

DESIGN DESIGNATION

A.A.D.T. - 2025 = 178
A.A.D.T. - 2045 = 196
D.H.V. = 13.07%
T = 9.26%
V = 55 M.P.H.

FUNCTIONAL CLASSIFICATION- MINOR COLLECTOR

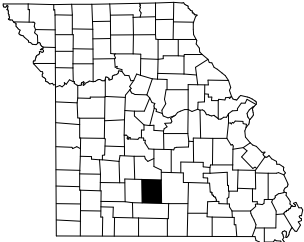
NO NEW RIGHT OF WAY

CONVENTIONAL SYMBOLS
(USED IN PLANS)

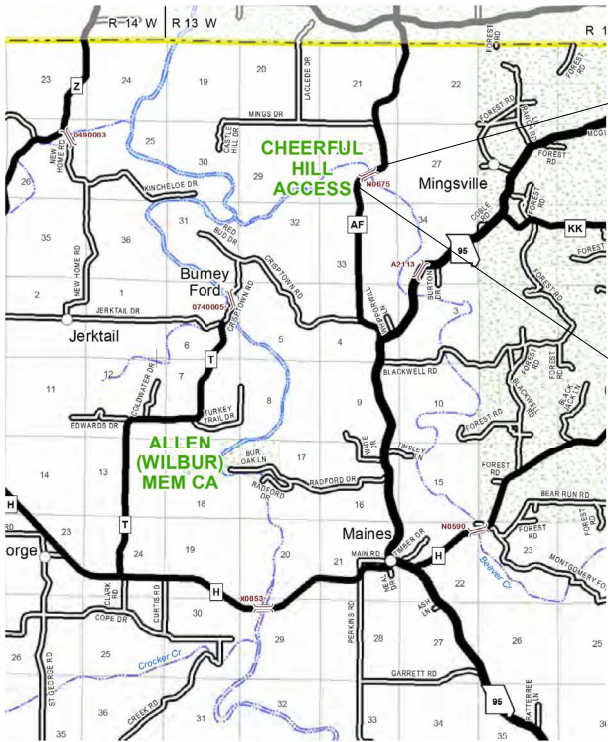
	EXISTING	NEW
BUILDINGS AND STRUCTURES		
GUARD RAIL		
GUARD CABLE		
CONCRETE RIGHT-OF-WAY MARKER		
STEEL RIGHT-OF-WAY MARKER		
LOCATION SURVEY MARKER		
UTILITIES		
FIBER OPTICS	-FO-	-FO-
OVERHEAD CABLE TV	-OTV-	-OTV-
UNDERGROUND CABLE TV	-UTV-	-UTV-
OVERHEAD TELEPHONE	-OT-	-OT-
UNDERGROUND TELEPHONE	-UT-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

NOTE: DASHED OR OPEN SYMBOLS INDICATE EXISTING FEATURES

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
PLANS FOR PROPOSED
STATE HIGHWAY
WRIGHT COUNTY



KEY MAP
LOCATION OF WRIGHT COUNTY



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

INDEX OF SHEETS

DESCRIPTION	SHEET NUMBER
TITLE SHEET	1
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QUANTITIES (QU) (3 SHEETS)	3
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A9488	1-34
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DATE PREPARED 6/25/2025	
ROUTE AF	STATE MO
DISTRICT SE	SHEET NO. 1
COUNTY WRIGHT	
JOB NO. J9S3691	
CONTRACT ID.	

PROJECT NO.
BRIDGE NO.

DESCRIPTION	DATE

LENGTH OF PROJECT

BEGINNING OF PROJECT	STA. 115+30.00
END OF PROJECT	STA. 124+40.00

APPARENT LENGTH 910.00 FEET

EQUATIONS AND EXCEPTIONS:

TOTAL CORRECTIONS	0.00 FEET
NET LENGTH OF PROJECT	910.00 FEET
STATE LENGTH	0.172 MILES

FOR INFORMATION ONLY
ESTIMATED DISTURBED ACRES 0.6 ACRES



ROUTE AF
2025 AADT = 178
2045 AADT = 196
PEAK HOUR = 13.07%
PERCENT TRUCKS = 9.26%
DESIGN SPEED = 55
MINOR COLLECTOR

OPTIONAL PAVEMENT:
2" BIT. PAVEMENT MIXTURE (BP-1) PG64-22
8" BIT. PAVEMENT MIXTURE (BASE) PG64-22
6" TYPE 1 AGG. BASE
8" PCCP (10' JOINT SPACING AND 1.25" DOWEL BARS)
6" TYPE 1 AGG. BASE

SECTION ON TANGENT
TYPICAL SECTION ROUTE AF
STA 116+30.00 TO STA 118+80.00
STA 121+84.33 TO STA 122+97.42
(TAPER SHOULDERS 0' TO 2' STA 117+80.00 TO STA 118+30.00)
(TAPER SHOULDERS 2' TO 0' STA 122+34.33 TO STA 122+84.33)

Diagram illustrating a parabolic vertical curve. The curve is 24 feet long, with 12 feet from the start to the centerline (CL) and 12 feet from the centerline to the end. The curve has a 2% downward slope on the left and a 2% upward slope on the right. The profile grade is shown as a straight line passing through the center of the curve.

SECTION ON TANGENT
TYPICAL SECTION ROUTE AF OVER BEAVER CREEK
STA 119+00.00 TO STA 121+64.33

[illegible]

REV.

PAVEMENT AND TACK							
STA	STA	LOCATION	LENGTH	WIDTH	2" BITUMINOUS PAVEMENT MIXTURE PG 64-22 (BP-1) (2.050 TON/CY) (TON)	TACK (0.10 GAL/SY) (GAL)	REMARKS
115+30.00	116+30.00	RTE AF	100	20	25.3	22.2	MILL/FILL
122+97.42	123+97.42	RTE AF	100	20	25.3	22.2	MILL/FILL
TOTAL					50.6	44	

MOBILIZATION
1 LUMP SUM

CONTRACTOR FURNISHED SURVEYING AND STAKING
1 LUMP SUM

COLDMILLING						
STA	STA	LOCATION	LENGTH	WIDTH	COLDMILLING BITUMINOUS PAVEMENT (3 IN. OR LESS) (SY)	REMARKS
			(FT)	(FT)		
115+30.00	116+30.00	RTE AF	100	20	222	MILL/FILL
122+97.42	123+97.42	RTE AF	100	20	222	MILL/FILL
TOTAL					444	

SEEDING					
STA	STA	LOCATION	SEEDING COOL SEASON GRASSES (AC)	MULCHING (AC)	REMARKS
122+15.00	124+50.00	RTE AF LT	0.10	0.10	TEMPORARY ENTRANCE
116+30.00	118+80.00	RTE AF LT	0.07	0.07	
116+30.00	118+80.00	RTE AF RT	0.08	0.08	
121+84.33	122+97.42	RTE AF LT	0.03	0.03	
121+84.33	122+97.42	RTE AF RT	0.03	0.03	
TOTAL			0.3	0.3	

PAVEMENT MARKING					
STA	STA	LENGTH	CLASS 1 PAVEMENT MARKING 4" WHITE TYPE P BEADS (FT)	CLASS 1 PAVEMENT MARKING 4" YELLOW TYPE P BEADS (FT)	REMARKS
		(FT)			
115+30.00	123+97.42	867	1734	1200	
TOTAL			1734	1200	

SEE PAVEMENT MARKING LOG JSP.

REMOVAL OF IMPROVEMENTS		
LOG MILE	LOCATION	REMARKS
118+80.00	RTE AF LT & RT	BRIDGE END OBJECT MARKERS
121+84.33	RTE AF LT & RT	BRIDGE END OBJECT MARKERS
123+98.00	RTE AF LT	18" GROUP C PIPE FOR TEMP. ENTRANCE
1 LUMP SUM		

OPTIONAL PAVEMENT								
STA	STA	LOCATION	LENGTH	WIDTH	OPTIONAL FULL DEPTH PAVEMENT	TYPE 1 AGGREGATE FOR BASE (6 IN. THICK)	POROUS BACKFILL GRADE 3, 4, OR 5	REMARKS
			(FT)	(FT)	(SY)	(SY)	(CY)	
116+30.00	118+80.00	RTE AF	250	VARIES	589	589	-	
121+84.33	122+97.42	RTE AF	113	VARIES	284	284	-	
118+80.00	118+85.00	RTE AF	5	24	-	-	27	
121+79.33	121+84.33	RTE AF	5	24	-	-	27	
TOTAL					873	873	54	
SEE TYPICAL SECTION SHEET FOR SHOULDER WIDTHS AND TAPERS								

STATE OF MISSOURI

JACOB CAPEDEER

NUMBER
PE-2018021161

PROFESSIONAL ENGINEER

Jacob Capedeer

JACOB CAPEDEER - CIVIL

MO-PE-2018021161

DATE PREPARED
6/25/2025

ROUTE
AF

DISTRICT
SE

STATE
MO

SHEET NO.
3

COUNTY
WRIGHT

JOB NO.
J9S3691

CONTRACT ID.

PROJECT NO.

BRIDGE NO.

DESCRIPTION

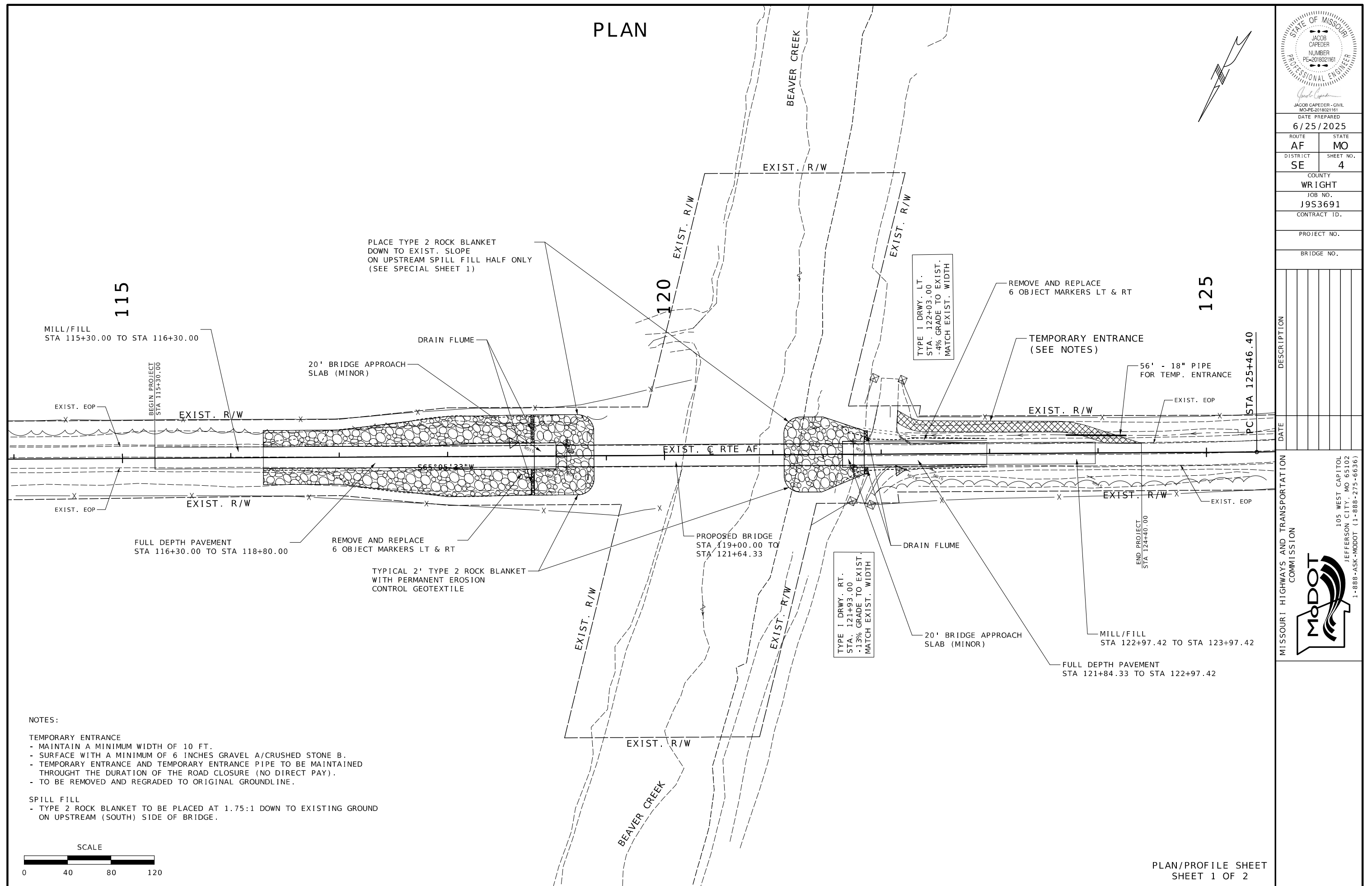
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MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

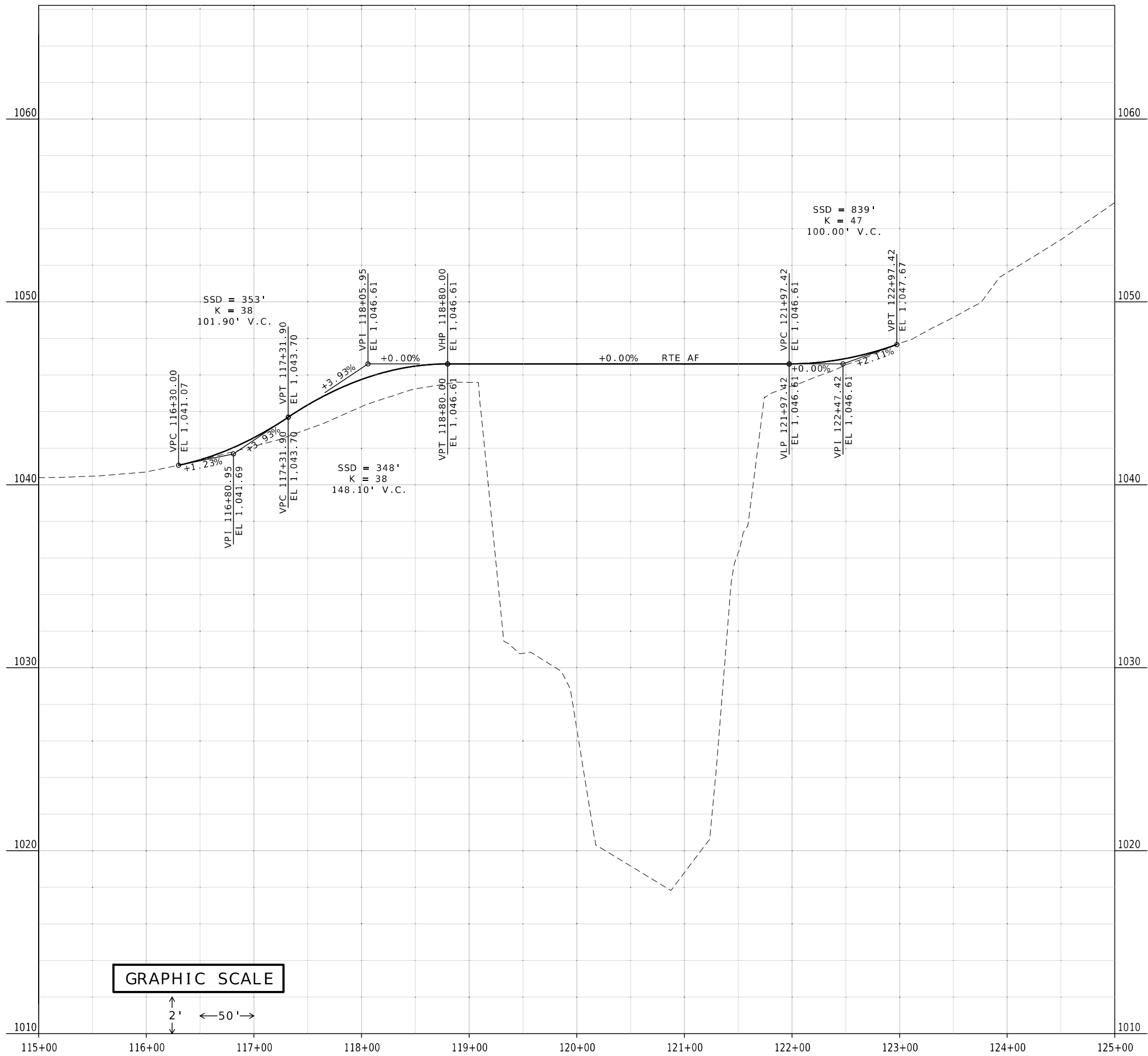
MoDOT

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

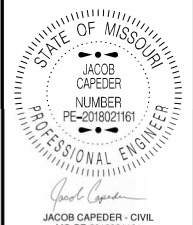
PLAN



PLAN/PROFILE SHEET
SHEET 1 OF 2



PROPOSED PROFILE
GRADE ROUTE AF



DATE PREPARED 6/25/2025	
ROUTE AF	STATE MO
DISTRICT SE	SHEET NO. 5
COUNTY WRIGHT	
JOB NO. J9S3691	
CONTRACT ID.	

PROJECT NO.
BRIDGE NO.

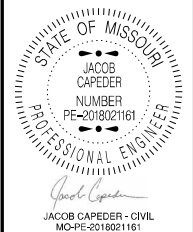
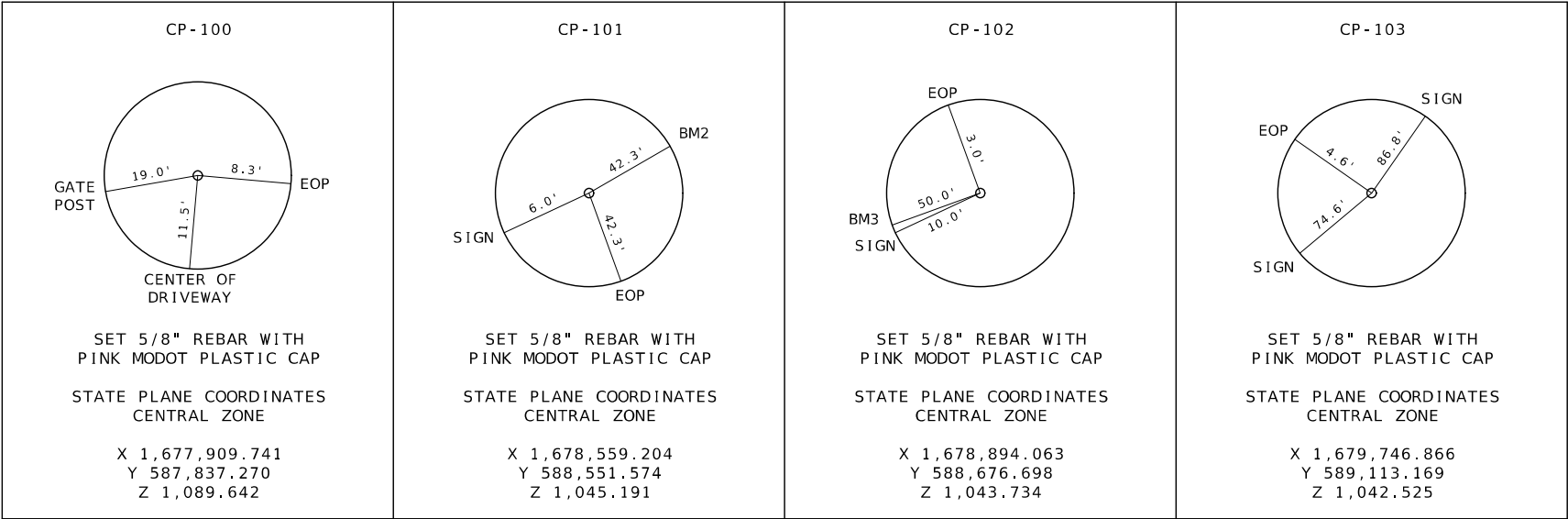
DATE	DESCRIPTION

MISSOURI HIGHWAYS AND TRANSPORTATION
COMMISSION

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JEFFERSON CITY, MO 65102
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COORDINATE POINT LISTING								
SHEET NO	STATION	LOCATION	OFFSET (USFT)	MODIFIED STATE PLANE (GROUND)			DESCRIPTION	GPK POINT ID
				NORTHING (US SURVEY FT)	EASTING (US SURVEY FT)	ELEVATION (US SURVEY FT)		
PROJECT CONTROL POINTS								
4	130+54.02	RTE AF RT	17.39	587,837.270	1,677,909.741	1,089.642	a 5/8" Rebar w/ Pink Cap set Northeast of Intersection of Rt. AF & Field Entrance	CP100
4	122+16.40	RTE AF RT	15.13	588,551.574	1,678,559.204	1,045.191	A 5/8" Rebar w/ Pink Cap set Northwest of Intersection Between Rt. AF & A, and a Field Entrance	CP101
4	118+59.99	RTE AF LT	12.41	588,676.698	1,678,894.063	1,043.734	A 5/8" Rebar w/ Pink Cap set Southeast of Bridge N0675	CP102
4	109+02.06	RTE AF LT	10.23	589,113.169	1,679,746.866	1,042.525	A 5/8" Rebar w/ Pink Cap set in the East R/W of Rt. AF in a curve	CP103
ALIGNMENTS								
4	115+30.00	RTE AF CL	0.00	588,826.936	1,679,188.137	1,040.430	BEGIN PROJECT	
4	123+97.42	RTE AF CL	0.00	588,461.620	1,678,401.396	1,051.502	END PROJECT	

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 MULTIPLY THE PROJECT COORDINATES BY THE AVERAGE GRID FACTOR AS SHOWN IN THE "REFERENCE CONTROL INFORMATION" PORTION OF THIS TABLE.	
PROJECT COORDINATE INFORMATION	
COORDINATE SYSTEM	MO SPC 83
HORIZONTAL DATUM	NAD83 2011
VERTICAL DATUM	MODOT GNSS NETWORK
GEOID MODEL	2018
ELEVATIONS DETERMINED BY	DIFFERENTIAL ELEVATION
PROJECT PROJECTION FACTOR	1.0001103
REFERENCE CONTROL INFORMATION	
COORDINATE SYSTEM	MO SPC 83
CONTROL STATION	MONF
DESIGNATION	MODOT NEBO CORS ARP
CORS_ID	MONF
PID	DN7496
LATITUDE	373419.54018
LONGITUDE	922033.30401
NORTHING (M)	192952.7690
EASTING (M)	513905.2240
ZONE	CENTRAL
PROJECT AVERAGE GRID FACTOR	0.9998897



DATE PREPARED	
6/25/2025	
ROUTE	STATE
AF	MO
DISTRICT	SHEET NO.
SE	6
COUNTY	
WRIGHT	
JOB NO.	
J9S3691	
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO.	

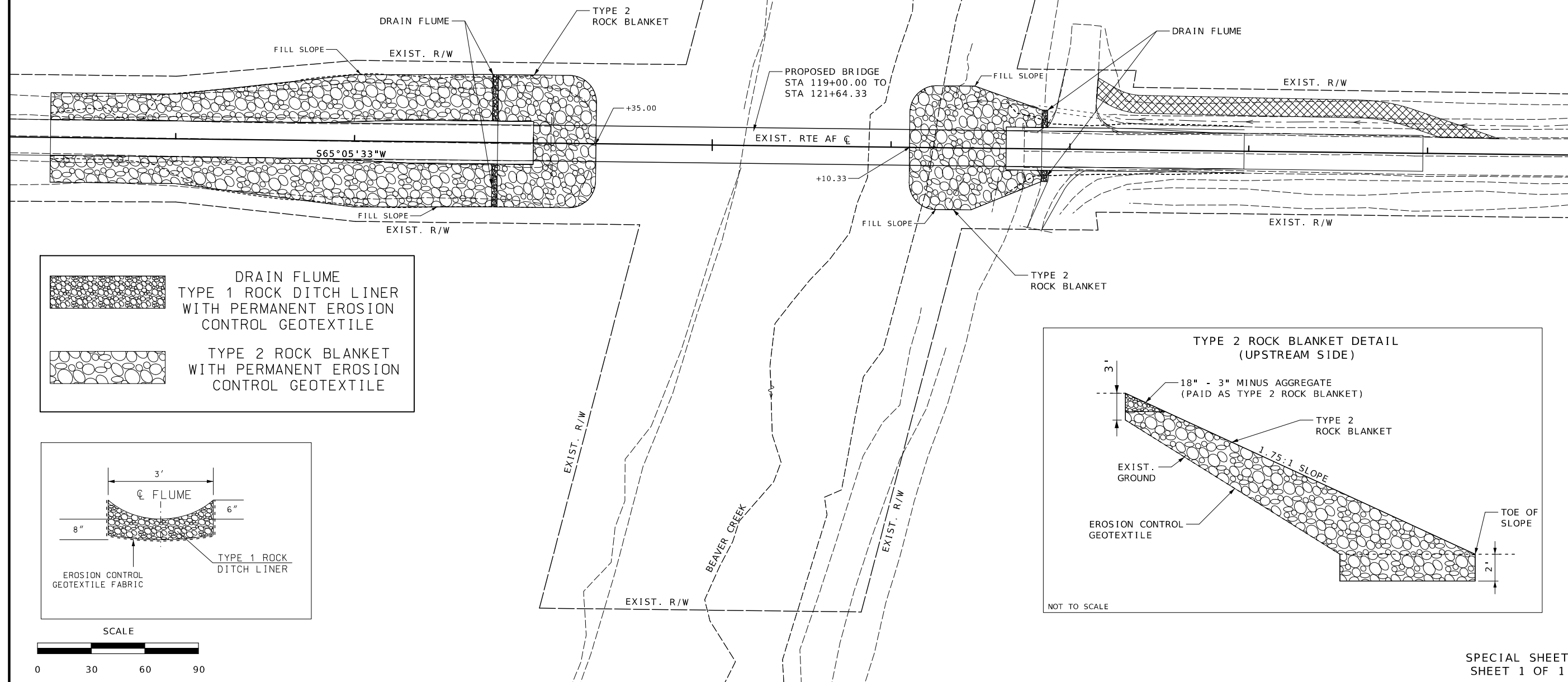
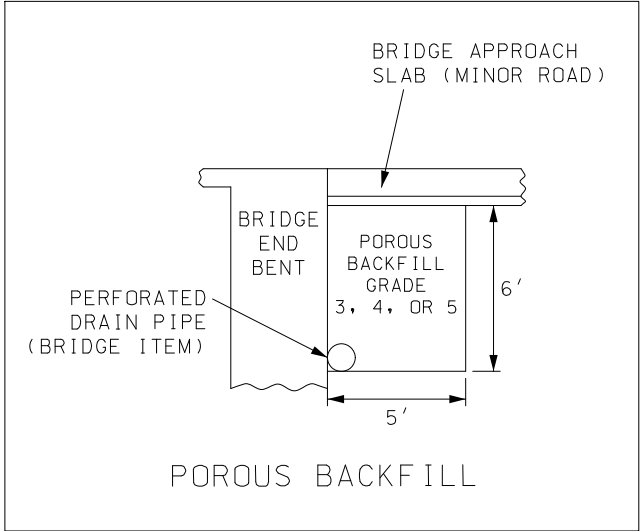
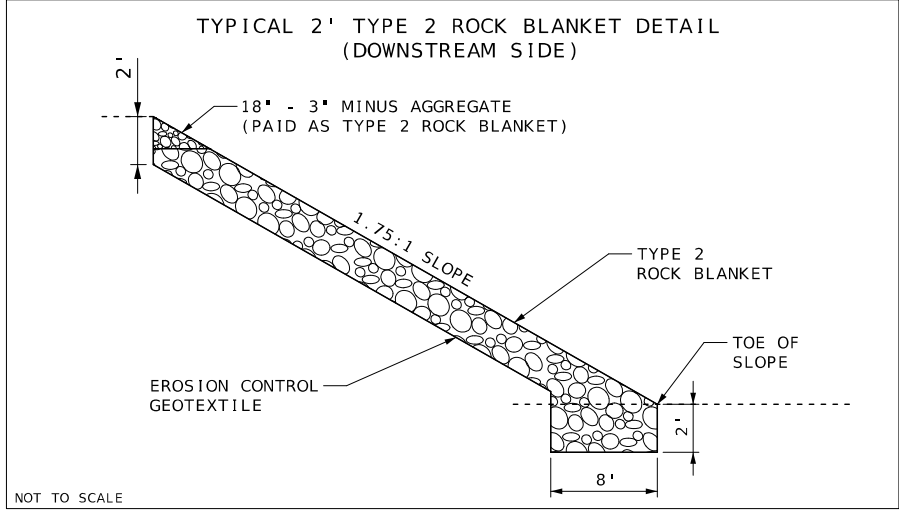
DESCRIPTION									
DATE									

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION



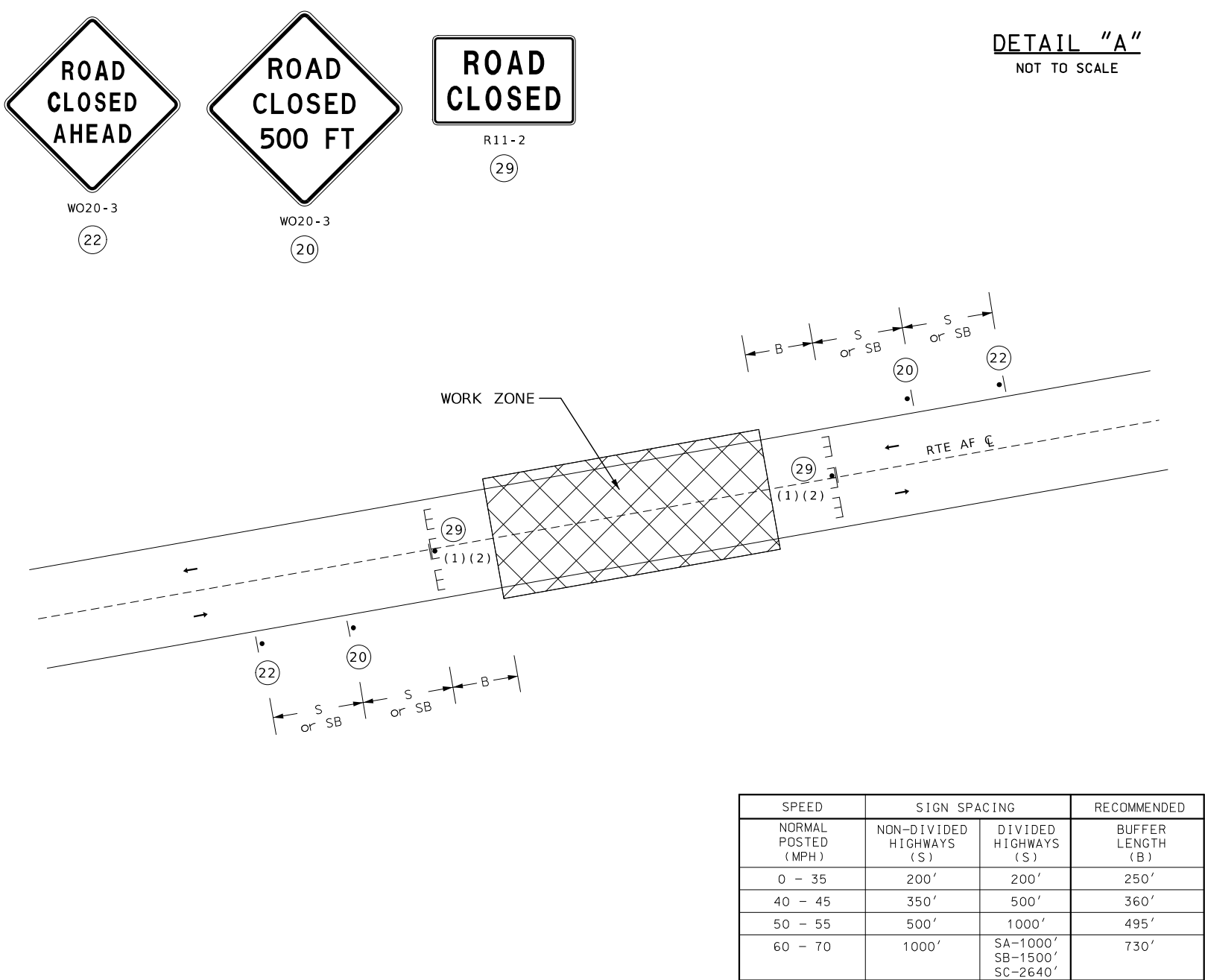
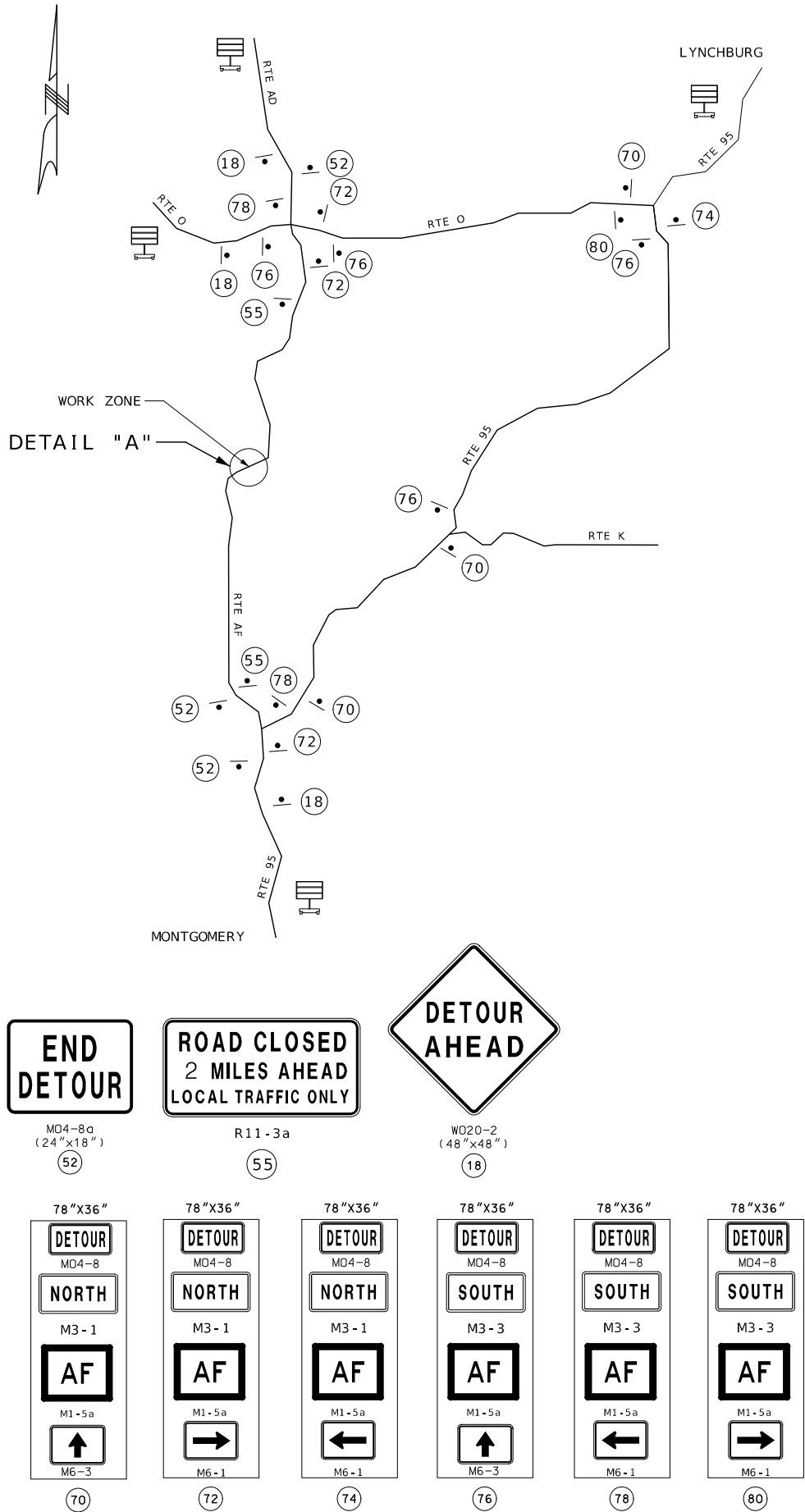
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PLAN SPILL FILL DETAIL



SPECIAL SHEET
SHEET 1 OF 1

[illegible]



NOTES:

- ANY EXISTING SIGN THAT CONFLICTS WITH THE TRAFFIC CONTROL SIGNAGE SHALL BE COMPLETELY COVERED OR REMOVED.
- PLACEMENT OF TRAFFIC CONTROL SIGNING IS APPROXIMATE AND MAY BE ADJUSTED TO FIT FIELD CONDITIONS AS APPROVED BY THE ENGINEER.
- R11-2 SIGN ASSOCIATED WITH TYPE 3 BARRICADE SHALL BE MOUNTED ON POST 7-10 FEET BEHIND BARRICADE.
- CMS LOCATIONS AND MESSAGES TO BE APPROVED BY ENGINEER.
- ALL SIGNS SHOWN ON THIS SHEET ARE NON-PORTABLE AND SHALL REMAIN IN PLACE FOR THE DURATION OF THE PROJECT.
- (1) "ROAD CLOSED" SIGN MAY BE PLACED 7-10 FEET BEHIND THE BARRICADES AND AT A SIGN HEIGHT APPROPRIATE TO THE TYPE OF ROADWAY. ONE BARRICADE REQUIRED TO CLOSE EVERY 8-FOET OF PAVEMENT. PAVED SHOULDERS SHALL BE INCLUDED IN THE AREA.
- (2) ADDITIONAL BARRICADES MAY BE USED AND OFFSET TO FACILITATE ACCESS FOR WORK VEHICLES, LOCAL TRAFFIC, TO BUSINESSES, ETC.

TRAFFIC CONTROL LEGEND

- CHANNELIZER (TRIM LINE)
- CHANGEABLE MESSAGE SIGN (CMS) CONTRACTOR FURNISHED/ CONTRACTOR RETAINED
- SIGN (SINGLE SIDED)
- TYPE 3 MOVEABLE BARRICADE WITH LIGHT
- WORK ZONE

NOT TO SCALE
TRAFFIC CONTROL
SHEET 1 OF 1

STATE OF MISSOURI

JACOB CAPEDE

NUMBER

PE-2018021161

PROFESSIONAL ENGINEER

JACOB CAPEDE - CIVIL

MO-PE-2018021161

DATE PREPARED

6/25/2025

ROUTE

AF

STATE

MO

DISTRICT

SE

SHEET NO.

8

COUNTY

WRIGHT

JOB NO.

J9S3691

CONTRACT ID.

PROJECT NO.

BRIDGE NO.

DESCRIPTION

DATE

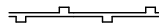
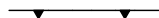
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

105 WEST CAPITOL

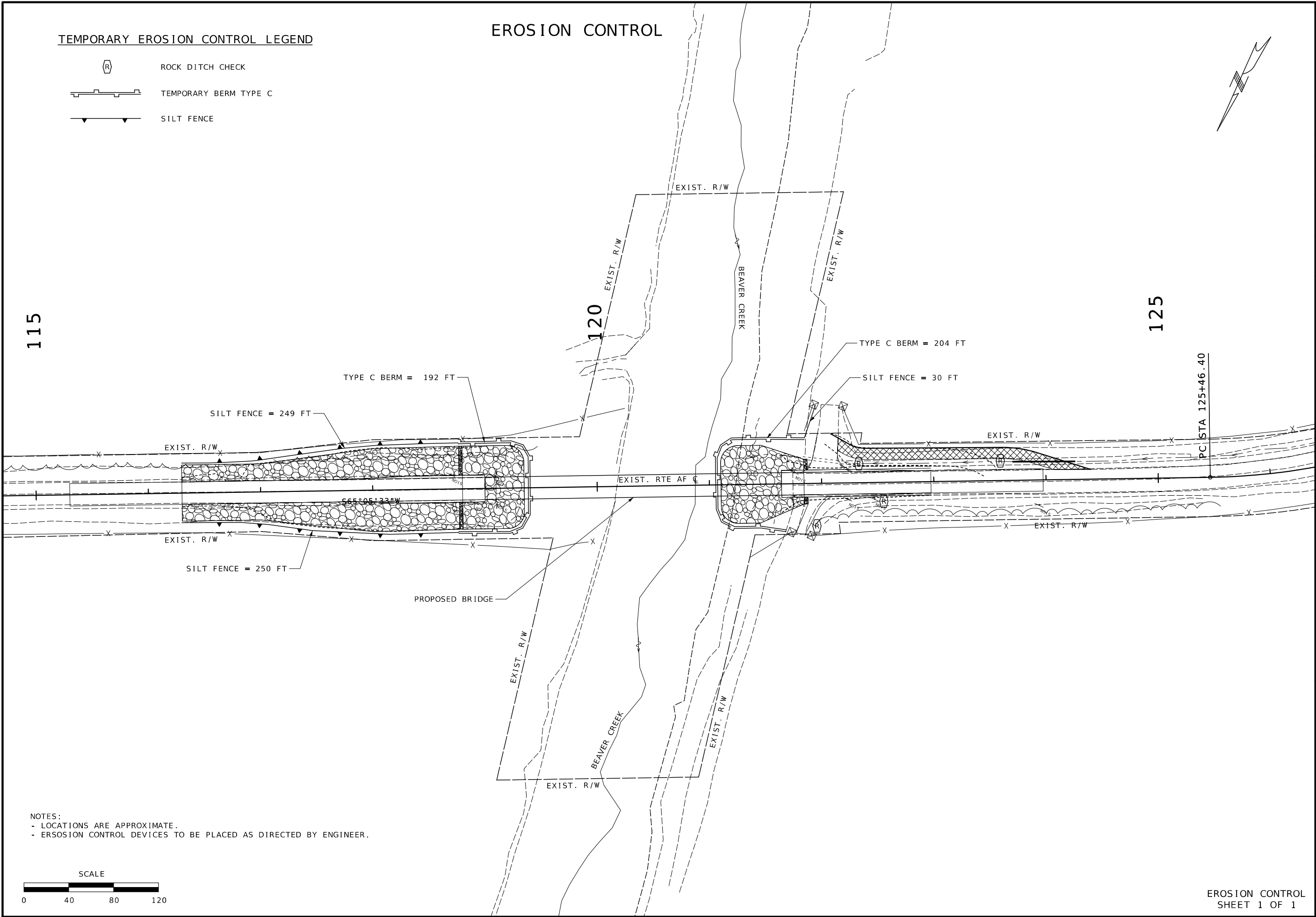
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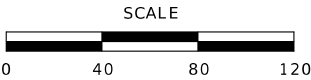
TEMPORARY EROSION CONTROL LEGEND

-  ROCK DITCH CHECK
-  TEMPORARY BERM TYPE C
-  SILT FENCE

EROSION CONTROL



- NOTES:
- LOCATIONS ARE APPROXIMATE.
 - EROSION CONTROL DEVICES TO BE PLACED AS DIRECTED BY ENGINEER.



DATE PREPARED
6/25/2025

ROUTE AF	STATE MO
DISTRICT SE	SHEET NO. 9
COUNTY WRIGHT	
JOB NO. J9S3691	
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO.	

DESCRIPTION	DATE

MISSOURI HIGHWAYS AND TRANSPORTATION
COMMISSION



105 WEST CAPITOL
JEFFERSON CITY, MO 65102
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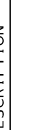
STRUCTURAL STEEL POST AND FOOTING DATA TABLE															
POST DES. NO.		NOM. SIZE		POST			FOOTING								
				WEIGHT		STUB LENGTH	D1A.	LEVEL GROUND		6:1 GRADE		4:1 GRADE		3:1 OR 2:1 GRADE	
				LBS/FT	LBS/IN			DEPTH	C.Y.	DEPTH	C.Y.	DEPTH	C.Y.	DEPTH	C.Y.
1	W6	9.0	0.75	3'-0"	15"	3'-0"	0.14	3'-2"	0.15	3'-3"	0.16	3'-6"	0.17		
2	W8	15.0	1.25	2'-0"	24"	4'-0"	0.47	4'-2"	0.50	4'-3"	0.51	4'-6"	0.54		
3	W8	19.0	1.60	4'-0"	48"	4'-0"	0.71	4'-8"	0.73	4'-9"	0.74	5'-0"	0.78		
4	W10	22.0	1.83	5'-0"	36"	5'-0"	1.31	5'-2"	1.36	5'-3"	1.39	5'-6"	1.45		
5	W10	26.0	2.17	5'-0"	36"	5'-0"	1.31	5'-3"	1.37	5'-5"	1.43	5'-9"	1.52		
6	W12	35.0	2.92	5'-6"	36"	5'-6"	1.44	5'-9"	1.52	5'-11"	1.56	6'-3"	1.65		

[illegible]

SIGNING SHEET
SHEET 2 OF 2

D - 30

[illegible]

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

LOCHNER JOB NO. 23469 RTE. AF OVER BEAVER CREEK

GENERAL NOTES:

Design Specifications:
2020 AASHTO LRFD Bridge Design Specifications (9th Ed.)
2023 AASHTO Guide Specifications for LRFD Seismic Bridge Design (3rd Ed.)
Seismic Design Category = B (Seismic Details)
Design earthquake response spectral acceleration coefficient at 1.0 second period, SD1 = 0.202g
Acceleration Coefficient (effective peak ground acceleration coefficient), As = 0.133g

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

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 f'c = 4,000 psi
(Drilled Shafts & Rock Sockets)
Class B-2 Concrete (Superstructure, except Prestressed Girders and Barrier) f'c = 4,000 psi
Class B-1 Concrete (Barrier) f'c = 4,000 psi
Reinforcing Steel (ASTM A706 Grade 60) fy = 60,000 psi
Structural Steel HP Pile fy = 50,000 psi
(ASTM A709 Grade 50)

For prestressed girder stresses, see Sheets No. 14 thru 15.

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

Backfilling:
Do not backfill behind Bent No. 3 backwall until the slab has been poured.

Reinforcing Steel:
Minimum clearance to reinforcing steel shall be 1½", unless otherwise shown.

MBS refers to mechanical bar splices. Contractor has the option to use MBS for Intermediate Bent No. 2 No. 11 bars above the drilled shaft and shall be in accordance with Sec 706 or 710 except that no measurement will be made for mechanical bar splices and they will be considered completely covered by the contract unit price for other items.

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

Estimated Quantities			
Item	Substr.	Superstr.	Total
Class 1 Excavation	cu. yard	85	85
Class 1 Excavation in Rock	cu. yard	10	10
Removal of Bridges (NO675)	lump sum		1
Bridge Approach Slab (Minor)	sq. yard		109
Drilled Shafts (4 Ft. 0 in. Dia.)	linear foot	47.0	47.0
Rock Sockets (3 Ft. 6 in. Dia.)	linear foot	26.0	26.0
Video Camera Inspection	each	2	2
Foundation Inspection Holes	linear foot	46.0	46.0
Sonic Logging Testing	each	2	2
Galvanized Structural Steel Piles (12 in.)	linear foot	156	156
Pre-Bore for Piling	linear foot	67	67
Pile Point Reinforcement	each	6	6
Class B Concrete (Substructure)	cu. yard	87.3	87.3
Type D Barrier	linear foot	551	551
Slab on Concrete NU-Girder	sq. yard	780	780
NU 63, Prestressed Concrete NU-Girder	linear foot	781	781
Reinforcing Steel (Bridges)	pound	11,180	11,180
Reinforcing Steel (Epoxy Coated)	pound	5,540	5,540
Steel Intermediate Diaphragm for P/S Concrete Girders	each	8	8
Slab Drain	each	48	48
Vertical Drain at End Bents	each	2	2
Laminated Neoprene Bearing Pad	each	9	9
Type N PTFE Bearing	each	3	3

Cost of L4x4 ASTM A709 Grade 36 HP pile anchors and 3/4-inch diameter ASTM F3125 Grade A325 Type 1 bolts, complete in place, will be considered completely covered by the contract unit price for Galvanized Structural Steel Piles (12 in.).

All concrete above the construction joint in End Bent No. 1 is included in the Estimated Quantities for Slab on Concrete NU-Girder.

All reinforcement in End Bent No. 1 is included in the Estimated Quantities for Slab on Concrete NU-Girder.

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

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

Additional Notes:

DF = FHWA-modified Gates Dynamic Pile Formula

Load Bearing Pile:
Prebore for piles at Bent No. 1 to Elevation 1025.

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

Spread Footings:
Minimum Nominal Bearing Resistance = Maximum Factored Loads/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

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

Rock Socket (Drilled Shafts):
The use of permanent casing is anticipated.

Minimum Nominal Axial Compressive Resistance (Side Resistance + Tip Resistance) = Maximum Factored Loads/Resistance Factors

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 per shaft have been added in the quantities, if required, for possible change in drilled shaft or rock socket length. The additional V-bar length shall be cut off or included in the reinforcement lap if not required. The additional P bars shall be spaced similarly to that shown in elevation, if required, or to 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.

Estimated Quantities for Slab on Concrete NU-Girder	
Item	Quantity
Class B-2 Concrete	cu. yard 244
Reinforcing Steel (Epoxy Coated)	pound 72,450

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

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

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

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

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

Hydrologic Data
Drainage Area = 121 sq. mi.
Design Flood Frequency = 50 years
Design Flood Discharge = 20160 cfs
Design Flood (D.F.) Elevation = 1037.51
Base Flood (100-year)
Base Flood Elevation = 1040.40
Base Flood Discharge = 23510 cfs
Estimated Backwater = 0.82 ft
Average Velocity thru Opening = 4.78 ft/s
Freeboard (50-year)
Freeboard = 2.58 ft
Roadway Overtopping
Overtopping Flood Discharge >31480 cfs
Overtopping Flood Frequency >500 years
Overtopping Flood Elevation = 1046.61

DESIGNED BY: K LW JAN 2025
DETAILED BY: R CL JAN 2025
CHECKED BY: DMA FEB 2025

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

Sheet No. 2 of 34

GENERAL NOTES & ESTIMATED QUANTITIES



THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY

DATE PREPARED 6/24/2025	
ROUTE AF	STATE MO
DISTRICT BR	SHEET NO. 2
COUNTY WR I GHT	
JOB NO. J9S3691	
CONTRACT ID.	
PROJECT NO.	

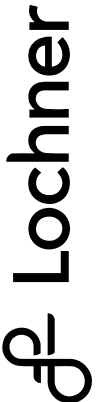
BRIDGE NO. A9488

DESCRIPTION	DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION



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



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



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

Estimated Quantities	
Item	Quantity
	Bent No.
Class 1 Excavation	cu. yard 40
Galvanized Structural Steel Piles (12 in.)	linear foot 156
Pre-bore for Piling	linear foot 67
Pile Point Reinforcement	each 6
Class B Concrete (Substructure)	cu. yard 17.1

Notes :

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

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

① - Denotes Girder Number

E.F. - Denotes Each Face

W.P. - Work Point

Notes:

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

For Laminated Neoprene Bearing Pad Details and orientation, see Sheet No. 13.

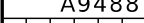
For details of Vertical Drain at End Bent, see
Sheet No. 6.

For Elevation D-D and Section thru Wing
see Sheet No. 5.

For Sections A-A thru C-C, see Sheet No. 5.

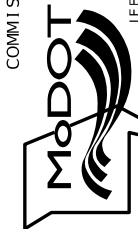
Reinforcing steel shall be shifted to clear piles.
U bars shall clear piles by at least 1 1/2".

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



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Phone: 816-945-5840

LOCHNER JOB NO. 23469 RTE. AF OVER BEAVER CREEK

DESIGNED BY: JTG	JAN 2025
DETAILED BY: JTC	JAN 2025
CHECKED BY: DMA	JAN 2025

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

Sheet No. 3 of 34

B_A9488_003_J9S3691_END BENT NO 1 BEARING BEAM.dgn 3:54:16 PM 6/24/2025

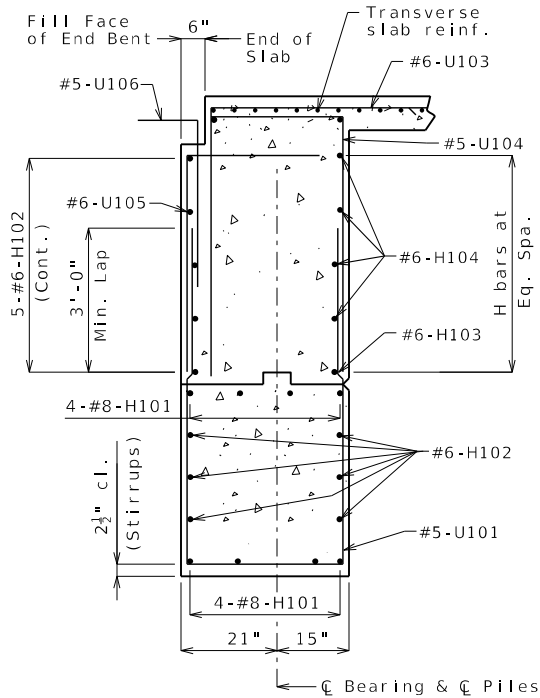
LOCHNER JOB NO. 23469 RTE. AF OVER BEAVER CREEK

DESIGNED BY: JTG JAN 2025
DETAILED BY: JTC JAN 2025
CHECKED BY: DMA JAN 2025

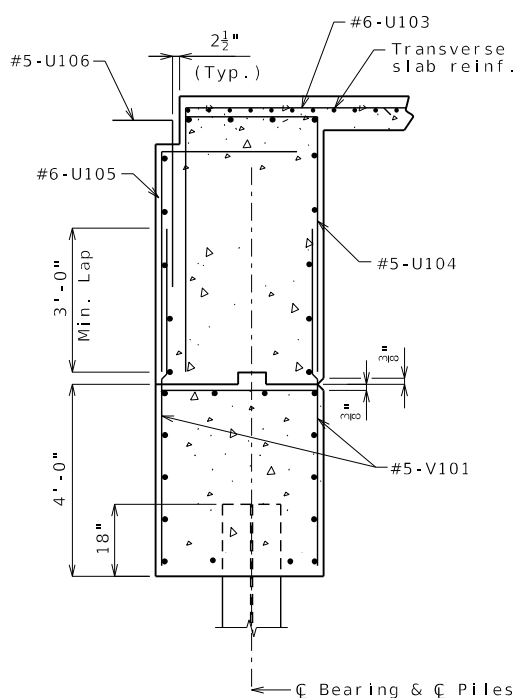
Note: This drawing is not to scale. Follow dimensions.

Sheet No. 5 of 34

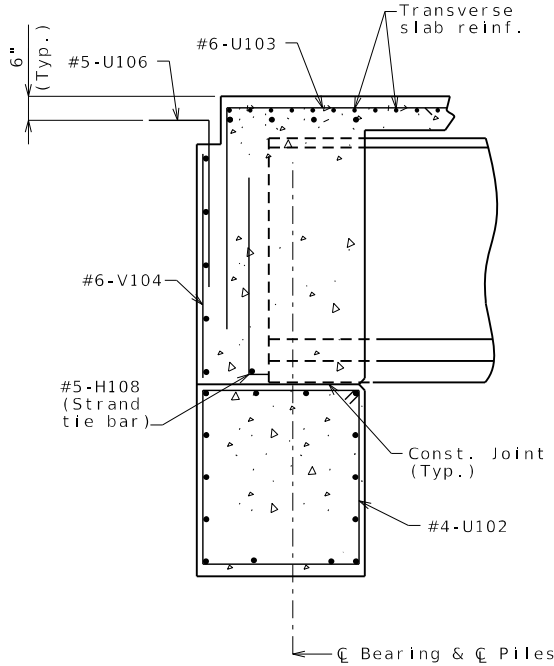
B_A9488_005_J9S3691_END BENT 1 WINGS AND SECTIONS.dgn 3:54:34 PM 6/24/2025



SECTION A-A



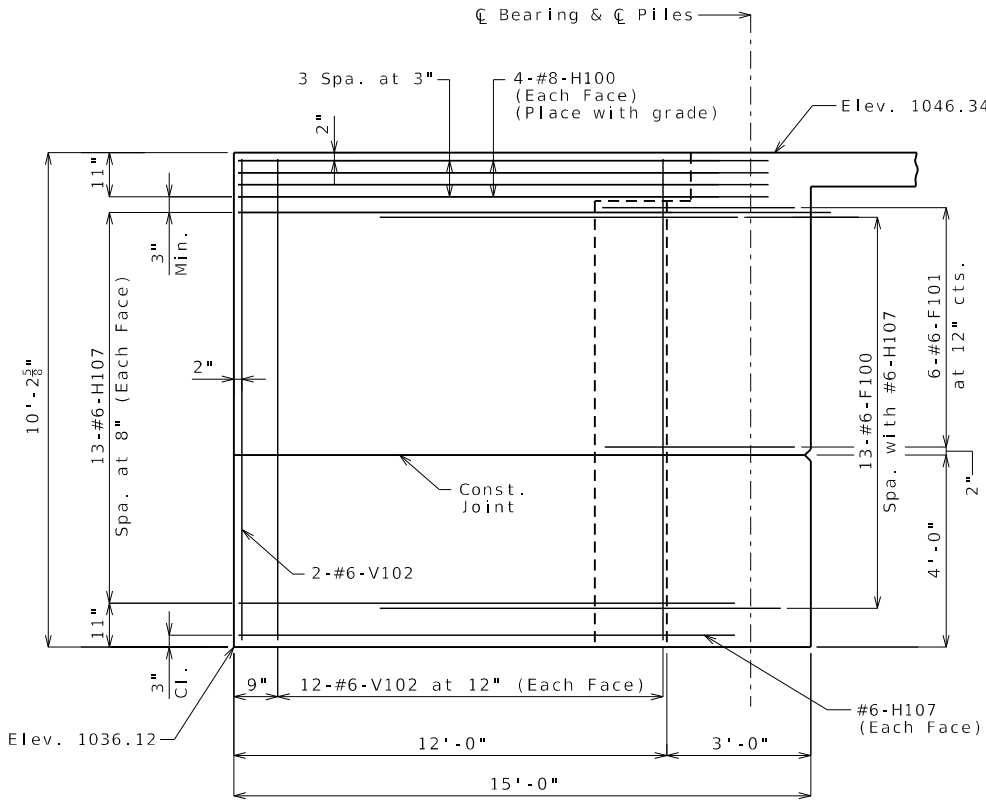
SECTION B-B⁽¹⁾



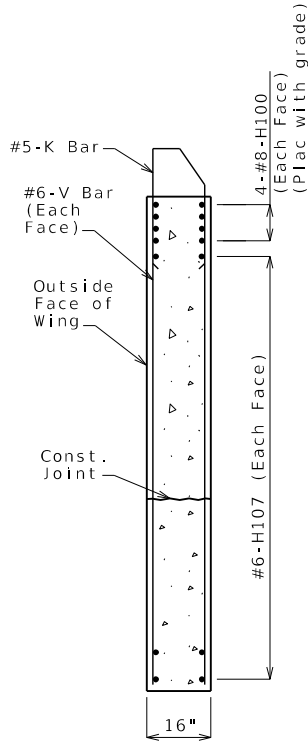
SECTION C-C⁽¹⁾

(1) See Section A-A for horizontal bearing beam bars.

Notes:
For location of Section A-A, B-B & C-C, see Sheet No. 3.
For location of Elevation D-D, see Sheet No. 3.
For details of Vertical Drain at End Bent, see Sheet No. 6.
For reinforcement of the Type D Barrier, see Sheet No. 24.
Strands at end of the girder shall be field bent or, if necessary, cut in field to maintain 1 1/2" minimum clearance to fill face of end bent.



ELEVATION D-D
(Right Wing shown, Left Wing similar)



TYPICAL SECTION THRU WING

END BENT NO. 1 DETAILS



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6/24/2025

ROUTE STATE
AF MO

DISTRICT SHEET NO.
BR 5

COUNTY
WRIGHT

JOB NO.
J9S3691

CONTRACT ID.

PROJECT NO.

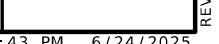
BRIDGE NO.
A9488

DATE	DESCRIPTION

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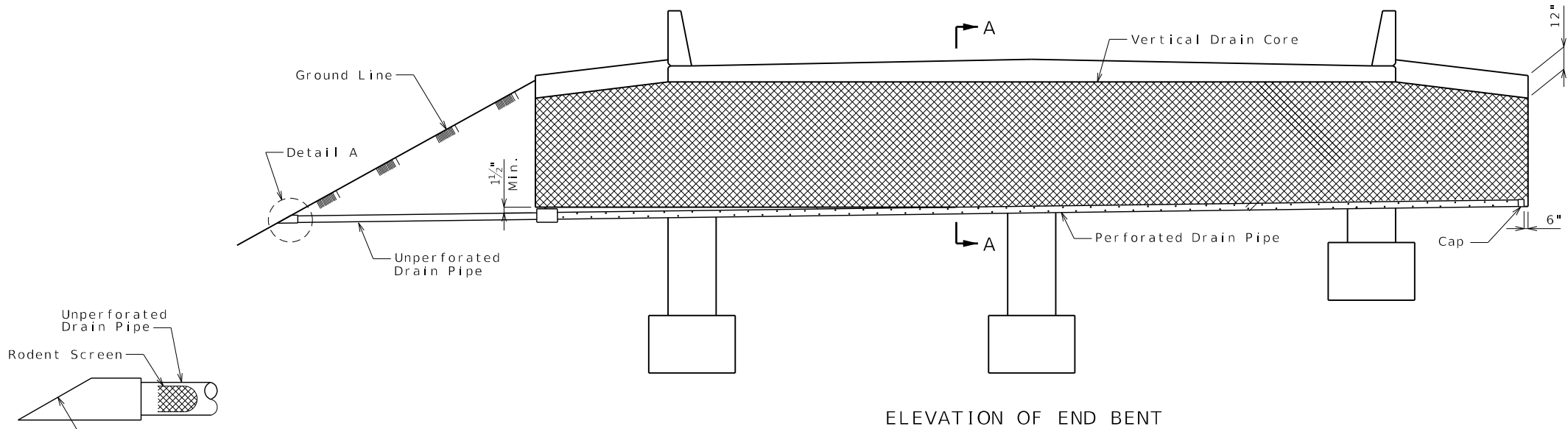
LOCHNER JOB NO. 23469 RTE. AF OVER BEAVER CREEK

DESIGNED BY: JTG JAN 2025
DETAILED BY: JTC JAN 2025
CHECKED BY: DMA JAN 2025

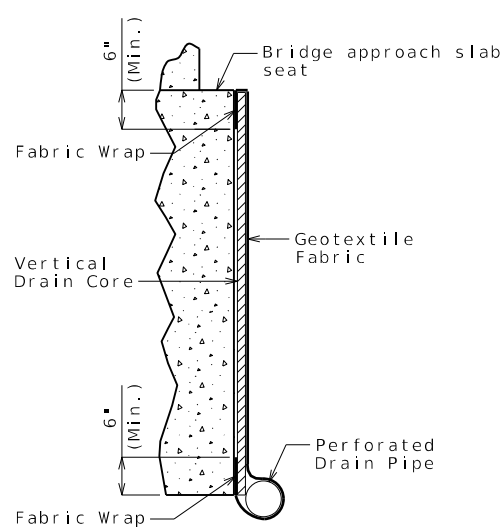
Note: This drawing is not to scale. Follow dimensions.

Sheet No. 7 of 34

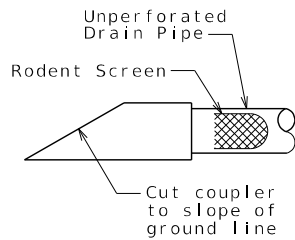
B_A9488_007_J9S3691_VERTICAL DRAIN AT END BENT 3.dgn 3:54:52 PM 6/24/2025



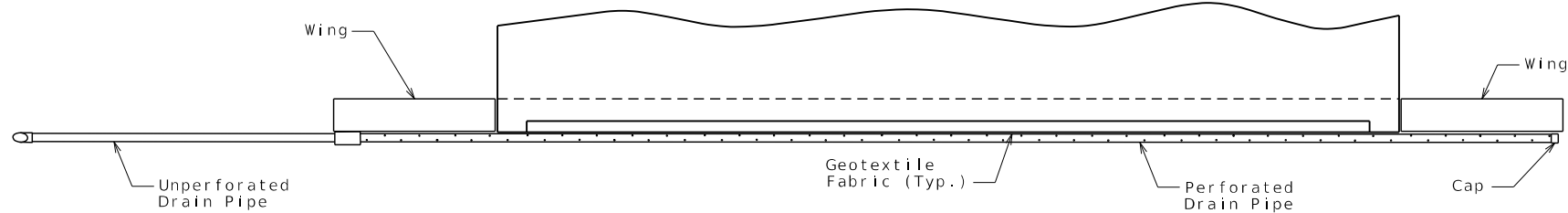
ELEVATION OF END BENT



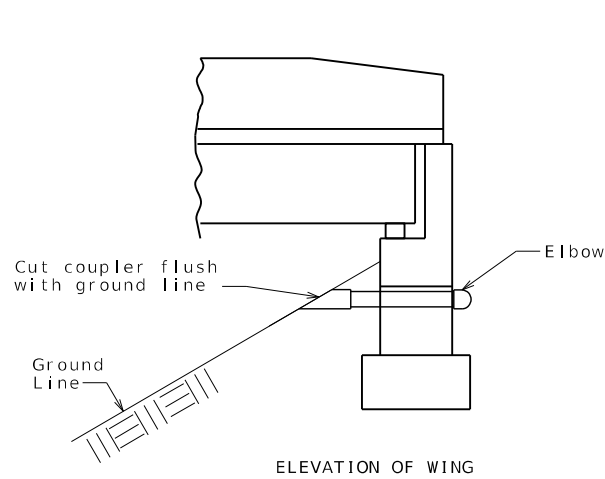
PART SECTION A-A
(Section thru wing similar)



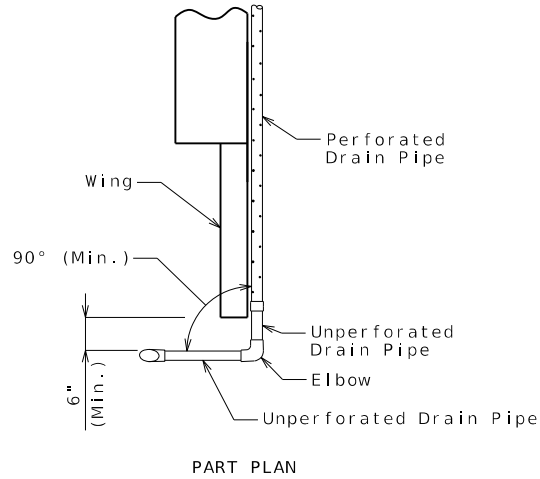
DETAIL A



PLAN OF END BENT



ELEVATION OF WING



PART PLAN

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

General Notes:

All drain pipe shall be sloped 1 to 2 percent.

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

Drain pipe shall be placed at fill face of end bent and face of wings. The pipe shall slope to lowest grade of ground line and shall be below bottom of wing elevation by a minimum of 1 1/2 inches.

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



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ROUTE STATE
AF MO

DISTRICT SHEET NO.
BR 7

COUNTY
WRIGHT

JOB NO.
J9S3691

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9488

DESCRIPTION

DATE

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COMMISSION

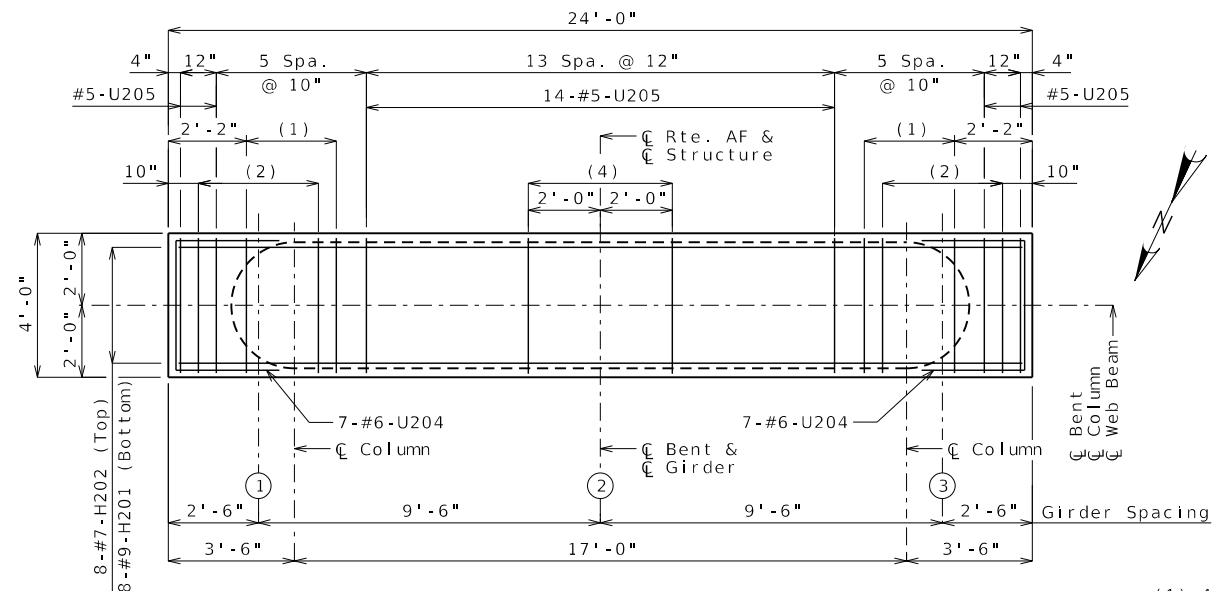
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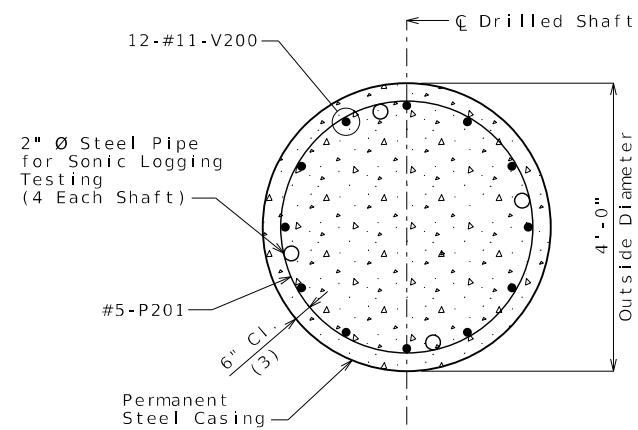
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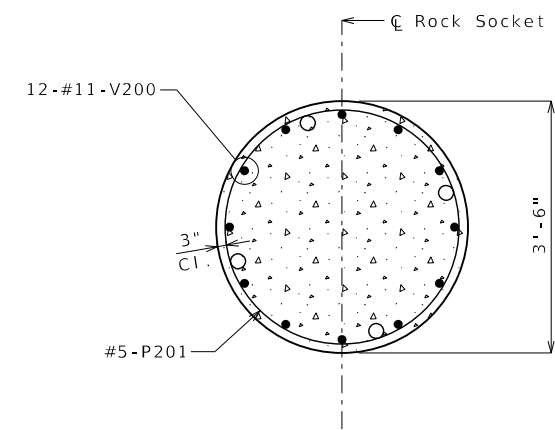
REV.



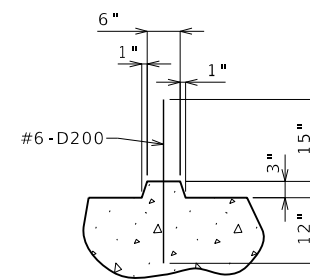
- (1) 4-#5-U206
- (2) 5-#4-U207 Spaced
between U205/U206 bars
at girder line
- (4) 5-#4-U207 spaced between
U205 bars at girder line



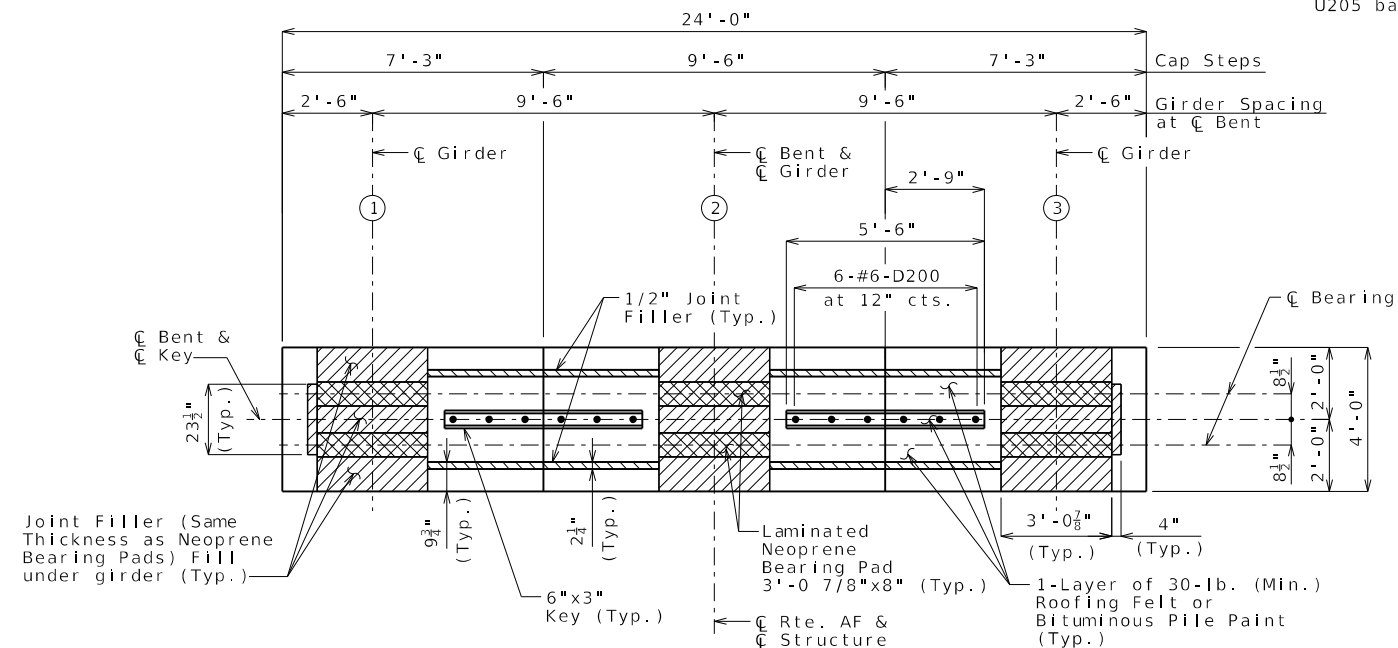
SECTION E-E
(3) To outside of casing



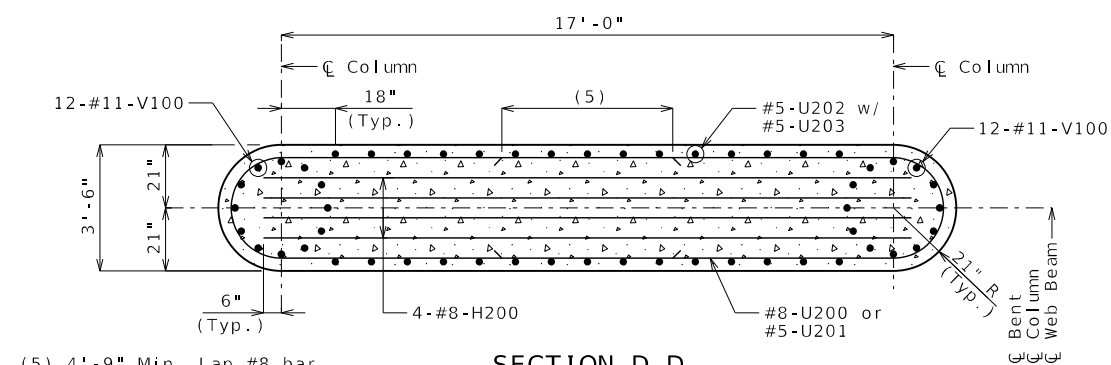
SECTION F-F



SECTION THRU KEY



PLAN OF BEAM



- (5) 4'-9" Min. Lap #8 bar
3'-0" Min. Lap #5 bar

Notes:

For locations of Section D-D, E-E and F-F, see Sheet No. 8.

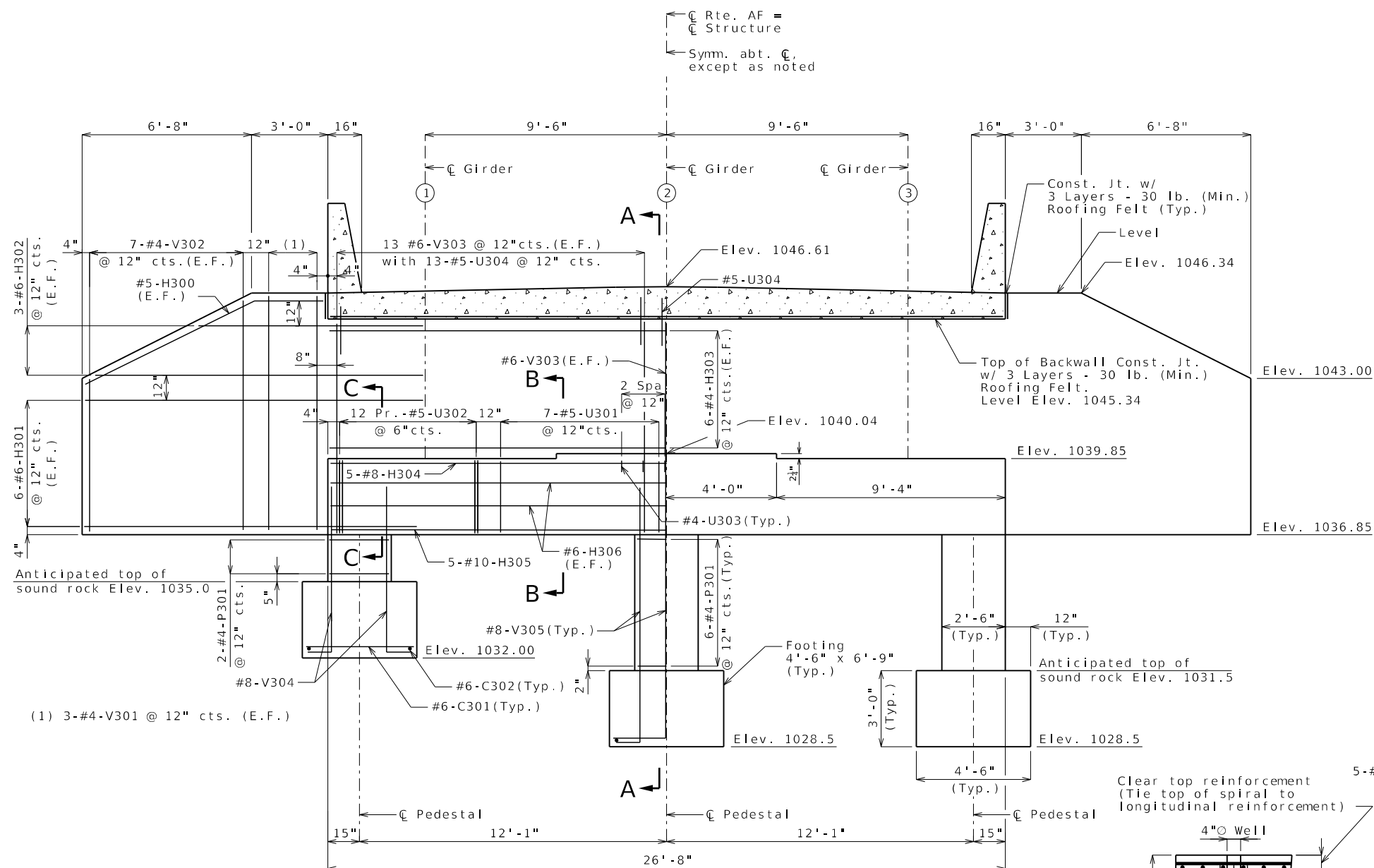
For Diaphragm Details, see Sheet No. 17.

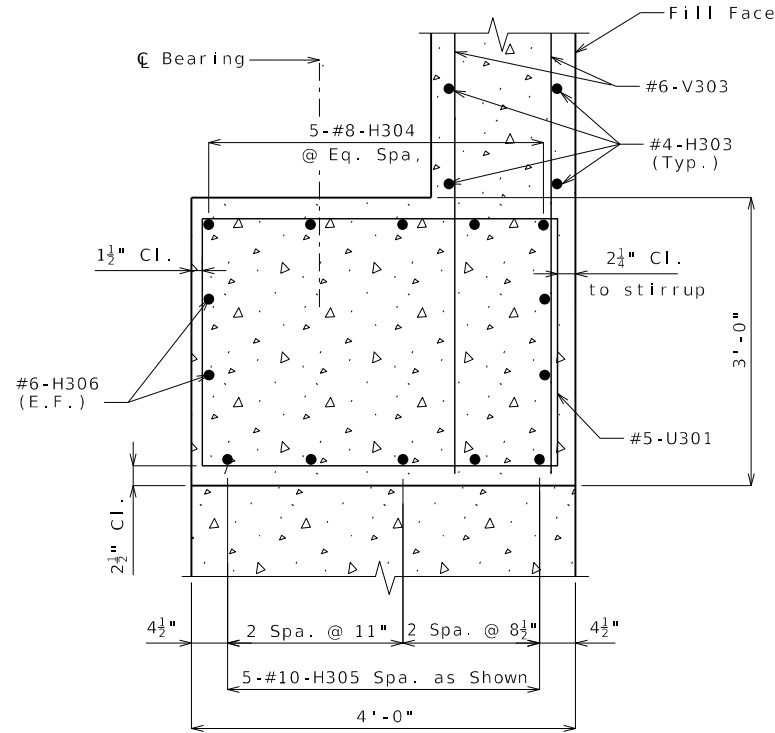
For Laminated Neoprene Bearing Pad Details
and Orientation, see Sheet No. 13.

For steps of 2" or more, use 2 1/4" x 1/2" Joint Filler up vertical face.

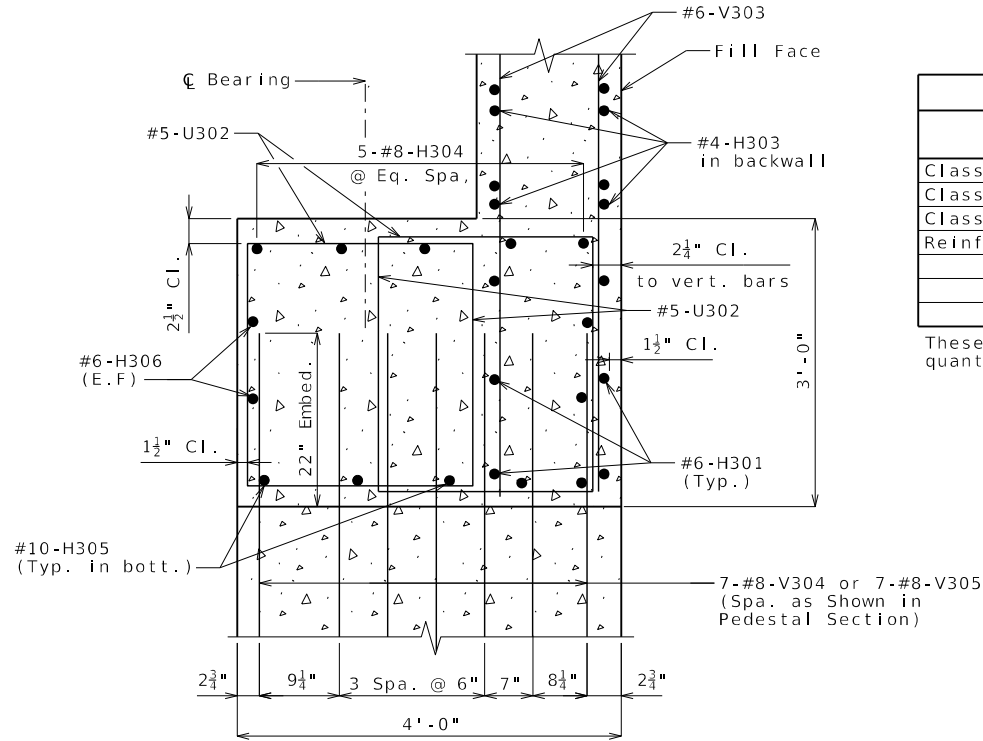
① Denotes Girder Number

E.F. - Denotes Each Face

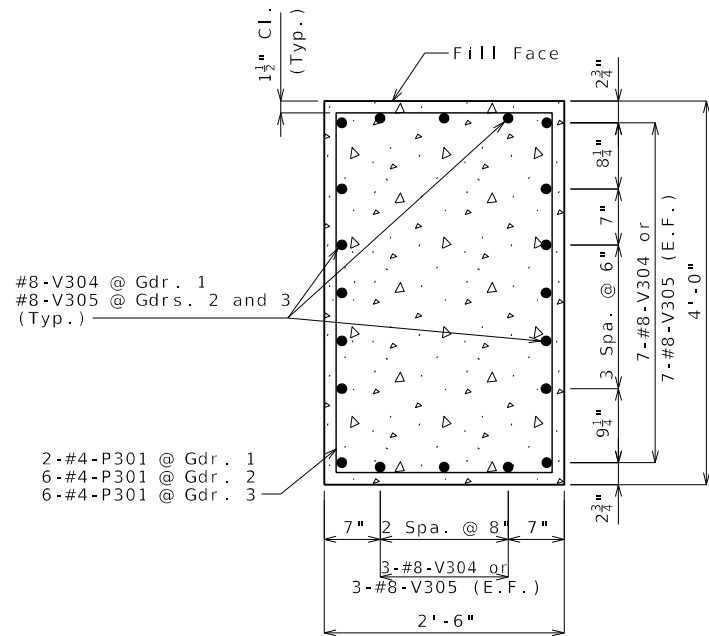




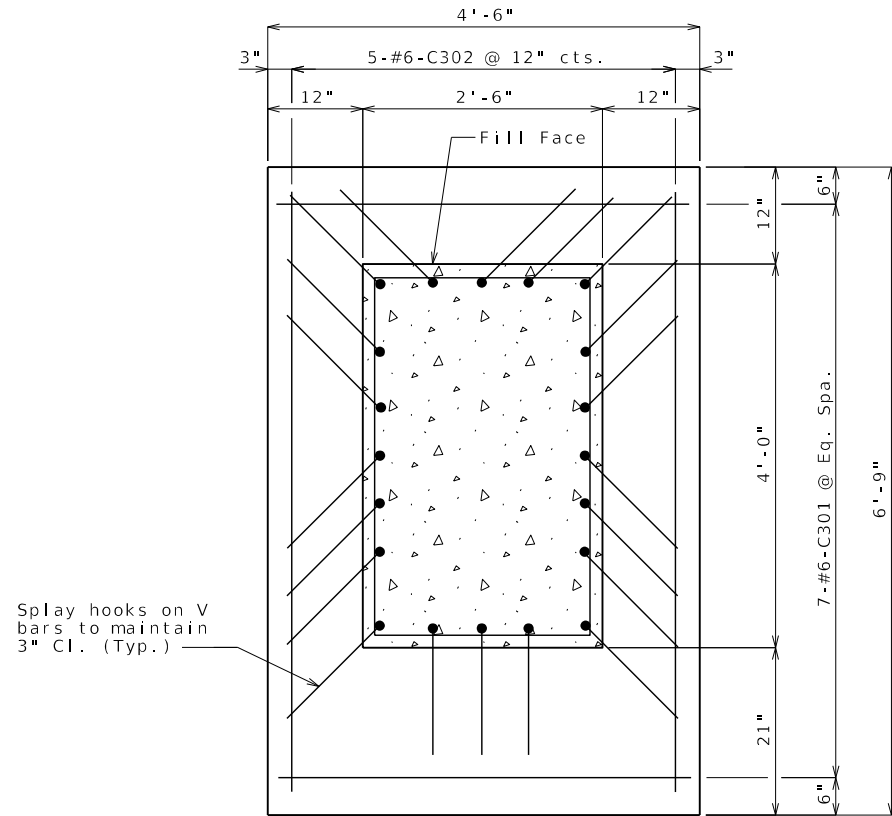
SECTION B-B



SECTION C-C



PEDESTAL SECTION



FOOTING PLAN

Estimated Quantities		
Item		Quantities
		Bent No. 3
Class 1 Excavation	cu. yard	45
Class 1 Rock Excavation	cu. yard	10
Class B Concrete (Substructure)	cu. yard	43.9
Reinforcing Steel (Epoxy Coated)	Pound	5540

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

Splay hooks on V bars to maintain 3" CL. (Typ.)

END BENT NO. 3 DETAILS

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

Sheet No. 11 of 34



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6/24/2025

ROUTE
AF

STATE
MO

DISTRICT
BR

SHEET NO.
11

COUNTY
WRIGHT

JOB NO.
J9S3691

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9488

DESCRIPTION

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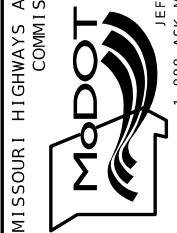
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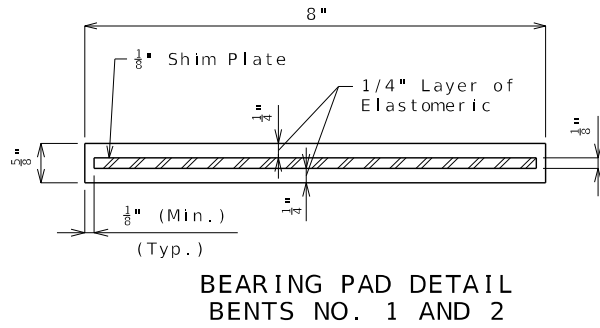
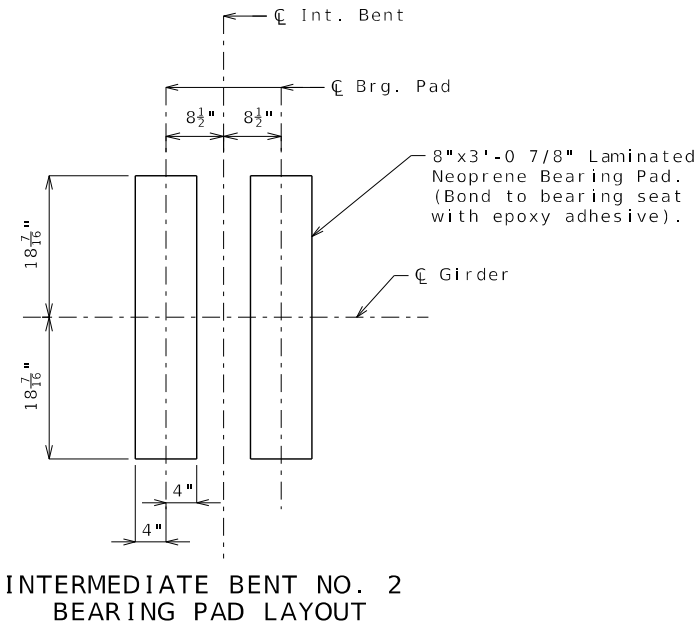
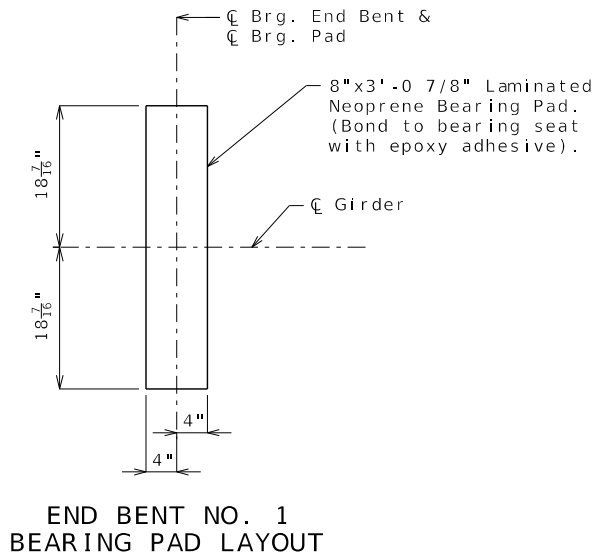
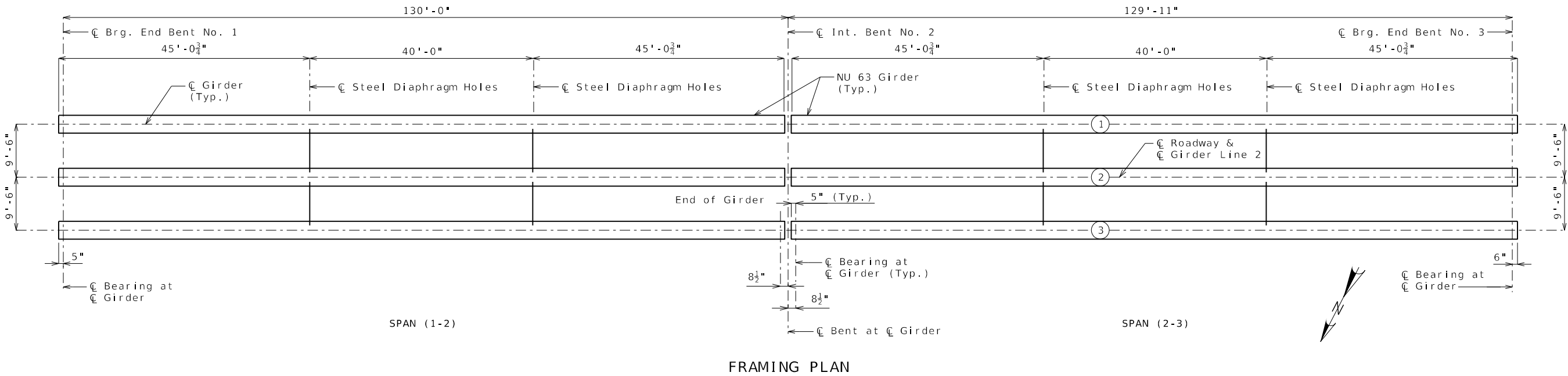
LOCHNER JOB NO. 23469 RTE. AF OVER BEAVER CREEK

DESIGNED BY: KIW JAN 2025
DETAILED BY: JTC JAN 2025
CHECKED BY: DMA JAN 2025

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

Sheet No. 13 of 34

GIRDER FRAMING PLAN AND BEARING PAD DETAILS



GENERAL NOTES:

Laminated Neoprene Bearing Pads shall be 60 Durometer and shall be in accordance with Sec 716.

Longitudinal dimensions are horizontal from centerline bearing to centerline bearing.

For Bearing Details at End Bent No. 3, see Type N PTFE Bearing Details on Sheet No. 12.

For Steel Intermediate Diaphragm Details, see Sheet No. 16.



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ROUTE STATE
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BR 13

COUNTY
WRIGHT

JOB NO.
J9S3691

CONTRACT ID.

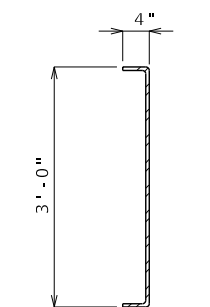
PROJECT NO.

BRIDGE NO.
A9488

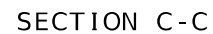
DESCRIPTION	DATE

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COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-273-6636)

Lochner
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PART SECTION SHOWING
INTERMEDIATE DIAPHRAGMS



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

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

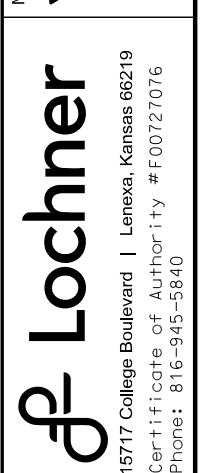
All diaphragm materials including bolts, nuts, and washers shall be galvanized.

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

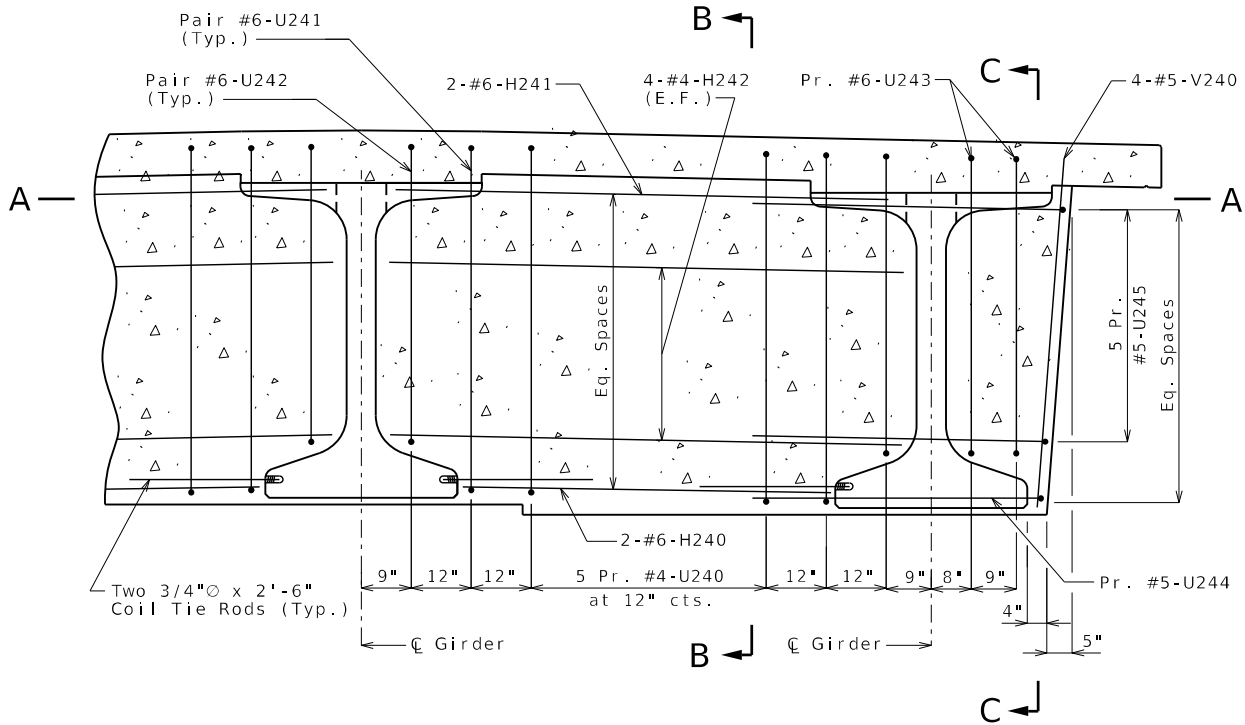
Payment for furnishing and installing steel intermediate diaphragms will be considered completely covered by the contract unit price for Steel Intermediate Diaphragm for P/S Concrete Girders.

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

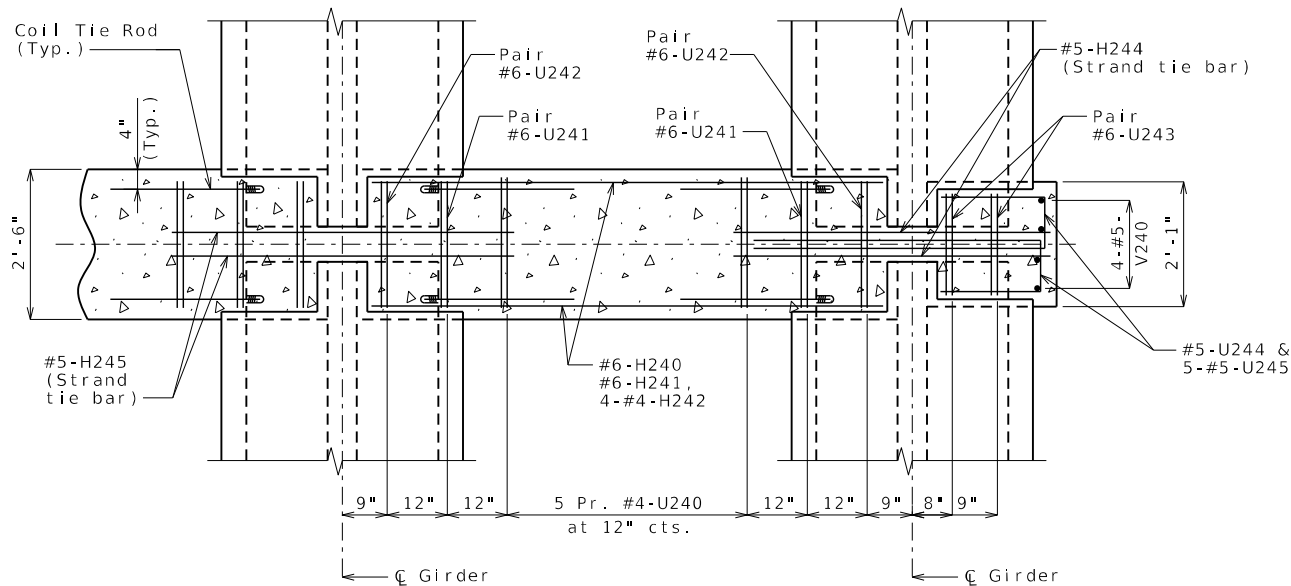
For location of intermediate diaphragms, see Sheet No. 13.



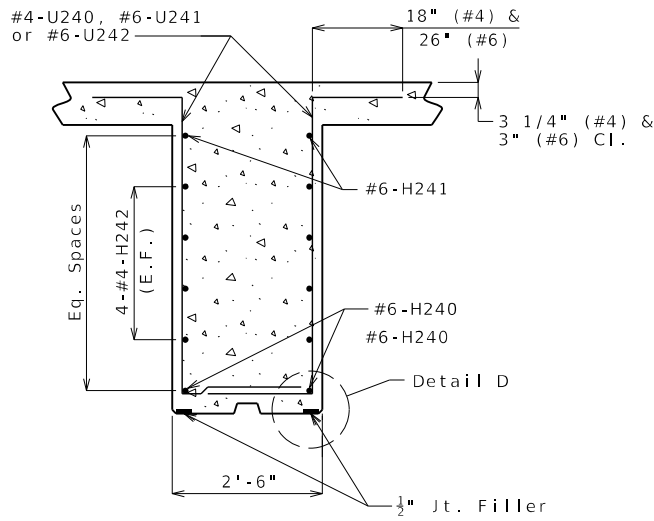
LOCHNER JOB NO. 23469 RTE. AF OVER BEAVER CREEK



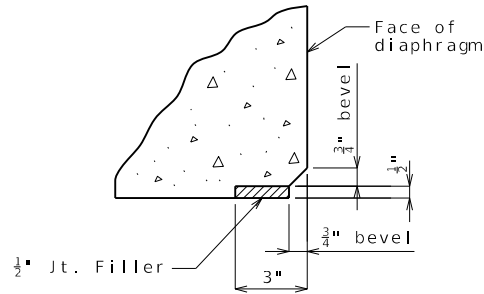
PART SECTION NEAR INT. BENT



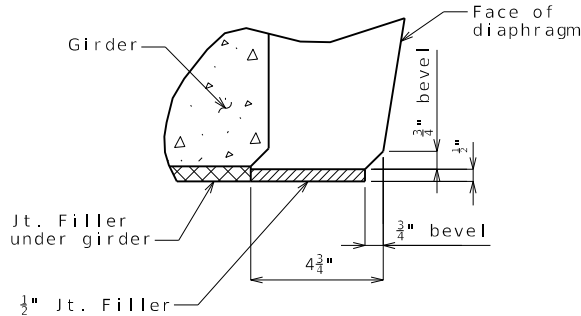
PART SECTION A-A



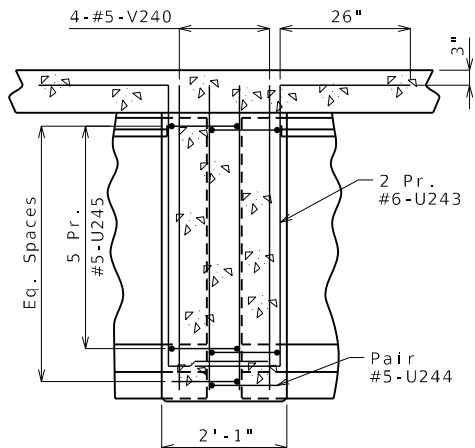
SECTION B-B



DETAIL D



END DETAIL



SECTION C-C

Notes:
Diaphragms at intermediate bents shall be built vertical.
For location of #5-H244 & #5-H245 (Strand tie bars) and coil tie rods, see Sheet No. 14.
E.F. Denotes Each Face

INTERMEDIATE BENT CONCRETE DIAPHRAGM DETAILS

DESIGNED BY: DMA JAN 2025
DETAILED BY: JTC JAN 2025
CHECKED BY: MAH JAN 2025

Note: This drawing is not to scale. Follow dimensions. Sheet No. 17 of 34



THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY

DATE PREPARED 6/24/2025

ROUTE AF STATE MO

DISTRICT BR SHEET NO. 17

COUNTY

WR I G H T

JOB NO. J9S3691

CONTRACT ID.

PROJECT NO.

BRIDGE NO. A9488

DESCRIPTION

DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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1-888-ASK-MODOT (1-888-275-6636)

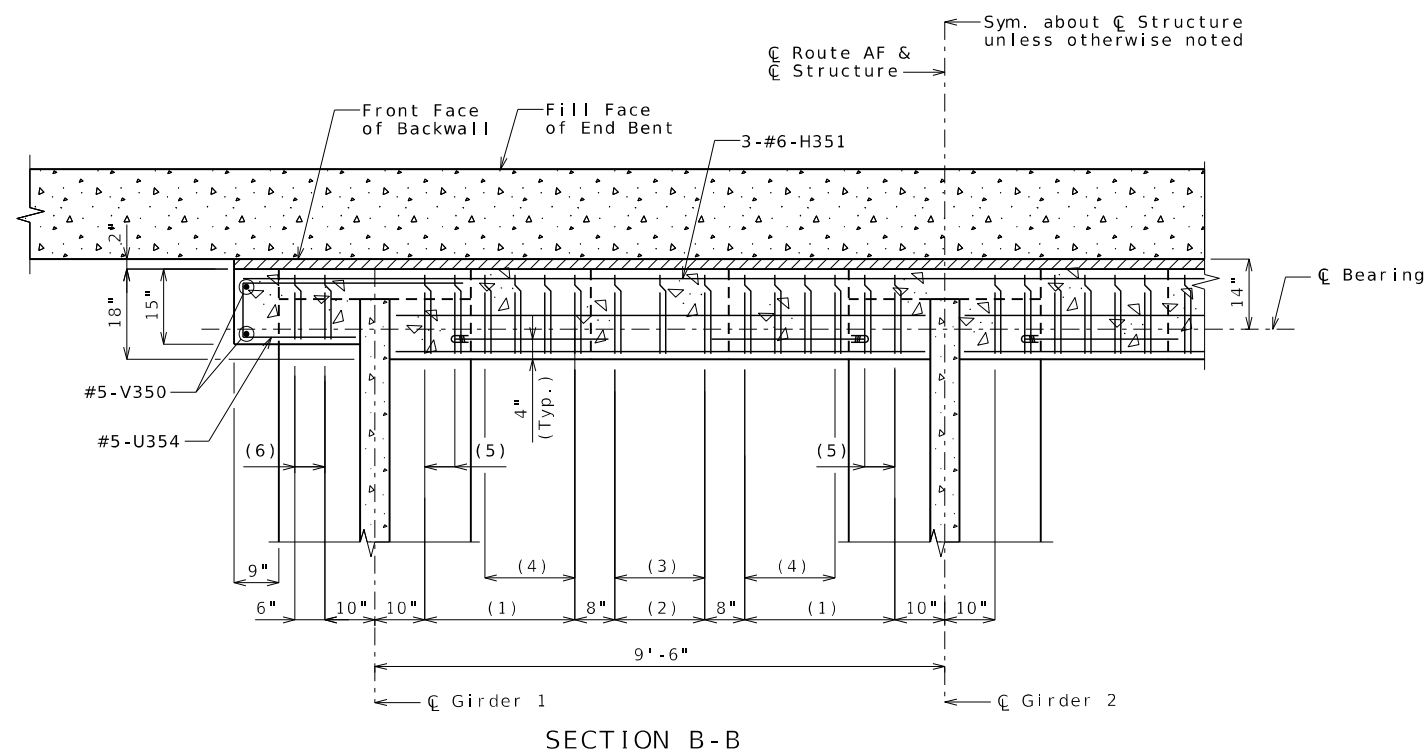
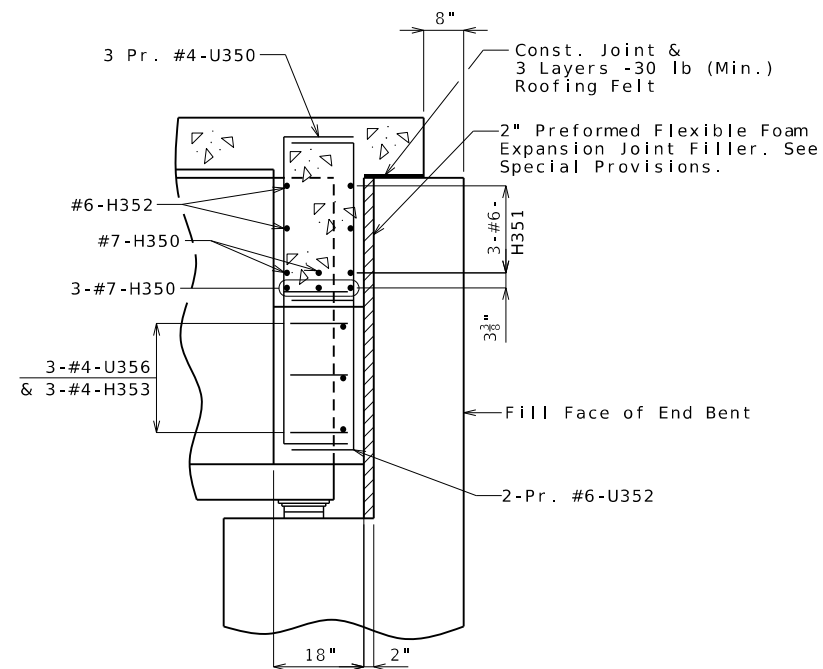
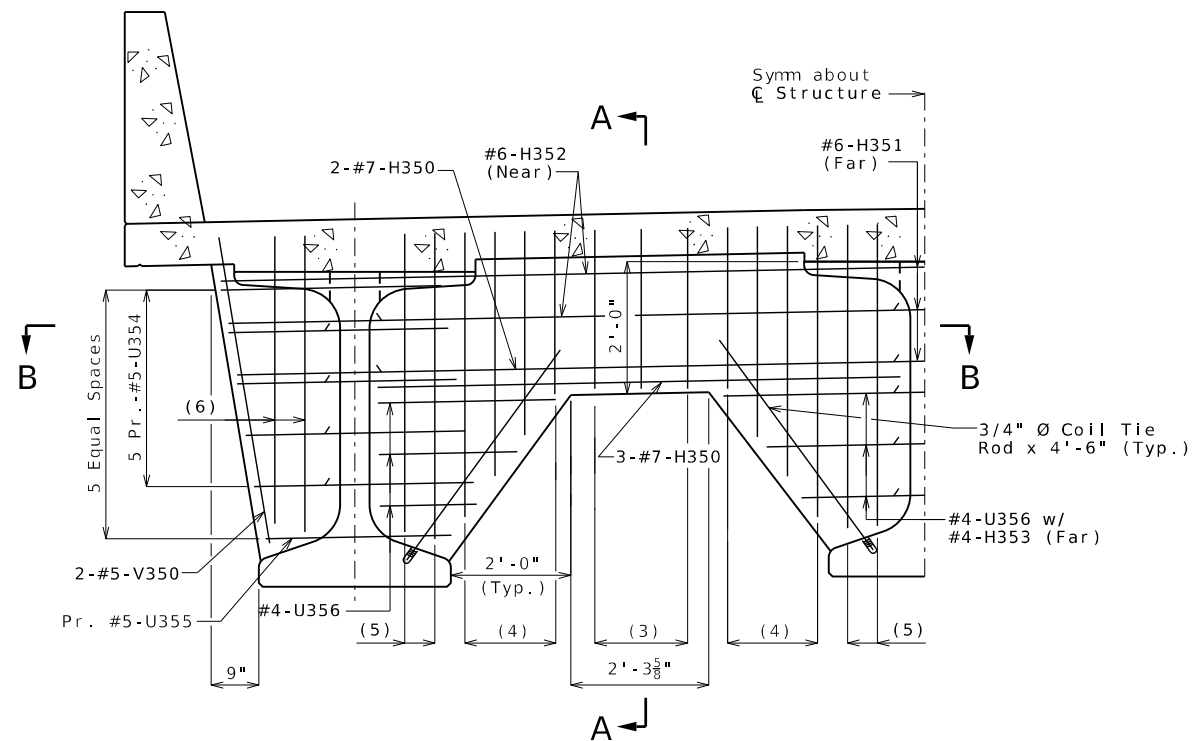
MoDOT

Lochner

15717 College Boulevard | Lenexa, Kansas 66219

Certificate of Authority #F00727076

Phone: 816-945-5840



- (1) 5 Spa. @ 6" cts.
(2) 2 Spa. @ 9" cts.
(3) 3 Pr. #4-U350
(4) 4 Pr. - #6-U351
(5) Pr. - #6-U352
(6) Pr. - #5-U353

Notes:
Flexible foam expansion joint filler
will be considered completely covered
by the contract unit price for other
items.



THIS SHEET HAS BEEN
SIGNED, SEALED AND DATED
ELECTRONICALLY

DATE PREPARED _____

6/24/202

ROUTE	ST
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AF	M
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DISTRICT	SHEET
55	2

BR	1
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COUNTY
WRIGHT

WRIGHT

JOB NO.
195369

193369

CONTRACT ID:

PROJECT NO. _____

BRIDGE NO.

[illegible]MISSOURI HIGHWAYS AND TRANSPORTATION
COMMISSION

105 WEST CAPITOL
JEFFERSON CITY, MO 65102

df Lochner

717 College Boulevard | Lenexa, Kansas 66219
Certificate of Authority #F00727076
Phone: 913-945-5840

END BENT NO. 3 CONCRETE DIAPHRAGM DETAILS

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

Sheet No. 18 of 34

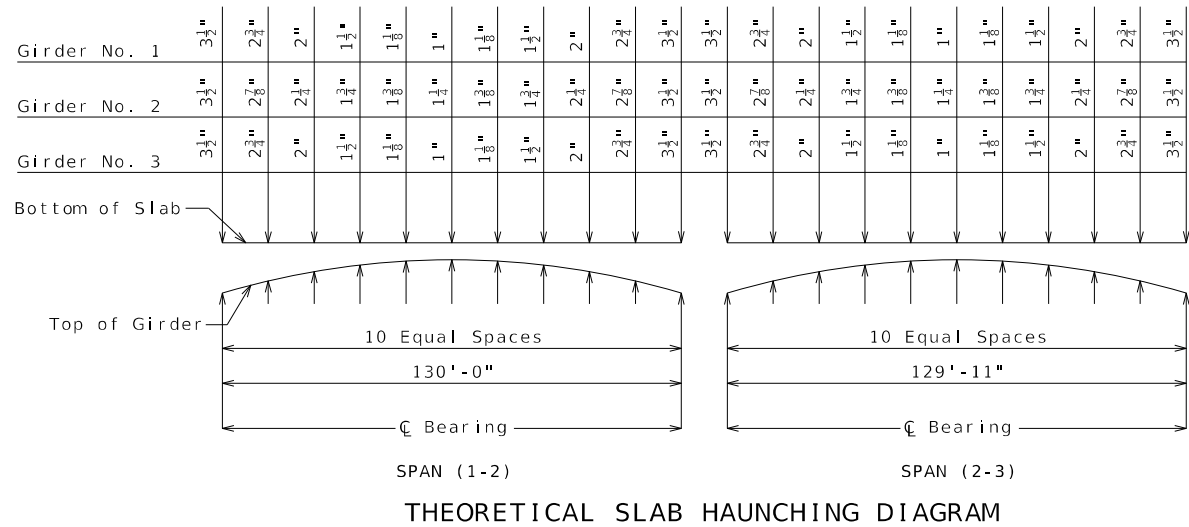
B_A9488_018_J9S3691_END BENT 3 CONCRETE DIAPHRAGM.dgnDIAPHRAGM.dgn 2:38:15 PM 6/24/2025

LOCHNER JOB NO. 23469 RTE. AF OVER BEAVER CREEK

DESIGNED BY: K LW	JAN 2025
DETAILED BY: J TC	JAN 2025
CHECKED BY: M AH	JAN 2025

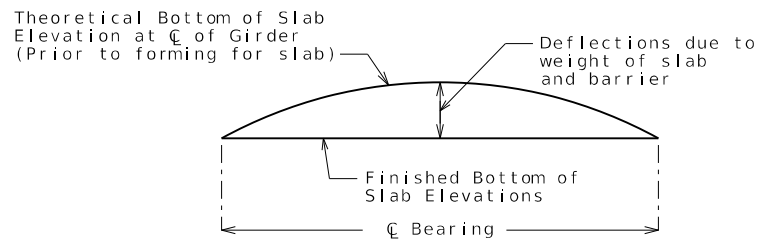
LOCHNER JOB NO. 23469 RTE. AF OVER BEAVER CREEK

DESIGNED BY: JTG JAN 2025
DETAILED BY: JTC JAN 2025
CHECKED BY: KLV JAN 2025

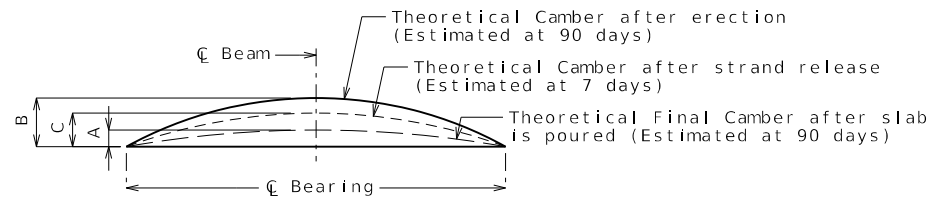


Theoretical Bottom of Slab Elevations at Centerline of Girder (Prior to forming for slab) (Estimated at 90 days)											
Girder Number	Span (1-2)(130'-0" CL Brg. - CL Brg.) & Span (2-3)(129'-11" CL Brg. - CL Brg.)										
	CL Brg.	.10	.20	.30	.40	.50	.60	.70	.80	.90	CL Brg.
1	1045.71	1045.78	1045.84	1045.88	1045.91	1045.92	1045.91	1045.88	1045.84	1045.78	1045.71
2	1045.90	1045.96	1046.01	1046.05	1046.08	1046.09	1046.08	1046.05	1046.01	1045.96	1045.90
3	1045.71	1045.78	1045.84	1045.88	1045.91	1045.92	1045.91	1045.88	1045.84	1045.78	1045.71

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



TYPICAL SLAB ELEVATIONS DIAGRAM



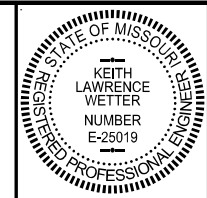
Beam	Span (1-2) & (2-3)		
	A	B	C
Exterior	2 1/4"	5 1/2"	3 3/8"
Interior	2 1/4"		

GIRDER CAMBER DIAGRAM

CAMBER, HAUNCHING, & BOTTOM OF SLAB ELEVATIONS

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

Sheet No. 20 of 34



THIS SHEET HAS BEEN
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ELECTRONICALLY

DATE PREPARED

6/24/2025

ROUTE

AF

STATE

MO

DISTRICT

BR

SHEET NO.

20

COUNTY

WRIGHT

JOB NO.

J9S3691

CONTRACT ID.

PROJECT NO.

BRIDGE NO.

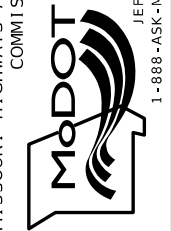
A9488

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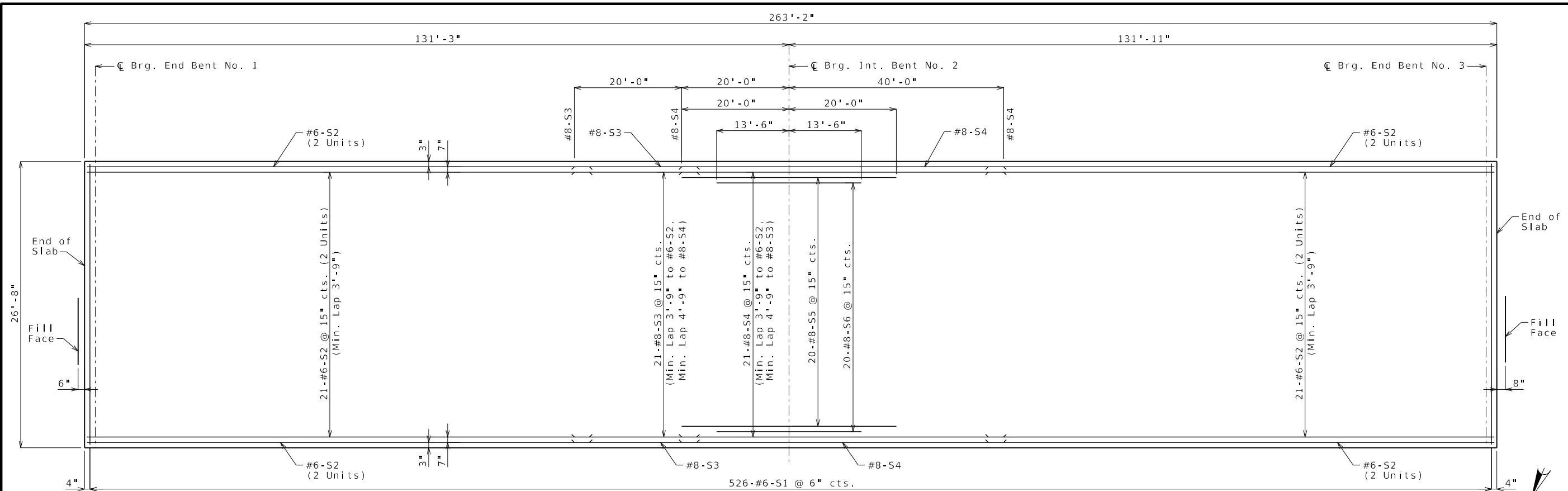
DATE

MISSOURI HIGHWAYS AND TRANSPORTATION
COMMISSION

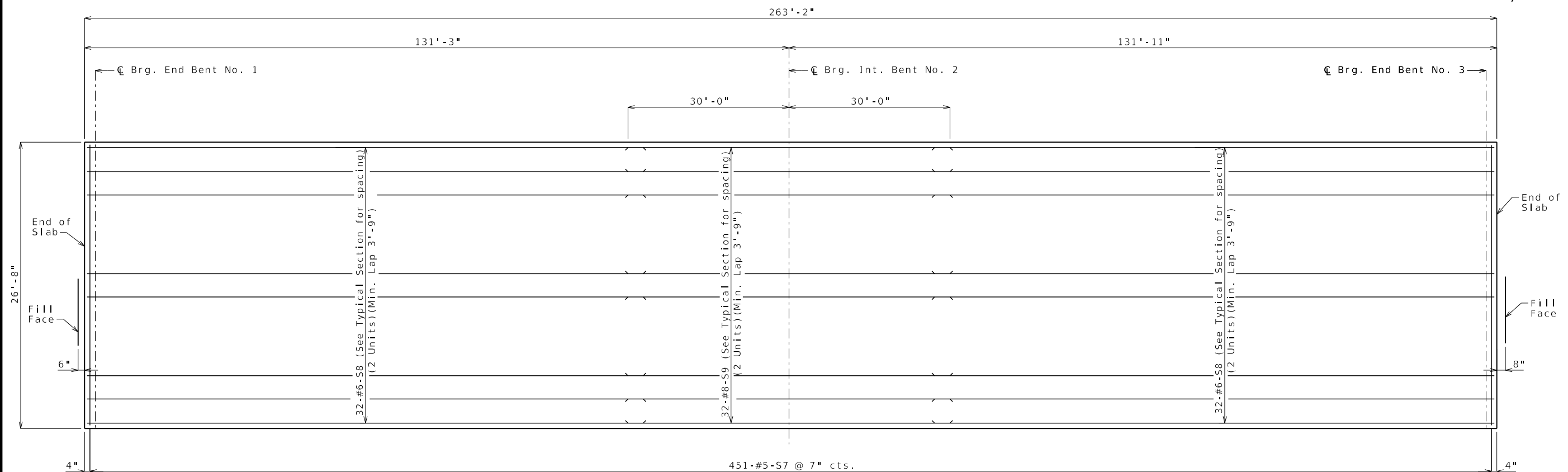
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)



Lochner
15717 College Boulevard | Lenexa, Kansas 66219
Certificate of Authority #F00727076
Phone: 816-945-5840



SLAB PLAN SHOWING TOP REINFORCING



SLAB PLAN SHOWING BOTTOM REINFORCING

SLAB PLAN

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

Sheet No. 21 of 34



THIS SHEET HAS BEEN
SIGNED, SEALED AND DATED
ELECTRONICALLY

DATE PREPARED
6/24/2025

ROUTE AF	STATE MO
DISTRICT BR	SHEET NO. 21

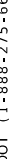
COUNTY
W R I G H T

JOB NO.
J9S3691

CONTRACT ID.

PROJECT NO.

BRIDGE NO. A9488

[illegible]

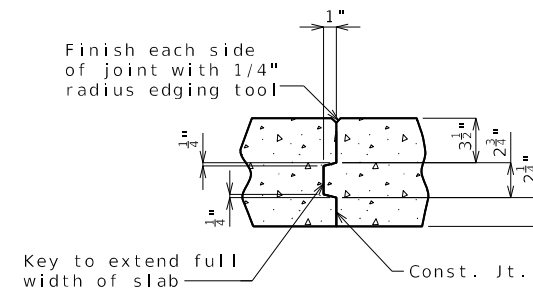
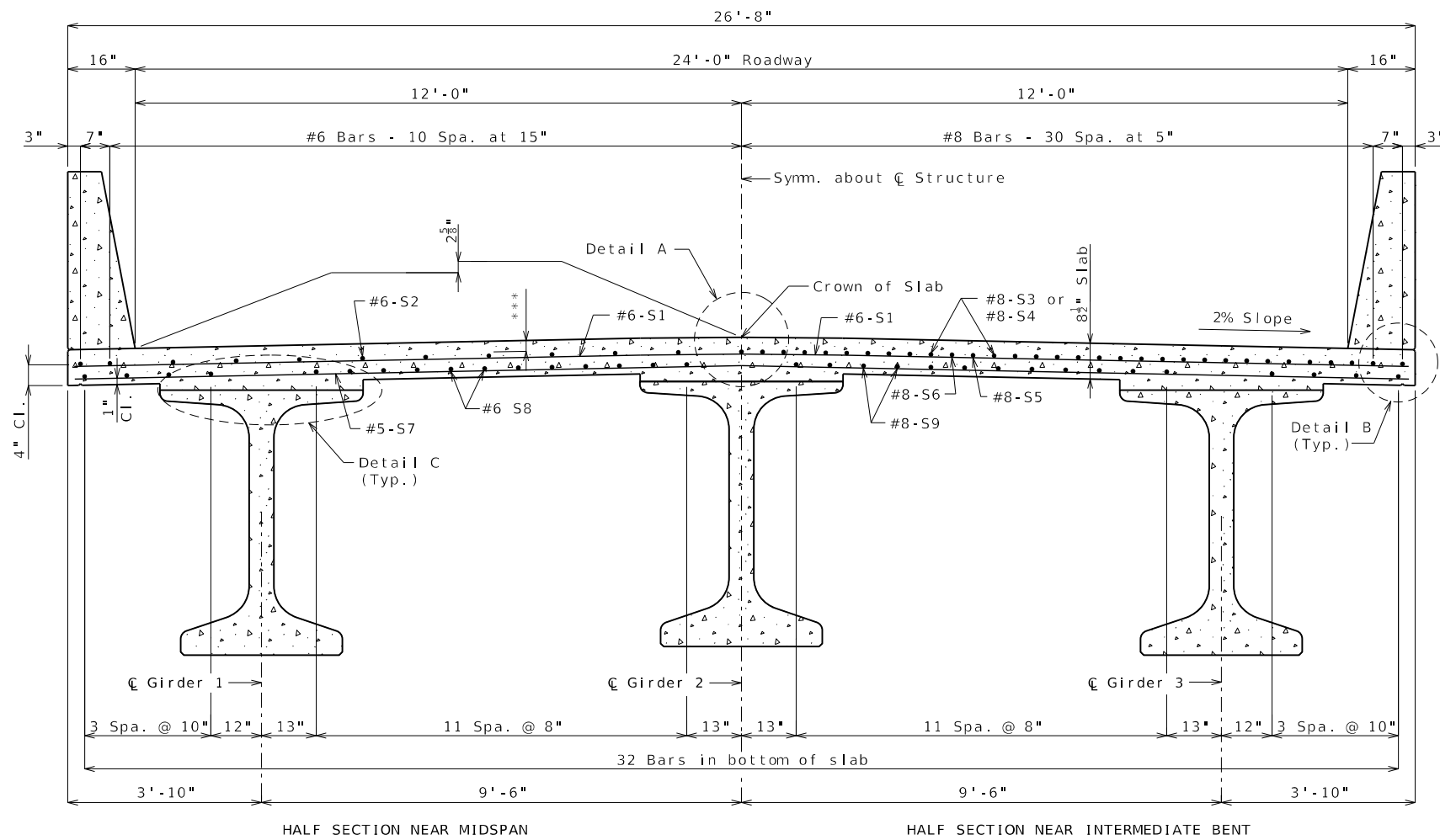
MISSOURI HIGHWAYS AND TRANSPORTATION
COMMISSION

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

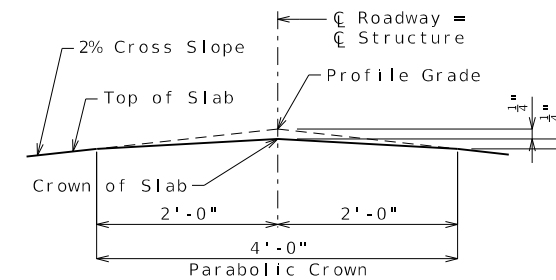


105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

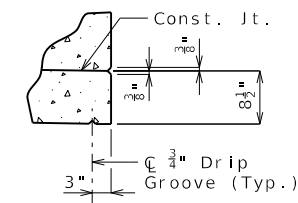
df Lochner
15717 College Boulevard | Lenexa, Kansas 66219
Certificate of Authority # F00727076
Phone: 816-945-5840



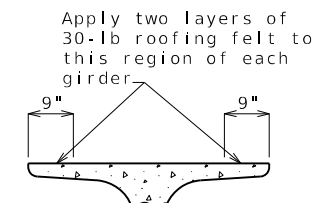
SLAB CONSTRUCTION JOINT



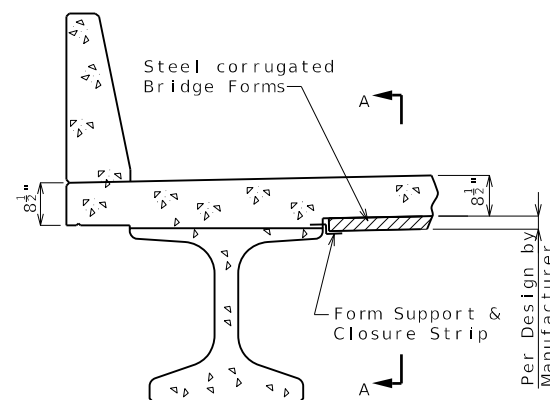
DETAIL A



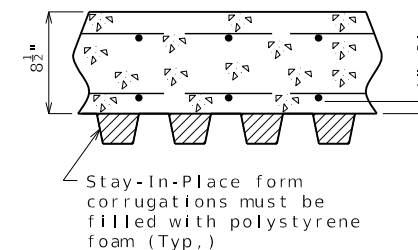
DETAIL B



DETAIL C



SECTION



SECTION A-A

OPTIONAL STAY-IN-PLACE FORMS DETAILS

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

OPTIONAL SHIFTING
TOP BARS AT BARRIER

Contractor may shift bar as needed to tie R2 bar in barrier

Contractor may shift or swap bars as needed to tie R3 bar in barrier (4" min. bar spacing)

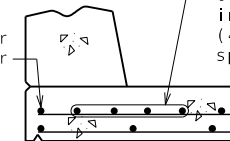


Diagram illustrating the layout of a continuous slab over three spans. The spans are labeled SPAN (1-2) and SPAN (2-3). The dimensions for the spans are 130'-0" and 129'-11" respectively. The dimensions for the individual segments are 78'-0", 52'-0", 52'-0", and 77'-11". The diagram also shows the centerline of the bridge (C Brg.), the centerline of the bent (C Bent), and the end of the slab. The segments are numbered 1, 3, and 2 from left to right. A construction joint (Const. Joint) is indicated between segments 3 and 2.

	Sequence of Pours			Min. Rate of Pour Cu. Yds./Hr.
	Direction			With Retarder
Basic Sequence	1	2	3	25
	Either Direction			
Alternate pours to the basic skip sequence are subject to the approval of the engineer in accordance with Sec 703.				
Alternate A Pours	1		3 + 2	39
	End to 3		1 to End	
Alternate B Pours	1 + 3 + 2			39
	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 bent shall be poured a minimum of 30 minutes and a maximum of 2 hours before the slab is poured.

SLAB POURING SEQUENCE

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

SLAB DETAILS

Sheet No. 22 of 34

STATE OF MISSOURI
 KEITH LAWRENCE WETTER
 REGISTERED PROFESSIONAL ENGINEER
 NUMBER E-25019

THIS SHEET HAS BEEN
SIGNED, SEALED AND DATED
ELECTRONICALLY

DATE PREPARED
6/24/2025

ROUTE	STATE
AE	MO

AI	MO
DISTRICT	SHEET NO.
BB	22

BR	ZZ
COUNTY	
WB LGIT	

WRIGHT
JOB NO.
10000001

J953691
CONTRACT ID.

	PROJECT NO.

BRIDGE NO.

[illegible]

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

MoDOT

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

f2 Lochner
15717 College Boulevard | Lenexa, Kansas 66219
Certificate of Authority # F00727076
Phone: 816-945-5840

REV

:49 PM 6/24/2025

LOCHNER JOB NO. 23469 RTE. AF OVER BEAVER CREEK

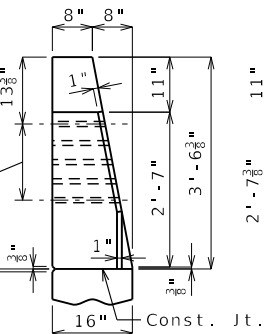
DESIGNED BY: DMA	JAN 2025
DETAILED BY: JTC	JAN 2025
CHECKED BY: JTG	JAN 2025

B_A9488_022_I9S3691_SLAB CROSS SECTION.dgn 2:38:49 PM 6/24/2025

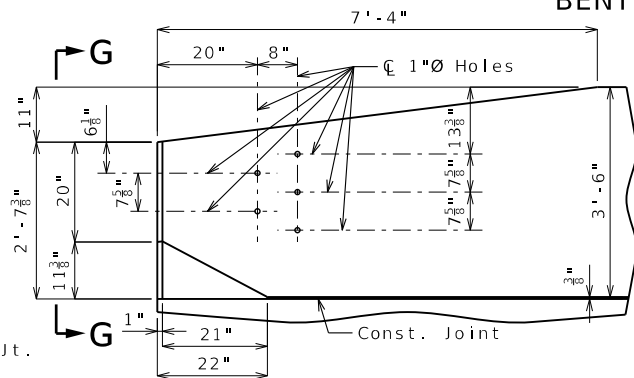
5-1"Ø Holes @ 3 13/16" cts.

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

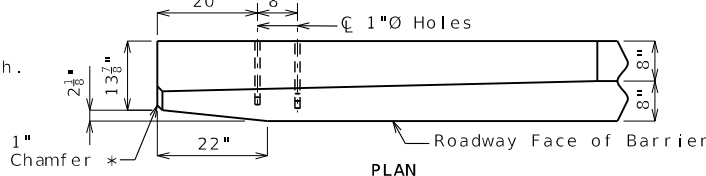
DESIGNED BY: DMA JAN 2025
 DETAILED BY: JTC JAN 2025
 CHECKED BY: JTG JAN 2025



ELEVATION G-G



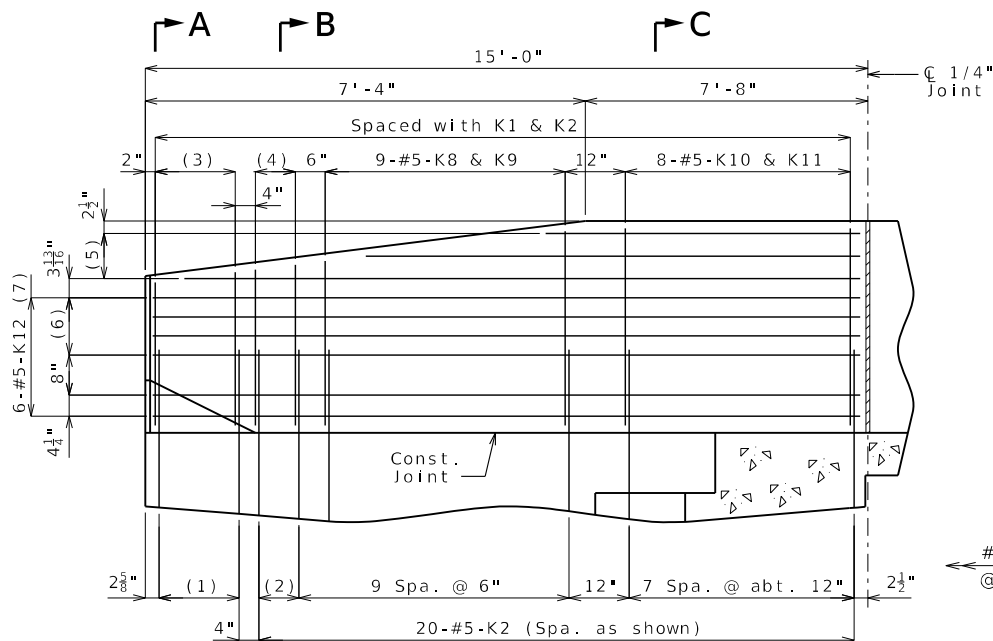
ELEVATION



PLAN

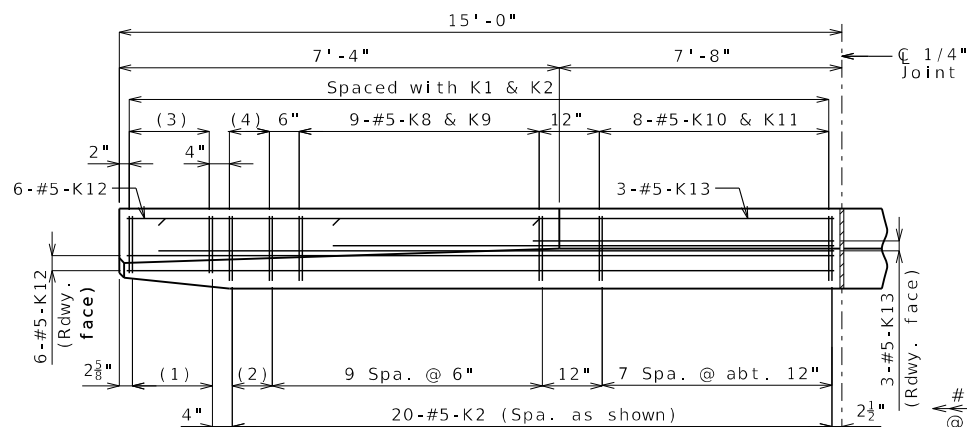
DETAILS OF GUARD RAIL ATTACHMENT

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



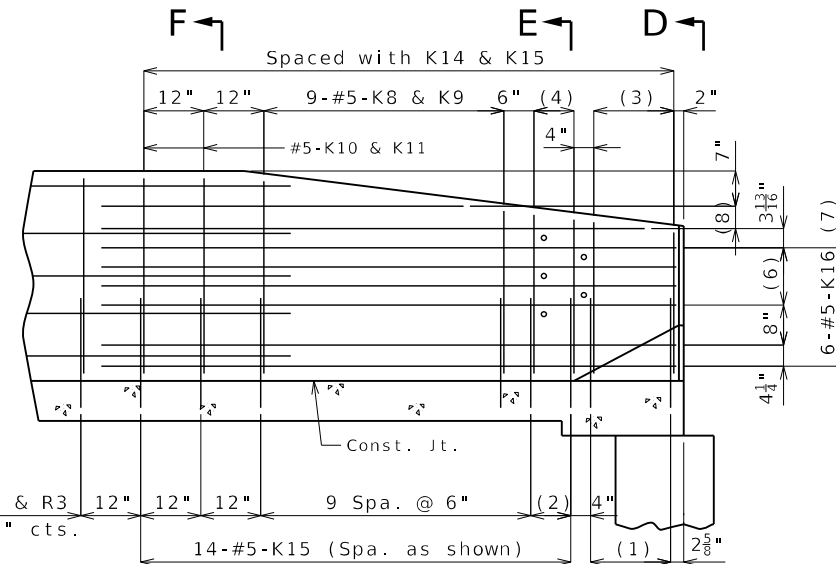
BENT NO. 1

PART ELEVATION

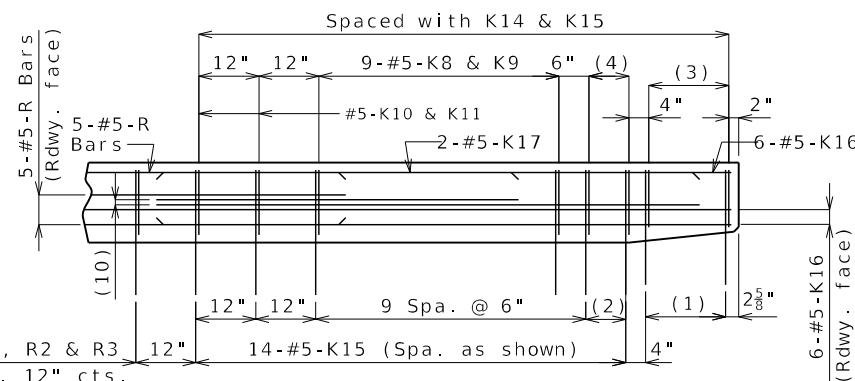


BENT NO. 1

PART PLAN



BENT NO. 3



BENT NO. 3

- (1) 5-#5-K1 or #5-K14 @ 4" cts.
- (2) 2 spaces @ 4"
- (3) 5-#5-K4 & K5
- (4) 3-#5-K6 & K7
- (5) 3-#5-K13 @ 4 1/2" cts., each face
- (6) 3 spaces @ 3 13/16"
- (7) Spaced as shown, each face
- (8) 2-#5-K17 @ 4 1/2" cts., each face
- (9) To top of bar
- (10) 2-#5-K13 (Roadway Face)

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.

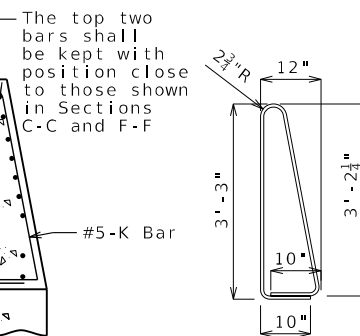
Reinforcing Steel:

Minimum clearance to reinforcing steel shall be 1 1/2" except as shown for bars embedded into end bent. Use a minimum lap of 3'-1" between horizontal K bars and R bars.

TYPE D BARRIER AT END BENTS

(Left barrier shown, right barrier similar)

Sheet No. 24 of 34

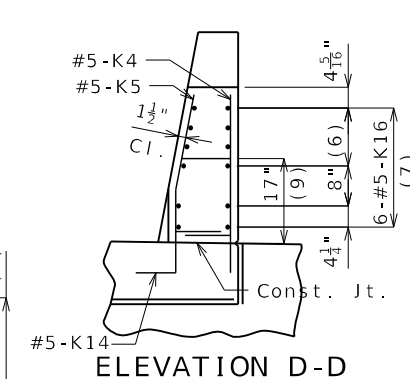


K10-K11 BAR PERMISSIBLE ALTERNATE SHAPE

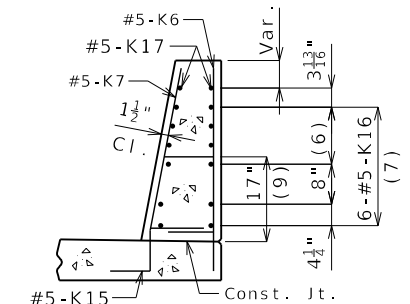
(Other K bars not shown for clarity)

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

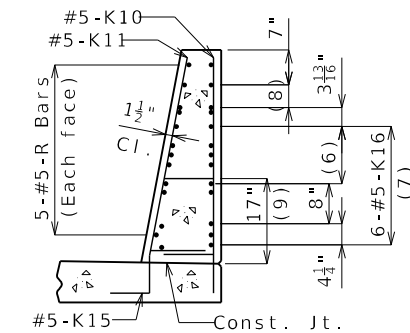
All dimensions are out to out.



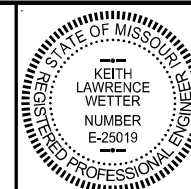
ELEVATION D-D



SECTION E-E



SECTION F-F



THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY

DATE PREPARED

6/24/2025

ROUTE AF STATE MO

DISTRICT BR SHEET NO. 24

COUNTY WR IGH

JOB NO. 19S3691

CONTRACT ID.

PROJECT NO.

BRIDGE NO. A9488

DESCRIPTION

DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

105 WEST CAPITOL JEFFERSON CITY, MO 65102

1-888-ASK-MODOT (1-888-275-6636)

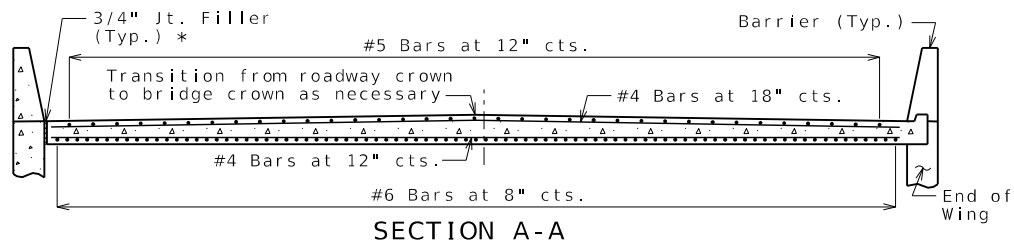
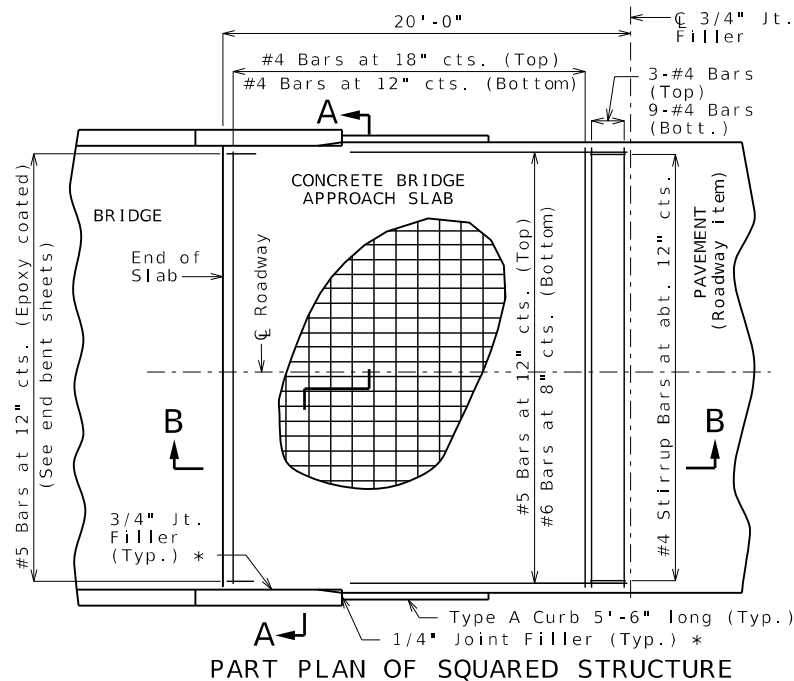
MoDOT

Lochner

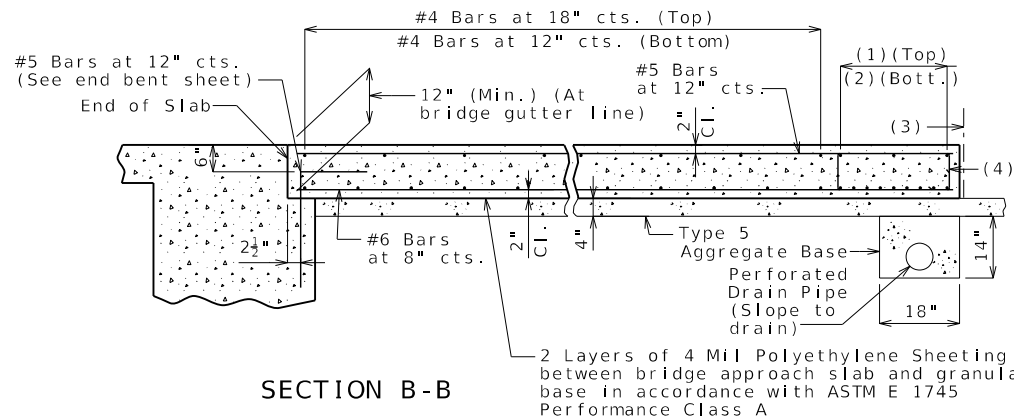
15717 College Boulevard | Lenexa, Kansas 66219

Certificate of Authority #F00727076

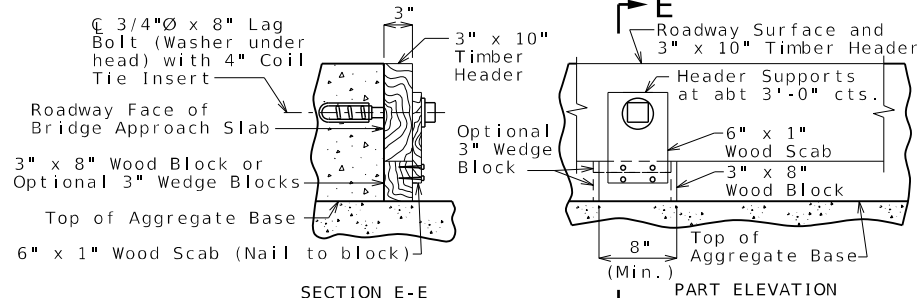
Phone: 816-945-5840



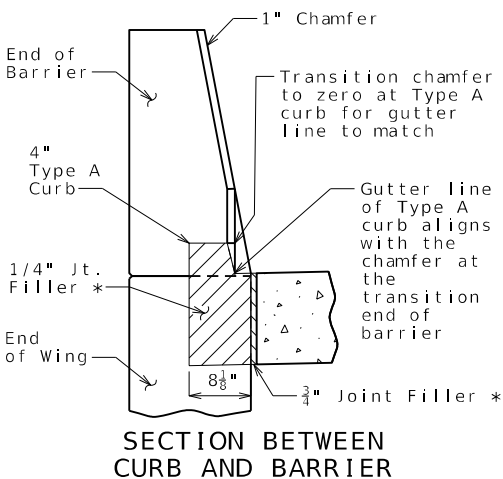
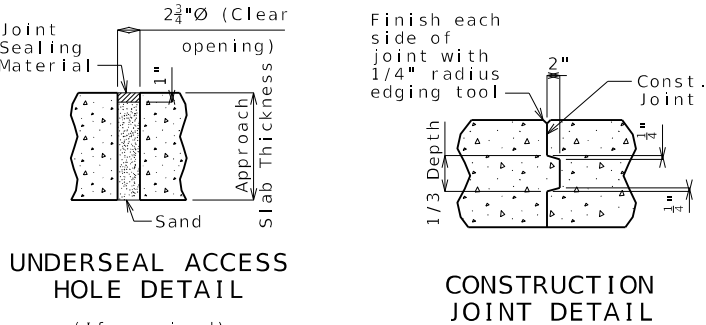
With the approval of the engineer, the contractor may crown the bottom of the approach slab to match the crown of the roadway surface.



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



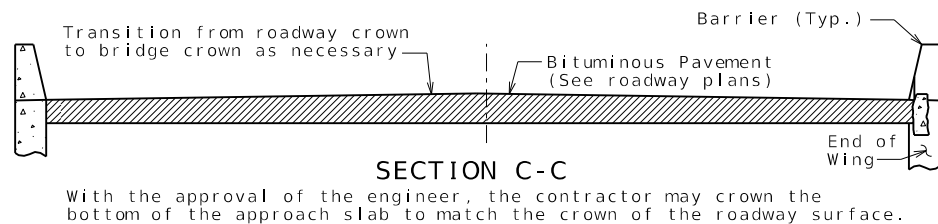
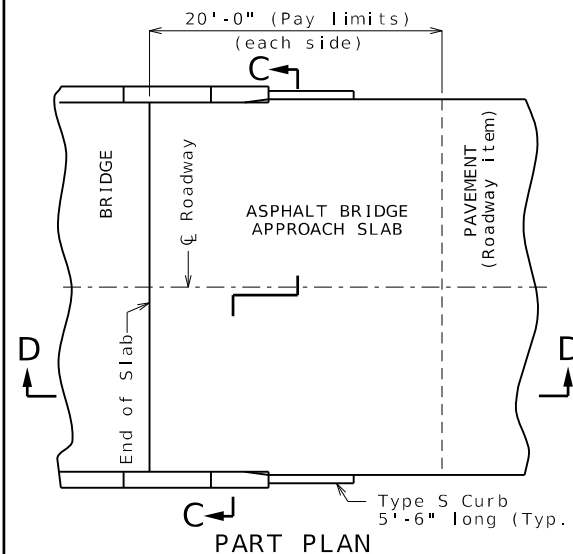
DETAILS OF TIMBER HEADER
Remove timber header when concrete pavement is placed.
OPTIONAL CONCRETE SLAB



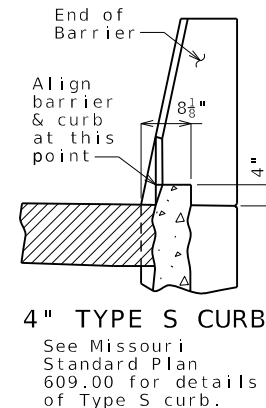
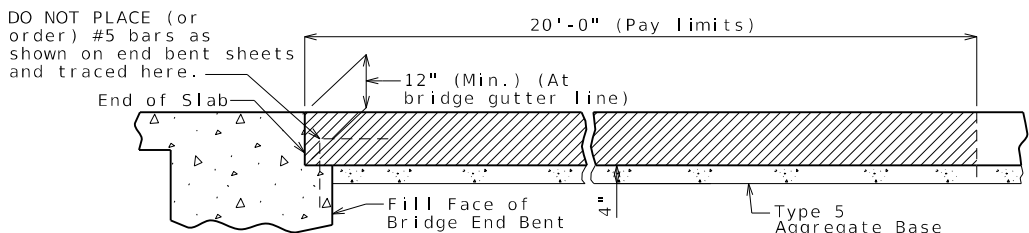
Notes For Concrete Slab Only:
All concrete for the bridge approach slab shall be in accordance with Sec 503 ($f'c = 4,000$ psi).
The reinforcing steel in the bridge approach slab shall be epoxy coated Grade 60 with $f_y = 60,000$ psi.
Longitudinal construction joints in bridge approach slab shall be 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.



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



OPTIONAL ASPHALT SLAB (NOT ALLOWED WITH CONCRETE PAVEMENT)

BRIDGE APPROACH SLAB (MINOR) END BENT NO. 1

DESIGNED BY: JTG JAN 2025
DETAILED BY: RCL JAN 2025
CHECKED BY: DMA JAN 2025

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

Sheet No. 25 of 34

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY

DATE PREPARED
6/24/2025

ROUTE
AF

DISTRICT
BR

STATE
MO

SHEET NO.
25

COUNTY
WRIGHT

JOB NO.
J9S3691

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9488

DESCRIPTION

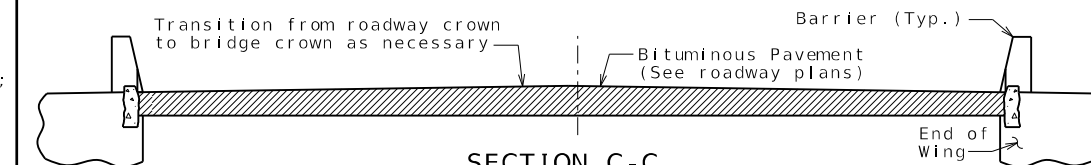
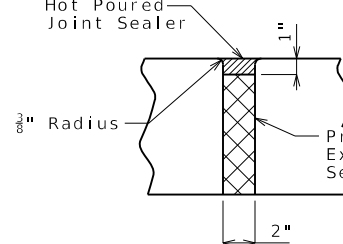
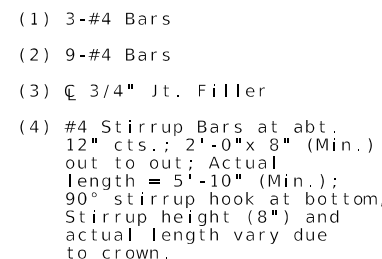
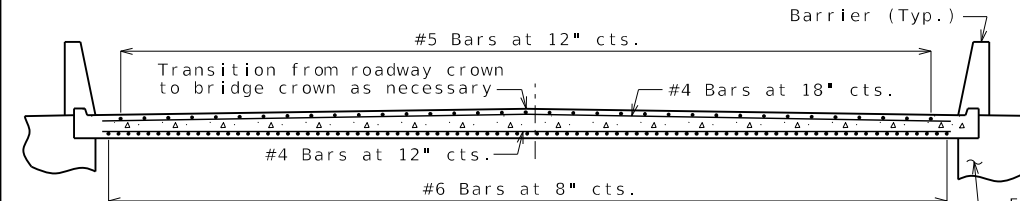
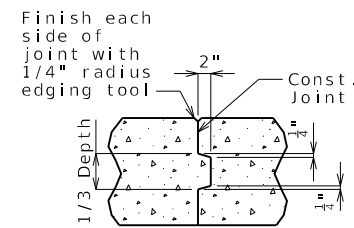
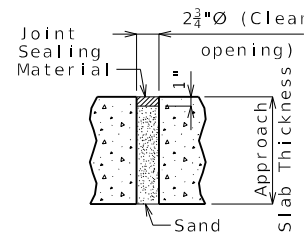
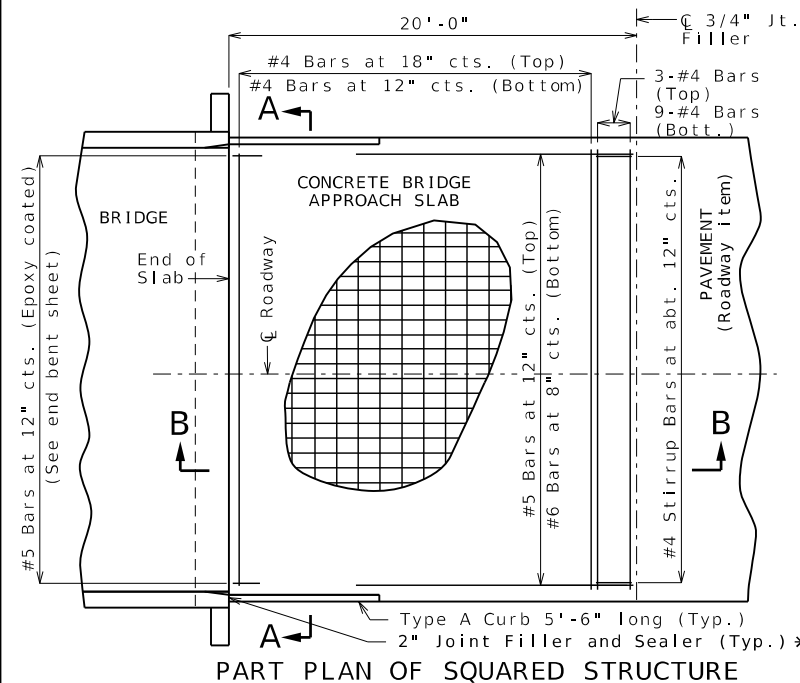
DATE

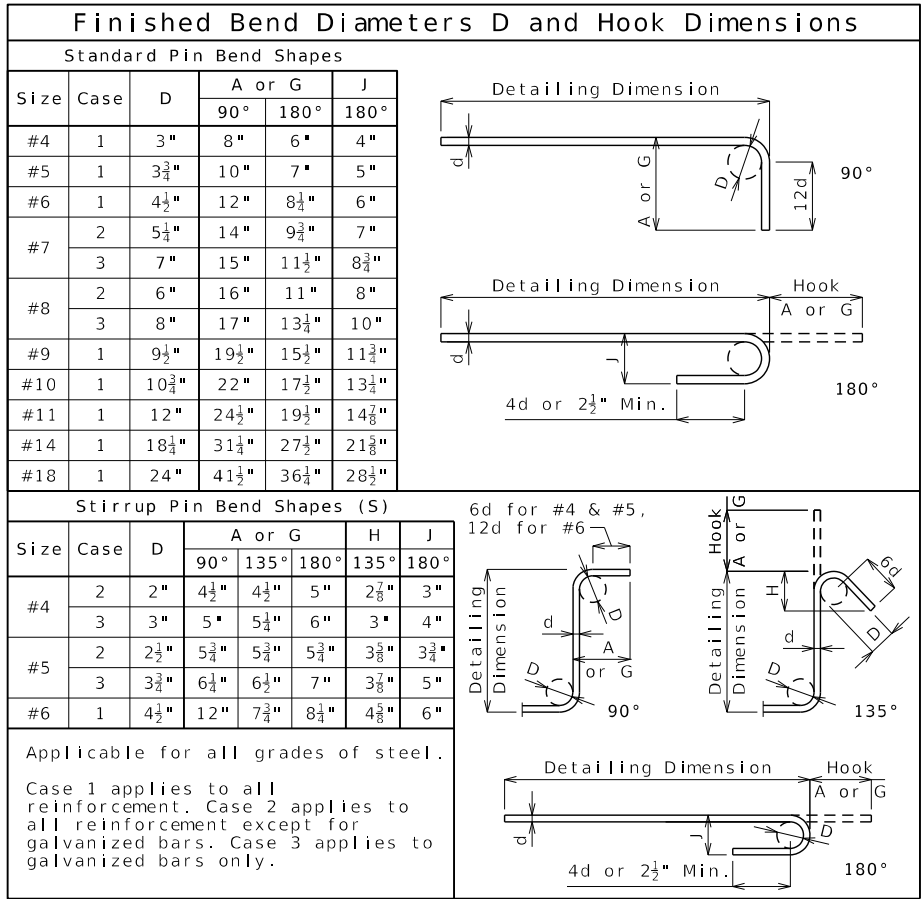
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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

Lochner

15717 College Boulevard | Lenexa, Kansas 66219
Certificate of Authority #F00727076
Phone: 816-945-5840





All dimensions are out to out.	(1) Shall be a deformed or plain spiral bar or wire.
Shapes ending with an S shall be bent in accordance with stirrup pin bend shapes.	Four angle or channel spacers are required for each column spiral. Space are to be placed on inside of spirals. Length and weight of column spirals not include splices or spacers.
Unless otherwise noted, finished bending diameter D is the same for all bends of a shape.	

Reinforcing Steel Totals (Pounds)									
		Substructure		Superstructure				Entire Bridge	
				Slab		Barrier	Slip Form	Plain	Epoxy
		Size	Plain	Epoxy	Plain				
By Size	W5	0	33	0	0	0	0	0	33
	4	56	557	0	488	0	0	56	1,045
	5	2,971	847	0	13,610	14,151	451	2,971	29,059
	6	155	1,596	0	43,084	0	0	155	44,680
	7	416	0	0	179	0	0	416	179
	8	716	1,942	0	15,092	0	0	716	17,034
	9	646	0	0	0	0	0	646	0
	10	0	568	0	0	0	0	0	568
	11	6,216	0	0	0	0	0	6,216	0
	14	0	0	0	0	0	0	0	0
18	0	0	0	0	0	0	0	0	
By Type		11,176	5,543	0	72,453	14,151	451	11,176	92,598

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



LOCHNER JOB NO. 23469 RTE. AF OVER BEAVER CREEK

Bill of Reinforcing Steel																		
No. Req.	Size/ Mark	Location	Codes			Dimensions								Nom.		Actual		Weight
						B	C	D	E	F	H	K	Length	Length				
			C	SH	V	ft	in.	ft	in.	ft	in.	ft	in.	ft	in.	ft	in.	
		Substructure																
		Int Bent 2																
12	6	D200			20	2	6.00							2	6	2	6	
8	8	H200			10			16.00	18	0.00				20	8	20	3	
8	9	H201			20	23	9.00							23	9	23	9	
8	7	H202			18	23	9.00							25	5	25	5	
10	5	H203			20	23	9.00							23	9	23	9	
16	5	P200			345	9	5.00	2.50				3	0.00	10	7	10	5	
2	5	P201			35	3	0.00	6.00	36	0.00				707	10	695	7	
4	8	U200			7	10	11.00	4	9.75			12	5.50	3	0.75	26	8	
14	5	U201			7	10	0.00	4	8.50			11	6.00	3	0.00	24	9	
15	5	U202			105			6	6.00	3	3.00			16	3	16	0	
15	5	U203			105			21.00	3	3.00				6	9	6	6	
14	6	U204			105			12.00	3	7.00				5	7	5	3	
18	5	U205			135	3	9.00	3	9.00	3	9.00	3	9.00	16	0	15	8	
8	5	U206			105			3	9.00	3	9.00			11	3	11	0	
15	4	U207			105			12.00	3	9.00				5	9	5	7	
24	11	V200			20	48	9.00							48	9	48	9	
		End Bent 3																
7	6	C301			E 20	4	0.00							4	0	4	0	
5	6	C302			E 18	6	3.00							7	8	7	8	
4	5	H300			E 14			2	6.00	7	2.00		3	2.50	6	5.00	9	
24	6	H301			E 20	13	4.00							13	4	13	4	
12	6	H302			E 20	4	8	9.00						8	9	8	9	
		Increment = 24"				12	9.00							12	9	12	9	
12	4	H303			E 20	26	5.00							26	5	26	5	
5	8	H304			E 20	26	5.00							26	5	26	5	
5	10	H305			E 20	26	5.00							26	5	26	5	
4	6	H306			E 20	26	5.00							26	5	26	5	
14	4	P301			E 135	2	3.00	3	9.00	2	3.00	3	9.00	12	9	12	6	
14	5	U301			E 135	3	8.25	2	7.00	3	8.25	2	7.00	13	6	13	2	
48	5	U302			E 135	2	4.00	2	7.00	2	4.00	2	7.00	10	10	10	6	
5	4	U303			E 105			6.00	3	8.25				4	8	4	6	
27	5	U304			E 195	2	0.00	15.00						3	3	3	2	
12	4	V301			E 20	9	2.00							9	2	9	2	
28	4	V302			E 20	4	6	0.00						6	0	6	0	
		Increment = 6"				9	0.00							9	0	9	0	
54	6	V303			E 20	8	2.00							8	2	8	2	
20	8	V304			E 19	6	5.00	16.00						7	9	7	7	
40	8	V305			E 19	9	11.00	16.00						11	3	11	1	
6	W5	W1			E 22	2	1.00	9.00						33	1	32	4	
		Superstructure																
		End Bent 1																
26	6	F100			E 23	2	3.00	5	3.00	14.00	10.00	10.00	19.00	8	8	8	4	
12	6	F101			E 6	5	4.00	2	9.00					8	1	7	11	
16	8	H100			E 20	14	6.00							14	6	14	6	
8	8	H101			E 20	26	5.00							26	5	26	5	
11	6	H102			E 20	26	5.00							26	5	26	5	
2	6	H103			E 20	6	0.00							6	0	6	0	
8	6	H104			E 20	8	6.00							8	6	8	6	
2	6	H105			E 20		22.00								22		6	
8	6	H106			E 20	3	2.00							3	2	3	2	
52	6	H107			E 6	13	8.00	12.00						14	8	14	6	
3	5	H108			E 20	5	9.00							5	9	5	9	
12	5	U101			E 105			6	11.00	2	9.00			16	7	16	4	
21	4	U102			E 135	2	9.00	3	8.00	2	9.00	3	8.00	13	7	13	4	
32	6	U103			E 195	3	2.00	4	7.00					7	9	7	7	
20	5	U104			E 105			5	10.00	2	3.00			13	11	13	8	
20	6	U105			E 195	5	0.00	2	9.00					7	9	7	7	
24	5	U106			E 195	2	0.00	15.00						3	3	3	2	
28	5	V101			E 20	7	0.00							7	0	7	0	
52	6	V102			E 20	9	10.00							9	10	9	10	
21	6	V104			E 20	5	1.00							5	1	5	1	
		Int Bent 2																
4	6	H240			E 20	6	0.00							6	0	6	0	
4	6	H241			E 20	8	5.00							8	5	8	5	
16	4	H242			E 20	8	9.00							8	9	8	9	
4	5	H244			E 20	4	7.00							4	7	4	7	
2	5	H245			E 20	5	8.00							5	8	5	8	
20	4	U240			E 285			18.00	5	7.00	2	1.00		9	2	9	0	

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. 27.

DESIGNED BY: DMA FEB 2025
DETAILED BY: JTC FEB 2025
CHECKED BY: KLV FEB 2025

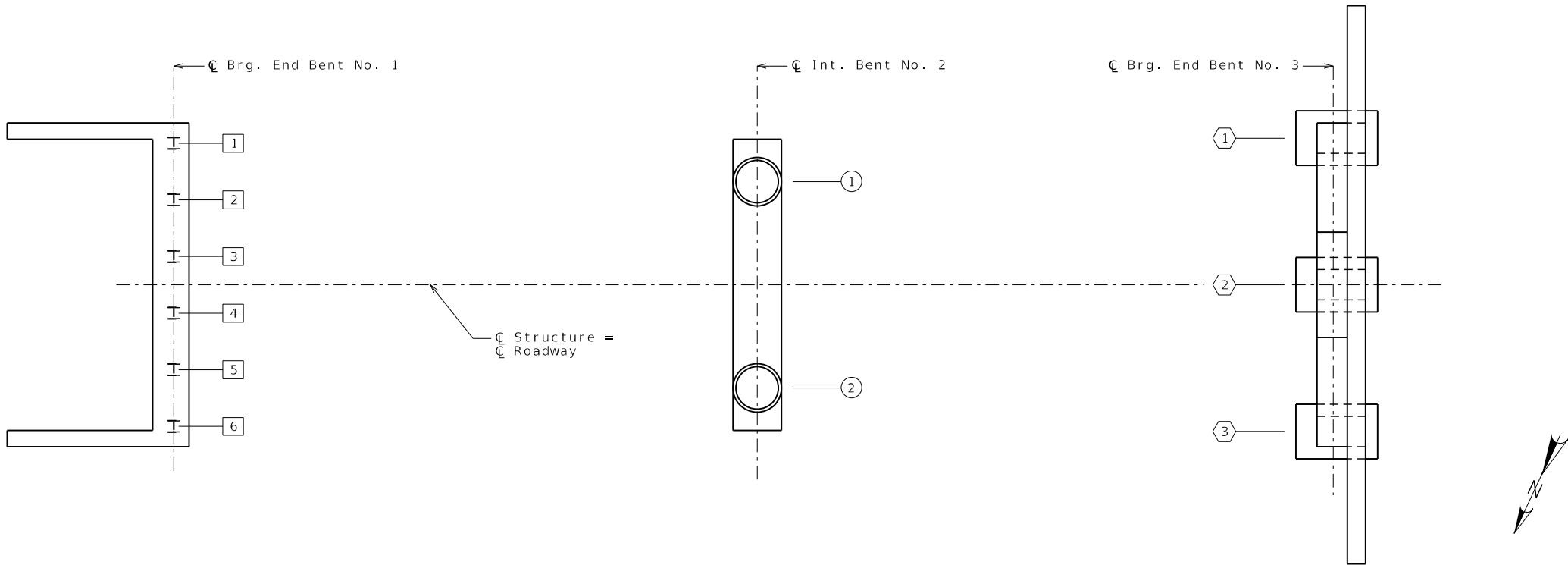
Note: This drawing is not to scale. Follow dimensions.

BILL OF REINFORCING STEEL

Sheet No. 28 of 34

Bill of Reinforcing Steel																					
No. Req.	Size/ Mark		Location	Codes			Dimensions						Nom. Length	Actual Length	Weight						
				C	SH	V	B ft in.	C ft in.	D ft in.	E ft in.	F ft in.	H ft in.				K ft in.					
			Int Bent 2 (Continued)																		
8	6	U241	DIAPHRAGM	E	28S			2	2.00	5	8.00	2	3.00	10	1	9	117				
8	6	U242	DIAPHRAGM	E	28S			2	2.00	5	0.00	2	3.00	9	5	9	1	109			
8	6	U243	DIAPHRAGM	E	28S			2	2.00	5	0.00			9	0	8	8	104			
4	5	U244	DIAPHRAGM	E	6S	4	5.00		13.00					5	6	5	5	23			
20	5	U245	DIAPHRAGM	E	6S	4	5.00		13.00		15.00			6	9	6	6	136			
8	5	V240	DIAPHRAGM	E	20	5	11.00							5	11	5	11	49			
			End Bent 3																		
10	7	H350	DIAPHRAGM	E	20	8	9.00							8	9	8	9	179			
3	6	H351	DIAPHRAGM	E	20	22	10.00							22	10	22	10	103			
4	6	H352	DIAPHRAGM	E	20	8	5.00							8	5	8	5	51			
3	4	H353	DIAPHRAGM	E	20	1	3	6.00						3	6	3	6	10			
			Increment = 15"			6	0.00							6	0	6	0				
12	4	U350	DIAPHRAGM	E	10S				15.00	2	5.00			4	11	4	9	38			
32	6	U351	DIAPHRAGM	E	10S	8			15.00	2	5.00			4	11	4	7	270			
			3 Eq. Incr.						15.00	4	6.00			7	0	6	8				
16	6	U352	DIAPHRAGM	E	10S				15.00	4	10.00			7	4	7	0	168			
8	5	U353	DIAPHRAGM	E	10S				12.00	4	10.00			6	10	6	7	55			
10	5	U354	DIAPHRAGM	E	6S	2	3	8.00	10.50	13.00				5	8	5	5	59			
			Increment = 1.50"			3	8.00		10.50	19.00				6	2	5	11				
4	5	U355	DIAPHRAGM	E	6S	3	11.00		10.50					4	10	4	8	19			
12	4	U356	DIAPHRAGM	E	10S	4			17.00	13.25				3	11	3	9	39			
			Increment = 7"					2	7.00	13.25				6	3	6	1				
4	5	V350	DIAPHRAGM	E	20	5	3.00							5	3	5	3	22			
			Slab																		
526	6	S1	TOP TRANSVERSE	E	20	26	5.00							26	5	26	5	20871			
92	6	S2	TOP LONGITUDINAL	E	20	50	0.00							50	0	50	0	6909			
23	8	S3	TOP LONGITUDINAL	E	20	24	9.00							24	9	24	9	1520			
23	8	S4	TOP LONGITUDINAL	E	20	60	0.00							60	0	60	0	3685			
20	8	S5	TOP LONGITUDINAL	E	20	40	0.00							40	0	40	0	2136			
20	8	S6	TOP LONGITUDINAL	E	20	27	0.00							27	0	27	0	1442			
451	5	S7	BOTT. TRANSVERSE	E	20	26	5.00							26	5	26	5	12426			
128	6	S8	BOTT. LONGITUDINAL	E	20	55	0.00							55	0	55	0	10574			
32	8	S9	BOTT. LONGITUDINAL	E	20	60	0.00							60	0	60	0	5126			
			Type D Barrier																		
514	5	R1	BARRIER	E	26	3	3.00		5.50	2.25	3	1.25	5.50	3	0.75	6.75	7	0	6	9	3619
514	5	R2	BARRIER	E	19S		20.50		9.50					2	6	2	5	1296			
514	5	R3	BARRIER	E	27S				9.50	15.25	5.00	12.00	15.00	3.00	3	6	3	3	1742		
80	5	R4	BARRIER	E	20	11	8.00							11	8	11	8	973			
40	5	R5	BARRIER	E	20	54	0.00							54	0	54	0	2253			
40	5	R6	BARRIER	E	20	52	6.00							52	6	52	6	2190			
10	5	K1	BARRIER	E	27S	3	8.00		9.25	5.25	3	2.75			5.25	1.00	8	1	7	11	83
40	5	K2	BARRIER	E	27S	3	8.00		9.25	14.50	2	5.75			14.25	2.75	8	2	7	11	330
20	5	K4	BARRIER	E	19S	4	2	4.25	10.00					3	2	3	1	66			
			Increment = 0.5"			2	6.25		10.00					3	4	3	3				
20	5	K5	BARRIER	E	38S	4				18.50		9.50	8.25	18.00	4.00	3	0	2	11	63	
			Increment = 0.5"							20.50		9.50	8.25	20.00	4.50	3	2	3	1		
12	5	K6	BARRIER	E	19S	2	6.75		10.00					3	5	3	3	41			
12	5	K7	BARRIER	E	21S			2	6.75	10.00				2	6.00	6.25	3	5	3	3	41
36	5	K8	BARRIER	E	19S	4	2	8.50	10.00					3	7	3	5	138			
			Increment = 0.75"			3	2.50		10.00					4	1	3	11				
36	5	K9	BARRIER	E	21S	4		2	8.50	10.00				2	7.75	6.75	3	7	3	5	138
			Increment = 0.75"			3	2.50		10.00					3	1.75	7.75	4	1	3	11	
20	5	K10	BARRIER	E	19S	3	3.00		10.00					4	1	4	0	83			
20	5	K11	BARRIER	E	21S			3	3.00	10.00				3	2.25	7.75	4	1	3	11	82
24	5	K12	BARRIER	E	20	14	9.00							14	9	14	9	369			
12	5	K13	BARRIER	E	20	4	8	0.00						8	0	8	0	138			
			Increment = 36"			14	0.00							14	0	14	0				
10	5	K14	BARRIER	E	27S		22.50		9.25	5.25	16.75	12.00	5.25	1.00	5	6	5	2	54		
28	5	K15	BARRIER	E	27S		22.50		9.25	17.25	5.00	12.00	17.00	3.25	5	6	5	2	151		
24	5	K16	BARRIER	E	20	9	7.00							9	7	9	7	240			
8	5	K17	BARRIER	E	20	4	5	10.00						5	10	5	10	61			
			Increment = 36"			8	10.00							8	10	8	10				
			Slip-form Option																		
36	5	C1	BARRIER	E	20	12	0.00							12	0	12	0	451			

LOCHNER JOB NO. 23469 RTE. AF OVER BEAVER CREEK



PART PLAN SHOWING PILE, DRILLED SHAFT, AND FOOTING NUMBERING FOR RECORDING AS-BUILT PILE, DRILLED SHAFT, AND FOOTING DATA

- LEGEND
- 3 - Pile No.
 - 1 - Drilled Shaft No.
 - 2 - Footing No.

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			
5			
6			

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

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				

As-Built Footing Data			
Footing No.	Top of Sound Rock (Elev.)	Bottom of Footing (Elev.)	Remarks
End Bent No. 3			
1			
2			
3			

This sheet to be completed by MoDOT construction personnel.

AS-BUILT PILE, DRILLED SHAFT, AND FOOTING DATA

Note: This drawing is not to scale. Follow dimensions. Sheet No. 29 of 34

DESIGNED BY: K LW JAN 2025
DETAILED BY: R CL JAN 2025
CHECKED BY: MAH FEB 2025

MISSOURI STATE OF MISSOURI
KEITH LAWRENCE WETTER
NUMBER E-25019
REGISTERED PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY
DATE PREPARED
6/24/2025

ROUTE AF STATE MO
DISTRICT BR SHEET NO. 29
COUNTY
WRIGHT
JOB NO. J9S3691
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9488

DESCRIPTION

DATE

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

Lochner

15717 College Boulevard | Lenexa, Kansas 66219
Certificate of Authority #F00727076
Phone: 816-945-5840

B_A9488_030_J9S3691_AS BUILT PILE DATA.dgn 2:39:49 PM 6/24/2025

Depth (ft)	Graphic	Description	Elevation (ft)	Sample Type	REC % (RQD %)	Blow Counts (N_{60})	Shear Data	Field Tests	Index Tests
40		Bottom of borehole at 41.8 feet.			(33)		$MC = 0\%$ $\gamma_{moist} = 163.1$ pcf		

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

Depth (ft)	Graphic	Description	Elevation (ft)	Sample Type	REC % (RQD %)	Blow Counts (N ₆₀)	Shear Data	Field Tests	Index Tests
0		0.0-0.1' ASPHALT 0.1-0.8' CONCRETE 0.8-23.9' AIR							
5			1040						
10			1035						
15			1030						
20			1025						
25		23.9-24.0' WATER, Beaver Creek 24.0-33.2' GRAVEL with fine sand, loose to medium dense, wet	1020						
30			1015		13	6-5-6 (17)			
35		33.2-36.0' Dolomite, tan and white, highly weathered	1010		60 (0)				
40		36.0-61.1' Cherty Dolomite, tan and white, very thin bedded, medium strong rock to strong rock, moderately weathered, scattered pitting	1005		100 (44)		Qu Test Results UCS = 710 ksf MC = 0% γ _{moist} = 159.1		

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

(Continued Next Page)

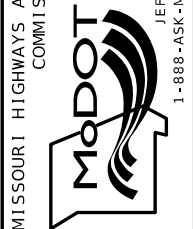
Note: For locations of borings, see Sheet No. 1.

Data provided by MoDOT Materials Geotechnical Section in Report dated November 27, 2024 and addendum dated January 24, 2025.

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

Sheet No. 31 of 34

DESIGNED BY: K LW	JAN 2025
DETAILED BY: JTC	JAN 2025
CHECKED BY: DMA	FEB 2025



15717 College Boulevard | Lenexa, Kansas 66219
Certificate of Authority #F00727076
Phone: 816-945-5840

Depth (ft)	Graphic	Description	Elevation (ft)	Sample Type	REC % (RQD %)	Blow Counts (N_{60})	Shear Data	Field Tests	Index Tests
40									
45		36.0-61.1' Cherty Dolomite, tan and white, very thin bedded, medium strong rock to strong rock, moderately weathered, scattered pitting (continued)	1000		92 (44)		pcf Qu Test Results UCS = 400 ksf MC = 0% $\gamma_{moist} = 159.2$		
50			995		94 (64)		pcf Qu Test Results UCS = 390 ksf MC = 0% $\gamma_{moist} = 158$ pcf		
55			990		88 (10)		Qu Test Results UCS = 1040 ksf MC = 0% $\gamma_{moist} = 161$ pcf		
60			985		88 (26)		Qu Test Results UCS = 419 ksf MC = 0% $\gamma_{moist} = 148.1$ pcf		
		Bottom of borehole at 61.1 feet.					Qu Test Results UCS = 991 ksf MC = 0% $\gamma_{moist} = 161.1$ pcf		

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

Coordinate System: U.S. State Plane 1983 **Coordinate Zone:** Missouri Central **Coordinate Proj. Factor:**

Coordinate Datum: NAD 83 (CONUS) **Coordinate Units:** U.S. Survey Feet

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

BORING NO. B-201 (V-24-46)
Page 2 of 2

Job No.: J9S3691	County: Wright	Route: AF
Design: A9488	Skew: Square	Location: Over Beaver Creek
Bent: 2	Logged By: Matthew Kistler	Operator: Bradley Wadlow
Station: _____	Northing: 588625.2	Date of Work: 09/13/24-09/18/24
Offset: _____	Easting: 1678743.8	Depth to Water: 23.9
Elevation: 1044.7	Requested Northing: 588625.7	Depth Hole Open: _____
Requested Station: _____	Requested Easting: 1678735.8	Time Change: 0 hours
Requested Offset: _____	Equipment: Acker Renegade NQ	
Requested Elevation: _____	Location Note: Offset to advance through existing bridge N0675	
Drill No.: G-9667	Hammer Efficiency: 93%	Drilling Method: Casing Advancer

Depth (ft)	Graphic	Description	Elevation (ft)	Sample Type	REC % (RQD %)	Blow Counts (N ₆₀)	Shear Data	Field Tests	Index Tests
0		0.0-0.1' ASPHALT 0.1-0.8' CONCRETE 0.8-23.9' AIR							
5			1040						
10			1035						
15			1030						
20			1025						
25		23.9-24.8' WATER, Beaver Creek 24.8-32.3' GRAVEL with fine sand, loose to medium dense, wet	1020						
30			1015						
35		32.3-37.1' Cherty Dolomite, tan and white, highly weathered, scattered pitting	1010		0	10/0/0'			
40			1005		90 (15)				
					96 (54)		Qu Test Results UCS = 1070 ksf MC = 0% γ _{moist} = 157.9		

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

Coordinate System: U.S. State Plane 1983 **Coordinate Zone:** Missouri Central **Coordinate Proj. Factor:**

Coordinate Datum: NAD 83 (CONUS) **Coordinate Units:** U.S. Survey Feet

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

(Continued Next Page)

BORING DATA

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

Data provided by MoDOT Materials Geotechnical Section in Report dated November 27, 2024 and addendum dated January 24, 2025.

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

Sheet No. 32 of 34

DESIGNED BY: K LW	JAN 2025
DETAILED BY: JTC	JAN 2025
CHECKED BY: DMA	FEB 2025

STATE OF MISSOURI
REGISTERED PROFESSIONAL ENGINEER
KEITH LAWRENCE WETTER
NUMBER E-25019

THIS SHEET HAS BEEN
SIGNED, SEALED AND DATED
ELECTRONICALLY

DATE PREPARED
6/24/2025

ROUTE AF	STATE MO
DISTRICT BR	SHEET NO. 32

COUNTY
WRIGHT

JOB NO.
J9S3691

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9488

[illegible]

MISSOURI HIGHWAYS AND TRANSPORTATION
COMMISSION

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

df Lochner
15717 College Boulevard | Lenexa, Kansas 66219
Certificate of Authority #F00727076
Phone: 816-945-5840

Job No.: J9S3691

Design: A9488

Bent: 2

Station:

Offset:

Elevation: 1044.7

Requested Station:

Requested Offset:

Requested Elevation:

Drill No.: G-9667

Missouri Department of Transportation
Construction and Materials

County: Wright

Skew: Square

Logged By: Matthew Kistler

Northing: 588625.2

Easting: 1678743.8

Requested Northing: 588625.7

Requested Easting: 1678735.8

Equipment: Acker Renegade ,NQ

Location Note: Offset to advance through existing bridge N0675

Hammer Efficiency: 93%

BORING NO. B-202 (V-24-47)
Page 2 of 2

Route: AF

Location: Over Beaver Creek

Operator: Bradley Wadlow

Date of Work: 09/18/24-09/18/24

Depth to Water: 23.9

Depth Hole Open:

Time Change: 0 hours

Drilling Method: Casing Advancer

Depth (ft)	Graphic	Description	Elevation (ft)	Sample Type	REC % (RQD %)	Blow Counts (N ₆₀)	Shear Data	Field Tests	Index Tests
40		37.1-71.1' Cherty Dolomite, tan and white, very thin bedded, medium strong rock to strong rock, moderately weathered, scattered pitting (continued)					pcf Qu Test Results UCS = 1320 ksf MC = 0% γ _{moist} = 164.9 pcf		
45			1000		100 (60)		pcf Qu Test Results UCS = 846 ksf MC = 0% γ _{moist} = 162.3 pcf		
50			995		80 (40)		pcf Qu Test Results UCS = 612 ksf MC = 0% γ _{moist} = 158.3 pcf		
55			990		92 (52)		pcf Qu Test Results UCS = 738 ksf MC = 0% γ _{moist} = 166 pcf		
60		59.0-59.1' crystalline calcite vein	985		80 (26)		pcf Qu Test Results UCS = 446 ksf MC = 0% γ _{moist} = 139.4 pcf		
65			980		98 (48)		pcf Qu Test Results UCS = 418 ksf MC = 0% γ _{moist} = 161 pcf		
70			975		70 (6)		pcf Qu Test Results UCS = 383 ksf MC = 0% γ _{moist} = 157.9 pcf		
		Bottom of borehole at 71.1 feet.							

N₆₀ = (Em/60)Nm N₆₀ - Corrected N value for standard 60% SPT efficiency; Em - Measured hammer efficiency in percent; Nm - Observed N-value; (1) = Assumed, (2) = Actual

Coordinate System: U.S. State Plane 1983 Coordinate Zone: Missouri Central Coordinate Proj. Factor:

Coordinate Datum: NAD 83 (CONUS) Coordinate Units: U.S. Survey Feet

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

Job No.: J9S3691

Design: A9488

Bent: 3

Station:

Offset:

Elevation: 1044.8

Requested Station:

Requested Offset:

Requested Elevation:

Drill No.: G-9667

Missouri Department of Transportation
Construction and Materials

County: Wright

Skew: Square

Logged By: Matthew Kistler

Northing: 588555.2

Easting: 1678614.3

Requested Northing: 588546.8

Requested Easting: 1678618.1

Equipment: Acker Renegade Split-Spoon Sampler, NQ

Location Note: Offset to advance through existing bridge N0675

Hammer Efficiency: 93%

BORING NO. B-301 (V-24-48)
Page 1 of 1

Route: AF

Location: Over Beaver Creek

Operator: Bradley Wadlow

Date of Work: 09/19/24-09/19/24

Depth to Water:

Depth Hole Open:

Time Change:

Drilling Method: Casing Advancer

Depth (ft)	Graphic	Description	Elevation (ft)	Sample Type	REC % (RQD %)	Blow Counts (N ₆₀)	Shear Data	Field Tests	Index Tests
0		0.0-0.1' ASPHALT 0.1-0.8' CONCRETE 0.8-6.5' AIR							
5		6.5-8.9' Brownish tan, GRAVEL with fine sand, loose, dry	1040						
10		8.9-9.7' Cherty Dolomite, moderately weathered 9.7-19.7' Cherty Dolomite, white and tan, very thin bedded, extremely strong rock to strong rock, moderately weathered 9.7' advancer refusal	1035	0	90 (34)	10/0.0'	Qu Test Results UCS = 2680 ksf MC = 0% γ _{moist} = 194.9 pcf		
15			1030		90 (50)		Qu Test Results UCS = 835 ksf MC = 0% γ _{moist} = 159.3 pcf Qu Test Results UCS = 887 ksf MC = 0% γ _{moist} = 151.6 pcf		
		Bottom of borehole at 19.7 feet.							

N₆₀ = (Em/60)Nm N₆₀ - Corrected N value for standard 60% SPT efficiency; Em - Measured hammer efficiency in percent; Nm - Observed N-value; (1) = Assumed, (2) = Actual

Coordinate System: U.S. State Plane 1983 Coordinate Zone: Missouri Central Coordinate Proj. Factor:

Coordinate Datum: NAD 83 (CONUS) Coordinate Units: U.S. Survey Feet

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BORING DATA

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

Data provided by MoDOT Materials Geotechnical Section in Report dated November 27, 2024 and addendum dated January 24, 2025.

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

Sheet No. 33 of 34

DESIGNED BY: K LW JAN 2025
DETAILED BY: J TC JAN 2025
CHECKED BY: D MA FEB 2025



THIS SHEET HAS BEEN
SIGNED, SEALED AND DATED
ELECTRONICALLY
DATE PREPARED
6 / 24 / 2025
ROUTE AF STATE MO
DISTRICT BR SHEET NO. 33
COUNTY
WR IGH T
JOB NO.
J 9 S 3 6 9 1
CONTRACT ID.

PROJECT NO.
BRIDGE NO.
A9488

DESCRIPTION	DATE

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

Lochner
15717 College Boulevard | Lenexa, Kansas 66219
Certificate of Authority #F00727076
Phone: 816-945-5840

**Missouri Department of Transportation
Construction and Materials**

BORING NO. B-302 (V-25-05)
Page 1 of 1

Drilling Method: Casing Advancer

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

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**Missouri Department of Transportation
Construction and Materials**

Location Note: Offset to advance through existing bridge N0675

BORING NO. A-302 (Auger)
Page 1 of 1

Drilling Method: Continuous Flight Auger

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

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



DATE PREPARED
6/24/2025

ROUTE AF	STATE MO
DISTRICT BR	SHEET NO. 34

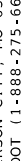
COUNTY
WRIGHT

JOB NO.
J9S3691

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9488



MISSOURI HIGHWAYS AND TRANSPORTATION
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df Lochner
15717 College Boulevard | Lenexa, Kansas 66219
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Note: For locations of borings, see Sheet No. 1.

Data provided by MoDOT Materials Geotechnical Section in Report dated November 27, 2024 and addendum dated January 24, 2025.

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

Sheet No. 34 of 34

B_A9488_XXX_I9S3691_BORING LOGS_05.dgn 2:42:33 PM 6/24/2025