DESIGN DESIGNATION

A.A.D.T. - 2025 = 1,140
A.A.D.T. - 2045 = 1,409
D.H.V. = 10.50%
T = 15.56%
V = 55 M.P.H.
D = 46.4% / 53.6%

FUNCTIONAL CLASSIFICATION- MAJOR COLLECTOR

TEMPORARY EASEMENT

CONVENTIONAL SYMBOLS
(USED IN PLANS)

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

NOTE: DASHED OR OPEN SYMBOLS INDICATE EXISTING FEATURES

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

PLANS FOR PROPOSED STATE HIGHWAY

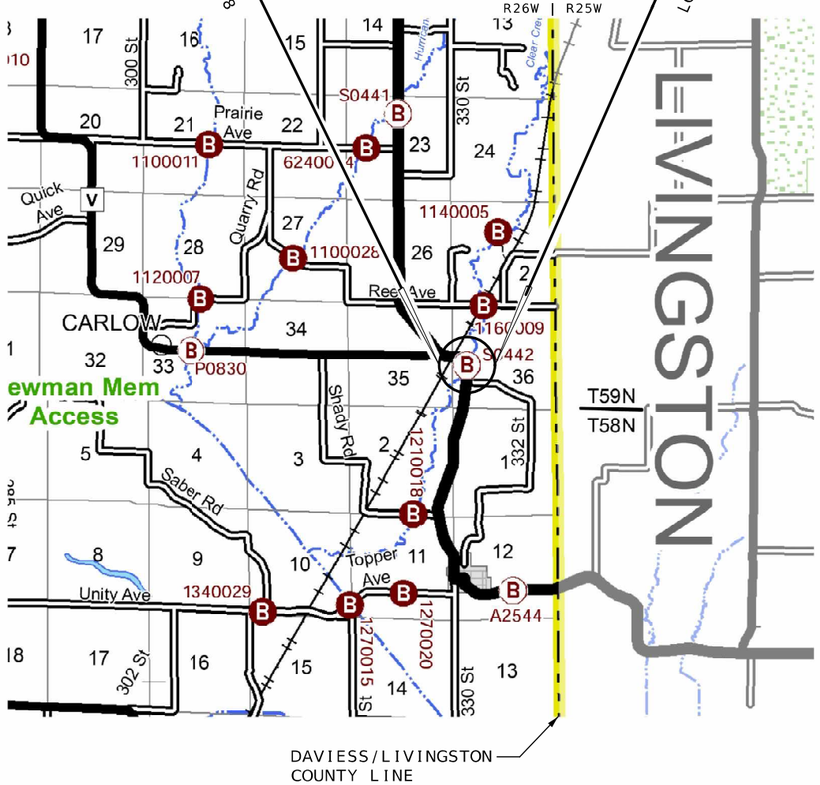
DAVIESS COUNTY

KEY MAP
LOCATION OF DAVIESS COUNTY

JOB NO. JNW0031
GRADING, DRAINAGE, PAVEMENT, AND REPLACE BRIDGE S0442 OVER CLEAR CREEK
LENGTH = 0.229 MILES

BEGIN PROJECT STA. 388+63.23 LOG MILE 19.618

END PROJECT STA. 400+72.78 LOG MILE 19.847



DAVIESS/LIVINGSTON COUNTY LINE

½ 0 1 2
SCALE IN MILES

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

INDEX OF SHEETS

LENGTH OF PROJECT

BEGINNING OF PROJECT	STA.	388+63.23
END OF PROJECT	STA.	400+72.78
APPARENT LENGTH		1209.55 FEET

EQUATIONS AND EXCEPTIONS:
NONE

TOTAL CORRECTIONS	0.00	FEET
NET LENGTH OF PROJECT	1209.55	FEET
STATE LENGTH	0.229	MILES
FOR INFORMATION ONLY ESTIMATED DISTURBED ACRES	1.3	ACRES

STATE OF MISSOURI
BRIAN M. ROSENTHAL
NUMBER PE-2005022151
PROFESSIONAL ENGINEER
Brian M. Rosenthal
07/22/2024 8:12:10 AM
BRIAN M. ROSENTHAL - CIVIL
MO-PE-2005022151

DATE PREPARED
7/16/2024

ROUTE	STATE
190	MO
DISTRICT	SHEET NO.
NW	1

COUNTY
DAVIESS

JOB NO.
JNW0031

CONTRACT ID.

PROJECT NO.

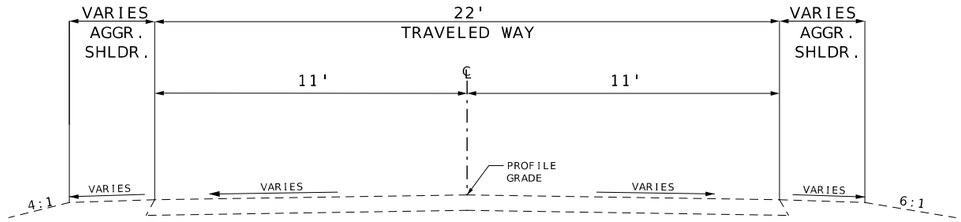
BRIDGE NO.
A9469

DESCRIPTION

DATE

REV.

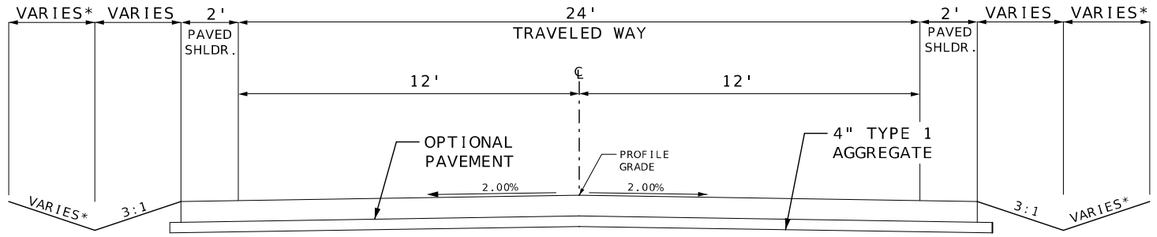
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)



SECTION ON TANGENT

TYPICAL SECTION EXISTING ROUTE 190

STA. 388+63.23 TO STA. 395+20.26
STA. 397+25.33 TO STA. 400+72.78

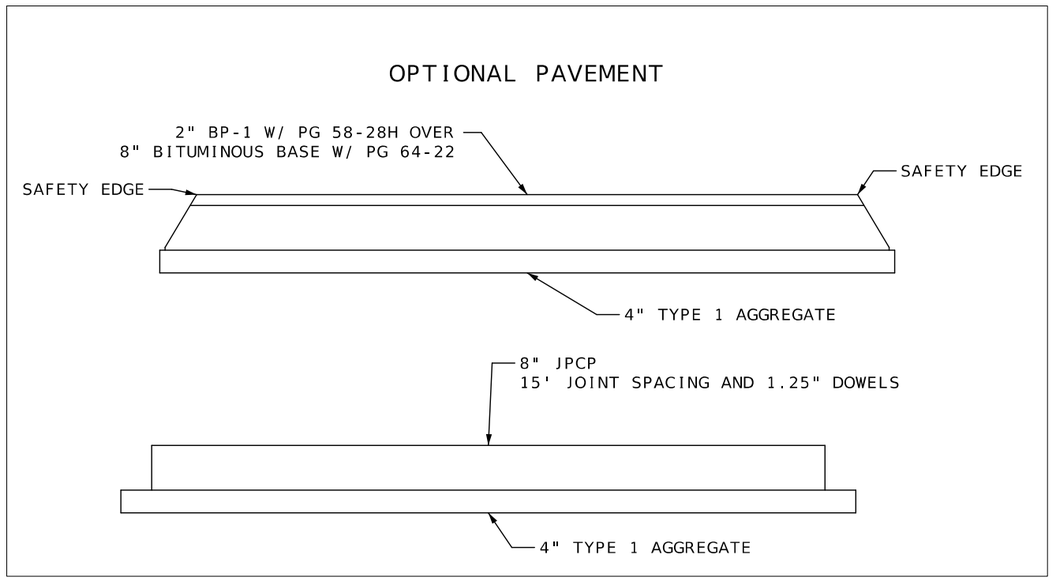


SECTION ON TANGENT

TYPICAL SECTION PROPOSED ROUTE 190

STA. 388+63.23 TO STA. 395+20.26
STA. 397+25.33 TO STA. 400+72.78

* BUILD DITCH:
STA. 388+63.23 TO STA. 389+50.00 LT.
STA. 389+50.00 TO STA. 392+25.00 LT. & RT.
STA. 392+25.00 TO STA. 392+84.80 RT.
STA. 398+50.00 TO STA. 398+72.79 LT.
STA. 400+00.00 TO STA. 400+72.78 LT.



NOT TO SCALE

TYPICAL SECTIONS
SHEET 1 OF 1

STATE OF MISSOURI
BRIAN M. ROSENTHAL
NUMBER PE-2005022151
PROFESSIONAL ENGINEER
Brian M Rosenthal
07/22/2024 8:12:46 AM
BRIAN M. ROSENTHAL - CIVIL
MO-PE-2005022151

DATE PREPARED
7/17/2024

ROUTE	STATE
190	MO
DISTRICT	SHEET NO.
NW	2

COUNTY
DAVIESS

JOB NO.
JNW0031

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9469

DESCRIPTION

DATE

REV.

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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

PAVEMENT							
STA.	STA.	LOC.	LENGTH FT.	WIDTH FT.	OPTIONAL PAVEMENT SY	TYPE 1 AGGREGATE FOR BASE (4 IN. THICK) SY	REMARKS
388+63.23	388+93.23	ROUTE 190	30.0	VARIES	83.33	83.33	WEST PAVEMENT - BEGIN PAVEMENT TAPER 22' TO 28' TOTAL WIDTH
388+93.23	395+20.26	ROUTE 190	627.0	28	1950.67	1950.7	END TAPER TO WEST BRIDGE APPROACH SLAB
397+25.33	400+32.78	ROUTE 190	307.4	28	956.36	956.4	EAST PAVEMENT - END OF EAST BRIDGE APPROACH SLAB TO BEGIN TAPER
400+32.78	400+72.78	ROUTE 190	40.0	VARIES	106.67	106.67	BEGIN PAVEMENT TAPER TO END OF PROJECT - 28' - 20' TOTAL WIDTH
				TOTALS	3097.03	3097.1	
				PAY TOTALS	3097.0	3097	

PAVEMENT MARKINGS						
STA.	STA.	LOC.	LENGTH FT.	4" YELLOW STANDARD WATERBORNE PVMT. MARKING PAINT TYPE P BEADS LF	4" WHITE STANDARD WATERBORNE PVMT. MARKING PAINT TYPE P BEADS LF	REMARKS
388+63.23	402+00.00	ROUTE 190	1336.77	2673.5	-	DOUBLE YELLOW
388+63.23	402+00.00	ROUTE 190 RT. AND LT.	1336.77	-	2673.5	EDGE LINE
			TOTALS	2673.5	2673.5	
			PAY TOTALS	2674	2674	

AGGREGATE							
STA.	STA.	LOC.	LENGTH FT.	WIDTH FT.	DEPTH INCH	VOLUME CY	GRAVEL (A) OR CRUSHED STONE (B) TONS
0+14.00	1+49.95	DRIVEWAY E OF RTE. 190	135.95	10	6	25.18	35.3
						TOTAL	35.3
						PAY TOTAL	35

GUARDRAIL							
STA.	STA.	LOC.	LENGTH FT.	MGS GUARDRAIL LF	MGS BRIDGE APPROACH TRANSITION SECTION (EXTENDED CURB) EACH	TYPE A CRASHWORTHY END TERMINAL (MASH) EACH	REMARKS
393+87.28	395+29.26	ROUTE 190 RT.	141.98	50.0	1	1	W OF BRIDGE
394+29.51	395+28.14	ROUTE 190 LT.	98.63	12.5	1	1	W OF BRIDGE
397+16.44	398+20.36	ROUTE 190 RT.	103.92	12.5	1	1	E OF BRIDGE
397+17.20	398+52.40	ROUTE 190 LT.	135.20	50.0	1	1	E OF BRIDGE
			TOTALS	125.0	4	4	
			PAY TOTALS	125	4	4	

REMOVAL OF IMPROVEMENTS			
STA.	STA.	LOC.	DESCRIPTION
388+63.23	395+39.70	RTE. 190	REMOVE 368 CY OF EXISTING PAVEMENT - WEST OF BRIDGE (INCLUDED IN EARTHWORK)
397+05.24	400+72.78	RTE. 190	REMOVE 200 CY OF EXISTING PAVEMENT - EAST OF BRIDGE (INCLUDED IN EARTHWORK)
398+52.28	398+79.05	RTE. 190 LT.	REMOVE 18" CMP PIPE UNDER DRIVEWAY
394+81.40	395+32.50	RTE. 190 RT. AND LT.	REMOVE 3 TYPE III OBJECT MARKERS - WEST OF BRIDGE
397+30.14	397+91.90	RTE. 190 RT. AND LT.	REMOVE 3 TYPE III OBJECT MARKERS - EAST OF BRIDGE
1 LUMP SUM			

CLEARING AND GRUBBING				
STA.	STA.	LOCATION	AREA (SF)	CLEARING AND GRUBBING (ACRE)
395+35.28	396+55.13	ROUTE 190 LT.	2343.9225	0.054
396+96.13	397+51.21	ROUTE 190 LT.	1054.4204	0.024
			TOTAL	0.078
			PAY TOTAL	1

CONTRACTOR FURNSIHED SURVERYING AND STAKING
LUMP SUM = 1

ADDITIONAL MOBILIZATION FOR SEEDING
4 EACH

MOBILIZATION
LUMP SUM = 1

SUMMARY OF QUANTITIES
SHEET 1 OF 3

STATE OF MISSOURI
BRIAN M. ROSENTHAL
NUMBER PE-2005022151
PROFESSIONAL ENGINEER
Brian M. Rosenthal
07/30/2024 4:24:02 PM
BRIAN M. ROSENTHAL - CIVIL
MO-PE-2005022151

DATE PREPARED
7/30/2024

ROUTE 190 | STATE MO
DISTRICT NW | SHEET NO. 3
COUNTY DAVIESS
JOB NO. JNW0031
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9469

DESCRIPTION | DATE

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

REV.

EARTHWORK

STA.	STA.	LOCATION	FILL VOLUME (CY)	CLASS A EXCAVATION (CY)	COMPACTING EMBANKMENT (CY)	EMBANKMENT IN PLACE (CY)	REMARKS
388+63.23	395+40.26	RTE. 190	481.899	968.1	481.9	-	WEST OF BRIDGE
397+05.33	400+72.78	RTE. 190	545.699	358.0	446.4	99.3	EAST OF BRIDGE
0+14.00	1+49.95	DRIVEWAY E OF BRIDGE	139.275	3.5	2.5	136.8	DRIVEWAY RT. AND LT.
			TOTALS	1329.6	930.8	236.1	
			PAY TOTALS	1330	931	236	

EROSION CONTROL

STA.	STA.	LOCATION	AREA (SF)	SEEDING COOL SEASON GRASSES (ACRE)	MULCHING (ACRE)	SILT FENCE (FT)	TYPE C BERM BERM (LF)	ROCK DITCH CHECK (LF)	SEDIMENT REMOVAL (CY)	REMARKS
388+63.23	395+13.71	ROUTE 190 RT.	4412.9838	0.10	0.10	407.87	-	-	4.1	W OF BRIDGE
388+63.23	395+56.15	ROUTE 190 LT.	7516.8641	0.17	0.17	562.72	-	-	5.6	W OF BRIDGE
388+63.23	-	ROUTE 190 LT.	-	-	-	-	-	8.8	1.0	PLACED AFTER GRADING
390+00.00	-	ROUTE 190 LT.	-	-	-	-	-	13.9	1.0	PLACED AFTER GRADING
390+00.00	-	ROUTE 190 RT.	-	-	-	-	-	11.8	1.0	PLACED AFTER GRADING
391+00.00	-	ROUTE 190 LT.	-	-	-	-	-	15.9	1.0	PLACED AFTER GRADING
391+00.00	-	ROUTE 190 RT.	-	-	-	-	-	14.5	1.0	PLACED AFTER GRADING
392+00.00	-	ROUTE 190 RT.	-	-	-	-	-	7.6	1.0	PLACED AFTER GRADING
396+69.65	400+72.78	ROUTE 190 RT.	4636.3139	0.11	0.11	333.27	-	-	3.3	E OF BRIDGE
396+63.72	398+96.17	ROUTE 190 LT.	4036.0456	0.09	0.09	183.17	-	-	1.8	E OF BRIDGE, W OF DRIVEWAY
399+22.35	400+72.78	ROUTE 190 LT.	829.6253	0.02	0.02	70.22	-	-	0.7	E OF BRIDGE, E OF DRIVEWAY
400+00.00	-	ROUTE 190 LT.	-	-	-	-	-	7.7	1.0	PLACED AFTER GRADING
395+56.15	-	ROUTE 190	-	-	-	-	159.37	-	1.6	W OF BRIDGE
398+69.65	-	ROUTE 190	-	-	-	-	195.37	-	2.0	E OF BRIDGE
0+14.00	1+49.95	DRIVEWAY E OF RTE. 190	1023.5832	0.02	0.02	131.50	-	-	1.3	DRIVEWAY RT.
0+14.00	1+49.95	DRIVEWAY E OF RTE. 190	813.8250	0.02	0.02	99.93	-	-	1.0	DRIVEWAY LT.
			TOTALS	0.53	0.53	1788.7	354.7	80.2	28.4	
			PAY TOTALS	0.5	0.5	1789	355	80	28	

PERMANENT EROSION CONTROL

STA.	STA.	LOCATION	FURNISHING TYPE 2 ROCK BLANKET (CY)	PLACING TYPE 2 ROCK BLANKET (CY)	PERMANENT EROSION CONTROL GEOTEXTILE (SY)	REMARKS
395+20.26	395+58.82	ROUTE 190	187.1	187.1	280.6	WEST OF BRIDGE
396+67.06	397+25.33	ROUTE 190	300.1	300.1	450.1	EAST OF BRIDGE
		TOTALS	487.2	487.2	730.7	
		PAY TOTALS	487	487	731	

DRIVEWAY PIPE

STATION	STATION	LOCATION	18 IN. PIPE GROUP C (L.F.)	18 IN. OR ALLOWED SUBSTITUTE GROUP C FLARED END SECTION (EACH)
398+90.75	399+28.62	DRIVEWAY, ROUTE 190 LT.	27.2	2
		TOTALS	27.2	2
		PAY TOTALS	27	2

SUMMARY OF QUANTITIES
SHEET 2 OF 3

STATE OF MISSOURI
BRIAN M. ROSENTHAL
NUMBER PE-2005022151
PROFESSIONAL ENGINEER
07/30/2024 4:24:33 PM
BRIAN M. ROSENTHAL - CIVIL
MO-PE-2005022151

DATE PREPARED: 7/30/2024
ROUTE: 190 | STATE: MO
DISTRICT: NW | SHEET NO.: 3
COUNTY: DAVIESS
JOB NO.: JNW0031
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: A9469

DESCRIPTION | DATE

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

REV.

EFFECTIVE: 07-01-2024

SIGN	SIZE IN.	AREA SQ.FT.	QTY EACH	TOTAL AREA SQ.FT.	QTY RELOC EACH	TOTAL RELOC SQ.FT.	SIGN NUM.	DESCRIPTION
WARNING SIGNS								
WO1-1L	48X48	16.00						TURN (SYMBOL LEFT)
WO1-1R	48X48	16.00						TURN (SYMBOL RIGHT)
WO1-2L	48X48	16.00						CURVE (SYMBOL LEFT)
WO1-2R	48X48	16.00						CURVE (SYMBOL RIGHT)
WO1-3L	48X48	16.00						REVERSE TURN (SYMBOL LEFT)
WO1-3R	48X48	16.00						REVERSE TURN (SYMBOL RIGHT)
WO1-4L	48X48	16.00						REVERSE CURVE (SYMBOL LEFT)
WO1-4R	48X48	16.00						REVERSE CURVE (SYMBOL RIGHT)
WO1-4bL	48X48	16.00						DOUBLE ARROW REVERSE CURVE (SYMBOL LEFT)
WO1-4bR	48X48	16.00						DOUBLE ARROW REVERSE CURVE (SYMBOL RIGHT)
WO1-4cL	48X48	16.00						TRIPLE ARROW REVERSE CURVE (SYMBOL LEFT)
WO1-4cR	48X48	16.00						TRIPLE ARROW REVERSE CURVE (SYMBOL RIGHT)
WO1-6	60X30	12.50						HORIZONTAL ARROW (SYMBOL)
WO1-6a	72X36	18.00						HORIZ. ARROW (SYMBOL ON PERMANENT BARRICADE)
WO1-7	60X30	12.50						DOUBLE HEAD HORIZONTAL ARROW (SYMBOL)
WO1-7a	72X36	18.00						DOUBLE HEAD HORIZ. ARROW (SYMBOL ON PERM. BARR.)
WO1-8	18X24	3.00						CHEVRON (SYMBOL)
WO1-8a	30X36	7.50						CHEVRON (SYMBOL FOR DIVIDED HIGHWAYS)
WO3-1	48X48	16.00						STOP AHEAD (SYMBOL)
WO3-2	48X48	16.00						YIELD AHEAD (SYMBOL)
WO3-3	48X48	16.00						SIGNAL AHEAD (SYMBOL)
WO3-4	48X48	16.00						BE PREPARED TO STOP
WO3-5	48X48	16.00						SPEED LIMIT AHEAD
WO4-1L	48X48	16.00						MERGE (SYMBOL FROM LEFT)
WO4-1R	48X48	16.00						MERGE (SYMBOL FROM RIGHT)
WO4-1aL	48X48	16.00						MERGE (LEFT)
WO4-1aR	48X48	16.00						MERGE (RIGHT)
WO5-1	48X48	16.00						ROAD/BRIDGE/RAMP NARROWS
WO5-3	48X48	16.00						ONE LANE BRIDGE
WO5-5	48X48	16.00						NARROW LANES
WO6-1	48X48	16.00						DIVIDED HIGHWAY (SYMBOL)
WO6-2	48X48	16.00						DIVIDED HIGHWAY END (SYMBOL)
WO6-3	48X48	16.00						TWO WAY TRAFFIC (SYMBOL)
WO7-3a	30X24	5.00						NEXT XX MILES (PLAQUE)
WO8-1	48X48	16.00						BUMP
WO8-2	48X48	16.00						DIP
WO8-3	48X48	16.00						PAVEMENT ENDS
WO8-4	48X48	16.00						SOFT SHOULDER
WO8-5	48X48	16.00						SLIPPERY WHEN WET (SYMBOL)
WO8-6	48X48	16.00						TRUCK CROSSING
WO8-6c	48X48	16.00						TRUCK ENTRANCE
WO8-7	36X36	9.00						LOOSE GRAVEL
WO8-7a	36X36	9.00						FRESH OIL / LOOSE GRAVEL
WO8-9	48X48	16.00						LOW SHOULDER
WO8-11	48X48	16.00						UNEVEN LANES
WO8-12	48X48	16.00						NO CENTER LINE
WO8-15	48X48	16.00						GROOVED PAVEMENT
WO8-15P	30X24	5.00						MOTORCYCLE (PLAQUE)
WO8-17L	48X48	16.00						SHOULDER DROP-OFF (SYMBOL LEFT)
WO8-17R	48X48	16.00						SHOULDER DROP-OFF (SYMBOL RIGHT)
WO8-17P	30X24	5.00						SHOULDER DROP-OFF (PLAQUE)
W10-1	42RND.	9.62						RAILROAD CROSSING
WO12-1	24X24	4.00						DOUBLE DOWN ARROW (SYMBOL)
WO12-2	48X48	16.00						LOW CLEARANCE (SYMBOL)
WO12-2x	24X18	3.00						LOW CLEARANCE (PLAQUE)
WO12-2a	84X24	14.00						OVERHEAD LOW CLEARANCE (FEET AND INCHES)
WO12-4	120X60	50.00						LOW CLEARANCE XX FT XX IN XX MILES AHEAD
WO12-5	120X60	50.00						WIDTH RESTRICTION XX FT XX IN XX MILES AHEAD
WO13-1	30X30	6.25						ADVISORY SPEED (PLAQUE)
WO16-2	30X24	5.00						XXX FEET (PLAQUE)
WO16-3	30X24	5.00						X MILE (PLAQUE)
WO20-1	48X48	16.00						ROAD/BRIDGE/RAMP WORK AHEAD
WO20-2	48X48	16.00						DETOUR AHEAD
WO20-3	48X48	16.00	3	48			20	ROAD CLOSED AHEAD
WO20-3a	48X48	16.00	2	32			20a	ROAD CLOSED AHEAD 500 FT
WO20-5	48X48	16.00						RIGHT/CENTER/LEFT LANE CLOSED AHEAD
WO20-5a	48X48	16.00						2 RIGHT/CENTER/LEFT LANES CLOSED AHEAD
WO20-6a	48X48	16.00						RIGHT/CENTER/LEFT LANE CLOSED
WO20-7a	48X48	16.00						FLAGGER (SYMBOL)
WO21-2	36X36	9.00						FRESH OIL
WO21-5	48X48	16.00						SHOULDER WORK / SHOULDER WORK AHEAD
WO22-1	48X48	16.00						BLASTING ZONE AHEAD
WO22-2	42X36	10.50						TURN OFF 2-WAY RADIO AND PHONE
WO22-3	42X36	10.50						END BLASTING ZONE
GO22-1	21X15	2.19						WET PAINT (ARROW PIVOTS)

SIGN	SIZE IN.	AREA SQ.FT.	QTY EACH	TOTAL SQ.FT.	QTY RELOC EACH	TOTAL RELOC SQ.FT.	SIGN NUM.	DESCRIPTION
GUIDE SIGNS								
E05-1	36X48	12.00						GORE EXIT
E05-2	48X36	12.00						EXIT OPEN
E05-2a	48X36	12.00						EXIT CLOSED
GO20-1	60X24	10.00						ROAD WORK NEXT XX MILES
GO20-2	48X24	8.00						END ROAD WORK
GO20-4	36X18	4.50						PILOT CAR FOLLOW ME
GO20-4a	42X30	8.75						PILOT CAR IN USE WAIT & FOLLOW
GO20-4a	18X12	1.50						PILOT CAR IN USE WAIT & FOLLOW
GO20-5aP	36X24	6.00						WORK ZONE (PLAQUE)
MO4-8a	24X18	3.00	4	12			52	END DETOUR
MO4-9L	48X36	12.00						DETOUR (LEFT)
MO4-9R	48X36	12.00						DETOUR (RIGHT)
MO4-9P	48X12	4.00						STREET NAME (PLAQUE)
MO4-10L	48X18	6.00						DETOUR ARROW (LEFT)
MO4-10R	48X18	6.00						DETOUR ARROW (RIGHT)
REGULATORY SIGNS								
R1-1	48X48	13.25						STOP
R1-2	48TRI.	6.93						YIELD
R1-2a	36X36	9.00						TO ONCOMING TRAFFIC (PLAQUE)
R1-3P	30X12	2.50						ALL WAY (PLAQUE)
R2-1	36X48	12.00						SPEED LIMIT XX
R3-1	48X48	16.00						NO RIGHT TURN (SYMBOL)
R3-2	48X48	16.00						NO LEFT TURN (SYMBOL)
R3-3	36X36	9.00						NO TURNS
R3-4	48X48	16.00						NO U-TURN (SYMBOL)
R3-7L	30X30	6.25						LEFT LANE MUST TURN LEFT
R3-7R	30X30	6.25						RIGHT LANE MUST TURN RIGHT
R4-1	36X48	12.00						DO NOT PASS
R4-2	36X48	12.00						PASS WITH CARE
R4-7a	36X48	12.00						KEEP RIGHT (HORIZONTAL ARROW)
R4-8a	36X48	12.00						KEEP LEFT (HORIZONTAL ARROW)
R5-1	30X30	6.25						DO NOT ENTER
R5-1a	36X24	6.00						WRONG WAY
R6-1L	54X18	6.75						ONE WAY ARROW (LEFT)
R6-1R	54X18	6.75						ONE WAY ARROW (RIGHT)
R6-2L	24X30	5.00						ONE WAY (LEFT)
R6-2R	24X30	5.00						ONE WAY (RIGHT)
R9-9	24X12	2.00						SIDEWALK CLOSED
R9-11L	24X18	3.00						SIDEWALK CLOSED AHEAD, (ARROW LEFT) CROSS HERE
R9-11R	24X18	3.00						SIDEWALK CLOSED AHEAD, (ARROW RIGHT) CROSS HERE
R10-6	24X36	6.00						STOP HERE ON RED (45^ ARROW)
R11-2	48X30	10.00	2	20			29	ROAD CLOSED
R11-3a	60X30	12.50	3	37.5			55 56 57	ROAD CLOSED XX MILES AHEAD LOCAL TRAFFIC ONLY
R11-4	60X30	12.50	2	25			60	ROAD CLOSED TO THRU TRAFFIC
CONST-3A	60X48	20.00						FINE SIGN
CONST-3X	56X12	4.67						SPEEDING/PASSING (PLATE)
MISCELLANEOUS SIGNS								
CONST-5	48X36	12.00						POINT OF PRESENCE
CONST-5	96X48	32.00						POINT OF PRESENCE
CONST-8	48X36	12.00						WORK ZONE NO PHONE ZONE
SPECIAL	36X72	18.00	2	36			58a	DETOUR ASSEMBLY
SPECIAL	36X72	18.00	1	18			58b	DETOUR ASSEMBLY
SPECIAL	36X72	18.00	14	252			58c	DETOUR ASSEMBLY
SPECIAL	36X72	18.00	4	72			58d	DETOUR ASSEMBLY
SPECIAL	36X72	18.00	5	90			58e	DETOUR ASSEMBLY
SPECIAL	36X72	18.00	4	72			59a	DETOUR ASSEMBLY
SPECIAL	36X72	18.00	3	54			59b	DETOUR ASSEMBLY
SPECIAL	36X72	18.00	15	270			59c	DETOUR ASSEMBLY

616-10.05 CONSTRUCTION SIGNS	TOTAL
	1039*

616-10.10 RELOCATED SIGNS	TOTAL
	0

ITEM NUMBER	TOTAL QTY	DESCRIPTION
6122008		IMPACT ATTENUATOR 40 MPH (SAND BARRELS)
6122009		IMPACT ATTENUATOR 45 MPH (SAND BARRELS)
6122010		IMPACT ATTENUATOR 50 MPH (SAND BARRELS)
6122012		IMPACT ATTENUATOR 55 MPH (SAND BARRELS)
6122014		IMPACT ATTENUATOR 60 MPH (SAND BARRELS)
6122017		IMPACT ATTENUATOR 65 MPH (SAND BARRELS)
6122019		IMPACT ATTENUATOR 70 MPH (SAND BARRELS)
6122020		REPLACEMENT SAND BARREL
6122030		IMPACT ATTENUATOR (RELOCATION)
6123001		TRUCK MOUNTED ATTENUATOR (TMA)
6161008		ADVANCED WARNING RAIL SYSTEM
6161012		BUOYS (BOATS KEEP OUT)
6161013		BUOYS (NO WAKE)
6161014		SPECIAL SIGN ASSEMBLY (BOATS KEEP OUT)
6161025		CHANNELIZER (TRIM LINE)
6161030	10*	TYPE III MOVEABLE BARRICADE
6161033		DIRECTION INDICATOR BARRICADE
6161040		FLASHING ARROW PANEL
6161047		TYPE III OBJECT MARKER
6161055		SEQUENTIAL FLASHING WARNING LIGHT
6161070		TUBULAR MARKER
6161095		RADAR SPEED ADVISORY SYSTEM
6161096		CHANGEABLE MESSAGE SIGN, COMMISSION FURNISHED/RETAINED
6161098A	1	CHANGEABLE MESSAGE SIGN W/O COMM. INTERFACE - CONTRACTOR FURNISHED/RETAINED
6161099		CHANGEABLE MESSAGE SIGN WITH COMM. INTERFACE - CONTRACTOR FURNISHED/RETAINED
6162000A		WORK ZONE TRAFFIC SIGNAL SYSTEM
6162002		TEMPORARY LONG-TERM RUMBLE STRIPS
6173600D		TEMPORARY TRAFFIC BARRIER CONTRACTOR FURNISHED/RETAINED
6173602B		TEMPORARY TRAFFIC BARRIER CONTRACTOR FURNISHED/COMMISSION RETAINED
6174000A		TEMP. TRAFFIC BARRIER HEIGHT TRANSITION
6175010A		RELOCATING TEMPORARY TRAFFIC BARRIER
6176000B		TEMPORARY TRAFFIC BARRIER COMMISSION FURNISHED/RETAINED
6177000B		TEMP. TRAFFIC BARRIER HEIGHT TRANSITION COMMISSION FURNISHED/RETAINED
6208064A		TEMPORARY RAISED PAVEMENT MARKER
9029400		TEMPORARY TRAFFIC SIGNALS
9029401		TEMPORARY TRAFFIC SIGNALS AND LIGHTING

616-99.01 - MISC. LUMP SUM TEMPORARY TRAFFIC CONTROL
1 LUMP SUM

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

SUMMARY OF QUANTITIES
SHEET 3 OF 3

STATE OF MISSOURI
BRIAN M. ROSENTHAL
NUMBER PE-2005022151
PROFESSIONAL ENGINEER
Brian M. Rosenthal
07/22/2024 8:17:41 AM
BRIAN M. ROSENTHAL - CIVIL
MO-PE-2005022151

DATE PREPARED: 7/22/2024
ROUTE: 190 | STATE: MO
DISTRICT: NW | SHEET NO.: 3
COUNTY: DAVIESS
JOB NO.: JNW0031
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: A9469

DESCRIPTION | DATE | REV.

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

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	MODIFIED STATE PLANE
HORIZONTAL DATUM	NAD 83
VERTICAL DATUM	NAVD88
GEOID MODEL	GEOID18
ELEVATIONS DETERMINED BY	JAYSON POTTS PLS WILSON & COMPANY
PROJECT PROJECTION FACTOR	1.0000421313

REFERENCE CONTROL INFORMATION

COORDINATE SYSTEM	MODIFIED STATE PLANE
CONTROL STATION	MODOT GNSS
DESIGNATION	MODOT CHILLICOTHE CORS ARP
CORS_ID	MOCE
PID	DM4116
LATITUDE	39:46'09.03941"
LONGITUDE	93:32'20.88450"
NORTHING (M)	437,337.854
EASTING (M)	410,971.271
ZONE	2403 (MO-WEST)
PROJECT AVERAGE GRID FACTOR	0.99997994025

EXAMPLE OF PROJECT COORDINATE TO S.P.C.

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

EXAMPLE: CONTROL POINT #1
N 1351662.682 X 0.99997994025 = N 1351635.568
E 2991795.532 X 0.99997994025 = E 2991735.517

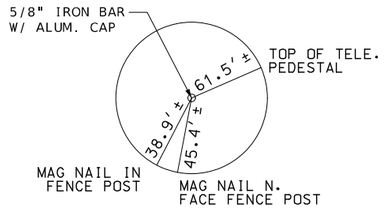
LINEAR UNIT CONVERSION

1 METER = 3.280833333 US SURVEY FEET (USFT)

COORDINATE POINT LISTING

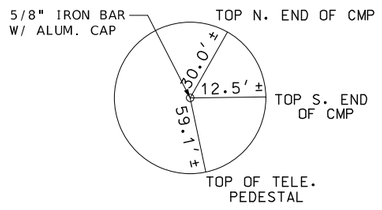
SHEET NO	STATION	LOCATION	OFFSET (USFT)	MODIFIED STATE PLANE (GROUND) NORTHING (US SURVEY FT)	EASTING (US SURVEY FT)	ELEVATION (US SURVEY FT)	DESCRIPTION	GPK POINT ID
PROJECT CONTROL POINTS								
5	405+04.88	RTE.190	24.86 RT.	1351662.682	2991795.532	742.79	5/8" IRON BAR WITH ALUMINUM CAP	CP#1
5	398+78.27	RTE.190	14.44 LT.	1352280.321	2991904.299	735.19	5/8" IRON BAR WITH ALUMINUM CAP	CP#2
5	393+07.46	RTE.190	14.78 LT.	1352796.622	2991681.295	735.52	5/8" IRON BAR WITH ALUMINUM CAP	CP#3
5	388+68.02	RTE.190	14.79 RT.	1352900.528	2991259.158	732.95	5/8" IRON BAR WITH ALUMINUM CAP	CP#4
ALIGNMENTS								
5	389+81.90	RTE.190	℄	1352904.257	2991373.939	729.58	ROUTE 190 P.C.	190 PC
5	398+90.60	RTE.190	℄	1352270.351	2991888.789	729.58	ROUTE 190 P.T.	190 PT
7	0+32.00	DRIVEWAY	℄	1352247.715	2991918.449	732.98	DRIVEWAY P.C.	DW PC
7	0+98.18	DRIVEWAY	℄	1352272.199	2991976.884	734.35	DRIVEWAY P.R.C.	DW PRC
7	1+49.95	DRIVEWAY	℄	1352299.187	2992019.864	733.28	DRIVEWAY P.T.	DW PT

CP#1
℄ ROUTE 190
STA. 405+04.88
OFFSET 24.86' RT.



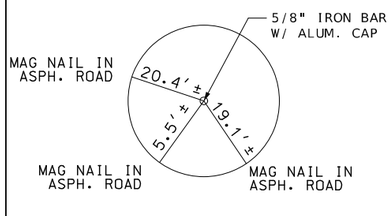
N = 1351662.682
E = 2991795.532
ELEV = 742.79

CP#2
℄ ROUTE 190
STA. 398+78.27
OFFSET 14.44' LT.



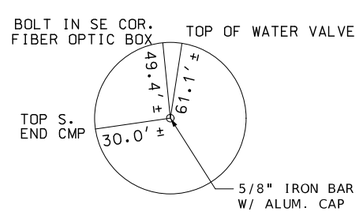
N = 1352280.321
E = 2991904.299
ELEV = 735.19

CP#3
℄ ROUTE 190
STA. 393+07.46
OFFSET 14.78' LT.



N = 1352796.622
E = 2991681.295
ELEV = 735.52

CP#4
℄ ROUTE 190
STA. 388+68.02
OFFSET 14.79' RT.



N = 1352900.528
E = 2991259.158
ELEV = 732.95

COORDINATE AND REFERENCE POINTS
SHEET 1 OF 1

STATE OF MISSOURI
BRIAN M. ROSENTHAL
NUMBER PE-2005022151
PROFESSIONAL ENGINEER
Brian M. Rosenthal
07/22/2024 8:18:20 AM
BRIAN M. ROSENTHAL - CIVIL
MO-PE-2005022151

DATE PREPARED
7/15/2024

ROUTE	STATE
190	MO
DISTRICT	SHEET NO.
NW	4

COUNTY
DAVIESS

JOB NO.
JNW0031

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9469

DESCRIPTION | DATE

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

REV.

UTILITY COMPANIES

GREEN HILLS COMPANIES
7926 NORTHEAST STATE ROUTE M
BRECKENRIDGE, MO 64625
(660) 644-5411

LIVINGSTON COUNTY PWSD 4
4100 OKLAHOMA AVENUE
TRENTON, MO 64683
(660) 646-8207

$NW^4SW^4$36
T59W R26W

$SW^4NW^4$36
T59W R26W

1/4-1/4 SECTION LINE

℄ RTE. 190

PI	395+63.18
PC	389+81.90
PT	398+90.60
Δ	90°45'8.8" (RT)
D	9°59'13.4"
L	908.70' (ARC)
T	581.28'
R	573.70'

COLBY DIXON, DREW DIXON,
AND WADE DIXON

EXIST. R/W

EXIST. PERM. ESM'T.
(CHANNEL CHANGE)

+25.00
200.0'

+25.00
350.0'

+25.00
50.0'

+95.00
50.0'

+05.00
50.0'

+00.00
50.0'

+95.00
100.0'

+05.00
100.0'

+50.00
30'-50'

PC STA 389+81.90

PT STA 398+90.60

CP#3

CP#4

CP#2

S.L.

FO

W

STA. 395+20.26
TO STA. 395+40.26
BRIDGE APPROACH SLAB
(MINOR ROAD)

STA. 395+40.26 ℄ ROUTE 190
BUILD BRIDGE A9469
39'-39'-54'-30' PRESTRESSED CONCRETE SPREAD BOX BEAM SPANS
28' ROADWAY
DRAINAGE AREA = 19.6 SQUARE MILES
Q_{50} = 7,010 C.F.S.
Q_{0} = 10,810 C.F.S.

STA. 395+47.49 ℄ EXISTING ROUTE 190
REMOVE BRIDGE S0442
1-25' D.G. SPAN, 2-45' D.G. SPANS, 1-25' D.G. SPAN
20' ROADWAY, ∠1°22' R.A.

CLEAR CREEK

+00.00
200.0'

+25.00
200.0'

+54.98
206.2'

+17.97
440.9'

+63.10
395.2'

EXIST. PERM. ESM'T.
(CHANNEL CHANGE)

BEGIN PROJECT STA. 388+63.23 ℄ RTE. 190

IMPROVEMENT BEGINS AT A POINT 2628.90' NORTH AND 155.93'
EAST OF THE SOUTHWEST CORNER OF
SECTION 36, T59N, R26W.

RIGHT OF WAY LIMITS FOR THIS PROJECT
EXTEND FROM STA. 398+19.07 TO STA.
399+36.76 A DISTANCE OF 0.022 MILES.

ANY WORK INDICATED ON THE PLANS THAT
EXTENDS BEYOND THE PROJECT LIMITS IS
CONSIDERED INCIDENTAL TO AND A PART
OF THE CONSTRUCTION OF THIS PROJECT.

ALL BEARINGS BASED ON STATE PLANE
COORDINATES, MISSOURI WEST ZONE.

SCALE
0 40 80 120

EXISTING R.R. R/W

SECTION LINE

EXIST. R/W

EXIST. PERM. ESM'T.
(CHANNEL CHANGE)

+25.00
50.0'

+25.00
50.0'

TYPE I DRWY. LT.
STA. 399+09.03
10' TOP
18" GROUP C PIPE

TEMPORARY EASEMENT		
SEGMENT ID	LENGTH (FT.)	BEARING
(1)	94.58	N50°36'01"E
(2)	64.76	S18°47'39"E
(3)	87.74	S38°39'07"W
(4)	66.40	N81°45'33"W

(1)

SANDRA DUSTMAN
0.19 ACRES TEMP. ESM'T.
(DRIVEWAY)
140.00 ACRES REMAINING

+19.07
121.2'

+13.37
50.0'

+68.39
143.7'

TEMPORARY EASEMENT
(DRIVEWAY)

+90.60
50'-30'

+36.76
96.4'

+34.63
30.0'

DND

400

STA. 397+05.33
TO STA. 397+25.33
BRIDGE APPROACH SLAB
(MINOR ROAD)

+90.60
50'-30'

END PROJECT STA. 400+72.78

IMPROVEMENT ENDS AT A POINT 1786.47' NORTH AND 693.29'
EAST OF THE SOUTHWEST CORNER OF
SECTION 36, T59N, R26W.

BENCHMARK

BM (BM10) - (NAVD 88); ELEVATION BASED UPON RTK GPS OBSERVATION OF MODOT CHILLICOTHE GEOGRAPHIC REFERENCE SYSTEM STATION CORS ARP. RIVET AND WASHER IN TOP OF SW BRIDGE ABUTMENT WALL.
11.78' LEFT OF STATION 396+96.99 ℄ ROUTE 190; ELEV. 737.31'

BM (CPT2) - (NAVD 88); ELEVATION BASED UPON RTK GPS OBSERVATION OF MODOT CHILLICOTHE GEOGRAPHIC REFERENCE SYSTEM STATION CORS ARP. 5/8" IRON BAR W/ ALUMINUM CAP
14.44' LEFT OF STATION 398+79.27 ℄ ROUTE 190; ELEV. 735.19'

PLAN
SHEET 1 OF 1

STATE OF MISSOURI
BRIAN M. ROSENTHAL
NUMBER PE-2005022151
PROFESSIONAL ENGINEER
07/22/2024 8:19:47 AM
BRIAN M. ROSENTHAL - CIVIL
MO-PE-2005022151

DATE PREPARED
7/22/2024

ROUTE	STATE
190	MO
DISTRICT	SHEET NO.
NW	5

COUNTY
DAVIESS

JOB NO.
JNW0031

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9469

DESCRIPTION

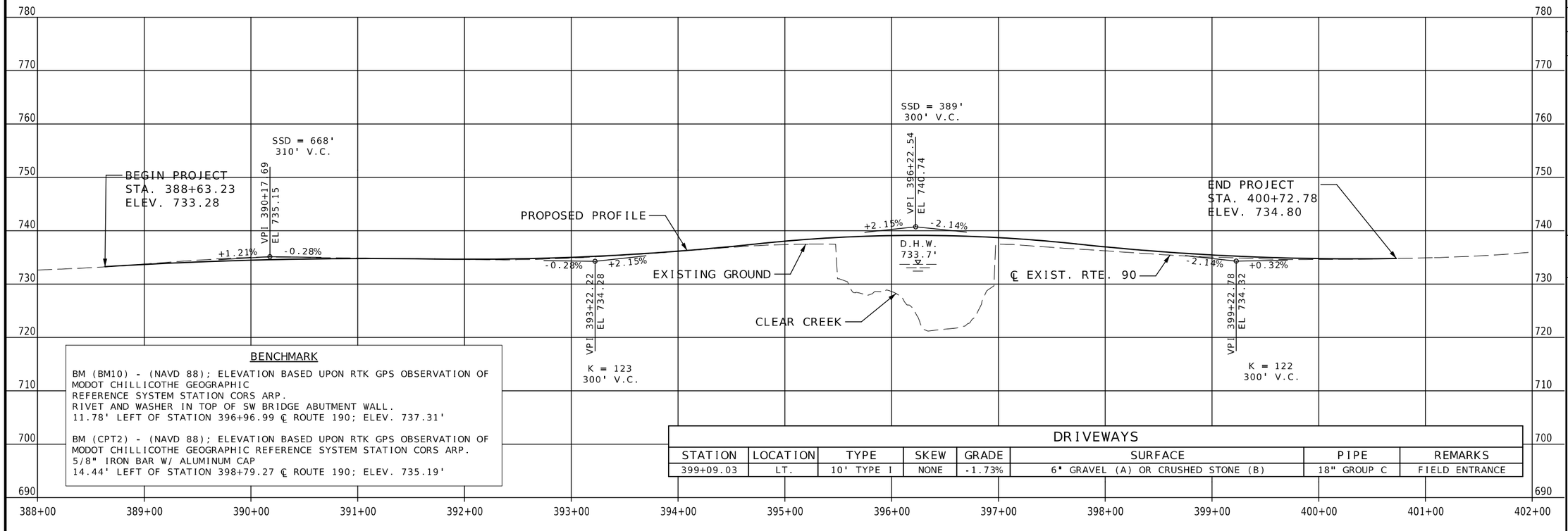
DATE

REV.

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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

PROPOSED CENTERLINE PROFILE



BENCHMARK

BM (BM10) - (NAVD 88); ELEVATION BASED UPON RTK GPS OBSERVATION OF MODOT CHILLICOTHE GEOGRAPHIC
REFERENCE SYSTEM STATION CORS ARP.
RIVET AND WASHER IN TOP OF SW BRIDGE ABUTMENT WALL.
11.78' LEFT OF STATION 396+96.99 ℄ ROUTE 190; ELEV. 737.31'

BM (CPT2) - (NAVD 88); ELEVATION BASED UPON RTK GPS OBSERVATION OF MODOT CHILLICOTHE GEOGRAPHIC REFERENCE SYSTEM STATION CORS ARP.
5/8" IRON BAR W/ ALUMINUM CAP
14.44' LEFT OF STATION 398+79.27 ℄ ROUTE 190; ELEV. 735.19'

DRIVEWAYS

STATION	LOCATION	TYPE	SKEW	GRADE	SURFACE	PIPE	REMARKS
399+09.03	LT.	10' TYPE I	NONE	-1.73%	6" GRAVEL (A) OR CRUSHED STONE (B)	18" GROUP C	FIELD ENTRANCE

ROUTE 190 PROFILE
SHEET 1 OF 1

STATE OF MISSOURI
BRIAN M. ROSENTHAL
NUMBER PE-2005022151
PROFESSIONAL ENGINEER
Brian M. Rosenthal
07/22/2024 8:20:21 AM
BRIAN M. ROSENTHAL - CIVIL
MO-PE-2005022151

DATE PREPARED
7/17/2024

ROUTE	STATE
190	MO

DISTRICT	SHEET NO.
NW	6

COUNTY
DAVIESS

JOB NO.
JNW0031

CONTRACT ID.

PROJECT NO.

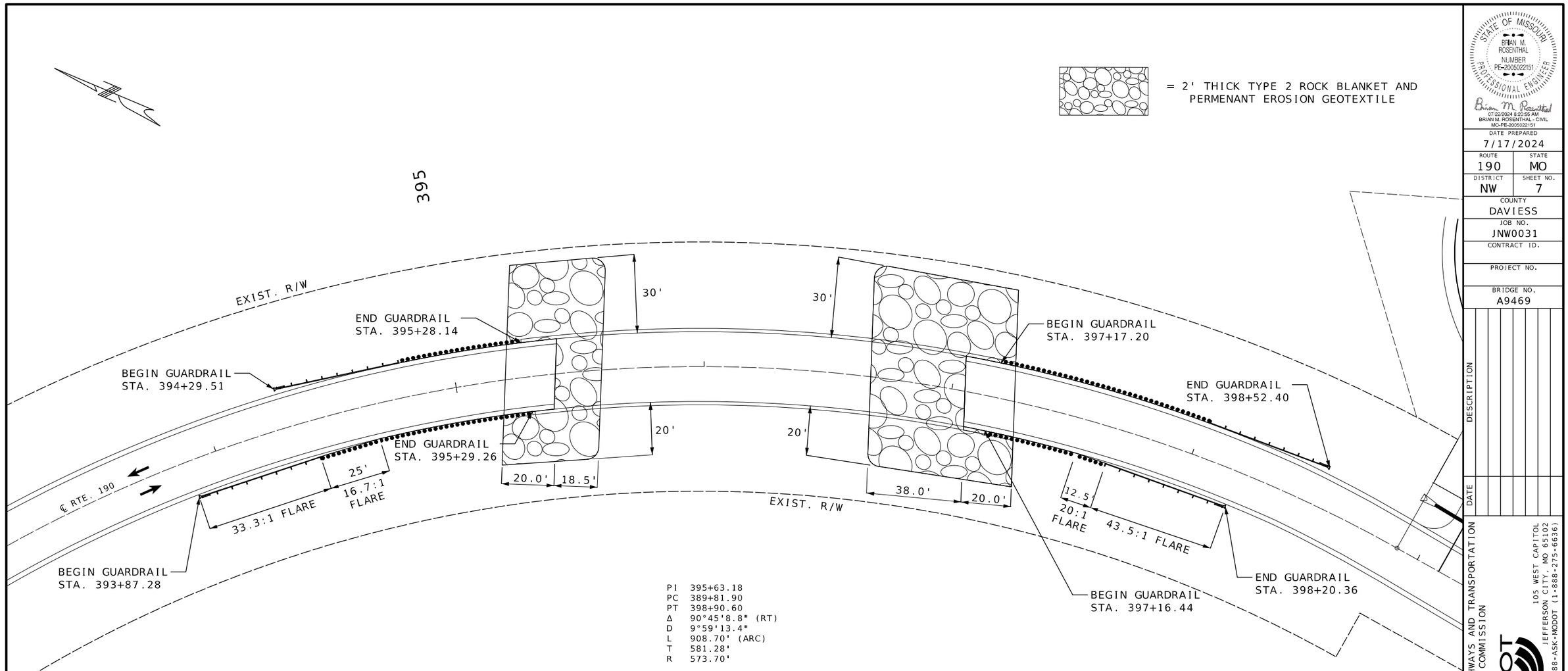
BRIDGE NO.
A9469

DESCRIPTION

DATE

REV.

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



PI 395+63.18
PC 389+81.90
PT 398+90.60
Δ 90°45'8.8" (RT)
D 9°59'13.4"
L 908.70' (ARC)
T 581.28'
R 573.70'

BUILD

FROM STA. 393+87.28 TO STA. 395+29.26 RT.
1 BRIDGE APPROACH TRANSITION SECTION (EXTENDED CURB), 50' MGS GUARDRAIL,
1 TYPE A CRASHWORTHY END TERMINAL

FROM STA. 394+29.51 TO STA. 395+28.14 LT.
1 BRIDGE APPROACH TRANSITION SECTION (EXTENDED CURB), 12.5' MGS GUARDRAIL,
1 TYPE A CRASHWORTHY END TERMINAL

FROM STA. 397+16.44 TO STA. 398+20.36 RT.
1 BRIDGE APPROACH TRANSITION SECTION (EXTENDED CURB), 12.5' MGS GUARDRAIL,
1 TYPE A CRASHWORTHY END TERMINAL

FROM STA. 397+17.20 TO STA. 398+52.40 LT.
1 BRIDGE APPROACH TRANSITION SECTION (EXTENDED CURB), 50' MGS GUARDRAIL,
1 TYPE A CRASHWORTHY END TERMINAL

SCALE
0 20 40 60

GUARDRAIL PLAN
SPECIAL SHEET 1 OF 2

STATE OF MISSOURI
BRIAN M. ROSENTHAL
NUMBER PE-2005022151
PROFESSIONAL ENGINEER
07/22/2024 8:20:55 AM
BRIAN M. ROSENTHAL - CIVIL
MO-PE-2005022151

DATE PREPARED
7/17/2024

ROUTE	STATE
190	MO
DISTRICT	SHEET NO.
NW	7

COUNTY
DAVIESS

JOB NO.
JNW0031

CONTRACT ID.

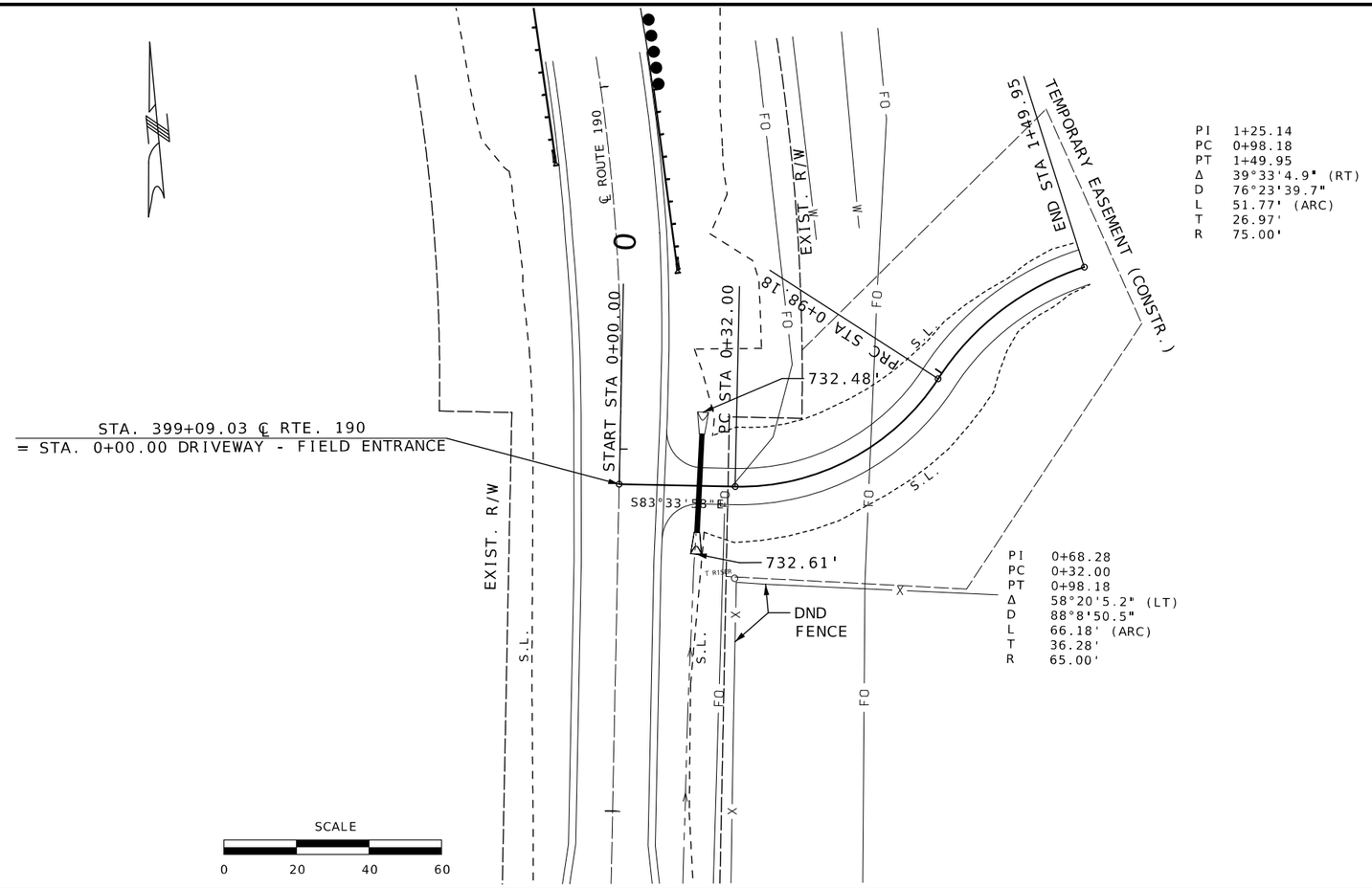
PROJECT NO.

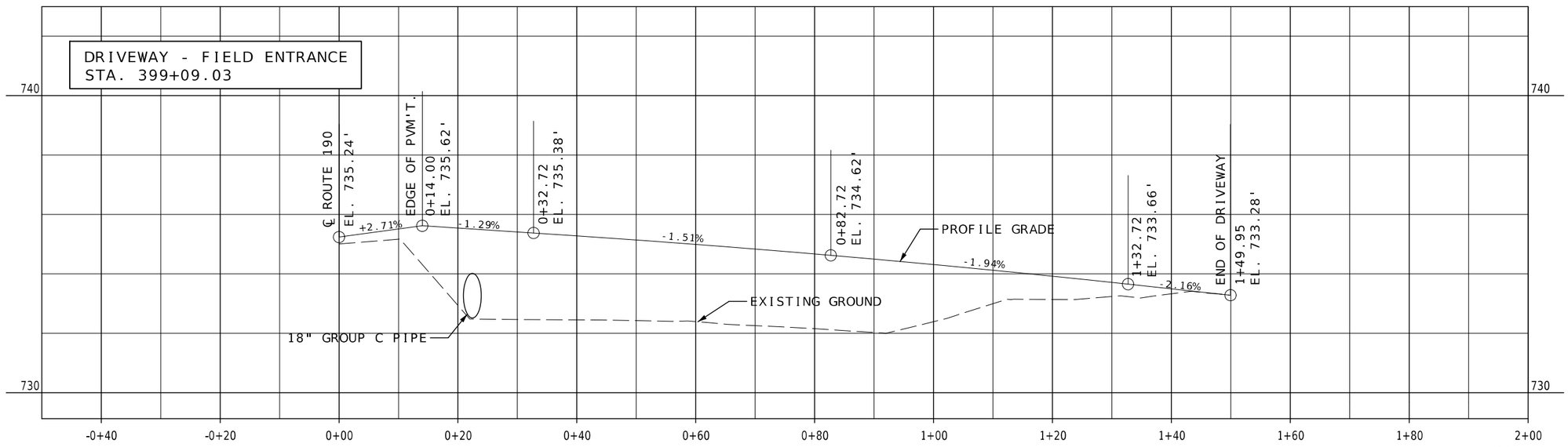
BRIDGE NO.
A9469

DESCRIPTION	DATE

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

REV.





DRIVEWAY DETIALS
SPECIAL SHEET 2 OF 2

STATE OF MISSOURI
BRIAN M. ROSENTHAL
NUMBER PE-2005022151
PROFESSIONAL ENGINEER
Brian M. Rosenthal
07/22/2024 8:21:30 AM
BRIAN M. ROSENTHAL - CIVIL
MO-PE-2005022151

DATE PREPARED
7/17/2024

ROUTE	STATE
190	MO
DISTRICT	SHEET NO.
NW	8

COUNTY
DAVIESS

JOB NO.
JNW0031

CONTRACT ID.

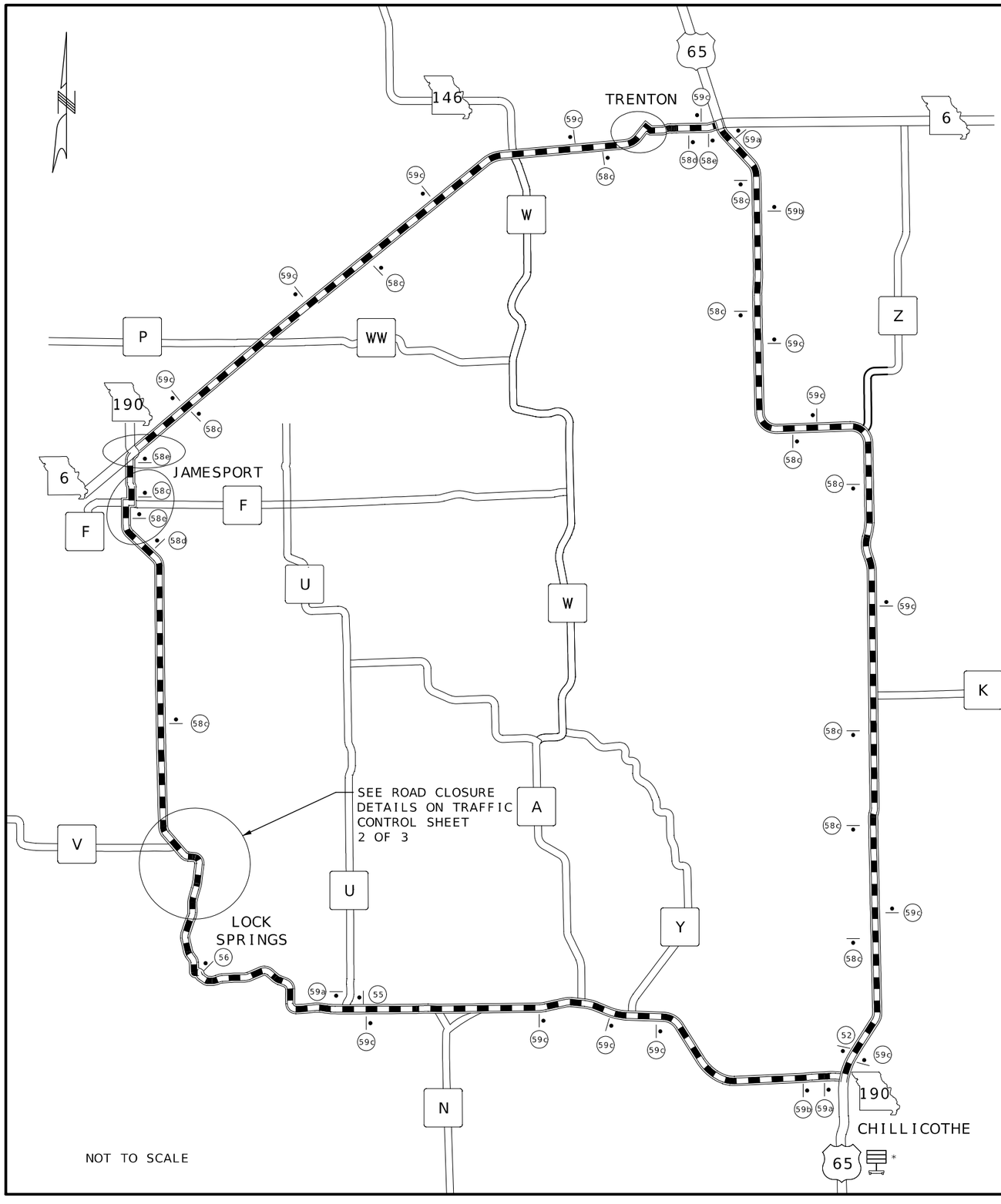
PROJECT NO.

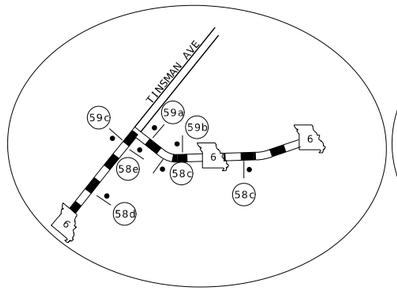
BRIDGE NO.
A9469

DESCRIPTION	DATE

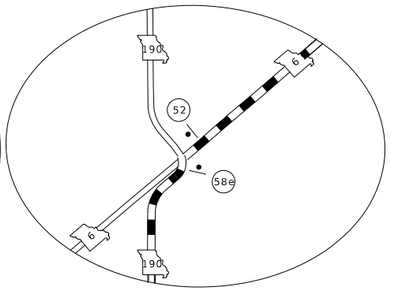
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

REV.

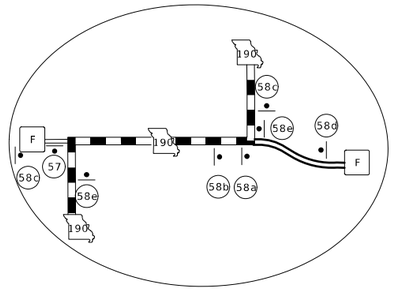




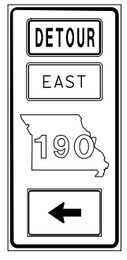
DETAIL
ROUTE 6 IN TRENTON



DETAIL
ROUTE 190 & ROUTE 6
NORTH OF JAMESPORT



DETAIL
ROUTE 190 & ROUTE F
IN JAMESPORT



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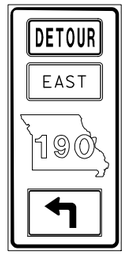

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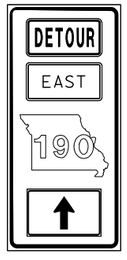

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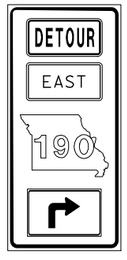

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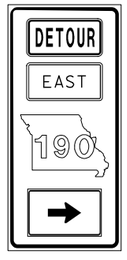
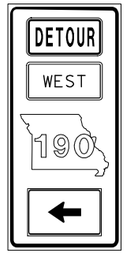


58e

MO4-8a
52



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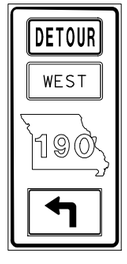

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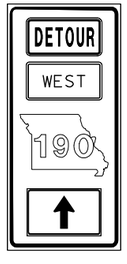


59c

R11-3a
55

R11-3a
56

R11-3a
57

= CHANGEABLE MESSAGE SIGN

* MO 190 CLOSED 2 MILES NORTH OF LOCK SPRINGS

TRAFFIC CONTROL PLAN
DETOUR
SHEET 1 OF 3

STATE OF MISSOURI
BRIAN M. ROSENTHAL
NUMBER PE-2005022151
PROFESSIONAL ENGINEER
07/22/2024 8:22:03 AM
BRIAN M. ROSENTHAL - CIVIL
MO-PE-2005022151

DATE PREPARED
7/17/2024

ROUTE	STATE
190	MO

DISTRICT	SHEET NO.
NW	9

COUNTY
DAVIESS

JOB NO.
JNW0031

CONTRACT ID.

PROJECT NO.

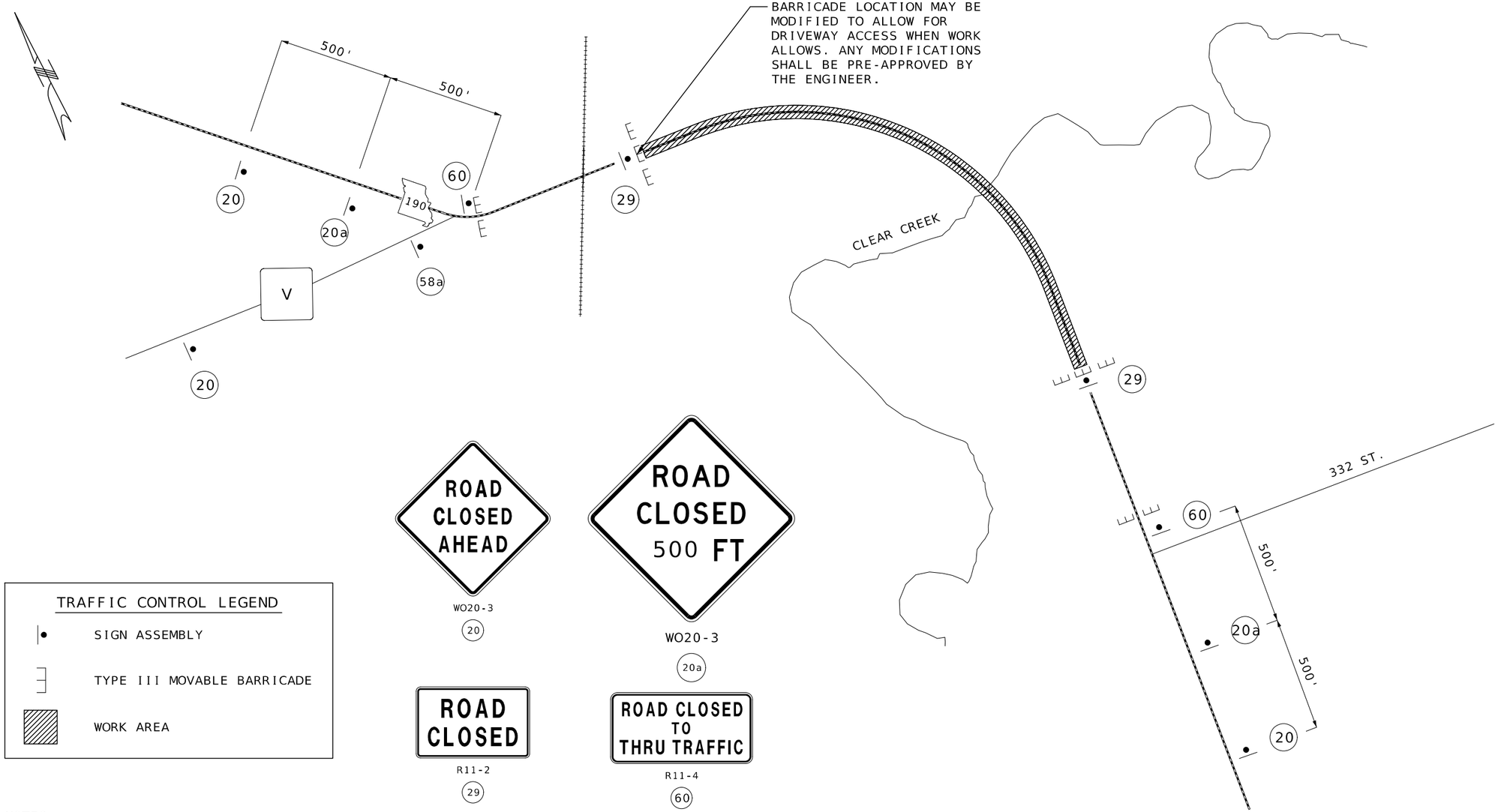
BRIDGE NO.
A9469

DESCRIPTION

DATE

REV.

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



TRAFFIC CONTROL LEGEND

- SIGN ASSEMBLY
- TYPE III MOVABLE BARRICADE
- WORK AREA

WO20-3

20

WO20-3

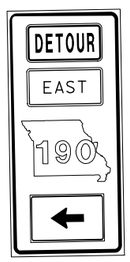
20a

R11-2

29

R11-4

60



58a

NOTES:

SIGN SPACING MAY BE ADJUSTED TO ACCOMMODATE FIELD CONDITIONS.

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

ALL TEMPORARY TRAFFIC CONTROL ITEMS USED BY THE CONTRACTOR BUT NOT INCLUDED IN THE PAY ITEMS SHALL BE CONSIDERED INCIDENTAL

ACCESS TO PRIVATE ENTRANCES SHALL BE MAINTAINED TO THE MAXIMUM EXTENT FEASIBLE. NOTIFY PROPERTY OWNERS PRIOR TO PERIODS OF TIME WHEN ACCESS WILL NOT BE AVAILABLE.

THIS SHEET IS CONSIDERED SUPPLEMENTAL TO STANDARD PLAN 616.20

NOT TO SCALE

TRAFFIC CONTROL PLAN
ROAD CLOSURE
SHEET 2 OF 3

STATE OF MISSOURI
BRIAN M. ROSENTHAL
NUMBER PE-2005022151
PROFESSIONAL ENGINEER
Brian M. Rosenthal
07/22/2024 8:22:38 AM
BRIAN M. ROSENTHAL - CIVIL
MO-PE-2005022151

DATE PREPARED
7/17/2024

ROUTE	STATE
190	MO
DISTRICT	SHEET NO.
NW	10

COUNTY
DAVIESS

JOB NO.
JNW0031

CONTRACT ID.

PROJECT NO.

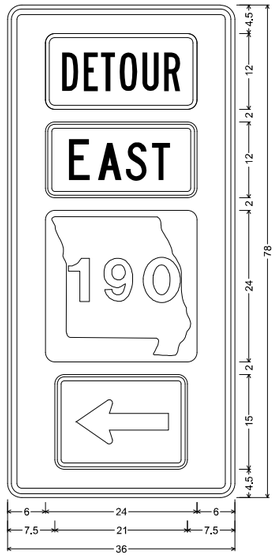
BRIDGE NO.
A9469

DESCRIPTION	DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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

REV.



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

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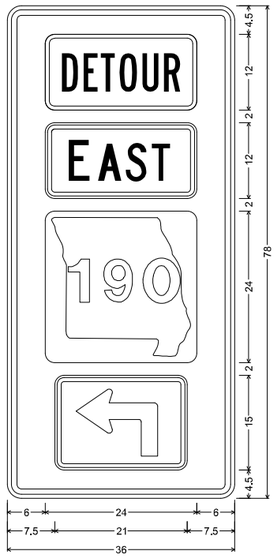
	6.000
	6.000
	7.500

58a



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2.250" Radius, 0.875" Border, 0.625" Indent, Black on, Orange;
Table of letter and object lefts

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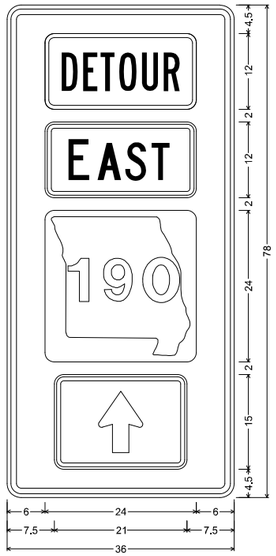
	6.000
	6.000
	7.500

58b



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2.250" Radius, 0.875" Border, 0.625" Indent, Black on, Orange;
Table of letter and object lefts

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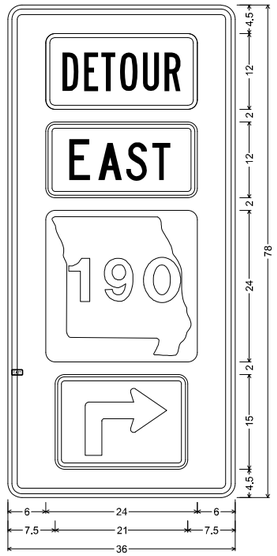
58c



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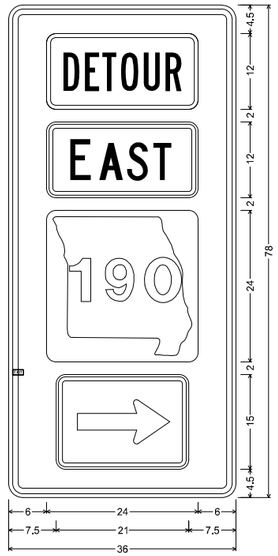

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2.250" Radius, 0.875" Border, 0.625" Indent, Black on, Orange;
Table of letter and object lefts

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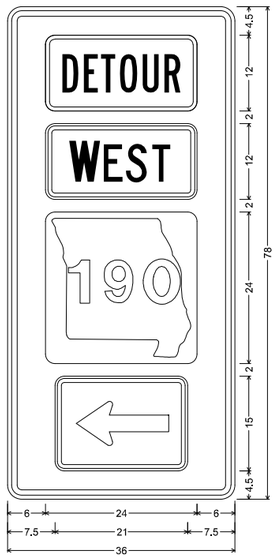
	6.000
	7.500

58e



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2.250" Radius, 0.875" Border, 0.625" Indent, Black on, Orange;
Table of letter and object lefts

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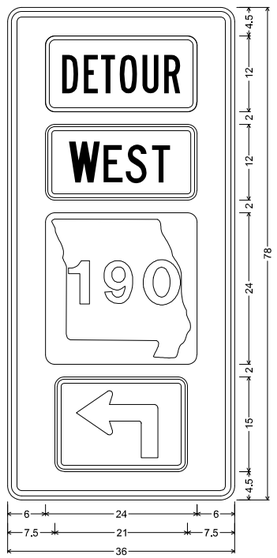
	6.000
	6.000
	7.500

59a



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

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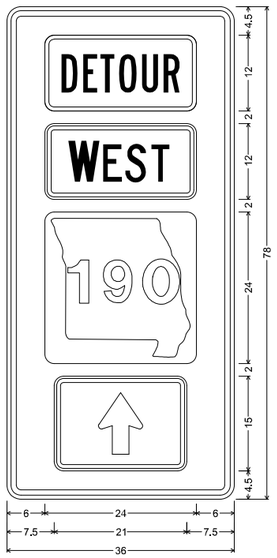
	6.000
	7.500

59b



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2.250" Radius, 0.875" Border, 0.625" Indent, Black on, Orange;
Table of letter and object lefts

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	6.000
	6.000
	7.500

59c

TRAFFIC CONTROL PLAN
DETOUR SIGN DETAILS
SHEET 3 OF 3

STATE OF MISSOURI
BRIAN M. ROSENTHAL
NUMBER PE-2005022151
PROFESSIONAL ENGINEER
Brian M. Rosenthal
07/22/2024 8:23:15 AM
BRIAN M. ROSENTHAL - CIVIL
MO-PE-2005022151

DATE PREPARED
7/15/2024

ROUTE	STATE
190	MO
DISTRICT	SHEET NO.
NW	11

COUNTY
DAVIESS

JOB NO.
JNW0031

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9469

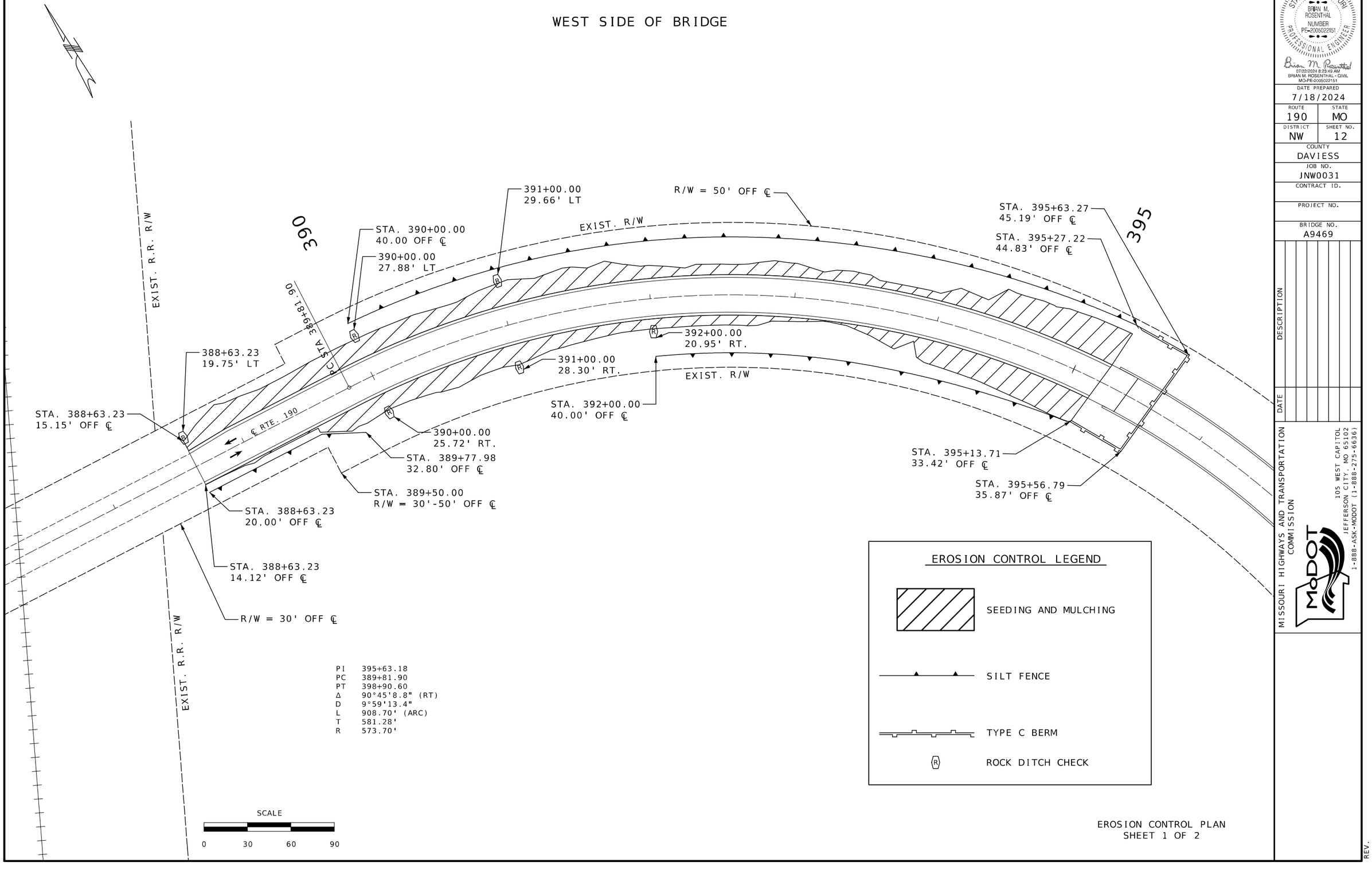
DESCRIPTION	DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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

REV.

WEST SIDE OF BRIDGE



PI	395+63.18
PC	389+81.90
PT	398+90.60
Δ	90°45'8.8" (RT)
D	9°59'13.4"
L	908.70' (ARC)
T	581.28'
R	573.70'

SCALE

0 30 60 90

EROSION CONTROL LEGEND

- SEEDING AND MULCHING
- SILT FENCE
- TYPE C BERM
- (R) ROCK DITCH CHECK

EROSION CONTROL PLAN
SHEET 1 OF 2

STATE OF MISSOURI
BRIAN M. ROSENTHAL
NUMBER PE-2005022151
PROFESSIONAL ENGINEER
Brian M. Rosenthal
07/22/2024 8:23:49 AM
BRIAN M. ROSENTHAL - CIVIL
MO-PE-2005022151

DATE PREPARED
7/18/2024

ROUTE	STATE
190	MO
DISTRICT	SHEET NO.
NW	12

COUNTY
DAVIESS

JOB NO.
JNW0031

CONTRACT ID.

PROJECT NO.

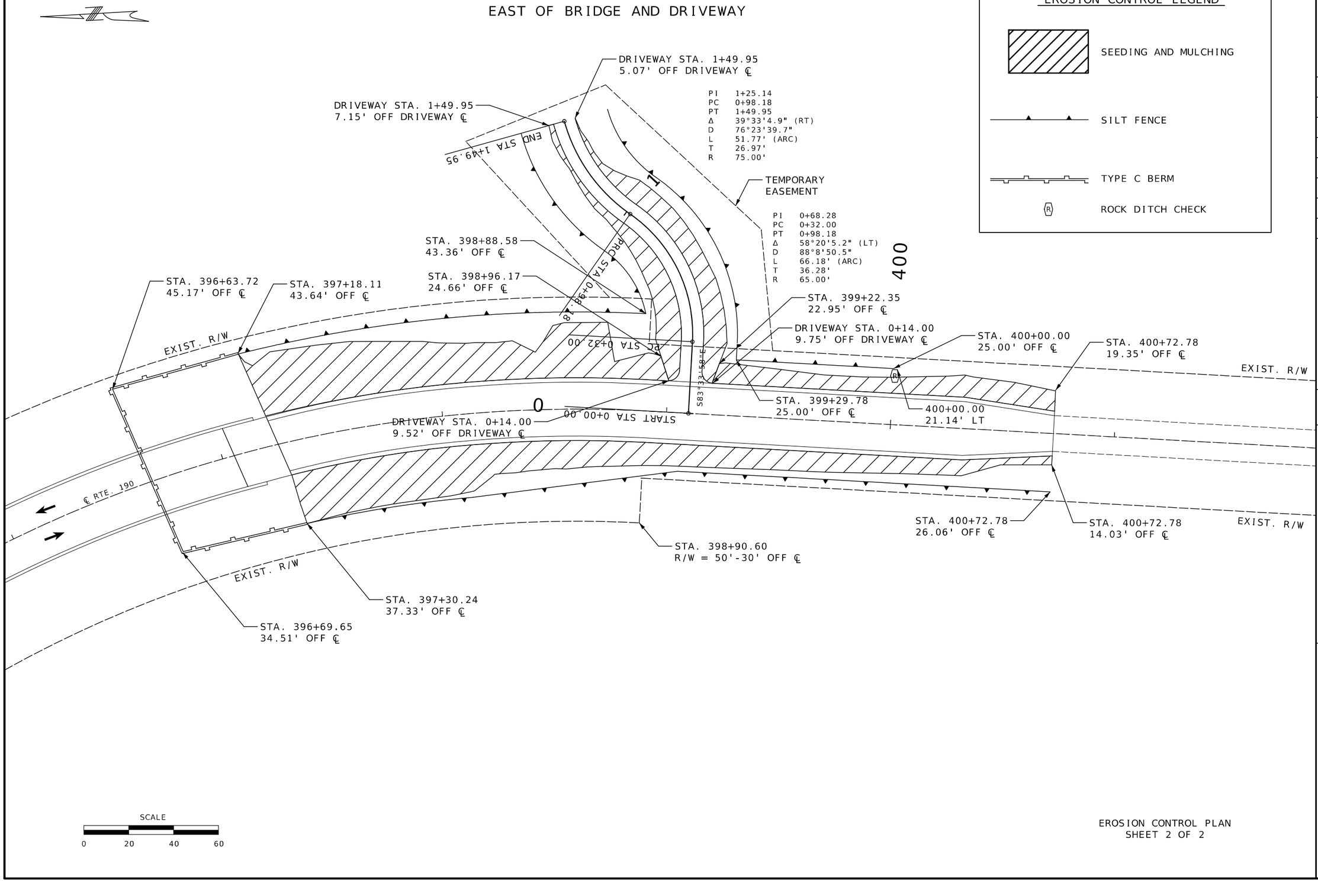
BRIDGE NO.
A9469

DESCRIPTION | DATE

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

REV.

EAST OF BRIDGE AND DRIVEWAY



EROSION CONTROL LEGEND

- SEEDING AND MULCHING
- SILT FENCE
- TYPE C BERM
- (R) ROCK DITCH CHECK

EROSION CONTROL PLAN
SHEET 2 OF 2

STATE OF MISSOURI
BRIAN M. ROSENTHAL
NUMBER PE-2005022151
PROFESSIONAL ENGINEER
07/22/2024 8:24:23 AM
BRIAN M. ROSENTHAL - CIVIL
MO-PE-2005022151

DATE PREPARED
7/18/2024

ROUTE	STATE
190	MO
DISTRICT	SHEET NO.
NW	13

COUNTY
DAVIESS

JOB NO.
JNW0031

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9469

DESCRIPTION

DATE

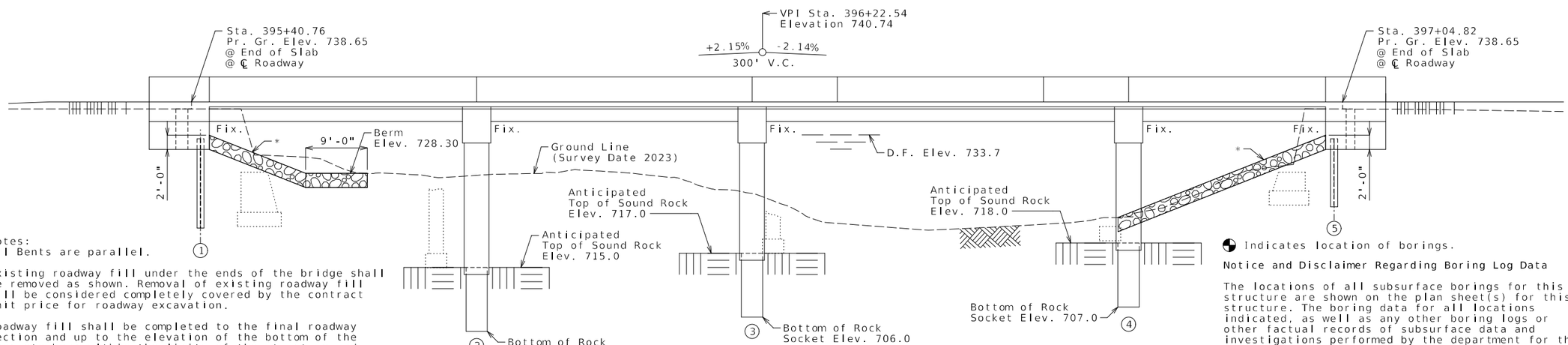
REV.

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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

SEC/SUR 36 TWP 59N RGE 26W

(39'-39'-54'-30') PRESTRESSED CONCRETE SPREAD BOX BEAM SPANS



GENERAL ELEVATION

* 2.5:1 (H;V) Slope 2'-0" Type 2 Rock Blanket with Permanent Erosion Control Geotextile (Roadway Item)(Typ.)

Notes:
All Bents are parallel.

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.

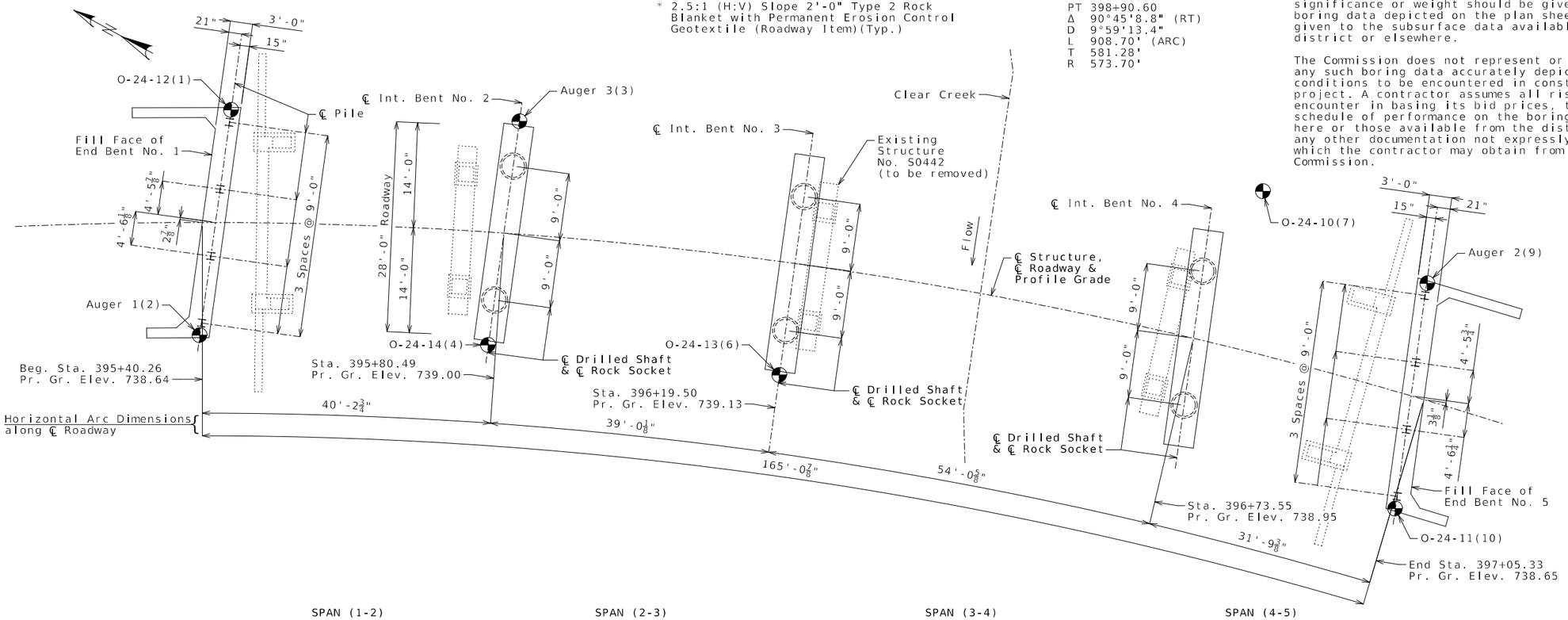
Curve Data
PI 395+63.18
PC 389+81.90
PT 398+90.60
Δ 90°45'8.8" (RT)
D 9°59'13.4"
L 908.70' (ARC)
T 581.28'
R 573.70'

◒ 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. 37 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.



PLAN

B.M.: BM10 - RIVET AND WASHER IN TOP OF SW ABUTMENT WALL. STA. 396+96.99, 11.78' LT., ELEV. 737.31

BRIDGE: ROUTE 190 OVER CLEAR CREEK

ROUTE 190 FROM ROUTE V TO ROUTE U
ABOUT 0.3 MILES EAST OF ROUTE V
BEGINNING STATION 395+40.26

Designed May 2024
Detailed May 2024
Checked May 2024

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

STATE OF MISSOURI
ALEX BENZ
NUMBER PE-2018003121
PROFESSIONAL ENGINEER
Alex C. Benz
06/27/2024 7:50:26 AM
Alex Benz - Civil
MO PE-2018003121

DATE PREPARED 6/25/2024
ROUTE 190 | STATE MO
DISTRICT BR | SHEET NO. 1
COUNTY DAVIESS
JOB NO. JNW0031
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9469

REV.	DESCRIPTION	DATE

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

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

Estimated Quantities

Item		Substr.	Superstr.	Total
Removal of Miscellaneous ACM (Non-Friable)	sq. foot	8		8
Class 1 Excavation	cu. yard	70		70
Removal of Bridges (S0442)	lump sum			1
Bridge Approach Slab (Minor)	sq. yard		127	127
Drilled shafts (3 ft. 6 in. Dia.)	linear foot	94.3		94.3
Rock Sockets (3 ft. 0 in. Dia.)	linear foot	66.0		66.0
Video Camera Inspection	each	6		6
Foundation Inspection Holes	linear foot	126.0		126.0
Sonic Logging Testing	each	6		6
Galvanized Structural Steel Piles (12 in.)	linear foot	148		148
Pre-Bore for Piling	linear foot	132		132
Pile Point Reinforcement	each	8		8
Class B Concrete (Substructure)	cu. yard	78.9		78.9
Type D Barrier	linear foot		364	364
Slab on Concrete Beam	sq. yard		559	559
21 in., Prestressed Concrete Spread Box Beam	linear foot		638	638
Reinforcing Steel (Bridges)	pound	22,130		22,130
Slab Drain	each		7	7
Vertical Drain at End Bents	each			2
Plain Neoprene Bearing Pad	each		8	8
Laminated Neoprene Bearing Pad	each		24	24

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

All reinforcement in the end bents is included in the Estimated Quantities for Slab on Concrete Beam.

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

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

Estimated Quantities for Slab on Concrete Beam

Item		Total
Class B-2 Concrete	cu. yard	183.2
Reinforcing Steel (Epoxy Coated)	pound	46,570

The table of Estimated Quantities for Slab on Concrete Beam represents the quantities used by the State in preparing the cost estimate for concrete slabs. The area of the concrete slab will be measured to the nearest square yard longitudinally from end of slab to end of slab and transversely from out to out of bridge slab (or with the horizontal dimensions as shown on the plan of slab). Payment for stay-in-place corrugated steel forms, conventional 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.

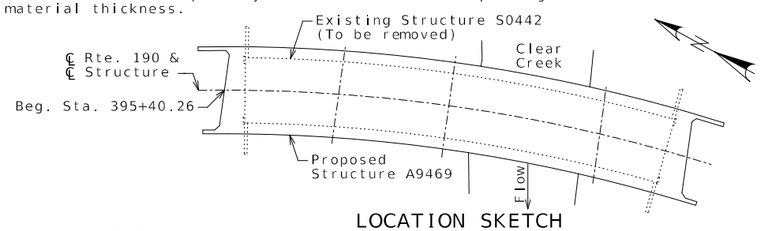
Slab shall be cast-in-place with conventional forms or stay-in-place corrugated steel forms. Precast prestressed panels will not be permitted.

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 filed with an expanded polystyrene material. The polystyrene material shall be placed in the forms with an adhesive in accordance with the manufacturer's recommendations.

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

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



LOCATION SKETCH

General Notes:

Design Specifications:
2020 AASHTO LRFD Bridge Design Specifications (9th Ed.)
2011 AASHTO Guide Specifications for LRFD Seismic Bridge Design (2nd Ed.) and 2014 Interim Revisions
Seismic Design Category = A

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

Design Unit Stresses:

Class B Concrete (Substructure)	f'c = 3,000 psi
Class B-2 Concrete (Drilled Shafts & Rock Sockets)	f'c = 4,000 psi
Class B-2 Concrete (Superstructure, except Prestressed Beams and Barrier)	f'c = 4,000 psi
Class B-1 Concrete (Barrier)	f'c = 4,000 psi
Reinforcing Steel (Grade 60)	fy = 60,000 psi
Structural Steel HP Pile (ASTM A709 Grade 50S)	fy = 50,000 psi

For prestressed box beam stresses, see Sheets No. 18-20.

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

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

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

Hydrologic Data

Drainage Area = 19.6 mi²
Design Flood Frequency = 50 years
Design Flood Discharge = 7,010 cfs
Design Flood (D.F.) Elevation = 733.7
Base Flood (100-year)
Base Flood Elevation = 734.1
Base Flood Discharge = 8,150 cfs
Estimated Backwater = 0.2 ft
Average Velocity thru Opening = 5.0 ft/s
Freeboard (50-year)
Freeboard = 1.0 ft
Roadway Overtopping
Overtopping Flood Discharge > 10,810 cfs
Overtopping Flood Frequency > 500 years
Overtopping Flood Elevation = 735.1

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

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

☐ Constant Joint Filler
☐ Variable Joint Filler

Foundation Data

Type	Design Data		Bent Number 1	2	3	4	5
Load Bearing Pile	Pile Type and Size		HP 12x53	---	---	---	HP 12x53
	Number	ea	4	---	---	---	4
	Approximate Length Per Each	ft	18	---	---	---	19
	Pile Point Reinforcement	ea	All	---	---	---	All
	Min. Galvanized Penetration (Elev.)	ft	Full Length	---	---	---	Full Length
	Pile Driving Verification Method		DF	---	---	---	DF
	Resistance Factor		0.4	---	---	---	0.4
	Minimum Nominal Axial Compressive Resistance	kip	453	---	---	---	423
Rock Socket	Layer 1 Foundation Material		---	Weak Rock	Weak Rock	Weak Rock	---
	Layer 1 Elevation Range	ft	---	712-686	714-687	715-689	---
	Layer 1 Minimum Nominal Axial Compressive Resistance (Side Resistance)	ksf	---	15.1	15.1	15.1	---
	Minimum Nominal Axial Compressive Resistance (Tip Resistance)	ksf	---	---	---	---	---

DF = FHWA-modified Gates Dynamic Pile Formula

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

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

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

Prebore for piles at Bents No. 1 and 5 to elevations 716.0 and 715.0 respectively.

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

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

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

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

GENERAL NOTES AND QUANTITIES

Detailed May 2024
Checked May 2024

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

STATE OF MISSOURI
ALEX BENZ
NUMBER PE-2018003121
PROFESSIONAL ENGINEER
Alex C. Benz
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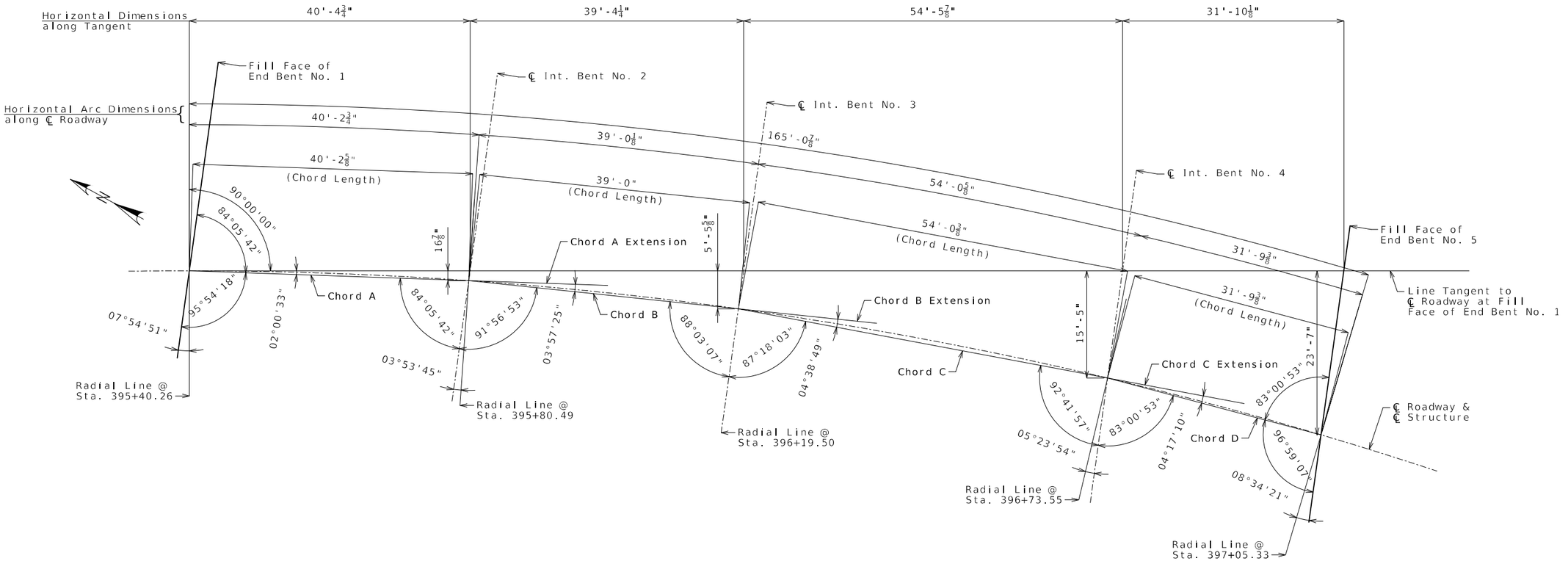
Alex Benz - Civil
MO PE-2018003121

DATE PREPARED 6/25/2024
ROUTE 190 | STATE MO
DISTRICT BR | SHEET NO. 2
COUNTY DAVIESS
JOB NO. JNW0031
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9469

DESCRIPTION | DATE | REV.

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

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



PLAN

Notes:

All dimensions are horizontal.

All bents are parallel.

SUBSTRUCTURE LAYOUT

Detailed May 2024
Checked May 2024

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

Sheet No. 3 of 37

STATE OF MISSOURI
ALEX BENZ
NUMBER PE-2018003121
PROFESSIONAL ENGINEER
Alex C. Benz
06/27/2024 7:51:27 AM
Alex Benz - Civil
MO PE-2018003121

DATE PREPARED	6/25/2024
ROUTE	190
STATE	MO
DISTRICT	BR
SHEET NO.	3
COUNTY	DAVIESS
JOB NO.	JNW0031
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO.	A9469

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

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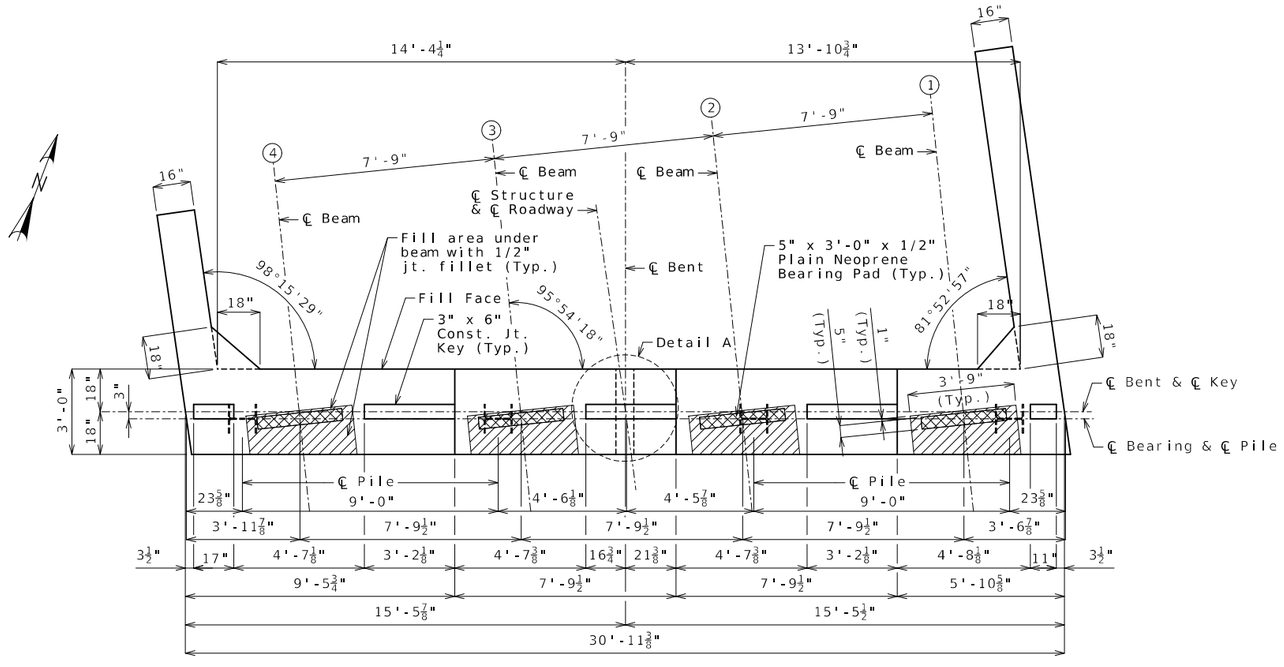
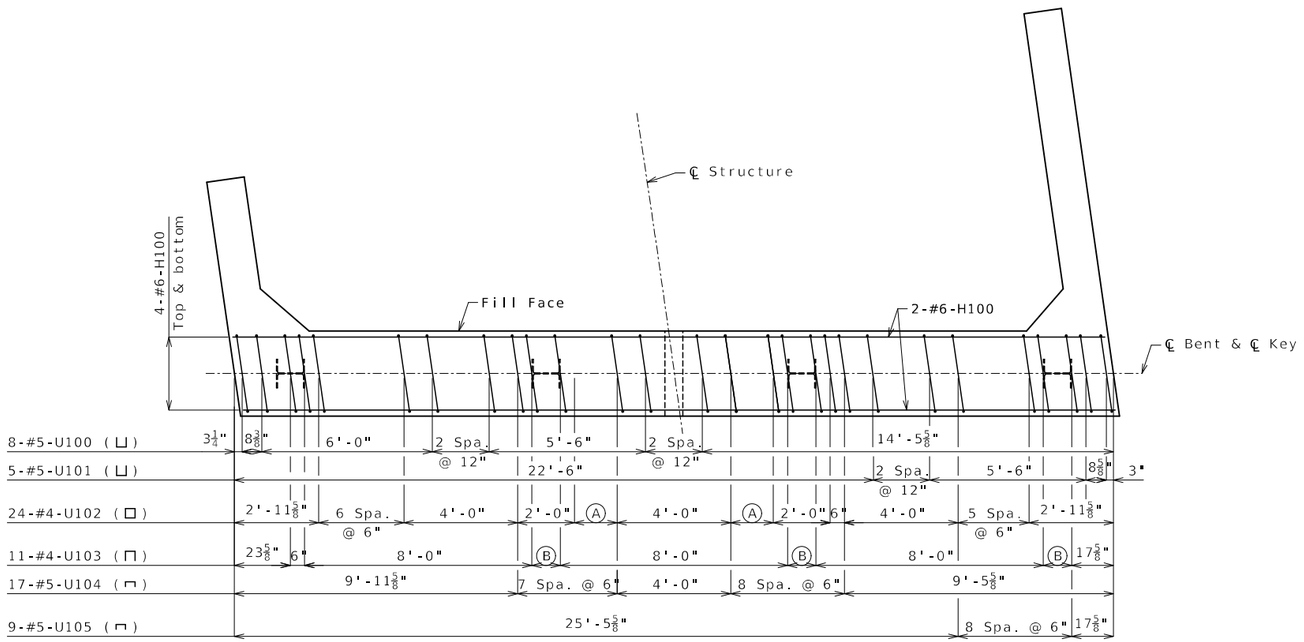
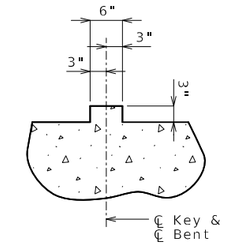


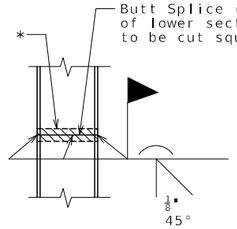
PLAN OF BEAM



PLAN OF BEAM SHOWING REINFORCEMENT
Keys not shown for clarity.

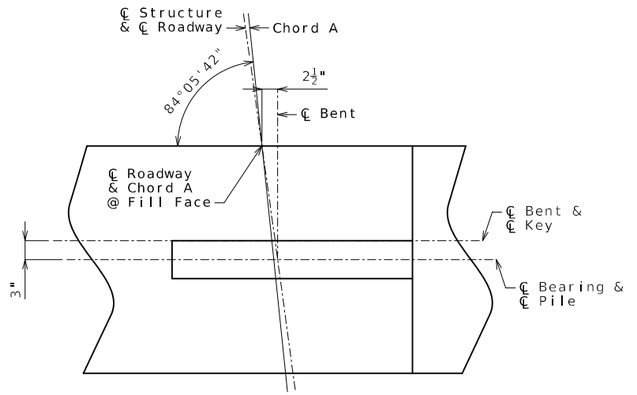


SECTION THRU KEY



STEEL PILE SPLICE
(If required)

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



DETAIL A

Notes:
Work this sheet with Sheets No. 5 & 6.

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

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

Substructure Quantity Table for Bent No. 1		
Item		Quantity
Class 1 Excavation	cu. yard	35
Galvanized Structural Steel Piles (12 in.)	linear foot	72
Pile Point Reinforcement	each	4
Class B Concrete (Substructure)	cu. yard	15.6
Pre-Bore for Piling	linear foot	64

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

DETAILS OF END BENT NO. 1

Detailed May 2024
Checked May 2024

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

O:\2021R2\MoDOT_ORD_v10.10.01.03\23071 MoDOT JNW0031 Route 190\DGN\Bridge\Final\Plotsheets\B_A9469_004_JNW0031_End-Bent-1_1.dgn 11:25:18 AM 6/25/2024

STATE OF MISSOURI
ALEX BENZ
NUMBER PE-2018003121
PROFESSIONAL ENGINEER
Alex C. Benz
06/27/2024 7:51:34 AM
Alex Benz - Civil
MO PE-2018003121

DATE PREPARED 6/25/2024
ROUTE 190 | STATE MO
DISTRICT BR | SHEET NO. 4
COUNTY DAVIESS
JOB NO. JNW0031
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9469

DESCRIPTION | DATE | REV.

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

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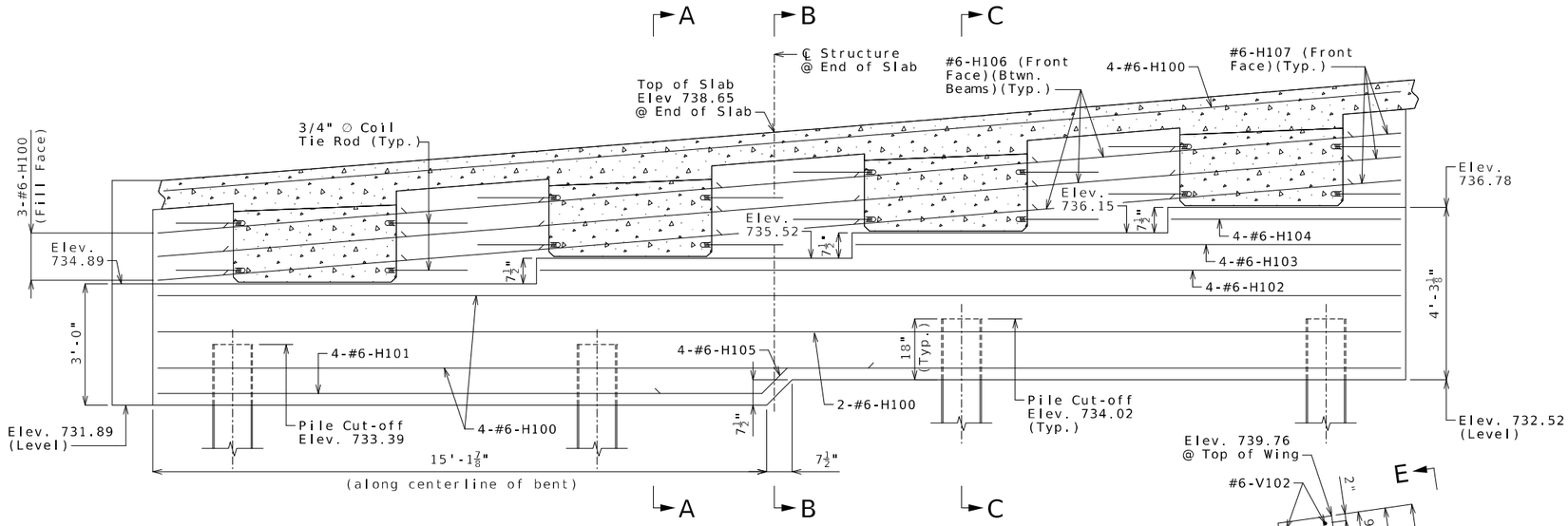
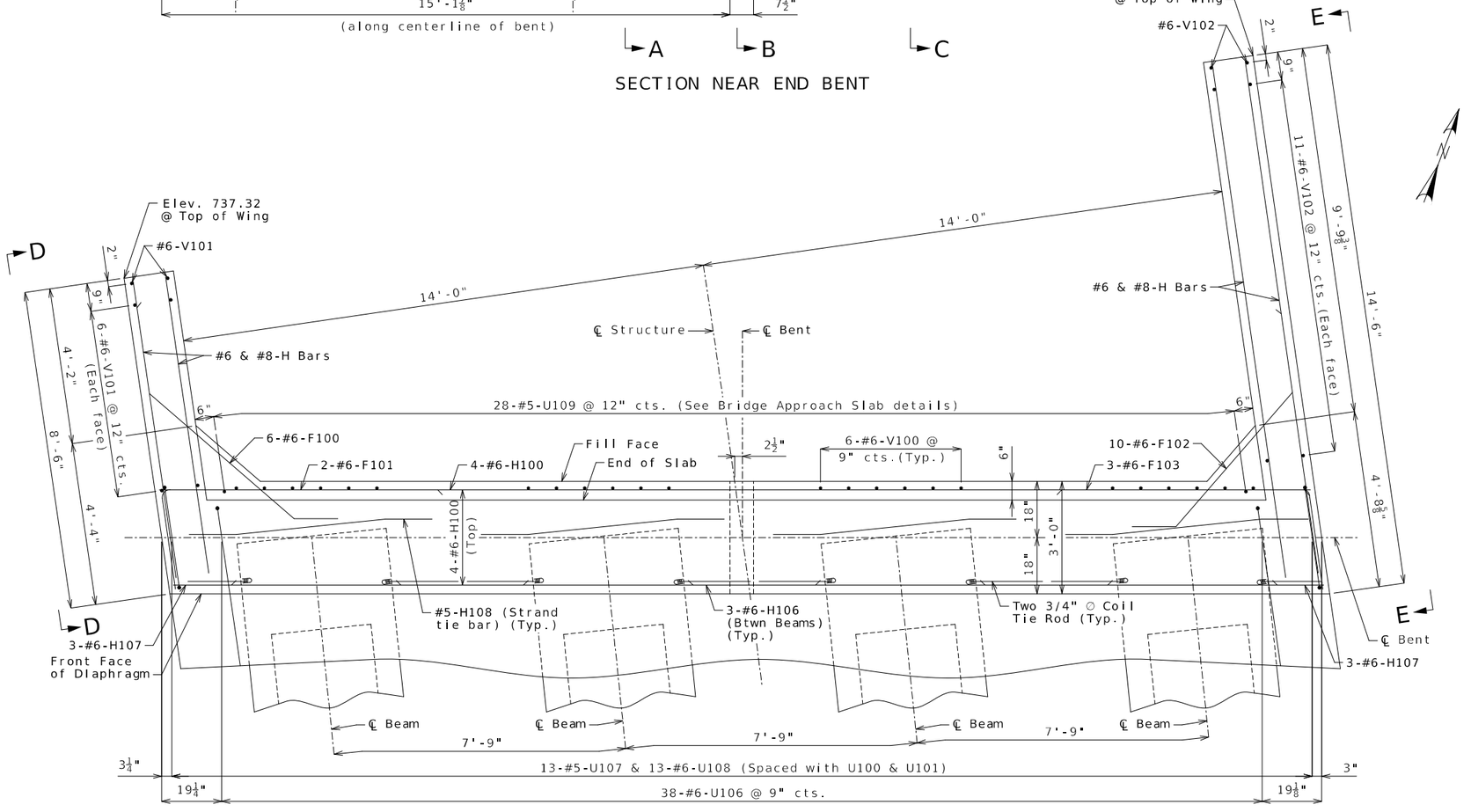


SECTION NEAR END BENT



PART PLAN

DETAILS OF END BENT NO. 1

Notes:
Work this sheet with Sheets No. 4 & 6.

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

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

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

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

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

For locations of coil tie rods and #5-H108 (strand tie bar), see Sheet No. 18.

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

For details of bridge approach slab, see Sheet No. 32.

STATE OF MISSOURI
ALEX BENZ
NUMBER PE-2018003121
PROFESSIONAL ENGINEER
Alex C. Benz
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Alex Benz - Civil
MO PE-2018003121

DATE PREPARED 6/25/2024
ROUTE 190 | STATE MO
DISTRICT BR | SHEET NO. 5
COUNTY DAVIESS
JOB NO. JNW0031
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9469

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

EFK•Moen
Civil Engineering Design
13523 Barrett Parkway Dr
Suite 250
St. Louis, MO 63021
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Fax 314-394-3199
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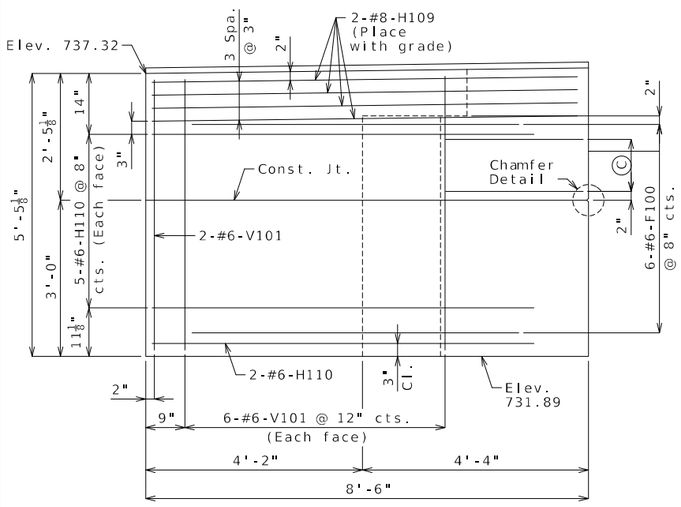
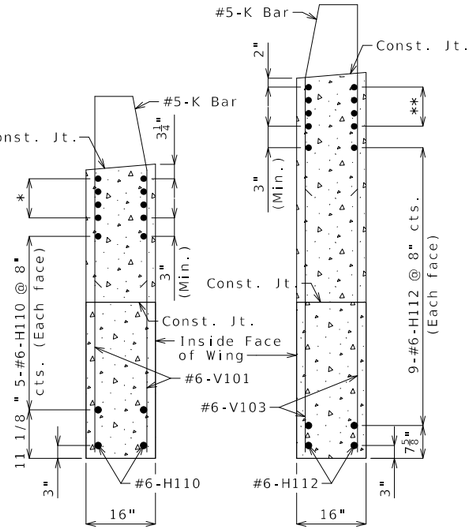


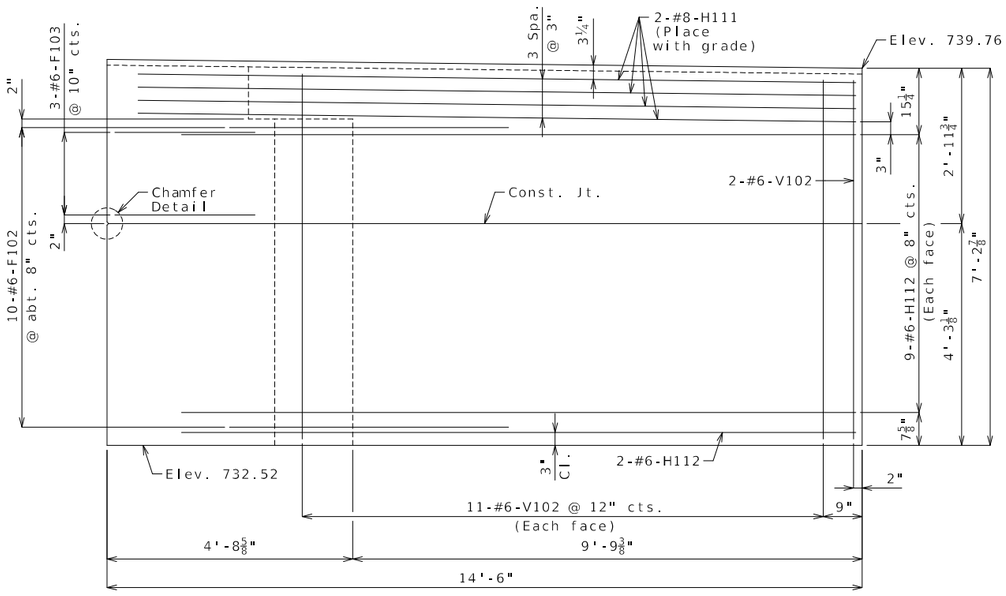
ELEVATION D-D



TYPICAL SECTION THRU WING

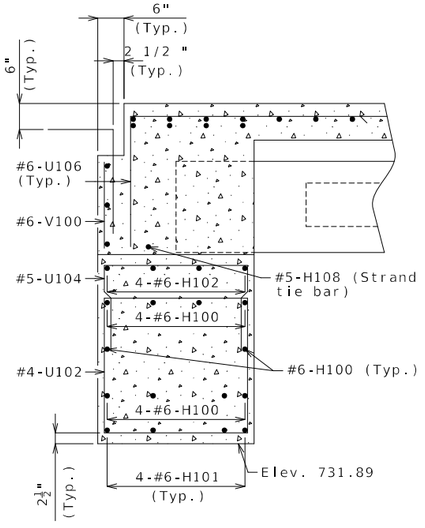
* #8-H109 Bars at 3" cts. (Each face)(Place with grade)

** #8-H111 Bars at 3" cts. (Each face)(Place with grade)

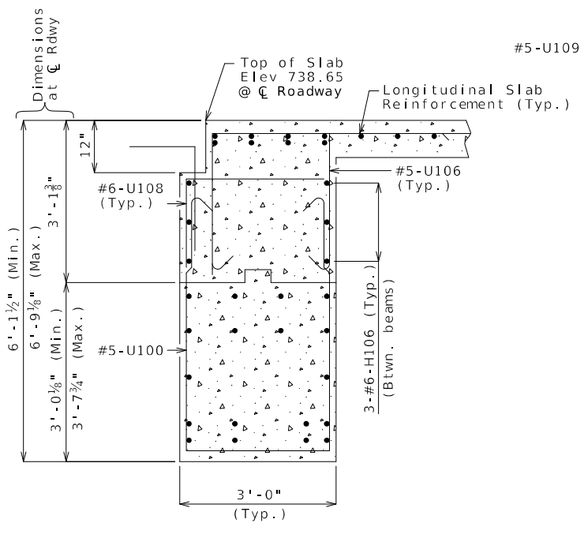


ELEVATION E-E

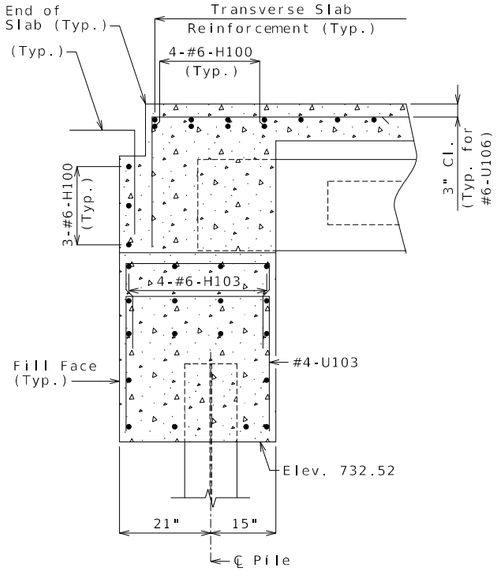
Ⓒ 2-#6-F101 @ 12" cts.



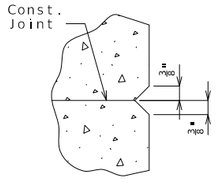
SECTION A-A



SECTION B-B



SECTION C-C



CHAMFER DETAIL

Notes:

Work this sheet with Sheets 4 & 5.

For reinforcement of barrier, see Sheets No. 30 & 31.

DETAILS OF END BENT NO. 1

Detailed May 2024
Checked May 2024

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STATE OF MISSOURI
ALEX BENZ
NUMBER PE-2018003121
PROFESSIONAL ENGINEER
Alex C. Benz
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Alex Benz - Civil
MO PE-2018003121

DATE PREPARED 6/25/2024

ROUTE 190 | STATE MO

DISTRICT BR | SHEET NO. 6

COUNTY DAVIESS

JOB NO. JNW0031

CONTRACT ID.

PROJECT NO.

BRIDGE NO. A9469

REV.	DESCRIPTION	DATE

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

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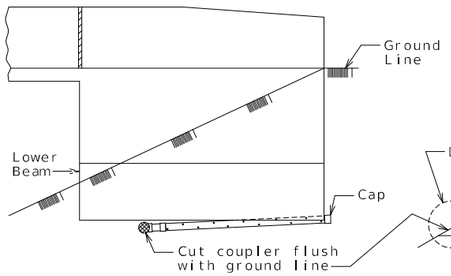
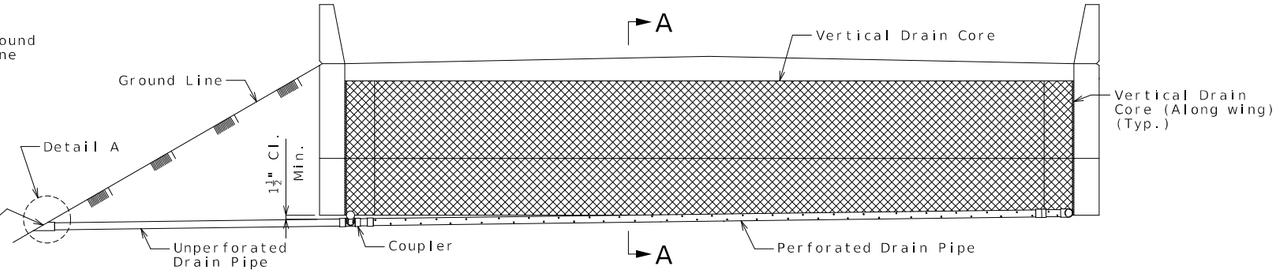
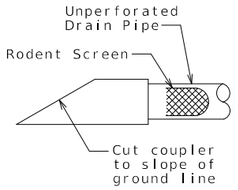


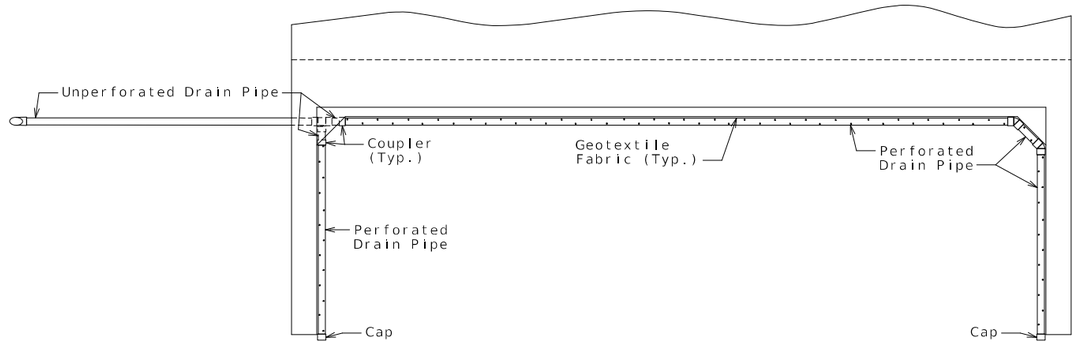
ELEVATION OF WING



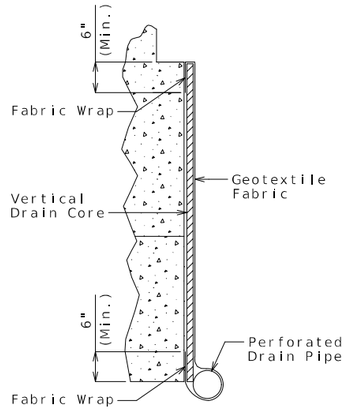
ELEVATION OF END BENT



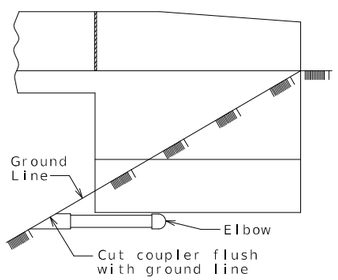
DETAIL A



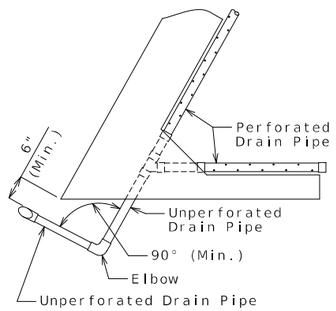
PLAN OF END BENT



PART SECTION A-A
(Section thru wing similar)



ELEVATION OF WING



PART PLAN

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

General Notes:

All drain pipe shall be sloped 1 to 2 percent.

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

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

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

VERTICAL DRAIN AT END BENTS

(Squared end bent shown, skewed end bent similar)

Detailed May 2024
Checked May 2024

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

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ALEX BENZ
NUMBER PE-2018003121
PROFESSIONAL ENGINEER
Alex C. Benz
06/27/2024 7:53:30 AM
Alex Benz - Civil
MO PE-2018003121

DATE PREPARED 6/25/2024
ROUTE 190 | STATE MO
DISTRICT BR | SHEET NO. 7
COUNTY DAVIESS
JOB NO. JNW0031
CONTRACT ID.
BRIDGE NO. A9469

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

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

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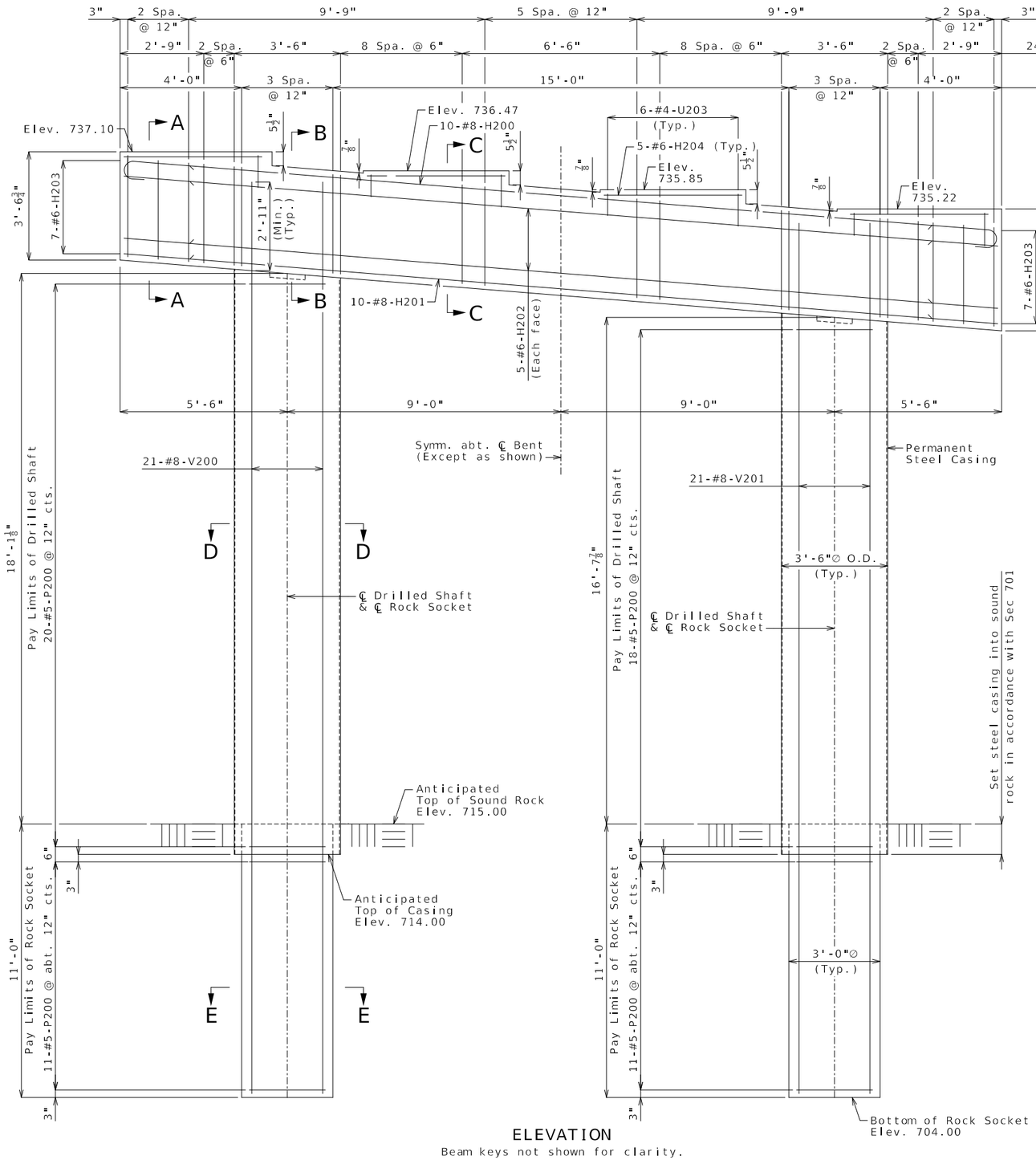
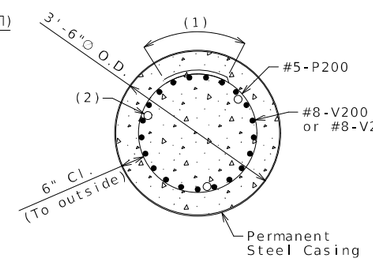
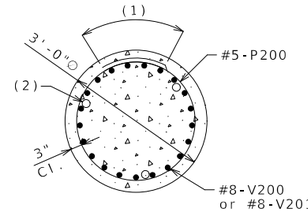


ELEVATION

Beam keys not shown for clarity.



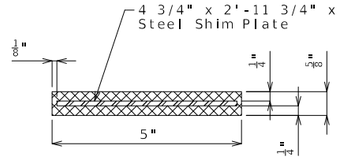
SECTION D-D



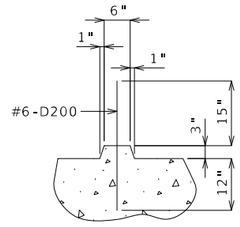
SECTION E-E

(1) 2'-7" Min. Lap (#5-P200) (Stagger adjacent bar splices)

(2) 2"○ Steel Pipe for sonic logging testing (3 each shaft)



SECTION THRU LAMINATED NEOPRENE BEARING PAD



SECTION THRU KEY

Substructure Quantity Table for Bent No. 2		
Item		Quantity
Drilled Shafts (3 ft. 6 in. Dia.)	linear foot	34.8
Rock Sockets (3 ft. 0 in. Dia.)	linear foot	22.0
Video Camera Inspection	each	2
Foundation Inspection Holes	linear foot	42.0
Sonic Logging Testing	each	2
Class B Concrete (Substructure)	cu. yard	15.9
Reinforcing Steel (Bridges)	pound	7,610

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

All reinforcement in drilled shafts and rock sockets is included in the substructure quantities.

General Notes:
Work this sheet with Sheet No. 9.

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

An additional 4 feet has been added to V-bar lengths and additional 8-#5-P200 bars have been added for possible change in drilled shaft or rock socket length. The additional V-bar length shall be cut off or included in the reinforcement lap, if required. The P bars shall be spaced similarly to that shown in Elevation, if required, or a lesser spacing if not required but not less than 6-inch centers.

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

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

DETAILS OF INTERMEDIATE BENT NO. 2

Detailed May 2024
Checked May 2024

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

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ALEX BENZ
NUMBER PE-2018003121
PROFESSIONAL ENGINEER
Alex C. Benz
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Alex Benz - Civil
MO PE-2018003121

DATE PREPARED 6/25/2024
ROUTE 190 | STATE MO
DISTRICT BR | SHEET NO. 8
COUNTY DAVIESS
JOB NO. JNW0031
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9469

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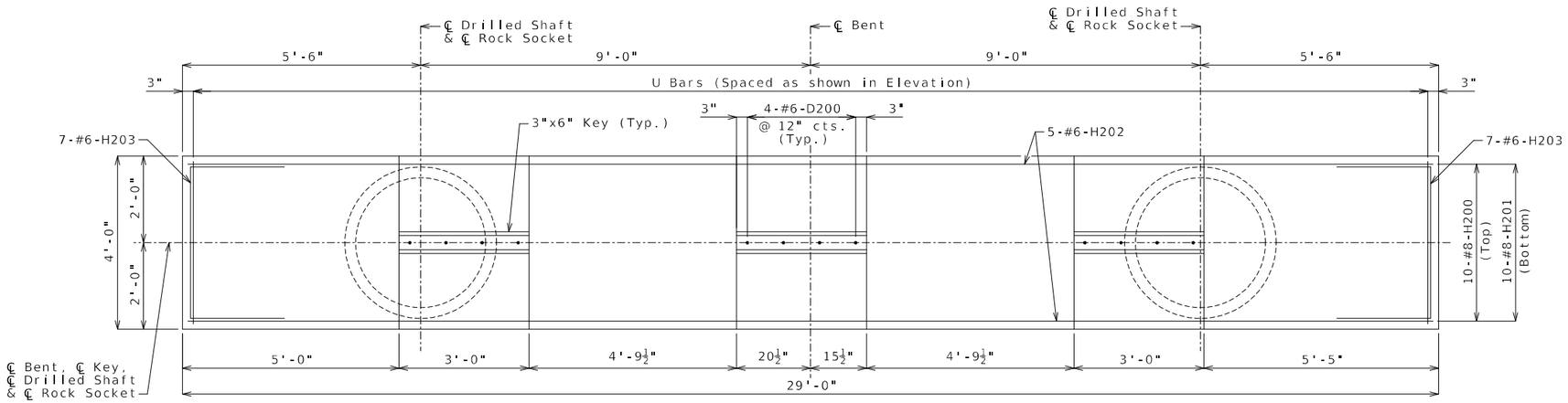
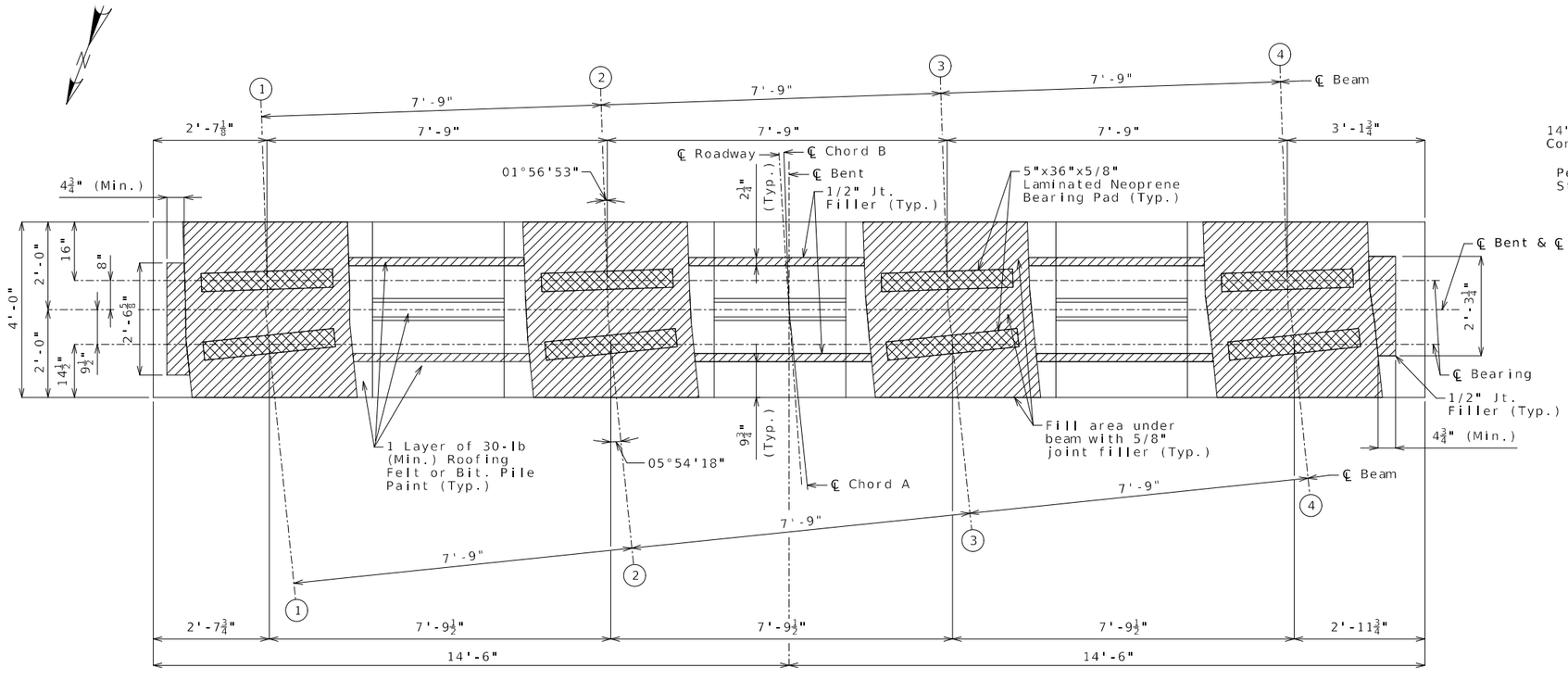
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

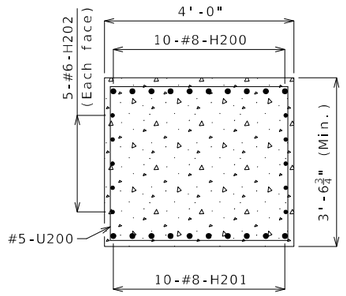
EFK•Moen
Civil Engineering Design
13523 Barrett Parkway Dr
Suite 250
St. Louis, MO 63021
Phone 314-394-3100
Fax 314-394-3199
Missouri Certificate of Authority: 001578



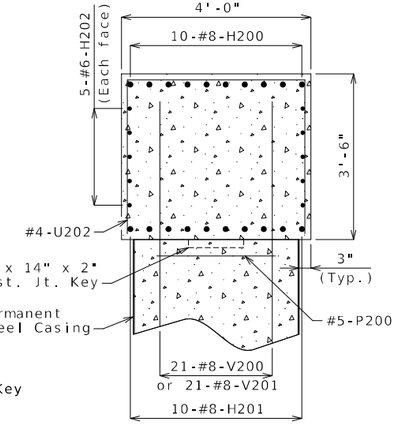
PLAN SHOWING REINFORCEMENT



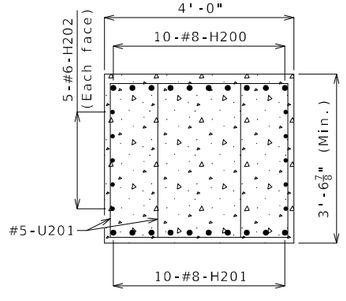
PLAN OF BEAM



SECTION A-A



SECTION B-B



SECTION C-C

DETAILS OF INTERMEDIATE BENT NO. 2

Detailed May 2024
Checked May 2024

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

Sheet No. 9 of 37

O:\2021R2\MoDOT_ORD_v10.10.01.03\23071 MoDOT JNW0031 Route 190\DGN\Bridge\Final\Plotsheets\B_A9469_009_JNW0031_Int-Bent-2_2.dgn 11:25:21 AM 6/25/2024

STATE OF MISSOURI
ALEX BENZ
NUMBER PE-2018003121
PROFESSIONAL ENGINEER

Alex C. Benz
06/27/2024 7:54:09 AM
Alex Benz - Civil
MO PE-2018003121

DATE PREPARED
6/25/2024

ROUTE	STATE
190	MO
DISTRICT	SHEET NO.
BR	9

COUNTY
DAVIESS

JOB NO.
JNW0031

CONTRACT ID.

PROJECT NO.

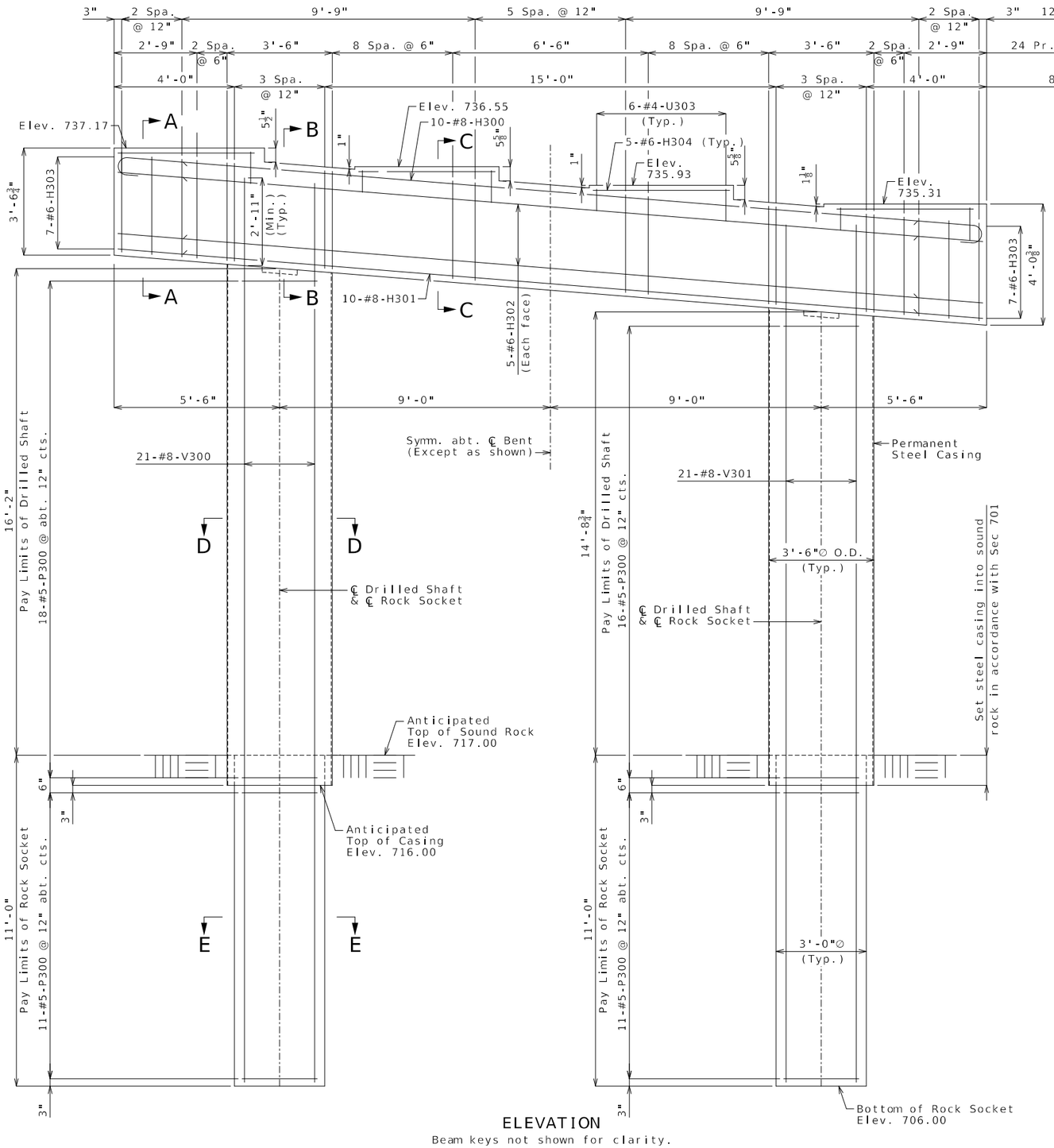
BRIDGE NO.
A9469

REV.	DATE	DESCRIPTION

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

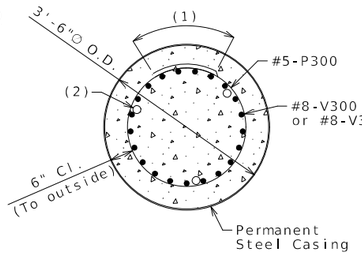
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

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

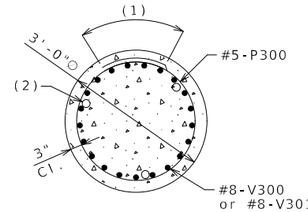


ELEVATION

Beam keys not shown for clarity.



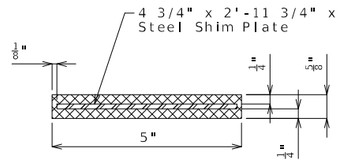
SECTION D-D



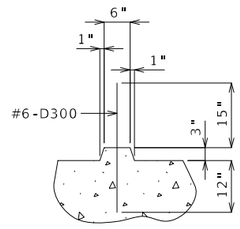
SECTION E-E

(1) 2'-7" Min. Lap (#5-P200) (Stagger adjacent bar splices)

(2) 2"○ Steel Pipe for sonic logging testing (3 each shaft)



SECTION THRU LAMINATED NEOPRENE BEARING PAD



SECTION THRU KEY

Substructure Quantity Table for Bent No. 3		
Item		Quantity
Drilled Shafts (3 ft. 6 in. Dia.)	linear foot	30.9
Rock Sockets (3 ft. 0 in. Dia.)	linear foot	22.0
Video Camera Inspection	each	2
Foundation Inspection Holes	linear foot	42.0
Sonic Logging Testing	each	2
Class B Concrete (Substructure)	cu. yard	15.9
Reinforcing Steel (Bridges)	pound	7,300

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

All reinforcement in drilled shafts and rock sockets is included in the substructure quantities.

General Notes:
Work this sheet with Sheet No. 11.

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

An additional 4 feet has been added to V-bar lengths and additional 8-#5-P200 bars have been added for possible change in drilled shaft or rock socket length. The additional V-bar length shall be cut off or included in the reinforcement lap, if required. The P bars shall be spaced similarly to that shown in Elevation, if required, or a lesser spacing if not required but not less than 6-inch centers.

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

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

DETAILS OF INTERMEDIATE BENT NO. 3

Detailed May 2024
Checked May 2024

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

STATE OF MISSOURI
ALEX BENZ
NUMBER PE-2018003121
PROFESSIONAL ENGINEER
Alex C. Benz
06/27/2024 7:54:18 AM
Alex Benz - Civil
MO PE-2018003121

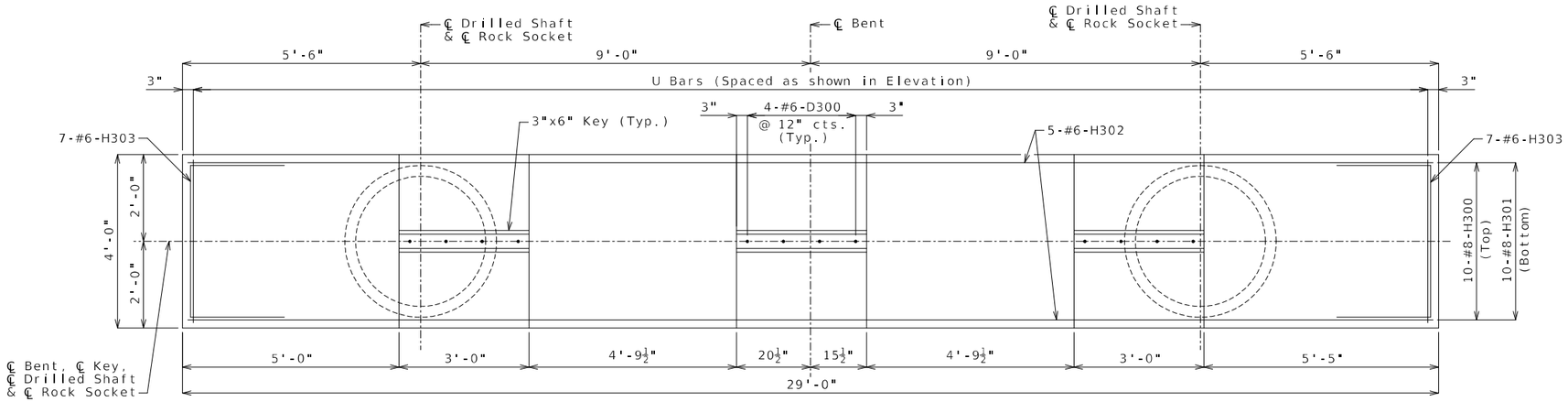
DATE PREPARED 6/25/2024
ROUTE 190 | STATE MO
DISTRICT BR | SHEET NO. 10
COUNTY DAVIESS
JOB NO. JNW0031
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9469

DESCRIPTION | DATE

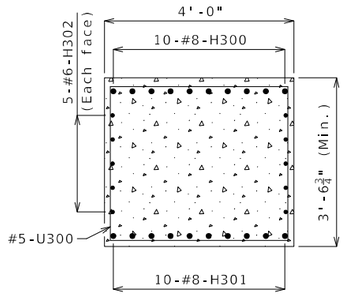
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

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

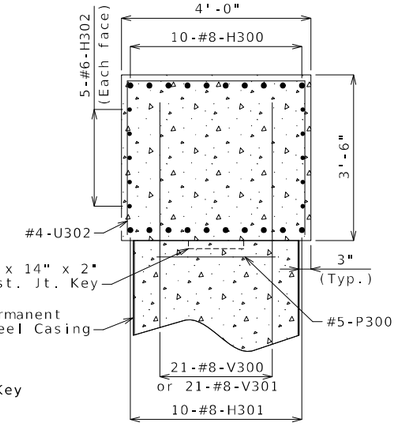
REV.



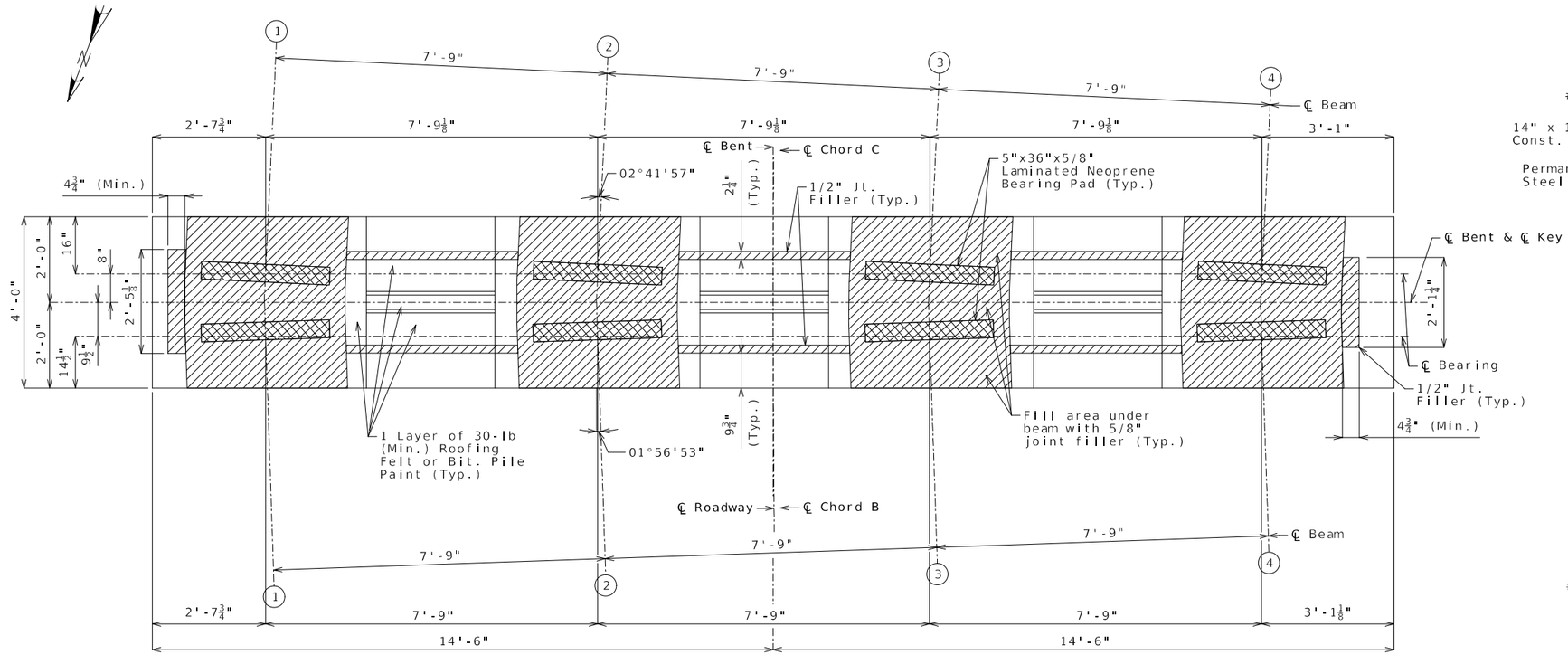
PLAN SHOWING REINFORCEMENT



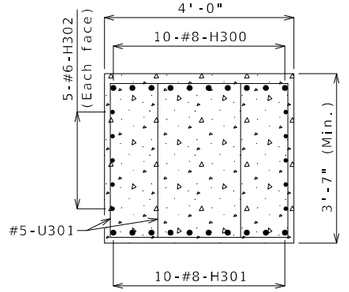
SECTION A-A



SECTION B-B



PLAN OF BEAM



SECTION C-C

DETAILS OF INTERMEDIATE BENT NO. 3

Detailed May 2024
Checked May 2024

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

STATE OF MISSOURI
ALEX BENZ
NUMBER PE-2018003121
PROFESSIONAL ENGINEER
Alex C. Benz
06/27/2024 7:54:27 AM
Alex Benz - Civil
MO PE-2018003121

DATE PREPARED	6/25/2024
ROUTE	190
STATE	MO
DISTRICT	BR
SHEET NO.	11
COUNTY	DAVIESS
JOB NO.	JNW0031
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO.	A9469

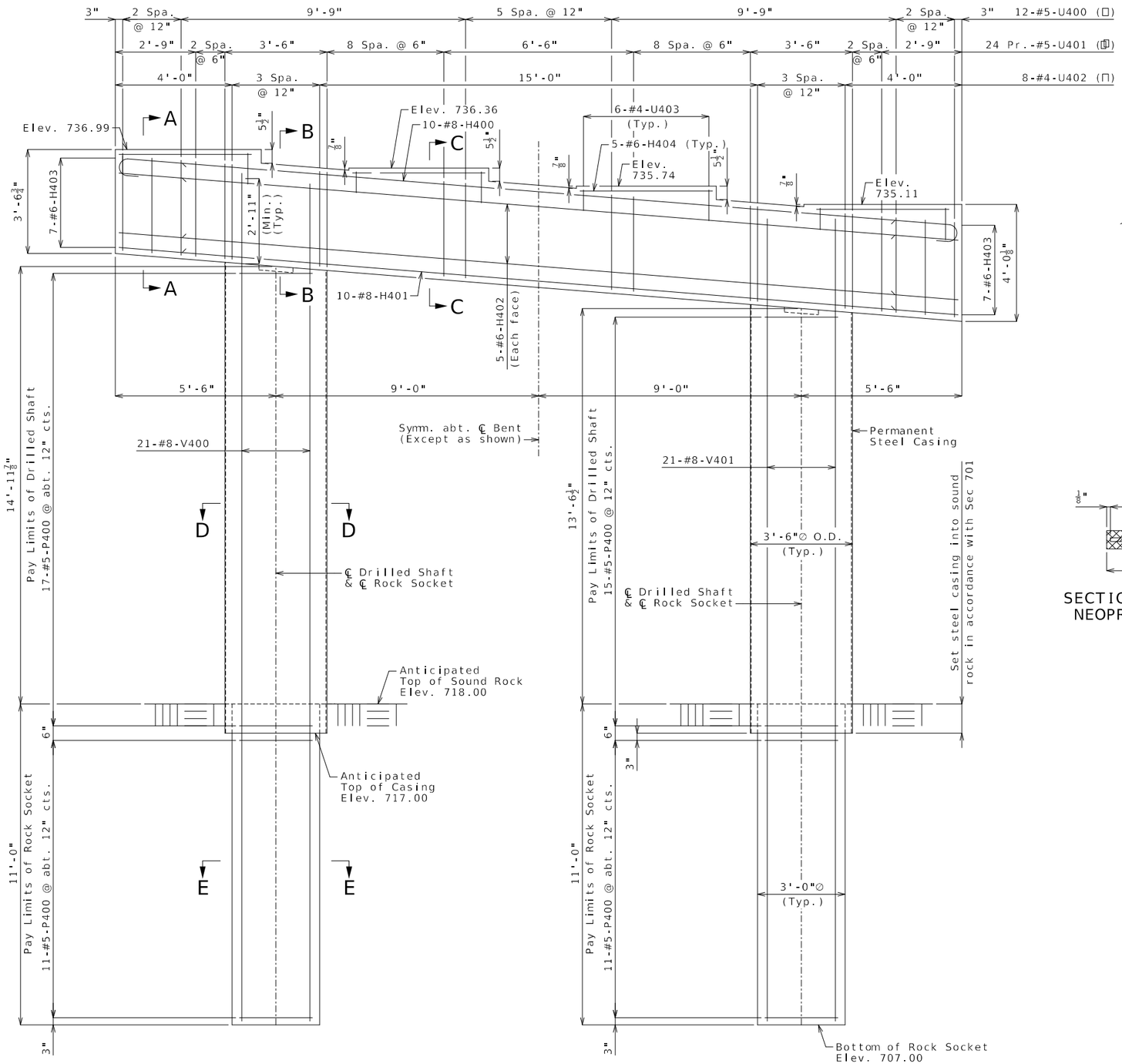
DESCRIPTION

DATE

REV.

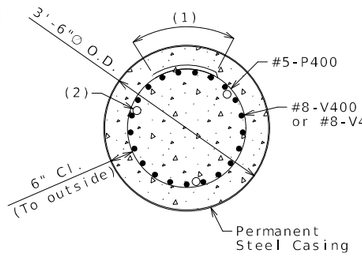
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

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

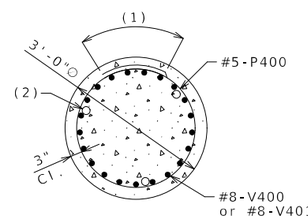


ELEVATION

Beam keys not shown for clarity.



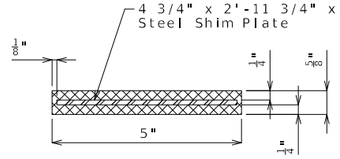
SECTION D-D



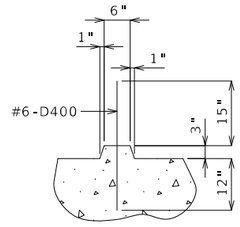
SECTION E-E

(1) 2'-7" Min. Lap (#5-P200) (Stagger adjacent bar splices)

(2) 2"○ Steel Pipe for sonic logging testing (3 each shaft)



SECTION THRU LAMINATED NEOPRENE BEARING PAD



SECTION THRU KEY

Substructure Quantity Table for Bent No. 4		
Item		Quantity
Drilled Shafts (3 ft. 6 in. Dia.)	linear foot	28.6
Rock Sockets (3 ft. 0 in. Dia.)	linear foot	22.0
Video Camera Inspection	each	2
Foundation Inspection Holes	linear foot	42.0
Sonic Logging Testing	each	2
Class B Concrete (Substructure)	cu. yard	15.9
Reinforcing Steel (Bridges)	pound	7,150

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

All reinforcement in drilled shafts and rock sockets is included in the substructure quantities.

General Notes:
Work this sheet with Sheet No. 13.

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

An additional 4 feet has been added to V-bar lengths and additional 8-#5-P200 bars have been added for possible change in drilled shaft or rock socket length. The additional V-bar length shall be cut off or included in the reinforcement lap, if required. The P bars shall be spaced similarly to that shown in Elevation, if required, or a lesser spacing if not required but not less than 6-inch centers.

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

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

DETAILS OF INTERMEDIATE BENT NO. 4

Detailed May 2024
Checked May 2024

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

STATE OF MISSOURI
ALEX BENZ
NUMBER PE-2018003121
PROFESSIONAL ENGINEER
Alex C. Benz
06/27/2024 7:54:37 AM
Alex Benz - Civil
MO PE-2018003121

DATE PREPARED 6/25/2024

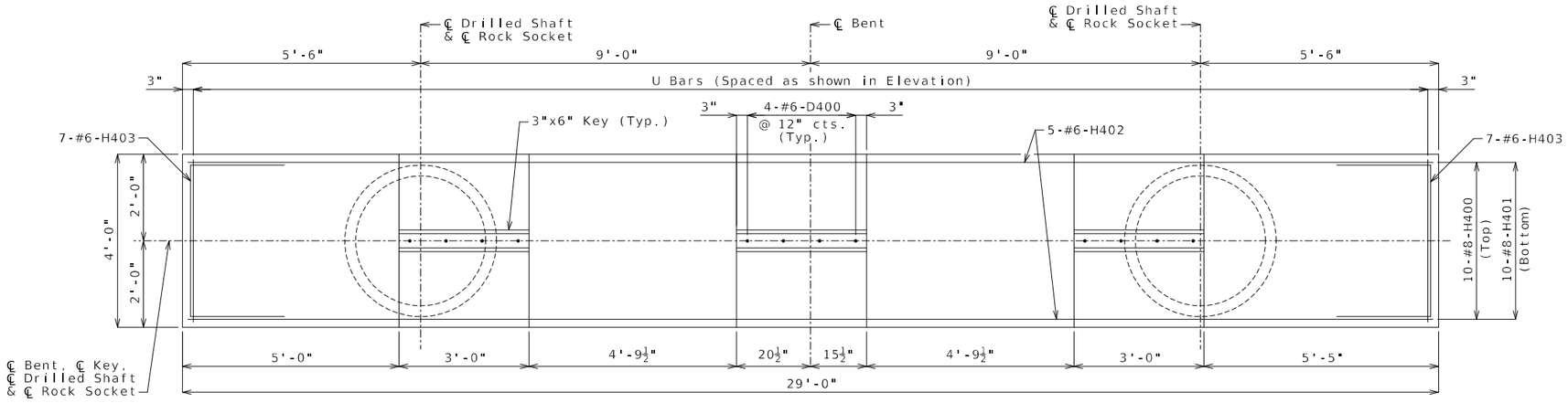
ROUTE	STATE
190	MO
DISTRICT	SHEET NO.
BR	12

COUNTY: DAVIESS
JOB NO.: JNW0031
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: A9469

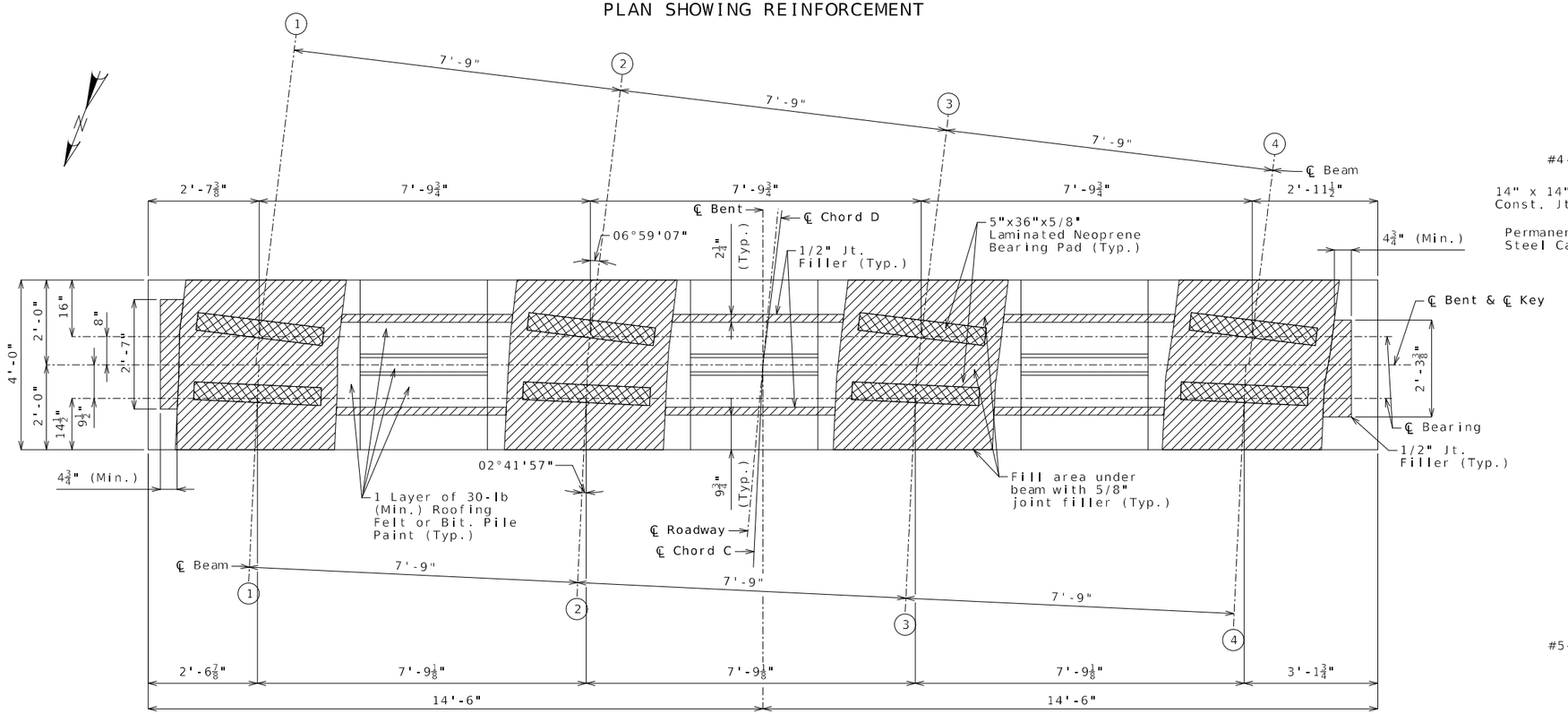
DESCRIPTION | DATE | REV.

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

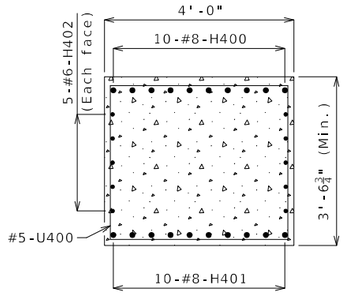
EFK•Moen
Civil Engineering Design
13523 Barrett Parkway Dr
Suite 250
St. Louis, MO 63021
Phone 314-394-3100
Fax 314-394-3199
Missouri Certificate of Authority: 001578



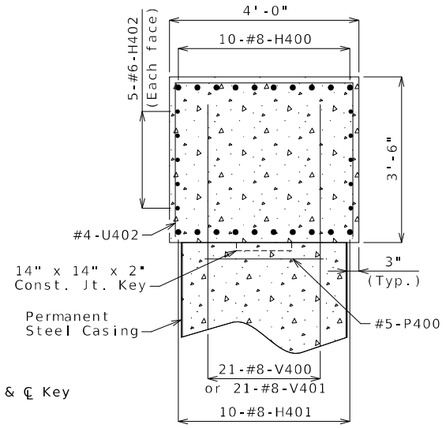
PLAN SHOWING REINFORCEMENT



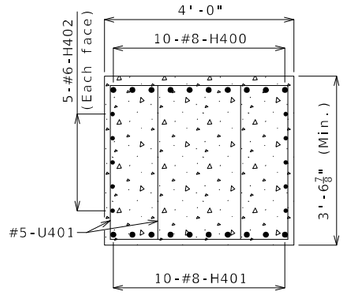
PLAN OF BEAM



SECTION A-A



SECTION B-B



SECTION C-C

DETAILS OF INTERMEDIATE BENT NO. 4

Detailed May 2024
Checked May 2024

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

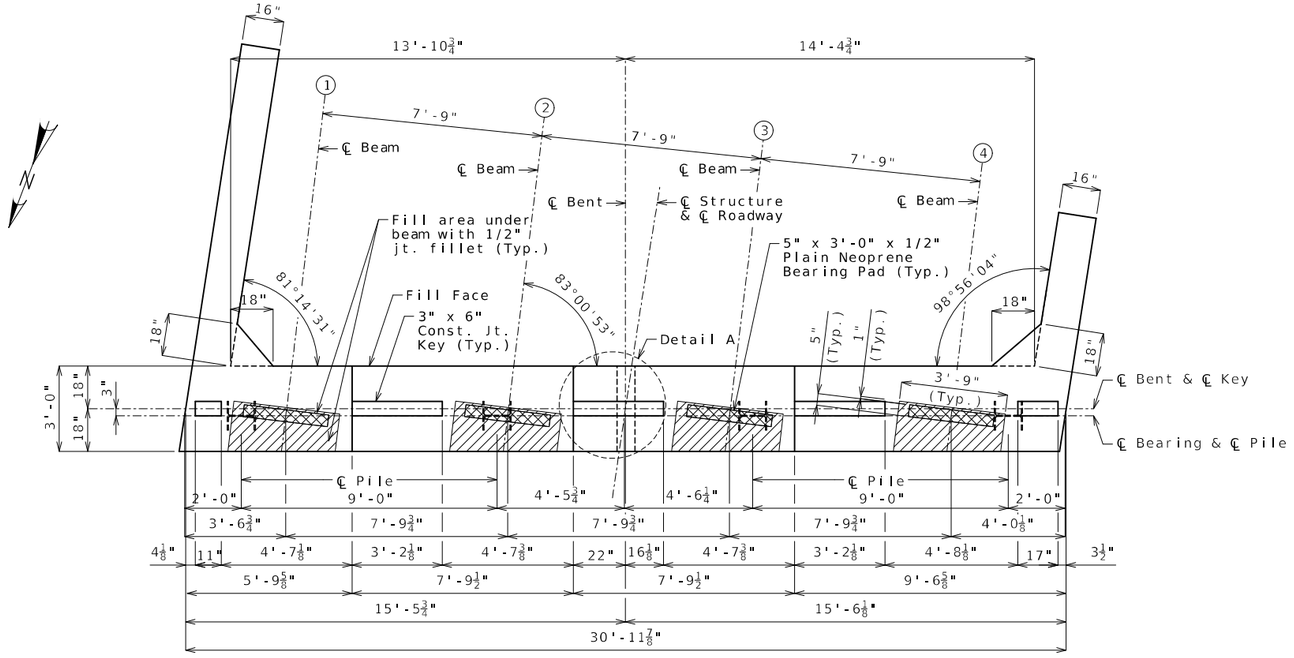
STATE OF MISSOURI
ALEX BENZ
NUMBER PE-2018003121
PROFESSIONAL ENGINEER
Alex C. Benz
06/27/2024 7:54:48 AM
Alex Benz - Civil
MO PE-2018003121

DATE PREPARED	6/25/2024
ROUTE	190
STATE	MO
DISTRICT	BR
SHEET NO.	13
COUNTY	DAVIESS
JOB NO.	JNW0031
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO.	A9469

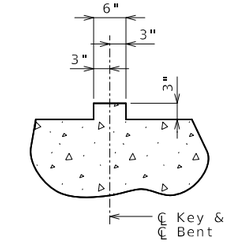
DESCRIPTION | DATE | REV.

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

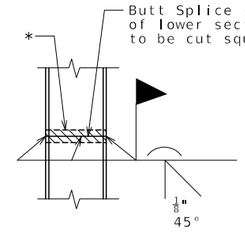
EFK·Moen
Civil Engineering Design
13523 Barrett Parkway Dr
Suite 250
St Louis, MO 63021
Phone 314-394-3100
Fax 314-394-3199
Missouri Certificate of Authority: 001578



PLAN OF BEAM



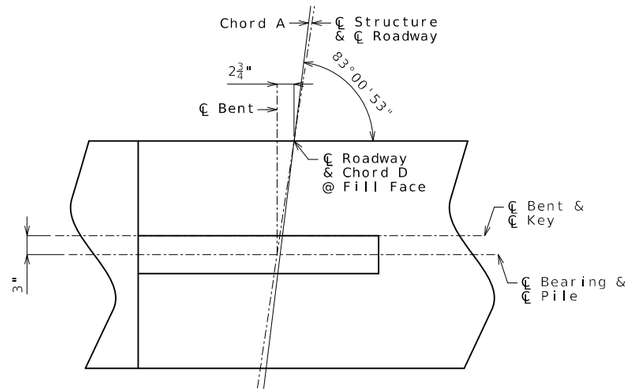
SECTION THRU KEY



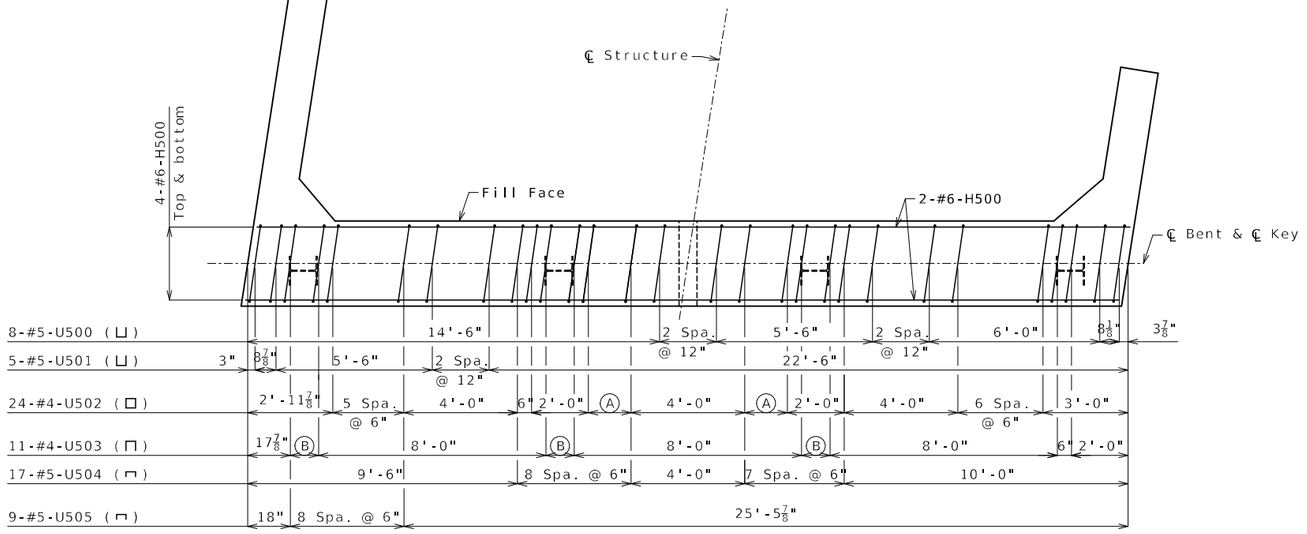
STEEL PILE SPLICE

(If required)

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



DETAIL A



PLAN OF BEAM SHOWING REINFORCEMENT

Keys not shown for clarity.

Notes:
Work this sheet with Sheets No. 15 & 16.

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

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

Substructure Quantity Table for Bent No. 5		
Item		Quantity
Class 1 Excavation	cu. yard	35
Galvanized Structural Steel Pile (12 in.)	linear foot	76
Pile Point Reinforcement	each	4
Class B Concrete (Substructure)	cu. yard	15.6
Pre-Bore for Piling	linear foot	68

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

DETAILS OF END BENT NO. 5

Detailed May 2024
Checked May 2024

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

ALEX BENZ NUMBER PE-2018003121 PROFESSIONAL ENGINEER
Alex C. Benz
06/27/2024 7:55:15 AM
Alex Benz - Civil
MO PE-2018003121

DATE PREPARED 6/25/2024

ROUTE	STATE
190	MO
DISTRICT	SHEET NO.
BR	14

COUNTY DAVIESS

JOB NO. JNW0031

CONTRACT ID.

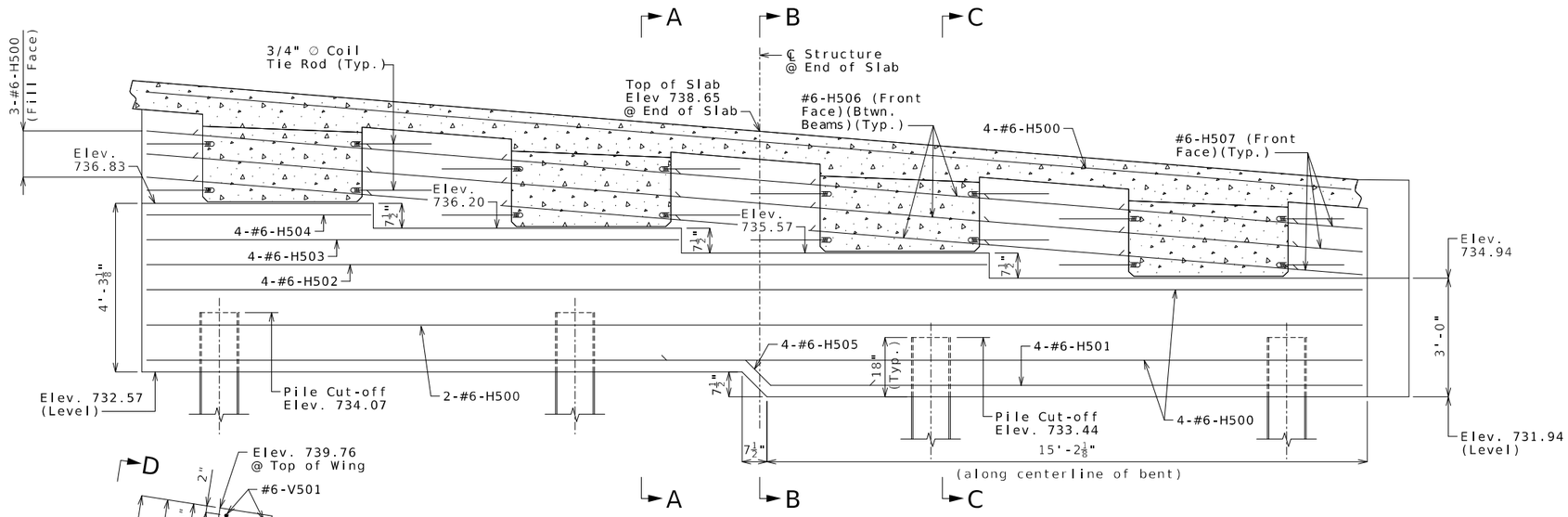
PROJECT NO.

BRIDGE NO. A9469

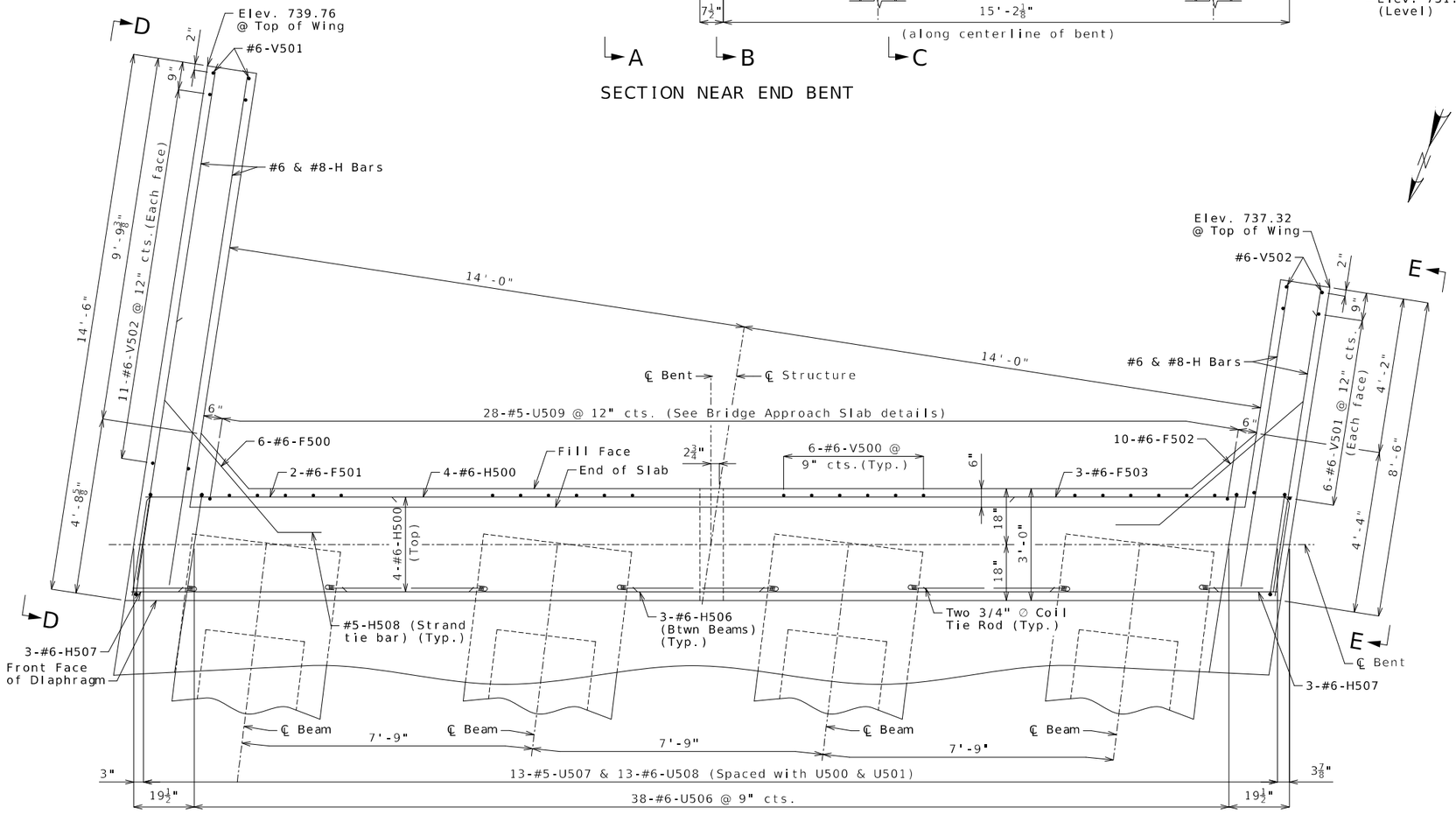
DESCRIPTION | DATE | REV.

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

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



SECTION NEAR END BENT



PART PLAN

Notes:
Work this sheet with Sheets No. 14 & 16.

For Section A-A, B-B & C-C and Elevations D-D & E-E, see Sheet No. 16.

The #6-F500 and #6-F502 bars shall be bent in the field to clear beams.

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

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

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

For locations of coil tie rods and #5-H508 (strand tie bar), see Sheet No. 20.

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

For details of bridge approach slab, see Sheet No. 32.

DETAILS OF END BENT NO. 5

Detailed May 2024
Checked May 2024

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

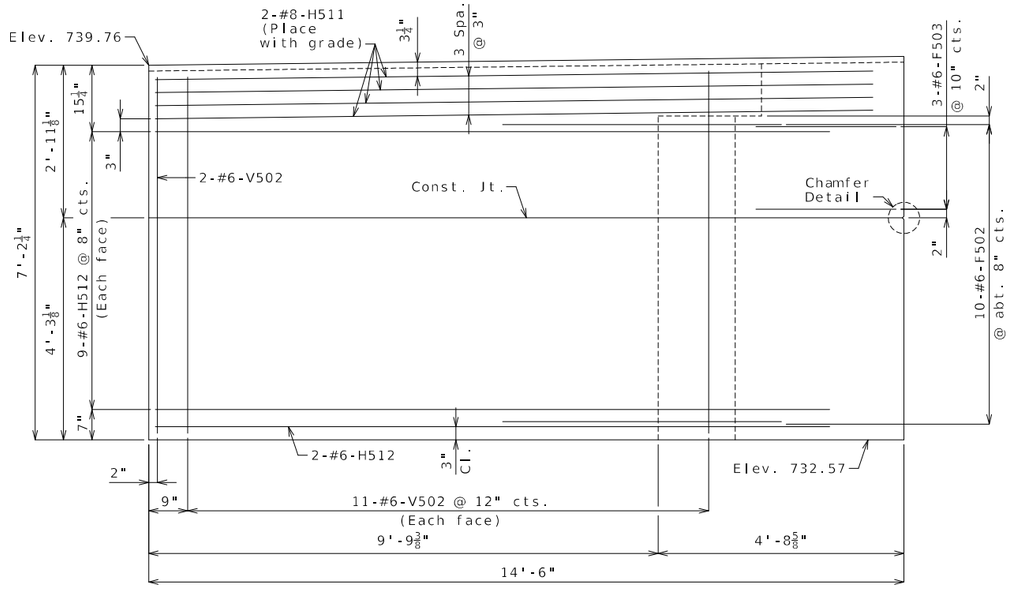
STATE OF MISSOURI
ALEX BENZ
NUMBER PE-2018003121
PROFESSIONAL ENGINEER
Alex C. Benz
06/27/2024 7:55:22 AM
Alex Benz - Civil
MO PE-2018003121

DATE PREPARED 6/25/2024
ROUTE 190 | STATE MO
DISTRICT BR | SHEET NO. 15
COUNTY DAVIESS
JOB NO. JNW0031
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9469

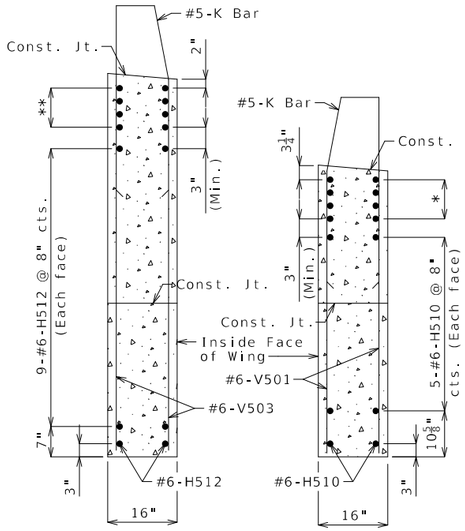
DESCRIPTION | DATE | REV.

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

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



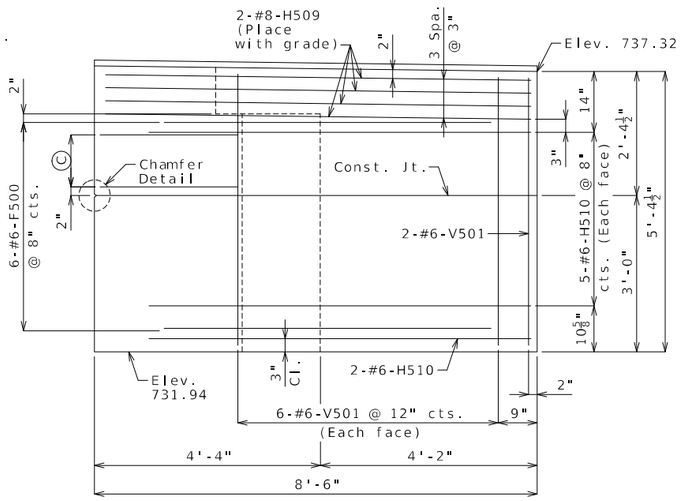
ELEVATION D-D



TYPICAL SECTION THRU WING

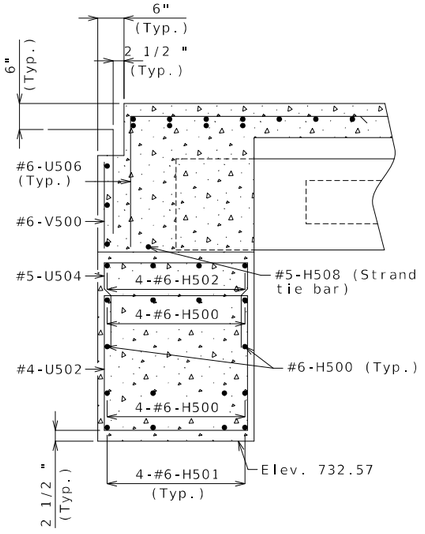
* #8-H509 Bars at 3" cts. (Each face)(Place with grade)

** #8-H511 Bars at 3" cts. (Each face)(Place with grade)

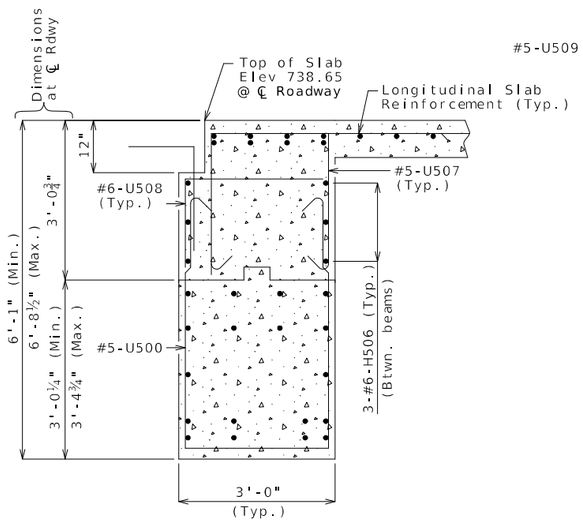


ELEVATION E-E

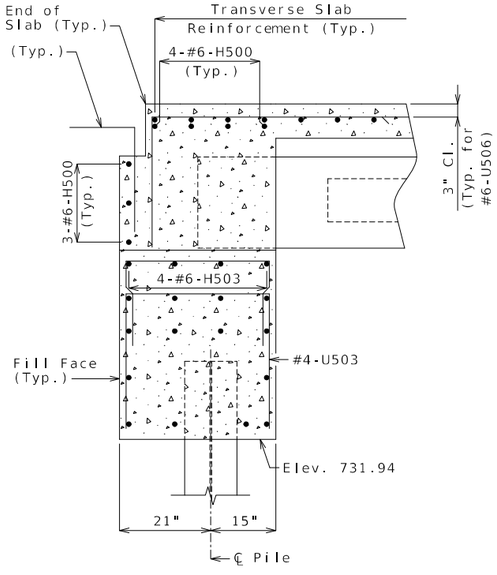
Ⓒ 2-#6-F501 @ 12" cts.



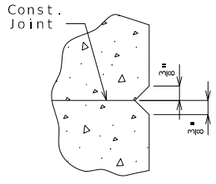
SECTION A-A



SECTION B-B



SECTION C-C



CHAMFER DETAIL

Notes:

Work this sheet with Sheets 14 & 15.

For reinforcement of barrier, see Sheets No. 30 & 31.

DETAILS OF END BENT NO. 5

Detailed May 2024
Checked May 2024

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

STATE OF MISSOURI
ALEX BENZ
NUMBER PE-2018003121
PROFESSIONAL ENGINEER
Alex C. Benz
06/27/2024 7:55:31 AM
Alex Benz - Civil
MO PE-2018003121

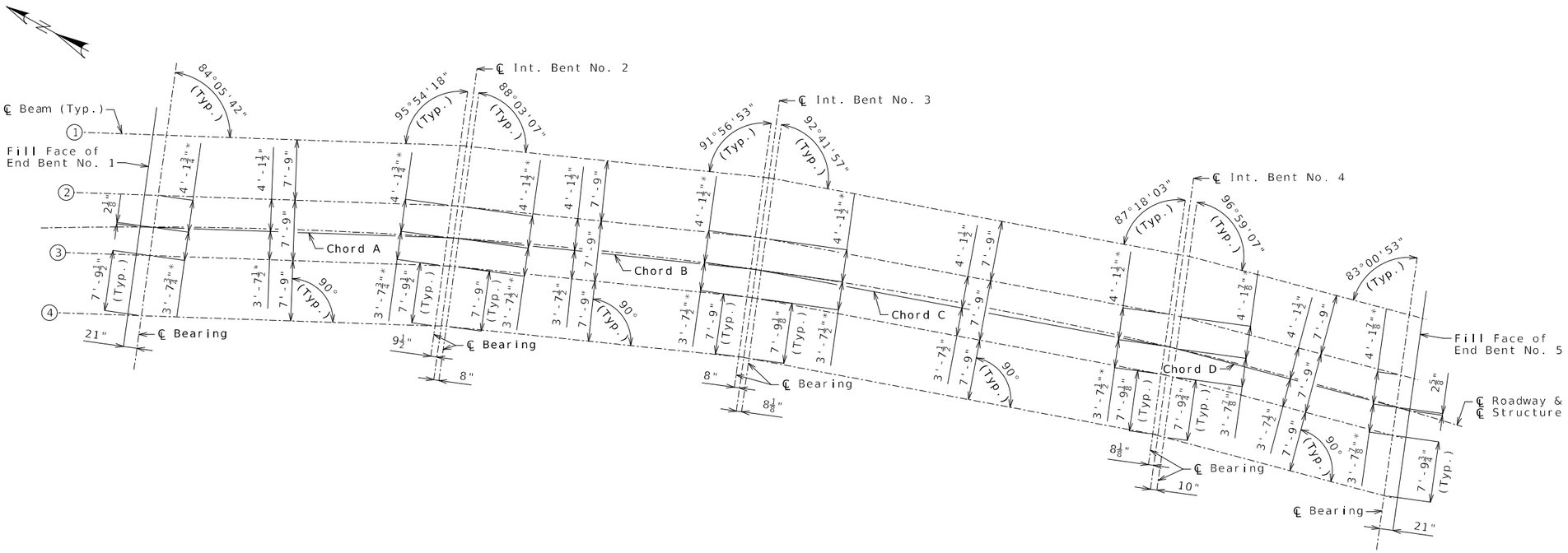
DATE PREPARED 6/25/2024

ROUTE 190 | STATE MO
DISTRICT BR | SHEET NO. 16
COUNTY DAVIESS
JOB NO. JNW0031
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9469

DESCRIPTION | DATE | REV.

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

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



SPAN (1-2) SPAN (2-3) SPAN (3-4) SPAN (4-5)

PLAN

Notes:

All dimensions are horizontal.

All bents are parallel.

Beams within a span are parallel to chords.

*Dimensions along centerline of bearing are to Chords A, B, C, and D.

BEAM LAYOUT

Detailed May 2024
Checked May 2024

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

O:\2021R2\MoDOT_ORD_v10.10.01.03\23071 MoDOT JNW0031 Route 190\DGN\Bridge\Final\Plotsheets\B_A9469_017_JNW0031_Beam-Layout.dgn 11:25:25 AM 6/25/2024

STATE OF MISSOURI
ALEX BENZ
NUMBER PE-2018003121
PROFESSIONAL ENGINEER

Alex C. Benz

06/27/2024 7:55:42 AM
Alex Benz - Civil
MO PE-2018003121

DATE PREPARED
6/25/2024

ROUTE	STATE
190	MO
DISTRICT	SHEET NO.
BR	17

COUNTY
DAVIESS

JOB NO.
JNW0031

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9469

REV.	DATE	DESCRIPTION

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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

EFK•Moen
Civil Engineering Design
13523 Barrett Parkway Dr
Suite 250
St. Louis, MO 63021
Phone 314-394-3100
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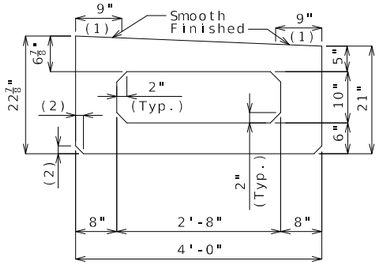
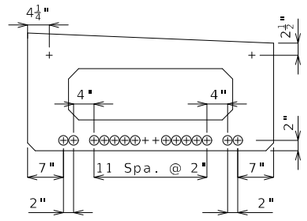


DIMENSIONS



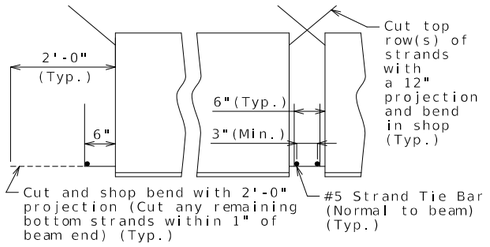
STRAND ARRANGEMENT

All strands are fully bonded unless otherwise noted.

\+ Indicates prestressing strand.

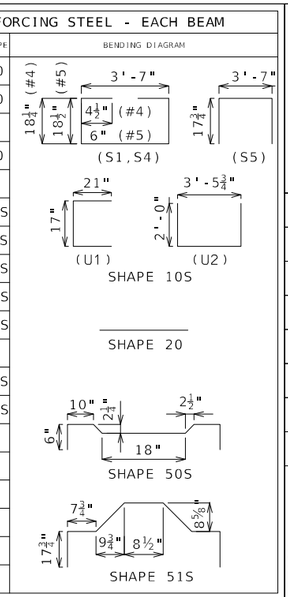
○ Indicates cut and shop bend with 2'-0" projection.

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

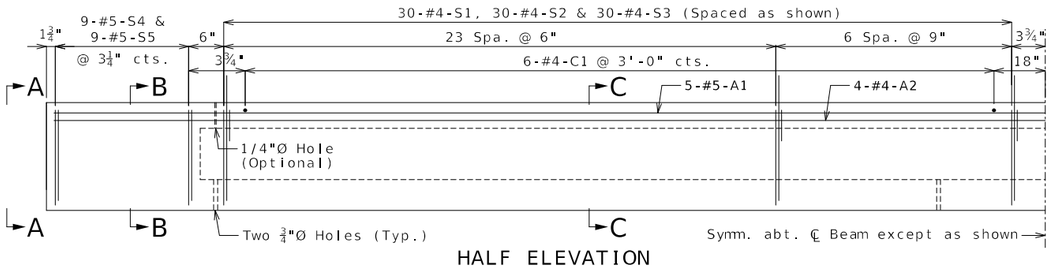


STRANDS AT BEAM ENDS

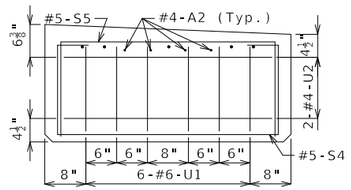
BILL OF REINFORCING STEEL - EACH BEAM				
NO.	SIZE & MARK	ACTUAL LENGTH	SHAPE	BENDING DIAGRAM
5	5 A1	38'-0"	20	
4	4 A2	38'-0"	20	
12	4 C1	3'-7"	20	
60	4 S1	7'-0"	10S	
60	4 S2	6'-10"	51S	
60	4 S3	4'-6"	50S	
18	5 S4	7'-3"	10S	
18	5 S5	6'-4"	10S	
12	6 U1	4'-7"	10S	
4	4 U2	7'-4"	10S	



(2) 1½" (Typ.) (¾" Optional)



HALF ELEVATION



ELEVATION A-A

Strands not shown for clarity.

All dimensions are out to out. Use symmetry for dimensions not shown.

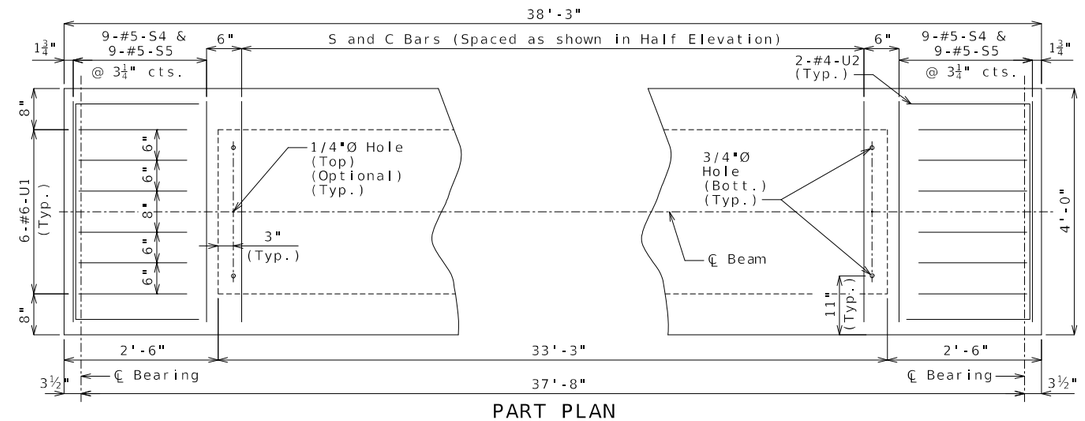
Hooks and bends shall be in accordance with the CRSI Manual of Standard Practice for Detailing Reinforced Concrete Structures, Stirrup and Tie Dimensions.

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

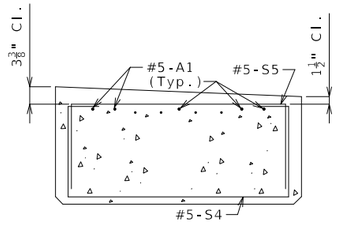
Minimum clearance to reinforcing shall be 1", unless otherwise shown.

All reinforcement shall be Grade 60.

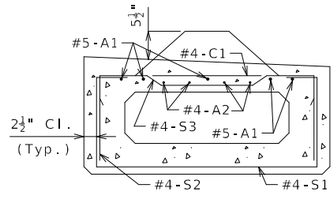
All S2 bars shall be epoxy coated.



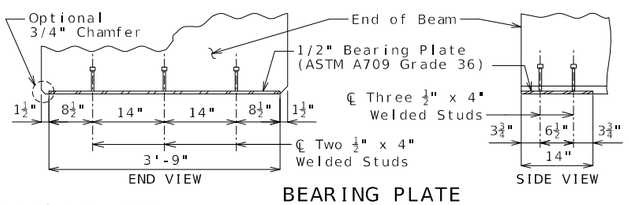
PART PLAN



SECTION B-B

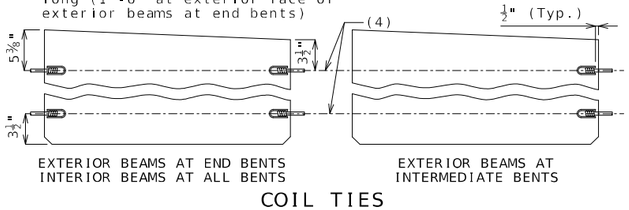


SECTION C-C



BEARING PLATE

(4) ℄ 3/4"Ø (Min.) Coil Tie Rods 2'-6" long (1'-6" at exterior face of exterior beams at end bents)



EXTERIOR BEAMS AT END BENTS
INTERIOR BEAMS AT ALL BENTS

EXTERIOR BEAMS AT INTERMEDIATE BENTS

COIL TIES

General Notes:

Concrete for prestressed beams shall be Class A-1 with f'c = 6,000 psi and f'ci = 4,500 psi.

Use 18 strands, 0.5"Ø Grade 270, with an initial prestress force of 558 kips.

Pretensioned members shall be in accordance with Sec 1029.

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

Exterior and interior beams are the same except: coil ties, application of bond breaker, coil inserts for slab drains.

For Beam Camber Diagram, see Sheet No. 23.

For location of coil inserts at slab drains, see Sheet No. 22.

For location of coil ties at concrete bent diaphragms, see Sheets No. 5 and 21.

SPREAD BOX BEAMS - SPANS (1-2) AND (2-3)

Detailed May 2024
Checked May 2024

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

STATE OF MISSOURI ALEX BENZ NUMBER PE-2018003121 PROFESSIONAL ENGINEER
Alex C. Benz
06/27/2024 7:55:52 AM
Alex Benz - Civil
MO PE-2018003121

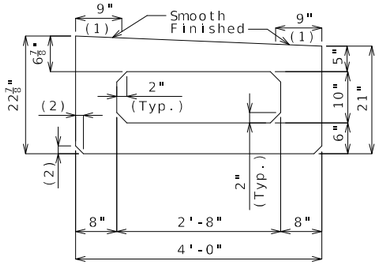
DATE PREPARED 6/25/2024
ROUTE 190 | STATE MO
DISTRICT BR | SHEET NO. 18
COUNTY DAVIESS
JOB NO. JNW0031
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9469

DESCRIPTION | DATE

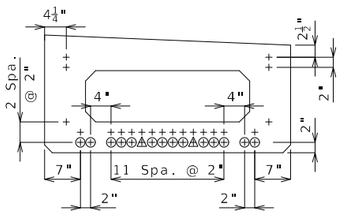
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

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

REV.



DIMENSIONS



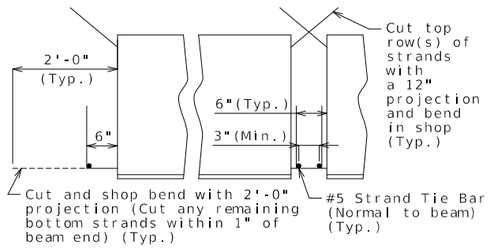
STRAND ARRANGEMENT

All strands are fully bonded unless otherwise noted.

\+ Indicates prestressing strand.

○ Indicates cut and shop bend with 2'-0" projection.

△ Indicates debonded for 4'-0" from end of beam.

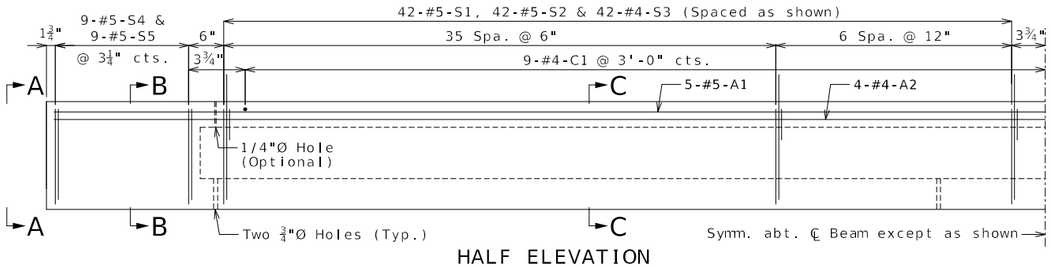


INTERMEDIATE BENT

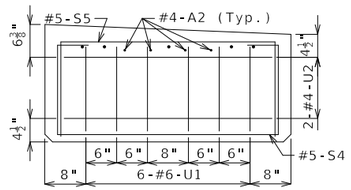
STRANDS AT BEAM ENDS

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

(2) 1½" (Typ.) (¾" Optional)

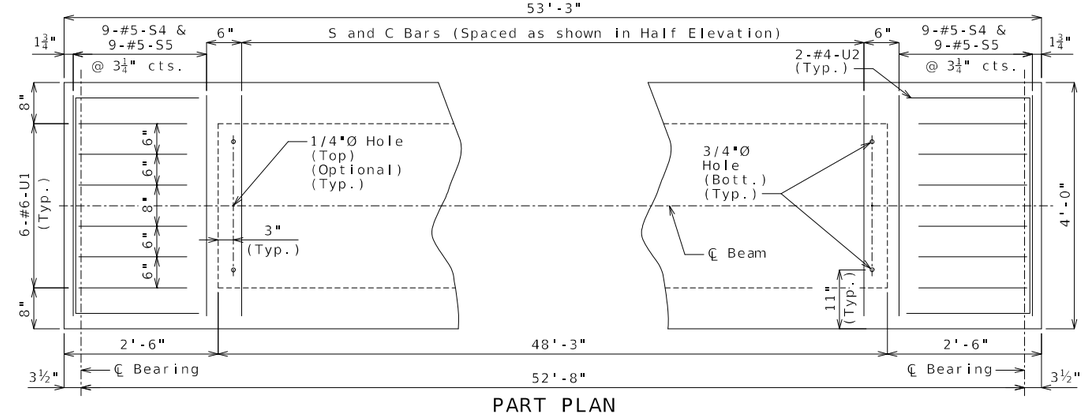


HALF ELEVATION

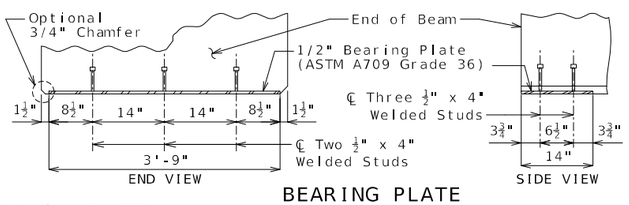


ELEVATION A-A

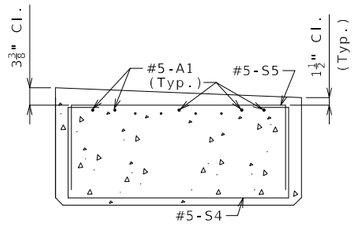
Strands not shown for clarity.



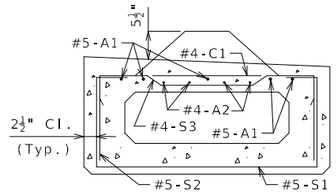
PART PLAN



BEARING PLATE

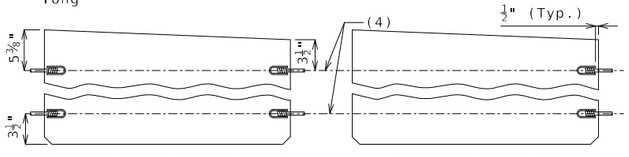


SECTION B-B



SECTION C-C

(4) ℄ 3/4"Ø (Min.) Coil Tie Rods 2'-6" long



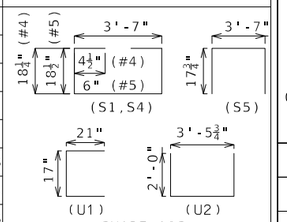
INTERIOR BEAMS AT ALL BENTS

EXTERIOR BEAMS AT INTERMEDIATE BENTS

COIL TIES

BILL OF REINFORCING STEEL - EACH BEAM

NO.	SIZE & MARK	ACTUAL LENGTH	SHAPE	BENDING DIAGRAM
5	5 A1	53'-0"	20	
4	4 A2	53'-0"	20	
17	4 C1	3'-7"	20	
84	5 S1	7'-3"	10S	
84	5 S2	6'-9"	51S	
84	4 S3	4'-6"	50S	
18	5 S4	7'-3"	10S	
18	5 S5	6'-4"	10S	
12	6 U1	4'-7"	10S	
4	4 U2	7'-4"	10S	



All dimensions are out to out. Use symmetry for dimensions not shown.

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

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

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

All reinforcement shall be Grade 60.

All S2 bars shall be epoxy coated.

General Notes:

Concrete for prestressed beams shall be Class A-1 with f'c = 6,000 psi and f'ci = 4,500 psi.

Use 36 strands, 0.5"Ø Grade 270, with an initial prestress force of 1116 kips.

Pretensioned members shall be in accordance with Sec 1029.

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

Exterior and interior beams are the same except: coil ties, application of bond breaker, coil inserts for slab drains.

For Beam Camber Diagram, see Sheet No. 23.

For location of coil inserts at slab drains, see Sheet No. 22.

For location of coil ties at concrete bent diaphragms, see Sheet No. 21.

STATE OF MISSOURI
ALEX BENZ
NUMBER PE-2018003121
PROFESSIONAL ENGINEER
Alex C. Benz
06/27/2024 7:56:02 AM
Alex Benz - Civil
MO PE-2018003121

DATE PREPARED 6/25/2024

ROUTE 190 | STATE MO

DISTRICT BR | SHEET NO. 19

COUNTY DAVIESS

JOB NO. JNW0031

CONTRACT ID.

PROJECT NO.

BRIDGE NO. A9469

DESCRIPTION | DATE | REV.

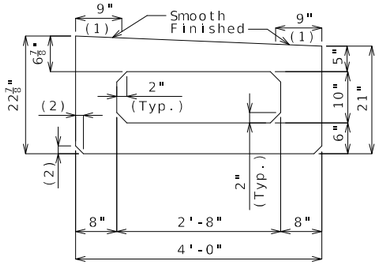
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

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

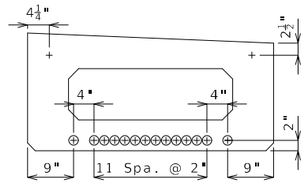
Detailed May 2024
Checked May 2024

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

SPREAD BOX BEAMS - SPAN (3-4)



DIMENSIONS



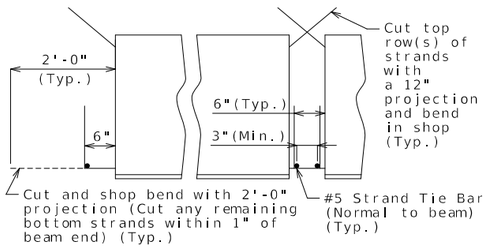
STRAND ARRANGEMENT

All strands are fully bonded unless otherwise noted.

\+ Indicates prestressing strand.

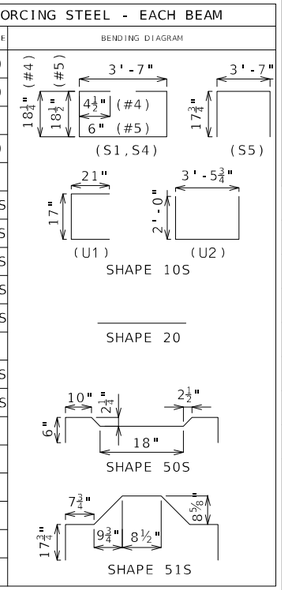
○ Indicates cut and shop bend with 2'-0" projection.

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

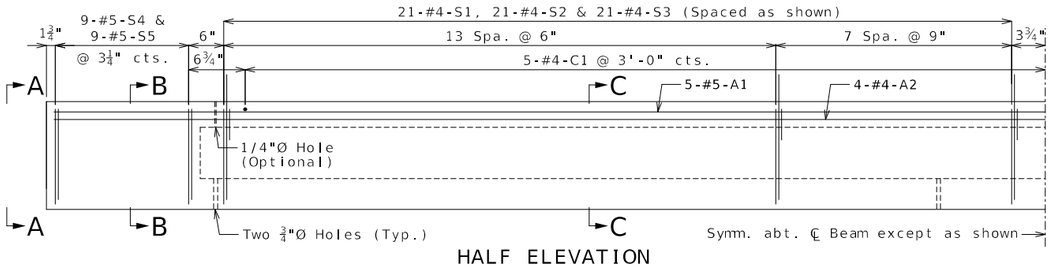


STRANDS AT BEAM ENDS

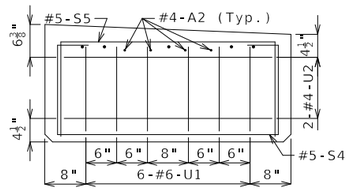
BILL OF REINFORCING STEEL - EACH BEAM				
NO.	SIZE & MARK	ACTUAL LENGTH	SHAPE	BENDING DIAGRAM
5	5 A1	29'-6"	20	
4	4 A2	29'-6"	20	
9	4 C1	3'-7"	20	
42	4 S1	7'-0"	10S	
42	4 S2	6'-10"	51S	
42	4 S3	4'-6"	50S	
18	5 S4	7'-3"	10S	
18	5 S5	6'-4"	10S	
12	6 U1	4'-7"	10S	
4	4 U2	7'-4"	10S	



(2) 1½" (Typ.) (¾" Optional)

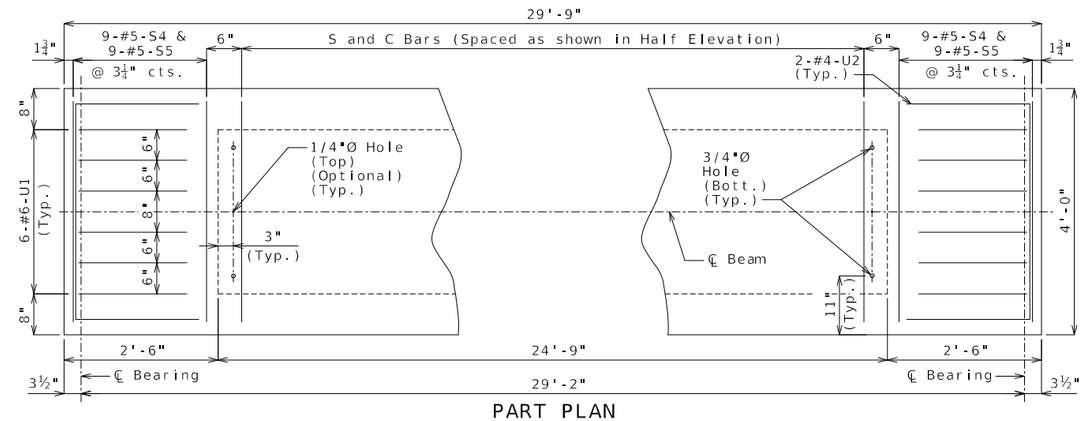


HALF ELEVATION

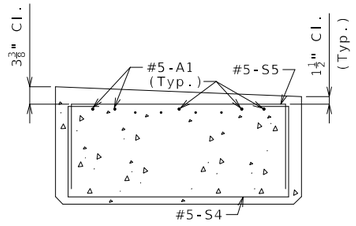


ELEVATION A-A

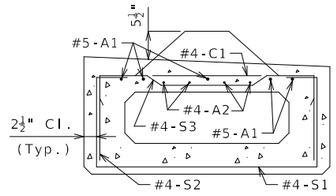
Strands not shown for clarity.



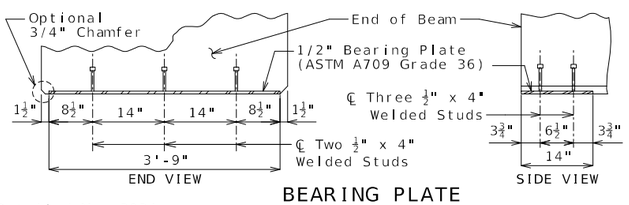
PART PLAN



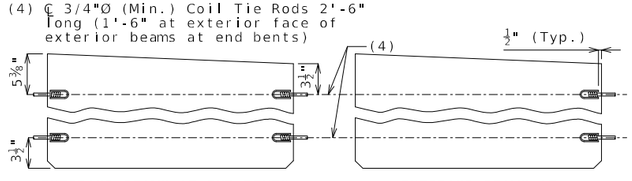
SECTION B-B



SECTION C-C



BEARING PLATE



COIL TIES

All dimensions are out to out. Use symmetry for dimensions not shown.

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

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

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

All reinforcement shall be Grade 60.

All S2 bars shall be epoxy coated.

General Notes:

Concrete for prestressed beams shall be Class A-1 with f'c = 6,000 psi and f'ci = 4,500 psi.

Use 16 strands, 0.5"Ø Grade 270, with an initial prestress force of 496 kips.

Pretensioned members shall be in accordance with Sec 1029.

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

Exterior and interior beams are the same except: coil ties, application of bond breaker, coil inserts for slab drains.

For Beam Camber Diagram, see Sheet No. 23.

For location of coil inserts at slab drains, see Sheet No. 22.

For location of coil ties at concrete bent diaphragms, see Sheets No. 15 and 21.

STATE OF MISSOURI ALEX BENZ NUMBER PE-2018003121 PROFESSIONAL ENGINEER

Alex C. Benz

06/27/2024 7:56:11 AM
Alex Benz - Civil
MO PE-2018003121

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ROUTE	STATE
190	MO
DISTRICT	SHEET NO.
BR	20

COUNTY DAVIESS

JOB NO. JNW0031

CONTRACT ID.

PROJECT NO.

BRIDGE NO. A9469

DESCRIPTION	DATE

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

EFK•Moen
Civil Engineering Design
13523 Barrett Parkway Dr
Suite 250
St. Louis, MO 63021
Phone 314-394-3100
Fax 314-394-3199
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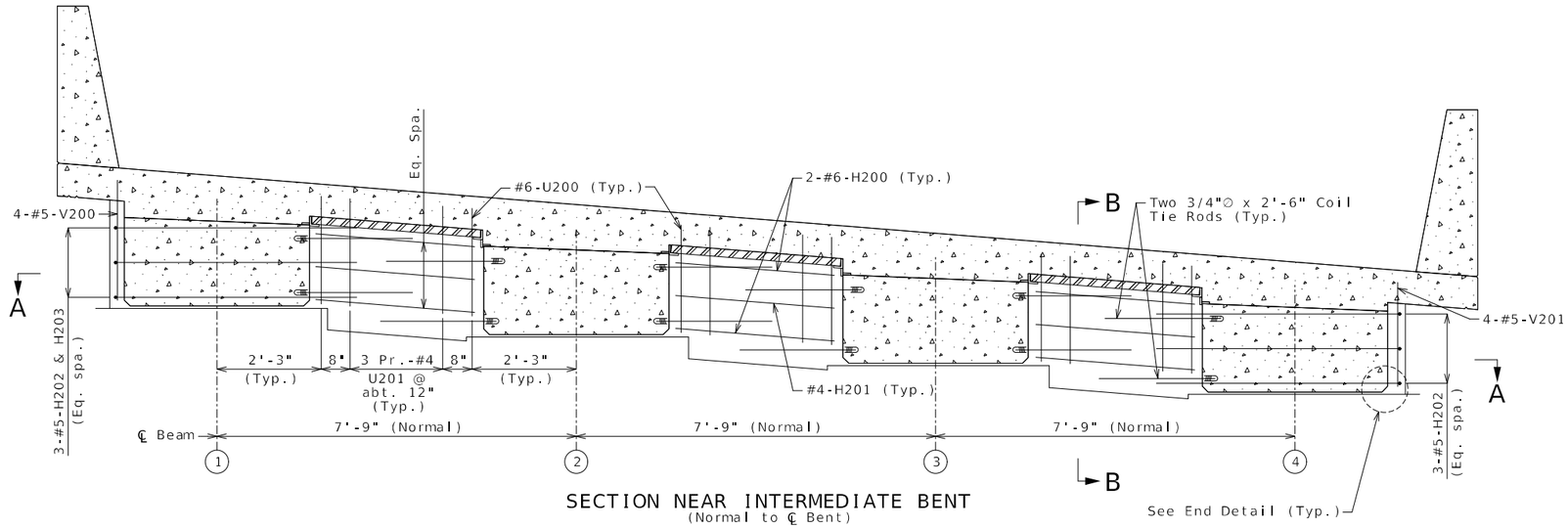
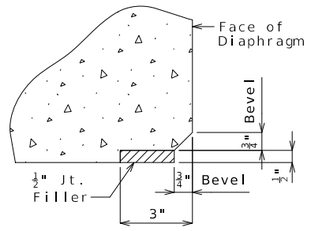
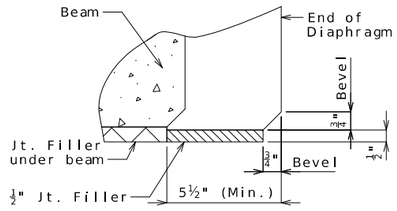
SPREAD BOX BEAMS - SPAN (4-5)



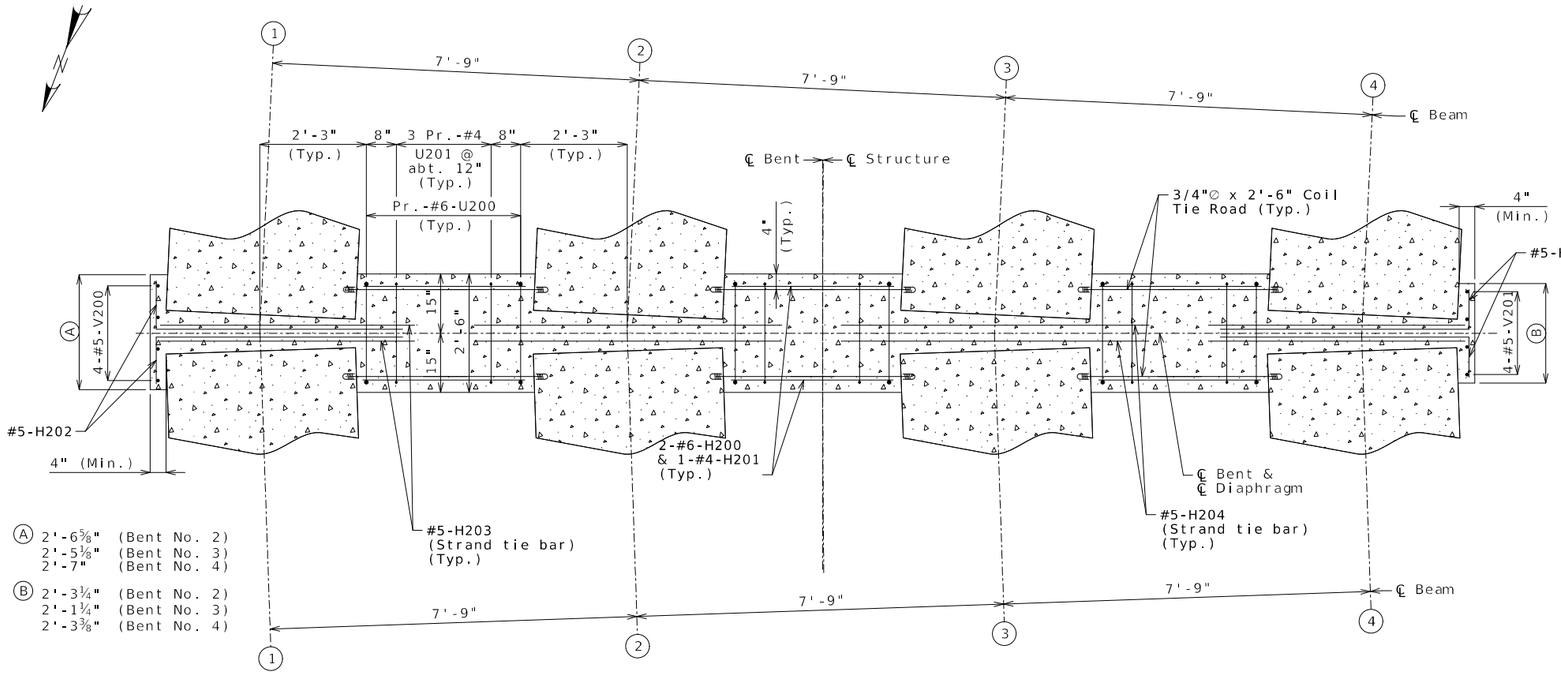
SECTION NEAR INTERMEDIATE BENT
(Normal to ℄ Bent)



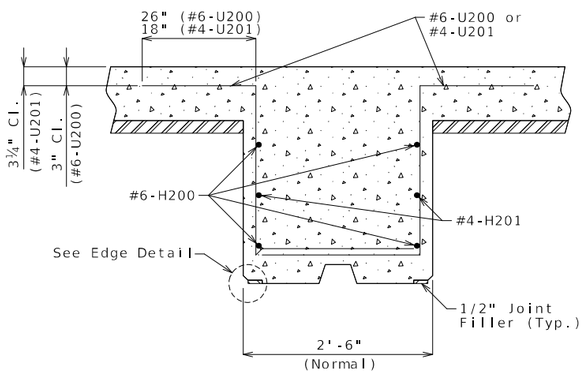
EDGE DETAIL



END DETAIL



SECTION A-A
(Diaphragm for Int. Bent No. 3 shown.
Diaphragm for Int. Bents No. 2 & 4 similar)



SECTION B-B

Notes:

For location of Strand Tie Bars, see Sheets No. 18 thru 20.

For location and details of Coil Tie Rods, see Sheets No. 18 thru 20.

Diaphragms at intermediate bents shall be built vertical.

All U-bars in diaphragms are to be placed perpendicular to ℄ Diaphragm.

CONCRETE DIAPHRAGMS AT INTERMEDIATE BENTS

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Alex C. Benz
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MO PE-2018003121

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

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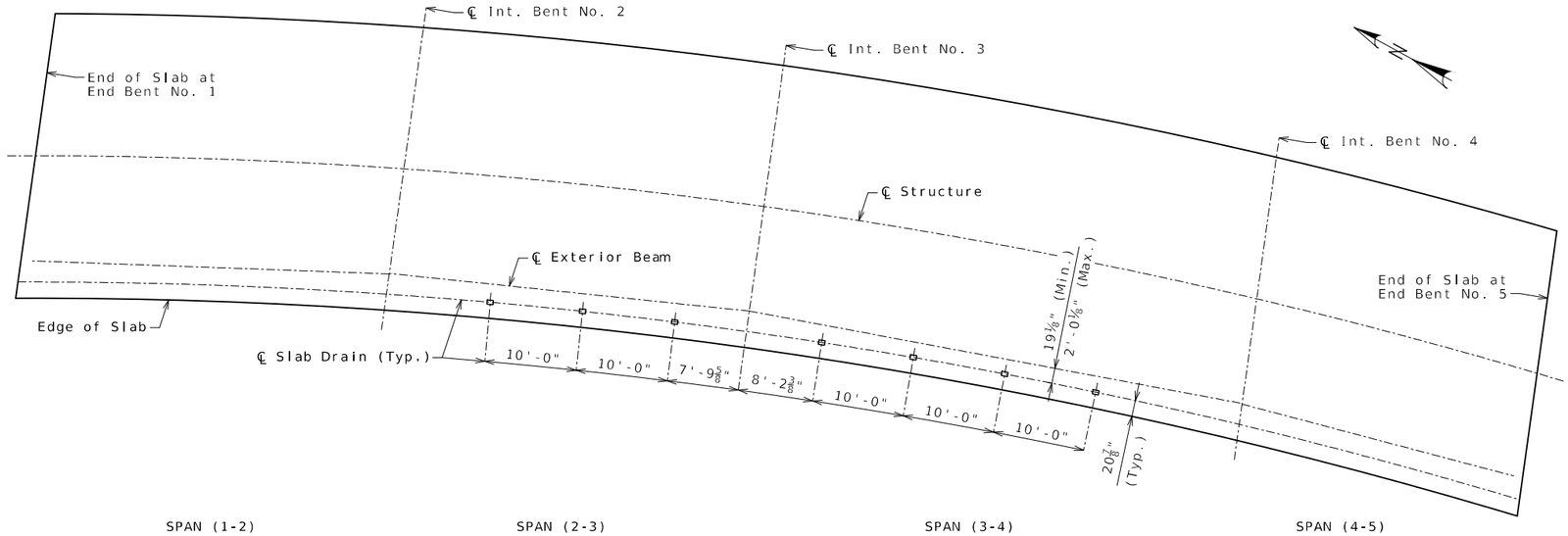
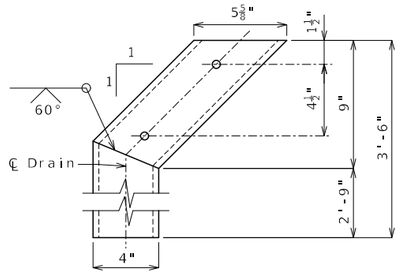
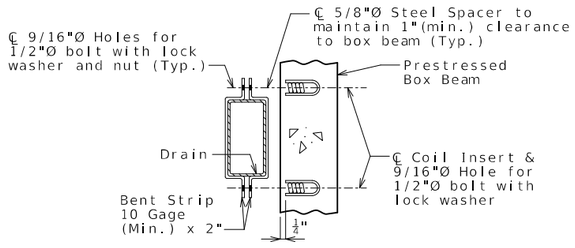


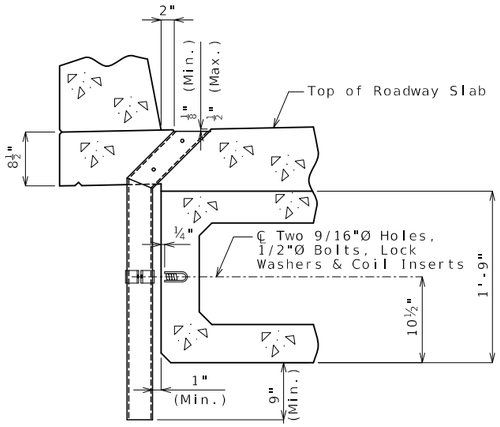
PLAN OF SLAB SHOWING SLAB DRAIN LOCATIONS



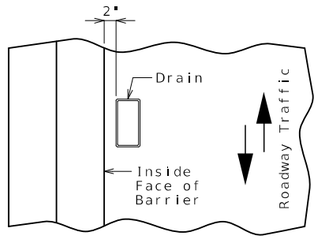
ELEVATION OF DRAIN



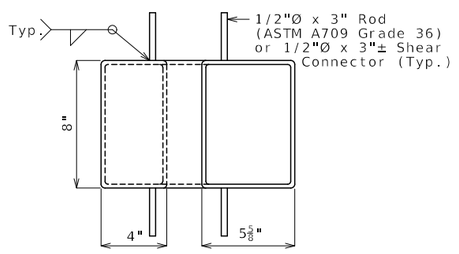
PART SECTION SHOWING BRACKET ASSEMBLY



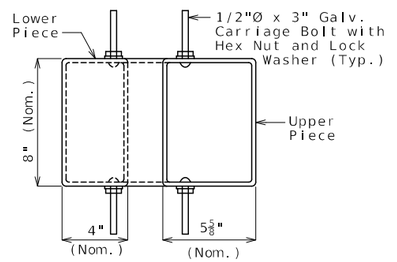
PART SECTION NEAR DRAIN



PART PLAN OF SLAB AT DRAIN



PLAN OF STEEL DRAIN OPTION



PLAN OF FRP DRAIN OPTION

SLAB DRAINS

General Notes:

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

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

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

Reinforcing steel shall be shifted to clear drains.

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

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

All 1/2"Ø bolts shall be ASTM A307.

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

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

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

The bolts required to attach the slab drain bracket assembly to the prestressed beam shall be supplied by the prestressed beam fabricator.

Notes for Steel Drain:

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

Outside dimensions of drains are 8" x 4".

The drains shall be galvanized in accordance with ASTM A123.

Notes for FRP Drain:

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

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

Minimum reinforced wall thickness shall be 1/4 inch.

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

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

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

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

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

STATE OF MISSOURI
ALEX BENZ
NUMBER PE-2018003121
PROFESSIONAL ENGINEER
Alex C. Benz
06/27/2024 7:56:51 AM
Alex Benz - Civil
MO PE-2018003121

DATE PREPARED 6/25/2024
ROUTE 190 | STATE MO
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COUNTY DAVIESS
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CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9469

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

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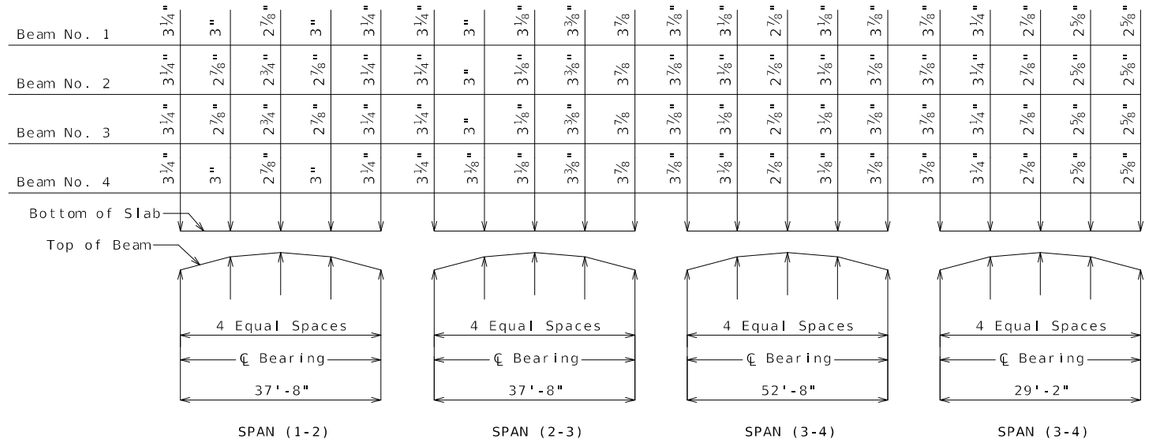
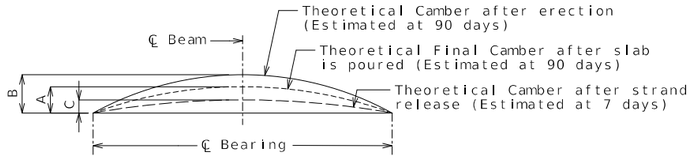


THEORETICAL SLAB HAUNCHING DIAGRAM (ESTIMATED AT 90 DAYS)

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

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

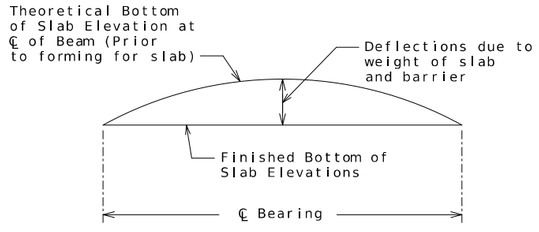


Beam	Span (1-2)			Span (2-3)			Span (3-4)			Span (4-5)		
	A	B	C	A	B	C	A	B	C	A	B	C
Exterior	⅜"	¾"	⅜"	⅜"	¾"	⅜"	1"	2¼"	⅞"	⅜"	½"	¼"
Interior	½"			½"			1"			⅜"		

BEAM CAMBER DIAGRAM

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

0.25 pt. = 0.7125 x 0.5 pt.



TYPICAL SLAB ELEVATIONS DIAGRAM

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

Girder Number	Span (1-2) (37'-8" ℄ Brg. - ℄ Brg.)					Span (2-3) (37'-8" ℄ Brg. - ℄ Brg.)					Span (3-4) (52'-8" ℄ Brg. - ℄ Brg.)					Span (3-4) (29'-2" ℄ Brg. - ℄ Brg.)				
	℄ Brg.	.25	.50	.75	℄ Brg.	℄ Brg.	.25	.50	.75	℄ Brg.	℄ Brg.	.25	.50	.75	℄ Brg.	℄ Brg.	.25	.50	.75	℄ Brg.
1	738.92	739.02	739.11	739.19	739.25	739.25	739.30	739.34	739.36	739.37	739.37	739.40	739.39	739.32	739.20	739.19	739.13	739.07	739.00	738.92
2	738.29	738.39	738.48	738.56	738.62	738.63	738.68	738.72	738.74	738.75	738.75	738.78	738.77	738.69	738.57	738.57	738.50	738.44	738.37	738.29
3	737.66	737.76	737.85	737.93	737.99	738.01	738.06	738.10	738.12	738.13	738.13	738.16	738.15	738.07	737.95	737.94	737.88	737.81	737.74	737.66
4	737.03	737.14	737.23	737.31	737.37	737.38	737.44	737.48	737.50	737.51	737.51	737.54	737.53	737.45	737.33	737.31	737.25	737.18	737.11	737.03

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.

ALEX BENZ
NUMBER PE-2018003121
STATE OF MISSOURI
PROFESSIONAL ENGINEER
Alex C. Benz
06/27/2024 7:57:03 AM
Alex Benz - Civil
MO PE-2018003121

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ROUTE	STATE
190	MO
DISTRICT	SHEET NO.
BR	23

COUNTY: DAVIESS
JOB NO.: JNW0031
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: A9469

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

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

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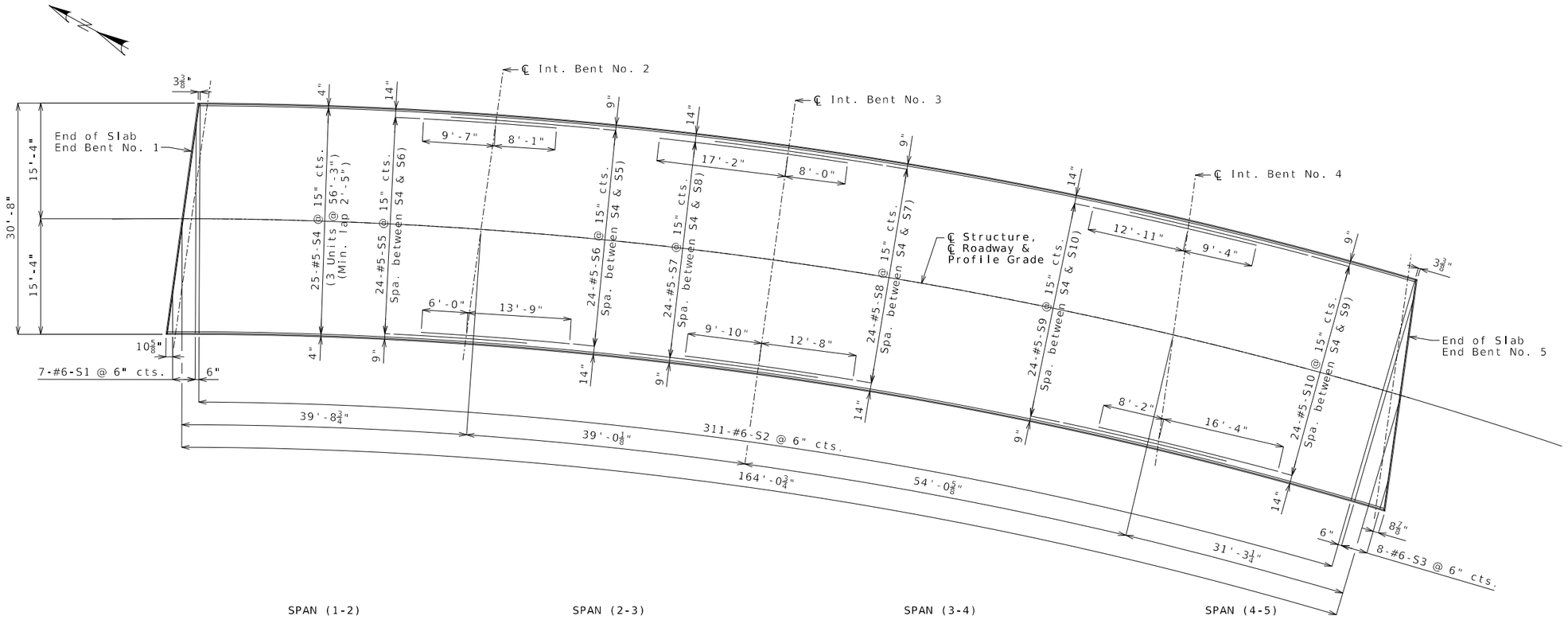
O:\2021R2\MoDOT_ORD_v10.10.01.03\23071 MoDOT JNW0031 Route 190\DGN\Bridge\Final\Plotsheets\B_A9469_023_JNW0031_Camber-Haunch.dgn 11:25:29 AM 6/25/2024



PLAN OF SLAB SHOWING TOP REINFORCEMENT

Notes:

Longitudinal slab dimensions are measured horizontally.

For details and locations of Slab Drains, see Sheet No. 22.

For Theoretical Slab Haunching Diagram, see Sheet No. 23.

For Plan of Slab Showing Bottom Reinforcement, see Sheet No. 25.

For Section Thru Slab and Slab Pouring Sequence, see Sheet No. 26.

For Slab Curve Ordinates, see Sheet No. 27.

For Details and Reinforcement of barrier not shown, see Sheets No. 28 thu 31.

PLAN OF SLAB SHOWING REINFORCEMENT

Designed May 2024
Detailed May 2024
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Alex C. Benz
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Alex Benz - Civil
MO PE-2018003121

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

EFK•Moen
Civil Engineering Design
13523 Barrett Parkway Dr
Suite 250
St. Louis, MO 63021
Phone 314-394-3100
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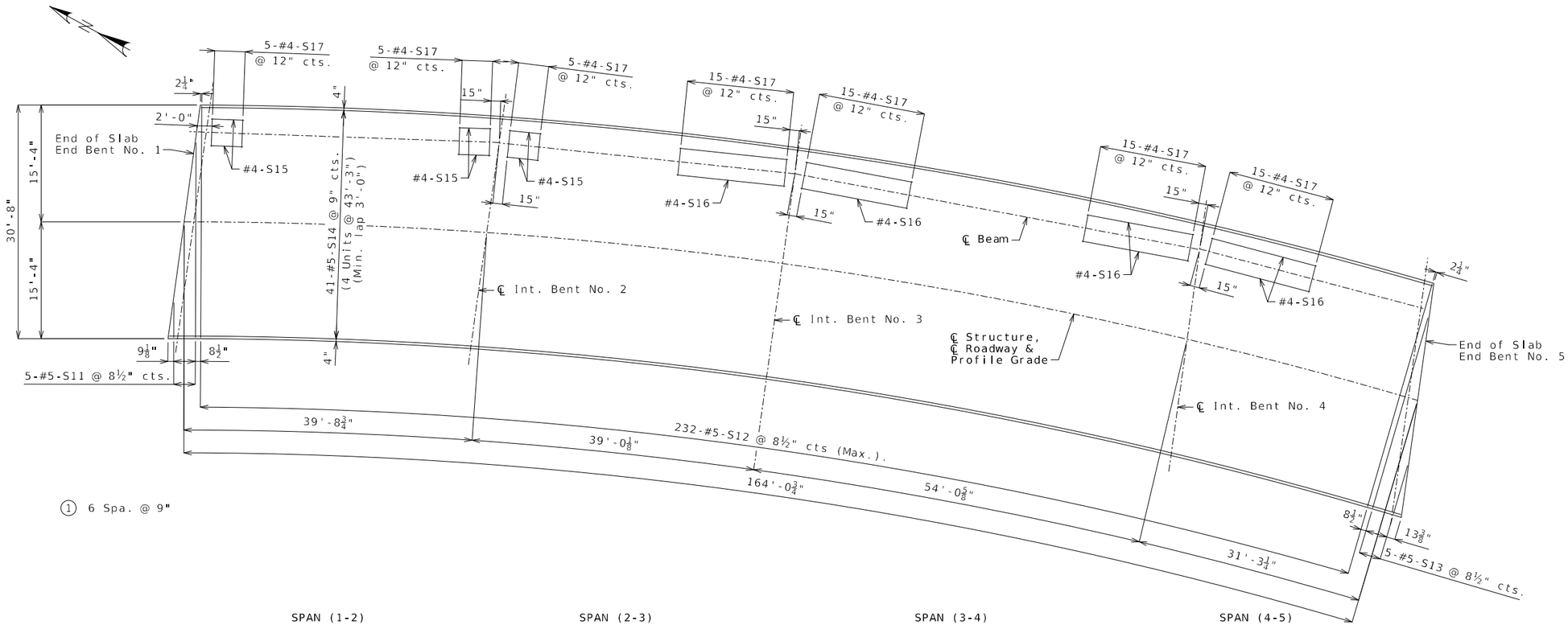

PLAN OF SLAB SHOWING BOTTOM REINFORCEMENT

Haunch reinforcement shown for Beam No. 1 only.
Haunch reinforcement for Beams No. 2 thru 4 similar.

Notes:

Longitudinal slab dimensions are measured horizontally.

For details and locations of Slab Drains, see Sheet No. 22.

For Theoretical Slab Haunching Diagram, see Sheet No. 23.

For Plan of Slab Showing Top Reinforcement, see Sheet No. 24.

For Section Thru Slab and Slab Pouring Sequence, see Sheet No. 26.

For Slab Curve Ordinates, see Sheet No. 27.

For Details and Reinforcement of barrier not shown, see Sheets No. 28 thu 31.

PLAN OF SLAB SHOWING REINFORCEMENT

Designed May 2024
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ALEX BENZ
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PROFESSIONAL ENGINEER
Alex C. Benz
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Alex Benz - Civil
MO PE-2018003121

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

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

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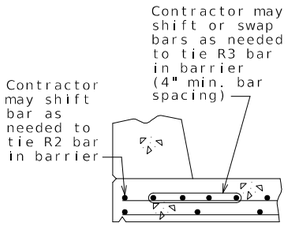
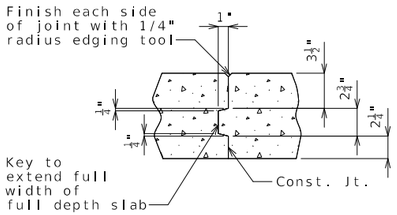
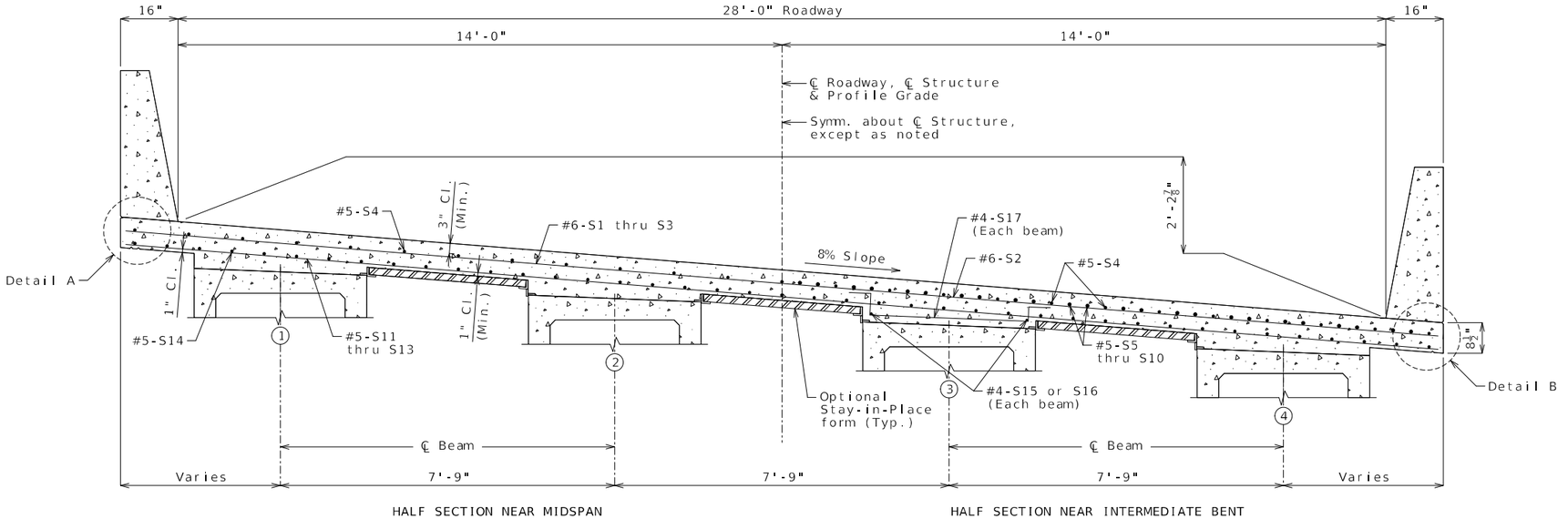


OPTIONAL SHIFTING TOP BARS AT BARRIER



SLAB CONSTRUCTION JOINT

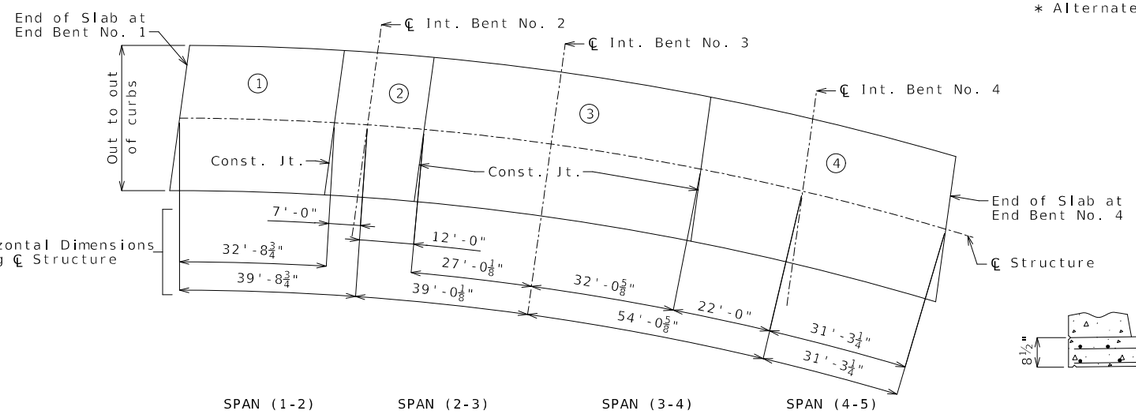


HALF SECTION NEAR MIDSPAN

HALF SECTION NEAR INTERMEDIATE BENT

SECTION THRU SLAB

* Alternate bar shape available, see barrier sheet.

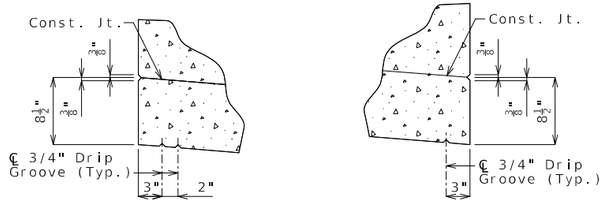


	Sequence of Pours				Min. Rate of Pour Cu. Yds./Hr.
	Direction				With Retarder
Basic Sequence	1	2	3	4	25
	End to 2	1 to 3	2 to 4	3 to End	
Alternate pours to the basic sequence are subject to the approval of the engineer in accordance with Sec 703.					
Alternate A Pours	1 + 2		3	4	25
	End to 3		2 to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

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

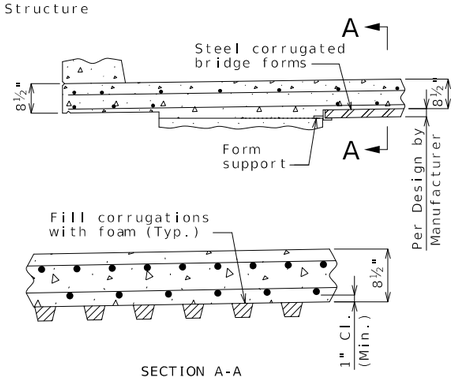
The concrete diaphragm at the intermediate bents and integral end bents shall be poured a minimum of 30 minutes and a maximum of 2 hours before the slab is poured.

SLAB POURING SEQUENCE



DETAIL A

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 beam. 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 top of beam. Drilling holes in the beam will not be permitted. All steel fabrication and construction shall be in accordance with Sec 1080 and 712. Certified field welders will not be required for welding of the form supports.

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

Notes:

For reinforcement of barrier not shown, see Sheets No. 28 thru 31.

For Theoretical Bottom of Slab Elevations, Girder Camber Diagram and Theoretical Slab Haunching Diagram, see Sheet No. 23.

For Plan of Slab Showing Reinforcement, see Sheets No. 24 and 25.

STATE OF MISSOURI
ALEX BENZ
NUMBER PE-2018003121
PROFESSIONAL ENGINEER
Alex C. Benz
06/27/2024 7:57:44 AM
Alex Benz - Civil
MO PE-2018003121

DATE PREPARED 6/25/2024

ROUTE 190 | STATE MO

DISTRICT BR | SHEET NO. 26

COUNTY DAVIESS

JOB NO. JNW0031

CONTRACT ID.

PROJECT NO.

BRIDGE NO. A9469

DESCRIPTION | DATE

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

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

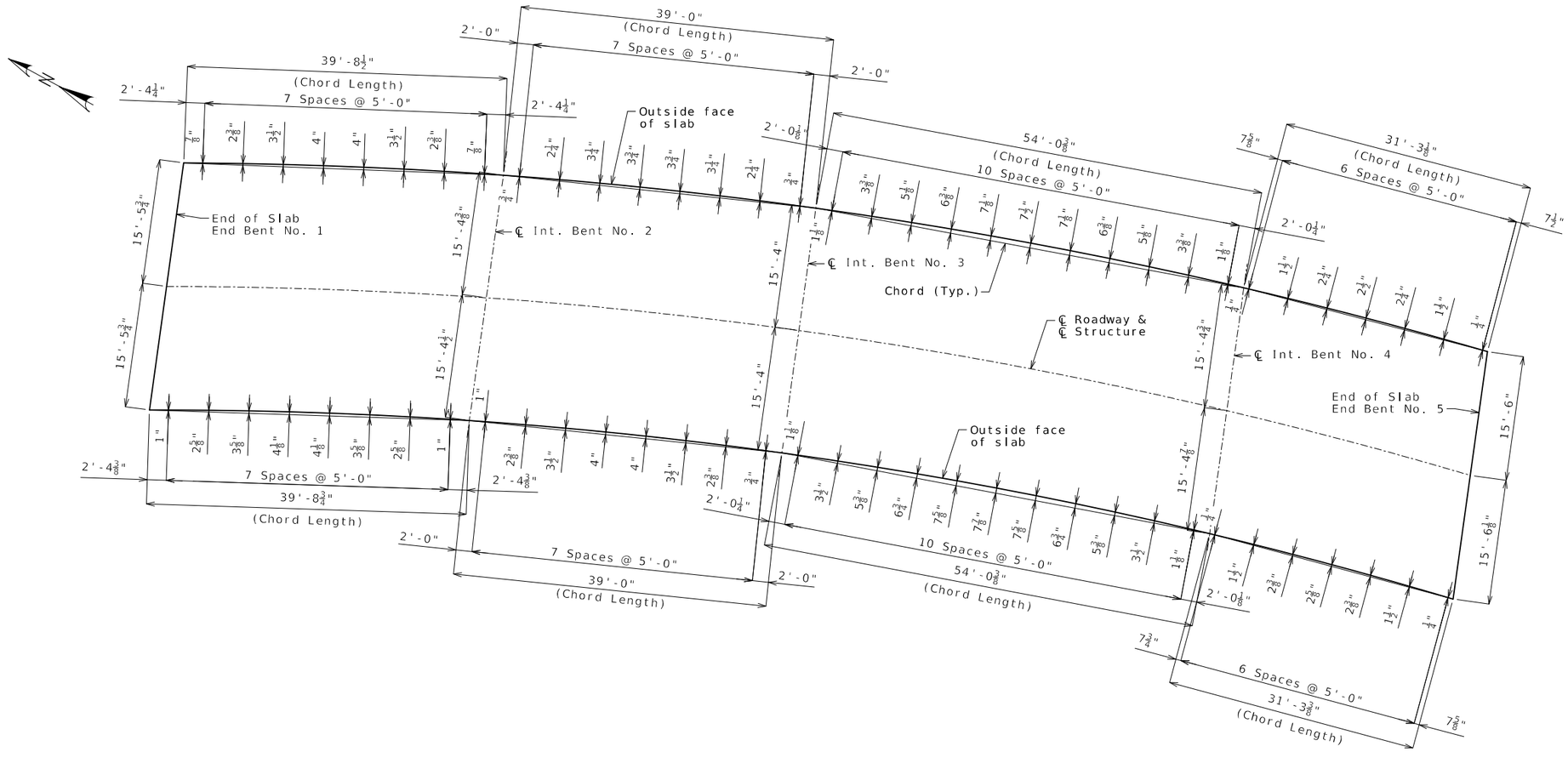
REV.

Detailed May 2024
Checked May 2024

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

SLAB DETAILS

Sheet No. 26 of 37



PLAN

Notes:

All dimensions are horizontal.

All bents are parallel.

SLAB CURVE ORDIANATES

Designed May 2024
Detailed May 2024
Checked May 2024

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

Sheet No. 27 of 37

REV.

O:\2021R2\MoDOT_ORD_v10.10.01.03\23071 MoDOT JNW0031 Route 190\DGN\Bridge\Final\Plotsheets\B_A9469_027_JNW0031_Curve-Ordinates.dgn 11:25:32 AM 6/25/2024

STATE OF MISSOURI
ALEX BENZ
NUMBER PE-2018003121
PROFESSIONAL ENGINEER

Alex C. Benz
06/27/2024 7:58:07 AM
Alex Benz - Civil
MO PE-2018003121

DATE PREPARED
6/25/2024

ROUTE	STATE
190	MO
DISTRICT	SHEET NO.
BR	27

COUNTY
DAVIESS

JOB NO.
JNW0031

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9469

DATE	DESCRIPTION

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

EFK•Moen
Civil Engineering Design
13523 Barrett Parkway Dr
Suite 250
St. Louis, MO 63021
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Fax 314-394-3199
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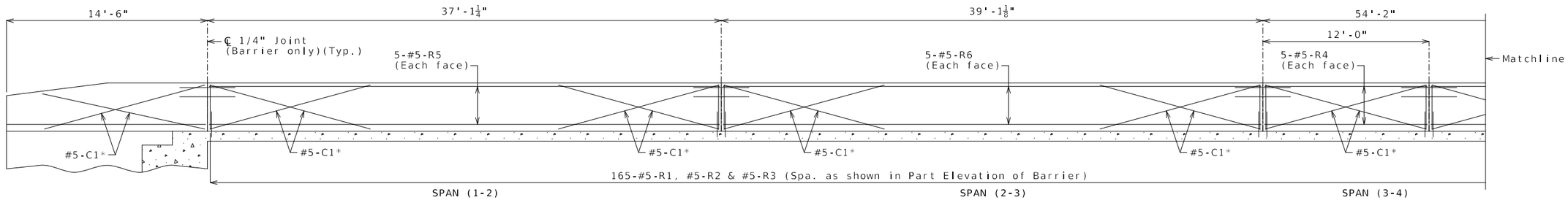
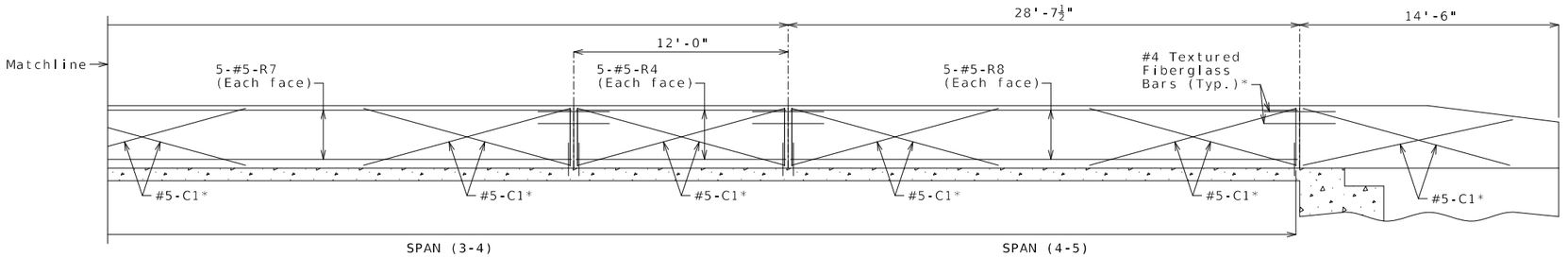
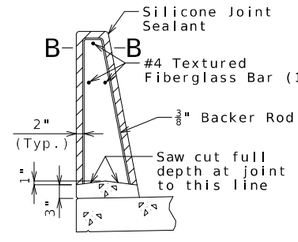


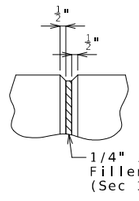


ELEVATION OF BARRIER

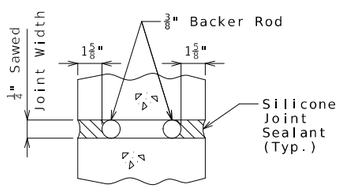
Longitudinal dimensions are horizontal.



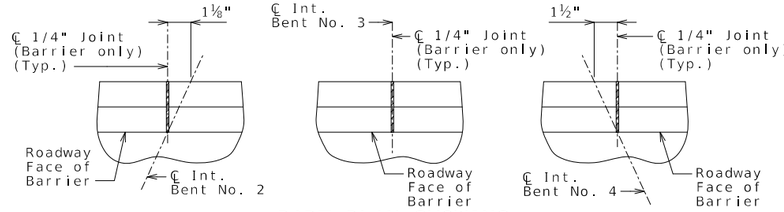
SECTION THRU SAW CUT JOINT



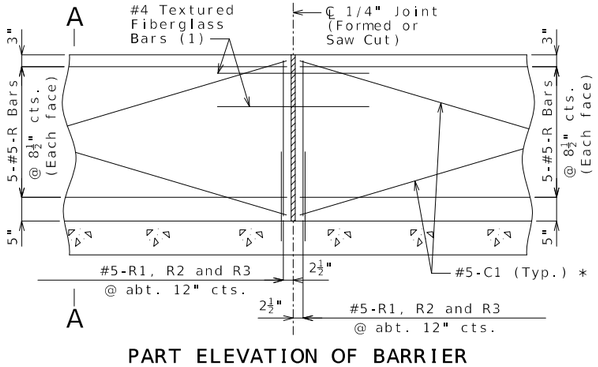
PART ELEVATION AT FORMED JOINT



SECTION B-B

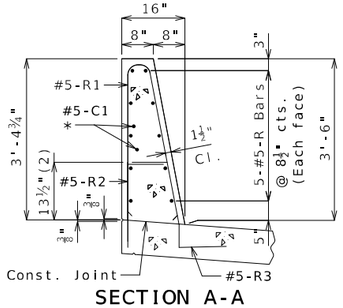


PART PLAN SHOWING JOINT LOCATION



PART ELEVATION OF BARRIER

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

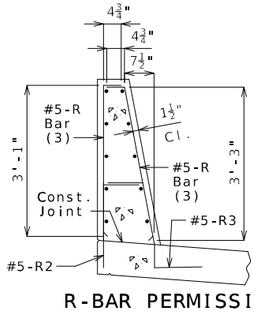


SECTION A-A

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

The cross-sectional area above the slab is 3.45 square feet.

(2) To top of bar



R-BAR PERMISSIBLE ALTERNATE SHAPE

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

General Notes:

* Slip-formed option only.

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

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

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

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

Concrete in barrier shall be Class B-1.

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

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

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

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

LEFT TYPE D BARRIER

Detailed May 2024
Checked May 2024

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

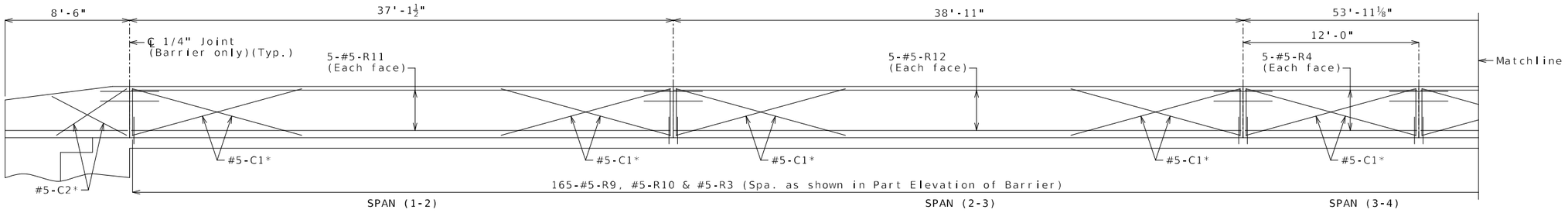
STATE OF MISSOURI
ALEX BENZ
NUMBER PE-2018003121
PROFESSIONAL ENGINEER
Alex C. Benz
06/27/2024 7:58:31 AM
Alex Benz - Civil
MO PE-2018003121

DATE PREPARED 6/25/2024
ROUTE 190 | STATE MO
DISTRICT BR | SHEET NO. 28
COUNTY DAVIESS
JOB NO. JNW0031
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9469

DESCRIPTION | DATE | REV.

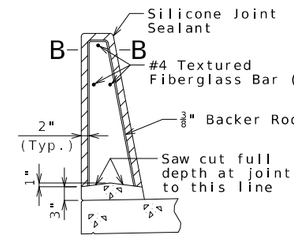
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

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

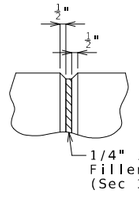


ELEVATION OF BARRIER

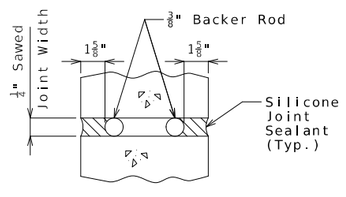
Longitudinal dimensions are horizontal.



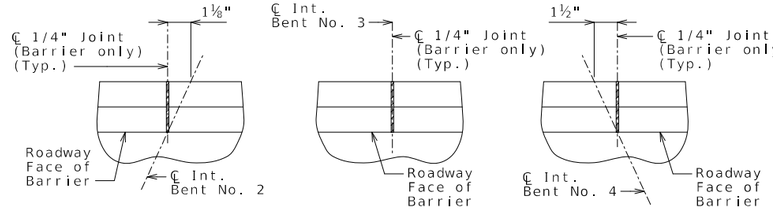
SECTION THRU SAW CUT JOINT



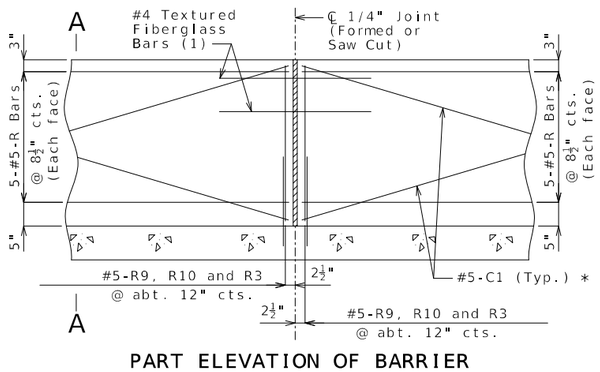
PART ELEVATION AT FORMED JOINT



SECTION B-B

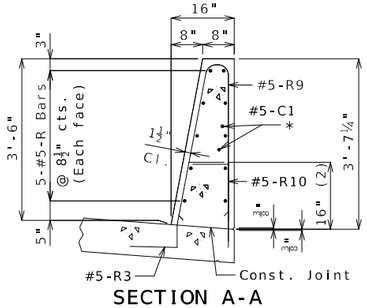


PART PLAN SHOWING JOINT LOCATION



PART ELEVATION OF BARRIER

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

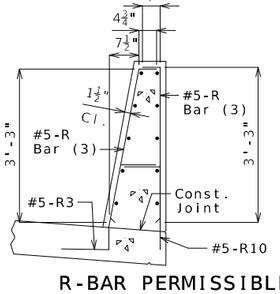


SECTION A-A

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

The cross-sectional area above the slab is 3.59 square feet.

(2) To top of bar



R-BAR PERMISSIBLE ALTERNATE SHAPE

(3) The R9 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 D Barrier per linear foot.

Concrete in barrier shall be Class B-1.

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

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

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

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

RIGHT TYPE D BARRIER

Detailed May 2024
Checked May 2024

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

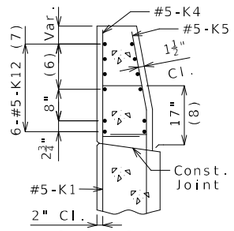
STATE OF MISSOURI ALEX BENZ NUMBER PE-2018003121 PROFESSIONAL ENGINEER
Alex C. Benz
06/27/2024 7:58:41 AM
Alex Benz - Civil
MO PE-2018003121

DATE PREPARED 6/25/2024
ROUTE 190 | STATE MO
DISTRICT BR | SHEET NO. 29
COUNTY DAVIESS
JOB NO. JNW0031
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9469

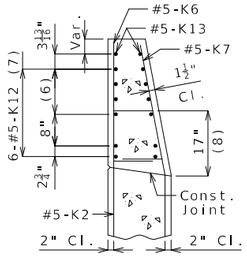
DESCRIPTION | DATE | REV.

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

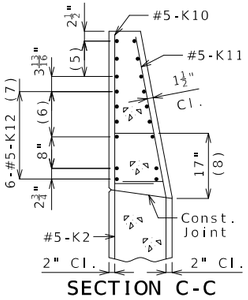
EFK•Moen
Civil Engineering Design
13523 Barrett Parkway Dr
Suite 250
St. Louis, MO 63021
Phone 314-394-3100
Fax 314-394-3199
Missouri Certificate of Authority: 001578



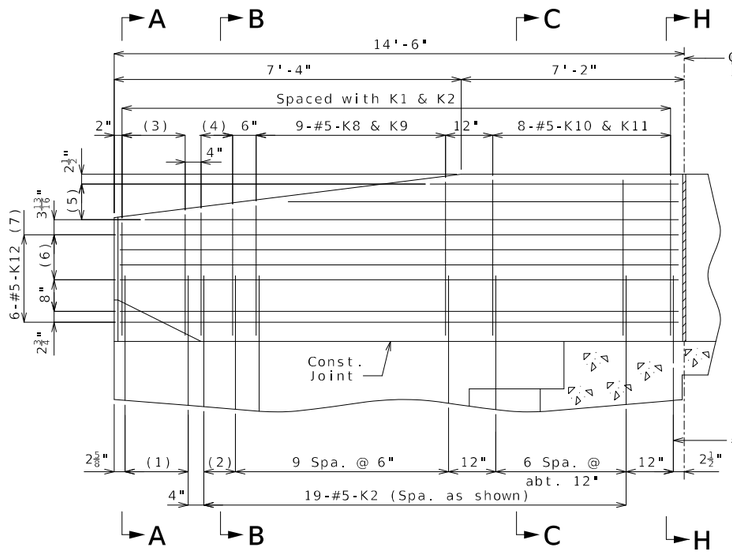
SECTION A-A



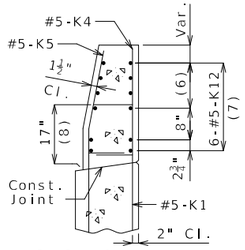
SECTION B-B



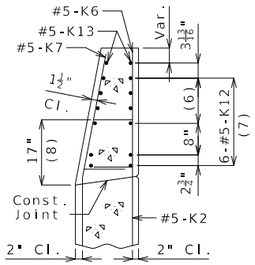
SECTION C-C



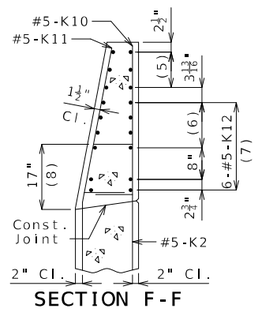
PART ELEVATION



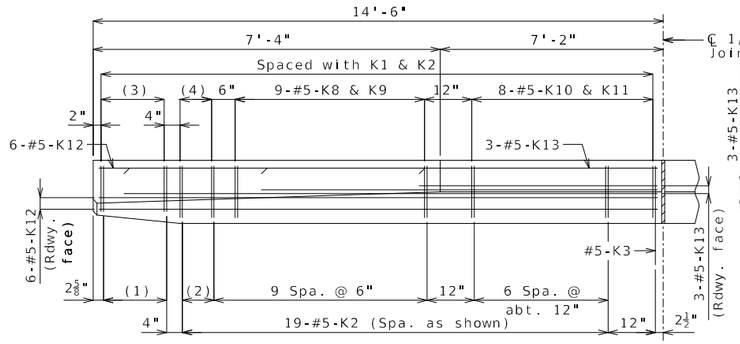
SECTION D-D

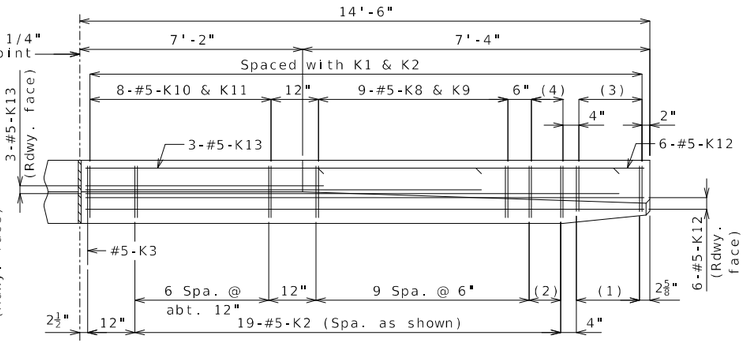


SECTION E-E

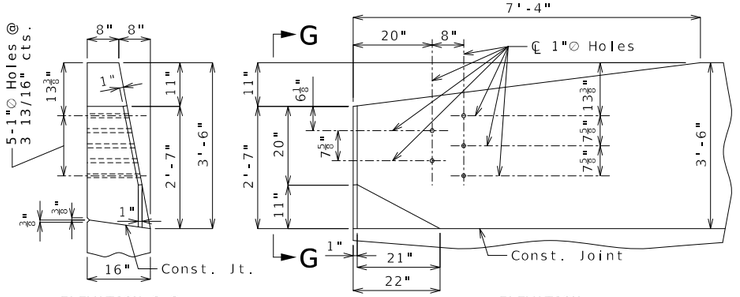


SECTION F-F

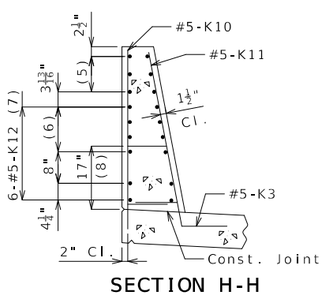




PART PLAN



ELEVATION G-G ELEVATION



SECTION H-H

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

(2) 2 spaces @ 4"

(3) 5-#5-K4 & K5

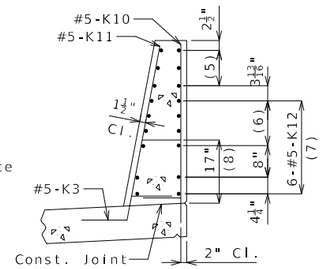
(4) 3-#5-K6 & K7

(5) 3-#5-K13 @ 4½" cts., each face

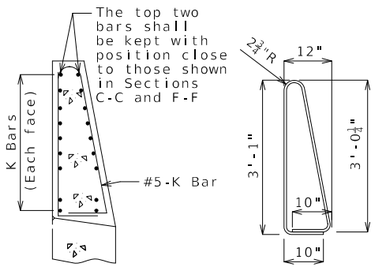
(6) 3 spaces @ 3 13/16"

(7) Spaced as shown, each face

(8) To top of bar



SECTION I-I



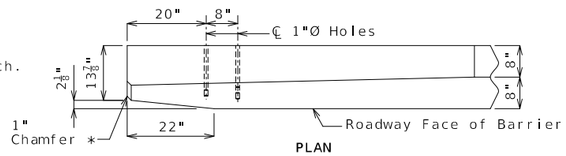
K10-K11 BAR PERMISSIBLE ALTERNATE SHAPE

(Other K bars not shown for clarity)

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

All dimensions are out to out.

* 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 D Barrier.

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

LEFT TYPE D BARRIER AT END BENTS

Detailed May 2024
Checked May 2024

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

STATE OF MISSOURI
ALEX BENZ
NUMBER PE-2018003121
PROFESSIONAL ENGINEER
Alex C. Benz
06/27/2024 7:58:49 AM
Alex Benz - Civil
MO PE-2018003121

DATE PREPARED 6/25/2024

ROUTE	STATE
190	MO
DISTRICT	SHEET NO.
BR	30

COUNTY: DAVIESS

JOB NO.: JNW0031

CONTRACT ID.:

PROJECT NO.:

BRIDGE NO.: A9469

DESCRIPTION | DATE | REV.

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

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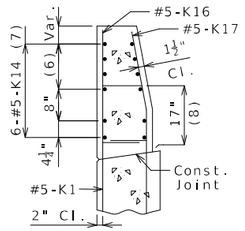
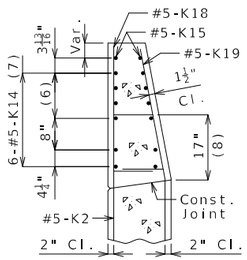
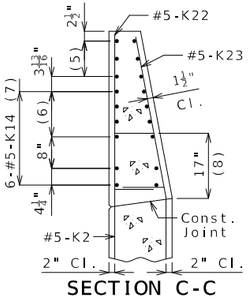


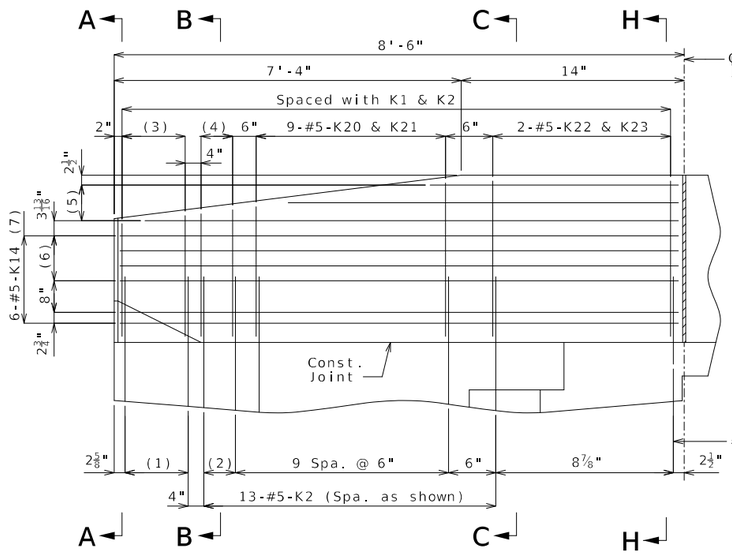
SECTION A-A



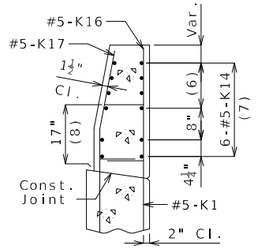
SECTION B-B



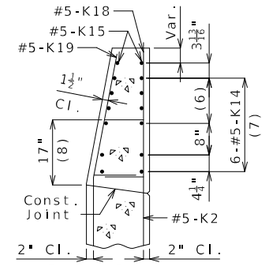
SECTION C-C



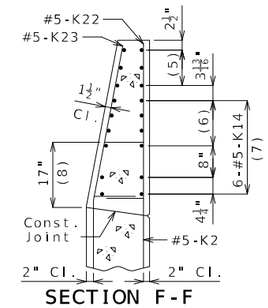
PART ELEVATION



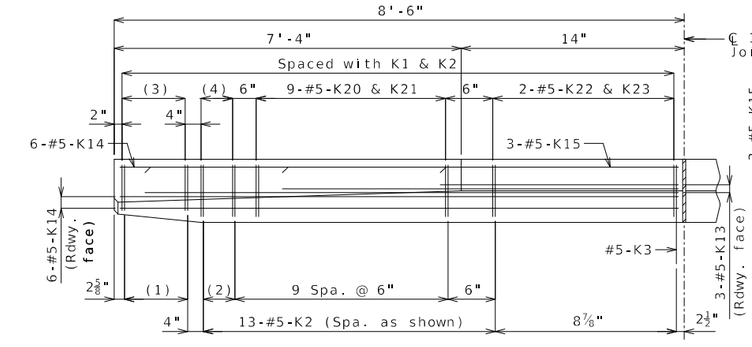
SECTION D-D

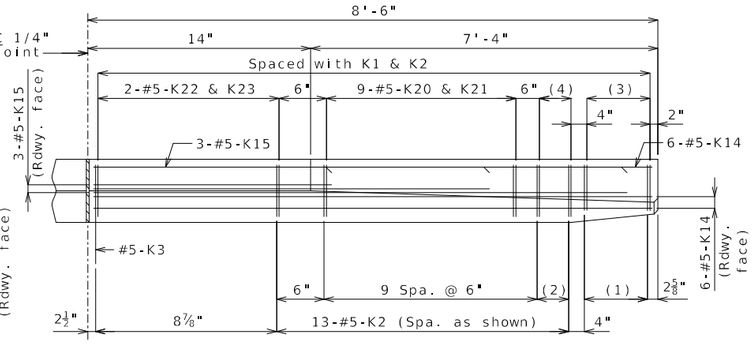


SECTION E-E

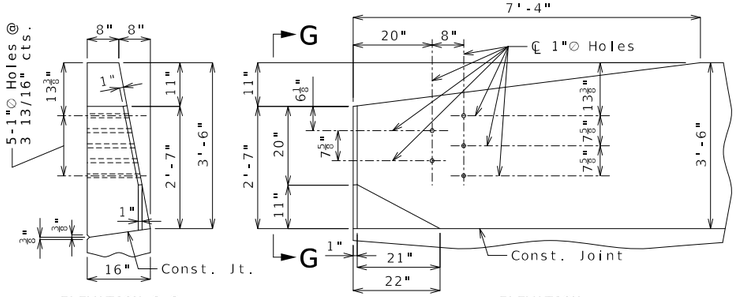


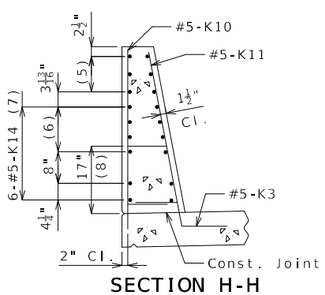
SECTION F-F





PART PLAN





SECTION H-H

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

(2) 2 spaces @ 4"

(3) 5-#5-K16 & K17

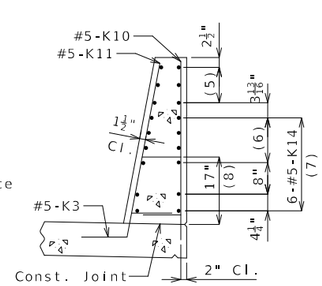
(4) 3-#5-K18 & K19

(5) 3-#5-K15 @ 4½" cts., each face

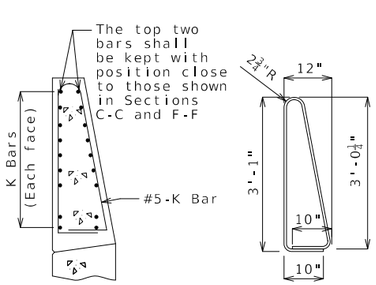
(6) 3 spaces @ 3 13/16"

(7) Spaced as shown, each face

(8) To top of bar



SECTION I-I

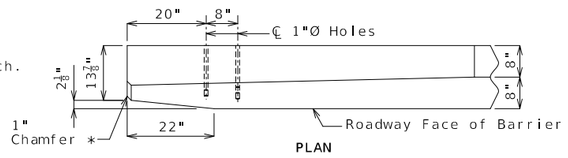


K22-K23 BAR PERMISSIBLE ALTERNATE SHAPE

(Other K bars not shown for clarity)

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

All dimensions are out to out.



DETAILS OF GUARD RAIL ATTACHMENT

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

General Notes:

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

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

RIGHT TYPE D BARRIER AT END BENTS

Detailed May 2024
Checked May 2024

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

STATE OF MISSOURI
ALEX BENZ
NUMBER PE-2018003121
PROFESSIONAL ENGINEER
Alex C. Benz
06/27/2024 7:58:58 AM
Alex Benz - Civil
MO PE-2018003121

DATE PREPARED 6/25/2024

ROUTE	STATE
190	MO
DISTRICT	SHEET NO.
BR	31

COUNTY: DAVIESS

JOB NO.: JNW0031

CONTRACT ID.:

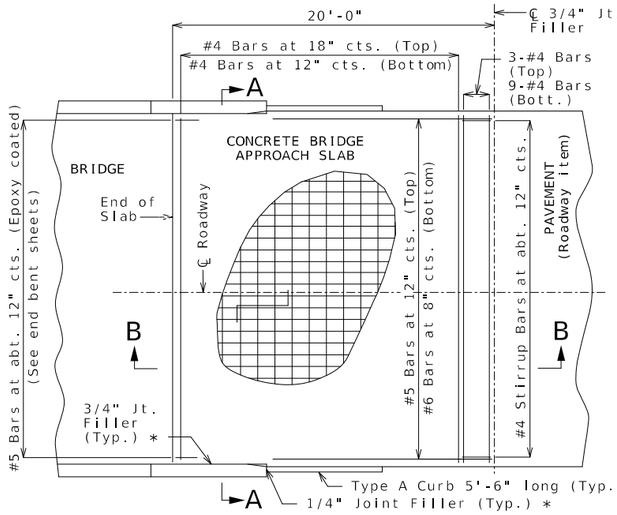
PROJECT NO.:

BRIDGE NO.: A9469

DESCRIPTION | DATE | REV.

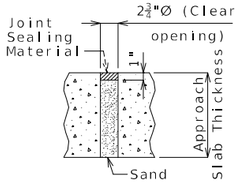
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

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



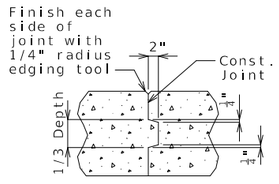
PART PLAN OF SQUARED STRUCTURE

(Skewed structure similar)

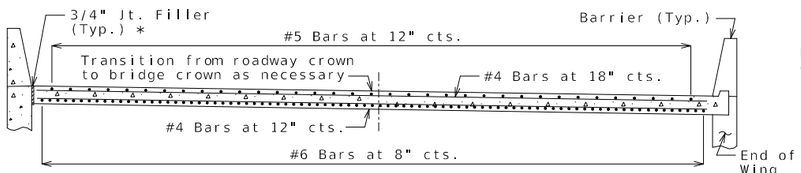


UNDERSEAL ACCESS HOLE DETAIL

(If required)

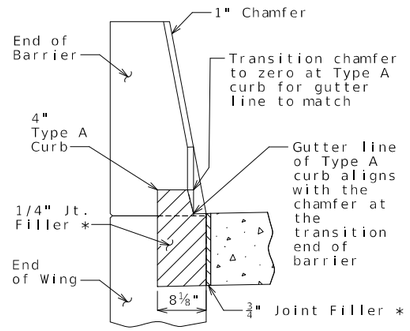


CONSTRUCTION JOINT DETAIL



SECTION A-A

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



SECTION BETWEEN CURB AND BARRIER

Notes For Concrete Slab Only:

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

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

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

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

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

Mechanical bar splices shall be in accordance with Sec 710.

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

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

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

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

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

General Notes:

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

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

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

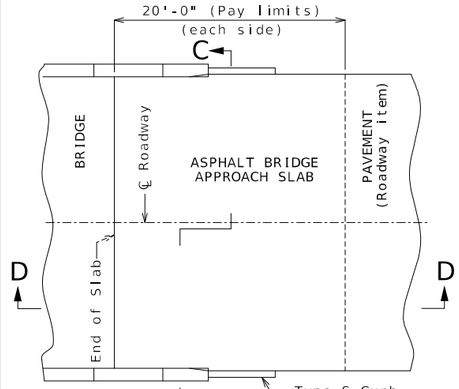
☐ Concrete Bridge Approach Slab

☐ Asphalt Bridge Approach Slab

Notes For Asphalt Slab Only:

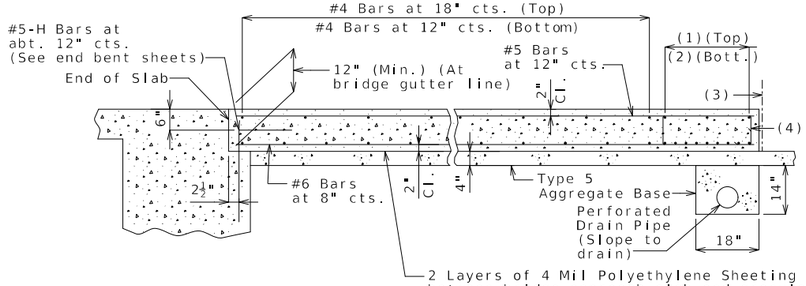
Payment for furnishing all materials, labor and excavation necessary to construct the asphalt bridge approach slab, including tack, curb, and Type 5 aggregate base within the pay limits shown, complete in place, will be considered completely covered by the contract unit price for Bridge Approach Slab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

Application of tack is required between lifts per Sec 403.



PART PLAN

(Squared structure shown, skewed structure similar)



SECTION B-B

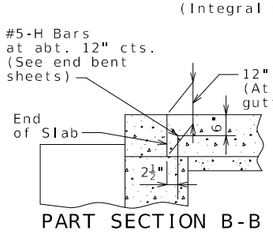
(Integral end bent)

(1) 3-#4 Bars

(2) 9-#4 Bars

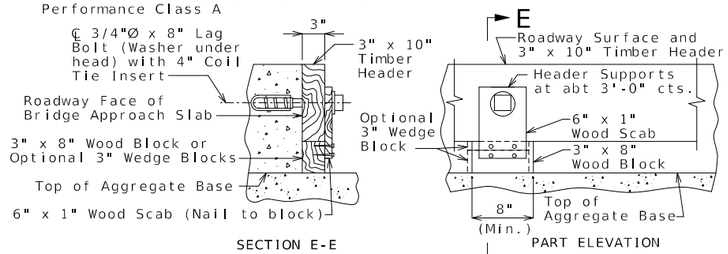
(3) ℄ 3/4" Jt. Filler

(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.



PART SECTION B-B

(Non-integral end bent)



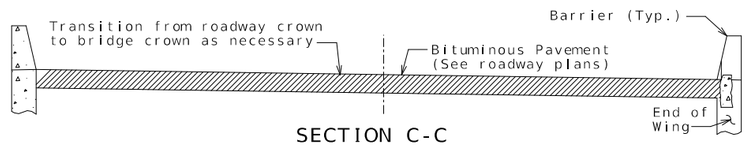
SECTION E-E

PART ELEVATION

DETAILS OF TIMBER HEADER

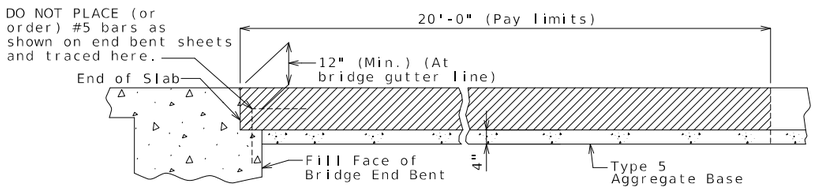
Remove timber header when concrete pavement is placed.

OPTIONAL CONCRETE SLAB

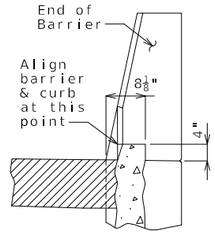


SECTION C-C

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



SECTION D-D



4" TYPE S CURB

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

OPTIONAL ASPHALT SLAB (NOT ALLOWED WITH CONCRETE PAVEMENT)

BRIDGE APPROACH SLAB (MINOR)

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

Detailed May 2024
Checked May 2024

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

STATE OF MISSOURI
ALEX BENZ
NUMBER PE-2018003121
PROFESSIONAL ENGINEER
Alex C. Benz
06/27/2024 7:59:07 AM
Alex Benz - Civil
MO PE-2018003121

DATE PREPARED 6/25/2024

ROUTE 190 | STATE MO

DISTRICT BR | SHEET NO. 32

COUNTY DAVIESS

JOB NO. JNW0031

CONTRACT ID.

PROJECT NO.

BRIDGE NO. A9469

DESCRIPTION | DATE

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

EFK•Moen
Civil Engineering Design
13523 Barrett Parkway Dr
Suite 250
St. Louis, MO 63021
Phone 314-394-3100
Fax 314-394-3199
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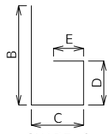
REV.



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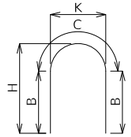

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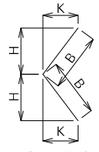

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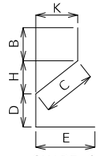

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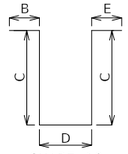

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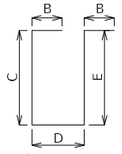

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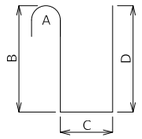

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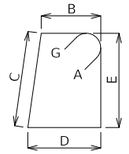
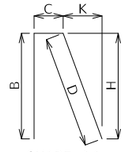


SHAPE 13S



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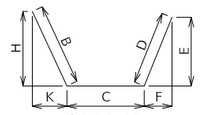

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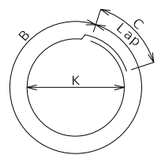

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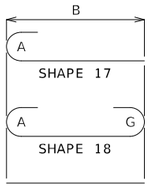
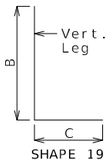


SHAPE 17
SHAPE 18
SHAPE 20



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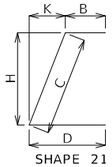

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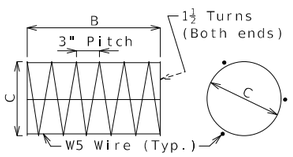

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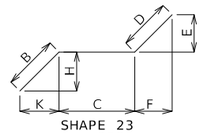

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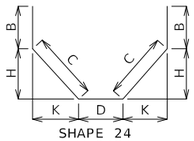

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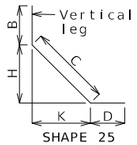

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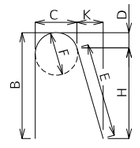
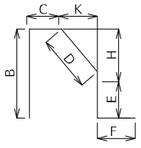
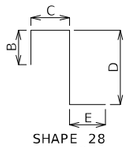


SHAPE 26



SHAPE 27S



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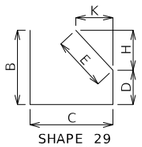
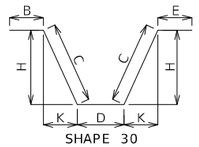
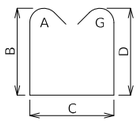


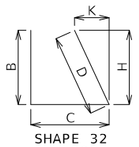
SHAPE 29 or 29S



SHAPE 30 or 30S



SHAPE 31S



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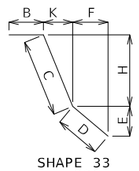

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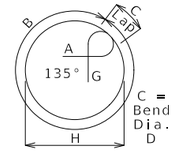
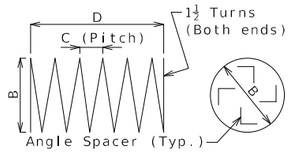


SHAPE 34S



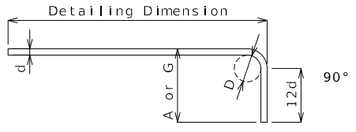
SHAPE 35 (1)

SHAPE 36

Finished Bend Diameters D and Hook Dimensions

Standard Pin Bend Shapes

Size	Case	D	A or G		J
			90°	180°	180°
#4	1	3"	8"	6"	4"
#5	1	3¾"	10"	7"	5"
#6	1	4½"	12"	8¼"	6"
#7	2	5¼"	14"	9⅜"	7"
	3	7"	15"	11½"	8¾"
#8	2	6"	16"	11"	8"
	3	8"	17"	13¼"	10"
#9	1	9½"	19½"	15½"	11¾"
#10	1	10¾"	22"	17½"	13¼"
#11	1	12"	24½"	19½"	14⅞"
#14	1	18¼"	31¼"	27½"	21⅝"
#18	1	24"	41½"	36¾"	28½"

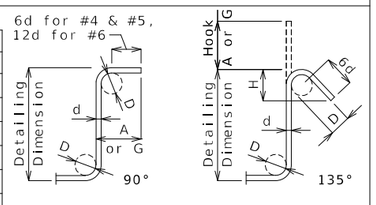


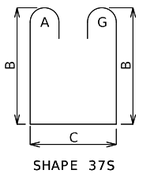
Stirrup Pin Bend Shapes (S)

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

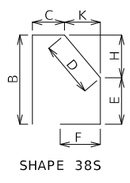
Applicable for all grades of steel.

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





SHAPE 37S



SHAPE 38S

BENDING DIAGRAMS

All dimensions are out to out.

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

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

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

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

Reinforcing Steel Totals (Pounds)

	Size	Substructure		Superstructure				Entire Bridge	
				Slab			Slip Form		
		Plain	Epoxy	Plain	Epoxy	Barrier		Plain	Epoxy
By Size	W5	0	0	0	0	0	0	0	0
	4	432	0	0	1584	0	0	432	1584
	5	3254	0	0	23741	9449	575	3254	33765
	6	2331	0	0	20312	0	0	2331	20312
	7	0	0	0	0	0	0	0	0
	8	16115	0	0	936	0	0	16115	936
	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		22132	0	0	46573	9449	575	22132	56597

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

BENDING DIAGRAMS AND REINFORCING STEEL TOTALS

Detailed May 2024
Checked May 2024

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

STATE OF MISSOURI
ALEX BENZ
NUMBER PE-2018003121
PROFESSIONAL ENGINEER
Alex C. Benz
06/27/2024 7:59:31 AM
Alex Benz - Civil
MO PE-2018003121

DATE PREPARED 6/25/2024
ROUTE 190 | STATE MO
DISTRICT BR | SHEET NO. 33
COUNTY DAVIESS
JOB NO. JNW0031
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9469

DESCRIPTION | DATE | REV.

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

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

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
		INT BENT 2													
12	6 D200	BEAM		20		2 6.000							2 6	2 6	45
10	8 H200	BEAM		18		28 9.000							30 7	30 7	817
10	8 H201	BEAM		20		28 9.000							28 9	28 9	768
10	6 H202	BEAM		20		28 9.000							28 9	28 9	432
14	6 H203	BEAM		10			3 7.000	12.000					8 2	7 10	165
20	6 H204	BEAM		20		4 6.000							4 6	4 6	135
68	5 P200	SHAFT		34 S		7 10.250	3.750				2 6.000		8 10	8 10	626
12	5 U200	BEAM		13 S		3 9.000	3 3.000	3 9.000	3 3.000				14 11	14 8	184
24	5 U201	BEAM		13 S		2 6.000	3 3.000	2 6.000	3 3.000				12 5	12 2	305
8	4 U202	BEAM		10 S			3 3.000	3 9.000					10 3	10 1	54
24	4 U203	BEAM		10 S			12.000	3 9.000					5 9	5 7	90
21	8 V200	SHAFT		20		36 0.000							36 0	36 0	2019
21	8 V201	SHAFT		20		35 7.000							35 7	35 7	1995
		INT BENT 3													
12	6 D300	BEAM		20		2 6.000							2 6	2 6	45
10	8 H300	BEAM		18		28 9.000							30 7	30 7	817
10	8 H301	BEAM		20		28 9.000							28 9	28 9	768
10	6 H302	BEAM		20		28 9.000							28 9	28 9	432
14	6 H303	BEAM		10			3 7.000	12.000					8 2	7 10	165
20	6 H304	BEAM		20		4 6.000							4 6	4 6	135
64	5 P300	SHAFT		34 S		7 10.250	3.750				2 6.000		8 10	8 10	590
12	5 U300	BEAM		13 S		3 9.000	3 3.000	3 9.000	3 3.000				14 11	14 8	184
24	5 U301	BEAM		13 S		2 6.000	3 3.000	2 6.000	3 3.000				12 5	12 2	305
8	4 U302	BEAM		10 S			3 3.000	3 9.000					10 3	10 1	54
24	4 U303	BEAM		10 S			12.000	3 9.000					5 9	5 7	90
21	8 V300	SHAFT		20		34 1.000							34 1	34 1	1911
21	8 V301	SHAFT		20		32 7.000							32 7	32 7	1827
		INT BENT 4													
12	6 D400	BEAM		20		2 6.000							2 6	2 6	45
10	8 H400	BEAM		18		28 9.000							30 7	30 7	817
10	8 H401	BEAM		20		28 9.000							28 9	28 9	768
10	6 H402	BEAM		20		28 9.000							28 9	28 9	432
14	6 H403	BEAM		10			3 7.000	12.000					8 2	7 10	165
20	6 H404	BEAM		20		4 6.000							4 6	4 6	135
62	5 P400	SHAFT		34 S		7 10.250	3.750				2 6.000		8 10	8 10	571
12	5 U400	BEAM		13 S		3 9.000	3 3.000	3 9.000	3 3.000				14 11	14 8	184
24	5 U401	BEAM		13 S		2 6.000	3 3.000	2 6.000	3 3.000				12 5	12 2	305
8	4 U402	BEAM		10 S			3 3.000	3 9.000					10 3	10 1	54
24	4 U403	BEAM		10 S			12.000	3 9.000					5 9	5 7	90
21	8 V400	SHAFT		20		32 11.000							32 11	32 11	1846
21	8 V401	SHAFT		20		31 5.000							31 5	31 5	1762

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 1													
6	6 F100	WING BRACE	E	15 S		2 3.000	5 1.000	14.000	9.125	10.625	17.750	20.375	8 6	8 5	76
2	6 F101	DIAPHRAGM	E	21 S			2 8.000	7 6.000			2 7.625	4.625	10 2	9 10	30
10	6 F102	WING BRACE	E	15 S		14.000	4 9.000	2 3.000	20.375	17.750	10.625	9.125	8 2	8 1	121
3	6 F103	DIAPHRAGM	E	21 S		6 9.000	2 8.000				2 7.625	4.625	9 5	9 3	42
17	6 H100	BEAM & DIAPH	E	20		30 8.000							30 8	30 8	783
4	6 H101	BEAM	E	20		14 11.000							14 11	14 11	90
4	6 H102	BEAM	E	20		21 0.000							21 0	21 0	126
4	6 H103	BEAM	E	20		13 2.000							13 2	13 2	79
4	6 H104	BEAM	E	20		5 5.000							5 5	5 5	33
4	6 H105	BEAM	E	23		2 3.000	11.000	2 3.000	19.125	19.125	19.125	19.125	5 5	5 4	32
9	6 H106	DIAPH	E	20		3 6.000							3 6	3 6	47
6	6 H107	DIAPH	E	21		17.000	2 6.000	17.000			2 5.750	4.250	5 4	5 0	45
4	5 H108	STRAND TIE	E	23		15.000	4 0.000	15.000	1.500	14.875	1.500	14.875	6 6	6 6	27
8	8 H109	WING	E	20		8 2.000							8 2	8 2	174
12	6 H110	WING	E	20		7 4.000							7 4	7 4	132
8	8 H111	WING	E	20		13 9.000							13 9	13 9	294
20	6 H112	WING	E	20		13 0.000							13 0	13 0	391
8	5 U100	BEAM	E	37		4 4.000	2 9.000						12 5	12 0	100
5	5 U101	BEAM	E	37		5 4.000	2 9.000						14 5	14 0	73
24	4 U102	BEAM	E	13		2 9.000	2 8.000	2 9.000	2 8.000				11 7	11 3	180
11	4 U103	BEAM	E	10			2 8.000	2 9.000					8 1	7 10	58
17	5 U104	BEAM	E	10			21.000	2 9.000					6 3	6 0	106
9	5 U105	BEAM	E	10			2 4.000	2 9.000					7 5	7 2	67
38	6 U106	DIAPH	E	19		2 2.000	4 6.000						6 8	6 6	371
13	5 U107	DIAPH	E	37		2 2.000	2 3.000						7 7	7 2	97
13	6 U108	DIAPH	E	19		15.000	2 9.000						4 0	3 10	75
28	5 U109	DIAPH	E	19		2 0.000	15.000						3 3	3 1	90
24	6 V100	DIAPH	E	20		14.000							1 2	1 2	42
14	6 V101	WING	E	20		5 2.000							5 2	5 2	109
24	6 V102	WING	E	20		6 10.000							6 10	6 10	246
		END BENT 5													
6	6 F500	WING BRACE	E	15 S		2 3.000	5 1.000	14.000	9.125	10.625	17.750	20.375	8 6	8 5	76
2	6 F501	DIAPHRAGM	E	21 S			2 8.000	7 6.000			2 7.625	4.625	10 2	9 10	30
10	6 F502	WING BRACE	E	15 S		14.000	4 9.000	2 3.000	20.375	17.750	10.625	9.125	8 2	8 1	121
3	6 F503	DIAPHRAGM	E	21 S		6 9.000	2 8.000				2 7.625	4.625	9 5	9 3	42
17	6 H500	BEAM & DIAPH	E	20		30 8.000							30 8	30 8	783
4	6 H501	BEAM	E	20		14 11.000							14 11	14 11	90
4	6 H502	BEAM	E	20		21 0.000							21 0	21 0	126
4	6 H503	BEAM	E	20		13 2.000							13 2	13 2	79
4	6 H504	BEAM	E	20		5 5.000							5 5	5 5	33
4	6 H505	BEAM	E	23		2 3.000	11.000	2 3.000	19.125	19.125	19.125	19.125	5 5	5 4	32
9	6 H506	DIAPH	E	20		3 6.000							3 6	3 6	47
6	6 H507	DIAPH	E	21		17.000	2 6.000	17.000			2 5.750	4.250	5 4	5 0	45
4	5 H508	STRAND TIE	E	23		15.000	4 0.000	15.000	1.500	14.875	1.500	14.875	6 6	6 6	27
8	8 H509	WING	E	20		8 2.000							8 2	8 2	174
12	6 H510	WING	E	20		7 4.000							7 4	7 4	132
8	8 H511	WING	E	20		13 9.000							13 9	13 9	294
20	6 H512	WING	E	20		13 0.000							13 0	13 0	391
8	5 U500	BEAM	E	37		4 4.000	2 9.000						12 5	12 0	100
5	5 U501	BEAM	E	37		5 4.000	2 9.000						14 5	14 0	73
24	4 U502	BEAM	E	13		2 9.000	2 8.000	2 9.000	2 8.000				11 7	11 3	180
11	4 U503	BEAM	E	10			2 8.000	2 9.000					8 1	7 10	58
17	5 U504	BEAM	E	10			21.000	2 9.000					6 3	6 0	106
9	5 U505	BEAM	E	10			2 4.000	2 9.000					7 5	7 2	67
38	6 U506	DIAPH	E	19		2 2.000	4 6.000						6 8	6 6	371
13	5 U507	DIAPH	E	37		2 2.000	2 3.000						7 7	7 2	97
13	6 U508	DIAPH	E	19		15.000	2 9.000						4 0	3 10	75
28	5 U509	DIAPH	E	19		2 0.000	15.000						3 3	3 1	90
24	6 V500	DIAPH	E	20		14.000							1 2	1 2	42
14	6 V501	WING	E	20		5 2.000							5 2	5 2	109
24	6 V502	WING	E	20		6 10.000							6 10	6 10	246

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. 33.

All bars shall be Grade 60.

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

SH = Required shape, see bending diagrams.

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

Detailed May 2024
Checked May 2024

BILL OF REINFORCING STEEL

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

STATE OF MISSOURI
ALEX BENZ
NUMBER PE-2018003121
PROFESSIONAL ENGINEER

Alex C. Benz
06/27/2024 7:59:40 AM
Alex Benz - Civil
MO PE-2018003121

DATE PREPARED 6/25/2024

ROUTE	STATE
190	MO
DISTRICT	SHEET NO.
BR	34

COUNTY: DAVIESS
JOB NO.: JNW0031
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: A9469

DESCRIPTION | DATE | REV.

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

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

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
		SLAB													
7	6 S1	SLAB	E	20	1	5 3.000							5 3	5 3	173
		INCR=45IN				27 9.000							27 9	27 9	
311	6 S2	SLAB	E	20		30 5.000							30 5	30 5	14208
8	6 S3	SLAB	E	20	1	3 10.000							3 10	3 10	191
		INCR=41 1/4 IN				27 11.000							27 11	27 11	
75	5 S4	SLAB	E	20		56 3.000							56 3	56 3	4400
24	5 S5	SLAB	E	20 S		17 8.000							17 8	17 8	442
24	5 S6	SLAB	E	20		19 9.000							19 9	19 9	494
24	5 S7	SLAB	E	20		25 2.000							25 2	25 2	630
24	5 S8	SLAB	E	20		22 6.000							22 6	22 6	563
24	5 S9	SLAB	E	20 S		22 3.000							22 3	22 3	557
24	5 S10	SLAB	E	20		24 6.000							24 6	24 6	613
5	5 S11	SLAB	E	20	1	4 7.000							4 7	4 7	79
		INCR=63IN				25 7.000							25 7	25 7	
232	5 S12	SLAB	E	20		30 5.000							30 5	30 5	7360
5	5 S13	SLAB	E	20	1	6 7.000							6 7	6 7	85
		INCR=58IN				25 11.000							25 11	25 11	
164	5 S14	SLAB	E	20		43 3.000							43 3	43 3	7398
24	4 S15	SLAB	E	20		4 3.000							4 3	4 3	68
32	4 S16	SLAB	E	20		14 3.000							14 3	14 3	305
300	4 S17	SLAB	E	20		3 8.000							3 8	3 8	735

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
		BARRIER													
20	5 K1	BARRIER	E	27 S		3 8.000	9.250	5.375	3 2.750		5.250	1.000	8 1	7 11	165
64	5 K2	BARRIER	E	27 S		3 8.000	9.250	14.500	2 5.750		14.250	2.750	8 2	7 11	528
4	5 K3	BARRIER	E	27 S		22.500	9.250	14.500	7.750	12.000	14.250	2.750	5 6	5 2	22
10	5 K4	BARRIER	E	19 S	2	2 2.625	10.000						3 1	2 11	32
		INCR=0 1/2 IN				2 4.625	10.000						3 3	3 1	
10	5 K5	BARRIER	E	38 S	2			18.500	7.875	8.250	18.000	4.000	2 11	2 8	31
		INCR=0 1/2 IN						20.500	7.875	8.250	20.000	4.500	3 1	2 10	
6	5 K6	BARRIER	E	19 S		2 5.125	10.000						3 3	3 2	20
6	5 K7	BARRIER	E	21 S			2 5.000	10.000			2 4.375	5.875	3 3	3 0	19
18	5 K8	BARRIER	E	19 S	2	2 6.875	10.000						3 5	3 4	64
		INCR=0 3/4 IN				3 0.875	10.000						3 11	3 10	
18	5 K9	BARRIER	E	21 S	2		2 6.750	10.000			2 6.125	6.375	3 5	3 2	69
		INCR=0 3/4 IN					3 0.875	10.000			3 0.125	7.375	3 11	3 7	
18	5 K10	BARRIER	E	19 S		3 1.375	10.000						3 11	3 10	72
18	5 K11	BARRIER	E	21 S			3 1.375	10.000			3 0.625	7.375	3 11	3 9	70
24	5 K12	BARRIER	E	20		14 3.000							14 3	14 3	357
6	5 K13	BARRIER	E	20	2	13 6.000							13 6	13 6	66
		INCR=36IN				7 6.000							7 6	7 6	
24	5 K14	BARRIER	E	20		8 3.000							8 3	8 3	207
6	5 K15	BARRIER	E	20	2	7 6.000							7 6	7 6	28
		INCR=36IN				1 6.000							1 6	1 6	
10	5 K16	BARRIER	E	19 S	2	2 4.250	10.000						3 2	3 1	33
		INCR=0 1/2 IN				2 6.250	10.000						3 4	3 3	
10	5 K17	BARRIER	E	38 S	2			18.500	9.500	8.250	18.000	4.000	3 0	2 10	32
		INCR=0 1/2 IN						20.500	9.500	8.250	20.000	4.500	3 2	3 0	
6	5 K18	BARRIER	E	19 S		2 6.750	10.000						3 5	3 3	20
6	5 K19	BARRIER	E	21 S			2 6.625	10.000			2 6.000	6.250	3 5	3 2	20
18	5 K20	BARRIER	E	19 S	2	2 8.500	10.000						3 6	3 5	66
		INCR=0 3/4 IN				3 2.500	10.000						4 0	3 11	
18	5 K21	BARRIER	E	21 S	2		2 8.500	10.000			2 7.750	6.750	3 6	3 4	71
		INCR=0 3/4 IN					3 2.500	10.000			3 1.750	7.750	4 0	3 9	
4	5 K22	BARRIER	E	19 S		3 3.000	10.000						4 1	4 0	17
4	5 K23	BARRIER	E	21 S			3 3.000	10.000			3 2.250	7.750	4 1	3 10	16
165	5 R1	BARRIER	E	26		3 1.375	5.500	2.250	2 11.750	5.500	2 11.125	6.500	6 8	6 4	1090
165	5 R2	BARRIER	E	19 S		18.875	9.500						2 4	2 3	387
330	5 R3	BARRIER	E	27 S			9.500	15.250	5.000	12.000	15.000	3.000	3 6	3 3	1119
40	5 R4	BARRIER	E	20		11 9.000							11 9	11 9	490
10	5 R5	BARRIER	E	20		36 10.000							36 10	36 10	384
10	5 R6	BARRIER	E	20		38 10.000							38 10	38 10	405
10	5 R7	BARRIER	E	20		29 11.000							29 11	29 11	312
10	5 R8	BARRIER	E	20		28 4.000							28 4	28 4	296
165	5 R9	BARRIER	E	26		3 3.000	5.500	2.250	3 1.375	5.500	3 0.750	6.750	6 11	6 7	1133
165	5 R10	BARRIER	E	19 S		20.500	9.500						2 6	2 5	416
10	5 R11	BARRIER	E	20		36 9.000							36 9	36 9	383
10	5 R12	BARRIER	E	20		38 9.000							38 9	38 9	404
10	5 R13	BARRIER	E	20		29 9.000							29 9	29 9	310
10	5 R14	BARRIER	E	20		28 3.000							28 3	28 3	295
		SLIP FORM													
44	5 C1	SLIP FORM	E	20		12 0.000							12 0	12 0	551
4	5 C2	SLIP FORM	E	20		5 9.000							5 9	5 9	24

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. 33.

Detailed May 2024
Checked May 2024

All bars shall be Grade 60.

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

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

SH = Required shape, see bending diagrams.

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

BILL OF REINFORCING STEEL

STATE OF MISSOURI
ALEX BENZ
NUMBER PE-2018003121
PROFESSIONAL ENGINEER

Alex C. Benz
06/27/2024 7:59:49 AM
Alex Benz - Civil
MO PE-2018003121

DATE PREPARED
6/25/2024

ROUTE	STATE
190	MO

DISTRICT	SHEET NO.
BR	35

COUNTY
DAVIESS

JOB NO.
JNW0031

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9469

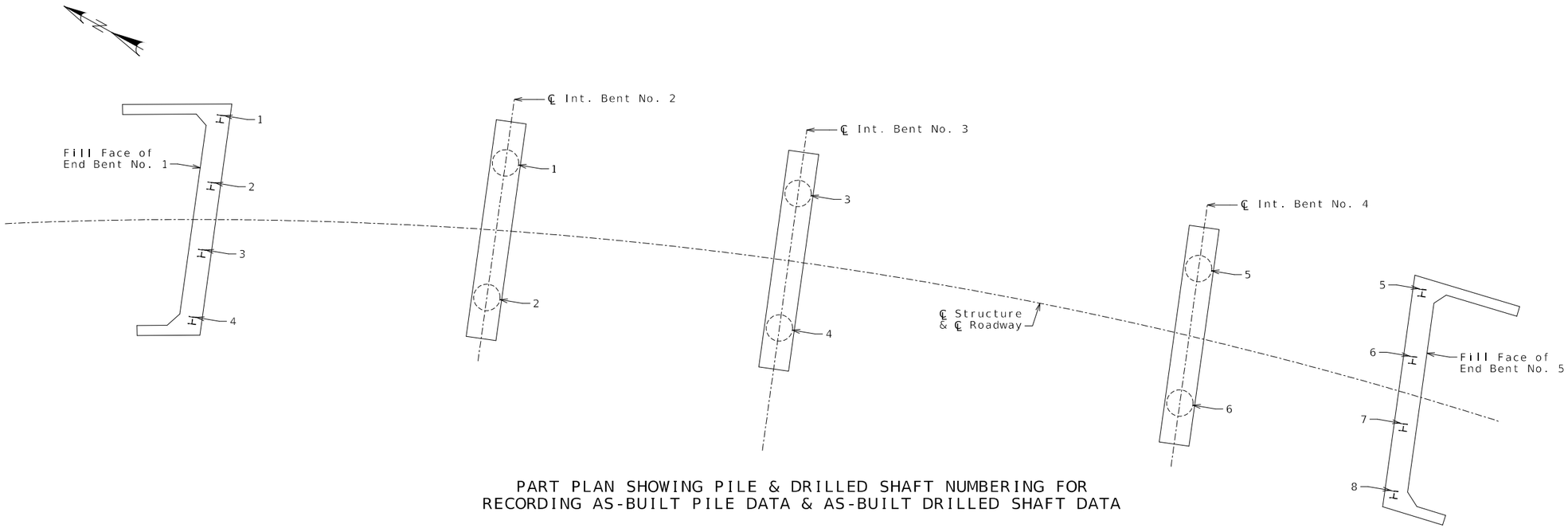
REV.	DESCRIPTION	DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

MoDOT

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

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



PART PLAN SHOWING PILE & DRILLED SHAFT NUMBERING FOR
RECORDING AS-BUILT PILE DATA & AS-BUILT DRILLED SHAFT DATA

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

As-Built Drilled Shaft Data				
Shaft No.	Top of Sound Rock (Elev.)	Tip of Casing (Elev.)	Bottom of Rock Socket (Elev.)	Remarks
				Int. Bent No. 2
1				
2				
				Int. Bent No. 3
3				
4				
				Int. Bent No. 4
5				
6				

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

This sheet to be completed by MoDOT construction personnel.

AS-BUILT PILE AND DRILLED SHAFT DATA

Detailed May 2024
Checked May 2024

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

STATE OF MISSOURI
ALEX BENZ
NUMBER PE-2018003121
PROFESSIONAL ENGINEER
Alex C. Benz
06/27/2024 7:59:59 AM
Alex Benz - Civil
MO PE-2018003121

DATE PREPARED 6/25/2024
ROUTE 190 | STATE MO
DISTRICT BR | SHEET NO. 36
COUNTY DAVIESS
JOB NO. JNW0031
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9469

DESCRIPTION | DATE | REV.

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

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

Modot

SUBSURFACE DIAGRAM

PROJECT NAME

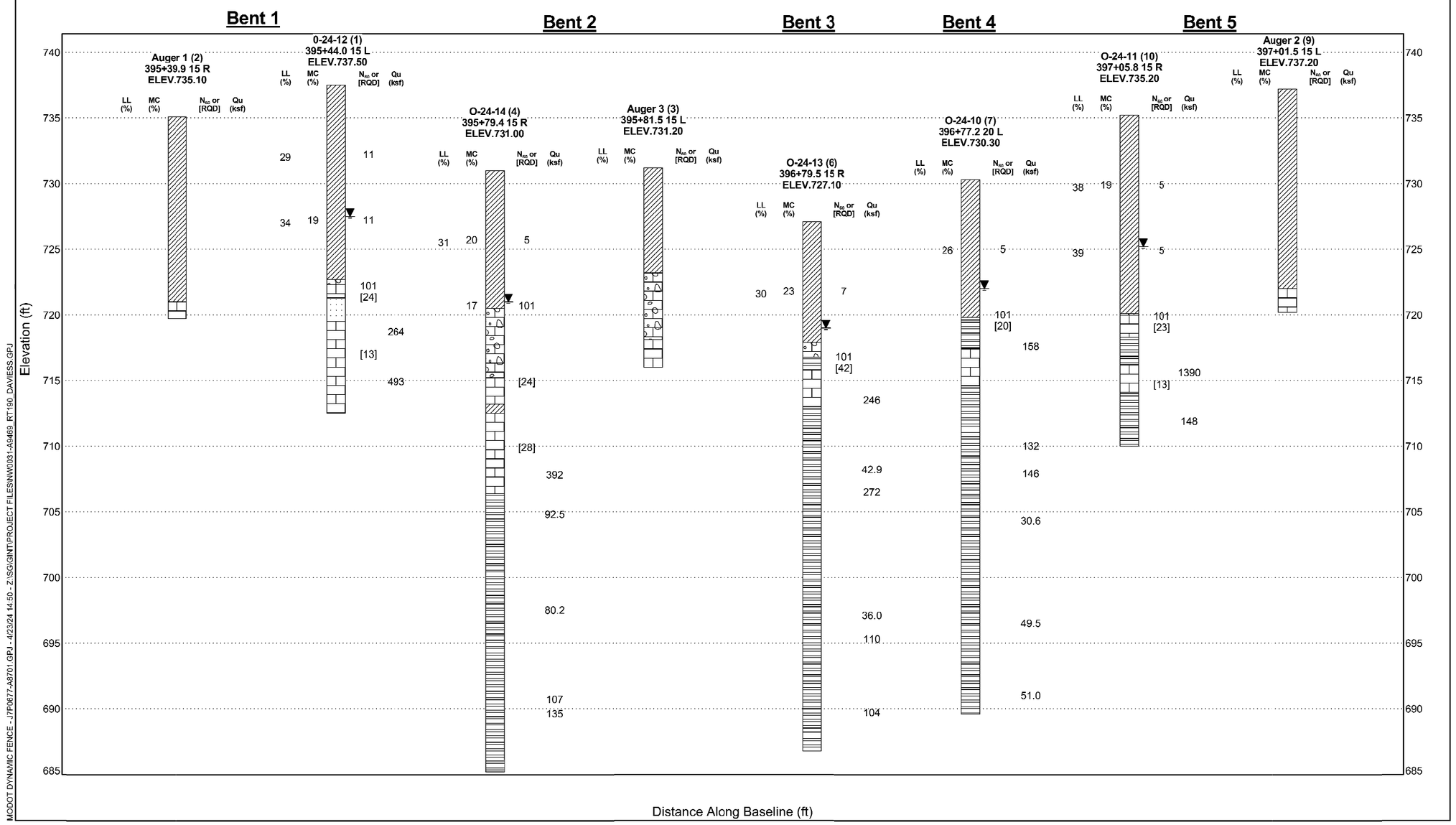
PROJECT LOCATION 0.3 Miles East of Route V

CLIENT

PROJECT NUMBER NW0031

USCS Low Plasticity Clay | Highly Weathered Limestone | Limestone

Sandstone | Shale



BORING DATA

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

Detailed May 2024
Checked May 2024

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

Alex C. Benz
06/27/2024 8:00:13 AM
Alex Benz - Civil
MO PE-2018003121

DATE PREPARED 6/25/2024
ROUTE 190 | STATE MO
DISTRICT BR | SHEET NO. 37
COUNTY DAVIESS
JOB NO. JNW0031
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9469

DESCRIPTION | DATE | REV.

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

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