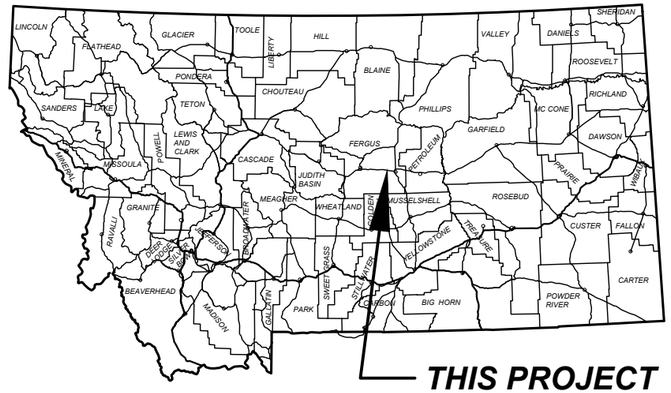
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MONTANA DEPARTMENT OF TRANSPORTATION

FEDERAL AID PROJECT HSIP 57-3(68)106

ROADWAY & ROADSIDE SAFETY IMPROVEMENTS

SF 179 N-57 CURVE WIDENING

FERGUS COUNTY

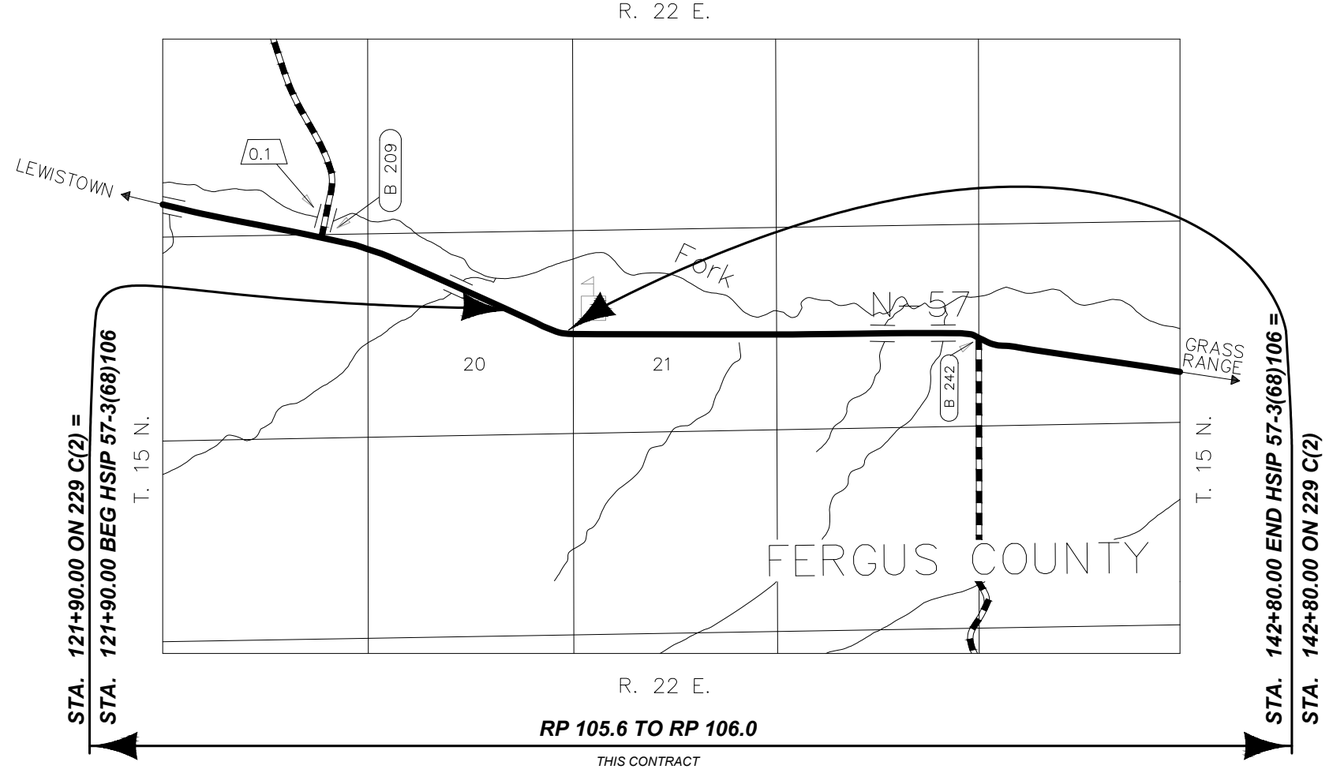
LENGTH 0.4 MILES

PROJECT DESIGN DATA

PRESENT	2024	A.D.T. =	1,330
LETTING	2024	A.D.T. =	1,330
DESIGN	2048	A.D.T. =	1,680
		D.H.V. =	260
		TRUCKS =	16.2%
		V. =	60 MPH
		18 KIP ESAL'S =	114
		GROWTH RATE =	1.0%

ASSOCIATED PROJECT AGREEMENT NUMBERS	
R/W	HSIP 57-3(72)106
I.C.	HSIP 57-3(73)106
P.E.	HSIP 57-3(67)106

SURFACING SOURCES - CONTRACTOR FURNISHED



MONTANA
DEPARTMENT OF TRANSPORTATION

LAWRENCE J. FLYNN
INTERIM DIRECTOR OF
TRANSPORTATION
APPROVED BY:
TRAFFIC AND SAFETY
ENGINEER

DocuSigned by:
Gabe B. Priebe
4895FFA73587466...

MONTANA
GABE B.
PRIEBE
13957PE
LICENSED
PROFESSIONAL ENGINEER

5/17/2024
DATE

SHEET NO.
1

TITLE

PROJECT NAME: SF 179 N-57 CURVE WIDENING
COUNTY: FERGUS COUNTY
PROJECT ID: HSIP 57-3(68)106
UPN: 9639000

DESIGNED BY	T. PIERCE	12/26/2023
REVIEWED BY	S. LUCIO	12/26/2023
CHECKED BY	T. JOHNSON	12/26/2023

9639000SATTL001.DWG

MONTANA
Department of Transportation

N-57 PLANS SHEET SET

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NOTES

BASIS OF PLAN QUANTITIES

(QUANTITIES FOR ESTIMATING PURPOSES ONLY)

COMP. AGGREGATE WEIGHT	= 3700 LBS. PER CUBIC YARD
COMP. WEIGHT OF PL. MIX BIT. SURF.	= 3855 LBS. PER CUBIC YARD
BITUMINOUS MATERIAL	= 8.5 LBS. PER GAL.
EMULSIFIED ASPHALT - TACK (ALL OTHER SURFACES)	= 0.05 GAL. PER SQ.YARD (UNDILUTED)
EMULSIFIED ASPHALT - FOG SEAL (RUMBLE STRIPS)	= 0.10 GAL. PER SQ.YARD (UNDILUTED)
SEAL	= 0.42 GAL. PER SQ.YARD
COVER	= 25 LBS. PER SQ.YARD

AS-BUILTS

FOR HORIZONTAL ALIGNMENT AND STATIONING, REFER TO THE FOLLOWING "AS-BUILT" PROJECT(S):

229 C(2) (RECONSTRUCTION - 1939)

CLEARING AND GRUBBING

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

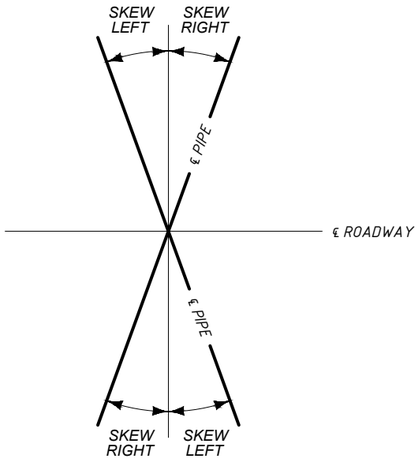
WETLANDS

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

UTILITIES

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

SKEW DIAGRAM



CENTERLINE ALIGNMENT COORDINATE TABLE

STATION	DESCRIPTION	N OR Y COORDINATE	E OR X COORDINATE	REMARKS
100+00.00	POT	1,022,116.494	2,101,746.687	
121+90.00	POT	1,021,065.457	2,103,667.993	BEGIN PROJECT
129+72.00	PC	1,020,690.154	2,104,354.051	
133+45.78	PI	1,020,506.583	2,104,689.620	
137+15.80	PT	1,020,514.723	2,105,072.031	
142+80.00	POT	1,020,526.730	2,105,636.103	END PROJECT
154+43.10	POT	1,020,551.483	2,106,798.942	

ALIGNMENT NAME: N-57 PROFILE NAME: 9639000 EXISTING GROUND

APPROACHES (FOR INFORMATION ONLY)

STATION	TYPE	linear feet				EXISTING SURFACING	feet		PROPOSED SURFACE	tons	cu. yards	sq. yards	gallons	REMARKS
		WIDTH	RADIUS #		LENGTH		PMS THK.	CAC THK.		COMMERICAL PLANT MIX - MISC	CRUSHED AGG. COURSE	AGG. TREAT.	EMULS. ASPHALT TACK	
			LEFT	RIGHT										
131+81	PRIVATE	24	* VARIES	* VARIES	180.0	NONE	0.2	0.6	ASPHALT	68	108	531	27	RT.
SUBTOTAL	PRIVATE									68	108	531	27	

ALL RADII MEASURED TO FRONT OF GUTTER OR EDGE OF SHOULDER
* SEE GEOMETRIC DETAIL
MEASURED ON CAD

SHEET NO. 2

TABLE OF CONTENTS

PROJECT NAME: SF 179 N-57 CURVE WIDENING
COUNTY: FERGUS COUNTY
PROJECT ID: HSIP 57-3(68)106
UPN: 9639000

DESIGNED BY	T. PIERCE	12/26/2023
REVIEWED BY	S. LUCIO	12/26/2023
CHECKED BY	T. JOHNSON	12/26/2023

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MONTANA Department of Transportation

N-57 PLANS SHEET SET

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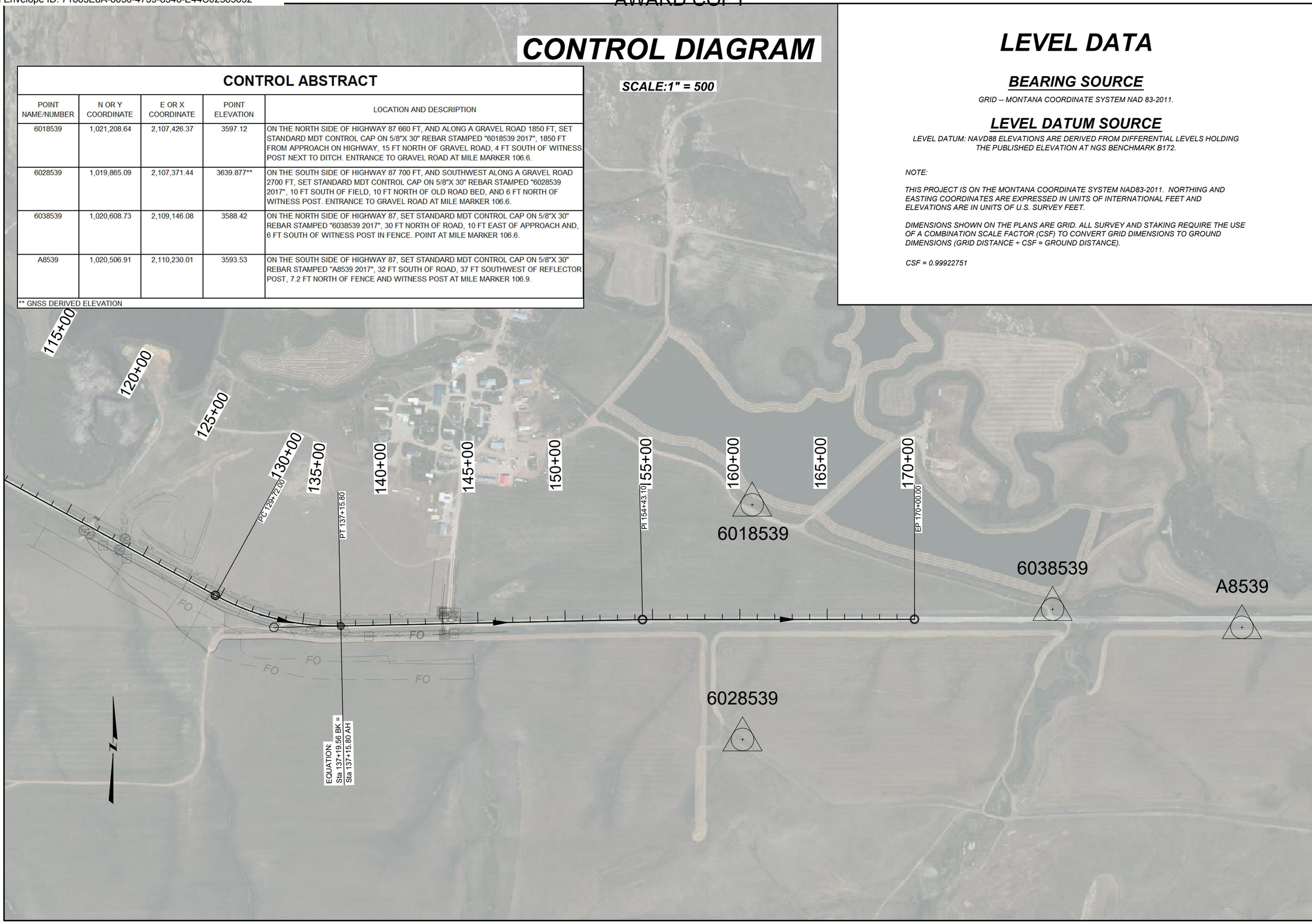
CONTROL DIAGRAM

SCALE:1" = 500

CONTROL ABSTRACT

POINT NAME/NUMBER	N OR Y COORDINATE	E OR X COORDINATE	POINT ELEVATION	LOCATION AND DESCRIPTION
6018539	1,021,208.64	2,107,426.37	3597.12	ON THE NORTH SIDE OF HIGHWAY 87 660 FT, AND ALONG A GRAVEL ROAD 1850 FT, SET STANDARD MDT CONTROL CAP ON 5/8"X 30" REBAR STAMPED "6018539 2017", 1850 FT FROM APPROACH ON HIGHWAY, 15 FT NORTH OF GRAVEL ROAD, 4 FT SOUTH OF WITNESS POST NEXT TO DITCH. ENTRANCE TO GRAVEL ROAD AT MILE MARKER 106.6.
6028539	1,019,865.09	2,107,371.44	3639.877**	ON THE SOUTH SIDE OF HIGHWAY 87 700 FT, AND SOUTHWEST ALONG A GRAVEL ROAD 2700 FT, SET STANDARD MDT CONTROL CAP ON 5/8"X 30" REBAR STAMPED "6028539 2017", 10 FT SOUTH OF FIELD, 10 FT NORTH OF OLD ROAD BED, AND 6 FT NORTH OF WITNESS POST. ENTRANCE TO GRAVEL ROAD AT MILE MARKER 106.6.
6038539	1,020,608.73	2,109,146.08	3588.42	ON THE NORTH SIDE OF HIGHWAY 87, SET STANDARD MDT CONTROL CAP ON 5/8"X 30" REBAR STAMPED "6038539 2017", 30 FT NORTH OF ROAD, 10 FT EAST OF APPROACH AND, 6 FT SOUTH OF WITNESS POST IN FENCE. POINT AT MILE MARKER 106.6.
A8539	1,020,506.91	2,110,230.01	3593.53	ON THE SOUTH SIDE OF HIGHWAY 87, SET STANDARD MDT CONTROL CAP ON 5/8"X 30" REBAR STAMPED "A8539 2017", 32 FT SOUTH OF ROAD, 37 FT SOUTHWEST OF REFLECTOR POST, 7.2 FT NORTH OF FENCE AND WITNESS POST AT MILE MARKER 106.9.

** GNSS DERIVED ELEVATION



LEVEL DATA

BEARING SOURCE

GRID -- MONTANA COORDINATE SYSTEM NAD 83-2011.

LEVEL DATUM SOURCE

LEVEL DATUM: NAVD88 ELEVATIONS ARE DERIVED FROM DIFFERENTIAL LEVELS HOLDING THE PUBLISHED ELEVATION AT NGS BENCHMARK B172.

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).

CSF = 0.99922751

SHEET NO. 3

CONTROL DIAGRAM

MONTANA
Department of Transportation

N-57 PLANS SHEET SET

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DESIGNED BY	T. PIERCE	12/26/2023
REVIEWED BY	S. LUCIO	12/26/2023
CHECKED BY	T. JOHNSON	12/26/2023

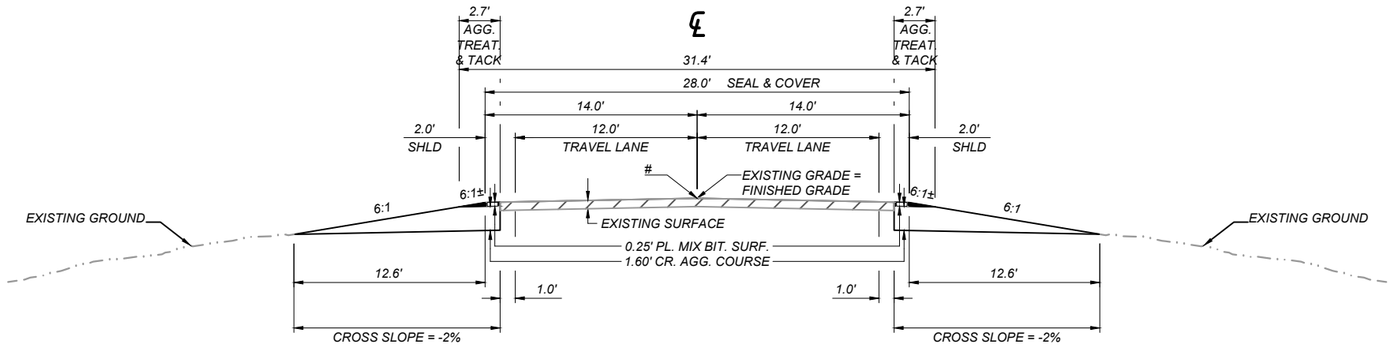
PROJECT NAME: SF 179 N-57 CURVE WIDENING
COUNTY: FERGUS COUNTY
PROJECT ID: HSIP 57-3(68)106
UPN: 9639000
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TYPICAL SECTION NO. 1

MAINLINE

121+90.00			BEGIN PROJECT
121+90.00	TO	122+40.00	TRANS. TYP. SECT. NO. 1 TO NO. 2
142+80.00			END PROJECT



QUANTITIES							
UNIT	AGGREGATE			UNIT	BITUMINOUS MATERIAL		
	COVER	PLANT MIX	CR. AGG. COURSE		EMULSIFIED ASPHALT SEAL	AGG. TREATMENT	EMULSIFIED ASPHALT TACK**
AREA square feet		0.93	26.08	square yards PER STATION	311	60	120
cubic yards PER STATION		3.4	96.6	tons PER STATION	0.56		
tons PER STATION		6.6		gals. PER STATION			6
square yards PER STATION	311						

** BASED ON 2 APPLICATIONS

SEE CENTERLINE RUMBLE STRIP REMOVAL & INSTALLATION DETAIL

* FILL SLOPES	
0' - 10'	6:1
10' - 20'	4:1
OVER 20'	3:1

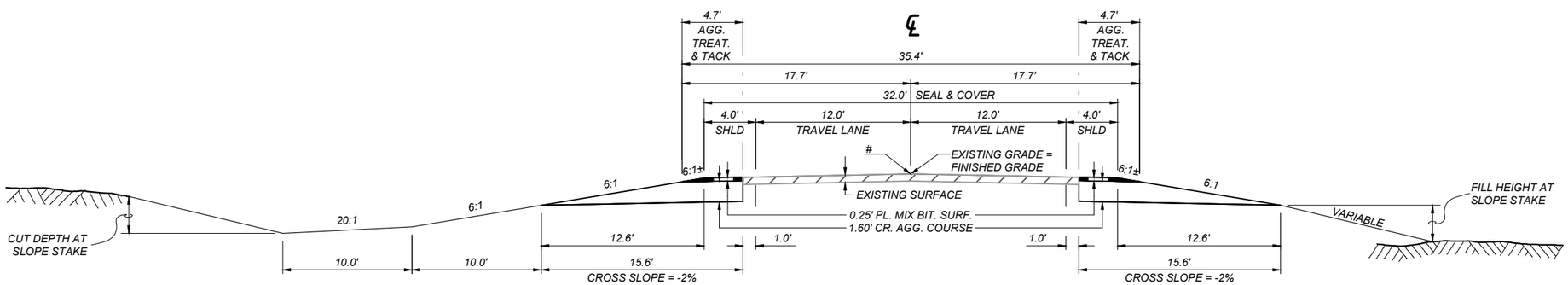
* BACK SLOPES	
0' - 5'	5:1
5' - 10'	4:1
OVER 10'	3:1

* SEE CROSS SECTIONS FOR DEVIATIONS

TYPICAL SECTION NO. 2

MAINLINE

122+40.00	TO	122+95.00	TYP. NO. 2 THEN TYP. NO. 3
124+40.00	TO	127+66.80	TYP. NO. 2
127+66.80	TO	130+36.80	TRANS. TYP. SECT. NO. 2 TO TYP. NO. 5
139+21.00	TO	142+30.00	TYP. NO. 2
142+30.00	TO	142+80.00	TRANS. TYP. SECT. NO. 2 TO TYP. NO. 1



QUANTITIES							
UNIT	AGGREGATE			UNIT	BITUMINOUS MATERIAL		
	COVER	PLANT MIX	CR. AGG. COURSE		EMULSIFIED ASPHALT SEAL	AGG. TREATMENT	EMULSIFIED ASPHALT TACK**
AREA square feet		1.93	32.48	square yards PER STATION	356	104	209
cubic yards PER STATION		7.1	120.3	tons PER STATION	0.64		
tons PER STATION		13.7		gals. PER STATION			10
square yards PER STATION	356						

** BASED ON 2 APPLICATIONS

SEE CENTERLINE RUMBLE STRIP REMOVAL & INSTALLATION DETAIL

SHEET NO. 4

TYPICAL SECTIONS

PROJECT NAME: SF 179 N-57 CURVE WIDENING
COUNTY: FERGUS COUNTY
PROJECT ID: HSIP 57-3(68)106
UPN: 9639000

DESIGNED BY	DATE	REVIEWED BY	DATE	CHECKED BY	DATE
T. PIERCE	12/26/2023	S. LUCIO	12/26/2023	T. JOHNSON	12/26/2023

MONTANA Department of Transportation

N-57 PLANS SHEET SET

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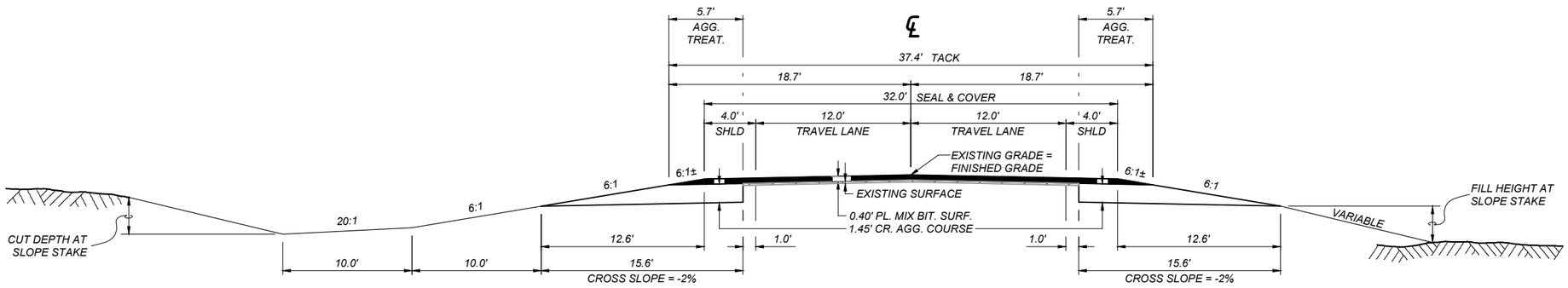
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TYPICAL SECTION NO. 3

MAINLINE

122+95.00			ONLY
122+95.00	TO	123+25.00	TRANS. TYP. SECT. NO. 3 TO TYP. NO. 4
124+40.00			ONLY THEN TYP. NO. 2



QUANTITIES							
UNIT	AGGREGATE			UNIT	BITUMINOUS MATERIAL		
	COVER	PLANT MIX	CR. AGG. COURSE		EMULSIFIED ASPHALT SEAL	AGG. TREATMENT	EMULSIFIED ASPHALT TACK**
AREA square feet		13.88	30.89	square yards PER STATION	356	127	831
cubic yards PER STATION		51.4	114.4	tons PER STATION	0.64		
tons PER STATION		99.1		gals. PER STATION			42
square yards PER STATION	356						

** BASED ON 2 APPLICATIONS

* FILL SLOPES	
0' - 10'	6:1
10' - 20'	4:1
OVER 20'	3:1

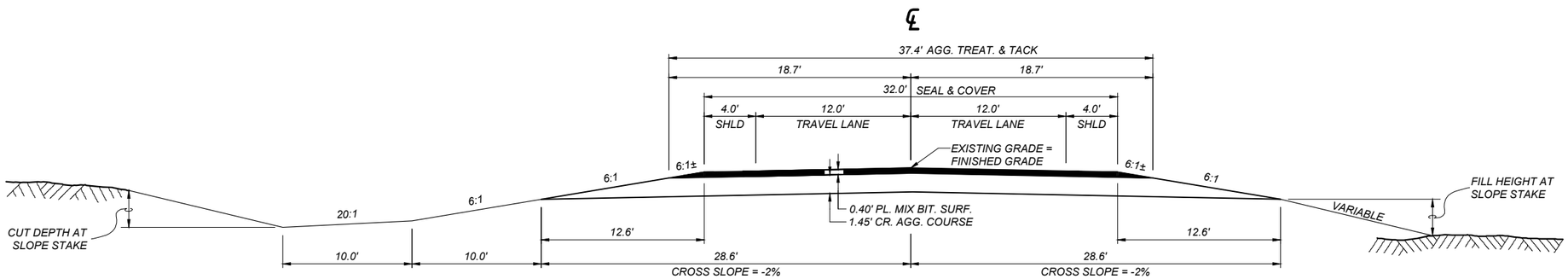
* BACK SLOPES	
0' - 5'	5:1
5' - 10'	4:1
OVER 10'	3:1

* SEE CROSS SECTIONS FOR DEVIATIONS

TYPICAL SECTION NO. 4

MAINLINE

123+25.00	TO	124+10.00	TYP. NO. 4
124+10.00	TO	124+40.00	TRANS. TYP. SECT. NO. 4 TO TYP. NO. 3



QUANTITIES							
UNIT	AGGREGATE			UNIT	BITUMINOUS MATERIAL		
	COVER	PLANT MIX	CR. AGG. COURSE		EMULSIFIED ASPHALT SEAL	AGG. TREATMENT	EMULSIFIED ASPHALT TACK**
AREA square feet		13.88	68.59	square yards PER STATION	356	416	831
cubic yards PER STATION		51.4	254.0	tons PER STATION	0.64		
tons PER STATION		99.1		gals. PER STATION			42
square yards PER STATION	356						

** BASED ON 2 APPLICATIONS

SHEET NO. 5

TYPICAL SECTIONS

PROJECT NAME: SF 179 N-57 CURVE WIDENING
COUNTY: FERGUS COUNTY
PROJECT ID: HSIP 57-3(68)106
UPN: 9639000

DESIGNED BY	T. PIERCE	12/26/2023
REVIEWED BY	S. LUCIO	12/26/2023
CHECKED BY	T. JOHNSON	12/26/2023

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MONTANA Department of Transportation

N-57 PLANS SHEET SET

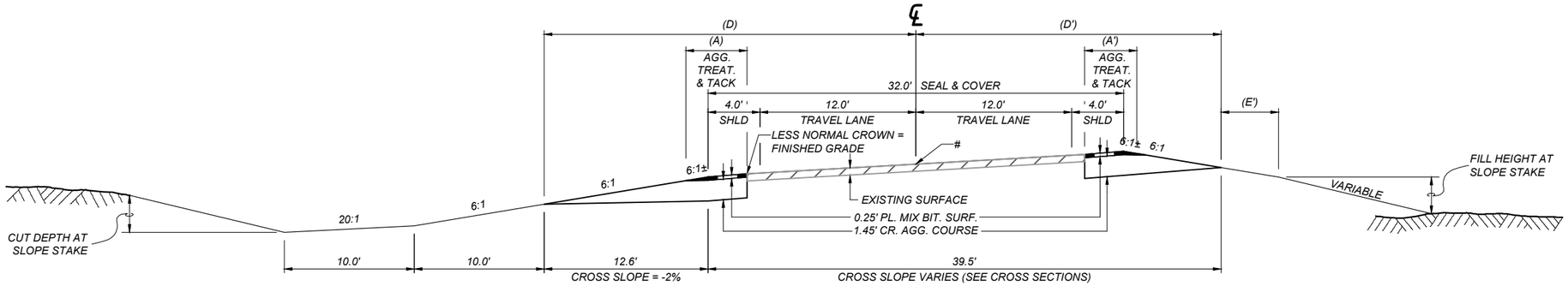
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TYPICAL SECTION NO. 5

MAINLINE

130+36.80 TO 136+51.00 TYP. NO. 5
136+51.00
137+19.56 BK TO 137+15.80 AH EQUATION
139+21.00 TRANS. TYP. SECT. NO. 5 TO NO. 2



FOR QUANTITIES SEE TYPICAL NO. 2

SUPER %	WIDTHS (ft)								
	A	B	C	D	A'	B'	C'	D'	E'
8%	4.7			28.6	4.0			23.5	4.4

SEE CENTERLINE RUMBLE STRIP REMOVAL & INSTALLATION DETAIL

* FILL SLOPES	
0' - 10'	6:1
10' - 20'	4:1
OVER 20'	3:1

* BACK SLOPES	
0' - 5'	5:1
5' - 10'	4:1
OVER 10'	3:1

* SEE CROSS SECTIONS FOR DEVIATIONS

SHEET NO. 6

TYPICAL SECTIONS

MONTANA Department of Transportation

N-57 PLANS SHEET SET

DESIGNED BY	T. PIERCE	12/26/2023	
REVIEWED BY	S. LUCIO	12/26/2023	
CHECKED BY	T. JOHNSON	12/26/2023	

PROJECT NAME: SF 179 N-57 CURVE WIDENING
COUNTY: FERGUS COUNTY
PROJECT ID: HSIP 57-3(68)106
UPN: 9639000

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SURFACING

STATION FROM	STATION TO	linear feet GROSS	linear feet NET	linear feet +	linear feet -	FOR	AGGREGATE sq. yards COVER TYPE 1	AGGREGATE tons COMMERCIAL PLANT MIX BIT. SURF. PG 58V-34	AGGREGATE tons COMMERCIAL PLANT MIX - MISC.	AGGREGATE cu. yards CRUSHED AGG. COURSE	BITUMINOUS MATERIAL tons EMULSIFIED ASPHALT SEAL CHFRS-2P	BITUMINOUS MATERIAL gals. EMULSIFIED ASPHALT TACK	BITUMINOUS MATERIAL sq. yards AGG. TREAT.	REMARKS
121+90.00	122+40.00	50.00	50.00			PTW CONNECTION	167	5		54	0.3	4	41	TRANS TYP. NO. 1 TO TYP. NO. 2
122+40.00	122+95.00	55.00	55.00				196	8		66	0.4	6	57	TYP. NO. 2
122+95.00	123+25.00	30.00	30.00				107	30		55	0.2	13	81	TRANS TYP. NO. 3 TO TYP. NO. 4
123+25.00	124+10.00	85.00	85.00				303	84		216	0.5	36	354	TYP. NO. 4
124+10.00	124+40.00	30.00	30.00				107	30		55	0.2	13	81	TRANS TYP. NO. 4 TO TYP. NO. 3
124+40.00	127+66.80	326.80	326.80				1,163	45		393	2.1	33	340	TYP. NO. 2
127+66.80	130+36.80	270.00	270.00				961	37		325	1.7	27	281	TRANS TYP. NO. 2 TO TYP. NO. 5
130+36.80	136+51.00	614.20	614.20				2,187	84		739	3.9	61	639	TYP. NO. 5
136+51.00														
137+19.56 BK	137+15.80 AH				3.76	PROJECT EQUATION								
	139+21.00	270.00	266.24				948	36		320	1.7	27	277	TRANS TYP. NO. 3 TO TYP. NO. 2
139+21.00	142+30.00	309.00	309.00				1,100	42		372	2.0	31	321	TYP. NO. 2
142+30.00	142+80.00	50.00	50.00			PTW CONNECTION	167	5		54	0.3	4	41	TRANS TYP. NO. 2 TO TYP. NO. 1
						ADDITIONAL SURFACING			103	108		70	531	
TOTAL		2,090.00	2,086.24	~	3.76		7,406	406	103	2,757	13.3	325	3,044	

ADDITIONAL SURFACING (INCLUDED IN SURFACING FRAME)

STATION FROM	STATION TO	linear feet GROSS	linear feet NET	linear feet +	linear feet -	FOR	AGGREGATE sq. yards COVER TYPE 1	AGGREGATE tons COMMERCIAL PLANT MIX BIT. SURF. PG 58V-34	AGGREGATE tons COMMERCIAL PLANT MIX - MISC.	AGGREGATE cu. yards CRUSHED AGG. COURSE	BITUMINOUS MATERIAL tons EMULSIFIED ASPHALT SEAL CHFRS-2P	BITUMINOUS MATERIAL gals. EMULSIFIED ASPHALT TACK	BITUMINOUS MATERIAL sq. yards AGG. TREAT.	REMARKS
126+00.00	142+80.00					TRENCH MILL			35			17		
131+80.77						1 - PRIVATE APPROACH			68	108		53	531	
SUBTOTAL		~	~	~	~		~	~	103	108	~	70	531	

GRADING

STATION	cu. yards UNCL. EXC.	cu. yards EXCESS EXC.	cu. yards EMB.+	REMARKS
121+90.00				
	7,245	2,625	4,620	
142+80.00				
TOTAL	7,245	# 2,625	# 4,620	

FOR INFORMATION ONLY

ADDITIONAL GRADING

STATION FROM	STATION TO	cu. yards INCL. IN GRAD. FRAME UNCL. EXC.	cu. yards INCL. IN GRAD. FRAME EMB.+	cu. yards ADD. UNCL. EXC.	REMARKS
121+90.00	142+80.00		2,304		TOPSOIL REPLACEMENT
123+40.00			20		DITCH BLOCK RT.
123+72.00		10			INLET GRADING RT.
131+80.77		175	470		PRIVATE APP. RT.
TOTAL		~	~	~	

FENCING

STATION FROM	STATION TO	linear feet FARM FENCE TYPE F2M-32WW	linear feet WILDLIFE FRIENDLY FENCE WF4 #	each FARM FENCE PANEL SINGLE FW	each FARM FENCE PANEL DOUBLE FW	each DEADMAN	linear feet FARM GATE TYPE G2	linear feet FARM GATE TYPE G3	REMARKS
LEFT									
121+00.00									
121+62.00								16	
	144+00.00	2,257		12	7	2			
RIGHT									
121+00.00									
121+56.00							16		
	128+01.00		692	9	1	1			
133+31.37									
143+26.00							16		
	144+00.00		1,079	4	3	1			
TOTAL		2,257	1,771	25	11	4	32	16	

TYPE 6

SHEET NO. 7

SUMMARIES

PROJECT NAME: SF 179 N-57 CURVE WIDENING
COUNTY: FERGUS COUNTY
PROJECT ID: HSIP 57-3(68)106
UPN: 9639000

DESIGNED BY	T. PIERCE	12/26/2023	
REVIEWED BY	S. LUCIO	12/26/2023	
CHECKED BY	T. JOHNSON	12/26/2023	9639000SASUM001.DWG

MONTANA Department of Transportation

N-57 PLANS SHEET SET

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CULVERTS (INCLUDED IN CULVERT SUMMARY RECAP)

STATION	BASIC BID ITEMS			PIPE OPTIONS in			END SECTIONS		linear feet	SKEW ANGLE	CULVERT IN PL. in x ft	REMARKS
	CULVERT PIPE in	linear feet		STEEL - 2 2/3 X 1/2 CORR. CONCRETE ALUMINUM - 2 2/3 x 1/2 CORR.	CLASS OR THK.	COATING *	LEFT	RIGHT	HEIGHT OF COVER			
		LENGTH OF PIPE	REMOVE PIPE CULVERT									
123+54	24	126		24 CSP 24 RCP 24 CAP	0.079 CL. 3 0.060	NONE NONE NONE	FETS FETS FETS	FETS FETS FETS	6.1	18.5° LT.		DRAIN
123+64			70.0								24" x 70' CSP	REMOVE
TOTAL	~	~	70.0	~	~	~	~	~	~	~	~	

* SEE STANDARD SPEC. SEC. 709.05

RANDOM RIPRAP

STATION		cu. yards	sq. yards	REMARKS
		RANDOM RIPRAP	GEOTEXTILE PERM. EROS. CNTRL. HIGH SURV. CLASS C	
FROM	TO	CL. 1		
123+59.84	123+84.10	7.2	15	INLET GRADING RT.
TOTAL		7.2	15	

CULVERT SUMMARY RECAP

BASIC BID	linear feet				each	sq. yards
	NEW PIPE (TOTAL)	RELAY PIPE CULVERT	CLEAN CULVERT PIPE	REMOVE PIPE CULVERT	PLUG ENDS & ABANDON PIPE	GEOTEXT. STAB.
24" DR	126					
TOTAL	126	~	~	~	~	~

PERMANENT EROSION CONTROL

STATION		sq. yards	REMARKS
		EROSION CONTROL BLANKET	
FROM	TO	HIGH PERF.	
123+85	126+00	470	LT.
124+25	126+00	382	RT.
TOTAL		852	

RUMBLE STRIPS

STATION		miles		gals	REMARKS
		RUMBLE STRIPS		EMULSIFIED ASPHALT FOG SEAL #	
FROM	TO	INTER-MITTENT	CENTERLINE TYPE 3		
122+40.00	142+80.00	0.4		22	LT.
122+40.00	130+83.27	0.2		9	RT.
126+00.00	142+80.00		0.3		
132+53.27	142+30.00	0.2		11	RT.
SUBTOTAL		0.8	0.3	42	
TOTAL		0.8	0.3	~	

FOR INFORMATION ONLY, INCLUDE IN THE COST OF RUMBLE STRIPS

COLD MILLING *

STATION		sq. yards	REMARKS
		COLD MILLING	
FROM	TO	0.15 ft	
126+00.00	142+80.00	373	TRENCH MILL TYP. NO. 1
SUBTOTAL		373	
TOTAL		373	

* SEE DETAILS

OBLITERATE ROADWAY

STATION		stations	REMARKS
		OBLITERATE ROADWAY	
FROM	TO		
132+16	133+77	2	EXISTING PRIVATE ROAD CL 90' RT. TO CL 56' RT.
TOTAL		2	

TOPSOIL & SEEDING

STATION		cu. yards	acres							REMARKS
		TOPSOIL SALVAGING & PLACING	SEED			FERTILIZER		CONDITION SEEDBED	MULCH - COMPOST	
FROM	TO		NO. 1	NO. 2	NO.3	NO. 1	NO. 2			
121+90.00	142+80.00	1,920	1.4	0.2	2.1	1.4	0.2	3.5	0.2	
TOTAL		1,920	1.4	0.2	2.1	1.4	0.2	3.5	0.2	

PAVEMENT MARKINGS

ITEM	UNIT	INTERIM APPLICA-TION #	FINAL APPLICA-TION	TOTAL
STRIPING - WHITE PAINT	gallon	15		15
STRIPING - YELLOW PAINT	gallon	15		15
STRIPING - WHITE EPOXY	gallon		20	20
STRIPING - YELLOW EPOXY	gallon		20	20
TEMPORARY STRIPING	linear feet			4,362
FINAL SWEEP AND BROOM	course mile			0.8

BASED ON 1 APPLICATION.

SUMMARIES

PROJECT NAME: SF 179 N-57 CURVE WIDENING
COUNTY: FERGUS COUNTY
PROJECT ID: HSIP 57-3(68)106
UPN: 9639000

DESIGNED BY	12/26/2023
T. PIERCE	
REVIEWED BY	12/26/2023
S. LUCIO	
CHECKED BY	12/26/2023
T. JOHNSON	

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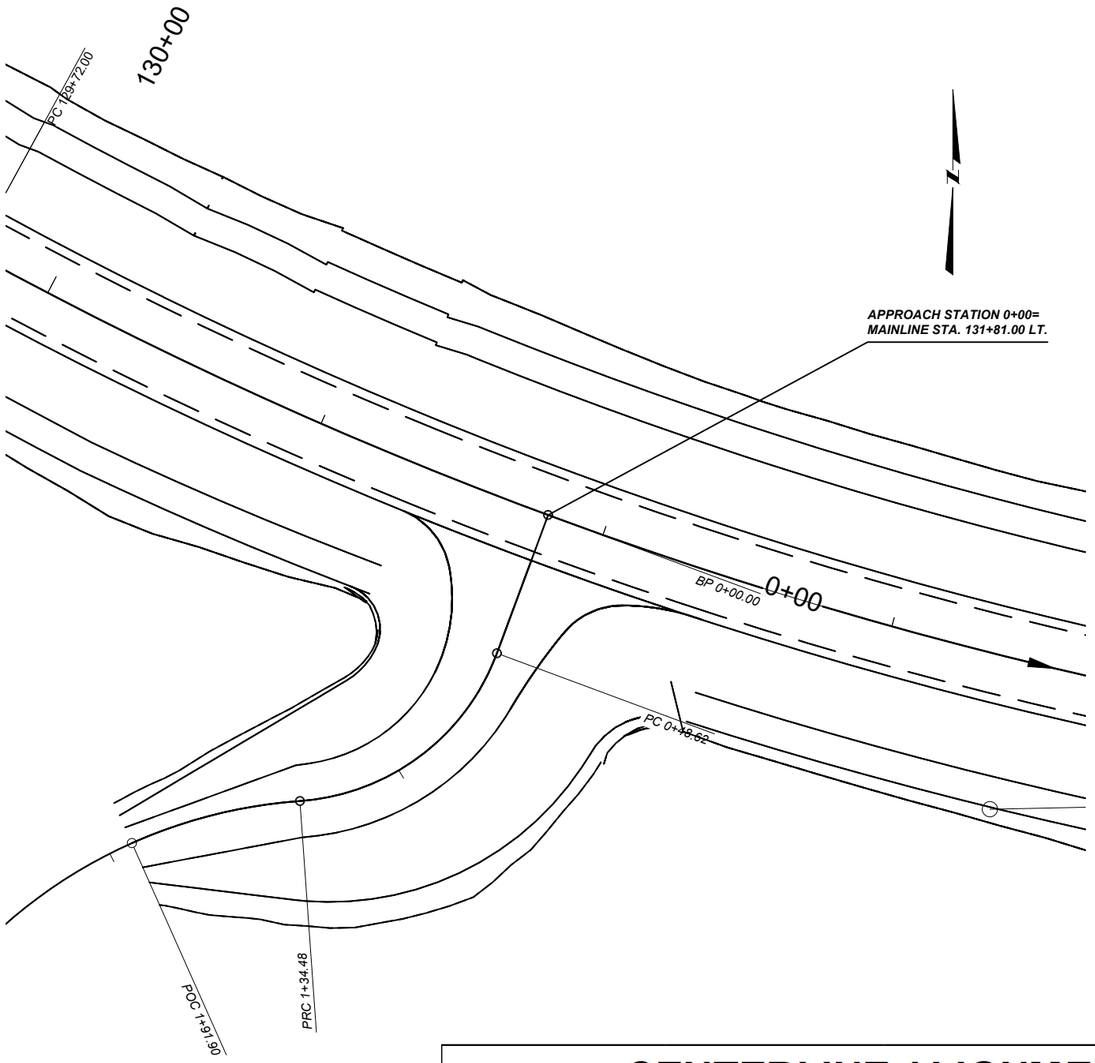
MONTANA Department of Transportation

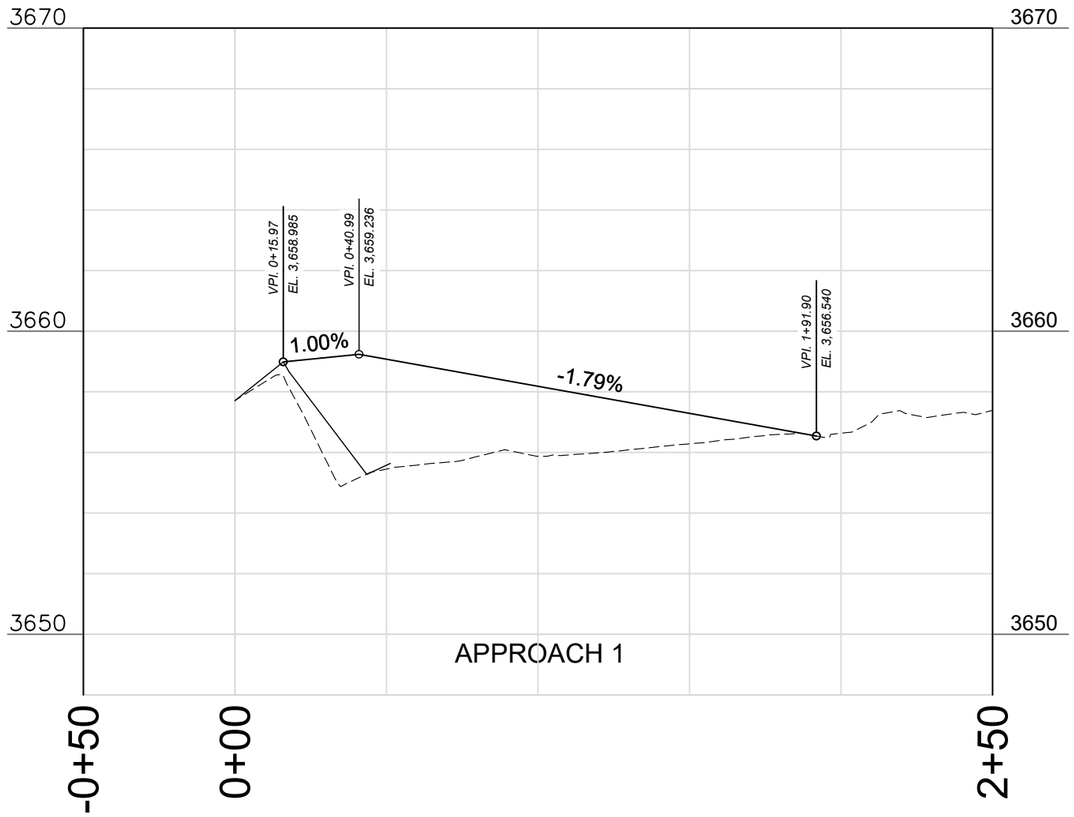
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CENTERLINE ALIGNMENT COORDINATE TABLE

STATION	DESCRIPTION	N OR Y COORDINATE	E OR X COORDINATE	REMARKS
0+00.00	POT	1,020,603.637'	2,104,543.845'	BEG. APP.
0+48.62	PC	1,020,558.046'	2,104,526.953'	
0+91.55	PI	1,020,512.732'	2,104,510.164'	
1+34.48	PRC	1,020,509.294'	2,104,461.962'	
1+91.90	POC	1,020,495.425'	2,104,406.541'	END APP.
2+48.53	PI	1,020,499.579'	2,104,325.778'	
3+62.59	POT	1,020,363.983'	2,104,309.832'	

ALIGNMENT NAME: APPROACH 1 PROFILE NAME: PROPOSED APPROACH PROFILE

SHEET NO. 9

APPROACH STATION 131+81 LT DETAIL

NO SCALE

PROJECT NAME: SF 179 N-57 CURVE WIDENING

COUNTY: FERGUS COUNTY

PROJECT ID: HSIP 57-3(68)106

UPN: 9639000

DESIGNED BY	DATE
T. PIERCE	12/26/2023
REVIEWED BY	DATE
S. LUCIO	12/26/2023
CHECKED BY	DATE
T. JOHNSON	12/26/2023

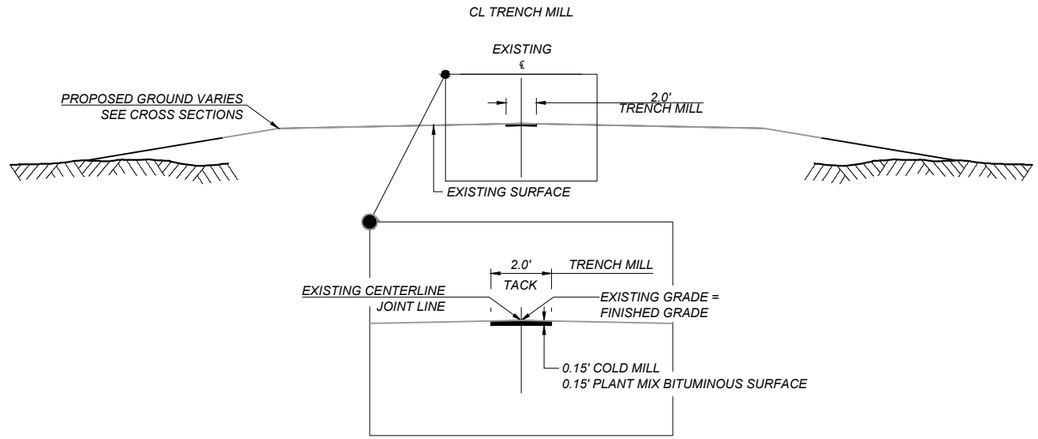
MONTANA Department of Transportation

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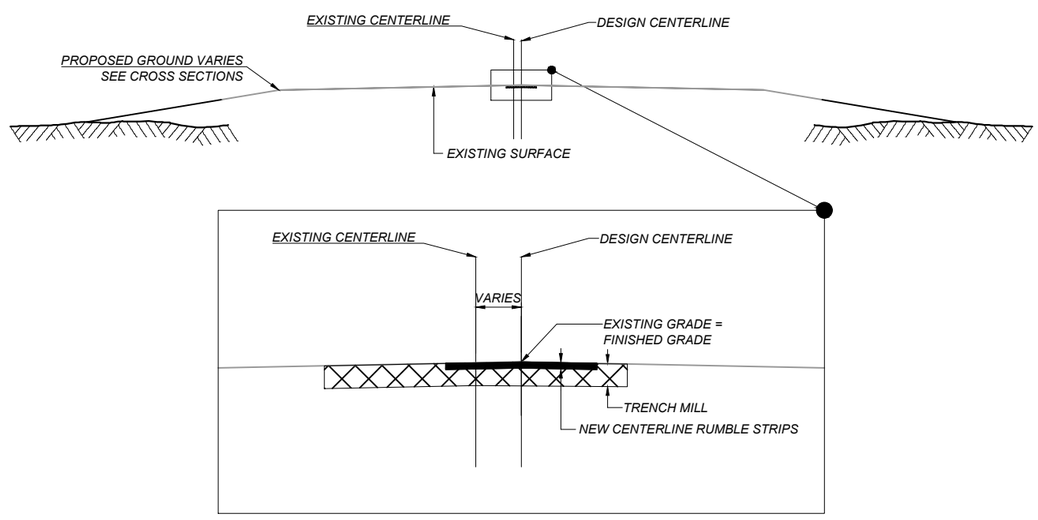
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QUANTITIES				
UNIT	AGGREGATE: PLANT MIX	UNIT	BITUMINOUS MATERIAL: EMULSIFIED ASPHALT TACK	COLD MILLING
AREA square feet	0.30	square yards PER STATION	22	22
cubic yards PER STATION	1.1	tons PER STATION		
tons PER STATION	2.1	gals. PER STATION	1	
square yards PER STATION				

EXISTING CENTERLINE RUMBLE STRIP REMOVAL



NEW CENTERLINE RUMBLE STRIP INSTALLATION

SHEET NO. 10

CENTERLINE RUMBLE STRIP REMOVAL & INSTALLATION DETAIL
NO SCALE

PROJECT NAME: SF 179 N-57 CURVE WIDENING
COUNTY: FERGUS COUNTY
PROJECT ID: HSIP 57-3(68)106
UPN: 9639000

DESIGNED BY	T. PIERCE	12/26/2023
REVIEWED BY	S. LUCIO	12/26/2023
CHECKED BY	T. JOHNSON	12/26/2023

MONTANA
Department of Transportation

N-57 PLANS SHEET SET

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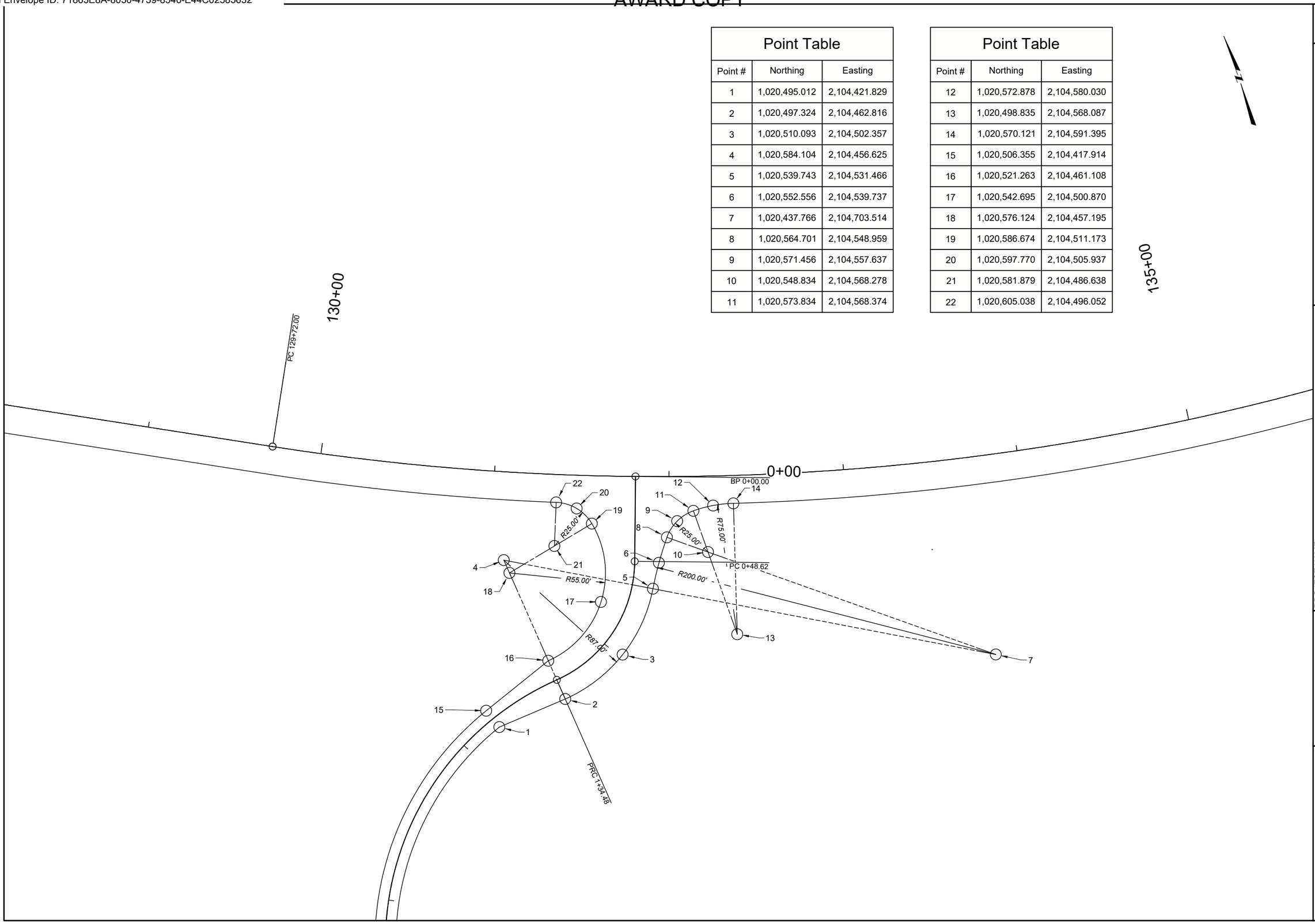
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Point Table		
Point #	Northing	Easting
1	1,020,495.012	2,104,421.829
2	1,020,497.324	2,104,462.816
3	1,020,510.093	2,104,502.357
4	1,020,584.104	2,104,456.625
5	1,020,539.743	2,104,531.466
6	1,020,552.556	2,104,539.737
7	1,020,437.766	2,104,703.514
8	1,020,564.701	2,104,548.959
9	1,020,571.456	2,104,557.637
10	1,020,548.834	2,104,568.278
11	1,020,573.834	2,104,568.374

Point Table		
Point #	Northing	Easting
12	1,020,572.878	2,104,580.030
13	1,020,498.835	2,104,568.087
14	1,020,570.121	2,104,591.395
15	1,020,506.355	2,104,417.914
16	1,020,521.263	2,104,461.108
17	1,020,542.695	2,104,500.870
18	1,020,576.124	2,104,457.195
19	1,020,586.674	2,104,511.173
20	1,020,597.770	2,104,505.937
21	1,020,581.879	2,104,486.638
22	1,020,605.038	2,104,496.052



SHEET NO.
11

GEOMETRIC DETAIL
SHEET 1 OF 1
APPROACH DETAIL
SCALE 1" = 50'

PROJECT NAME: SF 179 N-57 CURVE WIDENING
COUNTY: FERGUS COUNTY
PROJECT ID: HSIP 57-3(68)106
UPN: 9639000

DESIGNED BY	DATE
T. PIERCE	12/26/2023
REVIEWED BY	DATE
S. LUCIO	12/26/2023
CHECKED BY	DATE
T. JOHNSON	12/26/2023

MONTANA
Department of Transportation

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PLAN & PROFILE

125+00

STA. 122+40.00

BTM

PROP. R/W

127+87.75
UG FIBER X-ING
DEPTH UNKNOWN

T. 15 N R. 22 E
SEC. 20

EX. EASE.

EX. EASE.

120'

GRADE TO DRAIN

FO

S61°19'10"E

EX. EASE.

EX. EASE.

PROP. R/W

121+56
18" CSP DR. IN PL. RT.
DO NOT DISTURB

123+54
NEW 24" DRAIN

123+64
24" CSP DR. IN PL.
REMOVE

123+72
INLET GRADING RT.
WITH RIP RAP AND
GEOTEXTILE

121+62
FARM FIELD APP. LT.
DO NOT DISTURB

121+56
FARM FIELD APP. RT.
DO NOT DISTURB

123+40
DT. BLK. RT.

123+85 TO 126+00
EROSION CONTROL BLANKET LT.

124+25 TO 126+00
EROSION CONTROL BLANKET RT.

EXISTING ℄ ROADWAY

3650

121+90.00
BEG. HSIP 57-3(68)106

3650

- EROSION CONTROL BLANKET

3640

3640

3633.56

+54

N-57

121+50

125

129+00

SF 179 N-57 CURVE WIDENING
PROJECT NAME

FERGUS COUNTY
COUNTY

HSIP 57-3(68)106
PROJECT ID

9639000
UPN

DESIGNED BY	12/26/2023
T. PIERCE	
REVIEWED BY	12/26/2023
S. LUCIO	
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T. JOHNSON	

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Department of Transportation

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129+34.00
UG MISSLE CABLE X-ING
DEPTH UNKNOWN

130+00

PC 129+72.00

PROP. R/W

PI =133+54.50
Δ =29°54'00"
R =1,432'
T =382.50'
L =747.56'
E =50.19'
S= 8%

135+00

EX. EASE.

T. 15 N. R. 22 E.

SEC. 20

120'

S61°19'10"E

FO

EX. EASE.

MIS

A

131+81
NEW PRIVATE APP. RT.

132+16 TO 133+77
OBLITERATE PRIVATE APP. RT.

EXISTING ℄ ROADWAY

3660

3650

N-57

128+88

130

135

136+38

SHEET NO.
13

PLAN & PROFILE

PROJECT NAME: SF 179 N-57 CURVE WIDENING
COUNTY: FERGUS COUNTY
PROJECT ID: HSIP 57-3(68)106
UPN: 9639000

DESIGNED BY	12/26/2023
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REVIEWED BY	12/26/2023
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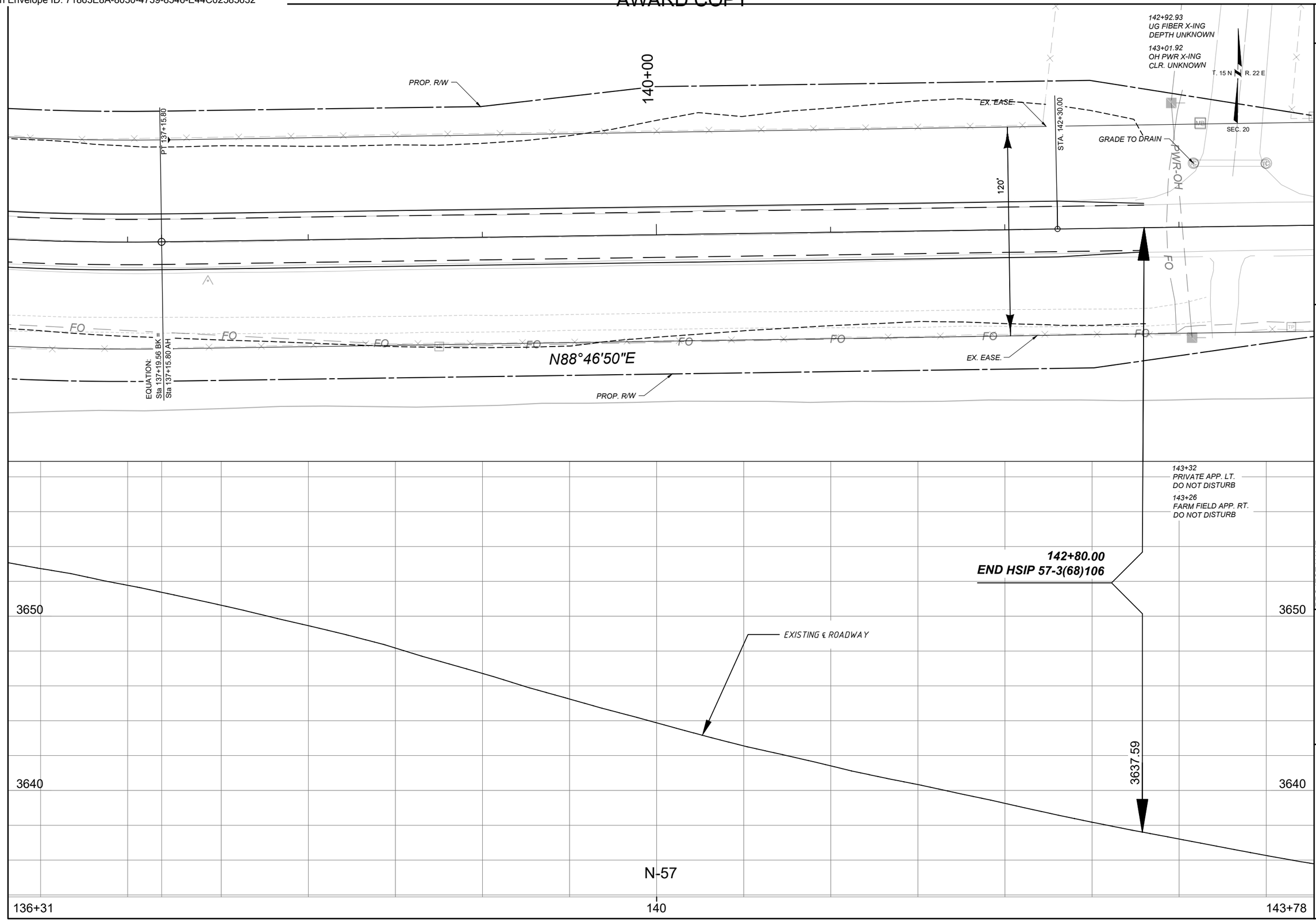
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Department of Transportation

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SHEET NO.
14

PLAN & PROFILE

PROJECT NAME: SF 179 N-57 CURVE WIDENING
COUNTY: FERGUS COUNTY
PROJECT ID: HSIP 57-3(68)106
UPN: 9639000

DESIGNED BY	DATE	REVIEWED BY	DATE	CHECKED BY	DATE
T. PIERCE	12/26/2023	S. LUCIO	12/26/2023	T. JOHNSON	12/26/2023

MONTANA
Department of Transportation

N-57 PLANS SHEET SET

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SUMMARY
SIGNING & DELINEATION QUANTITIES

MATERIAL	TOTAL	UNIT
SIGNS-ALUM REFL SHEET IV		SQ. FOOT
SIGNS-ALUM REFL SHEET XI	67.2	SQ. FOOT
SIGNS-ALUM SHEET INCR IV		SQ. FOOT
SIGNS-ALUM SHEET INCR XI		SQ. FOOT
OVERLAY-SHEET ALUMINUM		SQ. FOOT
POSTS-STEEL U SIGN		POUNDS
POLES-TREATED WOOD 4 IN	28	LINEAR FT.
POLES-TREATED WOOD 5 IN	70	LINEAR FT.
POLES-TREATED TIMBER-CLASS 4		LINEAR FT.
POLES-TREATED TIMBER-CLASS 3		LINEAR FT.
POSTS-TUBULAR STEEL		POUNDS
POSTS-TUBULAR STEEL-SQ-PERF		POUNDS
POSTS-STEEL STRUCTURAL SIGN		POUNDS
OVERHEAD STR/METAL-CANTILEVER		EACH
OVERHEAD STR/METAL-BRIDGE		EACH
HIGHWAY TRAFFIC STRIPING-WHITE		GAL.(S)
HIGHWAY TRAFFIC STRIPING-YELLOW		GAL.(S)
WORDS & SYMBOLS		GAL.(S)
DELINEATOR DES A		EACH
DELINEATOR DES B		EACH
DELINEATOR DES C		EACH
DELINEATOR DES D		EACH
DELINEATOR DES E		EACH
DELINEATOR DES F		EACH
DELINEATOR DES G		EACH
DELINEATOR DES H		EACH
REMOVE SIGNS	7	EACH
REMOVE SIGNS-GUIDE		EACH
RESET SIGNS		EACH
RESET SIGNS-GUIDE		EACH
FRANG SIGN POST BKWY-		EACH
FRANG SIGN POST BKWY-		EACH
DELINEATOR TYPE 1	32	EACH
SQ TUBLR SLIP BASE BKWY-3 IN		EACH

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SIGN LOCATION AND SPECIFICATIONS

REF. POST	RAMP NO.	SIGN NO.	PANEL SIZE	REFL SHTG TYPE: BACK-GROUND	REFL SHTG TYPE: LEGEND	FEET: CLEARANCE	FEET: SIGN SUPPORT SPACING	TYPE OF SUPPORT	FEET: CANTILEVER	FEET: SUPPORT LENGTH (ESTIMATED)	FEET: SUPPORT LENGTH (INSTALLED)	FEET: MOUNTING HEIGHT	FEET: FOUNDATION DEPTH	SIGN PANEL (SQ. FT.): SHEET ALUMINUM	SIGN PANEL (SQ. FT.): ALUMINUM SHEET INCREMENT	SIGN PANEL (SQ. FT.): ALUMINUM SHEET OVERLAY	TIMBER POLE (LINEAR FT.): 4" TOP DIA.	TIMBER POLE (LINEAR FT.): 5" TOP DIA.	STEEL POST(LBS.): ROUND TUBULAR	STEEL POST(LBS.): SQUARE TUBULAR	STEEL POST(LBS.): STRUCTURAL STEEL	STEEL POST(LBS.): "U" POST	BREAKAWAY	SIGNS REMOVE	SIGNS RESET	GUIDE REMOVE	GUIDE RESET	REMARKS
105.709 RT		W1-2L W13-1(55)	30X30 18X18	XI XI		10-0		4" DIA POLE		13-10		5-7	3-0	6.3 2.3			14							1				FY	REPLACE W1-2L NEW W13-1 55 MPH
105.750		W1-8 W1-8	24X30 24X30	XI XI		10-0		5" DIA POLE		12-4		5-0	3-6	5.0 5.0				14				X	1				FY	REPLACE
105.788		W1-8 W1-8	24X30 24X30	XI XI		10-0		5" DIA POLE		12-4		5-0	3-6	5.0 5.0				14				X	1				FY	REPLACE
105.826		W1-8 W1-8	24X30 24X30	XI XI		10-0		5" DIA POLE		12-4		5-0	3-6	5.0 5.0				14				X	1				FY	REPLACE
105.864		W1-8 W1-8	24X30 24X30	XI XI		10-0		5" DIA POLE		12-4		5-0	3-6	5.0 5.0				14				X	1				FY	REPLACE
105.902		W1-8 W1-8	24X30 24X30	XI XI		10-0		5" DIA POLE		12-4		5-0	3-6	5.0 5.0				14				X	1				FY	REPLACE
105.943		W1-2R W13-1(55)	30X30 18X18	XI XI		10-0		4" DIA POLE		13-10		5-7	3-0	6.3 2.3			14						1				FY	REPLACE W1-2R NEW W13-1 55 MPH
TOTALS														67.2			28	70					7					

REFERENCE POSTS LISTED ON THIS SPECIFICATION SHEET ARE REFERENCED TO D10-3 AT RP 106

X = STANDARD BREAKAWAY DEVICE:
- FOR WOOD POST SEE DETAILED DRAWING 619-20.
- FOR STRUCTURAL STEEL SEE DETAILED DRAWING 619-13.

MOUNTING HEIGHT REQUIREMENTS: MOUNTING HEIGHTS SHOWN REFER TO THE BOTTOM OF THE MAJOR PANEL. SEE DETAILED DRAWINGS 619-00 & 619-08.

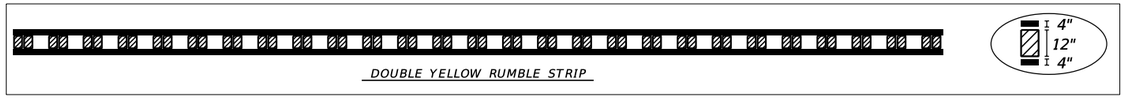
FY = TYPE XI FLUORESCENT YELLOW SHEETING REQUIRED.

DELINEATION TABLE		
⊣	DESIGN "A"	22
⊣|	DESIGN "B"	___
⊢⊢	DESIGN "C"	___
|⊢⊣|	DESIGN "D"	___
⊣|||	DESIGN "E"	___
⊢⊣	DESIGN "F"	10
⊣<	DESIGN "G"	___
⊣▷	DESIGN "H"	___
⊣×	DESIGN "J"	___
×⊣|	DESIGN "BJ"	___
×<	DESIGN "GJ"	___
		___

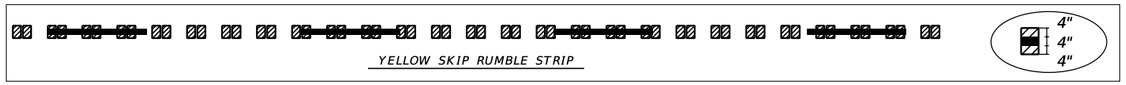
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DETAILS

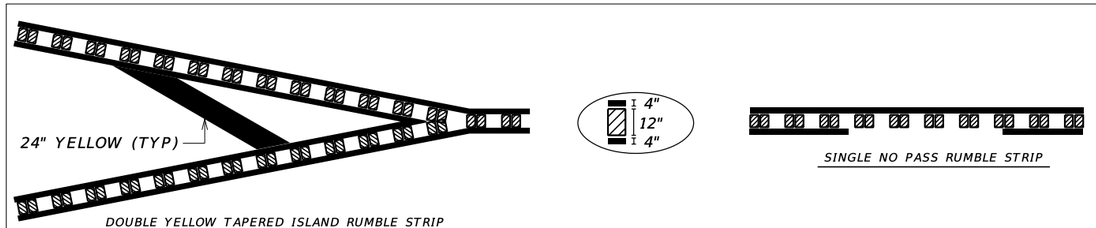
TYPICAL RURAL CENTERLINE RUMBLE STRIP DETAILS



DOUBLE YELLOW RUMBLE STRIP

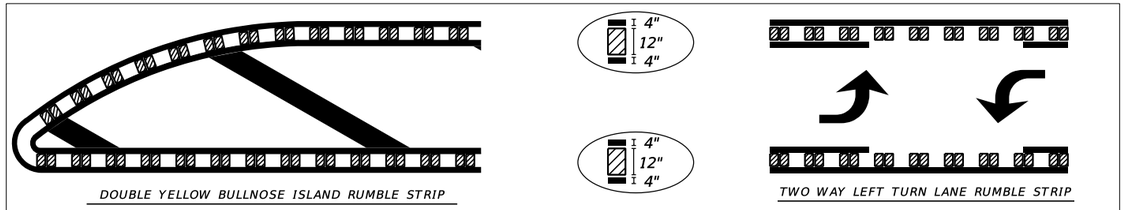


YELLOW SKIP RUMBLE STRIP



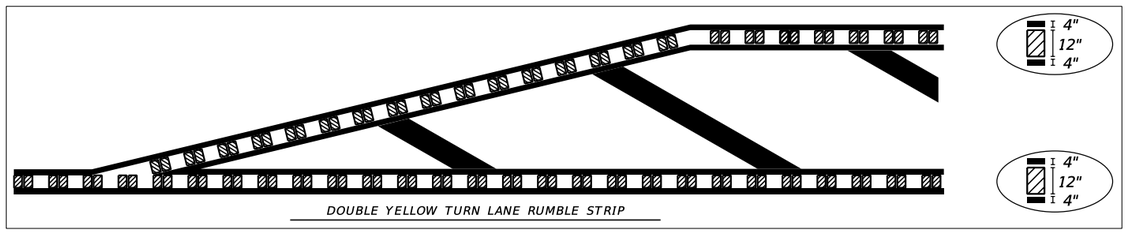
DOUBLE YELLOW TAPERED ISLAND RUMBLE STRIP

SINGLE NO PASS RUMBLE STRIP

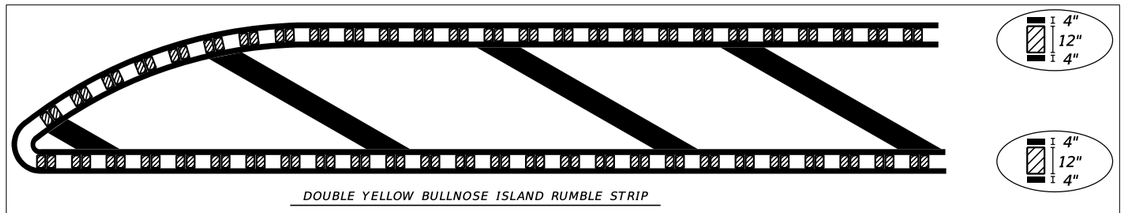


DOUBLE YELLOW BULLNOSE ISLAND RUMBLE STRIP

TWO WAY LEFT TURN LANE RUMBLE STRIP



DOUBLE YELLOW TURN LANE RUMBLE STRIP

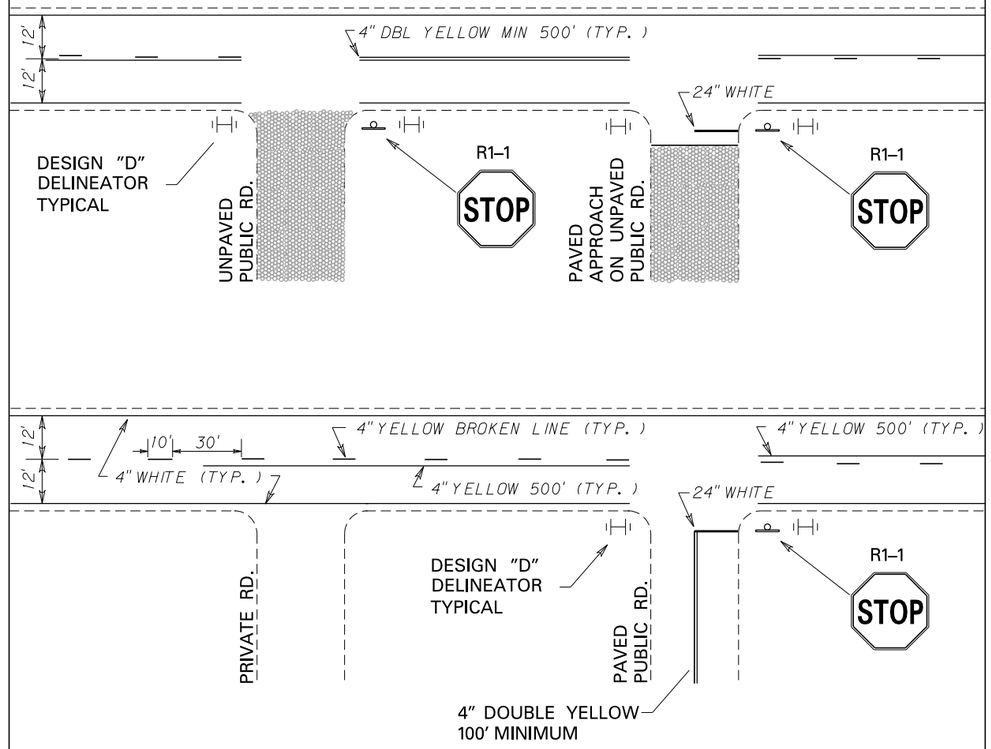


DOUBLE YELLOW BULLNOSE ISLAND RUMBLE STRIP

PMO / CENTERLINE
RUMBLE STRIP DETAIL
DESIGNED BY NMS 01/2022
REVIEWED BY SDR 01/2022

TYPICAL RURAL PAVEMENT MARKINGS

NO SCALE



NOTE: FINAL CENTERLINE CONFIGURATION AND NO PASSING ZONES TO BE DETERMINED BY THE PROJECT MANAGER.

ALL PAVEMENT MARKINGS TO BE EPOXY UNLESS OTHERWISE SPECIFIED.

NOTES:

1. *SEE CENTERLINE RUMBLE STRIPS DTL. DWG. NO. 411-05 FOR ADDITIONAL INFORMATION.*
2. *ALL PAVEMENT MARKINGS ARE TO CONFORM TO THE REQUIREMENTS OF THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" AND "STANDARD HIGHWAY SIGNS" PUBLICATIONS, FROM THE FEDERAL HIGHWAY ADMINISTRATION.*
3. *SEE CENTERLINE PAVEMENT MARKINGS FOR RURAL HIGHWAYS MEMO DATED JUNE 18, 2019*

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DETAILS

CHEVRON PLACEMENT DETAIL

(GUIDANCE ONLY)

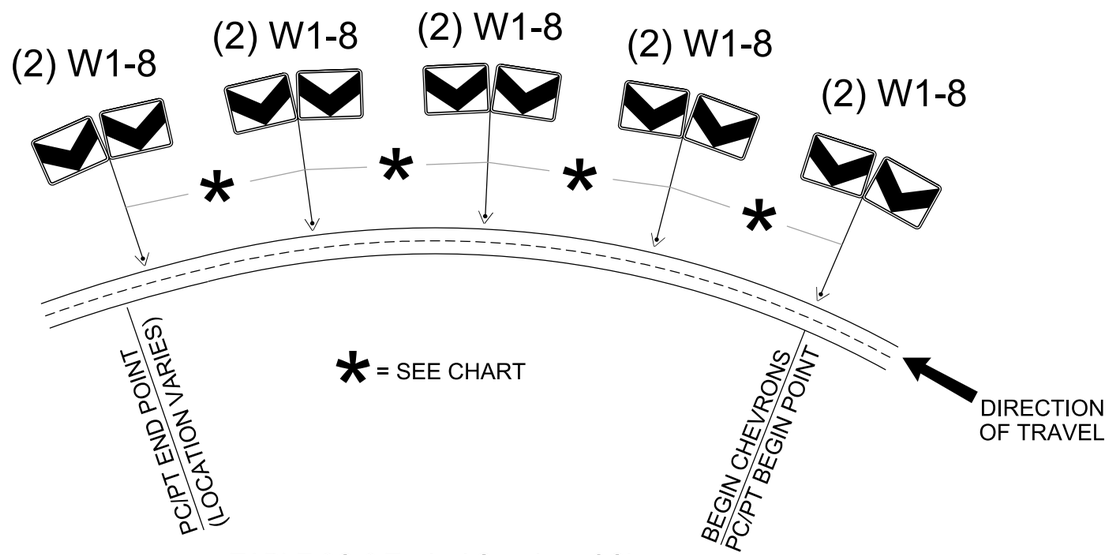


TABLE 2C-6 Typical Spacing of Chevrons

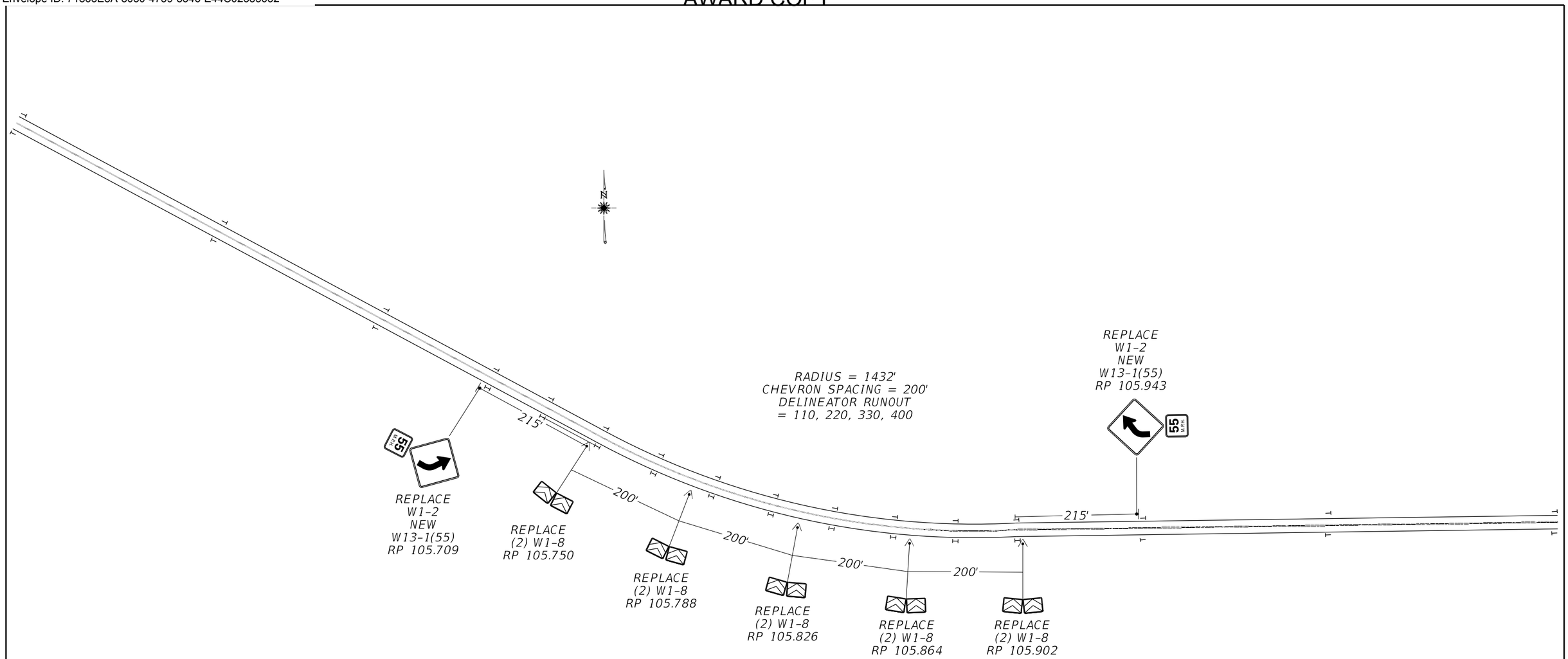
ADVISORY SPEED	CURVE RADIUS	SIGN SPACING		R.P. CONVERSION
<15 mph	<200'	40'	=	.008+-
20-30 mph	200' - 400'	80'	=	.015+-
35-45 mph	401' - 700'	120'	=	.023+-
50-60 mph	701' - 1250'	160'	=	.030+-
>60 mph	>1250'	200'	=	.038+-

1) SEE SPEC SHEET FOR CHEVRON PLACEMENT

2) USE BEGINNING OF CURVE LOCATION AS REFERENCE POINT TO INSTALL CHEVRONS (BEGIN POINT - ALWAYS ON OUTSIDE OF CURVE IN DIRECTION OF TRAVEL)

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AWARD COPY



3	MONTANA Department of Transportation	C:\DGN\9639000sipln001.dgn	DESIGNED BY	NATHAN STYREN	02/2023	SIGNING PLANS	SF 179 N-57 CURVE WIDENING	HSIP 57-3(68)106
2		2/26/2024						
1		2:56:53 PM CPS - U1376	CHECKED BY	ROGER SCHROEDER	02/2023	FERGUS COUNTY	UPN 9639000	S5