



THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED
06/21/2024

ROUTE A STATE MO
DISTRICT BR SHEET NO. 1

COUNTY ADAIR
JOB NO. JNE0140
CONTRACT ID.

PROJECT NO.

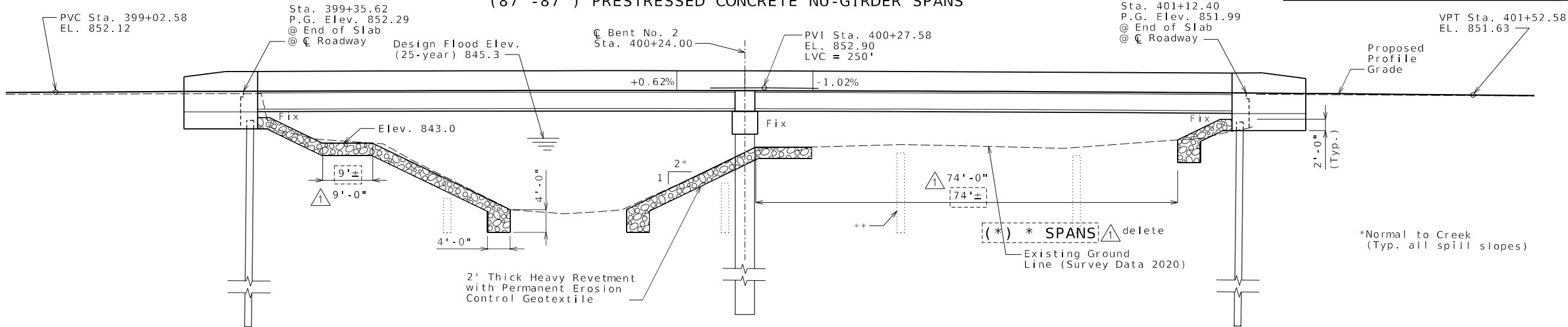
BRIDGE NO.
A9442

DATE	DESCRIPTION
07-01-24	Misc. text revisions

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

VEENSTRA & KIMM INC.
9788 N Ash Ave. Kansas City, Missouri 64157
816-781-6182 816-781-0643 (FAX)
Certificate of Authority No. 2002006347

(87' - 87') PRESTRESSED CONCRETE NU-GIRDER SPANS



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 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. 27 thru 28 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.

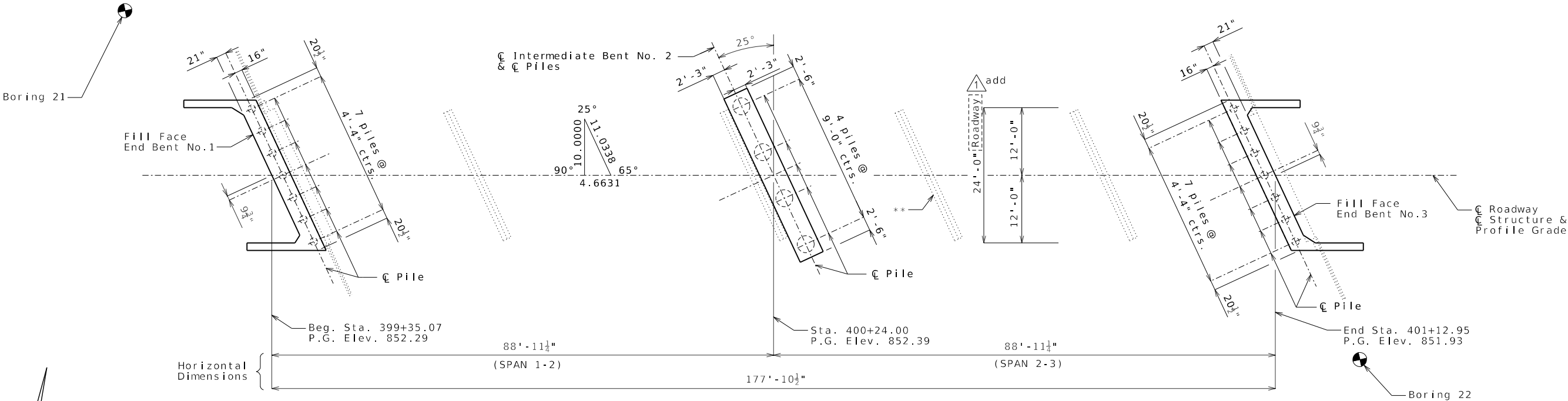
GENERAL ELEVATION

Notes:

**Existing Bridge No. T0885 was removed by others per Standard Specifications.

Roadway fill shall be completed to the final roadway section and up to the elevation of the bottom of the concrete beam within the limits of the structure and for not less than 25 feet in back of the fill face of the end bents before any piles are driven for any bents falling within the embankment section.

For General Notes, Location Sketch, Hydrologic Data, Foundation Data, Estimated Quantities and Estimated Quantities for Slab on Concrete NU-Girder, see Sheet No. 2.



GENERAL PLAN

BRIDGE: ROUTE A OVER NORTH FORK SOUTH FABIUS RIVER

ROUTE A FROM ROUTE 63 TO ROUTE J
ABOUT 1.2 MILES WEST OF ROUTE J
BEGINNING STA. 399+35.07

Revised 07-01-2024

Designed May 2024
Detailed May 2024
Checked Jun. 2024

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

Sheet No. 1 of 28

General Notes:

- Design Specifications:
- 2020 AASHTO LRFD Bridge Design Specifications (9th Ed.)
 - 2011 AASHTO Guide Specifications for LRFD Seismic Bridge Design (2nd Ed.) and 2014 Interim Revisions (Seismic Details)
- Seismic Design Category = B
- Design earthquake response spectral acceleration coefficient at 1.0 second period, SD1 = 0.12g
- Acceleration Coefficient (effective peak ground acceleration coefficient), As = 0.072g

- Design Loading:
- Vehicular = HL-93
 - Future Wearing Surface = 35 Lb./Sq. Ft.
 - Earth = 120 Lb./Cu. Ft.
 - Equivalent Fluid Pressure = 45 Lb./Cu. Ft.
 - Superstructure: Simply-Supported, Non-Composite for dead load. Continuous Composite for live load.
- Design Unit Stresses:
- Class B Concrete (Substructure) f'c = 3,000 psi
 - Class B-1 Concrete (Barrier) f'c = 4,000 psi
 - Class B-2 Concrete (Superstructure, except Barrier and Prestressed Girders) f'c = 4,000 psi
 - Reinforcing Steel (Grade 60) fy = 60,000 psi
 - Welded or Seamless Steel Shell (pipe) for CIP Pile (ASTM Grade 3) fy = 45,000 psi
 - For Prestressed Girder Stresses, see Sheets No. 14 thru 15.

- Neoprene Pads: delete
- Plain and Laminated 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.

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

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

Estimated Quantities for Slab on Concrete NU-Girder		
Item		Total
Class B-2 Concrete	cu. yard	176.4
Reinforcing Steel (Epoxy Coated)	pound	48030

- Notes:
- 1 NU-Girder
- The table of Estimated Quantities for Slab on Concrete NU-Girder represents the quantities used by the State in preparing the cost estimate for concrete slabs. The area of the concrete slab will be measured to the nearest square yard longitudinally from end of slab to end of slab and transversely from out to out of bridge slab (or with the horizontal dimensions as shown on the plan of slab). Payment for stay-in-place forms or conventional forms, all concrete, and epoxy coated reinforcing steel will be considered completely covered by the contract unit price for the slab. Variations may be encountered in the estimated quantities but the variations cannot be used for an adjustment in the contract unit price.

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

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

Estimated Quantities				
Item		Substr.	Superstr.	Total
Class 1 Excavation	cu. yard	75		75
Bridge Approach Slab (Minor)	sq. yard		109	109
Galvanized Cast-in-Place Concrete Pile (16 in.)	linear foot	1099		1099
Dynamic Pile Testing	each	3		3
Dynamic Pile Restrike Testing	each	3		3
Pile Point Reinforcement	each	14		14
Pile Point Reinforcement (36" CIP Concrete Pile)	each	4		4
Galvanized Cast-in-Place Concrete Pile (36 in.)	linear foot	300		300
Class B Concrete (Substructure)	cu. yard	51.2		51.2
Type D Barrier	linear foot		396	396
Slab on Concrete NU-Girder	sq. yard		524	524
NU 43, Prestressed Concrete NU-Girder	linear foot		523	523
Reinforcing Steel (Bridges)	pound	6530		6530
Slab Drain	each		12	12
Vertical Drain at End Bents	each	2		2
Plain Neoprene Bearing Pad	each		6	6
Laminated Neoprene Bearing Pad	each		6	6

- Notes:
- All concrete above the construction joint in the end bents is included in the Estimated Quantities for Slab on Concrete NU-Girder.

- All reinforcement in the end bents and all reinforcement in cast-in-place pile at end bents is included in the Estimated Quantities for Slab on Concrete NU-Girder.

- All reinforcement in the intermediate bent concrete diaphragms except reinforcement embedded in the beam cap is included in the Estimated Quantities for Slab on Concrete NU-Girder.

- All concrete above the intermediate beam cap is included in the Estimated Quantities for Slab on Concrete NU-Girder.

- All reinforcement in cast-in-place pile at intermediate bent is included in the substructure quantities.

Foundation Data					
Type	Design Data	Bent Number			
		1	2	3	
Load Bearing Pile	Pile Type and Size	CECIP 16"	CECIP 36"	CECIP 16"	
	Number	7	4	7	
	Approximate Length Per Each	ft	75	83	
	Pile Point Reinforcement	ea	ALL	ALL	
	Min. Galvanized Penetration (Elev.)	ft	824.1	819.7	824.3
	Est. Max. Scour Depth 500 (Elev.)	ft	--	824.7	--
	Minimum Tip Penetration (Elev.)	ft	818.5	798.0	798.0
	Criteria for Min. Tip Penetration		(1)	(1)	(1)
	Pile Driving Verification Method		DT	DT	DT
	Minimum Nominal Axial Compressive Resistance (MNACR)	kip	202	614	202
	Portion of MNACR Required at End of Initial Drive	kip	141 (70%)	430 (70%)	141 (70%)
	Resistance Factor		0.65	0.65	0.65

- Load Bearing Pile: add
- Minimum Nominal Axial Compressive Resistance = $\frac{\text{Maximum Factored Loads}}{\text{Resistance Factor}}$
- DT = Dynamic Testing
- CECIP = Closed End Cast-in-Place concrete pile
- Dynamic Testing shall be performed on the first pile installed at each bent.

- The test piles at End Bents No. 1 and 3 shall be driven to an end-of-initial drive resistance of approximately 141 kips, which is estimated to occur at a pile tip elevation of approximately 800 and 790 respectively. The test piles at intermediate Bents No. 2 shall be driven to an end-of-initial drive resistance of approximately 430 kips, which is estimated to occur at a pile tip elevation of approximately 790. Subsequently, pile setups and the minimum nominal axial compressive resistance shall be confirmed by a restrike test performed not less than 24 hours after end of initial drive.

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

- Estimated Maximum Scour Depth (Elevation) shown is for verifying Minimum Nominal Axial Compressive Resistance using dynamic testing only where pile resistance contribution above this Elevation shall not be considered.

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

- The contractor shall make every effort to achieve the minimum galvanized penetration (elevation) shown on the plans for all piles. Deviations in penetration less than 5 feet of the minimum will be considered acceptable provided the contractor makes the necessary corrections to ensure the minimum penetration is achieved on subsequent piles.

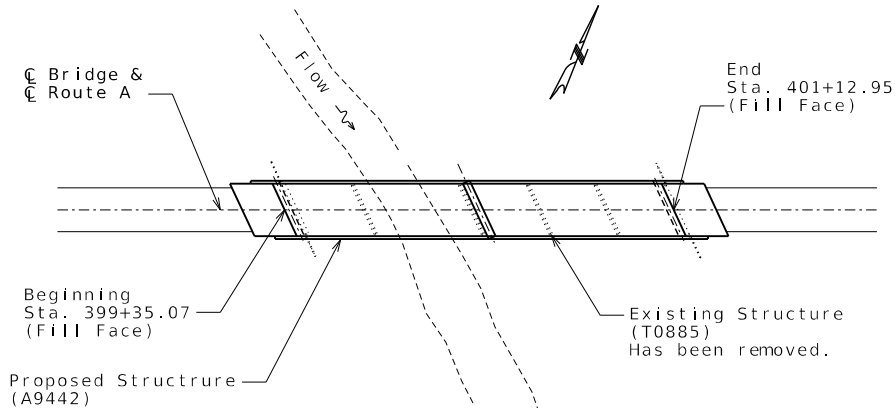
- Piles are located within the Heavy Revetment on spill slopes.

List of Drawings

- SHEET NO. DESCRIPTION
- GENERAL PLAN & ELEVATION
 - GENERAL NOTES & QUANTITIES
 - GALVANIZED CLOSED END CAST-IN-PLACE (CECIP) CONCRETE PILES
 - DETAILS OF END BENT NO. 1
 - DETAILS OF END BENT NO. 1
 - DETAILS OF END BENT NO. 1
 - DETAILS OF END BENT NO. 1
 - VERTICAL DRAIN AT END BENTS
 - DETAILS OF INTERMEDIATE BENT NO. 2
 - DETAILS OF END BENT NO. 3
 - DETAILS OF END BENT NO. 3
 - DETAILS OF END BENT NO. 3
 - DETAILS OF END BENT NO. 3
 - NU-GIRDERS-SPANS (1-2) AND (2-3)
 - NU-GIRDERS (ALTERNATE REINFORCEMENT)-SPANS (1-2) AND (2-3)
 - DETAILS OF DIAPHRAGM AT INTERMEDIATE BENT NO. 2
 - SLAB DRAINS
 - GIRDER CAMBER DIAGRAM & MISC. SLAB DETAILS
 - SLAB PLAN & SECTION
 - TYPE D BARRIER
 - TYPE D BARRIER AT END BENTS
 - BRIDGE APPROACH SLAB (MINOR)
 - BILL OF REINFORCING STEEL
 - BILL OF REINFORCING STEEL
 - BILL OF REINFORCING STEEL
 - "AS BUILT PILE" DATA
 - BORING DATA
 - BORING DATA

Hydrologic Data	
Drainage Area = 23 mi ²	
Design Flood Frequency = 25 years	
Design Flood Discharge = 4300 cfs	
Design Flood (D.F.) Elevation = 845.3	
Base Flood (100-year)	
Base Flood Elevation = 846.3	
Base Flood Discharge = 6000 cfs	
Estimated Backwater = 1.0 ft	
Average Velocity thru Opening = 7.3 ft/s	
Freeboard (50-year)	
Freeboard = 2.1 ft	
Roadway Overtopping	
Overtopping Flood Discharge = N/A	
Overtopping Flood Frequency = > 500 year	
500-year Flood Elevation = 847.3	

- (1) Criteria for Min. Tip Penetration: Penetration anticipated soft geotechnical layers



1 Revised 07-01-2024

LOCATION SKETCH

Detailed May 2024
Checked Jun. 2024

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

Sheet No. 2 of 28



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DATE PREPARED
06/21/2024

ROUTE A STATE MO
DISTRICT BR SHEET NO. 2

COUNTY
ADAIR

JNE0140

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9442

DESCRIPTION	DATE	Misc.	text	revisions
07-01-24				

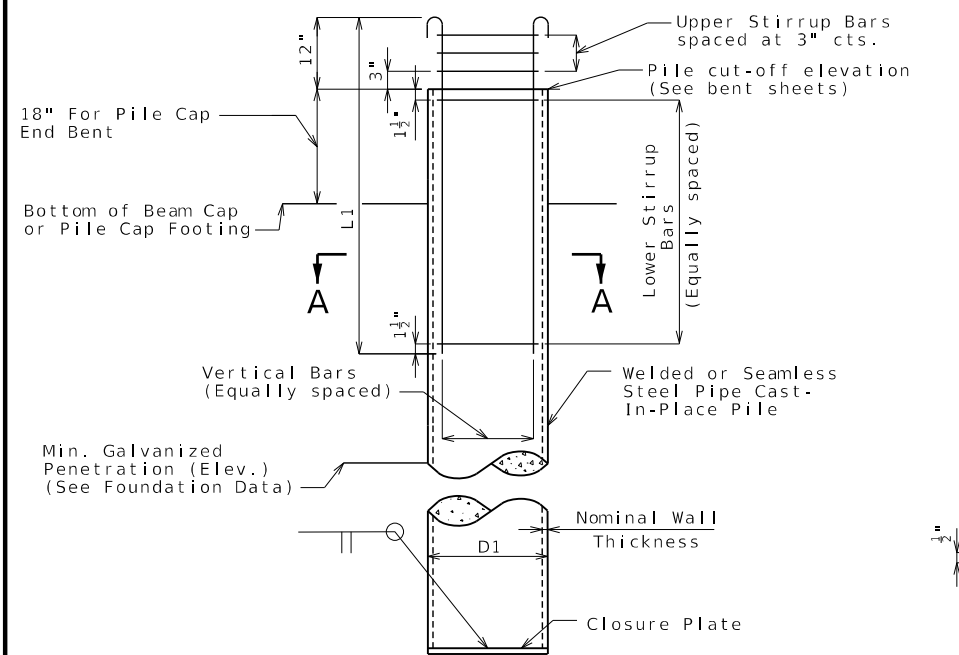
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

MoDOT

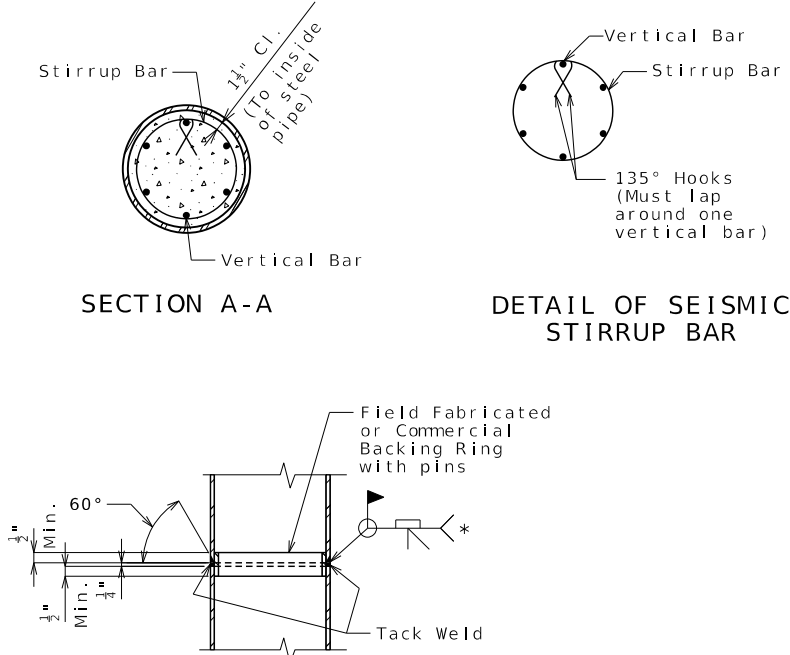
105 WEST CAPITOL
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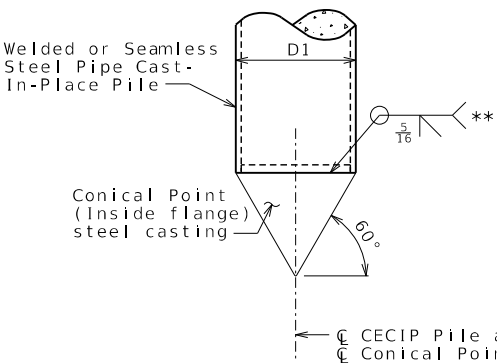


16" GALVANIZED CLOSED ENDED CAST-IN-PLACE (CECIP) CONCRETE PILE WITHOUT PILE POINT REINFORCEMENT



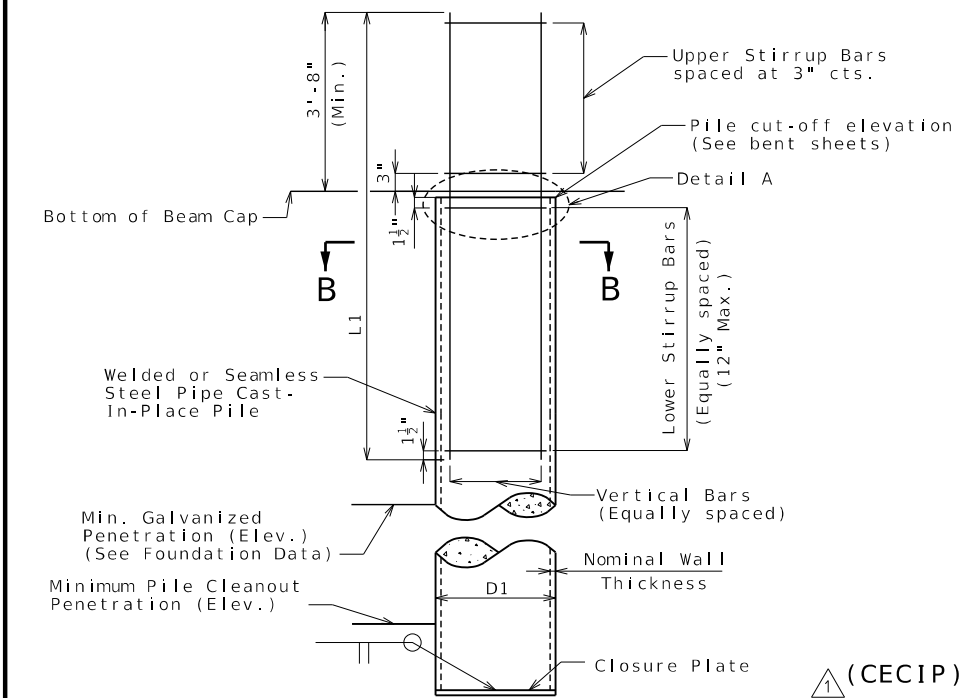
STEEL PIPE PILE SPLICE

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

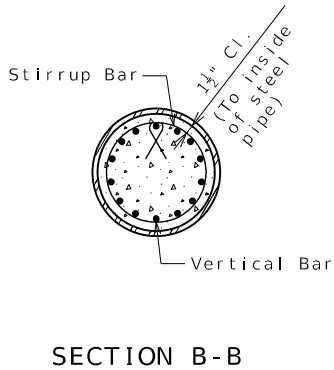


MANUFACTURED CONICAL PILE POINT (Omit closure plate)

** If the conical pile point is not pre-beveled, place a 3/8 inch bevel at 40 degrees on the pipe.



36" GALVANIZED CLOSED ENDED CAST-IN-PLACE (CECIP) CONCRETE PILE WITHOUT PILE POINT REINFORCEMENT



SECTION B-B

GALVANIZED CLOSED ENDED CAST-IN-PLACE (CECIP) CONCRETE PILE

Galvanized Closed Ended Cast-In-Place (CECIP) Concrete Pile Data			
Bent Number	1	2	3
D1, CECIP Pile (O.D.)	16"	36"	16"
Min. Nominal Wall Thickness	5/8"	5/8"	5/8"
Closure Plate Thickness	3/4"	1 1/2"	3/4"
Pile Point Reinforcement	Conical	Conical	Conical
Vertical Bars	6-#6-V104	14-#8-V202	6-#6-V304
L1, Length of Vertical Bars	5'-3"	16'-0"	5'-3"
Upper Stirrup Bars	3-#4-P101	14-#4-P201	3-#4-P301
Lower Stirrup Bars	5-#4-P101	13-#4-P201	5-#4-P301

Notes:

Welded or seamless steel shell (pipe) shall be ASTM A252 Grade 3 (fy = 45,000 psi).

Concrete for cast-in-place pile shall be Class B-1.

Steel for closure plate shall be ASTM A709 Grade 50.

Steel casting for conical pile point reinforcement shall be ASTM A148 Grade 90-60.

The minimum wall thickness of any spot or local area of any type shall not be more than 12.5% under the specified nominal wall thickness.

The contractor shall determine the pile wall thickness required to avoid damage from all driving activities, but wall thickness shall not be less than the minimum specified. No additional payment will be made for furnishing a thicker pile wall than specified on the plans.

Closure plate shall not project beyond the outside diameter of the pipe pile. Satisfactory weldments may be made by beveling tip end of pipe or by use of inside backing rings. In either case, proper gaps shall be used to obtain weld penetration full thickness of pipe. Payment for furnishing and installing closure plate will be considered completely covered by the contract unit price for Galvanized Cast-In-Place Concrete Piles.

Splices of pipe for cast-in-place concrete pile shall be made watertight and to the full strength of the pipe above and below the splice to permit hard driving without damage. Pipe damaged during driving shall be replaced without cost to the state. Pipe sections used for splicing shall be at least 5 feet in length.

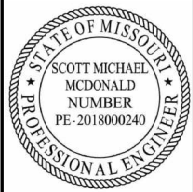
The hooks of vertical bars embedded in the beam cap should not be turned outward, away from the pile core.

Closure plate need not be galvanized.

Reinforcing steel for cast-in-place piles is included in the Bill of Reinforcing Steel.

All reinforcement for cast-in-place pile is included in the estimated quantities for bents.

For Foundation Data table, see Sheet No. 2.



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06/21/2024

ROUTE
A

DISTRICT
BR

COUNTY
ADAIR

JOB NO.
JNE0140

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
A9442

DESCRIPTION

Change CECIP to CECIP

DATE

07-01-24

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

105 WEST CAPITOL

JEFFERSON CITY, MO 65102

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

MODOT

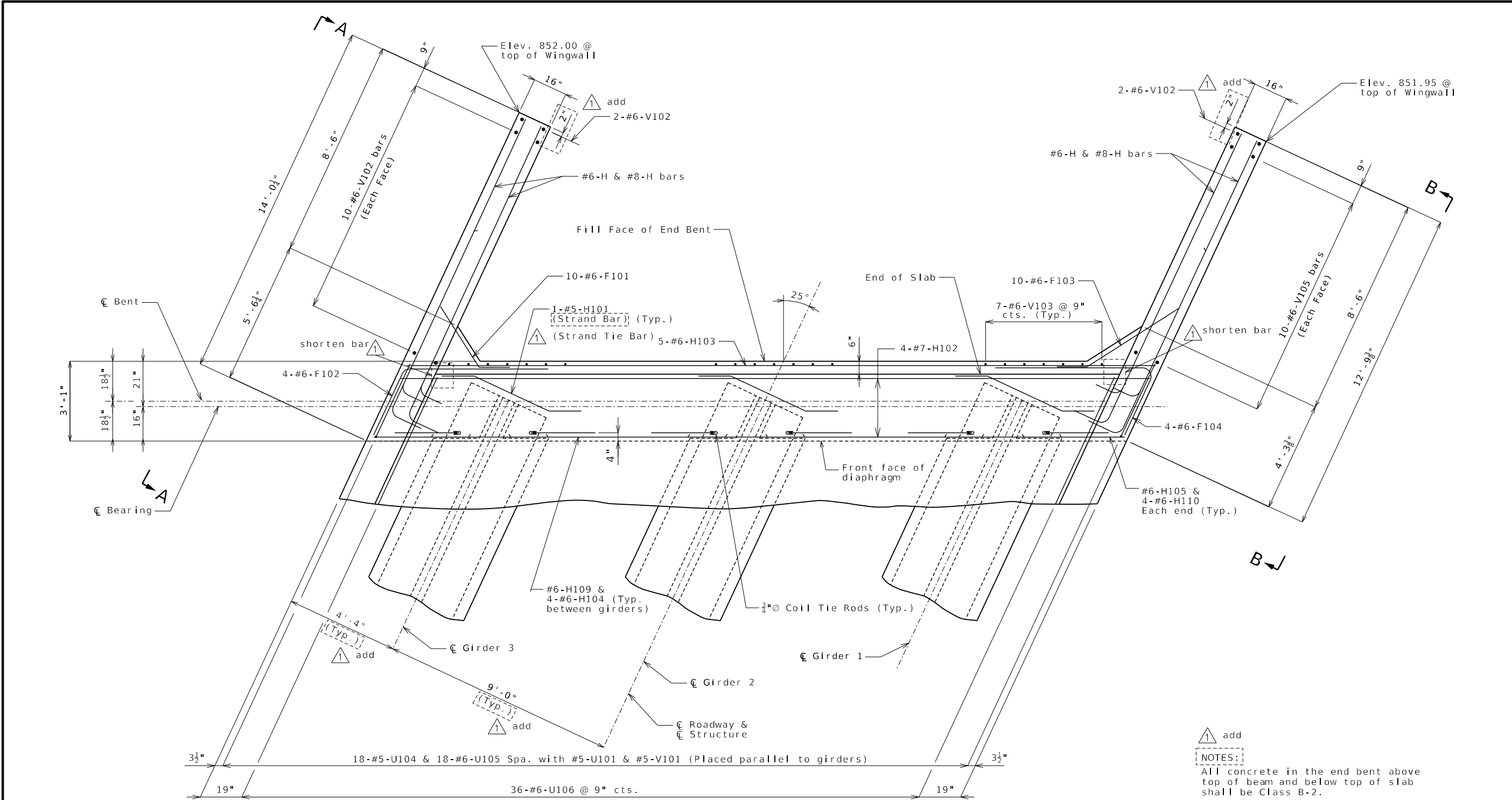
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Note: All U bars and V bar pairs in the End Bent shall be placed parallel to the girders.

Substructure Quantity Table for End Bent No. 1		
Item		Quantity
Class 1 Excavation	cu. yard	45
Galvanized Cast-In-Place Concrete Piles (16 in.)	linear foot	518
Dynamic Pile Testing	each	1
Dynamic Pile Restrike Testing	each	1
Pile Point Reinforcement	each	7
Class B Concrete (Substructure)	cu. yard	13.5

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

DETAILS OF END BENT NO. 1

- 1

add
- NOTES:
- All concrete in the end bent above top of beam and below top of slab shall be Class B-2.
- Strands at end of girders shall be field bent or, if necessary, cut in field to maintain 1 1/2 inch minimum clearance to fill face of end bent.
- For location of coil tie rods and #5-H101 (strand tie bar), see Sheets No. 14 thru 15.
- For Elevation A-A and Elevation B-B see Sheet No. 7.
- For details of Vertical Drain at End Bent, see Sheet No. 8.
- For details of Bridge Approach Slab, see Sheet No. 22.
- For details of End Bent No. 1 not shown, see Sheets No. 5, 6, & 7.
- For details of Galvanized Cast-In-Place Concrete Piles, see Sheet No. 3.

Detailed May 2024
Checked Jun. 2024

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

Sheet No. 4 of 28

1 Revised 07-01-2024

STATE OF MISSOURI
SCOTT MICHAEL
MCDONALD
NUMBER
PE-2018000240
PROFESSIONAL ENGINEER

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SIGNED, SEALED AND DATED
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DATE PREPARED
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ROUTE
A

STATE
MO

DISTRICT
BR

SHEET NO.
4

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A9442

DESCRIPTION
Misc. text & detail revisions

DATE
07-01-24

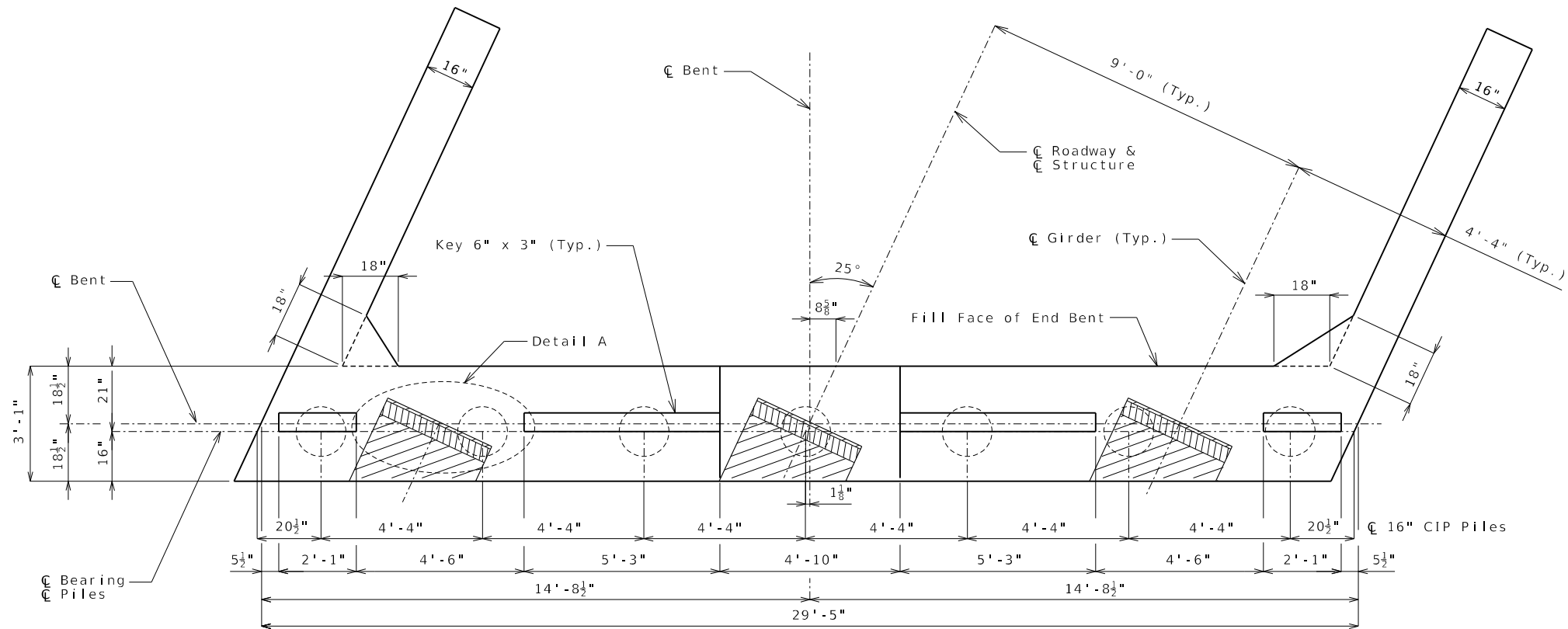
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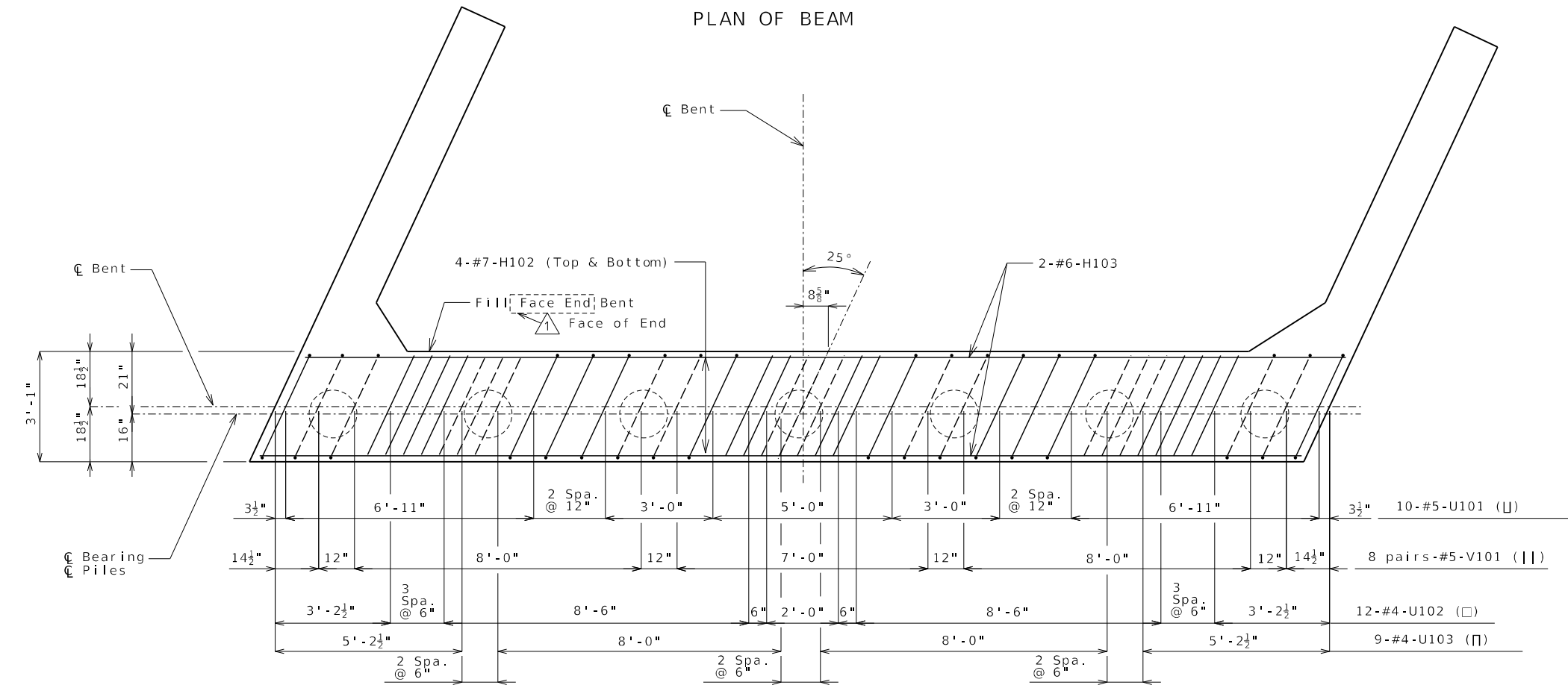
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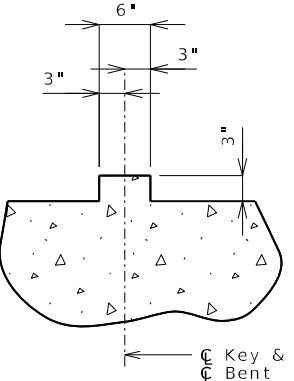
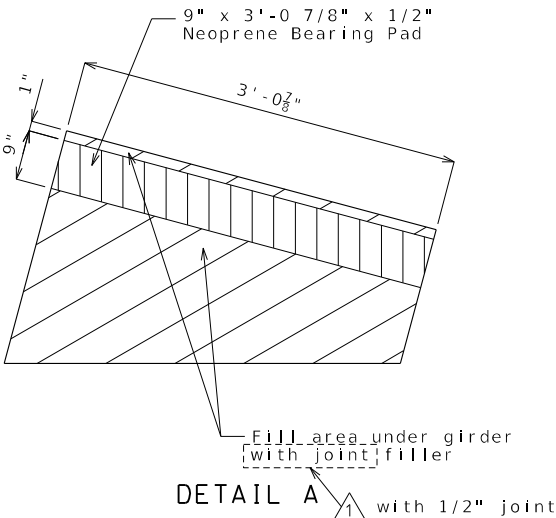
PLAN OF BEAM



PLAN OF BEAM SHOWING REINFORCEMENT

Note: All U bars and V bar pairs in the End Bent shall be placed parallel to the girders.

DETAILS OF END BENT NO. 1



SECTION THRU KEY

NOTES:
Reinforcing steel shall be shifted to clear piles. U bars shall clear piles by at least 1 1/2 inch.
For details of End Bent No. 1 not shown, see Sheets No. 4, 6 & 7.



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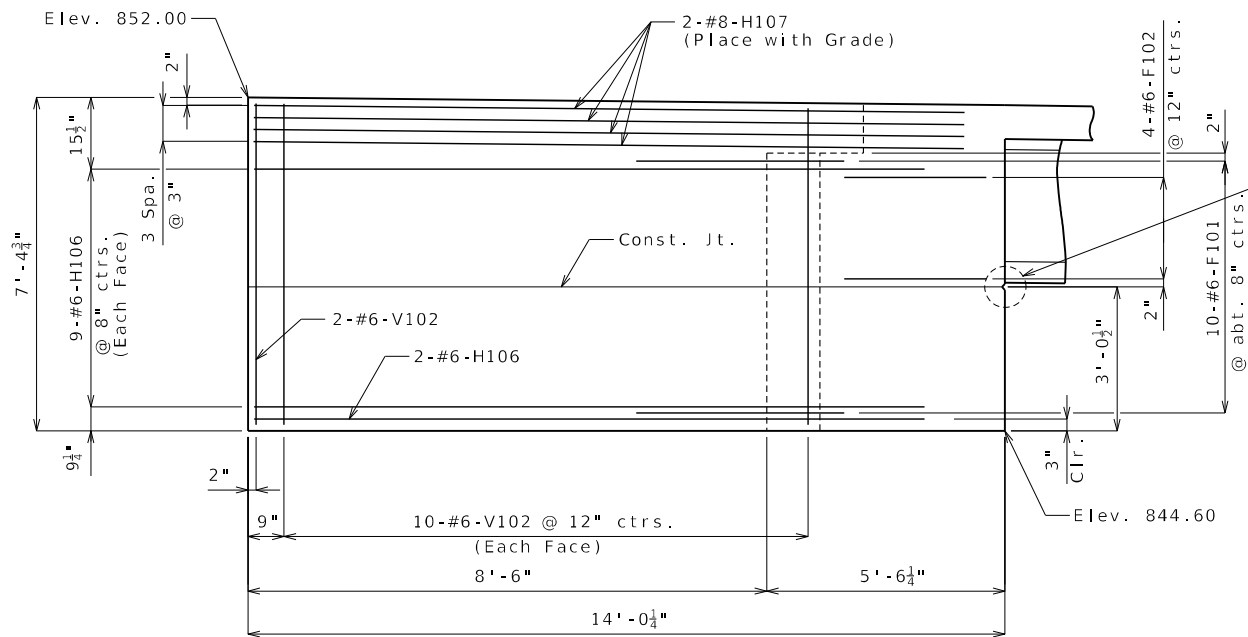
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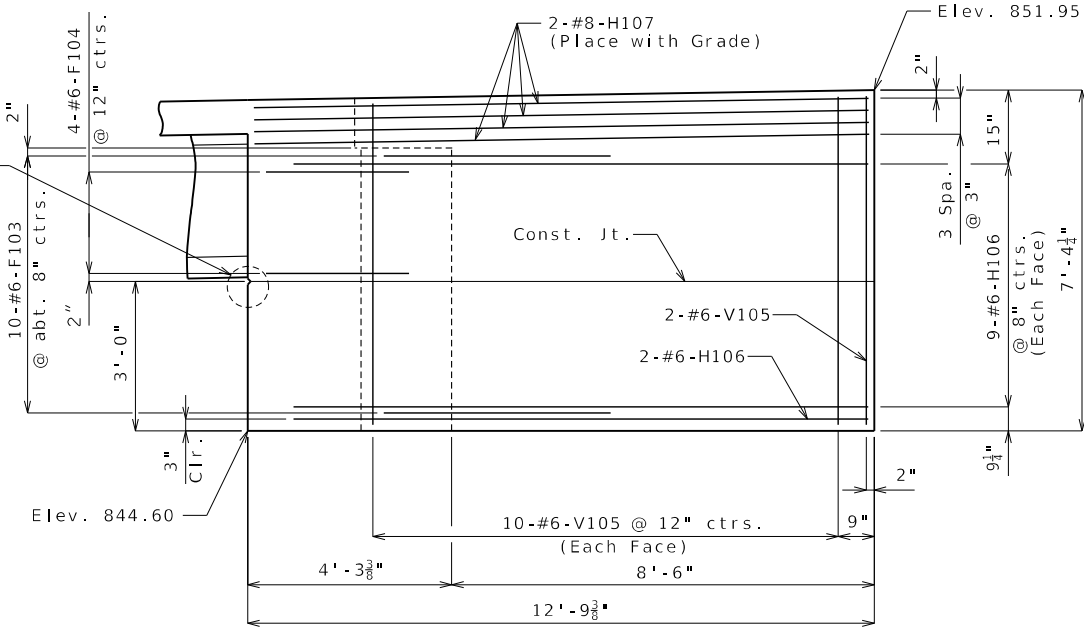
DATE	DESCRIPTION
07-01-24	Misc. text revisions

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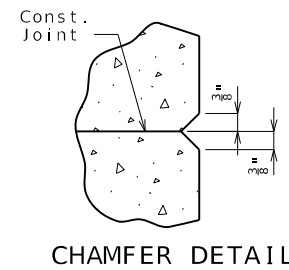
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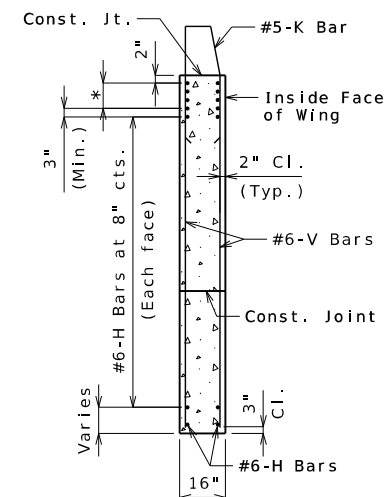
ELEVATION A-A



ELEVATION B-B



CHAMFER DETAIL



TYPICAL SECTION
THRU WING

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

For reinforcement of the
barrier, see Sheet No. 21.

Note:
For location of Elevation A-A and
Elevation B-B, see Sheet No. 4.

For Details of End Bent 1 not
shown, see Sheets No. 4, 5 & 6.

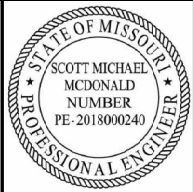
DETAILS OF END BENT NO. 1

Detailed May 2024
Checked Jun. 2024

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

Sheet No. 7 of 28

Revised 07-01-2024



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ROUTE A STATE MO

DISTRICT BR SHEET NO. 7

COUNTY ADAIR

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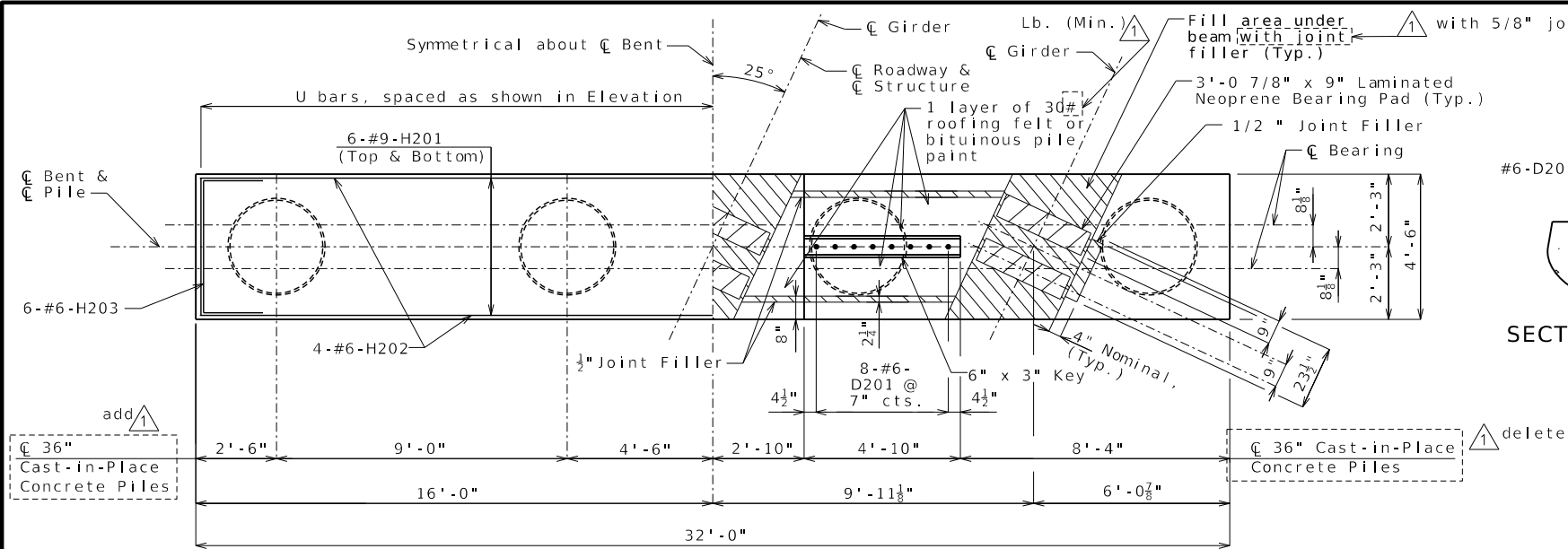
DATE	DESCRIPTION
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MISSOURI HIGHWAYS AND TRANSPORTATION
COMMISSION

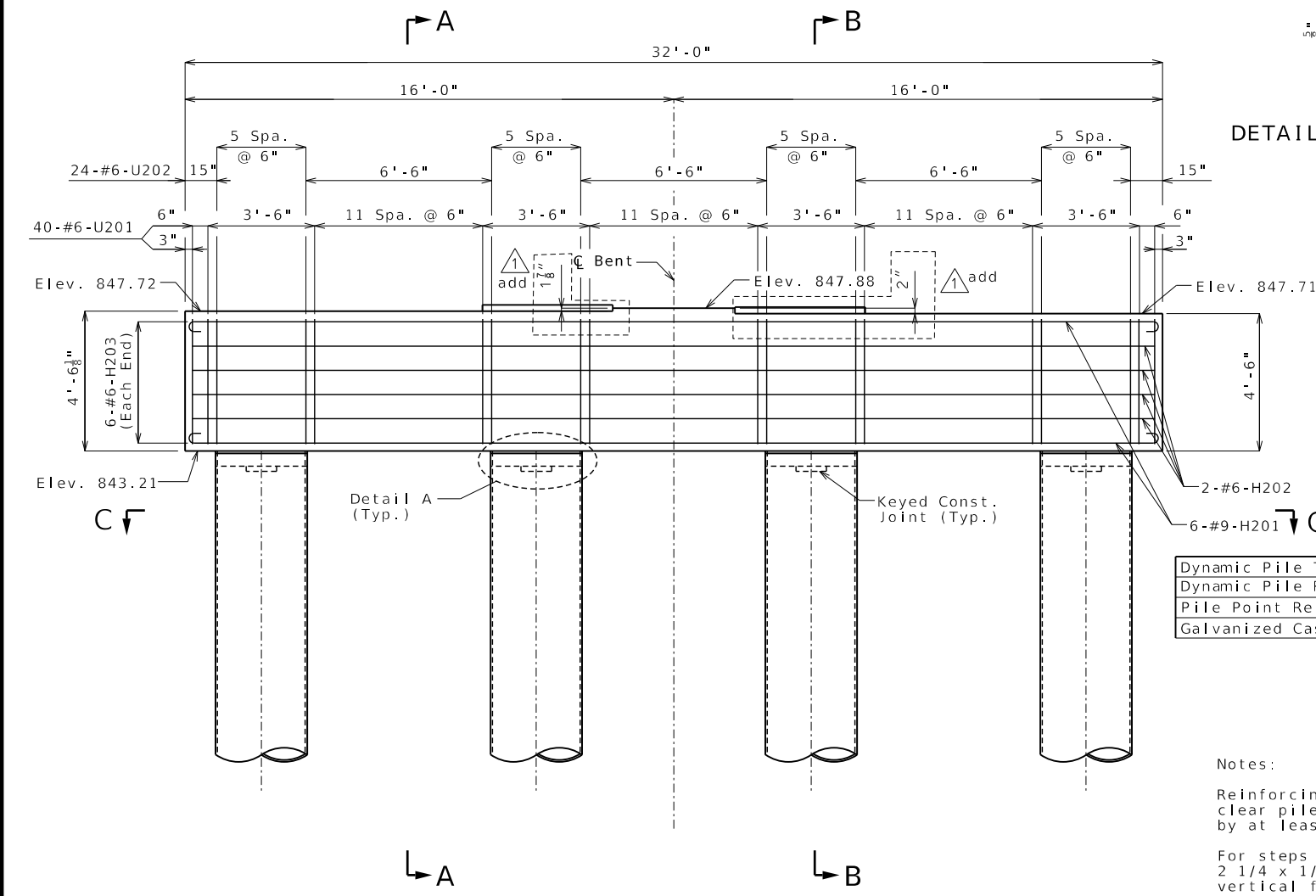
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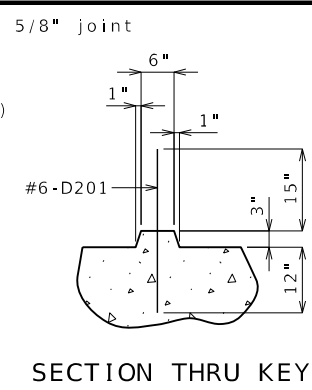


PLAN

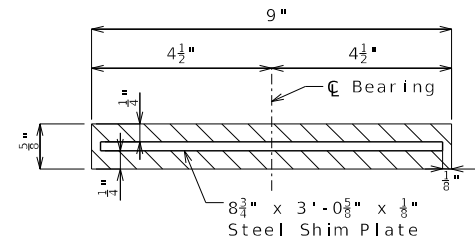


ELEVATION
(Looking Ahead Station)

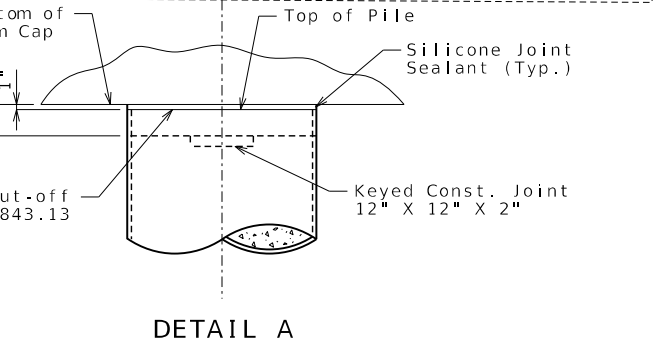
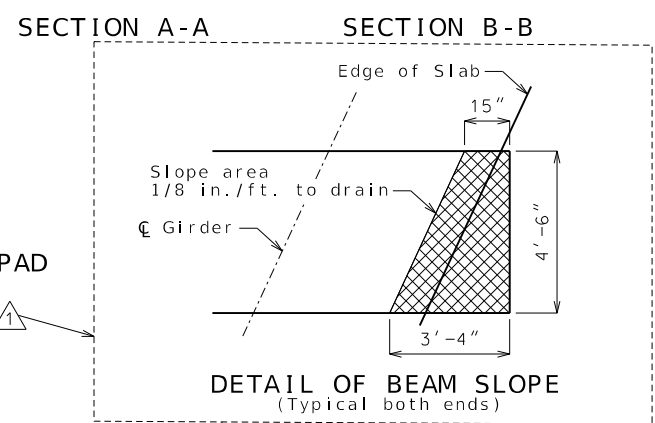
DETAILS OF INTERMEDIATE BENT NO. 2



SECTION THRU KEY



DETAIL OF LAMINATED NEOPRENE BEARING PAD



DETAIL A

Dynamic Pile Testing	each	1
Dynamic Pile Restrike Testing	each	1
Pile Point Reinforcement (36 in. CIP Concrete Piles)	each	4
Galvanized Cast-in-Place Concrete Pile (36 in.)	linear foot	300

Notes:

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

For steps 2 inches or more, use 2 1/4 x 1/2 inch joint filler up vertical face.

Substructure Quantity Table for Bent No. 2		
Item		Quantity
Galvanized Structural Steel Pile (36 in.)	linear foot	300
Dynamic Pile Testing	each	1
Dynamic Pile Restrike Testing	each	1
Pile Point Reinforcement (36 in. CIP Concrete Piles)	each	4
Class B Concrete (Substructure)	cu. yard	24.2
Reinforcing Steel (Bridges)	pound	6530

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

Revised 07-01-2024

Detailed Jun. 2024
Checked Jun. 2024

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

Sheet No. 9 of 28

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DATE PREPARED: 06/21/2024

ROUTE: A, STATE: MO, DISTRICT: BR, SHEET NO.: 9

COUNTY: ADAIR, JOB NO.: JNE0140, CONTRACT ID.: PROJECT NO.: BRIDGE NO.: A9442

DATE	DESCRIPTION
07-01-24	Added Beam Slope Detail
07-01-24	Misc. Text Editing

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

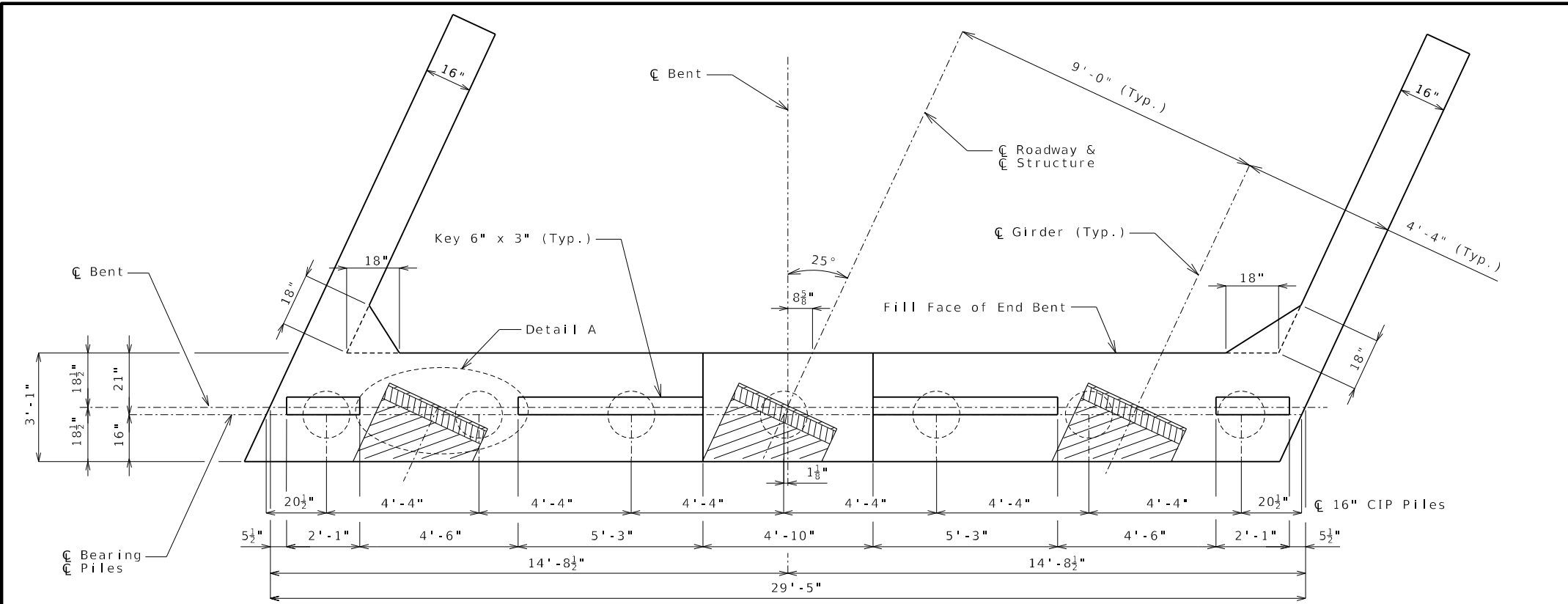
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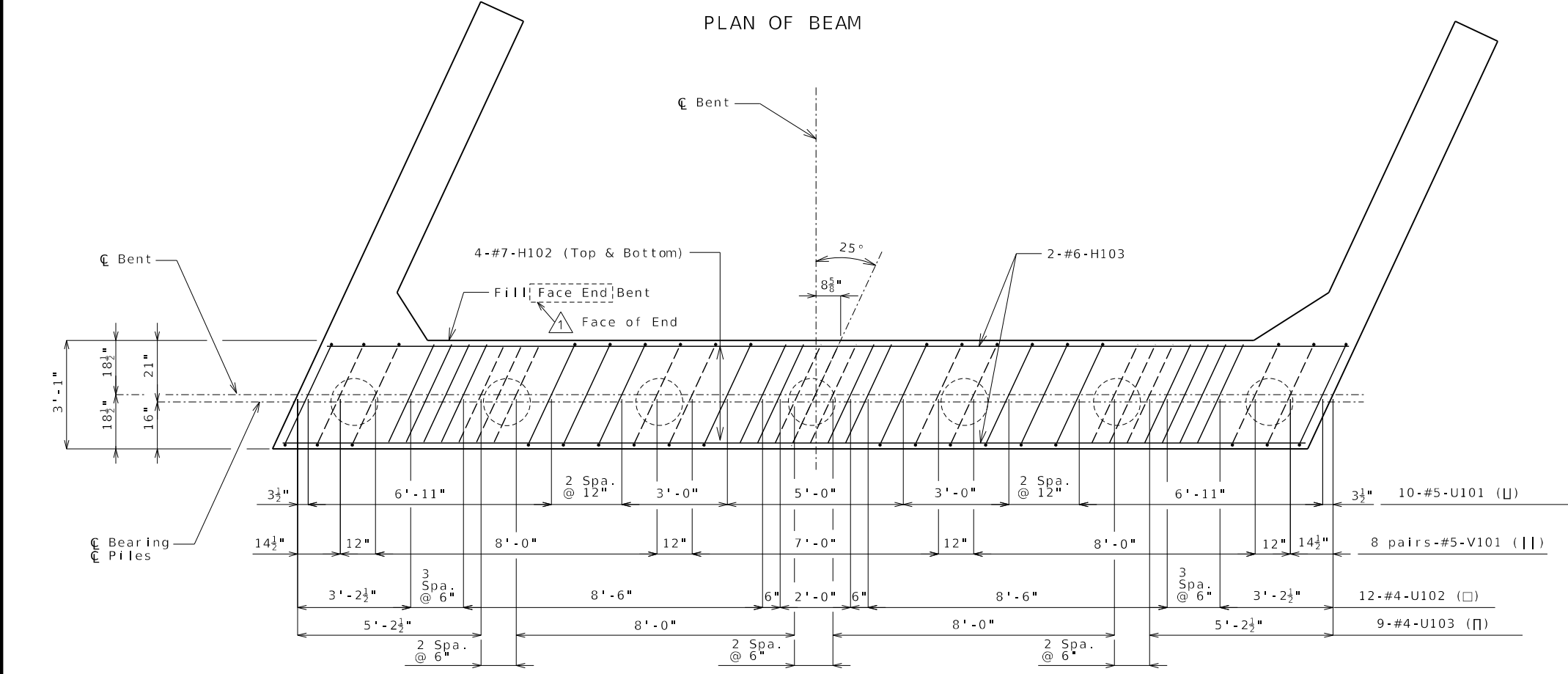
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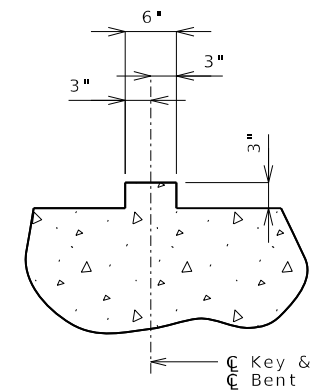
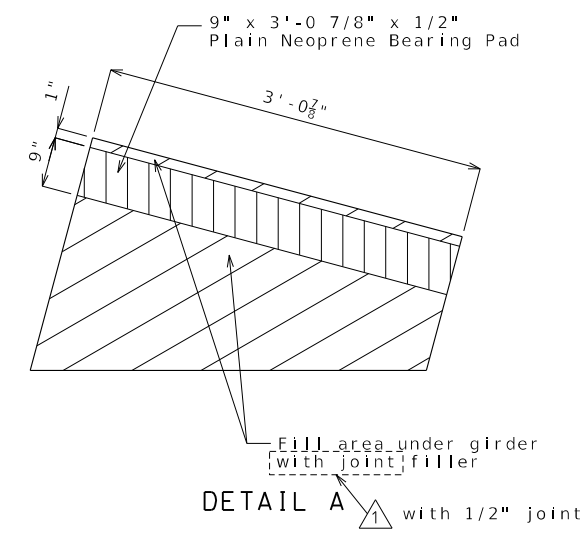
PLAN OF BEAM



PLAN OF BEAM SHOWING REINFORCEMENT

Note: All U bars and V bar pairs in the End Bent shall be placed parallel to the girders.

DETAILS OF END BENT NO. 3



NOTES:
Reinforcing steel shall be shifted to clear piles. U bars shall clear piles by at least 1 1/2 inch.
For details of End Bent No. 3 not shown, see Sheets No. 10, 12 & 13.

STATE OF MISSOURI
SCOTT MICHAEL
MCDONALD
NUMBER
PE-2018000240
PROFESSIONAL ENGINEER

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CONTRACT ID.

PROJECT NO.

BRIDGE NO.
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DESCRIPTION

Misc. text revisions

DATE

07-01-24

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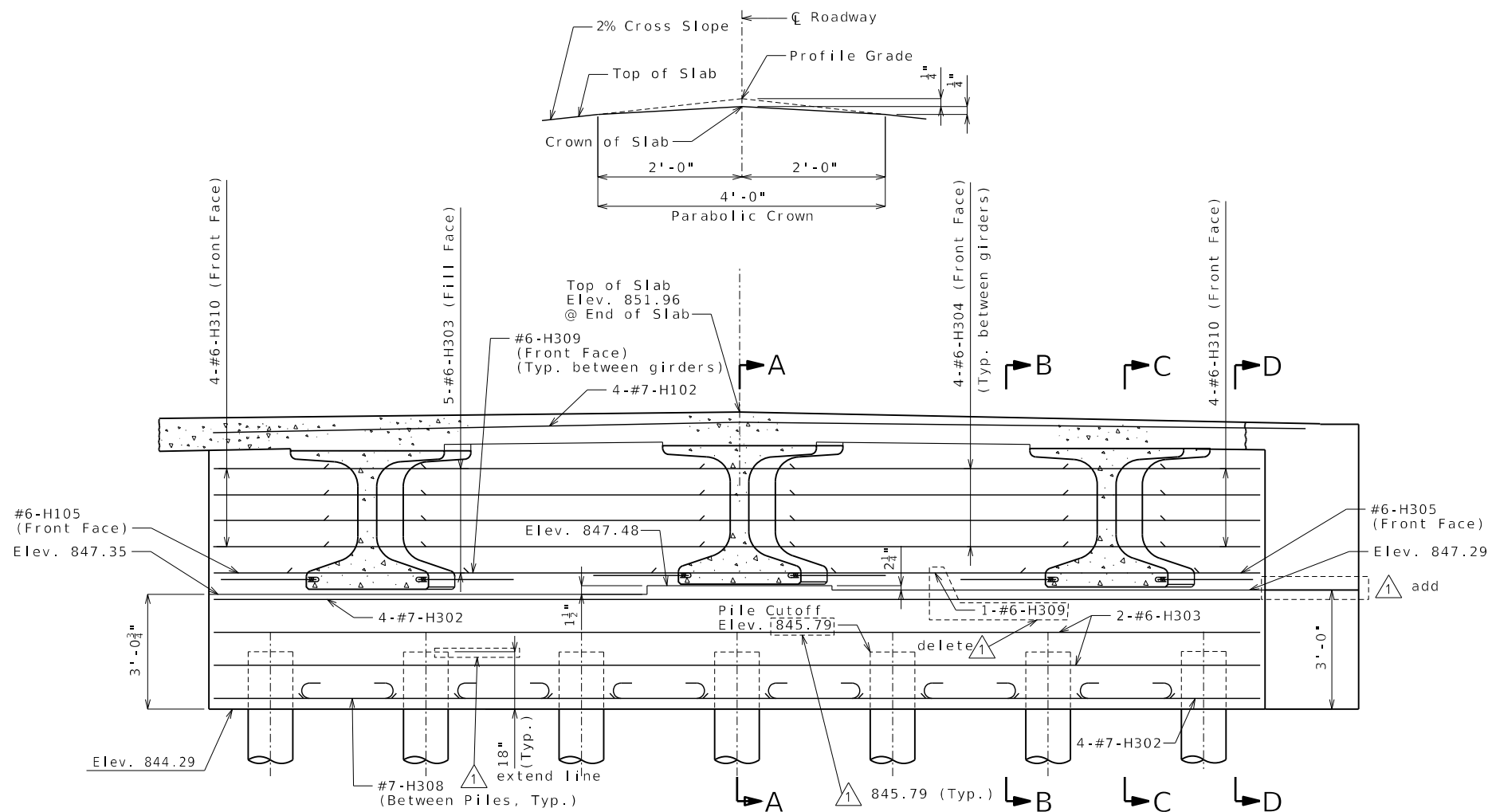
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Detailed May 2024
Checked Jun. 2024

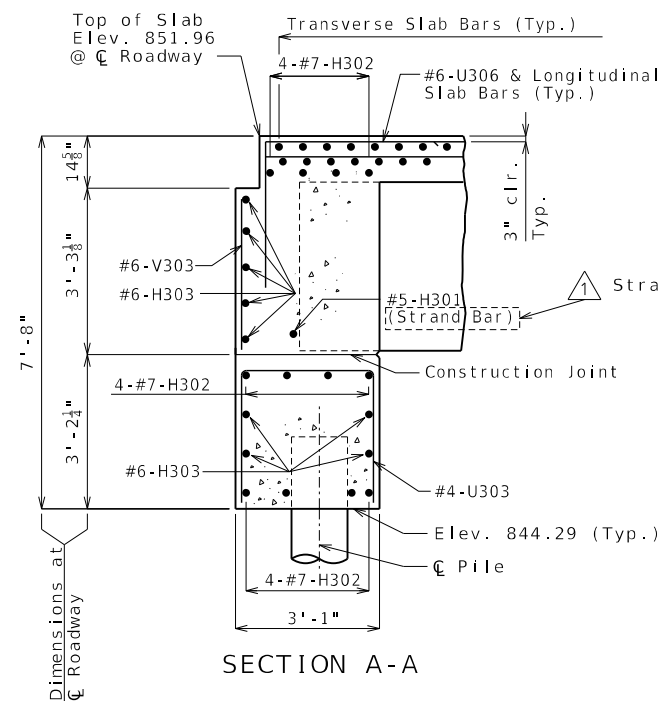
Note: This drawing is not to scale. Follow dimensions.

Sheet No. 11 of 28

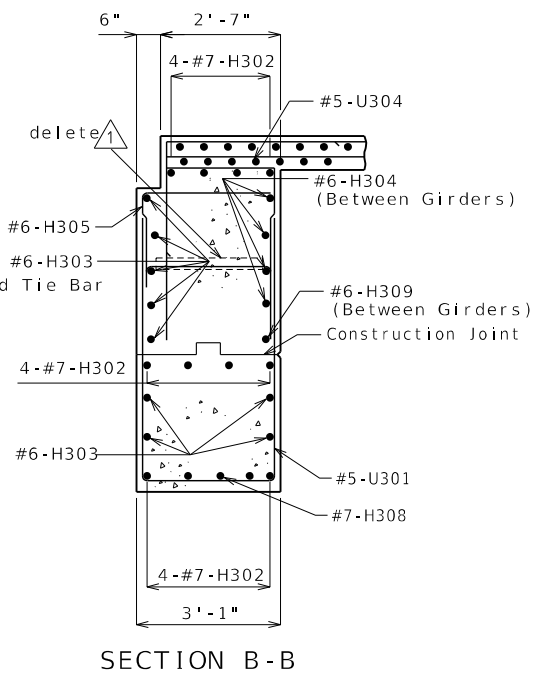
Revised 07-01-2024



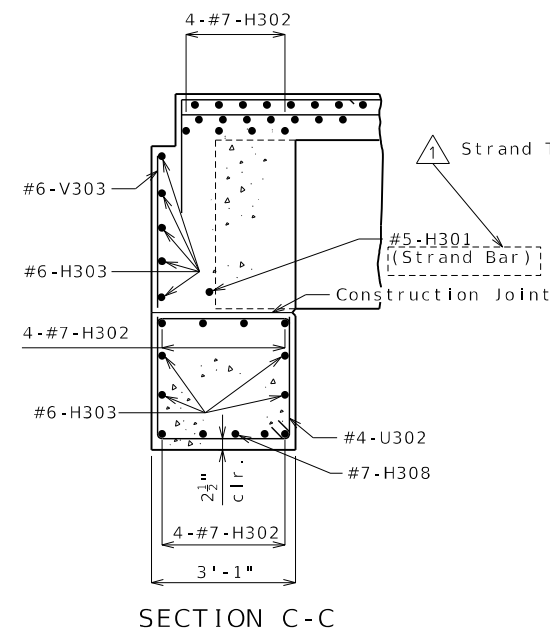
SECTION NEAR END BENT



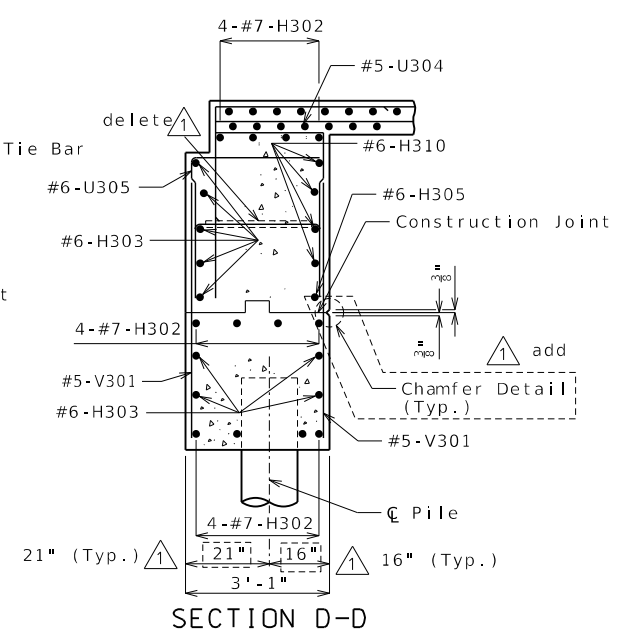
SECTION A-A



SECTION B-B



SECTION C-C



SECTION D-D

DETAILS OF END BENT NO. 3

NOTES:

For details of End Bent No. 3 not shown, see Sheets No. 10, 11, & 13.

Revised 07-01-2024

Detailed May 2024
Checked Jun. 2024

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Sheet No. 12 of 28



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PROJECT NO.

BRIDGE NO.
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DESCRIPTION

Misc. text and detail revisions

DATE

07-01-24

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COMMISSION

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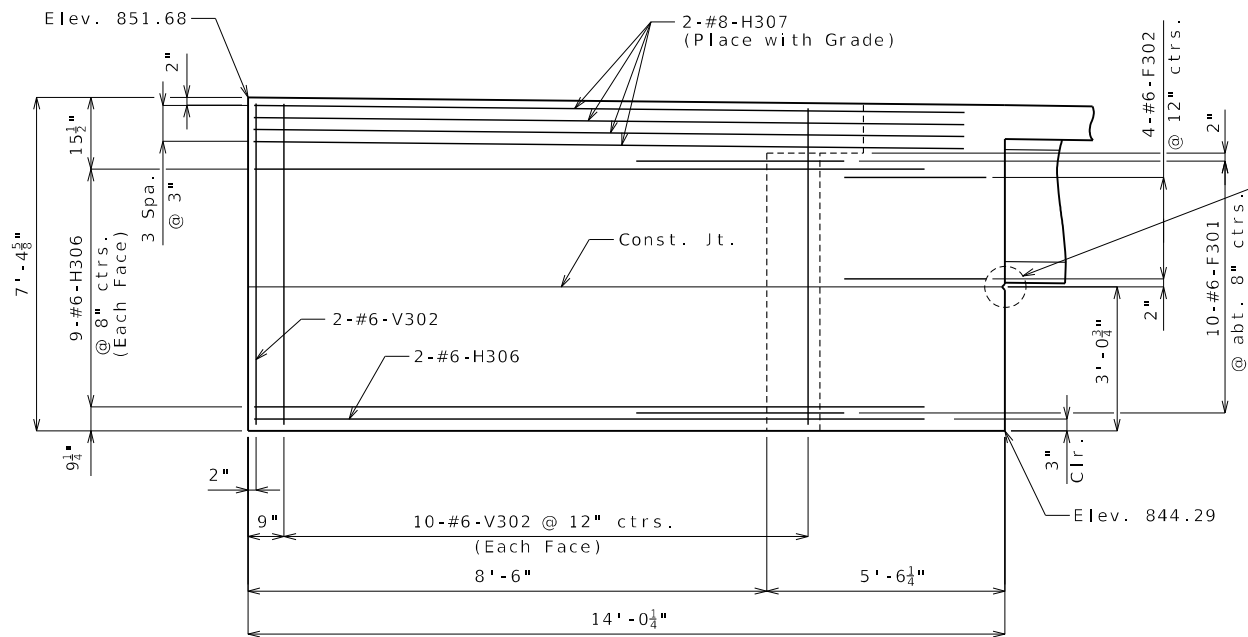
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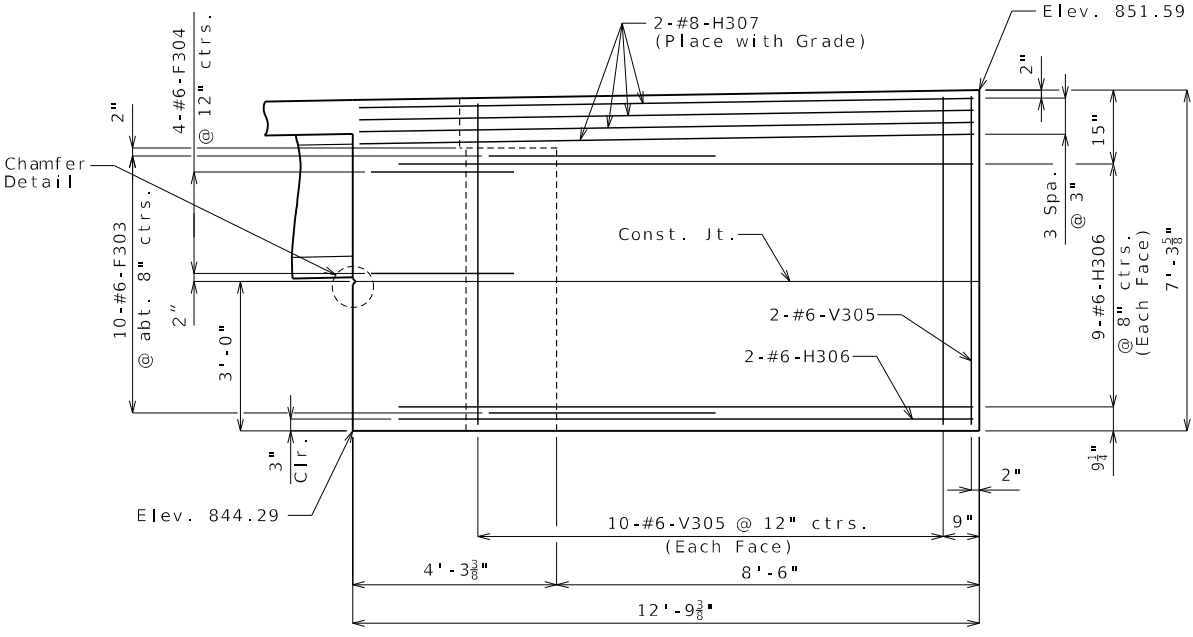
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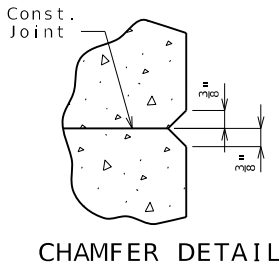
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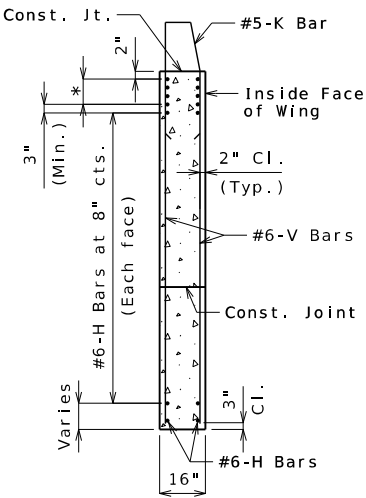
ELEVATION A-A



ELEVATION B-B



CHAMFER DETAIL



TYPICAL SECTION
THRU WING

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

For reinforcement of the
barrier, see Sheet No. 21.

Note:
For location of Elevation A-A and
Elevation B-B, see Sheet No. 10.

For Details of End Bent 3, not
shown, see Sheets No. 10, 11 & 12.

DETAILS OF END BENT NO. 3



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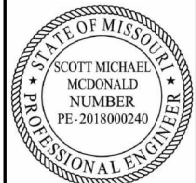
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DESCRIPTION

Revised dimension

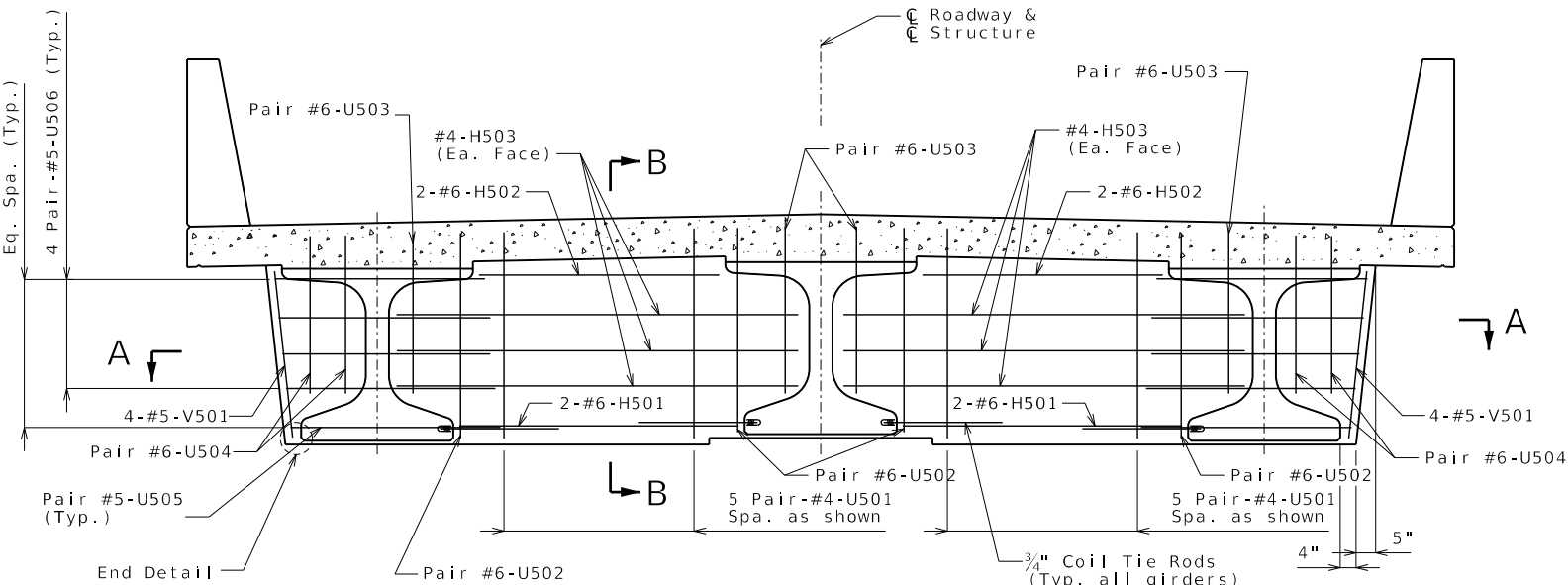
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07-01-24

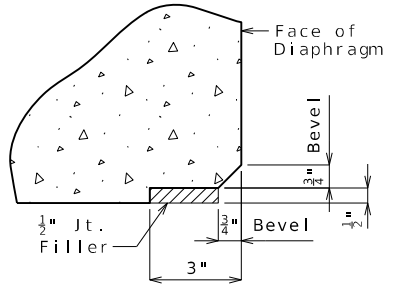
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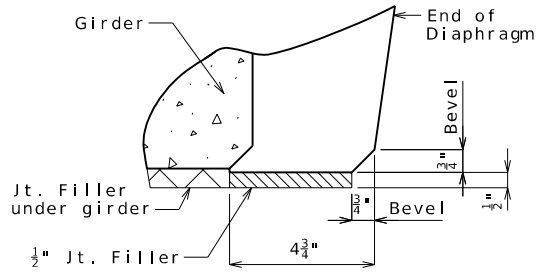
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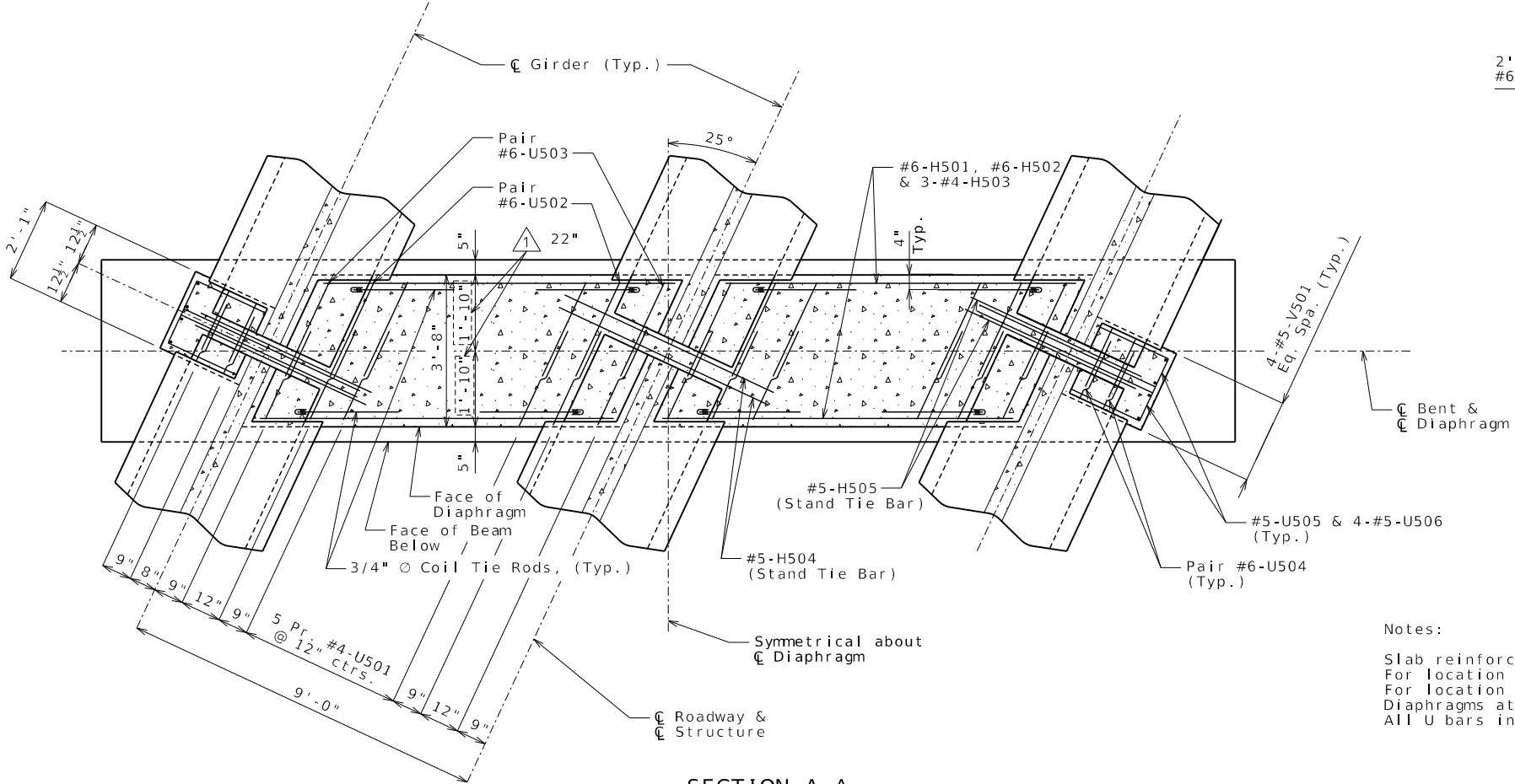
SECTION NEAR INTERMEDIATE BENT NO. 2



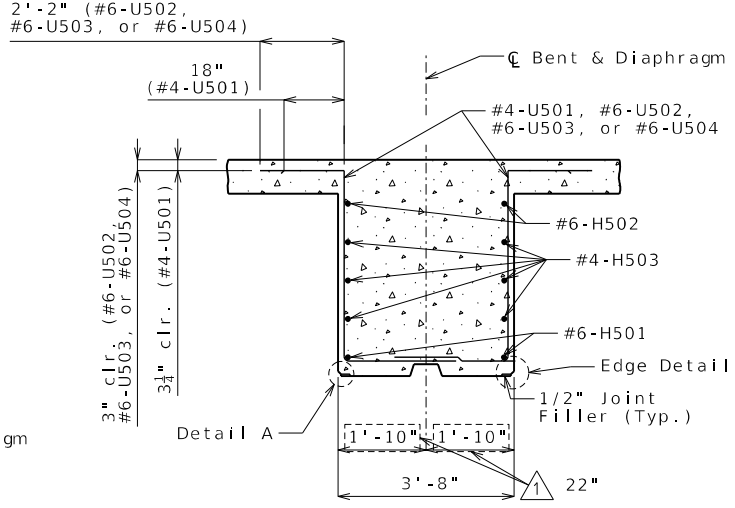
EDGE DETAIL



END DETAIL

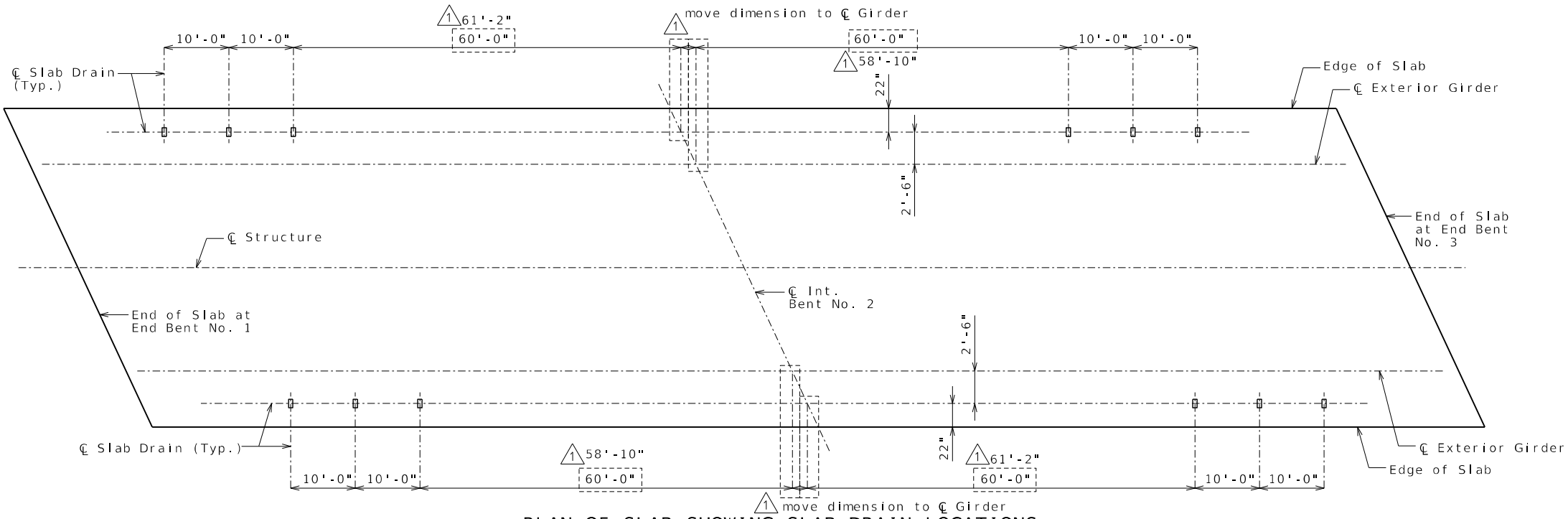


SECTION A-A

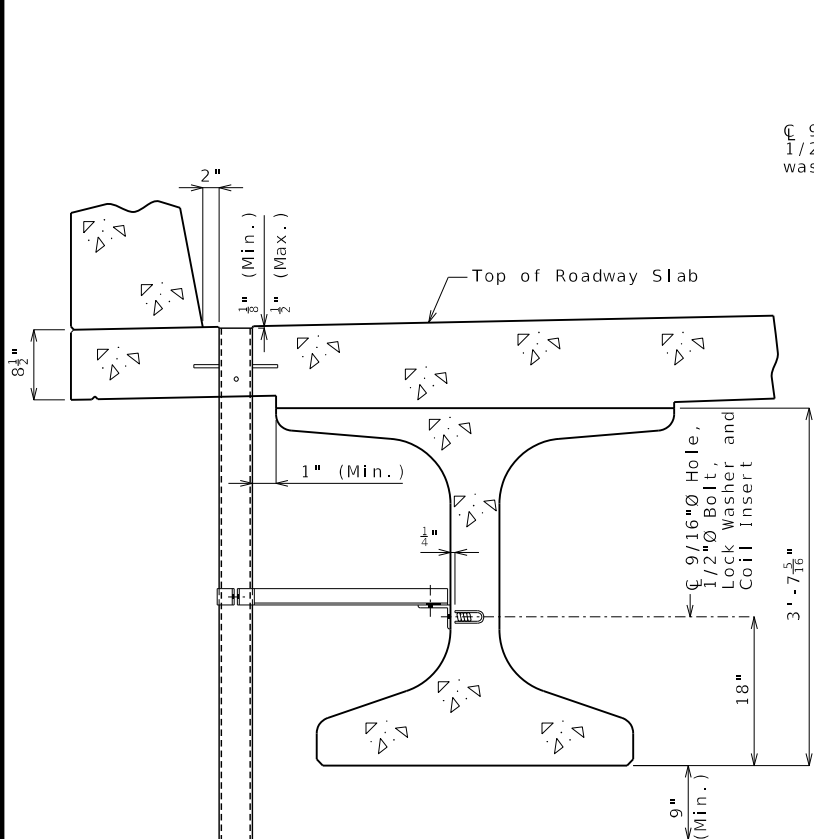


SECTION B-B

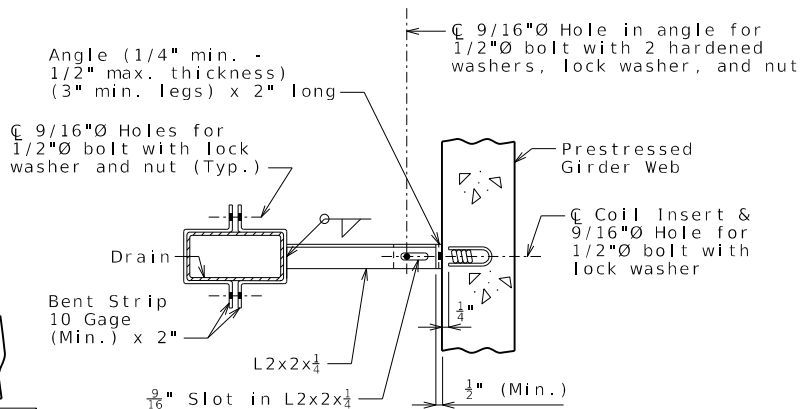
Notes:
Slab reinforcing bars not shown for clarity.
For location of strand tie bars, see Sheets No. 14 & 15.
For location and details of Coil Tie Rods, see Sheets No. 14 & 15.
Diaphragms at intermediate bents shall be built vertical.
All U bars in diaphragm are to be placed parallel to \bar{C} roadway.



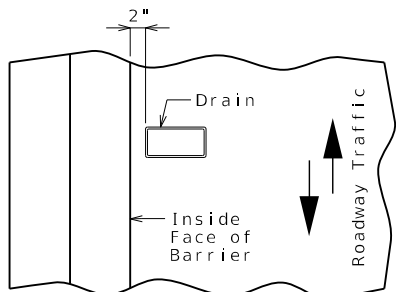
PLAN OF SLAB SHOWING SLAB DRAIN LOCATIONS



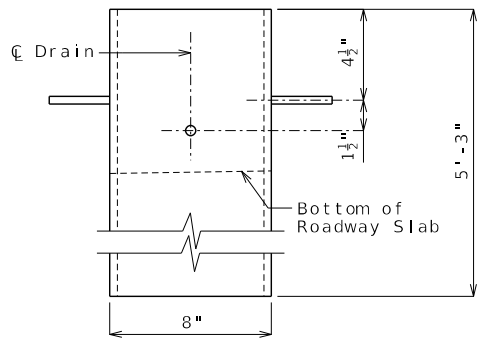
PART SECTION NEAR DRAIN



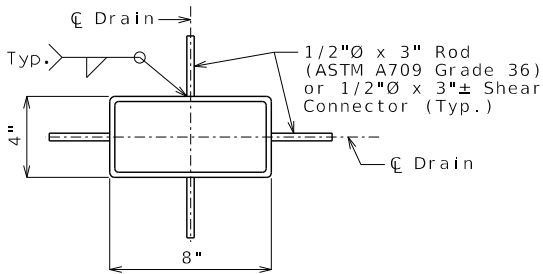
PART SECTION SHOWING BRACKET ASSEMBLY



PART PLAN OF SLAB AT DRAIN



ELEVATION OF DRAIN



PLAN OF STEEL DRAIN

General Notes:

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

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

Locate drains in slab by dimensions shown in Part Section Near Drain.

Reinforcing steel shall be shifted to clear drains.

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

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

All 1/2"Ø bolts shall be ASTM A307.

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

The coil 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.

SLAB DRAINS



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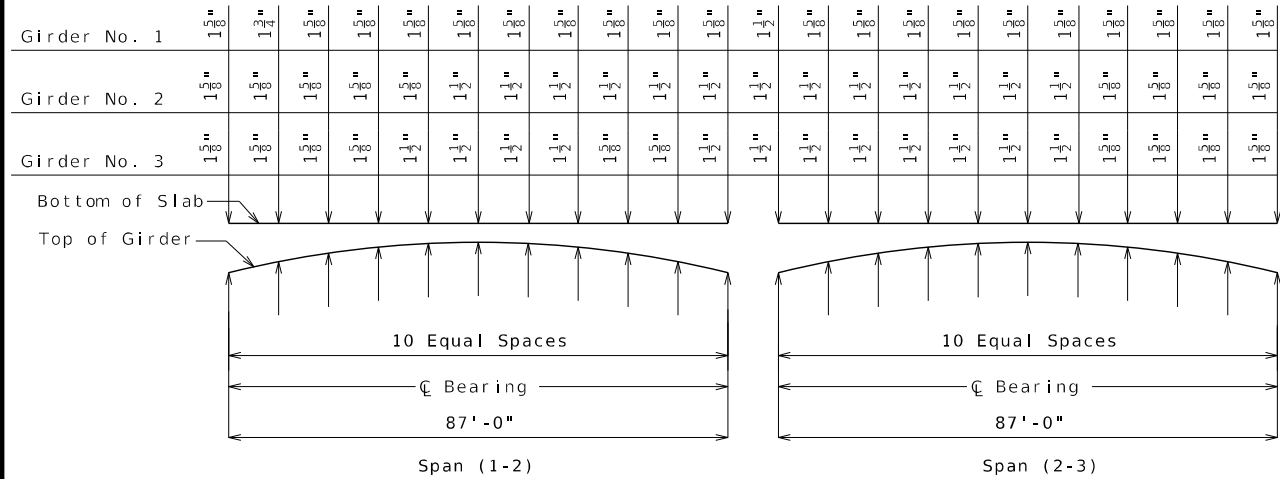
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Moved dimension line	07-01-24

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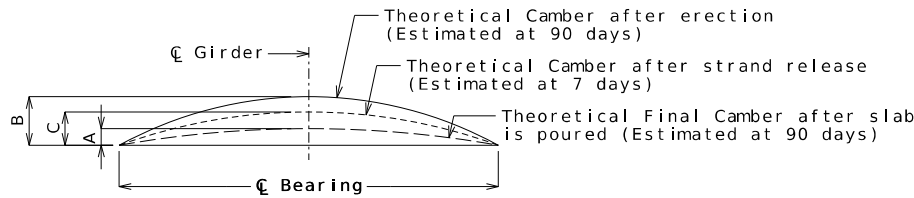
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THEORETICAL SLAB HAUNCHING DIAGRAM (ESTIMATED AT 90 DAYS)

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

Concrete in the slab haunches is included in the Estimated Quantities for Slab on Concrete NU-Girder.

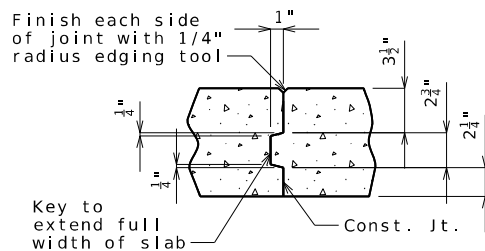


Girder	Span (1-2)			Span (2-3)		
	A	B	C	A	B	C
Exterior	2 1/8"	2 3/8"	1 1/4"	2 1/8"	2 3/8"	1 1/4"
Interior	2 1/8"	2 3/8"	1 1/4"	2 1/8"	2 3/8"	1 1/4"

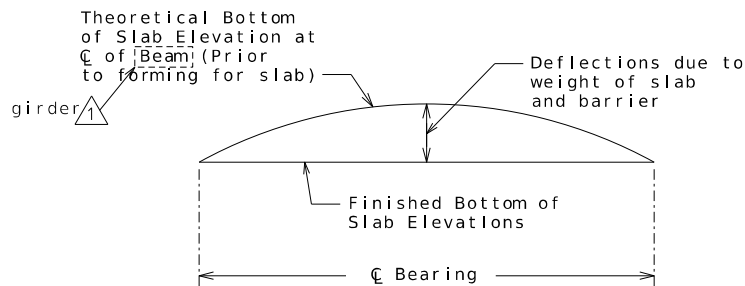
GIRDER CAMBER DIAGRAM

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

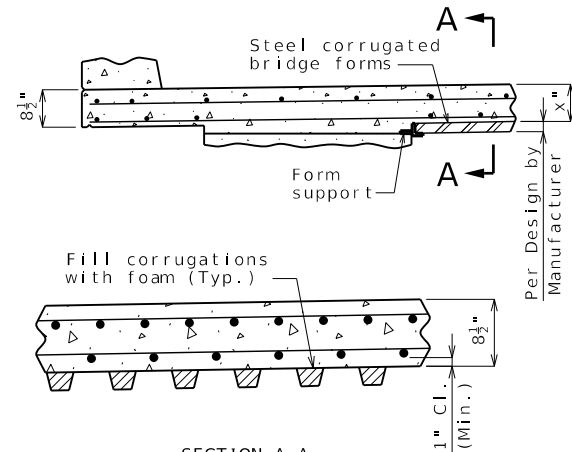
0.1 pt. = 0.314 x 0.5 pt.
0.2 pt. = 0.593 x 0.5 pt.
0.3 pt. = 0.813 x 0.5 pt.
0.4 pt. = 0.952 x 0.5 pt.



SLAB CONSTRUCTION JOINT



TYPICAL SLAB ELEVATIONS DIAGRAM



OPTIONAL STAY-IN-PLACE FORM DETAILS

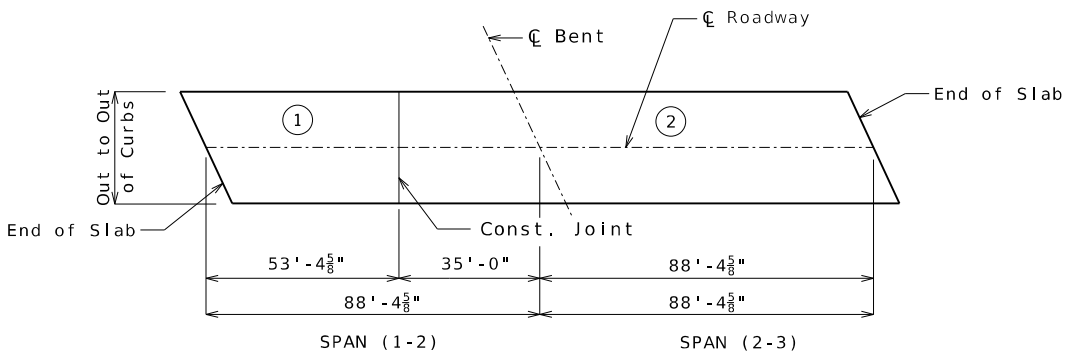
Stay-In-Place Forms:

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

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

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

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



	Sequence of Pours		Min. Rate of Pour Cu. Yds./Hr.
	Direction		With Retarder
Basic Sequence	1	2	25
	End to 2	1 to End	
Alternate pours to the basic sequence are subject to the approval of the engineer in accordance with Sec 703.			
Alternate A Pours	1 + 2		26
	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.

CAMBERMISCDETAILS SLAB POURING SEQUENCE

GIRDER CAMBER DIAGRAM & MISC. SLAB DETAILS

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

Girder Number	Span (1-2) (87'-0" C Brg. - C Brg.)										
	C Brg.	.10	.20	.30	.40	.50	.60	.70	.80	.90	C Brg.
1	851.39	851.46	851.53	851.58	851.61	851.63	851.64	851.62	851.60	851.56	851.51
2	851.57	851.64	851.70	851.75	851.78	851.80	851.80	851.79	851.76	851.71	851.67
3	851.42	851.49	851.55	851.60	851.63	851.64	851.64	851.62	851.59	851.55	851.50
Girder Number	Span (2-3) (87'-0" C Brg. - C Brg.)										
	C Brg.	.10	.20	.30	.40	.50	.60	.70	.80	.90	C Brg.
1	851.51	851.53	851.54	851.55	851.54	851.51	851.46	851.40	851.32	851.23	851.14
2	851.66	851.68	851.69	851.69	851.68	851.65	851.60	851.54	851.46	851.37	851.27
3	851.50	851.51	851.52	851.52	851.50	851.47	851.42	851.35	851.27	851.18	851.08

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



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DATE	DESCRIPTION
07-01-24	Misc. text changes

