

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

I-70 EB MANCHESTER BRIDGE

SEC/SUR 13 TWP 49N RGE 33W



Van W. Robbins
01-26-26

DATE PREPARED
01/13/2026

ROUTE STATE
I-70 MO

DISTRICT SHEET NO.
BR B26-01

COUNTY
JACKSON

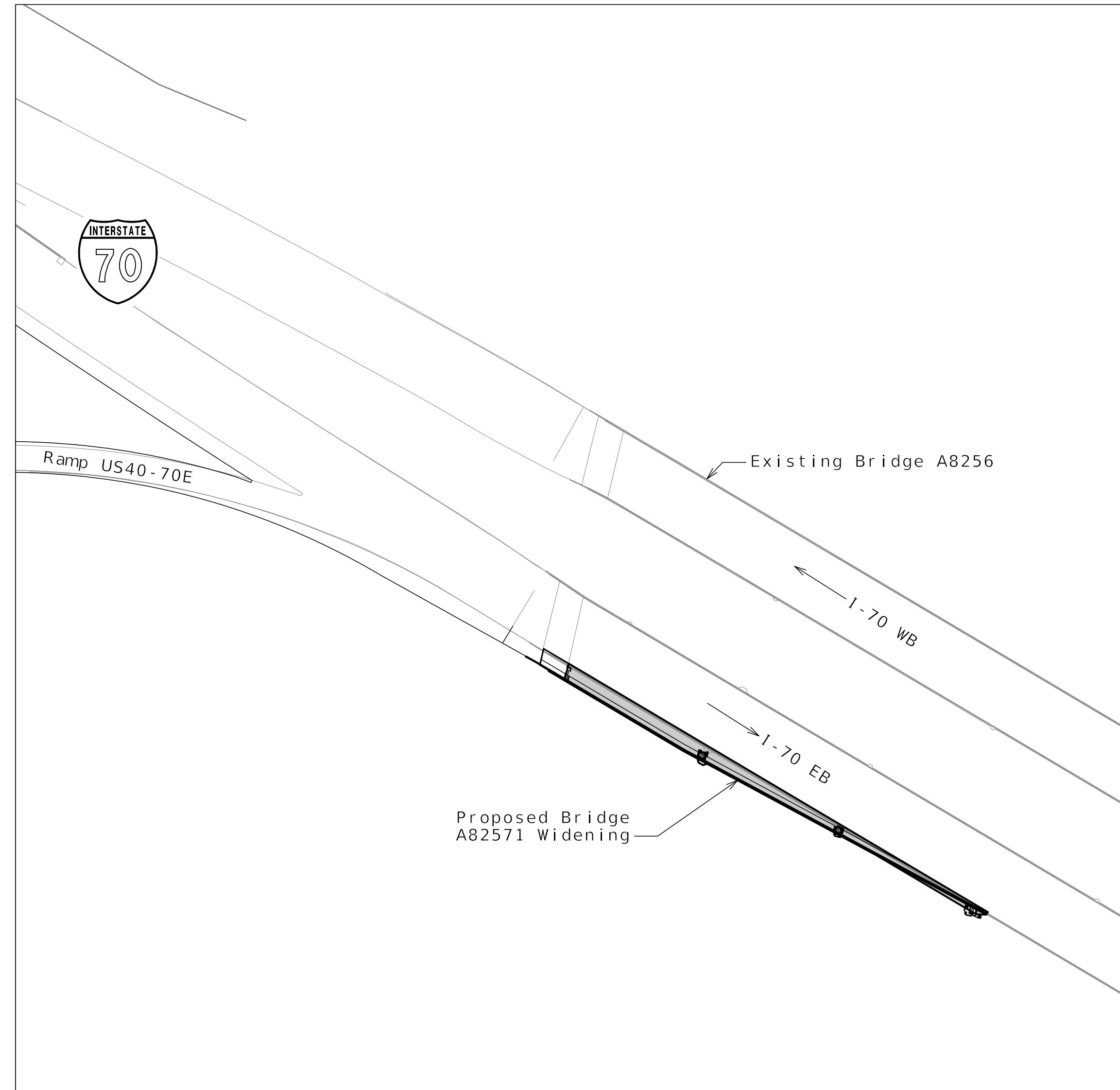
JOB NO.
J411486D

CONTRACT ID.
240807-C01

PROJECT NO.

BRIDGE NO.
A82571

Notes:
See Civil Package 2: Early Grading for project reference points and project coordinate points.
See Civil Package 6 for EB I-70 (Manchester) project coordinate points.



LOCATION SKETCH

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- B26-46 Boring Logs

DATE	DESCRIPTION
01/13/26	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

Released For Construction
Not to Scale
Revision: 0.0
Date: 01/29/2026
Package: BRD-26-EB70-Manchester

BRIDGE: ROUTE I-70 EB OVER BLUE RIVER, UPRR, CPKC RR, KCT RR, C.R.I.P. RR, MANCHESTER TRFY.

ROUTE I-70 EB FROM ROUTE 40 TO ROUTE I-435
ABOUT 0.2 MILES EAST OF ROUTE 40
BEGINNING STATION 160+16.94± (MATCH EXISTING)

Detailed OCT 2025
Checked OCT 2025

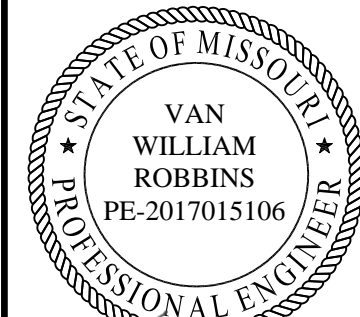
Note: This drawing is not to scale. Follow dimensions.

Sheet No. B26-01 of B26-46

Notes:
 Stationing and longitudinal dimensions are measured along EB I-70 (Manchester). Elevations noted are along concrete deck removal line and match existing elevations from Powell-CWM survey dated 08-08-2025. Contractor shall verify vertical control matches Powell-CWM survey. See Sheet No. B26-04 for substructure skew relative to EB I-70 (Manchester)

(137.1'-135.0'-135.0') Prestressed Concrete NU Girder Spans

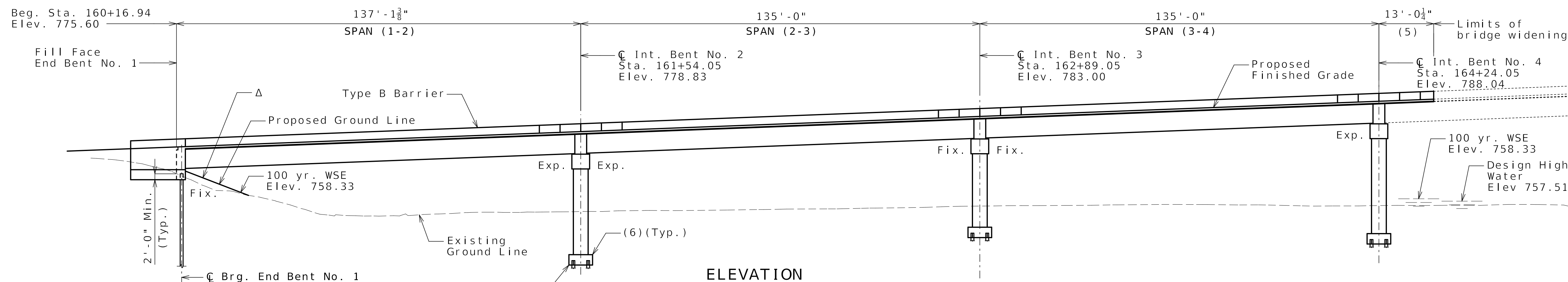
(5) Measured from C Int. Bent No. 4 to end of proposed slab along Slab Removal Line.



Van W. Robbins
01-26-26

DATE PREPARED 01/13/2026	
ROUTE I-70	STATE MO
DISTRICT BR	SHEET NO. B26-02
COUNTY JACKSON	
JOB NO. J411486D	
CONTRACT ID. 240807-C01	
PROJECT NO.	

BRIDGE NO.
A82571



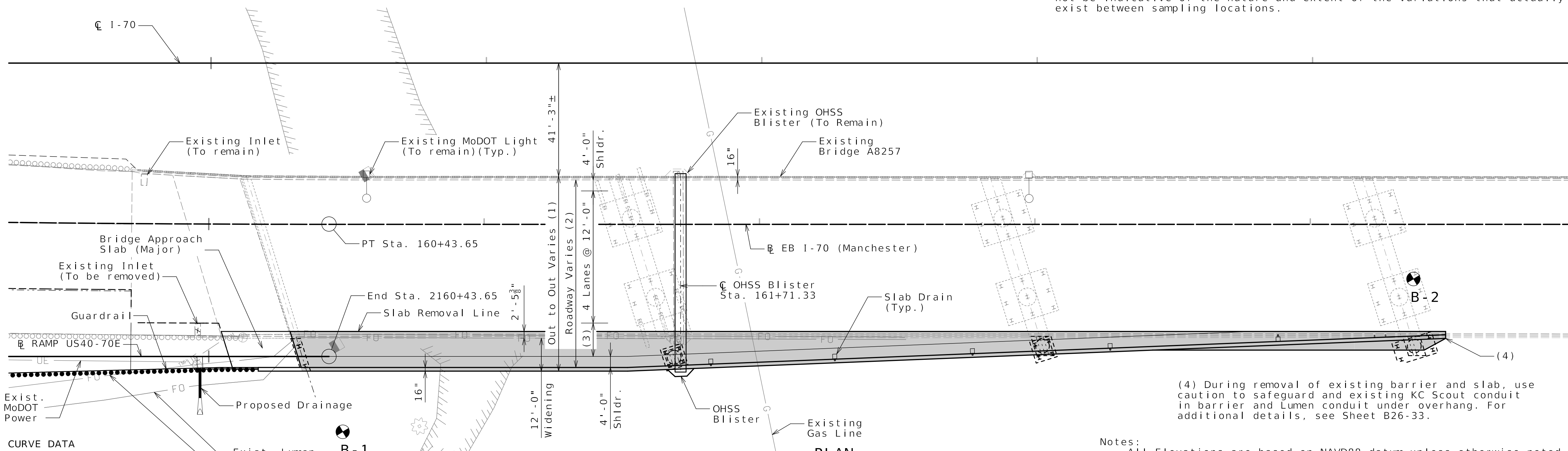
Δ 2:1 Max Slope (Normal) with 2'-0" Type 2 Rock Blanket with Permanent Erosion Control Geotextile

(6) Top of footing set to match existing bridge top of footing for bridge scour analysis

⊙ Indicate 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. B26-36 thru B26-46. Laboratory test results, rock core photographs and other information obtained at these borings are available in the corresponding Foundation Recommendations 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.



CURVE DATA

CURVE EB I-70 (MANCHESTER)

PI	= 157+37.50
PRC	= 154+31.14
PT	= 160+43.65
Δ	= 3°36'38.0" (LT)
D	= 0°35'22.1"
L	= 612.52'
T	= 306.36'
R	= 9,720.00'

CURVE DATA

CURVE RAMP US40-70E

PI	= 2156+36.87
PC	= 2154+02.33
PT	= 2158+52.13
Δ	= 40°4'52.0" (RT)
D	= 8°54'38.5"
L	= 449.81'
T	= 234.55'
R	= 643.00'

Notes:
 All Elevations are based on NAVD88 datum unless otherwise noted.
 All dimensions are horizontal.
 All bents are parallel.
 For footing elevations, see Sheets No. B26-09 thru B26-11.

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GENERAL PLAN AND ELEVATION

Detailed OCT 2025
 Checked OCT 2025

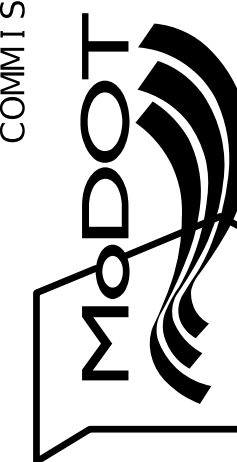
Note: This drawing is not to scale. Follow dimensions.

Sheet No. B26-02 of B26-46

DESCRIPTION
 REV 0 - RFC SUBMITTAL

DATE
 01/13/26

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION



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



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



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, $S_a=0.15$
 Acceleration Coefficient (effective peak ground
 acceleration coefficient), $A = N/A$

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) $f'_c = 4,000$ psi
 Class B-2 Concrete (Superstructure, except Prestressed
 Girders and Type B Barrier) $f'_c = 4,000$ psi
 Class B-1 Concrete (Type B Barrier) $f'_c = 4,000$ psi
 Reinforcing Steel (ASTM A615 Grade 60) $f_y = 60,000$ psi
 Structural HP Steel Pile (ASTM A709 Grade 50) $f_y = 50,000$ psi

For prestressed girder stresses, see Sheets No. B26-14 thru
 B26-16.

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 B barrier, slab, concrete
 diaphragms and End Bent No. 1 shall be epoxy coated.
 Reinforcing steel in Intermediate Bents No. 2 thru 4, shall
 be uncoated.

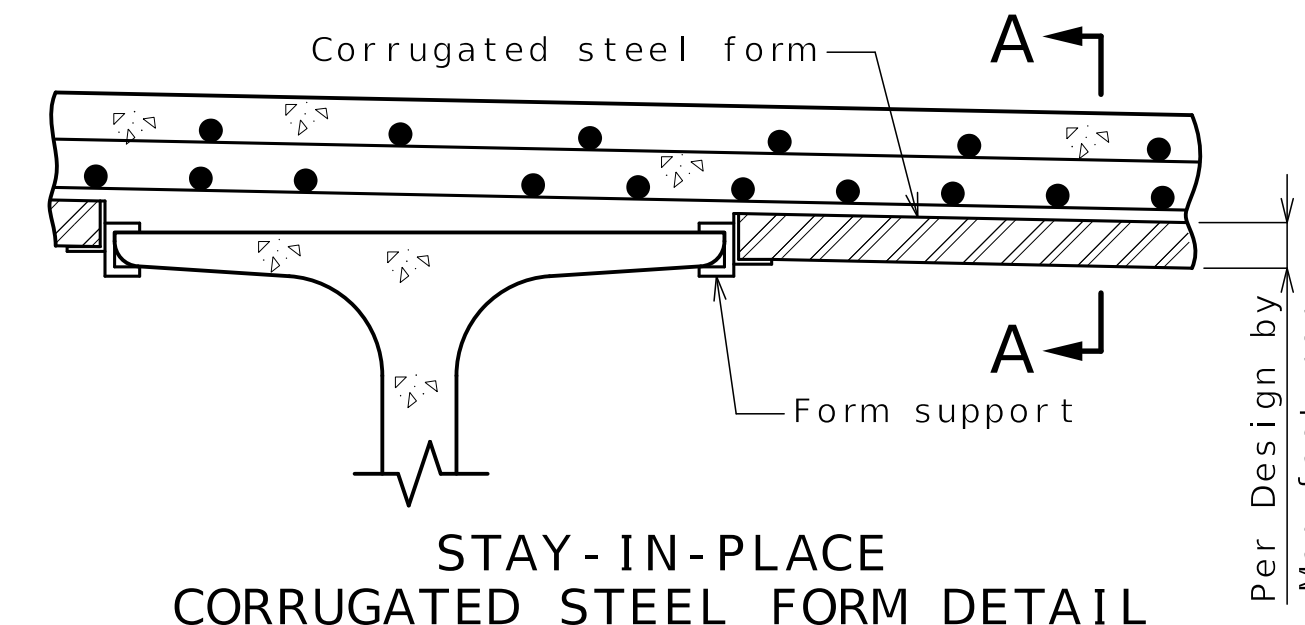
Minimum clearance between galvanized piles and uncoated
 (plain) reinforcing steel including bar supports shall be
 1 1/2". Nylon, PVC, or polyethylen spacers shall be used
 to maintain clearance. Nylon cable ties shall be used to
 bind the spacers to the reinforcement.

Concrete Protective Coatings:
 Concrete and masonry protective coating shall be applied
 to end bent wingwall exposed areas in accordance with Sec 711.

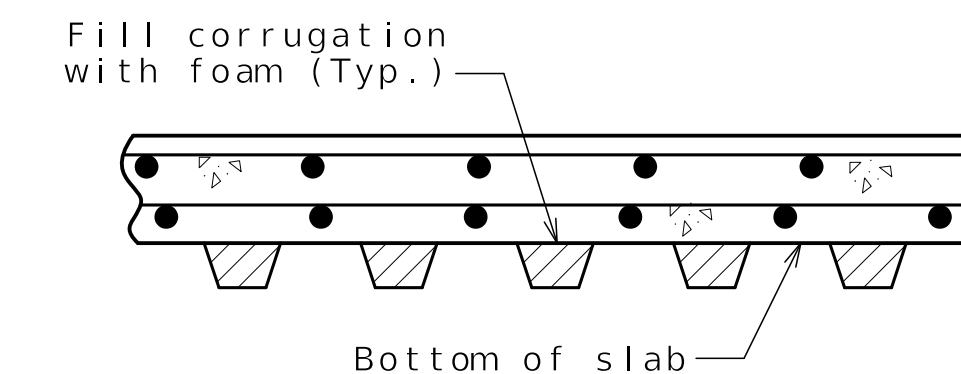
Sacrificial graffiti protective coating shall be applied
 to end bent wingwall exposed areas in accordance with Sec 711.

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

Dimensions of existing structure are based on as-built plans.
 Contractor shall verify all dimensions in the field before
 ordering materials.



STAY-IN-PLACE
 CORRUGATED STEEL FORM DETAIL



SECTION A-A

Stay-In-Place Corrugated Steel Form Notes:

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

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

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

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

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

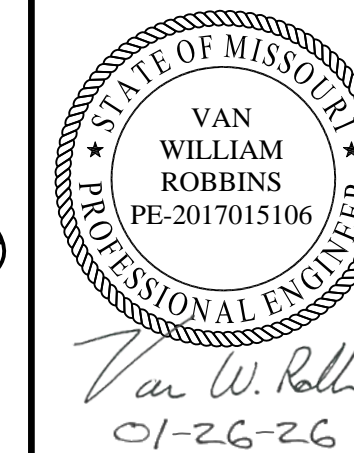
Load Bearing Piles:
 Minimum Nominal Axial Compressive Resistance =
 Maximum Factored Loads/Resistance Factor
 HP piles are anticipated to be driven to refusal
 on rock. Review all borings for depth of rock and
 restrict driving as appropriate to comply with hard
 rock driving criteria in accordance with Sec 702.
 When pile refusal on rock occurs, as approved by
 the engineer, the minimum nominal axial compressive
 resistance is verified and no additional pile driving
 verification method is required.
 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.
 DT = Dynamic Testing

(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.

Foundation Data					
Type	Design Data	Bent Number			
		1	2	3	4
Load Bearing Pile	Pile Type and Size	HP12x74	HP12x84	HP12x84	HP12x84
	Number	2	4	4	4
	Approximate Length Per Each (1)	ft 73	48	57	58
	Pile Point Reinforcement	ea All	All	All	All
	Min. Galvanized Penetration (Elev.)	ft 733	Full Length	730	729
	Minimum Tip Penetration (Elev.)	ft ---	---	---	---
	Criteria for Min. Tip Penetration	---	---	---	---
	Pile Driving Verification Method	DT	DT	DT	DT
	Resistance Factor	0.65	0.65	0.65	0.65
	Minimum Nominal Axial Compressive Resistance	kip 497	653	728	440

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GENERAL NOTES



DATE PREPARED
 01/13/2026

ROUTE
 I-70 STATE
 MO

DISTRICT
 BR SHEET NO.
 B26-03

COUNTY
 JACKSON

JOB NO.
 J411486D

CONTRACT ID.
 240807-C01

PROJECT NO.

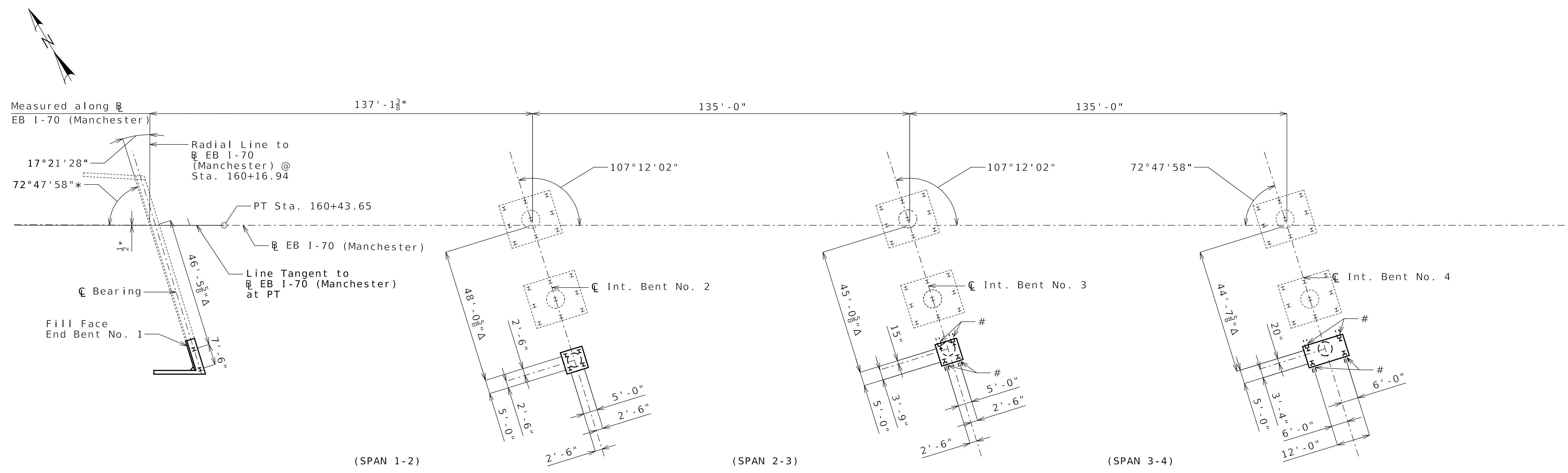
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MISSOURI HIGHWAYS AND TRANSPORTATION
 COMMISSION

 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



SUBSTRUCTURE LAYOUT
(Existing bridge substructure not shown)

Notes:
 All stations are given along EB I-70 (Manchester).
 All dimensions are horizontal.
 * Angle between Fill Face End Bent No. 1 and tangent.
 Δ Measured to EB I-70 (Manchester)
 # Noted Piles are battered 1(H):12(V) in the direction shown.

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SUBSTRUCTURE LAYOUT



Gina D. Horner
 01-26-26

DATE PREPARED 01/13/2026	
ROUTE I-70	STATE MO
DISTRICT BR	SHEET NO. B26-04
COUNTY JACKSON	
JOB NO. J411486D	
CONTRACT ID. 240807-C01	
PROJECT NO.	

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105 WEST CAPITOL
 JEFFERSON CITY, MO 65102
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CLARKSON RADMACHER
 JOINT VENTURE

715 KIRK DRIVE
 KANSAS CITY, MO 64105-1310
 CERTIFICATE OF AUTHORITY
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Gina D. Horner
 01-26-26

DATE PREPARED 01/13/2026	
ROUTE I-70	STATE MO
DISTRICT BR	SHEET NO. B26-05
COUNTY JACKSON	
JOB NO. J411486D	
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BRIDGE NO.
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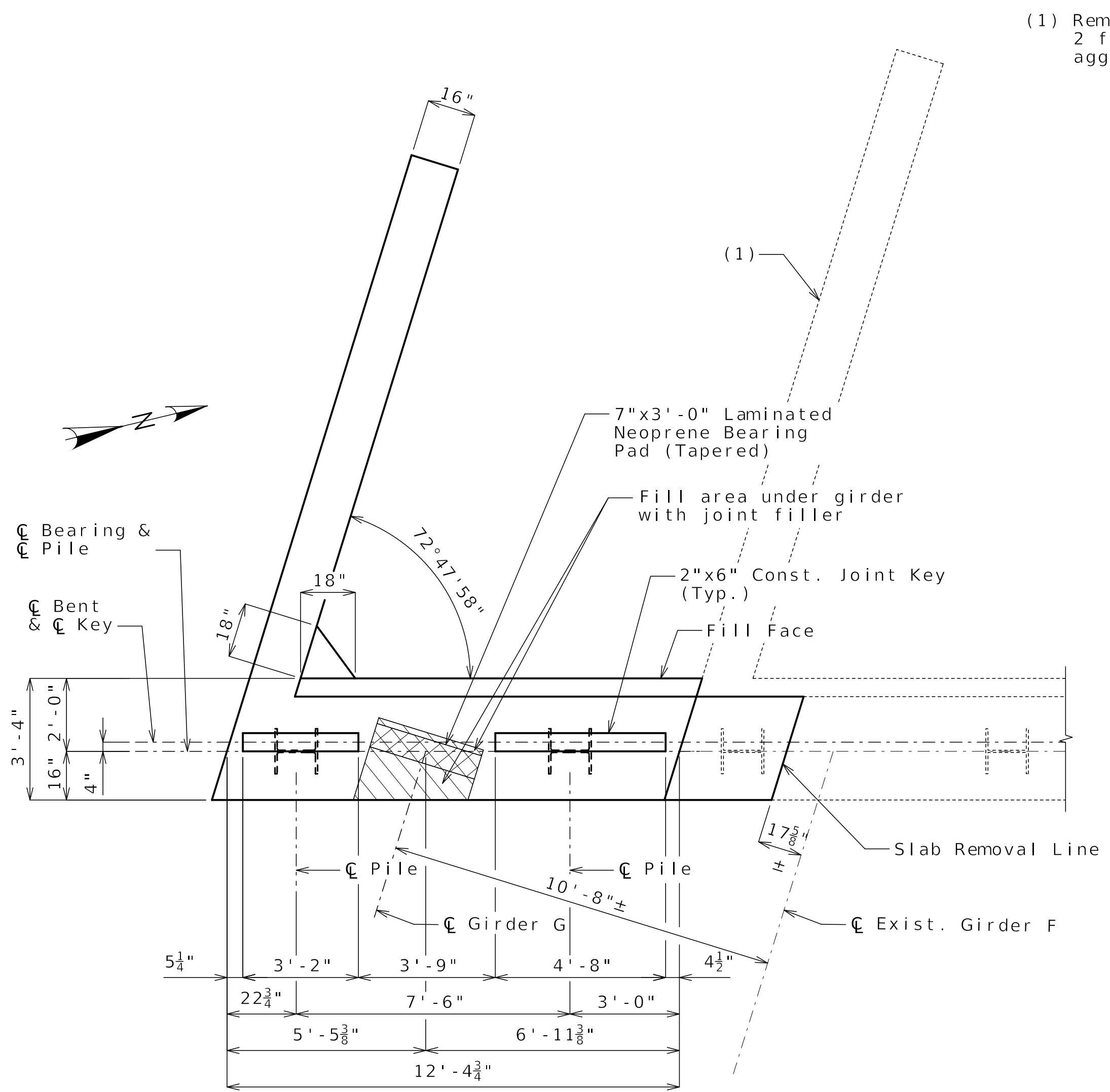
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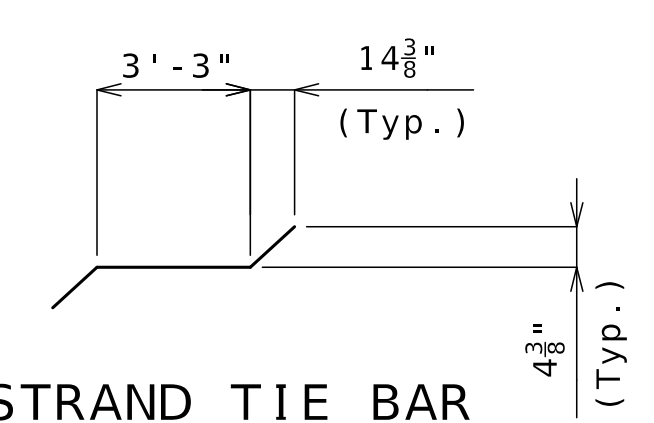
CLARKSON RADMACHER
 JOINT VENTURE
 715 KIRK DRIVE
 KANSAS CITY, MO 64105-1310
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(1) Remove existing wingwall to at least 2 ft below proposed grade or 6" below aggregate base for approach slab

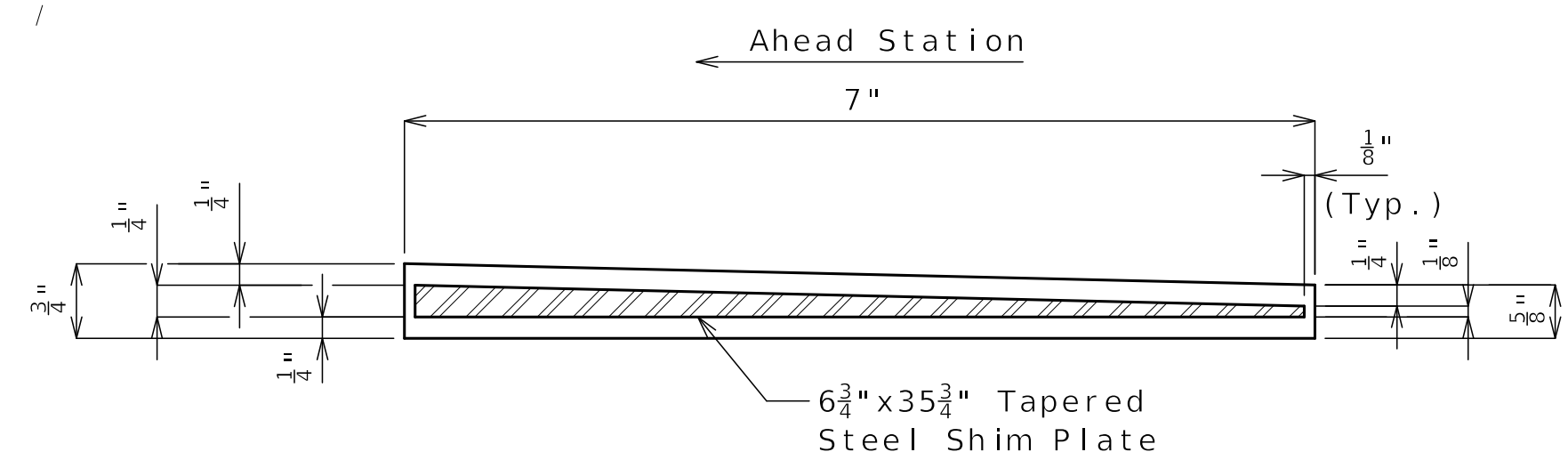


PLAN OF BEAM

- ① 4-#6-L3 Bars (Spaced with #5-U1 Bars & #5 Bars)(Typ.)
- ② 9-#6 @ 6" cts. (Typ.)
- ③ 5-#6-L3 Bars (Spaced with #5-U1 Bars & #5 Bars)(Typ.)

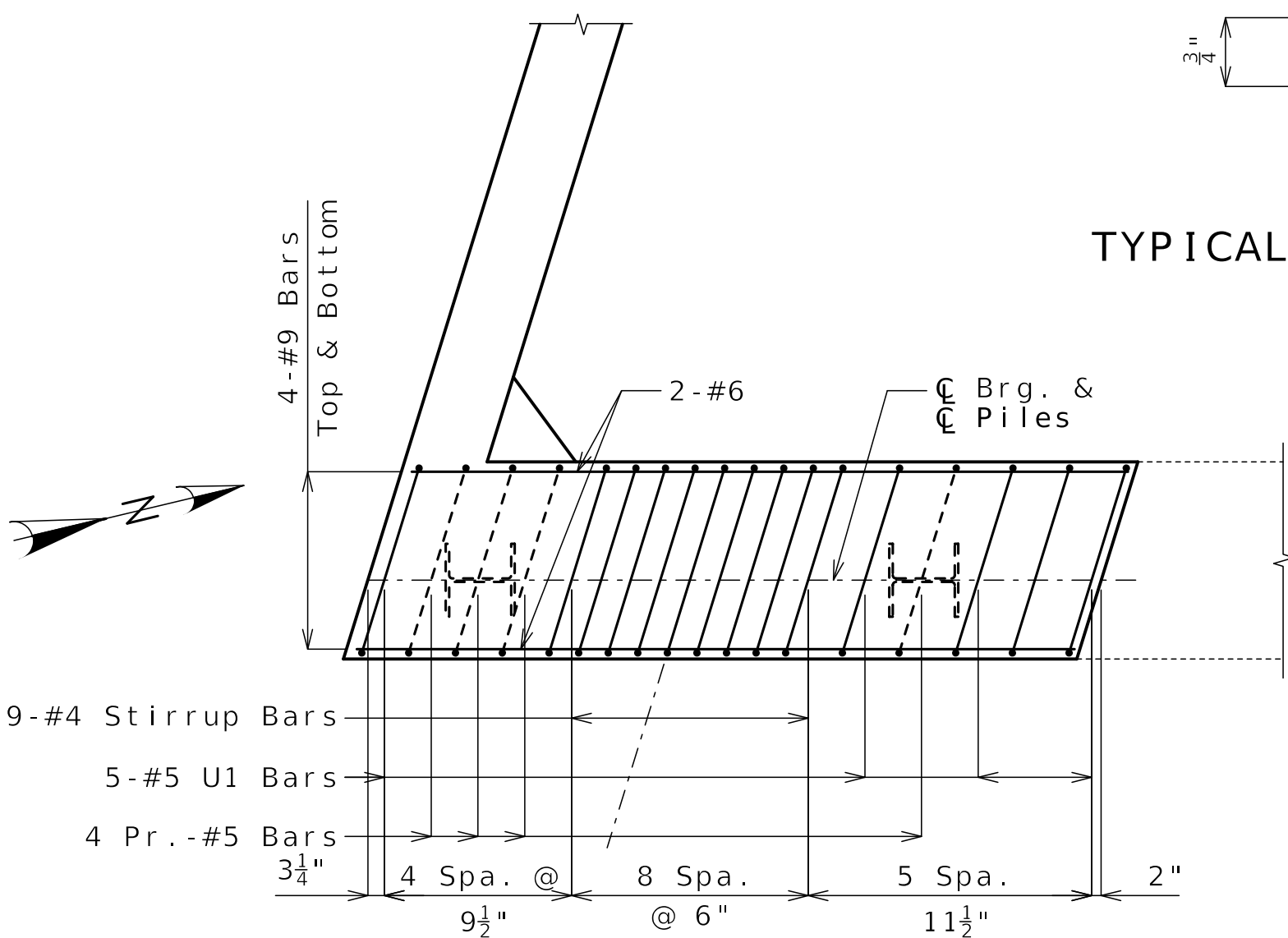


#5 STRAND TIE BAR



TYPICAL SECTION THRU LAMINATED NEOPRENE BEARING PAD (TAPERED)

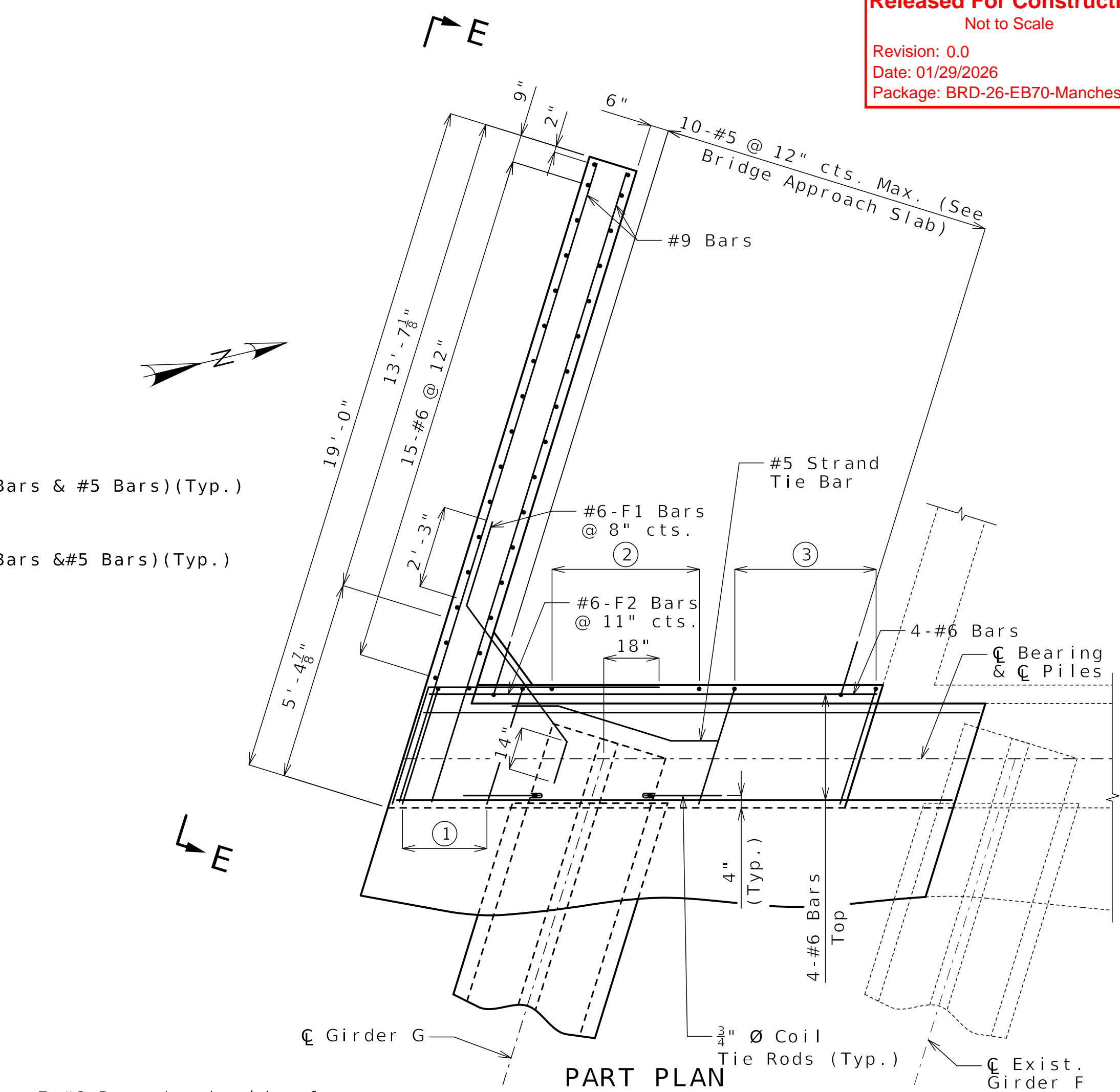
1 Required



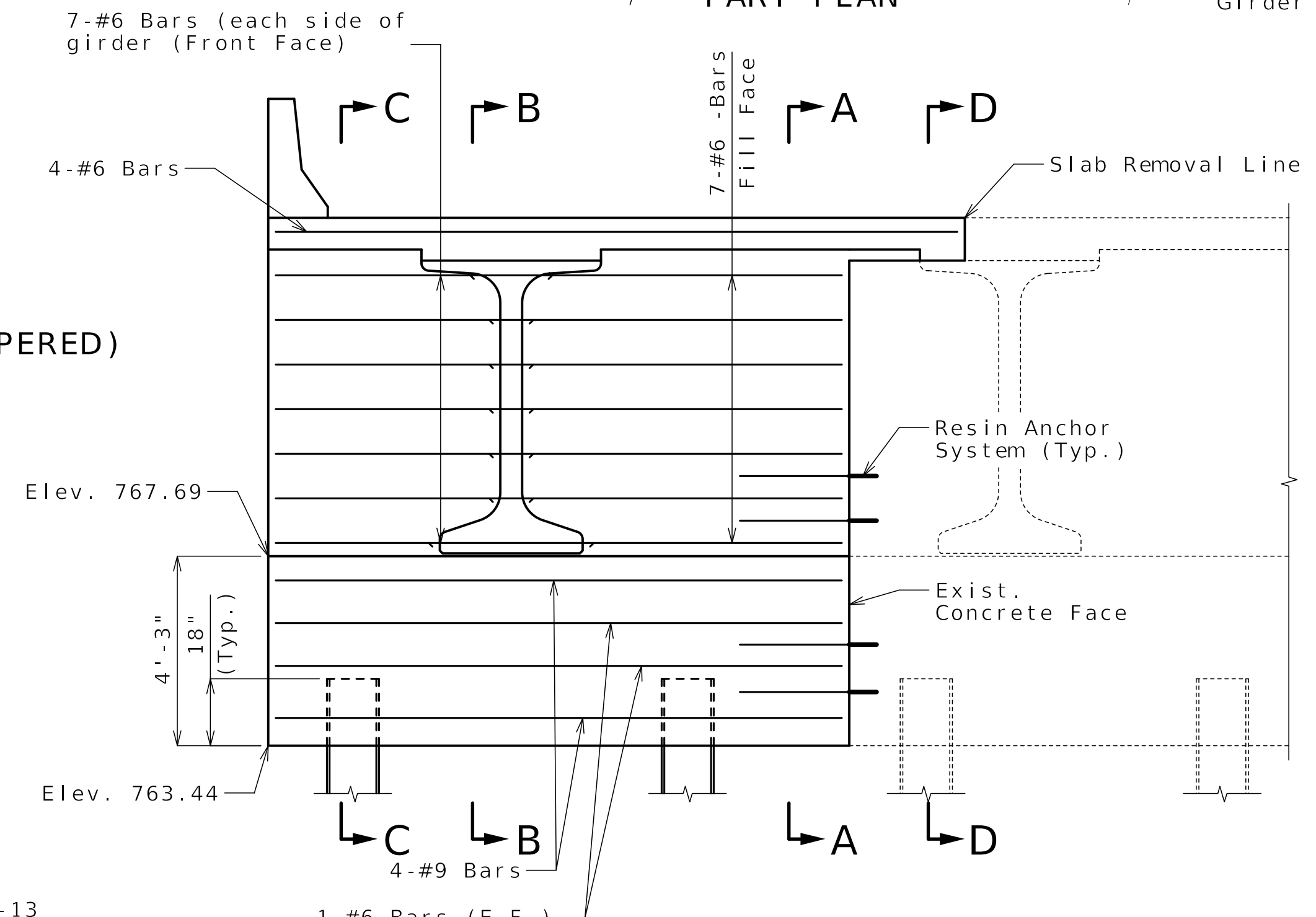
PART PLAN REINFORCING

(Key and resin anchors not shown for clarity)

Notes:
 Work this sheet with Sheets No. B26-06 and B26-07.
 All U-bars and pairs of vertical bars shall be placed along skew.
 For Sections A-A, B-B, C-C and D-D, see Sheet No. B26-06.
 For Elevation E-E, see Sheet No. B26-07.
 Reinforcing steel shall be shifted to clear piles. U bars shall clear piles by at least 1 1/2 inches.
 Roughen concrete adjacent to new concrete. Concrete shall be cleaned prior to placing new concrete for widening portion.
 Contractor shall verify elevations of existing abutment to ensure widening will align with existing end bent.
 For details of bridge approach slab, see Sheet B26-34.
 For angle of girders relative to bent, see Sheet B26-13.
 For location of coil tie rods, see Sheet B26-14.
 Strands at end of the girders shall be field bent or, if necessary, cut in field to maintain 1 1/2" minimum clearance to fill face of end bent.
 The #6-F bars shall be bent in the field to clear girders.

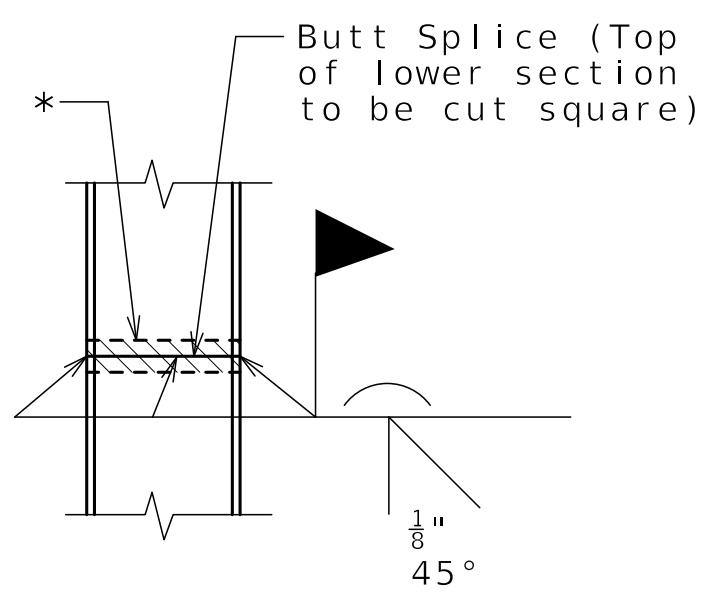


PART PLAN



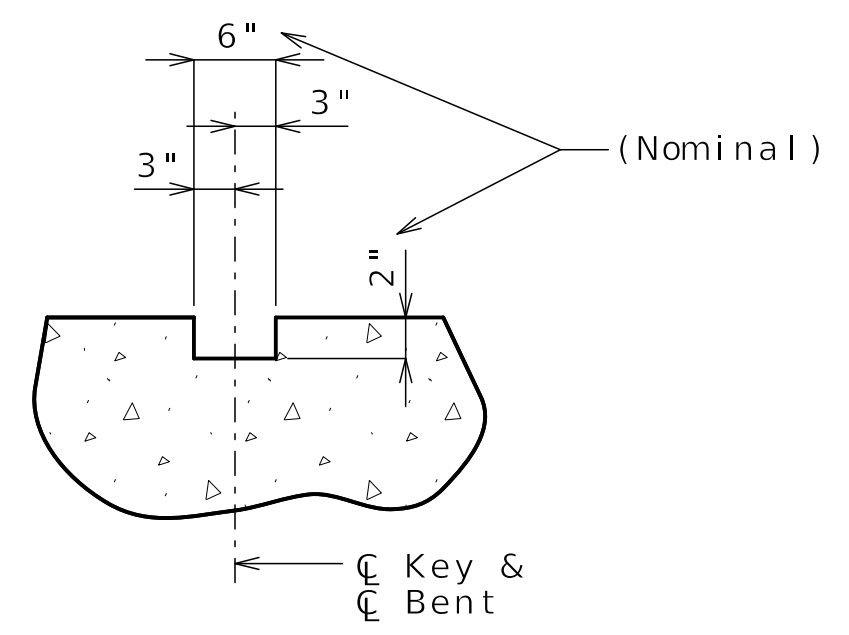
SECTION NEAR END BENT

(Looking Back Station)
 DETAILS OF END BENT NO. 1



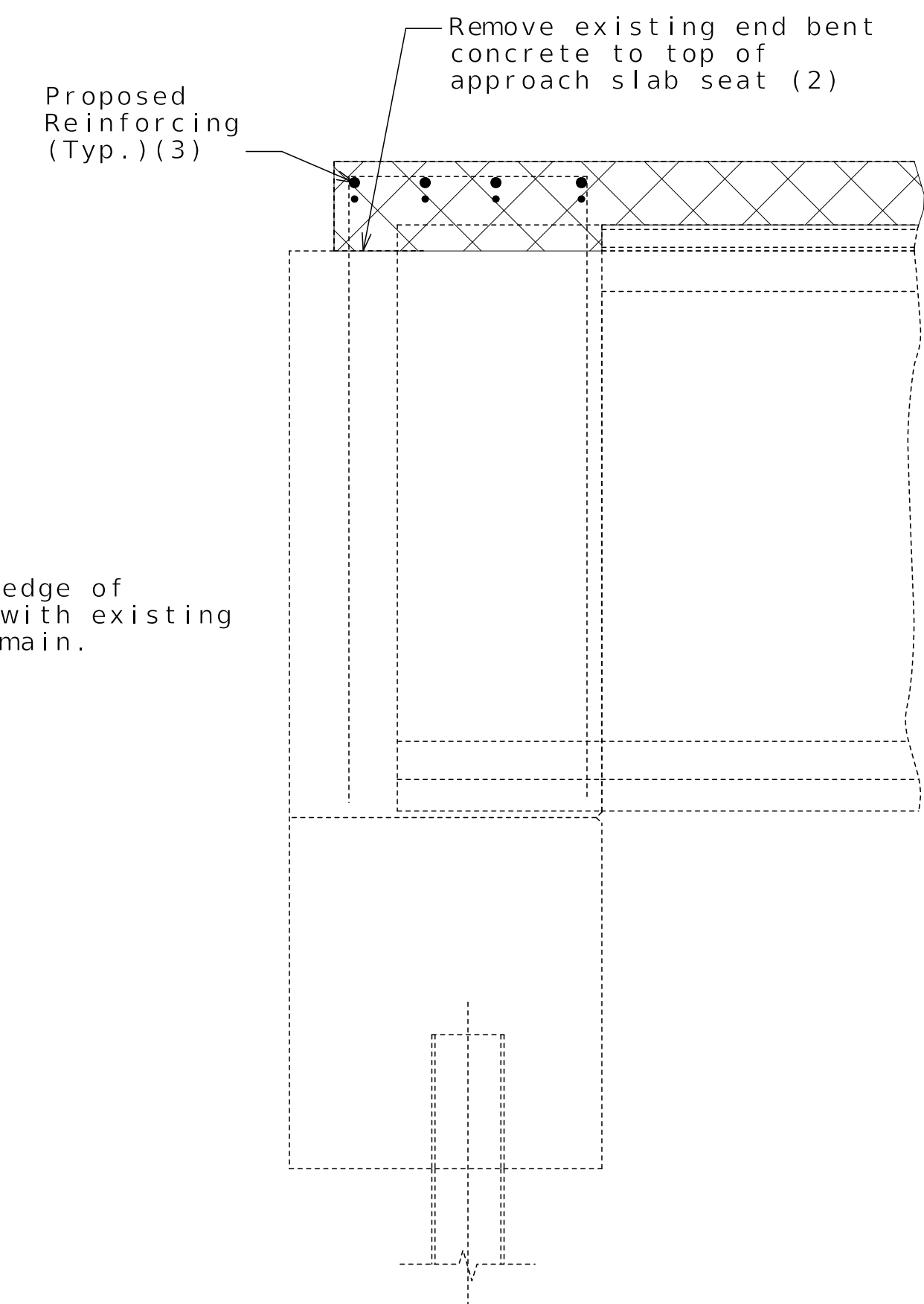
STEEL PILE SPLICE
(If required)

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



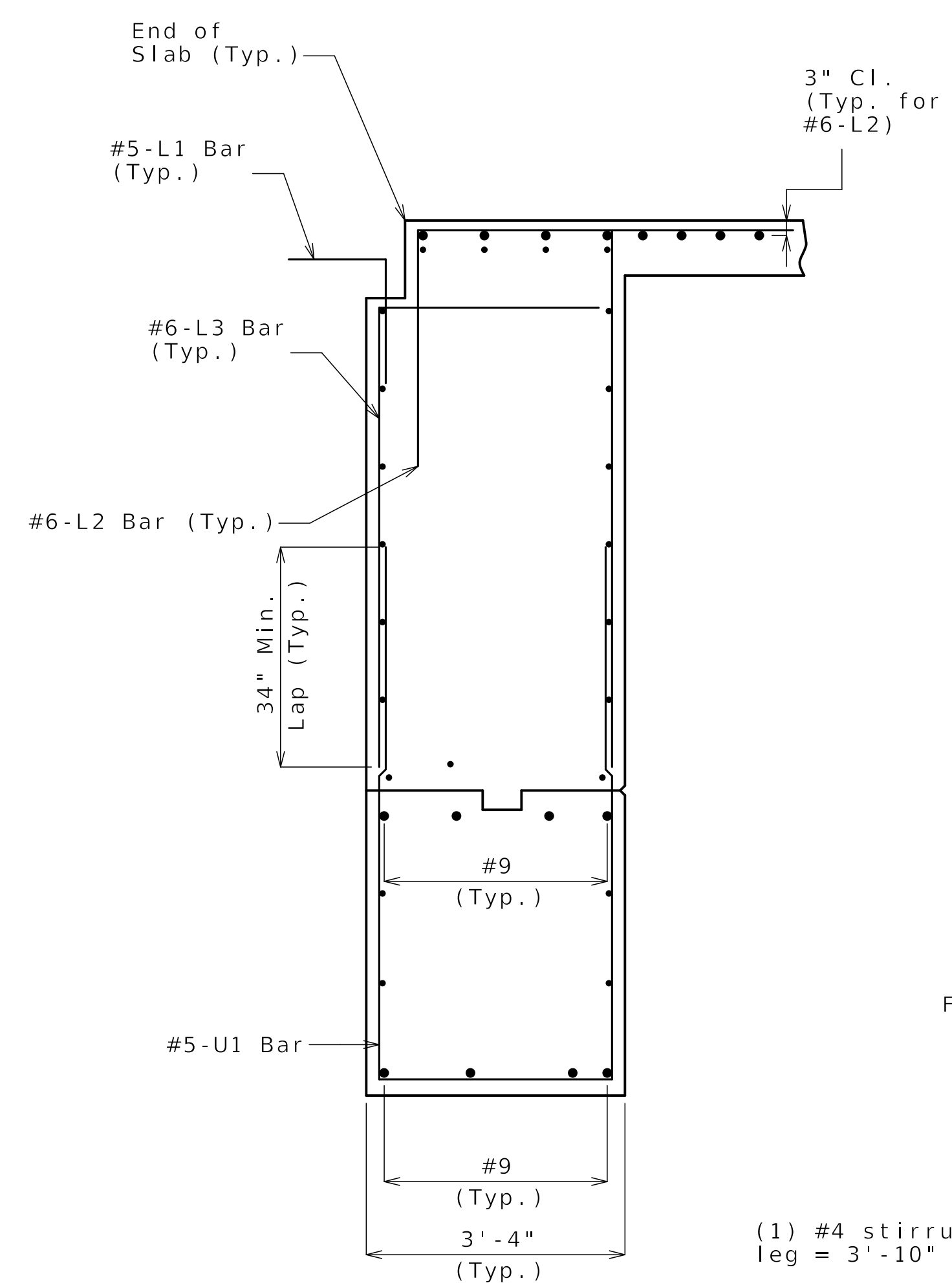
SECTION THRU KEY

(3) Extend reinforcing to edge of slab removal line and lap with existing end bent reinforcing to remain.

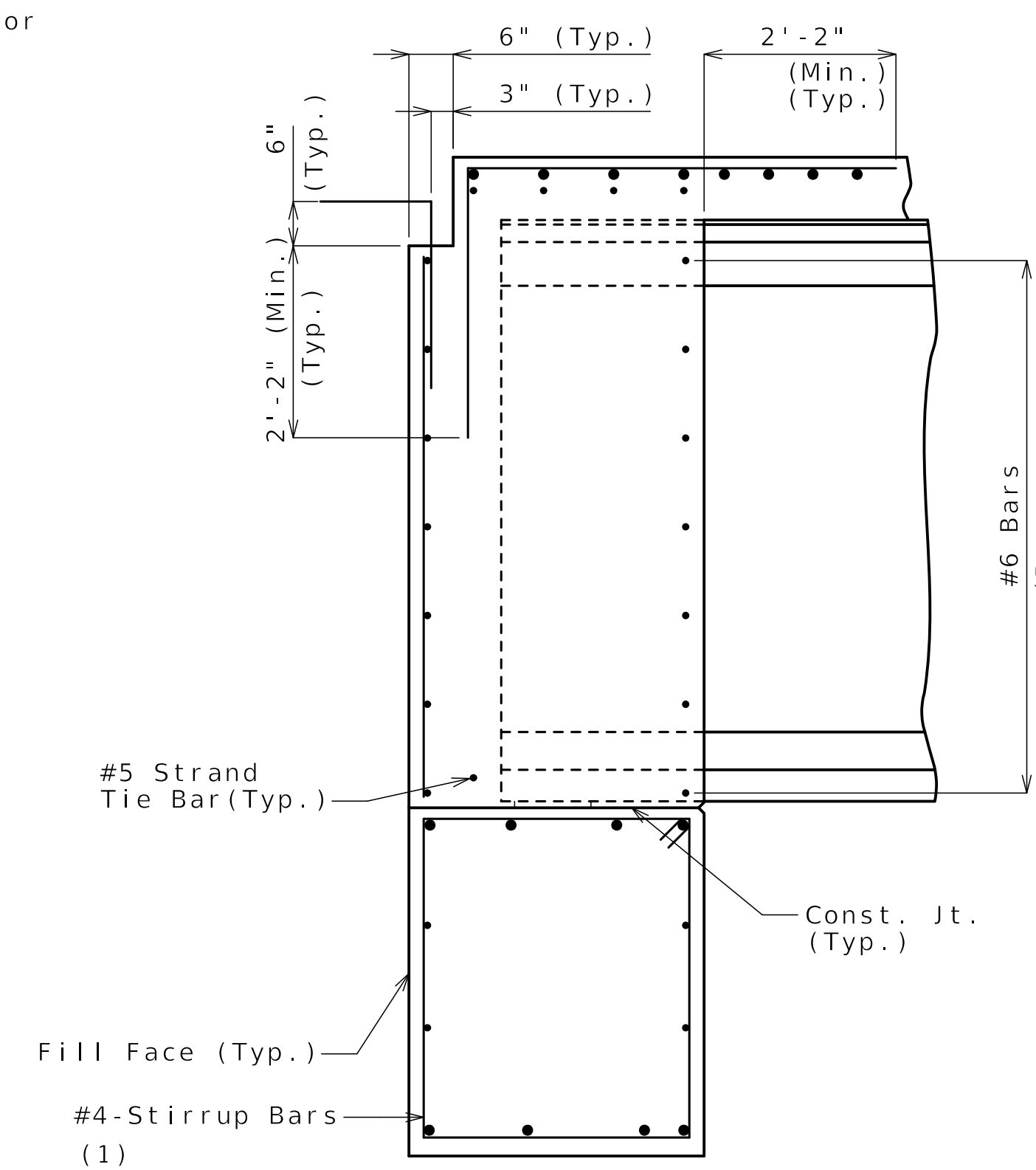


SECTION D-D

(2) Surface of existing concrete to remain shall be prepared per Sec 704. Existing reinforcing embedded in end bent concrete shall remain and be cleaned. Damaged reinforcing shall be repaired per Sec 704.

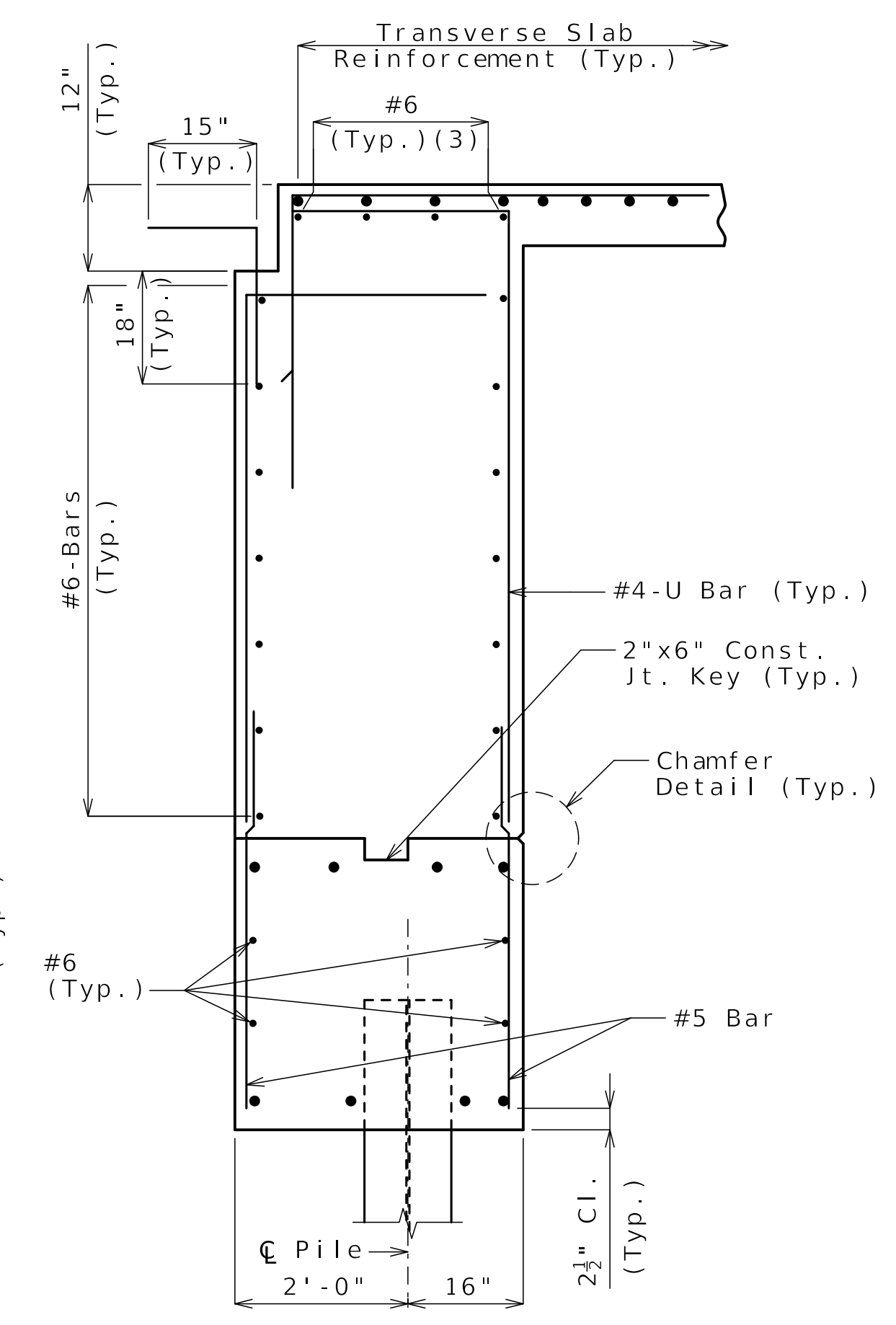


SECTION A-A

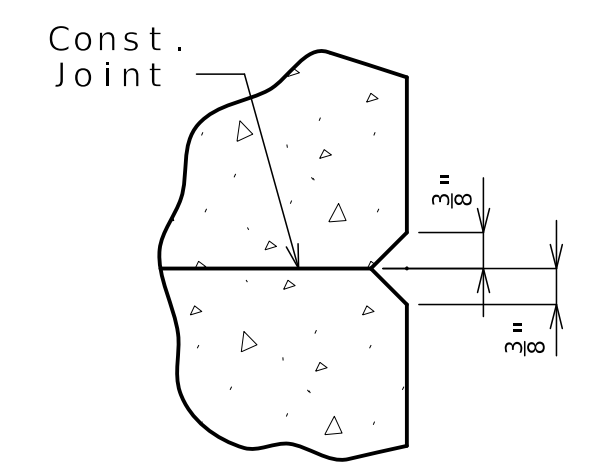


SECTION B-B

(1) #4 stirrup bar vertical leg = 3'-10"



SECTION C-C



CHAMFER DETAIL

General Notes:
Work this sheet with Sheets No. B26-05 and B26-07.
For location of Sections A-A, B-B, C-C and D-D, see Sheet No. B26-05.

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DETAILS OF END BENT NO. 1



Gina D. Horner
01-26-26

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ROUTE I-70	STATE MO
DISTRICT BR	SHEET NO. B26-06
COUNTY JACKSON	
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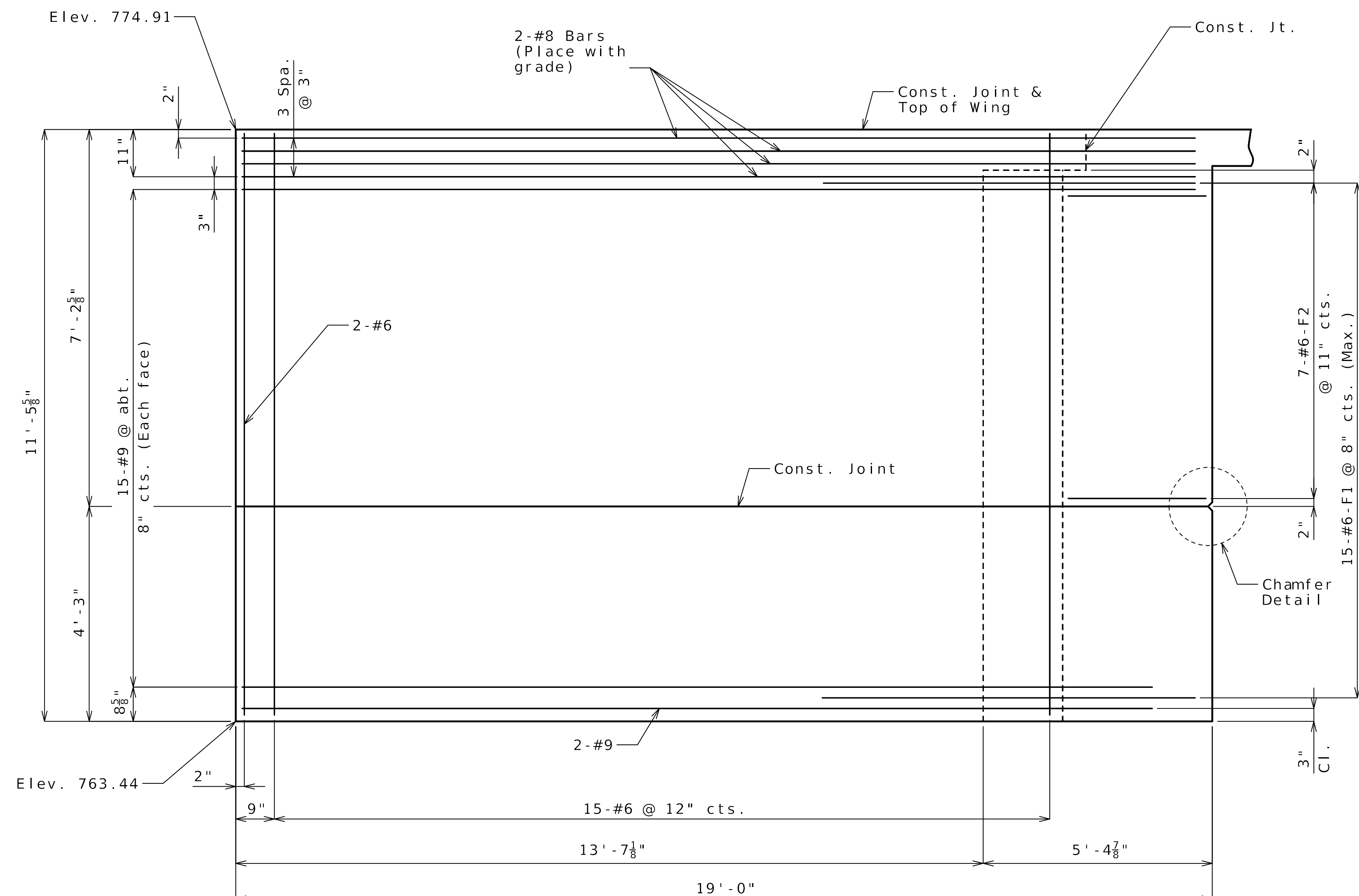
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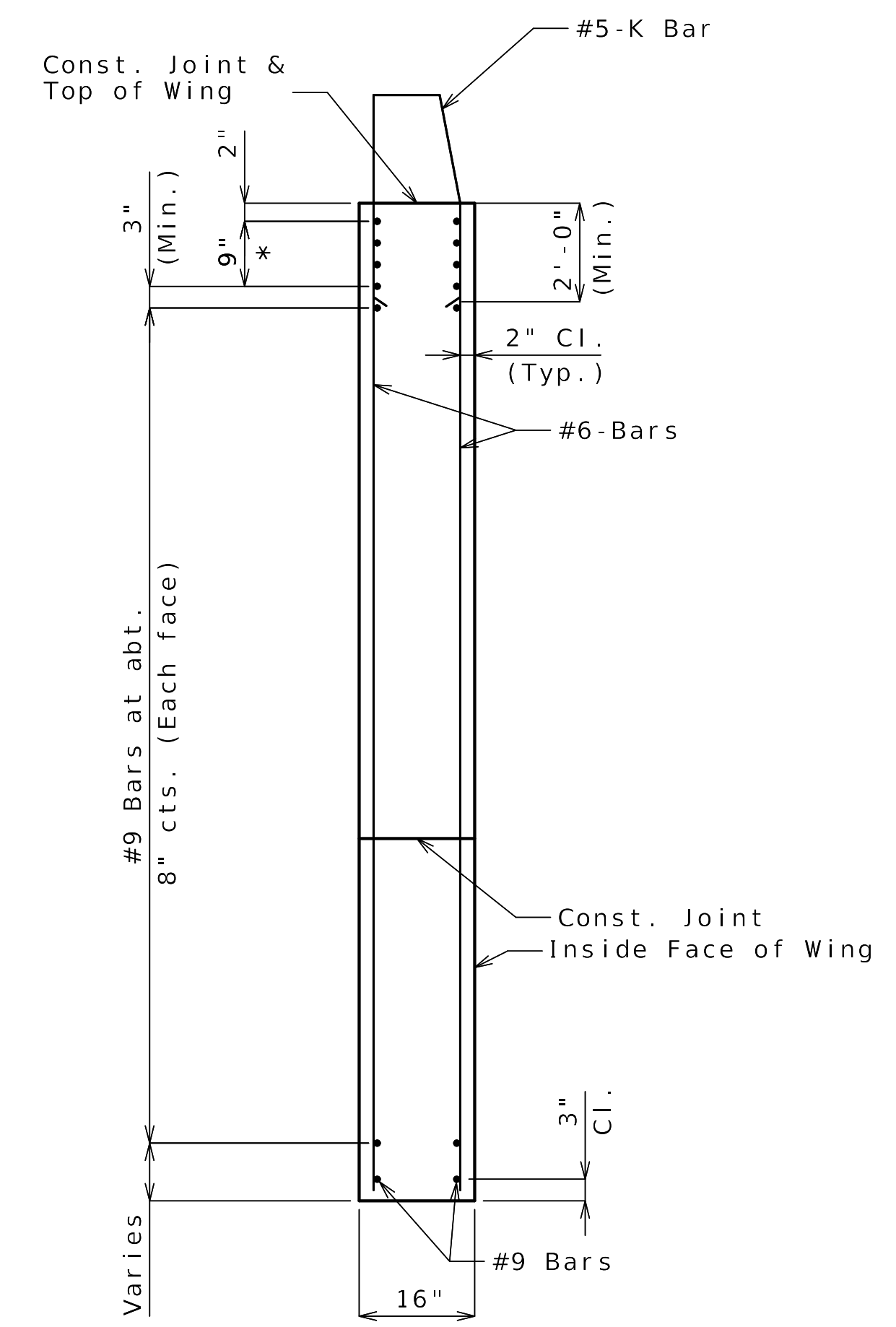
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CLARKSON RADMACHER
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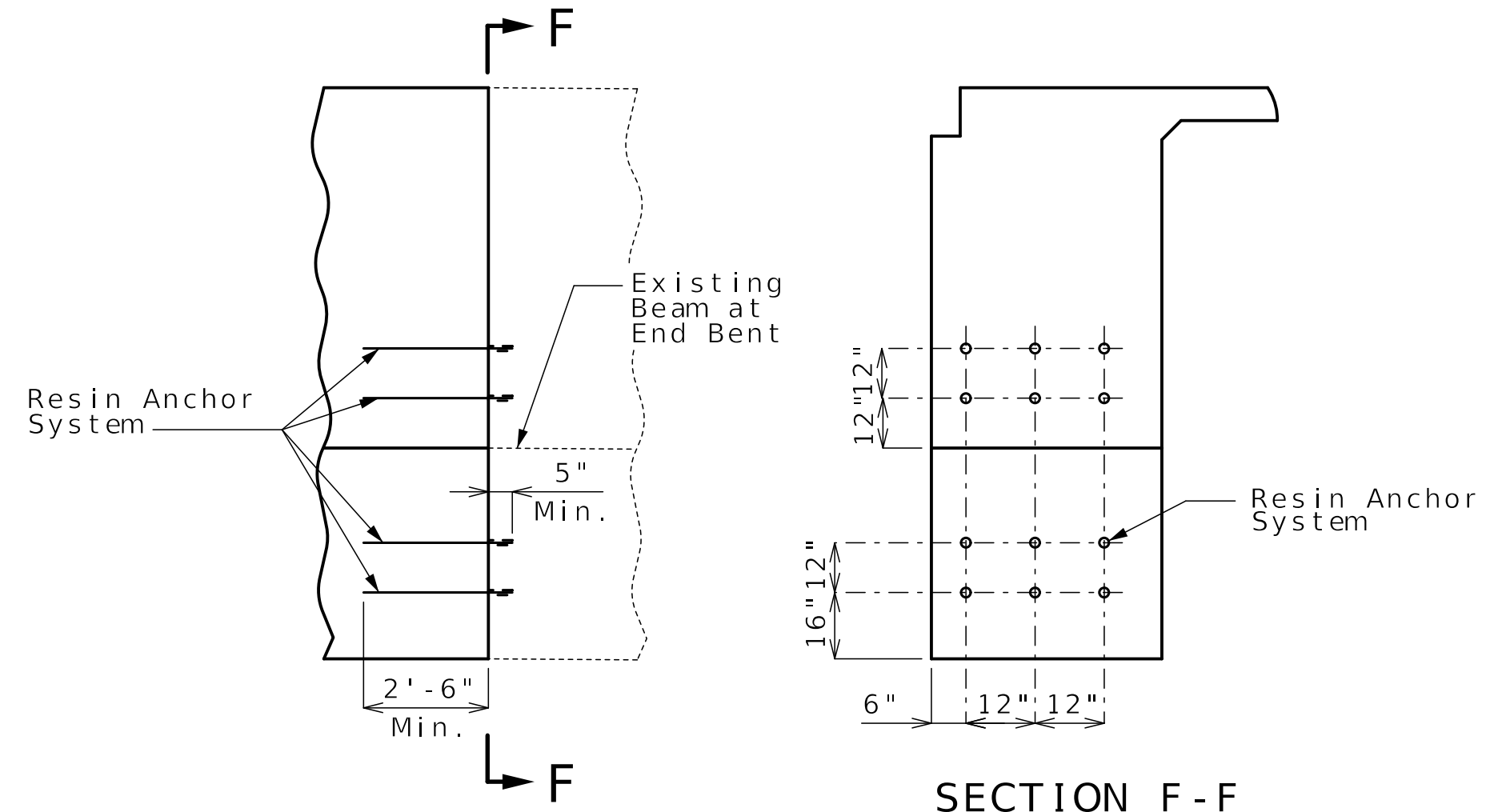


ELEVATION E-E



TYPICAL SECTION THRU WING

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



SECTION F-F

Resin Anchor Notes:
 The contractor shall use one of the qualified resin anchor systems in accordance with Sec 1039.
 The minimum embedment depth in concrete with f'c=4,000 psi for the resin anchor system shall be that required to meet the minimum ultimate pullout strength in accordance with Sec 1039 but shall not be less than 5".
 An epoxy coated #6 Grade 60 reinforcing bar 2'-6" long shall be substituted for the threaded rod.

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General Notes:
 Work this sheet with Sheets No. B26-05 and B26-06.
 For reinforcement of the Type B Barrier, see Sheet No. B26-31.
 For location of Elevation E-E, see Sheet No. B26-05.
 For Chamfer Detail, see Sheet No. B26-06.

DETAILS OF END BENT NO. 1



Gina D. Horner
 01-26-26

DATE PREPARED 01/13/2026	
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DISTRICT BR	SHEET NO. B26-07
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CONTRACT ID. 240807-C01	
PROJECT NO.	

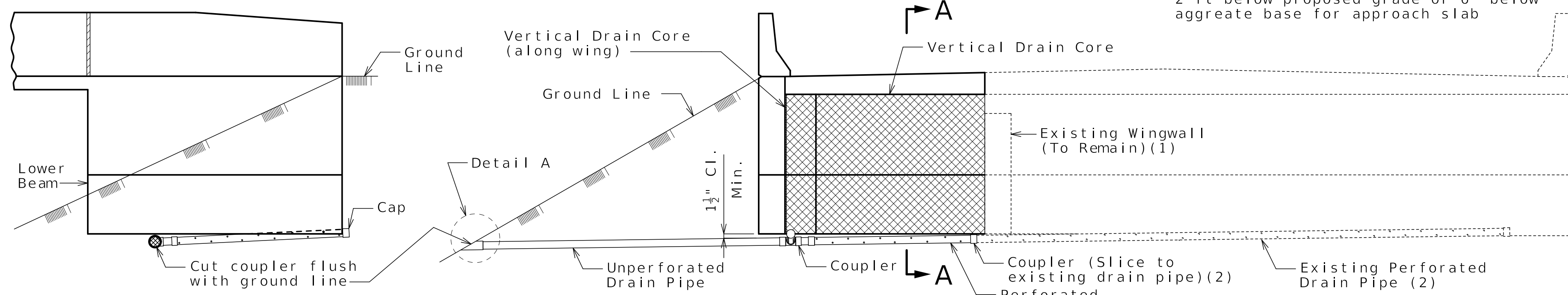
BRIDGE NO.
A82571

DATE	DESCRIPTION
01/13/26	REV 0 - RFC SUBMITTAL

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

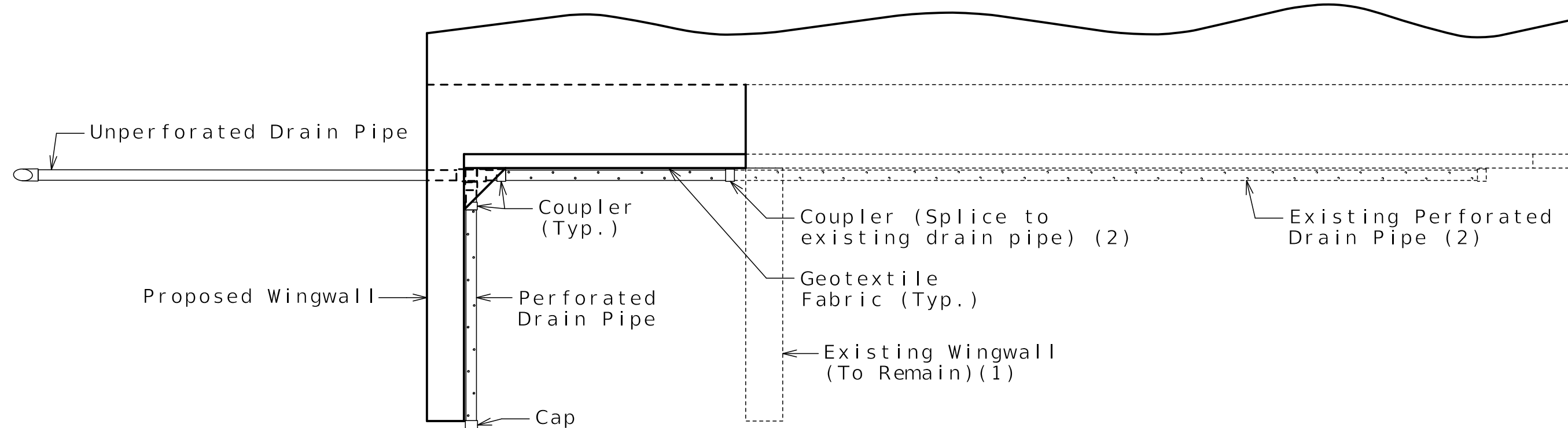
CLARKSON RADMACHER JOINT VENTURE
 715 KIRK DRIVE KANSAS CITY, MO 64105-1310
 CERTIFICATE OF AUTHORITY NO. 001270
HNTB

(1) Remove existing wingwall to at least 2 ft below proposed grade or 6" below aggregate base for approach slab



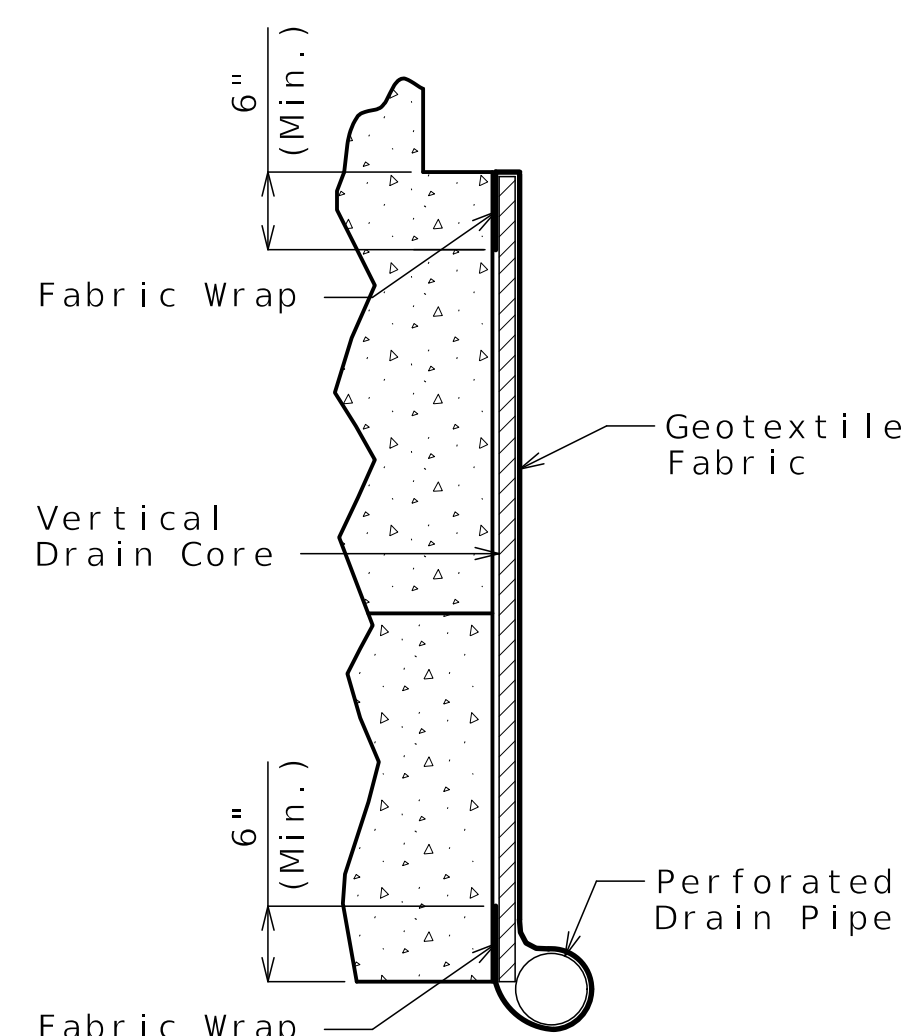
ELEVATION OF WING

ELEVATION OF END BENT NO. 1

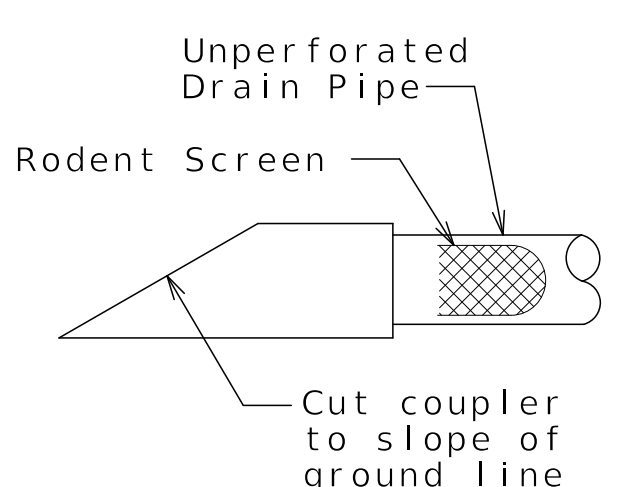


PLAN OF END BENT NO. 1

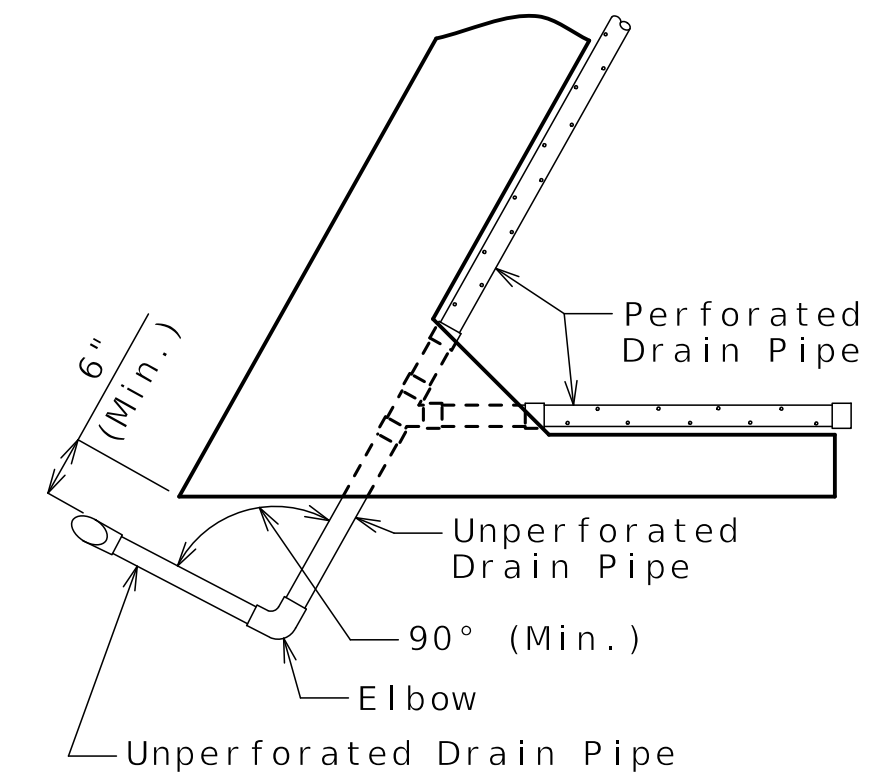
(2) Depending on as built vertical drain at end bent, End Bent No. 1 widening with this project may require modification to existing drainage system outlet. Existing drainage system can be utilized and tied into if practical. Positive drainage away from end bent for both existing and proposed system shall be provided for final condition.



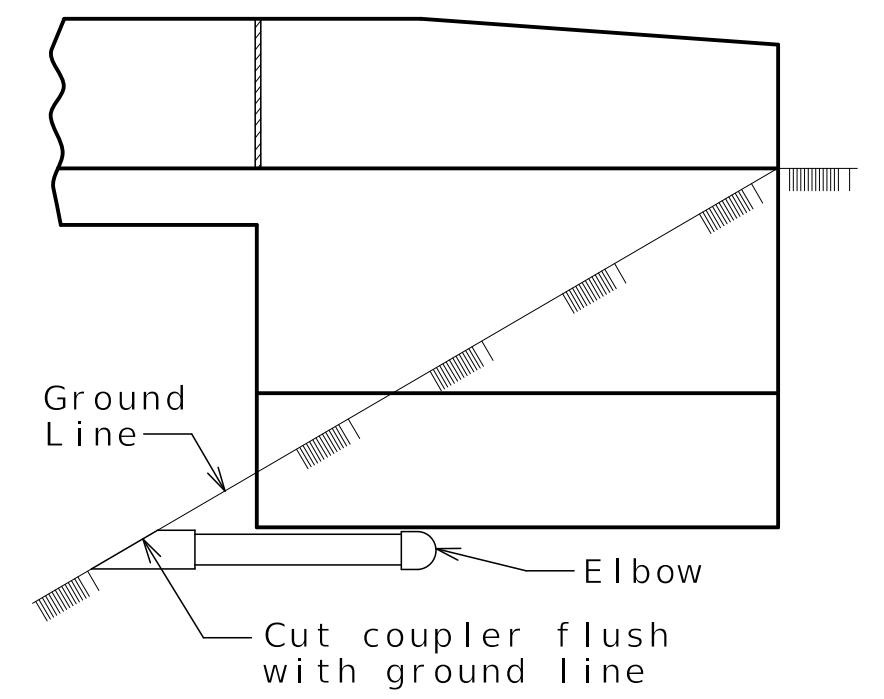
PART SECTION A-A
(Section thru wing similar)



DETAIL A



PART PLAN



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

General Notes:

Details shown are illustrative and not necessarily representative 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.

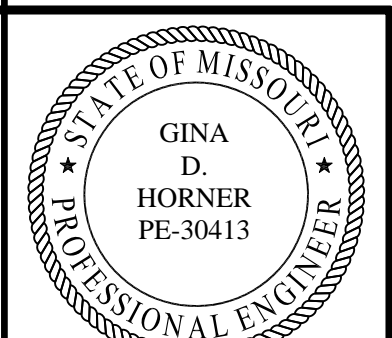
Squared end bent shown, skewed end bent similar.

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.



Gina D. Horner
01-26-26

DATE PREPARED 01/13/2026	
ROUTE I-70	STATE MO
DISTRICT BR	SHEET NO. B26-08
COUNTY JACKSON	
JOB NO. J411486D	
CONTRACT ID. 240807-C01	
PROJECT NO.	

BRIDGE NO.
A82571

DATE	DESCRIPTION
01/13/26	REV 0 - RFC SUBMITTAL

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

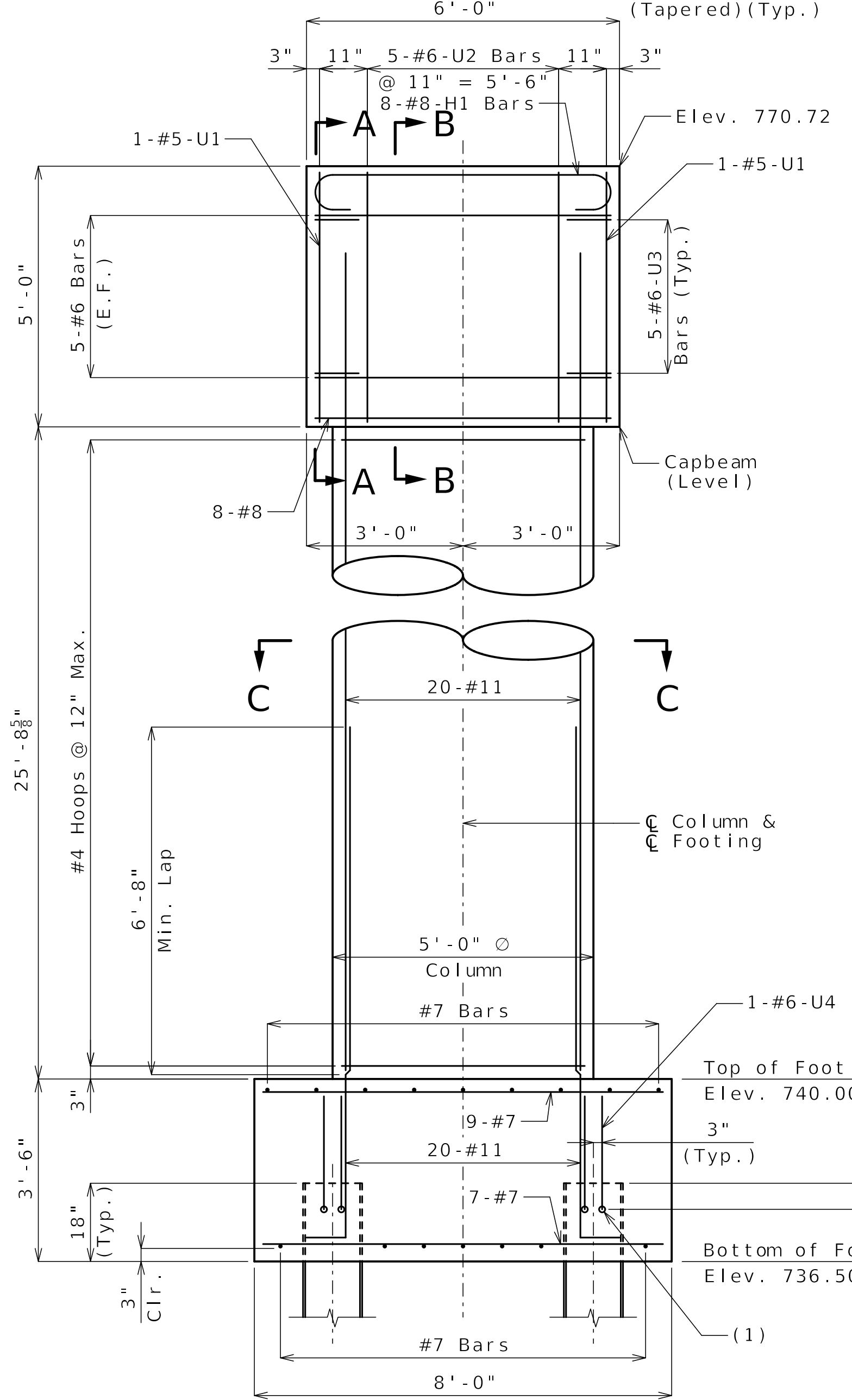
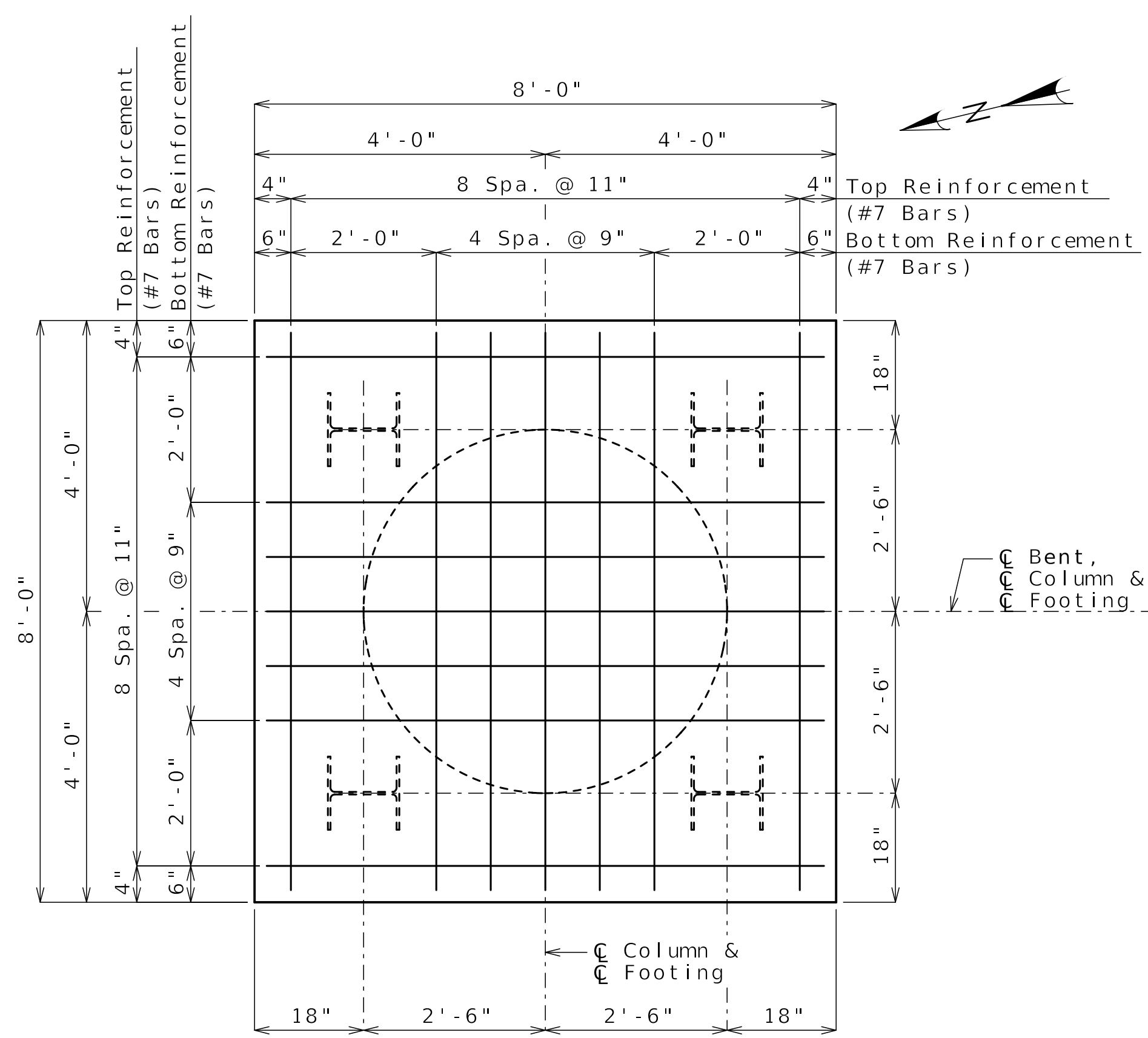
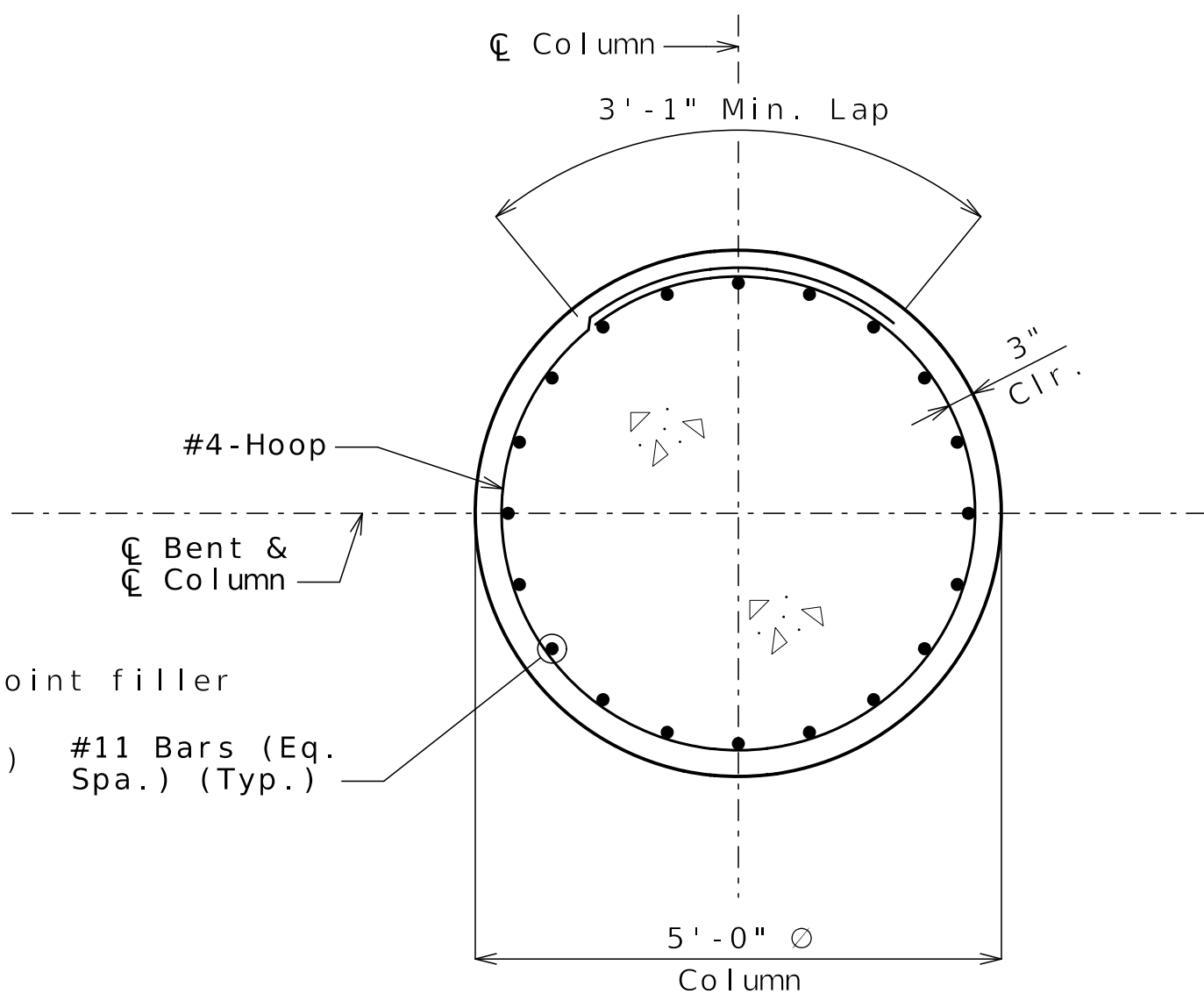
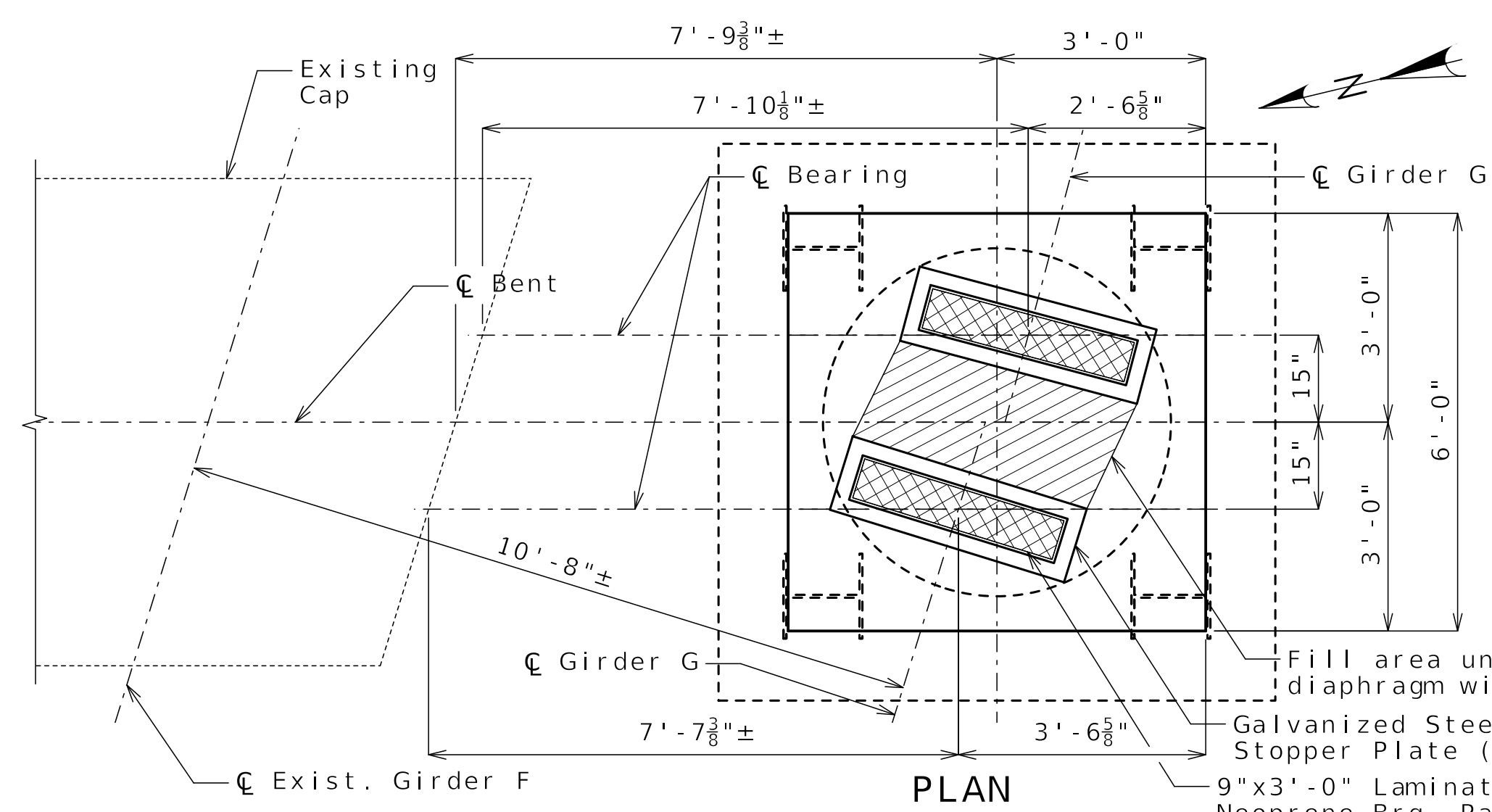
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

CLARKSON RADMACHER JOINT VENTURE

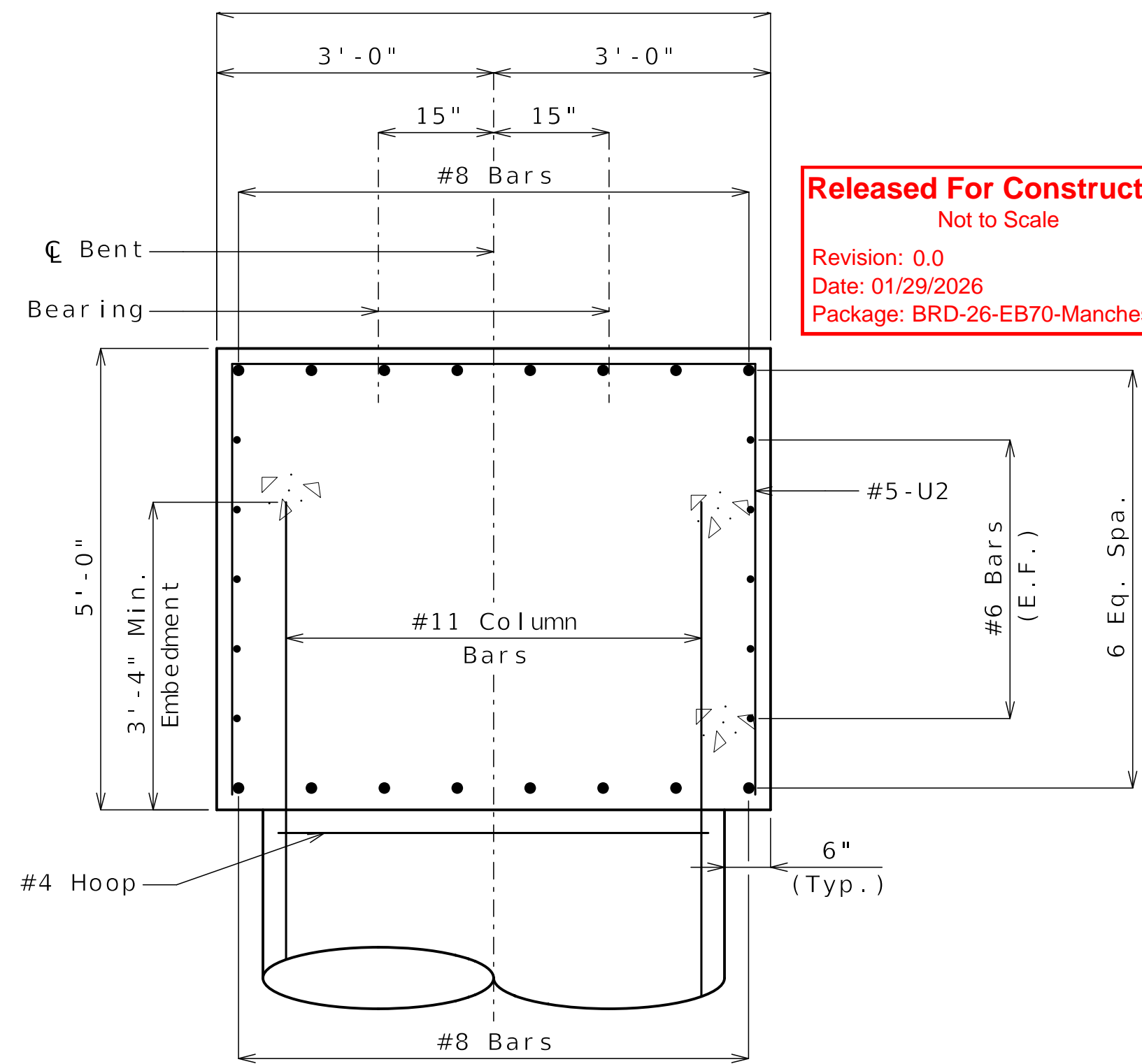
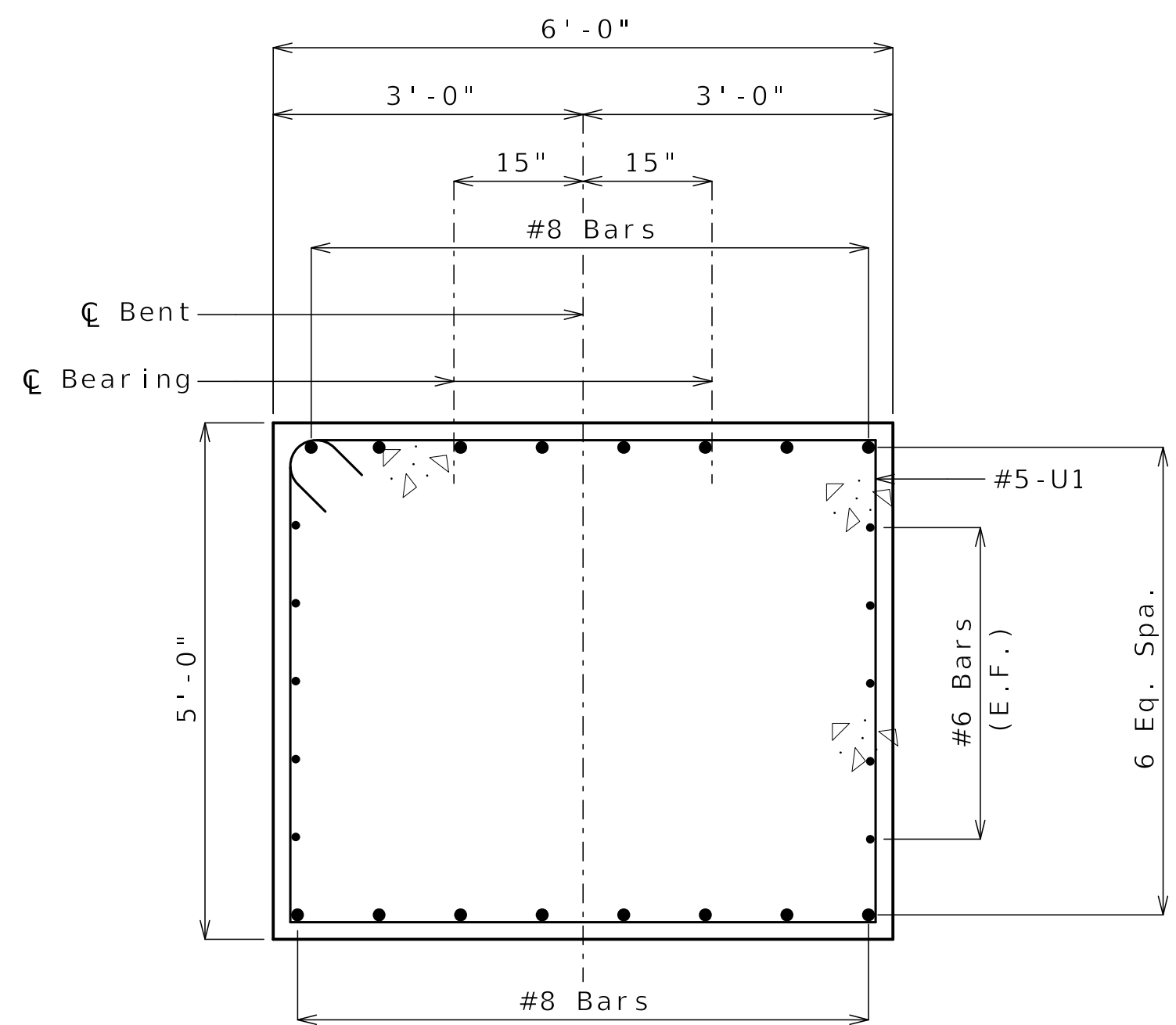
715 KIRK DRIVE
KANSAS CITY, MO 64105-1310
CERTIFICATE OF AUTHORITY
NO. 001270

Released For Construction
Not to Scale
Revision: 0.0
Date: 01/29/2026
Package: BRD-26-EB70-Manchester

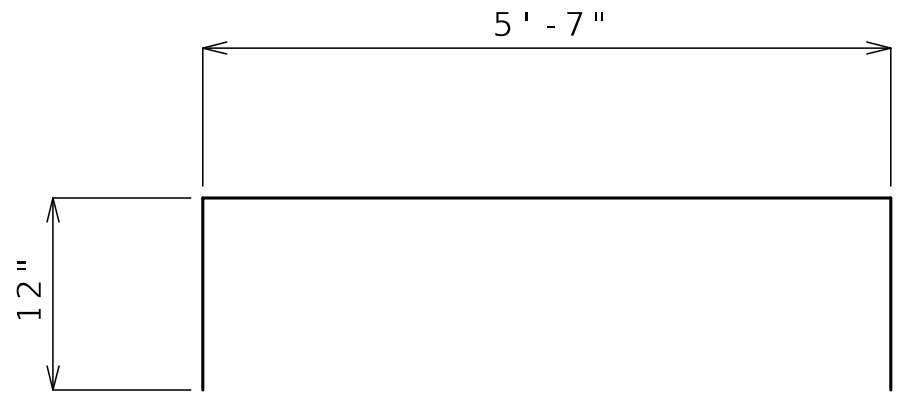
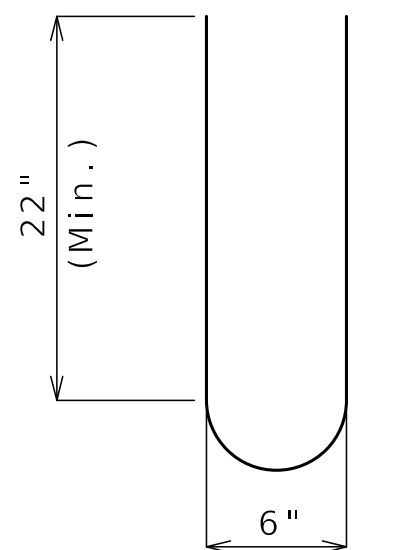
VERTICAL DRAIN AT END BENTS



(1) Holes required in pile webs for threading bars through. Holes shall not be larger than necessary and can be field cut. Galvanization shall be repaired per 1081.



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Revision: 0.0
Date: 01/29/2026
Package: BRD-26-EB70-Manchester



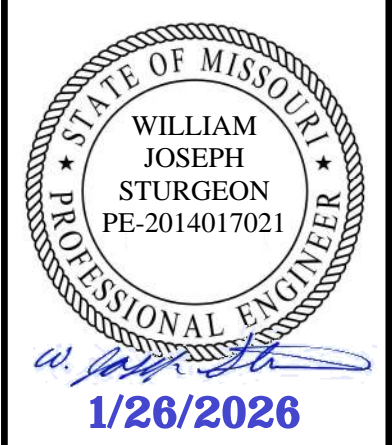
Notes:
For angle of girders relative to C Bent, see Sheet No. B26-13.
Prior to placing concrete for column, position of vertical reinforcement shall be verified so as to provide clearance for capbeam reinforcement as applicable.
U1 & U2 bars shall be placed along skew.
For location of footings, see Sheet No. B26-04.
For additional joint filler layout details, see Sheet No. B26-19.
For details of Laminated Neoprene Bearing Pad, see Sheet No. B26-12.
For details of Steel Pile Splice, see Sheet No. B26-12.

DETAILS OF INTERMEDIATE BENT NO. 2

Detailed OCT 2025
Checked OCT 2025

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

Sheet No. B26-09 of B26-46



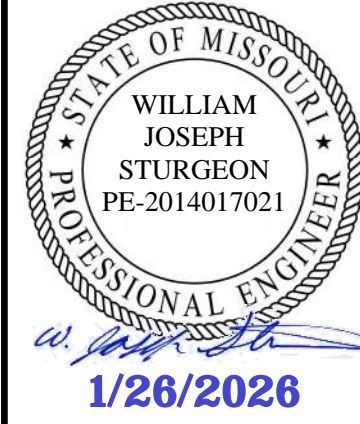
DATE PREPARED 01/13/2026	
ROUTE 1-70	STATE MO
DISTRICT BR	SHEET NO. B26-09
COUNTY JACKSON	
JOB NO. J411486D	
CONTRACT ID. 240807-C01	
PROJECT NO.	
BRIDGE NO. A82571	

DATE	DESCRIPTION
01/13/26	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



DATE PREPARED	01/13/2026
ROUTE	1-70
STATE	MO
DISTRICT	BR
SHEET NO.	B26-10
COUNTY	JACKSON
JOB NO.	J411486D
CONTRACT ID.	240807-C01
PROJECT NO.	

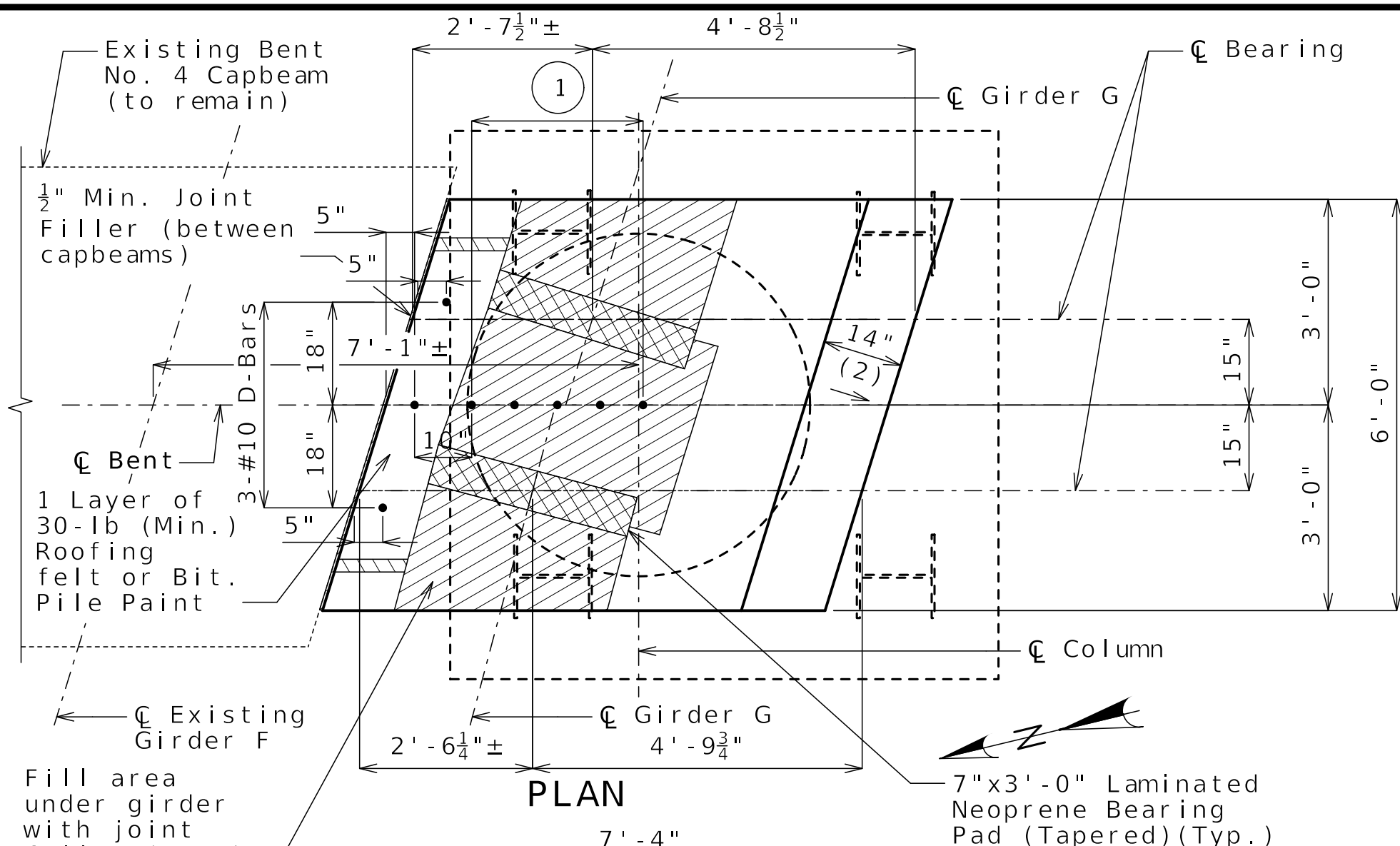
BRIDGE NO. A82571

DATE	DESCRIPTION
01/13/26	REV 0 - RFC SUBMITTAL

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

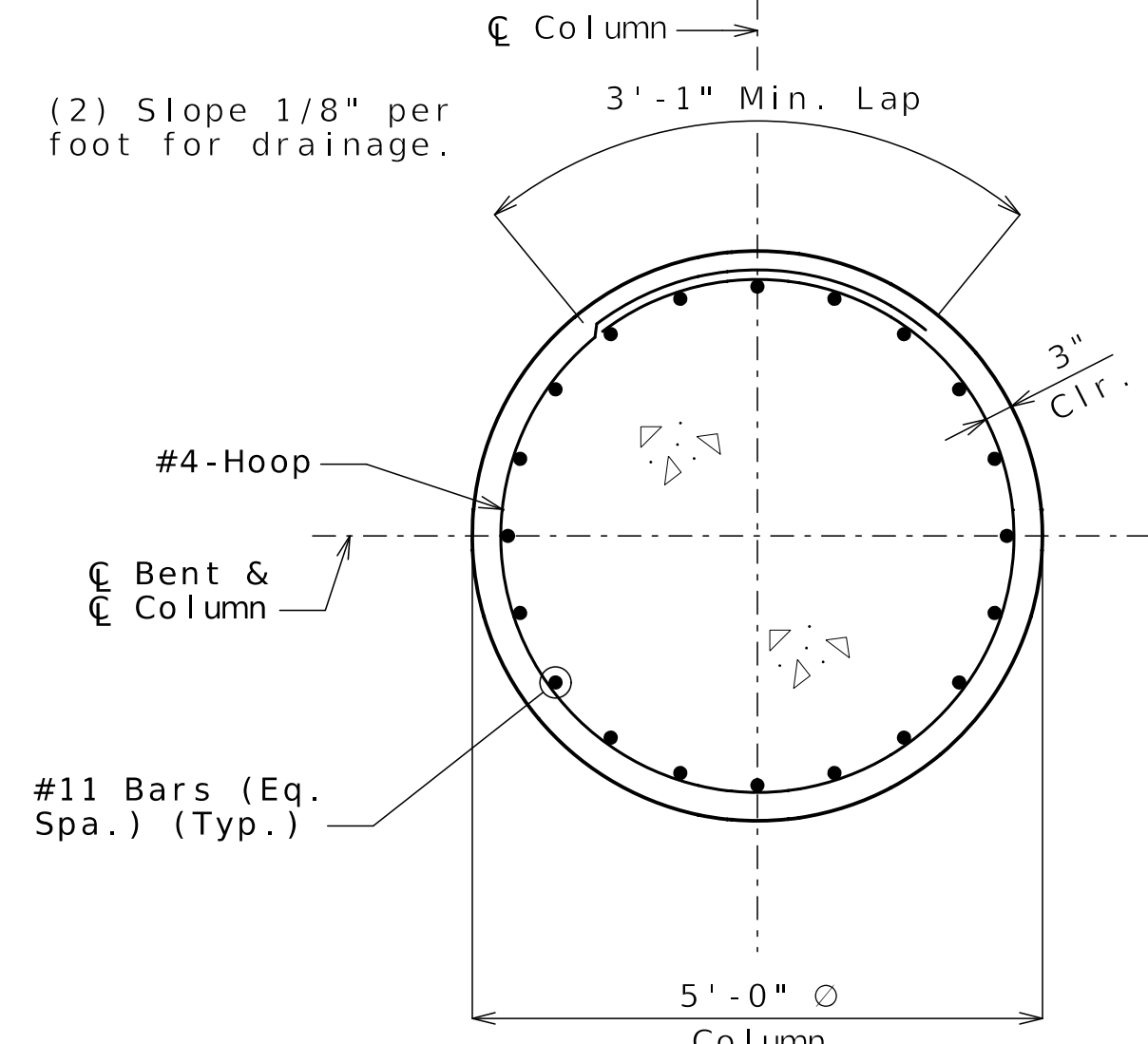
105 WEST CAPITOL JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

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

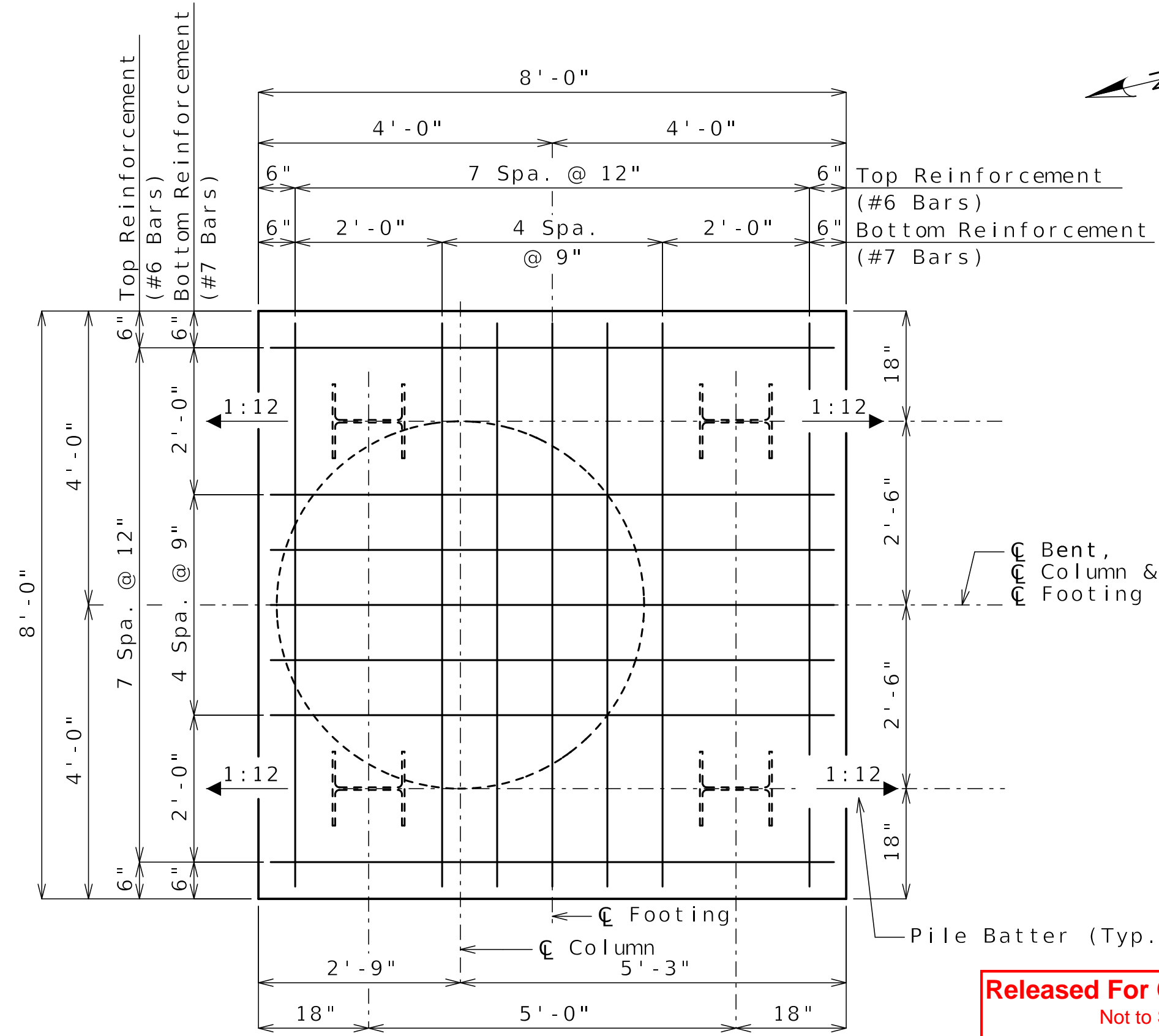


1 5-#10-D Bars @ 6" min. Spa. = 2'-6" ± (Bent up girder strands may require field adjustment for clearance)

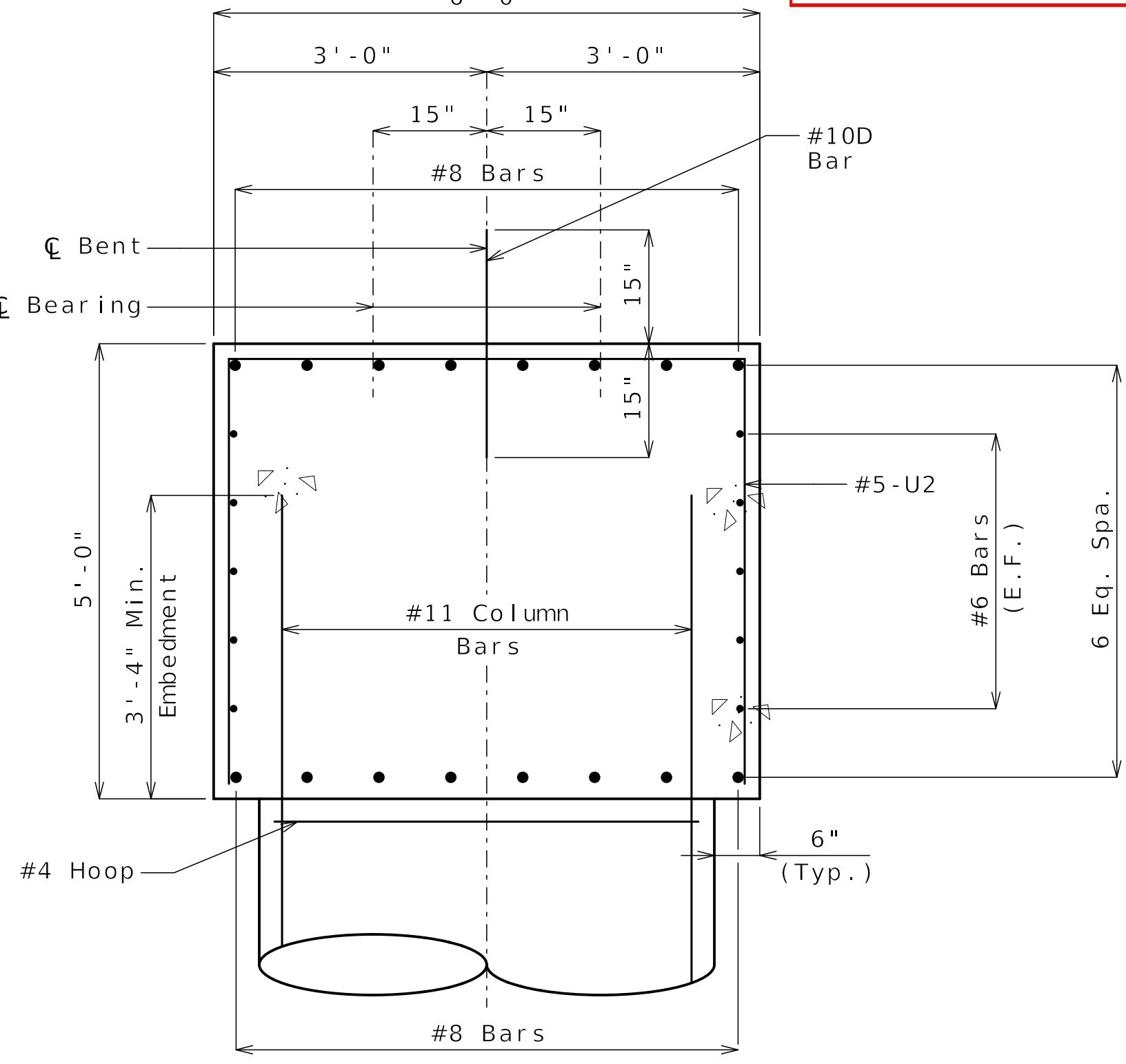
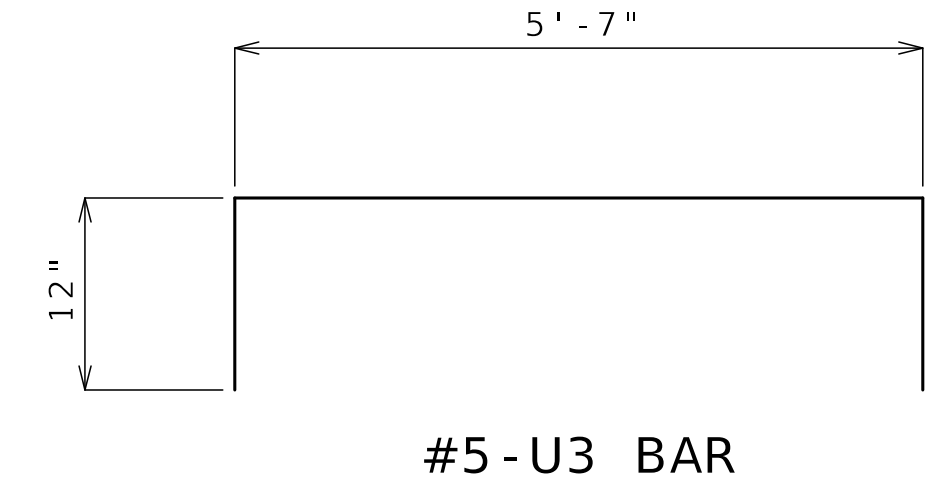
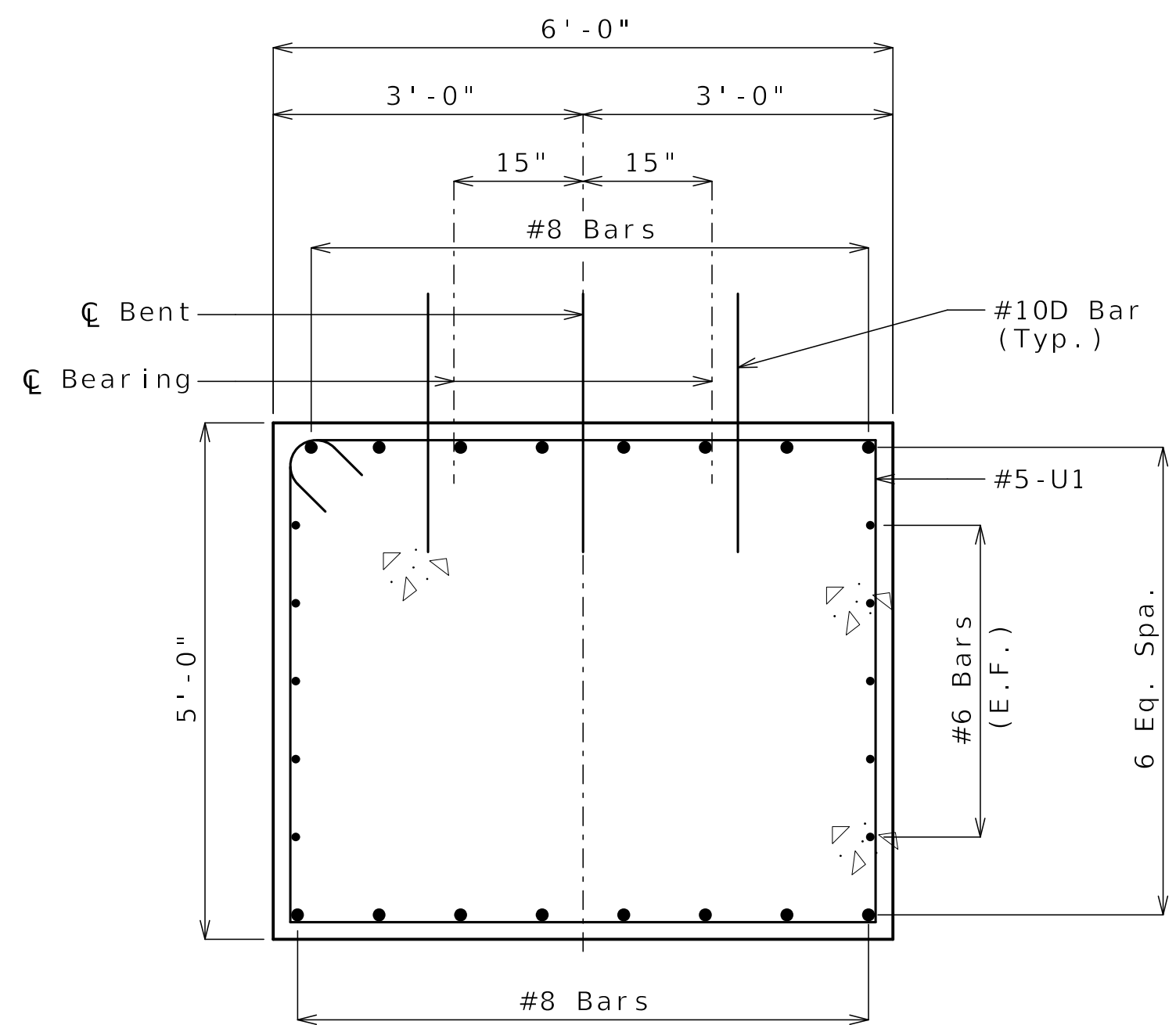
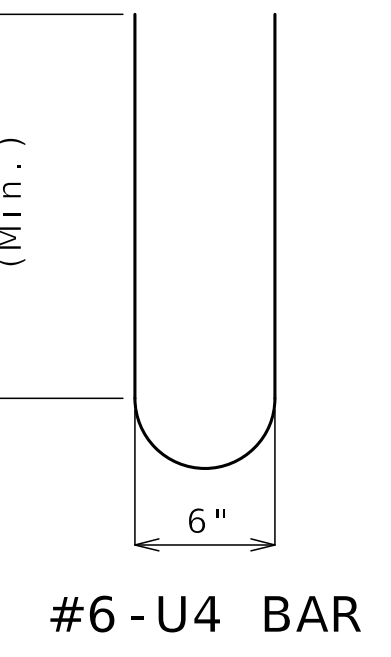
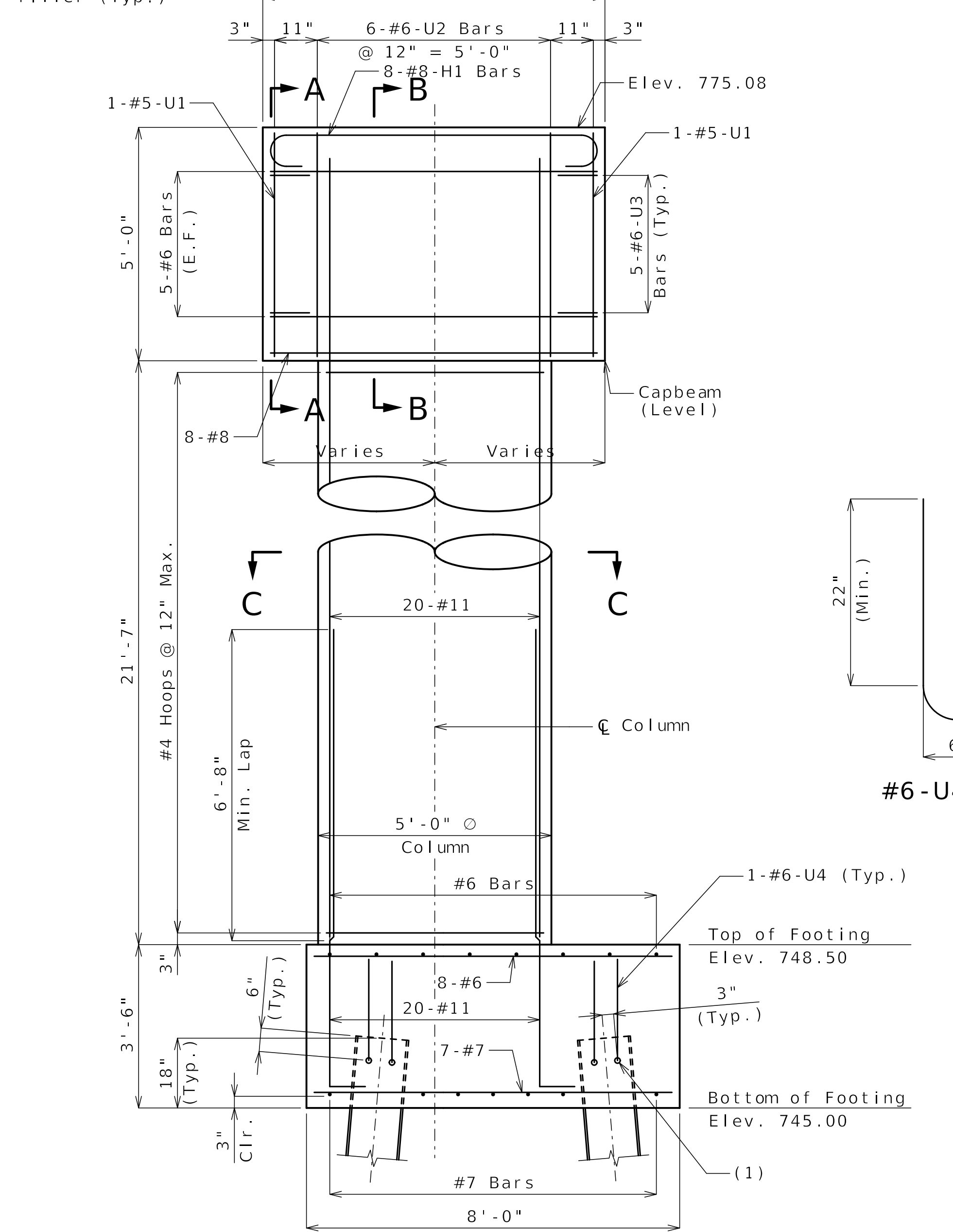
(2) Slope 1/8" per foot for drainage.



(1) Holes required in pile webs for threading bars through. Holes shall not be larger than necessary and can be field cut. Galvanization shall be repaired per 1081.



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Not to Scale
Revision: 0.0
Date: 01/29/2026
Package: BRD-26-EB70-Manchester

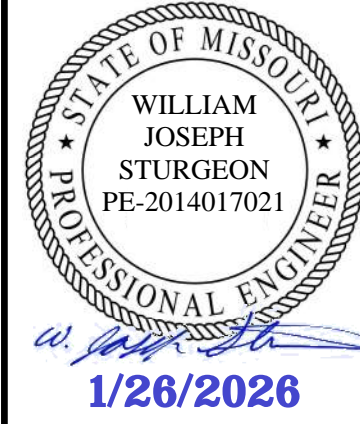


Notes:
For angle of girders relative to C Bent, see Sheet No. B26-13.
Prior to placing concrete for column, position of vertical reinforcement shall be verified so as to provide clearance for capbeam reinforcement as applicable.
U1 & U2 bars shall be placed along skew.
For location of footings, see Sheet No. B26-04.
For additional joint filler layout details, see Sheet No. B26-20.
For details of Laminated Neoprene Bearing Pad, see Sheet No. B26-12.
For details of Steel Pile Splice, see Sheet No. B26-12.

Detailed OCT 2025
Checked OCT 2025

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

Sheet No. B26-10 of B26-46



DATE PREPARED 01/13/2026	
ROUTE 1-70	STATE MO
DISTRICT BR	SHEET NO. B26-11
COUNTY JACKSON	
JOB NO. J411486D	
CONTRACT ID. 240807-C01	
PROJECT NO.	
BRIDGE NO. A82571	

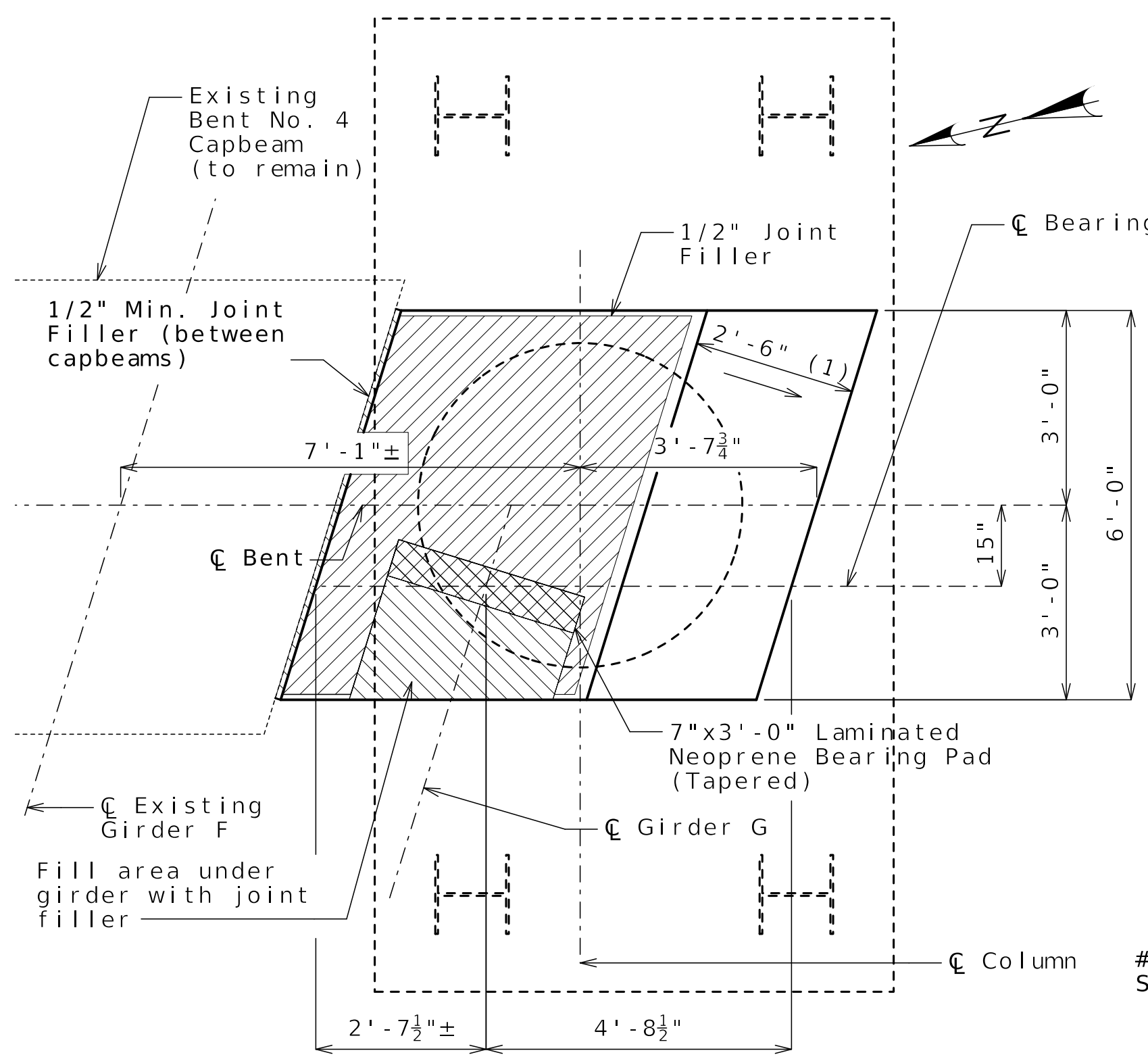
DATE	DESCRIPTION
01/13/26	REV 0 - RFC SUBMITTAL

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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

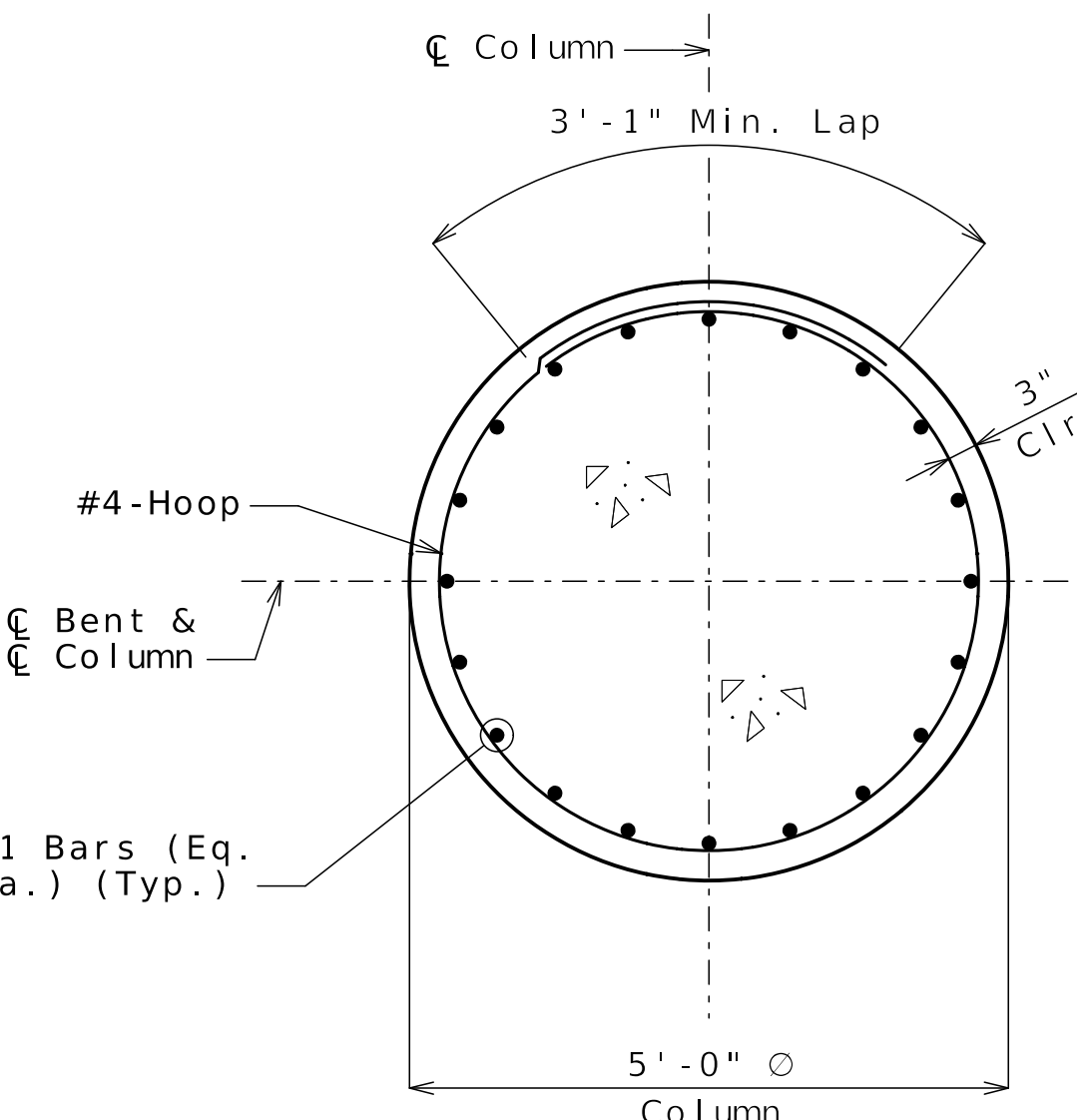
CLARKSON RADMACHER JOINT VENTURE
715 KIRK DRIVE KANSAS CITY, MO 64105-1310
CERTIFICATE OF AUTHORITY NO. 001270

HNTB

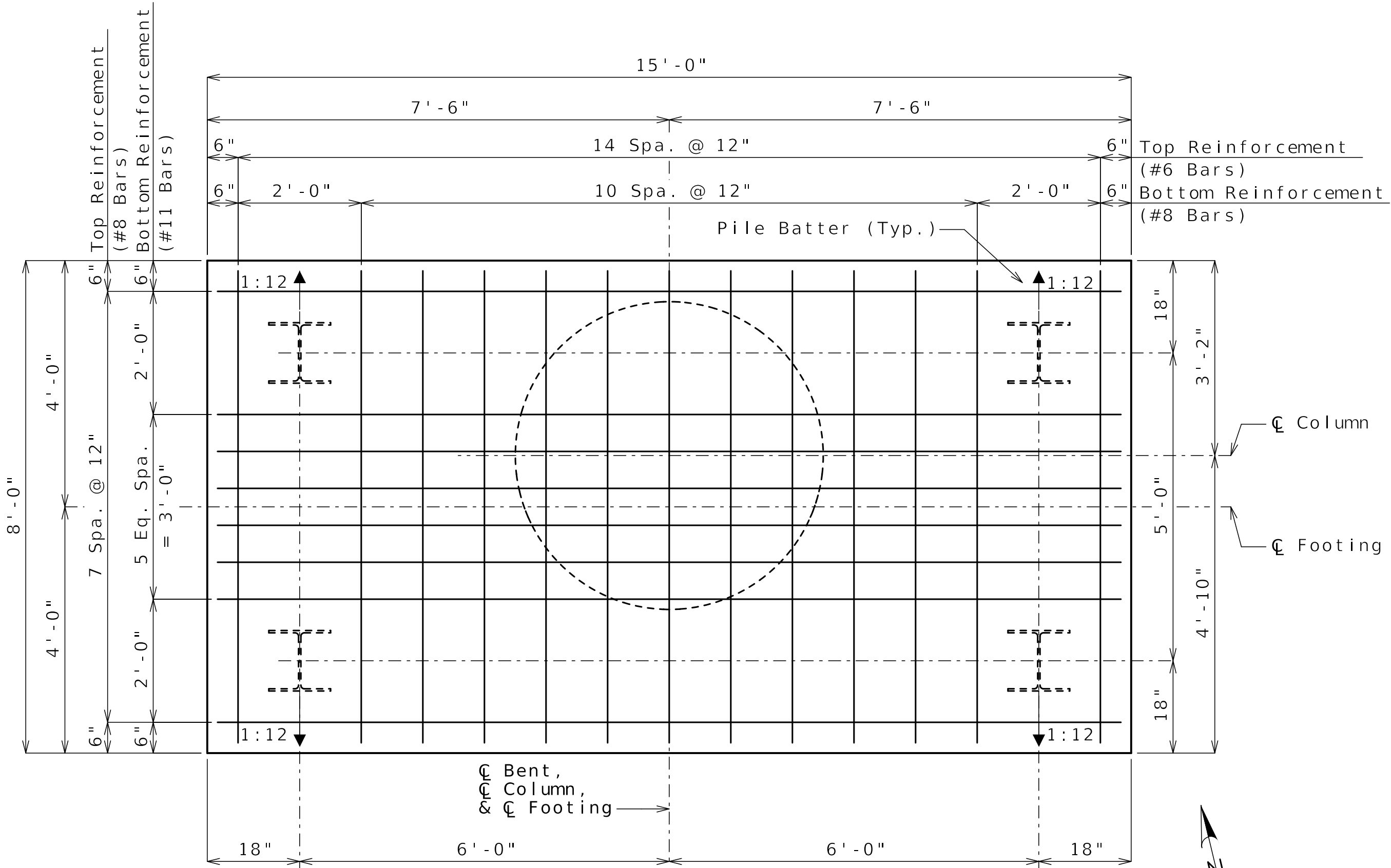


PLAN

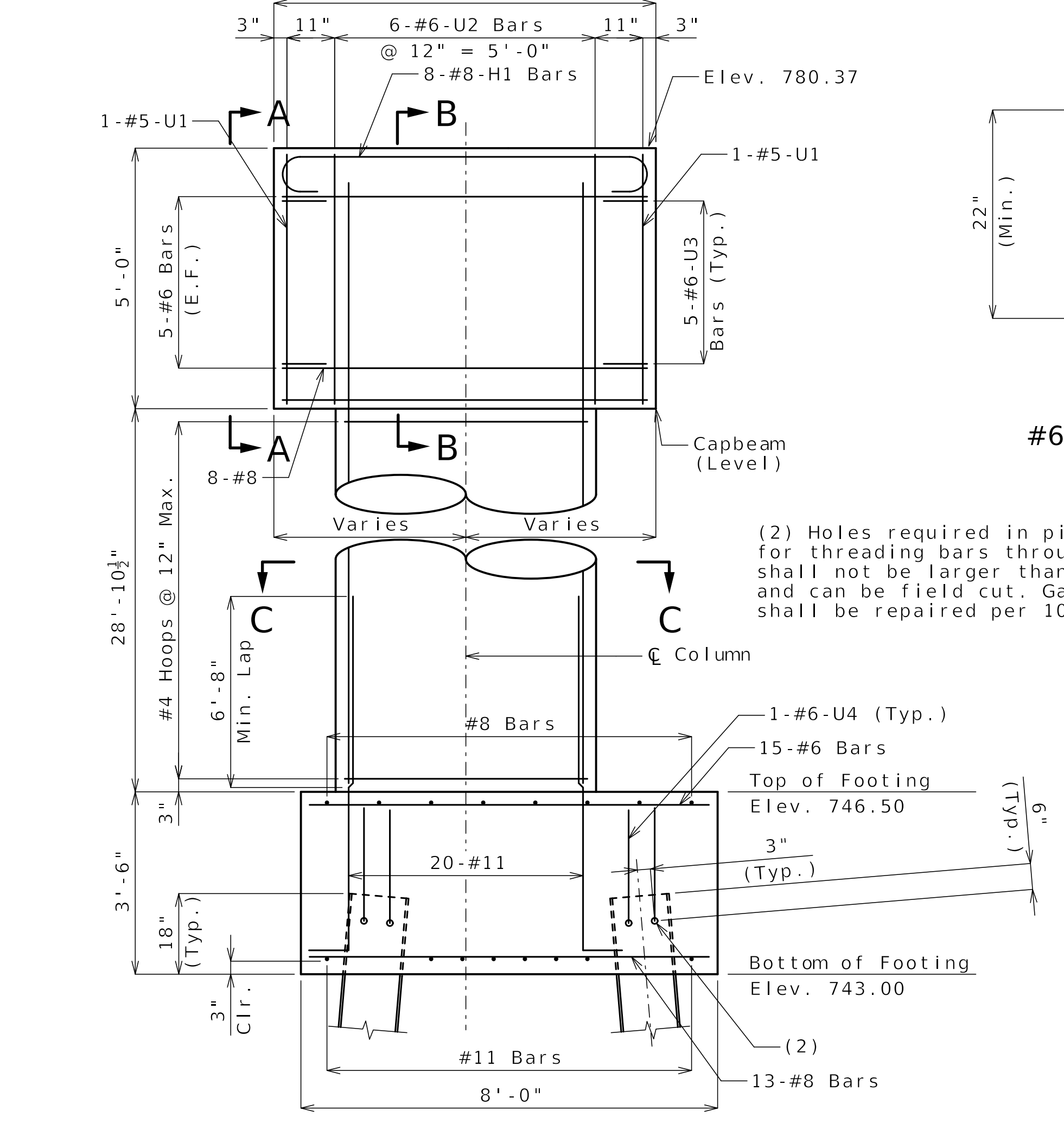
(1) Slope 1/8" per foot for drainage.



SECTION C-C



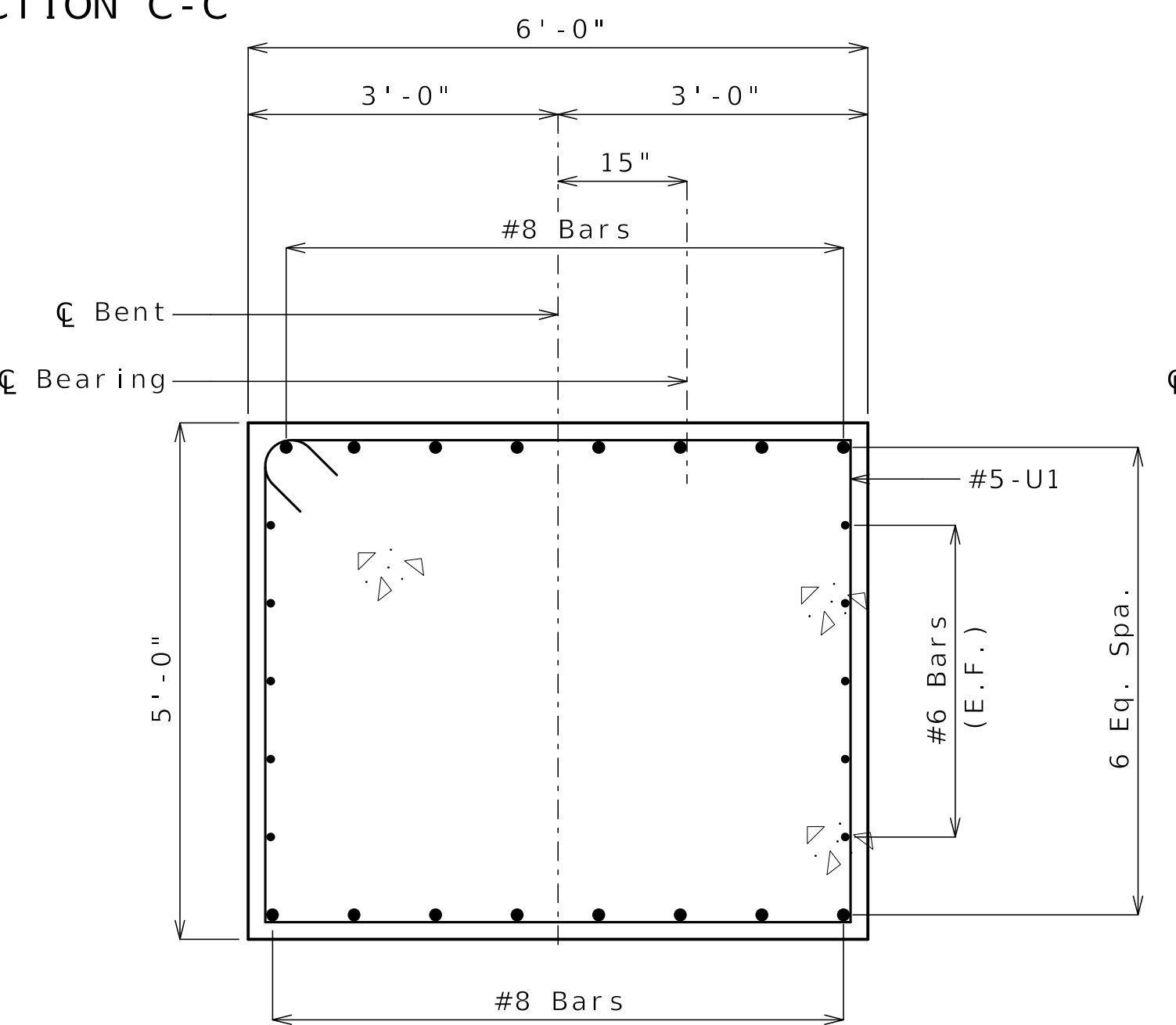
FOOTING PLAN



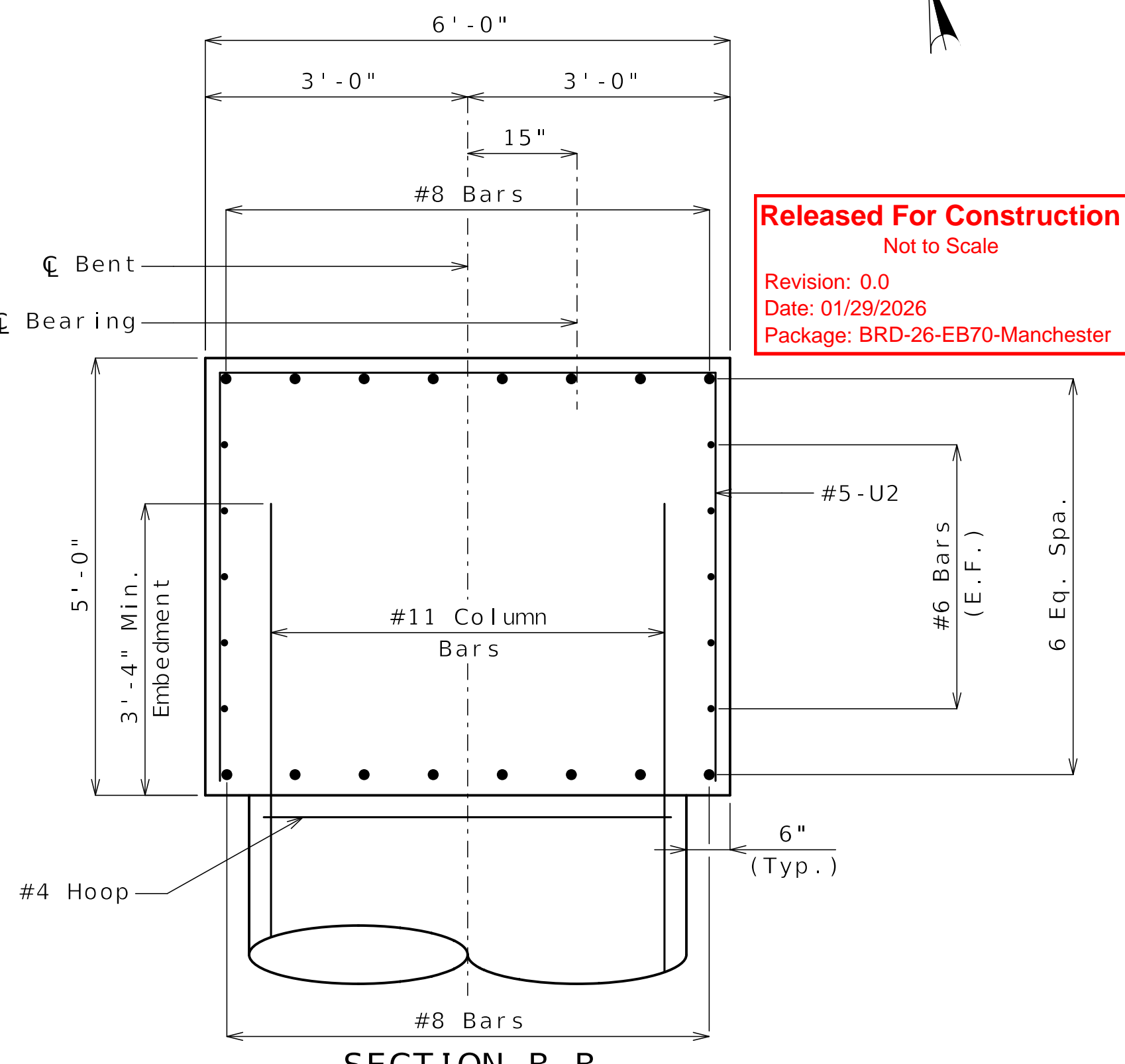
ELEVATION

(Looking upstation)

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

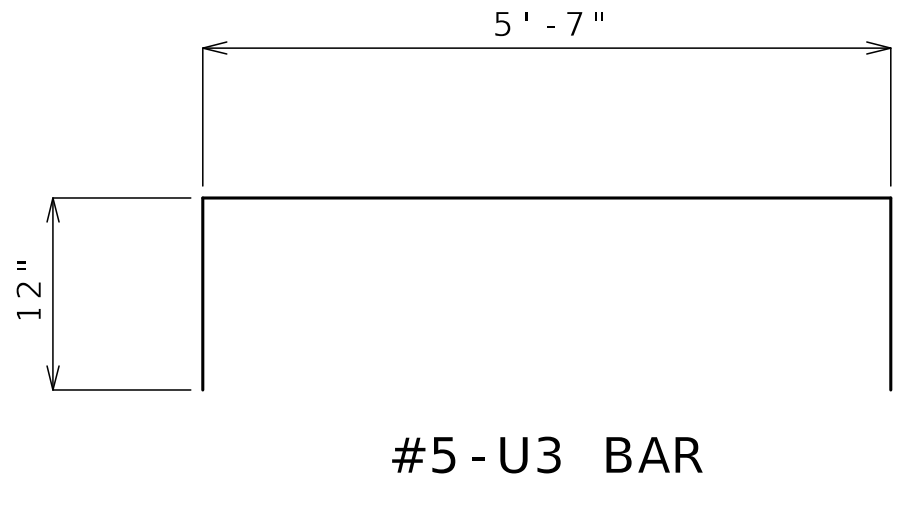


SECTION A-A



SECTION B-B

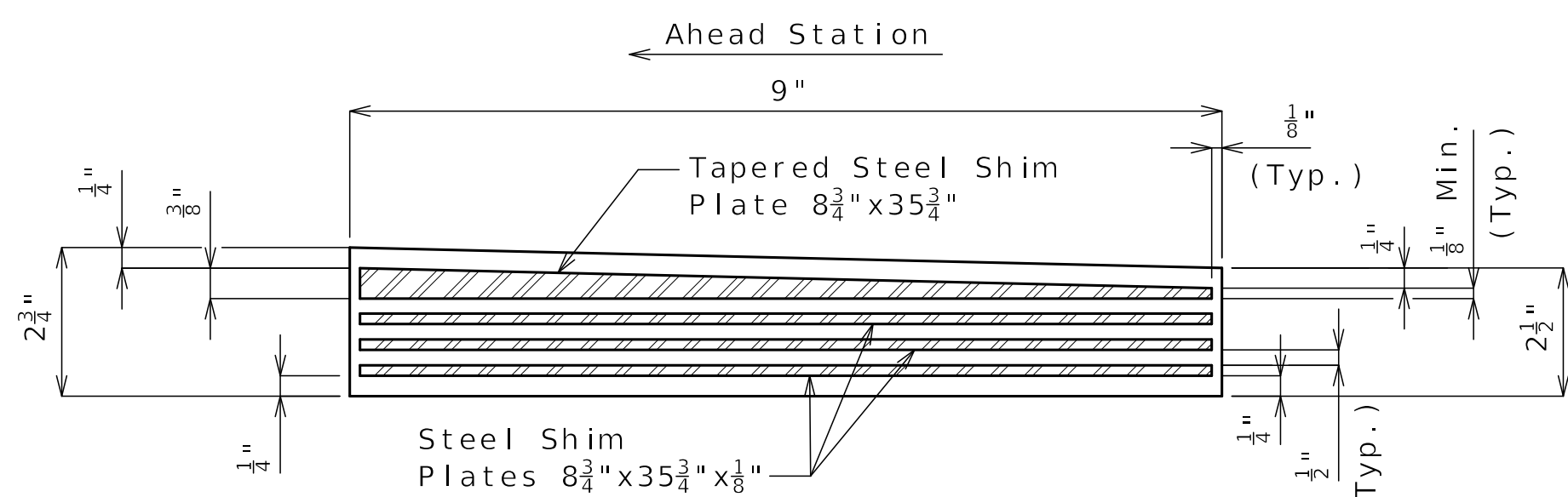
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Not to Scale
Revision: 0.0
Date: 01/29/2026
Package: BRD-26-EB70-Manchester



#5-U3 BAR

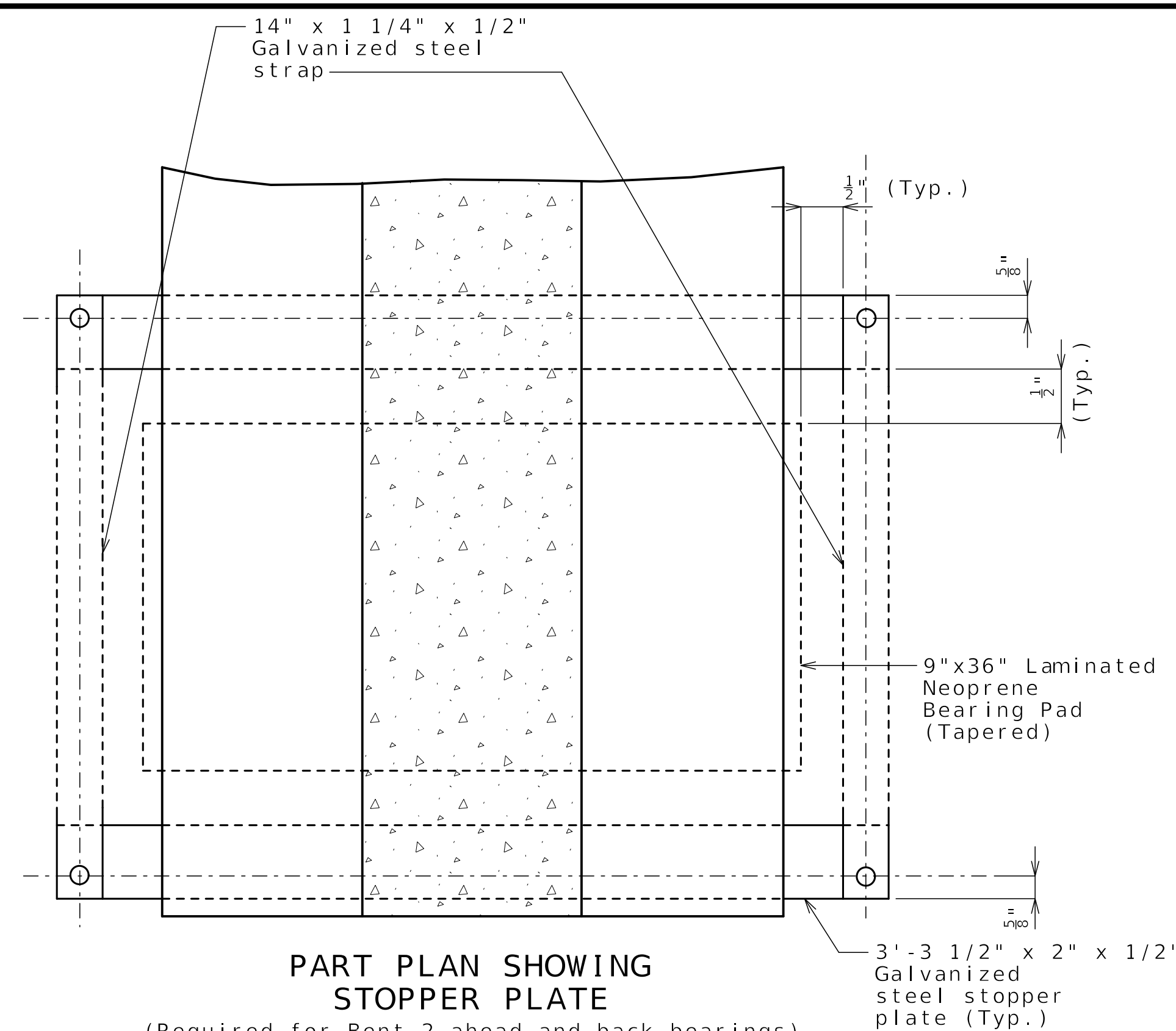
Notes:
For angle of girders relative to C bent, see Sheet No. B26-13.
Prior to placing concrete for column, position of vertical reinforcement shall be verified so as to provide clearance for capbeam reinforcement as applicable.
U1 & U2 bars shall be placed along skew.
For location of footings, see Sheet No. B26-04.
For additional joint filler layout details, see Sheet No. B26-21.
For details of Laminated Neoprene Bearing Pad, see Sheet No. B26-12.
For details of Steel Pile Splice, see Sheet No. B26-12.

DETAILS OF INTERMEDIATE BENT NO. 4

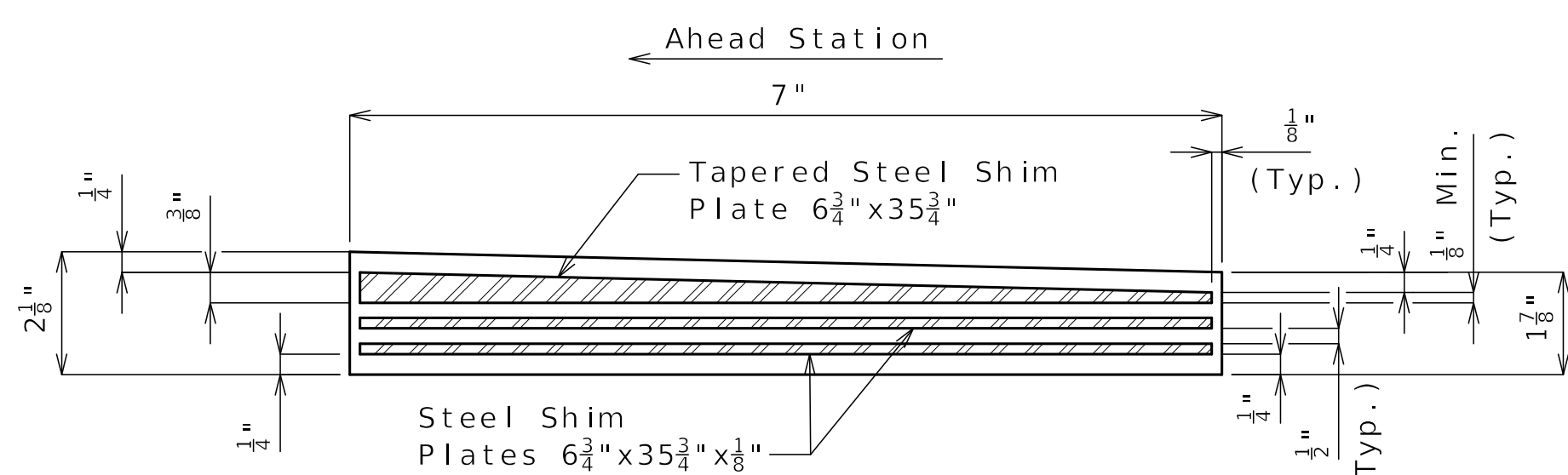


TYPICAL SECTION THRU LAMINATED NEOPRENE BEARING PAD (TAPERED)

Bent 2 Ahead-1 Required
Bent 2 Back-1 Required

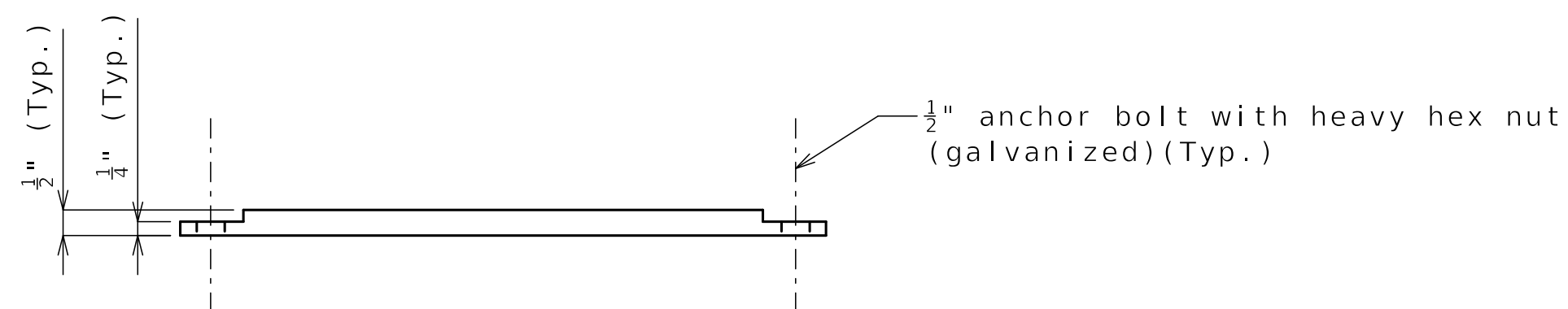


PART PLAN SHOWING STOPPER PLATE
(Required for Bent 2 ahead and back bearings)

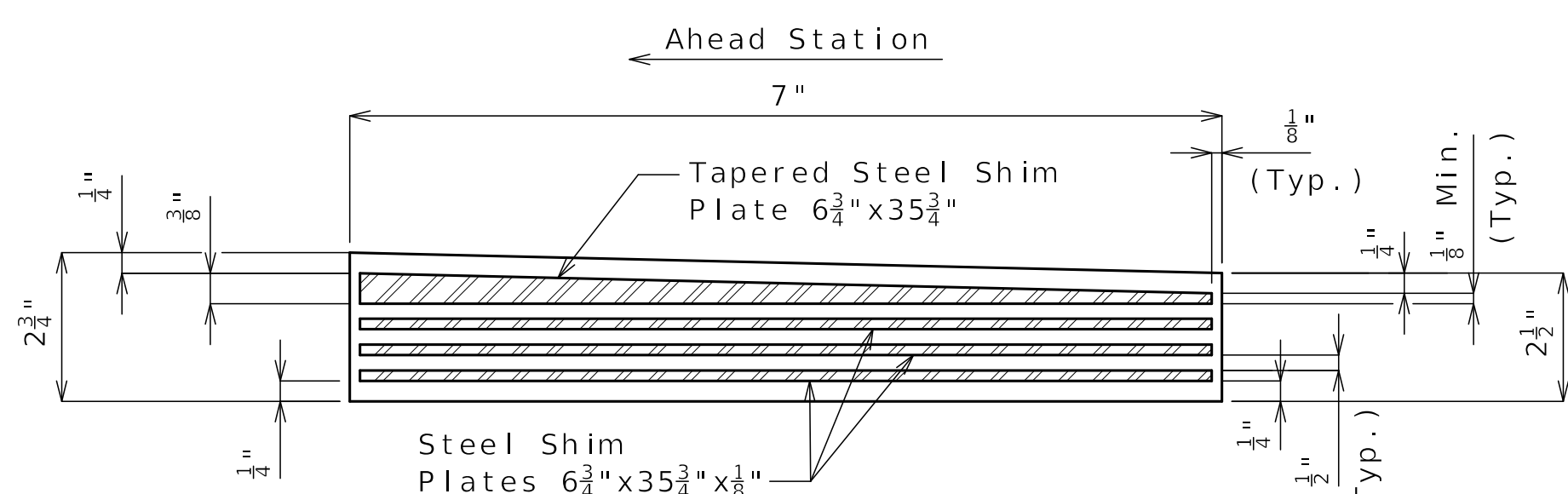


TYPICAL SECTION THRU LAMINATED NEOPRENE BEARING PAD (TAPERED)

Bent 3 Ahead-1 Required
Bent 3 Back-1 Required

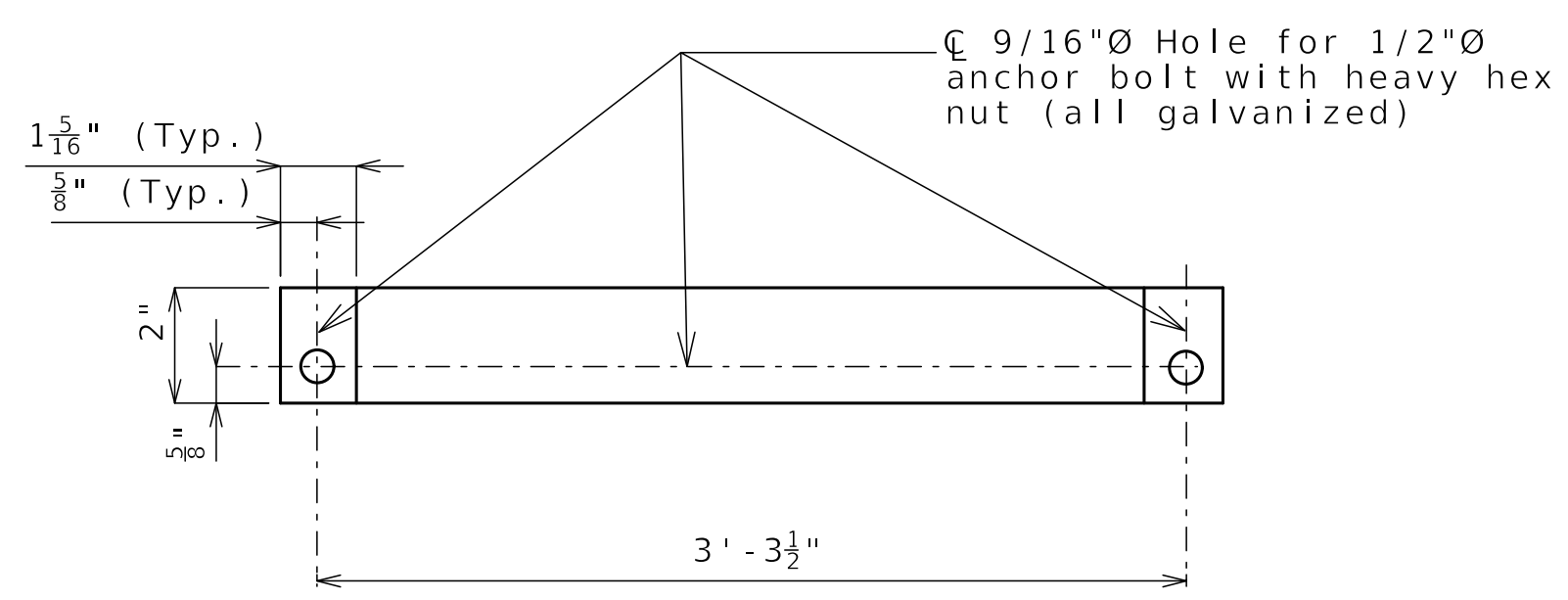


ELEVATION OF GALVANIZED STEEL STOPPER PLATE

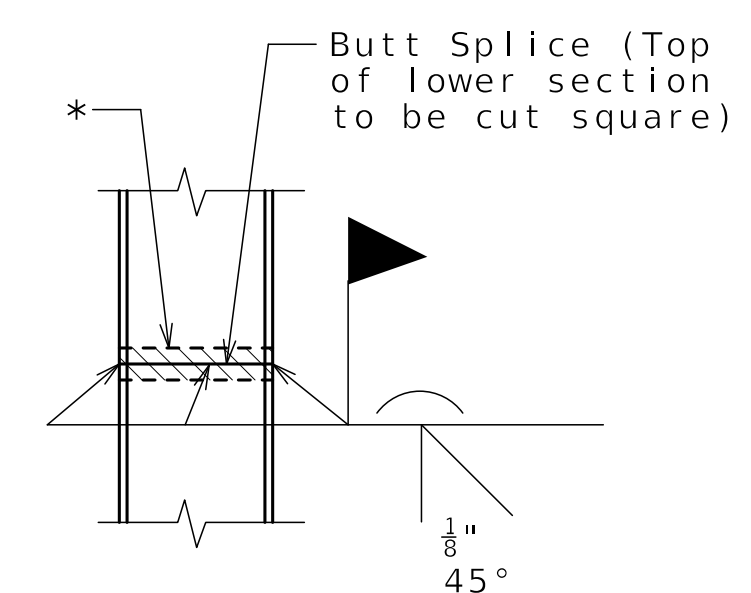


TYPICAL SECTION THRU LAMINATED NEOPRENE BEARING PAD (TAPERED)

Bent 4 Back-1 Required



PLAN OF GALVANIZED STEEL STOPPER PLATE



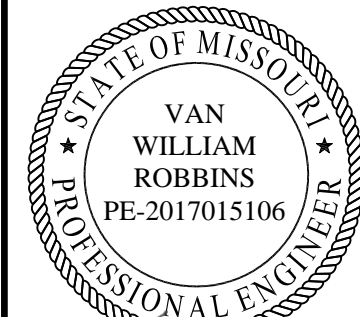
STEEL PILE SPLICE
(If required)

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

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Not to Scale
Revision: 0.0
Date: 01/29/2026
Package: BRD-26-EB70-Manchester

Notes:
For bearing locations, see Sheets No. B26-09 thru B26-11.

MISC. DETAILS OF INTERMEDIATE BENTS



Van W. Robbins
01-26-26

DATE PREPARED
01/13/2026

ROUTE STATE
I-70 MO

DISTRICT SHEET NO.
BR B26-12

COUNTY
JACKSON

JOB NO.
J411486D

CONTRACT ID.
240807-C01

PROJECT NO.

BRIDGE NO.
A82571

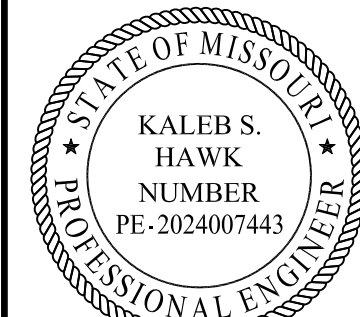
DATE	DESCRIPTION
01/13/26	REV 0 - RFC SUBMITTAL

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



Kaleb S. Hawk
1-26-2026

DATE PREPARED
01/13/2026

ROUTE STATE
I-70 MO

DISTRICT SHEET NO.
BR B26-13

COUNTY
JACKSON

JOB NO.
J411486D

CONTRACT ID.
240807-C01

PROJECT NO.

BRIDGE NO.
A82571

DESCRIPTION

REV 0 - RFC SUBMITTAL

DATE

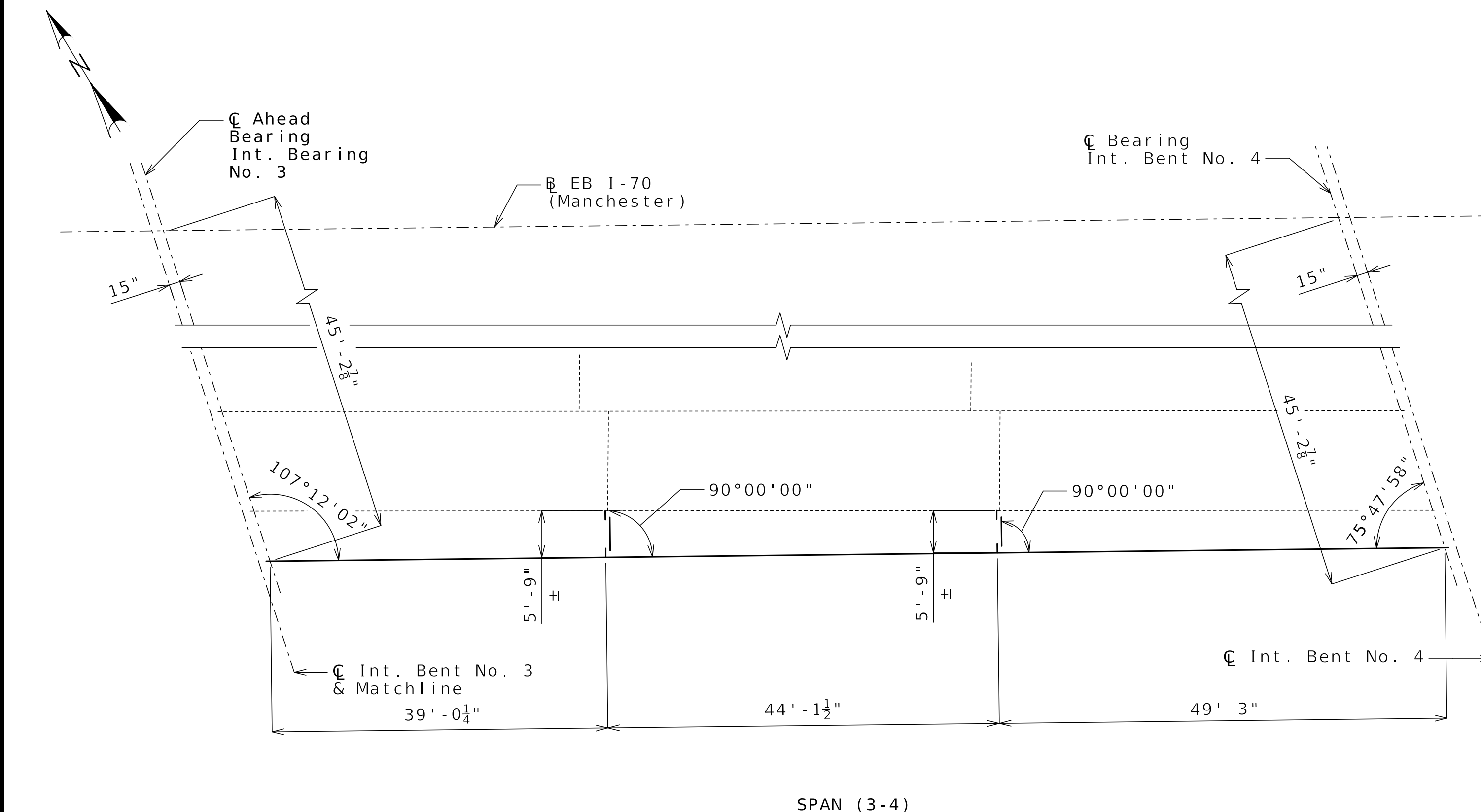
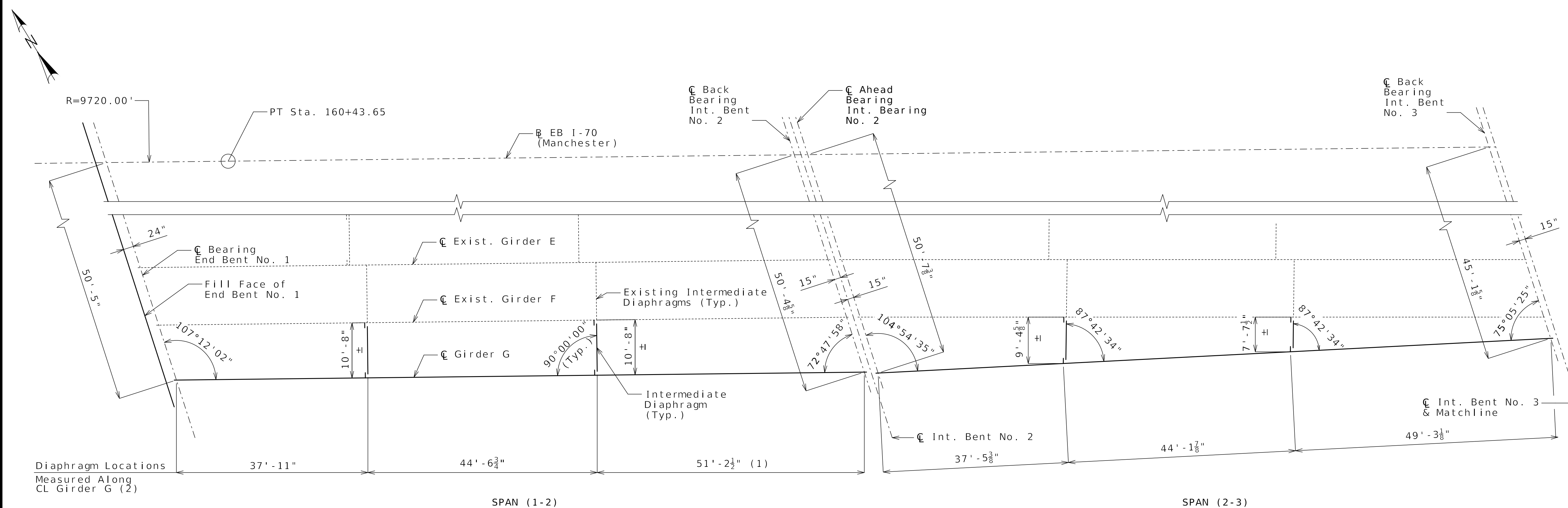
01/13/26

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

MoDOT

105 WEST CAPITOL JEFFERSON CITY, MO 65102

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



FRAMING PLAN

- (1) When distance between brace points exceeds 50 ft. the contractor shall provide bracing necessary for lateral and torsional stability of the girders during construction of the concrete slab and remove the bracing after the slab has attained 75% design strength. Contractor shall not drill holes in the girders.
- (2) Contractor shall verify dimensions to new intermediate diaphragm locations to insure they line up with stiffener locations on Existing Girder F.

Released For Construction
Not to Scale
Revision: 0.0
Date: 01/29/2026
Package: BRD-26-EB70-Manchester

Notes:
All dimensions are horizontal.
All bents are parallel.
For Steel Intermediate Diaphragms, see Sheet No. B26-18.

FRAMING PLAN

Detailed OCT 2025
Checked OCT 2025

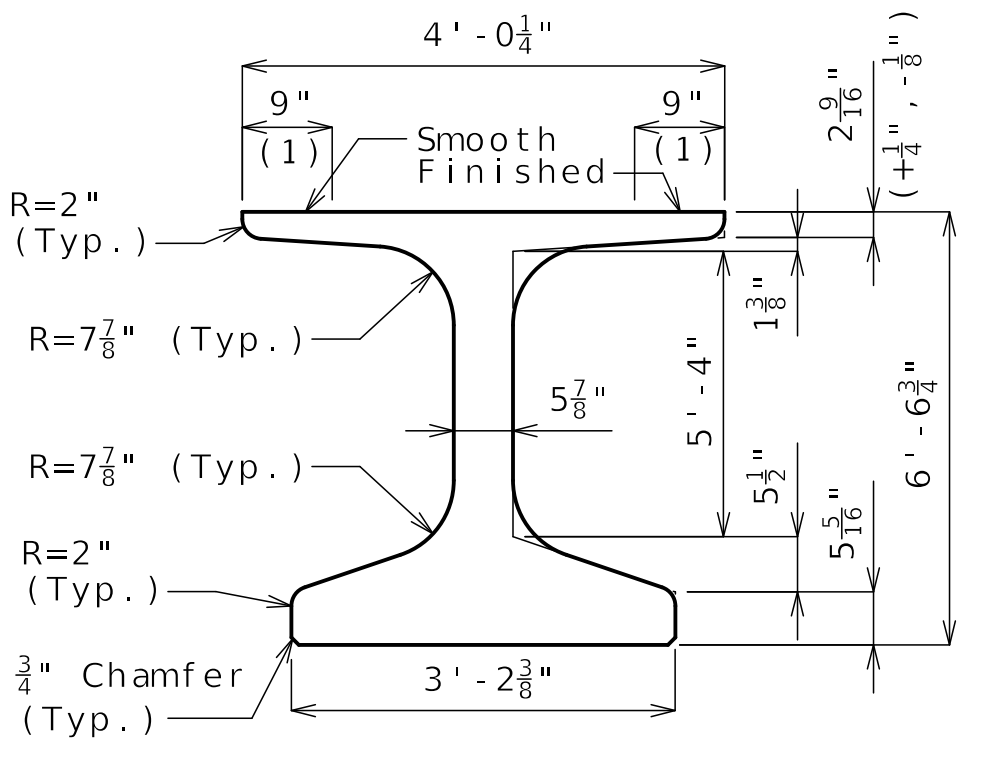
Note: This drawing is not to scale. Follow dimensions.

Sheet No. B26-13 of B26-46

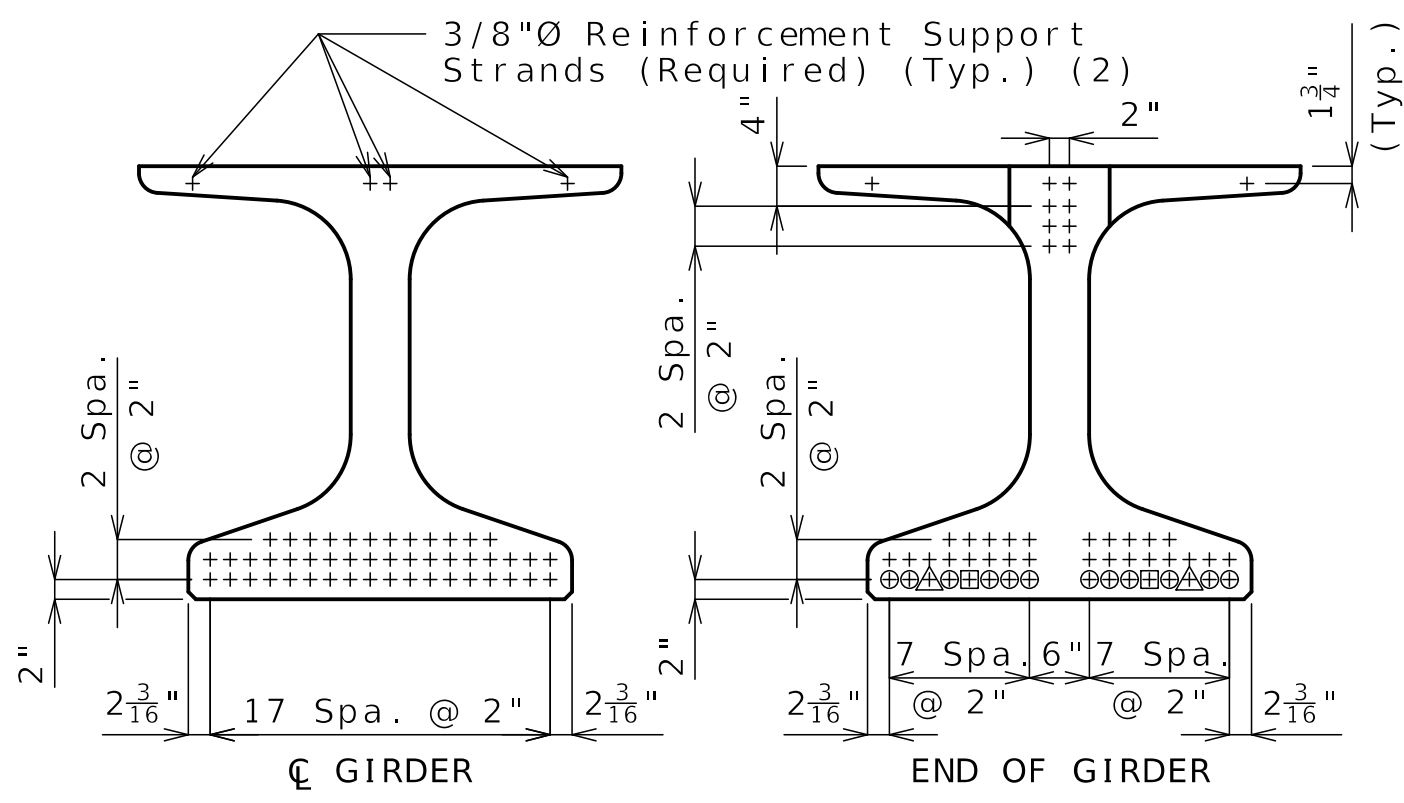


(1) Fabricator shall apply a bond breaker to this region.

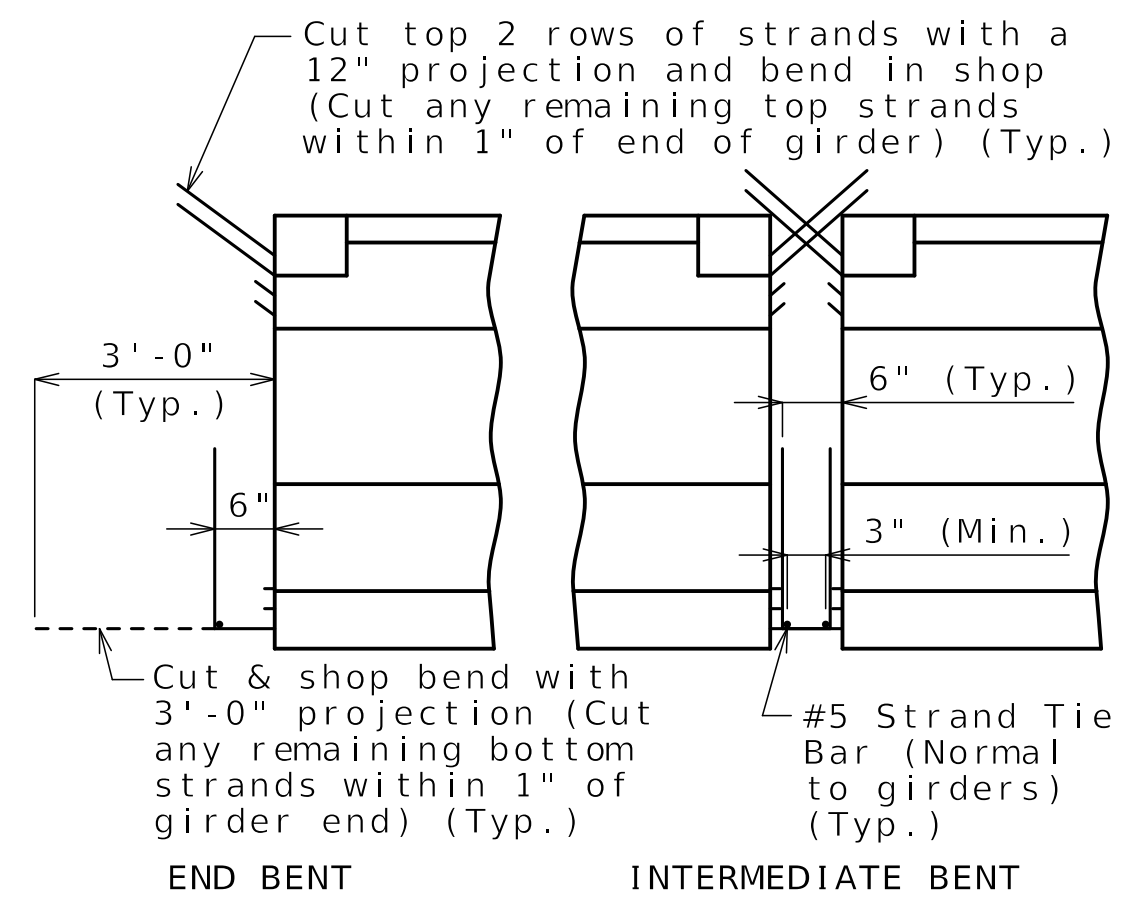
(2) Outer strands tensioned to 2.02 kips/strand and inner strands to 8 kips/strand. Placed symmetrical about \bar{C} Girder. May be moved laterally in pairs.



DIMENSIONS

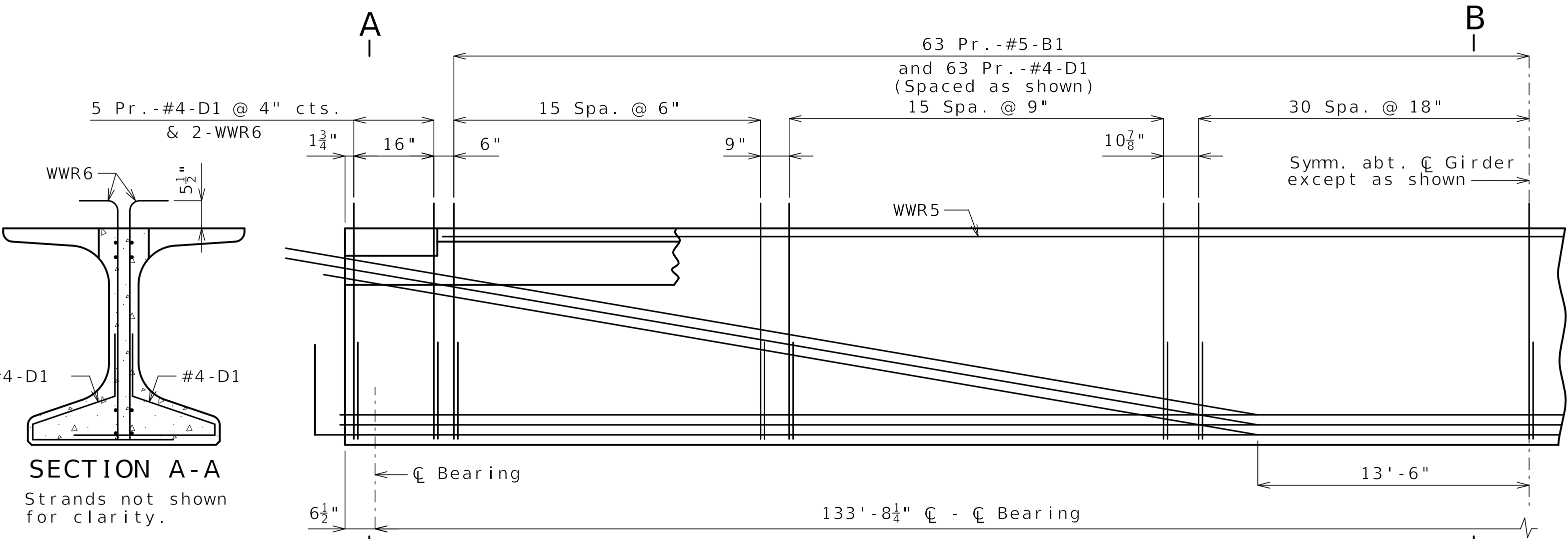


STRAND ARRANGEMENT



STRANDS AT GIRDER ENDS

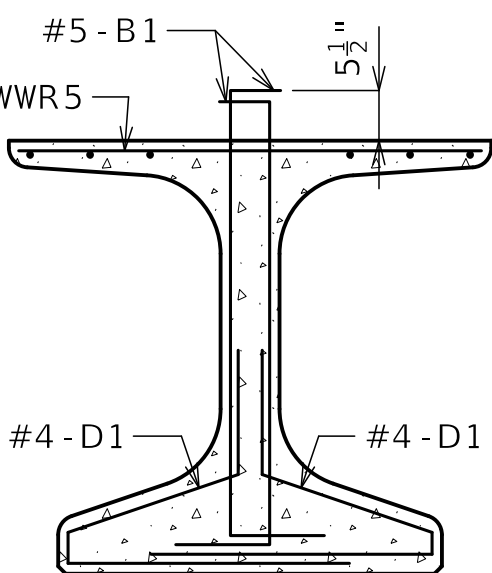
- + Indicates prestressing strand.
- Indicates cut & shop bend with 3'-0" projection.
- △ Indicates debonded for 4'-0" from end of girder.
- Indicates debonded for 7'-0" from end of girder.



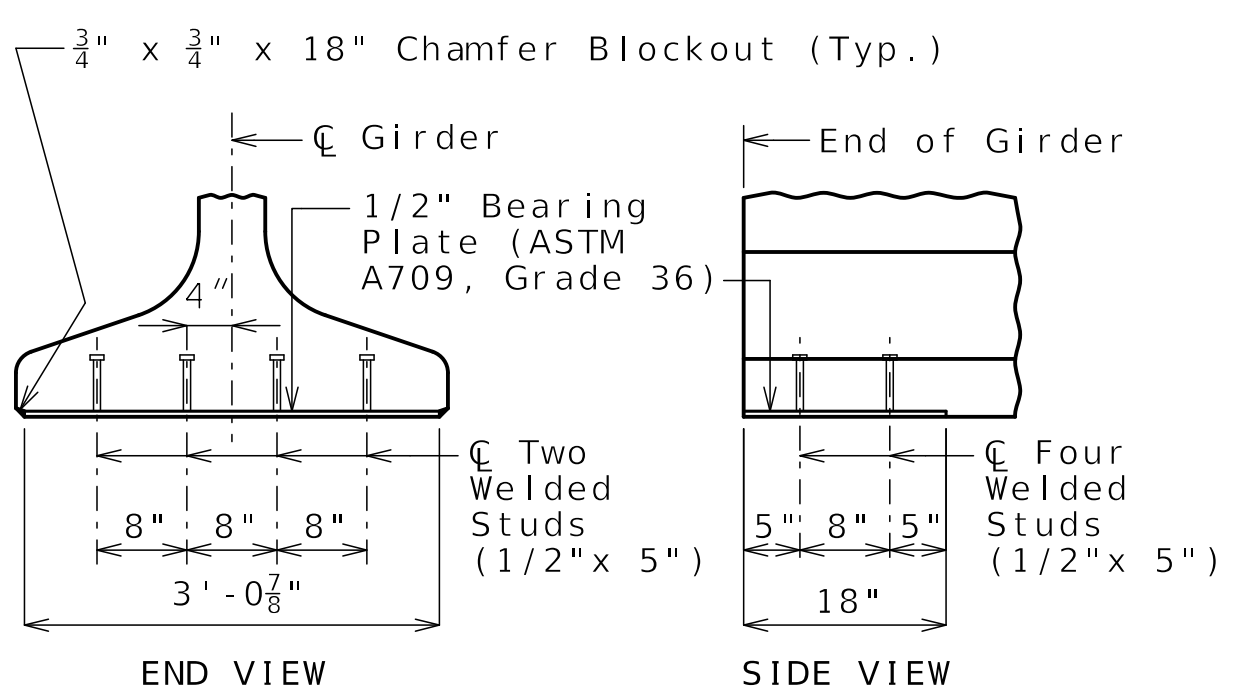
HALF ELEVATION

Reinforcement support strands not shown for clarity.

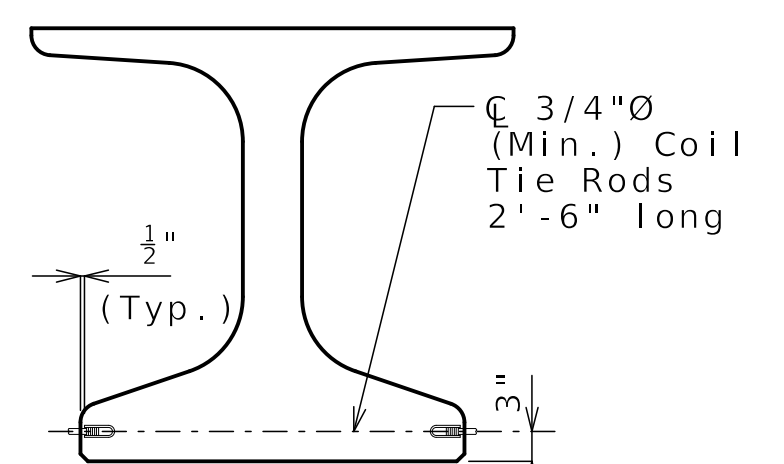
SECTION A-A
Strands not shown for clarity.



SECTION B-B
Strands not shown for clarity.



BEARING PLATE

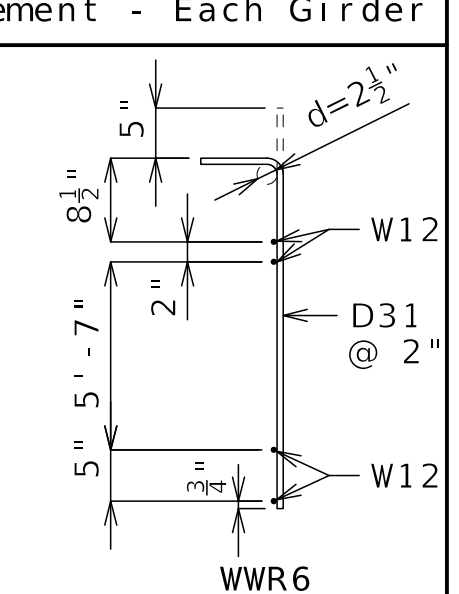


COIL TIES

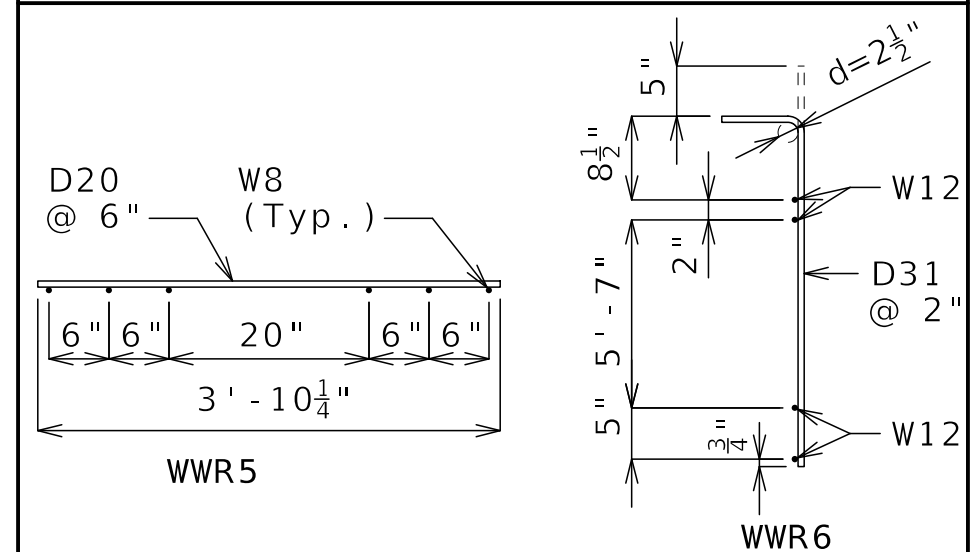
Exclude coil tie at exterior face of exterior girders except at integral end bents.

Bill of Reinforcing Steel - Each Girder			
No.	Size/Mark	Length	Shape
250	5 B1	7'-11"	11S
270	4 D1	4'-0"	9S

Bending Diagrams



Welded Wire Reinforcement - Each Girder



All dimensions are out to out.
Hooks and bends shall be in accordance with the CRSI Manual of Standard Practice for Detailing Reinforced Concrete Structures, Stirrup and Tie Dimensions.
Actual bar lengths are measured along centerline of bar to the nearest inch.
Minimum clearance to reinforcing shall be one inch.
All bar reinforcement shall be Grade 60.
The two D1 bars may be furnished as one bar at the fabricator's option.
All B1 bars shall be epoxy coated.

General Notes:

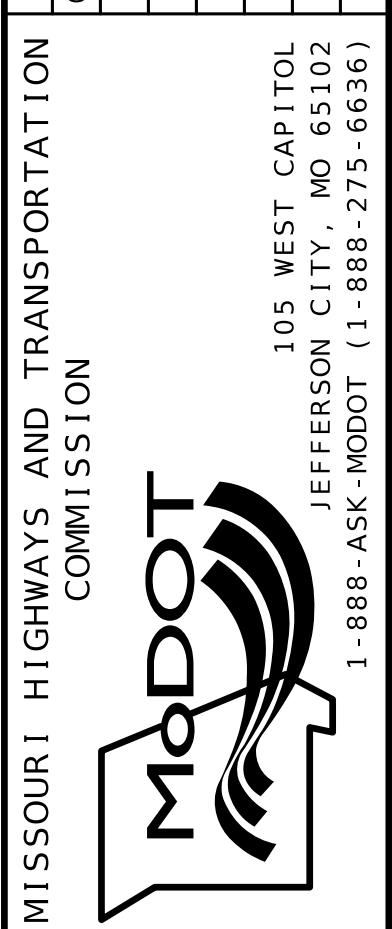
Concrete for prestressed girders shall be Class A-1 with $f'c = 10000$ psi and $f'ci = 7500$ psi.
Use 48 strands, 0.6"Ø Grade 270, with an initial prestress force of 2110 kips.
Pretensioned members shall be in accordance with Sec 1029.
Fabricator shall be responsible for location and design of lifting devices.
Exterior and interior girders are the same except: coil ties, top flange blackout, application of bond breaker, coil inserts for slab drains, holes for steel intermediate diaphragms.
For Girder Camber Diagram, see Sheet No. B26-24.
The 1 1/2"Ø holes shall be cast in the web for steel intermediate diaphragms. Drilling is not allowed. For location of holes and details of steel intermediate diaphragms, see Sheet No. B26-18.
For location of coil inserts at slab drains, see Sheets No. B26-22 and B26-23.
For location of coil ties at concrete diaphragms and integral bents, see Sheets No. B26-05 and B26-19 thru B26-21.
For additional NU Girder Details, see Sheet B26-17.
All dimensions are horizontal.



Kaleb S. Hawk
1-26-2026

DATE PREPARED	01/13/2026
ROUTE	1-70
STATE	MO
DISTRICT	BR
SHEET NO.	B26-14
COUNTY	JACKSON
JOB NO.	J411486D
CONTRACT ID.	240807-C01
PROJECT NO.	
BRIDGE NO.	A82571

DATE	DESCRIPTION
01/13/26 <td>REV 0 - RFC SUBMITTAL</td>	REV 0 - RFC SUBMITTAL

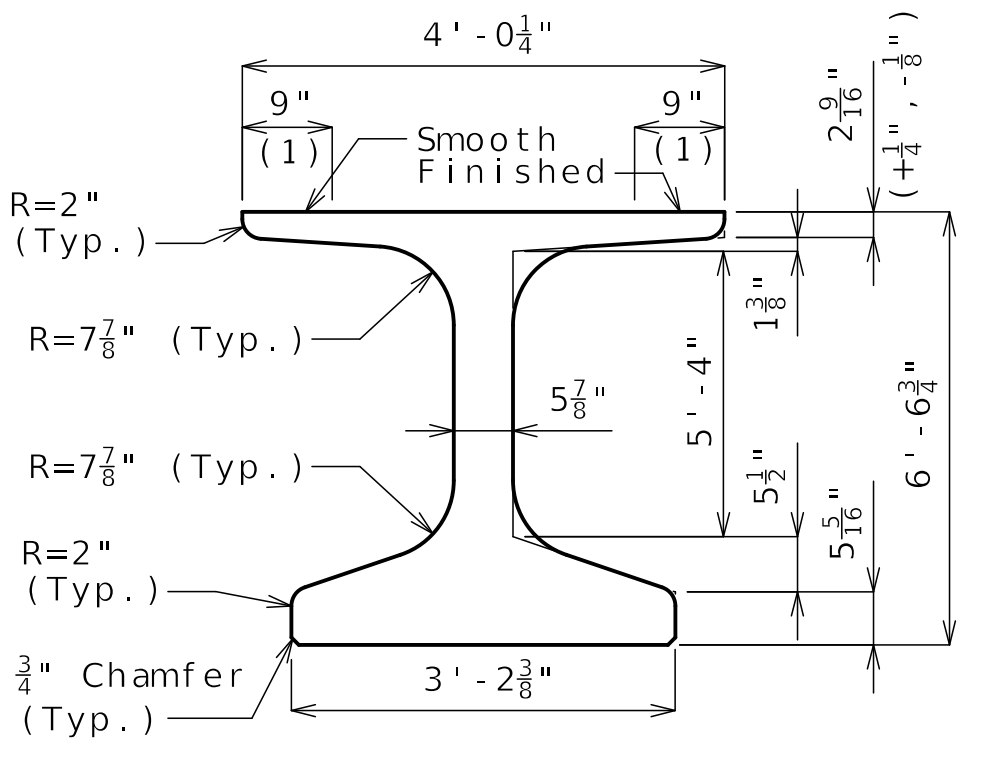


Released For Construction
Not to Scale
Revision: 0.0
Date: 01/29/2026
Package: BRD-26-EB70-Manchester

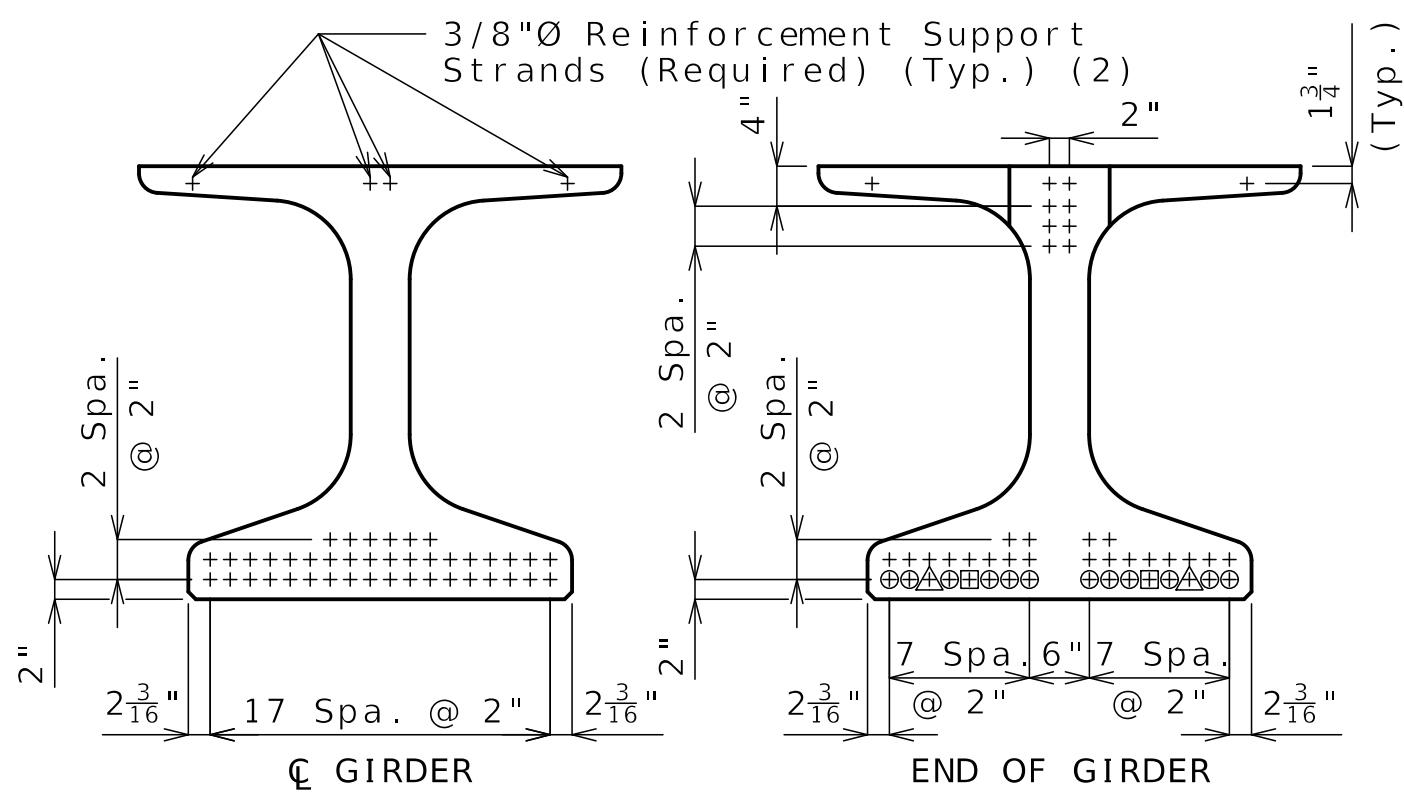
NU-GIRDERS - SPAN (1-2)

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

(2) Outer strands tensioned to 2.02 kips/strand and inner strands to 8 kips/strand. Placed symmetrical about \bar{C} Girder. May be moved laterally in pairs.

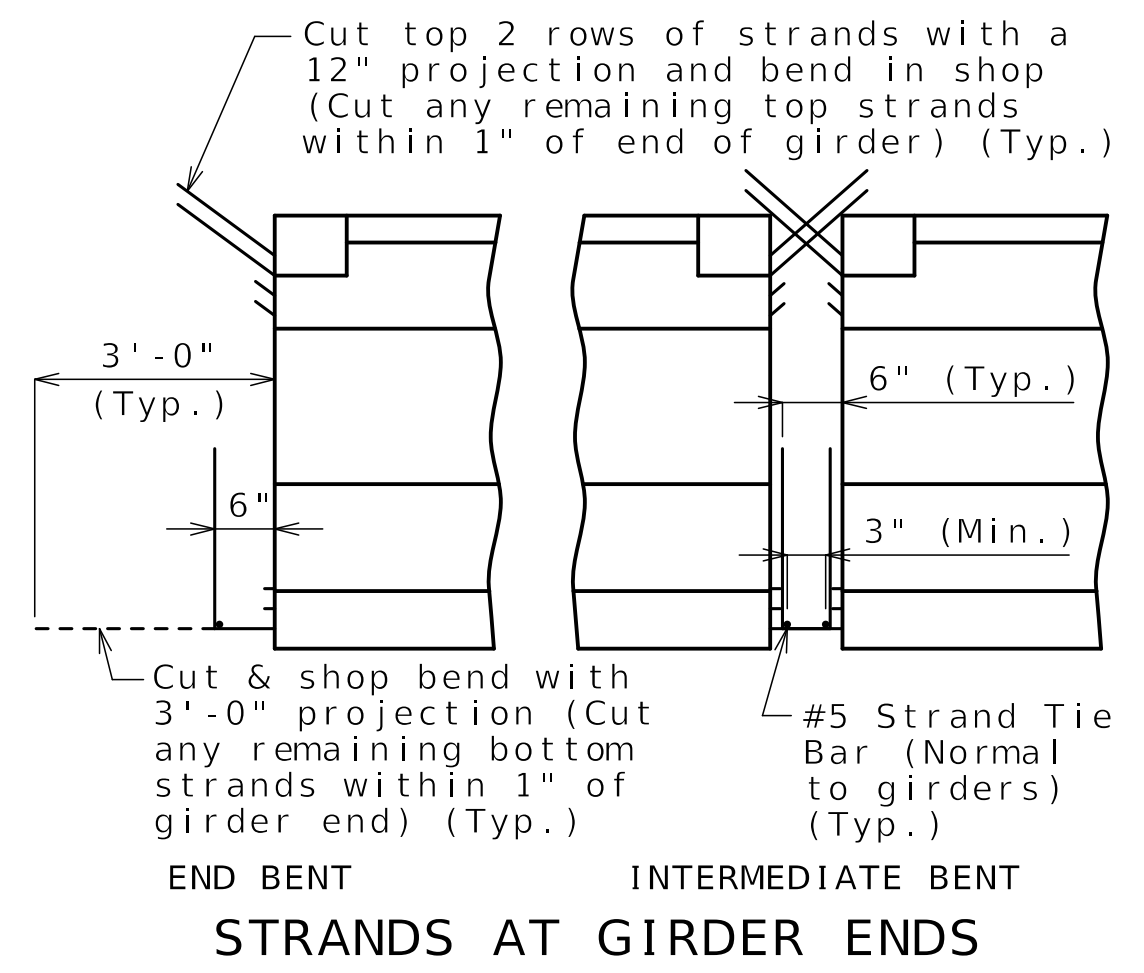


DIMENSIONS

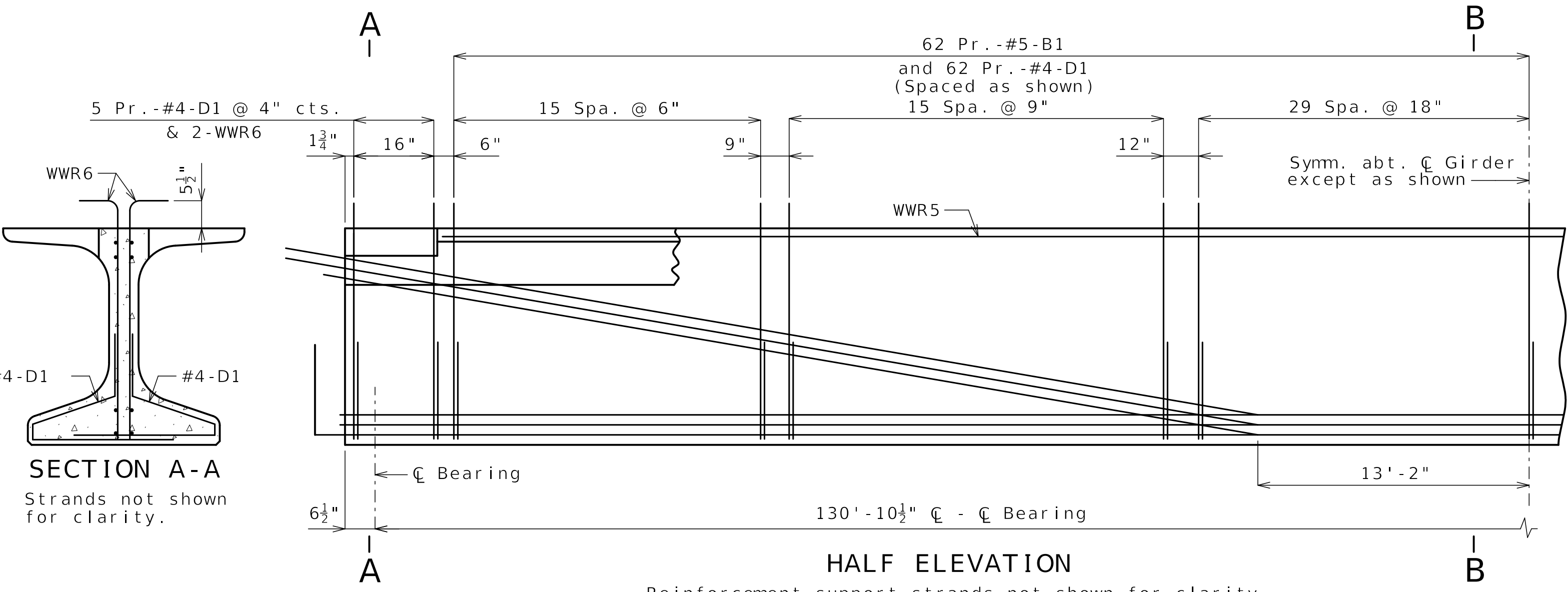


STRAND ARRANGEMENT

- + Indicates prestressing strand.
- O Indicates cut & shop bend with 3'-0" projection.
- △ Indicates debonded for 4'-0" from end of girder.
- Indicates debonded for 7'-0" from end of girder.

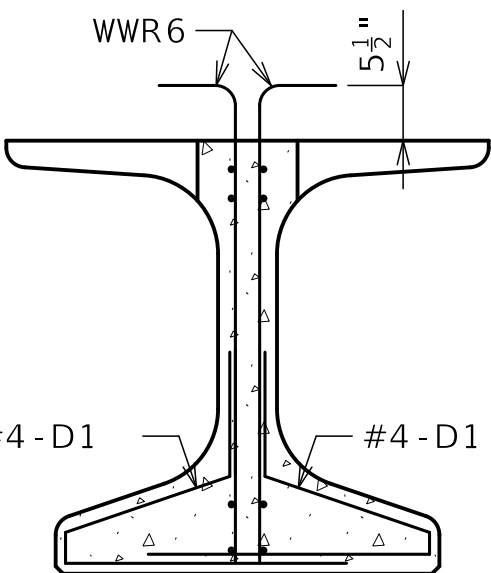


STRANDS AT GIRDER ENDS

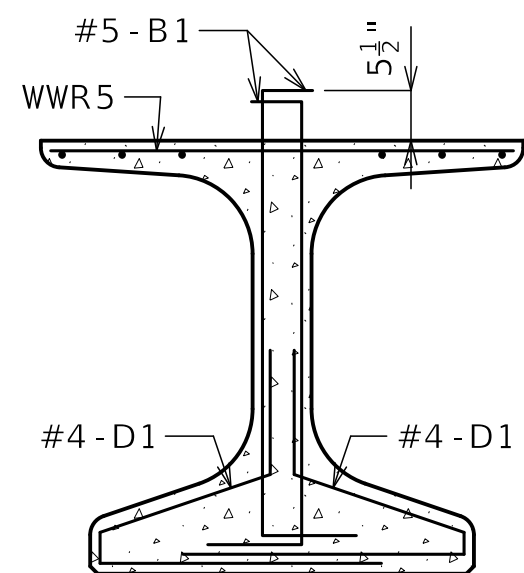


HALF ELEVATION

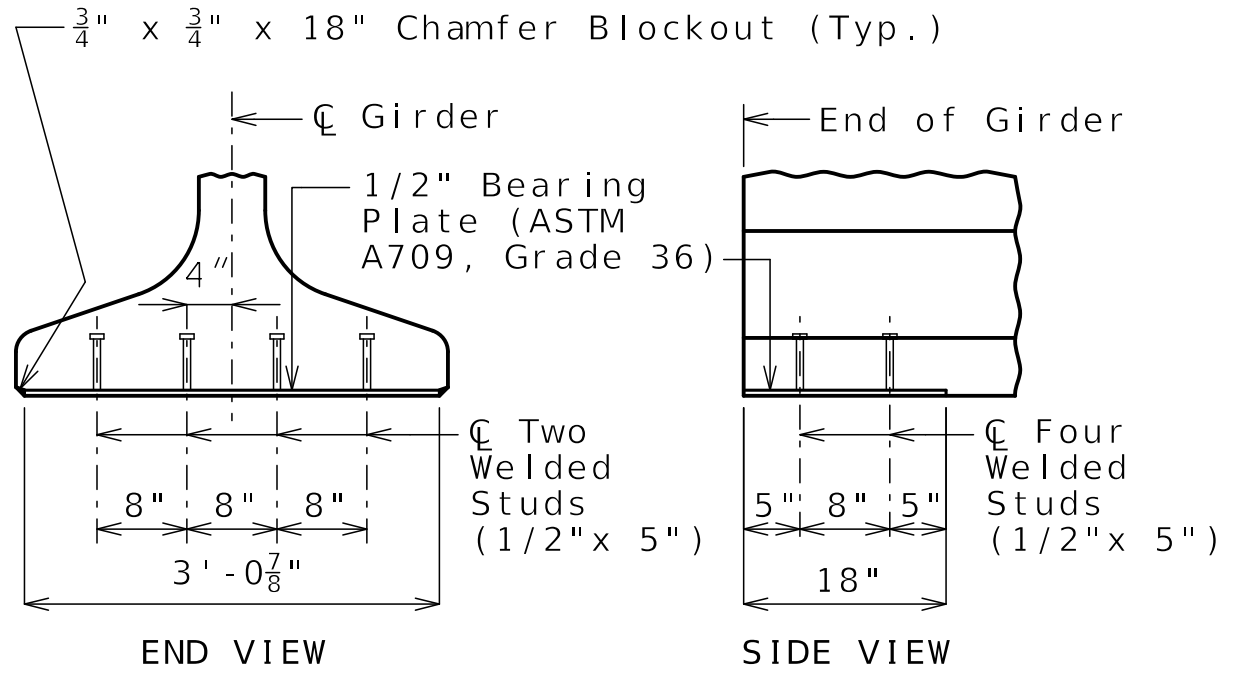
Reinforcement support strands not shown for clarity.



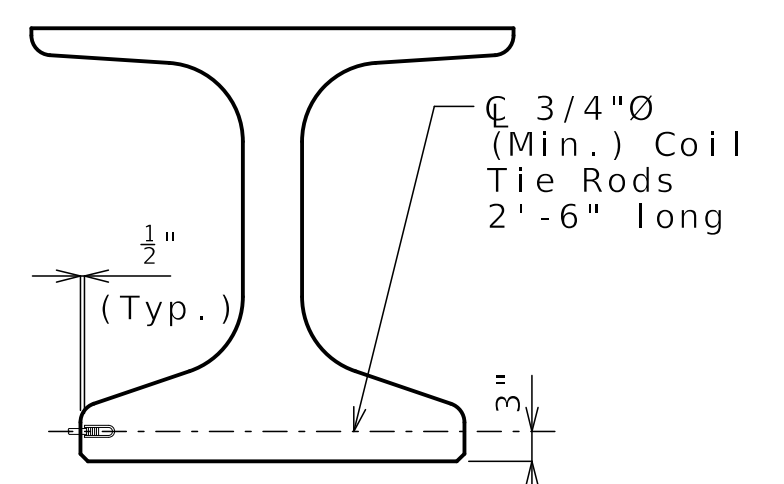
SECTION A-A
Strands not shown for clarity.



SECTION B-B
Strands not shown for clarity.



BEARING PLATE

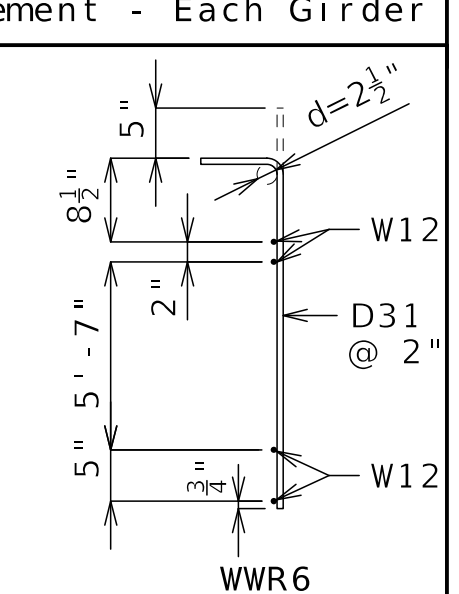


COIL TIES

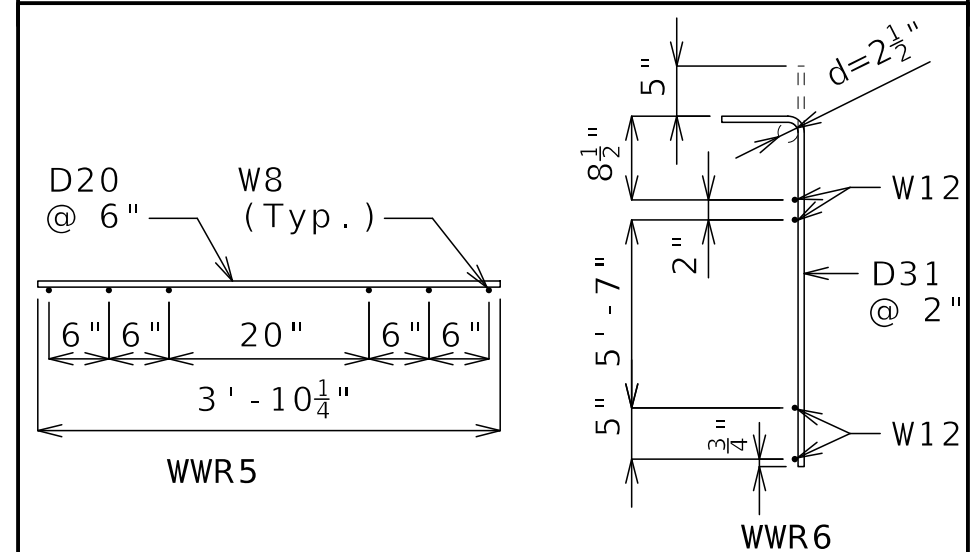
Coil ties required at interior face of girder.

Bill of Reinforcing Steel - Each Girder			
No.	Size/Mark	Length	Shape
246	5 B1	7'-11"	11S
266	4 D1	4'-0"	9S

Bending Diagrams



Welded Wire Reinforcement - Each Girder



All dimensions are out to out.
 Hooks and bends shall be in accordance with the CRSI Manual of Standard Practice for Detailing Reinforced Concrete Structures, Stirrup and Tie Dimensions.
 Actual bar lengths are measured along centerline of bar to the nearest inch.
 Minimum clearance to reinforcing shall be one inch.
 All bar reinforcement shall be Grade 60.
 The two D1 bars may be furnished as one bar at the fabricator's option.
 All B1 bars shall be epoxy coated.

General Notes:

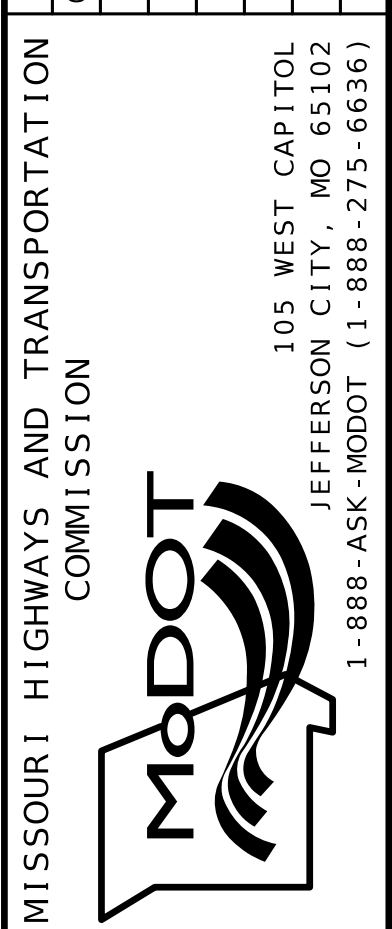
Concrete for prestressed girders shall be Class A-1 with $f'c = 10000$ psi and $f'ci = 7500$ psi.
 Use 42 strands, 0.6"Ø Grade 270, with an initial prestress force of 1846 kips.
 Prestensioned members shall be in accordance with Sec 1029.
 Fabricator shall be responsible for location and design of lifting devices.
 Exterior and interior girders are the same except: coil ties, top flange blackout, application of bond breaker, coil inserts for slab drains, holes for steel intermediate diaphragms.
 For Girder Camber Diagram, see Sheet No. B26-24.
 The 1 1/2"Ø holes shall be cast in the web for steel intermediate diaphragms. Drilling is not allowed. For location of holes and details of steel intermediate diaphragms, see Sheet No. B26-18.
 For location of coil inserts at slab drains, see Sheets No. B26-22 and B26-23.
 For location of coil ties at concrete diaphragms and integral bents, see Sheets No. B26-19 thru B26-21.
 For additional NU Girder Details, see Sheet B26-17.
 All dimensions are horizontal.



Kaleb S. Hawk
1-26-2026

DATE PREPARED	01/13/2026
ROUTE	1-70
STATE	MO
DISTRICT	BR
SHEET NO.	B26-15
COUNTY	JACKSON
JOB NO.	J411486D
CONTRACT ID.	240807-C01
PROJECT NO.	
BRIDGE NO.	A82571

DATE	DESCRIPTION
01/13/26 <td>REV 0 - RFC SUBMITTAL</td>	REV 0 - RFC SUBMITTAL

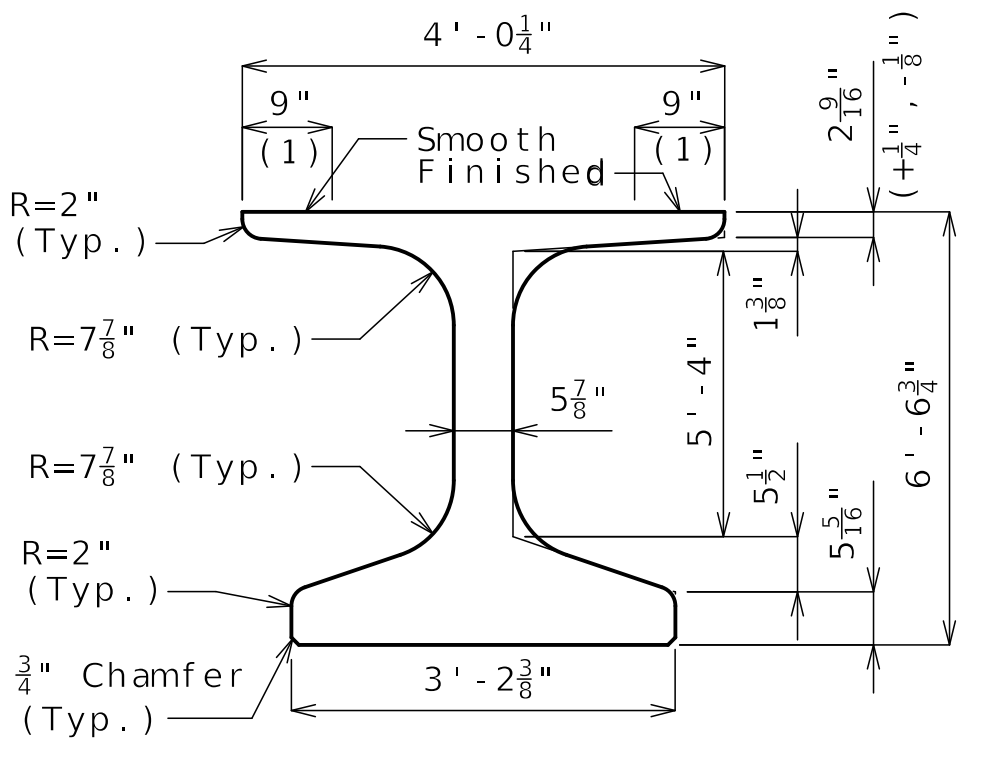


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Not to Scale
Revision: 0.0
Date: 01/29/2026
Package: BRD-26-EB70-Manchester

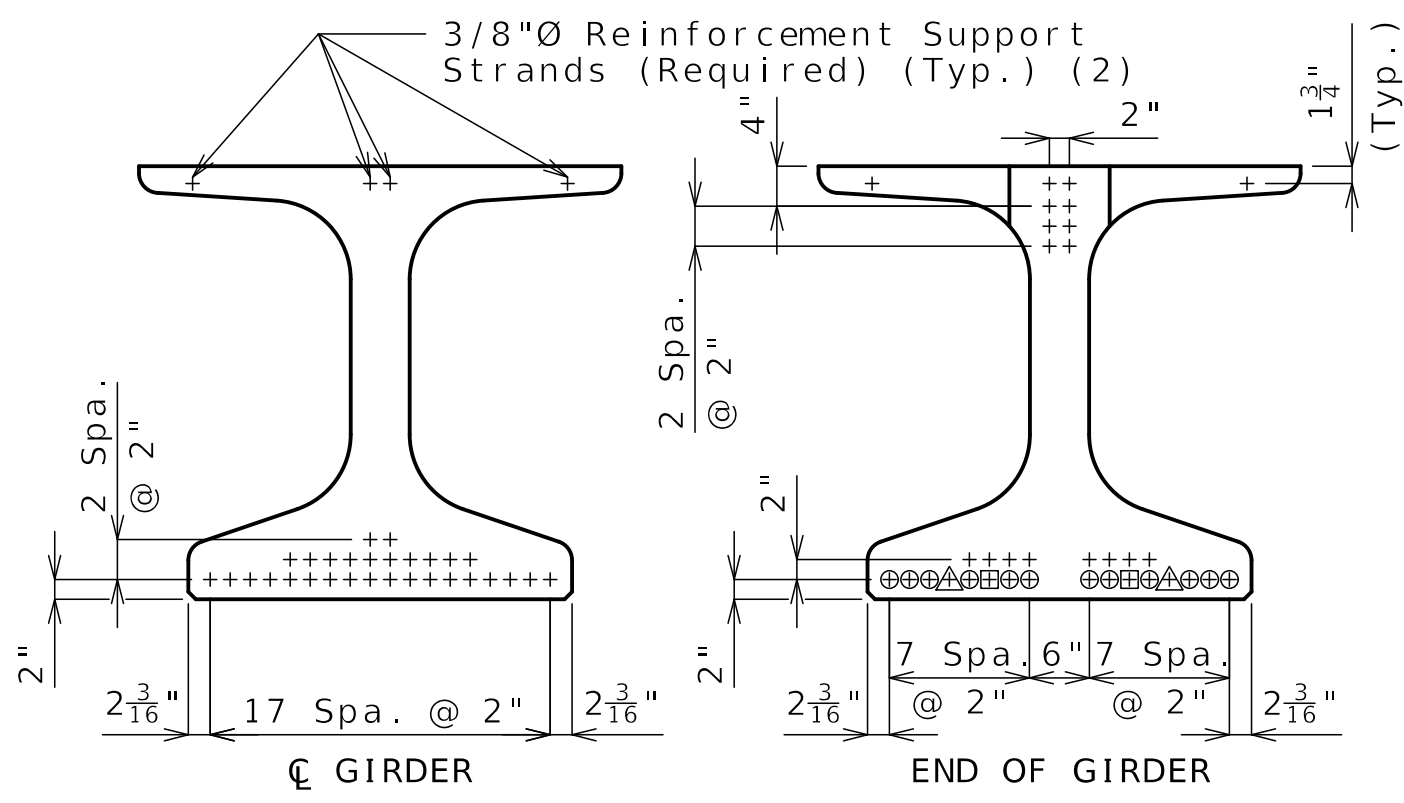
NU-GIRDERS - SPAN (2-3)

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

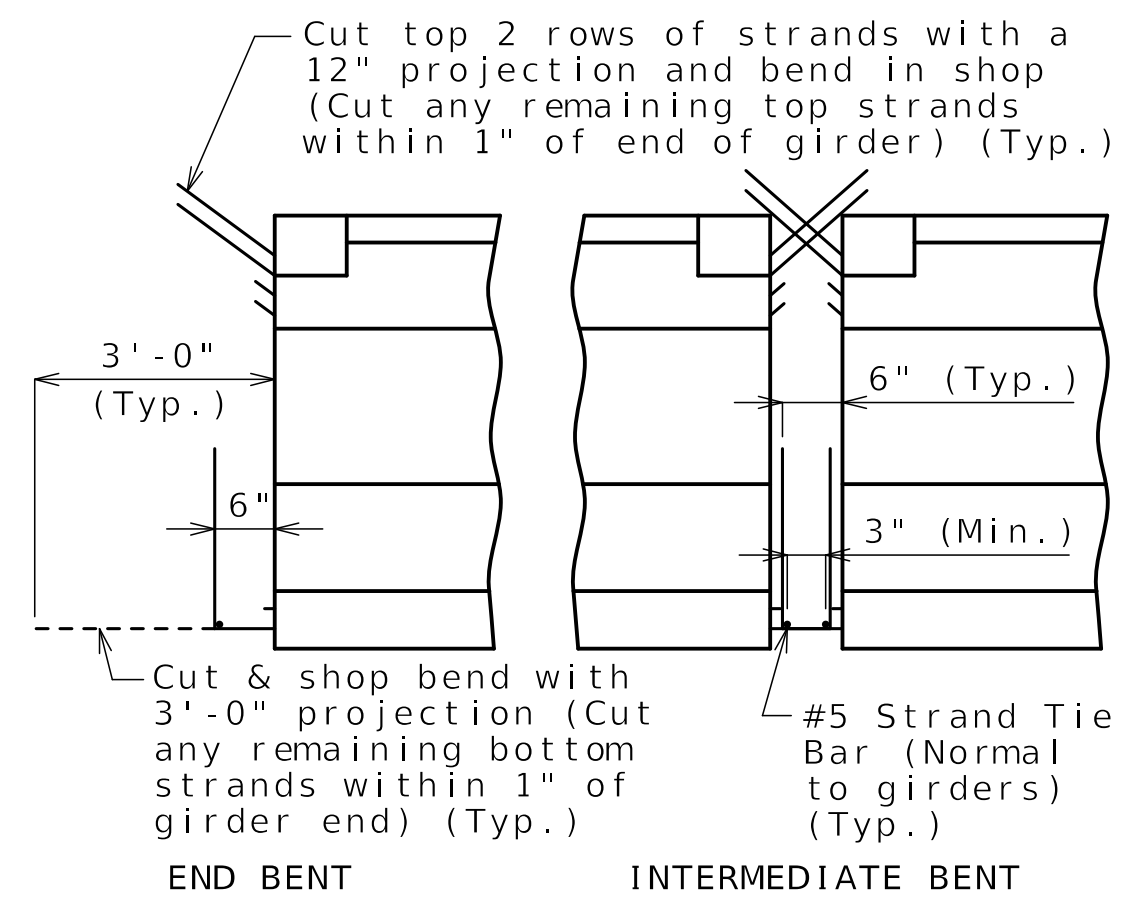
(2) Outer strands tensioned to 2.02 kips/strand and inner strands to 8 kips/strand. Placed symmetrical about \bar{C} Girder. May be moved laterally in pairs.



DIMENSIONS

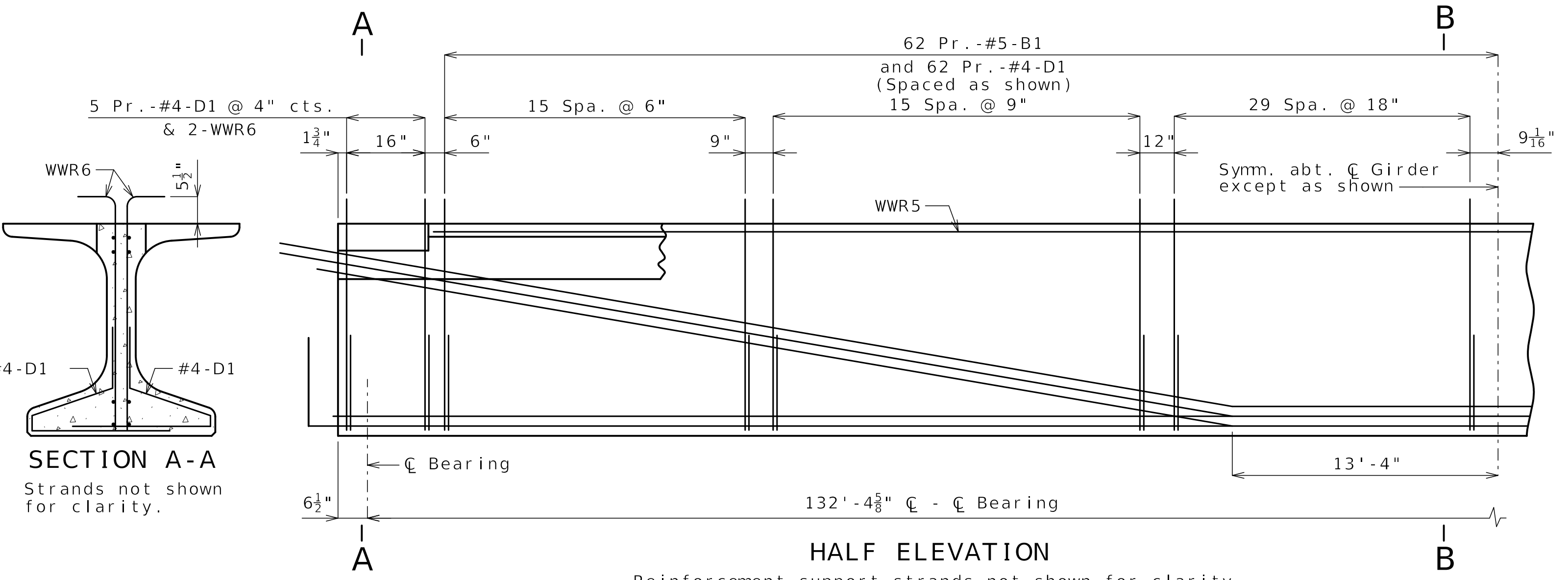


STRAND ARRANGEMENT



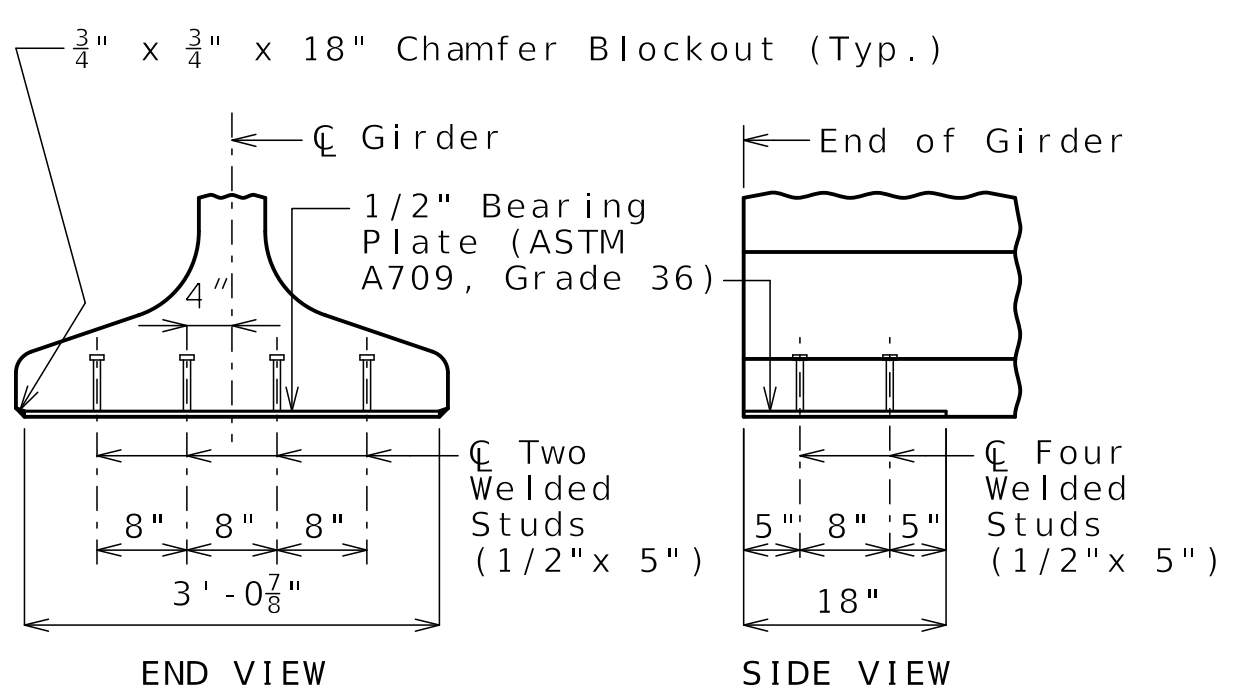
STRANDS AT GIRDER ENDS

- + Indicates prestressing strand.
- Indicates cut & shop bend with 3'-0" projection.
- △ Indicates debonded for 4'-0" from end of girder.
- Indicates debonded for 7'-0" from end of girder.

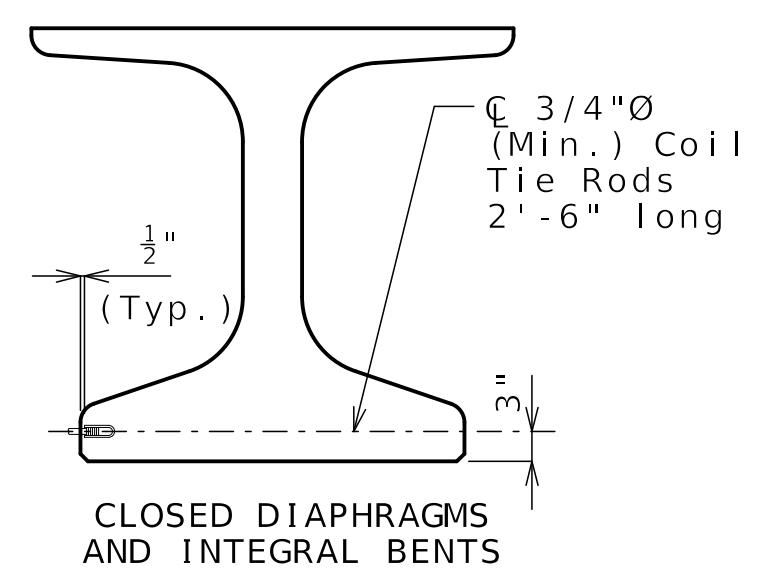


HALF ELEVATION

Reinforcement support strands not shown for clarity.



BEARING PLATE

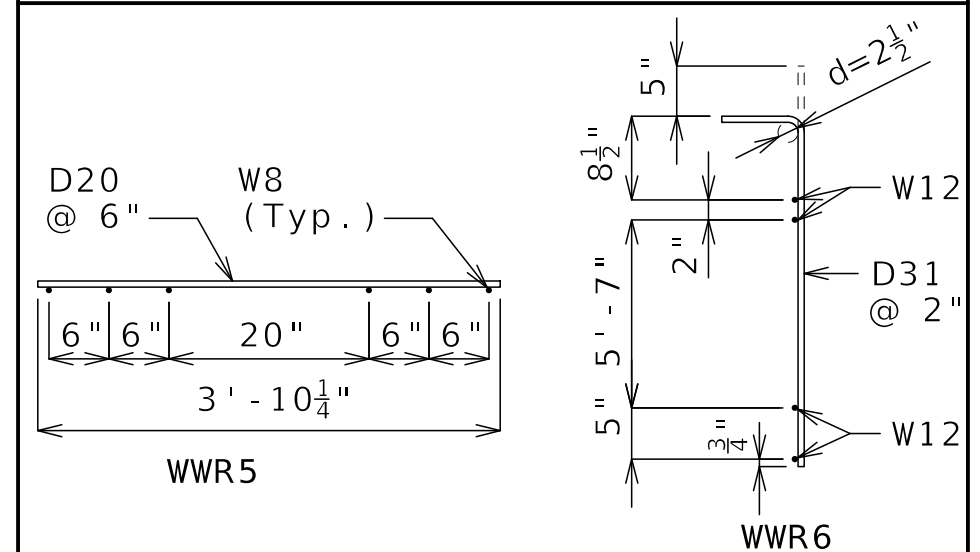


COIL TIES

Coil ties required at interior face of girder

Bill of Reinforcing Steel - Each Girder				
No.	Size/Mark	Length	Shape	Bending Diagrams
248	5 B1	7'-11"	11S	Shape 20
268	4 D1	4'-0"	9S	Shape 9S Shape 11S

Welded Wire Reinforcement - Each Girder



All dimensions are out to out.

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

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

Minimum clearance to reinforcing shall be one inch.

All bar reinforcement shall be Grade 60.

The two D1 bars may be furnished as one bar at the fabricator's option.

All B1 bars shall be epoxy coated.

General Notes:

Concrete for prestressed girders shall be Class A-1 with $f'c = 10000$ psi and $f'ci = 7500$ psi.

Use 30 strands, 0.6"Ø Grade 270, with an initial prestress force of 1319 kips.

Pretensioned members shall be in accordance with Sec 1029.

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

Exterior and interior girders are the same except: coil ties; top flange blackout; application of bond breaker; coil inserts for slab drains; holes for steel intermediate diaphragms.

For Girder Camber Diagram, see Sheet No. B26-24.

The 1 1/2"Ø holes shall be cast in the web for steel intermediate diaphragms. Drilling is not allowed. For location of holes and details of steel intermediate diaphragms, see Sheet No. B26-18.

For location of coil inserts at slab drains, see Sheets No. B26-22 and B26-23.

For location of coil ties at concrete diaphragms and integral bents, see Sheets No. B26-19 thru B26-21.

For additional NU Girder Details, see Sheet B26-17.

All dimensions are horizontal.



Kaleb S. Hawk
1-26-2026

DATE PREPARED
01/13/2026

ROUTE 1-70 STATE MO
DISTRICT BR SHEET NO. B26-16

COUNTY JACKSON
JOB NO. J411486D
CONTRACT ID. 240807-C01
PROJECT NO.

BRIDGE NO. A82571

DATE	DESCRIPTION
01/13/26 <td>REV 0 - RFC SUBMITTAL</td>	REV 0 - RFC SUBMITTAL

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

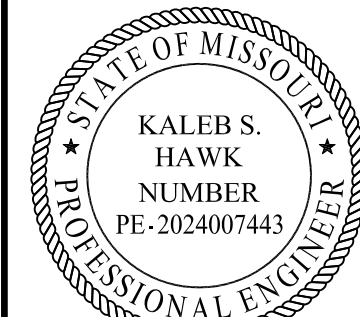
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

CLARKSON RADMACHER JOINT VENTURE

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

Released For Construction
Not to Scale
Revision: 0.0
Date: 01/29/2026
Package: BRD-26-EB70-Manchester

NU-GIRDERS - SPAN (3-4)



Kaleb S. Hawk
1-26-2026

DATE PREPARED
01/13/2026

ROUTE STATE
1-70 MO

DISTRICT SHEET NO.
BR B26-17

COUNTY
JACKSON

JOB NO.
J411486D

CONTRACT ID.
240807-C01

PROJECT NO.

BRIDGE NO.
A82571

DATE	DESCRIPTION
01/13/26	REV 0 - RFC SUBMITTAL

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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

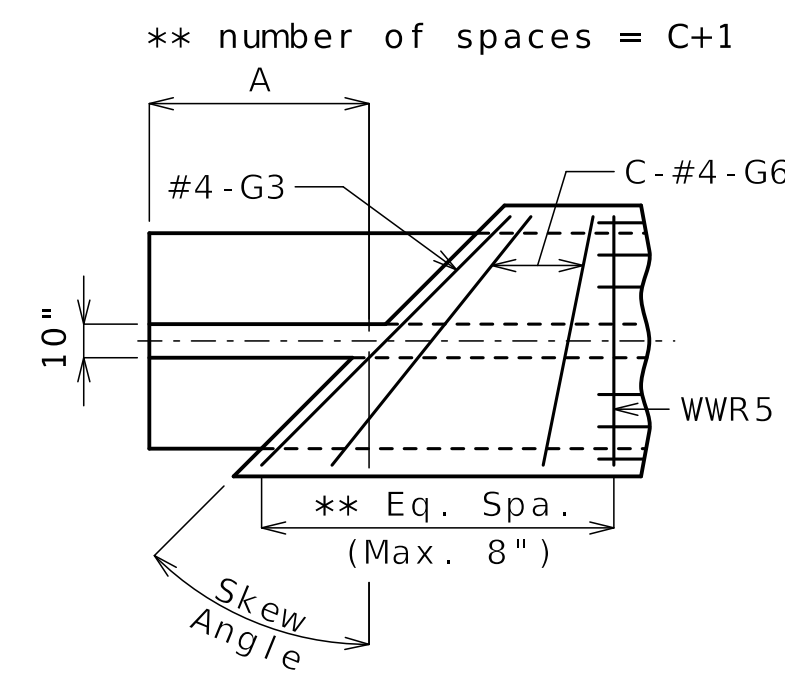
CLARKSON RADMACHER
 JOINT VENTURE
 715 KIRK DRIVE
 KANSAS CITY, MO 64105-1310
 CERTIFICATE OF AUTHORITY
 NO. 001270

Span No.	Girder No.	Bent No.	Detail	A	B	C	D	E	F
1-2	1	1	3	2'-0 ³ / ₈ "	---	2	4'-1"	---	Varies
1-2	1	2	4	13 ¹ / ₄ "	6 ³ / ₈ "	---	4'-1"	2'-10"	---
2-3	1	2	4	17 ¹ / ₂ "	10 ³ / ₄ "	---	4'-0"	2'-10"	---
2-3	1	3	4	12 ³ / ₈ "	5 ¹ / ₂ "	---	4'-0"	2'-10"	---
3-4	1	3	4	17 ⁷ / ₈ "	11"	---	4'-1"	2'-10"	---
3-4	1	4	4	11 ¹ / ₂ "	4 ⁵ / ₈ "	---	4'-1"	2'-10"	---

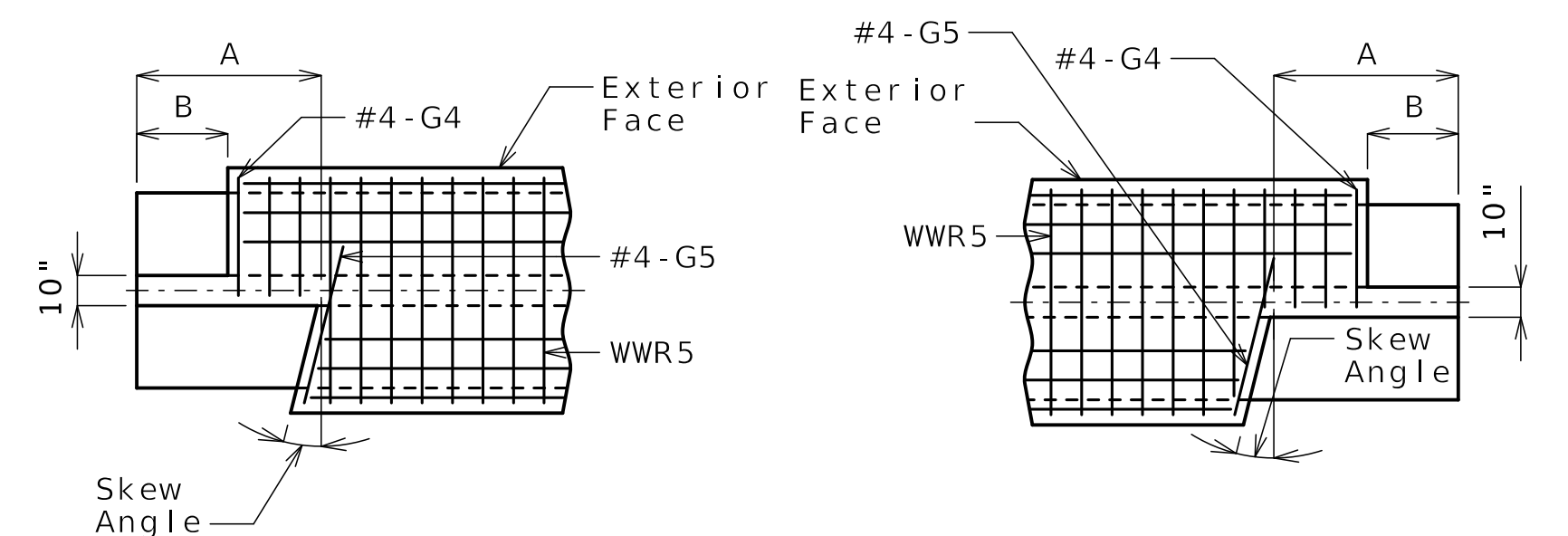
NO.	SIZE & MARK	ACTUAL LENGTH	SHAPE	BENDING DIAGRAMS
2	4 G3	D	20	SHAPE 20
2	4 G4	2'-3"	20	
2	4 G5	E	20	
*	4 G6	F	20	

* Total for each girder is the total value of the two "C" variables per span provided in the Table of Variables

Note: 'C' = zero for Detail 1



DETAIL 3
(>14° Skew)



DETAIL 4
(Left exterior girder shown, rotate 180° for right exterior girder)

TOP FLANGE BLOCKOUT DETAILS

(See Table of Variables for detail assignment to specific girders)
(Left advance skew shown, mirror for right advance skew)

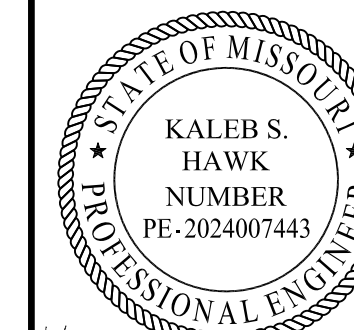
Released For Construction
Not to Scale
Revision: 0.0
Date: 01/29/2026
Package: BRD-26-EB70-Manchester

Notes:
For additional Girder notes, see Sheets No. B26-14 thru B26-16.

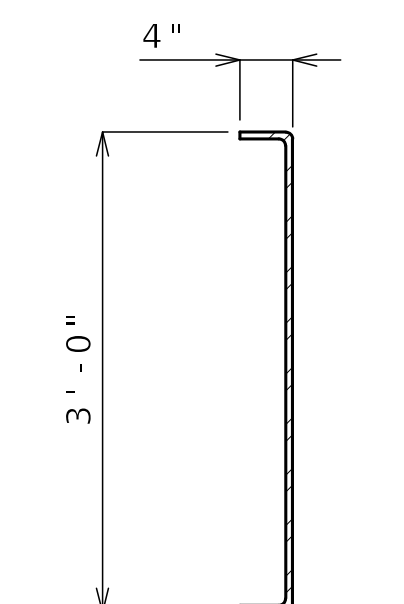
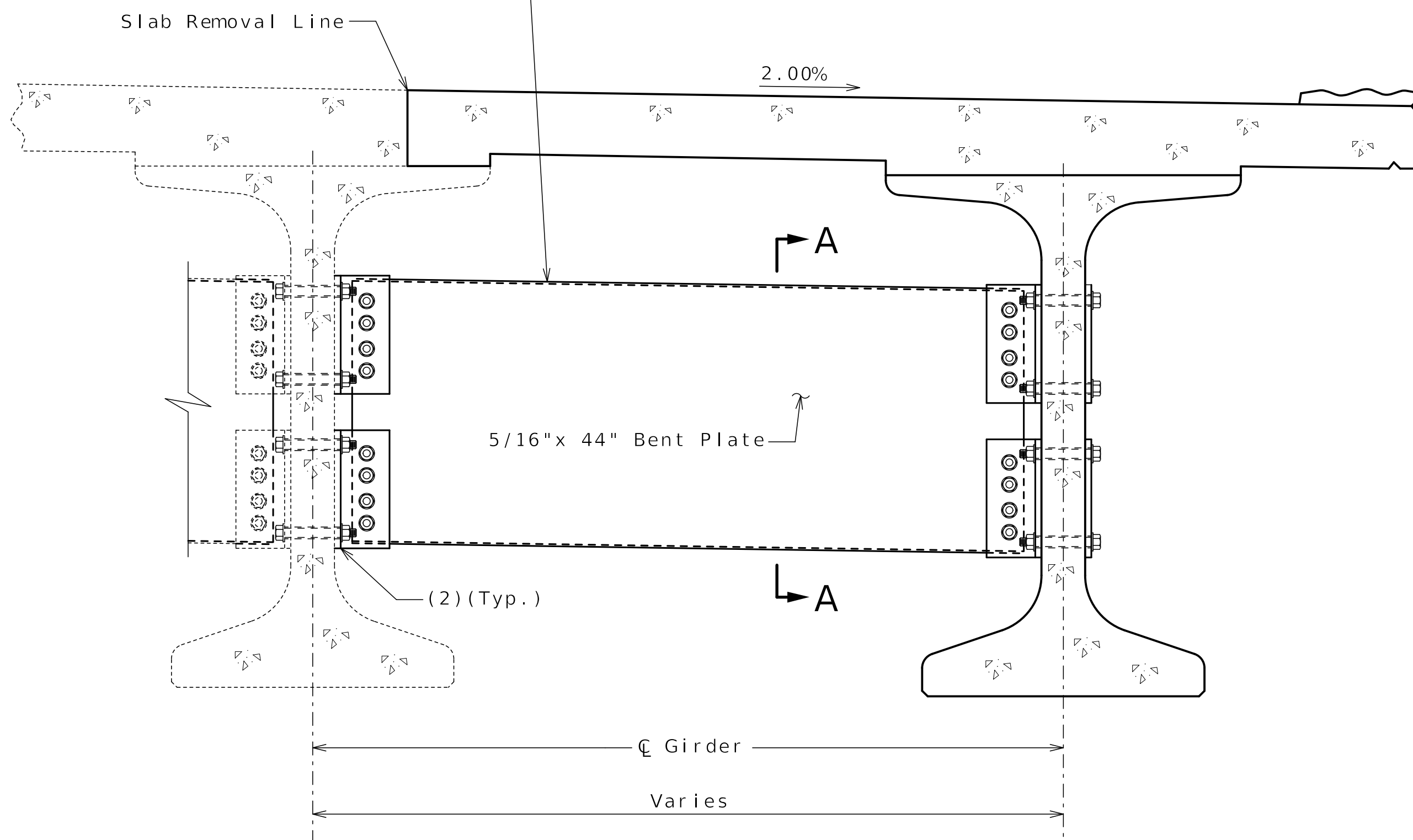
NU-GIRDER DETAILS

Steel intermediate diaphragm shall accommodate bridge geometry including superelevation and skew.

Released For Construction
Not to Scale
Revision: 0.0
Date: 01/29/2026
Package: BRD-26-EB70-Manchester



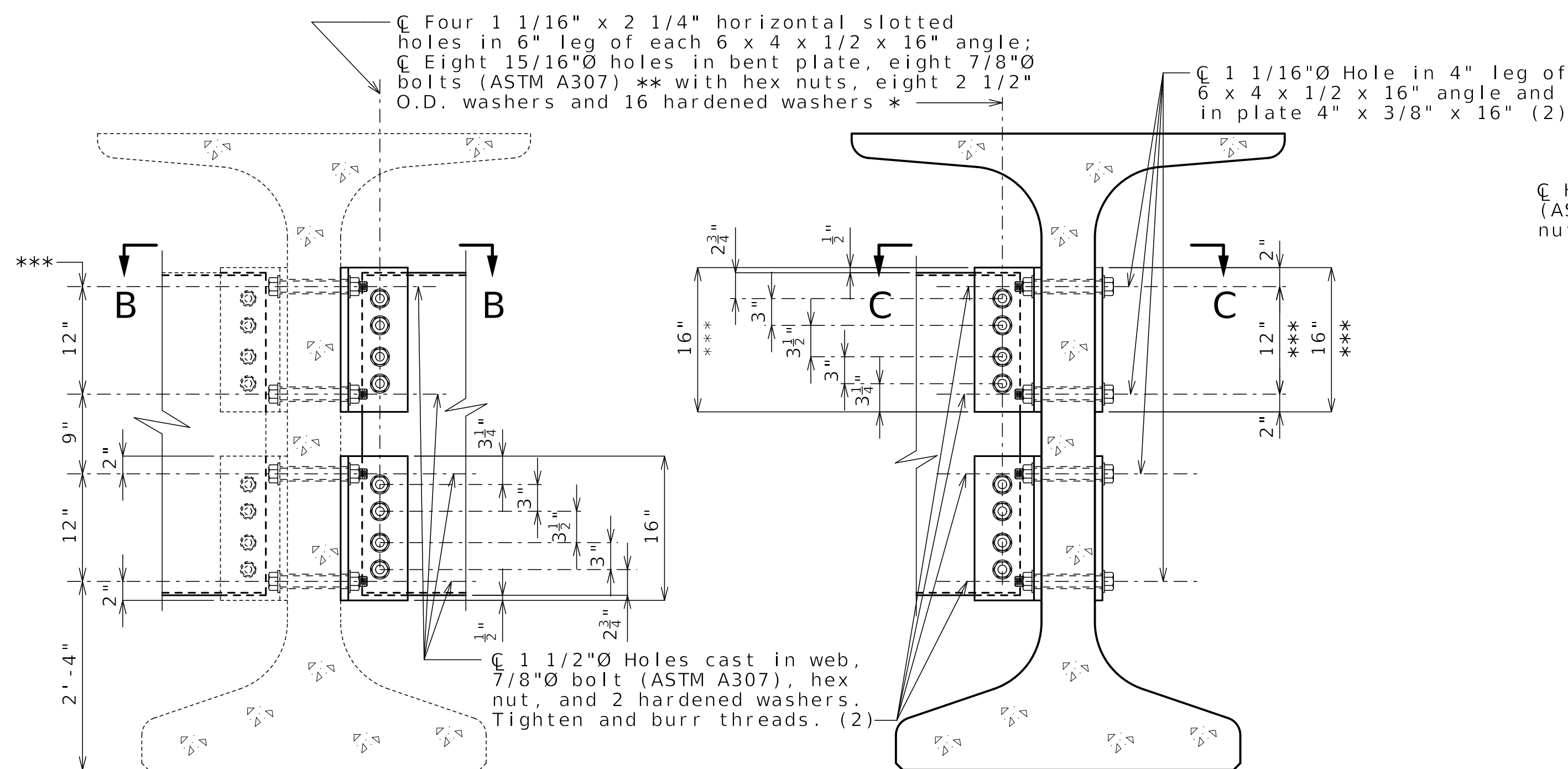
Kaleb S. Hawk
1-26-2026



SECTION A-A

PART SECTION SHOWING INTERMEDIATE DIAPHRAGMS

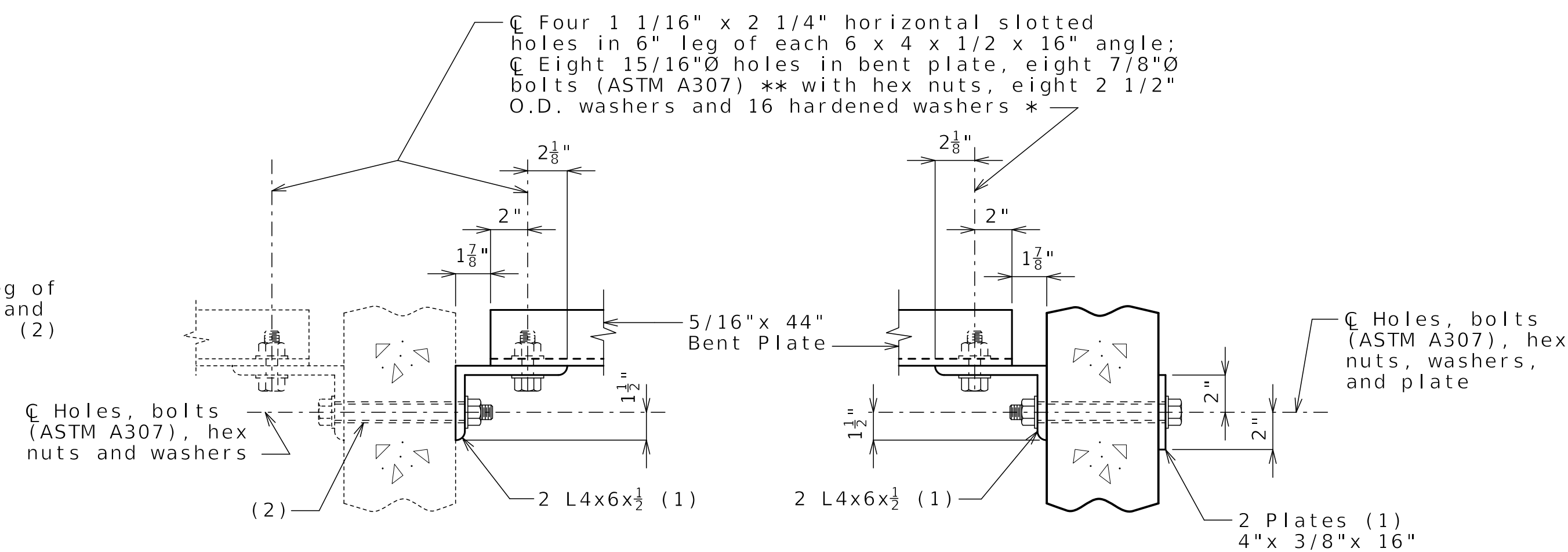
(1) Two L4x6x1/2 angles and two 4"x3/8" plates can be combined into single members at the Contractors option.



SECTION THRU EXISTING GIRDER AT DIAPHRAGM

SECTION THRU EXT. GIRDER AT DIAPHRAGM

(2) Remove existing flat plate and thru bolts. Utilize existing holes for installation of new diaphragms. Do not reuse existing thru bolts. Contractor to verify size and location of holes in existing girders prior to girder shop drawing review.



SECTION B-B

SECTION C-C

STEEL DIAPHRAGM NOTES:

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

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

*** Dimensions shown are for a standard diaphragm. Hole locations in prestressed girder shall be modified by the contractor to provide a 1 1/2" clear dimension between the prestressing strand and the edge of the 1 1/2" cast hole. The length of the angle and plates shall be extended and a 2" edge distance shall be maintained. Coordinate holes with prestressed girder manufacturer (2).

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

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

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

For location of intermediate diaphragms and girder spacing, see Sheet No. B26-13.

STEEL INTERMEDIATE DIAPHRAGMS - NU 78

DATE PREPARED
01/13/2026

ROUTE STATE
I-70 MO

DISTRICT SHEET NO.
BR B26-18

COUNTY
JACKSON

JOB NO.
J411486D

CONTRACT ID.
240807-C01

PROJECT NO.

BRIDGE NO.
A82571

DESCRIPTION

REV 0 - RFC SUBMITTAL

DATE

01/13/26

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

105 WEST CAPITOL JEFFERSON CITY, MO 65102

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

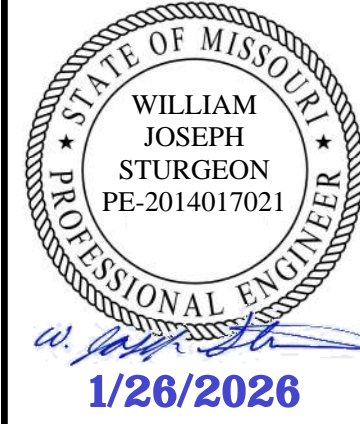
MoDOT

CLARKSON RADMACHER JOINT VENTURE

715 KIRK DRIVE KANSAS CITY, MO 64105-1310

CERTIFICATE OF AUTHORITY NO. 001270

HNTB



DATE PREPARED 01/13/2026	
ROUTE I-70	STATE MO
DISTRICT BR	SHEET NO. B26-20
COUNTY JACKSON	
JOB NO. J411486D	
CONTRACT ID. 240807-C01	
PROJECT NO.	

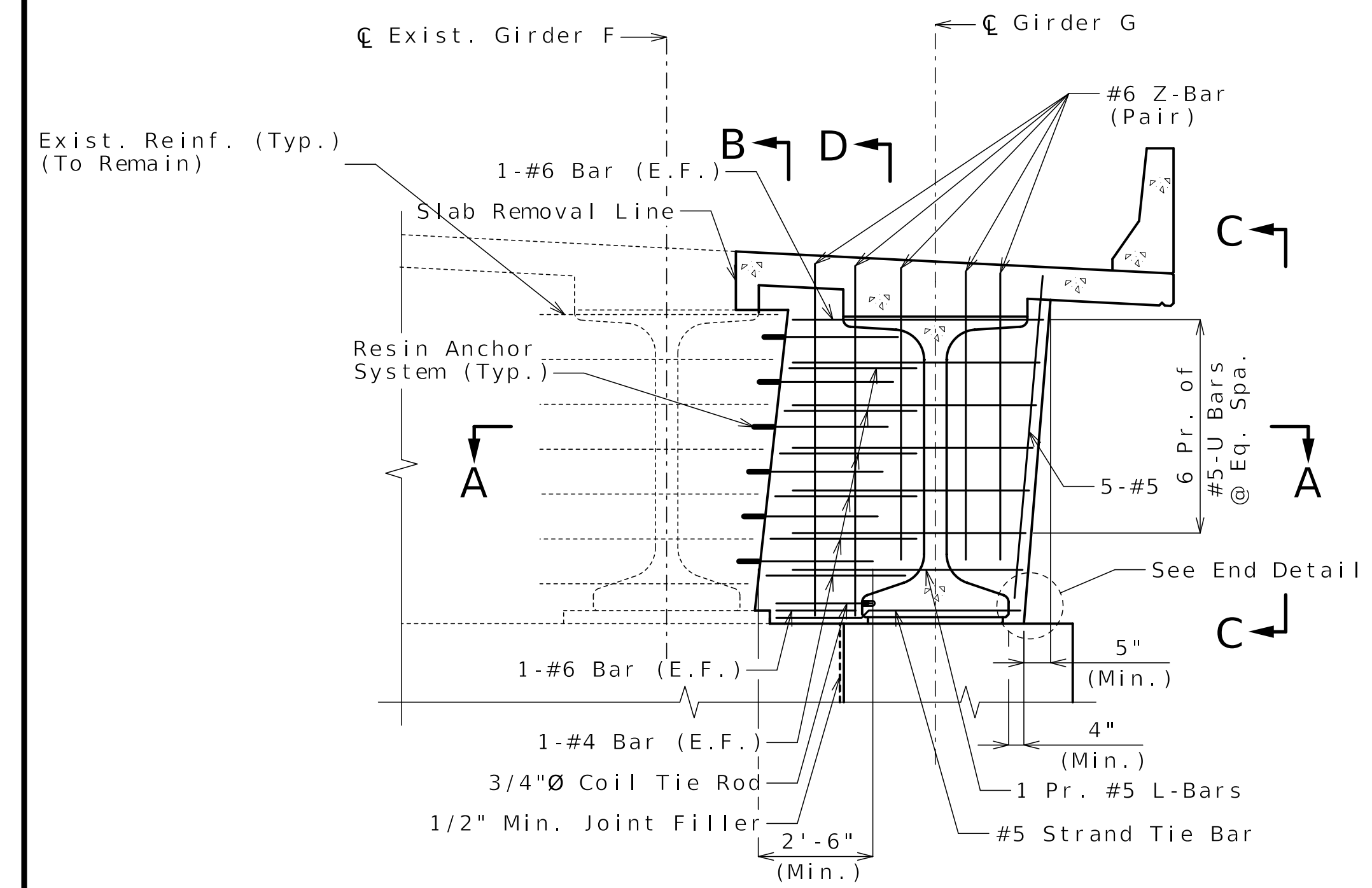
BRIDGE NO.
A82571

DATE	DESCRIPTION
01/13/26	REV 0 - RFC SUBMITTAL

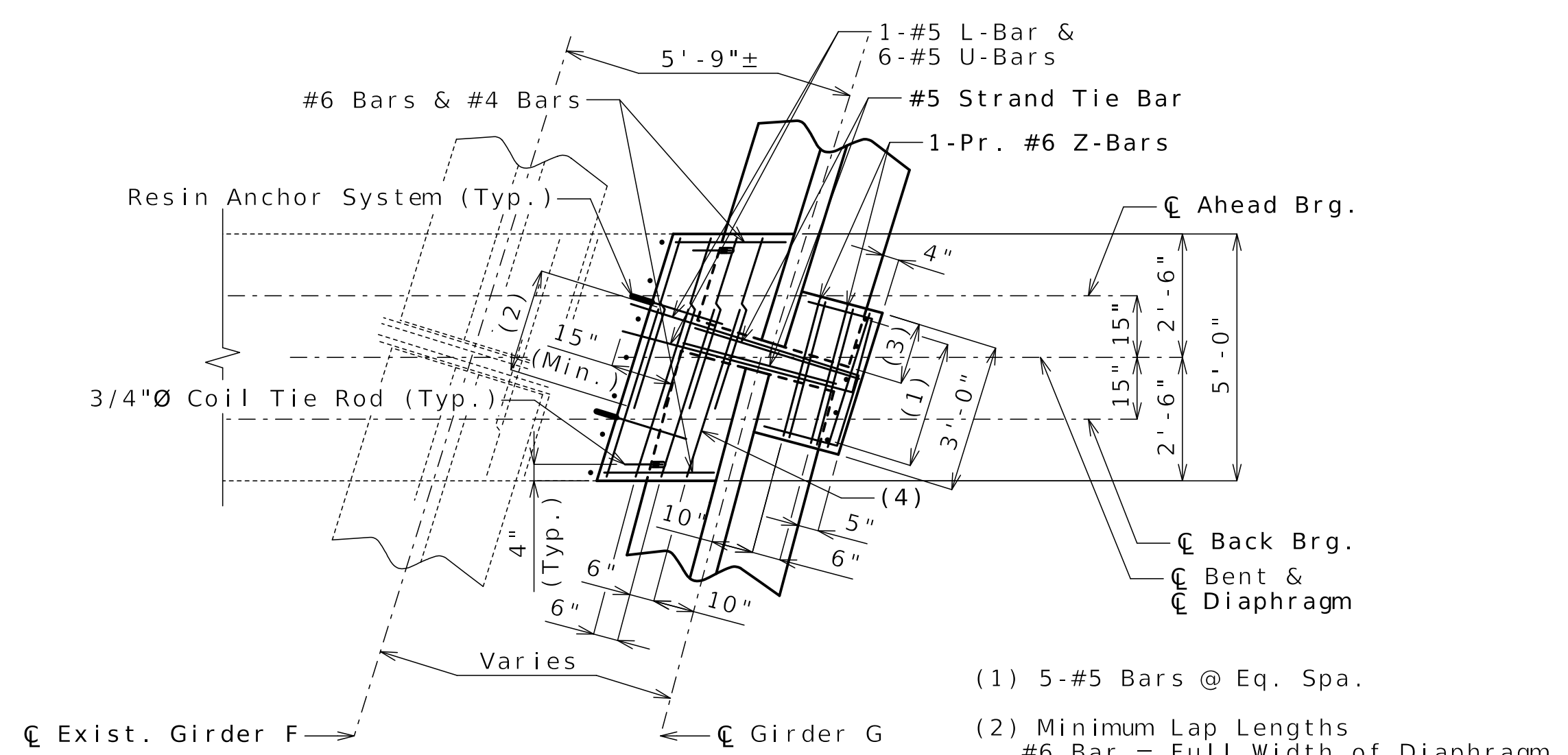
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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

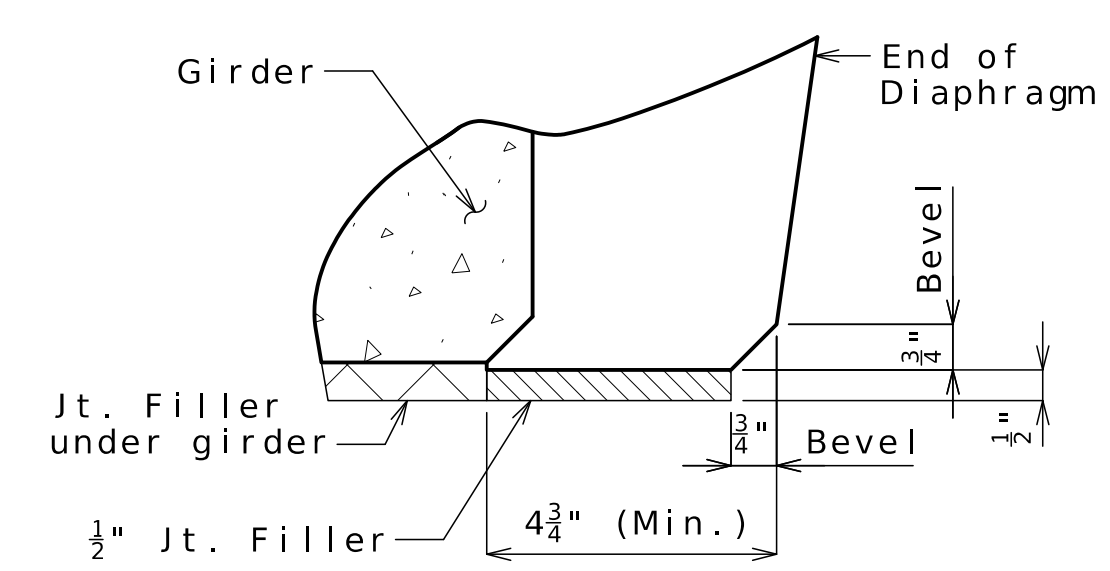
CLARKSON RADMACHER JOINT VENTURE
 715 KIRK DRIVE KANSAS CITY, MO 64105-1310
 CERTIFICATE OF AUTHORITY NO. 001270



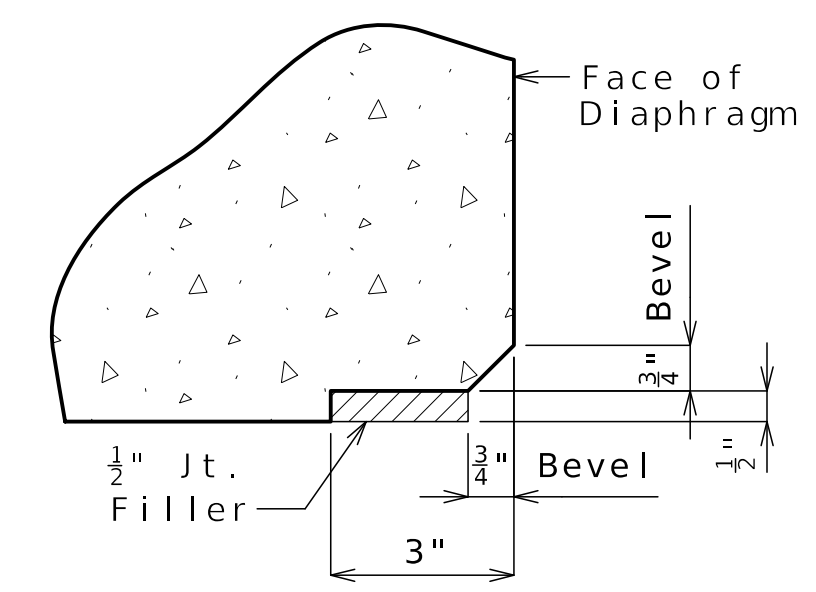
PART ELEVATION



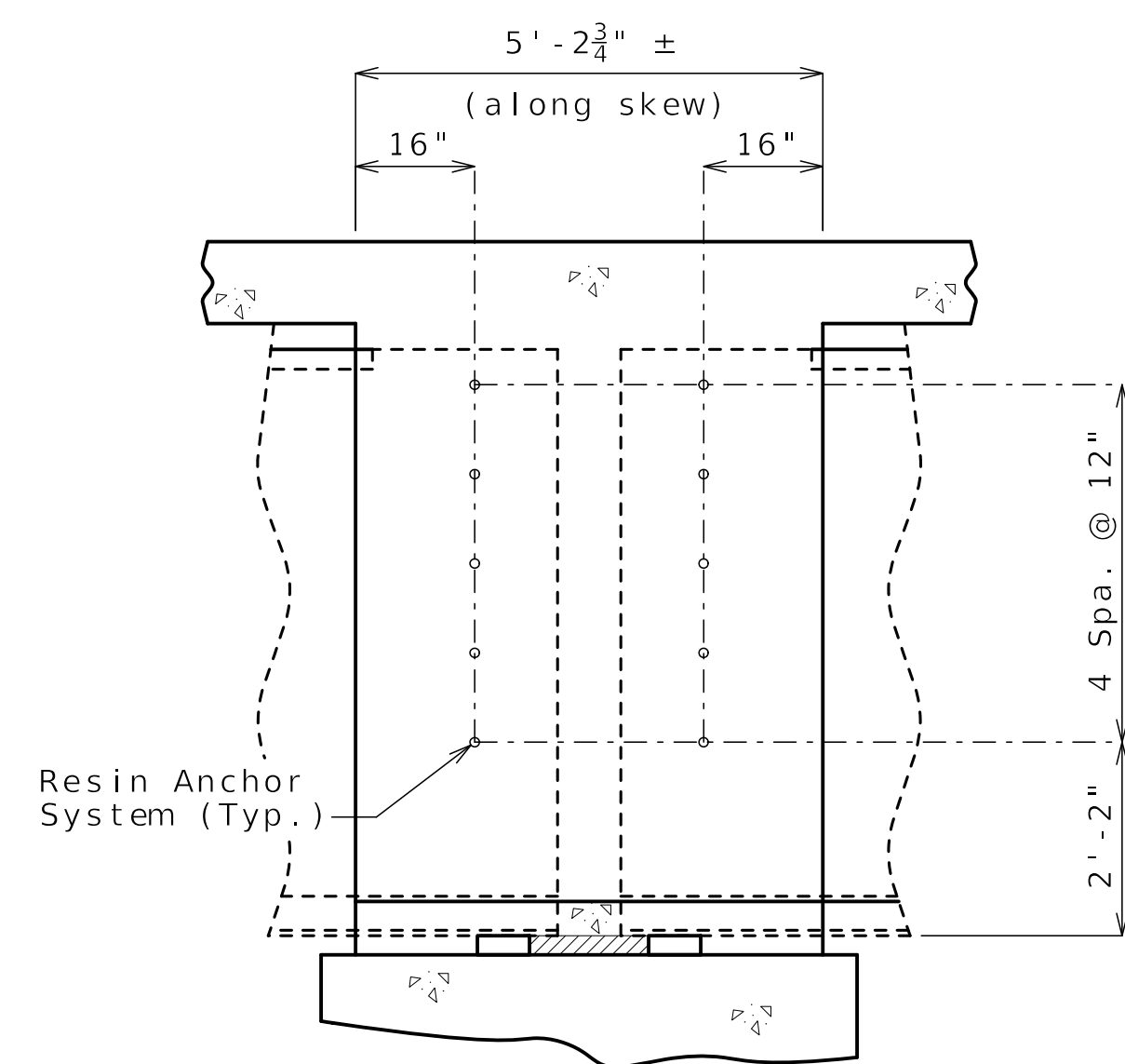
PART SECTION A-A



END DETAIL

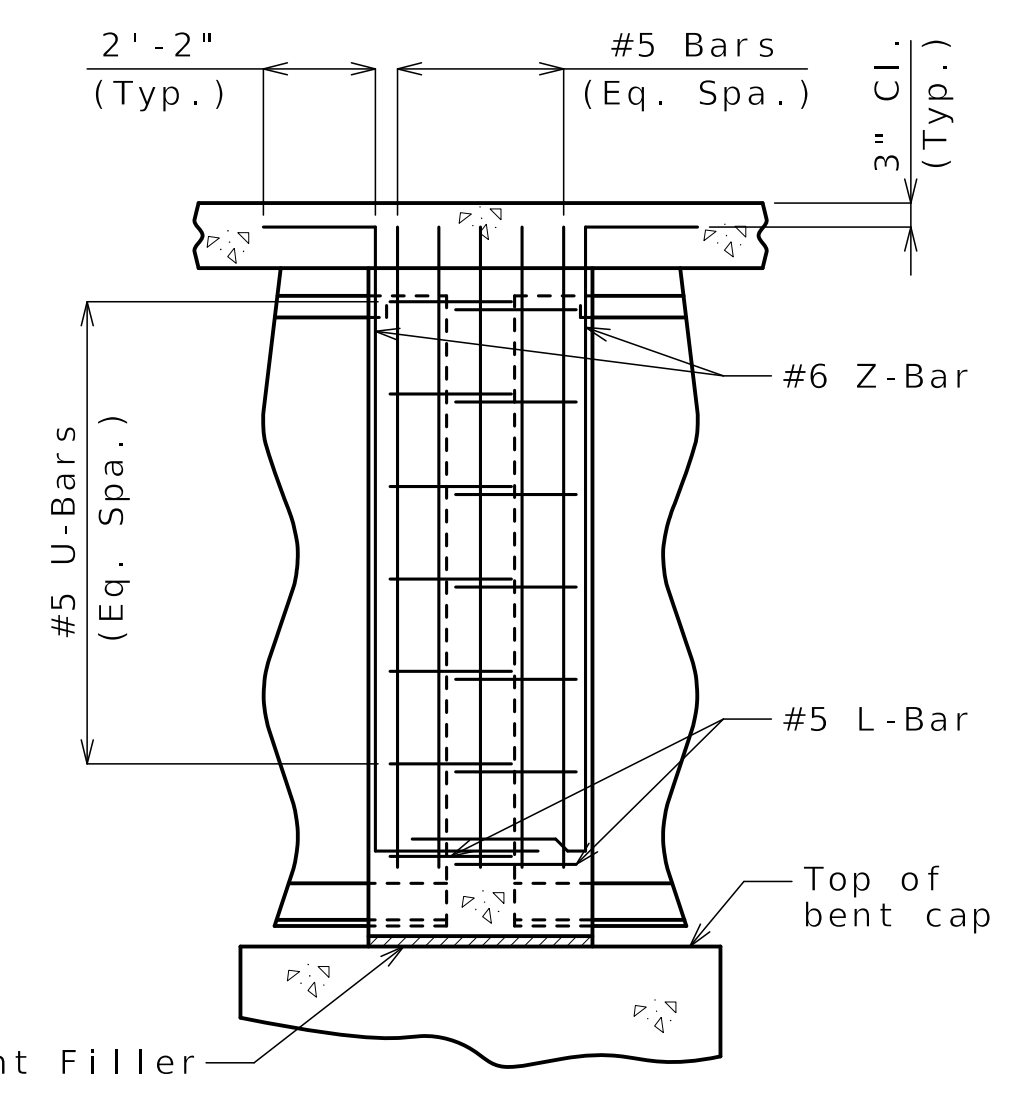


EDGE DETAIL

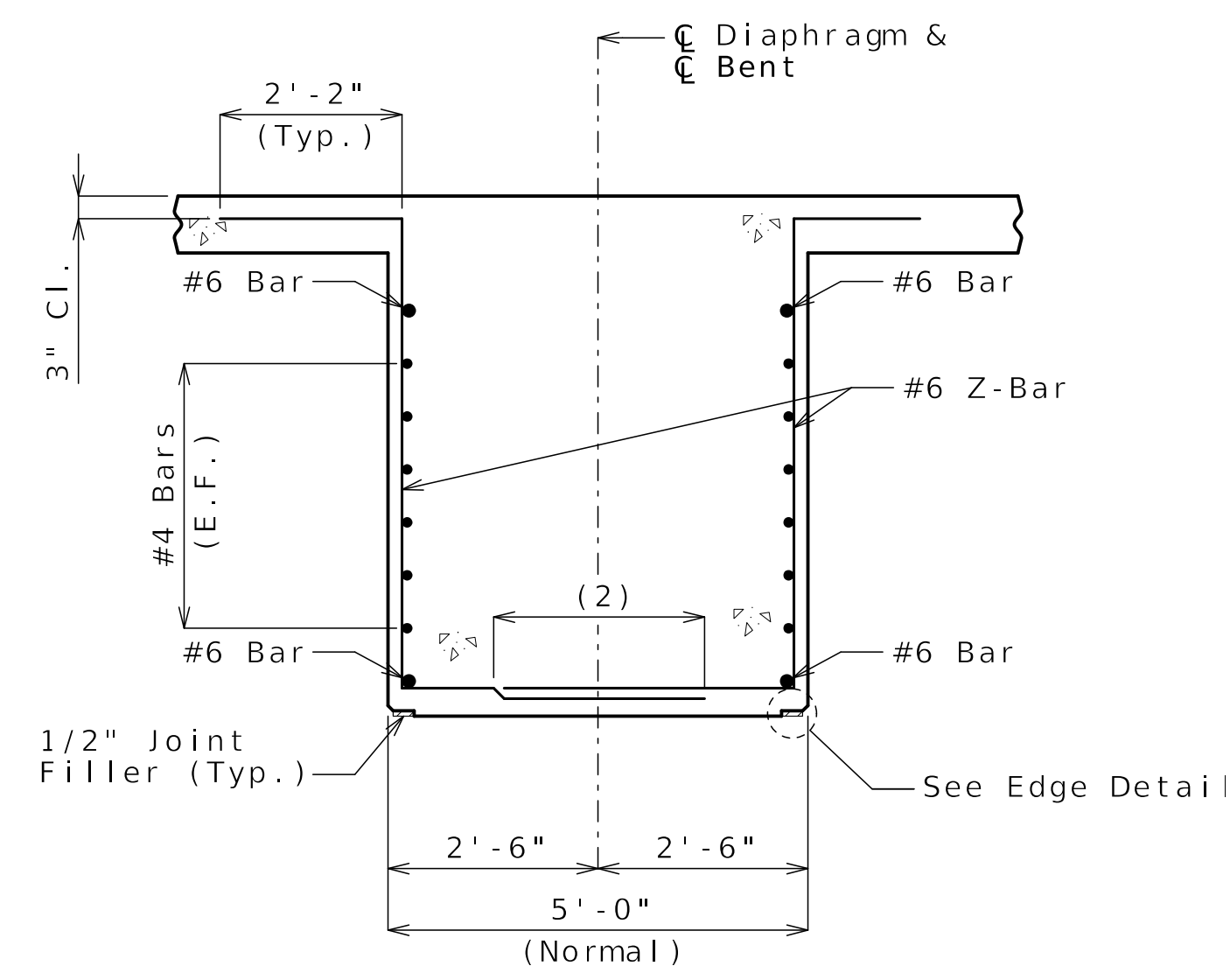


SECTION B-B

Resin Anchor Notes:
 The contractor shall use one of the qualified resin anchor systems in accordance with Sec 1039.
 The minimum embedment depth in concrete with f'c = 4,000 psi for the resin anchor system shall be required to meet the minimum ultimate pullout strength in accordance with Sec 1039 but shall not be less than 5".
 An epoxy coated #6 Grade 60 Reinforcing bar 2'-6" long shall be substituted for the threaded rod.



ELEVATION C-C

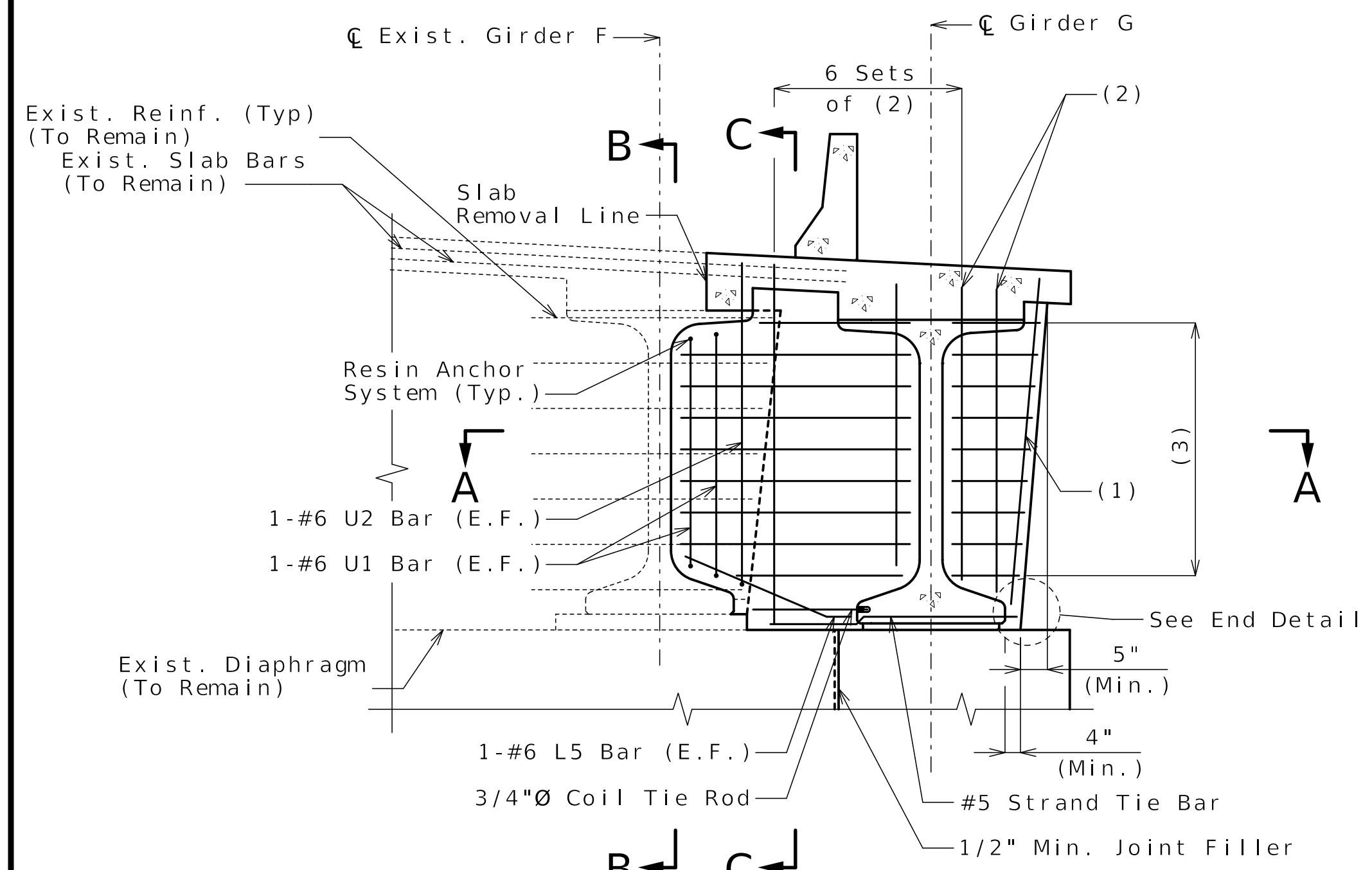


SECTION D-D

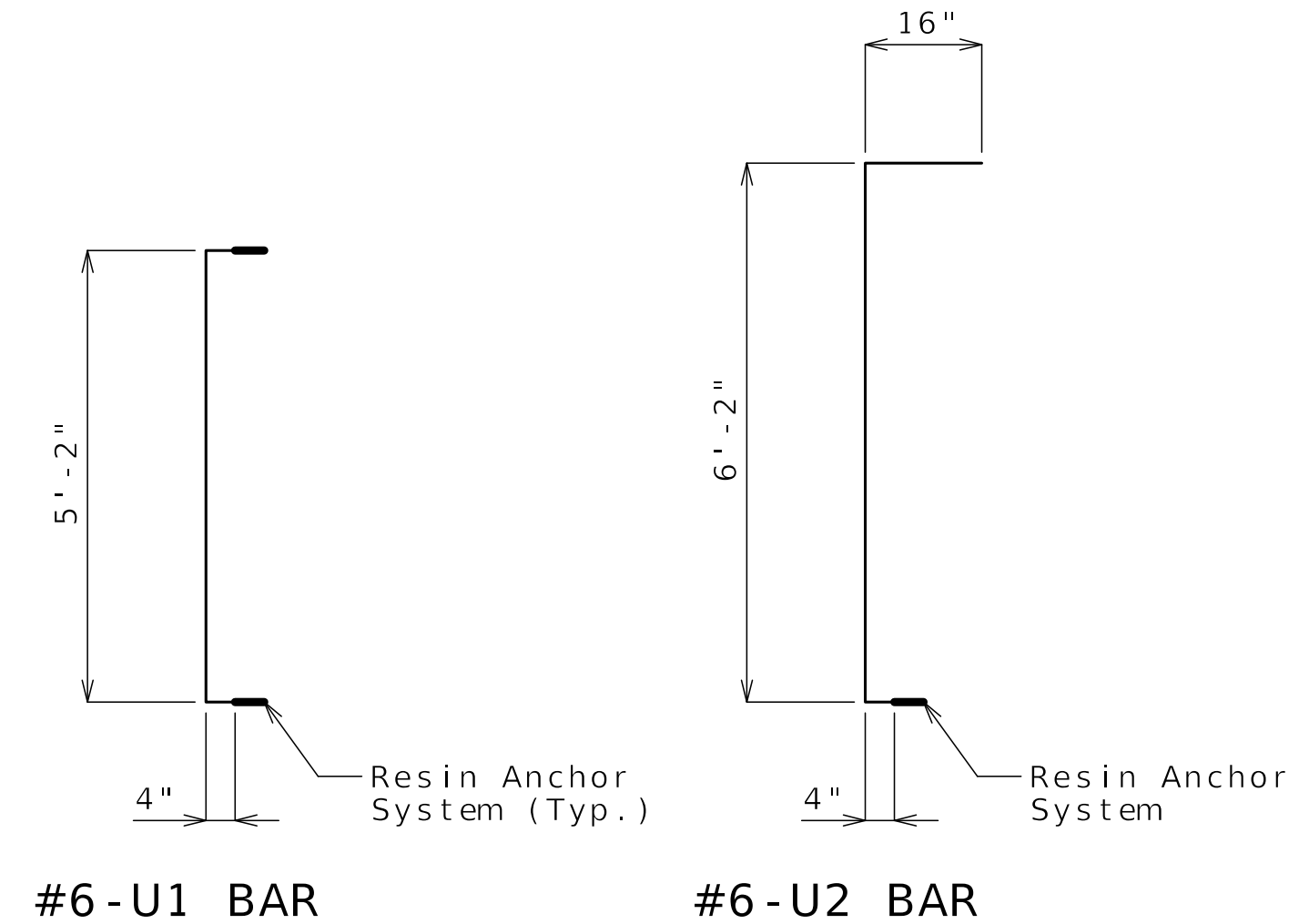
Released For Construction
 Not to Scale
 Revision: 0.0
 Date: 01/29/2026
 Package: BRD-26-EB70-Manchester

Notes:
 For cap beam step geometry, bearing location, bearing details, roofing felt details, joint filler details, dowel placement and notes not shown here see Sheets No. B26-10 and B26-12.
 For location of #5 Strand Tie Bars, see Sheets No. B26-15 and B26-16.
 For location of coil ties, see Sheets No. B26-15 and B26-16.
 Diaphragms shall be built vertical.

CONCRETE DIAPHRAGM AT INTERMEDIATE BENT NO. 3

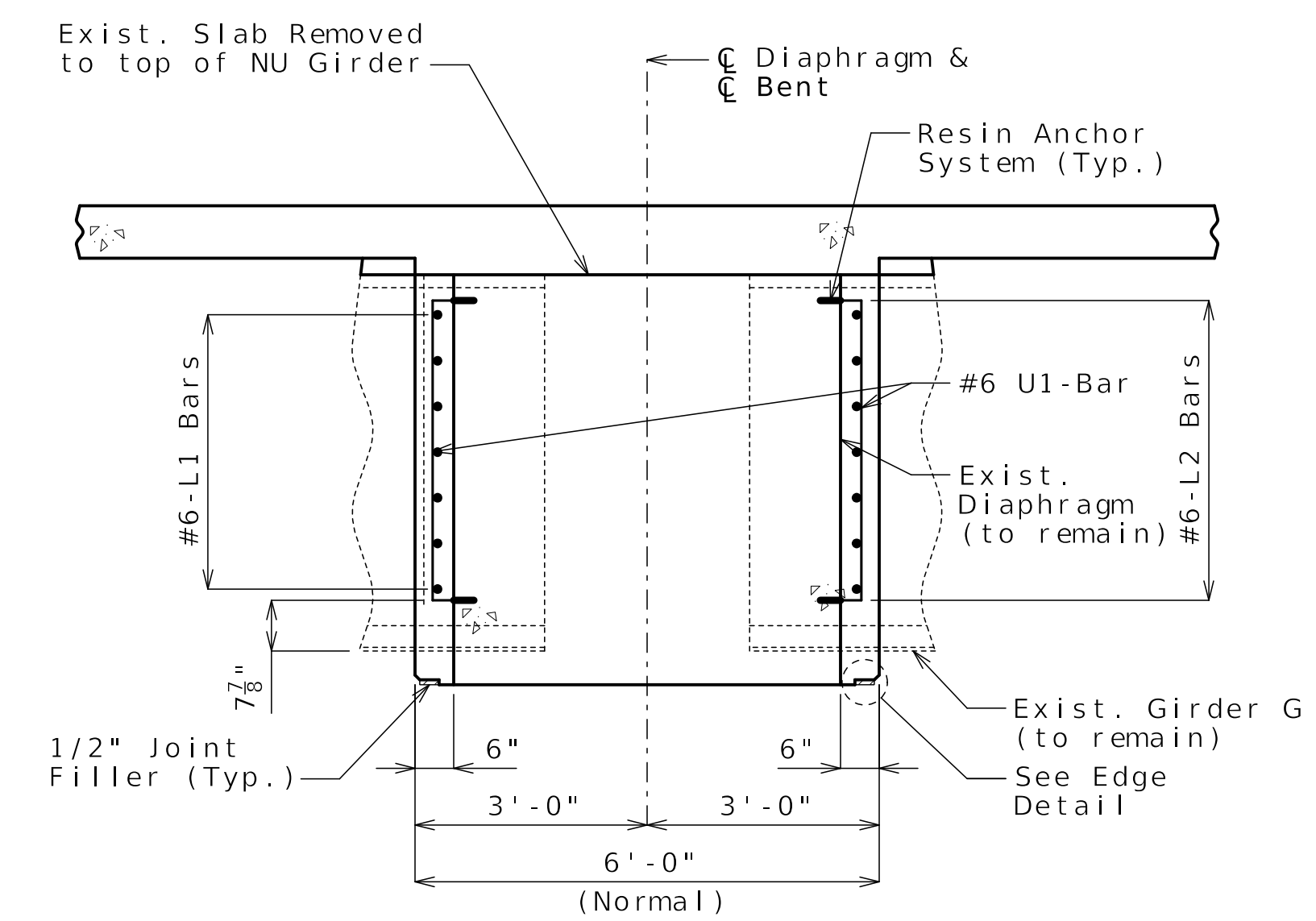


PART ELEVATION
(Looking Ahead Station)



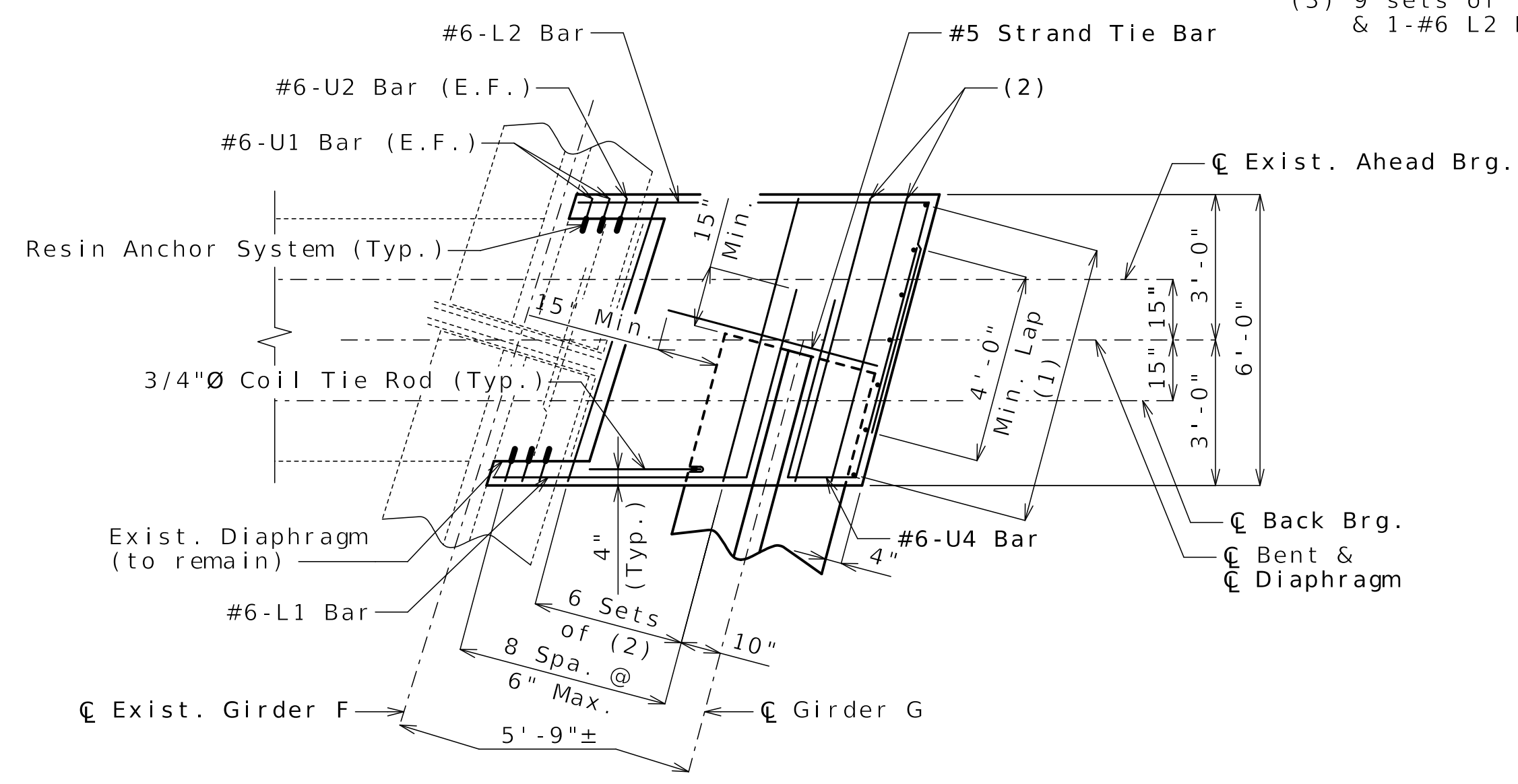
#6-U1 BAR #6-U2 BAR

- (1) 7-#6 Bars @ Eq. Spa.
- (2) 1-#6 U3 Bar, 1-#6 L3 Bar & 2-#6 L4 Bars
- (3) 9 sets of 1-#6 L1 Bar, 1-#6 U4 Bar & 1-#6 L2 Bar @ Eq. Spa.

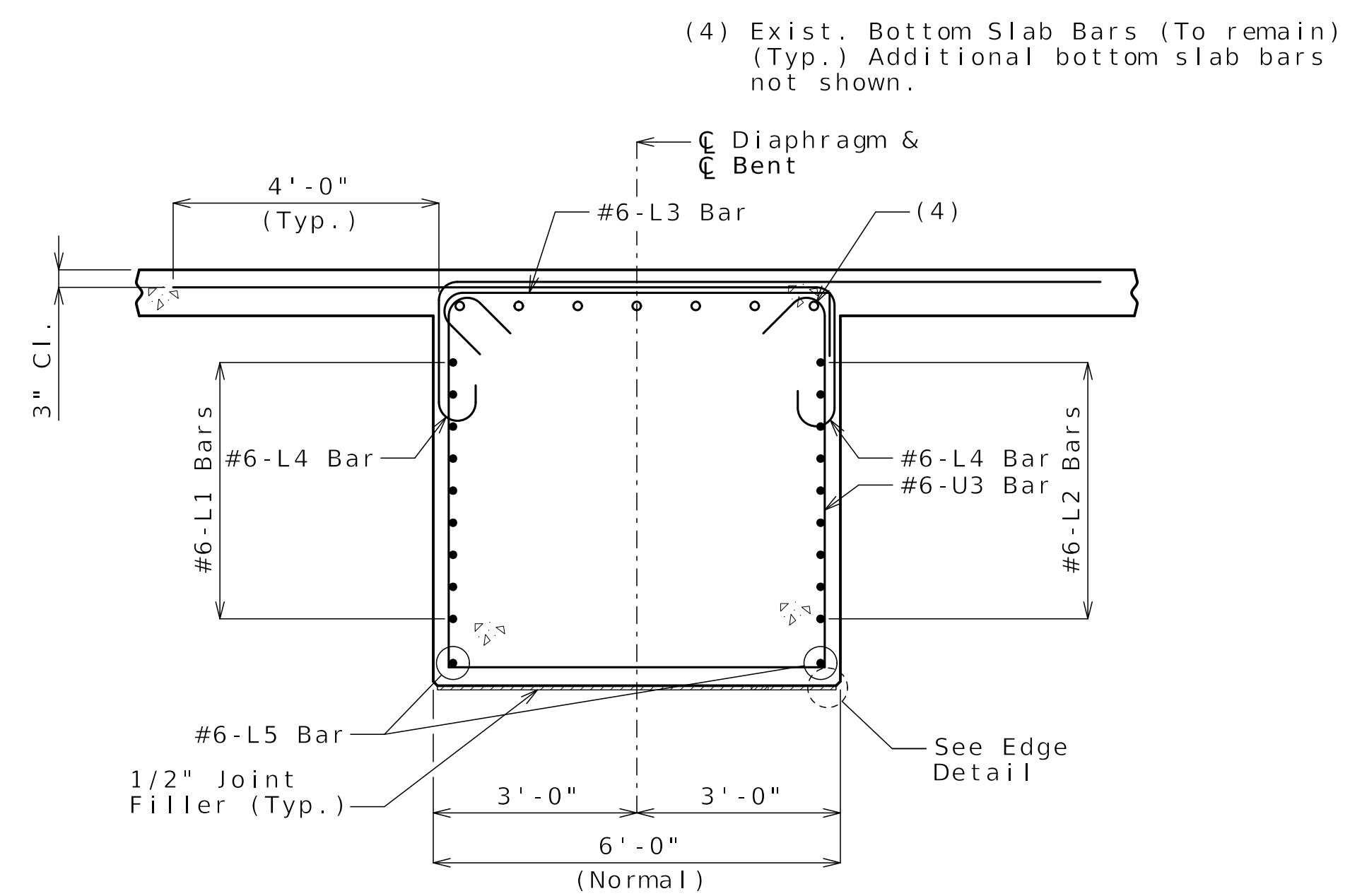


SECTION B-B

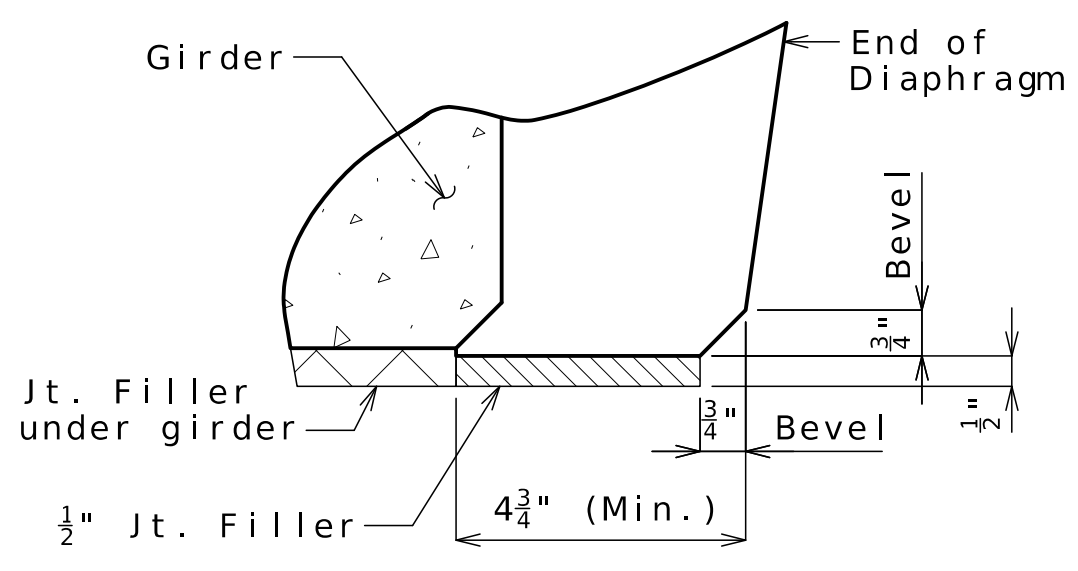
Resin Anchor Notes:
 The contractor shall use one of the qualified resin anchor systems in accordance with Sec 1039.
 The minimum embedment depth in concrete with f'c - 4,000 psi for the resin anchor system shall be required to meet the minimum ultimate pullout strength in accordance with Sec 1039 but shall not be less than 5".
 An epoxy coated #6 Grade 60 Reinforcing bar 2'-6" long shall be substituted for the threaded rod.



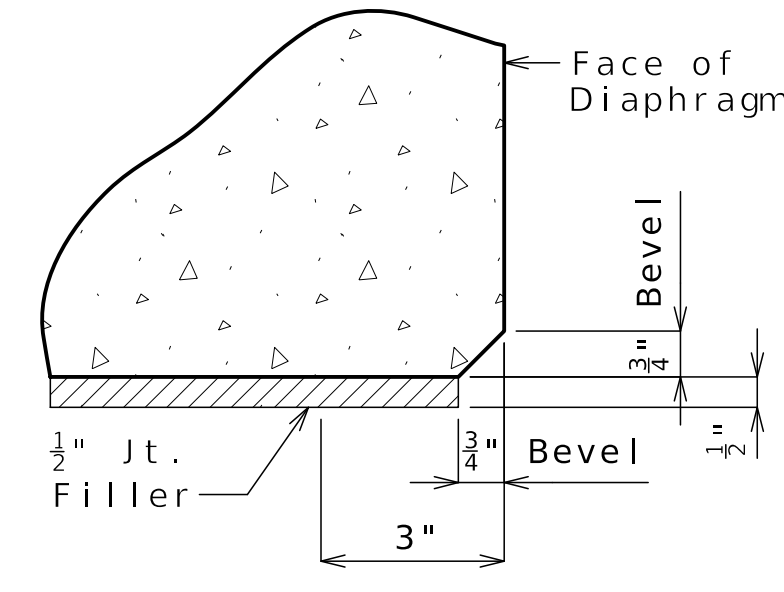
PART SECTION A-A



SECTION C-C



END DETAIL



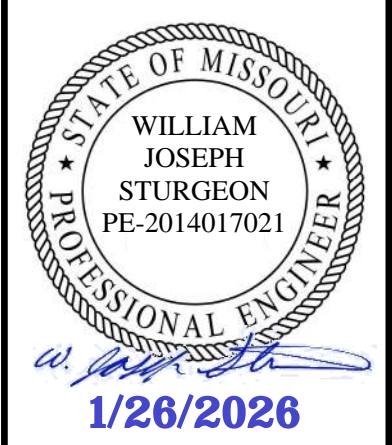
EDGE DETAIL

Released For Construction
Not to Scale

Revision: 0.0
Date: 01/29/2026
Package: BRD-26-EB70-Manchester

Notes:
 For cap beam step geometry, bearing location, bearing details, roofing felt details, joint filler details, and notes not shown here see Sheets No. B26-11 and B26-12.
 For location of #5 Strand Tie Bars, see Sheet No. B26-16.
 For location of coil ties, see Sheet No. B26-16.
 Diaphragms shall be built vertical.

CONCRETE DIAPHRAGM AT INTERMEDIATE BENT NO. 4



DATE PREPARED 01/13/2026	
ROUTE I-70	STATE MO
DISTRICT BR	SHEET NO. B26-21
COUNTY JACKSON	
JOB NO. J411486D	
CONTRACT ID. 240807-C01	
PROJECT NO.	
BRIDGE NO. A82571	

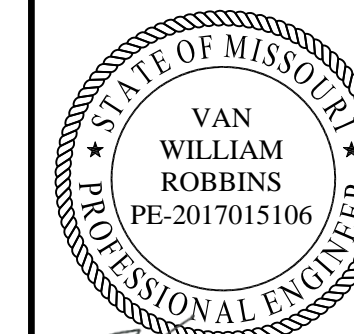
DATE	DESCRIPTION
01/13/26	REV 0 - RFC SUBMITTAL

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



Van W. Robbins
01-26-26

DATE PREPARED
01/13/2026

ROUTE STATE
I-70 MO

DISTRICT SHEET NO.
BR B26-22

COUNTY
JACKSON

JOB NO.
J411486D

CONTRACT ID.
240807-C01

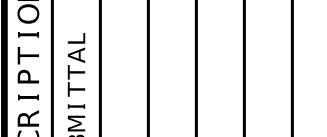
PROJECT NO.

BRIDGE NO.
A82571

DESCRIPTION
REV 0 - RFC SUBMITTAL

DATE
01/13/26

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

Notes:

Work this sheet with Sheet No. B26-23.

For slab drain locations, see Sheet No. B26-26.

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.

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 except as shown.

All 1/2"Ø bolts shall be ASTM A307, except as shown.

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

The coil insert required for the bracket assembly attachment shall be located on the prestressed girder 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 girder web shall be supplied by the prestressed girder fabricator.

Coil insert locations in prestressed girders shall be modified by fabricator to provide 1 1/2" clear between the prestressing strand and the edge of the coil insert.

Notes for FRP Pipe:

Drain pipe inner diameter shall meet or exceed Slab Drain outlet.

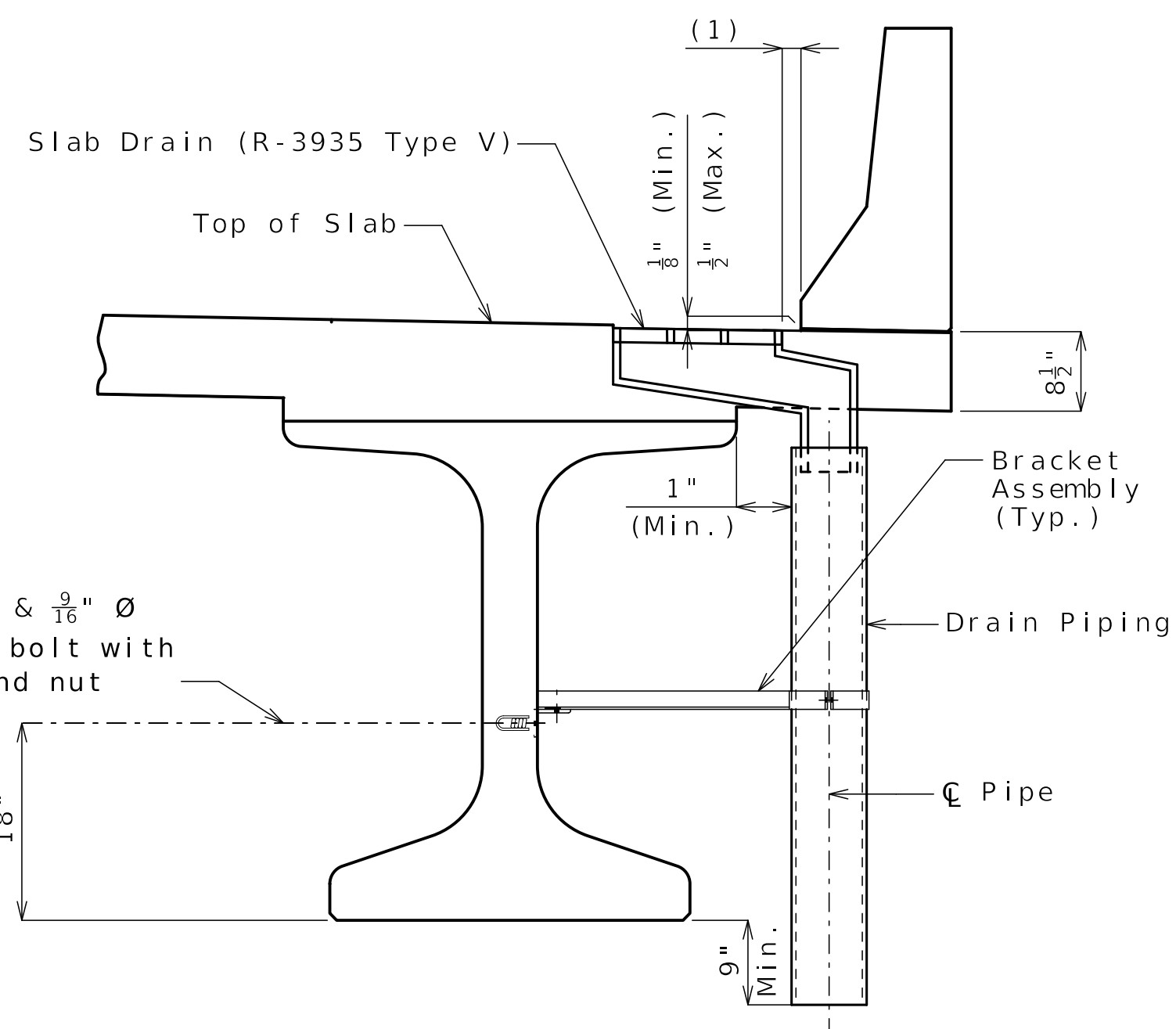
Pipes shall be machine filament-wound thermosetting resin tubing meeting the requirements of ASTM D2996 with the following exceptions:

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

The color of the pipe shall be Gray (Federal Standard #26373) when used adjacent to prestressed girders. The color shall be uniform throughout the resin and any coating used.

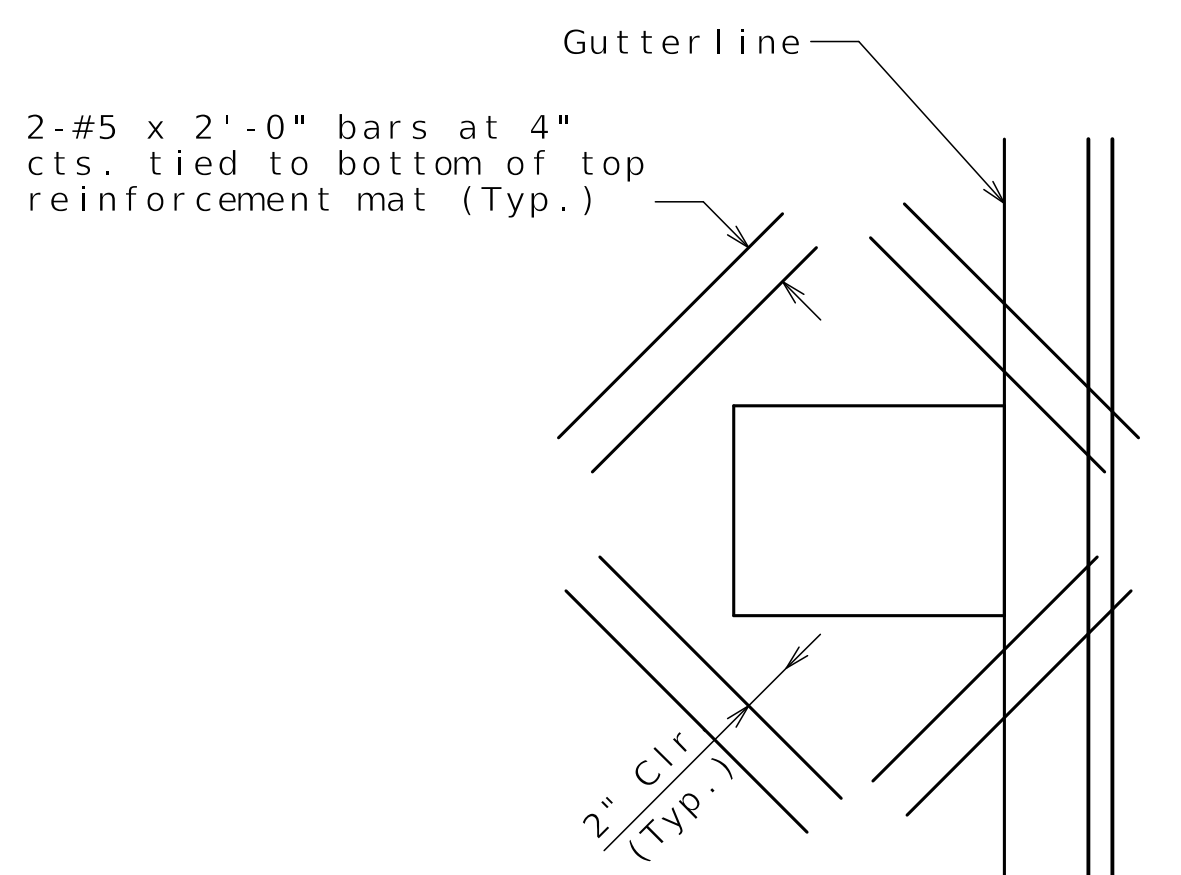
The combination of materials used in the manufacture of the pipe shall be tested for UV resistance in accordance with ASTM D4329 Cycle A. The representative material shall withstand at least 500 hours of testing with only minor discoloration and without any physical deterioration. The contractor shall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

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

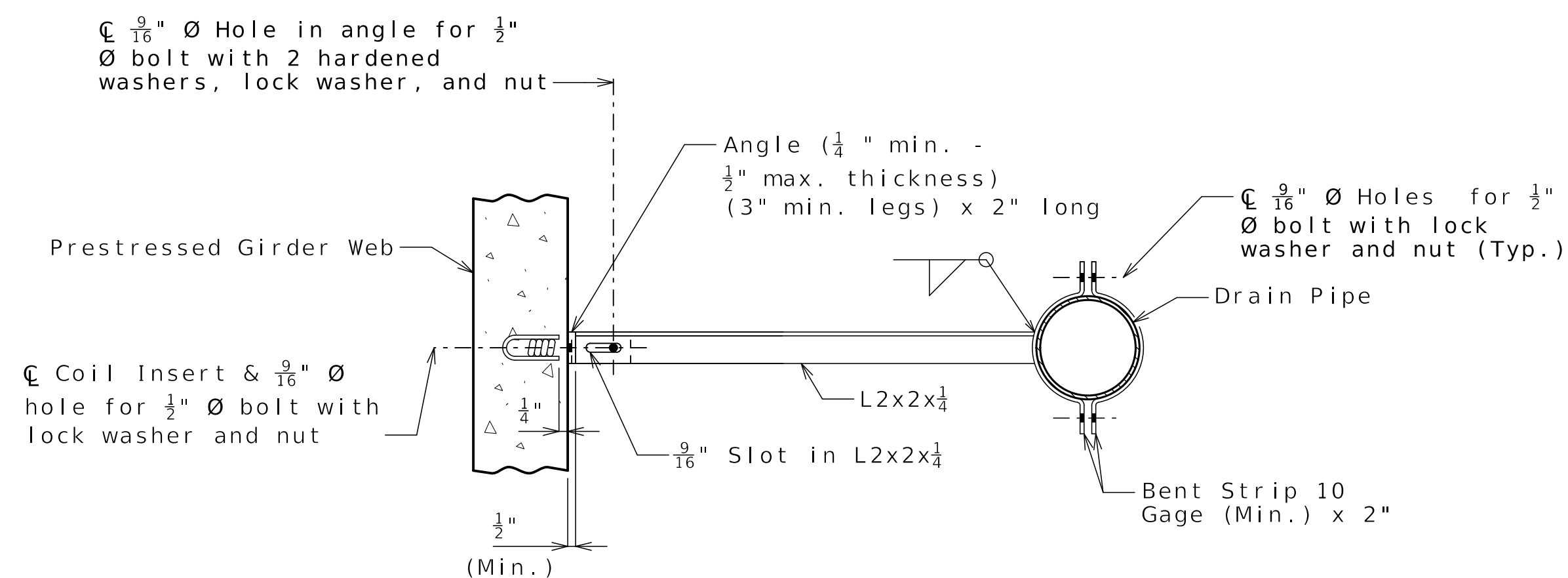


PART SECTION
(Slab Drains No. 1 thru 4 shown, Slab Drain No. 5 similar except drain pipe is to inside of girder)

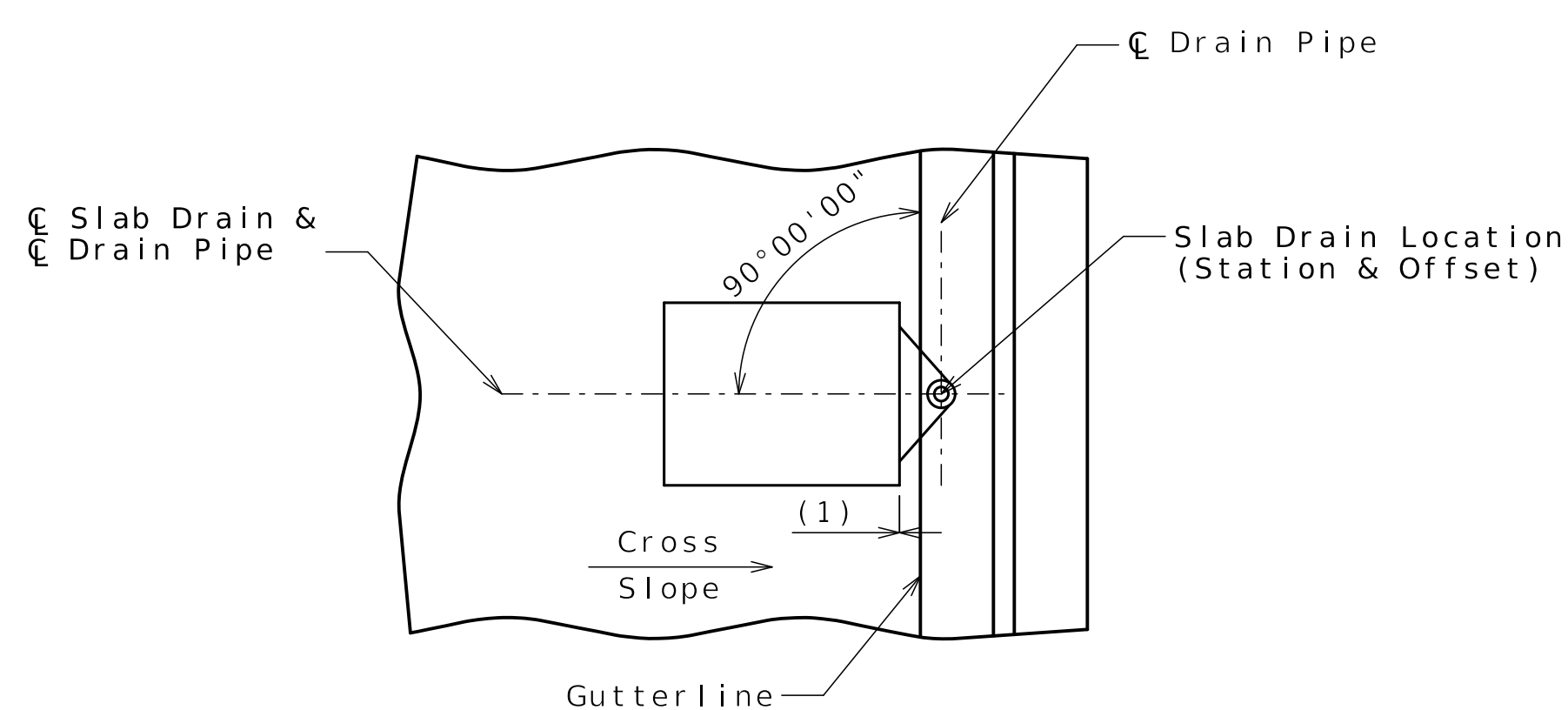
(1) 2" for Slab Drains No. 1 thru 3.
0" for Slab Drains No. 4 & 5.



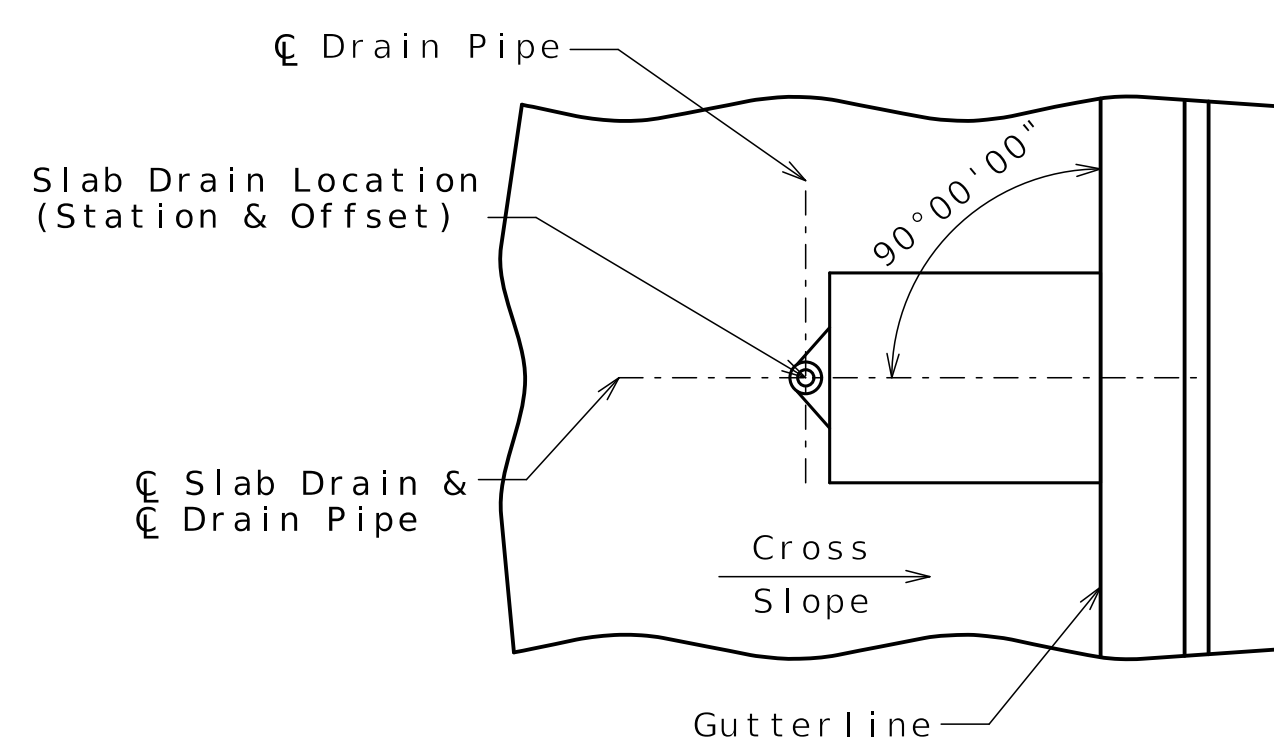
REINFORCEMENT DETAIL AT SLAB DRAIN



PART SECTION SHOWING BRACKET ASSEMBLY



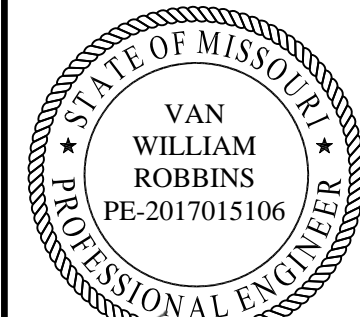
SLAB DRAIN ORIENTATION DETAIL 1
(Applies to Slab Drains No. 1 thru 4)



SLAB DRAIN ORIENTATION DETAIL 2
(Applies to Slab Drain No. 5)

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SLAB DRAINS



Van W. Robbins
01-26-26

DATE PREPARED
01/13/2026

ROUTE STATE
I-70 MO

DISTRICT SHEET NO.
BR B26-23

COUNTY
JACKSON

JOB NO.
J411486D

CONTRACT ID.
240807-C01

PROJECT NO.

BRIDGE NO.
A82571

DESCRIPTION
REV 0 - RFC SUBMITTAL

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01/13/26

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

General Notes:

Work this sheet with Sheet No. B26-22.

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

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

For slab drain locations, see Sheet No. B26-26.

Reinforcing steel shall be shifted to clear drains.

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

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

All 1/2"Ø bolts shall be ASTM A307.

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

The coil insert required for the bracket assembly attachment shall be located on the prestressed girder 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 bolt required to attach the slab drain bracket assembly to the prestressed girder web shall be supplied by the prestressed girder fabricator.

Notes for Steel Drain:

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

Outside dimensions of drains are 8" x 4".

The drains shall be galvanized in accordance with ASTM A123.

Notes for FRP Drain:

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

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

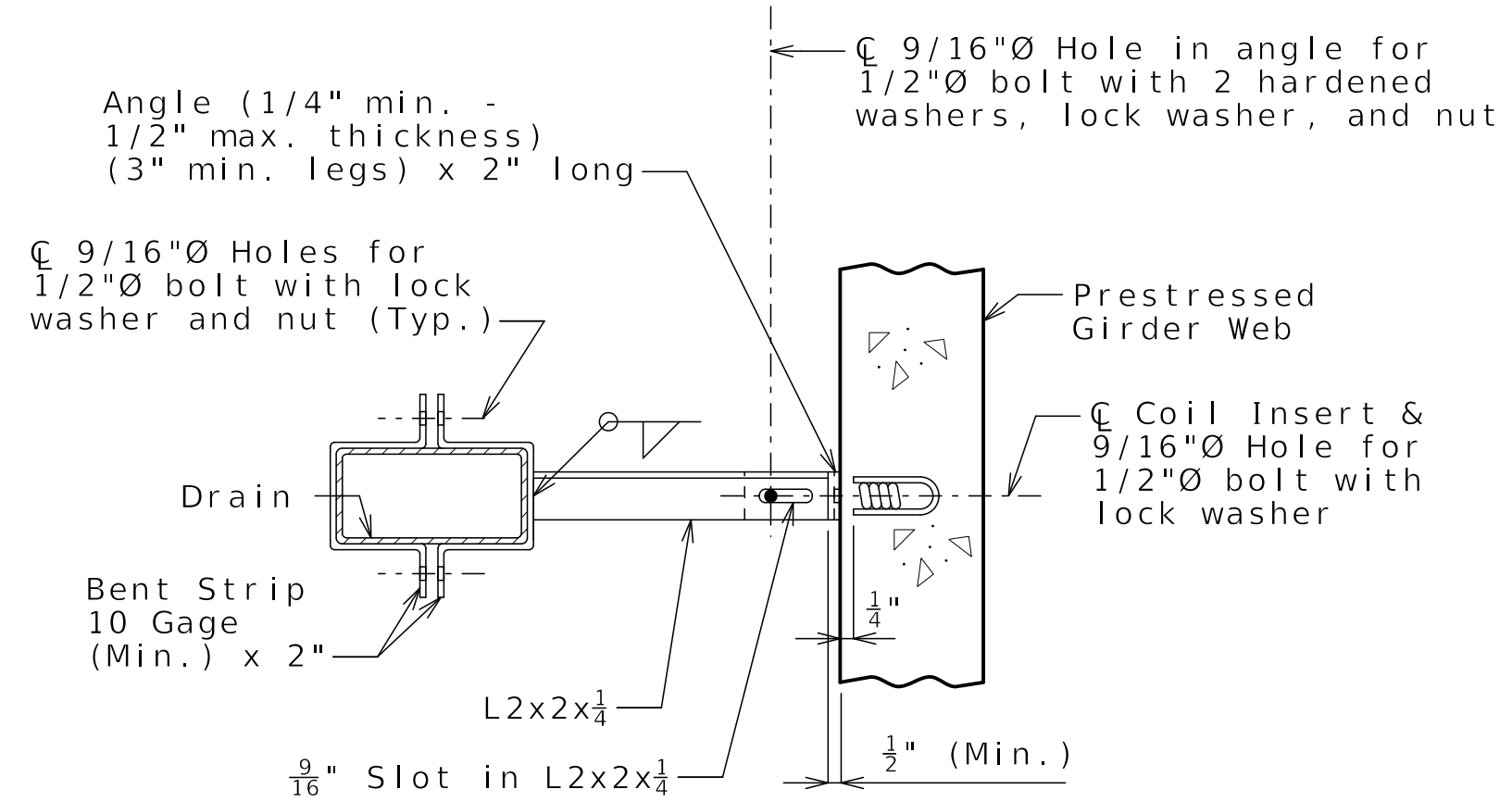
The resin used shall be ultraviolet (UV) resistant and/or have UV inhibitors mixed throughout. Drains may have an exterior coating for additional UV resistance.

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

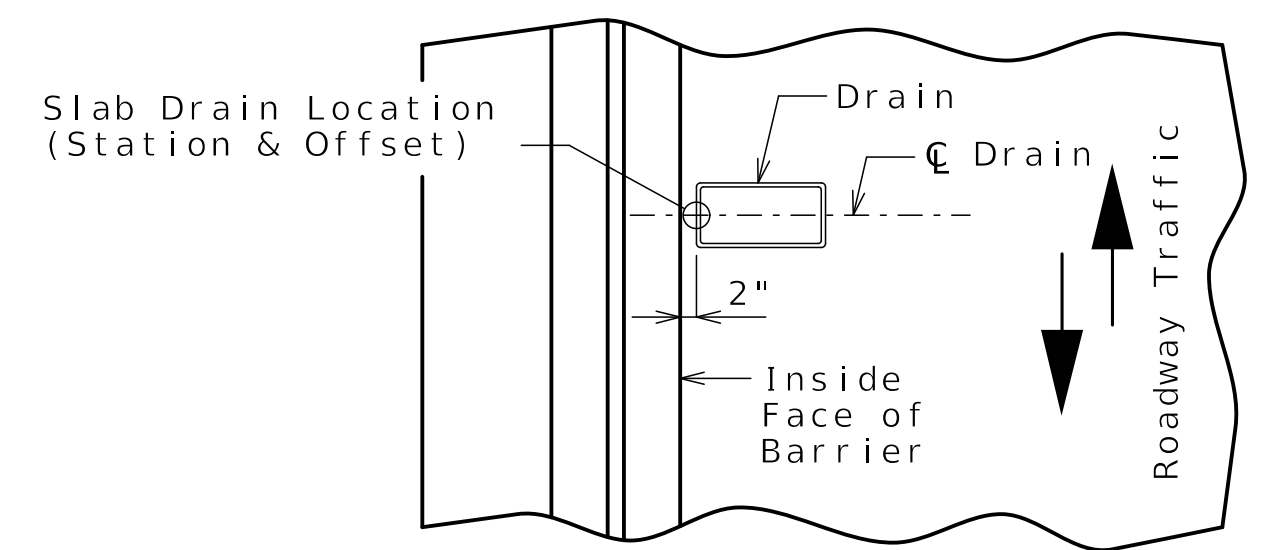
The combination of materials used in the manufacture of the drains shall be tested for UV resistance in accordance with ASTM D4329 Cycle A. The representative material shall withstand at least 500 hours of testing with only minor discoloration and without any physical deterioration. The contractor shall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

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

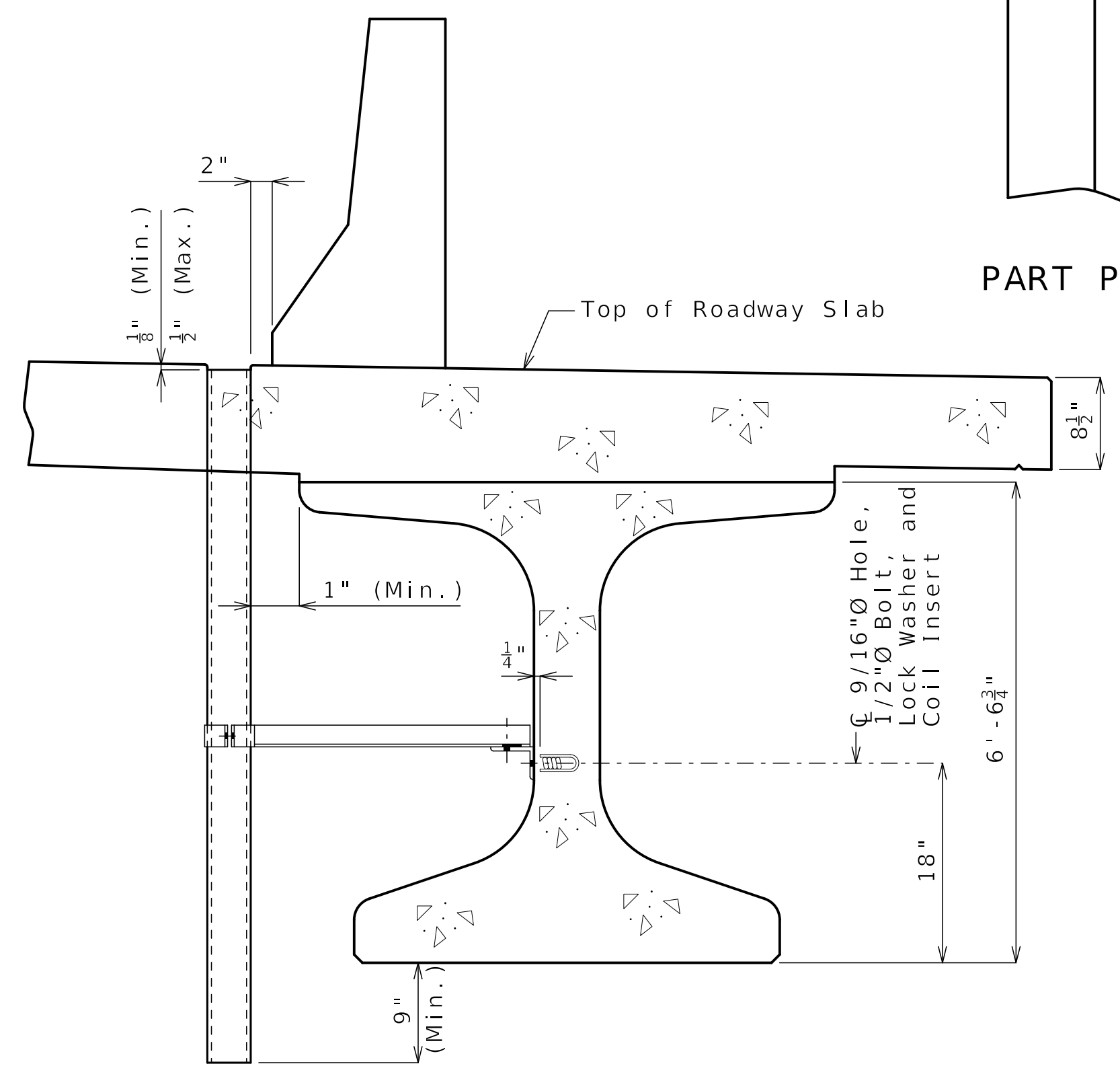
Both upper and lower drain pieces shall be rigidly connected to each other. Drain flow shall not be obstructed. Approval of the engineer is required.



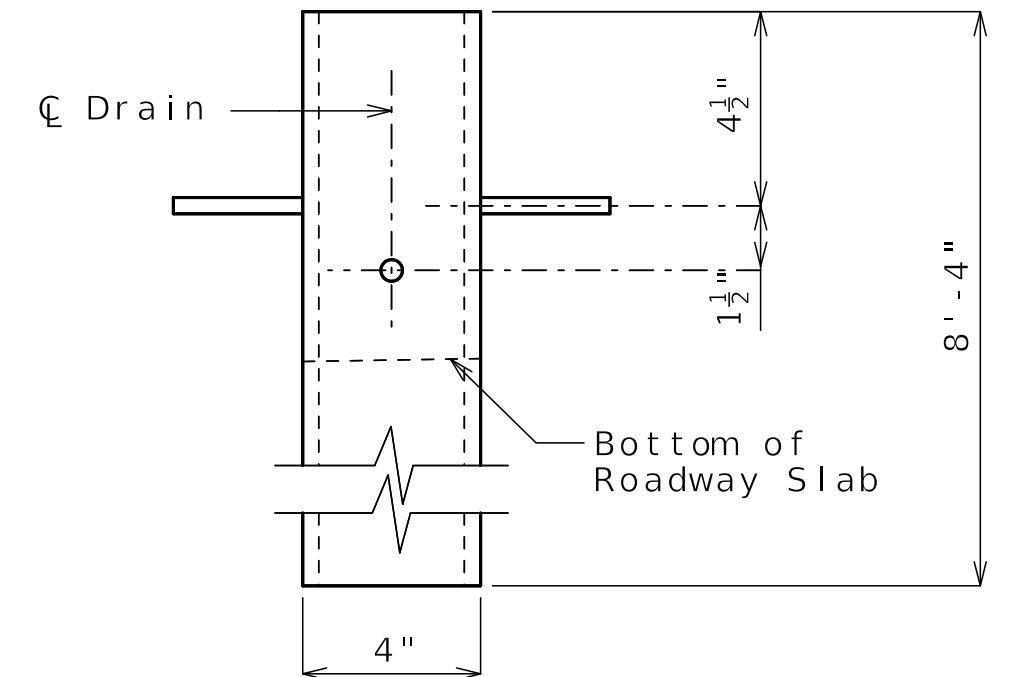
PART SECTION SHOWING BRACKET ASSEMBLY



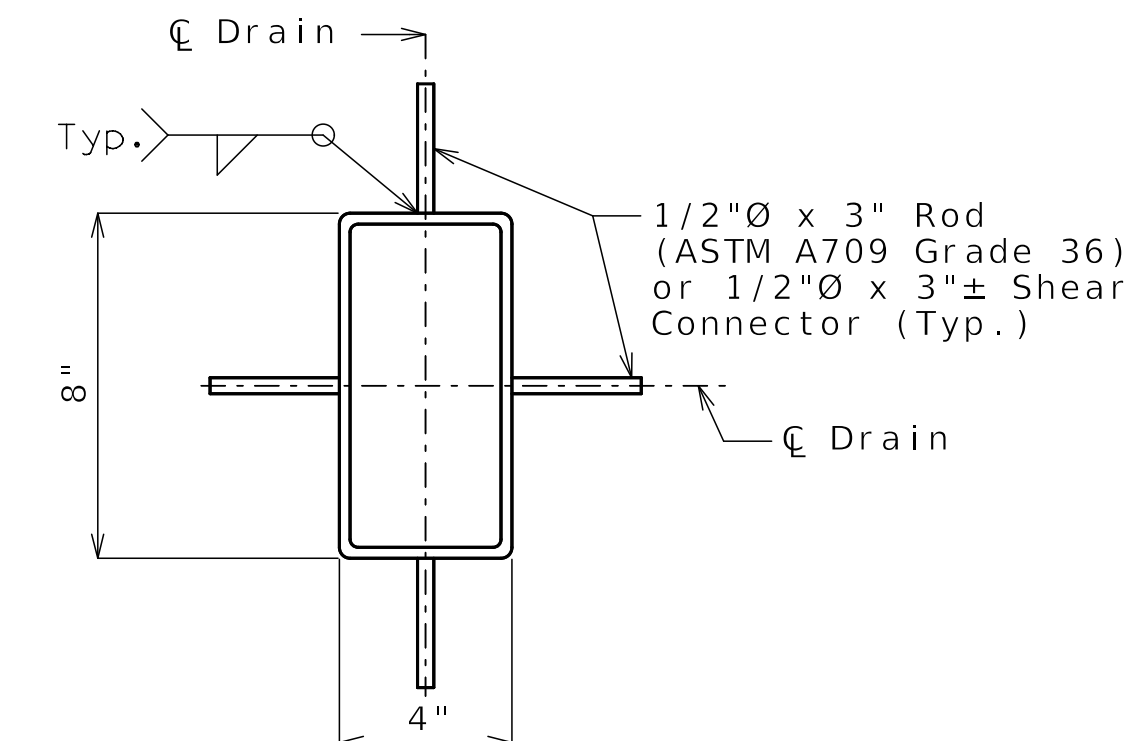
PART PLAN OF SLAB AT DRAIN



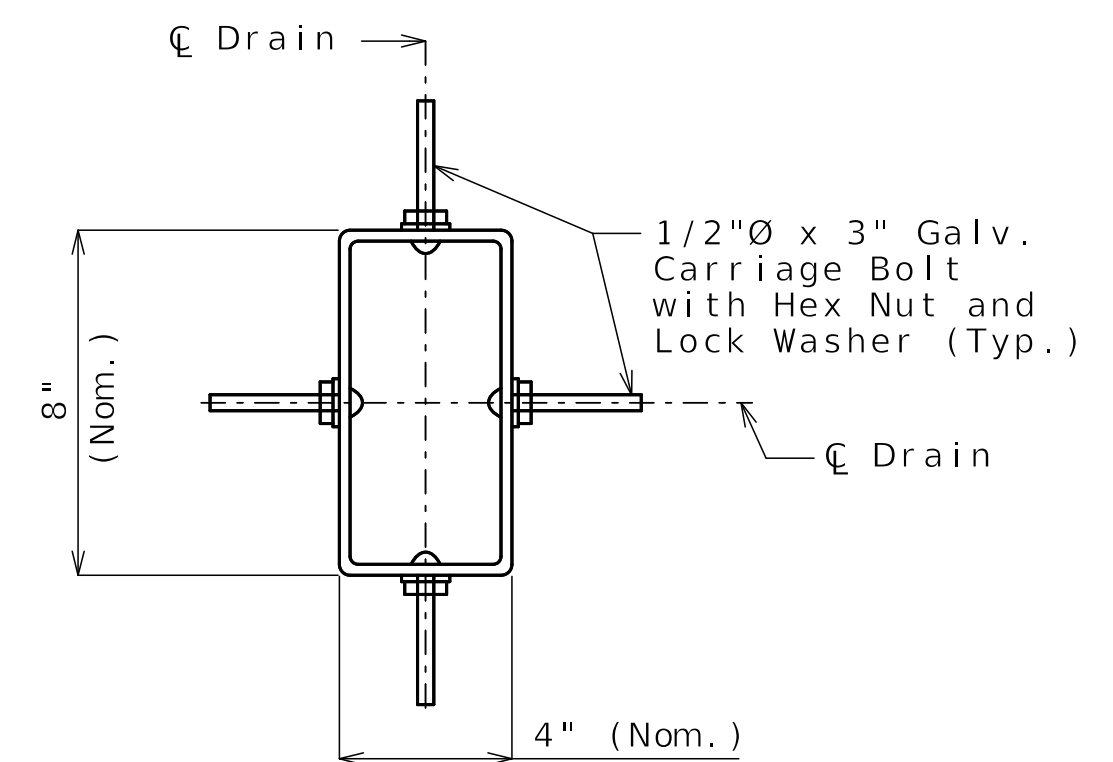
PART SECTION NEAR DRAIN



ELEVATION OF DRAIN



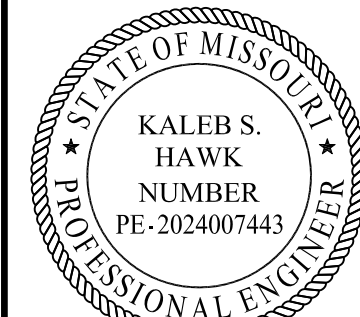
PLAN OF STEEL DRAIN OPTION



PLAN OF FRP DRAIN OPTION

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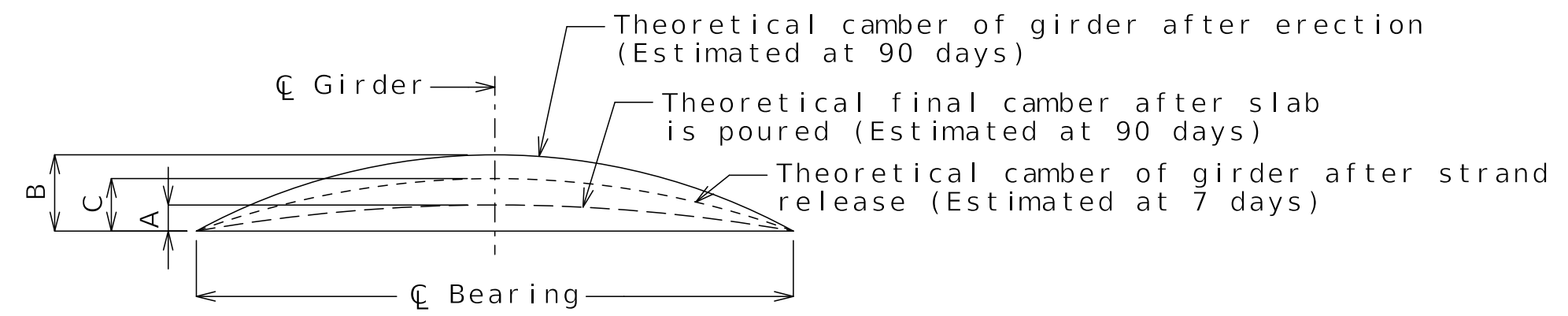
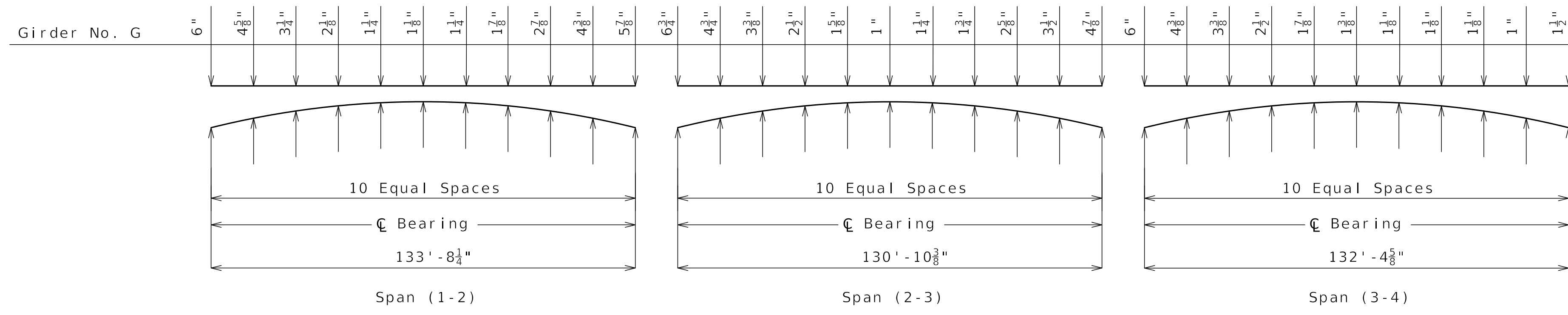
SLAB DRAINS



Kaleb S. Hawk
1-26-2026

DATE PREPARED 01/13/2026	
ROUTE 1-70	STATE MO
DISTRICT BR	SHEET NO. B26-24
COUNTY JACKSON	
JOB NO. J411486D	
CONTRACT ID. 240807-C01	
PROJECT NO.	

BRIDGE NO.
A82571



Girder	Span (1-2)			Span (2-3)			Span (3-4)		
	A	B	C	A	B	C	A	B	C
G	3"	5 1/8"	3 1/2"	2 1/2"	4 1/8"	2 7/8"	7/8"	2 3/8"	1 1/2"

GIRDER CAMBER DIAGRAM

Conversion Factors for Girder 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.

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Note: If girder 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 SLAB HAUNCHING DIAGRAM

DATE	DESCRIPTION
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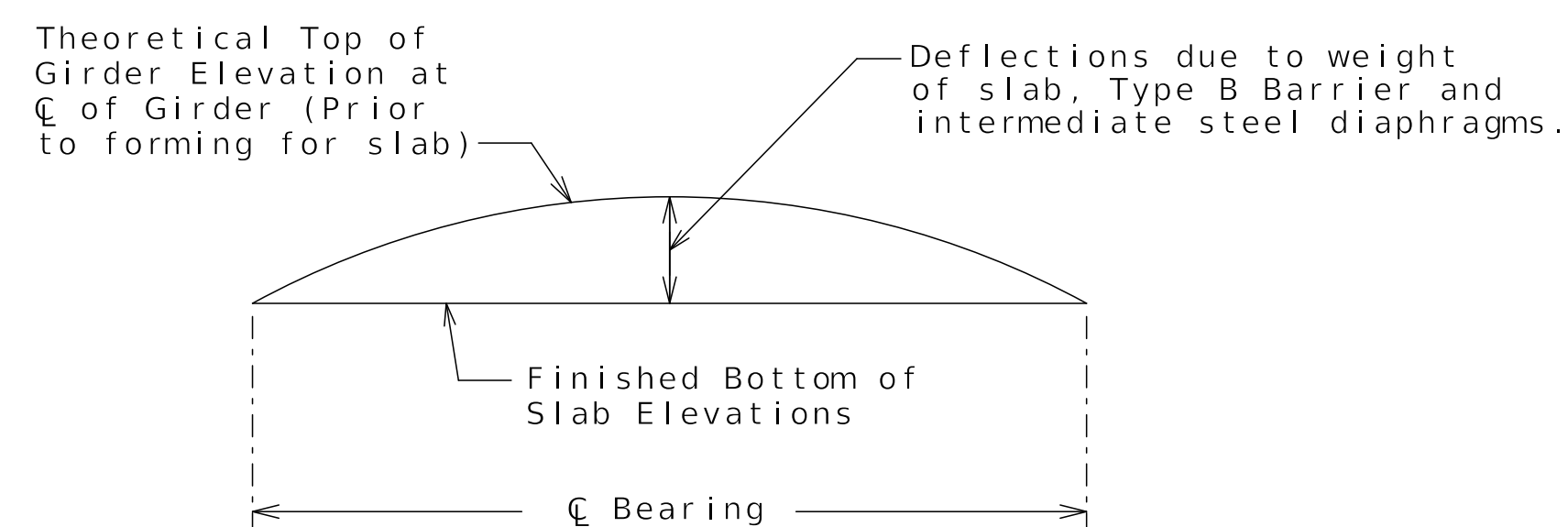
715 KIRK DRIVE
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CERTIFICATE OF AUTHORITY
NO. 001270

Theoretical Bottom of Slab Elevations at Centerline of Girder
(Prior to forming for slab)(Estimated at 90 days)(1)(2)

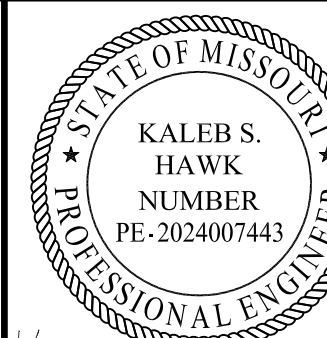
Girder Number	Span (1-2) (133'-8 $\frac{1}{2}$ " \bar{C} Brg. - \bar{C} Brg.)										
	\bar{C} Brg.	.10	.20	.30	.40	.50	.60	.70	.80	.90	\bar{C} Brg.
G	774.81	775.15	775.47	775.79	776.10	776.42	776.73	777.05	777.35	777.68	777.99
Girder Number	Span (2-3) (130'-10 $\frac{3}{8}$ " \bar{C} Brg. - \bar{C} Brg.)										
	\bar{C} Brg.	.10	.20	.30	.40	.50	.60	.70	.80	.90	\bar{C} Brg.
G	778.06	778.44	778.84	779.28	779.68	780.08	780.52	780.93	781.37	781.78	782.21
Girder Number	Span (3-4) (132'-4 $\frac{5}{8}$ " \bar{C} Brg. - \bar{C} Brg.)										
	\bar{C} Brg.	.10	.20	.30	.40	.50	.60	.70	.80	.90	\bar{C} Brg.
G	782.30	782.76	783.25	783.76	784.26	784.76	785.27	785.78	786.27	786.75	787.27

(1) Elevations are based on a constant slab thickness of 8 $\frac{1}{2}$ " and include allowance for theoretical dead load deflections due to weight of slab (including Type B Barrier and intermediate steel diaphragms).

(2) After removal of the existing concrete bridge slab, the Contractor shall survey top of top flanges of existing girders and submit to the Engineer for review.



TYPICAL SLAB ELEVATIONS DIAGRAM



Kaleb S. Hawk
1-26-2026

DATE PREPARED
01/13/2026

ROUTE
I-70 STATE
MO

DISTRICT
BR SHEET NO.
B26-25

COUNTY
JACKSON

JOB NO.
J411486D

CONTRACT ID.
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PROJECT NO.

BRIDGE NO.
A82571

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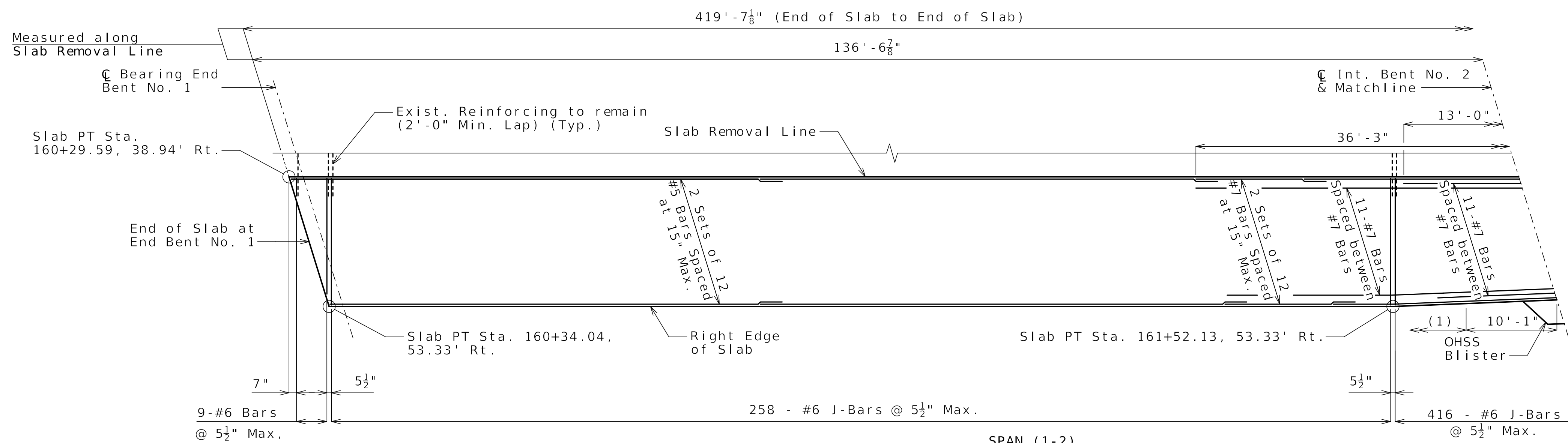
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

CLARKSON RADMACHER JOINT VENTURE

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

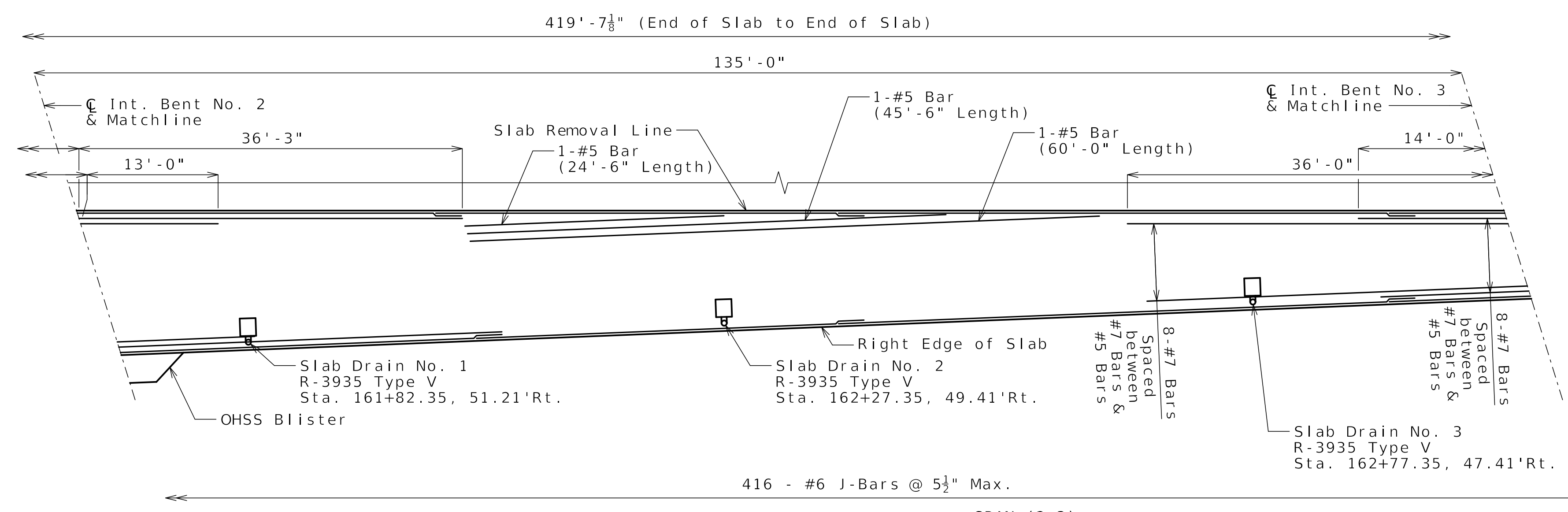
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THEORETICAL BOTTOM OF SLAB ELEVATIONS



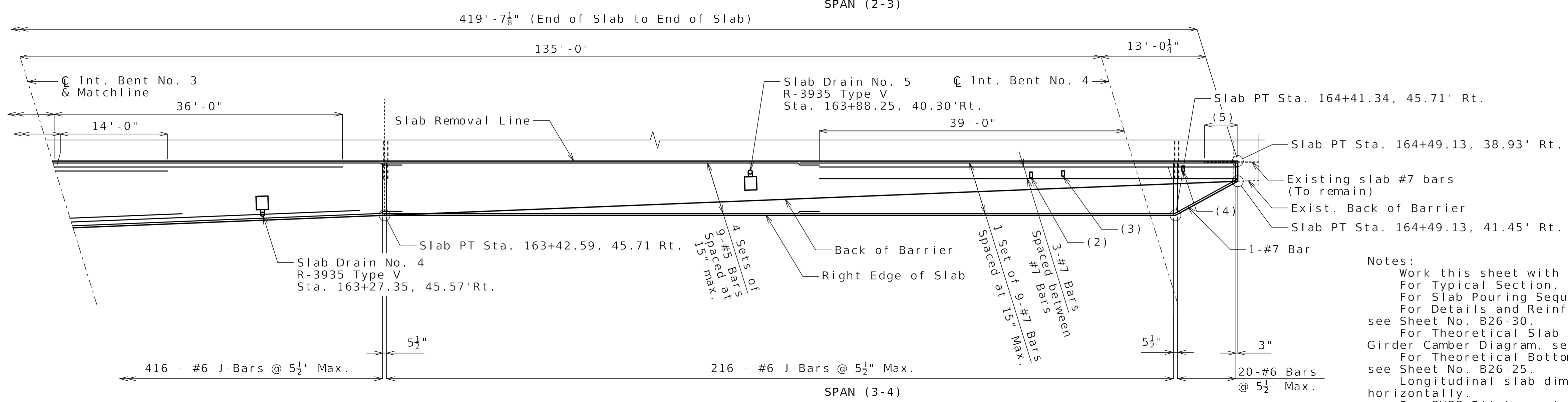
Minimum Lap Splices:
 Longitudinal
 #5=2'-5"
 #7=4'-2"

(1) Bundle #4 J-Bars at 11" spacing with #6 J-bars



- (2) Slab Drain No. 6
4"x8" Tube Slab Drain
Sta. 164+23.33, 40.98' Rt.
- (3) Slab Drain No. 7
4"x8" Tube Slab Drain
Sta. 164+27.32, 40.82' Rt.
- (4) Slab Drain No. 8
4"x8" Tube Slab Drain
Sta. 164+42.32, 40.23' Rt.

(5) 4'-2" Min.



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Notes:
 Work this sheet with Sheet No. B26-27.
 For Typical Section, see Sheet No. B26-28.
 For Slab Pouring Sequence, see Sheet No. B26-29.
 For Details and Reinforcement of Type B Barrier, see Sheet No. B26-30.
 For Theoretical Slab Haunching Diagram and Girder Camber Diagram, see Sheet No. B26-24.
 For Theoretical Bottom of Slab Elevations, see Sheet No. B26-25.
 Longitudinal slab dimensions are measured horizontally.
 For OHSS Blister reinforcing and details, see Sheet No. B26-32.
 For slab drain details, including station and offset location definition, see Sheets No. B26-22 and B26-23.

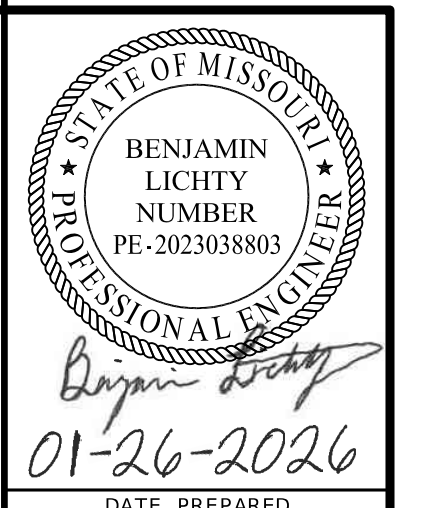
TOP REINFORCEMENT

SLAB PLAN SHOWING TOP REINFORCEMENT

Detailed OCT 2025
 Checked OCT 2025

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

Sheet No. B26-26 of B26-46



DATE PREPARED 01/13/2026	
ROUTE 1-70	STATE MO
DISTRICT BR	SHEET NO. B26-26
COUNTY JACKSON	
JOB NO. J411486D	
CONTRACT ID. 240807-C01	
PROJECT NO.	
BRIDGE NO. A82571	

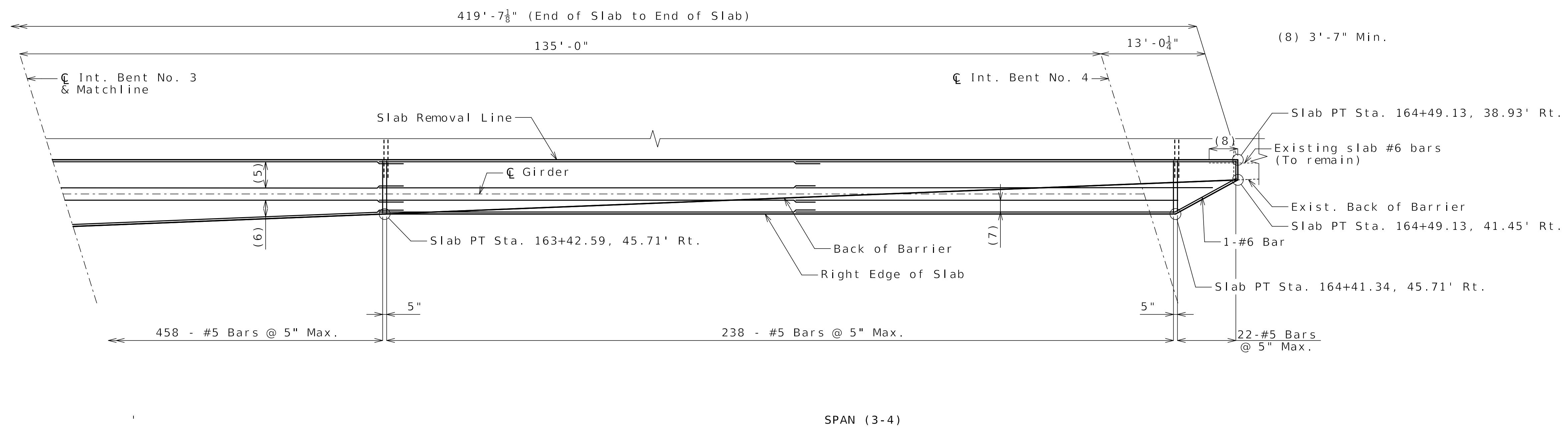
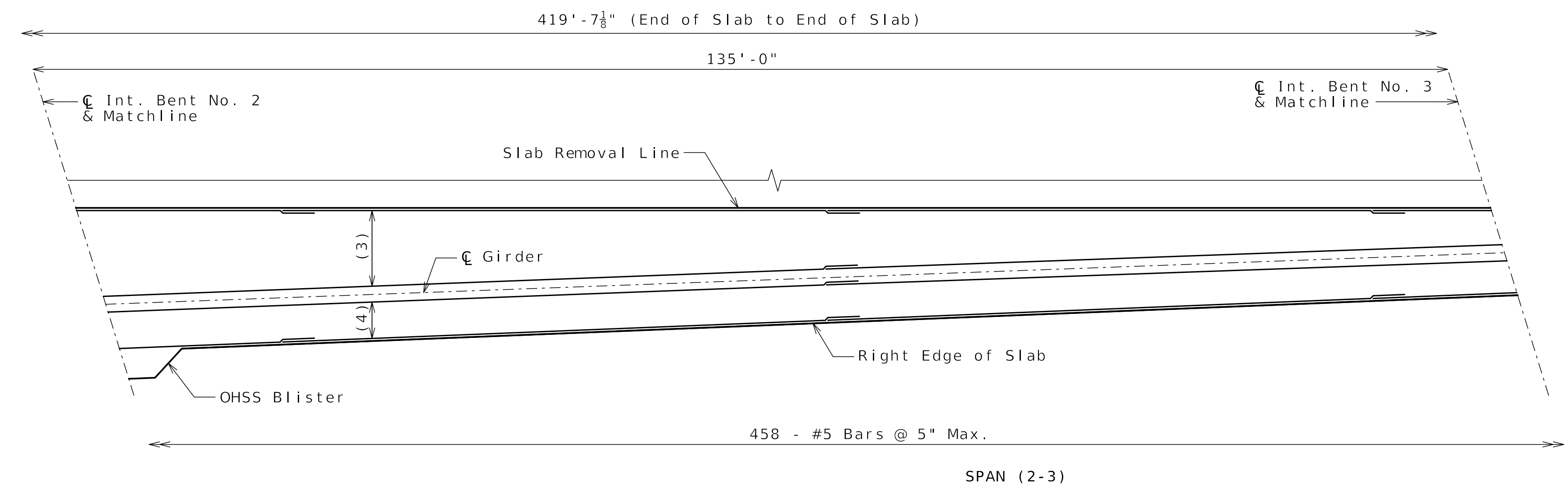
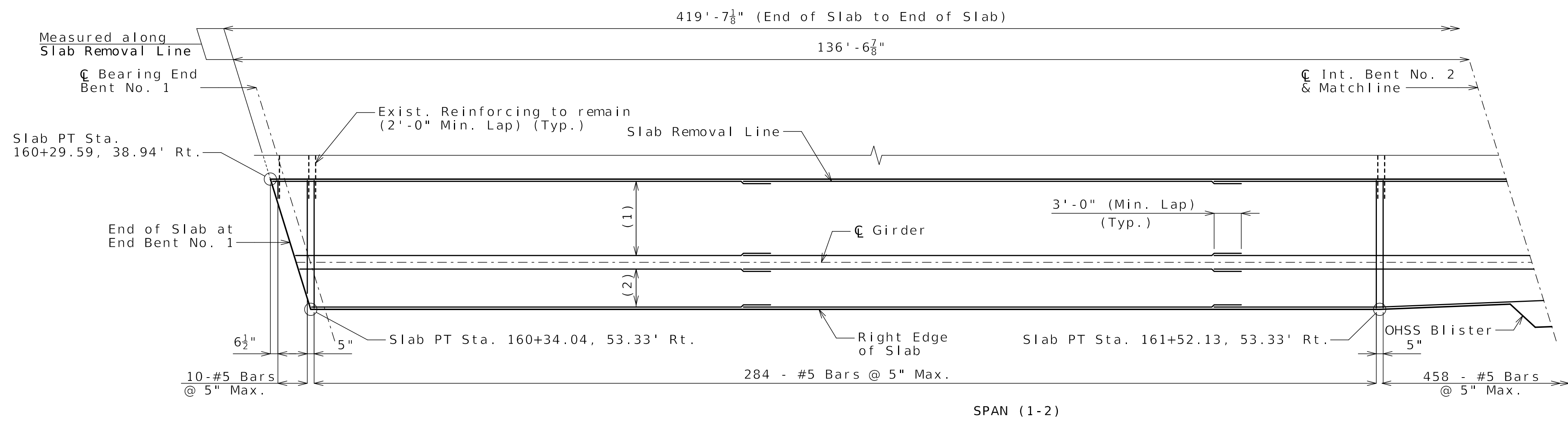
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MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

105 WEST CAPITOL
 JEFFERSON CITY, MO 65102
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CLARKSON RADMACHER
 JOINT VENTURE

715 KIRK DRIVE
 KANSAS CITY, MO 64105-1310
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 NO. 001270



Reinforcement Spaced as shown in Typical Section:
 (1) 3 Sets of 13 - #6 Bars
 (2) 3 Sets of 8 - #6 Bars
 (3) Number of Sets of #6 Bars Varies. Transition from 13 to 6 - #6 Bars without violating maximum spacing requirement shown in Typical Section.
 (4) Number of Sets of #6 Bars Varies. Transition from 8 to 6 - #6 Bars without violating maximum spacing requirement shown in Typical Section.
 (5) 3 Sets of 6 - #6 Bars
 (6) 1 Set of 6 - #6 Bars
 (7) 2 Sets of 4 - #6 Bars

BOTTOM REINFORCEMENT

SLAB PLAN SHOWING BOTTOM REINFORCEMENT

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 Date: 01/29/2026
 Package: BRD-26-EB70-Manchester

Notes:
 Work this sheet with Sheet No. B26-26.



01-26-2026

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ROUTE STATE
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DISTRICT SHEET NO.
 BR B26-27

COUNTY
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PROJECT NO.

BRIDGE NO.
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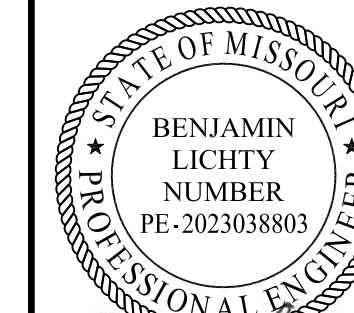
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CLARKSON RADMACHER JOINT VENTURE

715 KIRK DRIVE
 KANSAS CITY, MO 64105-1310
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Benjamin Lichty
01-26-2026

DATE PREPARED
01/13/2026

ROUTE STATE
I-70 MO

DISTRICT SHEET NO.
BR B26-28

COUNTY
JACKSON

JOB NO.
J411486D

CONTRACT ID.
240807-C01

PROJECT NO.

BRIDGE NO.
A82571

DATE	DESCRIPTION
01/13/26 <td>REV 0 - RFC SUBMITTAL</td>	REV 0 - RFC SUBMITTAL

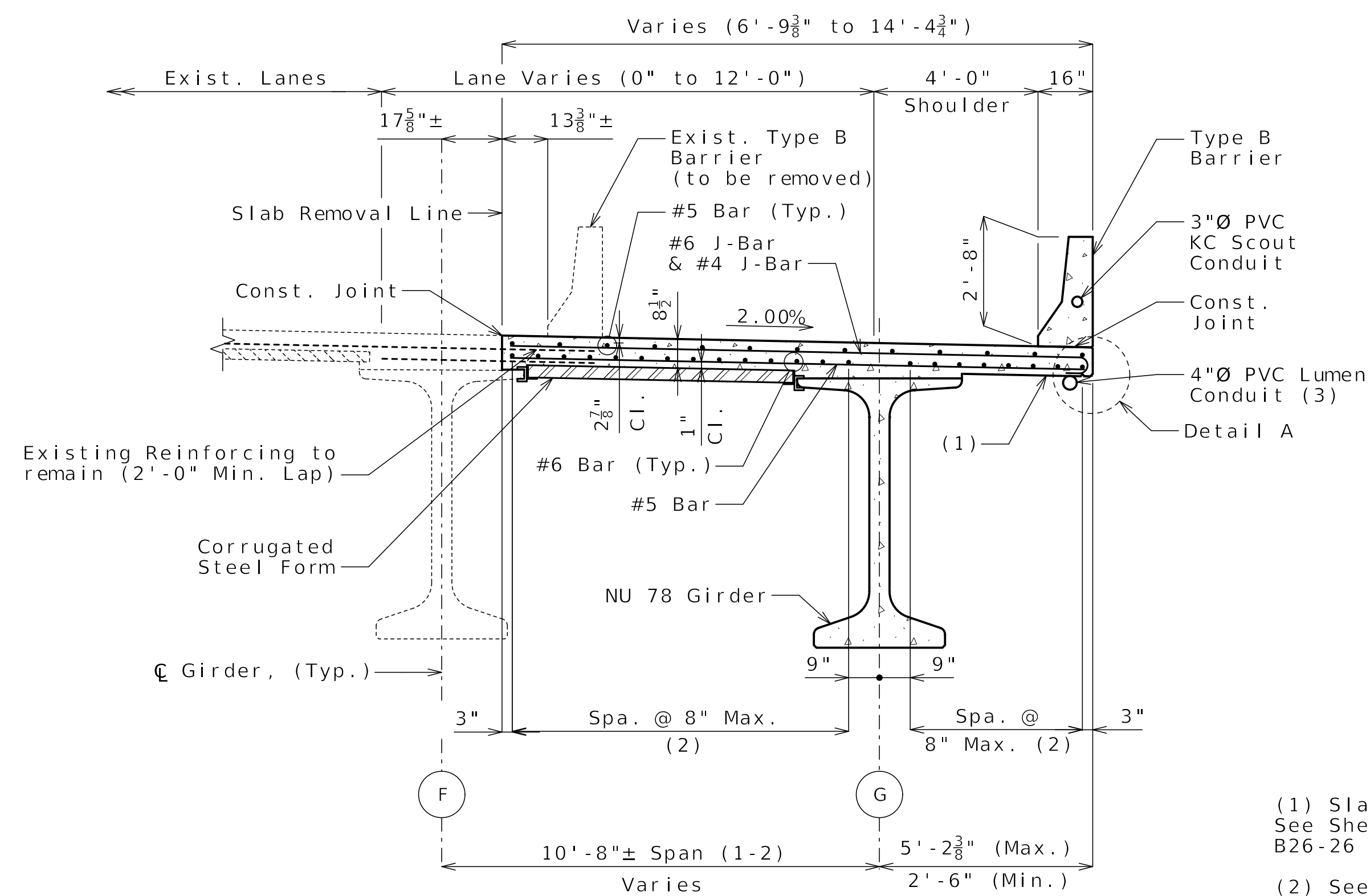
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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

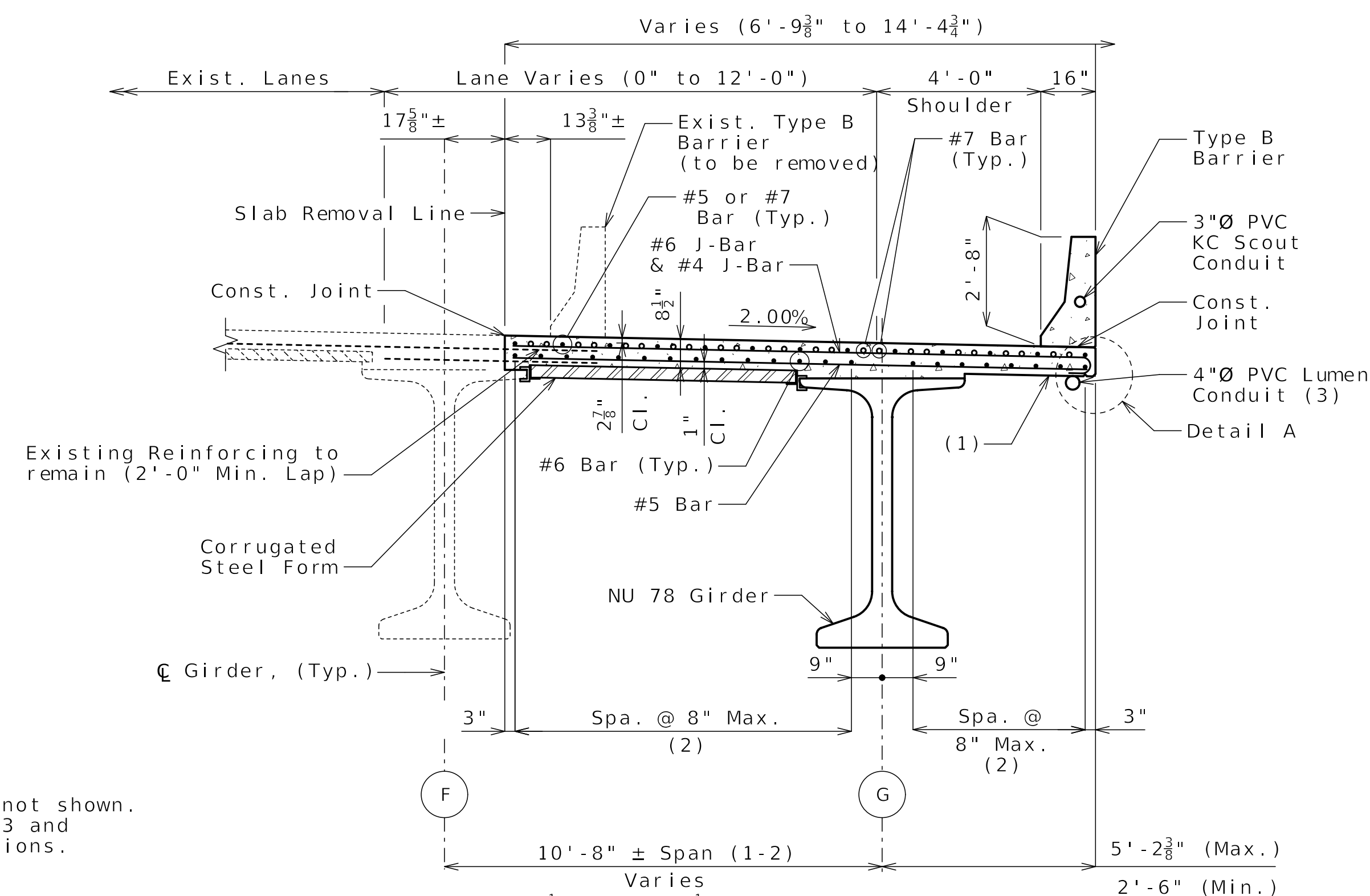
CLARKSON RADMACHER JOINT VENTURE

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

HNTB

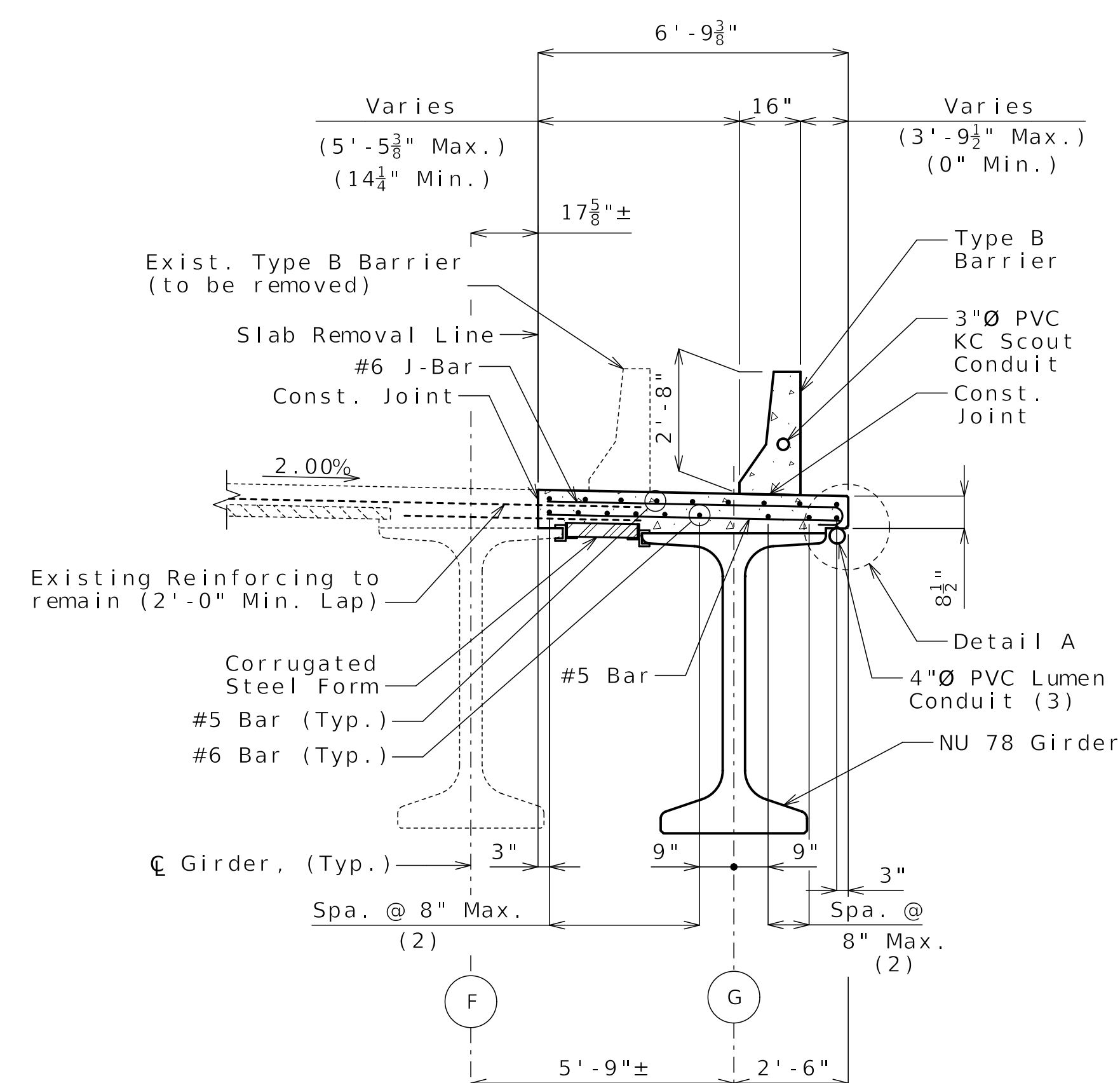


PART SECTION NEAR MIDSPAN
(Looking Ahead Sta.)
(End Bent No. 1 to Sta. 163+42.59)

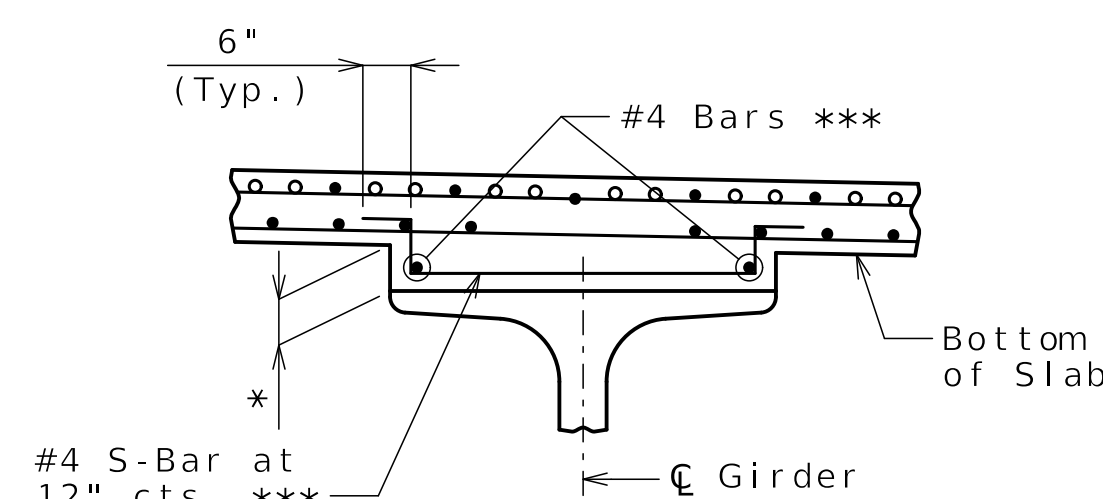


PART SECTION NEAR INTERMEDIATE BENT
(Looking Ahead Sta.)
(Near Int. Bents No. 2 and No. 3)

- (1) Slab Drains in overhang not shown. See Sheets No. B26-22, B26-23 and B26-26 for details and locations.
- (2) See Slab Plan
- (3) Hardware for supporting conduit shall be coordinated by Contractor with Lumen prior to construction.



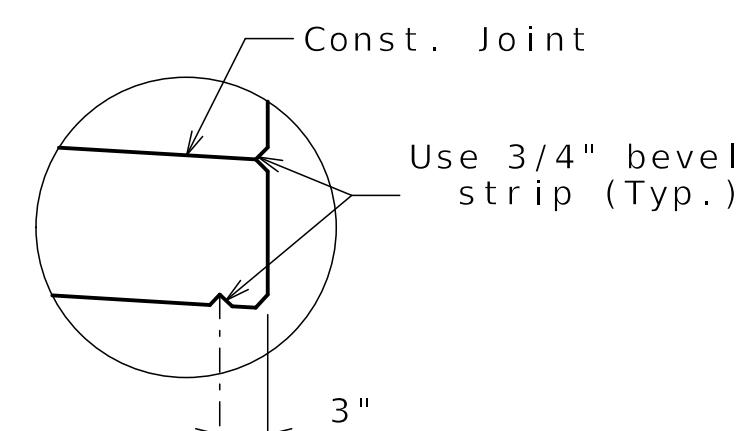
PART SECTION NEAR MIDSPAN
(Looking Ahead Sta.)
(Sta. 163+42.59 to Bent No. 4)



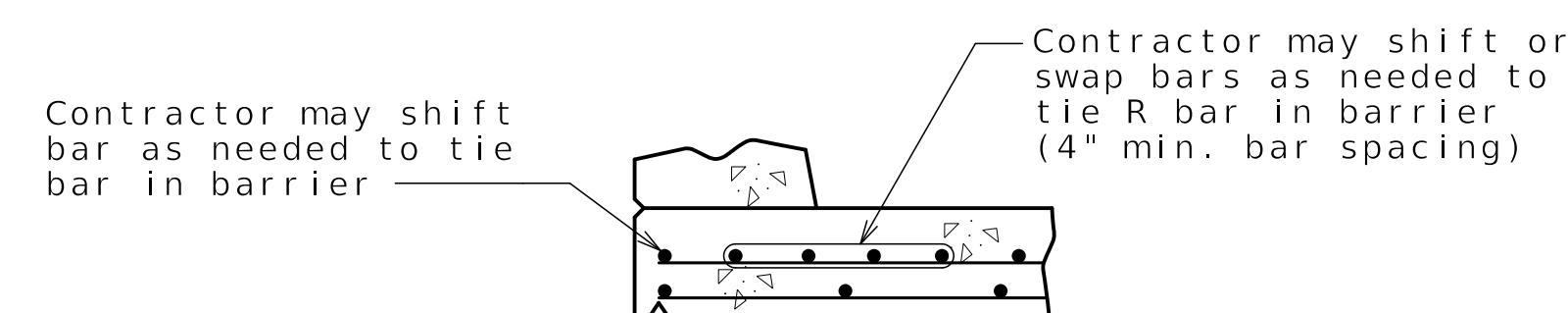
HAUNCH REINFORCING DETAIL

* When dimension is greater than or equal to 5" and the typical haunch reinforcing detail is not used, a single Z-bar with 6" tail dimensions and a single #4 longitudinal bar are required.

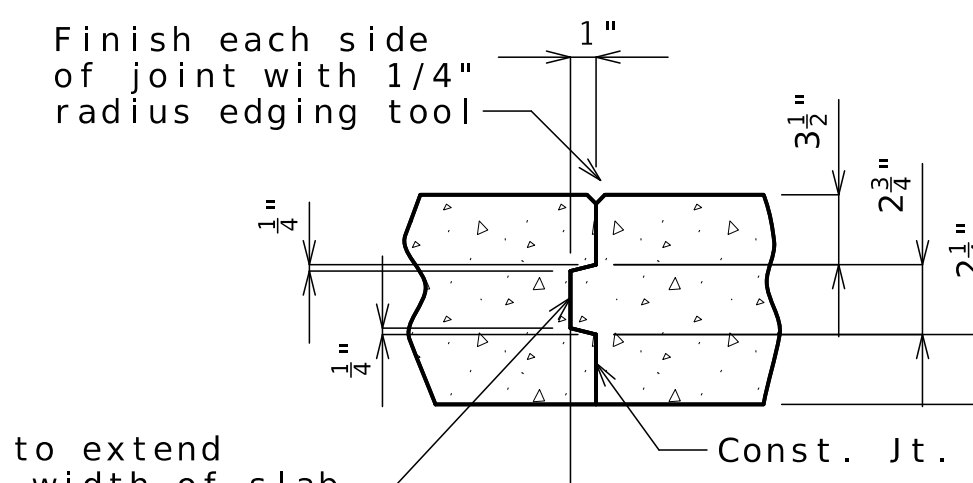
*** Contractor shall provide #4 Bars and #4 S-Bars as necessary where the haunch exceeds 4 inches measured at centerline of girder. See Theoretical Slab Haunching Diagram on Sheet No. B26-24 for haunch thickness.



DETAIL A
(Low side of slab)



OPTIONAL SHIFTING TOP BARS AT BARRIER

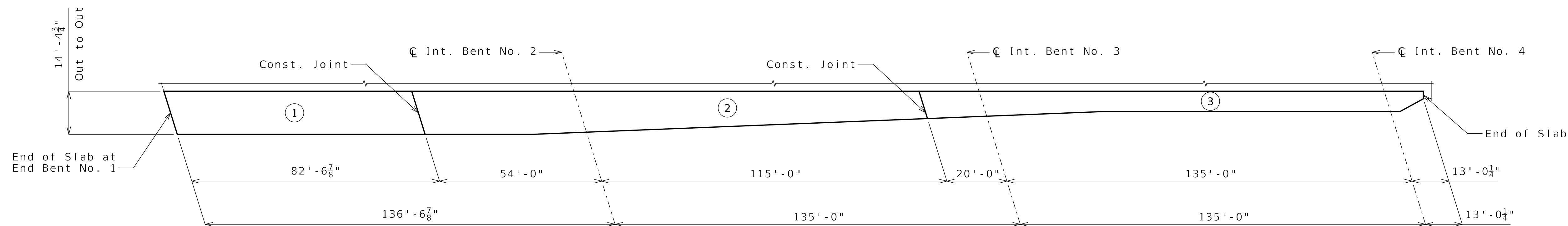
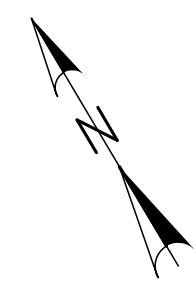


SLAB CONSTRUCTION JOINT

Notes:
Cant #6 transverse hooked bars as needed to provide clearance. For Plan of Slab showing Top and Bottom Reinforcement, see Sheets No. B26-26 and B26-27.
For reinforcement of Type B barrier not shown, see Sheet No. B26-30. For Details of Conduit System on Structure, see Sheet No. B26-33.

(X) Denotes girder letter.

SLAB DETAILS



SLAB POURING SEQUENCE

	Sequence of Pours			Min. Rate of Pour Cu. Yds./Hr.
	Direction			
Basic Sequence	1	2	3	25
	End to 2	1 to 3	2 to End	
Alternate pours to the basic skip sequence are subject to the approval of the engineer in accordance with Sec 703.				
Alternate A Pours	1 + 2	3		25
	End to 3	2 to End		
Alternate B Pours	1 + 2 + 3			25
	End to End			

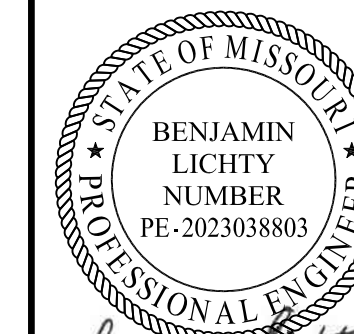
The contractor shall furnish an approved retarder to retard the set of the concrete to 2.5 hours, and shall pour and satisfactorily finish the slab pours at the rate given.

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

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Revision: 0.0
Date: 01/29/2026
Package: BRD-26-EB70-Manchester

Notes:
For additional slab details and notes, see Sheet No. B26-28.

SLAB POURING SEQUENCE



Benjamin Lichty
01-26-2026

DATE PREPARED
01/13/2026

ROUTE STATE
I-70 MO

DISTRICT SHEET NO.
BR B26-29

COUNTY
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JOB NO.
J411486D

CONTRACT ID.
240807-C01

PROJECT NO.

BRIDGE NO.
A82571

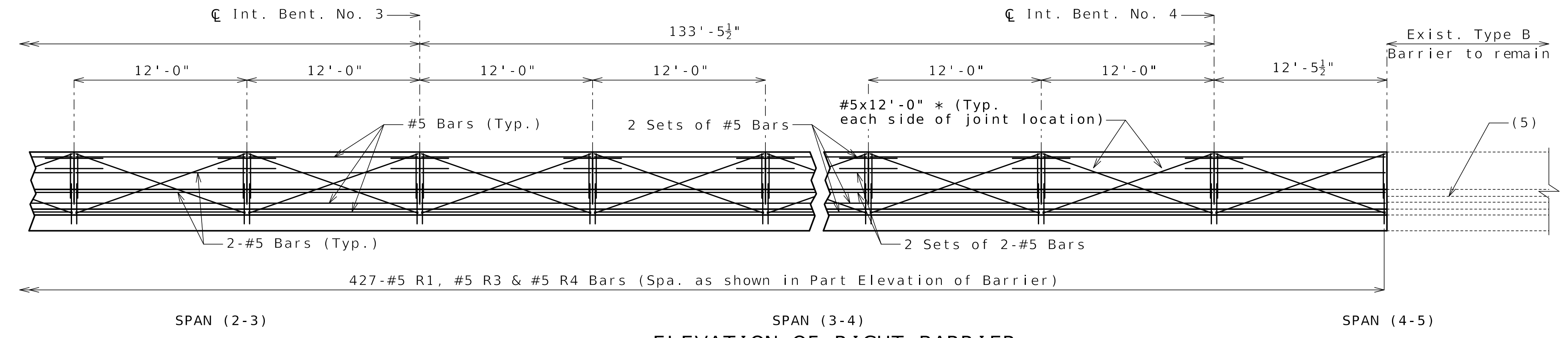
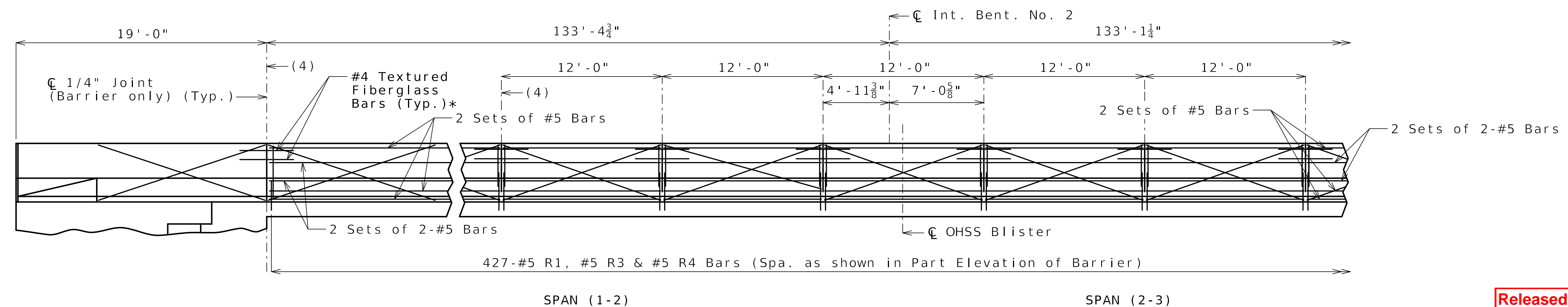
DATE	DESCRIPTION
01/13/26	REV 0 - RFC SUBMITTAL

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



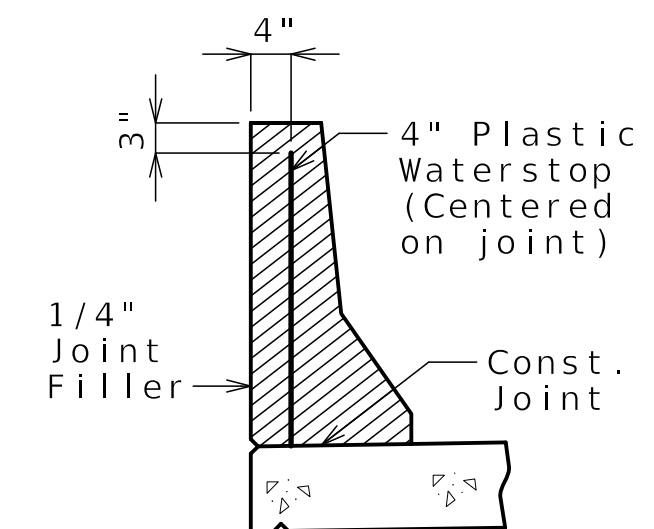
ELEVATION OF RIGHT BARRIER

Longitudinal dimensions are horizontal and measured along the back of barrier.

(Lap splices not shown)

(4) See locations noted in Elevation of Right Barrier.

(5) Exist. KC Scout PVC Conduit (to remain). For additional sheets, see Sheet B26-33.



WATERSTOP DETAIL

Plastic waterstop shall be placed in all formed joints.

Notes:

- * Slip-formed option only.
- ** 3" PVC Conduit. For details of Conduit System on Structure, see Sheet No. B26-33.
- Conventional forming or slip forming may be used. Saw cut joints may be used with conventional forming.
- Top of barrier shall be built parallel to grade with barrier joints (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 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.

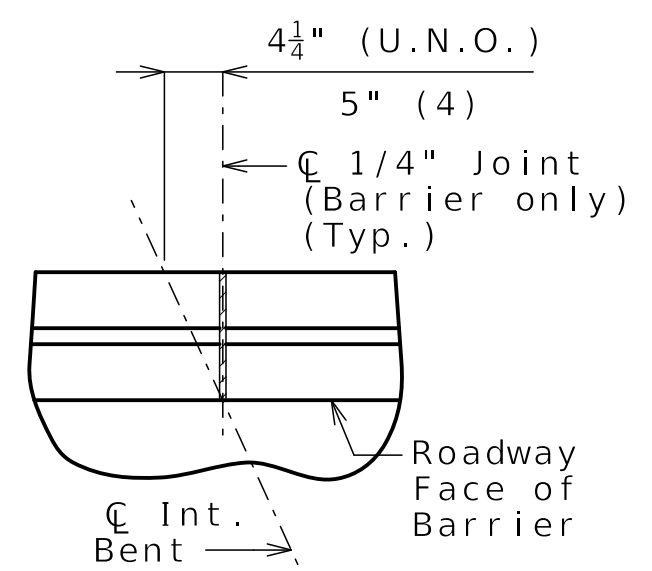
Joint sealant and backer rods shall be in accordance with Sec 717 for silicone joint sealant for saw cut and formed joints.

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

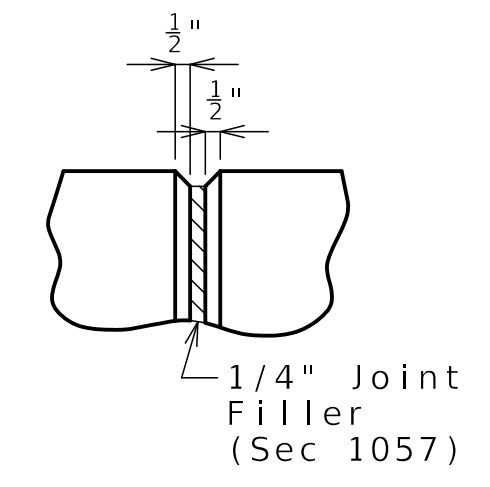
Plastic waterstop shall not be used with saw cut joints.

For OHSS Blister details, see Sheet No. B26-32.

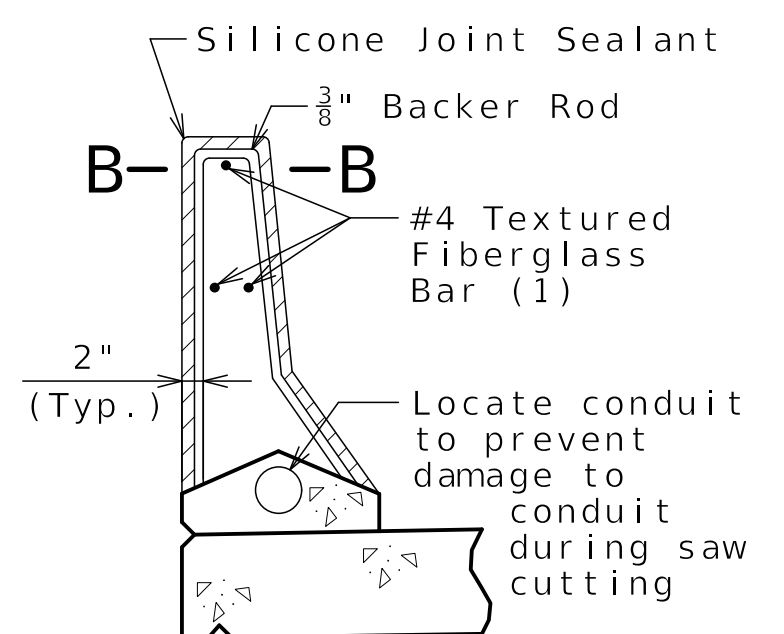
TYPE B BARRIER



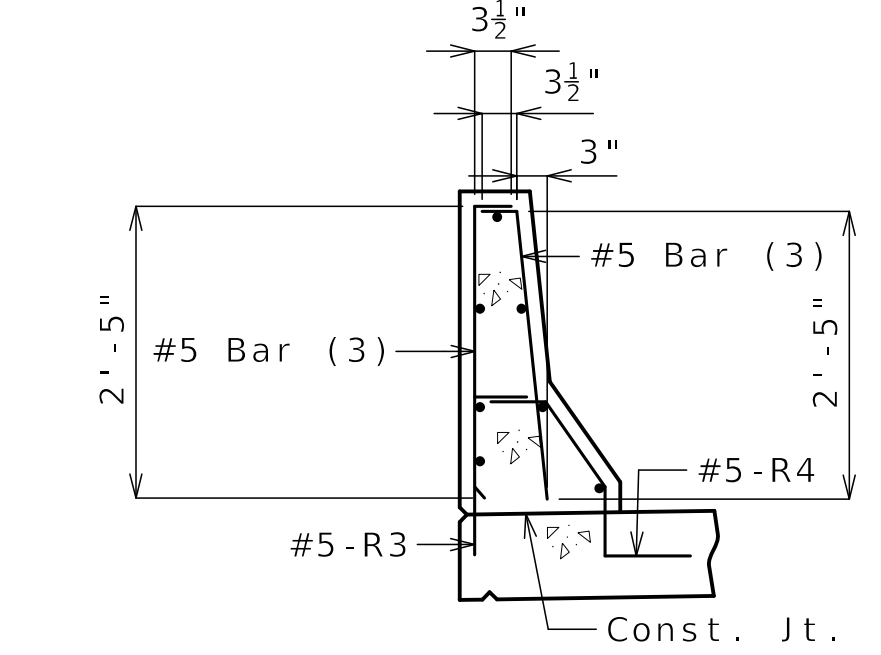
PART PLAN SHOWING JOINT LOCATION



PART ELEVATION AT FORMED JOINT

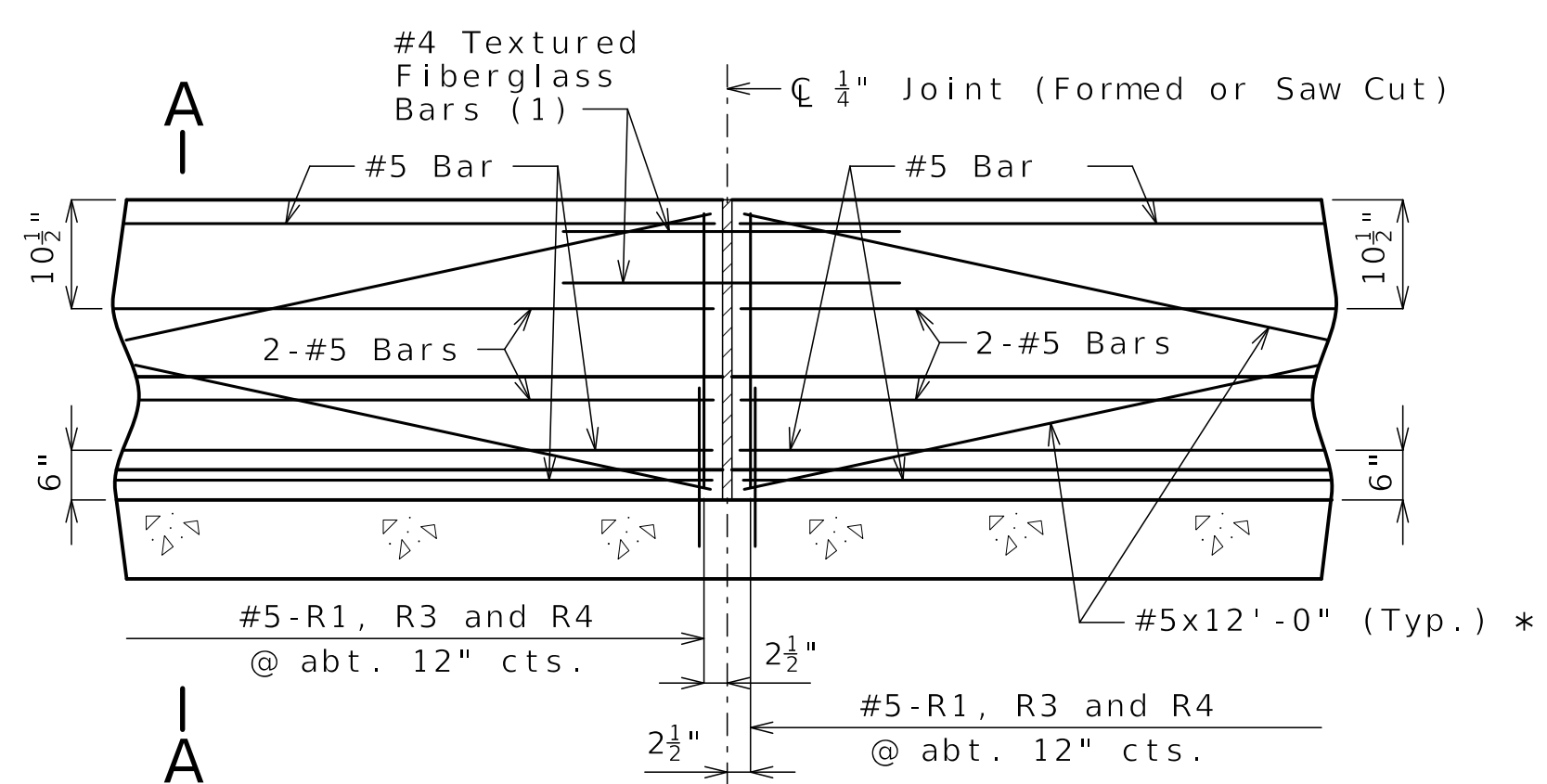


SECTION THRU SAW CUT JOINT



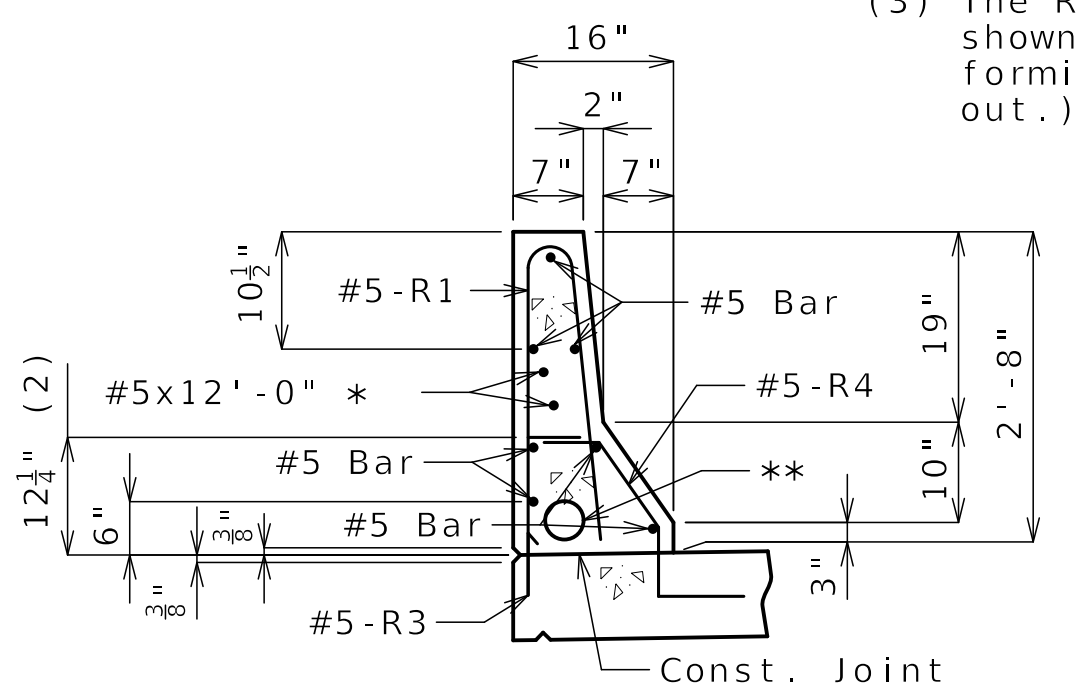
R-BAR PERMISSIBLE ALTERNATE SHAPE

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



PART ELEVATION OF BARRIER

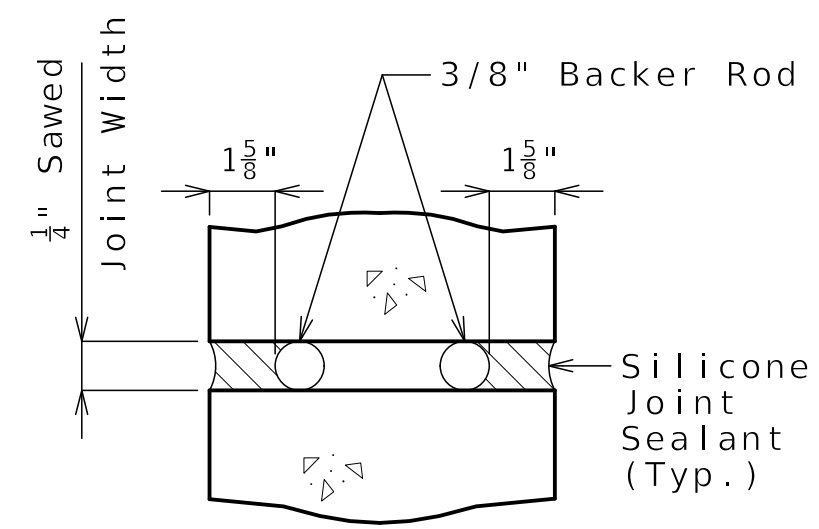
(1) Four feet long, centered on joint, slip-formed option only.



SECTION A-A

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

(2) To top of bar



SECTION B-B



Benjamin Lichty
01-26-2026

DATE PREPARED 01/13/2026	
ROUTE I-70	STATE MO
DISTRICT BR	SHEET NO. B26-30
COUNTY JACKSON	
JOB NO. J411486D	
CONTRACT ID. 240807-C01	
PROJECT NO.	

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Date: 01/29/2026
Package: BRD-26-EB70-Manchester

BRIDGE NO.
A82571

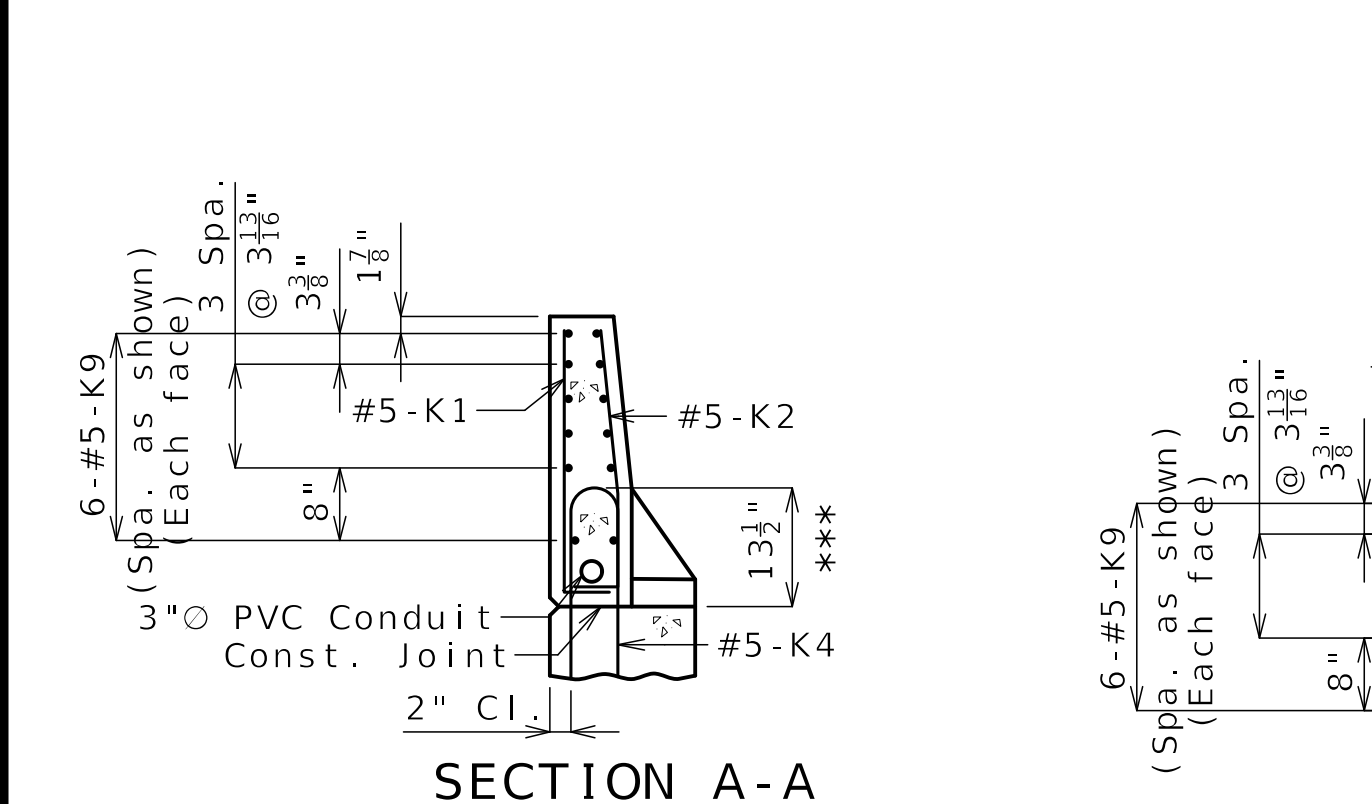
DATE	DESCRIPTION
01/13/26	REV 0 - RFC SUBMITTAL

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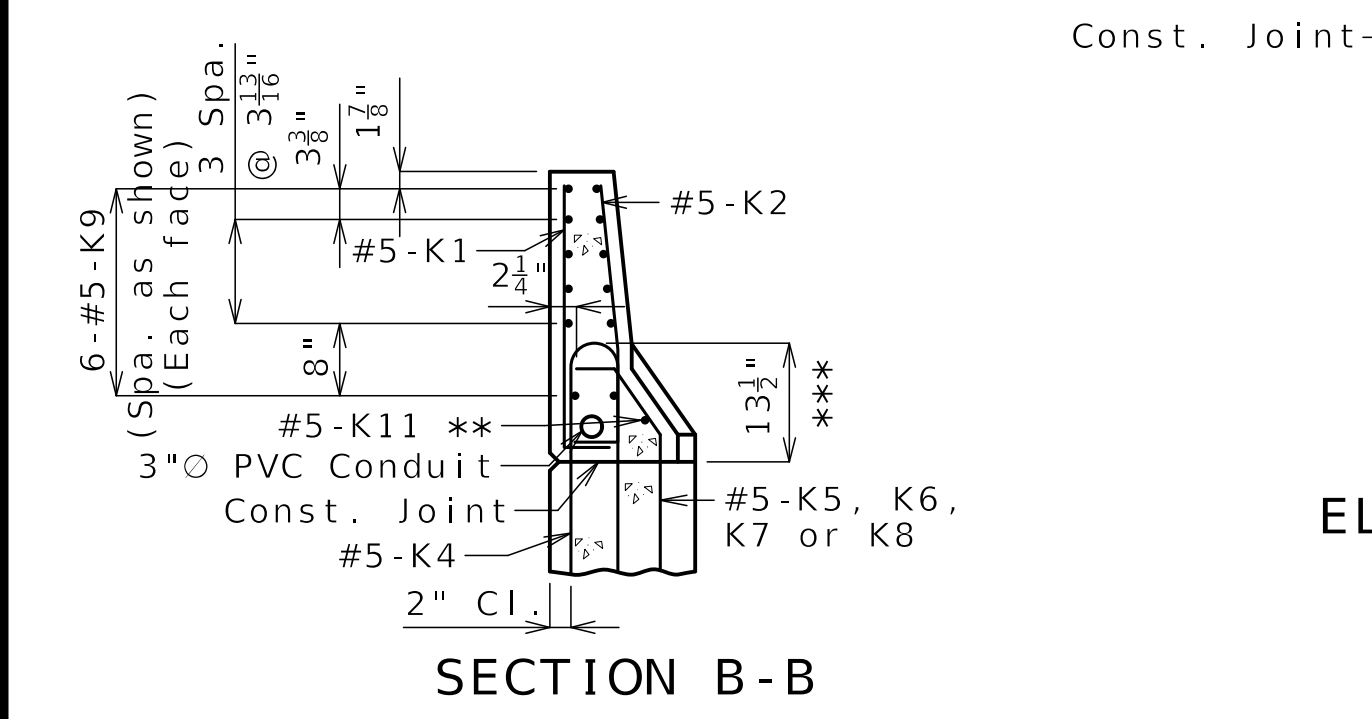
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
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CLARKSON RADMACHER
JOINT VENTURE

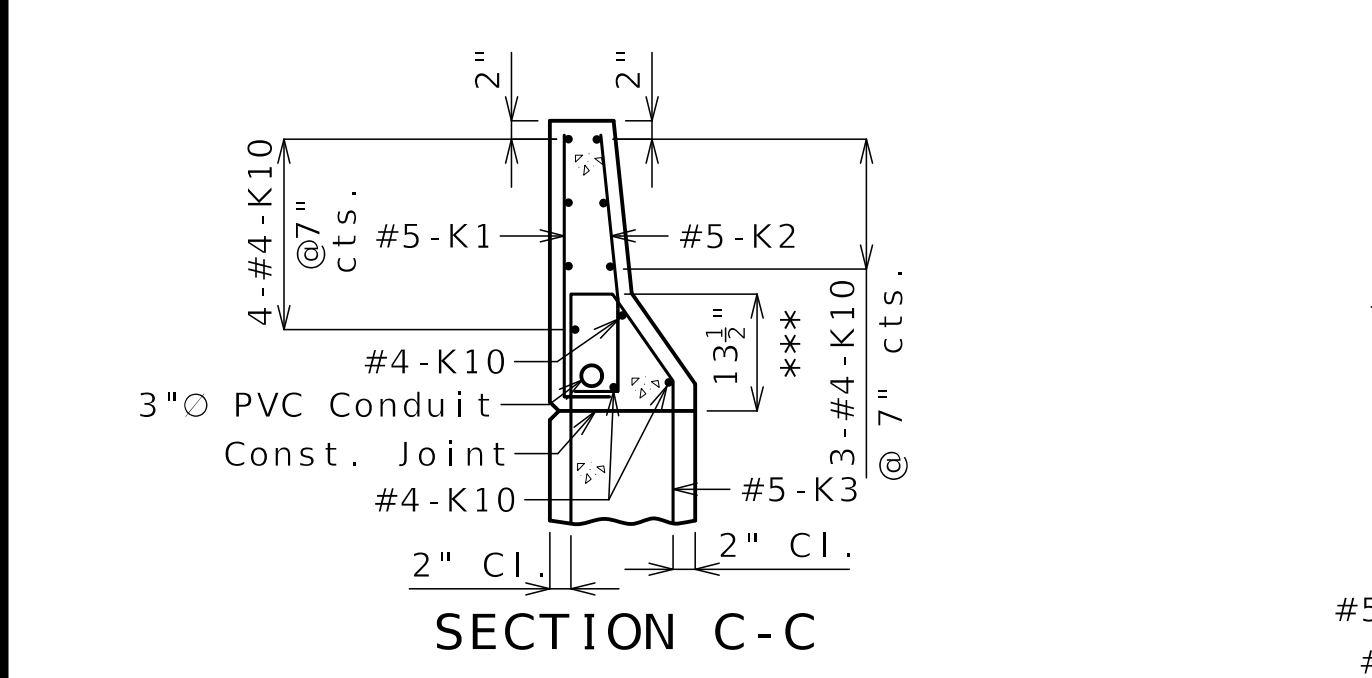
715 KIRK DRIVE
KANSAS CITY, MO 64105-1310
CERTIFICATE OF AUTHORITY
NO. 001270



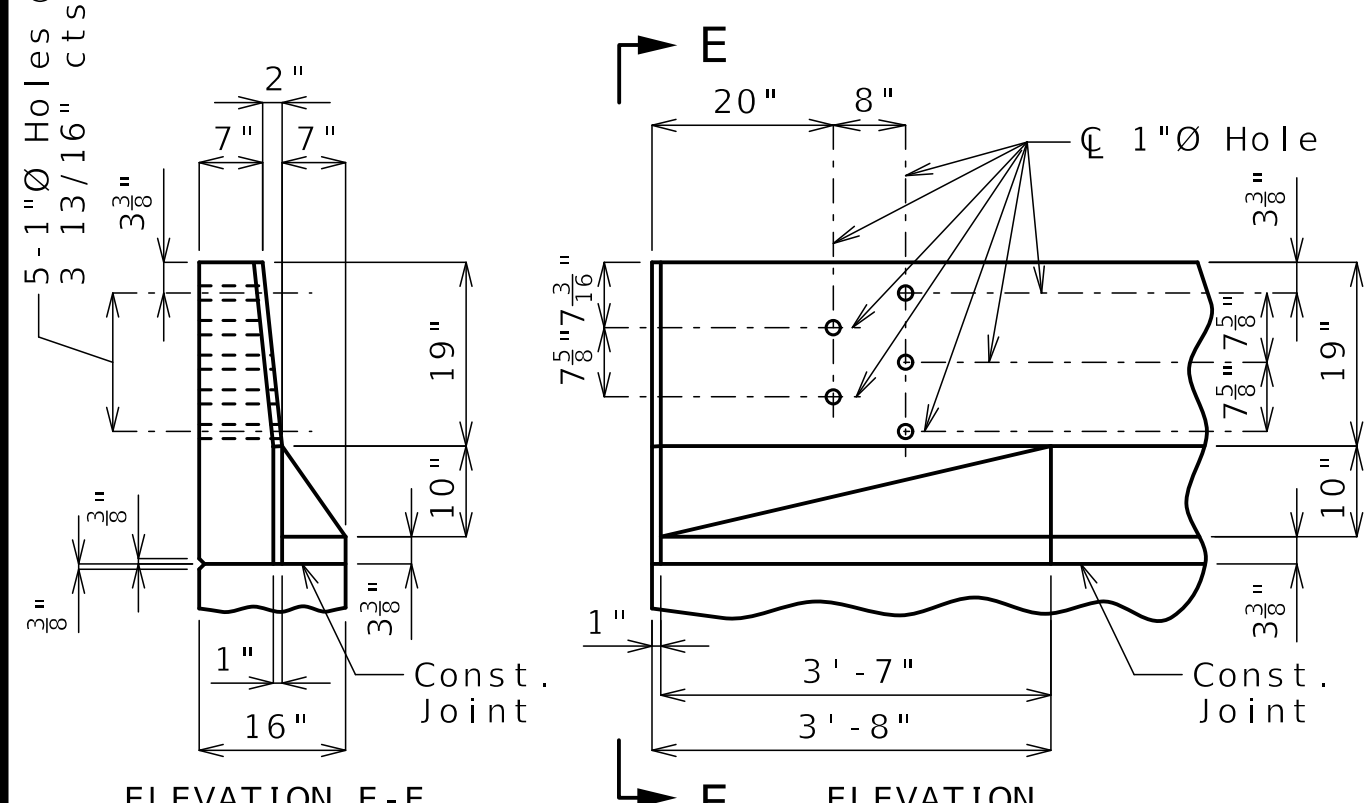
SECTION A-A



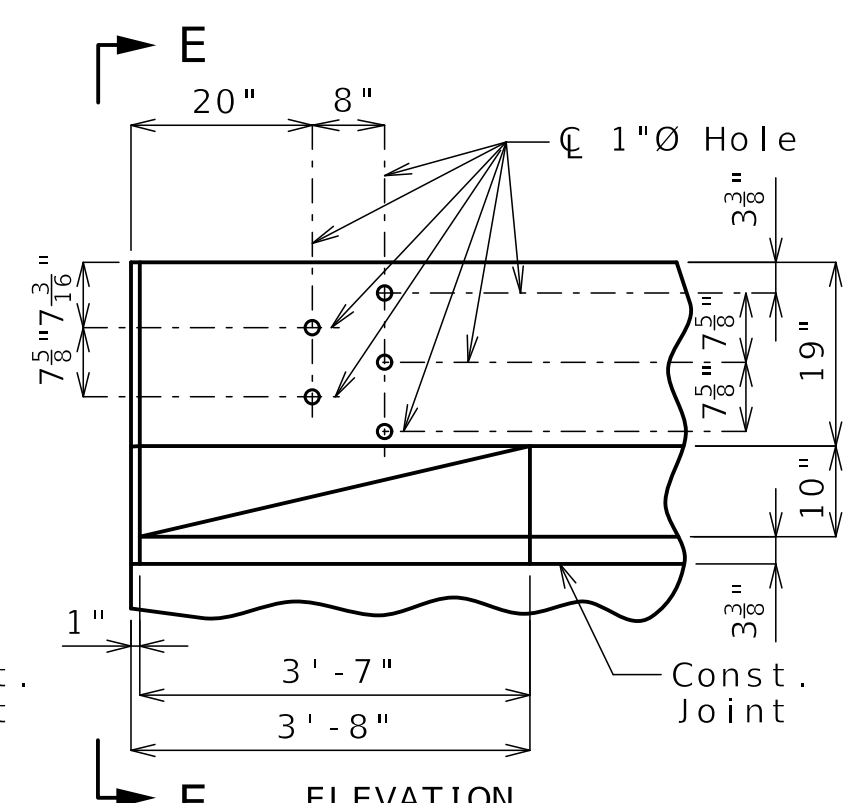
SECTION B-B



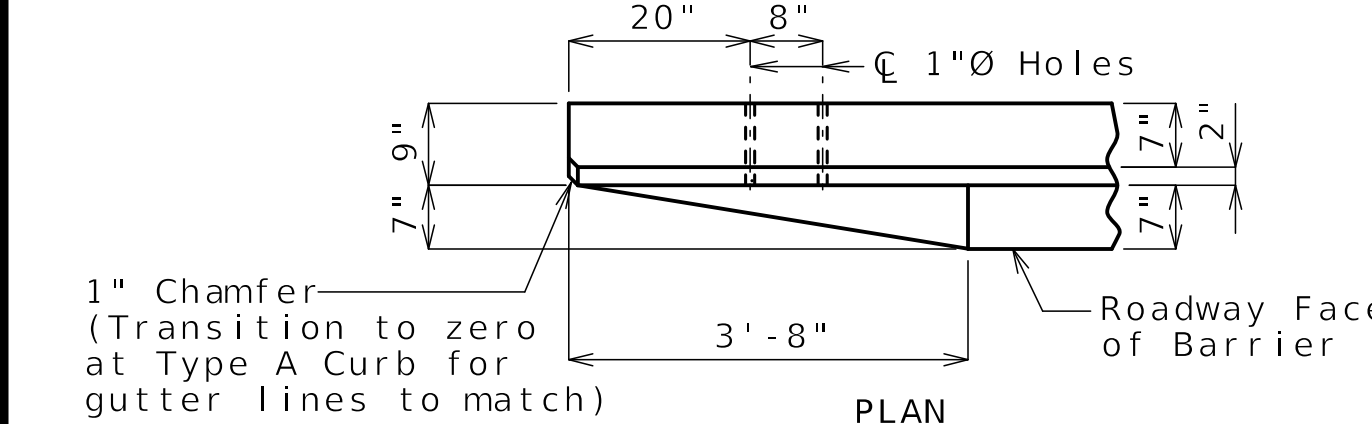
SECTION C-C



ELEVATION E-E

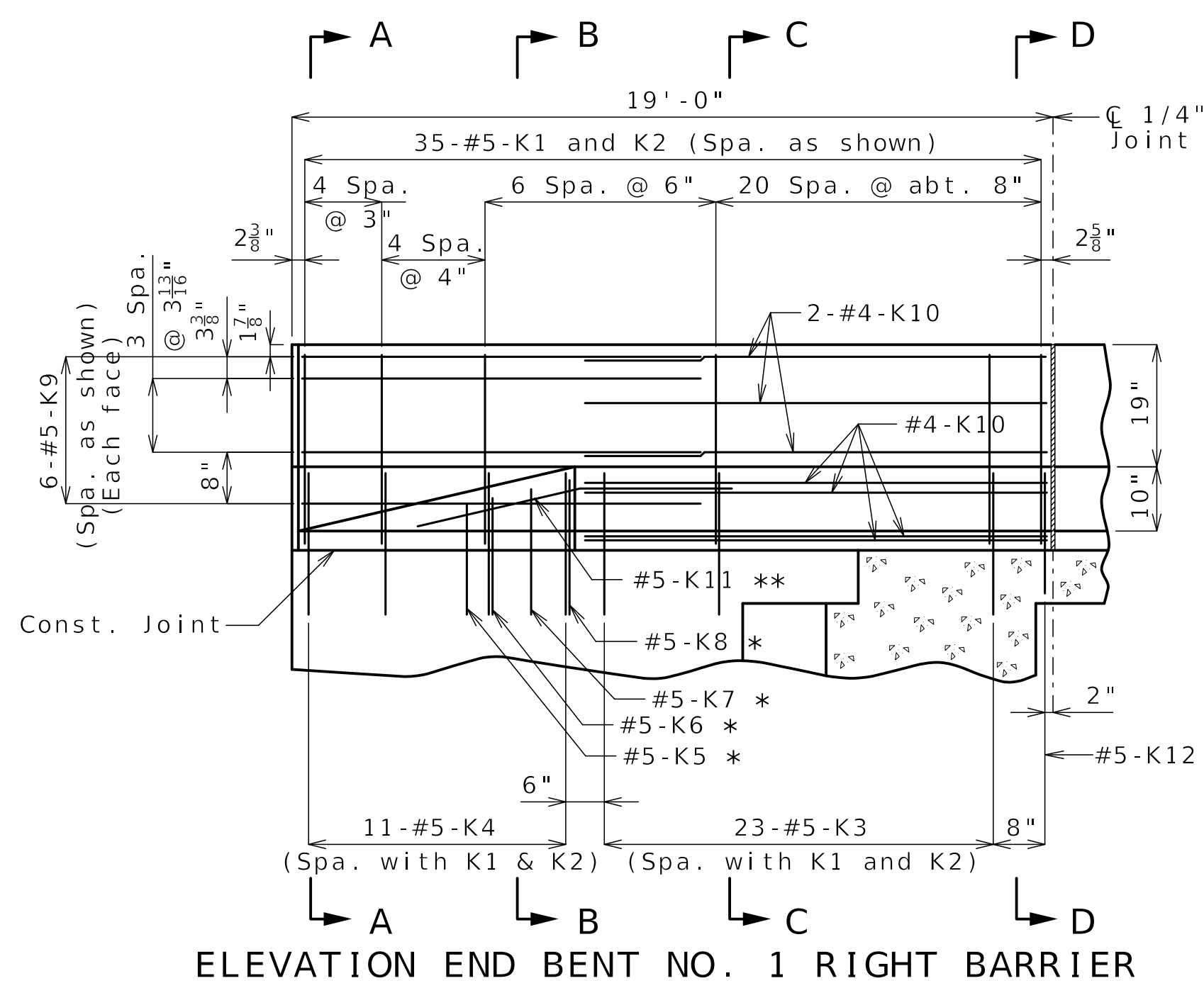


ELEVATION



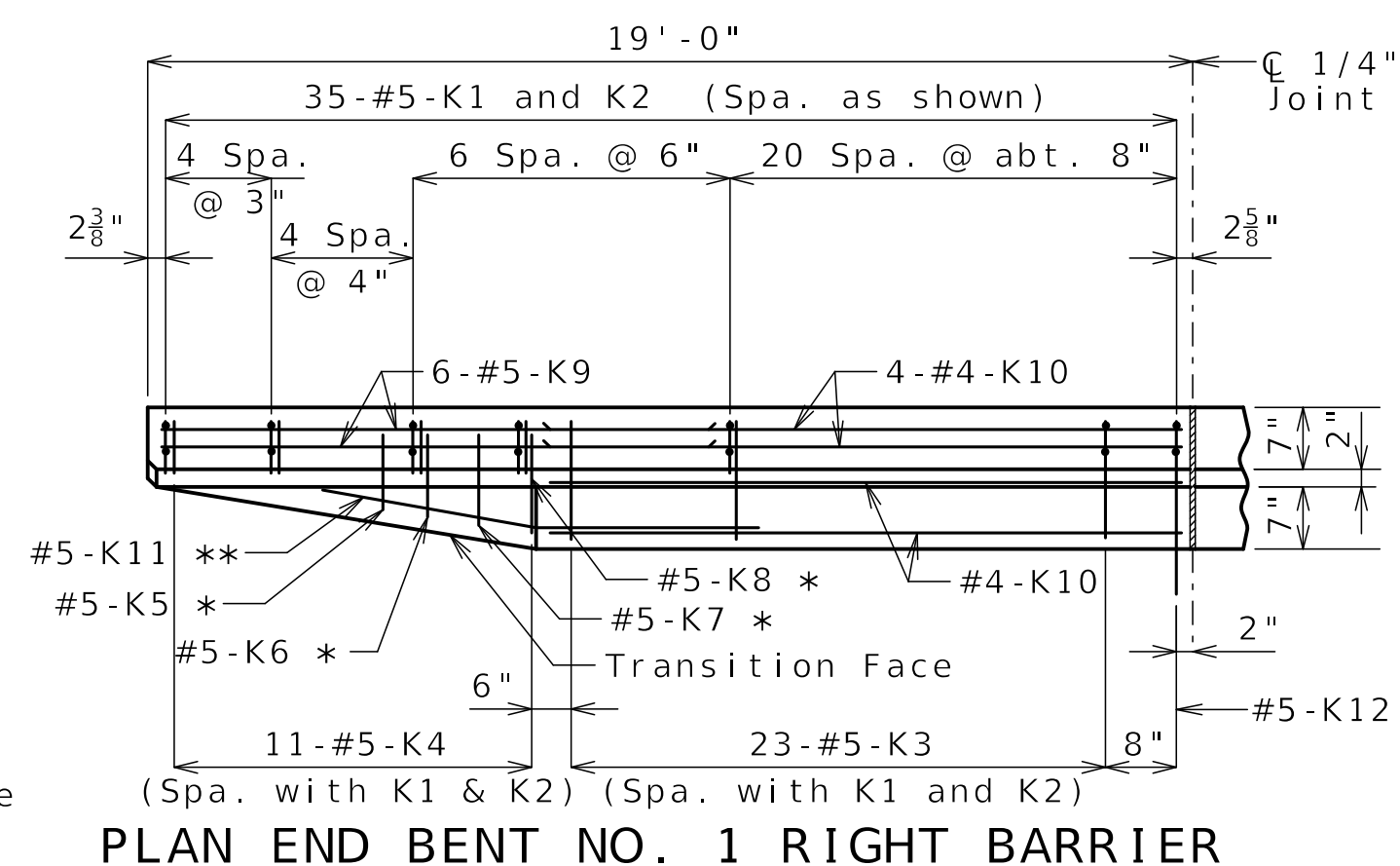
PLAN

DETAILS OF GUARD RAIL ATTACHMENT

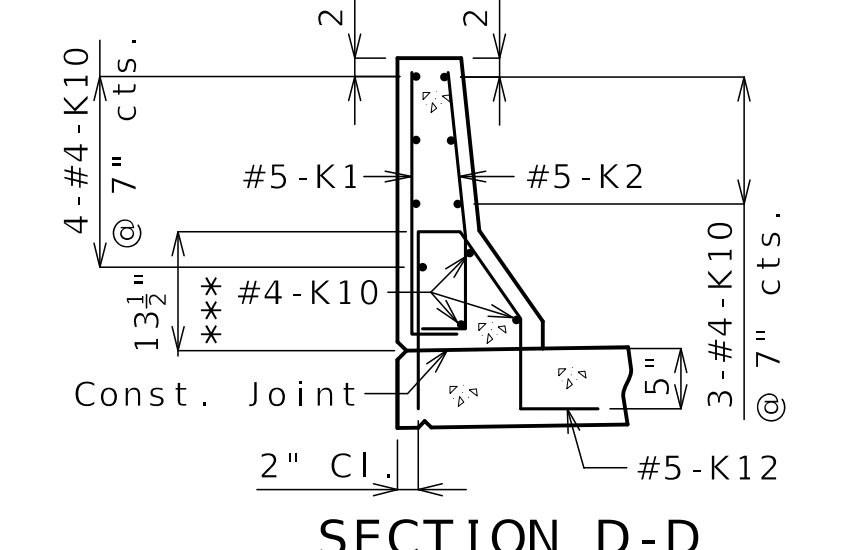


ELEVATION END BENT NO. 1 RIGHT BARRIER

- * Spaced with #5-K4 bars and embed 24" into end bent.
- ** Fit bar to follow transition face of barrier.
- *** To top of bar



PLAN END BENT NO. 1 RIGHT BARRIER



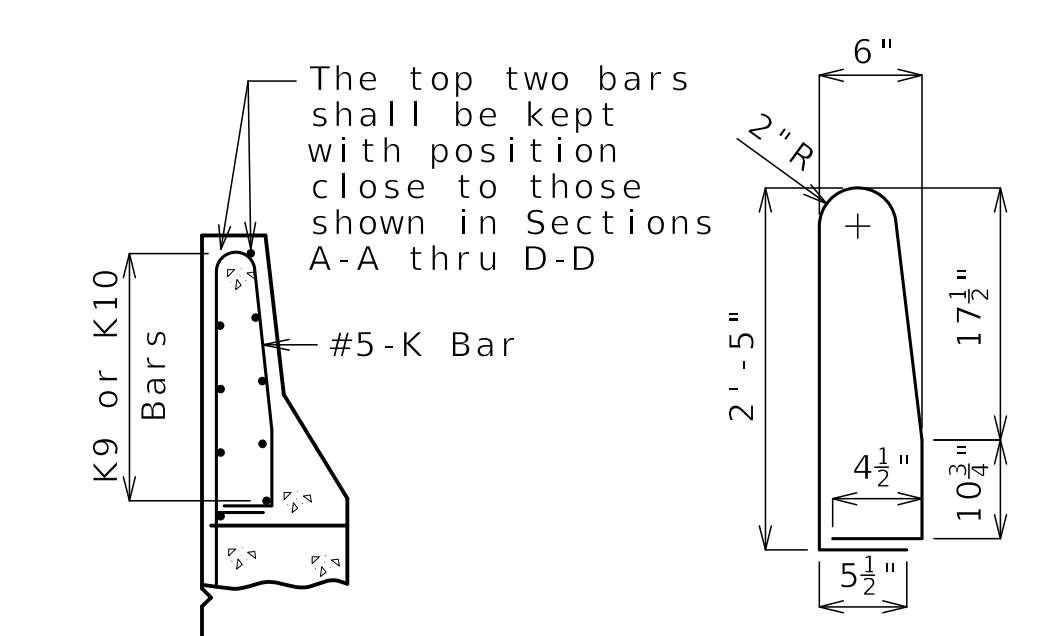
SECTION D-D

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.

Reinforcing Steel:

Minimum clearance to reinforcing steel shall be 1 1/2" except as shown for bars embedded into end bent. Use a minimum lap of 2'-7" between K9 and K10 bars.



K1-K2 BAR PERMISSIBLE ALTERNATE SHAPE
(K3 or K4 thru K8 bars not shown for clarity)

The K1-K2 bar combination may be furnished as one bar as shown, at the contractor's option. All dimensions are out to out.

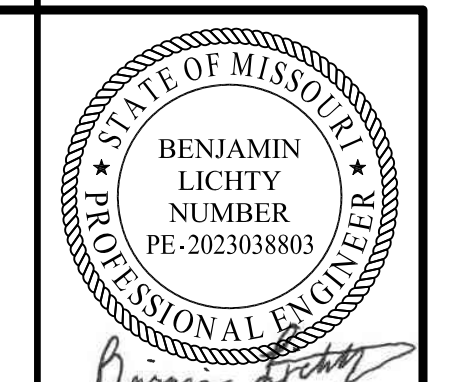
TYPE B BARRIER AT END BENTS

Detailed OCT 2025
Checked OCT 2025

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

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Revision: 0.0
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Sheet No. B26-31 of B26-46



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01-26-2026

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ROUTE STATE
1-70 MO
DISTRICT SHEET NO.
BR B26-31

COUNTY
JACKSON

JOB NO.
J411486D

CONTRACT ID.
240807-C01

PROJECT NO.
BRIDGE NO.
A82571

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

CLARKSON RADMACHER JOINT VENTURE
715 KIRK DRIVE
KANSAS CITY, MO 64105-1310
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01-26-2026

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240807-C01

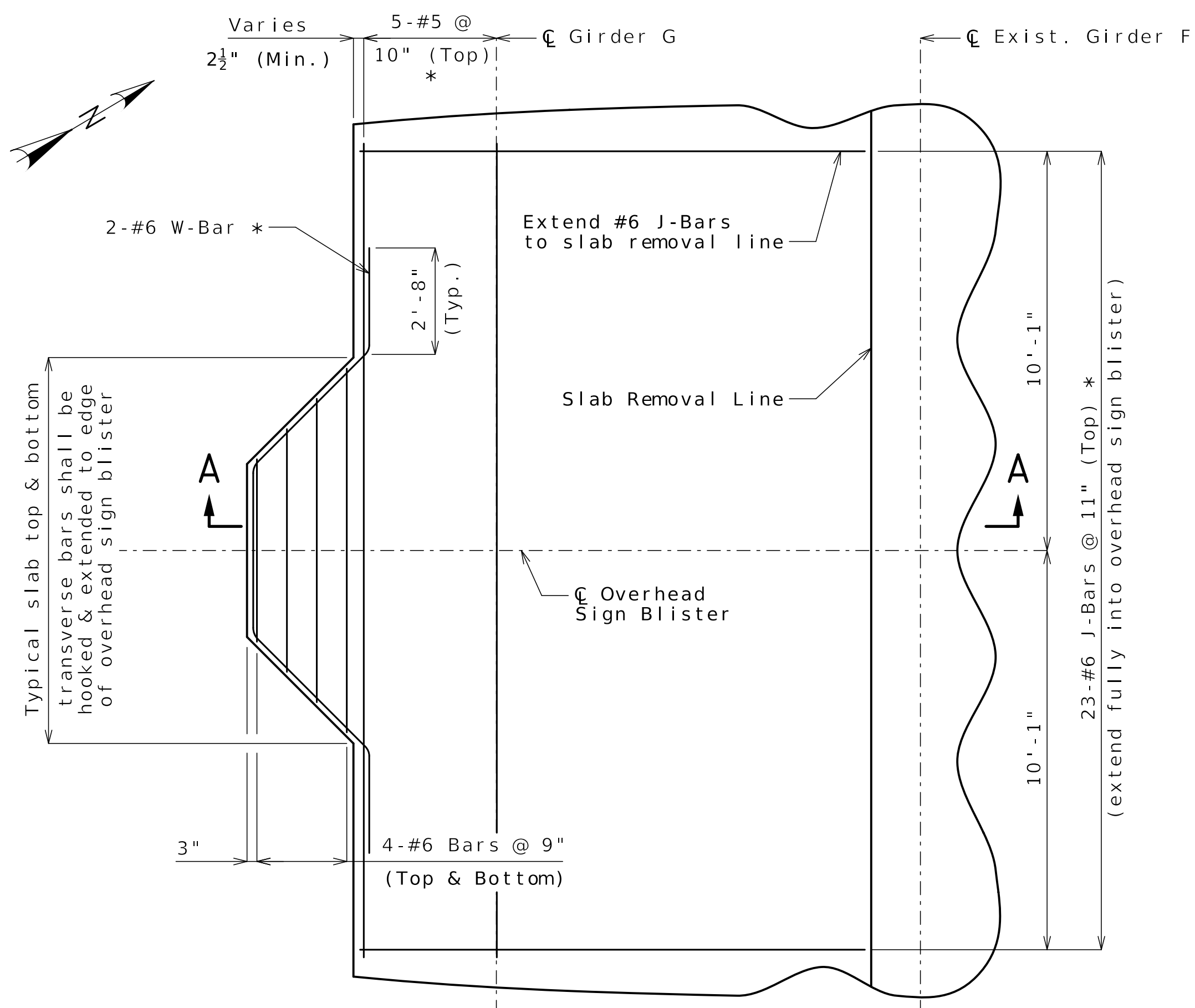
PROJECT NO.

BRIDGE NO.
A82571

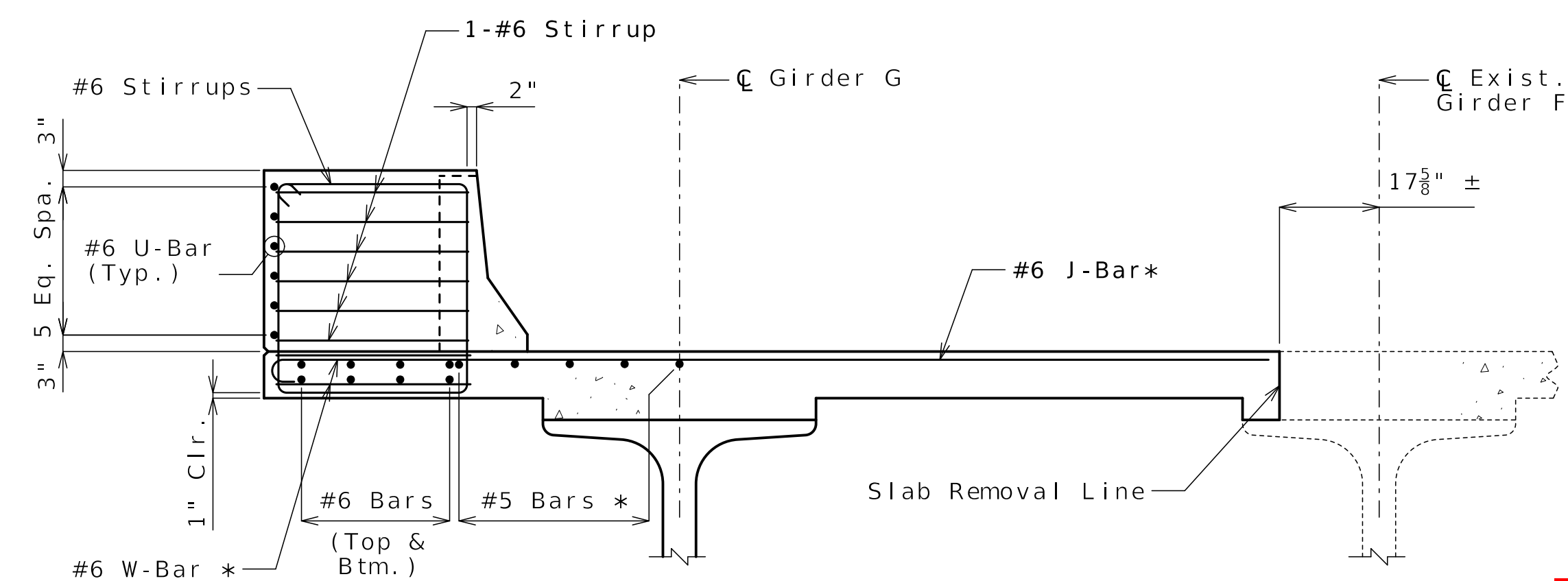
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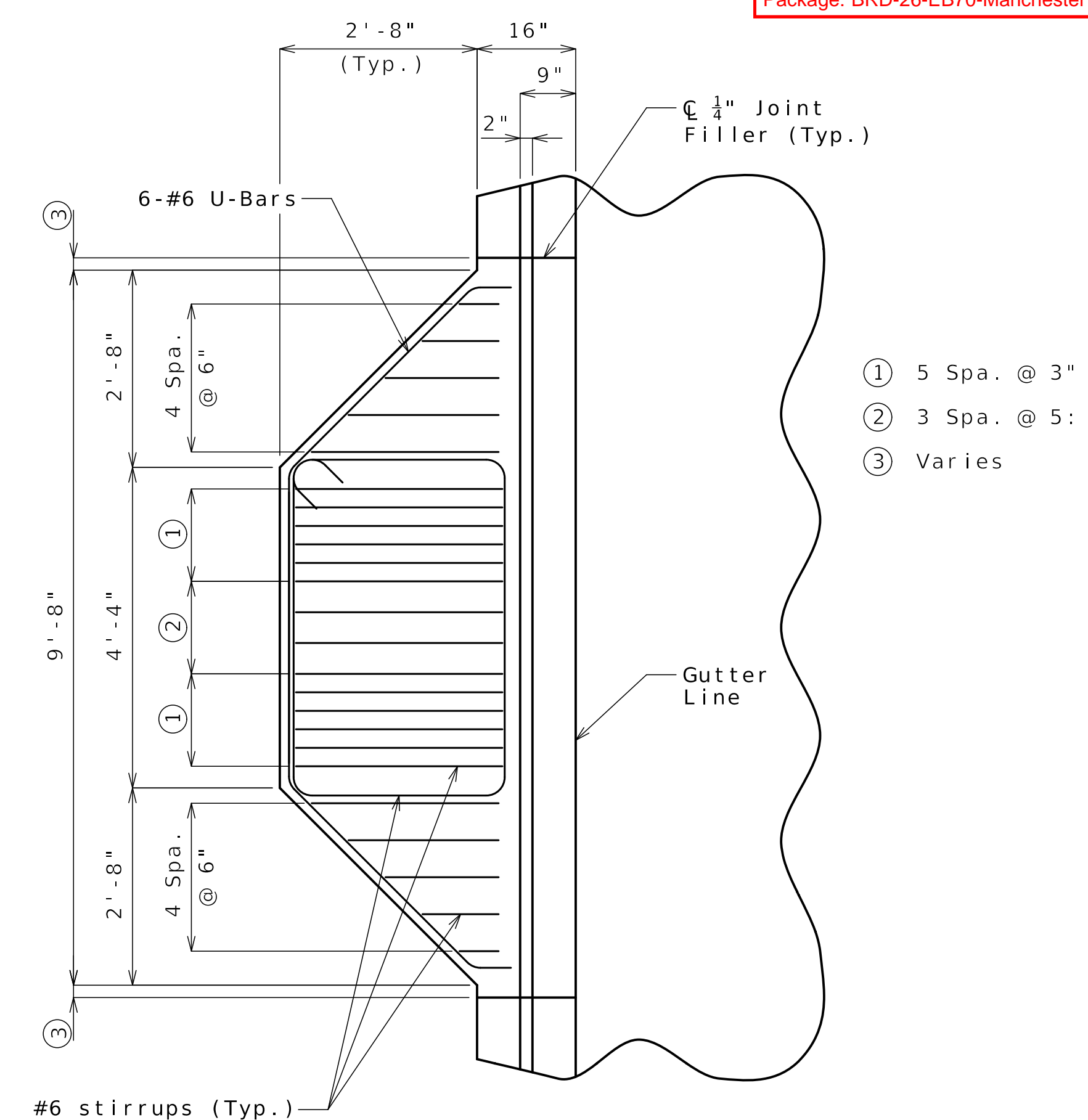


PART PLAN OF SLAB SHOWING ADDITIONAL REINFORCING
(Typical slab reinforcing not shown for clarity)
(Int. Bent No. 2 Right barrier)



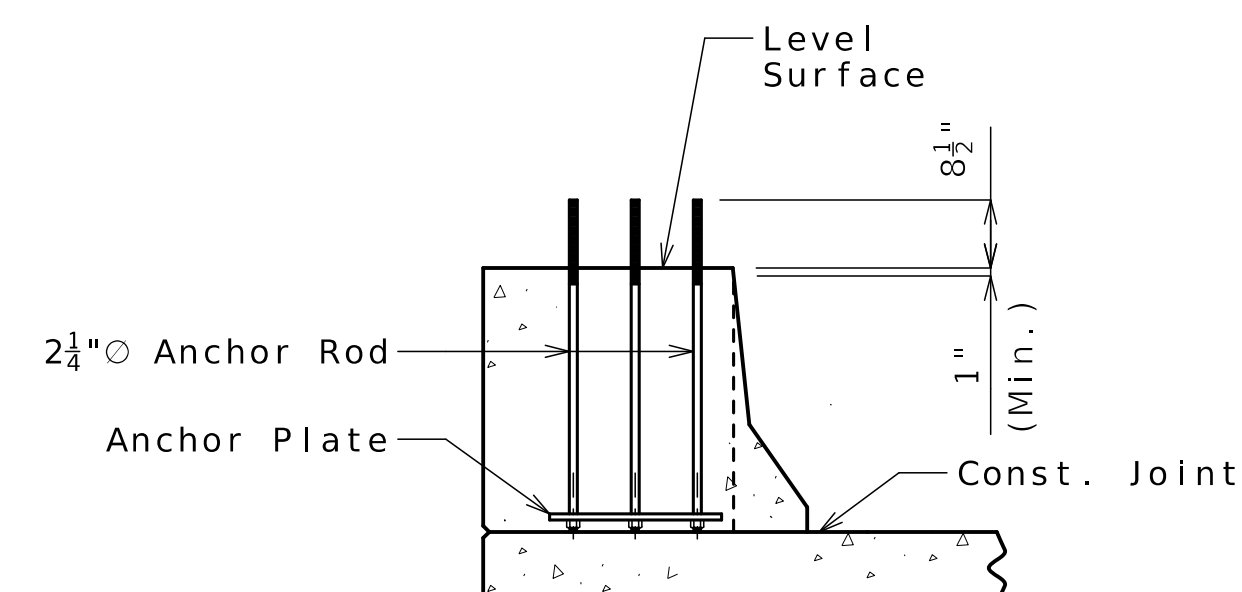
SECTION A-A
(Typical slab reinforcing not shown for clarity)

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Package: BRD-26-EB70-Manchester

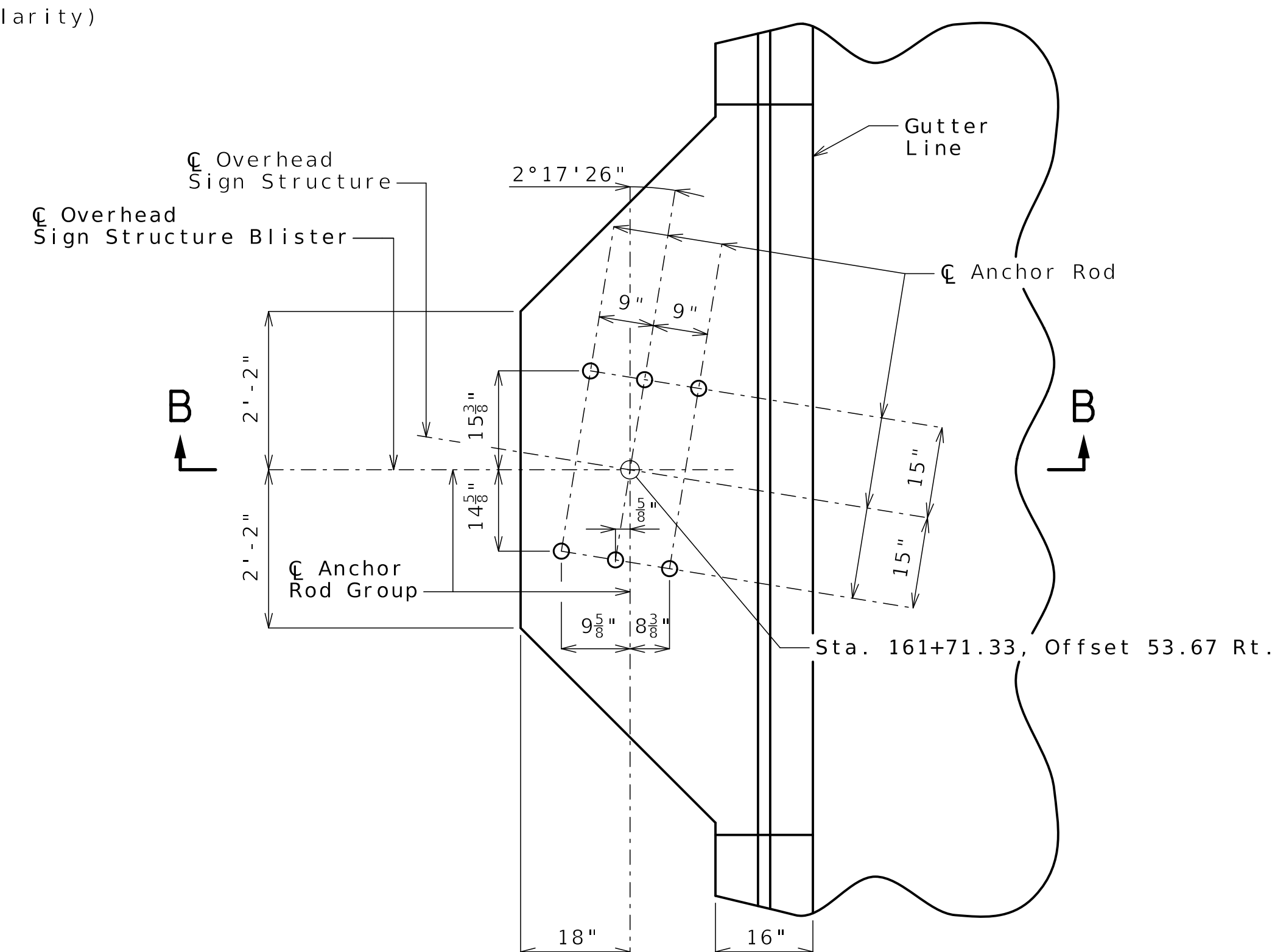


OVERHEAD SIGN STRUCTURE BLISTER PLAN

Notes:
Contractor shall confirm dimensions of existing OHSS post base plate and anchor bolt layout prior to ordering new material and beginning work.
Shift #6 stirrups as needed to avoid anchor rods.
Anchor rod setting plan shown for Post Type II. See MoDOT Standard Plans 903.60AC for additional details.
Refer to Signing and Pavement Marking Plans for additional overhead sign details.
Anchor rods shall be set vertically and extend to top of slab.
Barrier joints at blisters shall be built plumb.
For typical slab reinforcing, see Sheets No. B26-26 thru B26-28.
For Type B Barrier Details, see Sheet No. B26-30.
Cant J-Bars as needed to provide clearance.
For location of Overhead Sign Structure Blister, see Sheet No. B26-02.

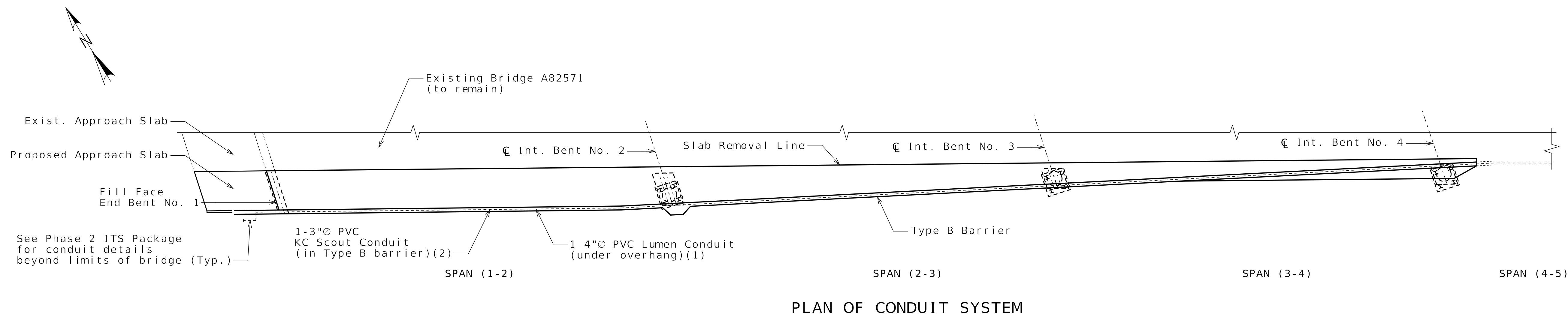


SECTION B-B

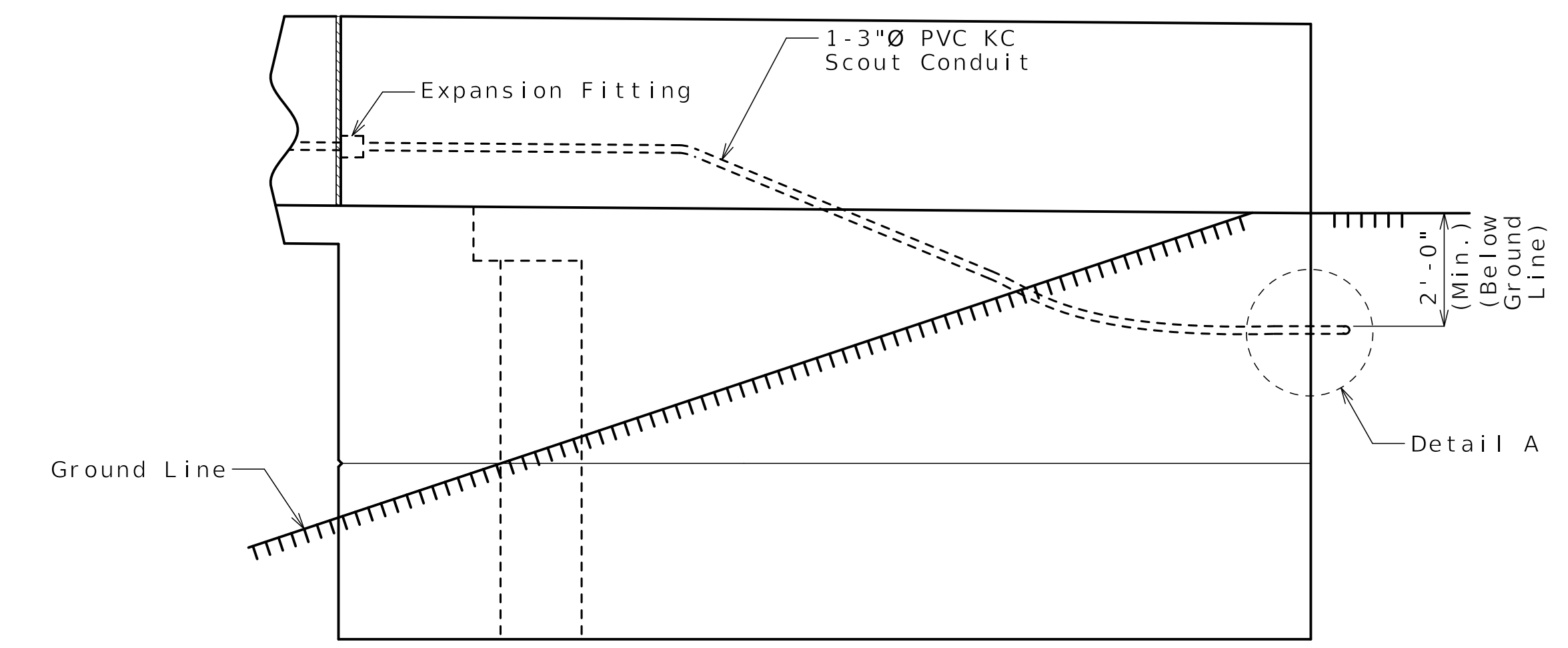


ANCHOR ROD LAYOUT

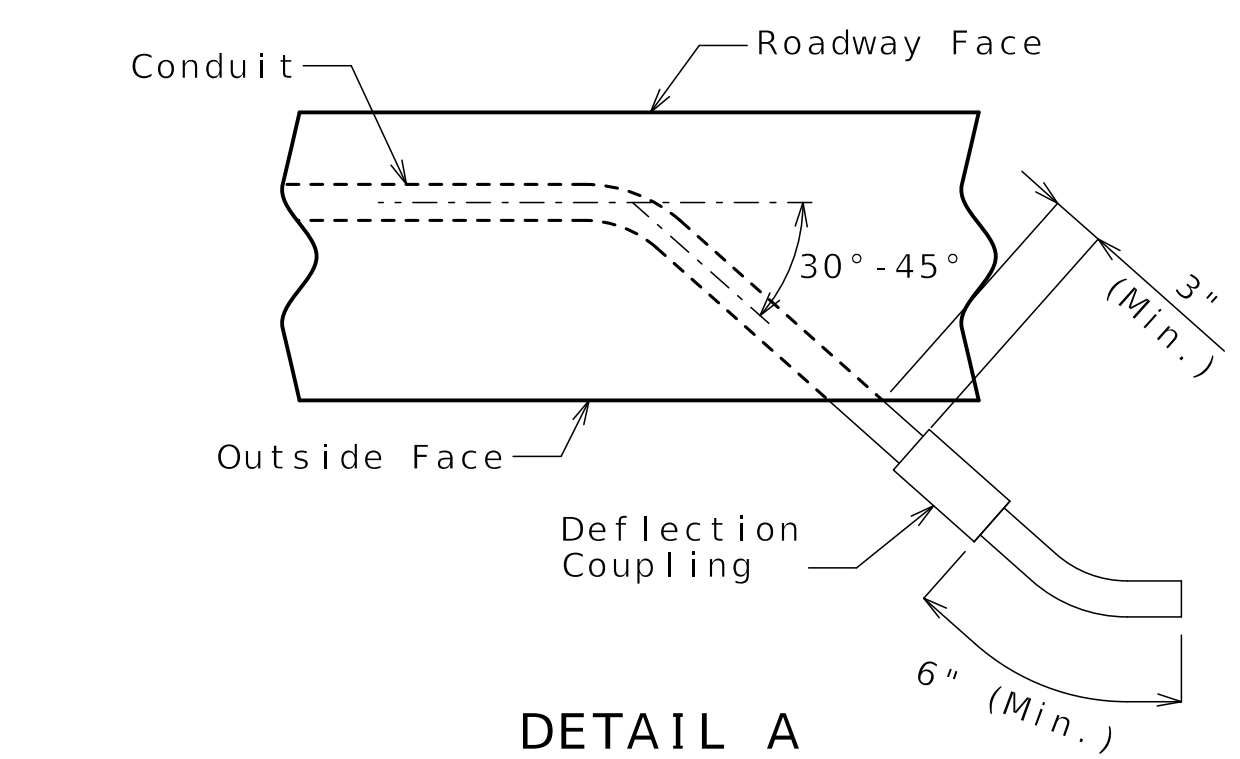
OVERHEAD SIGN STRUCTURE BLISTER DETAILS



PLAN OF CONDUIT SYSTEM



PART WINGWALL ELEVATION



DETAIL A

(1) At the end of proposed bridge widening, begin temporary relocation of Lumen fiber line. Temporary relocation design by others. Do not drill into or damage existing prestressed girders. Ensure temporary conduit path will not be impacted during proposed construction. Temporary conduit path shall be in place and active prior to removal and demolition of existing bridge overhang. After proposed bridge work is complete, attach proposed conduit to underside of bridge overhang as shown and splice to existing elements to remain.

(2) See Phase 2 ITS Package for temporary KC Scout fiber backbone connection details and notes.

NOTES:

Prior to removal of existing barrier and slab, ensure work for temporary KC Scout fiber backbone and Lumen fiber line has been reviewed. Use caution to safeguard and retain existing conduits under existing bridge overhang and in existing bridge barrier to remain. Existing conduits to be field spliced with new conduits.

All conduit shall be rigid non-metallic schedule 40 heavy wall PVC (polyvinyl chloride plastic) with 3/2" minimum cover in barrier and 4 1/2" minimum cover in wingwall. Each section of conduit shall bear the Underwriters Laboratories (UL) label.

CONDUITS ENCASED IN CONCRETE:
 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.

CONDUITS NOT ENCASED IN CONCRETE:
 All conduit clamps shall be commercially-available, nonmetallic conduit clamps and approved by the engineer.
 Expansion fittings shall be set in accordance with the manufacturer's requirements and based on the air temperature at the time of setting.
 Weep holes shall be provided at low points or other critical locations to drain any moisture in the conduit system. Conduit shall be sloped to drain.
 All conduits shall be secured to concrete with nonmetallic clamps at about 5'-0" cts. Concrete anchors for clamps shall be in accordance with Commercial Item Description (CID) A-A-1923A and shall be galvanized in accordance with AASHTO M 232 (ASTM A153), Class C, ASTM B695, Class 55 or stainless steel. Minimum embedment in concrete shall be 1 3/4". The supplier shall furnish a manufacturer's certification that the concrete anchors meet the required material and galvanizing specifications.

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DETAILS OF CONDUIT SYSTEM ON STRUCTURE



Benjamin Lichty
 01-26-2026

DATE PREPARED
 01/13/2026

ROUTE STATE
 I-70 MO

DISTRICT SHEET NO.
 BR B26-33

COUNTY
 JACKSON

JOB NO.
 J411486D

CONTRACT ID.
 240807-C01

PROJECT NO.

BRIDGE NO.
 A82571

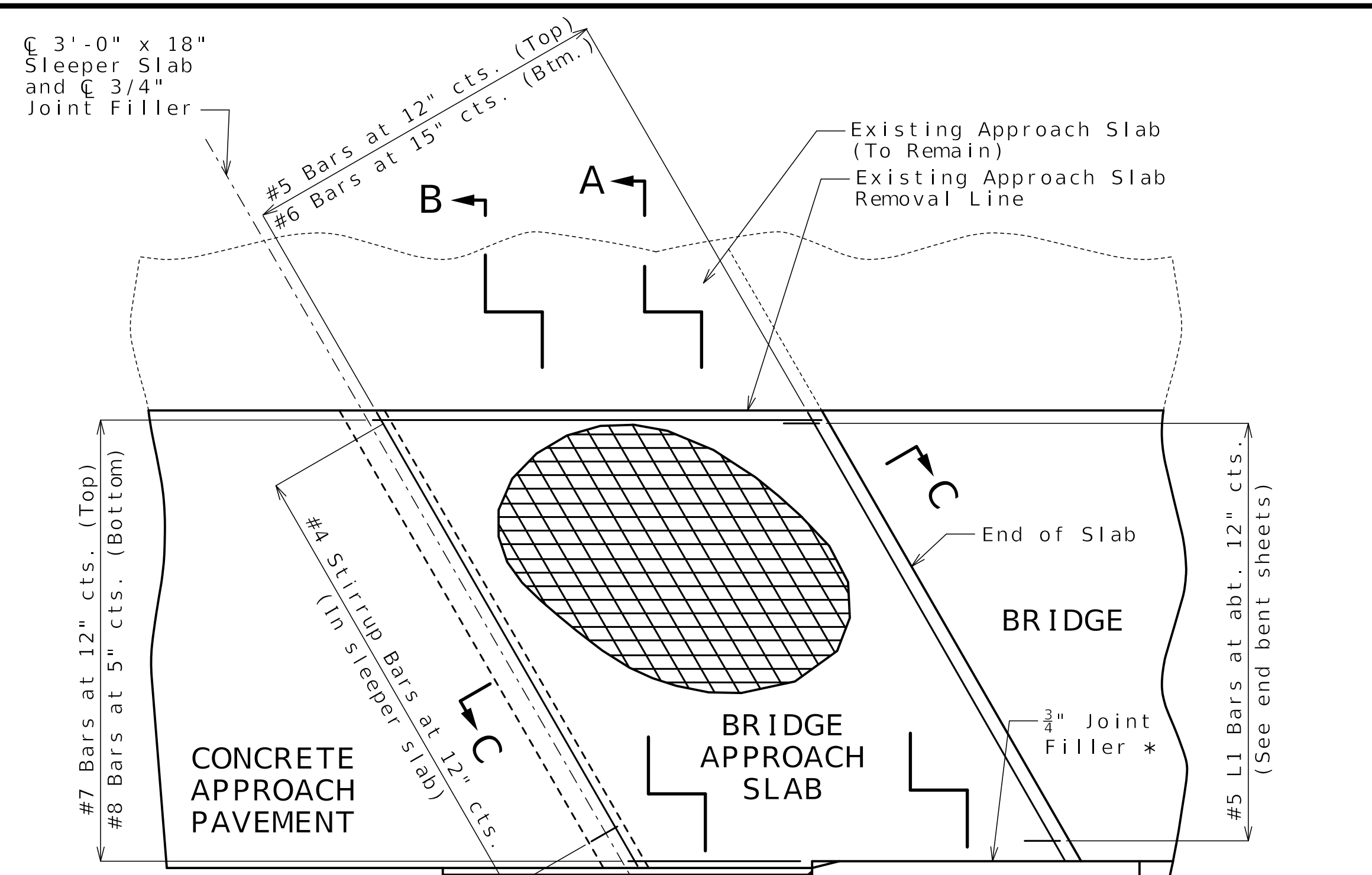
DATE	DESCRIPTION
01/13/26	REV 0 - RFC SUBMITTAL

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

105 WEST CAPITOL
 JEFFERSON CITY, MO 65102
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CLARKSON RADMACHER JOINT VENTURE

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



Longitudinal reinforcement in sleeper slab not shown for clarity.

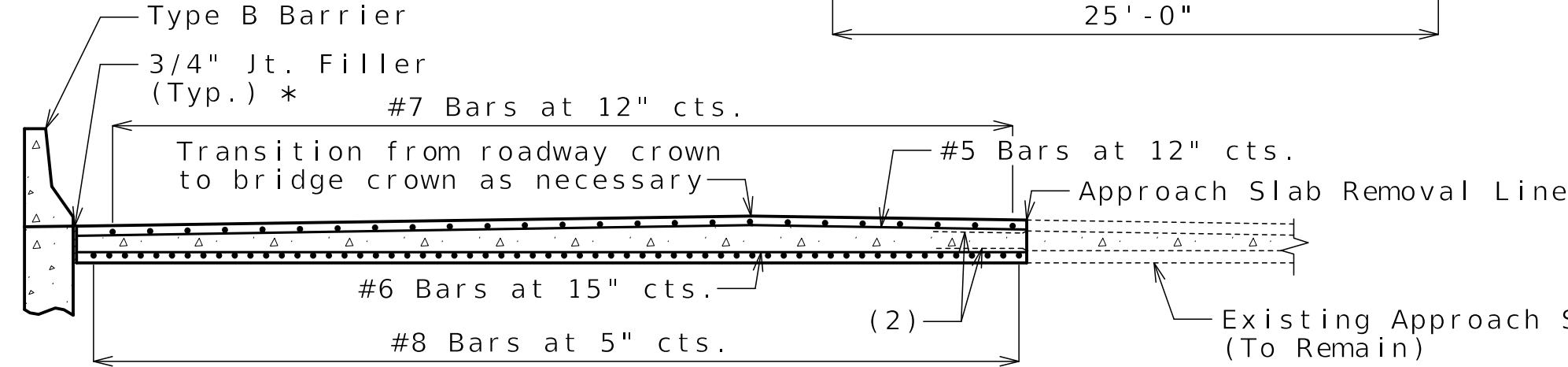
Outside Face of Type A Curb & Bridge Approach Slab

1/4" Joint Filler btwn. curb & barrier *

25'-0"

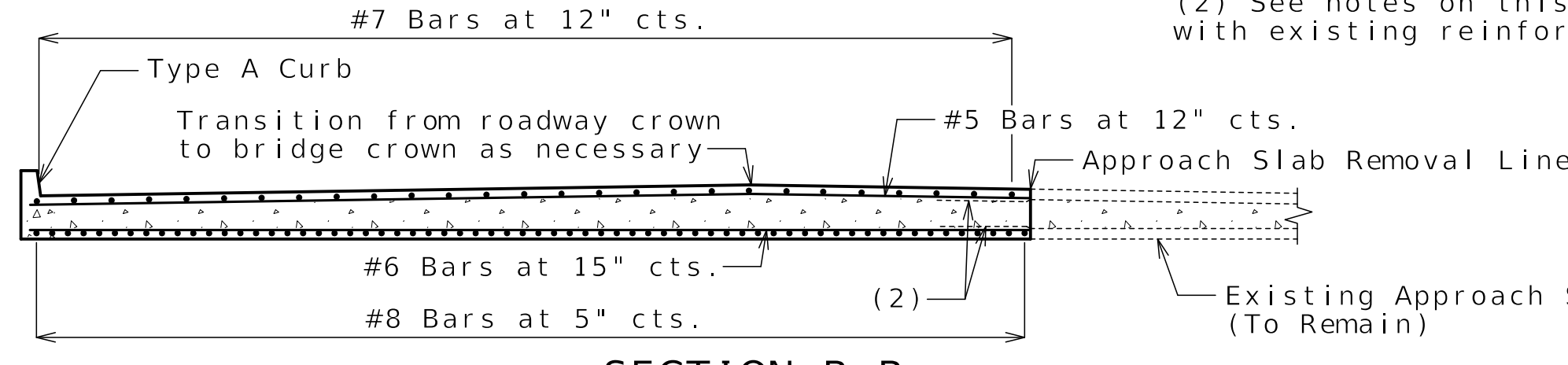
Outside Face of Barrier

#5 L1 Bars at abt. 12" cts. (See end bent sheets)

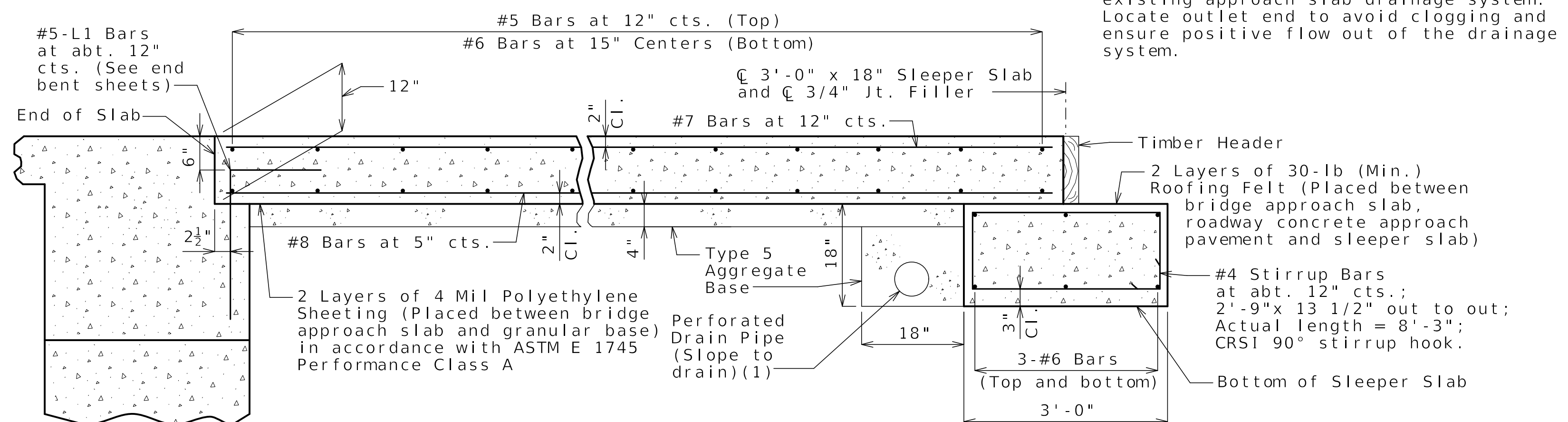


SECTION A-A

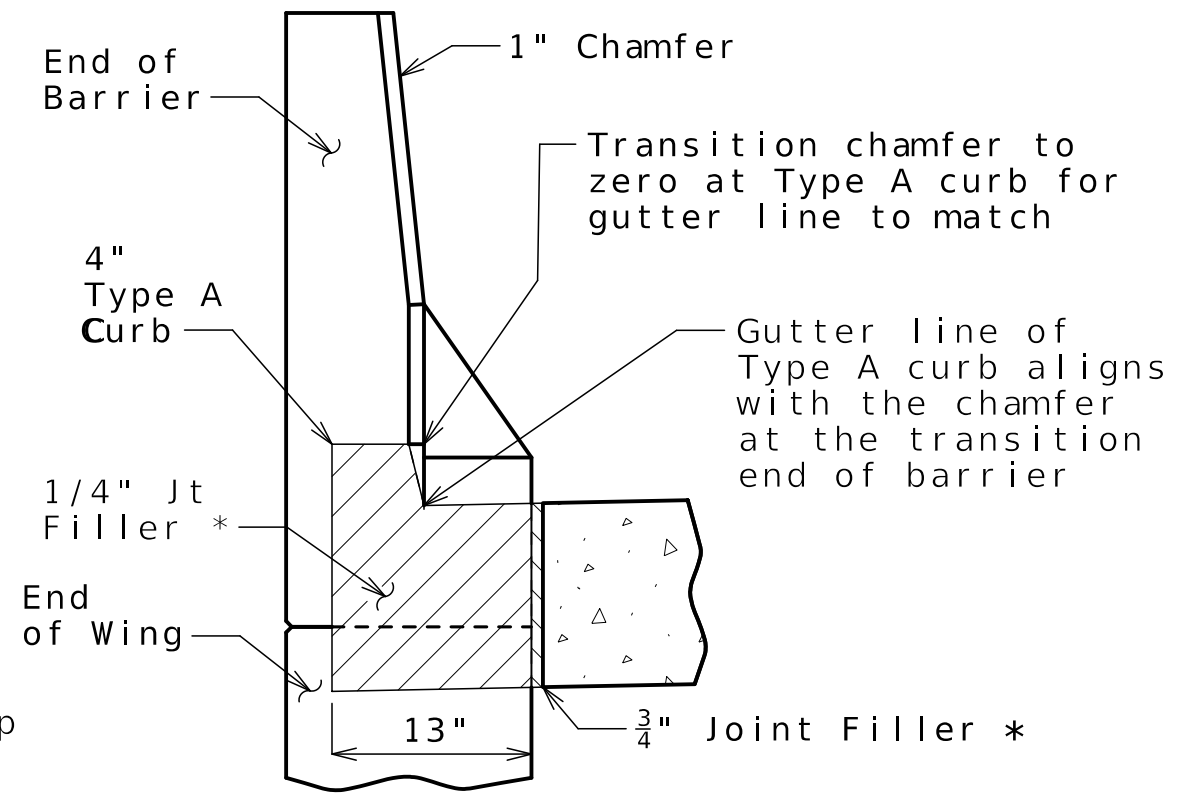
(2) See notes on this page for minimum lap with existing reinforcing to remain.



SECTION B-B

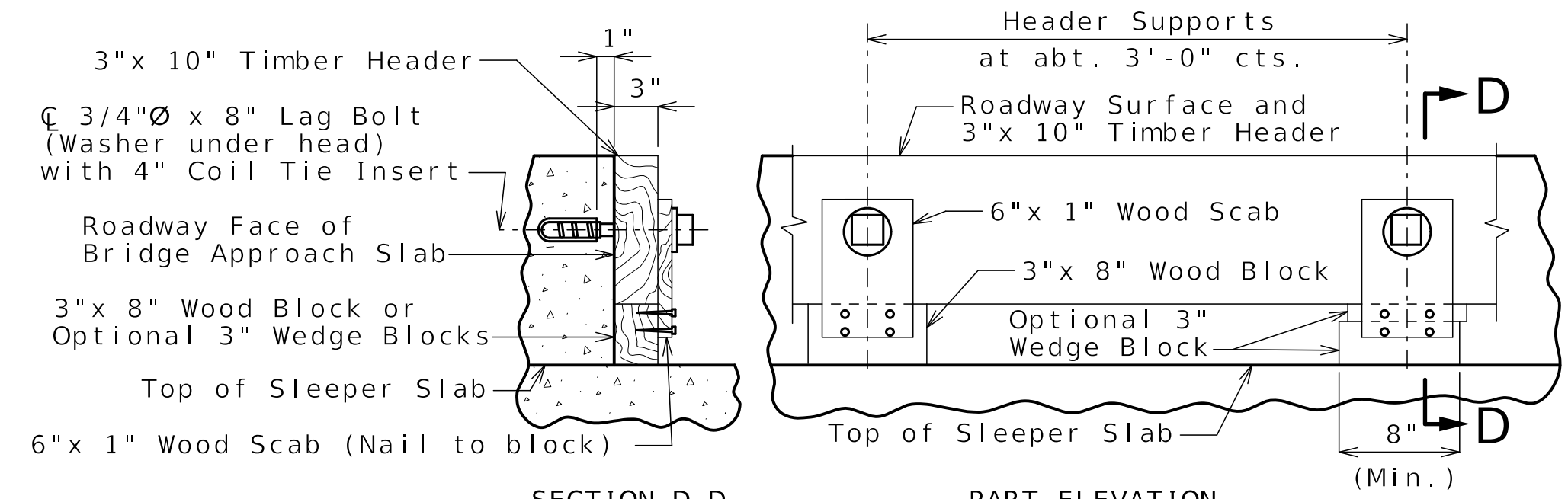


SECTION C-C



SECTION BETWEEN CURB AND BARRIER

(1) Perforated drain pipe for proposed approach slab shall be connected to existing approach slab drainage system. Locate outlet end to avoid clogging and ensure positive flow out of the drainage system.



SECTION D-D PART ELEVATION

DETAILS OF TIMBER HEADER

Remove timber header when concrete pavement is placed.

BRIDGE APPROACH SLAB (MAJOR)

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 $f_y = 60,000$ 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.

Mechanical bar splices shall be in accordance with Sec 710.

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

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

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

For concrete approach pavement details, see roadway plans. See Missouri Standard Plan 609.00 for details of Type A curb.

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

Released For Construction
Not to Scale
Revision: 0.0
Date: 01/29/2026
Package: BRD-26-EB70-Manchester



Benjamin Lichty
01-26-2026

DATE PREPARED
01/13/2026

ROUTE STATE
I-70 MO

DISTRICT SHEET NO.
BR B26-34

COUNTY
JACKSON

JOB NO.
J411486D

CONTRACT ID.
240807-C01

PROJECT NO.

BRIDGE NO.
A82571

DESCRIPTION	DATE
REV 0 - RFC SUBMITTAL	01/13/26

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

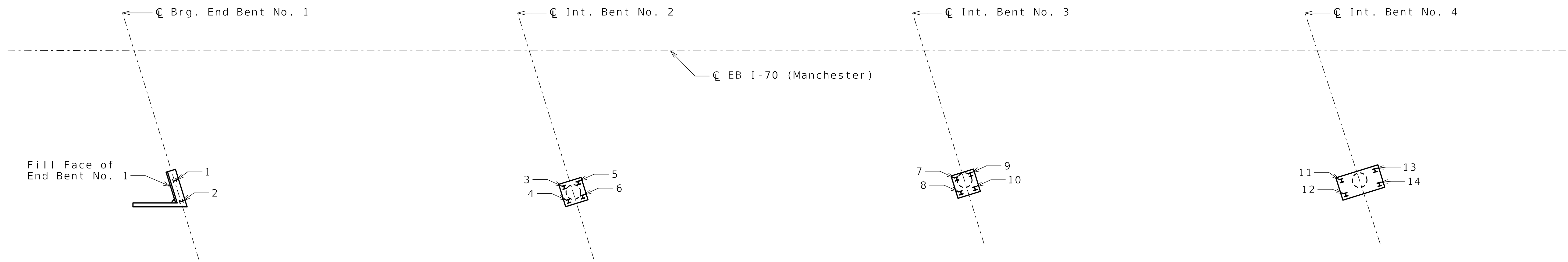
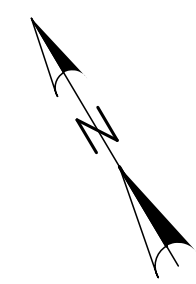
MoDOT

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 NUMBERING FOR RECORDING AS-BUILT PILE DATA
(Existing bridge foundations not shown)

Pile No.	Length in Place (ft)	PDA Nom. Axial Compressive Resistive (kips)	PDA End of Drive Blow Count (blows/in.)	Actual End of Drive Blow Count (blows/in.)	Remarks
End Bent No. 1					
1					
2					
Intermediate Bent No. 2					
3					
4					
5					
6					
Intermediate Bent No. 3					
7					
8					
9					
10					
Intermediate Bent No. 4					
11					
12					
13					
14					

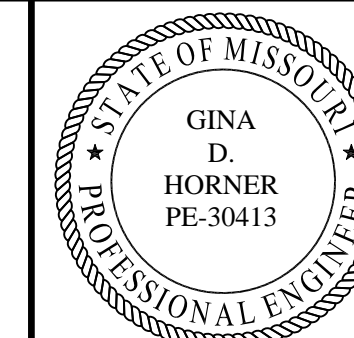
Note:

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

Released For Construction
Not to Scale
Revision: 0.0
Date: 01/29/2026
Package: BRD-26-EB70-Manchester

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

AS-BUILT PILE DATA



Gina D. Horner
01-26-26

DATE PREPARED
01/13/2026

ROUTE STATE
I-70 MO

DISTRICT SHEET NO.
BR B26-35

COUNTY
JACKSON

JOB NO.
J411486D

CONTRACT ID.
240807-C01

PROJECT NO.

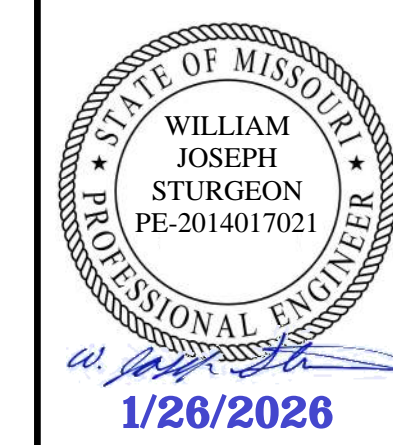
BRIDGE NO.
A82571

DATE	DESCRIPTION
01/13/26	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



DATE PREPARED		01/13/2026
ROUTE	STATE	1 - 70 MO
DISTRICT	SHEET NO.	BR B26 - 36
COUNTY		JACKSON
JOB NO.		J411486D
CONTRACT ID.		240807-C01
PROJECT NO.		

BRIDGE NO.	A82571
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DATE	DESCRIPTION
01/13/26	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

Missouri Department of Transportation Construction and Materials BORING NO. S2 (A-12-26) Page 1 of 3

Job No.: J41916-L0967 County: Jackson Route: I-70
 Design: L0967 Skew: Rt Angles Location: Kansas City, MO
 Bent: 2 Logged By: George Davis Operator: Michael Donahoe
 Station: 261+06 Northing: 1056090 Date of Work: 10/02/12-10/03/12
 Offset: 64 R Easting: 2786471 Depth to Water:
 Elevation: 747.4 Requested Northing: Depth Hole Open:
 Requested Station: Requested Easting: Time Change:
 Requested Offset: Equipment: Falling 1500 Split-Spoon Sampler, NQ
 Requested Elevation: Location Note:
 Drill No.: G-7887 Hammer Efficiency: 80% Drilling Method: Mud Rotary

Depth (ft)	Graphic	Description	Elevation (ft)	Sample Type	REC % (RQD %)	Blow Counts (N ₆₀)	Shear Strength Data	Field Tests	Index Tests
0		0-6.5' Dark gray and light gray, LEAN CLAY, hard, moist	745						
5		6.5-39.7' Dark gray, LEAN CLAY, very soft to medium stiff, wet	740	X	67	7-6-7 (17)		PP = 3.50 tsf	LL = 36 PL = 21 MC = 19.3%
10			735	X	80	2-2-2 (5)		PP = 1.10 tsf	MC = 29.2%
15			730	X	100	1-0-1 (1)		PP = 0.25 tsf	LL = 36 PL = 19 MC = 32.1%
20			725	X	100	1-0-1 (1)			MC = 31.0%
25			720	X	100	1-0-1 (1)		PP = 0.60 tsf	LL = 35 PL = 19 MC = 29.6%
30			715	X	100	1-2-1 (4)		PP = 0.60 tsf	MC = 33.1%

N₆₀ = (Em/60)N_m N₆₀ - Corrected N value for standard 60% SPT efficiency; Em - Measured hammer efficiency in percent; N_m - Observed N-value
 (1) = Assumed, (2) = Actual
 Coordinate System: U.S. State Plane 1983 Coordinate Zone: Missouri West Coordinate Proj. Factor:
 Coordinate Datum: NAD 83 (CONUS) Coordinate Units: U.S. Survey Feet
 * Persons using this information are cautioned that the materials shown are determined by the equipment noted and accuracy of the "log of materials" is limited thereby and by judgement of the operator. THIS INFORMATION IS FOR DESIGN PURPOSES ONLY.

Missouri Department of Transportation Construction and Materials BORING NO. S2 (A-12-26) Page 2 of 3

Job No.: J41916-L0967 County: Jackson Route: I-70
 Design: L0967 Skew: Rt Angles Location: Kansas City, MO
 Bent: 2 Logged By: George Davis Operator: Michael Donahoe
 Station: 261+06 Northing: 1056090 Date of Work: 10/02/12-10/03/12
 Offset: 64 R Easting: 2786471 Depth to Water:
 Elevation: 747.4 Requested Northing: Depth Hole Open:
 Requested Station: Requested Easting: Time Change:
 Requested Offset: Equipment: Falling 1500 Split-Spoon Sampler, NQ
 Requested Elevation: Location Note:
 Drill No.: G-7887 Hammer Efficiency: 80% Drilling Method: Mud Rotary

Depth (ft)	Graphic	Description	Elevation (ft)	Sample Type	REC % (RQD %)	Blow Counts (N ₆₀)	Shear Strength Data	Field Tests	Index Tests
35		6.5-39.7' Dark gray, LEAN CLAY, very soft to medium stiff, wet (continued)	710	X	100	2-3-3 (8)		PP = 1.00 tsf	LL = 40 PL = 19 MC = 30.3%
40		39.7-47.2' Dark gray and light gray, CLAYEY GRAVEL abundant sand, dense to very dense, wet, fine to medium grained, poorly graded	705	X	53	8-8-13 (29)			
45			700	X	100	12-22-17 (52)			
50		47.2-47.8' Clay Shale, cut with rock bit 47.8-77.8' Clay Shale, dark gray, thinly laminated, soft, slightly weathered, interval from 47.8 to 52.4' abraded away by gravel in core barrel and lost.	695						
55			690		100		Qu Test Results UCS = 21.74 ksf MC = 8.9% γ _{moist} = 147 pcf	PP = 9.00 tsf	
60			685		100		Qu Test Results UCS = 25.92 ksf MC = 10% γ _{moist} = 147 pcf	PP = 9.00 tsf	
65			680		100		Qu Test Results UCS = 4.46 ksf MC = 18.4% γ _{moist} = 135.8 pcf	PP = 9.00 tsf	
70							Qu Test Results UCS = 11.66 ksf		

N₆₀ = (Em/60)N_m N₆₀ - Corrected N value for standard 60% SPT efficiency; Em - Measured hammer efficiency in percent; N_m - Observed N-value
 (1) = Assumed, (2) = Actual
 Coordinate System: U.S. State Plane 1983 Coordinate Zone: Missouri West Coordinate Proj. Factor:
 Coordinate Datum: NAD 83 (CONUS) Coordinate Units: U.S. Survey Feet
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Released For Construction
 Not to Scale
 Revision: 0.0
 Date: 01/29/2026
 Package: BRD-26-EB70-Manchester

Notes:
 For locations of borings, see Sheet No. B26-02 and Geotechnical Report.

BORING LOGS

Missouri Department of Transportation
Construction and Materials

BORING NO. S2 (A-12-26)
Page 2 of 3

Job No.: J411916-L0967
Design: L0967
Bent: 2
Station: 261+06
Offset: 64 R
Elevation: 747.4
Requested Station:
Requested Offset:
Requested Elevation:
Drill No.: G-7887

County: Jackson
Route: I-70
Location: Kansas City, MO
Logged By: George Davis
Operator: Michael Donahoe
Date of Work: 10/02/12-10/03/12
Depth to Water:
Depth Hole Open:
Time Change:
Equipment: Falling 1500 Split-Spoon Sampler, NQ
Location Note:
Hammer Efficiency: 80%
Drilling Method: Mud Rotary

Depth (ft)	Graphic	Description	Elevation (ft)	Sample Type	REC % (RQD %)	Blow Counts (N ₆₀)	Shear Strength Data	Field Tests	Index Tests
35		6.5-39.7' Dark gray, LEAN CLAY, very soft to medium stiff, wet (continued)	710		100	2-3-3 (8)		PP = 1.00 tsf	LL = 40 PL = 19 MC = 30.3%
40		39.7-47.2' Dark gray and light gray, CLAYEY GRAVEL abundant sand, dense to very dense, wet, fine to medium grained, poorly graded	705		53	8-9-13 (29)			
45		47.2-47.8' Clay Shale, cut with rock bit	700		100	12-22-17 (52)			
50		47.8-77.8' Clay Shale, dark gray, thinly laminated, soft, slightly weathered, interval from 47.8 to 52.4' abraded away by gravel in core barrel and lost,	695		8				
55			690		100		Qu Test Results UCS = 21.74 ksf MC = 8.9% γ _{moist} = 147 pcf	PP = 9.00 tsf	
60			685		100		Qu Test Results UCS = 25.92 ksf MC = 10% γ _{moist} = 147 pcf	PP = 9.00 tsf	
65			680		100		Qu Test Results UCS = 4.46 ksf MC = 19.4% γ _{moist} = 135.8 pcf	PP = 9.00 tsf	
70							Qu Test Results UCS = 11.66 ksf		

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

Coordinate System: U.S. State Plane 1983
Coordinate Datum: NAD 83 (CONUS)

Coordinate Zone: Missouri West
Coordinate Units: U.S. Survey Feet

Coordinate Proj. Factor:

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Missouri Department of Transportation
Construction and Materials

BORING NO. S4 (A-12-23)
Page 1 of 3

Job No.: J411916-L0967
Design: L0967
Bent: 4
Station: 263+17
Offset: 63 R
Elevation: 754.5
Requested Station:
Requested Offset:
Requested Elevation:
Drill No.: G-7887

County: Jackson
Route: I-70
Location: Kansas City, MO
Logged By: Thomas Fennessey
Operator: Michael Donahoe
Date of Work: 09/24/12-09/25/12
Depth to Water: 19.5
Depth Hole Open: 28.6
Time Change: 2 days
Equipment: Falling 1500 Split-Spoon Sampler, NQ
Location Note:
Hammer Efficiency: 80%
Drilling Method: Mud Rotary

Depth (ft)	Graphic	Description	Elevation (ft)	Sample Type	REC % (RQD %)	Blow Counts (N ₆₀)	Shear Strength Data	Field Tests	Index Tests
0		0-8.3' Dark brown, LEAN CLAY, stiff, moist	750						
5			745		63	2-1-2 (4)		PP = 1.00 tsf	MC = 28.4%
10		8.3-10.8' Light brown, LEAN CLAY, stiff, moist	745						
15		10.8-38.3' Gray to grayish brown, LEAN CLAY, stiff to soft, moist to wet	740		73	4-6-5 (15)		PP = 1.50 tsf	LL = 33 PL = 18 MC = 20.3%
20			735		100	2-2-3 (7)		PP = 1.25 tsf	MC = 27.1%
25			730		100	1-1-1 (3)		PP = 1.00 tsf PP = 0.75 tsf	LL = 39 PL = 19 MC = 28.9%
30			725		100	1-1-1 (3)		PP = 0.50 tsf	
35			720		100	1-1-1 (3)		PP = 0.75 tsf	LL = 34 PL = 19 MC = 31.6%

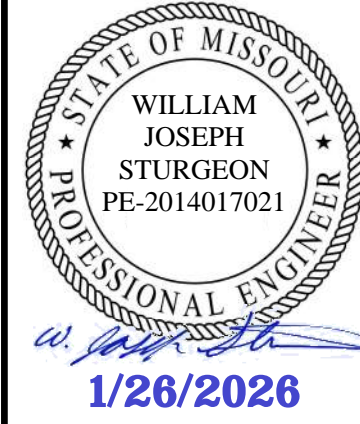
N₆₀ = (Em/60)N_m N₆₀ - Corrected N value for standard 60% SPT efficiency; Em - Measured hammer efficiency in percent; N_m - Observed N-value
(1) = Assumed, (2) = Actual

Coordinate System: U.S. State Plane 1983
Coordinate Datum: NAD 83 (CONUS)

Coordinate Zone: Missouri West
Coordinate Units: U.S. Survey Feet

Coordinate Proj. Factor:

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DATE PREPARED	01/13/2026
ROUTE	I-70
STATE	MO
DISTRICT	BR
SHEET NO.	B26-37
COUNTY	JACKSON
JOB NO.	J411486D
CONTRACT ID.	240807-C01
PROJECT NO.	

BRIDGE NO. A82571

DATE	DESCRIPTION
01/13/26 <td>REV 0 - RFC SUBMITTAL</td>	REV 0 - RFC SUBMITTAL



CLARKSON
RADMACHER
JOINT VENTURE

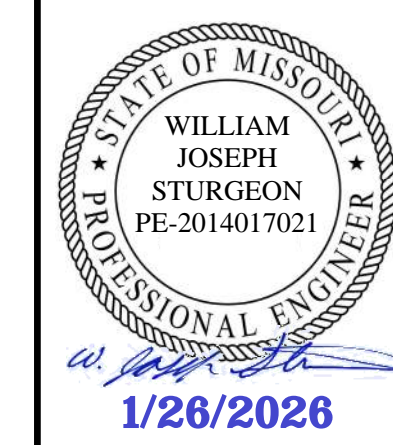
715 KIRK DRIVE
KANSAS CITY, MO 64105-1310
CERTIFICATE OF AUTHORITY
NO. 001270

HNTB

Released For Construction
Not to Scale
Revision: 0.0
Date: 01/29/2026
Package: BRD-26-EB70-Manchester

Notes:
For locations of borings, see Sheet No. B26-02 and Geotechnical Report.

BORING LOGS



DATE PREPARED 01/13/2026	
ROUTE I-70	STATE MO
DISTRICT BR	SHEET NO. B26-38
COUNTY JACKSON	
JOB NO. J411486D	
CONTRACT ID. 240807-C01	
PROJECT NO.	

BRIDGE NO.
A82571

DATE	DESCRIPTION
01/13/26	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

Missouri Department of Transportation
Construction and Materials

BORING NO. S4 (A-12-23)
Page 2 of 3

Job No.: J411916-L0967
Design: L0967
Bent: 4
Station: 263+17
Offset: 63 R
Elevation: 754.5
Requested Station:
Requested Offset:
Requested Elevation:
Drill No.: G-7887

County: Jackson
Skew: Rt Angles
Logged By: Thomas Fennessey
Northing: 1055991
Easting: 2786650
Requested Northing:
Requested Easting:
Location Note:

Route: I-70
Location: Kansas City, MO
Operator: Michael Donahoe
Date of Work: 09/24/12-09/25/12
Depth to Water: 19.5
Depth Hole Open: 28.6
Time Change: 2 days
Equipment: Falling 1500 Split-Spoon Sampler, NQ

Hammer Efficiency: 80%
Drilling Method: Mud Rotary

Depth (ft)	Graphic	Description	Elevation (ft)	Sample Type	REC % (RQD %)	Blow Counts (N ₆₀)	Shear Strength Data	Field Tests	Index Tests
35		10.8-38.3' Gray to grayish brown, LEAN CLAY, stiff to soft, moist to wet (continued)			100	1-1-2 (4)		PP = 0.75 tsf	
40		38.3-43.8' Bluish gray, LEAN CLAY, stiff, wet	715						
45		41.5' 9/24/12 stop for day @ 4:30 pm			100	3-2-4 (8)		PP = 1.25 tsf	LL = 36 PL = 19 MC = 29.1%
45		43.8-47.3' Grayish brown, FAT CLAY, medium stiff, wet	710					PP = 0.75 tsf	MC = 32.7%
50		47.3-54.5' Gray, GRAVEL scattered sand, with lean clay, dense, wet	705						
55		54.5-91' Shale, gray, thinly laminated, very soft to soft 56-66' moderately to slightly weathered, very soft to soft 57.7-61' blocked off and core washed away	700						
55					83	14-38/0.3'	Qu Test Results UCS = 4.76 ksf MC = 12.7% γ _{moist} = 136.7 pcf	PP = 9.00 tsf	
60			695			34	Qu Test Results		
65			690			78	Qu Test Results UCS = 14.26 ksf MC = 10.3% γ _{moist} = 140.3 pcf	PP = 9.00 tsf	
70			685			100	Qu Test Results UCS = 14.26 ksf		

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

Coordinate System: U.S. State Plane 1983 Coordinate Zone: Missouri West Coordinate Proj. Factor:
Coordinate Datum: NAD 83 (CONUS) Coordinate Units: U.S. Survey Feet

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Missouri Department of Transportation
Construction and Materials

BORING NO. S4 (A-12-23)
Page 3 of 3

Job No.: J411916-L0967
Design: L0967
Bent: 4
Station: 263+17
Offset: 63 R
Elevation: 754.5
Requested Station:
Requested Offset:
Requested Elevation:
Drill No.: G-7887

County: Jackson
Skew: Rt Angles
Logged By: Thomas Fennessey
Northing: 1055991
Easting: 2786650
Requested Northing:
Requested Easting:
Location Note:

Route: I-70
Location: Kansas City, MO
Operator: Michael Donahoe
Date of Work: 09/24/12-09/25/12
Depth to Water: 19.5
Depth Hole Open: 28.6
Time Change: 2 days
Equipment: Falling 1500 Split-Spoon Sampler, NQ

Hammer Efficiency: 80%
Drilling Method: Mud Rotary

Depth (ft)	Graphic	Description	Elevation (ft)	Sample Type	REC % (RQD %)	Blow Counts (N ₆₀)	Shear Strength Data	Field Tests	Index Tests
70		54.5-91' Shale, gray, thinly laminated, very soft to soft (continued)					MC = 12.2% γ _{moist} = 140.6 pcf	PP = 9.00 tsf	
75			680			100	Qu Test Results UCS = 16.7 ksf MC = 12.5% γ _{moist} = 141.7 pcf	PP = 9.00 tsf	
80			675			100	Qu Test Results UCS = 13.24 ksf MC = 11.1% γ _{moist} = 142.3 pcf	PP = 9.00 tsf	
85			670			100	Qu Test Results UCS = 18 ksf MC = 10.2% γ _{moist} = 142.6 pcf	PP = 9.00 tsf	
90			665			100	Qu Test Results UCS = 6.48 ksf MC = 12.4% γ _{moist} = 141.2 pcf	PP = 9.00 tsf	
		Bottom of borehole at 91.0 feet.							

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

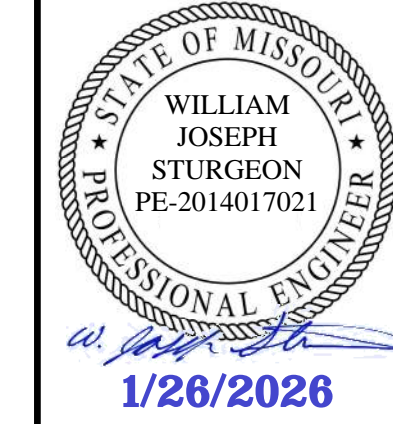
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Coordinate Datum: NAD 83 (CONUS) Coordinate Units: U.S. Survey Feet

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Released For Construction
Not to Scale
Revision: 0.0
Date: 01/29/2026
Package: BRD-26-EB70-Manchester

Notes:
For locations of borings, see Sheet No. B26-02 and Geotechnical Report.

BORING LOGS



DATE PREPARED 01/13/2026	
ROUTE I-70	STATE MO
DISTRICT BR	SHEET NO. B26-39
COUNTY JACKSON	
JOB NO. J411486D	
CONTRACT ID. 240807-C01	
PROJECT NO.	

BRIDGE NO.
A82571

DATE	DESCRIPTION
01/13/26	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

Missouri Department of Transportation
 Construction and Materials

BORING NO. S5 (A-12-28)
 Page 1 of 3

Job No.: J411916-L0967
 Design: L0967
 Bent: 5
 Station: 265+45
 Offset: 65 R
 Elevation: 738.2
 Requested Station: 265+63
 Requested Offset: 65R
 Requested Elevation: 736.2
 Drill No.: G-7887

County: Jackson
 Skew: Rt Angles
 Logged By: Alan Miller
 Northing: 1055880.3
 Easting: 2786852.4
 Requested Northing: 1055884
 Requested Easting: 2786880
 Location Note: Inaccessible due to slope
 Hammer Efficiency: 80%

Route: I-70
 Location: Kansas City, MO
 Operator: Ken Farrow
 Date of Work: 10/09/12-10/10/12
 Depth to Water:
 Depth Hole Open:
 Time Change:

Drilling Method: Mud Rotary

Depth (ft)	Graphic	Description	Elevation (ft)	Sample Type	REC % (RQD %)	Blow Counts (N ₆₀)	Shear Strength Data	Field Tests	Index Tests
0		0-30' Dark gray, LEAN CLAY silt, scattered fine sand, soft, moist to wet	735						
5			730	X		1-1-1 (3)		PP = 0.50 tsf	
10			725	X		0-1-0 (1)		PP = 0.25 tsf	
15			720						
20			715	X		1-1-1 (3)		PP = 0.50 tsf	LL = 36 PL = 21 MC = 35.2%
25			710	X		1-2-2 (6)		PP = 1.00 tsf	
30		30-34.2' Dark gray, LEAN CLAY, soft	705	X		2-1-2 (4)		PP = 0.50 tsf	LL = 43 PL = 20 MC = 53.0%
35									

N₆₀ = (Em/60)Nm N₆₀ - Corrected N value for standard 60% SPT efficiency; Em - Measured hammer efficiency in percent; Nm - Observed N-value
 (1) = Assumed, (2) = Actual
 Coordinate System: U.S. State Plane 1983 Coordinate Zone: Missouri West Coordinate Proj. Factor:
 Coordinate Datum: NAD 83 (CONUS) Coordinate Units: U.S. Survey Feet

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Missouri Department of Transportation
 Construction and Materials

BORING NO. S5 (A-12-28)
 Page 2 of 3

Job No.: J411916-L0967
 Design: L0967
 Bent: 5
 Station: 265+45
 Offset: 65 R
 Elevation: 738.2
 Requested Station: 265+63
 Requested Offset: 65R
 Requested Elevation: 736.2
 Drill No.: G-7887

County: Jackson
 Skew: Rt Angles
 Logged By: Alan Miller
 Northing: 1055880.3
 Easting: 2786852.4
 Requested Northing: 1055884
 Requested Easting: 2786880
 Location Note: Inaccessible due to slope
 Hammer Efficiency: 80%

Route: I-70
 Location: Kansas City, MO
 Operator: Ken Farrow
 Date of Work: 10/09/12-10/10/12
 Depth to Water:
 Depth Hole Open:
 Time Change:

Drilling Method: Mud Rotary

Depth (ft)	Graphic	Description	Elevation (ft)	Sample Type	REC % (RQD %)	Blow Counts (N ₆₀)	Shear Strength Data	Field Tests	Index Tests
35		34.2-42.5' Gray, GRAVEL, dense, medium grained (continued)	700	X		6-20-18 (51)		PP = 1.50 tsf	
40			695	X		4-5-9 (19)			
45		42.5-45' Dark gray, FAT CLAY with gravel, hard, moist, Shaley	690	X		3-5-11 (21)			
50		45-66.7' Clay Shale, dark gray, soft, slightly weathered	685		92		Qu Test Results UCS = 48.1 ksf MC = 9.5% γ _{moist} = 148.3 pcf	PP = 9.00 tsf	
55			680		92				
60			675		96		Qu Test Results UCS = 62.06 ksf MC = 10% γ _{moist} = 149 pcf	PP = 9.00 tsf	
65			670		78				
70		66.7-71.7' Clay Shale, dark gray, highly weathered, extremely soft							

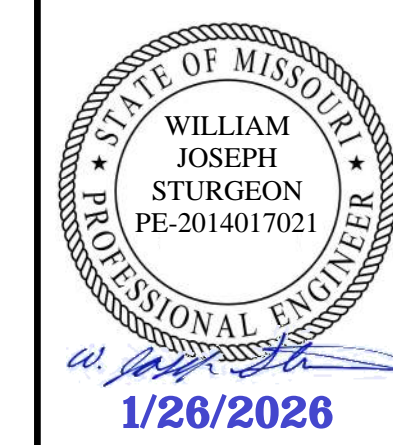
N₆₀ = (Em/60)Nm N₆₀ - Corrected N value for standard 60% SPT efficiency; Em - Measured hammer efficiency in percent; Nm - Observed N-value
 (1) = Assumed, (2) = Actual
 Coordinate System: U.S. State Plane 1983 Coordinate Zone: Missouri West Coordinate Proj. Factor:
 Coordinate Datum: NAD 83 (CONUS) Coordinate Units: U.S. Survey Feet

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

Released For Construction
 Not to Scale
 Revision: 0.0
 Date: 01/29/2026
 Package: BRD-26-EB70-Manchester

Notes:
 For locations of borings, see Sheet No. B26-02 and Geotechnical Report.

BORING LOGS



DATE PREPARED 01/13/2026	
ROUTE I-70	STATE MO
DISTRICT BR	SHEET NO. B26-40
COUNTY JACKSON	
JOB NO. J411486D	
CONTRACT ID. 240807-C01	
PROJECT NO.	

BRIDGE NO. A82571

DATE	DESCRIPTION
01/13/26	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



Missouri Department of Transportation Construction and Materials **BORING NO. S5 (A-12-28)** Page 3 of 3

Job No.: J411916-L0967 County: Jackson Route: I-70
 Design: L0967 Skew: Rt Angles Location: Kansas City, MO
 Bent: 5 Logged By: Alan Miller Operator: Ken Farrow
 Station: 265+45 Northing: 1055880.3 Date of Work: 10/09/12-10/10/12
 Offset: 65 R Easting: 2786852.4 Depth to Water:
 Elevation: 738.2 Requested Northing: 1055864 Depth Hole Open:
 Requested Station: 265+63 Requested Easting: 2786860 Time Change:
 Requested Offset: 65R Equipment: Falling 1500, Split-Spoon Sampler, NX
 Requested Elevation: 736.2 Location Note: Inaccessible due to slope
 Drill No.: G-7887 Hammer Efficiency: 80% Drilling Method: Mud Rotary

Depth (ft)	Graphic	Description	Elevation (ft)	Sample Type	REC % (ROD %)	Blow Counts (N ₆₀)	Shear Strength Data	Field Tests	Index Tests
70		66.7-71.7' Clay Shale, dark gray, highly weathered, extremely soft (continued)							
		71.7-76.7' Clay Shale, dark gray, soft, slightly weathered	665		86				
75		Bottom of borehole at 76.7 feet.					Qu Test Results UCS = 54.44 ksf MC = 8.9% γ _{moist} = 149.8 pcf	PP = 9.00 tsf	

N₆₀ = (Em/60)Nm N₆₀ - Corrected N value for standard 60% SPT efficiency; Em - Measured hammer efficiency in percent; Nm - Observed N-value
 (1) = Assumed, (2) = Actual
 Coordinate System: U.S. State Plane 1983 Coordinate Zone: Missouri West Coordinate Proj. Factor:
 Coordinate Datum: NAD 83 (CONUS) Coordinate Units: U.S. Survey Feet

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

HNTB **LOG OF BORING** BORING NO. **B-1**
 PAGE 1 OF 2

PROJECT I-70 over Manchester Bridge STATION / NORTHING 260+42.63 / 1056168.95
 LOCATION Kansas City, MO OFFSET / EASTING 140.50 RT / 2786648.51
 DATE STARTED 09/18/2013 DATE COMPLETED 09/18/2013 SURFACE ELEVATION 748.7 ft
 EXPLORATION CONTRACTOR GeoSource, LLC DATUM Site Specific
 DRILLER Michael Compton DRILL RIG CME 55 GROUND WATER LEVELS:
 HAMMER TYPE Auto HAMMER EFFICIENCY 82.1% AT TIME OF DRILLING 12 ft
 LOGGED BY Axel Novion CHECKED BY ASN 10/18/2013 AFTER N/A

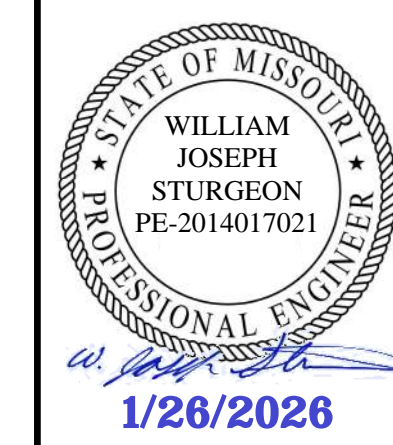
DRILLING METHOD	DEPTH (ft)	SAMPLE TYPE NUMBER	SAMPLE RECOVERY (in)	CORE REC % (ROD %)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	GRAPHIC LOG	MATERIAL DESCRIPTION Unified (Visual) Classification System	ELEVATION (ft)
	0							TOPSOIL - 12" (CL)	748.7
								FILL: Concrete buried for sloped protection	2.0
								LEAN CLAY: Dark gray; stiff; moist (CL)	745
	5	SPT 1	12		2-3-5 (8)				745
	10	ST 2	24			2.75		LEAN CLAY: Brown with gray and rust; soft; moist (CL)	740
								▽ Becoming wet at 12.0'	735
	15	SPT 3	18		0-0-1 (1)				735
	20	SPT 4	18		0-0-0 (0)			LEAN CLAY: Gray with rust; soft; wet (CL)	730
	25	SPT 5	18		0-0-0 (0)				725
	30	SPT 6	18		0-0-2 (2)			LEAN CLAY: Dark gray; very soft; wet; silty (CL)	720
	35	SPT 7	18		0-2-3 (5)				715
								▽ Becoming soft to firm at 34.0'	710
	40								710

(Continued Next Page)

Released For Construction
 Not to Scale
 Revision: 0.0
 Date: 01/29/2026
 Package: BRD-26-EB70-Manchester

Notes:
 For locations of borings, see Sheet No. B26-02 and Geotechnical Report.

BORING LOGS



DATE PREPARED 01/13/2026	
ROUTE 1-70	STATE MO
DISTRICT BR	SHEET NO. B26-41
COUNTY JACKSON	
JOB NO. J411486D	
CONTRACT ID. 240807-C01	
PROJECT NO.	
BRIDGE NO. A82571	

DATE	DESCRIPTION
01/13/26	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

HNTB		LOG OF BORING				BORING NO. B-1	
PROJECT I-70 over Manchester Bridge		STATION / NORTHING 260+42.63 / 1056168.95				PAGE 2 OF 2	
LOCATION Kansas City, MO		OFFSET / EASTING 140.50 RT / 2786648.51					
DRILLING METHOD	DEPTH (ft)	SAMPLE TYPE NUMBER	SAMPLE RECOVERY (in) CORE REC % (ROD %)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	GRAPHIC LOG	ELEVATION (ft)
	40	SPT 8	18	0-0-3 (3)		LEAN CLAY: Dark gray; very soft; wet; silty (CL) (continued)	41.6
	45	SPT 9	12	6-8-14 (22)		GRAVEL: Gray; dense; saturated; angular to subrounded; trace clay (GP)	705
	50	SPT 10	8	25-50/3"		SHALE: Gray; moderately hard; moderately weathered	49.8 700
	53.1	NQ 1	92% (92%)			SHALE: Gray; moderately hard; with silt laminations; slightly weathered	695
	55.3	NQ 2	100% (40%)			Moderately weathered from 56.1' to 58.5'	690
	60.3	NQ 3	100% (70%)				64.0
Boring tremie backfilled with bentonite cement mix on 9/19/2013 Bottom of borehole at 64.0 feet.							685

HNTB		LOG OF BORING				BORING NO. B-2	
PROJECT I-70 over Manchester Bridge		STATION / NORTHING 264+31.42 / 1056018.38				PAGE 1 OF 3	
LOCATION Kansas City, MO		OFFSET / EASTING 84.98 RT / 2787011.23					
DATE STARTED 09/23/2013		DATE COMPLETED 09/24/2013		SURFACE ELEVATION 753.7 ft			
EXPLORATION CONTRACTOR GeoSource, LLC		DATUM Site Specific					
DRILLER Michael Compton		DRILL RIG CME 55		GROUND WATER LEVELS: AT TIME OF DRILLING 29 ft AFTER N/A			
HAMMER TYPE Auto		HAMMER EFFICIENCY 82.1%					
LOGGED BY Axel Novion		CHECKED BY ASN 10/18/2013					
DRILLING METHOD	DEPTH (ft)	SAMPLE TYPE NUMBER	SAMPLE RECOVERY (in) CORE REC % (ROD %)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	GRAPHIC LOG	ELEVATION (ft)
	0					TOPSOIL - 14" (CL)	753.7
						LEAN CLAY: Dark gray; firm; moist; silty (CL)	1.2
	5	SPT 1	15	3-2-3 (5)			750
	10	SPT 2	14	0-3-5 (8)			745
	15	ST 3	19		2.5		740
	20	SPT 4	18	0-0-0 (0)		LEAN CLAY: Gray with rust; very soft to soft; moist; silty (CL)	17.0
	25	SPT 5	18	0-0-0 (0)		LEAN CLAY: Dark gray; very soft; moist; silty (CL)	19.5
	30	SPT 6	18	0-0-0 (0)		Becoming wet at 29.5'	725
	35	SPT 7	18	0-0-1 (1)			720
	40						715

(Continued Next Page)

Released For Construction
 Not to Scale
 Revision: 0.0
 Date: 01/29/2026
 Package: BRD-26-EB70-Manchester

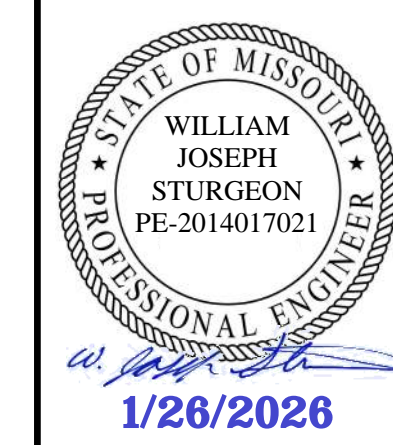
Notes:
 For locations of borings, see Sheet No. B26-02 and Geotechnical Report.

BORING LOGS

Detailed OCT 2025
 Checked OCT 2025

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

Sheet No. B26-41 of B26-46



DATE PREPARED		01/13/2026
ROUTE	STATE	1 - 70 MO
DISTRICT	SHEET NO.	BR B26-42
COUNTY		JACKSON
JOB NO.		J411486D
CONTRACT ID.		240807-C01
PROJECT NO.		
BRIDGE NO.		A82571

DATE	DESCRIPTION
01/13/26	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		LOG OF BORING		BORING NO. B-2			
PROJECT I-70 over Manchester Bridge		STATION / NORTHING 264+31.42 / 1056018.38		PAGE 2 OF 3			
LOCATION Kansas City, MO		OFFSET / EASTING 84.98 RT / 2787011.23					
DEPTH (ft)	SAMPLE TYPE NUMBER	SAMPLE RECOVERY (in) CORE REC % (RQD %)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION (ft)
40	SPT 8	18	0-0-3 (3)			LEAN CLAY: Dark gray; very soft; moist; silty (CL) (continued)	710
45	SPT 9	18	0-1-2 (3)				48.3
50	SPT 10	0	12-14-12 (26)			GRAVEL: Gray; medium dense; saturated; angular to subrounded; coarse grained; poorly graded (GP)	705
55						SHALE: Gray; moderately hard to hard; moderately weathered	700
54.9	NQ 1	112% (79%)					695
58.4	NQ 2	121% (121%)					690
60	NQ 3	108% (53%)					685
60.4	NQ 4	100% (50%)					680
65	NQ 5	117% (13%)				SHALE: Gray; moderately hard; platy; with silt laminations; moderately weathered	675
65.4	NQ 6	120% (0%)					670
67.9	NQ 7	113% (0%)					665
70	NQ 8	130% (0%)					660
70.4	NQ 9	97% (0%)					655
72.9	NQ 10	130% (100%)				SHALE: Gray; moderately hard to hard; moderately to slightly weathered	650
75	NQ 11	103% (83%)				Becoming slightly calcareous at 81.7'	645
75.4							640
77.9							635
80							630
80.4							625
82.9							620
85							615

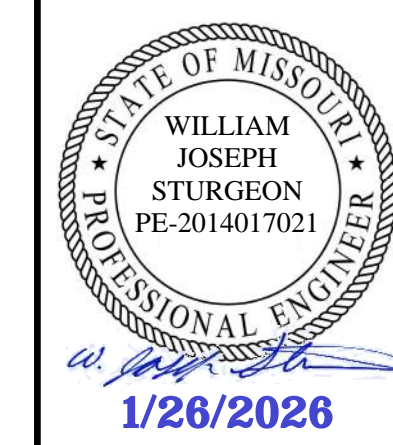
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HNTB		LOG OF BORING		BORING NO. B-2			
PROJECT I-70 over Manchester Bridge		STATION / NORTHING 264+31.42 / 1056018.38		PAGE 3 OF 3			
LOCATION Kansas City, MO		OFFSET / EASTING 84.98 RT / 2787011.23					
DEPTH (ft)	SAMPLE TYPE NUMBER	SAMPLE RECOVERY (in) CORE REC % (RQD %)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION (ft)
85.4	NQ 12	103% (87%)				SHALE: Gray; moderately hard to hard; moderately to slightly weathered (continued)	665
90							90.6
90.4	NQ 13	103% (0%)				SHALE: Gray; moderately hard; with silt seams; moderately weathered	660
95							95.4
Boring tremie backfilled with bentonite cement mix on 9/24/2013 Bottom of borehole at 95.4 feet.							

Released For Construction
Not to Scale
Revision: 0.0
Date: 01/29/2026
Package: BRD-26-EB70-Manchester

Notes:
For locations of borings, see Sheet No. B26-02 and Geotechnical Report.

BORING LOGS



DATE PREPARED 01/13/2026	
ROUTE I-70	STATE MO
DISTRICT BR	SHEET NO. B26-43
COUNTY JACKSON	
JOB NO. J411486D	
CONTRACT ID. 240807-C01	
PROJECT NO.	

BRIDGE NO. A82571

DATE	DESCRIPTION
01/13/26	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	LOG OF BORING	BORING NO. B-3
		PAGE 1 OF 3

PROJECT I-70 over Manchester Bridge	STATION / NORTHING 265+66.25 / 1055949.65
LOCATION Kansas City, MO	OFFSET / EASTING 84.92 RT / 2787127.23
DATE STARTED 09/16/2013 DATE COMPLETED 09/18/2013	SURFACE ELEVATION 738.3 ft
EXPLORATION CONTRACTOR GeoSource, LLC	DATUM Site Specific
DRILLER Les Scott DRILL RIG CME 45C	GROUND WATER LEVELS:
HAMMER TYPE Auto HAMMER EFFICIENCY 75.0%	▽ AT TIME OF DRILLING 10 ft
LOGGED BY Robert Halastik CHECKED BY ASN 10/18/2013	▽ AFTER 13 ft

DRILLING METHOD	DEPTH (ft)	SAMPLE TYPE NUMBER	SAMPLE RECOVERY (in) CORE REC % (RQD %)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	GRAPHIC LOG	MATERIAL DESCRIPTION Unified (Visual) Classification System	ELEVATION (ft)
	0						FILL: Lean clay; gray and light brown; firm; moist; with gravel and cobbles; trace roots (CL)	738.3
HSA 3.25	5	SPT 1	18	2-2-4 (6)			LEAN CLAY: Light gray and gray with some light brown; firm; moist; silty; with roots (CL)	735
	10	ST 2	21		0.25		SILT: Gray with some light brown; very loose; wet; with clay; trace roots until 12.0' (ML)	730
	10	SPT 3	18	1-1-1 (2)			▽ Becoming light brown with some gray; saturated at 9.0'	725
	15	SPT 4	18	1-2-1 (3)			Becoming gray with iron staining and nodules	720
	15	SPT 4	18	1-2-1 (3)			With a 4" silty sand seam at 15.0'	715
	20	SPT 5	18	1-1-2 (3)			LEAN CLAY: Gray; very soft to soft; wet; with silty seams (CL)	710
	25	SPT 6	18	1-2-1 (3)				705
	30	SPT 7	18	1-2-2 (4)			LEAN CLAY: Gray and light olive gray; soft to firm; wet; trace organics (CL)	700
	35	SPT 8	15	1-4-14 (18)			Trace sand at 34.0'	695
	35	SPT 8	15	1-4-14 (18)			GRAVEL: Light brown and light gray; medium dense; saturated; coarse and fine grained; trace clay and silt; poorly graded (GP)	690
	40	SPT 9	18	5-5-36 (41)				685

(Continued Next Page)

HNTB	LOG OF BORING	BORING NO. B-3
		PAGE 2 OF 3

PROJECT I-70 over Manchester Bridge	STATION / NORTHING 265+66.25 / 1055949.65
LOCATION Kansas City, MO	OFFSET / EASTING 84.92 RT / 2787127.23

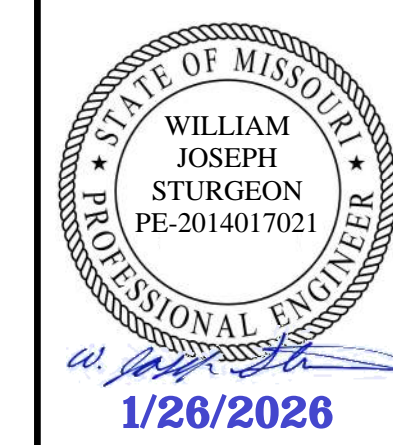
DRILLING METHOD	DEPTH (ft)	SAMPLE TYPE NUMBER	SAMPLE RECOVERY (in) CORE REC % (RQD %)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	GRAPHIC LOG	MATERIAL DESCRIPTION Unified (Visual) Classification System	ELEVATION (ft)
	40						SHALE: Gray; moderately hard; moderately weathered (continued)	680
CORE BARREL 1.78	44.7	NQ 1	100% (100%)					675
	47.7	NQ 2	100% (47%)				SHALE: Gray; moderately hard; silty; moderately weathered	670
	50.7	NQ 3	100% (28%)					665
	55.7	NQ 4	100% (0%)					660
	60.7	NQ 5	100% (25%)					655
	65.7	NQ 6	100% (63%)				SHALE: Gray; hard; with silt laminations; moderately to slightly weathered	650
	70.7	NQ 7	100% (47%)					645
	75.7	NQ 8	100% (77%)				SHALE: Gray; hard; slightly weathered	640
	80.7	NQ 9	100% (21%)				Moderately weathered from 80.3' to 83.4'	635
	81.3	NQ 9	100% (34%)					630
	85.7	NQ 10	100% (34%)					625

(Continued Next Page)

Released For Construction
Not to Scale
Revision: 0.0
Date: 01/29/2026
Package: BRD-26-EB70-Manchester

Notes:
For locations of borings, see Sheet No. B26-02 and Geotechnical Report.

BORING LOGS



DATE PREPARED		01/13/2026	
ROUTE	STATE	DISTRICT	SHEET NO.
I-70	MO	BR	B26-44
COUNTY			
JACKSON			
JOB NO.			
J411486D			
CONTRACT ID.			
240807-C01			
PROJECT NO.			
BRIDGE NO.			
A82571			

DATE	01/13/26
DESCRIPTION	REV 0 - RFC SUBMITTAL

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

105 WEST CAPITOL JEFFERSON CITY, MO 65102

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



HNTB

LOG OF BORING

BORING NO. **B-3**

PAGE **3** OF **3**

PROJECT I-70 over Manchester Bridge STATION / NORTHING 265+66.25 / 1055949.65
 LOCATION Kansas City, MO OFFSET / EASTING 84.92 RT / 2787127.23

DRILLING METHOD	DEPTH (ft)	SAMPLE TYPE NUMBER	SAMPLE RECOVERY (in) CORE REC % (ROD %)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION (ft)
	90.7	NQ 11	100% (12%)				SHALE: Gray; hard; slightly weathered (continued)	650
	91.3						With a 1" light brown seam from 90.4' to 90.5'	91.3
	92.7	NQ 12	100% (43%)				SHALE: Dark gray; hard to very hard; calcareous; fossiliferous; slightly weathered	92.7
	94.7						SHALE: Black; hard; slightly weathered	94.7
	95.8	NQ 13	100% (85%)				SHALE: Light gray to light blue gray; hard; moderately to slightly weathered	95.8
	99.7	NQ 14	100% (77%)				SHALE: Light blue gray; very hard; calcareous; with limestone nodules; slightly weathered	99.7
	104.7							635

Boring tremie backfilled with bentonite cement mix on 9/18/2013
 Bottom of borehole at 104.7 feet.

HNTB

LOG OF BORING

BORING NO. **B-4**

PAGE **1** OF **3**

PROJECT I-70 over Manchester Bridge STATION / NORTHING 268+41.50 / 1055833.85
 LOCATION Kansas City, MO OFFSET / EASTING 56.30 RT / 2787378.57

DATE STARTED 09/27/2013 DATE COMPLETED 10/01/2013 SURFACE ELEVATION 745.4 ft
 EXPLORATION CONTRACTOR GeoSource, LLC DATUM Site Specific
 DRILLER Les Scott DRILL RIG CME 45C GROUND WATER LEVELS:
 HAMMER TYPE Auto HAMMER EFFICIENCY 75.0% AT TIME OF DRILLING 17 ft
 LOGGED BY Robert Halastik CHECKED BY ASN 10/18/2013 AFTER N/A

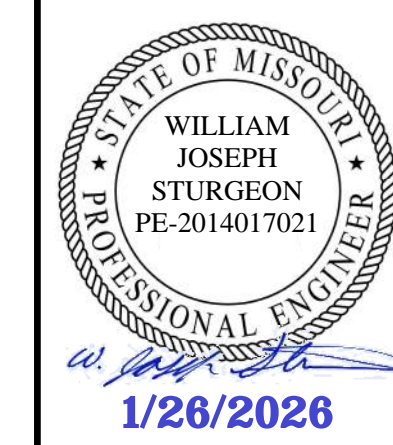
DRILLING METHOD	DEPTH (ft)	SAMPLE TYPE NUMBER	SAMPLE RECOVERY (in) CORE REC % (ROD %)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION (ft)
	0						FILL: Lean clay; light brown and brown; firm; moist; trace plastic, glass, and gravel (CL)	745.4
	4.5				<0.25		SANDY CLAY: Light brown and brown; very soft to soft; slightly moist to moist; trace iron staining, and light gray pockets and seams (CL)	740
	9.0				1.0		LEAN CLAY: Light gray to gray; firm; moist; with iron staining and deposits; trace silt and sand (CL)	735
	13.0						Becoming blue gray and gray with some light brown; with wet seams at 13.0'	730
	17.0						SILTY SAND: Gray; loose; saturated; fine and coarse grained; trace clay; poorly graded (SM)	725
	25.0						LEAN CLAY: Gray; soft to firm; wet; with sand and silt (CL)	720
	28.0						FAT CLAY: Gray; soft to firm; wet; with silty clay seams (CH)	715
	30.5						With sand beginning at 30.5'	710
	35.5						With gravelly clay seam from 35.0' to 35.5'	710
	37.0						SAND: Gray with some brown; loose; medium and coarse grained; poorly graded (SP)	710
	40						GRAVEL: Gray and light brown; medium dense; saturated; fine and medium grained; with coarse grained sand; trace silt and clay; poorly graded (GP)	710

(Continued Next Page)

Released For Construction
 Not to Scale
 Revision: 0.0
 Date: 01/29/2026
 Package: BRD-26-EB70-Manchester

Notes:
 For locations of borings, see Sheet No. B26-02 and Geotechnical Report.

BORING LOGS



DATE PREPARED 01/13/2026	
ROUTE I-70	STATE MO
DISTRICT BR	SHEET NO. B26-45
COUNTRY JACKSON	
JOB NO. J411486D	
CONTRACT ID. 240807-C01	
PROJECT NO.	

BRIDGE NO. A82571

DATE	DESCRIPTION
01/13/26 <td>REV 0 - RFC SUBMITTAL</td>	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		LOG OF BORING		BORING NO. B-4				
PROJECT I-70 over Manchester Bridge		STATION / NORTHING 268+41.50 / 1055833.85		PAGE 2 OF 3				
LOCATION Kansas City, MO		OFFSET / EASTING 56.30 RT / 2787378.57						
DRILLING METHOD	DEPTH (ft)	SAMPLE TYPE NUMBER	SAMPLE RECOVERY (in) CORE REC % (RQD %)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	GRAPHIC LOG	MATERIAL DESCRIPTION Unified (Visual) Classification System	ELEVATION (ft)
CORE BARREL 1.78	40	SPT 8	14	8-11-18 (29)			GRAVEL: Gray and light brown; medium dense; saturated; fine and medium grained; with coarse grained sand; trace silt and clay; poorly graded (GP) (continued) With 3" gravelly silt seam from 40.5' to 40.8'	705 43.0
	45	SPT 9	18	5-5-9 (14)			SAND: Gray with some light brown; medium dense; saturated; fine to medium grained; poorly graded (SP) With fine to medium gravel from 45.0' to 45.4' With highly weathered siltstone seams starting at 45.4'	700 47.0
	50	NQ 1	75% (38%)					695
	51	NQ 2	100% (20%)					690
	55	NQ 3	100% (81%)					685
	60	NQ 4	98% (73%)					680
	65	NQ 5	92% (7%)				SHALE: Gray; moderately hard; with silt laminations; moderately to highly weathered	675
	70	NQ 6	92% (0%)					74.5
75	NQ 7	100% (50%)				SHALE: Gray; moderately hard to hard; silty; moderately to slightly weathered	670	
80	NQ 8	100% (95%)					665	
85	NQ	100%					660	

(Continued Next Page)

HNTB		LOG OF BORING		BORING NO. B-4				
PROJECT I-70 over Manchester Bridge		STATION / NORTHING 268+41.50 / 1055833.85		PAGE 3 OF 3				
LOCATION Kansas City, MO		OFFSET / EASTING 56.30 RT / 2787378.57						
DRILLING METHOD	DEPTH (ft)	SAMPLE TYPE NUMBER	SAMPLE RECOVERY (in) CORE REC % (RQD %)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	GRAPHIC LOG	MATERIAL DESCRIPTION Unified (Visual) Classification System	ELEVATION (ft)
	86.5	NQ 9	100%				SHALE: Gray; moderately hard to hard; silty; moderately to slightly weathered (continued)	90.5
	90	NQ 10	100% (100%)					655
	91.5	NQ 11	100% (44%)				SHALE: Gray; moderately hard; with silt laminations; moderately to highly weathered	650
	95	NQ 12	100% (21%)					645
	95	NQ 13	100% (8%)					645
	100	NQ 14	98% (67%)				SHALE: Gray to dark gray; very hard; calcareous; fossiliferous; slightly weathered	101.2
	102.5	NQ 14	98% (67%)				SHALE: Dark gray to black; moderately hard; moderately weathered	102.5
	104.5	NQ 14	98% (67%)				SHALE: Light blue gray and gray; moderately hard to hard; with a highly weathered seam from 104.3' to 104.5'; moderately weathered	104.5
	105	NQ 15	95% (60%)				SHALE: Light gray to gray; very hard; with limestone nodules from 104.5' to 109.0'; slightly weathered	640
	107.3	NQ 15	95% (60%)				Becoming light blue gray at 107.3'; with highly weathered seam from 107.3' to 107.6'	640
	110.0	NQ 15	95% (60%)				With oil in shale from 109.2' to 110.0'	110.0
Boring tremie backfilled with bentonite cement mix on 10/1/2013 Bottom of borehole at 110.0 feet.								

Released For Construction
Not to Scale
Revision: 0.0
Date: 01/29/2026
Package: BRD-26-EB70-Manchester

Notes:
For locations of borings, see Sheet No. B26-02 and Geotechnical Report.

BORING LOGS

