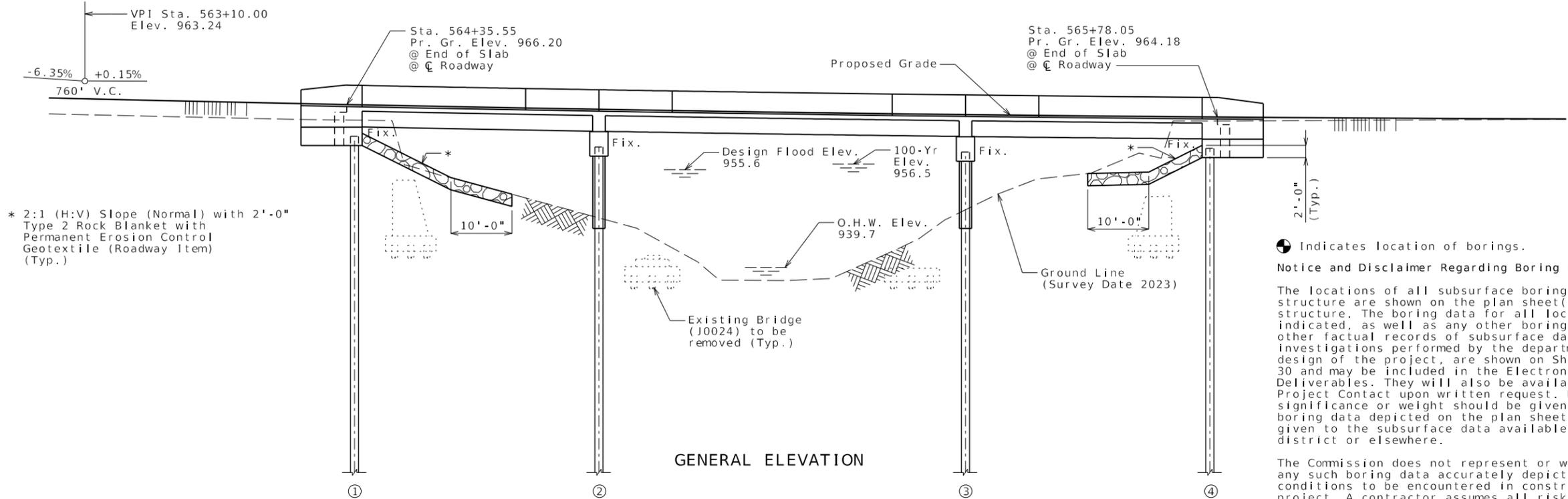


(40' - 60' - 40') SD-CL COMPOSITE WIDE FLANGE BEAM SPANS

SEC/SUR 30 & 31 TWP 66N RGE 31W



DATE PREPARED	
05/22/2024	
ROUTE	STATE
46	MO
DISTRICT	SHEET NO.
BR	1
COUNTY	
WORTH	
JOB NO.	
JNW0020	
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO.	
A9467	

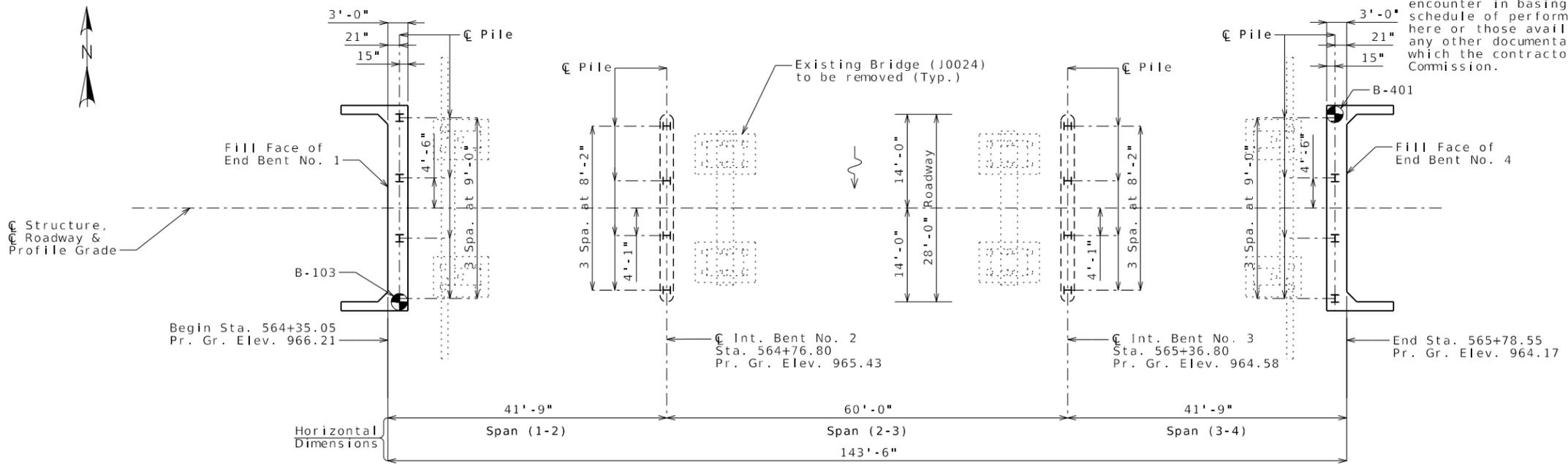


Indicates location of borings.

Notice and Disclaimer Regarding Boring Log Data

The locations of all subsurface borings for this structure are shown on the plan sheet(s) for this structure. The boring data for all locations indicated, as well as any other boring logs or other factual records of subsurface data and investigations performed by the department for the design of the project, are shown on Sheets No. 29 & 30 and may be included in the Electronic Bridge Deliverables. They will also be available from the Project Contact upon written request. No greater significance or weight should be given to the boring data depicted on the plan sheets than is given to the subsurface data available from the district or elsewhere.

The Commission does not represent or warrant that any such boring data accurately depicts the conditions to be encountered in constructing this project. A contractor assumes all risks it may encounter in basing its bid prices, time or schedule of performance on the boring data depicted here or those available from the district, or on any other documentation not expressly warranted, which the contractor may obtain from the Commission.



CPBM #100(HORIZONTAL & VERTICAL)
 (SET) 5/8" REBAR WITH ALUMINUM "TREKK CONTROL" CAP, ON THE SOUTH SIDE OF HIGHWAY 46, WEST OF THE WEST END OF BRIDGE #J0024 OVER MARLOW CREEK; LOCATED APPROXIMATELY 31.5' SOUTH OF THE SOUTHERN EDGE OF ASPHALT, AND APPROXIMATELY 570' WEST OF THE WEST END OF THE BRIDGE DECK.
 N: 1,572,781.85
 E: 2,802,997.74
 EL: 999.33

BM #108(VERTICAL ONLY)
 (SET) STAPLED 60D NAIL IN THE W. FACE OF A 12" WALNUT TREE ON THE WEST SIDE OF MARLOW CREEK AND SOUTH SIDE OF HIGHWAY, LOCATED APPROXIMATELY DUE SOUTH OF THE WEST END OF BRIDGE AND APPROXIMATELY 8' SSE OF AN "ALLTELL" UTILITY MARKER SIGN.
 N: 1,572,750.44
 E: 2,803,551.59
 EL: 956.49

BRIDGE: ROUTE 46 OVER MARLOWE CREEK
 ROUTE 46 FROM ROUTE 169 TO ROUTE 2
 ABOUT 2.4 MILES WEST OF ROUTE 169
 STATION 564+35.55

Detailed: Oct. 2024
 Checked: Oct. 2024

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

Sheet No. 1 of 30

DESCRIPTION

DATE

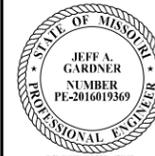
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION



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 Kansas City, MO 64131
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 Fax: (816) 874-4475
 www.trekkdesigngroup.com
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DATE PREPARED
12/3/2024

ROUTE 46 STATE MO

DISTRICT BR SHEET NO. 3

COUNTY WORTH

JOB NO. JNW0020

CONTRACT ID.

PROJECT NO.

BRIDGE NO. A9467

DESCRIPTION	DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

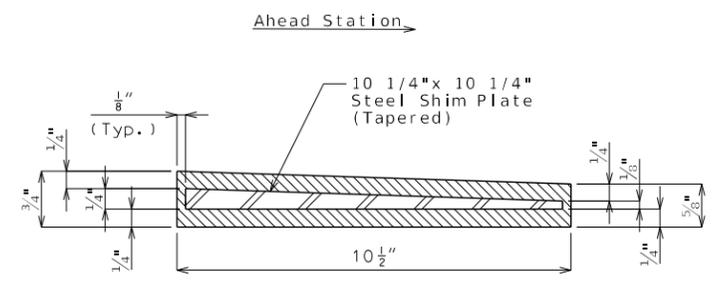
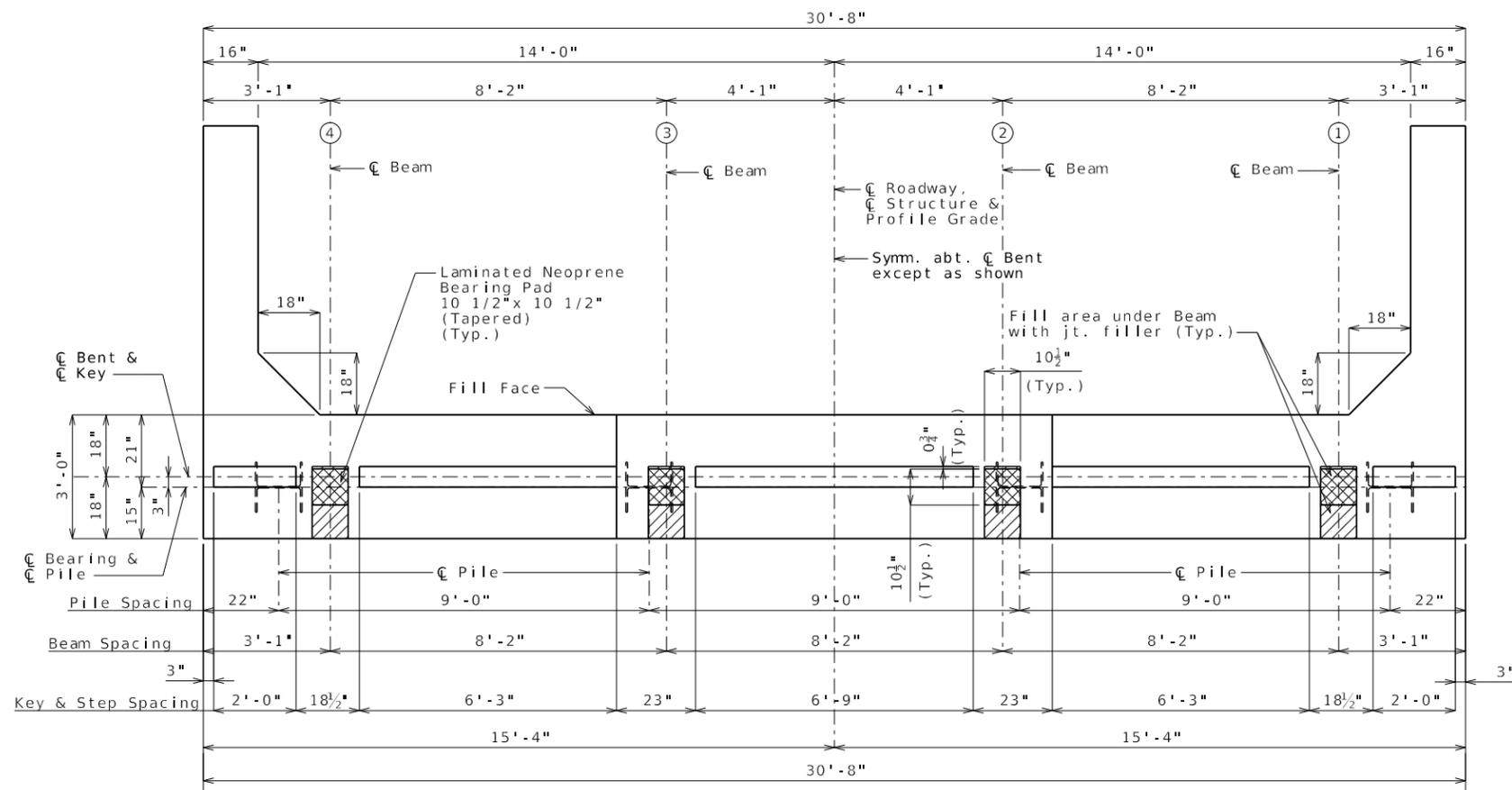
105 WEST CAPITOL JEFFERSON CITY, MO 65102

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

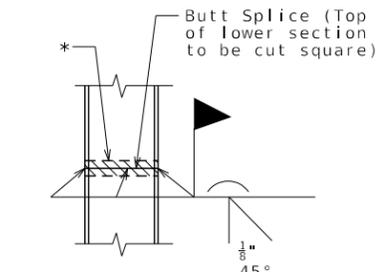
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Fax: (816) 874-4475
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TREKK DESIGN GROUP, LLC

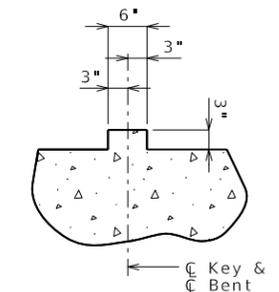


SECTION THRU LAMINATED NEOPRENE BEARING PAD



STEEL PILE SPLICE (If required)

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



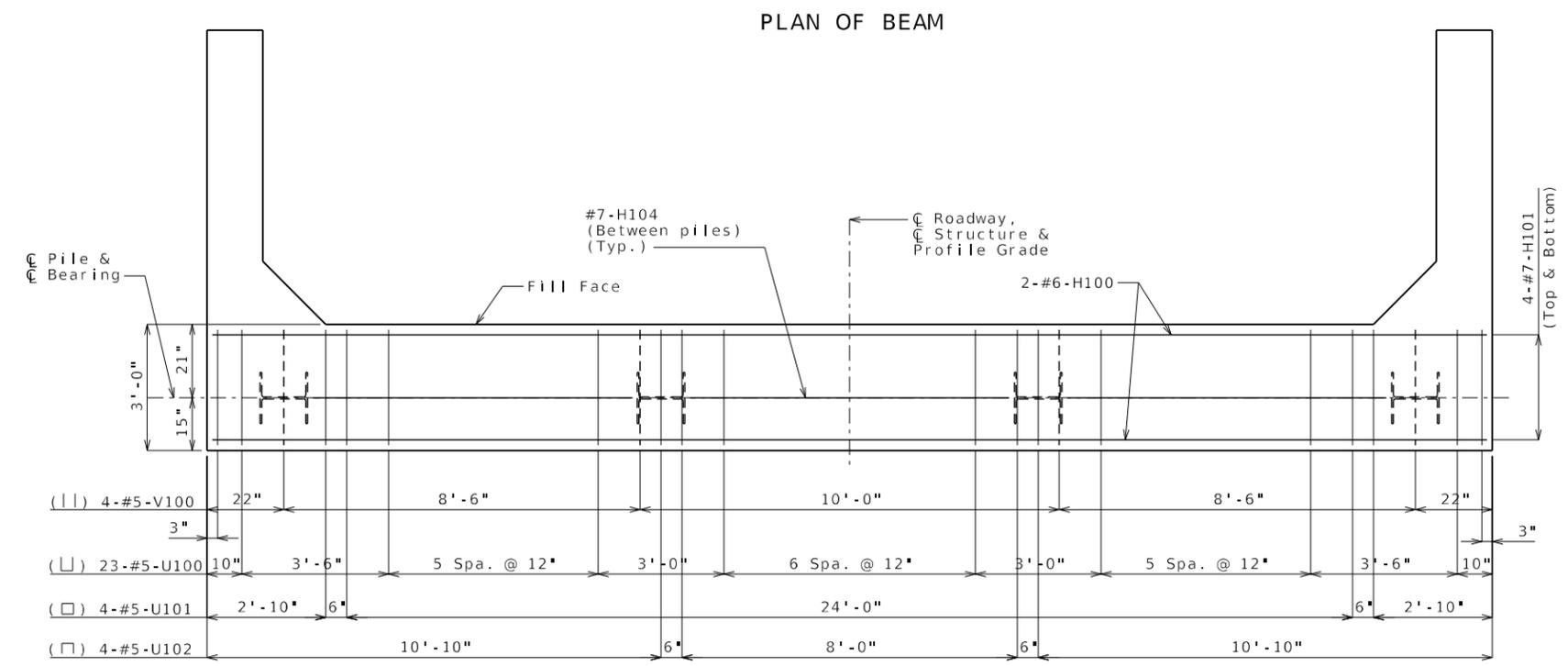
SECTION THRU KEY

Item	Quantity
Class 1 Excavation	cu. yard 35
Galvanized Structural Steel Piles (14 in.)	linear foot 352
Pile Point Reinforcement	each 4
Class B Concrete (Substructure)	cu. yard 13.7

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

General Notes:

- The concrete diaphragm at the end bents shall be poured a minimum of 12 hours before the slab is poured.
- Work this sheet with Sheets No. 4 & 5.
- All U bars and pairs of V bars shall be placed parallel to centerline of roadway.
- Reinforcing steel shall be shifted to clear piles. U bars shall clear piles by at least 1 1/2 inches.



PLAN OF BEAM SHOWING REINFORCEMENT
Keys not shown for clarity

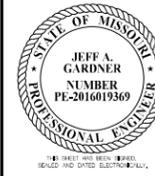
DETAILS OF END BENT NO. 1

Detailed: Oct. 2024
Checked: Oct. 2024

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

Sheet No. 3 of 30

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DATE PREPARED
12/3/2024
ROUTE 46 STATE MO
DISTRICT BR SHEET NO. 4

COUNTY
WORTH
JOB NO.
JNW0020
CONTRACT ID.

PROJECT NO.
BRIDGE NO.
A9467

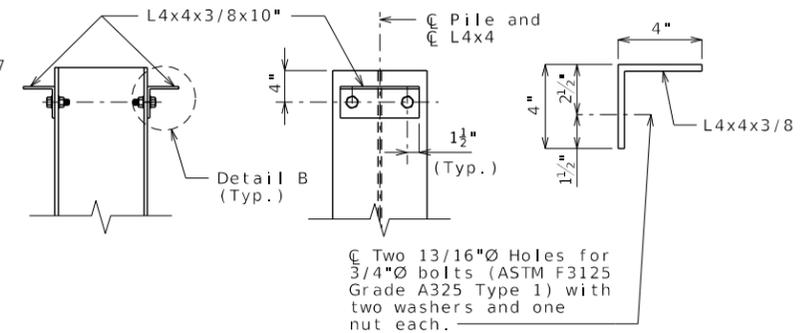
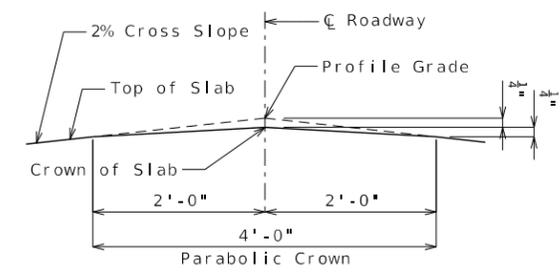
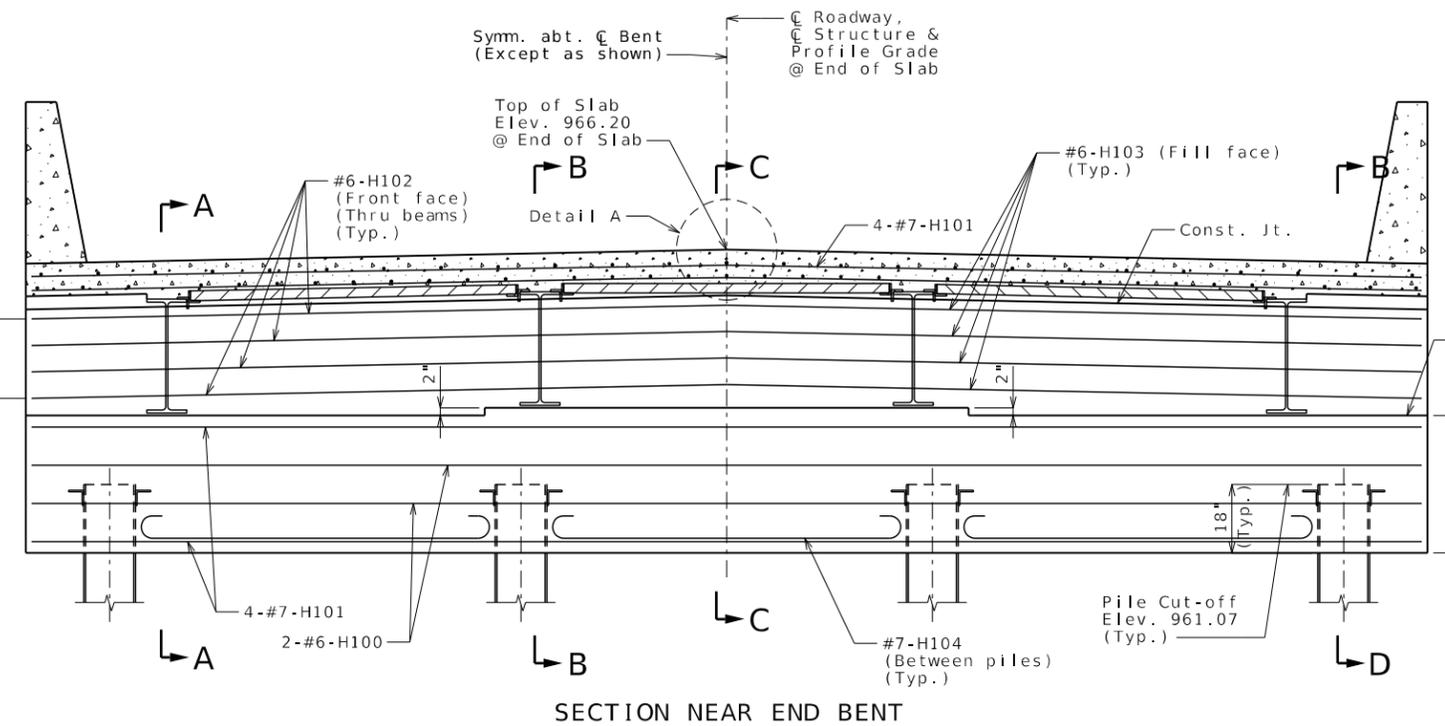
DESCRIPTION	DATE

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

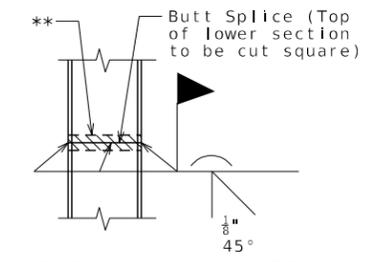
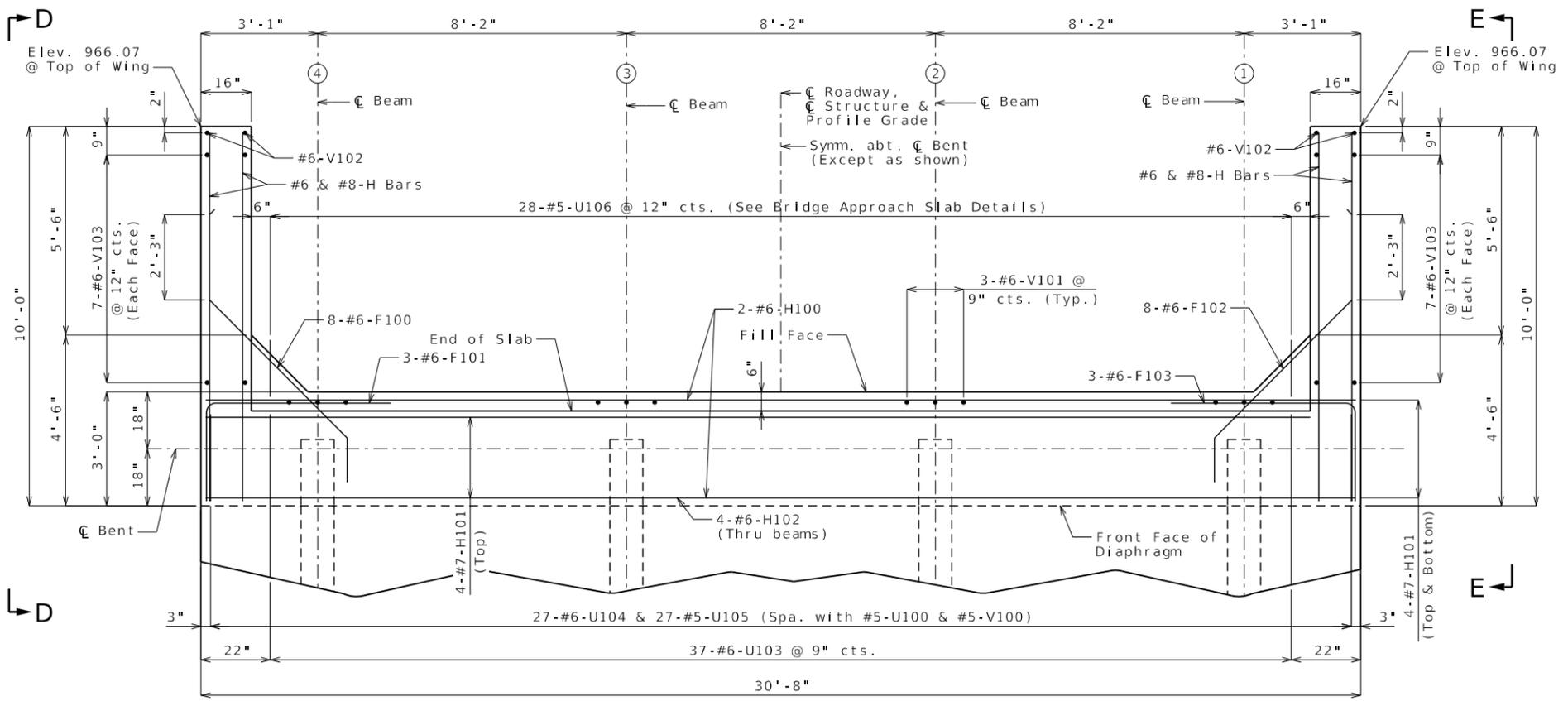
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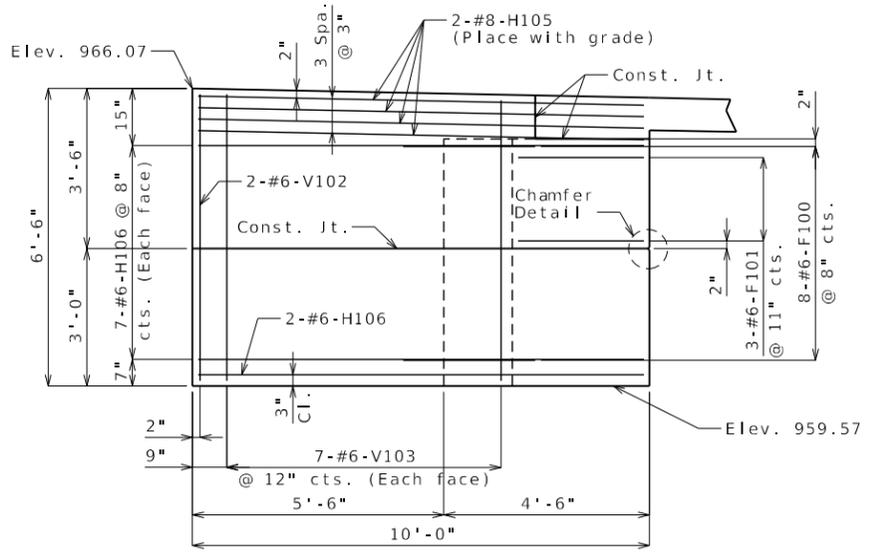
Angles shall be coated with a minimum of two coats of non-aluminum epoxy mastic primer to provide a dry film thickness of 4 mils minimum, 8 mils maximum, or galvanized in accordance with Sec 1081. Bolts, washers and nuts shall be galvanized in accordance with AASHTO M 232 (ASTM A153), Class C.



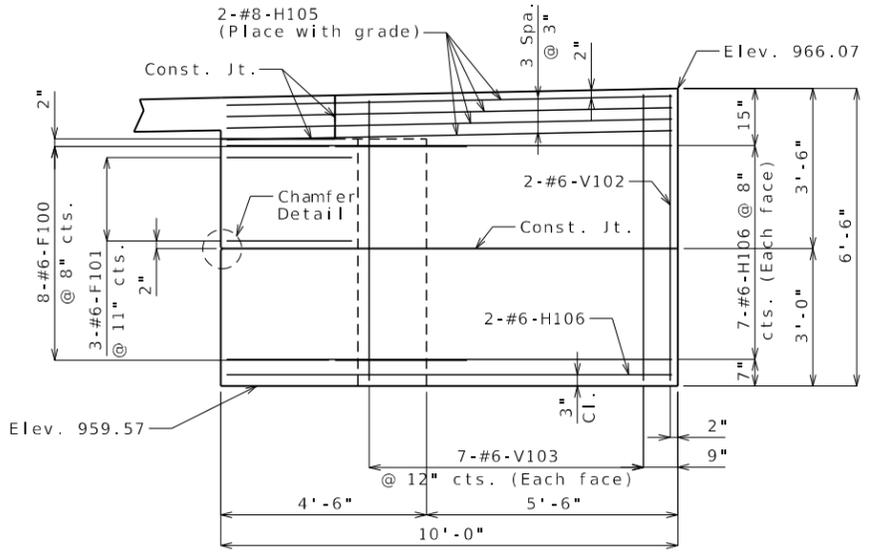
** Galvanizing material shall be omitted or removed one inch clear of weld locations in accordance with Sec 702.

General Notes:
Work this sheet with Sheets No. 3 & 5.
For Sections A-A, B-B, C-C & D-D and Elevations E-E & F-F, see Sheet No. 5.
The #6-F100 and #6-F102 bars shall be bent in the field to clear Beams.
The U bars shall be placed parallel to centerline of roadway.
All concrete in the end bent above top of beam and below top of slab shall be Class B-2.
For details of vertical drain at end bents, see Sheet No. 6.
For details of bridge approach slab, see Sheet No. 24.

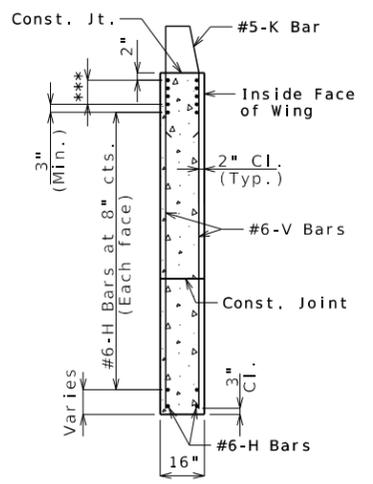
Detailed: Oct. 2024
Checked: Oct. 2024



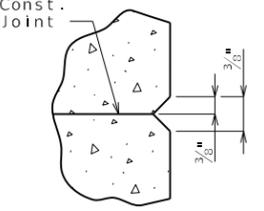
ELEVATION D-D



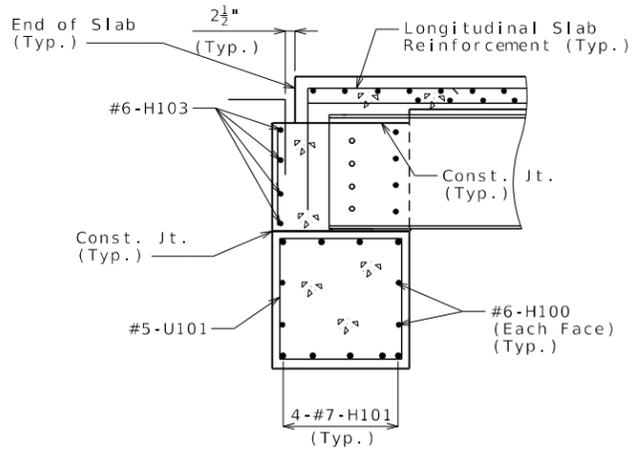
ELEVATION E-E



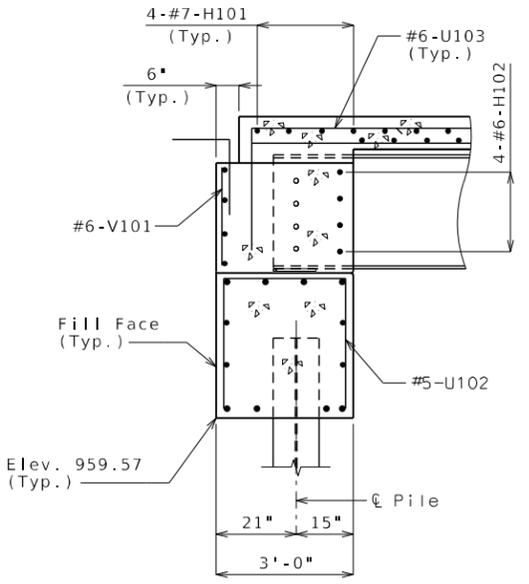
TYPICAL SECTION THRU WING
*** #8-H Bars at 3" cts. (Each face) (Place with grade)



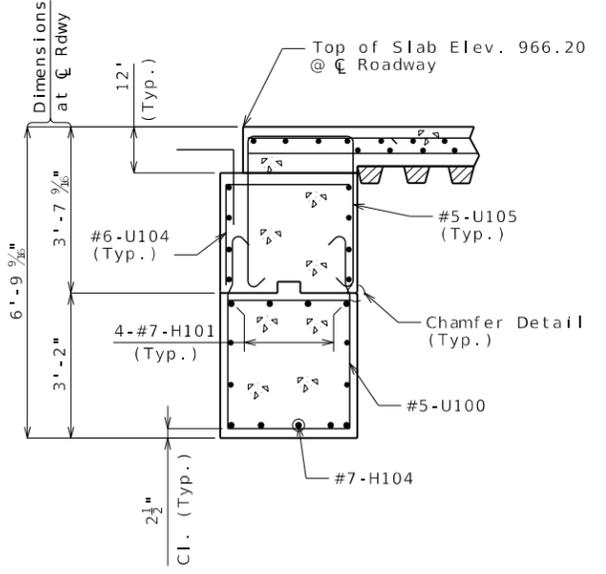
CHAMFER DETAIL



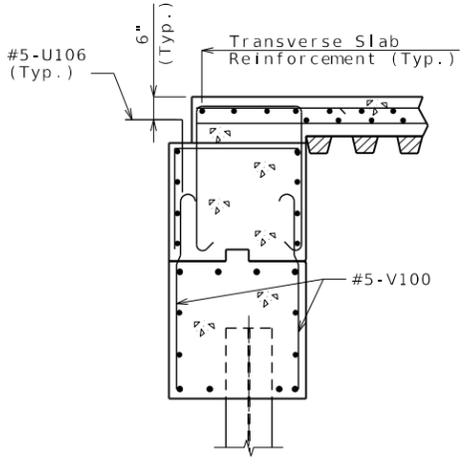
SECTION A-A



SECTION B-B



SECTION C-C



SECTION D-D

DETAILS OF END BENT NO. 1

Detailed: Oct. 2024
Checked: Oct. 2024

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

Sheet No. 5 of 30

General Notes:

Work this sheet with Sheets No. 4 & 5.

For location of Sections A-A, B-B, C-C & D-D and Elevations E-E & F-F, see Sheet No. 4.

For details and reinforcement of the Type D Barrier, see Sheets No. 22, & 23.



DATE PREPARED 12/3/2024	
ROUTE 46	STATE MO
DISTRICT BR	SHEET NO. 5
COUNTY WORTH	
JOB NO. JNW0020	
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO. A9467	

DATE	DESCRIPTION

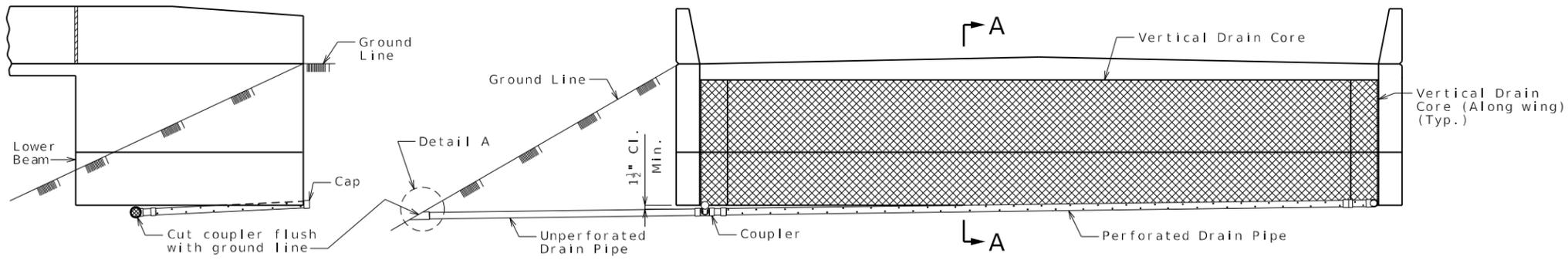
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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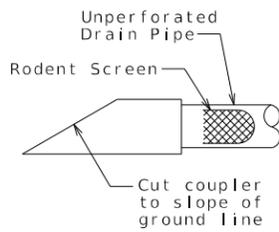
Microsoft Cert. of Authority 202010300

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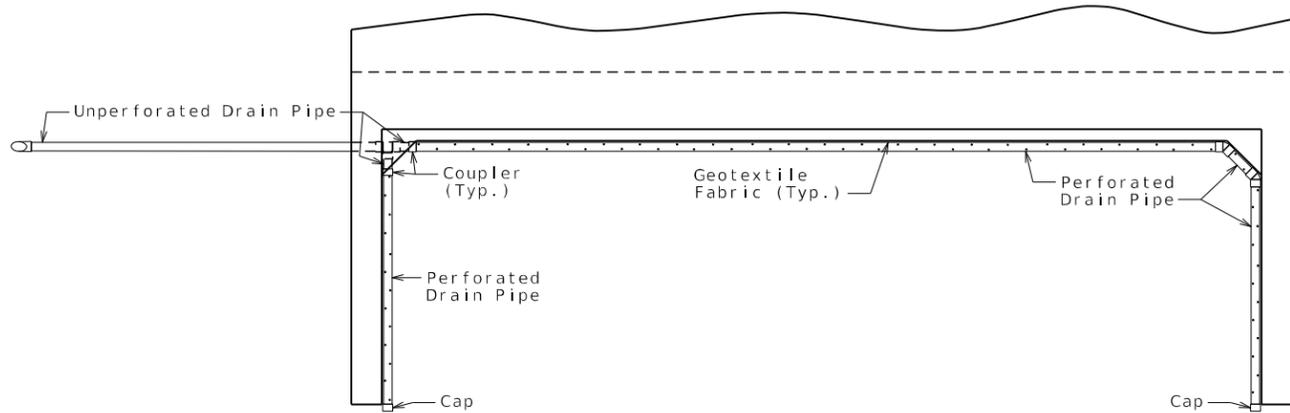


ELEVATION OF WING

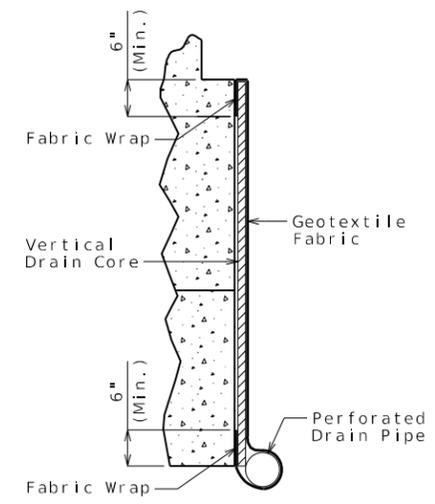
ELEVATION OF END BENT



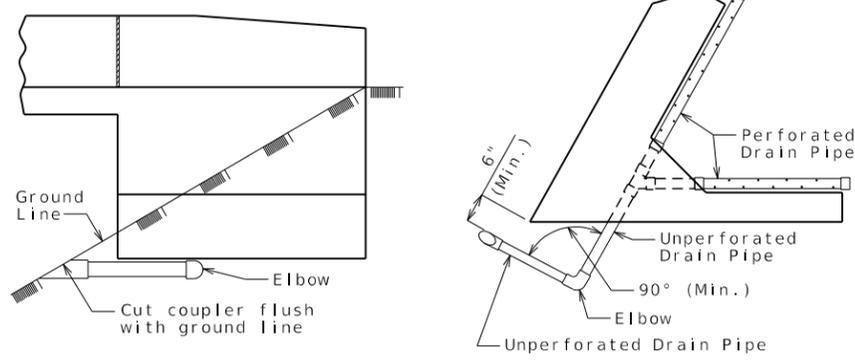
DETAIL A



PLAN OF END BENT



PART SECTION A-A
(Section thru wing similar)



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

VERTICAL DRAIN AT END BENTS
(Squared end bent shown, skewed end bent similar)

General Notes:

- All drain pipe shall be sloped 1 to 2 percent.
- Drain pipe may be either 6-inch diameter corrugated metallic-coated steel pipe underdrain, 4-inch diameter corrugated polyvinyl chloride (PVC) drain pipe, or 4-inch diameter corrugated polyethylene (PE) drain pipe.
- Drain pipe shall be placed at fill face of end bent and inside face of wings. The pipe shall slope to lowest grade of ground line, also missing the lower beam of end bent by a minimum of 1 1/2 inches.
- Perforated pipe shall be placed at fill face side and inside face of wings at the bottom of end bent and plain pipe shall be used where the vertical drain ends to the exit at ground line.



DATE PREPARED 12/3/2024	
ROUTE 46	STATE MO
DISTRICT BR	SHEET NO. 6
COUNTY WORTH	
JOB NO. JNW0020	
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO. A9467	

DESCRIPTION	DATE

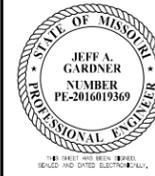
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ROUTE 46 STATE MO
DISTRICT BR SHEET NO. 7

COUNTY
WORTH

JOB NO.
JNW0020

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9467

DATE	DESCRIPTION

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

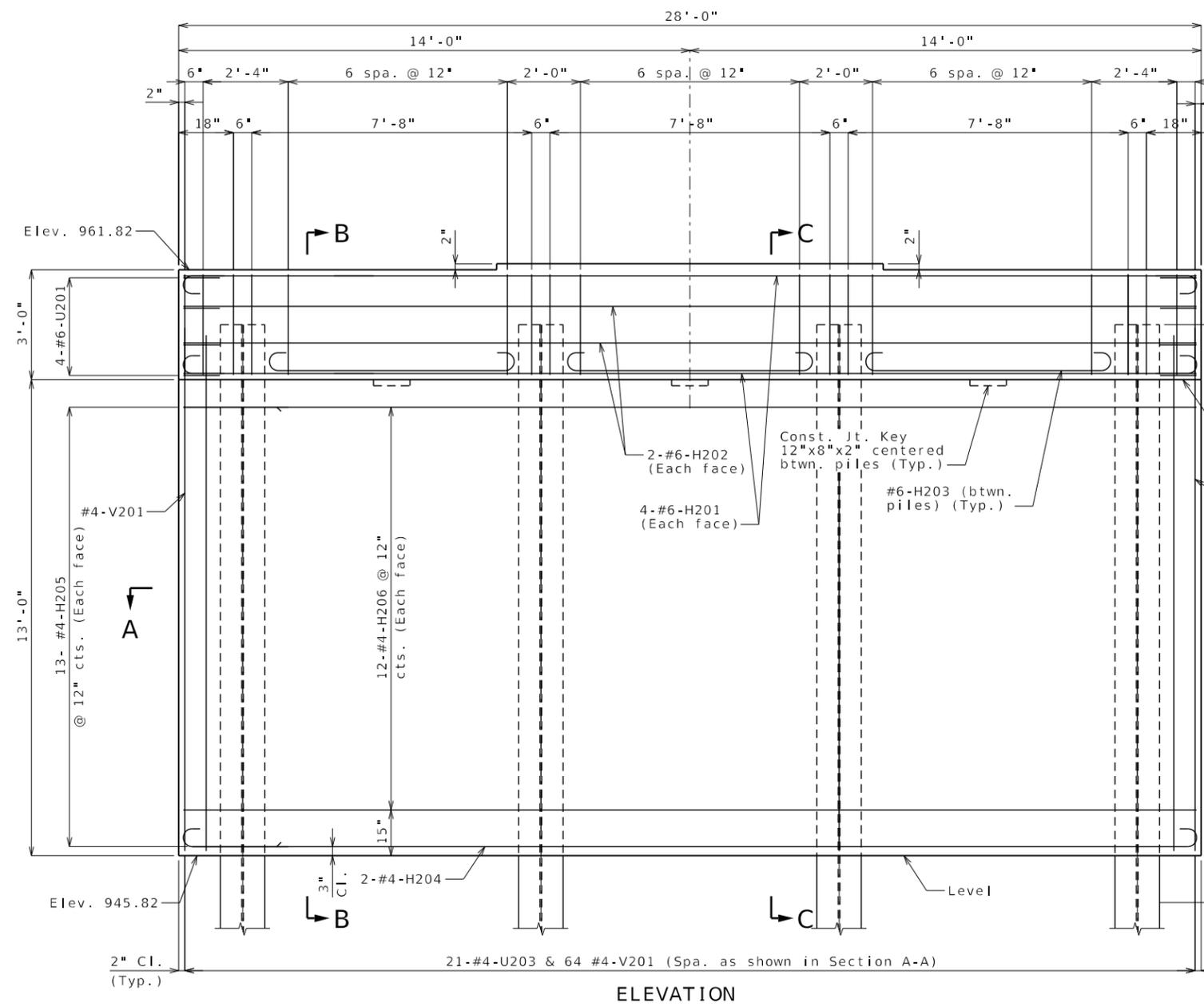
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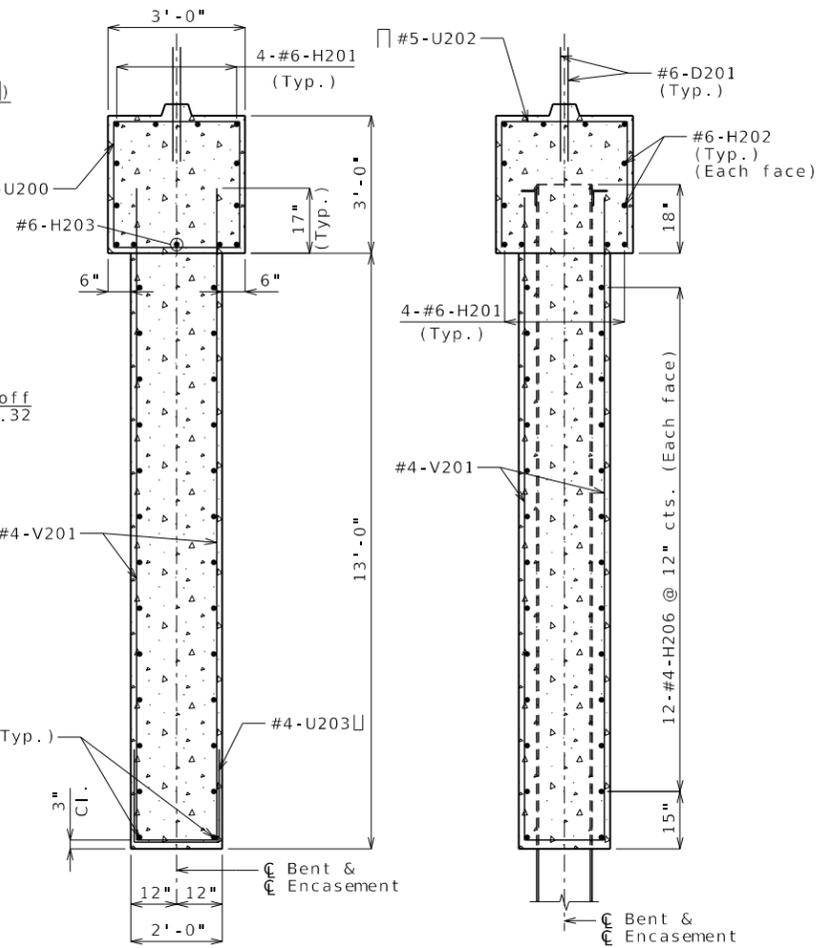
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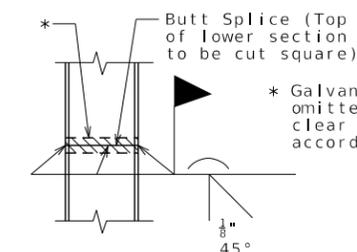


ELEVATION



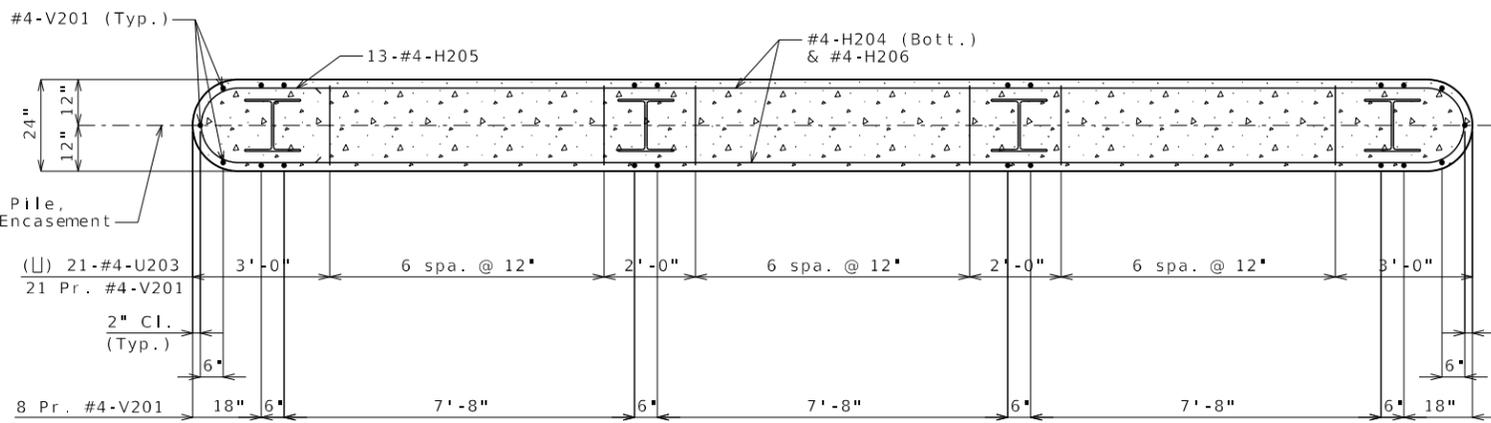
SECTION B-B

SECTION C-C



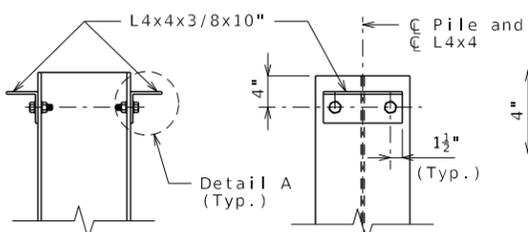
STEEL PILE SPLICE
(If required)

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

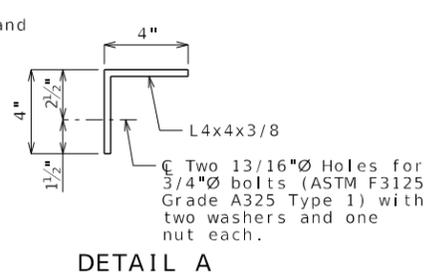


SECTION A-A

DETAILS OF INTERMEDIATE BENT NO. 2



DETAILS OF HP PILE ANCHORS



DETAIL A

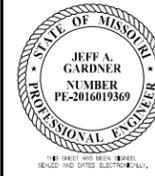
Angles shall be coated with a minimum of two coats of non-aluminum epoxy mastic primer to provide a dry film thickness of 4 mils minimum, 8 mils maximum, or galvanized in accordance with Sec 1081. Bolts, washers and nuts shall be galvanized in accordance with AASHTO M 232 (ASTM A153), Class C.

Note: Work this sheet with Sheet No. 8.

Detailed: Oct. 2024
Checked: Oct. 2024

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

Sheet No. 7 of 30



DATE PREPARED
12/3/2024

ROUTE 46 STATE MO

DISTRICT BR SHEET NO. 9

COUNTY WORTH

JOB NO. JNW0020

CONTRACT ID.

PROJECT NO.

BRIDGE NO. A9467

DESCRIPTION

DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

105 WEST CAPITOL JEFFERSON CITY, MO 65102

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

Missouri Dept. of Transportation Authority 202010300

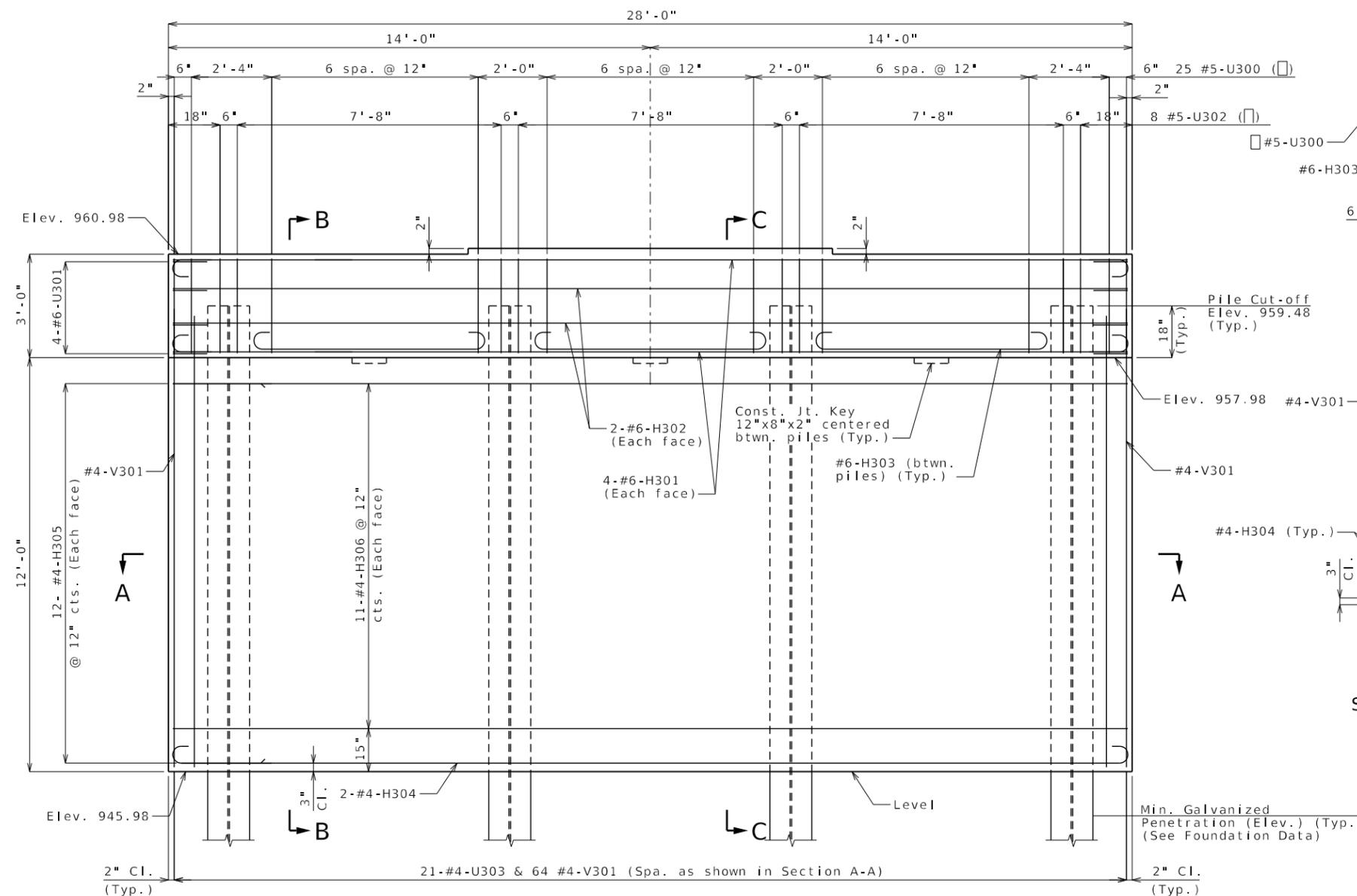
1411 East 104th St. Kansas City, MO 64131

Tel: (816) 874-4455 Fax: (816) 874-4675

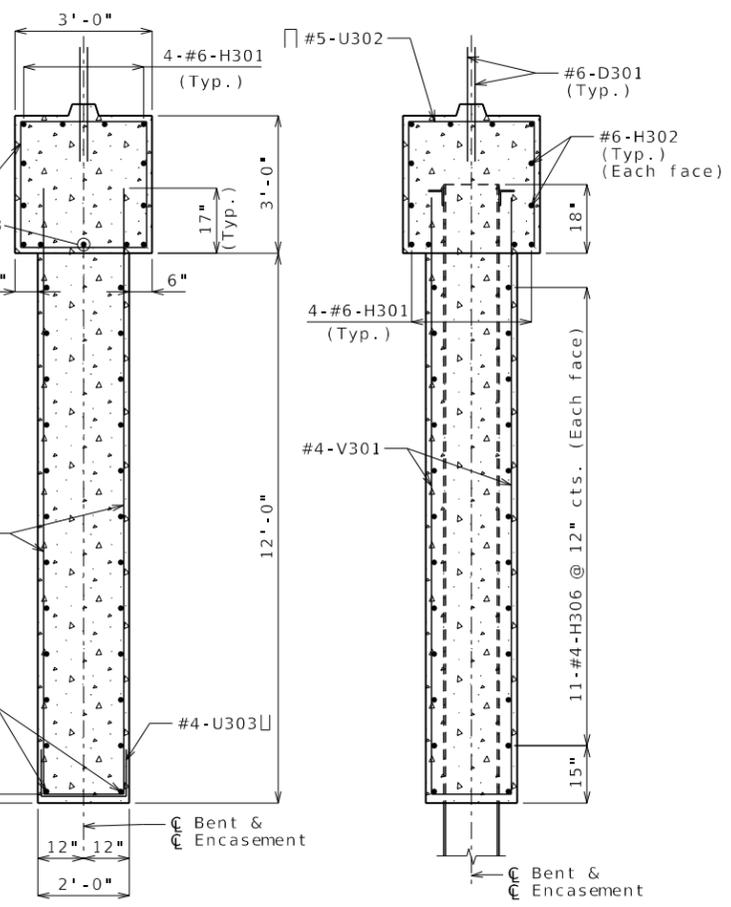
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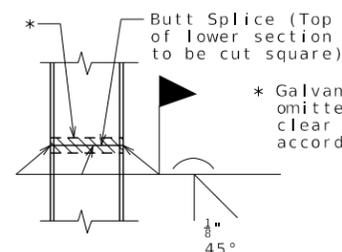


ELEVATION

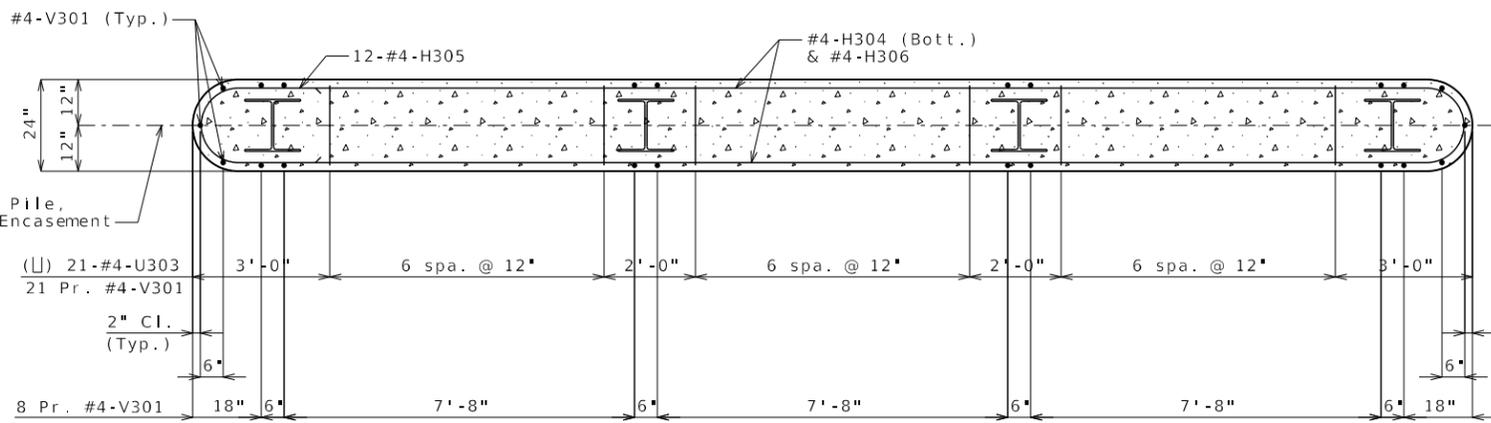


SECTION B-B

SECTION C-C

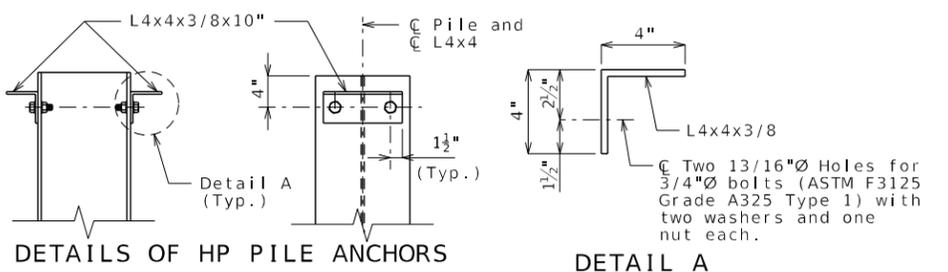


STEEL PILE SPLICE (If required)



SECTION A-A

DETAILS OF INTERMEDIATE BENT NO. 3



DETAILS OF HP PILE ANCHORS

DETAIL A

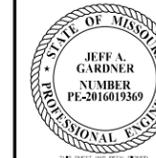
Angles shall be coated with a minimum of two coats of non-aluminum epoxy mastic primer to provide a dry film thickness of 4 mils minimum, 8 mils maximum, or galvanized in accordance with Sec 1081. Bolts, washers and nuts shall be galvanized in accordance with AASHTO M 232 (ASTM A153), Class C.

Note: Work this sheet with Sheet No. 10.

Detailed: Oct. 2024
Checked: Oct. 2024

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

Sheet No. 9 of 30



DATE PREPARED
12/3/2024

ROUTE 46 STATE MO

DISTRICT BR SHEET NO. 10

COUNTY WORTH

JOB NO. JNW0020

CONTRACT ID.

PROJECT NO.

BRIDGE NO. A9467

DESCRIPTION

DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

105 WEST CAPITOL JEFFERSON CITY, MO 65102

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

Missouri Dept. of Transportation Authority 202010300

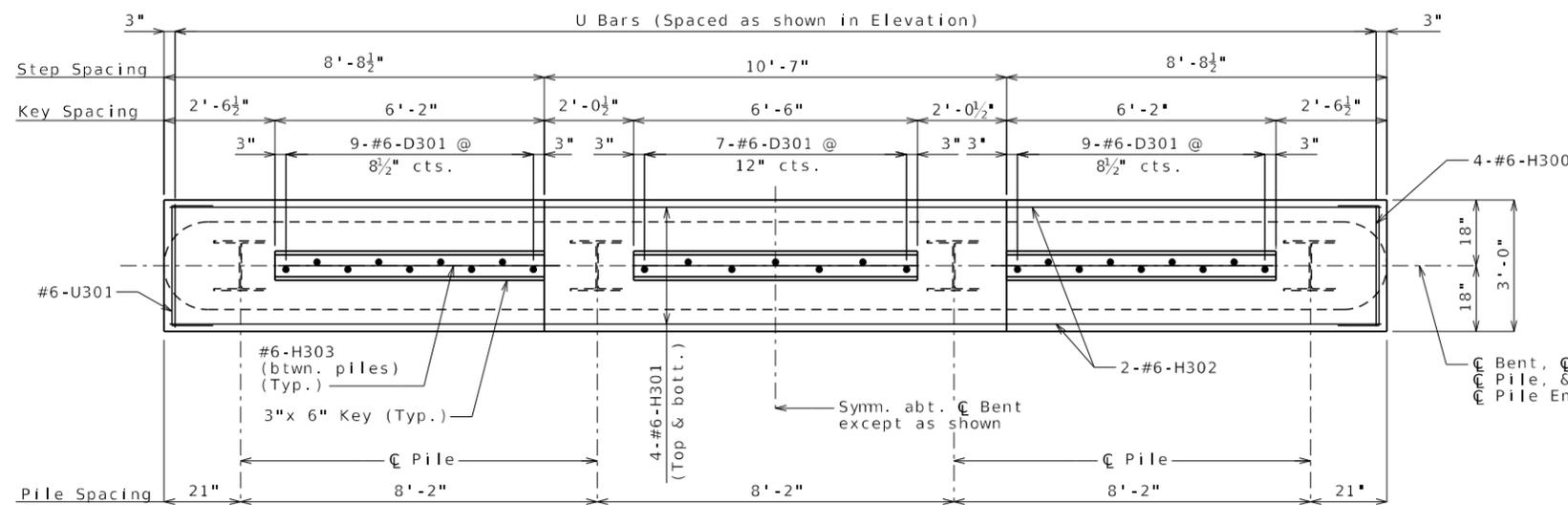
1411 East 104th St. Kansas City, MO 64131

Tel: (816) 874-7400 Fax: (816) 874-7475

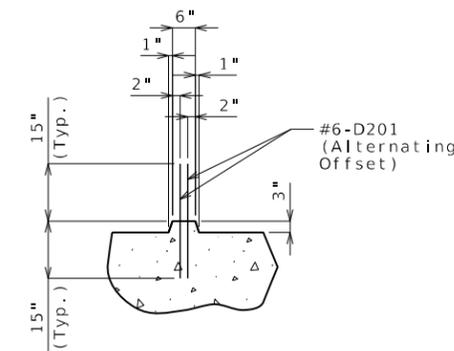
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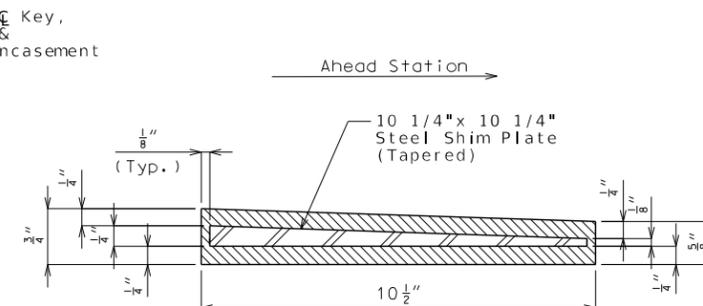
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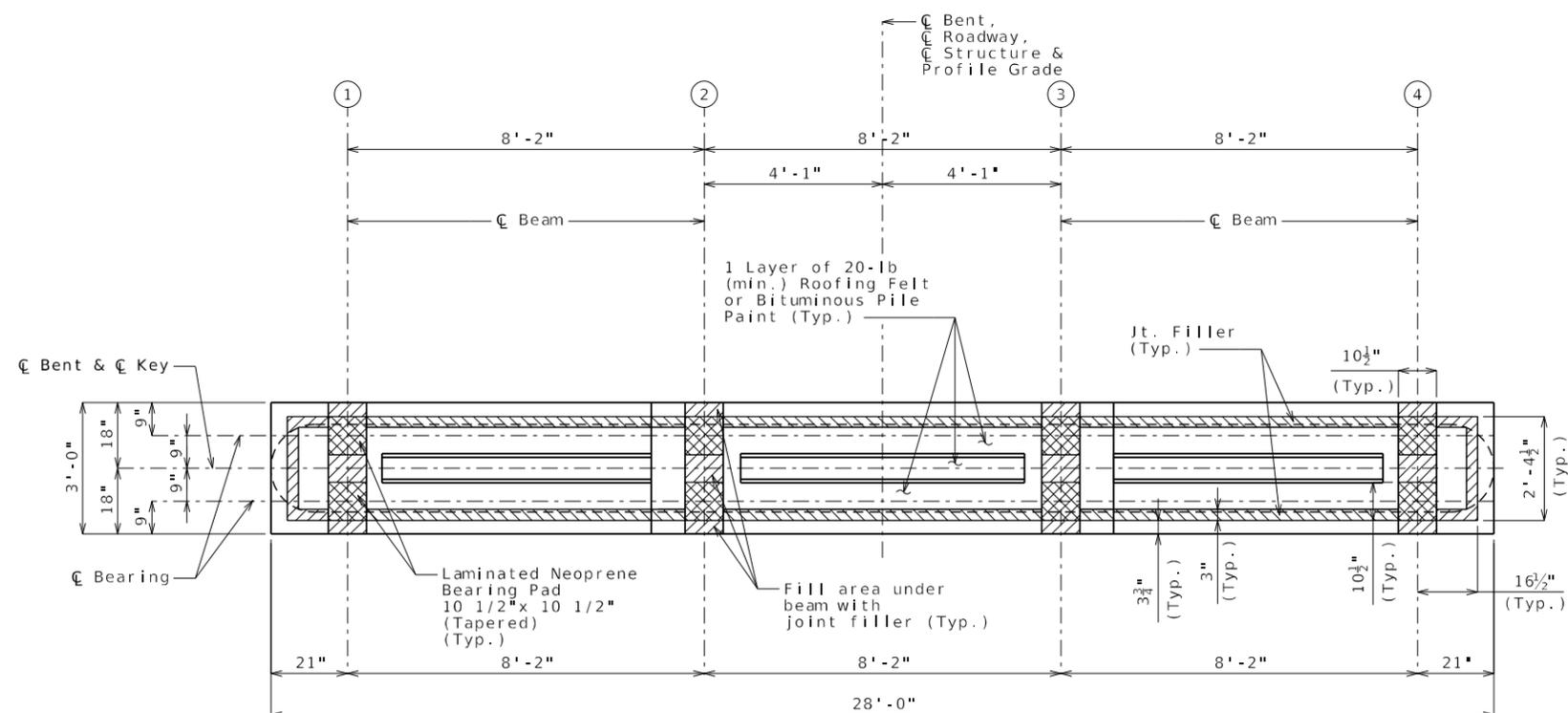
PLAN SHOWING REINFORCEMENT



SECTION THRU KEY



SECTION THRU LAMINATED NEOPRENE BEARING PAD



PLAN OF BEAM

Substructure Quantity Table for Bent No. 3

Item	Quantity
Class 1 Excavation	15
Galvanized Structural Steel Piles (14 in)	linear foot 340
Pile Wave Analysis	each 1
Pile Point Reinforcement	each 4
Class B Concrete (Substructure)	cu. yard 34.1
Reinforcing Steel (Bridges)	pound 2,280

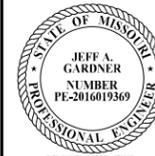
Note: Work this sheet with Sheet No. 9.

DETAILS OF INTERMEDIATE BENT NO. 3

Detailed: Oct. 2024
Checked: Oct. 2024

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

Sheet No. 10 of 30



DATE PREPARED
12/3/2024

ROUTE 46 STATE MO

DISTRICT BR SHEET NO. 11

COUNTY WORTH

JOB NO. JNW0020

CONTRACT ID.

PROJECT NO.

BRIDGE NO. A9467

DESCRIPTION	DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

105 WEST CAPITOL JEFFERSON CITY, MO 65102

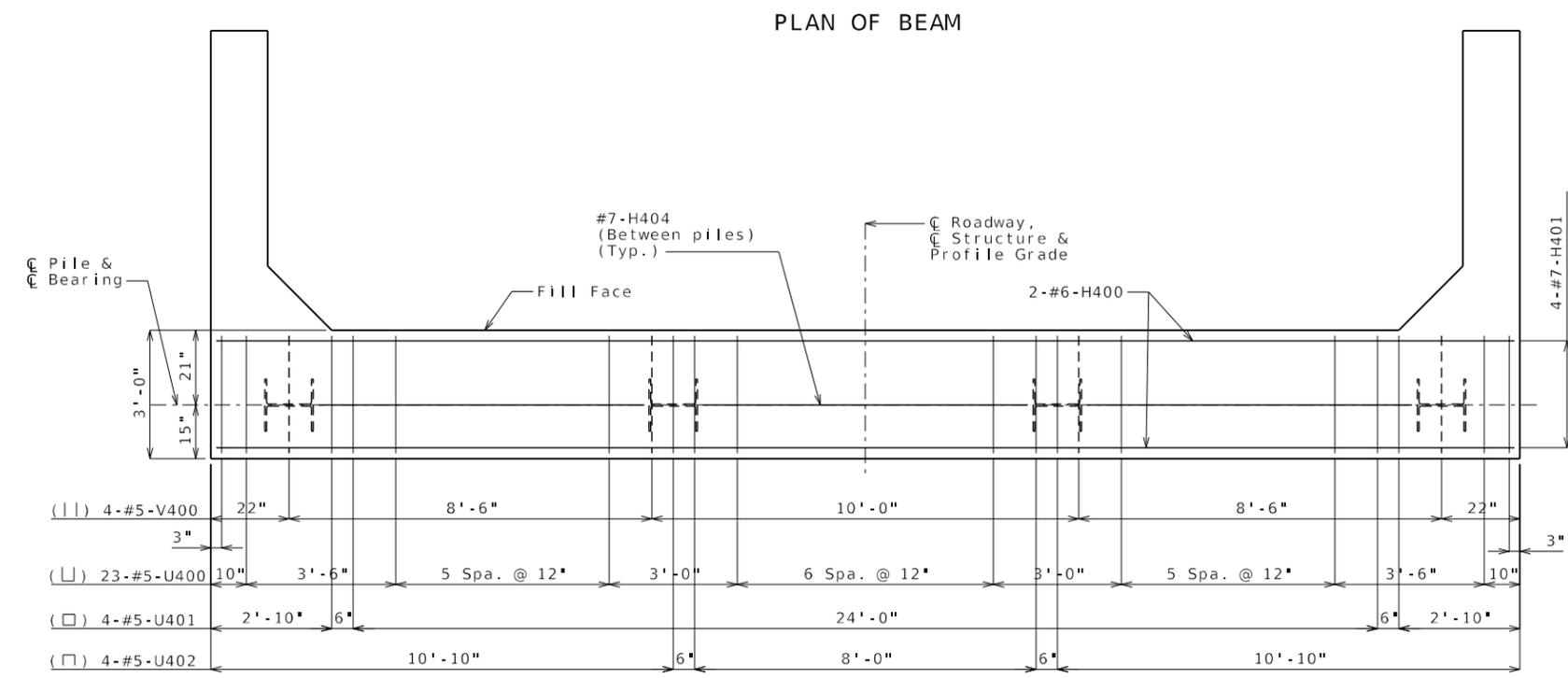
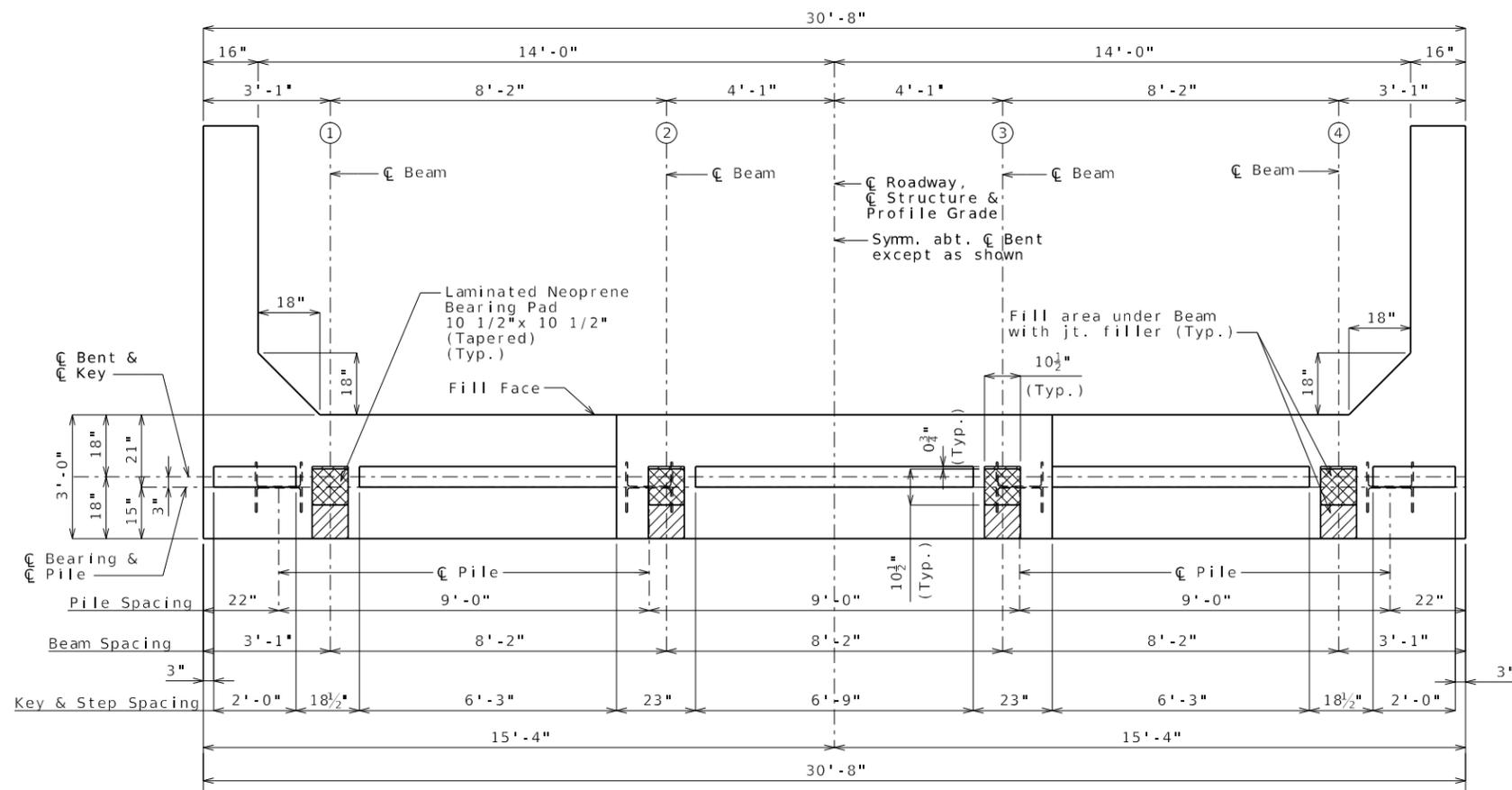
1-888-ASK-MODOT (1-888-275-6636)

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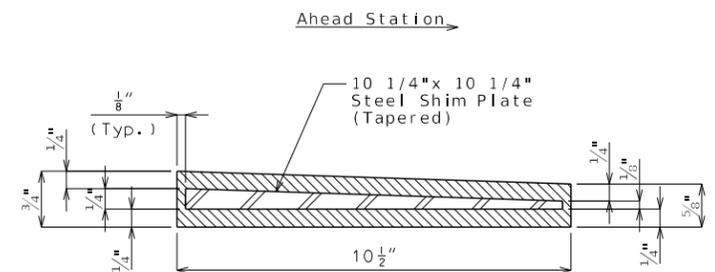


PLAN OF BEAM SHOWING REINFORCEMENT
Keys not shown for clarity

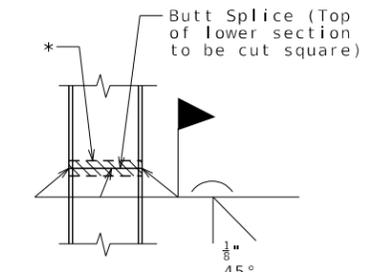
DETAILS OF END BENT NO. 4

Detailed: Oct. 2024
Checked: Oct. 2024

Note: This drawing is not to scale. Follow dimensions. Sheet No. 11 of 30

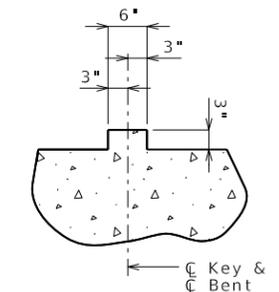


SECTION THRU LAMINATED NEOPRENE BEARING PAD



STEEL PILE SPLICE
(If required)

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



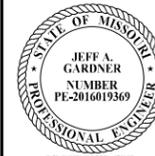
SECTION THRU KEY

Item	Quantity
Class B Concrete (Substructure)	cu. yard 13.7
Galvanized Structural Steel Piles (14 in)	linear foot 340
Pile Point Reinforcement	each 4
Class 1 Excavation	cu. yard 35

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

General Notes:

- The concrete diaphragm at the end bents shall be poured a minimum of 12 hours before the slab is poured.
- Work this sheet with Sheets No. 12 & 13.
- All U bars and pairs of V bars shall be placed parallel to centerline of roadway.
- Reinforcing steel shall be shifted to clear piles. U bars shall clear piles by at least 1 1/2 inches.



DATE PREPARED
12/3/2024
ROUTE 46 STATE MO
DISTRICT BR SHEET NO. 12

COUNTY
WORTH
JOB NO.
JNW0020
CONTRACT ID.

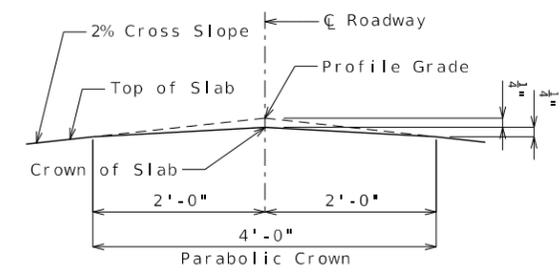
PROJECT NO.
BRIDGE NO.
A9467

DESCRIPTION	DATE

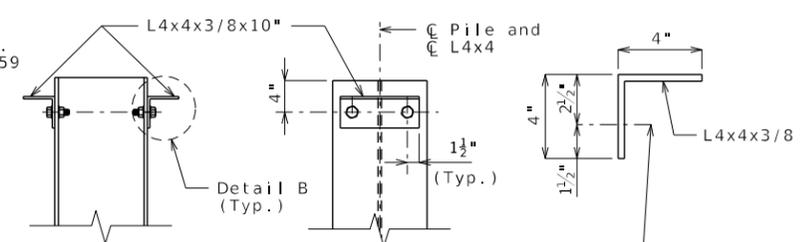
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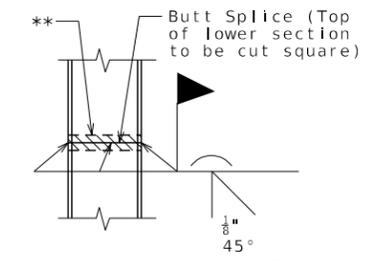


DETAIL A



DETAILS OF HP PILE ANCHORS

Angles shall be coated with a minimum of two coats of non-aluminum epoxy mastic primer to provide a dry film thickness of 4 mils minimum, 8 mils maximum, or galvanized in accordance with Sec 1081. Bolts, washers and nuts shall be galvanized in accordance with AASHTO M 232 (ASTM A153), Class C.

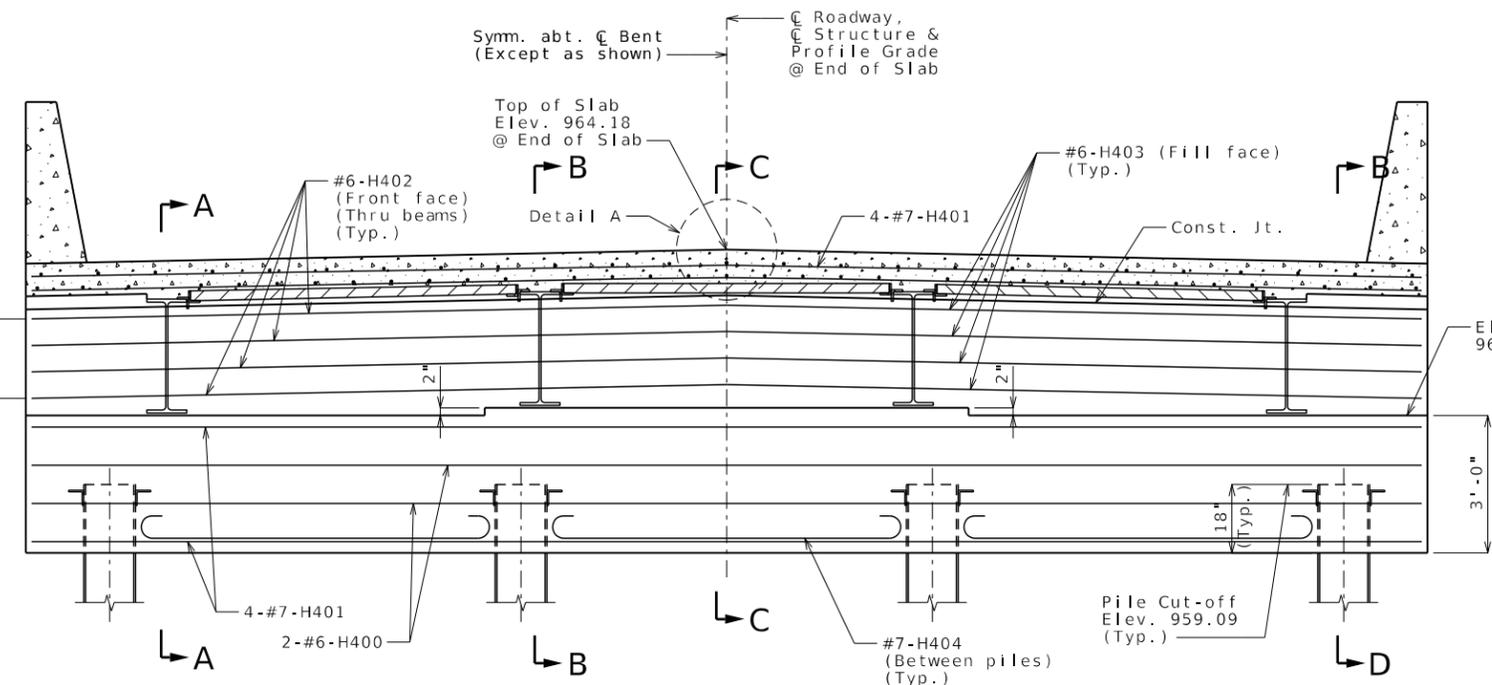


STEEL PILE SPLICE (If required)

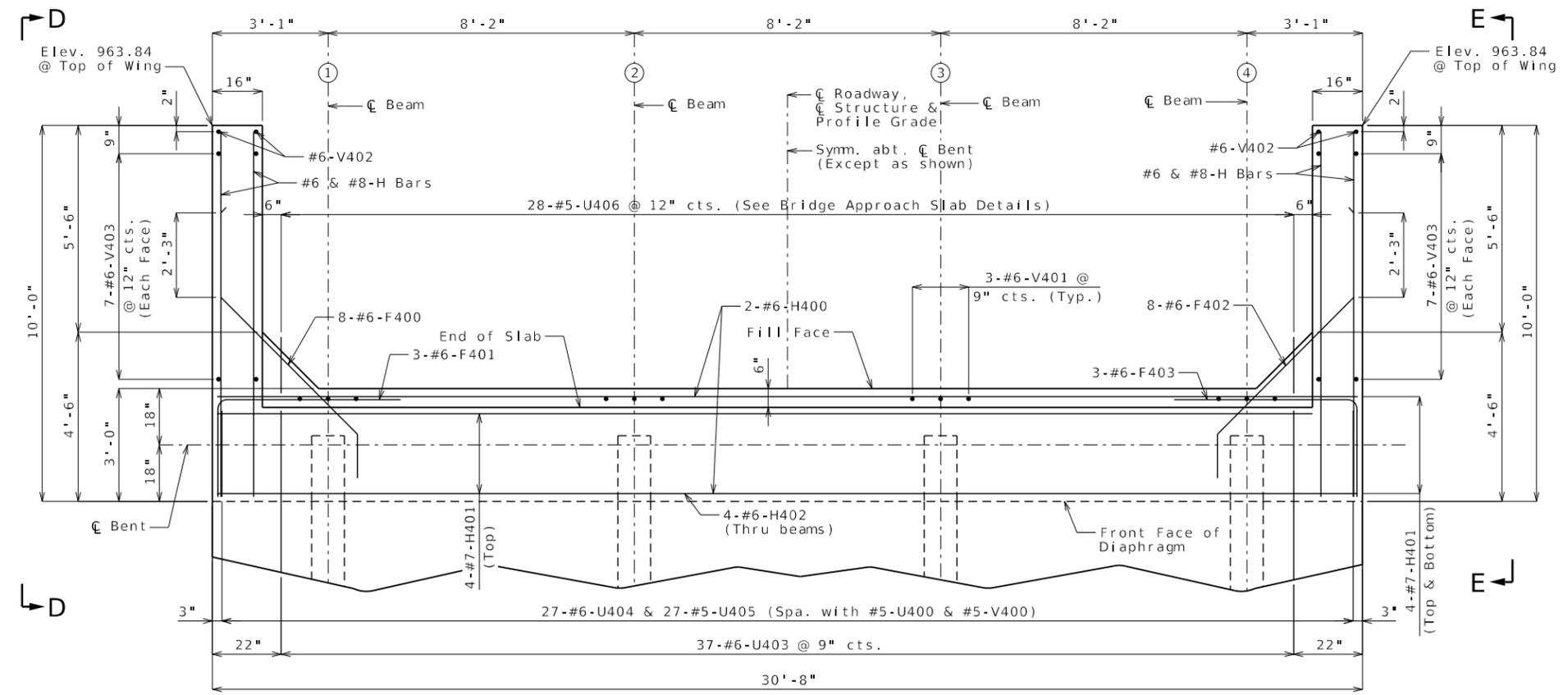
** Galvanizing material shall be omitted or removed one inch clear of weld locations in accordance with Sec 702.

General Notes:

- Work this sheet with Sheets No. 11 & 13.
- For Sections A-A, B-B, C-C & D-D and Elevations E-E & F-F, see Sheet No. 13
- The #6-F400 and #6-F402 bars shall be bent in the field to clear Beams.
- The U bars shall be placed parallel to centerline of roadway.
- All concrete in the end bent above top of beam and below top of slab shall be Class B-2.
- For details of vertical drain at end bents, see Sheet No. 6.
- For details of bridge approach slab, see Sheet No. 24.



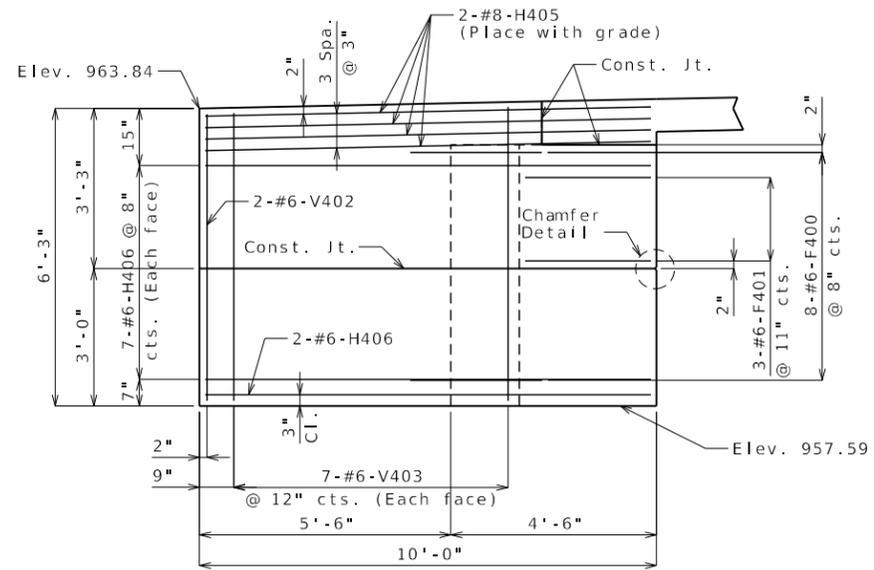
SECTION NEAR END BENT



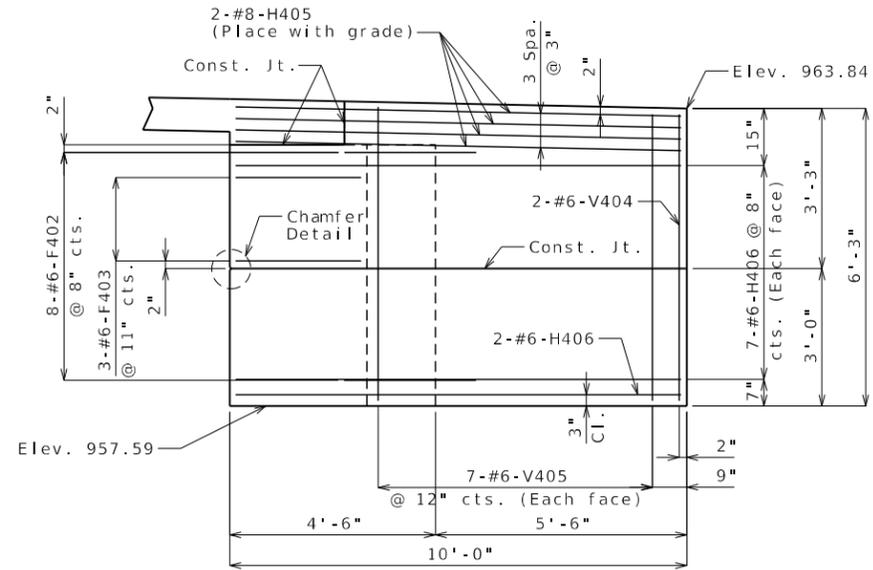
PART PLAN
 DETAILS OF END BENT NO. 4

Detailed: Oct. 2024
 Checked: Oct. 2024

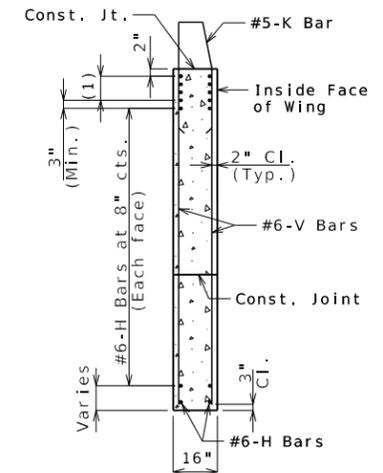
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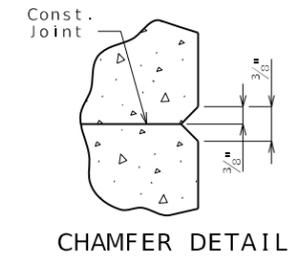
ELEVATION D-D



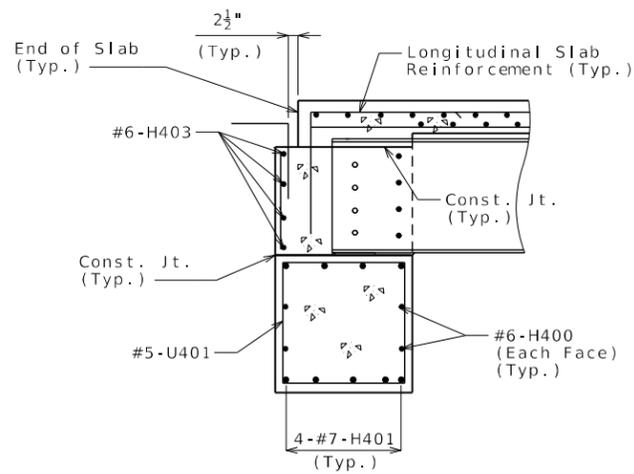
ELEVATION E-E



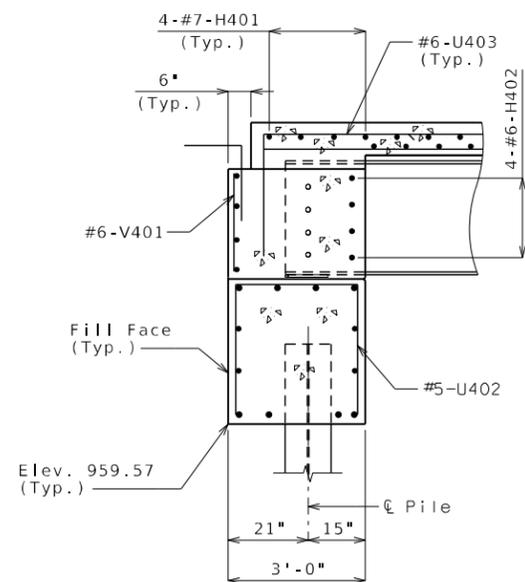
TYPICAL SECTION THRU WING
(1) #8-H Bars at 3" cts. (Each face) (Place with grade)



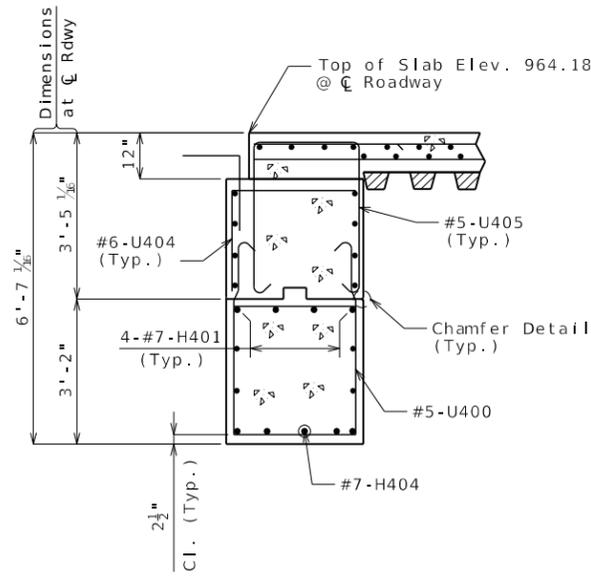
CHAMFER DETAIL



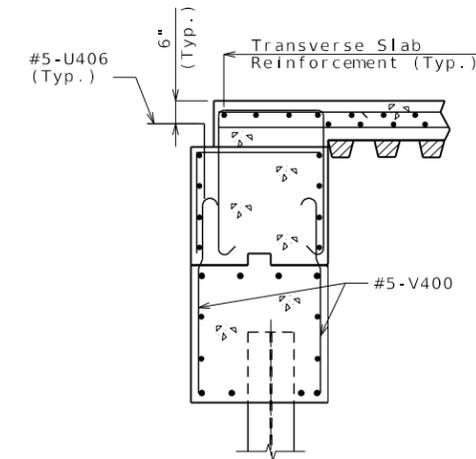
SECTION A-A



SECTION B-B



SECTION C-C



SECTION D-D

DETAILS OF END BENT NO. 4

Detailed: Oct. 2024
Checked: Oct. 2024

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

Sheet No. 13 of 30

General Notes:

Work this sheet with Sheets No. 11 & 12.

For location of Sections A-A, B-B, C-C & D-D and Elevations E-E & F-F, see Sheet No. 12.

For details and reinforcement of the Type D Barrier, see Sheets No. 22, & 23.



DATE PREPARED
12/3/2024
ROUTE 46 STATE MO
DISTRICT BR SHEET NO. 13

COUNTY
WORTH
JOB NO.
JNW0020
CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9467

DATE	DESCRIPTION

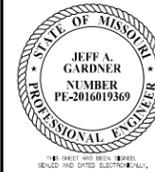
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ROUTE 46 STATE MO

DISTRICT BR SHEET NO. 14

COUNTY WORTH

JOB NO. JNW0020

CONTRACT ID.

PROJECT NO.

BRIDGE NO. A9467

DESCRIPTION

DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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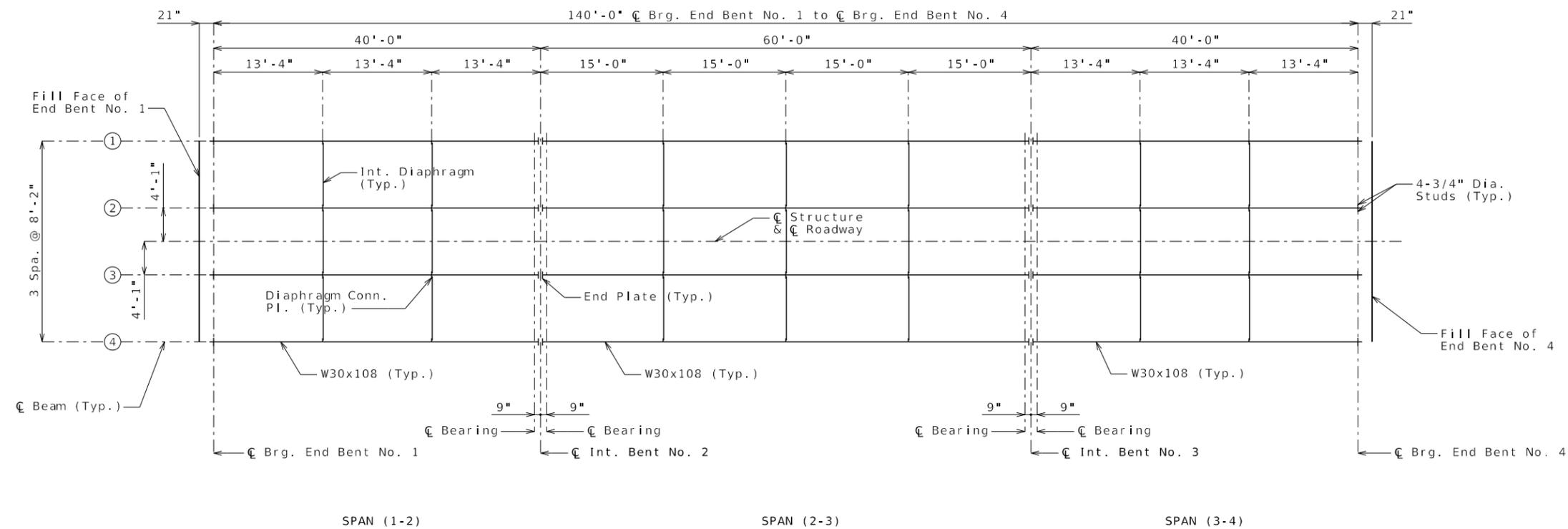
1411 East 104th St. Kansas City, MO 64131

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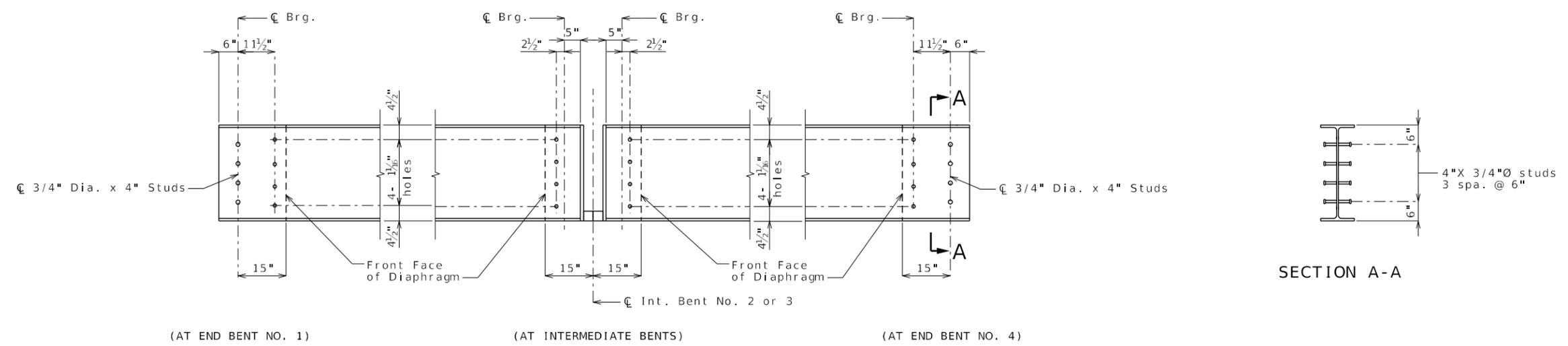
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PLAN OF STRUCTURAL STEEL



DETAILS AT END OF BEAMS

FRAMING PLAN

Notes:

All dimensions are horizontal from \bar{C} Bearing to \bar{C} Bearing.

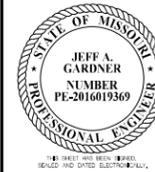
For details of intermediate diaphragms, connection plates and end plates see Sheet No. 16.

All structural steel shall be ASTM A709 Grade 50W and shall not be galvanized. Weight of all structural steel is included in the weight of Fabricated Structural Low Alloy Steel (I-Beam) A709, Grade 50W.

Detailed: Oct. 2024
Checked: Oct. 2024

Note: This drawing is not to scale. Follow dimensions. Sheet No. 14 of 30

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DATE PREPARED
12/3/2024

ROUTE STATE
46 MO

DISTRICT SHEET NO.
BR 15

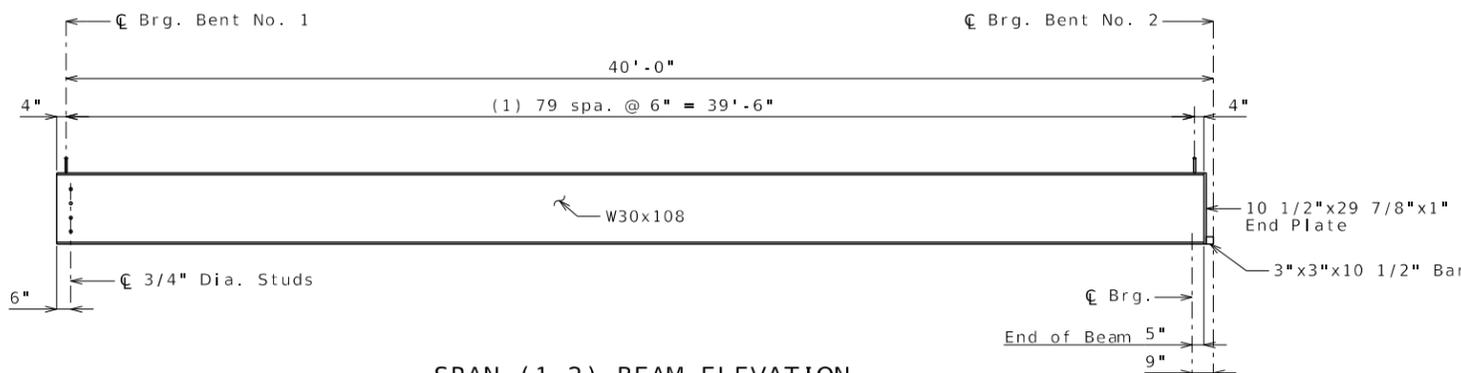
COUNTY
WORTH

JOB NO.
JNW0020

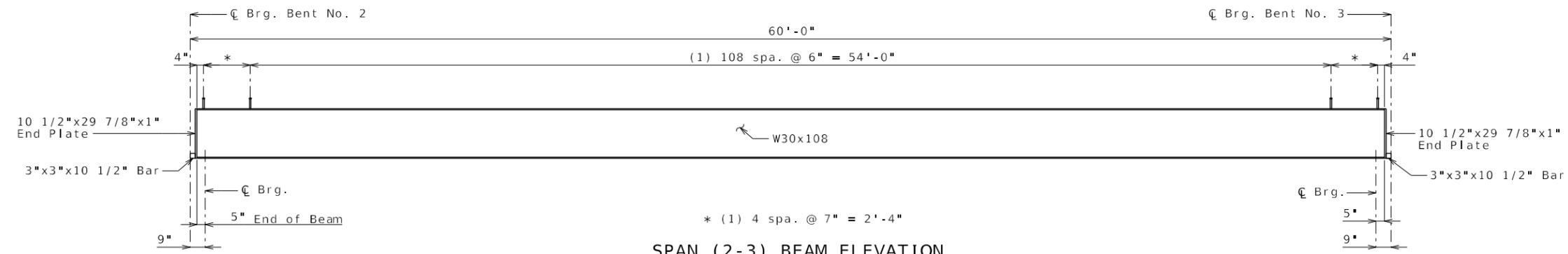
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PROJECT NO.

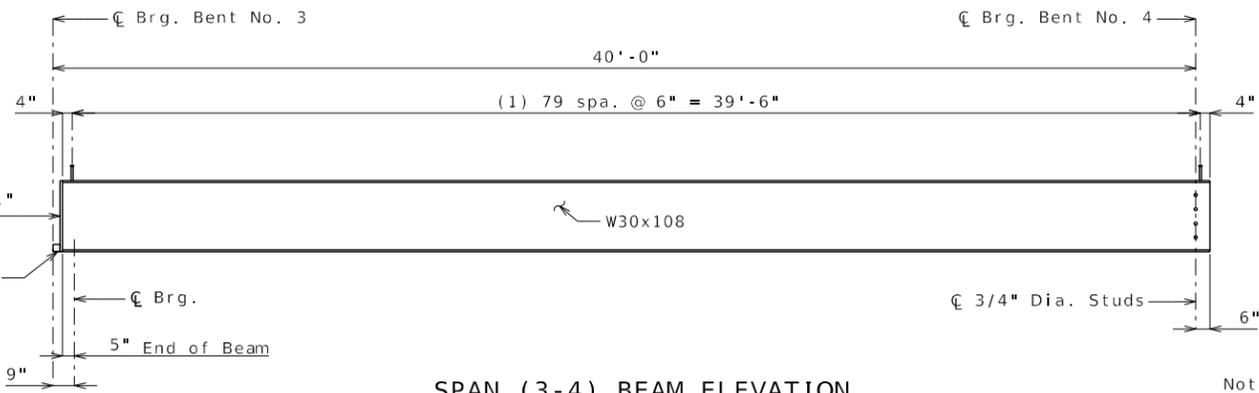
BRIDGE NO.
A9467



SPAN (1-2) BEAM ELEVATION



SPAN (2-3) BEAM ELEVATION



SPAN (3-4) BEAM ELEVATION

BEAM ELEVATION

- Notes:
- Notch toughness is required for all wide flange beams.
 - Longitudinal dimensions shown in the Beam Elevations are horizontal dimensions.
 - Fabricated structural steel shall be ASTM A709 Grade 50W and shall not be galvanized.
 - For location of slab drain attachment holes, see Sheet No. 18.
 - (1) 2 studs per row.
 - For Details of Shear Connectors, see Sheet No. 16.

Detailed: Oct. 2024
Checked: Oct. 2024

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

Sheet No. 15 of 30

DATE	DESCRIPTION

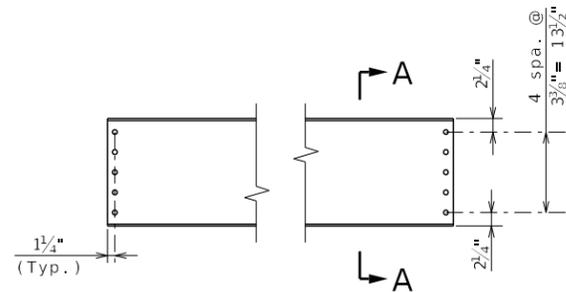
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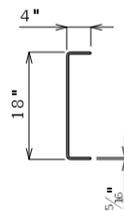
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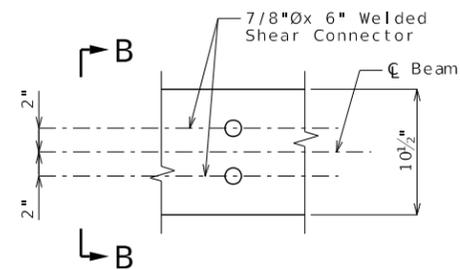
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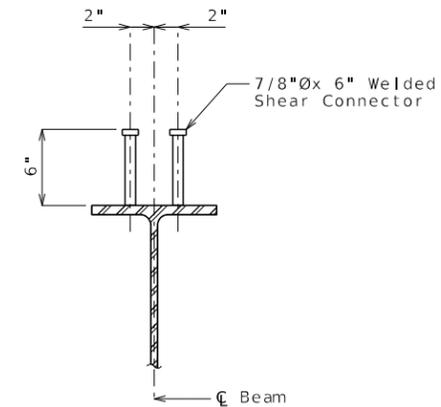
INTERMEDIATE DIAPHRAGM



SECTION A-A



PLAN



SECTION B-B

Notes:

All bolted connections shall be 7/8"Ø ASTM F3125 Type 3 bolts in 15/16"Ø.

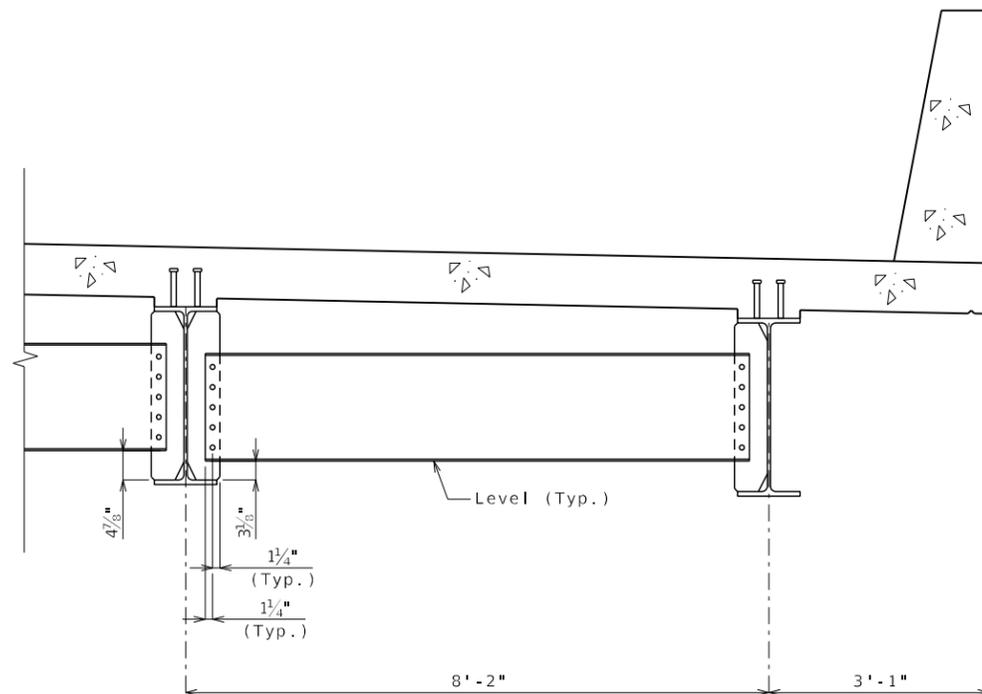
At the contractor's option, holes in the diaphragm plate of non slab bearing diaphragms may be made 3/16" larger than the nominal diameter of the bolt. A hardened washer shall be used under the bolt head and nut when this option is used. Holes in the girder diaphragm connection plate or transverse web stiffener shall be standard size.

All structural steel shall be ASTM A709 Grade 50W and shall not be galvanized.

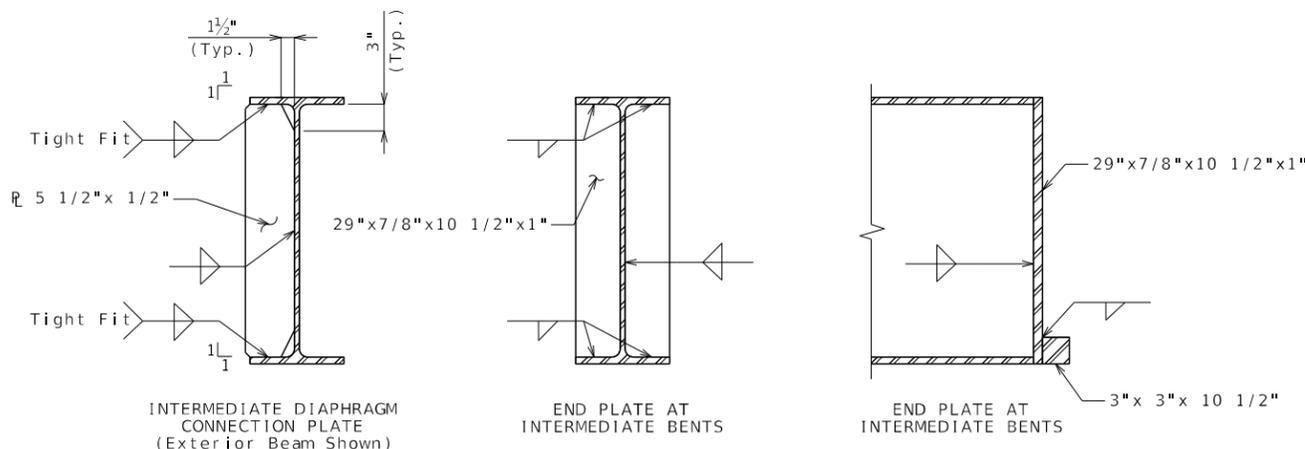
Weight of all structural steel is included in the weight of Fabricated Structural Low Alloy Steel (I-Beam) A709, Grade 50W.

DETAILS OF SHEAR CONNECTORS

Weight of 2,549 pounds of shear connectors for the beams is included in the weight of Fabricated Structural Low Alloy Steel (I-Beam) A709, Grade 50 W. Shear connectors shall be in accordance with Sec 712, 1037, and 1080.



TYPICAL PART SECTION SHOWING INTERMEDIATE DIAPHRAGMS



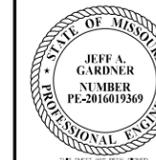
WELDING DETAILS

STEEL DETAILS

Detailed: Oct. 2024
Checked: Oct. 2024

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

Sheet No. 16 of 30



DATE PREPARED
12/3/2024

ROUTE 46 STATE MO

DISTRICT BR SHEET NO. 16

COUNTY WORTH

JOB NO. JNW0020

CONTRACT ID.

PROJECT NO.

BRIDGE NO. A9467

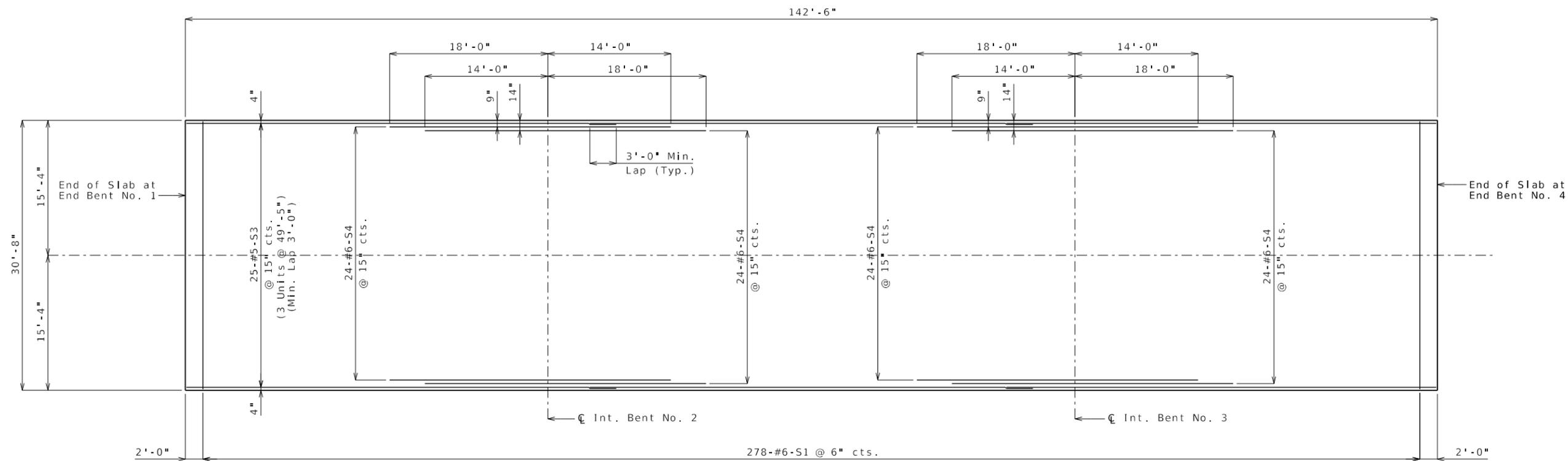
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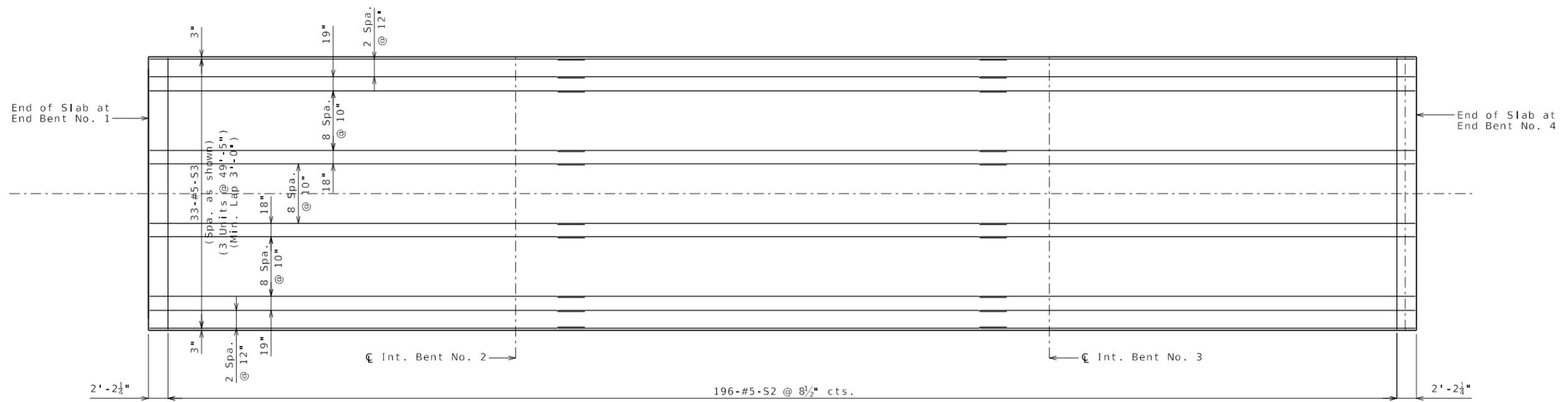
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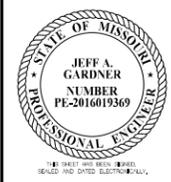
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TOP REINFORCEMENT



BOTTOM REINFORCEMENT



DATE PREPARED 12/3/2024	
ROUTE 46	STATE MO
DISTRICT BR	SHEET NO. 20
COUNTY WORTH	
JOB NO. JNW0020	
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO. A9467	

DATE	DESCRIPTION

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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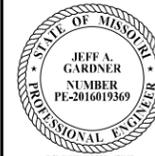
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Detailed: Oct. 2024
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DATE PREPARED
12/3/2024

ROUTE 46 STATE MO
DISTRICT BR SHEET NO. 22

COUNTY
WORTH

JOB NO.
JNW0020

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9467

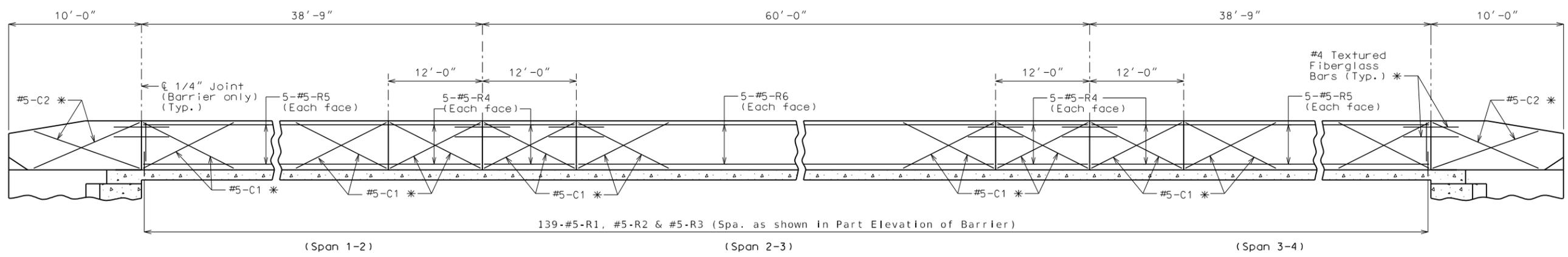
DATE	DESCRIPTION

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

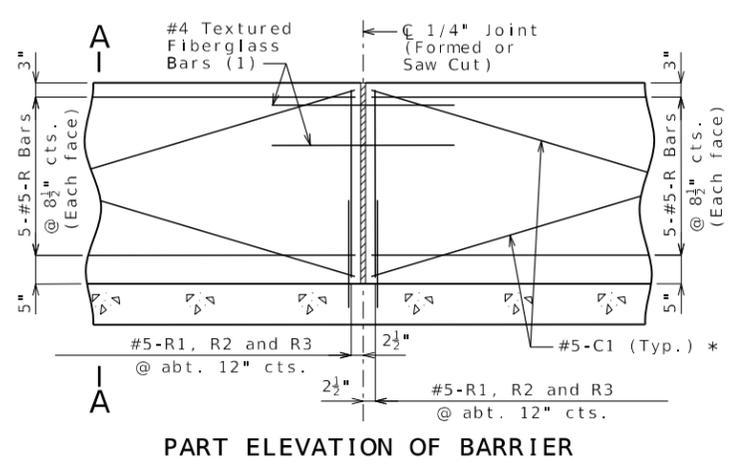
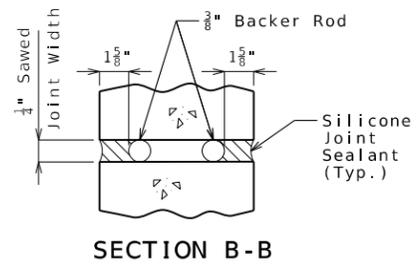
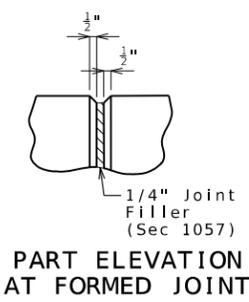
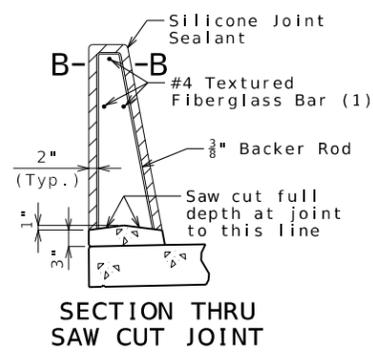
105 WEST CAPITOL JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

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Kansas City, MO 64131
Tel: (816) 874-4455
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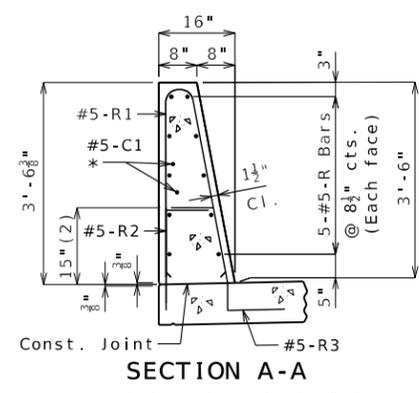
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ELEVATION OF BARRIER
(Left barrier shown, right barrier similar)
Longitudinal dimensions are horizontal.



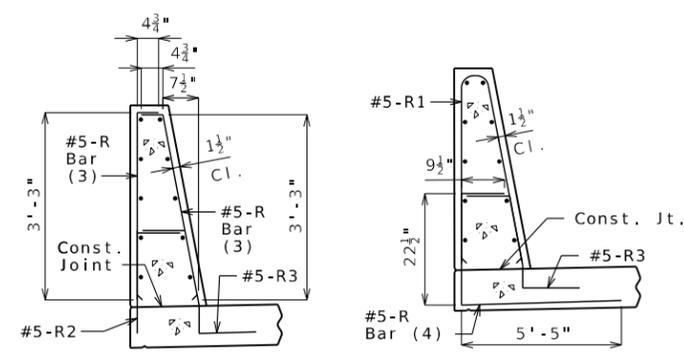
(1) Four feet long, centered on joint, slip-formed option only



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

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

(2) To top of bar



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

(4) The R2 bar and #5 bottom transverse slab bar in cantilever (prestressed panels only) combination may be furnished as one bar as shown, at the contractor's option.

General Notes:

- * Slip-formed option only.
- Conventional forming or slip forming may be used. Saw cut joints may be used with conventional forming.
- Top of barrier shall be built parallel to grade and barrier joints (except at end bents) normal to grade.
- All exposed edges of barrier shall have either a 1/2-inch radius or a 3/8-inch bevel, unless otherwise noted.
- Payment for all concrete and reinforcement, complete in place, will be considered completely covered by the contract unit price for Type D Barrier per linear foot.
- Concrete in barrier shall be Class B-1.
- Measurement of barrier is to the nearest linear foot for each structure, measured along the outside top of slab from end of wing to end of wing.

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

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

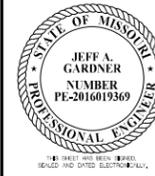
For slip-formed option, both sides of barrier shall have a vertically broomed finish and the top shall have a transversely broomed finish.

Plastic waterstop shall not be used with saw cut joints.

Detailed: Oct. 2024
Checked: Oct. 2024

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

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



DATE PREPARED
12/3/2024
ROUTE 46 STATE MO
DISTRICT BR SHEET NO. 23

COUNTY
WORTH
JOB NO.
JNW0020
CONTRACT ID.

PROJECT NO.
BRIDGE NO.
A9467

DESCRIPTION	DATE

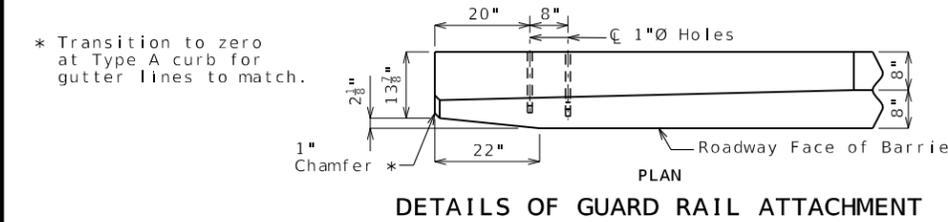
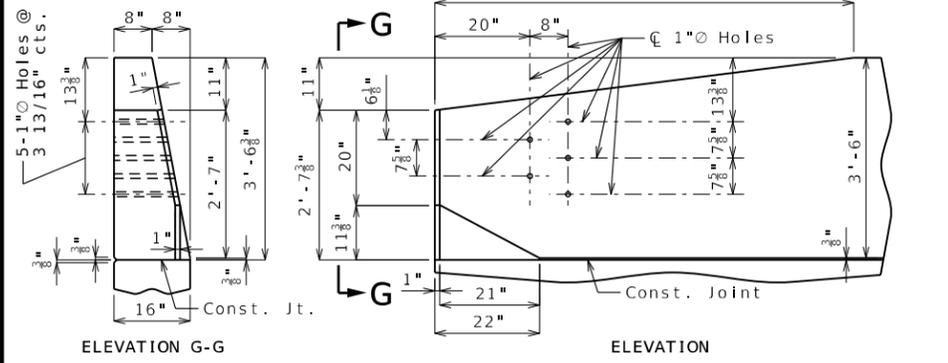
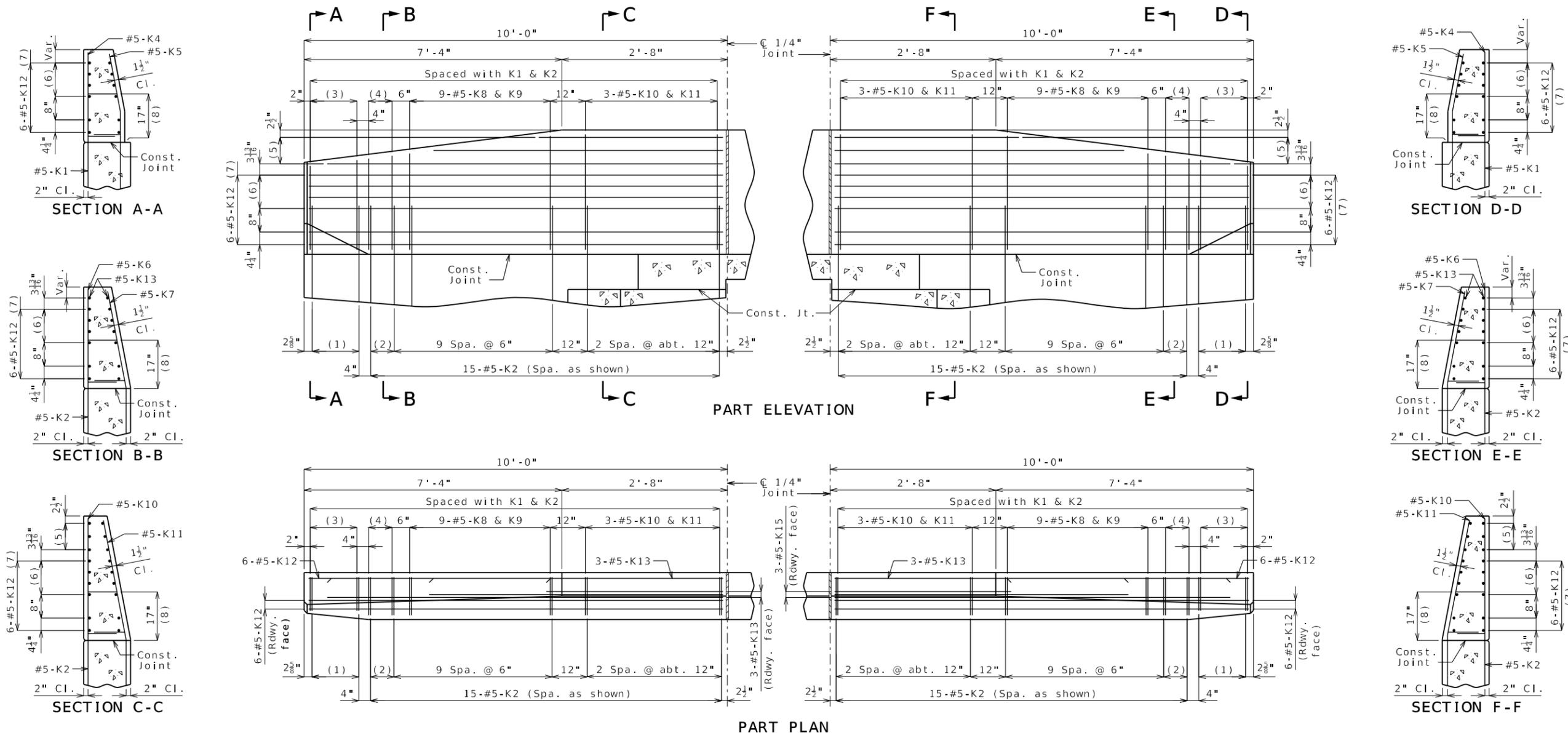
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

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

1411 East 104th St.
 Kansas City, MO 64131
 Tel: (816) 874-4455
 Fax: (816) 874-4475
 www.trekkgdesign.com
 Missouri Cert. of
 Authority 202010300



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

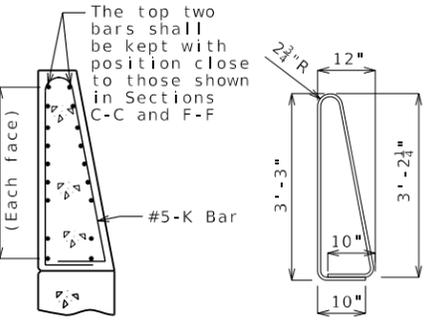


- (1) 5-#5-K1 @ 4" cts.
- (2) 2 spaces @ 4"
- (3) 5-#5-K4 & K5
- (4) 3-#5-K6 & K7
- (5) 3-#5-K13 @ 4 1/2" cts., each face
- (6) 3 spaces @ 3 1/8"
- (7) Spaced as shown, each face
- (8) To top of bar

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

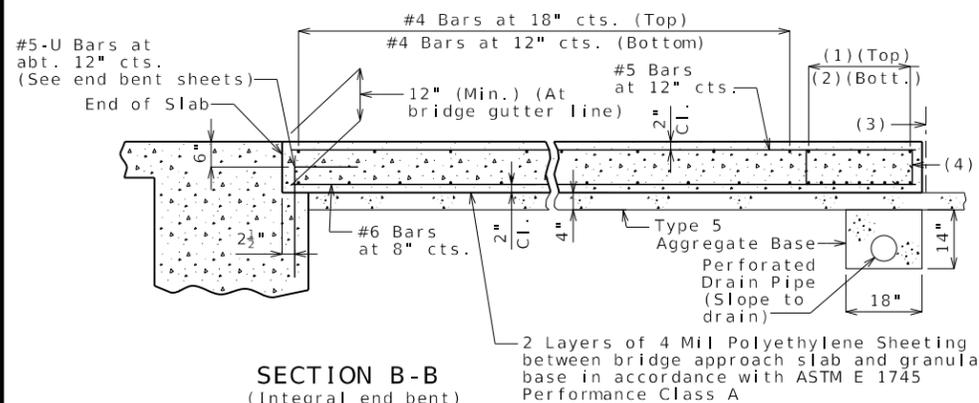
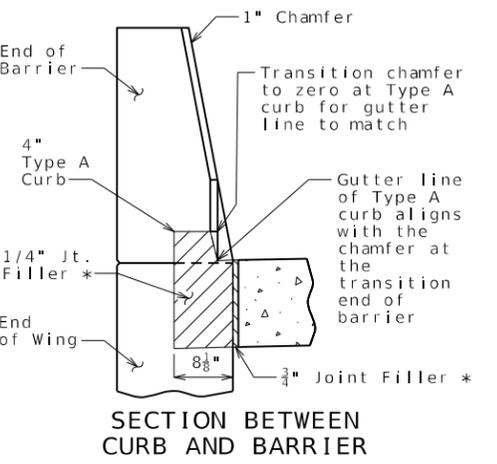
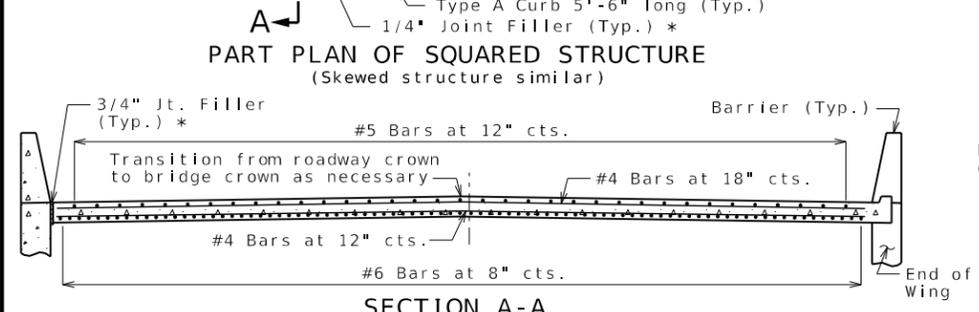
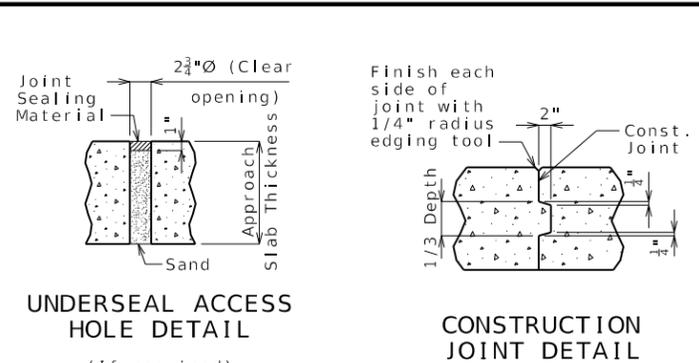
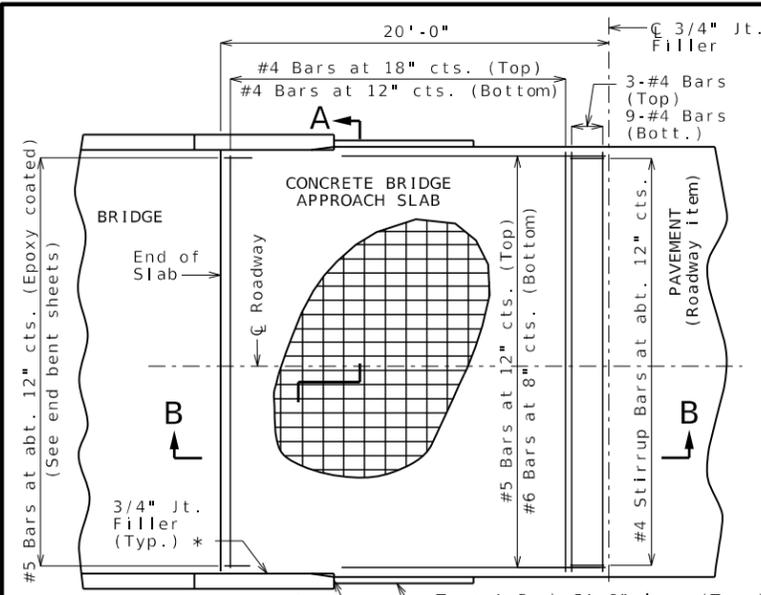
Reinforcing Steel:
 Minimum clearance to reinforcing steel shall be 1 1/2" except as shown for bars embedded into end bent.

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

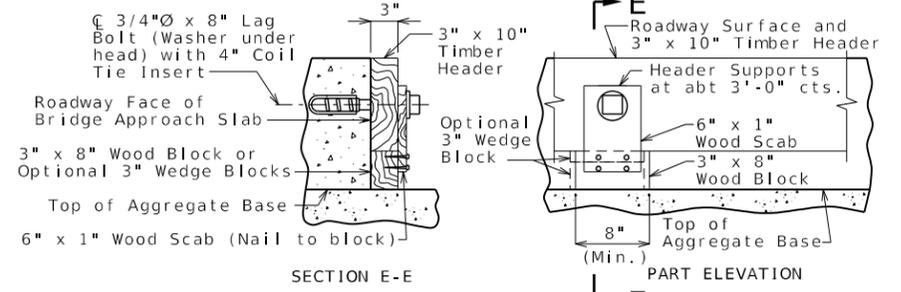


The K10-K11 bar combination may be furnished as one bar as shown, at the contractor's option.
 All dimensions are out to out.

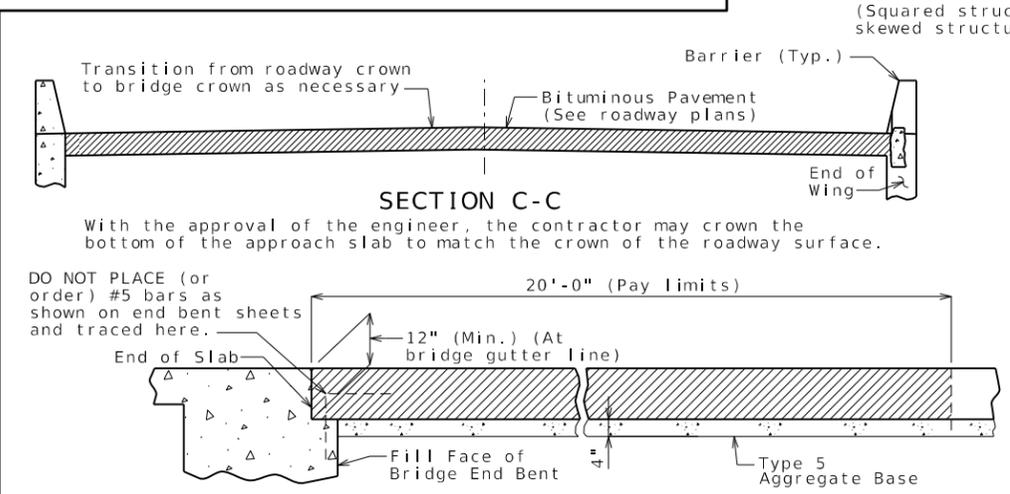
Detailed: Oct. 2024
 Checked: Oct. 2024



- (1) 3-#4 Bars
- (2) 9-#4 Bars
- (3) 3/4" Jt. Filler
- (4) #4 Stirrup Bars at abt. 12" cts.; 2'-0"x 8" (Min.) out to out; Actual length = 5'-10" (Min.); 90° stirrup hook at bottom; Stirrup height (8") and actual length vary due to crown.



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

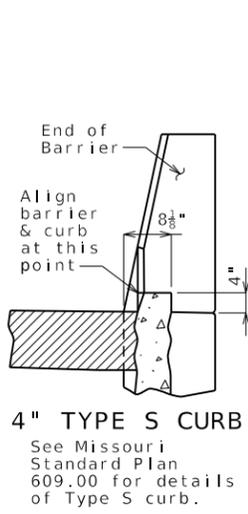
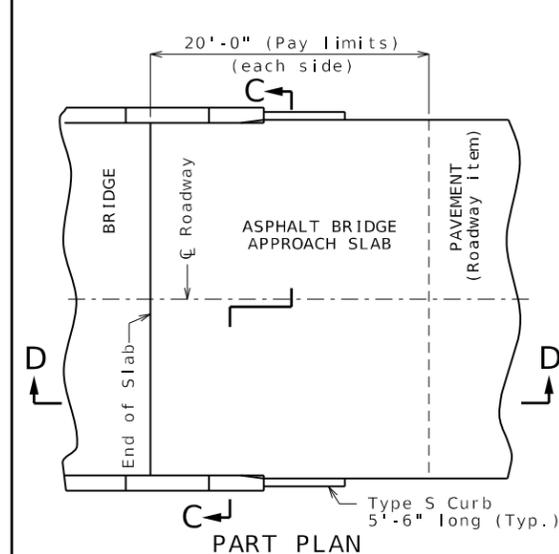


With the approval of the engineer, the contractor may crown the bottom of the approach slab to match the crown of the roadway surface.
OPTIONAL ASPHALT SLAB (NOT ALLOWED WITH CONCRETE PAVEMENT)

Notes For Concrete Slab Only:
 All concrete for the bridge approach slab shall be in accordance with Sec 503 ($f'c = 4,000$ psi).
 The reinforcing steel in the bridge approach slab shall be epoxy coated Grade 60 with $f_y = 60,000$ psi.
 Longitudinal construction joints in bridge approach slab shall be aligned with longitudinal construction joints in bridge slab.
 Minimum clearance to reinforcing steel shall be 1 1/2", unless otherwise shown.
 The reinforcing steel in the bridge approach slab shall be continuous. The transverse reinforcing steel may be made continuous by providing a minimum lap splice of 23 inches for #4 bars, or by mechanical bar splice.
 Mechanical bar splices shall be in accordance with Sec 710.
 All joint filler shall be in accordance with Sec 1057 for preformed fiber expansion joint filler except as noted.
 Payment for furnishing all materials, labor and excavation necessary to construct the concrete bridge approach slab, including the timber header, underdrain, Type 5 aggregate base, joint filler, and all other appurtenances and incidental work as shown on this sheet, complete in place, will be considered completely covered by the contract unit price for Bridge Approach Slab (Minor) per square yard.
 Drain pipe may be either 6" diameter corrugated metallic-coated pipe underdrain, 4" diameter corrugated polyvinyl chloride (PVC) drain pipe, or 4" diameter corrugated polyethylene (PE) drain pipe.
 * Seal joint between vertical face of approach slab and wing with sealant in accordance with Sec 717 for silicone joint sealant for saw cut and formed joints.

General Notes:
 Contractor shall have the option to construct either slab except as noted.
 The contractor shall pour and satisfactorily finish the bridge slab before placing the bridge approach slab.
 MoDOT Construction personnel will indicate the bridge approach slab used for this structure:
 Concrete Bridge Approach Slab
 Asphalt Bridge Approach Slab

Notes For Asphalt Slab Only:
 Payment for furnishing all materials, labor and excavation necessary to construct the asphalt bridge approach slab, including tack, curb, and Type 5 aggregate base within the pay limits shown, complete in place, will be considered completely covered by the contract unit price for Bridge Approach Slab (Minor) per square yard.
 Application of tack is required between lifts per Sec 403.



DATE PREPARED: 12/3/2024
 ROUTE: 46 STATE: MO
 DISTRICT: BR SHEET NO.: 24
 COUNTY: WORTH
 JOB NO.: JNW0020
 CONTRACT ID.:
 PROJECT NO.:
 BRIDGE NO.: A9467

DATE	DESCRIPTION

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

TREK DESIGN GROUP, LLC
 Missouri Cert. of Authority 202010300
 1411 East 104th St.
 Kansas City, MO 64131
 Tel: (816) 974-4455
 Fax: (816) 974-4475
 www.trekdesigngroup.com

Bill of Reinforcing Steel																						
No. Req.	Size/ Mark	Location	Dimensions											Nom. Length	Actual Length	Weight						
			Codes			B	C	D	E	F	H	K										
			C	SH	V	ft	in.	ft	in.	ft	in.	ft	in.	ft	in.	ft	in.	ft	in.	ft	in.	lb
SUBSTRUCTURE																						
INT. BENT NO. 2																						
25	6 D201	BEAM KEY		20		2	6.000											2	6	2	6	94
8	6 H201	BEAM		18		27	8.000											29	0	29	0	348
4	6 H202	BEAM		20		27	8.000											27	8	27	8	166
3	6 H203	BEAM		18		6	8.000											8	0	8	0	36
2	4 H204	BEAM		18		26	0.000											27	0	27	0	36
26	4 H205	BEAM		7		3	0.000	2	5.750									8	6	8	6	148
24	4 H206	BEAM		20		26	0.000											26	0	26	0	417
25	5 U200	BEAM		13		2	8.000	2	8.000	2	8.000	2	8.000					11	11	11	3	293
8	6 U201	BEAM		10			12.000	2	6.750									4	6	4	3	51
8	5 U202	BEAM		10			2	8.000	2	8.000								8	0	7	9	65
21	4 U203	BEAM		10			2	0.000	20.000									5	8	5	6	77
64	4 V201	COLUMN		20		14	2.000											14	2	14	2	606
INT. BENT NO. 3																						
25	6 D301	BEAM KEY		20		2	6.000											2	6	2	6	94
8	6 H301	BEAM		18		27	8.000											29	0	29	0	348
4	6 H302	BEAM		20		27	8.000											27	8	27	8	166
3	6 H303	BEAM		18		6	8.000											8	0	8	0	36
2	4 H304	BEAM		18		26	0.000											27	0	27	0	36
24	4 H305	BEAM		7		3	0.000	2	5.750									8	6	8	6	136
24	4 H306	BEAM		20		26	0.000											26	0	26	0	417
25	5 U300	BEAM		13		2	8.000	2	8.000	2	8.000	2	8.000					11	7	11	3	293
8	6 U301	BEAM		10			12.000	2	6.750									4	6	4	3	51
8	5 U302	BEAM		10			2	8.000	2	8.000								8	0	7	9	65
21	4 U303	BEAM		10			2	0.000	20.000									5	8	5	6	77
64	4 V301	COLUMN		20		13	2.000											13	2	13	2	563
SUPERSTRUCTURE																						
INT. BENT DIAPHRAGM																						
16	6 H50	DIAPHRAGM	E	20		27	2.000											27	2	27	2	653
40	6 U50	DIAPHRAGM	E	28			2	2.000	2	6.000	2	2.000						6	10	6	6	391
96	4 U51	DIAPHRAGM	E	28				18.000	2	6.000	2	2.000						6	2	6	0	385
16	6 U52	DIAPHRAGM	E	10				12.000	2	2.000								3	2	2	10	68

Bill of Reinforcing Steel																						
No. Req.	Size/ Mark	LOCATION	Dimensions											Nom. Length	Actual Length	Weight						
			Codes			B	C	D	E	F	H	K										
			C	SH	V	ft	in.	ft	in.	ft	in.	ft	in.	ft	in.	ft	in.	ft	in.	ft	in.	lb
END BENT 1																						
16	6 F100	WING BRACE	E	23		2	3.000	5	1.750	1	2.000	10.000	10.000	1	7.000	1	7.000	8	7	8	6	204
6	6 F101	DIAPHRAGM	E	6		4	10.000	2	8.500									7	7	7	5	67
4	6 H100	BEAM	E	20		30	5.000											30	5	30	5	183
12	7 H101	BEAM & DIAPHRAGM	E	20		30	5.000											30	5	30	5	746
4	6 H102	DIAPHRAGM	E	20		30	5.000											30	5	30	5	183
4	6 H103	DIAPHRAGM	E	20		30	5.000											30	5	30	5	183
3	7 H104	DIAPHRAGM	E	18		6	8.000											8	3	8	3	51
16	8 H105	WING	E	20		9	9.000											9	9	9	9	417
32	6 H106	WING	E	20		9	9.000											9	9	9	9	469
23	5 U100	BEAM	E	31		4	5.000	2	9.000	4	5.000							12	6	12	4	296
4	5 U101	BEAM	E	13		2	9.000	2	8.000	2	9.000	2	8.000					11	9	11	6	48
4	5 U102	BEAM	E	10				2	10.000	2	9.000							8	5	8	2	34
37	6 U103	BEAM	E	19		2	11.000	4	6.500									7	6	7	4	408
27	6 U104	BEAM	E	19		2	4.500	2	9.000									5	14	11		199
27	6 U105	DIAPHRAGM	E	31		2	10.750	2	3.000	2	10.750							9	0	8	9	355
28	5 U106	DIAPHRAGM	E	19		2	0.000	1	3.000									3	3	3	2	92
8	5 V100	BEAM	E	17		4	5.000											5	0	5	0	42
12	6 V101	BEAM	E	20		2	4.500											2	4	2	4	42
4	6 V102	WING	E	20		6	3.000											6	3	6	3	38
28	6 V103	WING	E	20	V	6	1.250											6	1	6	1	258
		INC = 0.125 INCH				6	2.750											6	2	6	2	
END BENT 4																						
16	6 F400	WING BRACE	E	23		2	3.000	5	1.750	1	2.000	10.000	10.000	1	7.000	1	7.000	8	7	8	6	204
6	6 F401	DIAPHRAGM	E	6		4	10.000	2	8.500									7	7	7	5	67
4	6 H400	BEAM	E	20		30	5.000											30	5	30	5	183
12	7 H401	BEAM & DIAPHRAGM	E	20		30	5.000											30	5	30	5	746
4	6 H402	DIAPHRAGM	E	20		30	5.000											30	5	30	5	183
4	6 H403	DIAPHRAGM	E	20		30	5.000											30	5	30	5	183
3	7 H404	DIAPHRAGM	E	18		6	8.000											8	3	8	3	51
16	8 H405	WING	E	20		9	9.000											9	9	9	9	417
32	6 H406	WING	E	20		9	9.000											9	9	9	9	469
23	5 U400	BEAM	E	31		4	5.000	2	9.000	4	5.000							12	6	12	4	296
4	5 U401	BEAM	E	13		2	9.000	2	8.000	2	9.000	2	8.000					11	9	11	6	48
4	5 U402	BEAM	E	10				2	10.000	2	9.000							8	5	8	2	34
37	6 U403	BEAM	E	19		2	11.000	4	6.500									7	6	7	4	408
27	6 U404	BEAM	E	19		2	2.000	2	9.000									4	11	4	9	193
27	6 U405	DIAPHRAGM	E	31		2	8.250	2	3.000	2	8.250							8	7	8	4	338
28	5 U406	DIAPHRAGM	E	19		2	0.000	1	3.000									3	3	3	2	92
8	5 V400	BEAM	E	17		4	5.000											5	0	5	0	42
12	6 V401	BEAM	E	20		2	2.000											2	2	2	2	39
4	6 V402	WING	E	20		6	0.000											6	0	6	0	36
28	6 V103	WING	E	20		6	0.500											6	0	6	0	252

Missouri Department of Transportation
Construction and Materials

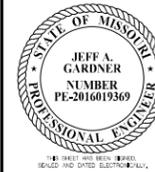
BORING NO. B-103
Page 1 of 2

Job No.: NW0020 A9467 County: Worth Route: 46
 Design: A9467 Skew: Square Location: 2 Miles West of Grant City
 Bent: 1 Logged By: Ricardo Todd Operator: Robert Wadlow
 Station: _____ Northing: 1572811.2 Date of Work: 06/05/24-06/05/24
 Offset: _____ Easting: 2803559.9 Depth to Water: 20.1
 Elevation: 963.5 Requested Northing: 1572807.2 Depth Hole Open: 39.7
 Requested Station: 564+36.8 Requested Easting: 2803559.8 Time Change: 1 hour
 Requested Offset: 14 R Equipment: Acker Soil XLS Split-Spoon Sampler, NQ
 Requested Elevation: _____ Location Note: Offset slightly north of requested location
 Drill No.: G-9462 Hammer Efficiency: 81% Drilling Method: Hollow Stem Auger

Missouri Department of Transportation
Construction and Materials

BORING NO. B-103
Page 2 of 2

Job No.: NW0020 A9467 County: Worth Route: 46
 Design: A9467 Skew: Square Location: 2 Miles West of Grant City
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 Requested Elevation: _____ Location Note: Offset slightly north of requested location
 Drill No.: G-9462 Hammer Efficiency: 81% Drilling Method: Hollow Stem Auger



DATE PREPARED
12/3/2024
 ROUTE 46 STATE MO
 DISTRICT BR SHEET NO. 29
 COUNTY
WORTH
 JOB NO.
JN0020
 CONTRACT ID.

PROJECT NO.
 BRIDGE NO.
A9467

Depth (ft)	Graphic	Description	Elevation (ft)	Sample Type	REC % (RQD %)	Blow Counts (N ₆₀)	Shear Data	Field Tests	Index Tests
0		0.0-0.4' ASPHALT 0.4-1.1' CRUSHED AGGREGATE BASE 1.1-9.8' Dark gray, LEAN CLAY trace gravel, medium stiff, moist	960		67	3-3-3 (8)		PP = 0.75 tsf	MC = 31.8% γ _{sat} = 119 pcf ⁽¹⁾
10		9.8-15.1' Gray, LEAN CLAY scattered gravel, very stiff, moist	950		67	3-7-8 (20)		PP = 2.75 tsf	MC = 15.7% γ _{sat} = 136 pcf ⁽¹⁾ LL = 28 PL = 16
20		15.1-19.8' Gray, LEAN CLAY trace gravel, stiff, moist	940		73	3-3-4 (9)		PP = 1.25 tsf	MC = 25.1% γ _{sat} = 125 pcf ⁽¹⁾ LL = 33 PL = 19
30		19.8-29.3' Gray, LEAN CLAY trace sand, soft, moist	930		67	1-1-1 (3)		PP = 0.50 tsf	MC = 25.1% γ _{sat} = 125 pcf ⁽¹⁾ LL = 25 PL = 17
40		29.3-35.1' Grayish tan, LEAN CLAY trace gravel, and fine sand, medium stiff, moist	920		67	1-1-2 (4)		PP = 0.50 tsf	MC = 27.4% γ _{sat} = 123 pcf ⁽¹⁾
50		35.1-69.8' Brown mottled gray, LEAN CLAY scattered gravel, stiff, moist	910		67	1-3-3 (8)		PP = 0.75 tsf	MC = 23.4% γ _{sat} = 127 pcf ⁽¹⁾ LL = 39 PL = 16
60		69.8-86.6' Black mottled gray, LEAN CLAY scattered gravel, very stiff, moist	900		67	1-3-4 (9)		PP = 1.00 tsf	MC = 17.1% γ _{sat} = 134 pcf ⁽¹⁾ LL = 33 PL = 16
		86.6-90.1' Limestone, highly weathered	890		67	1-4-5 (12)		PP = 1.25 tsf	MC = 21.4% γ _{sat} = 129 pcf ⁽¹⁾
		90.1-91.1' Limestone, whitish gray, medium bedded, strong rock, slightly weathered, fine grained	880		67	1-4-5 (12)		PP = 1.25 tsf	MC = 21.6% γ _{sat} = 129 pcf ⁽¹⁾
		91.1-93.5' Shale, olive tan, thinly laminated, weak rock	870		67	2-4-6 (14)		PP = 1.50 tsf	MC = 20.0% γ _{sat} = 130 pcf ⁽¹⁾ LL = 34 PL = 16
		93.5-94.9' Limestone, whitish gray, thin bedded, strong rock, slightly weathered, fine grained	860		73	2-4-6 (14)		PP = 1.75 tsf	MC = 21.2% γ _{sat} = 129 pcf ⁽¹⁾
		94.9-98.3' Shale, gray, thinly laminated, weak rock							
		98.3-99.4' Shale, black, thinly laminated, weak rock							
		99.4-100.1' Limestone, whitish gray, thin bedded, strong rock, slightly weathered, fine grained							
		Bottom of borehole at 100.1 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

Coordinate System: Modified U.S. State Plane 1983 Coordinate Zone: Missouri West Coordinate Proj. Factor: 1.0000983827
 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.

(Continued Next Page)

Depth (ft)	Graphic	Description	Elevation (ft)	Sample Type	REC % (RQD %)	Blow Counts (N ₆₀)	Shear Data	Field Tests	Index Tests
60		35.1-69.8' Brown mottled gray, LEAN CLAY scattered gravel, stiff, moist (continued)	900		67	4-5-8 (18)		PP = 2.00 tsf	MC = 19.3% γ _{sat} = 131 pcf ⁽¹⁾
70		69.8-86.6' Black mottled gray, LEAN CLAY scattered gravel, very stiff, moist	890		67	3-5-8 (18)		PP = 2.00 tsf	MC = 19.5% γ _{sat} = 131 pcf ⁽¹⁾ LL = 34 PL = 14
80		86.6-90.1' Limestone, highly weathered	880		67	3-5-11 (22)		PP = 2.75 tsf	MC = 19.0% γ _{sat} = 132 pcf ⁽¹⁾ LL = 33 PL = 14
90		90.1-91.1' Limestone, whitish gray, medium bedded, strong rock, slightly weathered, fine grained	870		67	3-6-10 (22)		PP = 3.00 tsf	MC = 19.0% γ _{sat} = 132 pcf ⁽¹⁾
100		91.1-93.5' Shale, olive tan, thinly laminated, weak rock	860		67	3-6-11 (23)		PP = 3.25 tsf	MC = 17.9% γ _{sat} = 133 pcf ⁽¹⁾
		93.5-94.9' Limestone, whitish gray, thin bedded, strong rock, slightly weathered, fine grained	850		73	4-7-11 (24)		PP = 3.50 tsf	MC = 17.1% γ _{sat} = 134 pcf ⁽¹⁾ LL = 35 PL = 14
		94.9-98.3' Shale, gray, thinly laminated, weak rock							
		98.3-99.4' Shale, black, thinly laminated, weak rock							
		99.4-100.1' Limestone, whitish gray, thin bedded, strong rock, slightly weathered, fine grained							
		Bottom of borehole at 100.1 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

Coordinate System: Modified U.S. State Plane 1983 Coordinate Zone: Missouri West Coordinate Proj. Factor: 1.0000983827
 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.

BORING DATA

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

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

Sheet No. 29 of 30

Detailed: Oct. 2024
Checked: Oct. 2024

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

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