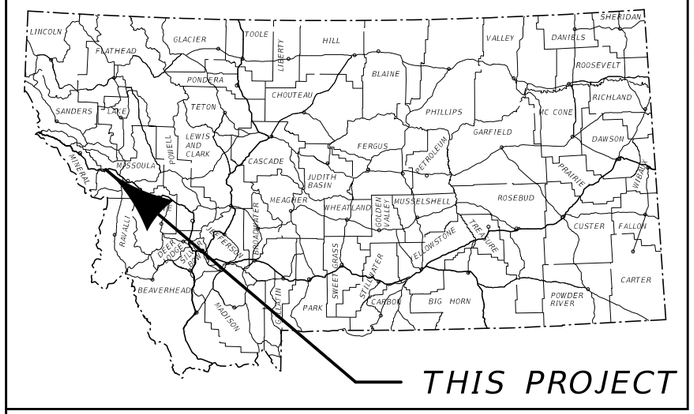
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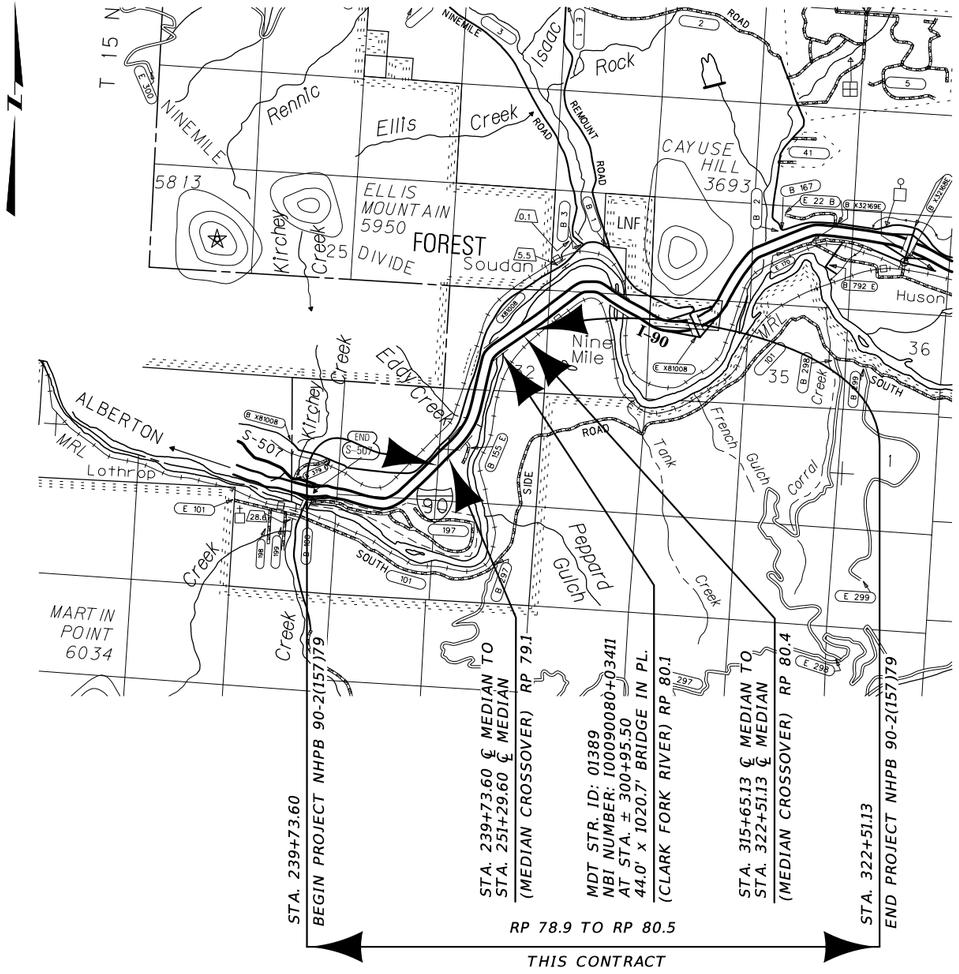
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MONTANA DEPARTMENT OF TRANSPORTATION



FEDERAL AID PROJECT NHPB 90-2(157)79
MAJOR BRIDGE REHABILITATION
CLARK FORK - 5 M E ALBERTON
MISSOULA COUNTY

LENGTH **1.6** MILES



SURFACING SOURCES - CONTRACTOR FURNISHED

PLANS PREPARED BY
HDR 700 SW HIGGINS AVE, SUITE 200 MISSOULA, MT 59803 PHONE (406) 532-2200

RELATED PROJECTS

ASSOCIATED PROJECT AGREEMENT NUMBERS	
R / W	
I.C.	
P. E.	NHPB 90-2(156)80

HDR

DocuSigned by:
BY: Riley C. Lubbers
C6C069C8E44942D...
DATE: 9/14/2022

RILEY C. LUBBERS No.72244PE LICENSED PROFESSIONAL ENGINEER MONTANA

MONTANA DEPARTMENT OF TRANSPORTATION

RECEIVED
DocuSigned by:
BY: Kelly Williams
662BFECF85E2478...
PROJECT DESIGN ENGINEER
DATE: 9/15/2022

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

APPROVED :

DIVISION ADMINISTRATOR — DATE

3	MDT	MONTANA DEPARTMENT OF TRANSPORTATION	...\6.2_WIP\RD\9581000RDTT	DESIGNED BY	CBC	ROAD PLANS
2			8/11/2022	REVIEWED BY	RCL	
			3:27:12 PM RLUBBERS	CHECKED BY	LJF	UPN 9581000

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NOTES

BASIS OF PLAN QUANTITIES

(QUANTITIES FOR ESTIMATING PURPOSES ONLY)

COMP. AGGREGATE WEIGHT	= 3700 LBS. PER CUBIC YARD
COMP. WEIGHT OF PL. MIX BIT. SURF.	= 3855 LBS. PER CUBIC YARD
ASPHALT CEMENT - GRADE S - 1/2" AGG.	= 5.8% OF PL.MIX BIT.SURF.
HYDRATED LIME	= 1.4% OF PL.MIX BIT.SURF.
BITUMINOUS MATERIAL	= 8.5 LBS. PER GAL.
EMULSIFIED ASPHALT - TACK (ALL OTHER SURFACES)	= 0.05 GAL. PER SQ.YARD (UNDILUTED)
EMULSIFIED ASPHALT - FOG SEAL (S & C)	= 0.075 GAL. PER SQ.YARD (UNDILUTED)
EMULSIFIED ASPHALT - FOG SEAL (RUMBLE STRIPS)	= 0.10 GAL. PER SQ.YARD (UNDILUTED)
SEAL	= 0.42 GAL. PER SQ.YARD
COVER	= 25 LBS. PER SQ.YARD

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.

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.

COMBINATION SCALE FACTOR

ALL COORDINATES ARE STATE PLANE (SEE CONTROL DIAGRAM)
CSF FOR THE PROJECT IS 0.99925051.

LINEAR AND LEVEL DATA

LENGTH OF ROADWAY	MISSOULA COUNTY	400.00 ft
LENGTH OF BRIDGE	MISSOULA COUNTY	1,020.67 ft
TOTAL LENGTH OF	NHPB 90-2(157)79	1,420.67 ft

BEARING SOURCE

GRID -- MONTANA COORDINATE SYSTEM NAD 83- 2007

LEVEL DATUM SOURCE

NAVD 88 (ELEVATIONS DERIVED FROM RTK OBSERVATIONS)

CENTERLINE COORDINATE TABLE

STATION	DESCRIPTION	N OR Y COORDINATE	E OR X COORDINATE	REMARKS
219+21.40	POT	1039018.902	741212.320	POB
239+73.60	POT	1040496.072	742615.842	BEGIN PROJECT
251+22.20	TS	1041342.234	743421.040	
254+22.20	SC	1041559.679	743620.536	
260+59.04	PI	1042043.565	744034.564	
266+75.50	CS	1042657.286	744204.597	
269+75.50	ST	1042948.979	744274.548	BK
269+89.40				AH
280+11.80	TS	1043947.203	744495.569	
282+61.80	SC	1044176.881	744548.765	
293+85.17	POC	1045223.437	744983.595	BEGIN SURFACING IMPROVEMENTS
293+92.32	PI	1045341.743	744844.454	
305+64.54	PCC	1046124.222	745737.792	
308+05.84	POC	1046279.825	745921.186	END SURFACING IMPROVEMENTS
309+64.91	PI	1046388.019	746038.963	
313+64.54	PT	1046618.890	746366.059	
322+51.13	POT	1047130.258	747089.881	END PROJECT
348+42.80	TS	1048602.116	749188.047	POE

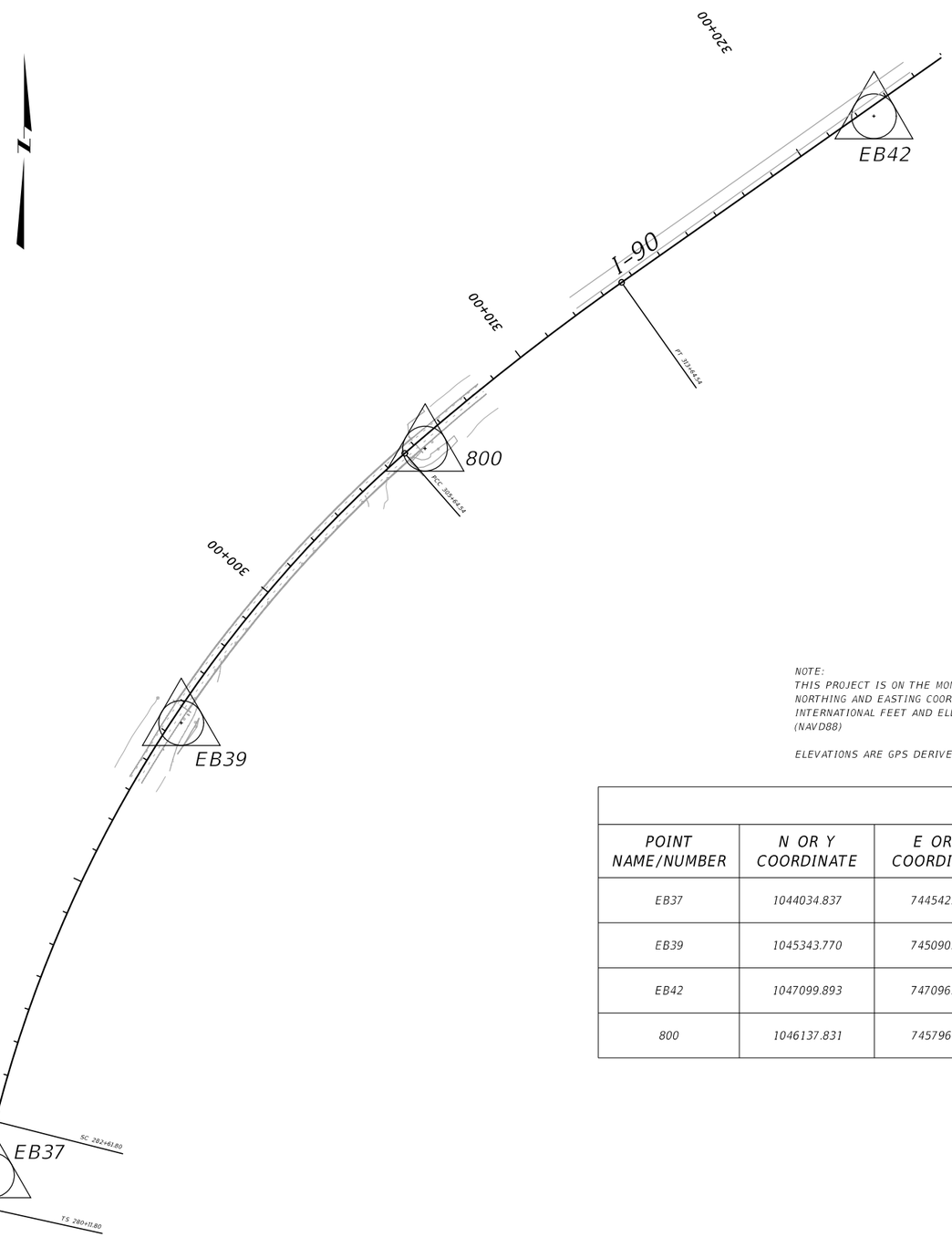
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CONTROL DIAGRAM

SCALE: 1"=400'



NOTE:
THIS PROJECT IS ON THE MONTANA COORDINATE SYSTEM NAD83-2007. NORTHING AND EASTING COORDINATES ARE EXPRESSED IN UNITS OF INTERNATIONAL FEET AND ELEVATIONS ARE IN UNITS OF U.S. SURVEY FEET. (NAVD88)

ELEVATIONS ARE GPS DERIVED.

DIMENSIONS SHOWN ON THE PLANS ARE GRID. ALL SURVEY AND STAKING REQUIRE THE USE OF A COMBINATION SCALE FACTOR (CSF) TO CONVERT GRID DIMENSIONS TO GROUND DIMENSIONS (GRID DISTANCE / CSF = GROUND DISTANCE). THE CSF FOR THIS PROJECT IS 0.99925051.

CONTROL ABSTRACT

POINT NAME/NUMBER	N OR Y COORDINATE	E OR X COORDINATE	POINT ELEVATION	LOCATION AND DESCRIPTION
EB37	1044034.837	744542.409	3010.05	MP. 79.74, 27 FT. RT OF CL EB LANE, FOUND 5/8"X30" REBAR WITH STD MDT HORIZ CONTROL CAP MRK'D "EB377523,2011", FLUSH. WITNESS POST 2 FT OUT.
EB39	1045343.770	745090.559	2998.92	MP. 80.01, 26 FT. RT OF CL EB LANE, FOUND 5/8"X30" REBAR WITH STD MDT HORIZ CONTROL CAP MRK'D "EB397523,2011", FLUSH. WITNESS POST 2 FT OUT.
EB42	1047099.893	747096.456	2990.04	MP. 80.52, 27 FT. RT OF CL EB LANE, FOUND 5/8"X30" REBAR WITH STD MDT HORIZ CONTROL CAP MRK'D "EB427523,2011", FLUSH. WITNESS POST 2 FT OUT.
800	1046137.831	745796.631	2997.25	MP. 80.22, 28 FT. RT OF CL EB LANE, FOUND 5/8"X30" REBAR WITH STD MDT HORIZ CONTROL CAP MRK'D "EB407523,2011", FLUSH. WITNESS POST 2 FT OUT.

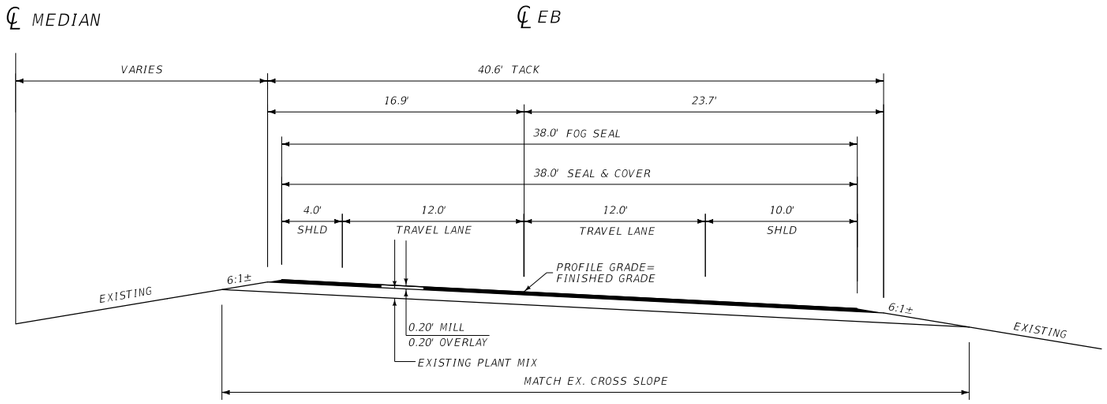
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TYPICAL SECTION

I-90

293+85.17 BEGIN PROJECT/MATCH EXISTING
293+85.17 TO 295+85.17 (BE) TYP. NO. 1
306+05.84 (BE) TO 308+05.84 TYP. NO. 1
308+05.84 END PROJECT/MATCH EXISTING



EB QUANTITIES

UNIT	AGGREGATE			UNIT	BITUMINOUS MATERIAL			COLD MILLING
	COVER	PLANT MIX	CR. AGG. COURSE		SEAL	FOG SEAL	EMULSIFIED ASPHALT TACK**	
AREA square feet		7.86		square yards PER STATION	422	422	451	451
cubic yards PER STATION		29.1		tons PER STATION	0.75			
tons PER STATION		56.1		gals PER STATION		32	23	
square yards PER STATION	422							

**BASED ON 1 APPLICATION

HDR

3	MDT MONTANA DEPARTMENT OF TRANSPORTATION	...\6.2_WIP\RD\9581000RDTY01.dgn	DESIGNED BY CBC		ROAD PLANS	CLARK FORK - 5 M E ALBERTON	NHPB 90-2(157)79
2		8/11/2022	REVIEWED BY RCL		MISSOULA COUNTY	UPN 9581000	SHEET 4
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SUMMARY

SURFACING

STA. FROM	STA. TO	linear feet GROSS	linear feet NET	linear feet +	linear feet -	FOR	AGGREGATE square yards COVER TYPE 2	AGGREGATE cubic yards COMM. MIX 1/2" PG 70-28	AGGREGATE cubic yards CRUSHED AGG. COURSE	AGGREGATE cubic yards SHOULDER GRAVEL	tons SEAL CHFRS-2P	gals. EMULSIFIED ASPHALT TACK	gals. EMULSIFIED ASPHALT FOG SEAL	REMARKS
293+85.17	295+85.17 (BE)	200.00	200.00			STRUCTURE 01389 APPROACH - I-90 EB	844	112			1.5	46	64	TYPICAL SECTION 1
295+85.17 (BE)	306+05.84 (BE)	1,020.67			1,020.67	I-90 EB								STRUCTURE 01389
306+05.84 (BE)	308+05.84	200.00	200.00			STRUCTURE 01389 DEPARTURE I-90 EB	844	112			1.5	46	64	TYPICAL SECTION 1
TOTAL		1,420.67	400.00	~	1,020.67		1,688	224	~	~	3.0	92	128	

GUARDRAIL

STA. FROM	STA. TO	linear feet REMOVE GUARDRAIL LEFT	linear feet REMOVE GUARDRAIL RIGHT	linear feet HIGH TENSION CABLE RAIL MEDIAN	linear feet MGS GUARDRAIL LEFT	linear feet MGS GUARDRAIL RIGHT	each CABLE TERMINAL SECTION MEDIAN	each MASH W-BEAM TERMINAL SECTION LEFT	each MASH W-BEAM TERMINAL SECTION RIGHT	each MASH THRIE-BEAM BRIDGE APPROACH SECTION LEFT	each MASH THRIE-BEAM BRIDGE APPROACH SECTION RIGHT	REMARKS
244+16.00	246+72.00			256.0			2					MEDIAN CROSSOVER 1
293+33.91	295+85.17	251.3										STRUCTURE 01389 APPROACH LT
293+60.02	295+85.02				187.5			1		1		STRUCTURE 01389 APPROACH LT
294+44.42	295+85.02		140.6			* 103.1					1	STRUCTURE 01389 APPROACH RT
306+05.98	307+46.58	140.6			* 103.1					1		STRUCTURE 01389 DEPARTURE LT
306+05.98	307+46.58		140.6			* 103.1					1	STRUCTURE 01389 DEPARTURE RT
317+90.00	320+34.00			244.0			2					MEDIAN CROSSOVER 2
SUBTOTAL		391.9	281.2	500.0	290.6	206.2	4	1	0	2	2	
TOTAL		673.1		500.0	496.8		4	1		4		

*28.1' MGS TO METAL GUARDRAIL TRANSITION IS INCLUDED IN LENGTH OF MGS GUARDRAIL.

EMBANKMENT PROTECTORS

STATION FROM	STATION TO	linear feet EMBANKMENT PROTECTOR 18" LEFT	linear feet EMBANKMENT PROTECTOR 18" RIGHT	linear feet 4" CONCRETE CURB LEFT	linear feet 4" CONCRETE CURB RIGHT	each EXIST. EMBANKMENT PROTECTOR - PROTECT IN PLACE # LEFT	each EXIST. EMBANKMENT PROTECTOR - PROTECT IN PLACE # RIGHT	REMARKS
295+23.67	295+85.17				61.5		1	STRUCTURE 01389 APPROACH RT
	306+46.00						1	STRUCTURE 01389 DEPARTURE RT
SUBTOTAL		~	~	~	61.5	~	2	
TOTAL		~		61.5		~		

FOR INFORMATION ONLY

COLD MILLING

STA. FROM	STA. TO	square yards COLD MILLING 0.20'	REMARKS
293+85.17	295+85.17	902	STRUCTURE 01389 APPROACH
306+05.84	308+05.84	902	STRUCTURE 01389 DEPARTURE
SUBTOTAL		1,804	
TOTAL		1,804	

MEDIAN CROSSOVER

R.P.		each OPEN MEDIAN CROSSOVER - CONST., MAINTAIN, & CLOSE ##	DESCRIPTION
R.P. 79.1		1	CROSSOVER 1
R.P. 80.4		1	CROSSOVER 2
TOTAL		2	

SEE DETAIL

LEAVE MEDIAN CROSSOVERS IN-PLACE AFTER THE PROJECT (DO NOT REMOVE)

HDR

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SUMMARY

RUMBLE STRIPS

STA. FROM	STA. TO	miles RUMBLE STRIPS CONTINUOUS	miles RUMBLE STRIPS INTERMITTENT	gals EMULSIFIED ASPHALT FOG SEAL #	REMARKS
293+85.17	295+85.17	0.04	0.04	4.0	STRUCTURE 01389 APPROACH
306+05.84	308+05.84	0.04	0.04	4.0	STRUCTURE 01389 DEPARTURE
SUBTOTAL		0.08	0.08	8.0	
TOTAL		0.2		~	

REPLACE EXISTING RUMBLE STRIPS IN KIND
FOR INFORMATION ONLY, INCLUDE IN THE COST OF RUMBLE STRIPS

TRAFFIC CONTROL

R.P.		each CROSSOVER	miles TWO-WAY TRAFFIC	REMARKS
R.P. 79.1		1		CROSSOVER 1
			1.3	CROSSOVER 1 TO CROSSOVER 2
R.P. 80.4		1		CROSSOVER 2
TOTAL		2	1.3	

PAVEMENT MARKINGS

ITEM	UNIT	INTERIM APPLICATION #	FINAL APPLICATION	TOTAL
STRIPING – WHITE PAINT	gallon	4		4
STRIPING – YELLOW PAINT	gallon	3		3
STRIPING – WHITE EPOXY	gallon		3	3
STRIPING – YELLOW EPOXY	gallon		2	2

BASED ON 2 APPLICATIONS.

REVEGETATION

RP FROM	RP TO	lump sum REVEGETATION	cubic yards # TOPSOIL SALVAGING & PLACING	acres # SEED	acres # CONDITION SEEDBED	REMARKS
78.90	80.50	1	50	0.10	0.10	TO BE PLACED AS DIRECTED BY THE PROJECT MANAGER
TOTAL		1	~	~	~	

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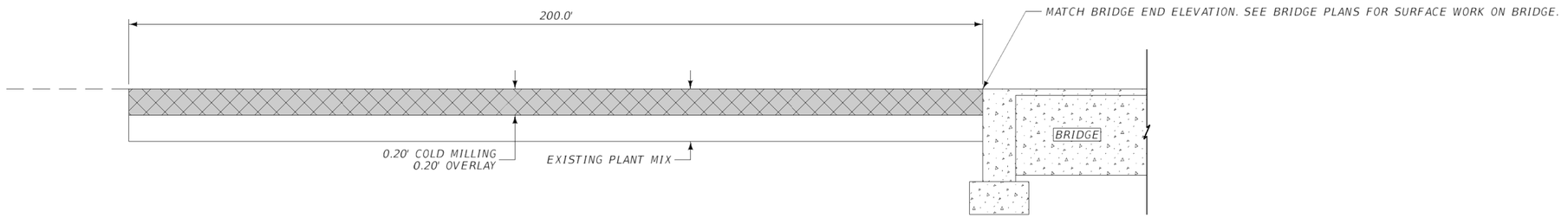
SIGNING

STA.	each REMOVE SIGN - GUIDE	square feet SIGNS-ALUM. REFL. SHEET. INCR. IV	REMARKS
295+74.57	1	10.0	REPLACE SIGN FACE ONLY, N6-2 = CLARK FORK, 2' x 5', STRUCTURE 01389 APPROACH RT.
TOTAL	1	10.0	

HDR

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DETAIL



COLD MILLING WITHOUT GRADE RAISE

STA. 293+85.17 TO 295+85.17
STA. 306+05.84 TO 308+05.84

COLD MILLING

0.20' OVERLAY

HDR

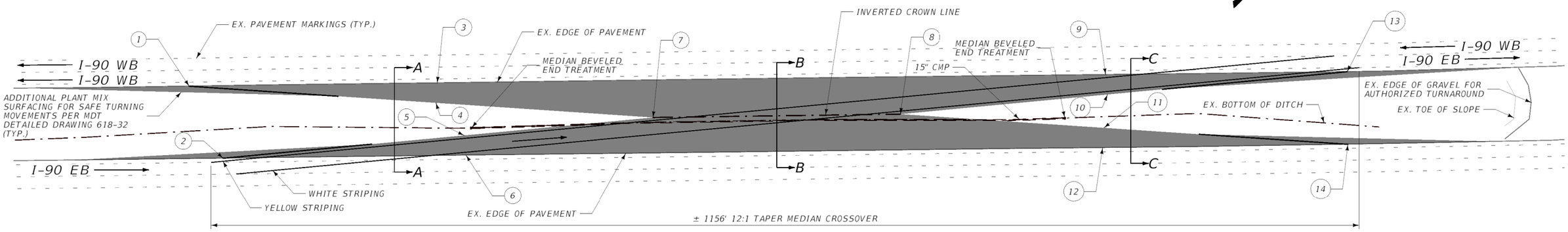
BRIDGE END
COLD MILLING
DETAIL

NO SCALE

3 2	MDT MONTANA DEPARTMENT OF TRANSPORTATION	...\6.2_WIP\RD\9581000RDDET01.DGN 8/11/2022 3:27:41 PM RLUBBERS	DESIGNED BY CBC DRAWN BY REVIEWED BY RCL CHECKED BY LJF		ROAD PLANS MISSOULA COUNTY		CLARK FORK - 5 M E ALBERTON UPN 9581000	NHPB 90-2(157)79 SHEET 7

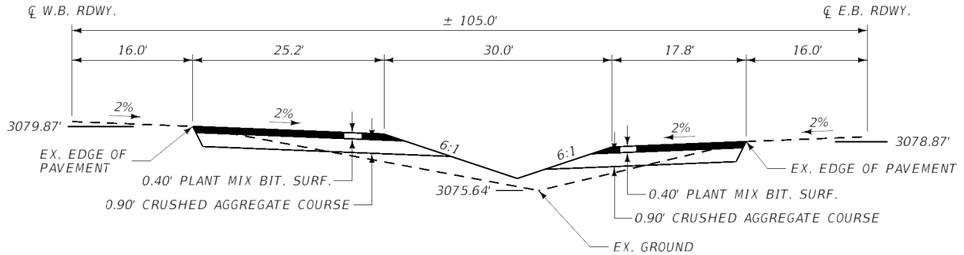
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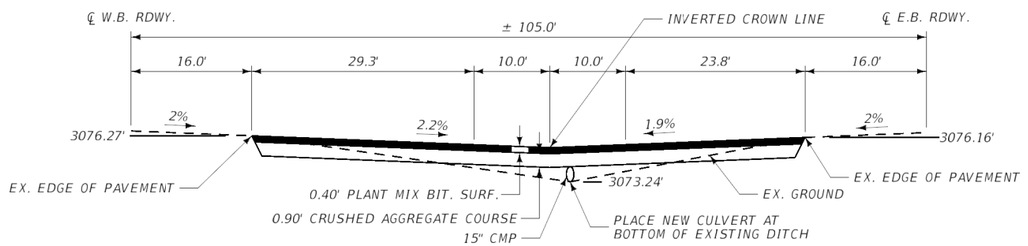


FINISH GRADE POINT LEGEND*				
POINT	NORTHING	EASTING	ELEVATION	REMARKS
1	1040539.619	742540.013	3082.53	TIE TO EX. EOP
2	1040513.717	742615.674	3080.33	TIE TO EX. EOP
3	1040721.066	742711.846	3079.87	TIE TO EX. EOP
4	1040706.193	742725.216	3079.47	NEW CROSSOVER EOP
5	1040703.802	742768.460	3078.27	NEW CROSSOVER EOP
6	1040691.276	742784.051	3078.67	TIE TO EX. EOP
7	1040852.810	742888.228	3076.75	GORE
8	1041033.186	743058.870	3074.07	GORE
9	1041209.002	743174.530	3072.18	TIE TO EX. EOP
10	1041196.473	743190.116	3071.78	NEW CROSSOVER EOP
11	1041170.616	743211.669	3072.38	NEW CROSSOVER EOP
12	1041155.746	743225.040	3072.78	TIE TO EX. EOP
13	1041385.476	743342.003	3069.34	TIE TO EX. EOP
14	1041335.319	743394.791	3069.81	TIE TO EX. EOP

* FOR INFORMATION ONLY

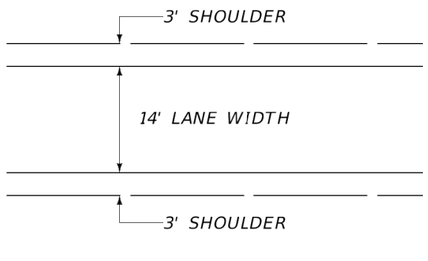


SECTION A-A (C-C IN CONCEPT ONLY)
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SECTION B-B
2V:1H

TYPICAL CROSSOVER SECTION



QUANTITIES FOR MEDIAN CROSSOVER NO. 1*
COMMERCIAL PLANT MIX BIT. SURF. 1/2" - PG 70-28 = 1660 TONS
CR. AGG. COURSE = 2244 CY
EMULSIFIED ASPHALT FOG SEAL = 461 GALS
EMULSIFIED ASPHALT TACK = 339 GALS
AGG. TREATMENT = 6775 SY
CABLE GUARDRAIL = 256 LF (SEE NOTES 2 & 3)
15" CMP = 600 LF (SEE NOTE 4)

* FOR INFORMATION ONLY, INCLUDES ADDITIONAL PLANT MIX SURFACING FOR SAFE TURNING MOVEMENTS PER MDT DETAILED DRAWING 618-32.

CROSSOVER NOTES:

1) PAVEMENT MARKINGS ARE INCLUDED IN THE COST OF THE CROSSOVER.

2) DETERMINE FINAL LENGTH OF CABLE RAIL TO BE INSTALLED ONCE CONSTRUCTION OF THE CROSSOVER IS COMPLETE. INSTALL CABLE RAIL ONCE CONSTRUCTION ACTIVITIES HAVE BEEN SUSPENDED FOR WINTER SHUTDOWN OR UPON COMPLETION OF CONSTRUCTION ACTIVITIES. CABLE GUARDRAIL IS INCLUDED IN THE UNIT PRICE BID OF HIGH TENSION CABLE RAIL.

3) CABLE GUARDRAIL TO MEET MASH TEST LEVEL 3 CRITERIA FOR HIGH TENSION CABLE RAIL SYSTEM AND TERMINALS APPROVED FOR USE IN MEDIANS FOR BOTH TEMPORARY AND PERMANENT APPLICATIONS.

4) CMP TO INCLUDE PRECAST MEDIAN BEVELED END TREATMENTS AT BOTH CULVERT ENDS, SEE MDT DETAIL DRAWING 603-17.

5) CROSS-SLOPES VARY FROM 1.5% TO 2.5%.

CROSSOVER 1
R.P. 79.1
DETAIL

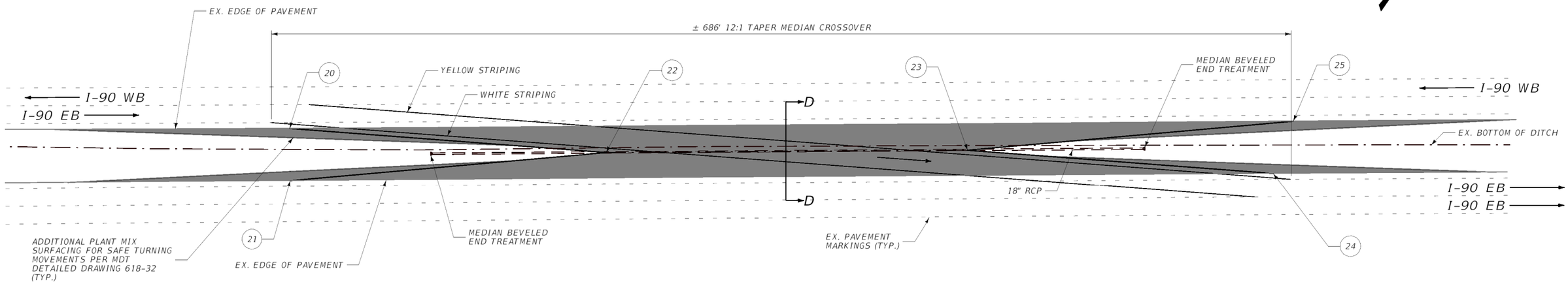
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DETAIL

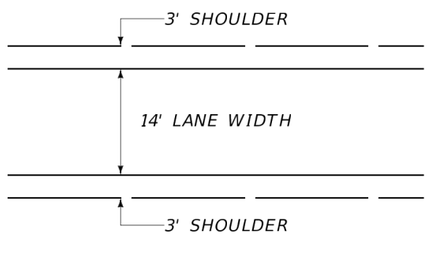


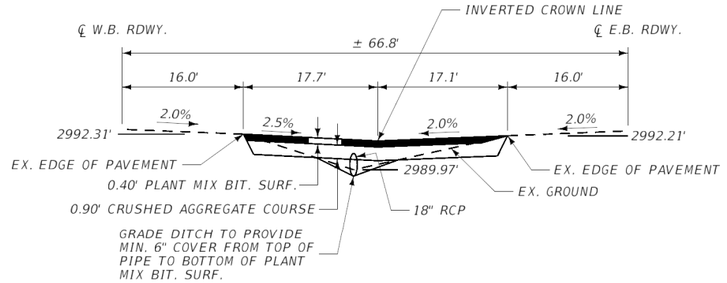
FINISH GRADE POINT LEGEND*

POINT	NORTHING	EASTING	ELEVATION	REMARKS
20	1046782.093	746511.383	2993.63	TIE TO EX. EOP
21	1046753.427	746531.739	2994.49	TIE TO EX. EOP
22	1046890.452	746695.559	2992.54	GORE
23	1047030.518	746894.188	2991.29	GORE
24	1047135.218	747072.146	2990.70	TIE TO EX. EOP
25	1047171.806	747063.104	2990.92	TIE TO EX. EOP

* FOR INFORMATION ONLY

TYPICAL CROSSOVER SECTION





SECTION D-D
2V:1H

QUANTITIES FOR MEDIAN CROSSOVER NO. 2*
COMMERCIAL PLANT MIX BIT. SURF. 1/2" - PG 70-28 = 612 TONS
CR. AGG. COURSE = 926 CY
EMULSIFIED ASPHALT FOG SEAL = 163 GALS
EMULSIFIED ASPHALT TACK = 129 GALS
AGG. TREATMENT = 2,581 SY
CABLE GUARDRAIL = 244 LF (SEE NOTES 2 & 3)
18" RCP = 478 LF (SEE NOTE 4)

* FOR INFORMATION ONLY, INCLUDES ADDITIONAL PLANT MIX SURFACING FOR SAFE TURNING MOVEMENTS PER MDT DETAILED DRAWING 618-32.

CROSSOVER NOTES:

1) PAVEMENT MARKINGS ARE INCLUDED IN THE COST OF THE CROSSOVER.

2) DETERMINE FINAL LENGTH OF CABLE RAIL TO BE INSTALLED ONCE CONSTRUCTION OF THE CROSSOVER IS COMPLETE. INSTALL CABLE RAIL ONCE CONSTRUCTION ACTIVITIES HAVE BEEN SUSPENDED FOR WINTER SHUTDOWN OR UPON COMPLETION OF CONSTRUCTION ACTIVITIES. CABLE GUARDRAIL IS INCLUDED IN THE UNIT PRICE BID OF HIGH TENSION CABLE RAIL.

3) CABLE GUARDRAIL TO MEET MASH TEST LEVEL 3 CRITERIA FOR HIGH TENSION CABLE RAIL SYSTEM AND TERMINALS APPROVED FOR USE IN MEDIANS FOR BOTH TEMPORARY AND PERMANENT APPLICATIONS.

4) RCP TO INCLUDE PRECAST MEDIAN BEVELED END TREATMENTS AT BOTH CULVERT ENDS, SEE MDT DETAIL DRAWING 603-17.

5) CROSS-SLOPES VARY FROM 1.5% TO 2.5%.

HDR

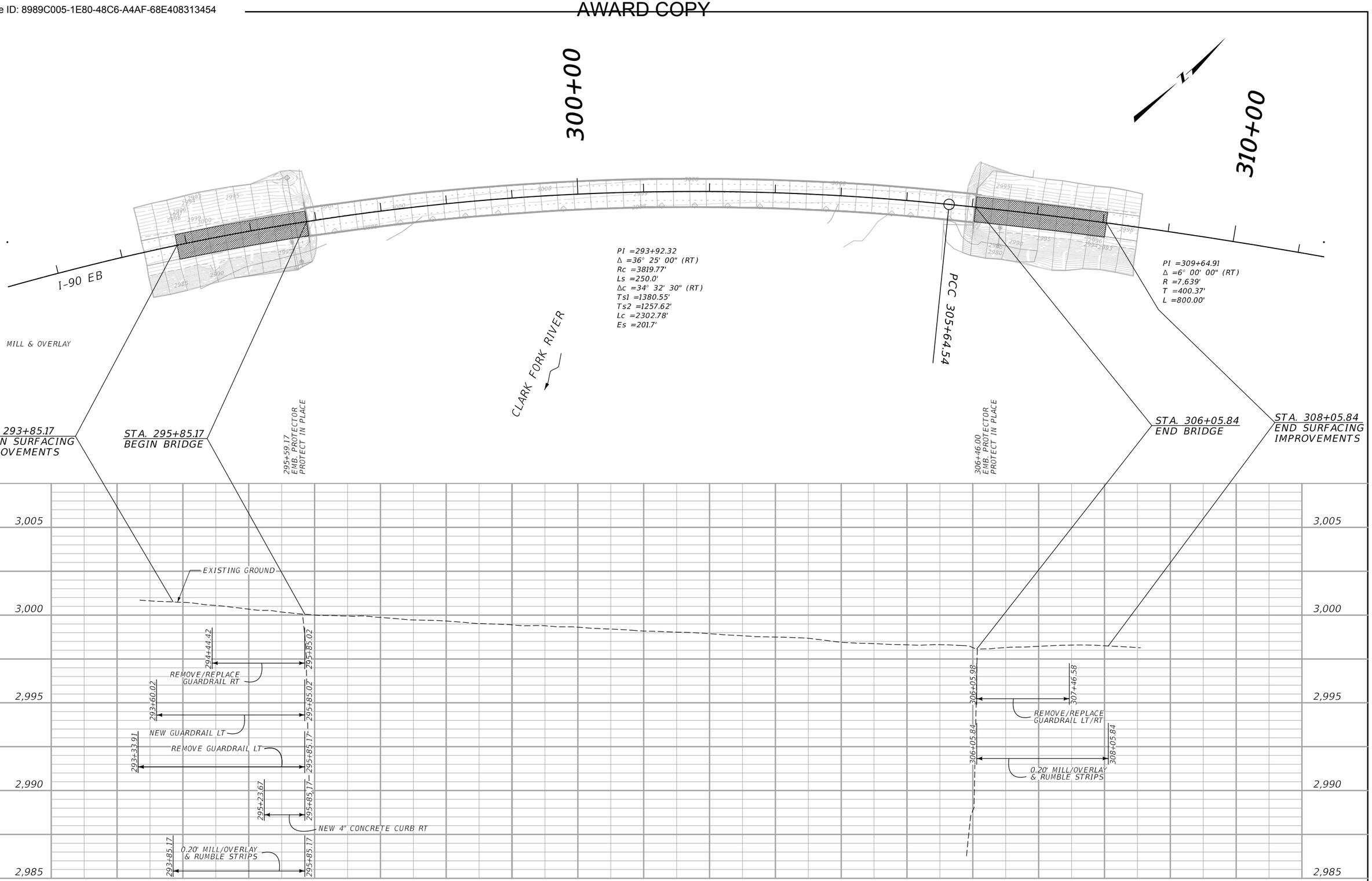
CROSSOVER 2
R.P. 80.4
DETAIL

NO SCALE

2	MDT MONTANA DEPARTMENT OF TRANSPORTATION	...\6.2_WIP\RD\9581000RDDET_CROSS.DWG	DESIGNED BY CBC		ROAD PLANS	CLARK FORK - 5 M E ALBERTON	NHPB 90-2(157)79
1		8/11/2022	REVIEWED BY RCL		MISSOULA COUNTY	UPN 9581000	SHEET 9
		3:28:13 PM RLUBBERS	CHECKED BY LJF				

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3	MDT MONTANA DEPARTMENT OF TRANSPORTATION	...\6.2_WIP\RD\9581000RDPL0.DGN	DESIGNED BY CBC	ROAD PLANS		CLARK FORK - 5 M E ALBERTON	NHPB 90-2(157)79
2		8/11/2022	REVIEWED BY RCL				
		3:28:22 PM RLUBBERS	CHECKED BY LJF	MISSOULA COUNTY		UPN 9581000	SHEET 10

DocuSign Envelope ID: 8989C005-1E80-48C6-A4AF-68E408313454

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ASSOCIATED PROJECT AGREEMENT NUMBERS	
P. E.	NHPB 90-2(156)79

MONTANA DEPARTMENT OF TRANSPORTATION

DocuSigned by: BY 92A375DF7B1F44F... DATE 9/14/2022

JEREMY CARL MILES No. 20293 PE LICENSED PROFESSIONAL ENGINEER MONTANA

SHEET NO. B1

BRIDGE PLANS AND QUANTITIES

FEDERAL AID PROJECT NHPB 90-2(157)79

CLARK FORK - 5M E ALBERTON

MISSOULA COUNTY

BRIDGE IDENTIFICATION	
MDT STR ID	NBI NUMBER
01389	I00090080+03411

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	24452	LIST OF DRAWINGS & ESTIMATED BRIDGE PLAN QUANTITIES
B2	24453	GENERAL LAYOUT
B3	24454	EXISTING STRUCTURE REMOVAL & REPAIR DETAILS
B4	24455	STEEL GIRDER MODIFICATION DETAILS (SHEET 1 OF 2)
B5	24456	STEEL GIRDER MODIFICATION DETAILS (SHEET 2 OF 2)
B6	24457	TEMPORARY DIAPHRAGM DETAILS AND DEAD LOAD DEFLECTION TABLES
B7	24458	BENT NO. 2 & PIER NO. 8 BEARING DETAILS
B8	24459	SPANS NO. 1 & NO. 8 SLAB REINFORCING STEEL PLACEMENT PLAN & DETAILS
B9	24460	SPANS NO. 2 THRU NO. 7 SLAB REINFORCING STEEL PLACEMENT PLAN & DETAILS
B10	24461	MISCELLANEOUS SLAB DETAILS
B11	24462	MISCELLANEOUS SLAB DETAILS & SLAB BILL OF REINFORCING STEEL
B12	24463	MODULAR EXPANSION JOINT
B13	24464	BARRIER COVER PLATE DETAILS
B14	24465	DRAINAGE DETAILS

DWG. NO.	TITLE
STANDARD DRAWINGS	
SBR-SS42 (APPROVED 6-27-19)	STANDARD BRIDGE RAIL TYPE SINGLE SLOPE 42"
SBR-SS42R (APPROVED 6-27-19)	STANDARD BRIDGE RAIL TYPE SINGLE SLOPE 42" REINFORCING

ESTIMATED BRIDGE PLAN QUANTITIES

MDT STRUCTURE NUMBER 01389	PREPARE DECK	POLYMER OVERLAY PRIMER	POLYMER OVERLAY	CONCRETE - CLASS STRUCTURE LOW SLUMP	*REINFORCING STEEL - EPOXY COATED	*REINFORCING STEEL - CORROSION RESISTANT	STRUCTURAL STEEL - MISC.	PAINT EXISTING STRUCTURAL STEEL	EXPANSION JOINT - MODULAR	ELASTOMERIC BEARING DEVICE	42 IN SS CONCRETE BARRIER RAIL - BR	REMOVE DECK	SCUPPER	REPAIR STRUCTURE	SUPERSTRUCTURE JACKING
LOCATION	(YD^2)	(YD^2)	(YD^2)	(YD^3)	(LB)	(LB)	(LS)	(YD^2)	(LF)	(EA)	(LF)	(YD^2)	(EA)	(LS)	(LS)
Bent No. 1															
Bent No. 2									41.8	5				0.1	0.5
Pier No. 3															
Pier No. 4															
Pier No. 5															
Pier No. 6															
Pier No. 7															
Pier No. 8									41.8	5				0.9	0.5
Bent No. 9															
Superstructure	4693.5	4693.5	4693.5	1183.5	414405	414405	1.0	368			2042.8	5004.9	7		
PROJECT TOTAL	4693.5	4693.5	4693.5	1183.5	414405	414405	1.0	368	83.6	10	2042.8	5004.9	7	1.0	1.0

*NOTE: Reinforcing Steel - Corrosion Resistant is an Alternate Bid Item for Reinforcing Steel - Epoxy Coated and includes a direct replacement of Epoxy Coated Reinforcing Steel with Corrosion Resistant Reinforcing Steel. Reinforcing Steel - Epoxy Coated is Alternate Bid Item A-1 and Reinforcing Steel - Corrosion Resistant is Alternate Bid Item A-2.

LIST OF DRAWINGS & ESTIMATED BRIDGE PLAN QUANTITIES

REVISED			
REVISED			
REVISED			
REVISED			
CHECKED	10-15-20	J.C.M.	
DRAWN	9-10-20	G.H.S.	
DESIGNED	9-10-20	P.C.J.	

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MONTANA DEPARTMENT OF TRANSPORTATION MDT BRIDGE BUREAU

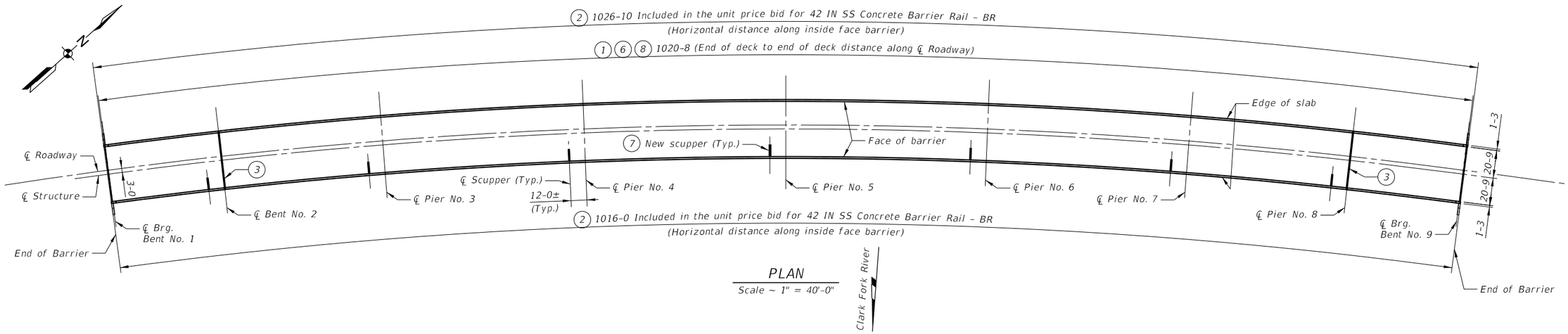
UPN NUMBER 9581000

DRAWING NO. 24452

HDR

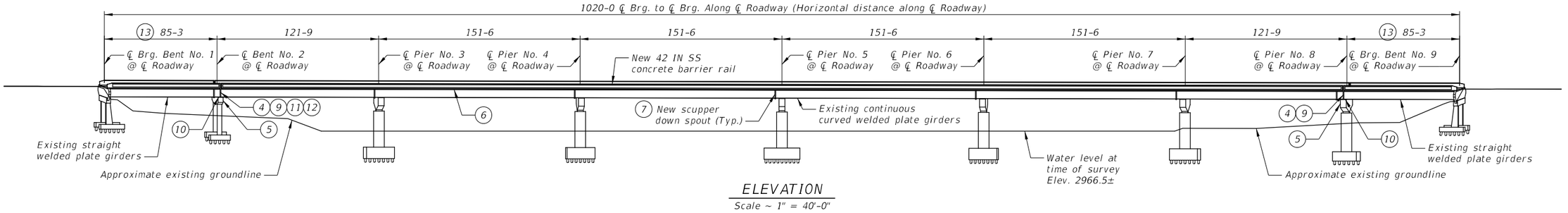
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PLAN
Scale ~ 1" = 40'-0"

Clark Fork River



ELEVATION
Scale ~ 1" = 40'-0"

PROPOSED WORK ITEMS

(1) Remove existing deck and replace with new concrete deck.

(2) Remove existing steel bridge rail and curb and replace with new concrete barrier.

(3) Remove existing finger expansion joints and replace with new modular expansion joints.

(4) Modify existing cross frames and girders at Bent No. 2 and Pier No. 8.

(5) Repair concrete substructure.

(6) Install additional shear studs on girders.

(7) Remove existing downspouts and support brackets and install new scuppers, downspouts and support brackets.

(8) Prepare deck, apply polymer overlay primer, and apply polymer overlay.

(9) Paint existing steel 5-0 each side of expansion joints. Spot paint per the Project Manager.

(10) Remove and replace existing approach span expansion bearings.

(11) Reset girder G10 elastomeric bearing pad in Span No. 2 at Bent No. 2.

(12) Remove and replace the cracked fillet weld between bottom flange and sole plate on girder G8 in Span No. 2 at Bent No. 2.

(13) Install temporary diaphragms prior to deck placement.

GENERAL NOTES

GENERAL: Plans were prepared from original drawings, as-built drawings, and rehabilitation drawings. Existing structure dimensions may vary from those shown on the drawings. Verify all dimensions necessary to complete the work.

LIVE LOAD: Standard HL-93 loading. (New components only)

SPECIFICATIONS: The current version of the Standard and Supplemental Specifications for Road and Bridge Construction, adopted by the Montana Department of Transportation applies. The design was prepared in accordance with ASSHTO LRFD Bridge Design Specifications, Ninth Edition - 2020, with standard HL-93 loading.

REPAIR CONCRETE: Submit for approval any substitution of rapid setting Portland cement concrete for Concrete - Class Structure. Traffic will not be permitted on concrete repairs until the specified strength is attained.

REINFORCING STEEL: Use new deformed type reinforcing steel meeting the requirements of AASHTO M 31 Grade 60 or ASTM Specification A1035 Type CS as specified. Except where noted otherwise, include all costs associated with furnishing and placing ASTM A1035 reinforcing steel in the unit price bid for Reinforcing Steel - Corrosion Resistant and include all costs associated with furnishing and placing reinforcing steel in the unit price bid for Reinforcing Steel - Epoxy.

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

HIGH STRENGTH BOLTS: Unless specified otherwise on the drawings, furnish high strength bolts meeting ASTM F3125 Grade A325 Type 1 - galvanized. See the Standard Specifications for the requirements of nuts, washers, and direct tension indicators.

REINFORCING STEEL COVER: Unless specified otherwise on the drawings, provide 2" minimum concrete cover measured from the face of the concrete to the face of any reinforcing steel, except as noted below:

Bottom of Slab	1"
Top of Slab	2½"
Concrete Barriers and curbs	1½"
Bottom of Abutment Caps	3"

Concrete cover to any tie bar is ½" less than what is listed above.

EPOXY RESIN BONDING AGENT: Excluding concrete overlays where surface treatment is specified elsewhere, thoroughly coat all existing concrete in contact with new concrete with an epoxy bonding agent (AASHTO M 235 Type V) immediately prior to placing new concrete. Include all costs associated with providing and applying the epoxy bonding agent in the unit price bid for relevant concrete class.

TRAFFIC CONTROL PLAN AND SEQUENCE OF OPERATION:
See Special Provisions.

CONTROL SURVEY: Establish existing slab profile and finished grade by surveying the centerline of roadway and both curb lines at 10-0 intervals prior to removing the deck. Maintain existing grade. Submit screed and survey data to the Project Manager. Costs for this work are incidental to other items.

POLYMER OVERLAY:
Apply polymer overlay to the completed concrete deck surface. See Special Provisions.

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 = 6,800 lbs. Shear studs not included in this weight.

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.

CAST IN PLACE CONCRETE: Unless otherwise approved or specified, use Concrete - Class Structure for all substructure concrete and Concrete - Class Structure Low Slump for all superstructure concrete.

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

STATE PLANE COORDINATES: Stations shown on the bridge plans are state plane grid stations based on (NAD83-2007). Dimensions shown on the bridge plans are horizontal ground distances and not state plane grid distances. The combination scale factor (CSF) at this location is 0.99925051.

Horizontal ground distance x CSF = Grid Distance
Grid Distance/CSF = Distance to stake.

HDR

SHEET NO.
B2

GENERAL LAYOUT

SCALE: As Noted

PROJECT NAME
CLARK FORK - 5M E ALBERTON

MDT STRUCTURE ID
01389

FEDERAL AID PROJECT
NHPB 90-2(157)79

COUNTY
MISSOULA

REVISED							
REVISED							
REVISED							
REVISED							
CHECKED	10-15-20	J.C.M.					
DRAWN	9-9-20	G.H.S.					
DESIGNED	9-9-20	P.C.J.					

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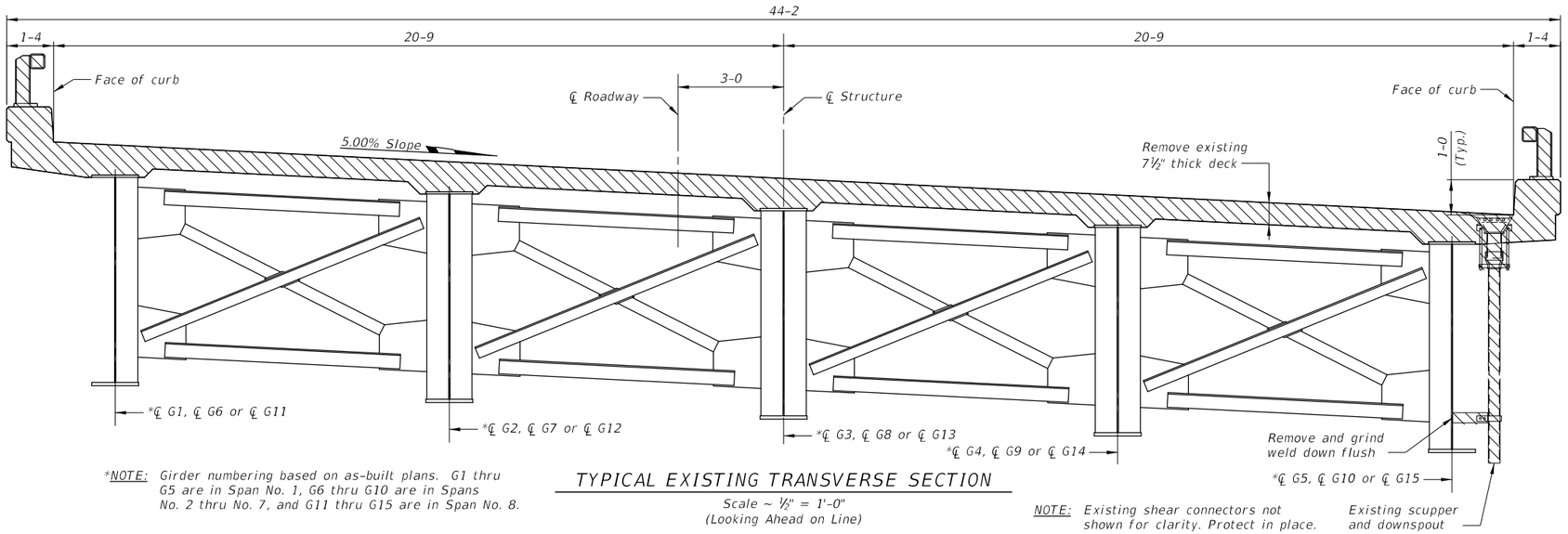
MONTANA DEPARTMENT OF TRANSPORTATION
BRIDGE BUREAU

UPN NUMBER
9581000

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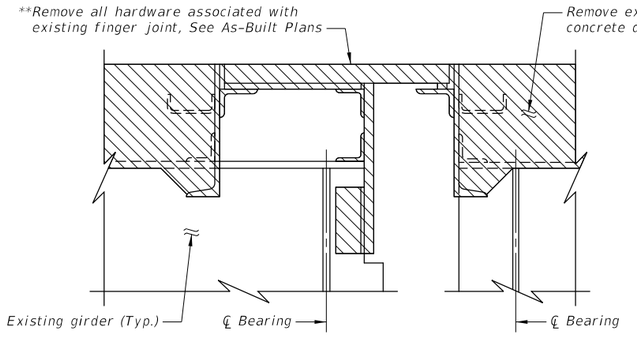
*NOTE: Girder numbering based on as-built plans. G1 thru G5 are in Span No. 1, G6 thru G10 are in Spans No. 2 thru No. 7, and G11 thru G15 are in Span No. 8.

TYPICAL EXISTING TRANSVERSE SECTION

Scale ~ ½" = 1'-0"
(Looking Ahead on Line)

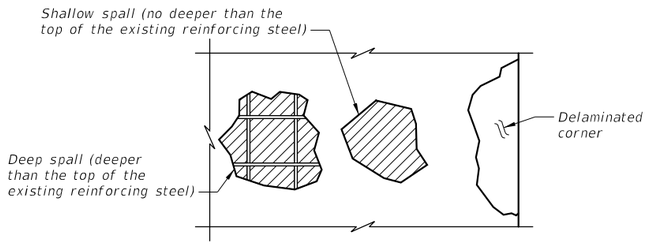
NOTE: Existing shear connectors not shown for clarity. Protect in place.

**NOTE: Remove existing drain receptacle, downspout and hanger assembly at expansion joint locations.



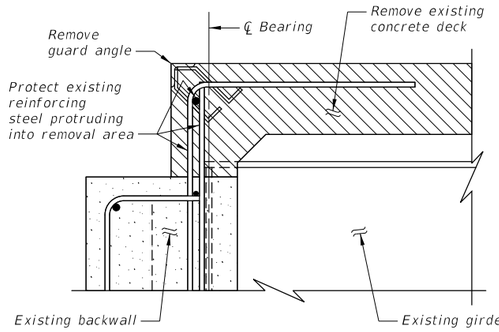
EXISTING EXPANSION JOINT REMOVAL DETAIL

Scale ~ 1½" = 1'-0"



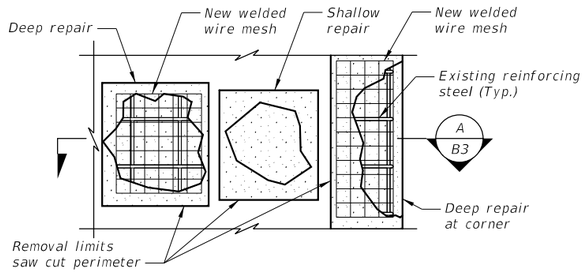
EXISTING DETERIORATED SUBSTRUCTURE CONCRETE

No Scale



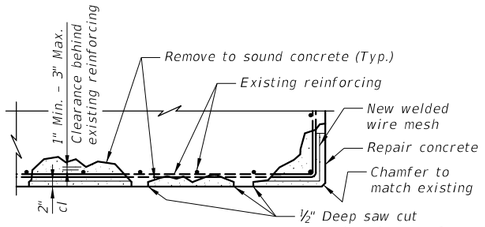
BENT NO. 1 & NO. 9 EXISTING DECK REMOVAL DETAIL

Scale ~ 1½" = 1'-0"



ELEVATION - TYPICAL SUBSTRUCTURE REPAIR AREAS

No Scale



A / B3 SECTION A

No Scale

NOTES

Do not damage existing girders during deck removal. Repair or replace any shear connections damaged by the contractor at no cost to the state.

Clean all dirt and debris from the top of the pier caps at Bent No. 2 and Pier No. 8.

Include all costs associated with removing existing joints, existing curb, existing railing, existing scuppers, existing downspouts and dirt and debris from pier caps in the price bid for Remove Deck.

SUBSTRUCTURE REPAIR:
Replace all deteriorated, spalled, loose, hollow and honeycombed concrete based on the estimated quantity noted below and as approved by the Project Manager. Clean and remove all rust from exposed rebar.

Saw cut the periphery of repair areas to a depth of ½". Remove deteriorated concrete within a periphery of the sound concrete.

Remove a maximum depth of 3" of concrete past the exterior most reinforcing if sound concrete is not reached. Remove the remaining loose concrete and clean the area to the Project Managers satisfaction.

Avoid damaging any exposed or uncovered reinforcing steel. Repair any reinforcing bars that have lost more than 50% of the cross-section area, are broken, or as directed, by splicing a new section of bar having the same cross-section area.

Install 4x4 - W1.4xW1.4 steel welded wire mesh in deep repair areas over 4-0 square or as directed. Drill and grout support anchors into existing concrete as needed to support welded wire mesh during concrete placement and ensure secure bond to existing structure. Use epoxy adhesive meeting the requirements of AASHTO M235 Type IV.

Use solid forms and Concrete Class Structure for deep repair areas. Obtain Project Managers approval for rapid setting of polymeric concrete in shallow repair areas.

Include all costs associated with repairing existing concrete in the lump sum bid for Repair Structure.

PAINT STRUCTURAL STEEL:
Provide an overcoat paint system on the existing steel in Spans No. 1, No. 2, No. 7 and No. 8. See Special Provisions for additional information. The Project Manager will identify other areas if necessary, that require painting in the field upon removal of the existing deck.

FOR INFORMATION ONLY:
The approximate area of deteriorated concrete is 2 sq. ft. at Bent No. 2 and 38 sq. ft. at Pier No. 8. The actual repair area to be verified by the Project Manager and may vary from the values noted here.

HDR

SHEET NO. B3

EXISTING STRUCTURE
REMOVAL & REPAIR DETAILS

SCALE: As Noted

PROJECT NAME
CLARK FORK - 5M E ALBERTON

MDT STRUCTURE ID
01389

FEDERAL AID PROJECT
NHPB 90-2(157)79

COUNTY
MISSOULA

REVISED			
REVISED			
REVISED			
REVISED			
CHECKED	10-15-20	J.C.M.	
DRAWN	9-10-20	G.H.S.	
DESIGNED	9-10-20	P.C.J.	

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MONTANA DEPARTMENT OF TRANSPORTATION
MDT
BRIDGE BUREAU

UPN NUMBER
9581000

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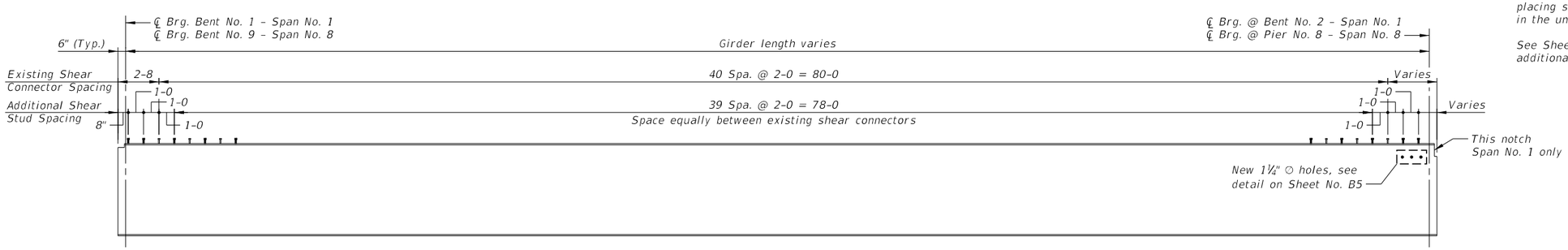
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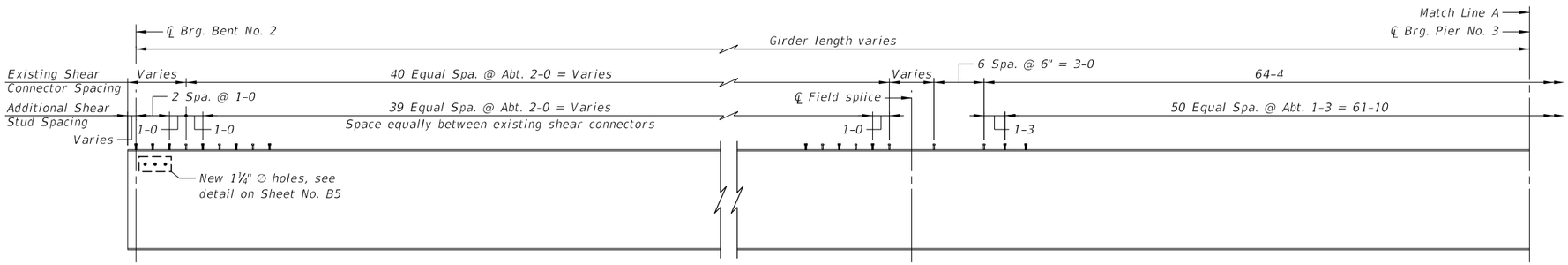
Include all costs associated with furnishing and placing shear studs on the existing steel girders in the unit price bid for Structural Steel – Misc.

See Sheet No. B5 for shear stud detail and additional notes.

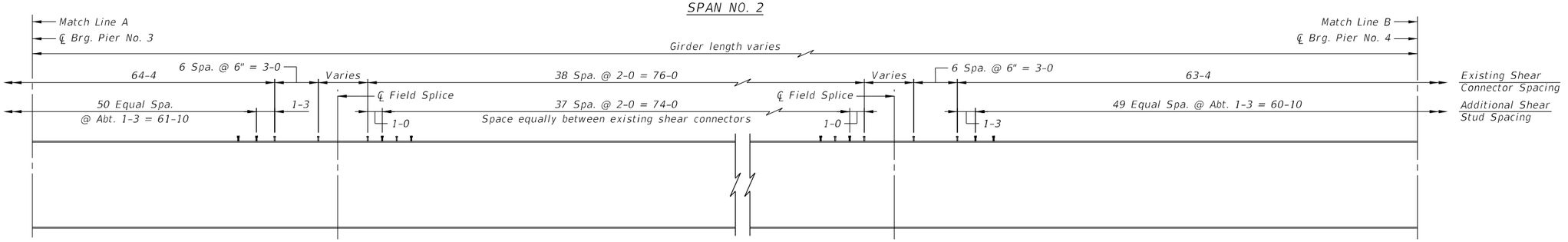


GIRDER ELEVATION – SPANS NO. 1 & NO. 8

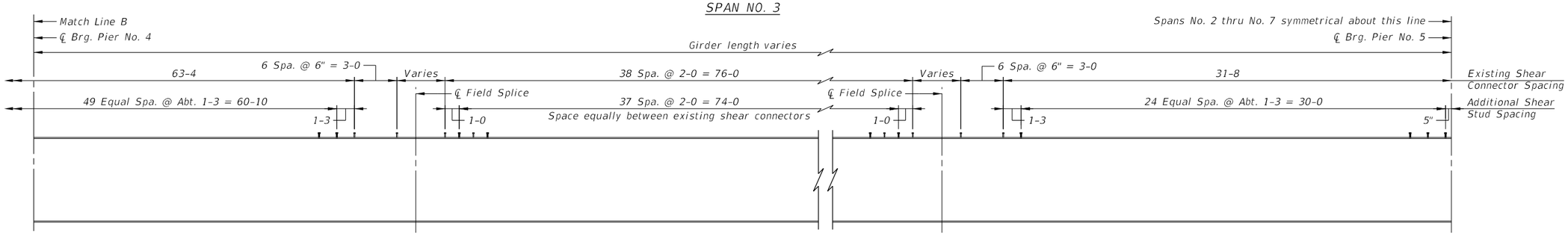
Scale ~ ¼" = 1'-0"
(Span No. 1 shown, Span No. 8 similar)



SPAN NO. 2



SPAN NO. 3



SPAN NO. 4

GIRDER ELEVATION – SPANS NO. 2 THRU NO. 7

Scale ~ ¼" = 1'-0"

HDR

SHEET NO. B4

STEEL GIRDER MODIFICATION DETAILS (SHEET 1 OF 2)

SCALE: As Noted

PROJECT NAME
CLARK FORK – 5M E ALBERTON

MDT STRUCTURE ID
01389

FEDERAL AID PROJECT
NHPB 90-2(157)79

COUNTY
MISSOULA

	REVISED	REVISED	REVISED	REVISED	CHECKED	DRAWN	DESIGNED
					P.C.J.	M.V.	J.C.M.
					11-4-20	10-23-20	10-22-20

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MONTANA DEPARTMENT OF TRANSPORTATION MDT BRIDGE BUREAU

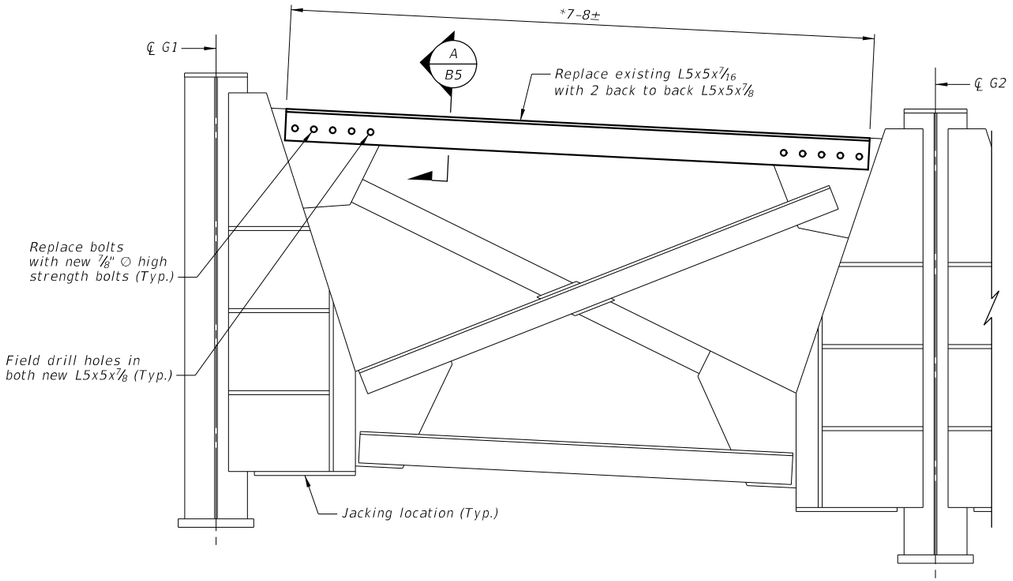
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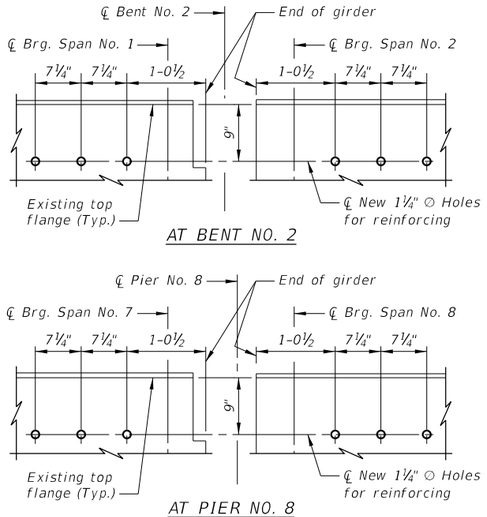
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SPANS NO. 1 & NO. 8 JACKING DIAPHRAGM MODIFICATIONS

Scale ~ 1" = 1'-0"
(Looking Ahead on Line)
(Span No. 1 at Bent No. 2 G1 and G2 shown, perform similar work at each girder bay for Spans No. 1 and No. 8 at Bent No. 1 and Pier No. 8)



NOTE: Field drill holes in existing girder webs at locations shown for installation of S1~#6E continuous bars. See Section A on Sheet No. B10 for additional details. Verify dimensions in the field prior to drilling holes.

NEW HOLES AT GIRDER ENDS

Scale ~ 1" = 1'-0"

NOTES

Use structural steel meeting the requirements of AASHTO M270 Grade 50 for the new angle members.

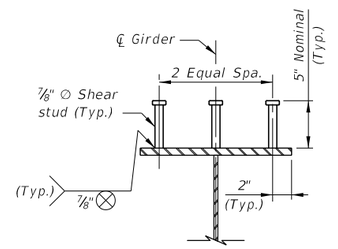
Use 7/8" ∅ high strength bolts meeting the requirements of ASTM F3125 Grade A325.

Paint the new angles in accordance with the Standard Specifications Section 612.02.1.A New Structural Systems. For painting existing diaphragm members see painting note on Sheet No. B3.

Include all costs associated with removing existing cross frame angle and furnishing and installing the new angle members in the unit price bid for Structural Steel – Misc.

*Field verify all dimensions before ordering materials.

See Sheet No. B4 for shear stud layout.

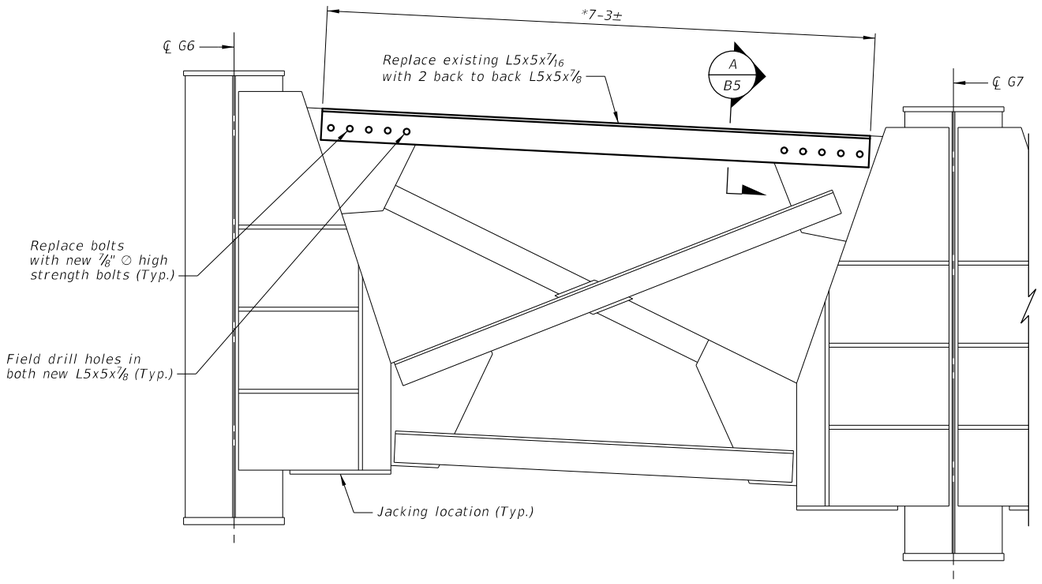


SHEAR STUD DETAIL

Scale ~ 1½" = 1'-0"

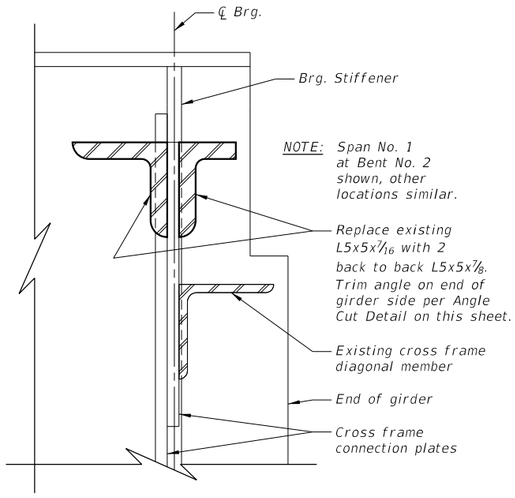
NOTE: Use shear studs meeting the requirements of AASHTO M169 Grades 1010-1020 and the mechanical requirements for Type B studs in accordance with AWS D1.5 Table 7.1.

NOTE: The shear stud length may need to be adjusted in the field based on the construction tolerances. Shear studs should penetrate a minimum of 2" and a maximum of 5" into the concrete deck.

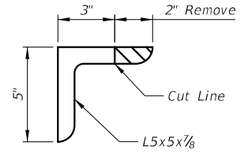


SPANS NO. 2 & NO. 7 JACKING DIAPHRAGM MODIFICATIONS

Scale ~ 1" = 1'-0"
(Looking Ahead on Line)
(Span No. 2 at Bent No. 2 G6 and G7 shown, perform similar work at each girder bay for Spans No. 2 and No. 7 at Bent No. 1 and Pier No. 8)



A / B5 **SECTION A**
Scale ~ 3" = 1'-0"



ANGLE CUT DETAIL

Scale ~ 3" = 1'-0"

SHEET NO. B5

STEEL GIRDER MODIFICATION DETAILS (SHEET 2 OF 2)

SCALE: As Noted

PROJECT NAME
CLARK FORK - 5M E ALBERTON

MDT STRUCTURE ID
01389

FEDERAL AID PROJECT
NHPB 90-2(157)79

COUNTY
MISSOULA

REVISED						
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REVISED						
REVISED						
CHECKED	J.C.M.					
DRAWN	M.V.					
DESIGNED	P.C.J.					
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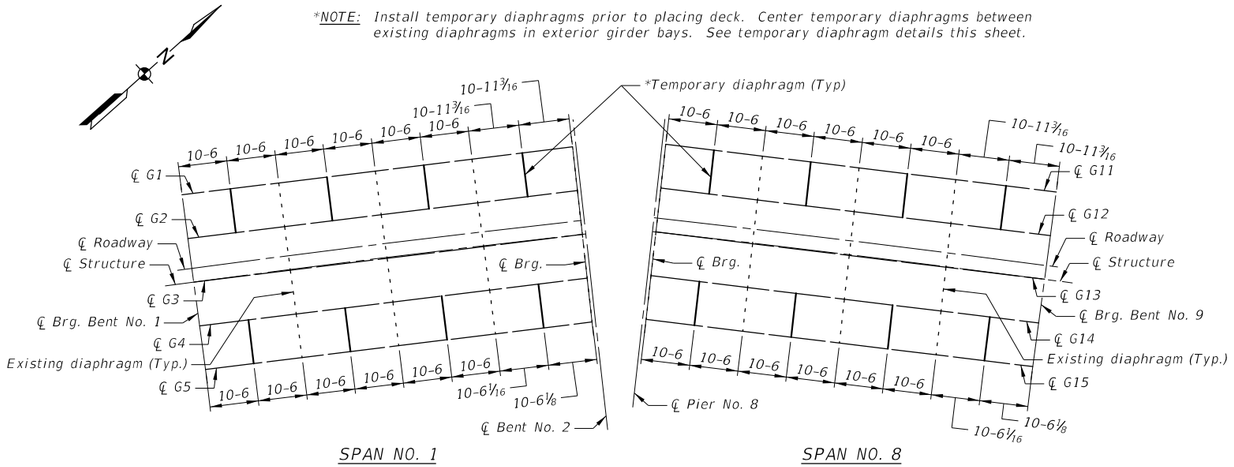
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*NOTE: Install temporary diaphragms prior to placing deck. Center temporary diaphragms between existing diaphragms in exterior girder bays. See temporary diaphragm details this sheet.



ERECTION PLAN – SPANS NO. 1 & NO. 8

Scale ~ 1/16" = 1'-0"

NOTES

Shift the temporary diaphragms the minimum amount necessary from locations shown to avoid any conflicts with shear connectors.

Values in the tables below represent the estimated dead load deflections and are unfactored. These values do not include the girder and diaphragm dead loads. The composite dead load includes the weight of the concrete barriers.

The cost of furnishing, installing and removing the temporary diaphragms in Spans No. 1 & No. 8 is incidental to Structural Steel – Misc.

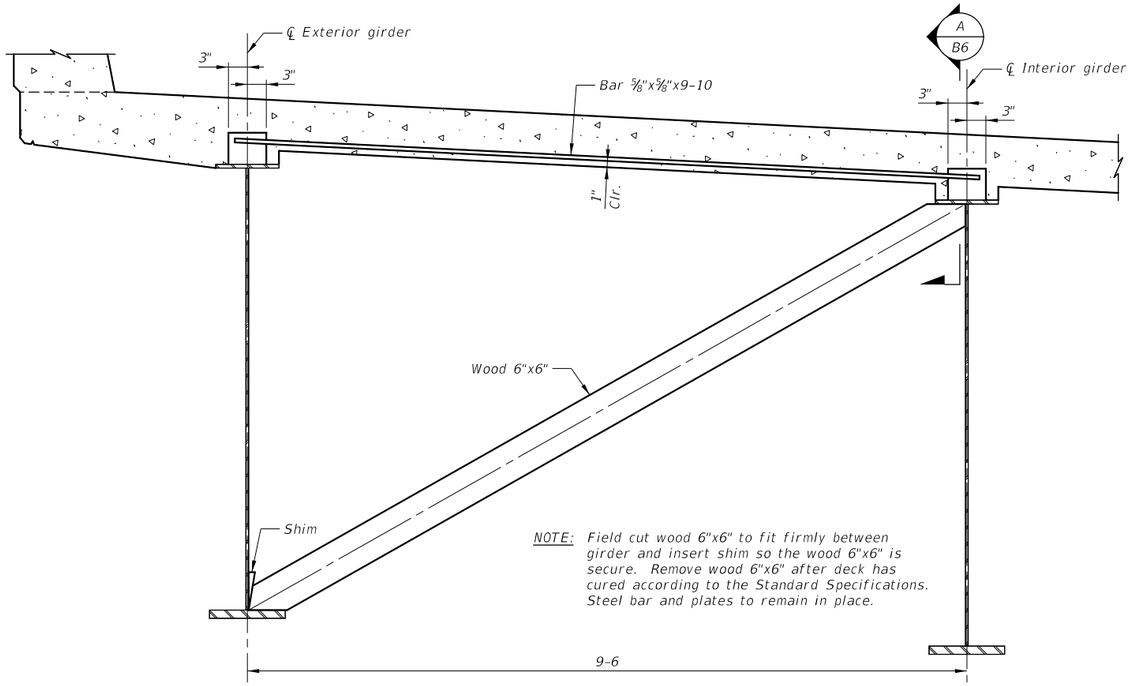
DEAD LOAD DEFLECTION – SPANS NO. 1 & NO. 8

LOCATION		1.0	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2.0
All Girders	Slab & Haunch	0	5/16	9/16	13/16	15/16	15/16	15/16	13/16	9/16	5/16	0
	Composite Dead Load	0	0	1/16	1/16	1/16	1/16	1/16	1/16	1/16	0	0

DEAD LOAD DEFLECTION – SPANS NO. 2 THRU NO. 7

LOCATION		SPAN NO. 2											SPAN NO. 3										SPAN NO. 4										
		2.0	2.1	2.2	2.3	2.4	2.5	2.6	2.7	2.8	2.9	3.0	3.1	3.2	3.3	3.4	3.5	3.6	3.7	3.8	3.9	4.0	4.1	4.2	4.3	4.4	4.5	4.6	4.7	4.8	4.9	5.0
All Girders	Slab & Haunch	0	7/16	3/4	1	1 1/16	1	13/16	9/16	5/16	1/8	0	1/16	1/4	1/2	1 1/16	1 3/16	3/4	1/2	1/4	1/16	0	1/8	5/16	9/16	13/16	7/8	13/16	9/16	5/16	1/16	0
	Composite Dead Load	0	1/16	1/16	1/8	1/8	1/8	1/8	1/16	1/16	0	0	0	1/16	1/16	1/8	1/8	1/8	1/16	1/16	0	0	0	1/16	1/16	1/8	1/8	1/8	1/16	1/16	0	0

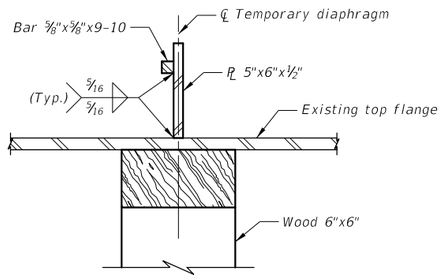
NOTE: Deflections are symmetric about ℄ Pier No. 5.



TEMPORARY DIAPHRAGM – ELEVATION

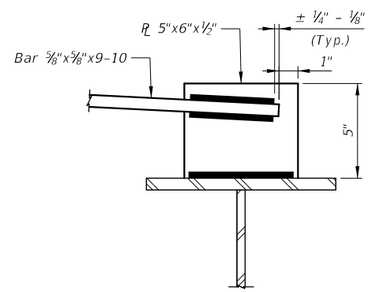
Scale ~ 1" = 1'-0"

(G1 and G2 shown, G4 and G5, G11 and G12, G14 and G15 similar. Brace bottom flange on exterior girder.)



A / B6 SECTION A

Scale ~ 3" = 1'-0"



TYPICAL WELD TERMINATION DETAIL

Scale ~ 3" = 1'-0"

HDR

SHEET NO. B6

TEMPORARY DIAPHRAGM DETAILS AND DEAD LOAD DEFLECTION TABLES

SCALE: As Noted

PROJECT NAME
CLARK FORK – 5M E ALBERTON

MDT STRUCTURE ID
01389

FEDERAL AID PROJECT
NHPB 90-2(157)79

COUNTY
MISSOULA

REVISED							
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CHECKED	1-15-21	J.C.M.					
DRAWN	1-7-21	G.H.S.					
DESIGNED	1-5-21	P.C.J.					

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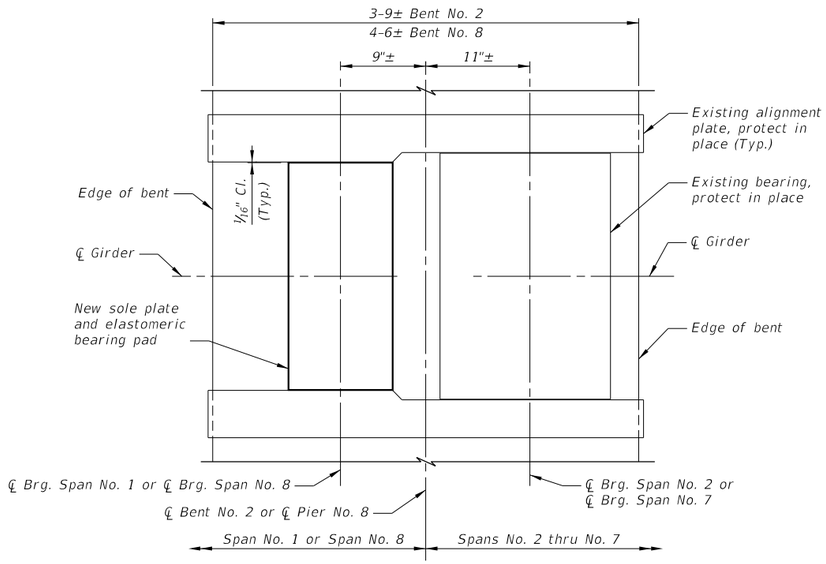
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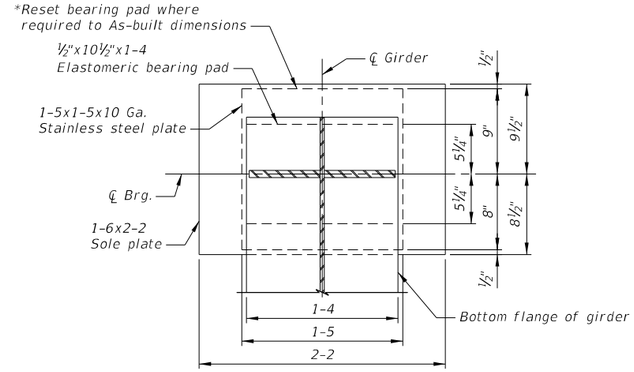
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GIRDER BEARING PLAN

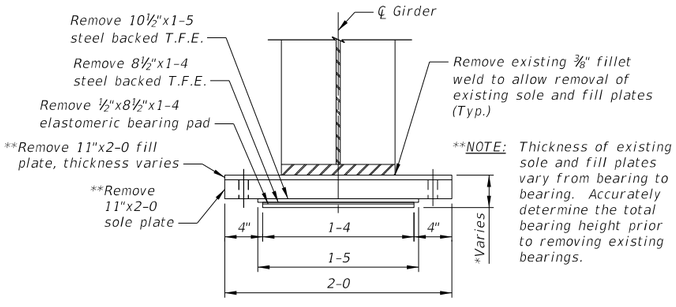
Scale ~ 1½" = 1'-0"

(Bent No. 2 shown, Pier No. 8 similar but opposite hand)



EXISTING MAIN SPAN BEARING

Scale ~ 1½" = 1'-0"



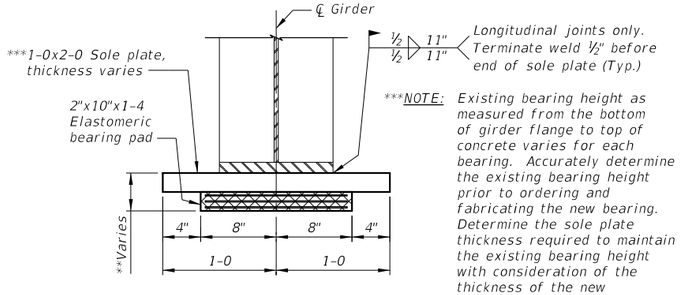
**NOTE: Thickness of existing sole and fill plates vary from bearing to bearing. Accurately determine the total bearing height prior to removing existing bearings.

A B7 **SECTION A**

Scale ~ 1½" = 1'-0"

EXISTING APPROACH SPAN EXPANSION BEARING

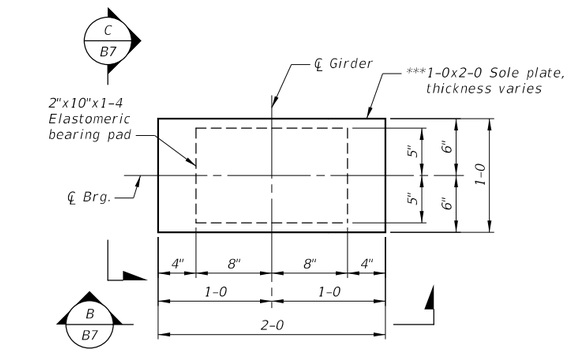
Scale ~ 1½" = 1'-0"



***NOTE: Existing bearing height as measured from the bottom of girder flange to top of concrete varies for each bearing. Accurately determine the existing bearing height prior to ordering and fabricating the new bearing. Determine the sole plate thickness required to maintain the existing bearing height with consideration of the thickness of the new elastomeric bearing pad. Submit proposed sole plate thickness to the Project Manager for approval prior to fabrication.

B B7 **SECTION B**

Scale ~ 1½" = 1'-0"

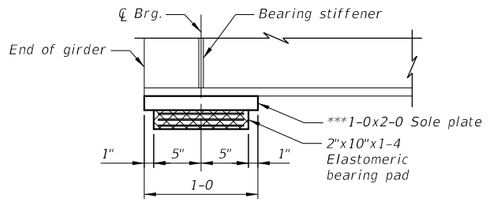


NEW APPROACH SPAN EXPANSION BEARING

Scale ~ 1½" = 1'-0"

(Girder not shown for clarity)

(10 Required)



C B7 **SECTION C**

Scale ~ 1½" = 1'-0"

NOTES

Install new expansion bearings at Bent No. 2, Approach Span No. 1 side and Pier No. 8, Approach Span No. 8 side.

*Reset the Main Span No. 2 elastomeric bearing pad on girder G10 at Bent No. 2. Reset the elastomeric bearing pad per the detail shown on this sheet and in accordance with the as-built dimensions shown on Drawing No. 16216 in the in the Tarkio East Bridge Rehabilitation project (IM 90-1(118)64) completed November 3, 1997.

*Remaining main span bearings at Bent No. 2 and Pier No. 8 should be inspected after dirt and debris is removed from around the bearings and reset any additional bearings as directed by the Project Manager.

Remove the cracked fillet weld between the bottom flange and the sole plate and replace with a new ½" fillet weld on Main Span No. 2 girder G8 at Bent No. 2. Terminate weld ½" before the end of the sole plate.

Mark all bearings prior to shipping. Make all marks permanent and visible after the bearing is installed, include the bearing location on the bridge and a direction arrow that points ahead on line (up-station).

For expansion bearing include all costs associated with furnishing and placing the elastomeric bearing pad and sole plate in the unit price for Elastomeric Bearing Device.

Test elastomeric bearing pads according to AASHTO M251. Perform test based on the following estimated service design load: DL + LL = 166.5 kip per bearing pad.

Elastomeric bearing design per AASHTO design Method A. Use Grade 4 elastomer with a minimum shear modulus of 160 psi for the elastomeric bearing pad.

Use structural steel meeting the requirement of AASHTO M270 Grade 50 for all steel plates.

Vulcanize - bond elastomeric bearing pad to new sole plate.

Paint sole plate in accordance with the Standard Specifications Section 612.02.1.A New Structural Systems and a finish color meeting Concrete Gray per Standard Specification Table 559-1.

Prevent damage to elastomer during welding. The temperature of the steel adjacent to the elastomer should be kept below 250° F.

Bearing replacement sequence provided for information only. Submit proposed bearing replacement sequence per the Special Provisions.

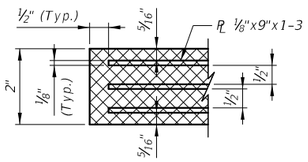
Include all costs associated with jacking and temporary work in the unit bid price for Superstructure Jacking. Include all costs associated with resetting the Main Span elastomeric bearing pads in the unit bid price for Superstructure Jacking.

Include all costs associated with removing and replacing the cracked fillet weld on Main Span No. 2 girder G8 at Bent No. 2 in the unit bid price for Structural Steel - Misc.

See Sheet No. B5 for jacking diaphragm details.

APPROACH SPAN BEARING REMOVAL & REPLACEMENT NOTES:

- Remove concrete deck from Span No. 1 or Span No. 8 prior to jacking the respective span.
- Remove the weld between the girder bottom flange and sole/fill plate.
- Jack superstructure from the designated jacking locations shown on the Span No. 1 and Span No. 8 Jacking Diaphragms on Sheet No. B5. Do not jack the superstructure with top chord angle member removed.
- Lift the structure minimum amount to remove the existing expansion bearing and install the new expansion bearing.
- Cut existing anchor bolts flush with existing concrete seat, then remove existing expansion bearing.
- Fill any anchor bolt holes that extend below the top of the concrete cap with an approved epoxy.
- Install new approach span expansion bearing.



ELASTOMERIC BEARING DETAIL

Scale ~ 6" = 1'-0"

HDR

SHEET NO. B7

BENT NO. 2 & PIER NO. 8 BEARING DETAILS

SCALE: As Noted

PROJECT NAME
CLARK FORK - 5M E ALBERTON

MDT STRUCTURE ID
01389

FEDERAL AID PROJECT
NHPB 90-2(157)79

COUNTY
MISSOULA

REVISED			
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REVISED		CHECKED	11-4-20 P.C.J.
		DRAWN	10-5-20 G.H.S.
		DESIGNED	10-5-20 J.C.M.

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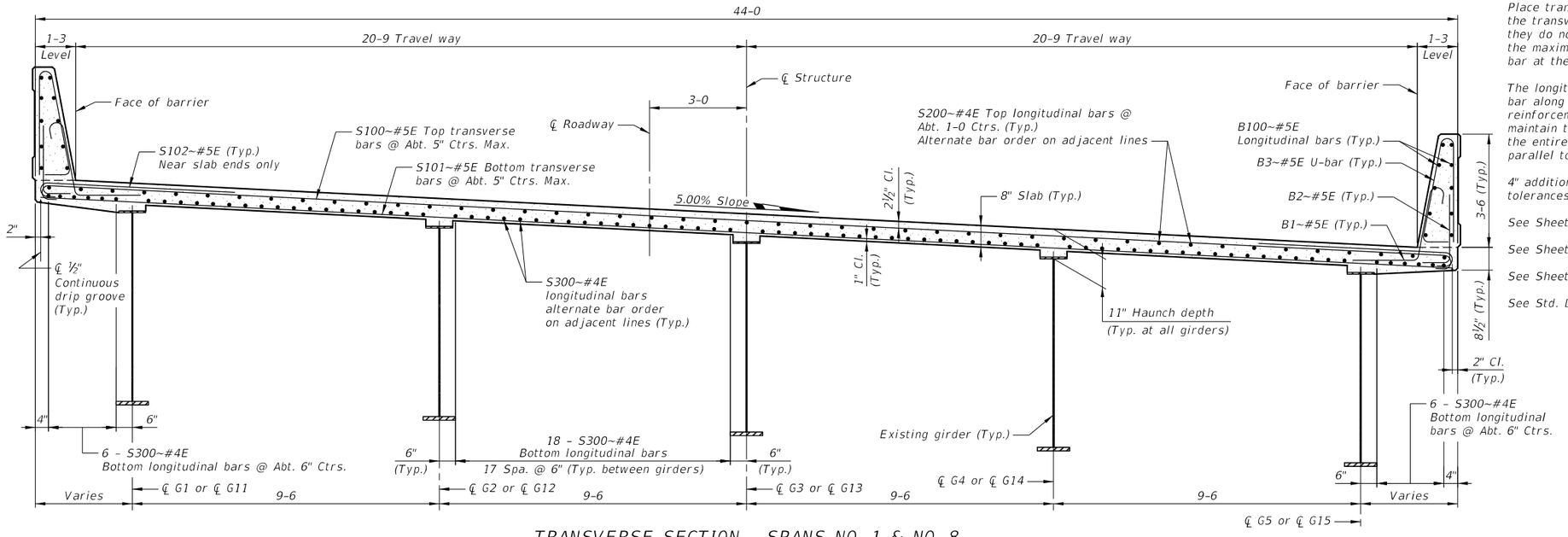
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TRANSVERSE SECTION - SPANS NO. 1 & NO. 8

Scale ~ ½" = 1'-0"
(Looking Ahead on Line)

NOTE: Haunch depth is measured from top of slab to top of web at ℄ Girder, 11" includes top flange thickness.

NOTES

Place transverse bars perpendicular to ℄ Roadway. Offset the transverse bars in the top and bottom mats to ensure they do not line up vertically. Transverse bar spacings are the maximum spacing and are measured at the end of the bar at the outside edge of slab.

The longitudinal bar lengths shown are taken as the longest bar along the outside edge of slab. Place top longitudinal reinforcement on curve along the length of the bridge to maintain the shown spacings and clearances throughout the entire structure. Place bottom longitudinal reinforcement parallel to beams or on curve between beams.

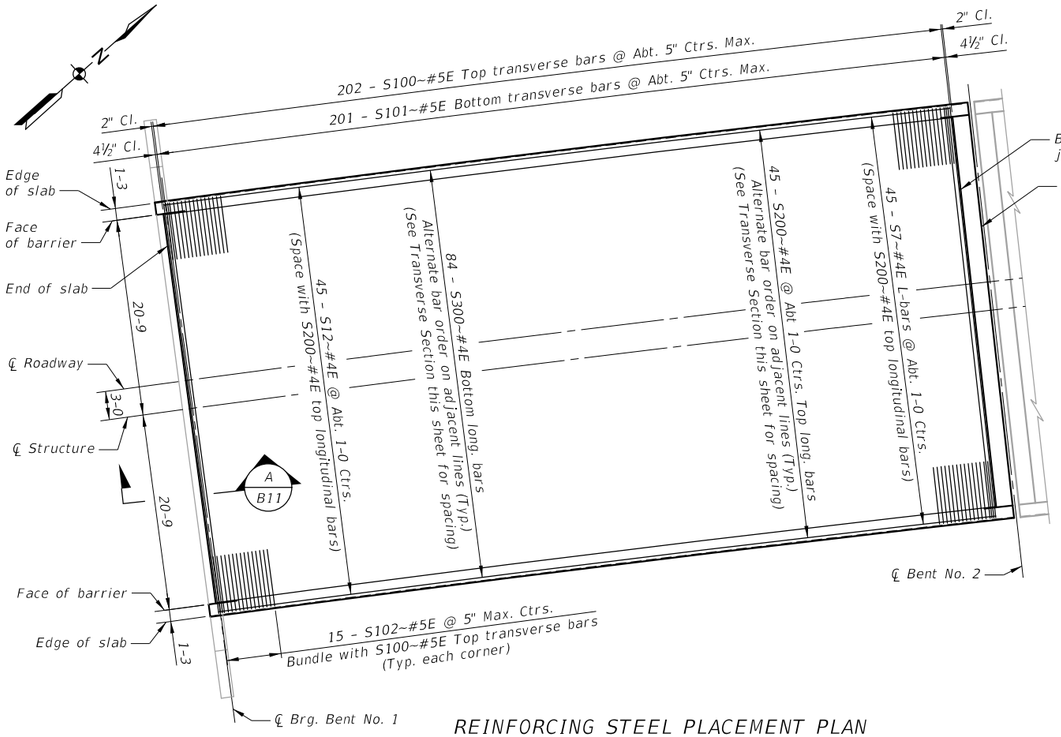
4" additional per lap splice has been provided for construction tolerances. Lap #4E bars 2-8 minimum, 3-0 lap provided.

See Sheet No. B2 for scupper locations.

See Sheet No. B10 for additional scupper reinforcing steel.

See Sheet No. B11 for Bill of Reinforcing Steel.

See Std. Dwg. No. SBR-SS42R for bridge rail reinforcing steel.

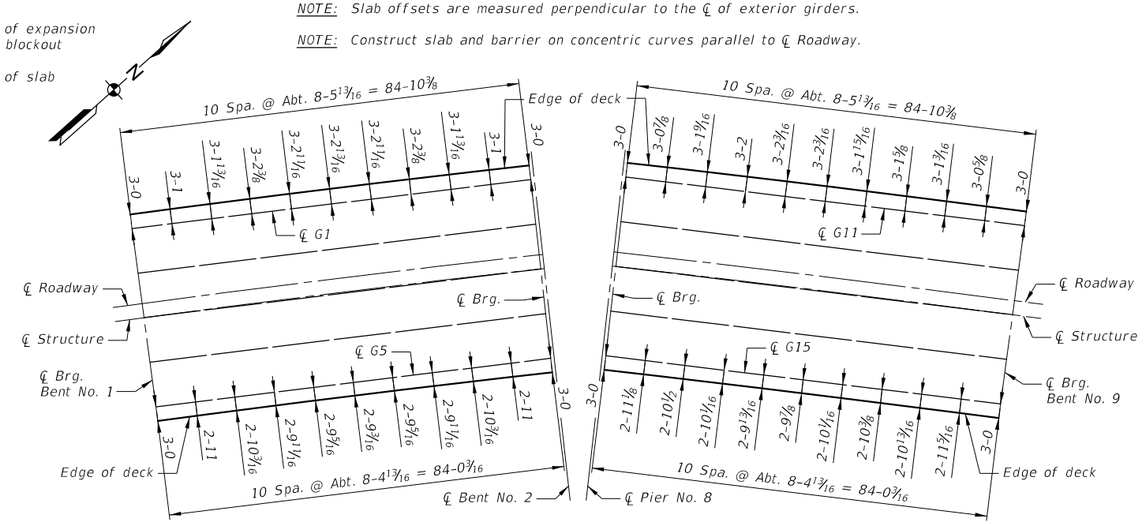


REINFORCING STEEL PLACEMENT PLAN

Scale ⅛" = 1'-0"
(Span No. 1 shown, Span No. 8 similar)

NOTE: Slab offsets are measured perpendicular to the ℄ of exterior girders.

NOTE: Construct slab and barrier on concentric curves parallel to ℄ Roadway.



SLAB OVERHANG DIAGRAM - SPANS NO. 1 & NO. 8

Scale ~ 1/16" = 1'-0"

HDR

SHEET NO. B8

SPANS NO. 1 & NO. 8
SLAB REINFORCING STEEL
PLACEMENT PLAN & DETAILS

SCALE: As Noted

PROJECT NAME
CLARK FORK - 5M E ALBERTON

MDT STRUCTURE ID
01389

FEDERAL AID PROJECT
NHPB 90-2(157)79

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REVISED		CHECKED	10-16-20 J.C.M.
REVISED		DRAWN	9-16-20 G.H.S.
REVISED		DESIGNED	9-16-20 P.C.J.
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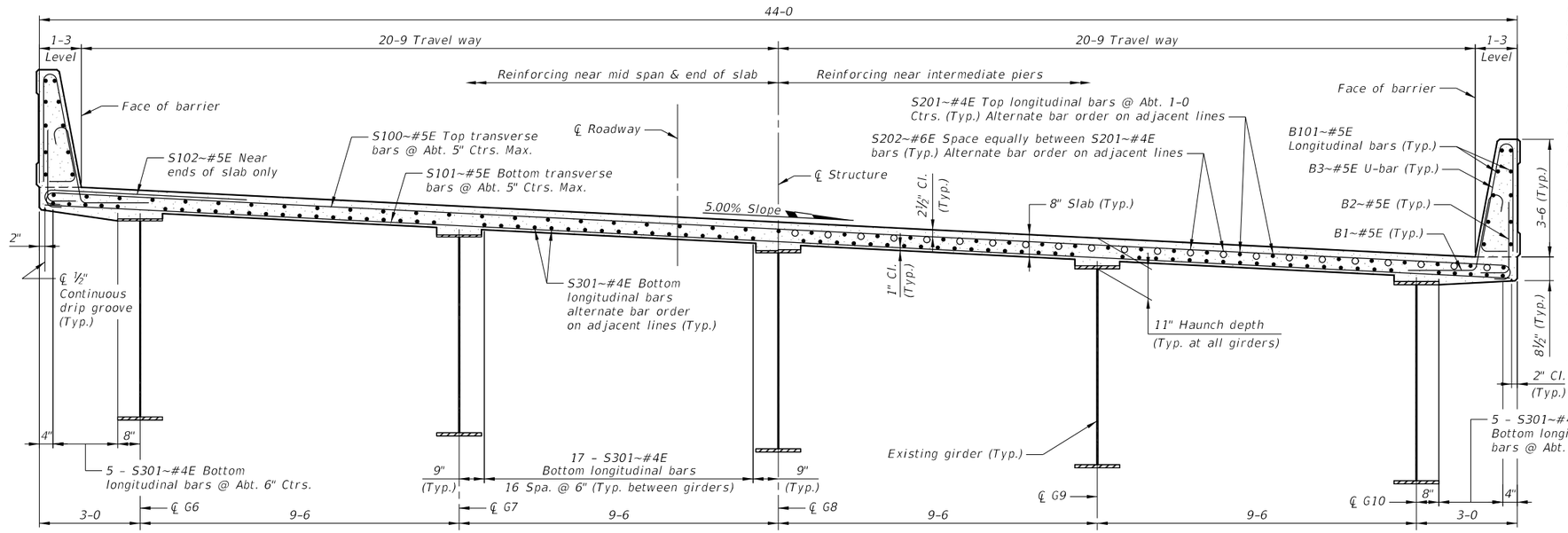
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TRANSVERSE SECTION - SPANS NO. 2 THRU NO. 7

Scale ~ ½" = 1'-0"
(Looking Ahead on Line)

NOTE: Haunch depth is measured from top of slab to top of web at ℄ Girder, 11" includes top flange thickness.

NOTES

Place transverse bars perpendicular to the beams. Offset the transverse bars in the top and bottom mats to ensure they do not line up vertically. Transverse bar spacings are the maximum spacing and are measured at the end of the bar at the outside edge of slab.

The longitudinal bar lengths shown are taken as the longest bar along the outside edge of slab. Place top longitudinal reinforcement on curve along the length of the bridge to maintain the shown spacings and clearances throughout the entire structure. Place bottom longitudinal reinforcement parallel to beams or on curve between beams.

4" additional per lap splice has been provided for construction tolerances. Lap #4E bars 2-8 minimum, 3-0 lap provided. Lap #6E bars 3-8 minimum, 4-0 lap provided.

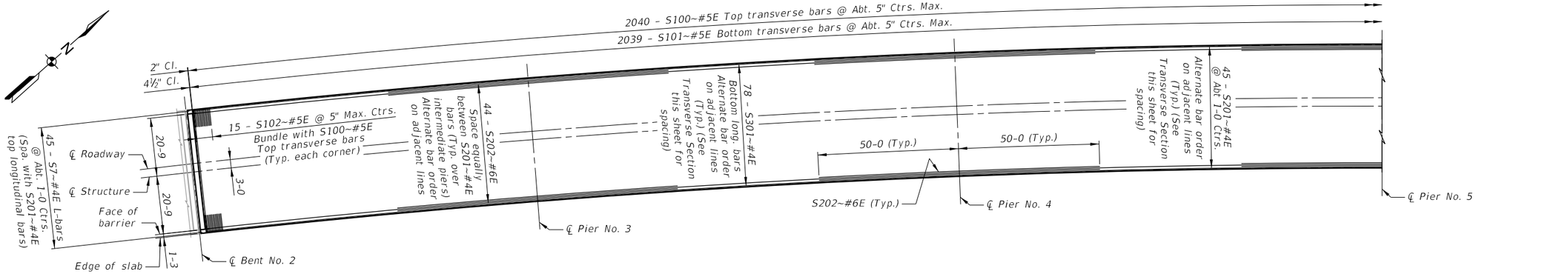
See Sheet No. B2 for scupper locations.

See Sheet No. B10 for additional scupper reinforcing steel.

See Sheet No. B10 for slab pouring sequence.

See Sheet No. B11 for Bill of Reinforcing Steel.

See Std. Dwg. No. SBR-SS42R for bridge rail reinforcing steel.



REINFORCING STEEL PLACEMENT PLAN

Scale ~ 1" = 20'-0"

SHEET NO. B9

SPANS NO. 2 THRU NO. 7 SLAB REINFORCING STEEL PLACEMENT PLAN & DETAILS

SCALE: As Noted

PROJECT NAME
CLARK FORK - 5M E ALBERTON

MDT STRUCTURE ID
01389

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NHPB 90-2(157)79

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				DRAWN	9-16-20	G.H.S.
				DESIGNED	9-16-20	P.C.J.

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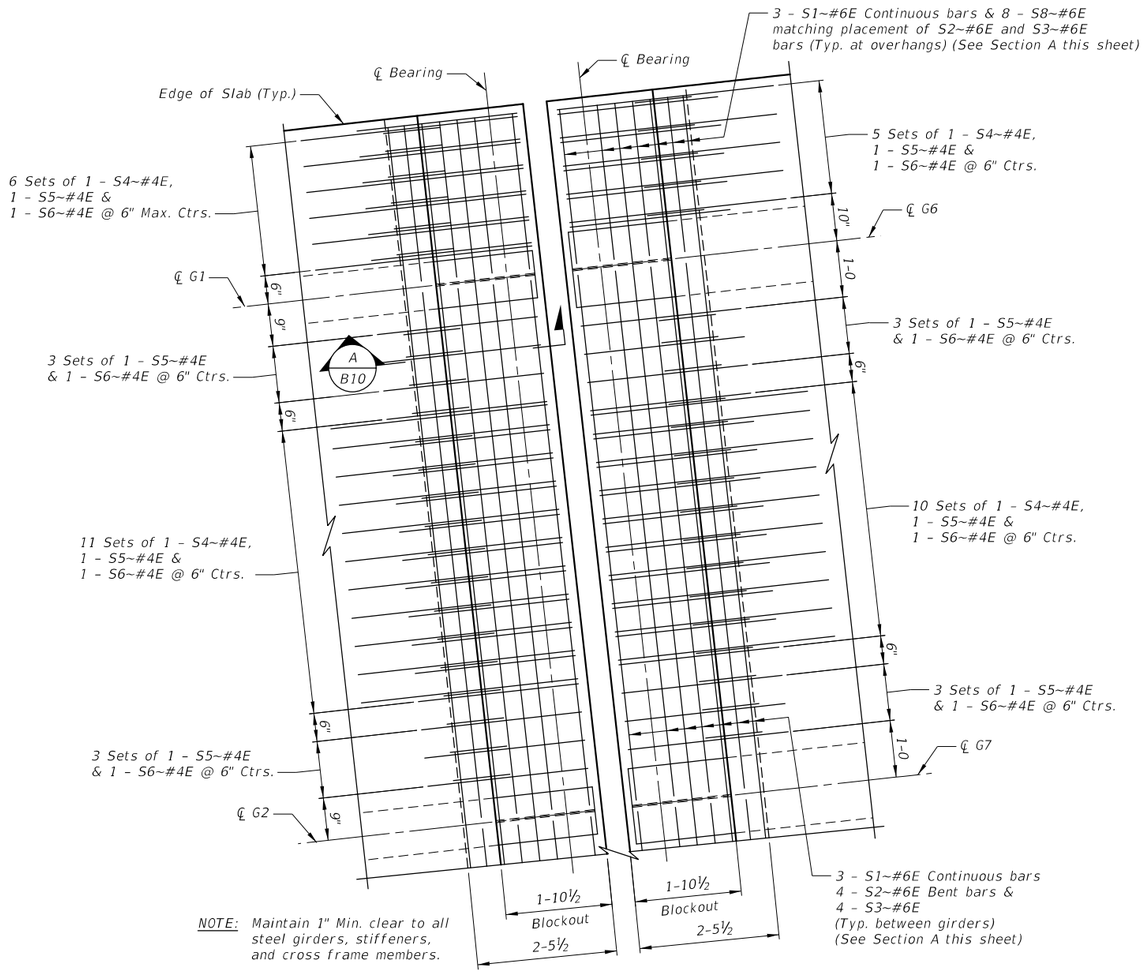
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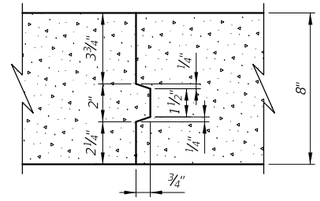
NOTE: Maintain 1" Min. clear to all steel girders, stiffeners, and cross frame members.

SLAB ENDS AT MODULAR EXPANSION JOINTS - PARTIAL PLAN

Scale ~ ¾" = 1'-0"
(Bent No. 2 shown, Pier No. 8 similar)
(Cross frame members, modular expansion joints and deck height reinforcing steel not shown for clarity)

NOTES

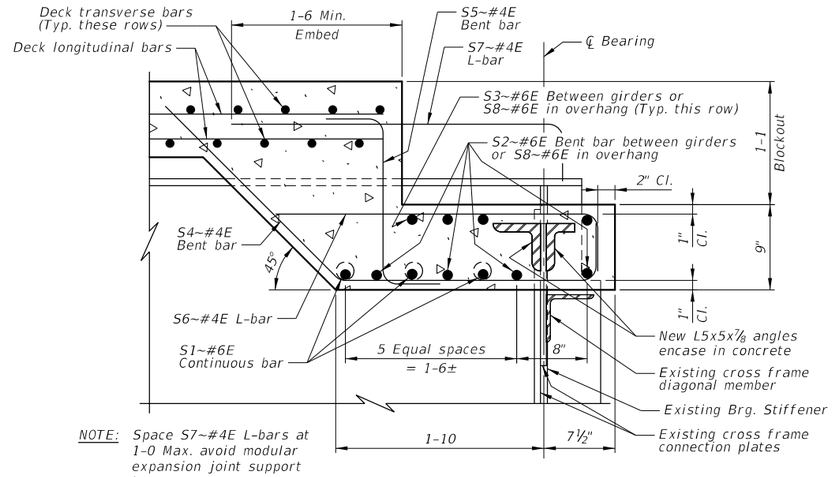
See Sheet No. B11 for Bill of Reinforcing Steel.



NOTE: Thoroughly coat the slab construction joint with an epoxy resin bonding agent which meets the requirements of AASHTO M 235 (Type V). Apply the bonding agent within 30 minutes prior to placing concrete. Continue slab reinforcing through the joints.

SLAB TRANSVERSE CONSTRUCTION JOINT

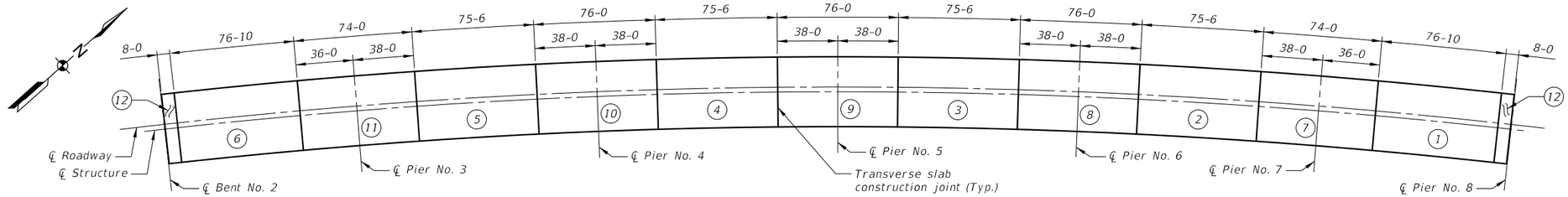
Scale ~ 3" = 1'-0"



NOTE: Space S7~#4E L-bars at 1-0 Max. avoid modular expansion joint support boxes.

A / B10 **SECTION A**
Scale ~ 1½" = 1'-0"

NOTE: Bent No. 2, Span No. 1 shown, other locations similar.



NOTE: The dimensions shown are horizontal dimensions measured along ℄ Roadway.

NOTE: The numbers inscribed in the circles represent the sequence of placing sections in the slab. Place the slab section in the described sequence unless otherwise approved by the Project Manager.

NOTE: Placements (1) (2) (3) (4) (5) (6) can be combined into groups of up to 3 placements and poured during a single continuous placement at the Contractor's option. Placements (7) (8) (9) (10) (11) can be combined into groups of up to 3 placements and poured during a single continuous placement at the Contractor's option provided the concrete does not begin initial set. Submit a proposed pour sequence and obtain approval from the Project Manager prior to proceeding with the actual pour.

NOTE: No pour sequence required for Spans No. 1 & No. 8.

SLAB POURING SEQUENCE - SPANS NO. 2 THRU NO. 7

Scale ~ 1"= 40'-0"

NOTE: Develop a mix design to avoid initial set of concrete during placement of any individual placements that are poured during a single continuous placement. Obtain approval on the mix design and demonstrate through a test pour that the volume of concrete in each pour sequence can be placed prior to the concrete setting.

NOTE: The concrete in proceeding placement must obtain 0.75f'c prior to beginning next placement.

NOTE: Allow for a minimum of 72 hours between placements.

NOTE: Make final adjustments to expansion devices before placing the slab section in which the device is located.

HDR

SHEET NO. B10

MISCELLANEOUS SLAB DETAILS

SCALE: As Noted

PROJECT NAME
CLARK FORK - 5M E ALBERTON

MDT STRUCTURE ID
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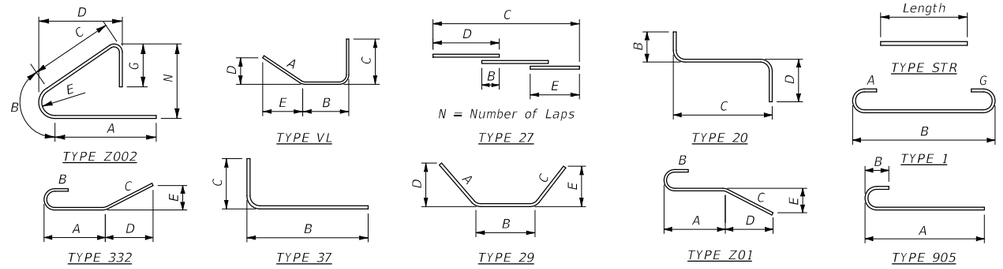
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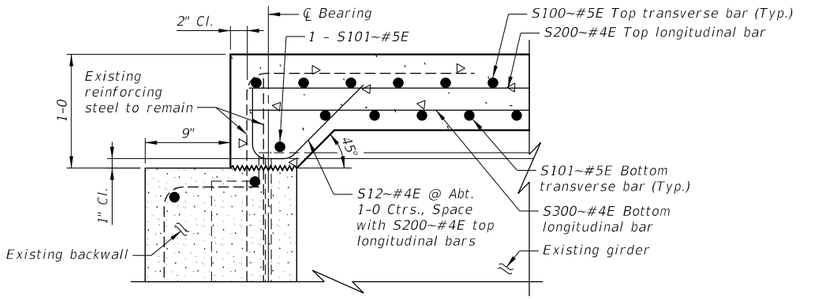
BILL OF REINFORCING STEEL

DECK SLABS ONLY
(ALL DIMENSIONS ARE OUT TO OUT)

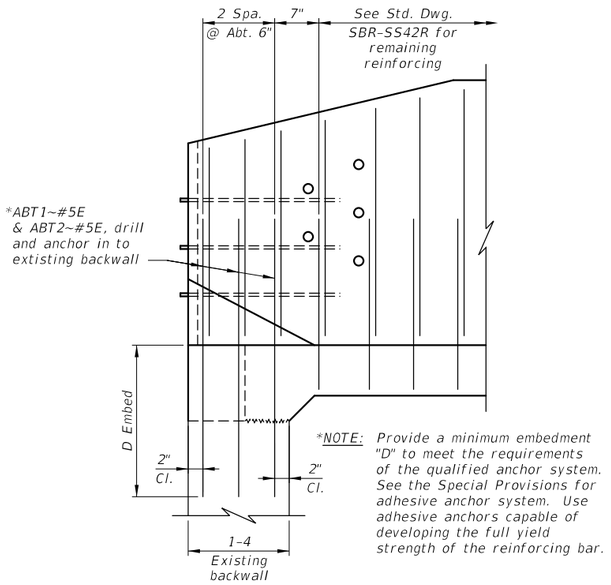


Mark	Size	Span No. 1 No.	Spans No. 2 thru No. 7 No.	Span No. 8 No.	Type	Length	A	B	C	D	E	G	N
S100	#5E	202	2040	202	1	44-10	7"	43-8				7"	
S101	#5E	202	2039	202	STR	43-8							
S102	#5E	60	60	60	905	6-7	6-0	7"					
S200	#4E	45		45	27	89-8		3-0	83-8	30-0	29-8		2
S201	#4E		45		27	915-0		3-0	849-0	40-0	35-0		22
S202	#6E		220		27	104-0		4-0	100-0	60-0	44-0		1
S300	#4E	84		84	27	89-8		3-0	83-8	40-0	29-8		2
S301	#4E		78		27	915-0		3-0	849-0	40-0	35-0		22
S1	#6E	3	6	3	STR	43-8							
S2	#6E	16	32	16	1	10-6	8"	9-2				8"	
S3	#6E	16	32	16	STR	9-2							
S4	#4E	56	100	56	VL	5-0	2-2	2-3	7"	1-6	1-6		
S5	#4E	80	148	80	20	2-10		8"	1-6	8"			
S6	#4E	80	148	80	37	3-5		2-10	7"				
S7	#4E	45	90	45	37	3-5		2-11	6"				
S8	#6E	16	32	16	STR	2-9							
S9	#4E	2	12	2	STR	6-0							
S10	#6E	4	24	4	STR	8-6							
S11	#6E	4	24	4	29	10-4	4-6	1-4	4-6	2-3	2-3		
S12	#4E	45		45	VL	1-11	11"	4"	8"	7¾"	7¾"		
B100	#5E	20		20	27	89-5		3-6	85-11	60-0	29-5		1
B101	#5E		20		27	904-8		3-6	852-2	60-0	4-8		15
B1	#5E	186	1726	186	Z001	4-9¼	2-2¼	7"	2-0	4½"	1-11½		
B2	#5E	186	1726	186	37	2-11¼		10"	2-1¼				
B3	#5E	180	1726	180	Z002	7-6¾	3-0½	10¼"	3-1½	3-3	2"	9½"	1-0
B4-1	#5E	2		2	Z002	6-0	2-1½	10"	2-2¾	2-5	3"	9½"	1-0
B4-2	#5E	2		2	Z002	6-3¼	2-3¼	9¼"	2-4½	2-6¾	2¾"	9½"	1-0
B4-3	#5E	2		2	Z002	6-6¼	2-5¼	8¾"	2-6¼	2-8¼	2½"	9½"	1-0
B4-4	#5E	2		2	Z002	6-9½	2-7	8¼"	2-8¼	2-10	2¼"	9½"	1-0
B4-5	#5E	2		2	Z002	7-0¾	2-9	7¾"	2-10	2-11¾	2¼"	9½"	1-0
B4-6	#5E	2		2	Z002	7-4	2-10¾	7¾"	3-0	3-1¼	2"	9½"	1-0
**ABT1	#5E	6		6	332	4-2¾	1-7¾	7"	2-0	1-11½	4½"		
**ABT2	#5E	6		6	STR	3-8							

**NOTE: Based on dimensions provided on Standard Drawing SBR-SS42R. Adjust length based upon actual embedment.

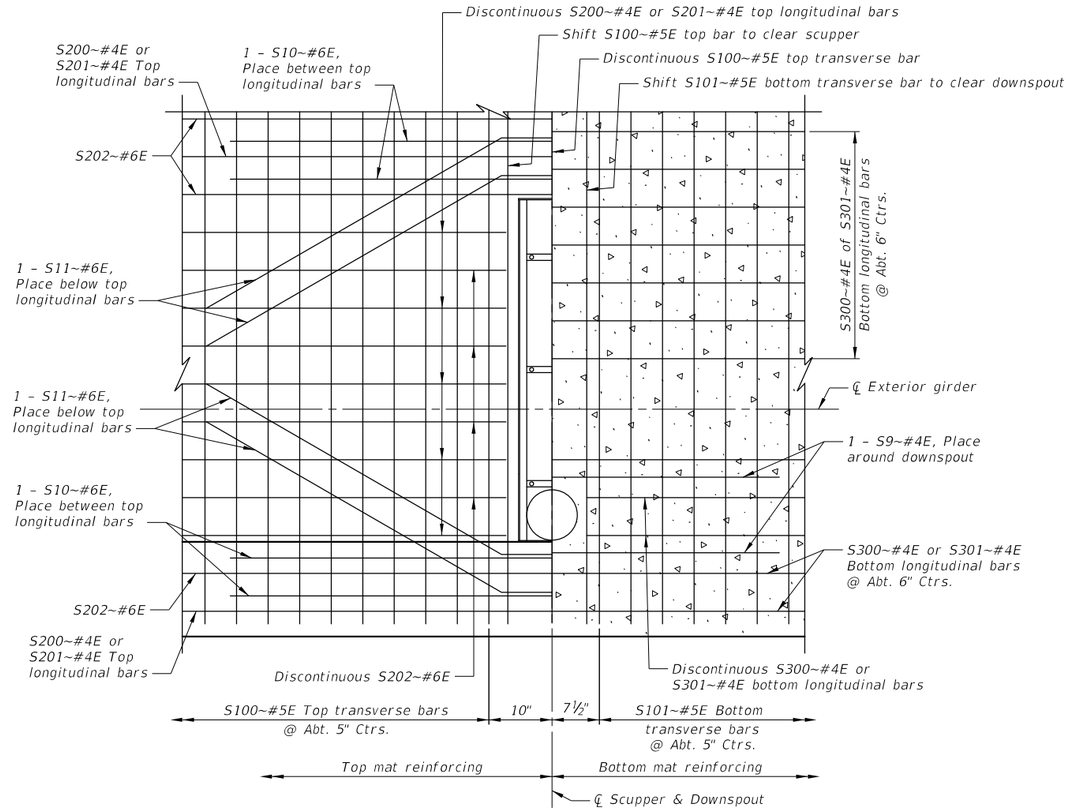


A / B8 **SLAB ENDS AT BENT NO. 1 & BENT NO. 9**
Scale ~ 1½" = 1'-0"



*NOTE: Provide a minimum embedment "D" to meet the requirements of the qualified anchor system. See the Special Provisions for adhesive anchor system. Use adhesive anchors capable of developing the full yield strength of the reinforcing bar.

BARRIER END DETAIL
Scale ~ 1" = 1'-0"



SCUPPER REINFORCING
Scale ~ 1" = 1'-0"
(Spans No. 2 thru No. 7 shown, Span No. 1 similar)

NOTES

Adjust reinforcing steel as necessary to clear scuppers. Provide minimum 1½" clear between reinforcing steel and scupper or downspout.

Layout holes for new reinforcing steel installed into existing concrete as shown on the plans using a pachometer, ground penetrating radar or other means to accurately locate existing reinforcing steel prior to drilling. Relocate holes in conflict with the existing reinforcing steel. Do not damage existing reinforcing steel while drilling holes. Coring holes is not permitted. Clean holes and install adhesive per adhesive manufacturer's recommendations.

See Sheet No. B2 for scupper locations.

SHEET NO. B11

MISCELLANEOUS SLAB DETAILS & SLAB BILL OF REINFORCING STEEL

SCALE: As Noted

PROJECT NAME
CLARK FORK - 5M E ALBERTON

MDT STRUCTURE ID
01389

FEDERAL AID PROJECT
NHPB 90-2(157)79

COUNTY
MISSOULA

DESIGNED	9-16-20	P.C.J.	
DRAWN	9-16-20	G.H.S.	
CHECKED	10-16-20	J.C.M.	
REVISED			
REVISED			
REVISED			
REVISED			

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BRIDGE BUREAU

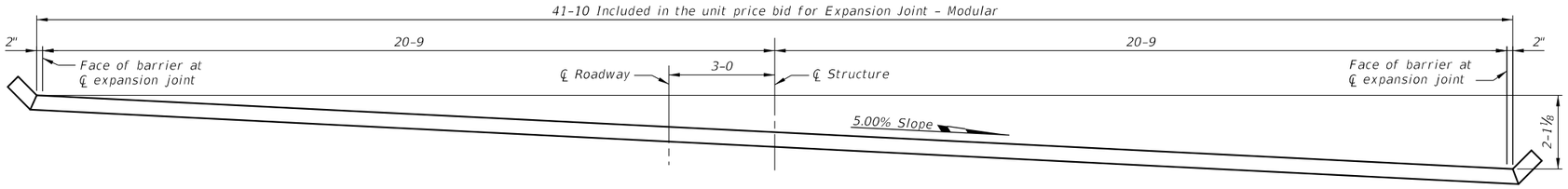
UPN NUMBER
9581000

DRAWING NO.
24462

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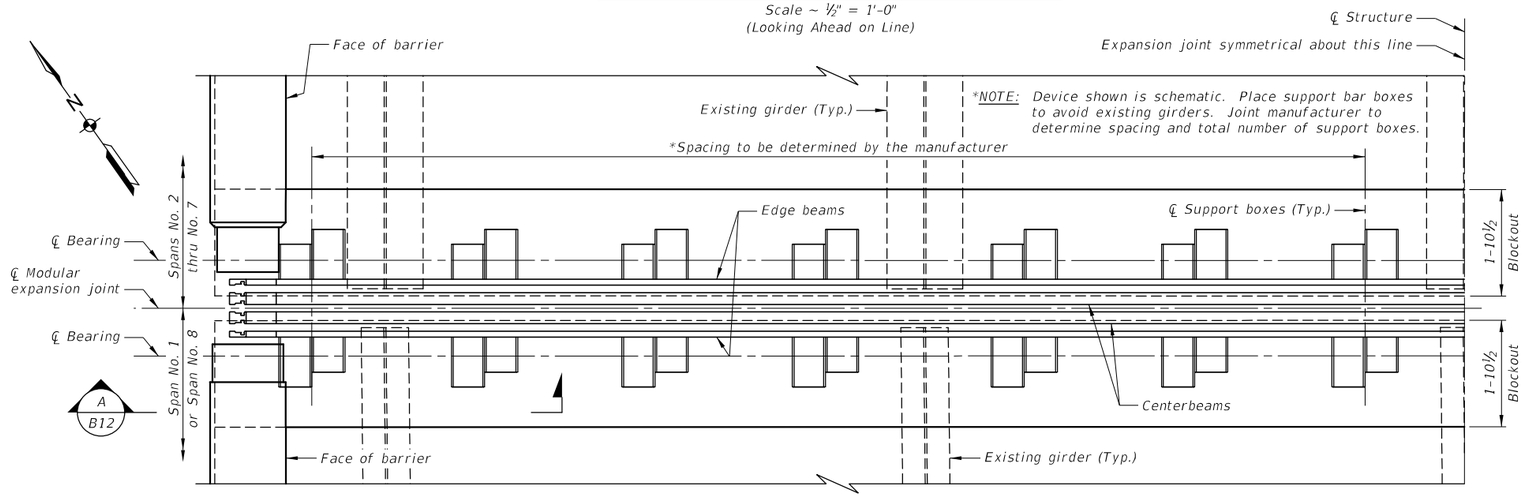
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MODULAR EXPANSION JOINT ELEVATION

Scale ~ ½" = 1'-0"
(Looking Ahead on Line)

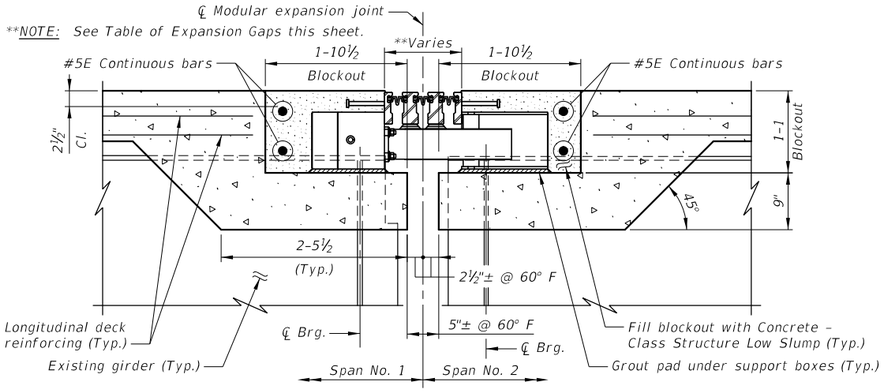


MODULAR EXPANSION JOINT - PARTIAL PLAN

Scale ~ ¾" = 1'-0"
(Bent No. 2 shown, Pier No. 8 similar)
(Bridge barrier expansion joint cover and anchor studs not shown for clarity)

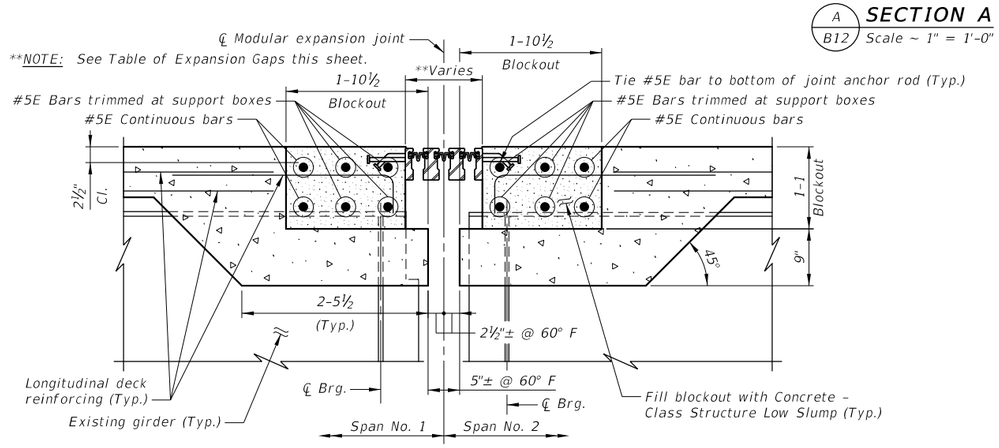
TABLE OF EXPANSION GAPS								
Location	TEMPERATURE (°F)						Adjustment for ⅛" movement (°F)	Total Movement (In.)
	-40	0	38	60	90	115		
Bent No. 2 & Pier No. 8	15 7/16"	13 13/16"	12 5/16"	11 7/16"	10¼"	9¼"	3.142	6 3/16"

NOTE: The movements shown are not factored. They are the actual anticipated movements for temperatures shown. The expansion gaps shown are for a DS Brown D-240 Steelflex Modular Expansion Joint. Gaps will need to be revised for alternate modular expansion joint manufacturers.



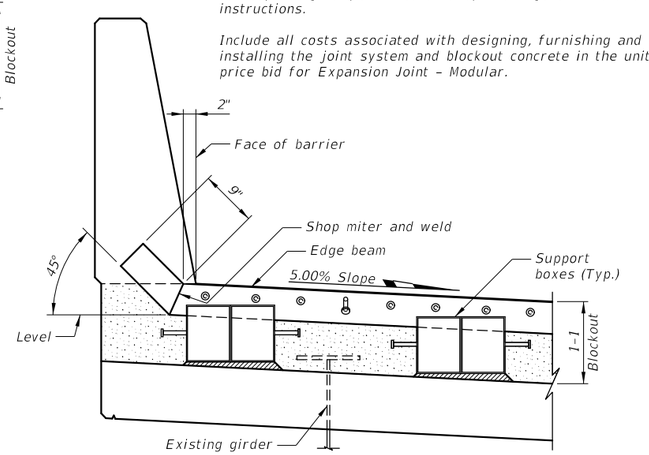
EXPANSION JOINT AT SUPPORT BOXES

Scale ~ 1" = 1'-0"
(Bent No. 2 shown, Pier No. 8 similar)



EXPANSION JOINT BETWEEN SUPPORT BOXES

Scale ~ 1" = 1'-0"
(Bent No. 2 shown, Pier No. 8 similar)



A B12 **SECTION A**
Scale ~ 1" = 1'-0"

NOTES

The expansion joint shown is a DS Brown D-240 Steelflex Modular Expansion Joint System. An equivalent continuous modular expansion joint system may be submitted for approval by the Project Manager.

Adjust reinforcing steel in blockouts to clear expansion joint anchors and support boxes. Field bending is allowed.

This drawing is a schematic of the expansion joint device. Manufacturer is responsible for the design of the joint device in accordance with AASHTO LRFD Bridge Design Specifications Chapter 14. Design live load is HL-93 with impact.

Provide a joint device capable of maintaining equal distance between all edge beams and center beams. See Special Provisions for additional design and submittal requirements. Submit shop drawings that include expansion devices, method of support during installation, and installation procedures.

Provide continuous rails and seals across the width of the joint, including turn ups. Do not field splice rails or seals unless approved by the Project Manager.

Install expansion joint device such that it conforms to the roadway grades and slope at the joint location and provides a smooth riding surface. Install rails ⅛" below finished grade.

Set the expansion joints to accommodate the expected movements shown in the Table of Expansion Gaps. Adjust joint opening for the structure temperature. The structure temperature is the average member temperature taken at various locations along the structure at the time of setting the final steel edge member and expansion joint. Clearly show joint opening dimensions and corresponding temperatures on shop drawings and installation instructions.

Include all costs associated with designing, furnishing and installing the joint system and blockout concrete in the unit price bid for Expansion Joint - Modular.

SHEET NO. B12

MODULAR EXPANSION JOINT

SCALE: As Noted

PROJECT NAME
CLARK FORK - 5M E ALBERTON

MDT STRUCTURE ID
01389

FEDERAL AID PROJECT
NHPB 90-2(157)79

COUNTY
MISSOULA

	REVISED	REVISED	REVISED	REVISED	CHECKED	DRAWN	DESIGNED
					J.C.M.	G.H.S.	P.C.J.
					10-19-20	10-5-20	10-5-20

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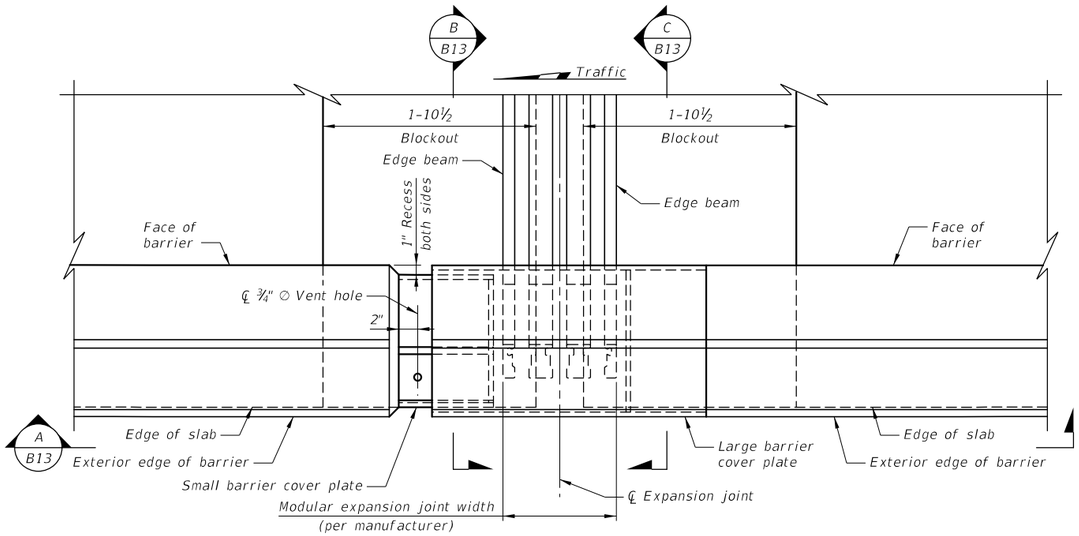
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BRIDGE BUREAU

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9581000

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24463

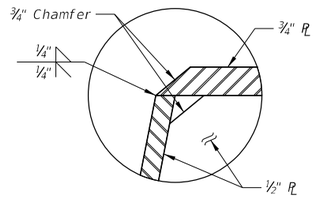
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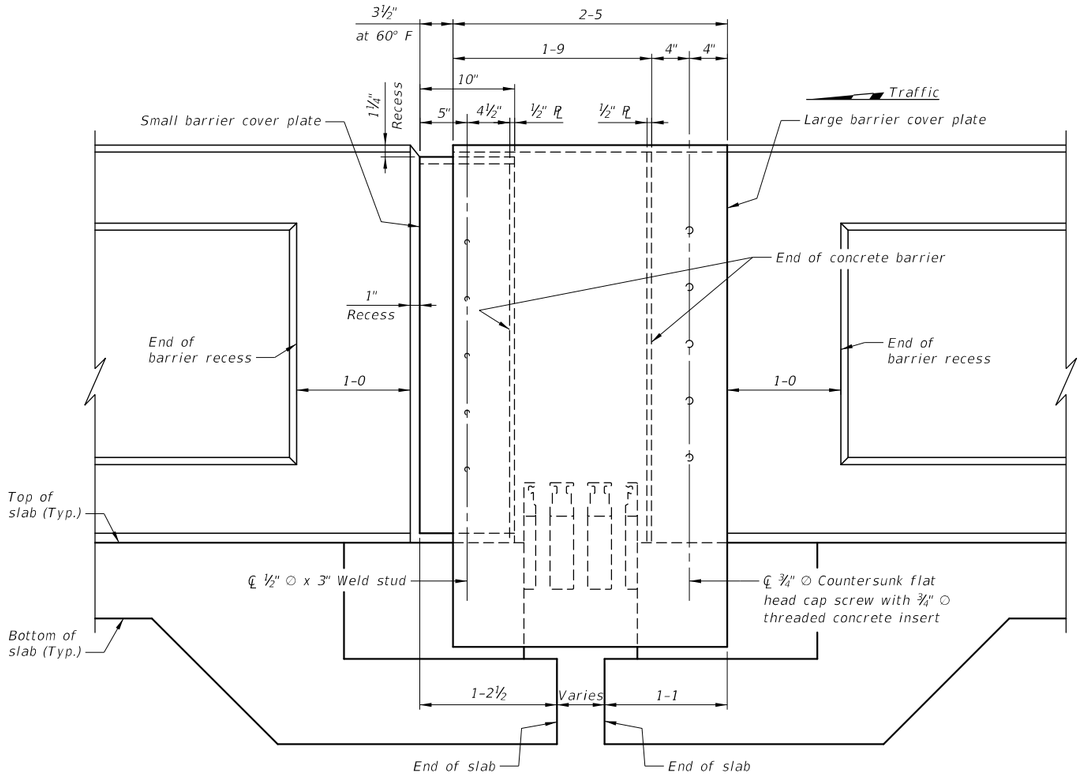
BARRIER COVER PLATES - PLAN

Scale ~ 1½"= 1'-0"



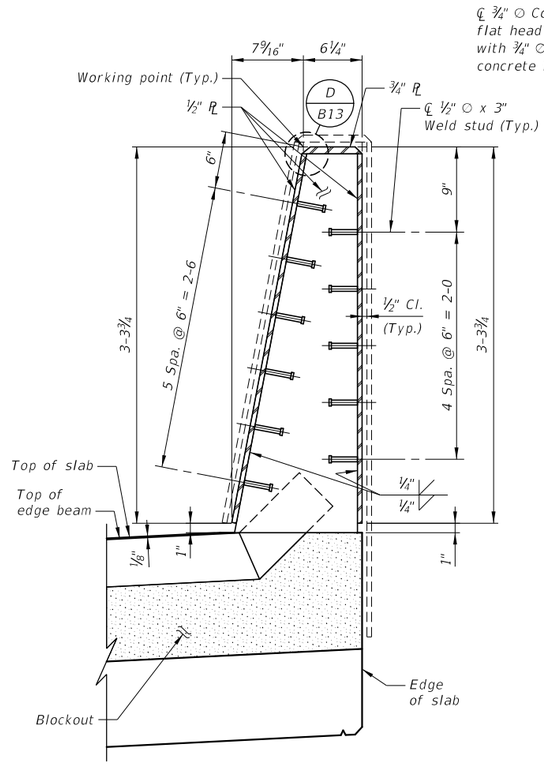
D B13 **DETAIL D**

No Scale



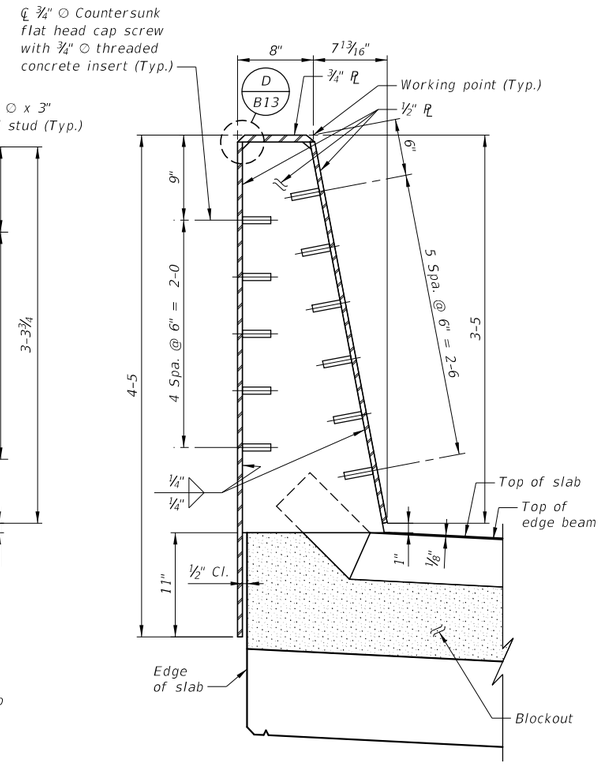
A B13 **VIEW A**

Scale ~ 1½" = 1'-0"



B B13 **SECTION B**

Scale ~ 1½" = 1'-0"



C B13 **SECTION C**

Scale ~ 1½" = 1'-0"

NOTES

All steel plates shall conform to AASHTO M270 Grade 50.

Galvanize all steel plates in accordance with Standard Specifications.

Include all costs for furnishing and installing the barrier cover plates and associated hardware in the unit price bid for Expansion Joint - Modular.

Attach the large barrier cover plate to the barrier on the oncoming traffic side of the expansion joint. Adjust recess, insert locations and other related details as needed to accommodate orientation of the cover plates.

See Std. Dwg. No. SBR-SS42 for concrete barrier geometry.

SHEET NO.
B13

BARRIER COVER PLATE DETAILS

SCALE: As Noted

PROJECT NAME
CLARK FORK - 5M E ALBERTON

MDT STRUCTURE ID
01389

FEDERAL AID PROJECT
NHPB 90-2(157)79

COUNTY
MISSOULA

REVISED			J.C.M.	
REVISED			G.H.S.	
REVISED	10-19-20		P.C.J.	
REVISED	10-5-20	CHECKED		
	10-5-20	DRAWN		
		DESIGNED		

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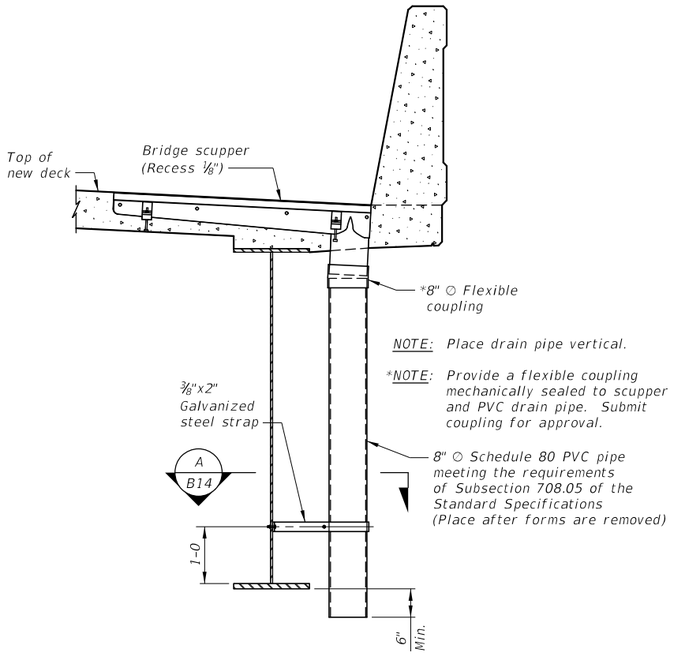
Use AASHTO M270 Grade 36 or Grade 50 for steel straps.

Galvanize steel straps per the Standard Specifications.

ACO Infrastructure 54" Scuppers with galvanized frames shown. Similar alternate scuppers and grates may be submitted for approval. Match geometry of the scupper and provide a grate with at least 396 in^2 of intake area.

Include all costs to furnish and install scuppers, frame, grate, PVC pipes, steel straps and associated hardware in the unit bid price for Scupper.

See Sheet No. B2 for scupper locations.



DECK DRAIN DETAIL

Scale ~ ¾" = 1'-0"

PLAN VIEW

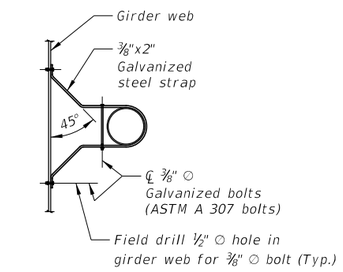
ELEVATION VIEW

B B14 SECTION B

Scale ~ 1½" = 1'-0"

BRIDGE SCUPPER

Scale ~ 1½" = 1'-0"



A B14 SECTION A

Scale ~ ¾" = 1'-0"

HDR

SHEET NO. B14

DRAINAGE DETAILS

SCALE: As Noted

PROJECT NAME
CLARK FORK – 5M E ALBERTON

MDT STRUCTURE ID
01389

FEDERAL AID PROJECT
NHPB 90-2(157)79

COUNTY
MISSOULA

REVISED			J.C.M.	
REVISED			G.H.S.	
REVISED	10-19-20		P.C.J.	
CHECKED	9-16-20			
DRAWN	9-16-20			
DESIGNED				

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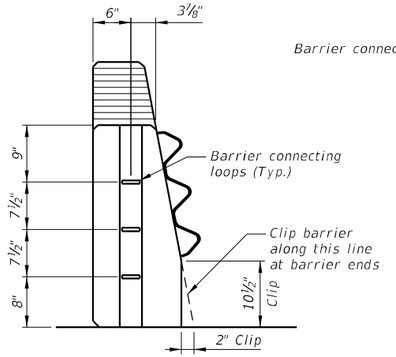
MONTANA DEPARTMENT OF TRANSPORTATION MDT BRIDGE BUREAU

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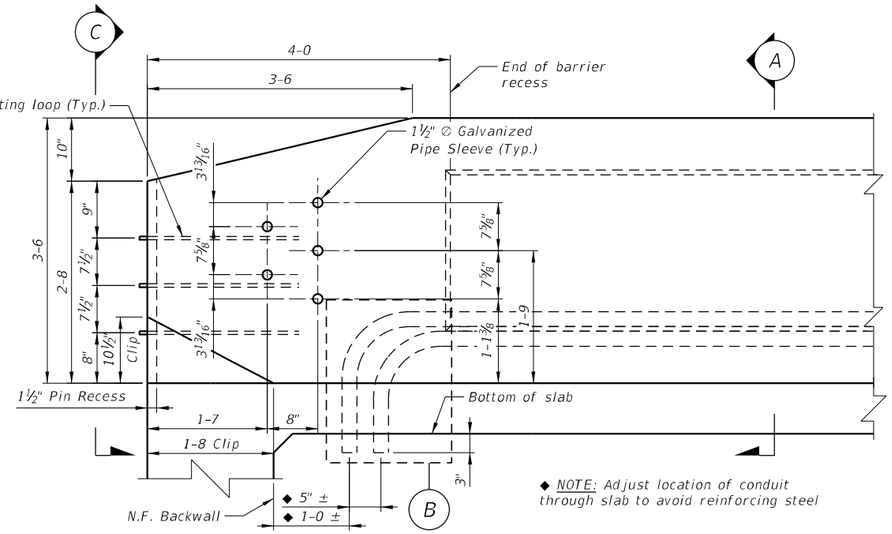
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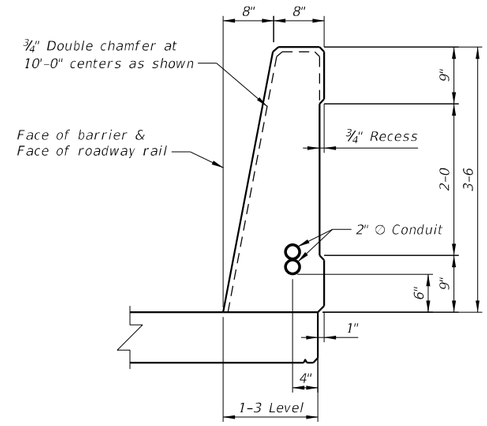


VIEW C



◆ NOTE: Adjust location of conduit through slab to avoid reinforcing steel

BARRIER INSIDE ELEVATION



SECTION A

NOTES

PLACEMENT: Do not disturb the deck cure to construct the concrete barrier.

CONCRETE STRENGTH: Do not place construction vehicles or equipment on the deck until the concrete has reached 90% of its specified 28-Day compressive strength or without approval from the Project Manager.

Do not open bridge to traffic for at least 14 days after placement of concrete barrier or until concrete in barrier has reached 90% of its specified 28-Day compressive strength.

CONTROL JOINT: Do not place ¾" double chamfer in the barrier recess or the bottom outside edge of the barrier.

REFLECTOR: Place a white reflector on the top of barrier rail at 30-foot spacing between the barrier ends. See Dtl. Dwg. No. 605-00 for reflector detail.

TOLERANCES: Construct the concrete bridge rail to the same tolerances specified for concrete barrier rail, see Section 564 of the Standard Specifications.

REINFORCING STEEL: See Std. Dwg. No. SBR-SS42R for reinforcing steel locations.

GALVANIZING: Galvanize pipe sleeves in accordance with AASHTO M 111.

RADIUS: A ¾" radius may be substituted for the ¾" chamfers and fillets shown.

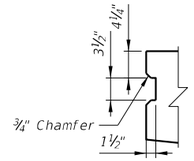
PAYMENT: Include all costs associated with the barrier as shown on this sheet in the unit price bid for 42 IN SS Concrete Barrier Rail-Br. See Std. Dwg. No. SBR-SS42R for reinforcing steel payment.

EXCEPTIONS: Use details shown on this drawing only as they apply to the project. Refer to other drawings for variations in these details.

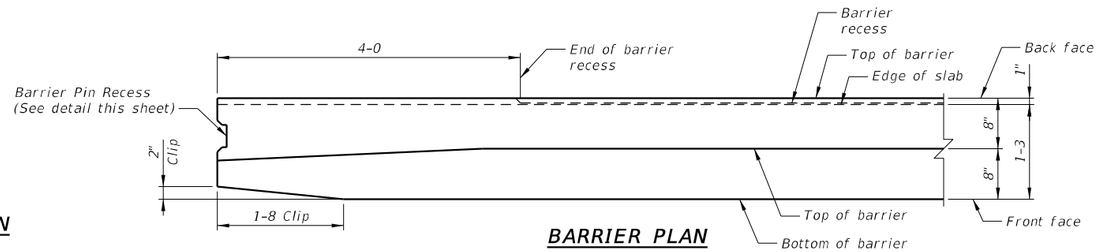
CONDUIT: Omit conduit in any barrier not located at the edge of slab.

RAIL WEIGHT: For informational purposes only and based on Section A dimensions.
Rail weight = 505 lb/ft
Rail Volume = 3.36 cu. ft / ft

CRASH TEST: This rail has been evaluated and approved to be of equal strength to railings with like geometry, which have been crash tested to meet MASH TL-4 criteria.

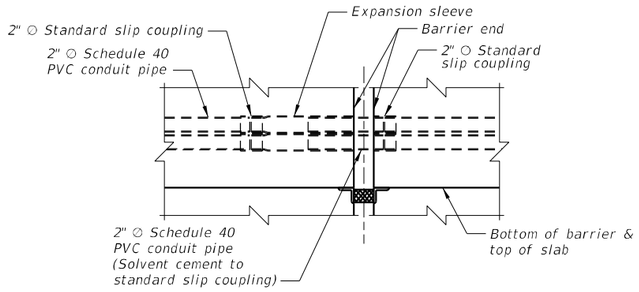


BARRIER PIN RECESS PLAN

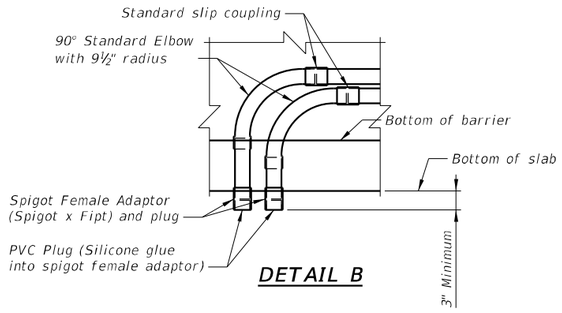


BARRIER PLAN

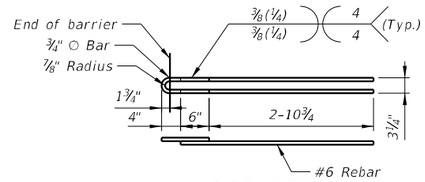
RAIL DESIGN CAPACITY		
	Interior Region	End Region
Rw	115 kips	86 kips
Lc	14'-0"	6'-2"
Mc	173 kip*in/ft	292 kip*in/ft



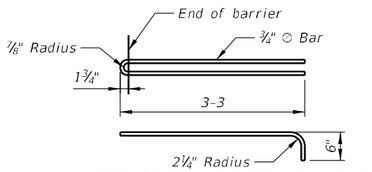
CONDUIT EXPANSION JOINT DETAIL



DETAIL B



LOOP DETAIL



OPTIONAL LOOP DETAIL

NOTE: Use reinforcing steel conforming to ASTM A 706, Grade 60 for rebar being welded to loops.

NOTE: Loop ends and the optional loop detail consist of smooth round bars conforming to AASHTO M 270, Grade 36.

NOTE: Cold bend the loops by using a jig that will produce an accurate radius without marring the bar. Do not heat the bar to facilitate bending.

NOTE: Weld rebar to loops using ⅛" ∅ E8018 rod. Do not tack weld the pieces together prior to welding. Use a certified welder in accordance with the current edition of AWS D1.4. Do not place the welded assembly in the form until it has been inspected.

NOTE: No additional welding is permitted on the smooth round bars or reinforcing steel.

STANDARD BRIDGE RAIL TYPE SINGLE SLOPE 42"

No Scale

MONTANA DEPARTMENT OF TRANSPORTATION — BRIDGE BUREAU

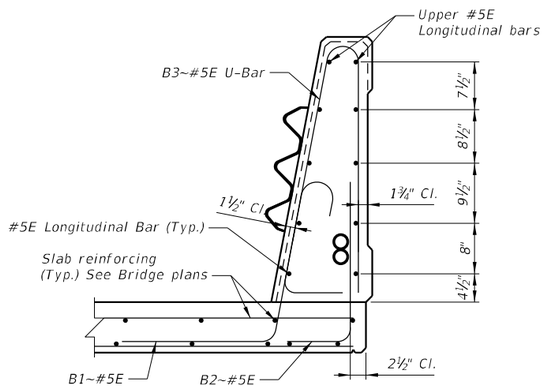
REVISED	REVISED	REVISED	APPROVED	CHECKED	DRAWN
			6-27-19	2-7-19	1-8-19
			N.A.H.	L.M.M.	T.J.B.

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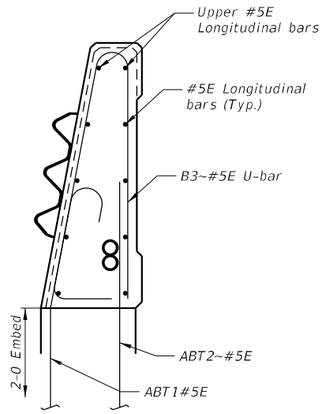
DRAWING NO. SBR-SS42

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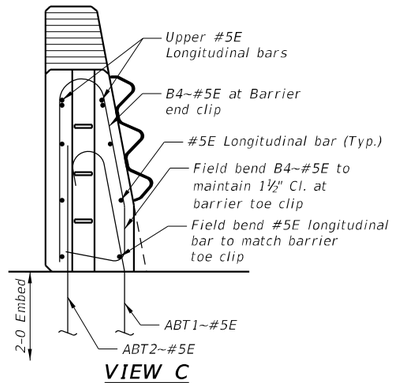
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SECTION A



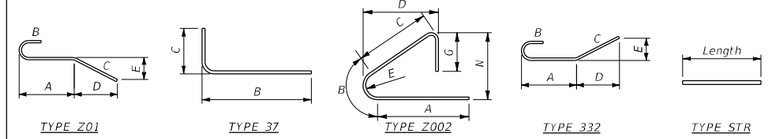
SECTION B



VIEW C

BILL OF REINFORCING STEEL

(ALL DIMENSIONS ARE OUT TO OUT)



NOTE: See Bridge Plans for number of bars required and longitudinal bars.

Mark	Size	Type	Length	A	B	C	D	E	G	N
B1	#5E	Z01	5-0¼	2-2¼	7"	2-0	4½"	1-11½		
B2	#5E	37	2-11¼		10"	2-1¼				
B3	#5E	Z002	7-6¾	3-0½	7¼"	3-3	2"	9½"		1-0
B4-1	#5E	Z002	6-0	2-1½	10¼"	2-2¾	2-5	3"	9½"	1-0
B4-2	#5E	Z002	6-3¼	2-3¼	10"	2-4½	2-6¾	2¾"	9½"	1-0
B4-3	#5E	Z002	6-6¼	2-5¼	9¼"	2-6¼	2-8¼	2½"	9½"	1-0
B4-4	#5E	Z002	6-9½	2-7	8¾"	2-8¼	2-10	2¼"	9½"	1-0
B4-5	#5E	Z002	7-0¾	2-9	8¼"	2-10	2-11¾	2¼"	9½"	1-0
B4-6	#5E	Z002	7-4	2-10¾	7¾"	3-0	3-1¼	2"	9½"	1-0
ABT1	#5E	332	4-2¾	1-7¾	7"	2-0	1-11½	4½"		
ABT2	#5E	STR	3-8							

NOTES

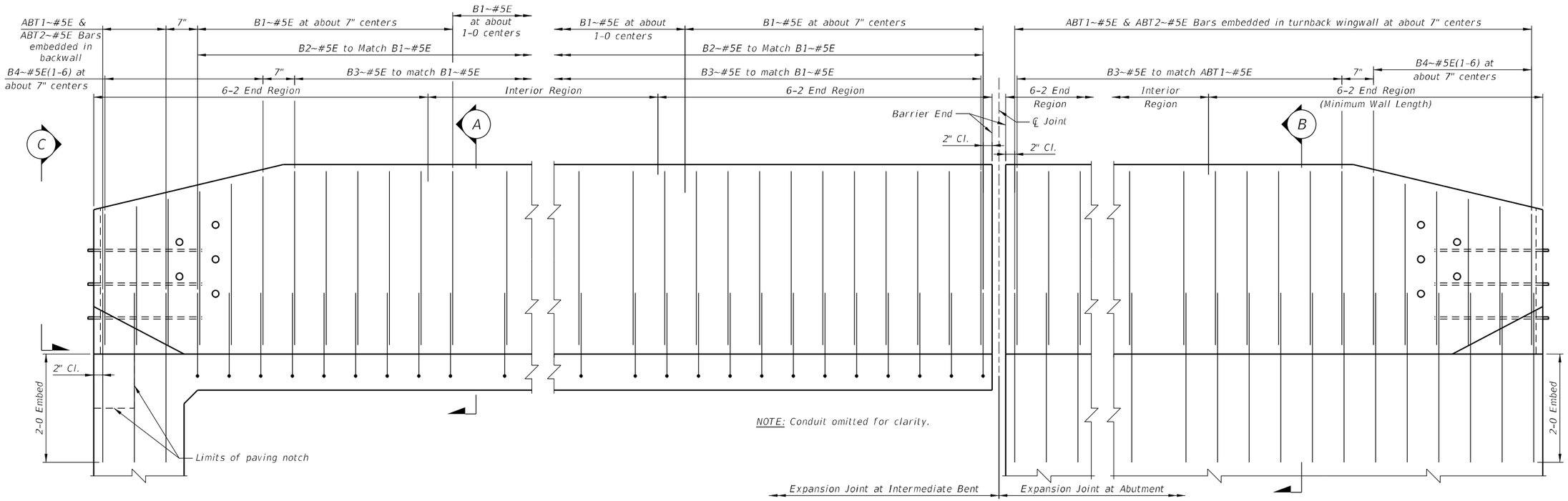
REINFORCING STEEL: All barrier reinforcing steel is epoxy coated.

DETAILS: See Std. Dwg. No SBR-SS42 for barrier details not shown on this drawing.

PAYMENT: Include all costs associated with furnishing and placing reinforcing steel in the barrier in the unit price bid for Reinforcing Steel - Epoxy Coated.

EXCEPTIONS: Use details shown on this drawing only as they apply to the project. Anchorage details may vary. Refer to other drawings for variations in these details.

UPPER LONGITUDINAL BARS: Adjust the lap length by approximately 2-6 at the tapered ends of the barrier.



SEMI-INTEGRAL ABUTMENT

ABUTMENT OR INTERMEDIATE BENT
WITH EXPANSION JOINT

TURNBACK WINGWALL

BARRIER INSIDE ELEVATION

STANDARD BRIDGE RAIL TYPE SINGLE SLOPE 42" REINFORCING

No Scale

MONTANA DEPARTMENT OF TRANSPORTATION — BRIDGE BUREAU

REVISED			
REVISED			
REVISED			
REVISED			
APPROVED	6-27-9	N.A.H.	
CHECKED	2-7-19	L.M.M.	
DRAWN	1-8-19	T.J.B.	...\ENGLISH_REF\SS42\R062719.STD
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