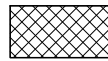
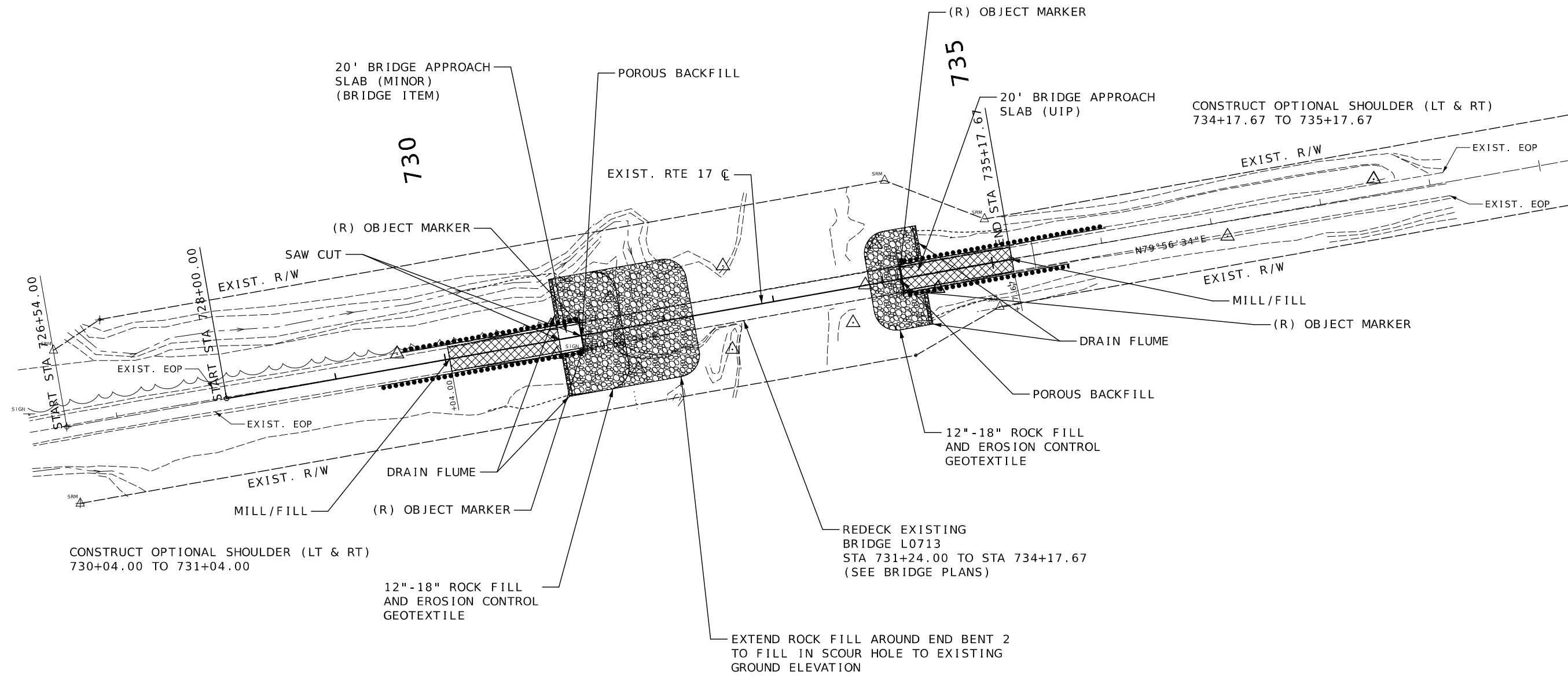


PLAN


 - 1" SL MILL/FILL

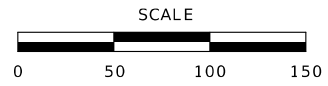


STATE OF MISSOURI
 CHRIS E. BERRY
 NUMBER
 PE-2001018707
 PROFESSIONAL ENGINEER
 Chris E. Berry
 10/28/2024 9:44:31 PM
 CHRIS E. BERRY - CIVIL
 MO-PE-2001018707

DATE PREPARED
 10/28/2024
 ROUTE
 17
 STATE
 MO
 DISTRICT
 SE
 SHEET NO.
 4
 COUNTY
 TEXAS
 JOB NO.
 J9P3690
 CONTRACT ID.
 PROJECT NO.
 BRIDGE NO.

DATE	DESCRIPTION

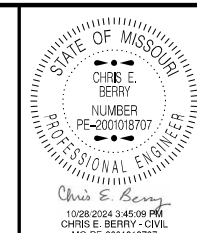
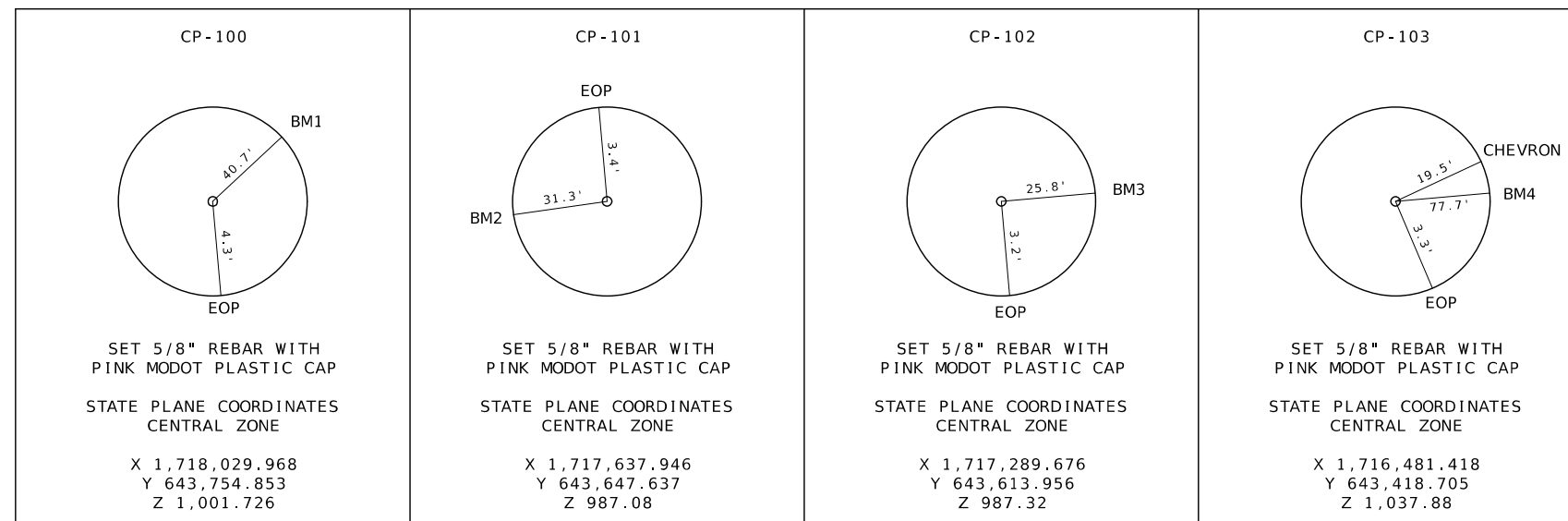
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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



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	738+51.07	RTE 17 LT	14.09	643,811.757	1,718,205.853	1,001.726	5/8" Rebar w/ Pink Plastic Cap set below surface in NE Quad by Rte. 17 & an Entrance	CP100
4	734+47.88	RTE 17 RT	14.16	643,713.531	1,717,813.791	987.080	5/8" Rebar w/ Pink Plastic Cap set below surface in SE Quad of Roubideaux Bridge & Rte. 17	CP101
4	730+99.05	RTE 17 LT	13.50	643,679.847	1,717,465.486	987.320	5/8" Rebar w/ Pink Plastic Cap set below surface in NW Quad of Roubideaux Creek & Rte. 17	CP102
	722+69.03	RTE 17 RT	37.61	643,484.576	1,716,657.145	1,037.880	5/8" Rebar w/ Pink Plastic Cap set below surface in North R/W of Rte. 17	CP103
ALIGNMENTS								
4	729+36.50	RTE 17 CL	0.00	643,638.1652	1,717,307.7940		BEGIN PROJECT	
4	736+05.17	RTE 17 CL	0.00	643,754.9361	1,717,966.19		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	NAVD88
GEOID MODEL	2018
ELEVATIONS DETERMINED BY	DIFFERENTIAL LEVELING
PROJECT PROJECTION FACTOR	1.00010224
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	0.99977629



DATE PREPARED
10/28/2024

ROUTE 17 STATE MO
DISTRICT SE SHEET NO. 5

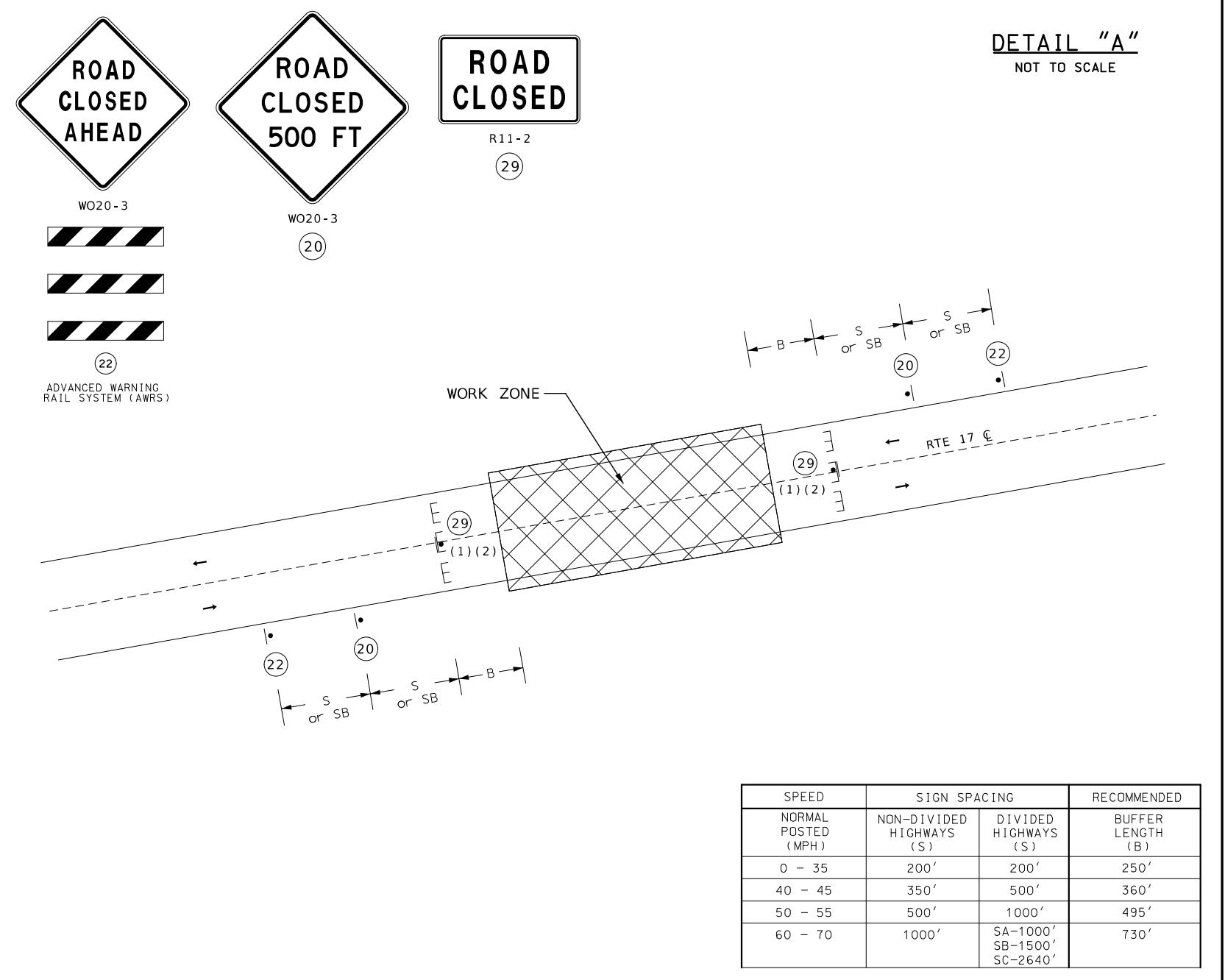
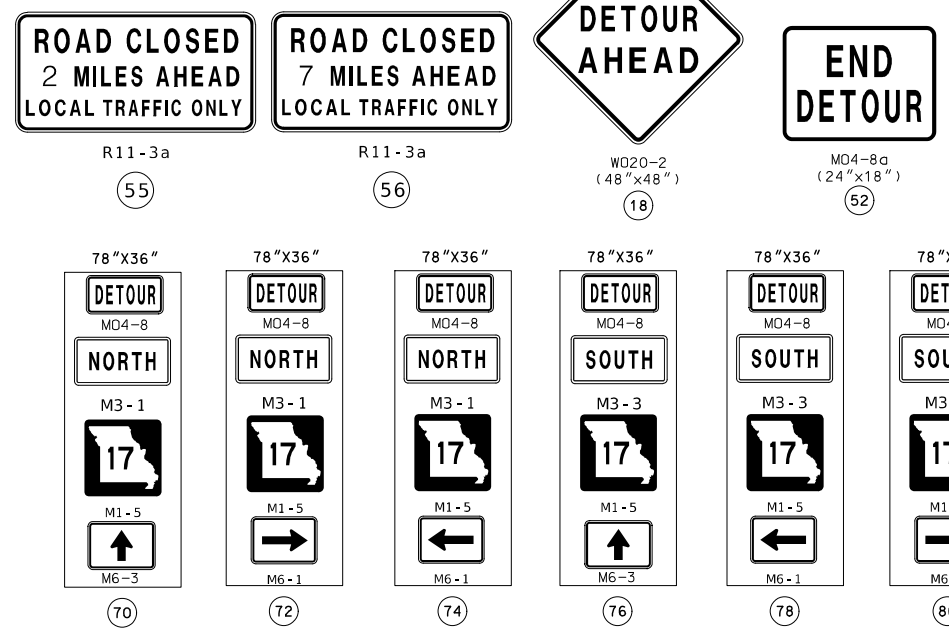
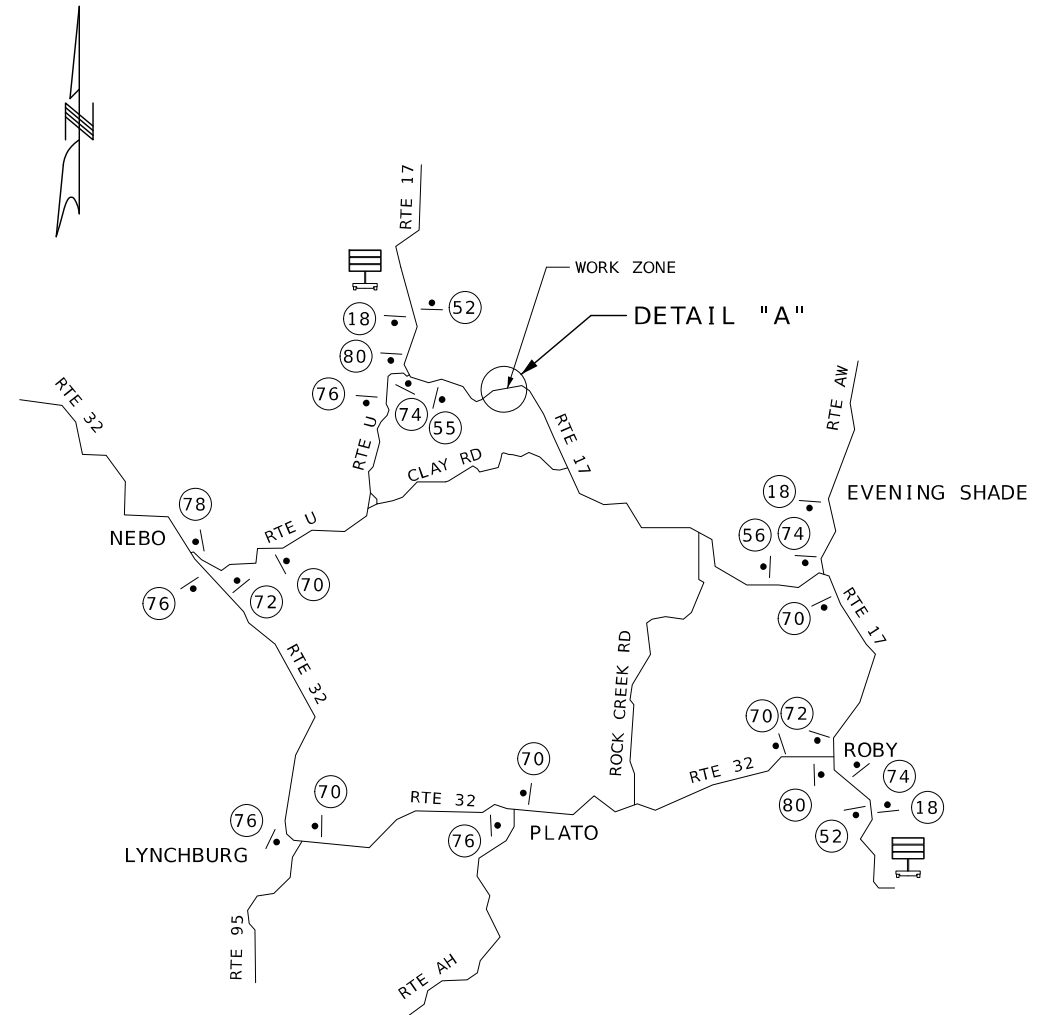
COUNTY TEXAS
JOB NO. J9P3690
CONTRACT ID.

PROJECT NO.
BRIDGE NO.

DATE	DESCRIPTION

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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



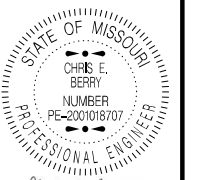
SPEED NORMAL POSTED (MPH)	SIGN SPACING		RECOMMENDED BUFFER LENGTH (B)
	NON-DIVIDED HIGHWAYS (S)	DIVIDED HIGHWAYS (S)	
0 - 35	200'	200'	250'
40 - 45	350'	500'	360'
50 - 55	500'	1000'	495'
60 - 70	1000'	SA-1000' SB-1500' SC-2640'	730'

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.
- ROAD CLOSURE OF RTE 17 TO BE LIMITED TO 60 CALENDAR DAYS. IF AT LEAST ONE LANE OF RTE 17 IS NOT COMPLETE AND OPEN TO TRAFFIC WITHIN 60 DAYS, THE CONTRACTOR WILL BE CHARGED WITH LIQUIDATED DAMAGES AS SPECIFIED IN THE JSP SET.
- (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-FEET OF PAVEMENT. PAVED SHOULDERS SHALL BE INCLUDED IN THE AREA.
- (2) ADDITIONAL BARRICADES MAY BE USED AND OFFSET TO FACILITATE ACCESS FOR WORK VEHICLES WORK VEHICLES, LOCAL TRAFFIC, TO BUSINESSES, ETC.

TRAFFIC CONTROL LEGEND

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



Chris E. Berry
10/28/2024 3:46:14 PM
CHRIS E. BERRY - CIVIL
MO-PE-2001018707

DATE PREPARED
10/28/2024

ROUTE 17 STATE MO
DISTRICT SE SHEET NO. 7

COUNTY TEXAS

JOB NO. J9P3690

CONTRACT ID.

PROJECT NO.

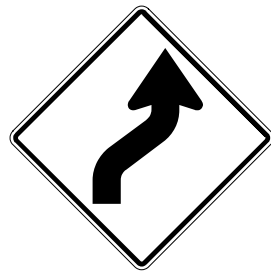
BRIDGE NO.

DESCRIPTION

DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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



W01-4R
15



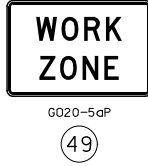
W03-5
50



R10-6L
47

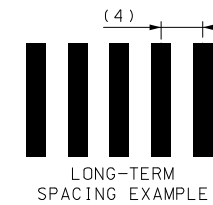


R2-1
48



G020-5aP
49

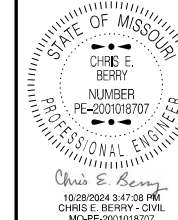
TEMPORARY SIGNALS FOR SANDBLASTING AND BRIDGE PAINTING



LONG-TERM
SPACING EXAMPLE

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

* SECOND SET OF TEMPORARY RUMBLES OPTIONAL



DATE PREPARED
10/28/2024

ROUTE 17 STATE MO

DISTRICT SE SHEET NO. 8

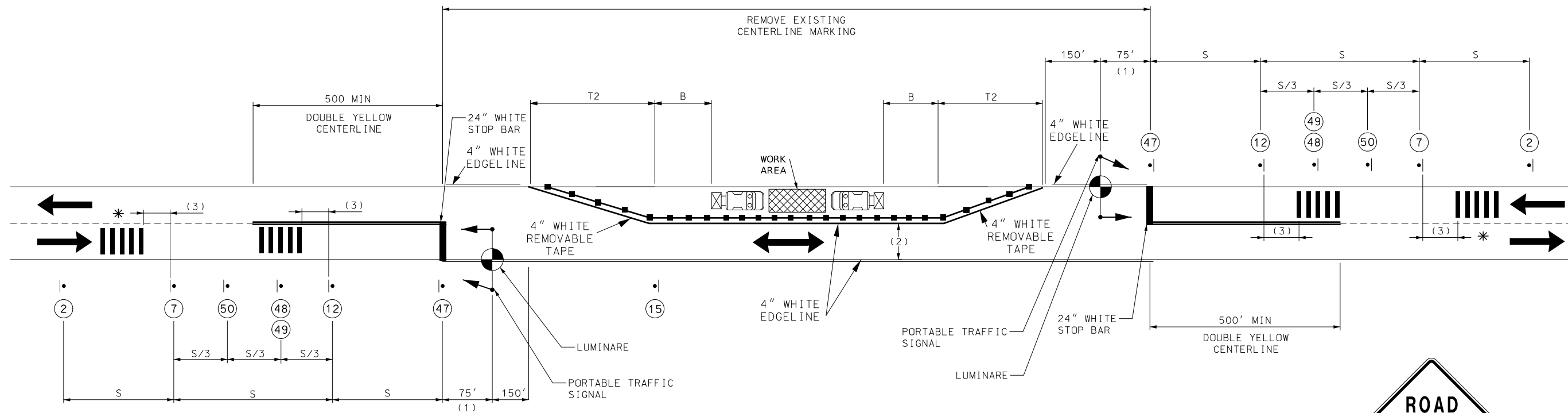
COUNTY TEXAS

JOB NO. J9P3690

CONTRACT ID.

PROJECT NO.

BRIDGE NO.



TRAFFIC CONTROL LEGEND

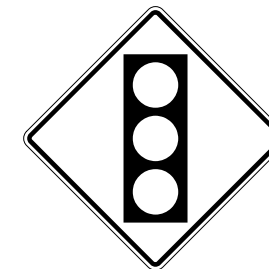
- - SIGN (SINGLE SIDED)
- ☐ - CHANGEABLE MESSAGE BOARD
- - CHANNELIZER
- ☉ - PORTABLE TRAFFIC SIGNAL AND LUMINARE
- |||| - TEMPORARY LONG-TERM RUMBLE STRIPS
- ▨ - ADVANCE WARNING RAIL SYSTEM

NOTES:

- (1) 75' RECOMMENDED SPACING. SPACING MAY BE BETWEEN 40' AND 150'.
- (2) DRIVING LANE SHALL BE AT LEAST 10' IN WIDTH.
- EXISTING CONFLICTING PAVEMENT MARKINGS AND RAISED PAVEMENT MARKER REFLECTORS BETWEEN THE ACTIVITY AREA AND THE STOP LINE SHALL BE REMOVED. AFTER THE TEMPORARY TRAFFIC CONTROL SIGNAL IS REMOVED, THE STOP LINES AND OTHER TEMPORARY PAVEMENT MARKINGS SHALL BE REMOVED AND THE PERMANENT PAVEMENT MARKINGS RESTORED.
- PROTECTIVE VEHICLES SHOULD BE POSITIONED 150 FT IN ADVANCE OF THE WORK SPACE.
- REFER TO STANDARD PLAN SHEETS 616.20 FOR ADDITIONAL TEMPORARY TRAFFIC CONTROL.



W020-4
7



W03-3
12



W020-1
2

BRIDGE
OR
RAMP

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

DESCRIPTION

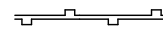
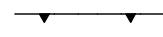

DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

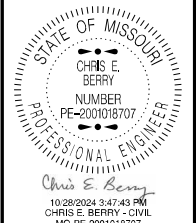
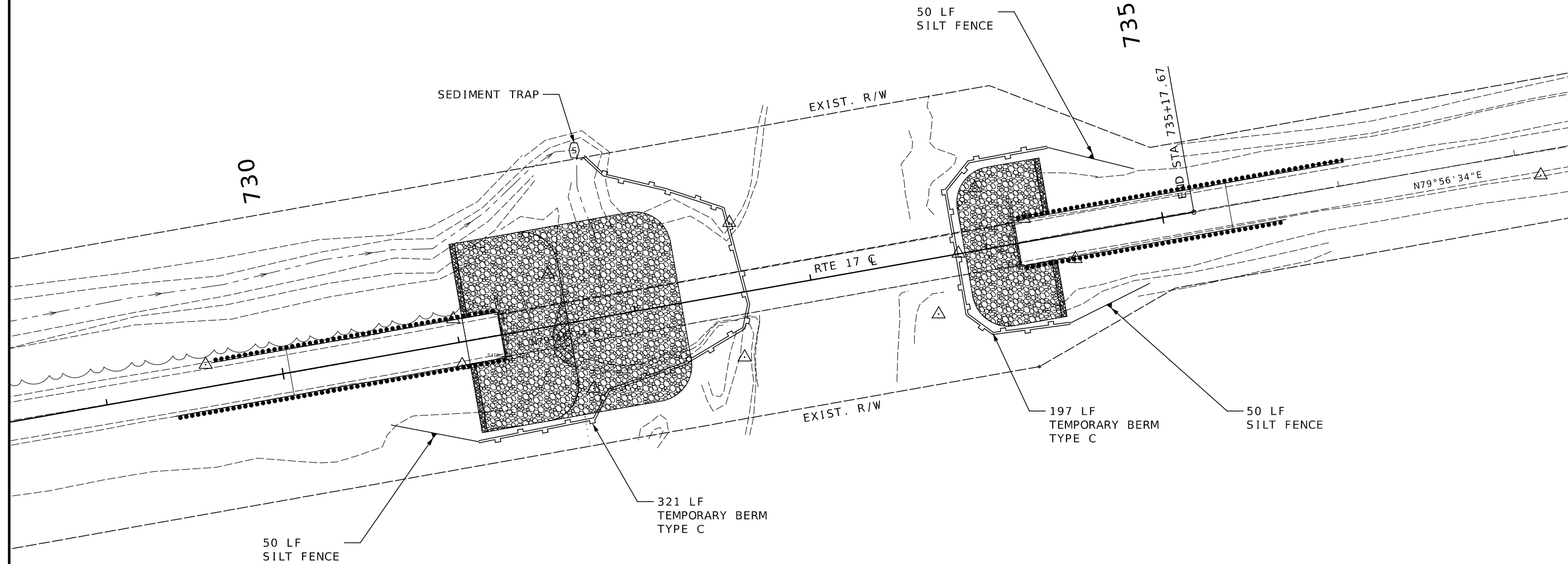
105 WEST CAPITOL JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

MoDOT

TEMPORARY EROSION CONTROL LEGEND

-  TEMPORARY BERM TYPE C
-  SILT FENCE
-  SEDIMENT TRAP


TEMPORARY EROSION CONTROL



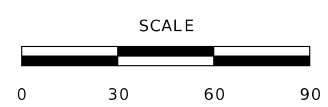
DATE PREPARED	
10/28/2024	
ROUTE	STATE
17	MO
DISTRICT	SHEET NO.
SE	9
COUNTY	
TEXAS	
JOB NO.	
J9P3690	
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO.	

DATE	DESCRIPTION

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION



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



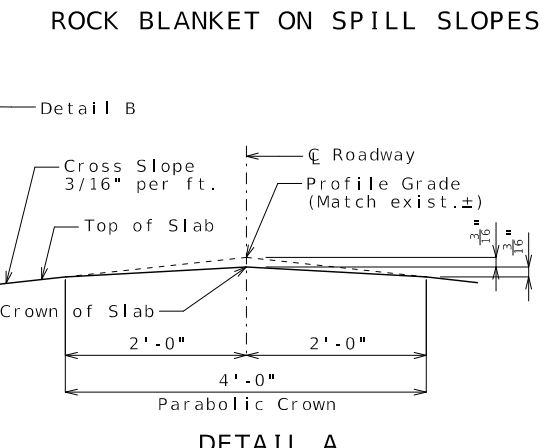
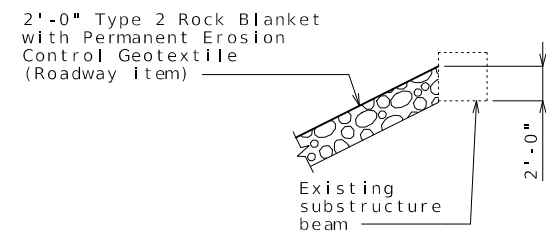
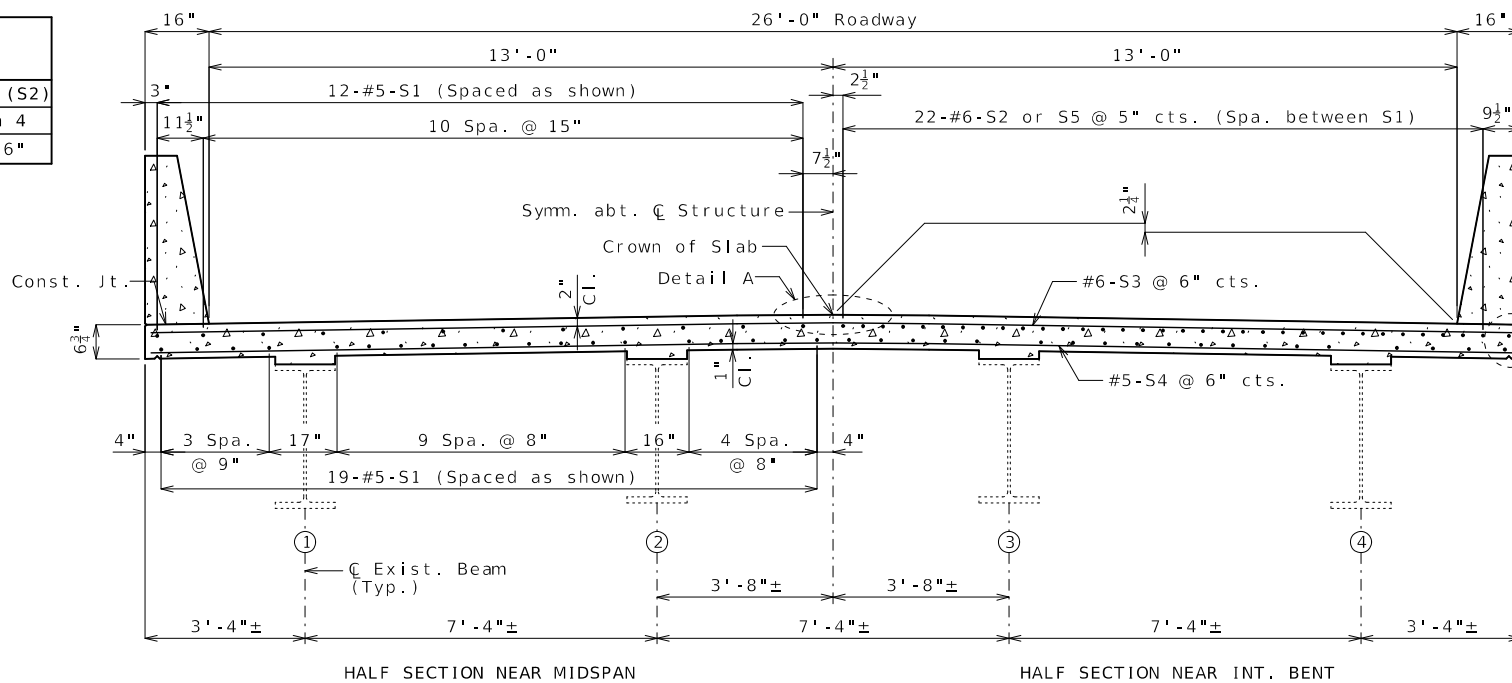
NOTES:
- TEMPORARY EROSION CONTROL ITEMS TO BE MODIFIED TO MEET FIELD CONDITIONS. AS APPROVED BY ENGINEER.

U.I.P., REDECK AND MAKE COMPOSITE EXISTING (65'-80'-80'-65') CONTINUOUS WIDE FLANGE BEAM SPANS

Int. Bent No. 2 (S2)		Int. Bent No. 3 (S5)		Int. Bent No. 4 (S2)	
Span 1	Span 2	Span 2	Span 3	Span 3	Span 4
17'-6"	18'-6"	24'-0"	24'-0"	18'-6"	17'-6"

Bar Size	Splice Length
4	2'-7"
5	3'-3"
6	3'-10"
7	4'-11"

** Unless otherwise shown.



General Notes:

Design Specifications:

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

Design Loading:

H15-44 (1953) (Existing)
HS20-44 (New Construction)
35 lb/sf Future Wearing Surface
Earth - 120 lb/cf, Equivalent Fluid Pressure 45 lb/cf
Fatigue Stress - Case III

Design Unit Stresses:

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

Joint Filler:

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

Reinforcing Steel:

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

Miscellaneous:

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

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

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

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

Contractor shall verify all dimensions in field before finalizing the shop drawings.

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

Rubblized concrete from the existing bridge deck that qualifies as clean fill may be placed on spill slopes at end bents above ordinary high water line (Roadway item).

For adjusted girder deflection due to the weight of the new deck and barriers, see Bridge Electronic Deliverables.

Traffic Handling:

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

Item	cu. yard	Total
Class B-2 Concrete	208	
Reinforcing Steel (Epoxy Coated)		76,230

Item	Unit	Total
Class 1 Excavation	cu. yard	40
Removal of Existing Bridge Deck	sq. foot	7831
Partial Removal of Substructure Concrete	lump sum	1
Bridge Approach Slab (Minor)	sq. yard	59
Slab on Steel	sq. yard	935
Type D Barrier	linear foot	587
* Substructure Repair (Unformed)	sq. foot	350
Protective Coating - Concrete Bents and Piers (Epoxy)	lump sum	1
Shear Connectors	each	2560
Slab Drain	each	52
Surface Preparation for Recoating Structural Steel	sq. foot	9600
Finish Application of Organic Zinc Primer	sq. foot	9600
Intermediate Field Coat (System G)	sq. foot	2700
Finish Field Coat (System G)	sq. foot	2700
Non-Destructive Testing	linear foot	28
Vertical Drain at End Bents	each	1
Open Cell Foam Joint Seal	linear foot	26

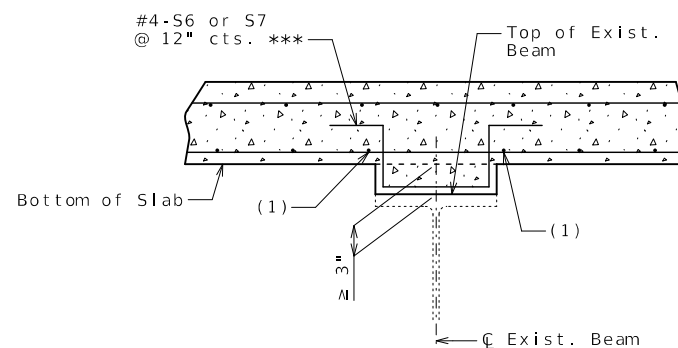
* This work will be performed at the discretion of the engineer and shall be underrun if not required by the engineer.

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 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 1, II or III.

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

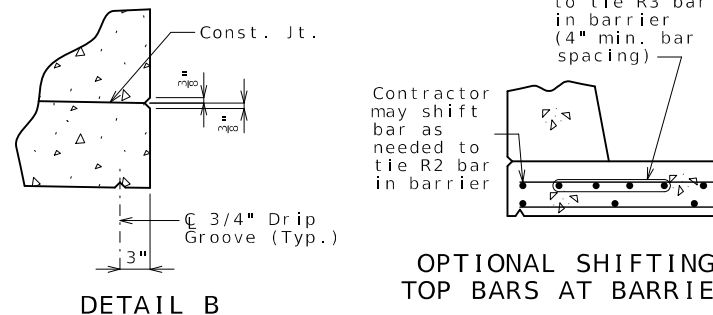
For Optional Stay-In-Place Form Details, see Sheet No. 2.



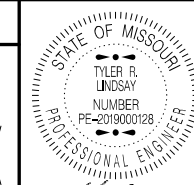
PART SECTION SHOWING HAIRPIN BARS IN SLAB HAUNCH

Hairpin bars may be placed at an angle to meet clearances
(1) Adjust longitudinal deck reinforcement for use as hairpin tie bars.

*** S6 (Ext. Beams)
S7 (Int. Beams)
Contractor may shift or swap bars as needed to tie R3 bar in barrier (4" min. bar spacing)



OPTIONAL SHIFTING TOP BARS AT BARRIER



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11/14/2024

ROUTE 17 STATE MO
DISTRICT BR SHEET NO. 1

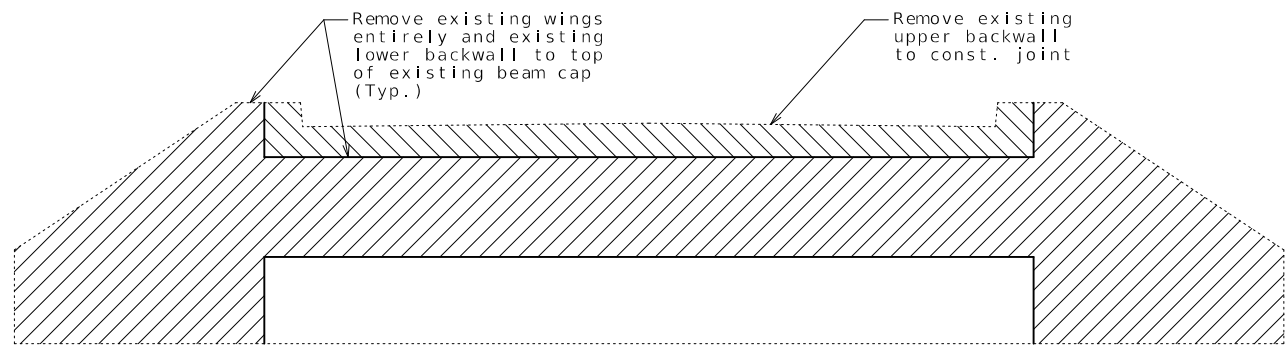
COUNTY TEXAS
JOB NO. J9P3690
CONTRACT ID.

PROJECT NO.
BRIDGE NO. L07131

DATE	DESCRIPTION



REPAIRS TO BRIDGE:
ROUTE 17 OVER ROUBIDOUX CREEK
ROUTE 17 FROM ROUTE U TO ROUTE AW
ABOUT 1.7 MILES EAST OF ROUTE U
BEGINNING STATION 731+24.00± (MATCH EXISTING)

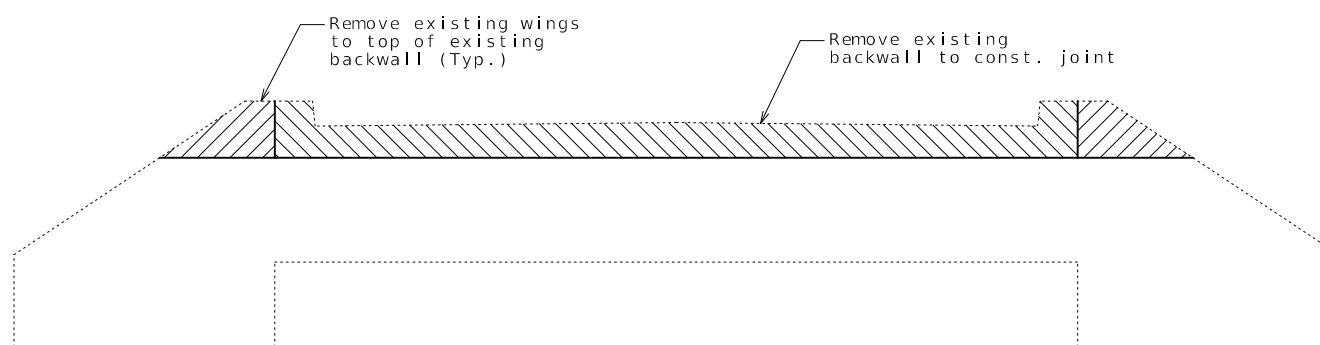


DETAILS OF CONCRETE REMOVAL AT END BENT NO. 1

The cost of upper backwall concrete removal as shown will be considered completely covered by unit price for Removal of Existing Bridge Deck.

The cost of wing and lower backwall concrete removal as shown will be considered completely covered by the contract unit price for Partial Removal of Substructure Concrete. All reinforcement to be cut off one inch below concrete removal surface and the resulting holes shall be filled with a qualified special mortar.

A smooth, level surface shall be provided at lower Bent No. 1 removal lines.



DETAILS OF CONCRETE REMOVAL AT END BENT NO. 5

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

A smooth, level surface shall be provided at Bent No. 5 removal lines.

General Notes:

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

Surface Preparation: Surface preparation of the existing steel shall be in accordance with Sec 1081 for Recoating of Structural Steel (System G) with organic zinc primer. The cost of surface preparation will be considered completely covered by the contract price per sq. foot for Surface Preparation for Recoating Structural Steel.

Prime Coat: The cost of the prime coat will be considered completely covered by the contract price per sq. foot for Field Application of Organic Zinc Primer.

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

Stay-In-Place Forms:

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

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

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

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

Pouring and Finishing Slab:

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

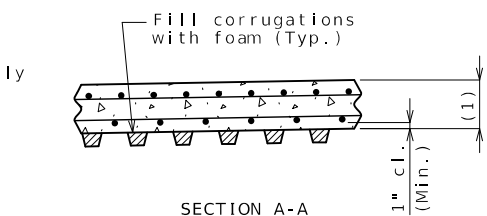
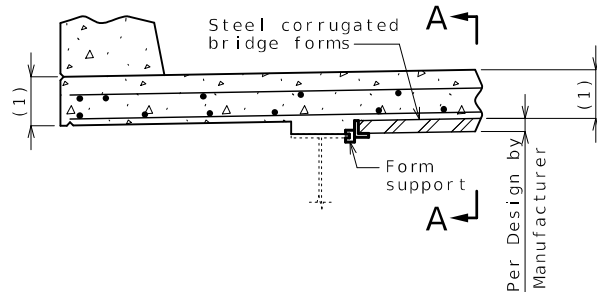
Slab shall be poured upgrade from end to end at a minimum rate of 25 cubic yards per hour.

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

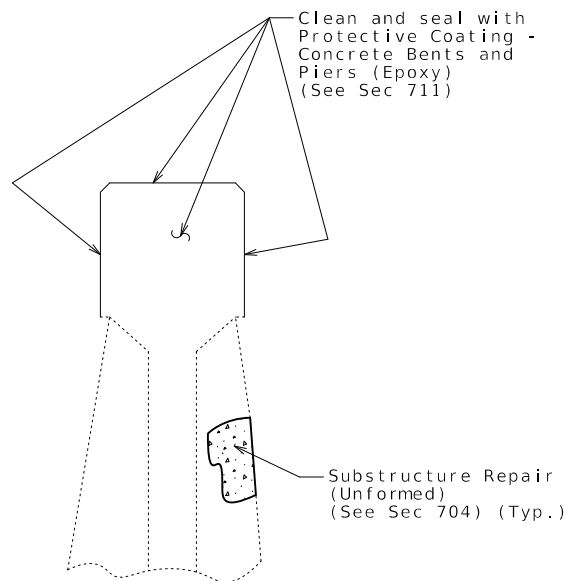
Haunching:

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

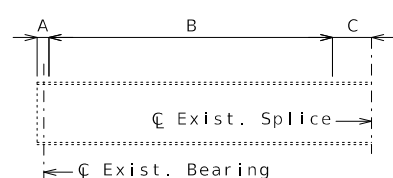
Detailed May 2024
Checked Oct. 2024



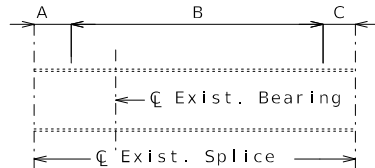
OPTIONAL STAY-IN-PLACE FORM DETAILS



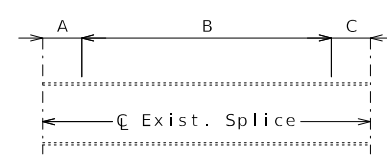
TYPICAL SECTION THRU INT. BENTS NO. 2, 3 & 4 SHOWING PROTECTIVE COATING



ELEVATION SHOWING SHEAR CONNECTOR SPACING FOR END BEAMS

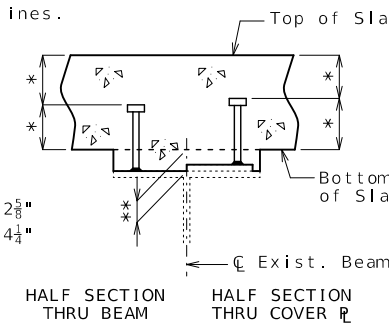


ELEVATION SHOWING SHEAR CONNECTOR SPACING FOR COMBINED BEARING & MIDSPAN BEAMS



ELEVATION SHOWING SHEAR CONNECTOR SPACING FOR INT. BENT BEARING BEAMS

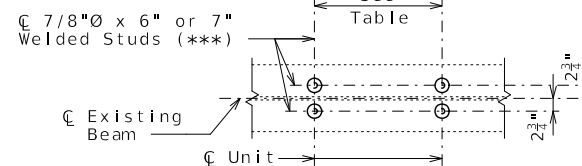
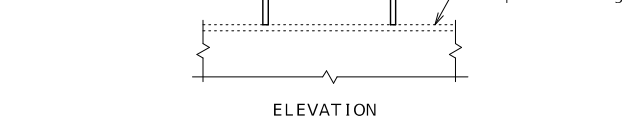
TABLE SHOWING SHEAR CONNECTOR UNIT SPACING				
Beam	S.C. per unit	A	B	C
End Beams (1-2 & 5-4)	2	10"±	55 Units @ 11" cts.	2'-2 1/4"
Brg. Beam (Bent 2 & Span 2-3) & Brg. Beam (Bent 4 & Span 4-3)	2	2'-3"	82 Units @ 10" cts.	2'-3"±
Brg. Beam (Bent 3)	2	2'-3"	46 Units @ 10" cts.	2'-3"±
Total shear connectors required				2,560



SECTION THRU EXIST. BEAM SHOWING SHEAR CONNECTORS

* 2" Minimum
** Min. Haunch = 2 5/8"
Max. Haunch = 4 1/4"

Two 7/8"Ø x 6" or 7" Welded Studs (***)

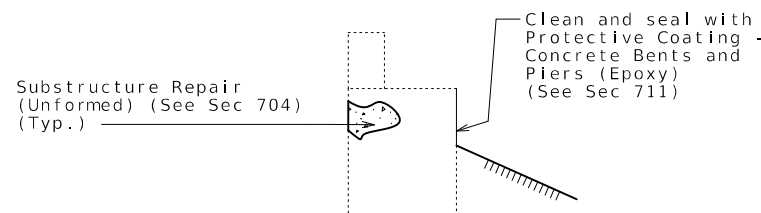


DETAILS OF SHEAR CONNECTORS

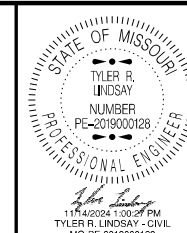
The cost of supplying and installing shear connectors will be considered completely covered by the contract unit price for Shear Connectors.

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

*** 6" Exterior Beams, 7" Interior Beams



TYPICAL SECTION THRU END BENTS NO. 1 & 5 SHOWING PROTECTIVE COATING

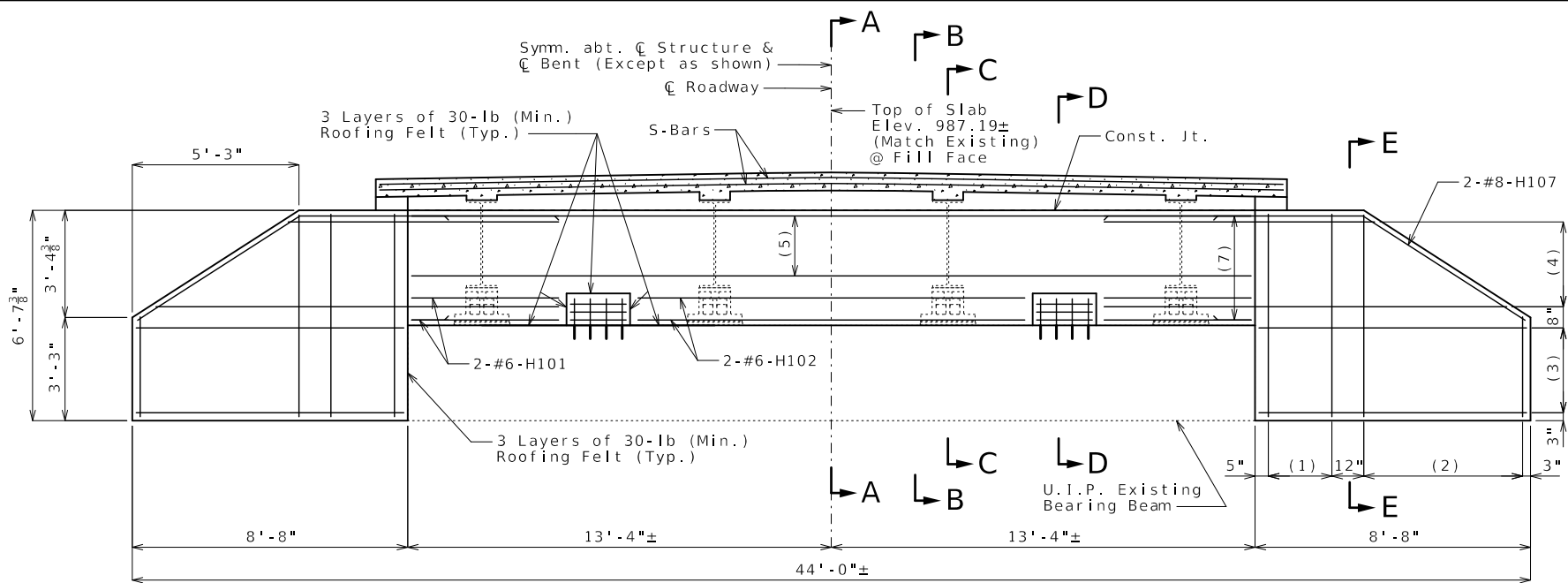


DATE PREPARED	
11/14/2024	
ROUTE	STATE
17	MO
DISTRICT	SHEET NO.
BR	2
COUNTY	
TEXAS	
JOB NO.	
J9P3690	
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO.	
L07131	

DESCRIPTION	DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

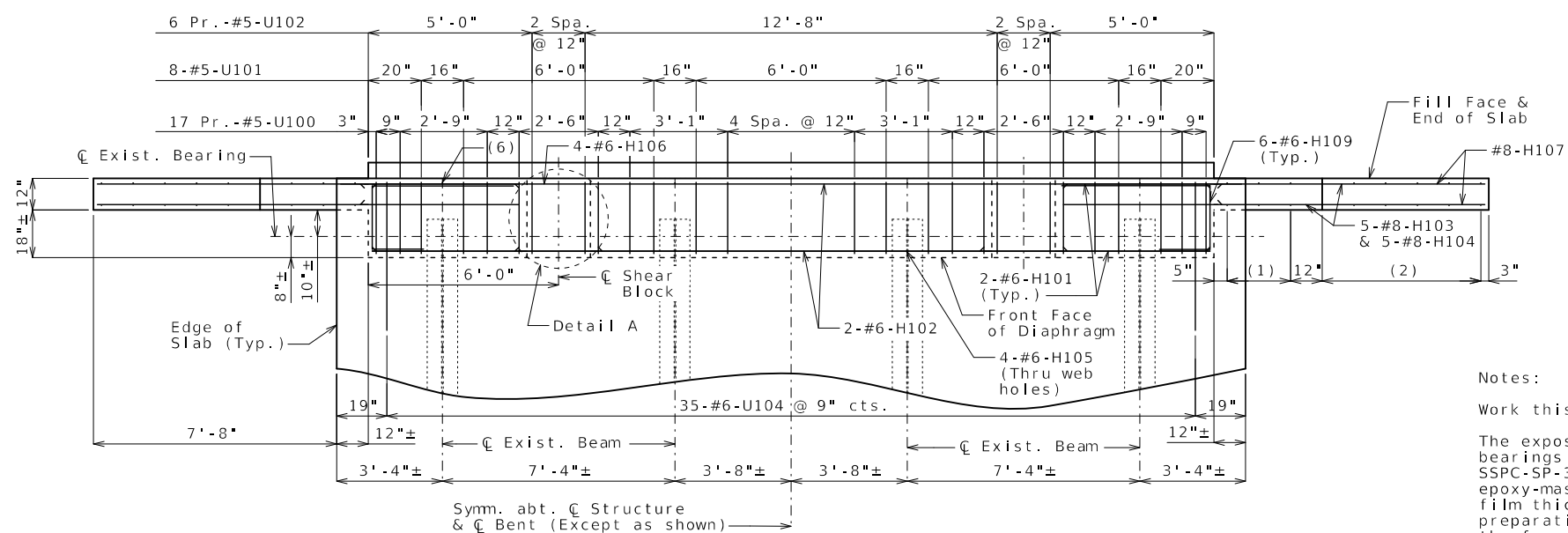
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
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SECTION NEAR END BENT NO. 1

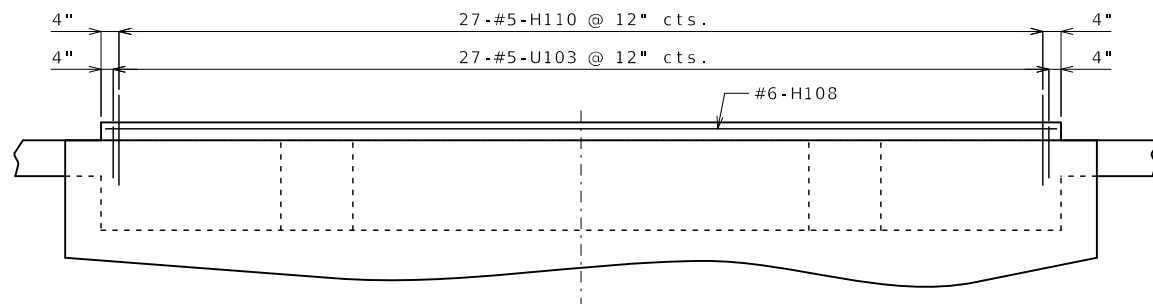
Note: Exist. steel end diaphragms (leave-in-place), vertical bars in concrete diaphragm and reinforcement in approach notch not shown for clarity.

- (1) 3-#5-V100 @ 12" cts. (Each Face)
- (2) 6-#5-V101 @ 12" cts. (Each Face)
- (3) 5-#8-H103 @ 8" cts. (Each Face)
- (4) 5-#8-H104 @ 8" cts. (Each Face)
- (5) 4-#6-H105 (Front Face) (Thru Web Holes) (Eq. Spaced)
4-#6-H106 (Fill Face) (Eq. Spaced)
- (6) #5-V102 (Center behind exist. beam) (Typ.)
- (7) 6-#6-H109 (Each Face)



PART PLAN

Note: Reinforcement in approach notch not shown for clarity.

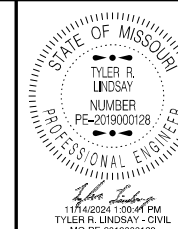


PART PLAN SHOWING APPROACH NOTCH REINFORCEMENT

DETAILS OF END BENT NO. 1

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

Sheet No. 3 of 13



DATE PREPARED
11/14/2024

ROUTE 17 STATE MO

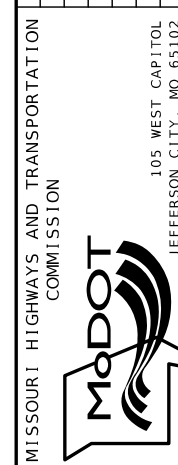
DISTRICT BR SHEET NO. 3

COUNTY TEXAS
JOB NO. J9P3690
CONTRACT ID.

PROJECT NO.

BRIDGE NO. L07131

DESCRIPTION	DATE



Notes:

Work this sheet with Sheet No. 4.

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

The #6-H105 bars are segmented for ease of placement through beam web holes. The total bar length for #6-H105 bars shown in Bill of Reinforcing Steel allows for one lap splice with a length of 3'-10". Actual bar segment lengths to be determined by contractor for ease of installing bars. The contractor may use a mechanical bar splice in lieu of a lap splice. When a mechanical bar splice is used, the actual bar segment length will be determined by the contractor to accommodate manufacturer's recommendations for installation and ease of construction. The cost of furnishing and installing the bar splices will be considered completely covered by the contract unit price for Slab on Steel. No adjustment of the quantity of reinforcing steel will be allowed for the use of mechanical bar splices.

For Sections A-A, B-B, C-C, D-D & E-E, see Sheet No. 4.

All concrete and reinforcement is included in the Table of Estimated Quantities for Slab on Steel and will be considered completely covered by the contract unit price for Slab on Steel.

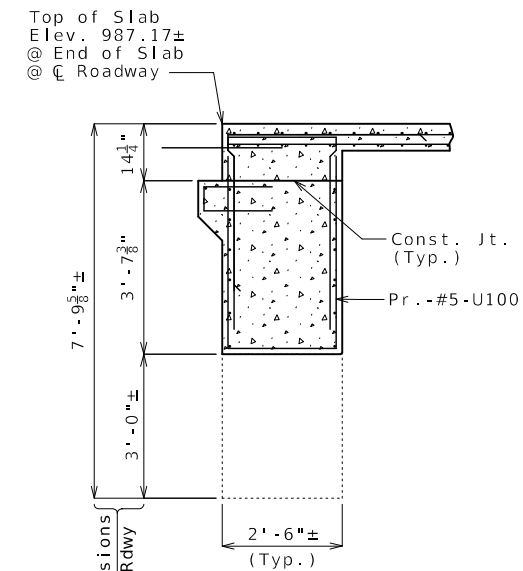
For details of vertical drain at end bents, see Sheet No. 5.

For details and reinforcement of Type D Barrier, see Sheet No. 10.

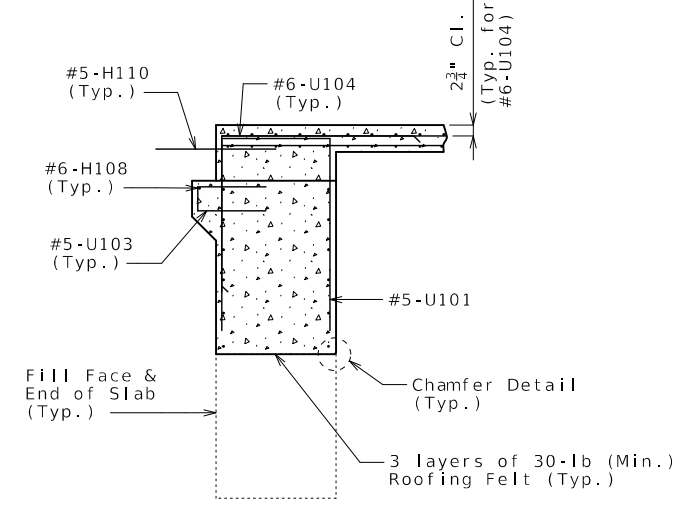
For details of bridge approach slab, see Sheet No. 11.



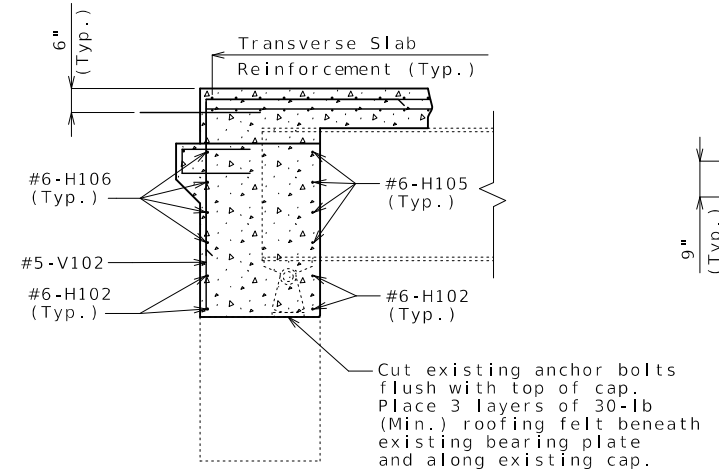
STATE OF MISSOURI
 TYLER R. LINDSAY
 NUMBER PE-2019000128
 PROFESSIONAL ENGINEER
 DATE PREPARED 11/14/2024
 ROUTE 17 STATE MO
 DISTRICT BR SHEET NO. 4
 COUNTY TEXAS
 JOB NO. J9P3690
 CONTRACT ID.
 PROJECT NO.
 BRIDGE NO. L07131



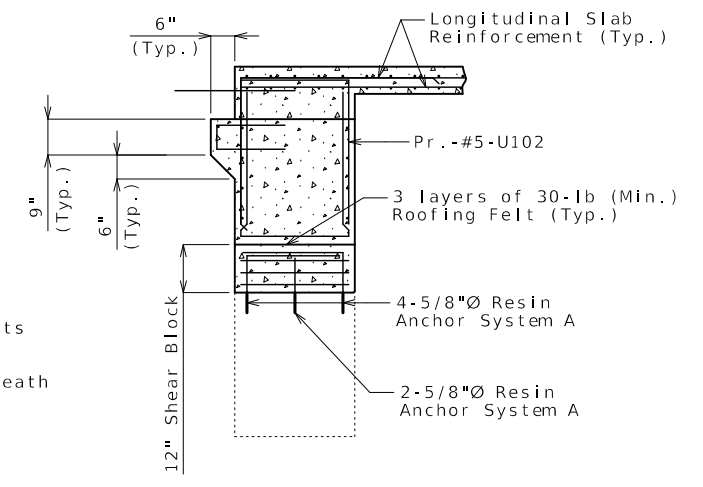
SECTION A-A



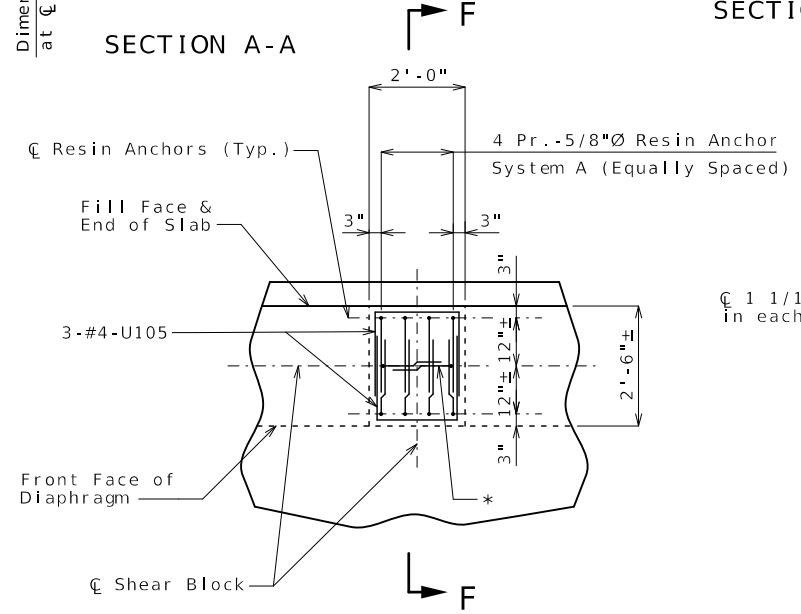
SECTION B-B



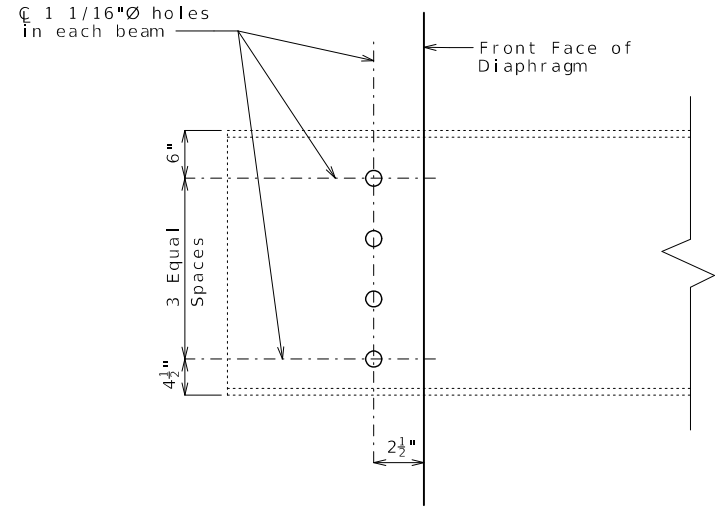
SECTION C-C



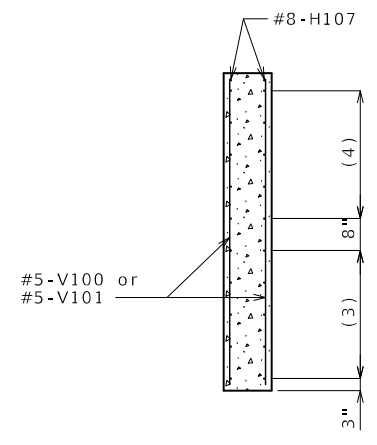
SECTION D-D



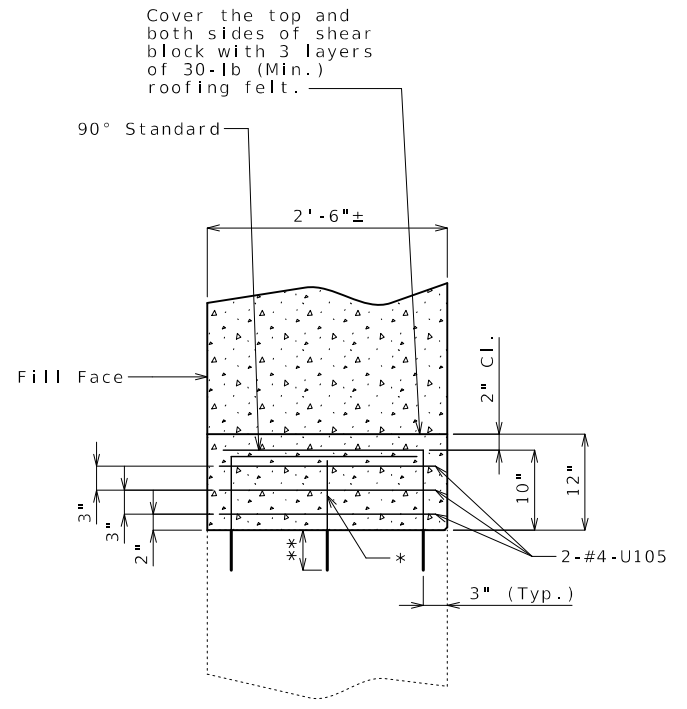
DETAIL A



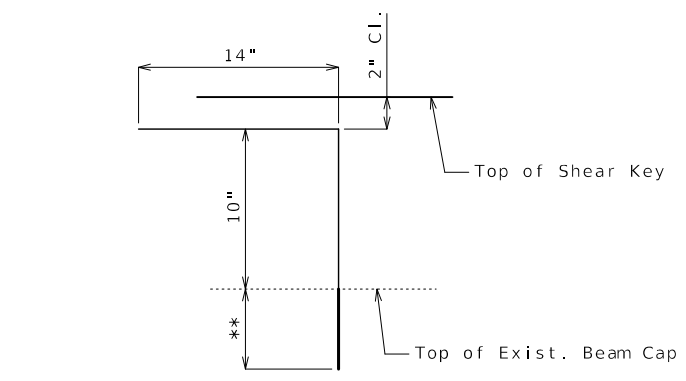
DETAIL OF WEB HOLES



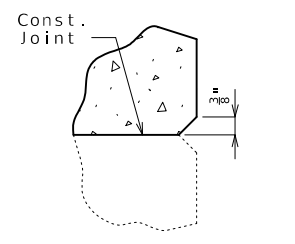
SECTION E-E



SECTION F-F



DETAILS OF RESIN ANCHOR SYSTEM A
(20 Req'd)



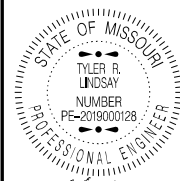
CHAMFER DETAIL

Notes:
 Work this sheet with Sheet No. 3.
 Cost of field drilling holes in existing wide flange beam webs will be considered completely covered by the contract unit price for Slab on Steel.
 The contractor shall use one of the qualified resin anchor systems in accordance with Sec 1039.
 Cost of furnishing and installing the resin anchor systems, complete in place, will be considered completely covered by the contract unit price for Slab on Steel.
 The minimum embedment depth in concrete with f'c = 4,000 psi for the resin anchor systems shall be that required to meet the minimum ultimate pullout strength in accordance with Sec 1039 but shall not be less than 5".
 An epoxy coated #5 Grade 60 reinforcing bar shall be substituted for the 5/8"Ø threaded rod.

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DETAILS OF END BENT NO. 1



DATE PREPARED
11/14/2024

ROUTE 17 STATE MO

DISTRICT BR SHEET NO. 5

COUNTY TEXAS

JOB NO. J9P3690

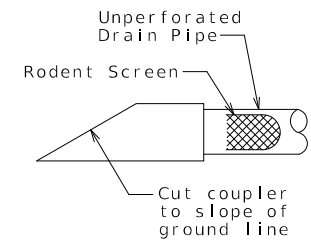
CONTRACT ID.

PROJECT NO.

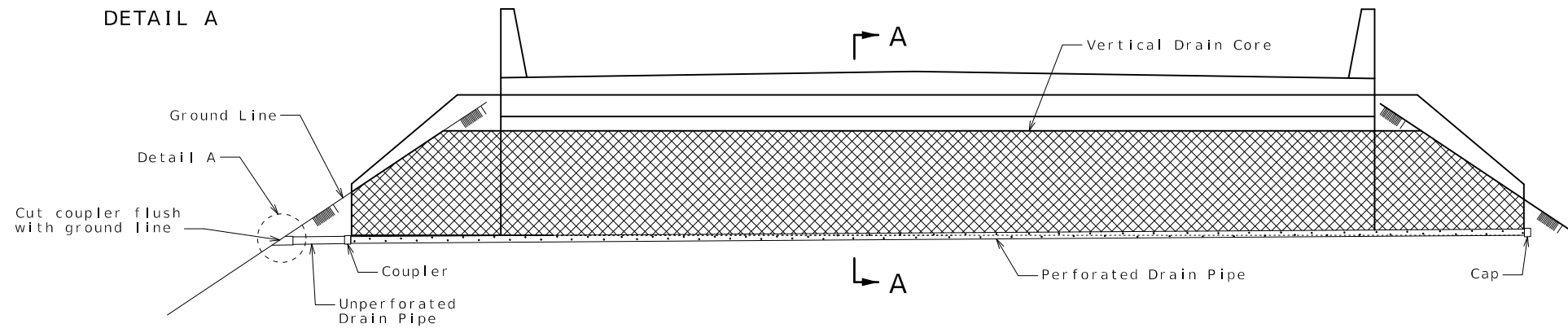
BRIDGE NO. L07131

DESCRIPTION	DATE

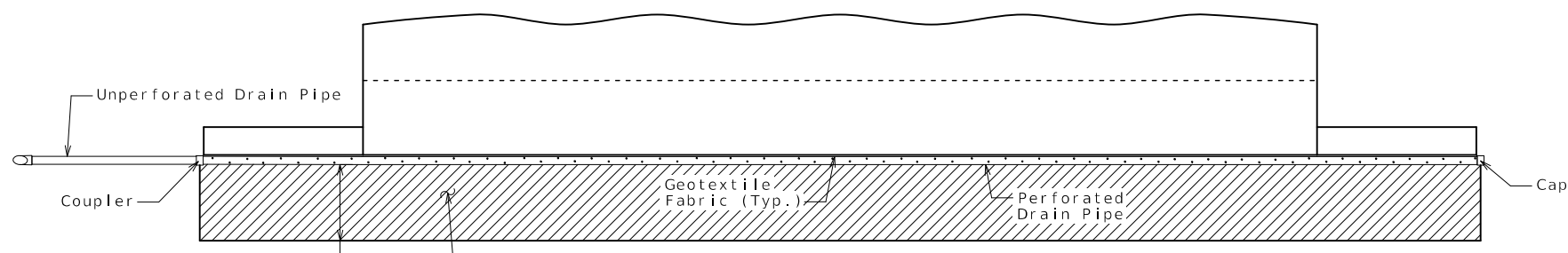
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DETAIL A

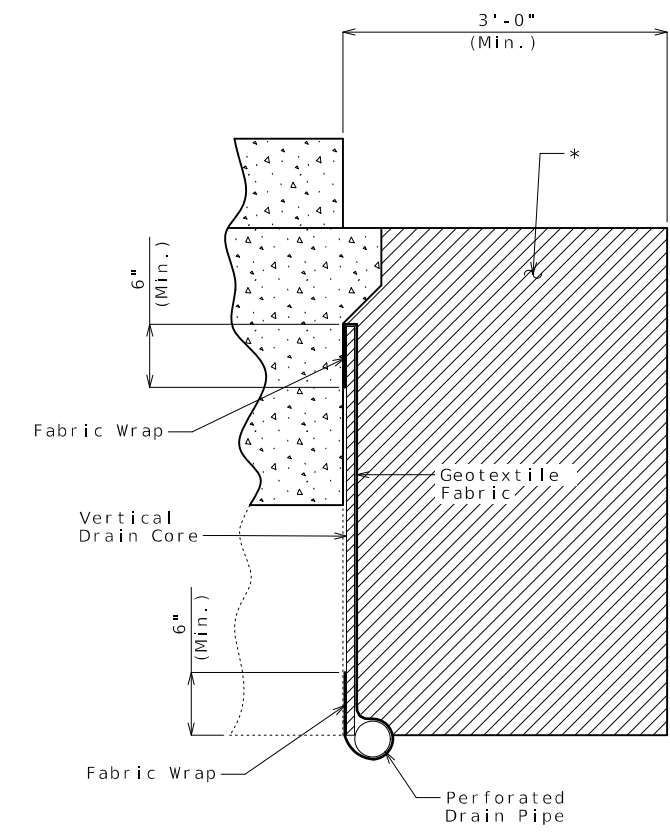


ELEVATION OF END BENT NO. 1



PLAN OF END BENT NO. 1

*Fill within 3 feet (min.) of the fill face of the end bent shall be porous backfill. See Roadway Plans (Roadway Item).

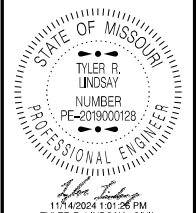


PART SECTION A-A

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

VERTICAL DRAIN AT END BENT NO. 1
(Squared end bent shown, skewed end bent similar)

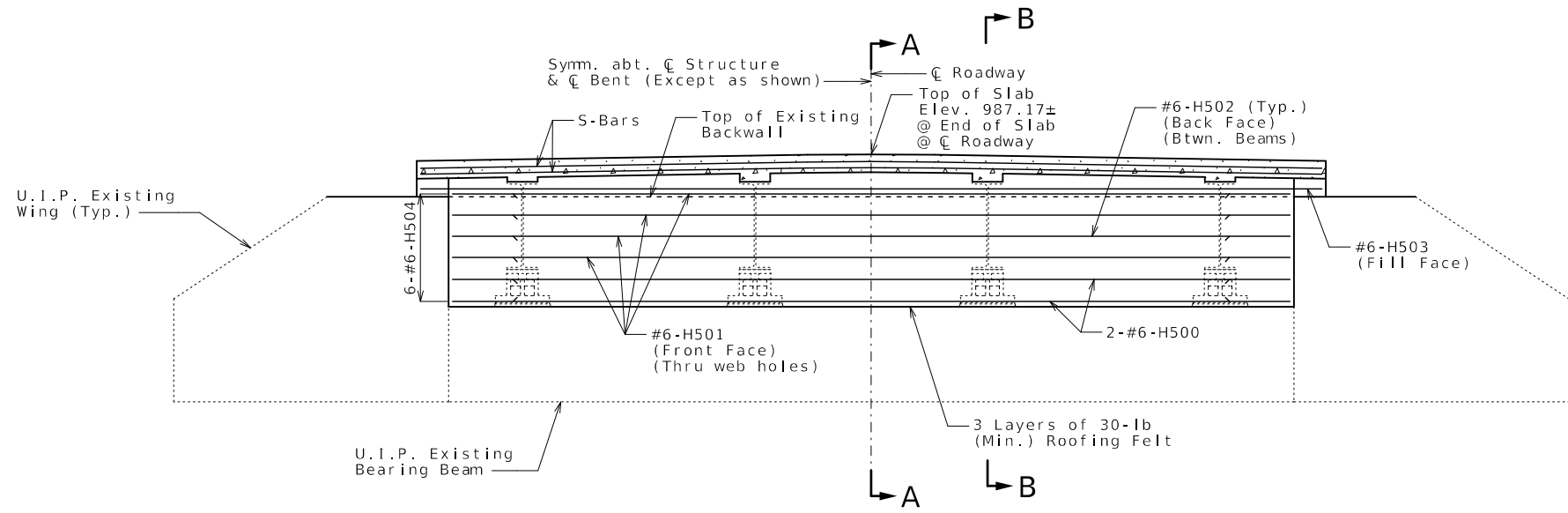


DATE PREPARED 11/14/2024	
ROUTE 17	STATE MO
DISTRICT BR	SHEET NO. 6
COUNTY TEXAS	
JOB NO. J9P3690	
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO. L07131	

DATE	DESCRIPTION

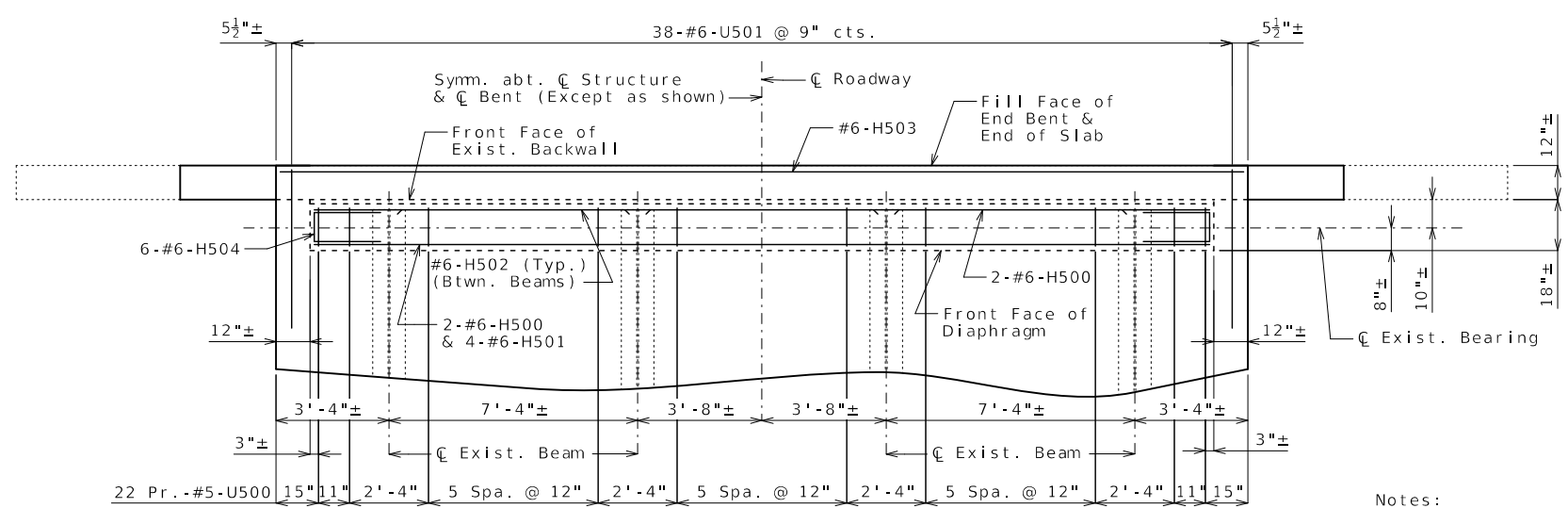
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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SECTION NEAR END BENT

Note: Existing steel diaphragms not shown for clarity (leave-in-place).



PART PLAN

Notes:

Work this sheet with Sheet No. 7.

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

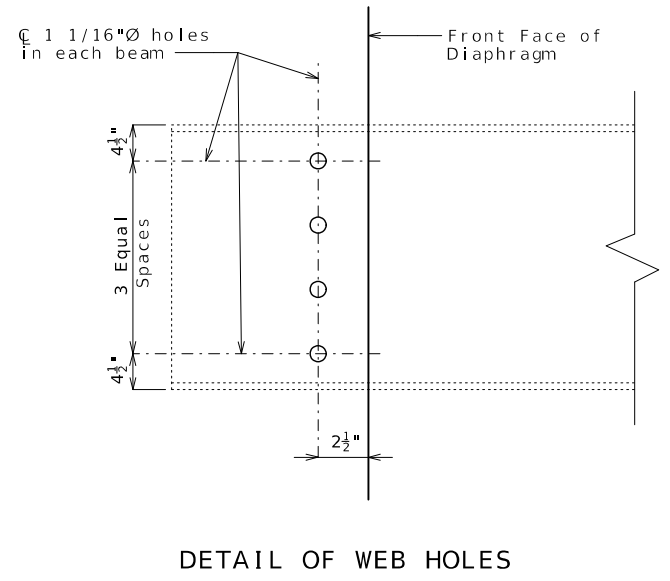
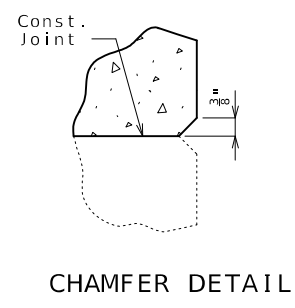
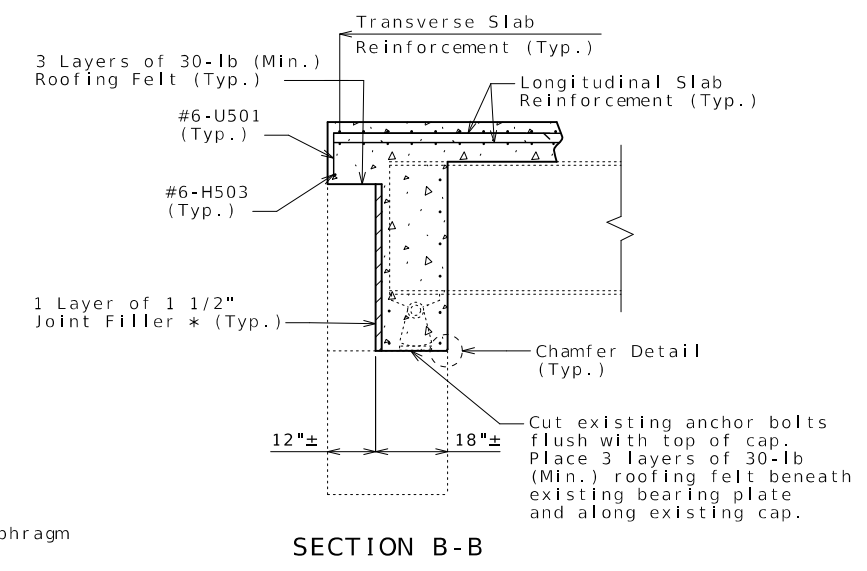
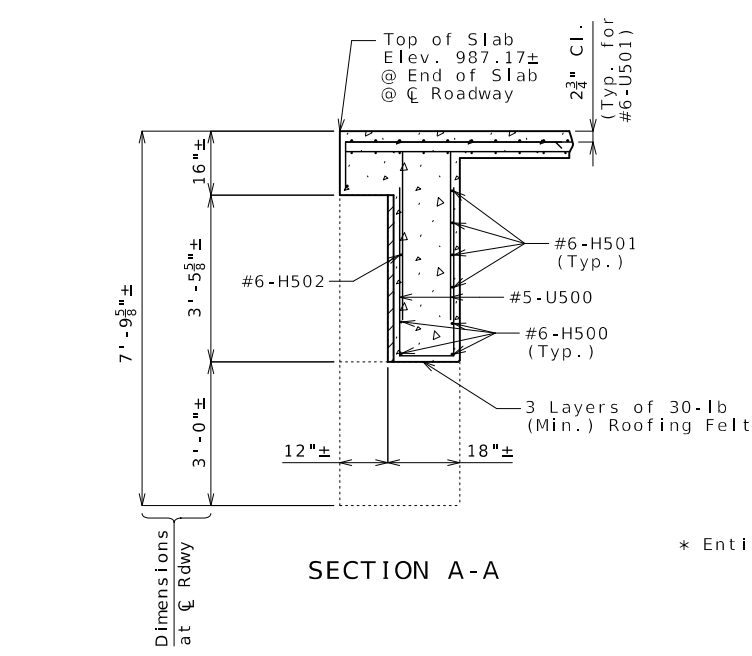
The #6-H501 bars are segmented for ease of placement through beam web holes. The total bar length for #6-H501 bars shown in Bill of Reinforcing Steel allows for one lap splice with a length of 3'-10". Actual bar segment lengths to be determined by contractor for ease of installing bars. The contractor may use a mechanical bar splice in lieu of a lap splice. When a mechanical bar splice is used, the actual bar segment length will be determined by the contractor to accommodate manufacturer's recommendations for installation and ease of construction. The cost of furnishing and installing the bar splices will be considered completely covered by the contract unit price for Slab on Steel. No adjustment of the quantity of reinforcing steel will be allowed for the use of mechanical bar splices.

For Sections A-A & B-B, see Sheet No. 7.

All concrete and reinforcement is included in the Table of Estimated Quantities for Slab on Steel and will be considered completely covered by the contract unit price for Slab on Steel.

For details and reinforcement of Type D Barrier, see Sheet No. 10.

DETAILS OF END BENT NO. 5



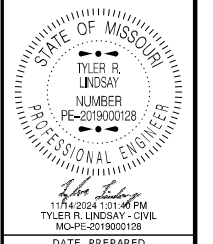
Notes:
 Work this sheet with Sheet No. 6.
 Cost of field drilling holes in existing wide flange beam webs will be considered completely covered by the contract unit price for Slab on Steel.

DETAILS OF END BENT NO. 5

Detailed May 2024
 Checked Oct. 2024

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

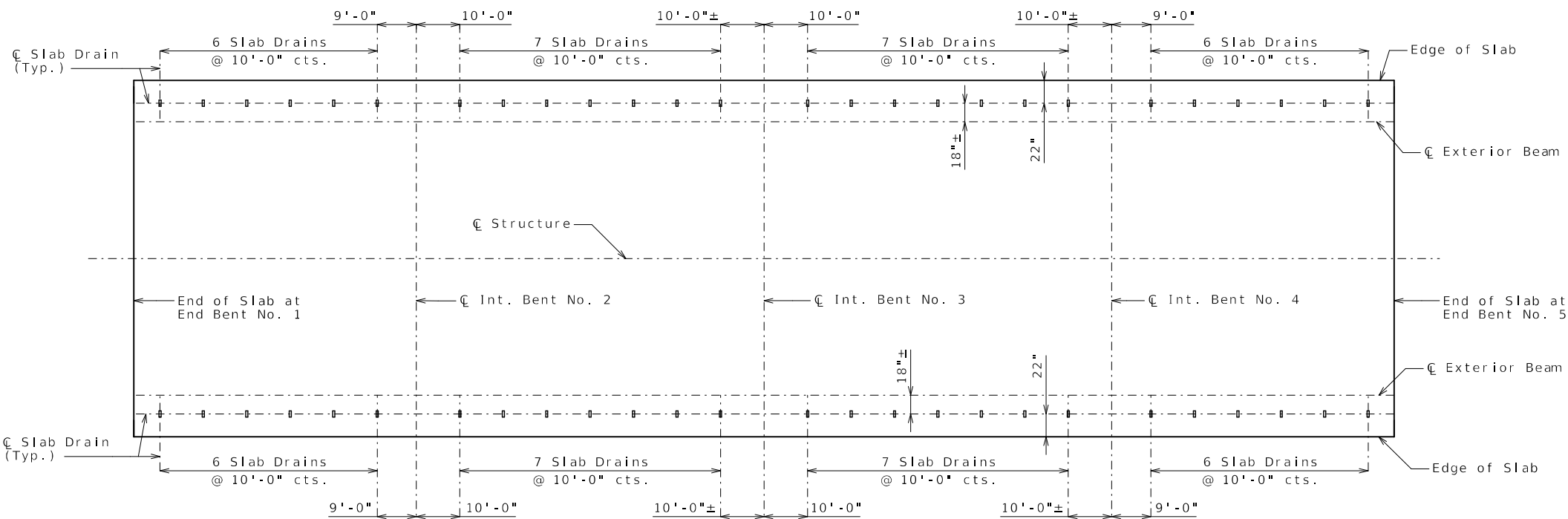
Sheet No. 7 of 13



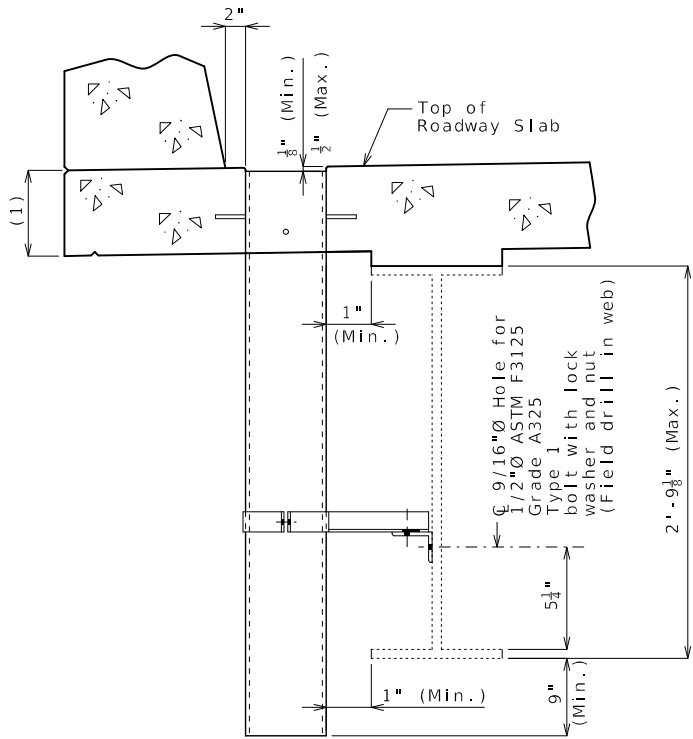
DATE PREPARED 11/14/2024	
ROUTE 17	STATE MO
DISTRICT BR	SHEET NO. 7
COUNTY TEXAS	
JOB NO. J9P3690	
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO. L07131	

DATE	DESCRIPTION

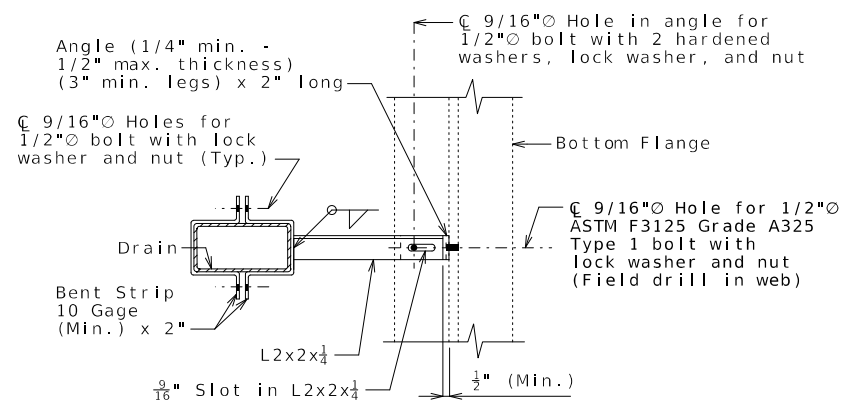
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
 MoDOT
 105 WEST CAPITOL
 JEFFERSON CITY, MO 65102
 1-888-ASK-MODOT (1-888-273-6636)



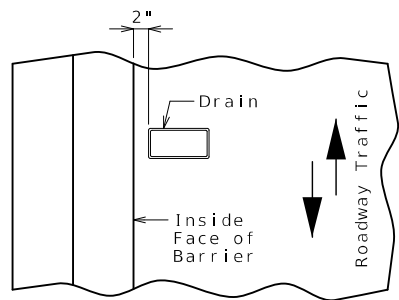
PLAN OF SLAB SHOWING SLAB DRAIN LOCATIONS



PART SECTION NEAR DRAIN

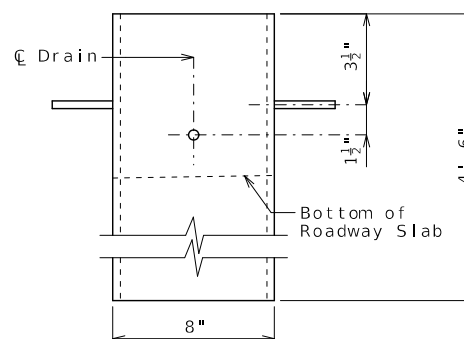


PART SECTION SHOWING BRACKET ASSEMBLY

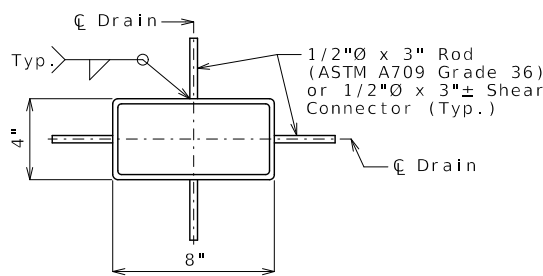


PART PLAN OF SLAB AT DRAIN

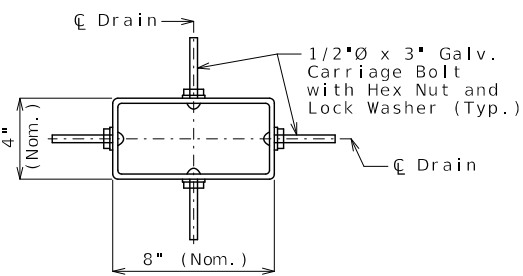
SLAB DRAINS



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"Ø 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 shifted to the minimum extent necessary to field drill in the existing web.

(1) See front sheet for slab thickness.

Notes for Steel Drain:

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

Outside dimensions of drains are 8" x 4".

The drains shall be galvanized in accordance with ASTM A123.

Notes for FRP Drain:

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

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

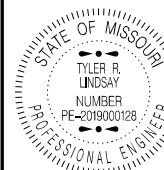
Minimum reinforced wall thickness shall be 1/4 inch.

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

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

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

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



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11/14/2024

ROUTE 17 STATE MO

DISTRICT BR SHEET NO. 8

COUNTY TEXAS

JOB NO. J9P3690

CONTRACT ID.

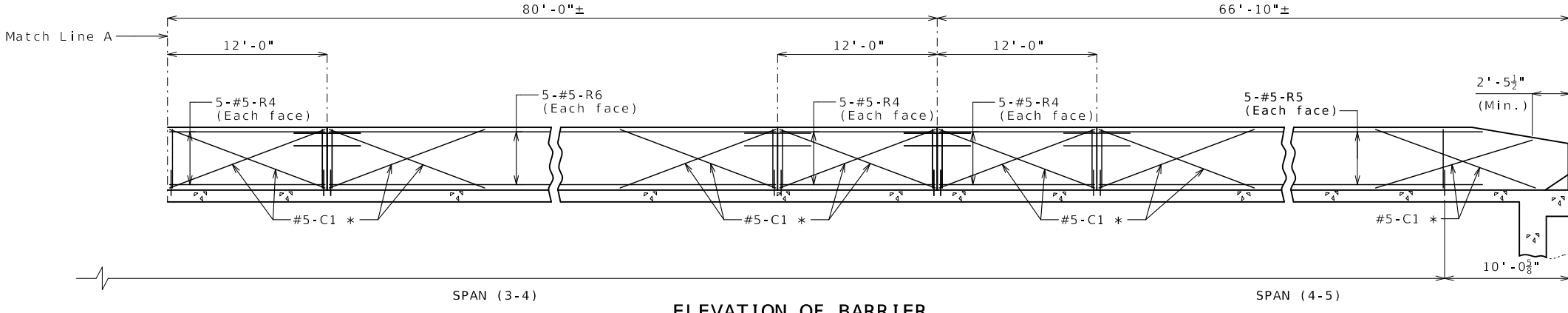
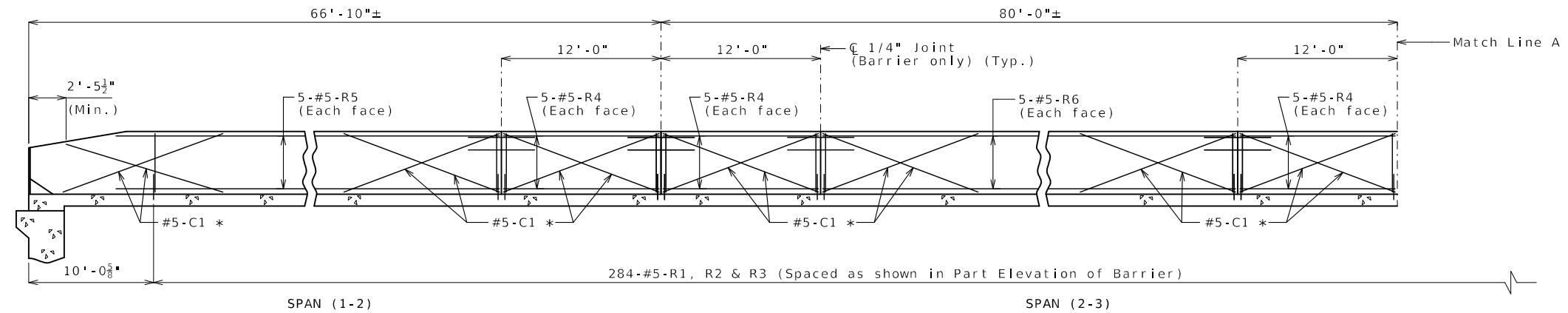
PROJECT NO.

BRIDGE NO. L07131

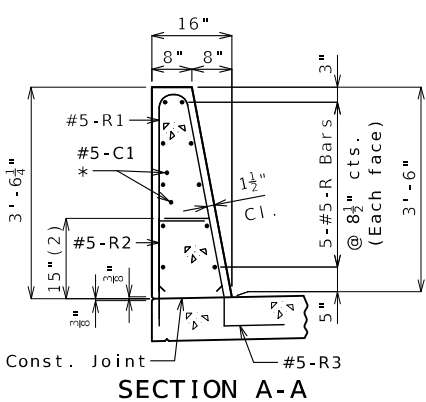
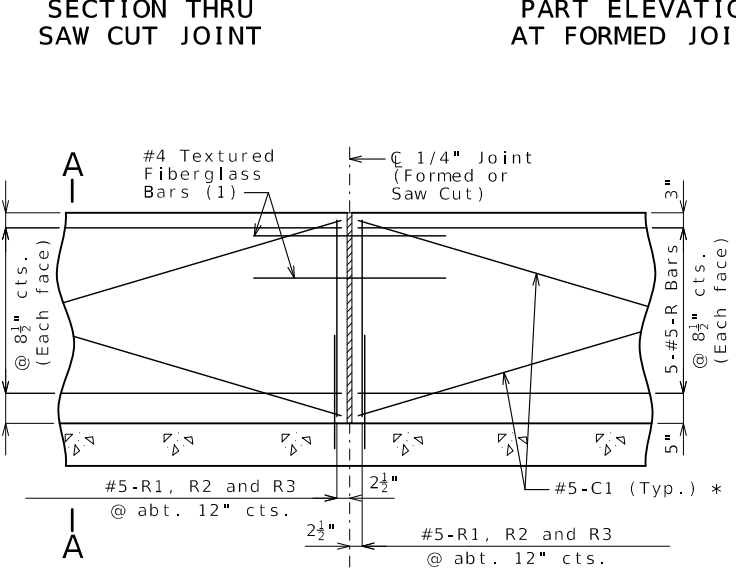
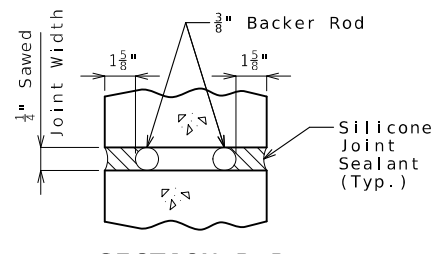
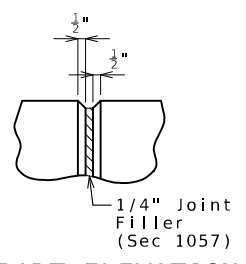
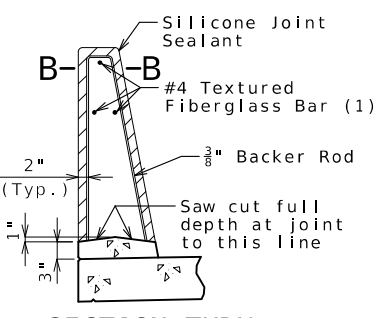
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105 WEST CAPITOL JEFFERSON CITY, MO 65102
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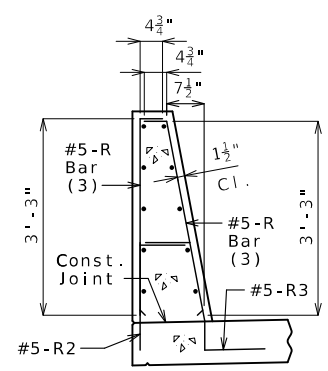
ELEVATION OF BARRIER
 (Left barrier shown, right barrier similar)
 Longitudinal dimensions are horizontal.



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

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

(2) To top of bar



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

General Notes:

- * Slip-formed option only.
- Conventional forming or slip forming may be used. Saw cut joints may be used with conventional forming.
- Top of barrier shall be built parallel to grade and barrier joints normal to grade.
- All exposed edges of barrier shall have either a 1/2-inch radius or a 3/8-inch bevel, unless otherwise noted.
- Payment for all concrete and reinforcement, complete in place, will be considered completely covered by the contract unit price for Type D Barrier per linear foot.
- Concrete in barrier shall be Class B-1.
- Measurement of barrier is to the nearest linear foot for each structure, measured along the outside top of slab from end of slab to end of slab.
- Concrete traffic barrier delineators shall be placed on top of the barrier as shown on Missouri Standard Plan 617.10 and in accordance with Sec 617. Delineators on bridges with two-lane, two-way traffic shall have retroreflective sheeting on both sides. Concrete traffic barrier delineators will be considered completely covered by the contract unit price for Type D Barrier.

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

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

TYPE D BARRIER



DATE PREPARED 11/18/2024	
ROUTE 17	STATE MO
DISTRICT BR	SHEET NO. 9
COUNTY TEXAS	
JOB NO. J9P3690	
CONTRACT ID.	

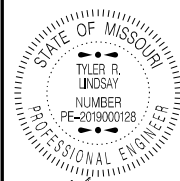
PROJECT NO.	
BRIDGE NO. L07131	

DATE	DESCRIPTION

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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





DATE PREPARED
11/14/2024

ROUTE
17 STATE
MO

DISTRICT
BR SHEET NO.
10

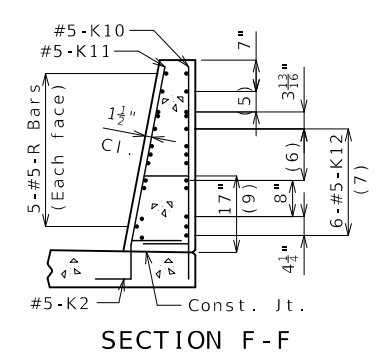
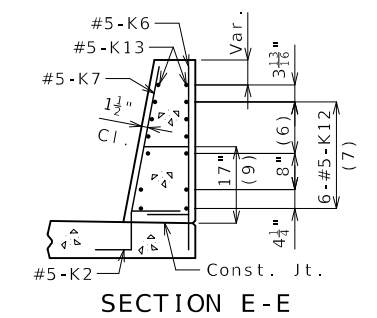
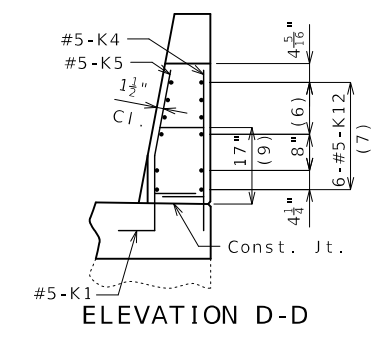
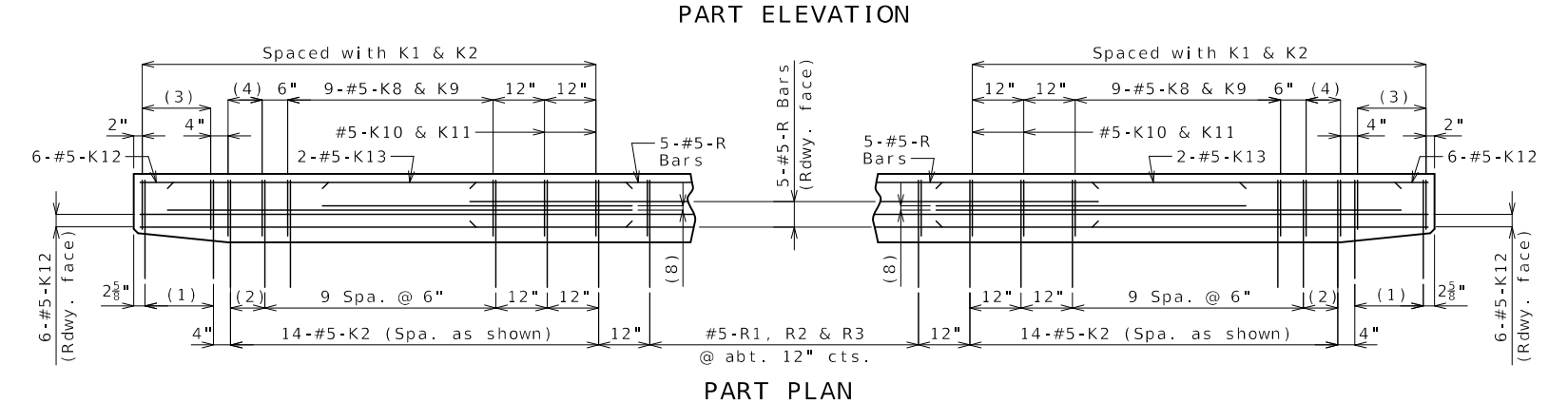
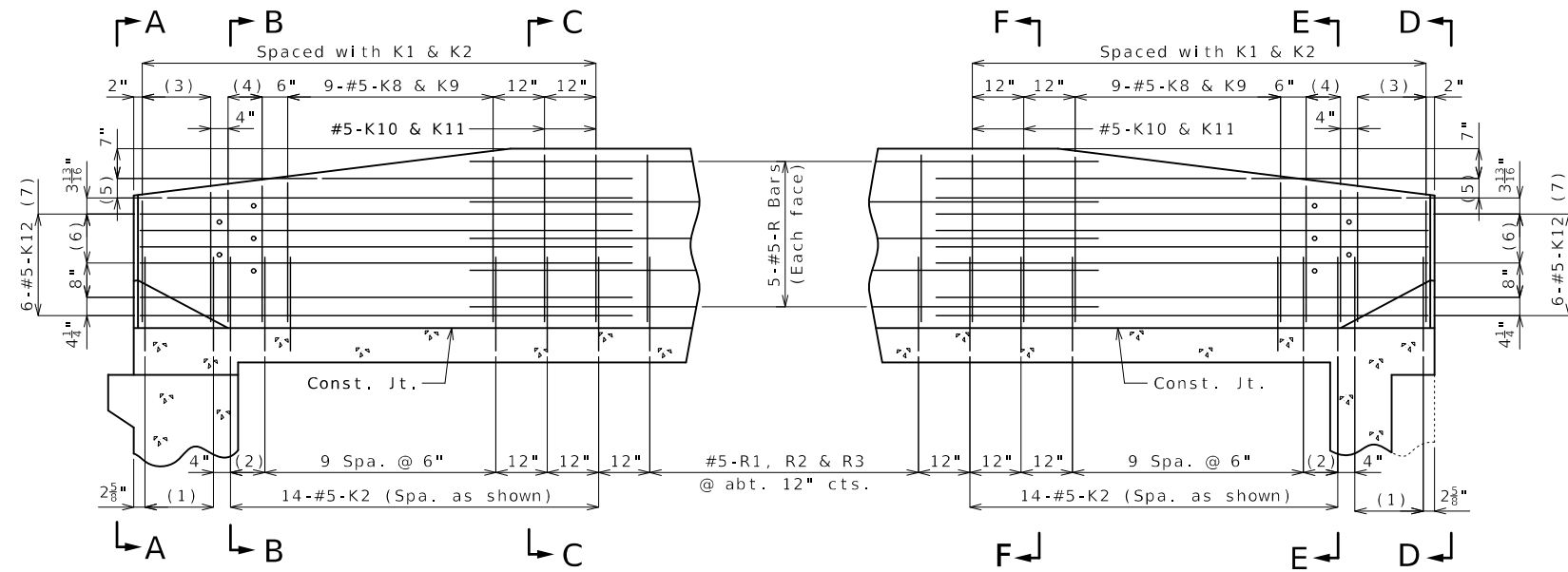
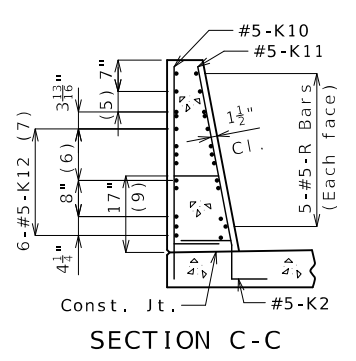
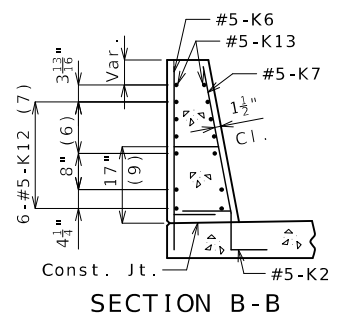
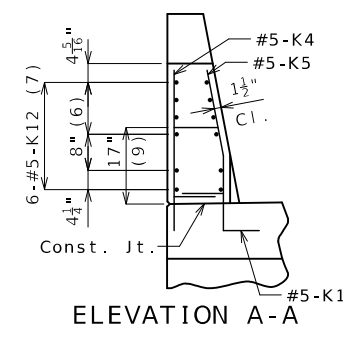
COUNTY
TEXAS

JOB NO.
J9P3690

CONTRACT ID.

PROJECT NO.

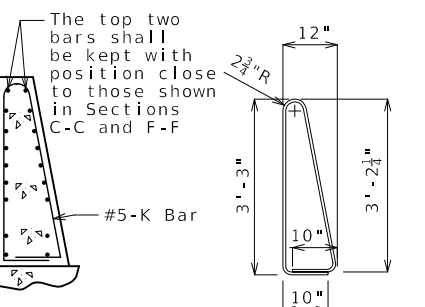
BRIDGE NO.
L07131



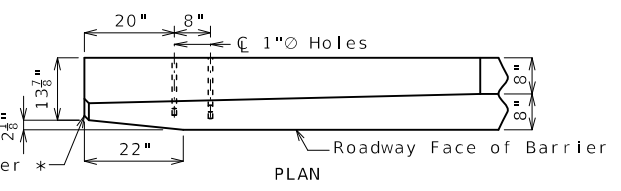
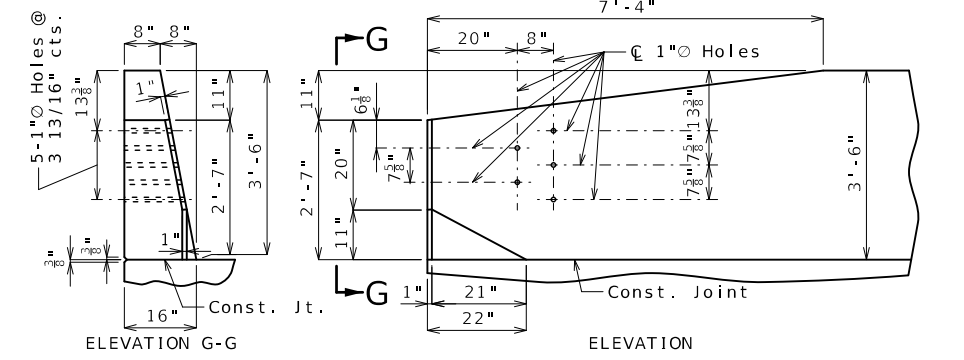
- (1) 5-#5-K1 @ 4" cts.
- (2) 2 spaces @ 4"
- (3) 5-#5-K4 & K5
- (4) 3-#5-K6 & K7
- (5) 2-#5-K13 @ 4 1/2" cts., each face
- (6) 3 spaces @ 3 13/16"
- (7) Spaced as shown, each face
- (8) 2-#5-K13 (Roadway face)
- (9) To top of bar

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

Reinforcing Steel:
Minimum clearance to reinforcing steel shall be 1 1/2".
Use a minimum lap of 3'-1" between horizontal K bars and R bars.



K10-K11 BAR PERMISSIBLE ALTERNATE SHAPE
(Other K bars not shown for clarity)
The K10-K11 bar combination may be furnished as one bar as shown, at the contractor's option.
All dimensions are out to out.



DETAILS OF GUARD RAIL ATTACHMENT

TYPE D BARRIER AT END BENTS
(Left barrier shown, right barrier similar)

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

Sheet No. 10 of 13

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION



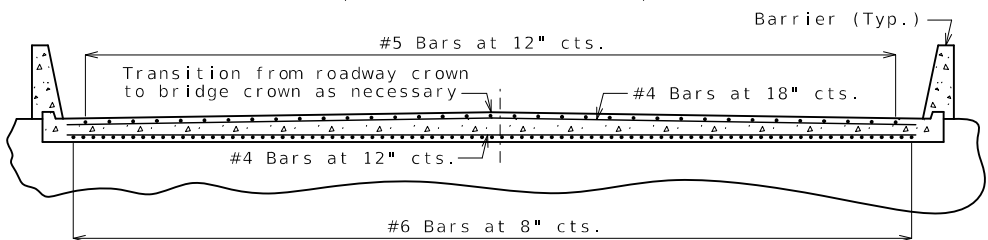
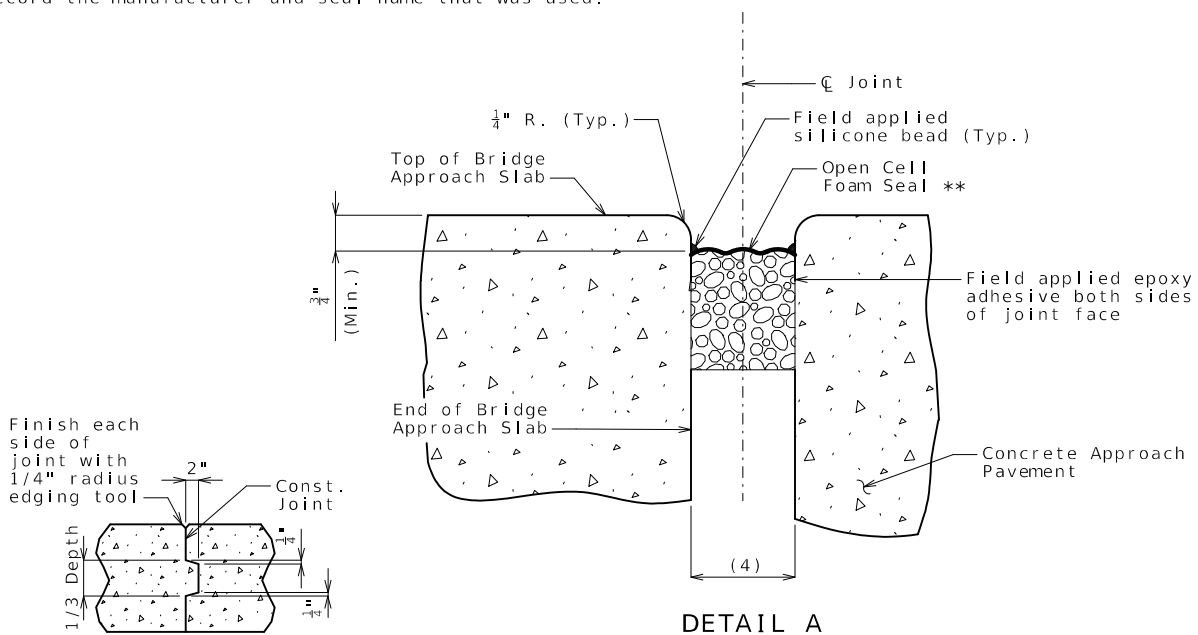
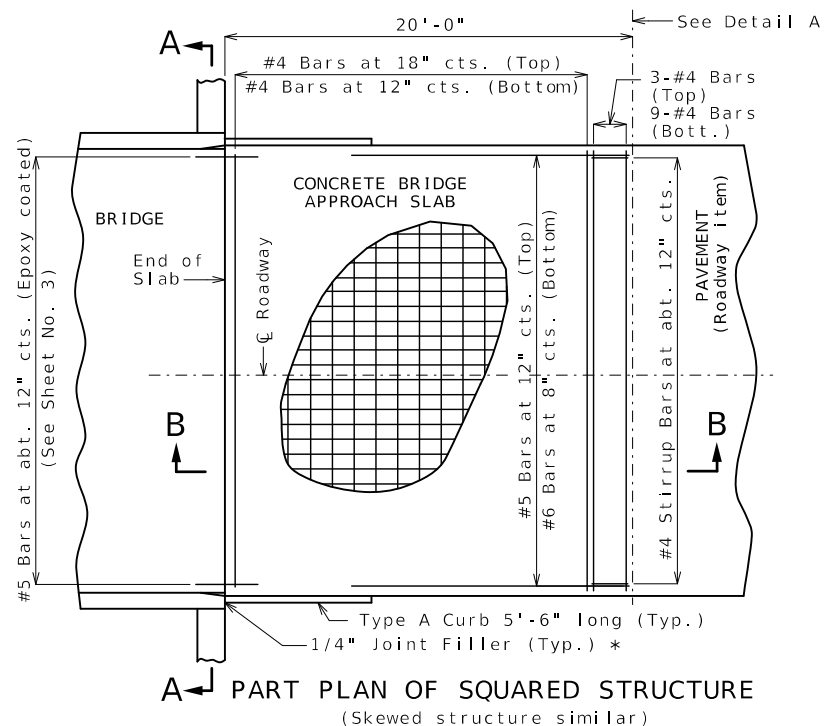
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
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DATE

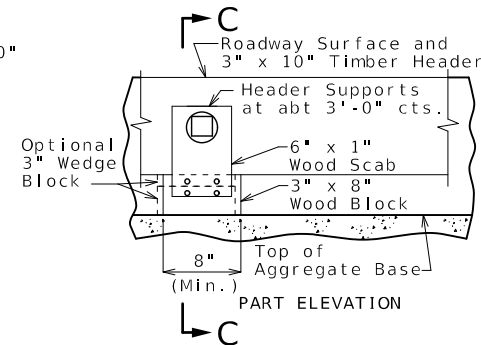
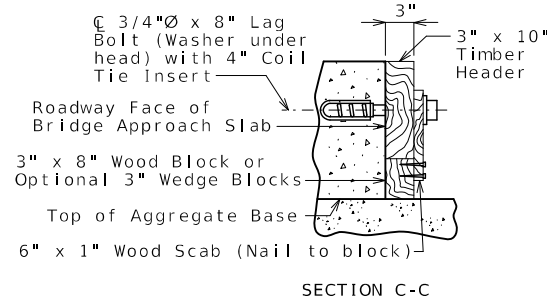
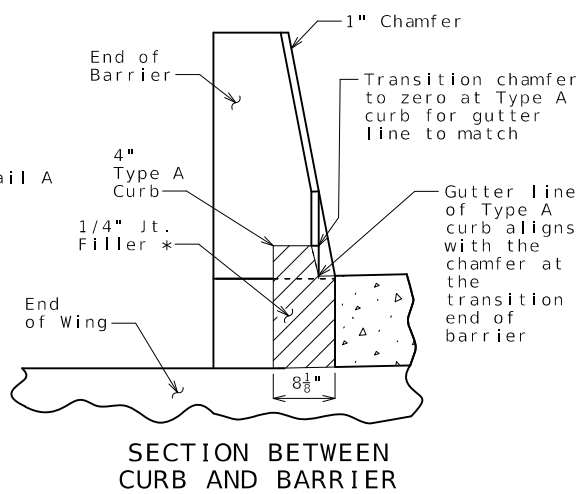
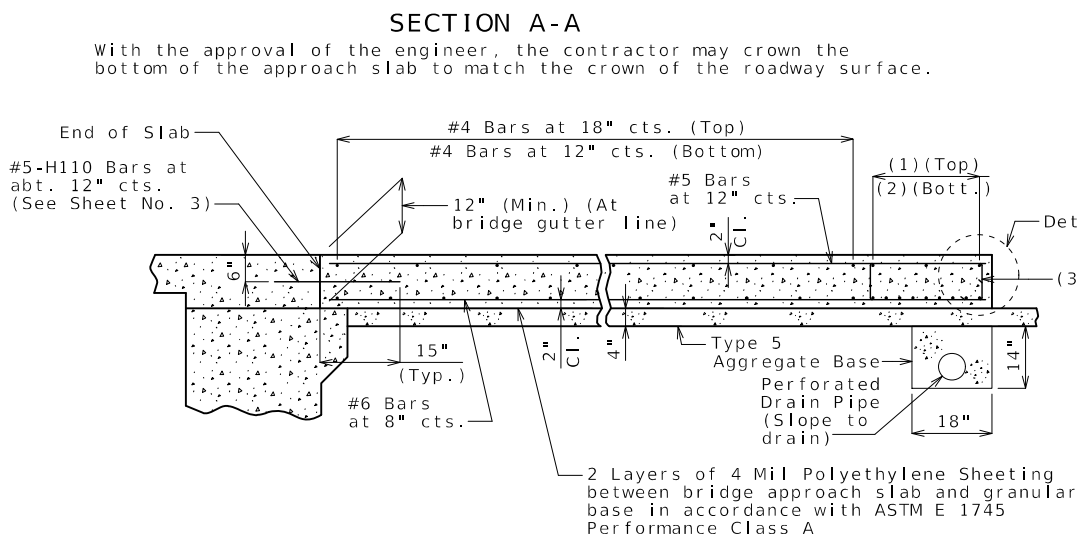
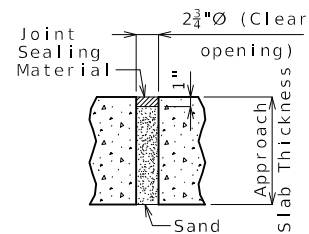
DESCRIPTION

Movement Parallel to Rdwy	Movement Normal to Joint	Min. Jt. Width (Normal to Joint)	Max. Jt. Width (Normal to Joint)	(4) Allowed Installation Gap (±) Normal to Joint at Roadway Surface at Air/Surface Temperature				Manufacturer	Seal Name
				@ 40°F	@ 50°F	@ 60°F	@ 70°F		
1.95"	1.95"	1.72"	3.67"	2 3/4"	2 3/8"	2 1/2"	2 3/8"		

MoDOT construction personnel will record the manufacturer and seal name that was used.



- (1) 3-#4 Bars
- (2) 9-#4 Bars
- (3) #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.



General Notes:

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.

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

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

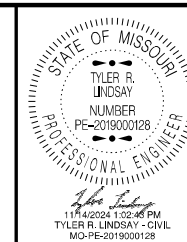
The open cell foam joint seal shall be installed according to the manufacturer's recommendations.

The installation temperature shall be taken as the actual air temperature averaged over the 24-hour period immediately preceding installation.

(4) Allowed installation gap (±) normal to joint at roadway surface (see table).

DETAILS OF TIMBER HEADER

Remove timber header when concrete pavement is placed.



DATE PREPARED
11/14/2024

ROUTE
17

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11

COUNTY
TEXAS

JOB NO.
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CONTRACT ID.

PROJECT NO.

BRIDGE NO.
L07131

DESCRIPTION

DATE

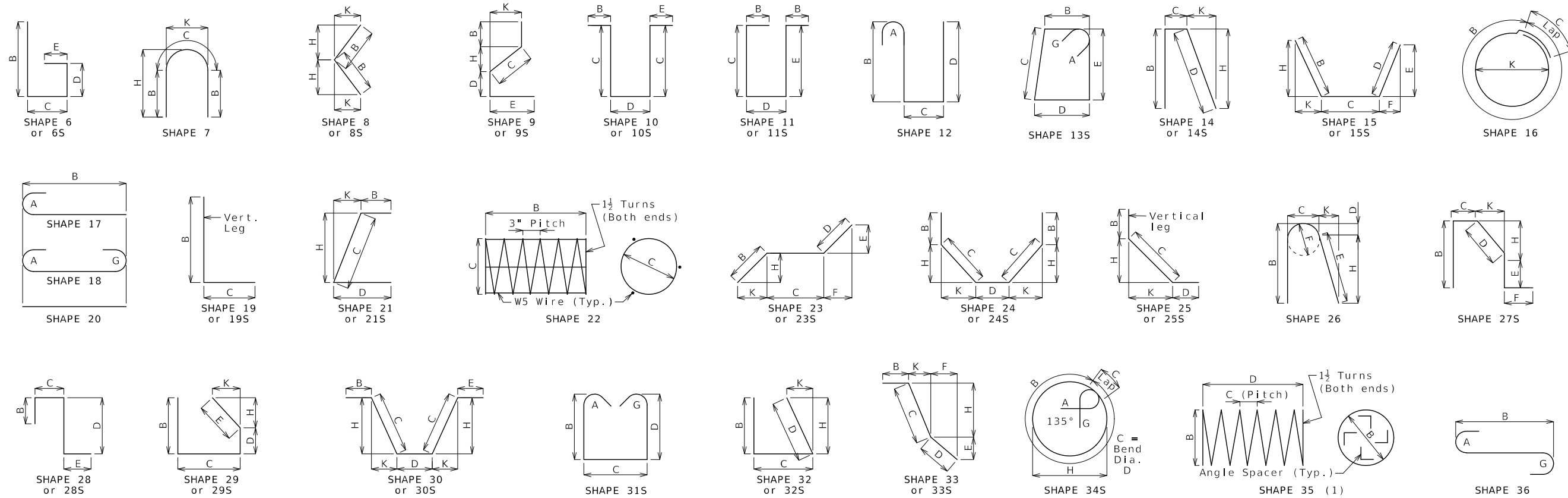
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

105 WEST CAPITOL JEFFERSON CITY, MO 65102

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BRIDGE APPROACH SLAB (MINOR) AT END BENT NO. 1

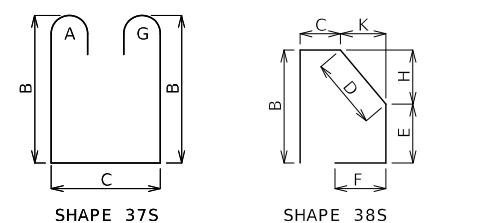
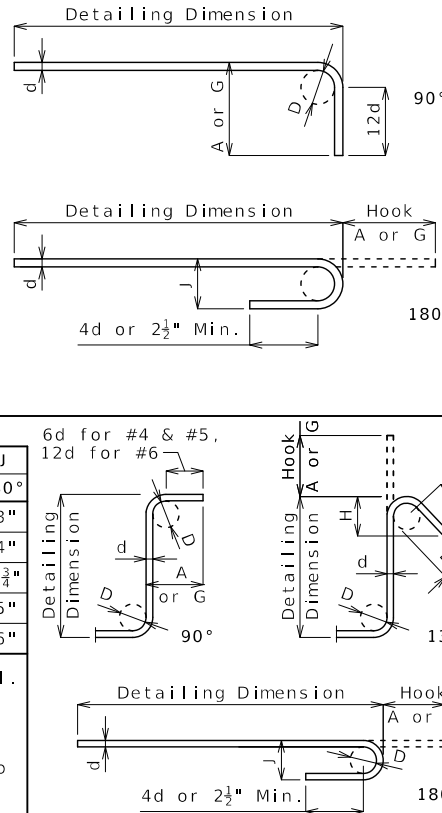


Finished Bend Diameters D and Hook Dimensions

Standard Pin Bend Shapes					
Size	Case	D	A or G		
			90°	180°	J
#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°	180°	
#4	2	2"	4 1/2"	5"	2 5/8"
	3	3"	5"	6"	3"
#5	2	2 1/2"	5 3/4"	6 1/2"	3 3/8"
	3	3 3/4"	6 1/4"	7"	3 7/8"
#6	1	4 1/2"	12"	8 1/4"	6"

Applicable for all grades of steel.
Case 1 applies to all reinforcement. Case 2 applies to all reinforcement except for galvanized bars. Case 3 applies to galvanized bars only.



BENDING DIAGRAMS

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	1,493	0	0	0	1,493
5	0	0	38,717	14,566	701	0	53,984
6	0	0	34,849	0	0	0	34,849
7	0	0	0	0	0	0	0
8	0	0	1,169	0	0	0	1,169
9	0	0	0	0	0	0	0
10	0	0	0	0	0	0	0
11	0	0	0	0	0	0	0
14	0	0	0	0	0	0	0
18	0	0	0	0	0	0	0
By Type	0	0	76,228	14,566	701	0	91,495

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

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.

STATE OF MISSOURI
 TYLER R. LINDSAY
 NUMBER PE-2019000128
 PROFESSIONAL ENGINEER

Tyler R. Lindsay
 11/14/2024 1:23:00 PM
 TYLER R. LINDSAY - CIVIL
 MO-PE-2019000128

DATE PREPARED
11/14/2024

ROUTE **17** STATE **MO**

DISTRICT **BR** SHEET NO. **12**

COUNTY
TEXAS

JOB NO.
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DATE	DESCRIPTION

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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BENDING DIAGRAMS AND REINFORCING STEEL TOTALS

