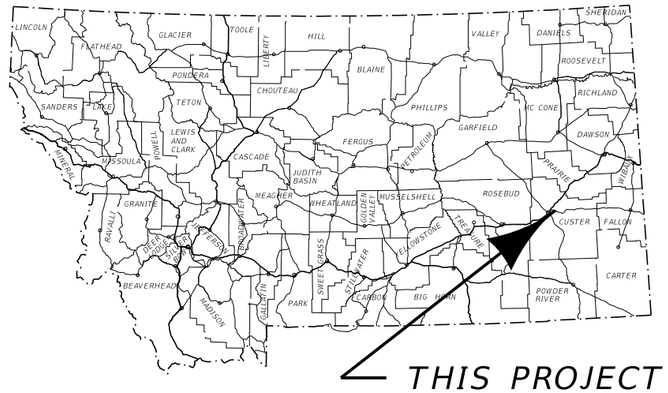
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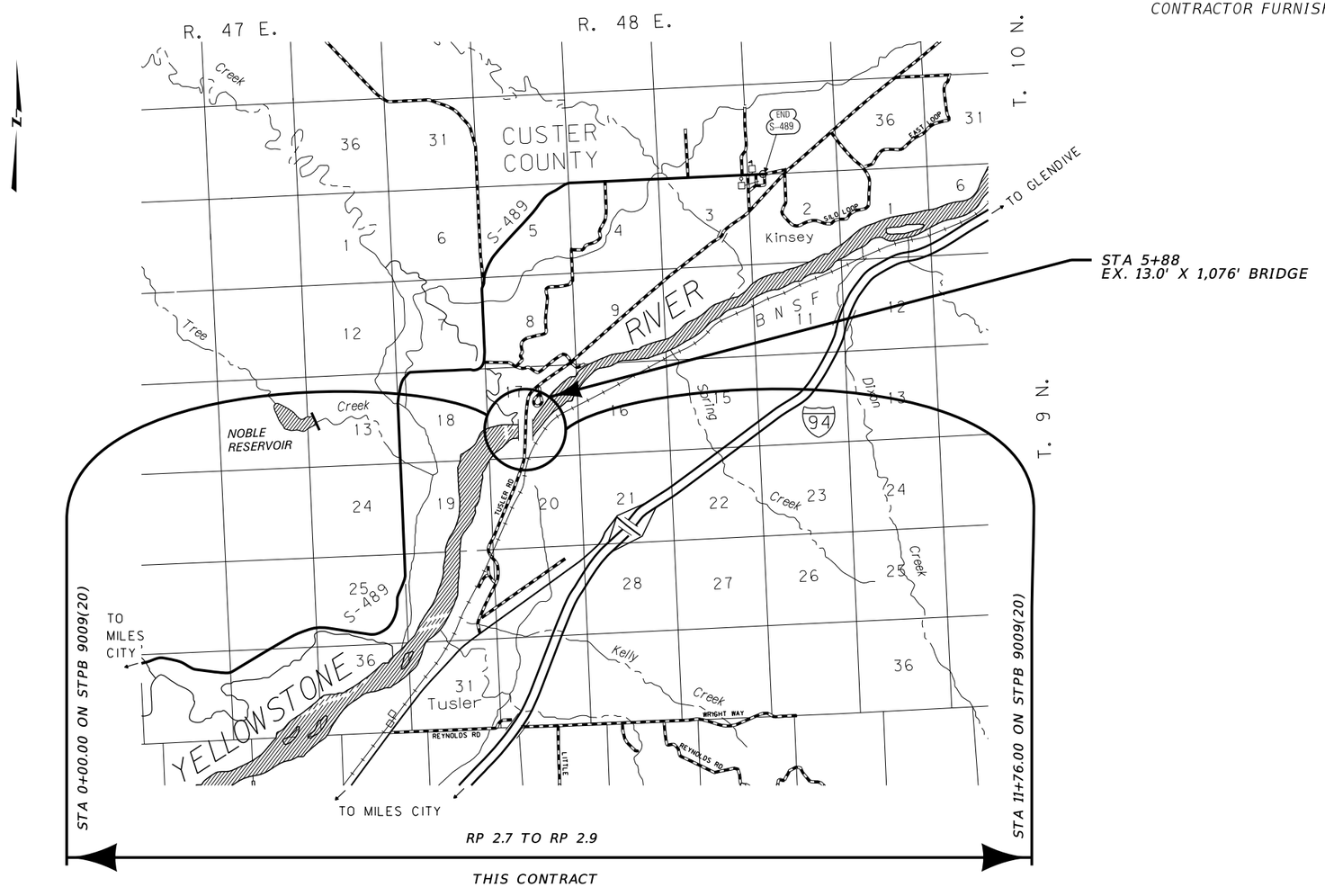


MONTANA DEPARTMENT OF TRANSPORTATION

FEDERAL AID PROJECT STPB 9009(20)
BRIDGE REHAB
YELLOWSTONE R-9M NE MILES CITY
CUSTER COUNTY

LENGTH 0.2 MILES

SURFACING SOURCES -
CONTRACTOR FURNISHED



MONTANA
DEPARTMENT OF TRANSPORTATION

MALCOLM "MACK" LONG
DIRECTOR OF TRANSPORTATION

APPROVED BY:

HIGHWAYS
ENGINEER

MONTANA
DAMIAN
KRINGS
12113PE
LICENSED
PROFESSIONAL ENGINEER

DATE

ASSOCIATED PROJECT AGREEMENT NUMBERS	
R / W	
I.C.	
P. E.	STPB 9009(19)

3	MONTANA Department of Transportation	C:\DGN\9181000rdtl001.dgn	DESIGNED BY	M CAIL	1/11/2022	ROAD PLANS
2		4/14/2022	REVIEWED BY	L ZEIGLER	1/11/2022	
		6:10:34 AM CPS - U4503	CHECKED BY			UPN 9181000

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TABLE OF CONTENTS

ROAD PLANS	SHEET NO.
TITLE SHEET	1
TABLE OF CONTENTS	2
NOTES	2
LINEAR DATA	2
SUMMARIES	3
SURFACING	3
REINFORCED SOIL SLOPE	3
GUARDRAIL	3
DETAILS	4-5
CTS BRIDGE APPROACHES	4
REINFORCED SOIL SLOPE	5

BRIDGE PLANS	
BRIDGE PLANS	B1-B15

NOTES

BASIS OF PLAN QUANTITIES

(QUANTITIES FOR ESTIMATING PURPOSES ONLY)

COMP. AGGREGATE WEIGHT = 3700 LBS. PER CUBIC YARD

UTILITIES

CALL THE UTILITIES UNDERGROUND LOCATION CENTER (811) OR OTHER NOTIFICATION SYSTEM FOR THE MARKING AND LOCATION OF ALL LINES AND SERVICES BEFORE EXCAVATING. ALL CLEARANCES OR DEPTHS PROVIDED FOR UTILITIES ARE FROM EXISTING GROUND LINE.

WETLANDS

WETLANDS MAY EXIST ADJACENT TO THE ROADWAY AND BEYOND THE PROJECT LIMITS. A WETLAND DELINEATION HAS NOT BEEN COMPLETED FOR THIS PROJECT. IMPACTS TO WETLAND AREAS ARE NOT ANTICIPATED IN ASSOCIATION WITH THE PROPOSED WORK. NO PERMITS HAVE BEEN OBTAINED. ANY ACTION IMPACTING WETLAND AREAS WITHOUT THE APPROPRIATE PERMITTING IS THE RESPONSIBILITY OF THE CONTRACTOR.

LINEAR DATA

LENGTH OF ROADWAY	CUSTER COUNTY	2 LANE RURAL	100.00 ft
LENGTH OF BRIDGE	CUSTER COUNTY	1 LANE RURAL	1,076.00 ft
TOTAL LENGTH OF	CUSTER COUNTY	STPB 9009(20)	1,176.00 ft

AWARD COPY

SUMMARY

GUARDRAIL

STATION		each		REMARKS
		MGS ONE-WAY DEPARTURE TERMINAL SECTION		
FROM	TO	LEFT	RIGHT	
NEW RAIL				
+36.25	+48.75		1	SOUTH BRIDGE END
+38.75	+51.25	1		SOUTH BRIDGE END
11+28.75	11+41.25		1	NORTH BRIDGE END
11+31.25	11+43.75	1		NORTH BRIDGE END
SUBTOTAL		2	2	
TOTAL		4		

*USE STEEL POSTS

SURFACING

STATION		AGGREGATE cu. yards	REMARKS
		CRUSH TOP SURF. GR 3B	
FROM	TO		
+00.00	+50.00	10	SOUTH BRIDGE END (SEE DETAIL)
11+26.00	11+76.00	10	NORTH BRIDGE END (SEE DETAIL)
TOTAL		20	

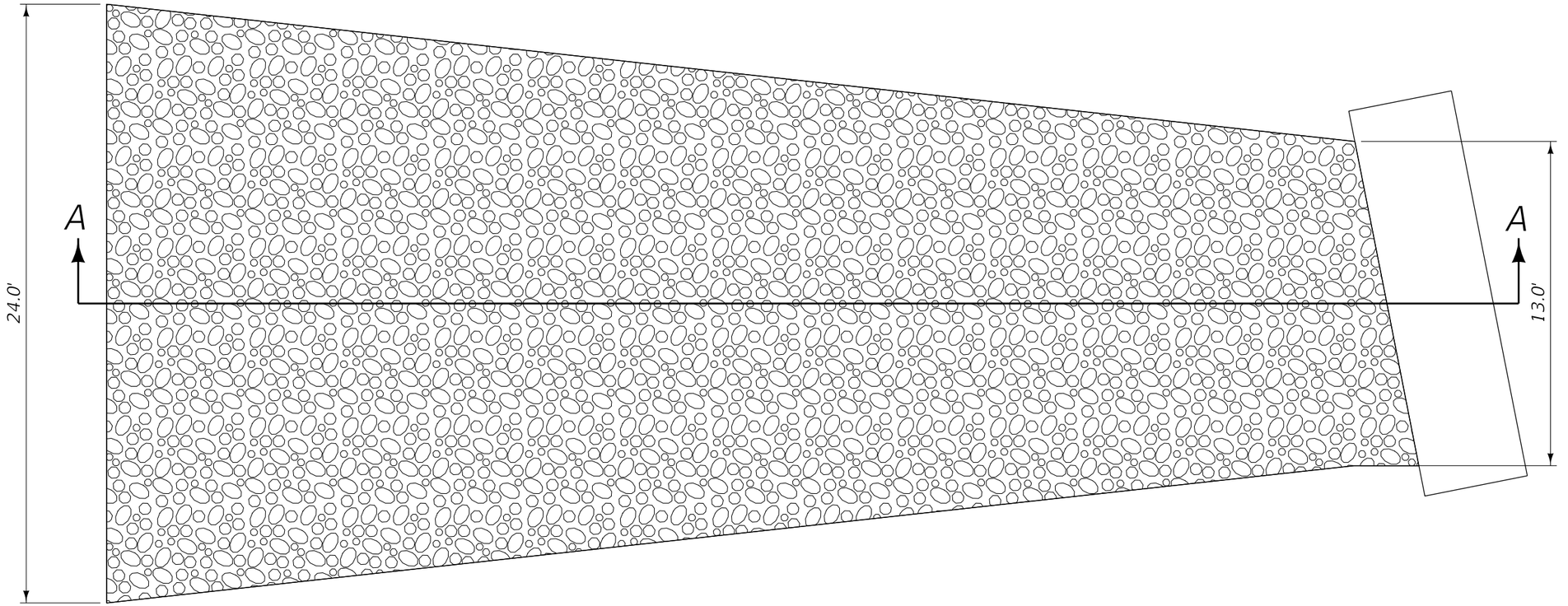
REINFORCED SOIL SLOPE

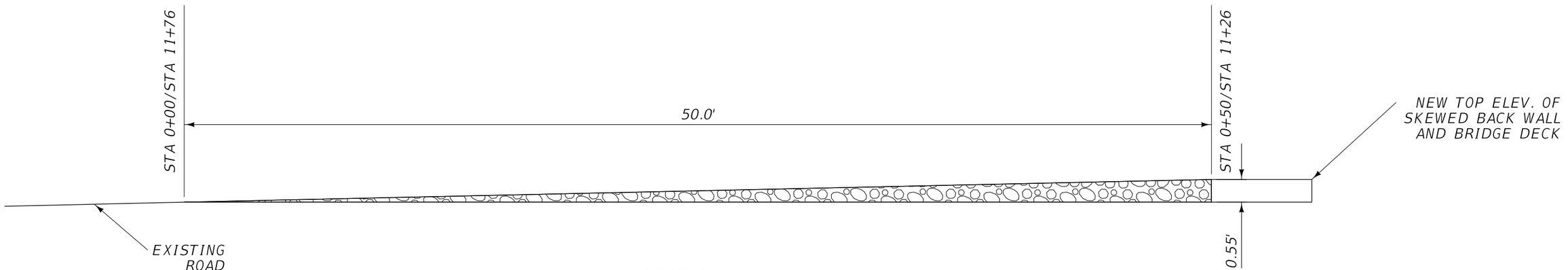
STATION		sq. yards		cu. yards	acres	REMARKS
		STABILIZATION GEOTEXTILE	EROSION CONTROL BLANKET - SHORT TERM	SPECIAL BORROW	REVEGETATION #	
FROM	TO					
+24.00	+50.00	62	23	50	0.1	SOUTH BRIDGE END LT
TOTAL		62	23	50	0.1	

#FOR INFORMATION ONLY. INCLUDE IN THE COST OF OTHER ITEMS.

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DETAIL





SECTION A-A

NOT TO SCALE

DETAIL

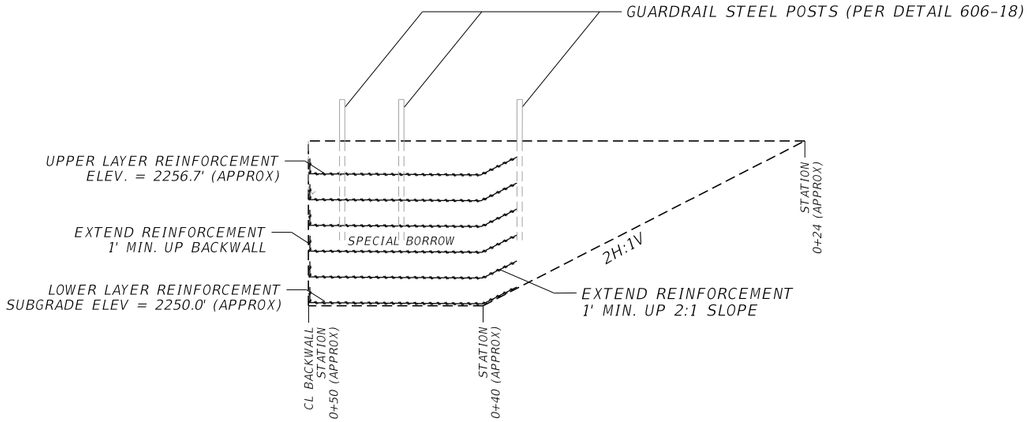
CTS BRIDGE APPROACHES

NO SCALE

3 / 1	MONTANA Department of Transportation	C:\DGN\9181000rddet001.dgn	DESIGNED BY	M CAIL	1/11/2022	ROAD PLANS	YELLOWSTONE R-9M NE MILES CITY	STPB 9009(20)
		4/14/2022	REVIEWED BY	L ZEIGLER	1/11/2022			
		6:10:59 AM CPS - U4503	CHECKED BY			CUSTER COUNTY	UPN 9181000	4

RSS LONGITUDINAL VIEW

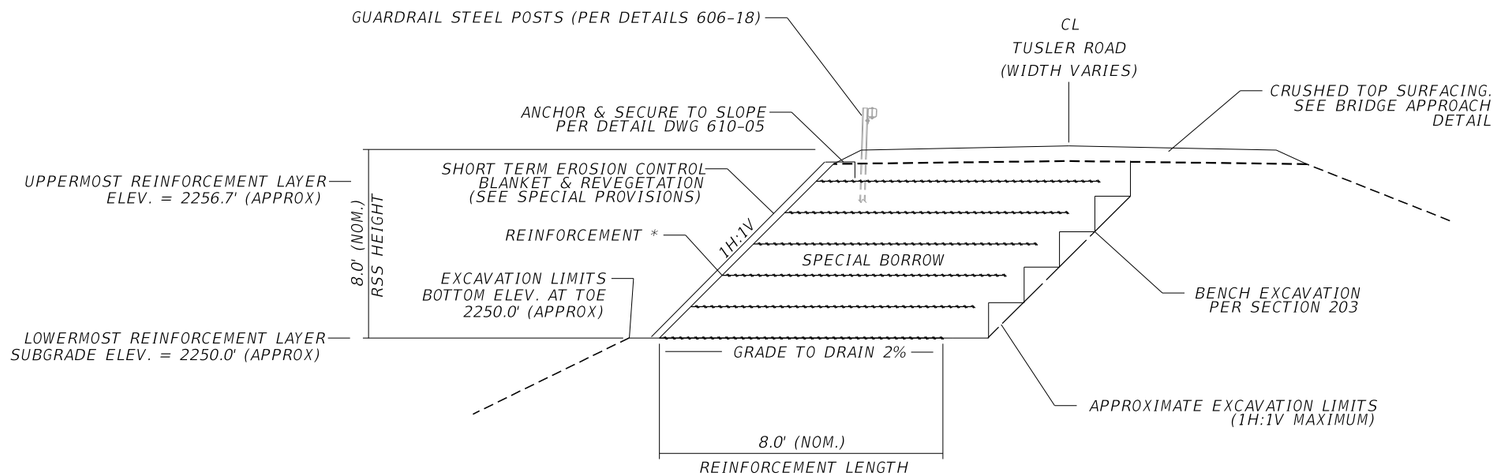
NOT TO SCALE



REINFORCED SOIL SLOPE (RSS)

SOUTH BRIDGE END LT (NOT TO SCALE)

NOTES:
* REINFORCEMENT: NOM. VERTICAL SPACING = 1.33'
NOM. EMBEDDMENT LENGTH = 8' MIN. (SEE SPECIAL PROVISIONS).



DETAIL

REINFORCED SOIL SLOPE

NO SCALE

AWARD COPY

ASSOCIATED PROJECT AGREEMENT NUMBERS	
P. E.	STPB 9009(19)

MONTANA DEPARTMENT OF TRANSPORTATION

BY _____

DATE _____

MONTANA
BRENT H. SCHILLER
No. 13573 PE
LICENSED PROFESSIONAL ENGINEER

SHEET NO. B1

LIST OF DRAWINGS & ESTIMATED BRIDGE PLAN QUANTITIES

BRIDGE PLANS AND QUANTITIES
FEDERAL AID PROJECT STPB 9009(20)
YELLOWSTONE R. – 9M NE MILES CITY
CUSTER COUNTY

BRIDGE IDENTIFICATION	
MDT STR. ID	02583
NBI NUMBER	L09062002+06001

SCALES SHOWN ON BRIDGE PLAN SHEETS ARE FOR FULL SIZE (22 X 34) PRINTS REDUCED PRINTS ARE APPROXIMATELY ONE-HALF ORIGINAL SCALE

LIST OF DRAWINGS

SHEET NO.	DWG. NO.	TITLE
BRIDGE DRAWINGS		
B1	24728	LIST OF DRAWINGS & ESTIMATED BRIDGE PLAN QUANTITIES
B2	24729	GENERAL LAYOUT
B3	24730	GENERAL LAYOUT TYPICAL TRUSS SPAN
B4	24731	REMOVAL DETAILS
B5	24732	MISCELLANEOUS REMOVAL DETAILS
B6	24733	BENT 1 IMPROVEMENT DETAILS
B7	24734	BENT 5 IMPROVEMENT DETAILS
B8	24735	BENT REINFORCING STEEL TABLES
B9	24736	DECK FRAMING PLAN
B10	24737	TYPICAL SECTION & DETAILS
B11	24738	DECK PLACEMENT PLAN
B12	24739	DECK CONNECTION DETAILS
B13	24740	EXPANSION JOINT DETAILS AT PIERS
B14	24741	T101 RAILING DETAILS
B15	24742	RAIL POST CLEARANCE DETAILS

ESTIMATED BRIDGE PLAN QUANTITIES

LOCATION	REMOVE STRUCTURE (LUMP SUM)	CONCRETE – CLASS STRUCTURE (CUYD)	REINFORCING STEEL EPOXY (LB)	MISCELLANEOUS ITEMS (EACH)	STRUCTURAL STEEL – MISC. (LUMP SUM)	REVISE BRIDGE RAIL T-101 (LNFT)
BENT NO. 1		5.7	444			
BENT NO. 5		6.3	465			
SUPERSTRUCTURE	1	38.7	6683	1072	1	2150
TOTAL	1	50.7	7592	1072	1	2150

Steel quantities associated with steel grid deck shown in table on sheet B11.

REVISED			
REVISED			
REVISED			
REVISED	05-31-22	B.H.S.	
CHECKED	02-08-22	B.H.S.	
DRAWN	02-08-22	T.D.G.	
DESIGNED	02-08-22	B.H.S.	...\9181000\brs\918100BRMAP001.dgn

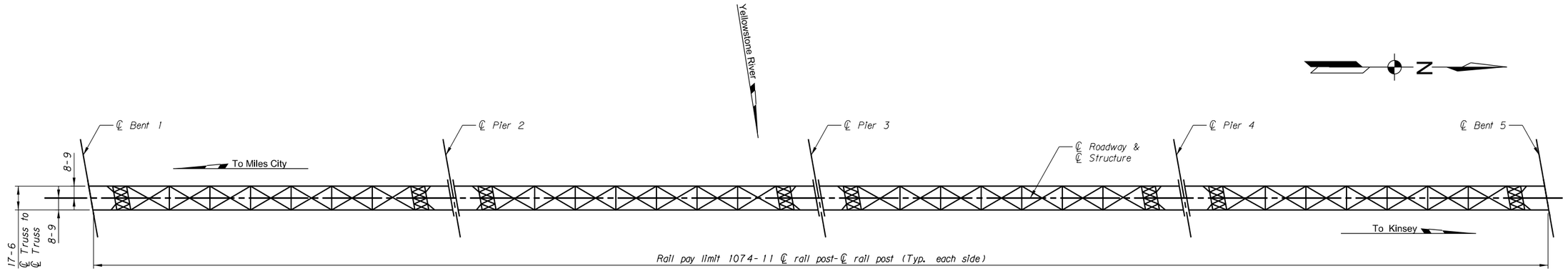
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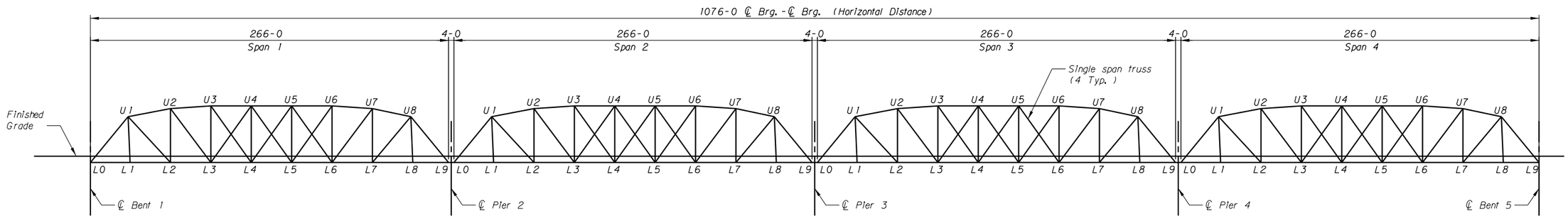
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DRAWING NO. 24728

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PLAN



ELEVATION

NOTES

GENERAL: Plans were prepared from original drawings. No additional survey information was procured for this project. Existing structure dimensions may vary from those shown on the drawings. Verify all dimensions necessary to complete the work.

SPECIFICATIONS: Montana Department of Transportation and the Montana Transportation Commission Standard and Supplemental Specifications for Road and Bridge Construction, 2020 edition, and amendments, and special provisions govern unless otherwise noted. Design was prepared in accordance with AASHTO LRFD Bridge Design Specifications Ninth Edition - 2020.

LIVE LOAD: Standard HL-93 loading.

REINFORCING STEEL: Use new deformed type reinforcing steel meeting the requirements of AASHTO M 31 Grade 60. Include all costs associated with furnishing and placing new reinforcing steel in the unit price bid for Reinforcing Steel or Reinforcing Steel - Epoxy Coated.

Replace existing reinforcing steel damaged during construction at no additional cost to the State.

REINFORCING STEEL SUFFIX: The suffix E denotes epoxy coated reinforcing steel.

REINFORCING STEEL COVER: Unless specified otherwise on the drawings, the minimum concrete cover measured from the face of the concrete to the face of any reinforcing steel is 2".

TRAFFIC CONTROL PLAN AND SEQUENCE OF OPERATION: Close bridge during construction. See Roadway Plans.

STRUCTURAL STEEL: All structural steel will be measured and paid for on the lump sum basis as set forth in the Standard Specifications. Use structural steel meeting the requirements of AASHTO M 270 Grade 50. Estimated amount =425, 358 lb.

SHEAR STUDS: Use headed shear studs meeting the requirements of AASHTO M 169 Grades 1010-1020.

GALVANIZING: Hot-dip galvanize all structural steel, bolts, and hardware in accordance with the standard specifications.

CAST-IN-PLACE CONCRETE: Unless otherwise approved or specified, use Concrete - Class Structure.

Limit aggregate size to 3/8" maximum for open grid deck connections.

CONCRETE STRENGTH: Use f' c = 4000 p.s.i. for Concrete - Class Structure.

STRUCTURE EXCAVATION: Include structure excavation in the unit price bid for Concrete - Class Structure.

DIMENSIONS: All dimensions are in feet and inches except as noted. Verify all necessary dimensions of the existing structures in the field before ordering materials. Obtain approval of shop plans from the State of Montana, Department of Transportation before beginning fabrication. If the dimensions and details of the existing structure are not as shown on the plans, vary construction as necessary to best suit existing conditions and the nature of the intended work.

STEEL GRID DECKING: See Special Provisions.

BRIDGE PLANS: Existing bridge plans are available upon request from Montana Department of Transportation.

BRIDGE DECK AND OTHER MISC. REMOVALS: Remove the bridge deck and other miscellaneous removal items to the limits shown or described in the plans taking care to not damage the existing steel stringers, floorbeams, or other truss members. In the event of damage, submit a repair plan for approval.

PLAIN ELASTOMERIC PAD: Elastomeric pads shall be 60 Durometer Elastomer, Grade 4.

SHEET NO. B2

GENERAL LAYOUT

SCALE: 1"=40'-0"

PROJECT NAME
YELLOWSTONE R. - 9M NE MILES CITY

MDT STRUCTURE ID
02583

FEDERAL AID PROJECT
STPB 9009(20)

COUNTY
CUSTER

REVISED						
REVISED						
REVISED						
REVISED						
CHECKED	02-08-22	B.H.S.				
DRAWN	02-08-22	T.D.G.				
DESIGNED	02-08-22	B.H.S.				

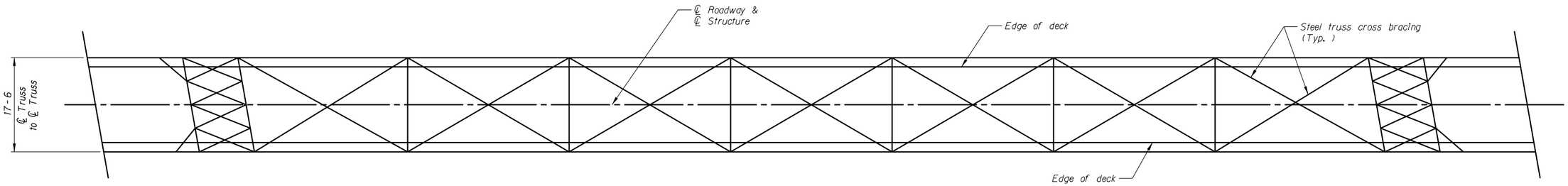
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MONTANA DEPARTMENT OF TRANSPORTATION
BRIDGE BUREAU

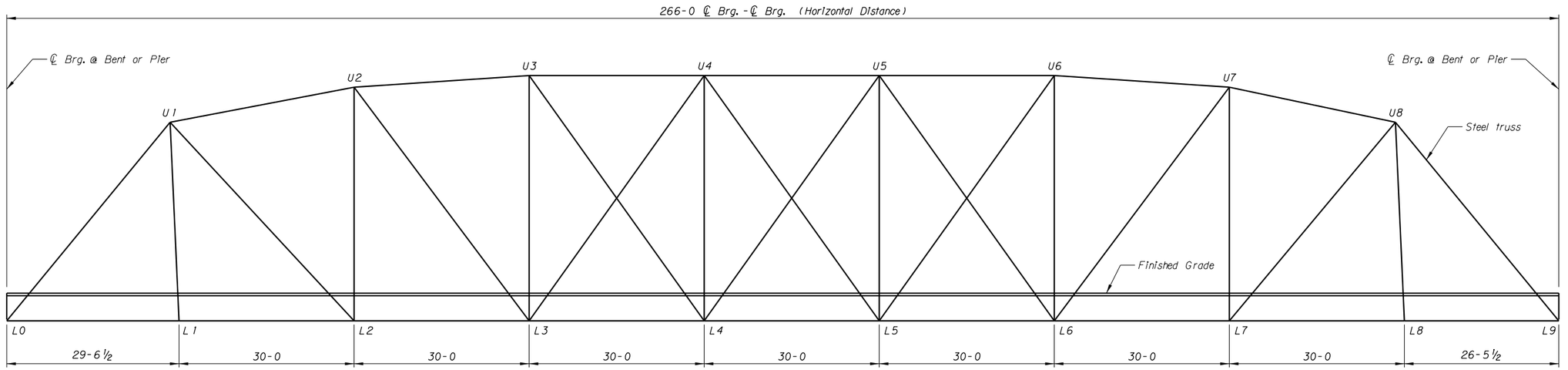
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9181000

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24729

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TYPICAL SINGLE SPAN PLAN



TYPICAL SINGLE SPAN ELEVATION

SHEET NO.
B3

GENERAL LAYOUT
TYPICAL TRUSS SPAN

SCALE: 1"=10'-0"

PROJECT NAME
YELLOWSTONE R. - 9M NE MILES CITY

MDT STRUCTURE ID
02583

FEDERAL AID PROJECT
STPB 9009(20)

COUNTY
CUSTER

REVISED							
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DRAWN	02-08-22	T.D.G.					
DESIGNED	02-08-22	B.H.S.					

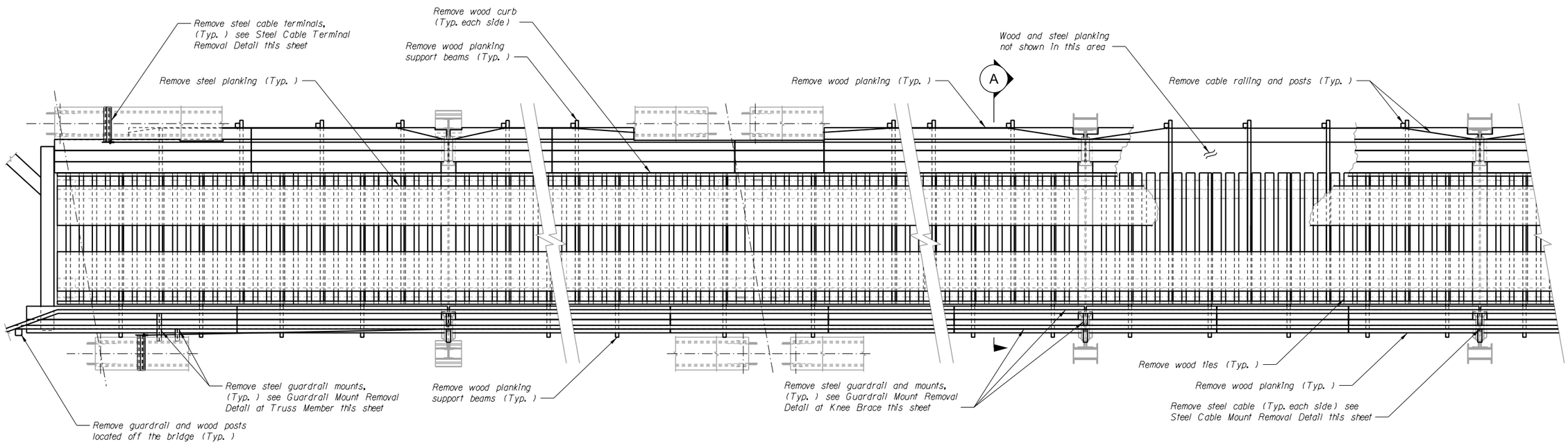
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MONTANA DEPARTMENT OF TRANSPORTATION
BRIDGE BUREAU

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9181000

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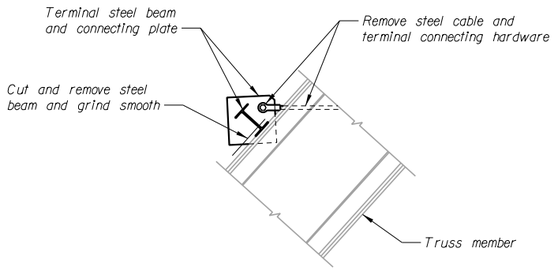
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REMOVAL PLAN

Scale 1/4" = 1' -0"

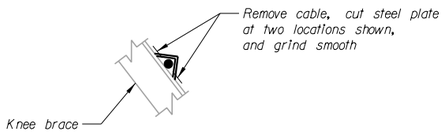
NOTE: See Estimated Bridge Removal Items Table Sheet B5.



STEEL CABLE TERMINAL REMOVAL DETAIL

Scale 3/4" = 1' -0"

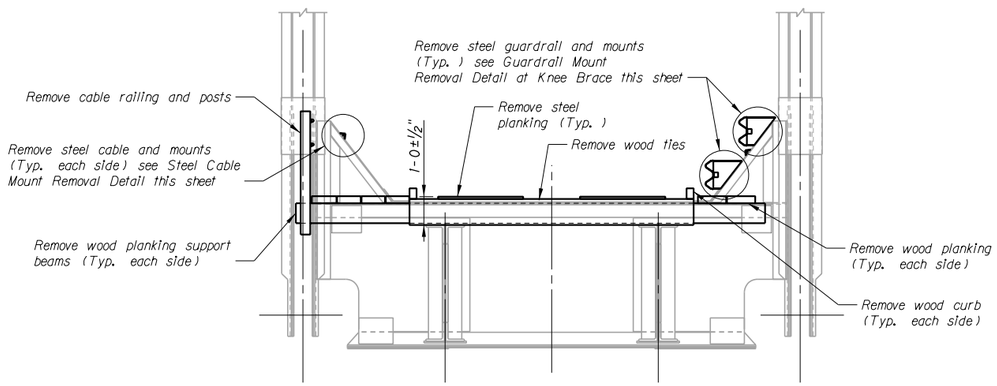
NOTE: Use caution when grinding smooth to not reduce the structural section of the truss member. Apply primer coat to areas of steel that were cut and ground smooth.



STEEL CABLE MOUNT REMOVAL DETAIL

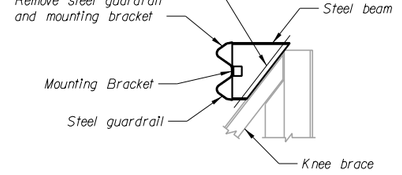
Scale 1 1/2" = 1' -0"

NOTE: Use caution when grinding smooth to not reduce the structural section of the knee brace. Apply primer coat to areas of steel that were cut and ground smooth.



SECTION A

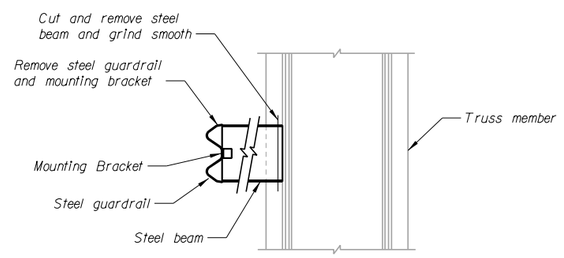
Scale 3/8" = 1' -0"



GUARDRAIL MOUNT REMOVAL DETAIL AT KNEE BRACE

Scale 3/4" = 1' -0"

NOTE: Use caution when grinding smooth to not reduce the structural section of the knee brace or other structural members. Apply primer coat to areas of steel that were cut and ground smooth.



GUARDRAIL MOUNT REMOVAL DETAIL AT TRUSS MEMBER

Scale 3/4" = 1' -0"

NOTE: Use caution when grinding smooth to not reduce the structural section of the truss member. Apply primer coat to areas of steel that were cut and ground smooth.

SHEET NO. B4

REMOVAL DETAILS

SCALE: AS SHOWN

PROJECT NAME
YELLOWSTONE R. - 9M NE MILES CITY

MDT STRUCTURE ID
02583

FEDERAL AID PROJECT
STPB 9009(20)

COUNTY
CUSTER

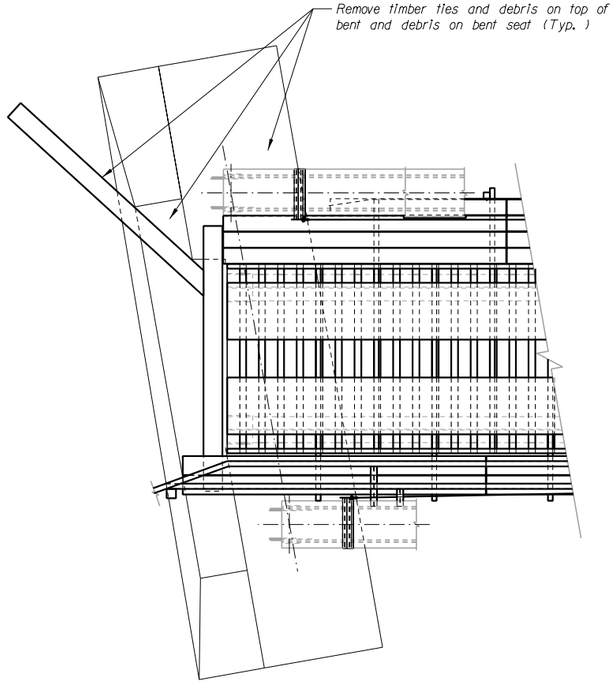
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DRAWN	02-08-22	T.D.G.		
DESIGNED	02-08-22	B.H.S.		

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MONTANA DEPARTMENT OF TRANSPORTATION MDT BRIDGE BUREAU

UPN NUMBER
9181000

DRAWING NO.
24731



BENT CLEANUP PLAN

(Bent 1 shown, bent 5 similar)

NOTE: Remove all debris and obstructions to provide a clean, debris-free bent seat at both bents.

NOTE: Include all costs associated with the bent cleanup in the Lump Sum bid for Remove Structure.

ESTIMATED BRIDGE REMOVAL ITEMS - FOR INFORMATION ONLY

LOCATION	REMOVE STEEL CABLE TERMINALS	REMOVE STEEL CABLE MOUNTS	REMOVE GUARDRAIL MOUNTS	
			AT KNEE BRACE	AT TRUSS MEMBER
SUPERSTRUCTURE	4	64	64	16
TOTAL	4	64	80	

NOTE: See the Special Provisions and sheet B4 for removal details.

NOTE: Remove deck down to the original steel stringers as shown in the plan details including wood ties, wood planking, steel decking, wood curb, support beams, posts, cables, and all other items to obtain an unobstructed and clean area placement of the new deck.

NOTE: Include all costs associated with the removal of deck, steel cable, steel cable terminals and mounts, guardrail, guardrail mounts, timbers and timber ties, wood posts and planking, and other materials necessary to provide adequate and unobstructed work surfaces in the Lump Sum bid for Remove Structure.

NOTE: Include all costs associated with applying primer coat to areas of steel that are cut and ground smooth in the Lump Sum bid for Remove Structure.

SHEET NO.
B5

MISCELLANEOUS REMOVAL DETAILS

SCALE: 1/4"=1'-0"

PROJECT NAME
YELLOWSTONE R. - 9M NE MILES CITY

MDT STRUCTURE ID
02583

FEDERAL AID PROJECT
STPB 9009(20)

COUNTY
CUSTER

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REVISED		
REVISED		
CHECKED	02-08-22	B.H.S.
DRAWN	02-08-22	T.D.G.
DESIGNED	02-08-22	B.H.S.

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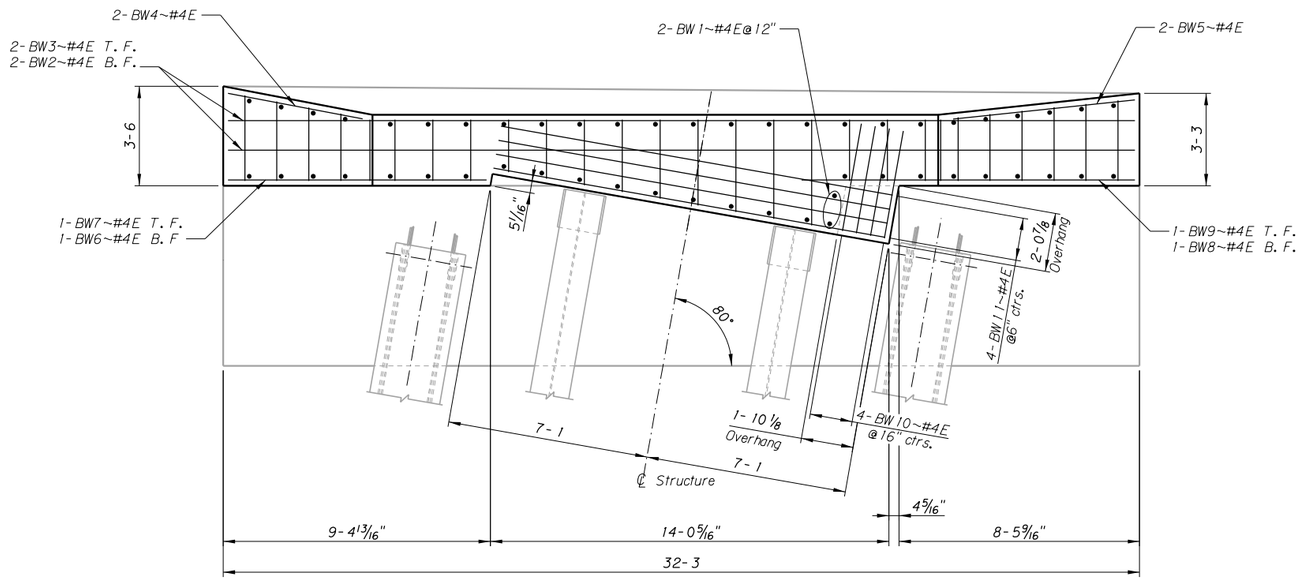
MONTANA DEPARTMENT OF TRANSPORTATION MDT BRIDGE BUREAU

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UPN NUMBER
9181000

DRAWING NO.
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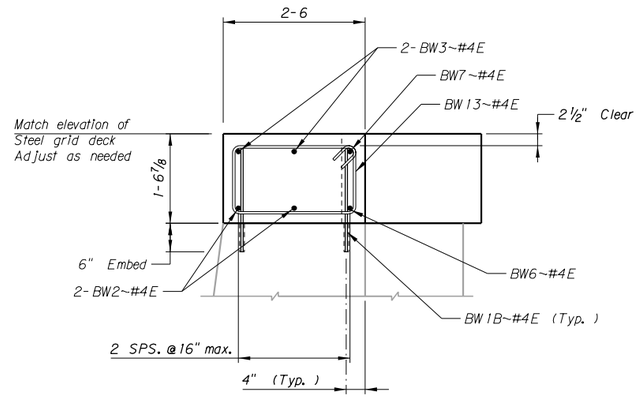
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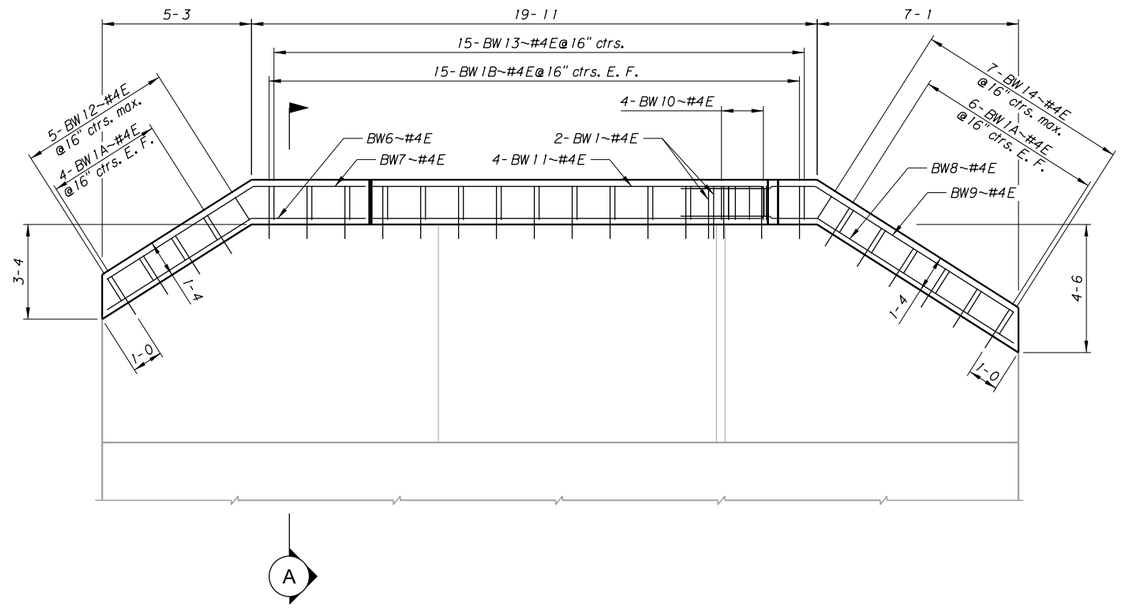
BENT 1 PLAN

NOTE: Overhang will require supporting form work by the contractor.

NOTE: Cast top of finished concrete surface to match the top of steel grid deck.



SECTION A



BENT 1 ELEVATION

ABBREVIATIONS	
E.F.	Each Face
B.F.	Bottom Face
T.F.	Top Face
The suffix E denotes epoxy coated reinforcing	

SHEET NO. B6

BENT 1 IMPROVEMENTS DETAILS

SCALE: 3/8"=1'-0"

PROJECT NAME
YELLOWSTONE R. - 9M NE MILES CITY

MDT STRUCTURE ID
02583

FEDERAL AID PROJECT
STPB 9009(20)

COUNTY
CUSTER

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DESIGNED	02-08-22	B.H.S.				

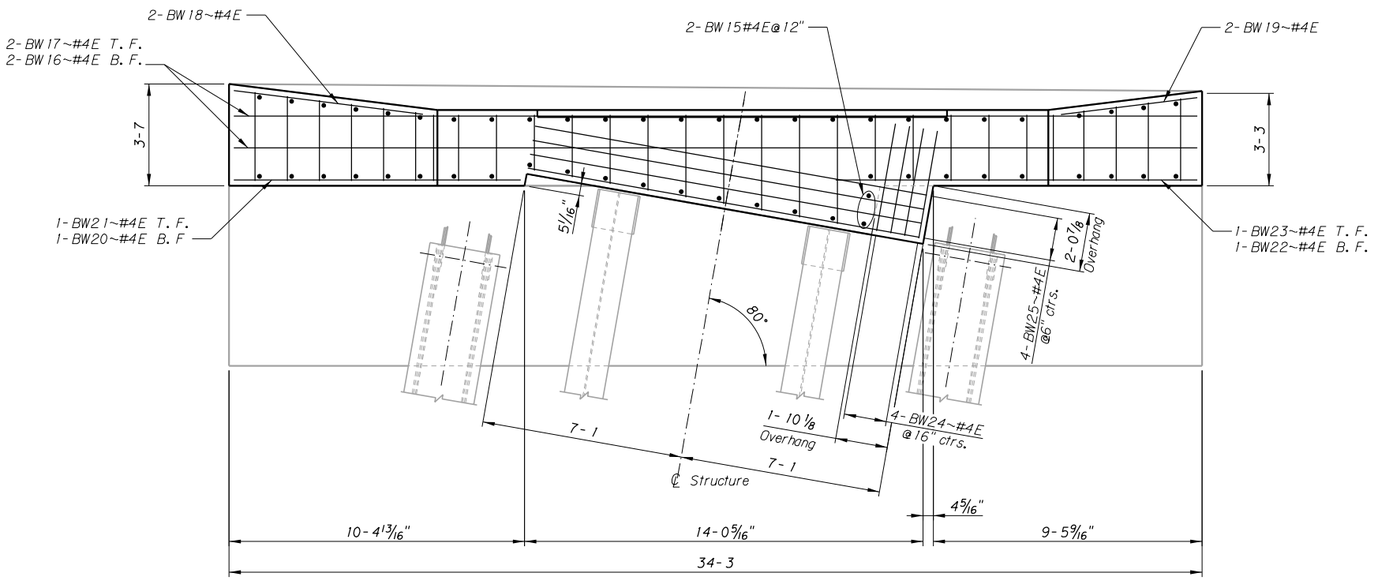
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MONTANA DEPARTMENT OF TRANSPORTATION
BRIDGE BUREAU

UPN NUMBER
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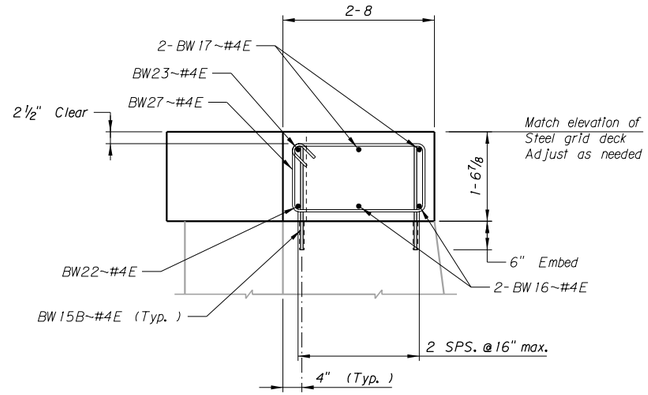
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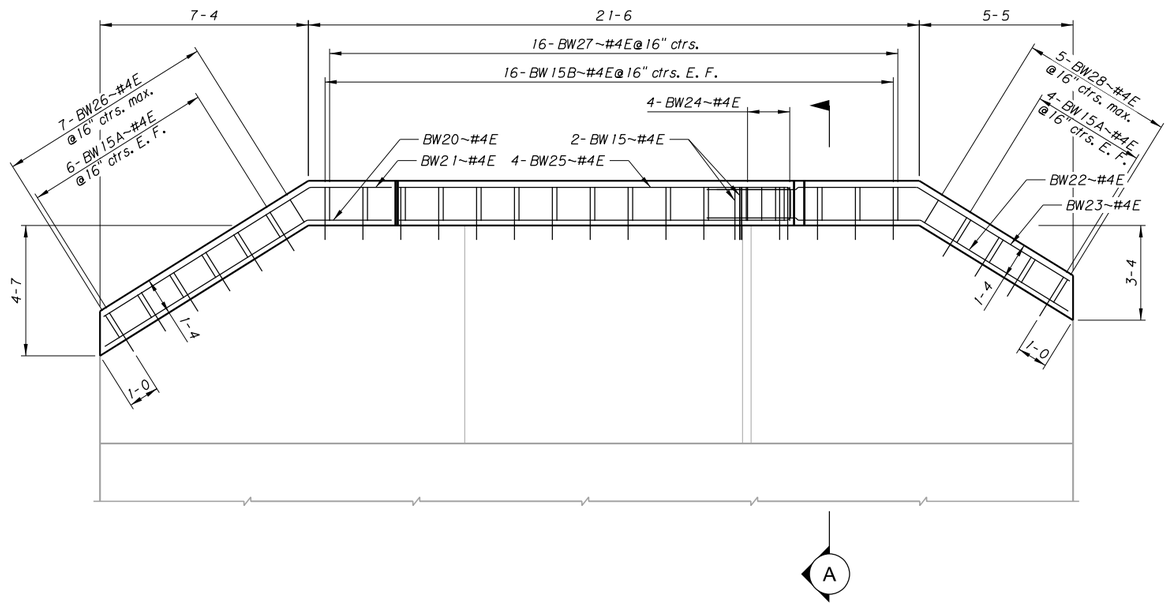
BENT 5 PLAN

NOTE: Overhang will require supporting form work by the contractor.

NOTE: Cast top of finished concrete surface to match the top of steel grid deck.



SECTION A



BENT 5 ELEVATION

SHEET NO. B7

BENT 5 IMPROVEMENTS DETAILS

SCALE: 3/8"=1'-0"

PROJECT NAME
YELLOWSTONE R. - 9M NE MILES CITY

MDT STRUCTURE ID
02583

FEDERAL AID PROJECT
STPB 9009(20)

COUNTY
CUSTER

REVISED						
REVISED						
REVISED						
REVISED						
CHECKED	02-08-22	B.H.S.				
DRAWN	02-08-22	T.D.G.				
DESIGNED	02-08-22	B.H.S.				

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MONTANA DEPARTMENT OF TRANSPORTATION MDT BRIDGE BUREAU

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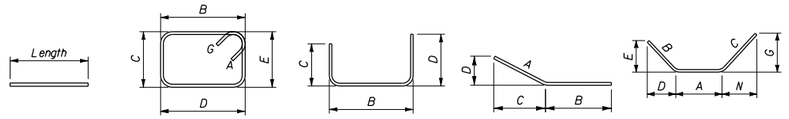
UPN NUMBER
9181000

DRAWING NO.
24734

AWARD COPY

BILL OF REINFORCING STEEL

FOR BENT 1 ONLY
(ALL DIMENSIONS ARE OUT TO OUT)

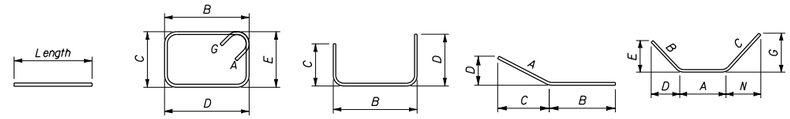


TYPE STR | TYPE T 1 | TYPE 17 | TYPE 28 | TYPE 29

Mark	Size	No.	Type	Length	A	B	C	D	E	G	N
BW1A	#4E	20	STR	1-7							
BW1B	#4E	32	STR	1-10							
BW2	#4E	2	29	34-1	19-11	6-0	8-2	5-1	3-2½	4-4½	6-11
BW3	#4E	2	29	34-1	19-9	6-1	8-3	5-2	3-3	4-5	6-11½
BW4	#4E	2	STR	5-8							
BW5	#4E	2	STR	7-7							
BW6	#4E	1	28	10-0	6-0	4-0	5-1	3-2½			
BW7	#4E	1	28	10-0	6-1	3-11	5-2	3-3			
BW8	#4E	1	28	13-0	8-2	4-10	6-11	4-4½			
BW9	#4E	1	28	13-0	8-3	4-9	6-11½	4-5			
BW10	#4E	4	17	8-10		1-2	3-10	3-10			
BW11	#4E	4	17	29-1		1-1	14-0	14-0			
BW12A	#4E	1	T1	8-8	4½"	3-0	1 1½"	3-0	1 1½"	4½"	
BW12B	#4E	1	T1	8-2	4½"	2-9	1 1½"	2-9	1 1½"	4½"	
BW12C	#4E	1	T1	7-10	4½"	2-7	1 1½"	2-7	1 1½"	4½"	
BW12D	#4E	1	T1	7-4	4½"	2-4	1 1½"	2-4	1 1½"	4½"	
BW12E	#4E	1	T1	7-0	4½"	2-2	1 1½"	2-2	1 1½"	4½"	
BW13A	#4E	6	T1	7-5	4½"	2-2	1-2	2-2	1-2	4½"	
BW13B	#4E	1	T1	6-9	4½"	1-10	1-2	1-10	1-2	4½"	
BW13C	#4E	1	T1	7-3	4½"	2-1	1-2	2-1	1-2	4½"	
BW13D	#4E	1	T1	7-7	4½"	2-3	1-2	2-3	1-2	4½"	
BW13E	#4E	1	T1	8-1	4½"	2-6	1-2	2-6	1-2	4½"	
BW13F	#4E	1	T1	8-7	4½"	2-9	1-2	2-9	1-2	4½"	
BW13G	#4E	1	T1	9-1	4½"	3-0	1-2	3-0	1-2	4½"	
BW13H	#4E	1	T1	9-7	4½"	3-3	1-2	3-3	1-2	4½"	
BW13I	#4E	1	T1	10-1	4½"	3-6	1-2	3-6	1-2	4½"	
BW13J	#4E	1	T1	10-5	4½"	3-8	1-2	3-8	1-2	4½"	
BW14A	#4E	1	T1	7-0	4½"	2-2	1 1½"	2-2	1 1½"	4½"	
BW14B	#4E	1	T1	7-2	4½"	2-3	1 1½"	2-3	1 1½"	4½"	
BW14C	#4E	1	T1	7-4	4½"	2-4	1 1½"	2-4	1 1½"	4½"	
BW14D	#4E	1	T1	7-6	4½"	2-5	1 1½"	2-5	1 1½"	4½"	
BW14E	#4E	1	T1	7-10	4½"	2-7	1 1½"	2-7	1 1½"	4½"	
BW14F	#4E	1	T1	8-0	4½"	2-8	1 1½"	2-8	1 1½"	4½"	
BW14G	#4E	1	T1	8-4	4½"	2-10	1 1½"	2-10	1 1½"	4½"	

BILL OF REINFORCING STEEL

FOR BENT 5 ONLY
(ALL DIMENSIONS ARE OUT TO OUT)



TYPE STR | TYPE T 1 | TYPE 17 | TYPE 28 | TYPE 29

Mark	Size	No.	Type	Length	A	B	C	D	E	G	N
BW15A	#4E	20	STR	1-7							
BW15B	#4E	34	STR	1-10							
BW16	#4E	2	29	36-0	21-7	8-4	6-1	7-1	4-5	3-2	5-2
BW17	#4E	2	29	36-2	21-4	8-7	6-3	7-3	4-6½	3-3	5-4
BW18	#4E	2	STR	7-10							
BW19	#4E	2	STR	5-8							
BW20	#4E	1	28	11-4	8-4	3-0	7-1	4-5			
BW21	#4E	1	28	11-5	8-7	2-10	7-3	4-6½			
BW22	#4E	1	28	13-7	6-1	7-6	5-2	3-2			
BW23	#4E	1	28	13-8	6-3	7-5	5-4	3-3			
BW24	#4E	4	17	8-10		1-2	3-10	3-10			
BW25	#4E	4	17	29-1		1-1	14-0	14-0			
BW26A	#4E	1	T1	8-10	4½"	3-1	1 1½"	3-1	1 1½"	4½"	
BW26B	#4E	1	T1	8-8	4½"	3-0	1 1½"	3-0	1 1½"	4½"	
BW26C	#4E	1	T1	8-4	4½"	2-10	1 1½"	2-10	1 1½"	4½"	
BW26D	#4E	1	T1	8-0	4½"	2-8	1 1½"	2-8	1 1½"	4½"	
BW26E	#4E	1	T1	7-10	4½"	2-7	1 1½"	2-7	1 1½"	4½"	
BW26F	#4E	1	T1	7-6	4½"	2-5	1 1½"	2-5	1 1½"	4½"	
BW26G	#4E	1	T1	7-4	4½"	2-4	1 1½"	2-4	1 1½"	4½"	
BW27A	#4E	7	T1	7-9	4½"	2-4	1-2	2-4	1-2	4½"	
BW27B	#4E	1	T1	6-11	4½"	1-11	1-2	1-11	1-2	4½"	
BW27C	#4E	1	T1	7-5	4½"	2-2	1-2	2-2	1-2	4½"	
BW27D	#4E	1	T1	7-11	4½"	2-5	1-2	2-5	1-2	4½"	
BW27E	#4E	1	T1	8-5	4½"	2-8	1-2	2-8	1-2	4½"	
BW27F	#4E	1	T1	8-11	4½"	2-11	1-2	2-11	1-2	4½"	
BW27G	#4E	1	T1	9-3	4½"	3-1	1-2	3-1	1-2	4½"	
BW27H	#4E	1	T1	9-9	4½"	3-4	1-2	3-4	1-2	4½"	
BW27I	#4E	1	T1	10-3	4½"	3-7	1-2	3-7	1-2	4½"	
BW27J	#4E	1	T1	10-9	4½"	3-10	1-2	3-10	1-2	4½"	
BW28A	#4E	1	T1	7-4	4½"	2-4	1 1½"	2-4	1 1½"	4½"	
BW28B	#4E	1	T1	7-6	4½"	2-5	1 1½"	2-5	1 1½"	4½"	
BW28C	#4E	1	T1	7-10	4½"	2-7	1 1½"	2-7	1 1½"	4½"	
BW28D	#4E	1	T1	8-2	4½"	2-9	1 1½"	2-9	1 1½"	4½"	
BW28E	#4E	1	T1	8-6	4½"	2-11	1 1½"	2-11	1 1½"	4½"	

NOTE: Existing reinforcement in bent is not shown. Record drawing of existing reinforcing does not exist.

NOTE: Cast top of new concrete to match top of steel grid deck.

NOTE: Broom finish top surface of new concrete in accordance with subsection 552.03.11(a) of Standard Specifications.

NOTE: Include all costs associated with structural excavation and backfill around bents in the unit price bid for Concrete - Class Structure.

NOTE: Alternate location of corner hooks for Type T 1 bars.

NOTE: Thoroughly clean all existing concrete in contact with new concrete. Include all costs associated with cleaning the concrete in the unit price bid for Concrete - Class Structure.

SHEET NO.
B8

BENT REINFORCING STEEL
TABLES

SCALE: 3/8"=1'-0"

PROJECT NAME
YELLOWSTONE R. - 9M NE MILES CITY

MDT STRUCTURE ID
02583

FEDERAL AID PROJECT
STPB 9009(20)

COUNTY
CUSTER

	REVISED	REVISED	REVISED	REVISED	CHECKED	DRAWN	DESIGNED
					02-08-22	02-08-22	02-08-22
					B.H.S.	T.D.G.	B.H.S.

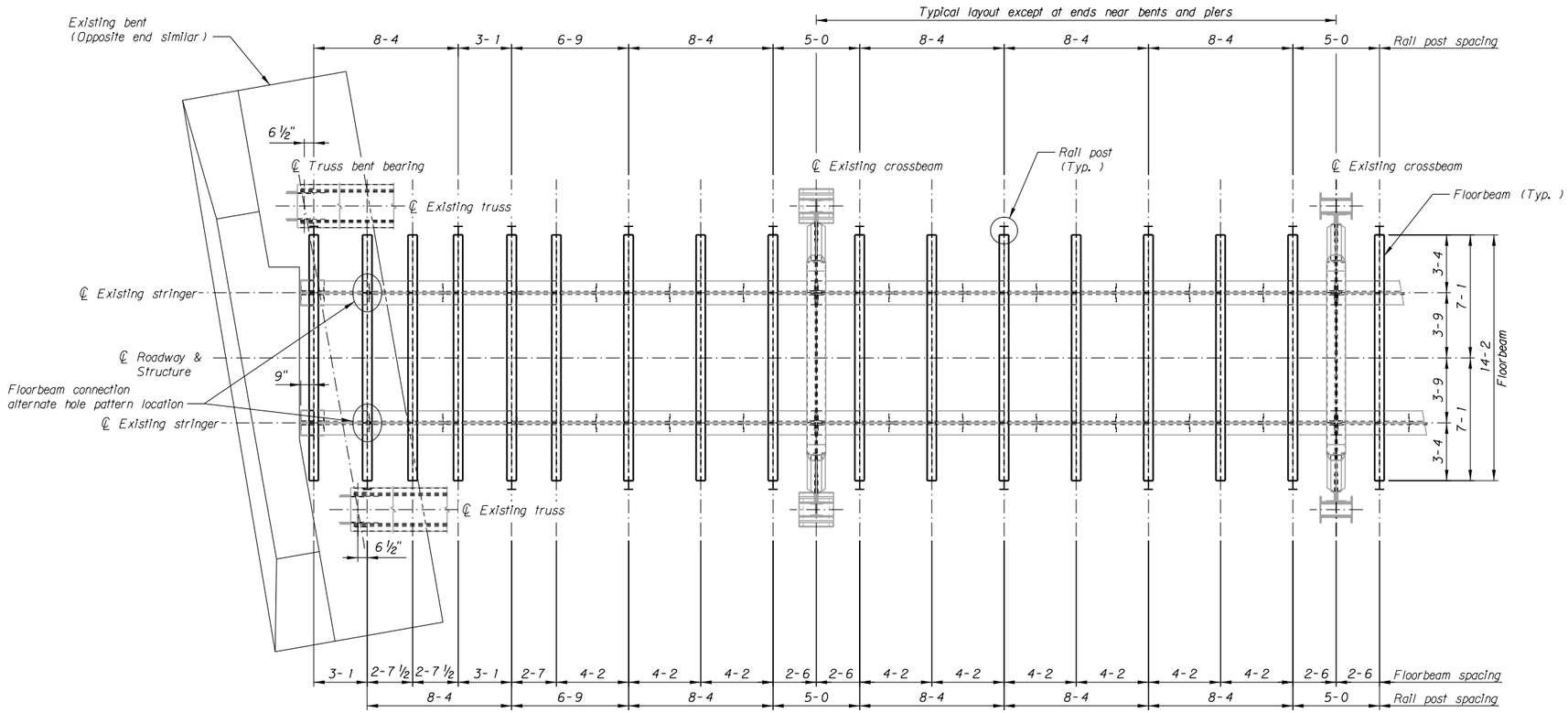
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MONTANA DEPARTMENT OF TRANSPORTATION
BRIDGE BUREAU

UPN NUMBER
9181000

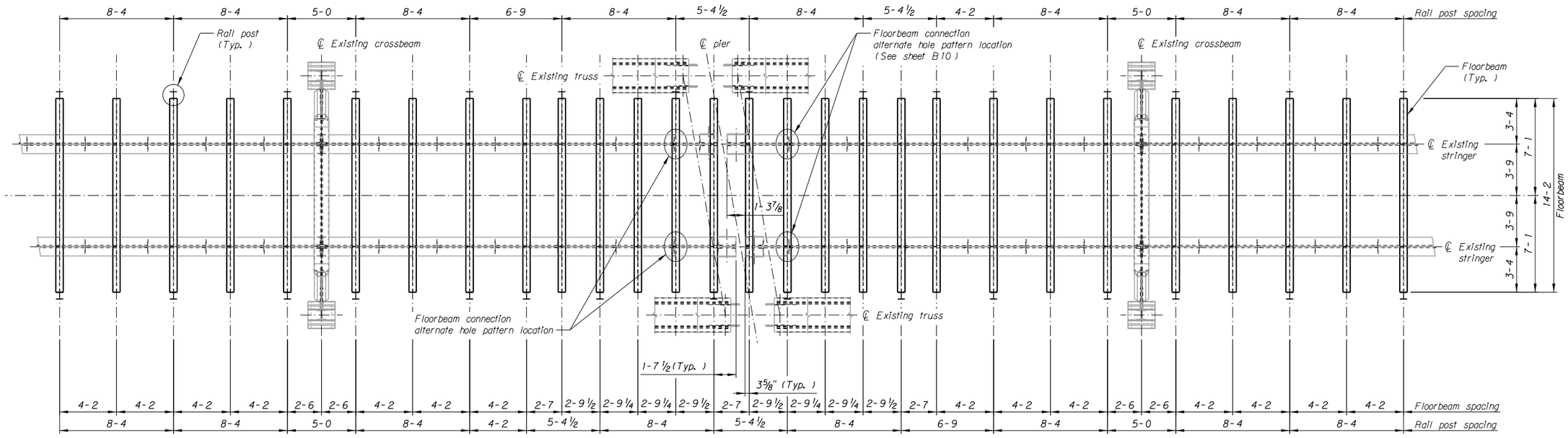
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DECK FRAMING PLAN AT BENT END

Bent 1 shown, Bent 5 similar



DECK FRAMING PLAN AT PIER

NOTE: Use standard hole pattern as shown in Section A - Standard Hole Pattern Detail on sheet B10 at all new floorbeam to existing stringer connections except where otherwise noted. Use alternate hole pattern as shown in Section A - Alternate Hole Pattern Detail on sheet B10 at locations specifically called out or where existing stringer stiffeners may interfere with bolts.

NOTE: See road plans for guardrail terminal sections.

SHEET NO. B9

DECK FRAMING PLAN

SCALE: 1/4"=1'-0"

PROJECT NAME
YELLOWSTONE R. - 9M NE MILES CITY

MDT STRUCTURE ID
02583

FEDERAL AID PROJECT
STPB 9009(20)

COUNTY
CUSTER

REVISED						
REVISED						
REVISED						
REVISED						
CHECKED	02-08-22	B.H.S.				
DRAWN	02-08-22	T.D.G.				
DESIGNED	02-08-22	B.H.S.				

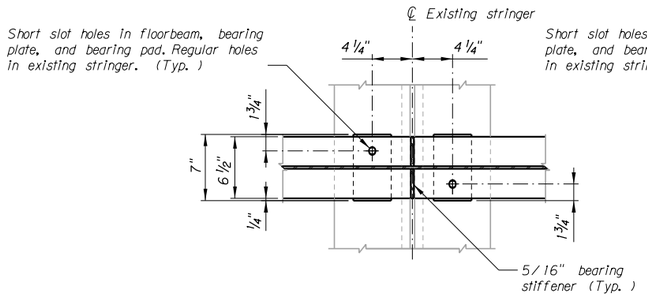
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MONTANA DEPARTMENT OF TRANSPORTATION MDT BRIDGE BUREAU

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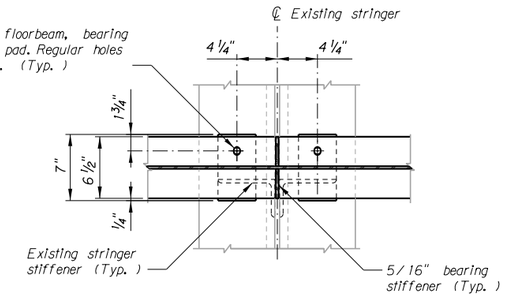
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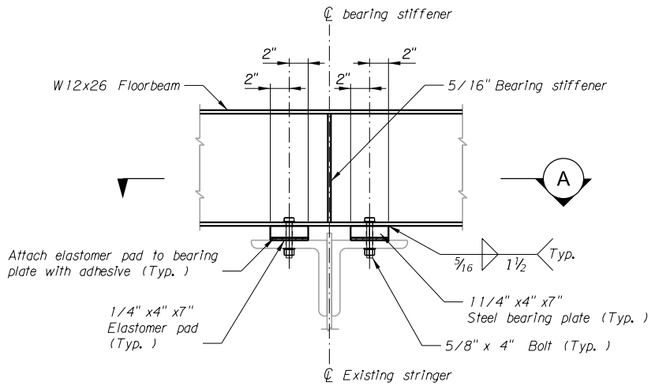
SECTION A - STANDARD HOLE PATTERN

Scale 1 1/2" = 1' -0"



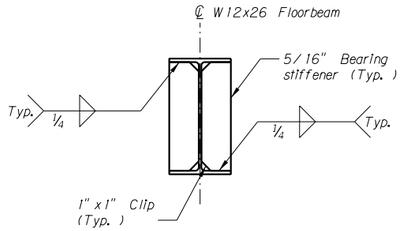
SECTION A - ALTERNATE HOLE PATTERN

Scale 1 1/2" = 1' -0"



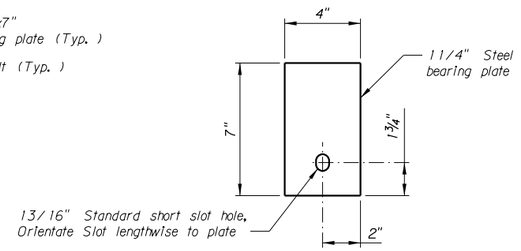
FLOORBEAM CONNECTION DETAIL

Scale 1 1/2" = 1' -0"



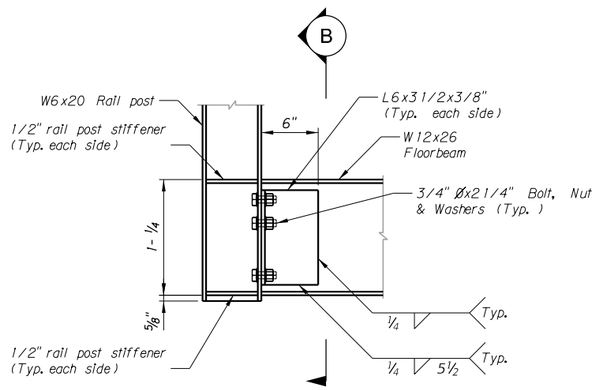
BEARING STIFFENER

Scale 1 1/2" = 1' -0"



BEARING PLATE

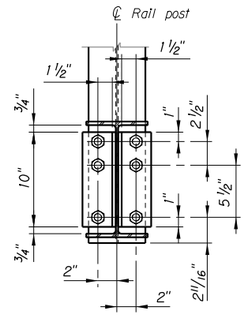
Scale 3" = 1' -0"



RAIL POST CONNECTION DETAIL

Scale 1 1/2" = 1' -0"

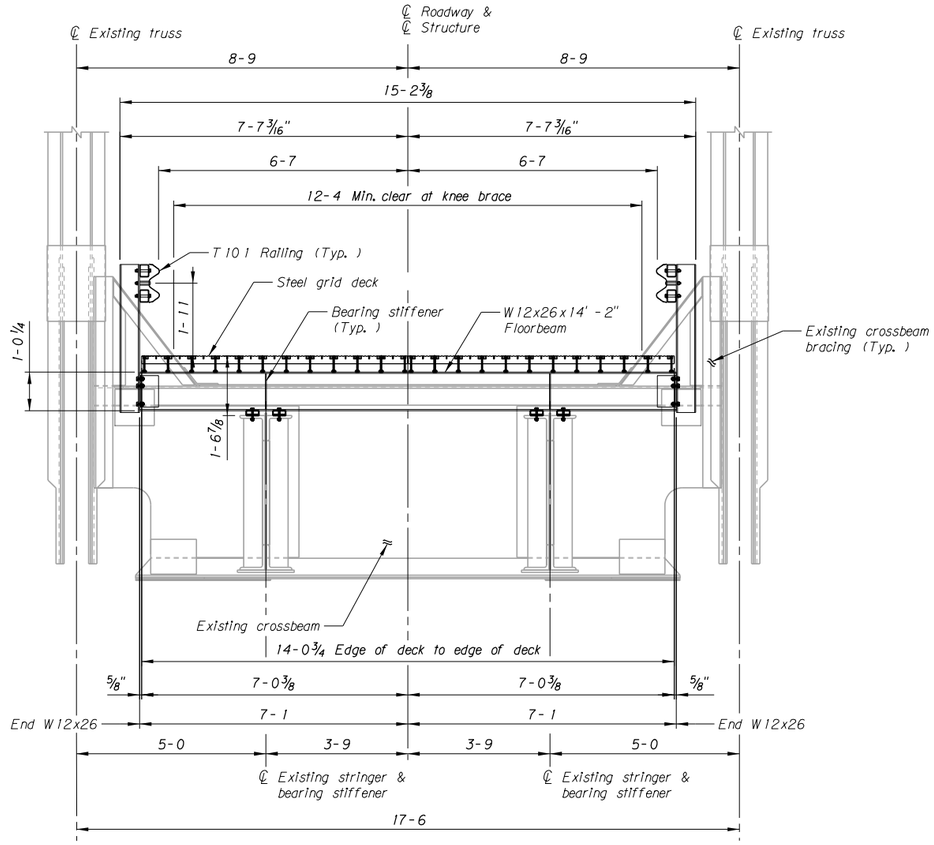
NOTE: See sheet B14 for T101 railing details.



SECTION B

Scale 1 1/2" = 1' -0"

NOTE: Regular bolt holes in Angles. Vertical, short slotted holes in W6x20 rail post. See sheet B14 for post slotted hole detail.



TYPICAL SECTION

Scale 1/2" = 1' -0"

NOTE: Use structural steel meeting the requirements of AASHTO M 270 Grade 50 except as noted.

NOTE: Provide bolts in accordance with ASTM F3125, Grade A325. See Standard Specifications for the requirements of nuts, washers, and direct tension indicators.

NOTE: Hot-dip galvanize all structural steel, bolts, and hardware in accordance with the standard specifications.

NOTE: Clean all bearing and member surfaces of the existing structural steel in permanent contact with the elastomer pads or new structural steel, including the bolts, nuts, and washers. Apply a primer coat to any exposed steel in the cleaned ares in accordance with section 612 of the Standard Specifications. Include all costs to furnish an apply primer coat in the Lump Sum bid for Structural Steel - Misc.

NOTE: Field drill holes in existing stringers. Shop drill holes in new material. Apply a primer coat to field drilled holes in accordance with section 612 of the Standard Specifications. Include all costs for field and shop drilling of holes and to furnish and apply primer coat in the Lump Sum bid for Structural Steel - Misc.

SHEET NO. B10

TYPICAL SECTION & DETAILS

SCALE: AS SHOWN

PROJECT NAME
YELLOWSTONE R. - 9M NE MILES CITY

MDT STRUCTURE ID
02583

FEDERAL AID PROJECT
STPB 9009(20)

COUNTY
CUSTER

REVISED						
REVISED						
REVISED						
REVISED						
CHECKED	02-08-22	B.H.S.				
DRAWN	02-08-22	T.D.G.				
DESIGNED	02-08-22	B.H.S.				

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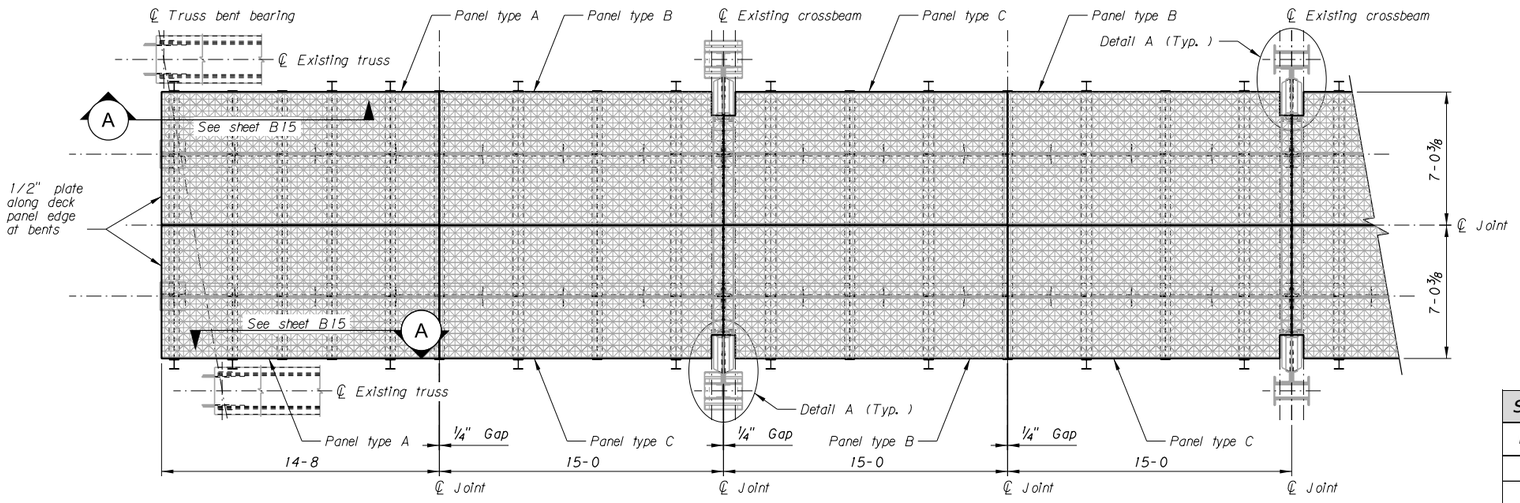
MONTANA DEPARTMENT OF TRANSPORTATION MDT BRIDGE BUREAU

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UPN NUMBER
9181000

DRAWING NO.
24737

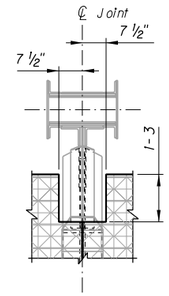
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SUGGESTED DECK PANEL LAYOUT AT BENTS

Scale 1/4" = 1'-0"

NOTE: Include 1/2" thick end plate along deck panel edge at deck panel overhang at bents and piers.



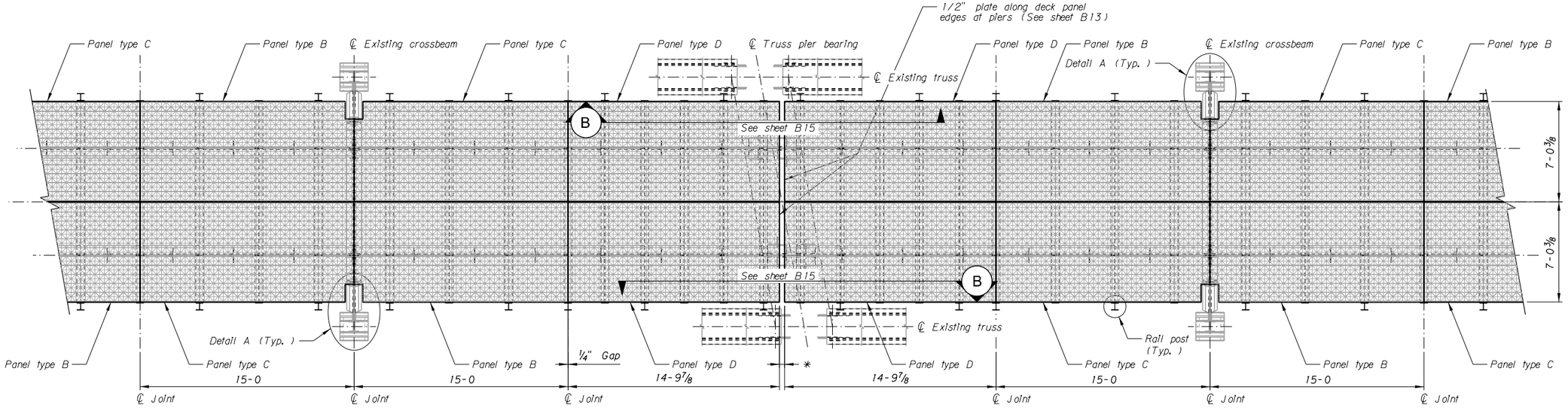
DETAIL A

Scale 3/8" = 1'-0"

NOTE: Applies to all panel types B and panel types C.

STEEL GRID DECK ESTIMATED WEIGHTS - FOR INFORMATION ONLY					
PANEL TYPE	PANEL AREA (SQFT)	PANEL WEIGHT (LB)	NUMBER OF PANELS	TOTAL PANEL AREA (SQFT)	TOTAL PANEL WEIGHT (LB)
A	103	2,116	4	411	8,466
B	105	2,091	64	6,691	133,817
C	105	2,091	64	6,691	133,817
D	104	2,141	12	1,245	25,688
TOTAL	N/A	N/A	144	15,038	301,788

NOTE: Estimated steel grid deck weight is based on 20 pounds per square foot of deck area plus any end plates and shop welded attachments. This weight is an estimate only. Estimated steel grid deck weight is included in the overall estimated weight for the bid item Structural Steel - Misc.



* See Expansion Gap Table on Sheet B13.

SUGGESTED DECK PANEL LAYOUT AT PIERS

Scale 1/4" = 1'-0"

NOTE: Include 1/2" thick end plate along deck panel edge at deck panel overhang at bents and piers.

SHEET NO. B11

DECK PLACEMENT PLAN

SCALE: AS SHOWN

PROJECT NAME
YELLOWSTONE R. - 9M NE MILES CITY

MDT STRUCTURE ID
02583

FEDERAL AID PROJECT
STPB 9009(20)

COUNTY
CUSTER

REVISED				
REVISED				
REVISED				
REVISED				
CHECKED	02-08-22	B.H.S.		
DRAWN	02-08-22	T.D.G.		
DESIGNED	02-08-22	B.H.S.		

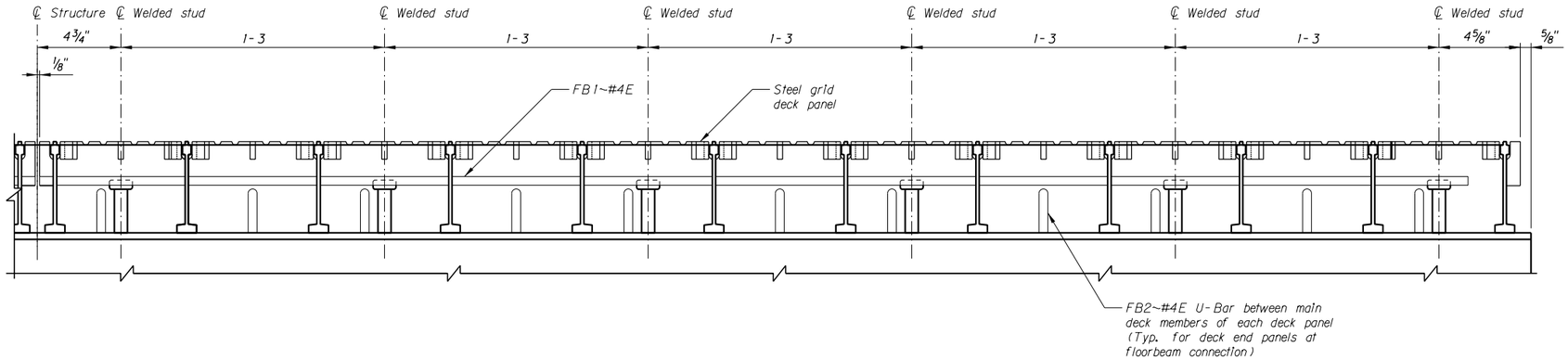
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MONTANA DEPARTMENT OF TRANSPORTATION
BRIDGE BUREAU

UPN NUMBER
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DRAWING NO.
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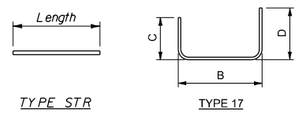
DECK PANEL STUD SPACING

Scale 1 1/2" = 1' -0"

REINFORCING STEEL BAR MARK LOCATIONS	
BAR MARK	LOCATION
CB	Crossbeam
FB	Floorbeam

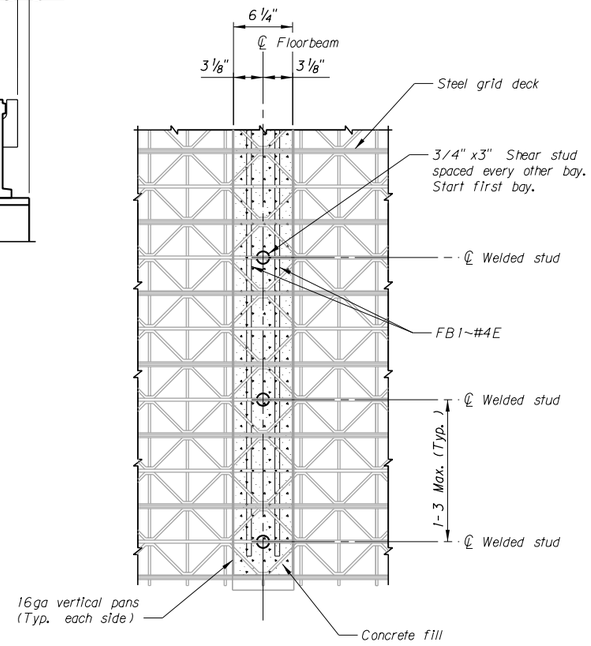
BILL OF REINFORCING STEEL

CROSSBEAM & FLOORBEAM CONNECTIONS
(ALL DIMENSIONS ARE OUT TO OUT)



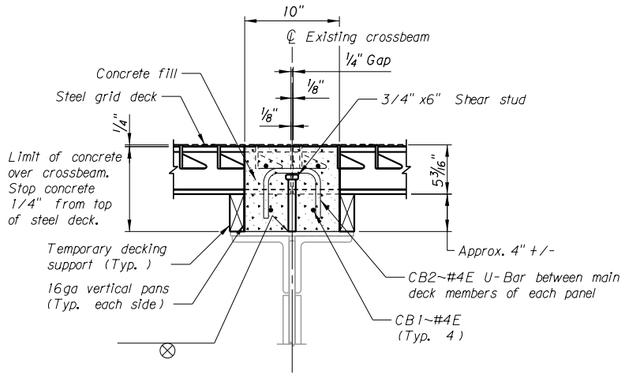
TYPE STR TYPE 17

Mark	Size	No.	Type	Length	A	B	C	D	E	G	N
CB1	#4E	256	STR	5-9							
CB2	#4E	572	17	1-4		0-6	0-5	0-5			
FB1	#4E	1072	STR	6-9							
FB2	#4E	792	17	0-8		0-3	0-2 1/2	0-2 1/2			



PLAN AT FLOORBEAM CONNECTION

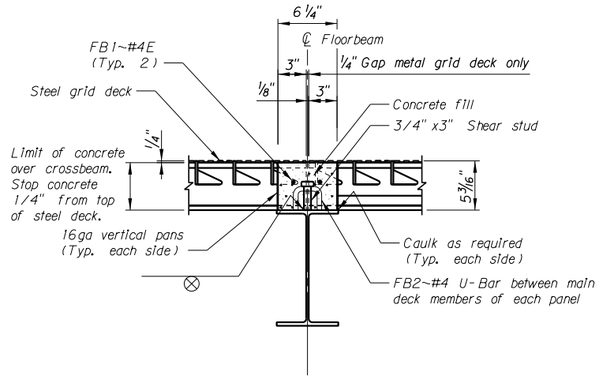
Scale 1 1/2" = 1' -0"



DECK PANEL AT EXISTING CROSSBEAM CONNECTION

Scale 1 1/2" = 1' -0"

NOTE: Adjust temporary decking support heights to ensure a uniform grade is maintained over the crossbeam and throughout the deck in the final finished grade configuration.

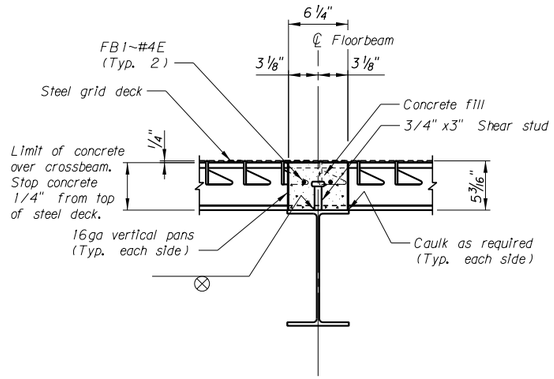


DECK END PANELS AT FLOORBEAM CONNECTION

Scale 1 1/2" = 1' -0"

NOTE: Limit aggregate size to 3/8" maximum for open grid deck connections.

NOTE: Adjust or shim decking and provide any needed temporary decking support to ensure a uniform grade is maintained over the floorbeam and throughout the deck in the final grade configuration.



DECK PANEL AT FLOORBEAM CONNECTION

Scale 1 1/2" = 1' -0"

NOTE: Adjust or shim decking and provide any needed temporary decking support to ensure a uniform grade is maintained over the floorbeam and throughout the deck in the final finished grade configuration.

SHEET NO. B12

DECK CONNECTION DETAILS

SCALE: AS SHOWN

PROJECT NAME
YELLOWSTONE R. - 9M NE MILES CITY

MDT STRUCTURE ID
02583

FEDERAL AID PROJECT
STPB 9009(20)

COUNTY
CUSTER

REVISED				
REVISED				
REVISED	05-31-22	B.H.S.		
REVISED	02-08-22	B.H.S.		
CHECKED	02-08-22	T.D.G.		
DRAWN	02-08-22	B.H.S.		
DESIGNED				

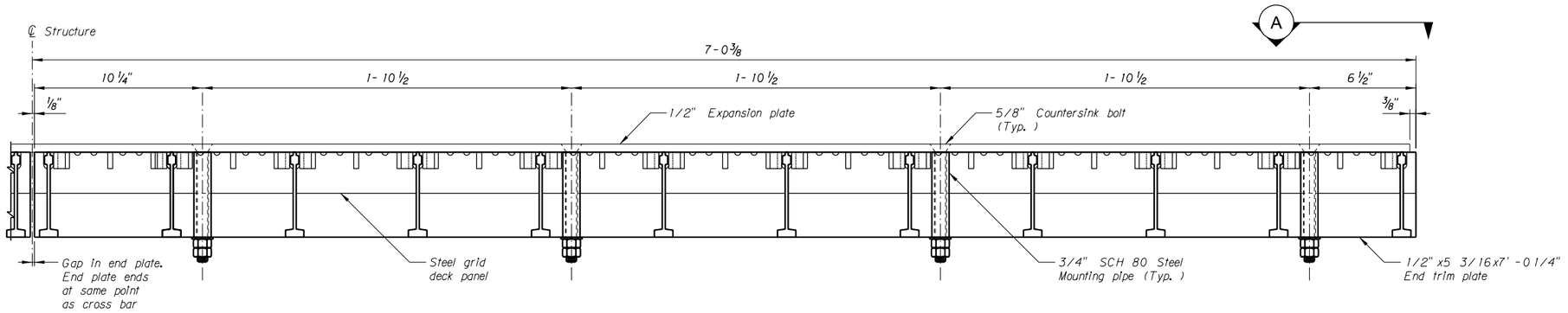
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MONTANA DEPARTMENT OF TRANSPORTATION
MDT
BRIDGE BUREAU

UPN NUMBER
9181000

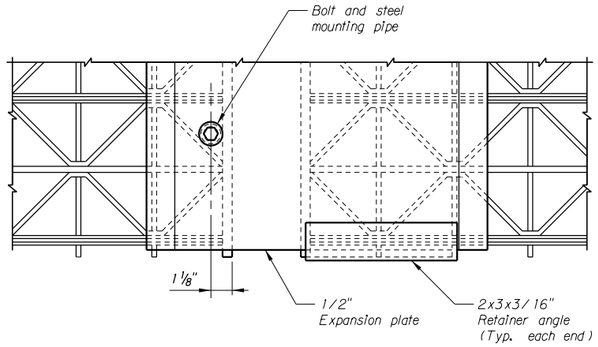
DRAWING NO.
24739

AWARD COPY



EXPANSION PLATE BOLT SPACING DETAIL

TABLE OF EXPANSION GAPS								
	TEMPERATURE (°F)						Adjustment for 1/8" movement (°F)	Total Movement (in)
	-40	0	38	60	90	115		
PIER NO. 2	5.125	4.125	3.125	2.625	1.875	1.250	5.0	3.875
PIER NO. 3	5.125	4.125	3.125	2.625	1.875	1.250	5.0	3.875
PIER NO. 4	9.125	7.125	5.250	4.125	2.625	1.375	2.5	7.750



VIEW A

NOTE: Countersunk bolt and mounting pipe locations at expansion joint are approximations and may be adjusted as needed to not conflict with the deck bars.

NOTE: Use structural steel meeting the requirements of AASHTO M 270 Grade 50.

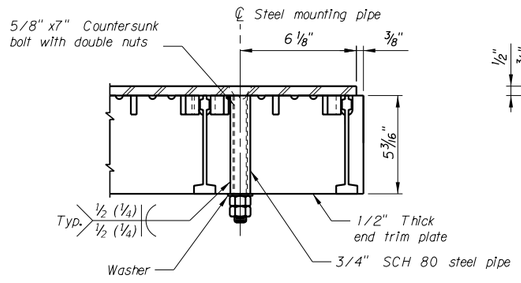
NOTE: Hot-dip galvanize all structural steel, bolts, and hardware in accordance with the standard specifications.

NOTE: Provide countersunk bolts in accordance with ASTM A449. See Standard Specifications for the requirements of nuts, washers, and direct tension indications.

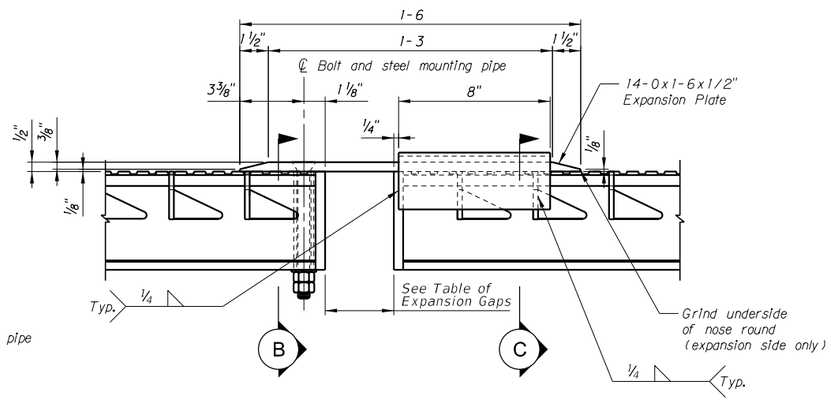
NOTE: Expansion joint plate to have a raised-pattern meeting the requirements of ASTM A786.

NOTE: Include the expansion joint plate in the lump sum bid for Structural Steel - Misc.

NOTE: Use the "Turn of the nut" bolt method to meet tensioning requirements.

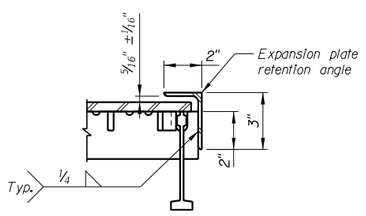


SECTION B



EXPANSION JOINT END VIEW

NOTE: Use 1/4 fillet welds to attach retention angle to deck at end plate and at cross bar furthest from the end plate that makes contact with the retention angle. Location of the cross bars may vary from what is shown.



SECTION C

SHEET NO. B13

EXPANSION JOINT DETAILS AT PIERS

SCALE: 3"=1'-0"

PROJECT NAME
YELLOWSTONE R. - 9M NE MILES CITY

MDT STRUCTURE ID
02583

FEDERAL AID PROJECT
STPB 9009(20)

COUNTY
CUSTER

REVISED								
REVISED								
REVISED								
REVISED								
CHECKED	02-08-22	B.H.S.						
DRAWN	02-08-22	T.D.G.						
DESIGNED	02-08-22	B.H.S.						

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NOTES

GALVANIZING: Galvanize all bolts, nurs, washers and pipe sleeves in accordance with ASTM F 2329. Galvanize metal guardrail, posts, structural tubing and plates in accordance with AASHTO M 111.

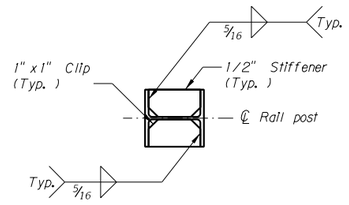
REFLECTORS: Place a reflector on each end rail post and at approximately equal spacing (every third rail post but not to exceed 25 feet) between end rail posts. Mount reflectors with reflectorized face toward oncoming traffic. See Dtl. Dwg. No. 606-05 for reflector detail. Mount reflector to W-beam post web with an approved adhesive. Include the cost of the reflector in the unit price bid for Revise Bridge Rail T-101.

PAYMENT: Revise Bridge Rail T-101 is paid for by the linear foot which is full compensation for all resources necessary to complete the item. The number of linear feet of Bridge Rail ~ T101 for payment is shown on the General Layout. Use posts and plates conforming to AASHTO M 270 Grade 36T3. Use metal guardrail conforming to AASHTO M 180 and lap in direction of traffic.

ERECTION: Set the rail parallel to the roadway grade. Adjust rail to proper rail height using vertical slots in rail post or rail post shims.

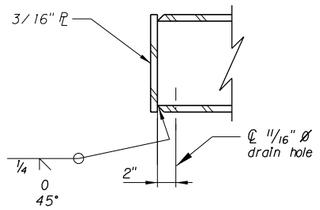
FABRICATION: For the purposes of fabrication, this rail system is considered an ancillary item. The requirements of subsection 1.3.7 of AASHTO/AWS D1.5 apply.

RAIL WEIGHT: For informational purposes only, the rail weight is approximately 43.1 lb/ft.

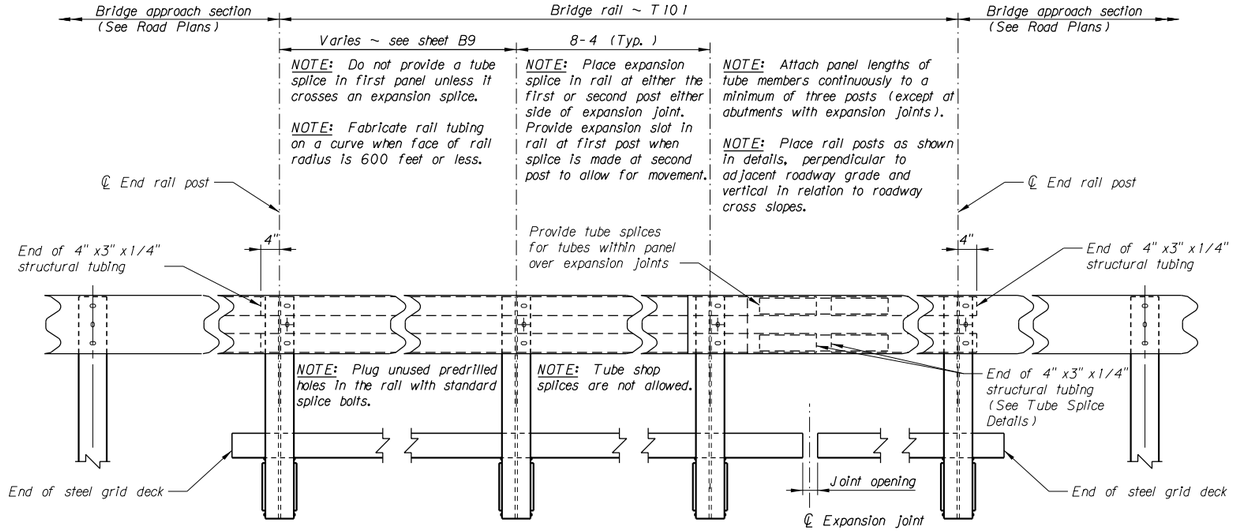


RAIL POST STIFFENER

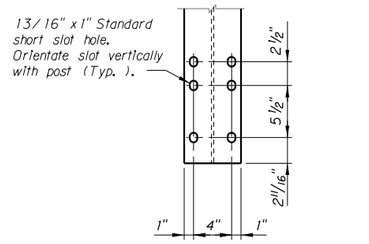
Scale 1 1/2" = 1'-0"



TUBE CAP DETAIL

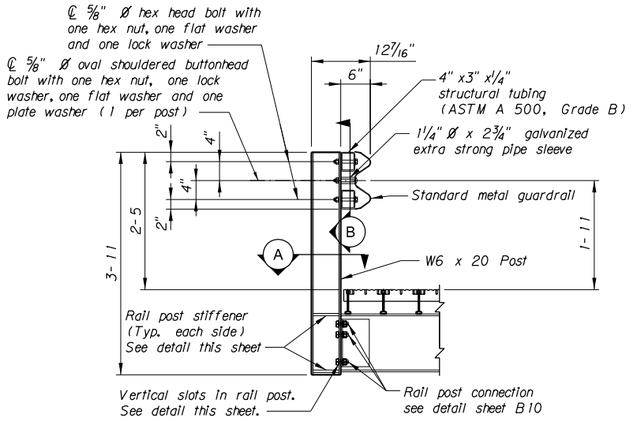


INSIDE ELEVATION OF RAIL

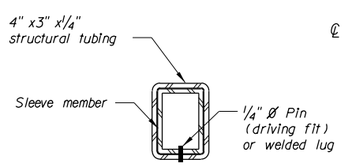


RAIL POST SLOT DETAIL

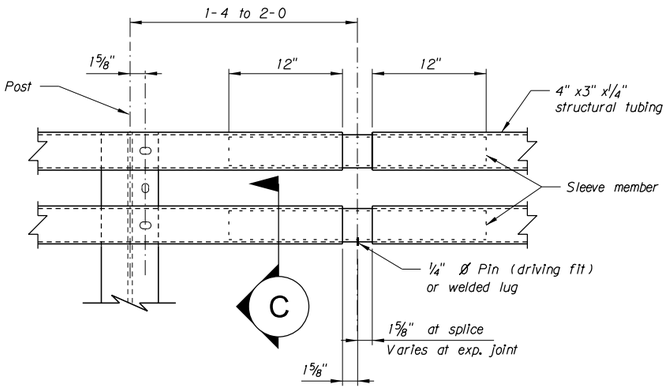
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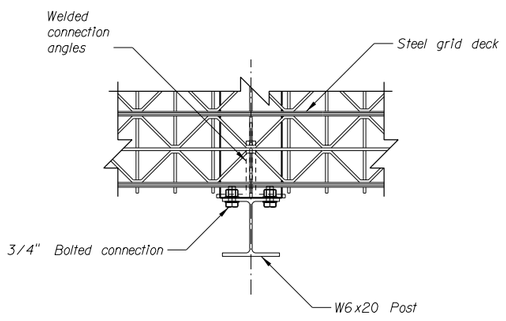
RAIL POST SECTION



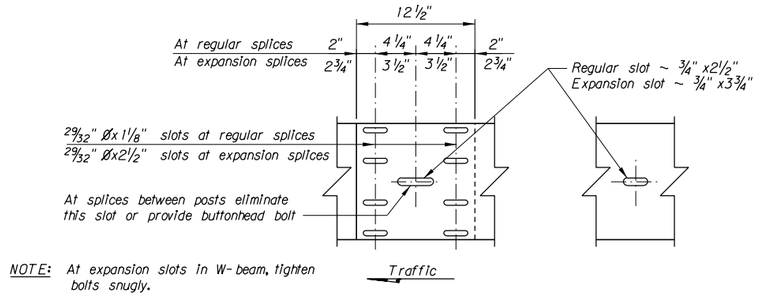
SECTION C



TUBE SPLICE DETAIL



SECTION A

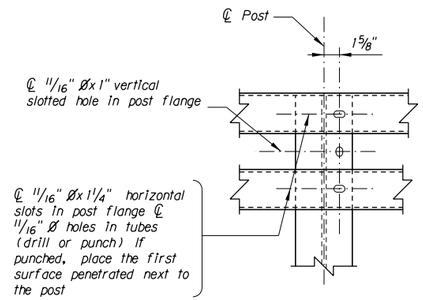


NOTE: At expansion slots in W-beam, tighten bolts snugly.

RAIL SPLICE

POST CONNECTION

NOTE: Provide 5/8" Ø oval shouldered buttonhead bolts with hex nuts at all splice slots.



SECTION B

SHEET NO. B14

T101 RAILING DETAILS

SCALE: NO SCALE

PROJECT NAME
YELLOWSTONE R. - 9M NE MILES CITY

MDT STRUCTURE ID
02583

FEDERAL AID PROJECT
STPB 9009(20)

COUNTY
CUSTER

REVISED			
REVISED			
REVISED			
CHECKED	02-08-22	B.H.S.	
DRAWN	02-08-22	T.D.G.	
DESIGNED	02-08-22	B.H.S.	

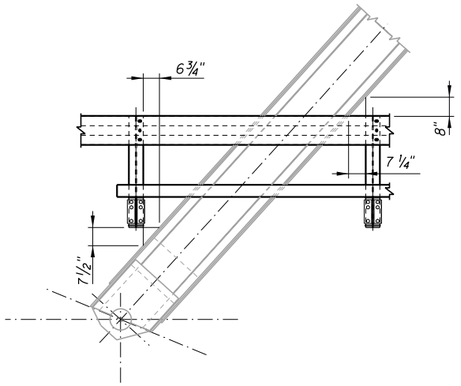
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BRIDGE BUREAU

UPN NUMBER
9181000

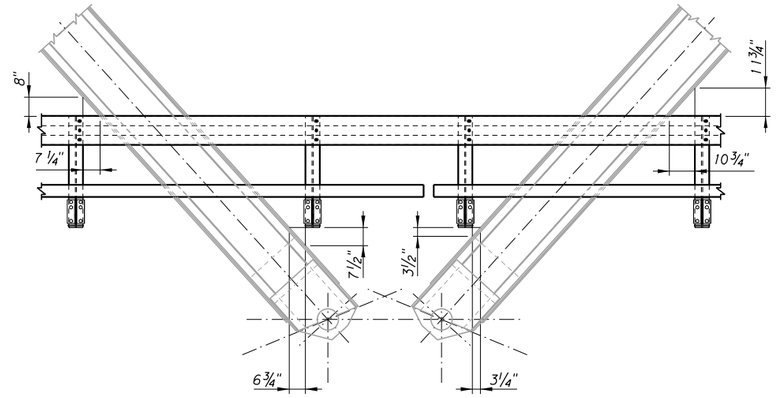
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24741

AWARD COPY



VIEW A - FOR INFORMATION ONLY

NOTE: This View Detail is for information only. This detail shows the intended placement of the T101 rail posts and associated floorbeams relative to the truss diagonal members at the bents. See sheet B11.



VIEW B - FOR INFORMATION ONLY

NOTE: This View Detail is for information only. This detail shows the intended placement of the T101 rail posts and associated floorbeams relative to the truss diagonal members at the piers. See sheet B11.

SHEET NO.
B15

RAIL POST CLEARANCE DETAILS

SCALE: 3/8"=1'-0"

PROJECT NAME
YELLOWSTONE R. - 9M NE MILES CITY

MDT STRUCTURE ID
02583

FEDERAL AID PROJECT
STPB 9009(20)

COUNTY
CUSTER

REVISED	CHECKED	02-08-22 B.H.S.
REVISED	DRAWN	02-08-22 T.D.G.
REVISED	DESIGNED	02-08-22 B.H.S.
REVISED		
REVISED		
REVISED		

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MDT
BRIDGE BUREAU

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UPN NUMBER
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24742