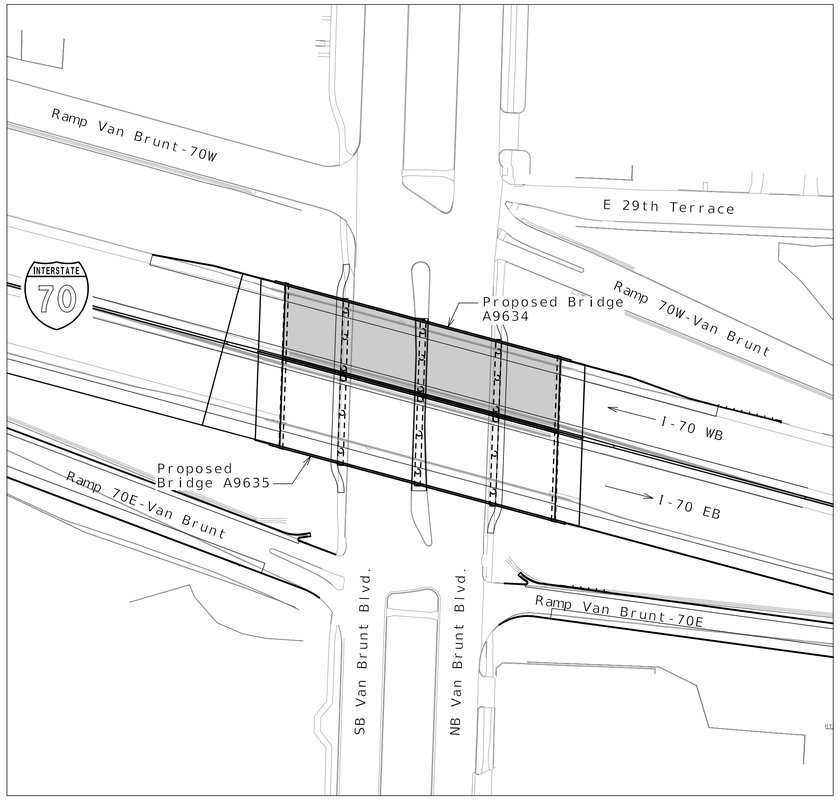
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

Note:
See Civil Package 2: Early Grading for project reference points and project coordinate points.



LOCATION SKETCH

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B23-03 General Notes
B23-04 Substructure Layout
B23-05 Details of End Bent No. 1
B23-06 Details of End Bent No. 1
B23-07 Details of End Bent No. 1
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B23-11 Details of Intermediate Bents
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B23-14 Details of End Bent No. 5
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STATE OF MISSOURI
VAN WILLIAM ROBBINS
PE-2017015106
PROFESSIONAL ENGINEER
Van W. Robbins
10-08-25

DATE PREPARED
09/22/2025

ROUTE	STATE
I-70	MO

DISTRICT	SHEET NO.
BR	B23-01

COUNTY
JACKSON

JOB NO.
J4I1486D

CONTRACT ID.
240807-C01

PROJECT NO.

BRIDGE NO.
A9634

DATE	DESCRIPTION
09/22/25	REV 0 - RFC SUBMITTAL

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

CLARKSON RADMACHER JOINT VENTURE
715 KIRK DRIVE
KANSAS CITY, MO 64105-1310
CERTIFICATE OF AUTHORITY NO. 001270

HNTB

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Not to Scale
Revision: 0.0
Date: 10/10/2025
Package: BRD-23-WB70-Van Brunt

BRIDGE: ROUTE I-70 WB OVER VAN BRUNT BLVD.

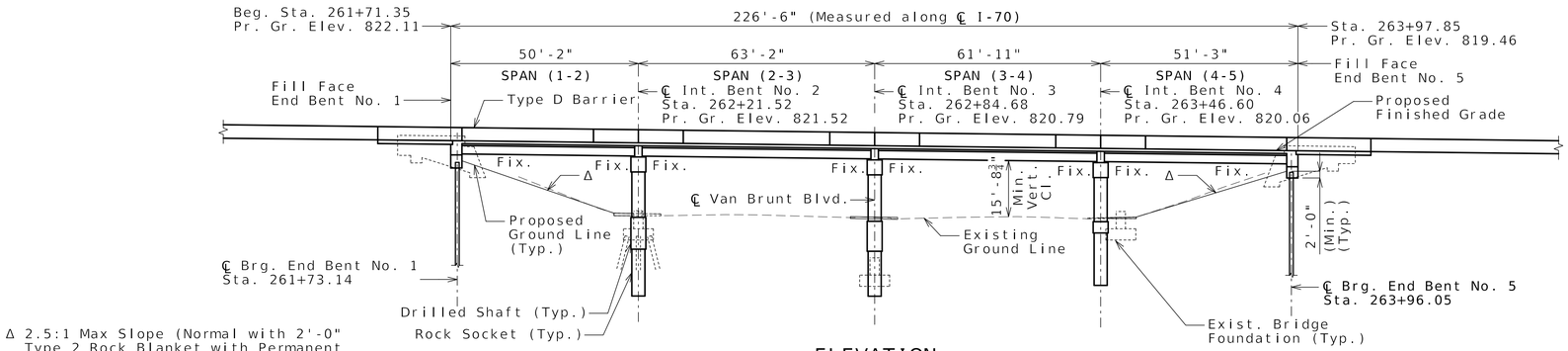
ROUTE I-70 WB FROM ROUTE 40 TO ROUTE I-670
ABOUT 0.5 MILES WEST OF ROUTE 40
BEGINNING STATION 261+71.35

Detailed MAY 2025
Checked JUN 2025

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

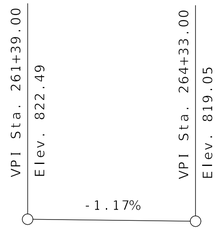
B_A9634_B23-01_J4I1486D.dgn 12:26:15 PM 9/21/2025

(50.2'-63.2'-61.9'-51.3') Prestressed Concrete Adjacent Box Beam Spans

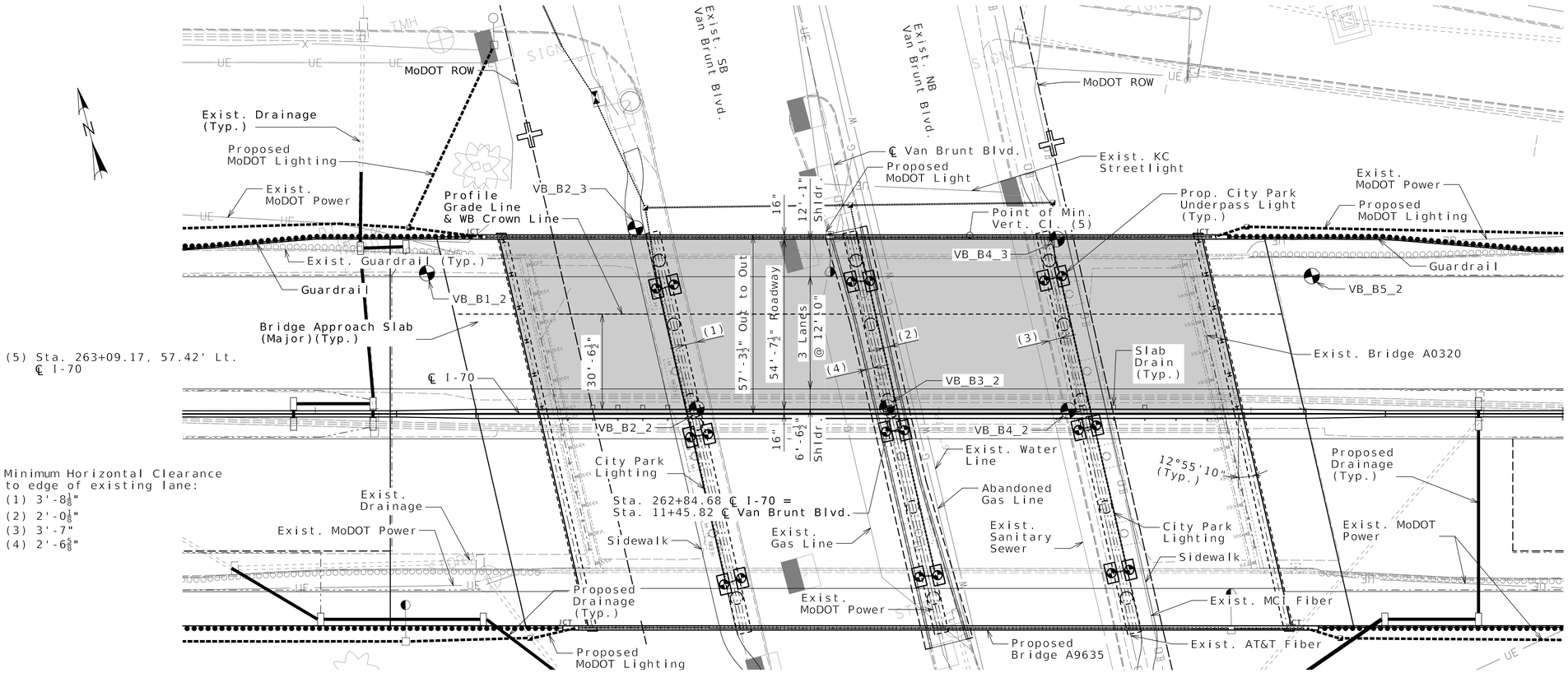


Δ 2.5:1 Max Slope (Normal with 2'-0" Type 2 Rock Blanket with Permanent Erosion Control Geotextile

ELEVATION



PROFILE GRADE



PLAN

● Indicates location of borings.

Notice and Disclaimer Regarding Boring Log Data

The locations of all subsurface borings performed by the design-build team for this structure are shown on the plan sheets for this structure. The logs for all locations indicated are provided on Sheets No. B23-36 thru B23-41. Labrotory test results, rock core photographs and other information obtained at these borings are available in the corresponding Foundation Reccommendations Memo prepared by HNTB. By the nature of the exploration process, the information gathered at these borings represents only a small fraction of the total volume of material at the Site. Interpolation between data samples may not be indicative of the nature and extent of the variations that actually exist between sampling locations.

Notes:

All Elevations are based on NAVD88 datum unless otherwise noted.
All dimensions are horizontal.
All Bents are parallel.
Existing Bridge A0320 to be removed in accordance with Sec. 216. Existing structures & foundations shown may not represent what is left in place after removal.
For elevations fo drilled shafts and rock sockets, see Sheet No. B23-09.
See Civil Package 6: I-70 Mainline for Van Brunt Blvd. typical section and underpass lighting details.

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Sheet No. B23-02 of B23-41

GENERAL PLAN AND ELEVATION

VAN WILLIAM ROBBINS
PE-2017015106
STATE OF MISSOURI
PROFESSIONAL ENGINEER
10-08-25

CLARKSON RADMACHER JOINT VENTURE
715 KIRK DRIVE
KANSAS CITY, MO 64105-1310
CERTIFICATE OF AUTHORITY NO. 001270

HNTB

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

DATE	DESCRIPTION
09/22/25	REV 0 - RFC SUBMITTAL

DATE PREPARED: 09/22/2025
ROUTE: I-70 | STATE: MO
DISTRICT: BR | SHEET NO.: B23-02
COUNTY: JACKSON
JOB NO.: J4I1486D
CONTRACT ID.: 240807-C01
PROJECT NO.:
BRIDGE NO.: A9634

Design Specifications:
2020 AASHTO LRFD Bridge Design Specifications (9th Ed.) and 2023 AASHTO Guide Specifications for LRFD Seismic Bridge Design (3rd Edition)
Seismic Design Category = A (Nonseismic)
Design earthquake response spectral acceleration coefficient at 1.0 second period. $S_{D1} \leq 0.15$
Acceleration Coefficient (effective peak ground acceleration coefficient), A_s = N/A

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

Design Unit Stresses:

Class B Concrete (End Bents below Const. Jt.)	f'c = 3,000 psi
Class B-1 Concrete (Intermediate Bents except Drilled Shafts and Rock Sockets)	f'c = 4.000 psi
Class B-2 Concrete (Drilled Shafts and Rock Sockets)	f'c = 4.000 psi
Class B-2 Concrete (Superstructure, except Prestressed Beams, and Type D Barrier)	f'c = 4,000 psi
Class B-1 Concrete (Type D Barrier)	f'c = 4.000 psi
Reinforcing Steel (ASTM A615 Grade 60)	fy = 60,000 psi
Structural HP Steel Pile (ASTM A709 Grade 50)	fy = 50,000 psi

For prestressed beam stresses, see Sheets No. B23-16 thru B23-19.

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.

All reinforcing in the Type D barriers, light blisters, slab, concrete diaphragms, End Bents No. 1 and 5 and Intermediate Bents No. 2 thru 4 shall be epoxy coated. Reinforcing in the rock sockets and drilled shaft shall be uncoated.

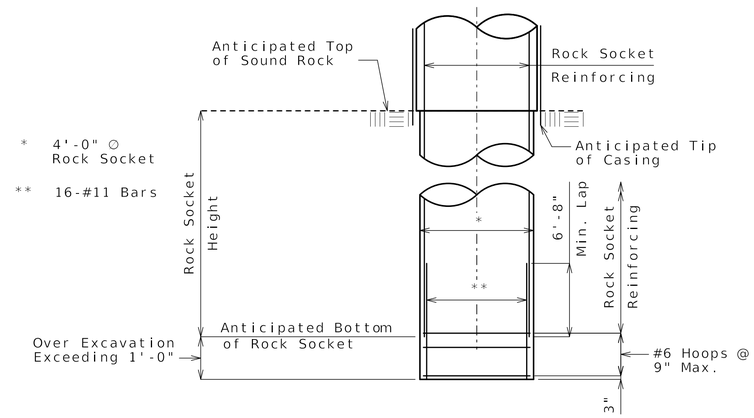
Concrete Protective Coatings:
Concrete and masonry protective coating shall be applied to concrete columns and on all exposed concrete and stone areas as noted in the plans in accordance with Sec 711. See Sheet No. B23-32.

Sacrificial graffiti protective coating shall be applied to concrete columns and on all exposed concrete and stone areas as noted in the plans in accordance with Sec 711. See Sheet No. B23-32.

(1) Pile length is the maximum estimated per bent and includes embedment into concrete. Adjust as needed for bottom of concrete variations at each bent.

Miscellaneous:
Outline of old work is indicated by light dashed lines. Heavy lines indicate new work U.N.O.

Abbreviations:
E.F. denotes Each Face
N.F. denotes Near Face
F.F. denotes Far face
U.N.O. denotes Unless Noted Otherwise



ROCK SOCKET OVER EXCAVATION DETAIL

For Rock Socket Details see Intermediate Bent Details

Load Bearing Piles:
Minimum Nominal Axial Compressive Resistance = Maximum Factored Loads/Resistance Factor.
End Bent No. 1 HP piles are anticipated to be driven to refusal on rock. Review all borings for depth of rock and restrict driving as appropriate to comply with hard rock driving criteria in accordance with Sec 702. When pile refusal on rock occurs, as approved by the engineer, the minimum nominal axial compressive resistance is verified and no additional pile driving verification method is required.
Prebore piles at End Bent No. 5 to elevation 798.
At End Bent No. 5 verify the bottom of prebore is clean and contains no loose rubble. Set pile and seat with backhoe bucket or equivalent method. Prebore shall be backfilled with Class B concrete for bottom 5 ft. Backfill remaining length of prebore per Sec 702. After prebore is complete and if hole integrity cannot be maintained until pile is set and concete placed, use pile driving criteria for End Bent No. 1.
All piles shall be galvanized down to the minimum galvanized penetration (elevation).
Pile point reinforcement need not be galvanized. Shop drawings will not be required for pile point reinforcement.
The contractor shall make every effort to achieve the minimum galvanized penetration (elevation) shown on the plans for all piles. Deviations in penetration less than 5 feet of minimum will be considered acceptable provided the contractor makes the necessary corrections to ensure the minimum penetration is achieved on subsequent piles.
DF = FHWA-modified Gates Dynamic Pile Formula

Rock Socket (Drilled Shafts):
Minimum Nominal Axial Compressive Resistance (Side Resistance + Tip Resistance) = Maximum Factored Loads/Resistance Factors
Thickness of permanent steel casing shall be in accordance with Project AAS.
Sonic logging testing shall be performed on all drilled shafts and rock sockets.
Drilled shafts shall be constructed in accordance with project Drilled Shaft AAS.
Rock Socket length is controlled by lateral design for Bents No. 2 and 3.

Foundation Data

Type	Design Data		Bent Number 1	2	3	4	5
Load Bearing Pile	Pile Type and Size		HP12x53	---	---	---	HP12x53
	Number	ea	6	---	---	---	6
	Approximate Length Per Each (1)	ft	31	---	---	---	17
	Pile Point Reinforcement	ea	All	---	---	---	---
	Min. Galvanized Penetration (Elev.)	ft	Full Length	---	---	---	Full Length
	Minimum Tip Penetration (Elev.)	ft	801	---	---	---	798
	Criteria for Min. Tip Penetration		Min. Embed.	---	---	---	Min. Embed.
	Pile Driving Verification Method		DF	---	---	---	N/A
	Resistance Factor		0.40	---	---	---	0.50
	Minimum Nominal Axial Compressive Resistance	kip	600	---	---	---	480
Rock Socket	Number	ea	---	3	3	3	---
	Layer 1 Foundation Material		---	Shale	Shale	Limestone	---
	Layer 1 Elevation Range	ft	---	790.5-785	791-785	796-792.5	---
	Layer 1 Minimum Nominal Axial Compressive Resistance (Side Resistance)	ksf	---	9.0	9.0	35.0	---
	Layer 2 Foundation Material		---	Limestone	Limestone	Shale	---
	Layer 2 Elevation Range	ft	---	785-766	785-766	792.5-784	---
	Layer 2 Minimum Nominal Axial Compressive Resistance (Side Resistance)	ksf	---	35.0	35.0	9.0	---
	Layer 2 Foundation Material		---	---	---	Limestone	---
	Layer 2 Elevation Range	ft	---	---	---	784-766	---
	Layer 2 Minimum Nominal Axial Compressive Resistance (Side Resistance)	ksf	---	---	---	35.0	---
	Minimum Nominal Axial Compressive Resistance (Tip Resistance)	ksf	---	400	400	400	---

Detailed MAY 2025
Checked JUN 2025

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

Sheet No. B23-03 of B23-41

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Package: BRD-23-WB70-Van Brunt

GENERAL NOTES

VAN WILLIAM ROBBINS PE-2017015106 STATE OF MISSOURI PROFESSIONAL ENGINEER
10-08-25

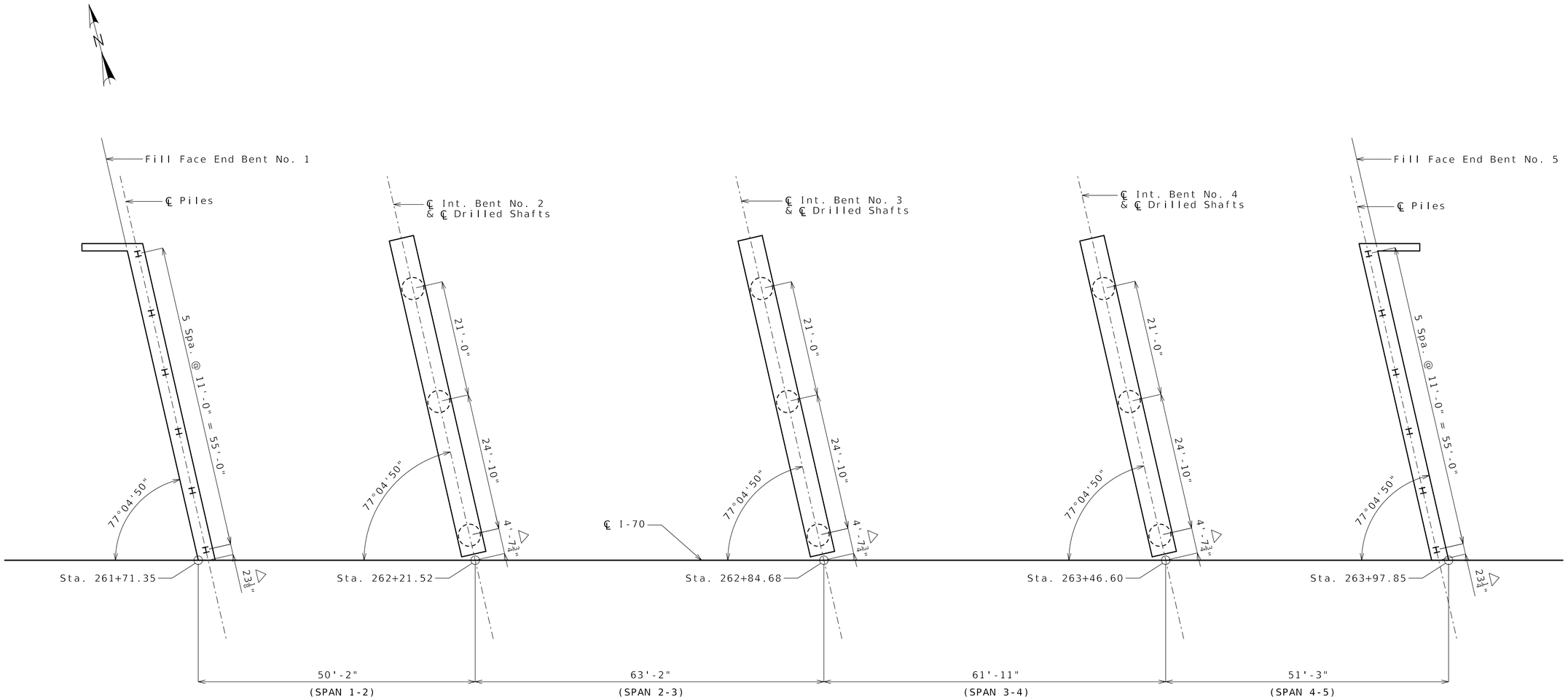
DATE PREPARED 09/22/2025
ROUTE I-70 | STATE MO
DISTRICT BR | SHEET NO. B23-03
COUNTY JACKSON
JOB NO. J4I1486D
CONTRACT ID. 240807-C01
PROJECT NO.
BRIDGE NO. A9634

DATE	DESCRIPTION
09/22/25	REV 0 - RFC SUBMITTAL

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

CLARKSON RADMACHER JOINT VENTURE
715 KIRK DRIVE
KANSAS CITY, MO 64105-1310
CERTIFICATE OF AUTHORITY NO. 001270

HNTB



SUBSTRUCTURE LAYOUT

Notes:
△Measured to ℄ I-70

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Revision: 0.0
Date: 10/10/2025
Package: BRD-23-WB70-Van Brunt

SUBSTRUCTURE LAYOUT

Detailed MAY 2025
Checked JUN 2025

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

Sheet No. B23-04 of B23-41

STATE OF MISSOURI
GINA D. HORNER
PE-30413
PROFESSIONAL ENGINEER
Gina D Horner
10-8-2025

DATE PREPARED
09/22/2025

ROUTE	STATE
I-70	MO
DISTRICT	SHEET NO.
BR	B23-04

COUNTY
JACKSON

JOB NO.
J4I1486D

CONTRACT ID.
240807-C01

PROJECT NO.

BRIDGE NO.
A9634

DATE	DESCRIPTION
09/22/25	REV 0 - RFC SUBMITTAL

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

CLARKSON RADMACHER JOINT VENTURE
715 KIRK DRIVE
KANSAS CITY, MO 64105-1310
CERTIFICATE OF AUTHORITY NO. 001270

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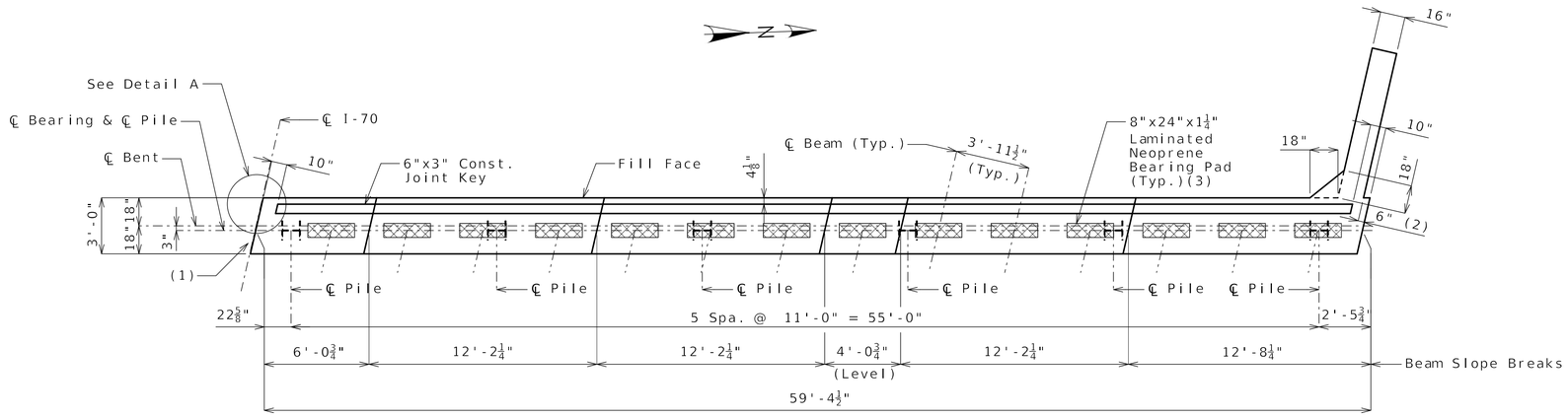
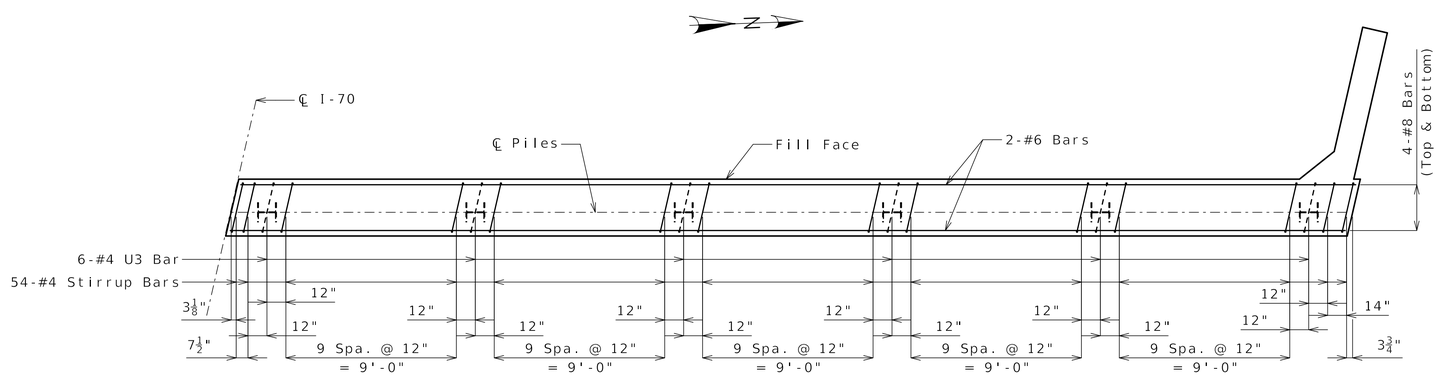
(2) Slope normal to bridge fascia to drain.

(3) Bearing pad width can be increased at Contractors option by 6" to accommodate allowable beam fabrication and erection tolerances.

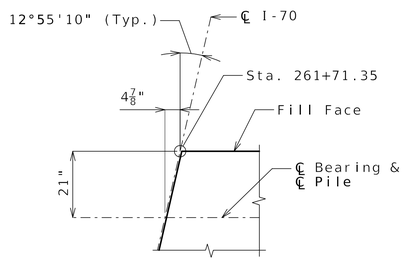


PLAN OF BEAM

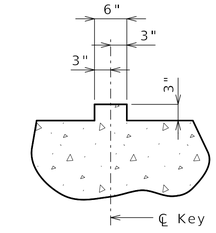
(1) Adjacent A9635 (I-70 EB Over Van Brunt) end bent not shown. 1" joint filler required between adjacent concrete faces.



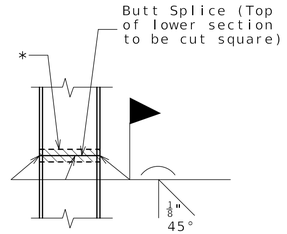
PLAN OF BEAM SHOWING REINFORCING
(Key and steps not shown for clarity.)



DETAIL A

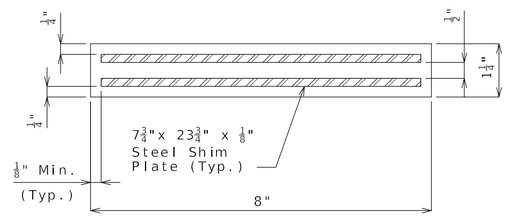


SECTION THRU KEY



STEEL PILE SPLICE
(If required)

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



TYPICAL SECTION THRU LAMINATED NEOPRENE BEARING PAD
(14 Required)

Notes:
Work this sheet with Sheets No. B23-06 and B23-07.
All U bars and pairs of vertical bars shall be placed along skew. Reinforcing steel shall be shifted to clear piles. U bars shall clear piles by at least 1½ inches.
For details of bridge approach slab, see Sheet No. B23-34.

DETAILS OF END BENT NO. 1

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Not to Scale
Revision: 0.0
Date: 10/10/2025
Package: BRD-23-WB70-Van Brunt

Detailed MAY 2025
Checked JUN 2025

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

GINA D. HORNER PE-30413
PROFESSIONAL ENGINEER
STATE OF MISSOURI
Gina D Horner
10-8-2025

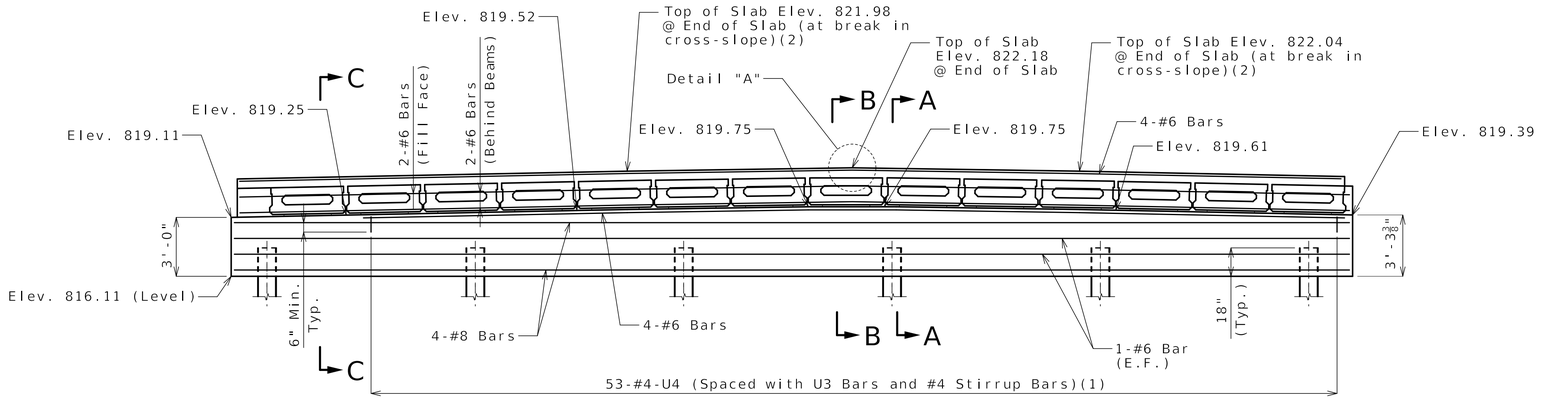
DATE PREPARED 09/22/2025
ROUTE I-70 | STATE MO
DISTRICT BR | SHEET NO. B23-05
COUNTY JACKSON
JOB NO. J4I1486D
CONTRACT ID. 240807-C01
PROJECT NO.
BRIDGE NO. A9634

DESCRIPTION	DATE
REV 0 - RFC SUBMITTAL	09/22/25

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

CLARKSON RADMACHER JOINT VENTURE
715 KIRK DRIVE
KANSAS CITY, MO 64105-1310
CERTIFICATE OF AUTHORITY NO. 001270
HNTB

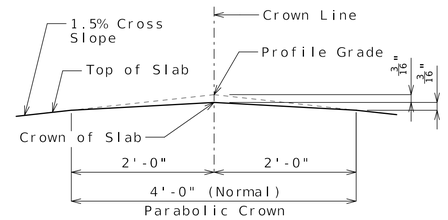
(2) See Sheet No. B23-28 for cross-slope break locations.



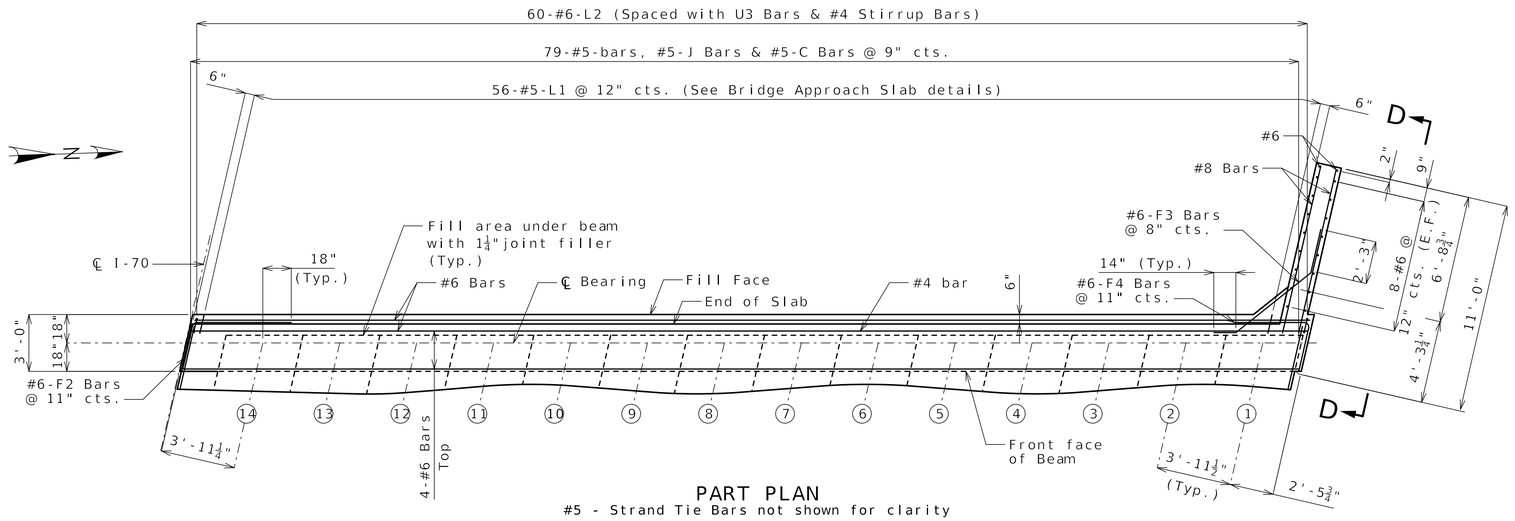
SECTION NEAR END BENT
(Looking Back Station)
(Sidewalks and Type D Barrier not shown for clarity)

(1) Bars shall be placed normal to ℄ Bent and parallel to beam step.

Lap Splice for #4 bars = 2'10" (Min.)
Lap Splice for #6 bars = 4'-3" (Min.)
Lap Splice* for #8 bars = 5'-8" (Min.)



DETAIL "A"



PART PLAN
#5 - Strand Tie Bars not shown for clarity

General Notes:
Work this sheet with Sheets No. B23-05 and B23-07.
For Sections A-A, B-B and C-C, and Elevation D-D, see Sheet No. B23-07.
Strands at end of the beams shall be field bent or, if necessary, cut in field to maintian 1 1/2-inch minimum clearance to fill face of end bent.
The #6-F bars shall be bent in the field to clear beams.

(X) Denotes beam number.

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Date: 10/10/2025
Package: BRD-23-WB70-Van Brunt

DETAILS OF END BENT NO. 1

Detailed MAY 2025
Checked JUN 2025

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

GINA D. HORNER PE-30413
STATE OF MISSOURI PROFESSIONAL ENGINEER
Gina D Horner
10-8-2025

DATE PREPARED 09/22/2025
ROUTE I-70 | STATE MO
DISTRICT BR | SHEET NO. B23-06
COUNTY JACKSON
JOB NO. J4I1486D
CONTRACT ID. 240807-C01
PROJECT NO.
BRIDGE NO. A9634

DATE	DESCRIPTION
09/22/25	REV 0 - RFC SUBMITTAL

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

CLARKSON RADMACHER JOINT VENTURE
715 KIRK DRIVE
KANSAS CITY, MO 64105-1310
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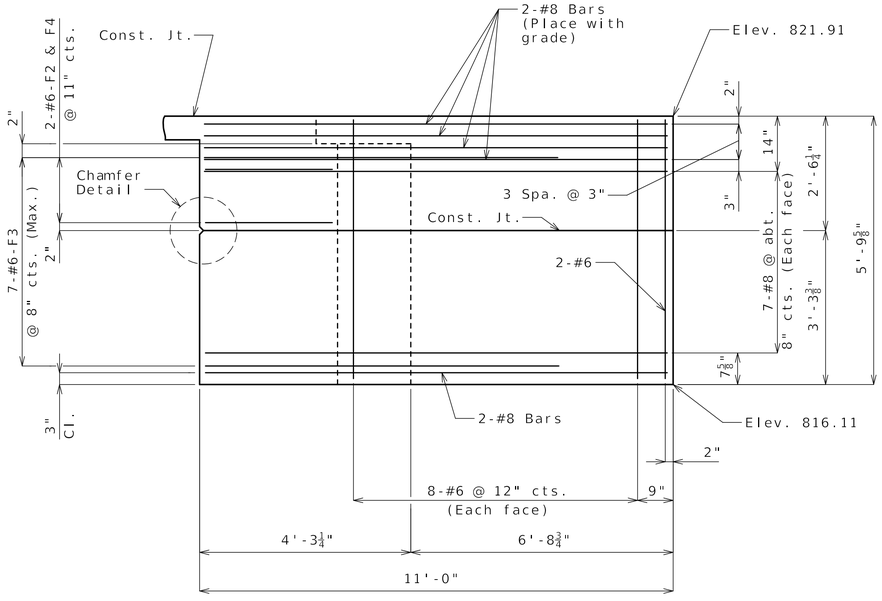
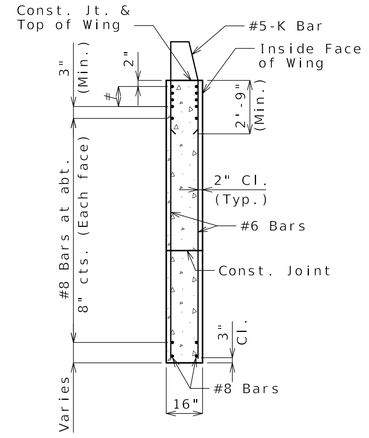
HNTB

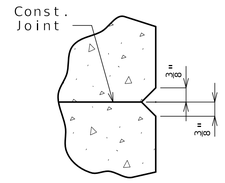


ELEVATION D-D

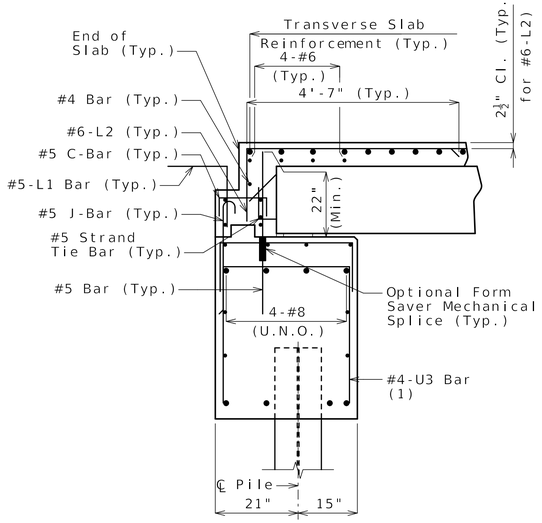


TYPICAL SECTION THRU WING

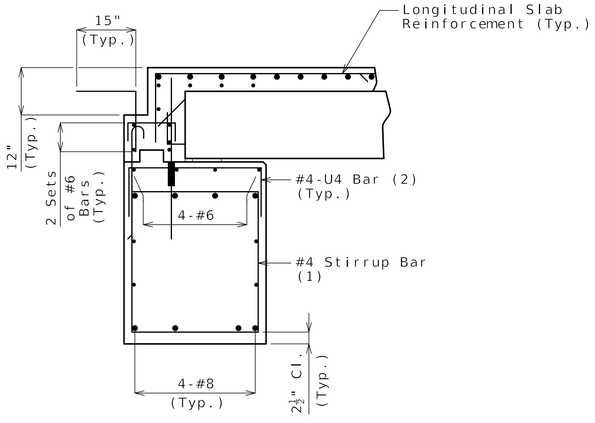
≠ #8 Bars at 3" cts. (Each face)(Place with grade) See Elevation D-D for number of bars



CHAMFER DETAIL

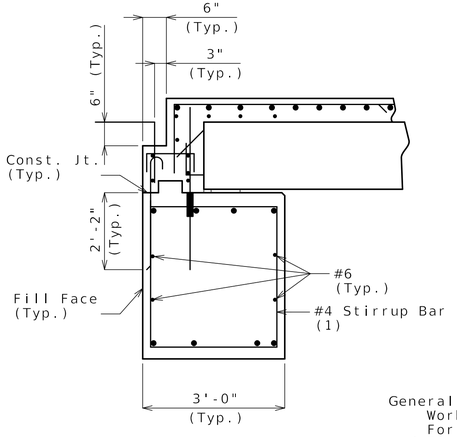


SECTION A-A



SECTION B-B

(1) U3 & #4 stirrup bar vertical leg = 2'-7"
(2) Bars shall be placed normal to ℄ Bent and parallel to beam step.



SECTION C-C

Released For Construction
Not to Scale
Revision: 0.0
Date: 10/10/2025
Package: BRD-23-WB70-Van Brunt

General Notes:
Work this sheet with Sheets No. B23-05 and B23-06.
For location of Sections A-A, B-B and C-C and Elevation D-D, see Sheet No. B23-06.
For reinforcement of the Type D Barrier, see Sheet No. B23-30.

DETAILS OF END BENT NO. 1

Detailed MAY 2025
Checked JUN 2025

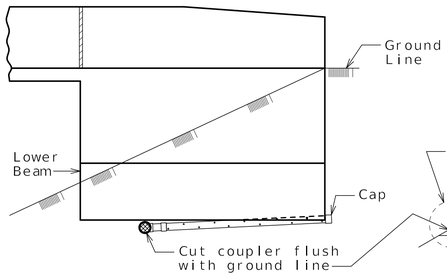
Note: This drawing is not to scale. Follow dimensions.

GINA D. HORNER PE-30413
PROFESSIONAL ENGINEER
STATE OF MISSOURI
Gina D Horner
10-8-2025

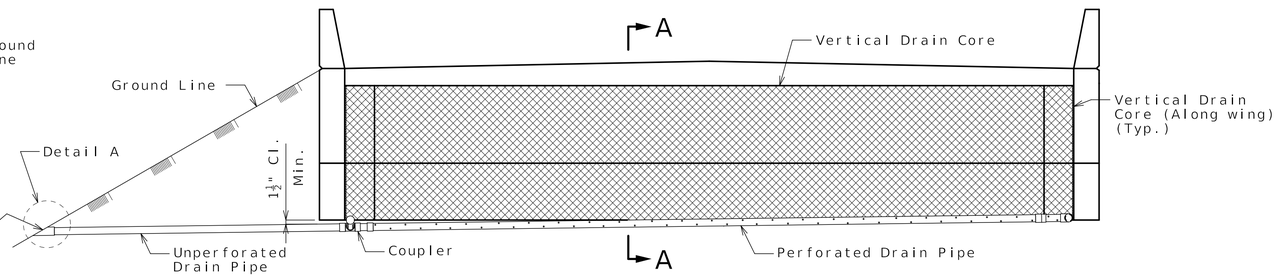
DATE PREPARED 09/22/2025
ROUTE I-70 | STATE MO
DISTRICT BR | SHEET NO. B23-07
COUNTY JACKSON
JOB NO. J4I1486D
CONTRACT ID. 240807-C01
PROJECT NO.
BRIDGE NO. A9634

DATE	DESCRIPTION
09/22/25	REV 0 - RFC SUBMITTAL

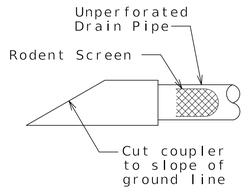
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)
CLARKSON RADMACHER JOINT VENTURE
715 KIRK DRIVE
KANSAS CITY, MO 64105-1310
CERTIFICATE OF AUTHORITY NO. 001270
HNTB



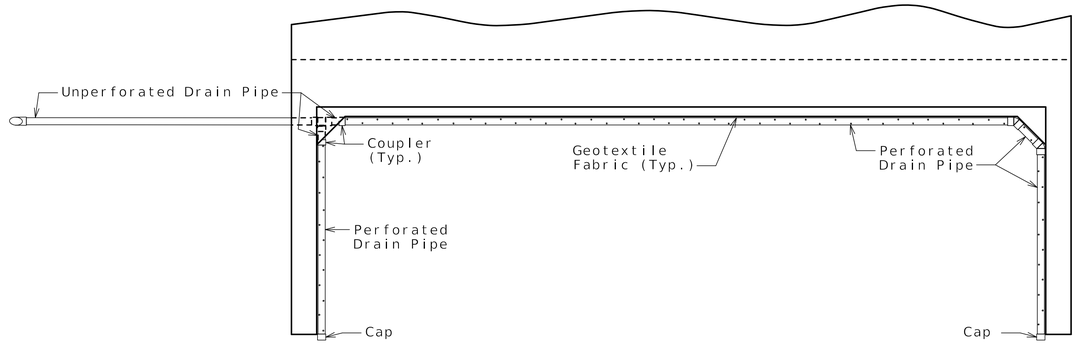
ELEVATION OF WING



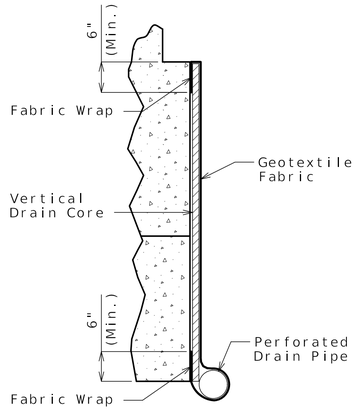
ELEVATION OF END BENT



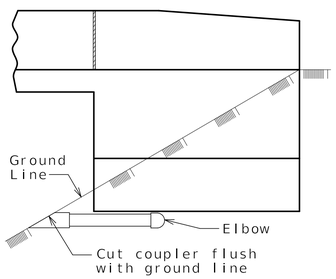
DETAIL A



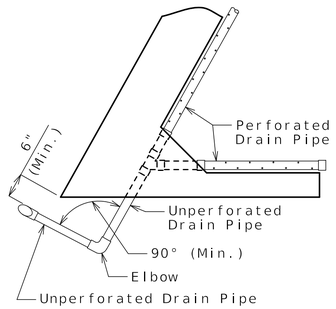
PLAN OF END BENT



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:

Details shown are illustrative and not necessarily representitive of one or both end bents on this bridge. Construction phasing and bridge geometry will require utilizing a combination of the details shown to construct a vertical drain system that maintains positive flow out and away from the end bents.

Square end bent shown, skewed end bent similar.

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

Detailed MAY 2025
Checked JUN 2025

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

Released For Construction
Not to Scale
Revision: 0.0
Date: 10/10/2025
Package: BRD-23-WB70-Van Brunt

GINA D. HORNER PE-30413
PROFESSIONAL ENGINEER
STATE OF MISSOURI
Gina D Horner
10-8-2025

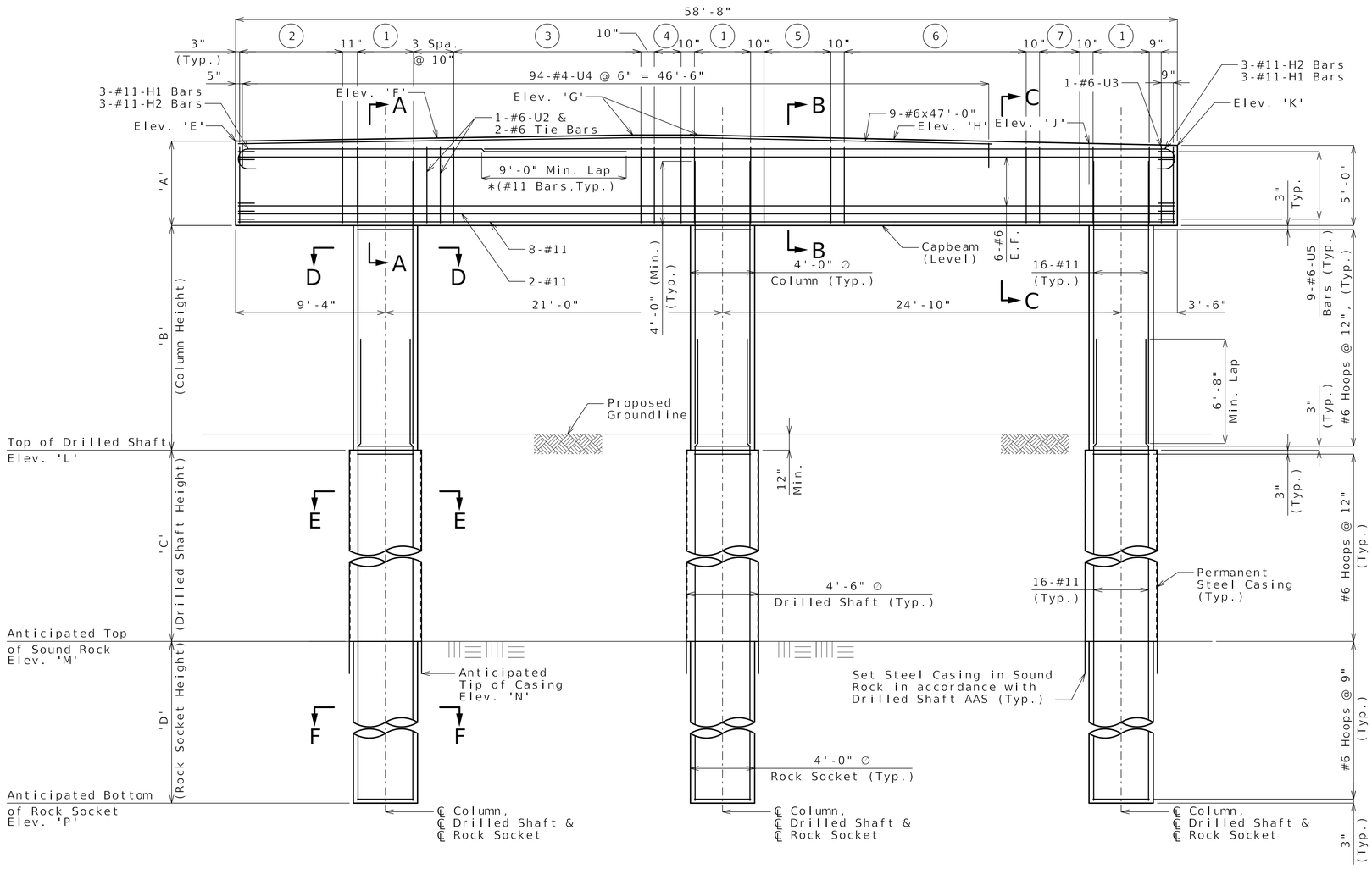
DATE PREPARED 09/22/2025
ROUTE I-70 | STATE MO
DISTRICT BR | SHEET NO. B23-08
COUNTY JACKSON
JOB NO. J4I1486D
CONTRACT ID. 240807-C01
PROJECT NO.
BRIDGE NO. A9634

DESCRIPTION	DATE
REV 0 - RFC SUBMITTAL	09/22/25

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

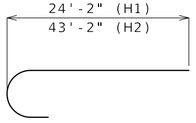
CLARKSON RADMACHER JOINT VENTURE
715 KIRK DRIVE
KANSAS CITY, MO 64105-1310
CERTIFICATE OF AUTHORITY NO. 001270

HNTB



ELEVATION

TABLE OF VARIABLES														
Bent	'A'	'B'	'C'	'D'	'E'	'F'	'G'	'H'	'J'	'K'	'L'	'M'	'N'	'P'
2	5'-3"	12'-6½"	10'-6"	12'-6"	818.79	819.00	819.15	818.93	818.66	818.54	801.00	790.50	788.50	778.00
3	5'-1¼"	12'-10⅛"	9'-0"	13'-0"	817.95	818.17	818.31	818.09	817.82	817.85	800.00	791.00	789.00	778.00
4	5'-3½"	11'-11⅞"	4'-0"	14'-0"	817.28	817.50	817.64	817.42	817.15	816.99	800.00	796.00	794.00	782.00



#11-H1 & #11-H2 BAR

(1) 4-#6-U1 @ Eq. Spa.= 3'-6"

(2) 8-#6-U3 @ 11" = 6'-5"

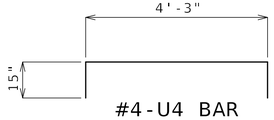
(3) 13-#6-U3 @ Eq. Spa.= 11'-8"

(4) 3 Sets of 1-#6-U2 & 2-#6 Tie Bars @ 10" = 20"

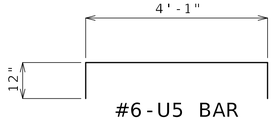
(5) 6 Sets of 1-#6-U2 & 2-#6 Tie Bars @ 10" = 4'-2"

(6) 13-#6-U3 @ Eq. Spa.= 11'-4"

(7) 4 Sets of 1-#6-U2 & 2-#6 Tie Bars @ 10" = 2'-6"



#4-U4 BAR



#6-U5 BAR

Notes:

* Alternate location of lap splices between adjacent bars about centerline of bent. Alternate lap splice location not shown.

Prior to placing concrete for columns, position of vertical reinforcement shall be verified so as to provide clearance for capbeam reinforcement as applicable.

Work this sheet with Sheets No. B23-10 and B23-11.

For location of drilled shafts, see Sheet No. B23-04.

For Sections A-A-thru F-F, see Sheet No. B23-11.

For Optional Drilled Shaft Detail and Rock Socket Over Excavation Detail, see Sheet No. B23-03.

DETAILS OF INTERMEDIATE BENTS

Released For Construction
Not to Scale
Revision: 0.0
Date: 10/10/2025
Package: BRD-23-WB70-Van Brunt

Detailed MAY 2025
Checked JUN 2025

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

WILLIAM JOSEPH STURGEON
PE-2014017021
PROFESSIONAL ENGINEER
STATE OF MISSOURI
10/8/2025

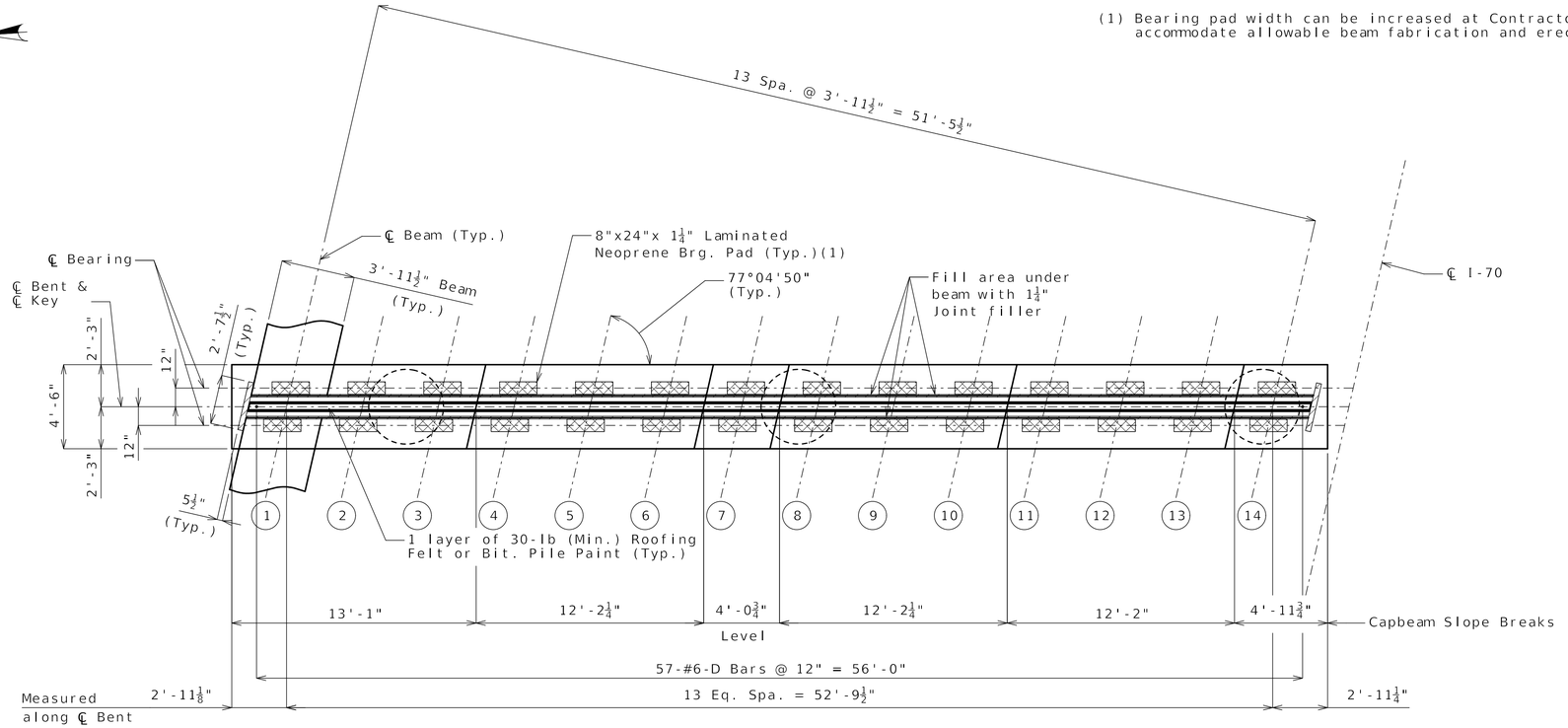
DATE PREPARED 09/22/2025
ROUTE I-70 | STATE MO
DISTRICT BR | SHEET NO. B23-09
COUNTY JACKSON
JOB NO. J4I1486D
CONTRACT ID. 240807-C01
PROJECT NO.
BRIDGE NO. A9634

DATE	DESCRIPTION
09/22/25	REV 0 - RFC SUBMITTAL

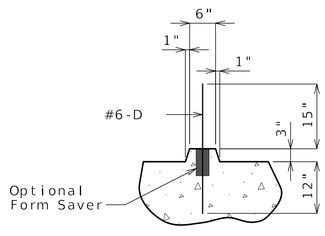
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)
CLARKSON RADMACHER JOINT VENTURE
715 KIRK DRIVE
KANSAS CITY, MO 64105-1310
CERTIFICATE OF AUTHORITY NO. 001270
HNTB

REV.

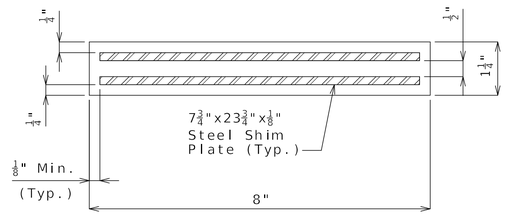
(1) Bearing pad width can be increased at Contractors option by 6" to accommodate allowable beam fabrication and erection tolerances.



PLAN OF CAPBEAM



SECTION THRU KEY



TYPICAL SECTION THRU
LAMINATED NEOPRENE BEAING PAD
28 Required per Bent

Notes:
Work this sheet with Sheets No. B23-09 and B23-11.
For additional details of joint filler, see Sheet No. B23-22.

DETAILS OF INTERMEDIATE BENTS

Released For Construction
Not to Scale
Revision: 0.0
Date: 10/10/2025
Package: BRD-23-WB70-Van Brunt

Detailed MAY 2025
Checked JUN 2025

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

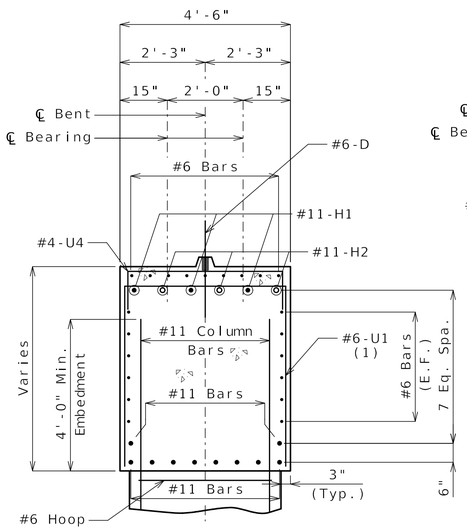
STATE OF MISSOURI
WILLIAM JOSEPH STURGEON
PE-2014017021
PROFESSIONAL ENGINEER
10/8/2025

DATE PREPARED 09/22/2025
ROUTE I-70 | STATE MO
DISTRICT BR | SHEET NO. B23-10
COUNTY JACKSON
JOB NO. J4I1486D
CONTRACT ID. 240807-C01
PROJECT NO.
BRIDGE NO. A9634

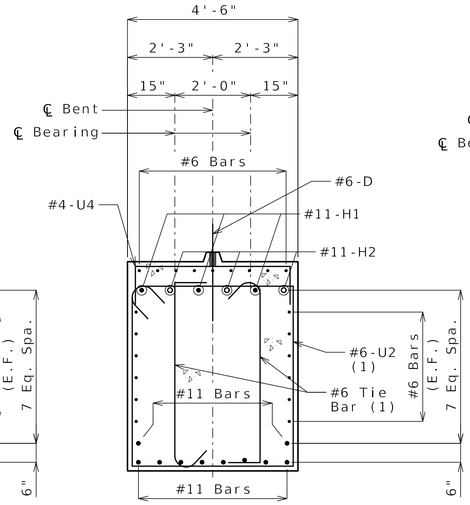
DATE	DESCRIPTION
09/22/25	REV 0 - RFC SUBMITTAL

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)
CLARKSON RADMACHER JOINT VENTURE
715 KIRK DRIVE
KANSAS CITY, MO 64105-1310
CERTIFICATE OF AUTHORITY NO. 001270
HNTB

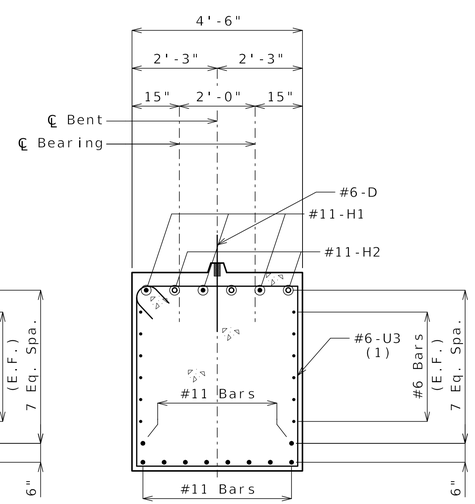
REV.



SECTION A-A

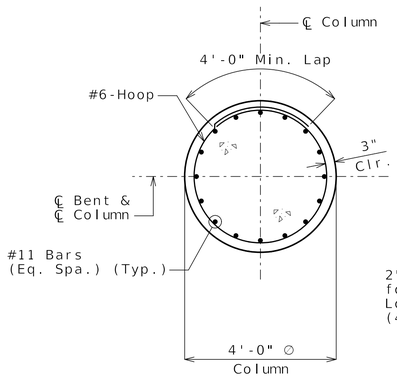


SECTION B-B

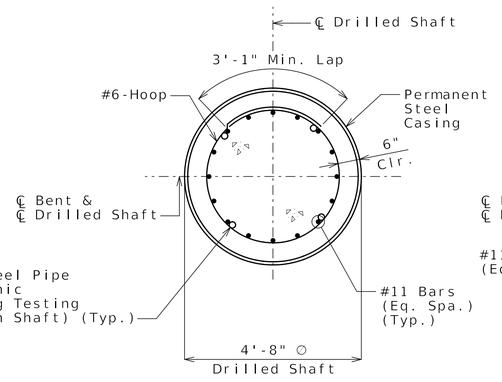


SECTION C-C

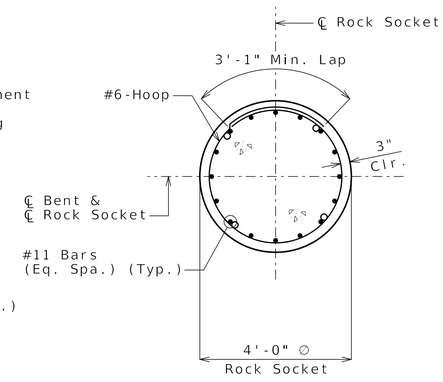
(1) U1,U2, U3 & #6 Tie bar vertical leg = 4'-9"



SECTION D-D



SECTION E-E



SECTION F-F

Notes:
Work this sheet with Sheets No. B23-09 and B23-10.
Hoop splices shall be staggered around the drilled shaft and rock socket at 90 degree intervals.

DETAILS OF INTERMEDIATE BENTS

Released For Construction
Not to Scale
Revision: 0.0
Date: 10/10/2025
Package: BRD-23-WB70-Van Brunt

Detailed MAY 2025
Checked JUN 2025

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

STATE OF MISSOURI
WILLIAM JOSEPH STURGEON
PE-2014017021
PROFESSIONAL ENGINEER
10/8/2025

DATE PREPARED 09/22/2025
ROUTE I-70 | STATE MO
DISTRICT BR | SHEET NO. B23-11
COUNTY JACKSON
JOB NO. J4I1486D
CONTRACT ID. 240807-C01
PROJECT NO.
BRIDGE NO. A9634

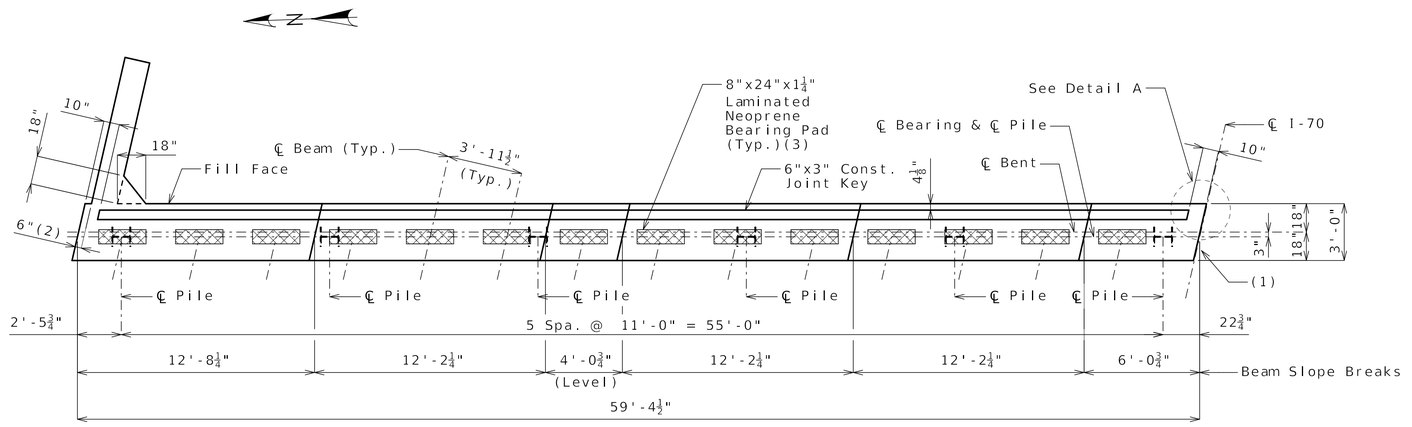
DATE	DESCRIPTION
09/22/25	REV 0 - RFC SUBMITTAL

REV.

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

CLARKSON RADMACHER JOINT VENTURE
715 KIRK DRIVE
KANSAS CITY, MO 64105-1310
CERTIFICATE OF AUTHORITY NO. 001270

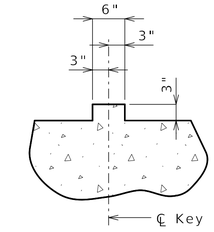
HNTB



PLAN OF BEAM

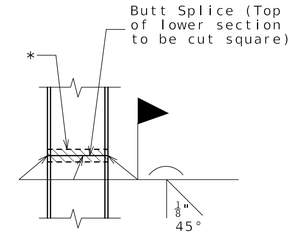
(2) Slope normal to bridge fascia to drain.

(3) Bearing pad with can be increased at Conctractors option by 6" to accommodate allowable beam fabrication and erection tolerances.



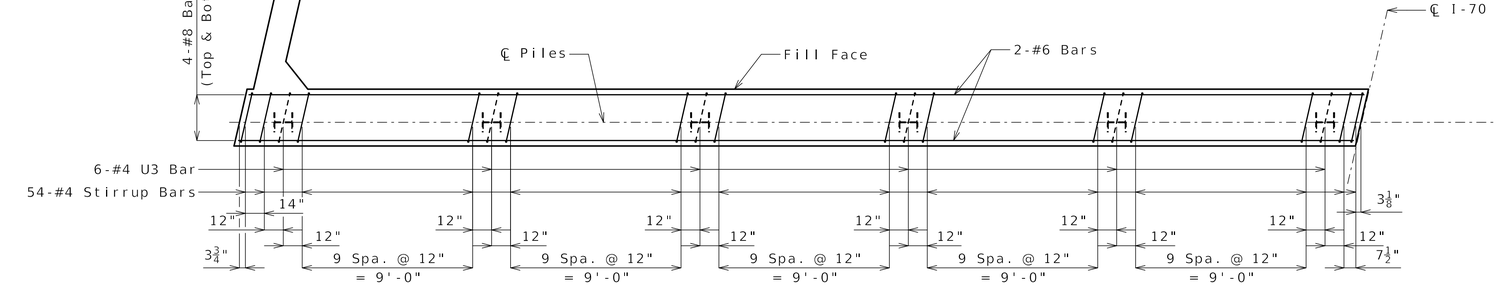
SECTION THRU KEY

(1) Adjacent A9635 (I-70 EB Over Van Brunt) end bent not shown. 1" joint filler required between adjacent concrete faces.

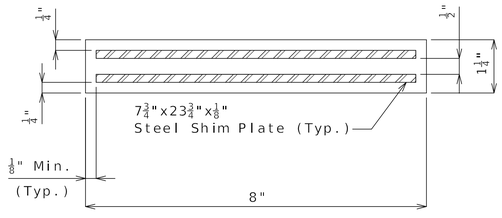


STEEL PILE SPLICE
(If required)

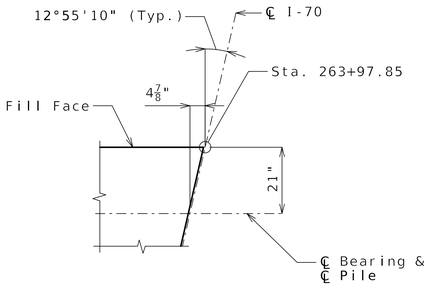
* Galvanizing material shall be omitted or removed one inch clear of weld locations in accordance with Sec 702.



PLAN OF BEAM SHOWING REINFORCING
(Key and steps not shown for clarity.)



TYPICAL SECTION THRU LAMINATED NEOPRENE BEARING PAD
(14 Required)



DETAIL A

Notes:
Work this sheet with Sheets No. B23-13 and B23-14.
All U bars and pairs of vertical bars shall be placed along skew.
Reinforcing steel shall be shifted to clear piles. U bars shall clear piles by at least 1 1/2 inches.
For details of bridge approach slab, see Sheet No. B23-34.

Released For Construction
Not to Scale
Revision: 0.0
Date: 10/10/2025
Package: BRD-23-WB70-Van Brunt

DETAILS OF END BENT NO. 5

Detailed MAY 2025
Checked JUN 2025

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

GINA D. HORNER PE-30413
PROFESSIONAL ENGINEER
STATE OF MISSOURI
Gina D Horner
10-8-2025

DATE PREPARED 09/22/2025

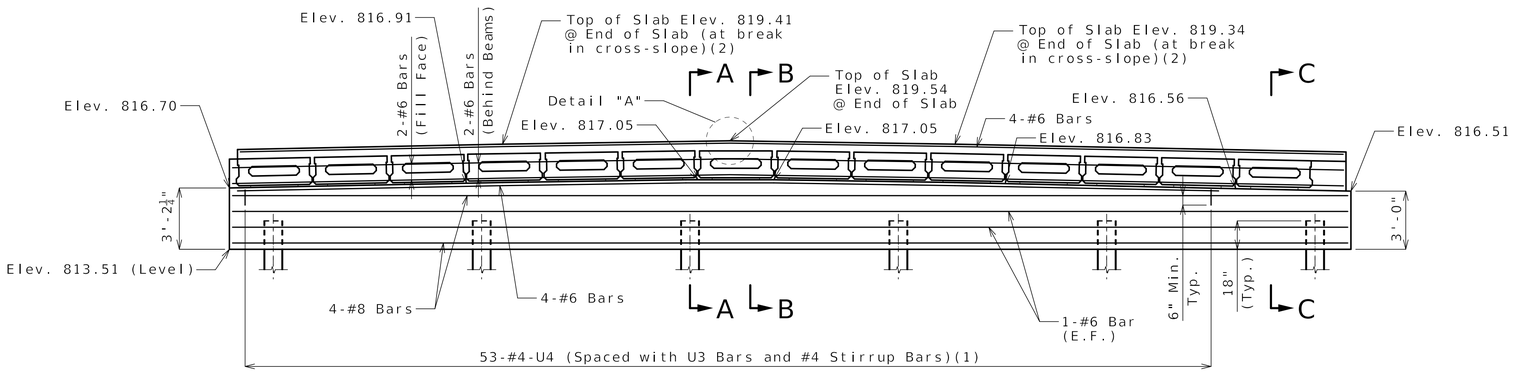
ROUTE	STATE
I-70	MO
DISTRICT	SHEET NO.
BR	B23-12

COUNTY: JACKSON
JOB NO.: J4I1486D
CONTRACT ID.: 240807-C01
PROJECT NO.:
BRIDGE NO.: A9634

DESCRIPTION	DATE
REV 0 - RFC SUBMITTAL	09/22/25

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)
CLARKSON RADMACHER JOINT VENTURE
715 KIRK DRIVE
KANSAS CITY, MO 64105-1310
CERTIFICATE OF AUTHORITY NO. 001270
HNTB

(2) See Sheet No. B23-28 for cross-slope break locations.



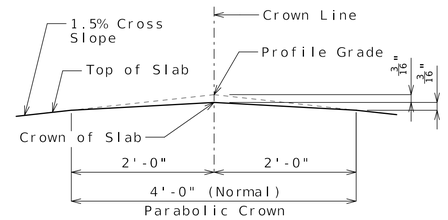
SECTION NEAR END BENT

(Looking Back Station)

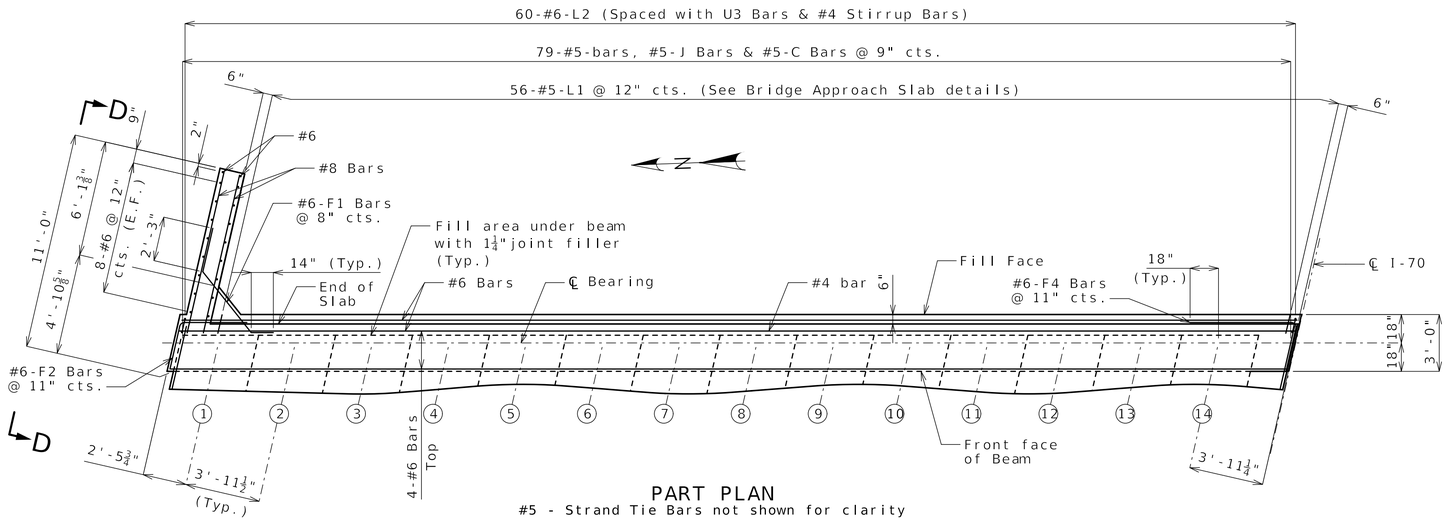
(Sidewalks and Type D Barrier not shown for clarity)

Lap Splice for #4 bars = 2'10" (Min.)
Lap Splice for #6 bars = 4'-3" (Min.)
Lap Splice* for #8 bars = 5'-8" (Min.)

(1) Bars shall be placed normal to ℄ Bent and parallel to beam step.



DETAIL "A"



PART PLAN

#5 - Strand Tie Bars not shown for clarity

Released For Construction
Not to Scale
Revision: 0.0
Date: 10/10/2025
Package: BRD-23-WB70-Van Brunt

General Notes:

Work this sheet with Sheets No. B23-12 and B23-14.

For Sections A-A, B-B and C-C, and Elevation D-D, see Sheet No. B23-14.

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

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

(X) Denotes beam number.

DETAILS OF END BENT NO. 5

Detailed MAY 2025
Checked JUN 2025

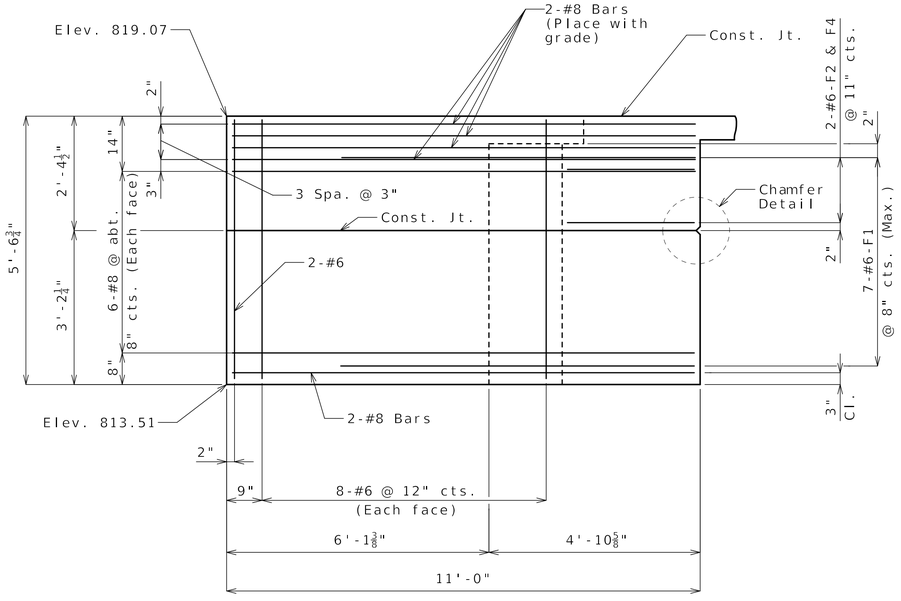
Note: This drawing is not to scale. Follow dimensions.

GINA D. HORNER PE-30413
PROFESSIONAL ENGINEER
STATE OF MISSOURI
Gina D Horner
10-8-2025

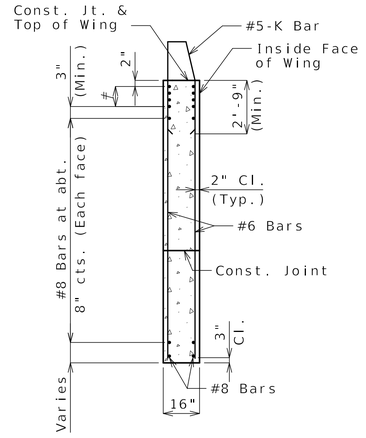
DATE PREPARED 09/22/2025
ROUTE I-70 | STATE MO
DISTRICT BR | SHEET NO. B23-13
COUNTY JACKSON
JOB NO. J4I1486D
CONTRACT ID. 240807-C01
PROJECT NO.
BRIDGE NO. A9634

DATE	DESCRIPTION
09/22/25	REV 0 - RFC SUBMITTAL

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)
CLARKSON RADMACHER JOINT VENTURE
715 KIRK DRIVE
KANSAS CITY, MO 64105-1310
CERTIFICATE OF AUTHORITY NO. 001270
HNTB

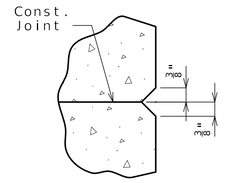


ELEVATION D-D

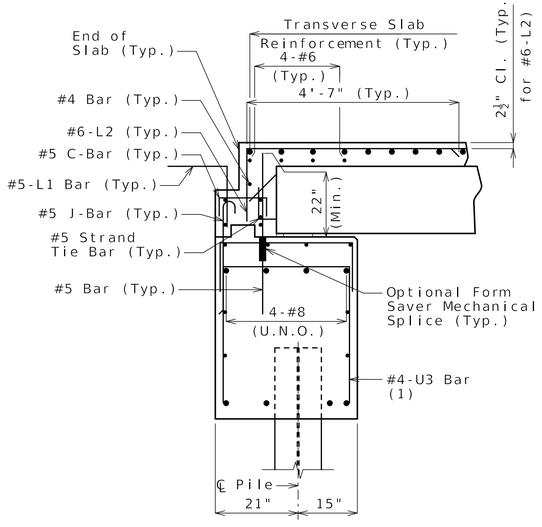


TYPICAL SECTION THRU WING

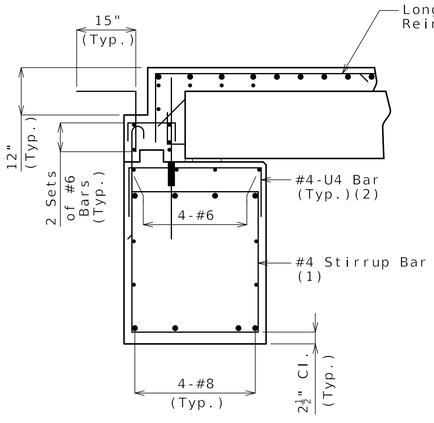
≠ #8 Bars at 3" cts. (Each face)(Place with grade) See Elevation D-D for number of bars



CHAMFER DETAIL

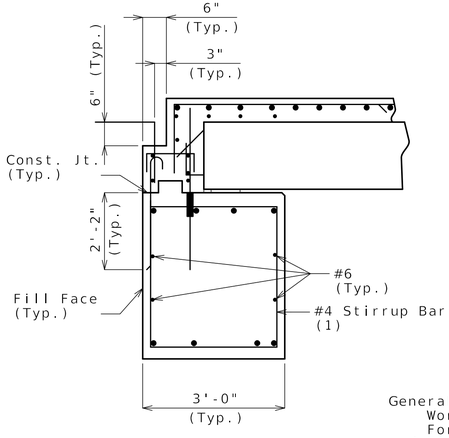


SECTION A-A



SECTION B-B

(1) U3 & #4 stirrup bar vertical leg = 2'-7"
(2) Bars shall be placed to ℄ Bent and parallel to beam step.



SECTION C-C

Released For Construction
Not to Scale
Revision: 0.0
Date: 10/10/2025
Package: BRD-23-WB70-Van Brunt

General Notes:
Work this sheet with Sheets No. B23-12 and B23-13.
For location of Sections A-A, B-B and C-C and Elevation D-D, see Sheet No. B23-13.
For reinforcement of the Type D Barrier, see Sheet No. B23-30.

DETAILS OF END BENT NO. 5

Detailed MAY 2025
Checked JUN 2025

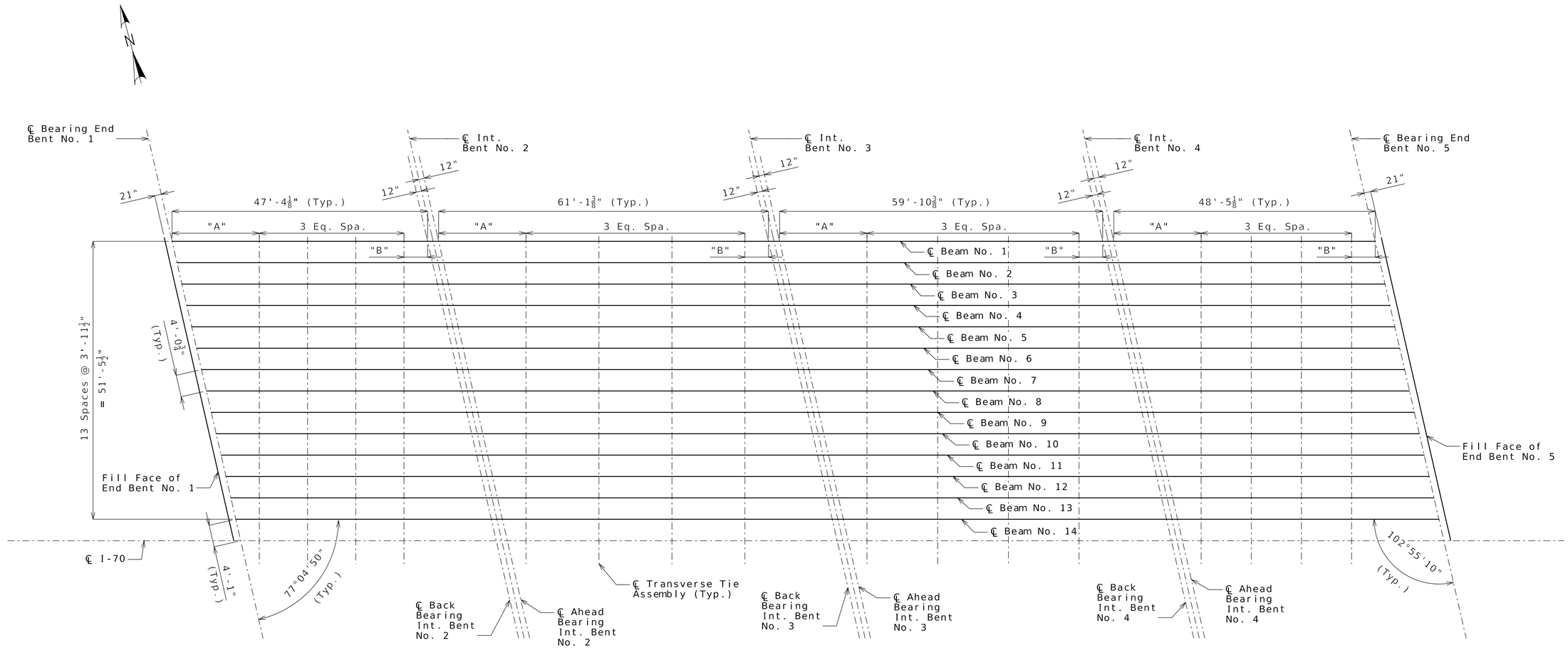
Note: This drawing is not to scale. Follow dimensions.

GINA D. HORNER PE-30413
PROFESSIONAL ENGINEER — STATE OF MISSOURI
Gina D Horner
10-8-2025

DATE PREPARED 09/22/2025
ROUTE I-70 | STATE MO
DISTRICT BR | SHEET NO. B23-14
COUNTY JACKSON
JOB NO. J4I1486D
CONTRACT ID. 240807-C01
PROJECT NO.
BRIDGE NO. A9634

DATE	DESCRIPTION
09/22/25	REV 0 - RFC SUBMITTAL

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)
CLARKSON RADMACHER JOINT VENTURE
715 KIRK DRIVE
KANSAS CITY, MO 64105-1310
CERTIFICATE OF AUTHORITY NO. 001270
HNTB



FRAMING PLAN

TABLE OF DIMENSIONS		
Beam Number	"A"	"B"
1	16'-2⅛"	4'-4½"
2	15'-3¼"	5'-3⅜"
3	14'-4¼"	6'-2¼"
4	13'-5⅜"	7'-1⅛"
5	12'-6½"	8'-0"
6	11'-7⅝"	8'-10⅞"
7	10'-8¾"	9'-9⅞"
8	9'-9⅞"	10'-8¾"
9	8'-10⅛"	11'-7⅝"
10	8'-0"	12'-6½"
11	7'-1⅛"	13'-5⅜"
12	6'-2¼"	14'-4¼"
13	5'-3⅜"	15'-3¼"
14	4'-4½"	16'-2⅛"

Notes:
All dimensions are horizontal.
All beams are parallel.
All bents are parallel.

Released For Construction
Not to Scale
Revision: 0.0
Date: 10/10/2025
Package: BRD-23-WB70-Van Brunt

Detailed MAY 2025
Checked JUN 2025

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

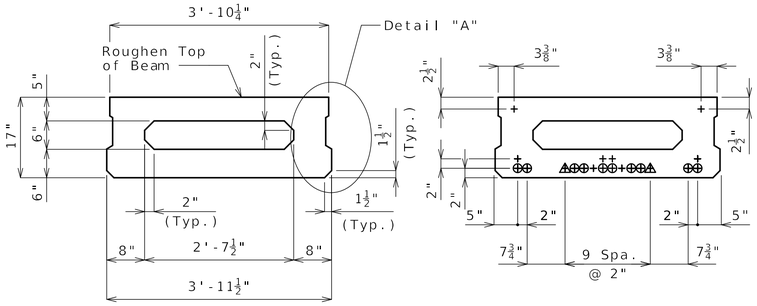
FRAMING PLAN

STATE OF MISSOURI
KALEB S. HAWK
NUMBER PE-2024007443
PROFESSIONAL ENGINEER
Kaleb S. Hawk
10-8-2025

DATE PREPARED 09/22/2025
ROUTE I-70 | STATE MO
DISTRICT BR | SHEET NO. B23-15
COUNTY JACKSON
JOB NO. J4I1486D
CONTRACT ID. 240807-C01
PROJECT NO.
BRIDGE NO. A9634

DATE	DESCRIPTION
09/22/25	REV 0 - RFC SUBMITTAL

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)
MoDOT
CLARKSON RADMACHER JOINT VENTURE
715 KIRK DRIVE
KANSAS CITY, MO 64105-1310
CERTIFICATE OF AUTHORITY NO. 001270
HNTB



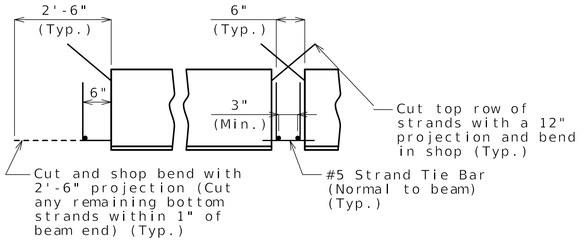
STRAND ARRANGEMENT

All strands are fully bonded unless otherwise noted.

+ Indicates prestressing strand.

○ Indicates cut and shop bend with 2'-6" projection.

△ Indicates debonded for 3'-0" from end of beam.



STRAND DETAILS AT BEAM ENDS

(Shear keys and chamfers not shown for clarity)

General Notes:

Concrete for prestressed beams shall be Class A-1 with f'c = 10,000 psi and f'ci = 7,500 psi.

Use 20 strands, 0.6"Ø Grade 270, with an initial prestress force of 879 kips.

Pretensioned members shall be in accordance with Sec 1029. Fabricator shall be responsible for location and design of lifting devices.

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

Exterior and interior girders are the same except: coil inserts for slab drains.

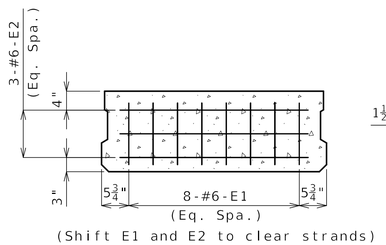
For Detail "A" & Additional Beam Details, see Sheets No. B23-20 and B23-21.

For Beam Camber Diagram, see Sheet No. B23-24.

For dimensions A and B, see Sheet No. B23-15.

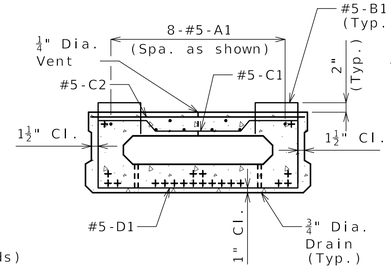
For location of coil inserts at slab drains, see Sheet B23-23.

All dimensions are horizontal.

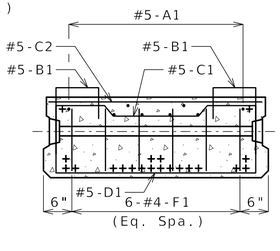


(Shift E1 and E2 to clear strands)

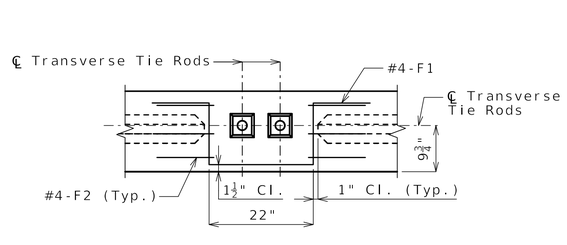
ELEVATION A-A



SECTION B-B

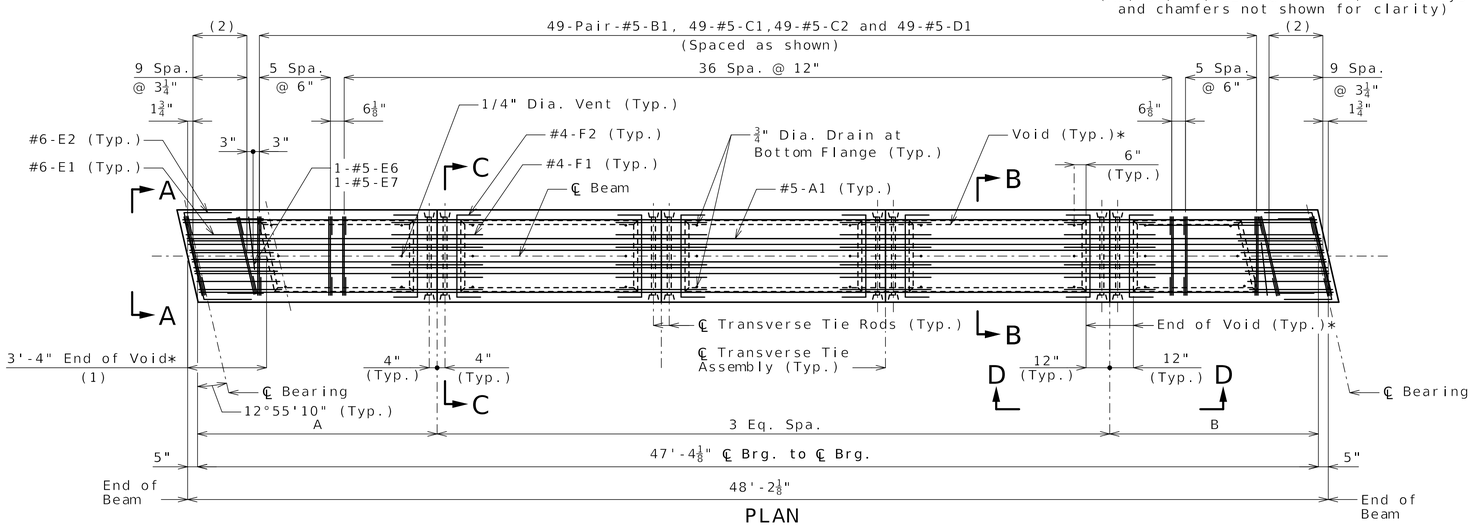


SECTION C-C



ELEVATION D-D

(A1, B1, C1, C2 and D1 bars, shear keys and chamfers not shown for clarity)



PLAN

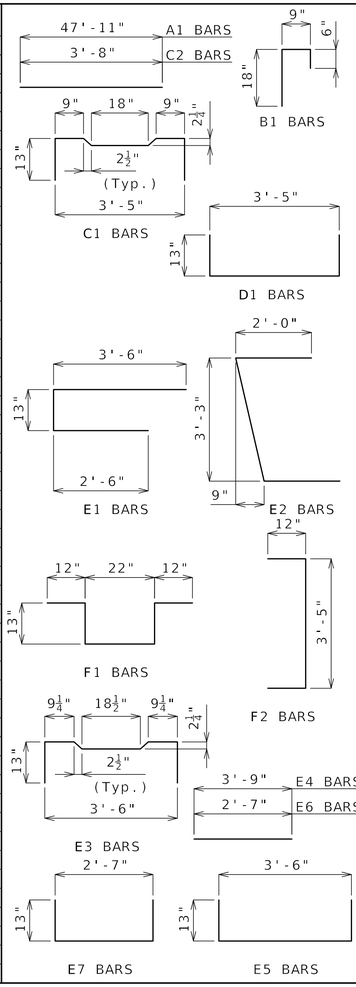
Detailed MAY 2025
Checked JUN 2025

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

Sheet No. B23-16 of B23-41

BILL OF REINFORCING STEEL EACH BEAM

NO.	SIZE & MARK	ACTUAL LENGTH
8	5 A1	47'-11"
138	5 B1	2'-6"
49	5 C1	5'-5"
49	5 C2	3'-8"
49	5 D1	5'-4"
16	6 E1	6'-10"
6	6 E2	7'-0"
20	5 E3	5'-6"
20	5 E4	3'-9"
20	5 E5	5'-5"
2	5 E6	2'-7"
2	5 E7	4'-6"
24	4 F1	5'-7"
24	4 F2	5'-3"



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

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

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

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

All reinforcement shall be Grade 60.

All B1 bars shall be epoxy coated.

(1) Typical each end of all beams except ahead station end of Beam No. 1 and back station end of Beam No. 14, use 5'-9 1/2"
(2) 10-Pair-#5-B1, 10-#5-E3, 10-#5-E4 and 10-#5-E5 (Spaced as shown)

* 5 Voids in Beams No. 2-13
4 Voids in Beams No. 1 & 14

Released For Construction
Not to Scale
Revision: 0.0
Date: 10/10/2025
Package: BRD-23-WB70-Van Brunt

ADJACENT BOX BEAMS - SPAN (1-2)

KALEB S. HAWK NUMBER PE-2024007443
STATE OF MISSOURI PROFESSIONAL ENGINEER
10-8-2025

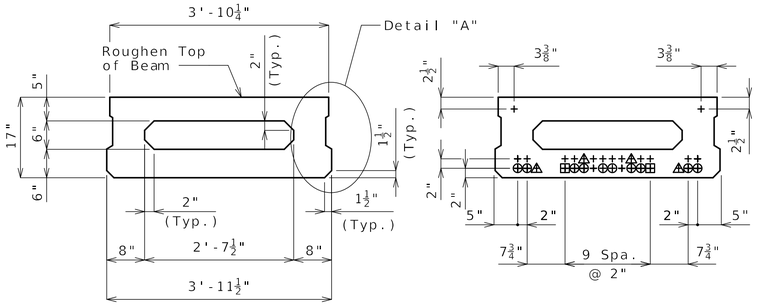
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

CLARKSON RADMACHER JOINT VENTURE
715 KIRK DRIVE
KANSAS CITY, MO 64105-1310
CERTIFICATE OF AUTHORITY NO. 001270

HNTB

DATE	DESCRIPTION
09/22/25	REV 0 - RFC SUBMITTAL

DATE PREPARED: 09/22/2025
ROUTE: I-70 | STATE: MO
DISTRICT: BR | SHEET NO.: B23-16
COUNTY: JACKSON
JOB NO.: J4I1486D
CONTRACT ID.: 240807-C01
PROJECT NO.:
BRIDGE NO.: A9634



BEAM DIMENSIONS

STRAND ARRANGMENT

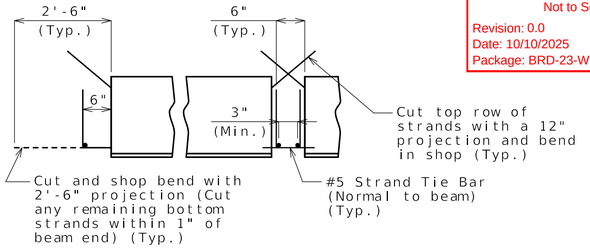
All strands are fully bonded unless otherwise noted.

+ Indicates prestressing strand.

○ Indicates cut and shop bend with 2'-6" projection.

△ Indicates debonded for 3'-0" from end of beam.

□ Indicates debonded for 7'-0" from end of beam.



END BENT INT. BENT

STRAND DETAILS AT BEAM ENDS

(Shear keys and chamfers not shown for clarity)

Released For Construction
Not to Scale
Revision: 0.0
Date: 10/10/2025
Package: BRD-23-WB70-Van Brunt

General Notes:

Concrete for prestressed beams shall be Class A-1 with f'c = 10,000 psi and f'ci = 7,500 psi.

Use 32 strands, 0.6"Ø Grade 270, with an initial prestress force of 1406 kips.

Pretensioned members shall be in accordance with Sec 1029. Fabricator shall be responsible for location and design of lifting devices.

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

For Detail "A" & Additional Beam Details, see Sheets No. B23-20 and B23-21.

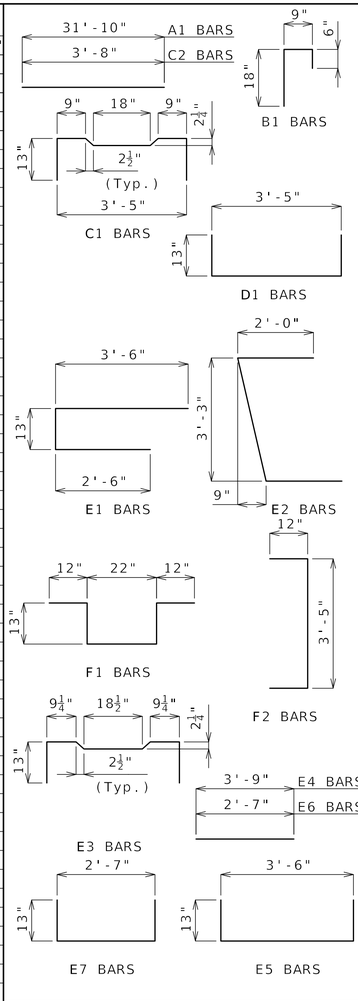
For Beam Camber Diagram, see Sheet No. B23-24.

For dimensions A and B, see Sheet No. B23-15.

All dimensions are horizontal.

BILL OF REINFORCING STEEL
EACH BEAM

NO.	SIZE & MARK	ACTUAL LENGTH
16	5 A1	31'-10"
164	5 B1	2'-6"
62	5 C1	5'-5"
62	5 C2	3'-8"
62	5 D1	5'-4"
16	6 E1	6'-10"
6	6 E2	7'-0"
20	5 E3	5'-6"
20	5 E4	3'-9"
20	5 E5	5'-5"
2	5 E6	2'-7"
2	5 E7	4'-6"
24	4 F1	5'-7"
24	4 F2	5'-3"



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

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

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

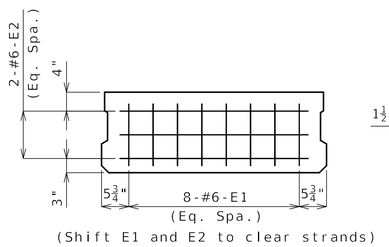
Minimum clearance to reinforcing shall be to one inch, unless otherwise shown.

All reinforcement shall be Grade 60.

All B1 bars shall be epoxy coated.

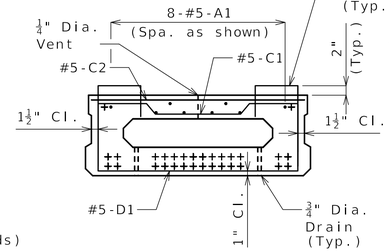
(1) Typical each end of all beams except ahead station end of Beam No. 1 and back station end of Beam No. 14, use 5'-9 1/2"
(2) 10-Pair-#5-B1, 10-#5-E3, 10-#5-E4 and 10-#5-E5 (Spaced as shown)

* 5 Voids in Beams No. 2-13
4 Voids in Beams No. 1 & 14

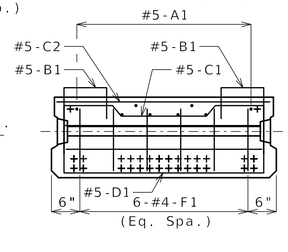


(Shift E1 and E2 to clear strands)

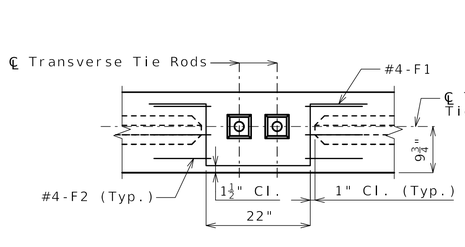
ELEVATION A-A



SECTION B-B

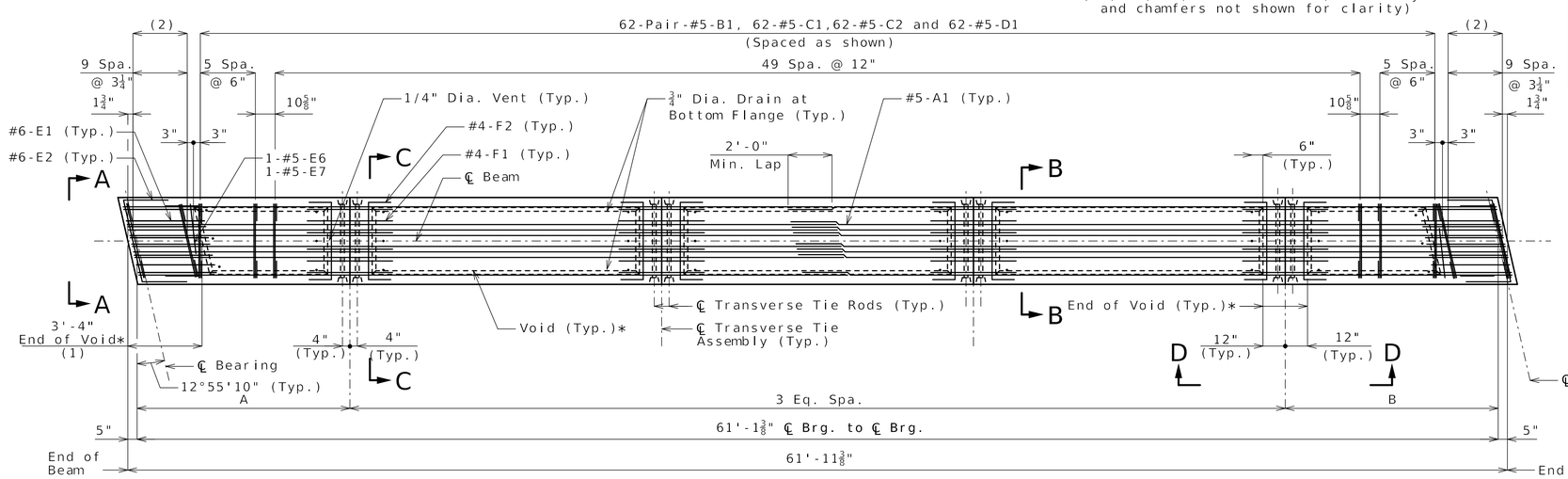


SECTION C-C



ELEVATION D-D

(A1, B1, C1, C2 and D1 bars, shear keys and chamfers not shown for clarity)



PLAN

ADJACENT BOX BEAMS - SPAN (2-3)

KALEB S. HAWK NUMBER PE-2024007443
PROFESSIONAL ENGINEER
STATE OF MISSOURI
10-8-2025

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

CLARKSON RADMACHER JOINT VENTURE
715 KIRK DRIVE
KANSAS CITY, MO 64105-1310
CERTIFICATE OF AUTHORITY NO. 001270

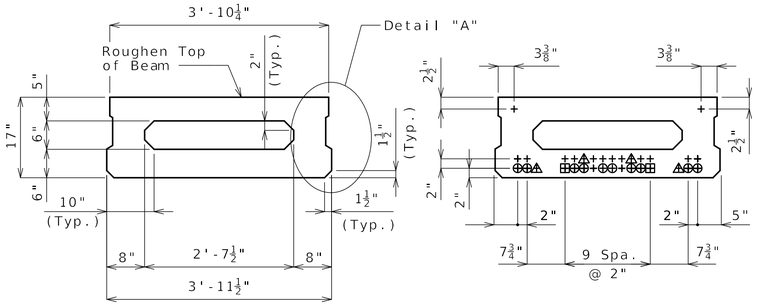
HNTB

DATE	DESCRIPTION
09/22/25	REV 0 - RFC SUBMITTAL

DATE PREPARED: 09/22/2025
ROUTE: I-70 | STATE: MO
DISTRICT: BR | SHEET NO.: B23-17
COUNTY: JACKSON
JOB NO.: J4I1486D
CONTRACT ID.: 240807-C01
PROJECT NO.:
BRIDGE NO.: A9634

Detailed MAY 2025
Checked JUN 2025

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



BEAM DIMENSIONS

STRAND ARRANGMENT

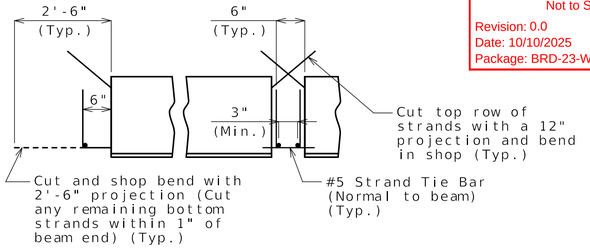
All strands are fully bonded unless otherwise noted.

+ Indicates prestressing strand.

○ Indicates cut and shop bend with 2'-6" projection.

△ Indicates debonded for 3'-0" from end of beam.

□ Indicates debonded for 7'-0" from end of beam.



STRAND DETAILS AT BEAM ENDS

(Shear keys and chamfers not shown for clarity)

Released For Construction
Not to Scale
Revision: 0.0
Date: 10/10/2025
Package: BRD-23-WB70-Van Brunt

General Notes:

Concrete for prestressed beams shall be Class A-1 with f'c = 10,000 psi and f'ci = 7,500 psi.

Use 32 strands, 0.6"Ø Grade 270, with an initial prestress force of 1406 kips.

Pretensioned members shall be in accordance with Sec 1029. Fabricator shall be responsible for location and design of lifting devices.

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

For Detail "A" & Additional Beam Details, see Sheets No. B23-20 and B23-21.

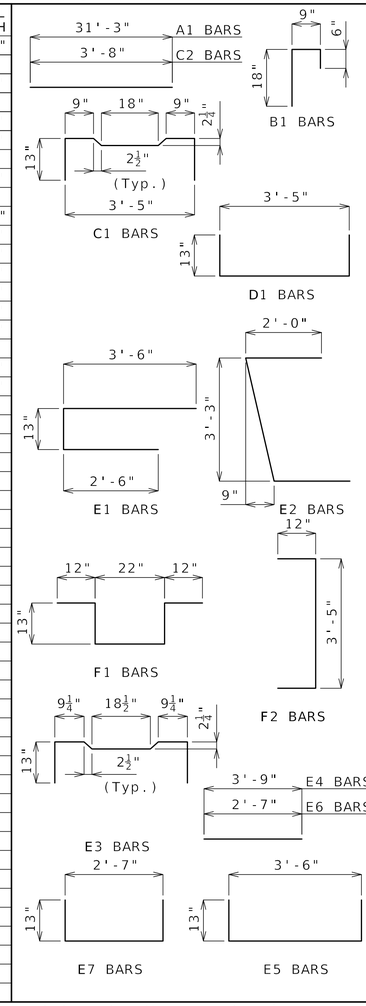
For Beam Camber Diagram, see Sheet No. B23-24.

For dimensions A and B, see Sheet No. B23-15.

All dimensions are horizontal.

BILL OF REINFORCING STEEL EACH BEAM

NO.	SIZE & MARK	ACTUAL LENGTH
16	5 A1	31'-3"
162	5 B1	2'-6"
61	5 C1	5'-5"
61	5 C2	3'-8"
61	5 D1	5'-4"
16	6 E1	6'-10"
6	6 E2	7'-0"
20	5 E3	5'-6"
20	5 E4	3'-9"
20	5 E5	5'-5"
2	5 E6	2'-7"
2	5 E7	4'-6"
24	4 F1	5'-7"
24	4 F2	5'-3"



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

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

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

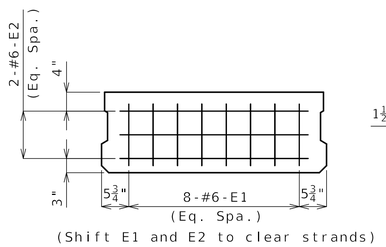
Minimum clearance to reinforcing shall be to one inch, unless otherwise shown.

All reinforcement shall be Grade 60.

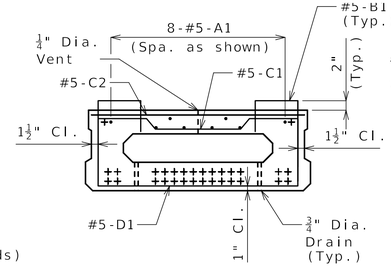
All B1 bars shall be epoxy coated.

(1) Typical each end of all beams except ahead station end of Beam No. 1 and back station end of Beam No. 14, use 5'-9 1/2"
(2) 10-Pair-#5-B1, 10-#5-E3, 10-#5-E4 and 10-#5-E5 (Spaced as shown)

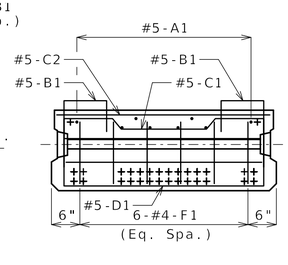
* 5 Voids in Beams No. 2-13
4 Voids in Beams No. 1 & 14



ELEVATION A-A



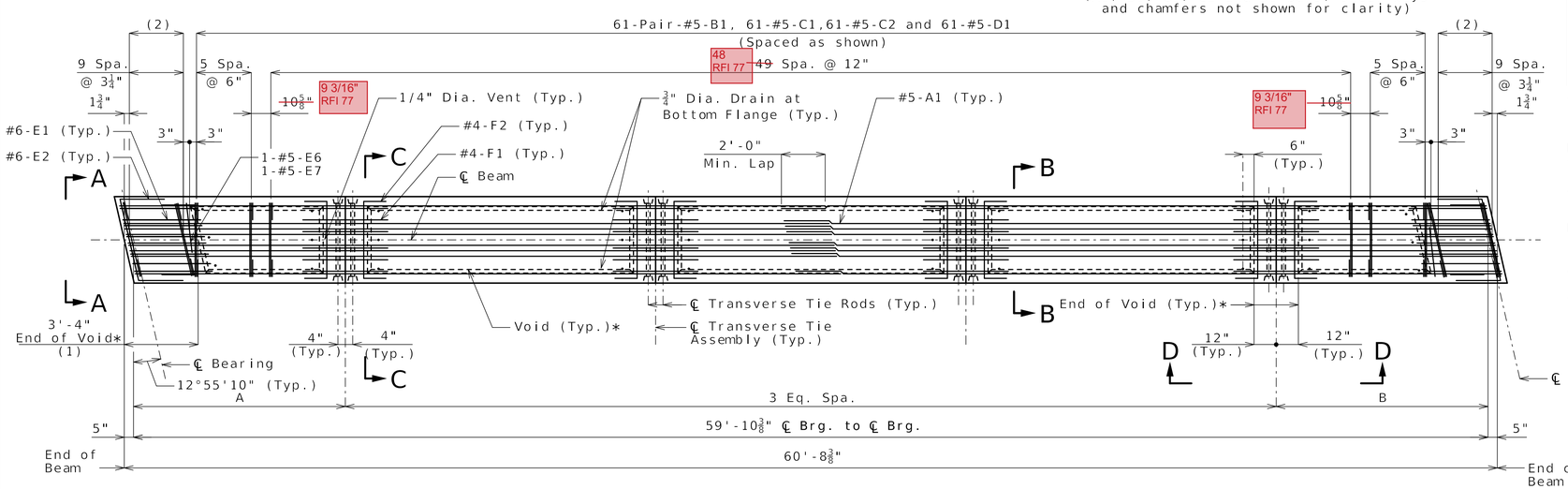
SECTION B-B



SECTION C-C

ELEVATION D-D

(A1, B1, C1, C2 and D1 bars, shear keys and chamfers not shown for clarity)



ADJACENT BOX BEAMS - SPAN (3-4)

Detailed MAY 2025
Checked JUN 2025

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

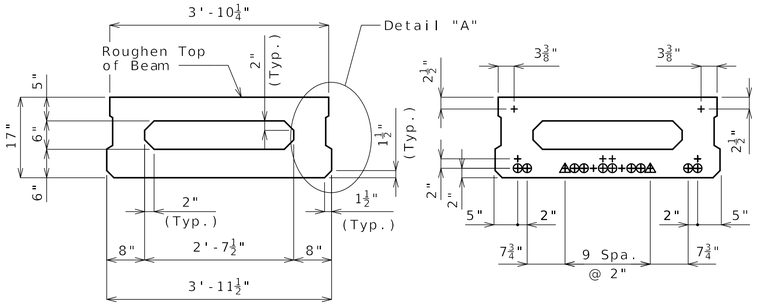
KALEB S. HAWK NUMBER PE-2024007443
STATE OF MISSOURI
PROFESSIONAL ENGINEER
10-8-2025

DATE PREPARED 09/22/2025
ROUTE I-70 | STATE MO
DISTRICT BR | SHEET NO. B23-18
COUNTY JACKSON
JOB NO. J4I1486D
CONTRACT ID. 240807-C01
PROJECT NO.
BRIDGE NO. A9634

DATE	DESCRIPTION
09/22/25	REV 0 - RFC SUBMITTAL

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

CLARKSON RADMACHER JOINT VENTURE
715 KIRK DRIVE
KANSAS CITY, MO 64105-1310
CERTIFICATE OF AUTHORITY NO. 001270
HNTB



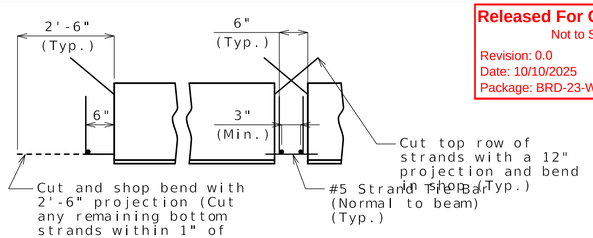
STRAND ARRANGEMENT

All strands are fully bonded unless otherwise noted.

+ Indicates prestressing strand.

○ Indicates cut and shop bend with 2'-6" projection.

△ Indicates debonded for 3'-0" from end of beam.



END BENT INT. BENT

STRAND DETAILS AT BEAM ENDS

(Shear keys and chamfers not shown for clarity)

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General Notes:

Concrete for prestressed beams shall be Class A-1 with f'c = 10,000 psi and f'ci = 7,500 psi.

Use 20 strands, 0.6"Ø Grade 270, with an initial prestress force of 879 kips.

Pretensioned members shall be in accordance with Sec 1029. Fabricator shall be responsible for location and design of lifting devices.

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

Exterior and interior girders are the same except: coil inserts for slab drains.

For Detail "A" & Additional Beam Details, see Sheets No. B23-20 and B23-21.

For Beam Camber Diagram, see Sheet No. B23-24.

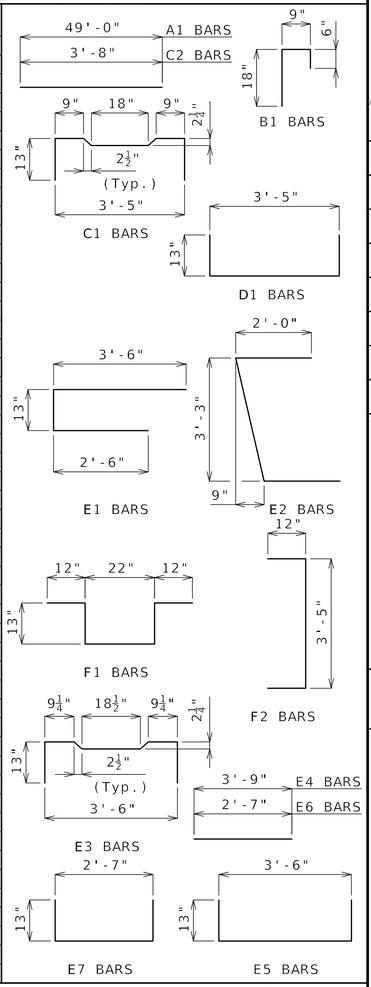
For dimensions A and B, see Sheet No. B23-15.

For location of coil inserts at slab drains, see Sheet B23-23.

All dimensions are horizontal.

BILL OF REINFORCING STEEL EACH BEAM

NO.	SIZE & MARK	ACTUAL LENGTH
8	5 A1	49'-0"
140	5 B1	2'-6"
50	5 C1	5'-5"
50	5 C2	3'-8"
50	5 D1	5'-4"
16	6 E1	6'-10"
6	6 E2	7'-0"
20	5 E3	5'-6"
20	5 E4	3'-9"
20	5 E5	5'-5"
2	5 E6	2'-7"
2	5 E7	4'-6"
24	4 F1	5'-7"
24	4 F2	5'-3"



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

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

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

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

All reinforcement shall be Grade 60.

All B1 bars shall be epoxy coated.

(1) Typical each end of all beams except ahead station end of Beam No. 1 and back station end of Beam No. 14, use 5'-9 1/2"
(2) 10-Pair-#5-B1, 10-#5-E3, 10-#5-E4 and 10-#5-E5 (Spaced as shown)

* 5 Voids in Beams No. 2-13
4 Voids in Beams No. 1 & 14

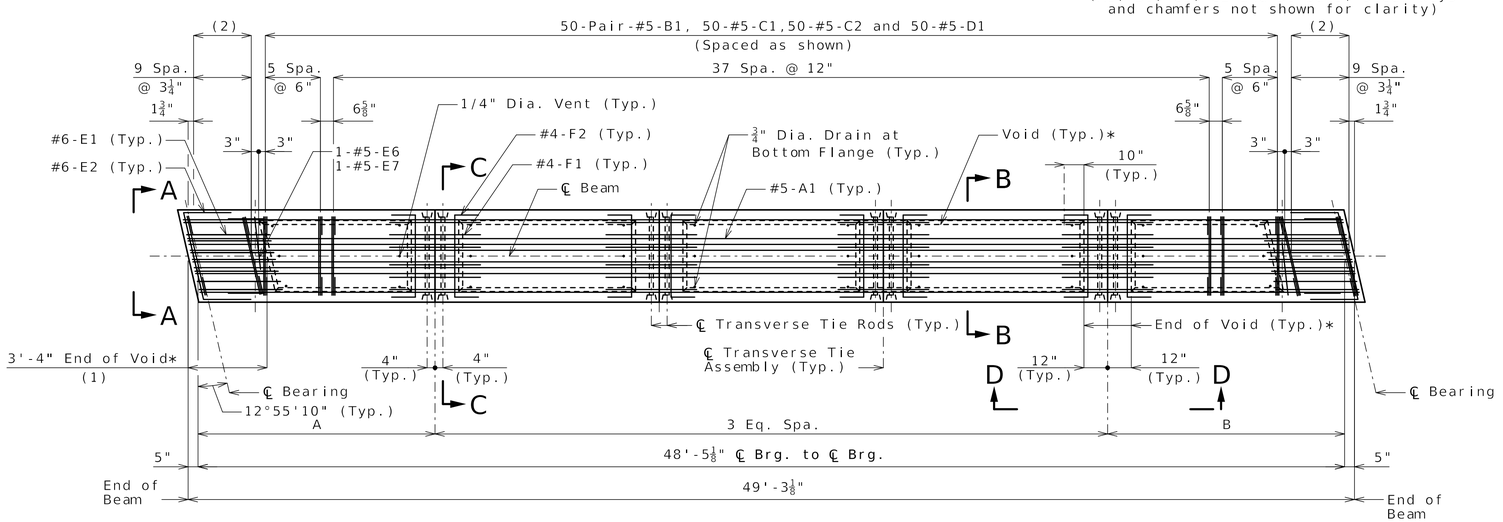
ELEVATION A-A

SECTION B-B

SECTION C-C

ELEVATION D-D

(A1, B1, C1, C2 and D1 bars, shear keys and chamfers not shown for clarity)



ADJACENT BOX BEAMS - SPAN (4-5)

Detailed MAY 2025
Checked JUN 2025

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Kaleb S. Hawk
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DATE PREPARED 09/22/2025
ROUTE I-70 | STATE MO
DISTRICT BR | SHEET NO. B23-19
COUNTY JACKSON
JOB NO. J4I1486D
CONTRACT ID. 240807-C01
PROJECT NO.
BRIDGE NO. A9634

DATE	DESCRIPTION
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MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
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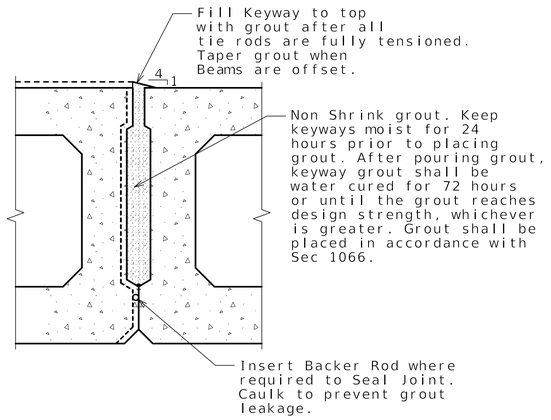
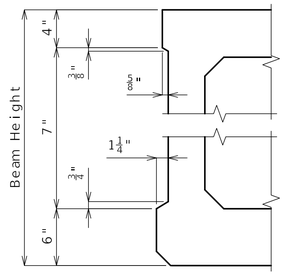
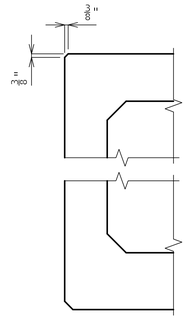
CLARKSON RADMACHER JOINT VENTURE
715 KIRK DRIVE
KANSAS CITY, MO 64105-1310
CERTIFICATE OF AUTHORITY NO. 001270
HNTB



KEYWAY GROUT DETAIL

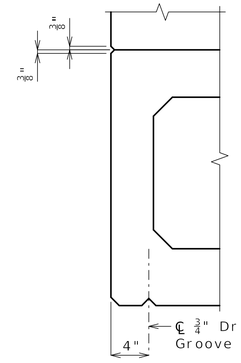


Interior face of exterior beams & both faces of interior beams)



(Exterior face of exterior beams)

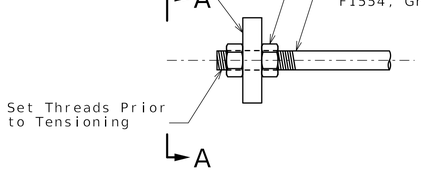
DETAIL A



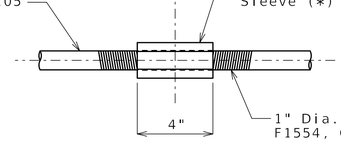
CHAMFER & DRIP BEVEL AT EXTERIOR FACE OF EXTERIOR BEAM

TURN OF THE NUT REQUIREMENTS
Beam No. 1 thru 14 - 2.25 Turn

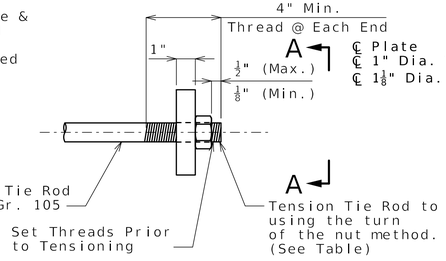
Notes: From snug tight condition, 1" Dia. bolt threaded at 8 threads per inch.
Pretension=55 Kips.



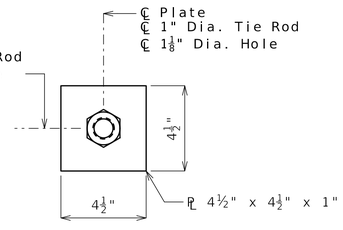
ANCHOR END



THREAD SLEEVE



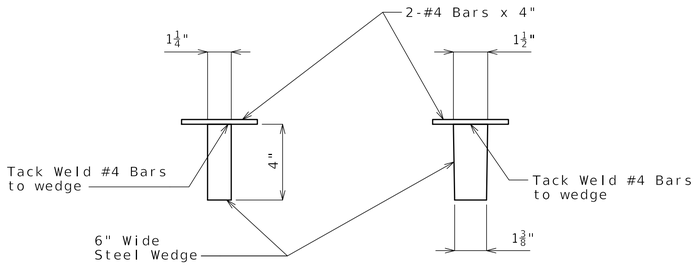
TENSIONING END



VIEW A-A

TIE ROD & BEARING PLATE DETAILS

* Full Threaded Sleeve axial capacity shall exceed capacity of tie rod.

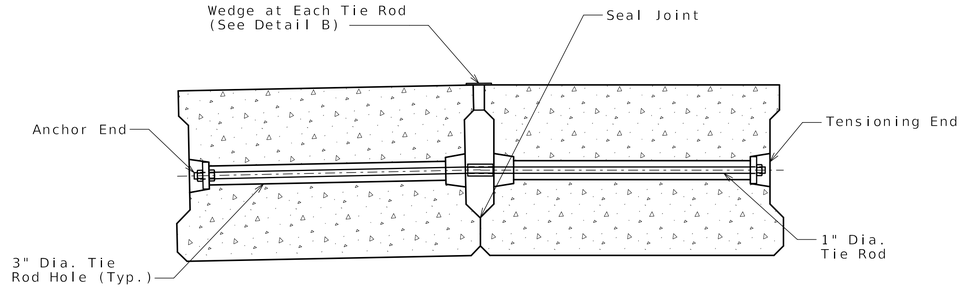


TYPICAL WEDGE BEVELED WEDGE**

DETAIL B

Note:
Add shim plates between wedge and beam flange as needed to account for beam placement and fabrication tolerances.

**Beveled wedge required between beams at substructure slope breaks (Beam No. 6, 7 and 8)



TYPICAL DETAIL FOR INSTALLING WEDGE

Note:
Tighten tie rods until the bottom corners of the boxes are in contact. Loosen the tie rod and install the wedges per detail.

Detailed MAY 2025
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Sheet No. B23-20 of B23-41

MISCELLANEOUS ADJACENT BOX BEAM DETAILS

KALEB S. HAWK NUMBER PE-2024007443
STATE OF MISSOURI PROFESSIONAL ENGINEER
10-8-2025

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COUNTY JACKSON
JOB NO. J4I1486D
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PROJECT NO.
BRIDGE NO. A9634

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MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
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CLARKSON RADMACHER JOINT VENTURE
715 KIRK DRIVE
KANSAS CITY, MO 64105-1310
CERTIFICATE OF AUTHORITY NO. 001270
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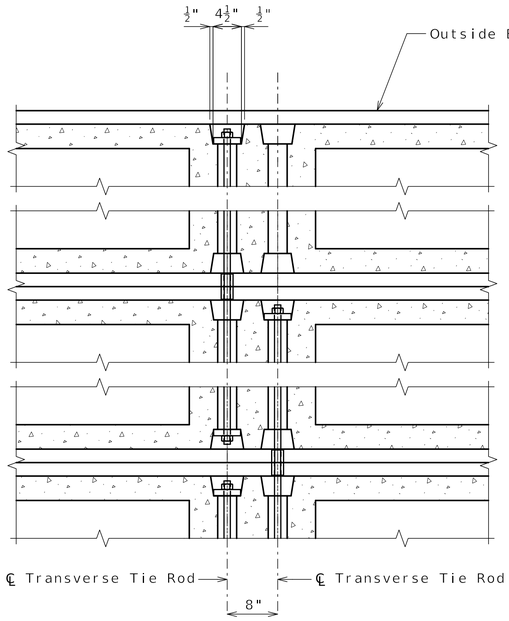
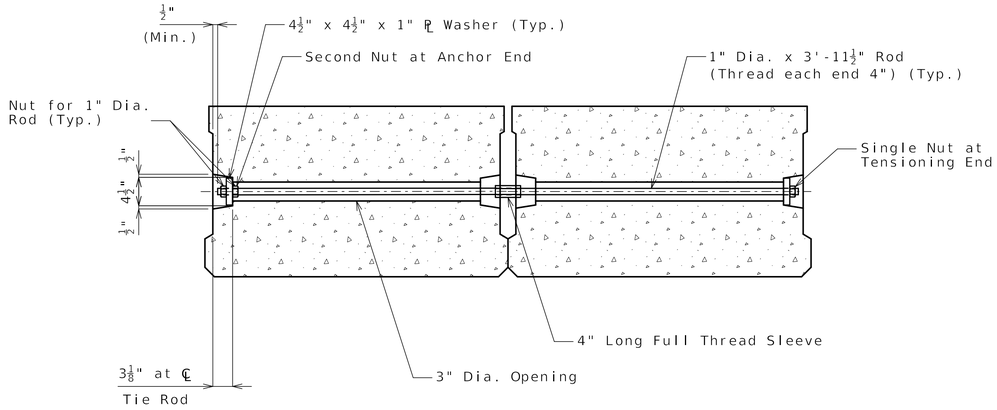


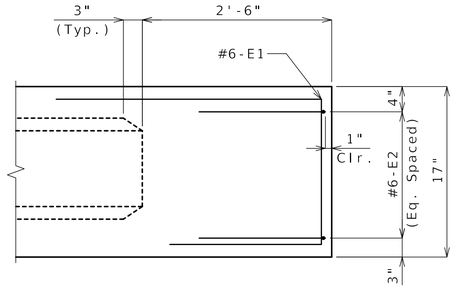
PART PLAN



PART SECTION

TYPICAL TRANSVERSE TIE ASSEMBLY

(Reinforcement & Strands not shown for clarity)



TYPICAL END ELEVATION

(Stirrups, long. reinforcement, strands, chamfers & shear keys not shown for clarity)

Notes:
The 1" Dia. rods in the transverse tie assembly shall be tightened to a snug fit and the threads set. Pockets that receive transverse tie bar on outside shall be filled with grout after transverse tie assembly is in place.

Keyway surface shall be cleaned to remove form oil or other bond breaking material prior to shipment of the beams. Cleaning shall be done by sandblasting the keyway areas between top of the beam and the bottom edge of the key.

Use high strength tie rods that conform to ASTM F1554 Grade 105. Use heavy hexagon nuts that conform to ASTM A563. Hot-dip galvanize tie rods, plates, nuts and washers after fabrication.

Use mechanically galvanized load indication washers conforming to ASTM F959 when tensioning the tie rods on the first pair of Beams to calibrate the turn of the nut method. The load indication washers shall be placed on the anchor end, not the tensioning end.

Tighten all tie rods (per box) to about one half of the specified tension before proceeding with the final tensioning.

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MISCELLANEOUS ADJACENT BOX BEAM DETAILS

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KALEB S. HAWK
NUMBER PE-2024007443
PROFESSIONAL ENGINEER
Kaleb S. Hawk
10-8-2025

DATE PREPARED 09/22/2025
ROUTE I-70 | STATE MO
DISTRICT BR | SHEET NO. B23-21
COUNTY JACKSON
JOB NO. J4I1486D
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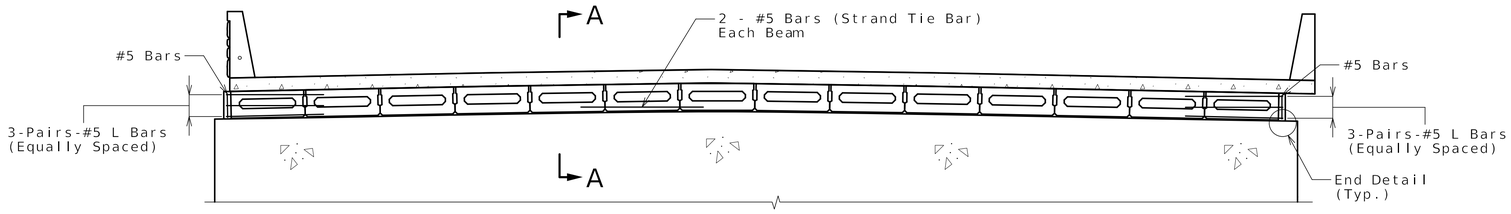
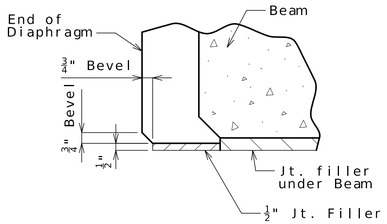
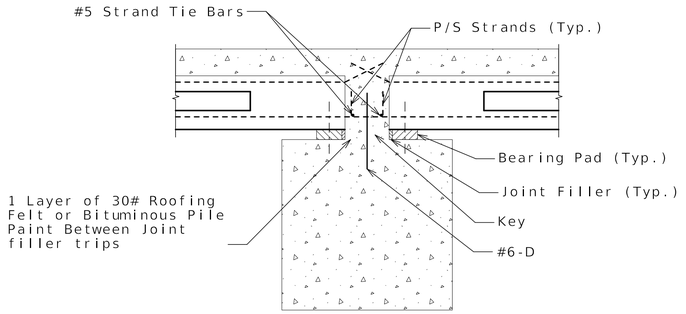


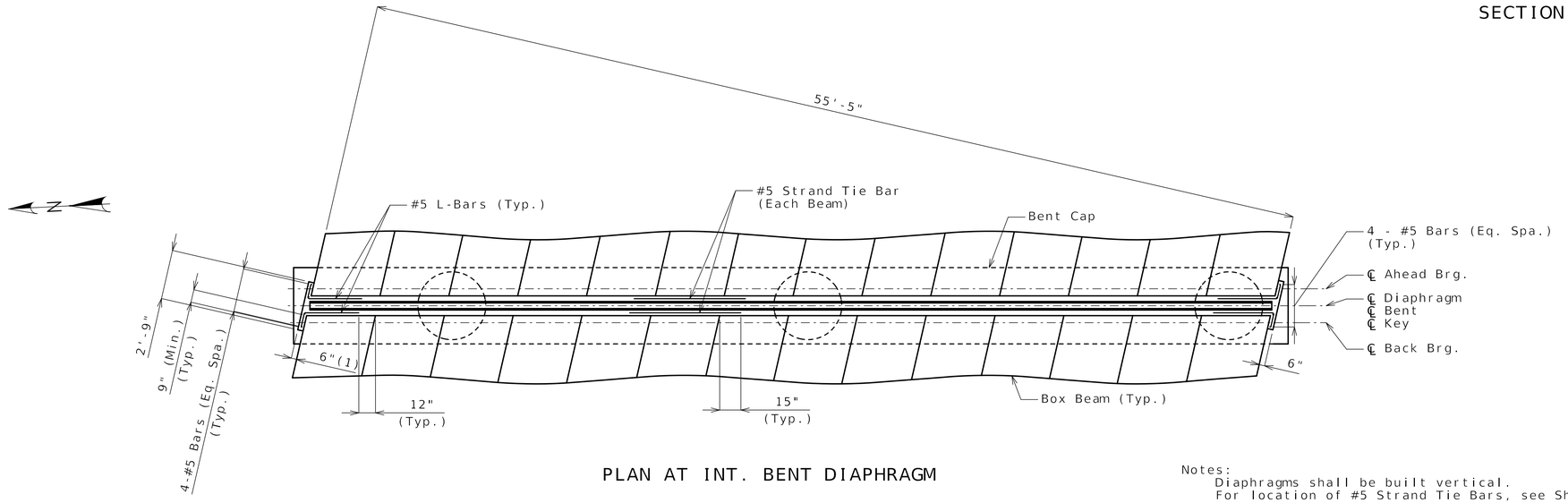
ELEVATION THRU INT. BENT DIAPHRAGM
(Reinforcement in Bent Cap & Columns not shown for clarity)



END DETAIL



SECTION A-A



PLAN AT INT. BENT DIAPHRAGM

(1) Slope normal to
bridge fascia to drain.

Notes:
Diaphragms shall be built vertical.
For location of #5 Strand Tie Bars, see Sheets No. B23-16 thru B23-19.
For Bearing Details, see Sheet No. B23-10.
For Cap beam, bearing location, dowel placement, shear key details, roofing felt details, joint filler details see Sheet No. B23-10.

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CONCRETE DIAPHRAGM AT INTERMEDIATE BENTS

Detailed MAY 2025
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DISTRICT BR | SHEET NO. B23-22
COUNTY JACKSON
JOB NO. J4I1486D
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PROJECT NO.
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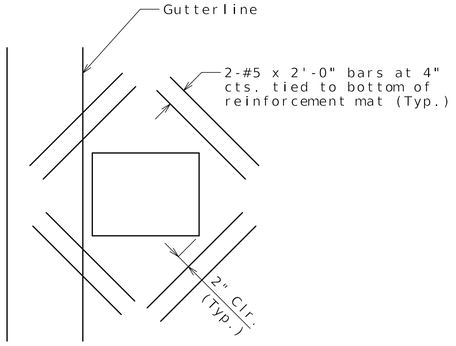
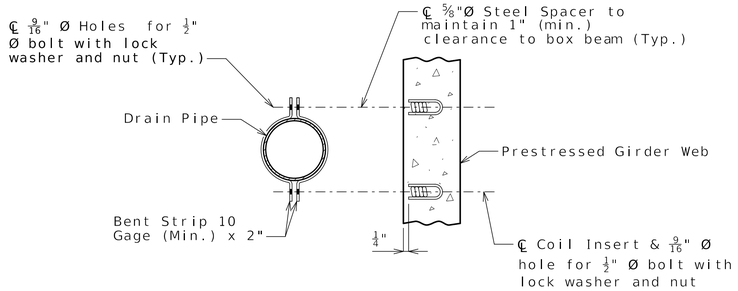


REINFORCEMENT DETAIL AT SLAB DRAIN



PART SECTION SHOWING BRACKET ASSEMBLY

General Notes:

Slab drains shall be Neenah R-3935 Type V or approved equal. Pipe shall be FRP.

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

For slab drain locations see Sheets No. B23-26 and B23-27.

Transverse reinforcing steel shall be shifted to clear drains. Adjust or sawcut longitudinal reinforcement to clear drains. Coat exposed ends with epoxy paint.

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.

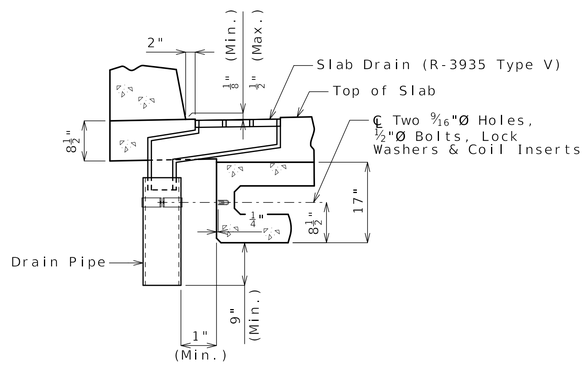
All 1/2"Ø bolts shall be ASTM A307.

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

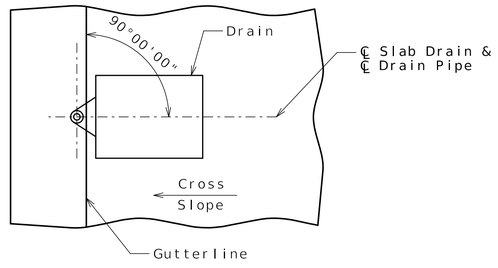
The coil inserts required for the bracket assembly attachment shall be located on the prestressed beam shop drawings.

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.



PART SECTION NEAR DRAIN



PART PLAN OF SLAB AT DRAIN

Notes for FRP Drain Pipe:

Drain pipe liner diameter shall meet or exceed slab drain outlet diameter.

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

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

The color of the drain pipe 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 drain pipe 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 drain pipe.

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

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SLAB DRAINS

Detailed MAY 2025
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STATE OF MISSOURI
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Van W. Robbins
10-08-25

DATE PREPARED: 09/22/2025
ROUTE: I-70 | STATE: MO
DISTRICT: BR | SHEET NO.: B23-23
COUNTY: JACKSON
JOB NO.: J4I1486D
CONTRACT ID.: 240807-C01
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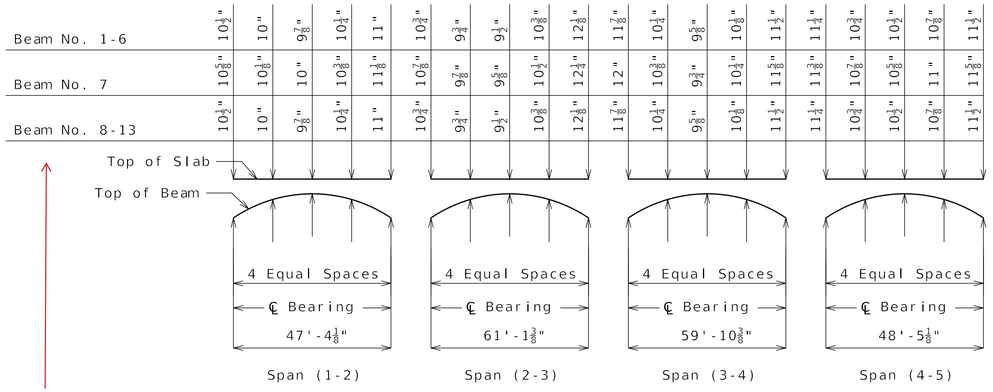
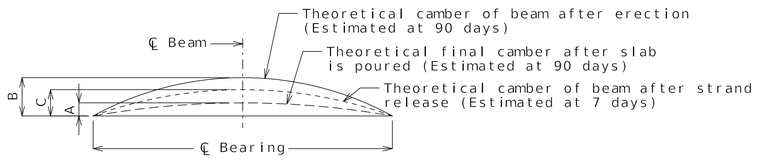


Add Beam 14 HaunchesSee RFI 77

THEORETICAL SLAB HAUNCHING DIAGRAM

(Assumed Erection @ 90 Day Maturity)



Beam	Span (1-2)			Span (2-3)			Span (3-4)			Span (4-5)		
	A	B	C	A	B	C	A	B	C	A	B	C
1-13	7/8"	1 1/2"	1"	2"	3 3/4"	2 1/2"	2 1/8"	3 3/4"	2 1/2"	7/8"	1 1/2"	1"
14	3/4"	1 1/2"	1"	1 3/8"	3 3/4"	2 1/2"	1 1/2"	3 3/4"	2 1/2"	5/8"	1 1/2"	1"

BEAM CAMBER DIAGRAM

Conversion Factors for Beam Camber (Estimated at 90 days)

0.1 pt. = 0.314 x 0.5 pt.
0.2 pt. = 0.593 x 0.5 pt.
0.3 pt. = 0.813 x 0.5 pt.
0.4 pt. = 0.952 x 0.5 pt.

Note:
If Beam camber is different from that shown in the camber diagram, in order to maintain minimum slab thickness, adjustment of the slab haunches, or a raise in grade uniformly throughout the structure shall be necessary.

CAMBER DIAGRAM & THEORETICAL CAST IN PLACE SLAB DIAGRAM

Detailed MAY 2025
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CONTRACT ID. 240807-C01
PROJECT NO.
BRIDGE NO. A9634

DATE	DESCRIPTION
09/22/25	REV 0 - RFC SUBMITTAL

Released For Construction
Not to Scale
Revision: 0.0
Date: 10/10/2025
Package: BRD-23-WB70-Van Brunt

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

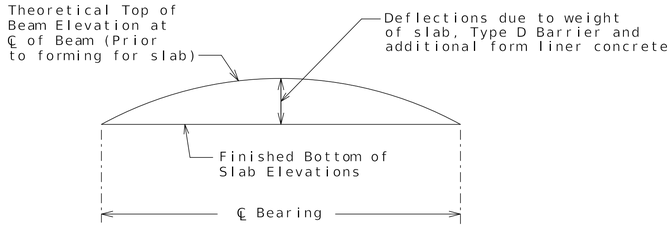
CLARKSON RADMACHER JOINT VENTURE
715 KIRK DRIVE
KANSAS CITY, MO 64105-1310
CERTIFICATE OF AUTHORITY NO. 001270

HNTB

Theoretical Top of Beam Elevations at Centerline of Beam (Prior to forming for slab) **(Esitmated at 90 days)

Beam Number	Span (1-2) (47'-4⅛" ℄ Brg. - ℄ Brg.)				
	℄ Brg.	.25	.50	.75	℄ Brg.
1	820.96	820.90	820.79	820.60	820.36
2	821.02	820.97	820.86	820.67	820.43
3	821.09	821.04	820.92	820.74	820.50
4	821.16	821.10	820.99	820.80	820.56
5	821.21	821.15	821.04	820.85	820.61
6	821.26	821.20	821.09	820.90	820.66
7	821.27	821.22	821.10	820.92	820.68
8	821.23	821.17	821.06	820.87	820.63
9	821.16	821.10	820.99	820.80	820.56
10	821.09	821.03	820.92	820.73	820.49
11	821.00	820.94	820.83	820.64	820.40
12	820.91	820.85	820.74	820.55	820.31
13	820.82	820.76	820.65	820.46	820.22
14	820.73	820.67	820.56	820.37	820.13
Beam Number	Span (2-3) (61'-1⅜" ℄ Brg. - ℄ Brg.)				
	℄ Brg.	.25	.50	.75	℄ Brg.
1	820.36	820.37	820.25	819.96	819.53
2	820.43	820.44	820.32	820.02	819.60
3	820.49	820.51	820.39	820.09	819.66
4	820.56	820.57	820.46	820.16	819.73
5	820.61	820.62	820.50	820.21	819.78
6	820.66	820.67	820.55	820.26	819.83
7	820.67	820.69	820.57	820.27	819.84
8	820.63	820.64	820.52	820.23	819.80
9	820.56	820.57	820.45	820.16	819.73
10	820.49	820.50	820.38	820.09	819.66
11	820.40	820.41	820.29	820.00	819.57
12	820.31	820.32	820.20	819.91	819.48
13	820.22	820.23	820.11	819.82	819.39
14	820.13	820.15	820.05	819.77	819.35
Beam Number	Span (3-4) (59'-10⅜" ℄ Brg. - ℄ Brg.)				
	℄ Brg.	.25	.50	.75	℄ Brg.
1	819.52	819.58	819.50	819.24	818.85
2	819.59	819.65	819.57	819.31	818.92
3	819.66	819.72	819.64	819.38	818.99
4	819.73	819.78	819.70	819.45	819.06
5	819.78	819.83	819.75	819.50	819.11
6	819.82	819.88	819.80	819.54	819.16
7	819.84	819.89	819.82	819.56	819.17
8	819.79	819.85	819.77	819.51	819.13
9	819.72	819.78	819.70	819.44	819.06
10	819.65	819.71	819.63	819.37	818.98
11	819.56	819.62	819.54	819.28	818.89
12	819.47	819.53	819.45	819.19	818.80
13	819.38	819.44	819.36	819.10	818.71
14	819.35	819.38	819.29	819.01	818.60
Beam Number	Span (4-5) (48'-5⅛" ℄ Brg. - ℄ Brg.)				
	℄ Brg.	.25	.50	.75	℄ Brg.
1	818.85	818.80	818.69	818.50	818.26
2	818.92	818.87	818.76	818.57	818.33
3	818.99	818.93	818.82	818.64	818.40
4	819.06	819.00	818.89	818.71	818.47
5	819.10	819.05	818.94	818.76	818.52
6	819.15	819.10	818.99	818.80	818.57
7	819.17	819.11	819.00	818.82	818.58
8	819.12	819.07	818.96	818.77	818.53
9	819.05	819.00	818.89	818.70	818.46
10	818.98	818.93	818.82	818.63	818.39
11	818.89	818.84	818.73	818.54	818.30
12	818.80	818.75	818.64	818.45	818.21
13	818.71	818.66	818.55	818.36	818.12
14	818.60	818.56	818.46	818.29	818.07

**Elevations are based on theoretical cast-in-place slab thickness and include allowance for theoretical dead load deflections due to weight of slab (including Type D Barrier and additional form liner concrete).



TYPICAL SLAB ELEVATIONS DIAGRAM

Released For Construction
Not to Scale
Revision: 0.0
Date: 10/10/2025
Package: BRD-23-WB70-Van Brunt

Detailed MAY 2025
Checked JUN 2025

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

Sheet No. B23-25 of B23-41

THEORETICAL TOP OF BEAM ELEVATIONS

KALEB S. HAWK NUMBER PE-2024007443 — STATE OF MISSOURI — PROFESSIONAL ENGINEER

10-8-2025

DATE PREPARED: 09/22/2025

ROUTE	STATE
I-70	MO

DISTRICT	SHEET NO.
BR	B23-25

COUNTY: JACKSON

JOB NO.: J4I1486D

CONTRACT ID.: 240807-C01

PROJECT NO.:

BRIDGE NO.: A9634

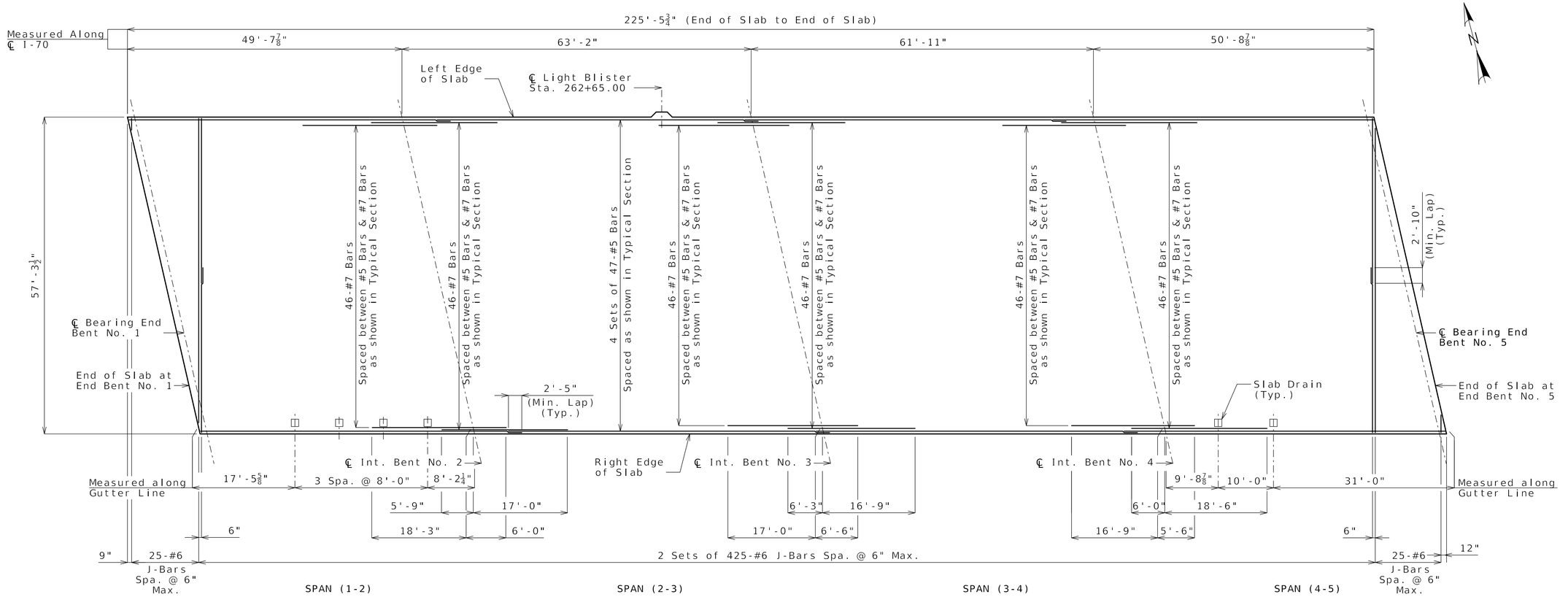
DATE	DESCRIPTION
09/22/25	REV 0 - RFC SUBMITTAL

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

CLARKSON RADMACHER JOINT VENTURE
715 KIRK DRIVE
KANSAS CITY, MO 64105-1310
CERTIFICATE OF AUTHORITY NO. 001270

HNTB

B_A9634_B23-28_J4I1486D.dgn 12:30:59 PM 9/21/2025



TOP REINFORCEMENT

Notes:
Work this sheet with Sheets No. B23-27.
For Typical Section, see Sheet No. B23-28.
For Slab Pouring Sequence, see Sheet No. B23-27.
For details and reinforcement of Type D Barrier, see Sheet No. B23-29.
For Beam Camber Diagram and Theoretical Slab Haunching Diagram, see Sheet No. B23-24.
For Theoretical Top of Beam Elevations, see Sheet No. B23-25.
Longitudinal slab dimensions are measured horizontally.
For Light Blister Reinforcing and Details, see Sheet No. B23-31.
For Slab Drain details, see Sheet No. B23-23

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SLAB PLAN SHOWING TOP REINFORCEMENT

Detailed MAY 2025
Checked JUN 2025

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

BENJAMIN LICHTY NUMBER PE-2023038803
PROFESSIONAL ENGINEER ★ STATE OF MISSOURI ★
10-08-2025

DATE PREPARED 09/22/2025
ROUTE I-70 | STATE MO
DISTRICT BR | SHEET NO. B23-26
COUNTY JACKSON
JOB NO. J4I1486D
CONTRACT ID. 240807-C01
PROJECT NO.
BRIDGE NO. A9634

DATE	DESCRIPTION
09/22/25	REV 0 - RFC SUBMITTAL

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
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1-888-ASK-MODOT (1-888-275-6636)

CLARKSON RADMACHER JOINT VENTURE
715 KIRK DRIVE
KANSAS CITY, MO 64105-1310
CERTIFICATE OF AUTHORITY NO. 001270
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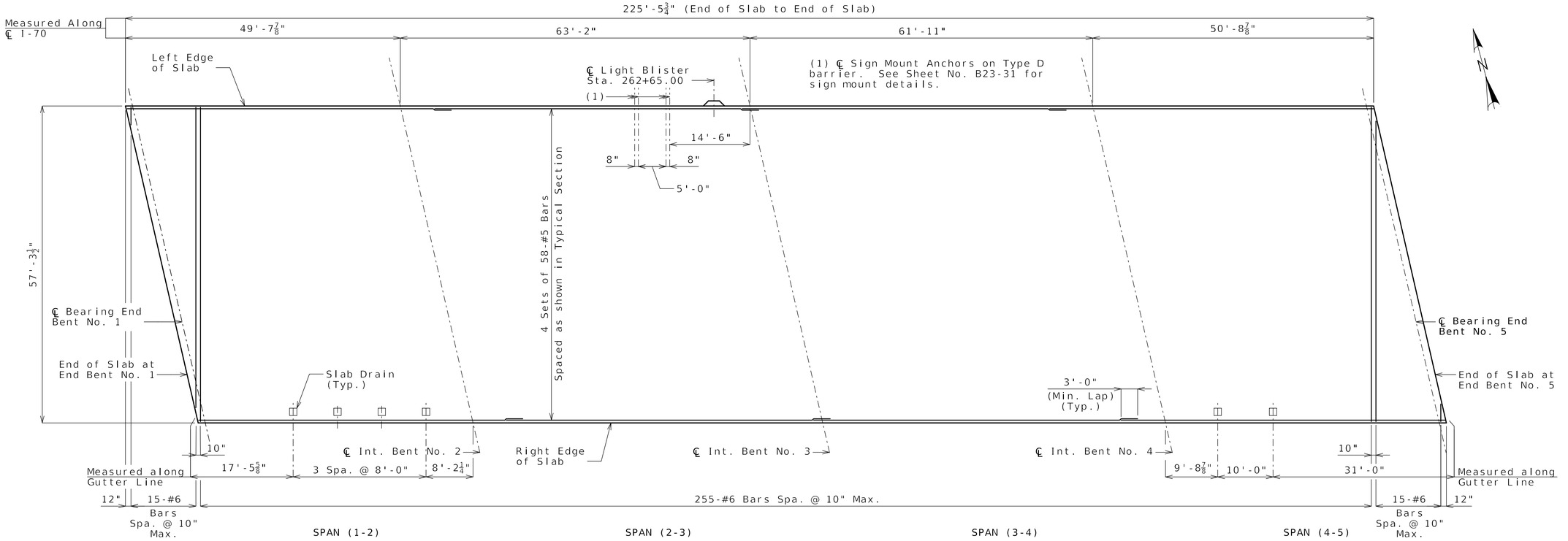
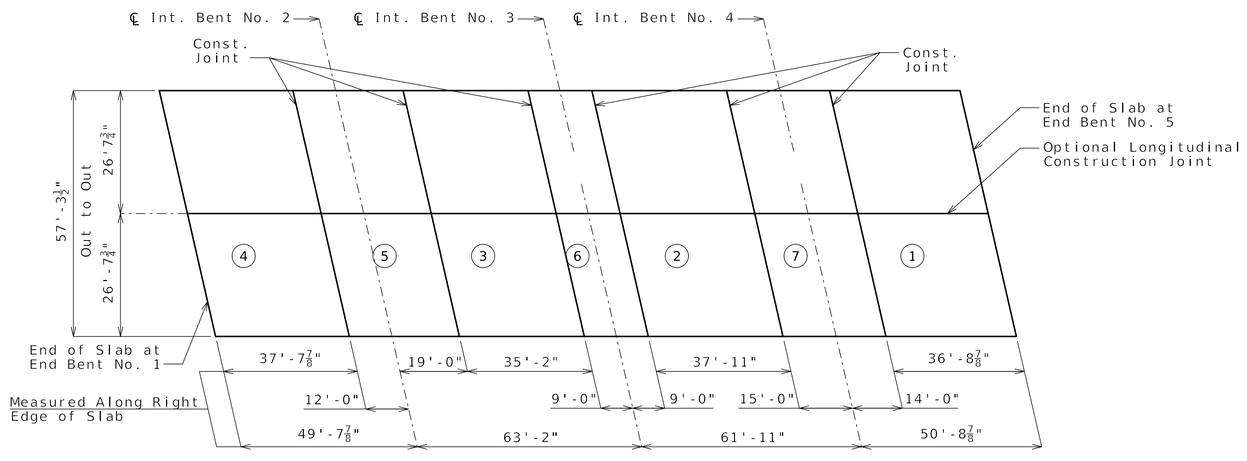


BOTTOM REINFORCEMENT



SLAB POURING SEQUENCE

	Sequence of Pours	Min. Rate of Pour Cu. Yds./Hr.
	Direction	With Retarder
Basic Sequence	1 7 2 6 3 5 4 Either Direction	25*
Alternate pours to the basic skip sequence are subject to the approval of the engineer in accordance with Sec 703.		
Alternate A Pours	1 | 7 + 2 | 6 + 3 | 5 + 4 End to 7 | 1 to 6 | 2 to 5 | 3 to End	28
Alternate B Pours	1 + 7 + 2 | 6 + 3 | 5 + 4 End to 6 | 2 to 5 | 3 to End	28
Alternate C Pours	1 + 7 + 2 | 6 + 3 + 5 + 4 End to 6 | 2 to End	28
Alternate D Pours	1 + 7 + 2 + 6 + 3 + 5 + 4 End to End	28

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

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

*A minimum finishing rate of 20 LF/HR shall be maintained, otherwise the optional longitudinal construction joint shall be required.

Notes:
Work this sheet with Sheet No. B23-26.
For Slab Drain details, see Sheet No. B23-23.

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Date: 10/10/2025
Package: BRD-23-WB70-Van Brunt

SLAB PLAN SHOWING BOTTOM REINFORCEMENT

Detailed MAY 2025
Checked JUN 2025

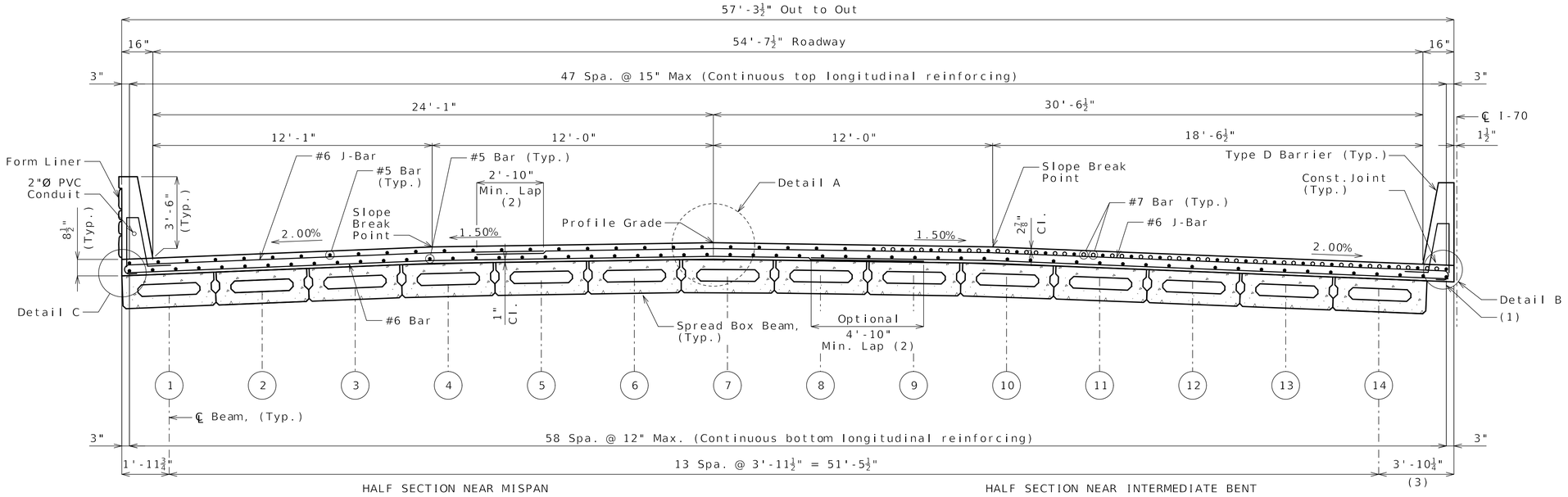
Note: This drawing is not to scale. Follow dimensions.

BENJAMIN LICHTY NUMBER PE-2023038803
PROFESSIONAL ENGINEER
STATE OF MISSOURI
10-08-2025

DATE PREPARED 09/22/2025
ROUTE I-70 | STATE MO
DISTRICT BR | SHEET NO. B23-27
COUNTY JACKSON
JOB NO. J4I1486D
CONTRACT ID. 240807-C01
PROJECT NO.
BRIDGE NO. A9634

DESCRIPTION	DATE
REV 0 - RFC SUBMITTAL	09/22/25

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)
CLARKSON RADMACHER JOINT VENTURE
715 KIRK DRIVE
KANSAS CITY, MO 64105-1310
CERTIFICATE OF AUTHORITY NO. 001270
HNTB

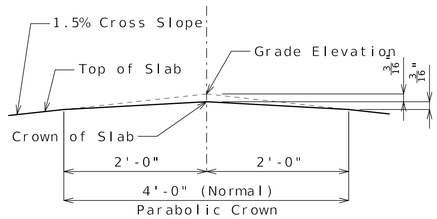


TYPICAL SECTION
(Looking Ahead Sta.)

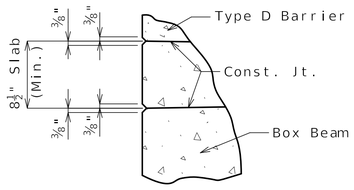
(2) Additional lap locations can be added as needed to accommodate cross slope breaks.

(1) Slab drainings in Span (1-2) and span (4-5) not shown. (See Sheets No. B23-23 and B23-27 for details and locations.)

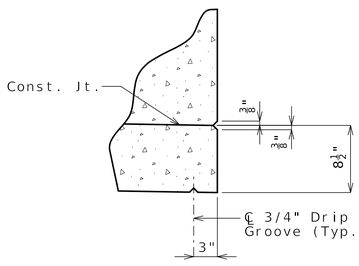
(3) The overhang dimension can be reduced to accommodate allowable beam fabrication and erection tolerances, Position of Type D Barrier to remain as detailed relative to roadway.



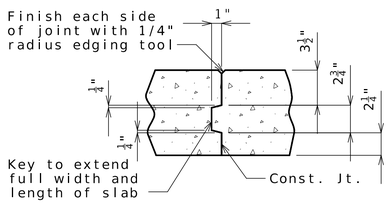
DETAIL A
(Crown is located 32'-0" left of ℄ I-70)



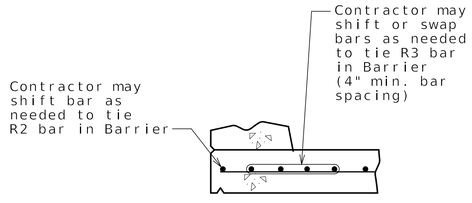
DETAIL C



DETAIL B



SLAB CONSTRUCTION JOINT



OPTIONAL SHIFTING TOP BARS AT BARRIER

Notes:
Cant #6 transverse hooked bars as needed to provide clearance.
For Slab Plan showing Top and Bottom Reinforcement, see Sheets No. B23-26 and B23-27.
For reinforcement of Type D Barrier not shown, see Sheet No. B23-29.
For Details of Conduit System on Structure, see Sheet No. B23-33.
For Form Liner and Aesthetic Stain Details not shown, see Sheet No. B23-32.
For Slab Drain Details, see Sheet No. B23-23.

(X) Denotes beam number.

SLAB DETAILS

Detailed MAY 2025
Checked JUN 2025

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

BENJAMIN LICHTY NUMBER PE-2023038803 — STATE OF MISSOURI — PROFESSIONAL ENGINEER
10-08-2025

DATE PREPARED: 09/22/2025
ROUTE: I-70 | STATE: MO
DISTRICT: BR | SHEET NO.: B23-28
COUNTY: JACKSON
JOB NO.: J4I1486D
CONTRACT ID.: 240807-C01
PROJECT NO.:
BRIDGE NO.: A9634

DESCRIPTION	DATE
REV 0 - RFC SUBMITTAL	09/22/25

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MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
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JEFFERSON CITY, MO 65102
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CLARKSON RADMACHER JOINT VENTURE
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KANSAS CITY, MO 64105-1310
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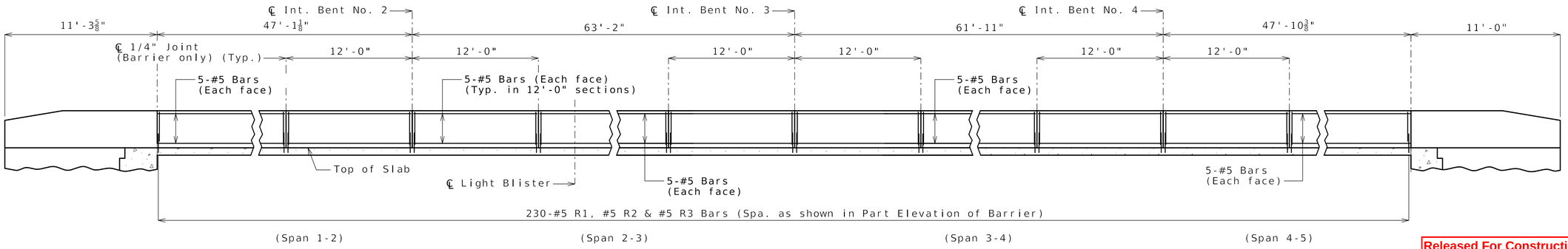
HNTB



ELEVATION OF LEFT BARRIER

Longitudinal dimensions are horizontal and measured along the outside of slab.

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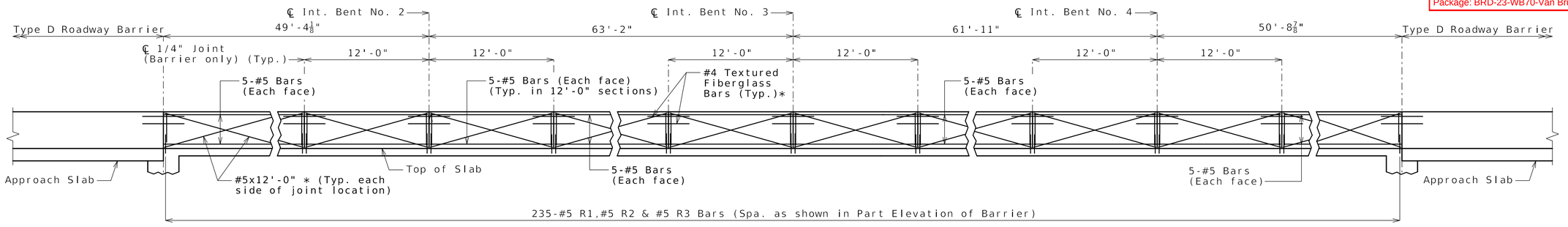
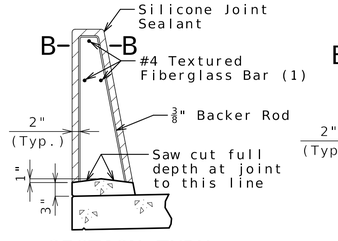
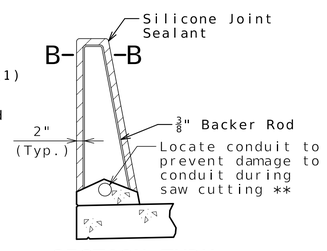


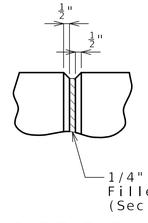


SECTION THRU SAW CUT JOINT
(Right Barrier)



SECTION THRU SAW CUT JOINT
(Left Barrier)

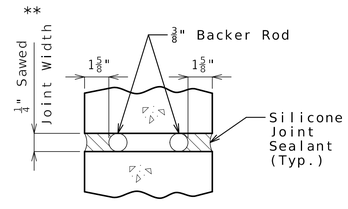
(Form liner and aesthetic details not shown.)



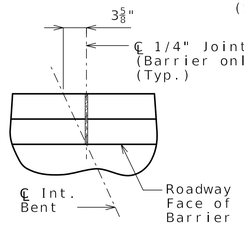
PART ELEVATION AT FORMED JOINT

ELEVATION OF RIGHT BARRIER

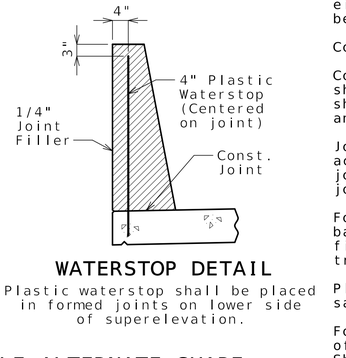
Longitudinal dimensions are horizontal and measured along the outside of slab.



SECTION B-B



PART PLAN SHOWING JOINT LOCATION



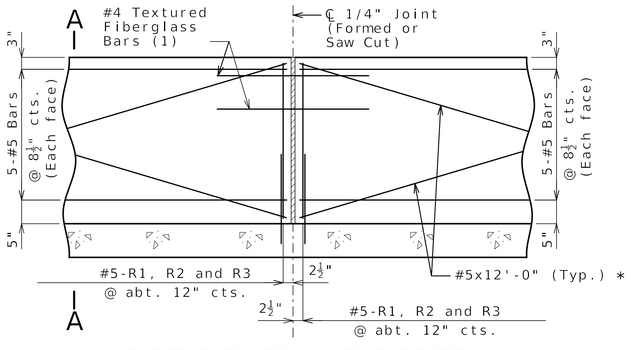
R-BAR PERMISSIBLE ALTERNATE SHAPE

(Form liner aesthetic details on left barrier not shown.)

(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.)

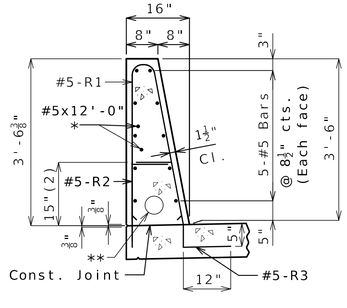
WATERSTOP DETAIL

Plastic waterstop shall be placed in formed joints on lower side of superelevation.



PART ELEVATION OF BARRIER

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



SECTION A-A

(Form liner aesthetic details on left barrier not shown.)

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

(2) To top of bar

General Notes:

* Right Barrier Slip-formed option only.

** 2" Ø PVC Conduit (Left barrier only) For Details of Conduit System on Structure, see Sheet No. B23-33.

Conventional forming or slip forming may be used with right barrier. Conventional forming shall be used with left barrier. Saw cut joints may be use 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.

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.

For Form Liner and Aesthetic Stain details of left barrier not shown, see Sheet No. B23-32.

For Light Blister details, see Sheet No. B23-31.

TYPE D BARRIER

BENJAMIN LICHTY NUMBER PE-2023038803
STATE OF MISSOURI * PROFESSIONAL ENGINEER *
10-08-2025

DATE PREPARED 09/22/2025
ROUTE I-70 | STATE MO
DISTRICT BR | SHEET NO. B23-29
COUNTY JACKSON
JOB NO. J4I1486D
CONTRACT ID. 240807-C01
PROJECT NO.
BRIDGE NO. A9634

DATE	DESCRIPTION
09/22/25	REV 0 - RFC SUBMITTAL

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CERTIFICATE OF AUTHORITY NO. 001270
HNTB

Detailed MAY 2025
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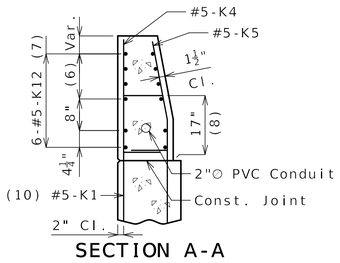
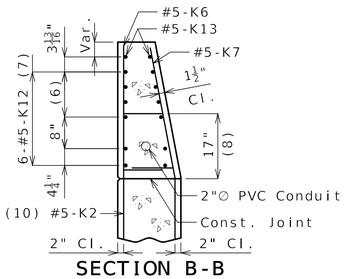
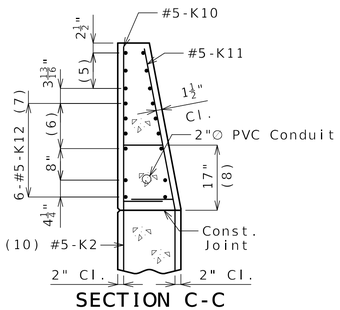


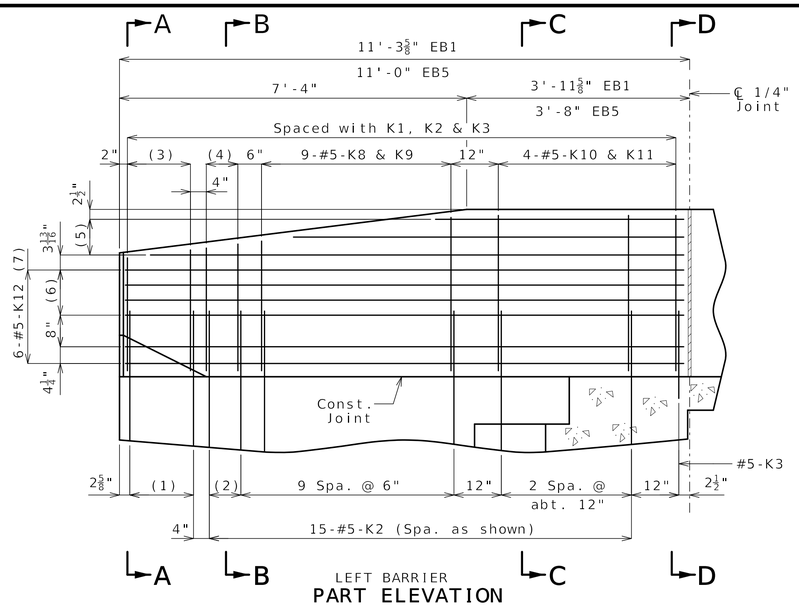
SECTION A-A



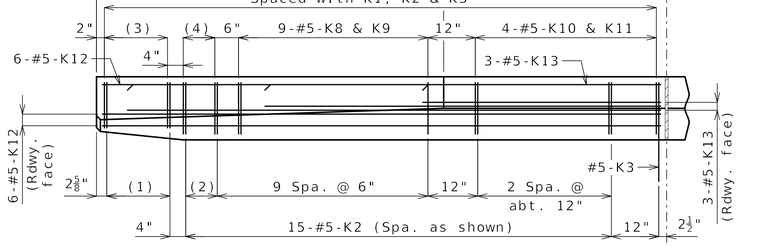
SECTION B-B



SECTION C-C

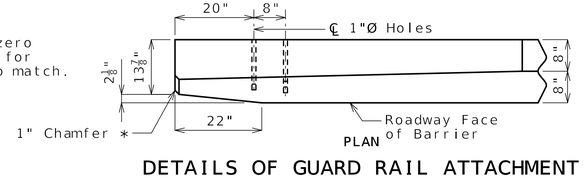


LEFT BARRIER
PART ELEVATION



LEFT BARRIER
PART PLAN

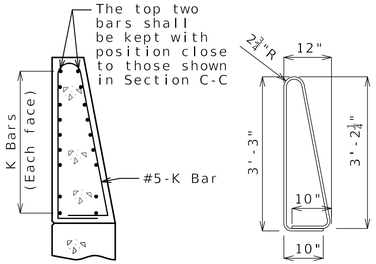
* Transition to zero at Type A curb for gutter lines to match.



PLAN

DETAILS OF GUARD RAIL ATTACHMENT

SECTION D-D



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.

PVC conduit in barrier not shown.

(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

(9) 2 spaces @ 4½"

(10) Minimum embedment into wingwall is 2'-9"

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.

For Form Liner and Aesthetic Stain details of left barrier not shown, see Sheet No. B23-32.

EB1 denotes End Bent No. 1
EB5 denotes End Bent No. 5

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

Released For Construction
Not to Scale
Revision: 0.0
Date: 10/10/2025
Package: BRD-23-WB70-Van Brunt

TYPE D BARRIER AT END BENTS

Detailed MAY 2025
Checked JUN 2025

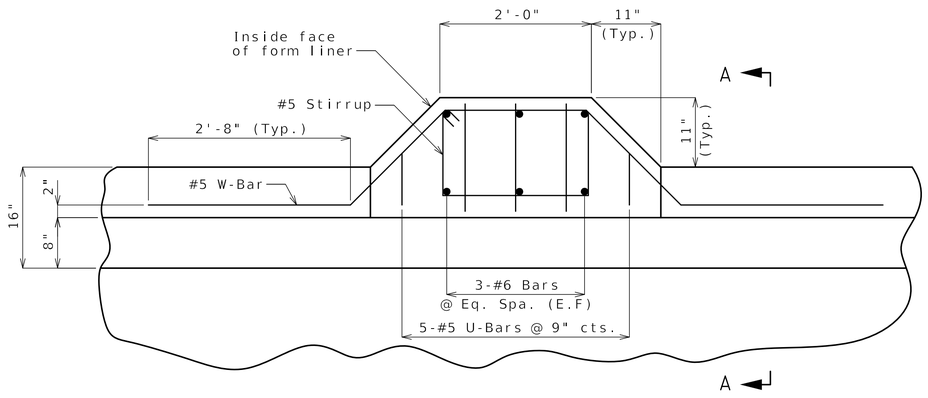
Note: This drawing is not to scale. Follow dimensions.

BENJAMIN LICHTY NUMBER PE-2023038803
PROFESSIONAL ENGINEER ★ STATE OF MISSOURI ★
10-08-2025

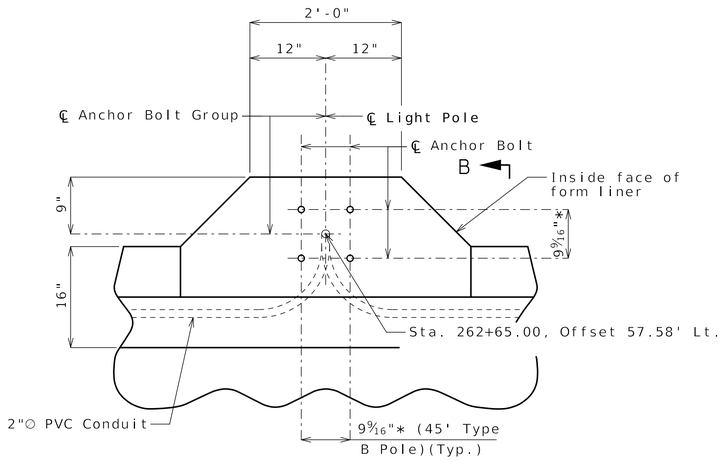
DATE PREPARED	09/22/2025
ROUTE	I-70
STATE	MO
DISTRICT	BR
SHEET NO.	B23-30
COUNTY	JACKSON
JOB NO.	J4I1486D
CONTRACT ID.	240807-C01
PROJECT NO.	
BRIDGE NO.	A9634

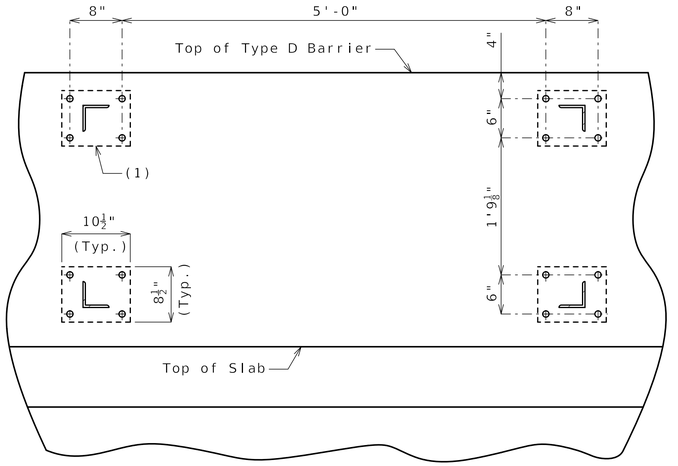
DATE	DESCRIPTION
09/22/25	REV 0 - RFC SUBMITTAL

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)
CLARKSON RADMACHER JOINT VENTURE
715 KIRK DRIVE
KANSAS CITY, MO 64105-1310
CERTIFICATE OF AUTHORITY NO. 001270
HNTB



LIGHT POLE MOUNTING PLAN SHOWING REINFORCEMENT





(1) Area of barrier not to receive form liner treatment (Typ.). Minimum area shall be equal to area of existing sign mount plates.

SIGN MOUNT ANCHOR LAYOUT

(Form liner not shown)

Sign Support Notes:

Relocate existing sign support from existing bridge barrier to back of Type D barrier.

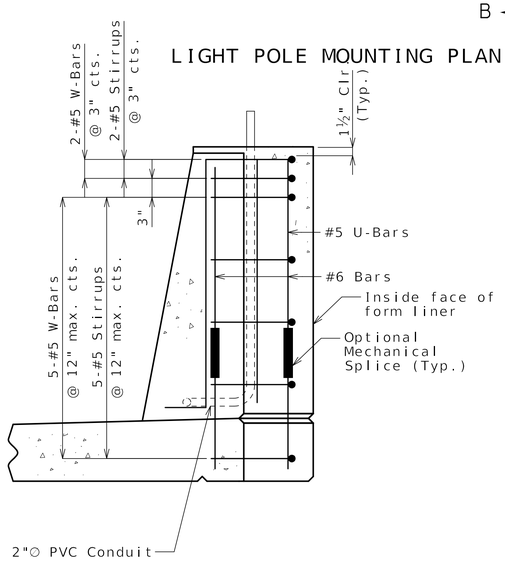
Dimensions of the sign support anchor layout are based on existing plans. Contractor shall verify dimensions in field before beginning work.

Anchors shall be a drilled cone expansion or a cast-in-place wing type threaded insert. The minimum ultimate pullout capacity for these anchors shall be 2700 lbs in f'c = 4000 psi concrete. Lead anchors will not be permitted. Holes in the barrier for anchors shall not be drilled until the concrete is at least 7 days old.

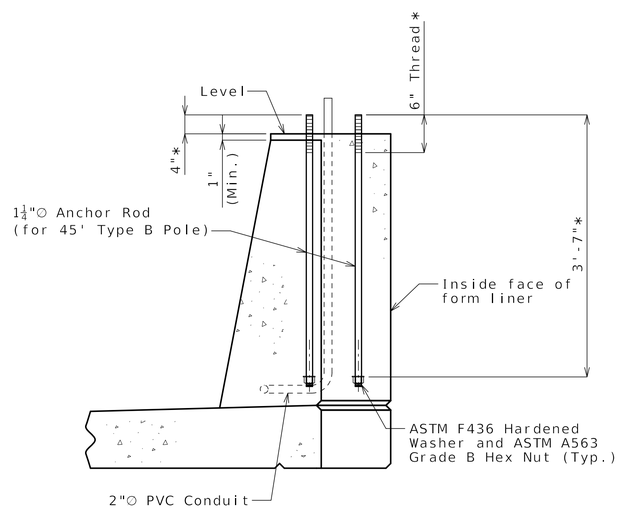
For location of sign mount anchors, see Sheet No. B23-27.

For form liner and aesthetic details not shown, see Sheet No. B23-32.

LIGHT POLE MOUNTING PLAN



SECTION A-A



SECTION B-B

Released For Construction
Not to Scale
Revision: 0.0
Date: 10/10/2025
Package: BRD-23-WB70-Van Brunt

Light Blister Notes:

* Contractor shall confirm dimension with light pole manufacturer before setting anchor bolts.

Anchor bolts and nuts shall be ASTM F1554 Grade 55. Anchor bolts, nuts and washers shall be galvanized in accordance with AASHTO M 232 (ASTM A153), Class C or ASTM B695, Class 55.

Top of light standard supports shall be made horizontal; anchor rods shall be placed vertically.

Contractor has the option to splice vertical bars with mechanical bar splices. Mechanical bar splices shall be in accordance with Sec 710.

For locations of light blister, see Sheets No. B23-26 and B23-27.

For Form Liner and Aesthetic Stain Details not shown, see Sheet No. B23-32.

LIGHT BLISTER AND SIGN MOUNT DETAILS

Detailed MAY 2025
Checked JUN 2025

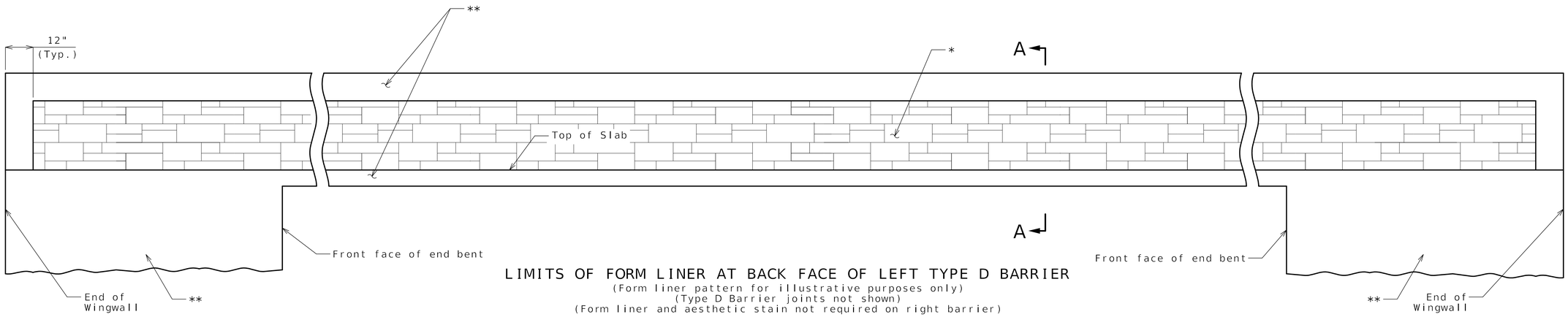
Note: This drawing is not to scale. Follow dimensions.

BENJAMIN LICHTY NUMBER PE-2023038803
STATE OF MISSOURI * PROFESSIONAL ENGINEER *
10-08-2025

DATE PREPARED 09/22/2025
ROUTE I-70 | STATE MO
DISTRICT BR | SHEET NO. B23-31
COUNTY JACKSON
JOB NO. J4I1486D
CONTRACT ID. 240807-C01
PROJECT NO.
BRIDGE NO. A9634

DATE	DESCRIPTION
09/22/25	REV 0 - RFC SUBMITTAL

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)
CLARKSON RADMACHER JOINT VENTURE
715 KIRK DRIVE
KANSAS CITY, MO 64105-1310
CERTIFICATE OF AUTHORITY NO. 001270
HNTB



LIMITS OF FORM LINER AT BACK FACE OF LEFT TYPE D BARRIER

(Form liner pattern for illustrative purposes only)
(Type D Barrier joints not shown)
(Form liner and aesthetic stain not required on right barrier)

Form Liner and Aesthetic Concrete Stain for bridges are not a part of the base contract and are not yet contracted for this Project with MoDOT.

General Notes:

**Concrete and masonry protective coating and sacrificial graffiti protective coating shall be applied in accordance with Sec 711 to surfaces to receive form liner treatment and as noted in details on this sheet.

Protective coatings shall be compatible with Aesthetic Concrete Stain.

Concrete Form Liner Notes:

Form liner shall be constructed in accordance with Special Provisions.

The following is a list of form liner manufacturers and types which may be used. Depth of relief for all form liner pattern's shall vary up to 1 1/2". The height of any single "stone" shall be 15" maximum.

-Scott System, Inc.: Form liner pattern #167 "Ashlar Stone"

-Fitzgerald Formliners: Form liner pattern #16986 "Ashlar Stone"

-Greenstreak: Form liner pattern #330 "Ashlar Stone"

-Spec Formliners: Form liner pattern #1515 "Ashlar Stone"

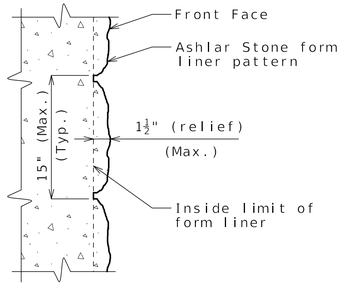
-Customrock: Form liner pattern #12020 "Tollway Ashlar"

-An approved equal

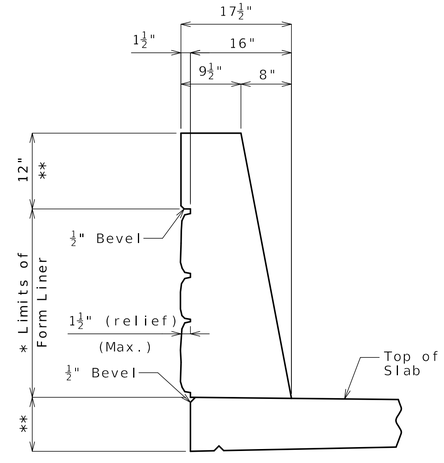
Aesthetic Concrete Stain Notes:

* Surface to receive Aesthetic Concrete Stain. The color shall be Federal Standard #37150.

Aesthetic Concrete Stain shall be applied in accordance with Sec 711 as shown in the plans.



FORM LINER DETAIL



SECTION A-A

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Date: 10/10/2025
Package: BRD-23-WB70-Van Brunt

FORM LINER AND AESTHETIC STAIN DETAILS

Detailed MAY 2025
Checked JUN 2025

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

BENJAMIN LICHTY
NUMBER PE-2023038803
PROFESSIONAL ENGINEER ★ STATE OF MISSOURI ★
10-08-2025

DATE PREPARED 09/22/2025
ROUTE I-70 | STATE MO
DISTRICT BR | SHEET NO. B23-32
COUNTY JACKSON
JOB NO. J4I1486D
CONTRACT ID. 240807-C01
PROJECT NO.
BRIDGE NO. A9634

DATE	DESCRIPTION
09/22/25	REV 0 - RFC SUBMITTAL

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
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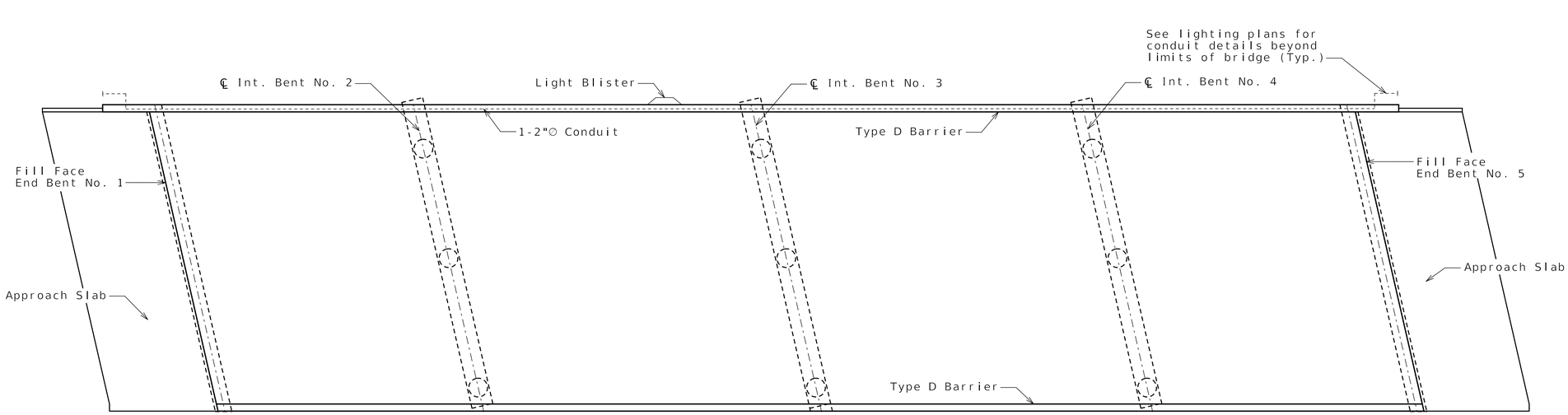
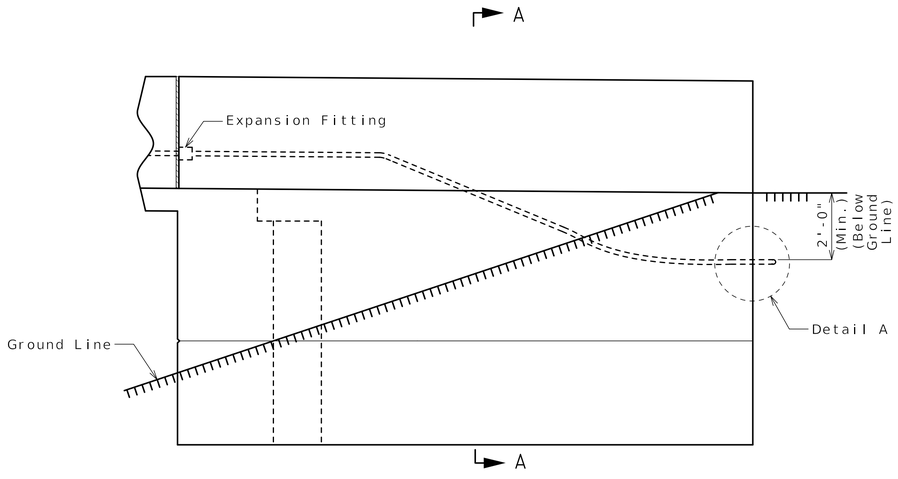
715 KIRK DRIVE
KANSAS CITY, MO 64105-1310
CERTIFICATE OF AUTHORITY NO. 001270

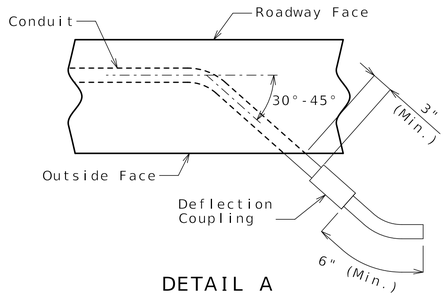
HNTB



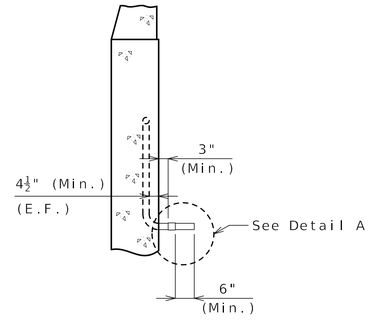
PLAN OF CONDUIT SYSTEM



PART WINGWALL ELEVATION



DETAIL A



PART SECTION A-A

Notes:

All conduit shall be rigid non-metallic schedule 40 heavy wall PVC (polyvinyl chloride plastic) with 3½" minimum cover in barrier and 4½" minimum cover in wingwall. Each section of conduit shall bear the Underwriters laboratories (UL) label.

Shift reinforcing steel in field where necessary to clear conduit.

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 movement of 1 inch at filled joints using a maximum temperature range of 120°F and a maximum temperature of 110°F.

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 in accordance with Sec 707. All conduits shall be sloped to drain where possible.

For additional form liner details not shown see Sheet No. B23-32.

Released For Construction
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Date: 10/10/2025
Package: BRD-23-WB70-Van Brunt

DETAILS OF CONDUIT SYSTEM ON STRUCTURE

Detailed MAY 2025
Checked JUN 2025

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

BENJAMIN LICHTY NUMBER PE-2023038803
STATE OF MISSOURI ★ PROFESSIONAL ENGINEER ★
10-08-2025

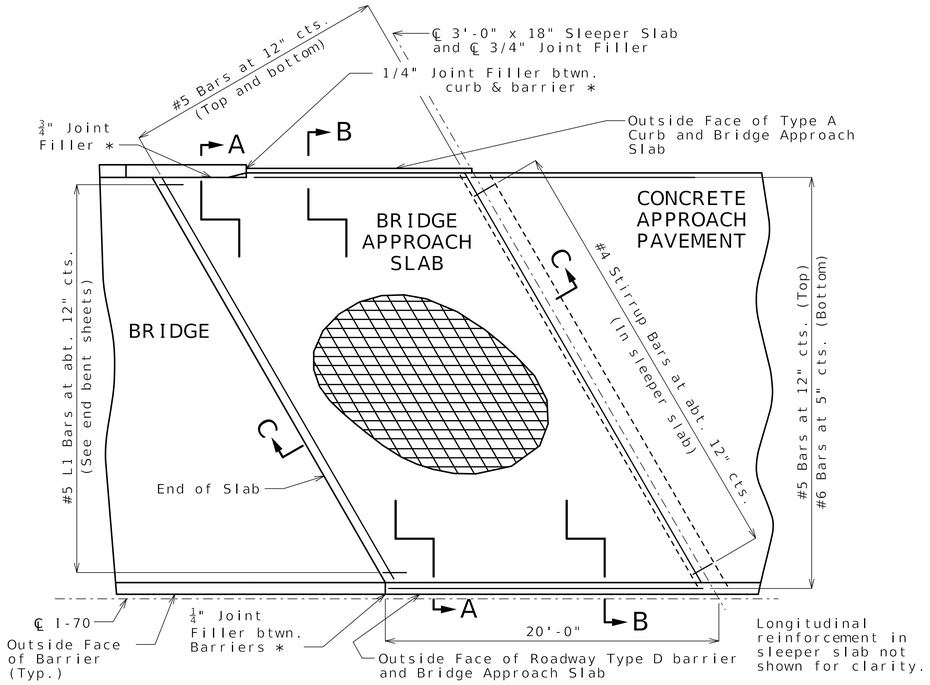
DATE PREPARED 09/22/2025
ROUTE I-70 | STATE MO
DISTRICT BR | SHEET NO. B23-33
COUNTY JACKSON
JOB NO. J4I1486D
CONTRACT ID. 240807-C01
PROJECT NO.
BRIDGE NO. A9634

DESCRIPTION	DATE
REV 0 - RFC SUBMITTAL	09/22/25

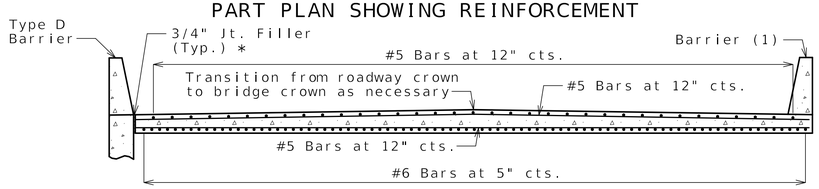
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

CLARKSON RADMACHER JOINT VENTURE
715 KIRK DRIVE
KANSAS CITY, MO 64105-1310
CERTIFICATE OF AUTHORITY NO. 001270

HNTB

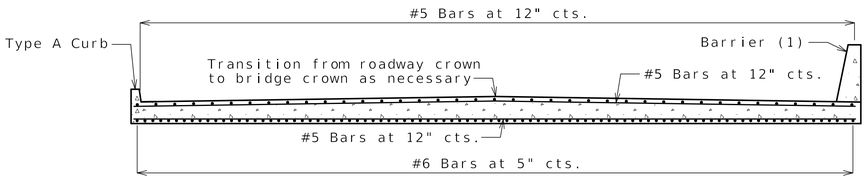


PART PLAN SHOWING REINFORCEMENT



SECTION A-A

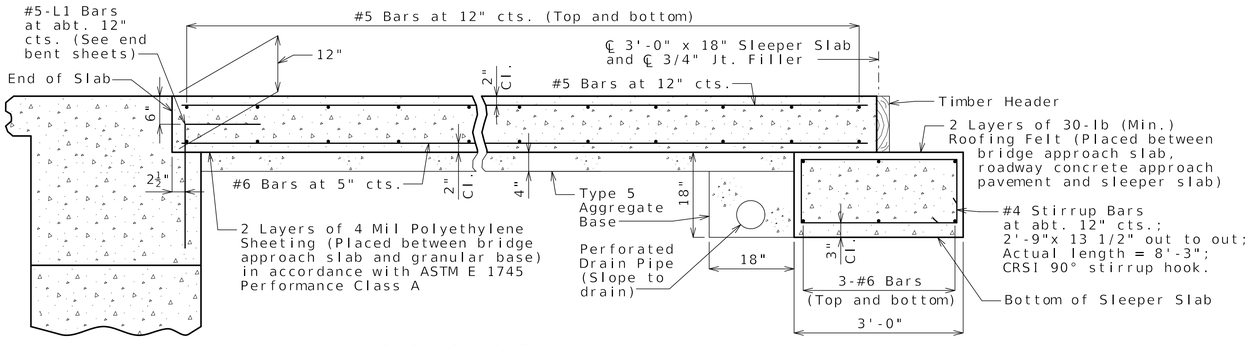
(End Bent No. 5 shown, End Bent No. 1 opposite hand)



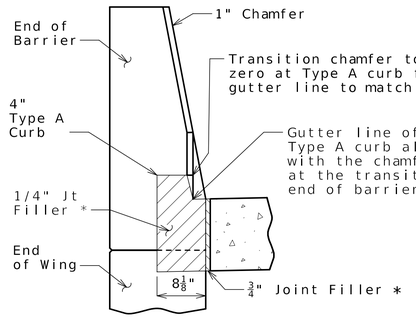
SECTION B-B

(End Bent No. 5 shown, End Bent No. 1 opposite hand)

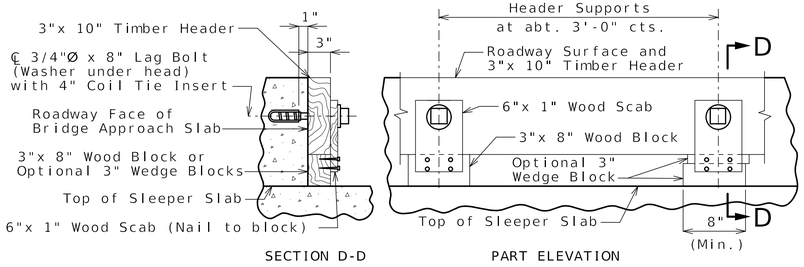
(1) See roadway standard plans 617.10M.



SECTION C-C



SECTION BETWEEN CURB AND BARRIER



SECTION D-D PART ELEVATION

DETAILS OF TIMBER HEADER

Remove timber header when concrete pavement is placed.

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 29 inches for #5 bars and 44 inches for #6 bars, or by mechanical bar splice.

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

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

Released For Construction
Not to Scale
Revision: 0.0
Date: 10/10/2025
Package: BRD-23-WB70-Van Brunt

BRIDGE APPROACH SLAB (MAJOR)

Detailed MAY 2025
Checked JUN 2025

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

BENJAMIN LICHTY NUMBER PE-2023038803
STATE OF MISSOURI * PROFESSIONAL ENGINEER *
10-08-2025

DATE PREPARED 09/22/2025

ROUTE	STATE
I-70	MO
DISTRICT	SHEET NO.
BR	B23-34

COUNTY JACKSON

JOB NO. J4I1486D

CONTRACT ID. 240807-C01

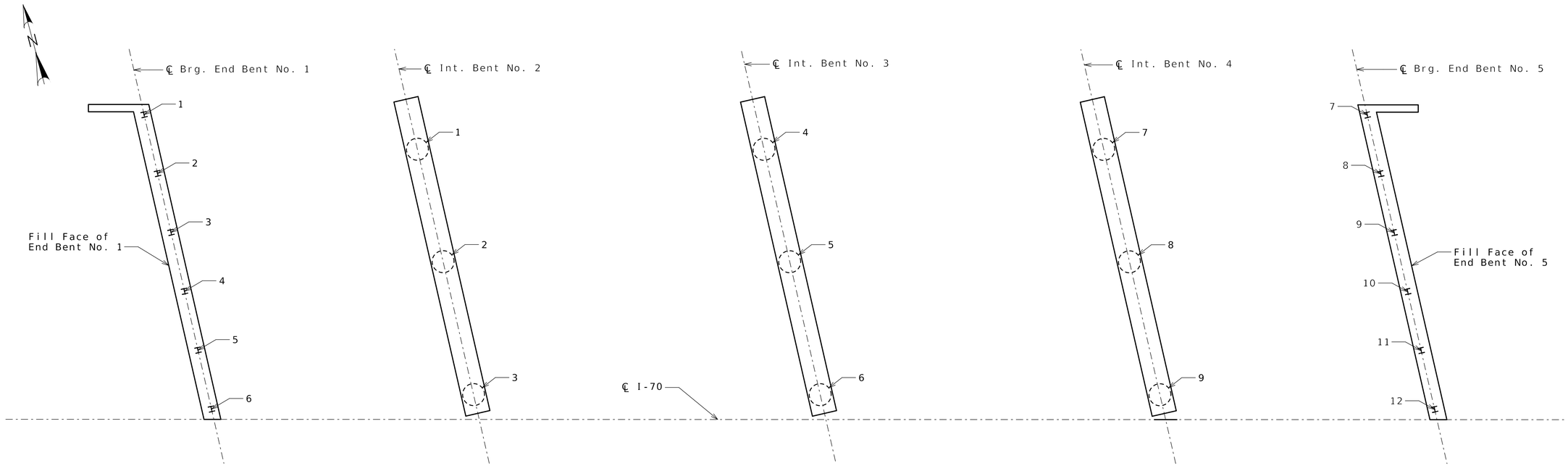
PROJECT NO.

BRIDGE NO. A9634

DATE	DESCRIPTION
09/22/25	REV 0 - RFC SUBMITTAL

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

CLARKSON RADMACHER JOINT VENTURE
715 KIRK DRIVE
KANSAS CITY, MO 64105-1310
CERTIFICATE OF AUTHORITY NO. 001270
HNTB



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

As-Built Pile Data

Pile No.	Length in Place (ft)	Computed Nominal Axial Compressive Resistance (kips)	Remarks
			End Bent No. 1
1			
2			
3			
4			
5			
6			
			End Bent No. 5
7			
8			
9			
10			
11			
12			

As-Built Drilled Shaft Data

Shaft No.	Top of Sound Rock (Elev.)	Tip of Casing (Elev.)	Remarks
			Intermediate Bent No. 2
1			
2			
3			
			Intermediate Bent No. 3
4			
5			
6			
			Intermediate Bent No. 4
7			
8			
9			

Note:

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

Note:
This sheet to be completed by design-builder.

Released For Construction
Not to Scale
Revision: 0.0
Date: 10/10/2025
Package: BRD-23-WB70-Van Brunt

AS-BUILT PILE AND DRILLED SHAFT DATA

GINA D. HORNER PE-30413
PROFESSIONAL ENGINEER
STATE OF MISSOURI
Gina D Horner
10-8-2025

DATE PREPARED: 09/22/2025
ROUTE: I-70 | STATE: MO
DISTRICT: BR | SHEET NO.: B23-35
COUNTY: JACKSON
JOB NO.: J4I1486D
CONTRACT ID.: 240807-C01
PROJECT NO.:
BRIDGE NO.: A9634

DATE	DESCRIPTION
09/22/25	REV 0 - RFC SUBMITTAL

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

CLARKSON RADMACHER JOINT VENTURE
715 KIRK DRIVE
KANSAS CITY, MO 64105-1310
CERTIFICATE OF AUTHORITY NO. 001270

HNTB

Detailed MAY 2025
Checked JUN 2025

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

HNTB

SOIL BORING NUMBER: VB_B1_2

Page 1 of 2

PROJECT Improve I 70 KC Design Build
DRILLING FIRM PPI **DRILLER** Ray A.
LOGGED BY Cameron Dupont
SURFACE ELEVATION 822.3'
METHOD Auger, Water Rotary, NQ Core

NORTHING/EASTING 1057804.8 / 2782985.5
DATE STARTED 02/27/2025
DATE COMPLETED 02/27/2025
RIG TYPE CME-55
TOOLING 3-3/4" Tricone, 1-1/2" AWJ

Groundwater Data	
During Drilling (ft):	N/A
After Drilling (ft):	N/A
After __ Hours (ft):	N/A

Depth (ft)	Depth of Sample	Sample Type	Sample ID	Recovery Length (in)	Blow Counts (N-Value)	% Recovery	RQD (%)	Pocket Pen (tsf)	Graphic Log	Visual Classification and Remarks	Lab: Atterberg Limits (LL-PL-PI)	Lab: Moisture Content (%)	Lab: Dry Density (PCF)	Lab: UCS (tsf)
										ASPHALT 0.3 822				
										CONCRETE 1.3 821				
5	3 ft		U-1	18		75		1.5		FILL, gray, stiff, moist, fine to medium grained, SANDY LEAN CLAY with GRAVEL (CL), mottled, with gravel	47-19-28	23.5	103.3	4.34
10	8 ft / 9.7 ft		J-1	9	3-4-14 (18)	50				9.5 812.8				
			J-2	9	26-41-15 (56)	50		>4.5		Gray, stiff, moist, fine to medium grained, SANDY LEAN CLAY (CL), mottled, with gravel				
										- 1.3' limestone boulder at 9.7'				
15	13 ft		J-3	14	21-12-9 (21)	78		3.5		- no gravel at 11'	39-21-18	23.3		
										- thin, highly weathered shale pieces throughout from 13-14.5' 17.0 805.3				
20	18 ft		J-4	18	3-4-5 (9)	100		2.5		Gray, very stiff, moist, LEAN CLAY (CL), silty, slight mottling				
25	23 ft		J-5	18	1-2-3 (5)	100		1.5			36-20-16	28.8		
30	28 ft		J-6	18	7-3-2 (5)	100		1.0		- becomes stiff, some gravel at 28' 31.3 791				
	33 ft		J-7	18	13-26-38 (64)	100		>4.5		Shale, highly weathered, dark gray, moderately hard, some sand 34.5 787.8				
35	35 ft		C-1	60		100	64			Shaley limestone, highly weathered, gray, soft, transitional material				

HNTB

SOIL BORING NUMBER: VB_B1_2

Page 2 of 2

PROJECT Improve I 70 KC Design Build
DRILLING FIRM PPI **DRILLER** Ray A.
LOGGED BY Cameron Dupont
SURFACE ELEVATION 822.3'
METHOD Auger, Water Rotary, NQ Core

NORTHING/EASTING 1057804.8 / 2782985.5
DATE STARTED 02/27/2025
DATE COMPLETED 02/27/2025
RIG TYPE CME-55
TOOLING 3-3/4" Tricone, 1-1/2" AWJ

Groundwater Data	
During Drilling (ft):	N/A
After Drilling (ft):	N/A
After __ Hours (ft):	N/A

Depth (ft)	Depth of Sample	Sample Type	Sample ID	Recovery Length (in)	Blow Counts (N-Value)	% Recovery	RQD (%)	Pocket Pen (tsf)	Graphic Log	Visual Classification and Remarks	Lab: Atterberg Limits (LL-PL-PI)	Lab: Moisture Content (%)	Lab: Dry Density (PCF)	Lab: UCS (tsf)
40	40 ft		C-1	60		100				Limestone, slightly weathered, gray, moderately hard		0.3	164.1	546
			C-2	60		100	98			- becomes slightly weathered to fresh, hard at 40'				
45										45.0 777.3		0.2	170.0	1187
										Bottom of Boring at 45'				
50										Boring backfilled with cuttings and patched with asphalt 2/27/25				
55														
60														
65														
70														

STATE OF MISSOURI
WILLIAM JOSEPH STURGEON
PE-2014017021
PROFESSIONAL ENGINEER
10/8/2025

DATE PREPARED 09/22/2025
ROUTE I-70 | STATE MO
DISTRICT BR | SHEET NO. B23-36
COUNTY JACKSON
JOB NO. J4I1486D
CONTRACT ID. 240807-C01
PROJECT NO.
BRIDGE NO. A9634

DATE	DESCRIPTION
09/22/25	REV 0 - RFC SUBMITTAL

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

CLARKSON RADMACHER JOINT VENTURE
715 KIRK DRIVE
KANSAS CITY, MO 64105-1310
CERTIFICATE OF AUTHORITY NO. 001270

HNTB

Released For Construction
Not to Scale
Revision: 0.0
Date: 10/10/2025
Package: BRD-23-WB70-Van Brunt

Notes:
For locations of borings, see Sheet No. B23-02 and Geotechnical Report.

BORING LOGS

Detailed MAY 2025
Checked JUN 2025

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

SOIL BORING NUMBER: VB_B2_2

PROJECT Improve I 70 KC Design Build
DRILLING FIRM PPI **DRILLER** Ron Davis
LOGGED BY Cameron Dupont
SURFACE ELEVATION 803'*
METHOD Auger, NQ Core
NORTHING/EASTING 1057740.4 / 2783057.8
DATE STARTED 01/31/2025
DATE COMPLETED 01/31/2025
RIG TYPE CME-55
TOOLING 3-3/4" Tricone, 1-1/2" AWJ

Groundwater Data	
During Drilling (ft):	N/A
After Drilling (ft):	N/A
After __ Hours (ft):	N/A

Depth (ft)	Depth of Sample	Sample Type	Sample ID	Recovery Length (in)	Blow Counts (N-Value)	% Recovery	RQD (%)	Pocket Pen (tsf)	Graphic Log	Visual Classification and Remarks	Lab: Atterberg Limits (LL-PL-PI)	Lab: Moisture Content (%)	Lab: Dry Density (PCF)	Lab: UCS (tsf)
	3 ft									FILL, brown, stiff, moist, LEAN CLAY (CL), trace organics				
5			U-1	22		92		1.5			41-21-20	24.7	99.5	2.17
	8 ft													
			J-1	10	5-5-5 (10)	56		1.5				22.1		
10										- some fine to medium sand at 9'				
	13 ft									12.0 791				
			J-2	18	10-10-13 (23)	100		>4.5		Clayey shale, highly weathered, dark gray, moderately hard, residual, some chert, moist		26.8		
15														
	16 ft		J-3	0	50/0" (50)	0				16.0 787				
	16.3 ft		C-1	42		95	50			Limestone, weathered to highly weathered, gray, hard, moist, thin shale seams throughout		0.7	158.2	353
20	19.9 ft		C-2	60		100	80			- becomes slightly weathered at 19.5'		0.2	164.6	1310
25	24.9 ft		C-3	60		100	97					0.2	166.0	1241
30	29.9 ft		C-4	60		100	93					7.0	143.4	148
	34.9 ft													

* Survey not possible due to boring location. Coordinates estimated from visual inspection. Elevation estimated from contour map.

SOIL BORING NUMBER: VB_B2_2

PROJECT Improve I 70 KC Design Build
DRILLING FIRM PPI **DRILLER** Ron Davis
LOGGED BY Cameron Dupont
SURFACE ELEVATION 803'*
METHOD Auger, NQ Core
NORTHING/EASTING 1057740.4 / 2783057.8
DATE STARTED 01/31/2025
DATE COMPLETED 01/31/2025
RIG TYPE CME-55
TOOLING 3-3/4" Tricone, 1-1/2" AWJ

Groundwater Data	
During Drilling (ft):	N/A
After Drilling (ft):	N/A
After __ Hours (ft):	N/A

Depth (ft)	Depth of Sample	Sample Type	Sample ID	Recovery Length (in)	Blow Counts (N-Value)	% Recovery	RQD (%)	Pocket Pen (tsf)	Graphic Log	Visual Classification and Remarks	Lab: Atterberg Limits (LL-PL-PI)	Lab: Moisture Content (%)	Lab: Dry Density (PCF)	Lab: UCS (tsf)
			C-5	60		100	64			Limestone, weathered to highly weathered, gray, hard, moist, thin shale seams throughout		0.2	163.0	1343
40	39.9 ft									36.7 766.3				
			C-6	60		100	77			Shale, slightly weathered, dark gray, hard, moist		0.6	162.2	1335
45	44.9 ft									39.5 763.5				
			C-7	60		100	100			Limestone, fresh, gray, hard, fossiliferous		0.9	161.0	505
50										42.3 760.7				
										Limestone, slightly weathered, gray, hard, fossiliferous, thin shale seams throughout				
55														
										49.9 753.1				
60										Bottom of Boring at 49.9'				
										Boring backfilled with cuttings 1/31/2025				
65														

* Survey not possible due to boring location. Coordinates estimated from visual inspection. Elevation estimated from contour map.

Released For Construction
Not to Scale
Revision: 0.0
Date: 10/10/2025
Package: BRD-23-WB70-Van Brunt

Notes:
For locations of borings, see Sheet No. B23-02 and Geotechnical Report.

BORING LOGS

Detailed MAY 2025
Checked JUN 2025

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

Sheet No. B23-37 of B23-41

WILLIAM JOSEPH STURGEON PE-2014017021 STATE OF MISSOURI PROFESSIONAL ENGINEER
10/8/2025

DATE PREPARED 09/22/2025
ROUTE I-70 | STATE MO
DISTRICT BR | SHEET NO. B23-37
COUNTY JACKSON
JOB NO. J4I1486D
CONTRACT ID. 240807-C01
PROJECT NO.
BRIDGE NO. A9634

DESCRIPTION | DATE
REV 0 - RFC SUBMITTAL | 09/22/25

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

CLARKSON RADMACHER JOINT VENTURE
715 KIRK DRIVE
KANSAS CITY, MO 64105-1310
CERTIFICATE OF AUTHORITY NO. 001270

HNTB

B_A9634_B23-41_J4I1486D.dgn 12:33:19 PM 9/21/2025

SOIL BORING NUMBER: VB_B2_3

PROJECT Improve I 70 KC Design Build
DRILLING FIRM PPI **DRILLER** Eric P.
LOGGED BY Zachary Boyd
SURFACE ELEVATION 803.1'
METHOD Auger, Mud Rotary, NQ Core
NORTHING/EASTING 1057801.4 / 2783053.8
DATE STARTED 01/30/2025
DATE COMPLETED 01/30/2025
RIG TYPE CME-550X
TOOLING 4-1/4" Hollow Stem Auger, 3-3/4" Rotary Drill

Groundwater Data	
During Drilling (ft):	N/A
After Drilling (ft):	N/A
After __ Hours (ft):	N/A

Depth (ft)	Depth of Sample	Sample Type	Sample ID	Recovery Length (in)	Blow Counts (N-Value)	% Recovery	RQD (%)	Pocket Pen (tsf)	Graphic Log	Visual Classification and Remarks	Lab: Atterberg Limits (LL-PL-PI)	Lab: Moisture Content (%)	Lab: Dry Density (PCF)	Lab: UCS (tsf)
										FILL, dark brown, soft to very soft, moist, LEAN CLAY (CL), with gravel, organics				
5	3.5 ft		J-1	0	WOH-WOH-WOH			<0.5			41-21-20	26.8		
										8.5 794.6				
10	10.5 ft		J-2	0	18-9-10 (19)					Brown to gray, loose, WELL-GRADED GRAVEL with CLAY (GW-GC)				
	12.5 ft		C-1	0		0	0			12.5 790.6				
15	15.1 ft		C-2	57		95	67			Shale, highly weathered, light gray, soft				
										17.9 785.2		13.6	116.5	2
20	20.1 ft		C-3	60		100	87			Limestone, highly weathered, light gray, soft to moderately hard, vuggy - becomes weathered, moderately hard at 20.6'		0.1	165.0	1743
25	25.1 ft		C-4	60		100	95							
30	30.1 ft		C-5	60		100	93					0.2	163.7	1117
35	35.1 ft		C-6	60		100	97					0.2	162.1	1117
										37.1 766				

SOIL BORING NUMBER: VB_B2_3

PROJECT Improve I 70 KC Design Build
DRILLING FIRM PPI **DRILLER** Eric P.
LOGGED BY Zachary Boyd
SURFACE ELEVATION 803.1'
METHOD Auger, Mud Rotary, NQ Core
NORTHING/EASTING 1057801.4 / 2783053.8
DATE STARTED 01/30/2025
DATE COMPLETED 01/30/2025
RIG TYPE CME-550X
TOOLING 4-1/4" Hollow Stem Auger, 3-3/4" Rotary Drill

Groundwater Data	
During Drilling (ft):	N/A
After Drilling (ft):	N/A
After __ Hours (ft):	N/A

Depth (ft)	Depth of Sample	Sample Type	Sample ID	Recovery Length (in)	Blow Counts (N-Value)	% Recovery	RQD (%)	Pocket Pen (tsf)	Graphic Log	Visual Classification and Remarks	Lab: Atterberg Limits (LL-PL-PI)	Lab: Moisture Content (%)	Lab: Dry Density (PCF)	Lab: UCS (tsf)
40	37.5 ft		C-6	60		100				Shale, slightly weathered, dark gray, hard		7.4	130.4	19
	40.1 ft		C-7	60		100	88			40.4 762.7		5.9	114.6	375
45										Limestone, weathered, light gray, moderately hard to hard - 3" shale seam at 42.1'				
										45.1 758				
50										Bottom of Boring at 45.1' Backfilled with cuttings 1/30/2025				
55														
60														
65														
70														

WILLIAM JOSEPH STURGEON
PE-2014017021
STATE OF MISSOURI
PROFESSIONAL ENGINEER
10/8/2025

DATE PREPARED 09/22/2025
ROUTE I-70 | STATE MO
DISTRICT BR | SHEET NO. B23-38
COUNTY JACKSON
JOB NO. J4I1486D
CONTRACT ID. 240807-C01
PROJECT NO.
BRIDGE NO. A9634

DESCRIPTION: REV 0 - RFC SUBMITTAL
DATE: 09/22/25

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

CLARKSON RADMACHER JOINT VENTURE
715 KIRK DRIVE
KANSAS CITY, MO 64105-1310
CERTIFICATE OF AUTHORITY NO. 001270

HNTB

Released For Construction
Not to Scale
Revision: 0.0
Date: 10/10/2025
Package: BRD-23-WB70-Van Brunt

Notes:
For locations of borings, see Sheet No. B23-02 and Geotechnical Report.

BORING LOGS

Detailed MAY 2025
Checked JUN 2025

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

SOIL BORING NUMBER: VB_B3_2

PROJECT Improve I 70 KC Design Build
DRILLING FIRM PPI **DRILLER** Ray A.
LOGGED BY Cameron Dupont
SURFACE ELEVATION 801*
METHOD Auger, Water Rotary, NQ Core
NORTHING/EASTING 1057725.0 / 2783116.9
DATE STARTED 03/04/2025
DATE COMPLETED 03/04/2025
RIG TYPE CME-55
TOOLING 3-3/4" Tricone, 1-1/2" AWJ

Groundwater Data	
During Drilling (ft):	N/A
After Drilling (ft):	N/A
After __ Hours (ft):	N/A

Depth (ft)	Depth of Sample	Sample Type	Sample ID	Recovery Length (in)	Blow Counts (N-Value)	% Recovery	RQD (%)	Pocket Pen (tsf)	Graphic Log	Visual Classification and Remarks	Lab: Atterberg Limits (LL-PL-PI)	Lab: Moisture Content (%)	Lab: Dry Density (PCF)	Lab: UCS (tsf)
										CONCRETE 0.3 800.7				
5	3 ft		U-1	14		58		0.75		Brown, soft to firm, moist, LEAN CLAY (CL), trace organics	41-20-21	27.3	97.7	1.4
	8 ft		J-1	13	4-16-50/4" (66/10")	81		3.0		9.0 792 Shale, thinly bedded, highly weathered, dark gray, soft to moderately hard				
10	9.5 ft 10 ft		C-1 C-2	4.5 60		75 100	0 73					15.5	122.7	9
15	15 ft		C-3	60		100	43			- becomes green-gray, limey 15.5 785.5 Limestone, highly weathered to weathered, gray-green, soft to moderately hard, some clay				
20	20 ft		C-4	60		100	100			19.0 782 Limestone, slightly weathered, gray, hard, laminated shale seams throughout - becomes fresh to slightly weathered at 20'		0.2	164.5	1399
25	25 ft		C-5	58		97	97					0.2	163.9	1254
30	30 ft		C-6	60		100	93					0.2	161.1	862
35	35 ft		C-7	59		98	98			34.5 766.5 Shale, dark gray, moderately hard, limey				

* Survey not possible due to boring location. Coordinates estimated from visual inspection. Elevation estimated from contour map.

SOIL BORING NUMBER: VB_B3_2

PROJECT Improve I 70 KC Design Build
DRILLING FIRM PPI **DRILLER** Ray A.
LOGGED BY Cameron Dupont
SURFACE ELEVATION 801*
METHOD Auger, Water Rotary, NQ Core
NORTHING/EASTING 1057725.0 / 2783116.9
DATE STARTED 03/04/2025
DATE COMPLETED 03/04/2025
RIG TYPE CME-55
TOOLING 3-3/4" Tricone, 1-1/2" AWJ

Groundwater Data	
During Drilling (ft):	N/A
After Drilling (ft):	N/A
After __ Hours (ft):	N/A

Depth (ft)	Depth of Sample	Sample Type	Sample ID	Recovery Length (in)	Blow Counts (N-Value)	% Recovery	RQD (%)	Pocket Pen (tsf)	Graphic Log	Visual Classification and Remarks	Lab: Atterberg Limits (LL-PL-PI)	Lab: Moisture Content (%)	Lab: Dry Density (PCF)	Lab: UCS (tsf)
40			C-7	59		98				Shale, dark gray, moderately hard, limey 38.5 762.5 Limestone, fresh, gray, hard 40.0 761 Bottom of Boring at 40' Boring backfilled and patched with asphalt 3/3/25		6.8	116.1	306
45														
50														
55														
60														
65														
70														

* Survey not possible due to boring location. Coordinates estimated from visual inspection. Elevation estimated from contour map.

WILLIAM JOSEPH STURGEON
PE-2014017021
STATE OF MISSOURI
PROFESSIONAL ENGINEER
10/8/2025

DATE PREPARED 09/22/2025
ROUTE I-70 | STATE MO
DISTRICT BR | SHEET NO. B23-39
COUNTY JACKSON
JOB NO. J4I1486D
CONTRACT ID. 240807-C01
PROJECT NO.
BRIDGE NO. A9634

DATE	DESCRIPTION
09/22/25	REV 0 - RFC SUBMITTAL

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

CLARKSON RADMACHER JOINT VENTURE
715 KIRK DRIVE
KANSAS CITY, MO 64105-1310
CERTIFICATE OF AUTHORITY NO. 001270

HNTB

Released For Construction
Not to Scale
Revision: 0.0
Date: 10/10/2025
Package: BRD-23-WB70-Van Brunt

Notes:
For locations of borings, see Sheet No. B23-02 and Geotechnical Report.

BORING LOGS

Detailed MAY 2025
Checked JUN 2025

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

HNTB

SOIL BORING NUMBER: VB_B4_2

Page 1 of 1

PROJECT Improve I 70 KC Design Build
DRILLING FIRM PPI **DRILLER** Ray A.
LOGGED BY Cameron Dupont
SURFACE ELEVATION 801'*
METHOD Auger, NQ Core

NORTHING/EASTING 1057709.1 / 2783172.8
DATE STARTED 01/30/2025
DATE COMPLETED 01/30/2025
RIG TYPE CME-55
TOOLING 3-3/4" Tricone, 1-1/2" AWJ

Groundwater Data	
During Drilling (ft):	N/A
After Drilling (ft):	N/A
After __ Hours (ft):	N/A

Depth (ft)	Depth of Sample	Sample Type	Sample ID	Recovery Length (in)	Blow Counts (N-Value)	% Recovery	RQD (%)	Pocket Pen (tsf)	Graphic Log	Visual Classification and Remarks	Lab: Atterberg Limits (LL-PL-PI)	Lab: Moisture Content (%)	Lab: Dry Density (PCF)	Lab: UCS (tsf)
	3 ft		U-1	15	50/0" (50)	94		1.5		FILL, brown, stiff, LEAN CLAY (CL), trace organics	38-19-19	28.3	93.0	0.487
5	5.3 ft		J-1	0						4.5 796.5				
	6 ft		C-1	48		100	81			Tan-brown, medium dense, moist, POORLY GRADED SAND (SP), some clay				
										5.3 795.7				
										Limestone, weathered, orangish gray, hard, moist				
10	10 ft		C-2	60		100	70			9.0 792		9.0	133.1	47
										Shale, weathered, dark gray, hard, moist				
										- becomes highly weathered, moderately hard to soft at 11.5'				
15	15 ft		C-3	60		100	90			- becomes green-gray at 15'		13.9	119.6	3
										17.0 784				
										Limestone, weathered, gray, hard, thin interbedded shale lens, moist				
20	20 ft		C-4	60		100	93							
25	25 ft		C-5	60		100	93			- becomes slightly weathered at 25'		0.1	165.5	1518
												0.1	163.6	1207
30	30 ft		C-6	60		100	100							
35										35.0 766		0.2	166.4	1079
										Bottom of Boring at 35'				
										Boring backfilled with cuttings 1/30/2025				

* Survey not possible due to boring location. Coordinates estimated from visual inspection. Elevation estimated fro contour map.

HNTB

SOIL BORING NUMBER: VB_B4_3

Page 1 of 1

PROJECT Improve I 70 KC Design Build
DRILLING FIRM PPI **DRILLER** Ray A.
LOGGED BY Cameron Dupont
SURFACE ELEVATION 802.1'
METHOD Auger, NQ Core

NORTHING/EASTING 1057763.1 / 2783183.5
DATE STARTED 01/30/2025
DATE COMPLETED 01/30/2025
RIG TYPE CME-55
TOOLING 3-3/4" Tricone, 1-1/2" AWJ

Groundwater Data	
During Drilling (ft):	N/A
After Drilling (ft):	N/A
After __ Hours (ft):	N/A

Depth (ft)	Depth of Sample	Sample Type	Sample ID	Recovery Length (in)	Blow Counts (N-Value)	% Recovery	RQD (%)	Pocket Pen (tsf)	Graphic Log	Visual Classification and Remarks	Lab: Atterberg Limits (LL-PL-PI)	Lab: Moisture Content (%)	Lab: Dry Density (PCF)	Lab: UCS (tsf)
	3 ft									FILL, brown, firm, moist, LEAN CLAY (CL), trace organics				
	4.4 ft		U-1					0.5		4.4 797.7	64-28-36	21.8		
5	5 ft		J-1	0	50/0" (50)									
			C-1	60		100	70			Limestone, slightly weathered, orangish gray, hard, sandstone seams throughout, cemented		0.6	152.7	368
										9.0 793.1				
10	10 ft		C-2	60		100	68			Shale, slightly weathered, dark gray, moderately hard to hard		6.9	117.5	77
										- becomes highly weathered, moderately hard to soft at 12'				
15	15 ft		C-3	60		100	68			17.5 784.6		15.0	117.6	8
										Limestone, weathered, gray, hard				
20	20 ft		C-4	60		100	100							
25	25 ft		C-5	60		100	94			- thin shale seams throughout, slightly weathered to fresh from 26-30'		0.2	165.0	1436
												0.1	161.8	1055
30	30 ft		C-6	60		100	100							
35										35.0 767.1		0.3	166.7	1202
										Bottom of Boring at 35'				
										Boring backfilled with cuttings 1/30/2025				

WILLIAM JOSEPH STURGEON PE-2014017021
STATE OF MISSOURI PROFESSIONAL ENGINEER
10/8/2025

DATE PREPARED 09/22/2025
ROUTE I-70 | STATE MO
DISTRICT BR | SHEET NO. B23-40
COUNTY JACKSON
JOB NO. J4I1486D
CONTRACT ID. 240807-C01
PROJECT NO.
BRIDGE NO. A9634

DATE	DESCRIPTION
09/22/25	REV 0 - RFC SUBMITTAL

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

CLARKSON RADMACHER JOINT VENTURE
715 KIRK DRIVE
KANSAS CITY, MO 64105-1310
CERTIFICATE OF AUTHORITY NO. 001270
HNTB

Released For Construction
Not to Scale
Revision: 0.0
Date: 10/10/2025
Package: BRD-23-WB70-Van Brunt

Notes:
For locations of borings, see Sheet No. B23-02 and Geotechnical Report.

BORING LOGS

Detailed MAY 2025
Checked JUN 2025

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

HNTB

SOIL BORING NUMBER: VB_B5_2

Page 1 of 1

PROJECT Improve I 70 KC Design Build
NORTHING/EASTING 1057730.5 / 2783259.4
DRILLING FIRM PPI **DRILLER** Ray A.
DATE STARTED 02/27/2025
LOGGED BY Cameron Dupont
DATE COMPLETED 02/27/2025
SURFACE ELEVATION 819.2'
RIG TYPE CME-55
METHOD Auger, Water Rotary, NQ Core
TOOLING 3-3/4" Tricone, 1-1/2" AWJ

Groundwater Data	
During Drilling (ft):	N/A
After Drilling (ft):	N/A
After __ Hours (ft):	N/A

Depth (ft)	Depth of Sample	Sample Type	Sample ID	Recovery Length (in)	Blow Counts (N-Value)	% Recovery	RQD (%)	Pocket Pen (tsf)	Graphic Log	Visual Classification and Remarks	Lab: Atterberg Limits (LL-PL-PI)	Lab: Moisture Content (%)	Lab: Dry Density (PCF)	Lab: UCS (tsf)
										ASPHALT 0.3 818.9				
										CONCRETE 1.3 817.9				
	3 ft													
	4 ft		U-1	12		100		>4.5		FILL, brown-gray, very stiff, moist, GRAVELLY LEAN CLAY (CL), trace organics	42-20-22	25.4	96.3	2.84
5			J-1	7	9-14-17 (31)	39								
	7.5 ft									7.5 811.7				
	8.1 ft		J-2	0	50/0" (50/0")	0				Limestone, slightly weathered, gray-brown, hard, laminated, some clay seams				
			C-1	21		100	83					1.1	159.3	1128
10	9.9 ft													
			C-2	51		85	47			- shale interbedded, orange-gray at 13'				
15	14.9 ft		C-3	39		100	44							
										18.1 801.1		0.5	163.9	688
20										Bottom of Boring at 18.1'				
										Boring backfilled with cuttings and patched with asphalt 2/27/25				
25														
30														
35														

Detailed MAY 2025
Checked JUN 2025

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

Released For Construction
Not to Scale
Revision: 0.0
Date: 10/10/2025
Package: BRD-23-WB70-Van Brunt

Sheet No. B23-41 of B23-41

Notes:
For locations of borings, see Sheet No. B23-02 and Geotechnical Report.

BORING LOGS

STATE OF MISSOURI
WILLIAM JOSEPH STURGEON
PE-2014017021
PROFESSIONAL ENGINEER
10/8/2025

DATE PREPARED 09/22/2025
ROUTE I-70 | STATE MO
DISTRICT BR | SHEET NO. B23-41
COUNTY JACKSON
JOB NO. J4I1486D
CONTRACT ID. 240807-C01
PROJECT NO.
BRIDGE NO. A9634

DATE	DESCRIPTION
09/22/25	REV 0 - RFC SUBMITTAL

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

CLARKSON RADMACHER JOINT VENTURE
715 KIRK DRIVE
KANSAS CITY, MO 64105-1310
CERTIFICATE OF AUTHORITY NO. 001270
HNTB

B_A9634_B23-45_J4I1486D.dgn 12:35:32 PM 9/21/2025