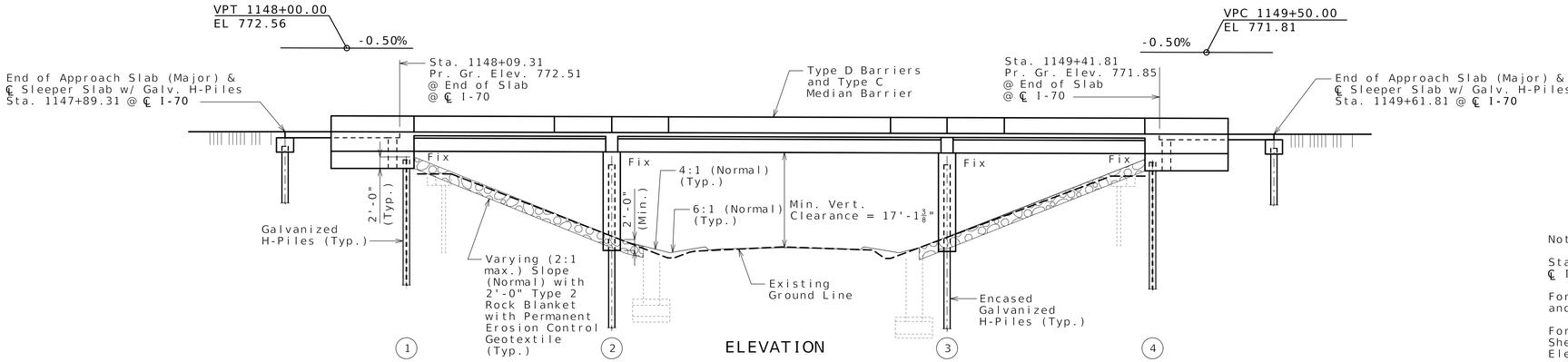
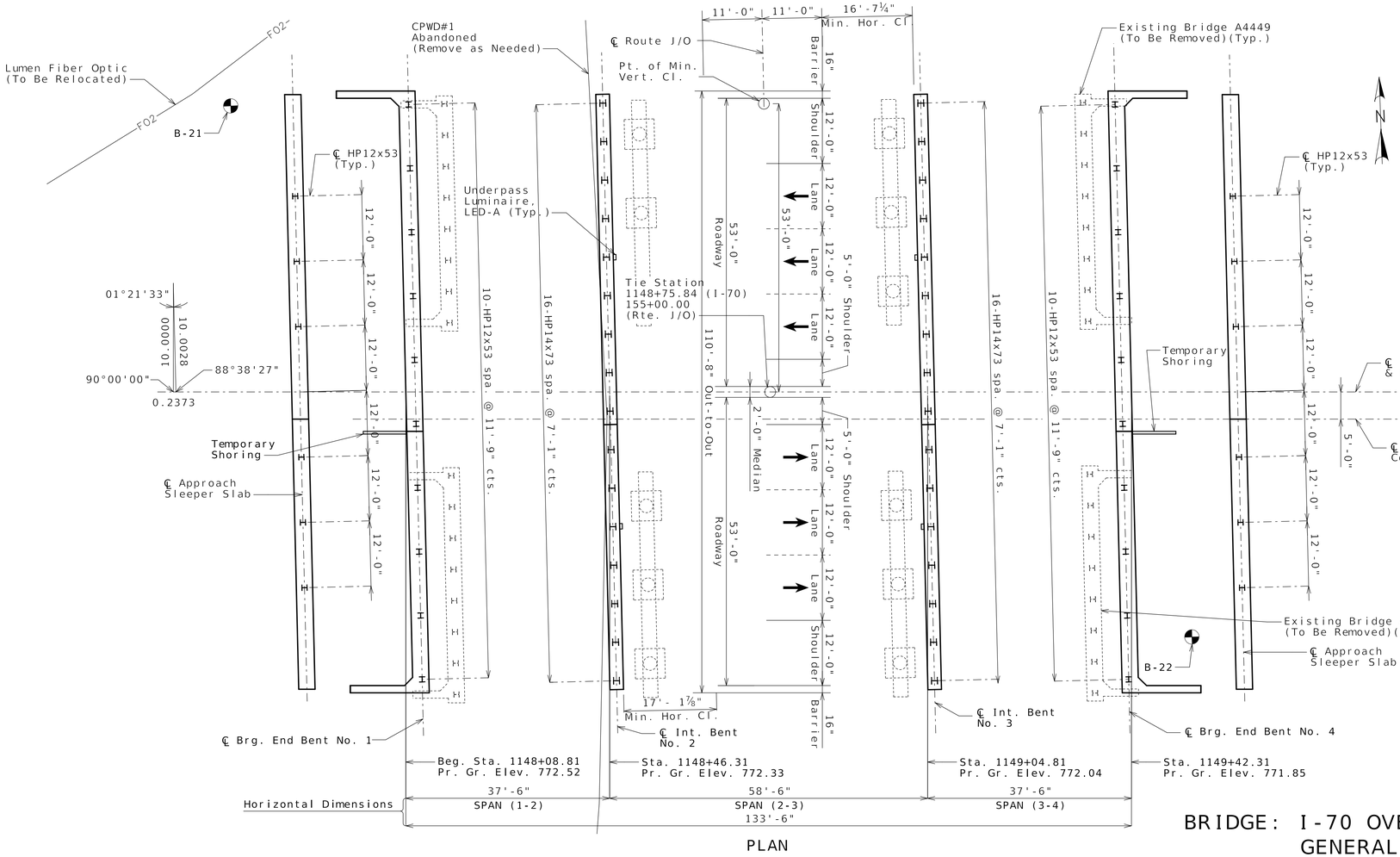
05/18/2026
Released for Construction

SEC/SUR 9/10 TWP 48N RGE 14W

(35.75'- 58.5'- 35.75') PRESTRESSED CONCRETE SPREAD BOX BEAM SPANS



ELEVATION



PLAN

Notes:

Stations and Elevations are along ℄ I-70 unless otherwise noted.

For General Notes, Location Sketch and Foundation Data, see Sheet No. BR01-02.

For details of underpasss lighting, see Sheets No. BR01-10 & 11, and the JST0017 Electrical Plans.

Indicates Location of Borings

Notice and Disclaimer Regarding Boring Log Data

The locations of all subsurface borings for this structure are shown on the plan sheet(s) for this structure. The boring data for all locations indicated, as well as any other boring logs or other factual records of subsurface data and investigations are shown on Sheets No. BR01-36 & BR01-37.

B.M. 102- ELEVATION 762.441
MoGCS-I-70 LOW DISTORTION
LOW DISTORTION PROJECTION DEVELOPED
FOR THE I-70 CORRIDOR "MO I-70 FT"
NORTHING 1686240.9570
EASTING 700129.0240
POINT DESCRIPTION 74/IR

B.M. 103- ELEVATION 738.800
MoGCS-I-70 LOW DISTORTION
LOW DISTORTION PROJECTION DEVELOPED
FOR THE I-70 CORRIDOR "MO I-70 FT"
NORTHING 1684697.1280
EASTING 700095.6720
POINT DESCRIPTION 74/IR

BRIDGE: I-70 OVER ROUTE J/O
GENERAL PLAN AND ELEVATION

ROUTE I-70 FROM ROUTE BB TO ROUTE 40
ABOUT 2.2 MILES EAST OF ROUTE BB
BEGIN STATION 1148+08.81

STATE OF MISSOURI
JUSTIN M. DAVIS
NUMBER PE-2007020256
PROFESSIONAL ENGINEER

DATE PREPARED 14-MAY-2026
ROUTE I-70 | STATE MO
DISTRICT BR | SHEET NO. BR01-01
COUNTY BOONE
JOB NUMBER JST0017
CONTRACT ID. 251203-D01
PROJECT NO. IS 70-2(128)
BRIDGE NO. A9815

REV	DATE	DESCRIPTION
0	051526	RFC BRIDGE A9815

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

IMPROVE I-70 ROCHEPORT TO COLUMBIA

EMERY SAPP & SONS, INC
Hg Consult Inc

MO STATE CERTIFICATE OF AUTHORITY #2010005873 ENGINEERING REV.

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

Designed JAN 2026
Detailed JAN 2026
Checked JAN 2026

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

B_A9815_BR01-01_JST0017_GPE.dgn 7:43:50 PM Eastern 14-MAY-2026

Released for Construction
05/18/2026

GENERAL NOTES

Design Specifications:
2020 AASHTO LRFD Bridge Design Specifications (9th Ed.)

Seismic:
2023 AASHTO Guide Specifications for LRFD Seismic Bridge Design (3rd Ed.)
Seismic Design Category = A2 (Nonseismic)
Design earthquake response spectral acceleration coefficient at 1.0 second period, SD1 = 0.120g
Acceleration Coefficient (effective peak ground acceleration coefficient), As=0.075g

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 A-1 Concrete (PPC Beams).....f'c = 8,000 psi
f'ci = 6,500 psi
Class B Concrete (Substructure).....f'c = 3,000 psi
Class B-2 Concrete (Superstructure, except Prestressed Beams and Barrier).....f'c = 4,000 psi
Class B-1 Concrete (Barrier).....f'c = 4,000 psi
Reinforcing Steel (ASTM A615 Grade 60).....fy = 60,000 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.

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.

MBS refers to mechanical bar splices. Mechanical bar splices shall be in accordance with Sec 706 or 710.

Traffic Handling:

Vertical clearance for Route J/O traffic during construction shall be 16'-6" minimum over a 22'-0" wide horizontal opening of the roadway.

Traffic to be maintained on structures during construction. See roadway plans for traffic control and Sheet No. BR01-03 for staged construction details.

Concrete Protective Coatings:

All substructure elements that are above ground and within the splash zone, and all end bents, will be treated with Concrete Protective Coating (Epoxy) in accordance with Sec 711 and constructed with epoxy-coated reinforcement.

Stay-In-Place Corrugated Steel Forms:

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

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

Foundation Data

Type	Design Data		Bent Number					
			EB1 Approach Sleeper Slab	1	2	3	4	EB4 Approach Sleeper Slab
Load Bearing Pile	Pile Type and Size		HP12x53	HP12x53	HP14x73	HP14x73	HP12x53	HP12x53
	Number	ea	6	10	16	16	10	6
	Approximate Length Per Each	ft	20	45	45	45	45	20
	Pile Point Reinforcement	ea	All	All	All	All	All	All
	Min. Galvanized Penetration (Elev.)	ft	Full Length	Full Length	Full Length	Full Length	Full Length	Full Length
	Min. Tip Penetration (Elev.)	ft	---	---	737.07	736.28	---	---
	Criteria for Min. Tip Penetration		---	---	Min. Embed.	Min. Embed.	---	---
	Pile Driving Verification Method		---	WEAP	DT	DT	WEAP	---
	Resistance Factor		---	0.5	0.65	0.65	0.5	---
	Minimum Nominal Axial Compressive Resistance		---	390	420	420	390	---

WEAP= Wave Equation Analysis of Piles
DT= Dynamic Testing

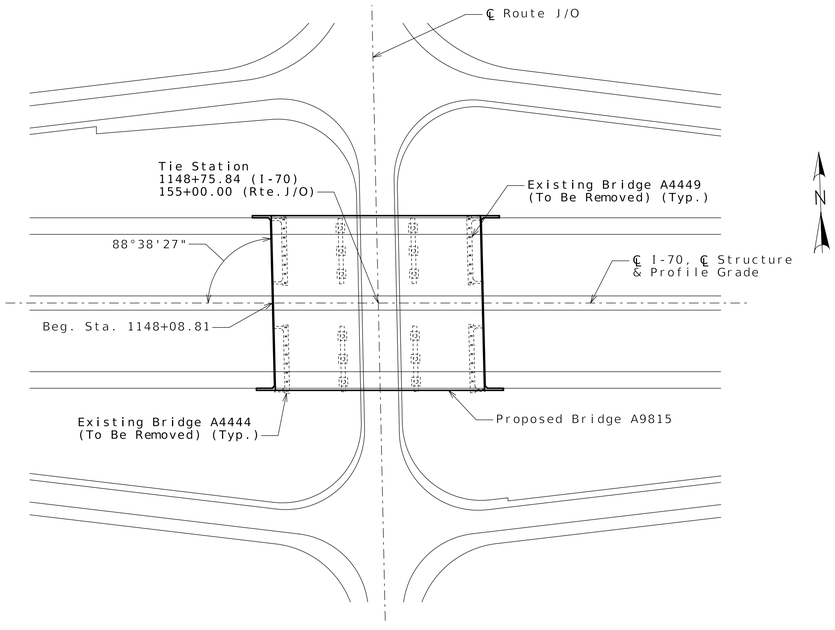
Load Bearing Pile:
Minimum Nominal Axial Compressive Resistance = $\frac{\text{Maximum Factored Loads}}{\text{Resistance Factor}}$

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

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

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

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.



LOCATON SKETCH

GENERAL NOTES AND FOUNDATION DATA

Designed JAN 2026
Detailed JAN 2026
Checked JAN 2026

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

STATE OF MISSOURI
JUSTIN M. HAAS
NUMBER
PE-2007020256
PROFESSIONAL ENGINEER

DATE PREPARED
14-MAY-2026

ROUTE	STATE
I-70	MO

DISTRICT	SHEET NO.
BR	BR01-02

COUNTY
BOONE

JOB NUMBER
JST0017

CONTRACT ID.
251203-D01

PROJECT NO.
IS 70-2(128)

BRIDGE NO.
A9815

REV	DATE	DESCRIPTION
0	051526	RFC BRIDGE A9815

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

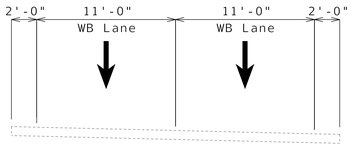
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

IMPROVE I-70 ROCHEPORT TO COLUMBIA

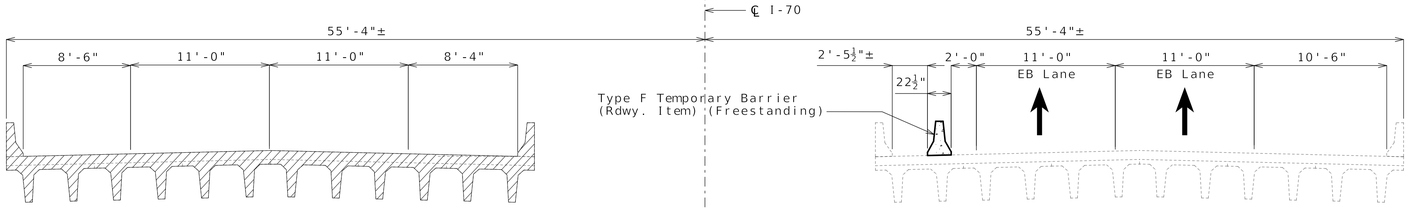
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Hg Consult Inc

MO STATE CERTIFICATE OF AUTHORITY #2010005873 ENGINEERING REV.

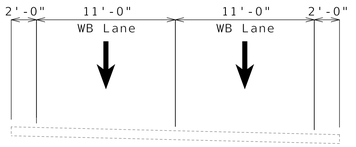
05/18/2026
Released for Construction



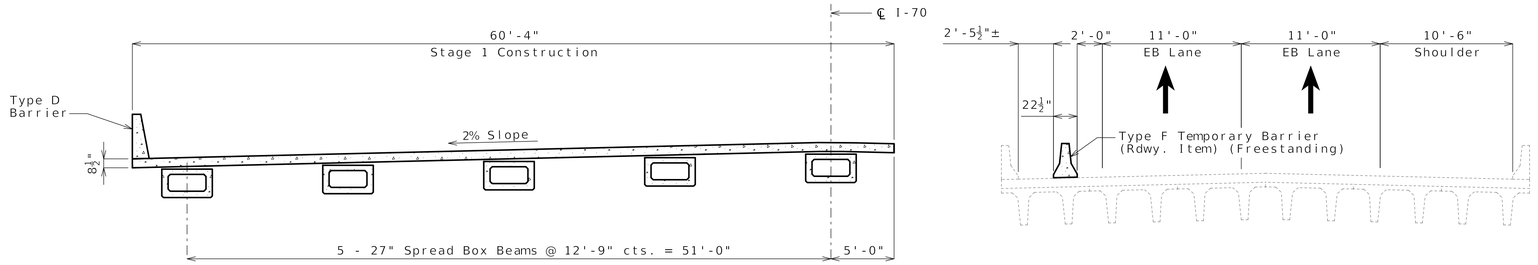
WB Traffic thru N. Ramp



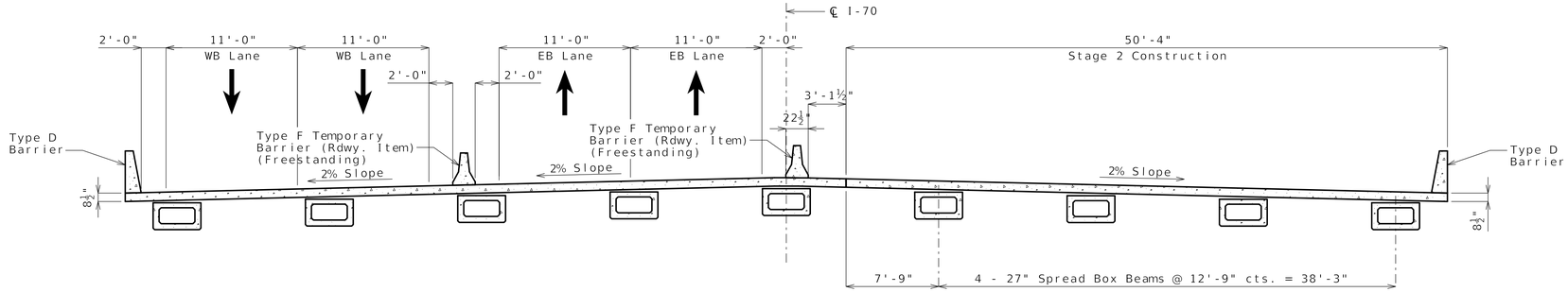
STAGE 1 DEMOLITION



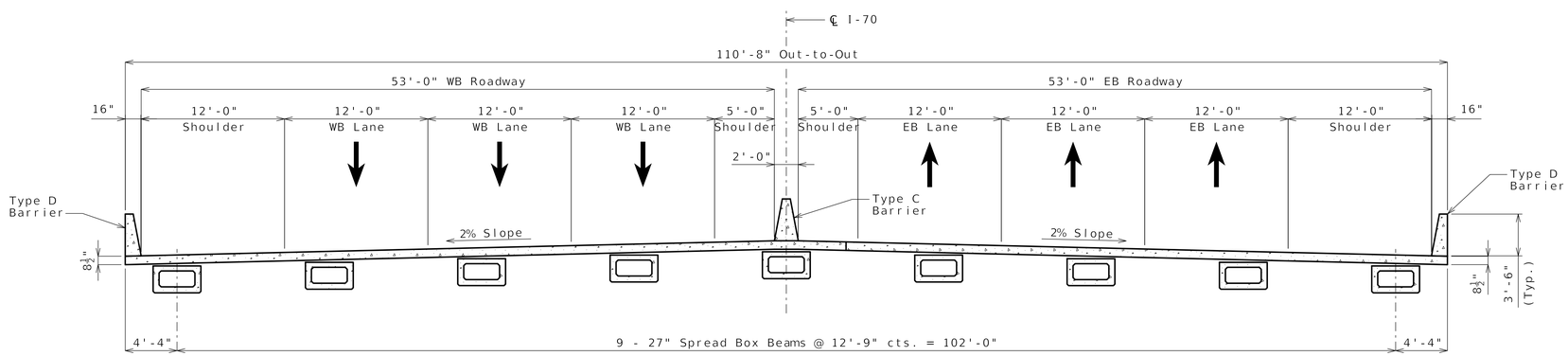
WB Traffic thru N. Ramp



STAGE 1 CONSTRUCTION



STAGE 2 CONSTRUCTION



FINAL PROPOSED TYPICAL SECTION

CONSTRUCTION STAGING & TYPICAL SECTION

Designed JAN 2026
Detailed JAN 2026
Checked JAN 2026

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

B_A9815_BR01-03_JST0017_CONST_STAGE_1.dgn 5:24:54 PM Eastern 14-MAY-2026

STATE OF MISSOURI
JUSTIN M. DAVIS
NUMBER PE-2007020256
PROFESSIONAL ENGINEER

DATE PREPARED: 14-MAY-2026
ROUTE: I-70 | STATE: MO
DISTRICT: BR | SHEET NO.: BR01-03
COUNTY: BOONE
JOB NUMBER: JST0017
CONTRACT ID.: 251203-D01
PROJECT NO.: IS 70-2(128)
BRIDGE NO.: A9815

REV	DATE	DESCRIPTION
0	051526	RFC BRIDGE A9815

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

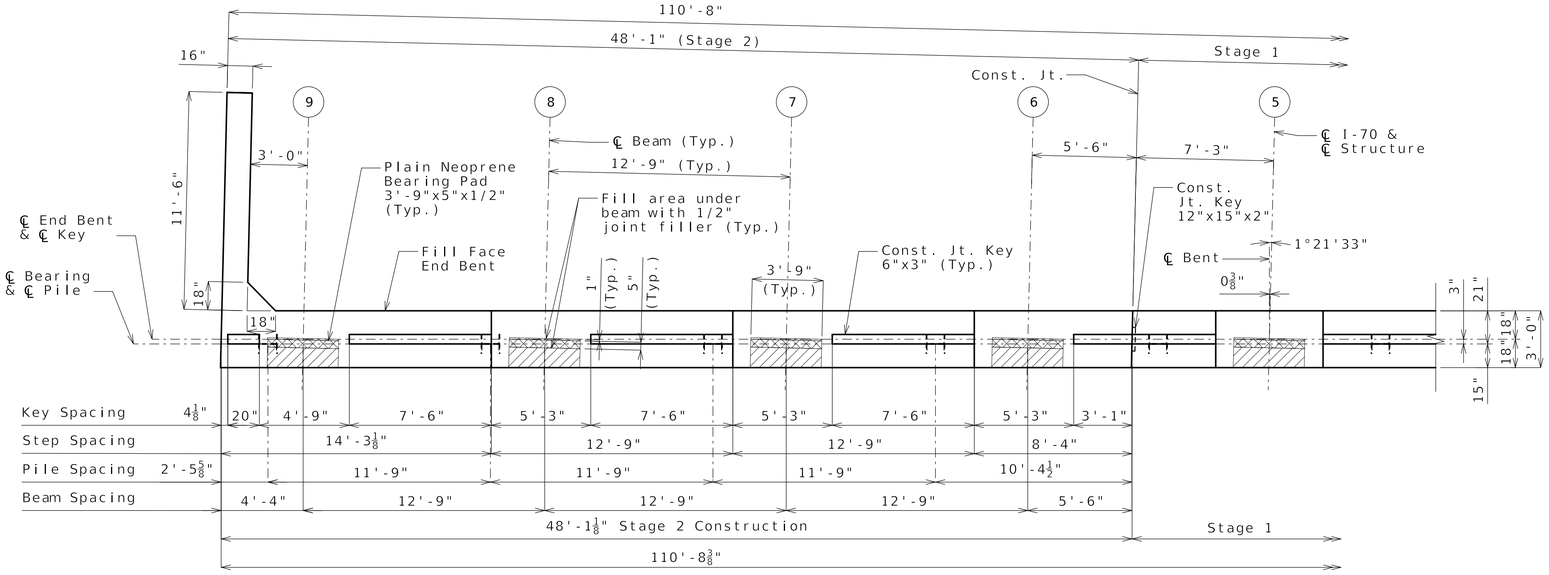
IMPROVE I-70 ROCHEPORT TO COLUMBIA

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Hg Consult Inc

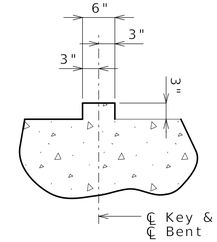
MO STATE CERTIFICATE OF AUTHORITY #2010005873 ENGINEERING

REV.

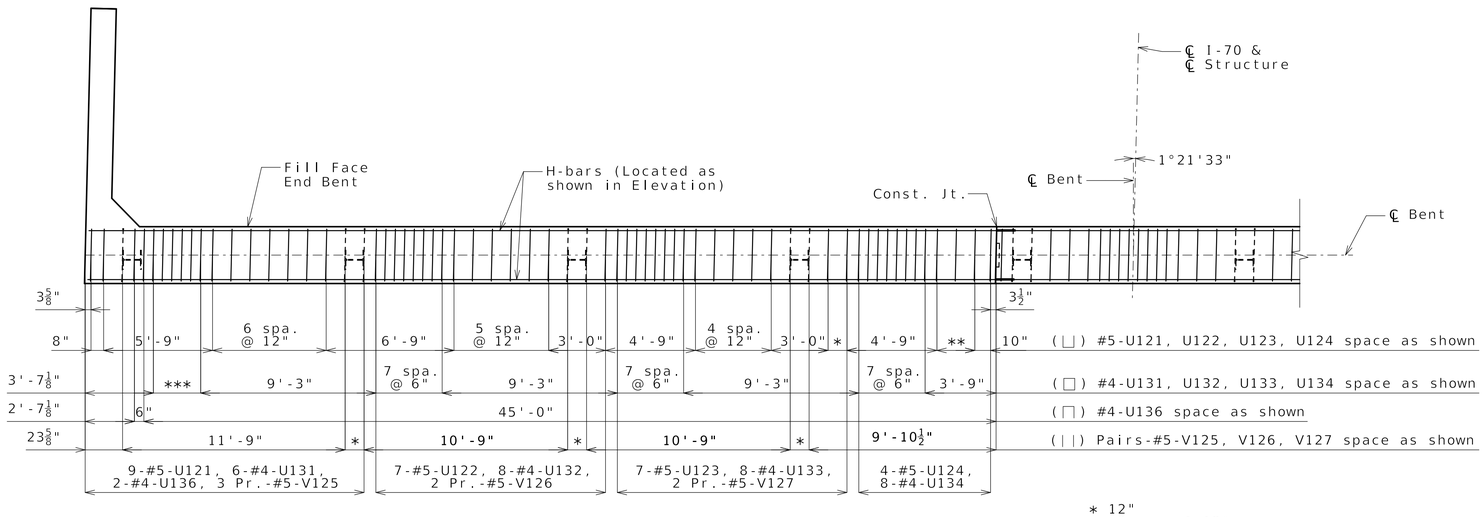
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PLAN OF BEAM - STAGE 2

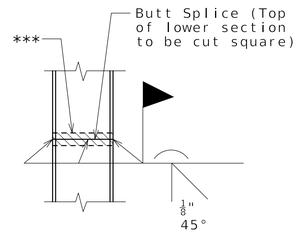


SECTION THRU KEY



* 12"
** 2 spa. @ 12"
*** 5 spa. @ 6"

PLAN OF BEAM SHOWING REINFORCING - STAGE 2



STEEL PILE SPLICE
(If required)

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

Notes:

Work this sheet with Sheets No. BR01-05 thru 08.

For details of Vertical Drain at End Bent, see Sheet No. BR01-09.

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

The U-bars and Pairs of V-bars shall be placed parallel to the centerline of roadway.

DETAILS OF END BENT NO. 1

Designed Feb. 2026
Detailed March 2026
Checked April 2026

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

STATE OF MISSOURI
JUSTIN M. DAVIS
NUMBER PE-2007020256
PROFESSIONAL ENGINEER

DATE PREPARED 13-MAY-2026
ROUTE I-70 | STATE MO
DISTRICT BR | SHEET NO. BR01-04
COUNTY BOONE
JOB NUMBER JST0017
CONTRACT ID. 251203-D01
PROJECT NO. IS 70-2(128)
BRIDGE NO. A9815

REV	DATE	DESCRIPTION
0	051526	RFC BRIDGE A9815

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

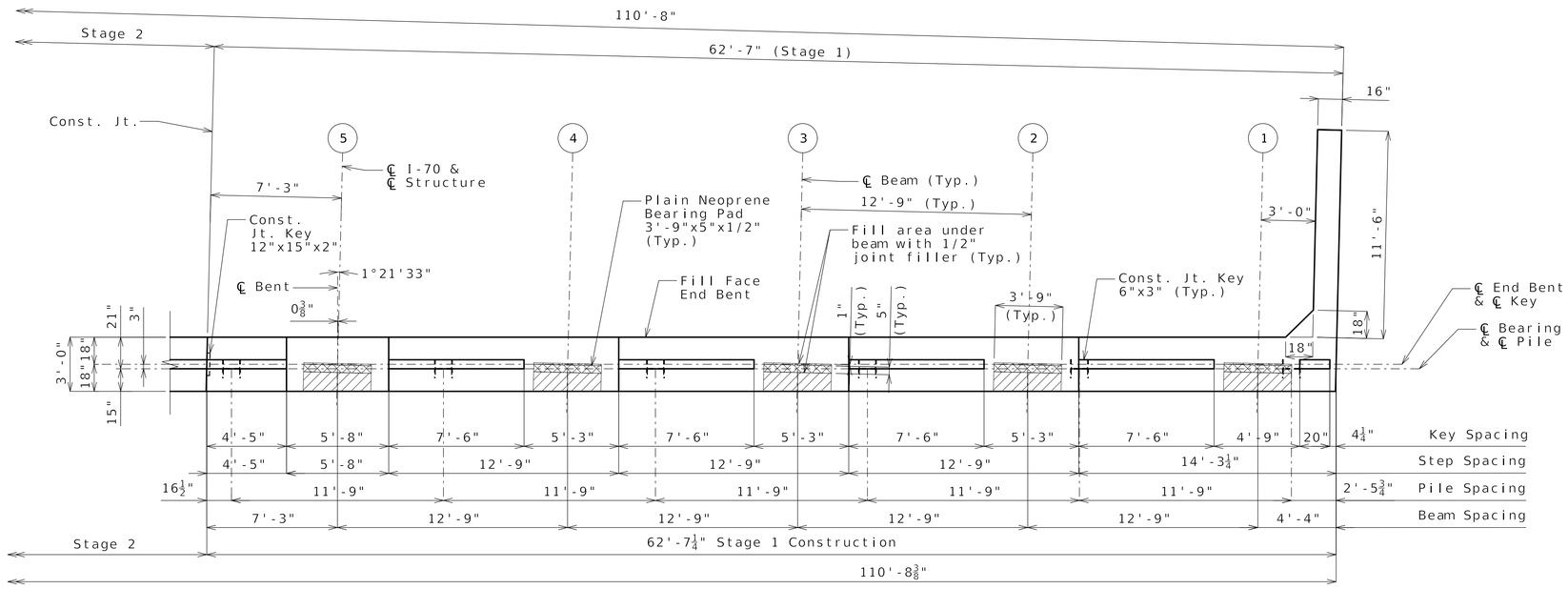
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

IMPROVE I-70 ROCHEPORT TO COLUMBIA

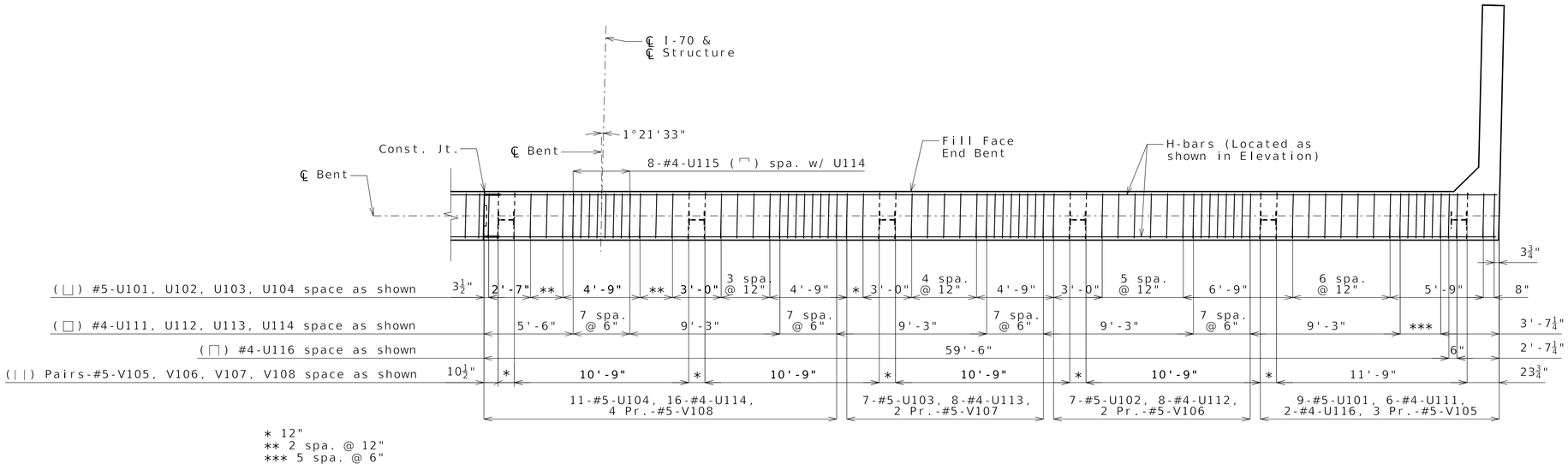
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PLAN OF BEAM - STAGE 1



* 12"
** 2 spa. @ 12"
*** 5 spa. @ 6"

PLAN OF BEAM SHOWING REINFORCING - STAGE 1

Notes:

Work this sheet with Sheets No. BR01-04, BR01-06 thru 08.

For details of Vertical Drain at End Bent, see Sheet No. BR01-09.

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

The U-bars and Pairs of V-bars shall be placed parallel to the centerline of roadway.

DETAILS OF END BENT NO. 1

Designed Feb. 2026
Detailed March 2026
Checked April 2026

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

STATE OF MISSOURI
JUSTIN M. DAVIS
NUMBER PE-2007020256
PROFESSIONAL ENGINEER

DATE PREPARED
13-MAY-2026

ROUTE	STATE
I-70	MO
DISTRICT	SHEET NO.
BR	BR01-05

COUNTY
BOONE

JOB NUMBER
JST0017

CONTRACT ID.
251203-D01

PROJECT NO.
IS 70-2(128)

BRIDGE NO.
A9815

REV	DATE	DESCRIPTION
0	051526	RFC BRIDGE A9815

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MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
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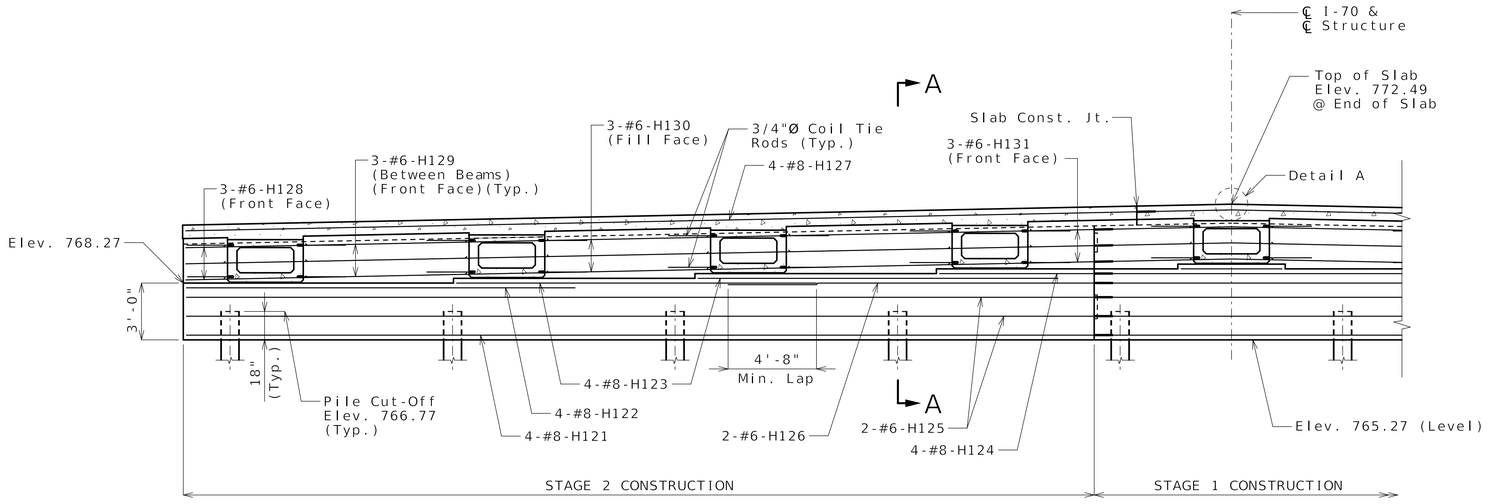
IMPROVE I-70 ROCHEPORT TO COLUMBIA

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Hg Consult Inc

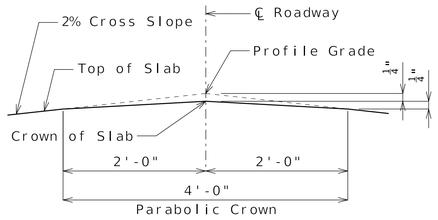
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REV.

05/18/2026
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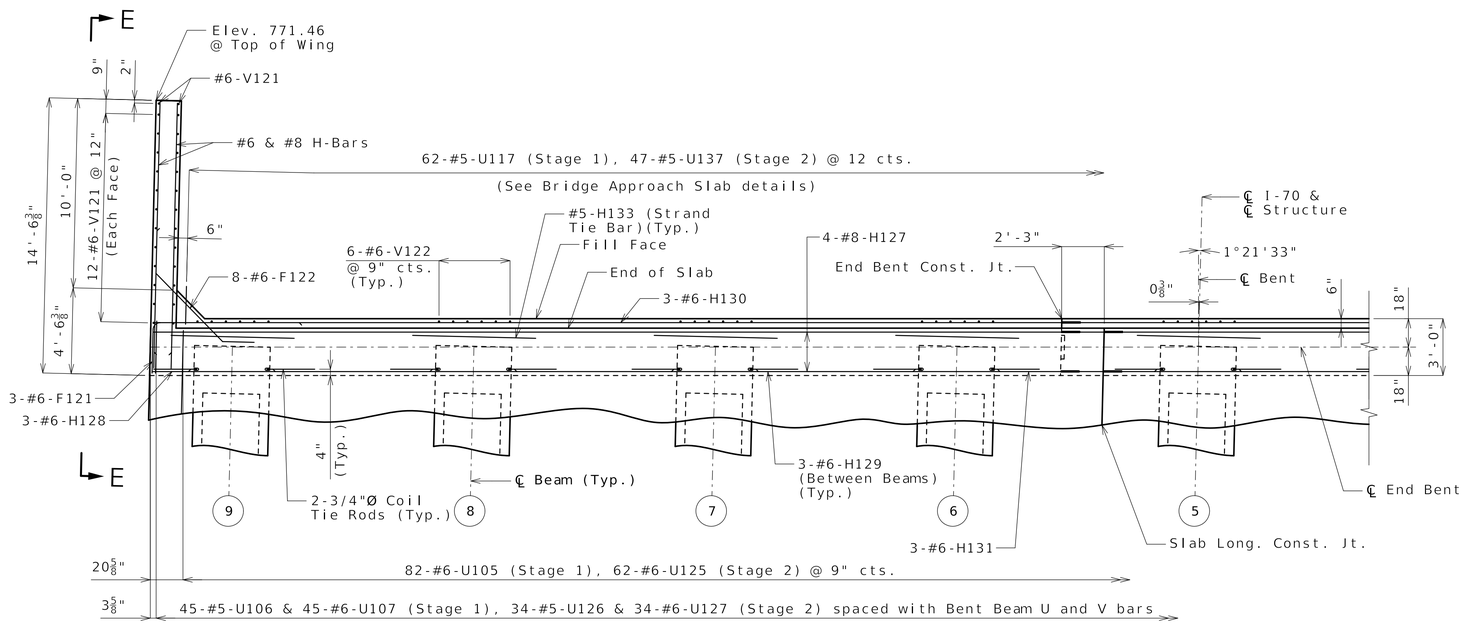


SECTION NEAR END BENT- STAGE 2



DETAIL A

Bent No. 1 Bearing Seat Elevations		
Stage	Beam	Elevation
Stage 2	Beam 6	769.05
	Beam 7	768.79
	Beam 8	768.54
	Beam 9	768.27



PART PLAN - STAGE 2

Notes:

Work this sheet with Sheets No. BR01-04, 05, 07, 08.

For details of Vertical Drain at End Bent, see Sheet No. BR01-09.

For Section A-A and Elevation E-E, see Sheet No. BR01-08.

The #6-F122 bars shall be bent in the field to clear beams.

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

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

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

For location of coil tie rods and #5-H133 (strand tie bar), see Sheet No. BR01-18.

For details of Bridge Approach Slab, see Sheet No. BR01-30.

DETAILS OF END BENT NO. 1

Designed Feb. 2026
Detailed March 2026
Checked April 2026

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

STATE OF MISSOURI
JUSTIN M. HAAS
NUMBER
PE-2007020258
PROFESSIONAL ENGINEER

DATE PREPARED
13-MAY-2026
ROUTE I-70
STATE MO
DISTRICT BR
SHEET NO. BR01-06
COUNTY BOONE
JOB NUMBER JST0017
CONTRACT ID. 251203-D01
PROJECT NO. IS 70-2(128)
BRIDGE NO. A9815

REV | DATE | DESCRIPTION
0 | 051526 | RFC BRIDGE A9815

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

IMPROVE I-70 ROCHEPORT TO COLUMBIA

EMERY SAPP & SONS, INC
Hg Consult Inc

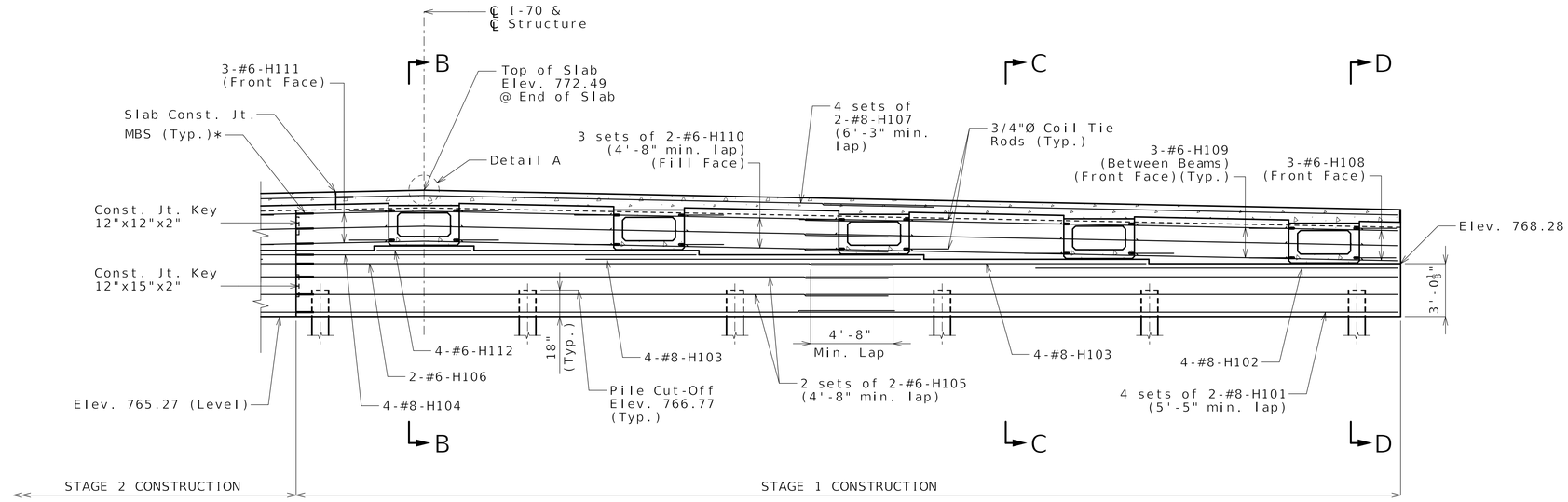
MO STATE CERTIFICATE OF AUTHORITY #2010005873 ENGINEERING

REV.

05/18/2026
Released for Construction

∗ 24 Total MBS
12- #8 to #8
12- #6 to #6

Bent No. 1 Bearing Seat Elevations		
Stage	Beam	Elevation
Stage 1	Beam 1	768.28
	Beam 2	768.55
	Beam 3	768.80
	Beam 4	769.05
	Beam 5	769.30
Stage 1/2	Const. Jt.	769.05



SECTION NEAR END BENT- STAGE 1

Notes:

Work this sheet with Sheets No. BR01-04, 05, 06, 08.

For details of Vertical Drain at End Bent, see Sheet No. BR01-09.

For Sections B-B, C-C, D-D and Elevation F-F, see Sheet No. BR01-08.

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

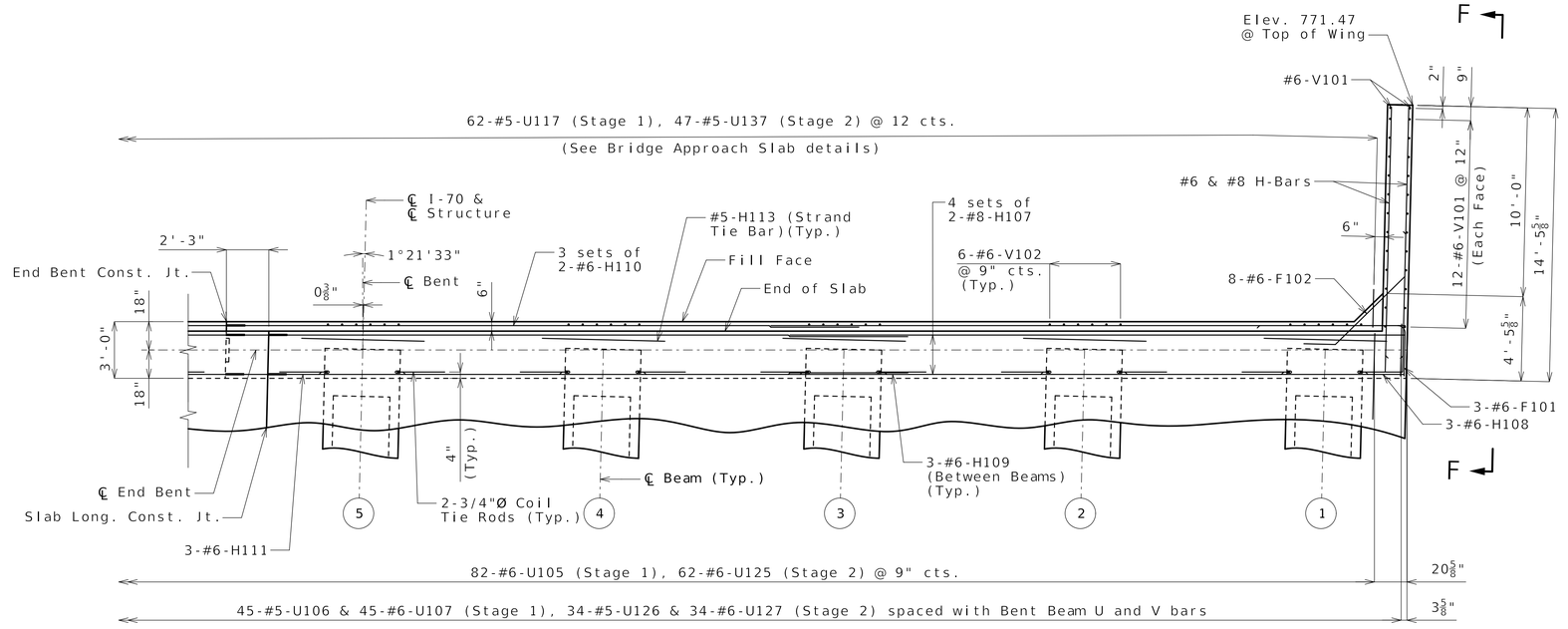
The U bars shall be placed parallel to centerline of roadway.

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

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

For location of coil tie rods and #5-H113 (strand tie bar), see Sheet No. BR01-18.

For details of Bridge Approach Slab, see Sheet No. BR01-30.



PART PLAN - STAGE 1

DETAILS OF END BENT NO. 1

Designed Feb. 2026
Detailed March 2026
Checked April 2026

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

B_A9815_BR01-07_JST0017_END_BENT_1-4.dgn 4:27:04 PM Eastern 13-MAY-2026

STATE OF MISSOURI
JUSTIN M. DAVIS
NUMBER PE-2007020256
PROFESSIONAL ENGINEER

DATE PREPARED
13-MAY-2026

ROUTE	STATE
I-70	MO
DISTRICT	SHEET NO.
BR	BR01-07

COUNTY
BOONE

JOB NUMBER
JST0017

CONTRACT ID.
251203-D01

PROJECT NO.
IS 70-2(128)

BRIDGE NO.
A9815

REV	DATE	DESCRIPTION
0	051526	RFC BRIDGE A9815

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

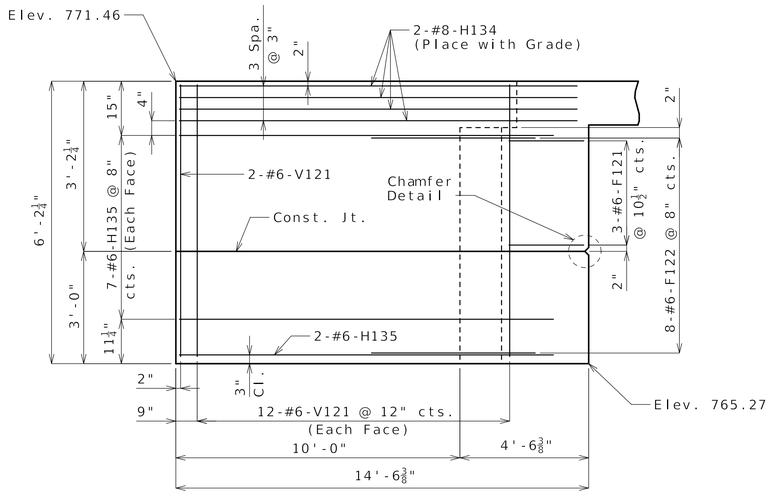
IMPROVE I-70 ROCHEPORT TO COLUMBIA

EMERY SAPP & SONS, INC
Hg Consult Inc

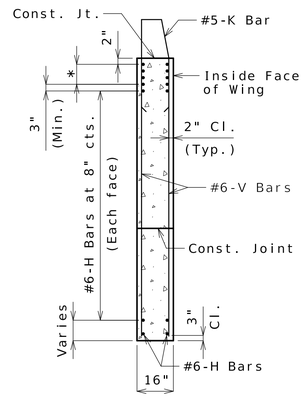
MO STATE CERTIFICATE OF AUTHORITY #2010005873 ENGINEERING

REV.

05/18/2026
Released for Construction

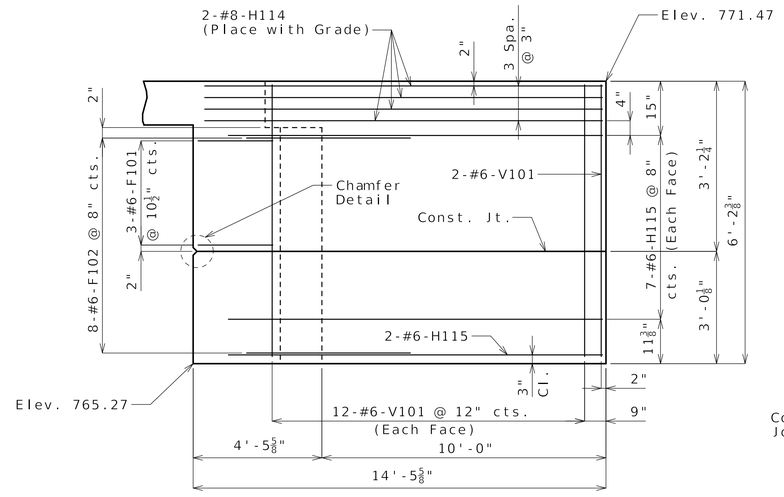


ELEVATION E-E

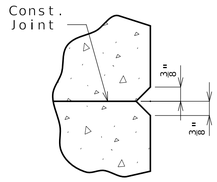


TYPICAL SECTION THRU WING

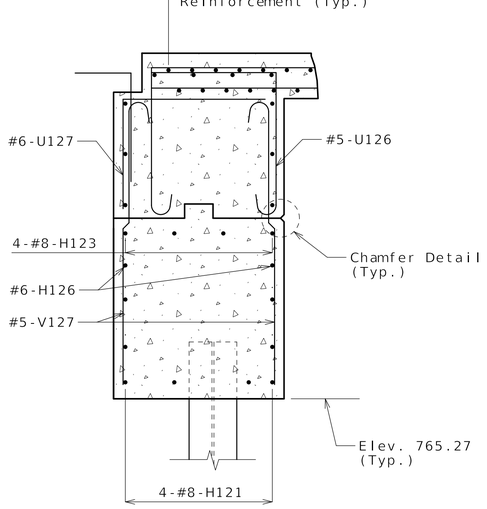
* #8-H Bars at 3" cts. (Each face)(Place with grade)



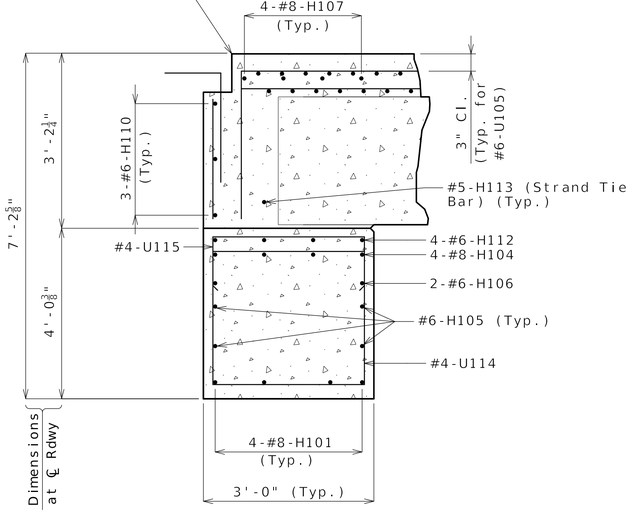
ELEVATION F-F



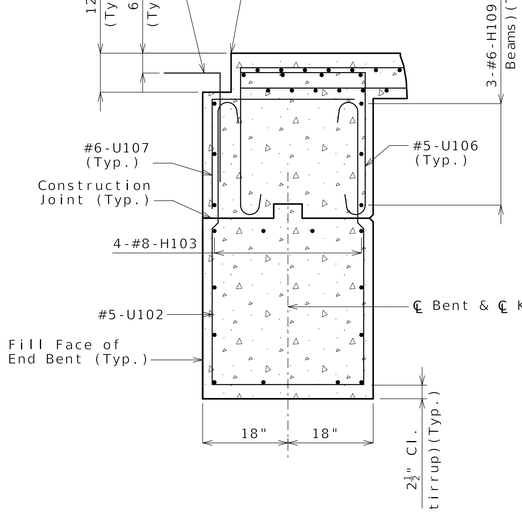
CHAMFER DETAIL



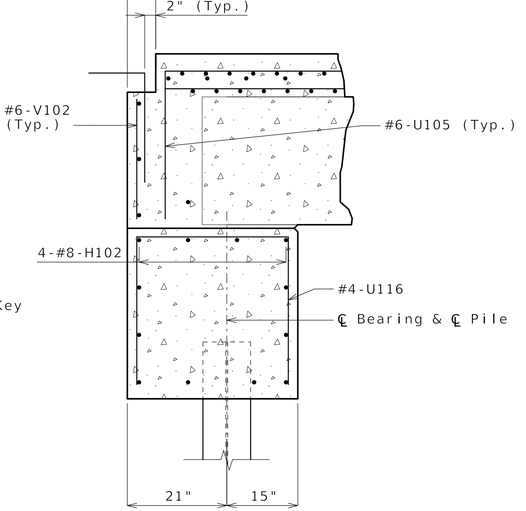
SECTION A-A



SECTION B-B



SECTION C-C



SECTION D-D

Notes:

Reinforcement labeled as Typ. shown for Stage 1. For Stage 2 reinforcement, add 20 to the bar mark.

Work this sheet with Sheets No. BR01-04 thru 07.

For reinforcement of the barrier, see Sheet No. BR01-28.

DETAILS OF END BENT NO. 1

Designed Feb. 2026
Detailed March 2026
Checked April 2026

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

STATE OF MISSOURI
JUSTIN M. DAVIS
NUMBER PE-2007020256
PROFESSIONAL ENGINEER

DATE PREPARED 13-MAY-2026
ROUTE I-70 | STATE MO
DISTRICT BR | SHEET NO. BR01-08
COUNTY BOONE
JOB NUMBER JST0017
CONTRACT ID. 251203-D01
PROJECT NO. IS 70-2(128)
BRIDGE NO. A9815

REV	DATE	DESCRIPTION
0	051526	RFC BRIDGE A9815

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

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

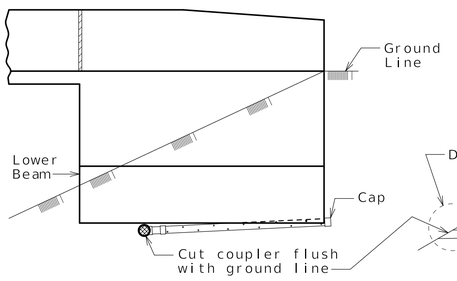
IMPROVE I-70 ROCHEPORT TO COLUMBIA

EMERY SAPP & SONS, INC
Hg Consult Inc

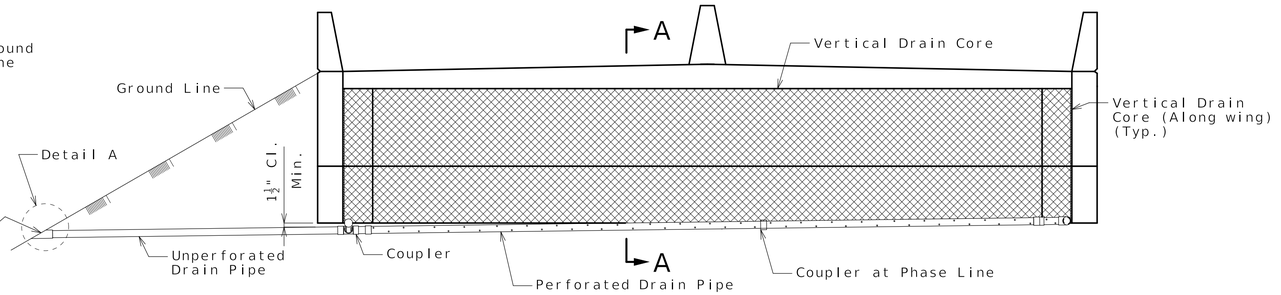
MO STATE CERTIFICATE OF AUTHORITY #2010005873 ENGINEERING

REV.

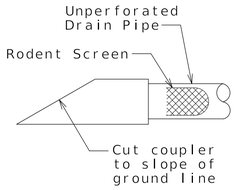
05/18/2026
Released for Construction



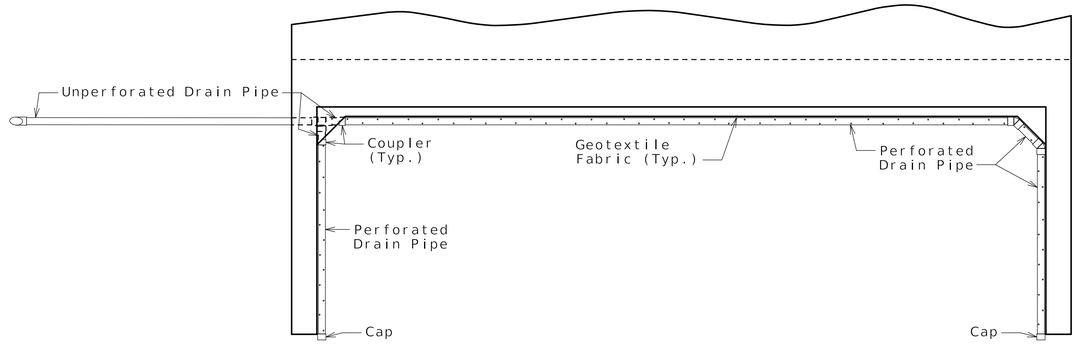
ELEVATION OF WING



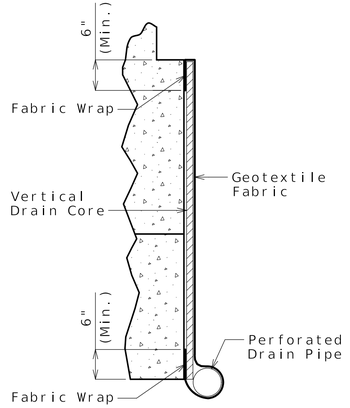
ELEVATION OF END BENT



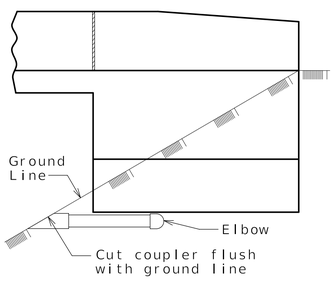
DETAIL A



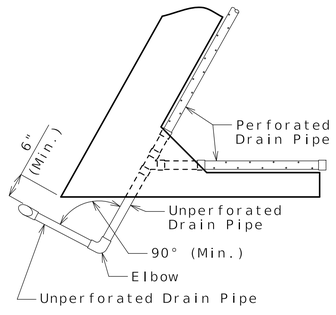
PLAN OF END BENT



PART SECTION A-A
(Section thru wing similar)



ELEVATION OF WING



PART PLAN

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

General Notes:

All drain pipe shall be sloped 1 to 2 percent.

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

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

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

VERTICAL DRAIN AT END BENTS

(Squared end bent shown, skewed end bent similar)

Designed Feb. 2026
Detailed March 2026
Checked April 2026

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

STATE OF MISSOURI
JUSTIN M. DAVIS
NUMBER PE-2007020256
PROFESSIONAL ENGINEER

DATE PREPARED
13-MAY-2026

ROUTE	STATE
I-70	MO
DISTRICT	SHEET NO.
BR	BR01-09

COUNTY
BOONE

JOB NUMBER
JST0017

CONTRACT ID.
251203-D01

PROJECT NO.
IS 70-2(128)

BRIDGE NO.
A9815

REV	DATE	DESCRIPTION
0	051526	RFC BRIDGE A9815

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

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

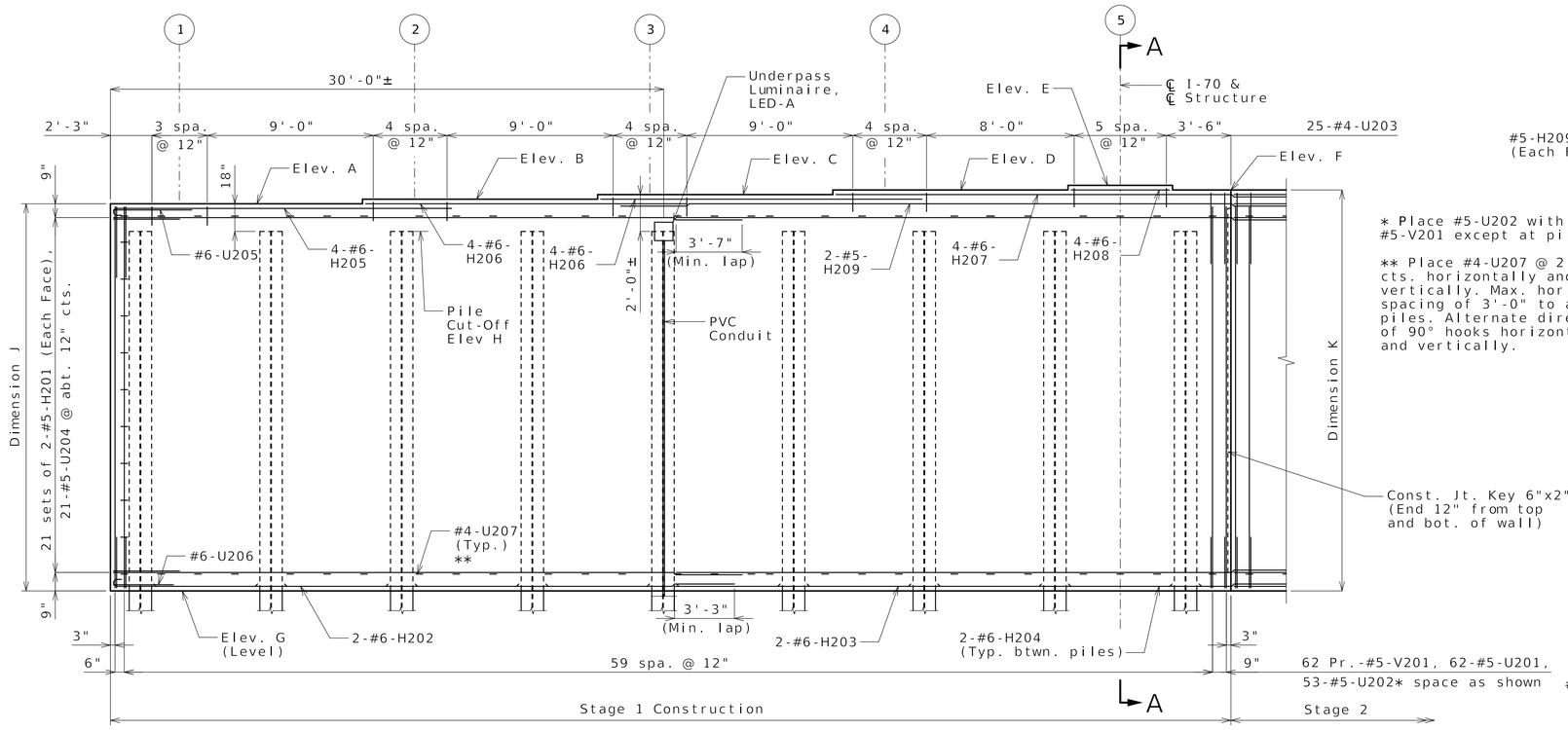
IMPROVE I-70 ROCHEPORT TO COLUMBIA

EMERY SAPPS SONS, INC
Hg Consult Inc

MO STATE CERTIFICATE OF AUTHORITY #2010005873 ENGINEERING

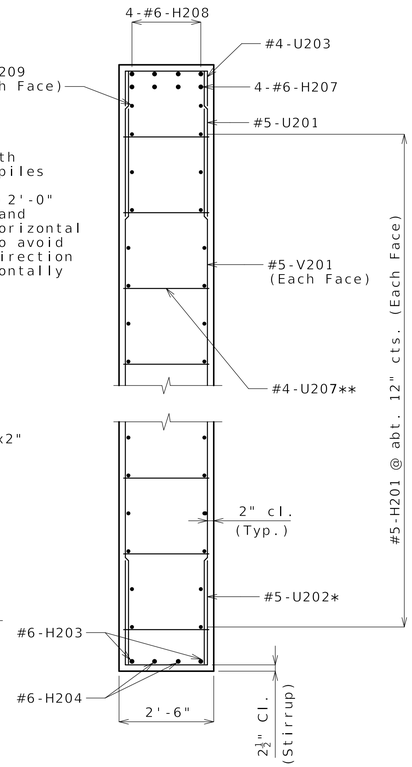
REV.

05/18/2026
Released for Construction



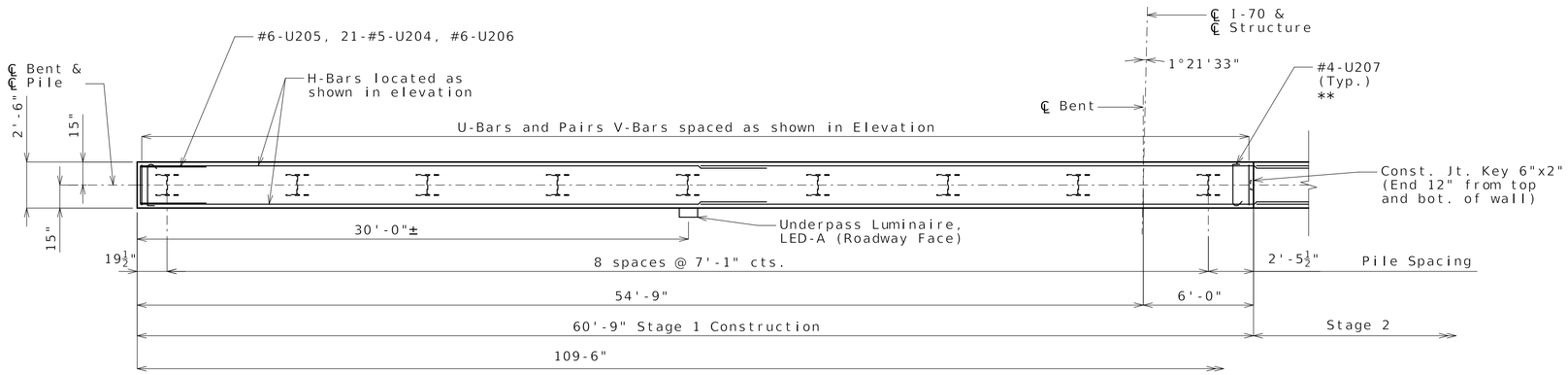
* Place #5-U202 with #5-V201 except at piles

** Place #4-U207 @ 2'-0" cts. horizontally and vertically. Max. horizontal spacing of 3'-0" to avoid piles. Alternate direction of 90° hooks horizontally and vertically.



SECTION A-A

ELEVATION (STAGE 1)



PLAN (STAGE 1)

INT. BENT ELEVATIONS AND DIMENSIONS			
Stage	Value	Bent 2	Bent 3
Stage 1	Elev. A	768.09	767.79
	Elev. B	768.35	768.06
	Elev. C	768.61	768.31
	Elev. D	768.86	768.57
	Elev. E	769.11	768.82
	Elev. F	768.86	768.56
	Elev. G	747.07	746.28
	Elev. H	766.58	766.28
	Dim. J	21'-0¼"	21'-6⅛"
	Dim. K	21'-9½"	22'-3⅜"

Underpass Lighting Notes:
All conduits shall be rigid nonmetallic schedule 40 heavy wall polyvinyl chloride (PVC). Each section of conduit shall bear the Underwriters Laboratories (UL) label.

All conduit clamps shall be commercially-available, nonmetallic conduit clamps and approved by the engineer.

Anchor bolts and nuts shall be ASTM F1554 Grade 55. Anchor bolts, nuts and washers shall be galvanized in accordance with AASTM F2329, or ASTM B695, Class 55.

Light standards, wiring and fixtures shall be furnished and installed by others.

Underpass Lighting Notes (Cont'd):
Top of light standard supports shall be made horizontal; anchor bolts shall be placed vertically.

For details of light standards, underpass lighting, and wiring, see electrical plans.

All conduits shall be secured to concrete with nonmetallic clamps at about 5'-0" cts. Concrete anchors for clamps shall be in accordance with Commercial Item Description (CID) A-A-1923A and shall be galvanized in accordance with ASTM F2329, ASTM B695, Class 55 or stainless steel. Minimum embedment in concrete shall be 1 3/4". The supplier shall furnish a manufacturer's certification that the concrete anchors meet the required material and galvanizing specifications.

Note:
Work this sheet with Sheets No. BR01-11 & 12.

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

Reinforcement shown for Int. Bent No. 2. For Int. Bent No. 3, replace the first digit of the bar mark with 3.

DETAILS OF INTERMEDIATE BENT 2 & 3 - STAGE 1

Designed Feb. 2026
Detailed March 2026
Checked April 2026

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

STATE OF MISSOURI
JUSTIN M. DAVIS
NUMBER PE-2007020256
PROFESSIONAL ENGINEER

DATE PREPARED: 13-MAY-2026
ROUTE: I-70 | STATE: MO
DISTRICT: BR | SHEET NO.: BR01-10
COUNTY: BOONE
JOB NUMBER: JST0017
CONTRACT ID.: 251203-D01
PROJECT NO.: IS 70-2(128)
BRIDGE NO.: A9815

REV	DATE	DESCRIPTION
0	051526	RFC BRIDGE A9815

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

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

IMPROVE I-70 ROCHEPORT TO COLUMBIA

EMERY SAPP & SONS, INC

Hg Consult Inc

MO STATE CERTIFICATE OF AUTHORITY #2010005873 ENGINEERING

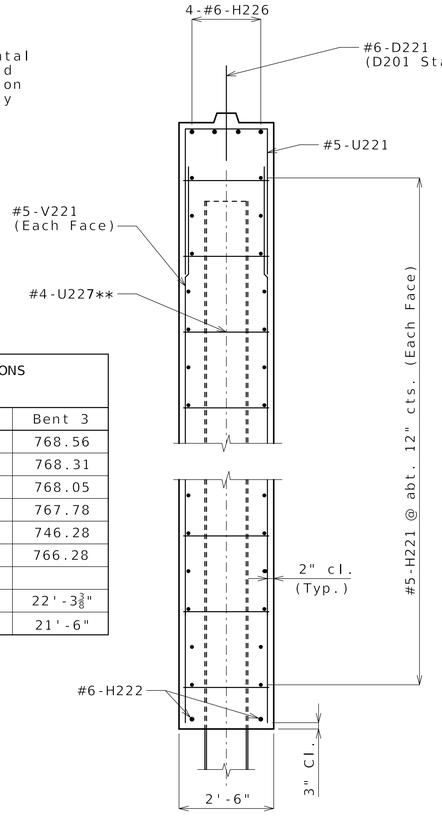
REV.

05/18/2026
Released for Construction

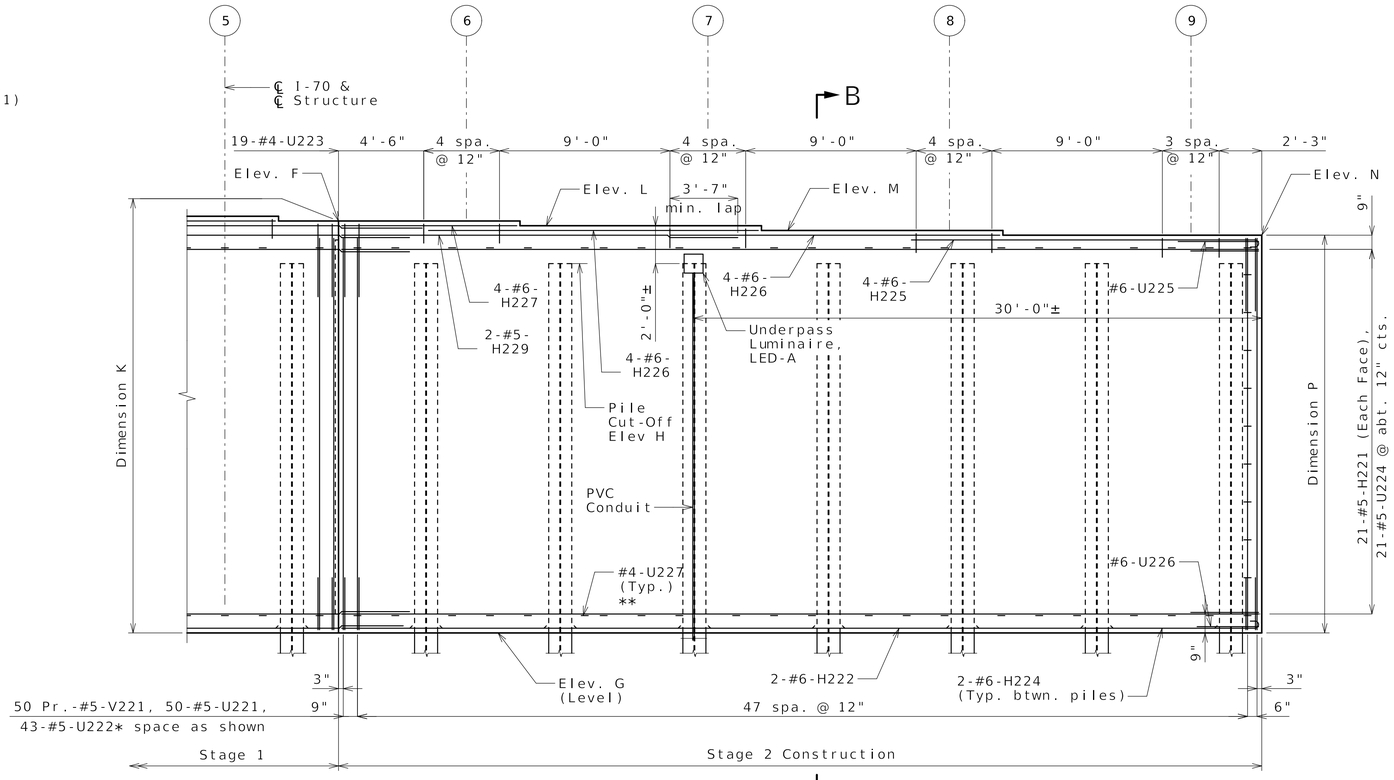
* Place #5-U222 with #5-V221 except at piles

** Place #4-U227 @ 2'-0" cts. horizontally and vertically. Max. horizontal spacing of 3'-0" to avoid piles. Alternate direction of 90° hooks horizontally and vertically.

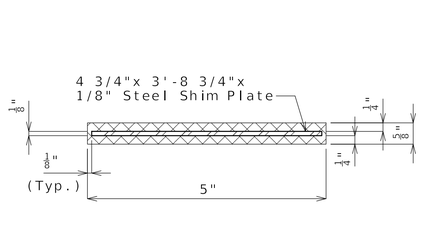
INT. BENT ELEVATIONS AND DIMENSIONS			
Stage	Value	Bent 2	Bent 3
Stage 2	Elev. F	768.86	768.56
	Elev. L	768.60	768.31
	Elev. M	768.34	768.05
	Elev. N	768.07	767.78
	Elev. G	747.07	746.28
	Elev. H	766.58	766.28
	Dim. K	21'-9½"	22'-3⅜"
	Dim. P	21'-0"	21'-6"



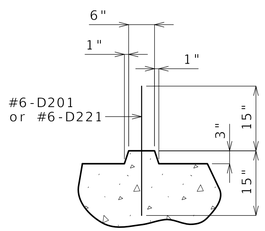
SECTION B-B



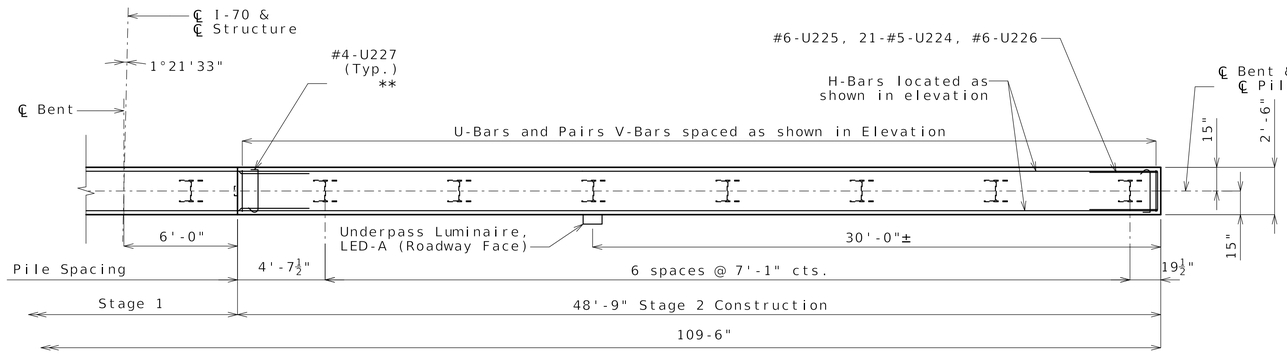
ELEVATION (STAGE 2)



TYPICAL SECTION THRU 3'-9" x 5" x 5/8" LAMINATED NEOPRENE BEARING PAD



SECTION THRU KEY



PLAN (STAGE 2)

Note:
Work this sheet with Sheets No. BR01-10 & 12.

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

Reinforcement shown for Int. Bent No. 2. For Int. Bent No. 3, replace the first digit of the bar mark with 3.

For Underpass lighting notes, see Sheet No. BR01-10.

DETAILS OF INTERMEDIATE BENT 2 & 3

Designed Feb. 2026
Detailed March 2026
Checked April 2026

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

B_A9815_BR01-11_JST0017_INT_BENT_2.dgn 4:39:13 PM Eastern 13-MAY-2026

STATE OF MISSOURI
JUSTIN M. DAMS
NUMBER PE-2007026256
PROFESSIONAL ENGINEER

DATE PREPARED 13-MAY-2026
ROUTE I-70 | STATE MO
DISTRICT BR | SHEET NO. BR01-11
COUNTY BOONE
JOB NUMBER JST0017
CONTRACT ID. 251203-D01
PROJECT NO. IS 70-2(128)
BRIDGE NO. A9815

REV	DATE	DESCRIPTION
0	051526	RFC BRIDGE A9815

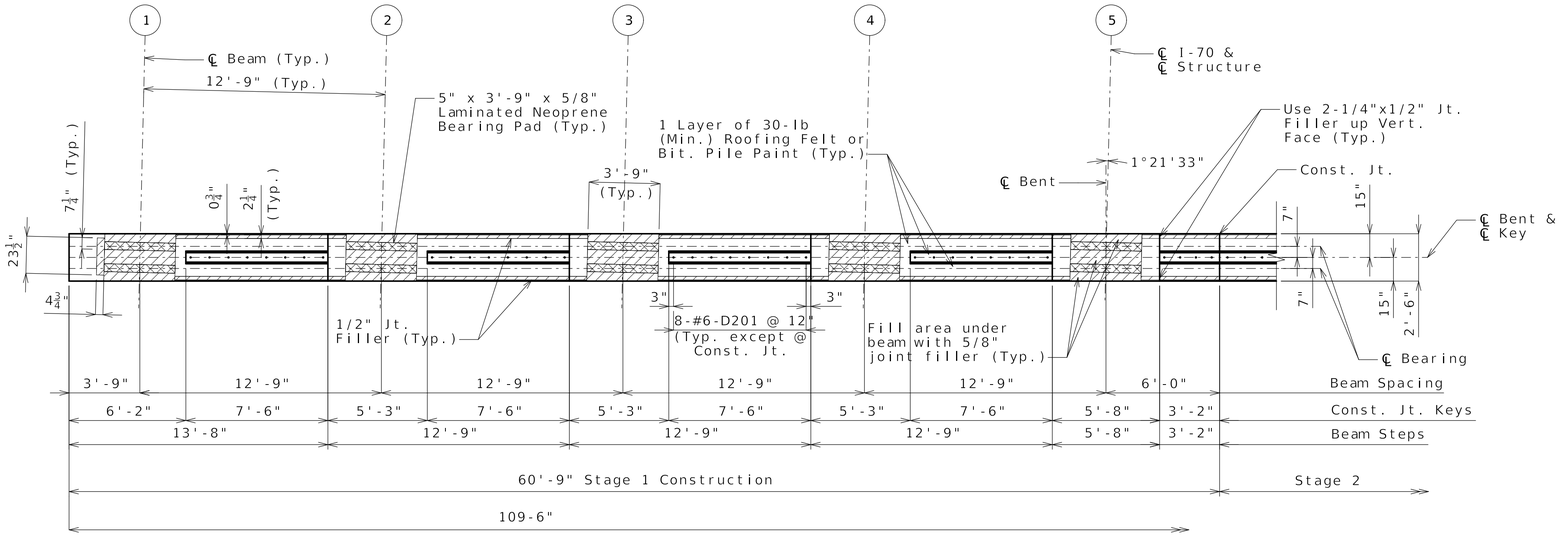
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MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

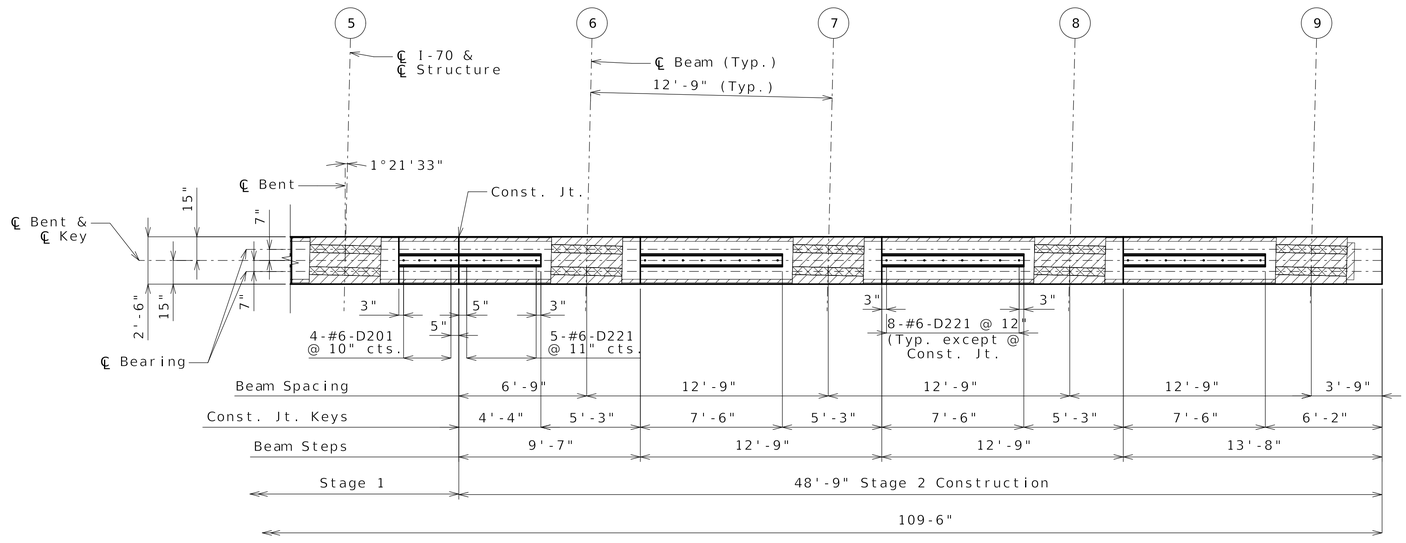
IMPROVE I-70 ROCHEPORT TO COLUMBIA

MO STATE CERTIFICATE OF AUTHORITY #2010005873 ENGINEERING REV.

05/18/2026
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PART PLAN (STAGE 1)



PART PLAN (STAGE 2)

DETAILS OF INTERMEDIATE BENT 2 & 3

Designed Feb. 2026
Detailed March 2026
Checked April 2026

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

B_A9815_BR01-12_JST0017_INT_BENT_3.dgn.dgn 4:38:57 PM Eastern 13-MAY-2026

STATE OF MISSOURI
JUSTIN M. DAVIS
NUMBER
PE-2007020256
PROFESSIONAL ENGINEER

DATE PREPARED
13-MAY-2026

ROUTE	STATE
I-70	MO
DISTRICT	SHEET NO.
BR	BR01-12

COUNTY
BOONE

JOB NUMBER
JST0017

CONTRACT ID.
251203-D01

PROJECT NO.
IS 70-2(128)

BRIDGE NO.
A9815

REV	DATE	DESCRIPTION
0	051526	RFC BRIDGE A9815

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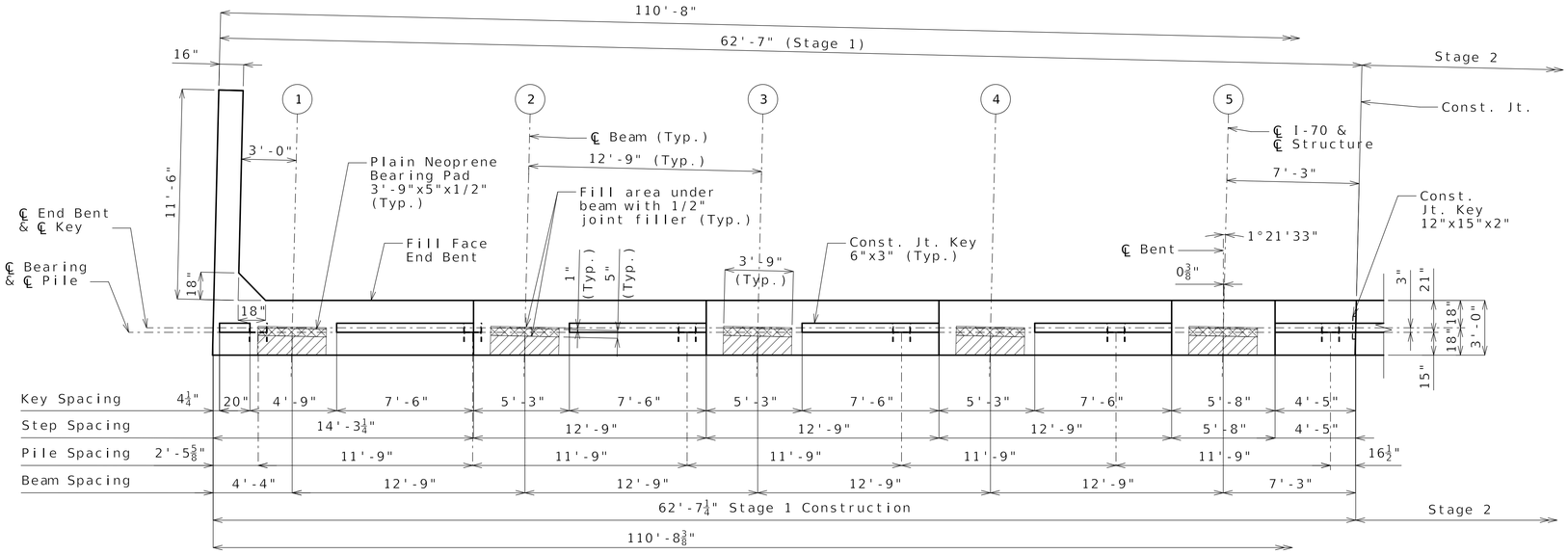
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

IMPROVE I-70 ROCHEPORT TO COLUMBIA

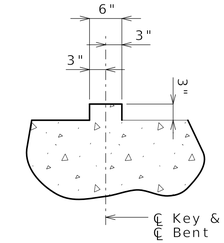
EMERY SAPPS SONS, INC
Hg Consult Inc

MO STATE CERTIFICATE OF AUTHORITY #2010005873 ENGINEERING REV.

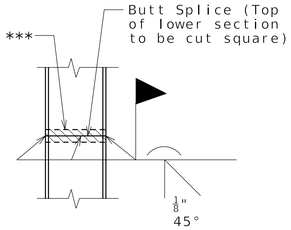
05/18/2026
Released for Construction



PLAN OF BEAM - STAGE 1

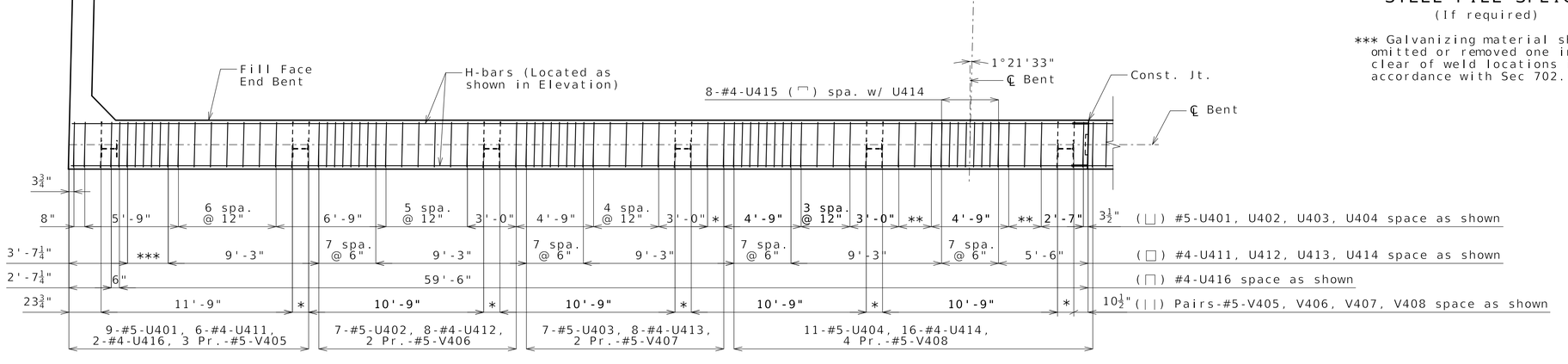


SECTION THRU KEY



STEEL PILE SPLICE
(If required)

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



PLAN OF BEAM SHOWING REINFORCING - STAGE 1

* 12"
** 2 spa. @ 12"
*** 5 spa. @ 6"

Notes:

Work this sheet with Sheets No. BR01-14 thru 17.

For details of Vertical Drain at End Bent, see Sheet No. BR01-09.

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

The U-bars and Pairs of V-bars shall be placed parallel to the centerline of roadway.

DETAILS OF END BENT NO. 4

Designed Feb. 2026
Detailed March 2026
Checked April 2026

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

STATE OF MISSOURI
JUSTIN M. DAVIS
NUMBER PE-2007020256
PROFESSIONAL ENGINEER

DATE PREPARED
13-MAY-2026

ROUTE	STATE
I-70	MO
DISTRICT	SHEET NO.
BR	BR01-13

COUNTY
BOONE

JOB NUMBER
JST0017

CONTRACT ID.
251203-D01

PROJECT NO.
IS 70-2(128)

BRIDGE NO.
A9815

REV	DATE	DESCRIPTION
0	051526	RFC BRIDGE A9815

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MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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

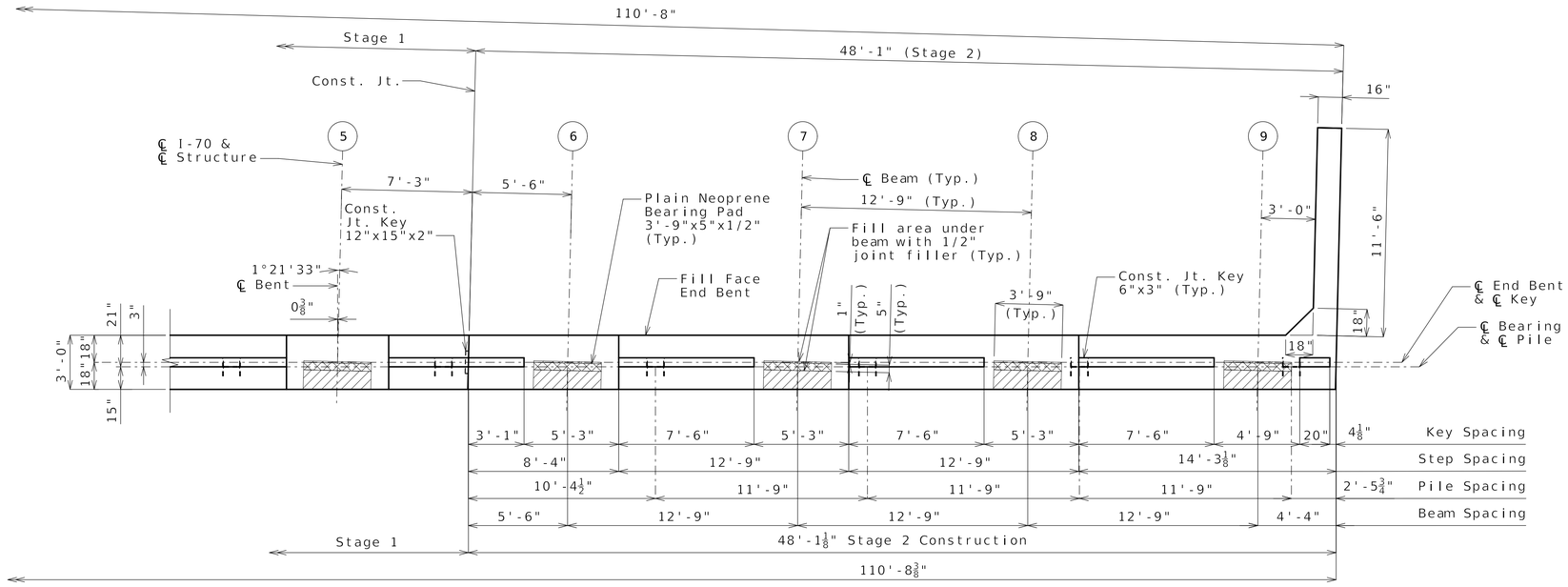
IMPROVE I-70 ROCHEPORT TO COLUMBIA

EMERY SAPPS SONS, INC
Hg Consult Inc

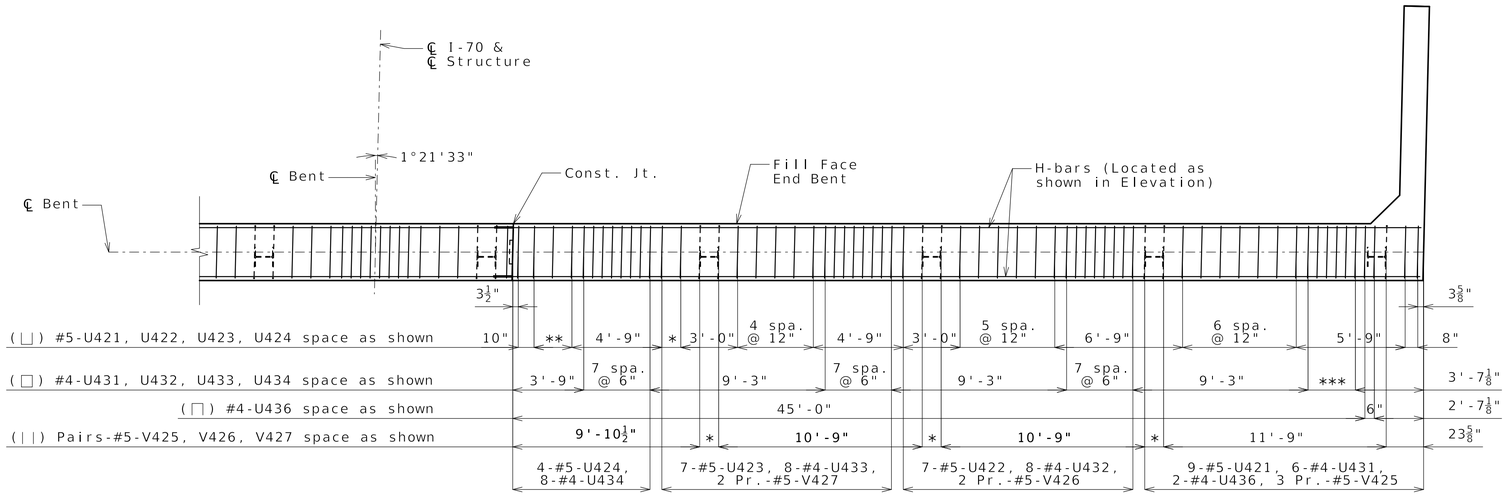
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PLAN OF BEAM - STAGE 2



* 12"
** 2 spa. @ 12"
*** 5 spa. @ 6"

PLAN OF BEAM SHOWING REINFORCING - STAGE 2

DETAILS OF END BENT NO. 4

Notes:

Work this sheet with Sheets No. BR01-13, BR01-15 thru 17.

For details of Vertical Drain at End Bent, see Sheet No. BR01-09.

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

The U-bars and Pairs of V-bars shall be placed parallel to the centerline of roadway.

Designed Feb. 2026
Detailed March 2026
Checked April 2026

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

STATE OF MISSOURI
JUSTIN M. DAVIS
NUMBER PE-2007020256
PROFESSIONAL ENGINEER

DATE PREPARED
13-MAY-2026

ROUTE	STATE
I-70	MO
DISTRICT	SHEET NO.
BR	BR01-14

COUNTY
BOONE

JOB NUMBER
JST0017

CONTRACT ID.
251203-D01

PROJECT NO.
IS 70-2(128)

BRIDGE NO.
A9815

REV	DATE	DESCRIPTION
0	051526	RFC BRIDGE A9815

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

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

IMPROVE I-70 ROCHEPORT TO COLUMBIA

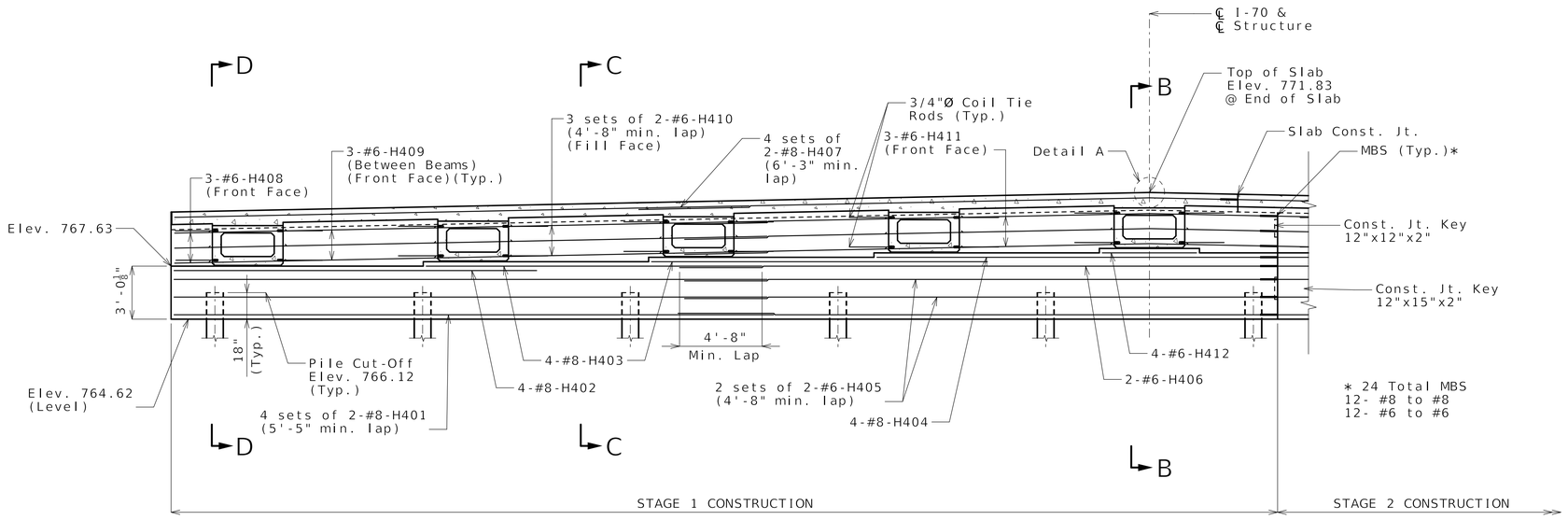
EMERY SAPPS SONS, INC

Hg Consult Inc

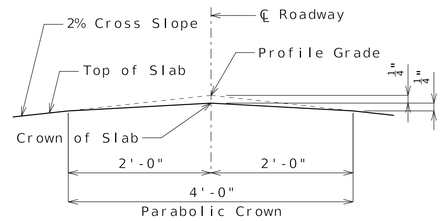
MO STATE CERTIFICATE OF AUTHORITY #2010005873 ENGINEERING

REV.

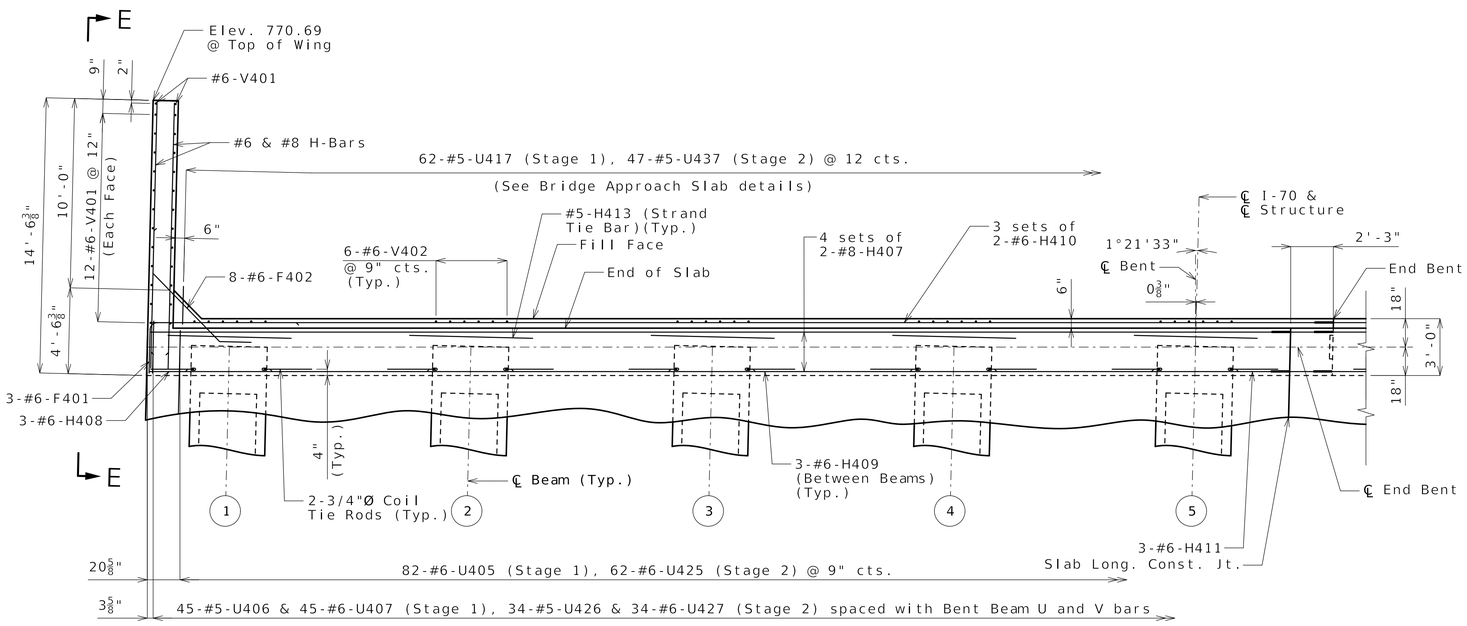
05/18/2026
Released for Construction



SECTION NEAR END BENT- STAGE 1



DETAIL A



PART PLAN - STAGE 1

Bent No. 4 Bearing Seat Elevations

Stage	Beam	Elevation
Stage 1	Beam 1	767.63
	Beam 2	767.89
	Beam 3	768.15
	Beam 4	768.40
	Beam 5	768.65
Stage 1/2	Const. Jt.	768.40

Notes:

Work this sheet with Sheets No. BR01-13, 14, 16, 17.

For details of Vertical Drain at End Bent, see Sheet No. BR01-09.

For Section B-B, C-C, D-D and Elevation E-E, see Sheet No. BR01-17.

The #6-F402 bars shall be bent in the field to clear beams.

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

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

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

For location of coil tie rods and #5-H413 (strand tie bar), see Sheet No. BR01-18.

For details of Bridge Approach Slab, see Sheet No. BR01-30.

DETAILS OF END BENT NO. 4

Designed Feb. 2026
Detailed March 2026
Checked April 2026

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

STATE OF MISSOURI
JUSTIN M. DAVIS
NUMBER PE-2007020256
PROFESSIONAL ENGINEER

DATE PREPARED
13-MAY-2026

ROUTE	STATE
I-70	MO
DISTRICT	SHEET NO.
BR	BR01-15

COUNTY
BOONE

JOB NUMBER
JST0017

CONTRACT ID.
251203-D01

PROJECT NO.
IS 70-2(128)

BRIDGE NO.
A9815

REV	DATE	DESCRIPTION
0	051526	RFC BRIDGE A9815

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

IMPROVE I-70 ROCHEPORT TO COLUMBIA

EMERY SAPP & SONS, INC

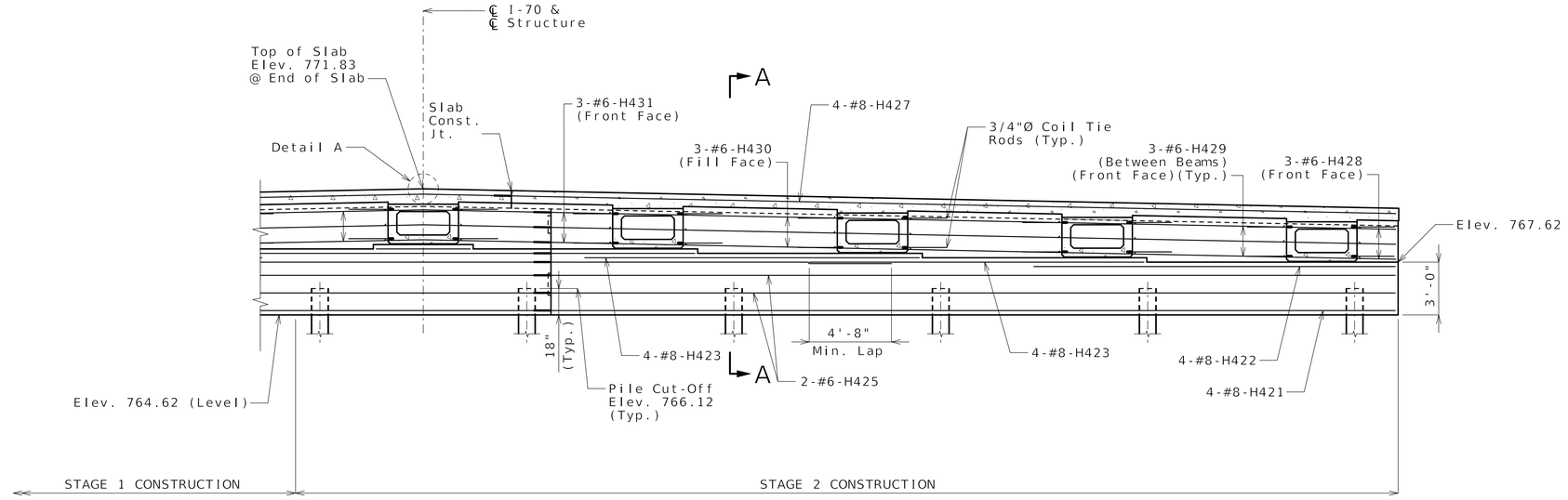
Hg Consult Inc

MO STATE CERTIFICATE OF AUTHORITY #2010005873 ENGINEERING

REV.

05/18/2026
Released for Construction

Bent No. 4 Bearing Seat Elevations		
Stage	Beam	Elevation
Stage 2	Beam 6	768.40
	Beam 7	768.14
	Beam 8	767.89
	Beam 9	767.62



SECTION NEAR END BENT- STAGE 2

Notes:

Work this sheet with Sheets No. BR01-13, 14, 15, 17.

For details of Vertical Drain at End Bent, see Sheet No. BR01-09.

For Section A-A and Elevation F-F, see Sheet No. BR01-17.

The #6-F422 bars shall be bent in the field to clear beams.

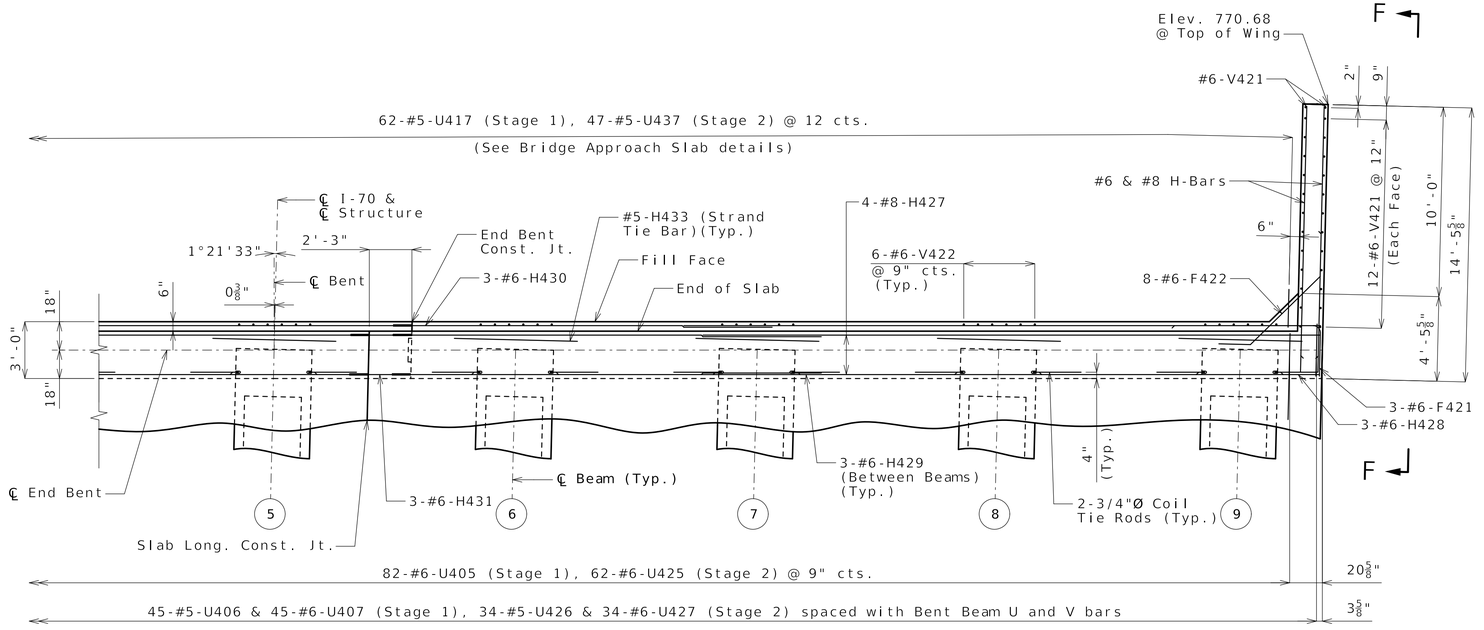
The U bars shall be placed parallel to centerline of roadway.

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

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

For location of coil tie rods and #5-H433 (strand tie bar), see Sheet No. BR01-18.

For details of Bridge Approach Slab, see Sheet No. BR01-30.



PART PLAN - STAGE 2

DETAILS OF END BENT NO. 4

Designed Feb. 2026
Detailed March 2026
Checked April 2026

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

STATE OF MISSOURI
JUSTIN M. HAAS
NUMBER
PE-2007020256
PROFESSIONAL ENGINEER

DATE PREPARED 13-MAY-2026
ROUTE I-70 | STATE MO
DISTRICT BR | SHEET NO. BR01-16
COUNTY BOONE
JOB NUMBER JST0017
CONTRACT ID. 251203-D01
PROJECT NO. IS 70-2(128)
BRIDGE NO. A9815

REV	DATE	DESCRIPTION
0	051526	RFC BRIDGE A9815

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

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

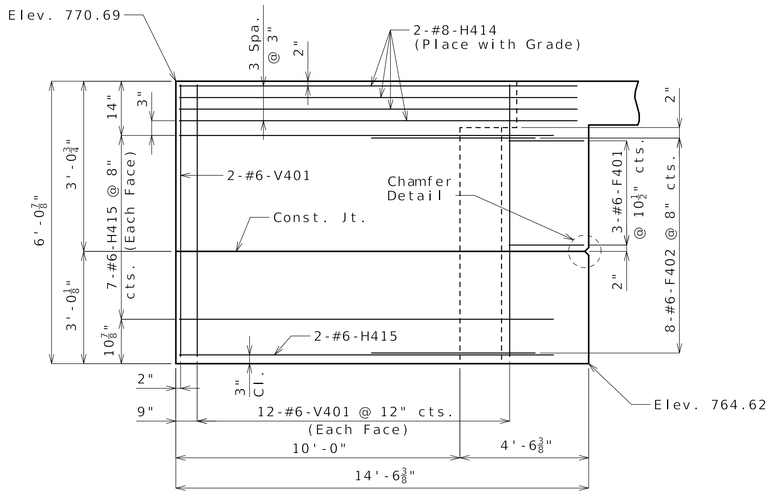
IMPROVE I-70 ROCHEPORT TO COLUMBIA

EMERY SAPP & SONS, INC
Hg Consult Inc

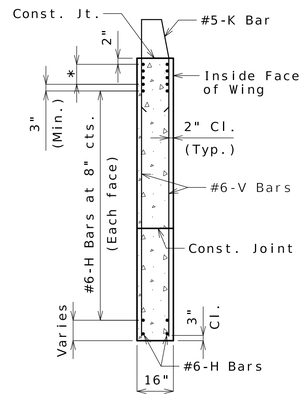
MO STATE CERTIFICATE OF AUTHORITY #2010005873 ENGINEERING

REV.

05/18/2026
Released for Construction

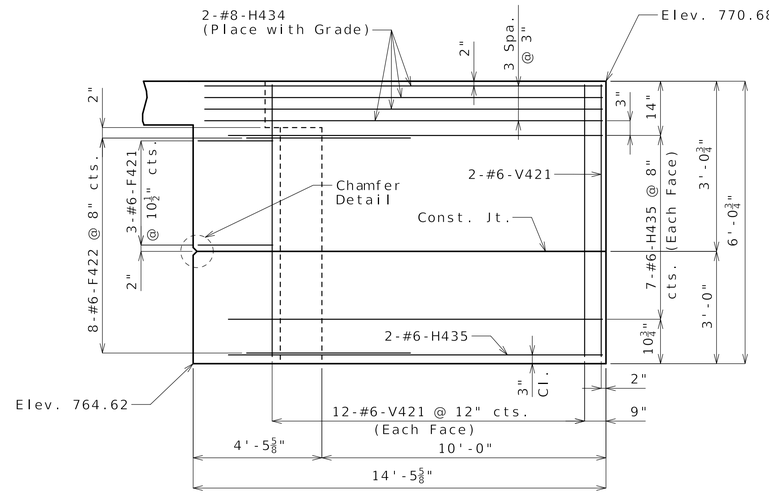


ELEVATION E-E

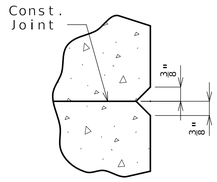


TYPICAL SECTION
THRU WING

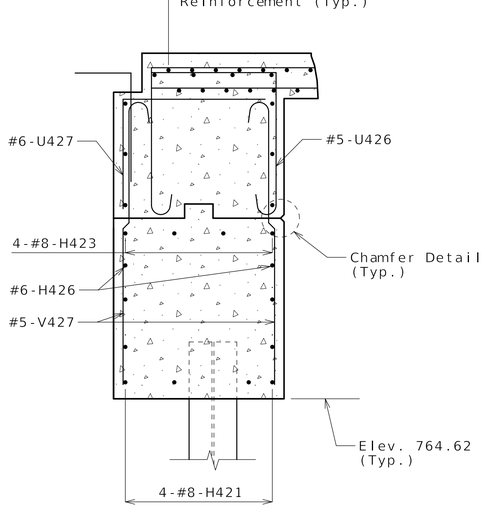
* #8-H Bars at 3" cts.
(Each face)(Place with grade)



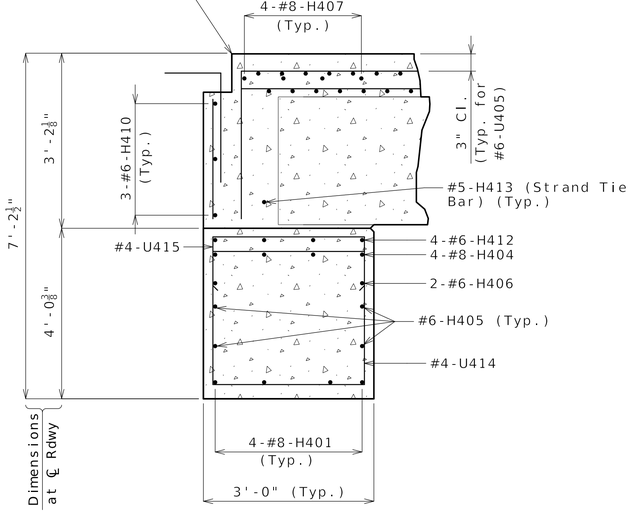
ELEVATION F-F



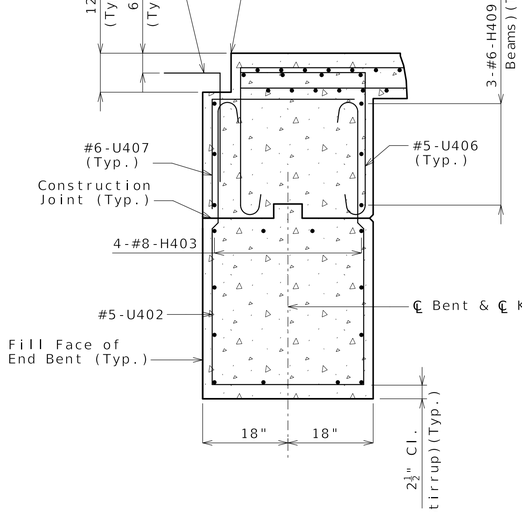
CHAMFER DETAIL



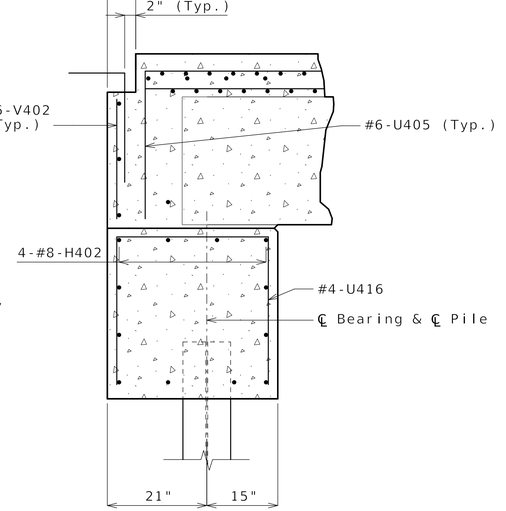
SECTION A-A



SECTION B-B



SECTION C-C



SECTION D-D

Notes:

Reinforcement labeled as Typ. shown for Stage 1. For Stage 2 reinforcement, add 20 to the bar mark.

Work this sheet with Sheets No. BR01-13 thru 16.

For reinforcement of the barrier, see Sheet No. BR01-28.

DETAILS OF END BENT NO. 4

Designed Feb. 2026
Detailed March 2026
Checked April 2026

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

STATE OF MISSOURI
JUSTIN M. DAVIS
NUMBER PE-2007020256
PROFESSIONAL ENGINEER

DATE PREPARED: 13-MAY-2026
ROUTE: I-70 | STATE: MO
DISTRICT: BR | SHEET NO.: BR01-17
COUNTY: BOONE
JOB NUMBER: JST0017
CONTRACT ID.: 251203-D01
PROJECT NO.: IS 70-2(128)
BRIDGE NO.: A9815

REV	DATE	DESCRIPTION
0	051526	RFC BRIDGE A9815

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

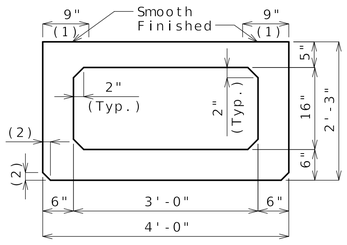
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

IMPROVE I-70 ROCHEPORT TO COLUMBIA

EMERY SAPP & SONS, INC
Hg Consult Inc

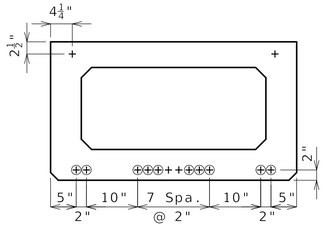
MO STATE CERTIFICATE OF AUTHORITY #2010005873 ENGINEERING REV.

05/18/2026
Released for Construction



DIMENSIONS

(1) Fabricator shall apply a bond breaker to this region

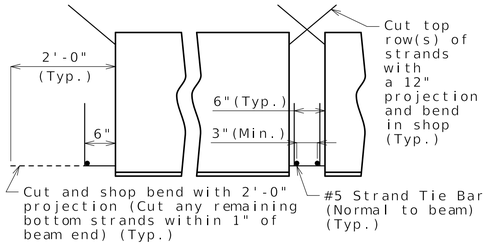


STRAND ARRANGEMENT

All strands are fully bonded unless otherwise noted.

\+ Indicates prestressing strand.

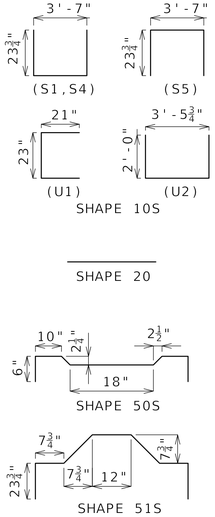
○ Indicates cut and shop bend with 2'-0" projection.



END BENT INTERMEDIATE BENT

STRANDS AT BEAM ENDS

BILL OF REINFORCING STEEL - EACH BEAM				
NO.	SIZE & MARK	ACTUAL LENGTH	SHAPE	BENDING DIAGRAM
5	5 A1	35'-6"	20	
4	4 A2	35'-6"	20	
11	4 C1	3'-7"	20	
34	5 S1	7'-4"	10S	
34	5 S2	7'-9"	51S	
34	4 S3	4'-6"	50S	
18	5 S4	7'-4"	10S	
18	5 S5	7'-4"	10S	
12	6 U1	5'-1"	10S	
6	4 U2	7'-4"	10S	



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

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

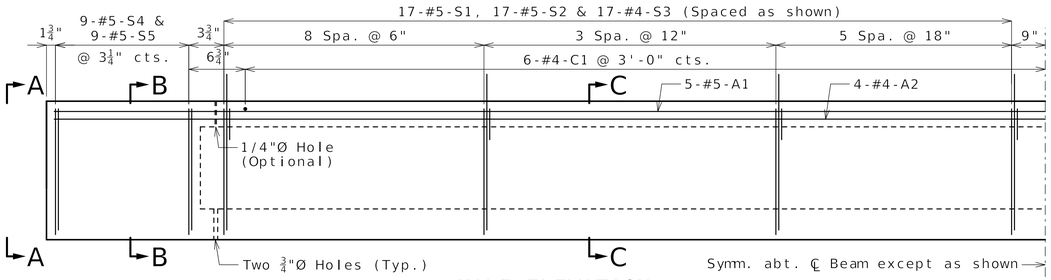
Actual bar lengths are measured along centerline of bar to the nearest inch.

Minimum clearance to reinforcing shall be one inch, unless otherwise shown.

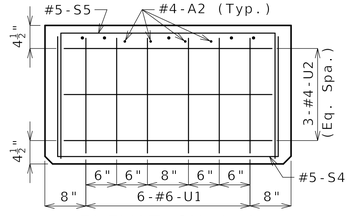
All reinforcement shall be ASTM A615 or A706 Grade 60.

All S2 bars shall be epoxy coated.

(2) 1½" (Typ.) (¾" Optional)

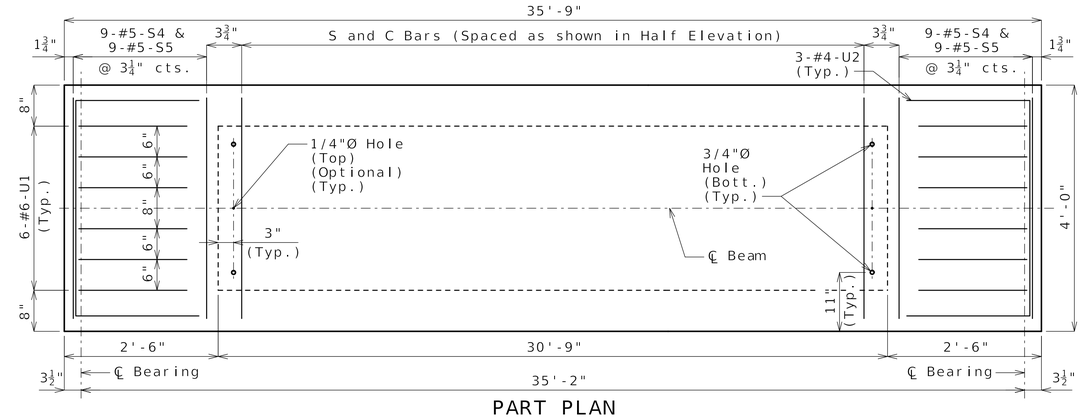


HALF ELEVATION

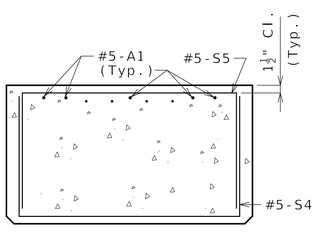


ELEVATION A-A

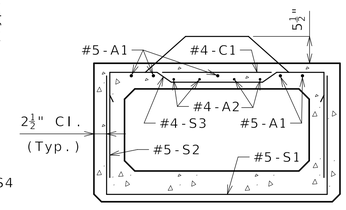
Strands not shown for clarity.



PART PLAN

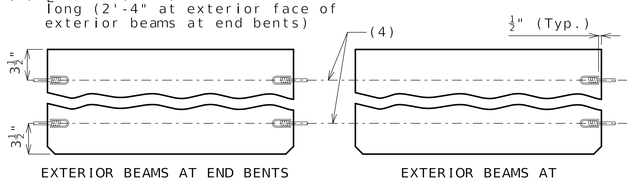


SECTION B-B



SECTION C-C

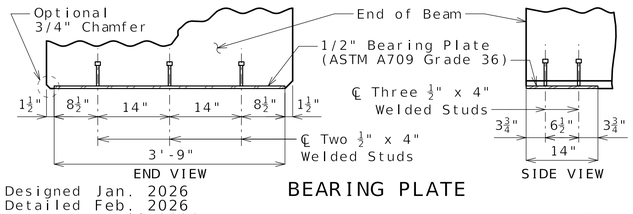
(4) ℄ 3/4"Ø (Min.) Coil Tie Rods 2'-6" long (2'-4" at exterior face of exterior beams at end bents)



EXTERIOR BEAMS AT END BENTS
INTERIOR BEAMS AT ALL BENTS

EXTERIOR BEAMS AT INTERMEDIATE BENTS

COIL TIES



BEARING PLATE

General Notes:

Concrete for prestressed beams shall be Class A-1 with f'c = 8000 psi and f'ci = 6500 psi.

Use 14 strands, 0.6"Ø Grade 270, with an initial prestress force of 615 kips.

Pretensioned members shall be in accordance with Sec 1029.

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

Exterior and interior beams are the same except: coil ties.

For Beam Camber Diagram, see Sheet No.BR01-22.

For location of coil ties at concrete bent diaphragms, see Sheets No.BR01-06,07,15,16 & 20.

Designed Jan. 2026
Detailed Feb. 2026
Checked April 2026

SPREAD BOX BEAMS - SPANS (1-2) AND (3-4)

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

STATE OF MISSOURI
JUSTIN M. HAAS
NUMBER PE-2007020256
PROFESSIONAL ENGINEER

DATE PREPARED 13-MAY-2026
ROUTE I-70 | STATE MO
DISTRICT BR | SHEET NO. BR01-18
COUNTY BOONE
JOB NUMBER JST0017
CONTRACT ID. 251203-D01
PROJECT NO. IS 70-2(128)
BRIDGE NO. A9815

REV	DATE	DESCRIPTION
0	051526	RFC BRIDGE A9815

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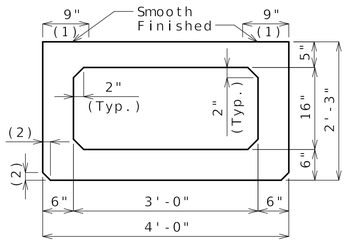
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

IMPROVE I-70 ROCHEPORT TO COLUMBIA

EMERY SAPPS SONS, INC
Hg Consult Inc

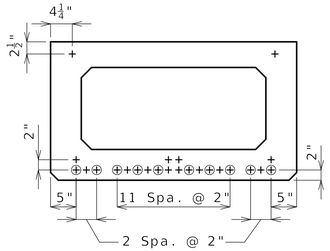
MO.STATE CERTIFICATE OF AUTHORITY #2010005873 ENGINEERING REV.

05/18/2026
Released for Construction



DIMENSIONS

(1) Fabricator shall apply a bond breaker to this region

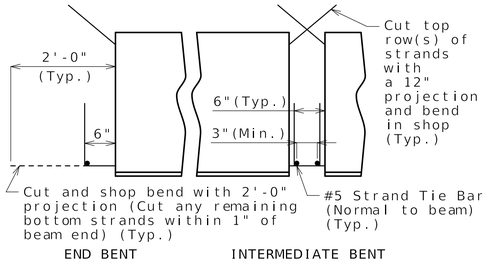


STRAND ARRANGEMENT

All strands are fully bonded unless otherwise noted.

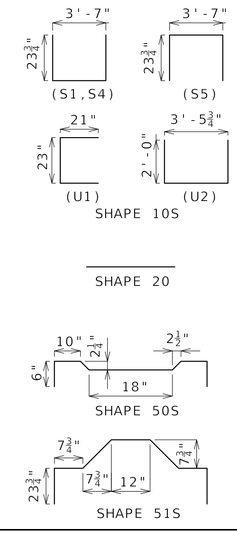
\+ Indicates prestressing strand.

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

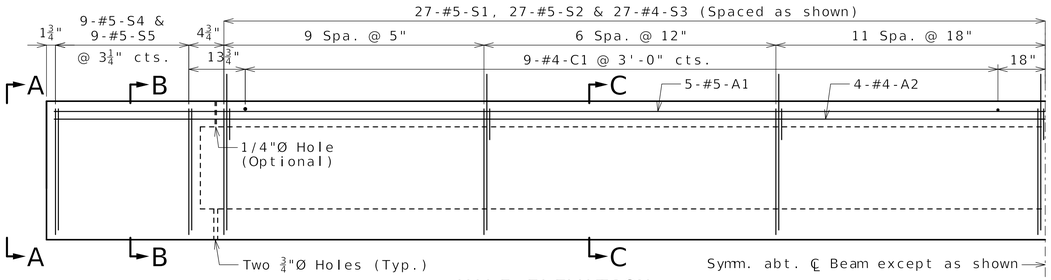


STRANDS AT BEAM ENDS

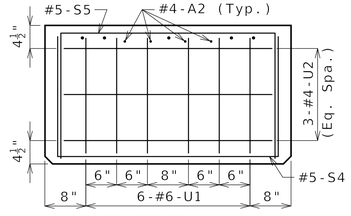
BILL OF REINFORCING STEEL - EACH BEAM				
NO.	SIZE & MARK	ACTUAL LENGTH	SHAPE	BENDING DIAGRAM
5	5 A1	57'-8"	20	
4	4 A2	57'-8"	20	
18	4 C1	3'-7"	20	
53	5 S1	7'-4"	10S	
53	5 S2	7'-9"	51S	
53	4 S3	4'-6"	50S	
18	5 S4	7'-4"	10S	
18	5 S5	7'-4"	10S	
12	6 U1	5'-1"	10S	
6	4 U2	7'-4"	10S	



(2) 1½" (Typ.) (¾" Optional)

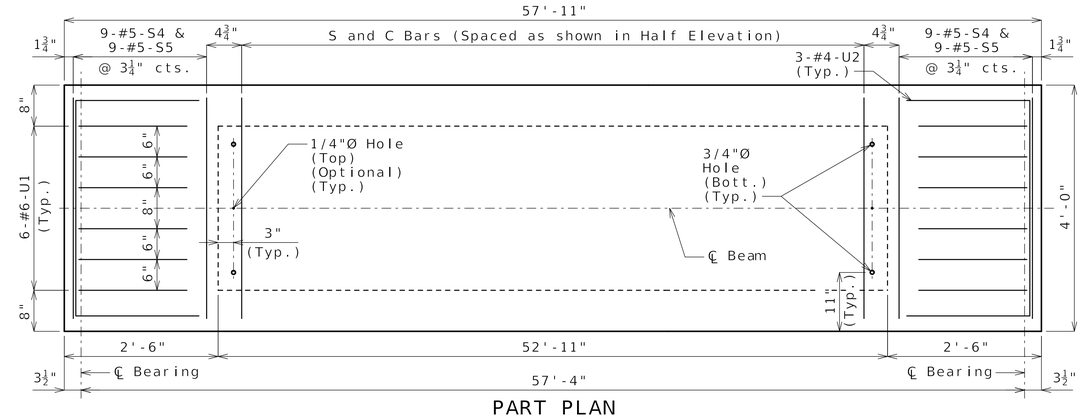


HALF ELEVATION

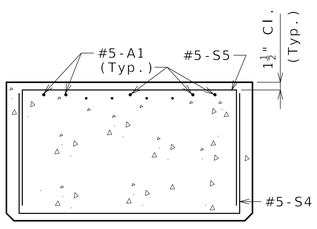


ELEVATION A-A

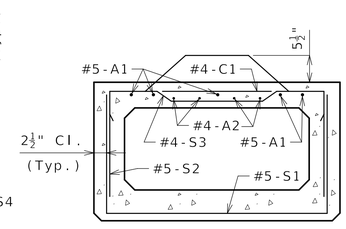
Strands not shown for clarity.



PART PLAN

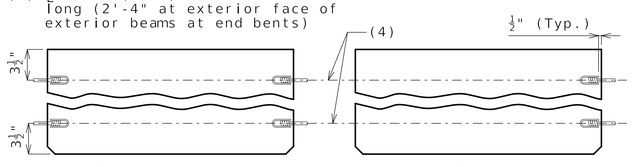


SECTION B-B



SECTION C-C

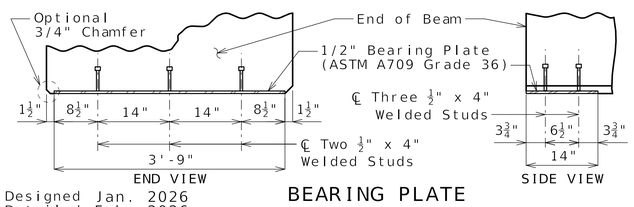
(4) ℄ 3/4"Ø (Min.) Coil Tie Rods 2'-6" long (2'-4" at exterior face of exterior beams at end bents)



EXTERIOR BEAMS AT END BENTS
INTERIOR BEAMS AT ALL BENTS

EXTERIOR BEAMS AT INTERMEDIATE BENTS

COIL TIES



BEARING PLATE

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

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

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

Minimum clearance to reinforcing shall be one inch, unless otherwise shown.

All reinforcement shall be ASTM A615 or A706 Grade 60.

All S2 bars shall be epoxy coated.

General Notes:

Concrete for prestressed beams shall be Class A-1 with f'c = 8000 psi and f'ci = 6500 psi.

Use 24 strands, 0.6"Ø Grade 270, with an initial prestress force of 1055 kips.

Pretensioned members shall be in accordance with Sec 1029.

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

Exterior and interior beams are the same except: coil ties.

For Beam Camber Diagram, see Sheet No.BR01-22.

For location of coil ties at concrete bent diaphragms, see Sheet No.BR01-20.

STATE OF MISSOURI
JUSTIN M. DAVIS
NUMBER
PE-2007020256
PROFESSIONAL ENGINEER

DATE PREPARED: 13-MAY-2026
ROUTE: I-70 | STATE: MO
DISTRICT: BR | SHEET NO.: BR01-19
COUNTY: BOONE
JOB NUMBER: JST0017
CONTRACT ID.: 251203-D01
PROJECT NO.: IS 70-2(128)
BRIDGE NO.: A9815

REV	DATE	DESCRIPTION
0	051526	RFC BRIDGE A9815

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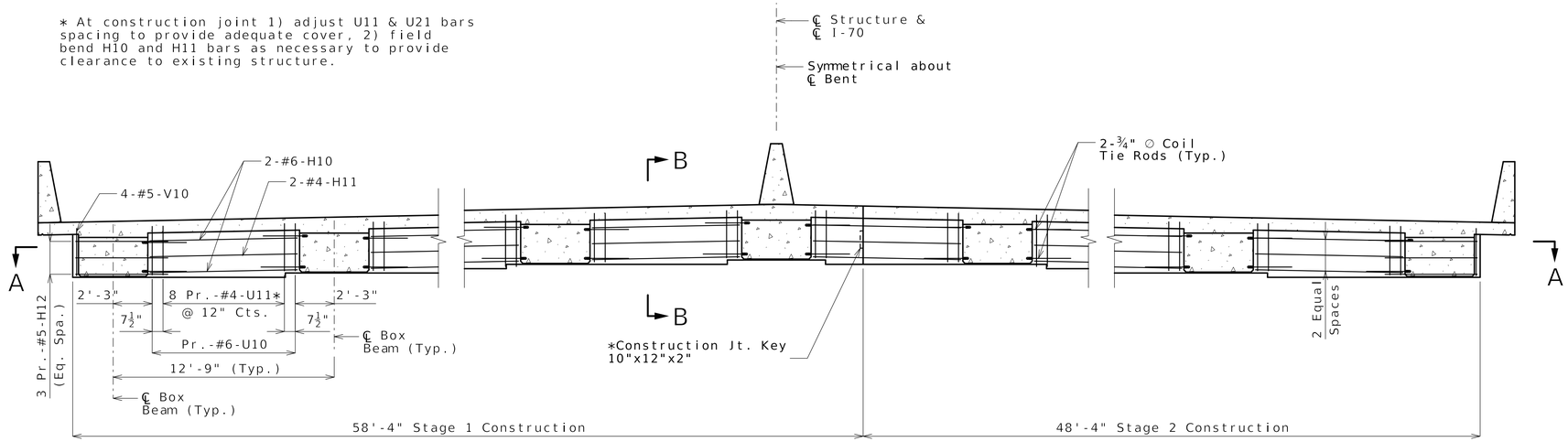
Note: This drawing is not to scale. Follow dimensions.

SPREAD BOX BEAMS - SPAN (2-3)

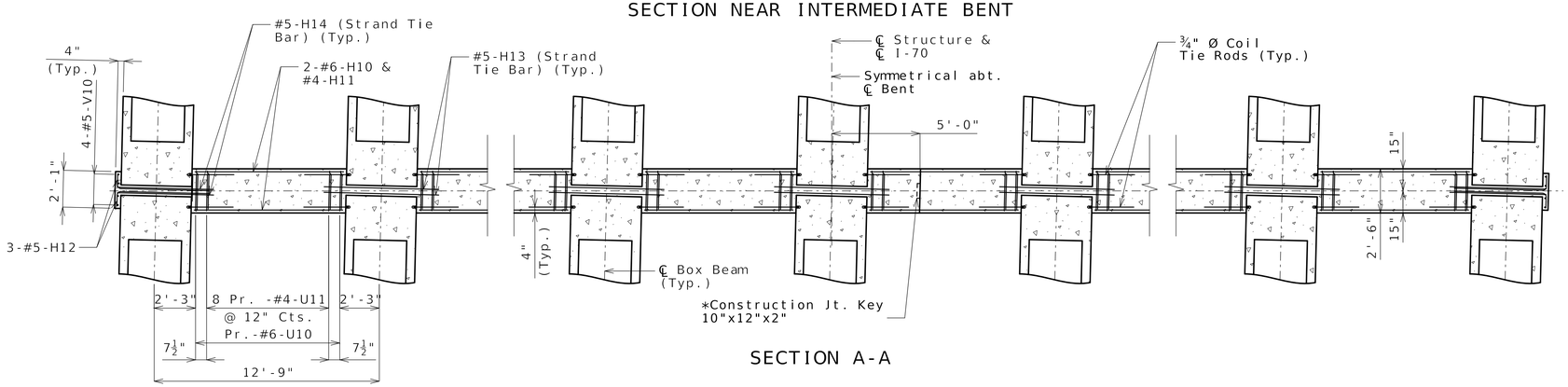
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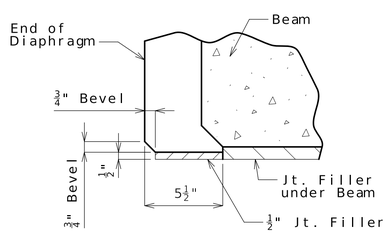
* At construction joint 1) adjust U11 & U21 bars spacing to provide adequate cover, 2) field bend H10 and H11 bars as necessary to provide clearance to existing structure.



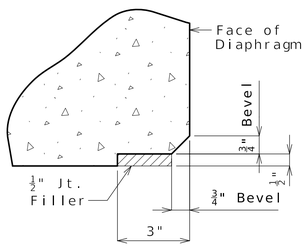
SECTION NEAR INTERMEDIATE BENT



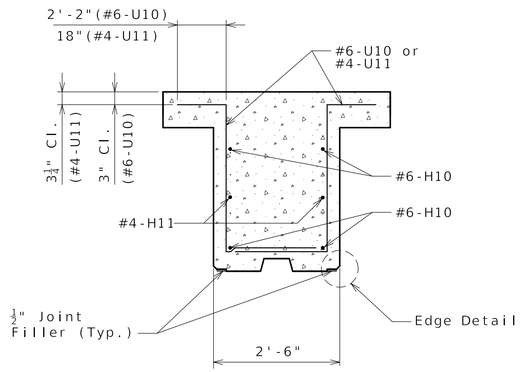
SECTION A-A



END DETAIL



EDGE DETAIL



SECTION B-B

Notes:

For location of Strand Tie Bars, see Sheets No. BR01-18 & 19.

Diaphragms at intermediate bent shall be built vertical.

Reinforcement shown for Stage 1 Construction. For Stage 2, replace the first digit of the bar mark with 2.

DETAILS OF CONCRETE DIAPHRAGM AT INTERMEDIATE BENTS

Designed March 2026
Detailed March 2026
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DISTRICT BR | SHEET NO. BR01-20
COUNTY BOONE
JOB NUMBER JST0017
CONTRACT ID. 251203-D01
PROJECT NO. IS 70-2(128)
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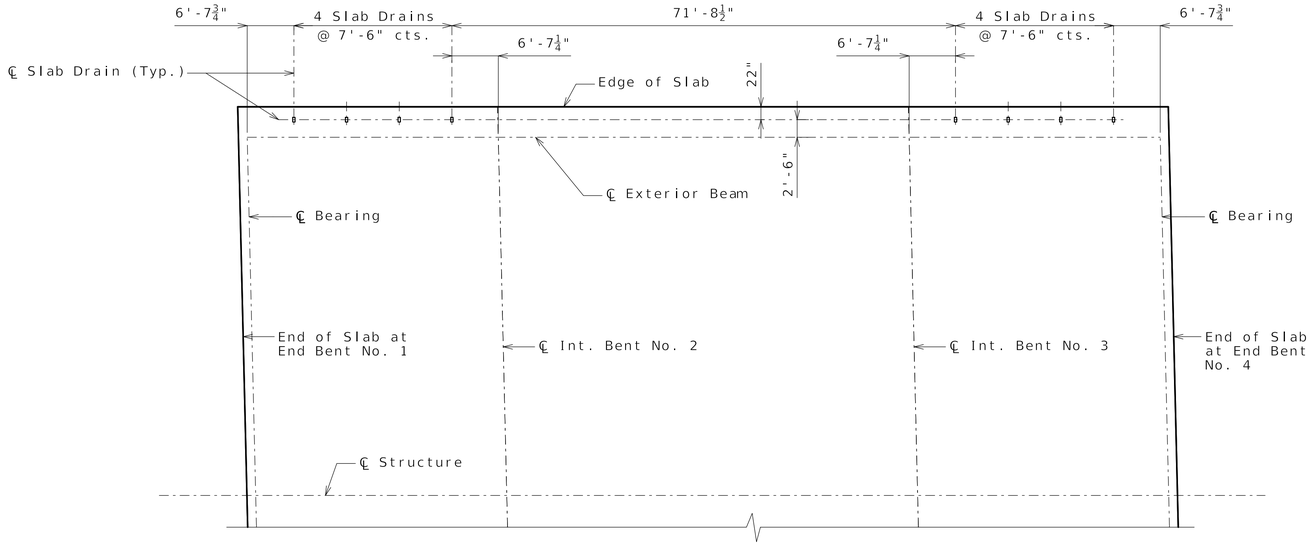
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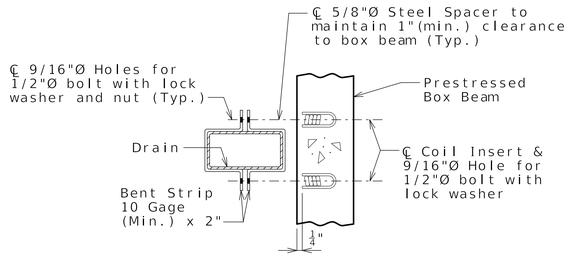
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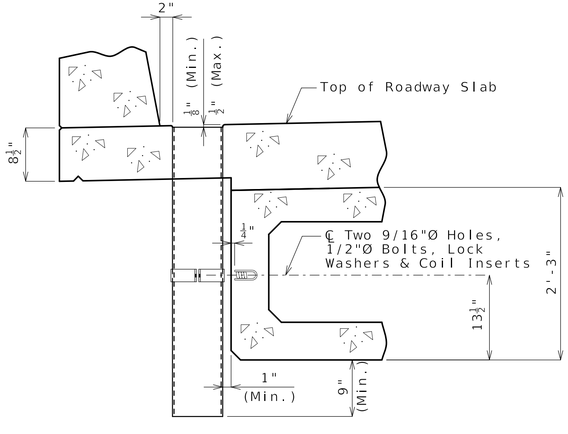
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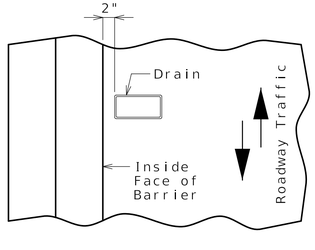
PLAN OF SLAB SHOWING SLAB DRAIN LOCATIONS



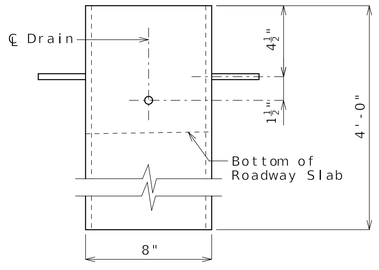
PART SECTION SHOWING BRACKET ASSEMBLY



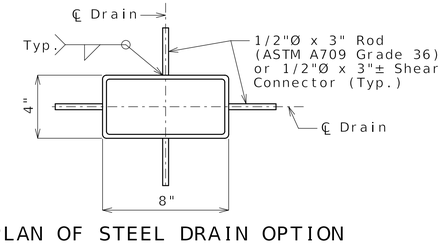
PART SECTION NEAR DRAIN



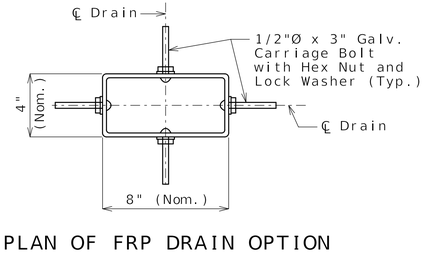
PART PLAN OF SLAB AT DRAIN



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

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

All 1/2"Ø bolts shall be ASTM A307.

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

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

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

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

Notes for Steel Drain:

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

Outside dimensions of drains are 8" x 4".

The drains shall be galvanized in accordance with ASTM A123.

Notes for FRP Drain:

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

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

Minimum reinforced wall thickness shall be 1/4 inch.

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

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

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

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

SLAB DRAINS

Designed March 2026
Detailed March 2026
Checked April 2026

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PROFESSIONAL ENGINEER

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DISTRICT BR | SHEET NO. BR01-21
COUNTY BOONE
JOB NUMBER JST0017
CONTRACT ID. 251203-D01
PROJECT NO. IS 70-2(128)
BRIDGE NO. A9815

REV	DATE	DESCRIPTION
0	051526	RFC BRIDGE A9815

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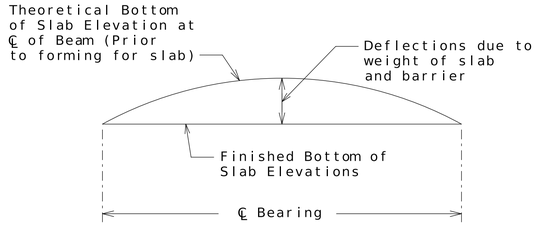
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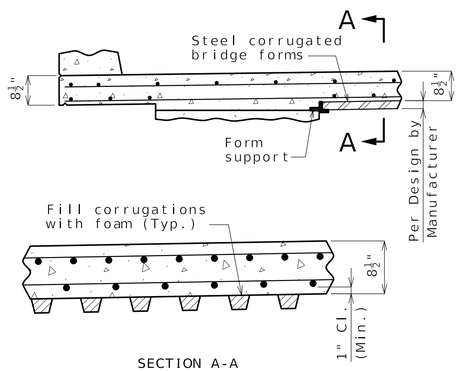
Theoretical Bottom of Slab Elevations at Centerline of Beam (Prior to forming for slab) (Estimated at 90 days)

Beam Number	Span (1-2) (35'-2" ℄ Brg. - ℄ Brg.)					Span (2-3) (57'-4" ℄ Brg. - ℄ Brg.)					Span (3-4) (35'-2" ℄ Brg. - ℄ Brg.)				
	℄ Brg.	.25	.50	.75	℄ Brg.	℄ Brg.	.25	.50	.75	℄ Brg.	℄ Brg.	.25	.50	.75	℄ Brg.
1	770.78	770.75	770.71	770.66	770.61	770.60	770.59	770.54	770.44	770.32	770.31	770.27	770.23	770.19	770.13
2	771.04	771.00	770.96	770.92	770.86	770.86	770.85	770.80	770.70	770.57	770.56	770.53	770.49	770.44	770.39
3	771.29	771.26	771.22	771.17	771.12	771.11	771.10	771.05	770.96	770.82	770.82	770.78	770.74	770.69	770.64
4	771.55	771.51	771.47	771.42	771.37	771.36	771.35	771.31	771.21	771.08	771.07	771.04	771.00	770.95	770.90
5	771.80	771.76	771.72	771.68	771.62	771.62	771.61	771.56	771.46	771.33	771.32	771.29	771.25	771.20	771.15
6	771.54	771.51	771.47	771.42	771.37	771.36	771.35	771.30	771.21	771.07	771.07	771.03	770.99	770.95	770.89
7	771.29	771.25	771.21	771.16	771.11	771.10	771.09	771.05	770.95	770.82	770.81	770.78	770.74	770.69	770.64
8	771.03	770.99	770.95	770.91	770.85	770.85	770.84	770.79	770.70	770.56	770.56	770.52	770.48	770.43	770.38
9	770.77	770.74	770.70	770.65	770.60	770.59	770.57	770.52	770.43	770.30	770.30	770.26	770.22	770.17	770.12

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



TYPICAL SLAB ELEVATIONS DIAGRAM



SECTION A-A

OPTIONAL STAY-IN-PLACE FORM DETAILS

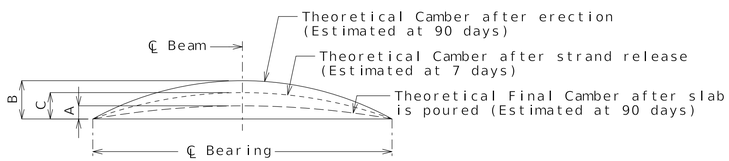
Stay-In-Place Forms:

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

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

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

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

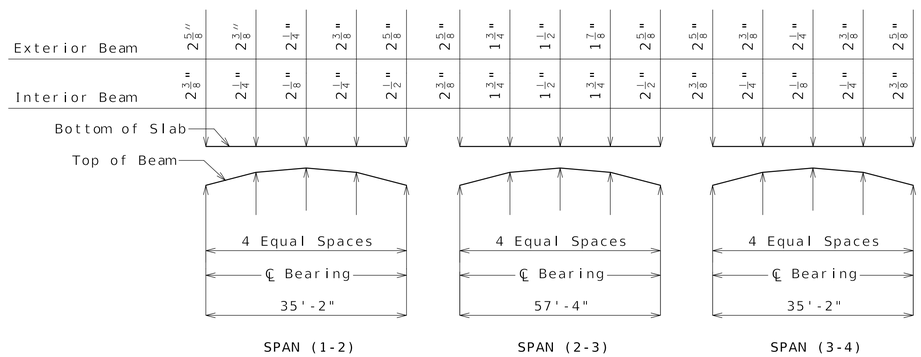


Beam	Span (1-2)			Span (2-3)			Span (3-4)		
	A	B	C	A	B	C	A	B	C
Exterior	3/8"	1/2"	1/4"	1 1/8"	2"	1 1/8"	3/8"	1/2"	1/4"
Interior	1/4"			1"			1/4"		

BEAM CAMBER DIAGRAM

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

0.25 pt. = 0.7125 x 0.5 pt.



THEORETICAL SLAB HAUNCHING DIAGRAM (ESTIMATED AT 90 DAYS)

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

Designed Feb 2026
Detailed March 2026
Checked April 2026

CAMBER DIAGRAM, HAUNCHING DIAGRAM, AND SLAB ELEVATIONS

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

STATE OF MISSOURI
JUSTIN M. DAVIS
NUMBER PE-2007020256
PROFESSIONAL ENGINEER

DATE PREPARED 13-MAY-2026
ROUTE I-70 | STATE MO
DISTRICT BR | SHEET NO. BR01-22
COUNTY BOONE
JOB NUMBER JST0017
CONTRACT ID. 251203-D01
PROJECT NO. IS 70-2(128)
BRIDGE NO. A9815

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0	051526	RFC BRIDGE A9815

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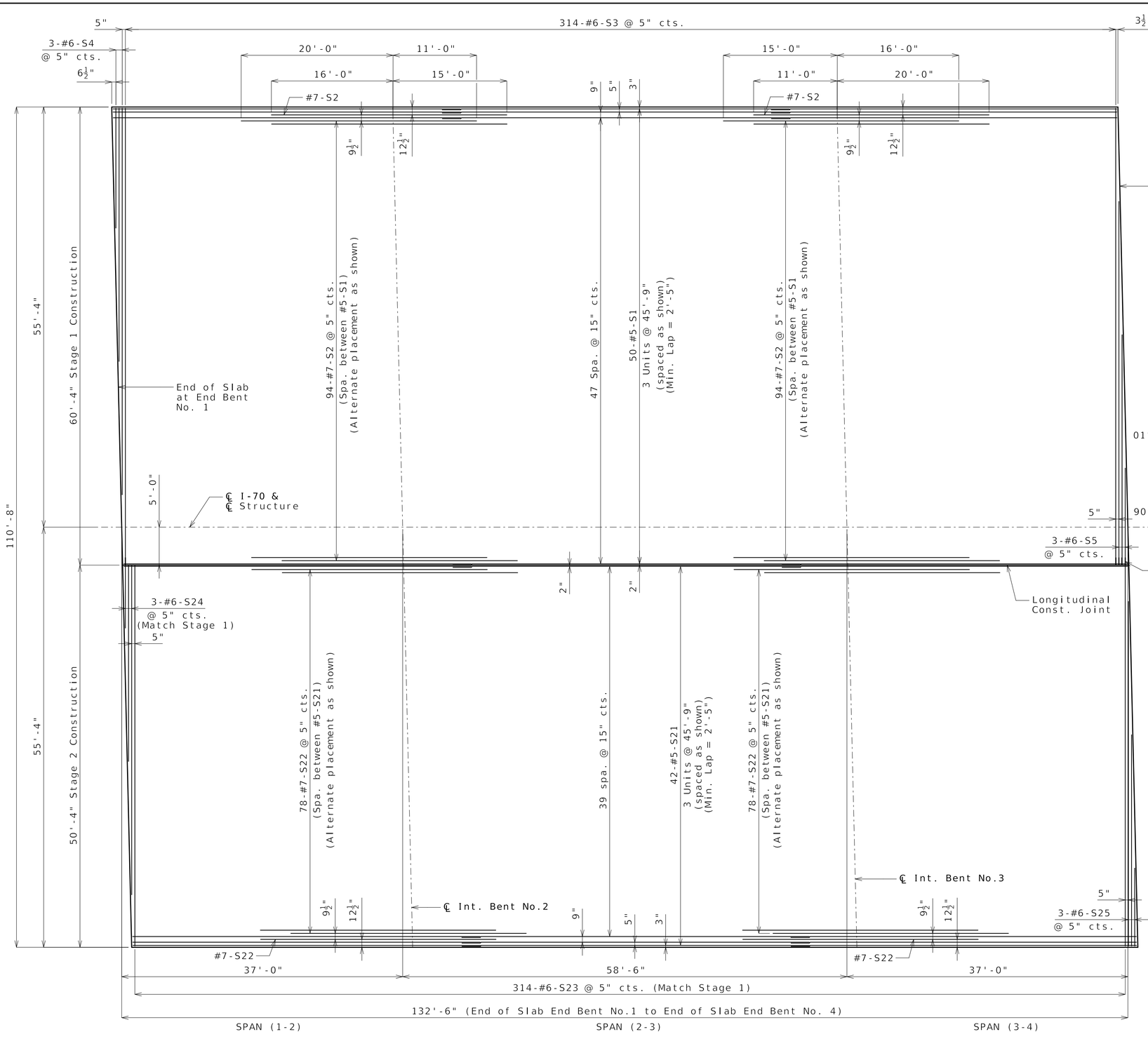
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Notes:

* Use form saver MBS with additional 3" length to reach longitudinal construction joint. Minimum lap length of MBS with #6-S3 or S4 = 2'-10".

Longitudinal slab dimensions are measured horizontally.

For Plan of Slab Showing Bottom Reinforcement, see Sheet No. BR01-24.

For Type. C Barrier Details, see Sheet No. BR01-26.

For Type. D Barrier Details, see Sheet No. BR01-27.

For Optional SIP Forming Details, Theoretical Bottom of Slab Elevations, Beam Camber Diagram and Theoretical Slab Haunching Diagram, see Sheet No. BR01-22.

For Section Thru Slab and Slab Pouring Sequence, see Sheet No. BR01-25.

PLAN OF SLAB SHOWING TOP REINFORCEMENT

Designed Feb. 2026
Detailed March 2026
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DATE PREPARED
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ROUTE	STATE
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DISTRICT	SHEET NO.
BR	BR01-23

COUNTY
BOONE

JOB NUMBER
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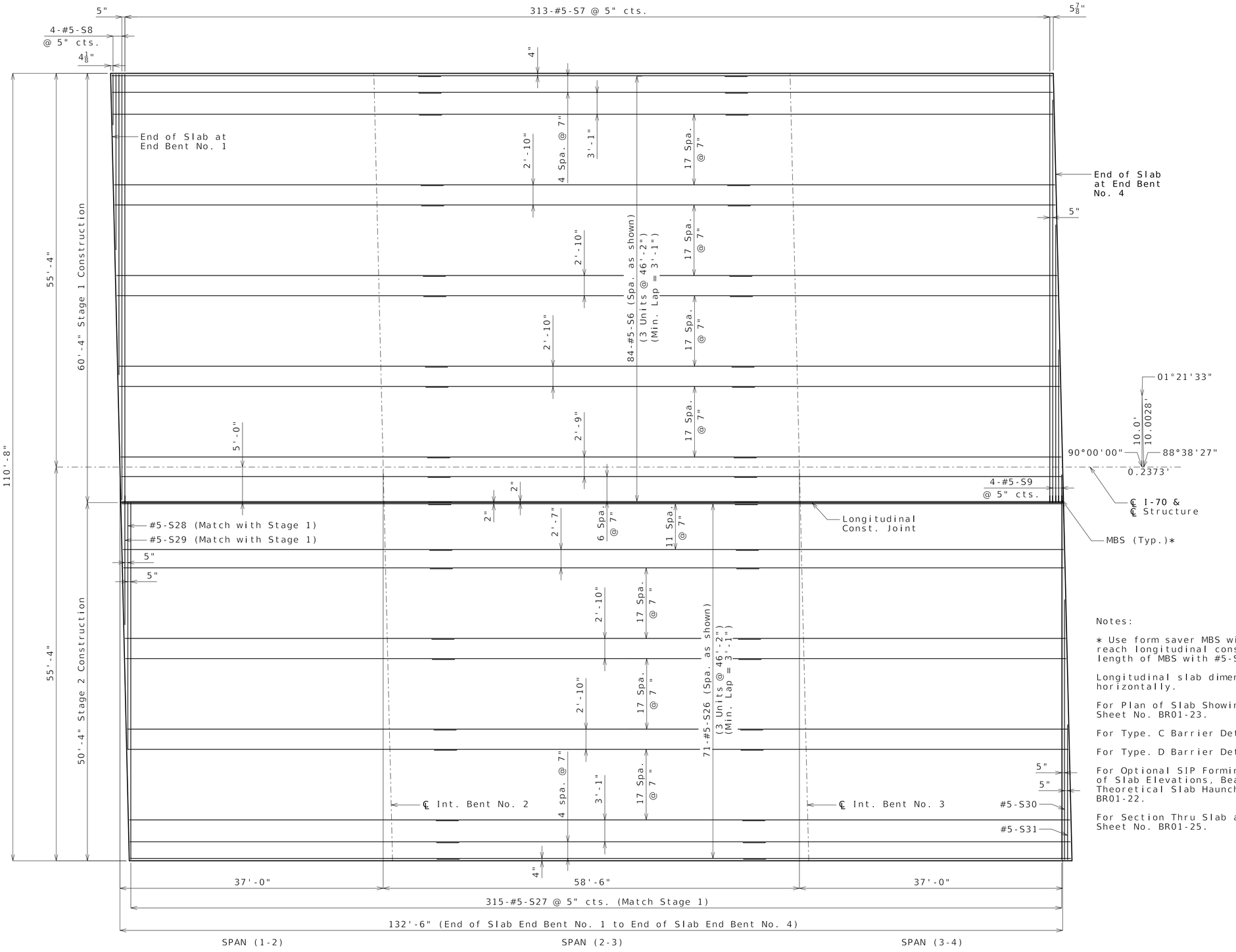
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Notes:

* Use form saver MBS with additional 3" length to reach longitudinal construction joint. Minimum lap length of MBS with #5-S7 or S8 = 3'-1".

Longitudinal slab dimensions are measured horizontally.

For Plan of Slab Showing Top Reinforcement, see Sheet No. BR01-23.

For Type. C Barrier Details, see Sheet No. BR01-26.

For Type. D Barrier Details, see Sheet No. BR01-27.

For Optional SIP Forming Details, Theoretical Bottom of Slab Elevations, Beam Camber Diagram and Theoretical Slab Haunching Diagram, see Sheet No. BR01-22.

For Section Thru Slab and Slab Pouring Sequence, see Sheet No. BR01-25.

PLAN OF SLAB SHOWING BOTTOM REINFORCEMENT

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Designed Feb. 2026
Detailed March 2026
Checked April 2026

Sheet No. 24 of 37

STATE OF MISSOURI
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NUMBER PE-2007020256
PROFESSIONAL ENGINEER

DATE PREPARED
13-MAY-2026

ROUTE	STATE
I-70	MO

DISTRICT	SHEET NO.
BR	BR01-24

COUNTY
BOONE

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

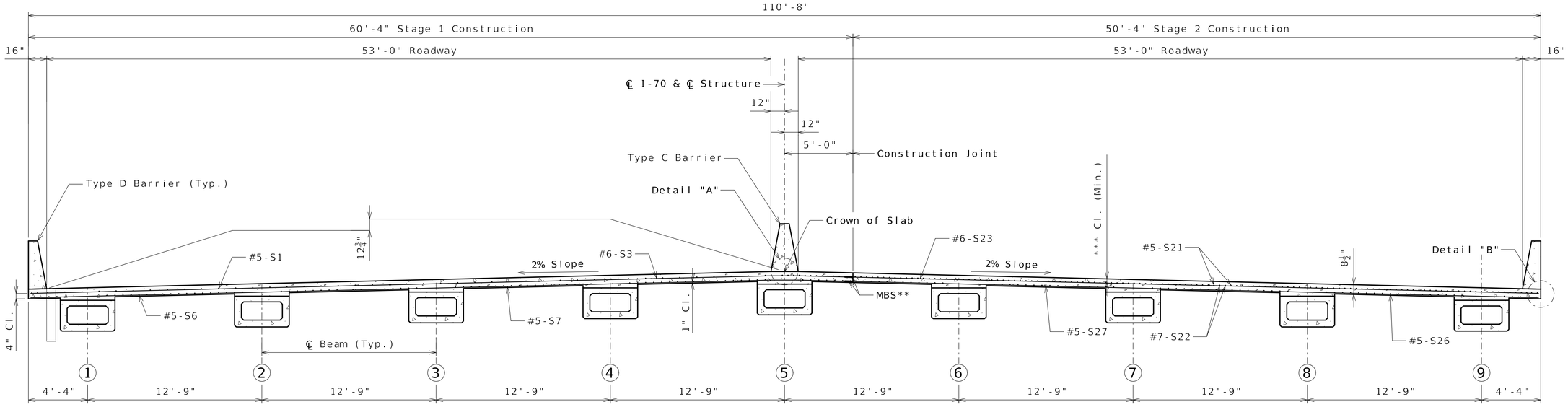
IMPROVE I-70 ROCHEPORT TO COLUMBIA

EMERY SAPPS SONS, INC
Hg Consult Inc

MO STATE CERTIFICATE OF AUTHORITY #2010005873 ENGINEERING

REV.

05/18/2026
Released for Construction



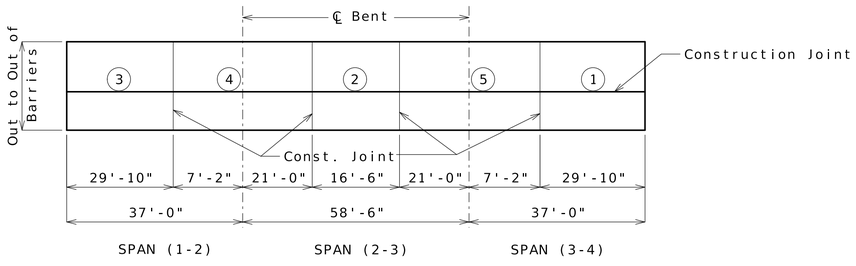
HALF SECTION NEAR MIDSPAN

HALF SECTION NEAR INTERMEDIATE BENT

SECTION THRU SLAB

** Clip flange of MBS as necessary to maintain clearances.

*** $3\frac{1}{8}$" (#5)
$2\frac{7}{8}$" (#7)

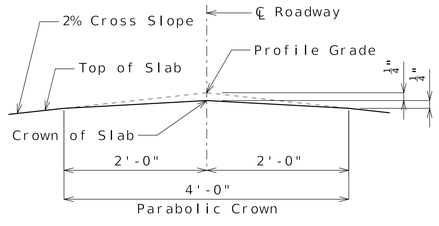


	Sequence of Pours					Min. Rate of Pour Cu. Yds./Hr. With Retarder	
	Direction					Stage 1	Stage 2
Basic Sequence	1	2	3	4	5	32	27
	Either Direction						
Alternate pours to the basic skip sequence are subject to the approval of the engineer in accordance with Sec 703.							
Alternate A Pours	1		5 + 2		4 + 3	32	27
	End to 5		1 to 4		2 to End		
Alternate B Pours	1 + 5 + 2			4 + 3		32	27
	End to 4			2 to End			
Alternate C Pours	1 + 5 + 2 + 4 + 3					32	27
	End to End						

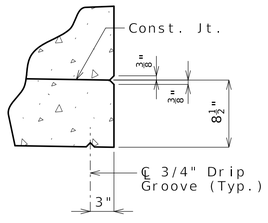
The contractor shall furnish an approved retarder to retard the set of the concrete to 2.5 hours, and shall pour and satisfactorily finish the slab pours at the rate given.

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

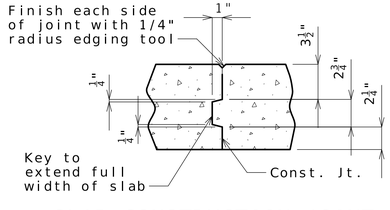
SLAB POURING SEQUENCE



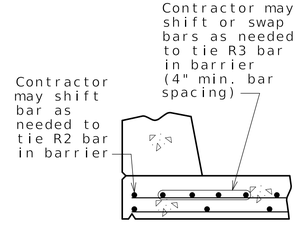
DETAIL A



DETAIL B



SLAB CONSTRUCTION JOINT



OPTIONAL SHIFTING TOP BARS AT BARRIER

Notes:

For reinforcement of barriers not shown, see Sheets No. BR01-26 & 27.

For Optional SIP Forming Details, Theoretical Bottom of Slab Elevations, Beam Camber Diagram and Theoretical Slab Haunching Diagram, see Sheet No. BR01-22.

For Plan of Slab Showing Reinforcement, see Sheets No. BR01-23 & 24.

Designed Feb. 2026
Detailed March 2026
Checked April 2026

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

SLAB DETAILS

STATE OF MISSOURI
JUSTIN M. HAAS
NUMBER PE-2007020256
PROFESSIONAL ENGINEER

DATE PREPARED: 13-MAY-2026
ROUTE: I-70 | STATE: MO
DISTRICT: BR | SHEET NO.: BR01-25
COUNTY: BOONE
JOB NUMBER: JST0017
CONTRACT ID.: 251203-D01
PROJECT NO.: IS 70-2(128)
BRIDGE NO.: A9815

REV	DATE	DESCRIPTION
0	051526	RFC BRIDGE A9815

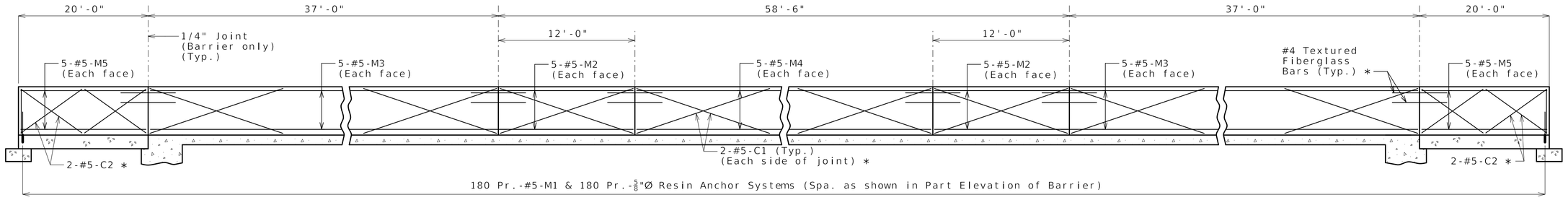
IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)
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EMERY SAPPS SONS, INC
Hg Consult Inc

IMPROVE I-70 ROCHEPORT TO COLUMBIA

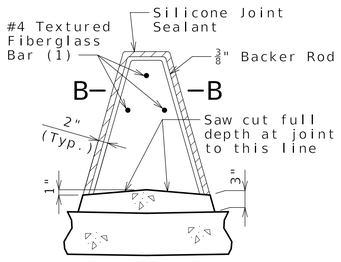
MO STATE CERTIFICATE OF AUTHORITY #2010005873 ENGINEERING REV.

05/18/2026
Released for Construction

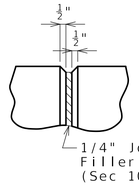


ELEVATION OF BARRIER

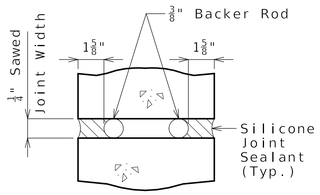
Longitudinal dimensions are horizontal.



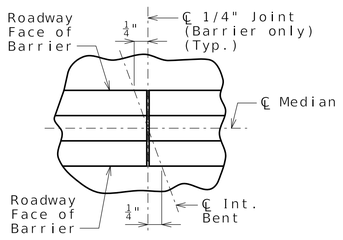
SECTION THRU SAW CUT JOINT



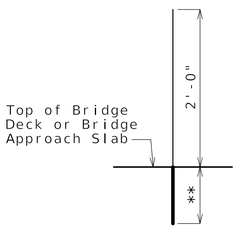
PART ELEVATION AT FORMED JOINT



SECTION B-B



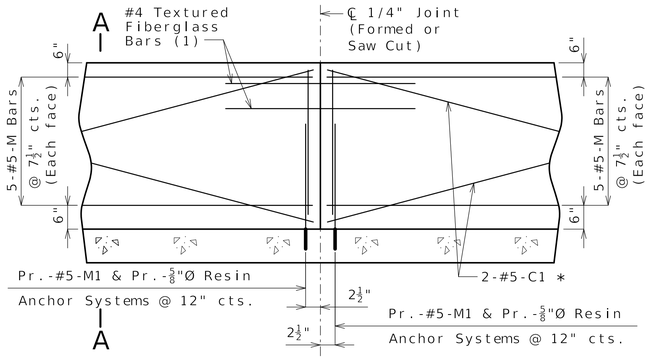
PART PLAN SHOWING JOINT LOCATION



RESIN ANCHOR SYSTEM

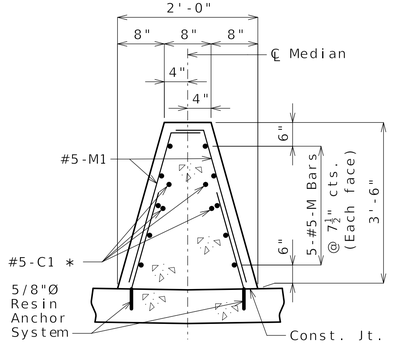
(360 required)

** Manufacturer's embedment length (5" minimum)



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 4.69 square feet.

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 with 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.

Concrete in the barrier shall be Class B-1.

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 shall have retroreflective sheeting on both sides.

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.

The contractor shall use one of the qualified resin anchor systems in accordance with 1039.

The minimum embedment depth in concrete with f'c = 4,000 psi for the resin anchor system shall be that required to meet the minimum ultimate pullout strength in accordance with Sec 1039 but shall not be less than 5 inches.

An epoxy coated #5 Grade 60 reinforcing bar shall be substituted for the 5/8-inch diameter threaded rod.

TYPE C BARRIER

Designed March 2026
Detailed March 2026
Checked April 2026

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

B_A9815_BR01-26_JST0017_TYPE_C_BARR.dgn 5:42:55 PM Eastern 13-MAY-2026

STATE OF MISSOURI
JUSTIN M. DAVIS
NUMBER PE-2007020256
PROFESSIONAL ENGINEER

DATE PREPARED 13-MAY-2026
ROUTE I-70 | STATE MO
DISTRICT BR | SHEET NO. BR01-26
COUNTY BOONE
JOB NUMBER JST0017
CONTRACT ID. 251203-D01
PROJECT NO. IS 70-2(128)
BRIDGE NO. A9815

REV 0 | DATE 051526 | DESCRIPTION RFC BRIDGE A9815

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JEFFERSON CITY, MO 65102
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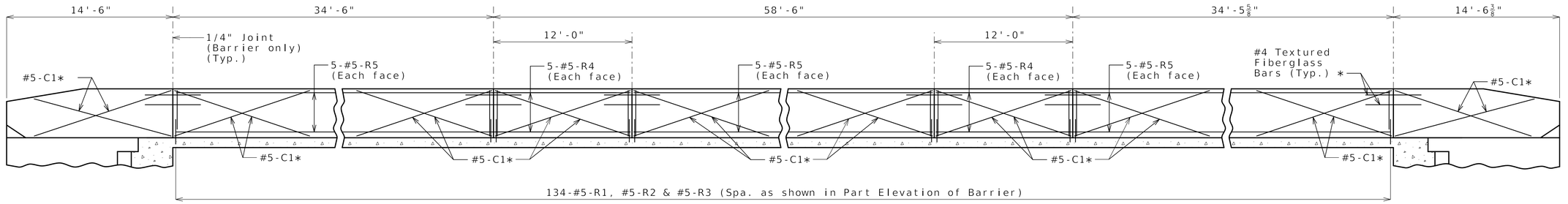
IMPROVE I-70 ROCHEPORT TO COLUMBIA

EMERY SAPP & SONS, INC
Hg Consult Inc

MO STATE CERTIFICATE OF AUTHORITY #2010005873 ENGINEERING

REV.

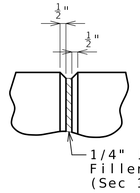
05/18/2026
Released for Construction



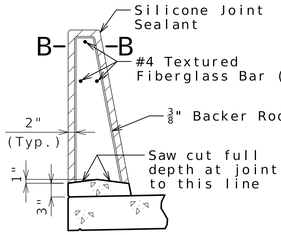
ELEVATION OF BARRIER

(Left barrier shown, right barrier similar)

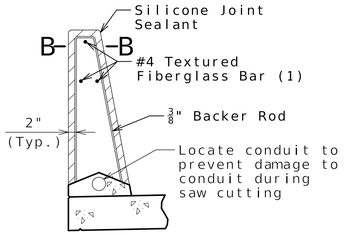
Longitudinal dimensions are horizontal.



PART ELEVATION AT FORMED JOINT

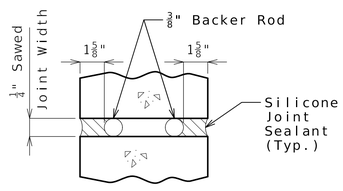


SECTION THRU SAW CUT JOINT

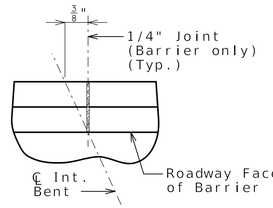


SECTION THRU SAW CUT JOINT

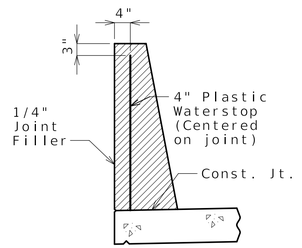
(Left Barrier Only)



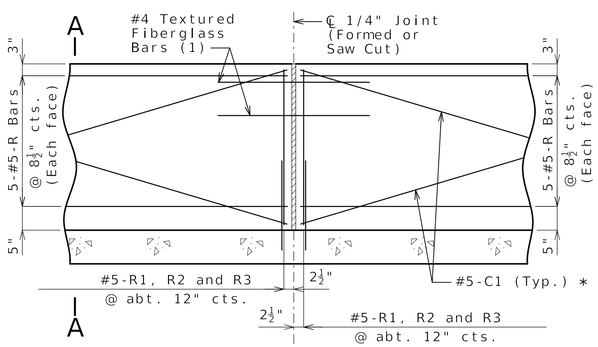
SECTION B-B



PART PLAN SHOWING JOINT LOCATION

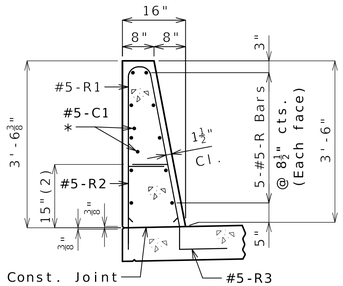


WATERSTOP DETAIL



PART ELEVATION OF BARRIER

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

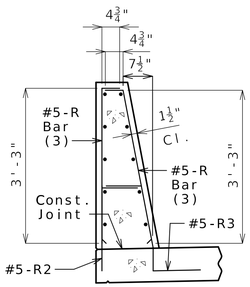


SECTION A-A

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.)

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.

Concrete in barrier shall be Class B-1.

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.

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.

TYPE D BARRIER

Designed March 2026
Detailed March 2026
Checked April 2026

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

STATE OF MISSOURI
JUSTIN M. DAVIS
NUMBER PE-2007020256
PROFESSIONAL ENGINEER

DATE PREPARED: 13-MAY-2026
ROUTE: I-70 | STATE: MO
DISTRICT: BR | SHEET NO.: BR01-27
COUNTY: BOONE
JOB NUMBER: JST0017
CONTRACT ID.: 251203-D01
PROJECT NO.: IS 70-2(128)
BRIDGE NO.: A9815

REV	DATE	DESCRIPTION
0	051526	RFC BRIDGE A9815

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

IMPROVE I-70 ROCHEPORT TO COLUMBIA

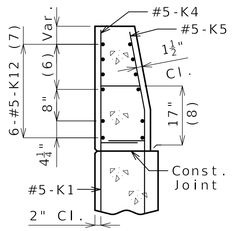
EMERY SAPP & SONS, INC

Hg Consult Inc

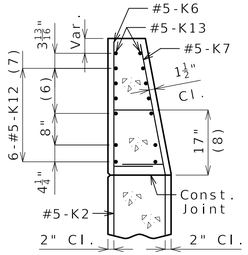
MO STATE CERTIFICATE OF AUTHORITY #2010005873 ENGINEERING

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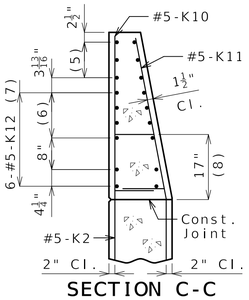
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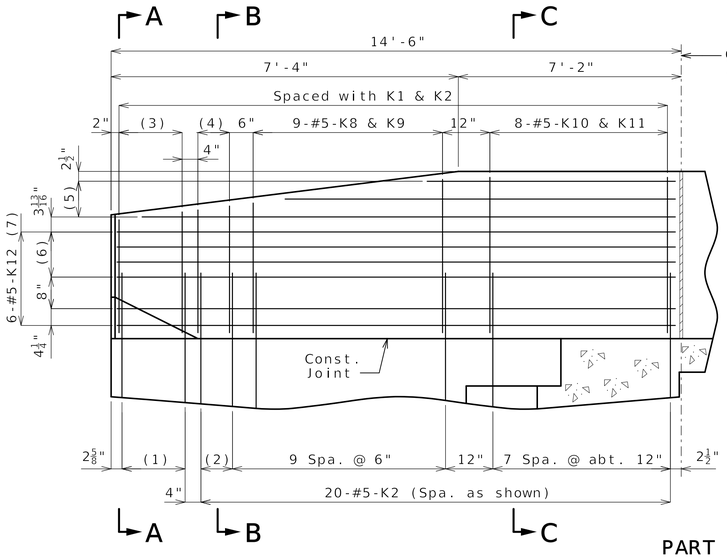
SECTION A-A

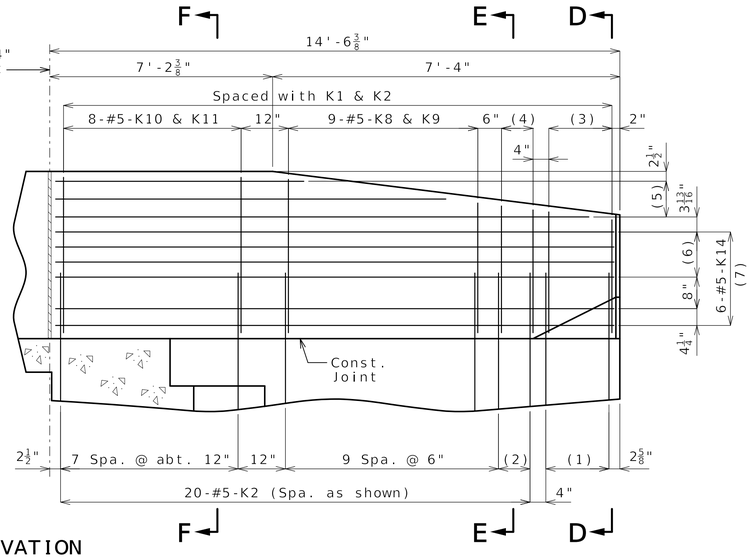


SECTION B-B

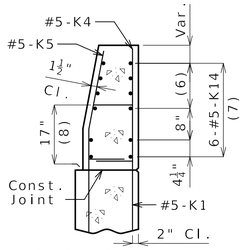


SECTION C-C

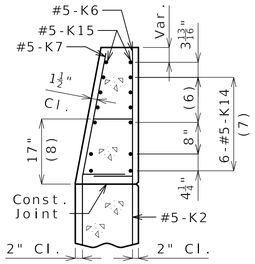




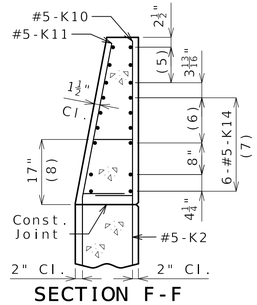
PART ELEVATION



SECTION D-D



SECTION E-E



SECTION F-F

PART PLAN

ELEVATION G-G ELEVATION

PLAN

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

DETAILS OF GUARD RAIL ATTACHMENT

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

(2) 2 spaces @ 4"

(3) 5-#5-K4 & K5

(4) 3-#5-K6 & K7

(5) 3-#5-K13 or K15 @ 4½" cts., each face

(6) 3 spaces @ 3 13/16"

(7) Spaced as shown, each face

(8) To top of bar

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.

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.

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

TYPE D BARRIER AT END BENTS

(Left barrier shown, right barrier similar)

Designed March 2026
Detailed March 2026
Checked April 2026

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

STATE OF MISSOURI
JUSTIN M. HAAS
NUMBER PE-2007020256
PROFESSIONAL ENGINEER

DATE PREPARED
13-MAY-2026

ROUTE	STATE
I-70	MO
DISTRICT	SHEET NO.
BR	BR01-28

COUNTY
BOONE

JOB NUMBER
JST0017

CONTRACT ID.
251203-D01

PROJECT NO.
IS 70-2(128)

BRIDGE NO.
A9815

REV	DATE	DESCRIPTION
0	051526	RFC BRIDGE A9815

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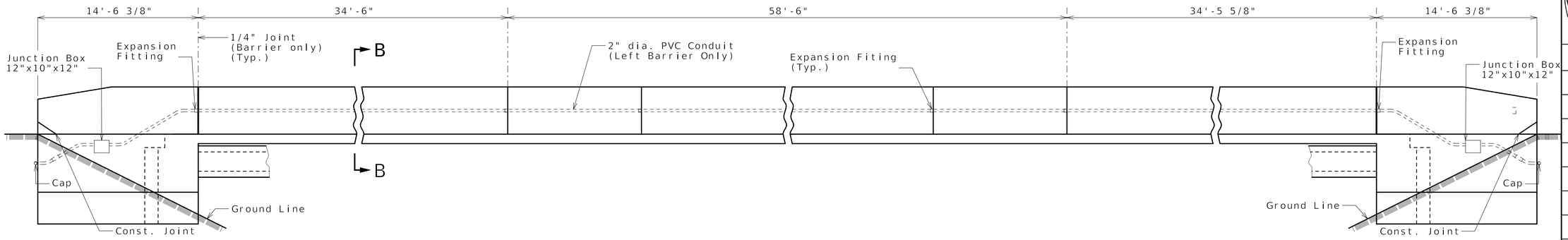
EMERY SAPP & SONS, INC

Hg Consult Inc

MO STATE CERTIFICATE OF AUTHORITY #2010005873 ENGINEERING

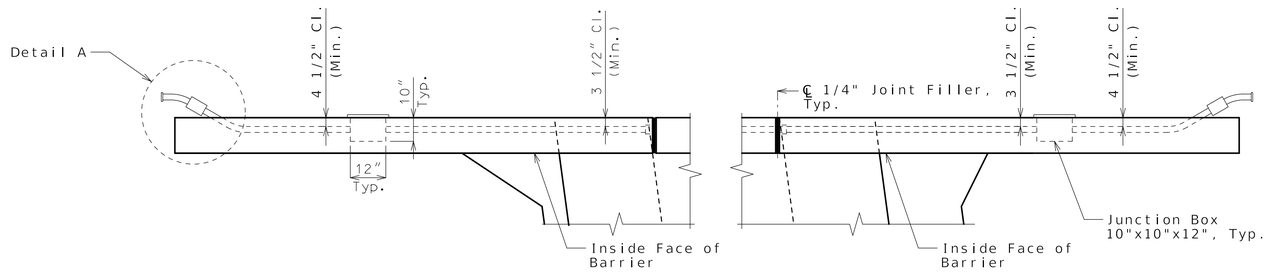
REV.

05/18/2026
Released for Construction

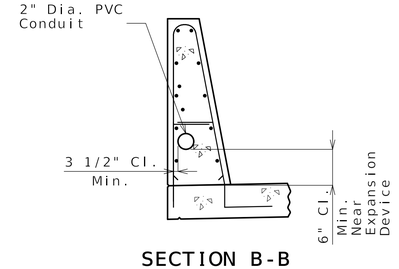


ELEVATION LEFT (NORTH) BARRIER SHOWING CONDUIT SYSTEM ON BRIDGE

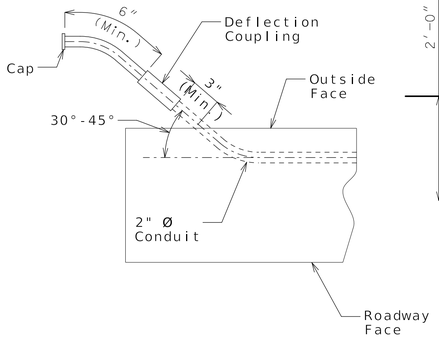
Note: Longitudinal dimensions shown are horizontal.



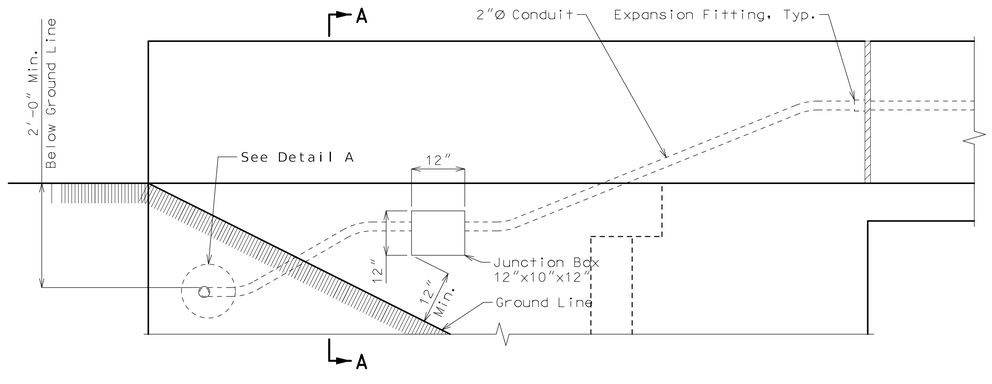
PART PLAN SHOWING JUNCTION BOX LOCATIONS



SECTION B-B

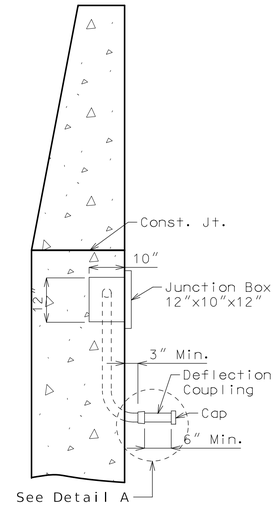


DETAIL A



PART ELEVATION SHOWING JUNCTION BOX IN WINGWALL

(End Bent No. 4 Wingwall shown, End Bent No. 1 Wingwall similar)



SECTION A-A

Notes:
All conduits shall be rigid nonmetallic schedule 40 heavy wall polyvinyl chloride (PVC) with 3 1/2" minimum cover in barrier and 4 1/2" minimum cover in abutment wing. Each section of conduit shall bear the Underwriters Laboratories (UL) label.

Shift reinforcing steel in field where necessary to clear conduit and junction boxes.

Expansion fittings shall be placed as shown and set in accordance with the manufacturer's requirements and based on the air temperature at the time of setting given an estimated total expansion movement of one inch at filled joints using a maximum temperature range of 120°F and a maximum temperature of 110°F.

All end bent junction boxes shall be PVC molded in accordance with Sec 1062 and designed for flush mounting. The conduit terminations shall be permanent or separable. The terminations and covers shall be of watertight construction and shall meet requirements for NEMA 4X enclosure.

Drainage shall be provided at low points or other critical locations of all conduits and all junction boxes in accordance with Sec 707. All conduits shall be sloped to drain where possible.

Junction box size shown on plan may require special order. Smaller junction box may be substituted if junction box meets conduit installation, clearance and project requirements.

MoDOT Construction Personnel: Indicate in field and on bridge plans for future work the exact location of buried conduit at ends of bridge that are capped and not immediately used.

CONDUIT DETAILS

Designed March 2026
Detailed March 2026
Checked April 2026

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

STATE OF MISSOURI
JUSTIN M. DAMS
NUMBER PE-2007020258
PROFESSIONAL ENGINEER

DATE PREPARED: 13-MAY-2026
ROUTE: I-70 | STATE: MO
DISTRICT: BR | SHEET NO.: BR01-29
COUNTY: BOONE
JOB NUMBER: JST0017
CONTRACT ID.: 251203-D01
PROJECT NO.: IS 70-2(128)
BRIDGE NO.: A9815

REV	DATE	DESCRIPTION
0	051526	RFC BRIDGE A9815

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

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

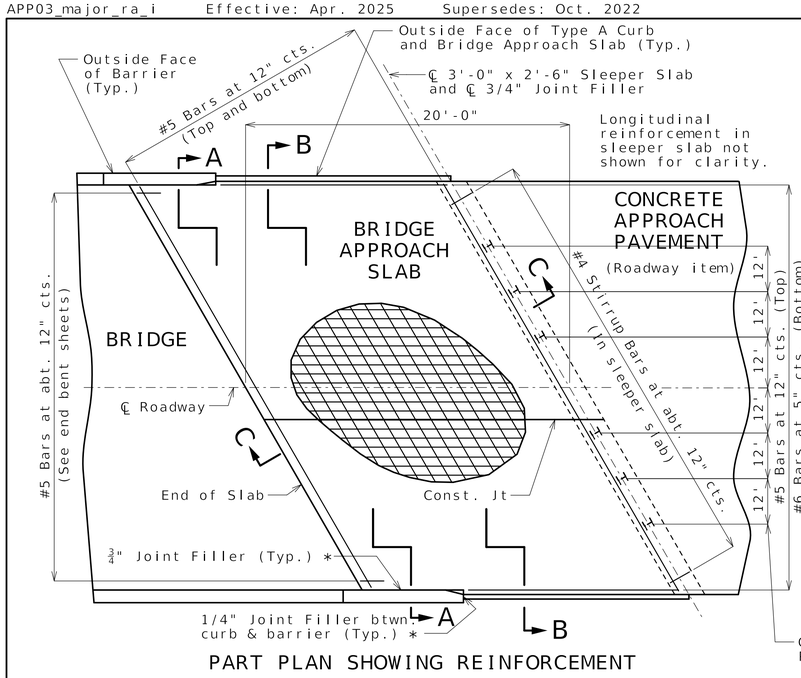
IMPROVE I-70 ROCHEPORT TO COLUMBIA

Hg Consult Inc
EMERY SAPPS SONS, INC

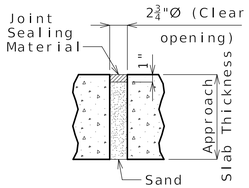
MO STATE CERTIFICATE OF AUTHORITY #2010005873 ENGINEERING

REV.

05/18/2026
Released for Construction

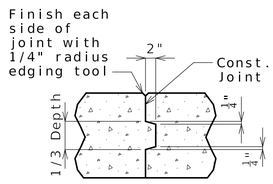


PART PLAN SHOWING REINFORCEMENT



UNDERSEAL ACCESS HOLE DETAIL

(If required)



CONSTRUCTION JOINT DETAIL

General Notes:

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

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

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.

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

The reinforcing steel in the bridge approach slab and the sleeper slab shall be continuous. The transverse reinforcing steel may be made continuous by providing a minimum lap splice of 24 inches for #5 bars and 40 inches for #6 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.

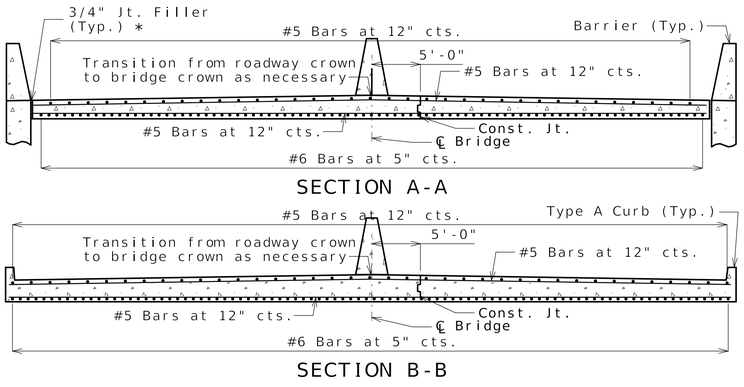
The contractor shall pour and satisfactorily finish the bridge slab before placing the bridge approach slab.

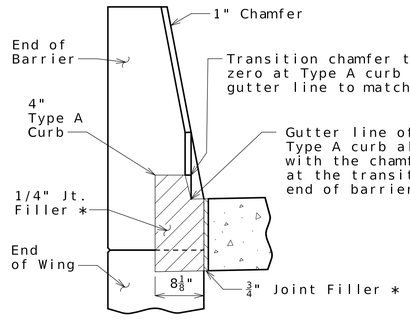
Longitudinal construction joints in approach slab and sleeper slab shall be aligned with longitudinal construction joints in bridge slab.

For concrete approach pavement details, see roadway plans.

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

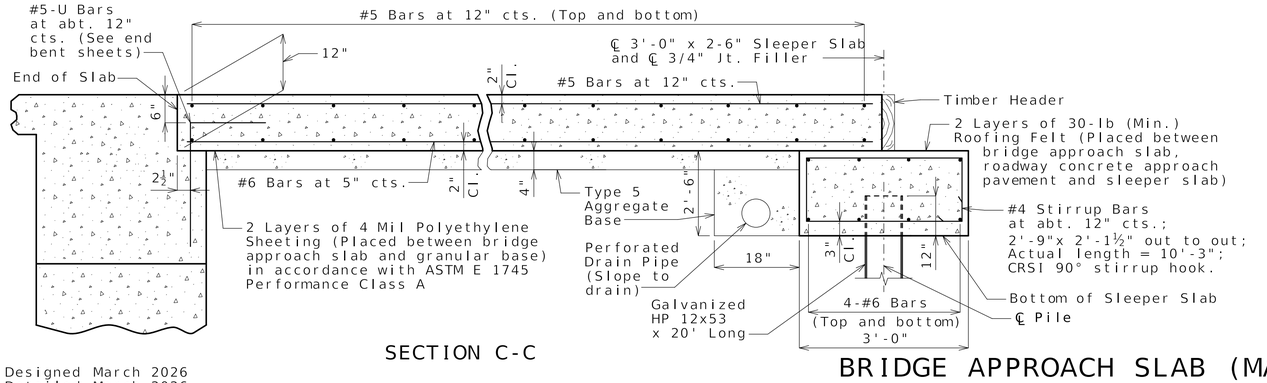
* Seal joint between vertical face of approach slab and wing with sealant in accordance with Sec 717 for silicone joint sealant for saw cut and formed joints.



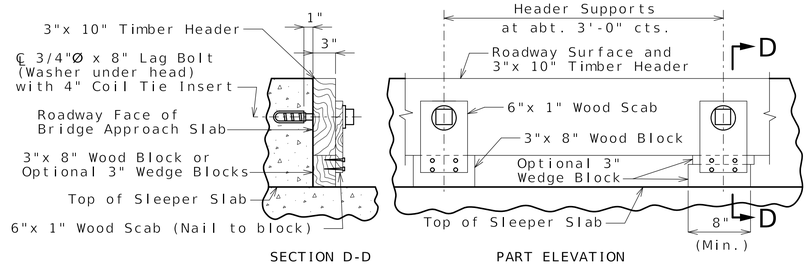


SECTION BETWEEN CURB AND BARRIER

The bottom of the approach slab shall be crowned to match the crown of the roadway surface.



SECTION C-C



DETAILS OF TIMBER HEADER

Remove timber header when concrete pavement is placed.

Designed March 2026
Detailed March 2026
Checked April 2026

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

BRIDGE APPROACH SLAB (MAJOR)

STATE OF MISSOURI
JUSTIN M. DAVIS
NUMBER PE-2007020256
PROFESSIONAL ENGINEER

DATE PREPARED 13-MAY-2026
ROUTE I-70 | STATE MO
DISTRICT BR | SHEET NO. BR01-30
COUNTY BOONE
JOB NUMBER JST0017
CONTRACT ID. 251203-D01
PROJECT NO. IS 70-2(128)
BRIDGE NO. A9815

REV	DATE	DESCRIPTION
0	051526	RFC BRIDGE A9815

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

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

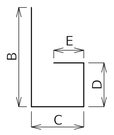
IMPROVE I-70 ROCHEPORT TO COLUMBIA

EMERY SAPP & SONS, INC
Hg Consult Inc

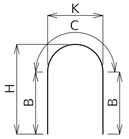
MO STATE CERTIFICATE OF AUTHORITY #2010005873 ENGINEERING

REV.

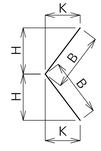
05/18/2026
Released for Construction



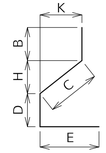
SHAPE 6 or 6S



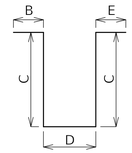
SHAPE 7



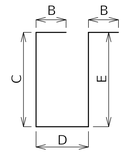
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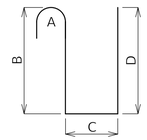
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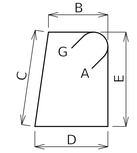
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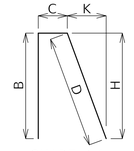
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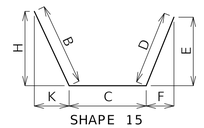
SHAPE 12



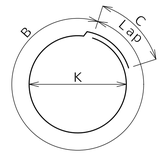
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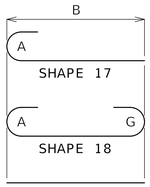
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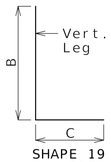
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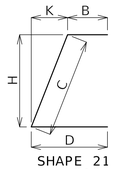
SHAPE 16



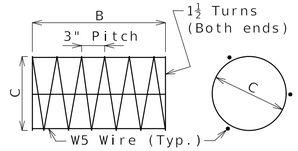
SHAPE 17
SHAPE 18
SHAPE 20



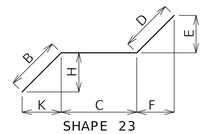
SHAPE 19 or 19S



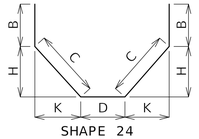
SHAPE 21 or 21S



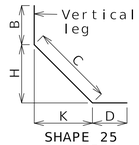
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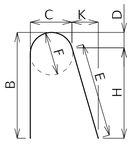
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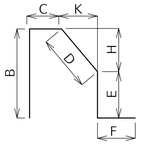
SHAPE 24 or 24S



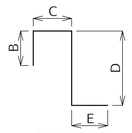
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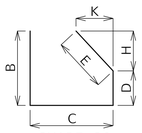
SHAPE 26



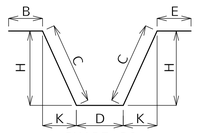
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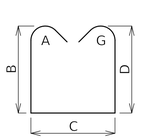
SHAPE 28 or 28S



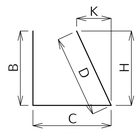
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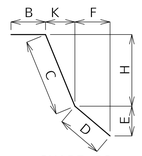
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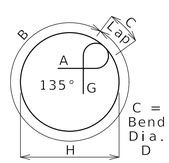
SHAPE 31S



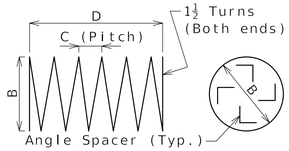
SHAPE 32 or 32S



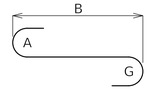
SHAPE 33 or 33S



SHAPE 34S



SHAPE 35 (1)

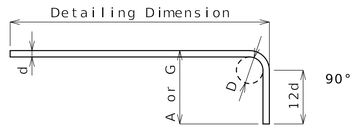


SHAPE 36

Finished Bend Diameters D and Hook Dimensions

Standard Pin Bend Shapes

Size	Case	D	A or G		J
			90°	180°	180°
#4	1	3"	8"	6"	4"
#5	1	3¾"	10"	7"	5"
#6	1	4½"	12"	8¼"	6"
#7	2	5¼"	14"	9¾"	7"
	3	7"	15"	11½"	8¾"
#8	2	6"	16"	11"	8"
	3	8"	17"	13¼"	10"
#9	1	9½"	19½"	15½"	11¾"
#10	1	10¾"	22"	17½"	13¾"
#11	1	12"	24½"	19½"	14⅞"
#14	1	18¼"	31¼"	27½"	21⅝"
#18	1	24"	41½"	36¼"	28½"

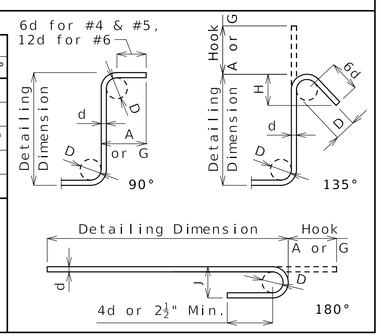


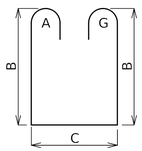
Stirrup Pin Bend Shapes (S)

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

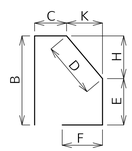
Applicable for all grades of steel.

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





SHAPE 37S



SHAPE 38S

BENDING DIAGRAMS

All dimensions are out to out.

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

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

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

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

Designed Feb. 2026
Detailed March 2026
Checked April 2026

BENDING DIAGRAMS AND REINFORCING STEEL TOTALS

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

STATE OF MISSOURI
JUSTIN M. DAVIS
NUMBER PE-2007020256
PROFESSIONAL ENGINEER

DATE PREPARED 13-MAY-2026
ROUTE I-70 | STATE MO
DISTRICT BR | SHEET NO. BR01-31
COUNTY BOONE
JOB NUMBER JST0017
CONTRACT ID. 251203-D01
PROJECT NO. IS 70-2(128)
BRIDGE NO. A9815

REV	DATE	DESCRIPTION
0	051526	RFC BRIDGE A9815

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

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

IMPROVE I-70 ROCHEPORT TO COLUMBIA

EMERY SAPP& SONS, INC
Hg Consult Inc

MO STATE CERTIFICATE OF AUTHORITY #2010005873 ENGINEERING

REV.

05/18/2026
Released for Construction

Bill of Reinforcing Steel

No. Req.	Size/ Mark	Location	Codes C	SH	V	Dimensions B ft in.	C ft in.	D ft in.	E ft in.	F ft in.	H ft in.	K ft in.	Nom. Length ft in.	Actual Length ft in.	Weight lb
		SUBSTRUCTURE													
		INT. BENT 2													
		STAGE 1													
36	6 D201	WALL	E	20		2 6.00							2 6	2 6	135
84	5 H201	WALL	E	20		34 0.00							34 0	34 0	2979
2	6 H202	WALL	E	17		33 8.00							34 4	34 4	103
2	6 H203	WALL	E	20		33 8.00							33 8	33 8	101
18	6 H204	WALL	E	20		6 9.00							6 9	6 9	182
4	6 H205	WALL	E	17		18 4.00							19 0	19 0	114
8	6 H206	WALL	E	20		17 5.00							17 5	17 5	209
4	6 H207	WALL	E	20		26 3.00							26 3	26 3	158
4	6 H208	WALL	E	20		5 4.00							5 4	5 4	32
2	5 H209	WALL	E	20		37 0.00							37 0	37 0	77
62	5 U201	WALL	E	10S			3 10.00	2 2.00					9 10	9 7	620
53	5 U202	WALL	E	10S			2 9.00	2 2.00					7 8	7 5	410
25	4 U203	WALL	E	10S			12.00	2 2.00					4 2	4 0	67
21	5 U204	WALL	E	10S			3 7.00	2 0.00					9 2	8 11	195
1	6 U205	WALL	E	10S			4 8.00	2 0.00					11 4	11 0	17
1	6 U206	WALL	E	10S			3 3.00	2 0.00					8 6	8 2	12
297	4 U207	WALL	E	31S		2 3.00	4.50						3 0	2 11	579
124	5 V201	WALL	E	20		20 8.00							20 8	20 8	2673
		STAGE 2													
29	6 D221	WALL	E	20		2 6.00							2 6	2 6	109
42	5 H221	WALL	E	20		48 7.00							48 7	48 7	2128
2	6 H222	WALL	E	17		48 7.00							49 3	49 3	148
12	6 H224	WALL	E	20		6 9.00							6 9	6 9	122
4	6 H225	WALL	E	17		18 4.00							19 0	19 0	114
8	6 H226	WALL	E	20		17 5.00							17 5	17 5	209
4	6 H227	WALL	E	20		9 5.00							9 5	9 5	57
2	5 H229	WALL	E	20		37 0.00							37 0	37 0	77
50	5 U221	WALL	E	10S			3 10.00	2 2.00					9 10	9 7	500
43	5 U222	WALL	E	10S			2 9.00	2 2.00					7 8	7 5	333
19	4 U223	WALL	E	10S			12.00	2 2.00					4 2	4 0	51
21	5 U224	WALL	E	10S			3 7.00	2 0.00					9 2	8 11	195
1	6 U225	WALL	E	10S			4 8.00	2 0.00					11 4	11 0	17
1	6 U226	WALL	E	10S			3 3.00	2 0.00					8 6	8 2	12
242	4 U227	WALL	E	31S		2 3.00	4.50						3 0	2 11	471
100	5 V221	WALL	E	20		20 8.00							20 8	20 8	2156
		INT. BENT 3													
		STAGE 1													
36	6 D301	WALL	E	20		2 6.00							2 6	2 6	135
84	5 H301	WALL	E	20		34 0.00							34 0	34 0	2979
2	6 H302	WALL	E	17		33 8.00							34 4	34 4	103
2	6 H303	WALL	E	20		33 8.00							33 8	33 8	101
18	6 H304	WALL	E	20		6 9.00							6 9	6 9	182
4	6 H305	WALL	E	17		18 4.00							19 0	19 0	114
8	6 H306	WALL	E	20		17 5.00							17 5	17 5	209
4	6 H307	WALL	E	20		26 3.00							26 3	26 3	158
4	6 H308	WALL	E	20		5 4.00							5 4	5 4	32
2	5 H309	WALL	E	20		37 0.00							37 0	37 0	77
62	5 U301	WALL	E	10S			3 10.00	2 2.00					9 10	9 7	620
53	5 U302	WALL	E	10S			2 9.00	2 2.00					7 8	7 5	410
25	4 U303	WALL	E	10S			12.00	2 2.00					4 2	4 0	67
21	5 U304	WALL	E	10S			3 7.00	2 0.00					9 2	8 11	195
1	6 U305	WALL	E	10S			4 8.00	2 0.00					11 4	11 0	17
1	6 U306	WALL	E	10S			3 3.00	2 0.00					8 6	8 2	12
297	4 U307	WALL	E	31S		2 3.00	4.50						3 0	2 11	579
124	5 V301	WALL	E	20		21 2.00							21 2	21 2	2738

Bill of Reinforcing Steel

No. Req.	Size/ Mark	Location	Codes C	SH	V	Dimensions B ft in.	C ft in.	D ft in.	E ft in.	F ft in.	H ft in.	K ft in.	Nom. Length ft in.	Actual Length ft in.	Weight lb
		INT. BENT 3													
		STAGE 2													
29	6 D321	WALL	E	20		2 6.00							2 6	2 6	109
42	5 H321	WALL	E	20		48 7.00							48 7	48 7	2128
2	6 H322	WALL	E	17		48 7.00							49 3	49 3	148
12	6 H324	WALL	E	20		6 9.00							6 9	6 9	122
4	6 H325	WALL	E	17		18 4.00							19 0	19 0	114
8	6 H326	WALL	E	20		17 5.00							17 5	17 5	209
4	6 H327	WALL	E	20		9 5.00							9 5	9 5	57
2	5 H329	WALL	E	20		37 0.00							37 0	37 0	77
50	5 U321	WALL	E	10S			3 10.00	2 2.00					9 10	9 7	500
43	5 U322	WALL	E	10S			2 9.00	2 2.00					7 8	7 5	333
19	4 U323	WALL	E	10S			12.00	2 2.00					4 2	4 0	51
21	5 U324	WALL	E	10S			3 7.00	2 0.00					9 2	8 11	195
1	6 U325	WALL	E	10S			4 8.00	2 0.00					11 4	11 0	17
1	6 U326	WALL	E	10S			3 3.00	2 0.00					8 6	8 2	12
242	4 U327	WALL	E	31S		2 3.00	4.50						3 0	2 11	471
100	5 V321	WALL	E	20		21 2.00							21 2	21 2	2208
		SUPERSTRUCTURE													
		END BENT 1													
		STAGE 1													
3	6 F101	DIAPHRAGM	E	21			2 8.00	7 9.00			2 8.00	0.75	10 5	10 3	46
8	6 F102	WING BRACE	E	15		20.00	5 2.00	2 3.00	19.00	19.25	14.25	14.00	9 1	9 0	108
8	8 H101	BEAM	E	20		34 0.00							34 0	34 0	726
4	8 H102	BEAM	E	20		20 6.00							20 6	20 6	219
8	8 H103	BEAM	E	20		19 0.00							19 0	19 0	406
4	8 H104	BEAM	E	20		22 8.00							22 8	22 8	242
8	6 H105	BEAM	E	20		33 8.00							33 8	33 8	405
2	6 H106	BEAM	E	20		34 0.00							34 0	34 0	102
8	8 H107	DIAPHRAGM	E	20		33 4.00							33 4	33 4	712
3	6 H108	DIAPHRAGM	E	20		2 1.00							2 1	2 1	9
12	6 H109	DIAPHRAGM	E	20		8 6.00							8 6	8 6	153
6	6 H110	DIAPHRAGM	E	20		33 8.00							33 8	33 8	303
3	6 H111	DIAPHRAGM	E	20		5 1.00							5 1	5 1	23
4	6 H112	BEAM	E	20		5 5.00							5 5	5 5	33
5	5 H113	STRAND TIE	E	20		6 6.00							6 6	6 6	34
8	8 H114	WING	E	20		14 0.00							14 0	14 0	299
16	6 H115	WING	E	20		13 2.00							13 2	13 2	316
9	5 U101	BEAM	E	31S		4 8.00	2 9.00	4 8.00					13 0	12 9	120
7	5 U102	BEAM	E	31S		5 1.00	2 9.00	5 1.00					13 10	13 7	99
7	5 U103	BEAM	E	31S		5 4.00	2 9.00	5 4.00					14 4	14 1	103
11	5 U104	BEAM	E	31S		5 7.00	2 9.00	5 7.00					14 10	14 7	167
82	6 U105	DIAPHRAGM	E	19S		2 9.00	4 8.00						7 5	7 3	893
45	5 U106	DIAPHRAGM	E	31S		2 7.00	2 3.00	2 7.00					8 4	8 1	379
45	6 U107	DIAPHRAGM	E	19S		21.00	2 9.00						4 6	4 4	293
6	4 U111	BEAM	E	13S		2 9.00	2 8.00	2 9.00	2 8.00				11 7	11 4	45
8	4 U112	BEAM	E	13S		2 9.00	2 11.00	2 9.00	2 11.00				12 1	11 10	63
8	4 U113	BEAM	E	13S		2 9.00	3 2.00	2 9.00	3 2.00				12 7	12 4	66
16	4 U114	BEAM	E	13S		2 9.00	3 5.00	2 9.00	3 5.00				13 1	12 10	137
8	4 U115	BEAM	E	10S			12.00	2 9.00					4 9	4 7	24
2	4 U116	BEAM	E	10S			2 8.00	2 9.00					8 1	7 11	11
62	5 U117	DIAPHRAGM	E	19S		2 0.00	15.00						3 3	3 2	205
26	6 V101	WING	E	20		5 10.00							5 10	5 10	228
30	6 V102	DIAPHRAGM	E	20		22.00							1 10	1 10	83
6	5 V105	BEAM	E	17		4 8.00							5 3	5 3	33
4	5 V106	BEAM	E	17		5 1.00							5 8	5 8	24
4	5 V107	BEAM	E	17		5 4.00							5 11	5 11	25
8	5 V108	BEAM	E	17		5 7.00							6 2	6 2	51

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. 31.

Designed Feb. 2026
Detailed March 2026
Checked April 2026

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

Codes: C = Required coatings, where E = Epoxy Coated and G = Galvanized.
SH = Required shape, see bending diagrams.
V = Sets of varied bars and number of bars of each length. Bar dimensions vary in equal increments between dimensions shown on this line and the following line and the actual length dimension shown on this line and the following line vary by the specified increment.

BILL OF REINFORCING STEEL

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

B_A9815_BR01-32_JST0017_BARBILL_1.dgn 5:58:03 PM Eastern 13-MAY-2026

STATE OF MISSOURI
JUSTIN M. DAVIS
NUMBER PE-2007020256
PROFESSIONAL ENGINEER

DATE PREPARED
13-MAY-2026

ROUTE	STATE
I-70	MO

DISTRICT	SHEET NO.
BR	BR01-32

COUNTY
BOONE

JOB NUMBER
JST0017

CONTRACT ID.
251203-D01

PROJECT NO.
IS 70-2(128)

BRIDGE NO.
A9815

REV	DATE	DESCRIPTION
0	051526	RFC BRIDGE A9815

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

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

IMPROVE I-70 ROCHEPORT TO COLUMBIA

EMERY SAPP & SONS, INC
Hg Consult Inc

MO STATE CERTIFICATE OF AUTHORITY #2010005873 ENGINEERING

REV.

05/18/2026
Released for Construction

Bill of Reinforcing Steel

No. Req.	Size/ Mark	Location	Codes C	SH	V	Dimensions B ft in.	C ft in.	D ft in.	E ft in.	F ft in.	H ft in.	K ft in.	Nom. Length ft in.	Actual Length ft in.	Weight lb
		END BENT 1													
		STAGE 2													
3	6 F121	DIAPHRAGM	E	21		7 9.00	2 8.00				2 8.00	0.75	10 5	10 1	45
8	6 F122	WING BRACE	E	15		2 3.00	5 0.00	20.00	14.00	14.25	19.25	19.00	8 11	8 10	106
4	8 H121	BEAM	E	20		47 11.00							47 11	47 11	512
4	8 H122	BEAM	E	20		20 6.00							20 6	20 6	219
8	8 H123	BEAM	E	20		19 0.00							19 0	19 0	406
4	8 H124	BEAM	E	20		8 2.00							8 2	8 2	87
4	6 H125	BEAM	E	20		47 11.00							47 11	47 11	288
2	6 H126	BEAM	E	20		19 4.00							19 4	19 4	58
4	8 H127	DIAPHRAGM	E	20		50 3.00							50 3	50 3	537
3	6 H128	DIAPHRAGM	E	20		2 1.00							2 1	2 1	9
9	6 H129	DIAPHRAGM	E	20		8 6.00							8 6	8 6	115
3	6 H130	DIAPHRAGM	E	20		47 11.00							47 11	47 11	216
3	6 H131	DIAPHRAGM	E	20		3 4.00							3 4	3 4	15
4	5 H133	STRAND TIE	E	20		6 6.00							6 6	6 6	27
8	8 H134	WING	E	20		14 0.00							14 0	14 0	299
16	6 H135	WING	E	20		13 2.00							13 2	13 2	316
9	5 U121	BEAM	E	31S		4 8.00	2 9.00	4 8.00					13 0	12 9	120
7	5 U122	BEAM	E	31S		5 1.00	2 9.00	5 1.00					13 10	13 7	99
7	5 U123	BEAM	E	31S		5 4.00	2 9.00	5 4.00					14 4	14 1	103
4	5 U124	BEAM	E	31S		5 7.00	2 9.00	5 7.00					14 10	14 7	61
62	6 U125	DIAPHRAGM	E	19S		2 9.00	4 8.00						7 5	7 3	675
34	5 U126	DIAPHRAGM	E	31S		2 7.00	2 3.00	2 7.00					8 4	8 1	287
34	6 U127	DIAPHRAGM	E	19S		21.00	2 9.00						4 6	4 4	221
6	4 U131	BEAM	E	13S		2 9.00	2 8.00	2 9.00	2 8.00				11 7	11 4	45
8	4 U132	BEAM	E	13S		2 9.00	2 11.00	2 9.00	2 11.00				12 1	11 10	63
8	4 U133	BEAM	E	13S		2 9.00	3 2.00	2 9.00	3 2.00				12 7	12 4	66
8	4 U134	BEAM	E	13S		2 9.00	3 5.00	2 9.00	3 5.00				13 1	12 10	69
2	4 U136	BEAM	E	10S			2 8.00	2 9.00					8 1	7 11	11
47	5 U137	DIAPHRAGM	E	19S		2 0.00	15.00						3 3	3 2	155
26	6 V121	WING	E	20		5 10.00							5 10	5 10	228
30	6 V122	DIAPHRAGM	E	20		22.00							1 10	1 10	83
6	5 V125	BEAM	E	17		4 8.00							5 3	5 3	33
4	5 V126	BEAM	E	17		5 1.00							5 8	5 8	24
4	5 V127	BEAM	E	17		5 4.00							5 11	5 11	25
		END BENT 4													
		STAGE 1													
3	6 F401	DIAPHRAGM	E	21		7 9.00	2 8.00				2 8.00	0.75	10 5	10 1	45
8	6 F402	WING BRACE	E	15		2 3.00	5 0.00	20.00	14.00	14.25	19.25	19.00	8 11	8 10	106
8	8 H401	BEAM	E	20		34 0.00							34 0	34 0	726
4	8 H402	BEAM	E	20		20 6.00							20 6	20 6	219
8	8 H403	BEAM	E	20		19 0.00							19 0	19 0	406
4	8 H404	BEAM	E	20		22 8.00							22 8	22 8	242
8	6 H405	BEAM	E	20		33 8.00							33 8	33 8	405
2	6 H406	BEAM	E	20		34 0.00							34 0	34 0	102
8	8 H407	DIAPHRAGM	E	20		33 4.00							33 4	33 4	712
3	6 H408	DIAPHRAGM	E	20		2 1.00							2 1	2 1	9
12	6 H409	DIAPHRAGM	E	20		8 6.00							8 6	8 6	153
6	6 H410	DIAPHRAGM	E	20		33 8.00							33 8	33 8	303
3	6 H411	DIAPHRAGM	E	20		5 1.00							5 1	5 1	23
4	6 H412	BEAM	E	20		5 5.00							5 5	5 5	33
5	5 H413	STRAND TIE	E	20		6 6.00							6 6	6 6	34
8	8 H414	WING	E	20		14 0.00							14 0	14 0	299
16	6 H415	WING	E	20		13 2.00							13 2	13 2	316

Bill of Reinforcing Steel

No. Req.	Size/ Mark	Location	Codes C	SH	V	Dimensions B ft in.	C ft in.	D ft in.	E ft in.	F ft in.	H ft in.	K ft in.	Nom. Length ft in.	Actual Length ft in.	Weight lb
		END BENT 4													
		STAGE 1													
		(CONT'D)													
9	5 U401	BEAM	E	31S		4 8.00	2 9.00	4 8.00					13 0	12 9	120
7	5 U402	BEAM	E	31S		5 1.00	2 9.00	5 1.00					13 10	13 7	99
7	5 U403	BEAM	E	31S		5 4.00	2 9.00	5 4.00					14 4	14 1	103
11	5 U404	BEAM	E	31S		5 7.00	2 9.00	5 7.00					14 10	14 7	167
82	6 U405	DIAPHRAGM	E	19S		2 9.00	4 8.00						7 5	7 3	893
45	5 U406	DIAPHRAGM	E	31S		2 7.00	2 3.00	2 7.00					8 4	8 1	379
45	6 U407	DIAPHRAGM	E	19S		21.00	2 9.00						4 6	4 4	293
6	4 U411	BEAM	E	13S		2 9.00	2 8.00	2 9.00	2 8.00				11 7	11 4	45
8	4 U412	BEAM	E	13S		2 9.00	2 11.00	2 9.00	2 11.00				12 1	11 10	63
8	4 U413	BEAM	E	13S		2 9.00	3 2.00	2 9.00	3 2.00				12 7	12 4	66
16	4 U414	BEAM	E	13S		2 9.00	3 5.00	2 9.00	3 5.00				13 1	12 10	137
8	4 U415	BEAM	E	10S			12.00	2 9.00					4 9	4 7	24
2	4 U416	BEAM	E	10S			2 8.00	2 9.00					8 1	7 11	11
62	5 U417	DIAPHRAGM	E	19S		2 0.00	15.00						3 3	3 2	205
26	6 V401	WING	E	20		5 9.00							5 9	5 9	225
30	6 V402	DIAPHRAGM	E	20		22.00							1 10	1 10	83
6	5 V405	BEAM	E	17		4 8.00							5 3	5 3	33
4	5 V406	BEAM	E	17		5 1.00							5 8	5 8	24
4	5 V407	BEAM	E	17		5 4.00							5 11	5 11	25
8	5 V408	BEAM	E	17		5 7.00							6 2	6 2	51
		END BENT 4													
		STAGE 2													
3	6 F421	DIAPHRAGM	E	21			2 8.00	7 9.00			2 8.00	0.75	10 5	10 3	46
8	6 F422	WING BRACE	E	15		20.00	5 2.00	2 3.00	19.00	19.25	14.25	14.00	9 1	9 0	108
4	8 H421	BEAM	E	20		47 11.00							47 11	47 11	512
4	8 H422	BEAM	E	20		20 6.00							20 6	20 6	219
8	8 H423	BEAM	E	20		19 0.00							19 0	19 0	406
4	8 H424	BEAM	E	20		8 2.00							8 2	8 2	87
4	6 H425	BEAM	E	20		47 11.00							47 11	47 11	288
2	6 H426	BEAM	E	20		19 4.00							19 4	19 4	58
4	8 H427	DIAPHRAGM	E	20		50 3.00							50 3	50 3	537
3	6 H428	DIAPHRAGM	E	20		2 1.00							2 1	2 1	9
9	6 H429	DIAPHRAGM	E	20		8 6.00							8 6	8 6	115
3	6 H430	DIAPHRAGM	E	20		47 11.00							47 11	47 11	216
3	6 H431	DIAPHRAGM	E	20		3 4.00							3 4	3 4	15
4	5 H433	STRAND TIE	E	20		6 6.00							6 6	6 6	27
8	8 H434	WING	E	20		14 0.00							14 0	14 0	299
16	6 H435	WING	E	20		13 2.00							13 2	13 2	316
9	5 U421	BEAM	E	31S		4 8.00	2 9.00	4 8.00					13 0	12 9	120
7	5 U422	BEAM	E	31S		5 1.00	2 9.00	5 1.00					13 10	13 7	99
7	5 U423	BEAM	E	31S		5 4.00	2 9.00	5 4.00					14 4	14 1	103
4	5 U424	BEAM	E	31S		5 7.00	2 9.00	5 7.00					14 10	14 7	61
62	6 U425	DIAPHRAGM	E	19S		2 9.00	4 8.00						7 5	7 3	675
34	5 U426	DIAPHRAGM	E	31S		2 7.00	2 3.00	2 7.00					8 4	8 1	287
34	6 U427	DIAPHRAGM	E	19S		21.00	2 9.00						4 6	4 4	221
6	4 U431	BEAM	E	13S		2 9.00	2 8.00	2 9.00	2 8.00				11 7	11 4	45
8	4 U432	BEAM	E	13S		2 9.00	2 11.00	2 9.00	2 11.00				12 1	11 10	63
8	4 U433	BEAM	E	13S		2 9.00	3 2.00	2 9.00	3 2.00				12 7	12 4	66
8	4 U434	BEAM	E	13S		2 9.00	3 5.00	2 9.00	3 5.00				13 1	12 10	69
2	4 U436	BEAM	E	10S			2 8.00	2 9.00					8 1	7 11	11
47	5 U437	DIAPHRAGM	E	19S		2 0.00	15.00						3 3	3 2	155
26	6 V421	WING	E	20		5 9.00							5 9	5 9	225
30	6 V422	DIAPHRAGM	E	20		22.00							1 10	1 10	83
6	5 V425	BEAM	E	17		4 8.00							5 3	5 3	33
4	5 V426	BEAM	E	17		5 1.00							5 8	5 8	24
4	5 V427	BEAM	E	17		5 4.00							5 11	5 11	25

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. 31.

Designed Feb. 2026
Detailed March 2026
Checked April 2026

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

Codes: C = Required coatings, where E = Epoxy Coated and G = Galvanized.
SH = Required shape, see bending diagrams.
V = Sets of varied bars and number of bars of each length. Bar dimensions vary in equal increments between dimensions shown on this line and the following line and the actual length dimension shown on this line and the following line vary by the specified increment.

BILL OF REINFORCING STEEL

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

STATE OF MISSOURI
JUSTIN M. DAAS
NUMBER PE-2007020256
PROFESSIONAL ENGINEER

DATE PREPARED 13-MAY-2026
ROUTE I-70 | STATE MO
DISTRICT BR | SHEET NO. BR01-33
COUNTY BOONE
JOB NUMBER JST0017
CONTRACT ID. 251203-D01
PROJECT NO. IS 70-2(128)
BRIDGE NO. A9815

REV	DATE	DESCRIPTION
0	051526	RFC BRIDGE A9815

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

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

IMPROVE I-70 ROCHEPORT TO COLUMBIA

EMERY SAPP & SONS, INC
Hg Consult Inc

MO STATE CERTIFICATE OF AUTHORITY #2010005873 ENGINEERING REV.

05/18/2026
Released for Construction

Bill of Reinforcing Steel

No. Req.	Size/ Mark	Location	Codes C	SH	V	Dimensions B ft in.	C ft in.	D ft in.	E ft in.	F ft in.	H ft in.	K ft in.	Nom. Length ft in.	Actual Length ft in.	Weight lb
		INT. BENT 2&3													
		DIAPHRAGMS													
		(STAGE 1)													
40	6 H10	DIAPHRAGM	E	20		8 6.00							8 6	8 6	511
20	4 H11	DIAPHRAGM	E	20		8 6.00							8 6	8 6	114
12	5 H12	DIAPHRAGM	E	19		5 4.00	9.00						6 1	5 11	74
16	5 H13	STRAND TIE	E	20		6 6.00							6 6	6 6	108
4	5 H14	STRAND TIE	E	20		5 7.00							5 7	5 7	23
36	6 U10	DIAPHRAGM	E	28S			2 2.00	2 8.00	2 3.00				7 1	6 9	365
140	4 U11	DIAPHRAGM	E	28S			18.00	2 8.00	2 3.00				6 5	6 3	585
8	5 V10	DIAPHRAGM	E	20		2 8.00							2 8	2 8	22
		(STAGE 2)													
24	6 H20	DIAPHRAGM	E	20		8 6.00							8 6	8 6	306
12	4 H21	DIAPHRAGM	E	20		8 6.00							8 6	8 6	68
12	5 H22	DIAPHRAGM	E	19		5 4.00	9.00						6 1	5 11	74
12	5 H23	STRAND TIE	E	20		6 6.00							6 6	6 6	81
4	5 H24	STRAND TIE	E	20		5 7.00							5 7	5 7	23
28	6 U20	DIAPHRAGM	E	28S			2 2.00	2 8.00	2 3.00				7 1	6 9	284
116	4 U21	DIAPHRAGM	E	28S			18.00	2 8.00	2 3.00				6 5	6 3	484
8	5 V20	DIAPHRAGM	E	20		2 8.00							2 8	2 8	22
		SLAB													
		STAGE 1													
150	5 S1	SLAB	E	20		45 9.00							45 9	45 9	7158
190	7 S2	SLAB	E	20		31 0.00							31 0	31 0	12039
314	6 S3	SLAB	E	20		60 0.00							60 0	60 0	28298
3	6 S4	SLAB	E	20	1	15 9.00							15 9	15 9	
						50 10.00							50 10	50 10	150
3	6 S5	SLAB	E	20	1	12 9.00							12 9	12 9	
						47 10.00							47 10	47 10	136
252	5 S6	SLAB	E	20		46 2.00							46 2	46 2	12134
313	5 S7	SLAB	E	20		60 0.00							60 0	60 0	19588
4	5 S8	SLAB	E	20	1	7 1.00							7 1	7 1	
						59 9.00							59 9	59 9	139
4	5 S9	SLAB	E	20	1	3 11.00							3 11	3 11	
						56 7.00							56 7	56 7	126
		SLAB													
		STAGE 2													
126	5 S21	SLAB	E	20		45 9.00							45 9	45 9	6012
158	7 S22	SLAB	E	20		31 0.00							31 0	31 0	10012
314	6 S23	SLAB	E	20		50 2.00							50 2	50 2	23660
3	6 S24	SLAB	E	20	1	8 3.00							8 3	8 3	
						43 5.00							43 5	43 5	116
3	6 S25	SLAB	E	20	1	10 3.00							10 3	10 3	
						45 4.00							45 4	45 4	125
213	5 S26	SLAB	E	20		46 2.00							46 2	46 2	10256
315	5 S27	SLAB	E	20		50 2.00							50 2	50 2	16482
1	5 S28	SLAB	E	20		34 9.00							34 9	34 9	36
1	5 S29	SLAB	E	20		17 2.00							17 2	17 2	18
1	5 S30	SLAB	E	20		36 6.00							36 6	36 6	38
1	5 S31	SLAB	E	20		18 11.00							18 11	18 11	20

Bill of Reinforcing Steel

No. Req.	Size/ Mark	Location	Codes C	SH	V	Dimensions B ft in.	C ft in.	D ft in.	E ft in.	F ft in.	H ft in.	K ft in.	Nom. Length ft in.	Actual Length ft in.	Weight lb
		TYPE C BARRIER													
360	5 M1	BARRIER	E	14S			5.00	3 3.75			3 3.00	7.50	3 9	3 8	1377
20	5 M2	BARRIER	E	20		11 9.00							11 9	11 9	245
20	5 M3	BARRIER	E	20		36 9.00							36 9	36 9	767
10	5 M4	BARRIER	E	20		34 3.00							34 3	34 3	357
20	5 M5	BARRIER	E	20		19 9.00							19 9	19 9	412
		TYPE D BARRIER ALL STAGES													
20	5 K1	BARRIER	E	27S		3 5.00	9.25	5.38	2 11.75		5.25	1.00	7 7	7 5	155
80	5 K2	BARRIER	E	27S		3 5.00	9.25	14.50	2 2.75		14.25	2.75	7 8	7 5	619
20	5 K4	BARRIER	E	19S	4	2 4.25	10.00						3 2	3 1	
						2 6.25	10.00						3 4	3 3	66
20	5 K5	BARRIER	E	38S	4			18.50	9.50	8.25	18.00	4.00	3 0	2 11	
		BARRIER						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 4	42
12	5 K7	BARRIER	E	21S			2 6.63	10.00			2 6.00	6.25	3 5	3 3	41
36	5 K8	BARRIER	E	19S	4	2 8.50	10.00						3 7	3 5	
						3 2.50	10.00						4 1	3 11	139
36	5 K9	BARRIER	E	21S	4		2 8.50	10.00			2 7.75	6.75	3 6	3 5	
							3 2.50	10.00			3 1.75	7.75	4 1	3 11	136
32	5 K10	BARRIER	E	19S		3 3.00	10.00						4 1	4 0	134
32	5 K11	BARRIER	E	21S			3 3.00	10.00			3 2.25	7.75	4 1	3 11	131
24	5 K12	BARRIER	E	20		14 3.00							14 3	14 3	357
12	5 K13	BARRIER	E	20	4	7 6.00							7 6	7 6	
						13 6.00							13 6	13 6	131
24	5 K14	BARRIER	E	20		14 3.00							14 3	14 3	357
12	5 K15	BARRIER	E	20	4	7 6.00							7 6	7 6	
						13 6.00							13 6	13 6	131
268	5 R1	BARRIER	E	26		3 3.00	5.50	2.25	3 1.38	5.50	3 0.75	6.75	6 10	6 9	1887
268	5 R2	BARRIER	E	19S		20.50	9.50						2 6	2 5	676
268	5 R3	BARRIER	E	27S			9.50	15.25	5.00	12.00	15.00	3.00	3 6	3 4	932
40	5 R4	BARRIER	E	20		11 9.00							11 9	11 9	490
60	5 R5	BARRIER	E	20		34 2.00							34 2	34 2	2138
		SLIP FORM (ALL PHASES)													
72	5 C1	BARRIER	E	20		12 0.00							12 0	12 0	901
16	5 C2	BARRIER	E	20		8 0.00							8 0	8 0	134

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. 31.
Designed Feb. 2026
Detailed March 2026
Checked April 2026

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

Codes: C = Required coatings, where E = Epoxy Coated and G = Galvanized.
SH = Required shape, see bending diagrams.
V = Sets of varied bars and number of bars of each length. Bar dimensions vary in equal increments between dimensions shown on this line and the following line and the actual length dimension shown on this line and the following line vary by the specified increment.

BILL OF REINFORCING STEEL

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

STATE OF MISSOURI
JUSTIN M. DAVIS
NUMBER PE-2007020256
PROFESSIONAL ENGINEER

DATE PREPARED 13-MAY-2026
ROUTE I-70 | STATE MO
DISTRICT BR | SHEET NO. BR01-34
COUNTY BOONE
JOB NUMBER JST0017
CONTRACT ID. 251203-D01
PROJECT NO. IS 70-2(128)
BRIDGE NO. A9815

REV	DATE	DESCRIPTION
0	051526	RFC BRIDGE A9815

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

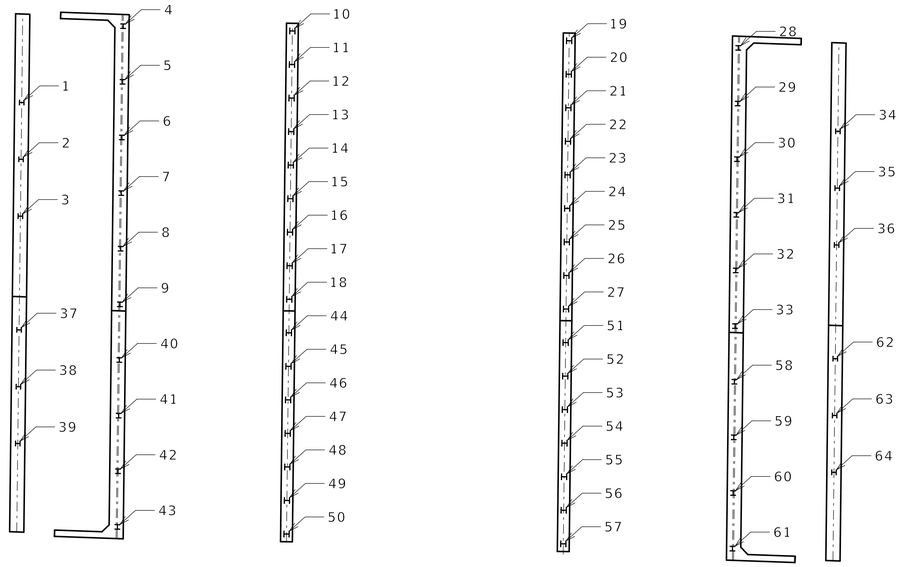
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

IMPROVE I-70 ROCHEPORT TO COLUMBIA

EMERY SAPP & SONS, INC
Hg Consult Inc

MO STATE CERTIFICATE OF AUTHORITY #2010005873 ENGINEERING REV.

05/18/2026
Released for Construction



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

As-Built Pile Data

Pile No.	Length in Place (ft)	PDA Nom. Axial Compressive Resistance (kips)	PDA End of Drive Blow Count (blows/in.)	Actual End of Drive Blow Count (blows/in.)	Remarks
		Stage 1 West Approach Sleeper Slab			
1					
2					
3					
		Stage 1 End Bent No. 1			
4					
5					
6					
7					
8					
9					
		Stage 1 Int. Bent No. 2			
10					
11					
12					
13					
14					
15					
16					
17					
18					
		Stage 1 Int. Bent No. 3			
19					
20					
21					
22					
23					
24					
25					
26					

As-Built Pile Data

Pile No.	Length in Place (ft)	PDA Nom. Axial Compressive Resistance (kips)	PDA End of Drive Blow Count (blows/in.)	Actual End of Drive Blow Count (blows/in.)	Remarks
		Stage 1 Int. Bent No. 3 (Continued)			
27					
		Stage 1 End Bent No. 4			
28					
29					
30					
31					
32					
33					
		Stage 1 East Approach Sleeper Slab			
34					
35					
36					
		Stage 2 West Approach Sleeper Slab			
37					
38					
39					
		Stage 2 End Bent No. 1			
40					
41					
42					
43					
		Stage 2 Int. Bent No. 2			
44					
45					
46					
47					
48					

As-Built Pile Data

Pile No.	Length in Place (ft)	PDA Nom. Axial Compressive Resistance (kips)	PDA End of Drive Blow Count (blows/in.)	Actual End of Drive Blow Count (blows/in.)	Remarks
		Stage 2 Int. Bent No. 2 (Continued)			
49					
50					
		Stage 2 Int. Bent No. 3			
51					
52					
53					
54					
55					
56					
57					
		Stage 2 End Bent No. 4			
58					
59					
60					
61					
		Stage 2 East Approach Sleeper Slab			
62					
63					
64					

Note:
Indicate in remarks column:
A. Pile type and grade
B. Batter
C. Driven to practical refusal
D. PDA test pile
E. Minimum tip elevation controlled
(Use when actual blow count is less than PDA blow count due to minimum tip elevation requirement. A plus sign (+) shall be placed after the PDA nominal axial compressive resistance value indicating actual value is higher than PDA value.)

This sheet to be completed by MoDOT construction personnel.

Designed Feb. 2026
Detailed March 2026
Checked April 2026

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

STATE OF MISSOURI
JUSTIN M. DAVIS
NUMBER PE-2007020256
PROFESSIONAL ENGINEER

DATE PREPARED
13-MAY-2026

ROUTE	STATE
I-70	MO

DISTRICT	SHEET NO.
BR	BR01-35

COUNTY
BOONE

JOB NUMBER
JST0017

CONTRACT ID.
251203-D01

PROJECT NO.
IS 70-2(128)

BRIDGE NO.
A9815

REV	DATE	DESCRIPTION
0	051526	RFC BRIDGE A9815

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

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

IMPROVE I-70 ROCHEPORT TO COLUMBIA

EMERY SAPPS SONS, INC
Hg Consult Inc

MO STATE CERTIFICATE OF AUTHORITY #2010005873 ENGINEERING

REV.

05/18/2026
Released for Construction

Surface Elevation: 769.8 Datum: NAVD88
Completion Date: 7/12/23
Northing: 1143430.42
Easting: 1641578.91

DEPTH IN FEET	ELEVATION IN FEET	DESCRIPTION OF MATERIAL	GRAPHIC LOG	DRY UNIT WEIGHT (pcf) SPT BLOW COUNTS (N60) CORE RECOVERY/RQD	SAMPLES
		Asphalt - 1.5 inches			
		Concrete - 6 inches			
		Granular Base - 6.5 inches			
		(1.2 to 10.0 ft) FILL: medium stiff, gray, lean clay, trace gravel		8-4-2 (8)	SS1
				2-4-4 (11)	SS2
5	764.8				
				2-2-4 (8)	SS3
10	759.8	(10.0 to 28.0 ft) Stiff to medium stiff, brown and gray, LEAN CLAY - (CL)		99	ST4
				2-6-7 (17)	SS5
15	754.8				
				3-5-7 (16)	SS6
20	749.8				
				1-3-3 (8)	SS7
25	744.8				
		(28.0 to 33.0 ft) Medium stiff, gray, FAT CLAY - CH		3-5-7 (16)	SS8
30	739.8				
		(33.0 to 42.0 ft) Extremely weak to very weak, brown to gray, highly weathered SHALE		5-22-14 (48)	SS9
35	734.8				
				4-7-11 (24)	SS10
40	729.8				
		(42.0 to 59.0 ft) Very weak, brown to gray, slightly weathered to unweathered SHALE		21-27-26 (71)	SS11

SHEAR STRENGTH, tsf
Δ - UU/2 ○ - QU/2 □ - PP/2
0.5 1.0 1.5 2.0 2.5

STANDARD PENETRATION RESISTANCE
▲ N-VALUE (BLOWS PER FOOT)
(ASTM D 1586)

WATER CONTENT, %
PL 10 20 30 40 50 LL

NOTE: STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARIES BETWEEN SOIL TYPES AND THE TRANSITION MAY BE GRADUAL. GRAPHIC LOG FOR ILLUSTRATION PURPOSES ONLY.

GROUNDWATER DATA

X FREE WATER NOT ENCOUNTERED DURING DRILLING

DRILLING DATA

___ AUGER 3 3/4" HOLLOW STEM
WASHBORING FROM ___ FEET
KA/RR DRILLER PDB/VTZ LOGGER
CME 55HTX DRILL RIG
HAMMER TYPE Auto
HAMMER EFFICIENCY 80 %

REMARKS:

Drawn by: ADP	Checked by: CKK	App'vd. by: CKK
Date: 8/8/23	Date: 11/8/23	Date: 11/8/23

GEOTECHNOLOGY
A Universal Engineering Sciences Company

I-70 Improvements
I-70 over Highway J/O
Boone County, Missouri

LOG OF BORING: B-21

Page 1 of 2

Project No. J036741.01

N60 BORING LOG (WITH PAGE #) B-21 AND B-22.GPJ 00 CLONE ME.GPJ 11/8/23

Surface Elevation: 769.8 Datum: NAVD88
Completion Date: 7/12/23
Northing: 1143430.42
Easting: 1641578.91

DEPTH IN FEET	ELEVATION IN FEET	DESCRIPTION OF MATERIAL	GRAPHIC LOG	DRY UNIT WEIGHT (pcf) SPT BLOW COUNTS (N60) CORE RECOVERY/RQD	SAMPLES
		(42.0 to 59.0 ft) Very weak, brown to gray, slightly weathered to unweathered SHALE *(continued)*		50/5.5"	SS12
50	719.8				
				50/5"	SS13
55	714.8				
				50/5" 67%/0%	SS14 NQ1
60	709.8	(59.0 to 59.4 ft) Core Loss - 4 inches (rock core not recovered)			
		(59.4 to 65.0 ft) Extremely weak, gray, finely grained, thin to medium bedded, unweathered SHALE		100% 47%	NQ2
65	704.8	(65.0 to 65.5 ft) Core Loss - 6 inches (rock core not recovered)			
		(65.5 to 75.0 ft) Very weak, gray, finely grained, thin to medium bedded, unweathered SHALE		90% 87%	NQ3
70	699.8	unconfined compressive strength = 410 psi (59 ksf)			
		unconfined compressive strength = 375 psi (54 ksf)		100% 78%	NQ4
75	694.8	(75.0 to 84.0 ft) Extremely weak, gray, finely grained, thin to medium bedded, unweathered SHALE		100% 58%	NQ5
		unconfined compressive strength = 102 psi (112 ksf)			
80	689.8	(76.2 to 76.3 ft) limestone seam - 1 inch		100% 63%	NQ6
		(82.1 to 82.2 ft) limestone seam - 1.5 inches			
		unconfined compressive strength = 112 psi (16 ksf)			
85	684.8	Boring terminated at 84 feet.			

SHEAR STRENGTH, tsf
Δ - UU/2 ○ - QU/2 □ - PP/2
0.5 1.0 1.5 2.0 2.5

STANDARD PENETRATION RESISTANCE
▲ N-VALUE (BLOWS PER FOOT)
(ASTM D 1586)

WATER CONTENT, %
PL 10 20 30 40 50 LL

NOTE: STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARIES BETWEEN SOIL TYPES AND THE TRANSITION MAY BE GRADUAL. GRAPHIC LOG FOR ILLUSTRATION PURPOSES ONLY.

GROUNDWATER DATA

X FREE WATER NOT ENCOUNTERED DURING DRILLING

DRILLING DATA

___ AUGER 3 3/4" HOLLOW STEM
WASHBORING FROM ___ FEET
KA/RR DRILLER PDB/VTZ LOGGER
CME 55HTX DRILL RIG
HAMMER TYPE Auto
HAMMER EFFICIENCY 80 %

REMARKS:

Drawn by: ADP	Checked by: CKK	App'vd. by: CKK
Date: 8/8/23	Date: 11/8/23	Date: 11/8/23

GEOTECHNOLOGY
A Universal Engineering Sciences Company

I-70 Improvements
I-70 over Highway J/O
Boone County, Missouri

LOG OF BORING: B-21

Page 2 of 2

Project No. J036741.01

N60 BORING LOG (WITH PAGE #) B-21 AND B-22.GPJ 00 CLONE ME.GPJ 11/8/23

STATE OF MISSOURI
JUSTIN M. DAVIS
NUMBER PE-2007020256
PROFESSIONAL ENGINEER

DATE PREPARED: 13-MAY-2026
ROUTE: I-70 STATE: MO
DISTRICT: BR SHEET NO.: BR01-36
COUNTY: BOONE
JOB NUMBER: JST0017
CONTRACT ID.: 251203-D01
PROJECT NO.: IS 70-2(128)
BRIDGE NO.: A9815

REV	DATE	DESCRIPTION
0	051526	RFC BRIDGE A9815

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

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

IMPROVE I-70 ROCHEPORT TO COLUMBIA

EMERY SAPP & SONS, INC

Hg Consult Inc

MO STATE CERTIFICATE OF AUTHORITY #2010005873 ENGINEERING

REV.

BORING DATA

Note: For locations of borings, see Sheet No. BR01-01.

Designed Feb. 2026
Detailed March 2026
Checked April 2026

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

B_A9815_BR01-36_JST0017_BORINGS 1.dgn 6:05:21 PM Eastern 13-MAY-2026

05/18/2026
Released for Construction

Surface Elevation: 769.0 | Datum: NAVD88 | Completion Date: 7/14/23 | Northing: 1143326.31 | Easting: 1641752.00

DEPTH IN FEET	ELEVATION IN FEET	DESCRIPTION OF MATERIAL	GRAPHIC LOG	DRY UNIT WEIGHT (pcf) SPT BLOW COUNTS (N60) CORE RECOVERY/RQD	SAMPLES	SHEAR STRENGTH, tsf (Δ - UU/2, ○ - QU/2, □ - PP/2; 0.5 1.0 1.5 2.0 2.5) / STANDARD PENETRATION RESISTANCE ▲ N-VALUE (BLOWS PER FOOT) (ASTM D 1586) / WATER CONTENT, % (PL 10 20 30 40 50 LL)
		Asphalt - 2 inches				
		Concrete - 6.5 inches				
		Granular Base - 5.5 inches				
		(1.2 to 10.0 ft) FILL: medium stiff, gray, lean clay, trace gravel		3-2-3 (7)	SS1	
				2-1-2 (4)	SS2	
5	764.0			1-3-4 (9)	SS3	
				101	ST4	
10	759.0	(10.0 to 18.0 ft) Medium stiff, brown and gray, LEAN CLAY - CL				
				2-3-4 (9)	SS5	
15	754.0					
		(18.0 to 27.0 ft) Stiff, gray, FAT CLAY - CH		2-4-5 (12)	SS6	
20	749.0					
				2-5-8 (17)	SS7	
25	744.0					
		(27.0 to 34.5 ft) Extremely weak, brown, highly weathered SHALE		2-6-10 (21)	SS8	
30	739.0					
				8-14-18 (43)	SS9	
35	734.0	(34.5 to 34.8 ft) limestone seam - 3 inches		92%/0%	NQ1	
		(34.8 to 51.0 ft) Extremely weak, brown, finely grained, thin to medium bedded, slightly weathered to unweathered SHALE unconfined compressive strength = 16 psi (2 ksf)		100% 68%	NQ2	
40	729.0					
		unconfined compressive strength = 15 psi (2 ksf)		100% 67%	NQ3	

NOTE: STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARIES BETWEEN SOIL TYPES AND THE TRANSITION MAY BE GRADUAL. GRAPHIC LOG FOR ILLUSTRATION PURPOSES ONLY.

N60 BORING LOG (WITH PAGE #) B-21 AND B-22.GPJ 00 CLONE ME.GPJ 11/8/23

GROUNDWATER DATA

X FREE WATER NOT ENCOUNTERED DURING DRILLING

DRILLING DATA

___ AUGER 3 3/4" HOLLOW STEM
WASHBORING FROM ___ FEET
RR DRILLER VTZ LOGGER
CME 55HTX DRILL RIG
HAMMER TYPE Auto
HAMMER EFFICIENCY 80 %

REMARKS:

Drawn by: ADP | Checked by: CKK | App'vd. by: CKK
Date: 8/8/23 | Date: 11/8/23 | Date: 11/8/23

GEOTECHNOLOGY
A Universal Engineering Sciences Company

I-70 Improvements
I-70 over Highway J/O
Boone County, Missouri

LOG OF BORING: B-22

Page 1 of 2

Project No. J036741.01

Surface Elevation: 769.0 | Datum: NAVD88 | Completion Date: 7/14/23 | Northing: 1143326.31 | Easting: 1641752.00

DEPTH IN FEET	ELEVATION IN FEET	DESCRIPTION OF MATERIAL	GRAPHIC LOG	DRY UNIT WEIGHT (pcf) SPT BLOW COUNTS (N60) CORE RECOVERY/RQD	SAMPLES	SHEAR STRENGTH, tsf (Δ - UU/2, ○ - QU/2, □ - PP/2; 0.5 1.0 1.5 2.0 2.5) / STANDARD PENETRATION RESISTANCE ▲ N-VALUE (BLOWS PER FOOT) (ASTM D 1586) / WATER CONTENT, % (PL 10 20 30 40 50 LL)
		(34.8 to 51.0 ft) Extremely weak, brown, finely grained, thin to medium bedded, slightly weathered to unweathered SHALE *(continued)* unconfined compressive strength = 63 psi (9 ksf)		100% 90%	NQ4	
50	719.0					
		(51.0 to 55.5 ft) Extremely weak to very weak, gray, finely grained, thin to medium bedded, unweathered SHALE unconfined compressive strength = 133 psi (19 ksf)		100% 80%	NQ5	
55	714.0					
		(55.5 to 56.5 ft) Core Loss - 12 inches (rock core not recovered)		75% 44%	NQ6	
60	709.0	(56.5 to 60.5 ft) shale cont.				
		Boring terminated at 60.5 feet.				
65	704.0					
70	699.0					
75	694.0					
80	689.0					
85	684.0					

NOTE: STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARIES BETWEEN SOIL TYPES AND THE TRANSITION MAY BE GRADUAL. GRAPHIC LOG FOR ILLUSTRATION PURPOSES ONLY.

N60 BORING LOG (WITH PAGE #) B-21 AND B-22.GPJ 00 CLONE ME.GPJ 11/8/23

GROUNDWATER DATA

X FREE WATER NOT ENCOUNTERED DURING DRILLING

DRILLING DATA

___ AUGER 3 3/4" HOLLOW STEM
WASHBORING FROM ___ FEET
RR DRILLER VTZ LOGGER
CME 55HTX DRILL RIG
HAMMER TYPE Auto
HAMMER EFFICIENCY 80 %

REMARKS:

Drawn by: ADP | Checked by: CKK | App'vd. by: CKK
Date: 8/8/23 | Date: 11/8/23 | Date: 11/8/23

GEOTECHNOLOGY
A Universal Engineering Sciences Company

I-70 Improvements
I-70 over Highway J/O
Boone County, Missouri

LOG OF BORING: B-22

Page 2 of 2

Project No. J036741.01

STATE OF MISSOURI
JUSTIN M. DAVIS
NUMBER PE-2007020256
PROFESSIONAL ENGINEER

DATE PREPARED: 13-MAY-2026
ROUTE: I-70 | STATE: MO
DISTRICT: BR | SHEET NO.: BR01-37
COUNTY: BOONE
JOB NUMBER: JST0017
CONTRACT ID.: 251203-D01
PROJECT NO.: IS 70-2(128)
BRIDGE NO.: A9815

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

REV	DATE	DESCRIPTION
0	051526	RFC BRIDGE A9815

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

IMPROVE I-70 ROCHEPORT TO COLUMBIA

EMERY SAPPE SONS, INC
Hg Consult Inc

MO STATE CERTIFICATE OF AUTHORITY #2010005873 ENGINEERING REV.

BORING DATA

Note: For locations of borings, see Sheet No. BR01-01.

Designed Feb. 2026
Detailed March 2026
Checked April 2026

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