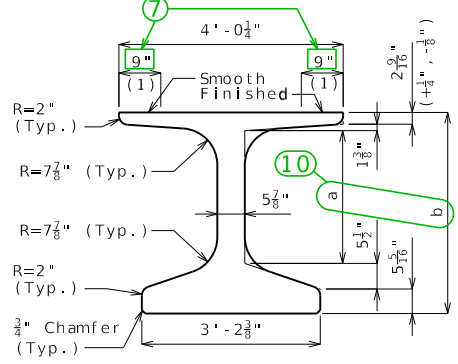
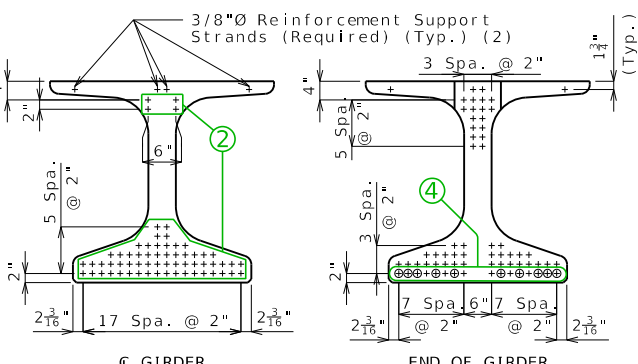


(1) Fabricator shall apply a bond breaker to this region excluding where joint filler will be applied.



DIMENSIONS

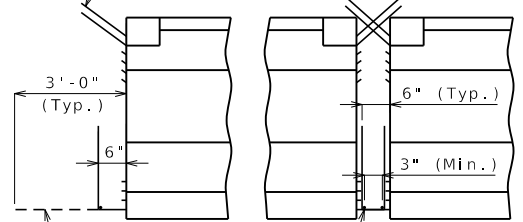
(2) Outer strands tensioned to 2.02 kips/strand and inner strands to 8 kips/strand. Placed symmetrical about C/Girder. May be moved laterally in pairs.



STRAND ARRANGEMENT

+ Indicates prestressing strand. o Indicates cut & shop bend with 3'-0" projection.

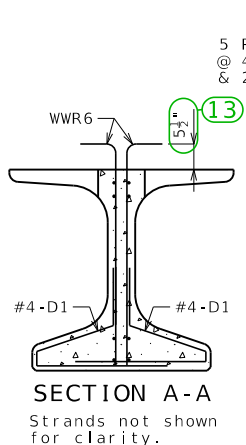
Cut top 2 rows of strands with a 12" projection and bend in shop (Cut any remaining top strands within 1" of end of girder) (Typ.)



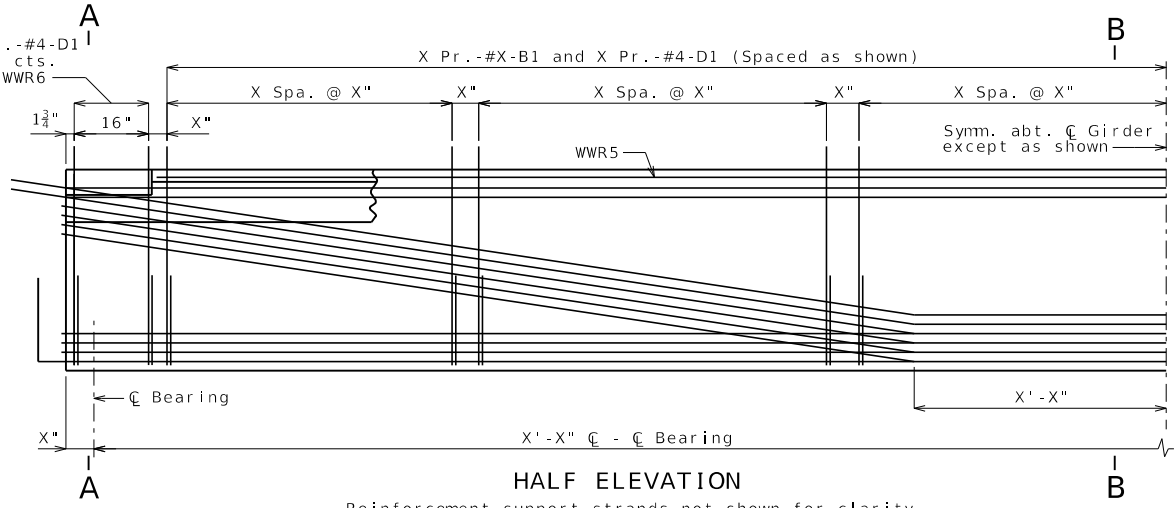
STRANDS AT GIRDER ENDS

Cut & shop bend with 3'-0" projection (Cut any remaining bottom strands within 1" of girder end) (Typ.)

#5 Strand Tie Bar (Normal to girders) (Typ.)

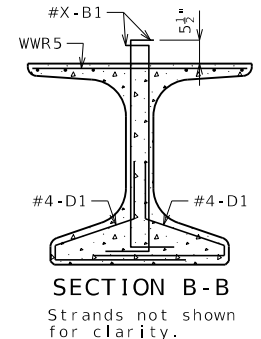


SECTION A-A
Strands not shown for clarity.

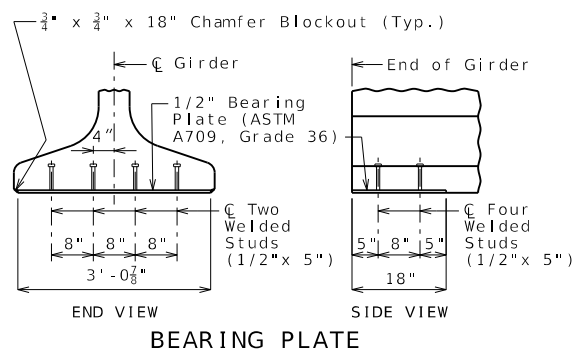


HALF ELEVATION

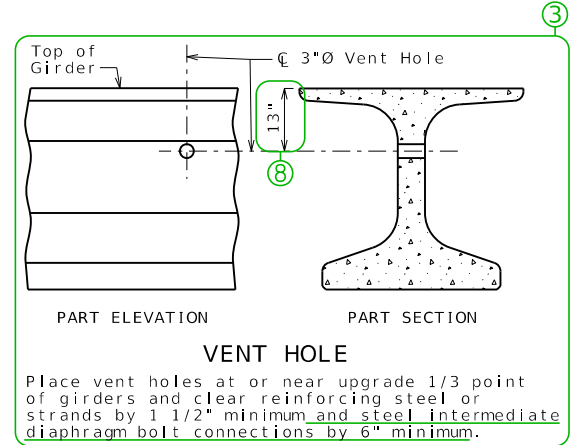
Reinforcement support strands not shown for clarity.



SECTION B-B
Strands not shown for clarity.

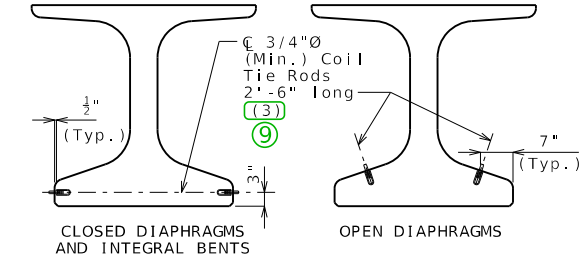


BEARING PLATE



VENT HOLE

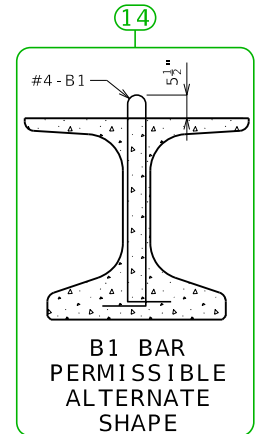
Place vent holes at or near upgrade 1/3 point of girders and clear reinforcing steel or strands by 1 1/2" minimum and steel intermediate diaphragm bolt connections by 6" minimum.



COIL TIES

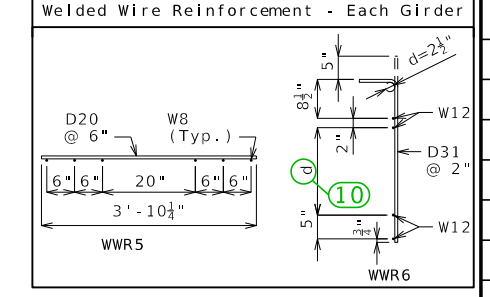
Exclude coil tie at exterior face of exterior girders except at integral end bents.

(3) X'-X" at exterior face of exterior girders at end bents



B1 BAR PERMISSIBLE ALTERNATE SHAPE

Bill of Reinforcing Steel - Each Girder			
No.	Size/Mark	Length	Shape
5	X 4 B1	X'-X"	11S
X	4 D1	4'-0"	9S
2	4 G3	X'-X"	20
2	4 G4	2'-3"	20
2	4 G5	X'-X"	20
1	X 4 G6	Varies	20



All dimensions are out to out.

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

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

Minimum clearance to reinforcing shall be one inch.

All bar reinforcement shall be Grade 60.

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

All B1 bars shall be epoxy coated.

G4 and G5 not required for interior girders. G3 and G6 not required for exterior girders of intermediate spans. Half no. of G3, G4, G5 and G6 not required for ext. girders of end spans.

General Notes:

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

Use strands, 0.6"Ø Grade 270 with an initial prestress force of 6 kips.

Pretensioned members shall be in accordance with Sec 1029.

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

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

The contractor shall provide bracing necessary for lateral and torsional stability of the girders during construction of the concrete slab and remove the bracing after the slab has attained 75% design strength. Contractor shall not drill holes in the girders.

For Girder Camber Diagram, see Sheet No.

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

For location of coil inserts at slab drains, see Sheet No.

For location of coil ties at concrete diaphragms and integral bents, see Sheets No. and .

Alternate bar reinforcing steel details are provided and may be used. The same type of reinforcing steel shall be used for all girders in all spans.

Detailed Checked

NU-GIRDERS (ALTERNATE REINFORCEMENT) - SPANS (X-X) AND (X-X)

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

Sheet No. of

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION



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

DATE PREPARED 3/27/2024	
ROUTE	STATE MO
DISTRICT	SHEET NO. 7
COUNTY	
JOB NO.	
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO.	

PSI_07_NU_Bars

Guidance & Alternate Details

Standard Drawing Guidance (do not show on plans)

- ① Choose one of the 4 details for the top flange blockout detail and follow the provided detail guidance. For 0-7° skew remove G6 bars from bill of reinforcing.

The left advanced details shown may be used for right advanced bridges. May remove mirror note if left advanced.

Blockout shall be dimensioned along the girder to 1 1/2 inches inside the face of the diaphragm and adjusted for girder tilt if present.

Revise bent references as required. Specify the bent number if blockout varies by bent.

The skew angle value need not be shown for tangent bridges. Consult SPM or Liaison on replacing "skew angle" with actual value for curved bridges.

Revised titles for non-integral end bents (exterior girder at end bent will be same detail as at intermediate bent).

FLANGE BLOCKOUT DATA			
Skew	X Eq. Spa.	X #4-G6	Bar Lengths
>14° to 21°	3	2	G3 bar = $\frac{46.25}{\cos(\text{skew})}$
>21° to 27°	4	3	
>27° to 32°	5	4	G5 bar = $\frac{32.125}{\cos(\text{skew})}$
>32° to 37°	6	5	
>37° to 42°	7	6	For skews > 7° to 14°: G6 bar = $\frac{G3 \text{ bar} + 46.25}{2}$
>42° to 46°	8	7	
>46° to 49°	9	8	For skews > 14° to 60°: Report length of G6 bars as "Varies".
>49° to 52°	10	9	
>52° to 55°	11	10	
>55° to 57°	12	11	
>57° to 60°	13	12	

- ② The maximum strand arrangement is shown in details including top straight strands. Remove unnecessary strands from the four details where shown.
- ③ Detail only needs to be used if the structure is over water. For all other crossings remove detail.
- ④ Indicate 10 strands as shown for NU 35, 43 & 53. Indicate two more strands for NU 63, 70 and 78.

☐☐☐☐☐☐ + ☐☐☐☐☐☐

Strands are not typically debonded for NU girders, but if required by design, add symbols to End of Girder strand arrangement detail and add the appropriate notes (Note H2c1.44 and as shown below).

- ☐ Indicates debonded for x'-0" from end of girder
- △ Indicates debonded for x'-0" from end of girder

- ⑤ Actual length of B1 bars:

	NU 35	NU 43	NU 53	NU 63	NU 70	NU 78
#4	4'-4"	5'-0"	5'-10"	6'-8"	7'-4"	8'-0"
#5	4'-4"	5'-0"	5'-10"	6'-8"	7'-3"	7'-11"
#6	4'-3"	4'-11"	5'-8"	6'-6"	7'-2"	7'-10"

- ⑥ By design. Typically 30.98 kips per 1/2" strand & 43.94 kips per 0.6" strand, rounded to nearest whole kip.
- ⑦ Revise minimum dimension if required by design.
- ⑧ Adjust for modified flange thickness.
- ⑨ Use with end spans when both interior & exterior girders are detailed on same sheet and the 2'-6" long tie rod will not fit in the exterior diaphragm portion. Remove when not necessary.

- ⑩ Substitute these values into drawing.

NU	a	b	c	d
35	20 ¹ / ₁₆ "	2'-11 ¹ / ₁₆ "	3'-4"	23 ³ / ₄ "
43	2'-4 ³ / ₁₆ "	3'-7 ³ / ₁₆ "	3'-11 ³ / ₄ "	2'-7 ¹ / ₂ "
53	3'-2 ¹ / ₂ "	4'-5 ³ / ₂ "	4'-9 ³ / ₄ "	3'-5 ³ / ₄ "
63	4'-0 ¹ / ₄ "	5'-3"	5'-7 ¹ / ₂ "	4'-3 ³ / ₄ "
70	4'-8 ¹ / ₈ "	5'-10 ¹ / ₈ "	6'-3 ¹ / ₂ "	4'-11"
78	5'-4"	6'-6 ³ / ₄ "	6'-11 ¹ / ₄ "	5'-7"

- ⑪ Remove note for NU 53, 63, 70 and 78.
- ⑫ Remove notes for NU 35 and 43.
- ⑬ The overall height of the WWR6 shall not be increased for girder steps. Reduce this dimension by the accumulated girder step height.
- ⑭ Remove if #5-B1 bars are used.

