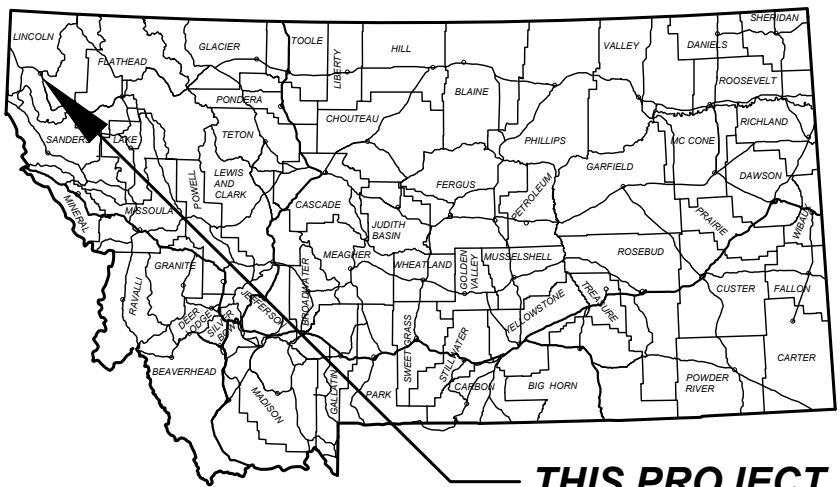


MONTANA DEPARTMENT OF TRANSPORTATION

FEDERAL AID PROJECT STPS 482-1(10)2
BRIDGE REPLACEMENT, GRADE, GRAVEL & ASPHALT
S-482 REPAIR - S OF LIBBY
LINCOLN COUNTY

LENGTH 0.1 MILES



THIS PROJECT

PROJECT DESIGN DATA

PRESENT	2025	A.A.D.T. = 1,040
LETTING	2026	A.A.D.T. = 1,050
DESIGN	2046	A.A.D.T. = 1,280
		D.H.V. = 180
		TRUCKS = 3.0%
		V. = 50 MPH
		18 KIP ESAL'S = 17 DAILY
		ANNUAL GROWTH RATE = 1.0%

ASSOCIATED PROJECT
AGREEMENT NUMBERS

R/W	STPS 482-1(12)2
I. C.	STPS 482-1(11)2
P. E.	STPS 482-1(9)2

SURFACING SOURCES -
CONTRACTOR FURNISHED

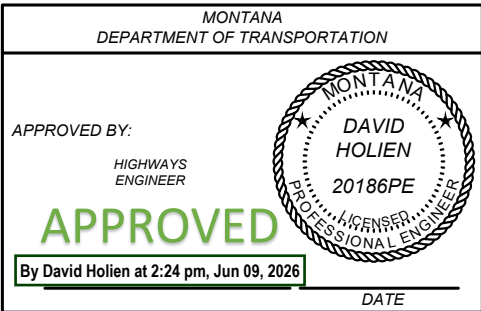
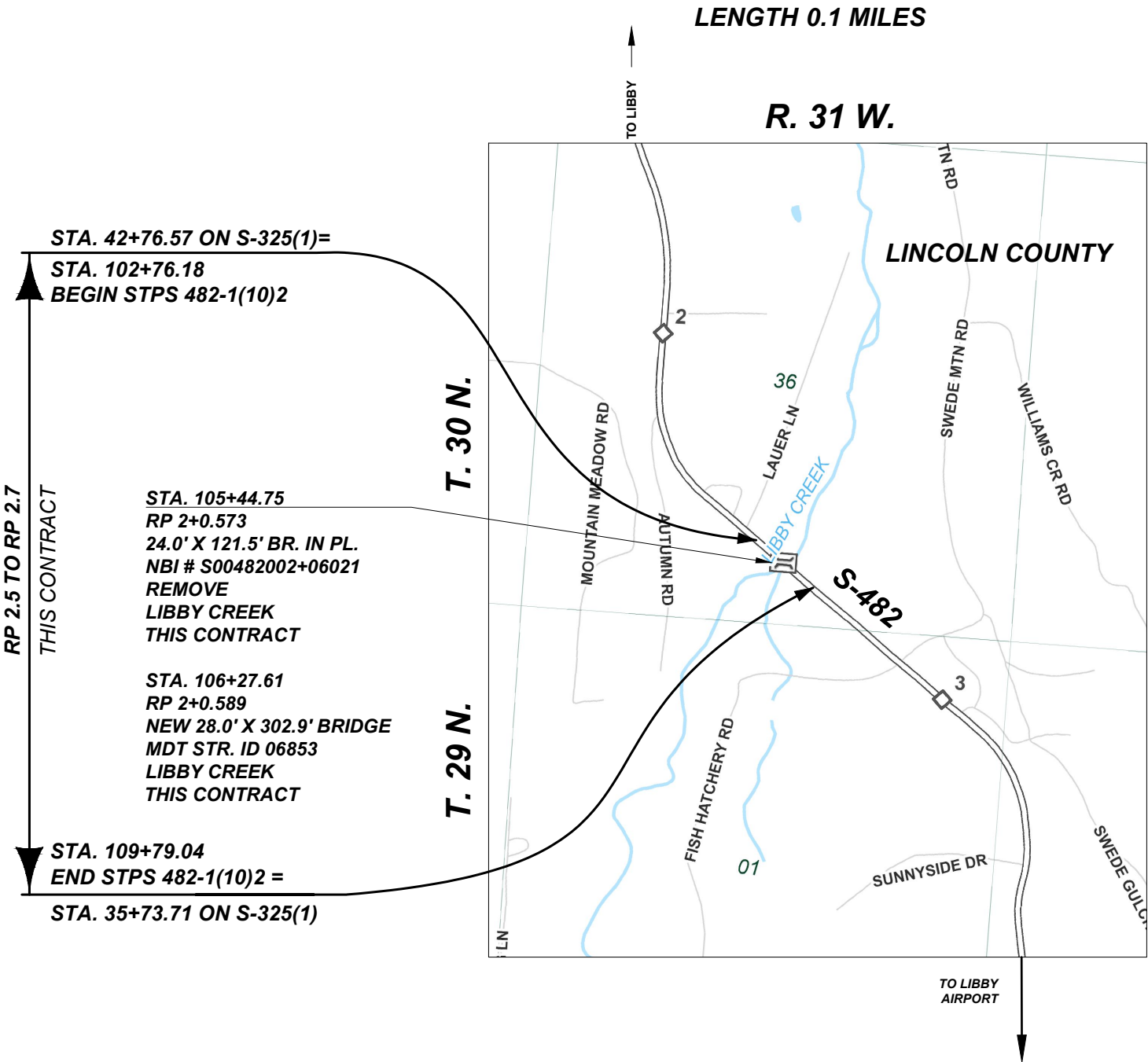


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ROAD PLANS

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BRIDGE PLANS

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CROSS SECTIONS

MAINLINE	1-11
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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 BINDER - GRADE S - 1/2" AGG.	= 5.8% OF PL.MIX BIT.SURF.
ASPHALT BINDER - GRADE S - 3/8" AGG.	= 6.2% 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)
EMULSIFIED ASPHALT SEAL	= 0.42 GAL. PER SQ.YARD
COVER	= 25 LBS. PER SQ.YARD

SOILS INFORMATION

SEE SPECIAL PROVISIONS FOR ADDITIONAL INFORMATION. THE LOCATION OF GEOTECHNICAL BORINGS IS SHOWN ON THE PLAN VIEW WITH THE FOLLOWING SYMBOL:

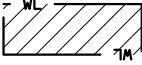
BORING NUMBER




(GEOTECHNICAL BORING)

WETLANDS

WETLANDS EXIST ADJACENT TO THE ROADWAY AND MAY EXIST BEYOND THE PROJECT LIMITS. WETLAND AREAS AND PERMANENT WETLAND IMPACT AREAS WITHIN THE PROJECT LIMITS HAVE BEEN DELINEATED AND ARE SHOWN ON THE PLANS. ANY ACTION IMPACTING WETLAND AREAS OUTSIDE OF THE PERMANENT IMPACT AREAS SHOWN IS THE RESPONSIBILITY OF THE CONTRACTOR.



DELINEATED WETLAND AREAS



PERMANENT WETLAND IMPACTED AREAS

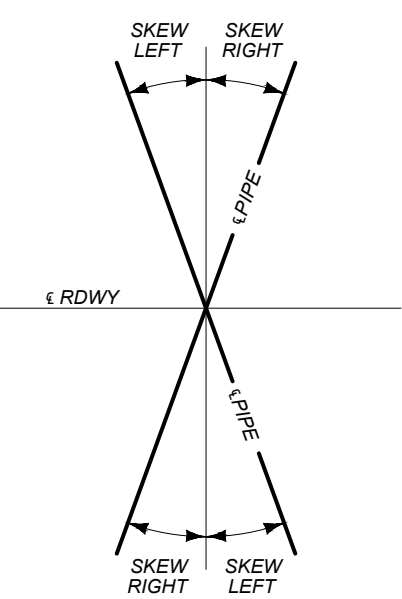
WETLAND SITE					
WETLAND DESIGNATION	STATION		WETLAND AREA (acres)		REMARKS
			DELINEATED AREA	PERMANENT IMPACTED AREA	
	FROM	TO			
WL-1 #	107+38	110+41	0.214	0.023	# RT.
TOTAL			0.21	0.02	

AREA OF EXISTING WETLAND MAY EXTEND BEYOND PLAN LIMITS.

APPROACHES (FOR INFORMATION ONLY)													
STATION	TYPE	linear feet				EXISTING SURFACING	feet		PROPOSED SURFACE	tons	cu. yards	gallons	REMARKS
		WIDTH	RADIUS #		LENGTH		PMS THK.	CAC THK.		COMMERCIAL PLANT MIX BIT. SURF. MISC.	CRUSHED AGG. COURSE	EMULSIFIED ASPHALT - TACK COAT	
			LEFT	RIGHT									
104+43	FARM FIELD	20	5, 16, 34	25, 50	79.1	GRAVEL	0.2	0.6	ASPHALT FOR 25'; GRAVEL TO END	15	31	6	R.T.
SUBTOTAL	FARM FIELD									15	31	6	

ALL RADII MEASURED TO FRONT OF GUTTER OR EDGE OF SHOULDER
M.O.C. - MEASURED ON CAD

SKEW DIAGRAM



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.

CLEARING AND GRUBBING

CLEAR AND GRUB TO CONSTRUCTION LIMITS. INCLUDE THE COST OF CLEARING AND GRUBBING IN THE UNIT PRICE BID FOR CLEARING AND GRUBBING

CENTERLINE COORDINATE TABLE - S-482_MAINLINE_RND				
STATION	DESCRIPTION	NORTHING OR Y COORDINATE	EASTING OR X COORDINATE	REMARKS
100+00.00	BOA	1,538,071.637	508,831.573	BEG. ALIGNMENT
102+76.18	POT	1,537,891.633	509,041.034	BEG. PROJECT
109+79.04	POT	1,537,433.534	509,574.098	END PROJECT
115+00.00	EOA	1,537,093.991	509,969.206	END ALIGNMENT

PROFILE NAME: S-482_MAINLINE

TABLE OF CONTENTS/NOTES

PROJECT NAME		S-482 REPAIR - S OF LIBBY	
COUNTY		LINCOLN	
PROJECT ID		STPS 482-1(10)2	
UPN		10760000	
DESIGNED BY	L. HARK	05/2026	
REVIEWED BY			
FIRST INITIAL LAST NAME	MM/YYYY		
CHECKED BY			
FIRST INITIAL LAST NAME	MM/YYYY		
			10760000RDTTL001.DWG



MONTANA
Department of Transportation

ROAD PLANS

CONTROL DIAGRAM

SCALE: N/A

NOTE:
THIS PROJECT IS ON THE MONTANA COORDINATE SYSTEM NAD83-2011
NORTHING AND EASTING COORDINATES ARE EXPRESSED IN UNITS OF
INTERNATIONAL FEET AND ELEVATIONS ARE IN UNITS OF U.S. SURVEY FEET.
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 0.99954052

BEARING SOURCE
GRID -- MONTANA COORDINATE SYSTEM NAD 83-2011


LEVEL DATUM SOURCE
NAVD88 (GNSS DERIVED ELEVATIONS USING GEOID18 AND HOLDING BMS B10760)



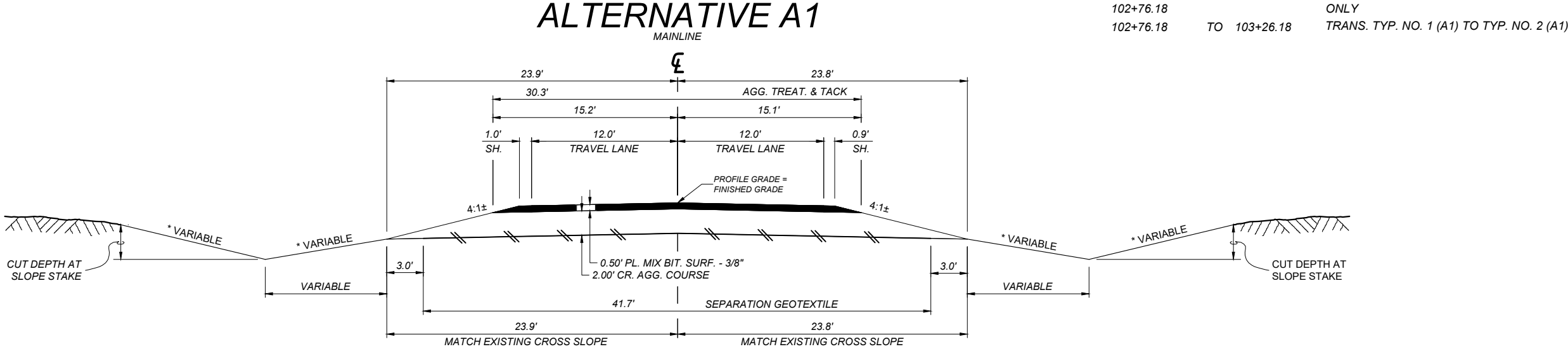
CONTROL ABSTRACT

POINT NAME/NUMBER	N OR Y COORDINATE	E OR X COORDINATE	POINT ELEVATION
A10760	1,537,551.065	509,403.620	2,370.03
B10760	1,537,744.288	509,172.490	2,361.99
C10760	1,538,474.985	508,398.621	2,353.81
D10760	1,536,600.790	510,513.200	2,453.50

CONTROL DIAGRAM

<div><div><div>MONTANA</div><div>Department of Transportation</div></div></div> <div>ROAD PLANS</div> <div>09/2026 11:33 AM</div>	DESIGNED BY		PROJECT NAME	
	L. HARK		S-482 REPAIR - S OF LIBBY	
	05/2026		COUNTY	
	LINCOLN		PROJECT ID	
	STPS 482-1(10)2		UPN	
10760000		10760000		
10760000RDBS001.DWG				

TYPICAL SECTION NO. 1
ALTERNATIVE A1



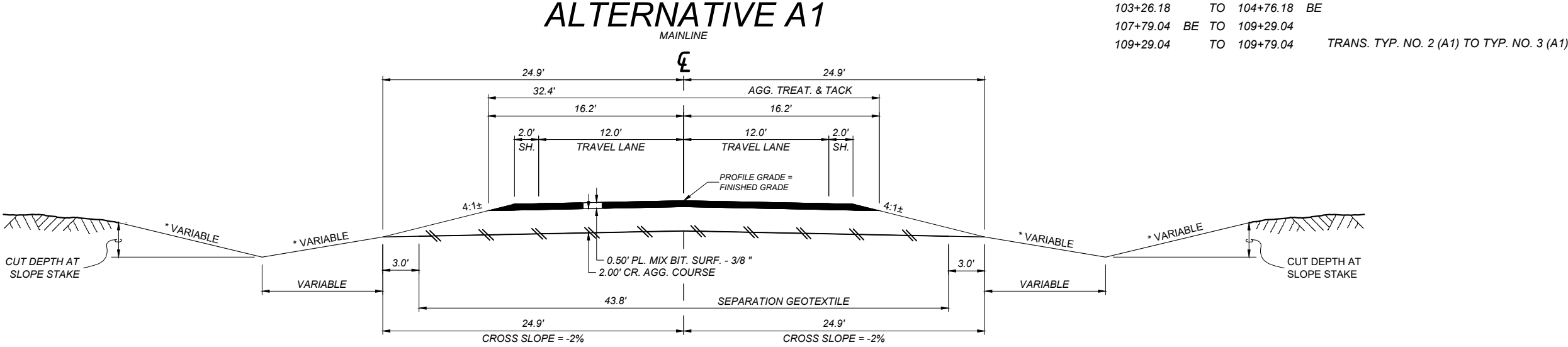
QUANTITIES					
UNIT	AGGREGATE		UNIT	BITUMINOUS MATERIAL	SEPARATION GEOTEXTILE ‡
	COMM. PLANT MIX 3/8"	CR. AGG. COURSE ‡		EMULSIFIED ASPHALT TACK*, ‡	
AREA square feet	14.05	78.00	square yards PER STATION	1011	463
cubic yards PER STATION	52.0	288.9	tons PER STATION	51	
tons PER STATION	100.2		gals. PER STATION		
square yards PER STATION					

* BASED ON 3 APPLICATIONS

‡ CR. AGG. COURSE, SEPARATION GEOTEXTILE, EMULSIFIED ASPHALT TACK ARE BASE BID ITEMS. THE QUANTITIES DO NOT CHANGE BETWEEN ALTERNATE A1 AND ALTERNATE A2.

*SEE CROSS SECTIONS FOR SLOPES

TYPICAL SECTION NO. 2
ALTERNATIVE A1



QUANTITIES					
UNIT	AGGREGATE		UNIT	BITUMINOUS MATERIAL	SEPARATION GEOTEXTILE ‡
	COMM. PLANT MIX 3/8"	CR. AGG. COURSE ‡		EMULSIFIED ASPHALT TACK*, ‡	
AREA square feet	15.10	82.20	square yards PER STATION	1080	487
cubic yards PER STATION	55.9	304.4	tons PER STATION	54	
tons PER STATION	107.7		gals. PER STATION		
square yards PER STATION					

* BASED ON 3 APPLICATIONS

‡ CR. AGG. COURSE, SEPARATION GEOTEXTILE, EMULSIFIED ASPHALT TACK ARE BASE BID ITEMS. THE QUANTITIES DO NOT CHANGE BETWEEN ALTERNATE A1 AND ALTERNATE A2.

SHEET NO.

4

TYPICAL SECTIONS

PROJECT NAME S-482 REPAIR - S OF LIBBY

COUNTY LINCOLN

PROJECT ID STPS 482-1(10)2

UPN 10760000

DESIGNED BY L. HARK

05/2026

REVIEWED BY

FIRST INITIAL LAST NAME MM/YYYY

CHECKED BY

FIRST INITIAL LAST NAME MM/YYYY

10760000RDTYP001.DWG



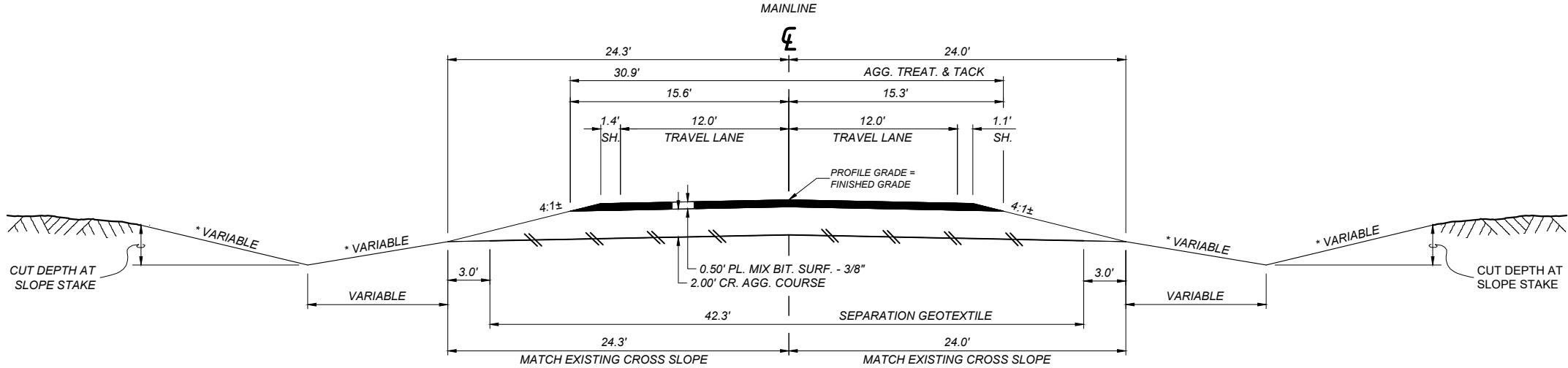
ROAD PLANS

6/9/2026 11:33 AM

TYPICAL SECTION NO. 3
ALTERNATIVE A1

109+79.04

ONLY



QUANTITIES					
UNIT	AGGREGATE		UNIT	BITUMINOUS MATERIAL EMULSIFIED ASPHALT TACK* ‡	SEPARATION GEOTEXTILE ‡
	COMM. PLANT MIX 3/8"	CR. AGG. COURSE ‡			
AREA square feet	14.35	79.20	square yards PER STATION	1030	470
cubic yards PER STATION	53.1	293.3	tons PER STATION	52	
tons PER STATION	102.4		gals. PER STATION		
square yards PER STATION					

* BASED ON 3 APPLICATIONS

‡ CR. AGG. COURSE, SEPARATION GEOTEXTILE, EMULSIFIED ASPHALT TACK ARE BASE BID ITEMS. THE QUANTITIES DO NOT CHANGE BETWEEN ALTERNATE A1 AND ALTERNATE A2.

*SEE CROSS SECTIONS
FOR SLOPES

TYPICAL SECTION NO. 1
ALTERNATIVE A2

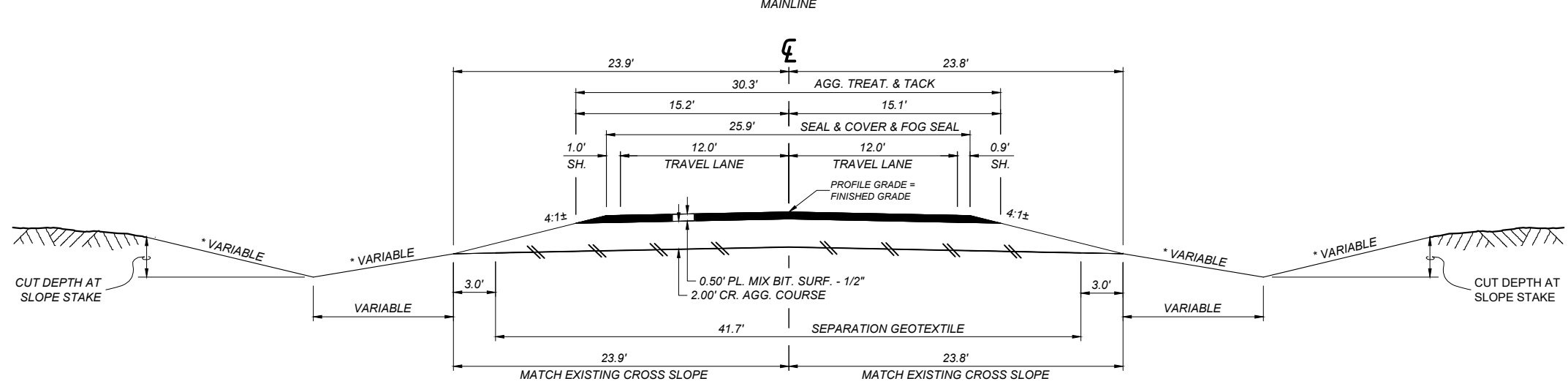
102+76.18

ONLY

102+76.18

TO 103+26.18

TRANS. TYP. NO. 1 (A2) TO TYP. NO. 2 (A2)



QUANTITIES								
UNIT	AGGREGATE			UNIT	BITUMINOUS MATERIAL			SEPARATION GEOTEXTILE ‡
	COVER	COMM. PLANT MIX 1/2"	CR. AGG. COURSE ‡		EMULSIFIED ASPHALT SEAL	EMULSIFIED ASPHALT TACK* ‡	EMULSIFIED ASPHALT FOG SEAL	
AREA square feet		14.05	78.00	square yards PER STATION	288	1011	288	463
cubic yards PER STATION		52.0	288.9	tons PER STATION	0.51	51	22	
tons PER STATION		100.2		gals. PER STATION				
square yards PER STATION	288							

* BASED ON 3 APPLICATIONS

‡ CR. AGG. COURSE, SEPARATION GEOTEXTILE, EMULSIFIED ASPHALT TACK ARE BASE BID ITEMS. THE QUANTITIES DO NOT CHANGE BETWEEN ALTERNATE A1 AND ALTERNATE A2.

TYPICAL SECTIONS

PROJECT NAME S-482 REPAIR - S OF LIBBY

COUNTY LINCOLN

PROJECT ID STPS 482-1(10)2

UPN 10760000

DESIGNED BY L. HARK

REVIEWED BY

FIRST INITIAL LAST NAME MM/YYYY

CHECKED BY

FIRST INITIAL LAST NAME MM/YYYY

10760000RDTYP001.DWG

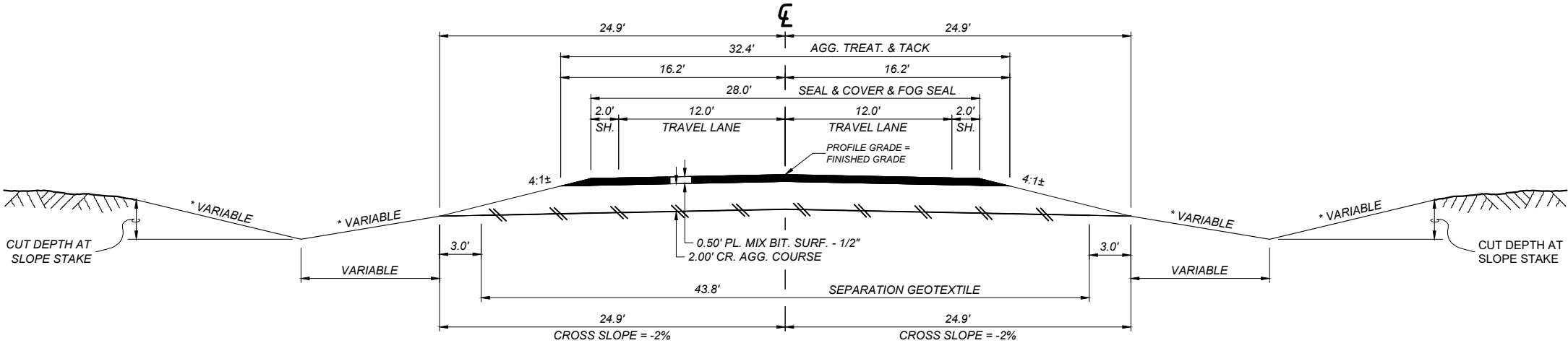
MONTANA
Department of Transportation

ROAD PLANS

6/9/2026 11:33 AM

TYPICAL SECTION NO. 2
ALTERNATIVE A2
MAINLINE

103+26.18 TO 104+76.18 BE
107+79.04 BE TO 109+29.04
109+29.04 TO 109+79.04 TRANS. TYP. NO. 2 (A2) TO TYP. NO. 3 (A2)



QUANTITIES							
UNIT	AGGREGATE			UNIT	BITUMINOUS MATERIAL		
	COVER	COMM. PLANT MIX 1/2"	CR. AGG. COURSE ‡		EMULSIFIED ASPHALT SEAL	EMULSIFIED ASPHALT TACK* ‡	SEPARATION GEOTEXTILE ‡
AREA square feet		15.10	82.20	square yards PER STATION	311	1080	487
cubic yards PER STATION		55.9	304.4	tons PER STATION	0.56	54	
tons PER STATION		107.7		gals. PER STATION		23	
square yards PER STATION	311						

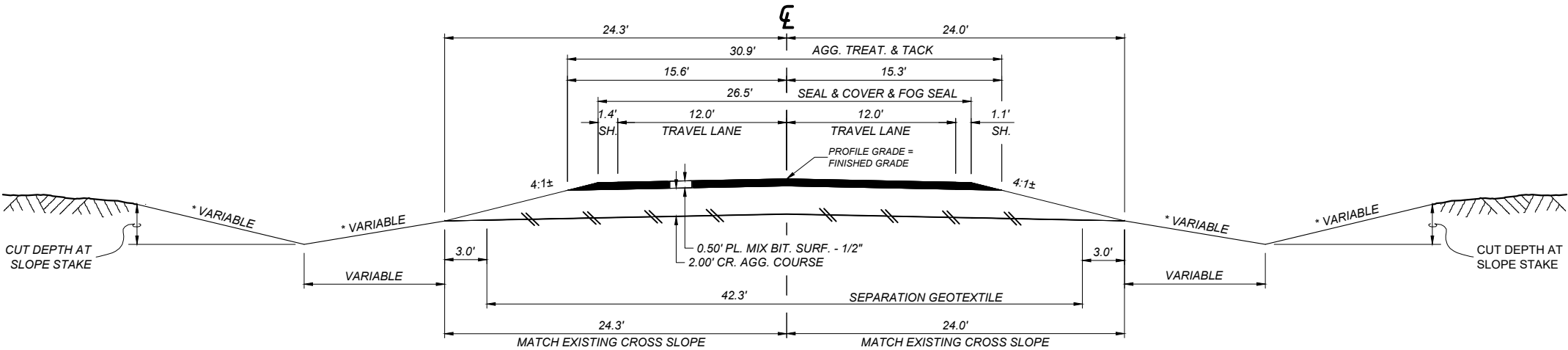
* BASED ON 3 APPLICATIONS

‡ CR. AGG. COURSE, SEPARATION GEOTEXTILE, EMULSIFIED ASPHALT TACK ARE BASE BID ITEMS. THE QUANTITIES DO NOT CHANGE BETWEEN ALTERNATE A1 AND ALTERNATE A2.

*SEE CROSS SECTIONS FOR SLOPES

TYPICAL SECTION NO. 3
ALTERNATIVE A2
MAINLINE

109+79.04 ONLY



QUANTITIES							
UNIT	AGGREGATE			UNIT	BITUMINOUS MATERIAL		
	COVER	COMM. PLANT MIX 1/2"	CR. AGG. COURSE ‡		EMULSIFIED ASPHALT SEAL	EMULSIFIED ASPHALT TACK* ‡	SEPARATION GEOTEXTILE ‡
AREA square feet		14.35	79.20	square yards PER STATION	294	1030	470
cubic yards PER STATION		53.1	293.3	tons PER STATION	0.52	52	
tons PER STATION		102.4		gals. PER STATION		22	
square yards PER STATION	294						

* BASED ON 3 APPLICATIONS

‡ CR. AGG. COURSE, SEPARATION GEOTEXTILE, EMULSIFIED ASPHALT TACK ARE BASE BID ITEMS. THE QUANTITIES DO NOT CHANGE BETWEEN ALTERNATE A1 AND ALTERNATE A2.

SHEET NO.

6

TYPICAL SECTIONS

PROJECT NAME S-482 REPAIR - S OF LIBBY

COUNTY LINCOLN

PROJECT ID STPS 482-1(10)2

UPN 10760000

DESIGNED BY L. HARK

05/2026

REVIEWED BY

FIRST INITIAL LAST NAME MM/YYYY

CHECKED BY

FIRST INITIAL LAST NAME MM/YYYY

10760000RDTYP001.DWG



ROAD PLANS

6/9/2026 11:33 AM

SUMMARY

EMBANKMENT PROTECTORS								
STATION		linear feet				sq. yards	cu. yards	REMARKS
		EMBANKMENT PROTECTOR		CONCRETE CURB 4"		GEOTEXTILE	ANCILLARY ARMOR	
						PERM. EROS. CNTRL.		
FROM	TO	LEFT	RIGHT	LEFT	RIGHT	HIGH SURV. CLASS B	CLASS 1	
104+30		34				15	3	
108+20		48	44			30	6	
104+26.83	104+74.85			48				
107+80.38	108+57.67			78				
107+80.38	108+57.67				78			
SUBTOTAL		82	44	126	78	45	9	
TOTAL		126		204		45	9	

BRIDGE END BACKFILL #					
STATION		cu. yards	sq. yards	linear feet	REMARKS
		BRIDGE END BACKFILL TYPE 1	SEPARATION GEOTEXTILE - HIGH SURVIVABILITY	CORRUGATED POLYETHYLENE PIPE 8 IN **	
FROM	TO				
104+27.83	104+76.18 B.E.	337	339		BRIDGE END BENT #1
104+52.75	104+73.18			78*	
107+79.04 B.E.	108+46.60	639	590		BRIDGE END BENT #4
107+82.04				70	PERF. POLY. DRAIN AT BENT #4
TOTAL		976	929	148	

SEE SPECIAL PROVISION AND DETAIL.
* PIPE INCLUDES ONE 45° BEND AT STATION 104+73
** WITH RODENT GUARD ON OUTLETS

ADDITIONAL GRADING					
STATION		cu. yards		ADD. UNCL. EXC.	REMARKS
		INCL. IN ROADWAY			
		UNCL. EXC.	EMB.+		
FROM	TO				
102+76.18	109+79.04		300		TOPSOIL REPLACEMENT =20%
103+51.86	104+74.85		30		GUARDRAIL EMB. WIDENING LT.
104+26.83	104+74.85		5		EMBANKMENT PROTECTOR WIDENING/GRADING LT.
104+27.83	104+76.18 B.E.	340			BRIDGE END BACKFILL - BENT # 1
104+43		15	145		FARM FIELD APP. RT.
104+61.85	104+74.85		10		IMPACT ATTENUATOR EMB. WIDENING RT.
104+78	105+14		560		RIPRAP NORTHWEST EMB. REPLACE
107+40	108+05		770		RIPRAP SOUTH EMB. REPLACEMENT
107+53	108+05	650	100		BRIDGE ABUTMENT SLOPE UNCL. EXC. & EMB. REPLACE
107+79.04 B.E.	108+46.60	640			BRIDGE END BACKFILL - BENT # 4
107+80.38	109+65.89		35		GUARDRAIL EMB. WIDENING LT.
107+80.38	109+03.37		20		GUARDRAIL EMB. WIDENING RT.
108+16.83	108+57.67		10		EMBANKMENT PROTECTOR WIDENING/GRADING LT. & RT.
TOTAL		~	~	~	

PROJECT NAME
S-482 REPAIR - S OF LIBBY
COUNTY

LINCOLN

STPS 482-1(10)2

10760000



ROAD PLANS

SUMMARY - BASE BID ITEMS

SHEET NO.

9

SUMMARY

PAVEMENT MARKINGS				
ITEM	UNIT	INTERIM APPLICA-TION #	FINAL APPLICA-TION	TOTAL
STRIPING - WHITE EPOXY	gallon		6	6
STRIPING - YELLOW EPOXY	gallon		6	6
TEMPORARY STRIPING	linear feet			1,600

BASED ON 1 APPLICATION. INTERIM PAINT WILL BE REQUIRED IF THE CHIP SEAL ISN'T COMPLETED UNTIL 2027.

REVEGETATION							
STATION		lump sum	cu. yards	acres		sq. yds	REMARKS
		REVEGE-TATION	TOPSOIL SALVAGING & PLACING	SEED	FERTILIZER	MULCH	
FROM	TO						
102+76	109+79	1.0	247	0.4	0.4	0.4	416
TOTAL		1	# 247	# 0.4	# 0.4	# 0.4	# 416

FOR INFORMATION ONLY

RUMBLE STRIPS			
STATION		miles	gals
		SINUSOIDAL RUMBLE STRIPS	EMULSIFIED ASPHALT FOG SEAL #
FROM	TO	CENTERLINE	
102+76.18	104+76.18 B.E.	0.04	4
107+79.04 B.E.	109+79.04	0.04	4
SUBTOTAL		0.08	8
TOTAL		0.1	~

FOR INFORMATION ONLY, INCLUDE IN THE COST OF RUMBLE STRIPS

CLEARING & GRUBBING		
STATION		LUMP SUM
		CLEARING AND GRUBBING
FROM	TO	
102+76	109+79	1.0
TOTAL		1.0

BIO-ENGINEERED BANK *										
STATION	lump sum	cu. yards			square yards		linear feet	acres	each	REMARKS
	BIO-ENGINEERED BANK	TOPSOIL	FLOODPLAIN BACKFILL	FILTER MATERIAL NO. 2	COIR NETTING	EROSION CONTROL BLANKET - LONG TERM	20" COIR LOGS	SEEDING	WILLOW CUTTINGS	
107+19	1	118	25	1,205	487	1,139	149	0.13	1,489	SOUTHEAST BANK
TOTAL	1	# 118	# 25	# 1,205	# 487	# 1,139	# 149	# 0.13	# 1,489	

* THE BIO-ENGINEERED BANK LS PAY ITEM INCLUDES THE FLOODPLAIN BENCH QUANTITIES - SEE DETAIL AND SPECIAL PROVISION
FOR INFORMATION ONLY

CULVERTS		
STATION	CULVERT IN PL. in x ft	REMARKS
102+70	24" X 109' CMP DR. IN PL.	DO NOT DISTURB
TOTAL		~

PROJECT NAME S-482 REPAIR - S OF LIBBY

COUNTY

LINCOLN

PROJECT ID

STPS 482-1(10)2

UPN

10760000

DESIGNED BY	05/2026
L. HARK	
REVIEWED BY	MM/YYYY
FIRST INITIAL LAST NAME	
CHECKED BY	MM/YYYY
FIRST INITIAL LAST NAME	
10760000RDSUM001.DWG	

SUMMARY - ALTERNATIVES A1 & A2

SHEET NO.

10

SUMMARY

SURFACING - ALTERNATIVE A1								
STATION		linear feet				FOR	AGGREGATE	REMARKS
		GROSS	NET	+	-		tons	
							COMMERCIAL PLANT MIX - 3/8" PG 58H-34	
FROM	TO							
102+76.18	103+26.18	50.00	50.00				52	TRANS. TYP. NO. 1 (A1) TO TYP. NO. 2 (A1)
103+26.18								
104+76.18 B.E.	107+79.04 B.E.				302.86	BRIDGE		
	109+29.04	602.86	300.00				323	TYP. NO. 2 (A1)
109+29.04	109+79.04	50.00	50.00				53	TRANS. TYP. NO. 2 (A1) TO TYP. NO. 3 (A1)
TOTAL		702.86	400.00	~	302.86		428	

SURFACING - ALTERNATE A2											
STATION		linearfeet				FOR	AGGREGATE		BITUMINOUS MATERIAL		REMARKS
		GROSS	NET	+	-		sq. yards	tons	tons	gals.	
							COVER TYPE 1	COMMERCIAL PLANT MIX - 1/2" PG 58H-34	EMULSIFIED ASPHALT CHFRS-2P	EMULSIFIED ASPHALT FOG SEAL	
FROM	TO										
102+76.18	103+26.18	50.00	50.00				150	52	0.3	11	TRANS. TYP. NO. 1 (A2) TO TYP. NO. 2 (A2)
103+26.18											
104+76.18 B.E.	107+79.04 B.E.				302.86	BRIDGE					
	109+29.04	602.86	300.00				933	323	1.7	69	TYP. NO. 2 (A2)
109+29.04	109+79.04	50.00	50.00				151	53	0.3	11	TRANS. TYP. NO. 2 (A2) TO TYP. NO. 3 (A2)
TOTAL		702.86	400.00	~	302.86		1,234	428	2.3	91	

PAVEMENT MARKINGS - ALTERNATE A2				
ITEM	UNIT	INTERIM APPLICA- TION #	FINAL APPLICA- TION	TOTAL
STRIPING - WHITE PAINT	gallon	5		5
STRIPING - YELLOW PAINT	gallon	5		5

BASED ON 1 APPLICATION. INTERIM PAINT WILL BE REQUIRED IF THE CHIP SEAL ISN'T COMPLETED UNTIL 2027.

PROJECT NAME S-482 REPAIR - S OF LIBBY

COUNTY LINCOLN

PROJECT ID STPS 482-1(10)2

UPN 10760000

DESIGNED BY

L. HARK 05/2026

REVIEWED BY

FIRST INITIAL LAST NAME MM/YYYY

CHECKED BY

FIRST INITIAL LAST NAME MM/YYYY

10760000RDSUM001.DWG



ROAD PLANS

6/9/2026 11:34 AM

LIBBY CREEK
RIPRAP/BIO-ENGINEERED
BANK LAYOUT

PROJECT NAME
S-482 REPAIR - S OF LIBBY

COUNTY
LINCOLN

PROJECT ID
STPS 482-1(10)2

UPN
10760000

DESIGNED BY
K. BERGERON

4/30/2026

REVIEWED BY
C. KNUTH

5/1/2026

CHECKED BY
C. KNUTH

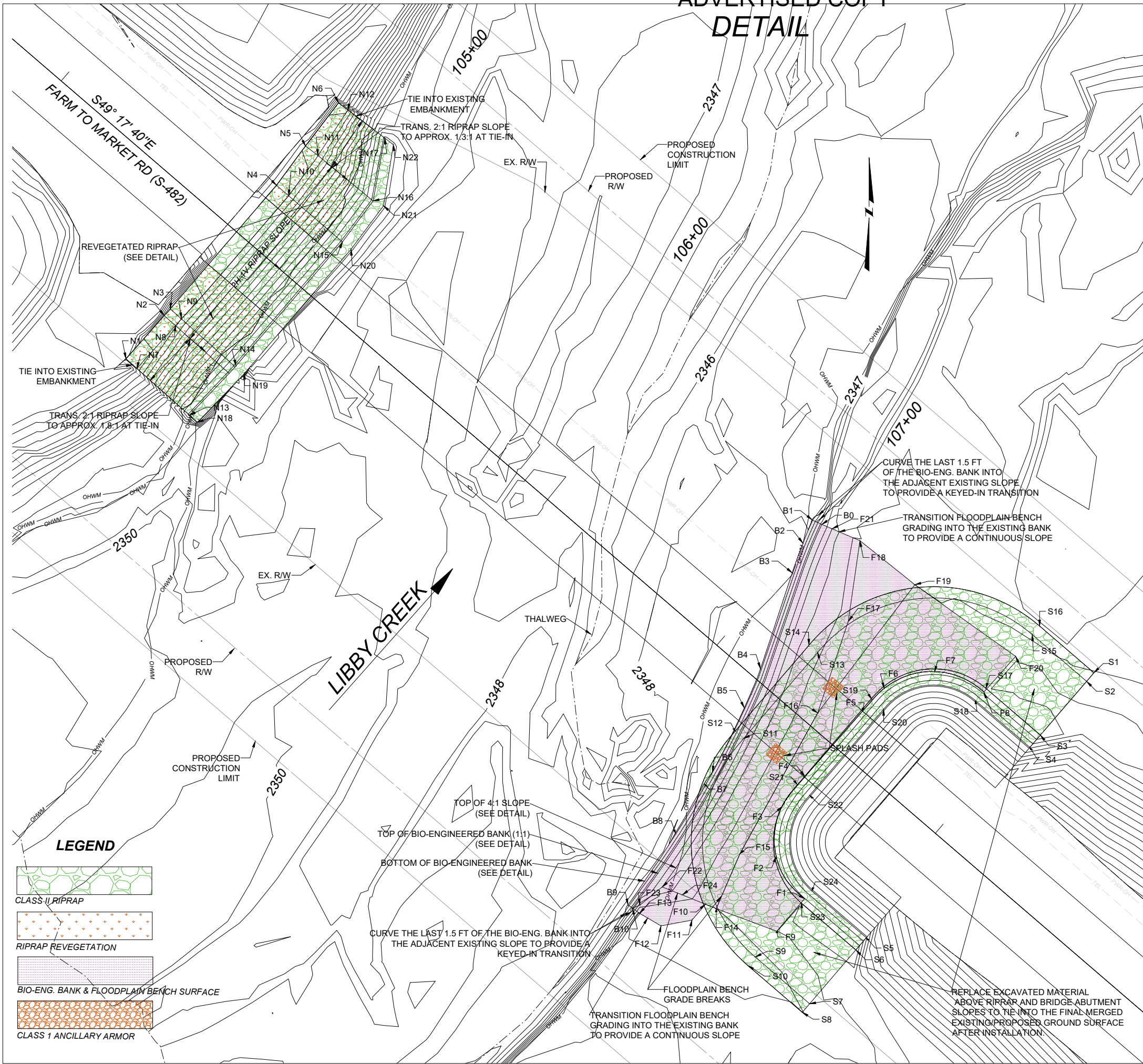
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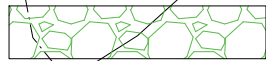
MONTANA
Department of Transportation

HYDRAULICS PLANS

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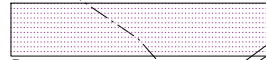
LEGEND



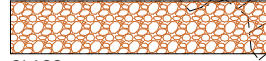
CLASS II RIPRAP



RIPRAP REVEGETATION



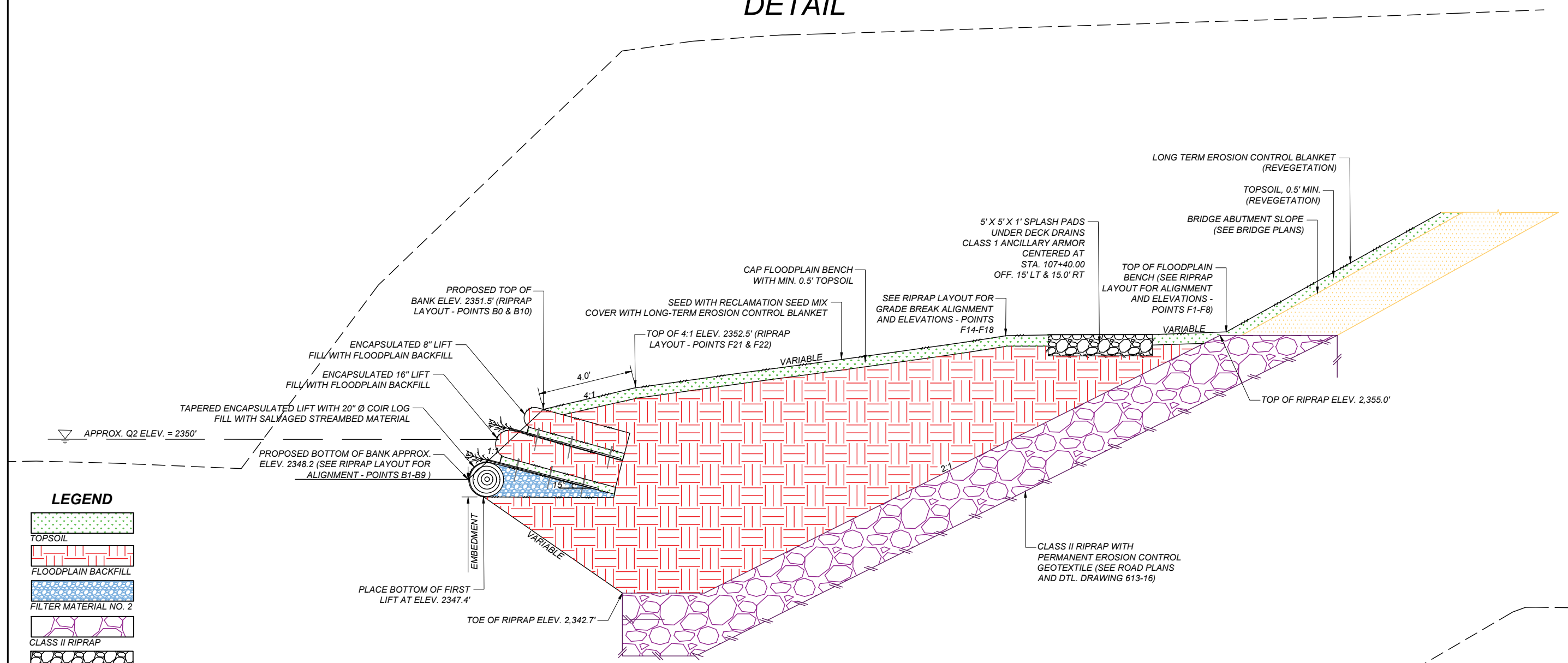
BIO-ENG. BANK & FLOODPLAIN BENCH SURFACE



CLASS 1 ANCILLARY ARMOR

POINT NUMBER	W O R Y COORDINATE	E O R X COORDINATE	ELEVATION	REMARKS
S1	1,537,605.542	509,493.029	2,342.70	TOP OF KEY
S2	1,537,602.576	509,490.481	2,342.70	TOP OF KEY
S3	1,537,583.919	509,474.448	2,355.00	TOP OF SLOPE
S4	1,537,579.679	509,470.804	2,355.00	TOP OF RIPRAP
S5	1,537,513.672	509,414.079	2,355.00	TOP OF RIPRAP
S6	1,537,509.433	509,410.436	2,355.00	TOP OF SLOPE
S7	1,537,490.776	509,394.403	2,342.70	TOP OF KEY
S8	1,537,487.810	509,391.854	2,342.70	TOP OF KEY
S9	1,537,507.000	509,375.529	2,342.70	TOP OF KEY
S10	1,537,504.030	509,372.980	2,342.70	TOP OF KEY
S11	1,537,582.731	509,371.518	2,342.70	TOP OF KEY
S12	1,537,585.279	509,368.553	2,342.70	TOP OF KEY
S13	1,537,612.550	509,397.144	2,342.70	TOP OF KEY
S14	1,537,615.099	509,394.179	2,342.70	TOP OF KEY
S15	1,537,618.785	509,471.619	2,342.70	TOP OF KEY
S16	1,537,621.751	509,474.167	2,342.70	TOP OF KEY
S17	1,537,600.128	509,455.585	2,355.00	TOP OF SLOPE
S18	1,537,595.889	509,451.942	2,355.00	TOP OF RIPRAP
S19	1,537,596.517	509,415.801	2,355.00	TOP OF SLOPE
S20	1,537,592.874	509,420.041	2,355.00	TOP OF RIPRAP
S21	1,537,566.698	509,390.175	2,355.00	TOP OF SLOPE
S22	1,537,563.054	509,394.414	2,355.00	TOP OF RIPRAP
S23	1,537,525.653	509,391.562	2,355.00	TOP OF SLOPE
S24	1,537,529.892	509,395.205	2,355.00	TOP OF RIPRAP
F1	1,537,527.198	509,392.673	2,355.96	TOP OF FLOODPLAIN BENCH
F2	1,537,541.821	509,382.825	2,355.28	TOP OF FLOODPLAIN BENCH
F3	1,537,559.104	509,384.812	2,355.03	TOP OF FLOODPLAIN BENCH
F4	1,537,569.493	509,392.754	2,355.08	TOP OF FLOODPLAIN BENCH
F5	1,537,592.230	509,412.737	2,355.28	TOP OF FLOODPLAIN BENCH
F6	1,537,600.152	509,420.272	2,355.33	TOP OF FLOODPLAIN BENCH
F7	1,537,605.962	509,437.757	2,355.47	TOP OF FLOODPLAIN BENCH
F8	1,537,598.846	509,454.849	2,355.74	TOP OF FLOODPLAIN BENCH
F9	1,537,515.916	509,383.005	~2355.99	FLOODPLAIN LIMIT
F10	1,537,525.274	509,358.277	~2354.656	FLOODPLAIN LIMIT
F11	1,537,519.812	509,353.622	~2354.335	FLOODPLAIN LIMIT
F12	1,537,517.797	509,342.843	~2354.622	FLOODPLAIN LIMIT
F13	1,537,522.166	509,335.348	~2354.904	FLOODPLAIN LIMIT
F14	1,537,523.761	509,362.017	2,355.00	FLOODPLAIN BENCH GRADE BREAK
F15	1,537,542.813	509,370.223	2,355.00	FLOODPLAIN BENCH GRADE BREAK
F16	1,537,591.633	509,397.213	2,355.00	FLOODPLAIN BENCH GRADE BREAK
F17	1,537,623.346	509,407.792	2,354.50	FLOODPLAIN BENCH GRADE BREAK
F18	1,537,651.367	509,411.841	~2354.5	FLOODPLAIN BENCH GRADE BREAK
F19	1,537,636.097	509,430.901	~2355	FLOODPLAIN LIMIT
F20	1,537,611.223	509,465.870	~2355.698	FLOODPLAIN LIMIT
F21	1,537,655.466	509,402.211	~2352.5	TOP OF 4:1 SLOPE
F22	1,537,531.221	509,343.247	2,352.50	TOP OF 4:1 SLOPE
F23	1,537,524.996	509,335.565	2,353.50	4:1 TRANSITION TO EX. GROUND
F24	1,537,528.520	509,350.254	2,353.50	FLOODPLAIN BENCH GRADE BREAK
B0	1,537,656.988	509,398.632	2,351.50	TOP OF BANK (1:1)
B1	1,537,658.563	509,395.300	2,348.20	BOTTOM OF BIO-ENG. BANK
B2	1,537,650.494	509,392.075	2,348.20	BOTTOM OF BIO-ENG. BANK
B3	1,537,640.205	509,388.379	2,348.20	BOTTOM OF BIO-ENG. BANK
B4	1,537,606.989	509,377.342	2,348.20	BOTTOM OF BIO-ENG. BANK
B5	1,537,593.392	509,371.750	2,348.20	BOTTOM OF BIO-ENG. BANK
B6	1,537,571.161	509,360.717	2,348.20	BOTTOM OF BIO-ENG. BANK
B7	1,537,567.113	509,357.795	2,348.20	BOTTOM OF BIO-ENG. BANK
B8	1,537,549.971	509,347.839	2,348.20	BOTTOM OF BIO-ENG. BANK
B9	1,537,525.042	509,331.397	2,348.20	BOTTOM OF BIO-ENG. BANK
B10	1,537,523.903	509,332.956	2,351.50	TOP OF BANK (1:1)
N1	1,537,714.432	509,157.258	2356.55	TOP OF RIPRAP
N2	1,537,729.383	509,170.542	2355.23	TOP OF RIPRAP
N3	1,537,731.710	509,172.592	2355.00	TOP OF RIPRAP
N4	1,537,774.595	509,209.470	2355.00	TOP OF RIPRAP
N5	1,537,788.206	509,219.545	2355.00	TOP OF RIPRAP
N6	1,537,803.200	509,231.004	2355.00	TOP OF RIPRAP
N7	1,537,711.083	509,161.026	2356.55	TOP OF SLOPE
N8	1,537,725.925	509,174.421	2355.16	TOP OF SLOPE
N9	1,537,728.288	509,176.553	2355.00	TOP OF SLOPE
N10	1,537,770.969	509,213.697	2355.00	TOP OF SLOPE
N11	1,537,784.897	509,223.876	2355.00	TOP OF SLOPE
N12	1,537,800.709	509,234.265	2355.00	TOP OF SLOPE
N13	1,537,694.861	509,179.285	2342.70	TOP OF KEY
N14	1,537,711.973	509,195.440	2342.70	TOP OF KEY
N15	1,537,754.917	509,232.352	2342.70	TOP OF KEY
N16	1,537,769.165	509,242.971	2342.70	TOP OF KEY
N17	1,537,790.960	509,247.024	2342.70	TOP OF KEY
N18	1,537,692.395	509,182.060	2342.70	TOP OF KEY
N19	1,537,709.417	509,198.440	2342.70	TOP OF KEY
N20	1,537,752.384	509,235.323	2342.70	TOP OF KEY
N21	1,537,767.507	509,246.634	2342.70	TOP OF KEY
N22	1,537,788.669	509,250.021	2342.70	TOP OF KEY

*SEE BIO-ENGINEERED BANK AND RIPRAP REVEGETATION DETAIL



FLOODPLAIN BENCH AND BIO-ENGINEERED BANK - SOUTHEAST BANK

NOTE:

THIS DETAIL IS TO BE USED AS A VISUAL GUIDE FOR RIPRAP REVEGETATION, ABUTMENT SLOPE REVEGETATION, THE FLOODPLAIN BENCH AND BIOENGINEERED BANK. REFER TO THE PLAN SHEETS AND CROSS SECTIONS FOR SPECIFIC GEOMETRIC CONFIGURATION OF THE RIPRAP LAYOUT.

FOR RIPRAP REVEGETATION, FILL RIPRAP VOIDS WITH FILTER MATERIAL NO. 2, OR A MATERIAL OF SIMILAR GRADATION OBTAINED ON SITE TO PROVIDE A UNIFORM SURFACE FOR THE PLACEMENT OF TOPSOIL, AS APPROVED BY THE PROJECT ENGINEER.

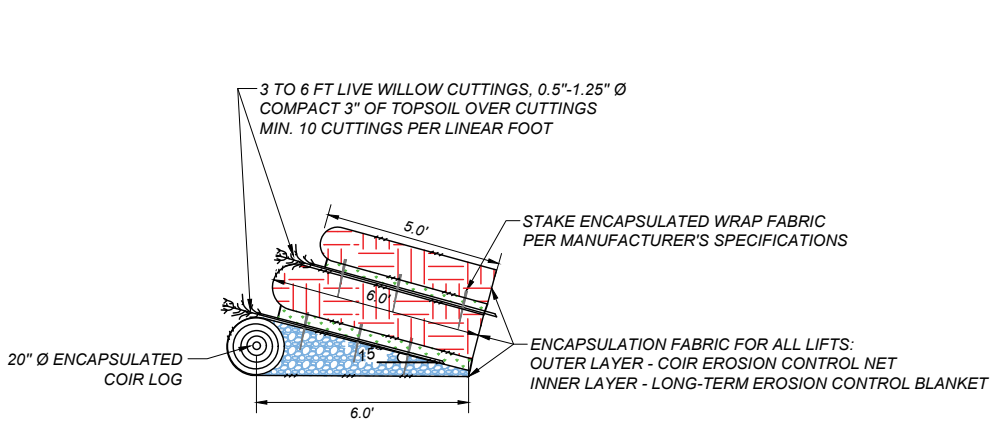
REFER TO THE SPECIAL PROVISIONS FOR PLANTING AND SEEDING SPECIFICATIONS.

SPLASH PAD OFFSET MAY BE ADJUSTED IN THE FIELD TO ALIGN CENTER WITH DECK DRAIN OUTLET.

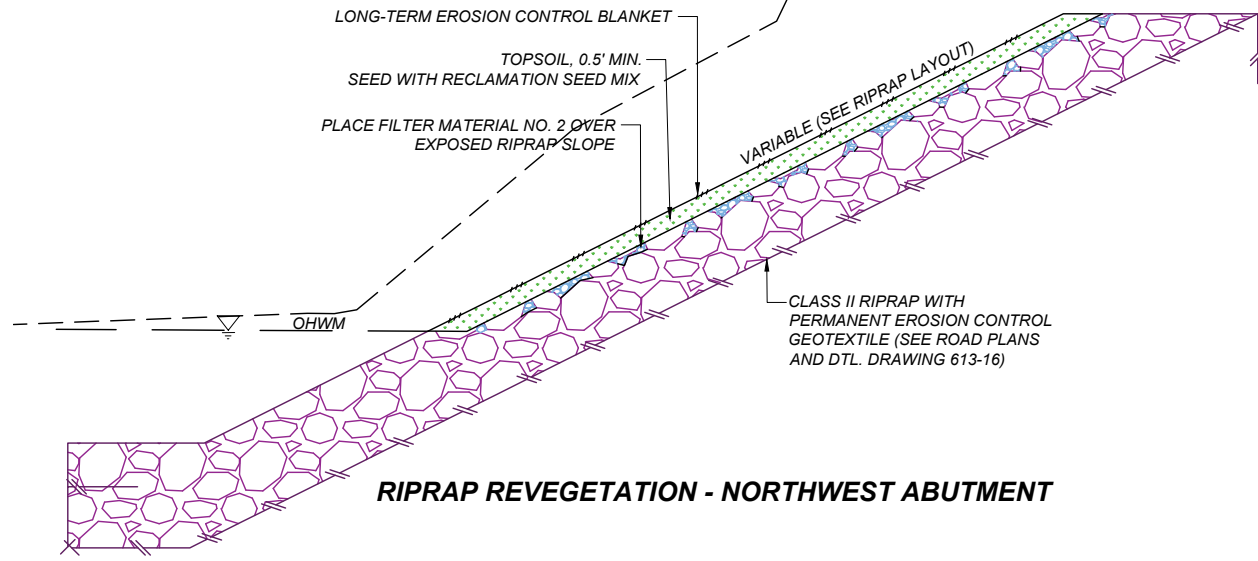
FLOODPLAIN BENCH QUANTITIES ARE INCLUDED IN THE BIO-ENGINEERED BANK LUMP SUM PAY ITEM.

ABUTMENT SLOPE REVEGETATION AND RIPRAP REVEGETATION QUANTITIES ARE EXCLUDED FROM THE BIO-ENGINEERED BANK LUMP SUM PAY ITEM AND SHALL BE PAID UNDER THEIR RESPECTIVE PAY ITEM.

EXCAVATION FOR RIPRAP, BIO-ENGINEERED BANK AND FLOODPLAIN BENCH IS INCLUDED IN THE COST OF RIPRAP AND BIO-ENGINEERED BANK, AND NOT MEASURED FOR PAYMENT.



BIO-ENGINEERED BANK - TYPICAL SECTION



RIPRAP REVEGETATION - NORTHWEST ABUTMENT

RIPRAP THICKENED
EDGE DETAIL

PROJECT NAME
S-482 REPAIR - S OF LIBBY

COUNTY

LINCOLN

PROJECT ID

STPS 482-1(10)2

UPN

10760000

DESIGNED BY

L. HARK

REVIEWED BY

MM/YYYY

CHECKED BY

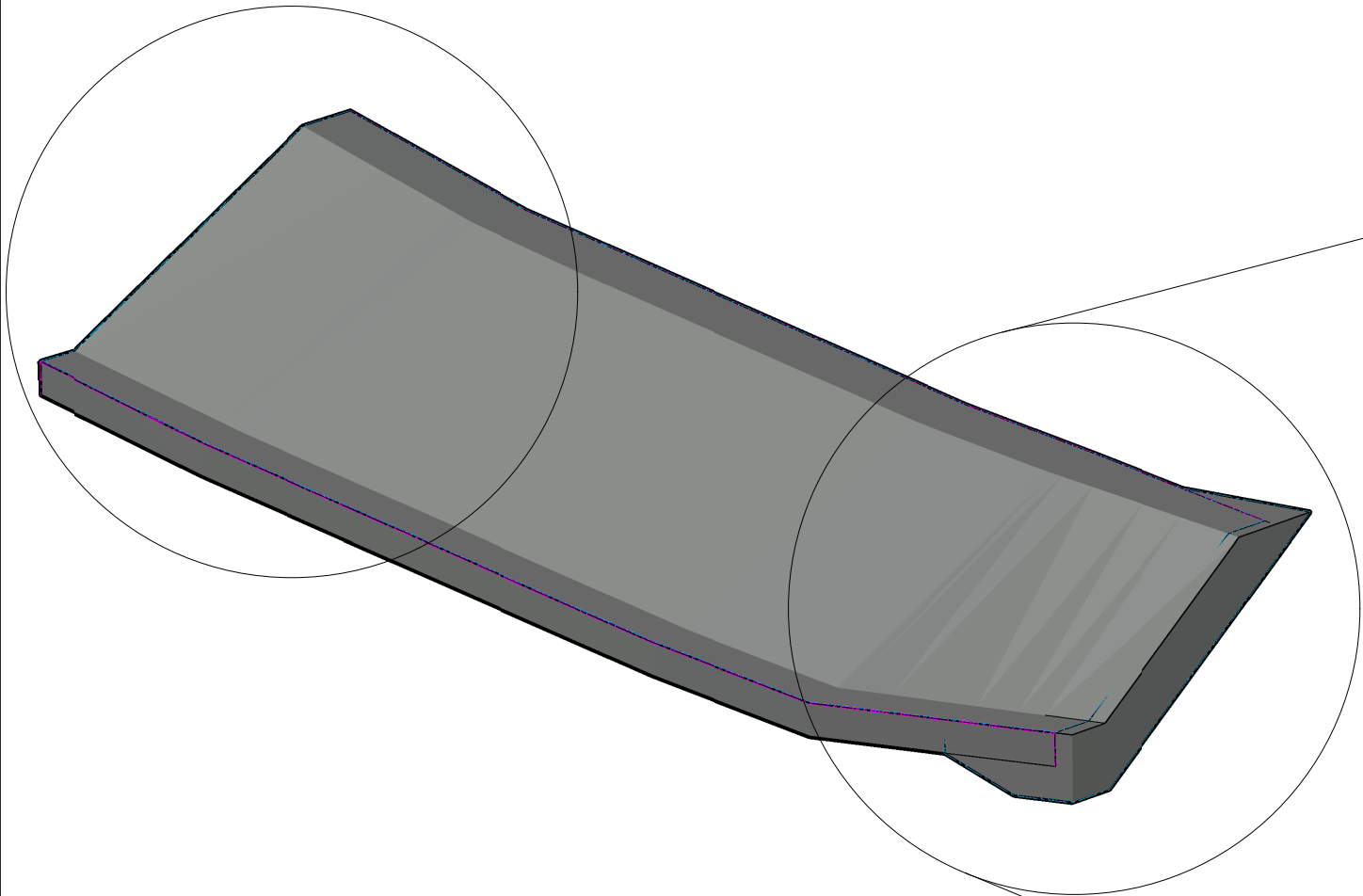
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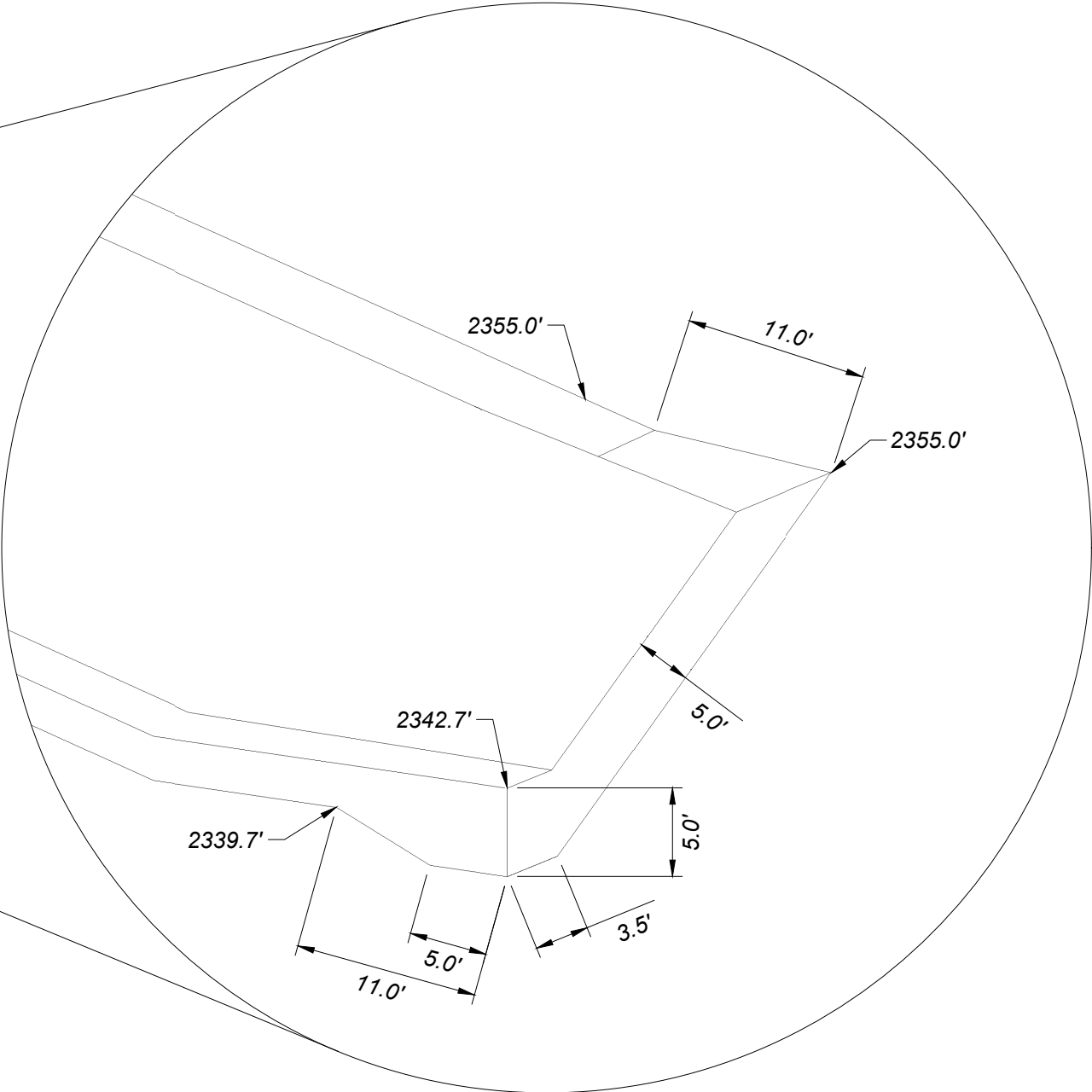


ROAD PLANS

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NORTHWESTERN BANK RIPRAP SHAPE
(3-D ISOMETRIC VIEW)
NOT TO SCALE



NOTE: NORTH END SHOWN. REVERSE
FOR SOUTH END

30-YR BRIDGE END
PAVEMENT DETAIL

PROJECT NAME
S-482 REPAIR - S OF LIBBY

COUNTY
LINCOLN

PROJECT ID
STPS 482-1(10)2

UPN
10760000

DESIGNED BY
L. HARK

05/2026

REVIEWED BY
FIRST INITIAL LAST NAME MM/YYYY

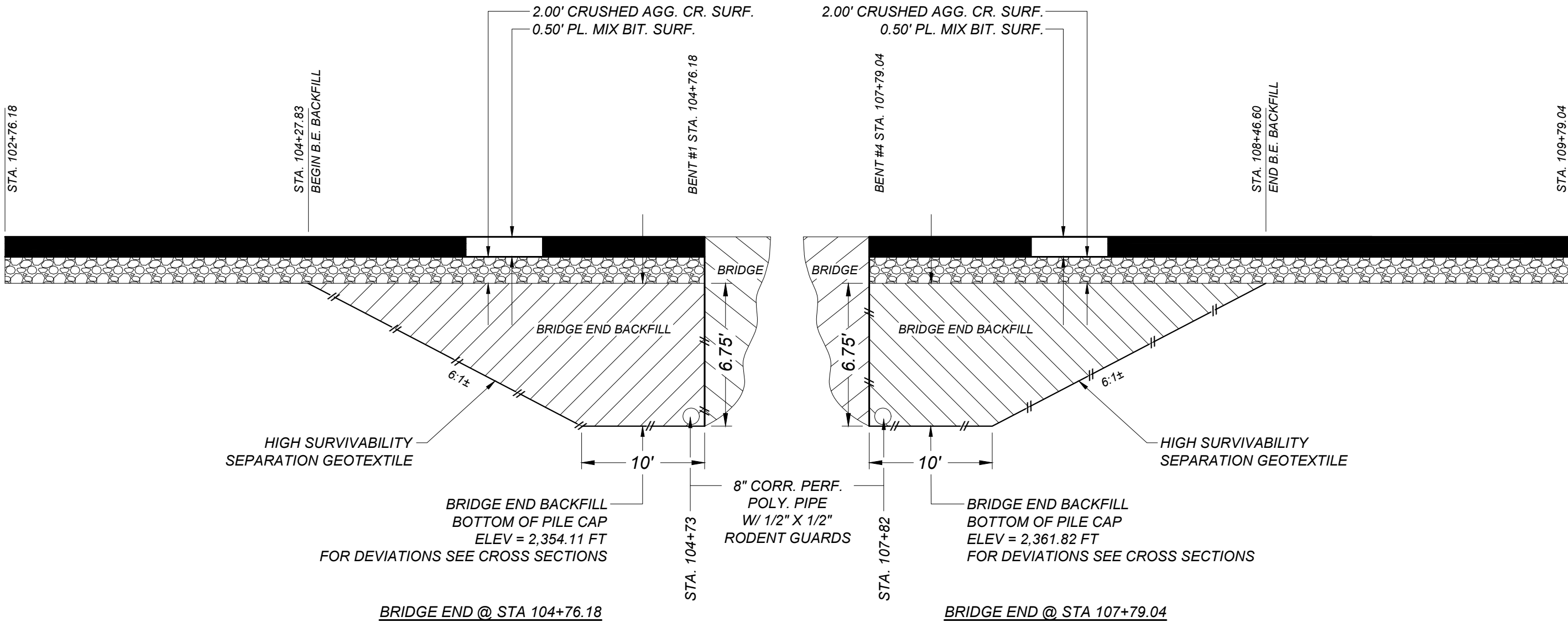
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FIRST INITIAL LAST NAME MM/YYYY

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ROAD PLANS

6/9/2026 11:35 AM



NOTE: SEE CROSS SECTIONS FOR BRIDGE END BACKFILL LIMITS

SINUSOIDAL
CENTERLINE RUMBLE
STRIPS DETAIL

PROJECT NAME
S-482 REPAIR - S OF LIBBY

COUNTY
LINCOLN

PROJECT ID
STPS 482-1(10)2

UPN
10760000

DESIGNED BY
L. HARK

05/2026

REVIEWED BY
FIRST INITIAL LAST NAME

MM/YYYY

CHECKED BY
FIRST INITIAL LAST NAME

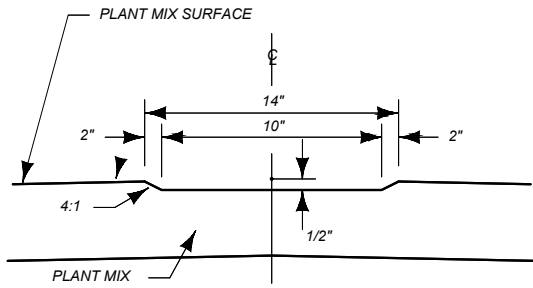
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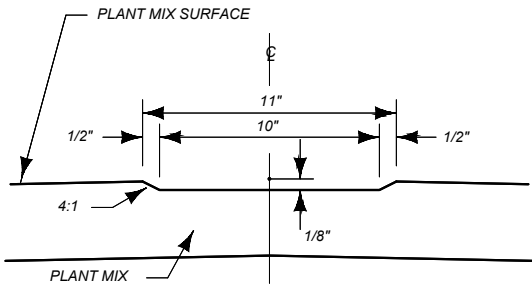


ROAD PLANS

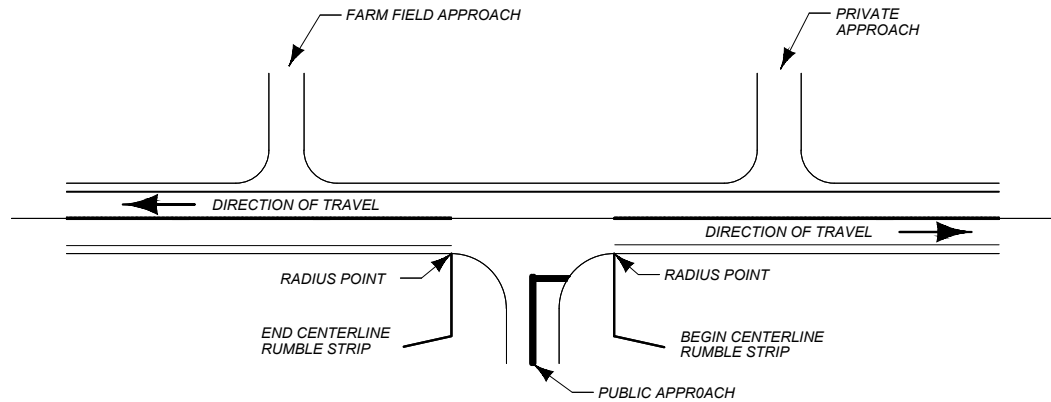
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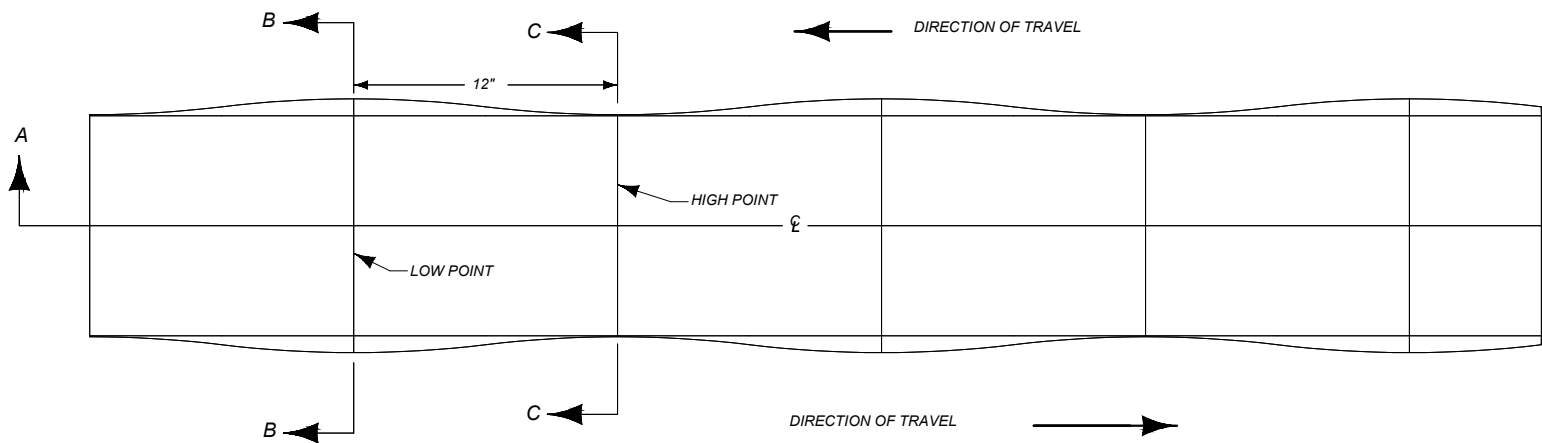
SECTION B-B



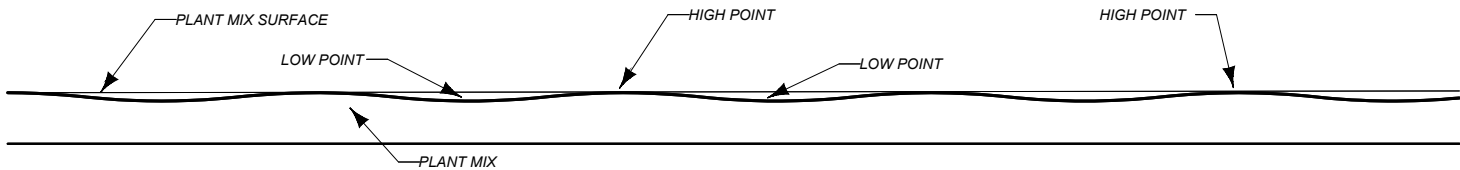
SECTION C-C



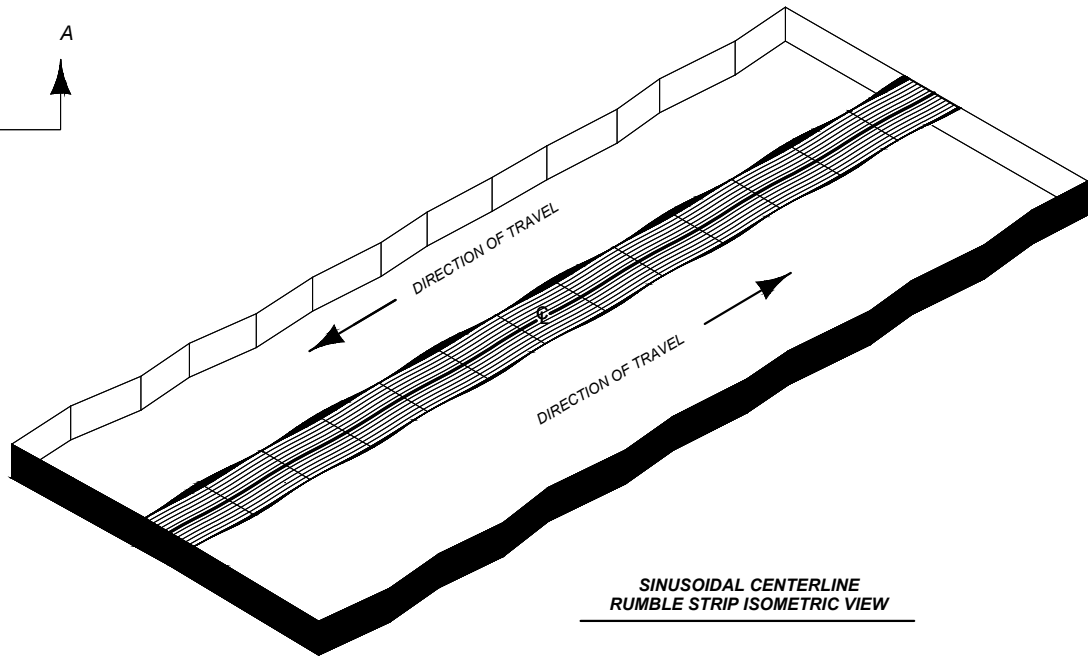
SINUSOIDAL CENTERLINE
RUMBLE STRIP APPROACH DETAIL



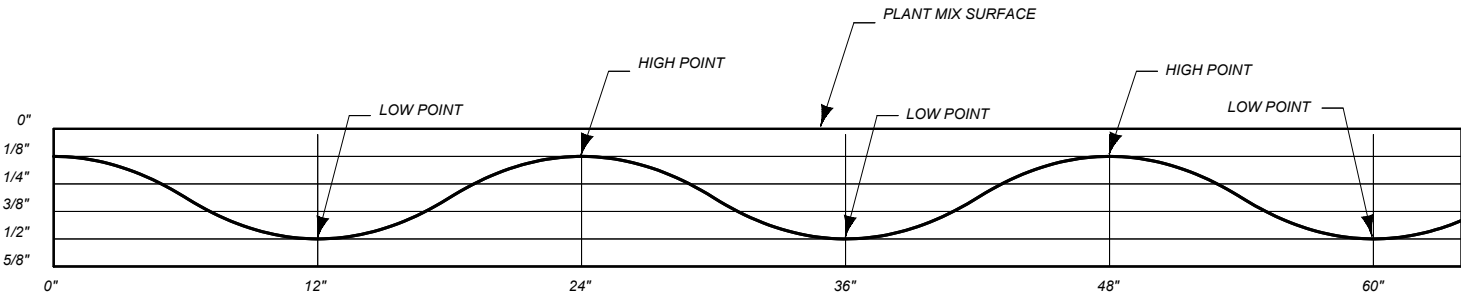
SINUSOIDAL CENTERLINE RUMBLE STRIP
WITH TAPERED GROOVE PLAN VIEW



SECTION A-A



SINUSOIDAL CENTERLINE
RUMBLE STRIP ISOMETRIC VIEW



SINUSOIDAL CENTERLINE
RUMBLE STRIP PROFILE VIEW

EXAGGERATED VERTICAL SCALE 10:1

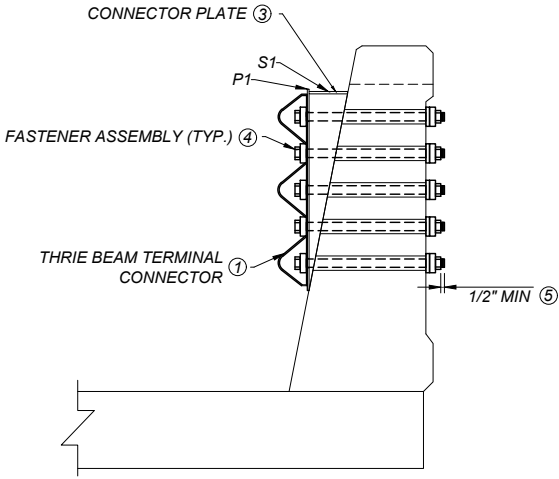
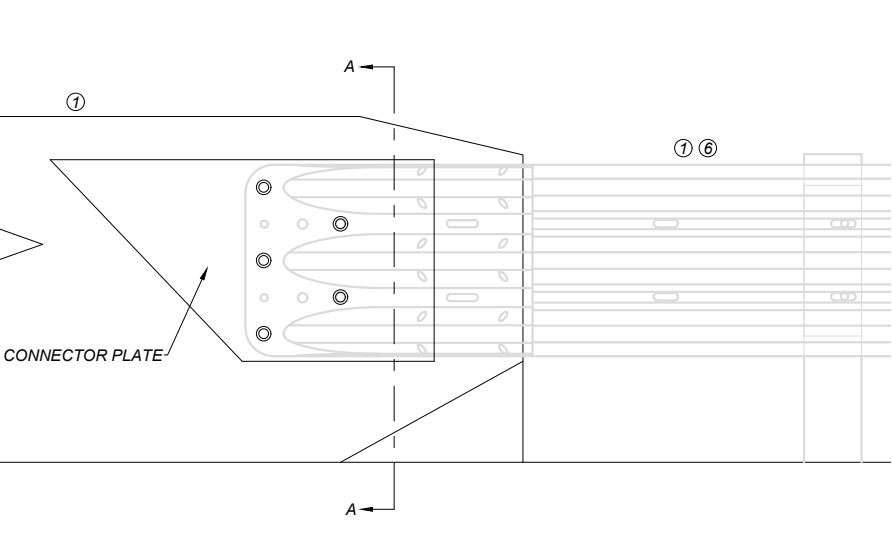
NOTES:
BREAK SINUSOIDAL CENTERLINE RUMBLE STRIPS FOR PUBLIC APPROACHES ONLY.
DO NOT INSTALL SINUSOIDAL CENTERLINE RUMBLE STRIPS ON CONCRETE BRIDGE DECKS AND CONCRETE BRIDGE APPROACH SLABS.
DO NOT INSTALL SINUSOIDAL CENTERLINE RUMBLE STRIPS IN AREAS POSTED AT 45 MPH OR LESS.
ROUTES WITHIN DESIGNATED CITY OR URBAN LIMITS USE ENGINEERING JUDGEMENT ON A CASE BY CASE BASIS TO DETERMINE IF SINUSOIDAL CENTERLINE RUMBLE STRIP INSTALLATION IS APPROPRIATE.
MINIMUM VERTICAL MILLING DEPTHS AND DIFFERENCE BETWEEN MILLING HIGH POINTS AND LOW POINTS SHOWN IN DETAIL. ADDITIONAL 1/8" DEPTH OF MILLING IS ALLOWABLE ON INSTALLATION OF SINUSOIDAL CENTERLINE RUMBLE STRIP.
SEE DETAILED DRAWING 620-30 FOR CENTERLINE RUMBLE STRIP PAVEMENT MARKING INFORMATION.

NOTES:

- ① SEE STD. DWG. NO. SBR-SS36 FOR STANDARD BRIDGE RAIL TYPE SINGLE SLOPE 36" INFORMATION. SEE DTL. DWG. NO. 606-23A AND 606-23B FOR STANDARD MGS THRIE BEAM BRIDGE APPROACH SECTION INFORMATION.
- ② USE PLATES AND STIFFENERS CONFORMING TO AASHTO M-270 GRADE 36 STEEL.
- ③ STIFFENERS NOT SHOWN FOR CLARITY IN SECTION A-A VIEW.
- ④ USE 7/8" DIA. HIGH STRENGTH BOLT (FBX22b*) W/ 1 PLATE WASHER AND 1 HEAVY HEX NUT (FNX22b*)(5 PLACES)
- ⑤ BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN THRIE BEAM CONNECTION PLATE, CONNECTOR PLATE, AND THE RIGID BARRIER. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH.
- ⑥ INCLUDE THE COST OF THE MGS THRIE BEAM BRIDGE APPROACH CONNECTOR PLATE IN THE COST OF THE MGS THRIE BEAM BRIDGE APPROACH SECTION.
- ⑦ GALVANIZE FABRICATED PARTS IN ACCORDANCE WITH SUBSECTION 711.08. DO NOT PUNCH, DRILL, OR CUT AFTER GALVANIZING.
- ⑧ WELD IS TYPICAL AT ALL JOINTS. DRILL HOLES AFTER WELDING. GRIND WELDS SMOOTH AT HOLES TO ALLOW FOR EASY PASSAGE OF BOLTS.

*SEE DTL. DWG. NO. 606-80 FOR SCHEDULE OF GUARDRAIL HARDWARE.

CONNECTOR PLATE DIMENSIONS (PER ASSEMBLY) ②				
PLATE	QUANTITY	SHAPE	SIZE (A x B x C)	THICKNESS
P1	1		40" x 20" x 21"	0'-0 3/16"
S1	1		39 1/2" x 20" x 4"	0'-0 1/4"
S2	3		4" x 20 1/2"	0'-0 1/4"
S3	1		14 7/8" x 2 3/4" x 2 1/2"	0'-0 1/4"
S4	1		8 1/2" x 2"	0'-0 1/4"
S5	1		7 3/4" x 2"	0'-0 1/4"



CONNECTION DETAIL

NE CORNER (FOR SE CORNER, MIRROR ABOUT BRIDGE C)
(FOR NW CORNER, MIRROR ABOUT CENTER OF BRIDGE, TRANSVERSE TO BRIDGE C)

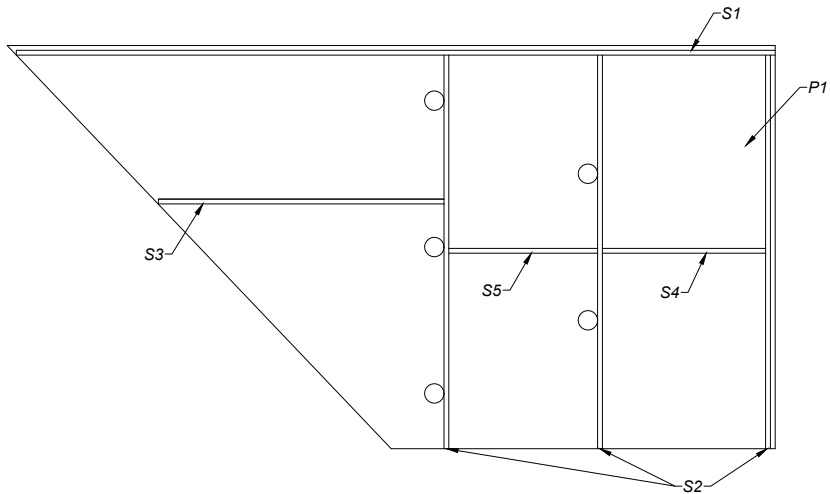
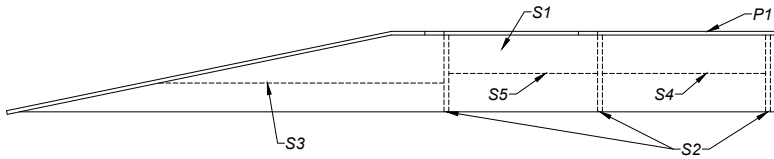


PLATE AND STIFFENER IDENTIFICATION

SECTION A-A

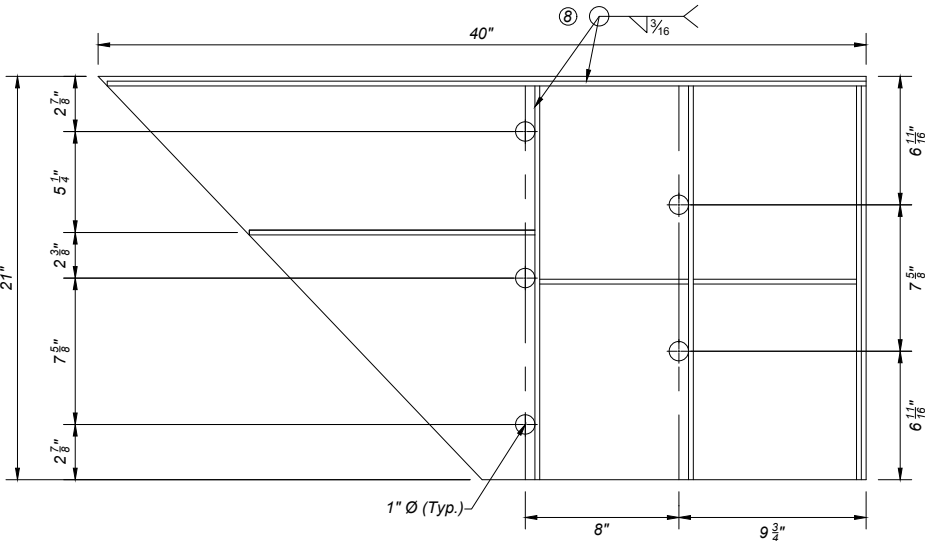
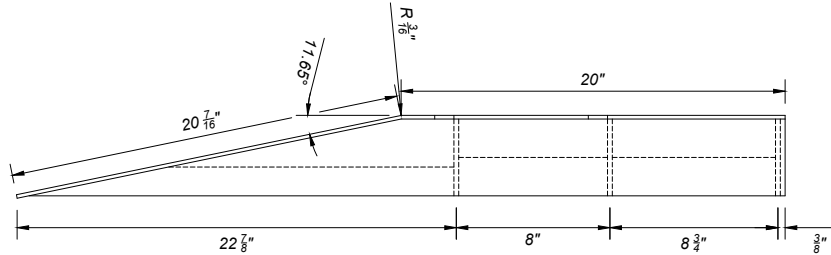
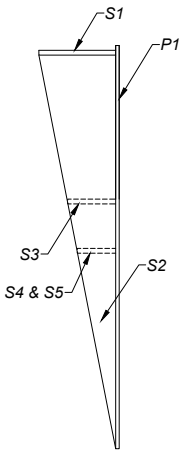
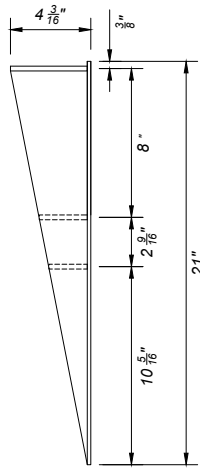
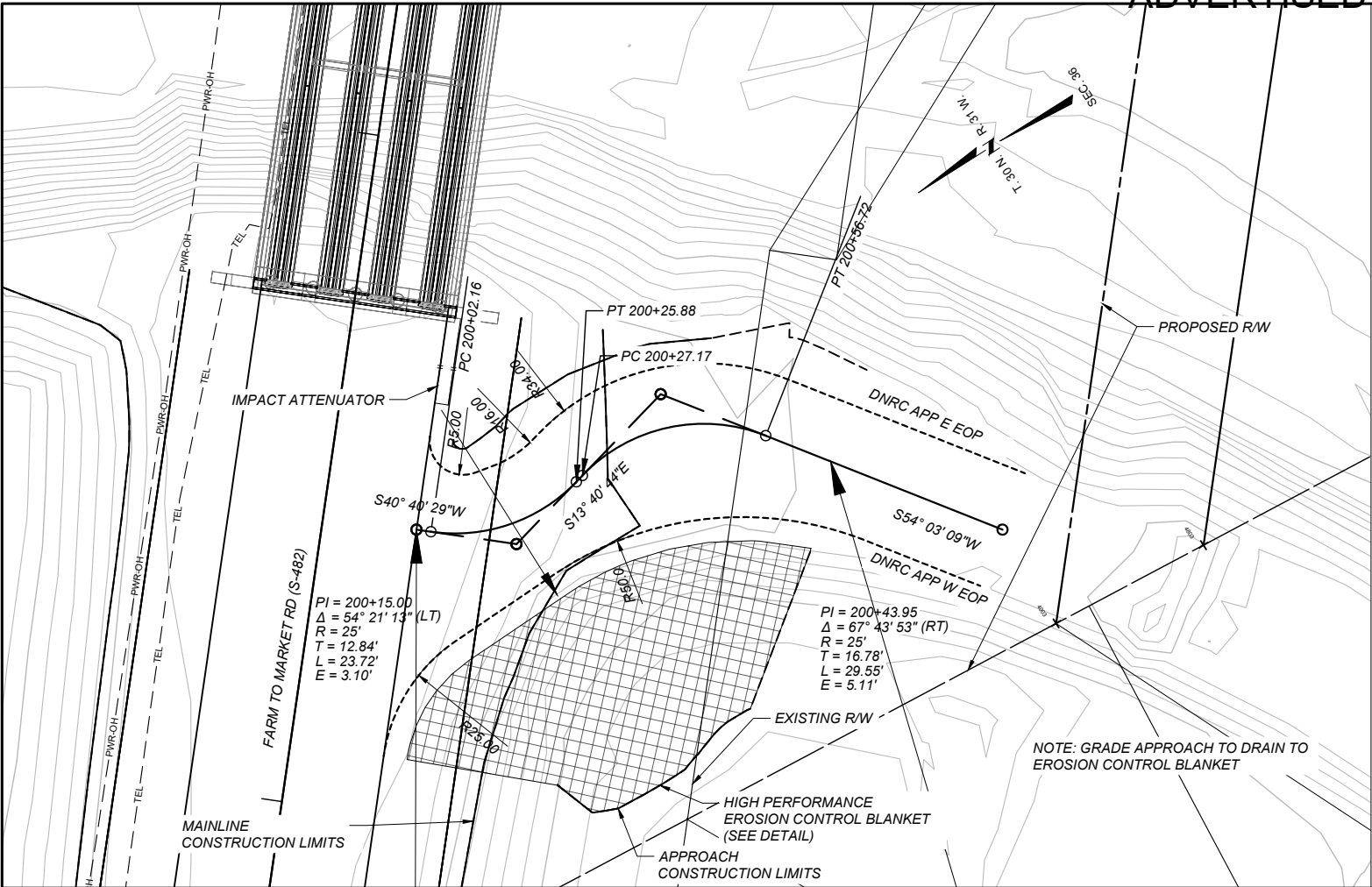


PLATE AND STIFFENER DIMENSIONS

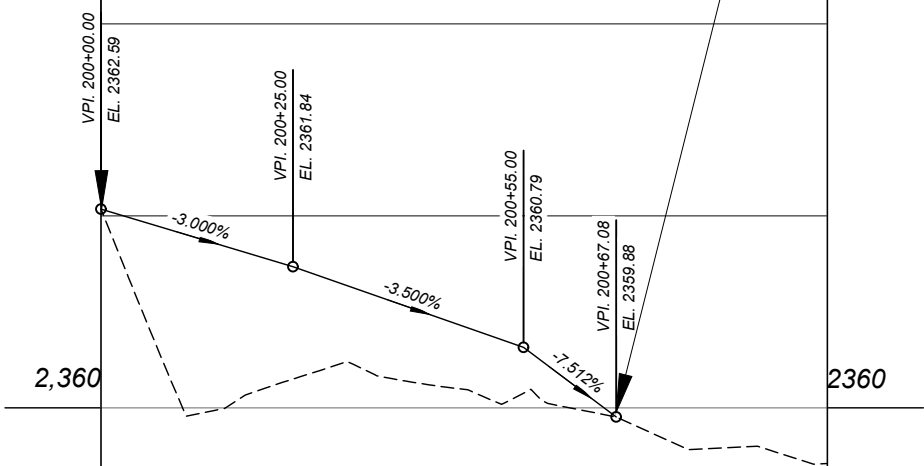




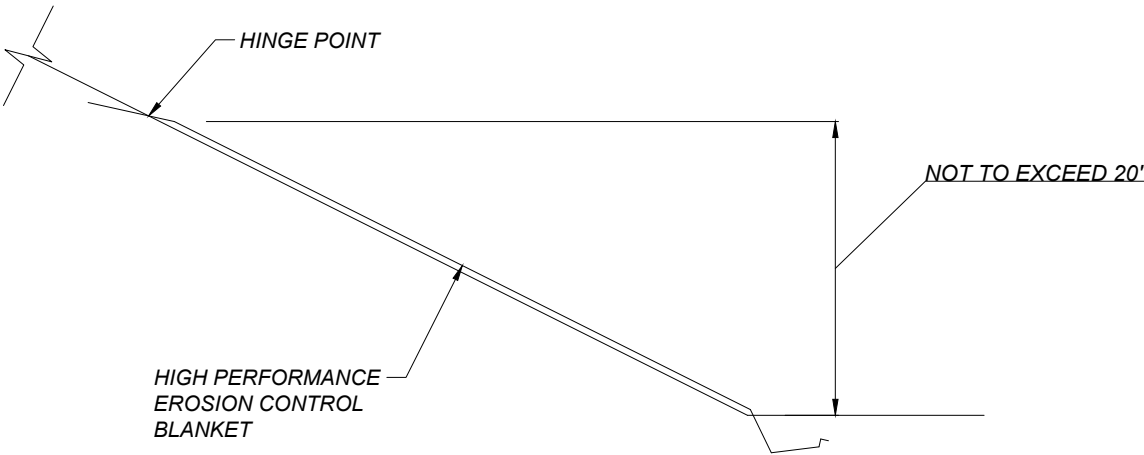
DNRC APPROACH 104+42.85 RT. COORDINATE TABLE				
STATION	DESCRIPTION	N OR Y COORDINATE	E OR X COORDINATE	REMARKS
200+00.00	POT	1,537,772.386	509,158.315	BEGIN APPROACH, MAINLINE STA. 104+43 RT
200+02.16	PC	1,537,770.744	509,156.904	
200+15.00	PI	1,537,761.009	509,148.539	RADIUS = 25.0 FEET (LT)
200+25.88	PT	1,537,748.538	509,151.574	
200+27.17	PC	1,537,747.284	509,151.879	
200+43.95	PI	1,537,730.982	509,155.847	RADIUS = 25.0 FEET (RT)
200+56.72	PT	1,537,721.133	509,142.264	
200+67.08	POT	1,537,715.054	509,133.881	END APPROACH ALIGNMENT

200+00.00 BEG. DNRC APP =
MAINLINE STA. 104+42.85
14.00' RT

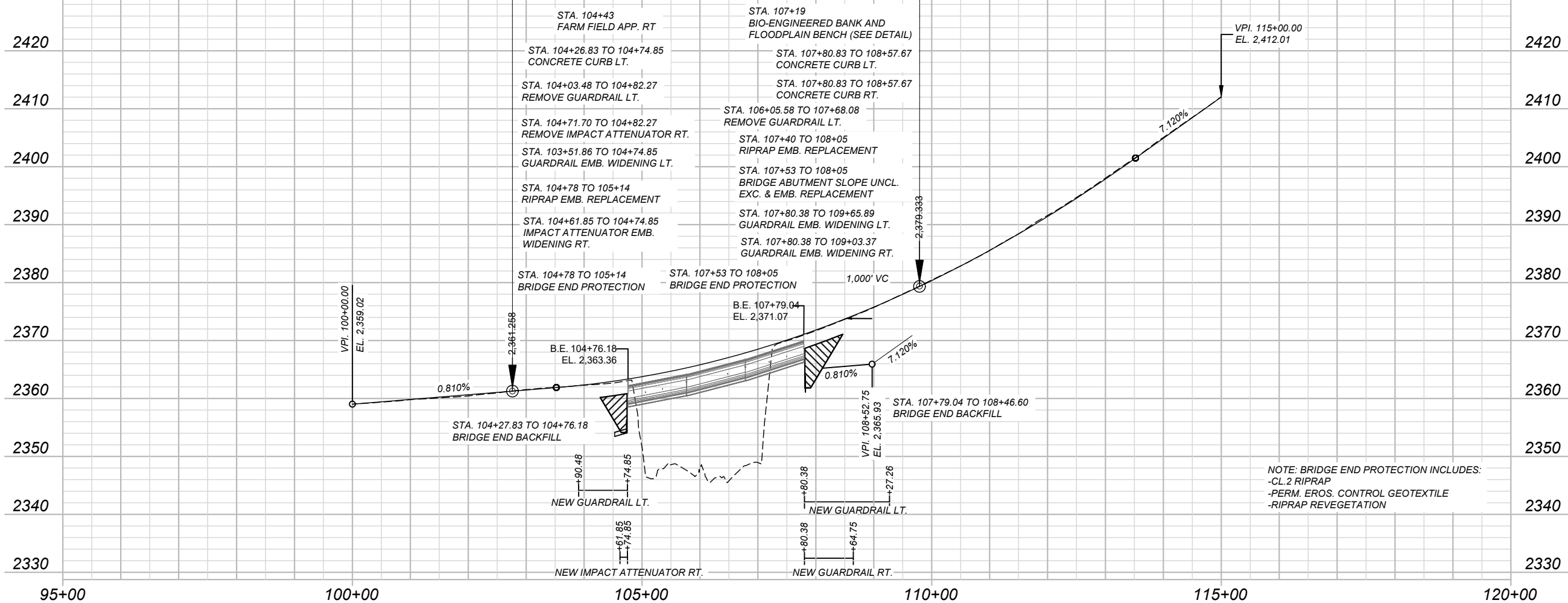
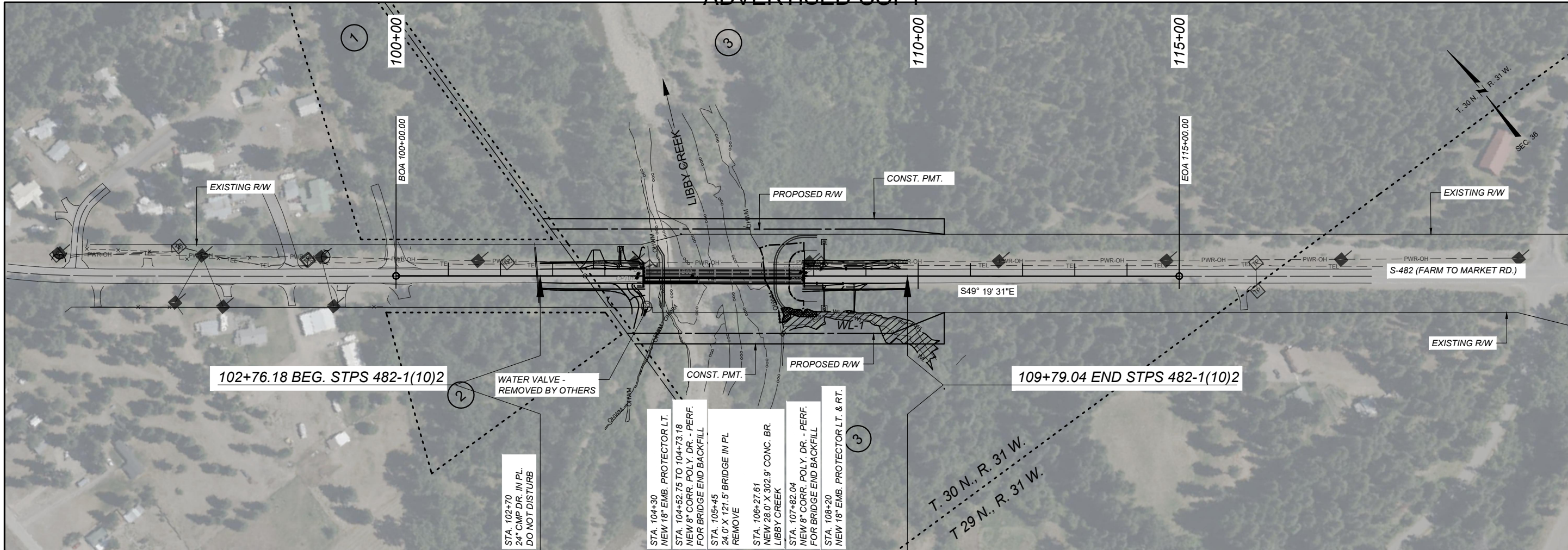
200+67.08 END DNRC APP
CONSTRUCTION



NOTE: INSTALL PER DET. DWG NO. 610-05
AND STANDARD SPECS SEC. 713.12



HIGH PERFORMANCE
EROSION CONTROL
BLANKET DETAIL





NOTE: BRIDGE END PROTECTION INCLUDES:
-CL.2 RIPRAP
-PERM. EROS. CONTROL GEOTEXTILE
-RIPRAP REVEGETATION

APPROVED
By Lenci at 11:23 am, Jun 08, 2026

**LIST OF DRAWINGS AND
ESTIMATED BRIDGE
QUANTITIES**

A 3D perspective view of a bridge deck. The deck is supported by multiple piers and abutments. The piers are represented by vertical columns. The abutments are the structures at the ends of the bridge. The deck is shown as a long, flat surface. The perspective is from an elevated position, looking down at the bridge.

ESTIMATED BRIDGE PLAN QUANTITIES													
LOCATION	LENGTH	CONCRETE - CLASS STRUCTURE	CONCRETE - CLASS STRUCTURE LOW SLUMP	TRANSVERSE DECK GROOVING	PRESTRESSED CONCRETE BEAM TYPE MTS-45	REINFORCING STEEL	REINFORCING STEEL - EPOXY COATED	36 IN SS CONCRETE BARRIER RAIL-BR-CSC	RE-DRIVE TEST PILE	DYNAMIC LOAD TEST	FURN STEEL PILE-PIPE	DRIVE STEEL PILE	PILE CONICAL DRIVING POINT
	LNFT	CUYD	CUYD	SQYD	LNFT	LB	LB	LNFT	EACH	EACH	LB	LNFT	EACH
Bent No. 1		32.7				5805.5	300.0		1.0	1.0	42074.8	325.0	5.0
Pier No. 2		16.9				3420.0	0.0		1.0	1.0	60914.3	425.0	5.0
Pier No. 3		16.9				3420.0	0.0		1.0	1.0	60914.3	425.0	5.0
Bent No. 4		32.7				5805.5	300.0		1.0	1.0	42074.8	325.0	5.0
Superstructure	303.0	13.5	300.2	876.8	1200.0	0.0	74946.0	611.3	0.0	0.0	0	0	0.0
Total	303.0	112.7	300.2	876.8	1200.0	18451.0	75546.0	611.3	4.0	4.0	205978.3	1500.0	20.0

 MONTANA Department of Transportation		REVISED	
		REVISED	
		REVISED	
		REVISED	
		REVISED	
 BRIDGE BUREAU		CHECKED	L.R. K.
		DRAWN	S.E.W.
		DESIGNED	M.L.C.
ROUTE S-482			
REF POINT 2+0.589			
MDT STR. ID 06853			
UPN NUMBER 10760000			
DRAWING NO. 21160			
5/27/2026 9:02:53 AM FILENAME: 10760000BRRT-RVT			

Finished Grade at centerline roadway is the same as the Profile Grade shown on the Road Plans.

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 AASHTO LRFD Bridge Design Specifications, Ninth edition - 2020, with standard HL-93 loading.

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

See Special Provisions and/or Standard Specifications for Traffic Control and Sequence of Operations.

Remove the existing structure (See Road Plan sheets and Special Provisions).

Stations and coordinates shown on the bridge plans are Montana State Plane Grid based on NAD83-2011.

Elevations shown on the bridge plans are NAVD88 Elevations. See Road Plans for additional Elevation Datum information.

Dimension shown on the bridge plans are horizontal ground distances and not Montana State Plane Grid distances. The combination scale factor (CSF) at this location is 0.99954052.

Horizontal ground distance x CSF = Grid Distance
Grid Distance / CSF = Horizontal ground distance (Distance to stake)

The Footing Plan shows points where the State of Montana, Department of Transportation, drilled boreholes.

See the Special Provisions for boring logs and additional subsurface information.

Contact the MDT Geotechnical Section at (406)444-6281 if pile tip elevations deviate more than 1 foot from the elevation indicated.

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 either Reinforcing Steel or Reinforcing Steel - Epoxy Coated.

The suffix E denotes epoxy coated reinforcing steel.
The suffix W denotes ASTM A706 reinforcing steel.

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" except as noted below:

Bottom of Slab	1"
Top of Slab	2 1/2"
Bottom of Abutment Caps	3"
Concrete Barriers and Curbs	1 1/2"

Concrete cover to any tie bar is 5/8" less than what is listed above.

Place Type T9 tie bars in sequence such that the 135° hook is oriented to alternate sides of the structural element for successive bars.

Alternate the orientation of Type T1 bars such that the end hooks are not located at the same corner on two consecutive hoops.

Ensure reinforcing steel does not interfere with smooth bar and anchor bolt placement. Adjust reinforcing as necessary to allow accurate placement of anchor bolts.

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

Use $f'_c=4000$ p.s.i. for Concrete - Class Structure. Use $f'_c=4000$ p.s.i. for Concrete - Class Structure Low Slump.

Include all costs associated with furnishing and installing PVC drains in the unit price bid for Concrete - Class Structure Low Slump.

Forming straight across the underside of the bay containing the crown break will be permitted. Pay quantities are based on the section shown. Any additional concrete is not paid for.

Include all costs associated with furnishing and placing the expansion joint filler, tarpaper and neoprene waterstop in the unit price bid for Concrete - Class Structure.

Securely nail expansion joint filler to pile cap concrete and hold in proper position while placing backwall concrete.

Finish beam seats level to the elevations shown on Sheet B6 & B9.

Slope areas between beam seats as shown on Sheet B6.

Galvanize all anchor bolts and nuts according to AASHTO M 232.

Perform Charpy V-Notch tests on anchor bolts meeting the requirements of ASTM F 1554 S5 (20J @ -20°F).

Use 1 1/2" Ø anchor bolts meeting the requirements of AASHTO M 314 Grade 105 and with two heavy hex nuts meeting the requirements of AASHTO M 291.

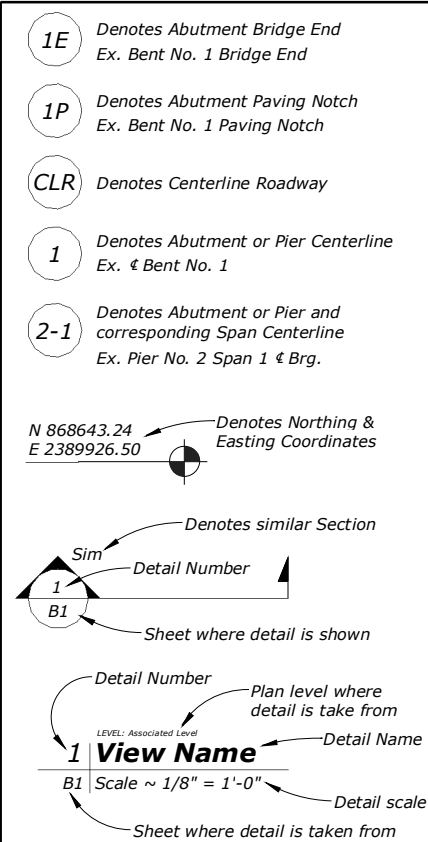
Use 1 1/2" Ø smooth bars meeting the requirements of AASHTO M 314 Grade 105.

Include the cost to install the bearings, anchor bolts, smooth bars and associated hardware in the unit price bid for Prestressed Concrete Beams - Type MTS-45


N.F.	Near Face
F.F.	Fill Face
E.F.	Each Face
Brg.	Bearing
CL	Centerline
abt.	About

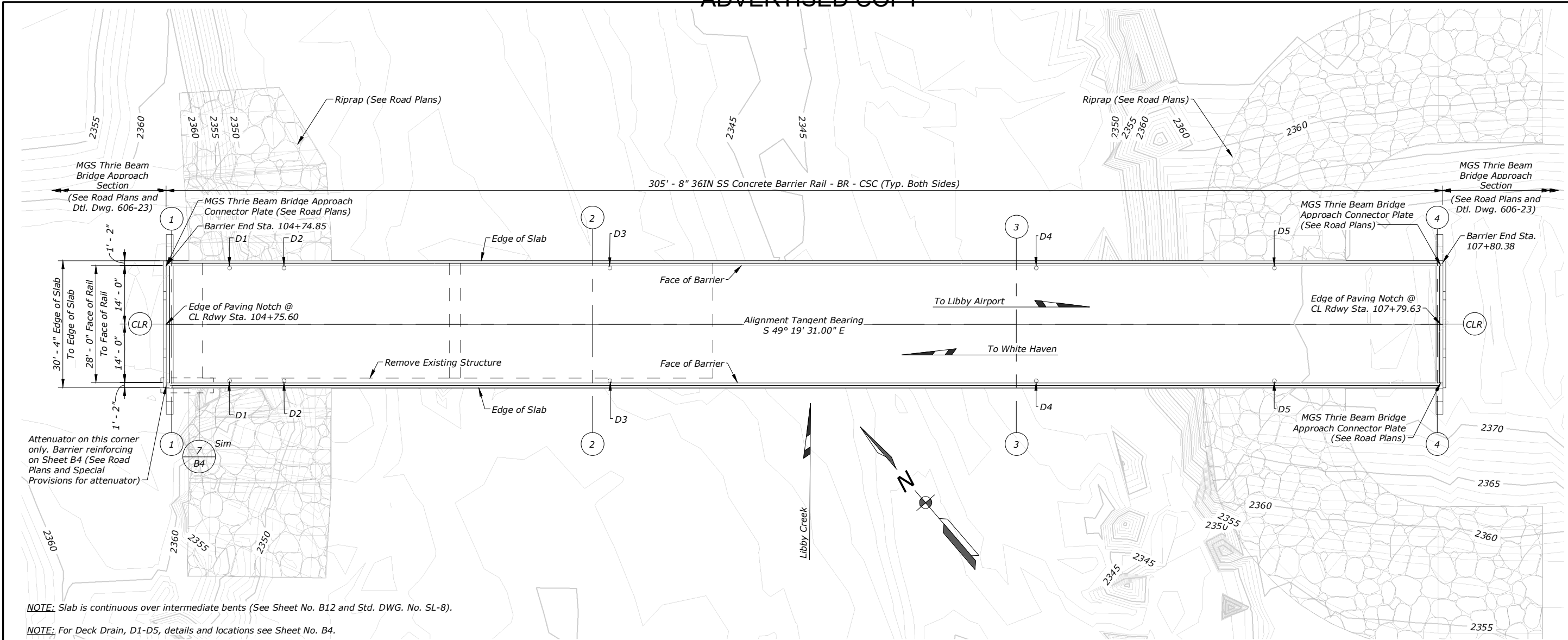
<u>REBAR LAP LENGTHS</u>				
BAR DIAMETER	PLAIN	EPOXY (E)	SEISMIC (W)	CORROSION (CR)
#3	1'-10"	2'-3"	1'-10"	2'-2"
#4	2'-5"	2'-11"	2'-5"	2'-10"
#5	3'-0"	3'-8"	3'-0"	3'-7"
#6	3'-7"	4'-5"	3'-7"	4'-3"
#7	4'-6"	5'-6"	4'-6"	5'-4"
#8	5'-11"	7'-2"	5'-11"	7'-0"
#9	7'-6"	9'-1"	7'-6"	8'-11"
#10	9'-6"	11'-6"	9'-6"	11'-3"
#11	11'-8"	14'-2"	11'-8"	13'-10"
#14	Mechanical Splice Only	Mechanical Splice Only	Mechanical Splice Only	Mechanical Splice Only
#18	Mechanical Splice Only	Mechanical Splice Only	Mechanical Splice Only	Mechanical Splice Only

4" Additional per lap splice has been provided for construction tolerances for all slab and rail reinforcing.

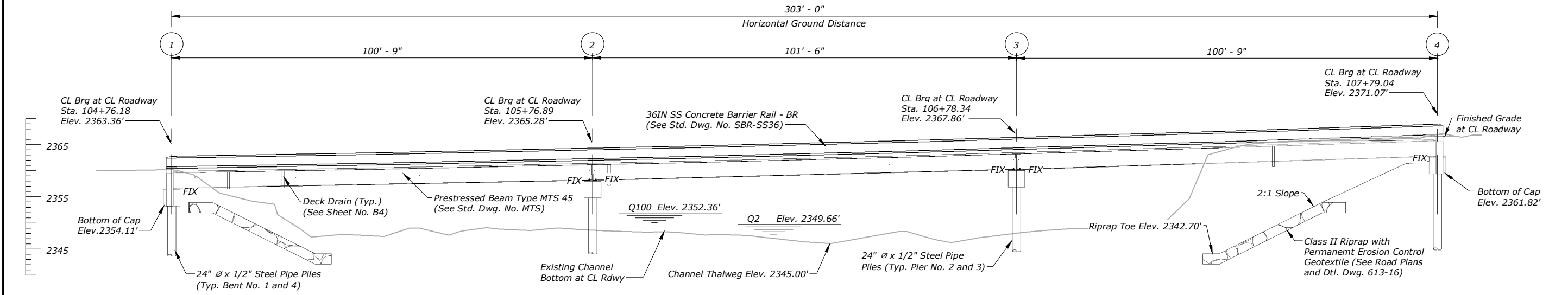


BRIDGE SYMBOLOLOGY


<div><div><div>REVISED</div><div>REVISED</div><div>REVISED</div><div>REVISED</div></div></div>		<div><div>FEDERAL AID PROJECT NO.</div><div>STPS 482-1(10)2</div></div>		<div><div>BRIDGE OVER</div><div>LIBBY CREEK</div></div>		<div><div>STRUCTURAL NOTES AND SPECIFICATIONS</div><div>SCALE: No Scale</div></div>	
<div><div>ROUTE</div><div>S-482</div></div>		<div><div>COUNTY</div><div>LINCOLN</div></div>		<div><div>AT STA.</div><div>106+27.61</div></div>		<div><div>SHEET NO.</div><div>B2</div></div>	
<div><div>REF POINT</div><div>2+0.589</div></div>		<div><div>CHECKED</div><div>05-13-26</div><div>L.R.K.</div></div>		<div><div>UPN NUMBER</div><div>10760000</div></div>		<div><div>DRAWING NO.</div><div>21161</div></div>	
<div><div>MDT STR. ID</div><div>06853</div></div>		<div><div>DRAWN</div><div>01-13-26</div><div>S.E.W.</div></div>		<div><div>BRIDGE BUREAU</div><div>FILENAME: 10760000BRRTV1.VT</div></div>			
<div><div>DESIGNED</div><div>01-13-26</div><div>M.L.C.</div></div>		<div><div>BRIDGE BUREAU</div><div>5/27/2026 9:02:53 AM</div></div>					



1 **GENERAL PLAN**
Scale ~ 1" = 25'-0"



2 **GENERAL ELEVATION**
Scale ~ 1" = 25'-0"

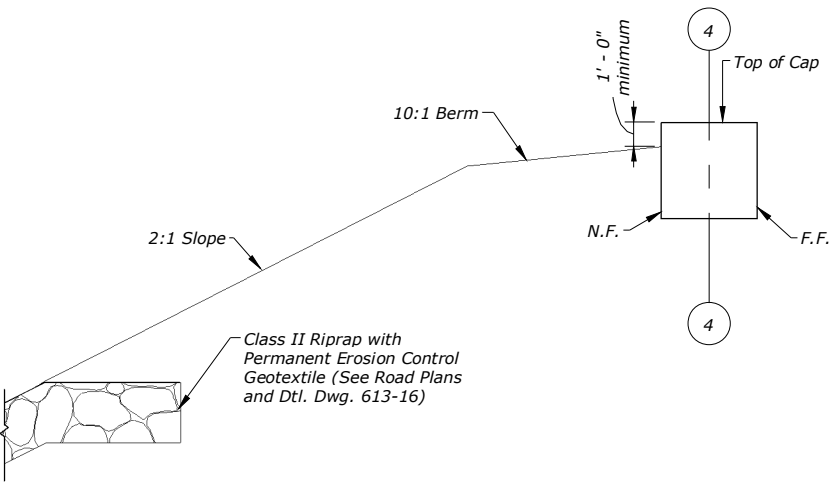
SHEET NO.		GENERAL LAYOUT		BRIDGE OVER LIBBY CREEK		AT STA. 106+27.61		FEDERAL AID PROJECT NO. STPS 482-1(10)2		COUNTY LINCOLN		SCALE: As indicated	
B3													
		REVISED											
		REVISED											
		REVISED											
		REVISED											
		CHECKED				05-13-26	L.R.K.						
		DRAWN				01-13-26	S.E.W.						
		DESIGNED				01-13-26	M.L.C.						
		FILENAME: 10760000BRRTV17T											
		5/27/2026 9:02:59 AM											
													
ROUTE		S-482											
REF POINT		2+0.589											
MDT STR. ID		06853											
UPN NUMBER		10760000											
DRAWING NO.		21162											

REVISED	REVISED	REVISED	CHECKED	DRAWN	DESIGNED	FILENAME: 1076000BRRTV.RVT
			05-13-26	01-13-26	01-13-26	
			L.A.K.	S.E.W.	M.L.C.	



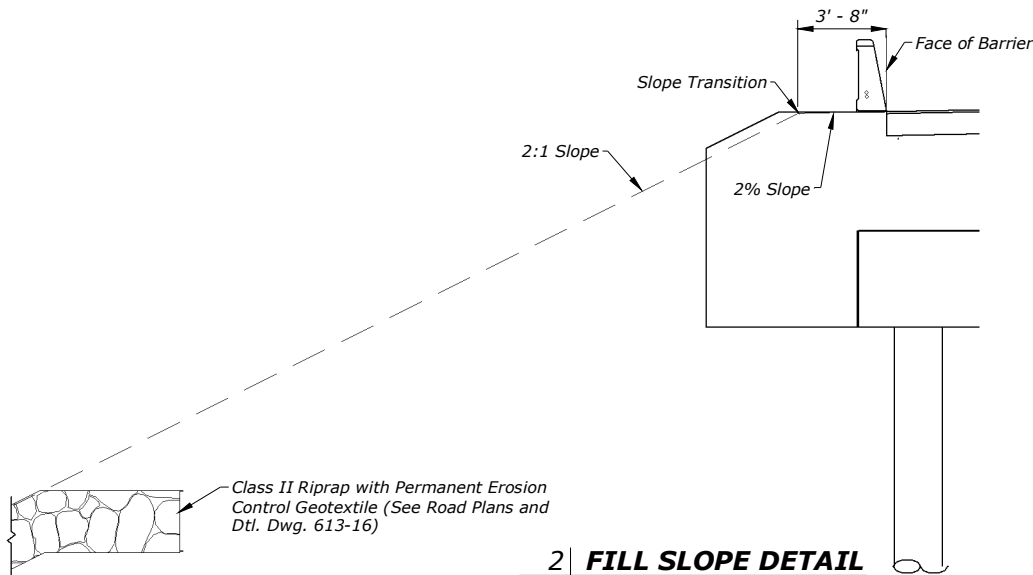
HYDRAULIC DATA

Drift:	Heavy
Ice:	Light
Low Scour Elevation Abutment (Q500):	2340.86'
Low Scour Elevation Piers (Q500):	2332.60'
Drainage Area:	130.10 sq. mi.
Q2 Elevation:	2349.66'
Q100 Flow:	7,230 cfs
Q100 Elevation:	2352.36'
Q100 Velocity:	7.85 fps
Actual Low Beam Elevation:	2358.34'
Allowable Low Beam Elevation:	2354.83'



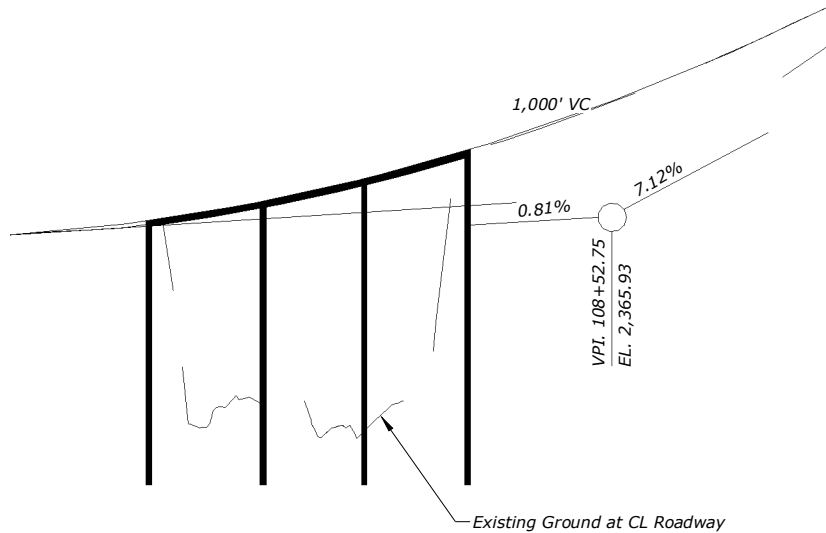
1 BERM DETAIL

Scale ~ 1/8" = 1'-0"



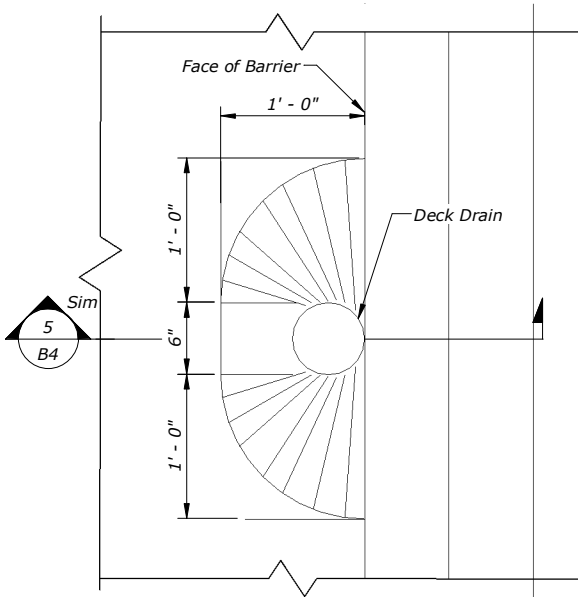
2 FILL SLOPE DETAIL

Scale ~ 1/8" = 1'-0"



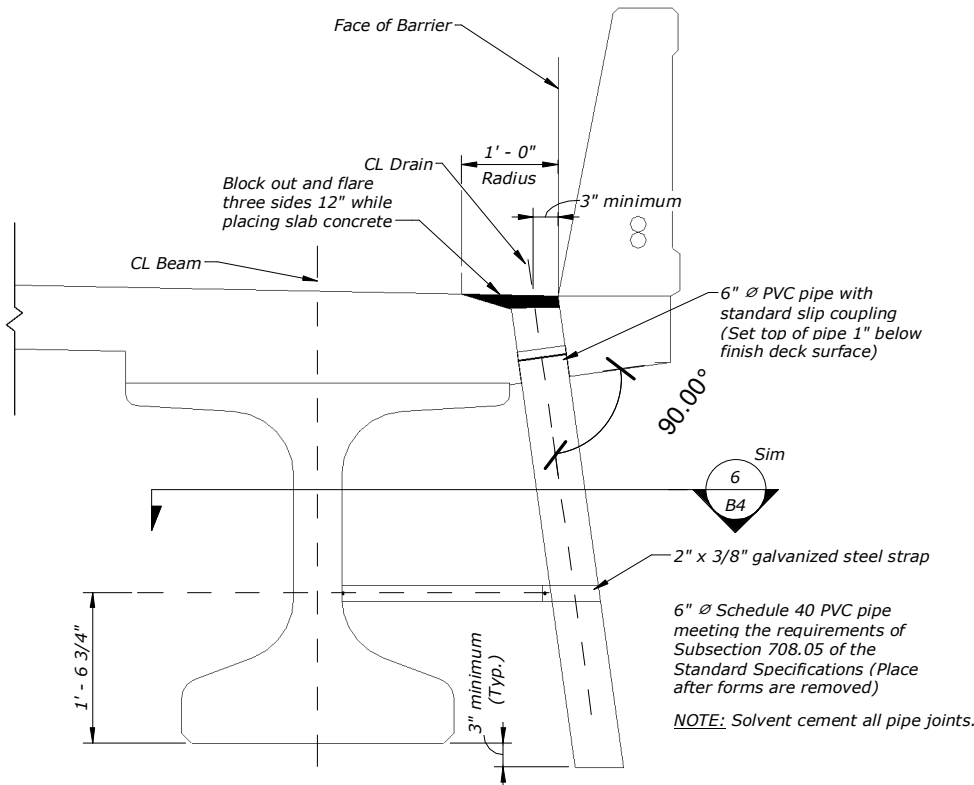
3 PROFILE GRADE

Scale ~ 1" = 160'-0"



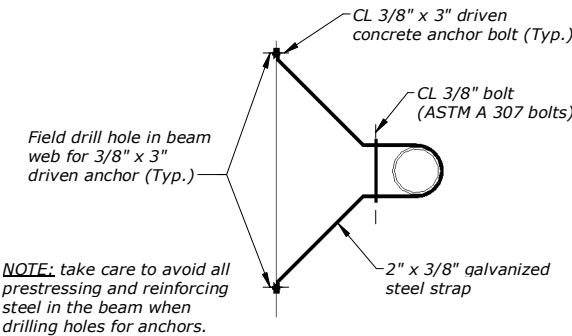
4 DECK DRAIN PLAN

Scale ~ 3/4" = 1'-0"



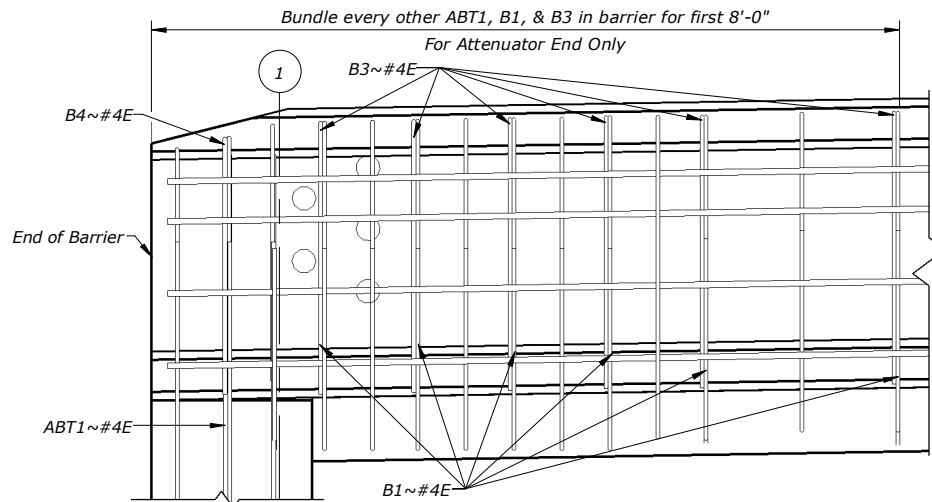
5 DECK DRAIN DETAIL

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



6 DECK DRAIN SECTION

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

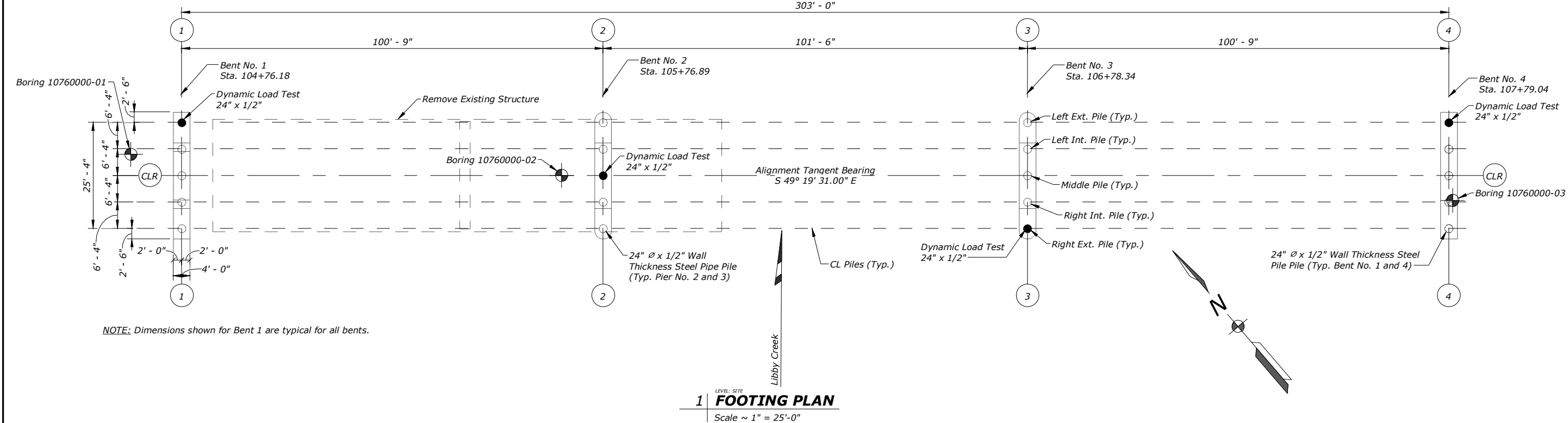


7 BARRIER RAIL END WITH ATTENUATOR

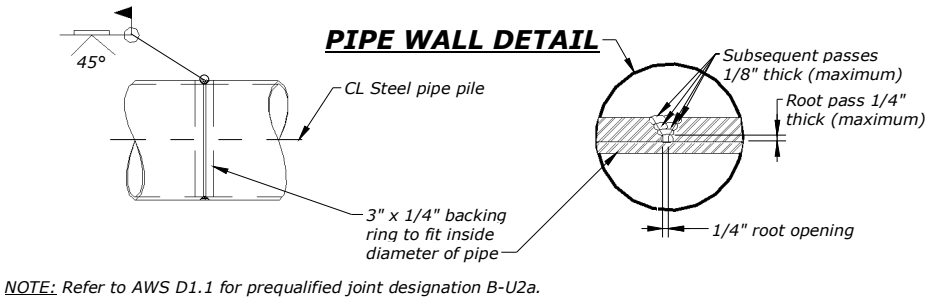
Scale ~ 1 1/2" = 1'-0"

DECK DRAIN LOCATIONS

DECK DRAIN	DECK DRAIN STATION
D1	104+90.00
D2	105+03.00
D3	105+81.00
D4	106+83.00
D5	107+40.00

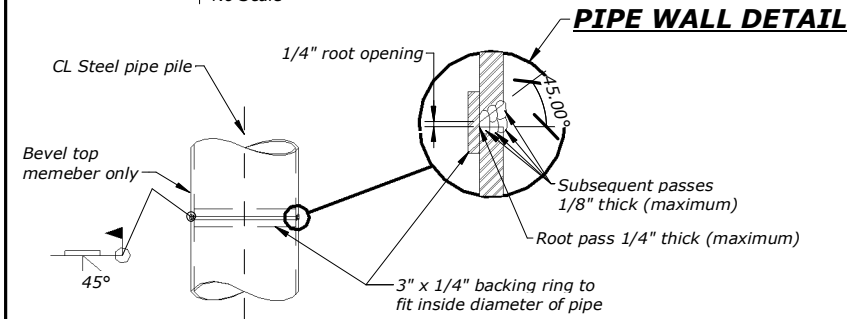


WELD SPLICES FOR STEEL PIPE PILES



2 PILE EXTENSION BEFORE DRIVING

No Scale



3 PILE EXTENSION AFTER DRIVING

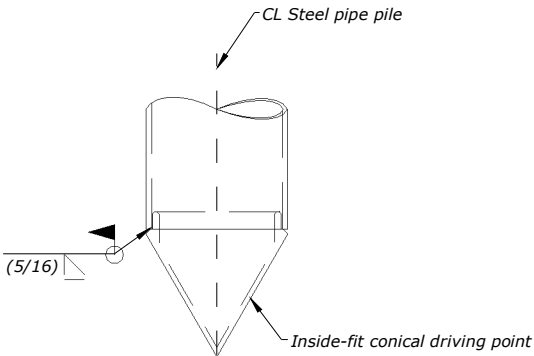
No Scale

NOTE: For pile splices, use only E7018 series electrodes. Prepare the weld surfaces to a smooth, uniform finish. Remove all fins, tears, loose scale, slab, rust, grease, moisture and other material that would prevent proper welding.

NOTE: For pile tips, use only E7018 series electrodes to attach pile tips.

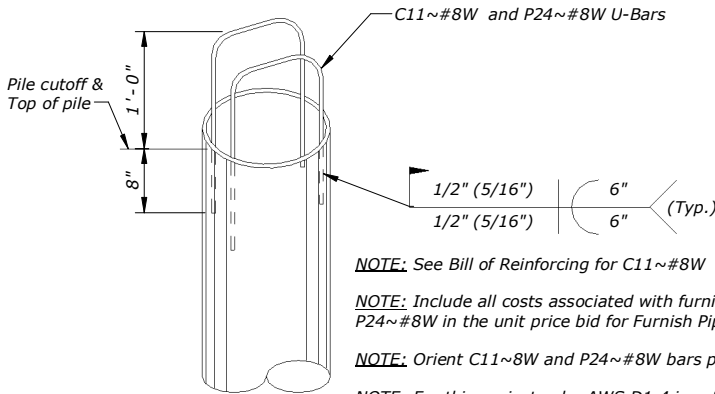
NOTE: See plans this sheet for correct pile type, pile tip and pile tip elevations.

NOTE: For this project only, the pipe pile welding requires 25% Visual Inspection (VT) by a valid CWI and RT, UT, MT & PAUT are not required. Submit CWI inspector certification and all VT reports. All other welding requirements of Section 624 in the Standard Specifications still apply.



4 CONICAL DRIVING POINT WELD DETAIL

No Scale



5 PILE REINFORCING DETAIL

No Scale Typical all piles on all Bents

PIPE PILE WEIGHT

PIPE PILE DIAMETER	WALL THICKNESS	WEIGHT (LBS/FT)
24"	1/2"	126

PILE LOCATION COORDINATE TABLE

POINT NAME	N OR Y COORDINATE	E OR X COORDINATE	DESCRIPTION
P1	1537770.89	509200.97	BENT 1 LEFT EXT. PILE
P2	1537766.08	509196.85	BENT 1 LEFT INT. PILE
P3	1537761.28	509192.72	BENT 1 MIDDLE PILE
P4	1537756.48	509188.59	BENT 1 RIGHT INT. PILE
P5	1537751.67	509184.46	BENT 1 RIGHT EXT. PILE
P6	1537705.25	509277.35	BENT 2 LEFT EXT. PILE
P7	1537700.44	509273.23	BENT 2 LEFT INT. PILE
P8	1537695.64	509269.10	BENT 2 MIDDLE PILE
P9	1537690.84	509264.97	BENT 2 RIGHT INT. PILE
P10	1537686.03	509260.84	BENT 2 RIGHT EXT. PILE
P11	1537639.13	509354.30	BENT 3 LEFT EXT. PILE
P12	1537634.32	509350.17	BENT 3 LEFT INT. PILE
P13	1537629.52	509346.04	BENT 3 MIDDLE PILE
P14	1537624.72	509341.91	BENT 3 RIGHT INT. PILE
P15	1537619.91	509337.79	BENT 3 RIGHT EXT. PILE
P16	1537573.49	509430.67	BENT 4 LEFT EXT. PILE
P17	1537568.69	509426.54	BENT 4 LEFT INT. PILE
P18	1537563.89	509422.41	BENT 4 MIDDLE PILE
P19	1537559.08	509418.29	BENT 4 RIGHT INT. PILE
P20	1537554.28	509414.16	BENT 4 RIGHT EXT. PILE

NOTE: All pile coordinates are at center of pile.

PILE INFORMATION

LOCATION	DESIGN PILE TIP ELEVATION	MAXIMUM PILE CUT-OFF ELEVATION (FT)	PILE TIP TREATMENT	REQUIRED BEARING RESISTANCE DURING DRIVING (KIP)	MAXIMUM PILE REACTION SERVICE I
Bent No. 1	2289.11'	2356.11'	CONICAL DRIVING POINT	400	179.9
Pier No. 2	2261.03'	2358.03'	CONICAL DRIVING POINT	550	271.4
Pier No. 3	2263.61'	2360.61'	CONICAL DRIVING POINT	550	271.4
Bent No. 4	2296.82'	2363.82'	CONICAL DRIVING POINT	400	179.9

SHEET NO.
B5

FOOTING PLAN AND PILE
DETAILS

SCALE: As indicated

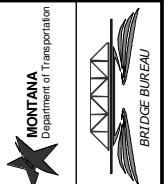
BRIDGE OVER
LIBBY CREEK

AT STA.
106+27.61

FEDERAL AID PROJECT NO.
STPS 482-1(10)2

COUNTY
LINCOLN

REVISED	REVISED	REVISED	REVISED	CHECKED	DRAWN	DESIGNED	FILENAME:
				05-13-26	01-13-26	01-13-26	10760000BRVT.RVT
				L.A.K.	S.E.W.	M.L.C.	



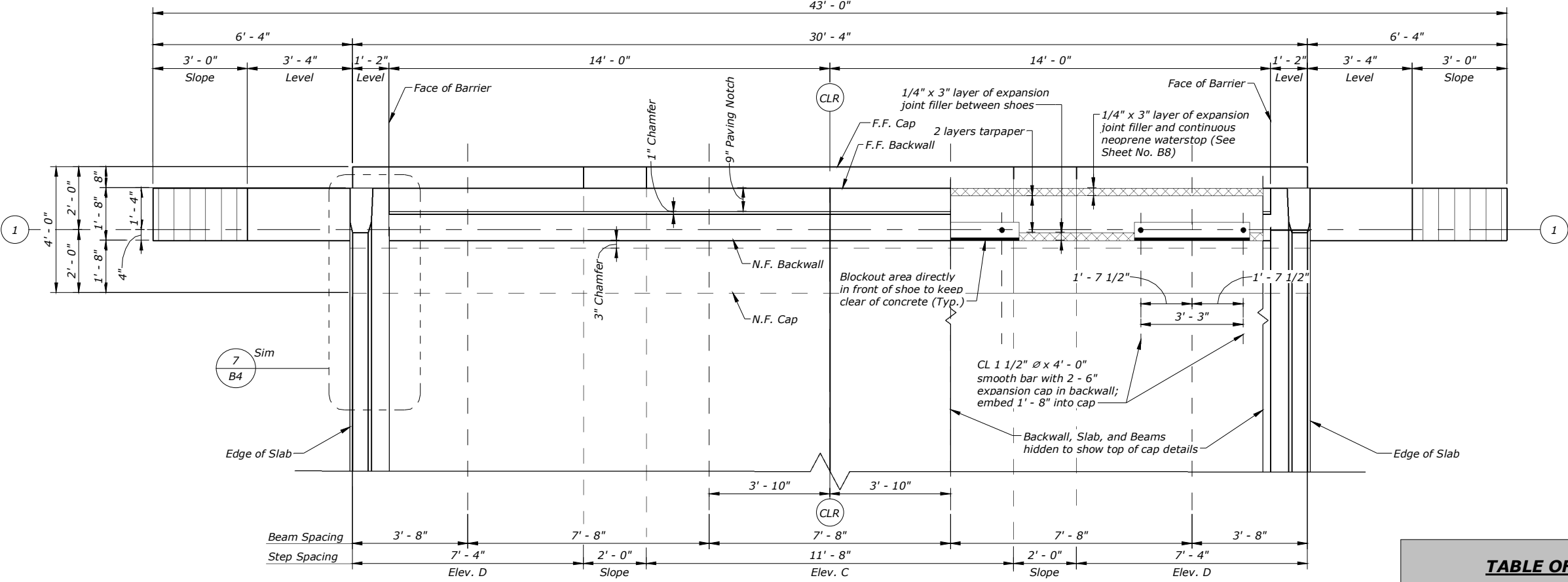
ROUTE
S-482

REF POINT
2+0.589

MDT STR. ID
06853

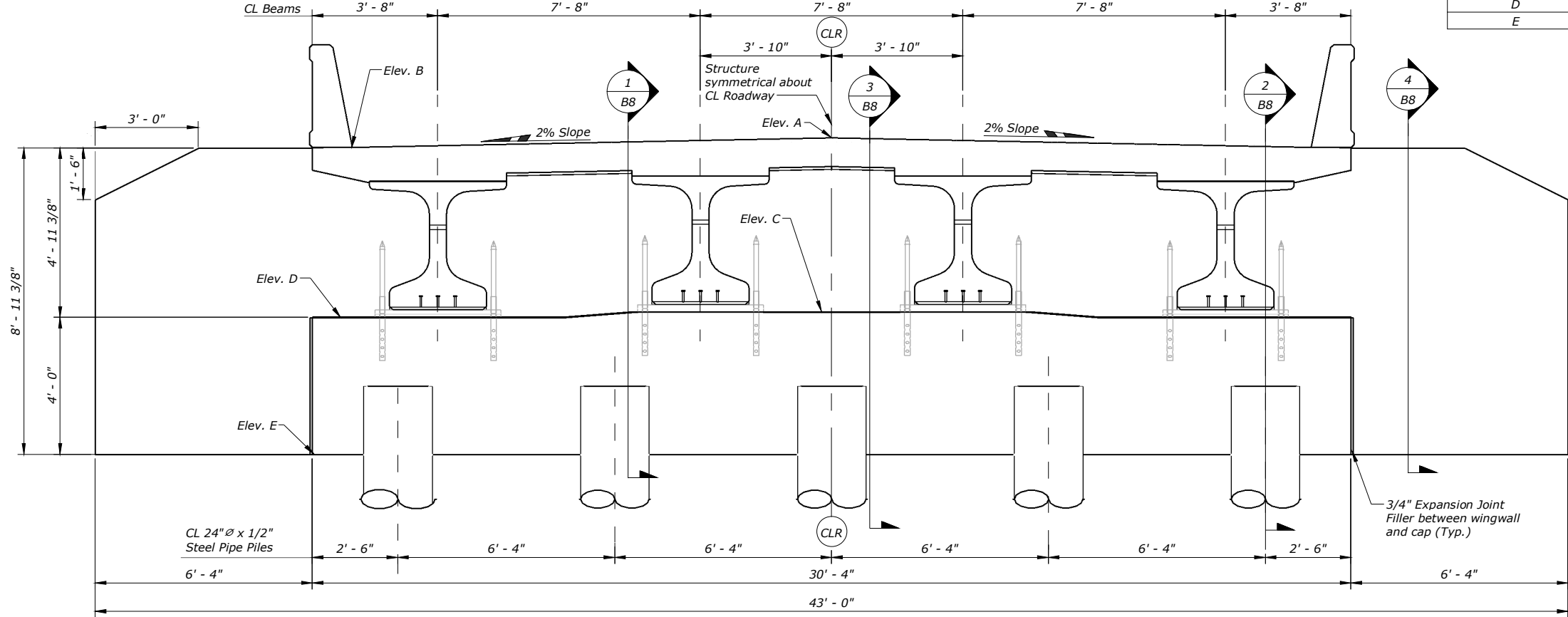
UPN NUMBER
10760000

DRAWING NO.
21164



1 **ABUTMENT PLAN**
Scale ~ 1/4" = 1'-0"

TABLE OF ELEVATIONS		
ELEVATION	BENT NO. 1	BENT NO. 4
A	2363.36	2371.07
B	2363.08	2370.79
C	2358.26	2365.97
D	2358.11	2365.82
E	2354.11	2361.82



Bent No. 1 Looking Back on Line.
Bent No. 4 Looking Ahead on Line.

2 **ABUTMENT ELEVATION**
Scale ~ 1/4" = 1'-0"

SHEET NO.
B6

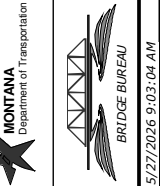
BENT NO. 1 & NO. 4

BRIDGE OVER
LIBBY CREEK

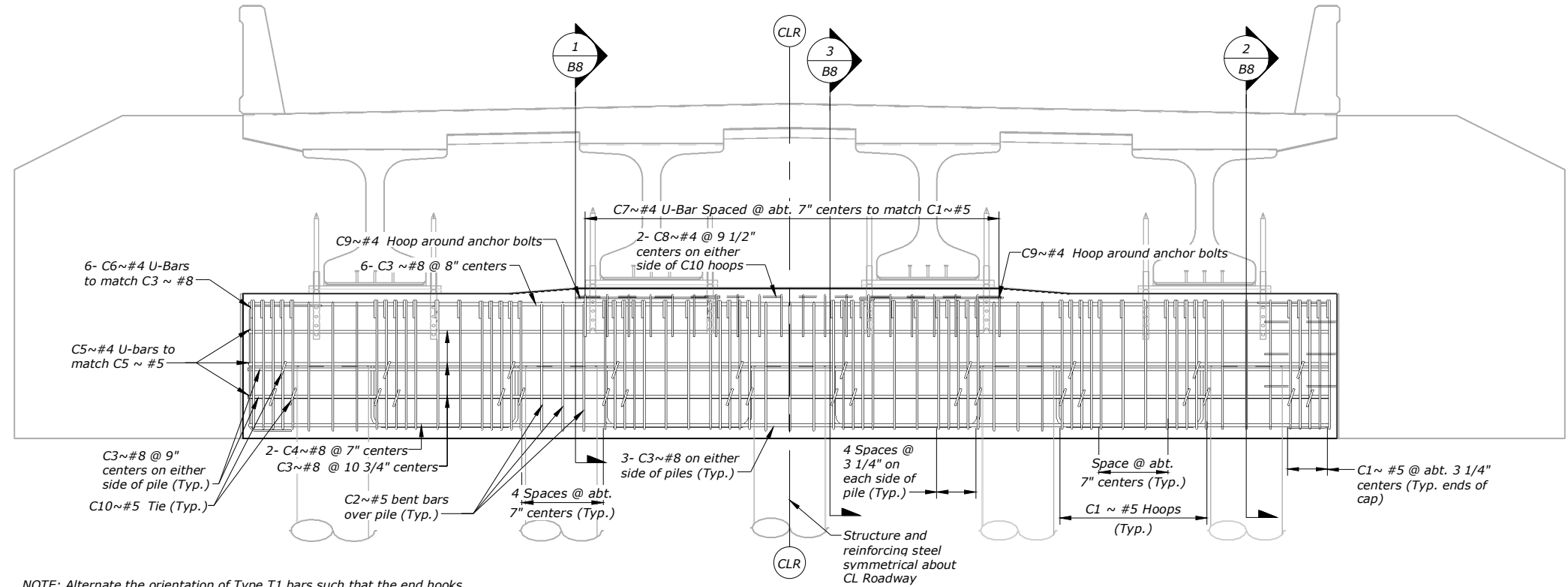
FEDERAL AID PROJECT NO.
STPS 482-1(10)2

COUNTY
LINCOLN

REVISED	REVISED	REVISED	REVISED	CHECKED	DRAWN	DESIGNED	FILENAME:
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				L.R.K.	S.E.W.	M.L.C.	

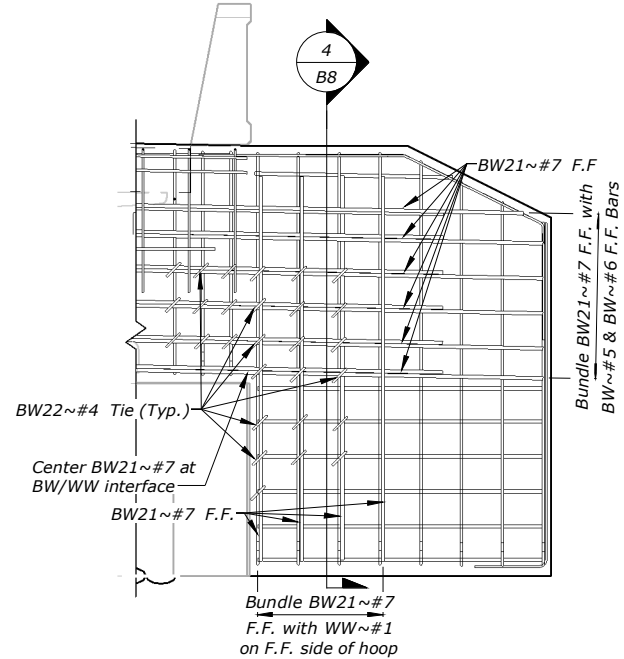


ROUTE S-482
REF POINT 2+0.589
MDT STR. ID 06853
UPN NUMBER 10760000
DRAWING NO. 21165



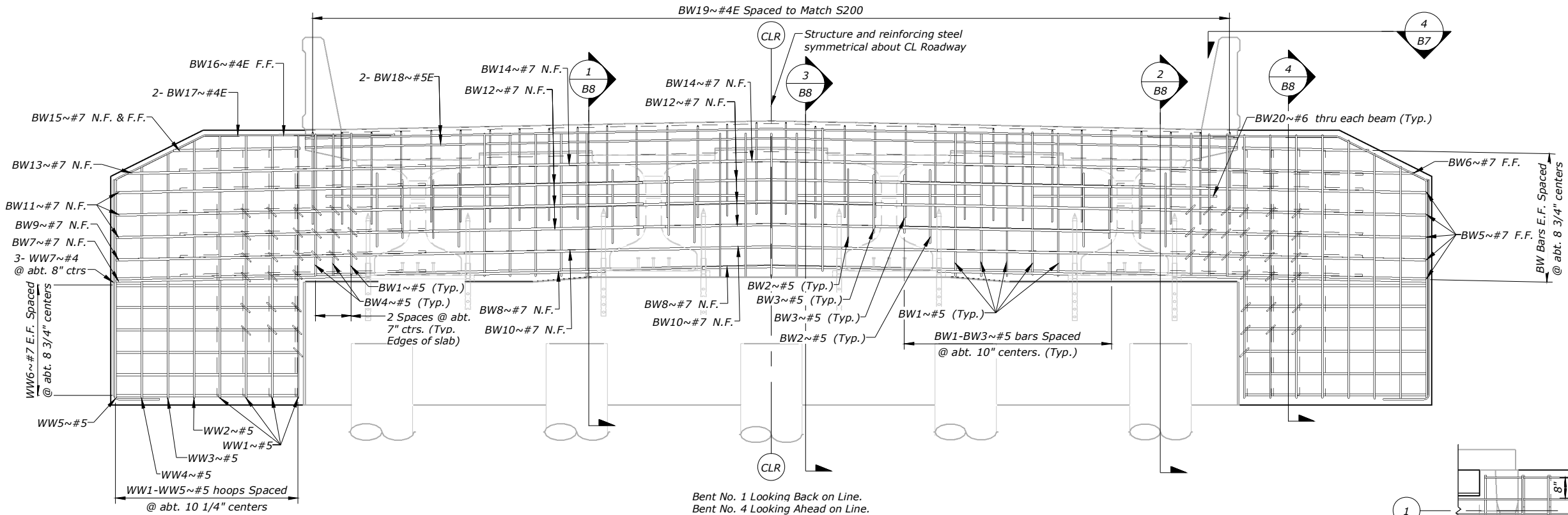
NOTE: Alternate the orientation of Type T1 bars such that the end hooks are not located at the same corner on two consecutive hoops.

1 **ABUTMENT CAP REINFORCING**
Scale ~ 1/4" = 1'-0"



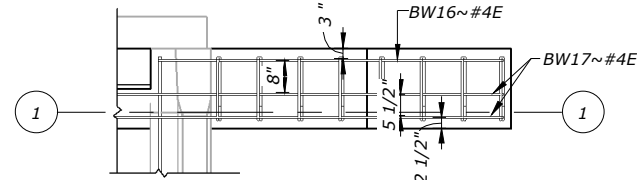
NOTE: Place Type T9 tie bars in sequence such that the 135° hook is oriented to alternate sides of the structural element for successive bars.

3 **ADDITIONAL WINGWALL REINFORCING**
Scale ~ 1/4" = 1'-0"



NOTE: Ensure reinforcing steel does not interfere with smooth bar placement.

2 **ABUTMENT BACKWALL & WINGWALL REINFORCING**
Scale ~ 1/4" = 1'-0"



NOTE: Dimensions are out to out.

4 **BACKWALL & WINGWALL REINFORCING PLAN**
Scale ~ 1/4" = 1'-0"

SHEET NO.
B7

BENT NO. 1 & NO. 4
DETAILS

SCALE: As indicated

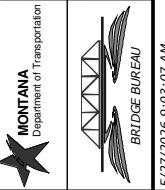
BRIDGE OVER
LIBBY CREEK

AT STA.
106+27.61

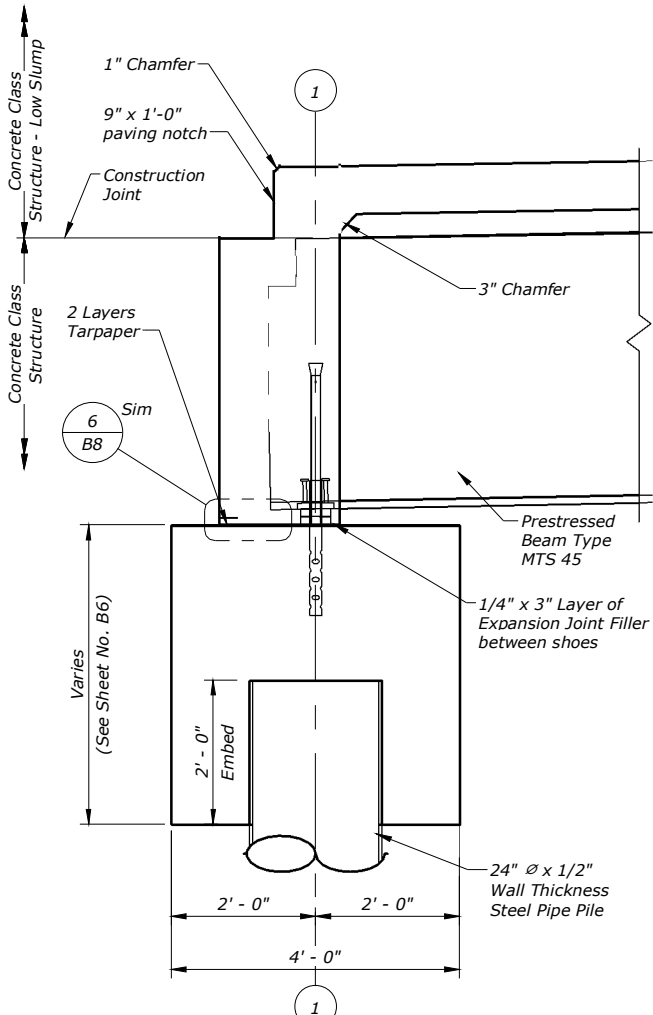
FEDERAL AID PROJECT NO.
STPS 482-1(10)2

COUNTY
LINCOLN

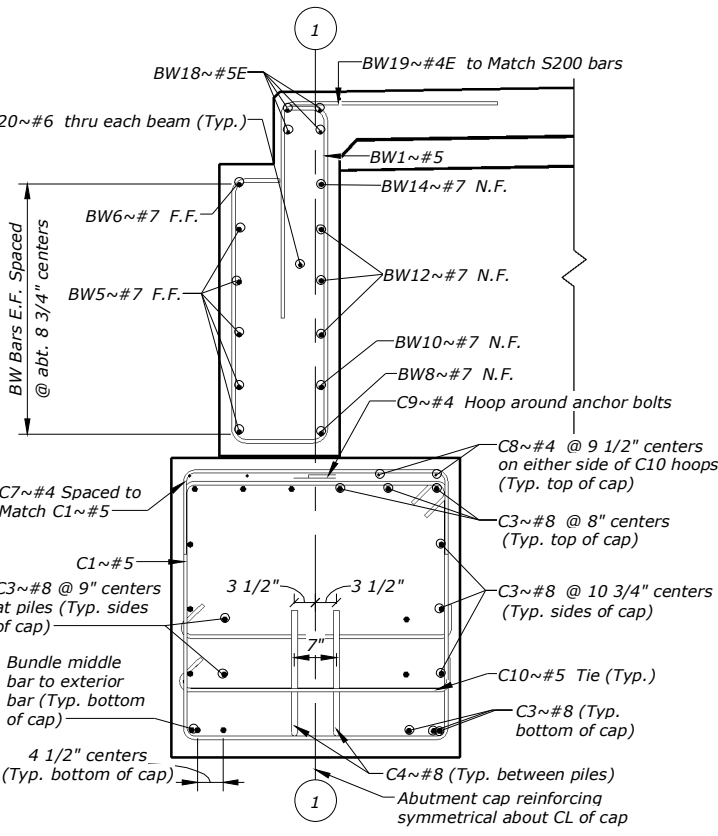
REVISED	REVISED	REVISED	REVISED	CHECKED	DESIGNED	FILENAME:
				05-13-26	03-19-26	1076000BRVT-RVT
				L.A.K.	S.E.W.	



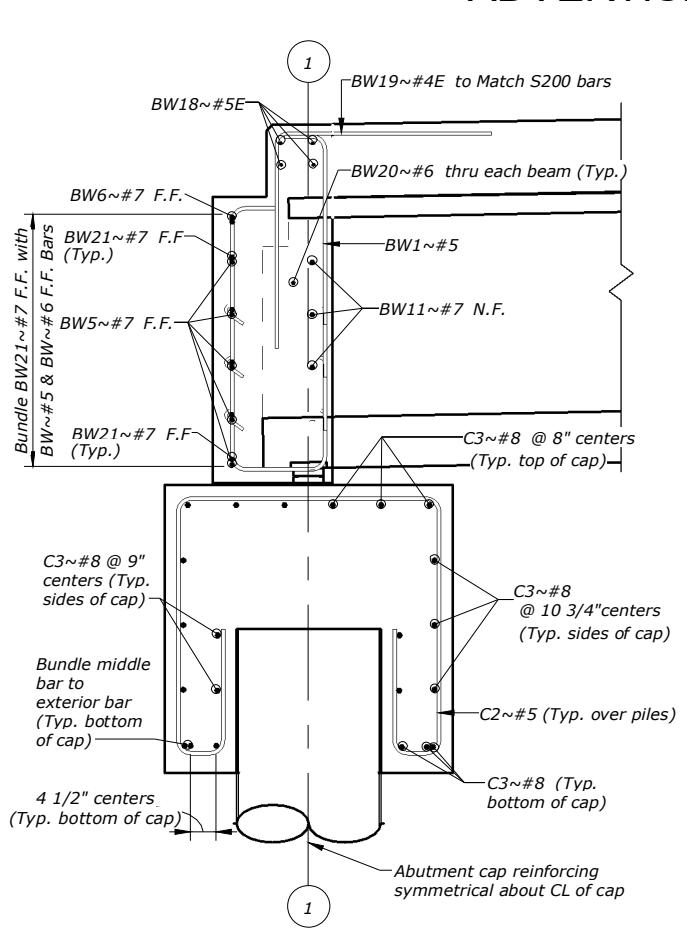
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REF POINT 2+0.589
MDT STR. ID 06853
UPN NUMBER 10760000
DRAWING NO. 21166



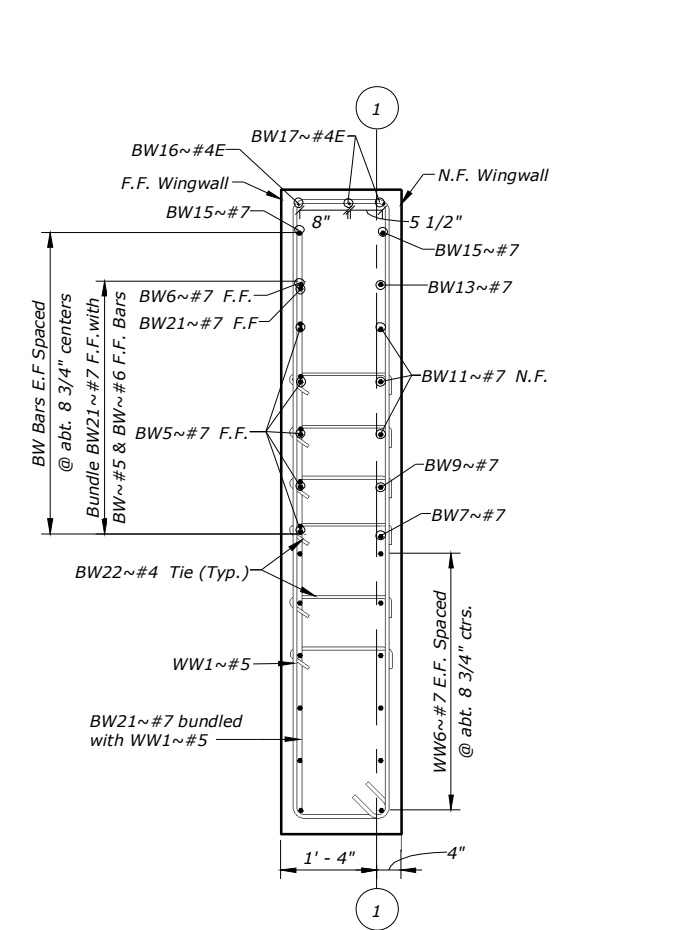
1 ABUTMENT SECTION
B6 Scale ~ 3/8" = 1'-0"



3 ABUTMENT REINFORCING BETWEEN PILES
B6 Scale ~ 3/8" = 1'-0"

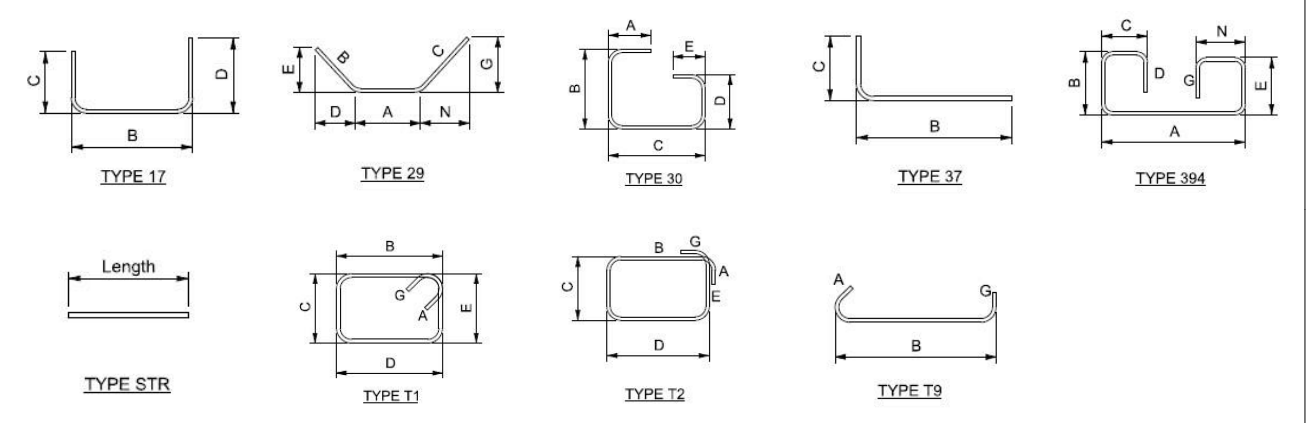


2 ABUTMENT REINFORCING AT PILES
B6 Scale ~ 3/8" = 1'-0"



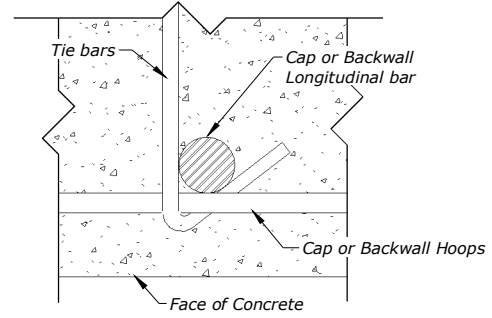
4 WINGWALL SECTION
B6 Scale ~ 3/8" = 1'-0"

ABUTMENT REBAR REFERENCE
(FOR BOTH ABUTMENTS)
(ALL DIMENSIONS ARE OUT TO OUT)

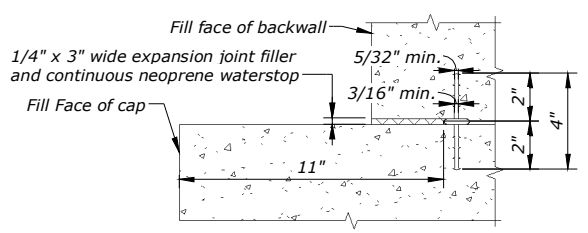


Mark	Size	No.	Type	Length	A	B	C	D	E	G	N
BW1	#5	34	30	10' - 11"	7"	4'-8"	1'-4"	3'-8"	8"		
BW2	#5	16	T1	8' - 6"	6"	2'-5"	1'-4"	2'-5"	1'-4"	6"	
BW3	#5	16	T1	7' - 6"	6"	1'-11"	1'-4"	1'-11"	1'-4"	6"	
BW4	#5	8	T1	13' - 0"	6"	4'-8"	1'-4"	4'-8"	1'-4"	6"	
BW5	#7	10	STR	42' - 8"							
BW6	#7	2	STR	41' - 10 1/2"							
BW7	#7	4	STR	8' - 3"							
BW8	#7	6	STR	4' - 6"							
BW9	#7	4	STR	8' - 3 1/2"							
BW10	#7	6	STR	4' - 7"							
BW11	#7	12	STR	9' - 4"							
BW12	#7	18	STR	6' - 10"							
BW13	#7	4	STR	7' - 3"							
BW14	#7	6	STR	3' - 4"							
BW15	#7	8	STR	4' - 1 1/2"							
BW16	#4E	4	29	9' - 11 1/2"	3'-3"	2'-5"	4'-3 1/2"	1'-1"	2'-2"	1'-10 1/2"	3'-10"
BW17	#4E	8	29	11' - 10"	3'-3"	2'-5"	6'-2 1/2"	1'-1"	2'-2"	2'-8 1/2"	5'-7"
BW18	#5E	8	STR	30' - 4"							
BW19	#4E	64	37	6' - 0"		3'-0"	3'-0"				
BW20	#6	8	STR	6' - 0"							
BW21	#7	26	STR	8' - 0"							
BW22	#4	112	T9	2' - 3"	5"	1'-5"				5"	
C1	#5	116	T1	15' - 6"	6"	3'-8"	3'-7"	3'-8"	3'-7"	6"	
C2	#5	30	394	15' - 8"	3'-8"	3'-7"	8"	1'-9"	3'-7"	1'-9"	8"
C3	#8	44	STR	30' - 0"							
C4	#8	16	17	7' - 6 1/2"		1'-9"	4'-1"	1'-9"			
C5	#4	12	17	7' - 7"		2'-0"	3'-7"	2'-0"			
C6	#4	24	17	6' - 8"		2'-0"	3'-6"	1'-2"			
C7	#4	40	17	6' - 0"		1'-2"	3'-8"	1'-2"			
C8	#4	8	STR	11' - 8 1/2"							
C9	#4	4	T2	10' - 2"	5"	4'-0"	8"	4'-0"	8"	5"	
C10	#5	60	T9	4' - 9"	6"	3'-9"				6"	
C11	#8W	20	17	5' - 3"		1'-8"	1'-11"	1'-8"			
WW1	#5	16	T1	20' - 10"	6"	8'-7"	1'-4"	8'-7"	1'-4"	6"	
WW2	#5	4	T1	20' - 6"	6"	8'-5"	1'-4"	8'-5"	1'-4"	6"	
WW3	#5	4	T1	19' - 8"	6"	8'-0"	1'-4"	8'-0"	1'-4"	6"	
WW4	#5	4	T1	18' - 10"	6"	7'-7"	1'-4"	7'-7"	1'-4"	6"	
WW5	#5	4	T1	18' - 0"	6"	7'-2"	1'-4"	7'-2"	1'-4"	6"	
WW6	#7	48	STR	5' - 11"							
WW7	#4	12	37	8' - 8"		1'-6"	7'-2"				

NOTE: See Sheet B5 for C11~#8W details.



5 TIE BAR DETAIL
No Scale



6 WATERSTOP DETAIL
B8 Scale ~ 1 1/2" = 1'-0"

SHEET NO.
B8

BENT NO. 1 & NO. 4
DETAILS CONTINUED

SCALE: As indicated

BRIDGE OVER
LIBBY CREEK

AT STA.
106+27.61

FEDERAL AID PROJECT NO.
STPS 482-1(10)2

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05-19-26
05-16-26

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S.E.W.
M.L.C.

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BRIDGE BUREAU

5/27/2026 9:03:08 AM

ROUTE
S-482

REF POINT
2+0.589

MDT STR. ID
06853

UPN NUMBER
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DRAWING NO.
21167

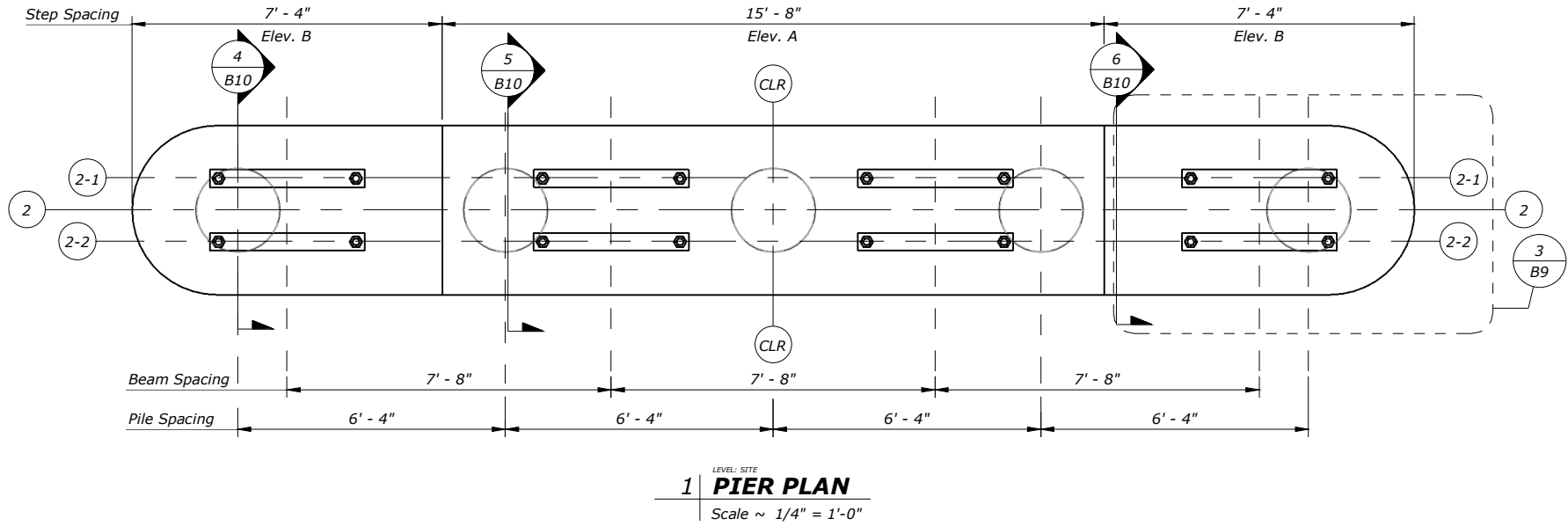
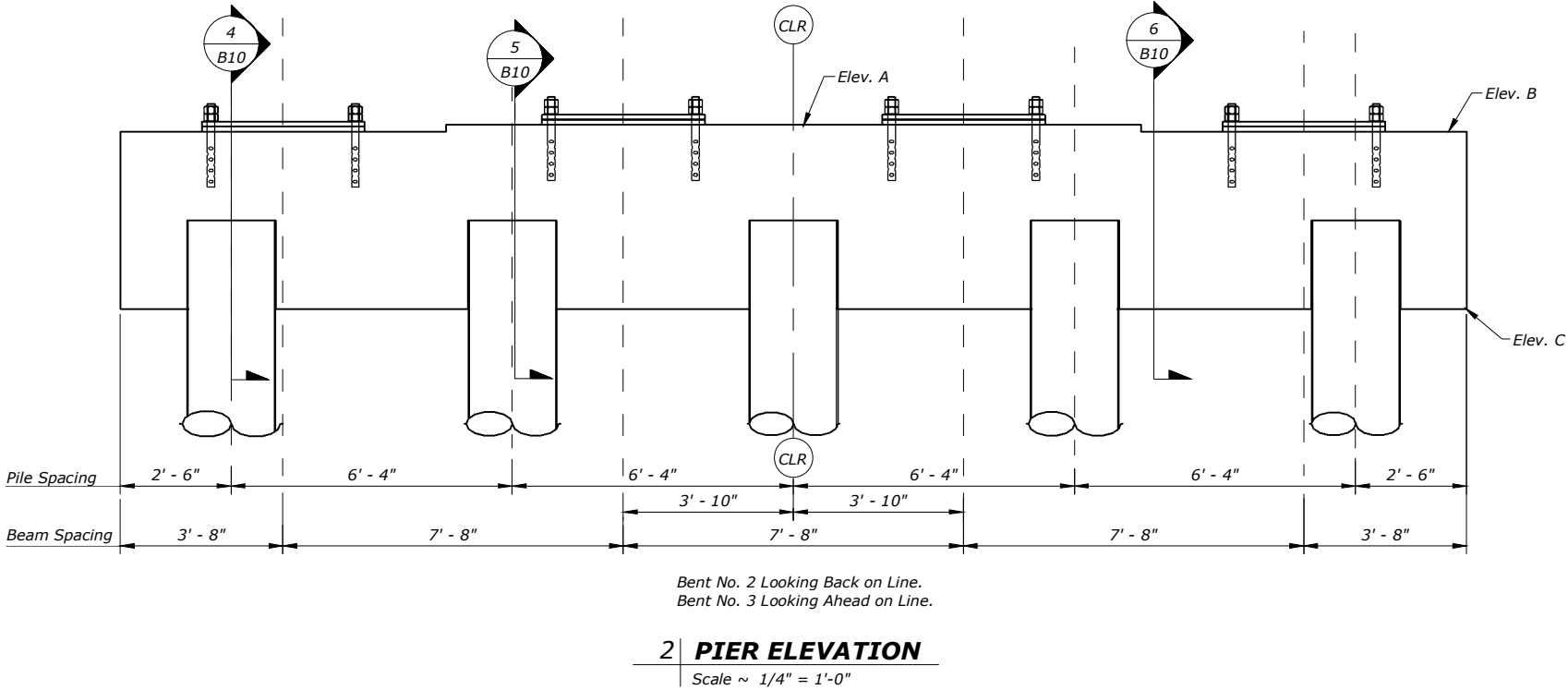
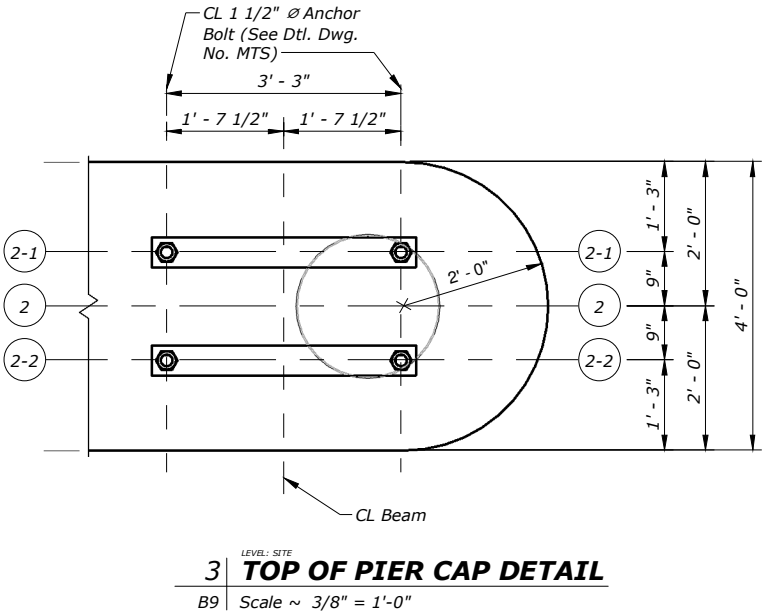


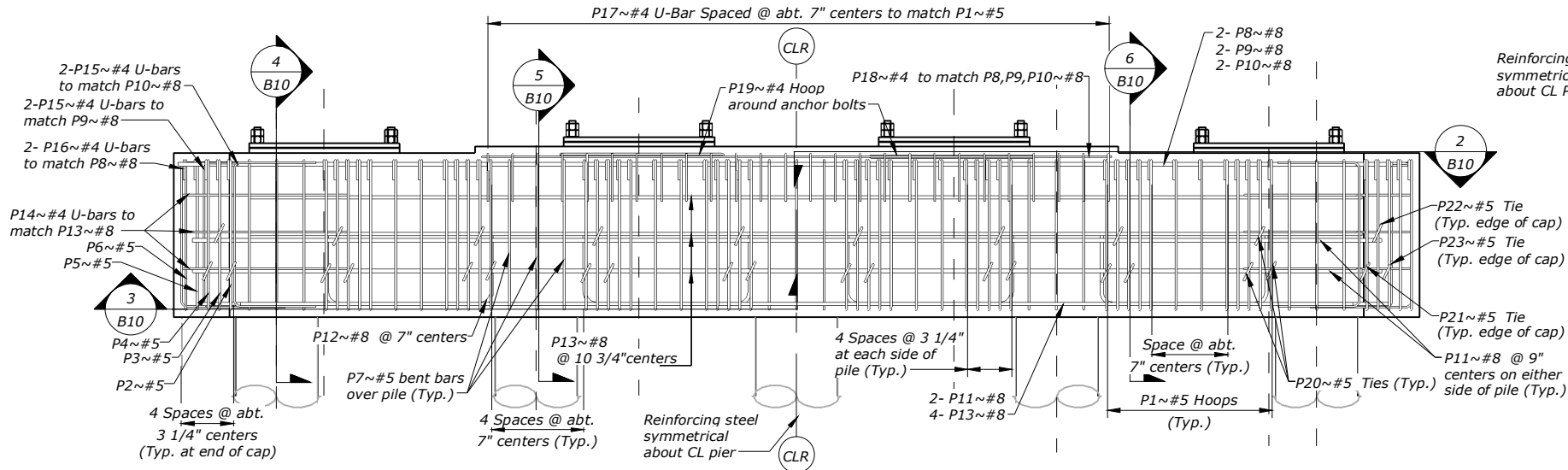
TABLE OF ELEVATIONS PIER

ELEVATION	PIER NO. 2	PIER NO. 3
A	2360.18'	2362.61'
B	2360.03'	2362.77'
C	2356.03'	2358.61'



Bent No. 2 Looking Back on Line.
Bent No. 3 Looking Ahead on Line.





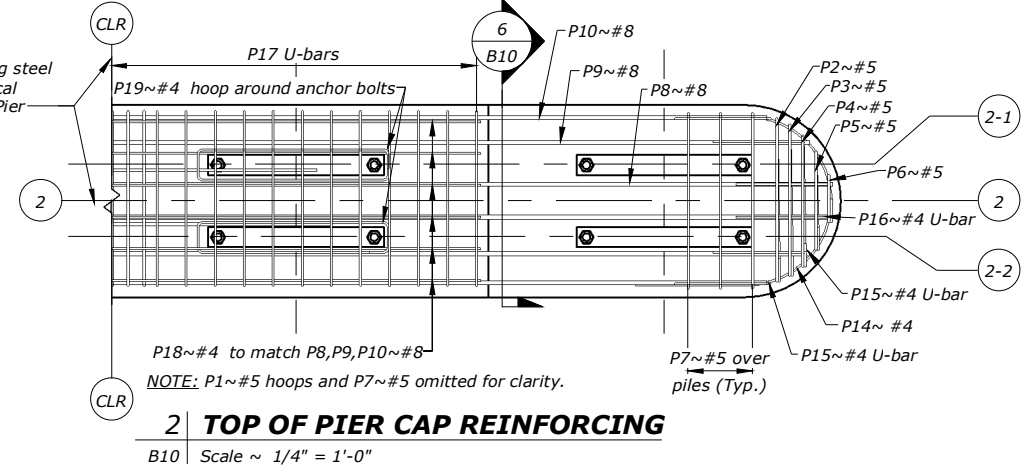
NOTE: Alternate the orientation of Type T1 bars such that the end hooks are not located at the same corner on two consecutive hoops.

NOTE: Place Type T9 tie bars in sequence such that the 135° hook is oriented to alternate sides of the structural element for successive bars.

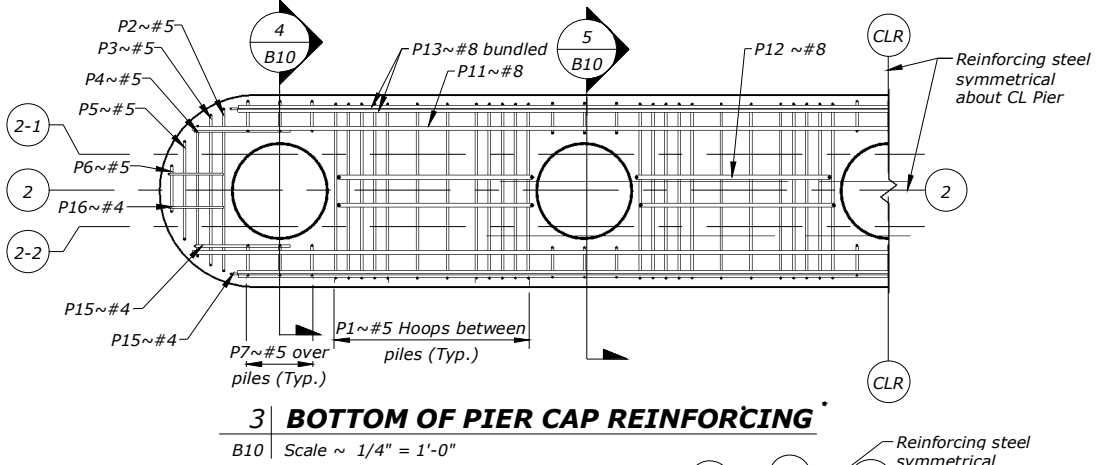
NOTE: Ensure reinforcing steel does not interfere with anchor bolt placement.

Bent No. 2 Looking Back on Line.
Bent No. 3 Looking Ahead on Line.

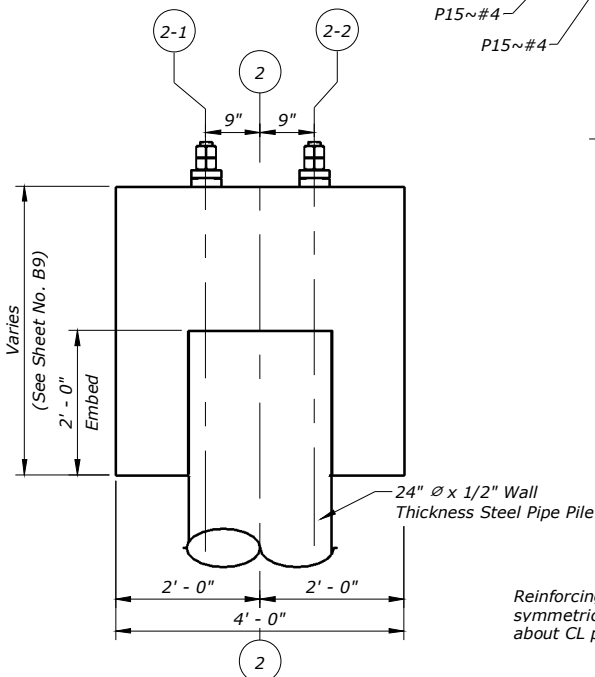
1 | **PIER CAP REINFORCING**
Scale ~ 1/4" = 1'-0"



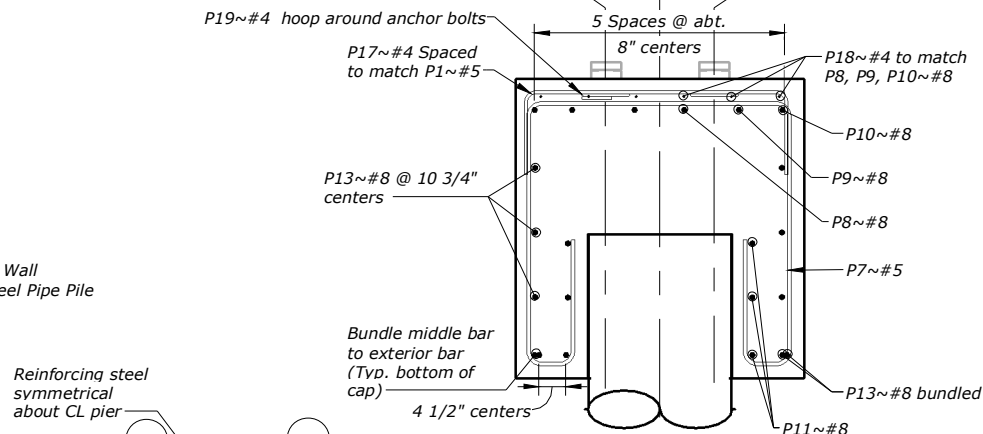
2 | **TOP OF PIER CAP REINFORCING**
B10 | Scale ~ 1/4" = 1'-0"



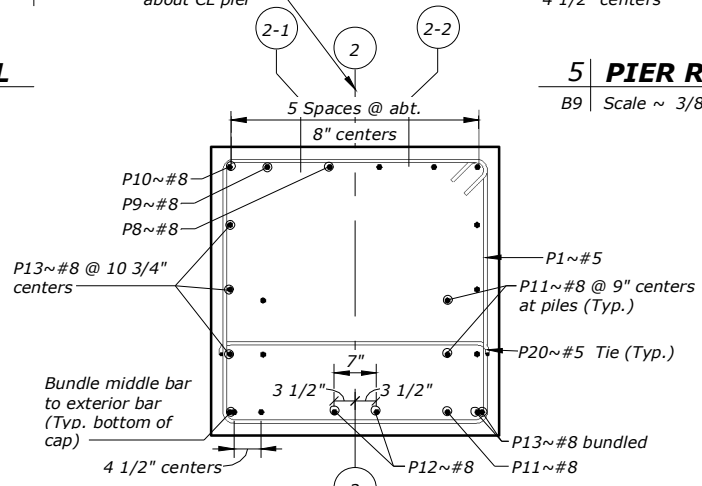
3 | **BOTTOM OF PIER CAP REINFORCING**
B10 | Scale ~ 1/4" = 1'-0"



4 | **PIER DETAIL**
B9 | Scale ~ 3/8" = 1'-0"



5 | **PIER REINFORCING AT PILES**
B9 | Scale ~ 3/8" = 1'-0"



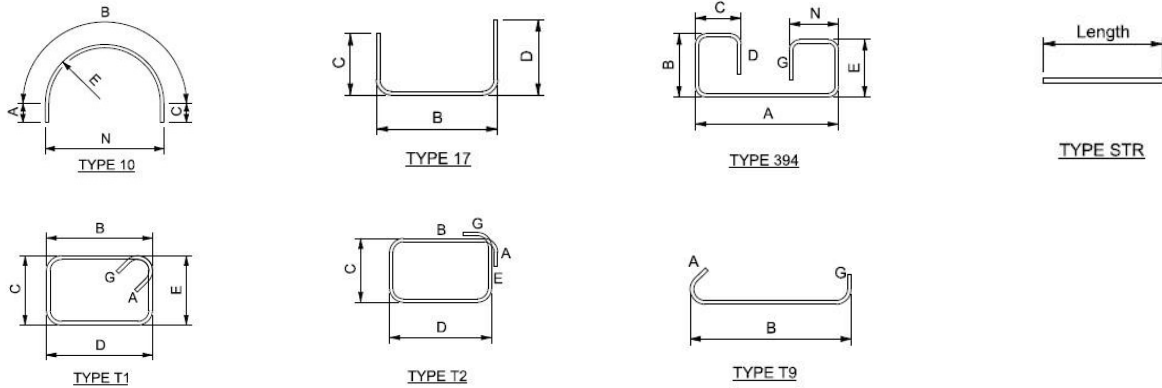
6 | **PIER REINFORCING BETWEEN PILES**
B9 | Scale ~ 3/8" = 1'-0"

PIER REBAR REFERENCE

(FOR BOTH PIERS)

SEE SHEET NOS. B14 & B15 FOR STRUCTURE BILL OF REINFORCING STEEL

(ALL DIMENSIONS ARE OUT TO OUT)



Mark	Size	No.	Type	Length	A	B	C	D	E	G	N
P1	#5	96	T1	15' - 8"	6"	3'-8"	3'-8"	3'-8"	3'-8"	6"	
P2	#5	4	T1	15' - 2"	6"	3'-5"	3'-8"	3'-5"	3'-8"	6"	
P3	#5	4	T1	14' - 8"	6"	3'-2"	3'-8"	3'-2"	3'-8"	6"	
P4	#5	4	T1	13' - 10"	6"	2'-9"	3'-8"	2'-9"	3'-8"	6"	
P5	#5	4	T1	12' - 6"	6"	2'-1"	3'-8"	2'-1"	3'-8"	6"	
P6	#5	4	T1	10' - 4"	6"	1'-0"	3'-8"	1'-0"	3'-8"	6"	
P7	#5	30	394	15' - 10"	3'-8"	3'-8"	8"	1'-9"	3'-8"	1'-9"	8"
P8	#8	4	STR	30' - 0"							
P9	#8	4	STR	29' - 7"							
P10	#8	4	STR	27' - 3"							
P11	#8	12	STR	28' - 11 1/2"							
P12	#8	16	17	7' - 7"		1'-9"	4'-1"	1'-9"			
P13	#8	20	STR	27' - 1"							
P14	#4	12	10	10' - 2"	2'-4"	5'-6"	2'-4"		1'-9"		3'-6 1/2"
P15	#4	16	17	7' - 6 1/2"		2'-0"	3'-6 1/2"	2'-0"			
P16	#4	8	17	6' - 8 1/2"		2'-0"	3'-6 1/2"	1'-2"			
P17	#4	52	17	6' - 0"		1'-2"	3'-8"	1'-2"			
P18	#4	12	STR	15' - 4"							
P19	#4	8	T2	10' - 2"	5"	8"	4'-0"	8"	4'-0"	5"	
P20	#5	48	T9	4' - 9"	6"	3'-9"				6"	
P21	#5	4	T9	4' - 6"	6"	3'-6"				6"	
P22	#5	4	T9	4' - 3"	6"	3'-3"				6"	
P23	#5	4	T9	3' - 10"	6"	2'-10"				6"	
P24	#8W	20	17	5' - 3"		1'-8"	1'-11"	1'-8"			

NOTE: See Sheet B5 for P24~#8W details.

SHEET NO.
B10

PIER NO. 2 & NO. 3
DETAILS

SCALE: As indicated

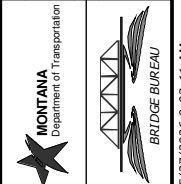
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				L.A.K.	S.E.W.	M.L.C.	



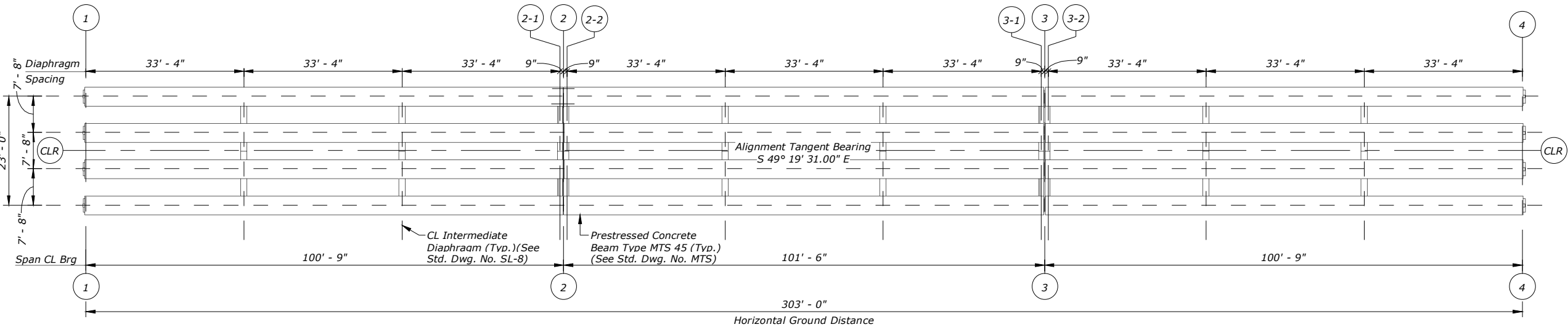
ROUTE
S-482

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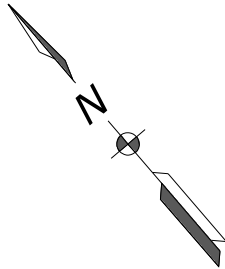
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21169



1
ERECTION PLAN
Scale ~ 1" = 25'



DEAD LOAD DEFLECTION TABLE					
TYPE MTS-45 PRESTRESSED CONCRETE BEAM					
SPAN LENGTH 100'-0"					
TENTH POINT					
	0.1	0.2	0.3	0.4	0.5
INT.	13/16"	1 1/2"	2 1/16"	2 7/16"	2 1/2"
EXT.	3/4"	1 7/16"	2"	2 5/16"	2 7/16"

NOTE: Deflections symmetrical about 0.5 point and do not include beam dead load.

PRESTRESSED BEAM DESIGN PARAMETERS	
AASHTO Specification	LRFD 9th Edition with 2023 Interims
Structure Type	Simple Span
Deck Concrete Strength	4000 psi
Deck Concrete Density	150 lb/ft ³
Prestressing Strand	270 ksi Low Relaxation - (0.500" or 0.600" diameter)
Shear Reinforcing	AASHTO M 31 Grade 60
Alternate Shear Reinforcing	Welded Wire Reinforcement - AASHTO M55, M221, or MS4
Section Property Calculations	Gross Section
Prestress Loss Method	Approximate Losses per LRFD 5.9.3 and 5.9.3.3
Shear Computation Method	Sectional Model per LRFD 5.7.3
Beam / Slab Interface	Intentionally Roughened to 1/4" amplitude
Load Rating Requirements	AASHTO LRFR Design Load

NOTE: The Refined Loss Prestress Method should not be used.

PRESTRESSED BEAM LOAD TABLE		
LOAD TYPE	LOADS	APPLICATION METHOD
Barrier Load	0.411 kip/ft per rail	Equally to all beams
Future Wearing Surface	20 lb/ft ² applied between curbs	Equally to all beams
Interior Diaphragm	1.87 kip/diaphragm	At point load
Exterior Diaphragm	0.93 kip/diaphragm	At point load
Additional Dead Load	----	----
Live Load	LRFD - HL-93	per AASHTO LRFD

SHEET NO.

B11

ERECTION PLAN

BRIDGE OVER

LIBBY CREEK

FEDERAL AID PROJECT NO.

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UPN NUMBER

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DRAWING NO.

21170

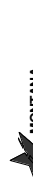
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AT STA.

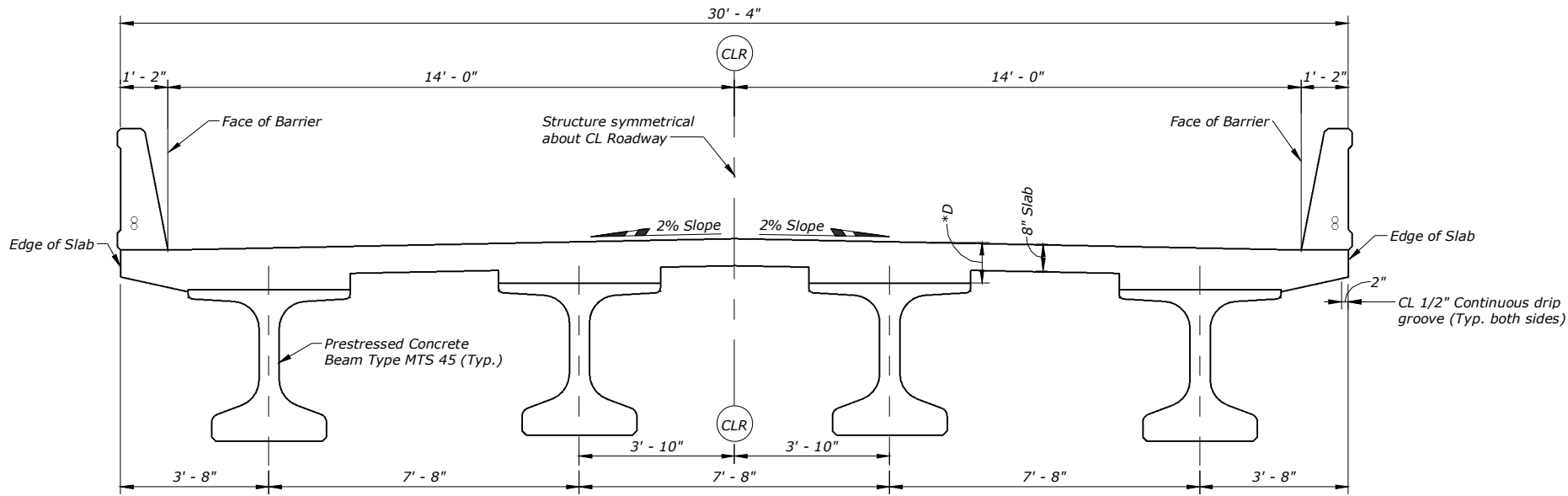
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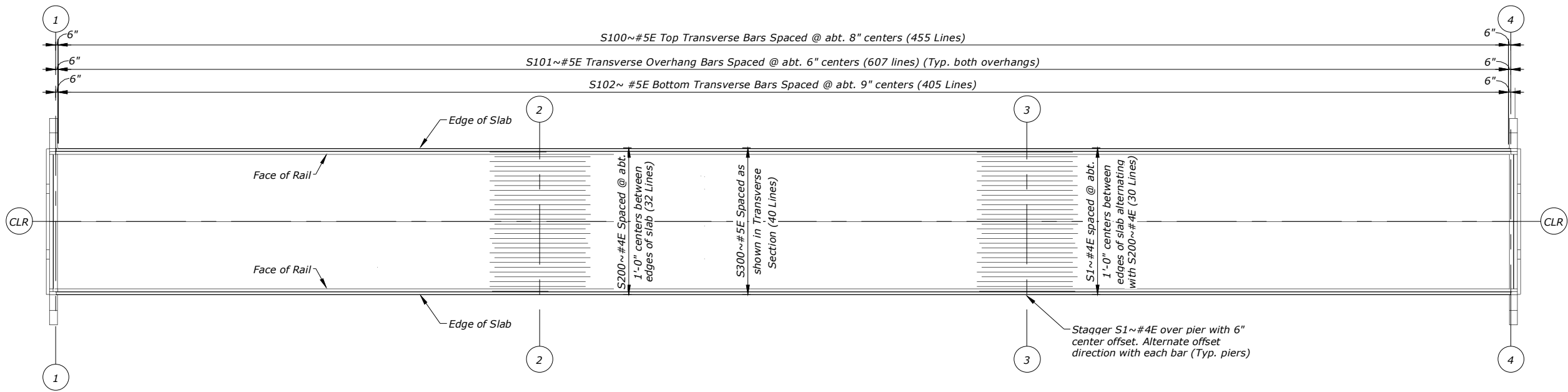


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*Dimension D = 12" at low side of beam except as otherwise noted on Erection Plan (Varies at tenth points). See Dead Load Deflection Table, Sheet B11 and Camber Diagram, Std. Dwg. No. SL-8.

1 | **TRANSVERSE SECTION**
Scale ~ 1/4" = 1'-0"



2 | **REINFORCING STEEL PLACEMENT DIAGRAM**
Scale ~ 1" = 25'-0"

SHEET NO.

B12

SLAB DETAILS

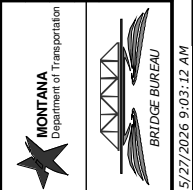
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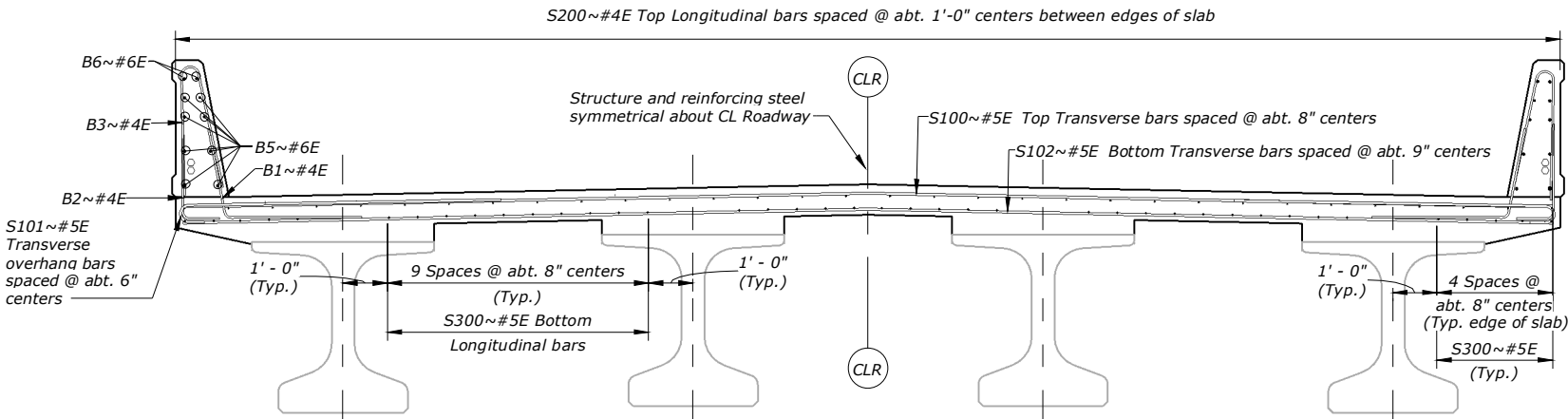
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06853

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21171



NOTE: See Std. Dwg. No. SBR-SS36R for barrier reinforcing details.

1 TRANSVERSE SECTION REINFORCING
Scale ~ 1/4" = 1'-0"

SLAB REBAR REFERENCE

(FOR ENTIRE SLAB)

SEE SHEET NOS. B14 & B15 FOR BILL OF REINFORCING STEEL

(ALL DIMENSIONS ARE OUT TO OUT)

N = Number of Laps

TYPE 27

TYPE 28

TYPE 33

TYPE 37

TYPE STR

TYPE S4

TYPE S5

TYPE T1

TYPE 905

Mark	Size	No.	Type	Length	A	B	C	D	E	G	N	No. Lap
ABT1	#4E	13	28	4' - 6 1/2"	2'-6 1/2"	2'-0"	2'-6"	5 1/2"				
ABT2	#4E	13	STR	3' - 8"								
B1	#4E	632	28	5' - 0"	3'-0"	2'-0"	7"	2'-11 1/2"				
B2	#4E	630	37	2' - 11"		10"	2'-1"					
B3	#4E	632	33	5' - 8 1/2"	2'-6 1/2"	6 1/2"	2'-7 1/2"	2'-9"	2"		11"	
B4	#4E	13	33	5' - 5 1/2"	2'-4 1/2"	8"	2'-5"	2'-7"	2 1/2"		11"	
B5	#6E	16	27.1	319' - 2"		4'-5"	305'-5"	60'-0"	19'-2"			5
B6	#6E	4	27.1	318' - 3"		4'-5"	304'-6"	60'-0"	18'-3"			5
D1	#4E	90	S4	6' - 10"	5"	2'-8 1/2"	7"	2'-8 1/2"		5"		
D2	#4E	36	T1	4' - 9"	5"	1'-4 1/2"	7"	1'-4 1/2"	7"	5"		
D3	#4E	36	T1	5' - 3"	5"	1'-7 1/2"	7"	1'-7 1/2"	7"	5"		
D4	#6E	36	STR	6' - 11"								
D5	#4E	72	STR	6' - 11"								
D6	#6E	20	STR	6' - 0"								
D7	#4E	60	S5	5' - 6"	5"	2'-0 1/2"	7"	2'-0 1/2"		5"		
D8	#6E	24	STR	6' - 11"								
S1	#4E	60	STR	20' - 0"								
S100	#5E	455	STR	30' - 0"								
S101	#5E	1214	905	7' - 7"	6 1/2"	7'-0 1/2"						
S102	#5E	405	STR	30' - 0"								
S200	#4E	32	27.2	323' - 2"		2'-11"	303'-11"	40'-0"	43'-2"			7
S300	#5E	40	27.1	317' - 8"		3'-8"	303'-11"	60'-0"	17'-8"			5

NOTE: Type 27.1 and Type 27.2 are both Type 27 bars.

SHEET NO.
B13

SLAB DETAILS CONTINUED

BRIDGE OVER
LIBBY CREEK

AT STA.
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FEDERAL AID PROJECT NO.
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L.A.K.
S.E.W.
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03-16-26

FILENAME:
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ROUTE
S-482

REF POINT
2+0.589

MDT STR. ID
06853

UPN NUMBER
10760000

DRAWING NO.
21172

STRUCTURE BILL OF REINFORCING STEEL																
Mark	Size	No.	Type	Length	A	B	C	D	E	G	N	No. Lap	Bend Type	Comments	Weight	
ABT1	#4E	13	28	4' - 6 1/2"	2'-6 1/2"	2'-0"	2'-6"	5 1/2"					Standard	Barrier rail end in backwall	39 lb	
ABT2	#4E	13	STR	3' - 8"									Standard	Barrier rail end in backwall	32 lb	
B1	#4E	632	28	5' - 0"	3'-0"	2'-0"	7"	2'-11 1/2"					Standard	Barrier rail bars	2108 lb	
B2	#4E	630	37	2' - 11"		10"	2'-1"						Standard	Barrier rail bars	1232 lb	
B3	#4E	632	33	5' - 8 1/2"	2'-6 1/2"	6 1/2"	2'-7 1/2"	2'-9"	2"		11"		Standard	Barrier rail bars	2415 lb	
B4	#4E	13	33	5' - 5 1/2"	2'-4 1/2"	8"	2'-5"	2'-7"	2 1/2"		11"		Standard	Barrier rail bars	48 lb	
B5	#6E	16	27.1	319' - 2"		4'-5"	305'-5"	60'-0"	19'-2"			5	Standard	Barrier rail longitudinal bars	7671 lb	
B6	#6E	4	27.1	318' - 3"		4'-5"	304'-6"	60'-0"	18'-3"			5	Standard	Barrier rail longitudinal bars	1912 lb	
BW1	#5	34	30	10' - 11"	7"	4'-8"	1'-4"	3'-8"	8"				Standard	Backwall hoops	387 lb	
BW2	#5	16	T1	8' - 6"	6"	2'-5"	1'-4"	2'-5"	1'-4"	6"			Stirrup / Tie	Backwall hoops	142 lb	
BW3	#5	16	T1	7' - 6"	6"	1'-11"	1'-4"	1'-11"	1'-4"	6"			Stirrup / Tie	Backwall hoops	125 lb	
BW4	#5	8	T1	13' - 0"	6"	4'-8"	1'-4"	4'-8"	1'-4"	6"			Stirrup / Tie	Backwall hoops	108 lb	
BW5	#7	10	STR	42' - 8"									Standard	Backwall FF	872 lb	
BW6	#7	2	STR	41' - 10 1/2"									Standard	Backwall FF	171 lb	
BW7	#7	4	STR	8' - 3"									Standard	Backwall NF	68 lb	
BW8	#7	6	STR	4' - 6"									Standard	Backwall NF	55 lb	
BW9	#7	4	STR	8' - 3 1/2"									Standard	Backwall NF	68 lb	
BW10	#7	6	STR	4' - 7"									Standard	Backwall NF	56 lb	
BW11	#7	12	STR	9' - 4"									Standard	Backwall NF	229 lb	
BW12	#7	18	STR	6' - 10"									Standard	Backwall NF	252 lb	
BW13	#7	4	STR	7' - 3"									Standard	Backwall NF	59 lb	
BW14	#7	6	STR	3' - 4"									Standard	Backwall NF	41 lb	
BW15	#7	8	STR	4' - 1 1/2"									Standard	Backwall hoops	67 lb	
BW16	#4E	4	29	9' - 11 1/2"	3'-3"	2'-5"	4'-3 1/2"	1'-1"	2'-2"	1'-10 1/2"	3'-10"		Standard	Backwall chamfer	27 lb	
BW17	#4E	8	29	11' - 10"	3'-3"	2'-5"	6'-2 1/2"	1'-1"	2'-2"	2'-8 1/2"	5'-7"		Standard	Backwall chamfer	63 lb	
BW18	#5E	8	STR	30' - 4"									Standard	Paving notch	253 lb	
BW19	#4E	64	37	6' - 0"		3'-0"	3'-0"						Standard	Backwall to Slab	257 lb	
BW20	#6	8	STR	6' - 0"									Standard	Beam web through bars	72 lb	
BW21	#7	26	STR	8' - 0"									Standard	BW/WW Interface straight bars	425 lb	
BW22	#4	112	T9	2' - 3"	5"	1'-5"				5"			Stirrup / Tie	BW/WW Interface Ties	168 lb	
C1	#5	116	T1	15' - 6"	6"	3'-8"	3'-7"	3'-8"	3'-7"	6"			Stirrup / Tie	Cap hoops	1875 lb	
C2	#5	30	394	15' - 8"	3'-8"	3'-7"	8"	1'-9"	3'-7"	1'-9"	8"		Standard	Cap hoops over piles	490 lb	
C3	#8	44	STR	30' - 0"									Standard	Cap longitudinal bars	3524 lb	
C4	#8	16	17	7' - 6 1/2"		1'-9"	4'-1"	1'-9"					Standard	U-bars between piles	323 lb	
C5	#4	12	17	7' - 7"		2'-0"	3'-7"	2'-0"					Standard	U-bars at end of cap	61 lb	
C6	#4	24	17	6' - 8"		2'-0"	3'-6"	1'-2"					Standard	U-bars at end of cap	107 lb	
C7	#4	40	17	6' - 0"		1'-2"	3'-8"	1'-2"					Standard	Beam seat U-bars	160 lb	
C8	#4	8	STR	11' - 8 1/2"									Standard	Beam seat straight bars	63 lb	
C9	#4	4	T2	10' - 2"	5"	4'-0"	8"	4'-0"	8"	5"			Stirrup / Tie	Beam seat hoops around dowel bars	27 lb	
C10	#5	60	T9	4' - 9"	6"	3'-9"				6"			Stirrup / Tie	Ties around piles	297 lb	
C11	#8W	20	17	5' - 3"		1'-8"	1'-11"	1'-8"					Standard	U-bars in the top of piles	280 lb	
D1	#4E	90	S4	6' - 10"	5"	2'-8 1/2"	7"	2'-8 1/2"		5"			Stirrup / Tie	Intermediate Diaphragm hoops - 5 per bay	411 lb	
D2	#4E	36	T1	4' - 9"	5"	1'-4 1/2"	7"	1'-4 1/2"	7"	5"			Stirrup / Tie	Intermediate Diaphragm hoops	114 lb	
D3	#4E	36	T1	5' - 3"	5"	1'-7 1/2"	7"	1'-7 1/2"	7"	5"			Stirrup / Tie	Intermediate Diaphragm hoops	126 lb	
D4	#6E	36	STR	6' - 11"									Standard	Intermediate Diaphragm straight bars	374 lb	
D5	#4E	72	STR	6' - 11"									Standard	Intermediate Diaphragm straight bars	333 lb	
D6	#6E	20	STR	6' - 0"									Standard	Pier and Intermediate Diaphragm straight bars	180 lb	
D7	#4E	60	S5	5' - 6"	5"	2'-0 1/2"	7"	2'-0 1/2"		5"			Stirrup / Tie	Pier diaphragm hoops - 5 per bay	221 lb	
D8	#6E	24	STR	6' - 11"									Standard	Pier diaphragm straight bars	249 lb	
P1	#5	96	T1	15' - 8"	6"	3'-8"	3'-8"	3'-8"	3'-8"	6"			Stirrup / Tie	Pier hoops	1569 lb	
P2	#5	4	T1	15' - 2"	6"	3'-5"	3'-8"	3'-5"	3'-8"	6"			Stirrup / Tie	Pier hoops	63 lb	
P3	#5	4	T1	14' - 8"	6"	3'-2"	3'-8"	3'-2"	3'-8"	6"			Stirrup / Tie	Pier hoops	61 lb	
P4	#5	4	T1	13' - 10"	6"	2'-9"	3'-8"	2'-9"	3'-8"	6"			Stirrup / Tie	Pier hoops	58 lb	
P5	#5	4	T1	12' - 6"	6"	2'-1"	3'-8"	2'-1"	3'-8"	6"			Stirrup / Tie	Pier hoops	52 lb	
P6	#5	4	T1	10' - 4"	6"	1'-0"	3'-8"	1'-0"	3'-8"	6"			Stirrup / Tie	Pier hoops	43 lb	
P7	#5	30	394	15' - 10"	3'-8"	3'-8"	8"	1'-9"	3'-8"	1'-9"	8"		Standard	Pier hoops over piles	495 lb	
P8	#8	4	STR	30' - 0"									Standard	Pier longitudinal bars	320 lb	
P9	#8	4	STR	29' - 7"									Standard	Pier longitudinal bars	316 lb	
P10	#8	4	STR	27' - 3"									Standard	Pier longitudinal bars	291 lb	
P11	#8	12	STR	28' - 11 1/2"									Standard	Pier longitudinal bars	928 lb	
P12	#8	16	17	7' - 7"		1'-9"	4'-1"	1'-9"					Standard	Pier longitudinal bars	324 lb	
P13	#8	20	STR	27' - 1"									Standard	Pier longitudinal bars	1446 lb	
P14	#4	12	10	10' - 2"	2'-4"	5'-6"	2'-4"		1'-9"		3'-6 1/2"		Standard	Pier curved bars at end of cap	81 lb	
P15	#4	16	17	7' - 6 1/2"		2'-0"	3'-6 1/2"	2'-0"					Standard	Pier U-bars at end of cap	81 lb	
P16	#4	8	17	6' - 8 1/2"			3'-6 1/2"	1'-2"					Standard	Pier U-bars at end of cap	36 lb	
P17	#4	52	17	6' - 0"		1'-2"	3'-8"	1'-2"					Standard	Beam seat U-bars	208 lb	
P18	#4	12	STR	15' - 4"									Standard	Beam seat straight bars	123 lb	
P19	#4	8	T2	10' - 2"	5"	8"	4'-0"	8"	4'-0"	5"			Stirrup / Tie	Beam seat hoops around anchor bars	54 lb	
P20	#5	48	T9	4' - 9"	6"	3'-9"				6"			Stirrup / Tie	Ties around piles	238 lb	
P21	#5	4	T9	4' - 6"	6"	3'-6"				6"			Stirrup / Tie	Ties around piles	19 lb	
P22	#5	4	T9	4' - 3"	6"	3'-3"				6"			Stirrup / Tie	Ties around piles	18 lb	
P23	#5	4	T9	3' - 10"	6"	2'-10"				6"			Stirrup / Tie	Ties around piles	16 lb	
P24	#8W	20	17	5' - 3"		1'-8"	1'-11"	1'-8"					Standard	U-bars in the top of piles	280 lb	

NOTE: Type 27.1 and Type 27.2 are both Type 27 bars.

BAR BENDING DIAGRAMS

(ALL DIMENSIONS ARE OUT TO OUT)

TYPE 10

TYPE 17

TYPE 27

TYPE 28

TYPE 29

TYPE 30

TYPE 33

TYPE 37

TYPE 394

TYPE 905

TYPE S4

TYPE S5

TYPE STR

TYPE I1

TYPE T2

TYPE T9

REINFORCING STEEL BAR MARK LOCATIONS	
MARK	LOCATION
ABT	BARRIER RAIL END
B	BARRIER RAIL
BW	BACKWALL
C	ABUTMENT CAP
D	DIAPHRAGM
P	PIER CAP
S	SLAB
WW	WINGWALL

SHEET NO.

B14

STRUCTURE BILL OF REINFORCING STEEL

SCALE: No Scale

BRIDGE OVER LIBBY CREEK

AT STA. 106+27.61

FEDERAL AID PROJECT NO. STPS 482-1(10)2

COUNTY LINCOLN

REVISIONS

REVISED					
REVISED					
REVISED					
REVISED					
CHECKED	05-13-26	L.A.K.	S.E.W.		
DRAWN	03-19-26				
DESIGNED	03-16-26	M.L.C.			

FILENAME: 1076000BRV1-RVT

MONTANA Department of Transportation

BRIDGE BUREAU

5/27/2026 9:03:13 AM

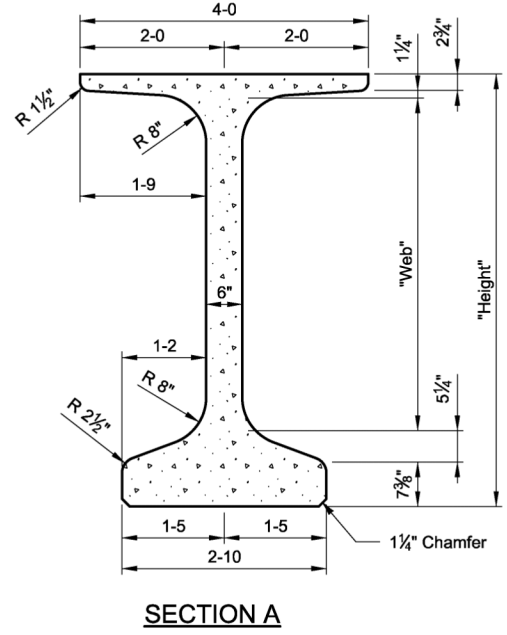
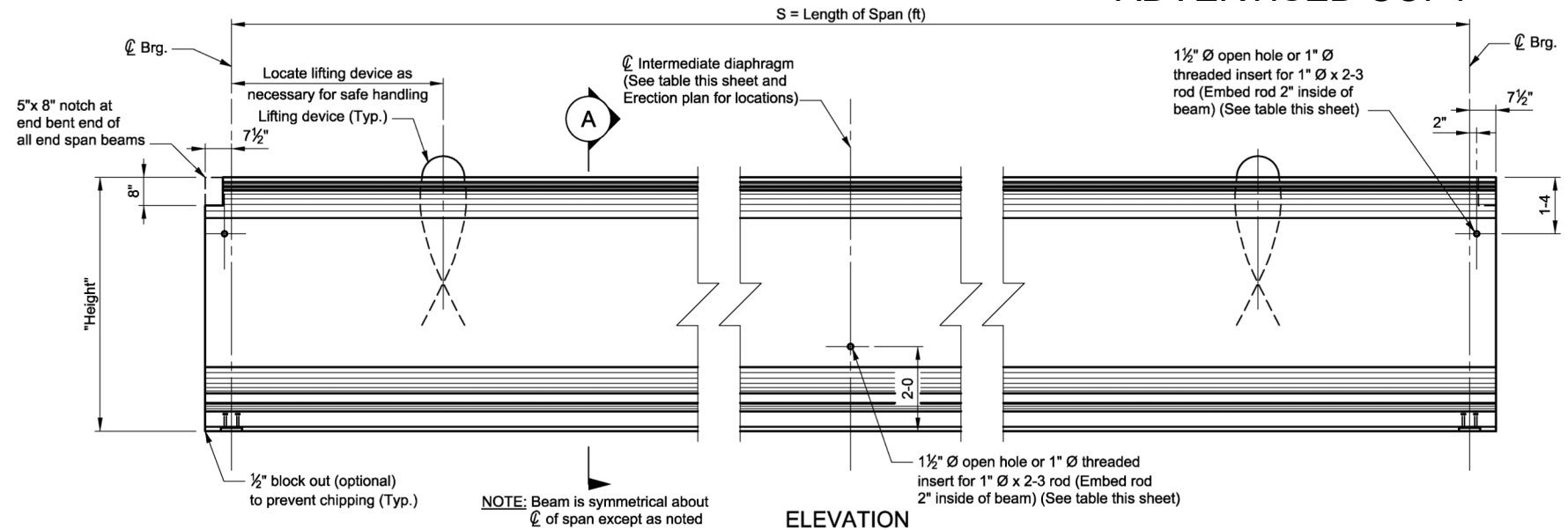
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REF POINT 2+0.589

MDT STR. ID 06853

UPN NUMBER 10760000

DRAWING NO. 21173



NOTES

SPECIFICATIONS: For design specifications, see General Layout. Design and fabricate the beam to support the dead load and live load stresses and provide a minimum ultimate moment capacity shown on the Erection Plan. Show stresses in the beam under each loading condition that is anticipated in the manufacture, handling and service life of the beam.

PRESTRESSING STEEL: Use 0.500" diameter or 0.600" diameter, 7 wire strand prestressing steel.

HARDWARE: Threaded inserts, hold down devices, lifting devices and any other hardware which is to be incorporated in the beam will be approved by the Engineer before fabrication is begun.

DIAPHRAGMS: See Erection Plan for location of diaphragms when structure is skewed.

BEAM LENGTH: Increase the overall length of the beam to allow for elastic shortening, shrinkage and creep.

SHOES: Paint shoes in accordance with Standard Specifications. See details on Bridge Plans if expansion shoes are required. See General layout for type of shoes required.

REINFORCING STEEL: See General Layout. The suffix E denotes epoxy coated reinforcing.

SHEAR REINFORCING: Fabricator will provide shear and end reinforcement to meet the requirements of the AASHTO code specified on the General Layout.

PAYMENT: Include all costs to furnish and install anchor bolts, nuts, smooth bars, metal expansion caps, shoes, fiber-reinforced pads and embedded plates in the unit price bid for Prestressed Beams Type MTS.

STRUCTURAL STEEL: Use structural steel meeting the requirements of AASHTO M 270 Grade 36 for embedded plates, smooth bars and shoes. Use structural steel meeting the requirements of AASHTO M 314 Grade 55 for anchor bolts. Galvanize the anchor bolts meeting the requirements of AASHTO M 232. Use headed shear studs meeting the requirements of AASHTO M 169 Grades 1010 through 1020.

HORIZONTAL INTERFACE SHEAR REINFORCEMENT: Fabricator will provide spacing that meets the requirements of the AASHTO code specified on the General Layout.

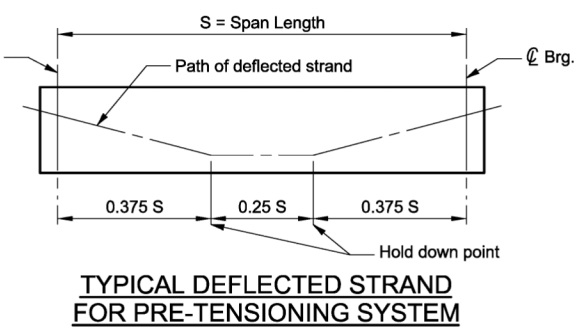
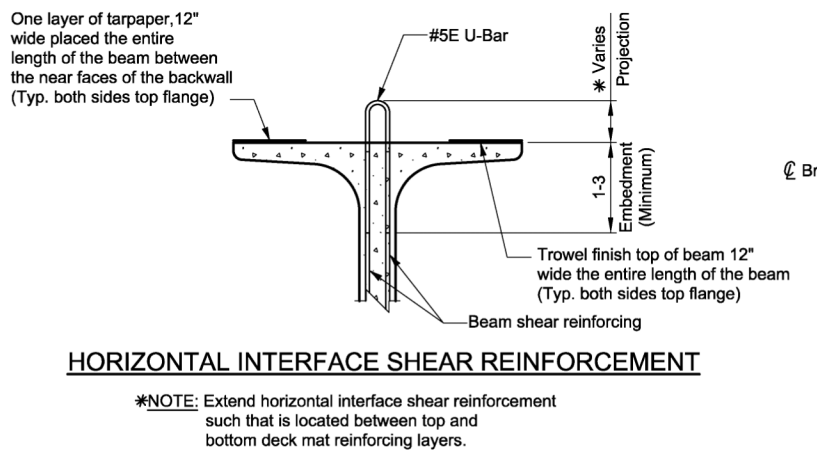
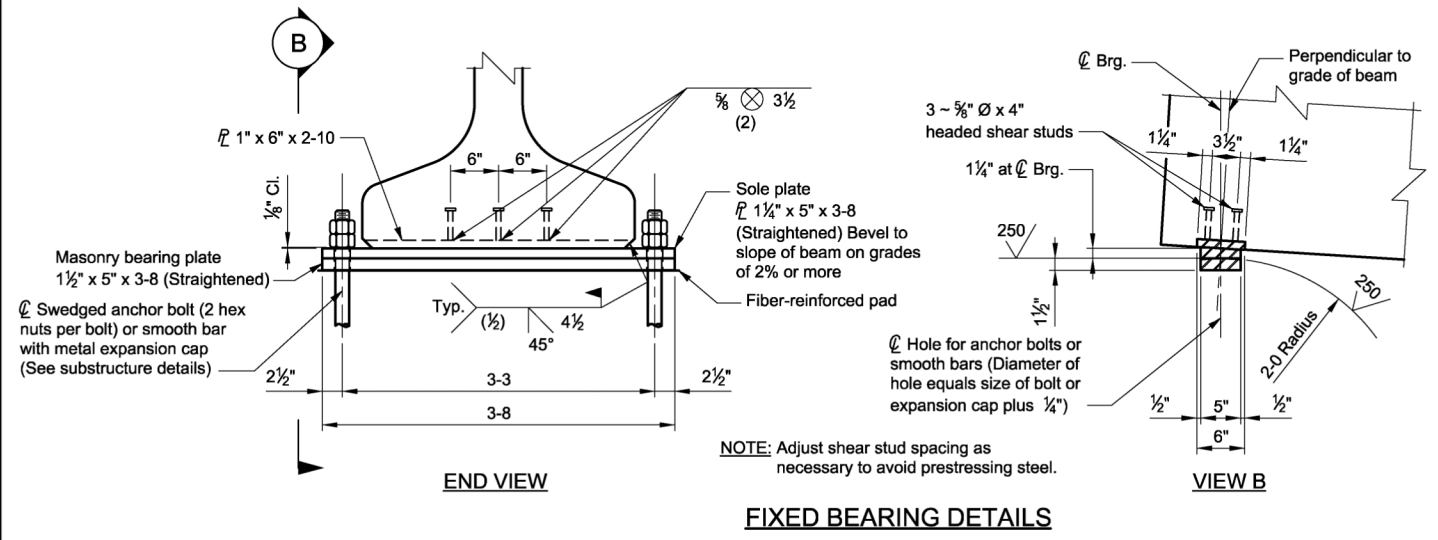
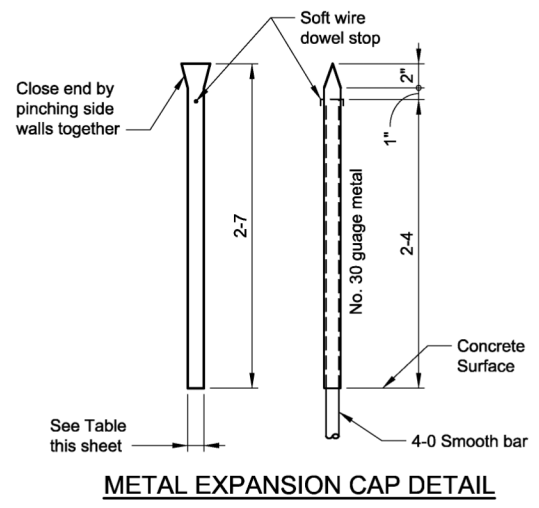
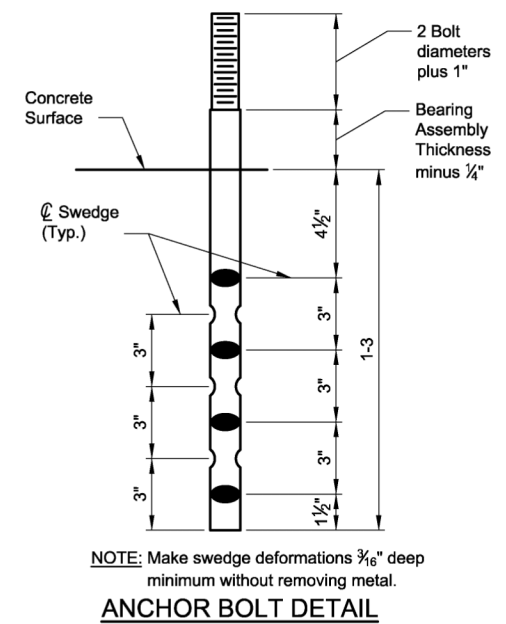
MONTANA SUPER GIRDER PROPERTIES								
NAME	Girder Depth "Height"	"Web"	A (in ²)	Ycg (in)	Ixo (in ⁴)	Sx (Top) (in ³)	Sx (Bot) (in ³)	Weight (lb/ft)
MTS-36	36"	19 3/8"	670	16.44	112 100	5 732	6 818	700
MTS-45	45"	28 3/8"	724	20.28	197 679	7 998	9 746	755
MTS-54	54"	37 3/8"	778	24.22	312 050	10 477	12 886	810
MTS-63	63"	46 3/8"	832	28.22	457 505	13 155	16 210	865
MTS-72	72"	55 3/8"	886	32.29	636 312	16 024	19 706	925
MTS-81	81"	64 3/8"	940	36.41	850 718	19 077	23 368	980
MTS-96	96"	79 3/8"	1030	43.36	1 293 240	24 566	29 829	1075

DIAPHRAGM LOCATIONS	
SPAN LENGTH	DIAPHRAGM LOCATION
0 - 40 ft	NONE
40 - 80 ft	1/2 S
80 - 120 ft	1/3 S
120 - 160 ft	1/4 S
greater than 160 ft	See Erection Plan

ANCHOR BOLT DIAMETERS		
SPAN LENGTH	ANCHOR BOLT OR SMOOTH BAR DIAMETER	EXPANSION CAP DIAMETER
0 - 50 ft	1"	1 1/8"
50 - 100 ft	1 1/4"	1 3/8"
100 - 150 ft	1 1/2"	1 5/8"
greater than 150 ft	1 3/4"	1 7/8"

WEB THREADED INSERT / HOLE		
CONDITION	EXTERIOR BEAM	INTERIOR BEAM
End Bent Fixed Bearing	Open Hole	Open Hole
End Bent Exp Bearing	Threaded Insert	Open Hole
Intermediate Bent	Threaded Insert	Open Hole
Intermediate Diaphragm	Threaded Insert	Open Hole

NOTE: Place threaded inserts at diaphragm face of beam only.



STANDARD PRESTRESSED
CONCRETE BEAM
TYPE MTS

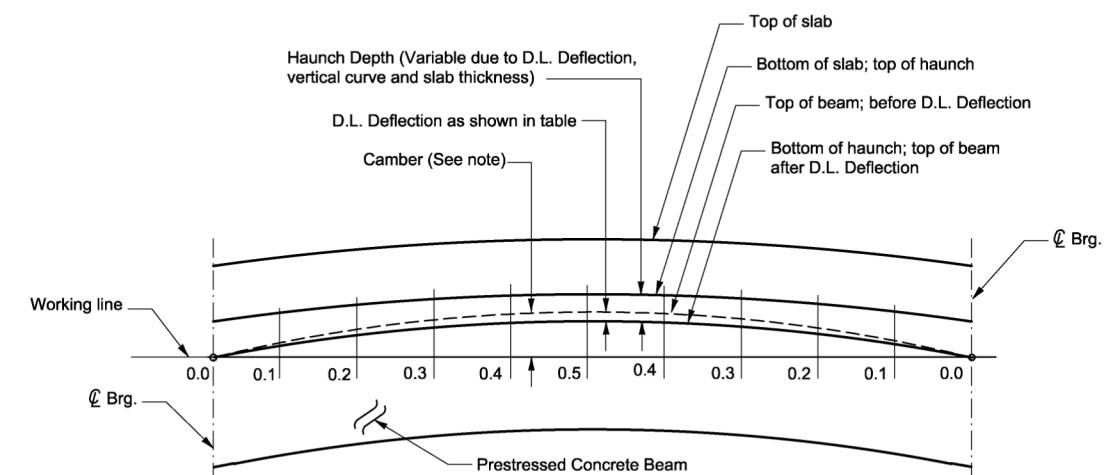
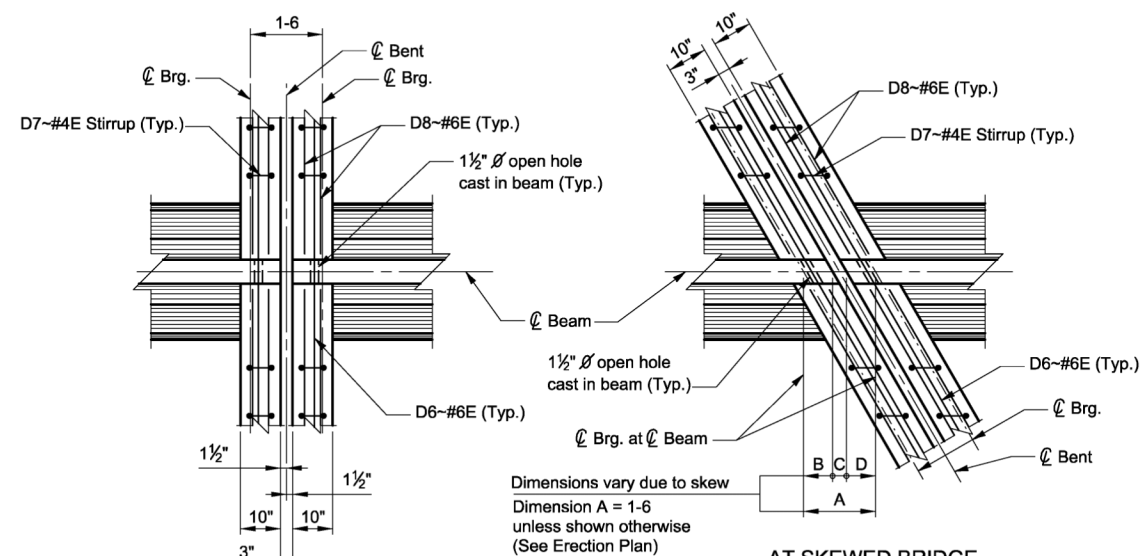
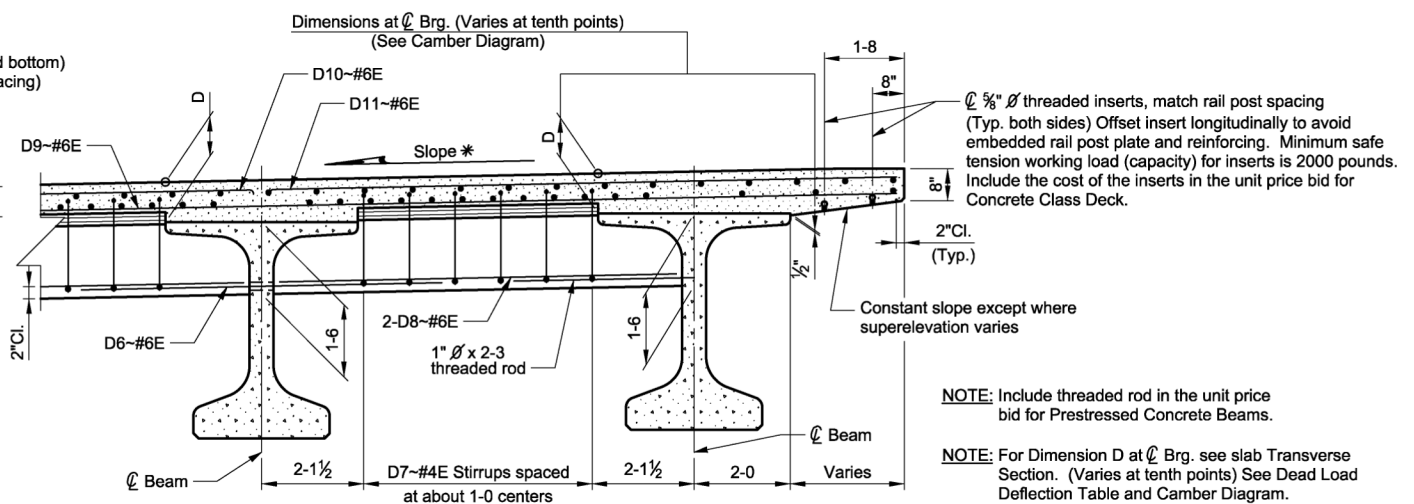
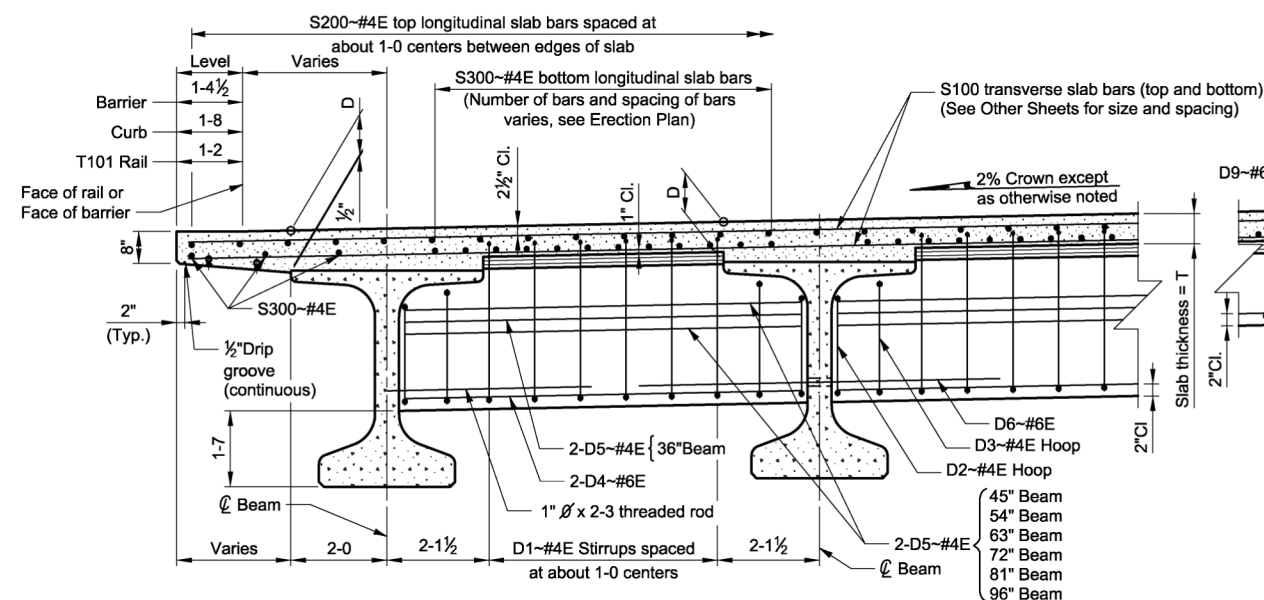
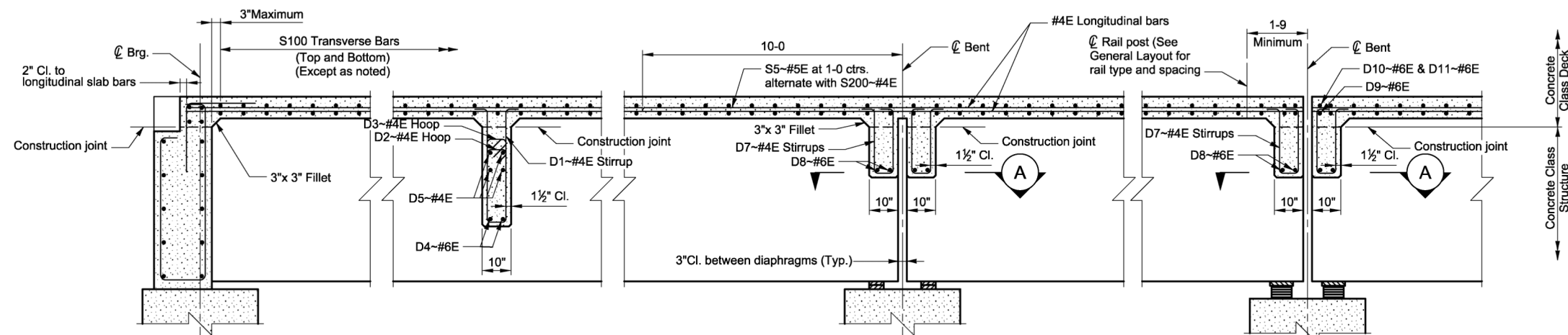
MDTA
MONTANA DEPARTMENT
OF TRANSPORTATION

BRIDGE BUREAU

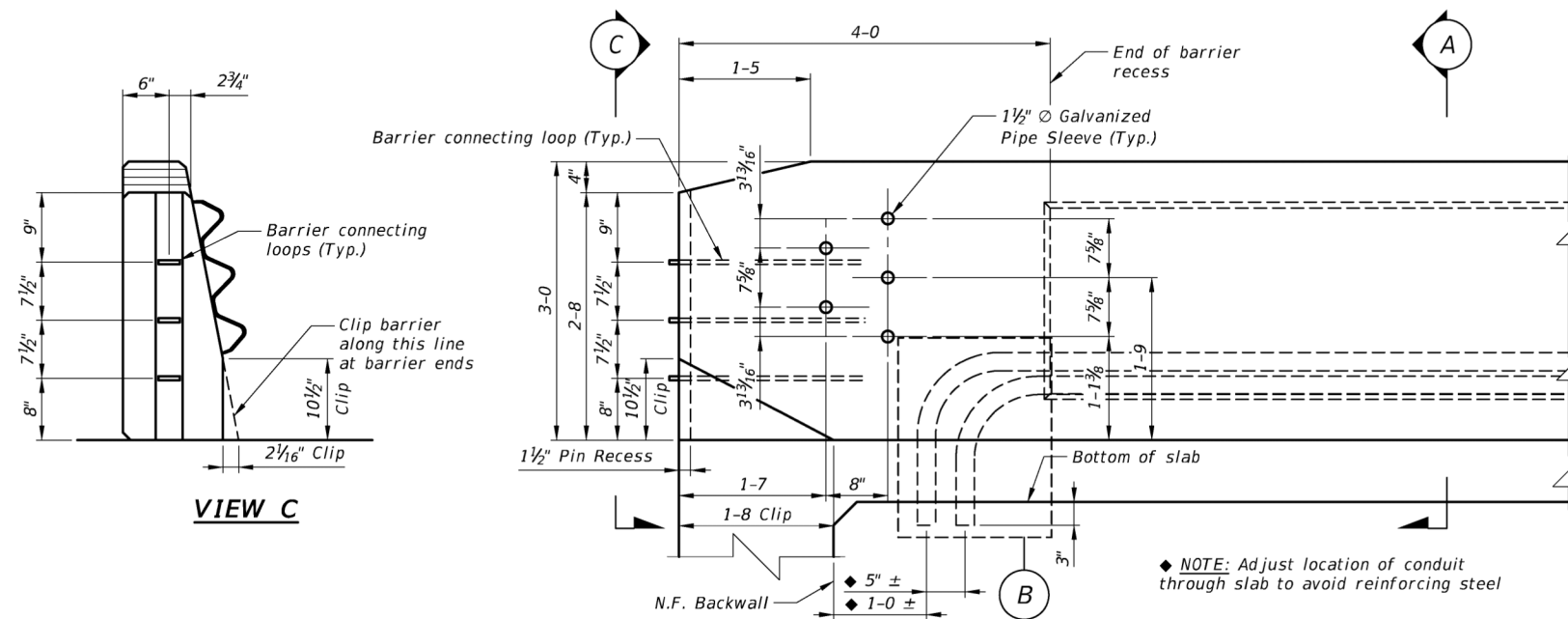
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				D.F.J.	D.F.J.	D.F.J.	T.J.B.				

DRAWING NO.
MTS

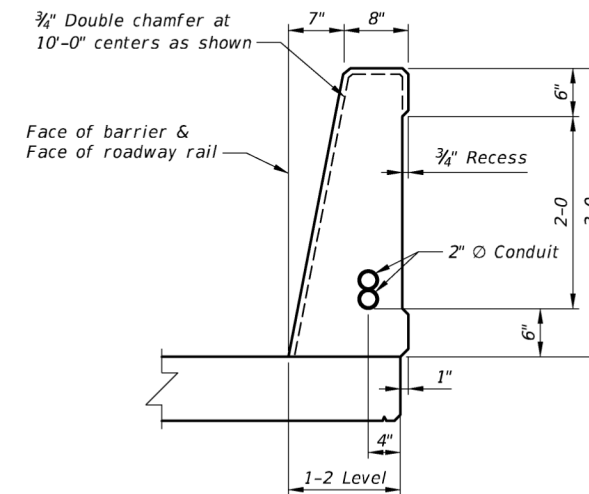
The suffix E denotes epoxy coated reinforcing.



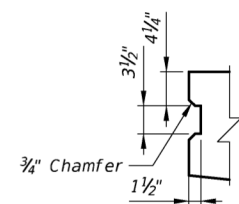
NOTE: Camber is noted as the distance from the working line to the top of beam and may vary from theoretically calculated D.L. deflection.



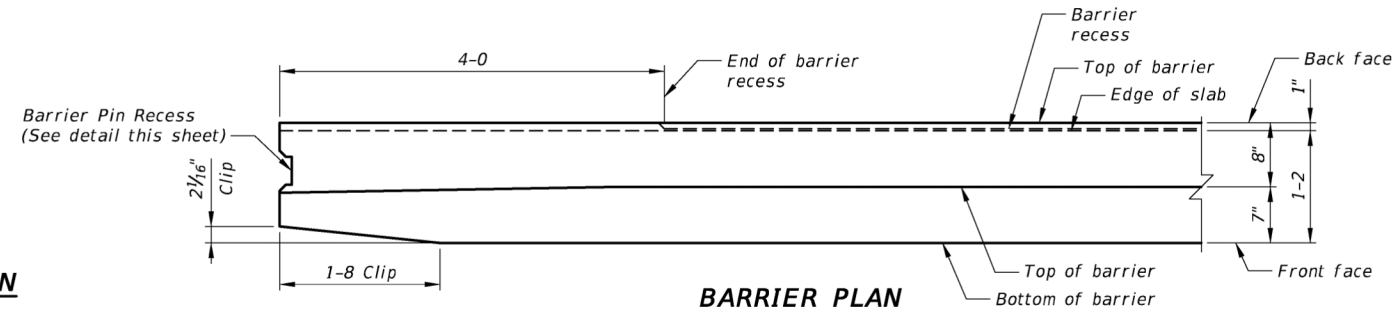
BARRIER INSIDE ELEVATION



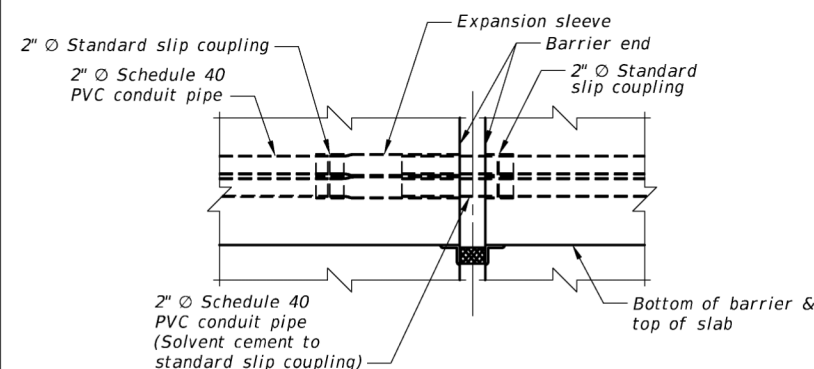
SECTION A



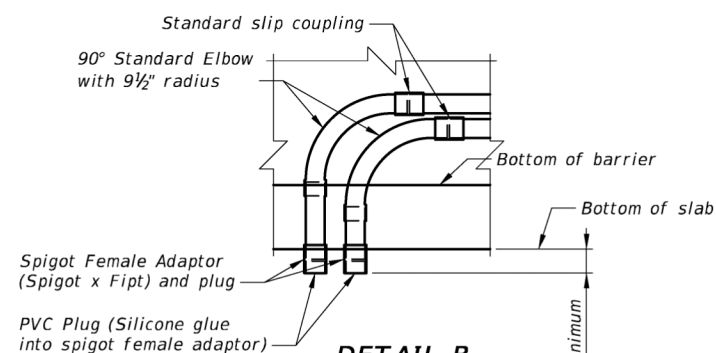
BARRIER PIN RECESS PLAN



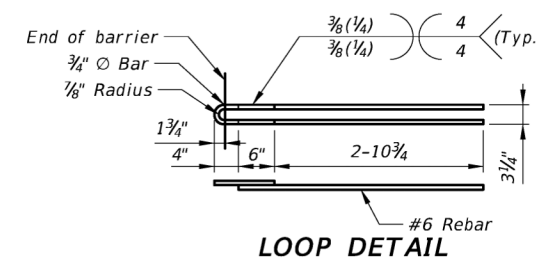
BARRIER PLAN



CONDUIT EXPANSION JOINT DETAIL



DETAIL B

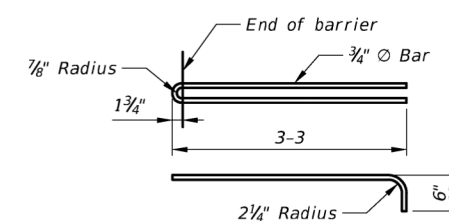


LOOP DETAIL

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.



OPTIONAL LOOP DETAIL

NOTE: Weld rebar to loops using $\frac{1}{8}$ " \odot 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.

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 $\frac{3}{4}$ " 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-SS36R for reinforcing steel locations.

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

RADIUS: A $\frac{3}{4}$ " radius may be substituted for the $\frac{3}{4}$ " chamfers and fillets shown.

PAYMENT: Include all costs associated with the barrier as shown on this sheet in the unit price bid for 36 IN SS Concrete Barrier Rail-Br. See Std. Dwg. No. SBR-SS36R 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.

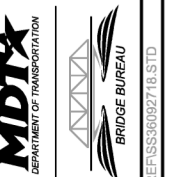
Rail weight = 411 lb/ft
Rail Volume = 2.74 ft³/ft

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.

RAIL DESIGN CAPACITY		
	Interior Region	End Region
R_w	100 kips	67 kips
L_c	16'-9"	5'-9"
M_c	106 kip*in/ft	209 kip*in/ft

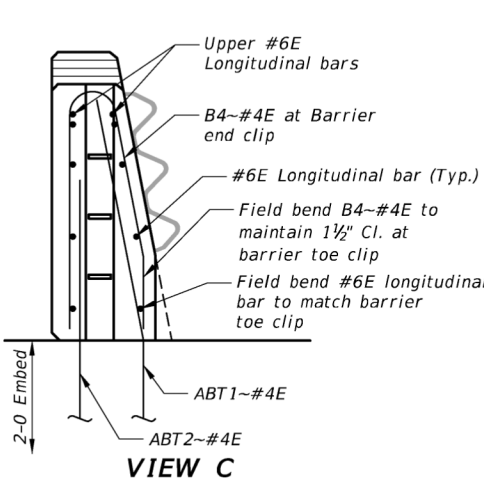
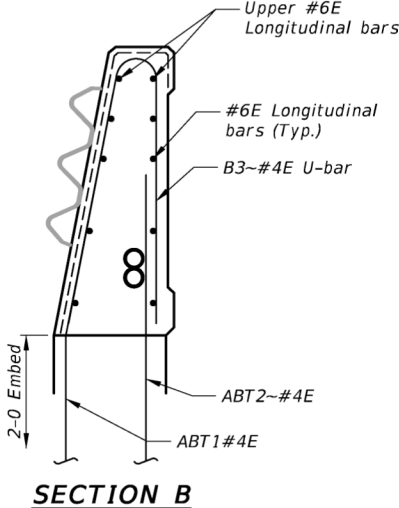
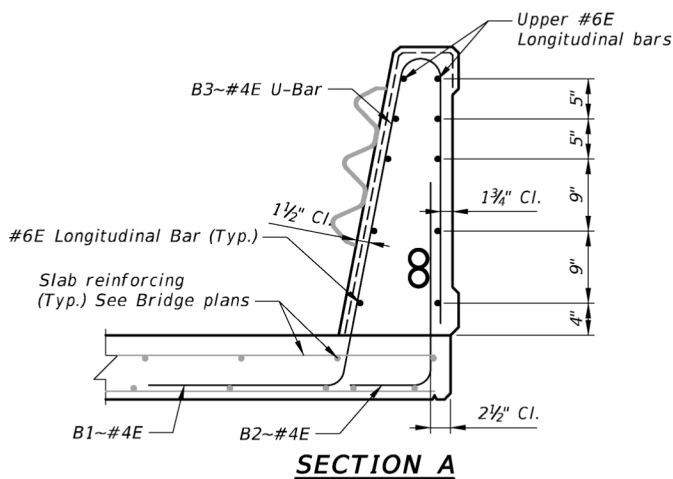
STANDARD BRIDGE RAIL
TYPE SINGLE SLOPE 36"

No Scale



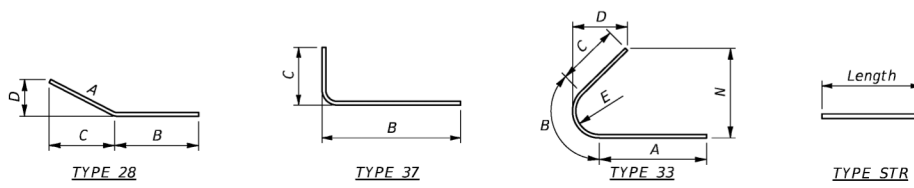
REVISED				
REVISED				
REVISED				
APPROVED	9-27-18	J.S.O.		
CHECKED	6-28-18	T.W.S.		
DRAWN	5-8-18	T.J.B.		
9/28/2018	9:51:17 AM	...	ENGLISH R	

DRAWING NO.
SBR-SS36



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	#4E	28	5-0	3-0	2-0	6 3/4"	2-11 1/4"			
B2	#4E	37	2-11 1/4"		10"	2-1 1/4"				
B3	#4E	33	5-9 1/4"	2-6 1/2"	7 1/4"	2-7 1/2"	2-9"	2"		11"
B4	#4E	33	5-5 3/4"	2-4 1/4"	8 1/4"	2-5 1/4"	2-7"	2 1/4"		11 1/4"
ABT1	#4E	28	4-6 1/2"	2-6 1/2"	2-0	2-6"	5 3/4"			
ABT2	#4E	STR	3-8							

NOTES

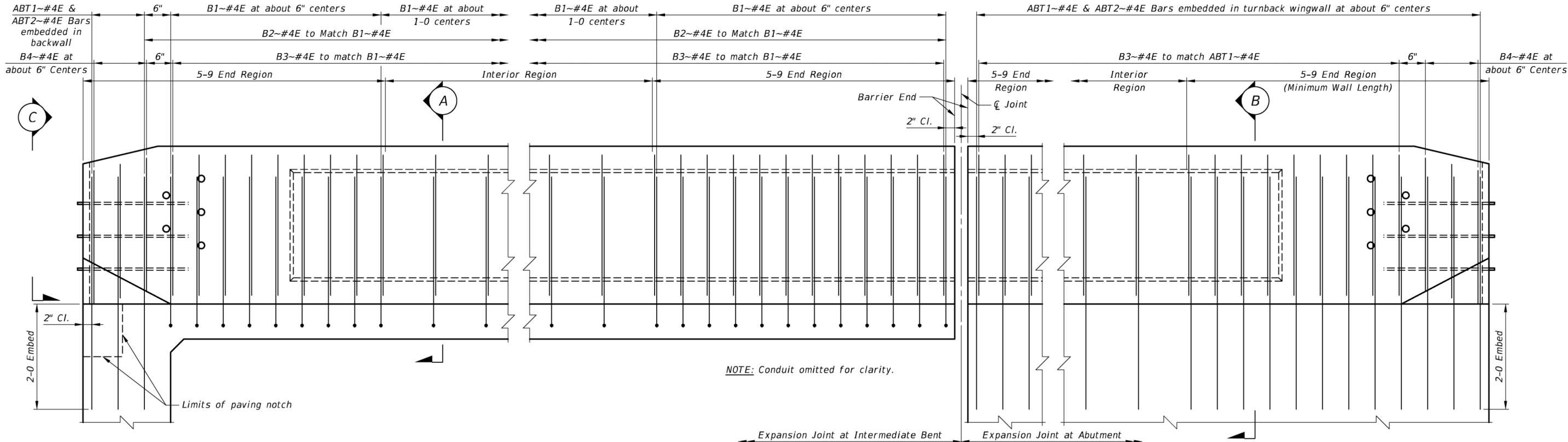
REINFORCING STEEL: All barrier reinforcing steel is epoxy coated.

DETAILS: See Std. Dwg. No SBR-SS36 for barrier details not shown on this drawing.

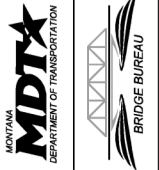
PAYMENT: Include all costs associated with furnishing and placing reinforcing steel in the barrier in the unit price bid for Reinforcing Steel - Epoxy Coated.

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 10 1/2" at the tapered ends of the barrier.



STANDARD BRIDGE RAIL
TYPE SINGLE SLOPE 36"
REINFORCING



REVISED	REVISED	REVISED	APPROVED	9-27-18	J.S.O.
REVISED	REVISED	REVISED	CHECKED	6-28-18	T.W.S.
REVISED	REVISED	REVISED	DRAWN	5-8-18	T.J.B.
REVISED	REVISED	REVISED	DATE	9/28/2018	9:52:44 AM

DRAWING NO.
SBR-SS36R

NOTES

SPECIFICATIONS - Montana State Highway Commission Standard Specifications for Road and Bridge Construction, 1959 Edition, and any amendments thereto, and Special Provisions shall govern unless otherwise noted. Design prepared in accordance with A.A.S.H.O. Specifications 1957 Edition.

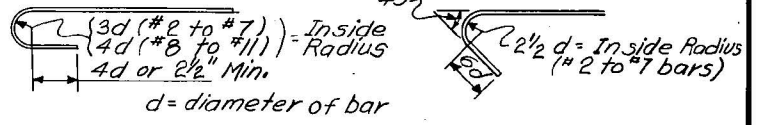
LIVE LOAD - Standard HS-20 loading.

FINISHED GRADE - Finished plan grade of bridge is same as profile grade shown on Road Plans.

CAST IN PLACE CONCRETE - All cast in place concrete of superstructure and as noted on Bents No. 1 and No. 3 shall be Class "AD". All other concrete in Bents No. 1, No. 3 and Pier No. 2 shall be Class "A". An "Air Entraining Agent" shall be added to all cast in place concrete.

Chamfer all exposed edges of concrete $\frac{3}{4}$ " and fillet entrant angles $\frac{3}{4}$ " unless otherwise noted. Quantities of Class "AD" concrete have been computed using pretensioned beams. Quantities of Class "A" concrete and reinforcing steel will vary slightly using post-tensioned beams.

REINFORCING STEEL - Bends in reinforcing steel shall be made to a radius of not less than four (4) diameters of the bar except for stirrups and tie bars, which shall be bent around a pin having a diameter of not less than two (2) bar diameters. Hooks shall conform to the dimensions shown in the following sketches except as otherwise noted.



STRUCTURAL STEEL (Method of Measurement & Payment) - The structural steel shall be paid for at the unit price bid for Reinforcing Steel and the weight paid for shall be the computed weight as obtained in accordance with the rules and assumptions specified in the Standard Specifications. The computed weight of each shipping unit shall be shown on the shop drawings. This weight may or may not be checked at the time the drawings are checked.

SETTING OF MASONRY PLATES - Care shall be taken in placing reinforcing steel so as to clear anchor bolts. Contractor shall finish concrete under beam masonry plates slightly high and bush-hammer to exact elevation shown. Masonry plates shall be placed on three (3) layers of canvas thoroughly swabbed with red lead, as called for in the Standard Specifications.

WELDS - All welds shall be continuous fillet shopwelds unless otherwise noted. Welds shall be paid for at the unit price bid for Reinforcing Steel and the weights shall be computed in accordance with the following: $\frac{1}{4}$ " at .160 $\frac{1}{4}$ " ft. & $\frac{3}{8}$ " at .359 $\frac{1}{4}$ " ft.

ARMORED JOINTS AND GUARD ANGLES - Slab guard angles, pier nose angles, armored joint material and steel shoes shall be paid for at the unit price bid for reinforcing steel.

FOUNDATION PILES - For bidding purposes only, pile lengths have been estimated as noted on the details of the bents and piers. All piling shall be driven as set forth in the Special Provisions.

PEELING OF PILES - All piles shall be peeled in accordance with the Standard Specifications soon after cutting. All peeling shall be accomplished by such means as will not damage, destroy or remove any of the sapwood.

TEST PILES - For Test Pile requirements see Special Provisions.

STRUCTURE EXCAVATION - Only the excavation below Elevation 2345.00 for Pier No. 2 need be restricted to the area inside the cofferdams. All boulders and large rocks taken out of holes in excavating for bents and pier shall be placed back around the bent or pier from which they were taken in such a manner as to provide the best protection against scour. The cost of this backfilling shall be included in the unit price bid for Structure Excavation. Only that excavation below the limits of the channel clearing shall be paid for as Structure Excavation.

BACKFILL - The backfill at end bents may be complete up to the bottoms of the back walls before superstructure is in place. The backfill against the back walls shall not be placed until after the concrete roadway slab has been placed.

APPROVAL - Shop plans shall be approved by the Montana State Highway Department before fabrication is begun.

PRECAST PRESTRESSED CONCRETE - All precast prestressed concrete shall have a minimum compressive strength of 5000 psi. at the age of 28 days. (See Special Provisions for Precast Prestressed Concrete Beams). An "Air Entraining Agent" may be added to any precast prestressed concrete. Chamfer all exposed edges of concrete $\frac{3}{4}$ " inches and don't fillet entrant angles unless otherwise noted.

STRUCTURAL STEEL - For requirements governing structural steels and their fabrication, see the Standard Specifications. To avoid oversight, these requirements shall be clearly noted on the shop drawings. Structural steel shall receive one (1) shop coat of red lead or zinc chromate primer and two (2) field coats consisting of first field or primer coat and one (1) coat of aluminum paint as specified in the Standard Specifications, on all surfaces not in contact with the concrete, except as noted in the Standard Specifications.

OTHER NOTES - For other notes see Dwg. No. 5192 & No. 5194.

STATE OF MONTANA
STATE HIGHWAY COMMISSION
BRIDGE OVER LIBBY CREEK

STA. 40+08.00
FED. AID SECONDARY PROJ. NO. S325(1)
LINCOLN COUNTY

GENERAL LAYOUT

Scale: 1"=10'-0"

APPROVED BY

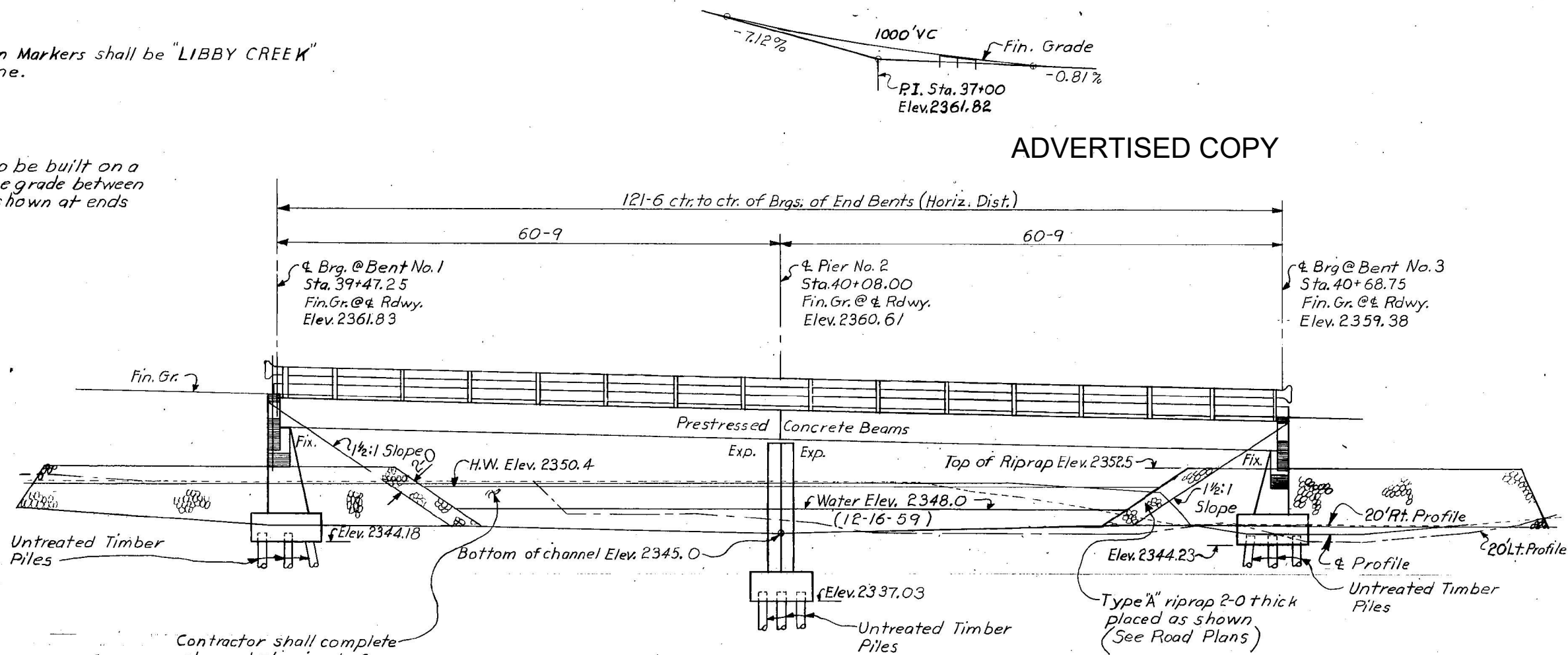
DESIGNED		
DRAWN	K.E.M.	8-5-60
TRACED		
CHECKED	J.J.W.	4-20-61
REVISED	T.J.B.	12-20-10
REVIEWED		

DRAWING NO. 5191

ADVERTISED COPY

Note: Name on Markers shall be "LIBBY CREEK" in one line.

Note: Bridge to be built on a straight line grade between elevations shown at ends of bridge.

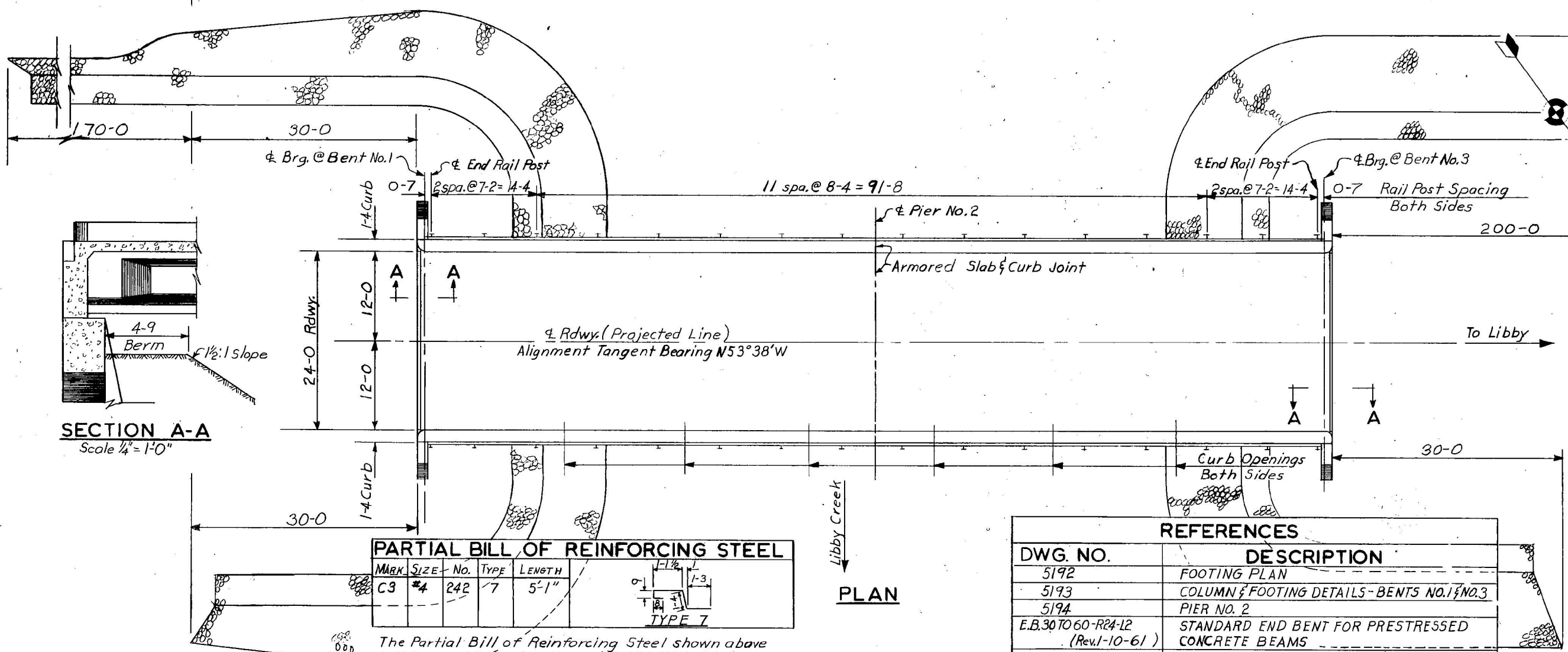


ELEVATION

STREAM DATA

Ice - Medium
Drift - Light
Scour - Medium
Subsoil - See Borings on Footing Plan

Contractor shall complete channel clearing before structure excavation is started on Pier No. 2



SECTION A-A

Scale 1/4"=1'-0"

MARK	SIZE	NO.	TYPE	LENGTH
C9	#4	242	7	5'-1"

The Partial Bill of Reinforcing Steel shown above shall be used in conjunction with the Bill of Reinforcing Steel shown on Dwg. No. 5192 & No. 5194.

PLAN

REFERENCES

DWG. NO.	DESCRIPTION
5192	FOOTING PLAN
5193	COLUMN & FOOTING DETAILS - BENTS NO. 1 & NO. 3
5194	PIER NO. 2
E.B. 30 TO 60-R24-L2 (Rev. 1-10-61)	STANDARD END BENT FOR PRESTRESSED CONCRETE BEAMS
PRES-BEAM STD. NO. 1 TYPE A (Rev. 7-1-61)	STANDARD PRE-TENSIONED & POST-TENSIONED PRESTRESSED CONCRETE BEAMS
SLAB 30 TO 75-R24-L2 (Rev. 1-10-61)	STANDARD SLAB, CURB & DIAPHRAGM FOR PRESTRESSED CONCRETE BEAMS
PRES-S&C JOINTS (Rev. 1-10-61)	STANDARD SLAB & CURB JOINTS FOR PRESTRESSED CONCRETE BEAMS
5BBR (Rev. 1-10-61)	STEEL BEAM BRIDGE RAIL & DETAILS

THIS CONTRACT: STPS 482-1(60)
REVISED BRIDGE RAIL, HMWM DECK & NEW EXPANSION JOINTS (SEE DWG. NO. 21120)

MAINLINE CROSS SECTIONS

PROJECT NAME S-482 REPAIR - S OF LIBBY

COUNTY LINCOLN

PROJECT ID STPS 482-1(10)2

UPN 10760000

DESIGNED BY L. HARK 04/26

REVIEWED BY J. DOLD 04/26

CHECKED BY

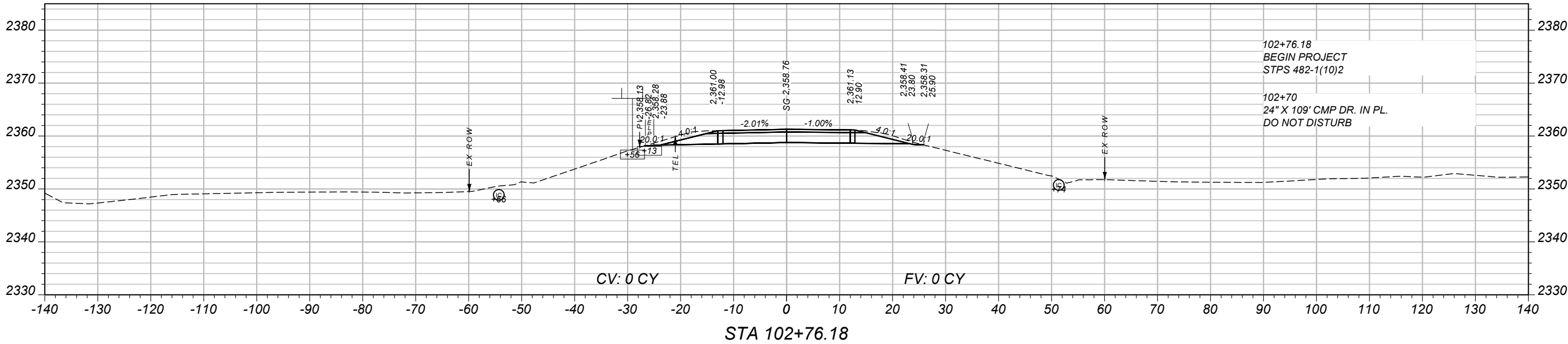
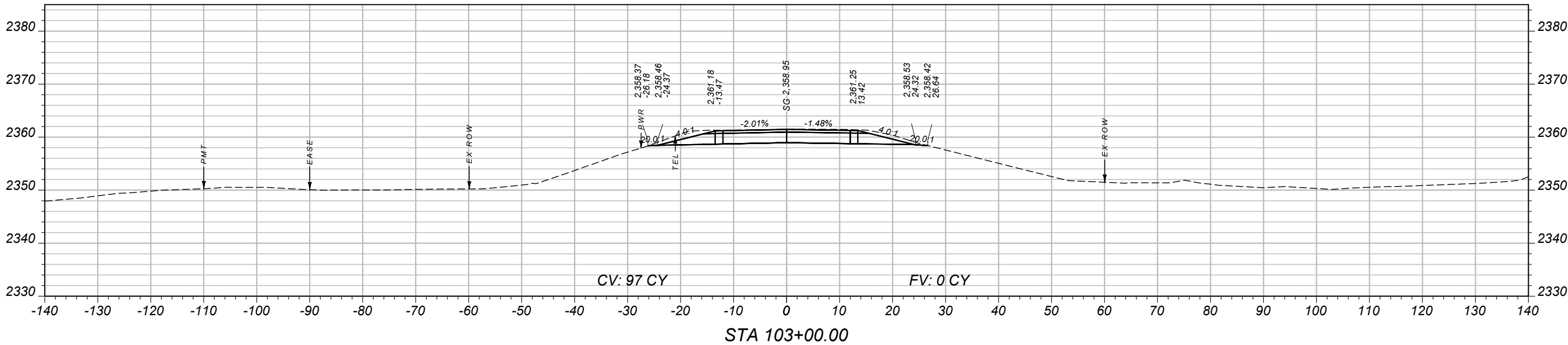
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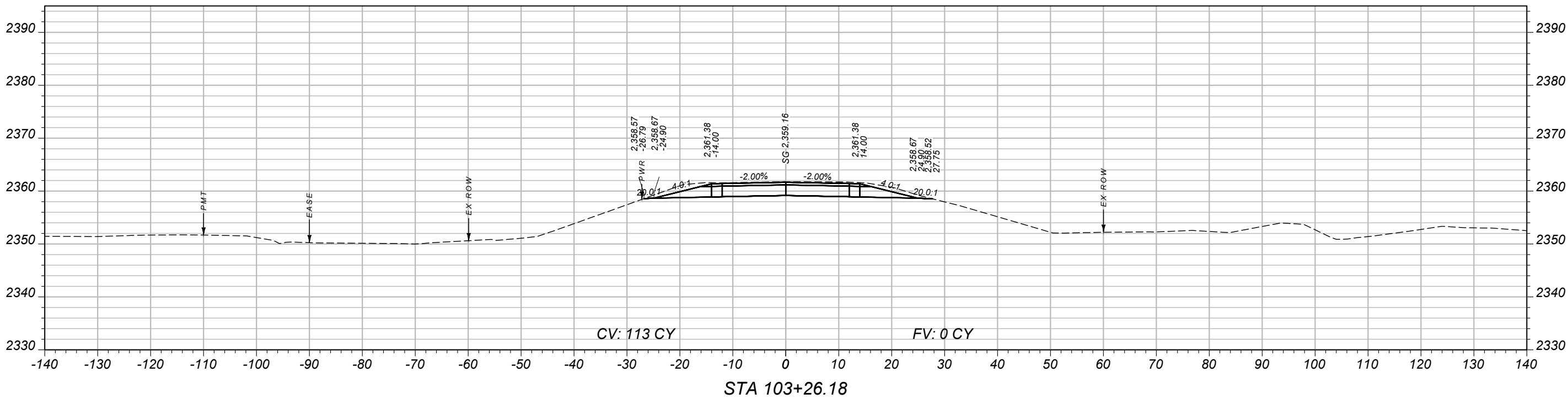
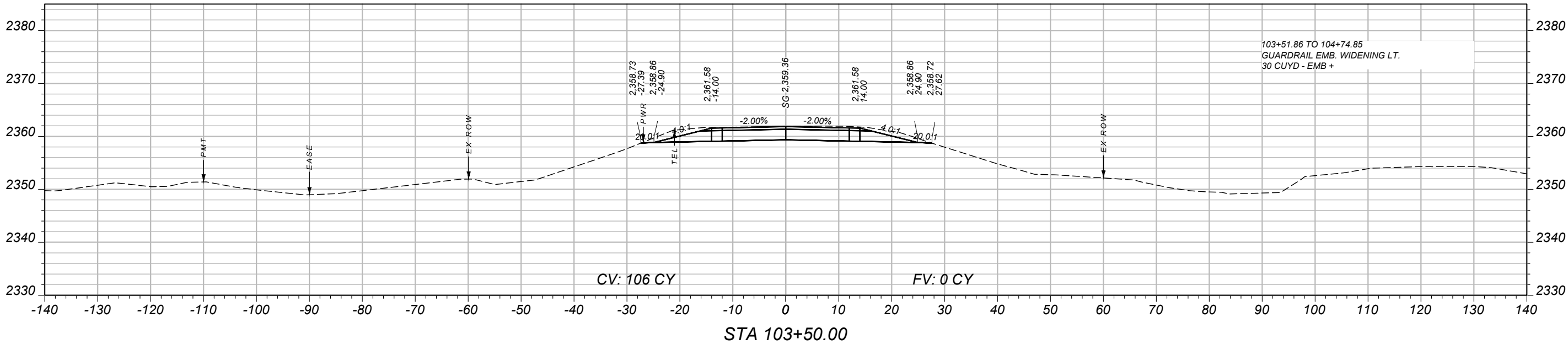


S-482 CROSS SECTIONS

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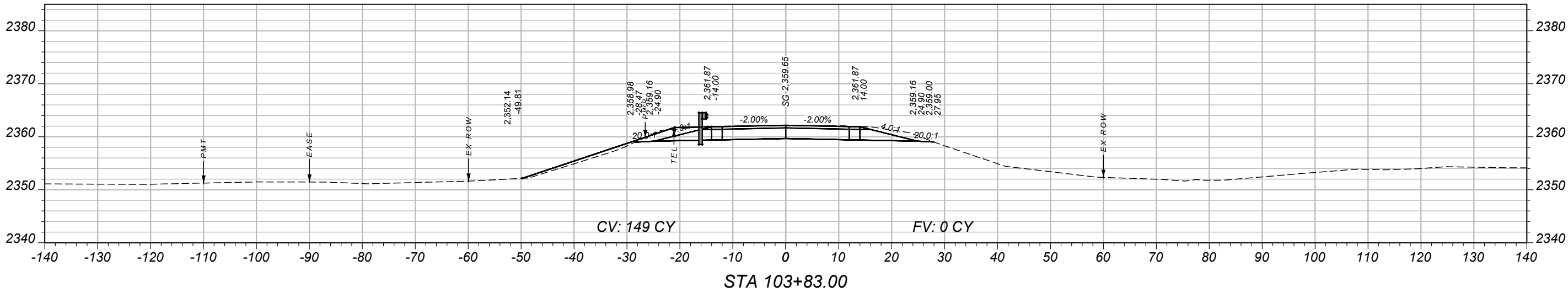
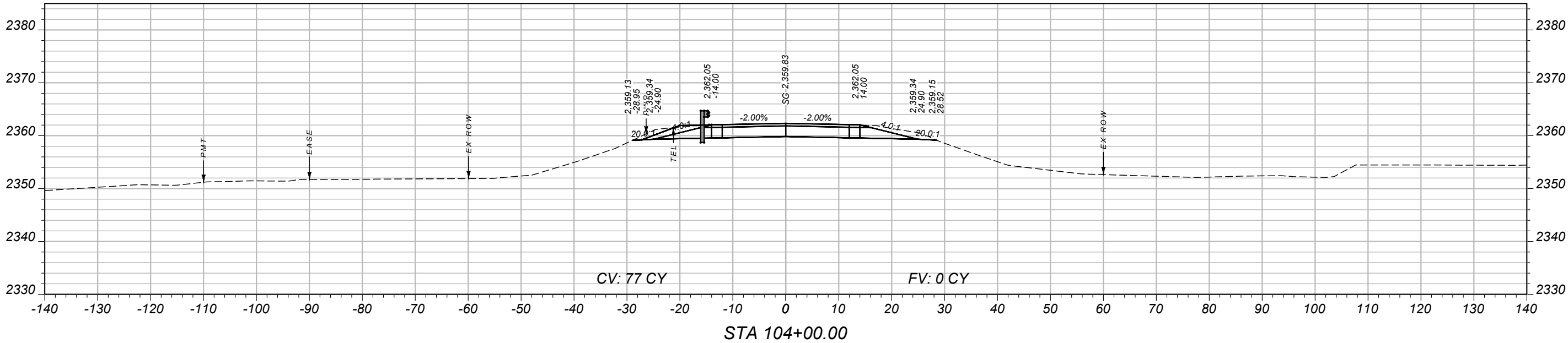
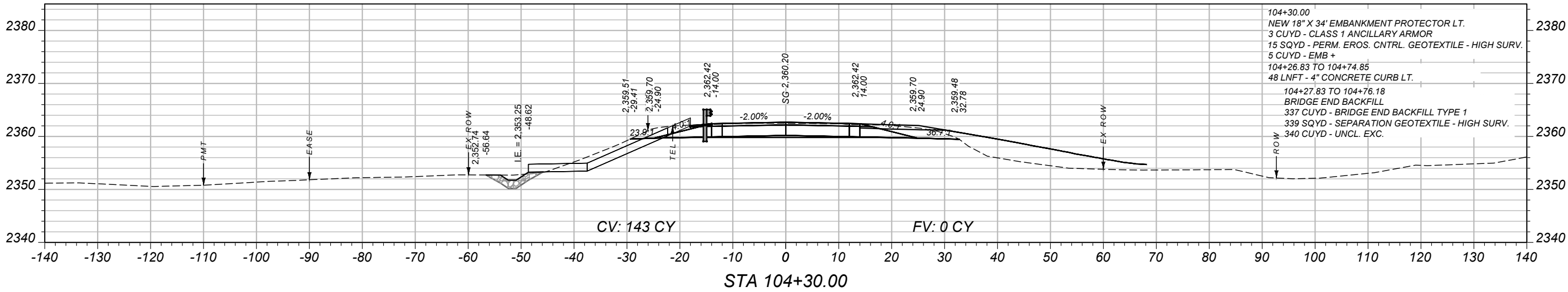


MAINLINE CROSS SECTIONS



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DESIGNED BY	04/26	REVIEWED BY	04/26
L. HARK		J. DOLD	
CHECKED BY		FIRST INITIAL LAST NAME	MM/YYYY
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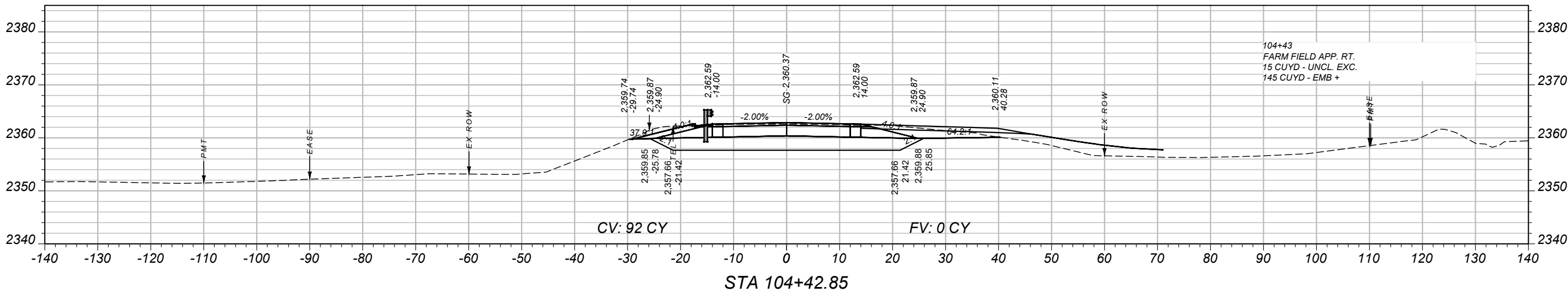
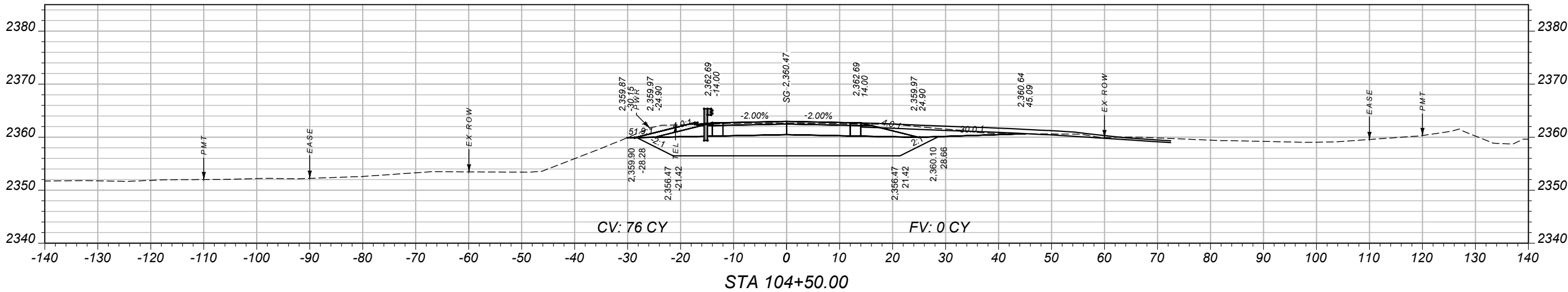
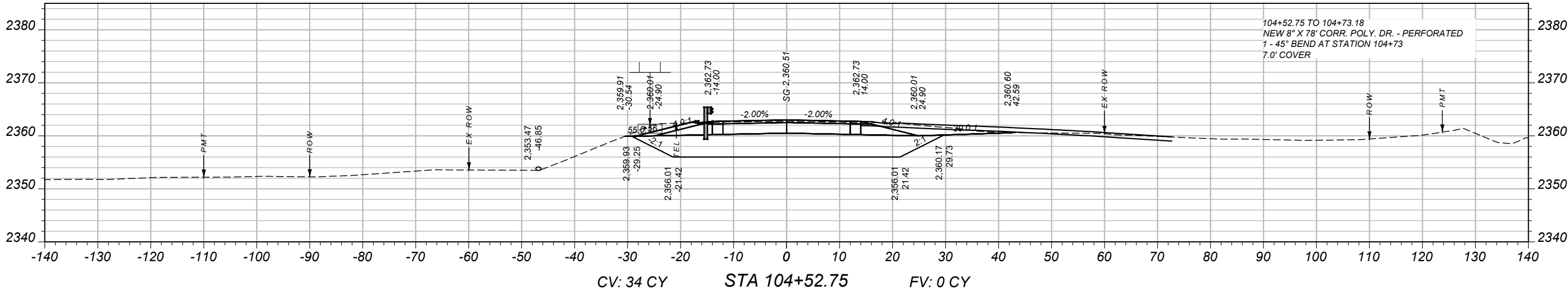
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MONTANA Department of Transportation

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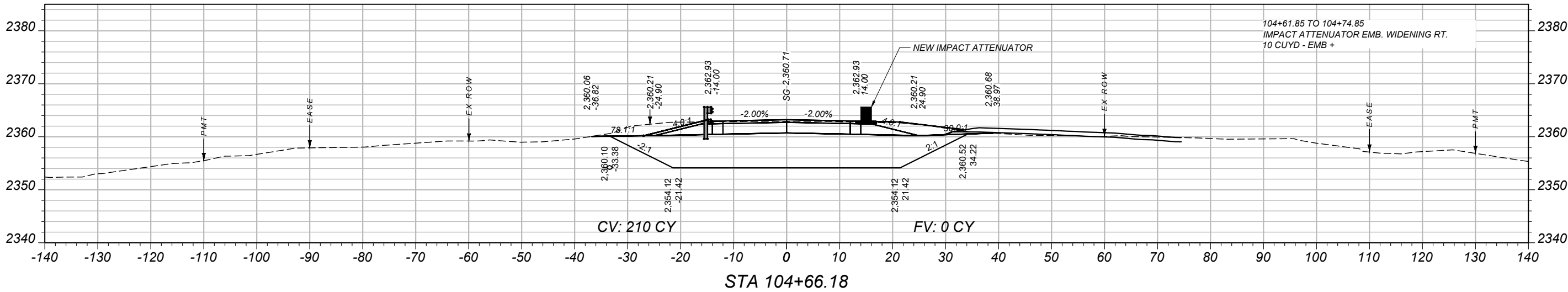
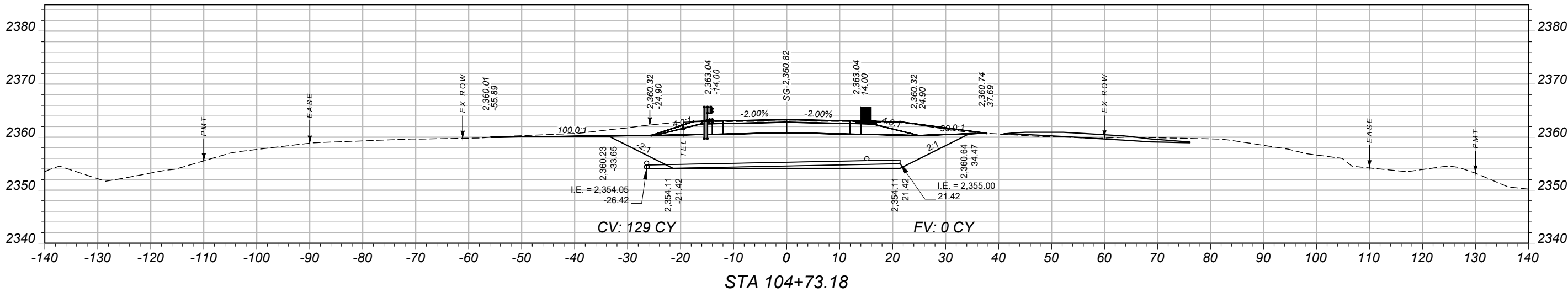
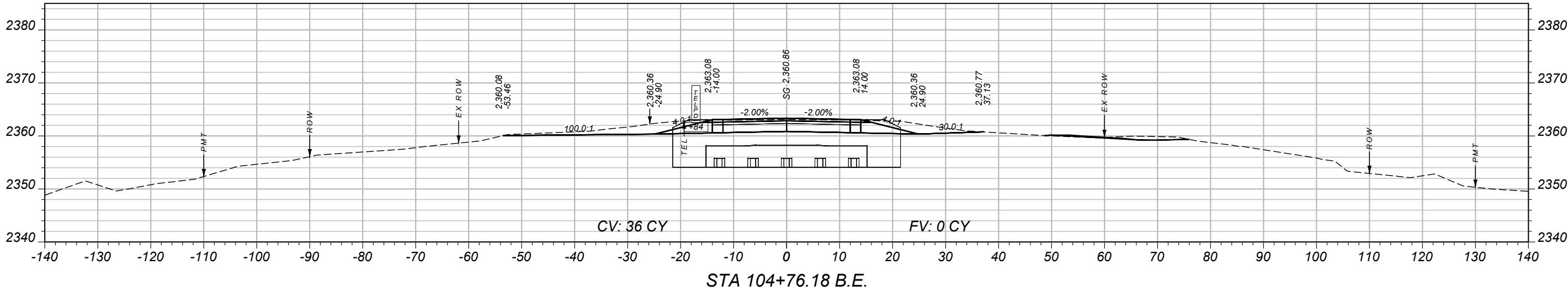
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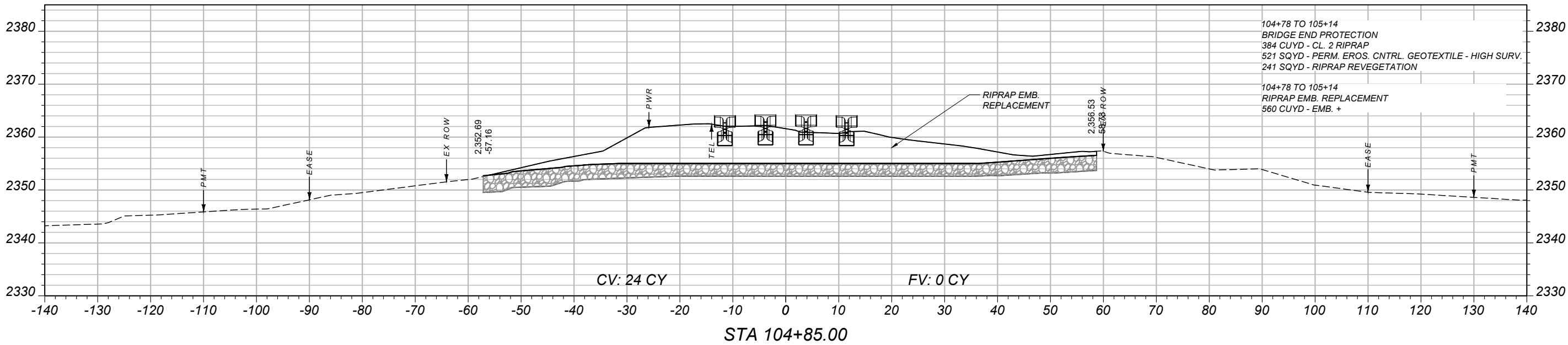
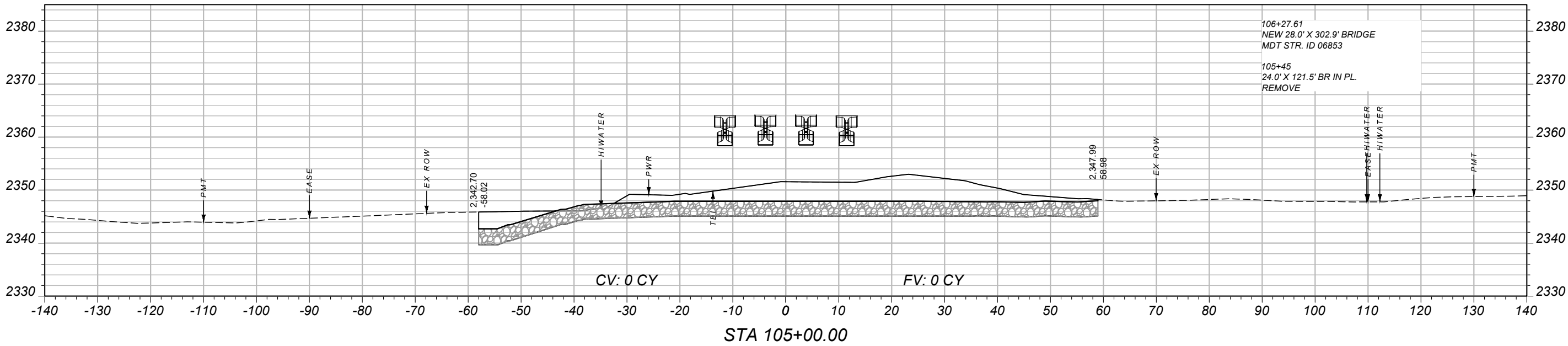
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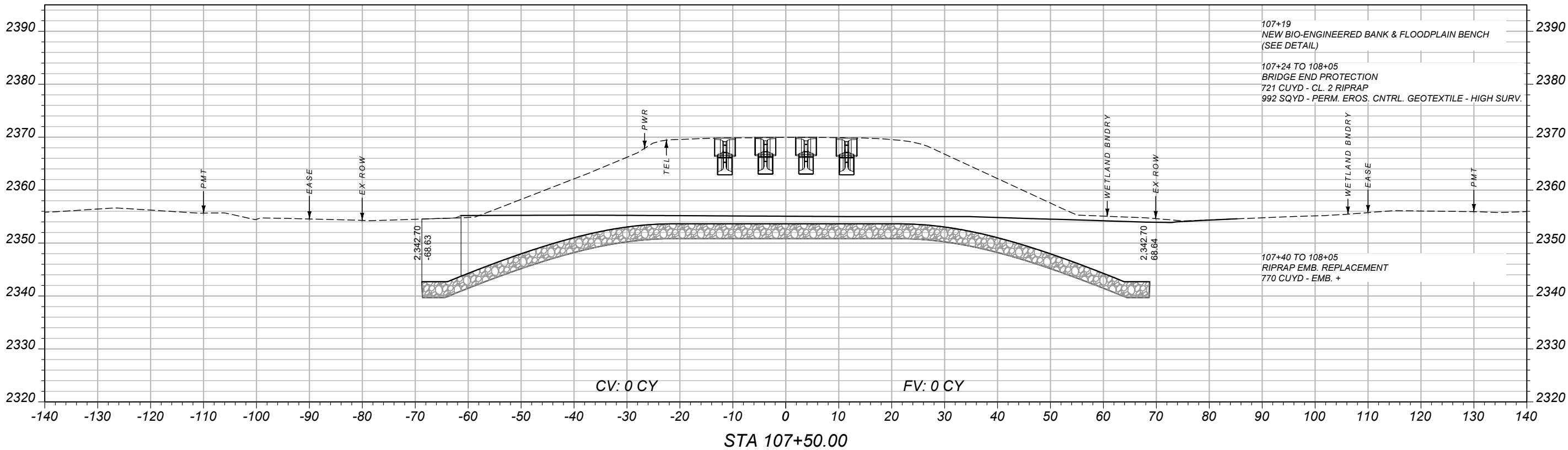
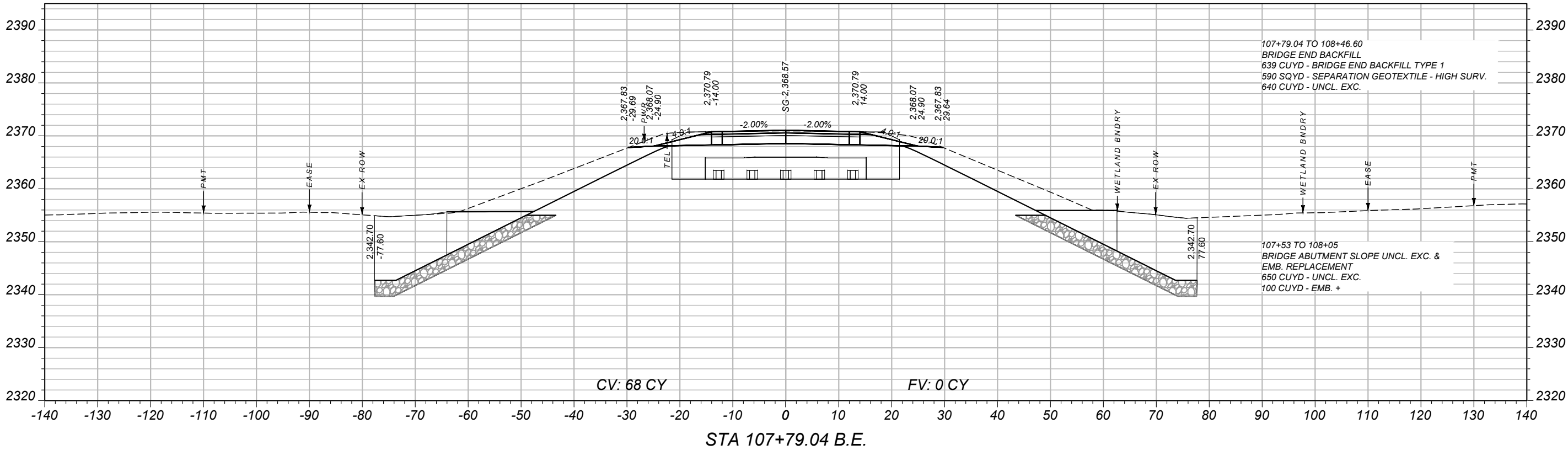
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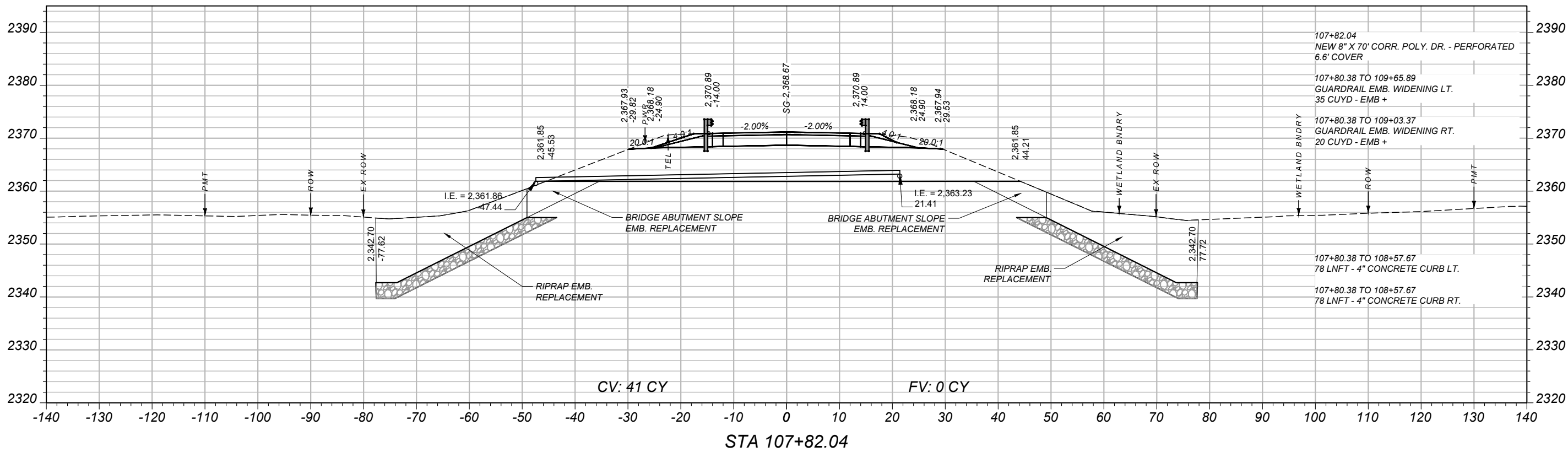
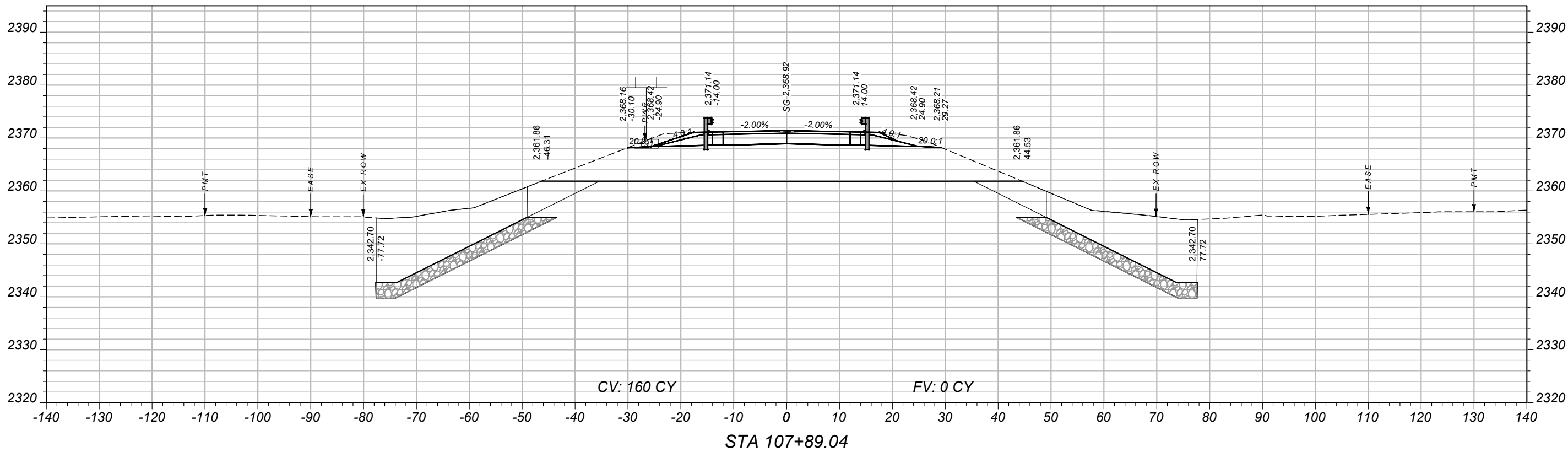
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MAINLINE CROSS
SECTIONS



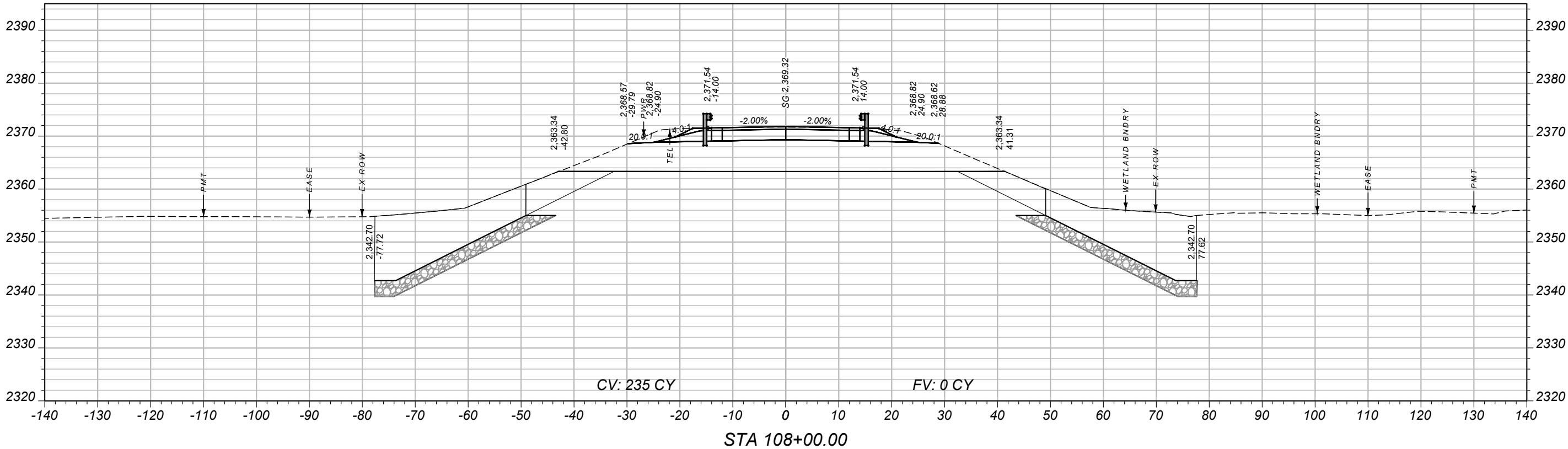
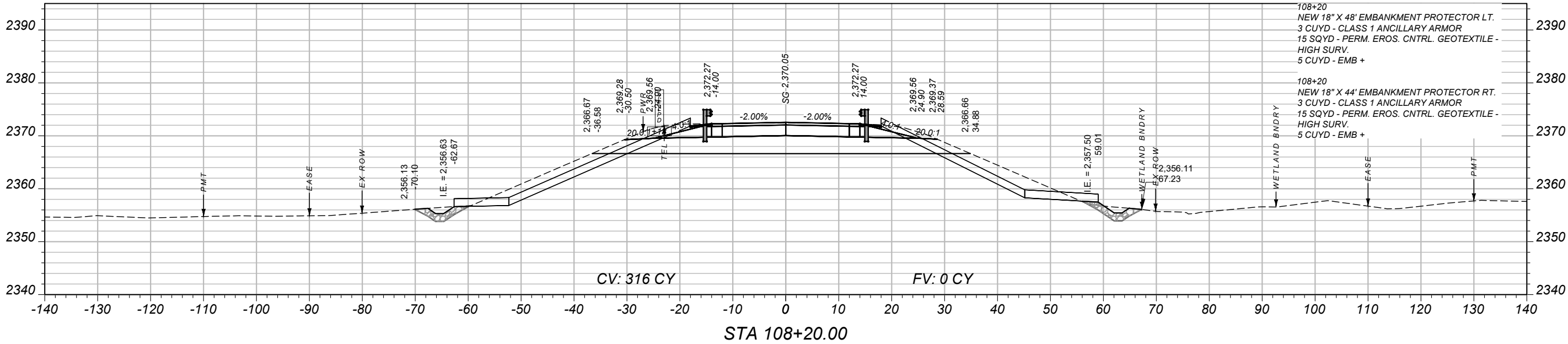
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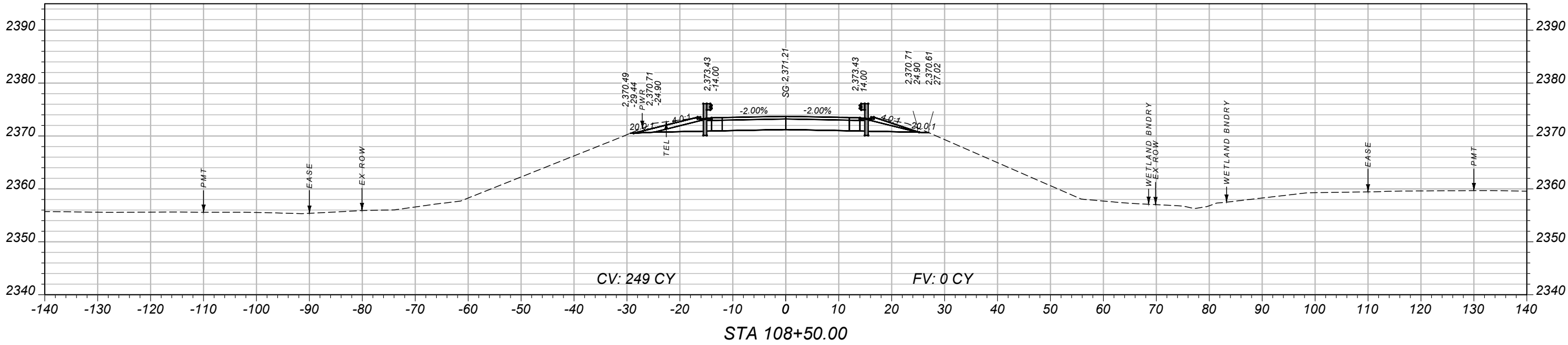
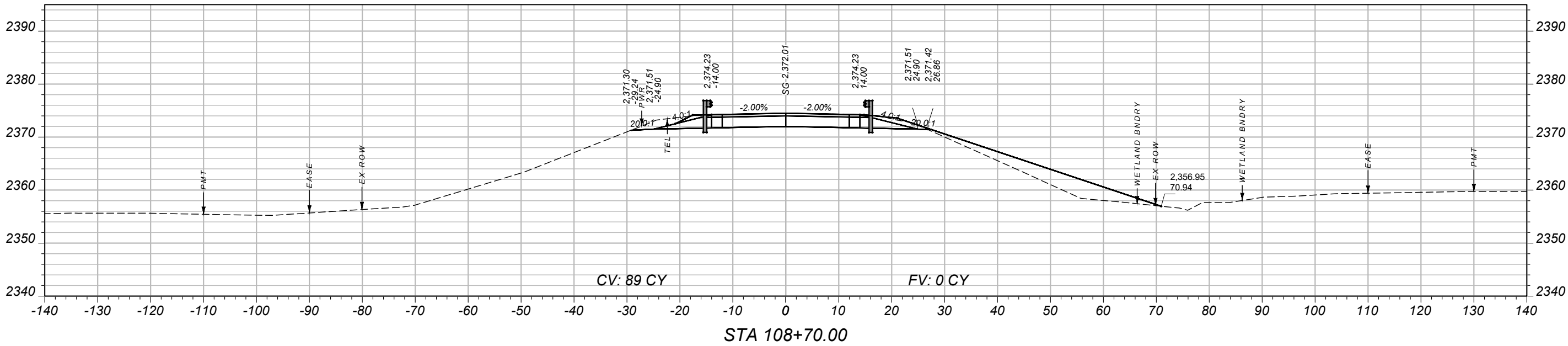
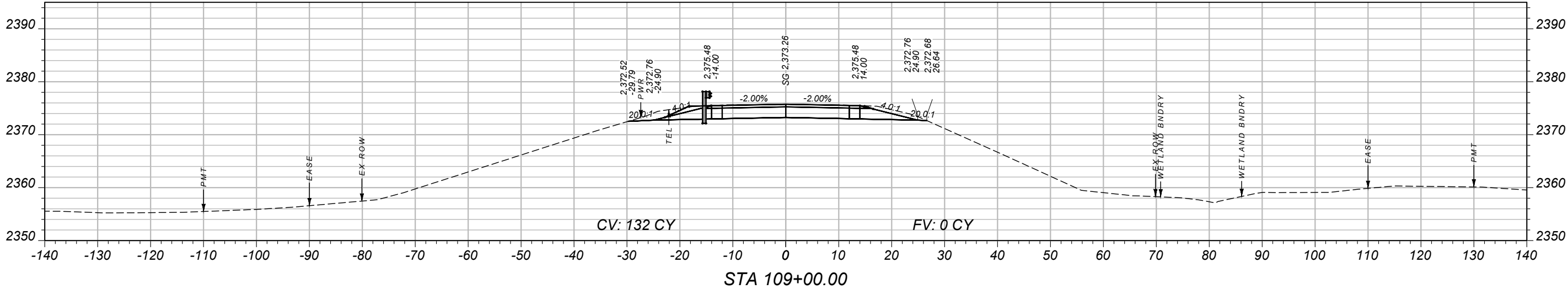
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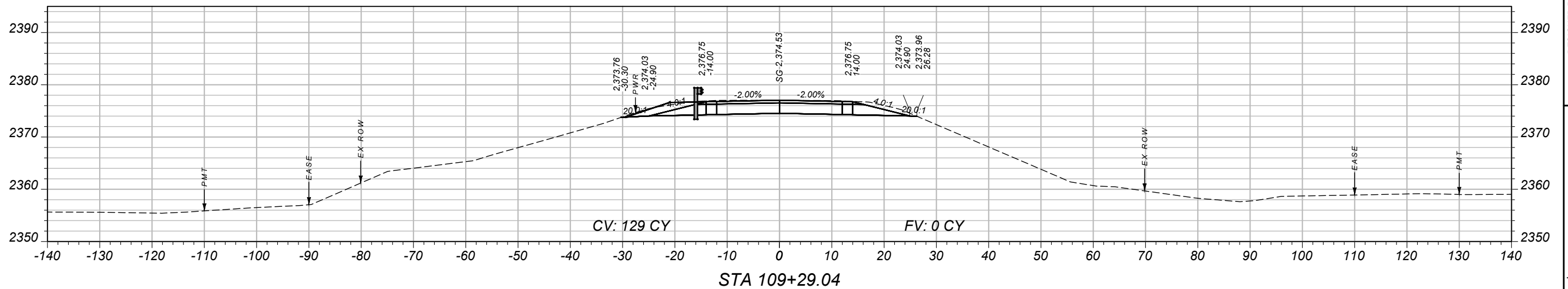
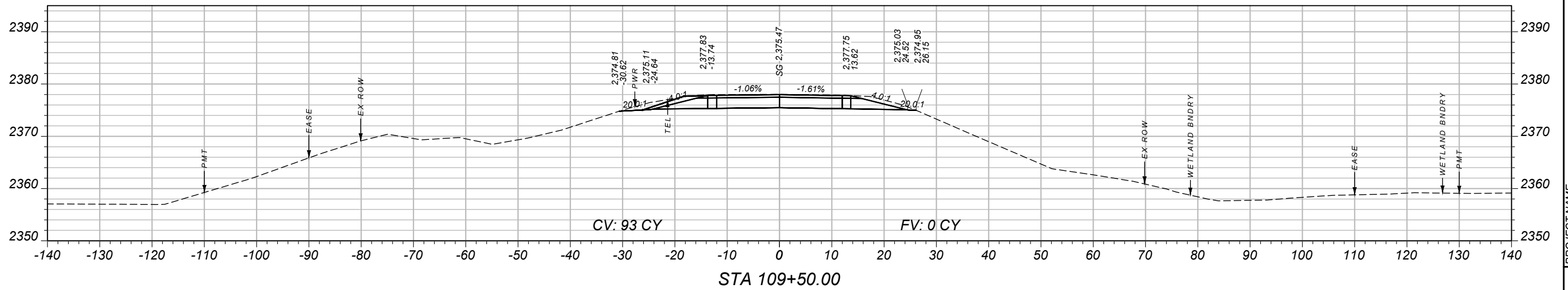
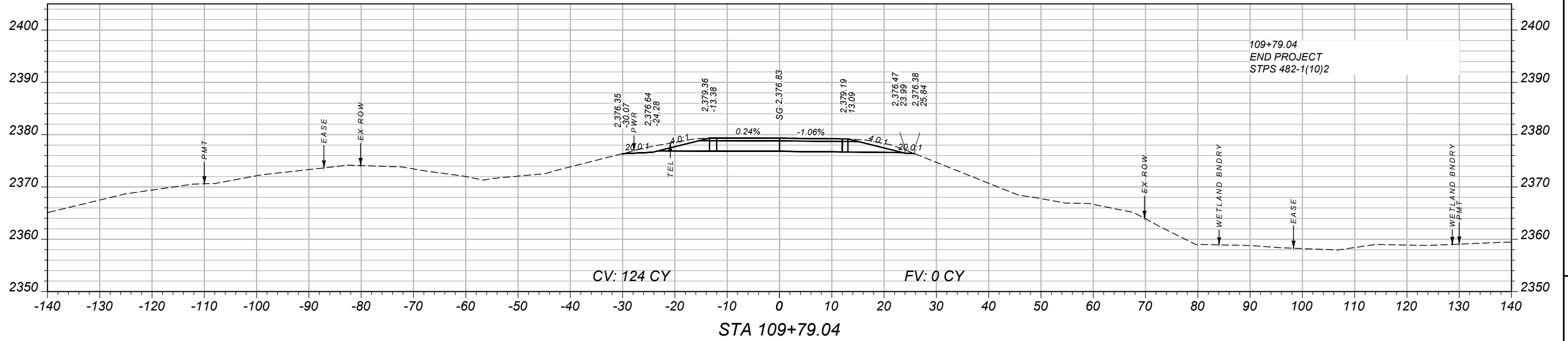
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