
R2-1	36X48	12.00	2	24.00			25	SPEED LIMIT 55
R2-1	36X48	12.00	4	48.00			4	SPEED LIMIT (2-25 MPH, 2-40 MPH)
R3-1	48X48	16.00	1	16.00			62	NO RIGHT TURN (SYMBOL)
R3-2	48X48	16.00	1	16.00			61	NO LEFT TURN (SYMBOL)
R3-3	36X36	9.00						NO TURNS
R3-4	48X48	16.00						NO U-TURN (SYMBOL)
R3-7L	30X30	6.25						LEFT LANE MUST TURN LEFT
R3-7R	30X30	6.25						RIGHT LANE MUST TURN RIGHT
R4-1	36X48	12.00						DO NOT PASS
R4-2	36X48	12.00						PASS WITH CARE
R4-7a	36X48	12.00						KEEP RIGHT (HORIZONTAL ARROW)
R4-8a	36X48	12.00						KEEP LEFT (HORIZONTAL ARROW)
R5-1	30X30	6.25						DO NOT ENTER
R5-1a	36X24	6.00						WRONG WAY
R6-1L	54X18	6.75						ONE WAY ARROW (LEFT)
R6-1R	54X18	6.75						ONE WAY ARROW (RIGHT)
R6-2L	24X30	5.00						ONE WAY (LEFT)
R6-2R	24X30	5.00						ONE WAY (RIGHT)
R9-9	24X12	2.00						SIDEWALK CLOSED
R9-11L	24X18	3.00						SIDEWALK CLOSED AHEAD, (ARROW LEFT) CROSS HERE
R9-11R	24X18	3.00						SIDEWALK CLOSED AHEAD, (ARROW RIGHT) CROSS HERE
R10-6	24X36	6.00	3	18.00			47	STOP HERE ON RED (45^ ARROW)
R11-2	48X30	10.00	11	110.00			29	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			57	POINT OF PRESENCE
CONST-5	96X48	32.00						POINT OF PRESENCE
CONST-8	48X36	12.00	2	24.00			56	WORK ZONE NO PHONE ZONE
IA-23-1P	36X24	6.00	7	42.00			59	TURN ONLY IN DIRECTION OF ARROW
R10-11b	24X24	4.00	7	28.00			58	NO TURN ON RED
SPECIAL	48X48	16.00	4	64.00			63	RUMBLE STRIPS AHEAD

616-10.05 CONSTRUCTION SIGNS	TOTAL	834*
616-10.10 RELOCATED SIGNS	TOTAL	

ITEM NUMBER	TOTAL QTY	EFFECTIVE: 07-01-2025 DESCRIPTION
6122008		IMPACT ATTENUATOR 40 MPH (SAND BARRELS)
6122009		IMPACT ATTENUATOR 45 MPH (SAND BARRELS)
6122010		IMPACT ATTENUATOR 50 MPH (SAND BARRELS)
6122012		IMPACT ATTENUATOR 55 MPH (SAND BARRELS)
6122014		IMPACT ATTENUATOR 60 MPH (SAND BARRELS)
6122017		IMPACT ATTENUATOR 65 MPH (SAND BARRELS)
6122019		IMPACT ATTENUATOR 70 MPH (SAND BARRELS)
6122020		REPLACEMENT SAND BARREL
6122030		IMPACT ATTENUATOR (RELOCATION)
6122040		WORK ZONE CRASH CUSHION (NARROW)
6122041		WORK ZONE CRASH CUSHION (RELOCATION)
6123001		TRUCK MOUNTED ATTENUATOR (TMA)
6161012		BUOYS (BOATS KEEP OUT)
6161013		BUOYS (NO WAKE)
6161014		SPECIAL SIGN ASSEMBLY (BOATS KEEP OUT)
6161020		CHANNELIZER (DRUM-LIKE)
6161022		CHANNELIZER (CONE)
6161025	163*	CHANNELIZER (TRIM-LINE)
6161026		CHANNELIZER (VERTICAL PANEL)
6161030	33*	TYPE 3 MOVEABLE BARRICADE
6161033		DIRECTION INDICATOR BARRICADE
6161040		FLASHING ARROW PANEL
6161047		TYPE 3 OBJECT MARKER
6161055		SEQUENTIAL FLASHING WARNING LIGHT
6161070		TUBULAR MARKER
6161095		RADAR SPEED ADVISORY SYSTEM
6161096		CHANGEABLE MESSAGE SIGN, COMMISSION FURNISHED/RETAINED
6161098A	2	CHANGEABLE MESSAGE SIGN WITHOUT COMM. INTERFACE, CONTRACTOR FURNISHED/RETAINED
6161099		CHANGEABLE MESSAGE SIGN WITH COMM. INTERFACE, CONTRACTOR FURNISHED/RETAINED
6162000A	1	WORK ZONE TRAFFIC SIGNAL SYSTEM
6162002	4	TEMPORARY LONG-TERM RUMBLE STRIPS
6173600D		TEMPORARY TRAFFIC BARRIER, CONTRACTOR FURNISHED/RETAINED
6173700B		TEMP. TRAFFIC BARRIER ANCHORED, CONTRACTOR FURNISHED/RETAINED
6173706		TEMP. TRAFFIC BARRIER STIFFNESS TRANSITION CONTRACTOR FURNISHED/RETAINED
6174000A		TEMP. TRAFFIC BARRIER HEIGHT TRANSITION, CONTRACTOR FURNISHED/RETAINED
6175010A		RELOCATING TEMPORARY TRAFFIC BARRIER
6175011B		RELOCATING TEMP. TRAFFIC BARRIER ANCHORED
6175013		RELOCATING TEMP. TRAFFIC BARRIER STIFFNESS
6175020A		RELOCATING TEMP. TRAFFIC BARRIER HEIGHT
6208064A		TEMPORARY RAISED PAVEMENT MARKER
9029400		TEMPORARY TRAFFIC SIGNALS
9029401		TEMPORARY TRAFFIC SIGNALS AND LIGHTING
6169902	7	MISC. RESIDENTIAL DRIVEWAY TEMP. SIGNAL
6208076	4,394**	4 IN. TEMP. PAVEMENT MARKING PAINT
6205303B		TEMP. REM. MARKING TAPE 4 IN., YELLOW
6200015	24	PREFORMED THERMOPLASTIC PAVEMENT MARKING, 24 IN. WHITE
6207001	11,832**	PAVEMENT MARKING REMOVAL

**QUANTITY TABLES AND TOTALS ALSO SHOWN ON SHEET 24

6169901	1	LUMP SUM TEMPORARY TRAFFIC CONTROL (*ITEMS INCLUDED)

D-2bs

ROUTE 32

SUMMARY OF QUANTITIES
SHEET 2 OF 2

STATE OF MISSOURI
CHRISTOPHER NOVOSEL
NUMBER
PE-2018024421
PROFESSIONAL ENGINEER

DATE PREPARED 9/23/2026
ROUTE 32 | STATE MO
DISTRICT CD | SHEET NO. 3
COUNTY DENT
JOB NO. JCD0235
CONTRACT ID.
PROJECT NO.
BRIDGE NO.

DESCRIPTION | DATE | REV.

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

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

GBA
16305 SWINGLEY RIDGE RD
ST. 300
CHESTERFIELD, MO 63017
314.231.0100
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GEORGE BUTLER ASSOCIATES, INC.
PRO. ENGINEER 000133
ARCHITECT 000212
PRO. LAND SURVEYOR 000059

CHRISTOPHER NOVOSEL
PROFESSIONAL ENGINEER
PE-2018024421

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STA. 1155+98.9 TO STA. 1156+86.40 LT
INSTALL 1 TYPE A CRASHWORTHY END
TERMINAL (MASH) & 1 MGS BRIDGE
APPROACH TRANSITION SECTION (REGULAR/NO CURB)

STA. 1155+48.90 TO STA. 1156+86.40 RT
INSTALL 1 TYPE A CRASHWORTHY END
TERMINAL (MASH) & 1 MGS BRIDGE
APPROACH TRANSITION SECTION (REGULAR/NO CURB)
50' MGS GUARDRAIL

PROPOSED ℄	
PI	1158+19.32
PC	1145+82.90
PT	1163+26.50
Δ	104°36'44.9" (RT)
D	5°59'49.4"
L	1,744.40' (ARC)
T	1,236.42'
R	955.40'
SUPER = 7.0%	

EXISTING ℞	
PI	1158+19.32
PC	1145+82.90
PT	1163+26.50
Δ	104°36'44.9" (RT)
D	5°59'59.4"
L	1,512.00' (CHORD)
T	1,236.42'
R	955.40'
SUPER = 7.5%

BUILD BRIDGE A9724
℄ PROP. RTE. 32
STA. 1156+93.25
L = (65'-105'-65')
SKEW 0°
30' PROP. ROADWAY
D.A. = 20.9 SQ. MI.
Q100 = 10,500 CFS

REMOVE BRIDGE J0573
℞ EXIST. RTE. 32
STA. 1157+00.00
L = 4 @ (50')
SKEW 0°
24' EXIST. ROADWAY

STA. 1159+38.90 TO STA. 1160+76.40 LT
INSTALL 1 TYPE A CRASHWORTHY END
TERMINAL (MASH) & 1 MGS BRIDGE
APPROACH TRANSITION SECTION (REGULAR/NO CURB)
50' MGS GUARDRAIL

STA. 1159+38.90 TO STA. 1160+26.40 RT
INSTALL 1 TYPE A CRASHWORTHY END
TERMINAL (MASH) & 1 MGS BRIDGE
APPROACH TRANSITION SECTION (REGULAR/NO CURB)

EX. ESMT. MAINTENANCE OF CHANNEL FILED NOV. 1930 300' x 400'

NW¼ OF NE¼ OF SECTION 18, T34N, R2W

NE¼ OF NE¼ OF SECTION 18, T34N, R2W

EXIST. PERM. DRAIN. ESMT. (+50.49)

EXIST. PERM. DRAIN. ESMT. (+50.62)

1150

1155

1160

1165

BEGIN RECONSTRUCTION STA. 1155+55.00

BEGIN PROJECT ℄ RTE 32 STA. 1151+30.00= 1151+29.75

BEGIN PAVEMENT RECONSTRUCTION STA. 1154+00.00
FULL DEPTH SAW CUT
℄ RTE 32
EXIST. TREE (DND)

ENTRANCE 1154+00.00
WIDTH = 23'
GRADE = 4.00%

EXIST. SIGN (R)

PROP. R/W

EXIST. FENCE (R)

EXIST. SIGNS (R)

STA. 1156+73.75 BRIDGE APPROACH SLAB

¼ SECTION LINE

HUZZAH CREEK

EXIST. R/W

SL

EOS

EOP

℄ RTE. 32

S73°15'18"E

℄ TEMP. BY-PASS

TEMP. EASEMENT

EXIST. MAILBOX (R&RELOC)

EXIST. SIGNS (R)

EXIST.PP (UIP)

TEMP. EASEMENT

STA. 1152+53.00 INSTALL
24' X 18" PIPE W/ 2 FES
REMOVE EXIST. 65' X 18' PIPE

COUNTY RD. 532

ENTRANCE 1152+25.00
WIDTH = 18.25'
GRADE = 4.00%

EXIST. PERM. DRAIN. ESMT. (+25.52)

01

HUZZAH CREEK

¼ SECTION LINE

STA. 1159+51.25 BRIDGE APPROACH SLAB

EX. ESMT. MAINTENANCE OF CHANNEL FILED NOV. 1930 200' x 400'

TEMP. EASEMENT

EXIST.PP (UIP)

EXIST. PERM. DRAIN. ESMT. (+30.62)

02

ENTRANCE 1161+00.00
WIDTH = 20'
GRADE = 5.50%
COUNTY RD. 4433

ENTRANCE 1161+76.80
WIDTH = 25'
GRADE = 7.59%

ENTRANCE 1162+30.00
WIDTH = 30', GRADE = 5.00%
℄ END PAVEMENT RECONSTRUCTION
℄ RTE 32 STA. 1162+65.00
FULL DEPTH SAW CUT

EXIST. UTILITY TELEPHONE

END PROJECT ℄ RTE 32 STA. 1164+40.00

STA 1163+26.50 R2

EOP
EOS

ENTRANCE 1161+55.00
WIDTH = 30'
GRADE = 3.00%

STA 1163+27.30 BK = EQUATION: STA 1163+26.50 AH

℄ RTE. 32

STA. 1165+54.70 R2

EXIST. TREE (DND)

ENTRANCE 1163+59.00
WIDTH = 15'
GRADE = 5.28%

EXIST. R/W

EXIST. FENCE

ENTRANCE 1165+16
WIDTH = 14'
GRADE = 9.50%

EXISTING 18' 12" CMP-1032 (UIP)

SCALE
0 60 120 180

01

KIRKWOOD, DEBORAH A.
12-4.0-18-0-00-024.00

54.000 ACRES EXISTING
1.243 ACRES TEMP. ESMT.
54.000 ACRES REMAINING

02

BELDEN, CHRISTOPHER E SR AND BRANDIE K.
12-4.0-18-0-00-025.00

3.900 ACRES EXISTING
0.186 ACRES NEW R/W
3.714 ACRES REMAINING

GENERAL NOTES:
1. ANY WORK INDICATED ON THE PLANS THAT EXTENDS BEYOND THE PROJECT LIMITS IS CONSIDERED INCIDENTAL TO AND A PART OF CONSTRUCTION OF THIS PROJECT
2. ALL BEARINGS ARE BASED ON STATE PLAN BEARINGS. EAST ZONE
3. SEE EROSION CONTROL SHEETS FOR PERMANENT ROCK BLANKET CALLS AND DETAILS.
4. SEE SIGNING & PAVEMENT MARKING SHEETS FOR SIGN REMOVALS
5. CONTRACTOR TO MAINTAIN ACCESS TO ALL ADJACENT PARCELS DURING CONSTRUCTION.

TYPE 2 ROCK BLANKET
PAVED ENTRANCE

ROUTE 32

MAINLINE PLAN SHEET

STATE OF MISSOURI
BRIAN D. KIERATH JR.
NUMBER PE-2023008624
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED, AND DATED ELECTRONICALLY

DATE PREPARED 9/23/2026

ROUTE	STATE
32	MO
DISTRICT	SHEET NO.
CD	4

COUNTY DENT
JOB NO. JCD0235
CONTRACT ID.
PROJECT NO.
BRIDGE NO.

DESCRIPTION | DATE

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

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

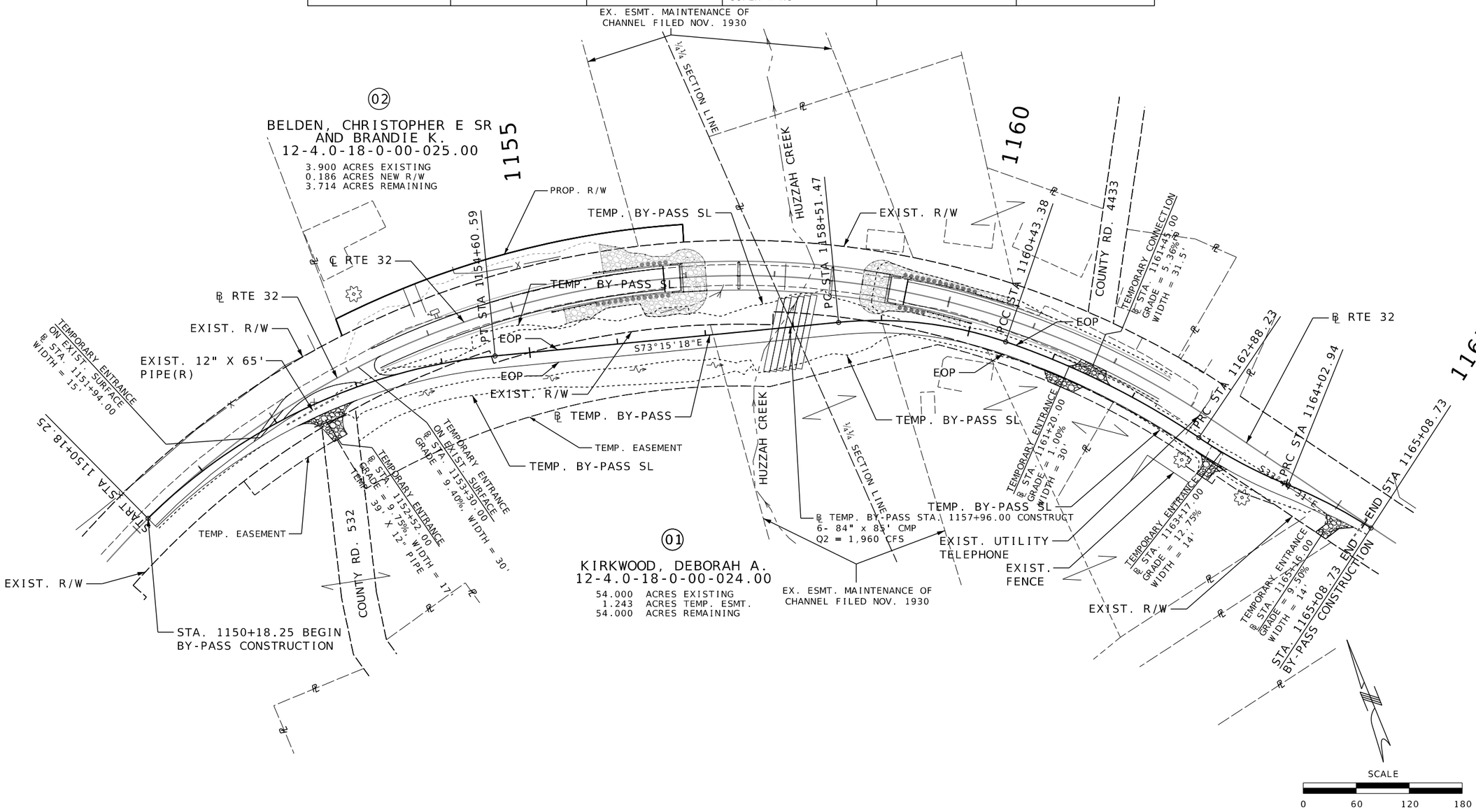
GBA
16305 SWINGLEY RIDGE RD
ST. 300
CHESTERFIELD, MO 63017
314.231.0100
GBAteam.com

GEORGE BUTLER ASSOCIATES, INC.
PRO. ENGINEER 000133
ARCHITECT 000212
PRO. LAND SURVEYOR 000059

BRIAN KIERATH
PROFESSIONAL ENGINEER
PE-2023008624

REV.

PROPOSED BYPASS ℄					
PI 1152+48.37 PC 1150+18.25 PT 1154+60.59 Δ 38°59'27.6" (RT) D 8°48'53.0" L 442.34' (ARC) T 220.12' R 650.00' SUPER = 4.4%	PI 1159+48.91 PC 1158+51.47 PT 1160+43.38 Δ 24°26'6.6" (RT) D 12°43'56.6" L 191.91' (ARC) T 97.44' R 450.00' SUPER = 5.4%	PI 1161+66.52 PC 1160+43.38 PT 1162+88.23 Δ 15°4'40.7" (RT) D 6°9'29.5" L 244.84' (ARC) T 123.13' R 930.40' SUPER = NC	SSC PI 1160+64.63 SCS TOTAL Δ 62°32'21.9" PC 1158+51.47 PT 1160+43.38 Δ 24°26'6.6" (RT) D 12°43'56.6" L 191.91' (ARC) T 97.44' R 450' SUPER = NC	PI 1163+45.79 PC 1162+88.23 PT 1164+02.94 Δ 11°58'44.2" (LT) D 10°26'33.0" L 114.71' (ARC) T 57.57' R 548.68' SUPER = NC	PI 1164+56.00 PC 1164+02.94 PT 1165+08.73 Δ 11°2'50.3" (RT) D 10°26'33.0" L 105.79' (ARC) T 53.06' R 548.68' SUPER = NC



ROUTE 32

TEMPORARY BY-PASS PLAN SHEET

BRIAN D. KIERATH JR. NUMBER PE-2023008624
STATE OF MISSOURI PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED, AND DATED ELECTRONICALLY

BRIAN KIERATH
PROFESSIONAL ENGINEER
PE-2023008624

DATE PREPARED 9/23/2026

ROUTE	STATE
32	MO
DISTRICT	SHEET NO.
CD	5

COUNTY: DENT

JOB NO.: JCD0235

CONTRACT ID.:

PROJECT NO.:

BRIDGE NO.:

DESCRIPTION	DATE

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

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

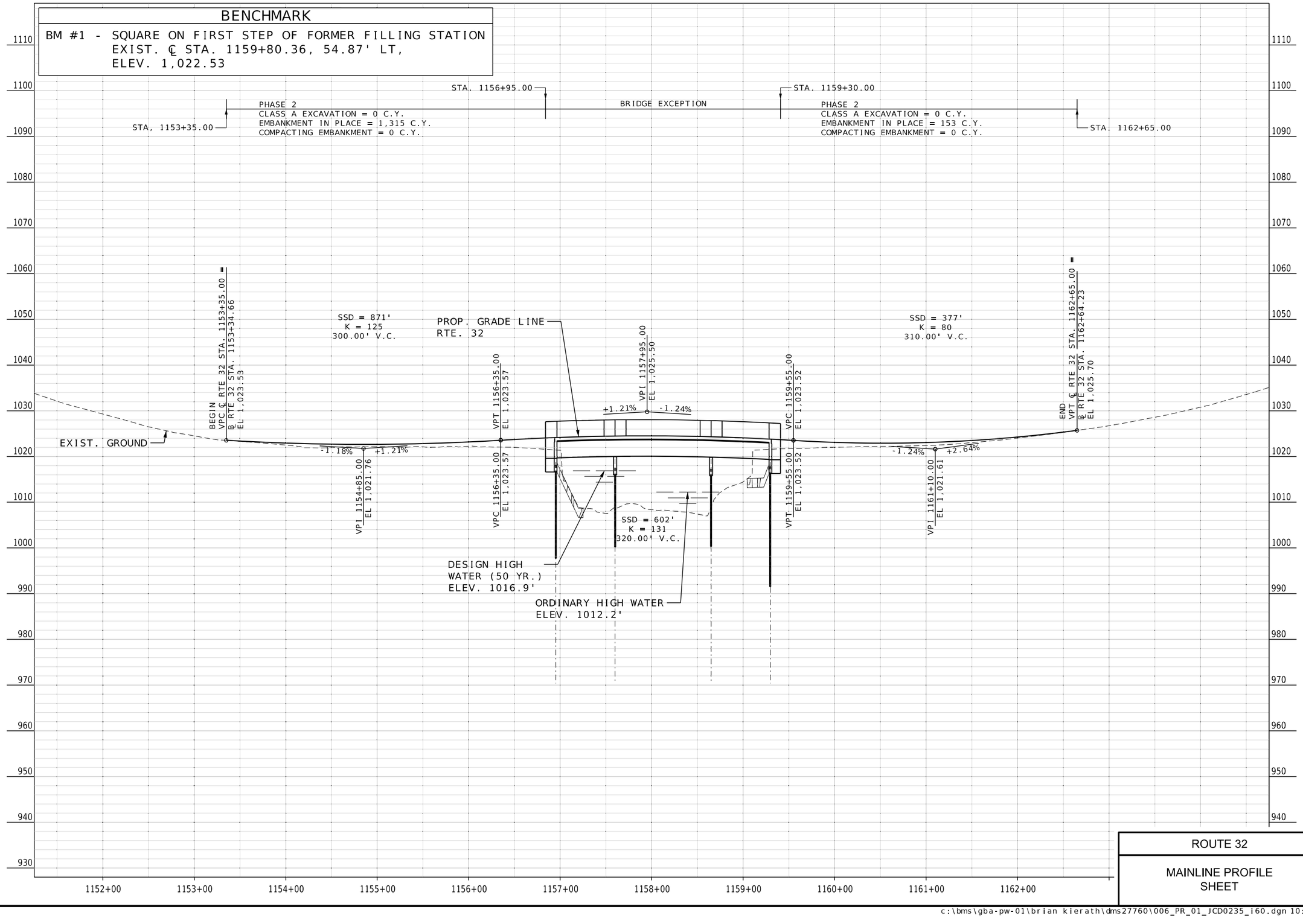
GBA
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CHESTERFIELD, MO 63017
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GEORGE BUTLER ASSOCIATES, INC.
PRO. ENGINEER 000133
ARCHITECT 000212
PRO. LAND SURVEYOR 000059

REV.

BENCHMARK

BM #1 - SQUARE ON FIRST STEP OF FORMER FILLING STATION
EXIST. ℄ STA. 1159+80.36, 54.87' LT,
ELEV. 1,022.53



ROUTE 32

MAINLINE PROFILE
SHEET

STATE OF MISSOURI
BRIAN D. KIERATH JR.
NUMBER PE-2023008624
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED, AND DATED ELECTRONICALLY

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

DATE PREPARED	
9/23/2026	
ROUTE	STATE
32	MO
DISTRICT	SHEET NO.
CD	6

COUNTY: DENT

JOB NO.: JCD0235

CONTRACT ID.:

PROJECT NO.:

BRIDGE NO.:

DESCRIPTION	DATE

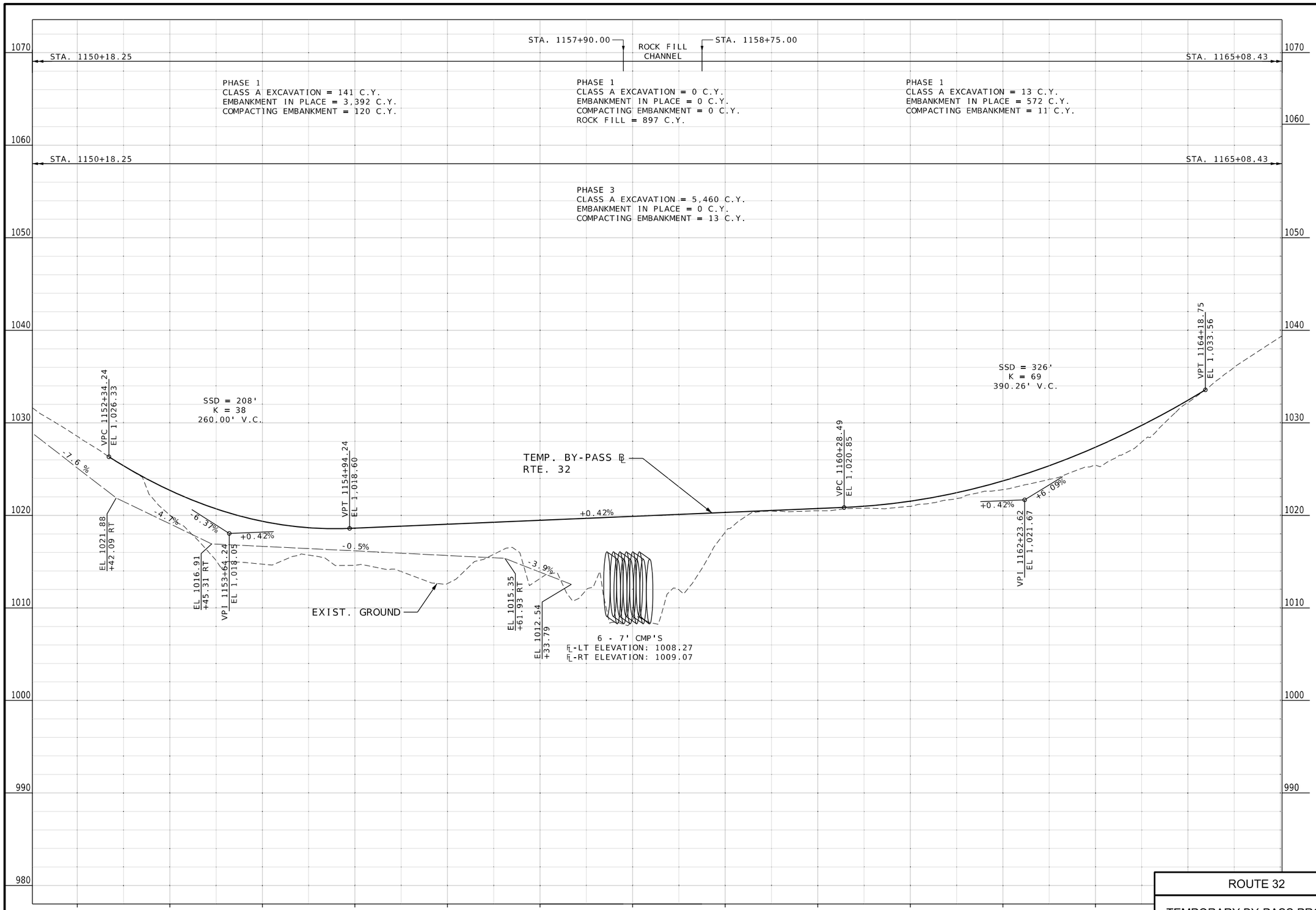
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
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JEFFERSON CITY, MO 65102
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PRO. ENGINEER 000133
ARCHITECT 000212
PRO. LAND SURVEYOR 000059

BRIAN KIERATH
PROFESSIONAL
ENGINEER
PE-2023008624

REV.



ROUTE 32

TEMPORARY BY-PASS PROFILE SHEET

STATE OF MISSOURI
BRIAN D. KIERATH JR.
NUMBER PE-2023008624
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED, AND DATED ELECTRONICALLY

DATE PREPARED: 9/23/2026

ROUTE	STATE
32	MO
DISTRICT	SHEET NO.
CD	7

COUNTY: DENT

JOB NO.: JCD0235

CONTRACT ID.:

PROJECT NO.:

BRIDGE NO.:

REV.	DESCRIPTION	DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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

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ASSOCIATES, INC.
PRO. ENGINEER 000133
ARCHITECT 000212
PRO. LAND SURVEYOR 000059

BRIAN KIERATH
PROFESSIONAL
ENGINEER
PE-2023008624

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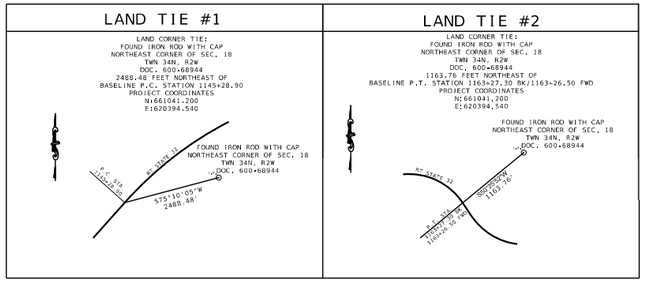
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RIGHT OF WAY LIMITS FOR THIS PROJECT EXTEND FROM STATION 1151+30.00 TO 1164+40.00, A DISTANCE OF 1127.59 FEET.

PROPOSED ℄	
PI	1158+19.32
PC	1145+82.90
PT	1163+26.50
Δ	104°36'44.9" (RT)
D	5°59'49.4"
L	1,744.40' (ARC)
T	1,236.42'
R	955.40'
SUPER =	7.0%

EXISTING ℄	
PI	1158+19.32
PC	1145+82.90
PT	1163+26.50
Δ	104°36'44.9" (RT)
D	5°59'59.4"
L	1,512.00' (CHORD)
T	1,236.42'
R	955.40'
SUPER =	7.5%

LAND TIE #1	LAND TIE #2
LAND CORNER TIE: FOUND IRON ROD WITH CAP NORTHEAST CORNER OF SEC. 18 TWN 34N, R2W DOC. 600-68944 2488.48 FEET NORTHEAST OF BASELINE P.C. STATION 1145+28.90 PROJECT COORDINATES N:661041.200 E:620394.540	LAND CORNER TIE: FOUND IRON ROD WITH CAP NORTHEAST CORNER OF SEC. 18 TWN 34N, R2W DOC. 600-68944 1163.76 FEET NORTHEAST OF BASELINE P.T. STATION 1163+27.30 BK/1163+26.50 FWD PROJECT COORDINATES N:661041.200 E:620394.540



EX. ESMT. MAINTENANCE OF CHANNEL FILED NOV. 1930 300' x 400'

02

BELDEN, CHRISTOPHER E SR AND BRANDIE K.
12-4.0-18-0-00-025.00
3.900 ACRES EXISTING
0.186 ACRES NEW R/W
3.714 ACRES REMAINING

NW ¼ OF NE ¼ SECTION 18 T34N, R2W

NE ¼ OF NE ¼ SECTION 18 T34N, R2W

¼ ¼ SECTION LINE

EXIST. PERM. DRAIN. ESMT. (+50.49)

EXIST. PERM. DRAIN. ESMT. (+50.62)

1155

1160

1165

1150

BARTON, IRMALEEN, TRUSTEE
12-4.0-18-0-00-011.00
NO ACQUISITION

SNIDER, WESLEY D
12-4.0-18-0-00-013.00
NO ACQUISITION

GOLDEN, JOYCE E.
12-4.0-18-0-00-002.00
NO ACQUISITION

ASHER, JOHN E & SUSAN K
12-4.0-18-0-00-027.00
NO ACQUISITION

HUZZAH CREEK

COUNTY RD. 4433

COUNTY RD. 532

PROP. R/W

EXIST. R/W

SL

EQUATION: PT STA 1163+27.30 BK = STA 1163+26.50 AH

PC STA 1165+54.70 R2

PROP. TEMP. EASEMENT

EXIST. PERM. DRAIN. ESMT. (+25.52)

EXIST. PERM. DRAIN. ESMT. (+30.62)

01

KIRKWOOD, DAVID AND DEBORAH
ASHLEY KIRKWOOD
BENEFICIARY DEED
DOC. 20201125
12-4.0-18-0-00-024.00
54.000 ACRES EXISTING
1.243 ACRES TEMP. ESMT.
54.000 ACRES REMAINING

EX. ESMT. MAINTENANCE OF CHANNEL FILED NOV. 1930 200' X 400'

LUNSFORD, DAVID AND LUSFORD II, DAVID
12-4.0-18-0-00-001.00
NO ACQUISITION

SCALE
0 60 120 180

ROUTE 32 BRIDGE REPLACEMENT OVER EAST FORK HUZZAH CREEK - ROW IMPACTS							
PARCEL COUNT	PARCEL IDENTIFIER	PARCEL ADDRESS	OWNER NAME	NEW RIGHT OF WAY (ACRES)	NEW TEMP. EASEMENT (ACRES)	EXISTING AREA (ACRES)	REMAINING AREA (ACRES)
01	12-4.0-18-0-00-024.00	-	DAVID AND DEBORAH, KIRKWOOD	-	1.243	54.000	54.000
02	12-4.0-18-0-00-027.00	-	ASHER, JOHN E & SUSAN K	-	-	-	NO ACQUISITION
03	12-4.0-18-0-00-025.00	-	BELDEN, CHRISTOPHER E SR	0.186	-	3.900	3.714
04	12-4.0-18-0-00-011.00	-	BARTON, IRMALEEN, TRUSTEE	-	-	-	NO ACQUISITION
05	12-4.0-18-0-00-013.00	-	SNIDER, WESLEY D	-	-	-	NO ACQUISITION
06	12-4.0-18-0-00-002.00	-	GOLDEN, JOYCE E.	-	-	-	NO ACQUISITION
07	12-4.0-18-0-00-001.00	-	LUNSFORD, DAVID AND LUNSFORD II, DAVID	-	-	-	NO ACQUISITION

ROUTE 32

RIGHT OF WAY SHEET

STATE OF MISSOURI
BRIAN D. KIERATH JR. NUMBER PE-2023008624
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED, AND DATED ELECTRONICALLY

DATE PREPARED: 9/23/2026

ROUTE	STATE
32	MO
DISTRICT	SHEET NO.
CD	8

COUNTY: DENT

JOB NO.: JCD0235

CONTRACT ID.:

PROJECT NO.:

BRIDGE NO.:

DESCRIPTION	DATE

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

GBA
16305 SWINGLEY RIDGE RD
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CHESTERFIELD, MO 63017
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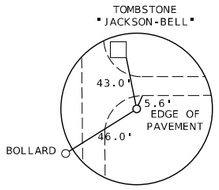
GEORGE BUTLER ASSOCIATES, INC.
PRO. ENGINEER 000133
ARCHITECT 000212
PRO. LAND SURVEYOR 000059

BRIAN KIERATH
PROFESSIONAL ENGINEER
PE-2023008624

REV.

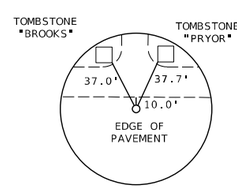
c:\bms\gba-pw-01\brian kierath\dms27760\008_RW_01_JCD0235_i60.dgn 10:13:59 PM 9/23/2026

IN BOSS CEMETARY

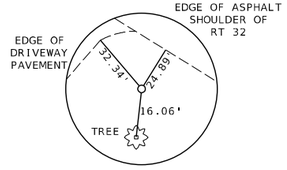


CP #300
IRON ROD WITH CAP
N 659,937.620
E 620,010.236
ELVATION: 1,091.204

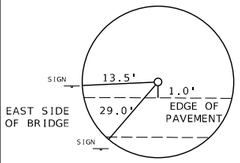
IN BOSS CEMETARY



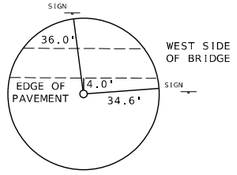
CP #301
IRON ROD WITH CAP
N 659,963.762
E 620,316.815
ELVATION: 1,121.96



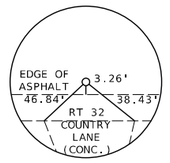
CP #101
IRON ROD WITH CAP
N 660,221.122
E 619,501.261'
ELVATION: 1,027.32'



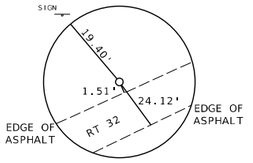
CP #102
IRON ROD WITH CAP
N 660,589.360
E 619,218.768
ELVATION: 1,022.32



CP #103
IRON ROD WITH CAP
N 660,671.370
E 618,969.886
ELVATION: 1,020.805



CP #105
LARGE NAIL
N 660,729.383
E 618,562.049
ELVATION: 1,026.75



CP #107
LARGE NAIL
N 660,564.018
E 618,154.992
ELVATION: 1,054.29

CP #108
LARGE NAIL
N 660,001.088
E 617,608.042
ELVATION: 1,079.59

BENCHMARK
SQUARE ON FIRST STEP OF
FORMER FILLING STATION
N 660,591.875
E 619,289.442
ELVATION: 1,022.53

ROUTE 32

REFERENCE POINT
SHEET



THIS SHEET HAS BEEN
SIGNED, SEALED, AND DATED
ELECTRONICALLY

DATE PREPARED
9/23/2026

ROUTE	STATE
32	MO
DISTRICT	SHEET NO.
CD	9

COUNTY
DENT

JOB NO.
JCD0235

CONTRACT ID.

PROJECT NO.

BRIDGE NO.

REV.	DESCRIPTION	DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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

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BRIAN KIERATH
PROFESSIONAL
ENGINEER
PE-2023008624

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

PROJECT COORDINATE INFORMATION

COORDINATE SYSTEM	STATE PLANE (GRID)
HORIZONTAL DATUM	NAD83
VERTICAL DATUM	NAVD88
GEOID MODEL	GEOID 18
ELEVATIONS DETERMINED BY	
PROJECT PROJECTION FACTOR	1.00006694

REFERENCE CONTROL INFORMATION

COORDINATE SYSTEM	2401 (MO-EAST)
CONTROL STATION	MOBE
DESIGNATION	MODOT BUNKER CORS ARP
CORS_ID	MOBE
PID	DN4498
LATITUDE	37°27'19.28708"
LONGITUDE	91°12'56.71472"
NORTHING (M)	180,226.213
EASTING (M)	186,675.255
ZONE	2401 (MO-EAST)
PROJECT AVERAGE GRID FACTOR	0.99992165

EXAMPLE OF PROJECT COORDINATE TO S.P.C.

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

EXAMPLE: CONTROL POINT #300
N 659937.6200 X 0.99992165 = N 659893.4464
E 620010.2360 X 0.99992165 = E 619968.7350

LINEAR UNIT CONVERSION

1 METER = 3.280833333 US SURVEY FEET (USFT)

COORDINATE POINT LISTING

SHEET NO	STATION	LOCATION	OFFSET (USFT)	MODIFIED STATE PLANE (GROUND) NORTHING (US SURVEY FT)	EASTING (US SURVEY FT)	ELEVATION (US SURVEY FT)	DESCRIPTION
PROJECT CONTROL POINTS							
-	1169+90.00	EXIST. ℄	142.16' LT	659,937.62	620,010.24	1,091.20	CP #300 IRON ROD WITH CAP
-	1173+49.90	EXIST. ℄	270.65' LT	659,963.76	620,316.82	1,121.96	CP #301 IRON ROD WITH CAP
4	1163+94.24	EXIST. ℄	40.57' RT	660,221.12	619,501.26	1,027.32	CP #101 IRON ROD WITH CAP
4	1159+25.05	EXIST. ℄	13.41' LT	660,589.36	619,218.77	1,022.32	CP #102 IRON ROD WITH CAP
4	1156+63.62	EXIST. ℄	14.66' RT	660,671.37	618,969.89	1,020.81	CP #103 IRON ROD WITH CAP
4	1152+49.71	EXIST. ℄	14.96' LT	660,729.38	618,562.05	1,026.75	CP #105 LARGE NAIL
-	1148+12.40	EXIST. ℄	9.89' LT	660,564.02	618,154.99	1,054.29	CP #107 LARGE NAIL
-	1140+28.46	EXIST. ℄	16.46' LT	660,001.09	617,608.04	1,079.59	CP #108 LARGE NAIL
4	1159+80.36	EXIST. ℄	54.87' LT	660,591.88	619,289.44	1,022.53	BM #1 SQUARE ON FIRST STEP OF FORMER FILLING STATION
ALIGNMENTS							
4	1140+18.30	EXIST. ℄		659,982.28	617,613.79		START N41°34'21"E 549.31'
4	1145+82.90	EXIST. ℄		660,404.19	617,988.97		PC
4	1158+19.32	EXIST. ℄		661,328.13	618,810.60		PI (CHORD)
4	1163+26.50	EXIST. ℄		660,299.98	619,497.38		PT S33°44,31"E
4	1165+54.70	EXIST. ℄		660,110.22	619,624.13		PC S33°44,31"E
4	1170+27.64	EXIST. ℄		659,716.95	619,886.82		PI
4	1174+32.60	EXIST. ℄		659,681.37	620,358.83		PT
4	1145+82.90	PROP. ℄		660,404.19	617,988.97		PC
4	1158+19.32	PROP. ℄		661,328.13	618,810.60		PI (ARC)
4	1163+27.30	PROP. ℄		660,299.98	619,497.38		PT (℄ STA. 1163+27.30 = ℄ STA. 1163+26.50)
5	1150+18.25	BY-PASS ℄		660,653.59	618,341.22		PC
5	1152+48.37	BY-PASS ℄		660,740.71	618,554.21		PI
5	1154+60.59	BY-PASS ℄		660,674.41	618,774.57		PT
5	1158+52.47	BY-PASS ℄		660,541.79	618,774.57		PC
5	1159+48.91	BY-PASS ℄		660,533.72	619,242.18		PI
5	1160+43.38	BY-PASS ℄		660,469.56	619,315.52		PCC
5	1161+66.52	BY-PASS ℄		660,388.49	619,408.19		PI
5	1162+88.23	BY-PASS ℄		660,286.10	619,476.59		PRC
5	1163+45.79	BY-PASS ℄		660,238.23	619,508.56		PI
5	1164+02.94	BY-PASS ℄		660,198.04	619,549.78		PRC
5	1164+56.00	BY-PASS ℄		660,160.99	619,549.78		PI
5	1165+08.73	BY-PASS ℄		660,117.35	619,617.95		PT

EXISTING ℄ RTE 32 CURVE CONVERTED FROM CHORD DEFINED CURVE TO A ARC DEFINED CURVE THROUGH PROPOSED IMPROVEMENTS

STATE OF MISSOURI
BRIAN D. KIERATH JR.
NUMBER
PE-2023008624
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED, AND DATED ELECTRONICALLY

DATE PREPARED: 9/23/2026
ROUTE: 32
STATE: MO
DISTRICT: CD
SHEET NO.: 10
COUNTY: DENT
JOB NO.: JCD0235
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.:

DESCRIPTION | DATE

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

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CHESTERFIELD, MO 63017
314.231.0100
GBAteam.com

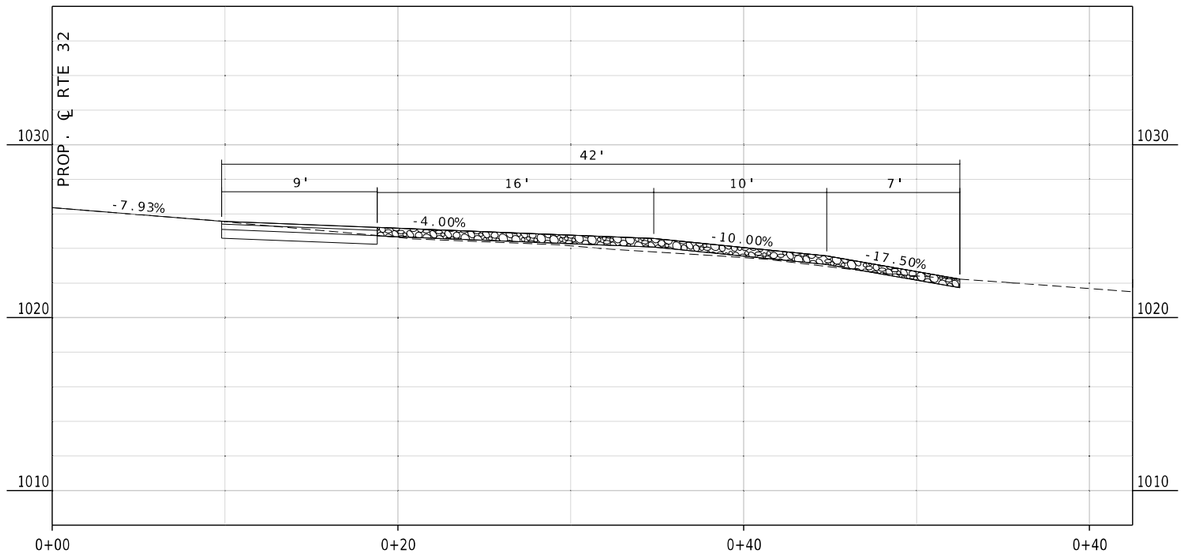
GEORGE BUTLER
ASSOCIATES, INC.
PRO. ENGINEER 000133
ARCHITECT 000212
PRO. LAND SURVEYOR 000059

ROUTE 32

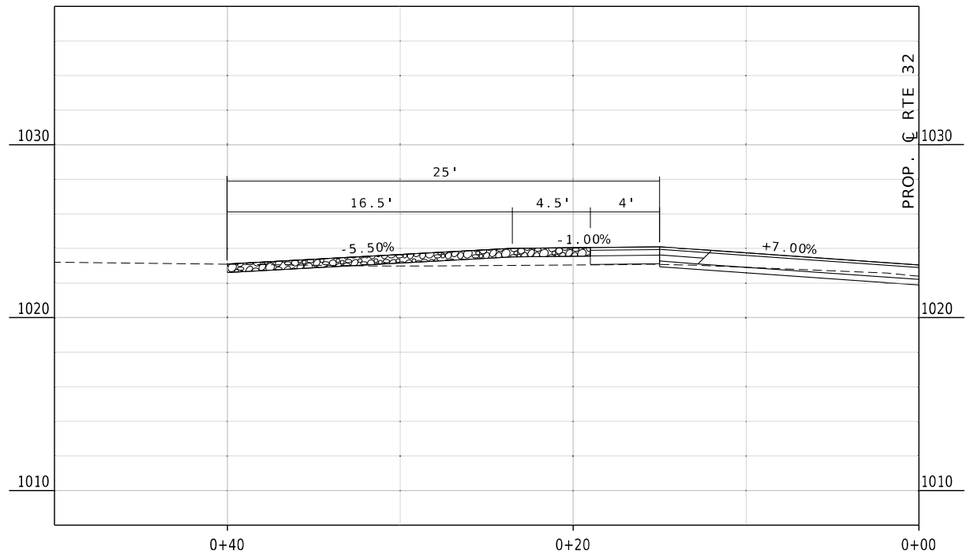
COORDINATE POINT SHEET

BRIAN KIERATH
PROFESSIONAL
ENGINEER
PE-2023008624

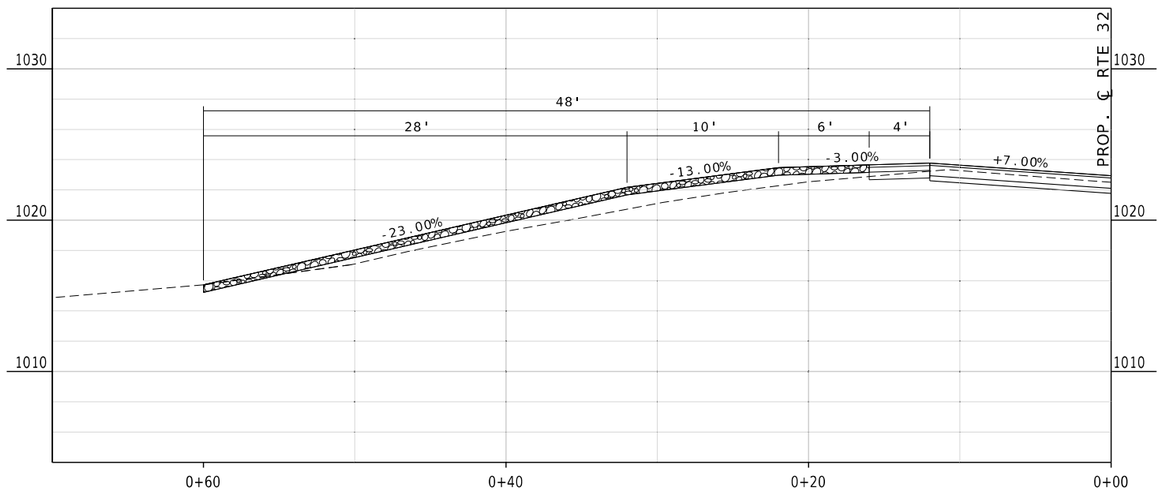
REV.



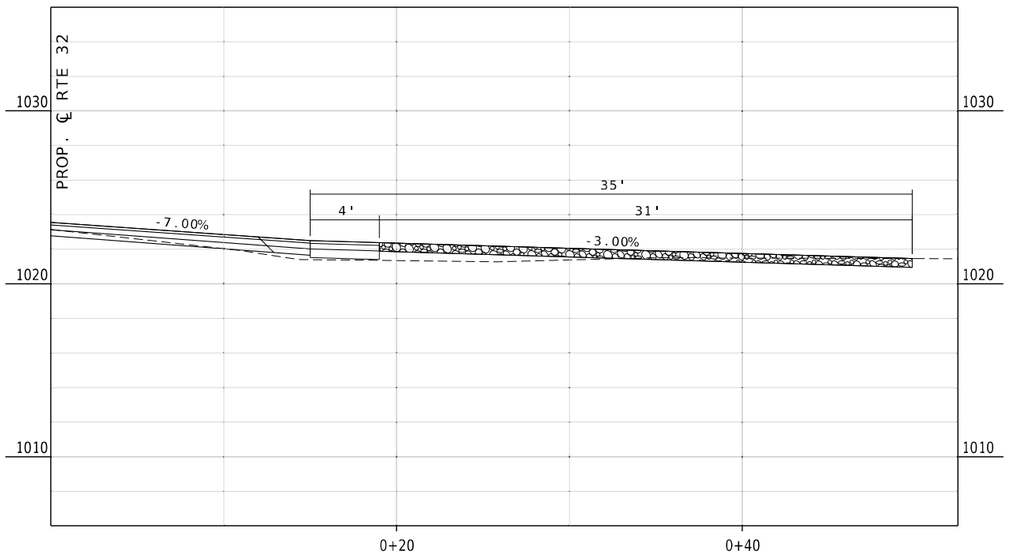
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℄ RTE. 32 ENTRANCE STA. 1161+00.00 LT



℄ RTE. 32 ENTRANCE STA. 1154+00.00 LT



℄ RTE. 32 ENTRANCE STA. 1161+55.00 RT

ROUTE 32

ENTRANCE PROFILES
MAINLINE ENTRANCES
SHEET 1 OF2

THIS SHEET HAS BEEN SIGNED, SEALED, AND DATED ELECTRONICALLY

BRIAN D. KIERATH JR. NUMBER PE-202300862 4
STATE OF MISSOURI
PROFESSIONAL ENGINEER

DATE PREPARED
9/23/2026

ROUTE	STATE
32	MO
DISTRICT	SHEET NO.
CD	11

COUNTY
DENT

JOB NO.
JCD0235

CONTRACT ID.

PROJECT NO.

BRIDGE NO.

DESCRIPTION	DATE

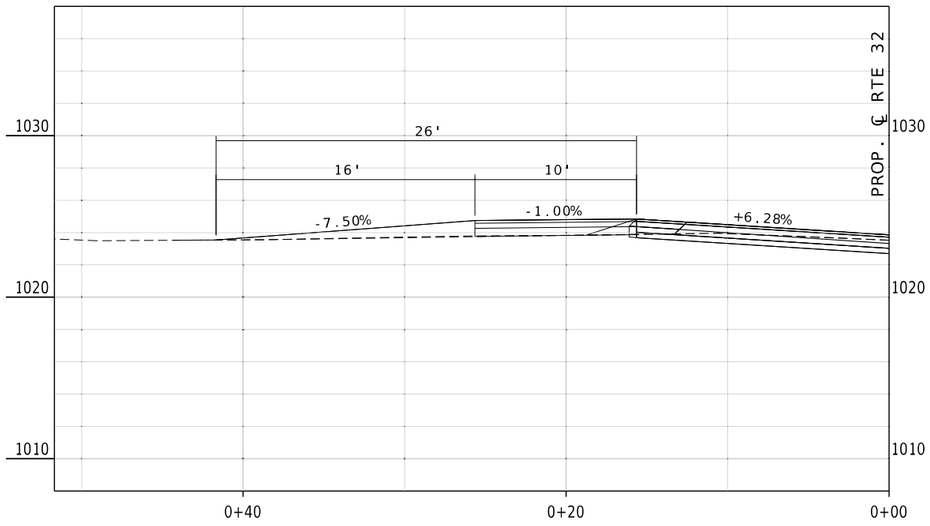
IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

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

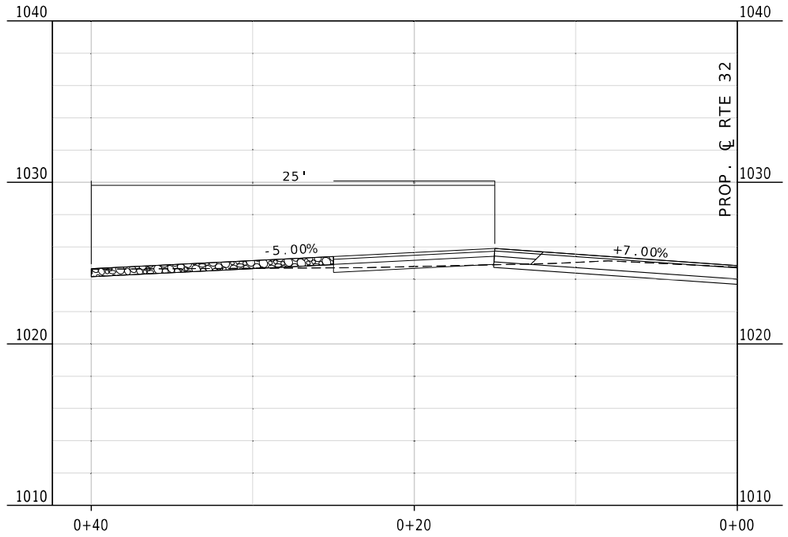
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16305 SWINGLEY RIDGE RD
ST. 300
CHESTERFIELD, MO 63017
314.231.0100
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GEORGE BUTLER
ASSOCIATES, INC.
PRO. ENGINEER 000133
ARCHITECT 000212
PRO. LAND SURVEYOR 000059

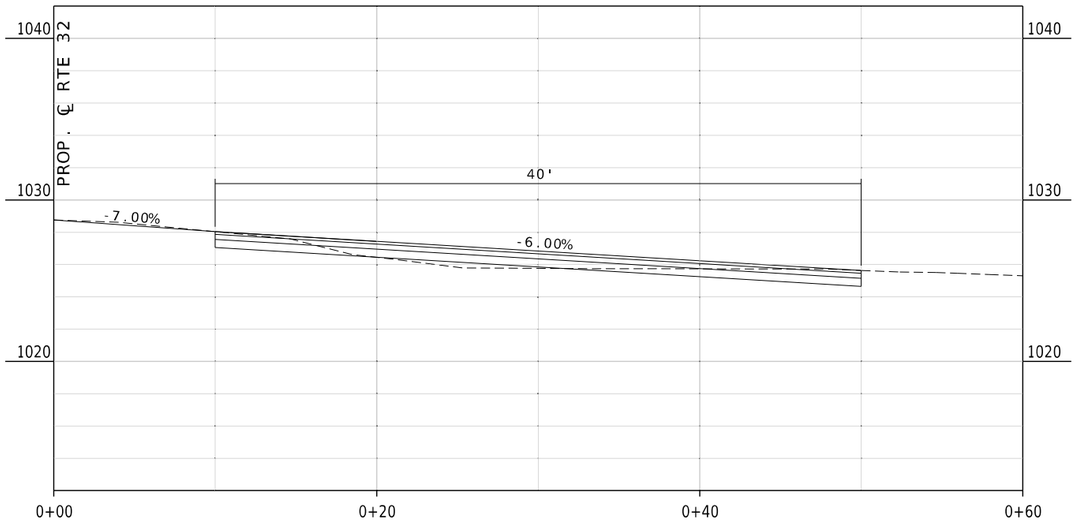
BRIAN KIERATH
PROFESSIONAL
ENGINEER
PE-2023008624



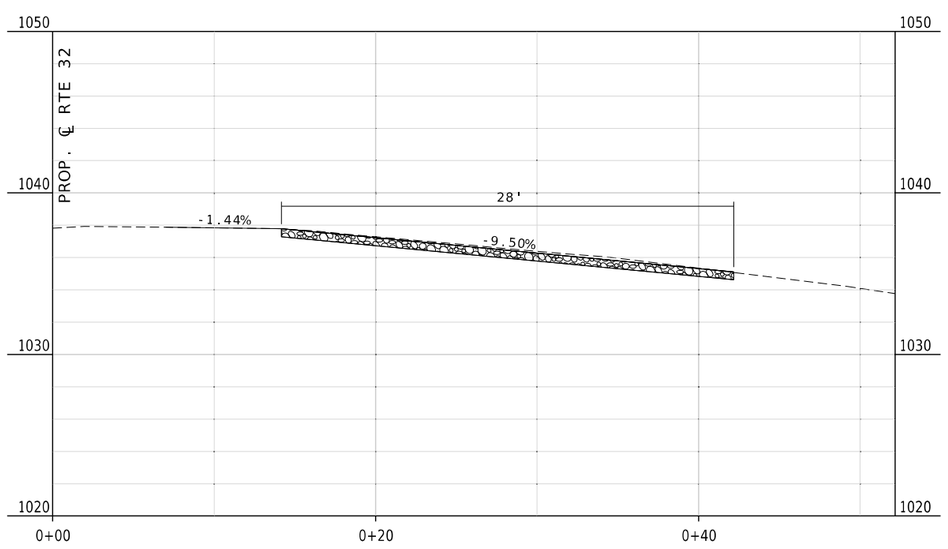
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℄ RTE. 32 ENTRANCE STA. 1162+30.00 LT



℄ RTE. 32 ENTRANCE STA. 1163+54.00 RT



℄ RTE. 32 ENTRANCE STA. 1165+16.00

ROUTE 32

ENTRANCE PROFILES
MAINLINE ENTRANCES
SHEET 2 OF 2

STATE OF MISSOURI
BRIAN D. KIERATH JR.
NUMBER PE-202300862
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED, AND DATED ELECTRONICALLY

DATE PREPARED 9/23/2026

ROUTE	STATE
32	MO
DISTRICT	SHEET NO.
CD	12

COUNTY: DENT
JOB NO.: JCD0235
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.:

DESCRIPTION	DATE

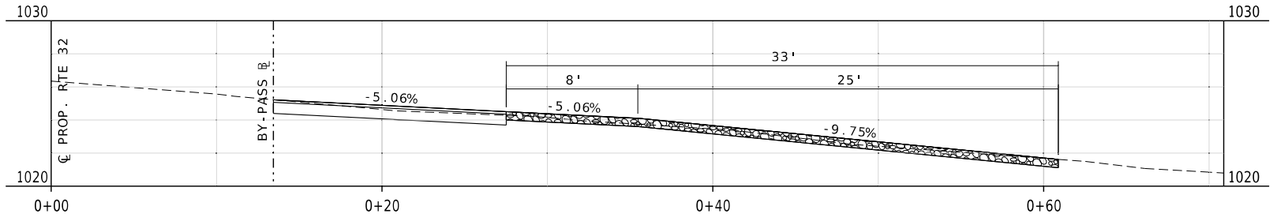
IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

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

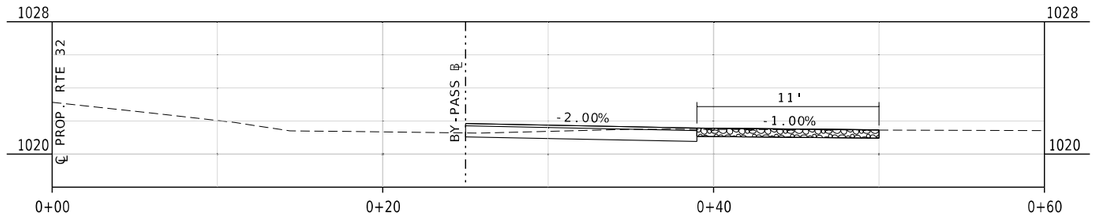
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16305 SWINGLEY RIDGE RD
ST. 300
CHESTERFIELD, MO 63017
314.231.0100
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GEORGE BUTLER
ASSOCIATES, INC.
PRO. ENGINEER 000133
ARCHITECT 000212
PRO. LAND SURVEYOR 000059

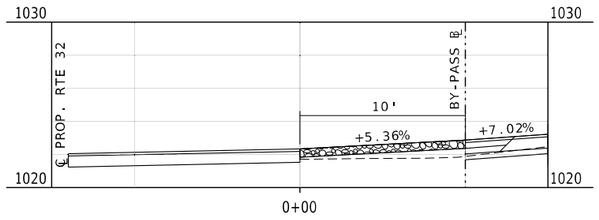
BRIAN KIERATH
PROFESSIONAL
ENGINEER
PE-2023008624



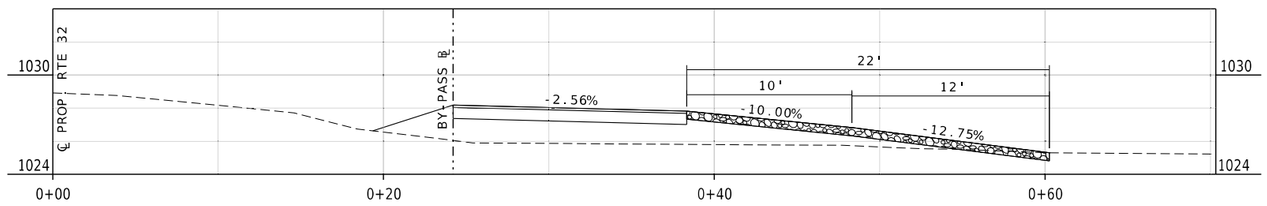
℄ TEMP. BY-PASS STA. 1152+52.00 RT



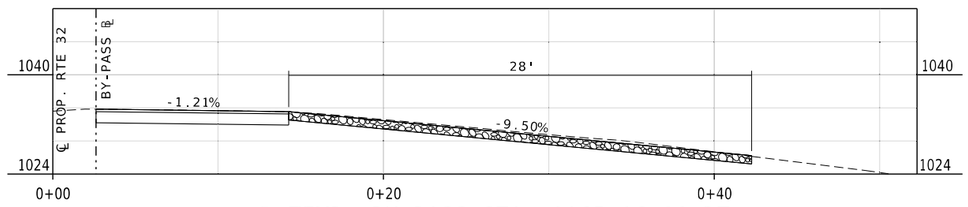
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℄ TEMP. BY-PASS STA. 1161+45.00 LT



℄ TEMP. BY-PASS STA. 1163+17.00 RT



℄ TEMP. BY-PASS STA. 1165+16.00 RT

THIS SHEET HAS BEEN SIGNED, SEALED, AND DATED ELECTRONICALLY

DATE PREPARED
9/23/2026

ROUTE	STATE
32	MO
DISTRICT	SHEET NO.
CD	13

COUNTY
DENT

JOB NO.
JCD0235

CONTRACT ID.

PROJECT NO.

BRIDGE NO.

DESCRIPTION	DATE

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

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

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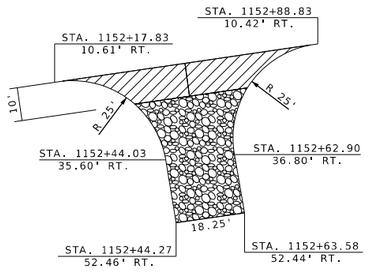
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PRO. ENGINEER 000133
ARCHITECT 000212
PRO. LAND SURVEYOR 000059

BRIAN KIERATH
PROFESSIONAL
ENGINEER
PE-2023008624

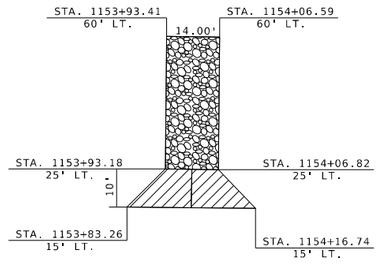
ROUTE 32

ENTRANCE PROFILES
TEMPORARY ENTRANCE
SHEET 1 OF 1

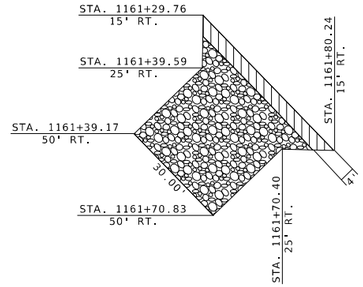
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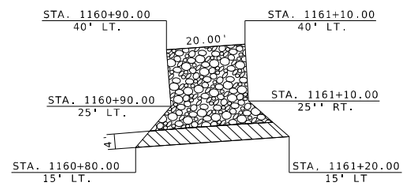
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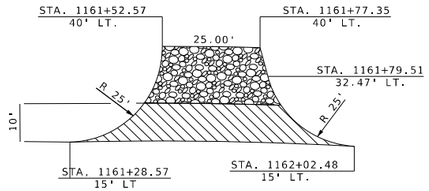
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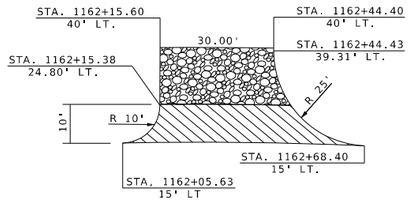
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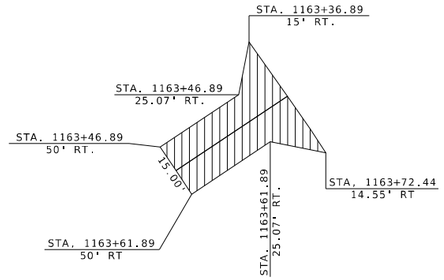
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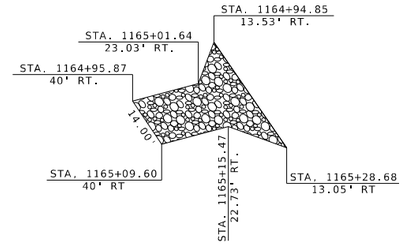
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℄ RTE. 32 ENTRANCE STA. 1162+30.00 LT.

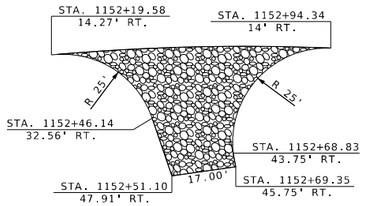


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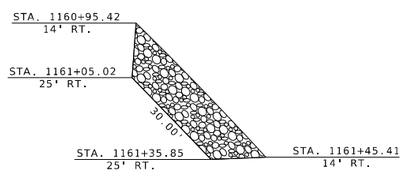


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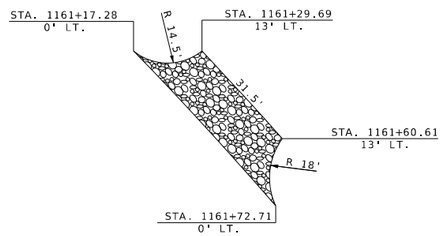
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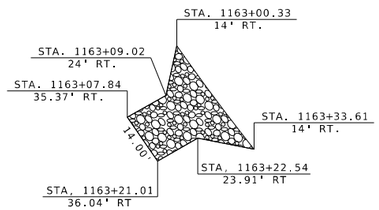
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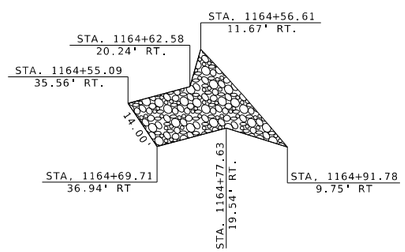
℄ TEMP. BY-PASS ENTRANCE STA. 1161+20.00 RT.



℄ TEMP. BY-PASS ENTRANCE STA. 1161+45.00 LT.



℄ TEMP. BY-PASS ENTRANCE STA. 1163+17.00 RT.



℄ TEMP. BY-PASS ENTRANCE STA. 1165+16.00 RT.

6" GRAVEL (A) OR CRUSHED STONE (B)

2" BP-1 OVER $3\frac{3}{4}$" PMBB
OVER 4" TYPE 5 AGGREGATE

SCALE

0 20 40 60

ROUTE 32

SPECIAL SHEET
DRIVEWAY DETAILS
SHEET 1 OF 1

BRIAN KIERATH
PROFESSIONAL
ENGINEER
PE-2023008624

REV.

STATE OF MISSOURI
BRIAN D. KIERATH JR.
NUMBER
PE-2023008624
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED, AND DATED ELECTRONICALLY

DATE PREPARED
9/23/2026

ROUTE	STATE
32	MO
DISTRICT	SHEET NO.
CD	14

COUNTY
DENT

JOB NO.
JCD0235

CONTRACT ID.

PROJECT NO.

BRIDGE NO.

DESCRIPTION	DATE

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

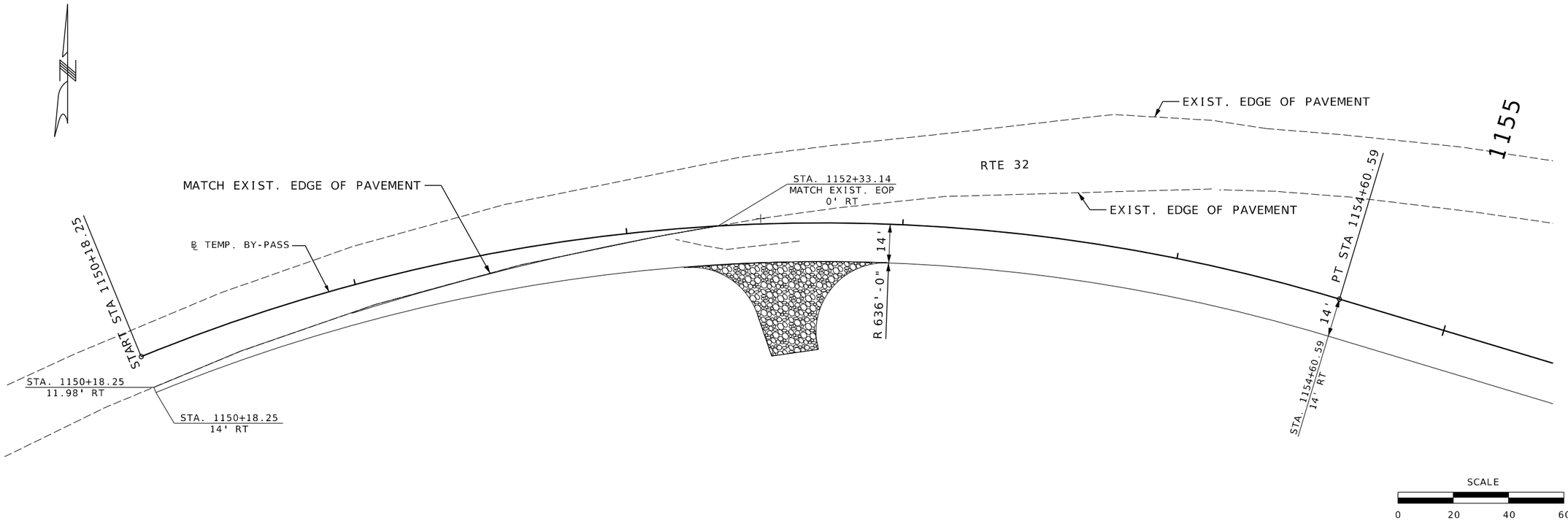
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

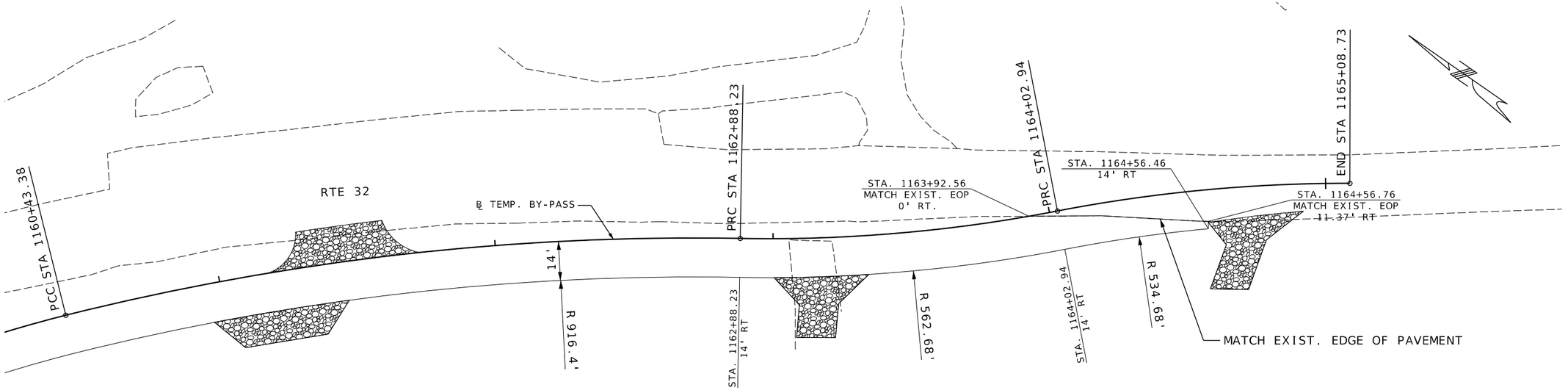
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

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16305 SWINGLEY RIDGE RD
ST. 300
CHESTERFIELD, MO 63017
314.231.0100
GBAteam.com

GEORGE BUTLER
ASSOCIATES, INC.
PRO. ENGINEER 000133
ARCHITECT 000212
PRO. LAND SURVEYOR 000059

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BRIAN D. KIERATH JR.
NUMBER PE-2023008624
STATE OF MISSOURI
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED, AND DATED ELECTRONICALLY

DATE PREPARED
9/23/2026

ROUTE	STATE
32	MO
DISTRICT	SHEET NO.
CD	15

COUNTY
DENT

JOB NO.
JCD0235

CONTRACT ID.

PROJECT NO.

BRIDGE NO.

DESCRIPTION	DATE

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MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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

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GEORGE BUTLER
ASSOCIATES, INC.
PRO. ENGINEER 000133
ARCHITECT 000212
PRO. LAND SURVEYOR 000059

ROUTE 32

SPECIAL SHEET
BY-PASS DETAILS
SHEET 1 OF 1

BRIAN KIERATH
PROFESSIONAL
ENGINEER
PE-2023008624

TRAFFIC HANDLING AND CONSTRUCTION SEQUENCE

PHASE	MAJOR CONSTRUCTION ITEMS	HANDLING OF TRAFFIC	REMARKS
1	Construct temporary by-pass for Bridge No. A9724, temporary by-pass tie-ins to existing Route 32 pavement, and temporary entrances and connections.	Temporary lane closures under flagger operation to be used for all work within Clear Zone.	Contractor to refer to MoDOT Standard Details and Specifications for edge dropoff during non-working hours.
2	Demolish existing Bridge No. J0573 Construct Bridge No. A9724 Construct mainline improvements.	1-lane, 2-way traffic for Route 32 on Temporary By-Pass with temporary traffic signals at approx. Sta. 1146+34 (eastbound) and approx. Sta. 1166+96 (westbound) County Rd. 4433 to access Temporary By-Pass with temporary traffic signal at approx. Sta. 1161+61.00. Residential Driveway Temporary Signal (RDTS) to be used for private driveways.	A work zone trafic signal system (consisting of 3 signals) shall be used to maintain and control traffic through the Temporary By-Pass. Residential Driveway Temporary Signal (RDTS) shall be used at private driveways throughout the work zone to maintain residential access for duration of project.
3	Eradicate Temporary By-Pass. Restore area disturbed by Temporary By-Pass. Complete mainline grading that could not be completed in Phase 2. Complete permanent striping operations.	Temporary lane closures under flagger operation to be used for all work within Clear Zone. See Typical Application sheet 5 of 6 for Traffic Control during permanent striping operations.	Contractor to refer to MoDOT Standard Details and Specifications for edge dropoff during non-working hours.

STATE OF MISSOURI
CHRISTOPHER NOVOSEL
NUMBER
PE-2018024421
PROFESSIONAL ENGINEER

DATE PREPARED
9/23/2026

ROUTE	STATE
32	MO

DISTRICT	SHEET NO.
CD	16

COUNTY
DENT

JOB NO.
JCD0235

CONTRACT ID.

PROJECT NO.

BRIDGE NO.

DESCRIPTION	DATE

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MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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

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CHESTERFIELD, MO 63017
314.231.0100
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GEORGE BUTLER
ASSOCIATES, INC.
PRO. ENGINEER 000133
ARCHITECT 000212
PRO. LAND SURVEYOR 000059

ROUTE 32

SEQUENCING SHEET
SHEET 1 OF 1

CHRISTOPHER NOVOSEL
PROFESSIONAL
ENGINEER
PE-2018024421

Sign Spacing, Device Spacing and Channelizing Taper Lengths

SIGN SPACING (S) FOR ADVANCE SIGN SERIES (1) (2)		
SPEED MPH	UNDIVIDED HIGHWAYS	DIVIDED HIGHWAYS
0-35	200	200
40-45	350	500
50-55	500	1000
60-70	1000	SA-1000 SB-1500 SC-2640

LONGITUDINAL BUFFER SPACE (B)	
SPEED MPH	BUFFER SPACE
0-35	250
40-45	360
50-55	495
60-70	730

TAPER LENGTHS AND SPACING OF CHANNELIZING DEVICES					
SPEED MPH	MINIMUM TAPER LENGTHS (L) FOR LANE WIDTHS (W)			MAXIMUM CHANNELIZER SPACING	
	10 FT	11 FT	12 FT	THROUGH TAPER	THROUGH WORK AREA
0-35	205	225	245	35	40
40-45	450	495	540	40	80
50-55	550	605	660	50	80
60-70	700	770	840	60	120

TAPER LENGTH (L):

L = WS FOR 40 MPH OR MORE

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

FOR SHOULDER TAPER USE L/3

WHERE:

L = TAPER LENGTH IN FEET

W = LATERAL SHIFT IN FEET

S = POSTED SPEED IN MPH

NOTES:

DIMENSIONS IN FEET UNLESS OTHERWISE NOTED.

(1) SPACING BETWEEN SIGNS AND SPACING BETWEEN LAST SIGN AND FLAGGER, BEGINNING OF TAPER, OR SIGNED CONDITION

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

TEMPORARY TRAFFIC SIGNAL

GENERAL NOTES:

1. IN THE EVENT OF TEMPORARY TRAFFIC SIGNAL MALFUNCTION, TRAFFIC SHALL BE CONTROLLED BY FLAGGERS UNTIL THE SIGNAL SYSTEM IS RESTORED
2. TEMPORARY SIGNAL AND RESIDENTIAL DRIVEWAY TEMPORARY SIGNAL (RDTS) DEVICE LOCATIONS MAY BE FIELD ADJUSTED WITH ENGINEER APPROVAL

TRAFFIC CONTROL DEVICES

GENERAL NOTES:

1. SEE STANDARD PLAN 616.10 FOR DETAILS AND ITEMS NOT SHOWN
2. EXISTING SIGNS SHALL BE COVERED DURING WORKING HOURS ONLY IF IN CONFLICT WITH TRAFFIC CONTROL PLANS.
3. NO DIRECT PAYMENT WILL BE MADE FOR RELOCATING, COVERING, UNCOVERING OR REMOVING SIGNS.
4. CONES ALLOWABLE FOR DAYTIME OPERATIONS ONLY.
6. LOCATE FLASHING ARROW PANEL AT BEGINNING OF TAPER WHEN FEASIBLE, ARROW PANELS ARE ALWAYS LOCATED BEHIND CHANNELIZERS OR CONES.

STATE OF MISSOURI
CHRISTOPHER NOVOSEL
NUMBER PE-2018024421
PROFESSIONAL ENGINEER

DATE PREPARED
9/23/2026

ROUTE	STATE
32	MO
DISTRICT	SHEET NO.
CD	17

COUNTY
DENT

JOB NO.
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DESCRIPTION	DATE

REV.

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JEFFERSON CITY, MO 65102
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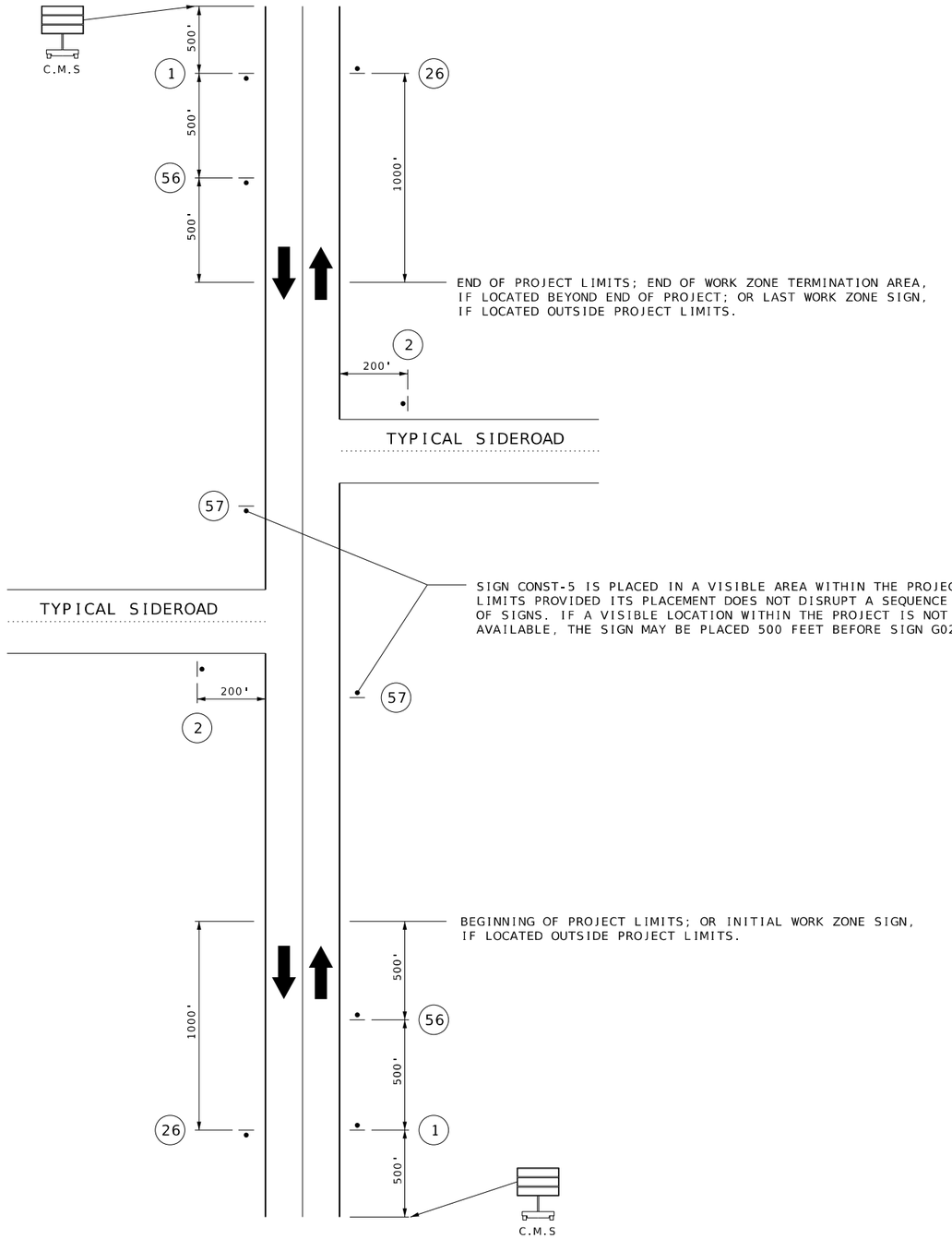
GEORGE BUTLER
ASSOCIATES, INC.
PRO. ENGINEER 000133
ARCHITECT 000212
PRO. LAND SURVEYOR 000059

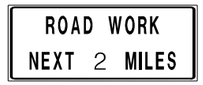
ROUTE 32

TEMPORARY TRAFFIC CONTROL
SHEET 1 OF 6

CHRISTOPHER NOVOSEL
PROFESSIONAL
ENGINEER
PE-2018024421

NOT TO SCALE





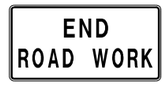
GO20-1

(1)



WO20-1

(2)



GO20-2

(26)



CONST-8

(56)



CONST-5

(57)

BEGIN/END OF PROJECT SIGNING

UNDIVIDED HIGHWAY

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

STATE OF MISSOURI
CHRISTOPHER NOVOSEL
NUMBER PE-2018024421
PROFESSIONAL ENGINEER

DATE PREPARED
9/23/2026

ROUTE	STATE
32	MO
DISTRICT	SHEET NO.
CD	18

COUNTY
DENT

JOB NO.
JCD0235

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)

GBA
16305 SWINGLEY RIDGE RD
ST. 300
CHESTERFIELD, MO 63017
314.231.0100
GBAteam.com

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ASSOCIATES, INC.
PRO. ENGINEER 000133
ARCHITECT 000212
PRO. LAND SURVEYOR 000059

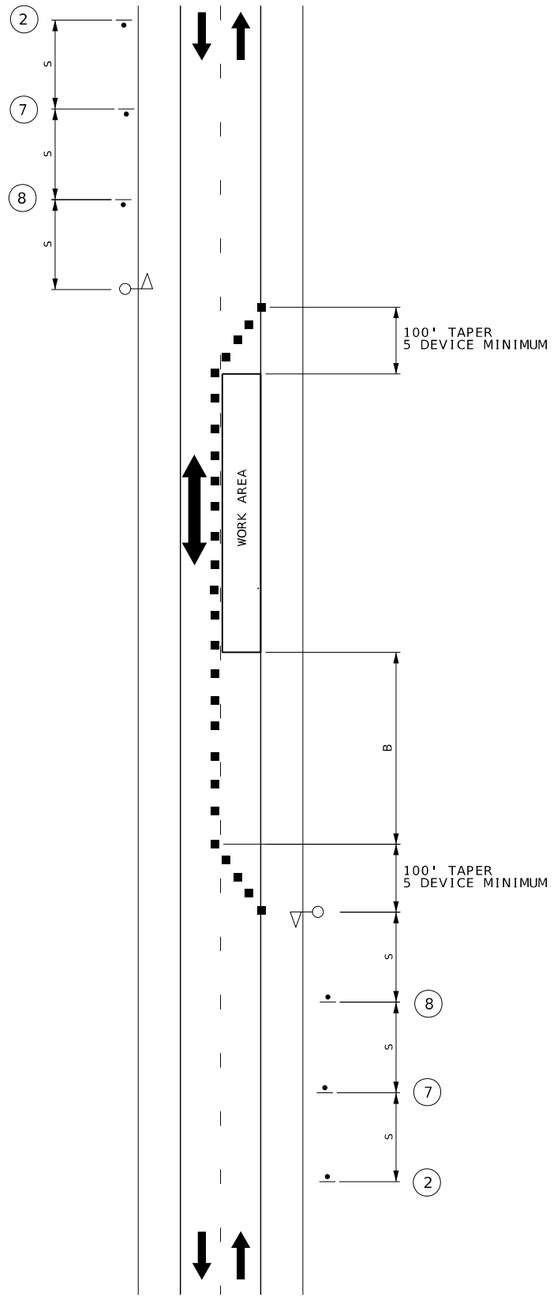
ROUTE 32

TEMPORARY TRAFFIC CONTROL
TYPICAL APPLICATION
SHEET 2 OF 6

CHRISTOPHER NOVOSEL
PROFESSIONAL
ENGINEER
PE-2018024421

REV.

NOT TO SCALE



LANE CLOSURE
ON TWO-LANE ROAD
USING FLAGGERS



WO20-1

(2)



WO20-4

(7)



WO20-7a

(8)

DUAL SPEED REDUCTION NOTE:
IF A DUAL SPEED REDUCTION IS USED, WO20-1 ROAD WORK AHEAD AND WO20-4 ONE LANE ROAD AHEAD SIGNS SHALL BE IN SEQUENCE AS SHOWN ON THE DUAL SPEED REDUCTION TYPICAL APPLICATION. WO20-7 FLAGGER SIGN SHALL BE NEXT IN SEQUENCE FOLLOWING SECOND SPEED REDUCTION. WO20-1 ROAD WORK AHEAD AND WO20-4 ONE LANE ROAD AHEAD SIGNS SHALL NOT BE DUPLICATED ON EACH APPROACH.

STATE OF MISSOURI
CHRISTOPHER NOVOSEL
NUMBER
PE-2018024421
PROFESSIONAL ENGINEER

DATE PREPARED
9/23/2026

ROUTE	STATE
32	MO
DISTRICT	SHEET NO.
CD	19

COUNTY
DENT

JOB NO.
JCD0235

CONTRACT ID.

PROJECT NO.

BRIDGE NO.

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

REV.	DESCRIPTION	DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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

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16305 SWINGLEY RIDGE RD
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CHESTERFIELD, MO 63017
314.231.0100
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GEORGE BUTLER
ASSOCIATES, INC.
PRO. ENGINEER 000133
ARCHITECT 000212
PRO. LAND SURVEYOR 000059

ROUTE 32

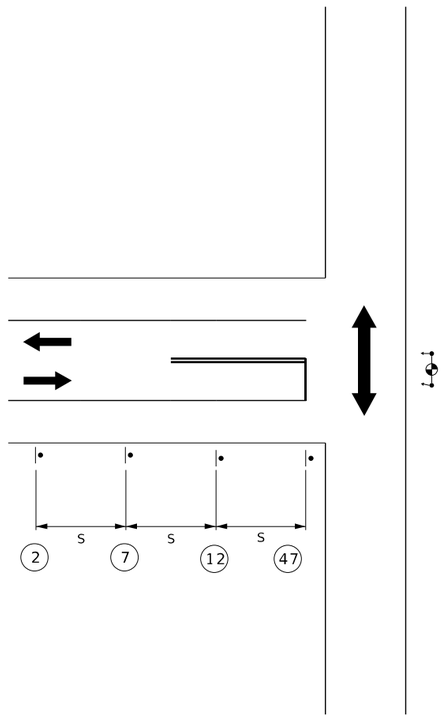
TEMPORARY TRAFFIC CONTROL
TYPICAL APPLICATION
SHEET 3 OF 6

CHRISTOPHER NOVOSEL
PROFESSIONAL
ENGINEER
PE-2018024421

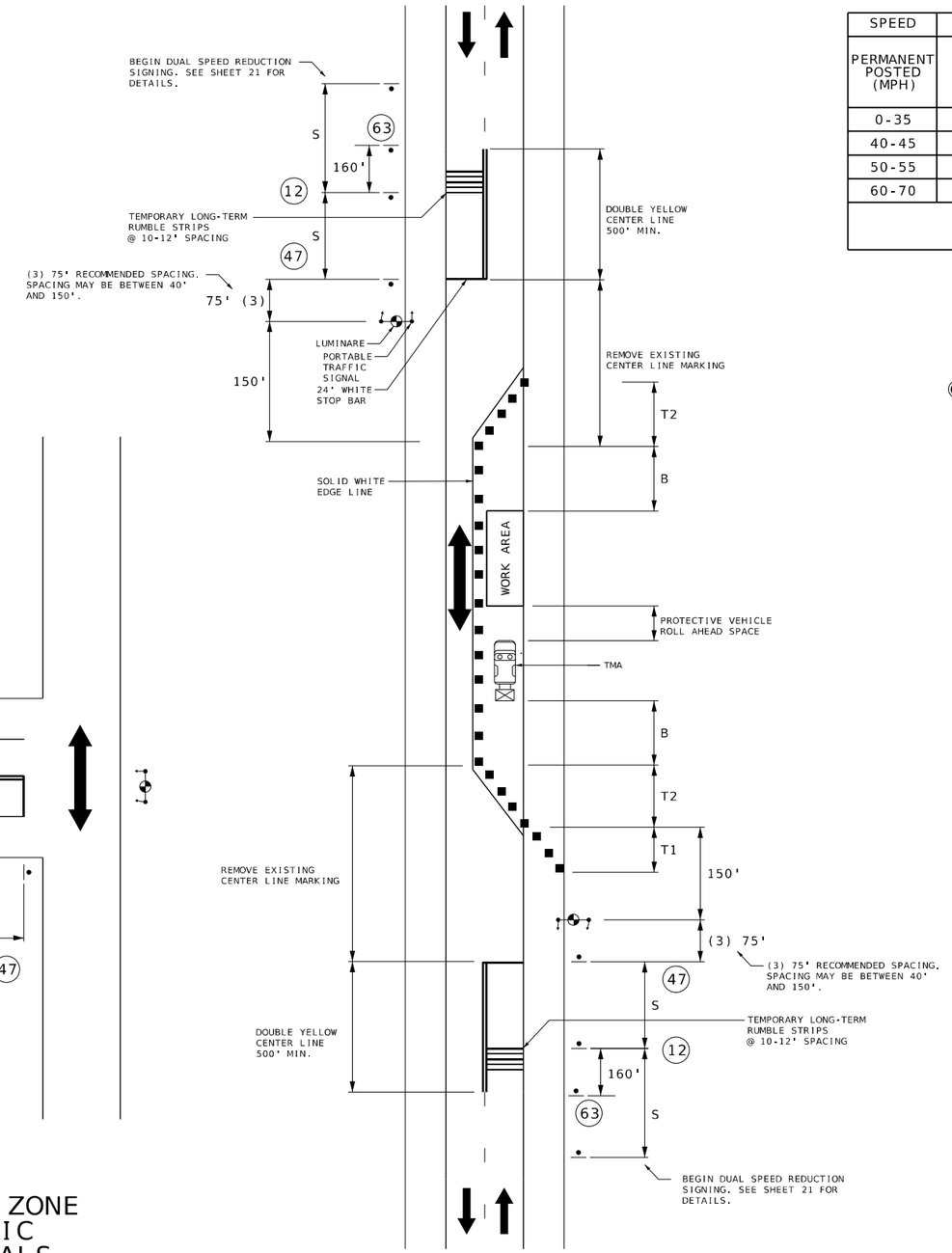
NOT TO SCALE

SPEED	SIGN SPACING (ft.)	TAPER LENGTH (ft.)		OPTIONAL	CHANNELIZER SPACING (ft.)	
PERMANENT POSTED (MPH)	TWO-LANE TWO-WAY (S)	SHOULDER (1) (T1)	LANE (2) (T2)	BUFFER LENGTH (ft.) (B)	TAPERS	BUFFER/ WORK AREAS
0-35	200	35	100	280	25	40
40-45	350	35	100	400	25	80
50-55	500	35	100	560	25	80
60-70	1000	35	100	840	25	120

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



SIDEROAD
ENTERING WORK ZONE
USING TRAFFIC
CONTROL SIGNALS



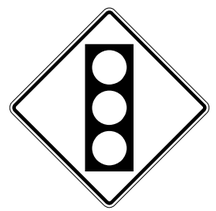
LANE CLOSURE
ON TWO-LANE HIGHWAYS
USING TRAFFIC
CONTROL SIGNALS



WO20-1
2



WO20-4
7



WO3-3
12



R10-6L
47



(SPECIAL)
63

TYPE OF ROADWAY	SIGN HEIGHT (MINIMUM)	MAXIMUM WORK ZONE LENGTH (L)
URBAN	1' PORTABLE 7' POST	1 Mi.
RURAL TWO-LANE TWO-WAY ROADWAY	1' PORTABLE 5' POST	1 Mi.

TRAFFIC CONTROL LEGEND

- SIGN (SINGLE SIDED)
- CHANNELIZER
- TEMPORARY TRAFFIC SIGNAL
- TYPE III BARRICADE
- 24" SOLID WHITE THERMOPLASTIC
- 4" SOLID WHITE
- 4" DOUBLE SOLID YELLOW

STATE OF MISSOURI
CHRISTOPHER NOVOSEL
NUMBER
PE-2018024421
PROFESSIONAL ENGINEER

DATE PREPARED 9/23/2026
ROUTE 32 | STATE MO
DISTRICT CD | SHEET NO. 20
COUNTY DENT
JOB NO. JCD0235
CONTRACT ID.
PROJECT NO.
BRIDGE NO.

DESCRIPTION | DATE

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

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

GBA
16305 SWINGLEY RIDGE RD
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CHESTERFIELD, MO 63017
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PRO. ENGINEER 000133
ARCHITECT 000212
PRO. LAND SURVEYOR 000059

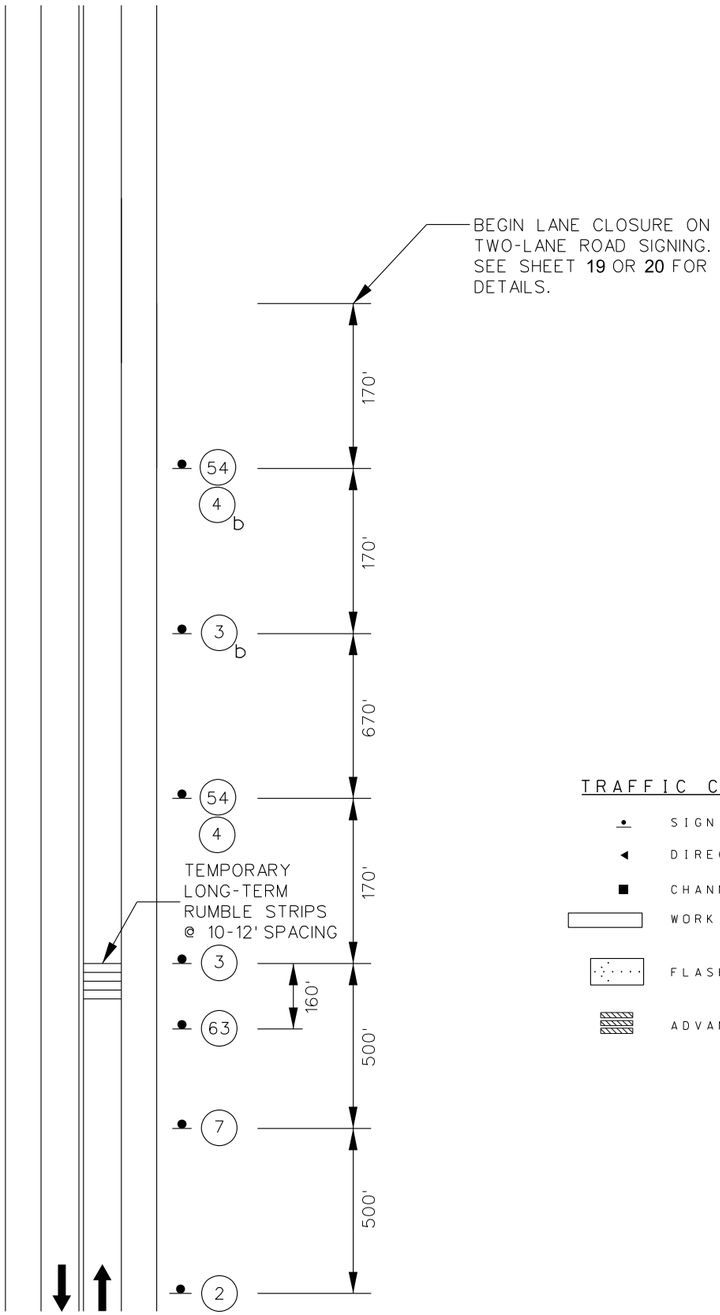
ROUTE 32

TEMPORARY TRAFFIC CONTROL
TYPICAL APPLICATION
SHEET 4 OF 6

CHRISTOPHER NOVOSEL
PROFESSIONAL
ENGINEER
PE-2018024421

REV.

NOT TO SCALE



DUAL SPEED REDUCTION
ON TWO-LANE HIGHWAYS



W020-1

2



W020-4

7



W03-5

3



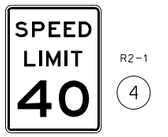
W03-5

3 b



G020-5aP

54



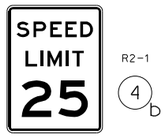
R2-1

4



G020-5aP

54



R2-1

4 b



R2-1

25

(NORMAL SPEED)



(SPECIAL)

63

TRAFFIC CONTROL LEGEND

- SIGN (SINGLE SIDED)
- DIRECTION INDICATOR BARRICADE
- CHANNELIZER (TRIM-LINE)
- WORK AREA
- FLASHING ARROW PANEL
- ADVANCE WARNING RAILS

NOTES:

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

TEMPORARY PAVEMENT MARKING REQUIRED WITH LONG TERM CLOSURES.

WHEN A SIDE ROAD INTERSECTS THE HIGHWAY WITHIN THE TEMPORARY TRAFFIC CONTROL ZONE, ADDITIONAL TEMPORARY TRAFFIC CONTROL DEVICES SHALL BE PLACED AS NEEDED.

SPEED REDUCTION MAY BE OMITTED AS CONDITIONS WARRANT AS APPROVED BY THE ENGINEER.

AN ARROW BOARD SHALL BE USED WHEN A FREEWAY LANE IS CLOSED.

STATE OF MISSOURI
CHRISTOPHER NOVOSEL
NUMBER PE-2018024421
PROFESSIONAL ENGINEER

DATE PREPARED
9/23/2026

ROUTE	STATE
32	MO
DISTRICT	SHEET NO.
CD	21

COUNTY
DENT

JOB NO.
JCD0235

CONTRACT ID.

PROJECT NO.

BRIDGE NO.

DESCRIPTION	DATE

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

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

GBA
16305 SWINGLEY RIDGE RD
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314.231.0100
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GEORGE BUTLER
ASSOCIATES, INC.
PRO. ENGINEER 000133
ARCHITECT 000212
PRO. LAND SURVEYOR 000059

ROUTE 32

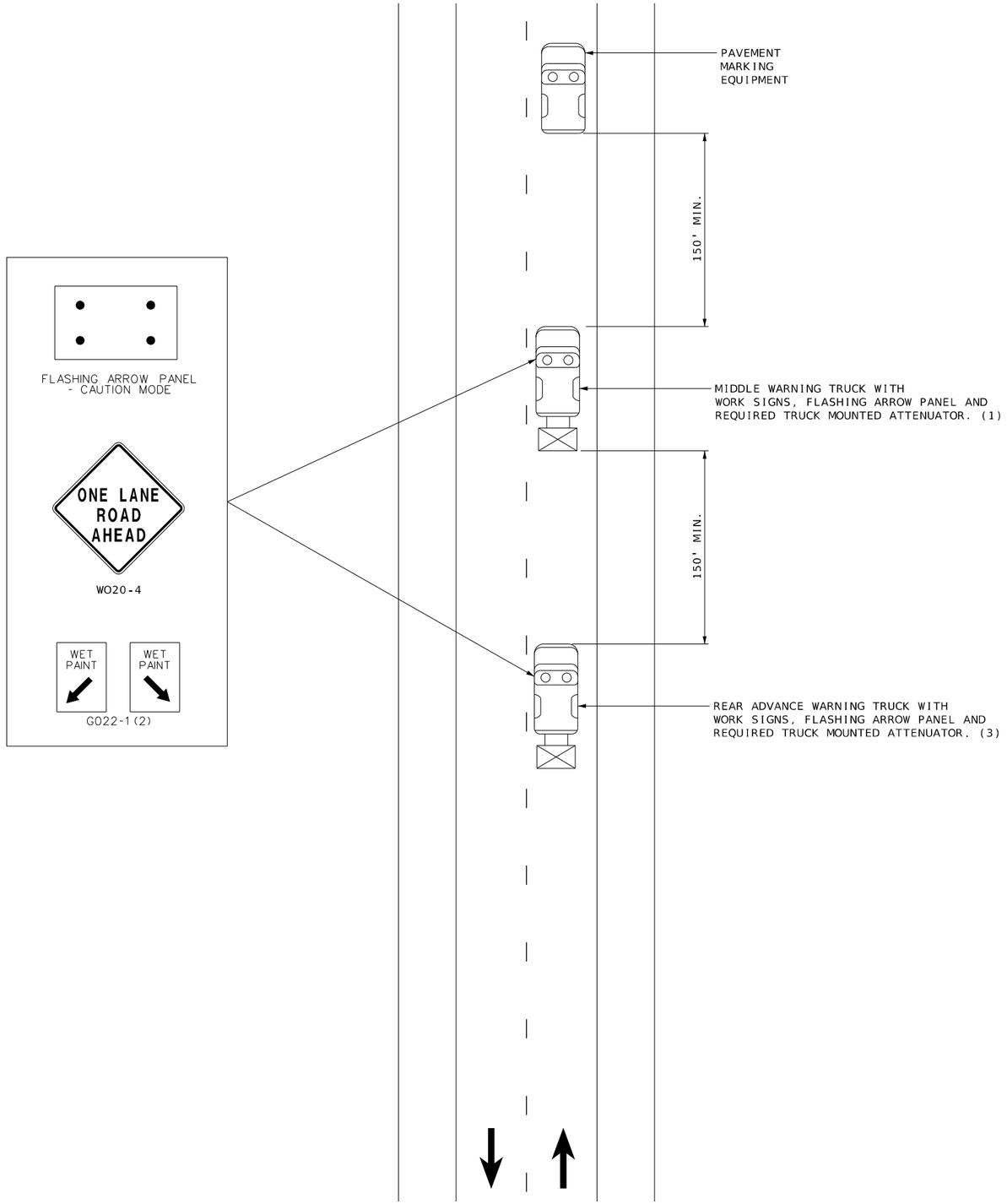
TEMPORARY TRAFFIC CONTROL
TYPICAL APPLICATION
SHEET 5 OF 6

CHRISTOPHER NOVOSEL
PROFESSIONAL
ENGINEER
PE-2018024421

REV.

c:\bms\gba-pw-01\chris novosel\dms27770\021_TC_05_JCD0235_I1.dgn 4:33:07 PM 9/23/2026

NOT TO SCALE



STRIPING ON TWO-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.

(1) TRUCK IS OPTIONAL ON TWO-LANE UNDIVIDED HIGHWAYS IF SIGNING AND ARROW BOARD ARE MOUNTED ON THE PAVEMENT MARKING EQUIPMENT.

(2) 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.

(3) REAR WARNING TRUCK IS POSITIONED AT THE NO TRACK POINT OF THE PAVEMENT MARKING MATERIAL, OR VERTICAL OR HORIZONTAL CURVES THAT RESTRICT SIGHT DISTANCE, OR SPACING SHOWN, WHICHEVER IS GREATER.

STATE OF MISSOURI
CHRISTOPHER NOVOSEL
NUMBER PE-2018024421
PROFESSIONAL ENGINEER

DATE PREPARED
9/23/2026

ROUTE	STATE
32	MO
DISTRICT	SHEET NO.
CD	22

COUNTY
DENT

JOB NO.
JCD0235

CONTRACT ID.

PROJECT NO.

BRIDGE NO.

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

REV.	DESCRIPTION	DATE

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

GBA
16305 SWINGLEY RIDGE RD
ST. 300
CHESTERFIELD, MO 63017
314.231.0100
GBAteam.com

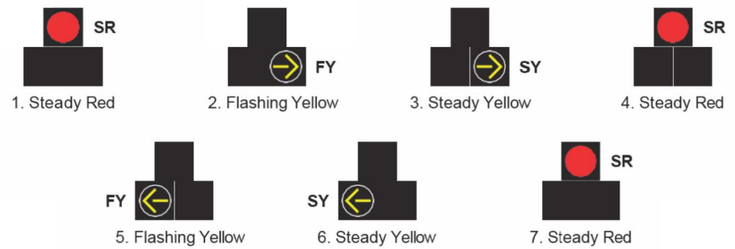
GEORGE BUTLER
ASSOCIATES, INC.
PRO. ENGINEER 000133
ARCHITECT 000212
PRO. LAND SURVEYOR 000059

ROUTE 32

TEMPORARY TRAFFIC CONTROL
TYPICAL APPLICATION
SHEET 6 OF 6

CHRISTOPHER NOVOSEL
PROFESSIONAL
ENGINEER
PE-2018024421

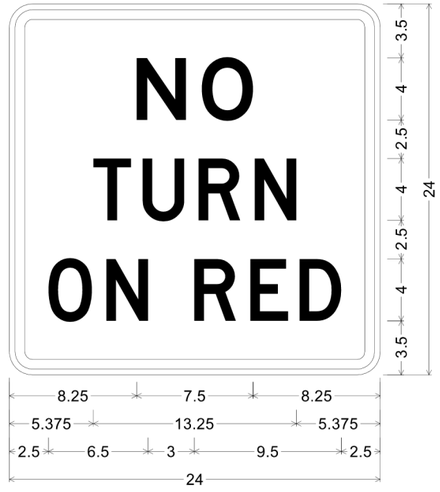
Attachment IA-23-3
Phasing Sequence





IA-23-1P SH-FLAT SHEET;
1.500" Radius, 0.625" Border, 0.375" Indent, Black on White;
"TURN ONLY", C; "IN DIRECTION", C; "OF ARROW", C;
Table of letter and object lefts

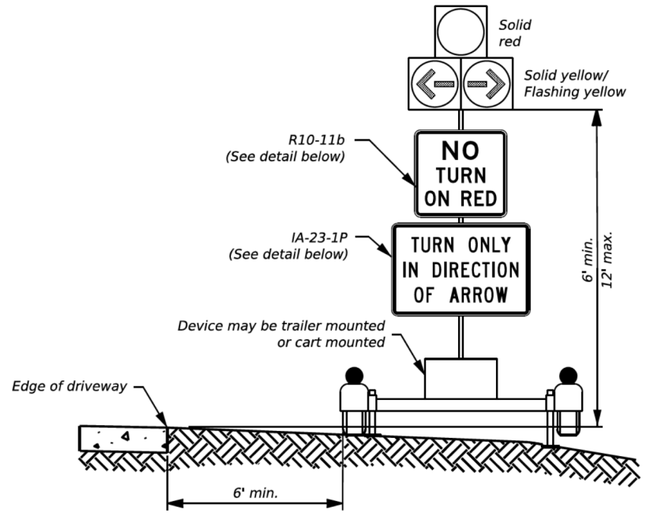
T	U	R	N	O	N	L	Y		
5.125	7.750	10.750	13.875	20.000	23.125	26.250	28.375		
I	N								
3.125	4.500								
	D	I	R	E	C	T	I	O	N
	10.750	13.750	15.125	18.125	20.875	23.500	26.125	27.500	30.750
O	F	A	R	R	O	W			
5.875	9.000	15.000	18.250	21.250	24.125	27.125			



R10-11b SH-FLAT SHEET;
1.500" Radius, 0.625" Border, 0.375" Indent, Black on White;
"NO", E; "TURN", D; "ON", D; "RED", D;
Table of letter and object lefts

N	O			
8.250	12.500			
T	U	R	N	
5.375	8.625	12.250	15.875	
O	N	R	E	D
2.500	6.250	12.000	15.625	18.750

ELEVATION VIEW



NOTES:

EACH RDTS MUST HAVE ONE SIGNAL HEAD CONSISTING OF THREE LED INDICATIONS AS FOLLOWS; ONE 12 IN. DIAMETER STEADY RED BALL INDICATION CENTERED OVER ONE 12 IN. DIAMETER YELLOW LEFT ARROW AND ONE 12 IN. DIAMETER YELLOW RIGHT ARROW.

RDTS(S) MUST BE PAIRED WITH A COMPATIBLE PORTABLE TRAFFIC SIGNAL SYSTEM FOR PROPER FUNCTIONALITY. AN RDTS SHALL NOT BE USED AS A STANDALONE DEVICE.

THE CONTRACTOR SHALL SUBMIT MANUFACTURER INFORMATION DEMONSTRATING COMPATABILITY BETWEEN THE RDTS AND TEMPORARY TRAFFIC SIGNAL SYSTEM.

SEE JOB SPECIAL PROVISION "RESIDENTIAL DRIVEWAY TEMPORARY SIGNAL" FOR ADDITIONAL DETAILS.

SEE TRAFFIC CONTROL PLAN SHEETS FOR PLACEMENT OF PORTABLE TRAFFIC SIGNALS AND OTHER TRAFFIC CONTROL DEVICES.

STATE OF MISSOURI
CHRISTOPHER NOVOSEL
NUMBER PE-2018024421
PROFESSIONAL ENGINEER

DATE PREPARED 9/23/2026
ROUTE 32 | STATE MO
DISTRICT CD | SHEET NO. 23
COUNTY DENT
JOB NO. JCD0235
CONTRACT ID.
PROJECT NO.
BRIDGE NO.

DESCRIPTION | DATE | REV.

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

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

GBA
16305 SWINGLEY RIDGE RD
ST. 300
CHESTERFIELD, MO 63017
314.231.0100
GBAteam.com

GEORGE BUTLER
ASSOCIATES, INC.
PRO. ENGINEER 000133
ARCHITECT 000212
PRO. LAND SURVEYOR 000059

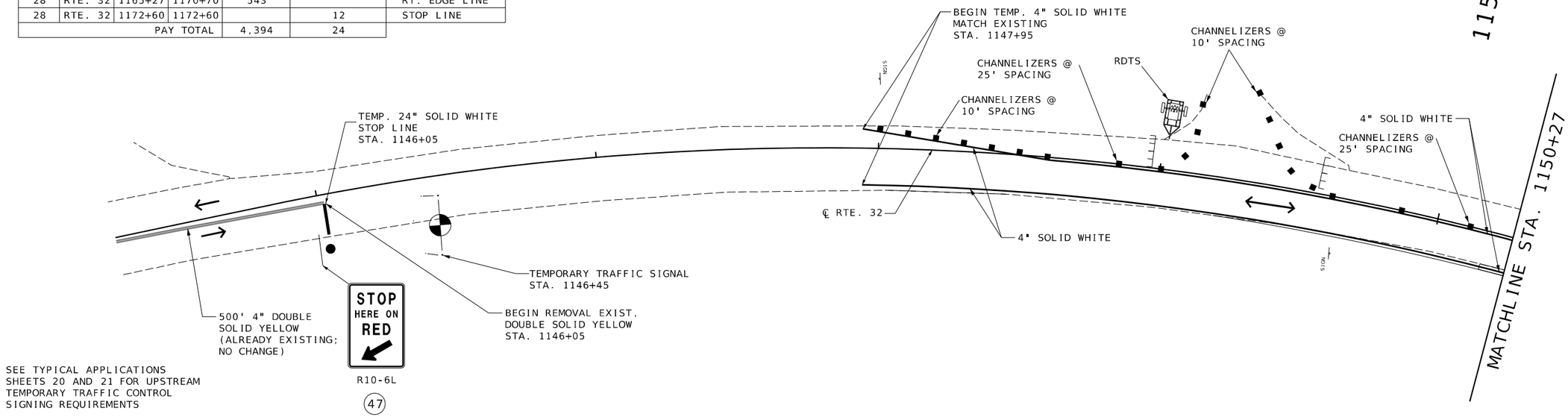
ROUTE 32

TEMPORARY TRAFFIC CONTROL
SHEET RESIDENTIAL DRIVEWAY
TEMPORARY SIGNAL (RDTS) DETAILS

CHRISTOPHER NOVOSEL
PROFESSIONAL
ENGINEER
PE-2018024421

TEMPORARY PAVEMENT MARKING						
SHEET NO.	ROADWAY	BEGIN STATION	END STATION	4" TEMPORARY PAVEMENT MARKING PAINT (WHITE) (L.F.)	PREFORMED THERMOPLASTIC PAVEMENT MARKING, 24" WHITE	DESCRIPTION
24	RTE. 32	1147+95	1150+27	232		LT. EDGE LINE
24	RTE. 32	1147+95	1150+27	232		RT. EDGE LINE
24	RTE. 32	1146+05	1146+05		12	STOP LINE
25	RTE. 32	1150+27	1155+27	493		LT. EDGE LINE
25	RTE. 32	1150+27	1155+27	487		RT. EDGE LINE
25	RTE. 32	1151+61	1152+31	77		PRIVATE DRIVE
25	RTE. 32	1152+09	1153+09	110		PRIVATE DIRVE
25	RTE. 32	1153+51	1153+92	117		PRIVATE DRIVE
26	RTE. 32	1155+27	1160+27	475		LT. EDGE LINE
26	RTE. 32	1155+27	1160+27	469		RT. EDGE LINE
27	RTE. 32	1160+27	1161+52	183		LT. EDGE LINE
27	RTE. 32	1162+08	1165+27	395		LT. EDGE LINE
27	RTE. 32	1160+27	1165+27	507		RT. EDGE LINE
28	RTE. 32	1165+27	1170+70	543		LT. EDGE LINE
28	RTE. 32	1165+27	1170+70	543		RT. EDGE LINE
28	RTE. 32	1172+60	1172+60		12	STOP LINE
			PAY TOTAL	4,394	24	

PAVEMENT MARKING REMOVAL						
ROADWAY	BEGIN STATION	END STATION	EXISTING PAVEMENT MARKING REMOVAL (L.F.)	TEMPORARY PAVEMENT MARKING REMOVAL (L.F.)	CONSTR. PHASE	DESCRIPTION
RTE. 32	1146+05	1156+94	2,178		2	CENTERLINE
RTE. 32	1159+31	1172+60	2,658		2	CENTERLINE
RTE. 32	1147+95	1156+94	1,798		2	LT. AND RT. EDGE LINE
RTE. 32	1159+31	1170+70	2,278		2	LT. AND RT. EDGE LINE
RTE. 32	1146+05	1146+05		72	3	STOP LINE
RTE. 32	1147+95	1153+00		1,010	3	LT. AND RT. EDGE LINE
RTE. 32	1151+60	1154+03		302	3	ENTRANCE EDGE LINES
RTE. 32	1161+50	1162+09		124	3	ENTRANCE EDGE LINES
RTE. 32	1164+00	1170+70		1,340	3	LT. AND RT. EDGE LINE
RTE. 32	1172+60	1172+60		72	3	STOP LINE
		SUBTOTAL	8,912	2,920		
		PAY TOTAL		11,832		



SEE TYPICAL APPLICATIONS SHEETS 20 AND 21 FOR UPSTREAM TEMPORARY TRAFFIC CONTROL SIGNING REQUIREMENTS

SCALE
0 20 40 60

TEMPORARY TRAFFIC SIGNALS			
SHEET NO.	ROADWAY	STATION	SIDE
24	RTE. 32	1146+45	RT
27	RTE. 32	1161+84	RT
28	RTE. 32	1172+20	LT

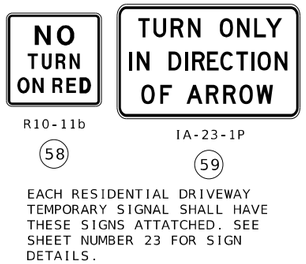
FOR INFORMATION ONLY

RDTS			
SHEET NO.	ROADWAY	STATION	SIDE
24	RTE. 32	1149+11	LT
25	RTE. 32	1151+75	LT
25	RTE. 32	1152+67	RT
25	RTE. 32	1152+92	RT
27	RTE. 32	1161+58	RT
27	RTE. 32	1163+71	RT
27	RTE. 32	1165+20	RT

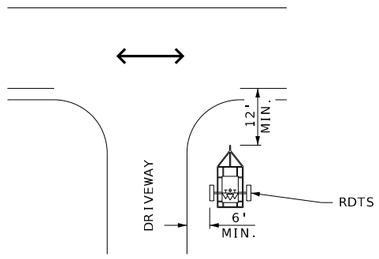
FOR INFORMATION ONLY

TRAFFIC CONTROL LEGEND

- SIGN (SINGLE SIDED)
- CHANNELIZER
- TEMPORARY TRAFFIC SIGNAL
- TYPE III BARRICADE
- 24" SOLID WHITE THERMOPLASTIC
- 4" SOLID WHITE
- 4" DOUBLE SOLID YELLOW
- RESIDENTIAL DRIVEWAY TEMPORARY SIGNAL



EACH RESIDENTIAL DRIVEWAY TEMPORARY SIGNAL SHALL HAVE THESE SIGNS ATTATCHED. SEE SHEET NUMBER 23 FOR SIGN DETAILS.



RDTS PLACEMENT DETAIL

ROUTE 32

TEMPORARY TRAFFIC CONTROL
PHASE 2
SHEET 1 OF 5

STATE OF MISSOURI
CHRISTOPHER NOVOSEL
NUMBER
PE-2018024421
PROFESSIONAL ENGINEER

DATE PREPARED
9/23/2026

ROUTE	STATE
32	MO
DISTRICT	SHEET NO.
CD	24

COUNTY
DENT

JOB NO.
JCD0235

CONTRACT ID.

PROJECT NO.

BRIDGE NO.

DESCRIPTION | DATE

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

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

GBA
16305 SWINGLEY RIDGE RD
ST. 300
CHESTERFIELD, MO 63017
314.231.0100
GBAteam.com

GEORGE BUTLER
ASSOCIATES, INC.
PRO. ENGINEER 000133
ARCHITECT 000212
PRO. LAND SURVEYOR 000059

CHRISTOPHER NOVOSEL
PROFESSIONAL
ENGINEER
PE-2018024421

PERMANENT CONSTRUCTION FROM APPROX. STA. 1153+35 TO STA. 1154+10 SHALL BE CONSTRUCTED HALF AT A TIME OR IN SUCH A WAY TO MAINTAIN ACCESS AT ALL TIMES. TEMPORARY CONNECTIONS FROM EXISTING PAVEMENT TO WORKING SURFACE MAY BE REQUIRED AND ARE CONSIDERED SUBSIDIARY TO OTHER BID ITEMS.

STA. 1151+60
8' LT



W1-6 (16)
R11-2 (29)

CHANNELIZERS @ 25' SPACING

CHANNELIZERS @ 10' SPACING

STA. 1152+22
9' RT



R3-2 (61)

STA. 1153+01
17' RT



R3-1 (62)

TYPE III BARRICADES

CHANNELIZERS @ 10' SPACING

STA. 1154+09
8' LT



R11-2 (29)

℄ ROUTE 32

RDTS

℄ ROUTE 32

4" SOLID WHITE

RDTS

℄ TEMPORARY BY-PASS

MATCHLINE STA. 1150+27

4" SOLID WHITE

4" SOLID WHITE

4" SOLID WHITE



R1-1 (R)

RDTS

12'

4" SOLID WHITE

MATCHLINE STA. 1155+27

1155

1155

SCALE
0 20 40 60



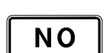
R11-2 (29)

W1-6 (16)

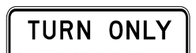
STA. 1153+50
7' RT

TRAFFIC CONTROL LEGEND

- SIGN (SINGLE SIDED)
- CHANNELIZER
- TEMPORARY TRAFFIC SIGNAL
- TYPE III BARRICADE
- 24" SOLID WHITE THERMOPLASTIC
- 4" SOLID WHITE
- 4" DOUBLE SOLID YELLOW
- RESIDENTIAL DRIVEWAY TEMPORARY SIGNAL

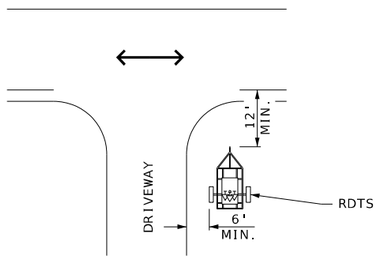


R10-11b (58)



IA-23-1P (59)

EACH RESIDENTIAL DRIVEWAY TEMPORARY SIGNAL SHALL HAVE THESE SIGNS ATTATCHED. SEE SHEET NUMBER 23 FOR SIGN DETAILS.



RDTS PLACEMENT DETAIL

ROUTE 32

TEMPORARY TRAFFIC CONTROL
PHASE 2
SHEET 2 OF 5



DATE PREPARED	
9/23/2026	
ROUTE	STATE
32	MO
DISTRICT	SHEET NO.
CD	25

COUNTY: DENT
JOB NO.: JCD0235
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.:

DESCRIPTION	DATE

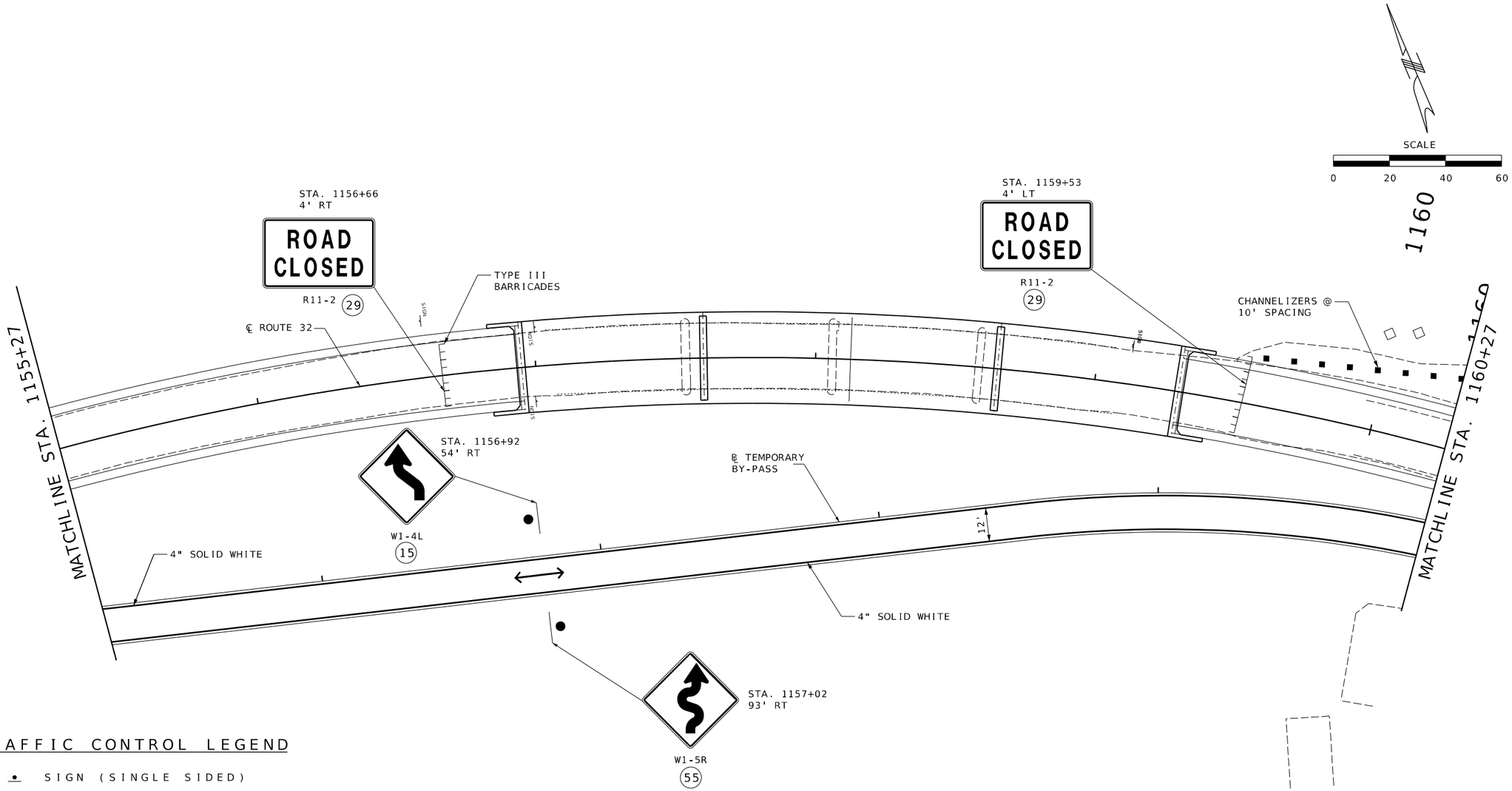
IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

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

GBA
16305 SWINGLEY RIDGE RD
ST. 300
CHESTERFIELD, MO 63017
314.231.0100
GBAteam.com

GEORGE BUTLER
ASSOCIATES, INC.
PRO. ENGINEER 000133
ARCHITECT 000212
PRO. LAND SURVEYOR 000059

CHRISTOPHER NOVOSEL
PROFESSIONAL
ENGINEER
PE-2018024421



TRAFFIC CONTROL LEGEND

- SIGN (SINGLE SIDED)
- CHANNELIZER
- TEMPORARY TRAFFIC SIGNAL
- TYPE III BARRICADE
- 24" SOLID WHITE THERMOPLASTIC
- 4" SOLID WHITE
- 4" DOUBLE SOLID YELLOW
- RESIDENTIAL DRIVEWAY TEMPORARY SIGNAL

ROUTE 32

TEMPORARY TRAFFIC CONTROL
PHASE 2
SHEET 3 OF 5

STATE OF MISSOURI
CHRISTOPHER NOVOSEL
NUMBER
PE-2018024421
PROFESSIONAL ENGINEER

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

DATE PREPARED: 9/23/2026
ROUTE: 32 | STATE: MO
DISTRICT: CD | SHEET NO.: 26
COUNTY: DENT
JOB NO.: JCD0235
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.:

DESCRIPTION | DATE

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

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ARCHITECT 000212
PRO. LAND SURVEYOR 000059

CHRISTOPHER NOVOSEL
PROFESSIONAL
ENGINEER
PE-2018024421

COUNTY ROAD 4433
SEE TYPICAL APPLICATION SHEET NUMBER 15 FOR TEMPORARY TRAFFIC CONTROL SIGNING.
PERMANENT CONSTRUCTION FROM APPROX. STA. 1161+50 TO STA. 1162+25 SHALL BE CONSTRUCTED HALF AT A TIME OR IN SUCH A WAY TO MAINTAIN ACCESS AT ALL TIMES. TEMPORARY CONNECTIONS FROM EXISTING PAVEMENT TO WORKING SURFACE MAY BE REQUIRED AND ARE CONSIDERED SUBSIDIARY TO OTHER BID ITEMS.

STA. 1161+32
4' LT
ROAD CLOSED
W1-6 (16)
R11-2 (29)

STA. 1162+15
4' RT
ROAD CLOSED
R11-2 (29)
W1-6 (16)

STA. 1164+14
4' LT
ROAD CLOSED
W1-6 (16)
R11-2 (29)

STA. 1161+56
20' RT
STOP HERE ON RED
R10-6L (47)

STA. 1163+81
31' LT
ROAD CLOSED
R11-2 (29)

STOP
R1-1 (R)

SCALE
0 20 40 60

CHANNELIZERS @ 10' SPACING

℄ ROUTE 32

STA. 1162+65
END OF CONSTRUCTION

4" SOLID WHITE

℄ ROUTE 32

℄ TEMPORARY BY-PASS

12'

CHANNELIZERS @ 25' SPACING

CHANNELIZERS @ 10' SPACING

4" SOLID WHITE

RDTS

TEMPORARY TRAFFIC SIGNAL
STA. 1161+84
48' RT

RDTS

RDTS

MATCHLINE STA. 1160+27

MATCHLINE STA. 1165+27

1165

TRAFFIC CONTROL LEGEND

- SIGN (SINGLE SIDED)
- CHANNELIZER
- TEMPORARY TRAFFIC SIGNAL
- TYPE III BARRICADE
- 24" SOLID WHITE THERMOPLASTIC
- 4" SOLID WHITE
- 4" DOUBLE SOLID YELLOW
- RESIDENTIAL DRIVEWAY TEMPORARY SIGNAL

NO TURN ON RED
R10-11b (58)

TURN ONLY IN DIRECTION OF ARROW
IA-23-1P (59)

EACH RESIDENTIAL DRIVEWAY TEMPORARY SIGNAL SHALL HAVE THESE SIGNS ATTATCHED. SEE SHEET NUMBER 23 FOR SIGN DETAILS.

RDTS PLACEMENT DETAIL

DRIVEWAY
12' MIN.
6' MIN.
RDTS

STATE OF MISSOURI
CHRISTOPHER NOVOSEL
NUMBER PE-2018024421
PROFESSIONAL ENGINEER

DATE PREPARED 9/23/2026
ROUTE 32 | STATE MO
DISTRICT CD | SHEET NO. 27
COUNTY DENT
JOB NO. JCD0235
CONTRACT ID.
PROJECT NO.
BRIDGE NO.

DESCRIPTION | DATE

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

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

GBA
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ST. 300
CHESTERFIELD, MO 63017
314.231.0100
GBAteam.com

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PRO. ENGINEER 000133
ARCHITECT 000212
PRO. LAND SURVEYOR 000059

ROUTE 32

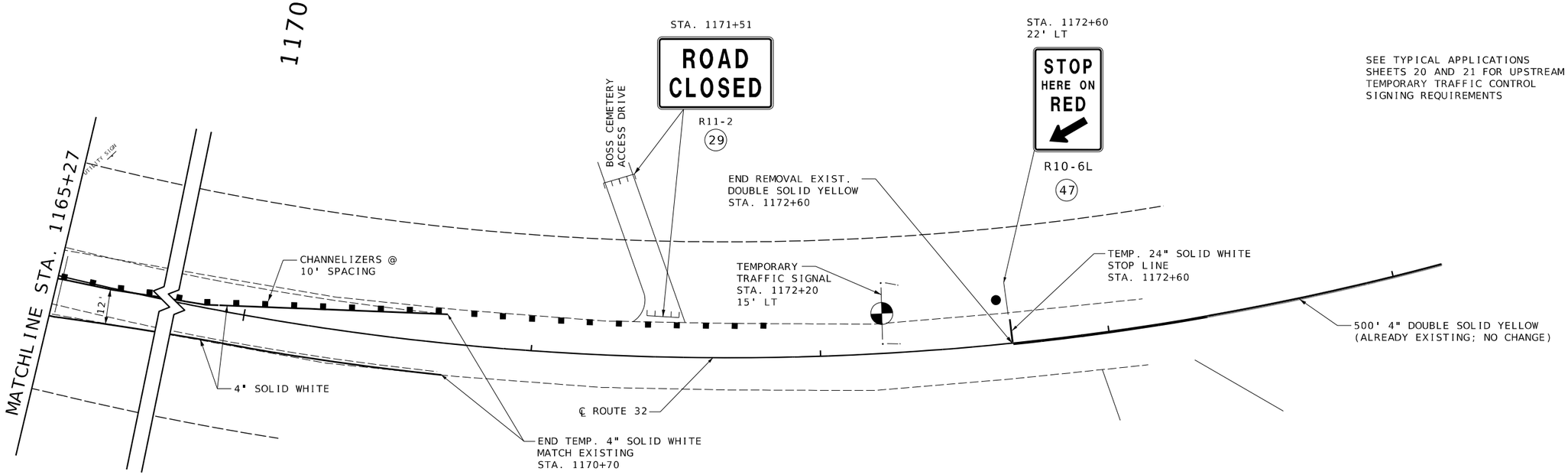
TEMPORARY TRAFFIC CONTROL
PHASE 2
SHEET 4 OF 5

CHRISTOPHER NOVOSEL
PROFESSIONAL ENGINEER
PE-2018024421

BOSS CEMETERY ACCESS DRIVE
TO BE CLOSED WHILE TEMPORARY
BY-PASS IS IN USE.
ACCESS TO BE MAINTAINED VIA
COUNTY ROAD 443 AT ALL TIMES.

SCALE
0 20 40 60

SEE TYPICAL APPLICATIONS
SHEETS 20 AND 21 FOR UPSTREAM
TEMPORARY TRAFFIC CONTROL
SIGNING REQUIREMENTS



TRAFFIC CONTROL LEGEND

- SIGN (SINGLE SIDED)
- CHANNELIZER
- TEMPORARY TRAFFIC SIGNAL
- TYPE III BARRICADE
- 24" SOLID WHITE THERMOPLASTIC
- 4" SOLID WHITE
- 4" DOUBLE SOLID YELLOW
- RESIDENTIAL DRIVEWAY TEMPORARY SIGNAL

ROUTE 32

TEMPORARY TRAFFIC CONTROL
PHASE 2
SHEET 5 OF 5

STATE OF MISSOURI
CHRISTOPHER NOVOSEL
NUMBER
PE-2018024421
PROFESSIONAL ENGINEER

DATE PREPARED 9/23/2026
ROUTE 32 | STATE MO
DISTRICT CD | SHEET NO. 28
COUNTY DENT
JOB NO. JCD0235
CONTRACT ID.
PROJECT NO.
BRIDGE NO.

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

DESCRIPTION	DATE

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

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GEORGE BUTLER
ASSOCIATES, INC.
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ARCHITECT 000212
PRO. LAND SURVEYOR 000059

CHRISTOPHER NOVOSEL
PROFESSIONAL
ENGINEER
PE-2018024421

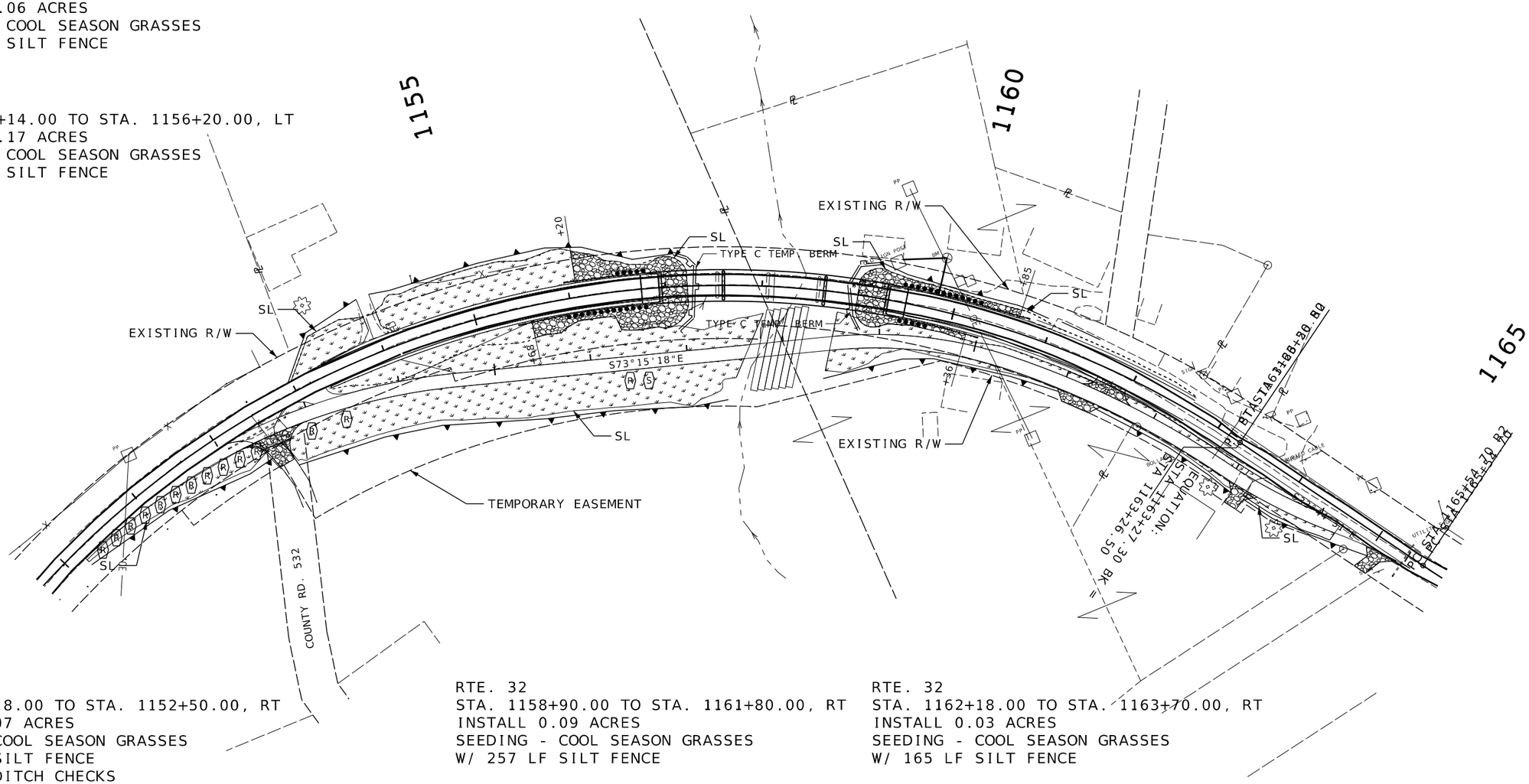
RTE. 32
STA 1155+68.00 TO STA 1157+37.00
INSTALL 425.20 CY TYPE 2 ROCK BLANKET
W/ 637.80 SY PERMANENT EROSION CONTROL GEOTEXTILE
& 100' TEMP. TYPE C BERM

RTE. 32
STA 1159+00.00 TO STA 1160+85.00
INSTALL 259.34 CY TYPE 2 ROCK BLANKET
W/ 389.01 SY PERMANENT EROSION CONTROL GEOTEXTILE
& 100' TEMP. TYPE C BERM

SCALE
0 60 120 180

RTE. 32
STA. 1153+00.00 TO STA. 1154+00.00, LT
INSTALL 0.06 ACRES
SEEDING - COOL SEASON GRASSES
W/ 117 LF SILT FENCE

RTE. 32
STA. 1154+14.00 TO STA. 1156+20.00, LT
INSTALL 0.17 ACRES
SEEDING - COOL SEASON GRASSES
W/ 323 LF SILT FENCE



RTE. 32
STA. 1150+18.00 TO STA. 1152+50.00, RT
INSTALL 0.07 ACRES
SEEDING - COOL SEASON GRASSES
W/ 219 LF SILT FENCE
& 11 ROCK DITCH CHECKS

RTE. 32
STA. 1152+70.00 TO STA. 1158+00.00, RT
INSTALL 0.69 ACRES
SEEDING - COOL SEASON GRASSES
W/ 452 LF SILT FENCE
& 3 ROCK DITCH CHECKS
& 1 SEDIMENT TRAP

RTE. 32
STA. 1158+90.00 TO STA. 1161+80.00, RT
INSTALL 0.09 ACRES
SEEDING - COOL SEASON GRASSES
W/ 257 LF SILT FENCE

RTE. 32
STA. 1162+18.00 TO STA. 1163+70.00, RT
INSTALL 0.03 ACRES
SEEDING - COOL SEASON GRASSES
W/ 165 LF SILT FENCE

RTE. 32
STA. 1163+70.00 TO STA. 1164+80.00, RT
INSTALL 0.03 ACRES
SEEDING - COOL SEASON GRASSES
W/ 143 LF SILT FENCE

TEMPORARY EROSION CONTROL LEGEND
- SILT FENCE
- ROCK DITCH CHECK
- SEDIMENT TRAP ROCK
- TYPE C TEMP. BERM

PERMANENT EROSION CONTROL LEGEND
- TYPE 2 ROCK BLANKET
- SEEDING

ROUTE 32

EROSION CONTROL
PHASE 1 & 2
SHEET 1 OF 2

BRIAN KIERATH
PROFESSIONAL
ENGINEER
PE-2023008624

REV.

BRIAN D. KIERATH JR.
NUMBER
PE-2023008624
STATE OF MISSOURI
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED, AND DATED ELECTRONICALLY

DATE PREPARED
9/23/2026

ROUTE	STATE
32	MO
DISTRICT	SHEET NO.
CD	29

COUNTY
DENT

JOB NO.
JCD0235

CONTRACT ID.

PROJECT NO.

BRIDGE NO.

DESCRIPTION

DATE

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

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

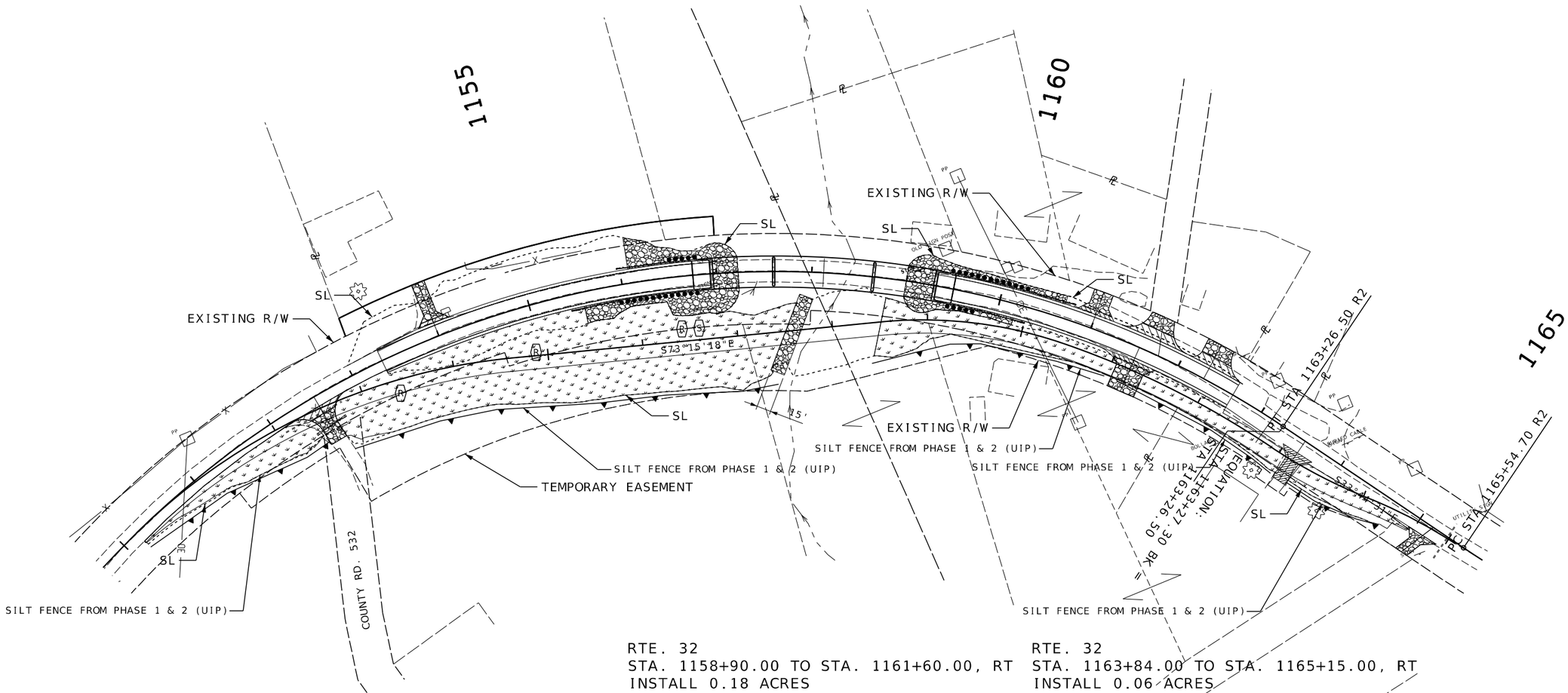
GBA
16305 SWINGLEY RIDGE RD
ST. 300
CHESTERFIELD, MO 63017
314.231.0100
GBAteam.com

GEORGE BUTLER
ASSOCIATES, INC.
PRO. ENGINEER 000133
ARCHITECT 000212
PRO. LAND SURVEYOR 000059

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RTE. 32 - PHASE 3
STA 1157+55.00 TO STA 1158+00.00, RT
INSTALL 94.67 CY TYPE 2 ROCK BLANKET
W/ 142 SY PERMANENT EROSION CONTROL
GEOTEXTILE

SCALE
0 60 120 180



RTE. 32
STA. 1150+18.00 TO STA. 1152+50.00, RT
INSTALL 0.10 ACRES
SEEDING - COOL SEASON GRASSES

RTE. 32
STA. 1152+70.00 TO STA. 1158+00.00, RT
INSTALL 0.83 ACRES
SEEDING - COOL SEASON GRASSES
& 3 ROCK DITCH CHECKS
& 1 SEDIMENT TRAP ROCK

RTE. 32
STA. 1158+90.00 TO STA. 1161+60.00, RT
INSTALL 0.18 ACRES
SEEDING - COOL SEASON GRASSES

RTE. 32
STA. 1161+90.00 TO STA. 1163+70.00, RT
INSTALL 0.09 ACRES
SEEDING - COOL SEASON GRASSES

RTE. 32
STA. 1163+84.00 TO STA. 1165+15.00, RT
INSTALL 0.06 ACRES
SEEDING - COOL SEASON GRASSES

TEMPORARY EROSION CONTROL LEGEND
- SILT FENCE
- (R) ROCK DITCH CHECK
- (S) SEDIMENT TRAP ROCK
- TYPE C TEMP. BERM

PERMANENT EROSION CONTROL LEGEND
- TYPE 2 ROCK BLANKET
- SEEDING

ROUTE 32

EROSION CONTROL
PHASE 3
SHEET 2 OF 2

STATE OF MISSOURI
BRIAN D. KIERATH JR.
NUMBER
PE-2023008624
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED, AND DATED ELECTRONICALLY

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

DATE PREPARED: 9/25/2026
ROUTE: 32 | STATE: MO
DISTRICT: CD | SHEET NO.: 30
COUNTY: DENT
JOB NO.: JCD0235
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.:

DESCRIPTION | DATE | REV.

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

GBA
16305 SWINGLEY RIDGE RD
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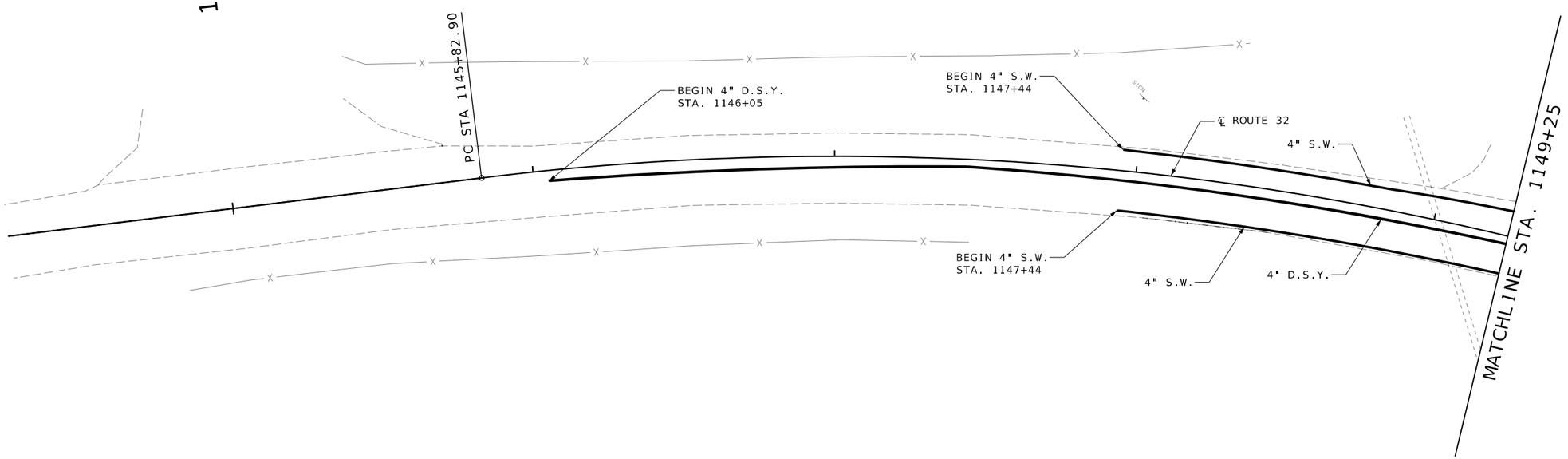
GEORGE BUTLER
ASSOCIATES, INC.
PRO. ENGINEER 000133
ARCHITECT 000212
PRO. LAND SURVEYOR 000059

BRIAN KIERATH
PROFESSIONAL
ENGINEER
PE-2023008624

SCALE

0 20 40 60

1145



STRIPING KEY

SW = SOLID WHITE LINE

SWT = SOLID WHITE THERMOPLASTIC LINE

IW = INTERMITTENT WHITE LINE

IY = INTERMITTENT YELLOW LINE

DWT = DOTTED WHITE THERMOPLASTIC LINE (2 FT. LINE, 4 FT. GAPS)

SY = SOLID YELLOW LINE

SYT = SOLID YELLOW THERMOPLASTIC LINE

DSY = DOUBLE SOLID YELLOW LINE

LEFT OR RIGHT TURN ARROW (WHITE THERMOPLASTIC)

STRAIGHT ARROW (WHITE THERMOPLASTIC)

COMBINATION STRAIGHT/RIGHT ARROW
COMBINATION STRAIGHT/LEFT ARROW
(WHITE THERMOPLASTIC)

24"X36" YIELD LINE TRIANGLES (WHITE THERMOPLASTIC)

24" CROSSWALK BAR (WHITE THERMOPLASTIC)

STATE OF MISSOURI
CHRISTOPHER NOVOSEL
NUMBER
PE-2018024421
PROFESSIONAL ENGINEER

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

DATE PREPARED: 9/23/2026

ROUTE	STATE
32	MO

DISTRICT	SHEET NO.
CD	31

COUNTY: DENT

JOB NO.: JCD0235

CONTRACT ID.:

PROJECT NO.:

BRIDGE NO.:

DESCRIPTION	DATE

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

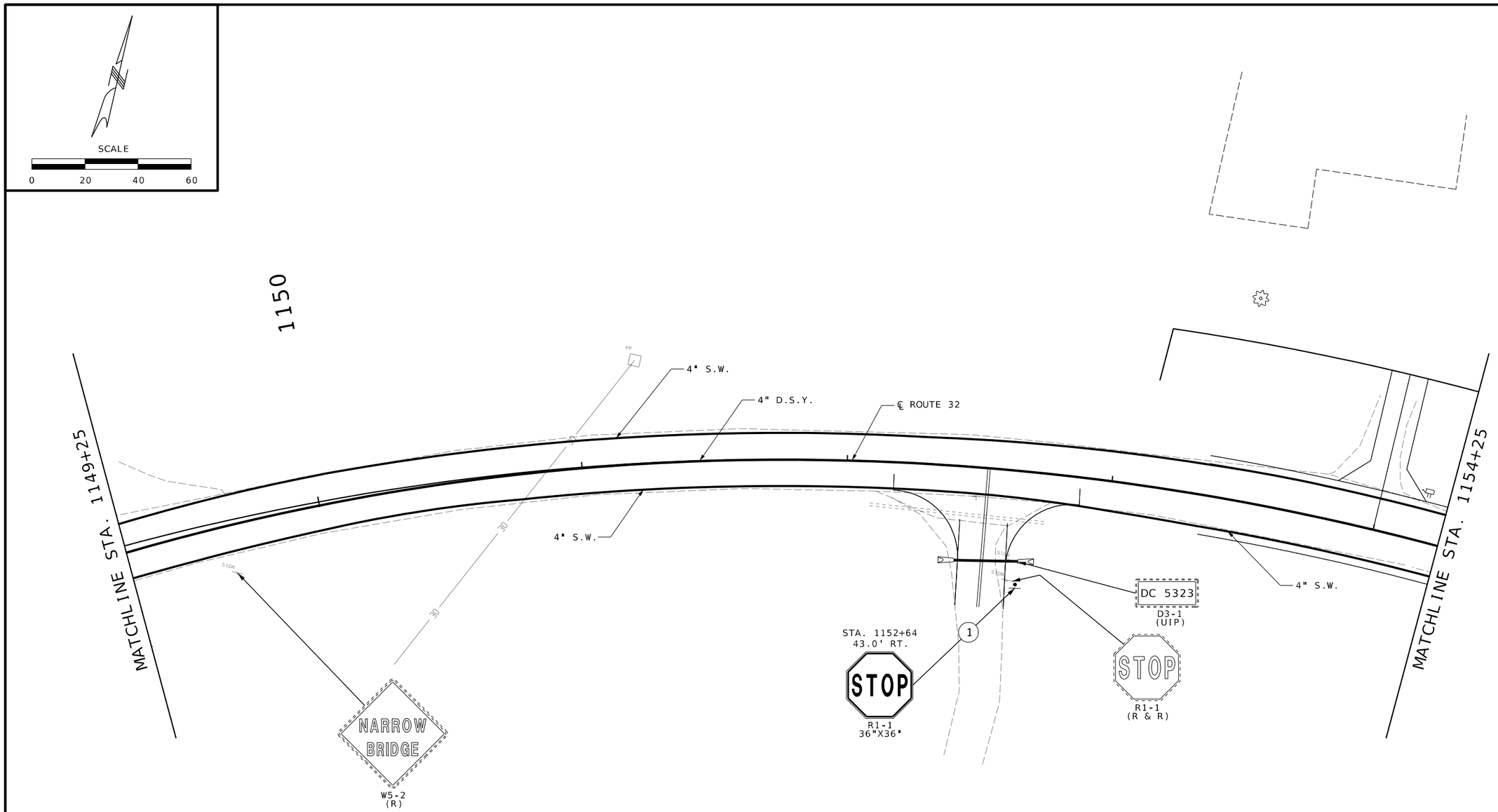
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ASSOCIATES, INC.
PRO. ENGINEER 000133
ARCHITECT 000212
PRO. LAND SURVEYOR 000059

ROUTE 32

PAVEMENT MARKING
AND SIGNING
SHEET 1 OF 5

CHRISTOPHER NOVOSEL
PROFESSIONAL
ENGINEER
PE-2018024421



STRIPING KEY

SW = SOLID WHITE LINE

SWT = SOLID WHITE THERMOPLASTIC LINE

IW = INTERMITTENT WHITE LINE

IY = INTERMITTENT YELLOW LINE

DWT = DOTTED WHITE THERMOPLASTIC LINE (2 FT. LINE, 4 FT. GAPS)

SY = SOLID YELLOW LINE

SYT = SOLID YELLOW THERMOPLASTIC LINE

DSY = DOUBLE SOLID YELLOW LINE

LEFT OR RIGHT TURN ARROW (WHITE THERMOPLASTIC)

STRAIGHT ARROW (WHITE THERMOPLASTIC)

COMBINATION STRAIGHT/RIGHT ARROW
COMBINATION STRAIGHT/LEFT ARROW
(WHITE THERMOPLASTIC)

24"X36" YIELD LINE TRIANGLES (WHITE THERMOPLASTIC)

24" CROSSWALK BAR (WHITE THERMOPLASTIC)

ROUTE 32

PAVEMENT MARKING AND SIGNING
SHEET 2 OF 5

STATE OF MISSOURI
CHRISTOPHER NOVOSEL
NUMBER PE-2018024421
PROFESSIONAL ENGINEER

DATE PREPARED
9/23/2026

ROUTE	STATE
32	MO
DISTRICT	SHEET NO.
CD	32

COUNTY
DENT

JOB NO.
JCD0235

CONTRACT ID.

PROJECT NO.

BRIDGE NO.

DESCRIPTION	DATE

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

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
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ARCHITECT 000212
PRO. LAND SURVEYOR 000059

CHRISTOPHER NOVOSEL
PROFESSIONAL
ENGINEER
PE-2018024421

REV.

SCALE

0 20 40 60

STA. 1156+58
20.6' LT.

S3-1
36"X36"

S3-1
(R & R)

2

OM3-L
(R)

OM3-R
(R)

EAST FORK
HUZZAH
CREEK

I3-1
(R)

1155

MATCHLINE STA. 1154+25

MATCHLINE STA. 1159+25

℄ ROUTE 32

4" S.W.

4" D.S.Y.

4" S.W.

EAST FORK
HUZZAH
CREEK

I3-1
(R)

OM3-L
(R)

OM3-R
(R)

BOSS

I5-1
(R)

STRIPING KEY

SW = SOLID WHITE LINE

SWT = SOLID WHITE THERMOPLASTIC LINE

IW = INTERMITTENT WHITE LINE

IY = INTERMITTENT YELLOW LINE

DWT = DOTTED WHITE THERMOPLASTIC LINE (2 FT. LINE, 4 FT. GAPS)

SY = SOLID YELLOW LINE

SYT = SOLID YELLOW THERMOPLASTIC LINE

DSY = DOUBLE SOLID YELLOW LINE

LEFT OR RIGHT TURN ARROW
(WHITE THERMOPLASTIC)

STRAIGHT ARROW
(WHITE THERMOPLASTIC)

COMBINATION STRAIGHT/RIGHT ARROW
COMBINATION STRAIGHT/LEFT ARROW
(WHITE THERMOPLASTIC)

24"X36" YIELD LINE TRIANGLES
(WHITE THERMOPLASTIC)

24" CROSSWALK BAR
(WHITE THERMOPLASTIC)

ROUTE 32

PAVEMENT MARKING
AND SIGNING
SHEET 3 OF 5

STATE OF MISSOURI
CHRISTOPHER NOVOSEL
NUMBER PE-2018024421
PROFESSIONAL ENGINEER

DATE PREPARED
9/23/2026

ROUTE	STATE
32	MO
DISTRICT	SHEET NO.
CD	33

COUNTY
DENT

JOB NO.
JCD0235

CONTRACT ID.

PROJECT NO.

BRIDGE NO.

DESCRIPTION	DATE

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

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PRO. LAND SURVEYOR 000059

CHRISTOPHER NOVOSEL
PROFESSIONAL
ENGINEER
PE-2018024421

REV.

SCALE
0 20 40 60

STA. 1161+44
44.8' LT.
STOP
R1-1
36"X36"

STOP
R1-1
(R & R)

4

DC 4433
D3-1
(UIP)

PRIVATE LANE
400
D3-1
(UIP)

1160

MATCHLINE STA. 1159+25

MATCHLINE STA. 1164+25

4" S.W.

℄ ROUTE 32

4" S.W.

4" S.W.

4" S.W.

4" D.S.Y.

3

Boss
I5-1
30" x 12"
STA. 1159+47
18.7' RT.

STRIPING KEY

SW = SOLID WHITE LINE
SWT = SOLID WHITE THERMOPLASTIC LINE
IW = INTERMITTENT WHITE LINE
IY = INTERMITTENT YELLOW LINE
DWT = DOTTED WHITE THERMOPLASTIC LINE (2 FT. LINE, 4 FT. GAPS)
SY = SOLID YELLOW LINE
SYT = SOLID YELLOW THERMOPLASTIC LINE
DSY = DOUBLE SOLID YELLOW LINE

LEFT OR RIGHT TURN ARROW (WHITE THERMOPLASTIC)
STRAIGHT ARROW (WHITE THERMOPLASTIC)
COMBINATION STRAIGHT/RIGHT ARROW
COMBINATION STRAIGHT/LEFT ARROW
(WHITE THERMOPLASTIC)
24"X36" YIELD LINE TRIANGLES (WHITE THERMOPLASTIC)
24" CROSSWALK BAR (WHITE THERMOPLASTIC)

ROUTE 32

PAVEMENT MARKING AND SIGNING
SHEET 4 OF 5

STATE OF MISSOURI
CHRISTOPHER NOVOSEL
NUMBER
PE-2018024421
PROFESSIONAL ENGINEER

DATE PREPARED
9/23/2026

ROUTE	STATE
32	MO
DISTRICT	SHEET NO.
CD	34

COUNTY
DENT

JOB NO.
JCD0235

CONTRACT ID.

PROJECT NO.

BRIDGE NO.

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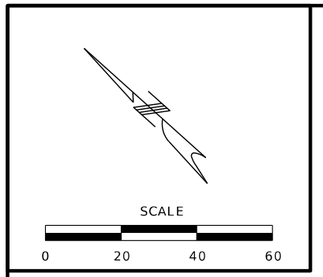
DESCRIPTION	DATE

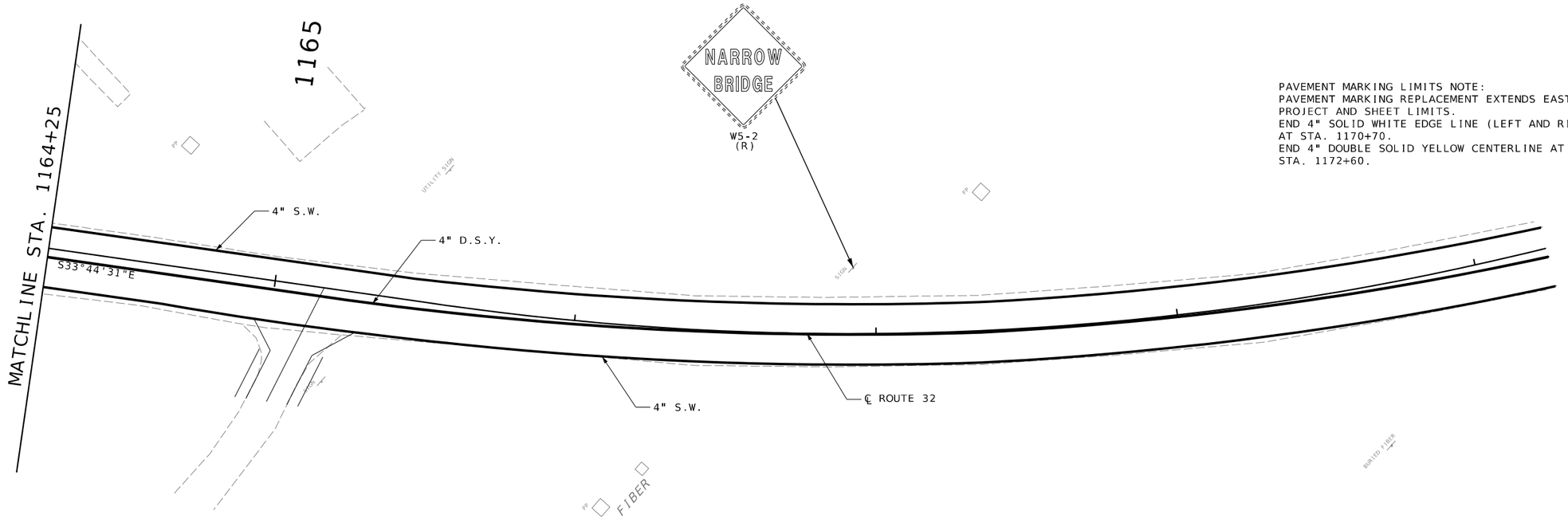
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PROFESSIONAL
ENGINEER
PE-2018024421





PAVEMENT MARKING LIMITS NOTE:
PAVEMENT MARKING REPLACEMENT EXTENDS EAST OF PROJECT AND SHEET LIMITS.
END 4" SOLID WHITE EDGE LINE (LEFT AND RIGHT) AT STA. 1170+70.
END 4" DOUBLE SOLID YELLOW CENTERLINE AT STA. 1172+60.

STRIPING KEY

SW = SOLID WHITE LINE
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IY = INTERMITTENT YELLOW LINE
DWT = DOTTED WHITE THERMOPLASTIC LINE (2 FT. LINE, 4 FT. GAPS)
SY = SOLID YELLOW LINE
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LEFT OR RIGHT TURN ARROW (WHITE THERMOPLASTIC)
STRAIGHT ARROW (WHITE THERMOPLASTIC)
COMBINATION STRAIGHT/RIGHT ARROW
COMBINATION STRAIGHT/LEFT ARROW
(WHITE THERMOPLASTIC)
24"X36" YIELD LINE TRIANGLES (WHITE THERMOPLASTIC)
24" CROSSWALK BAR (WHITE THERMOPLASTIC)

ROUTE 32

PAVEMENT MARKING AND SIGNING
SHEET 5 OF 5

STATE OF MISSOURI
CHRISTOPHER NOVOSEL
NUMBER
PE-2018024421
PROFESSIONAL ENGINEER

DATE PREPARED
9/23/2026

ROUTE	STATE
32	MO
DISTRICT	SHEET NO.
CD	35

COUNTY
DENT

JOB NO.
JCD0235

CONTRACT ID.

PROJECT NO.

BRIDGE NO.

DESCRIPTION	DATE

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PROFESSIONAL
ENGINEER
PE-2018024421

SIGNS

902 SIGNAL SIGNS TABULATED ON D-37A SHEET

SIGN NO.	SIGN SIZE	STATION OR LOG MILE	HORIZ CLEAR IF NOT STD	LOCATION	SIGN DTL SHT NO.	PERFORATED SQUARE STEEL TUBE 2-INCH POST POST NO. 1 LF	POST NO. 2 LF	TOTAL ITEM NO. 9031270A LF	ANCHORS DRIVEN ITEM NO. 9031273A EACH	
1	36"x36"	1152+64		ROUTE 32		10.5		10.5	1	
2	36"x36"	1156+58		ROUTE 32		10.5		10.5	1	
3	30"x12"	1159+47		ROUTE 32	37	8.5		8.5	1	
4	36"x36"	1161+44		ROUTE 32		10.5		10.5	1	
PAY TOTAL								40	4	

STANDARD SIGN ASSEMBLIES

SIGN NO.	STATION OR LOG MILE	LOCATION	SIGN, TYPE, DESIGNATION, SIZE & NUMBER OF EACH SH  R1-1 36"X36"	SHF  S3-1 36"X36"	SH  I5-1 30"X12"	
1	1152+64	ROUTE 32	1			
2	1156+58	ROUTE 32		1		
3	1159+47	ROUTE 32			1	
4	1161+44	ROUTE 32	1			
TOTAL			2	1	1	

SIGN SUMMARY

EFFECTIVE: 10-01-2016

STANDARD OR SPECIAL SIGN DESIGNATION	SIGN DTL. SHT. NO.	NO. EACH	SIGN SIZE	TYPE & SQUARE FEET FLAT SHEET SH ITEM NO. 9035004A	FLAT SHEET FLUORESCENT SHF* ITEM NO. 9035069A	STRUCTURAL ST ITEM NO. 9035011A	STRUCTURAL FLUORESCENT STF* ITEM NO. 9035071A
R1-1	STD	2	36"x36"	14.9			
S3-1	STD	1	36"x36"		9.0		
I5-1	37	1	30"x12"	2.5			
			PAY TOTAL	18	9		

*ORANGE, YELLOW AND YELLOW-GREEN

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STATE OF MISSOURI
CHRISTOPHER NOVOSEL
NUMBER PE-2018024421
PROFESSIONAL ENGINEER

DATE PREPARED 9/23/2026

ROUTE 32 | STATE MO

DISTRICT CD | SHEET NO. 36

COUNTY DENT

JOB NO. JCD0235

CONTRACT ID.

PROJECT NO.

BRIDGE NO.

REV.	DESCRIPTION	DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

105 WEST CAPITOL
JEFFERSON CITY, MO 65102
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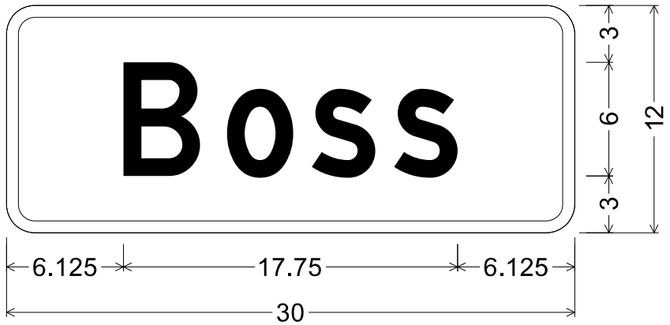
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D-29
D-30

ROUTE 32

SIGNING SHEET
SIGNING QUANTITIES
SHEET 1 OF 1

CHRISTOPHER NOVOSEL
PROFESSIONAL
ENGINEER
PE-2018024421



I5-1 SH-FLAT SHEET;
1.500" Radius, 0.625" Border, White on Green;
"Boss", D;
Table of letter and object lefts

B	o	s	s
6.125	11.625	16.125	20.500

SIGN NO.	3
STATION	1159+47
ROADWAY	ROUTE 32

D-31

ROUTE 32

SIGNING SHEET
SIGNING DETAILS

STATE OF MISSOURI
CHRISTOPHER NOVOSEL
NUMBER
PE-2018024421
PROFESSIONAL ENGINEER

DATE PREPARED
9/23/2026

ROUTE	STATE
32	MO
DISTRICT	SHEET NO.
CD	37

COUNTY
DENT

JOB NO.
JCD0235

CONTRACT ID.

PROJECT NO.

BRIDGE NO.

DESCRIPTION

DATE

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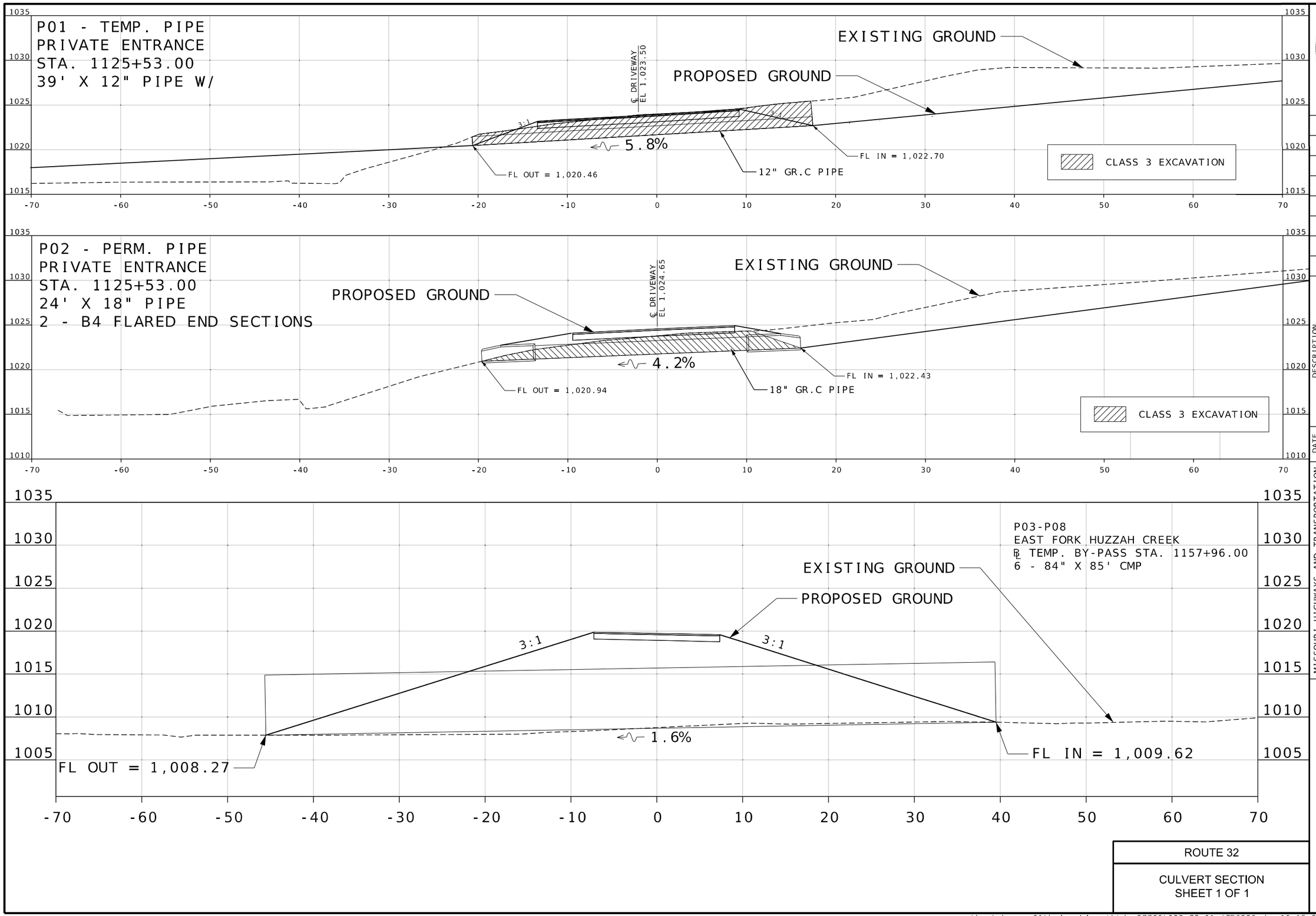
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CHRISTOPHER NOVOSEL
PROFESSIONAL
ENGINEER
PE-2018024421

REV.



STATE OF MISSOURI
BRIAN D. KIERATH JR.
NUMBER PE-2023008624
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED, AND DATED ELECTRONICALLY

DATE PREPARED 9/23/2026

ROUTE 32 | STATE MO

DISTRICT CD | SHEET NO. 38

COUNTY DENT

JOB NO. JCD0235

CONTRACT ID.

PROJECT NO.

BRIDGE NO.

DESCRIPTION | DATE

REV.

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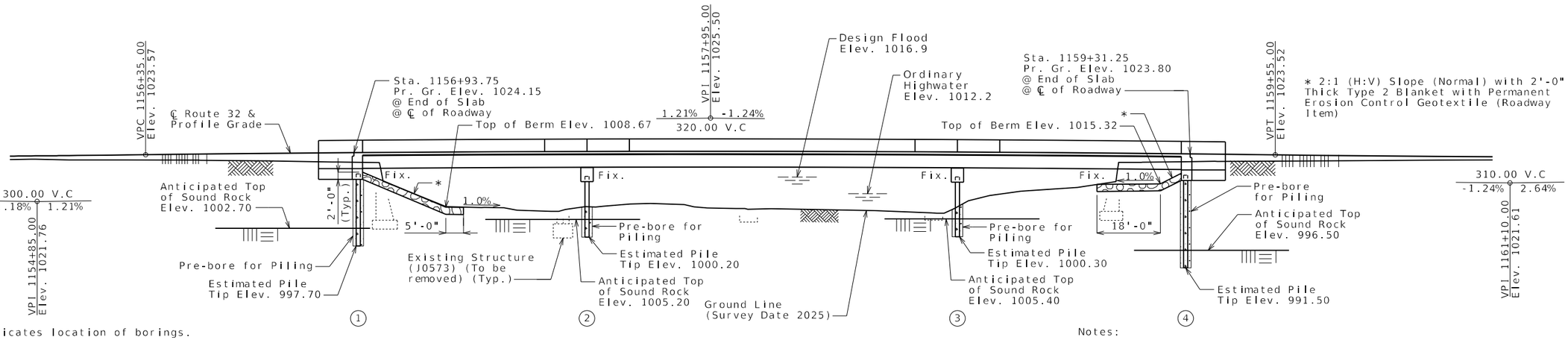
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ARCHITECT 000212
PRO. LAND SURVEYOR 000059

BRIAN KIERATH
PROFESSIONAL
ENGINEER
PE-2023008624

SEC/SUR 18 TWP 34N RGE 2W

(65'-105'-65') CONTINUOUS COMPOSITE CURVED PLATE GIRDER SPANS



GENERAL ELEVATION

◒ Indicates location of borings.

Notice and Disclaimer Regarding Boring Log Data

The locations of all subsurface borings for this structure are shown on the plan sheet(s) for this structure. The boring data for all locations indicated, as well as any other boring logs or other factual records of subsurface data and investigations performed by the department for the design of the project, are shown on Sheet(s) No. 33-35 and may be included in the Electronic Bridge Deliverables. They will also be available from the Project Contact upon written request. No greater significance or weight should be given to the boring data depicted on the plan sheets than is given to the subsurface data available from the district or elsewhere.

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

Notes:

For General Notes, Estimated Quantities, Estimated Quantities for Slab on Steel, Foundation Data, Hydrologic Data, and Location Sketch, see Sheet No. 2.

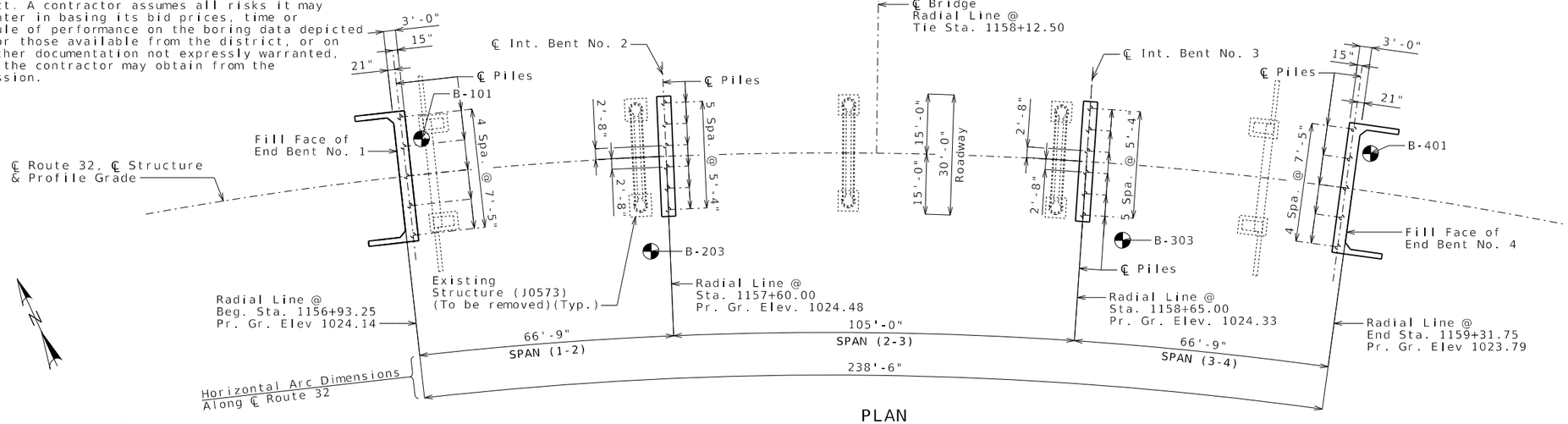
Existing roadway fill under the ends of the bridge shall be removed as shown. Removal of existing roadway fill will be considered completely covered by the contract unit price for roadway excavation.

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

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

All longitudinal dimensions shown are horizontal.

All bents are radial.



PLAN

CURVE ℄ ROUTE 32
PI 1158+19.32
PC 1145+82.90
PT 1163+26.50
Δ 104°36'44.9" (RT)
D 5°59'49.4"
L 1,744.40' (ARC)
T 1,236.42'
R 955.40'
SE 7%

B.M. #1 - SQUARE ON FIRST STEP OF FORMER FILLING STATION
EXIST. ℄ STA. 1159+80.36, 54.87' LT,
ELEV. 1022.53

BRIDGE: ROUTE 32 OVER HUZZAH CREEK

ROUTE 32 FROM ROUTE 72 TO ROUTE AC
ABOUT 0.4 MILE WEST OF ROUTE AC
BEGINNING STATION 1156+93.25

Designed July 2026
Detailed July 2026
Checked July 2026

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

STATE OF MISSOURI
NICHOLE WITUSHYNSKY
NUMBER PE-2018037127
PROFESSIONAL ENGINEER

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

DATE PREPARED 9/23/2026
ROUTE 32 | STATE MO
DISTRICT BR | SHEET NO. 1
COUNTY DENT
JOB NO. JCD0235
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9724

DESCRIPTION | DATE

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

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NICHOLE WITUSHYNSKY
PROFESIONAL
ENGINEER
PE-2018037127

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Estimated Quantities

Item		Substr.	Superstr.	Total
Class 1 Excavation	cu. yard	80		80
Removal of Bridges (J0573)	lump sum			1
Bridge Approach Slab (Minor)	sq. yard		134	134
Galvanized Cast-In-Place Concrete Piles (14 in.)	linear foot	434		434
Pre-Bore for Piling	linear foot	312		312
Pile Point Reinforcement	each	22		22
Class B Concrete (Substructure)	cu. yard	53.0		53.0
Slab on Steel	sq. yard		862	862
Type H Barrier	linear foot		515	515
Reinforcing Steel (Bridges)	pound	5040		5040
Fabricated Structural Low Alloy Steel(Plate Girder) A709, Grade 50	pound		200,300	200,300
Finished Field Coat (System L)	sq. foot		10,800	10,800
Vertical Drain at End Bents	each			2
Laminated Neoprene Bearing Pad	each		8	8
Laminated Neoprene Bearing Pad Assembly	each		8	8

All concrete between the upper and lower construction joints in the end bents is included in the Estimated Quantities for Slab on Steel.

All reinforcement in the end bents and all reinforcement in cast-in-place pile at end bents is included in the Estimated Quantities for Slab on Steel.

Estimated Quantities for Slab on Steel

Item		Total
Class B-2 Concrete	cu. yard	253
Reinforcing Steel (Epoxy Coated)	pound	74,610

The table of Estimated Quantities for Slab on Steel represents the quantities used by the State in preparing the cost estimate for concrete slab. 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 forms, all concrete and epoxy coated reinforcing steel will be considered completely covered by the contract unit price for the slab. Variations may be encountered in the estimated quantities but the variations cannot be used for an adjustment in the contract unit price.

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

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

Foundation Data

Type	Design Data		Bent Number 1	2	3	4
Load Bearing Pile	Pile Type and Size		CECIP 14"	CECIP 14"	CECIP 14"	CECIP 14"
	Number	ea	5	6	6	5
	Approximate Length Per Each	ft	*20	*17	*17	*26
	Pile Point Reinforcement	ea	All	All	All	All
	Min. Galvanized Penetration (Elev.)	ft	Full Length	Full Length	Full Length	Full Length
	Est. Max. Scour Depth 100 (Elev.)	ft	1008.10	1000.31	997.39	1014.32
	Minimum Tip Penetration (Elev.)	ft	997.70	1000.20	1000.30	991.50
	Criteria for Min. Tip Penetration		Min. Embed.	Min. Embed.	Min. Embed.	Min. Embed.
	Pile Driving Verification Method		**	**	**	**
	Resistance Factor		0.4	0.4	0.4	0.4
	Minimum Nominal Axial Compressive Resistance	kip	360	654	654	360

* Pile length is an average value

CECIP = Closed Ended Cast-In-Place concrete pile

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

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

Manufactured pile point reinforcement shall be used on all piles in this structure.

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

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

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

Prebore for piles at Bents No. 1, 2, 3 and 4 to elevations 997.7, 1000.2, 1000.3 and 991.5, respectively.

Hydrologic Data

Drainage Area = 20.9 mi²
Design Flood Frequency = 50 years
Design Flood Discharge = 8,880 cfs
Design Flood (D.F.) Elevation = 1016.9
Base Flood (100-year)
Base Flood Elevation = 1017.4
Base Flood Discharge = 10,500 cfs
Estimated Backwater = 0.5 ft
Average Velocity thru Opening = 6.8 ft/s
Freeboard (50-year)
Freeboard = 1.4 ft
Roadway Overtopping
Overtopping Flood Discharge > 14,200 cfs
Overtopping Flood Frequency > 500 years
500-yr Flood Elevation = 1019.4

General Notes:

Design Specifications:
2020 AASHTO LRFD Bridge Design Specifications (9th Ed.)
2023 AASHTO Guide Specifications for LRFD Seismic Bridge Design (3rd. Ed.)
Seismic Design Category = B (Seismic Details Only)
Design earthquake response spectral acceleration coefficient at 1.0 second period, SD1 = 0.268
Acceleration Coefficient (effective peak ground acceleration coefficient), As = 0.21

Design Loading:
Vehicular = HL-93
Future Wearing Surface = 35 lb/sf
Earth = 120 lb/cf
Equivalent Fluid Pressure = 45 lb/cf (Min.)

Design Unit Stresses:

Class B Concrete (Substructure)	f'c = 3,000 psi
Class B-2 Concrete (Superstructure, except Barrier)	f'c = 4,000 psi
Class B-1 Concrete (Barrier)	f'c = 4,000 psi
Reinforcing Steel (ASTM A706 Grade 60)	fy = 60,000 psi
Structural Steel (ASTM A709 Grade 50)	fy = 50,000 psi
Welded or Seamless steel shell (pipe) for CIP pile (ASTM A252 Modified Grade 3)	fy = 50,000 psi

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

Structural Steel Protective Coatings:
Protective Coating: System L in accordance with Sec 1081.
Prime Coat: The cost of the inorganic zinc prime coat will be considered completely covered by the contract unit price for the fabricated structural steel.
Field Coat: The color of the field coat shall be Gray (Federal Standard #26373). The cost of the finish field coat will be considered completely covered by the contract unit price per square foot for Finish Field Coat (System L). At the option of the contractor, the finish field coat may be applied in the shop. The contractor shall exercise extreme care during all phases of loading, hauling, handling, erection and pouring of slab to minimize damage and shall be fully responsible for all repairs and cleaning of the coating systems as required by the engineer.

Fabricated Steel Connections:
Field connections shall be made with 3/4-inch diameter ASTM F3125 Grade A325 Type 1 bolts and 13/16-inch diameter holes, except as noted.

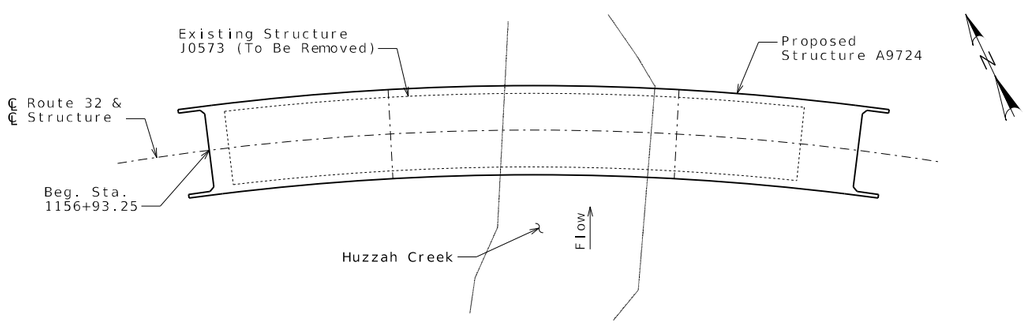
Joint Filler:
All joint filler shall be in accordance with Sec 1057 for preformed sponge rubber expansion and partition joint filler, except as noted.

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

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

Traffic Handling:
Structure to be closed during construction. Traffic to be maintained on temporary bypass during contstruction. See roadway plans for traffic control.

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



LOCATION SKETCH

STATE OF MISSOURI
NICHOLE WITUSHYNSKY
NUMBER PE-2018037127
PROFESSIONAL ENGINEER

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DATE PREPARED 9/23/2026

ROUTE	STATE
32	MO
DISTRICT	SHEET NO.
BR	2

COUNTY DENT

JOB NO. JCD0235

CONTRACT ID.

PROJECT NO.

BRIDGE NO. A9724

DESCRIPTION	DATE

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

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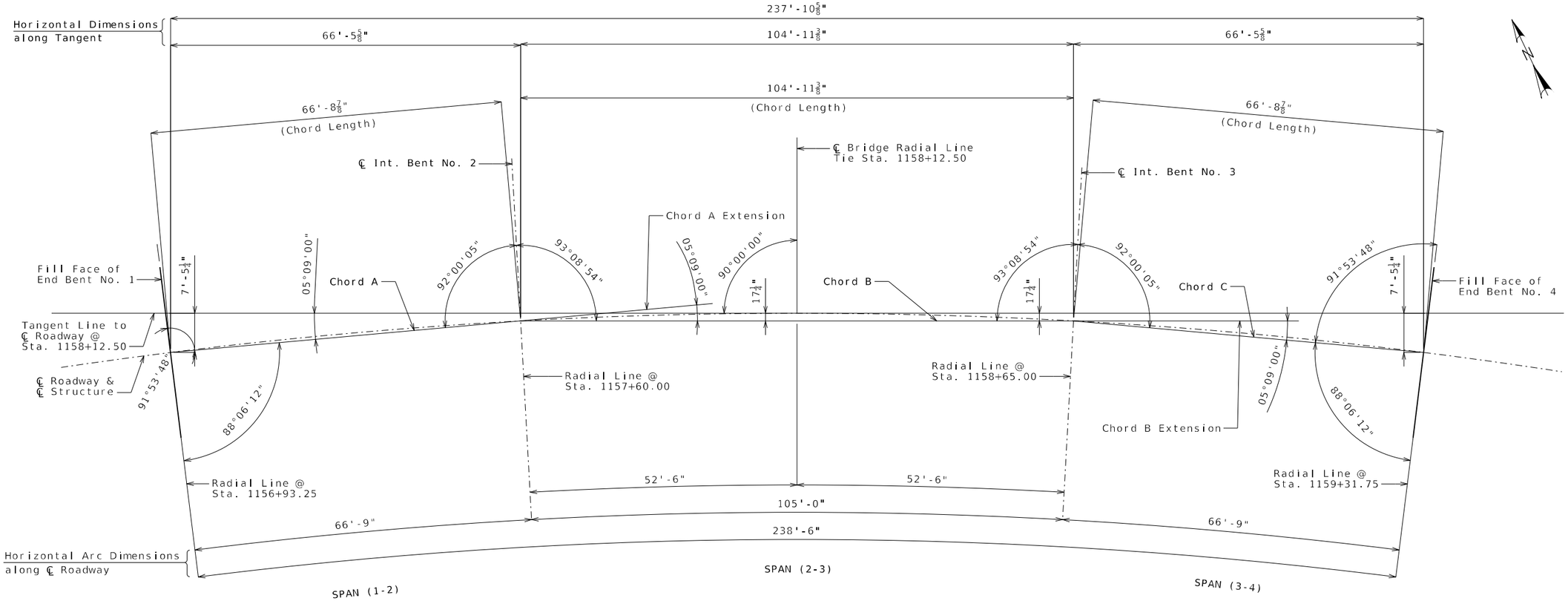
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NICHOLE WITUSHYNSKY
PROFESIONAL
ENGINEER
PE-2018037127

Detailed July 2026
Checked July 2026

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

GENERAL NOTES AND QUANTITIES



PLAN

CURVE ℄ ROUTE 32
PI 1158+19.32
PC 1145+82.90
PT 1163+26.50
Δ 104°36'44.9" (RT)
D 5°59'49.4"
L 1,744.40' (ARC)
T 1,236.42'
R 955.40'
SE 7%

Notes:

All longitudinal dimensions shown are horizontal.

All bents are radial.

SUBSTRUCTURE LAYOUT

Detailed July 2026
Checked July 2026

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

STATE OF MISSOURI
NICHOLE WITUSHYNSKY
NUMBER PE-2018037127
PROFESSIONAL ENGINEER

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9/23/2026

ROUTE	STATE
32	MO
DISTRICT	SHEET NO.
BR	3

COUNTY
DENT

JOB NO.
JCD0235

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9724

DESCRIPTION	DATE

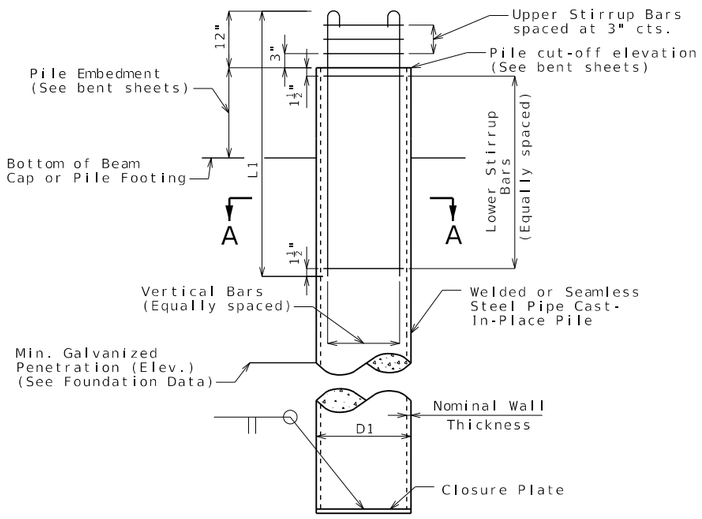
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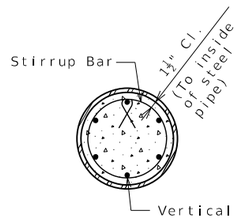
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ARCHITECT 000212
PRO. LAND SURVEYOR 000059

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PROFESIONAL ENGINEER
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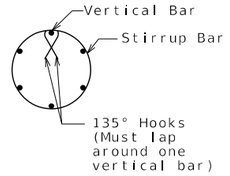
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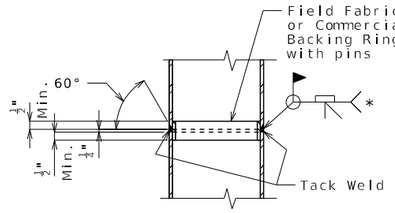
GALVANIZED CLOSED ENDED CAST-IN-PLACE (CECIP) CONCRETE PILE
WITHOUT PILE POINT REINFORCEMENT



SECTION A-A



DETAIL OF SEISMIC STIRRUP BAR



STEEL PIPE PILE SPLICE

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

Cruciform Pile Point Reinforcement Data	
D1, CECIP Pile (O.D.)	14"
B1	14"
B2	6"
B3	5 7/8"
B4	6 5/8"
B5	2"
B6	3/4"
H1	9 1/8"
H2	8 1/8"
H3	8 3/8"
T1 and T2 Plate Thickness	3/4"

Galvanized Closed Ended Cast-In-Place (CECIP) Concrete Pile Data				
Bent Number	1	2	3	4
D1, CECIP Pile (O.D.)	14"	14"	14"	14"
Min. Nominal Wall Thickness	1/2"	1/2"	1/2"	1/2"
Closure Plate Thickness	3/4"	3/4"	3/4"	3/4"
Pile Point Reinforcement	Cruciform	Cruciform	Cruciform	Cruciform
Vertical Bars	6-#5-V104	6-#5-V201	6-#5-V301	6-#5-V404
L1, Length of Vertical Bars	5'-3"	5'-3"	5'-3"	5'-3"
Upper Stirrup Bars	3-#4-P101	3-#4-P201	3-#4-P301	3-#4-P401
Lower Stirrup Bars	5-#4-P101	5-#4-P201	5-#4-P301	5-#4-P401

Notes:

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

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

Steel for closure plate shall be ASTM A709 Grade 50.

Steel for cruciform pile point reinforcement shall be ASTM A709 Grade 50.

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

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

Closure plate shall not project beyond the outside diameter of the pipe pile. Satisfactory weldments may be made by beveling tip end of pipe or by use of inside backing rings. In either case, proper gaps shall be used to obtain weld penetration full thickness of pipe. Payment for furnishing and installing closure plate will be considered completely covered by the contract unit price for Galvanized Cast-In-Place Concrete Piles.

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

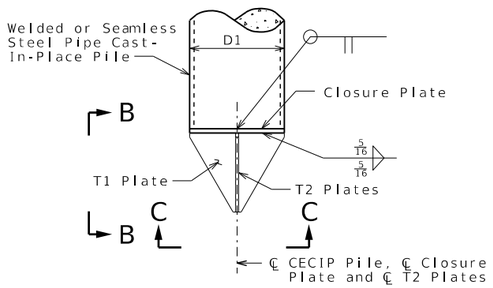
The hooks of vertical bars embedded in the beam cap should not be turned outward, away from the pile core.

Closure plate need not be galvanized.

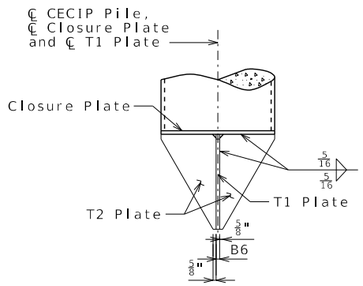
Reinforcing steel for cast-in-place piles is included in the Bill of Reinforcing Steel.

All reinforcement for cast-in-place pile at end bents is included in the Estimated Quantities for Slab on Steel. Reinforcement for cast-in-place pile at intermediate bents is included in the substructure quantity tables.

For Foundation Data table, see Sheet No. 2.

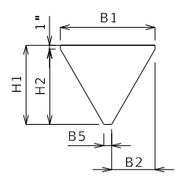


CRUCIFORM PILE POINT

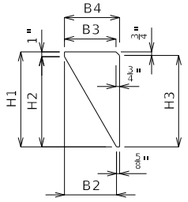


ELEVATION B-B

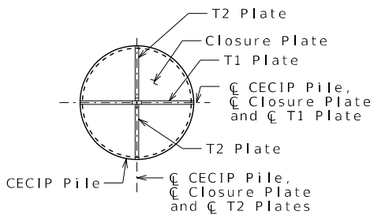
Note: Cost of closure plate is included with cast-in-place concrete pile.



T1 PLATE DETAILS



T2 PLATE DETAILS (2 REQUIRED)



SECTION C-C

CRUCIFORM PILE POINT REINFORCEMENT

GALVANIZED CLOSED ENDED CAST-IN-PLACE (CECIP) CONCRETE PILE

Detailed July 2026
Checked July 2026

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

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NICHOLE WITUSHYNSKY
NUMBER PE-2018037127
PROFESSIONAL ENGINEER
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ROUTE 32 | STATE MO
DISTRICT BR | SHEET NO. 4
COUNTY DENT
JOB NO. JCD0235
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9724

DESCRIPTION | DATE

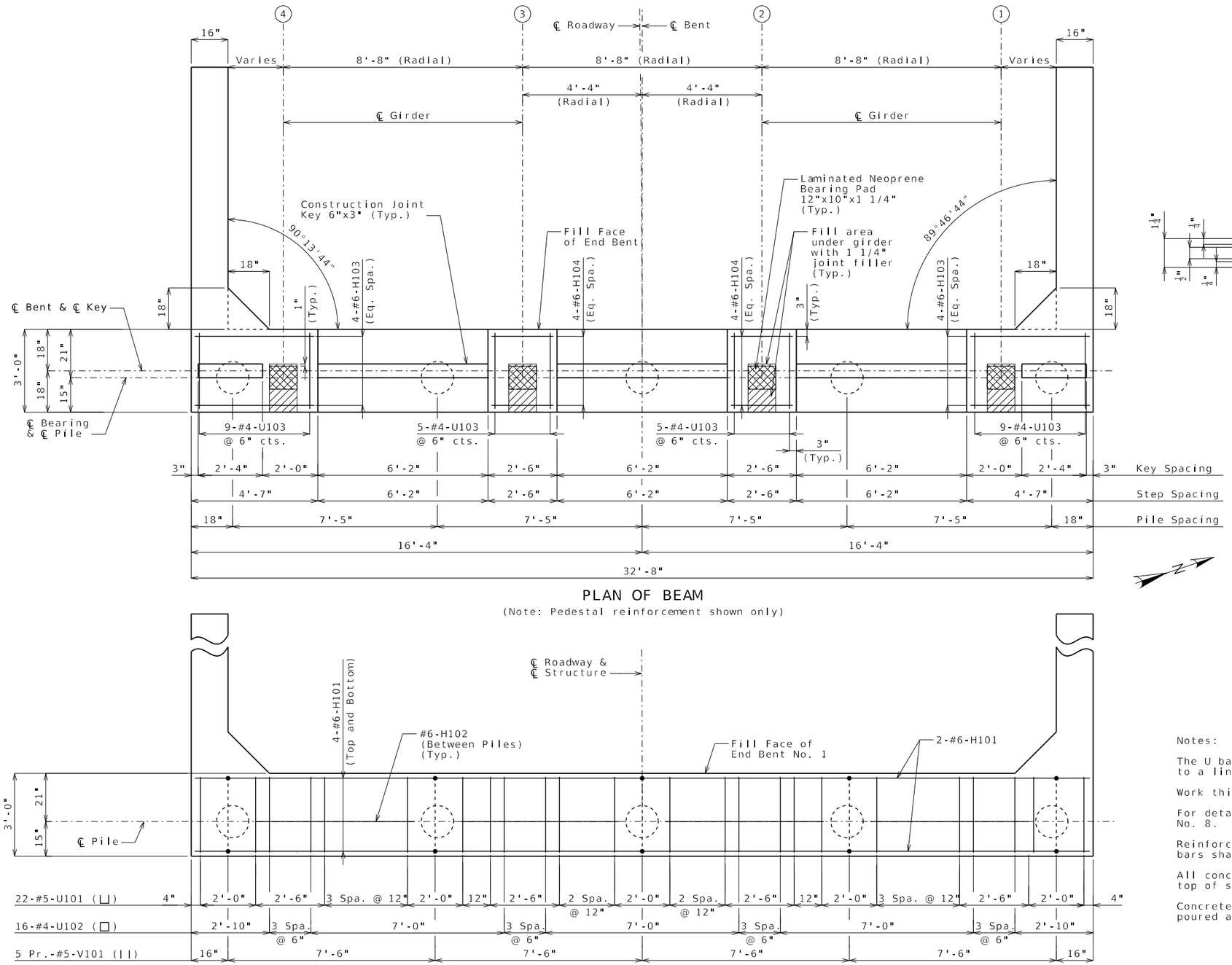
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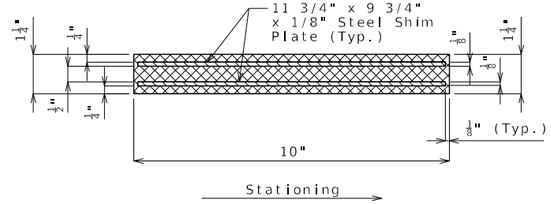
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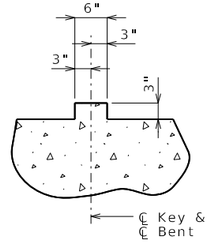
PLAN OF BEAM

(Note: Pedestal reinforcement shown only)

PLAN OF BEAM SHOWING REINFORCEMENT



SECTION THRU LAMINATED NEOPRENE BEARING PAD



SECTION THRU KEY

Notes:

The U bars and Pairs of V bars shall be placed parallel to a line tangent to ℄ Roadway at ℄ Bearing.

Work this sheet with Sheets No. 6 & 7.

For details of Vertical Drain at End Bents, see Sheet No. 8.

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

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

Concrete diaphragms at the integral end bents shall be poured a minimum of 12 hours before the slab is poured.

DETAILS OF END BENT NO. 1

Detailed July 2026
Checked July 2026

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NICHOLE WITUSHYNSKY
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DISTRICT BR | SHEET NO. 5

COUNTY DENT

JOB NO. JCD0235

CONTRACT ID.

PROJECT NO.

BRIDGE NO. A9724

DESCRIPTION	DATE

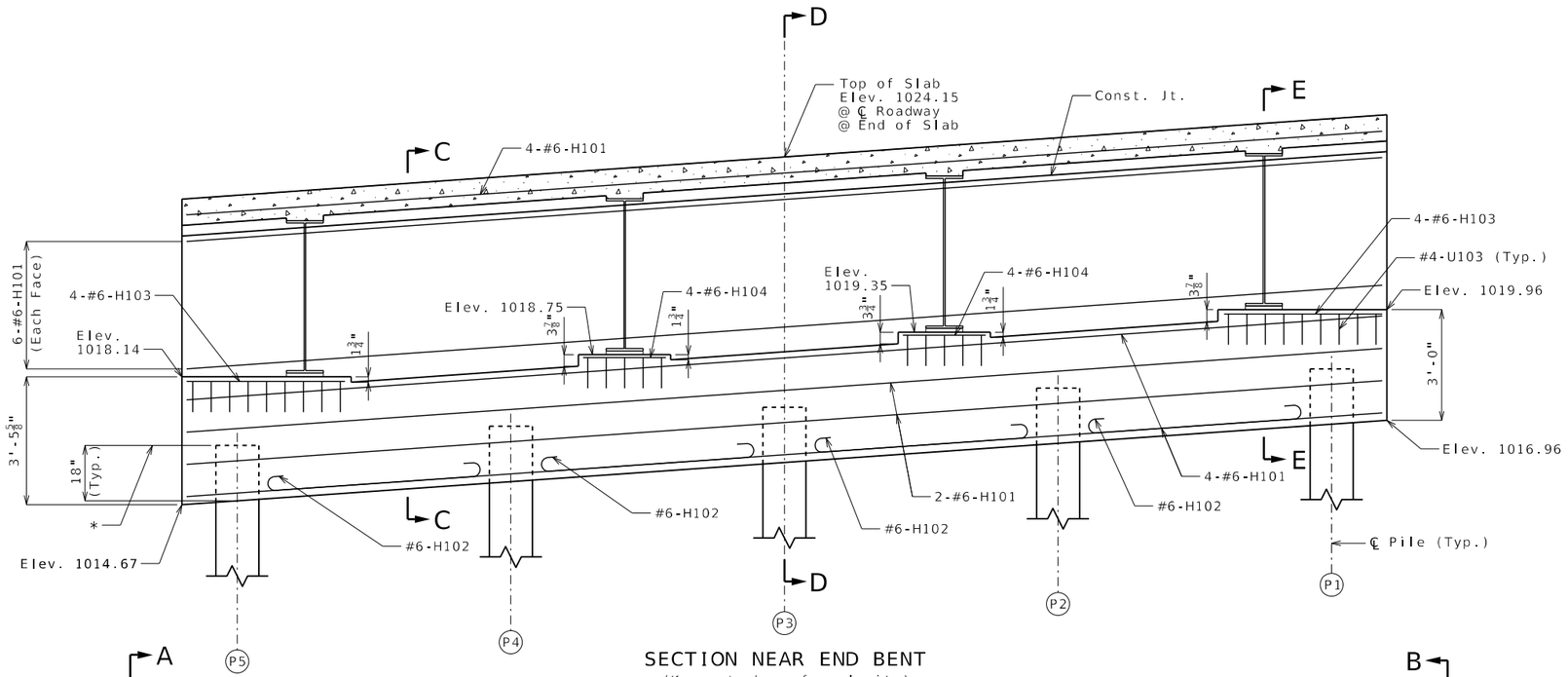
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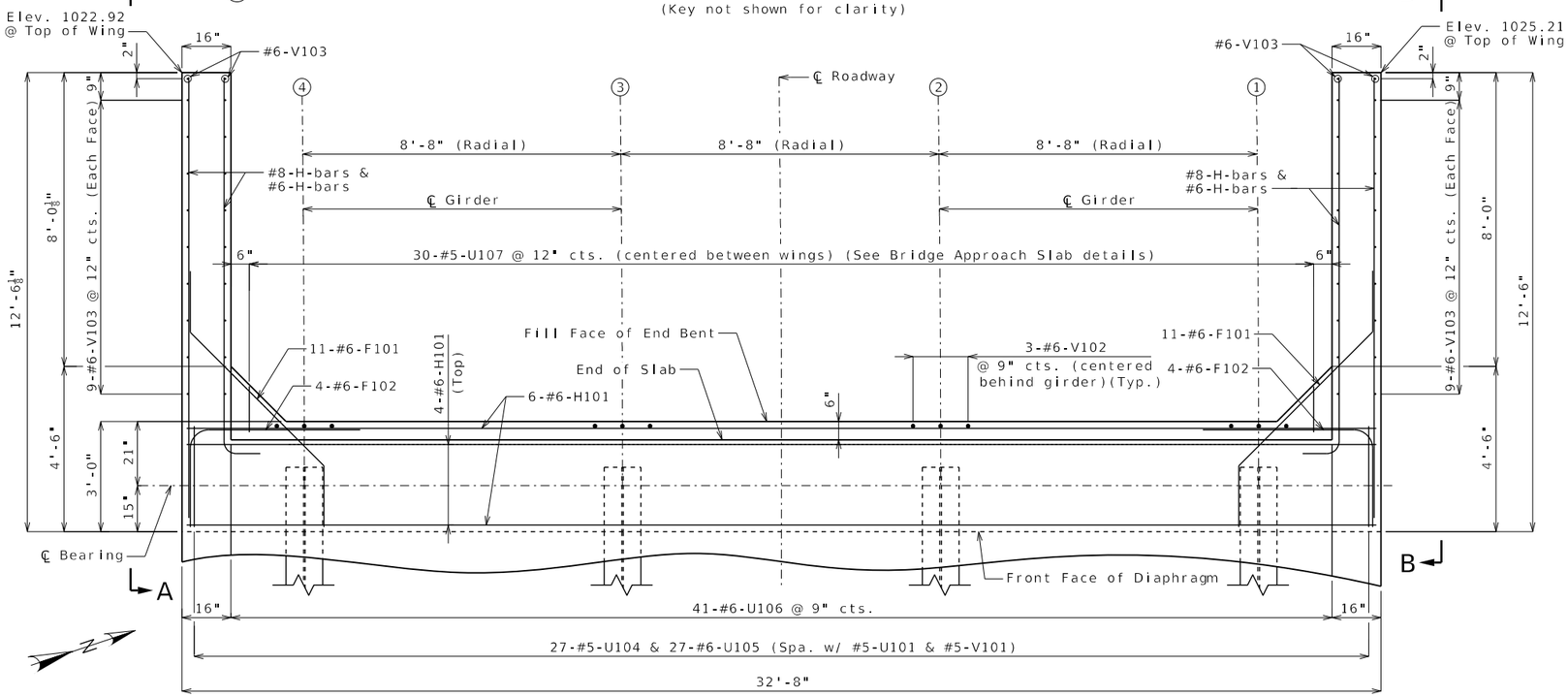
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SECTION NEAR END BENT

(Key not shown for clarity)

* Pile Cut-off Elevations	
Pile No.	Elevation
P1	1018.36
P2	1017.84
P3	1017.32
P4	1016.80
P5	1016.28



PART PLAN

Notes:

Work this sheet with Sheets No. 5 & 7.

For Elevations A-A, B-B, and Sections C-C, D-D, & E-E, see Sheet No. 7.

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

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

The U bars and pairs of V bars shall be placed parallel to a line tangent to ℄ Roadway at ℄ Bearing.

For reinforcement of Type H Barrier, see Sheets No. 26 thru 28.

DETAILS OF END BENT NO. 1

Detailed July 2026
Checked July 2026

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32	MO
DISTRICT	SHEET NO.
BR	6

COUNTY
DENT

JOB NO.
JCD0235

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9724

DESCRIPTION	DATE

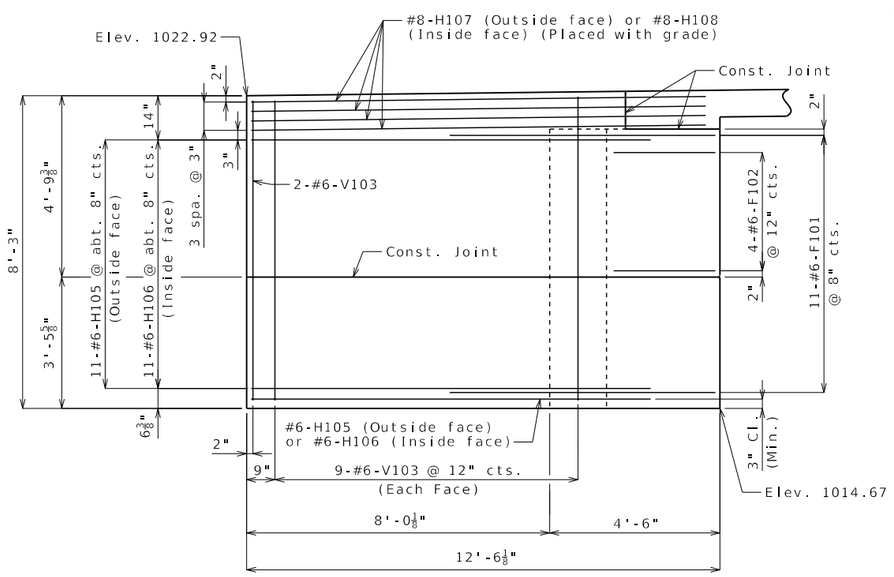
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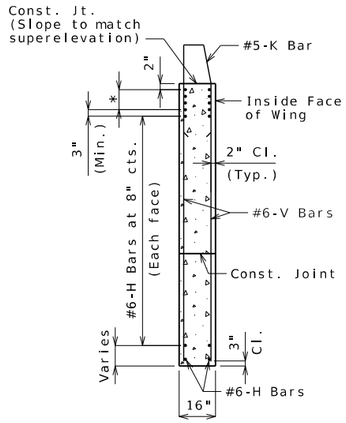
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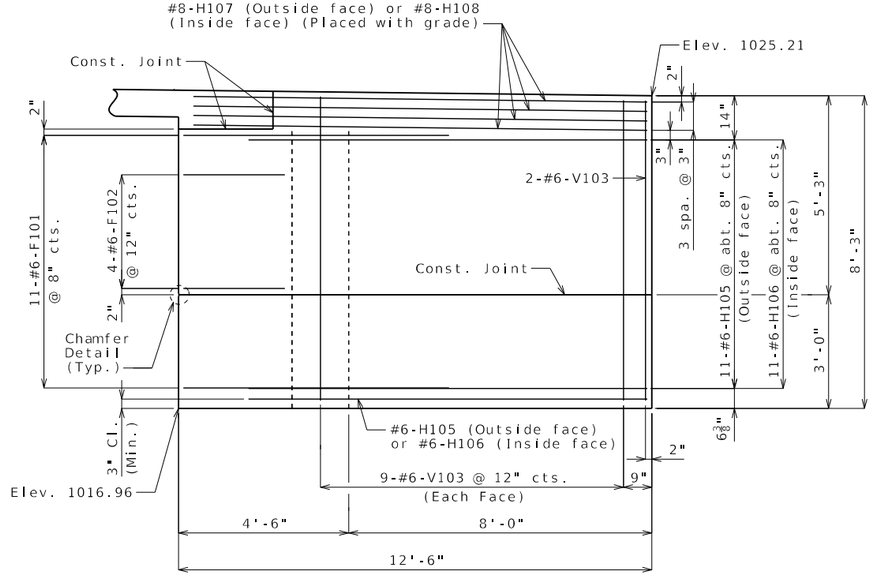


ELEVATION A-A

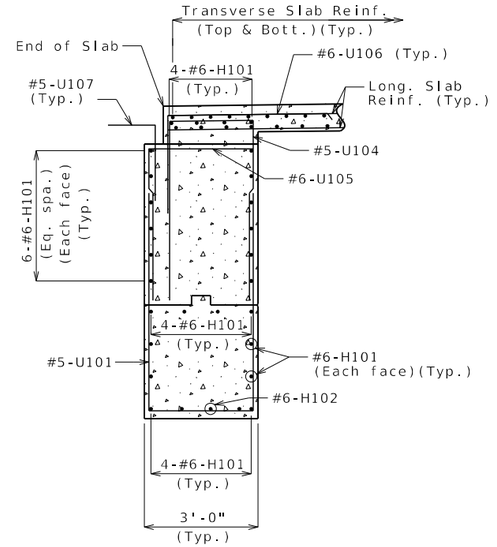


TYPICAL SECTION
THRU WING

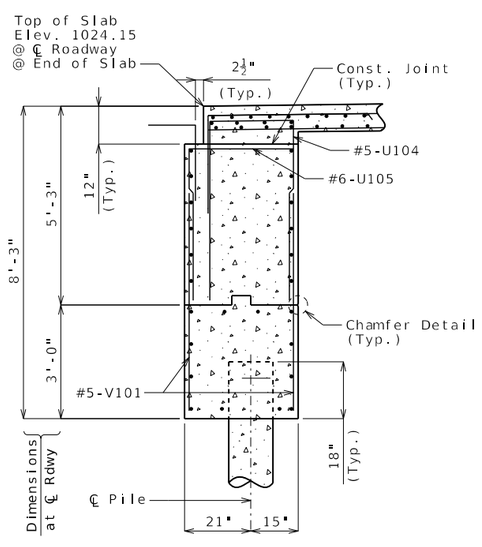
* #8-H Bars at 3" cts.
(Each face)(Place with grade)



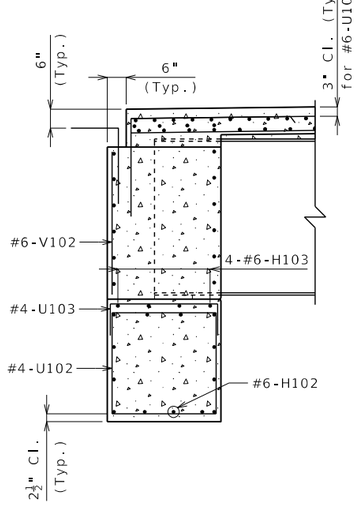
ELEVATION B-B



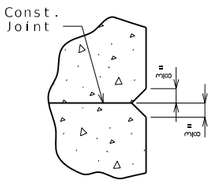
SECTION C-C



SECTION D-D



SECTION E-E



CHAMFER DETAIL

Notes:

Work this sheet with Sheets No. 5 & 6.

For location of Elevations A-A, B-B, and Sections C-C, D-D, and E-E, see Sheet No. 6.

For reinforcement of Type H Barrier, see Sheets No. 26 thru 28.

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

Substructure Quantity Table for End Bent No. 1	
Item	Quantity
Class 1 Excavation cu. yard	40
Galvanized Cast-In-Place Concrete Piles (14 in.) linear foot	100
Pre-Bore for Piling linear foot	90
Pile Point Reinforcement each	5
Class B Concrete (Substructure) cu. yard	14.6

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

DETAILS OF END BENT NO. 1

Detailed July 2026
Checked July 2026

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NICHOLE WITUSHYNSKY
NUMBER PE-2018037127
PROFESSIONAL ENGINEER

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32	MO
DISTRICT	SHEET NO.
BR	7

COUNTY
DENT

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JCD0235

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9724

DESCRIPTION	DATE

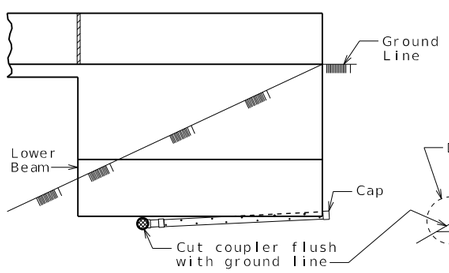
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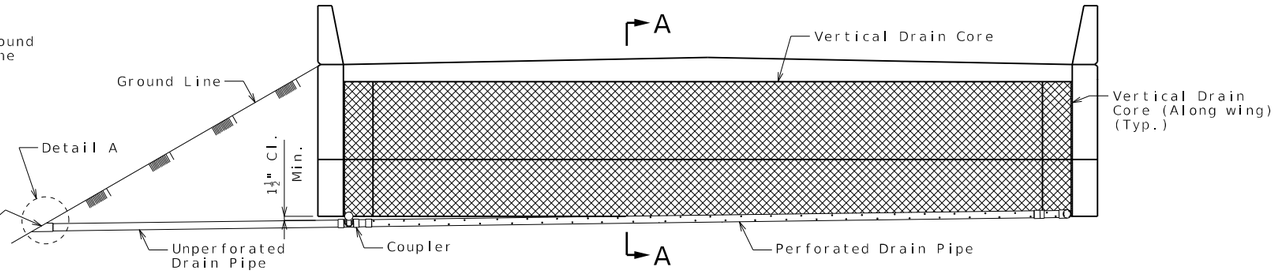
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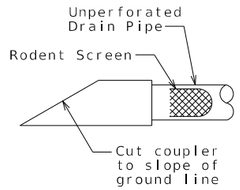
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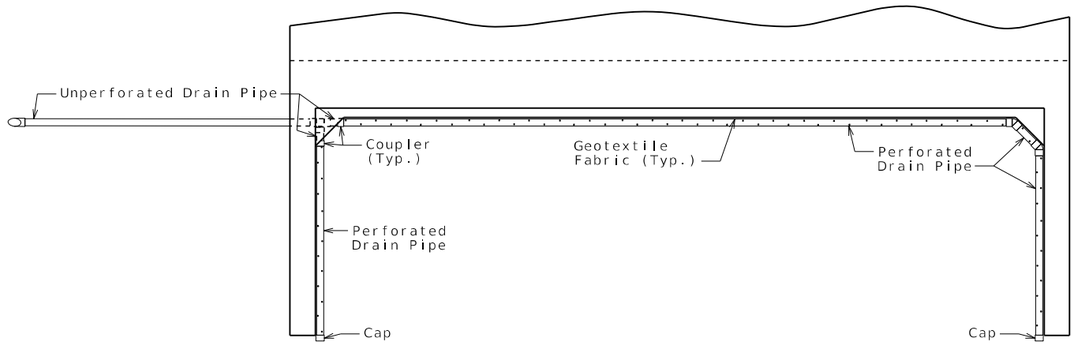
ELEVATION OF WING



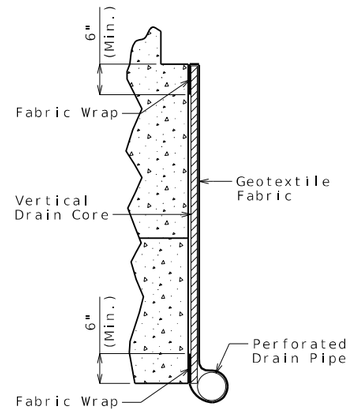
ELEVATION OF END BENT



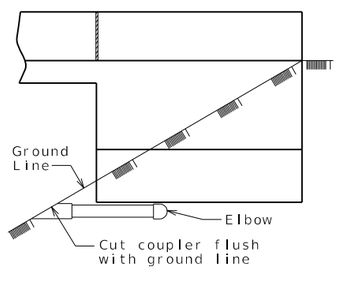
DETAIL A



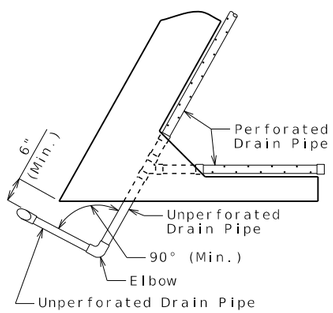
PLAN OF END BENT



PART SECTION A-A
(Section thru wing similar)



ELEVATION OF WING



PART PLAN

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

General Notes:

All drain pipe shall be sloped 1 to 2 percent.

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

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

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

VERTICAL DRAIN AT END BENTS

Detailed July 2026
Checked July 2026

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

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NICHOLE WITUSHYNSKY
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PROFESSIONAL ENGINEER

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DISTRICT BR | SHEET NO. 8
COUNTY DENT
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PROJECT NO.
BRIDGE NO. A9724

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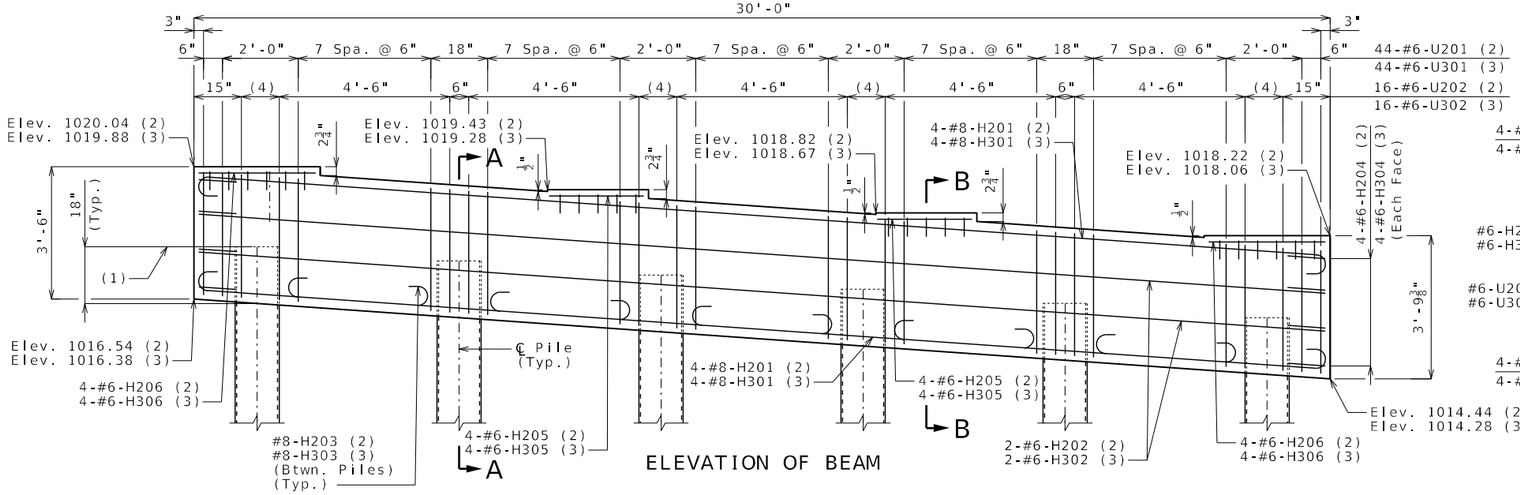
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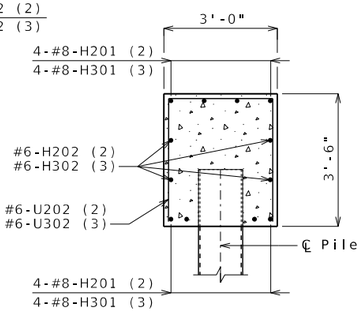
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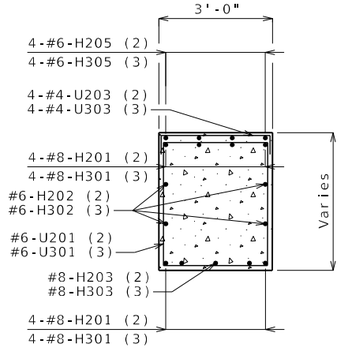


ELEVATION OF BEAM

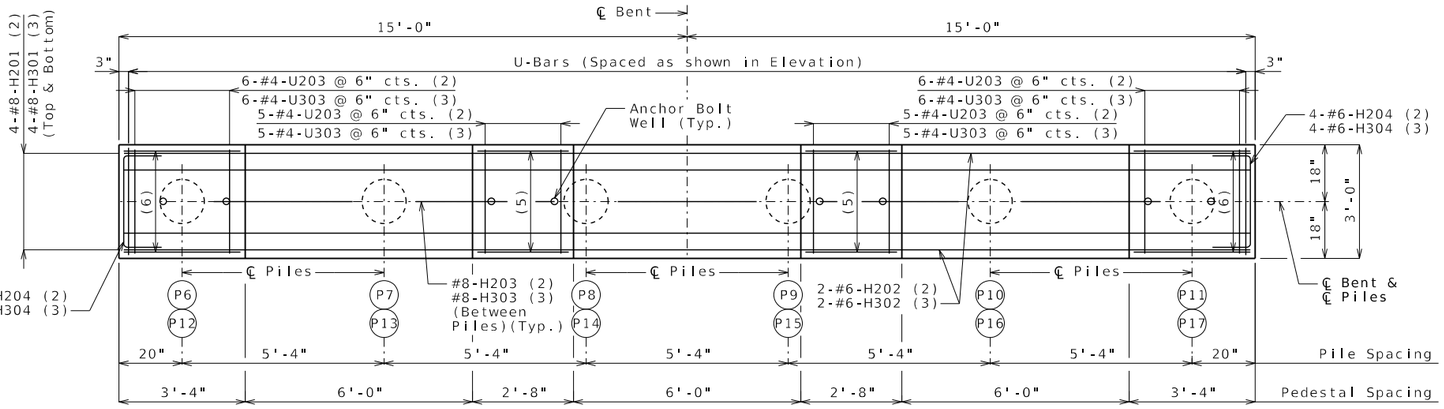
(1) See Pile Cutoff Elevation Table
(2) Intermediate Bent No. 2
(3) Intermediate Bent No. 3
(4) 2 Spa. @ 6"



SECTION A-A

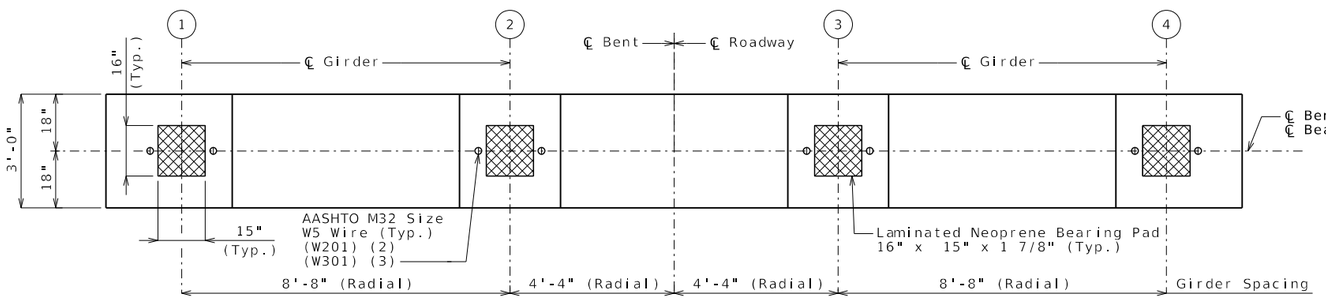


SECTION B-B



PLAN OF BEAM SHOWING REINFORCEMENT

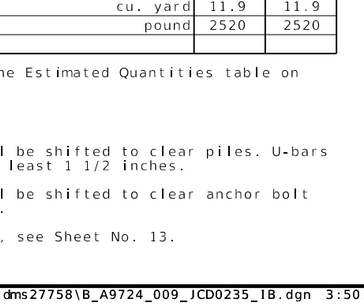
(5) 4-#6-H205 (2)
4-#6-H305 (3)
(6) 4-#6-H206 (2)
4-#6-H306 (3)



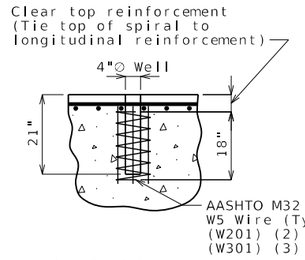
PLAN OF BEAM

(1) PILE CUTOFF ELEVATION

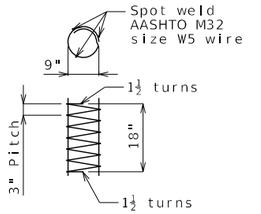
Pile No.	Elevation Bent No. 2	Pile No.	Elevation Bent No. 3
P6	1017.92	P12	1017.76
P7	1017.55	P13	1017.39
P8	1017.18	P14	1017.02
P9	1016.80	P15	1016.64
P10	1016.43	P16	1016.27
P11	1016.06	P17	1015.90



ANCHOR BOLT LAYOUT



ANCHOR BOLT WELLS



DETAIL OF SPIRAL REINFORCEMENT

Substructure Quantity Table for Bents No. 2 & 3

Item	Quantity No. 2	Quantity No. 3
Galvanized Cast-In-Place Concrete Piles (14 in.) linear foot	102	102
Pre-Bore for Piling linear foot	51	51
Pile Point Reinforcement each	6	6
Class B Concrete (Substructure) cu. yard	11.9	11.9
Reinforcing Steel (Bridges) pound	2520	2520

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

Notes:

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

Reinforcing steel shall be shifted to clear anchor bolt wells by at least 1/2".

For details of bearing, see Sheet No. 13.

DETAILS OF INTERMEDIATE BENTS NO. 2 & 3

Detailed July 2026
Checked July 2026

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ROUTE 32 | STATE MO
DISTRICT BR | SHEET NO. 9
COUNTY DENT
JOB NO. JCD0235
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9724

DESCRIPTION | DATE

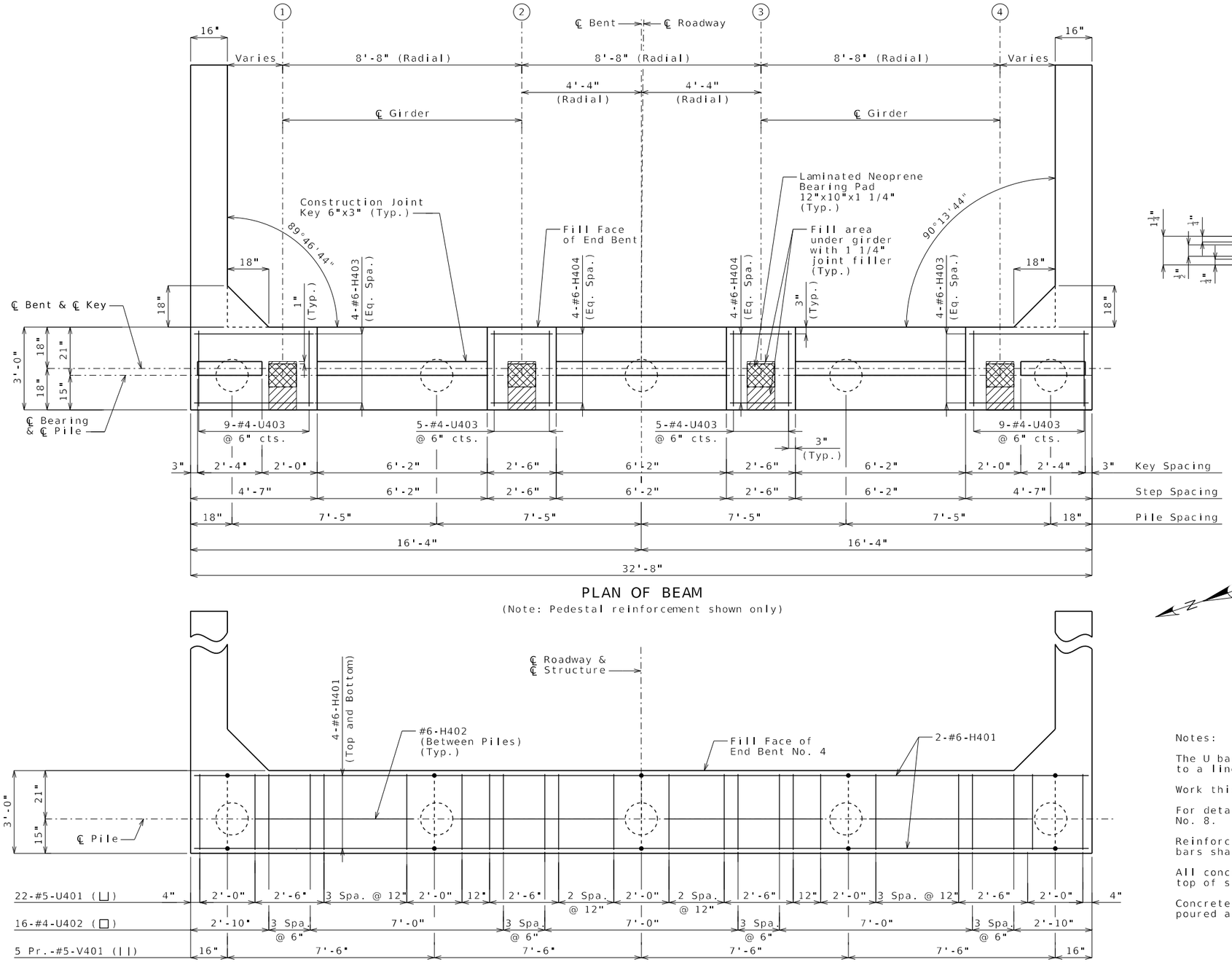
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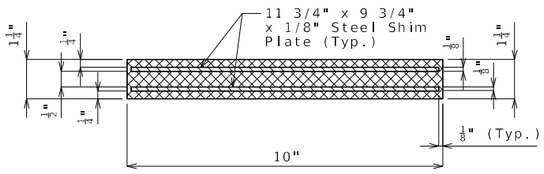
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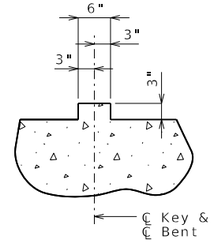
PLAN OF BEAM

(Note: Pedestal reinforcement shown only)

PLAN OF BEAM SHOWING REINFORCEMENT



SECTION THRU LAMINATED NEOPRENE BEARING PAD



SECTION THRU KEY

Notes:

The U bars and Pairs of V bars shall be placed parallel to a line tangent to ℄ Roadway at ℄ Bearing.

Work this sheet with Sheets No. 11 & 12.

For details of Vertical Drain at End Bents, see Sheet No. 8.

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

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

Concrete diaphragms at the integral end bents shall be poured a minimum of 12 hours before the slab is poured.

DETAILS OF END BENT NO. 4

Detailed July 2026
Checked July 2026

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ROUTE 32 | STATE MO

DISTRICT BR | SHEET NO. 10

COUNTY DENT

JOB NO. JCD0235

CONTRACT ID.

PROJECT NO.

BRIDGE NO. A9724

DESCRIPTION | DATE

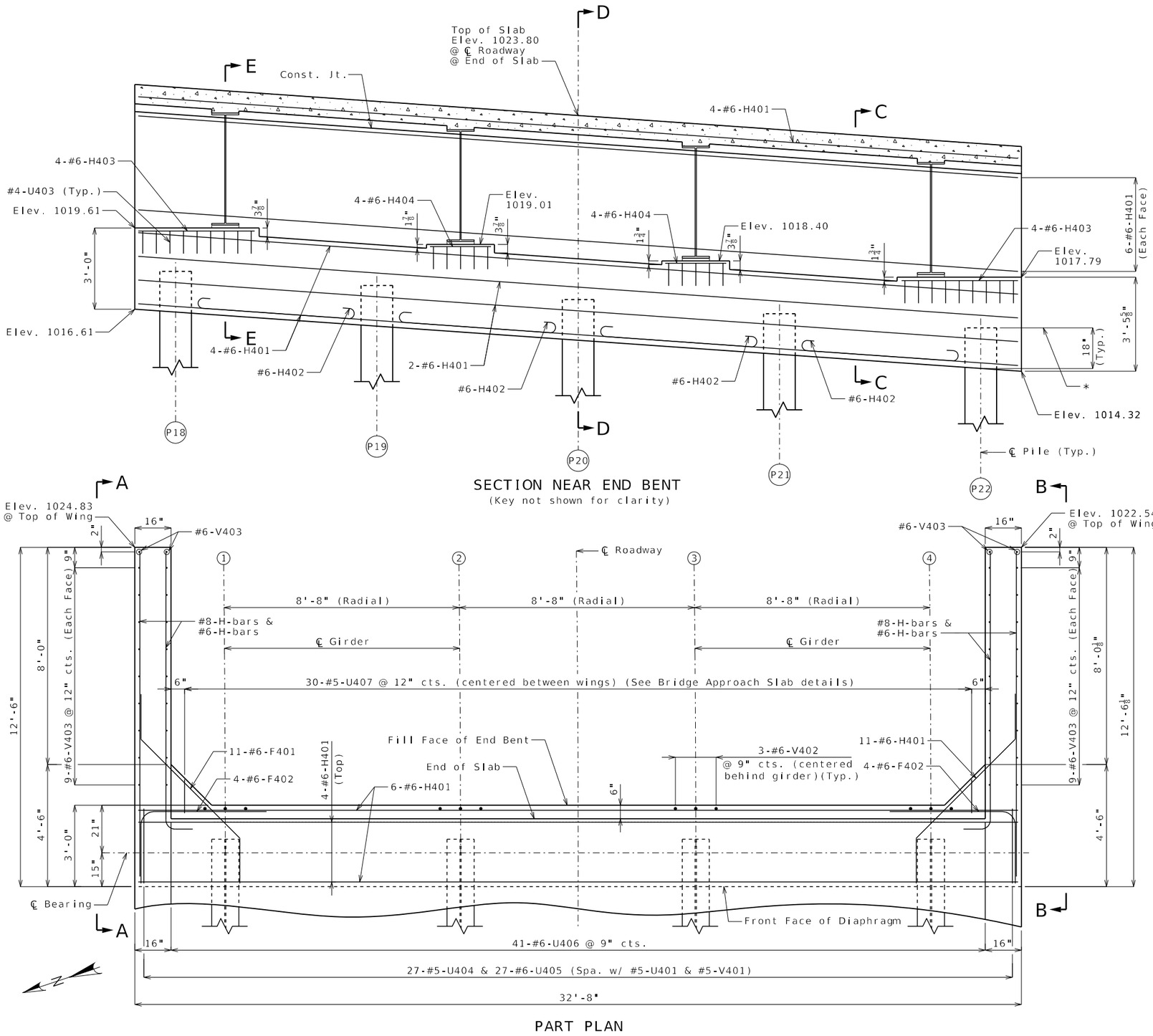
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* Pile Cut-off Elevations	
Pile No.	Elevation
P18	1018.00
P19	1017.49
P20	1016.97
P21	1016.45
P22	1015.93

Notes:

Work this sheet with Sheets No. 10 & 12.

For Elevations A-A, B-B, and Sections C-C, D-D, & E-E, see Sheet No. 12.

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

The #6-F401 bars shall be bent in the field to clear girders.

The U bars and pairs of V bars shall be placed parallel to a line tangent to ℄ Roadway at ℄ Bearing.

For reinforcement of Type H Barrier, see Sheets No. 26 thru 28.

DETAILS OF END BENT NO. 4

Detailed July 2026
Checked July 2026

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ROUTE 32 | STATE MO
DISTRICT BR | SHEET NO. 11
COUNTY DENT
JOB NO. JCD0235
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9724

DESCRIPTION | DATE

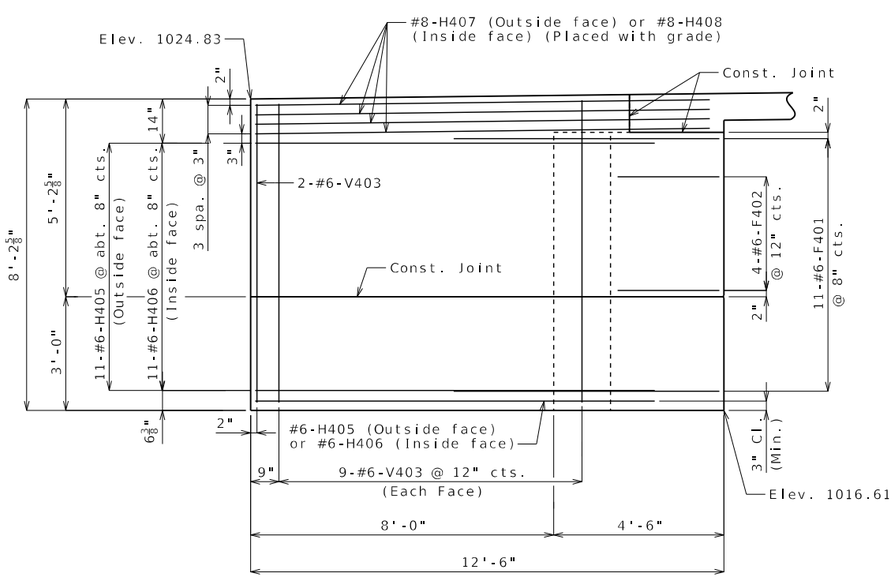
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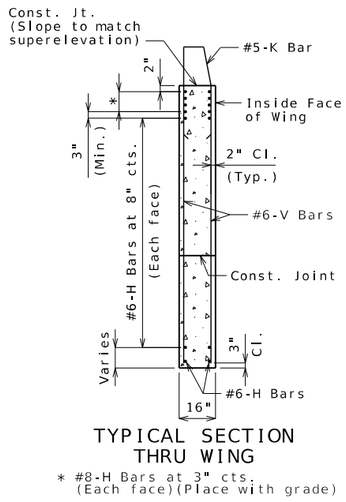
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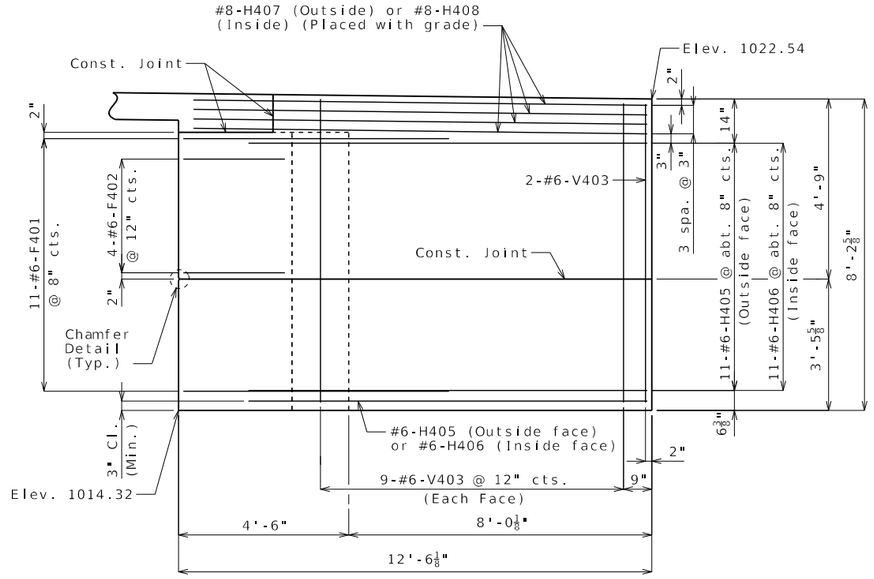


ELEVATION A-A

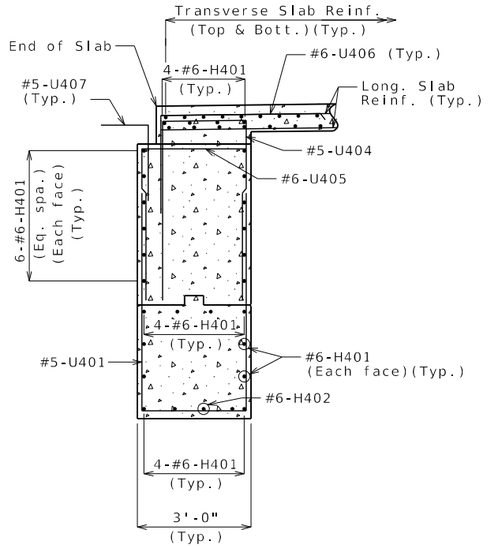


TYPICAL SECTION
THRU WING

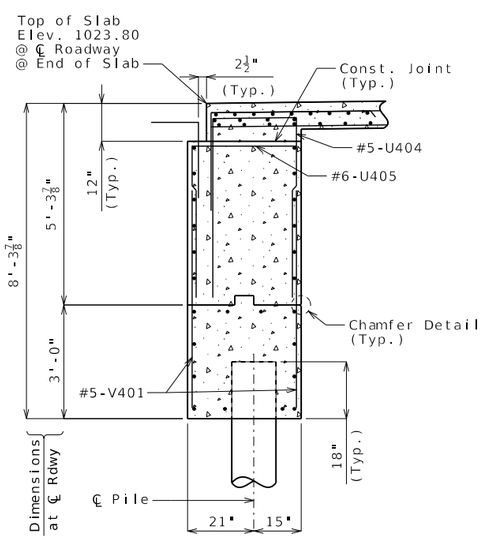
* #8-H Bars at 3" cts.
(Each face)(Place with grade)



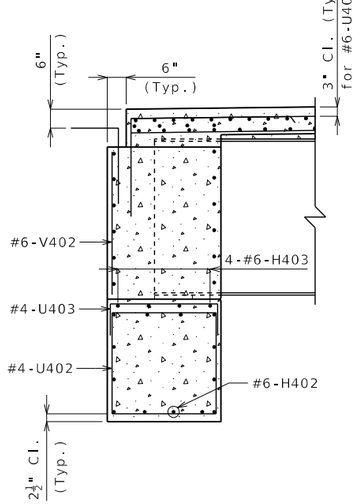
ELEVATION B-B



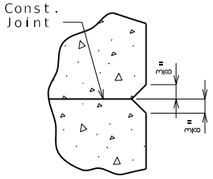
SECTION C-C



SECTION D-D



SECTION E-E



CHAMFER DETAIL

Notes:

Work this sheet with Sheets No. 10 & 11.

For location of Elevations A-A, B-B, and Sections C-C, D-D, and E-E, see Sheet No. 11.

For reinforcement of Type H Barrier, see Sheets No. 26 thru 28.

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

Substructure Quantity Table for End Bent No. 4		
Item		Quantity
Class 1 Excavation	cu. yard	40
Galvanized Cast-In-Place Concrete Piles (14 in.)	linear foot	130
Pre-Bore for Piling	linear foot	120
Pile Point Reinforcement	each	5
Class B Concrete (Substructure)	cu. yard	14.6

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

DETAILS OF END BENT NO. 4

Detailed July 2026
Checked July 2026

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

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DISTRICT	SHEET NO.
BR	12

COUNTY
DENT

JOB NO.
JCD0235

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9724

NO.	DESCRIPTION	DATE

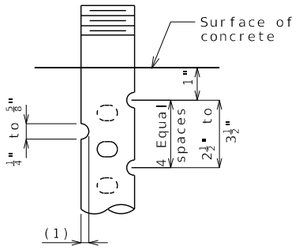
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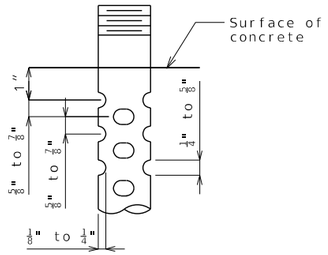
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DETAIL FOR 3/4"Ø THRU 2 1/2"Ø ANCHOR BOLTS

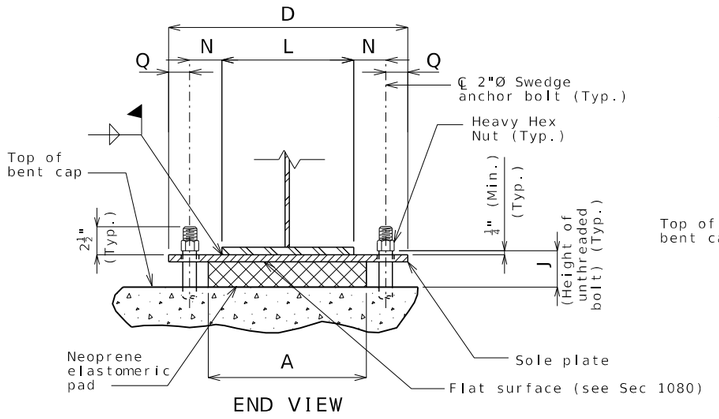


OPTIONAL DETAIL FOR 1 3/8"Ø THRU 2 1/2"Ø ANCHOR BOLTS

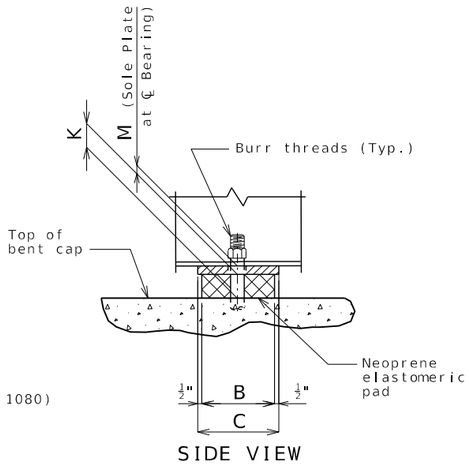
SWEDGE ANCHOR BOLT DETAILS

(1) ⅛" for ¾"Ø thru 1¼"Ø anchor bolts

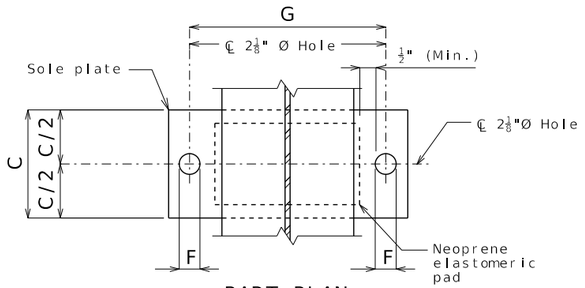
⅛" to ¼" for 1⅜"Ø thru 2½"Ø anchor bolts



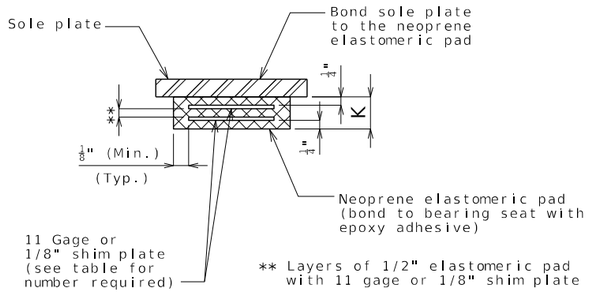
END VIEW



SIDE VIEW



PART PLAN



NEOPRENE ELASTOMERIC PAD

FIXED BEARINGS														
BENT NO.	A	B	C	D	F	G	J	K	L	M	N	Q	NUMBER OF SHIM PLATES *	NUMBER REQUIRED
2	15"	16"	17"	26"	2⅛"	20"	3¾"	1⅞"	15"	1½"	2½"	3"	3	4
3	15"	16"	17"	26"	2⅛"	20"	3¾"	1⅞"	15"	1½"	2½"	3"	3	4
													TOTAL BEARINGS	8

* 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 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 with ASTM F2329.

Neoprene Elastomeric Pads shall be 60 Durometer.

Structural steel for sole plate 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.

LAMINATED NEOPRENE BEARING PAD ASSEMBLY

Detailed July 2026
Checked July 2026

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

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BRIDGE NO. A9724

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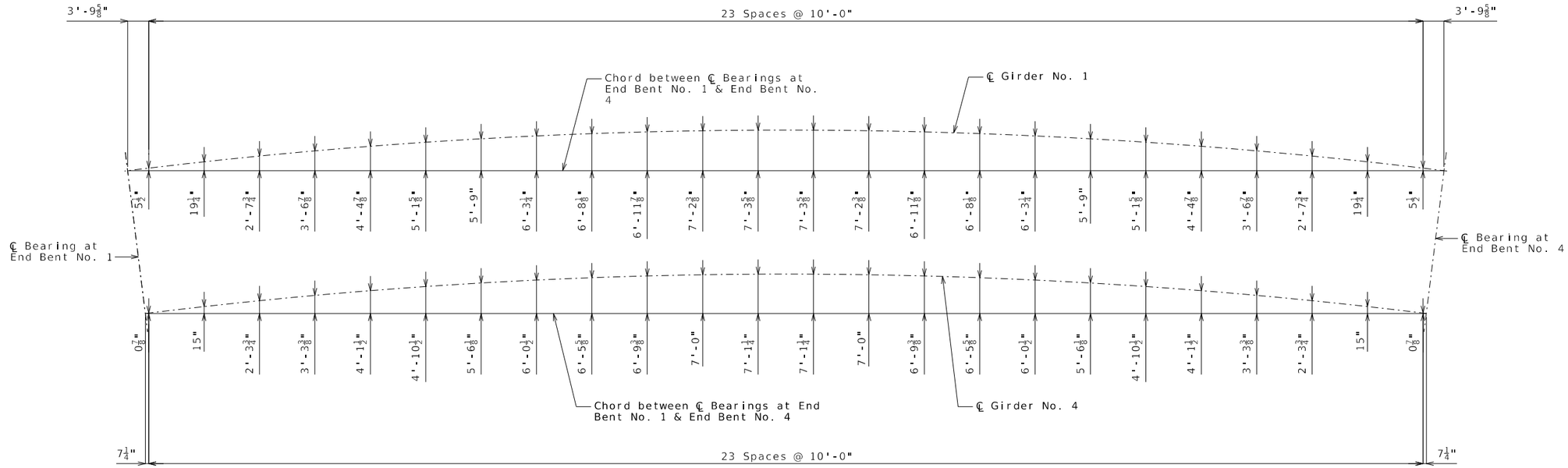
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PLAN OF EXTERIOR GIRDERS SHOWING CURVE OFFSETS

All dimensions are horizontal.

GIRDER CURVE OFFSETS

Detailed July 2026
Checked July 2026

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BR	14

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JOB NO.: JCD0235
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: A9724

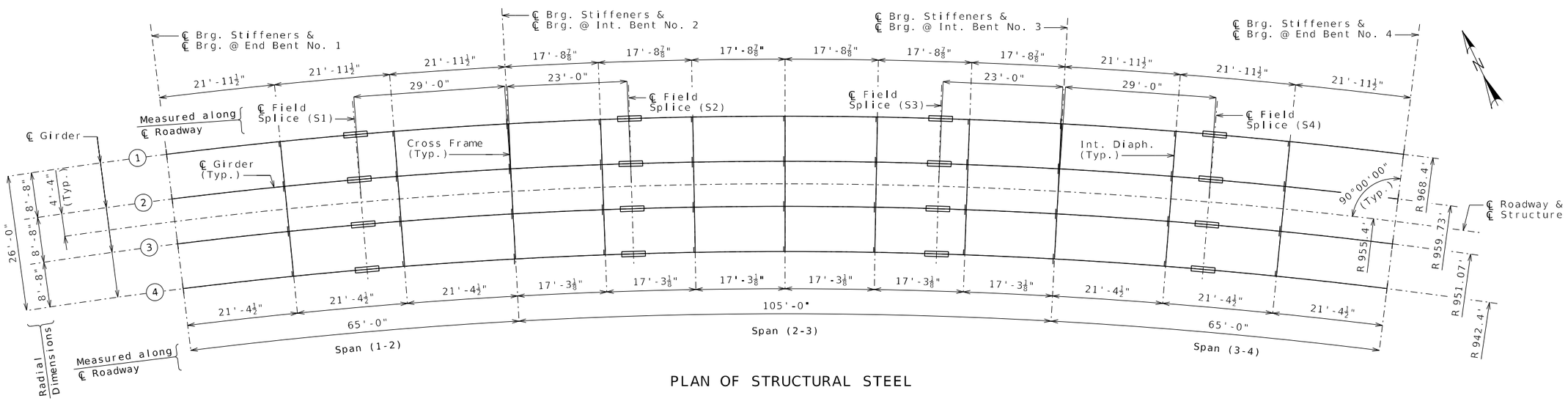
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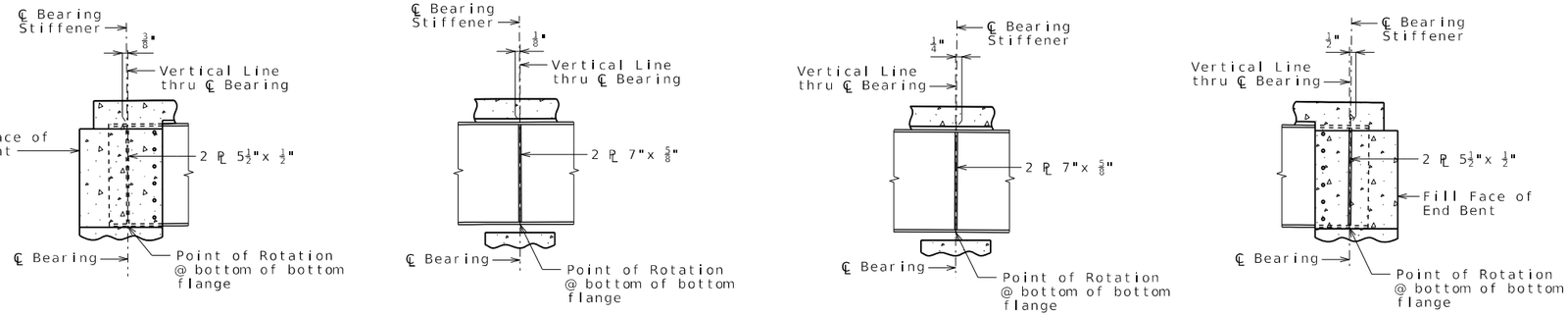
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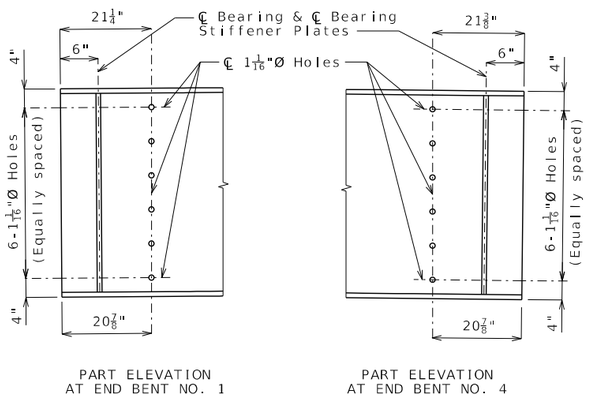
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PLAN OF STRUCTURAL STEEL



PART LONGITUDINAL SECTION



DETAIL OF WEB HOLES AT END BENTS

Notes:

Longitudinal dimensions are horizontal arc dimensions from ℄ bearing to ℄ bearing.

Fabricated Structural Low Alloy Steel (Plate Girder) shall be ASTM A709 Grade 50 except as noted.

All intermediate diaphragms and cross frames are placed radially.

Plate girders shall be fabricated in accordance with the camber diagram shown on Sheet No. 20.

For details of bolted field splices, see Sheet No. 21.

For details of intermediate diaphragms, cross frames, bearing stiffeners and intermediate diaphragm connection plates, see Sheet No. 22.

STEEL PLATE GIRDER DETAILS

Detailed July 2026
Checked July 2026

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ROUTE	STATE
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BR	15

COUNTY: DENT
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PROJECT NO.:
BRIDGE NO.: A9724

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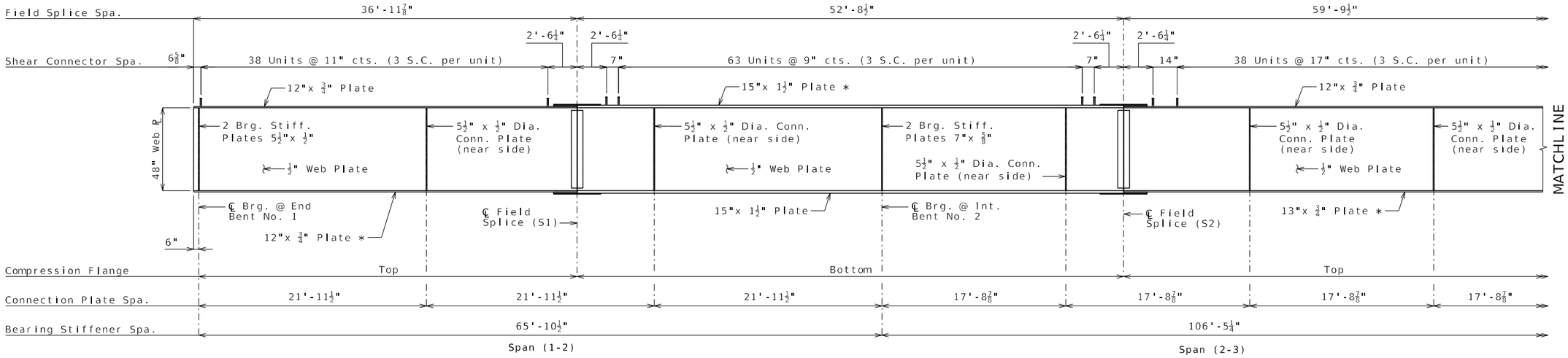
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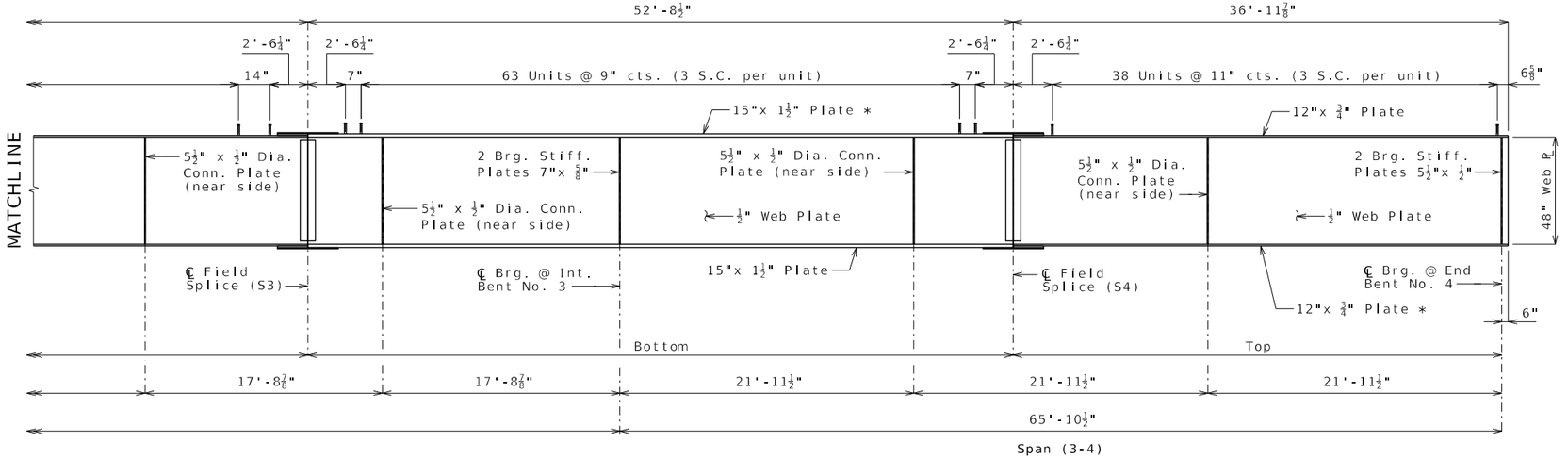
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ARCHITECT 000212
PRO. LAND SURVEYOR 000059

NICHOLE WITUSHYNSKY
PROFESIONAL ENGINEER
PE-2018037127





Notes:

* Indicates flange plate subject to notch toughness requirements.

All web plates shall be subject to notch toughness requirements.

Weight of 723 pounds of shear connectors is included in the weight of Fabricated Structural Low Alloy Steel (Plate Girder) A709, Grade 50.

Fabricated structural steel shall be ASTM A709 Grade 50, except as noted.

Shear connectors shall be in accordance with Sec 712, 1037 & 1080.

Plate girders shall be fabricated in accordance with the camber diagram shown on Sheet No. 20.

For Plan of Structural Steel, see Sheet No. 15.

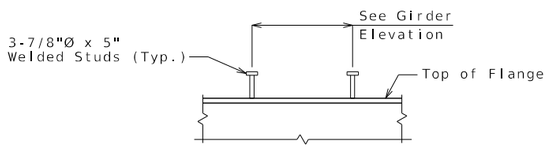
Notes cont'd:

For details of Bolted Field Splices, see Sheet No. 21.

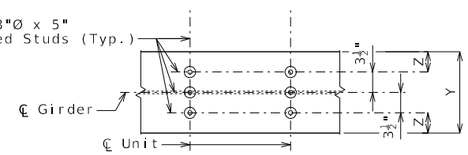
For Details of Intermediate Diaphragms, Cross Frames, Bearing Stiffeners and Intermediate Diaphragm Connection Plates, see Sheet No. 22.

Longitudinal dimensions are horizontal arc dimensions from ℄ bearing to ℄ bearing. See Part-Longitudinal Sections on Sheet No. 15.

Intermediate web stiffener plate and diaphragm spacing may vary from plan dimensions by a maximum of 3" for diaphragm to connect to the intermediate web stiffener plate.



ELEVATION



Y	Z
12"	2½"
15"	4"

PLAN OF SHEAR CONN. (3 PER UNIT)

GIRDER NO. 1 ELEVATION

Detailed July 2026
Checked July 2026

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

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DATE PREPARED 9/23/2026
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COUNTY DENT
JOB NO. JCD0235
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9724

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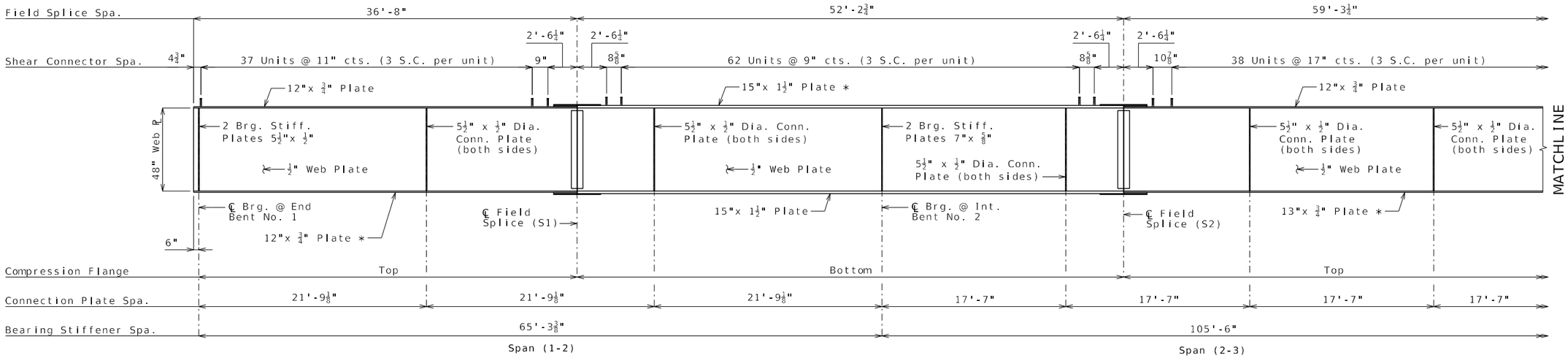
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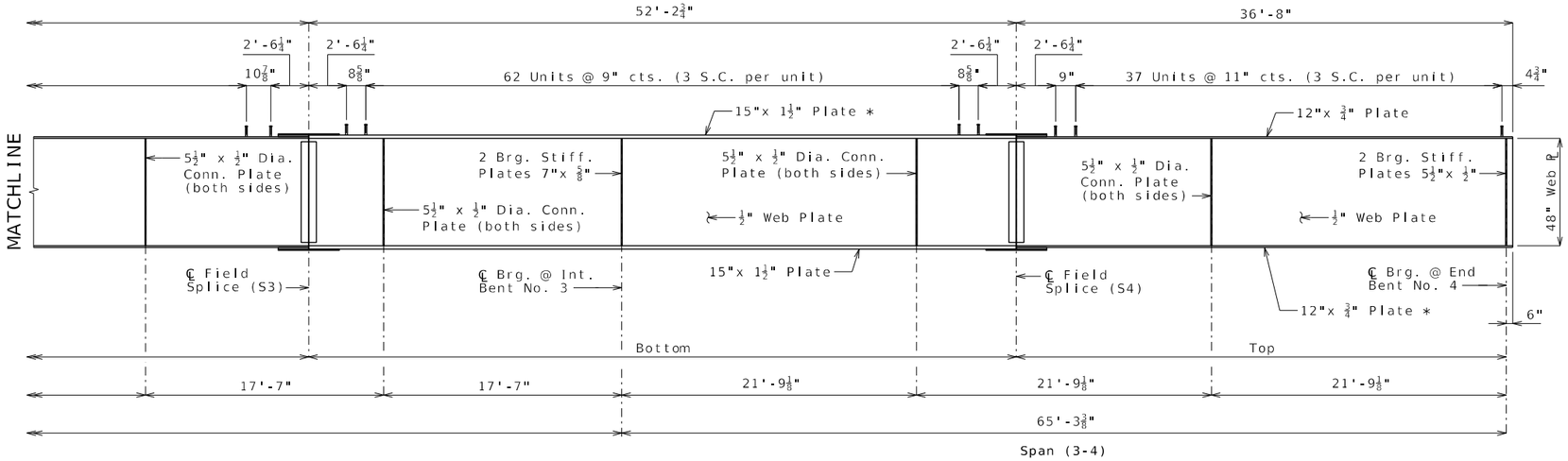
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Notes:

* Indicates flange plate subject to notch toughness requirements.

All web plates shall be subject to notch toughness requirements.

Weight of 717 pounds of shear connectors is included in the weight of Fabricated Structural Low Alloy Steel (Plate Girder) A709, Grade 50.

Fabricated structural steel shall be ASTM A709 Grade 50, except as noted.

Shear connectors shall be in accordance with Sec 712, 1037 & 1080.

Plate girders shall be fabricated in accordance with the camber diagram shown on Sheet No. 20.

For Plan of Structural Steel, see Sheet No. 15.

Notes cont'd:

For details of Shear Connectors, see Sheet No. 16.

For details of Bolted Field Splices, see Sheet No. 21.

For Details of Intermediate Diaphragms, Cross Frames, Bearing Stiffeners and Intermediate Diaphragm Connection Plates, see Sheet No. 22.

Longitudinal dimensions are horizontal arc dimensions from ℄ bearing to ℄ bearing. See Part-Longitudinal Sections on Sheet No. 15.

Intermediate web stiffener plate and diaphragm spacing may vary from plan dimensions by a maximum of 3" for diaphragm to connect to the intermediate web stiffener plate.

GIRDER NO. 2 ELEVATION

Detailed July 2026
Checked July 2026

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

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PROFESSIONAL ENGINEER

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DISTRICT BR | SHEET NO. 17
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JOB NO. JCD0235
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9724

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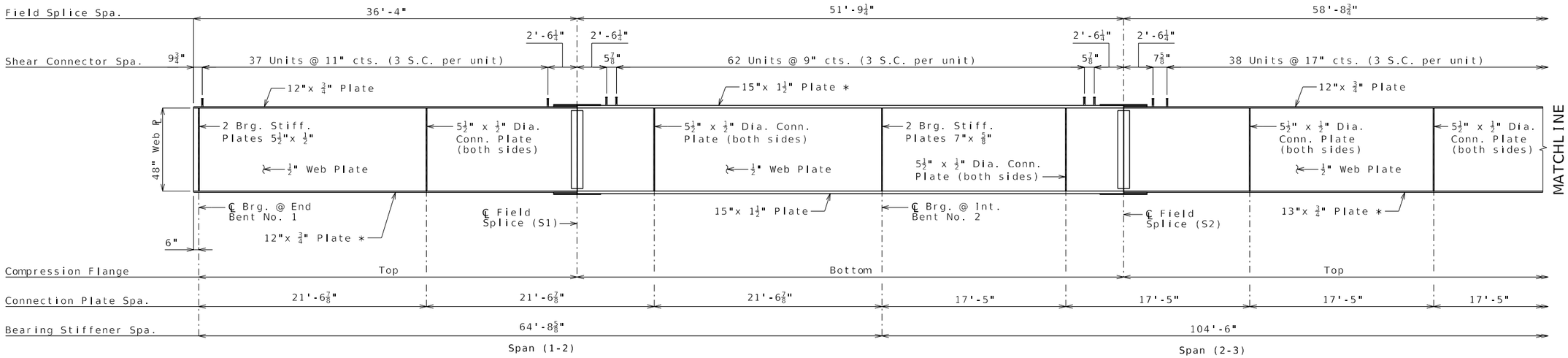
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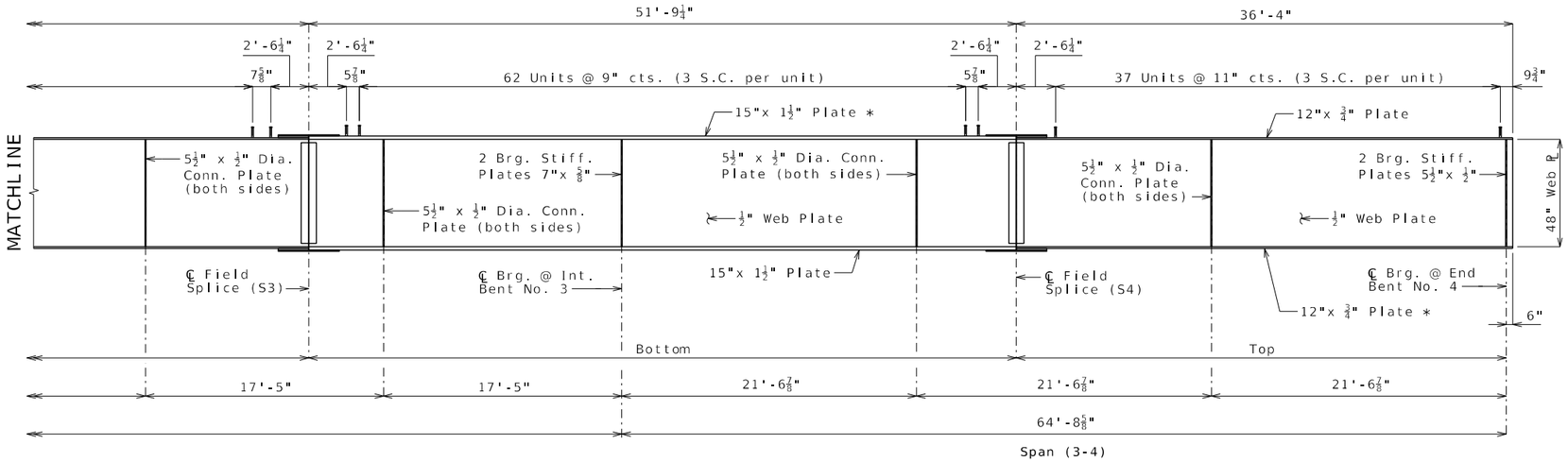
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Notes:

* Indicates flange plate subject to notch toughness requirements.

All web plates shall be subject to notch toughness requirements.

Weight of 712 pounds of shear connectors is included in the weight of Fabricated Structural Low Alloy Steel (Plate Girder) A709, Grade 50.

Fabricated structural steel shall be ASTM A709 Grade 50, except as noted.

Shear connectors shall be in accordance with Sec 712, 1037 & 1080.

Plate girders shall be fabricated in accordance with the camber diagram shown on Sheet No. 20.

For Plan of Structural Steel, see Sheet No. 15.

Notes cont'd:

For details of Shear Connectors, see Sheet No. 16.

For details of Bolted Field Splices, see Sheet No. 21.

For Details of Intermediate Diaphragms, Cross Frames, Bearing Stiffeners and Intermediate Diaphragm Connection Plates, see Sheet No. 22.

Longitudinal dimensions are horizontal arc dimensions from ℄ bearing to ℄ bearing. See Part-Longitudinal Sections on Sheet No. 15.

Intermediate web stiffener plate and diaphragm spacing may vary from plan dimensions by a maximum of 3" for diaphragm to connect to the intermediate web stiffener plate.

GIRDER NO. 3 ELEVATION

Detailed July 2026
Checked July 2026

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

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DISTRICT BR | SHEET NO. 18
COUNTY DENT
JOB NO. JCD0235
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9724

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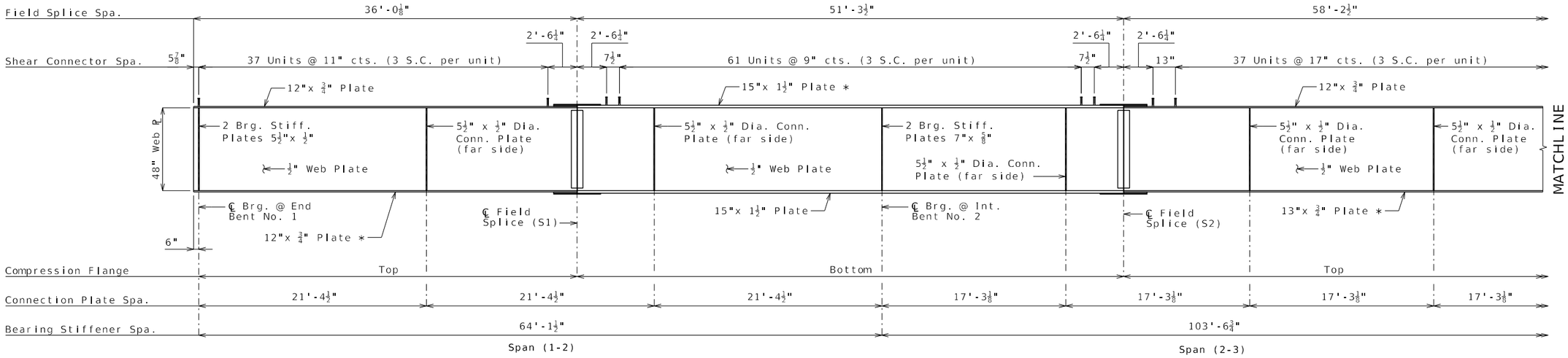
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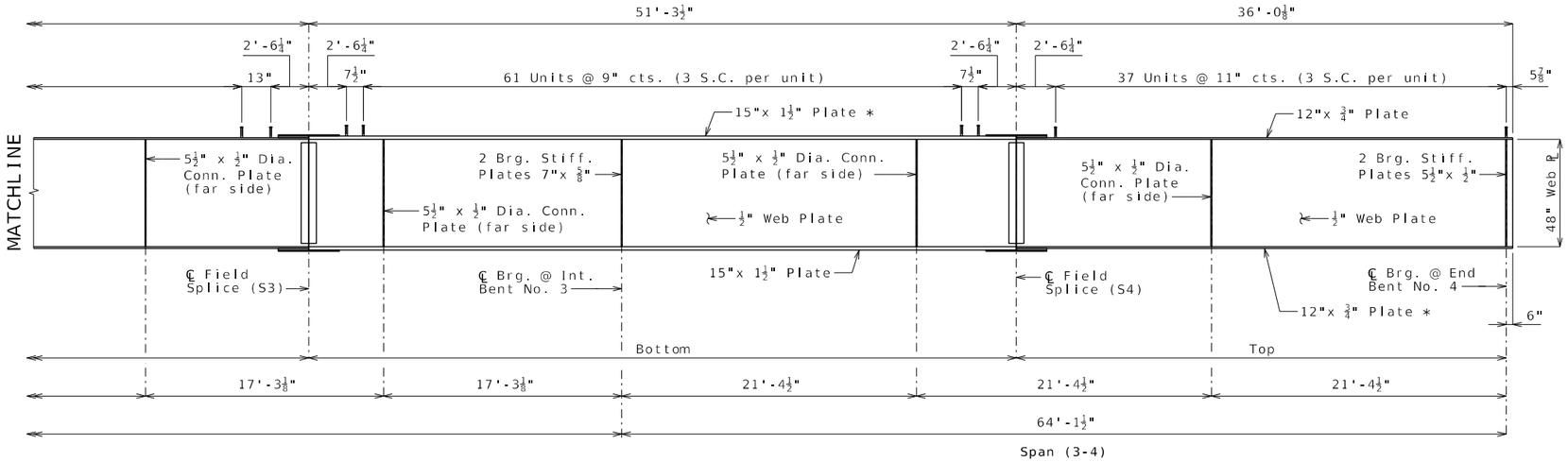
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PE-2018037127





Notes:

* Indicates flange plate subject to notch toughness requirements.

All web plates shall be subject to notch toughness requirements.

Weight of 703 pounds of shear connectors is included in the weight of Fabricated Structural Low Alloy Steel (Plate Girder) A709, Grade 50.

Fabricated structural steel shall be ASTM A709 Grade 50, except as noted.

Shear connectors shall be in accordance with Sec 712, 1037 & 1080.

Plate girders shall be fabricated in accordance with the camber diagram shown on Sheet No. 20.

For Plan of Structural Steel, see Sheet No. 15.

Notes cont'd:

For details of Shear Connectors, see Sheet No. 16.

For details of Bolted Field Splices, see Sheet No. 21.

For Details of Intermediate Diaphragms, Cross Frames, Bearing Stiffeners and Intermediate Diaphragm Connection Plates, see Sheet No. 22.

Longitudinal dimensions are horizontal arc dimensions from ℄ bearing to ℄ bearing. See Part-Longitudinal Sections on Sheet No. 15.

Intermediate web stiffener plate and diaphragm spacing may vary from plan dimensions by a maximum of 3" for diaphragm to connect to the intermediate web stiffener plate.

GIRDER NO. 4 ELEVATION

Detailed July 2026
Checked July 2026

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

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NICHOLE WITUSHYNSKY
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JOB NO. JCD0235
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9724

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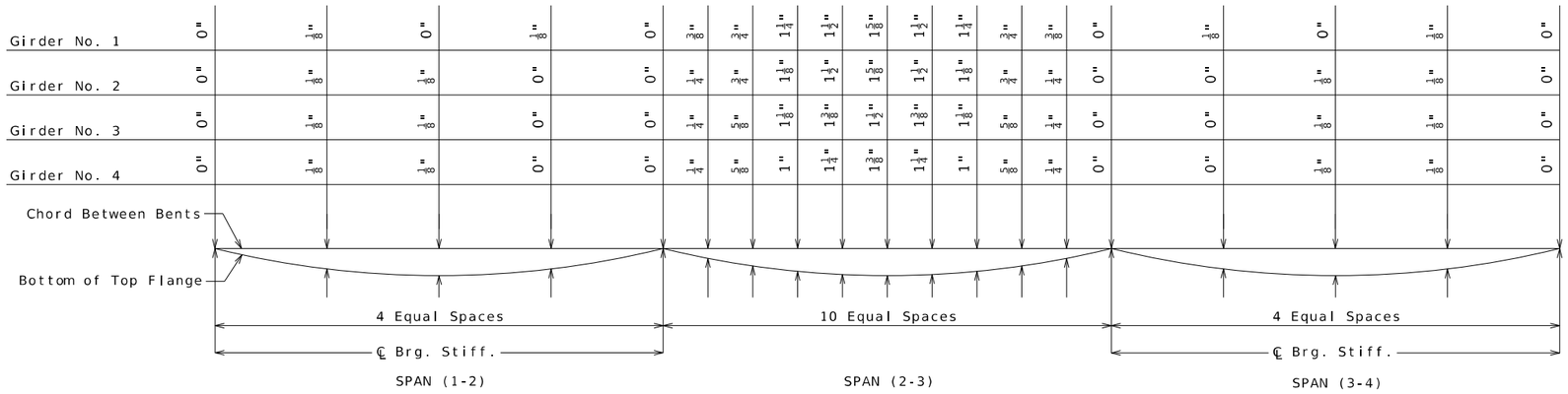
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DEAD LOAD DEFLECTION

17% of dead load deflection is due to the weight of structural steel.

Dead load deflection includes weight of structural steel, concrete slab, and barrier.

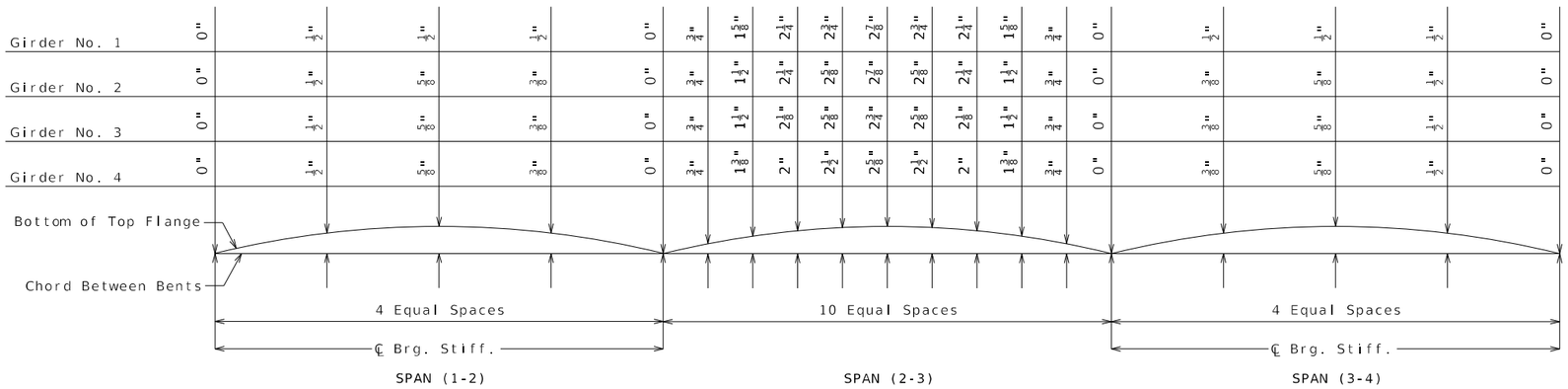
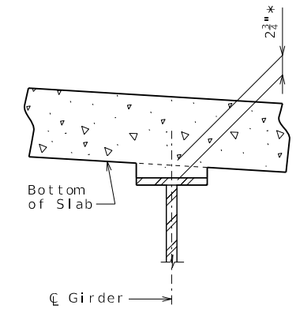


PLATE GIRDER CAMBER DIAGRAM

Camber includes allowance for vertical curve, and dead load deflection due to concrete slab, barrier, and structural steel.

Longitudinal dimensions are measured horizontally.



THEORETICAL SLAB HAUNCH

* Dimension (bottom of slab to top of web) may vary if girder camber after erection differs from plan camber by more than the % of Dead Load Deflection due to weight of structural steel. No payment will be made for any adjustment in forming or additional concrete required for variation in haunching.

Span Lengths (℄ Brg.-℄ Brg.)			
Girder No.	Span (1-2)	Span (2-3)	Span (3-4)
1	65'-10 3/8"	106'-5 1/2"	65'-10 3/8"
2	65'-3 1/4"	105'-5 1/2"	65'-3 1/4"
3	64'-8 1/4"	104'-6 1/2"	64'-8 1/4"
4	64'-1 3/8"	103'-6 3/8"	64'-1 3/8"

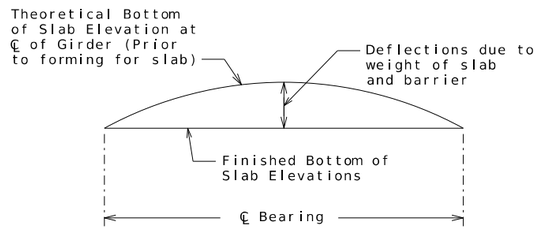
Theoretical Bottom of Slab Elevations at Centerline of Girder (Prior to forming for slab)

Girder Number	Span (1-2) (℄ Brg. - ℄ Brg.)				
	℄ Brg.	.25	.50	.75	℄ Brg.
1	1024.36	1024.48	1024.56	1024.64	1024.68
2	1023.75	1023.87	1023.96	1024.03	1024.08
3	1023.14	1023.27	1023.35	1023.42	1023.47
4	1022.54	1022.66	1022.75	1022.82	1022.86

Girder Number	Span (2-3) (℄ Brg. - ℄ Brg.)										
	℄ Brg.	.10	.20	.30	.40	.50	.60	.70	.80	.90	℄ Brg.
1	1024.68	1024.73	1024.77	1024.81	1024.83	1024.83	1024.80	1024.75	1024.68	1024.60	1024.53
2	1024.08	1024.12	1024.16	1024.20	1024.22	1024.21	1024.19	1024.14	1024.07	1024.00	1023.92
3	1023.47	1023.51	1023.55	1023.59	1023.60	1023.60	1023.57	1023.52	1023.46	1023.39	1023.31
4	1022.86	1022.90	1022.94	1022.97	1022.99	1022.99	1022.96	1022.91	1022.85	1022.78	1022.71

Girder Number	Span (3-4) (℄ Brg. - ℄ Brg.)				
	℄ Brg.	.25	.50	.75	℄ Brg.
1	1024.53	1024.43	1024.31	1024.18	1024.01
2	1023.92	1023.83	1023.71	1023.57	1023.40
3	1023.31	1023.22	1023.10	1022.97	1022.80
4	1022.71	1022.61	1022.49	1022.36	1022.19

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



TYPICAL SLAB ELEVATIONS DIAGRAM

CAMBER, HAUNCHING, DEAD LOAD DEFLECTIONS & SLAB ELEVATIONS

Detailed July 2026
Checked July 2026

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

STATE OF MISSOURI
NICHOLE WITUSHYNSKY
NUMBER PE-2018037127
PROFESSIONAL ENGINEER

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ROUTE 32 | STATE MO

DISTRICT BR | SHEET NO. 20

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CONTRACT ID.

PROJECT NO.

BRIDGE NO. A9724

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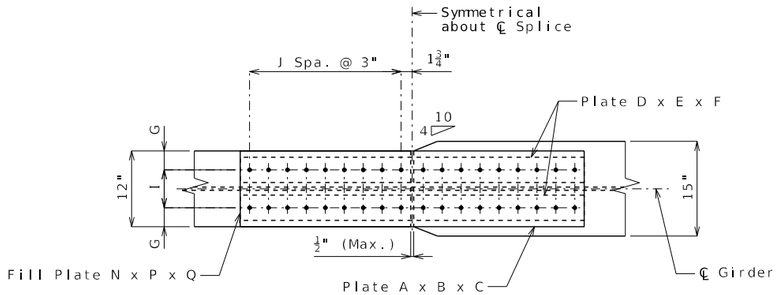
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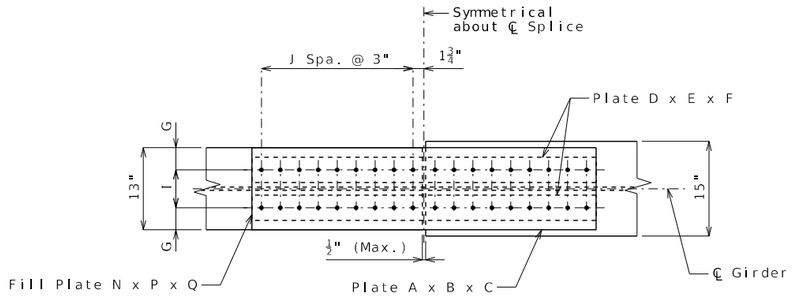
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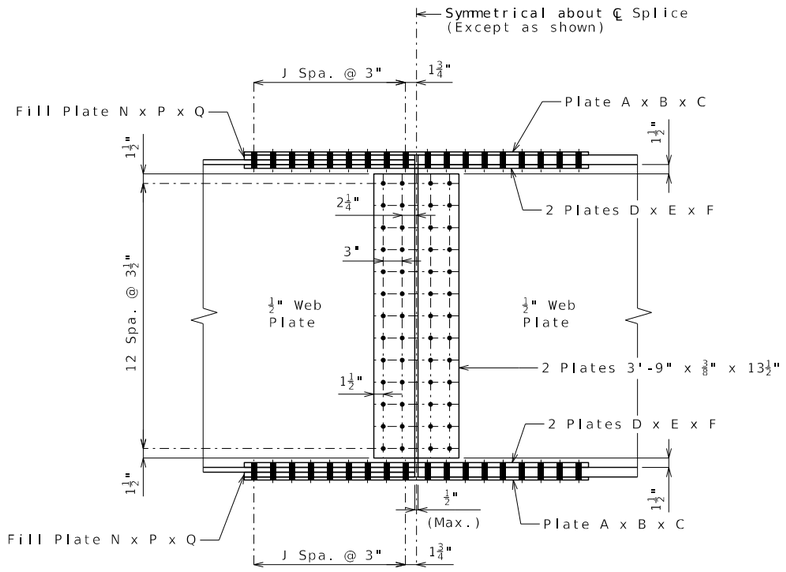
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PLAN OF FLANGE
S1 & S4 (TOP & BOTTOM)
and S2 & S3 (TOP)



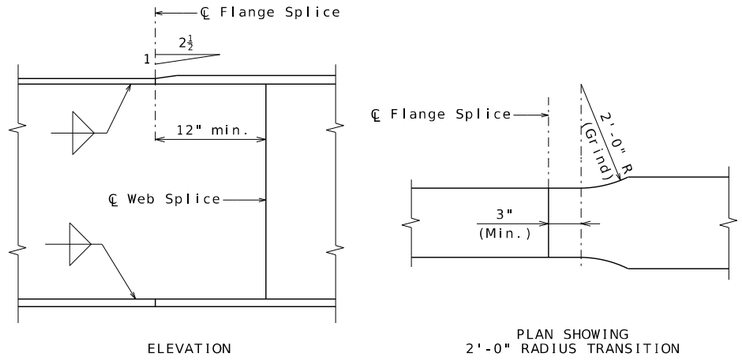
PLAN OF FLANGE
S2 & S3 (BOTTOM)



DETAIL OF BOLTED FIELD SPLICE

Bolts shall be 7/8-inch diameter ASTM F3125 Grade A325 Type 1 in 15/16-inch diameter holes.

Contact surfaces shall be in accordance with Sec 1081 for surface preparation.



WELDED SHOP WEB AND FLANGE SPLICE

Welded shop web and flange splices may be permitted when detailed on the shop drawings and approved by the engineer. No additional payment will be made for optional welded shop web and flange splices.

Table of Dimensions - Field Splice												
Location	A	B	C	D	E	F	G	I	J	N	P	Q
S1 & S4 (Top & Bottom)	12"	½"	4'-6½"	4"	⅝"	4'-6½"	3"	6"	8	12"	¾"	2'-3"
S2 & S3 (Top)	12"	½"	4'-6½"	4"	⅞"	4'-6½"	3"	6"	8	12"	¾"	2'-3"
S2 & S3 (Bottom)	13"	½"	4'-6½"	4"	⅝"	4'-6½"	3½"	6"	8	13"	¾"	2'-3"

For location of field splices, see Elevation of Girder on Sheets No. 16 thru 19.

STEEL PLATE GIRDER SPLICE DETAILS

Detailed July 2026
Checked July 2026

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

STATE OF MISSOURI
NICHOLE WITUSHYNSKY
NUMBER PE-2018037127
PROFESSIONAL ENGINEER

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DISTRICT BR | SHEET NO. 21
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JOB NO. JCD0235
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9724

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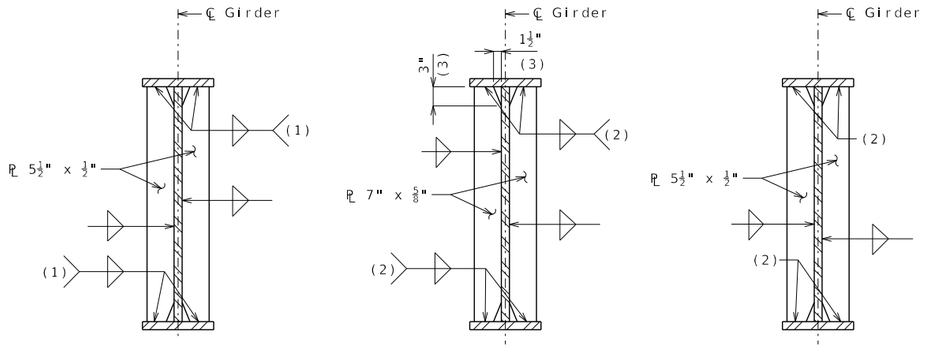
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INTERMEDIATE DIAPHRAGM CONNECTION PLATE

BEARING STIFFENER (CROSSFRAME ATTACHED)

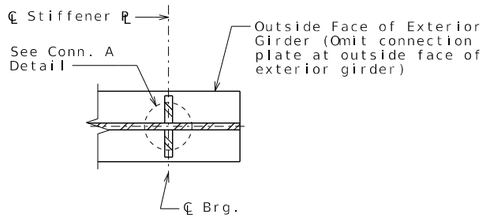
BEARING STIFFENER (NO ATTACHMENTS)

WELDING DETAILS

(1) Tight fit

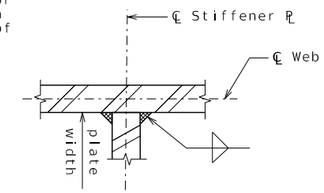
(2) Grind or mill to bear.

(3) Typical for all intermediate diaphragm connection plates and bearing stiffeners.



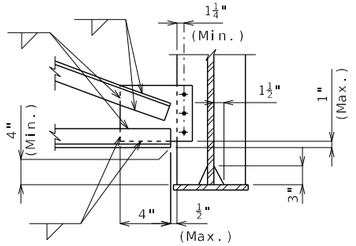
END BEARING STIFFENER & INT. DIAPHRAGM CONN. PLATE

TYPICAL LOCATION DETAILS



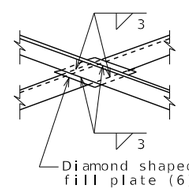
CONN. A

WELDING DETAILS

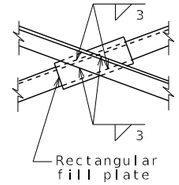


DETAIL A

(Bottom flange shown, top flange similar.)

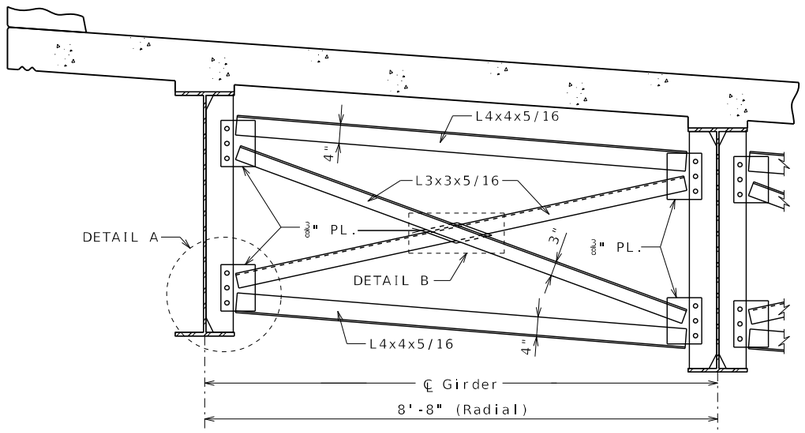


DETAIL B



OPTIONAL DETAIL B

(6) At the contractor's option, rectangular fill plates may be used in lieu of diamond fill plates as shown in Optional Detail B.



TYPICAL PART SECTION SHOWING CROSS FRAMES AND INTERMEDIATE DIAPHRAGMS

Notes:

Bolted connetions in cross frames shall be made with 3/4-inch diameter ASTM F3125 Grade A325 Type 1 bolts in 13/16-inch diameter holes.

For locations of diaphragms, see Plan of Structural Steel on Sheet No. 15.

All structural steel for diaphragms shall conform to the requirements of ASTM A709 Grade 50.

STEEL DIAPHRAGMS

Detailed July 2026
Checked July 2026

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

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NICHOLE WITUSHYNSKY
NUMBER PE-2018037127
PROFESSIONAL ENGINEER

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ROUTE: 32 | STATE: MO
DISTRICT: BR | SHEET NO.: 22
COUNTY: DENT
JOB NO.: JCD0235
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: A9724

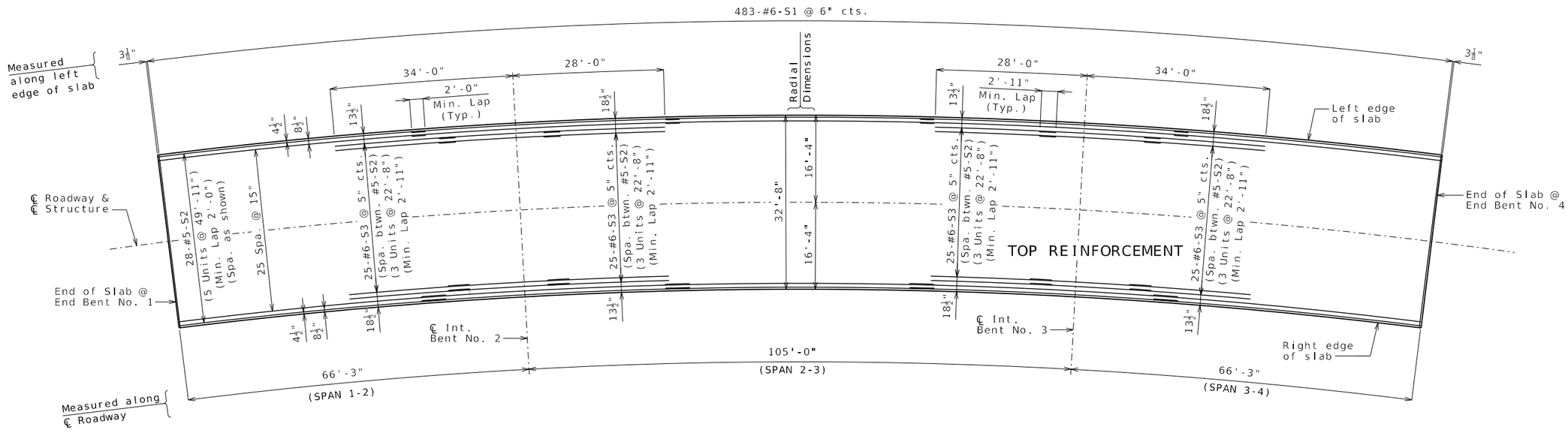
DESCRIPTION | DATE

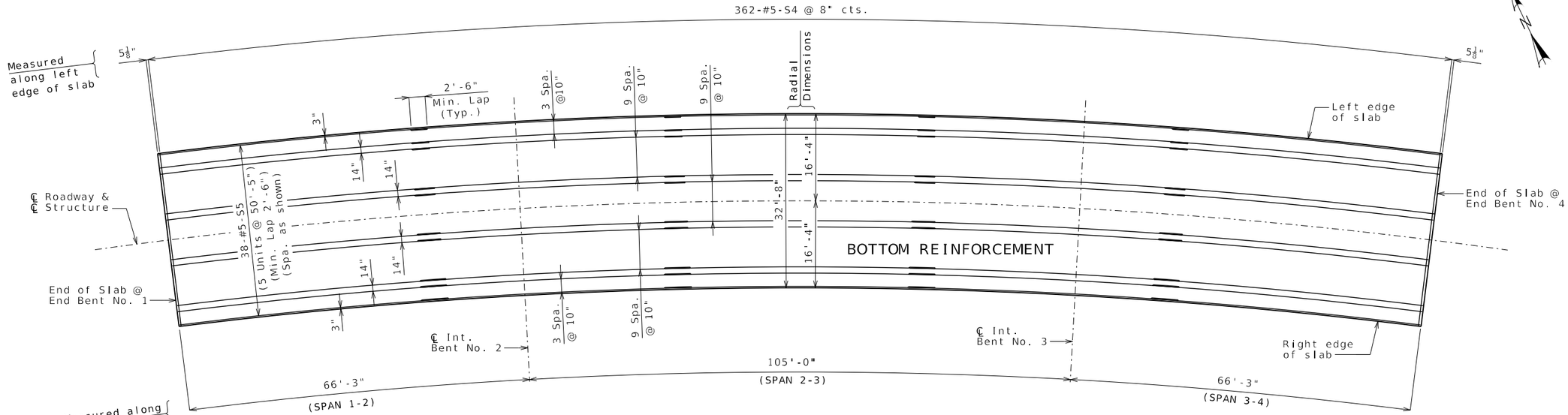
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ARCHITECT 000212
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NICHOLE WITUSHYNSKY
PROFESIONAL ENGINEER
PE-2018037127





Notes:

Longitudinal dimensions are measured horizontally.

All transverse bars are to be placed radially.

Longitudinal reinforcement shall be placed parallel to ℄ Roadway.

For Section Thru Slab, Slab Pouring Sequence, and Optional Stay-In-Place Form details, see Sheet No. 24.

For details and reinforcement of Type H Barrier not shown, see Sheets No. 26 thru 28.

For Theoretical Bottom of Slab Elevations, Plate Girder Camber Diagram, Theoretical Slab Haunch, and Dead Load Deflection Diagram, see Sheet No. 20.

For Plan of Slab Showing Curve Ordinates, see Sheet No. 25.

PLAN OF SLAB SHOWING REINFORCEMENT

Detailed July 2026
Checked July 2026

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32	MO
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BR	23

COUNTY
DENT

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BRIDGE NO.
A9724

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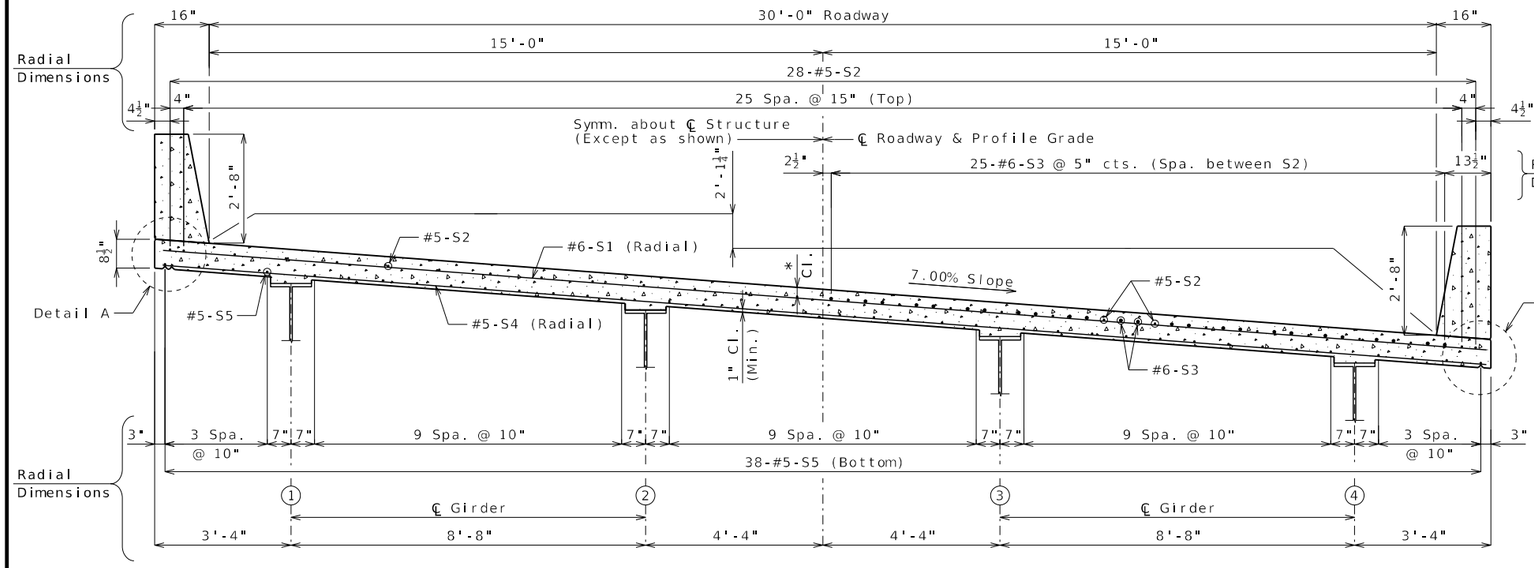
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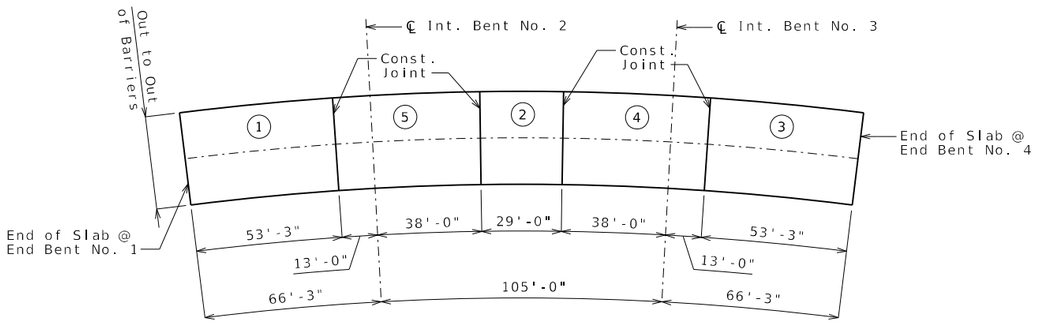


* 3⅛" (#5)
3" (#6)

HALF SECTION NEAR MIDSPAN

HALF SECTION NEAR INTERMEDIATE BENT

SECTION THRU SLAB



Note: Longitudinal dimensions are horizontal arc dimensions along ℄ Roadway.

	Sequence of Pours					Min. Rate of Pour Cu. Yds./Hr.	
	Direction					With Retarder	No Retarder
Basic Sequence	1	2	3	4	5	25	25
	Either Direction						
Alternate pours to the basic skip sequence are subject to the approval of the engineer in accordance with Sec 703.							
Alternate A Pours	1	5 + 2		4 + 3		27	45
	End to 5	1 to 4		2 to End			
Alternate B Pours	1 + 5 + 2		4 + 3			27	45
	End to 4		2 to End				
Alternate C Pours	1 + 5 + 2 + 4 + 3					27	45
	End to End						

The contractor shall pour and satisfactorily finish the slab pours at the rate given. Retarder, if used, shall be an approved type and retard the set of concrete to 2.5 hours.

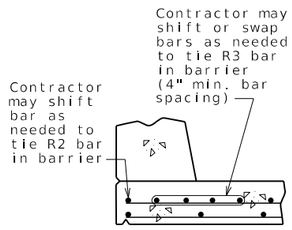
SLAB POURING SEQUENCE

Notes:

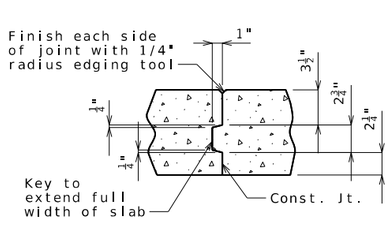
For reinforcement of barrier not shown, See Sheets No. 26 thru 28.

For Theoretical Bottom of Slab Elevations, Plate Girder Camber Diagram, Theoretical Slab Haunch, and Dead Load Deflection Diagram, see Sheet No. 20.

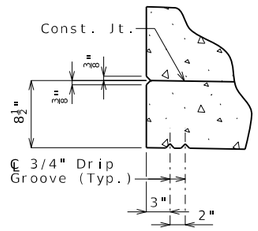
For Plan of Slab Showing Reinforcement, see Sheet No. 23.



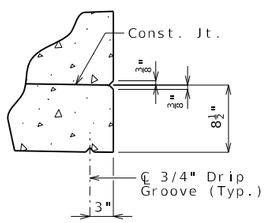
OPTIONAL SHIFTING TOP BARS AT BARRIER



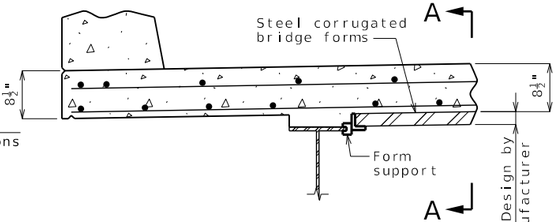
SLAB CONSTRUCTION JOINT

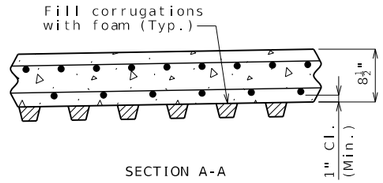


DETAIL A



DETAIL B





SECTION A-A

OPTIONAL STAY-IN-PLACE FORM DETAILS

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 girder 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. Drilling holes in the girder 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 girder loading.

SLAB DETAILS

Detailed July 2026
Checked July 2026

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NICHOLE WITUSHYNSKY
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DISTRICT BR | SHEET NO. 24
COUNTY DENT
JOB NO. JCD0235
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9724

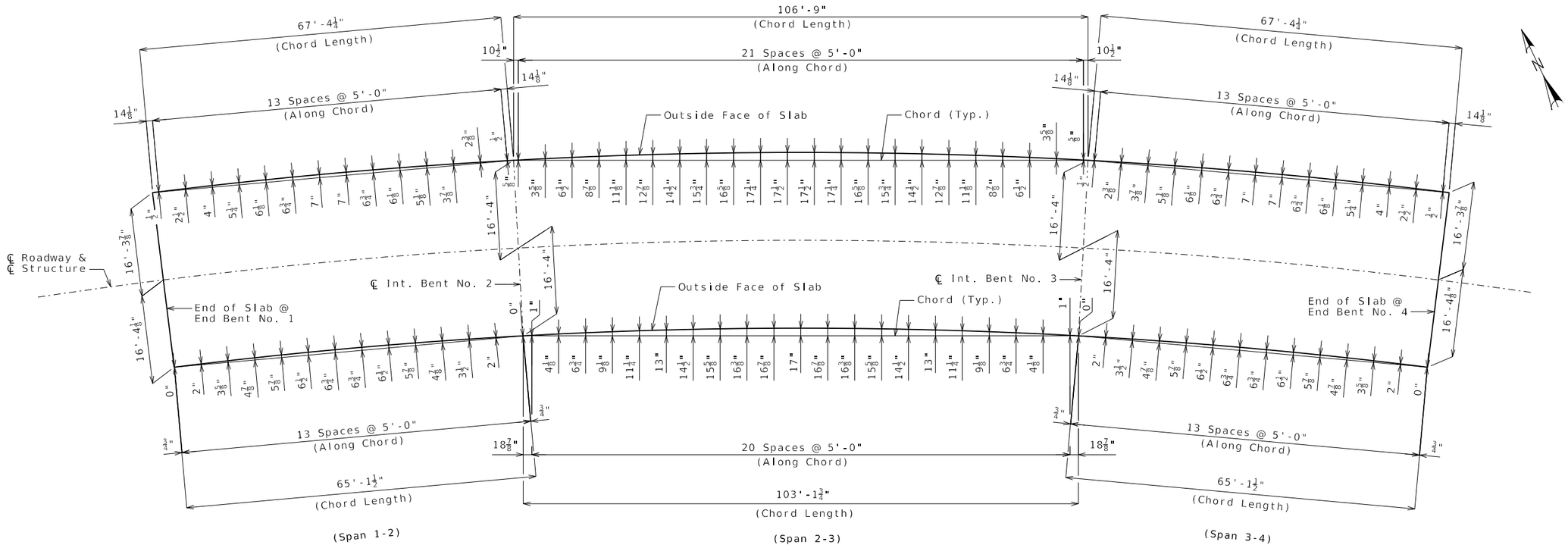
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PRO. LAND SURVEYOR 000059

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PLAN

Notes:

All dimensions are horizontal.

All bents are radial.

PLAN OF SLAB SHOWING CURVE ORDINATES

Detailed July 2026
Checked July 2026

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

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STATE OF MISSOURI
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DATE PREPARED: 9/23/2026

ROUTE	STATE
32	MO
DISTRICT	SHEET NO.
BR	25

COUNTY: DENT

JOB NO.: JCD0235

CONTRACT ID.:

PROJECT NO.:

BRIDGE NO.: A9724

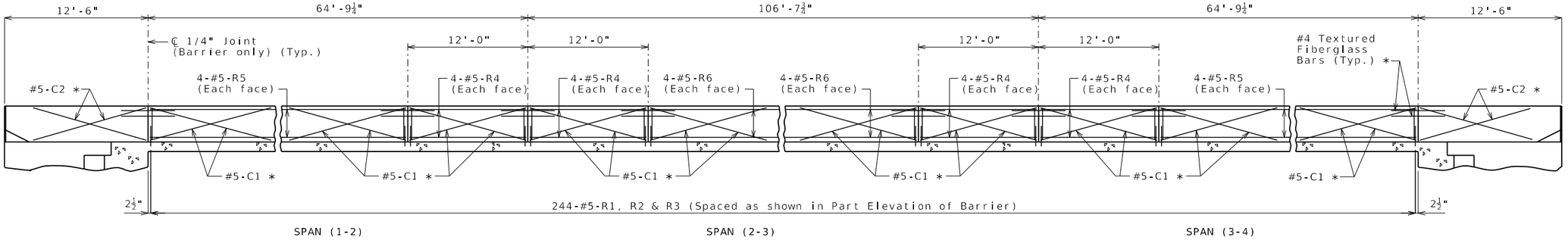
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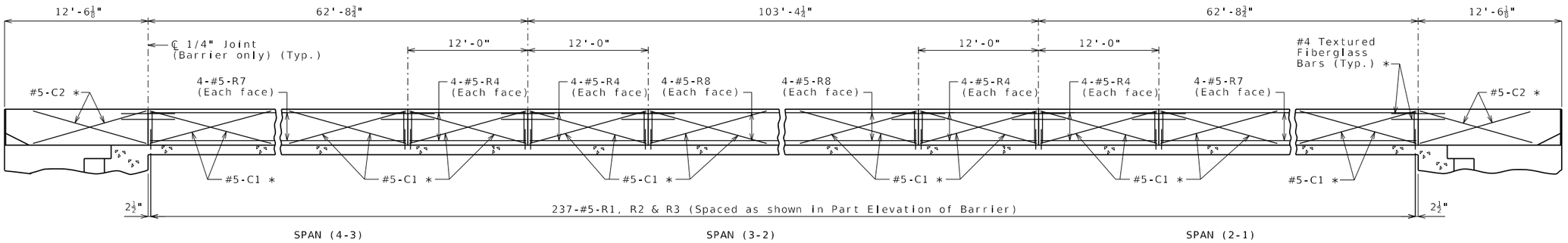
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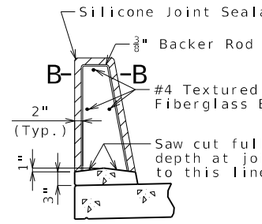
ELEVATION OF LEFT BARRIER

(Along Traffic Face)
Longitudinal dimensions are horizontal.

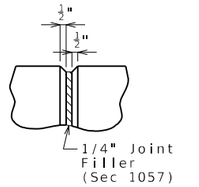


ELEVATION OF RIGHT BARRIER

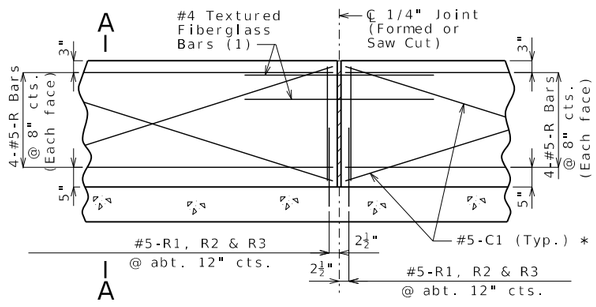
(Along Traffic Face)
Longitudinal dimensions are horizontal.



SECTION THRU SAW CUT JOINT

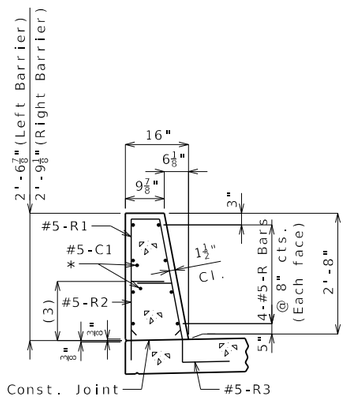


PART ELEVATION AT FORMED JOINT



PART ELEVATION OF BARRIER

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



SECTION A-A

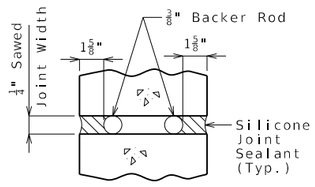
Use a minimum lap of 2'-6" for #5 horizontal barrier bars.

The cross-sectional area above the slab (Left Barrier) = 2.81 square feet.

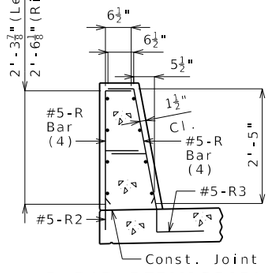
The cross-sectional area above the slab (Right Barrier) = 2.94 square feet.

(2) To top of bar

(3) 13⅜"(Left Barrier)(2)
15⅞"(Right Barrier)(2)



SECTION B-B



R-BAR PERMISSIBLE ALTERNATE SHAPE

(4) 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.)

General Notes:

* Slip-formed option only.

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

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

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

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

Concrete in barrier shall be Class B-1.

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

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

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

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

TYPE H BARRIER

Detailed July 2026
Checked July 2026

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

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NICHOLE WITUSHYNSKY
NUMBER PE-2018037127
PROFESSIONAL ENGINEER

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ROUTE 32 | STATE MO
DISTRICT BR | SHEET NO. 26
COUNTY DENT
JOB NO. JCD0235
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9724

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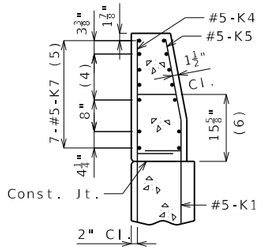
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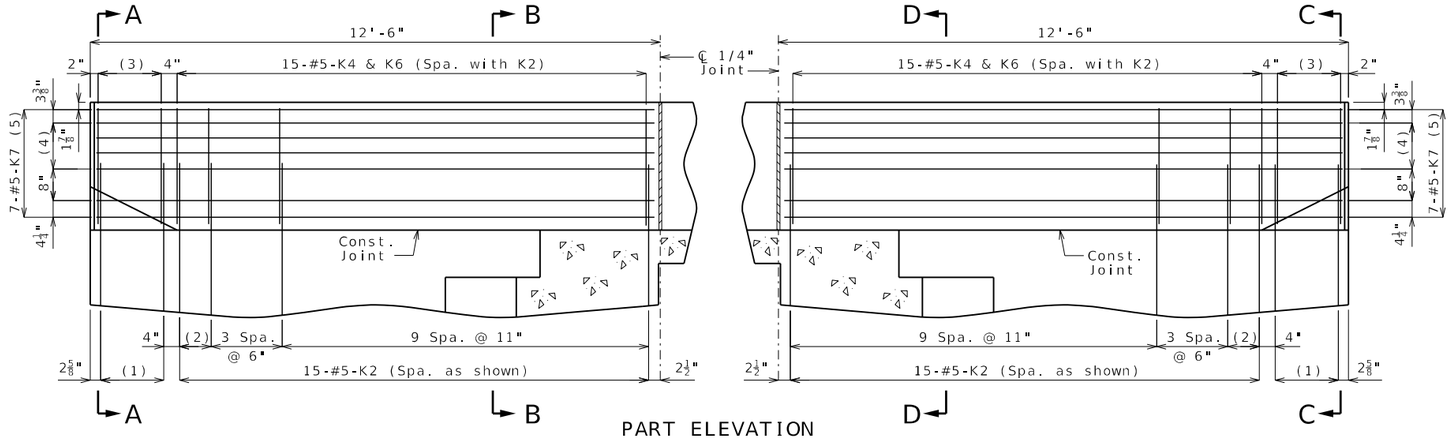
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PRO. ENGINEER 000133
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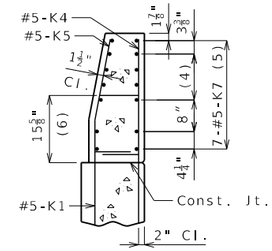
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SECTION A-A



PART ELEVATION



SECTION C-C

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

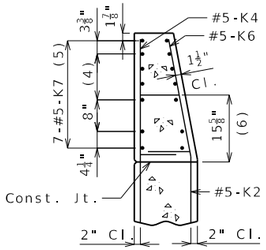
(2) 2 Spaces @ 4"

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

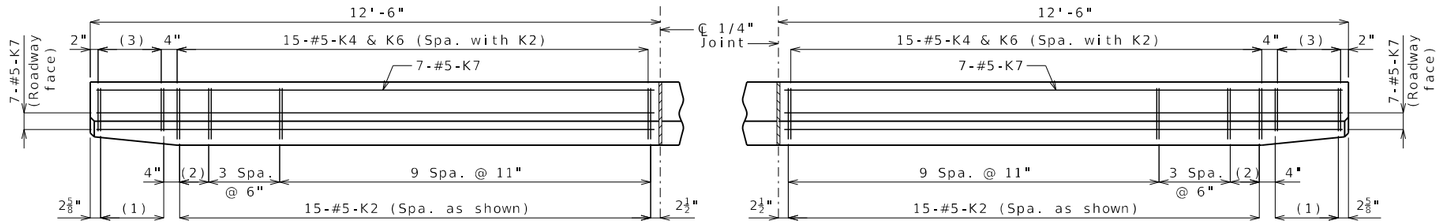
(4) 3 Spaces @ $3\frac{13}{16}$"

(5) Spaced as shown, each face

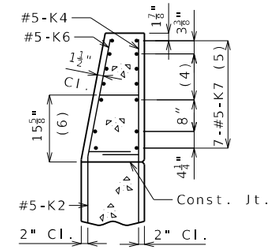
(6) To top of bar



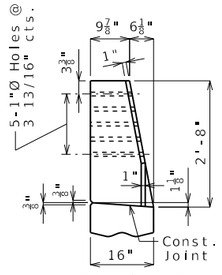
SECTION B-B



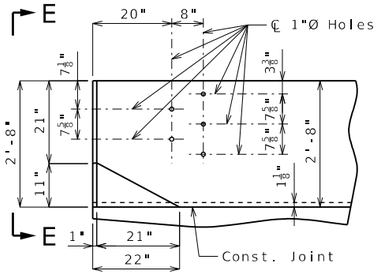
PART PLAN



SECTION D-D

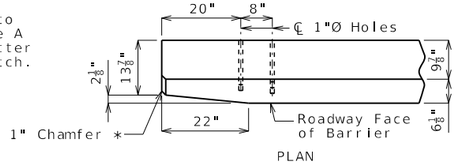


ELEVATION E-E



ELEVATION

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



PLAN

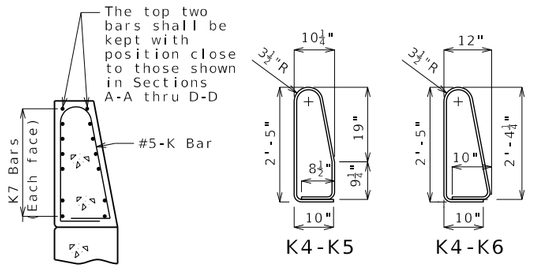
DETAILS OF GUARD RAIL ATTACHMENT

General Notes:

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

Reinforcing Steel:

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



PERMISSIBLE ALTERNATE SHAPES

(Other K bars not shown for clarity)

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

All dimensions are out to out.

TYPE H LEFT BARRIER AT END BENTS

Detailed July 2026
Checked July 2026

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

STATE OF MISSOURI
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NUMBER PE-2018037127
PROFESSIONAL ENGINEER

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DATE PREPARED 9/23/2026

ROUTE 32 | STATE MO

DISTRICT BR | SHEET NO. 27

COUNTY DENT

JOB NO. JCD0235

CONTRACT ID.

PROJECT NO.

BRIDGE NO. A9724

DESCRIPTION | DATE

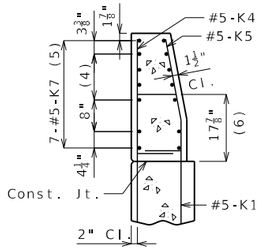
IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

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JEFFERSON CITY, MO 65102
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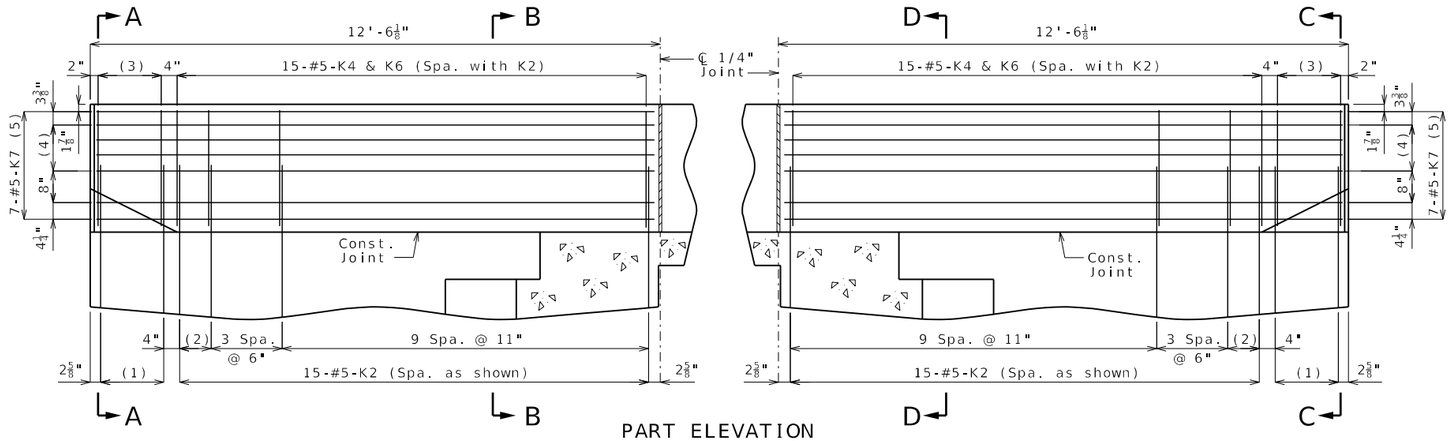
GBA
16305 SWINGLEY RIDGE RD
ST, 300
CHESTERFIELD, MO 63017
314.231.0100
GBAteam.com

GEORGE BUTLER ASSOCIATES, INC.
PRO. ENGINEER 000133
ARCHITECT 000212
PRO. LAND SURVEYOR 000059

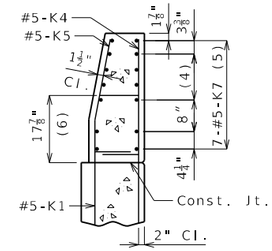
NICHOLE WITUSHYNSKY
PROFESIONAL ENGINEER
PE-2018037127



SECTION A-A



PART ELEVATION



SECTION C-C

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

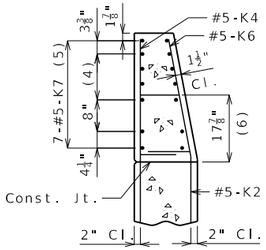
(2) 2 Spaces @ 4"

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

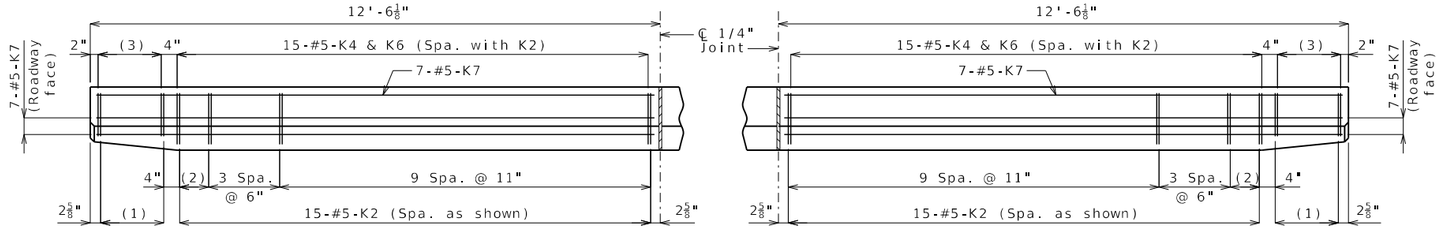
(4) 3 Spaces @ 3 13/16"

(5) Spaced as shown, each face

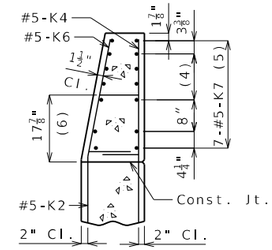
(6) To top of bar



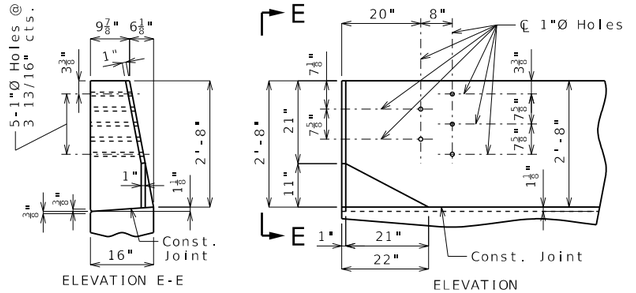
SECTION B-B

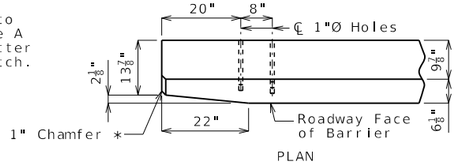


PART PLAN



SECTION D-D





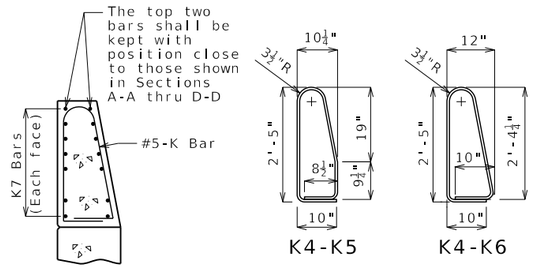
DETAILS OF GUARD RAIL ATTACHMENT

General Notes:

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

Reinforcing Steel:

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



PERMISSIBLE ALTERNATE SHAPES

(Other K bars not shown for clarity)

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

All dimensions are out to out.

TYPE H RIGHT BARRIER AT END BENTS

Detailed July 2026
Checked July 2026

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

STATE OF MISSOURI
NICHOLE WITUSHYNSKY
NUMBER PE-2018037127
PROFESSIONAL ENGINEER

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

DATE PREPARED 9/23/2026

ROUTE	STATE
32	MO
DISTRICT	SHEET NO.
BR	28

COUNTY: DENT

JOB NO.: JCD0235

CONTRACT ID.:

PROJECT NO.:

BRIDGE NO.: A9724

DATE	DESCRIPTION

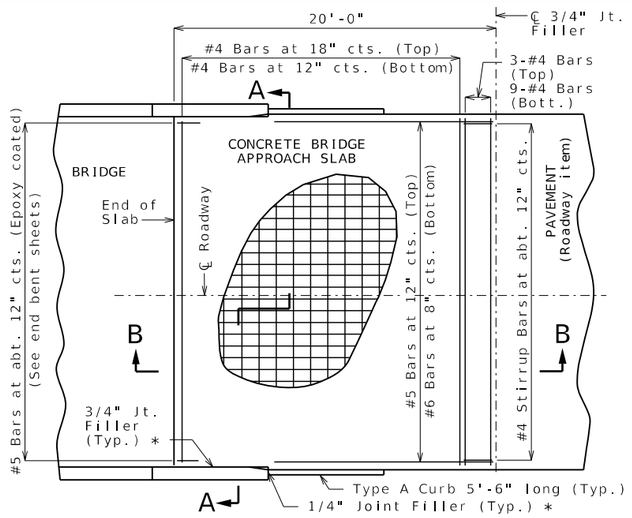
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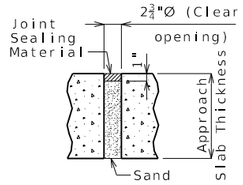
GEORGE BUTLER ASSOCIATES, INC.
PRO. ENGINEER 000133
ARCHITECT 000212
PRO. LAND SURVEYOR 000059

NICHOLE WITUSHYNSKY
PROFESIONAL ENGINEER
PE-2018037127



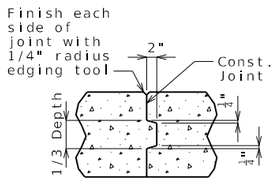
PART PLAN OF SQUARED STRUCTURE

(Skewed structure similar)

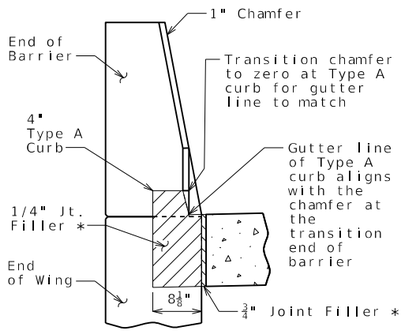


UNDERSEAL ACCESS HOLE DETAIL

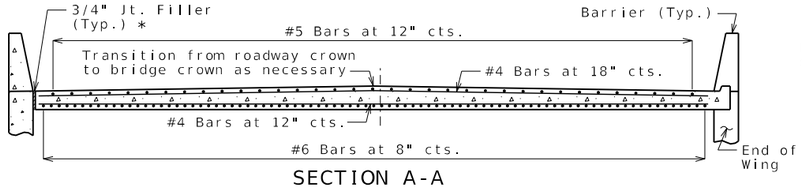
(If required)



CONSTRUCTION JOINT DETAIL

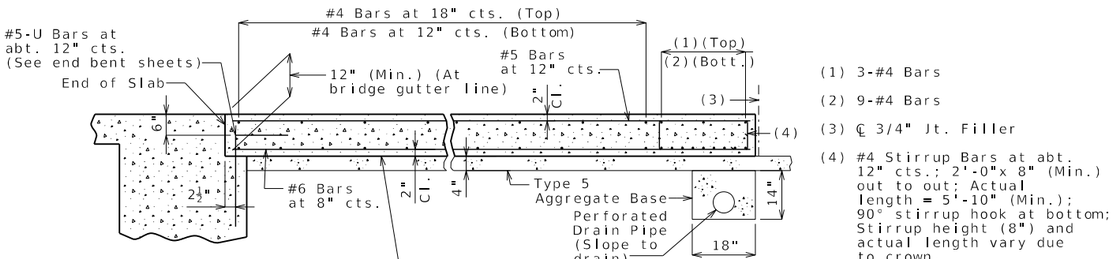


SECTION BETWEEN CURB AND BARRIER



SECTION A-A

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



(1) 3-#4 Bars

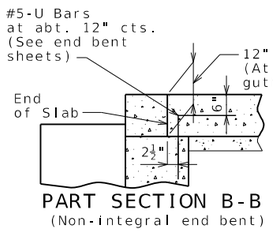
(2) 9-#4 Bars

(3) ℄ 3/4" Jt. Filler

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

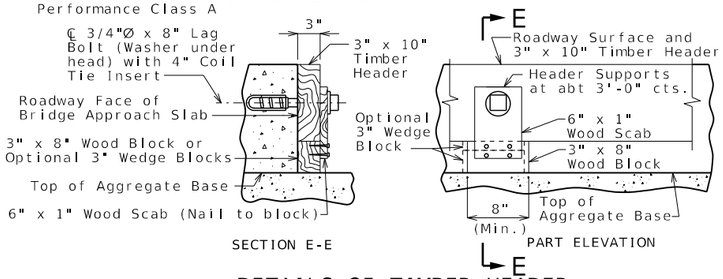
SECTION B-B

(Integral end bent)



PART SECTION B-B

(Non-integral end bent)



DETAILS OF TIMBER HEADER

Remove timber header when concrete pavement is placed.

OPTIONAL CONCRETE SLAB

Notes For Concrete Slab Only:

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

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

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

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

The reinforcing steel in the bridge approach slab shall be continuous. The transverse reinforcing steel may be made continuous by providing a minimum lap splice of 26 inches for #4 bars, or by mechanical bar splice.

Mechanical bar splices shall be in accordance with Sec 710.

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

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

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

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

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

General Notes:

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

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

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

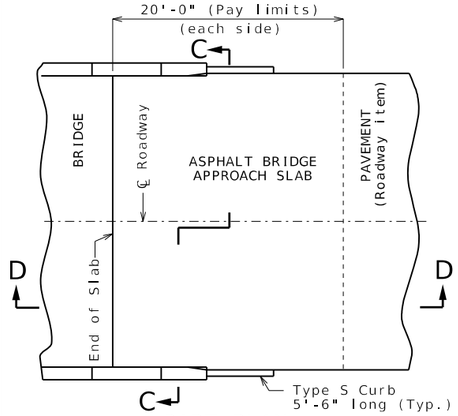
☐ Concrete Bridge Approach Slab

☐ Asphalt Bridge Approach Slab

Notes For Asphalt Slab Only:

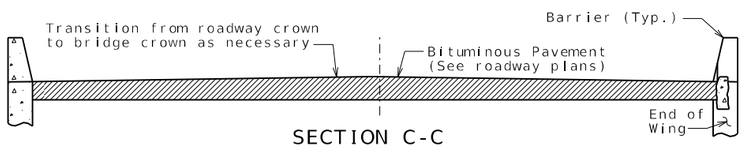
Payment for furnishing all materials, labor and excavation necessary to construct the asphalt bridge approach slab, including tack, curb, and Type 5 aggregate base within the pay limits shown, complete in place, will be considered completely covered by the contract unit price for Bridge Approach Slab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

Application of tack is required between lifts per Sec 403.



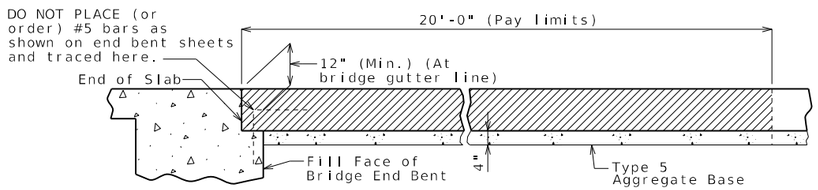
PART PLAN

(Squared structure shown, skewed structure similar)

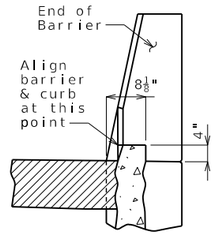


SECTION C-C

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



SECTION D-D



4" TYPE S CURB

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

OPTIONAL ASPHALT SLAB (NOT ALLOWED WITH CONCRETE PAVEMENT)

BRIDGE APPROACH SLAB (MINOR)

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

Detailed July 2026
Checked July 2026

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

NICHOLE WITUSHYNSKY
PROFESIONAL ENGINEER
PE-2018037127

STATE OF MISSOURI
NICHOLE WITUSHYNSKY
NUMBER PE-2018037127
PROFESSIONAL ENGINEER

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DATE PREPARED: 9/23/2026

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32	MO

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BR	29

COUNTY: DENT

JOB NO.: JCD0235

CONTRACT ID.:

PROJECT NO.:

BRIDGE NO.: A9724

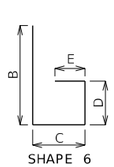
DESCRIPTION	DATE

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

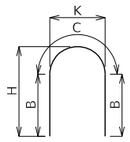
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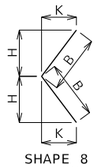
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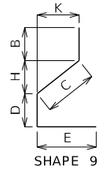
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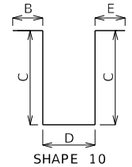
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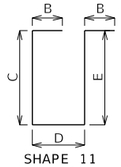
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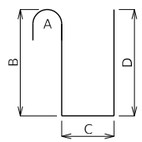
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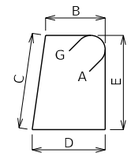
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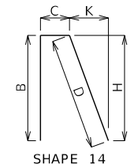
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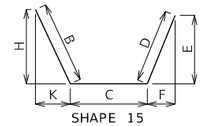
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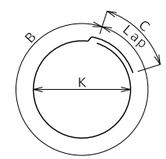
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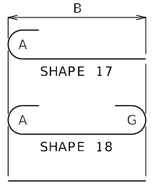
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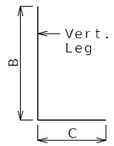
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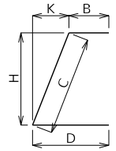
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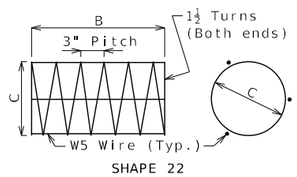
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SHAPE 18
SHAPE 20



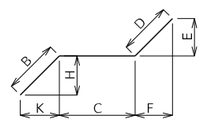
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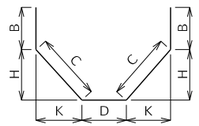
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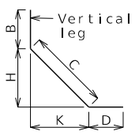
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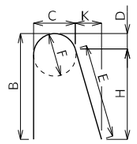
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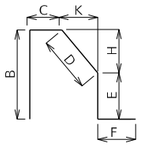
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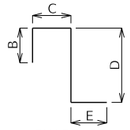
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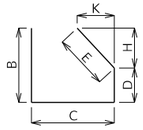
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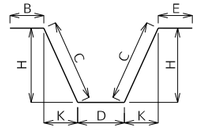
SHAPE 27S



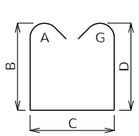
SHAPE 28
or 28S



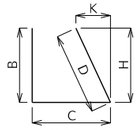
SHAPE 29
or 29S



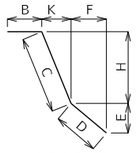
SHAPE 30
or 30S



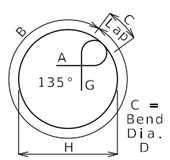
SHAPE 31S



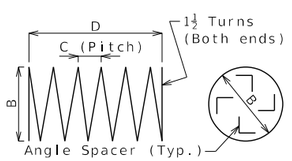
SHAPE 32
or 32S



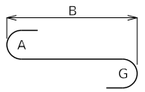
SHAPE 33
or 33S



SHAPE 34S



SHAPE 35 (1)

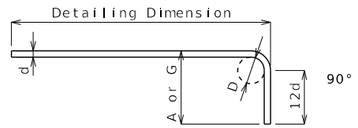


SHAPE 36

Finished Bend Diameters D and Hook Dimensions

Standard Pin Bend Shapes

Size	Case	D	A or G		J
			90°	180°	180°
#4	1	3"	8"	6"	4"
#5	1	3¾"	10"	7"	5"
#6	1	4½"	12"	8¼"	6"
#7	2	5¼"	14"	9¾"	7"
	3	7"	15"	11½"	8¾"
#8	2	6"	16"	11"	8"
	3	8"	17"	13¼"	10"
#9	1	9½"	19½"	15½"	11¾"
#10	1	10¾"	22"	17½"	13¼"
#11	1	12"	24½"	19½"	14⅞"
#14	1	18¼"	31¼"	27½"	21⅝"
#18	1	24"	41½"	36¼"	28½"

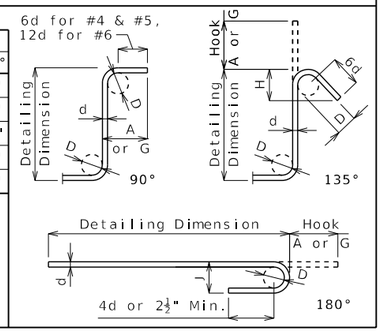


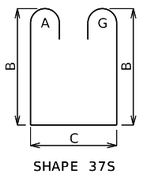
Stirrup Pin Bend Shapes (S)

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

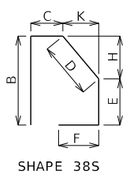
Applicable for all grades of steel.

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





SHAPE 37S



SHAPE 38S

BENDING DIAGRAMS

All dimensions are out to out.

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

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

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

Four angle or channel spacers are required for each column spiral. Spacers are to be placed on inside of spirals. Length and weight of column spirals do not include splices or spacers.

Reinforcing Steel Totals (Pounds)

		Substructure		Superstructure				Entire Bridge	
				Slab			Slip		
	Size	Plain	Epoxy	Plain	Epoxy	Barrier	Form	Plain	Epoxy
By Size	W5	68	0	0	0	0	0	68	0
	4	326	0	0	606	0	0	326	606
	5	438	0	0	31,529	11,168	582	438	43,279
	6	2716	0	0	41,409	0	0	2716	41,409
	7	0	0	0	0	0	0	0	0
	8	1492	0	0	1070	0	0	1492	1070
	9	0	0	0	0	0	0	0	0
	10	0	0	0	0	0	0	0	0
	11	0	0	0	0	0	0	0	0
	14	0	0	0	0	0	0	0	0
	18	0	0	0	0	0	0	0	0
By Type		5040	0	0	74,614	11,168	582	5040	86,364

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

BENDING DIAGRAMS AND REINFORCING STEEL TOTALS

Detailed July 2026
Checked July 2026

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

STATE OF MISSOURI
NICHOLE WITUSHYNSKY
NUMBER PE-2018037127
PROFESSIONAL ENGINEER

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

DATE PREPARED 9/23/2026
ROUTE 32 | STATE MO
DISTRICT BR | SHEET NO. 30
COUNTY DENT
JOB NO. JCD0235
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9724

DESCRIPTION | DATE

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GEORGE BUTLER ASSOCIATES, INC.
PRO. ENGINEER 000133
ARCHITECT 000212
PRO. LAND SURVEYOR 000059

NICHOLE WITUSHYNSKY
PROFESIONAL ENGINEER
PE-2018037127

Bill of Reinforcing Steel

No. Req.	Size/ Mark	Location	Codes C	SH	V	Dimensions B ft in.	C ft in.	D ft in.	E ft in.	F ft in.	H ft in.	K ft in.	Nom. Length ft in.	Actual Length ft in.	Weight lb
		SUBSTRUCTURE													
		INT. BENT NO. 2													
8	8 H201	BEAM		18		29 9.00							31 6	31 6	673
4	6 H202	BEAM		20		29 9.00							29 9	29 9	179
5	8 H203	BEAM		18		3 8.00							5 6	5 6	73
8	6 H204	BEAM		10			12.00	2 7.50					4 8	4 4	52
8	6 H205	BEAM		20		2 5.00							2 5	2 5	29
8	6 H206	BEAM		20		3 0.00							3 0	3 0	36
48	4 P201	PILES		34S		2 7.25	2.00				10.00		3 6	3 6	112
44	6 U201	BEAM		13S		2 9.00	3 3.00	2 9.00	3 3.00				13 3	12 10	848
16	6 U202	BEAM		10S			3 3.00	2 9.00					9 3	8 11	214
22	4 U203	BEAM		10S			6.00	2 9.00					3 9	3 6	51
36	5 V201	PILES		17		5 3.00							5 10	5 10	219
8	W5 W201	BEAM		22		18.00	9.00						25 9	25 3	34
		INT. BENT NO. 3													
8	8 H301	BEAM		18		29 9.00							31 6	31 6	673
4	6 H302	BEAM		20		29 9.00							29 9	29 9	179
5	8 H303	BEAM		18		3 8.00							5 6	5 6	73
8	6 H304	BEAM		10			12.00	2 7.50					4 8	4 4	52
8	6 H305	BEAM		20		2 5.00							2 5	2 5	29
8	6 H306	BEAM		20		3 0.00							3 0	3 0	36
48	4 P301	PILES		34S		2 7.25	2.00				10.00		3 6	3 6	112
44	6 U301	BEAM		13S		2 9.00	3 3.00	2 9.00	3 3.00				13 3	12 10	848
16	6 U302	BEAM		10S			3 3.00	2 9.00					9 3	8 11	214
22	4 U303	BEAM		10S			6.00	2 9.00					3 9	3 6	51
36	5 V301	PILES		17		5 3.00							5 10	5 10	219
8	W5 W301	BEAM		22		18.00	9.00						25 9	25 3	34
		SUPERSTRUCTURE													
		END BENT NO. 1													
22	6 F101	WING BRACE	E	23		20.00	5 2.25	20.00	14.00	14.00	14.00	14.00	8 6	8 6	281
8	6 F102	DIAPHRAGM	E	11			4 8.00	2 8.25					7 4	7 0	84
28	6 H101	BEAM	E	20		32 5.00							32 5	32 5	1363
4	6 H102	BEAM	E	18		5 9.00							7 2	7 2	43
8	6 H103	BEAM	E	20		4 4.00							4 4	4 4	52
8	6 H104	BEAM	E	20		2 3.00							2 3	2 3	27
24	6 H105	WING	E	20		10 7.00							10 7	10 7	382
24	6 H106	WING	E	19		10 7.00	12.00						11 7	11 5	412
8	8 H107	WING	E	20		12 0.00							12 0	12 0	256
8	8 H108	WING	E	19		12 0.00	16.00						13 4	13 1	279
40	4 P101	PILES	E	34S		2 7.25	2.00				10.00		3 6	3 6	94
22	5 U101	BEAM	E	10S			6 3.00	2 9.00					15 3	15 0	344
16	4 U102	BEAM	E	13S		2 9.00	2 9.00	2 9.00	2 9.00				11 9	11 6	123
28	4 U103	BEAM	E	10S			12.00	2 9.00					4 9	4 7	86
27	5 U104	DIAPHRAGM	E	10S			4 7.00	2 3.00					11 5	11 2	314
27	6 U105	DIAPHRAGM	E	19S		3 7.00	2 9.00						6 4	6 2	250
41	6 U106	DIAPHRAGM	E	19S		2 7.00	4 3.00						6 10	6 8	411
30	5 U107	DIAPHRAGM	E	19S		2 0.00	15.00						3 3	3 2	99
10	5 V101	DIAPHRAGM	E	20		6 3.00							6 3	6 3	65
12	6 V102	DIAPHRAGM	E	20		3 9.00							3 9	3 9	68
40	6 V103	WING	E	20		7 9.00							7 9	7 9	466
30	5 V104	PILES	E	17		5 3.00							5 10	5 10	183

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
		END BENT NO. 4													
22	6 F401	WING BRACE	E	23		20.00	5 2.25	20.00	14.00	14.00	14.00	14.00	8 6	8 6	281
8	6 F402	DIAPHRAGM	E	11			4 8.00	2 8.25					7 4	7 0	84
28	6 H401	BEAM	E	20		32 5.00							32 5	32 5	1363
4	6 H402	BEAM	E	18		5 9.00							7 2	7 2	43
8	6 H403	BEAM	E	20		4 4.00							4 4	4 4	52
8	6 H404	BEAM	E	20		2 3.00							2 3	2 3	27
24	6 H405	WING	E	20		10 7.00							10 7	10 7	382
24	6 H406	WING	E	19		10 7.00	12.00						11 7	11 5	412
8	8 H407	WING	E	20		12 0.00							12 0	12 0	256
8	8 H408	WING	E	19		12 0.00	16.00						13 4	13 1	279
40	4 P401	PILES	E	34S		2 7.25	2.00					10.00	3 6	3 6	94
22	5 U401	BEAM	E	10S			6 3.00	2 9.00					15 3	15 0	344
16	4 U402	BEAM	E	13S		2 9.00	2 9.00	2 9.00	2 9.00				11 9	11 6	123
28	4 U403	BEAM	E	10S			12.00	2 9.00					4 9	4 7	86
27	5 U404	DIAPHRAGM	E	10S			4 7.00	2 3.00					11 5	11 2	314
27	6 U405	DIAPHRAGM	E	19S		3 7.00	2 9.00						6 4	6 2	250
41	6 U406	DIAPHRAGM	E	19S		2 7.00	4 3.00						6 10	6 8	411
30	5 U407	DIAPHRAGM	E	19S		2 0.00	15.00						3 3	3 2	99
10	5 V401	DIAPHRAGM	E	20		6 3.00							6 3	6 3	65
12	6 V402	DIAPHRAGM	E	20		3 9.00							3 9	3 9	68
40	6 V403	WING	E	20		7 9.00							7 9	7 9	466
30	5 V404	PILES	E	17		5 3.00							5 10	5 10	183
		SLAB													
483	6 S1	SLAB	E	20		32 5.00							32 5	32 5	23517
140	5 S2	SLAB	E	20		49 11.00							49 11	49 11	7289
300	6 S3	SLAB	E	20		22 8.00							22 8	22 8	10214
362	5 S4	SLAB	E	20		32 5.00							32 5	32 5	12239
190	5 S5	SLAB	E	20		50 5.00							50 5	50 5	9991
		TYPE H BARRIER													
20	5 K1	BARRIER	E	27S		3 5.00	9.25	5.25	2 11.75		5.25	1.00	7 7	7 5	155
60	5 K2	BARRIER	E	27S		3 5.00	9.25	14.50	2 2.75		14.25	2.75	7 7	7 5	464
80	5 K4	BARRIER	E	19S		2 5.00	10.00						3 3	3 1	257
20	5 K5	BARRIER	E	38S				19.25	9.50	8.25	18.75	4.25	3 1	2 10	59
60	5 K6	BARRIER	E	21S			2 4.75	10.00			2 4.25	6.00	3 3	3 0	188
56	5 K7	BARRIER	E	20		12 3.00							12 3	12 3	715
481	5 R1	BARRIER	E	14S		2 5.00	6.50	2 5.50			2 5.00	5.50	5 5	5 2	2592
481	5 R2	BARRIER	E	19S		20.50	9.50						2 6	2 5	1212
481	5 R3	BARRIER	E	27S			9.50	15.25	5.00	12.00	15.00	3.00	3 6	3 3	1630
64	5 R4	BARRIER	E	20		11 9.00							11 9	11 9	784
16	5 R5	BARRIER	E	20		52 6.00							52 6	52 6	876
16	5 R6	BARRIER	E	20		42 7.00							42 7	42 7	711
16	5 R7	BARRIER	E	20		50 5.00							50 5	50 5	841
16	5 R8	BARRIER	E	20		41 0.00							41 0	41 0	684
		SLIP FORM													
40	5 C1	SLIP FORM	E	20		12 0.00							12 0	12 0	501
8	5 C2	SLIP FORM	E	20		9 9.00							9 9	9 9	81

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. 30.

Reinforcing steel (ASTM A706 Grade 60) fy = 60,000 psi

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 July 2026
Checked July 2026

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

BILL OF REINFORCING STEEL

Sheet No. 31 of 35

STATE OF MISSOURI
NICHOLE WITUSHYNSKY
NUMBER PE-2018037127
PROFESSIONAL ENGINEER

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

DATE PREPARED 9/23/2026

ROUTE 32 | STATE MO

DISTRICT BR | SHEET NO. 31

COUNTY DENT

JOB NO. JCD0235

CONTRACT ID.

PROJECT NO.

BRIDGE NO. A9724

DESCRIPTION | DATE

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MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

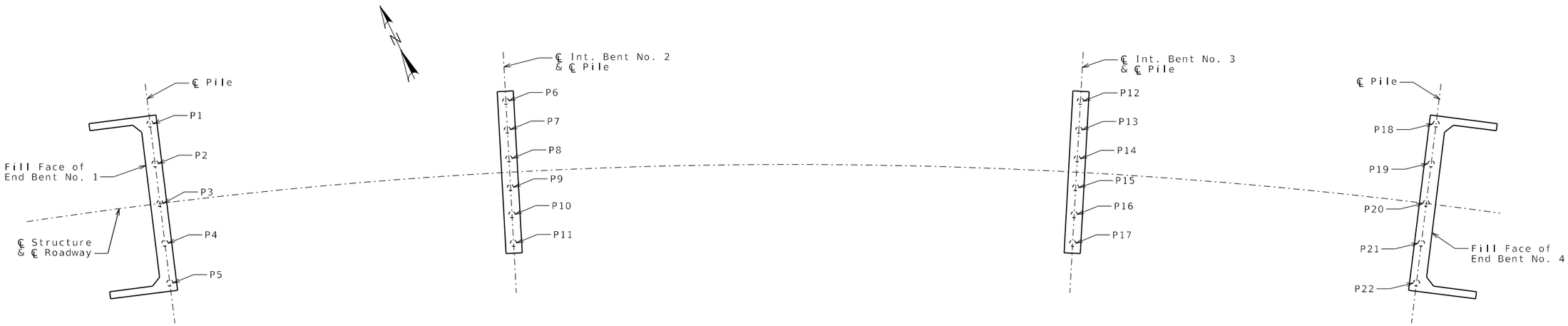
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GEORGE BUTLER ASSOCIATES, INC.
PRO. ENGINEER 000133
ARCHITECT 000212
PRO. LAND SURVEYOR 000059

NICHOLE WITUSHYNSKY
PROFESIONAL ENGINEER
PE-2018037127

c:\bms\gba-pw-01\nichole witushynsky\dms27758\B_A9724_031_JCD0235_Barbill-1.dgn 3:54:44 PM 9/23/2026



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

As-Built Pile Data

Pile No.	Length in Place (ft)	Computed Nominal Axial Compressive Resistance (kips)	Remarks
			END BENT NO. 1
P1			
P2			
P3			
P4			
P5			
			INT. BENT NO. 2
P6			
P7			
P8			
P9			

As-Built Pile Data

Pile No.	Length in Place (ft)	Computed Nominal Axial Compressive Resistance (kips)	Remarks
			INT. BENT NO. 2 (CONT'D)
P10			
P11			
			INT. BENT NO. 3
P12			
P13			
P14			
P15			
P16			
P17			

As-Built Pile Data

Pile No.	Length in Place (ft)	Computed Nominal Axial Compressive Resistance (kips)	Remarks
			END BENT NO. 4
P18			
P19			
P20			
P21			
P22			

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

This sheet to be completed by MoDOT construction personnel.

AS-BUILT PILE DATA

Detailed July 2026
Checked July 2026

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

STATE OF MISSOURI
NICHOLE WITUSHYNSKY
NUMBER PE-2018037127
PROFESSIONAL ENGINEER

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

DATE PREPARED: 9/23/2026
ROUTE: 32 | STATE: MO
DISTRICT: BR | SHEET NO.: 32
COUNTY: DENT
JOB NO.: JCD0235
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: A9724

DESCRIPTION | DATE

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MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
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PRO. ENGINEER 000133
ARCHITECT 000212
PRO. LAND SURVEYOR 000059

NICHOLE WITUSHYNSKY
PROFESIONAL
ENGINEER
PE-2018037127

Missouri Department of Transportation
Construction and Materials

BORING NO. B-101
Page 1 of 1

Job No.: CD0235 **County:** Dent **Route:** 32
Design: A9724 **Skew:** Square **Location:** Over Huzzah Creek
Bent: 1 **Logged By:** Matthew Kistler **Operator:** Bradley Wadlow
Station: **Northing:** 660635.6 **Date of Work:** 12/03/25-12/03/25
Offset: **Easting:** 619009 **Depth to Water:** 15.0
Elevation: 1022.2 **Requested Northing:** **Depth Hole Open:**
Requested Station: **Requested Easting:** **Time Change:** At Time of Drilling
Requested Offset: **Equipment:** Acker Renegade ,Solit-Spoon Samp er, NQ
Requested Elevation: **Location Note:** On Stake
Drill No.: G-9667 **Hammer Efficiency:** 93% **Drilling Method:** Casing Advancer

Depth (ft)	Graphic	Description	Elevation (ft)	Sample Type	REC % (RQD %)	Blow Counts (N_{60})	Shear Data	Field Tests	Index Tests
0		0.0-0.5' ASPHALT							
		0.5-8.0' Dark brown to reddish brown, LEAN CLAY trace fine gravel, medium stiff to stiff, moist	1020						
5				X	0	5-5-4 (14)			
			1015					PP = 1.00 tsf	MC = 12.2% γ_{wet} = 141 pcf(1) LL = 27 PL = 16
10		8.0-18.0' Light brownish tan, CLAYEY GRAVEL, medium dense to dense, moist to wet, Cherty		X	40	4-4-4 (12)			
			1010	X	27	5-5-4 (14)			
15		▽		X	60	9-9-16 (39)			
			1005						
		18.0-19.1' Light gray and tan, GRAVEL, very dense, wet							
20		19.1-19.5' Dolomite, light gray, highly weathered			0	10/0.0'			
		19.5-29.6' Dolomite, light gray and light brownish tan, very thin bedded, extremely strong rock, moderately weathered to slightly weathered, fine grained, Vuggy with quartz druse, contains fractures throughout	1000		100 (44)		Qu Test Results UCS = 2760 ksf MC = 0% γ_{moist} = 172.5 pcf		
25			995		100 (14)				
		Bottom of borehole at 29.6 feet.							

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

Coordinate System: Modified U.S. State Plane 1983 **Coordinate Zone:** Missouri East **Coordinate Proj. Factor:** 1.00006694
Coordinate Datum: NAD 83 (CONUS) **Coordinate Units:** U.S. Survey Feet

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Missouri Department of Transportation
Construction and Materials

BORING NO. B-203
Page 1 of 2

Job No.: CD0235 **County:** Dent **Route:** 32
Design: A9724 **Skew:** Square **Location:** Over Huzzah Creek
Bent: 2 **Logged By:** Matthew Kistler **Operator:** Bradley Wadlow
Station: **Northing:** 660636.2 **Date of Work:** 11/26/25-11/26/25
Offset: **Easting:** 619049.3 **Depth to Water:** 1.6
Elevation: 1011.3 **Requested Northing:** 660644.1 **Depth Hole Open:**
Requested Station: **Requested Easting:** 619062.9 **Time Change:** At Time of Drilling
Requested Offset: **Equipment:** Acker Renegade ,Split-Spoon Sampler, NQ
Requested Elevation: 1020.5 **Location Note:** Offset to avoid existing structure
Drill No.: G-9667 **Hammer Efficiency:** 93% **Drilling Method:** Casing Advancer

Depth (ft)	Graphic	Description	Elevation (ft)	Sample Type	REC % (RQD %)	Blow Counts (N_{60})	Shear Data	Field Tests	Index Tests
0		0.0-3.8' Dark brownish tan, GRAVELLY SAND, loose to medium dense, moist to wet, Cherty	1010						
5		3.8-6.1' Dark brownish tan, GRAVELLY SAND, very dense, wet, Cherty	1005	X	51	30-33/0.1"			
		6.1-19.3' Dolomite, light gray and light brownish tan, very thin bedded, strong rock to very strong rock, moderately weathered to slightly weathered, fine grained, Vuggy with quartz druse, contains fractures throughout			0	10/0.0"			
10			1000		100 (78)		Qu Test Results UCS = 71.0 ksf MC = 0% γ_{moist} = 167.5 pcf		
15					100 (24)		Qu Test Results UCS = 1230 ksf MC = 0% γ_{moist} = 170.9 pcf		
			995				Qu Test Results UCS = 880 ksf MC = 0% γ_{moist} = 172.7 pcf		
20		19.3-19.7' Light brownish tan, Clay Filled Karst			92 (28)				
		19.7-24.2' Dolomite, light gray and light brownish tan, very thin bedded, very strong rock, moderately weathered to slightly weathered, fine grained, Vuggy with quartz druse, contains fractures throughout	990						
25					96 (24)		Qu Test Results UCS = 1620 ksf MC = 0% γ_{moist} = 167.1 pcf		
		24.2-24.6' Light brownish tan, Clay Filled Karst	985						
		24.6-28.2' Dolomite, very strong rock, similar to surrounding rock lithology			64 (0)				
30		28.2-30.0' Light brownish tan, Clay Filled Karst							
		30.0-31.8' Dolomite, similar to surrounding rock lithology	980						
		31.8-32.8' Light brownish tan, Clay Filled Karst			80 (28)		Qu Test Results UCS = 1250 ksf MC = 0% γ_{moist} = 173.7 pcf		
35		32.8-46.2' Dolomite, light gray and light brownish tan, very thin bedded, very strong rock to extremely strong rock, moderately weathered to slightly weathered, fine grained, Vuggy with quartz druse, contains fractures throughout	975						
					100 (40)		Qu Test Results UCS = 1810 ksf MC = 0% γ_{moist} = 173.2		
40									

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

Coordinate System: Modified U.S. State Plane 1983 **Coordinate Zone:** Missouri East **Coordinate Proj. Factor:** 1.00006694
Coordinate Datum: NAD 83 (CONUS) **Coordinate Units:** U.S. Survey Feet

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(Continued Next Page)

NICHOLE WITUSHYNSKY
NUMBER PE-2018037127
PROFESSIONAL ENGINEER

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

DATE PREPARED 9/23/2026
ROUTE 32 STATE MO
DISTRICT BR SHEET NO. 33
COUNTY DENT
JOB NO. JCD0235
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9724

DESCRIPTION
DATE

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

GBA
16305 SWINGLEY RIDGE RD
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CHESTERFIELD, MO 63017
314.231.0100
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GEORGE BUTLER ASSOCIATES, INC.
PRO. ENGINEER 000133
ARCHITECT 000212
PRO. LAND SURVEYOR 000059

NICHOLE WITUSHYNSKY
PROFESIONAL ENGINEER
PE-2018037127

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

BORING DATA

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

Detailed July 2026
Checked July 2026

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

Missouri Department of Transportation
Construction and Materials

BORING NO. B-203
Page 2 of 2

Job No.: CD0235 **County:** Dent **Route:** 32
Design: A9724 **Skew:** Square **Location:** Over Huzzah Creek
Bent: 2 **Logged By:** Matthew Kistler **Operator:** Bradley Wadlow
Station: **Northing:** 660636.2 **Date of Work:** 11/26/25-11/26/25
Offset: **Easting:** 619049.3 **Depth to Water:** 1.6
Elevation: 1011.3 **Requested Northing:** 660644.1 **Depth Hole Open:**
Requested Station: **Requested Easting:** 619062.9 **Time Change:** At Time of Drilling
Requested Offset: **Equipment:** Acker Renegade ,Split-Spoon Sampler, NQ
Requested Elevation: 1020.5 **Location Note:** Offset to avoid existing structure
Drill No.: G-9667 **Hammer Efficiency:** 93% **Drilling Method:** Casing Advancer

Depth (ft)	Graphic	Description	Elevation (ft)	Sample Type	REC % (RQD %)	Blow Counts (N_{60})	Shear Data	Field Tests	Index Tests
40									
45		32.8-46.2' Dolomite, light gray and light brownish tan, very thin bedded, very strong rock to extremely strong rock, moderately weathered to slightly weathered, fine grained, Vuggy with quartz druse, contains fractures throughout *(continued)*	970		100 (20)		pcf Qu Test Results UCS = 2800 ksf MC = 0% γ_{moist} = 174.3 pcf		
		Bottom of borehole at 46.2 feet.							

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

Coordinate System: Modified U.S. State Plane 1983 **Coordinate Zone:** Missouri East **Coordinate Proj. Factor:** 1.00006694
Coordinate Datum: NAD 83 (CONUS) **Coordinate Units:** U.S. Survey Feet

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Missouri Department of Transportation
Construction and Materials

BORING NO. B-303
Page 1 of 1

Job No.: CD0235 **County:** Dent **Route:** 32
Design: A9724 **Skew:** Square **Location:** Over Huzzah Creek
Bent: 3 **Logged By:** Matthew Kistler **Operator:** Bradley Wadlow
Station: **Northing:** 660589.6 **Date of Work:** 11/25/25-11/25/25
Offset: **Easting:** 619157.4 **Depth to Water:** 1.5
Elevation: 1010.3 **Requested Northing:** 660599.4 **Depth Hole Open:**
Requested Station: **Requested Easting:** 619156.6 **Time Change:** At Time of Drilling
Requested Offset: **Equipment:** Acker Renegade ,Grab Sampe, Split-Spoon Sampler, NQ
Requested Elevation: 1020.6 **Location Note:** Offset to avoid existing structure
Drill No.: G-9667 **Hammer Efficiency:** 93% **Drilling Method:** Casing Advancer

Depth (ft)	Graphic	Description	Elevation (ft)	Sample Type	REC % (RQD %)	Blow Counts (N_{60})	Shear Data	Field Tests	Index Tests
0		0.0-4.4' Dark brownish tan, GRAVEL with fine sand, loose to medium dense, moist to wet, Cherty	1010		100				Sieve Analysis Sieve # % Passing 3" 86.6 2" 69.4 1½" 53.5 1" 39.5 3/4" 37.6 3/8" 29.0 #4 17.6 #10 8.7 #16 6.0 #40 2.4 #50 1.1 #100 0.4 #200 0.3
5		4.4-4.9' Dolomite, highly weathered	1005		0	10/0.0"			
		4.9-17.7' Dolomite, light gray and light brownish tan, very thin bedded, very strong rock, moderately weathered to slightly weathered, fine grained, Vuggy with quartz druse, contains fractures throughout			100 (20)				
10			1000		100 (46)		Qu Test Results UCS = 1240 ksf MC = 0% γ_{moist} = 174.3 pcf Qu Test Results UCS = 1940 ksf MC = 0% γ_{moist} = 172 pcf		
15			995		80 (20)				
		17.7-18.7' Light brownish tan, Clay Filled Karst							
20		18.7-29.3' Dolomite, light gray and light brownish tan, very thin bedded, strong rock to very strong rock, moderately weathered to slightly weathered, fine grained, Vuggy with quartz druse, contains fractures throughout	990		100 (42)		Qu Test Results UCS = 960 ksf MC = 0% γ_{moist} = 172.7 pcf Qu Test Results UCS = 1470 ksf MC = 0% γ_{moist} = 170.5 pcf		
25			985		94 (30)				
30		29.3-29.6' Open VOID	980						
		29.6-35.0' Dolomite, light gray and light brownish tan, very thin bedded, strong rock, moderately weathered to slightly weathered, fine grained, Vuggy with quartz druse, contains fractures throughout			100 (40)		Qu Test Results UCS = 812 ksf MC = 0% γ_{moist} = 163.3 pcf		
35		Bottom of borehole at 35.0 feet.							

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

Coordinate System: Modified U.S. State Plane 1983 **Coordinate Zone:** Missouri East **Coordinate Proj. Factor:** 1.00006694
Coordinate Datum: NAD 83 (CONUS) **Coordinate Units:** U.S. Survey Feet

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STATE OF MISSOURI
NICHOLE WITUSHYNSKY
NUMBER PE-2018037127
PROFESSIONAL ENGINEER

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

DATE PREPARED 9/23/2026
ROUTE 32 STATE MO
DISTRICT BR SHEET NO. 34
COUNTY DENT
JOB NO. JCD0235
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9724

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

DESCRIPTION | DATE

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

GBA
16305 SWINGLEY RIDGE RD
ST. 300
CHESTERFIELD, MO 63017
314.231.0100
GBAteam.com

GEORGE BUTLER ASSOCIATES, INC.
PRO. ENGINEER 000133
ARCHITECT 000212
PRO. LAND SURVEYOR 000059

NICHOLE WITUSHYNSKY
PROFESIONAL ENGINEER
PE-2018037127

BORING DATA

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

Detailed July 2026
Checked July 2026

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

Missouri Department of Transportation
Construction and Materials

BORING NO. B-401
Page 1 of 2

Job No.: CD0235 **County:** Dent **Route:** 32
Design: A9724 **Skew:** Square **Location:** Over Huzzah Creek
Bent: 4 **Logged By:** Matthew Kistler **Operator:** Bradley Wadlow
Station: **Northing:** 660583.4 **Date of Work:** 12/03/25-12/03/25
Offset: **Easting:** 619222.7 **Depth to Water:** 13.8
Elevation: 1022.4 **Requested Northing:** **Depth Hole Open:**
Requested Station: **Requested Easting:** **Time Change:** At Time of Drilling
Requested Offset: **Equipment:** Acker Renegade ,Split-Spoon Sampler, NQ
Requested Elevation: **Location Note:** On Stake
Drill No.: G-9667 **Hammer Efficiency:** 93% **Drilling Method:** Casing Advancer

Depth (ft)	Graphic	Description	Elevation (ft)	Sample Type	REC % (RQD %)	Blow Counts (N_{60})	Shear Data	Field Tests	Index Tests
0		0.0-0.5' ASPHALT 0.5-8.4' Light brownish tan, LEAN CLAY, medium stiff to stiff, moist	1020						
5					93	2-3-3 (9)		PP = 1.00 tsf	MC = 23.6% γ_{dst} = 126 pcf(1) LL = 29 PL = 13
10		8.4-13.8' Brownish tan, CLAYEY GRAVEL, very dense, moist to wet, Cherty	1015		67	15-18-17 (54)			
15		13.8-20.3' Light brownish tan, LEAN CLAY, soft, wet	1010		27	1-1-1 (3)		PP = 0.25 tsf	
20		20.3-25.0' Light gray and tan, GRAVEL, medium dense to dense, wet, Completely Weathered Dolomite	1005		27	12-31-6 (57)			
25		25.0-25.9' Dolomite, highly weathered to moderately weathered	1000		0	10/0.0"			
30		25.9-39.8' Dolomite, light gray and light brownish tan, very thin bedded, very strong rock, moderately weathered to slightly weathered, fine grained, Vuggy with quartz druse, contains fractures throughout	995		78 (12)		Qu Test Results UCS = 1640 ksf MC = 0% γ_{moist} = 169.9 pcf		
35			990		100 (0)				
40			985		80 (16)				

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

Coordinate System: Modified U.S. State Plane 1983 **Coordinate Zone:** Missouri East **Coordinate Proj. Factor:** 1.00006694
Coordinate Datum: NAD 83 (CONUS) **Coordinate Units:** U.S. Survey Feet

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(Continued Next Page)

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Missouri Department of Transportation
Construction and Materials

BORING NO. B-401
Page 2 of 2

Job No.: CD0235 **County:** Dent **Route:** 32
Design: A9724 **Skew:** Square **Location:** Over Huzzah Creek
Bent: 4 **Logged By:** Matthew Kistler **Operator:** Bradley Wadlow
Station: **Northing:** 660583.4 **Date of Work:** 12/03/25-12/03/25
Offset: **Easting:** 619222.7 **Depth to Water:** 13.8
Elevation: 1022.4 **Requested Northing:** **Depth Hole Open:**
Requested Station: **Requested Easting:** **Time Change:** At Time of Drilling
Requested Offset: **Equipment:** Acker Renegade ,Split-Spoon Sampler, NQ
Requested Elevation: **Location Note:** On Stake
Drill No.: G-9667 **Hammer Efficiency:** 93% **Drilling Method:** Casing Advancer

Depth (ft)	Graphic	Description	Elevation (ft)	Sample Type	REC % (RQD %)	Blow Counts (N_{60})	Shear Data	Field Tests	Index Tests
40		39.8-41.3' Light brownish tan, Clay Filled Karst *(continued)*							
45		41.3-46.0' Dolomite, light gray and light brownish tan, very thin bedded, very strong rock, moderately weathered to slightly weathered, fine grained, Vuggy with quartz druse, contains fractures throughout	980		94 (24)				
		Bottom of borehole at 46.0 feet.							

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

Coordinate System: Modified U.S. State Plane 1983 **Coordinate Zone:** Missouri East **Coordinate Proj. Factor:** 1.00006694
Coordinate Datum: NAD 83 (CONUS) **Coordinate Units:** U.S. Survey Feet

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STATE OF MISSOURI
NICHOLE WITUSHYNSKY
NUMBER PE-2018037127
PROFESSIONAL ENGINEER

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

DATE PREPARED 9/23/2026
ROUTE 32 STATE MO
DISTRICT BR SHEET NO. 35
COUNTY DENT
JOB NO. JCD0235
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9724

DESCRIPTION | DATE

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

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

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16305 SWINGLEY RIDGE RD
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GEORGE BUTLER
ASSOCIATES, INC.
PRO. ENGINEER 000133
ARCHITECT 000212
PRO. LAND SURVEYOR 000059

BORING DATA

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

Detailed July 2026
Checked July 2026

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

NICHOLE WITUSHYNSKY
PROFESIONAL
ENGINEER
PE-2018037127

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