

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 = A (Nonseismic)

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, except Rock Sockets) f'c = 3,000 psi
Class B-1 Concrete (Barrier) f'c = 4,000 psi
Class B-2 Concrete (Rock Sockets) f'c = 4,000 psi
Class B-2 Concrete (Superstructure, except Barrier) f'c = 4,000 psi
Reinforcing Steel (ASTM A615 Grade 60) fy = 60,000 psi
Structural Steel (ASTM A709 Grade 50) fy = 50,000 psi
Structural Steel HP Pile (ASTM A709 Grade 50) fy = 50,000 psi

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

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

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

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

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

Structural Steel Protective Coatings:
Protective Coating: System L in accordance with Sec 1081.

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

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

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

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

Vertical clearance for Route I-49 traffic during construction shall be 15'-6" minimum over a 24'-0" wide horizontal opening of the roadway in each direction.

Estimated Quantities for Slab on Steel		
Item		Total
Class B-2 Concrete	cu. yard	288
Reinforcing Steel (Epoxy Coated)	pound	89,720

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

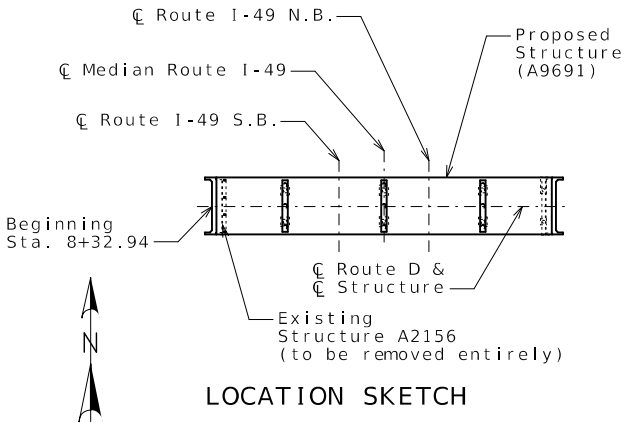
Method of forming the slab shall be as shown on the plans and in accordance with Sec 703. All hardware for forming the slab to be left in place as a permanent part of the structure shall be coated in accordance with ASTM A123 or ASTM B633 with a thickness class SC 4 and a finish type I, II or III.

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

For details and notes of optional stay-in-play corrugated steel forms, see Sheet No. 22.

Detailed Jan. 2026
Checked Feb. 2026

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



Foundation Data						
Type	Design Data	Bent Number				
		1	2	3	4	5
Load Bearing Pile	Pile Type and Size	HP 12x53	-	-	-	HP 12x53
	Number	5	-	-	-	5
	Approximate Length Per Each	ft 22	-	-	-	12
	Pile Point Reinforcement	ea ALL	-	-	-	ALL
	Min. Galvanized Penetration (Elev.)	ft FULL LENGTH	-	-	-	FULL LENGTH
	Pile Driving Verification Method	DT	-	-	-	DT
	Resistance Factor	0.65	-	-	-	0.65
	Minimum Nominal Axial Compressive Resistance	kip 243	-	-	-	243
Rock Socket	Number	ea -	3	3	3	-
	Foundation Material	-	Strong Rock	Strong Rock	Strong Rock	-
	Elevation Range	ft -	870.0-846.4	870.5-845.5	871.0-846.0	-
	Minimum Nominal Axial Compressive Resistance (Side Resistance)	ksf -	11.4	12.3	11.4	-

DT = Dynamic Testing

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

Rock Socket:
Minimum Nominal Axial Compression Resistance = $\frac{\text{Maximum Factored Loads}}{\text{Resistance Factor}}$ (Side Resistance)

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

Prebore for piles at Bent No. 5 to elevation 886.92.

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

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 resistance is verified and no additional pile driving verification method is required.

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

Estimated Quantities			
Item	Substr.	Superstr.	Total
Removal of Miscellaneous ACM (Non-Friable)	sq. foot	21	21
Class 1 Excavation	cu. yard 80		80
Removal of Bridges (A2156)	lump sum		1
Bridge Approach Slab (Minor)	sq. yard	153	153
Rock Sockets (3 ft. 0 in. Dia.)	linear foot 108		108
Video Camera Inspection	each 9		9
Foundation Inspection Holes	linear foot 198		198
Sonic Logging Testing	each 9		9
Galvanized Structural Steel Piles (12 in.)	170		170
Dynamic Pile Testing	each 2		2
Dynamic Pile Restrike Testing	each 2		2
Pre-Bore for Piling	each 25		25
Pile Point Reinforcement	each 10		10
Class B Concrete (Substructure)	cu. yard 142.6		142.6
Slab on Steel	sq. yard	988	988
Type D Barrier	linear foot	515	515
Reinforcing Steel (Bridges)	pound 26,670		26,670
Fabricated Structural Low Alloy Steel (I-Beam) A709, Grade 50	pound	210,220	210,220
Slab Drain	each	20	20
Finish Field Coat (System L)	lump sum	1	1
Vertical Drain at End Bents	each 2		2
Plain Neoprene Bearing Pad	each	10	10
Laminated Neoprene Bearing Pad	each	30	30

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

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

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

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

Sheet No. 2 of 30



DATE PREPARED

3/23/2026

ROUTE D STATE MO

DISTRICT BR SHEET NO. 2

COUNTY

BATES

JOB NO.

JSR0134

CONTRACT ID.

PROJECT NO.

BRIDGE NO.

A9691

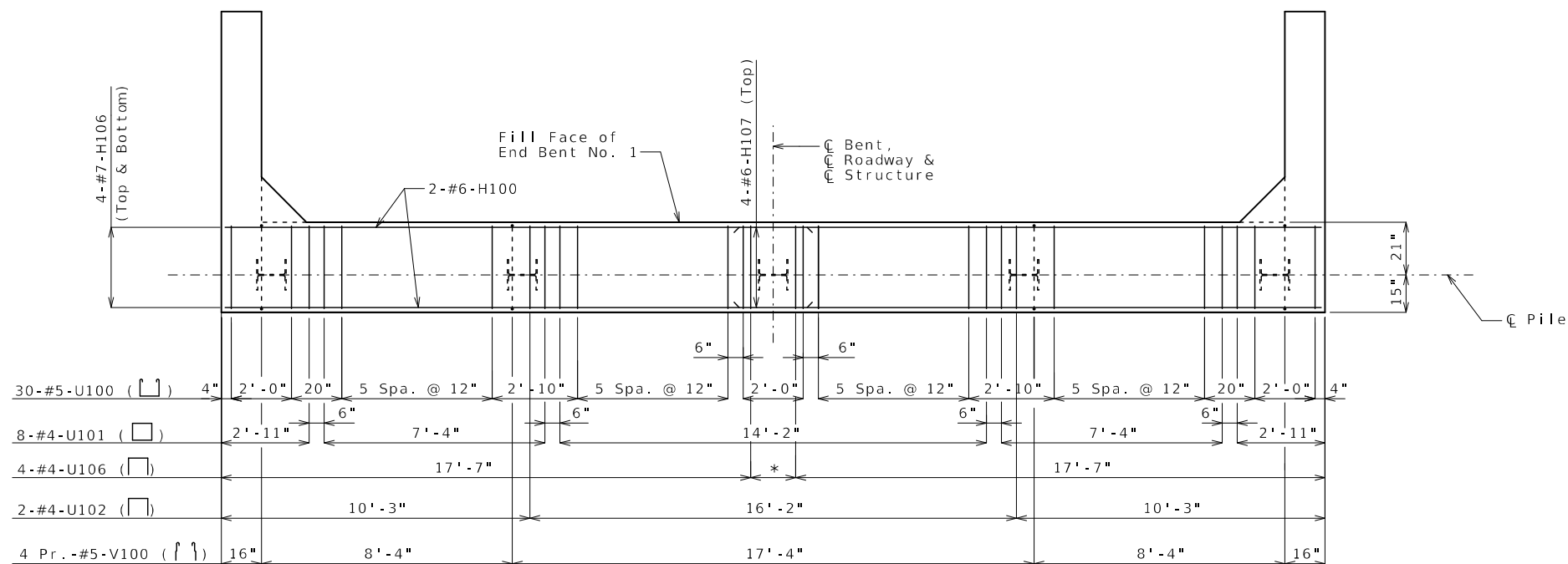
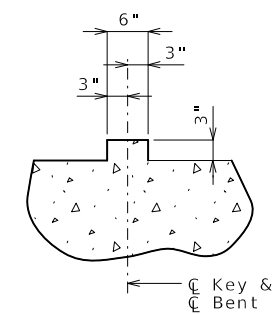
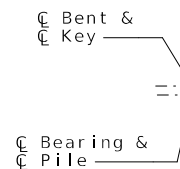
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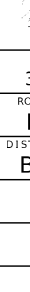
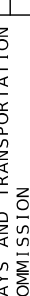
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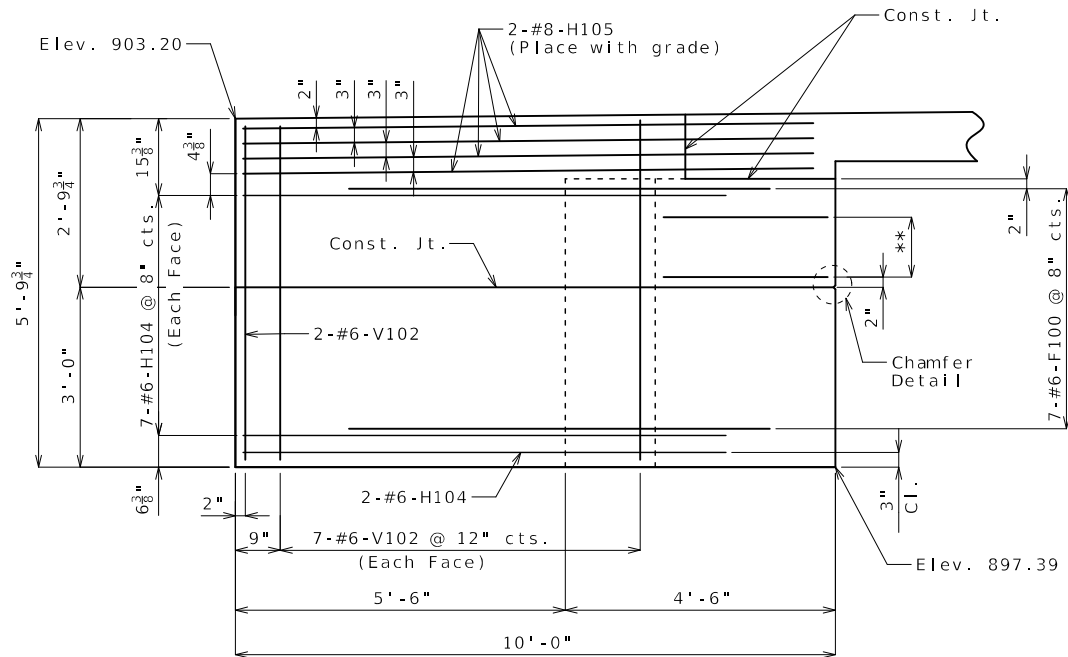
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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

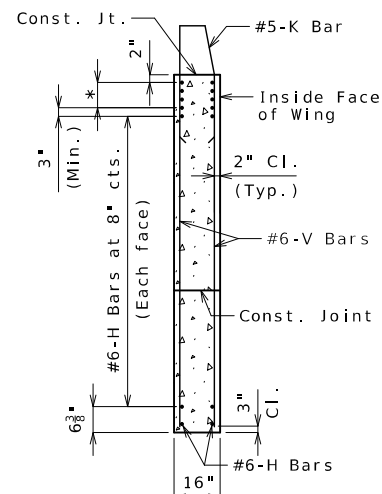
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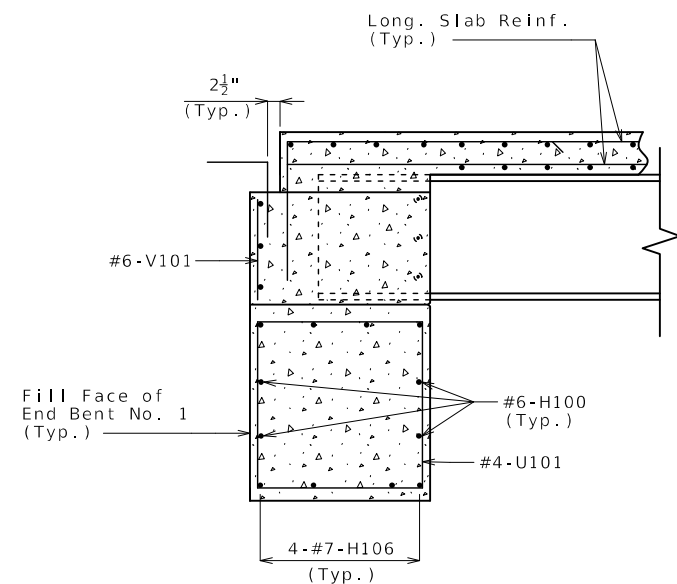
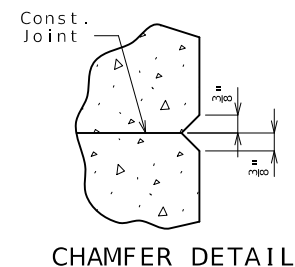
	
DATE PREPARED 3/23/2026	
ROUTE D	STATE MO
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COUNTY BATES	
JOB NO. JSR0134	
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO. A9691	
DESCRIPTION	DATE
	
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION 105 WEST CAPITAL JEFFERSON CITY, MO 65102 1-888-ASK-MODOT (1-888-275-6636)	



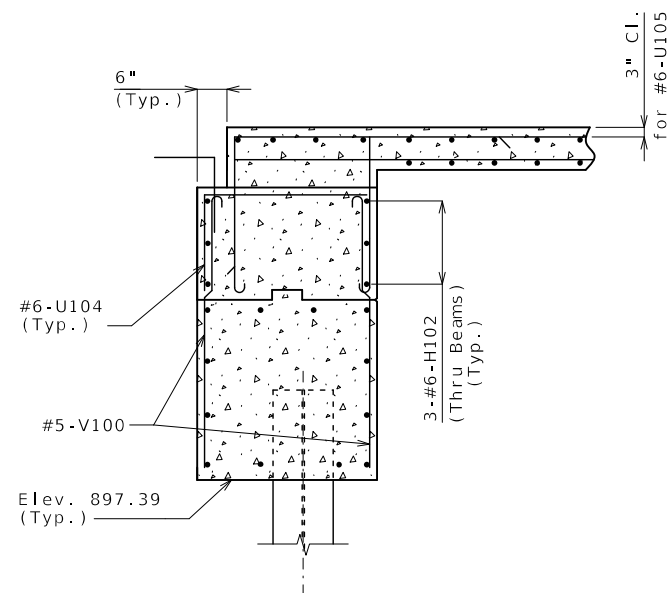
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(Left wing shown, right wing similar)



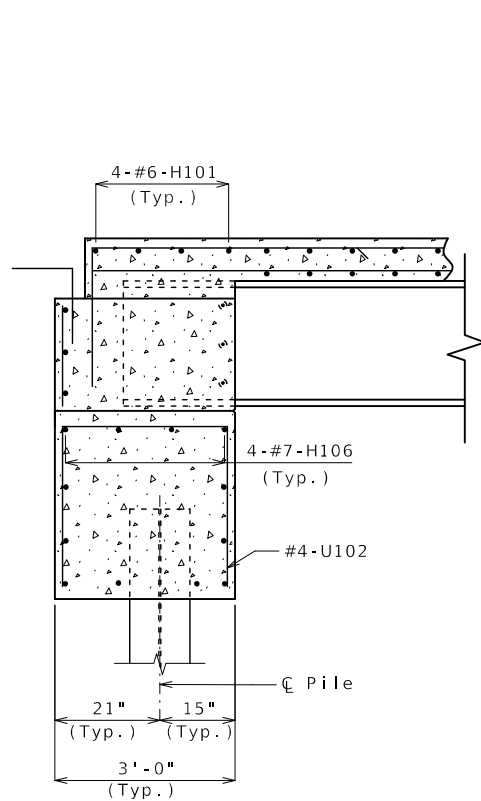
TYPICAL SECTION THRU WING
* #8-H Bars at 3" cts. (Each face)(Place with grade)
** 2-#6-F101 @ 12" cts.



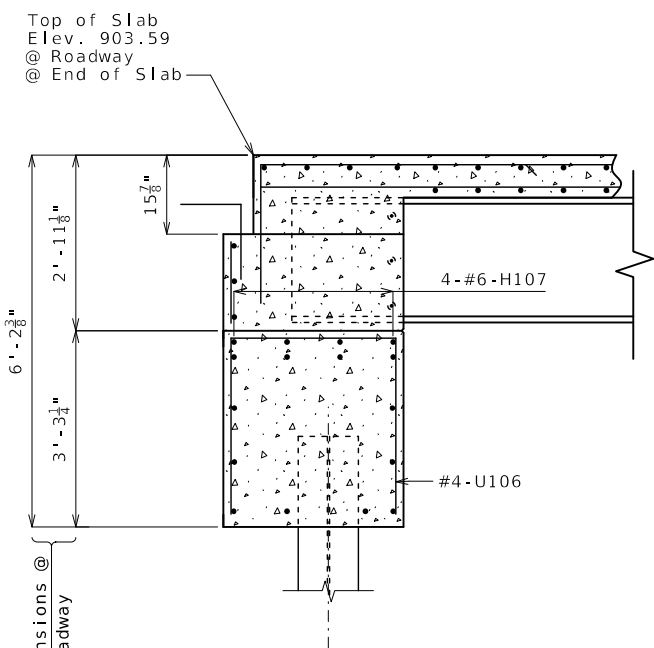
SECTION E-E



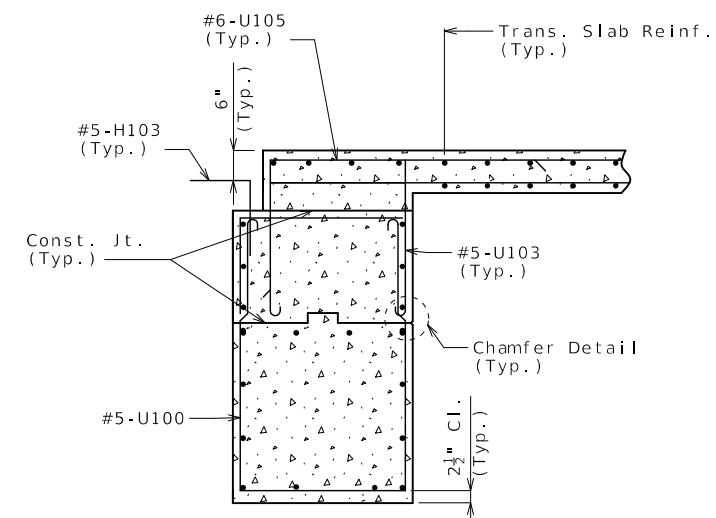
SECTION A-A



SECTION B-B



SECTION C-C

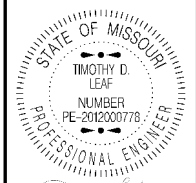


SECTION D-D

Notes:

Work this sheet with Sheets No. 3 & 4.

For reinforcement of the barrier at End Bent, see Sheets No. 23 & 24.



DATE PREPARED
3/23/2026

ROUTE D STATE MO

DISTRICT BR SHEET NO. 5

COUNTY BATES

JOB NO. JSR0134

CONTRACT ID.

PROJECT NO.

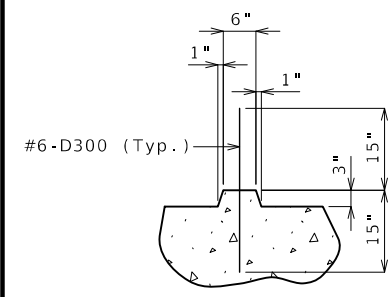
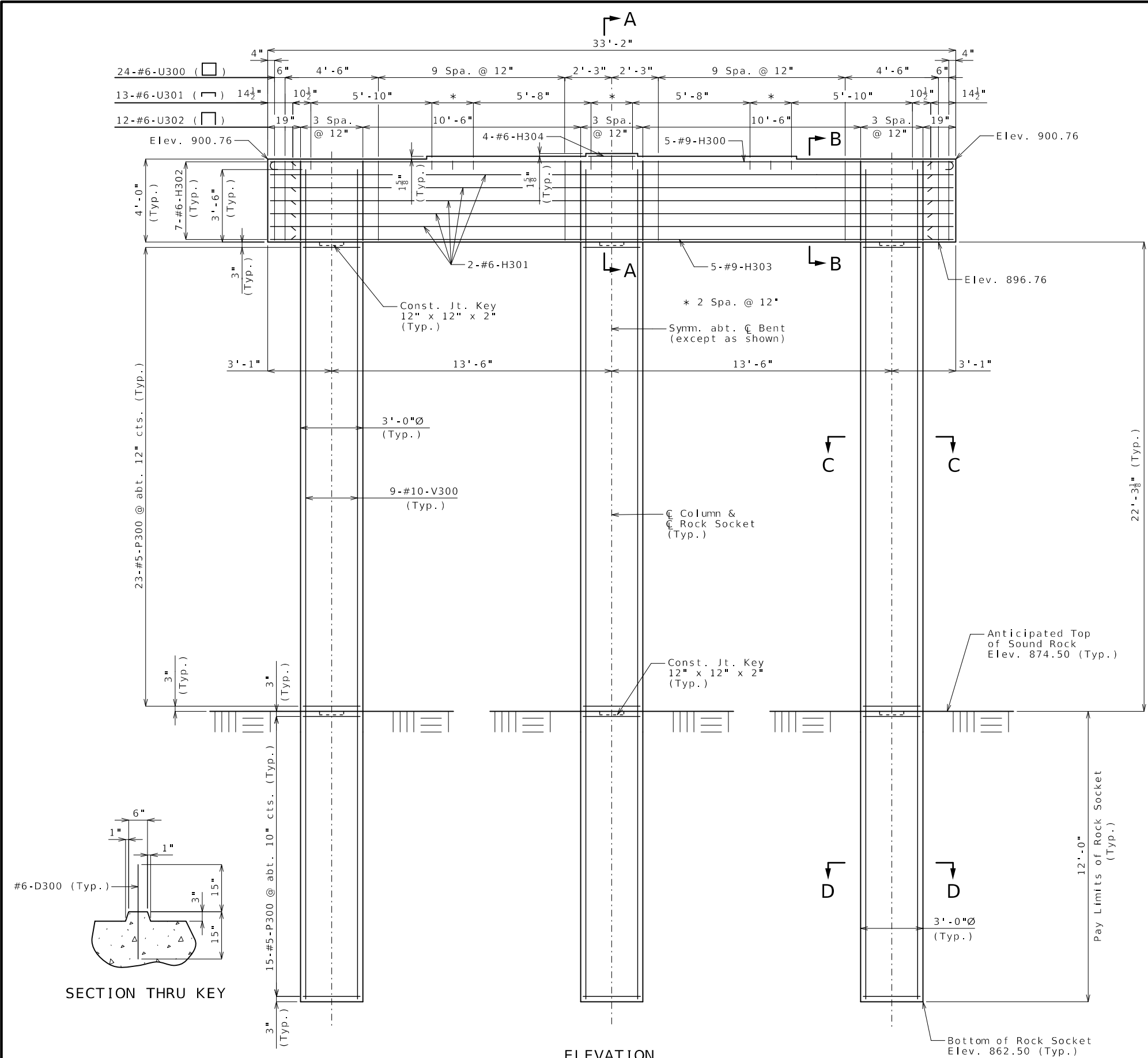
BRIDGE NO. A9691

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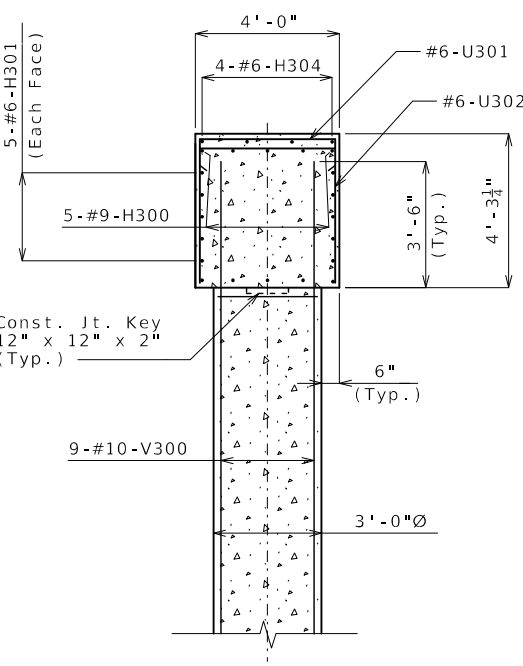
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION



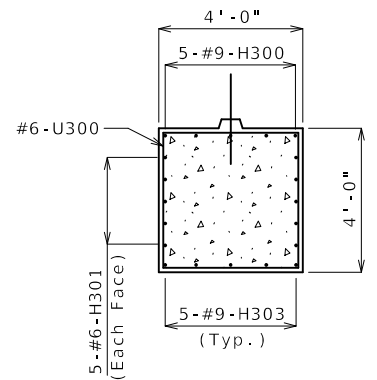
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-273-6636)



SECTION THRU KEY



SECTION A-A



SECTION B-B

Notes:

An additional 4 feet has been added to the #10-V300 lengths and an additional 15-#5-P300 bars have been added in the quantities, if required, for possible change in Rock Socket length. The additional V-bar length shall be cut off 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 Rock Sockets.

All reinforcement in Columns and Rock Sockets are included in the Substructure Quantities.

Work this sheet with Sheet No. 10.

ELEVATION

Note: Keys at top of beam not shown for clarity.

DETAILS OF INTERMEDIATE BENT NO. 3

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

Detailed Jan. 2026
Checked Feb. 2026

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

DATE PREPARED
3/23/2026

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DISTRICT
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BATES

JOB NO.
JSR0134

CONTRACT ID.

PROJECT NO.

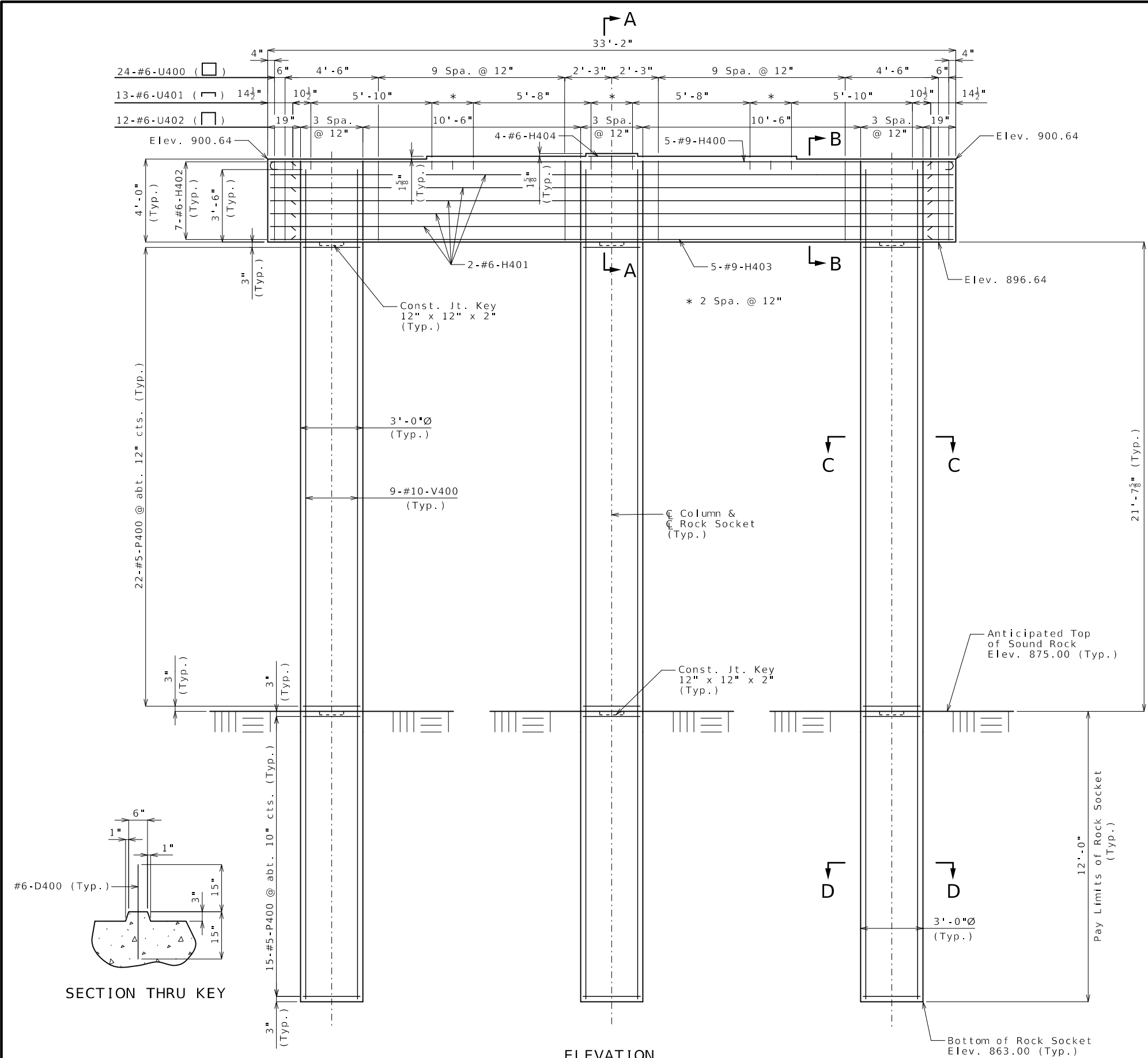
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DESCRIPTION

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MISSOURI HIGHWAYS AND TRANSPORTATION
COMMISSION

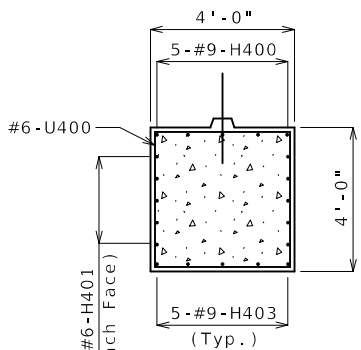
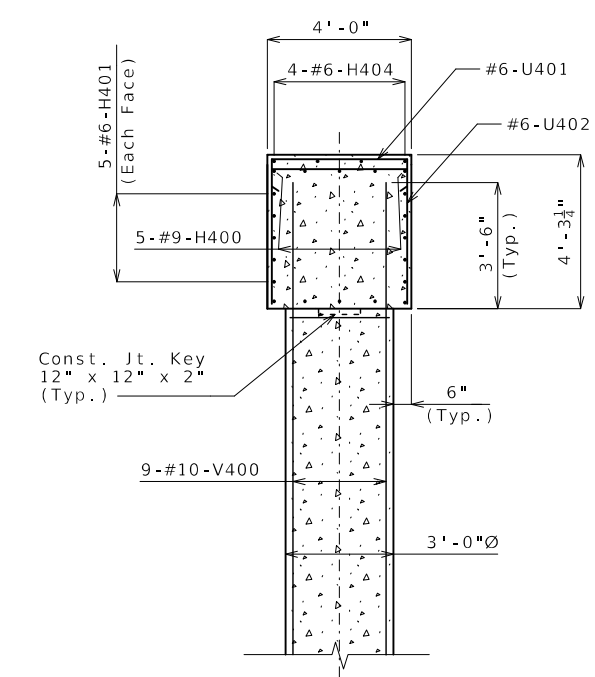
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-273-6636)



SECTION THRU KEY

SECTION A-A

SECTION B-B



Notes:

An additional 4 feet has been added to the #10-V400 lengths and an additional 15-#5-P400 bars have been added in the quantities, if required, for possible change in Rock Socket length. The additional V-bar length shall be cut off 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 Rock Sockets.

All reinforcement in Columns and Rock Sockets are included in the Substructure Quantities.

Work this sheet with Sheet No. 12.

DETAILS OF INTERMEDIATE BENT NO. 4

STATE OF MISSOURI
TIMOTHY D. LEAF
NUMBER
PE-201200778
PROFESSIONAL ENGINEER
03/23/2026 10:51:36 AM
TIMOTHY D. LEAF - CIVIL
MO-PE-201200778

DATE PREPARED
3/23/2026

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JOB NO.
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CONTRACT ID.

PROJECT NO.

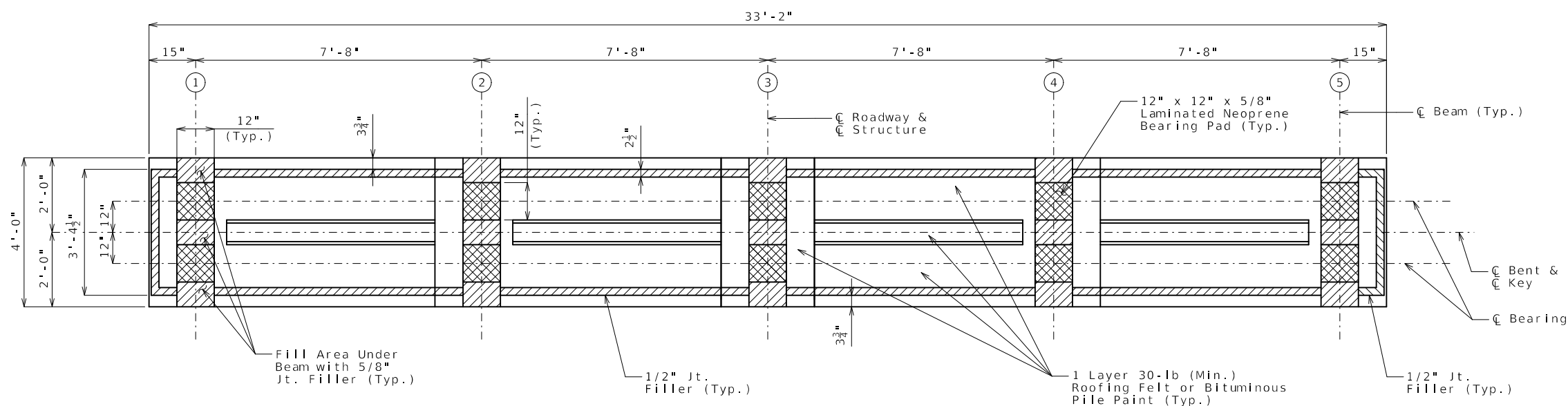
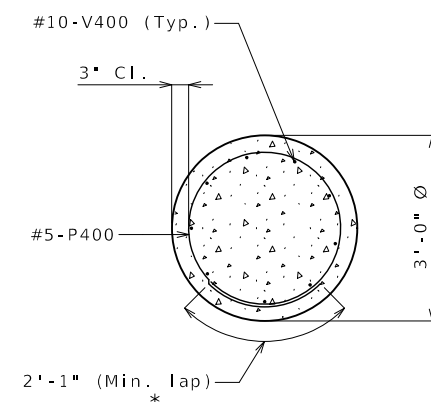
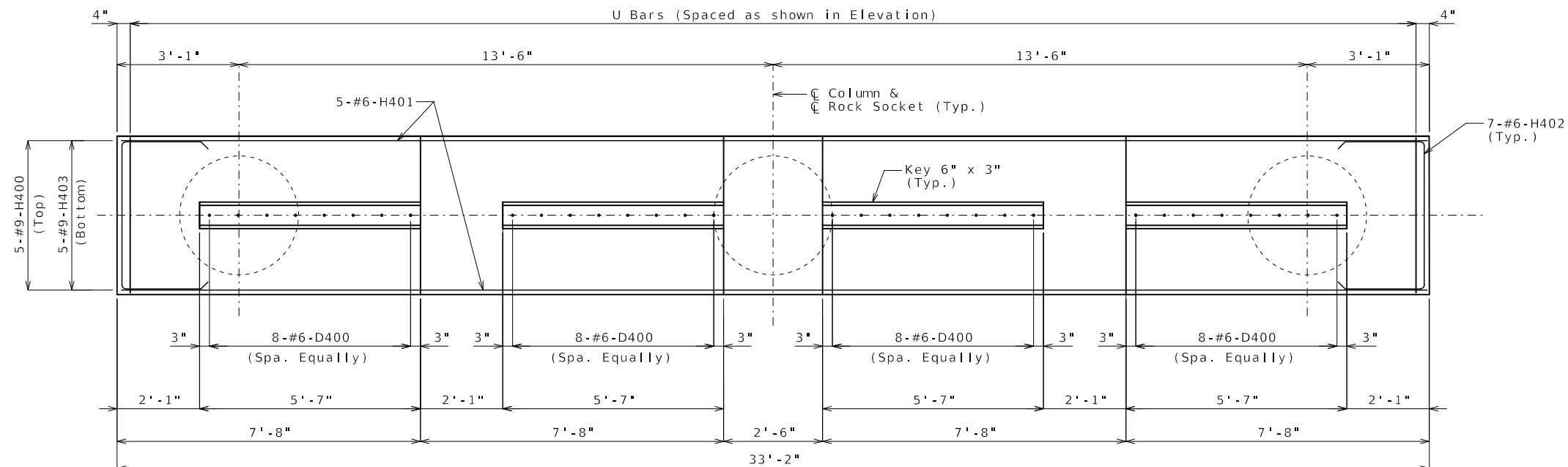
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DESCRIPTION

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MISSOURI HIGHWAYS AND TRANSPORTATION
COMMISSION

105 WEST CAPITOL
JEFFERSON CITY, MO 65102
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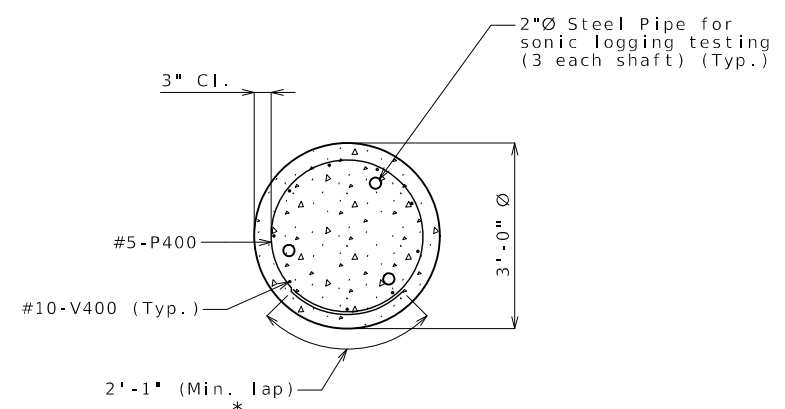
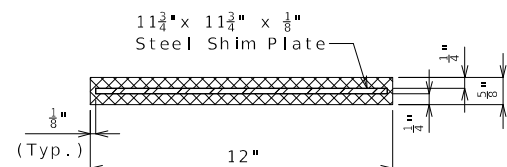


Substructure Quantity Table for Bent No. 4		
Item		Quantity
Rock Sockets (3 ft. 0 in. Dia.)	linear foot	36
Video Camera Inspection	each	3
Foundation Inspection Holes	linear foot	66
Sonic Logging Testing	each	3
Class B Concrete (Substructure)	cu. yard	37.1
Reinforcing Steel (Bridges)	pound	8,796

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

Note:

Work this sheet with Sheet No. 11.



DETAILS OF INTERMEDIATE BENT NO. 4



DATE PREPARED
3/23/2026

ROUTE	STATE
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DISTRICT	SHEET NO.
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COUNTY
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JOB NO.
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COMMISSION

105 WEST CAPITOL
JEFFERSON CITY, MO 65102
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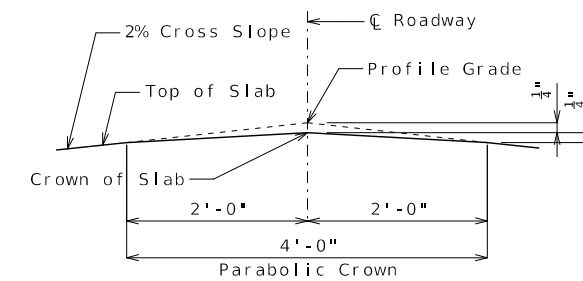


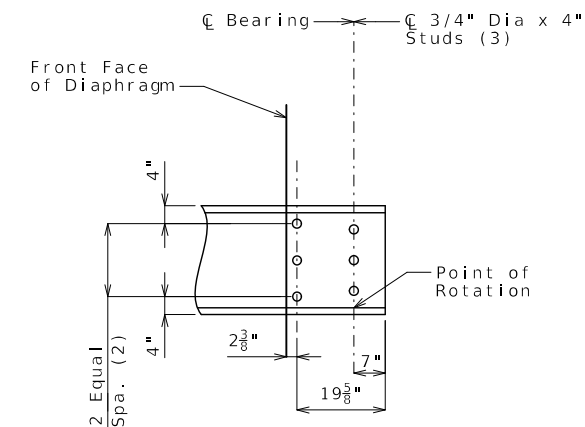
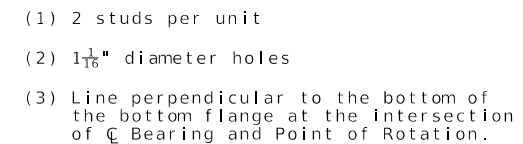
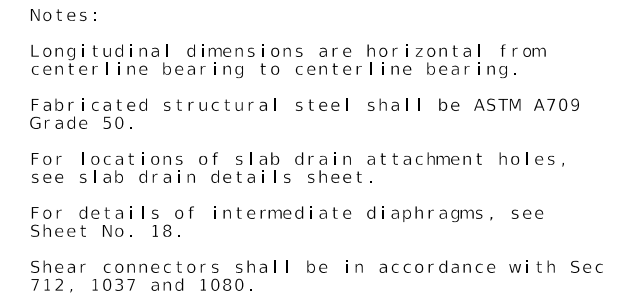
Note: Keys not shown for clarity.

* 3 Spa. @ 6"



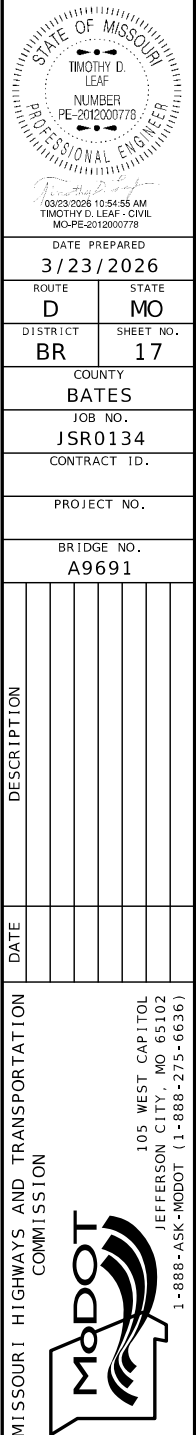
Reinforcing steel shall be shifted to clear piles. U-bars shall clear piles by at least 1 1/2 inches.

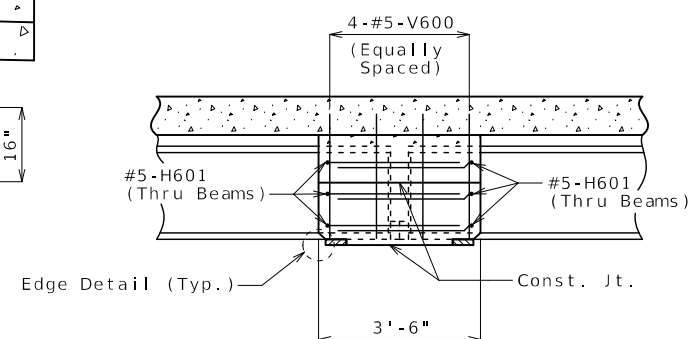




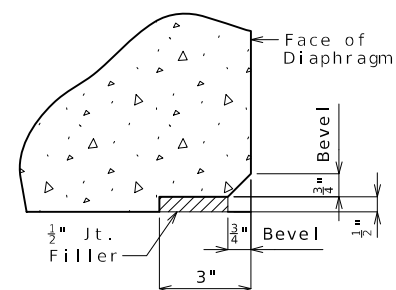
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STEEL BEAM DETAILS

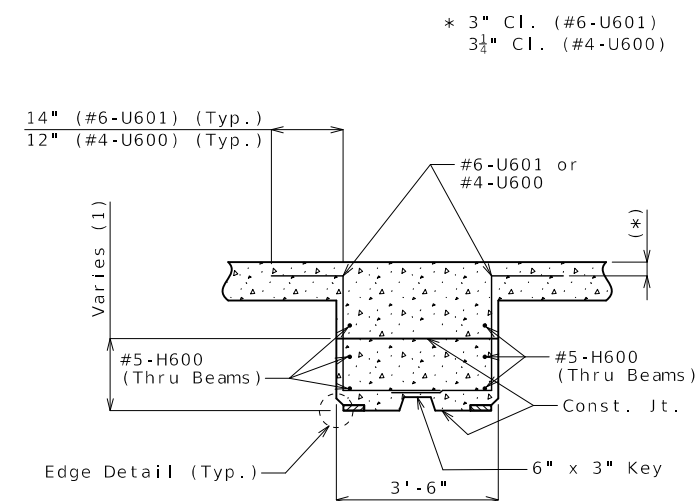




SECTION NEAR INTERMEDIATE BENT
(Dimensions are normal to $\perp$ Structure)
(Steel compression blocks and end plates
not shown for clarity.)

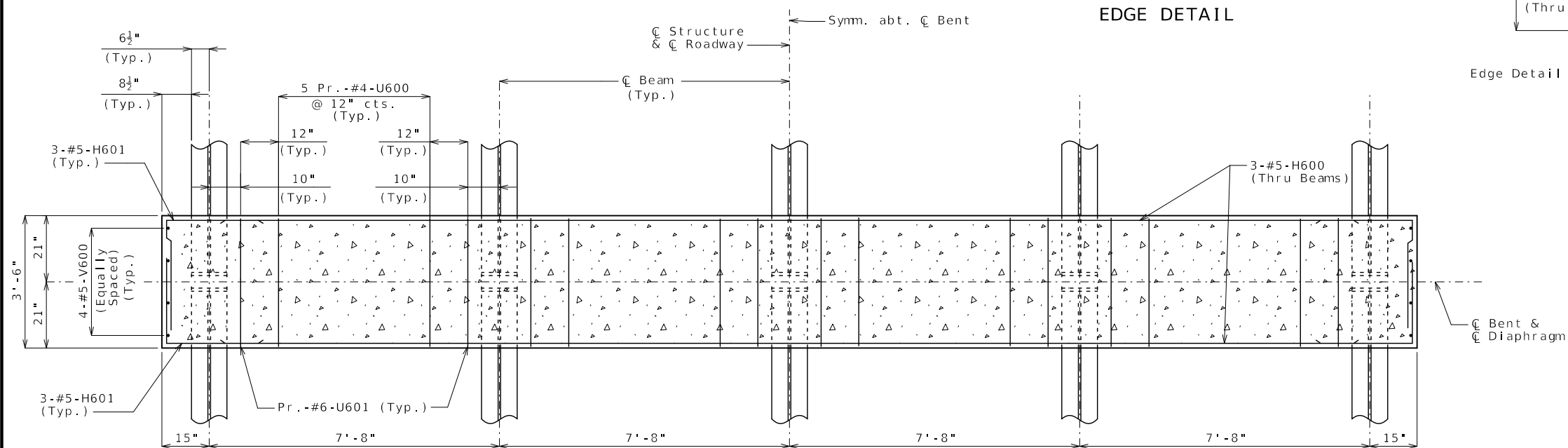


EDGE DETAIL



SECTION C-C

(1) Match roadway cross slope.



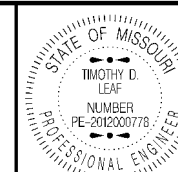
SECTION A-A

Notes:

Diaphragms at intermediate bents shall be built vertical.

Concrete diaphragms below construction joint will be poured a minimum of 12 hours before the slab is poured.

For details of Web Holes in WF Beams at intermediate bents,
see Sheet No. 17.



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TIMOTHY D. LEAF - CIV
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PROJECT NO.

BRIDGE NO.

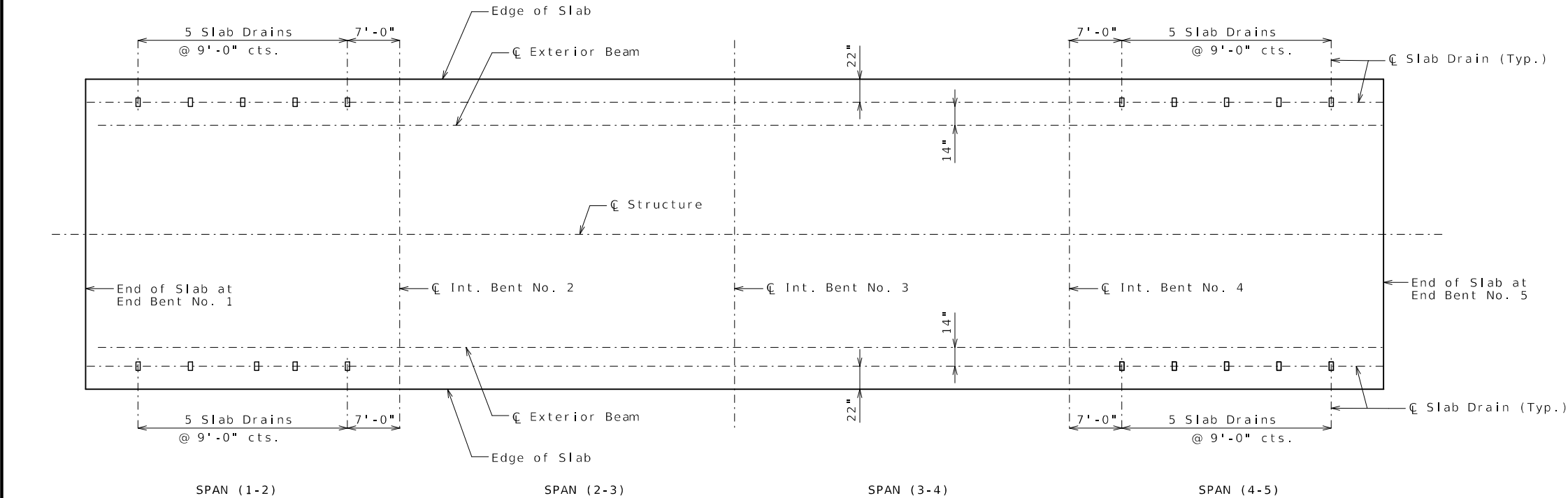
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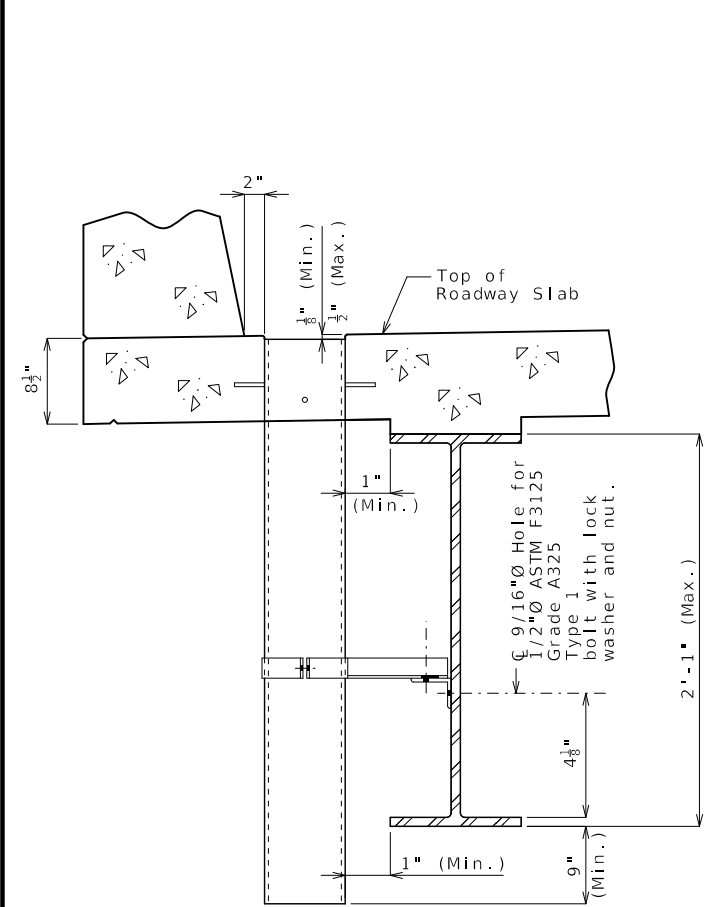
MISSOURI HIGHWAYS AND TRANSPORTATION
COMMISSION

105 WEST CAPITOL
JEFFERSON CITY, MO 65102

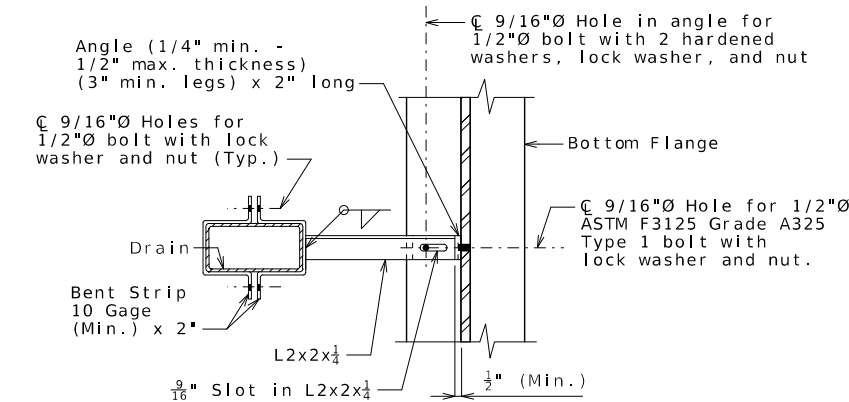




PLAN OF SLAB SHOWING SLAB DRAIN LOCATIONS

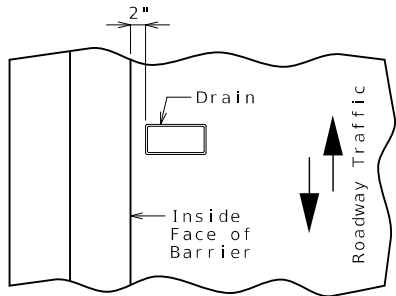


PART SECTION NEAR DRAIN



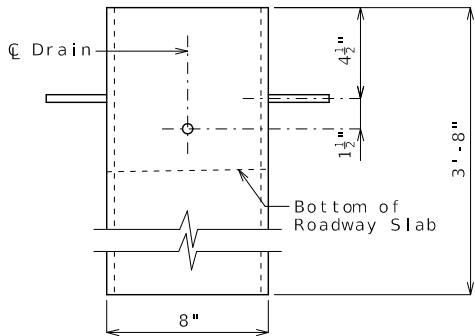
PART SECTION SHOWING BRACKET ASSEMBLY

* See Sec 1080.4

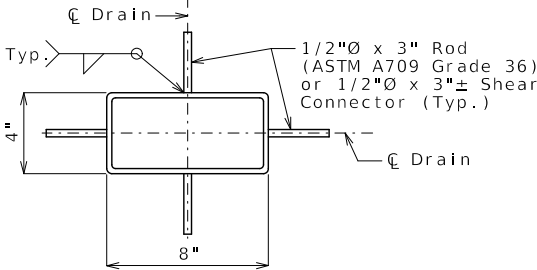


PART PLAN OF SLAB AT DRAIN

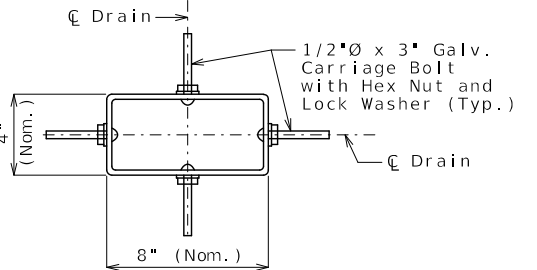
SLAB DRAINS



ELEVATION OF DRAIN



PLAN OF STEEL DRAIN OPTION



PLAN OF FRP DRAIN OPTION

General Notes:

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

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

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

Reinforcing steel shall be shifted to clear drains.

The 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-inch diameter bolts shall be ASTM A307, except as shown.

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

The bolt hole for the bracket assembly attachment shall be located on the wide flange beam shop drawings.

Notes for Steel Drain:

Slab drains may be fabricated of either 1/4-inch welded sheets of ASTM A709 Grade 36 steel or from 1/4-inch 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.

STATE OF MISSOURI

TIMOTHY D. LEAF

NUMBER

PE-2012000778

PROFESSIONAL ENGINEER

03/23/2025 10:55:13 AM

TIMOTHY D. LEAF - CIVIL

MO-PE-2012000778

DATE PREPARED

3/23/2026

ROUTE

D

DISTRICT

BR

STATE

MO

SHEET NO.

19

COUNTY

BATES

JOB NO.

JSR0134

CONTRACT ID.

PROJECT NO.

BRIDGE NO.

A9691

DESCRIPTION

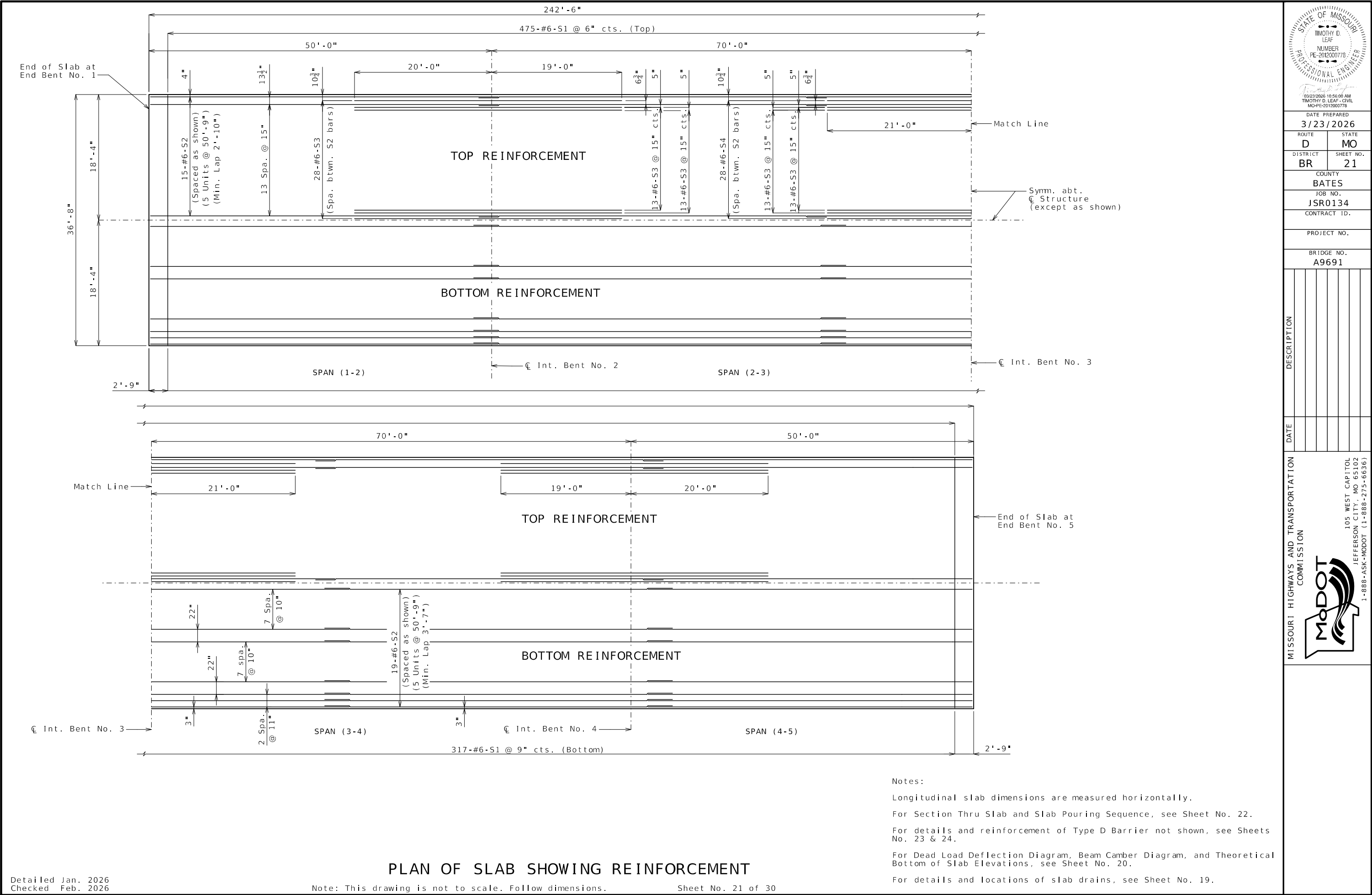
DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

105 WEST CAPITOL

JEFFERSON CITY, MO 65102

1-888-ASK-MODOT (1-888-273-6636)



Detailed Jan. 2026
Checked Feb. 2026

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

Sheet No. 21 of 30

Notes:

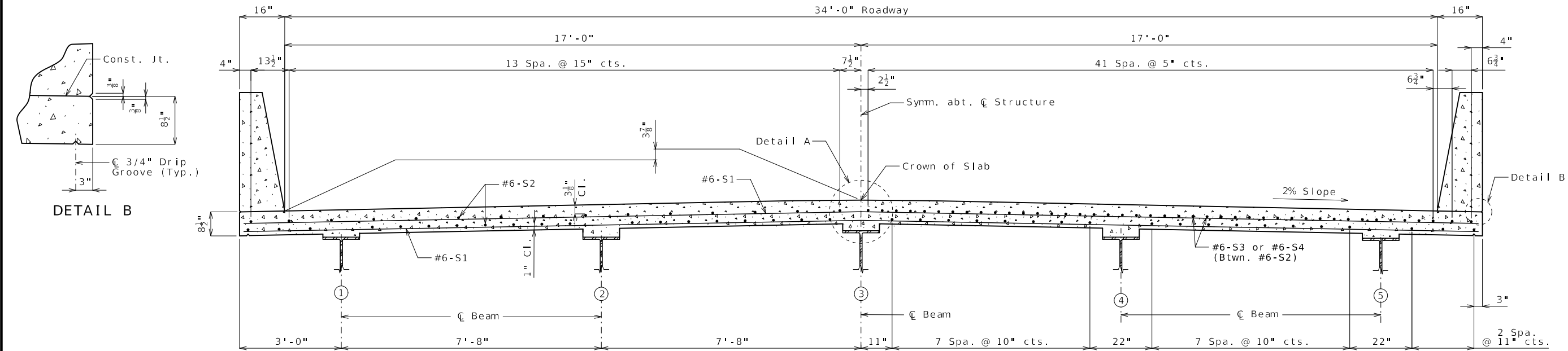
Longitudinal slab dimensions are measured horizontally.

For Section Thru Slab and Slab Pouring Sequence, see Sheet No. 22.

For details and reinforcement of Type D Barrier not shown, see Sheets No. 23 & 24.

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

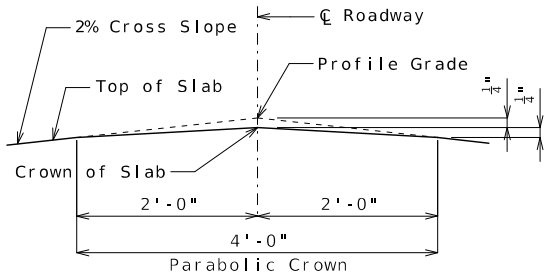
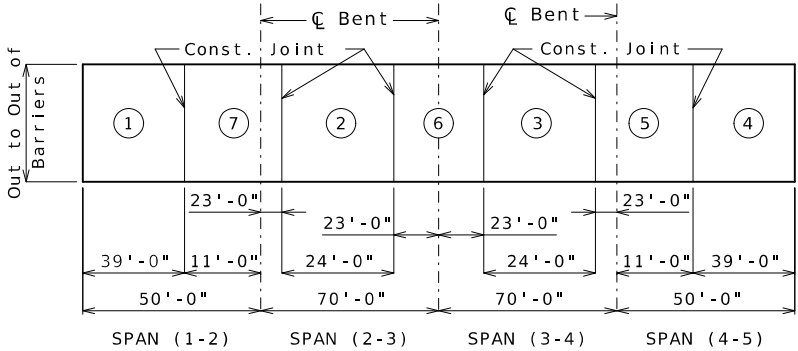
For details and locations of slab drains, see Sheet No. 19.



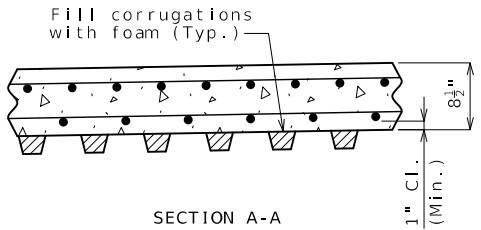
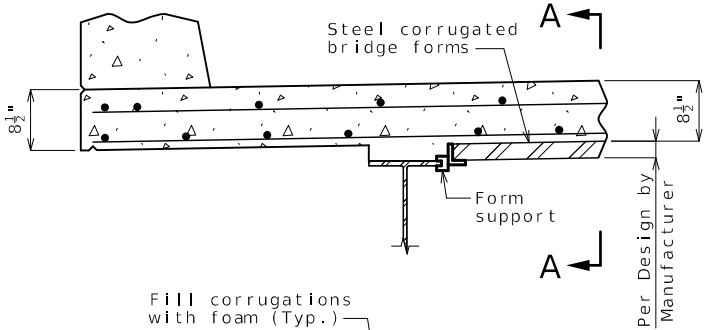
HALF SECTION NEAR MIDSPAN

HALF SECTION NEAR INTERMEDIATE BENT

SECTION THRU SLAB

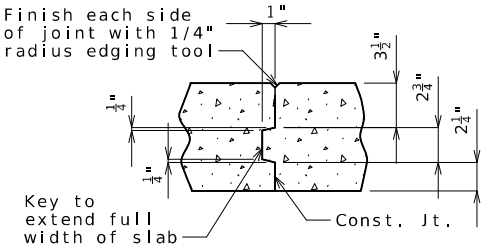
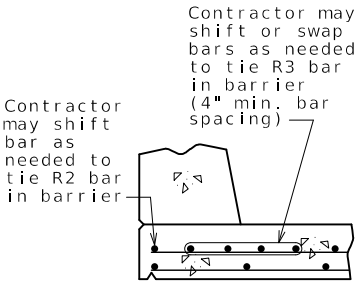


DETAIL A



OPTIONAL STAY-IN-PLACE FORM DETAILS

OPTIONAL SHIFTING TOP BARS AT BARRIER



SLAB CONSTRUCTION JOINT

SLAB DETAILS

	Sequence of Pours							Min. Rate of Pour Cu. Yds./Hr.			
	Direction							With Retarder	No Retarder		
Basic Sequence	1	2	3	4	5	6	7	25	25		
	Either Direction										
Alternate pours to the basic skip sequence are subject to the approval of the engineer in accordance with Sec 703.											
Alternate A Pours	1		7 + 2		6 + 3		5 + 4		25	34	
	End to 7		1 to 6		2 to 5		3 to End				
Alternate B Pours	1 + 7 + 2			6 + 3			5 + 4			25	34
	End to 6			2 to 5			3 to End				
Alternate C Pours	1 + 7 + 2				6 + 3 + 5 + 4				25	34	
	End to 6				2 to End						
Alternate D Pours	1 + 7 + 2 + 6 + 3 + 5 + 4							25	34		
	End to End										

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

SLAB POURING SEQUENCE

- Notes:
- For reinforcement of barrier not shown, see Sheets No. 23 & 24.
 - For Theoretical Bottom of Slab Elevations, Beam Camber Diagram and Dead Load Deflection Diagram, see Sheet No. 20.
 - For Plan of Slab Showing Reinforcement, see Sheet No. 21.
 - For details and location of Slab Drains, see Sheet No. 19.

STATE OF MISSOURI

TIMOTHY D. LEAF

NUMBER

PE-2012000778

PROFESSIONAL ENGINEER

03/23/2026 11:17:08 AM

TIMOTHY D. LEAF - CIVIL

MO-PE-2012000778

DATE PREPARED

3/23/2026

ROUTE

D

STATE

MO

DISTRICT

BR

SHEET NO.

22

COUNTY

BATES

JOB NO.

JSR0134

CONTRACT ID.

PROJECT NO.

BRIDGE NO.

A9691

DESCRIPTION

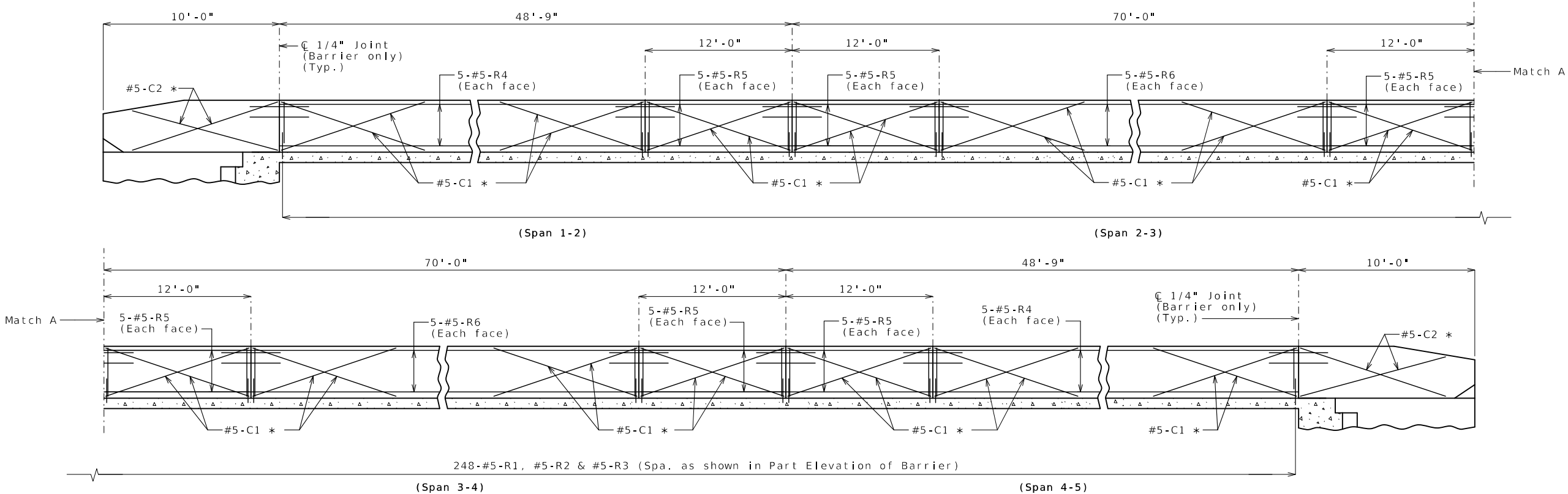
DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

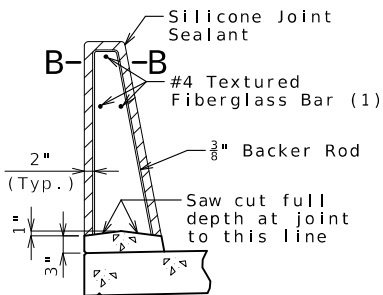
105 WEST CAPITOL

JEFFERSON CITY, MO 65102

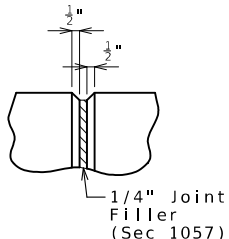
1-888-ASK-MODOT (1-888-275-6636)



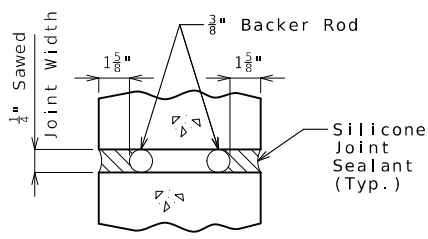
ELEVATION OF BARRIER
(Left barrier shown, right barrier similar)
Longitudinal dimensions are horizontal.



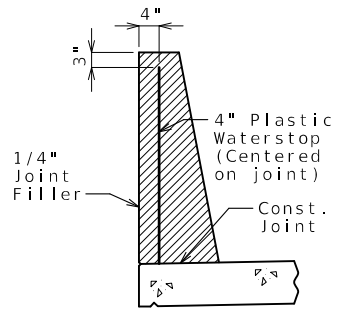
**SECTION THRU
SAW CUT JOINT**



**PART ELEVATION
AT FORMED JOINT**



SECTION B-B



WATERSTOP DETAIL

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

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

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.

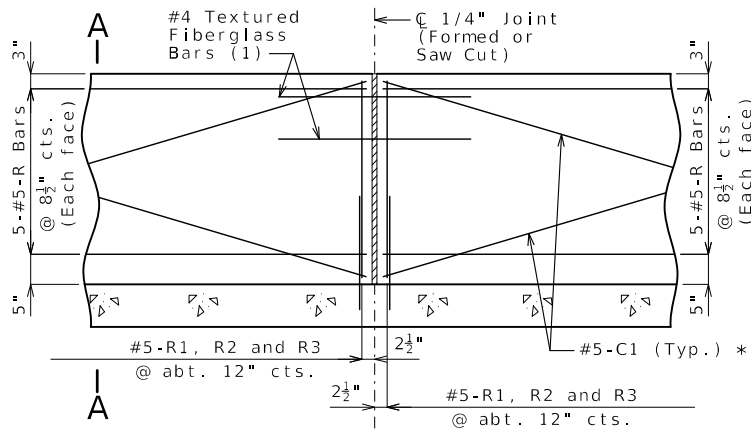
Measurement of barrier is to the nearest linear foot for each structure, measured along the outside top of slab from end of wing to end of wing.

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.

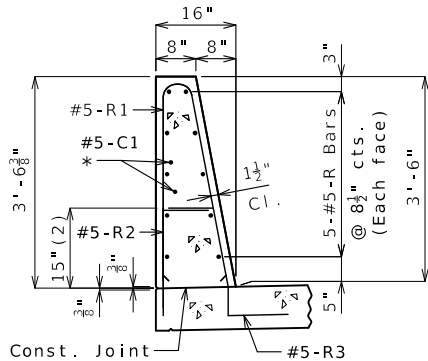
For slip-formed option, both sides of barrier shall have a vertically broomed finish and the top shall have a transversely broomed finish.

Plastic waterstop shall not be used with saw cut joints.



PART ELEVATION OF BARRIER

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

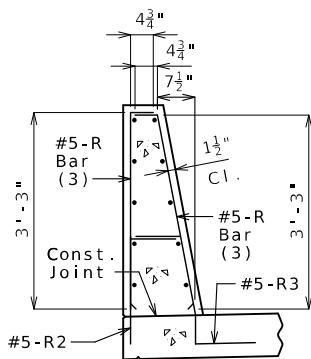


SECTION A-A

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

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

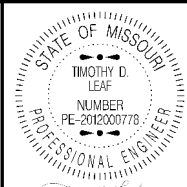
(2) To top of bar



R-BAR PERMISSIBLE ALTERNATE SHAPE

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

TYPE D BARRIER



DATE PREPARED
3/23/2026

ROUTE
D

DISTRICT
BR

STATE
MO

SHEET NO.
23

COUNTY
BATES

JOB NO.
JSR0134

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9691

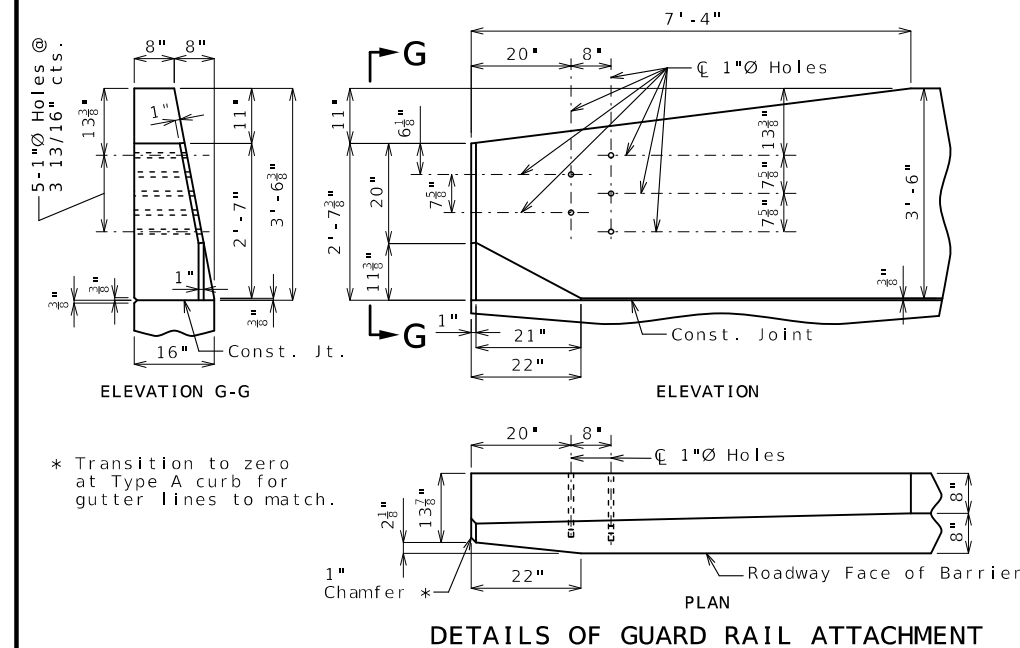
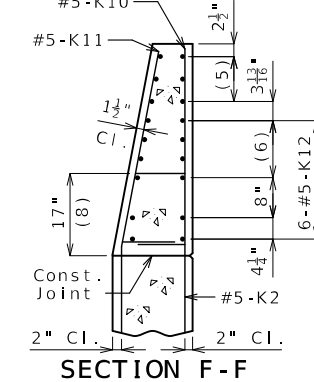
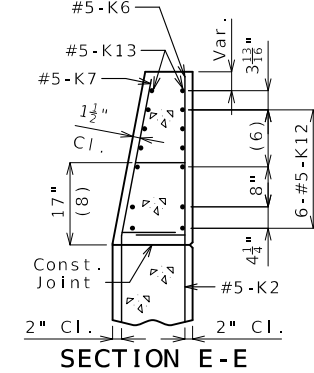
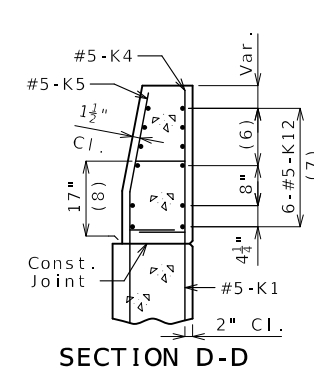
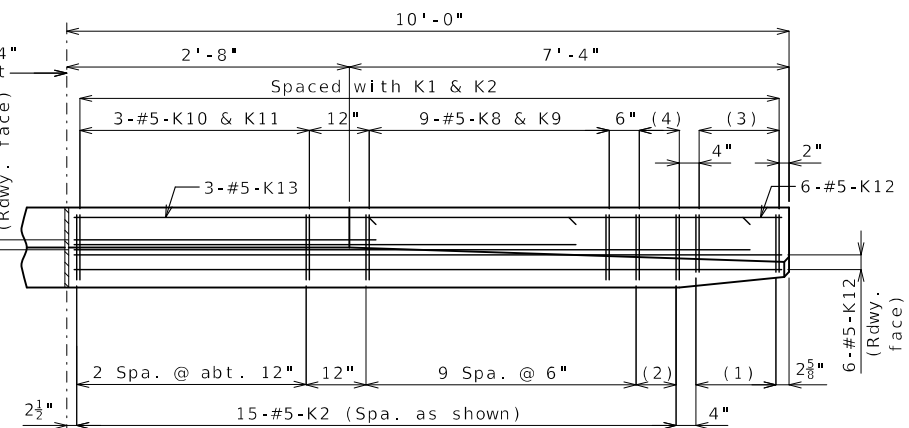
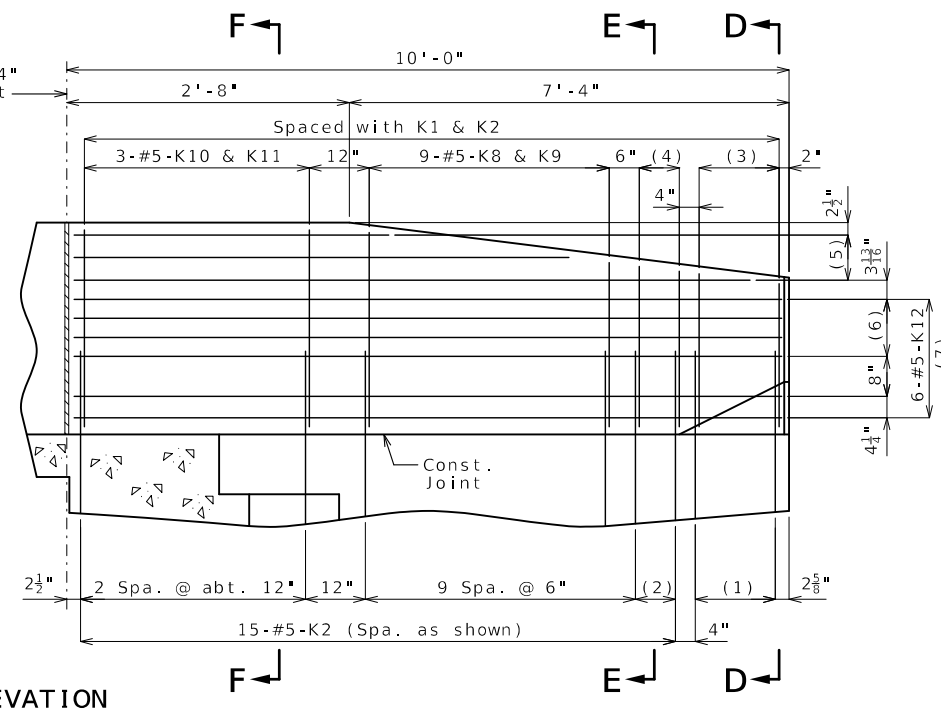
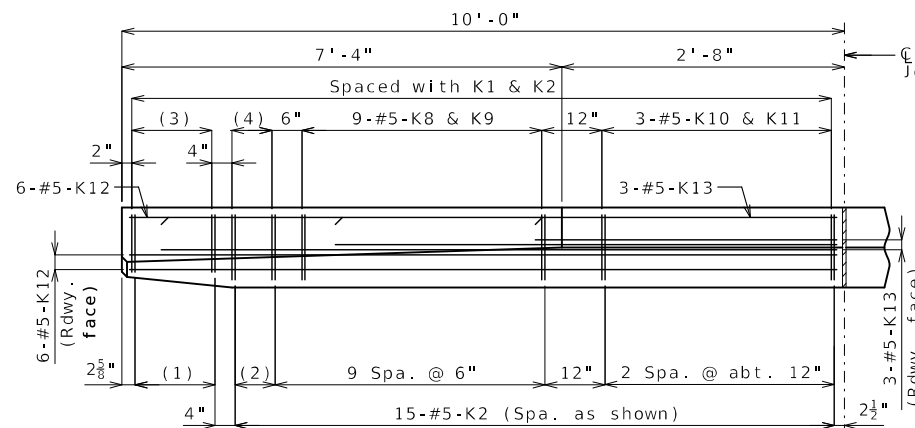
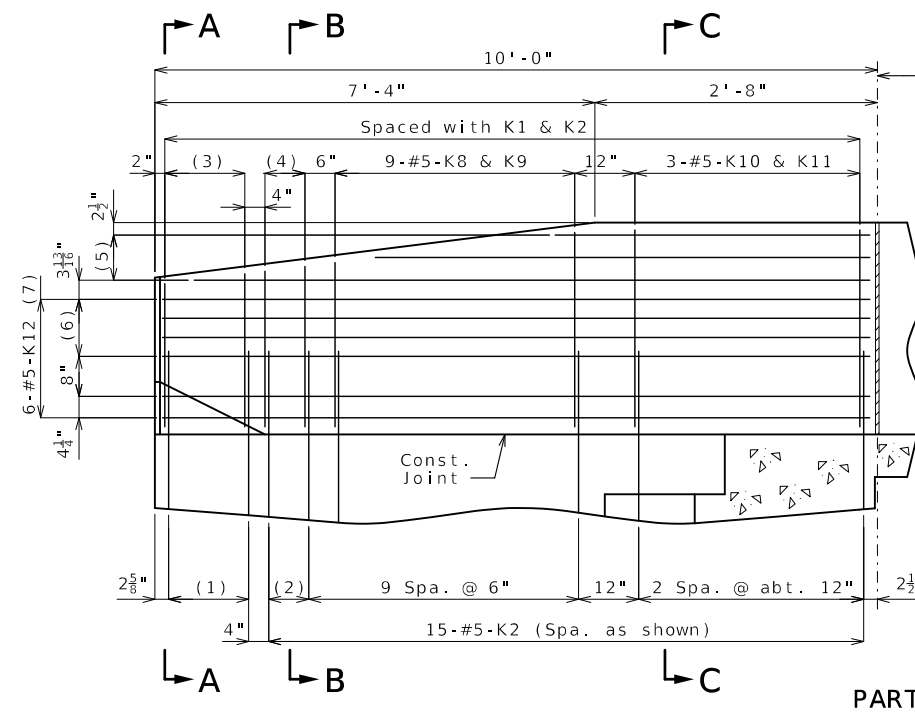
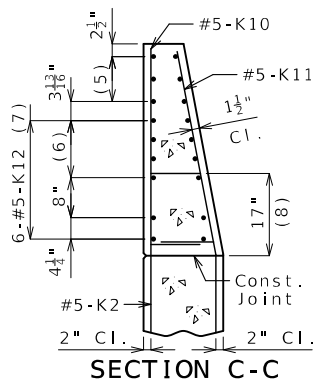
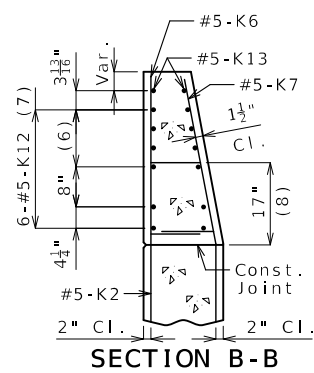
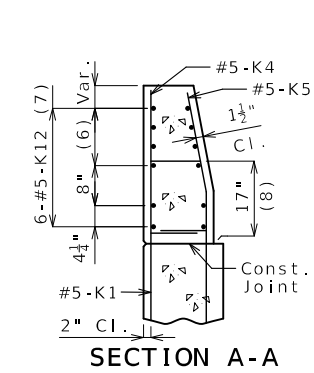
DESCRIPTION

DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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

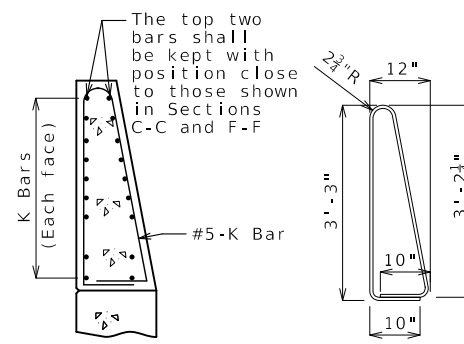
MoDOT



- (1) 5-#5-K1 @ 4" cts.
- (2) 2 spaces @ 4"
- (3) 5-#5-K4 & K5
- (4) 3-#5-K6 & K7
- (5) 3-#5-K13 @ $4\frac{1}{2}$ " cts., each face
- (6) 3 spaces @ $3\frac{13}{16}$ "
- (7) Spaced as shown, each face
- (8) To top of bar

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

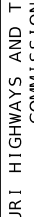
Reinforcing Steel:
Minimum clearance to reinforcing steel shall be 1 1/2" except as shown for bars embedded into end bent.

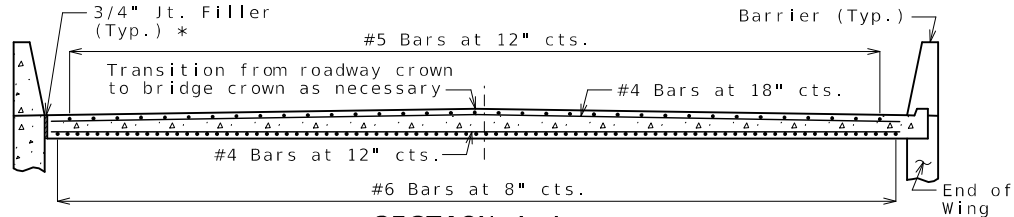
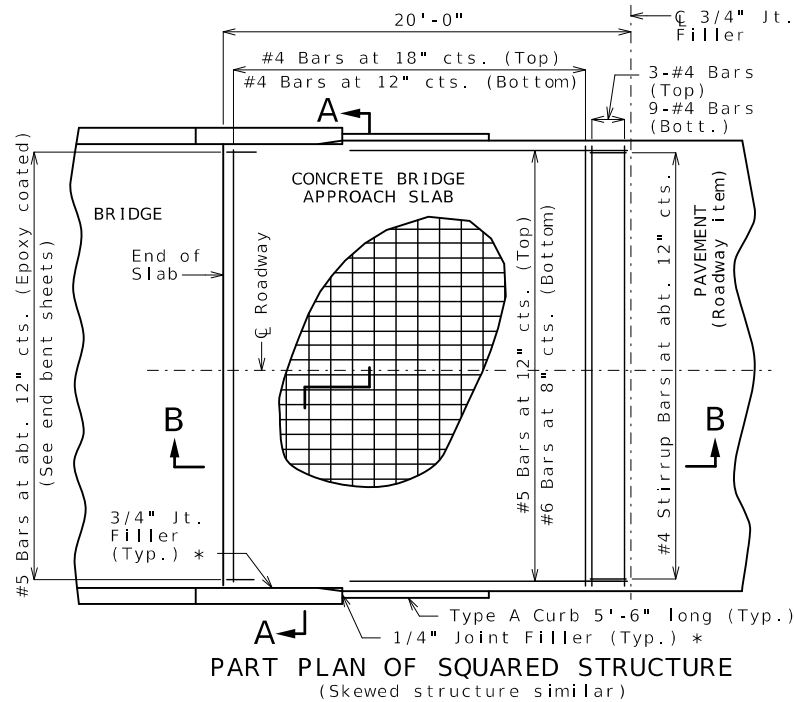


**K10-K11 BAR PERMISSIBLE
ALTERNATE SHAPE**
(Other K bars not shown for clarity)

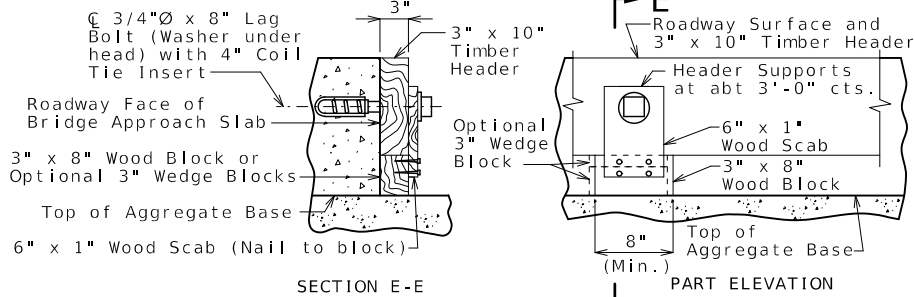
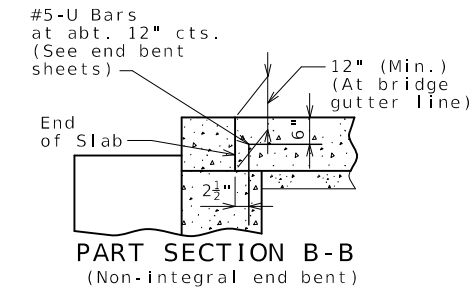
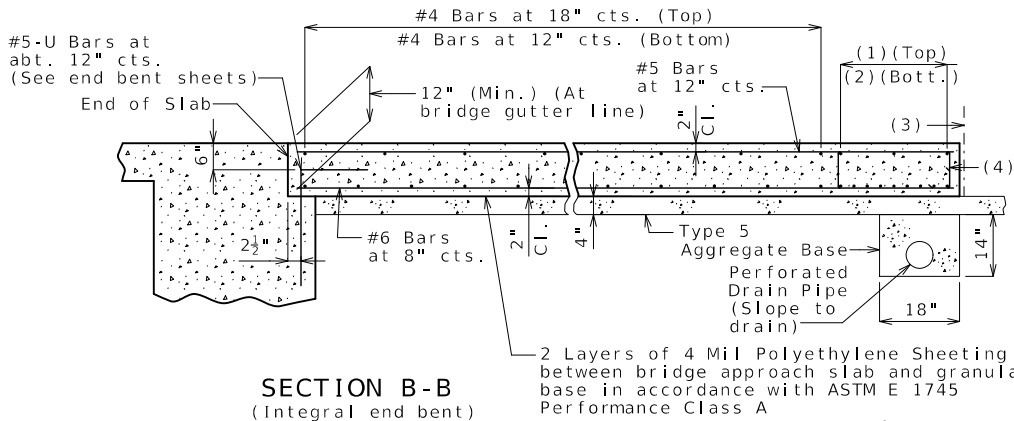
The K10-K11 bar combination may be furnished as one bar as shown, at the contractor's option.

All dimensions are out to out.

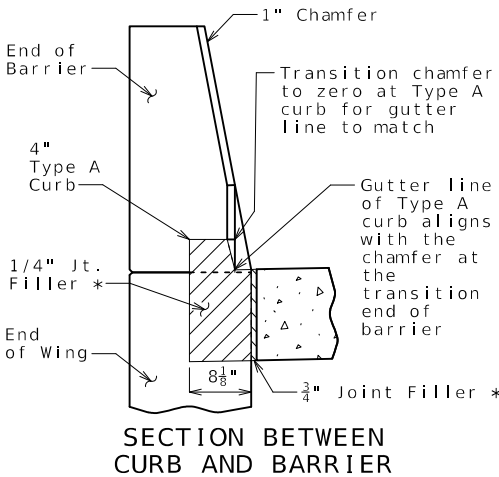
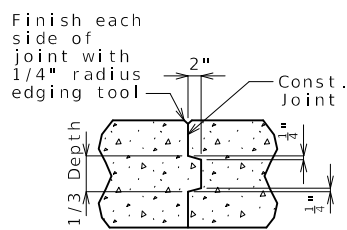
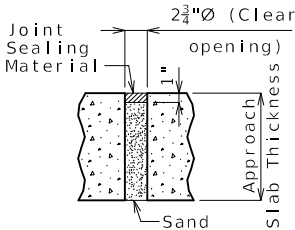
	
DATE PREPARED 3/23/2026	
ROUTE D	STATE MO
DISTRICT BR	SHEET NO. 24
COUNTY BATES	
JOB NO. JSR0134	
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO. A9691	
DESCRIPTION	
DATE	
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION	
	
105 WEST CAPITOL JEFFERSON CITY, MO 65102 1-888-ASK-MODOT (1-888-275-6636)	



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



Remove timber header when concrete pavement is placed.
OPTIONAL CONCRETE SLAB



Notes For Concrete Slab Only:

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

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

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

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

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

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.

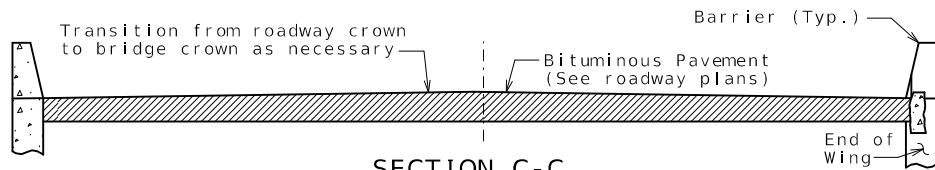
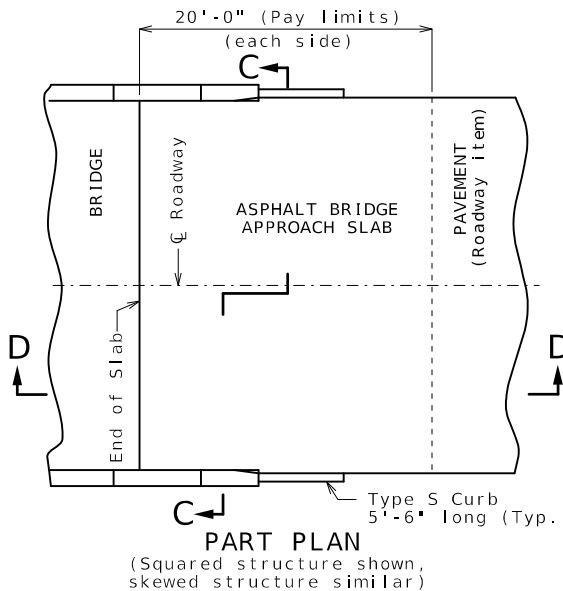
MoDOT Construction personnel will indicate the bridge approach slab used for this structure:

- ☐ Concrete Bridge Approach Slab
☐ Asphalt Bridge Approach Slab

Notes For Asphalt Slab Only:

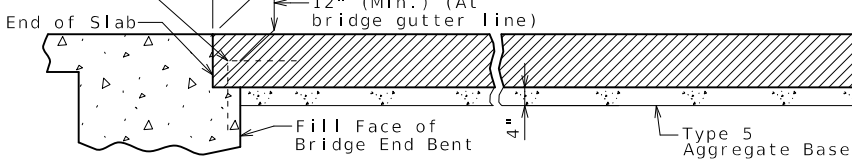
Payment for furnishing all materials, labor and excavation necessary to construct the asphalt bridge approach slab, including tack, curb, and Type 5 aggregate base within the pay limits shown, complete in place, will be considered completely covered by the contract unit price for Bridge Approach Slab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

Application of tack is required between lifts per Sec 403.

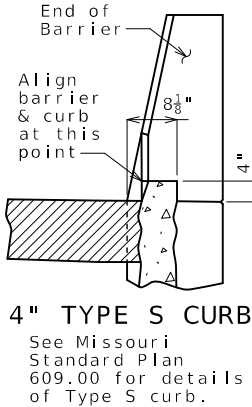


With the approval of the engineer, the contractor may crown the bottom of the approach slab to match the crown of the roadway surface.

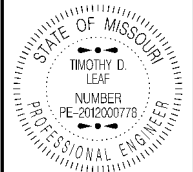
DO NOT PLACE (or order) #5 bars as shown on end bent sheets and traced here.



OPTIONAL ASPHALT SLAB (NOT ALLOWED WITH CONCRETE PAVEMENT)



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



DATE PREPARED
3/23/2026

ROUTE
D

STATE
MO

DISTRICT
BR

SHEET NO.
25

COUNTY
BATES

JOB NO.
JSR0134

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9691

DESCRIPTION

DATE

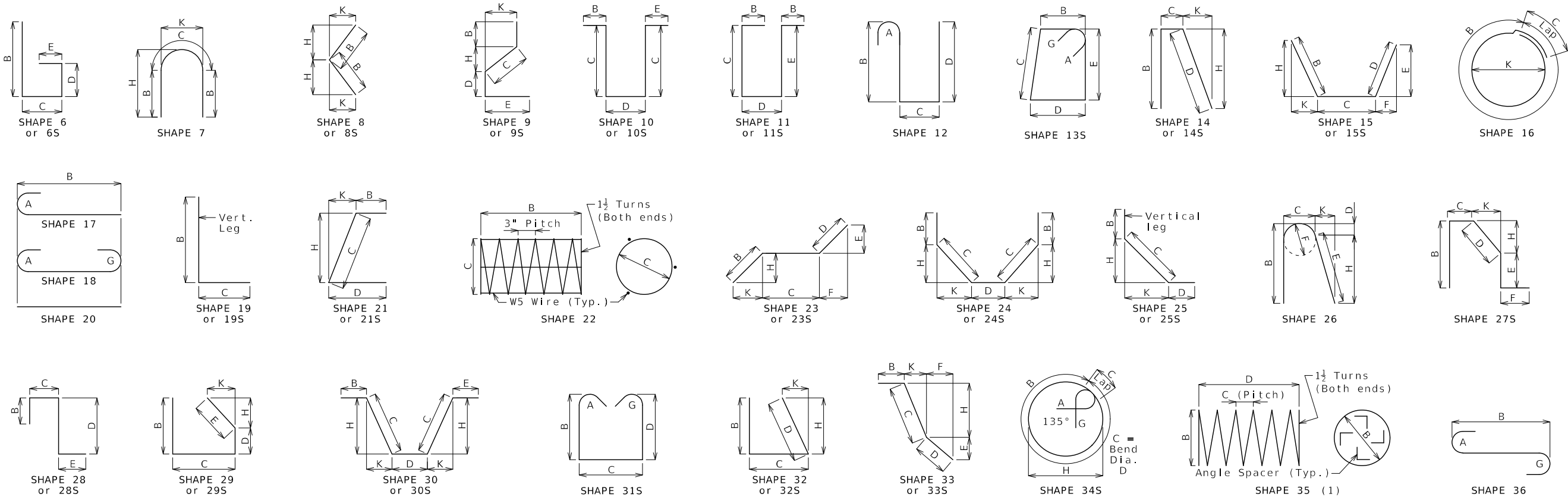
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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

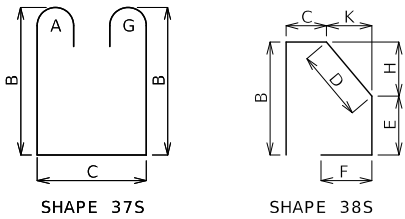
MoDOT

BRIDGE APPROACH SLAB (MINOR)

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



Finished Bend Dimensions 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	3 ³ / ₄ "	10"	7"	5"	
#6	1	4 ¹ / ₂ "	12"	8 ¹ / ₄ "	6"	
#7	2	5 ¹ / ₄ "	14"	9 ³ / ₄ "	7"	
	3	7"	15"	11 ¹ / ₂ "	8 ³ / ₄ "	
#8	2	6"	16"	11"	8"	
	3	8"	17"	13 ¹ / ₄ "	10"	
#9	1	9 ¹ / ₂ "	19 ¹ / ₂ "	15 ¹ / ₂ "	11 ³ / ₄ "	
#10	1	10 ³ / ₄ "	22"	17 ¹ / ₂ "	13 ¹ / ₄ "	
#11	1	12"	24 ¹ / ₂ "	19 ¹ / ₂ "	14 ⁷ / ₈ "	
#14	1	18 ¹ / ₄ "	31 ¹ / ₄ "	27 ¹ / ₂ "	21 ⁵ / ₈ "	
#18	1	24"	41 ¹ / ₂ "	36 ¹ / ₄ "	28 ¹ / ₂ "	
Stirrup Pin Bend Shapes (S)						
Size	Case	D	A or G			J
			90°	135°	180°	
#4	2	2"	4 ¹ / ₂ "	4 ¹ / ₂ "	5"	2 ⁷ / ₈ "
	3	3"	5"	5 ¹ / ₄ "	6"	3"
#5	2	2 ³ / ₄ "	5 ³ / ₄ "	5 ³ / ₄ "	5 ³ / ₄ "	3 ³ / ₄ "
	3	3 ³ / ₄ "	6 ¹ / ₄ "	6 ¹ / ₄ "	7"	3 ⁵ / ₈ "
#6	1	4 ¹ / ₂ "	12"	7 ³ / ₄ "	8 ¹ / ₄ "	4 ⁵ / ₈ "
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.						



BENDING DIAGRAMS

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.

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

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

Reinforcing Steel Totals (Pounds)							
Size	Substructure		Superstructure			Entire Bridge	
	Plain	Epoxy	Slab	Barrier	Slip Form	Plain	Epoxy
W5	0	0	0	0	0	0	0
4	0	0	718	0	0	0	718
5	3,905	0	2,507	13,274	766	3,905	16,547
6	4,784	0	84,491	0	0	4,784	84,491
7	0	0	1,190	0	0	0	1,190
8	0	0	812	0	0	0	812
9	3,486	0	0	0	0	3,486	0
10	14,494	0	0	0	0	14,494	0
11	0	0	0	0	0	0	0
14	0	0	0	0	0	0	0
18	0	0	0	0	0	0	0
By Type	26,669	0	89,718	13,274	766	26,669	103,758

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

BENDING DIAGRAMS AND REINFORCING STEEL TOTALS

STATE OF MISSOURI
TIMOTHY D. LEAF
NUMBER
PE-2012000778
PROFESSIONAL ENGINEER
03/23/2026 11:18:21 AM
TIMOTHY D. LEAF - CIVIL
MO-PE-2012000778

DATE PREPARED
3/23/2026

ROUTE
D

STATE
MO

DISTRICT
BR

SHEET NO.
26

COUNTY
BATES

JOB NO.
JSR0134

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9691

DESCRIPTION

DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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

Bill of Reinforcing Steel																
No. Req.	Size/ Mark	Location	Codes			Dimensions								Nom. Length ft in.	Actual Length ft in.	Weight lb
			C	SH	V	B ft in.	C ft in.	D ft in.	E ft in.	F ft in.	H ft in.	K ft in.				
		Substructure														
		Int Bent 2														
32	6 D200	KEY		20		2 6.00							2 6	2 6		120
5	9 H200	BEAM		18		32 11.00							35 5	35 5		602
10	6 H201	BEAM		20		32 11.00							32 11	32 11		494
14	6 H202	BEAM		10S			12.00	3 7.00					5 7	5 3		110
5	9 H203	BEAM		20		32 11.00							32 11	32 11		560
4	6 H204	BEAM		20		2 3.00							2 3	2 3		14
129	5 P200	COLUMN/SOCKET		16		7 10.25	2 1.00					2 6.00	9 11	9 9		1,312
24	6 U200	BEAM		13S		3 9.00	3 9.00	3 9.00	3 9.00				16 4	15 10		571
13	6 U201	BEAM		10S			9.00	3 9.00					5 3	4 11		96
12	6 U202	BEAM		10S			3 9.00	3 9.00					11 3	10 11		197
27	10 V200	COLUMN/SOCKET		20		42 0.00							42	42		4,880
		Int Bent 3														
32	6 D300	KEY		20		2 6.00							2 6	2 6		120
5	9 H300	BEAM		18		32 11.00							35 5	35 5		602
10	6 H301	BEAM		20		32 11.00							32 11	32 11		494
14	6 H302	BEAM		10S			12.00	3 7.00					5 7	5 3		110
5	9 H303	BEAM		20		32 11.00							32 11	32 11		560
4	6 H304	BEAM		20		2 3.00							2 3	2 3		14
129	5 P300	COLUMN/SOCKET		16		7 10.25	2 1.00					2 6.00	9 11	9 9		1,312
24	6 U300	BEAM		13S		3 9.00	3 9.00	3 9.00	3 9.00				16 4	15 10		571
13	6 U301	BEAM		10S			9.00	3 9.00					5 3	4 11		96
12	6 U302	BEAM		10S			3 9.00	3 9.00					11 3	10 11		197
27	10 V300	COLUMN/SOCKET		20		41 8.00							41 8	41 8		4,841
		Int Bent 4														
32	6 D400	KEY		20		2 6.00							2 6	2 6		120
5	9 H400	BEAM		18		32 11.00							35 5	35 5		602
10	6 H401	BEAM		20		32 11.00							32 11	32 11		494
14	6 H402	BEAM		10S			12.00	3 7.00					5 7	5 3		110
5	9 H403	BEAM		20		32 11.00							32 11	32 11		560
4	6 H404	BEAM		20		2 3.00							2 3	2 3		14
126	5 P400	COLUMN/SOCKET		16		7 10.25	2 1.00					2 6.00	9 11	9 9		1,281
24	6 U400	BEAM		13S		3 9.00	3 9.00	3 9.00	3 9.00				16 4	15 10		571
10	6 U401	BEAM		10S			9.00	3 9.00					5 3	4 11		74
12	6 U402	BEAM		10S			3 9.00	3 9.00					11 3	10 11		197
27	10 V400	COLUMN/SOCKET		20		41 1.00							41 1	41 1		4,773
		Superstructure														
		End Bent 1														
14	6 F100	WING BRACE	E	23S		20.25	5 2.00	20.25	14.25	14.25	14.25	14.25	8 7	8 5		177
4	6 F101	DIAPHRAGM	E	19S		5 0.00	2 8.00						7 8	7 6		45
4	6 H100	BEAM	E	20		36 5.00							36 5	36 5		219
4	6 H101	SLAB	E	20		36 5.00							36 5	36 5		219
6	6 H102	DIAPHRAGM	E	20		36 5.00							36 5	36 5		328
34	5 H103	APPROACH NOTCH	E	19S		2 0.00	15.00						3 3	3 2		112
32	6 H104	WING	E	20		8 1.00							8 1	8 1		389
16	8 H105	WING	E	20		9 6.00							9 6	9 6		406
8	7 H106	BEAM	E	20		36 5.00							36 5	36 5		595
4	6 H107	BEAM	E	20		2 3.00							2 3	2 3		14
30	5 U100	BEAM/DIAPHRAGM	E	37S		4 6.00	2 9.00						12 9	12 6		391
8	4 U101	BEAM	E	13S		2 9.00	2 9.00	2 9.00	2 9.00				11 9	11 6		61
2	4 U102	BEAM	E	10S			2 9.00	2 9.00					8 3	8 1		11
32	5 U103	DIAPHRAGM	E	37S		2 5.00	2 3.00						8 1	7 10		261
32	6 U104	DIAPHRAGM	E	19S		20.00	2 9.00						4 5	4 3		204
45	6 U105	DIAPHRAGM	E	19S		4 3.00	2 7.00						6 10	6 8		451

Nominal lengths are based on out to out dimensions shown in bending diagrams and are listed to the nearest inch for fabricator's use. Actual lengths are measured along centerline bar to the nearest inch. Weights are based on actual lengths.

For bending diagrams and steel reinforcing totals, see Sheet No. 26.

Detailed Feb. 2026
Checked Feb. 2026

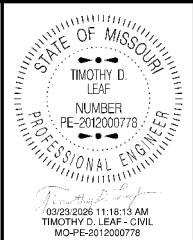
Reinforcing steel (ASTM A615 Grade 60) fy = 60,000 psi

BILL OF REINFORCING STEEL

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

Sheet No. 27 of 30

Bill of Reinforcing Steel																				
No. Req.	Size/ Mark	Location	Codes			Dimensions								Nom. Length	Actual Length	Weight				
						B	C	D	E	F	H	K								
			C	SH	V	ft	in.	ft	in.	ft	in.	ft	in.	ft	in.	lb				
4	4 U106	BEAM	E	10S				3	0.00	2	9.00			8	9	23				
8	5 V100	BEAM/DIAPHRAGM	E	17		4	6.00							5	1	42				
15	6 V101	DIAPHRAGM	E	20			17.00							1	5	32				
32	6 V102	WING	E	20		5	6.00							5	6	264				
		End Bent 5																		
14	6 F500	WING BRACE	E	23S		20.25	5	2.00	20.25	14.25	14.25	14.25	14.25	8	7	177				
4	6 F501	DIAPHRAGM	E	19S		5	0.00	2	8.00					7	8	45				
4	6 H500	BEAM	E	20		36	5.00							36	5	219				
4	6 H501	SLAB	E	20		36	5.00							36	5	219				
6	6 H502	DIAPHRAGM	E	20		36	5.00							36	5	328				
34	5 H503	APPROACH NOTCH	E	19S		2	0.00	15	0.00					3	3	112				
32	6 H504	WING	E	20		8	1.00							8	1	389				
16	8 H505	WING	E	20		9	6.00							9	6	406				
8	7 H506	BEAM	E	20		36	5.00							36	5	595				
4	6 H507	BEAM	E	20		2	3.00							2	3	14				
30	5 U500	BEAM/DIAPHRAGM	E	37S		4	6.00	2	9.00					12	9	391				
8	4 U501	BEAM	E	13S		2	9.00	2	9.00	2	9.00			11	9	61				
2	4 U502	BEAM	E	10S				2	9.00	2	9.00			8	3	11				
32	5 U503	DIAPHRAGM	E	37S		2	5.00	2	3.00					8	1	261				
32	6 U504	DIAPHRAGM	E	19S			20.00	2	9.00					4	5	204				
45	6 U505	DIAPHRAGM	E	19S		4	3.00	2	7.00					6	10	451				
4	4 U506	BEAM	E	10S				3	0.00	2	9.00			8	9	23				
8	5 V500	BEAM/DIAPHRAGM	E	17		4	6.00							5	1	42				
15	6 V501	DIAPHRAGM	E	20			17.00							1	5	32				
32	6 V502	WING	E	20		5	6.00							5	6	264				
		Int Diaphragms																		
18	5 H600	DIAPHRAGM	E	20		30	4.00							30	4	569				
36	5 H601	DIAPHRAGM	E	19S		4	0.00	3	1.00					7	1	263				
120	4 U600	DIAPHRAGM	E	28S				12	0.00	2	6.00	3	3.00	6	9	528				
48	6 U601	DIAPHRAGM	E	28S				14	0.00	2	6.00	3	3.00	6	11	475				
24	5 V600	DIAPHRAGM	E	20		2	6.00							2	6	63				
		Slab																		
792	6 S1	SLAB	E	20		36	5.00							36	5	43,321				
340	6 S2	SLAB	E	20		50	9.00							50	9	25,917				
112	6 S3	SLAB	E	20		39	0.00							39		6,561				
56	6 S4	SLAB	E	20		42	0.00							42		3,533				
		Barrier																		
		Type D																		
20	5 K1	BARRIER	E	27S		3	5.00	9.25	5.25	2	11.75		5.25	1.00	7	7	155			
60	5 K2	BARRIER	E	27S		3	5.00	9.25	14.25	3	2.75		14.00	2.75	8	7	527			
20	5 K4	BARRIER	E	19S	4	2	4.50	10.00							3	3	1			
		Incr. = 0.500"				2	6.50	10.00							3	5	3	66		
20	5 K5	BARRIER	E	38S	4				18.50	9.50	8.25	18.00	4.00	3		2	11			
		Incr. = 0.500"							20.50	9.50	8.25	20.00	4.50	3	2	3	1	63		
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	4	42
36	5 K8	BARRIER	E	19S	4	2	8.50	10.00							3	7	3	5		
		Incr. = 0.750"				3	2.50	10.00							4	1	3	11	138	
36	5 K9	BARRIER	E	21S	4			2	8.50	10.00			2	7.75	6.75	3	7	3	6	
		Incr. = 0.750"						3	2.50	10.00			3	1.75	7.75	4	1	4		141
12	5 K10	BARRIER	E	19S		3	3.00	10.00						4	1	4			50	
12	5 K11	BARRIER	E	21S				3	3.00	10.00			3	2.25	7.75	4	1	4		50
48	5 K12	BARRIER	E	20		9	8.00							9	8	9	8		484	
24	5 K13	BARRIER	E	20	4	8	11.00							8	11	8	11			
		Incr. = 14.375"				2	11.00							2	11	2	11		148	
496	5 R1	BARRIER	E	26		3	3.00	5.50	2.25	3	1.25	5.50	3	0.75	6.75	7		6	9	3,492
496	5 R2	BARRIER	E	19S			20.50	9.50						2	6	2	5		1,250	
496	5 R3	BARRIER	E	27S				9.50	15.25	5.00	12.00	15.00	3.00	3	6	3	4		1,724	
40	5 R4	BARRIER	E	20		36	6.00							36	6	36	6		1,523	

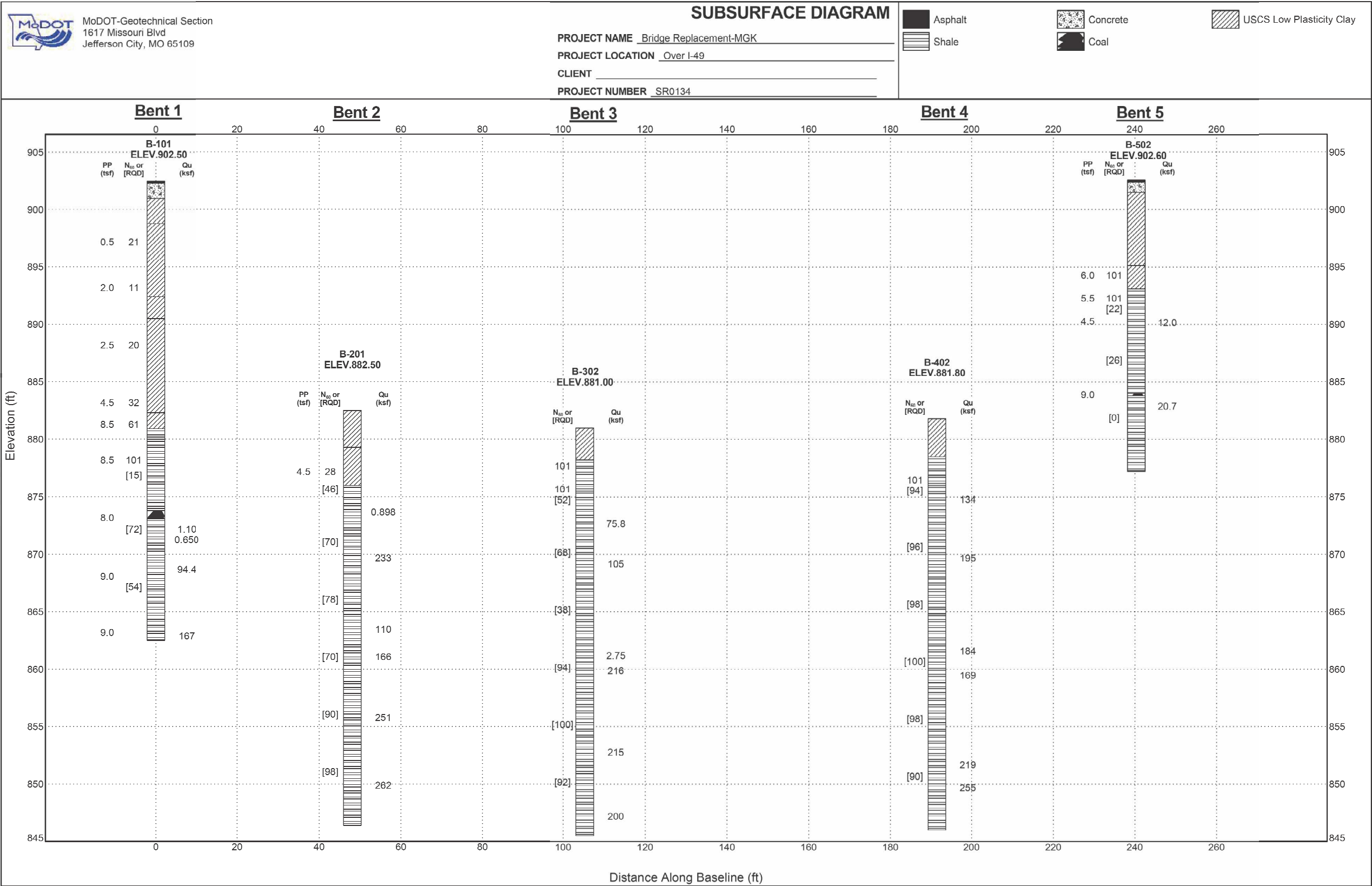


DATE PREPARED 3/23/2026	
ROUTE D	STATE MO
DISTRICT BR	SHEET NO. 30
COUNTY BATES	
JOB NO. JSR0134	
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO. A9691	

DESCRIPTION									

MISSOURI HIGHWAYS AND TRANSPORTATION
COMMISSION

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



BORING DATA

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

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

Sheet No. 30 of 30