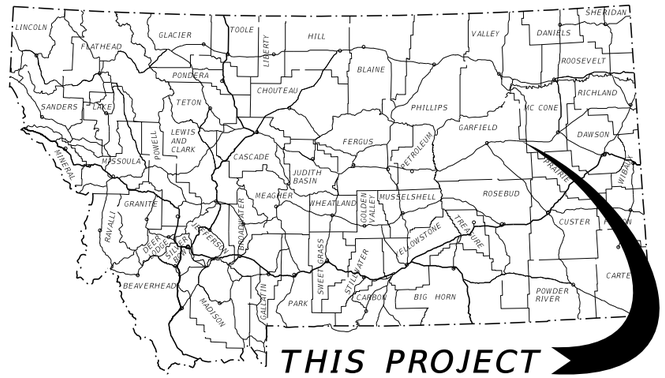
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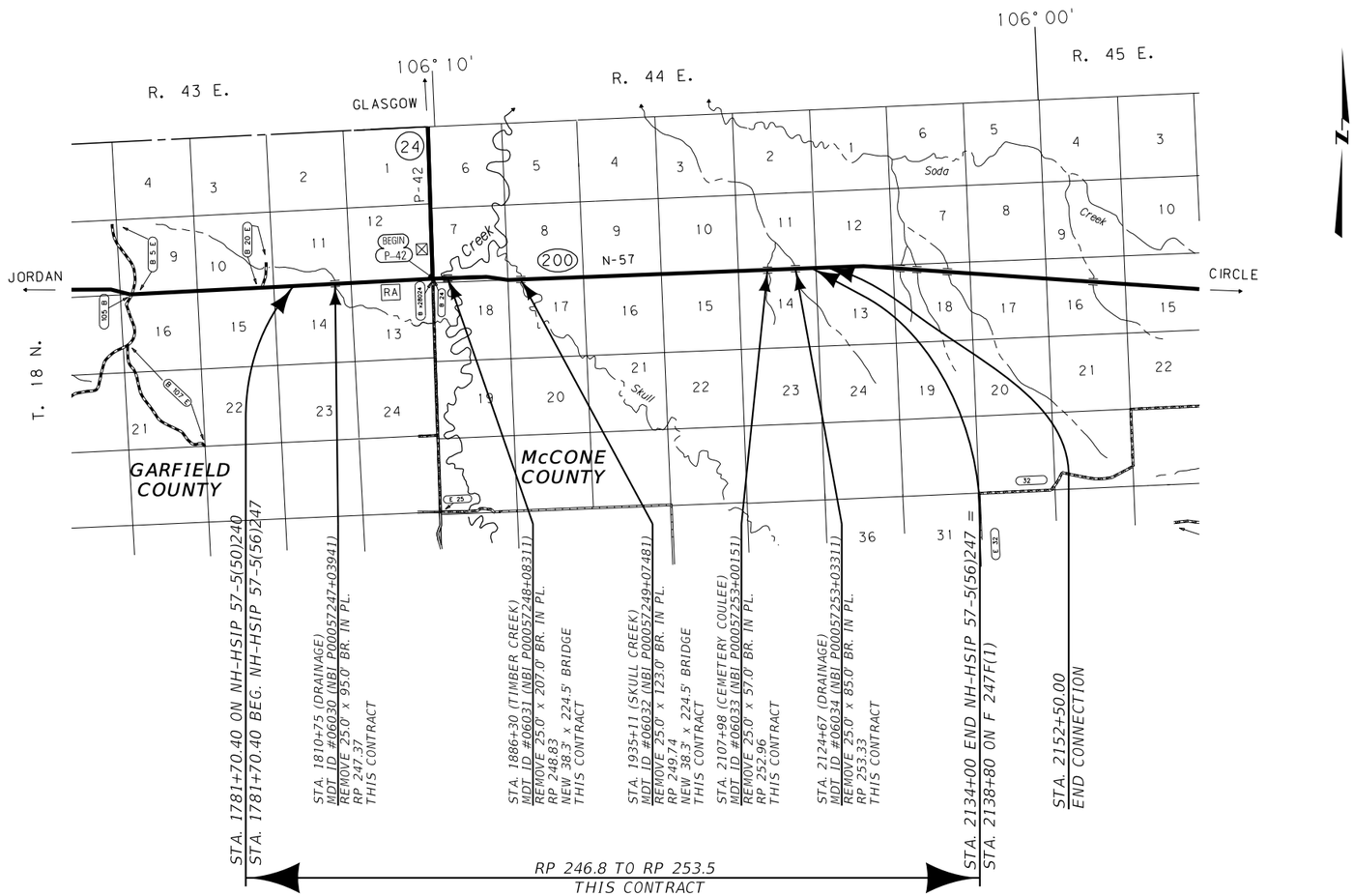
MONTANA DEPARTMENT OF TRANSPORTATION

FEDERAL AID PROJECT NH - HSIP 57-5(56)247
GRADE, GRAVEL, CTB, PMS, & STRUCTURES
FLOWING WELLS - EAST & WEST
GARFIELD & MCCONE COUNTIES

PROJECT DESIGN DATA		
PRESENT 2019	A.D.T. =	510
LETTING 2025	A.D.T. =	550
DESIGN 2045	A.D.T. =	790
	D.H.V. =	110
	TRUCKS =	17.5 %
	V. =	60 MPH
	18 KIP ESAL'S =	75 DAILY
	GROWTH RATE =	1.8 % ANNUALLY

LENGTH 6.8 MILES

SURFACING SOURCES -
CONTRACTOR FURNISHED



APPROVED
By Megan Cail at 10:05 am, Jan 15, 2025

MONTANA
DEPARTMENT OF TRANSPORTATION

APPROVED BY:
HIGHWAYS
DESIGN ENGINEER

MONTANA
MEGAN
CAIL
29099PE
LICENSED
PROFESSIONAL ENGINEER

DATE

ASSOCIATED PROJECT AGREEMENT NUMBERS	
R / W	NH 57-5(63)247
I.C.	
P. E.	NH 57-5(55)247

3	MONTANA Department of Transportation	C:\DGN\9726000rdtl001.dgn	DESIGNED BY	S. Jarvis	10/19/2023	ROAD PLANS
2		12/9/2024	REVIEWED BY			UPN 9726000
		11:29:07 AM CPS - U0425	CHECKED BY	J. Cereck	9/2024	

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NOTES

BASIS OF PLAN QUANTITIES

(QUANTITIES FOR ESTIMATING PURPOSES ONLY)

COMP. AGGREGATE WEIGHT	= 3700 LBS. PER CUBIC YARD
COMP. WEIGHT OF PL. MIX BIT. SURF.	= 3855 LBS. PER CUBIC YARD
ASPHALT BINDER - GRADE S - 3/4" AGG.	= 5.1% OF PL.MIX BIT.SURF.
HYDRATED LIME	= 1.4% OF PL.MIX BIT.SURF.
BITUMINOUS MATERIAL	= 8.5 LBS. PER GAL.
EMULSIFIED ASPHALT - TACK (ALL OTHER SURFACES)	= 0.05 GAL. PER SQ.YARD (UNDILUTED)
EMULSIFIED ASPHALT - FOG SEAL (RUMBLE STRIPS)	= 0.02 GAL. PER SQ.YARD (UNDILUTED)
SEAL	= 0.42 GAL. PER SQ.YARD
CURING SEAL	= 0.20 GAL. PER SQ.YARD
COVER	= 25 LBS. PER SQ.YARD
CEMENT TREATED BASE (CTB)	= 3620 LBS. PER CUBIC YARD
BLOTTER	= 15 LBS. PER SQ.YARD
PORTLAND CEMENT	= 4% OF CTB DRY WT.

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 UNCLASSIFIED EXCAVATION

SOILS INFORMATION

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

SOIL SURVEY NUMBER (SS-#) — (DISTRICT SOIL SURVEY)

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



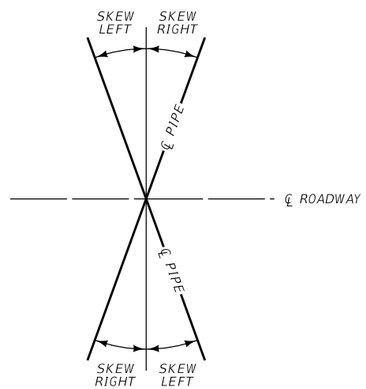
PERMANENT WETLAND IMPACTED AREAS

WETLAND DELINEATION TABLE

WETLAND DESIGNATION	STATION		WETLAND AREA (acres)		REMARKS
	FROM	TO	DELINEATED AREA	PERMANENT IMPACTED AREA	
SITE 1	1787+87	1792+80	0.64	0.473	LT.
SITE 2	1809+50	1823+06	1.15	0.181	LT. & RT.
SITE 3	1883+40	1891+87	1.93	0.334	LT. & RT. #
SITE 4	1934+00	1936+77	0.19	0.032	LT. & RT.
SITE 5	2124+21	2125+15	0.25	0.203	LT. & RT.
TOTAL			4.16	1.22	

AREA OF EXISTING WETLAND EXTENDS BEYOND PLAN LIMITS

SKEW DIAGRAM



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NOTES

APPROACHES (FOR INFORMATION ONLY)

STATION	linear feet				EXISTING SURFACING	feet		PROPOSED SURFACE	sq. yd.	tons	cu. Yds.		tons		gallons	REMARKS
	WIDTH	RADIUS #		LENGTH		PMS THK.	CAC THK.		COVER TYPE 1	PLANT MIX BIT. SURF. GR. S -3/4"	PLANT MIX BIT. SURF. GR. S -MISC	CRUSHED AGG. COURSE	ASPHALT CEMENT PG 58V-34	EMULSI-FIED ASPHALT CHFRS-2P	EMULS. ASPHALT TACK	
		LEFT	RIGHT													
1798+50	24	25	25	112.0	GRAVEL	0.2	0.60	12' ASPHALT STRIP/GRAVEL			8	68	0.4		3	LT.
1803+30	24	25	25	122.0	GRAVEL	0.2	0.60	12' ASPHALT STRIP/GRAVEL			7	70	0.4		3	RT.
1820+00	24	25	25	152.0	GRAVEL	0.2	0.60	12' ASPHALT STRIP/GRAVEL			8	91	0.4		3	LT.
1839+15	24	25	25	127.0	GRAVEL	0.2	0.60	12' ASPHALT STRIP/GRAVEL			7	73	0.4		3	RT.
1849+75	24	25	25	80.0	GRAVEL	0.2	0.60	12' ASPHALT STRIP/GRAVEL			7	48	0.4		3	LT.
1871+00	24	25	25	125.0	GRAVEL	0.2	0.60	12' ASPHALT STRIP/GRAVEL			7	64	0.4		3	LT.
1928+50	40	25	25	97.0	GRAVEL	0.2	0.60	12' ASPHALT STRIP/GRAVEL			10	91	0.5		4	LT. - JOINT USE
1928+50	40	25	25	66.0	GRAVEL	0.2	0.60	12' ASPHALT STRIP/GRAVEL			10	63	0.5		4	RT. - JOINT USE
1951+75	24	25	25	117.0	GRAVEL	0.2	0.60	12' ASPHALT STRIP/GRAVEL			7	58	0.4		3	LT.
1983+90	24	25	25	97.0	GRAVEL	0.2	0.60	12' ASPHALT STRIP/GRAVEL			7	71	0.4		3	LT.
1988+50	24	25	25	97.0	GRAVEL	0.2	0.60	12' ASPHALT STRIP/GRAVEL			7	43	0.4		3	RT.
2006+60	24	25	25	152.0	GRAVEL	0.2	0.60	12' ASPHALT STRIP/GRAVEL			7	84	0.4		3	LT.
2033+80	40	25	25	135.0	GRAVEL	0.2	0.60	12' ASPHALT STRIP/GRAVEL			10	136	0.5		4	RT. - JOINT USE
2058+50	24	25	25	102.0	GRAVEL	0.2	0.60	12' ASPHALT STRIP/GRAVEL			7	31	0.4		3	LT.
2058+50	24	25	25	82.0	GRAVEL	0.2	0.60	12' ASPHALT STRIP/GRAVEL			7	49	0.4		3	RT.
2094+30	24	25	25	132.0	GRAVEL	0.2	0.60	12' ASPHALT STRIP/GRAVEL			7	65	0.4		3	LT.
2094+30	24	25	25	167.0	GRAVEL	0.2	0.60	12' ASPHALT STRIP/GRAVEL			8	54	0.4		3	RT.
2112+00	24	25	25	102.0	GRAVEL	0.2	0.60	12' ASPHALT STRIP/GRAVEL			7	61	0.4		3	LT.
2112+00	24	25	25	72.0	GRAVEL	0.2	0.60	12' ASPHALT STRIP/GRAVEL			7	43	0.4		3	RT.
2121+00	24	25	25	107.0	GRAVEL	0.2	0.60	12' ASPHALT STRIP/GRAVEL			7	63	0.4		3	RT.
2139+50	24	25	25	132.0	GRAVEL	0.2	0.60	12' ASPHALT STRIP/GRAVEL			7	76	0.4		3	RT. - JOINT USE
SUBTOTAL FARM/FIELD										~	159	1,402	8.7	~	66	
1849+75	24	37.5	25	102.0	GRAVEL	0.2	0.60	ASPHALT			40	70	2.0		16	RT. - JOINT USE
1863+15	24	25	25	50.6	GRAVEL	0.2	0.60	ASPHALT			17	25	0.9		7	LT.
1871+00	24	37.5	37.5	95.0	GRAVEL	0.2	0.60	ASPHALT/GRAVEL			23	66	1.2		9	RT.
1880+05	24	25.0	25.0	65.0	GRAVEL	0.2	0.60	ASPHALT			27	44	1.4		10	RT.
2139+50	24	25	25	143.0	GRAVEL	0.2	0.60	ASPHALT			43	77	2.2		17	LT. - JOINT USE
SUBTOTAL PRIVATE										~	150	282	7.7	~	59	
1875+75	28	▲	▲	225.0	PMS	0.3	0.95	ASPHALT	1,058	138		419	7.0	0.2	54	MT 24 - LT
1876+19	33	▲	▲	127.0	PMS	0.3	0.95	ASPHALT	722	144		221	7.3	0.2	56	SOUTH FLOWING WELLS ROAD - RT.
SUBTOTAL PUBLIC									1,780	282	~	640	14.3	0.4	110	

▲ - SEE GEOMETRICS DETAIL

LEVEL DATA

BEARING SOURCE

GRID -- MONTANA COORDINATE SYSTEM NAD 83-2011

LEVEL DATUM SOURCE

NAVD 88 ELEVATIONS DERIVED FROM DIFFERENTIAL LEVELS
HOLDING NGS PUBLISHED ELEVATION AT W164.

CENTERLINE COORDINATE TABLE

STATION	DESCRIPTION	N OR Y COORDINATE	E OR X COORDINATE	REMARKS
1781+70.40	POT	1,138,434.567	2,784,071.318	BEG. NH-HSIP 57-5(56)247
1847+24.79	PC	1,138,701.988	2,790,620.252	
1850+00.00	PI	1,138,713.216	2,790,895.233	
1852+75.15	PT	1,138,714.350	2,791,170.442	
1858+21.70	PC	1,138,716.603	2,791,716.984	
1861+00.00	PI	1,138,717.750	2,791,995.284	
1863+78.24	PT	1,138,729.219	2,792,273.351	
1871+47.12	PC	1,138,760.906	2,793,041.578	
1875+00.00	PI	1,138,775.449	2,793,394.155	
1878+52.74	PT	1,138,773.396	2,793,747.025	
1883+51.23	PC	1,138,770.496	2,794,245.505	
1887+00.00	PI	1,138,768.467	2,794,594.264	
1890+48.64	PT	1,138,782.649	2,794,942.741	
2134+00.00	POT	1,139,772.889	2,879,273.963	END NH-HSIP 57-5(56)247
2135+32.09	PC	1,139,778.261	2,819,405.945	
2138+00.00	PI	1,139,789.155	2,819,673.635	
2140+67.71	PT	1,139,817.934	2,819,939.996	
2143+31.91	PC	1,139,846.315	2,820,202.667	
2146+00.00	PI	1,139,875.113	2,820,469.205	
2148+67.89	PT	1,139,886.003	2,820,737.072	
2152+50.00	POT	1,139,901.525	2,821,118.866	END CONNECTION
2158+36.82	POT	1,139,925.361	2,821,705.202	

GPK NAME: JOB726.GPK CHAIN NAME: MAINLINE PROFILE NAME: MAINLINE

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CONTROL DIAGRAM

SCALE: N/A

CONTROL ABSTRACT

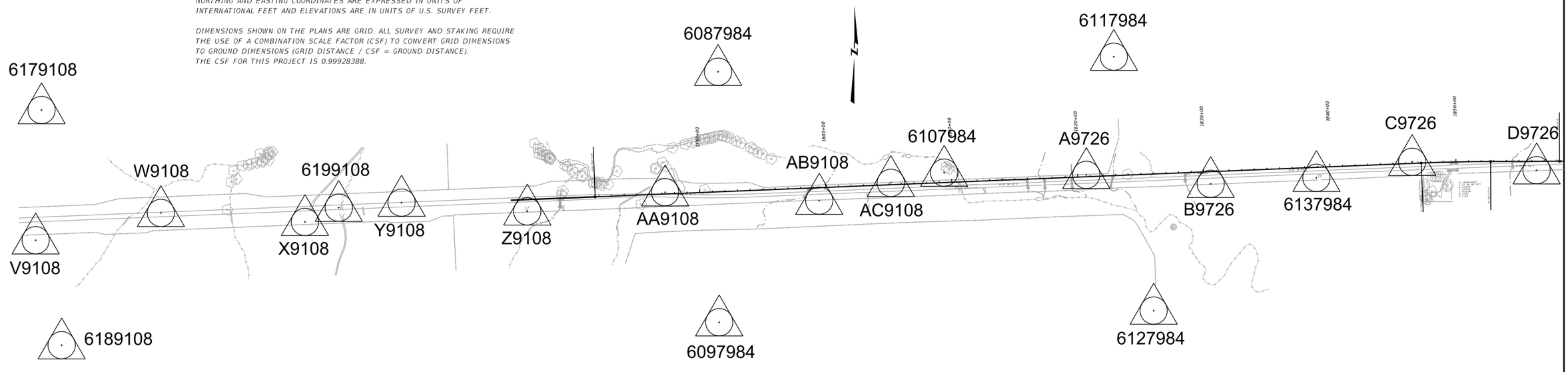
POINT NAME/NUMBER	N OR Y COORDINATE	E OR X COORDINATE	POINT ELEVATION	LOCATION AND DESCRIPTION
V9108	1,138,090.247	2,779,634.712	2627.62	FND 2" MDT A.C. ON 5/8X30" REBAR WITH CAP STAMPED "V9108 2017" AT MM 246.00 ON MT 200. THE POINT LIES 66' S OF THE R/W FENCE AND 63.5' EAST-NORTHEAST OF UTILITY POLE. SET WITNESS POST 3.' S OF CAP.
6179108	1,139,121.929	2,779,681.469	2632.86	FOUND MDT 2" A.C. ON 5/8"X30" REBAR STAMPED "6179108 2017". TO REACH PARK AT FIELD ACCESS ON N SIDE OF MT 200 AT MM 245.914 AND WALK NNE 0.20 MILES TO POINT.THE POINT LIES ON A SOUTH FACING SLOPE ABOUT 40' SOUTH OF TOP OF SLOPE. SET WITNESS POST 3' NORTH OF CAP. HANDHELD GPS COORDINATES ARE N 47-19-41.31661" W 106-13-34.22919"
6189108	1,137,259.128	2,779,840.765	2623.92*	FOUND MDT 2" A.C. ON 5/8"X30" REBAR STAMPED "6189108 2017". TO REACH GO TO MM 246.06 ON MT 200 AND WALK S 0.18 MILE TO POINT. THE POINT LIES SE OF A SW-NE DRAINAGE AND 13' S OF A COW TRAIL (E-W) SET WP 2.8' S OF CAP. HANDHELD GPS COORDINATES ARE N 47-19-22.87072" W 106-13-33.04819"
W9108	1,138,307.017	2,780,627.537	2599.96	FND 2" MDT A.C. ON 5/8X30" REBAR WITH CAP STAMPED "W9108 2017" AT MM 246.191 ON MT 200. THE POINT LIES 4.5' S OF THE R/W FENCE AND 53' N OF THE PTW. SET WITNESS POST 3.1' N OF CAP.
X9108	1,138,235.468	2,781,769.674	2616.25	FND 2" MDT A.C. ON 5/8X30" REBAR WITH CAP STAMPED "X9108 2017" AT MM 246.408 ON MT 200. THE POINT LIES 4.5' S OF THE R/W FNC AND 65' S OF THE PTW SET WITNESS POST 4.5' N OF CAP (IN FENCE).
6199108	1,138,348.503	2,782,038.102	2607.79	FOUND 2" MDT ALUMINUM CAP STAMPED "6199108 2016" AT MP 246.46 ON HIGHWAY 200, 38' NORTH PTW AND 20' SOUTH OF RW FENCE. SET WP 3' SOUTH OF CAP. HANDHELD GPS COORDINATES ARE N 47-19-32.71143" W 106-13-00.50012"
Y9108	1,138,388.703	2,782,535.659	2609.14	FND 2" MDT A.C. ON 5/8X30" REBAR WITH CAP STAMPED "Y9108 2017" AT MM 246.555 ON MT 200. THE POINT LIES 2.2' S OF THE R/W FENCE AND 41.5' WEST-SOUTHWEST OF UTILITY POLE. SET WITNESS POST 2.2' S OF CAP (IN FENCE).
Z9108	1,138,319.213	2,783,532.363	2560.51	FND 2" MDT A.C. ON 5/8X30" REBAR WITH CAP STAMPED "Z9108 2017" AT MM 246.744 ON MT 200. THE POINT LIES 6.5' N OF THE R/W FENCE, 53' S OF THE PTW, AND IN AND OLD FIELD ACCESS APPROACH. SET WITNESS POST 3' S OF CAP.
AA9108	1,138,470.749	2,784,625.412	2545.53	FND 2" MDT A.C. ON 5/8X30" REBAR WITH CAP STAMPED "AA9108 2017" AT MM 246.953 ON MT 200. THE POINT LIES 6.7' S OF THE R/W FNC AND 53' N OF THE PTW SET WITNESS POST 3' N OF CAP.
6087984	1,139,425.073	2,785,045.240	2567.39*	FOUND AN MDT 2" ALUMINUM CAP ON A 5/8" BY 30" REBAR STAMPED "6087984 2012" IN A FLAT GRAZED OUT AREA OF OLD PASTURE 1000' NORTH OF PTW OF HWY 200 AT MM 247.039. YOU WILL NEED TO WALK TO POINT FROM HWY 200. WITNESS POST 3' NORTH OF CAP. N 47-19-42.08637" W 106-12-16.20630"
6097984	1,137,440.992	2,785,054.288	2580.13	FOUND 5/8" BY 30" REBAR AND 2" MDT ALUMINUM CAP STAMPED "6097984 2012", ON NORTH FACE OF GENTLY SLOPING HILLSIDE, WITNESS POST 3' SW OF THE CAP. TO REACH GO TO MP 247.028 PARK AND WALK SOUTH 920' TO THE POINT. N 47-19-22.50603" W 106-12-17.28694"
AB9108	1,138,404.337	2,785,847.365	2542.86	FND 2" MDT A.C. ON 5/8X30" REBAR WITH CAP STAMPED "AB9108 2017" AT MM 247.179 ON MT 200. THE POINT LIES 4.9' S OF THE R/W FENCE AND ON TOP OF CUT BANK. SET WITNESS POST 4.9' N OF CAP (IN FENCE).

CONTROL ABSTRACT

POINT NAME/NUMBER	N OR Y COORDINATE	E OR X COORDINATE	POINT ELEVATION	LOCATION AND DESCRIPTION
AC9108	1,138,545.062	2,786,415.067	2535.6	FND 2" MDT A.C. ON 5/8X30" REBAR WITH CAP STAMPED "AC9108 2017" AT MM 247.289 ON MT 200. THE POINT LIES 4.2' S OF THE R/W FNC AND 54' N OF THE PTW SET WITNESS POST 3' N OF CAP.
6107984	1,138,625.975	2,786,837.787	2517.61*	FOUND AN MDT 2" ALUMINUM CAP ON A 5/8" BY 30" REBAR STAMPED "6107984 2012" IN A LOWER FLAT AREA 30'-40' SOUTH OF EDGE OF BANK OF CREEK, 115' NORTH OF THE C/L OF HWY 200 AT MM 247.31 AND ON THE WEST SIDE OF THE BRIDGE AT MM 247.39, WITNESS POST 3' NORTH OF CAP. N 47-19-33.45659" W 106-11-50.68184"
A9726	1,138,608.341	2,787,964.622	2528.49	SET 2" MDT A.C. ON 5/8X30" REBAR WITH CAP STAMPED "A9726 2019" AT MM 247.485 ON MT 200. THE POINT LIES 3' SOUTH OF FENCELINE ON SIDEHILL AND 55' NORTH OF C/L. SET WP 3' NORTH. HANDHELD GPS COORDINATES ARE N 47-19-32.8" W 106-11-34.5"
6117984	1,139,544.420	2,788,183.007	2547.36	FOUND AN MDT 2" ALUMINUM CAP ON A 5/8" BY 30" REBAR STAMPED "6117984 2012" IN PASTURE AREA 11' WEST OF N-S FENCE LINE AND CULTIVATED FIELD. YOU CAN WALK FROM HWY 200 AT MM 247.72, HEAD NORTH ALONG FENCE LINE AND ALONGSIDE FIELD FOR 1200' TO POINT ON WEST SIDE OF FENCE. WITNESS POST 3' NORTH OF CAP. N 47-19-41.95809" W 106-11-30.59764"
6127984	1,137,533.278	2,788,498.965	2517.11*	FOUND AN MDT 2" ALUMINUM CAP ON A 5/8" BY 30" REBAR STAMPED "6127984 2012" IN OLD PASTURE AREA 23' WEST OF ELECTRIC FENCE CORNER GOING SOUTH AND EAST. YOU CAN WALK FROM HWY 200 AT MM 247.65 THEN GO SOUTH ALONG FENCE LINE FOR 1005'. WITNESS POST 3' SOUTH OF CAP. N 47-19-21.98300" W 106-11-27.24617"
B9726	1,138,537.405	2,788,951.184	2539.04	SET 2" MDT A.C. ON 5/8X30" REBAR WITH CAP STAMPED "B9726 2019" AT MM 247.772 ON MT 200. THE POINT LIES 3' NORTH OF FENCELINE AND 57' SOUTH OF C/L. SET WP 3' SOUTH HANDHELD GPS COORDINATES ARE N 47-19-31.7" W 106-11-20.2"
6137984	1,138,584.709	2,789,789.280	2554.97	FOUND AN MDT 2" ALUMINUM CAP ON A 5/8" BY 30" REBAR STAMPED "6137984 2012" IN R/W AREA 25' WEST OF AN ACCESS APPROACH ON THE SOUTH SIDE OF HWY 200 AT MM 247.90, 40' SOUTH OF C/L OF HWY 200 AND 23' NORTH OF R/W FENCE. WITNESS POST 3' NORTH OF CAP. N 47-19-31.81854" W 106-11-07.87698"
C9726	1,138,711.607	2,790,548.368	2540.74	SET 2" MDT A.C. ON 5/8X30" REBAR WITH CAP STAMPED "C9726 2019" AT MM 248.044 ON MT 200. THE POINT LIES 6' SOUTH OF CULTIVATED FIELD EDGE, 53' N OF C/L AND IN THE MIDDLE OF A PATH. SET WP 3.5' S. HANDHELD GPS COORDINATES ARE N 47-19-32.6 W 106-10-57.0"
D9726	1,138,645.202	2,791,535.139	2514.2	SET 2" MDT A.C. ON 5/8X30" REBAR WITH CAP STAMPED "D9726 2019" AT MM 248.238 ON MT 200. THE POINT LIES 3.5' NORTH OF FENCELINE, 54' SOUTH OF C/L MT 200, AND 58' SOUTHEAST OF A DELINEATOR. SET WP 3.5' SOUTH. HANDHELD GPS COORDINATES ARE N 47-19-31.7" W 106-10-42.5"

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 0.99928388.

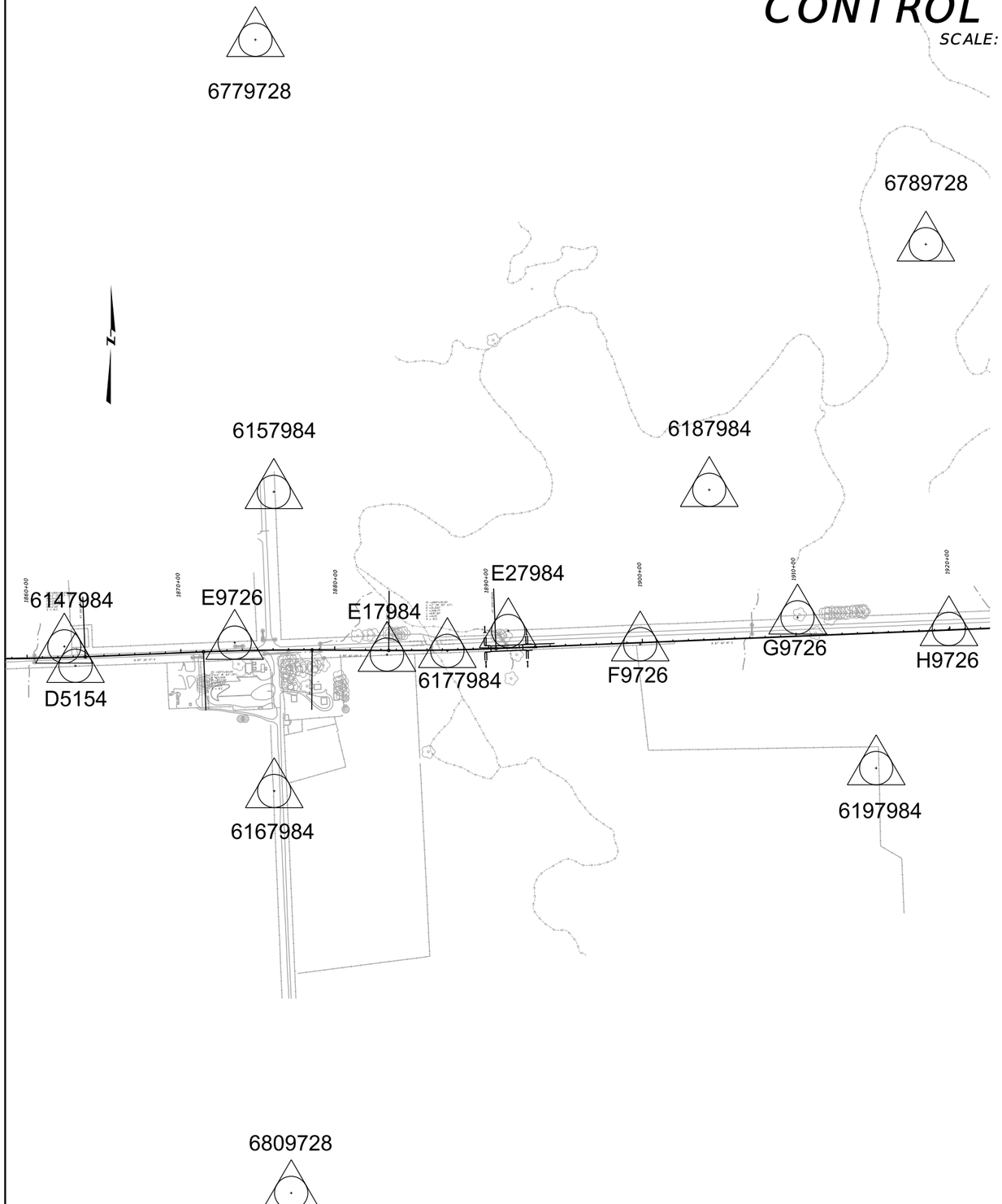


3	MONTANA Department of Transportation	C:\DGN\9726000rdtrv001.dgn	DESIGNED BY	S. Jarvis	10/19/2023	ROAD PLANS	FLOWING WELLS - EAST & WEST / NH - HSIP 57-5(56)247
2		12/9/2024	REVIEWED BY				
		11:30:04 AM CPS - U0425	CHECKED BY			GARFIELD & MCCONE COUNTIES	UPN 9726000 / 4

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CONTROL DIAGRAM

SCALE: N/A



CONTROL ABSTRACT

POINT NAME/NUMBER	N OR Y COORDINATE	E OR X COORDINATE	POINT ELEVATION	LOCATION AND DESCRIPTION
6147984	1,138,795.941	2,792,136.991	2505.24	FOUND AN MDT 2" ALUMINUM CAP ON A 5/8" BY 30" REBAR STAMPED "6147984 2012" IN AREA 38' WEST OF ACCESS APPROACH ON NORTH SIDE OF HWY 200 AT MM 248.35, 6' NORTH OF R/W FENCE AND 66' NORTH OF THE C/L OF HWY 200. POINT IS NEAR THE SW CORNER OF A FENCED POWER STATION SITE. WITNESS POST 6' SOUTH OF CAP. N 47-19-32.92027" W 106-10-33.67874"
D5154	1,138,670.506	2,792,209.552	2504.65	FND 5/8" REBAR AND 2" MDT ALUMINUM CAP STAMPED "D5154 2012", ON THE SOUTH SIDE OF HWY 200, APPROXIMATELY 1300' WEST OF THE INTERSECTION OF HWY MT24 & HWY 200, ACROSS THE HWY TO THE SOUTH OF THE MCCONE ELECTRIC COOP SUBSTATION "FLOWING WELLS SUBSTATION # 12", 56' SOUTH OF THE CENTERLINE OF HWY 200, 3' NORTH OF THE EAST/WEST RIGHT OF WAY FENCE ON THE SOUTH SIDE OF THE HWY, 56' SOUTH OF THE CENTERLINE OF THE HWY. WITNESS POST 3' SOUTH OF THE CAP.
E9726	1,138,820.807	2,793,244.193	2472.42	SET 2" MDT A.C. ON 5/8X30" REBAR WITH CAP STAMPED "E9726 2019" AT MM 248.560 ON MT 200. THE POINT LIES 7' SOUTH OF FENCE, 52' NORTH OF C/L, 8' SOUTHWEST OF A GATE, AND 31' NORTH-NORTHEAST OF MT-200 SIGN. SET WP 3' NORTH. HANDHELD GPS COORDINATES ARE N 47-19-32.6" W 106-10-17.1"
6779728	1,142,737.028	2,793,378.719	2473.62	SET 2" MDT AC ON 5/8 BY 30" REBAR STAMPED "6779728 2019". TO REACH POINT TURN NORTH ON MT-24 AT FLOWING WELLS REST AREA AND FOLLOW FOR 0.75 MI, TO POINT ON THE EAST SIDE OF THE ROAD, 4.2' W OF R/W FENCE, 10.2' SOUTH OF CUT POWER POLE FENCE POST. SET WP IN FENCELINE. HANDHELD COORDINATES ARE N47-20-11.3" W 106-10-13.2"
6157984	1,139,800.646	2,793,498.542	2472.14	FOUND AN MDT 2" ALUMINUM CAP ON A 5/8" BY 30" REBAR STAMPED "6157984 2012" 77' EAST OF HWY 24 AT MM 0.195, 8' WEST OF R/W FENCE AND ACCROSS THE ROAD FROM THE NORTH SIDE OF MDT MAINTENANCE YARD. WITNESS POST 3' EAST OF CAP. N 47-19-42.26246" W 106-10-13.30097"
6167984	1,137,857.383	2,793,500.901	2473.86	FOUND AN MDT 2" ALUMINUM CAP ON A 5/8" BY 30" REBAR STAMPED "6167984 2012" 44' WEST OF C/L OF GRAVEL ROAD (SOUTH FLOWING WELLS RD.) AND 6' EAST OF R/W FENCE. POINT IS 0.183 MILES SOUTH OF THE INTERSECTION OF HWY 200 AND HWY 24 AND S. FLOWING WELLS RD. WITNESS POST 6' WEST OF CAP. N 47-19-23.08812" W 106-10-14.46601"
6809728	1,135,246.132	2,793,611.486	2481.89	SET 2" MDT A.C. ON 5/8X30" REBAR WITH CAP STAMPED "6809728 2019". TO REACH POINT, TURN SOUTH ON GRAVEL ROAD AT FLOWING WELLS REST AREA AND FOLLOW FOR 0.66 MI, POINT IS LOCATED ON THE WEST SIDE OF THE ROAD, 35' E OF THE EDGE OF GRAVEL, 7' WEST OF THE N-S FENCELINE. SET WP 3' W. HANDHELD GPS COORDINATES ARE N 47-18-57.4" W 106-10-14.5"
E17984	1,138,743.408	2,794,233.751	2468.81	FND 5/8" BY 30" REBAR AND 2" MDT ALUMINUM CAP STAMPED "E17984 2012" AT MP 248.760, CAP IS 4' NORTH OF SOUTH FENCE. WITNESS POST 3' SOUTH OF CAP.
6177984	1,138,767.042	2,794,625.926	2460.6	FOUND 5/8" BY 30" REBAR AND 2" MDT ALUMINUM CAP STAMPED "6177984 2012", 12.3' NORTH OF E-W R/W FENCE, 8.0'EAST OF TOP BANK ON EAST SIDE OF TIMBER CREEK, 42' SOUTH OF GUARD RAIL. WITNESS POST 6' S OF THE CAP TO REACH GO TO MP 248.85 ON HWY 200 AND GO SOUTH TO THE POINT. N 47-19-31.59091" W 106-09-57.57922"
E27984	1,138,896.409	2,795,021.559	2461.09	FND 5/8" BY 30" REBAR AND 2" MDT ALUMINUM CAP STAMPED "E27984 2012" AT MP 248.911, CAP IS 4' SOUTH OF NORTH FENCE. WITNESS POST 3' NORTH OF CAP.
F9726	1,138,810.576	2,795,879.480	2513.55	SET 2" MDT A.C. ON 5/8X30" REBAR WITH CAP STAMPED "F9726 2019" AT MM 244.07?
				ON MT 200. THE POINT LIES 5.5' NORTH OF FENCLINE, 26' WEST OF A GATE, SOUTHEAST OF A FENCE CORNER, AND ON A SIDEHILL. SET WP 5.5' SOUTH. HANDHELD GPS COORDINATES ARE N 47-19-31.5" W 106-09-39.4"
6187984	1,139,813.517	2,796,328.240	2484.68*	FOUND 5/8" BY 30" REBAR AND 2" MDT ALUMINUM CAP STAMPED "6187984 2012" IN GRASSLAND PASTURE, 10' NORTH OF E-W CATTLE TRAIL AND 10' SOUTH OF DIFFERENT E-W CATTLE TRAIL. WITNESS POST 5.5' SOUTH OF THE CAP. TO REACH GO TO MP 249.165 ON HWY. 200 AND THEN GO 775' NORTH TO THE POINT. N 47-19-41.20009" W 106-09-32.22883"
G9726	1,138,984.907	2,796,901.890	2492.38	SET 2" MDT A.C. ON 5/8X30" REBAR WITH CAP STAMPED "G9726 2019" AT MM 249.272 ON MT 200. THE POINT LIES 35' SOUTH OF FENCELINE, 18' SOUTH OF PAIR OF TREES, AND 67' NORTH OF C/L MT 200. HANDHELD GPS COORDINATES ARE N 476-19-32.5" W 106-09-23.9"
6197984	1,138,005.981	2,797,412.922	2517.26	FOUND 5/8" BY 30" REBAR AND 2" MDT ALUMINUM CAP STAMPED "6197984 2012", 126' SOUTH OF FENCE INTERSECTION WHICH RUNS N-S AND WEST, 18' WEST OF N-S FENCE. WITNESS POST 6.8' SOUTH OF THE CAP. TO REACH GO TO MP 249.371 ON HWY. 200 THEN GO 865' SOUTH TO THE POINT. N 47-19-22.90874" W106-09-17.60920"
6789728	1,141,408.672	2,797,735.772	2457.81*	SET 2" MDT A.C. ON 5/8X30" REBAR WITH CAP STAMPED "6789728 2019" AT MM 249.429 ON MT 200. PARK AND WALK NORTH 0.46 MILES. THE POINT LIES APPROXIMATELY 105' EAST OF TOP OF SLOPE OF DRAINAGE IN FLAT-OPEN GRASSY AREA. SET WP 3' NORTH. HANDHELD GPS COORDINATES ARE N 47-19-56.4" W 106-09-11.0"
H9726	1,138,909.649	2,797,885.558	2472.24	SET 2" MDT A.C. ON 5/8X30" REBAR WITH CAP STAMPED "H9726 2019" AT MM 249.460 ON MT 200. THE POINT LIES 3' NORTH OF FENCLINE AND 48' SOUTH OF C/L OF MT 200 IN A FLAT AREA. SET WP 3' SOUTH. HANDHELD GPS COORDINATES ARE N 47-19-31.6" W 106-09-10.3"

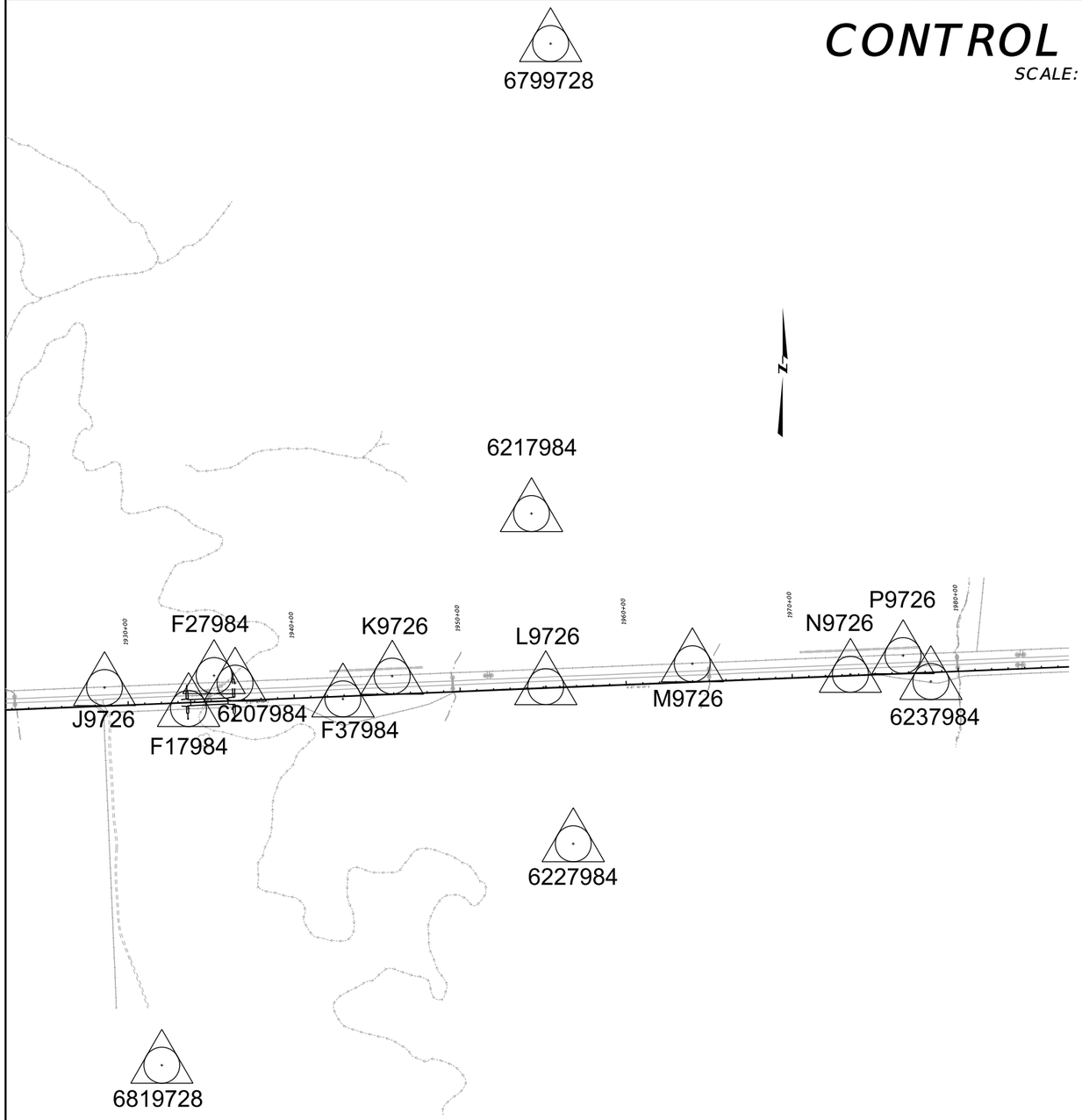
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THE CSF FOR THIS PROJECT IS 0.99928388.

ADVERTISED COPY

CONTROL DIAGRAM

SCALE: N/A



CONTROL ABSTRACT

POINT NAME/NUMBER	N OR Y COORDINATE	E OR X COORDINATE	POINT ELEVATION	LOCATION AND DESCRIPTION
J9726	1,139,049.050	2,798,748.280	2473.68	SET 2" MDT A.C. ON 5/8X30" REBAR WITH CAP STAMPED "J9726 2019" AT MM 249.619 ON MT 200. THE POINT LIES 3' SOUTH OF FENCLINE, 11.5' EAST OF R/W CONC, 3' EAST OF REST AREA SIGN, AND 58' NORTH OF C/L. SET WP 3' NORTH HANDHELD GPS COORDINATES ARE N 47-19-32.7" W 106-08-57.7"
6819728	1,136,776.913	2,799,092.783	2482.56*	SET 2" MDT A.C. ON 5/8X30" REBAR WITH CAP STAMPED "6819728 2019" AT MM 249.612 ON MT 200, TURN SOUTH ON TWO-TRACK ROAD AND FOLLOW FOR 0.430 MI. POINT IS 20.2' WEST OF THE TWO-TRACK. SET WP 3' SE. HANDHELD GPS COORDINATES ARE N 47-19-10.1" W 106-08-54.1"
F17984	1,138,923.086	2,799,253.416	2469.42	FND 5/8" BY 30" REBAR AND 2" MDT ALUMINUM CAP STAMPED "F17984 2012" AT MP 249.741, CAP IS 4' NORTH OF SOUTH FENCE. WITNESS POST 3' SOUTH OF CAP.
F27984	1,139,120.845	2,799,407.117	2465.00*	FND 5/8" BY 30" REBAR AND 2" MDT ALUMINUM CAP STAMPED "F27984 2012" AT MP 249.771, CAP IS 51.4' SOUTH OF POWER POLE AND 45' NORTH OF N FENCE. WITNESS POST 3' NORTH OF CAP.
6207984	1,139,075.647	2,799,533.582	2454.58	FOUND 5/8" BY 30" REBAR AND 2" MDT ALUMINUM CAP STAMPED "6207984 2012", 8.8' SOUTH OF E-W R/W FENCE, 19' E OF TOP OF BANK ON E SIDE OF SKULL CREEK 39' NORTH OF GUARD RAIL. WITNESS POST 6' NORTH OF THE CAP. TO REACH GO TO MP 249.77 ON HWY. 200 AT THE E END OF THE BRIDGE AND GO NORTH TO THE POINT. N 47-19-32.56719" W 106-08-46.17245"
F37984	1,138,980.738	2,800,182.741	2493.4	FND 5/8" BY 30" REBAR AND 2" MDT ALUMINUM CAP STAMPED "F37984 2012" AT MP 249.919, CAP IS 70' SOUTH OF PTW CENTERLINE. WITNESS POST 3' S OF CAP.
K9726	1,139,117.845	2,800,479.373	2510.84	SET 2" MDT A.C. ON 5/8X30" REBAR WITH CAP STAMPED "K9726 2019" AT MM 249.980 ON MT 200. THE POINT LIES 5' SOUTH OF FENCLINE, 45' EAST OF STATION MARKER, AND 54' NORTH OF C/L. SET WP 3' NORTH. HANDHELD GPS COORDINATES ARE N 47-19-32.5" W 106-08-32.4"
6217984	1,140,095.656	2,801,317.762	2530.6	FOUND 5/8" BY 30" REBAR AND 2" MDT ALUMINUM CAP STAMPED "6217984 2012" IN GRASSLAND PASTURE, WITNESS POST 5.2' SOUTH OF THE CAP. TO REACH GO TO MP 250.08 ON HWY. 200 AND GO 60' NORTH OF PTW WALK THROUGH ACCESS GATE. FROM GATE CONTINUE 700' NORTH TO LOW HILL WITH ROCK OUT CROPS, THEN GO 350' N-E TO THE POINT. N 47-19-41.87611" W 106-08-19.64687"
L9726	1,139,054.388	2,801,403.430	2506.9	SET 2" MDT A.C. ON 5/8X30" REBAR WITH CAP STAMPED "L9726 2019" AT MM 250.150 ON MT 200. THE POINT LIES 3' NORTH OF FENCELINE AND 48' SOUTH OF C/L. SET WP 3' SOUTH. HANDHELD GPS COORDINATES ARE N 47-19-31.5" W 106-08-19.1"
6799728	1,142,923.027	2,801,432.589	2546.58*	SET 2" MDT A.C. ON 5/8X30" REBAR WITH CAP STAMPED "6799728 2019" AT MM 250.148 ON MT 200, PARK AND WALK NORTH 0.73 MI TO POINT IN FLAT AREA SOUTH OF BIG HILL. SET WP 3' NORTH. HANDHELD GPS COORDINATES ARE N 47-20-09.8" W 106-08-16.2"
6227984	1,138,109.067	2,801,568.822	2500.62*	FOUND 5/8" BY 30" REBAR AND 2" MDT ALUMINUM CAP STAMPED "6227984 2012" IN GRASSLAND PASTURE, THE SURROUNDING GROUND IS MOSTLY LEVEL WITH A LOW DOME TYPE HILL APPROXIMATELY 600' NORTH OF THE POSITION. WITNESS POST 5.1' SOUTH OF THE CAP. TO REACH GO TO MP 250.21 ON HWY. 200 AND WALK 1000' SOUTH TO THE POINT. N 47-19-22.16919" W 106-08-17.24177"
M9726	1,139,192.037	2,802,285.700	2539.01	SET 2" MDT A.C. ON 5/8X30" REBAR WITH CAP STAMPED "M9726 2019" AT MM 250.318 ON MT 200. THE POINT LIES 57' NORTH OF C/L AND 3' SOUTH OF FENCELINE. SET WP 3' NORTH. HANDHELD GPS COORDINATES ARE N 47-19-32.6" W 106-08-6.1"
6829728	1,135,636.804	2,803,200.136	2491.41*	SET 2" MDT A.C. ON 5/8X30" REBAR WITH CAP STAMPED "6829728 2019" AT MM 249.612 ON MT 200, TURN SOUTH ON TWO-TRACK ROAD AND FOLLOW FOR 1.029 MI, TURNING LEFT WHEN ROAD SPLITS AND FOLLOW FOR 0.4 MI. PARK AND WALK NNE TOWARDS DRAINAGE FOR 0.38 MI TO POINT IN FLAT SHORT GRASS, EAST OF SMALL RESERVOIR DAM. SET WP 3' N. HANDHELD GPS COORDINATES ARE N 47-18-57.4" W 106-07-55.0"
N9726	1,139,128.880	2,803,236.784	2561.34	SET 2" MDT A.C. ON 5/8X30" REBAR WITH CAP STAMPED "N9726 2019" AT MM 250.502 ON MT 200. THE POINT LIES 4.5' NORTH OF FENCLINE AND 46' S OF C/L. SET WP 4.5' SOUTH. HANDHELD GPS COORDINATES ARE N 47-19-31.4" W 106-07-52.5"
P9726	1,139,241.362	2,803,553.855	2560.50	SET 2" MDT A.C. ON 5/8X30" REBAR WITH CAP STAMPED "P9726 2019" AT MM 250.559 ON MT 200. THE POINT LIES 6' SOUTH OF FENCELINE AND 54' NORTH OF C/L. SET WP 3' NORTH. HANDHELD GPS COORDINATES ARE N 47-19-32.5" W 106-07-47.9"
6237984	1,139,085.526	2,803,721.142	2549.41	FOUND 5/8" BY 30" REBAR AND 2" MDT ALUMINUM CAP STAMPED "6237984 2012" 6.5' NORTH OF E-W R/W FENCE, 54' SOUTH OF TOP OF CUT SLOPE, 107' SOUTH OF PTW. WITNESS POST 6' SOUTH OF THE CAP. TO REACH GO TO MP 250.59 ON HWY. 200 AND GO SOUTH TO THE POINT. N 47-19-30.89010" W 106-07-45.40169"

6829728

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THE CSF FOR THIS PROJECT IS 0.99928388.

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CONTROL DIAGRAM

SCALE: N/A

CONTROL ABSTRACT

POINT NAME/NUMBER	N OR Y COORDINATE	E OR X COORDINATE	POINT ELEVATION	LOCATION AND DESCRIPTION
R9726	1,139,289.204	2,804,781.220	2585.76	SET 2" MDT A.C. ON 5/8X30" REBAR WITH CAP STAMPED "R9726 2019" AT MM 250.792 ON MT 200. THE POINT LIES 7.5' SOUTH OF FENCELINE AND 53' N OF C/L. SET WP 3' NORTH. HANDHELD GPS COORDINATES ARE N 47-19-32.5" W 106-07-30.2"
S9726	1,139,333.154	2,805,818.900	2629.07	SET 2" MDT A.C. ON 5/8X30" REBAR WITH CAP STAMPED "S9726 2019" AT MM 250.988 ON MT 200. THE POINT LIES 6.5' SOUTH OF FENCELINE AND 55' N OF C/L. SET WP 3' NORTH. HANDHELD GPS COORDINATES ARE N 47-19-32.3" W 106-07-14.7"
6247984	1,139,362.441	2,806,583.255	2637.07	FOUND 5/8" BY 30" REBAR AND 2" MDT ALUMINUM CAP STAMPED "6247984 2012" 8.1' SOUTH OF E-W R/W FENCE, 50' NORTH OF PTW, 21' EAST OF GATE. WITNESS POST 6' NORTH OF THE CAP. TO REACH GO TO MP 251.08 ON HWY. 200 AND GO NORTH TO THE POINT. N47°19'32.40417" W106°07'03.69673"
T9726	1,139,271.689	2,807,568.321	2658.19	SET 2" MDT A.C. ON 5/8X30" REBAR WITH CAP STAMPED "T9726 2019" AT MM 251.281 ON MT 200. THE POINT LIES 5' NORTH OF FENCELINE AND 62' SOUTH OF DELINEATOR. SET WP 3' SOUTH. HANDHELD GPS COORDINATES ARE N 47-19-31.2" W 106-06-49.5"
U9726	1,139,423.319	2,808,018.545	2684.59	SET 2" MDT A.C. ON 5/8X30" REBAR WITH CAP STAMPED "U9726 2019" AT MM 251.370 ON MT 200. THE POINT LIES 5.6' SOUTH OF FENCELINE AND 54' N OF C/L. SET WP 3' NORTH. HANDHELD GPS COORDINATES ARE N 47-19-32.4" W 106-06-42.3"
6257984	1,140,349.965	2,808,107.795	2627.46*	FOUND 5/8" BY 30" REBAR AND 2" MDT ALUMINUM CAP STAMPED "6257984 2012" IN GRASSLAND PASTURE WHERE THE LANDSCAPE SLOPES GENTLY TO THE N-E, 120' SOUTH OF TOP OF A SLOPE OF WASH THAT DRAINS N-E. WITNESS POST 6' NORTH OF THE CAP. TO REACH GO TO MP 251.35 ON HWY. 200 AND WALK NORTH 1000' TO THE POINT. N 47-19-41.49692" W 106-06-40.95421"
6267984	1,138,315.069	2,808,121.845	2646.89	FOUND 5/8" BY 30" REBAR AND 2" MDT ALUMINUM CAP STAMPED "6267984 2012" IN GRASSLAND PASTURE ON FLAT GROUND, TO REACH POINT GO TO MP 251.42 ON HWY. 200, WALK 1110' SOUTH FROM E-W R/W FENCE TO THE POINT. WITNESS POST 6' NORTH OF THE CAP. N 47-19-21.41416" W 106-06-42.02858"
V9726	1,139,317.148	2,808,736.511	2667.93	SET 2" MDT A.C. ON 5/8X30" REBAR WITH CAP STAMPED "V9726 2019" AT MM 251.507 ON MT 200. THE POINT LIES 5.5' SOUTH OF TOP OF BANK AND 35' NORTH OF FENCLINE ON SOUTH SIDE OF MT 200. SET WP 3' SOUTH. HANDHELD GPS COORDINATES ARE N 47-19-31.1" W 106-06-32.5"
W9726	1,139,493.280	2,809,763.104	2605.81	SET 2" MDT A.C. ON 5/8X30" REBAR WITH CAP STAMPED "W9726 2019" AT MM 251.701 ON MT 200. THE POINT LIES 6' SOUTH OF FENCE AND 10.5' WEST OF CROSS. SET WP 3' NORTH. HANDHELD GPS COORDINATES ARE N 47-19-32.4" W 106-06-17.5"
X9726	1,139,427.687	2,810,885.910	2619.32	SET 2" MDT A.C. ON 5/8X30" REBAR WITH CAP STAMPED "X9726 2019" AT MM 251.910 ON MT 200. THE POINT LIES 42.5' SOUTH OF DELINEATOR, 57.5' S OF C/L, AND 4' NORTH OF FENCELINE. SET WP 3' SOUTH. HANDHELD GPS COORDINATES ARE N 47-19-31.2" W 106-06-1.4"
Y9726	1,139,555.995	2,811,408.567	2636.44	SET 2" MDT A.C. ON 5/8X30" REBAR WITH CAP STAMPED "Y9726 2019" AT MM 252.000 ON MT 200. THE POINT LIES 49' NORTH OF C/L, 10' SOUTH OF FENCELINE, 41.5' SOUTH OF SURVEY MARKER, AND 3' SOUTHEAST OF STATION MARKER. SET WP 3' NORTH. HANDHELD GPS COORDINATES ARE N 47-19-32.0" W 106-05-53.6"
6277984	1,139,588.011	2,812,131.476	2615.97	FOUND 5/8" BY 30" REBAR AND 2" MDT ALUMINUM CAP STAMPED "6277984 2012" 7.8' SOUTH OF E-W R/W FENCE, 24' EAST OF GATE, 50' NORTH OF PTW. WITNESS POST 6' NORTH OF THE CAP. TO REACH GO TO MP 251.14 ON HWY. 200 AND GO NORTH TO THE POINT. N 47-19-32.25663" W 106-05-43.04649"
Z9726	1,139,525.528	2,813,109.195	2639.69	SET 2" MDT A.C. ON 5/8X30" REBAR WITH CAP STAMPED "Z9726 2019" AT MM 252.325 ON MT 200. THE POINT LIES ??????? NORTH OF FENCELINE AND 51' S OF C/L. SET WP 3' SOUTH. HANDHELD GPS COORDINATES ARE N47-19-31.4" W106-05-28.0"
6839728	1,143,133.971	2,813,354.100	2569.80*	SET 2" MDT A.C. ON 5/8X30" REBAR WITH CAP STAMPED "6839728 2019" AT MM 252.385 ON MT 200. PARK AND WALK NORTH 0.67 MILES TOWARDS THE LEFT SIDE OF A GROUP OF TREES IN THE DISTANCE. POINT FALLS IN A FLAT-OPEN GRASSY AREA. SET WP 3' NORTH. HANDHELD GPS COORDINATES ARE N 47-20-06.8" W 106-05-23.1"
AA9726	1,139,656.863	2,813,839.350	2608.97	SET 2" MDT A.C. ON 5/8X30" REBAR WITH CAP STAMPED "AA9726 2019" AT MM 252.464 ON MT 200. THE POINT LIES 8' SOUTH OF FENCELINE AND 54' NORTH OF C/L SET WP 3' NORTH. HANDHELD GPS COORDINATES ARE N 47-19-32.8" W 106-05-18.3"

CONTROL ABSTRACT

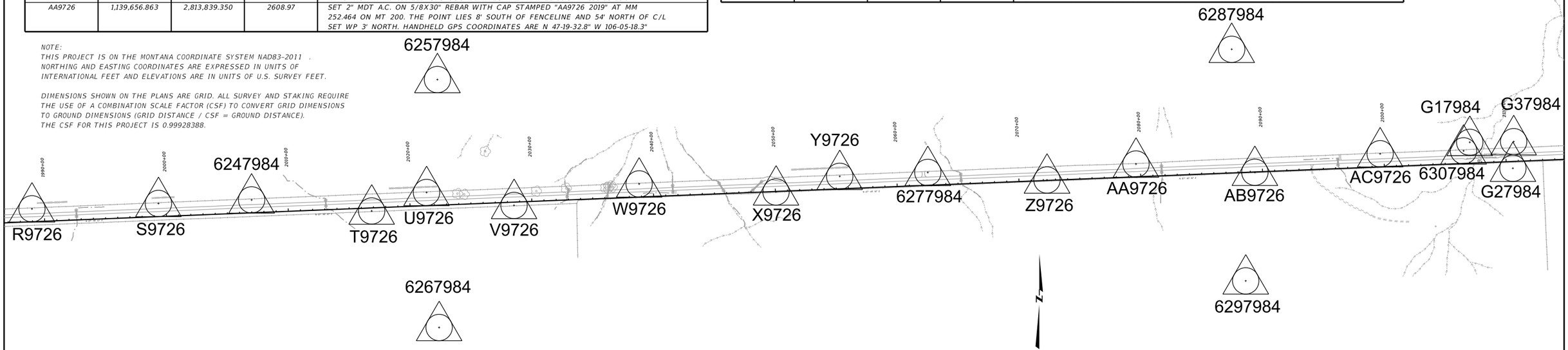
POINT NAME/NUMBER	N OR Y COORDINATE	E OR X COORDINATE	POINT ELEVATION	LOCATION AND DESCRIPTION
6287984	1,140,598.675	2,814,624.811	2591.73	FOUND 5/8" BY 30" REBAR AND 2" MDT ALUMINUM CAP STAMPED "6287984 2012" IN GRASSLAND PASTURE ON FLAT AREA, WITNESS POST 5' NORTH OF THE CAP. TO REACH GO TO MP 252.622 ON HWY. 200 AND THEN GO 850' NORTH TO THE POINT. N 47-19-41.15635" W 106-05-06.22706"
6297984	1,138,697.630	2,814,739.937	2643.98*	FOUND 5/8" BY 30" REBAR AND 2" MDT ALUMINUM CAP STAMPED "6297984 2012" 150' EAST OF HILL TOP IN PRAIRIE GRASSLAND, 36' NORTH OF E-W TWO TRACK ROAD TO HILL TOP. WITNESS POST 4.6' NORTH OF THE CAP. TO REACH GO TO MP 252.74 ON HWY. 200 AND GO 60' SOUTH FROM PTW THROUGH ACCESS GATE. FROM GATE TRAVEL 750' SOUTH, THEN GO 600' SW TO THE POINT. N 47-19-22.35093" W 106-05-05.76015"
AB9726	1,139,589.215	2,814,814.941	2618.75	SET 2" MDT A.C. ON 5/8X30" REBAR WITH CAP STAMPED "AB9726 2019" AT MM 252.651 ON MT 200. THE POINT LIES 54.6' SOUTH OF C/L AND 5' N OF FENCELINE. SET WP 3' SOUTH. HANDHELD GPS COORDINATES ARE N 47-19-31.0" W 106-05-4.1"
AC9726	1,139,740.934	2,815,842.922	2584.16	SET 2" MDT A.C. ON 5/8X30" REBAR WITH CAP STAMPED "AC9726 2019" AT MM 252.845 ON MT 200. THE POINT LIES 54.5' NORTH OF C/L AND 5.8' S OF FENCELINE SET WP 3' NORTH. HANDHELD GPS COORDINATES ARE N 47-19-32.2" W 106-04-49.0"

CONTROL ABSTRACT

POINT NAME/NUMBER	N OR Y COORDINATE	E OR X COORDINATE	POINT ELEVATION	LOCATION AND DESCRIPTION
6307984	1,139,764.595	2,816,527.000	2559.66	FOUND 5/8" BY 30" REBAR AND 2" MDT ALUMINUM CAP STAMPED "6307984 2012" 8.8' SOUTH OF E-W R/W FENCE, 50' NORTH OF PTW, 39' NE OF THE NW END OF NORTH GUARD RAIL. WITNESS POST 6' NORTH OF THE CAP. TO REACH GO TO MP 252.97 ON HWY. 200 AND GO NORTH TO THE POINT. N47°20'27.01356", W106°20'53.33244"
G17984	1,139,835.122	2,816,578.013	2559.35	
G27984	1,139,621.916	2,816,932.009	2569.17*	FND 5/8" BY 30" REBAR AND 2" MDT ALUMINUM CAP STAMPED "G27984 2012" AT MP 253.018, CAP IS 30' NORTH OF POWER POLE AND 48.5' SOUTH OF S FENCE. WITNESS POST 3' SOUTH OF CAP.
G37984	1,139,840.750	2,816,938.205	2559.32	FND 5/8" BY 30" REBAR AND 2" MDT ALUMINUM CAP STAMPED "G37984 2012" AT MP 253.020, CAP IS 40' SOUTH OF POWER POLE AND 50.9' NORTH OF NORTH FENCE. WITNESS POST 3' NORTH OF CAP
6849728	1,141,973.835	2,816,951.445	2541.76*	SET 2" MDT A.C. ON 5/8X30" REBAR WITH CAP STAMPED "6849728 2019" AT MM 253.037 ON MT 200. PARK AND WALK NORTH THROUGH GATE 0.42 MILES. THE POINT LIES 87' EAST OF TOP OF SLOPE OF DRAINAGE IN FLAT-OPEN GRASSY AREA. SET WP 3'NORTH. HANDHELD GPS COORDINATES ARE N 47-19-53.7" W 106-04-31.7"

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 0.99928388.



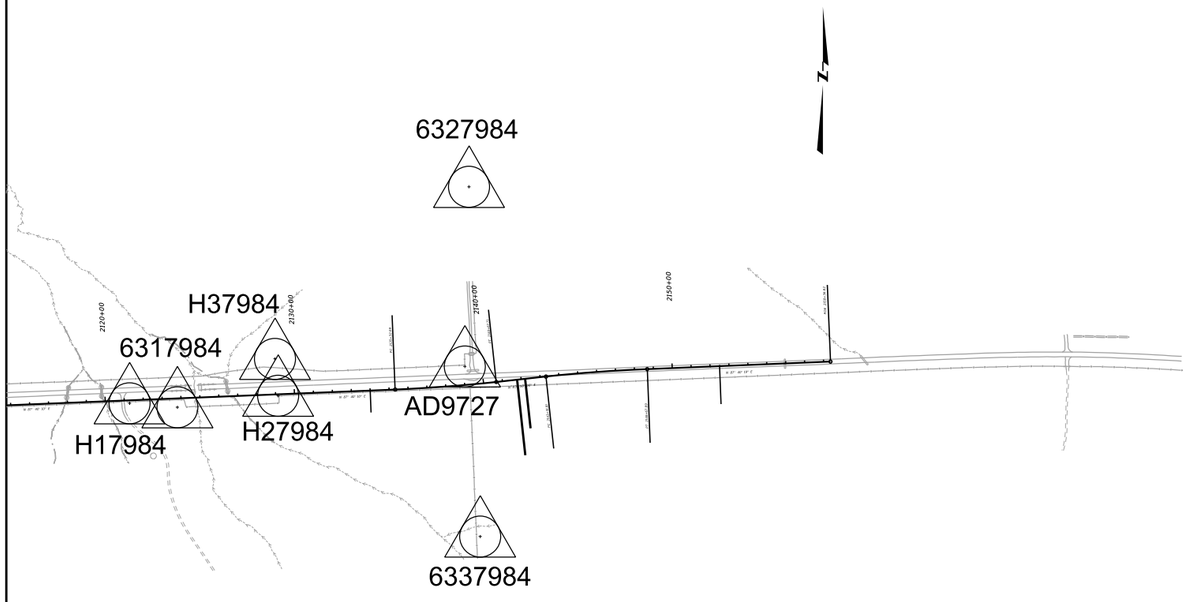
3	MONTANA Department of Transportation	C:\DGN\9726000rdtrv002.dgn	DESIGNED BY S. Jarvis	10/19/2023	ROAD PLANS	FLOWING WELLS - EAST & WEST	NH - HSIP 57-5(56)247
2		12/9/2024	REVIEWED BY		GARFIELD & MCCONE COUNTIES	UPN 9726000	7
		11:30:40 AM CPS - U0425	CHECKED BY				

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CONTROL DIAGRAM

SCALE: N/A

6859728



CONTROL ABSTRACT

POINT NAME/NUMBER	N OR Y COORDINATE	E OR X COORDINATE	POINT ELEVATION	LOCATION AND DESCRIPTION
6317984	1,139,705.433	2,818,003.211	2559.46	FOUND 5/8" BY 30" REBAR AND 2" MDT ALUMINUM CAP STAMPED "6317984 2012" 7.9' SOUTH OF E-W R/W FENCE, 71' SOUTH OF PTW, 33' EAST OF CL OF ACCESS ROAD AND GATE. WITNESS POST 7.5' NORTH OF THE CAP. TO REACH GO TO MP 253.22 ON HWY. 200 AND GO SOUTH TO THE POINT. N 47-19-30.88662" W 106-04-17.77052"
H17984	1,139,684.111	2,818,255.767	2555.4	FND 5/8" BY 30" REBAR AND 2" MDT ALUMINUM CAP STAMPED "H17984 2012" AT MP 253.250, CAP IS 40' SOUTH OF SOUTH FENCE. WITNESS POST 3' SOUTH OF CAP.
H37984	1,139,939.944	2,818,771.136	2565.95*	FND 5/8" BY 30" REBAR AND 2" MDT ALUMINUM CAP STAMPED "H37984 2012" AT MP 253.374, CAP IS 15' SOUTH OF POWER POLE AND 47' NORTH OF NORTH FENCE. WITNESS POST 3' NORTH OF CAP.
H27984	1,139,744.856	2,818,787.619	2560.33	FND 5/8" BY 30" REBAR AND 2" MDT ALUMINUM CAP STAMPED "H27984 2012" AT MP 253.374, CAP IS 5' WEST OF CORNER POST AND 38' NORTH OF SOUTH FENCE. WITNESS POST 3' SOUTH OF CAP.
6859728	1,143,354.442	2,819,619.533	2562.75*	SET 2" MDT A.C. ON 5/8X30" REBAR WITH CAP STAMPED "6859728 2019" AT MM 253.570, TURN N ON HINNALAND EXPRESSWAY GRAVEL ROAD AND FOLLOW FOR 0.661 MI. POINT IS ON THE W SIDE OF THE ROAD, 24' E OF THE GRAVEL ROAD ON A FLAT GRASSY AREA.SET WP 3' WEST. HANDHELD GPS COORDINATES ARE N 47-20-06.2" W 106-03-52.1"
AD9727	1,139,899.685	2,819,773.861	2604.47	SET 2" MDT A.C. ON 5/8X30" REBAR WITH CAP STAMPED "AD9727 2019" AT MM 253.560 ON MT 200. THE POINT LIES ???????? WEST OF C/L OF HINNALAND EXPRESS WAY, 8' SOUTH OF FENCE CORNER, AND ???? NORTH OF C/L. SET WP 3' NORTH. HANDHELD GPS COORDINATES ARE N 47-19-32.0" W 106-03-51.9"
6327984	1,140,848.527	2,819,795.924	2603.41	FOUND 5/8" BY 30" REBAR AND 2" MDT ALUMINUM CAP STAMPED "6327984 2012" IN A FLAT AREA 5' EAST OF THE N-S R/W FENCE, 6' WEST OF THE EDGE OF A CULTIVATED WHEAT FIELD AND 34' EAST OF THE C/L OF THE N-S GRAVEL ACCESS ROAD. AT MM 253.575 ON HWY 200, GO NORTH ON GRAVEL ROAD FOR 977' TO FIND POINT ON THE EAST SIDE OF ROAD. WITNESS POST 3' WEST OF CAP. N 47-19-41.38881" W 106-03-51.02974"
6337984	1,139,001.674	2,819,854.914	2581.78*	FOUND 5/8" BY 30" REBAR AND 2" MDT ALUMINUM CAP STAMPED "6337984 2012" IN FLAT GRASS AREA 28' EAST OF A N-S FENCE LINE AND SOUTH 45' FROM A SMALL DRAINAGE CROSSING THE FENCE. AT MM 253.577 ON HWY 200, GO SOUTH THROUGH ACCESS GATE IN FENCE AND THEN FOLLOW CROP LINE OF FENCE LINE SOUTH FOR 950' TO FIND POINT EAST OF FENCE. WITNESS POST 3' WEST OF CAP. THE POINT IS 1000' SOUTH OF HWY 200. N 47°19'23.14235" W 106°03'51.34996"

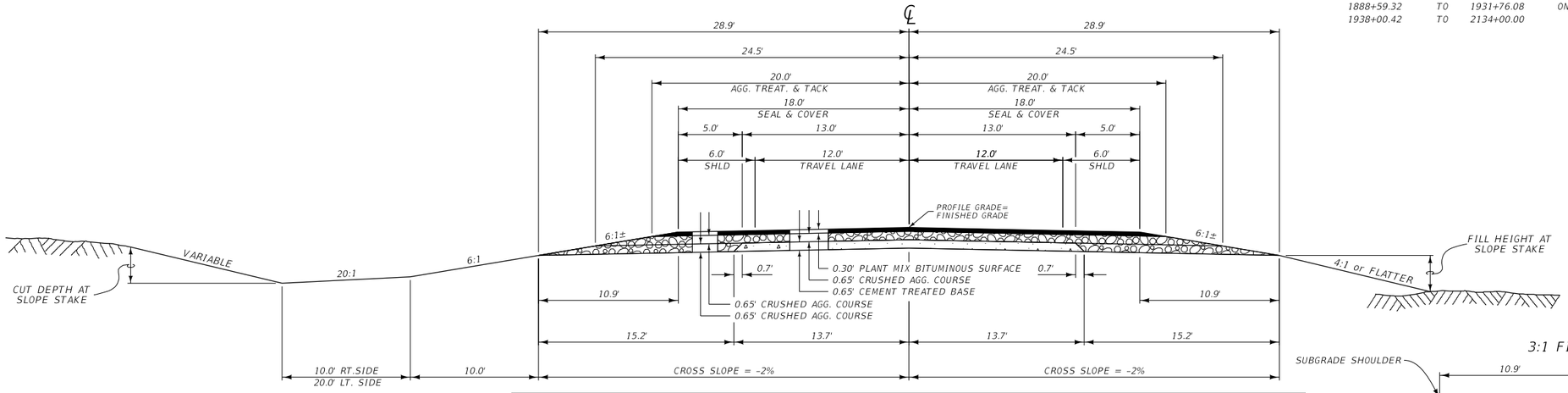
NOTE:
THIS PROJECT IS ON THE MONTANA COORDINATE SYSTEM NAD83-2011 .
NORTHING AND EASTING COORDINATES ARE EXPRESSED IN UNITS OF
INTERNATIONAL FEET AND ELEVATIONS ARE IN UNITS OF U.S. SURVEY FEET.

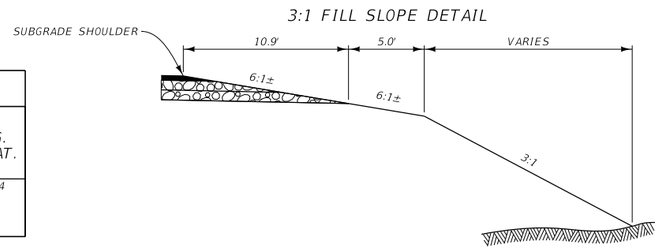
DIMENSIONS SHOWN ON THE PLANS ARE GRID. ALL SURVEY AND STAKING REQUIRE
THE USE OF A COMBINATION SCALE FACTOR (CSF) TO CONVERT GRID DIMENSIONS
TO GROUND DIMENSIONS (GRID DISTANCE / CSF = GROUND DISTANCE).
THE CSF FOR THIS PROJECT IS 0.99928388.

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TYPICAL SECTION NO. 1

1781+70.40	TO	1863+33.16	
1863+33.16	TO	1867+53.17	TRANS. TYP. NO. 1 TO TYP. NO. 2
1888+59.32	TO	1931+76.08	ONLY, THEN TO TYP. NO. 3
1938+00.42	TO	2134+00.00	





QUANTITIES

UNIT	AGGREGATE				UNIT	BITUMINOUS MATERIAL			AGG. TREAT.
	COVER	PLANT MIX	CRUSHED AGG. COURSE	CEMENT TR. BASE		ASPHALT CEMENT	EMULSIFIED ASPHALT SEAL	EMULSIFIED ASPHALT TACK▲	
AREA square feet		11.40	46.21	17.36	square yards PER STATION		400	888	444
cubic yards PER STATION		42.2	171.1	64.3	tons PER STATION	4.15	0.71		
tons PER STATION		81.3		116.4#	gals PER STATION			44	
square yards PER STATION	400								

▲BASED ON 2 APPLICATIONS
FOR INFORMATION ONLY

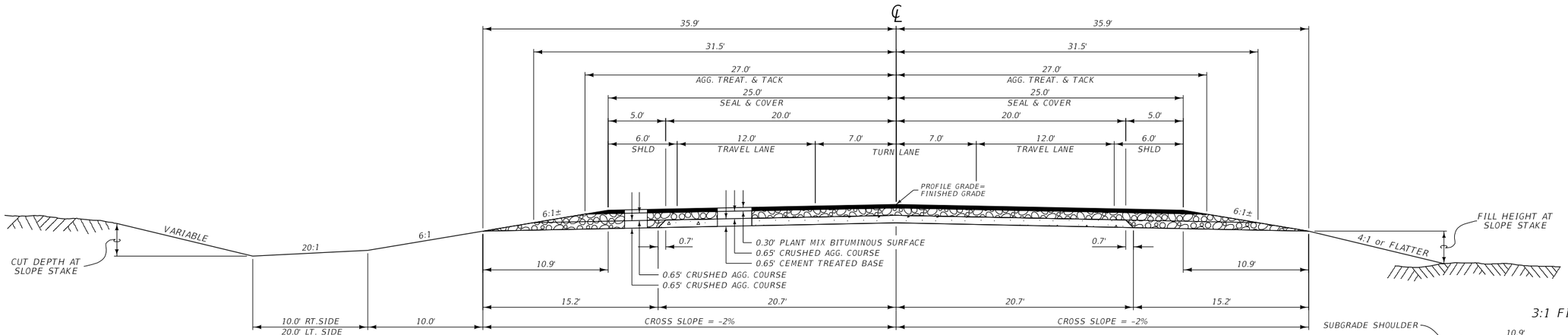
* FILL SLOPES	
0' - 10'	6:1
10' - 20'	4:1
OVER 30'	3:1

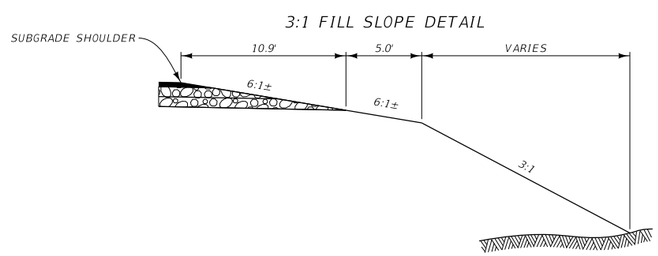
* BACK SLOPES	
0' - 5'	5:1
5' - 10'	4:1
OVER 20'	3:1

* SEE CROSS SECTIONS FOR DEVIATIONS

TYPICAL SECTION NO. 2

1867+53.17	TO	1884+39.32	
1884+39.32	TO	1888+59.32	TRANS. TYP. NO. 2 TO TYP. NO. 1





QUANTITIES

UNIT	AGGREGATE				UNIT	BITUMINOUS MATERIAL			AGG. TREAT.
	COVER	PLANT MIX	CRUSHED AGG. COURSE	CEMENT TR. BASE		ASPHALT CEMENT	EMULSIFIED ASPHALT SEAL	EMULSIFIED ASPHALT TACK▲	
AREA square feet		15.60	55.31	26.46	square yards PER STATION		556	1200	600
cubic yards PER STATION		57.8	204.9	98.0	tons PER STATION	5.68	0.99		
tons PER STATION		111.4		177.4#	gals PER STATION			60	
square yards PER STATION	556								

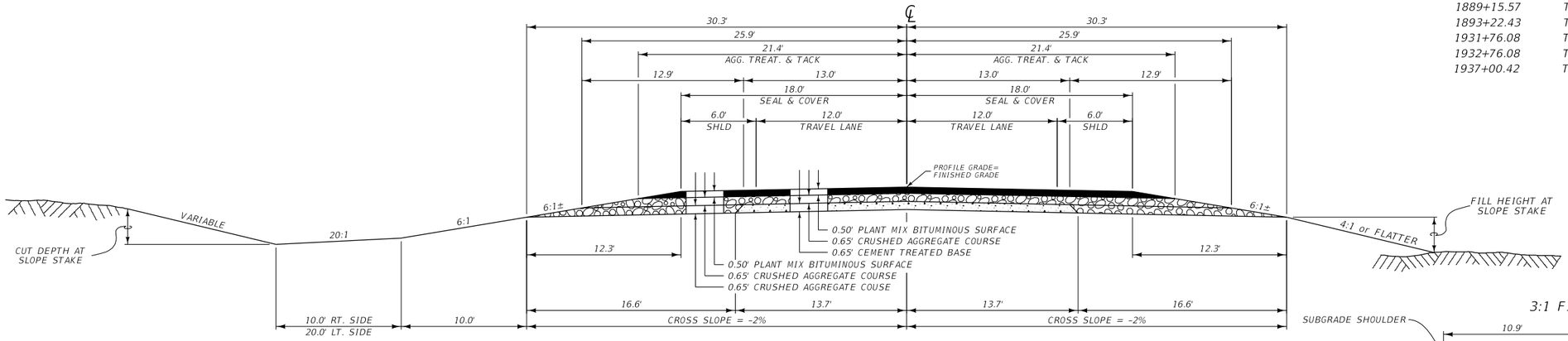
▲BASED ON 2 APPLICATIONS
FOR INFORMATION ONLY

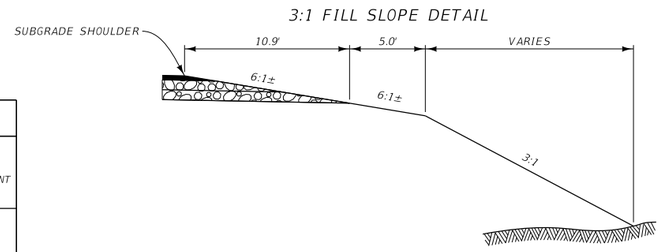
3	MONTANA Department of Transportation	C:\DGN\9726000rdtyp001.dgn	DESIGNED BY S. Jarvis	10/19/2023	ROAD PLANS	FLOWING WELLS - EAST & WEST	NH - HSIP 57-5(56)247
2		12/9/2024	REVIEWED BY		GARFIELD & MCCONE COUNTIES	UPN 9726000	9
		11:30:59 AM CPS - U0425	CHECKED BY				

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TYPICAL SECTION NO. 3

1888+72.28	TO	1889+15.57	
1889+15.57	TO	1889+35.57	TRANS. TYP. NO. 3 TO TYP. NO. 4
1893+22.43	TO	1894+22.43	THEN TO TYP. NO. 1
1931+76.08	TO	1932+76.08	
1932+76.08	TO	1932+96.08	TRANS. TYP. NO. 3 TO TYP. NO. 4
1937+00.42	TO	1938+00.42	THEN TO TYP. NO. 1





QUANTITIES

UNIT	AGGREGATE COVER	AGGREGATE PLANT MIX	AGGREGATE CR. AGG. COURSE	AGGREGATE CEMENT TR. BASE	UNIT	BITUMINOUS MATERIAL ASPHALT CEMENT	BITUMINOUS MATERIAL EMULSIFIED ASPHALT SEAL	BITUMINOUS MATERIAL EMULSIFIED ASPHALT TACK*	AGG. TREATMENT
AREA square feet		19.70	49.85	17.36	square yards PER STATION		400	1,428	476
cubic yards PER STATION		73.0	184.6	64.3	tons PER STATION	7.18	0.71		
tons PER STATION		140.7		#116.4	gals. PER STATION			71	
square yards PER STATION	400								

*BASED ON 3 APPLICATIONS

* FILL SLOPES	
0' - 10'	6:1
10' - 20'	4:1
OVER 30'	3:1

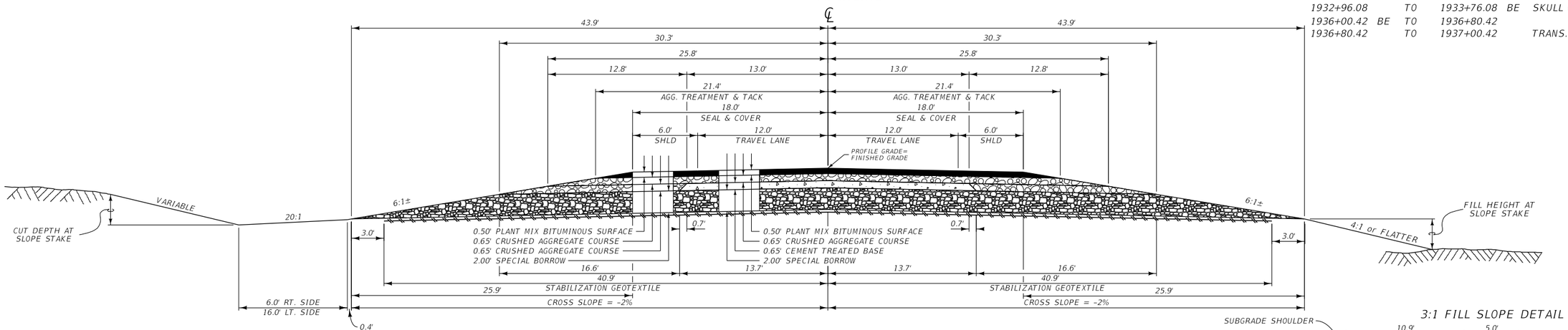
* BACK SLOPES	
0' - 5'	5:1
5' - 10'	4:1
OVER 20'	3:1

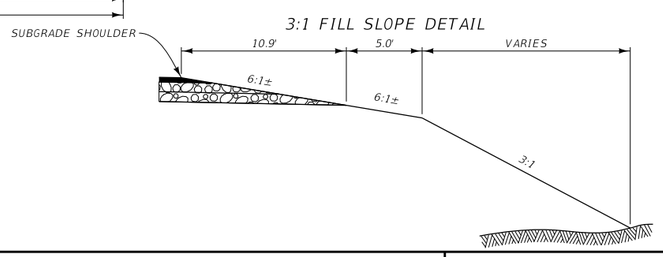
* SEE CROSS SECTIONS FOR DEVIATIONS

TYPICAL SECTION NO. 4

MAINLINE

1889+35.57	TO	1890+15.57	BE	TIMBER CREEK BRIDGE
1892+22.43	BE TO	1893+02.43		
1893+02.43	TO	1893+22.43		TRANS. TYP. NO. 4 TO TYP. NO. 3
1932+96.08	TO	1933+76.08	BE	SKULL CREEK BRIDGE
1936+00.42	BE TO	1936+80.42		
1936+80.42	TO	1937+00.42		TRANS. TYP. NO. 4 TO TYP. NO. 3





QUANTITIES

UNIT	AGGREGATE COVER	AGGREGATE PLANT MIX	AGGREGATE CRUSHED AGG. COURSE	AGGREGATE CEMENT TR. BASE	AGGREGATE SPECIAL BORROW	UNIT	BITUMINOUS MATERIAL ASPHALT CEMENT	BITUMINOUS MATERIAL EMULSIFIED ASPHALT SEAL	BITUMINOUS MATERIAL EMULSIFIED ASPHALT TACK▲	AGG. TREAT.	STAB. GEO-TEXTILE
AREA square feet		19.70	49.85	17.36	148.40	square yards PER STATION		400	1428	476	909
cubic yards PER STATION		73.0	184.6	64.3	549.6	tons PER STATION	7.18	0.71			
tons PER STATION		140.7		#116.4		gals PER STATION			71		
square yards PER STATION	400										

▲BASED ON 3 APPLICATIONS
FOR INFORMATION ONLY

3 / 1	MONTANA Department of Transportation	C:\DGN\9726000rdtyp001.dgn	DESIGNED BY S. Jarvis	10/19/2023	ROAD PLANS	FLOWING WELLS - EAST & WEST	NH - HSIP 57-5(56)247
		12/9/2024	REVIEWED BY		GARFIELD & MCCONE COUNTIES	UPN 9726000	10
		11:31:05 AM CPS - U0425	CHECKED BY				

SUMMARY

GRADING

STATION	cu. yards			REMARKS
	UNCL. EXC.	EXCESS EXC.	EMB.+	
1781+70.40				
	738,625	9,282	729,343	
2134+00.00				
TOTAL	738,625	# 9,282	# 729,343	

FOR INFORMATION ONLY

TOPSOIL & SEEDING

STATION		cu. yards	acres							REMARKS
		TOPSOIL SALVAGING & PLACING	SEED			FERTILIZER		CONDITION SEEDBED ①	MULCH - COMPOST	
FROM	TO		NO. 1	NO. 2	NO.3	NO. 1	NO. 2			
1781+70.40	1800+00.00	2,345	6.6		1.3	6.6		7.9		
1800+00.00	1825+00.00	3,964	11.1		1.7	11.1		12.8		
1825+00.00	1850+00.00	3,239	8.7		1.7	8.7		10.4		
1850+00.00	1875+00.00	2,914	6.9		1.7	6.9		8.6		
1875+00.00	1900+00.00	3,483	12.4		1.7	12.4		14.1		
1887+67.00	1890+85.00	595	1.1			1.1		1.1		BERM REMOVAL
1900+00.00	1925+00.00	3,344	10.9		1.7	10.9		12.6		
1925+00.00	1950+00.00	3,951	9.5		1.7	9.5		11.2		
1950+00.00	1975+00.00	3,820	7.7		1.7	7.7		9.4		
1975+00.00	2000+00.00	3,902	8.8		1.7	8.8		10.5		
2000+00.00	2025+00.00	4,004	10.3		1.7	10.3		12.0		
2025+00.00	2050+00.00	4,938	11.5		1.7	11.5		13.2		
2050+00.00	2075+00.00	4,622	9.9		1.7	9.9		11.6		
2075+00.00	2100+00.00	3,485	8.9		1.7	8.9		10.6		
2100+00.00	2125+00.00	3,314	9.5		1.7	9.5		11.2		
2125+00.00	2152+50.00	2,110	11.3		1.9	11.3		13.2		
1887+67.00	1890+85.00	450	0.8			0.8		0.8		TIMBER CREEK BERM REMOVAL
TOTAL		54,480	145.9	0.0	25.3	145.9	0.0	① 171.2	0.0	

① - FOR INFORMATION ONLY, INCLUDE IN THE COST OF SEEDING AREA 1 & 3

PAVEMENT MARKINGS▲

ITEM	UNIT	INTERIM APPLICA-TION #	FINAL APPLICA-TION	TOTAL
STRIPING - WHITE PAINT	gallon	520		520
STRIPING - YELLOW PAINT	gallon	398		398
WORDS & SYMBOLS - WHITE PAINT	gallon	8		8
STRIPING - WHITE EPOXY	gallon		347	347
STRIPING - YELLOW EPOXY	gallon		265	265
WORDS & SYMBOLS - WHITE EPOXY	gallon		6	6
TEMPORARY STRIPING	linear feet			115,335
FINAL SWEEP AND BROOM	course mile			6.9

▲ INCLUDES QUATITIES FOR FLOWING WELLS REST AREA
BASED ON 2 APPLICATIONS.

EMBANKMENT FOUNDATION TREATMENT*

STATION		cu. yards	sq. yards	REMARKS
		SPECIAL EMBANK-MENT	STABILIZ-AT!ON GEOTEXTILE	
FROM	TO			
1886+00	1887+00	932	1,171	
TOTAL		932	1,171	

* SEE DETAIL

RUMBLE STRIPS

STATION		miles		gals	REMARKS
		RUMBLE STRIPS		EMULSIFIED ASPHALT FOG SEAL #	
FROM	TO	INTER-MITTENT	CENTERLINE TYPE 3		
1781+70.40	2134+00.00	6.6		387	LT.
1781+70.40	2134+00.00		6.6	387	
1781+70.40	2134+00.00	6.6		387	RT.
SUBTOTAL		13.2	6.6	1,160	
TOTAL		13.2	6.6	~	

FOR INFORMATION ONLY, INCLUDE IN THE COST OF RUMBLE STRIPS

REMOVE STRUCTURE

STATION	lump sum	REMARKS
	REMOVE STRUCTURE	
1810+75	0.2	TIMBER CREEK TRIBUTARY (NBI P00057247+03941, MDT ID#06030)
1886+30	0.3	TIMBER CREEK (NBI P00057248+08311, MDT ID#06031)
1935+11	0.3	SKULL CREEK (NBI P00057249+07481, MDT ID#06032)
2107+98	0.1	CEMETERY COULEE TRIBUTARY (NBI P00057253+00151, MDT ID#06033)
2124+67	0.1	CEMETERY COULEE (NBI P00057253+03311, MDT ID#06034)
TOTAL	1	

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SUMMARY

GRADING

STATION	cu. yards			REMARKS
	UNCL. EXC.	EXCESS EXC.	EMB.+	
1781+70.40				
	738,211	12,508	725,703	
2134+00.00				
TOTAL	738,211	# 12,508	# 725,703	

FOR INFORMATION ONLY

TOPSOIL & SEEDING

STATION		cu. yards	acres							REMARKS
		TOPSOIL SALVAGING & PLACING	SEED			FERTILIZER		CONDITION SEEDBED ①	MULCH - COMPOST	
FROM	TO		NO. 1	NO. 2	NO.3	NO. 1	NO. 2			
1781+70.40	1800+00.00	2,345	6.6		1.3	6.6		7.9		
1800+00.00	1825+00.00	3,964	11.1		1.7	11.1		12.8		
1825+00.00	1850+00.00	3,239	8.7		1.7	8.7		10.4		
1850+00.00	1875+00.00	2,914	6.9		1.7	6.9		8.6		
1875+00.00	1900+00.00	3,483	12.4		1.7	12.4		14.1		
1887+67.00	1890+85.00	595	1.1			1.1		1.1		BERM REMOVAL
1900+00.00	1925+00.00	3,344	10.9		1.7	10.9		12.6		
1925+00.00	1950+00.00	3,951	9.5		1.7	9.5		11.2		
1950+00.00	1975+00.00	3,820	7.7		1.7	7.7		9.4		
1975+00.00	2000+00.00	3,902	8.8		1.7	8.8		10.5		
2000+00.00	2025+00.00	4,004	10.3		1.7	10.3		12.0		
2025+00.00	2050+00.00	4,938	11.5		1.7	11.5		13.2		
2050+00.00	2075+00.00	4,622	9.9		1.7	9.9		11.6		
2075+00.00	2100+00.00	3,485	8.9		1.7	8.9		10.6		
2100+00.00	2125+00.00	3,314	9.5		1.7	9.5		11.2		
2125+00.00	2152+50.00	2,110	11.3		1.9	11.3		13.2		
1887+67.00	1890+85.00	450	0.8			0.8		0.8		TIMBER CREEK BERM REMOVAL
TOTAL		54,480	145.9	0.0	25.3	145.9	0.0	① 171.2	0.0	

① - FOR INFORMATION ONLY, INCLUDE IN THE COST OF SEEDING AREA 1 & 3

PAVEMENT MARKINGS▲

ITEM	UNIT	INTERIM APPLICA-TION #	FINAL APPLICA-TION	TOTAL
STRIPING - WHITE PAINT	gallon	520		520
STRIPING - YELLOW PAINT	gallon	398		398
WORDS & SYMBOLS - WHITE PAINT	gallon	8		8
STRIPING - WHITE EPOXY	gallon		347	347
STRIPING - YELLOW EPOXY	gallon		265	265
WORDS & SYMBOLS - WHITE EPOXY	gallon		6	6
TEMPORARY STRIPING	linear feet			115,335
FINAL SWEEP AND BROOM	course mile			6.9

▲ INCLUDES QUATITIES FOR FLOWING WELLS REST AREA
BASED ON 2 APPLICATIONS.

EMBANKMENT FOUNDATION TREATMENT*

STATION		cu. yards	sq. yards	REMARKS
		SPECIAL EMBANK-MENT	STABILIZ-AT!ON GEOTEXTILE	
FROM	TO			
1886+00	1887+00	932	1,171	
TOTAL		932	1,171	

* SEE DETAIL

RUMBLE STRIPS

STATION		miles		gals	REMARKS
		RUMBLE STRIPS		EMULSIFIED ASPHALT FOG SEAL #	
FROM	TO	INTER-MITTENT	CENTERLINE TYPE 3		
1781+70.40	2134+00.00	6.6		387	LT.
1781+70.40	2134+00.00		6.6	387	
1781+70.40	2134+00.00	6.6		387	RT.
SUBTOTAL		13.2	6.6	1,160	
TOTAL		13.2	6.6	~	

FOR INFORMATION ONLY, INCLUDE IN THE COST OF RUMBLE STRIPS

REMOVE STRUCTURE

STATION	lump sum	REMARKS
	REMOVE STRUCTURE	
1810+75	0.2	TIMBER CREEK TRIBUTARY (NBI P00057247+03941, MDT ID#06030)
1886+30	0.3	TIMBER CREEK (NBI P00057248+08311, MDT ID#06031)
1935+11	0.3	SKULL CREEK (NBI P00057249+07481, MDT ID#06032)
2107+98	0.1	CEMETERY COULEE TRIBUTARY (NBI P00057253+00151, MDT ID#06033)
2124+67	0.1	CEMETERY COULEE (NBI P00057253+03311, MDT ID#06034)
TOTAL	1	

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SUMMARY

ADDITIONAL GRADING (continued)

STATION		cu. yards INCL. IN ROADWAY		REMARKS
FROM	TO	UNCL. EXC.	EMB.+	
1781+70.40	1800+00.00		2,815	TOPSOIL REPLACEMENT
1783+30.00	1786+10.00	~	~	DITCH GRADING LT. (AHEAD) ♦
1788+50.00	1800+40.00	~	~	DITCH GRADING LT. (AHEAD) ♦
1791+00.00	1793+50.00	~	~	DITCH GRADING RT. (AHEAD) ♦
1794+50.00	1795+50.00	~	~	DITCH GRADING RT. (AHEAD) ♦
1797+10.00	1798+40.00	~	~	INLET DITCH RT.
1798+50.00		20	800	FARM FIELD APP. LT.
1800+00.00	1825+00.00		4,755	TOPSOIL REPLACEMENT
1803+00.00	1810+10.00	~	~	DITCH GRADING LT. (AHEAD) ♦
1803+30.00		680	140	FARM FIELD APP. RT.
1808+00.00	1810+30.00	~	~	DITCH GRADING RT (AHEAD). ♦
1810+78.00	1812+14.00	125		OUTLET DITCH RT.
1813+00.00	1814+95.00	~	~	DITCH GRADING LT. (AHEAD) ♦
1814+95.00	1822+20.00	~	~	DITCH GRADING LT. (BACK) ♦
1814+95.00	1815+44.00	650		OUTLET DITCH RT.
1820+00.00		5	1,195	FARM FIELD APP. LT.
1825+00.00	1850+00.00		3,885	TOPSOIL REPLACEMENT
1828+03.00			125	DITCH BLOCK LT. (ELEV. 2541.50)
1839+15.00		370	160	FARM FIELD APP. RT.
1849+75.00		15	140	FARM FIELD APP. LT.
1849+75.00		50	130	PRIVATE APP. RT. - JOINT USE
1850+00.00	1875+00.00		3,495	TOPSOIL REPLACEMENT
1854+10.00	1857+80.00	~	~	DITCH GRADING RT. (AHEAD) ♦
1856+53.00			455	DITCH BLOCK RT. (ELEV. 2517.15)
1860+80.00	1862+20.00	~	~	DITCH GRADING LT. (BACK) ♦
1861+04.00			80	DITCH BLOCK RT. (ELEV. 2508.96)
1863+15.00		5	80	PRIVATE APP. LT.
1870+50.00	1880+50.00	~	~	DITCH GRADING RT. (AHEAD) ♦
1871+00.00		10	390	FARM FIELD APP. LT.
1871+00.00		5	315	PRIVATE APP. RT.
1875+75.00		250	305	PUBLIC APP. LT. - MT-24
1876+19.00		145	280	PRIVATE APP. RT. - S. FLOWING WELLS RD.
1875+00.00	1900+00.00		4,180	TOPSOIL REPLACEMENT
1880+05.00		15	175	PRIVATE APP. RT.
1884+00.00	1886+70.00	~	~	DITCH GRADING RT. (AHEAD) ♦
1887+67.00	1890+85.00		465	BERM REMOVAL TOPSOIL REPLACEMENT ●
1888+41.00	1889+11.00	1,165		TIMBER CR. CHAN. RESTORATION ●
1892+50.00	1895+50.00	~	~	DITCH GRADING RT. (BACK) ♦
1900+00.00	1925+00.00		4,015	TOPSOIL REPLACEMENT
1905+00.00			5	DITCH BLOCK RT. (ELEV. 2496.00)
1907+09.00		15		OUTLET DITCH LT.
1909+21.00			210	DITCH BLOCK RT. (ELEV. 2496.00)
1911+30.00	1913+10.00	~	~	DITCH GRAGING LT. (AHEAD) ♦
1921+00.00	1922+10.00	~	~	DITCH GRADING RT. (AHEAD) ♦
1922+88.00	1923+33.00	30		OUTLET DITCH LT.
1923+20.00	1928+30.00	~	~	DITCH GRADING LT. (BACK) ♦
1924+50.00	1926+90.00	~	~	DITCH GRADING RT. (BACK) ♦
1925+00.00	1950+00.00		4,740	TOPSOIL REPLACEMENT
1926+70.00	1932+90.00	~	~	DITCH GRADING RT. (BACK) ♦
1928+50.00		30	320	FARM FIELD APP. LT. - JOINT USE
1928+50.00		25	165	FARM FIELD APP. RT. - JOINT USE
1930+70.00	1934+40.00	~	~	DITCH GRADING LT. (AHEAD) ♦
1932+90.00	1934+00.00	~	~	DITCH GRADING RT. (AHEAD) ♦
1949+00.00	1951+00.00	~	~	DITCH GRADING LT. (BACK) ♦
1949+80.00			155	DITCH BLOCK LT. (ELEV. 2494.00')
TOTAL		~	~	

♦ - QUANTITIES INCLUDED IN MAINLINE TEMPLATE
● - SEE DETAIL
▲ - INCLUDES MAILBOX TURNOUT

ADDITIONAL GRADING

STATION		cu. yards INCL. IN ROADWAY		REMARKS
FROM	TO	UNCL. EXC.	EMB.+	
1950+00.00	1975+00.00		4,585	TOPSOIL REPLACEMENT
1950+00.00	1953+30.00	~	~	DITCH GRADING LT. (BACK) ♦
1951+75.00		15	340	FARM FIELD APP. LT.
1964+65.00			265	DITCH BLOCK LT. (ELEV. 2538.09')
1975+00.00	2000+00.00		4,680	TOPSOIL REPLACEMENT
1981+50.00	1986+00.00	~	~	DITCH GRADING LT. (BACK) ♦
1983+90.00		10	855	FARM/FIELD APP. LT.
1988+50.00		5	210	FARM/FIELD APP. RT.
1992+26.00			155	DITCH BLOCK LT. (ELEV. 2593.00')
2000+00.00	2025+00.00		4,805	TOPSOIL REPLACEMENT
2005+00.00	2008+50.00	~	~	DITCH GRADING RT. (BACK) ♦
2006+60.00		5	725	FARM/FIELD APP. LT.
2008+20.00	2009+60.00	~	~	DITCH GRADING LT. (AHEAD) ♦
2017+40.00	2024+40.00	~	~	DITCH GRADING RT. (AHEAD) ♦
2025+00.00	2050+00.00		5,925	TOPSOIL REPLACEMENT
2030+50.00	2031+40.00	~	~	DITCH GRADING RT. (AHEAD) ♦
2033+80.00		10	1,050	FARM/FIELD APP. RT. - JOINT USE
2037+50.00	2040+20.00	~	~	DITCH GRADING LT. (AHEAD) ♦
2038+50.00	2039+50.00	~	~	DITCH GRADING RT. (AHEAD) ♦
2043+60.00	2046+50.00	~	~	DITCH GRADING RT. (AHEAD) ♦
2044+90.00	2052+00.00	~	~	DITCH GRADING LT. (BACK) ♦
2050+00.00	2075+00.00		5,545	TOPSOIL REPLACEMENT
2058+50.00		5	270	FARM/FIELD APP. LT.
2058+50.00		15	145	FARM/FIELD APP. RT.
2075+00.00	2100+00.00		4,180	TOPSOIL REPLACEMENT
2081+56.00	2082+60.00	~	~	DITCH GRADING RT. (BACK) ♦
2094+30.00		10	345	FARM/FIELD APP. LT.
2094+30.00		5	770	FARM/FIELD APP. RT.
2096+82.00	2097+19.00	90		OUTLET DITCH RT. ●
2100+00.00	2125+00.00		3,975	TOPSOIL REPLACEMENT
2112+00.00		5	175	FARM/FIELD APP. LT.
2112+00.00		25	140	FARM/FIELD APP. RT.
2118+37.00	2118+84.00	90		OUTLET DITCH RT.
2118+95.00	2119+61.00	75		OUTLET DITCH RT.
2121+00.00		15	200	FARM/FIELD APP. RT.
2125+00.00	2129+40.00	12,285		INLET DITCH RT.
2125+00.00	2152+50.00		2,530	TOPSOIL REPLACEMENT
2134+00.00	2152+50.00	12,225	8,660	END CONNECTION
2139+50.00		60	185	PRIVATE APP. LT. - JOINT USE ▲
2139+50.00		10	395	FARM/FIELD APP. RT. - JOINT USE
TOTAL		~	~	

♦ - QUANTITIES INCLUDED IN MAINLINE TEMPLATE
● - SEE DETAIL
▲ - INCLUDES MAILBOX TURNOUT

MAILBOXES

STATION	each MAILBOXES	REMARKS
2139+50	1	LT.
TOTAL	1	

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SUMMARY

SURFACING

STATION FROM	STATION TO	linear feet GROSS	linear feet NET	linear feet +	linear feet -	FOR	tons HYDRATED LIME	AGGREGATE sq. yards COVER TYPE I	AGGREGATE tons PLANT MIX BIT. SURF. GR. S -3/4"	AGGREGATE tons PLANT MIX BIT. SURF. GR. S -MISC	AGGREGATE cu. yards CEMENT TREATED BASE	AGGREGATE cu. yards CRUSHED AGG. COURSE	AGGREGATE cu. yards SPECIAL BORROW NEAT LINE	AGGREGATE cu. yards TRAFFIC GRAVEL	BITUMINOUS MATERIAL tons ASPHALT BINDER PG 58H-34	BITUMINOUS MATERIAL tons EMULSIFIED ASPHALT CHFRS-2P	BITUMINOUS MATERIAL gals. EMULSIFIED ASPHALT TACK	BITUMINOUS MATERIAL sq. yards AGG. TREAT.	GEO-TEXTILE STABILIZ-ATION sq. yds	REMARKS
1781+70.40	1863+33.16	8,162.76	8,162.76					32,651	6,636		5,249	13,966			338.8	58.0	3,592	36,243		TYP. NO. 1
1863+33.16	1867+53.17	420.01	420.01					2,008	405		341	790			20.6	3.6	218	2,192		TRANS. TYP. NO. 1 TO TYP. NO. 2
1867+53.17	1884+39.32	1,686.15	1,686.15					9,375	1,878		1,652	3,455			95.8	16.7	1,012	10,117		TYP. NO. 2
1884+39.32	1888+59.32	420.00	420.00					2,008	405		341	790			20.6	3.6	218	2,192		TRANS. TYP. NO. 2 TO TYP. NO. 1;THEN TO TYP. NO. 3
1888+59.32	1889+15.57	56.25	56.25					225	79		36	104			4.0	0.4	40	268		TYP. NO. 3
1889+15.57	1889+35.57	20.00	20.00					80	28		13	37	55		1.4	0.1	14	95	91	TRANS. TYP. NO. 3 TO TYP. NO. 4
1889+35.57																				
1890+15.57 BE	1892+22.43 BE				206.86	TIMBER CREEK BR. (NBI P00057248+08311)														
	1893+02.43	366.86	160.00					640	225		103	295	879		11.5	1.1	114	762	1,454	TYP. NO. 4
1893+02.43	1893+22.43	20.00	20.00					80	28		13	37	55		1.4	0.1	14	95	91	TRANS. TYP. NO. 4 TO TYP. NO. 3
1893+22.43	1894+22.43	100.00	100.00					400	141		64	185			7.2	0.7	71	476		TYP. NO. 3 THEN TO TYP. NO. 1
1894+22.43	1931+76.08	3,753.65	3,753.65					15,015	3,052		2,414	6,422			155.8	26.7	1,652	16,666		TYP. NO. 1 THEN TO TYP. NO. 3
1931+76.08	1932+76.08	100.00	100.00					400	141		64	185			7.2	0.7	71	476		TYP. NO. 3
1932+76.08	1932+96.08	20.00	20.00					80	28		13	37	55		0.7	0.1	14	95	91	TRANS. TYP. NO. 3 TO TYP. NO. 4
1932+96.08																				
1933+76.08 BE	1936+00.42 BE				224.34	SKULL CREEK BR. (NBI P00057249+07481)														
	1936+80.42	384.34	160.00					640	225		103	295	879		11.5	1.1	114	762	1,454	TYP. NO. 4
1936+80.42	1937+00.42	20.00	20.00					80	28		13	37	55		1.4	0.1	14	95	91	TRANS. TYP. NO. 4 TO TYP. NO. 3
1937+00.42	1938+00.42	100.00	100.00					400	141		64	185			7.2	0.7	71	476		TYP. NO. 3 THEN TO TYP. NO. 1
1938+00.42	2134+00.00	19,599.58	19,599.58					78,398	15,934		12,603	33,535			813.4	139.2	8,624	87,022		TYP. NO. 1
						ADDITIONAL SURFACING		5,036	1,335	309		4,561			84.3	9.0	584	6,078		
TOTAL		35,229.60	34,798.40	~	431.20		434	147,516	30,709	309	23,086	64,916	1,978	13,000	1,582.8	261.9	16,437	164,110	3,272	

ADDITIONAL SURFACING (INCLUDED IN SURFACING FRAME)

STATION FROM	STATION TO	linear feet GROSS	linear feet NET	linear feet +	linear feet -	FOR	tons HYDRATED LIME	AGGREGATE sq. yards COVER TYPE 1	AGGREGATE tons PLANT MIX BIT. SURF. GR. S -3/4"	AGGREGATE tons PLANT MIX BIT. SURF. GR. S -MISC	AGGREGATE cu. yards CEMENT TREATED BASE	AGGREGATE cu. yards CRUSHED AGG. COURSE	AGGREGATE cu. yards SPECIAL BORROW NEAT LINE	AGGREGATE cu. yards TRAFFIC GRAVEL	BITUMINOUS MATERIAL tons ASPHALT BINDER PG 58H-34	BITUMINOUS MATERIAL tons EMULSIFIED ASPHALT CHFRS-2P	BITUMINOUS MATERIAL gals. EMULSIFIED ASPHALT TACK	BITUMINOUS MATERIAL sq. yards AGG. TREAT.	GEO-TEXTILE STABILIZ-ATION sq. yards	REMARKS
2134+00.00	2135+43.41	143.41	143.41					478	99			193			5.0	0.9	54	545		TRANS. CONN. TYP. 1 TO CONN. TYP. 2
2135+43.41	2140+43.41	500.00	500.00					1,335	280			572			14.3	2.4	155	1,565		CONN. TYP. NO. 2, (3% LT)
2140+43.41	2143+56.52	313.11	313.11					836	175			358			8.9	1.5	97	980		CONN. TYP. NO. 2, (3% LT TO 3% RT)
2143+56.52	2148+43.59	487.07	487.07					1,300	272			557			13.9	2.3	151	1,525		CONN. TYP. NO. 2, (3% RT)
2148+43.59	2149+78.59	135.00	135.00					360	75			154			3.8	0.6	42	423		TRANS. CONN. TYP. 2 TO CONN. TYP. 3
2149+78.59	2152+00.00	221.41	221.41					591	124			253			6.3	1.1	69	693		CONN. TYP. NO. 3
2152+00.00	2152+50.00	50.00	50.00					136	28			54			1.4	0.2	16	155		TRANS. CONN. TYP. 3 TO CONN. TYP. 4
						FARM/FIELD APPROACHES				159		1,402			8.7			66		
						PRIVATE APPROACHES				150		282			7.7			16		
						PUBLIC APPROACHES			282			640			14.3			110		
						GUARDRAIL WIDENING						96								
SUBTOTAL		~	~	~	~		~	5,036	1,335	309	~	4,561	~	~	84.3	9.0	584	6,078	~	

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SUMMARY

CULVERTS (INCLUDED IN CULVERT SUMMARY RECAP)

STATION	BASIC BID ITEMS: CULVERT PIPE	BASIC BID ITEMS: linear feet: LENGTH OF PIPE	BASIC BID ITEMS: linear feet: REMOVE PIPE CULVERT	BASIC BID ITEMS: cu. yards: FOUND-ATION MATERIAL	BASIC BID ITEMS: cu. yards: GRANULAR BEDDING MATERIAL	BASIC BID ITEMS: cu. yards: SPECIAL BACKFILL	BASIC BID ITEMS: cu. yards: CONCRETE - CLASS GENERAL	BASIC BID ITEMS: cu. yards: STREAMBED MATERIAL	BASIC BID ITEMS: sq. yards: GEOTEXT. STAB.	PIPE OPTIONS in: STEEL - 2 2/3 X 1/2 CORR. CONCRETE ALUMINUM - 3 x 1 CORR.	PIPE OPTIONS in: CLASS OR THK.	END SECTIONS: LEFT	END SECTIONS: RIGHT	cu. yards: FOUND-ATION MATERIAL	cu. yards: GRANULAR BEDDING MATERIAL	cu. yards: SPECIAL BACKFILL	cu. yards: CONCRETE - CLASS GENERAL	sq. yards: GEOTEXT. STAB.	linear feet: HEIGHT OF COVER	SKEW ANGLE	CULVERT IN PL. in x ft	REMARKS
1784+90																					54 x 274 RCP	USE IN PLACE
1798+49			65.3																		24 x 65.3 CMP	
1799+26	42"	220								42" CSP 36" RCP 42" CAP △	0.079" ◒ CL. 3 0.075"	FETS FETS FETS	FETS FETS FETS						7.4	53° RT		DR.
1810+57	17' x 8'	150		248	124	1,435	14.0		439	17' X 8' RCB		▲ ◬ ◬	▲ ◬ ◬						10.5	11° LT		DR. – EMBEDDED INSTALL (1.5') ◐
1814+95	42"	150								42" CSP 42" RCP 42" CAP △	0.079" ◒ CL. 3 0.075"	FETS FETS FETS	FETS FETS FETS						10.6			DR.
1816+00			57.2																		24 x 57.2 CMP	
1817+35			65.0																		36 x 65.0 CMP	
1819+52			73.2																		24 x 73.2 CMP	
1822+67			85.5																		24 x 85.5 CMP	
1828+51			48.5																		24 x 48.5 CMP	
1828+53	30"	100								30" CSP 30" RCP 30" CAP	0.079" ◒ CL. 3 0.075"	FETS FETS FETS	FETS FETS FETS						3.1			DR.
1854+48			48.5																		24 x 48.5 CMP	
1855+14	30"	158								30" CSP 30" RCP 30" CAP	0.079" ◒ CL. 3 0.075"	FETS FETS FETS	FETS FETS FETS						9.8	27° RT		DR.
1860+32	30"	106								30" CSP 30" RCP 30" CAP	0.079" ◒ CL. 3 0.075"	FETS FETS FETS	FETS FETS FETS						3.0	25° RT		DR.
1860+48			44.4																		24 x 44.4 CMP	
1879+07			48.6																		24 x 48.6 CMP	
1880+00	48" EQ.	120		72					216	58 1/2 X 36 RCPA	CL. 3	FETS	FETS						1.6	41° RT		DR.
1890+94			92.7																		24 x 92.7 CMP	
1906+90	42"	134								42" CSP 42" RCP 42" CAP△	0.079" ◒ CL. 3 0.075"	FETS FETS FETS	FETS FETS FETS						6.4	14° RT		DR.
1907+14			61.3																		24 x 61.3 CMP	
1923+18			48.5																		24 x 48.5 CMP	
1923+52	84" EQ.	118		104	106		10.4		417	95" X 67" CSPA △ 102" X 62" RCPA	0.079" ◒ CL. 3	▼ ◬ ◬ FETS ◬	▼ ◬ ◬ FETS ◬	110	118		12.6	436	5.6	18° LT		DR. – EMBEDDED INSTALL (1.5') ◐
1949+56			68.4																		24 x 68.4 CMP	

◒ –PROVIDE COATING MEETING STANDARD SPEC. SEC. 709.05 OR 709.12
△ 3" x 1" CORR.
▲ – SLOPED END SECTION
▼ – 2:1 SKEW BEVEL
■ – 2:1 STEP BEVEL
◬ – CONCRETE CUTOFF WALL (H=4 FEET)
◬ – CONCRETE EDGE PROTECTION
◐ – SEE CROSS SECTIONS FOR INVERT ELEVATIONS

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SUMMARY

CULVERTS (INCLUDED IN CULVERT SUMMARY RECAP)

STATION	BASIC BID ITEMS									PIPE OPTIONS in		END SECTIONS		cu. yards				sq. yards	linear ft	SKEW ANGLE	CULVERT IN PL. in x ft	REMARKS
	CULVERT PIPE	linear feet		cu. yards					sq. yards	STEEL - 2 2/3 X 1/2 CORR. CONCRETE ALUMINUM - 2 2/3 x 1/2 CORR.	CLASS OR THK.	LEFT	RIGHT	FOUND-ATION MATERIAL	GRANULAR BEDDING MATERIAL	SPECIAL BACKFILL	CONCRETE - CLASS GENERAL	GEOTEXT. STAB.	HEIGHT OF COVER			
		LENGTH OF PIPE	REMOVE PIPE CULVERT	FOUND-ATION MATERIAL	GRANULAR BEDDING MATERIAL	SPECIAL BACKFILL	CONCRETE - CLASS GENERAL	STREAMBED MATERIAL	GEOTEXT. STAB.													
1949+86	48"	108								48" CSP 48" RCP 48" CAP△	0.079" ◒ CL. 4 0.075"	FETS FETS FETS	FETS FETS FETS						3.2	25° RT.		DR.
1964+90	36"	84								36" CSP 36" RCP 36" CAP	0.079" ◒ CL. 3 0.075"	FETS FETS FETS	FETS FETS FETS						2.2	9° RT.		DR.
1965+00			48.3																		24 x 48.3 CMP	
1979+95	90"	208	84.4	198	248		6.0		685	90" RCP	CL. 5	FETS ◭	FETS ◭						23.4	1° LT.	105 x 84.4 SSPP	DR. – EMBEDDED INSTALL (1.0') ◐
1992+50	30"	88								30" CSP 30" RCP 30" CAP	0.079" ◒ CL. 3 0.075"	FETS FETS FETS	FETS FETS FETS						2.8	10° RT.		DR.
1992+62			52.0																		24 x 52.0 CMP	
2013+10			48.7																		24 x 48.7 CMP	
2032+97			60.7																		24 x 60.7 CMP	
2036+03	48"	224								48" RCP 48" CAP △	CL. 4 0.075"	FETS FETS	FETS FETS						21.6	23° RT.		DR.
2036+15			85.1																		36 x 85.1 CMP	
2041+59			52.4																		24 x 52.4 CMP	
2045+55	72"	278		229	304		5.2		685	72" RCP	CL.5	FETS ◭	FETS ◭						24.7	36° LT.		DR. – EMBEDDED INSTALL (0.5') ◐
2045+58			100.1																		105 x 100.1 SSPP	
2048+51			100.9																		24 x 100.9 CMP	
2065+00	42"	184								42" CSP 42" RCP 42" CAP △	0.079" ◒ CL. 3 0.075"	FETS FETS FETS	FETS FETS FETS						13.3	20° LT.		DR.
2065+25			52.7																		36 x 52.7 CMP	
2081+64	48"	182								48" RCP 48" CAP△	CL. 4 0.075"	FETS FETS	FETS FETS						17.6	5° RT.		DR.
2081+73			52.5																		36 x 52.5 CMP	
2096+21			48.4																		24 x 48.4 CMP	
2096+51	30"	160								30" CSP 30" RCP 30" CAP	0.079" ◒ CL. 3 0.075"	FETS FETS FETS	FETS FETS FETS						7.3	21° LT.		DR.

◒ –PROVIDE COATING MEETING STANDARD SPEC. SEC. 709.05 OR 709.12
△ 3" x 1" CORR.
▲ – SLOPED END SECTION
▼ – 2:1 SKEW BEVEL
■ – 2:1 STEP BEVEL
◭ – CONCRETE CUTOFF WALL (H=4 FEET)
◬ – CONCRETE EDGE PROTECTION
◐ – SEE CROSS SECTIONS FOR INVERT ELEVATIONS

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SUMMARY

CULVERTS (INCLUDED IN CULVERT SUMMARY RECAP)

STATION	BASIC BID ITEMS: CULVERT PIPE	linear feet: LENGTH OF PIPE	linear feet: REMOVE PIPE CULVERT	cu. yards: FOUND-ATION MATERIAL	cu. yards: GRANULAR BEDDING MATERIAL	cu. yards: SPECIAL BACKFILL	cu. yards: CONCRETE - CLASS GENERAL	cu. yards: STREAMBED MATERIAL	sq. yards: GEOTEXT. STAB.	PIPE OPTIONS in: STEEL - 2 2/3 X 1/2 CORR. CONCRETE ALUMINUM - 2 2/3 x 1/2 CORR.	PIPE OPTIONS in: CLASS OR THK.	END SECTIONS: LEFT	END SECTIONS: RIGHT	cu. yards: FOUND-ATION MATERIAL	cu. yards: GRANULAR BEDDING MATERIAL	cu. yards: SPECIAL BACKFILL	cu. yards: CONCRETE - CLASS GENERAL	sq. yards: GEOTEXT. STAB.	linear ft: HEIGHT OF COVER	SKEW ANGLE	CULVERT IN PL. in x ft	REMARKS
2107+86	8' X 8'	216		212	106	1.925	12.0		827	8' X 8' RCB		▲ ◬ ◬	▲ ◬ ◬						16.5	27° RT.		DR. - EMBEDDED INSTALL (1.0') ◐
2117+85	60"	142		95	85		8.6		347	60" CSP △ 60" RCP 60" CAP △	0.079" ◒ CL. 2 0.075"	■ ◬ ◬ FETS ◬ ■ ◬ ◬	■ ◬ ◬ FETS ◬ ■ ◬ ◬	105 95	114 85		4.8 8.6	379 347	8.6	21° RT.		DR. - EMBEDDED INSTALL (0.5') ◐
2117+92			64.3																		60 x 64.3 SSPP	
2119+81			61.2																		60" x 61.2' SSPP	
2119+89	66"	146		103	102		9.2		373	66" CSP △ 66" RCP 66" CAP △	0.079" ◒ CL. 2 0.075"	■ ◬ ◬ FETS ◬ ■ ◬ ◬	■ ◬ ◬ FETS ◬ ■ ◬ ◬	115 103	117 102		5.4 9.2	408 373	9.3	22° LT.		DR. - EMBEDED INSTALL (0.5') ◐
2124+75	9' X 9'	174		185	92	1.920	13.2	58	632	9X9 RCB		▲ ◬ ◬	▲ ◬ ◬						16.8	4° LT.		DR. - EMBEDDED INSTALL (1.0') ◐
2126+44			63.8																		108 x 63.8 SSPP	

◒ -PROVIDE COATING MEETING STANDARD SPEC. SEC. 709.05 OR 709.12
△ 3" x 1" CORR.
▲ - SLOPED END SECTION
▼ - 2:1 SKEW BEVEL
■ - 2:1 STEP BEVEL
◬ - CONCRETE CUTOFF WALL (H=4 FEET)
◬ - CONCRETE EDGE PROTECTION
◐ - SEE CROSS SECTIONS FOR INVERT ELEVATIONS

APPROACH PIPE (INCLUDED IN CULVERT SUMMARY RECAP)

STATION	BASIC BID ITEMS: CULVERT PIPE in	linear feet: LENGTH OF PIPE	linear feet: REMOVE PIPE CULVERT	PIPE OPTIONS in: STEEL - 2 2/3 x 1/2 CORR. 0.079 THK.	PIPE OPTIONS in: CONCRETE - CLASS 3	PIPE OPTIONS in: ALUMINUM - 2 2/3 x 1/2 CORR. 0.060 THK.	PIPE OPTIONS in: CORRU-GATED POLY-ETHYLENE PIPE	END SECTIONS: LEFT	END SECTIONS: RIGHT	linear feet: HEIGHT OF COVER	CULVERT IN PL. in x ft	REMARKS
1798+50	18	74		18	18	18	18	FETS	FETS	4.8		LT.
1803+30	18	54		18	18	18	18	FETS	FETS	2.4		RT.
1820+00	18	62		18	18	18	18	FETS	FETS	3.6		LT.
1839+15	18	54		18	18	18	18	FETS	FETS	2.5		RT.
1849+75	18	44		18	18 ▲			FETS	FETS	1.2		LT.
1849+75	18	52		18	18	18		FETS	FETS	1.6		RT.
1849+72			60.3								15 X 60.3 CMP	RT.
1849+82			49.5								15 X 49.5 CMP	RT.
1863+15	18	46			18 ▲			FETS	FETS	0.9		LT.
1871+00	18	58		18	18	18	18	FETS	FETS	2.6		RT.
1871+06			60.3								15 X 60.3 CMP	RT.
1873+78			49.5								15 X 49.5 CMP	LT.
1875+74			79.8								30" X 79.8 CMP	LT.
1875+75	30 EQ.	102			36 ¼ x 22 ½			FETS	FETS	1.0		LT.
1876+17			155.6								30" x 155.6 CMP	RT.
1876+19	30 EQ.	82			36 ¼ x 22 ½			FETS	FETS	1.3		RT.
1928+50	18	64		18	18 ▲			FETS	FETS	1.4		RT.
1951+72			36.0								15 X 36.0 CMP	LT.
1951+75	18	60		18	18	18		FETS	FETS	1.8	LT.	LT.
1983+74			35.9								15 X 35.9 CMP	LT.
1983+77			40.0								15 X 40.0 CMP	LT.
1983+90	18	78		18	18	18	18	FETS	FETS	4.8		LT.
2033+80	18	90		18	18	18	18	FETS	FETS	3.4		RT.
2094+30	18	62		18	18	18	18	FETS	FETS	3.1		RT.
2112+00	18	50		18	18	18		FETS	FETS	1.8		RT.
2139+46			61.3								15 X 61.3 CMP	LT.
2139+50	18	54		18	18	18	18	FETS	FETS	2.0		LT.
TOTAL	~	~	628.2	~	~	~	~	~	~	~	~	

▲ - CONCRETE - CLASS 4

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SUMMARY

CULVERT SUMMARY RECAP

BASIC BID	linear feet		cu. yards					sq. yards
	NEW PIPE (TOTAL)	REMOVE PIPE CULVERT	FOUND-ATION MATERIAL	GRANULAR BEDDING MATERIAL	SPECIAL BACKFILL	CONCRETE - CLASS GENERAL	STREAMBED MATERIAL	GEOTEXT. STAB.
18"	856							
18" RCP	46							
30"	612							
30" EQ. RCPA	184							
36"	84							
42"	688							
48"	526							
48" EQ. RCPA	120							
60"	142							
66"	146							
72" RCP	278							
84" EQ	118							
90" RCP	208							
8' x 8' RCB	216							
9' x 9' RCB	174							
17' x 8" RCB	150							
TOTAL	~	2,410.8	1,446	1,167	5,280	78.6	58	4,621

BRIDGE END BACKFILL

STATION		cu. yards	sq. yards	REMARKS
		BRIDGE END BACKFILL	GEOTEXTILE STABIL.	
FROM	TO	TYPE II!		
1889+65.21	1890+15.57 BE	481	1,038	TIMBER CREEK - WEST END
1892+22.43 BE	1892+70.53	459	793	TIMBER CREEK - EAST END
1933+29.98	1933+76.08 BE	602	1,068	SKULL CREEK - WEST END
1936+00.42 BE	1936+48.52	628	1,176	SKULL CREEK - EAST END
TOTAL		2,170	4,075	

RANDOM RIPRAP

STATION		cu. yards	sq. yards		REMARKS
		RANDOM RIPRAP	GEOTEXTILE PERM. EROS. CNTRL. HIGH SURV. CLASS C	RIPRAP REVEGE-TATION	
FROM	TO	CL. II			
1889+91.92	1890+58.09	619	836	710	TIMBER CR. - WEST BANK
1891+80.21	1892+52.00	656	899	753	TIMBER CR. - EAST BANK
1933+71.24	1934+99.30	1,208	1,612	1,338	SKULL CR. - WEST BANK
1935+56.10	1936+31.00	645	867	740	SKULL CR. - EAST BANK
TOTAL		3,128	4,214	3,541	

PERMANENT EROSION CONTROL ▲

STATION		sq. yards			REMARKS
		VEGETATED CONCRETE BLOCK MAT ●	EROSION CONTROL BLANKET	OUTLET APRON	
FROM	TO		HIGH PERFORM.		
1804+00.00	1806+50.00	602			LINED DITCH LT.
1806+50.00	1809+50.00		471		LINED DITCH LT.
1806+50.00	1807+90.00		311		LINED DITCH RT.
1807+90.00	1810+20.00	436			LINED DITCH RT.
1814+80.00	1819+40.00	901			LINED DITCH LT.
1814+95.00				18	OUTLET PROTECTION RT.
1828+53.00				18	OUTLET PROTECTION RT.
1840+50.00	1841+60.00		491		LINED DITCH LT.
1849+40.00	1854+80.00		977		LINED DITCH RT.
1855+51.00				18	OUTLET PROTECTION LT.
1860+58.00				18	OUTLET PROTECTION LT.
1880+44.00				63	OUTLET PROTECTION LT.
1883+50.00	1886+70.00	640			LINED DITCH RT.
1887+67.00	1890+85.00	239			TIMBER CREEK BERM PROTECTION ■
1892+50.00	1896+00.00	634			LINED DITCH RT.
1893+30.00	1895+00.00	712			LINED DITCH LT.
1907+09.00				35	OUTLET PROTECTION LT.
1931+50.00	1933+80.00	392			LINED DITCH RT.
1939+00.00	1941+00.00	813			LINED DITCH LT.
1941+00.00	1942+50.00		459		LINED DITCH RT.
1949+59.00				53	OUTLET PROTECTION RT.
1957+90.00	1960+50.00		1,398		LINED DITCH LT.
1964+90.00				20	OUTLET PROTECTION RT.
1968+50.00	1969+70.00		327		LINED DITCH RT.
1980+90.00	1983+50.00	563			LINED DITCH LT.
1984+20.00	1987+50.00		1,320		LINED DITCH LT.
1995+20.00	1998+00.00		572		LINED DITCH RT.
2027+50.00	2030+00.00		556		LINED DITCH RT.
2030+00.00	2033+50.00	682			LINED DITCH RT.
2034+30.00	2035+50.00	194			LINED DITCH RT.
2036+03.00				45	OUTLET PROTECTION LT.
2044+90.00	2050+50.00	1,170			LINED DITCH LT.
2046+50.00	2049+20.00	473			LINED DITCH RT.
2050+50.00	2052+50.00		665		LINED DITCH LT.
2065+00.00				35	OUTLET PROTECTION LT.
2081+64.00				45	OUTLET PROTECTION LT.
2096+51.00				18	OUTLET PROTECTION RT.
2115+50.00	2117+50.00		473		LINED DITCH RT.
2123+00.00	2131+80.00	1,671			LINED DITCH RT.
2130+30.00	2136+10.00	1,818			LINED DITCH LT.
2136+10.00	2139+20.00		686		LINED DITCH LT.
TOTAL		10,001	6,456	251	

▲ SEE DETAILS
● SEE SPECIAL PROVISIONS FOR REVEGETATION
■ SEE TIMBER CREEK CHANNEL RESTORATION DETAILS FOR PLACEMENT

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SUMMARY

GUARDRAIL

STATION		linear feet				each						REMARKS
		REMOVE GUARDRAIL		BOX BEAM GUARDRAIL		MASH BOX BEAM TERMINAL MBEAT		BOX BEAM BRIDGE APPROACH SECTION TYPE 4		TEMPORARY IMPACT ATTENUATOR		
FROM	TO	LEFT	RIGHT	LEFT	RIGHT	LEFT	RIGHT	LEFT	RIGHT	LEFT	RIGHT	
NEW RAIL												
1888+08.61	1888+20.55						1					TIMBER CREEK RT.
1888+20.55	1889+64.55				144							
1889+64.55	1890+15.57								1		1	
1889+52.61	1889+64.55					1						TIMBER CREEK LT.
1889+64.55	1890+15.57							1		1		
1892+23.01	1892+74.03								1		1	TIMBER CREEK RT.
1892+74.03	1892+85.97						1					
1892+23.01	1892+74.03							1		1		TIMBER CREEK LT.
1892+74.03	1894+18.03			144								
1894+18.03	1894+29.97					1						
1931+69.12	1931+81.06						1					SKULL CREEK RT.
1931+81.06	1933+25.06				144							
1933+25.06	1933+76.08								1		1	
1933+13.12	1933+25.06					1						SKULL CREEK LT.
1933+25.06	1933+76.08							1		1		
1936+00.42	1936+51.44								1		1	SKULL CREEK RT.
1936+51.44	1936+63.38						1					
1936+00.42	1936+51.44							1		1		SKULL CREEK LT.
1936+51.44	1937+95.44			144								
1937+95.44	1938+07.38					1						
REMOVE RAIL												
1809+42.91	1810+26.85		83.9									
1809+43.30	1810+24.25	81.0										
1811+23.63	1812+07.76	84.1										
1811+23.87	1812+07.79		83.9									
1884+79.50	1885+60.02	80.5										
1884+91.52	1885+72.27		80.8									
1886+87.53	1887+68.41	80.9										
1887+00.03	1887+81.44		81.4									
1933+67.63	1934+48.42		80.8									
1933+68.73	1934+48.24	79.5										
1935+60.63	1936+40.21		79.6									
1935+86.12	1937+40.40	154.3										
2106+69.37	2107+68.94		99.6									
2106+69.62	2107+68.88	99.3										
2108+27.51	2109+25.91		98.4									
2108+27.33	2109+26.21	98.9										
2123+42.34	2124+20.82	78.5										
2123+42.46	2124+18.96		76.5									
2125+11.93	2125+89.94		78.0									
2125+12.19	2125+90.19	78.0										
SUBTOTAL		915.0	842.9	288	288	4	4	4	4	4	4	
TOTAL		1,757.9		576		8		8		8		

CATTLE GUARD

STATION	each	REMARKS
	REMOVE CATTLE GUARD	
1879+30	1	SALVAGE TO LANDOWNER
TOTAL	1	

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SUMMARY

EMBANKMENT PROTECTORS

STATION		linear feet				cu. yards	REMARKS
		EMBANKMENT PROTECTOR 18"		CONCRETE CURB 4" ②		BANK PROTECTION	
FROM	TO	LEFT	RIGHT	LEFT	RIGHT	TYPE 3	
1889+79	1890+16			40.6	40.6		
1889+80		91				3.7	22.5° ELBOW
1889+80			63			3.3	22.5° ELBOW
1892+23	1892+86			67.4	67.4		
1892+50		63				3.6	22.5° ELBOW
1892+50			74			①	22.5° ELBOW
1933+20	1933+76			60.5	60.5		
1933+56		48				2.4	22.5° ELBOW
1933+56			44			①	22.5° ELBOW
1936+00	1936+37			41.1	41.1		
1936+37		122				4.6	22.5° ELBOW
1936+37			58			3.5	22.5° ELBOW
SUBTOTAL		324	239	169.0	169.0	~	
TOTAL		563		338		21.1	

① - NO BANK PROTECTION REQUIRED. DRAIN EMB. PROTECTOR INTO VCBM LINED DITCH
② - ALL CURB IS TO BE INSTALLED BEHIND BOX BEAM GUARDRAIL

FENCING (LT.)

STATION		linear feet					each				In. feet	REMARKS
		FARM FENCE				TEMP. FENCE	FARM FENCE PANEL		DEADMAN	MISC. ITEMS	FARM GATE	
		TYPE F4(M)	TYPE F5(M)	TYPE F5(W) & F5(M)	TYPE F2-32WW (M)		SINGLE	DOUBLE				
FROM	TO						FM	FM			TYPE G2	
1781+70.40												
1798+50.00											16	
1820+00.00											16	
	1823+29.84		4,146				37	2				
1849+75.00											16	GATE ONLY
1864+96.21												
1871+00.00											26	
	1874+94.30			1,001			7	2				PLACE WOOD POST EVERY THREE POSTS ①
1876+52.54	1902+11.74				2,601		22	2				
1902+11.74												
1928+42.00											16	
	1928+49.65				2,698		15	2				
1928+49.65												
1928+42.00											16	
1951+75.00											30	
1980+30.00											16	
	1980+86.92				5,252		40	8				
1980+86.92												
1981+00.00											16	NO APPROACH
1981+30.00											16	IN CROSS FENCE 140± LT.
1983+90.00											30	
2006+60.00											30	
	2033+78.07				5,302		36	6				
2033+78.07												
2058+50.00											18	
	2086+60.40				5,319		43	5				
2064+00.00	2065+50.00					203						
2086+60.40												
2094+30.00											30	
2108+50.00											16	ON R/W LINE NORTH OF PIPE AT STA:2107+86
2112+00.00											30	
2139+30.00											30	WING INTO CATTLE GUARD
	2139+44.25				5,282		35	4				
2118+00.00	2120+00.00					304						

① TOP WIRE IS 4PT. 12 1/2 GUAGE RED BRAND RUTHLESS BARB WIRE

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SUMMARY

FENCING (continued)(RT.)

STATION		linear feet					each				ln. feet	REMARKS
		FARM FENCE				TEMP. FENCE	FARM FENCE PANEL		DEADMAN	MISC. ITEMS	FARM GATE	
		TYPE F4(M)	TYPE F5(M)	TYPE F5(W) & F5(M)	TYPE F2-32WW (M)		SINGLE	DOUBLE				
FROM	TO						FM	FM			TYPE G2	
1795+04.58												
1803+30.00											20	
1839+15.00											16	
	1847+67.26	5,332					34	5				
1810+90.00	1816+00.00					600						
1847+67.26												
1849+67.00											16	
	1849+77.24	209					4					
1849+77.24												
1849+80.00											30	
	1869+06.72	1,940					22	2				
1880+41.71												
1879+30.00										1		REMOVE G3 GATE AND SALVAGE TO OWNER
1900+00.00											16	NO APPROACH
1928+42.00											20	
	1928+50.34	5,284					42	10				
1928+50.34												
1928+58.00											40	
	1980+88.88		5,369				40	8				
1980+88.88												
1988+50.00											16	
2033+55.00											16	
2033+65.00											16	PLACE IN CROSS FENCE 120± RT.
	2033+79.23		5,317				39	5				
2033+79.23												
2034+08.00											16	
2058+50.00											18	
	2086+61.25				5,332		48	9				
2086+61.25												
2094+30.00											30	
2107+50.00											16	PLACE IN R/W LINE SOUTH OF CULVERT
2112+00.00											30	
2113+00.00											16	PLACE IN CROSS FENCE 98± RT.
	2113+00.35				2,656		28	4				
2113+00.35												
2121+00.00											30	
2139+30.00											16	
	2139+35.54		2,698				21	4				
2139+35.54												
2139+65.00											30	
	2152+29.98				1,292		11	2				
SUBTOTAL LT FENCE		0	4,146	1,001	26,454	507	235	31	34	~	368	
SUBTOTAL RT. FENCE		12,765	13,384	~	9,280	600	289	49	34	1	408	
TOTAL		12,765	17,530	1,001	35,734	1,107	524	80	68	1	776	

① TOP WIRE IS 4PT. 12 1/2 GUAGE RED BRAND RUTHLESS BARB WIRE

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HYDRAULIC DATA SUMMARY *

STATION	STREAM NAME (IF NAMED)	DRAINAGE AREA (mi^2)	SIZE/TYPE STRUCTURE ① ② ⑤	DESIGN FLOOD MAGNITUDE (cfs)	DESIGN FLOOD FREQUENCY (%)	DESIGN FLOOD H.W. ELEV. (ft)	BASE FLOOD (1%) MAGNITUDE (cfs)	BASE FLOOD (1%) H.W. ELEV. (ft)	OVERTOPPING FLOOD ③ ④ MAGNITUDE (cfs)	OVERTOPPING FLOOD APPROX. FREQUENCY (%)	OVERTOPPING FLOOD H.W. ELEV. (ft)	REMARKS (FLOOD OF RECORD), Qp(max), etc.) ⑥
1799+26		0.042	42" CSP	61	2	2527.08	83	2528.11	64	1.9	2527.47	OT AT DITCH DIVIDE/NATURAL DIVIDE 1798+81 RT
1810+57	Timber Creek Tributary	3.400	17' x 8' RCB	720	2	2514.11	1,010	2515.74	Qp(max)	<0.2	2524.26	OT AT ROADWAY 1813+60
1814+95		0.044	42" CSP	62	2	2517.91	84	2519.20	103	<1	2520.68	OT AT DITCH DIVIDE/NATURAL DIVIDE 1812+50 LT
1828+53		0.013	30" CSP	31	2	2541.12	43	2541.64	35	1.7	2541.50	OT AT DITCH DIVIDE 1828+03 LT
1855+14		0.025	30" CSP	46	2	2517.09	62	2517.32	46	2	2517.15	OT AT DITCH DIVIDE 1856+53 RT
1860+32		0.008	30" CSP	24	2	2508.86	49	2509.20	25	1.9	2508.96	OT AT DITCH DIVIDE 1861+04 RT
1880+00		0.052	51-1/8" x 31-5/16" RCPA	70	2	2469.09	108	2469.40	52	2.9	2468.84	OT AT DITCH DIVIDE 1880+05 RT
1891+19	Timber Creek	168	207' Three Span Bridge	4,360	2	2458.09	5,680	2459.24	Qp(max)	<0.2	2464.82	Qp(max)
1906+90		0.055	42" CSP	72	2	2495.29	97	2497.30	96	1.1	2597.27	OT AT DITCH DIVIDE 1909+21 RT
1923+52		0.268	95" x 67" CSPA	179	2	2473.51	235	2473.70	79	10	2473.00	OT AT DITCH DIVIDE/NATURAL DIVIDE 1818+99 LT
1934+88	Skull Creek	37.4	224.5' Two Span Bridge	2,180	2	2458.18	2,920	2459.12	Qp(max)	<0.2	2464.70	Qp(max)
1949+86		0.076	48" CSP	86	2	2495.57	124	2495.93	88	2	2495.65	OT AT DITCH DIVIDE 1949+66 LT
1964+90		0.018	36" CSP	38	2	2537.90	52	2538.22	41	1.8	2538.09	OT AT DITCH DIVIDE 1964+54 LT
1979+95		0.365	90" RCP	258	2	2532.99	376	2534.78	Qp(max)	<0.2	2549.60	OT AT DITCH DIVIDE/ NATURAL DIVIDE 1977+88 LT
1992+50		0.007	30" CSP	23	2	2592.66	32	2593.09	27	1.6	2593.00	OT AT DITCH DIVIDE 1992+26 LT
2036+03		0.013	48" RCP	52	2	2607.91	72	2608.66	186	<1	2616.00	OT AT DITCH DIVIDE/NATURAL DIVIDE 2037+48 RT, Qp(max)
2045+55		0.127	72" RCP	156	2	2588.84	232	2590.28	Qp(max)	<0.2	2609.46	OT AT ROADWAY 2044+10
2065+00		0.095	42" CSP	98	2	2622.73	131	2625.61	115	1.5	2625.00	OT AT DITCH DIVIDE/NATURAL DIVIDE 2067+61 RT
2081+64		0.062	48" CSP	77	2	2604.84	102	2606.07	158	<1	2612.00	OT AT DITCH DIVIDE/NATURAL DIVIDE 2088+02 RT, Qp(max)
2096+51		0.009	30" CSP	25	2	2593.70	35	2594.22	28	1.7	2593.95	OT AT DITCH DIVIDE/NATURAL DIVIDE 2096+36 LT
2107+86	Cemetery Coulee Tributary	0.411	8' x 8' RCB	272	2	2552.21	396	2553.83	974	<0.5	2564.33	Qp(max)
2117+85		0.073	60" CSP	123	2	2557.48	184	2558.85	131	1.9	2557.81	OT AT DITCH DIVIDE/ NATURAL DIVIDE 2118+52 RT
2119+89		0.124	66" CSP	157	2	2554.30	233	2557.63	217	1.4	2556.50	OT AT DITCH DIVIDE/ NATURAL DIVIDE 2120+80 RT
2124+75	Cemetery Coulee	0.652	9' x 9' RCB	337	2	2543.74	486	2546.67	1,523	<0.5	2559.65	Qp(max)

NOTES:

* H.W. ELEVATIONS SHOWN ARE BASED UPON PEAK FLOW ANALYSIS UNLESS NOTED IN REMARKS COLUMN.

① STRUCTURE SIZE OR TYPE AND RELATED HYDRAULIC DATA MAY NOT REFLECT CHANGES MADE DUE TO R/W OR OTHER CONSIDERATIONS (I.E. STOCKPASS ADDED, STRUCTURE SIZE OR TYPE CHANGED, ROAD GRADE CHANGED DURING CONSTRUCTION, ETC.)

② BRIDGE TOP LENGTH AND NUMBER OF SPANS OR BASE BID CULVERT SIZE AND SHAPE.

③ OVERTOPPING IS DEFINED AS FLOW OVER THE ROAD, FLOW THROUGH A SIGNIFICANT RELIEF STRUCTURE OR FLOW OVER THE BASIN DIVIDE WHICHEVER IS LOWER.

④ FOR THOSE CROSSINGS NOTED BY Qp(max) IN THE REMARKS COLUMN OVERTOPPING DOES NOT OCCUR THROUGH THE QP(max) EVENT. Qp(max) IS THE 200-YEAR EVENT FOR CULVERTS AND THE 500-YEAR EVENT FOR BRIDGES

⑤ HIGH WATER ELEVATIONS MAY VARY SLIGHTLY DEPENDING UPON THE PIPE OPTION SELECTED.

⑥ NOTE ANY CULVERTS THAT WERE SIZED USING THE HEADWATER EXCEPTION PROCEDURE PER SECTION 11.3.1.3.2 OF

EXCEEDANCE PROBABILITIES

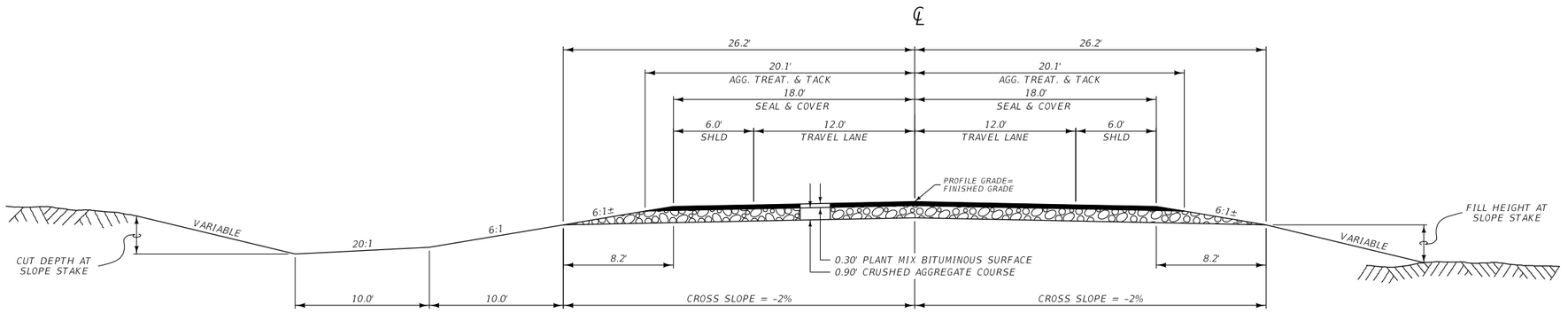
50 YEAR 2% CHANCE
100 YEAR 1% CHANCE
200 YEAR 0.5% CHANCE

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TYPICAL SECTION NO. 1

MAINLINE

2134+00.00 ONLY
2134+00.00 TO 2135+43.41 TRANS. CONN. TYP. 1 TO CONN. TYP. 2



QUANTITIES								
UNIT	AGGREGATE			UNIT	BITUMINOUS MATERIAL			AGG. TREATMENT
	COVER	PLANT MIX	CR. AGG. COURSE		ASPHALT CEMENT	SEAL	EMULSIFIED ASPHALT TACK ▲	
AREA square feet		11.43	41.67	square yards PER STATION		400	894	447
cubic yards PER STATION		42.3	154.3	tons PER STATION	4.16	0.71		
tons PER STATION		81.5		gals. PER STATION			45	
square yards PER STATION	400							

▲ BASED ON 2 APPLICATIONS

* FILL SLOPES	
0' - 10'	6:1
10' - 20'	4:1
20' - 30'	3:1
OVER 30'	2:1

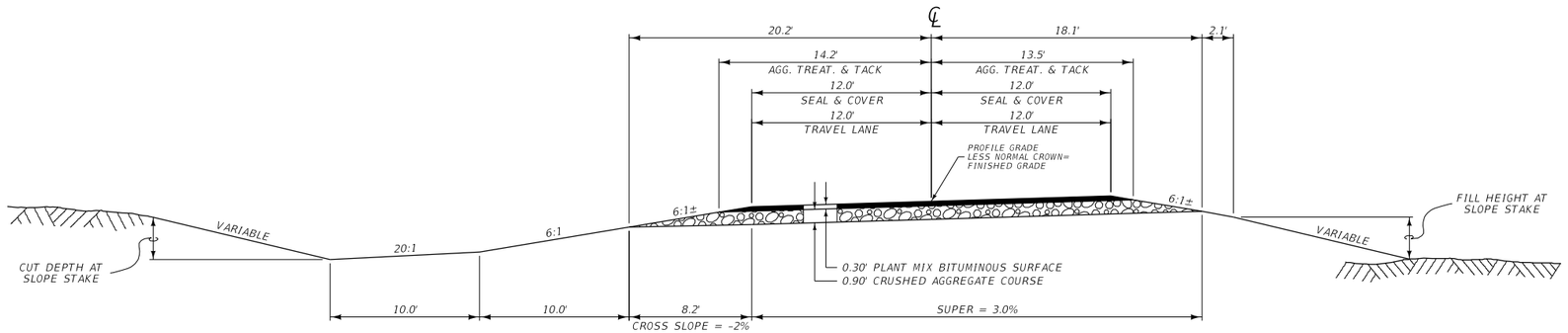
* BACK SLOPES	
0' - 5'	5:1
5' - 10'	4:1
10' - 15'	3:1
15' - 20'	2:1
OVER 20'	1.5:1

* SEE CROSS SECTIONS FOR DEVIATIONS

CONNECTION TYP. NO. 2

CONNECTION (REVERSE DIMENSIONS FOR CURVE RT)

2135+56.39 TO 2140+43.41 3% LT.
2140+43.41 TO 2143+56.21 TRANS. 3% LT. TO 3% RT.
2143+56.21 TO 2148+43.59 3% RT.
2148+43.59 TO 2149+78.59 TRANS. CONN. TYP. 2 TO CONN. TYP. 3



FOR QUANTITIES SEE CONNECTION TYPICAL NO. 3

DETAIL

CONNECTION TYPICALS

NO SCALE

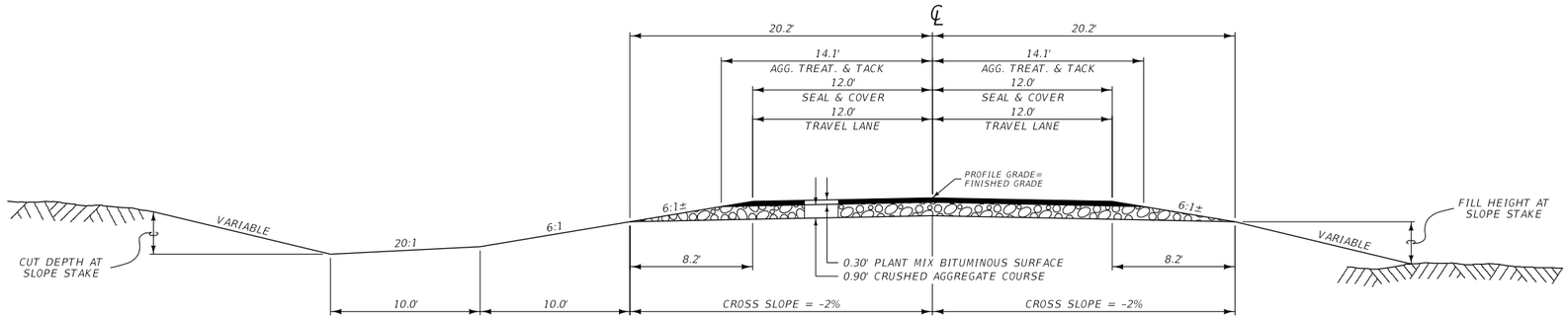
3	MONTANA Department of Transportation	C:\DGN\9726000rddet002.dgn	DESIGNED BY	S. Jarvis	10/19/2023	ROAD PLANS	FLOWING WELLS - EAST & WEST	NH - HSIP 57-5(56)247
2		12/9/2024	REVIEWED BY					
		11:33:27 AM CPS - U0425	CHECKED BY			GARFIELD & MCCONE COUNTIES	UPN 9726000	22

ADVERTISED COPY

CONNECTION TYP. NO. 3

CONNECTION

2149+78.59 TO 2152+00.00
2152+00.00 TO 2152+50.00 TRANS. CONN. TYP. 3 TO CONN. TYP. 4



QUANTITIES

UNIT	AGGREGATE			UNIT	BITUMINOUS MATERIAL			AGG. TREATMENT
	COVER	PLANT MIX	CR. AGG. COURSE		ASPHALT CEMENT	SEAL	EMULSIFIED ASPHALT TACK ▲	
AREA square feet		7.83	30.87	square yards PER STATION		267	626	313
cubic yards PER STATION		29.0	114.3	tons PER STATION	2.85	0.48		
tons PER STATION		55.9		gals. PER STATION			31	
square yards PER STATION	267							

▲ BASED ON 2 APPLICATIONS

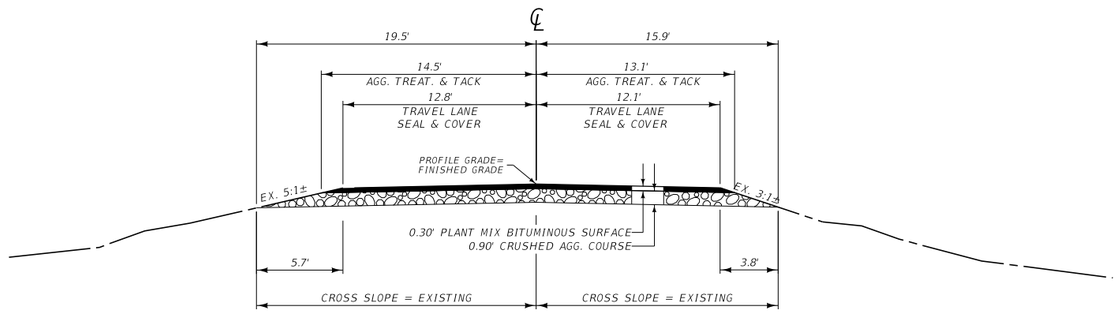
* FILL SLOPES	
0' - 10'	6:1
10' - 20'	4:1
20' - 30'	3:1
OVER 30'	2:1

* BACK SLOPES	
0' - 5'	5:1
5' - 10'	4:1
10' - 15'	3:1
15' - 20'	2:1
OVER 20'	1.5:1

* SEE CROSS SECTIONS FOR DEVIATIONS

CONNECTION TYP. NO. 4

2152+50.00 ONLY



QUANTITIES

UNIT	AGGREGATE			UNIT	BITUMINOUS MATERIAL			AGG. TREATMENT
	COVER	PLANT MIX	CRUSHED AGG. COURSE		ASPHALT CEMENT	SEAL	EMULSIFIED ASPHALT TACK ▲	
AREA square feet		7.88	27.81	square yards PER STATION		277	614	307
cubic yards PER STATION		29.2	103.0	tons PER STATION	2.94	0.49		
tons PER STATION		57.7		gals PER STATION			31	
square yards PER STATION	277							

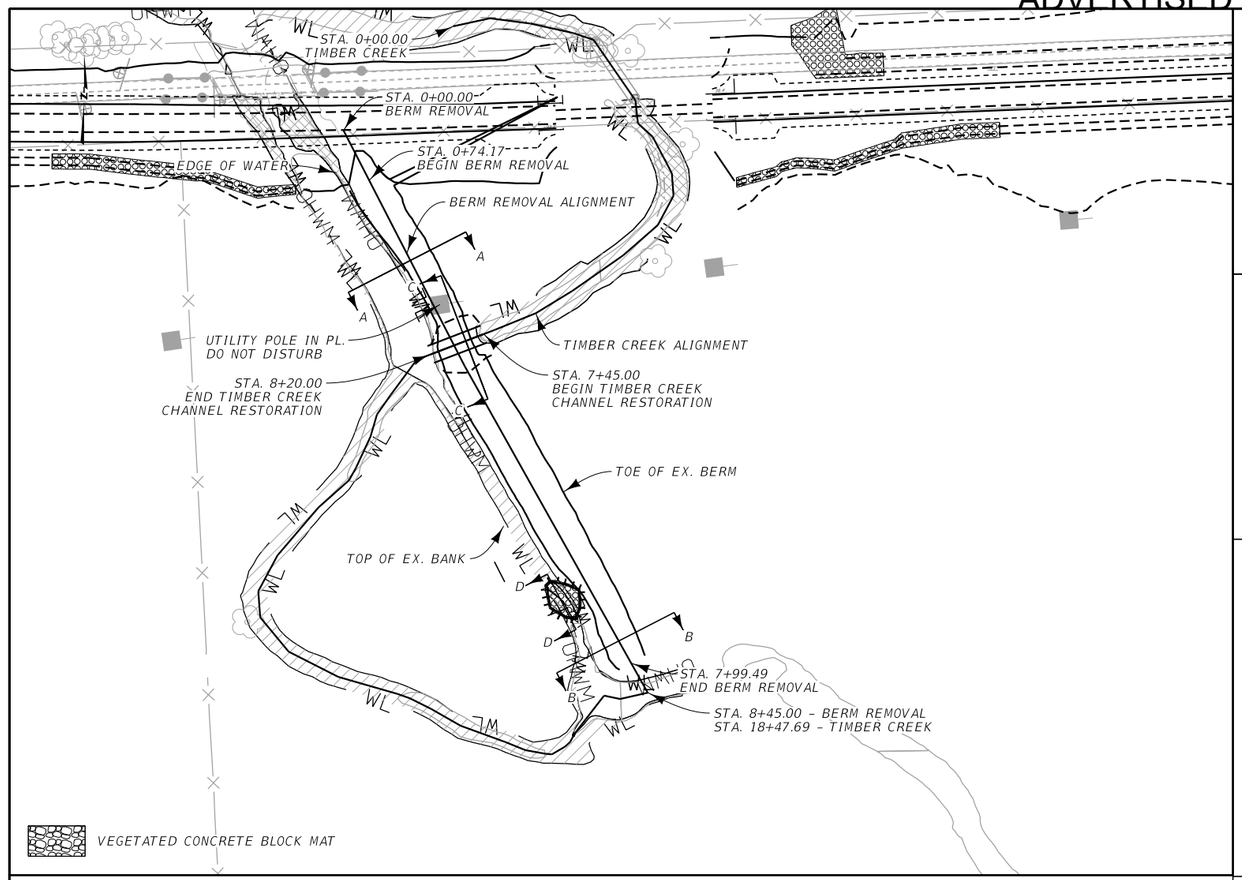
▲ BASED ON 2 APPLICATIONS

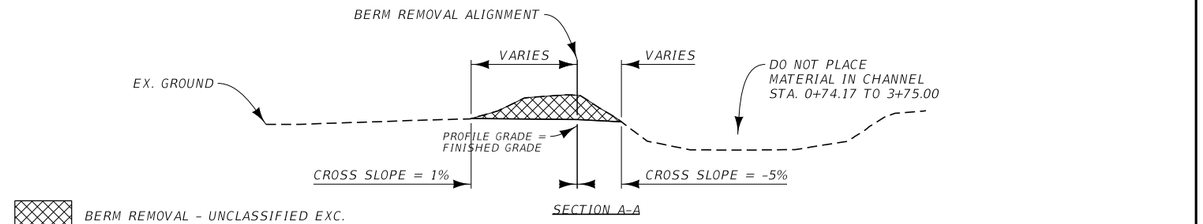
DETAIL

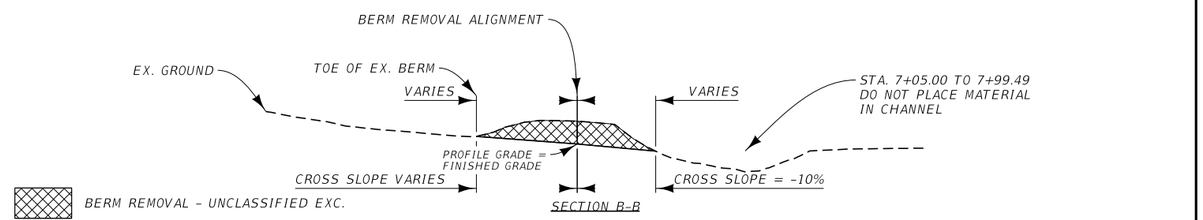
CONNECTION TYPICALS

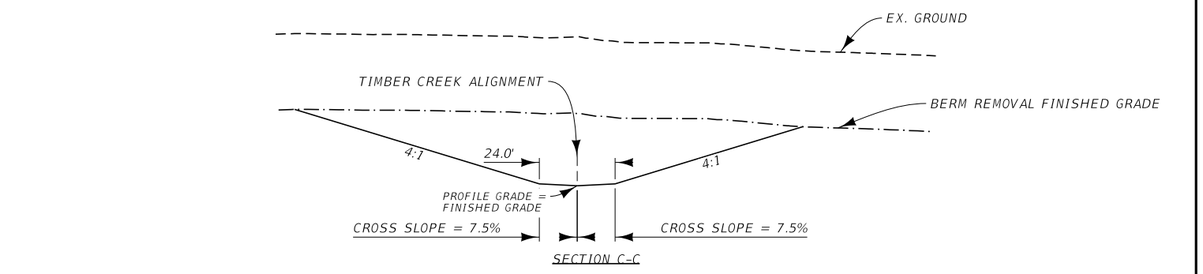
NO SCALE

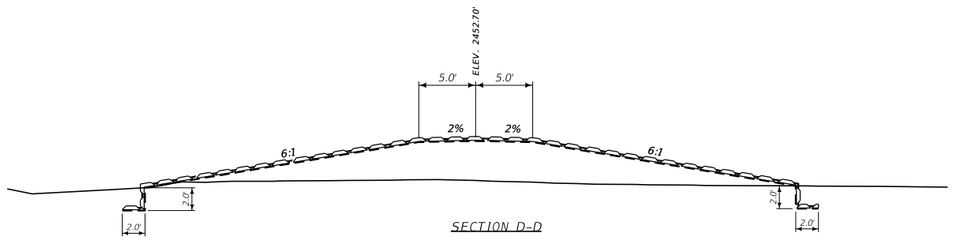
ADVERTISED COPY











TIMBER CREEK CHANNEL RESTORATION & BERM REMOVAL QUANTITIES

STATION*		QUANTITY	BID ITEMS	REMARKS
FROM	TO			
1887+67.00	1890+85.00	1,165 cu. yds.	UNCLASSIFIED EXCAVATION	BERM REMOVAL
1887+67.00	1890+85.00	450 cu. yds.	TOPSOIL SALVAGING & PLACING	BERM REMOVAL
1887+67.00	1890+85.00	0.8 acres	AREA 1 SEEDING	BERM REMOVAL
1887+67.00	1890+85.00	0.8 acres	CONDITION SEEDBED	BERM REMOVAL
1887+67.00	1890+85.00	206 sq. yds.	VEGETATED CONCRETE BLOCK MAT	BERM REMOVAL
1888+41.00	1889+11.00	635 cu. yds.	UNCLASSIFIED EXCAVATION	TIMBER CREEK CHANNEL RESTORATION

* MAINLINE STATIONING

DETAIL

TIMBER CR. CHANNEL RESTORATION & BERM REMOVAL ALIGNMENT GEOMETRY

NO SCALE

ADVERTISED COPY

TIMBER CREEK COORDINATE TABLE

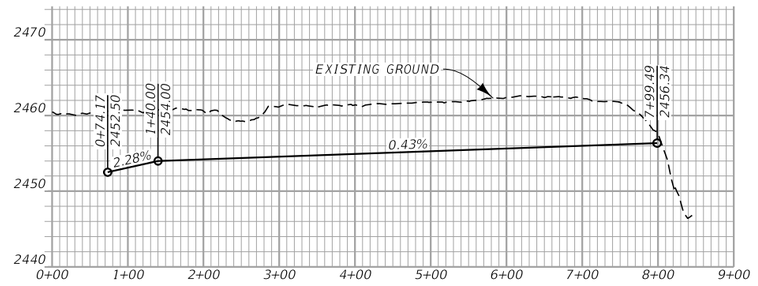
STATION	DESCRIPTION	N OR Y COORDINATE	E OR X COORDINATE	REMARKS
0+00.00	POB	1,138,898.097	2,794,773.677	
0+49.70	PI	1,138,908.551	2,794,822.261	
1+03.54	PI	1,138,901.706	2,794,875.666	
1+61.35	PI	1,138,889.055	2,794,932.075	
1+89.77	PI	1,138,880.350	2,794,959.132	
2+86.99	PI	1,138,800.217	2,795,014.177	
3+17.56	PI	1,138,769.848	2,795,017.652	
3+43.78	PI	1,138,752.115	2,795,036.969	
3+98.03	PI	1,138,704.164	2,795,062.354	
4+27.84	PI	1,138,674.439	2,795,064.524	
4+72.12	PI	1,138,635.384	2,795,043.654	
5+32.51	PI	1,138,595.732	2,794,998.105	
6+13.82	PI	1,138,549.120	2,794,931.479	
6+70.86	PI	1,138,519.432	2,794,882.774	
7+29.93	PI	1,138,497.084	2,794,828.099	
7+45.00	PI	1,138,491.697	2,794,814.002	BEGIN TIMBER CREEK CHANNEL RESTORATION
8+20.00	PI	1,138,464.891	2,794,743.976	END TIMBER CREEK CHANNEL RESTORATION
8+39.58	PI	1,138,457.892	2,794,725.685	
8+96.97	PI	1,138,411.898	2,794,691.371	
9+28.97	PI	1,138,385.599	2,794,673.144	
9+59.64	PI	1,138,356.211	2,794,664.357	
10+05.65	PI	1,138,314.429	2,794,645.081	
10+23.63	PI	1,138,298.769	2,794,636.262	
10+77.74	PI	1,138,262.743	2,794,595.887	
11+60.97	PI	1,138,199.538	2,794,541.732	
12+14.63	PI	1,138,152.233	2,794,516.401	
12+49.19	PI	1,138,117.757	2,794,518.878	
13+07.95	PI	1,138,072.617	2,794,556.491	
13+81.58	PI	1,138,039.166	2,794,622.078	
14+62.92	PI	1,138,016.695	2,794,700.261	
14+80.29	PI	1,138,010.738	2,794,716.578	
15+11.52	PI	1,137,996.949	2,794,744.596	
15+56.13	PI	1,137,974.798	2,794,783.312	
16+19.50	PI	1,137,953.055	2,794,842.835	
16+47.80	PI	1,137,942.327	2,794,869.032	
16+74.23	PI	1,137,937.691	2,794,895.049	
16+83.34	PI	1,137,936.893	2,794,904.120	
17+03.61	PI	1,137,947.292	2,794,921.522	
17+12.69	PI	1,137,953.371	2,794,928.263	
17+24.47	PI	1,137,963.858	2,794,933.641	
17+49.14	PI	1,137,983.433	2,794,948.647	
17+88.39	PI	1,138,014.391	2,794,972.774	
18+10.24	PI	1,138,009.877	2,794,994.154	
18+47.69	POE	1,138,018.299	2,795,030.644	

GPK NAME: JOB726.GPK CHAIN NAME: TIMBER_CR PROFILE NAME: TIMBER_P

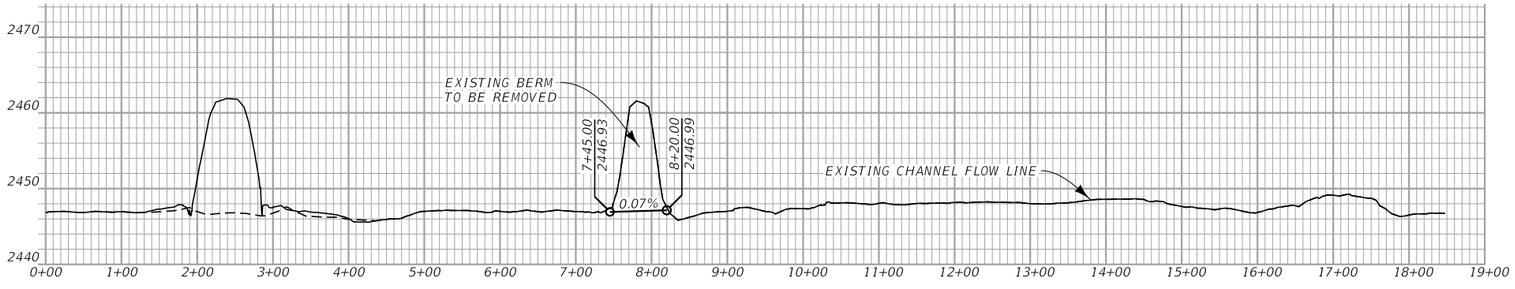
BERM REMOVAL COORDINATE TABLE

STATION	DESCRIPTION	N OR Y COORDINATE	E OR X COORDINATE	REMARKS
0+00.00	POT	1,138,760.512	2,794,629.019	
0+74.17	POT	1,138,694.551	2,794,662.932	BEGIN BERM REMOVAL
3+50.00	POT	1,138,449.244	2,794,789.056	
7+99.49	POT	1,138,057.158	2,795,008.860	END BERM REMOVAL
8+45.00	POT	1,138,017.464	2,795,031.112	

GPK NAME: JOB726.GPK CHAIN NAME: BERM PROFILE NAME: BERM_P



BERM REMOVAL ALIGNMENT PROFILE



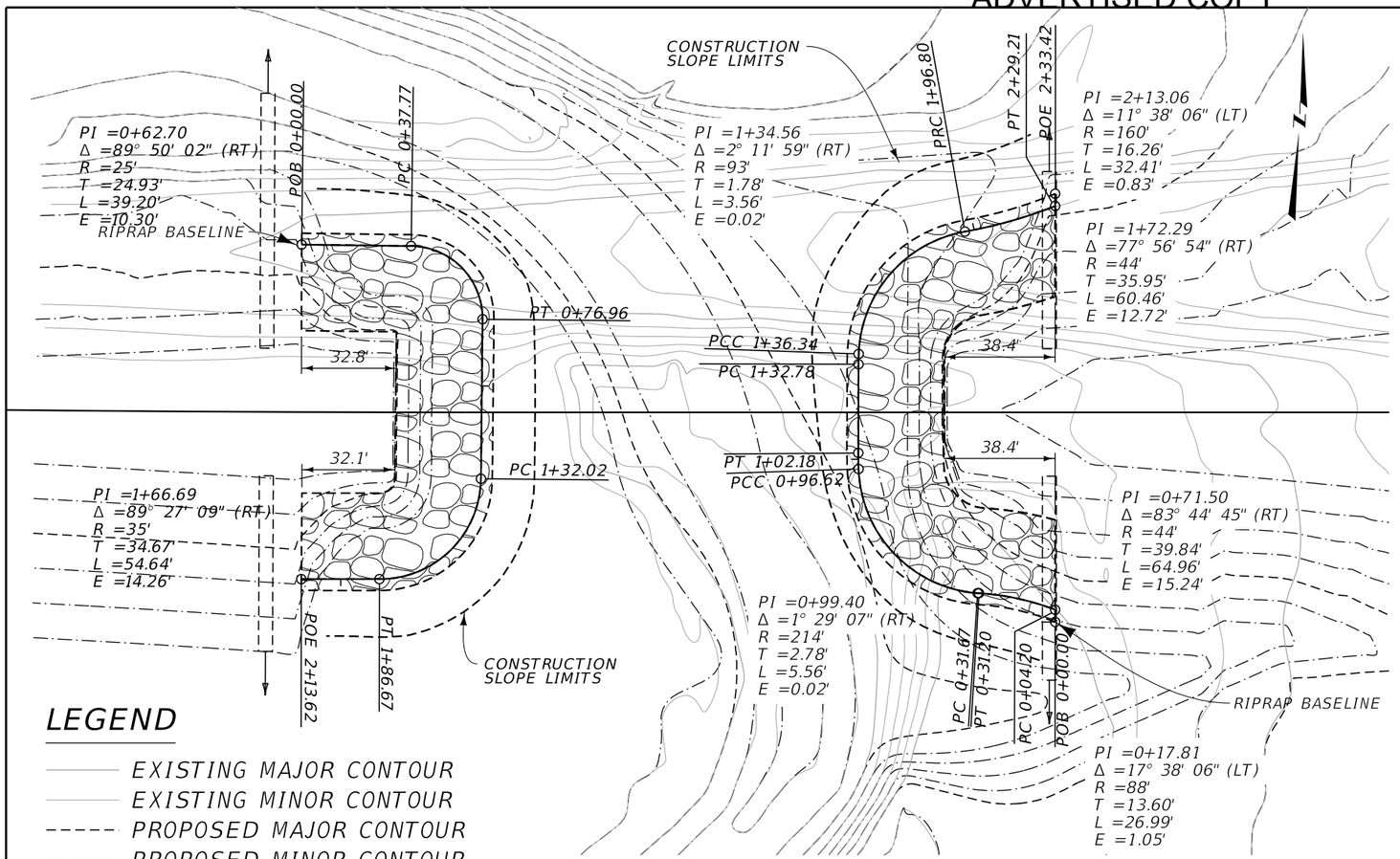
TIMBER CREEK RESTORATION ALIGNMENT PROFILE

DETAIL

TIMBER CREEK CHANNEL RESTORATION & BERM REMOVAL

NO SCALE

ADVERTISED COPY



TIMBER CR. WEST BANK BASELINE COORDINATE TABLE

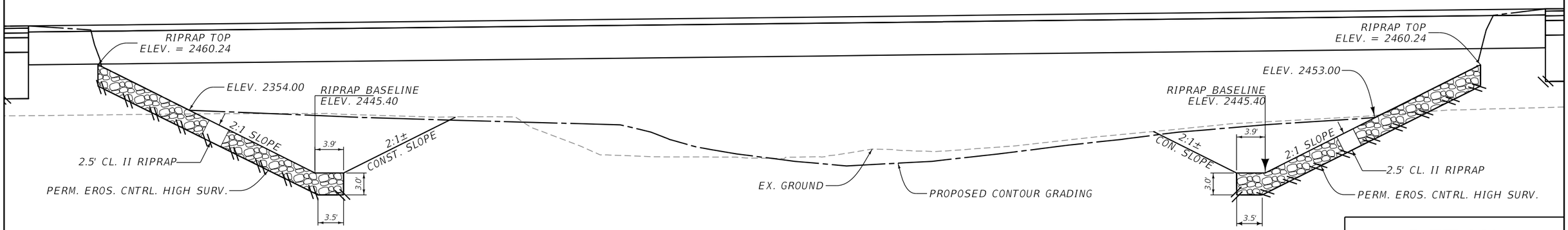
STATION	DESCRIPTION	N OR Y COORDINATE	E OR X COORDINATE	REMARKS
0+00.00	POT	1,138,838.215	2,794,883.874	
0+37.77	PC	1,138,839.251	2,794,921.628	
0+62.70	PI	1,138,839.935	2,794,946.546	
0+76.96	PT	1,138,815.019	2,794,947.302	
1+32.02	PC	1,138,759.987	2,794,948.972	
1+66.69	PI	1,138,725.335	2,794,950.023	
1+86.67	PT	1,138,723.953	2,794,915.383	
2+13.62	POT	1,138,722.878	2,794,888.451	

GPK NAME: JOB726.GPK CHAIN NAME: TIMBER_RR_W PROFILE NAME: TIMBER_RR_W_P

TIMBER CR. EAST BANK BASELINE COORDINATE TABLE

STATION	DESCRIPTION	N OR Y COORDINATE	E OR X COORDINATE	REMARKS
0+00.00	POT	1,138,718.686	2,795,148.876	
0+04.20	PC	1,138,722.887	2,795,148.706	
0+17.81	PI	1,138,727.253	2,795,135.822	
0+31.20	PT	1,138,727.511	2,795,122.220	
0+31.67	PC	1,138,727.524	2,795,121.750	
0+71.50	PI	1,138,728.915	2,795,081.938	
0+96.62	PT	1,138,768.641	2,795,078.984	
0+96.62	PC	1,138,768.641	2,795,078.984	
0+99.40	PI	1,138,771.412	2,795,078.778	
1+02.18	PT	1,138,774.188	2,795,078.644	
1+32.78	PC	1,138,804.767	2,795,077.480	
1+34.56	PI	1,138,806.544	2,795,077.402	
1+36.34	PT	1,138,808.323	2,795,077.391	
1+36.34	PC	1,138,808.323	2,795,077.391	
1+72.29	PI	1,138,844.276	2,795,077.185	
1+96.80	PT	1,138,851.985	2,795,112.303	
1+96.80	PC	1,138,851.985	2,795,112.303	
2+13.06	PI	1,138,855.471	2,795,128.186	
2+29.21	PT	1,138,862.089	2,795,143.040	
2+33.42	POT	1,138,866.302	2,795,142.869	

GPK NAME: JOB726.GPK CHAIN NAME: TIMBER_RRL_E PROFILE NAME: TIMBER_RRL_E_P



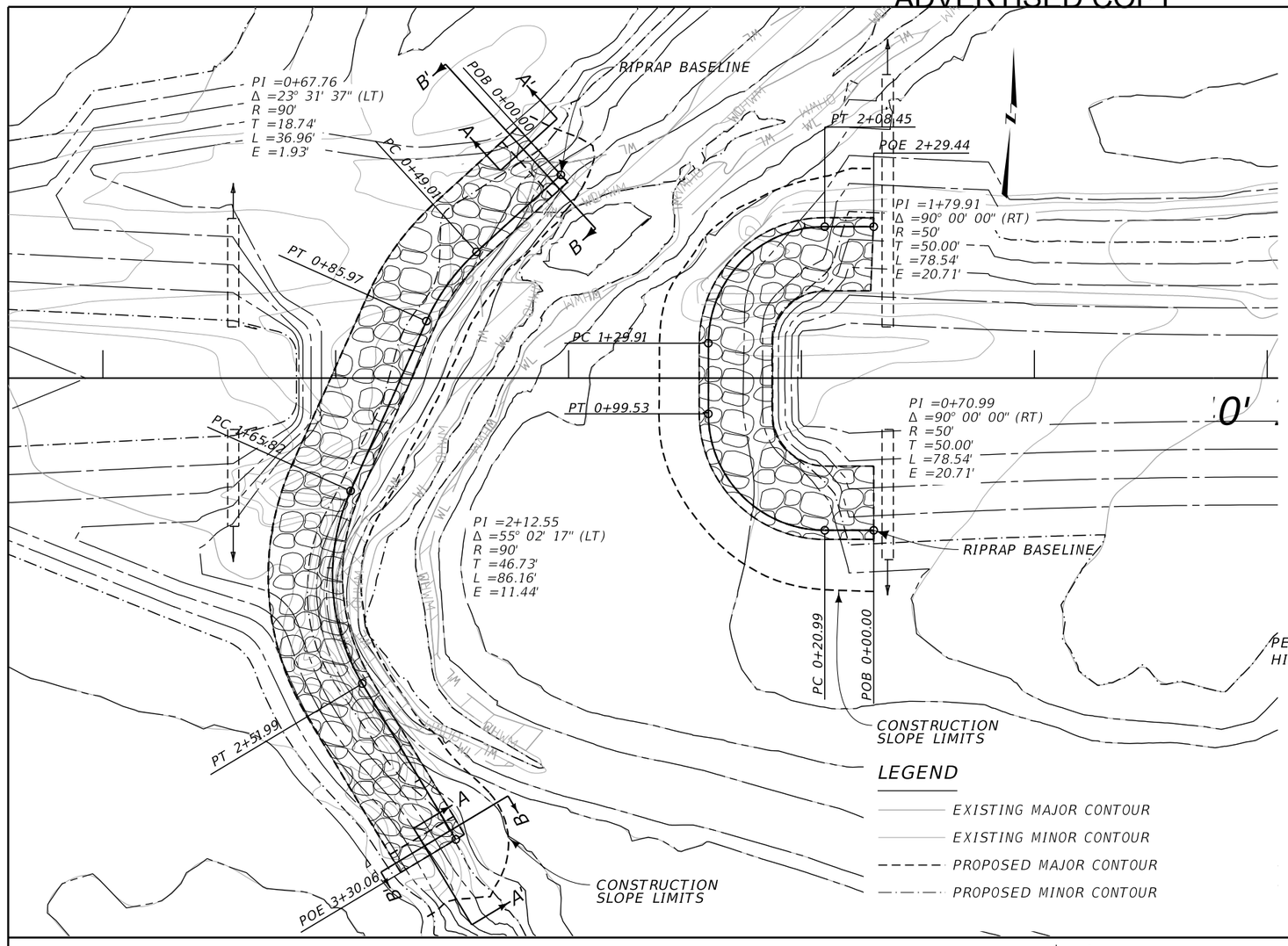
DETAIL

TIMBER CREEK RIPRAP LAYOUT & CONTOUR GRADING

NO SCALE

3	MONTANA Department of Transportation	C:\DGN\9726000rddeth05.dgn	DESIGNED BY	S. JARVIS	9/19/2024	ROAD PLANS	FLOWING WELLS - EAST & WEST	NH - HSIP 57-5(56)247
2		12/9/2024	REVIEWED BY					
		11:34:15 AM CPS - U0425	CHECKED BY			GARFIELD & MCCONE COUNTIES	UPN 9726000	26

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SKULL CR. WEST BANK BASELINE COORDINATE TABLE

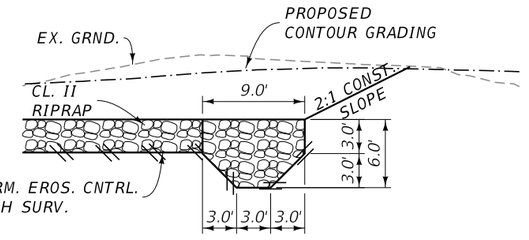
STATION	DESCRIPTION	N OR Y COORDINATE	E OR X COORDINATE	REMARKS
0+00.00	POT	1,139,050.767	2,799,383.538	
0+49.01	PC	1,139,016.269	2,799,348.719	
0+67.76	PI	1,139,003.078	2,799,335.405	
0+85.97	PT	1,138,985.669	2,799,328.464	
1+65.82	PC	1,138,911.494	2,799,298.889	
2+12.55	PI	1,138,868.087	2,799,281.581	
2+51.99	PT	1,138,829.029	2,799,307.237	
3+30.06	POT	1,138,763.774	2,799,350.098	

GPK NAME: J0B726.GPK CHAIN NAME: SKULLL_RRL_W PROFILE NAME: SKULL_RRL_W_P

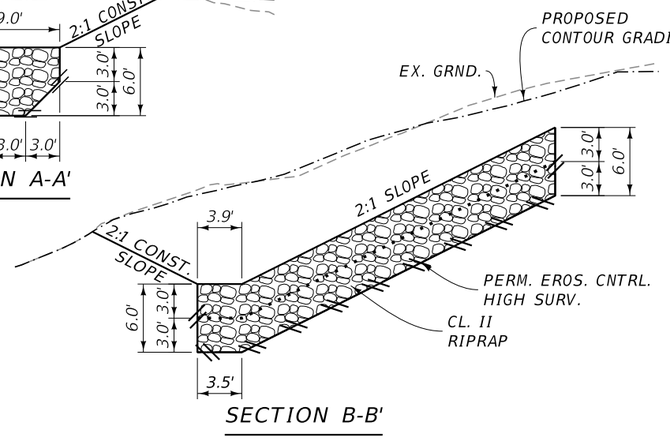
SKULL CR. WEST BANK BASELINE COORDINATE TABLE

STATION	DESCRIPTION	N OR Y COORDINATE	E OR X COORDINATE	REMARKS
0+00.00	POT	1,138,903.730	2,799,523.971	
0+20.99	PC	1,138,902.876	2,799,502.994	
0+70.99	PI	1,138,900.843	2,799,453.036	
0+99.53	PT	1,138,950.802	2,799,451.002	
1+29.91	PC	1,138,981.148	2,799,449.767	
1+79.91	PI	1,139,031.107	2,799,447.734	
2+08.45	PT	1,139,033.140	2,799,497.693	
2+29.44	POT	1,139,033.994	2,799,518.669	

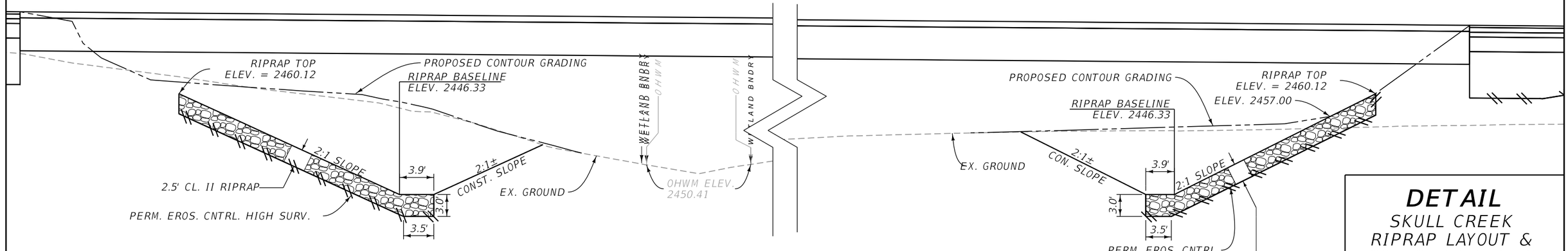
GPK NAME: J0B726.GPK CHAIN NAME: SKULL_RRL_E PROFILE NAME: SKULL_RRL_E_P



SECTION A-A'



SECTION B-B'



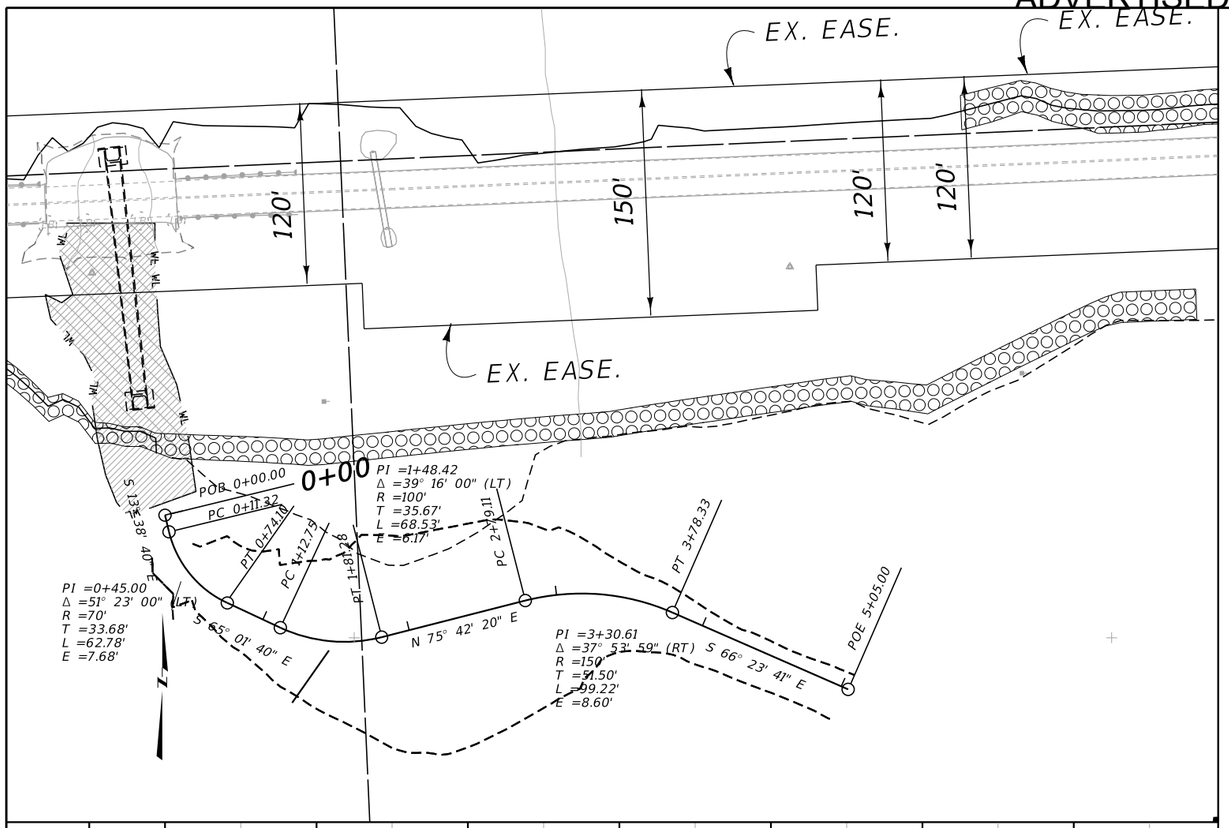
DETAIL

SKULL CREEK RIPRAP LAYOUT & CONTOUR GRADING

NO SCALE

3 / 1	MONTANA Department of Transportation	C:\DGN\9726000rddeth05.dgn	DESIGNED BY S. JARVIS	9/19/2024	ROAD PLANS		FLOWING WELLS - EAST & WEST	NH - HSIP 57-5(56)247
		12/9/2024	REVIEWED BY					
		11:34:20 AM CPS - U0425	CHECKED BY		GARFIELD & MCCONE COUNTIES		UPN 9726000	27

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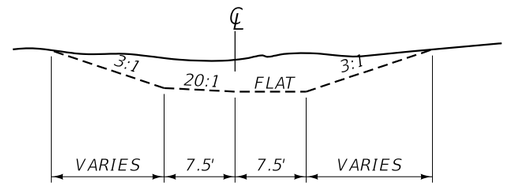


CENTERLINE ALIGNMENT COORDINATE TABLE

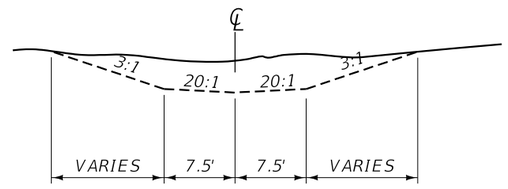
STATION	DESCRIPTION	N OR Y COORDINATE	E OR X COORDINATE	REMARKS
0+00.00	POT	1,139,580.884	2,818,375.073	
0+11.32	PC	1,139,569.880	2,818,377.744	
0+25.00	POC	1,139,580.884	2,818,375.073	BEGIN INLET GRADING = 2124+94.05 ON MAINLINE
0+45.00	PI	1,139,537.154	2,818,385.688	
0+74.10	PT	1,139,522.937	2,818,416.216	
1+12.75	PC	1,139,506.619	2,818,451.252	
1+48.42	PI	1,139,491.559	2,818,483.591	
1+81.28	PT	1,139,500.367	2,818,518.161	
2+79.11	PC	1,139,524.520	2,818,612.956	
3+30.61	PI	1,139,537.236	2,818,662.864	
3+78.33	PT	1,139,516.613	2,818,710.056	
5+05.00	POT	1,139,465.891	2,818,826.126	END INLET GRADING

GPK NAME: JOB726.GPK CHAIN NAME: INLET_2125 PROFILE NAME:

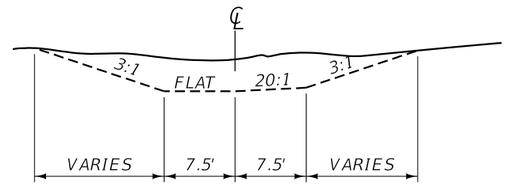
INLET DITCH TYPICAL
STA: 0+25.00 TO STA: 0+50.00



INLET DITCH TYPICAL
STA: 0+50.00 TO STA: 4+30.00



INLET DITCH TYPICAL
STA: 4+30.00 TO STA: 5+05.00

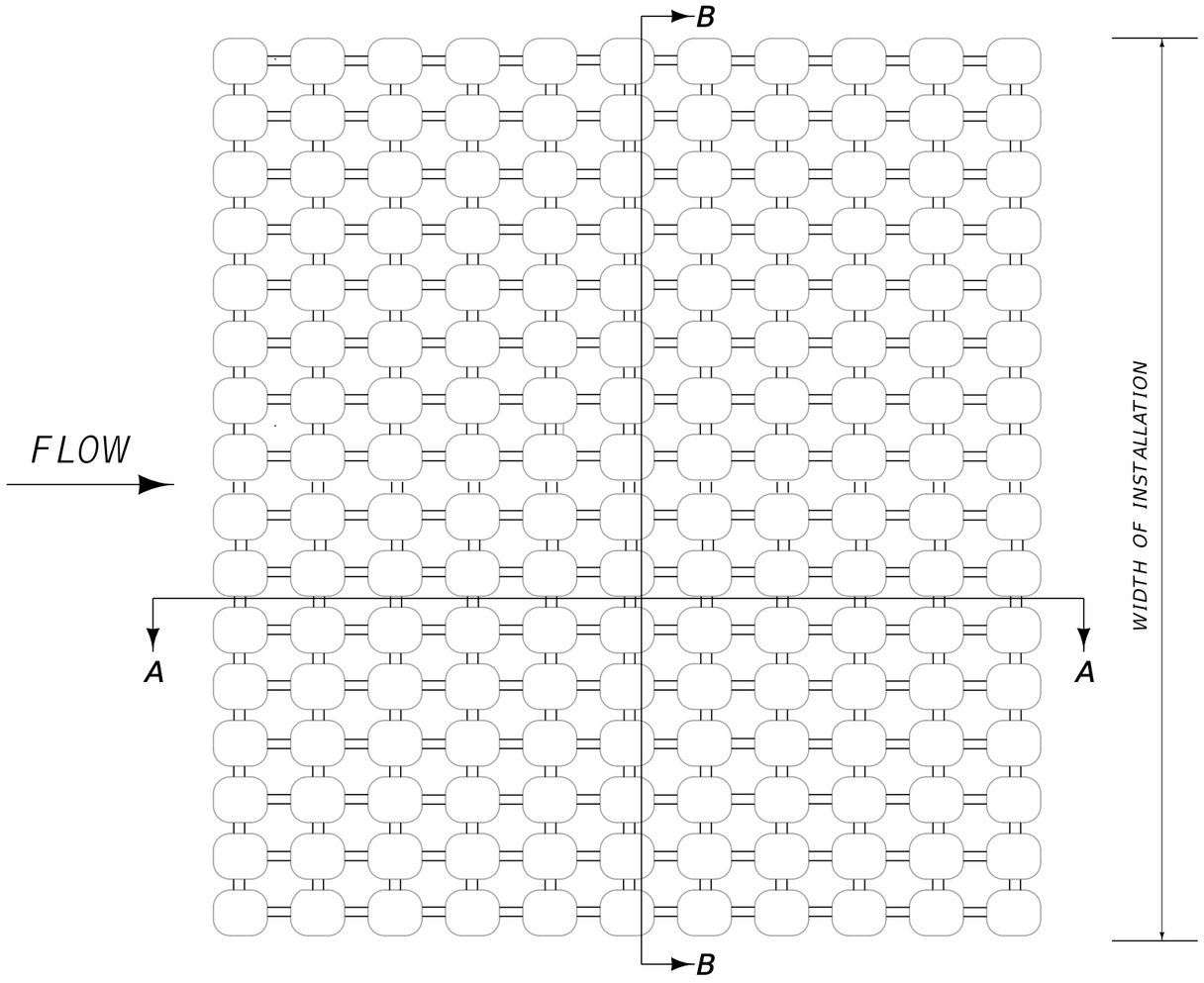


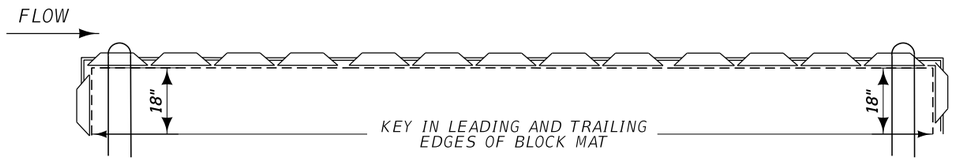
DETAIL

INLET DITCH RT.
2125+00 TO 2129+40

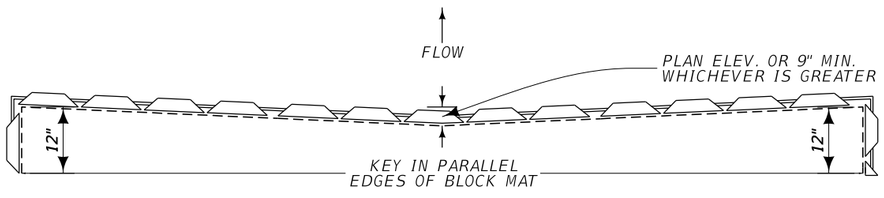
NO SCALE

3	MONTANA Department of Transportation	C:\DGN\9726000rddet004.dgn	DESIGNED BY S. Jarvis	10/19/2023	ROAD PLANS	FLOWING WELLS - EAST & WEST	NH - HSIP 57-5(56)247
2		12/9/2024	REVIEWED BY				
		11:34:37 AM CPS - U0425	CHECKED BY		GARFIELD & MCCONE COUNTIES	UPN 9726000	28





SECTION A-A



SECTION B-B

NOTES:

1. GRADE DRAINAGE CHANNEL, LINED DITCH OR CHUTE SO THAT WATER WILL FLOW DOWN THE CHUTE AND BE CONFINED TO THE MAT. ALL SUBGRADE SURFACES PREPARED FOR PLACEMENT OF MATS SHALL BE SMOOTH AND FREE OF ALL ROCKS, STICKS, ROOTS, OTHER PROTRUSIONS, OR DEBRIS OF ANY KIND. THE PREPARED SURFACE SHALL PROVIDE A FIRM, UNYIELDING FOUNDATION FOR THE MATS.

2. APPLY SEED DIRECTLY TO THE PREPARED SOIL PRIOR TO VEGETATED CONCRETE BLOCK INSTALLATION. USE SEED PER RIPRAP REVEGETATION SPECIFICATIONS.

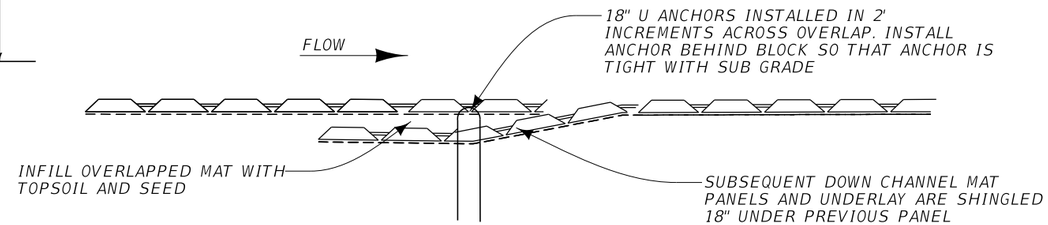
3. AT THE TOP OF THE MAT INSTALLATION, THE INITIAL LEADING EDGE OF VEGETATED CONCRETE BLOCK EXPOSED TO CONCENTRATED FLOWS SHALL BE EMBEDDED 18" PERPENDICULAR INTO THE SUBGRADE TO SERVE AS AN ANCHOR TRENCH. THE TRENCH SHALL BE FILLED AND COMPACTED WITH SUITABLE FILL. FOR CULVERT OR RCB OUTLET PROTECTION INSTALLATIONS, A GROUTED PAD OF 4,000 PSI CONCRETE SHALL BE PLACED IMMEDIATELY DOWNSTREAM OF THE FETS OR OUTLET WING WALLS. REFER TO THE CULVERT AND RCB OUTLET PROTECTION DETAIL FOR ADDITIONAL DETAILS.

4. FOR ADDITIONAL SECTIONS OF VEGETATED CONCRETE BLOCK, OVERLAP THE DOWNSTREAM SECTION 18" WITH UPSTREAM SECTION OF MAT. PRIOR TO INSTALLING OVERLAP, FLIP UPSTREAM MAT BACK 24". EXCAVATE 2.25" OF SOIL 18" FROM END OF UPSTREAM MAT. DOWNSTREAM SECTION IS LAID IN THE SHALLOW TRENCH. LIGHTLY SPREAD TOPSOIL, SEED, AND FERTILIZER OVER INITIAL EDGE. FLIP END OF UPSTREAM MAT OVER THE SOIL COVERED INITIAL LEADING EDGE OF DOWNSTREAM MAT.

5. AT THE END OF THE MAT INSTALLATION, EMBED THE MAT 18" PERPENDICULAR INTO THE SUBGRADE TO SERVE AS AN ANCHOR TRENCH. THE TRENCH SHALL BE FILLED AND COMPACTED WITH SUITABLE FILL.

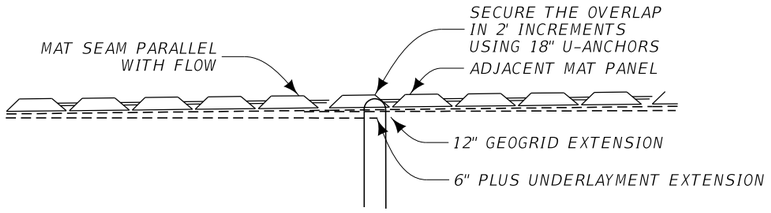
6. ANCHOR TRENCHES ARE NOT MEASURED FOR PAYMENT.

7. INSTALL "U" ANCHORS 2' ON CENTER ALONG ALL SEAMS AND LEADING AND TRAILING EDGES OF BLOCK MAT. "U" ANCHORS TO PENETRATE THROUGH VEGETATED CONCRETE BLOCK MAT. "U" ANCHOR TO BE TIGHT WITH SUBGRADE. "U" ANCHORS CONSIST OF #3 REBAR BENT INTO A U WITH 18" LEGS.



OVERLAP DETAIL FOR SEAMS PERPENDICULAR TO FLOW

NO SCALE



OVERLAP DETAIL FOR SEAMS PARALLEL TO FLOW

NO SCALE

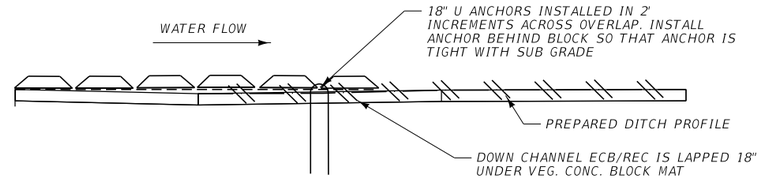
DETAIL

VEG. CONC. BLOCK MAT

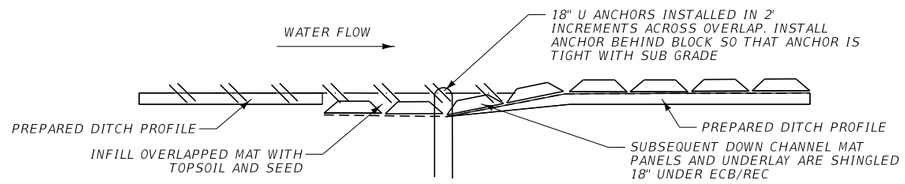
NO SCALE

3	MONTANA Department of Transportation	C:\DGN\9726000rddeth01.dgn	DESIGNED BY			ROAD PLANS	FLOWING WELLS - EAST & WEST / NH - HSIP 57-5(56)247
2		12/9/2024	REVIEWED BY				
		11:34:50 AM CPS - U0425	CHECKED BY			GARFIELD & MCCONE COUNTIES	UPN 9726000 / 29

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OVERLAP DETAIL - VEGETATED CONC. BLOCK MAT TO ECB



OVERLAP DETAIL - ECB TO VEGETATED CONC. BLOCK MAT

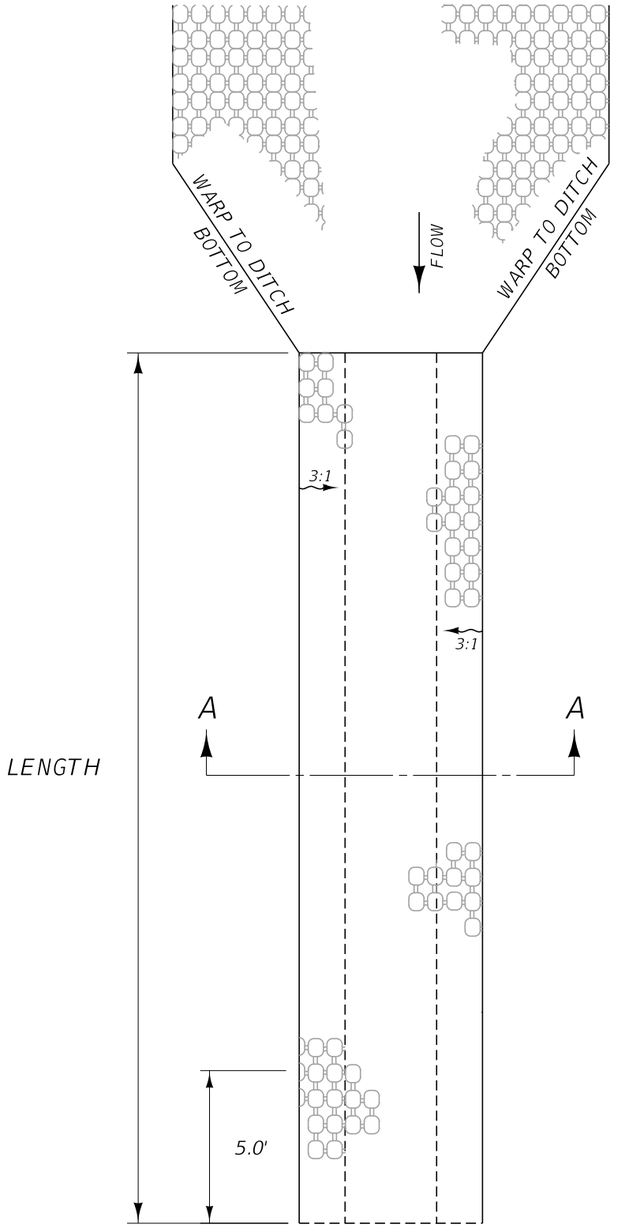
DETAIL

VEG. CONC. BLOCK MAT TO ECB TRANSITION

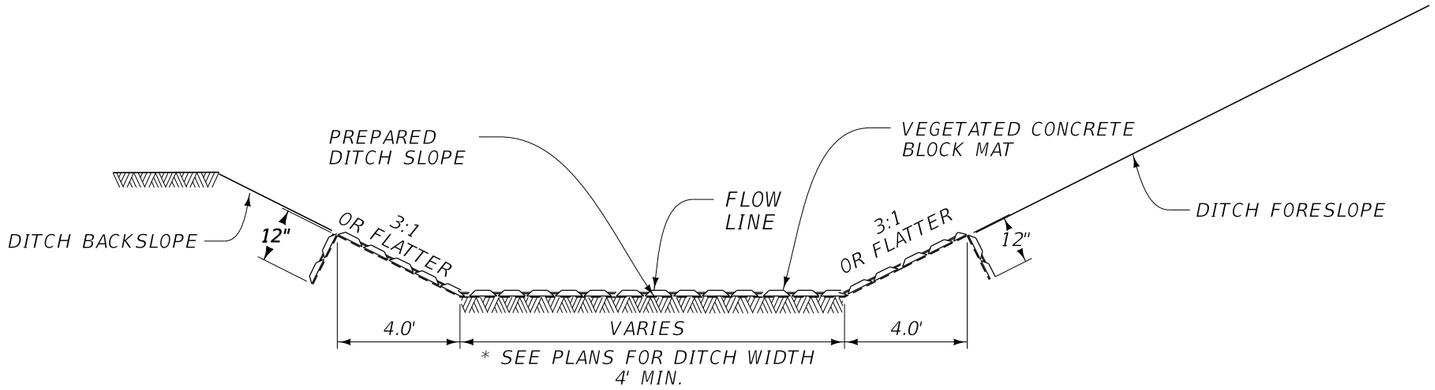
NO SCALE

2	MONTANA Department of Transportation	C:\DGN\9726000rddeth01.dgn	DESIGNED BY			ROAD PLANS	FLOWING WELLS - EAST & WEST	NH - HSIP 57-5(56)247
1		12/9/2024	REVIEWED BY					
		11:34:55 AM CPS - U0425	CHECKED BY			GARFIELD & MCCONE COUNTIES	UPN 9726000	30

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PLAN VIEW



SECTION A-A

DETAIL

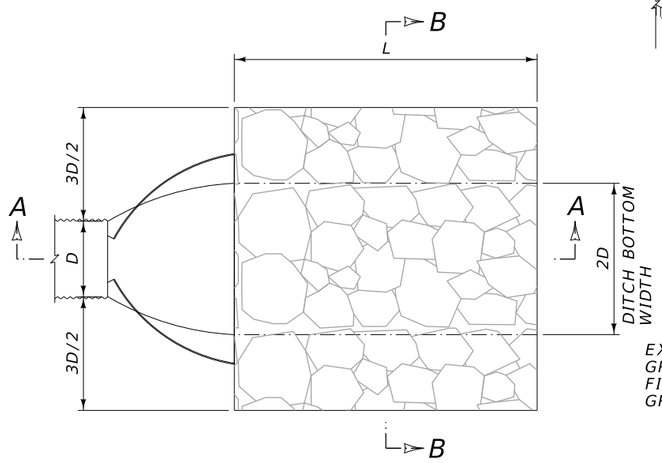
VEG. CONC. BLOCK MAT LINED DITCH

NO SCALE

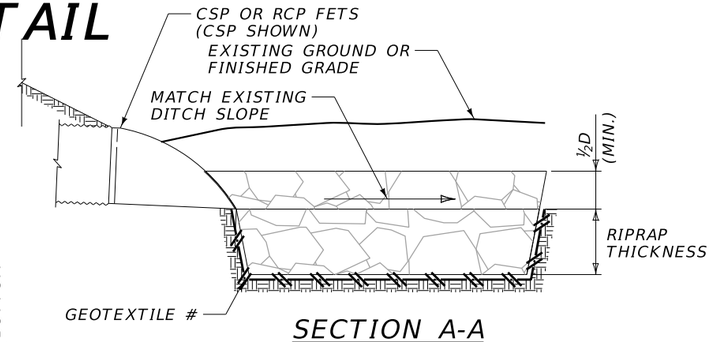
3 / 1	MONTANA Department of Transportation	C:\DGN\9726000rddeth01.dgn 12/9/2024 11:35:00 AM CPS - U0425	DESIGNED BY S. JARVIS REVIEWED BY CHECKED BY	6/6/2018	ROAD PLANS GARFIELD & MCCONE COUNTIES		FLOWING WELLS - EAST & WEST UPN 9726000	NH - HSIP 57-5(56)247 31

ADVERTISED COPY

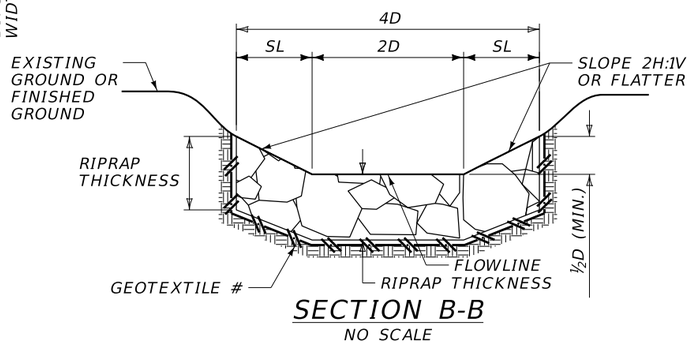
DETAIL



PLAN VIEW
NO SCALE



SECTION A-A
NO SCALE



SECTION B-B
NO SCALE

CULVERT OUTLET RIPRAP

CLASS II RIPRAP (2.5' THICK)						
CULVERT DIA. OR SPAN D (in.)	LENGTH OF APRON L (ft.)	BOTTOM WIDTH BW (ft.)	SIDE LENGTH SL (ft.)	X (ft.)	CLASS II RIPRAP (yd^3)	GEOTEXTILE #,▼ (yd^2)
30	15	5.0	2.6	1.3	13.9	18
36	18	6.0	3.0	1.5	20.0	25
42	21	7.0	3.6	1.8	27.2	35
48	24	8.0	4.0	2.0	35.6	45
53	27	9.0	4.4	2.2	44.5	53
58 1/2	29	10.0	4.8	2.4	52.6	63

- PERMANENT EROSION CONTROL GEOTEXTILE - HIGH SURVIVABILITY
▼ - FOR INFORMATION ONLY - INCLUDE IN THE COST OF OUTLET APRON (yd^2)

CULVERT STATION	CULVERT DIA. OR SPAN D (in.)	OUTLET PROTECTION LOCATION (lt. or rt.)
1814+95	30	RT
1828+53	30	RT
1855+51	30	LT
1860+32	30	LT
1880+00	58 1/2	RT
1906+90	36	RT
1949+86	48	RT

NOTE: IF NO DITCH OR NATURAL DRAINAGE CHANNEL IS PRESENT, GRADE THE CHANNEL DEPTH "X" TO A MINIMIM OF 6".

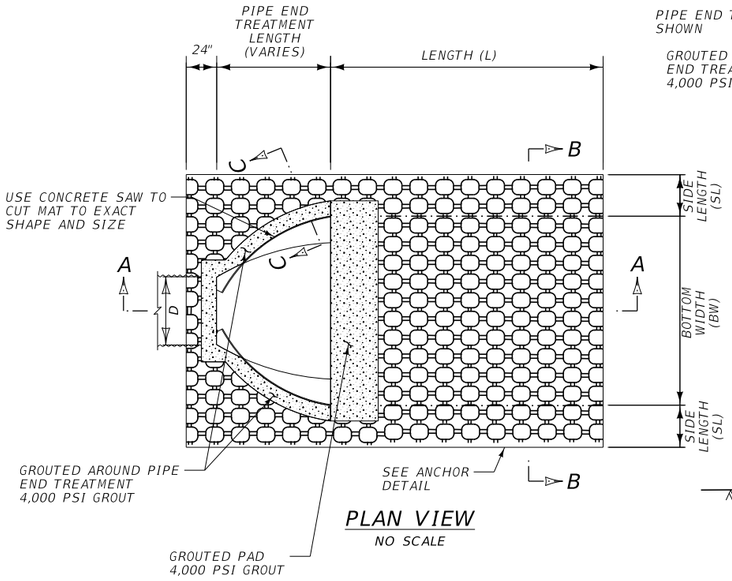
DETAIL

OUTLET APRON
RIPRAP OPTION

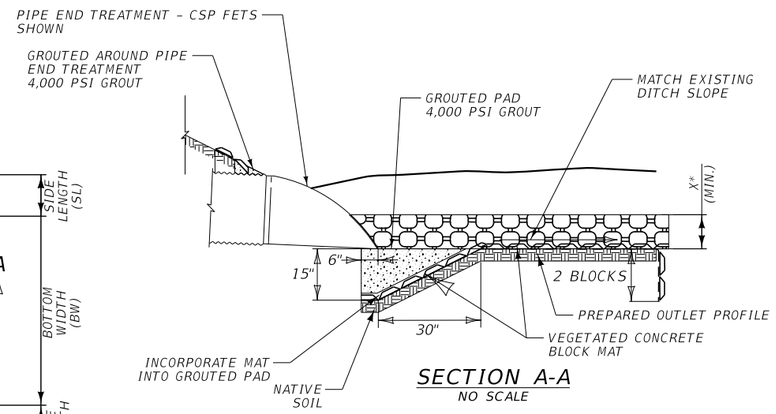
NO SCALE

ADVERTISED COPY

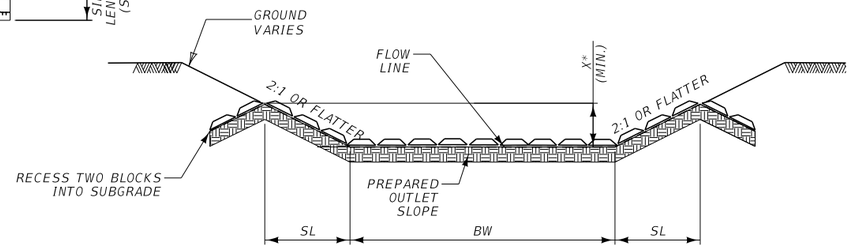
DETAIL



PLAN VIEW
NO SCALE



SECTION A-A
NO SCALE

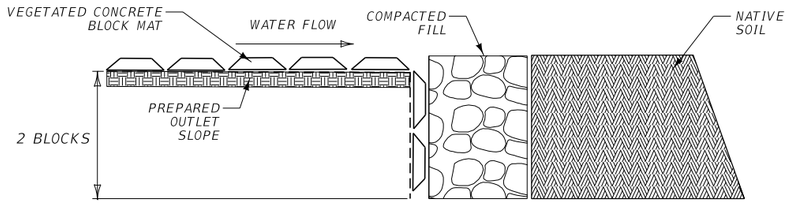


SECTION B-B
NO SCALE

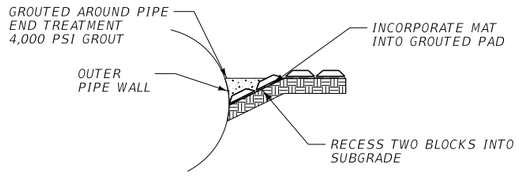
CULVERT OUTLET VEGETATED CONCRETE BLOCK WITH DITCH DIMENSIONS AND ESTIMATED QUANTITIES

VEGETATED CONCRETE BLOCK					
CULVERT DIA. OR SPAN D (in.)	LENGTH OF APRON L (ft.)	BOTTOM WIDTH BW (ft.)	SIDE LENGTH SL (ft.)	X (ft.)	APRON AREA # (yd^2)
30	15	5.0	2.6	1.3	18
36	18	6.0	3.0	1.5	25
42	21	7.0	3.6	1.8	35
48	24	8.0	4.0	2.0	45
53	27	9.0	4.4	2.2	53
58 1/2	29	10.0	4.8	2.4	63

APRON AREA DOES NOT INCLUDE ADDITIONAL AREA FOR INSTALLATION AROUND THE FETS, ANCHOR TRENCHES, OR OVERLAPS.



UPSTREAM OR DOWNSTREAM ANCHOR TRENCH
NO SCALE



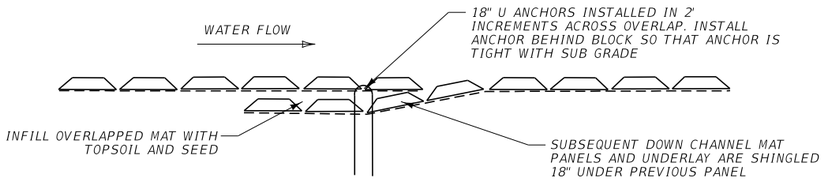
SECTION C-C
NO SCALE

NOTES:

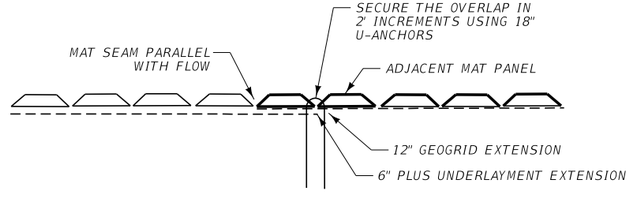
* IF NO DITCH OR NATURAL DRAINAGE CHANNEL IS PRESENT, GRADE SO THAT CHANNEL DEPTH "X" IS A MINIMUM OF 6".

1. GROUT ASSOCIATED WITH CULVERT OUTLET PROTECTION TO BE INCLUDED IN THE OUTLET APRON (SQ. YD.) BID ITEM.

2. SEE VEGETATED CONCRETE BLOCK MAT DETAIL FOR ADDITIONAL INSTALLATION DETAILS AND REQUIREMENTS.



OVERLAP DETAIL FOR SEAMS PERPENDICULAR TO FLOW
NO SCALE



OVERLAP DETAIL FOR SEAMS PARALLEL TO FLOW
NO SCALE

DETAIL

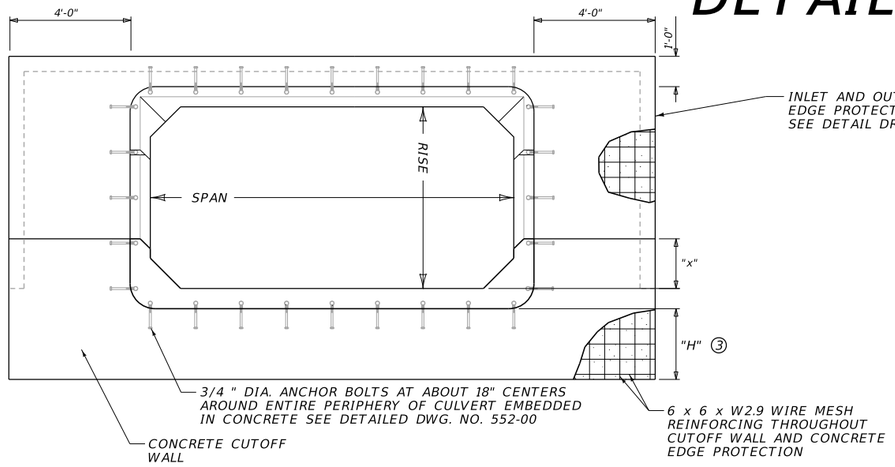
OUTLET APRON
VEG. CONC. BLOCK MAT.
OPTION

NO SCALE

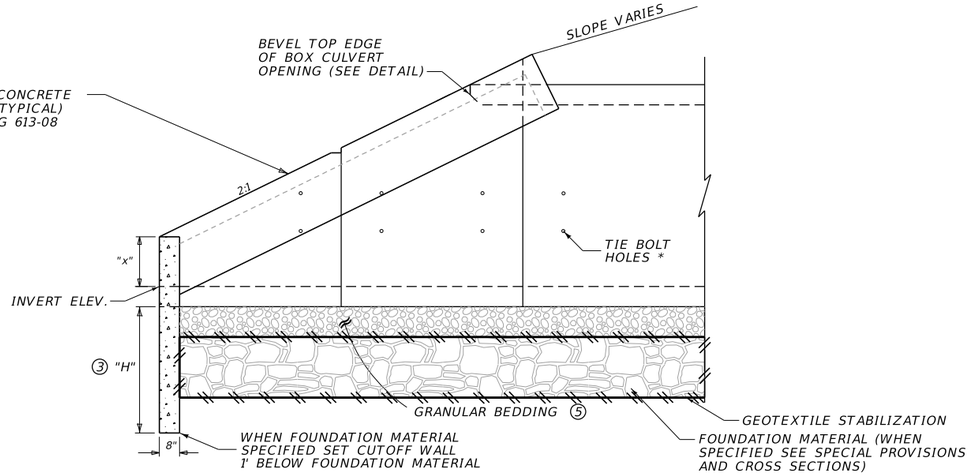
3	MONTANA Department of Transportation	C:\DGN\9726000rddeth02.dgn	DESIGNED BY	S. Jarvis	10/19/2023	ROAD PLANS	FLOWING WELLS - EAST & WEST	NH - HSIP 57-5(56)247
2		12/9/2024	REVIEWED BY					
1		11:35:18 AM CPS – U0425	CHECKED BY			GARFIELD & MCCONE COUNTIES	UPN 9726000	33

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DETAIL

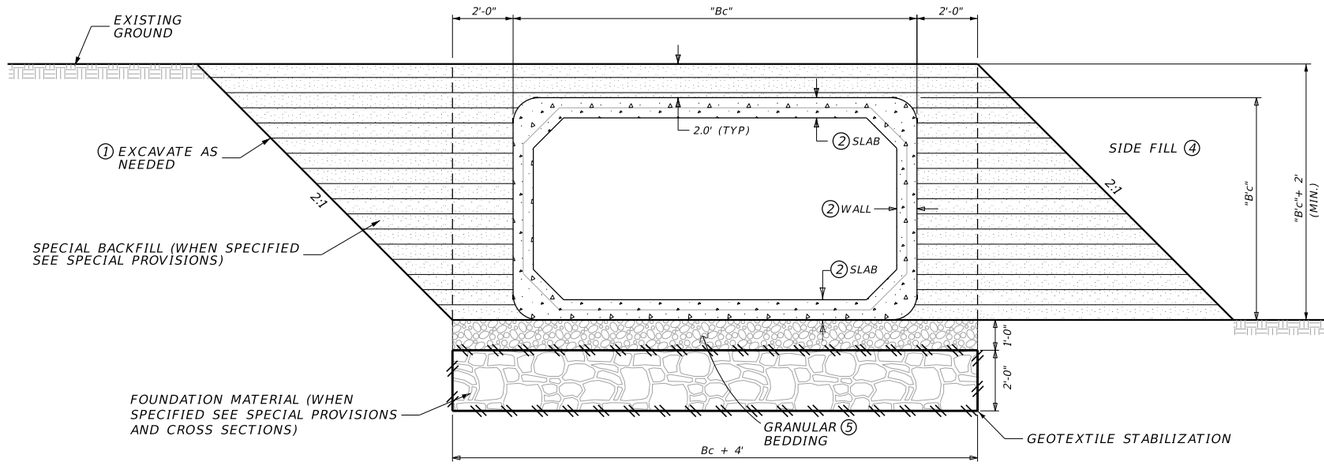


FRONT ELEVATION



* TIE BOLTS, LOCATE PER MANUFACTURER'S RECOMMENDATION

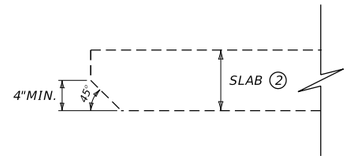
SIDE ELEVATION



EXCAVATION TYPICAL

BEDDING DETAIL

FILL TYPICAL



TOP BEVEL DETAIL

NOTES:

① EXCAVATE A SUFFICIENT AMOUNT TO PROVIDE A SAFE WORKING ENVIRONMENT AND TO ALLOW ACHIEVEMENT OF ALL CULVERT INSTALLATION AND COMPACTION REQUIREMENTS. SLOPE, BENCH OR PROVIDE SHORING FOR ALL EXCAVATIONS IN ACCORDANCE WITH THE U.S. DEPARTMENT OF LABOR, OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA) SAFETY AND HEALTH REGULATIONS FOR CONSTRUCTION.

② FOR ESTIMATING QUANTITIES ONLY. ACTUAL DIMENSION TO BE DETERMINED BY PRECAST MANUFACTURER.

③ 3'-0" MIN.OR 1'-0" BELOW BOTTOM OF FOUNDATION MATERIAL IF SPECIFIED.

④ COMPACT AND PLACE SIDE FILL PER SECTION 603 AND 203.

⑤ SEE SECTION 701 OF THE STANDARD SPECIFICATIONS FOR GRANULAR BEDDING AND FOUNDATION REQUIREMENTS. THE CONTRACTOR HAS THE OPTION OF USING A SAND CUSHION ABOVE THE GRANULAR BEDDING TO FACILITATE JOINING OF THE BOX CULVERT SECTIONS.

DIMENSIONS										
STATION	SPAN (ft.)	RISE (ft.)	LENGTH (ft.)	WALL (in.)	SLAB (in.)	"Bc" (ft.)	"x" (ft.)	"B'c" (ft.)	"H" (ft.)	COVER (ft.)
1810+57	17	8	150	8	12	18.33	3.67	10.00	4	10.5
2107+86	8	8	216	8	8	9.33	3.67	9.33	4	16.5
2124+75	9	9	174	8	8	10.33	4.67	10.33	4	16.8

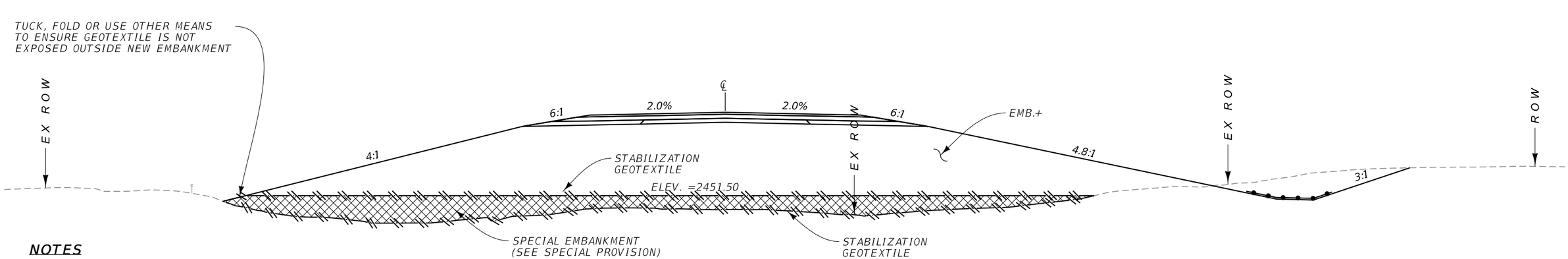
NOTE: INCLUDE REINFORCING MATERIAL, CUTOFF WALL, AND CONCRETE EDGE PROTECTION IN THE UNIT PRICE BID PER CUBIC YARD OF CLASS GENERAL CONCRETE.
INCLUDE ANCHOR BOLTS IN THE UNIT PRICE BID PER LINEAR FOOT OF CULVERT.
PROVIDE BOX CULVERTS MEETING ASTM C1577.
QUANTITIES ARE BASED ON THE DIMENSIONS IN THE TABLE.

DETAIL

SLOPED END RCB DETAIL

NO SCALE

ADVERTISED COPY



NOTES

1. SEE SPECIAL PROVISION FOR ADDITIONAL CONSTRUCTION REQUIREMENTS.

2. SEE PLANS AND CROSS SECTIONS FOR LOCATIONS AND QUANTITIES OF SPECIAL EMBANKMENT AND GEOTEXTILE.

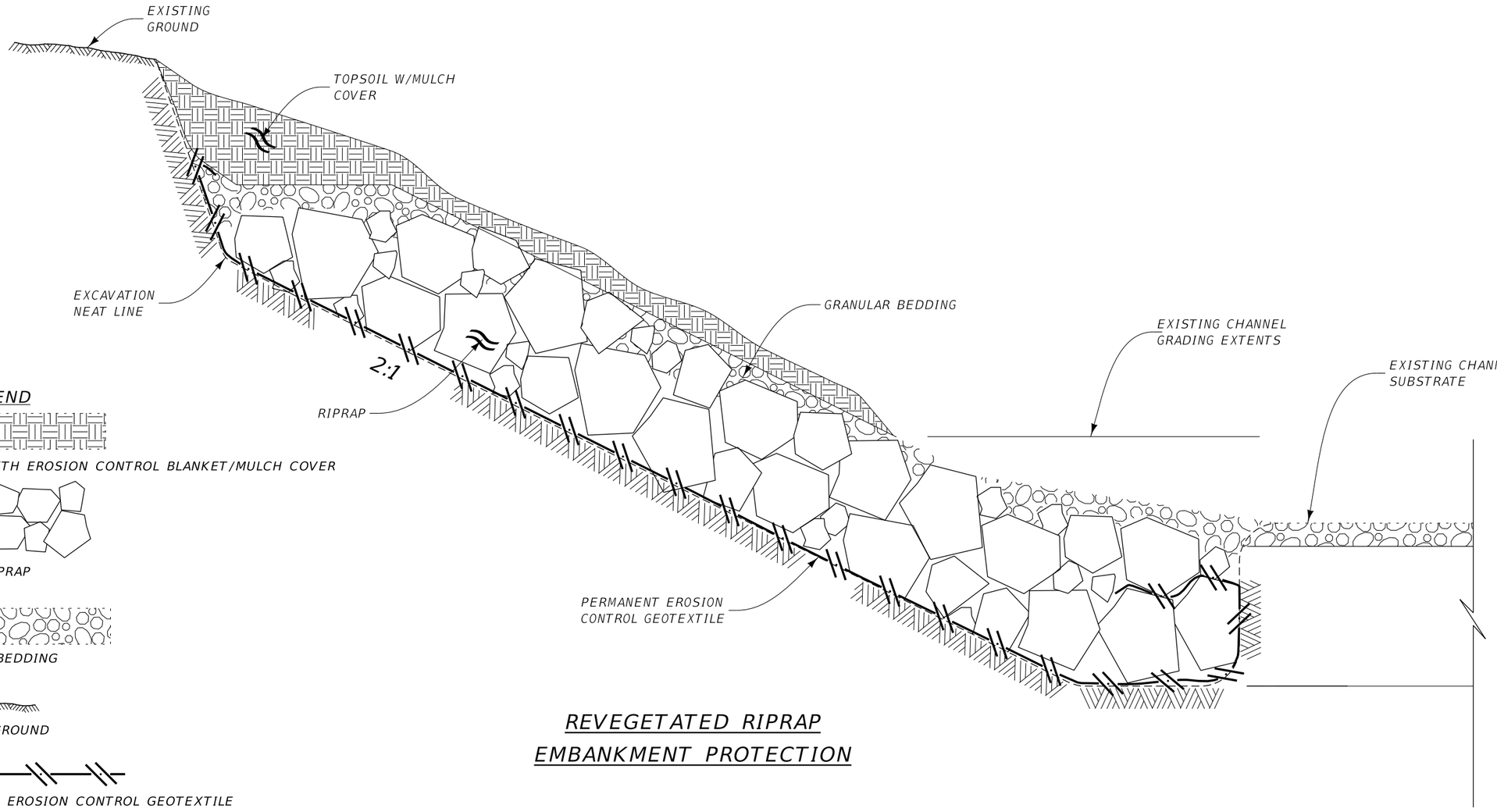
DETAIL

EMBANKMENT FOUNDATION TREATMENT
1886+00 TO 1887+00

NO SCALE

3	MONTANA Department of Transportation	C:\DGN\9726000rddet001.dgn	DESIGNED BY	S. JARVIS	9/26/2024	ROAD PLANS	FLOWING WELLS - EAST & WEST	NH - HSIP 57-5(56)247
2		12/9/2024	REVIEWED BY					
		11:35:36 AM CPS - U042S	CHECKED BY			GARFIELD & MCCONE COUNTIES	UPN 9726000	35

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LEGEND

TOPSOIL WITH EROSION CONTROL BLANKET/MULCH COVER

RANDOM RIPRAP

GRANULAR BEDDING

EXISTING GROUND

PERMANENT EROSION CONTROL GEOTEXTILE

EXCAVATION

REVEGETATED RIPRAP EMBANKMENT PROTECTION

NOTES:

1. FILL RIPRAP VOIDS WITH GRANULAR BEDDING OR A MATERIAL OF SIMILAR GRADATION OBTAINED ON SITE TO PROVED A UNIFORM SURFACE FOR THE PLACEMENT OF TOPSOIL, AS APPROVED BY THE PROJECT MANAGER.
2. PLACE TOPSOIL WITH A MINIMUM THICKNESS OF 6"
3. THIS DETAIL IS TO BE USED AS A VISUAL GUIDE FOR RIPRAP REVEGETATION. REFER TO THE PLAN SHEETS AND CROSS SECTIONS FOR SPECIFIC ELEVATIONS AND GEOMETRIC CONFIGURATION OF THE RIPRAP LAYOUT.
4. REFER TO THE SPECIAL PROVISION FOR PLANTING AND SEEDING SPECIFICATIONS.

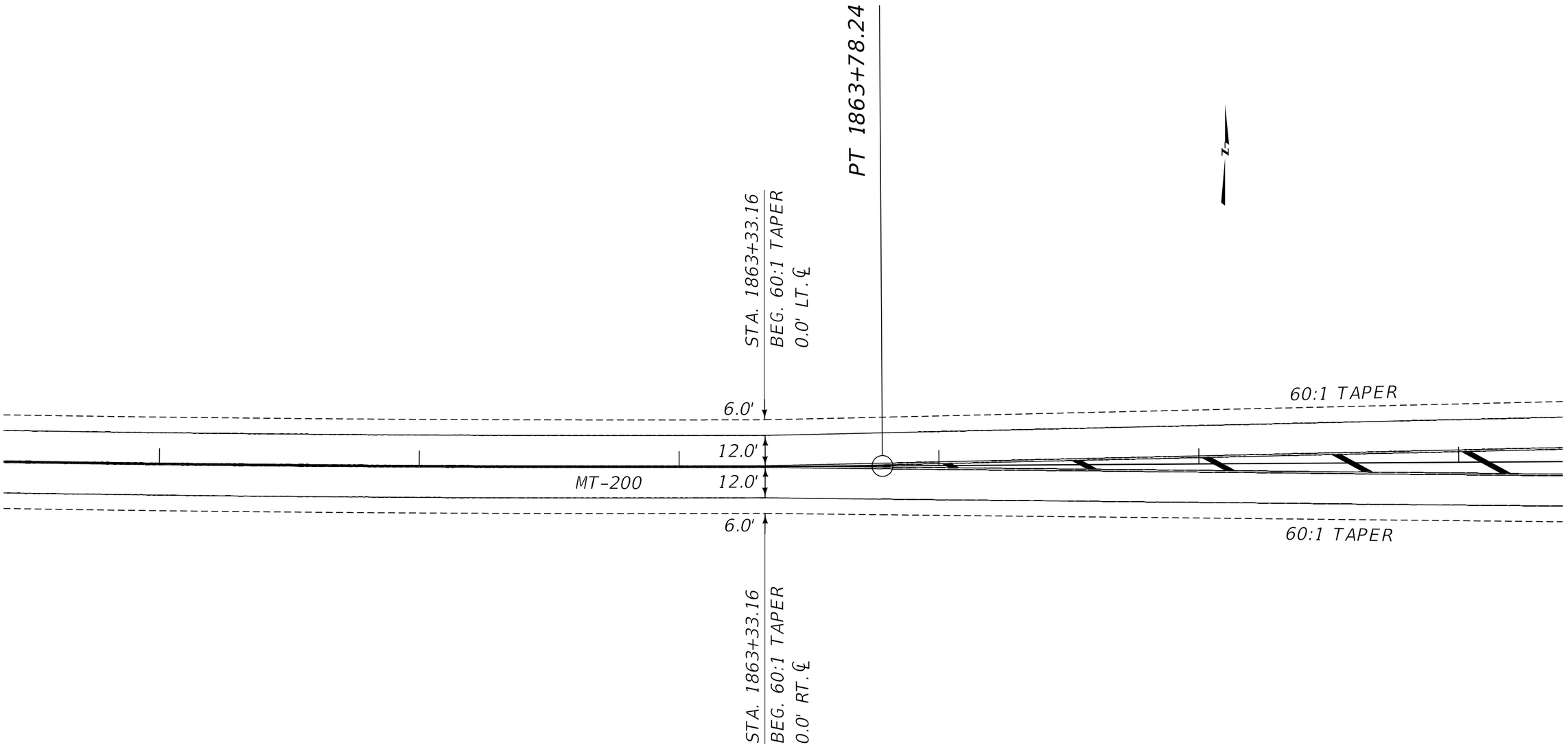
DETAIL

RIPRAP REVEGETATION

NO SCALE

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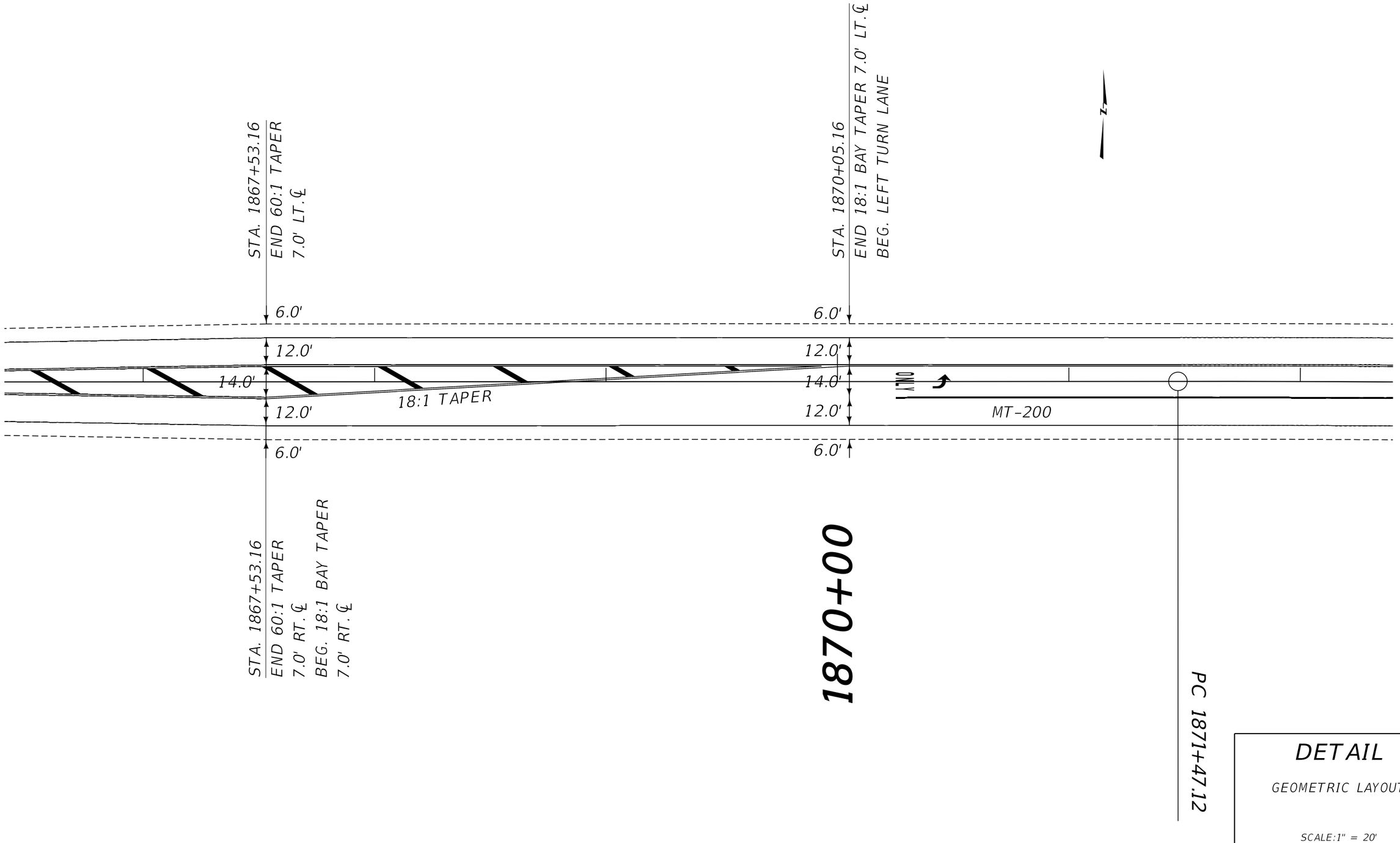
DETAIL



3	MONTANA Department of Transportation	C:\DGN\9726000rddetge1.dgn	DESIGNED BY	LANDON SHOQUIST	9/24/2024	ROAD PLANS	FLOWING WELLS - EAST & WEST	NH 57-5(55)247
2		12/9/2024	REVIEWED BY					
		11:35:53 AM CPS - U0425	CHECKED BY	DARCY O'DELL	9/24/2024	GARFIELD & MCCONE COUNTIES	UPN 9726000	37

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DETAIL



DETAIL

GEOMETRIC LAYOUT

SCALE:1" = 20'

3 / 1	MONTANA Department of Transportation	C:\DGN\9726000rddetge1.dgn	DESIGNED BY	LANDON SHOQUIST	9/24/2024	ROAD PLANS	FLOWING WELLS - EAST & WEST	NH 57-5(55)247
		12/9/2024	REVIEWED BY					
		11:35:56 AM CPS - U0425	CHECKED BY	DARCY O'DELL	9/24/2024	GARFIELD & MCCONE COUNTIES	UPN 9726000	38

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DETAIL

POINT	N ORY	E OR X
1	1,138,795.489	2,793,351.604
2	1,138,955.456	2,793,348.323
3	1,138,858.917	2,793,401.050
4	1,138,815.035	2,793,425.018
5	1,138,822.221	2,793,455.896
6	1,138,822.723	2,793,467.218
7	1,138,861.131	2,793,451.001
8	1,138,951.934	2,793,476.005
9	1,138,974.074	2,793,975.515
10	1,138,858.258	2,793,551.031
11	1,138,842.465	2,793,493.147
12	1,138,798.260	2,793,551.463
13	1,138,748.627	2,793,633.534
14	1,138,568.627	2,793,633.850
15	1,138,684.034	2,793,585.827
16	1,138,734.814	2,793,564.697
17	1,138,722.524	2,793,526.575
18	1,138,722.071	2,793,515.250
19	1,138,681.837	2,793,530.871
20	1,138,640.524	2,793,499.997
21	1,138,631.734	2,793,280.173
22	1,138,662.857	2,793,375.206
23	1,138,700.205	2,793,489.246
24	1,138,707.061	2,793,441.885
25	1,138,729.162	2,793,475.224
26	1,138,747.056	2,793,441.301

N

R 50.0'
R 160.0'
R 500.0'
R 60.0'
R 40.0'
R 120.0'
R 220.0'
R 180.0'
R 55.0'

MT-24
MT-200
S FLOWING WELLS RD

ONLY
NO

STA. 1876+58.88
BEG. LEFT TURN LANE

STA. 1875+35.34
END LEFT TURN LANE

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26

DETAIL

GEOMETRIC LAYOUT

SCALE:1" = 20'

2	MONTANA Department of Transportation	C:\DGN\9726000rddetge1.dgn	DESIGNED BY LANDON SHOQUIST	9/24/2024	ROAD PLANS	FLOWING WELLS - EAST & WEST	NH 57-5(55)247
1		12/9/2024	REVIEWED BY				
		11:36:00 AM CPS - U0425	CHECKED BY DARCY O'DELL	9/24/2024	GARFIELD & MCCONE COUNTIES	UPN 9726000	39

ADVERTISED COPY

1880+00

N

PC 1883+51.23

STA. 1884+39.32

6.0'

12.0'

14.0'

18:1 TAPER

14.0'

12.0'

ONLY

MT-200

S 89° 40' 00" E

6.0'

PT 1878+52.74

STA. 1881+87.31
END LEFT TURN LANE
BEG. 18:1 BAY TAPER
7.0' RT. ℄

STA. 1884+39.32
END 18:1 BAY TAPER 7.0' LT. ℄
BEG. 60:1 TAPER 7.0' RT. ℄

DETAIL

GEOMETRIC LAYOUT

SCALE:1" = 20'

3	MONTANA Department of Transportation	C:\DGN\9726000rddetge2.dgn	DESIGNED BY	LANDON SHOQUIST	10/11/2023	ROAD PLANS	FLOWING WELLS - EAST & WEST	NH - HSIP 57-5(56)247
2		12/9/2024	REVIEWED BY					
		11:36:13 AM CPS - U0425	CHECKED BY			GARFIELD & MCCONE COUNTIES	UPN 9726000	40

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1890+00

BEG. 60:1 TAPER 7.0' LT.℄

STA. 1888+59.32
END 60:1 TAPER 0.0' LT.℄

6.0'
12.0'
12.0'
6.0'

60:1 TAPER

6.0'
12.0'
12.0'
6.0'

MT-200

60:1 TAPER

PI =1887+00.00
Δ =2° 39' 50" (LT)
R =15,000'
T =348.77'
L =697.40'
E =4.05'

N

STA. 1888+59.32
END 60:1 TAPER 0.0' RT.℄

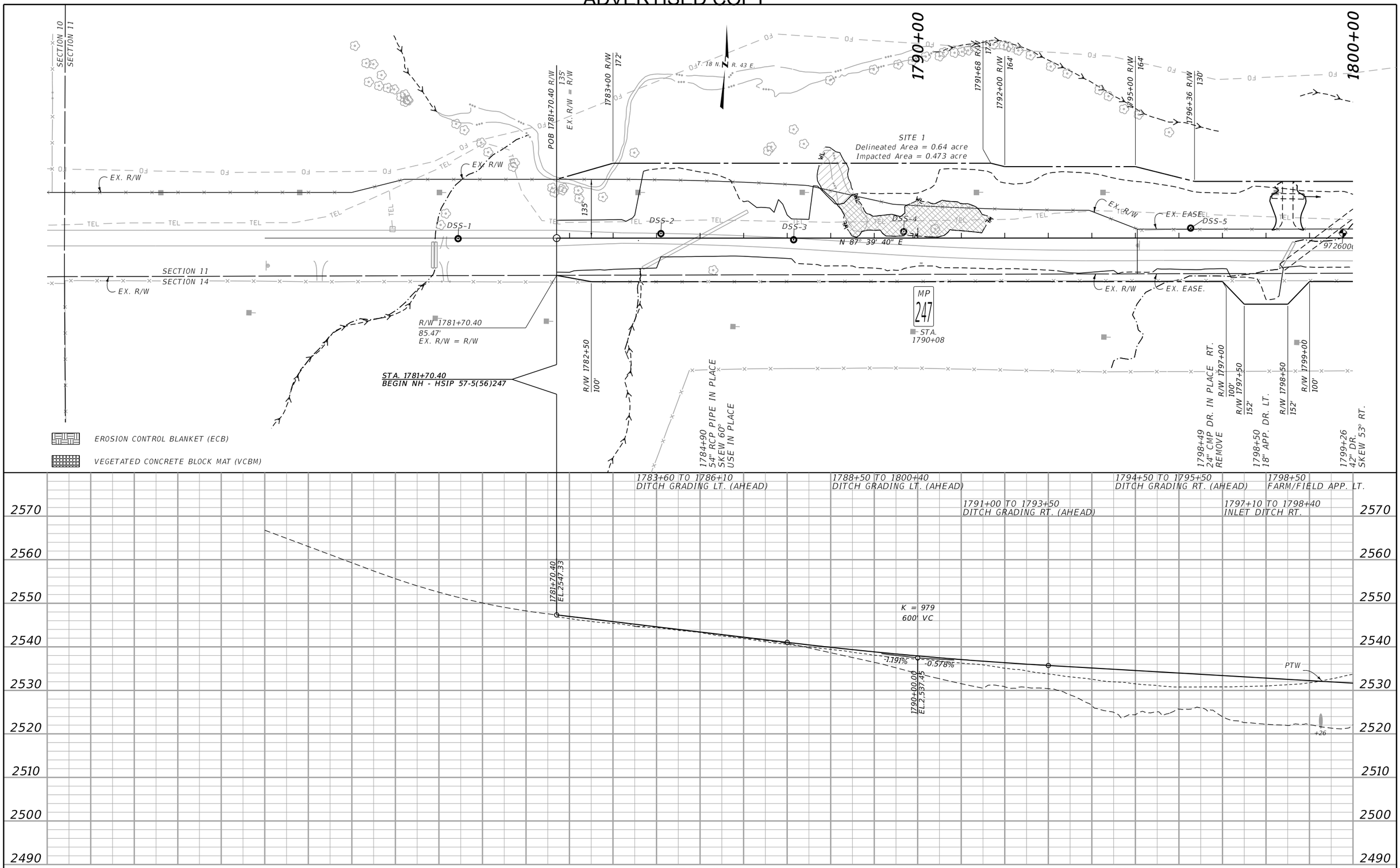
DETAIL

GEOMETRIC LAYOUT

SCALE:1" = 20'

3 / 1	MONTANA Department of Transportation	C:\DGN\9726000rddetge2.dgn 12/9/2024 11:36:16 AM CPS - U042	DESIGNED BY REVIEWED BY CHECKED BY	LANDON SHOQUIST	10/11/2023	ROAD PLANS GARFIELD & MCCONE COUNTIES	FLOWING WELLS - EAST & WEST UPN 9726000	NH - HSIP 57-5(56)247 41

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3	MONTANA Department of Transportation	C:\DGN\9726000rdplp001.dgn	DESIGNED BY S. Jarvis	10/19/2023	ROAD PLANS	FLOWING WELLS - EAST & WEST	NH - HSIP 57-5(56)247
2		12/9/2024	REVIEWED BY				
		11:36:33 AM CPS - U0425	CHECKED BY		GARFIELD & MCCONE COUNTIES	UPN 9726000	42

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EROSION CONTROL BLANKET (ECB)

VEGETATED CONCRETE BLOCK MAT (VCBM)

1800+00 1810+00 1820+00 1830+00

T. 18 N. R. 43 E.

SECTION 11 SECTION 12

1806+00 R/W 130'
1806+64 R/W 146'
1808+76 R/W 146'
1809+00 R/W 140'
1817+52 R/W 140'
1818+00 R/W 152'
1820+00 R/W 152'
1821+20 R/W 122'
1827+00 R/W 122'
1828+00 R/W 98'

SITE 2
Delineated Area = 1.15 acre
Impacted Area = 0.181 acre

Ditch

EX. EASE.
9726000-1
9726000-2
9726000-3
9726000-4
9726000-31
DSS-6
DSS-7
DSS-8
DSS-9
DSS-10
DSS-11
EX. EASE.
EX. EASE.
EX. EASE.
EX. EASE.
N 87° 39' 42" E
140'
120'

R/W 1808+00 100'
R/W 1809+00 160'
1810+90 BEG. 32' EASE.
1810+75 25.0' x 95.0' BRIDGE IN PL. REMOVE
R/W 1811+00 160'
R/W 1812+00 134'
1816+00 END 58' EASE.
R/W 1824+00 134'
R/W 1825+00 99.48'
EX. EASE. = R/W

1803+30 18" APP. PIPE RT.
1810+57 17' X 8' RCB SKEW 11° LT.
1814+95 42" DR.
1816+00 24" CMP DR. IN PLACE RT. REMOVE
1817+35 36" CMP DR. IN PLACE RT. REMOVE
1819+52 24" CMP DR. IN PLACE RT. REMOVE
1820+00 18" APP. PIPE LT.
1822+67 24" CMP DR. IN PLACE RT. REMOVE
1828+51 24" CMP DR. IN PLACE RT. REMOVE
1828+53 30" DR.

1803+00 TO 1810+00
DITCH GRADING LT. (AHEAD)

1803+30
FARM/FIELD APP. RT.

1804+00 TO 1806+50
VCBM LINED DITCH LT.

1806+50 TO 1809+50
ECB LINED DITCH LT.

1806+50 TO 1807+90
ECB LINED DITCH RT.

1807+90 TO 1810+20
VCBM LINED DITCH RT.

1808+00 TO 1810+30
DITCH GRADING RT. (AHEAD)

1810+78 TO 1812+14
OUTLET DITCH RT.

1813+00 TO 1814+95
DITCH GRADING LT. (AHEAD)

1814+80 TO 1819+40
VCBM LINED DITCH LT.

1814+95 TO 1822+50
DITCH GRADING LT. (BACK)

1814+95 TO 1815+44
OUTLET DITCH RT.

1814+95
OUTLET PROTECTION RT.

1820+00
FARM/FIELD APP. LT.

1828+53
OUTLET PROTECTION RT.

1828+03
DITCH BLOCK LT.
ELEV. 2541.50'

2570 2560 2550 2540 2530 2520 2510 2500 2490

K = 285
600' VC

PTW

-0.578% +1.524%

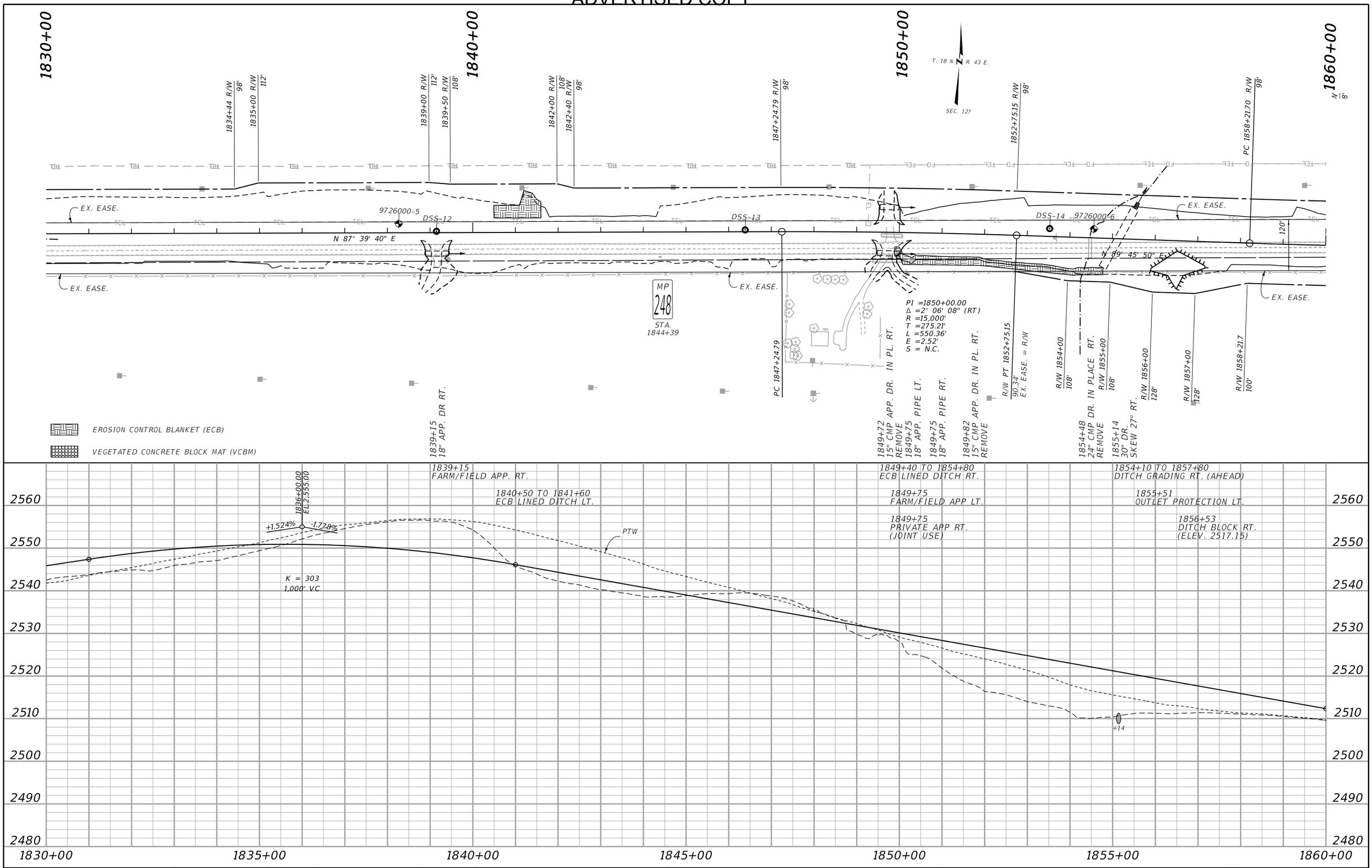
+57 +95 +53

1815+00.00
EL. 2523.00

1800+00 1805+00 1810+00 1815+00 1820+00 1825+00 1830+00

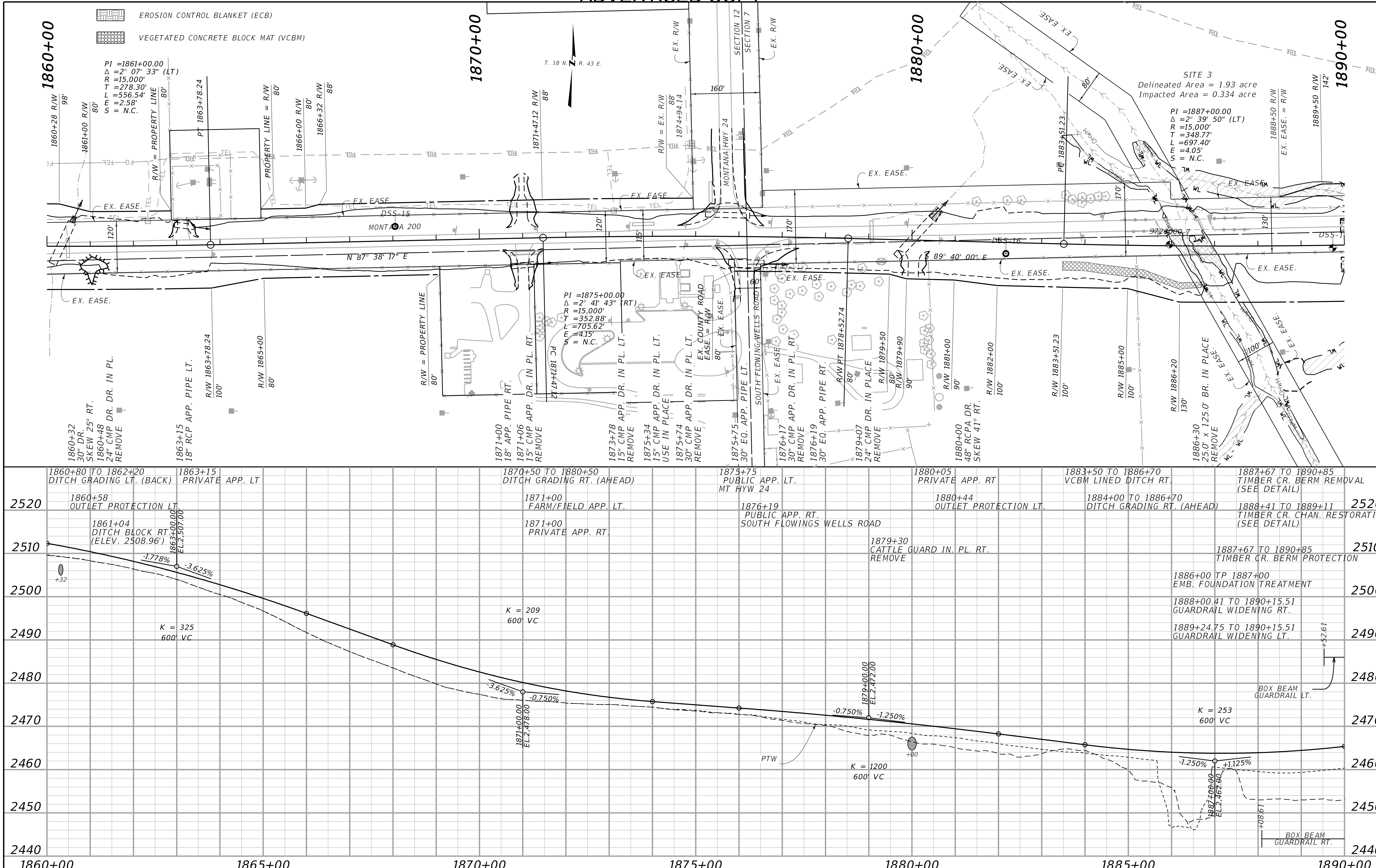
3 / 1	MONTANA Department of Transportation	C:\DGN\9726000rdplp001.dgn	DESIGNED BY S. Jarvis	10/19/2023	ROAD PLANS	FLOWING WELLS - EAST & WEST	NH - HSIP 57-5(56)247
		12/9/2024	REVIEWED BY				
		11:36:37 AM CPS - U0425	CHECKED BY		GARFIELD & MCCONE COUNTIES	UPN 9726000	43

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2 1	MONTANA Department of Transportation	C:\DGN\9726000rdplp001.dgn 12/9/2024 11:36:42 AM CPS - U0425	DESIGNED BY REVIEWED BY CHECKED BY	S. Jarvis	10/19/2023	ROAD PLANS GARFIELD & MCCONE COUNTIES	FLOWING WELLS - EAST & WEST UPN 9726000	NH - HSIP 57-5(56)247 44

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			GARFIELD & MCCONE COUNTIES	UPN 9726000	45

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EROSION CONTROL BLANKET (ECB)

VEGETATED CONCRETE BLOCK MAT (VCBM)

1890+00 1900+00 1910+00 1920+00

R/W 142'

PT 1890+48.64

1896+00 R/W 142'

1898+00 R/W 178'

1901+00 R/W 178'

1902+12.46 R/W 174.44' R/W = EX. EASE.

T. 18 N. R. 44 E.

SEC. 7

EX. EASE.

9726000-8 9726000-9 9726000-32 9726000-10 DSS-18 DSS-19 DSS-20 DSS-21 9726000-11

130' 30'

MONTANA 200

N 87° 40' 10" E

MP 249

STA. 1895+94

R/W 1890+48.64 130'

1890+94 24" CMP DR. IN PL. REMOVE

R/W 1892+00 168'

1891+19 NEW 36" X 207' BR.

R/W 1898+50 168'

R/W 1901+00 130'

R/W 1904+00 130'

R/W 1905+00 190'

1906+90 42" DR. SKEW 14° RT.

R/W 1907+00 190'

1907+14 24" CMP DR. IN PLACE LT. REMOVE

R/W 1908+00 130'

R/W 1910+00 130'

R/W 1912+00 102'

R/W 1919+68 102'

R/W 1920+00

1889+24.75 TO 1890+15.57
GUARDRAIL WIDENING LT

1892+22.43 TO 1893+26.60
GUARDRAIL WIDENING RT.

1889+80
18" CSP EMB. PROTECTOR LT. & RT.

1892+50 TO 1896+00
VCBM LINED DITCH RT.

1892+50
18" CSP EMB. PROTECTOR LT. & RT.

1892+50 TO 1895+50
DITCH GRADING RT. (BACK)

1893+50 TO 1895+00
VCBM LINED DITCH LT.

1905+00
DITCH BLOCK RT.
(ELEV. 2496.00)

1909+21
DITCH BLOCK RT.
(ELEV. 2496.00)

1911+30 TO 1913+10
DITCH GRADING LT. (AHEAD)

1907+09
OUTLET DITCH LT.

1907+09
OUTLET PROTECTION LT.

1890+15.57 B.E. EL.2,465.55

1892+22.43 B.E. EL. 2,467.88

1895+00.00 EL.2,471.00

1904+00.00 EL.2,506.00

+15.57 +23.01 +76.08 +85.97

BOX BEAM GUARDRAIL LT.

BOX BEAM GUARDRAIL RT.

K = 181
500' VC

K = 227
1,200' VC

+3.889% +1.125% -1.389%

PTW

+90

2520 2510 2500 2490 2480 2470 2460 2450 2440

1890+00 1895+00 1900+00 1905+00 1910+00 1915+00 1920+00

3 / 1	MONTANA Department of Transportation	C:\DGN\9726000rdplp002.dgn	DESIGNED BY S. Jarvis	10/19/2023	ROAD PLANS		FLOWING WELLS - EAST & WEST	NH - HSIP 57-5(56)247
		12/9/2024	REVIEWED BY					UPN 9726000
		11:37:01 AM CPS - U0425	CHECKED BY		GARFIELD & MCCONE COUNTIES			46

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EROSION CONTROL BLANKET (ECB)

VEGETATED CONCRETE BLOCK MAT (VCBM)

1920+00 1930+00 1940+00 1950+00

SECTION 7
SECTION 8

1930+00 R/W 114.50'
EX. EASE. = R/W

1932+00 R/W 150'

SITE 4
Delineated Area = 0.19 acre
Impacted Area = 0.032 acre

EX. EASE.

100'

1941+49.56 R/W 150'
1942+00 R/W 162'
1945+00 R/W 162'
1945+24 R/W 168'
1949+08 R/W 168'

T. 18 N. R. 44 E.

9726000-13
9726000-23
9726000-33
9726000-43
DSS-22
DSS-23
MONTANA 200
N 87° 40' 10" E
9726000-34
9726000-14
DSS-24
DSS-25

30'
150'
110'

MP 250
STA. 1947+30

94'

1923+18 24" CMP DR. IN PLACE LT. REMOVE
R/W 1923+60 94'
R/W 1924+00 84'
1923+52 84" EQUIVALENT DR. SKEW 18° LT
1928+50 18" APP. PIPE RT.
R/W 1932+00 84'
1935+11 25.0' X 125.0' BR. IN PLACE REMOVE
R/W 1934+00 242'
1934+88 NEW 36' X 224.5' BR.
R/W 1935+00 242'
R/W 1936+00 110'
R/W 1937+00 110'
R/W 1937+40 100'
100' EXISTING CHANNEL CHANGE EASE.
1949+56 24" CMP DR. IN PL. REMOVE
1949+86 48" DR. SKEW 25° RT.

1921+00 TO 1922+10
DITCH GRADING RT. (AHEAD)

1922+88 TO 1923+33
OUTLET DITCH LT.

1923+20 TO 1928+30
DITCH GRADING LT. (BACK)

1924+50 TO 1926+90
DITCH GRADING RT. (BACK)

1926+70 TO 1932+90
DITCH GRADING RT. (BACK)

1928+50
FARM/FIELD APP. LT. (JOINT USE)

1928+50
FARM/FIELD APP. RT. (JOINT USE)

1930+70 TO 1934+40
DITCH GRADING LT. (AHEAD)

1931+50 TO 1933+80
VCBM LINED DITCH RT.

1932+90 TO 1934+00
DITCH GRADING RT. (AHEAD)

1931+41.01 TO 1933+76.08
GUARDRAIL WIDENING RT.

1932+71.91 TO 1933+76.08
GUARDRAIL WIDENING LT.

1933+56
18" CSP EMB. PROTECTOR LT. & RT.

1936+00.42 TO 1936+63.38
GUARDRAIL WIDENING RT.

1936+00.42 TO 1936+63.38
GUARDRAIL WIDENING RT.

1936+37
18" CSP EMB. PROTECTOR LT. & RT.

1939+00 TO 1941+00
VCBM LINED DITCH LT.

1941+00 TO 1942+50
ECB LINED DITCH RT.

1949+00 TO 1951+00
DITCH GRADING LT. (BACK)

1949+59
OUTLET PROTECTION RT.

1949+80
DITCH BLOCK LT.
(ELEV. 2494.00')

2520 2510 2500 2490 2480 2470 2460 2450 2440

K = 1061
600' VC

-1.389%
-0.824%

1921+00.00
EL.2,481.00

+52

1933+76.08 B.E.
EL. 2,471.31

+13.12
+76.08

BOX BEAM GUARDRAIL LT.

1936+00.42 B.E.
EL. 2,469.46

+00.42
+07.38

BOX BEAM GUARDRAIL LT.

K = 183
700' VC

PTW

+86

-0.824%
+2.994%

1940+00.00
EL.2,466.18

+69.12
+76.08

BOX BEAM GUARDRAIL RT.

+00.42
+63.38

BOX BEAM GUARDRAIL RT.

1920+00 1925+00 1930+00 1935+00 1940+00 1945+00 1950+00

2	MONTANA Department of Transportation	C:\DGN\9726000rdplp002.dgn	DESIGNED BY S. Jarvis	10/19/2023	ROAD PLANS	FLOWING WELLS - EAST & WEST	NH - HSIP 57-5(56)247
1		12/9/2024	REVIEWED BY		GARFIELD & MCCONE COUNTIES	UPN 9726000	47
		11:37:05 AM CPS - U0425	CHECKED BY				

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EROSION CONTROL BLANKET (ECB)

VEGETATED CONCRETE BLOCK MAT (VCBM)

1950+00 1960+00 1970+00 1980+00

T. 18 N. R. 44 E.

SEC. 9?

168'

1951+00 R/W 114.3' R/W = EX. EASE.

1971+00 R/W 114.18' EX. EASE. = R/W

1971+40 R/W 124'

EX. EASE.

110'

MONTANA 200

N 87° 40' 10" E

9726000-15 DSS-26

97260

R/W 1950+20 100'

R/W 1951+00 80'

1951+72 15" CMP APP. PIPE IN PL. LT. REMOVE

1951+75 18" APP. PIPE LT.

1964+90 36" DR. SKEW 9° RT.

1965+00 24" CMP DR. IN PLACE REMOVE

R/W 1970+20 80'

R/W 1971+00 100'

R/W 1977+80 100'

R/W 1979+00 130'

1979+95 90" RCP DR. SKEW 1° LT. 105" SSPP DR. IN PL. REMOVE

1950+00 TO 1953+30
DITCH GRADING LT. (BACK)

1951+75
FARM/FIELD APP. LT.

1957+90 TO 1960+50
ECB LINED DITCH LT.

1964+65
DITCH BLOCK LT.
(ELEV. 2538.09')

1964+90
OUTLET PROTECTION RT.

1968+50 TO 1969+70
ECB LINED DITCH RT.

1968+00.00
EL.2,550.00

+2.994%

±0.429%

+90

K = 468
1,200' VC

PTW

2560 2550 2540 2530 2520 2510 2500 2490 2480

1950+00 1955+00 1960+00 1965+00 1970+00 1975+00 1980+00

3	MONTANA Department of Transportation	C:\DGN\9726000rdplp003.dgn	DESIGNED BY S. Jarvis	10/19/2023	ROAD PLANS	FLOWING WELLS - EAST & WEST	NH - HSIP 57-5(56)247
2		12/9/2024	REVIEWED BY		GARFIELD & MCCONE COUNTIES	UPN 9726000	48
		11:37:22 AM CPS - U0425	CHECKED BY				

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EROSION CONTROL BLANKET (ECB)

VEGETATED CONCRETE BLOCK MAT (VCBM)

1980+00 | 1990+00 | 2000+00 | 2010+00

T. 18 N. R. 44 E.

SECTION 8 | SECTION 9

1980+50 R/W 124'

1981+38 R/W 142'

1983+28 R/W 142'

1984+50 R/W 114.07' R/W = EX. EASE.

EX. EASE

110'

140'

9726000_35

DSS-27

DSS-28

DSS-29

N 87° 40' 10" E

MONTANA 200

DSS-30

DSS-31

EX. EASE.

EX. EASE.

EX. EASE

140'

MP 251

STA. 2002+17

R/W 1982+00 130'

1983+74 15" CMP APP. PIPE IN PL. LT. REMOVE

R/W 1984+00 80'

1983+77 15" CMP APP. PIPE IN PL. LT. REMOVE

1983+90 18" APP. PIPE LT.

R/W 1988+70 80'

R/W 1989+50 100'

1992+50 30" DR. SKEW 10° RT.

R/W 1993+00 100'

1992+62 24" CMP DR. IN PLACE REMOVE

R/W 1993+80 80'

R/W 2002+20 80'

R/W 2003+00 100'

2670

1980+90 TO 1983+50
VCBM LINED DITCH LT.

1981+50 TO 1986+00
DITCH GRADING LT. (BACK)

1983+90
FARM/FIELD APP. LT.

1984+20 TO 1987+50
ECB LINED DITCH LT.

1988+50
FARM/FIELD APP. RT.

1992+26
DITCH BLOCK LT.
(ELEV. 2593.00)

1995+20 TO 1998+00
ECB LINED DITCH RT.

2006+60
FARM/FIELD APP. LT.

2005+00 TO 2008+50
DITCH GRADING RT. (AHEAD)

2008+20 TO 2009+60
DITCH GRADING LT. (AHEAD)

2600 | 2590 | 2580 | 2570 | 2560 | 2550 | 2540 | 2530 | 2520

K = 302
1,000' VC

PTW

+0.429%

+3.739%

1982+00.00
EL. 2,556.00

+50

2005+00.00
EL. 2,642.00

+3.739%

+2.176%

K = 640
1,000' VC

PTW

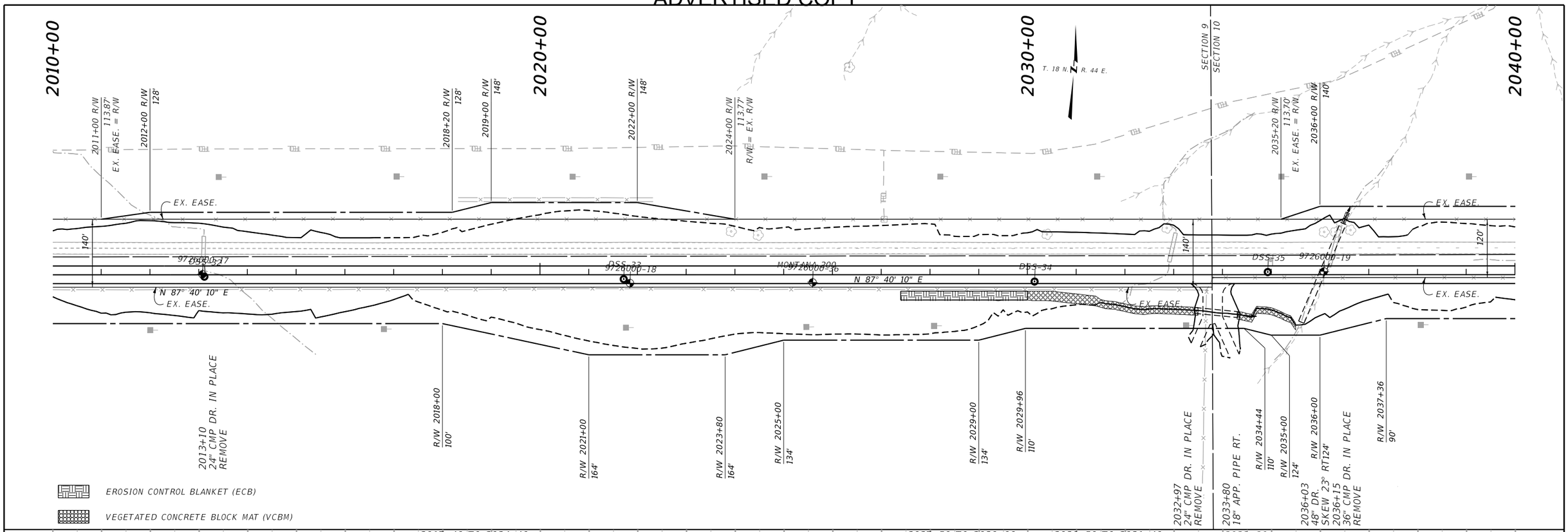
2610 | 2600 | 2590 | 2580

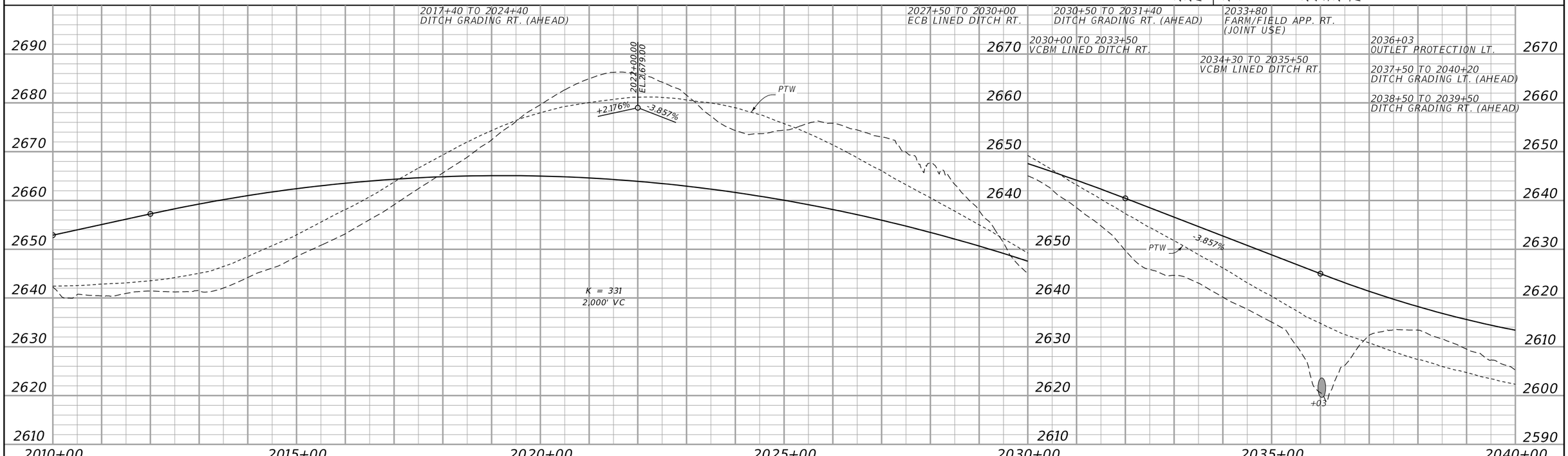
2660 | 2650 | 2640 | 2630 | 2620 | 2610 | 2600 | 2590 | 2580

1980+00 | 1985+00 | 1990+00 | 1995+00 | 2000+00 | 2005+00 | 2010+00

3	MONTANA Department of Transportation	C:\DGN\9726000rdplp003.dgn	DESIGNED BY S. Jarvis	10/19/2023	ROAD PLANS	FLOWING WELLS - EAST & WEST / NH - HSIP 57-5(56)247
1		12/9/2024	REVIEWED BY		GARFIELD & MCCONE COUNTIES	UPN 9726000 / 49
		11:37:26 AM CPS - U0425	CHECKED BY			

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2	MONTANA Department of Transportation	C:\DGN\9726000rdplp003.dgn	DESIGNED BY S. Jarvis	10/19/2023	ROAD PLANS	FLOWING WELLS - EAST & WEST	NH - HSIP 57-5(56)247
1		12/9/2024	REVIEWED BY		GARFIELD & MCCONE COUNTIES	UPN 9726000	50
		11:37:30 AM CPS - U0425	CHECKED BY				

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EROSION CONTROL BLANKET (ECB)

VEGETATED CONCRETE BLOCK MAT (VCBM)

T. 18 N., R. 44 E.

SEC. 10?

2040+00 2050+00 2060+00 2070+00

2043+00 R/W 140'
2045+00
2046+00 R/W 220'
2048+00 R/W 158'
2049+96 R/W 158'
2051+00 R/W 132'
2056+00 R/W 132'
2057+00 R/W 113.51'
R/W = EX. EASE.
2064+00 BEG. EASE.
2065+50 END EASE.

EX. EASE.
120'
9726000-37
DSS-36
9726000-20
DSS-37
9726000-21
DSS-38
9726000-29
140'
DSS-39
120'
EX. EASE.
EX. EASE.
N 87° 40' 10" E

2041+59 24" CMP DR. PIPE IN PLACE REMOVE
R/W 2043+00 90'
R/W 2045+00 164'
R/W 2046+50 164'
2045+55 72" RCP DR. SKEW 36° LT.
2045+58 105" SSPP PIPE DR. IN PLACE REMOVE
R/W 2048+50 100'
2048+51 24" CMP DR. PIPE IN PLACE REMOVE
R/W 2053+00 100'
R/W 2054+36 134'
MP 252 STA. 2055+32
R/W 2056+64 134'
R/W 2058+00 100'
2065+00 42" DR. SKEW 20° LT.
2065+25 36" CMP DR. PIPE IN PLACE REMOVE
R/W 2068+00 100'

2043+60 TO 2046+50
DITCH GRADING RT. (AHEAD)

2044+90 TO 2052+50
DITCH GRADING LT. (BACK)

2044+90 TO 2050+50
VCBM LINED DITCH LT.

2046+50 TO 2049+20
VCBM LINED DITCH RT.

2050+50 TO 2052+50
ECB LINED DITCH LT.

2058+50
FARM/FIELD APP. LT.

2058+50
FARM/FIELD APP. RT.

2065+00
OUTLET PROTECTION LT.

2650 2640 2630 2620 2610 2600 2590 2580 2570

K = 209
1,400' VC

-3.851%
+2.846%
2043+00.00
EL.2,398.00
+55

2056+00.00
EL.2,635.00
+2.846%
-0.559%
PTW
K = 294
1,000' VC
+00

2040+00 2045+00 2050+00 2055+00 2060+00 2065+00 2070+00

3	MONTANA Department of Transportation	C:\DGN\9726000rdplp004.dgn	DESIGNED BY S. Jarvis	10/19/2023	ROAD PLANS	FLOWING WELLS - EAST & WEST	NH - HSIP 57-5(56)247
2		12/9/2024	REVIEWED BY		GARFIELD & MCCONE COUNTIES	UPN 9726000	51
		11:37:45 AM CPS - U0425	CHECKED BY				

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EROSION CONTROL BLANKET (ECB)

VEGETATED CONCRETE BLOCK MAT (VCBM)

2070+00 2080+00 2090+00 2100+00

T. 18 N. R. 44 E.

SECTION 10
SECTION 11

2079+00 R/W 113.33' EX. EASE. = R/W

2080+00 R/W 130'

2085+00 R/W 130'

2086+00 R/W 113.28' R/W = EX. EASE.

EX. EASE.

120'

DSS-40
9726000-22

9726000-23

9726000-41

9726000-24

DSS-42

N 87° 40' 10" E

R/W 2070+32 158'

R/W 2073+00 158'

R/W 2074+44 122'

2081+64 48" DR. SKEW 5° RT. 2081+73 36" CMP DR. PIPE IN PLACE REMOVE

R/W 2085+00 122'

R/W 2087+00 90'

R/W 2090+00 90'

R/W 2090+40 80'

2094+30 18" APP. PIPE RT.

R/W 2095+20 80'

2096+21 24" CMP DR. PIPE IN PLACE REMOVE

R/W 2096+50 110'

2096+50 BEG. 80' EASE.

2096+51 30" DR. SKEW 21° LT 2097+50 END 80' EASE.

R/W 2097+50 110'

R/W 2098+80 80'

2081+56 TO 2082+60
DITCH GRADING RT. (BACK)

2081+64
OUTLET PROTECTION LT.

2094+30
FARM/FIELD APP. LT.

2094+30
FARM/FIELD APP. RT.

2096+82 TO 2097+19
OUTLET DITCH RT.

2096+51
OUTLET PROTECTION RT.

2640 2630 2620 2610 2600 2590 2580 2570 2560

2090+00.00
EL.2,616.00

-0.559%

-2.875%

PTW

+64

+51

K = 345
800' VC

2070+00 2075+00 2080+00 2085+00 2090+00 2095+00 2100+00

3 / 1	MONTANA Department of Transportation	C:\DGN\9726000rdplp004.dgn 12/9/2024 11:37:49 AM CPS - U0425	DESIGNED BY S. Jarvis 10/19/2023 REVIEWED BY CHECKED BY	ROAD PLANS GARFIELD & MCCONE COUNTIES		FLOWING WELLS - EAST & WEST UPN 9726000	NH - HSIP 57-5(56)247 52

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EROSION CONTROL BLANKET (ECB)

VEGETATED CONCRETE BLOCK MAT (VCBM)

2100+00 2110+00 2120+00 2130+00

T. 18 N. R. 44 E.

SEC. 11

2106+00 R/W 113.12 EX. EASE. = R/W

2107+00 R/W 130'

2110+00 R/W 130'

2111+00 R/W 113.08 R/W = EX. EASE.

2117+00 R/W 113.03 EX. EASE. = R/W

2118+00 R/W 124' BEG. 70' EASE.

2120+00 END 70' EASE.

2127+00 R/W 124'

2128+00 R/W 112.95 R/W = EX. EASE.

SITE 5:
Delineated Area = 0.25 acre
Impacted Area = 0.203 acre

EX. EASE.

120'

DSS-43

9726000-25

DSS-44

9726000-26

9726000-27

9726000-28

120'

150'

120'

N 87° 40' 10" E

EX. EASE.

EX. EASE.

EX. EASE.

MP 253

STA. 2109+54

R/W 2104+00 80'

R/W 2105+60 120'

2107+86 8' X 8' RCB DR. 27° RT.

R/W 2107+80 120'

2107+98 25.0' x 57.0' BRIDGE IN PLACE LT. REMOVE

R/W 2109+00 90'

2112+00 18" APP. PIPE RT.

2117+85 60" DR. SKEW 21° RT.

2117+92 60" SSPP DR. IN PL. REMOVE

2119+81 60" SSPP DR. IN PL. REMOVE

R/W 2119+60 90'

R/W 2120+00 100'

2119+89 66" DR. SKEW 22° LT.

R/W 2122+00 100'

R/W 2124+50 206'

2124+50 BEG. 126' EASE.

2124+67 25.0' x 85.0' BRIDGE IN PLACE LT. REMOVE

2124+75 9 X9 RCB DR. SKEW 4° LT.

2126+44 108" SSPP DR IN PLACE REMOVE

2130+00 END 126' EASE

2112+00 FARM/FIELD APP. LT.

2112+00 FARM/FIELD APP. RT.

2115+50 TO 2117+50 ECB LINED DITCH RT.

2118+37 TO 2118+84 OUTLET DITCH RT.

2118+95 TO 2119+61 OUTLET DITCH RT.

2121+00 FARM/FIELD APP. RT.

2123+00 TO 2131+80 VCBM LINED DITCH RT.

2125+00 TO 2129+40 INLET DITCH RT.

2610 2600 2590 2580 2570 2560 2550 2540 2530

K = 266
600' VC

K = 218
1,000' VC

-2.875%

-0.619%

2106+00.00
EL 2,571.00

PTW

+86

+85

+89

+75

-0.619%

+3.971%

2127+00.00
EL 2,557.00

2100+00 2105+00 2110+00 2115+00 2120+00 2125+00 2130+00

2 / 1	MONTANA Department of Transportation	C:\DGN\9726000rdplp004.dgn	DESIGNED BY S. Jarvis	10/19/2023	ROAD PLANS	FLOWING WELLS - EAST & WEST	NH - HSIP 57-5(56)247
		12/9/2024	REVIEWED BY		GARFIELD & MCCONE COUNTIES	UPN 9726000	53
		11:37:53 AM CPS - U0425	CHECKED BY				

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2130+00 | SECTION 11 | SECTION 12 | 2140+00 | 2150+00

T. 18 N. R. 44 E.

PC 2135+32.09
PT 2140+67.71
2142+80 R/W 80.89
EX. EASE. = R/W
2143+31.91 R/W 90'
2148+67.89 R/W 90'
2151+00 R/W 90'
2152+30 R/W 59.25'
R/W = EX. EASE.
POE 2158+36.82

PI =2138+00.00
Δ =3° 50' 10" (LT)
R =8,000'
T =267.91'
L =535.62'
E =4.48'
S = 3%

EX. EASE.
120'
DS5145
MONTANA 200
N 87° 40' 10" E
EX. EASE.
N 83° 50' 00" E
EX. EASE.
N 87° 40' 19" E
EX. EASE.
120'

PI =2146+00.00
Δ =3° 50' 19" (RT)
R =8,000'
T =268.09'
L =535.98'
E =4.49'
S = 3%

R/W 2130+00 206'
R/W 2132+00 80'
R/W 2135+32.09 80'
2139+46 15" CMP APP. PIPE IN PL. LT. REMOVE
2139+50 New 18" APP. PIPE LT.
R/W 2140+67.71 80'
R/W PC 2143+31.91 80'
R/W PT 2148+67.89 80'
R/W 2151+00 80'
R/W 2152+30 R/W = EX. EASE.

STA. 2134+00.00
END NH-HSIP 57-5(56)247

STA. 2152+50
END CONNECTION

EROSION CONTROL BLANKET (ECB)
VEGETATED CONCRETE BLOCK MAT (VCBM)

2130+30 TO 2136+10
VCBM LINED DITCH LT.

2136+10 TO 2139+20
ECB LINED DITCH LT.

2139+50
PRIVATE APP. LT.
(JOINT USE)
(W/ MAILBOX TURNOUT)

2139+50
FARM/FIELD APP. RT.
(JOINT USE)

2640 | 2630 | 2620 | 2610 | 2600 | 2590 | 2580 | 2570 | 2560

2144+00.00
EL.2,624.50
+3.971%
-1.406%
2152+50.00
EL.2,612.55
2134+00.00
EL. 2,584.79
PTW
K = 260
1,400' VC

2130+00 | 2135+00 | 2140+00 | 2145+00 | 2150+00 | 2155+00

3	MONTANA Department of Transportation	C:\DGN\9726000rdplp005.dgn	DESIGNED BY S. Jarvis	10/19/2023	ROAD PLANS	FLOWING WELLS - EAST & WEST	NH - HSIP 57-5(56)247
2		12/9/2024	REVIEWED BY				
		11:38:07 AM CPS - U0425	CHECKED BY		GARFIELD & MCCONE COUNTIES	UPN 9726000	54

ADVERTISED COPY

NOTES AND ABBREVIATIONS:

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

ALL MARKINGS ARE PAINT, EXCEPT AS NOTED. WHERE SPECIFIED ON THE PLANS AS PLASTIC, INSTALL INLAID HOT EXTRUDED HYDRO-CARBON THERMOPLASTIC PAVEMENT MARKINGS.

SEE LOCATION AND SPECIFICATION SHEETS FOR PORTIONS OF PROJECT NOT INCLUDED WITHIN SIGNING PLAN SHEETS.

SIGN POSTS SYMBOLS SHOWN ARE FOR REFERENCE ONLY TO SHOW EXISTING SIGNS THAT REQUIRE NO ACTION.

SIGNING LOCATIONS ARE APPROXIMATE. ENGINEERING PROJECT MANAGER TO FIELD ADJUST AS NECESSARY.

ADOPT A HIGHWAY:
IF SIGNS N7-1/N7-1P EXIST, CONTRACTOR WILL CONFIRM THAT THE GROUP NAME ON THE SIGN(S) EXISTING AT THE TIME OF CONSTRUCTION CORRESPONDS TO THE GROUP NAME ON THE SIGN(S) SHOWN IN PLANS. IF NAME IS DIFFERENT, ENGINEERING PROJECT MANAGER WILL CONTACT TRAFFIC & SAFETY BUREAU SIGNING SECTION WITH THE CORRECT NAME AND A NEW SIGN DESIGN WILL BE PROVIDED.

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

▲ = SINGLE SQUARE TUBE REQUIRED. MOUNTED IN HEAVY DUTY STUB.

★ = TELESCOPED SQUARE TUBES (2-1/4" & 2-1/2") WITH SLIP BASE BREAKAWAY REQUIRED. MOUNTED IN HEAVY DUTY STUB.

■ = FRANGIBLE SIGN POST. BREAKAWAY DEVICE REQUIRED.

AIR = ANGLE IRON REQUIRED
2 1/2" x 2 1/2" x 3/8" x 6'-4" (37 lbs.)

BBR = BACKBRACING REQUIRED:
- -FOR WOOD POST 2" X 4" REQ'D.
- - FOR STRUCTURAL STEEL 2" X 2" X 1/4" ANGLE IRON REQ'D.

BGR = BEHIND GUARDRAIL

FY = FLUORESCENT YELLOW SHEETING REQUIRED.

FYG = FLUORESCENT YELLOW - GREEN SHEETING REQUIRED.

MBB = MOUNT BACK TO BACK

RSFO = REPLACE SIGN FACE ONLY.

SUMMARY
SIGNING & DELINEATION QUANTITIES

MATERIAL	TOTALS	UNIT
SIGNS-SHEET ALUM SHT INCR XI	341.5	SQFT
SIGNS-ALUM REFL SHEET XI	260.9	SQFT
REMOVE SIGN	48	EACH
REMOVE SIGN-GUIDE	6	EACH
POSTS-STEEL U SIGN	154	LB
POSTS-STEEL STRUCTURAL SIGN	2,706	LB
POLES-TREATED WOOD 4 IN	392	LNFT
POLES-TREATED WOOD 5 IN	182	LNFT
FRANG SIGN POST BKWY-S5 X 10 (S130X15)	12	EACH
FRANG SIGN POST BKWY-W4 X 13 (W100X19)	2	EACH
DELINEATOR TYPE 1	100	EACH

DELINEATION SPECIFICATIONS

SYMBOL	DESIGN	TOTALS
	A	94
	D	6

SHEET NO.
S1

SUMMARY NOTES AND ABBREVIATIONS

PROJECT NAME: FLOWING WELLS - EAST & WEST
COUNTY: GARFIELD AND McCONE
PROJECT ID: NH-HSIP 57-5(56)247
UPN: 9726000

DESIGNED BY: S.MORANO 07/2024
REVIEWED BY: - -
CHECKED BY: N.STYREN 08/2024
9726000SIPRE001.DWG

MONTANA Department of Transportation

SIGNING PLANS

11/13/2024 2:18 PM

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SIGN LOCATION				SIGN PANEL SPECIFICATIONS							SIGN ASSEMBLY SPECIFICATIONS										SIGN ASSEMBLY QUANTITIES												ADDITIONAL SIGN INFORMATION	
STATION / R.P.		DIRECTION	RAMP NO.	SIGN NO. (MUTCD)	PANEL SIZE (INCHES)			FY OR FYG	BACK BRACING REQ'D ANGLE IRON REQ'D	MOUNT BACK TO BACK	REPLACE SIGN FACE ONLY	FEET	TYPE OF SUPPORT	FEET							CANTILEVER	BREAKAWAY TYPE	BEHIND GUARDRAIL	PANEL (SQ. FT.)		WOOD POLE (LNR. FT.)		STEEL POST (LBS.)				REMV		RESET		SIGN IMAGE	SIGN TEXT & REMARKS
LFT	MDN	RGT			W	X	H					CLEARANCE/OFFSET (SHOULDER TO EDGE OF SIGN)		SIGN SUPPORT SPACING	MOUNTING HEIGHT	SIGN HEIGHT + GAPS	FOUNDATION DEPTH	SUPPORT LENGTH (ESTIMATED) X	Y	Z				SHEET ALUMINUM	SHEET ALUMINUM INCREMENT	4" TOP DIA.	5" TOP DIA.	ROUND TUBULAR	SQUARE TUBULAR	STRUCTURAL STEEL	"U" POST	SIGN	GUIDE	SIGN	GUIDE		
1790+06.90																																			
		X		D10-3	10	X	36			MBB		4.0	2.0lb Steel U Post		4.0		3.0	11.8						5.0							22	1				Replace = (2) D10-3 RP (247)
1791+84.42									BBR																										
X				W14-3	48	X	48 X 36	FY				10.0	4" Treated Wood Pole		5.0		3.0	13.0						5.5		14						1				Replace = W14-3 (No Passing)
1812+17.64									BBR																										
		X		D5-1	84	X	36					30.0	S5x10 Structural Steel		7.0		3.5	16.4	17.2			■			21.0					335		1				Replace = D5-1 (1 Mile)
				D8-2P	66	X	24																		11.0						1				Replace = D8-2P HINGED
1813+33.20																																			
		X		R99-1a	66	X	48					10.0	5" Treated Wood Pole		7.0		3.5	12.11	13.5			✕			22.0		28					1				Replace = R99-1a
1826+13.15									BBR																										
		X		W14-3	48	X	48 X 36	FY				10.0	4" Treated Wood Pole		5.0		3.0	13.0						5.5		14						1				Replace = W14-3 (No Passing)
1830+37.80									BBR																										
X				W14-3	48	X	48 X 36	FY				10.0	4" Treated Wood Pole		5.0		3.0	13.0						5.5		14						1				Replace = W14-3 (No Passing)
1839+46.15																																			
		X		R99-1a	66	X	48					10.0	5" Treated Wood Pole		7.0		3.5	12.11	13.5			✕			22.0		28					1				Replace = R99-1b
1854+45.50																																			
		X		D10-3	10	X	36			MBB		4.0	2.0lb Steel U Post		4.0		3.0	11.8						5.0							22	1				Replace = (2) D10-3 RP (248)
1854+48.80									BBR																										
X				W14-3	48	X	48 X 36	FY				10.0	4" Treated Wood Pole		5.0		3.0	13.0						5.5		14						1				Replace = W14-3 (No Passing)
1863+63.04																																			
		X		M2-1	21	X	15					10.0	4" Treated Wood Pole		5.0		3.0	12.6						2.2		14						1				Replace = M2-1a (JCT)
				M1-5	24	X	24																		4.0										Replace = M1-5 (MT 24)
1867+33.85																																			
X				R2-2A	24	X	30					10.0	4" Treated Wood Pole		5.0		3.0	12.6						5.0		14						1				Replace = R2-2A (65)
1870+34.08																																			
		X		BY OTHERS																																By Others - "Use as is"





























SHEET NO.
S2

SIGNING LOCATION AND SPECIFICATION

PROJECT NAME: FLOWING WELLS - EAST & WEST
COUNTY: GARFIELD AND McCONE
PROJECT ID: NH-HSIP 57-5(56)247
UPN: 9726000

DESIGNED BY: S.MORANO 07/2024
REVIEWED BY: - -
CHECKED BY: N.STYREN 08/2024

MONTANA Department of Transportation

SIGNING PLANS

11/13/2024 2:18 PM

9726000SIPRE001.DWG

ADVERTISED COPY

SIGN LOCATION				SIGN PANEL SPECIFICATIONS							SIGN ASSEMBLY SPECIFICATIONS										SIGN ASSEMBLY QUANTITIES										ADDITIONAL SIGN INFORMATION	
STATION / R.P.		DIRECTION	RAMP NO.	SIGN NO. (MUTCD)	PANEL SIZE (INCHES)			FY OR FYG	BACK BRACING REQ'D ANGLE IRON REQ'D	MOUNT BACK TO BACK	REPLACE SIGN FACE ONLY	FEET	TYPE OF SUPPORT	FEET							CANTILEVER	BREAKAWAY TYPE	BEHIND GUARDRAIL	PANEL (SQ. FT.)		WOOD POLE (LNR. FT.)		STEEL POST (LBS.)				REMV		RESET		SIGN IMAGE	SIGN TEXT & REMARKS
LFT	MDN	RGT			W	X	H					CLEARANCE/OFFSET (SHOULDER TO EDGE OF SIGN)		SIGN SUPPORT SPACING	MOUNTING HEIGHT	SIGN HEIGHT + GAPS	FOUNDATION DEPTH	SUPPORT LENGTH (ESTIMATED) X	Y	Z				SHEET ALUMINUM	SHEET ALUMINUM INCREMENT	4" TOP DIA.	5" TOP DIA.	ROUND TUBULAR	SQUARE TUBULAR	STRUCTURAL STEEL	"U" POST	SIGN	GUIDE	SIGN	GUIDE		
1870+60.04																																			
X				R2-1	24	X	30					10.0	4" Treated Wood Pole		5.0		3.0	13.5						5.0		14						1				SPEED LIMIT 70	Replace = R2-1 (Speed 70)
				R2-3A	24	X	24																	4.0										NIGHT 65	Replace = R2-3a (Night 65)
1872+20.88									BBR													■			19.5				304		1				REST AREA	Replace = D5-2R
		X		D5-2R	78	X	36					30.0	S5x10 Structural Steel		7.0		3.5	15.3	15.10																	
1872+21.19									BBR													■			30.0				317			1			Jordan 36 Lewistown 166	Replace = G57-238b
X				G57-247a	120	X	36					30.0	S5x10 Structural Steel		7.0		3.5	15.4	16.4																	
1873+31.90									BBR													■			34.0				335			1			Circle Fort Peck	Replace = G57-238a
		X		G57-247b	102	X	48					30.0	S5x10 Structural Steel		7.0		3.5	16.3	17.2																	
1873+53.18																																			
X				M3-4	24	X	12					10.0	4" Treated Wood Pole		5.0		3.0	12.9						2.0		14						1				WEST	Replace = M3-4 (West)
				M1-5	30	X	24																	5.0										MONTANA 200	Replace = M1-5 (MT200)
1874+78.34																																			
		X		M1-5	24	X	24					10.0	4" Treated Wood Pole		5.0		3.0	12.6						4.0		14						1				MONTANA 24	Replace = M1-5 (MT24)
				M6-1L	21	X	15																	2.2											Replace = M6-1L
1874+82.60																																			
X				N6-3	42	X	24					10.0	4" Treated Wood Pole		5.0		3.0	12.3						7.0		14						1				GARFIELD COUNTY	Replace = N6-3 (Garfield County)
1875+45.46									BBR													X													
X				R1-1	48	X	48					6.0	5" Treated Wood Pole		5.0		3.5	13.10						13.3			14					1				STOP	Replace = R1-1 (Stop)
1875+49.70																																			
		X		R99-1c	66	X	48					10.0	5" Treated Wood Pole		7.0		3.5	12.11	13.5				X		22.0		28					1				MANDATORY WATERCRAFT INSPECTION	Replace = R99-1cR
1875+96.50																																			
		X		D5-2aR	30	X	24					10.0	4" Treated Wood Pole		5.0		3.0	12.9						5.0		14						1				REST AREA	Replace = D5-2aR
176+48.08																																			
		X		R1-1	48	X	48					10.0	5" Treated Wood Pole		5.0		3.5	13.10					X	13.3		14						1				STOP	Replace = R1-1 (Stop)
1876+71.90																																			
		X		N6-3	42	X	24					10.0	4" Treated Wood Pole		5.0		3.0							7.0		14						1				McCONE COUNTY	Replace = N6-3 (McCone County)

SHEET NO.
S3

SIGN LOCATION AND SPECIFICATION

PROJECT NAME: FLOWING WELLS - EAST & WEST
COUNTY: GARFIELD AND McCONE
PROJECT ID: NH-HSIP 57-5(56)247
UPN: 9726000

DESIGNED BY: S.MORANO 07/2024
REVIEWED BY: - -
CHECKED BY: N.STYREN 08/2024
9726000SIPRE001.DWG

MONTANA Department of Transportation

SIGNING PLANS

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SIGN LOCATION				SIGN PANEL SPECIFICATIONS						SIGN ASSEMBLY SPECIFICATIONS									SIGN ASSEMBLY QUANTITIES										ADDITIONAL SIGN INFORMATION	
STATION / R.P.		DIRECTION	RAMP NO.	SIGN NO. (MUTCD)	PANEL SIZE (INCHES)	FY OR FYG	BACK BRACING REQ'D ANGLE IRON REQ'D	MOUNT BACK TO BACK	REPLACE SIGN FACE ONLY	FEET		FEET							PANEL (SQ. FT.)		WOOD POLE (LNR. FT.)		STEEL POST (LBS.)				REMV		RESET		SIGN IMAGE	SIGN TEXT & REMARKS
LFT	MDN	RGT			W X H					CLEARANCE/OFFSET (SHOULDER TO EDGE OF SIGN)	TYPE OF SUPPORT	SIGN SUPPORT SPACING	MOUNTING HEIGHT	SIGN HEIGHT + GAPS	FOUNDATION DEPTH	SUPPORT LENGTH (ESTIMATED) X	Y	Z	CANTILEVER	BREAKAWAY TYPE	BEHIND GUARDRAIL	SHEET ALUMINUM	SHEET ALUMINUM INCREMENT	4" TOP DIA.	5" TOP DIA.	ROUND TUBULAR	SQUARE TUBULAR	STRUCTURAL STEEL	"U" POST	SIGN	GUIDE	SIGN	GUIDE		
1876+02.70																															
X				M3-1	24 X 12					10.0	4" Treated Wood Pole		5.0		3.0	12.6						2.0		14						1					Replace = M3-1
				M1-5	24 X 24																	4.0											Replace = M1-5
1876+72.90																															
X				M1-5	24 X 24					10.0	4" Treated Wood Pole		5.0		3.0	12.9						4.0		14						1					Replace = M1-5
				M6-1R	21 X 15																	2.2											Replace = M6-1R
1876+95.89																															
		X		M3-2	24 X 12					10.0	4" Treated Wood Pole		5.0		3.0	12.6						2.0		14						1					Replace = G57-247a
				M1-5	30 X 24																	5.0											Replace = G57-247b
1877+89.09							BBR				S5x10 Structural Steel																						
X				G57-248a	102 X 48					30.0			7.0		3.5	16.3	17.2			■			34.0					335			1				Replace = G57-248a
1878+29.80							BBR				W4x13 Structural Steel																						
		X		G57-248b	108 X 54					30.0			7.0		3.5	16.10	17.8			■			40.5					441			1				Replace = G57-248b
1879+37.68							BBR				S5x10 Structural Steel																						
X				D5-2L	78 X 36					30.0			7.0		3.5	15.3	15.10			■			19.5					304			1				Replace = D5-2L
1879+84.68											5" Treated Wood Pole																						
X				R99-1c	66 X 48					10.0			7.0		3.5	12.11	13.5			✕			22.0			28					1				Replace = R99-1cL
1881+12.20											4" Treated Wood Pole																						
		X		R2-1	24 X 30					1.0			5.0		3.0	13.9						5.0		14						1					Replace = R2-1
				R2-3A	24 X 24																	4.0											Replace = R2-3A
1881+26.52																																	
				BY OTHERS																														BY OTHERS "Use as is"

SHEET NO.
S4

SIGN LOCATION AND SPECIFICATION

PROJECT NAME: FLOWING WELLS - EAST & WEST
COUNTY: GARFIELD AND McCONE
PROJECT ID: NH-HSIP 57-5(56)247
UPN: 9726000

DESIGNED BY	DATE	REVIEWED BY		CHECKED BY	DATE
S.MORANO	07/2024	-	-	N.STYREN	08/2024

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Department of Transportation

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SIGN LOCATION				SIGN PANEL SPECIFICATIONS							SIGN ASSEMBLY SPECIFICATIONS										SIGN ASSEMBLY QUANTITIES										ADDITIONAL SIGN INFORMATION	
STATION / R.P.		DIRECTION	RAMP NO.	SIGN NO. (MUTCD)	PANEL SIZE (INCHES)			FY OR FYG	BACK BRACING REQ'D ANGLE IRON REQ'D	MOUNT BACK TO BACK	REPLACE SIGN FACE ONLY	FEET	TYPE OF SUPPORT	FEET				SUPPORT LENGTH (ESTIMATED)			CANTILEVER	BREAKAWAY TYPE	BEHIND GUARDRAIL	PANEL (SQ. FT.)		WOOD POLE (LNR. FT.)		STEEL POST (LBS.)				REMV		RESET		SIGN IMAGE	SIGN TEXT & REMARKS
LFT	MDN	RGT			W	X	H					CLEARANCE/OFFSET (SHOULDER TO EDGE OF SIGN)		SIGN SUPPORT SPACING	MOUNTING HEIGHT	SIGN HEIGHT + GAPS	FOUNDATION DEPTH	X	Y	Z				SHEET ALUMINUM	SHEET ALUMINUM INCREMENT	4" TOP DIA.	5" TOP DIA.	ROUND TUBULAR	SQUARE TUBULAR	STRUCTURAL STEEL	"U" POST	SIGN	GUIDE	SIGN	GUIDE		
1883+95.06																																			
		X		R2-11	24	X	30					10.0	4" Treated Wood Pole		5.0		3.0	12.6						5.0		14						1				TRUCK SPEED LIMIT 65	Replace = R2-11
1884+26.02																																			
X				M2-1	21	X	15					10.0	4" Treated Wood Pole		5.0		3.0	12.9						2.2								1				JCT	Replace = M2-1
				M1-5	24	X	24																	4.0		14									MONTANA 24	Replace = M1-5
1886+18.65																																			
		X		N6-2a	36	X	18					5.0	4" Treated Wood Pole		5.0		3.0	10.7					BGR	4.5		14						1				TIMBER CREEK	Replace = N6-2a
1886+82.50																																			
X				N6-2a	36	X	18					5.0	4" Treated Wood Pole		5.0		3.0	10.7					BGR	4.5		14						1				TIMBER CREEK	Replace = N6-2a
1895+89.50																																			
		X		D10-3	10	X	36					4.0	2.0lb Steel U Post		4.0		3.0	11.8						5.0							22	1				MILE 249	Replace = (2) D10-3 RP (249)
1901+38.03																																			
X				R99-1b	66	X	48					10.0	5" Treated Wood Pole		7.0		3.5	12.11	13.5			X			22.0		28						1				MANDATORY WATERCRAFT INSPECTION 1/2 MILE	Replace = R99-1b
1910+16.20																																			
		X		W14-3	48	X	48 X 36	FY	BBR			10.0	4" Treated Wood Pole		5.0		3.0	13.0						5.5		14						1				NO PASSING ZONE	Replace = W14-3 (No Passing)
1920+28.46																																			
X				W14-3	48	X	48 X 36	FY	BBR			10.0	4" Treated Wood Pole		5.0		3.0	13.0						5.5		14						1				NO PASSING ZONE	Replace = W14-3 (No Passing)
1927+31.64																																			
X				R99-1a	66	X	48					10.0	5" Treated Wood Pole		7.0		3.5	12.11	13.5			X			22.0		28						1				MANDATORY WATERCRAFT INSPECTION 1 MILE	Replace = R991b
1928+20.68									BBR																										
X				D5-1	84	X	36					30.0	S5x10 Structural Steel		7.0		3.5	16.4	17.2			■		14.0						335		1				REST AREA 1 MILE	Replace = D5-1 (1 Mile)
				D8-2P	66	X	24																	15.0											CLOSED	Replace = D8-2P HINGED
1934+26.74																																			
		X		N6-2a	36	X	18					10.0	4" Treated Wood Pole		5.0		3.0	10.7					BGR	4.5								1				SKULL CREEK	Replace = N6-2a
1936+14.06																																			
X				N6-2a	36	X	18					10.0	4" Treated Wood Pole		5.0		3.0	10.7					BGR	4.5								1				SKULL CREEK	Replace = N6-2a
1947+26.94																																			
		X		D10-3	10	X	36					4.0	2.0lb Steel U Post		4.0		3.0	11.8						5.0							22	1				MILE 250	Replace = D10-3 (250)

SHEET NO.
S5

SIGN LOCATION AND SPECIFICATION

PROJECT NAME: FLOWING WELLS - EAST & WEST
COUNTY: GARFIELD AND McCONE
PROJECT ID: NH-HSIP 57-5(56)247
UPN: 9726000

DESIGNED BY	DATE	REVIEWED BY		CHECKED BY	DATE
S.MORANO	07/2024	-	-	N.STYREN	08/2024

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MONTANA
Department of Transportation

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SIGN LOCATION					SIGN PANEL SPECIFICATIONS						SIGN ASSEMBLY SPECIFICATIONS												SIGN ASSEMBLY QUANTITIES												ADDITIONAL SIGN INFORMATION	
STATION / R.P.	LFT	MDN	DIRECTION RGT	RAMP NO.	SIGN NO. (MUTCD)	PANEL SIZE (INCHES) W X H	FY OR FYG	BACK BRACING REQ'D ANGLE IRON REQ'D	MOUNT BACK TO BACK	REPLACE SIGN FACE ONLY	CLEARANCE/OFFSET (SHOULDER TO EDGE OF SIGN) (FEET)	TYPE OF SUPPORT	SIGN SUPPORT SPACING (FEET)	MOUNTING HEIGHT (FEET)	SIGN HEIGHT + GAPS (FEET)	FOUNDATION DEPTH (FEET)	SUPPORT LENGTH (ESTIMATED) X (FEET)	Y	Z	CANTILEVER	BREAKAWAY TYPE	BEHIND GUARDRAIL	PANEL (SQ. FT.) SHEET ALUMINUM	SHEET ALUMINUM INCREMENT	WOOD POLE (LNR. FT.) 4" TOP DIA.	5" TOP DIA.	STEEL POST (LBS.) ROUND TUBULAR	SQUARE TUBULAR	STRUCTURAL STEEL	"U" POST	REMV SIGN	REMV GUIDE	RESET SIGN	RESET GUIDE	SIGN IMAGE	SIGN TEXT & REMARKS
420+84.25			X		W8-6a	REMOVE																									1					Remove = W8-6a
					W7-3A																															Remove = W7-3a
420+84.25			X		W14-3	48 X 48 X 36	FY	BBR			10.0	4" Treated Wood Pole		5.0		3.0	13.0						5.5		14						1					Replace = W14-3 (No Passing)
428+49.82	X				W14-3	48 X 48 X 36	FY	BBR			10.0	4" Treated Wood Pole		5.0		3.0	13.0						5.5		14						1					Replace = W14-3 (No Passing)
466+55.02			X		D10-3	10 X 36			MBB		4.0	2.0lb Steel U Post		4.0		3.0	11.8						5.0							22	1					Replace = (2) D10-3 RP (251)
499+35.94			X		W14-3	48 X 48 X 36	FY	BBR			10.0	4" Treated Wood Pole		5.0		3.0	13.0						5.5		14						1					Replace = W14-3 (No Passing)
509+17.16	X				W14-3	48 X 48 X 36	FY	BBR			10.0	4" Treated Wood Pole		5.0		3.0	13.0						5.5		14						1					Replace = W14-3 (No Passing)
519+66.22			X		D10-3	10 X 36			MBB		4.0	2.0lb Steel U Post		4.0		3.0	11.8						5.0							22	1					Replace = (2) D10-3 RP (252)
573+86.29			X		D10-3	10 X 36			MBB		4.0	2.0lb Steel U Post		4.0		3.0	11.8						5.0							22	1					Replace = (2) D10-3 RP (253)
619+09.41			X		W14-3	48 X 48 X 36	FY	BBR			10.0	4" Treated Wood Pole		5.0		3.0	13.0						5.5		14						1					Replace = W14-3 (No Passing)
																				PROJECT TOTALS			260.9	341.5	392	182			2706	154	48	6				

SHEET NO. S6

SIGN LOCATION AND SPECIFICATION

PROJECT NAME: FLOWING WELLS - EAST & WEST
COUNTY: GARFIELD AND McCONE
PROJECT ID: NH-HSIP 57-5(56)247
UPN: 9726000

DESIGNED BY: S.MORANO 07/2024
REVIEWED BY: -
CHECKED BY: N.STYREN 08/2024
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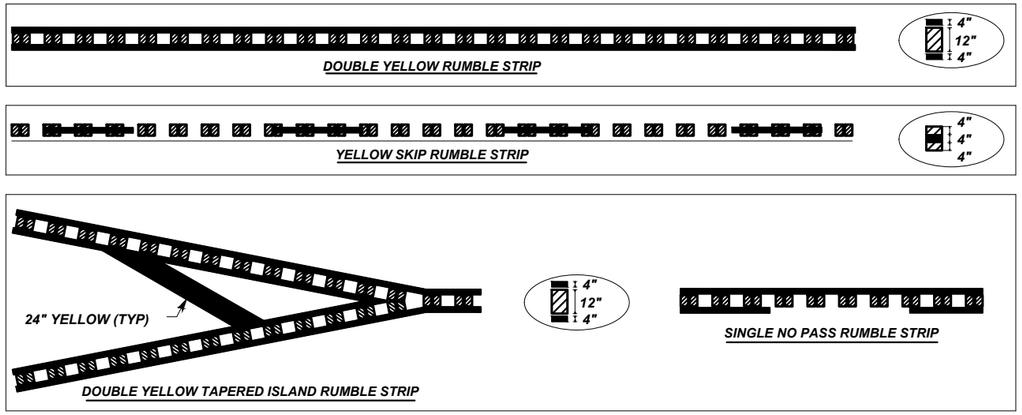
MONTANA Department of Transportation

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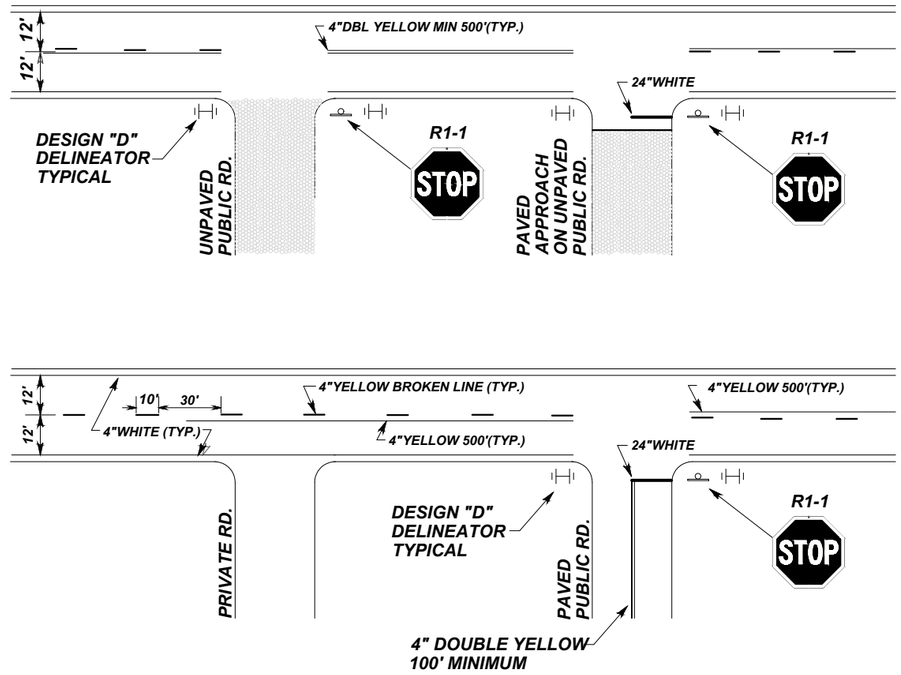
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TYPICAL RURAL CENTERLINE PAVEMENT MARKINGS AND RUMBLE STRIPS.
SEE ROAD DESIGN PLANS FOR RUMBLE STRIP QUANTITY (IF USED)



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 FOR APPLICATION METHODOLOGY*
4. *DASHED LINES WILL HAVE A 10:30 SKIP IN RURAL LOCATIONS, AND A 9:15 SKIP IN URBAN LOCATIONS*

SHEET NO.
S7

DETAIL SHEET

PROJECT NAME: FLOWING WELLS - EAST & WEST
COUNTY: GARFIELD AND McCONE
PROJECT ID: NH-HSIP 57-5(56)247
UPN: 9726000

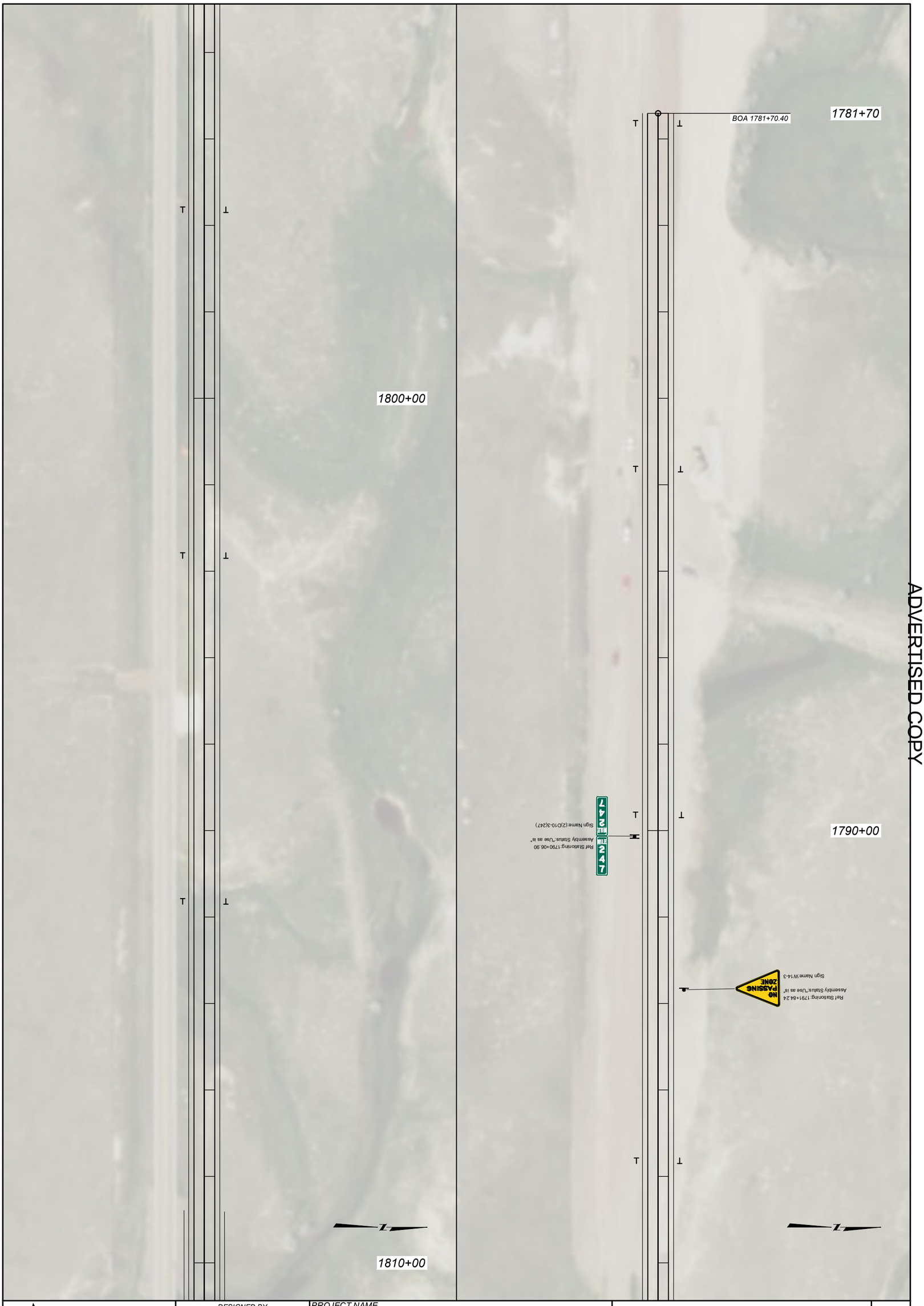
DESIGNED BY	DATE
S.MORANO	07/2024
REVIEWED BY	-
-	-
CHECKED BY	DATE
N.STYREN	08/2024

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MONTANA
Department of Transportation

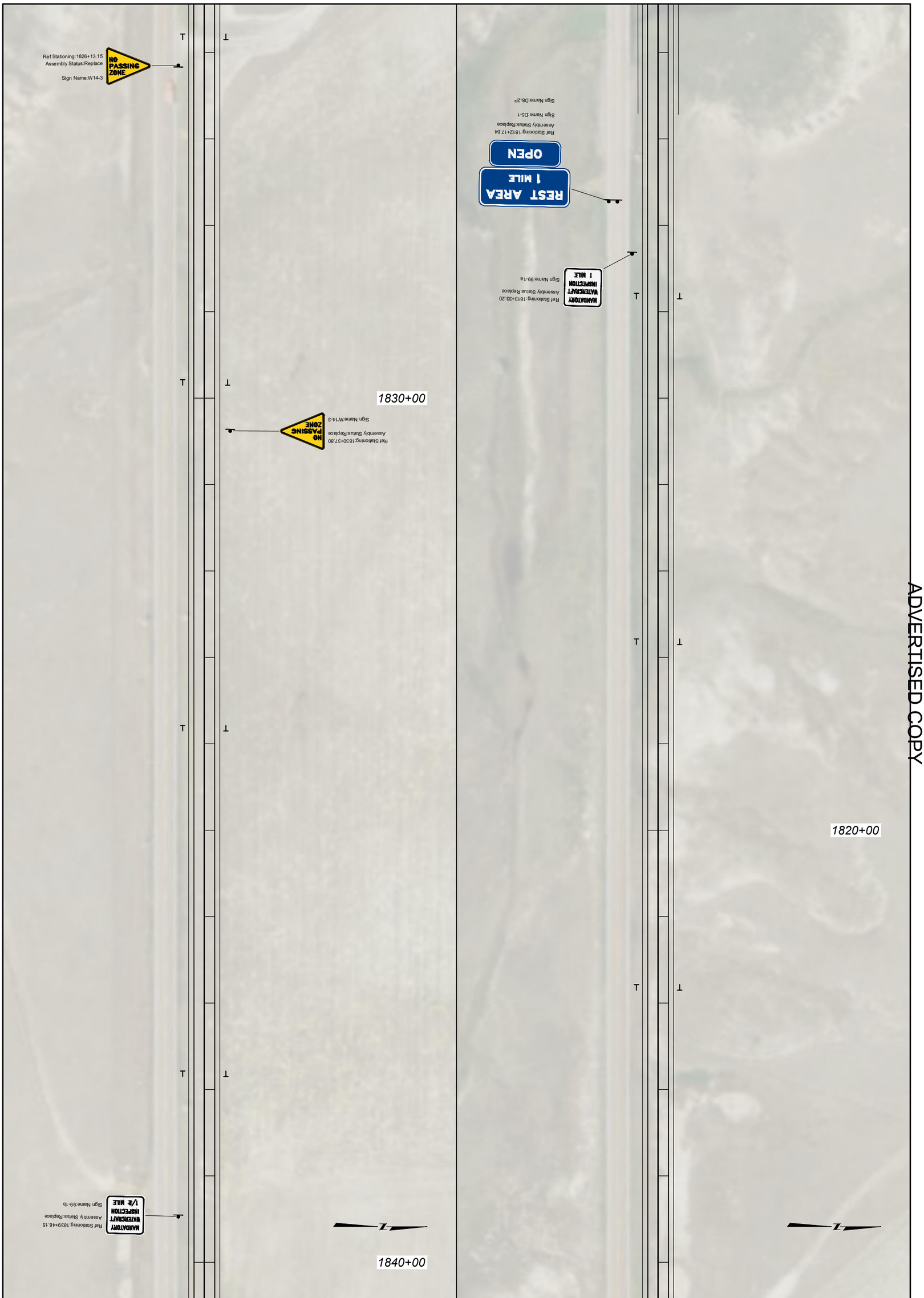
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MONTANA Department of Transportation	DESIGNED BY: S.MORANO 07/2024	PROJECT NAME: FLOWING WELLS - EAST & WEST	PLAN SHEET
SIGNIGN PLANS	REVIEWED BY:	COUNTY: GARFIELD AND McCONE	SHEET NO. S8
11/13/2024 2:18 PM 9726000SIPLN001.DWG	CHECKED BY: N.STYREN 07/2024	PROJECT ID: NH-HSIP 57-5(56)247	
		UPN: 9726000	



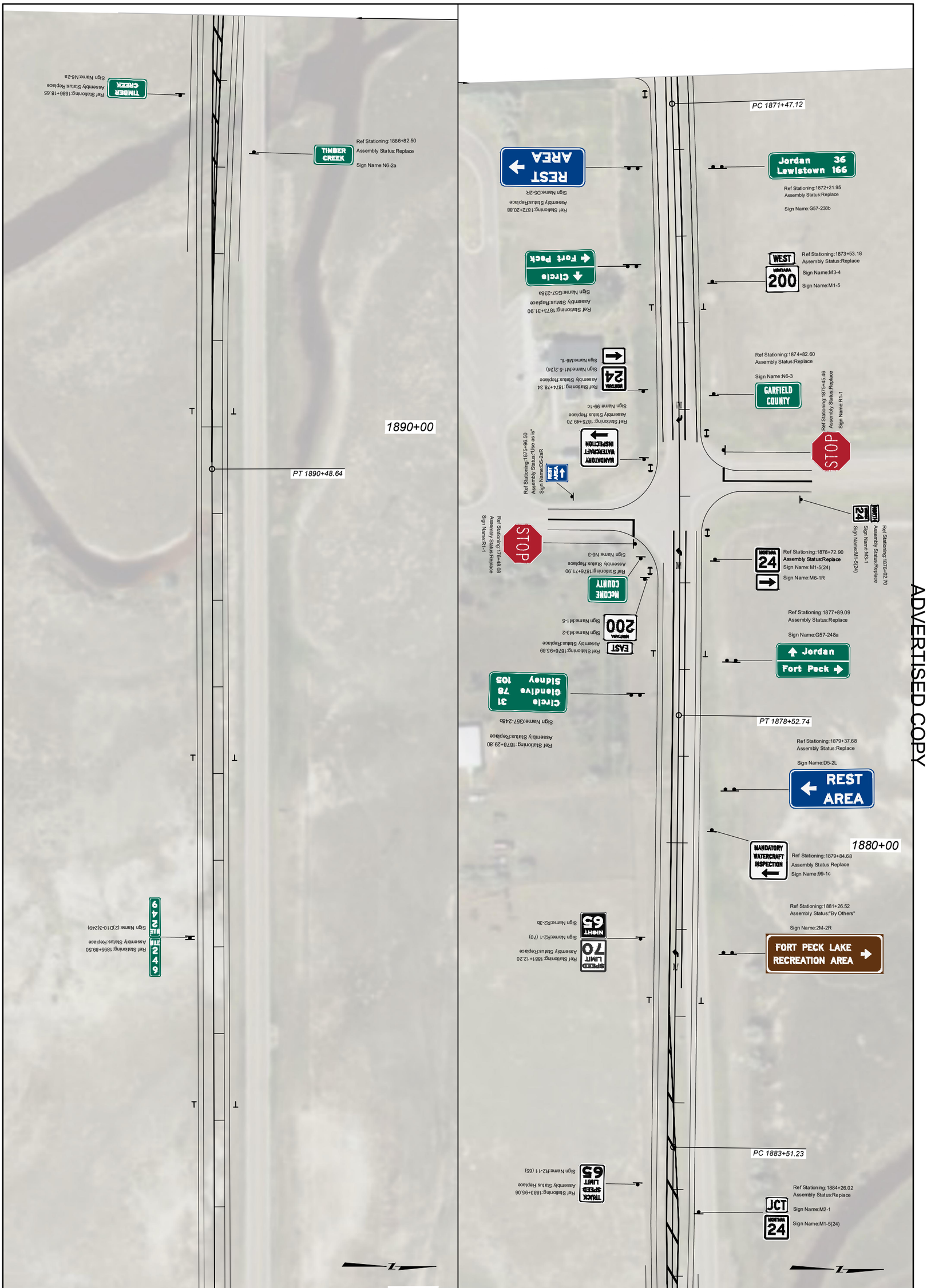
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MONTANA Department of Transportation	DESIGNED BY: S.MORANO 07/2024	PROJECT NAME: FLOWING WELLS - EAST & WEST	PLAN SHEET
SINGING PLANS	REVIEWED BY:	COUNTY: GARFIELD AND McCONE	SHEET NO. S9
11/13/2024 2:18 PM	CHECKED BY: 07/2024 N.STYREN	PROJECT ID: NH-HSIP 57-5(56)247	
9726000SIPLN001.DWG		UPN: 9726000	



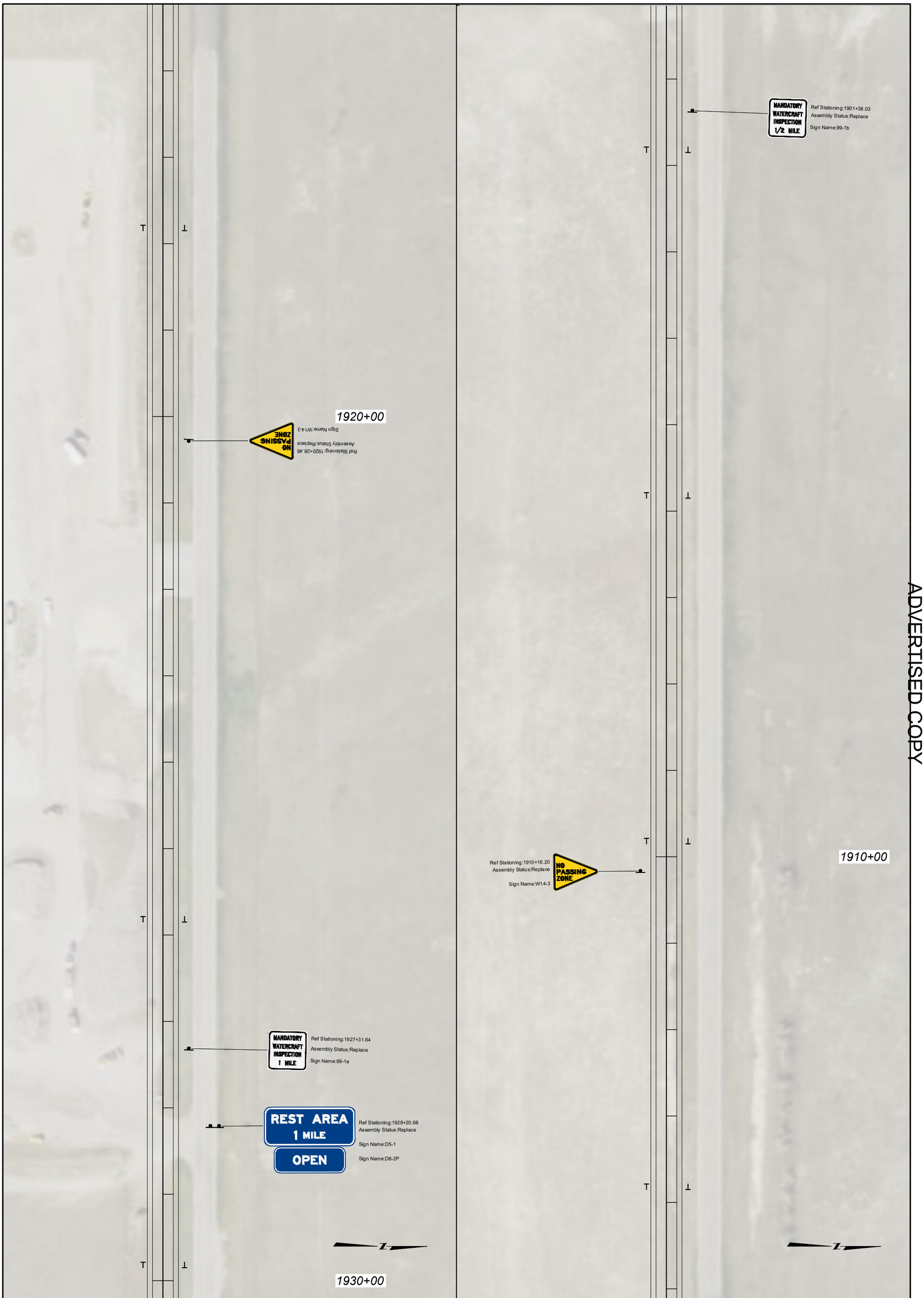
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MONTANA Department of Transportation	DESIGNED BY: S.MORANO 07/2024	PROJECT NAME: FLOWING WELLS - EAST & WEST	PLAN SHEET
SIGNING PLANS	REVIEWED BY:	COUNTY: GARFIELD AND McCONE	SHEET NO. S10
11/13/2024 2:18 PM	CHECKED BY: 07/2024 N.STYREN	PROJECT ID: NH-HSIP 57-5(56)247	
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MONTANA Department of Transportation	DESIGNED BY S.MORANO 07/2024	PROJECT NAME FLOWING WELLS - EAST & WEST	PLAN SHEET
SIGNING PLANS	REVIEWED BY	COUNTY GARFIELD AND McCONE	SHEET NO. S11
	CHECKED BY 07/2024 N.STYREN	PROJECT ID NH-HSIP 57-5(56)247	
11/13/2024 2:18 PM	9726000SIPLN001.DWG	UPN 9726000	



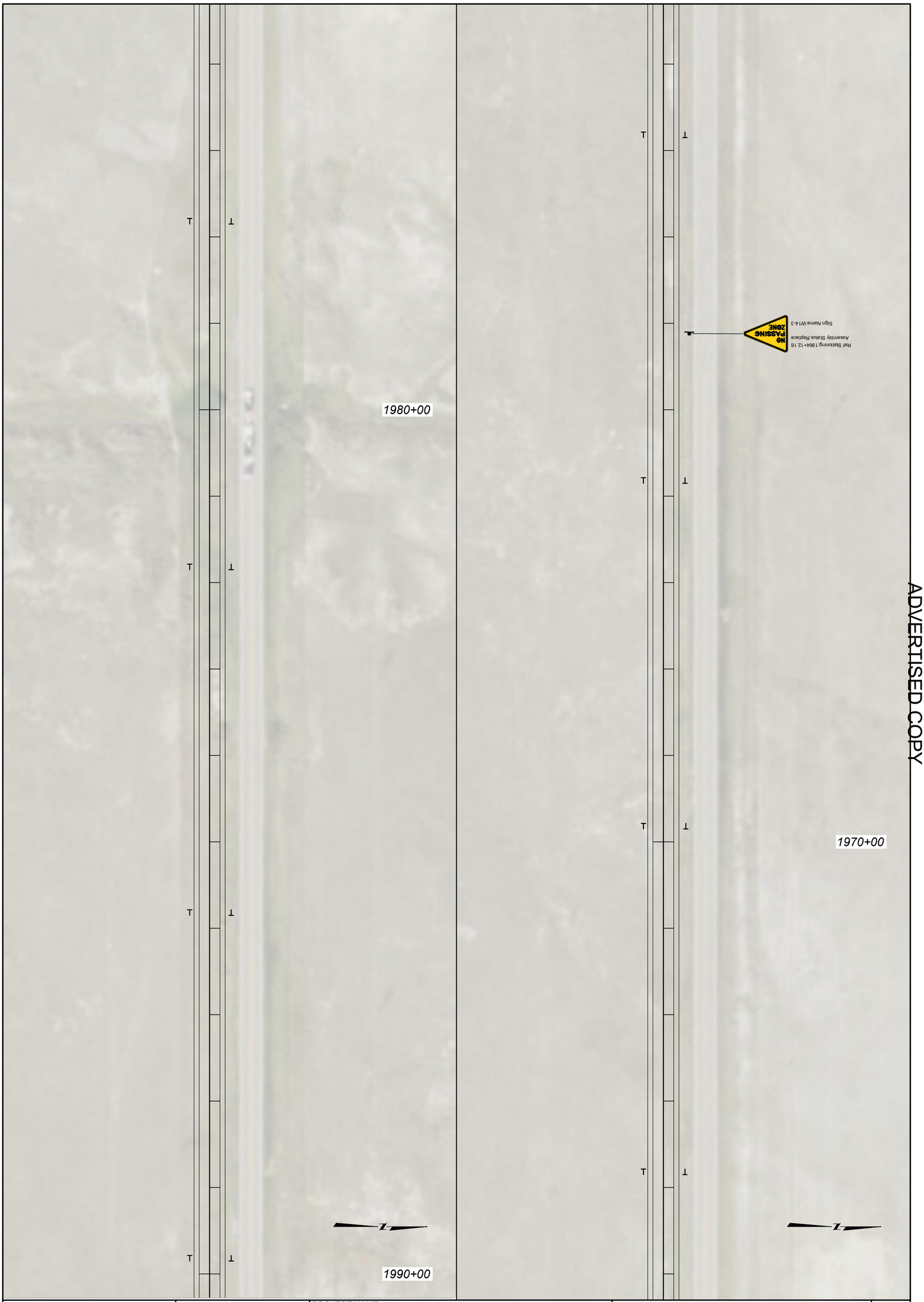
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MONTANA Department of Transportation	DESIGNED BY S.MORANO 07/2024	PROJECT NAME FLOWING WELLS - EAST & WEST	PLAN SHEET	SHEET NO. S12
SIGNING PLANS	REVIEWED BY	COUNTY GARFIELD AND McCONE		
11/13/2024 2:18 PM	CHECKED BY N.STYREN 07/2024	PROJECT ID NH-HSIP 57-5(56)247		
9726000SIPLN001.DWG		UPN 9726000		



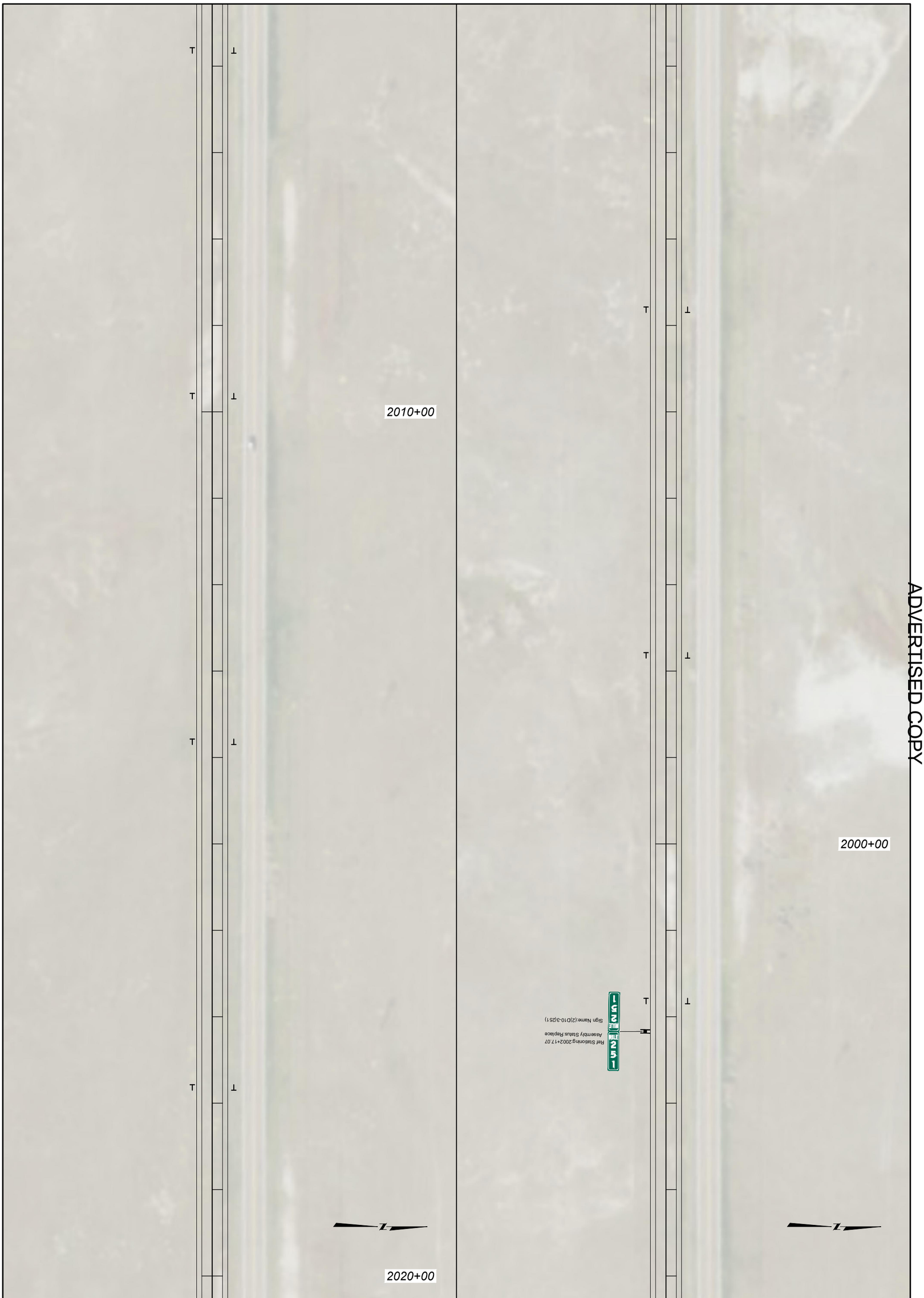
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MONTANA Department of Transportation	DESIGNED BY S.MORANO 07/2024	PROJECT NAME FLOWING WELLS - EAST & WEST	PLAN SHEET
SIGNING PLANS	REVIEWED BY	COUNTY GARFIELD AND McCONE	SHEET NO. S13
11/13/2024 2:18 PM 9726000SIPLN001.DWG	CHECKED BY N.STRYEN 07/2024	PROJECT ID NH-HSIP 57-5(56)247	
		UPN 9726000	



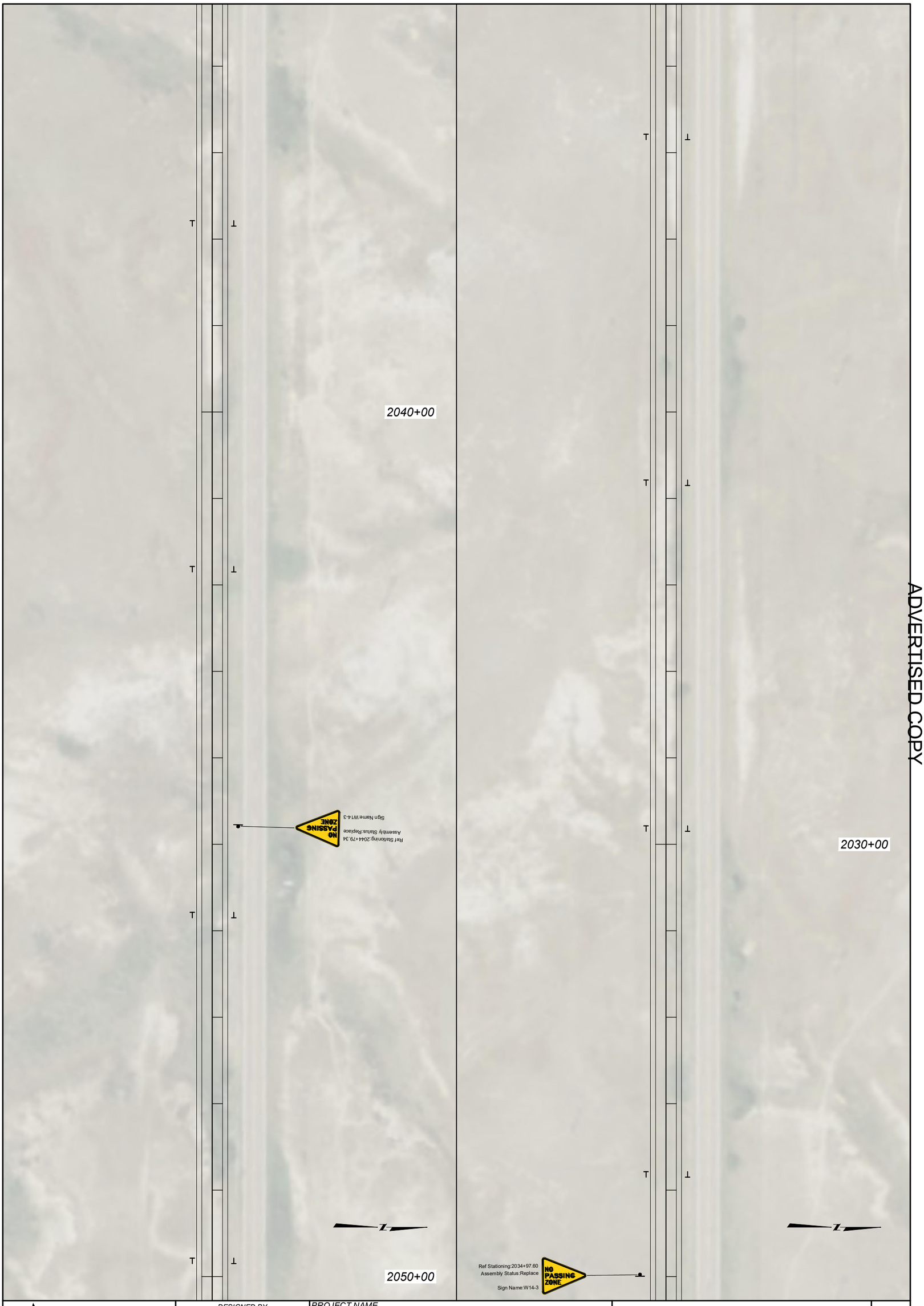
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MONTANA Department of Transportation	DESIGNED BY S.MORANO 07/2024	PROJECT NAME FLOWING WELLS - EAST & WEST	PLAN SHEET	SHEET NO. S14
SIGNING PLANS	REVIEWED BY	COUNTY GARFIELD AND McCONE		
	CHECKED BY N.STRYEN 07/2024	PROJECT ID NH-HSIP 57-5(56)247		
11/13/2024 2:18 PM	9726000SIPLN001.DWG	UPN 9726000		



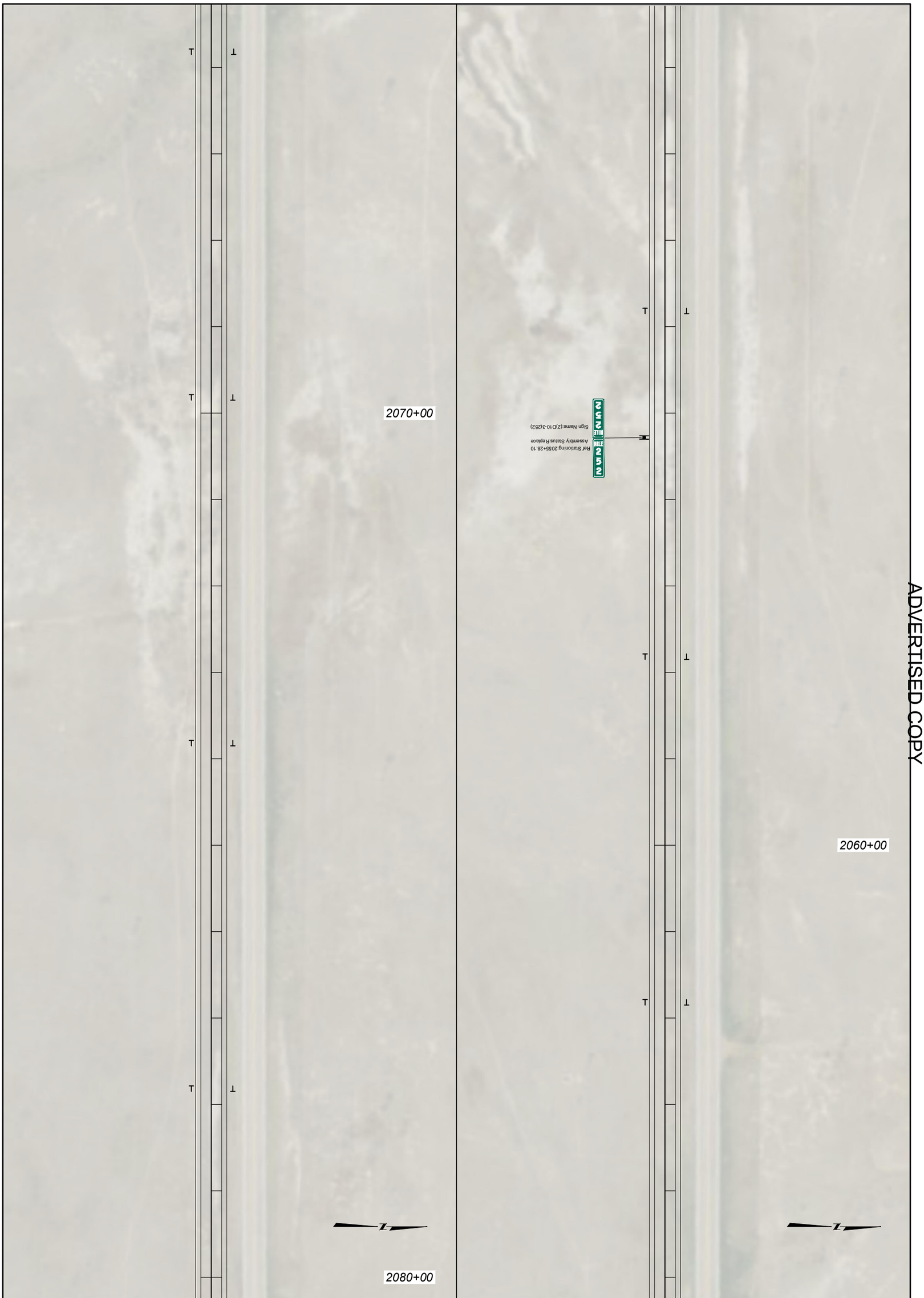
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MONTANA Department of Transportation	DESIGNED BY S.MORANO 07/2024	PROJECT NAME FLOWING WELLS - EAST & WEST	PLAN SHEET	SHEET NO. S15
SIGNING PLANS	REVIEWED BY	COUNTY GARFIELD AND McCONE		
	CHECKED BY N.STYREN 07/2024	PROJECT ID NH-HSIP 57-5(56)247		
11/13/2024 2:18 PM	9726000SIPLN001.DWG	UPN 9726000		



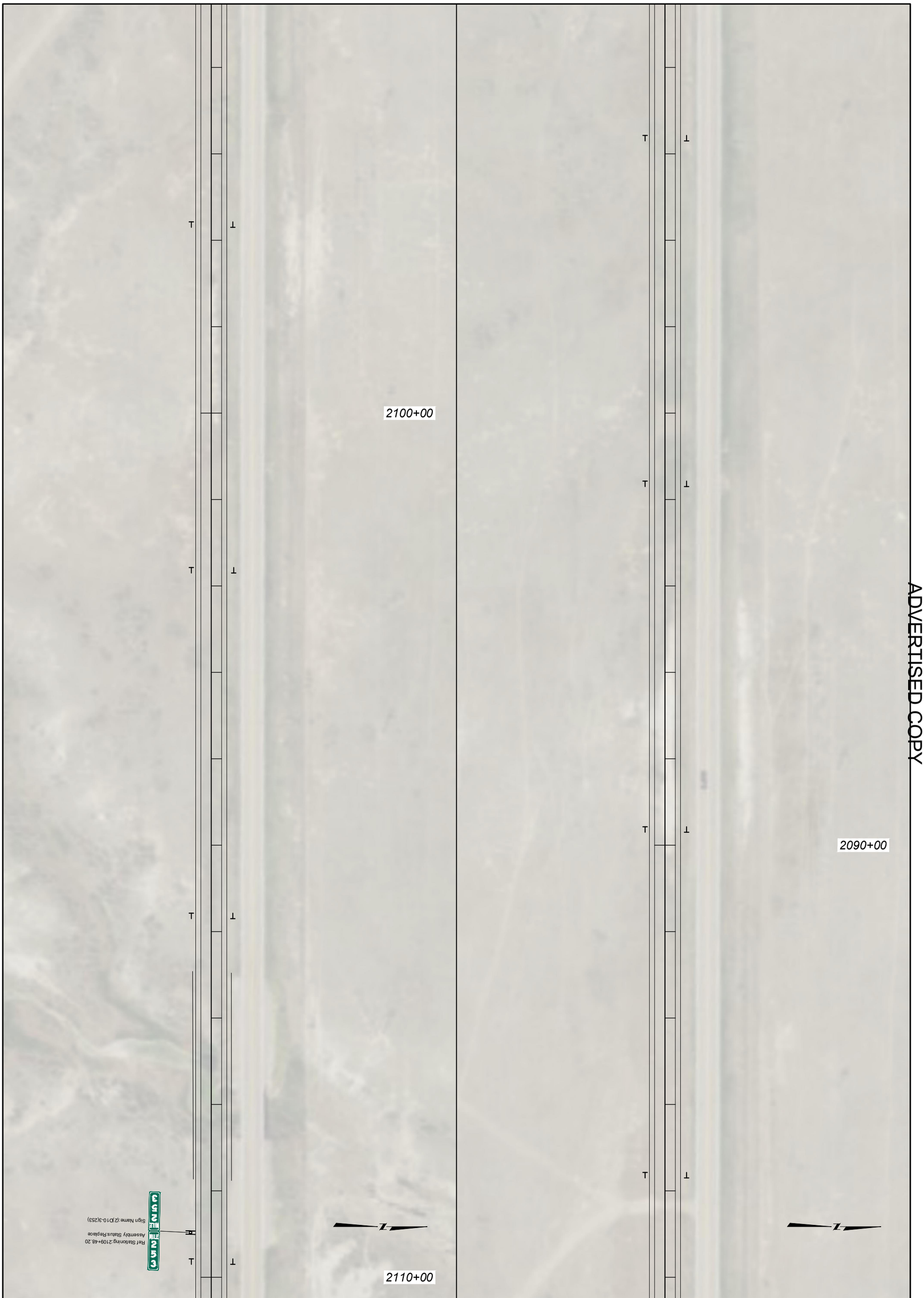
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MONTANA Department of Transportation	DESIGNED BY: S.MORANO 07/2024	PROJECT NAME: FLOWING WELLS - EAST & WEST	PLAN SHEET	SHEET NO. S16
SIGNING PLANS	REVIEWED BY:	COUNTY: GARFIELD AND McCONE		
	CHECKED BY: N.STYREN 07/2024	PROJECT ID: NH-HSIP 57-5(56)247		
11/13/2024 2:18 PM	9726000SIPLN001.DWG	UPN: 9726000		



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SIGNING PLANS	REVIEWED BY	COUNTY GARFIELD AND McCONE		
	CHECKED BY N.STYREN 07/2024	PROJECT ID NH-HSIP 57-5(56)247		
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SIGNING PLANS	REVIEWED BY	COUNTY GARFIELD AND McCONE		
	CHECKED BY N.STYREN 07/2024	PROJECT ID NH-HSIP 57-5(56)247		
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MONTANA Department of Transportation	DESIGNED BY S.MORANO 07/2024	PROJECT NAME FLOWING WELLS - EAST & WEST	PLAN SHEET	SHEET NO. S19
SIGNING PLANS	REVIEWED BY	COUNTY GARFIELD AND McCONE		
	CHECKED BY N.STYREN 07/2024	PROJECT ID NH-HSIP 57-5(56)247		
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SIGNING PLANS	REVIEWED BY	COUNTY GARFIELD AND McCONE	SHEET NO. S20
11/13/2024 2:18 PM	CHECKED BY N.STYREN 07/2024	PROJECT ID NH-HSIP 57-5(56)247	
9726000SIPLN001.DWG		UPN 9726000	

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ASSOCIATED PROJECT AGREEMENT NUMBERS	
P.E.	NH 57-5(55)247

MONTANA DEPARTMENT OF TRANSPORTATION

BRIDGE PLANS AND QUANTITIES

FEDERAL AID PROJECT NH-HSIP 57-5(56)247

FLOWING WELLS - EAST & WEST

McCONE COUNTY

BRIDGE IDENTIFICATION		
MDT STR ID	NEW NBI NUMBER	EXISTING NBI NUMBER
06031	000000202406031	P00057248+08311
06032	000000202406032	P00057249+07481

SCALE SHOWN ON BRIDGE PLANS SHEETS
ARE FOR HALF SIZE (11X17) PRINTS
FULL SIZE PRINTS ARE APPROXIMATELY
TWICE ORIGINAL SCALE

SHEET NO. B1

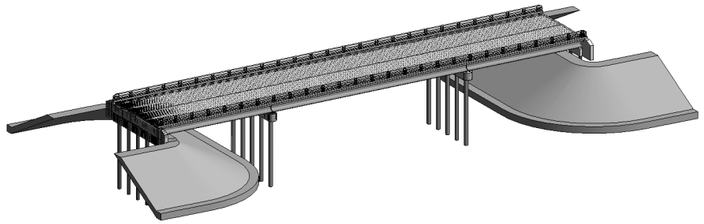
LIST OF DRAWINGS AND ESTIMATED BRIDGE PLAN QUANTITIES

LIST OF DRAWINGS

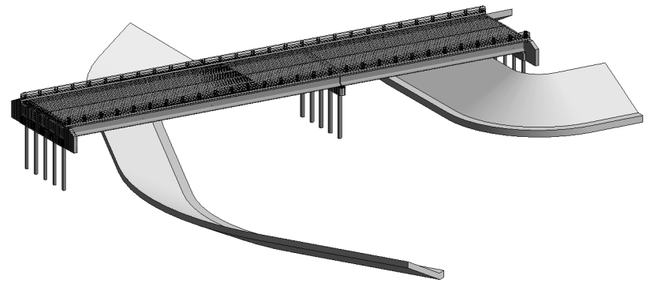
SHEET NO.	DWG. NO.	TITLE
B1	28704	LIST OF DRAWINGS AND ESTIMATED BRIDGE PLAN QUANTITIES
TIMBER CREEK STA. 1891+19.00		
B2	28705	STRUCTURAL NOTES AND SPECIFICATIONS
B3	28706	GENERAL LAYOUT
B4	28707	FOOTING PLAN
B5	28708	BENT NO. 1 & NO. 4
B6	28709	BENT NO. 1 & NO. 4 DETAILS
B7	28710	PIER NO. 2 & NO. 3
B8	28711	PIER NO. 2 & NO. 3 DETAILS
B9	28712	ERECTION PLAN
B10	28713	SLAB DETAILS
B11	28714	STRUCTURE BILL OF REINFORCING STEEL
SKULL CREEK STA. 1934+88.25		
B12	28715	STRUCTURAL NOTES AND SPECIFICATIONS
B13	28716	GENERAL LAYOUT
B14	28717	FOOTING PLAN
B15	28718	BENT NO. 1 & NO. 3
B16	28719	BENT NO. 1 & NO. 3 DETAILS
B17	28720	PIER NO. 2
B18	28721	PIER NO. 2 DETAILS
B19	28722	ERECTION PLAN
B20	28723	SLAB DETAILS
B21	28724	STRUCTURE BILL OF REINFORCING STEEL
DETAILED DRAWINGS		
B22	28725	PILE SPLICE DETAILS AND PILE TIPS
B23	28726	BRIDGE RAIL TYPE OPEN RAIL 42" SHEET 1
B24	28727	BRIDGE RAIL TYPE OPEN RAIL 42" SHEET 2
B25	28728	BRIDGE RAIL TYPE OPEN RAIL 42" SHEET 3
B26	28729	BRIDGE RAIL TYPE OPEN RAIL 42" APPROACH PLATE

LIST OF STANDARD DRAWINGS

DWG. NO.	DATE	TITLE
MTS	REVISED 5-20-14	STANDARD PRESTRESSED CONCRETE BEAM TYPE MTS
SL-8	REVISED 3-15-17	STANDARD SLAB AND DIAPHRAGM DETAILS



1 ILLUSTRATIVE OVERVIEW OF PROJECT STA. 1891+19.00 (TIMBER CREEK)
No Scale



2 ILLUSTRATIVE OVERVIEW OF PROJECT STA. 1934+88.25 (SKULL CREEK)
No Scale

ESTIMATED BRIDGE PLAN QUANTITIES

LOCATION	LENGTH (LNFT)	CONCRETE - CLASS STRUCTURE (CUYD)	CONCRETE - CLASS STRUCTURE LOW SLUMP (CUYD)	TRANSVERSE DECK GROOVING (SQYD)	STRUCTURAL STEEL - MISC (LUMP SUM)	REINFORCING STEEL (LB)	REINFORCING STEEL - EPOXY COATED (LB)	42 IN OPEN RAIL-BR-CSC (LNFT)	PRESTRESSED CONCRETE BEAM		DYNAMIC LOAD TEST (EACH)	RE-DRIVE TEST PILE (EACH)	FURN STEEL PILE-PIPE (LB)	DRIVE STEEL PILE (LNFT)	PILE CUTTING SHOE (EACH)
									TYPE MTS-45 (LNFT)	TYPE MTS-63 (LNFT)					
TIMBER CREEK (06031)															
Bent No. 1		29.5				3533	583						17259	200	5
Pier No. 2		18.7			0.5	3231					1		23759	197	5
Pier No. 3		18.7			0.5	3231							28945	221	5
Bent No. 4		29.5				3533	583				1		19341	225	5
Superstructure	207.00		239.3	783.9			53020	419.3	1020						
SubTotal	207.00	96.4	239.3	783.9	1.0	13528	54186	419.3	1020		2	2	89304	843	20
SKULL CREEK (06032)															
Bent No. 1		36.8				3795	755				1		18517	215	5
Pier No. 2		15.3				2518					1		23192	186	5
Bent No. 3		36.8				3795	755						16446	190	5
Superstructure	224.50		261.6	850			56564	454.3		1115					
SubTotal	224.50	88.9	261.6	850		10108	58074	454.3		1115	2	2	58155	591	15
Total	431.50	185.3	500.9	1633.9	1.0	23636	112260	873.6	1020	1115	4	4	147459	1434	35

REVISED	REVISED	REVISED	REVISED	CHECKED	DRAWN	DESIGNED
				11-5-24	10-30-24	9-28-23
				J.L.J.	C.J.W./M.T.G.	A.E.K./J.L.J.

FILENAME: 9726000BRVT002.RVT

MONTANA Department of Transportation — BRIDGE BUREAU

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ROUTE N-57

REF POINT MULTIPLE

MDT STR. ID MULTIPLE

UPN NUMBER 9726000

DRAWING NO. 28704

ADVERTISED COPY

GENERAL NOTES:

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 Specificatons, Ninth edition - 2020, with standard HL-93 loading.

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

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.

Dimensions 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 0.99928388.

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

FOUNDATION NOTES:

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

See the Special Provisions for original 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.

If the project manager requires a re-drive of test pile, re-drive the pile in accordance with Section 559.

REINFORCING STEEL NOTES:

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.

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 1/2" less than what is listed above.

Ensure reinforcing steel does not interfere with anchor bolt placement.

CONCRETE NOTES:

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.

ABUTMENT & PIER NOTES:

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 Sheets B5 & B7. Slope areas between beam seats as shown sheet B5.

Use D1~1 1/4" ∅ smooth bars meeting the requirements of AASHTO M 270 Grade 36. Include all costs associated with furnishing and placing smooth bars in the unit price bid for Prestressed Beam - Type MTS-45.

BEARING NOTES:

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

Straighten all plates.

Weld bearings according to the Special Provisions. Do not damage bearing bearing assembly during the welding process.

DESIGN INFORMATION:

Sacrificial wearing surface = 1/2"

Design Method = Load and Resistance Factor Design (LRFD)

ANCHOR BOLT NOTES:

Galvanize all anchor bolts & nuts according to AASHTO M232.

Perform charpy V-notch tests on anchor bolts meeting the requirements of ASTM F1554 S5(20J @ -20°F).

Use anchor bolts meeting the requirements of AASHTO M 270 Grade 36 and with two heavy hex nuts meeting the requirements of AASHTO M 291.

Include all costs in Unit Bid Price of Prestressed Concrete Beams.

STRUCTURAL STEEL:

Furnish shear connector studs in accordance with AWS D1.5 Section 7 specification for Stud Welding and the contract.

All structural steel will be measured and paid for on the lump sum basis as set forth in the Standard Specifications. Use structural steel meeting the requirements of AASHTO M 270 Grade 36. Estimated weight = 870 lbs.

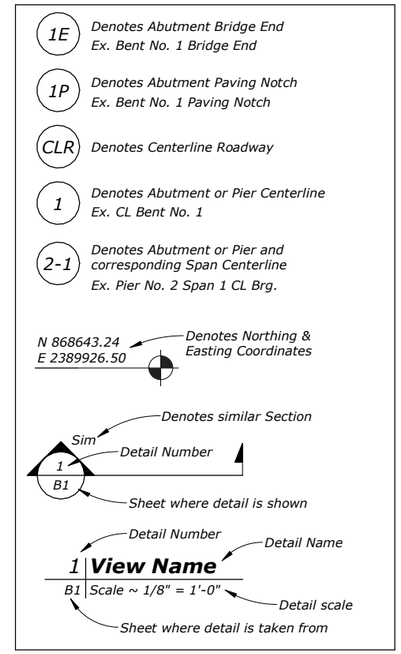
REBAR LAP LENGTHS

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.

ABBREVIATIONS

N.F.	Near Face
F.F.	Fill Face
E.F.	Each Face
Brg.	Bearing
℄	Centerline



BRIDGE SYMBOLOGY

SHEET NO. B2

STRUCTURAL NOTES AND SPECIFICATIONS

SCALE: 12" = 1'-0"

BRIDGE OVER TIMBER CREEK

AT STA. 1891+19.00

FEDERAL AID PROJECT NO. NH-HSIP 5(56)247

COUNTY McCONE

REVISED				J.L.J	
REVISED				C.J.W./M.T.G.	
REVISED				A.E.K.	
REVISED				DESIGNED	9-28-23
CHECKED				DRAWN	10-30-24
				CHECKED	11-5-24

FILENAME: 9726008BRVT002.RVT

MONTANA Department of Transportation
BRIDGE BUREAU

12/10/2024 10:44:57 AM

ROUTE N-57

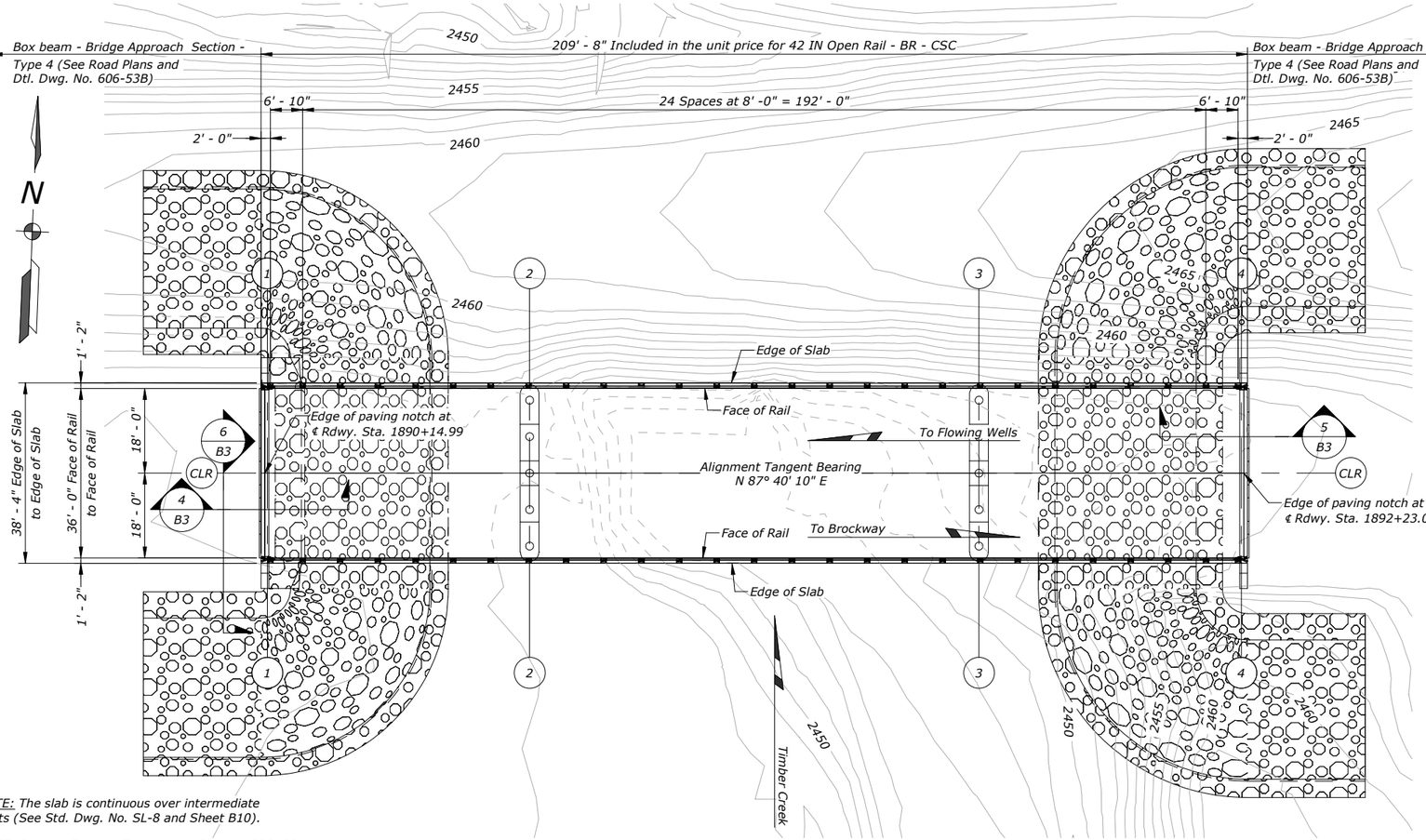
REF POINT 248.828

MDT STR. ID 06031

UPN NUMBER 9726000

DRAWING NO. 28705

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NOTE: The slab is continuous over intermediate bents (See Std. Dwg. No. SL-8 and Sheet B10).

NOTE: Remove Existing Structure at Station 1886+28.

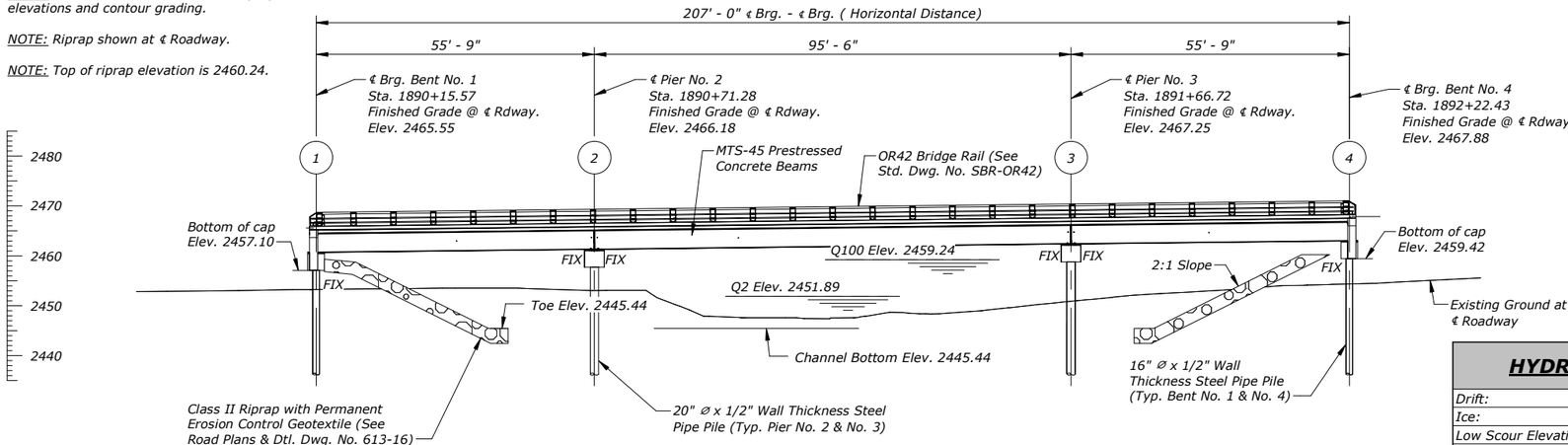
NOTE: See Road Plans for additional riprap elevations and contour grading.

NOTE: Riprap shown at ℄ Roadway.

NOTE: Top of riprap elevation is 2460.24.

1 GENERAL PLAN

B3 | Scale ~ 1" = 30'-0"

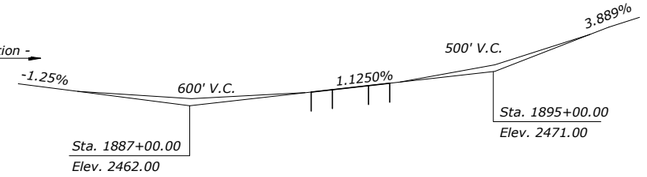


2 GENERAL ELEVATION

Scale ~ 1" = 30'-0"

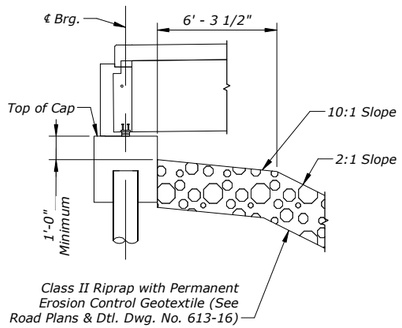
HYDRAULIC DATA

Drift:	None
Ice:	Light
Low Scour Elevation (Q500):	2431.91
Drainage Area:	168 sq mi
Q2 Elevation:	2451.89
Q100 Flow:	5680 cfs
Q100 Elevation:	2459.24
Q100 Velocity:	7.7 fps
Actual Low Beam Elevation:	2460.66
Allowable Low Beam Elevation:	2460.24



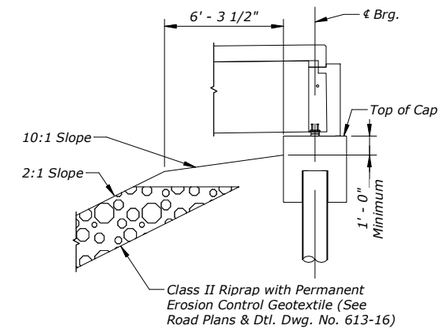
3 PROFILE GRADE

No Scale



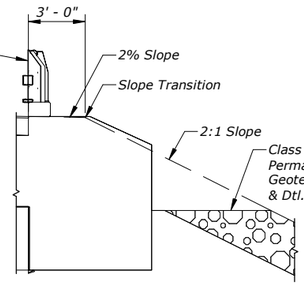
4 RIPRAP BERM DETAIL BENT NO. 1

B3 | Scale ~ 1/8" = 1'-0"



5 RIPRAP BERM DETAIL BENT NO. 4

B3 | Scale ~ 1/8" = 1'-0"



6 FILL SLOPE DETAIL

B3 | Scale ~ 1/8" = 1'-0"

SHEET NO. B3

GENERAL LAYOUT

SCALE: As indicated

BRIDGE OVER TIMBER CREEK

AT STA. 1891+19.00

FEDERAL AID PROJECT NO. NH-HSIP 5(56)247

COUNTY McCONE

				J.L.J.	11-5-24	REVISED
				C.J.W./M.T.G.	10-30-24	REVISED
				A.E.K.	9-16-22	REVISED
				CHECKED		REVISED
				DRAWN		
				DESIGNED		
				FILENAME:	9726000BRVT002.RVT	

MONTANA Department of Transportation — BRIDGE BUREAU

12/10/2024 10:45:03 AM

ROUTE N-57

REF POINT 248.828

MDT STR. ID 06031

UPN NUMBER 9726000

DRAWING NO. 28706

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COORDINATE TABLE

Location	N OR Y COORDINATE	E OR X COORDINATE	DESCRIPTION
BENT NO. 1	1138781.34	2794909.70	℄ BRG. AT ℄ ROADWAY
PIER NO. 2	1138783.57	2794965.37	℄ BRG. AT ℄ ROADWAY
PIER NO. 3	1138787.45	2795060.73	℄ BRG. AT ℄ ROADWAY
BENT NO. 4	1138789.72	2795116.39	℄ BRG. AT ℄ ROADWAY

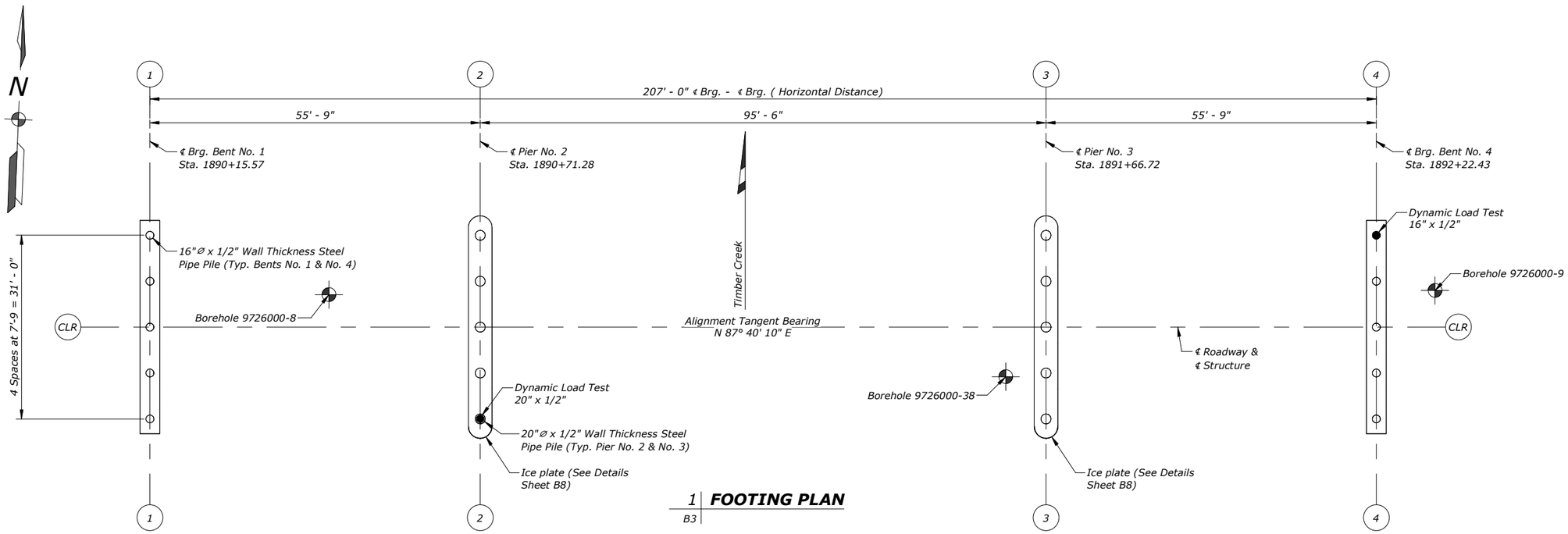
PILE INFORMATION

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	2417.1	2458.76	CUTTING SHOE	324	140
PIER NO. 2	2413.7	2459.39	CUTTING SHOE	631	285
PIER NO. 3	2404.8	2460.46	CUTTING SHOE	631	285
BENT NO. 4	2414.4	2461.09	CUTTING SHOE	324	140

NOTE: Remove existing substructure at Station 1886+30. Verify location.

NOTE: Dimensions shown for Bent No. 1 are typical for Pier No. 2, Pier No. 3 and Bent No. 4

NOTE: ℄ Structure is located on CLR.



1 | B3 **FOOTING PLAN**

SHEET NO. B4

FOOTING PLAN — **SCALE:** 1" = 20'-0"

BRIDGE OVER TIMBER CREEK — **AT STA.** 1891+19.00

FEDERAL AID PROJECT NO. NH-HSIP 5(56)247 — **COUNTY** McCONE

REVISED						J.L.J.	
REVISED						C.J.W./M.T.G.	
REVISED						A.E.K.	
REVISED							
CHECKED	11-5-24						
DRAWN	10-30-24						
DESIGNED	9-23-22						

FILENAME: 9726000BRRVT002.RVT

MONTANA Department of Transportation — BRIDGE BUREAU

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ROUTE N-57

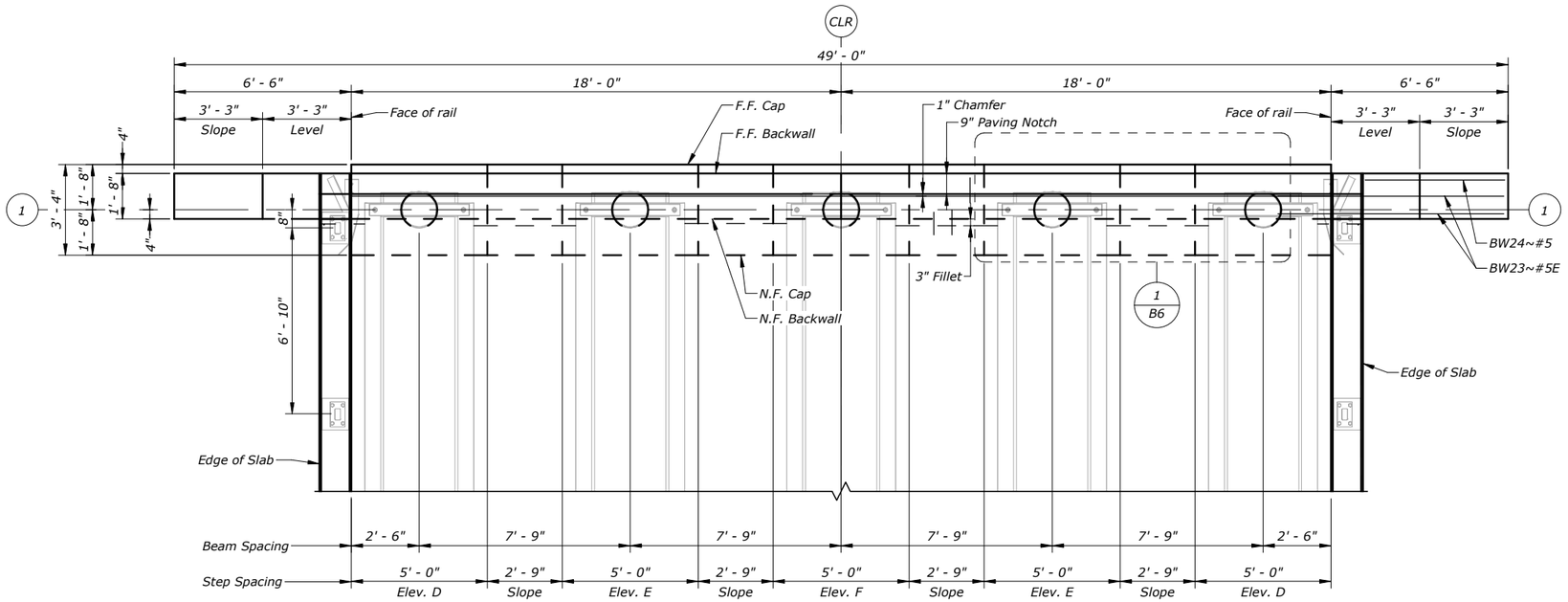
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MDT STR. ID 06031

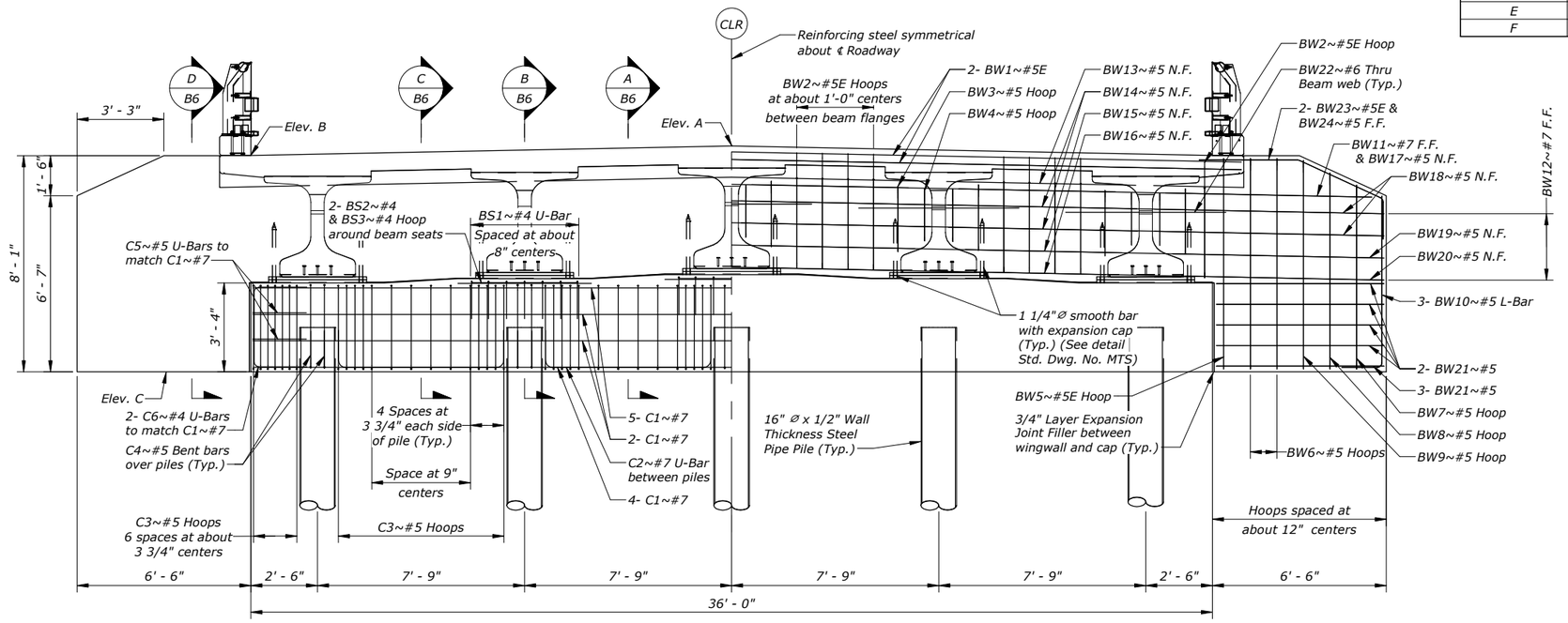
UPN NUMBER 9726000

DRAWING NO. 28707

ADVERTISED COPY



1 | B3 **ABUTMENT PLAN**



2 | **ABUTMENT ELEVATION**

Bent No. 1 shown back on line
Bent No. 4 shown ahead on line

NOTE: See Sheet B6 for additional bent sections, details, reinforcement and notes.

NOTE: See Sheet B11 for Bill of Reinforcing.

NOTE: See Sheet No. B22 for pile details.

NOTE: Finish beam seats level to elevations shown in Table of Elevations this sheet. Slope areas between beam seats as shown.

NOTE: Reinforcement is symmetrical about bent centerline.

NOTE: Bent No. 1 shown. Bent No. 4 similar.

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

TABLE OF ELEVATIONS

ELEVATION	BENT NO. 1	BENT NO. 4
A	2465.55	2467.88
B	2465.19	2467.52
C	2457.10	2459.42
D	2460.43	2462.76
E	2460.58	2462.91
F	2460.74	2463.07

SHEET NO. B5

BENT NO. 1 & NO. 4

SCALE: 3/16" = 1'-0"

BRIDGE OVER TIMBER CREEK

AT STA. 1891+19.00

FEDERAL AID PROJECT NO. NH-HSIP 5(56)247

COUNTY McCONE

REVISED						J.L.J.	
REVISED						C.J.W./M.T.G.	
REVISED						A.E.K.	
REVISED						11-5-24	9726008BRVT002.RVT
CHECKED						10-30-24	
DRAWN						9-28-23	
DESIGNED						FILENAME:	

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ROUTE N-57

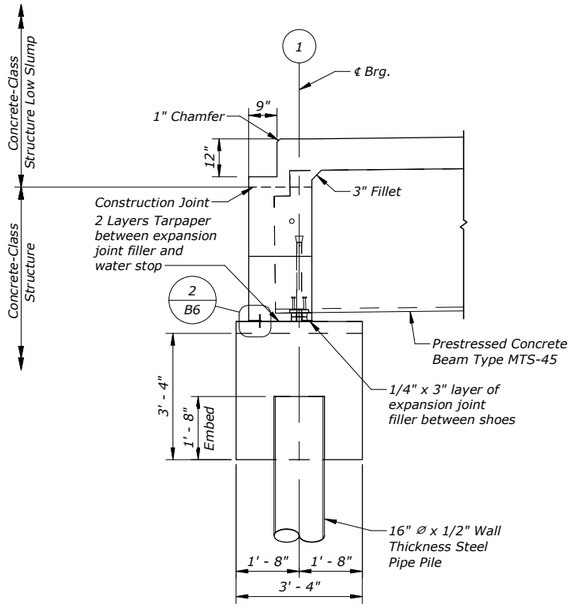
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MDT STR. ID 06031

UPN NUMBER 9726000

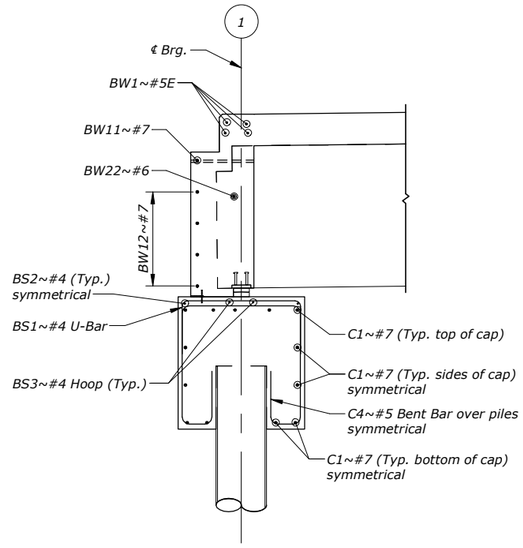
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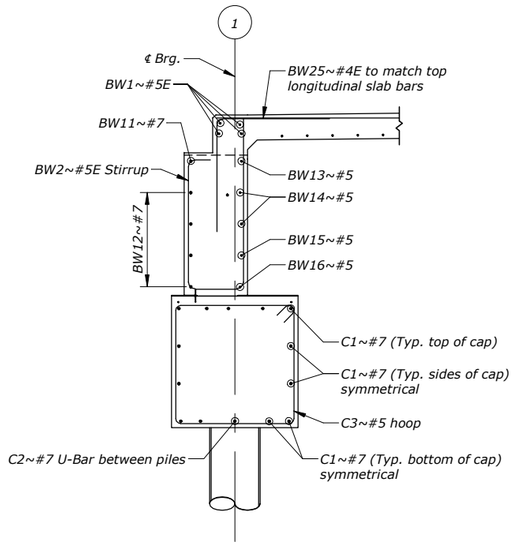
A | ABUTMENT SECTION

B5 | Scale ~ 1/4" = 1'-0"



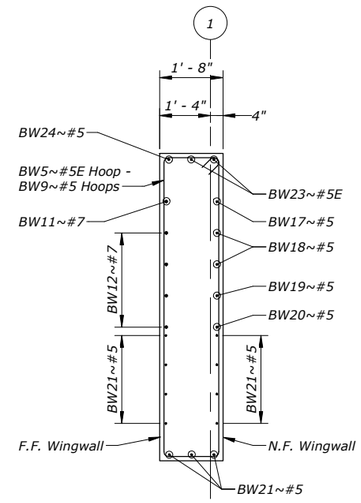
B | ABUTMENT REINFORCING AT PILES

B5 | Scale ~ 1/4" = 1'-0"



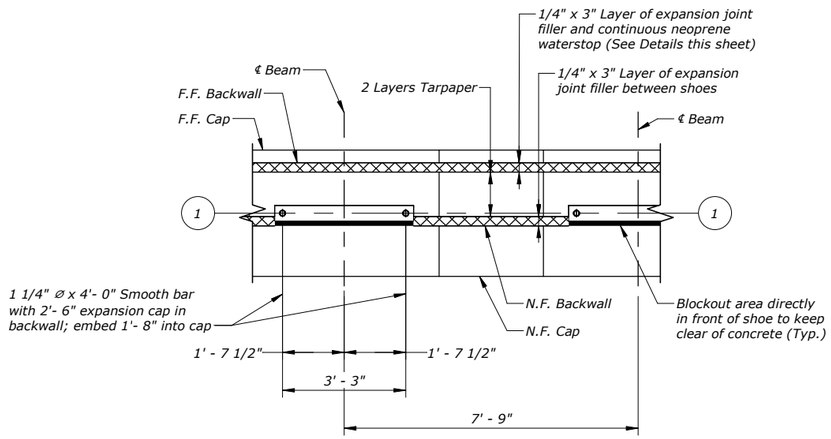
C | ABUTMENT REINFORCING BETWEEN PILES

B5 | Scale ~ 1/4" = 1'-0"



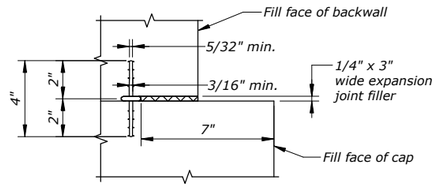
D | WINGWALL SECTION

B5 | Scale ~ 1/4" = 1'-0"



1 | TOP OF CAP DETAIL

B5 | Scale ~ 1/4" = 1'-0"



NOTE: Hold waterstop in accurate position while placing concrete.

2 | WATERSTOP DETAIL

B6 | Scale ~ 1 1/2" = 1'-0"

SHEET NO. B6

BENT NO. 1 & NO. 4 DETAILS

SCALE: As indicated

BRIDGE OVER TIMBER CREEK

AT STA. 1891+19.00

FEDERAL AID PROJECT NO. NH-HSIP 5(56)247

COUNTY McCONE

REVISED		J.L.J.	
REVISED		11-5-24	C.J.W./M.T.G.
REVISED		10-30-24	A.E.K.
REVISED		9-28-23	
CHECKED		DESIGNED	FILENAME: 9726008BRVT002.RVT
DRAWN			

MONTANA Department of Transportation — BRIDGE BUREAU

12/10/2024 10:45:06 AM

ROUTE N-57

REF POINT 248.828

MDT STR. ID 06031

UPN NUMBER 9726000

DRAWING NO. 28709

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NOTE: See Sheet B8 for additional pier sections, details, reinforcement and notes.

NOTE: See Sheet B11 for Bill of Reinforcing.

NOTE: See Sheet No. B22 for pile details.

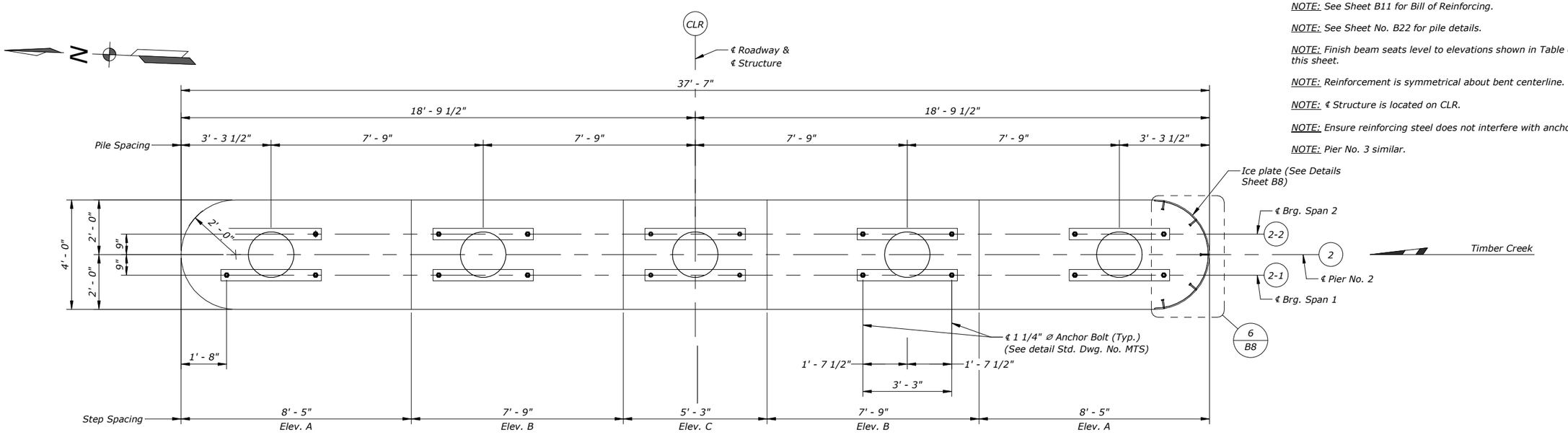
NOTE: Finish beam seats level to elevations shown in Table of Elevations this sheet.

NOTE: Reinforcement is symmetrical about bent centerline.

NOTE: ℄ Structure is located on CLR.

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

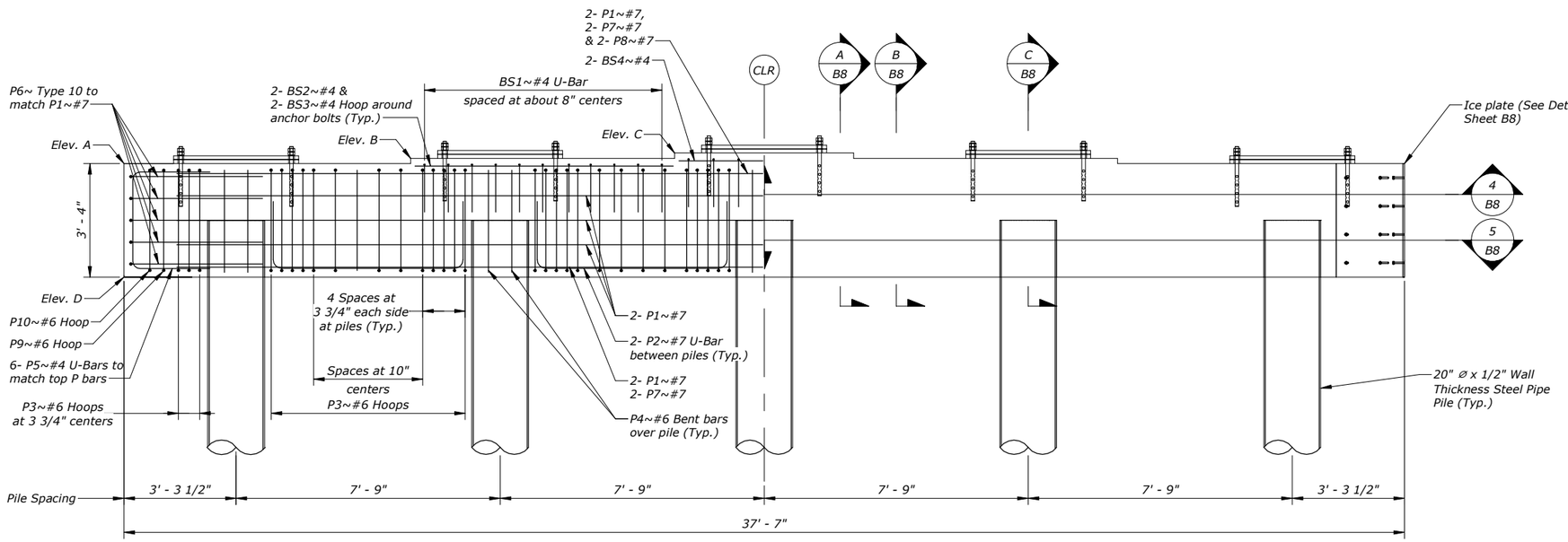
NOTE: Pier No. 3 similar.



1 PIER PLAN

TABLE OF ELEVATIONS

ELEVATION	PIER NO. 2	PIER NO. 3
A	2461.06	2462.13
B	2461.21	2462.28
C	2461.37	2462.44
D	2457.72	2458.80



2 PIER ELEVATION

Shown Ahead On Line

SHEET NO. B7

PIER NO. 2 & NO. 3

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

BRIDGE OVER TIMBER CREEK

AT STA. 1891+19.00

FEDERAL AID PROJECT NO. NH-HSIP 5(56)247

COUNTY McCONE

	REVISED	REVISED	REVISED	REVISED		
J.L.J.					11-5-24	CHECKED
C.J.W./M.T.G.					10-30-24	DRAWN
A.E.K.					9-28-23	DESIGNED

FILENAME: 9726000BRVT002.RVT

MONTANA Department of Transportation — BRIDGE BUREAU

12/10/2024 10:45:07 AM

ROUTE N-57

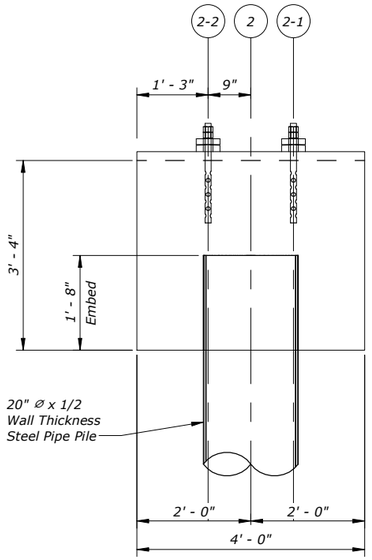
REF POINT 248.828

MDT STR. ID 06031

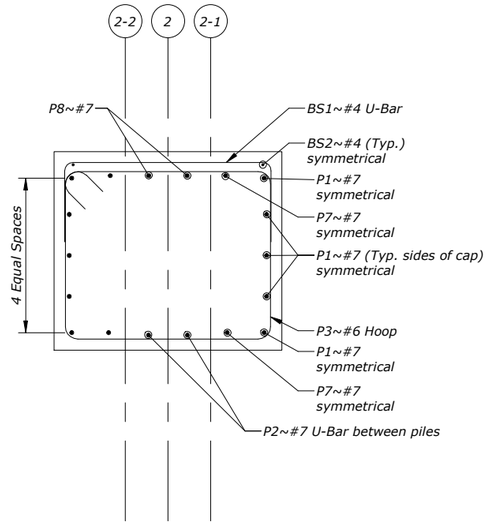
UPN NUMBER 9726000

DRAWING NO. 28710

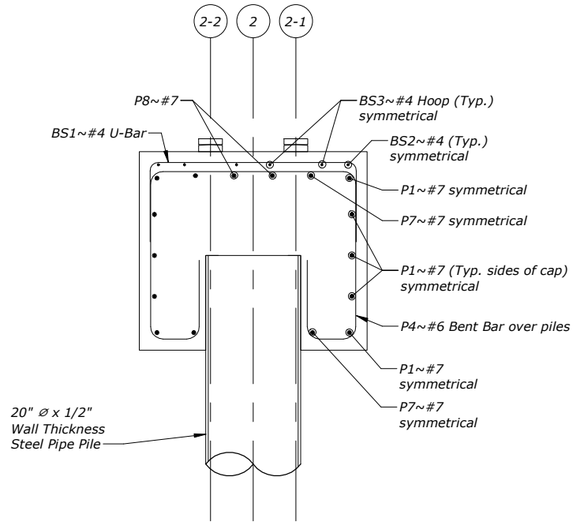
ADVERTISED COPY



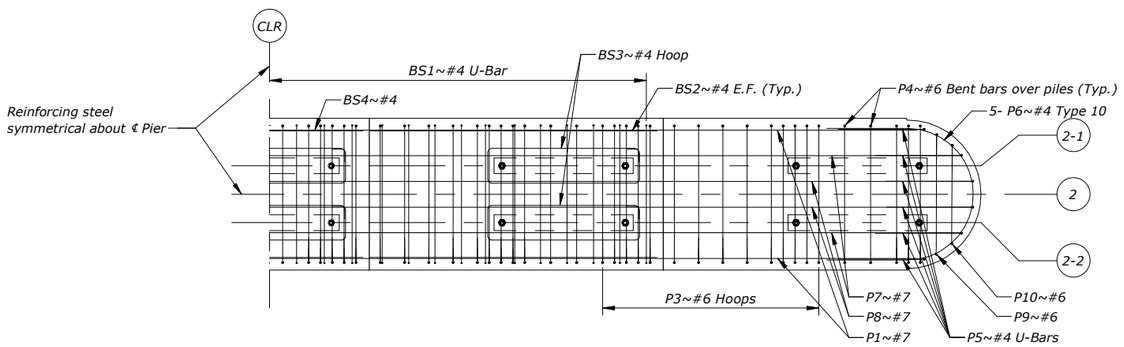
A | PIER SECTION
B7 | Scale ~ 3/8" = 1'-0"



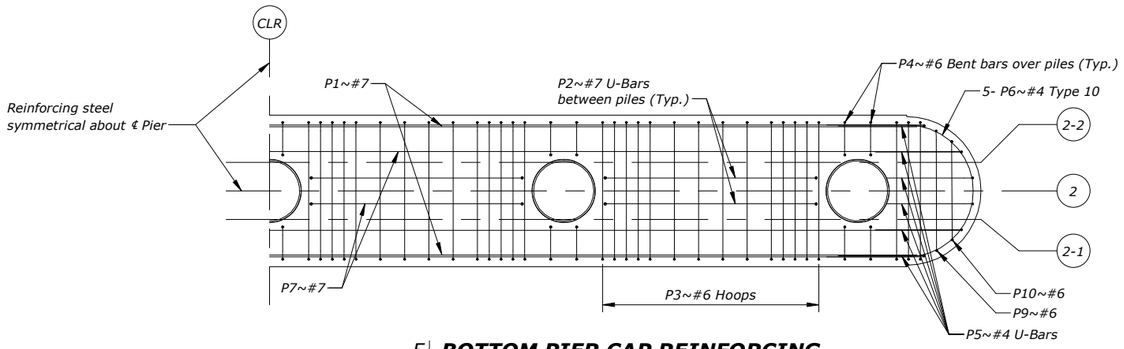
B | PIER REINFORCING BETWEEN PILES
B7 | Scale ~ 3/8" = 1'-0"



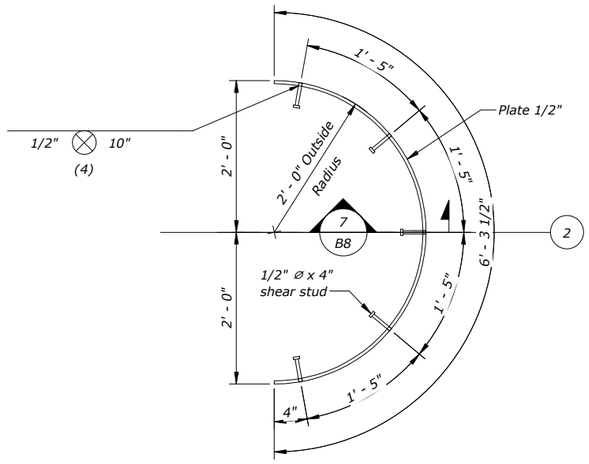
C | PIER REINFORCING AT PILES
B7 | Scale ~ 3/8" = 1'-0"



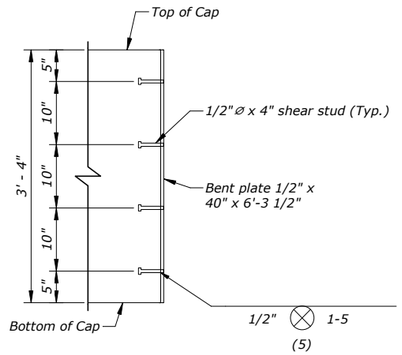
4 | TOP PIER CAP REINFORCING
B7 | Scale ~ 1/4" = 1'-0"



5 | BOTTOM PIER CAP REINFORCING
B7 | Scale ~ 1/4" = 1'-0"



6 | ICE PLATE PLAN
B7 | Scale ~ 1/2" = 1'-0"



7 | ICE PLATE SECTION
B8 | Scale ~ 1/2" = 1'-0"

SHEET NO. B8

PIER NO. 2 & NO. 3 DETAILS

SCALE: As indicated

BRIDGE OVER TIMBER CREEK

AT STA. 1891+19.00

FEDERAL AID PROJECT NO. NH-HSIP 5(56)247

COUNTY McCONE

	REVISED	REVISED	REVISED	REVISED	CHECKED	DRAWN	DESIGNED
					11-5-24	10-30-24	9-28-23
					J.L.J.	C.J.W./M.T.G.	A.E.K.

FILENAME: 9726008BRVT002.RVT

MONTANA Department of Transportation — BRIDGE BUREAU

12/10/2024 10:45:08 AM

ROUTE N-57

REF POINT 248.828

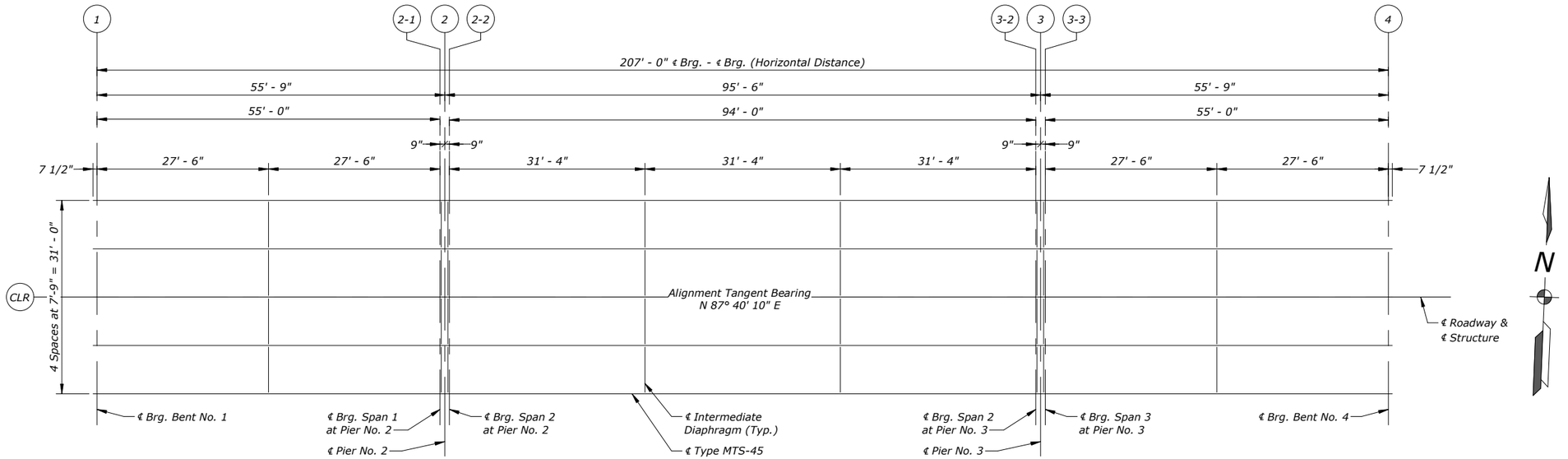
MDT STR. ID 06031

UPN NUMBER 9726000

DRAWING NO. 28711

ADVERTISED COPY

NOTE: See Standard Drawing No. SL-8 for diaphragm details.



1 | B3 **ERECTION PLAN**

PRESTRESSED BEAM DESIGN PARAMETERS

AASHTO Specification	LRFD 9th Edition - 2020
Structure Type	Simple Span
Deck Concrete Strength	4000 psi
Deck Concrete Density	150 lb/cu. ft.
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 M5S, 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

PRESTRESSED BEAM LOAD TABLE

LOAD TYPE	LOADS	APPLICATION METHOD
Barrier Load	0.184 kip/ft per rail	Equally to all beams
Future Wearing Surface	10 lb/sq. ft. applied between curbs	Equally to all beams
Interior Diaphragm	1.96 kip/diaphragm	At point load
Exterior Diaphragm	0.98 kip/diaphragm	At point load
Additional Dead Load	-----	----
Live Load	LRFD - HL-93	per AASHTO LRFD

DEAD LOAD DEFLECTION TABLE

TYPE MTS-45 PRESTRESSED CONCRETE BEAM

SPAN LENGTH 94'-0"

	TENTH POINT				
	0.1	0.2	0.3	0.4	0.5
INT.	1/2"	1"	1 3/8	1 9/16"	1 11/16"
EXT.	5/8"	15/16"	1 5/16"	1 9/16"	1 5/8"

DEAD LOAD DEFLECTION TABLE

TYPE MTS-45 PRESTRESSED CONCRETE BEAM

SPAN LENGTH 55'-0"

TENTH POINT

	0.1	0.2	0.3	0.4	0.5
INT.	1/16"	1/8"	3/16"	3/16"	3/16"
EXT.	1/16"	1/8"	1/8"	3/16"	3/16"

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

SHEET NO. B9

ERECTION PLAN

SCALE: 1" = 20'-0"

BRIDGE OVER TIMBER CREEK

AT STA. 1891+19.00

FEDERAL AID PROJECT NO. NH-HSIP 5(56)247

COUNTY McCONE

REVISED		CHECKED	J.L.J.
REVISED		DRAWN	C.J.W./M.T.G.
REVISED		DESIGNED	A.E.K.
REVISED		FILENAME:	9726000BRVT002.RVT
			11-5-24
			10-30-24
			9-28-23

MONTANA Department of Transportation — BRIDGE BUREAU

12/10/2024 10:45:09 AM

ROUTE N-57

REF POINT 248.828

MDT STR. ID 06031

UPN NUMBER 9726000

DRAWING NO. 28712

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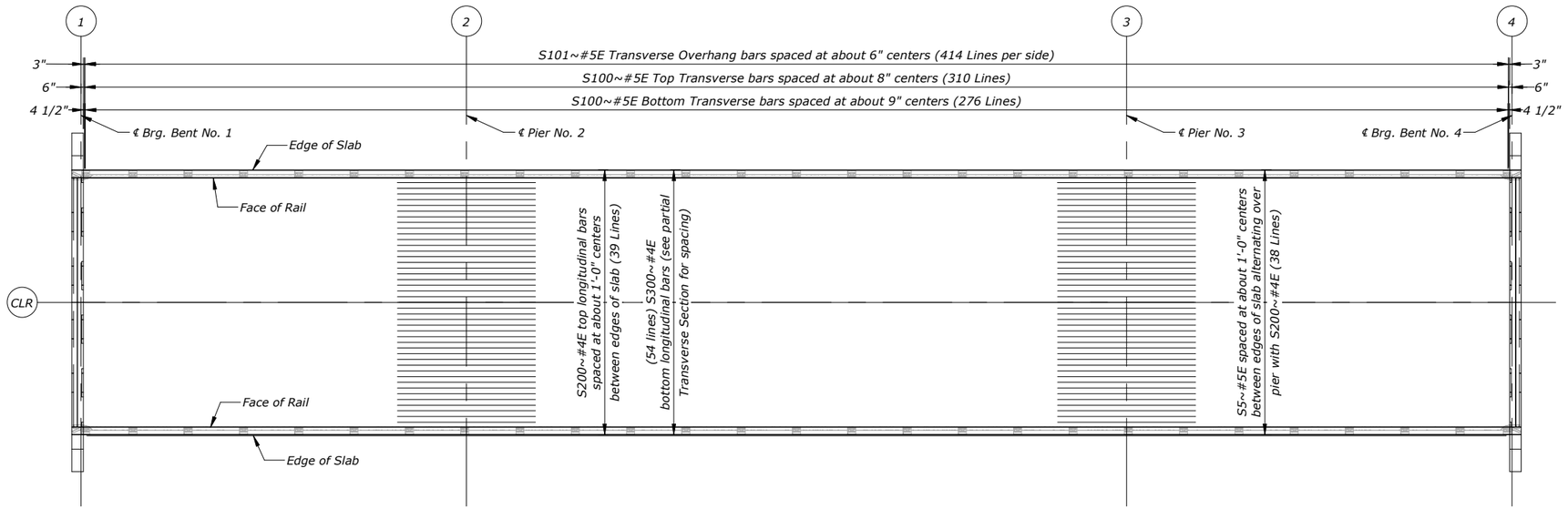
*NOTE: Dimension D = 9.5"

NOTE: Place transverse slab bars perpendicular to the structure Center Line.

NOTE: See Standard Drawing No. SL-8 and Sheet Nos. B23-B25 for additional slab and rail details.

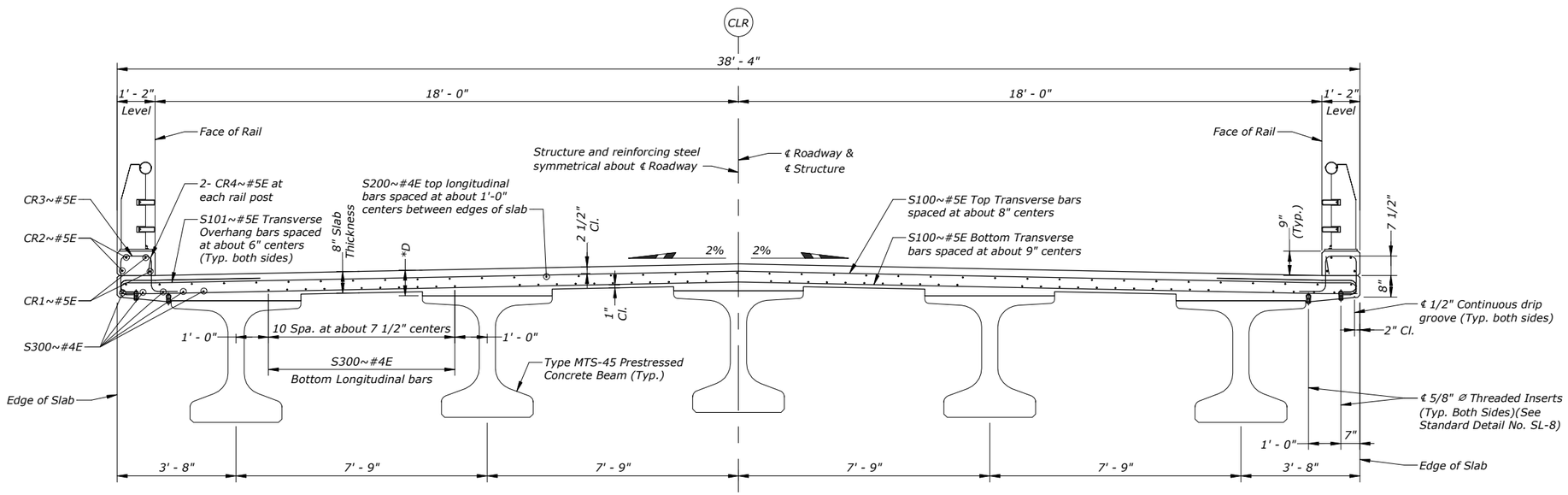
NOTE: See Bill of Reinforcing on Sheet B11.

NOTE: No more than 50% of laps allowed at (1) location in deck.



1 | SLAB REINFORCING STEEL DIAGRAM

B3 | Scale ~ 1" = 20'-0"



2 | TRANSVERSE SECTION

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

SHEET NO. B10

SLAB DETAILS

SCALE: As indicated

BRIDGE OVER TIMBER CREEK

AT STA. 1891+19.00

FEDERAL AID PROJECT NO. NH-HSIP 5(56)247

COUNTY McCONE

REVISED			J.L.J.	
REVISED			C.J.W./M.T.G.	10-30-24
REVISED			A.E.K.	9-28-23
REVISED			11-5-24	
CHECKED				
DRAWN				
DESIGNED				

FILENAME: 9726008BRRVT002.RVT

MONTANA Department of Transportation — BRIDGE BUREAU

12/10/2024 10:45:12 AM

ROUTE N-57

REF POINT 248.828

MDT STR. ID 06031

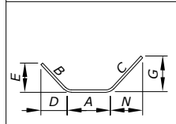
UPN NUMBER 9726000

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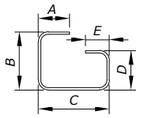
ADVERTISED COPY

ABUTMENT BILL OF REINFORCING STEEL

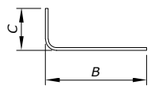
FOR ONE BENT ONLY
(ALL DIMENSIONS ARE OUT TO OUT)



TYPE 29



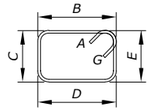
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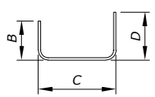
TYPE 37



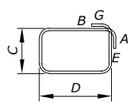
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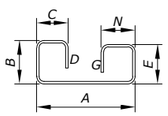
TYPE T1



TYPE 17



TYPE T2



TYPE 394

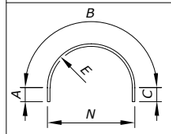
Mark	Size	No.	Type	Length	A	B	C	D	E	G	N
BW1	5E	4	STR	38'-0"							
BW2	5E	18	30	10'-5 1/2"	0'-9"	4'-4 1/2"	1'-4"	3'-5"	0'-7"		
BW3	5	10	T1	8'-7"	0'-5 1/2"	1'-4"	2'-6"	1'-4"	2'-6"	0'-5 1/2"	
BW4	5	10	T1	6'-11"	0'-5 1/2"	1'-4"	1'-8"	1'-4"	1'-8"	0'-5 1/2"	
BW5	5E	2	T1	18'-11"	0'-5 1/2"	1'-4"	7'-8"	1'-4"	7'-8"	0'-5 1/2"	
BW6	5	4	T1	18'-11"	0'-5 1/2"	1'-4"	7'-8"	1'-4"	7'-8"	0'-5 1/2"	
BW7	5	2	T1	16'-11"	0'-5 1/2"	1'-4"	6'-8"	1'-4"	6'-8"	0'-5 1/2"	
BW8	5	2	T1	17'-10"	0'-5 1/2"	1'-4"	7'-1 1/2"	1'-4"	7'-1 1/2"	0'-5 1/2"	
BW9	5	2	T1	18'-9"	0'-5 1/2"	1'-4"	7'-7"	1'-4"	7'-7"	0'-5 1/2"	
BW10	5	6	37	7'-8"		1'-6"	6'-2"				
BW11	7	1	STR	48'-0"							
BW12	7	4	STR	48'-8"							
BW13	5	4	STR	6'-5"							
BW14	5	8	STR	6'-11"							
BW15	5	4	STR	5'-6 1/2"							
BW16	5	4	STR	4'-7"							
BW17	5	2	STR	7'-11"							
BW18	5	4	STR	8'-5"							
BW19	5	2	STR	7'-8"							
BW20	5	2	STR	7'-3"							
BW21	5	22	STR	6'-1"							
BW22	6	5	STR	6'-0"							
BW23	5E	4	29	7'-8"	3'-5"	1'-6"	2'-9"	0'-7 1/2"	1'-4 1/2"	0'-8 1/2"	1'-7 1/2"
BW24	5	2	29	6'-8"	3'-5"	1'-6"	1'-9"	0'-7 1/2"	1'-4 1/2"	1'-1 1/2"	2'-6"
BW25	4E	39	37	6'-0"		3'-0"	3'-0"				
C1	7	13	STR	35'-8"							
C2	7	4	17	8'-11"		1'-5"	6'-1"	1'-5"			
C3	5	68	T1	12'-9"	0'-5 1/2"	3'-0"	2'-11"	3'-0"	2'-11"	0'-5 1/2"	
C4	5	10	394	12'-8"	3'-0"	2'-11"	0'-6"	1'-5"	2'-11"	1'-5"	0'-6"
C5	5	4	17	6'-10 1/2"		2'-0"	2'-10 1/2"	2'-0"			
C6	4	4	17	6'-9 1/2"		2'-0"	2'-9 1/2"	2'-0"			
BS1	4	21	17	6'-0"		1'-6"	3'-0"	1'-6"			
BS2	4	6	STR	5'-0"							
BS3	4	3	T2	10'-1"	0'-4 1/2"	4'-0"	0'-8"	4'-0"	0'-8"	0'-4 1/2"	

REINFORCING STEEL BAR MARK LOCATIONS

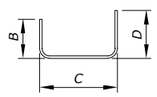
MARK	LOCATION
BS	BEAM SEAT
BW	BACKWALL
C	CAP
CR	CURB
CRE	CURB ENDS
D	DIAPHRAGM
P	PIER
S	SLAB

PIER BILL OF REINFORCING STEEL

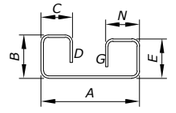
FOR ONE PIER ONLY
(ALL DIMENSIONS ARE OUT TO OUT)



TYPE 10



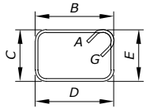
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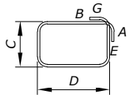
TYPE 394



TYPE STR



TYPE T1

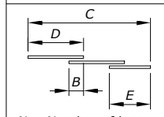


TYPE T2

Mark	Size	No.	Type	Length	A	B	C	D	E	G	N
P1	7	10	STR	34'-3"							
P2	7	8	17	8'-7"		1'-5"	5'-9"	1'-5"			
P3	6	62	T1	14'-3"	0'-5 1/2"	3'-8"	3'-0"	3'-8"	3'-0"	0'-5 1/2"	
P4	6	10	394	14'-2"	3'-8"	3'-0"	0'-10"	1'-5"	3'-0"	1'-5"	0'-10"
P5	4	12	17	6'-6"		1'-9"	3'-0"	1'-9"			
P6	4	10	10	8'-10"	1'-8"	5'-6"	1'-8"		1'-9"		3'-6"
P7	7	4	STR	36'-5"							
P8	7	2	STR	37'-2"							
P9	6	2	T1	13'-4"	0'-5 1/2"	3'-2 1/2"	3'-0"	3'-2 1/2"	3'-0"	0'-5 1/2"	
P10	6	2	T1	12'-2"	0'-5 1/2"	2'-7 1/2"	3'-0"	2'-7 1/2"	3'-0"	0'-5 1/2"	
BS1	4	33	17	6'-8"		1'-6"	3'-8"	1'-6"			
BS2	4	4	STR	7'-5"							
BS3	4	6	T2	10'-1'	0'-4 1/2"	4'-0"	0'-8'	4'-0"	0'-8"	0'-4 1/2"	
BS4	4	2	STR	4'-11"							

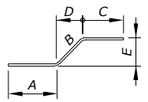
DECK, DIAPHRAGM, CURB BILL OF REINFORCING STEEL

(ALL DIMENSIONS ARE OUT TO OUT)

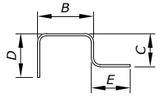


N = Number of laps

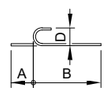
TYPE 27



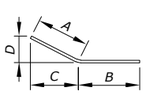
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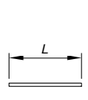
TYPE 526



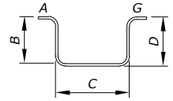
TYPE 421



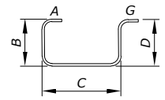
TYPE 28



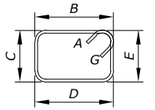
TYPE STR



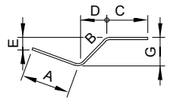
TYPE S4



TYPE S5



TYPE T1



TYPE 42

Mark	Size	No.	Type	Length	A	B	C	D	E	G	N
S100	5E	586	STR	38'-0"							
S101	5E	828	421	7'-6"	0'-8"	6'-10"		0'-5"			
S200	4E	39	27	222'-5"		2'-11"	207'-10"	40'-0"	22'-5"		5
S300	4E	54	27	222'-5"		2'-11"	207'-10"	40'-0"	22'-5"		5
S5	5E	76	STR	20'-0"							
D1	4E	80	S4	6'-4"	0'-4 1/2"	2'-6"	0'-7"	2'-6"		0'-4 1/2"	
D2	4E	32	T1	4'-5"	0'-4 1/2"	1'-3"	0'-7"	1'-3"	0'-7"	0'-4 1/2"	
D3	4E	32	T1	5'-1"	0'-4 1/2"	1'-7"	0'-7"	1'-7"	0'-7"	0'-4 1/2"	
D4	6E	32	STR	6'-11"							
D5	4E	64	STR	6'-11"							
D6	6E	12	STR	6'-0"							
D7	4E	80	S5	5'-0"	0'-4 1/2"	1'-10"	0'-7"	1'-10"		0'-4 1/2"	
D8	6E	32	STR	6'-11"							
CR1	5E	4	27	223'-0"		3'-8"	204'-8"	40'-0"	23'-0"		5
CR2	5E	4	27	227'-8"		3'-8"	209'-4"	40'-0"	27'-8"		5
CR3	5E	832	526	4'-1 1/2"		0'-11"	1'-2 1/2"	1'-2 1/2"	0'-9 1/2"		
CR4	5E	108	41	3'-8 1/2"	0'-9 1/2"	0'-11"	0'-9 1/2"	0'-8"	0'-6 1/2"		
CRE1	5E	4	526	4'-0 1/2"		0'-10"	1'-2 1/2"	1'-2 1/2"	0'-9 1/2"		
CRE2	5E	4	526	3'-11"		0'-8 1/2"	1'-2 1/2"	1'-2 1/2"	0'-9 1/2"		
CRE3	5E	4	526	3'-3 1/2"		0'-7"	1'-2 1/2"	1'-2 1/2"	0'-3 1/2"		
CRE4	5E	4	526	3'-3 1/2"		0'-4 1/2"	1'-2 1/2"	1'-2 1/2"	0'-6"		
CRE5	5E	4	526	3'-3 1/2"		0'-3"	1'-2 1/2"	1'-2 1/2"	0'-7 1/2"		
CRE6	5E	4	41	4'-1 1/2"	0'-9 1/2"	1'-1"	0'-9 1/2"	0'-8"	0'-9 1/2"		
CRE7	5E	4	42	4'-3"	0'-9 1/2"	0'-10"	0'-9 1/2"	0'-7"	0'-7 1/2"	0'-7 1/2"	
CRE8	5E	4	28	6'-1 1/2"	1'-3 1/2"	4'-10"	1'-4 1/2"	0'-6 1/2"			
CRE9	5E	4	28	6'-1"	1'-0"	5'-1"	1'-1"	0'-5"			

For diaphragm and curb steel layouts see Standard Detail Drawing SL-8 and Sheet No. B25.

SHEET NO.
B11

STRUCTURE BILL OF REINFORCING STEEL

SCALE:

BRIDGE OVER
TIMBER CREEK

AT STA.
1891+19.00

FEDERAL AID PROJECT NO.
NH-HSIP 5(56)247

COUNTY
McCONE

REVISED				J.L.J.	
REVISED				C.J.W./M.T.G.	
REVISED				A.E.K.	
REVISED				11-5-24	
CHECKED				10-30-24	
DRAWN				9-28-23	
DESIGNED				FILENAME:	9726008BRVT002.RVT

MONTANA
Department of Transportation
BRIDGE BUREAU

12/10/2024 10:56:02 AM

ROUTE
N-57

REF POINT
248.828

MDT STR. ID
06031

UPN NUMBER
9726000

DRAWING NO.
28714

ADVERTISED COPY

GENERAL NOTES:

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 Specificatons, Ninth edition - 2020, with standard HL-93 loading.

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

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.

Dimensions 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 0.99928388.

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

FOUNDATION NOTES:

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

See the Special Provisions for original 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.

If the project manager requires a re-drive of test pile, re-drive the pile in accordance with Section 559.

REINFORCING STEEL NOTES:

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.

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 1/2" less than what is listed above.

Ensure reinforcing steel does not interfere with anchor bolt placement.

CONCRETE NOTES:

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.

ABUTMENT & PIER NOTES:

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.

Use D1~1 1/2" ∅ smooth bars meeting the requirements of AASHTO M 270 Grade 36. Include all costs associated with furnishing and placing smooth bars in the unit price bid for Prestressed Beam - Type MTS-63.

BEARING NOTES:

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

Straighten all plates.

Weld bearings according to the Special Provisions. Do not damage bearing bearing assembly during the welding process.

DESIGN INFORMATION:

Sacrificial wearing surface = 1/2"

Design Method = Load and Resistance Factor Design (LRFD)

ANCHOR BOLT NOTES:

Galvanize all anchor bolts & nuts according to AASHTO M232.

Perform charpy V-notch tests on anchor bolts meeting the requirements of ASTM F1554 S5(20J @ -20°F)

Use anchor bolts meeting the requirements of AASHTO M 270 Grade 36 and with two heavy hex nuts meeting the requirements of AASHTO M 291.

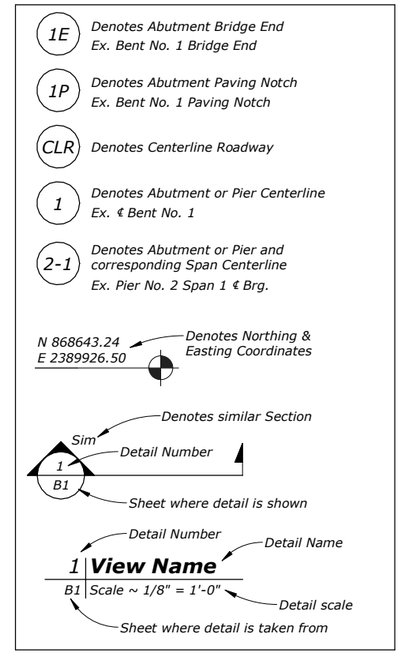
Include all costs in Unit Bid Price of Prestressed Concrete Beams.

REBAR LAP LENGTHS

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 SYMBOLOGY



ABBREVIATIONS

N.F.	Near Face
F.F.	Fill Face
E.F.	Each Face
Brg.	Bearing
℄	Centerline

SHEET NO. B12

STRUCTURAL NOTES AND SPECIFICATIONS

SCALE: 12" = 1'-0"

BRIDGE OVER SKULL CREEK

AT STA. 1934+88.25

FEDERAL AID PROJECT NO. NH-HSIP 57-5(56)247

COUNTY McCONE

REVISED						S.E.W.		
REVISED						C.J.W./M.T.G.		
REVISED					11-5-24	J.L.J.		
REVISED					10-30-24			
CHECKED					9-14-22			
DRAWN								
DESIGNED								

FILENAME: 9726000BRRVT001.RVT

MONTANA Department of Transportation — BRIDGE BUREAU

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ROUTE N-57

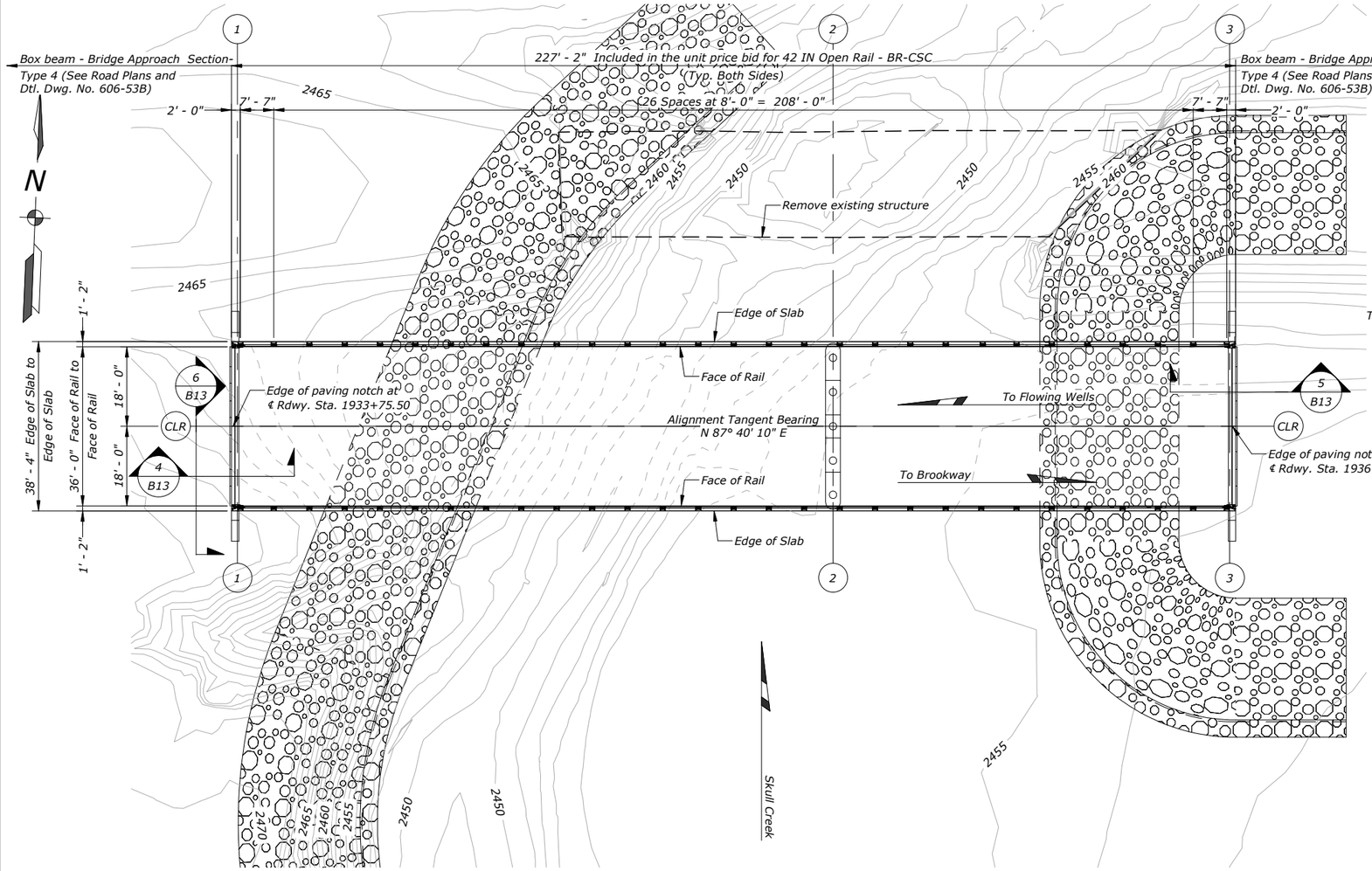
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MDT STR. ID 06032

UPN NUMBER 9726000

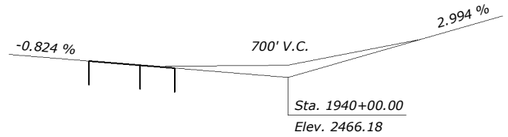
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ADVERTISED COPY



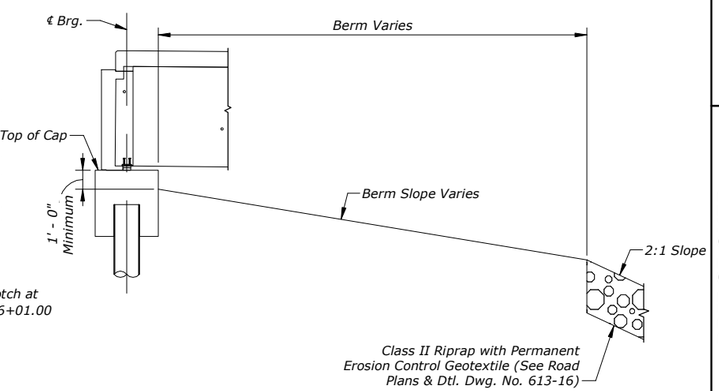
1 | GENERAL PLAN

Scale ~ 1" = 30'-0"



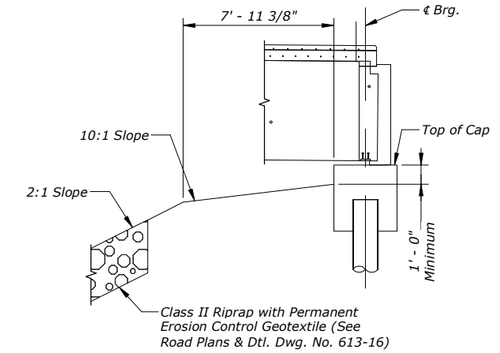
3 | PROFILE GRADE

No Scale



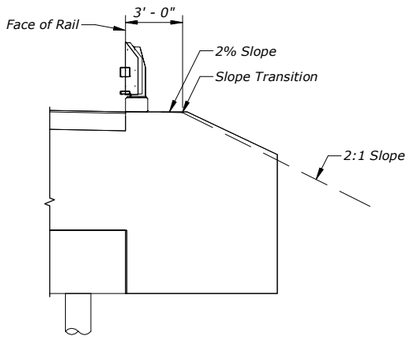
4 | BERM RIPRAP DETAIL AT BENT NO. 1

B13 | Scale ~ 1/8" = 1'-0"



5 | BERM RIPRAP DETAIL AT BENT NO. 3

B13 | Scale ~ 1/8" = 1'-0"



6 | FILL SLOPE DETAIL

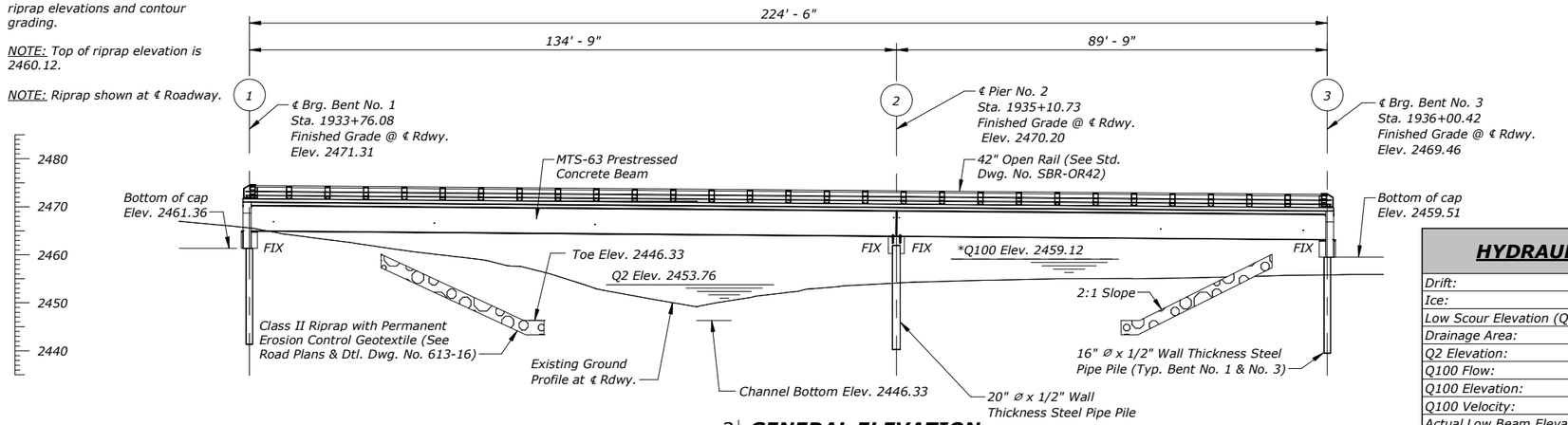
B13 | Scale ~ 1/8" = 1'-0"

NOTE: The slab is continuous over intermediate pier (See Std. Dwg. No. SL-8 and Sheet B20)

NOTE: See Road Plans for additional riprap elevations and contour grading.

NOTE: Top of riprap elevation is 2460.12.

NOTE: Riprap shown at ℄ Roadway.



2 | GENERAL ELEVATION

Scale ~ 1" = 30'-0"

HYDRAULIC DATA

Drift:	None
Ice:	Light
Low Scour Elevation (Q500):	2437.32
Drainage Area:	37.4 sq mi
Q2 Elevation:	2453.76
Q100 Flow:	2920 cfs
Q100 Elevation:	2459.12
Q100 Velocity:	5.3 fps
Actual Low Beam Elevation:	2463.07
Allowable Low Beam Elevation:	2461.98

SHEET NO. B13

GENERAL LAYOUT

SCALE: As indicated

BRIDGE OVER SKULL CREEK

AT STA. 1934+88.25

FEDERAL AID PROJECT NO. NH-HSIP 57-5(56)247

COUNTY McCONE

REVISED	REVISED	REVISED	REVISED	CHECKED	DRAWN	DESIGNED	FILENAME: 9726000BRVT001.RVT
				S.E.W.	C.I.W./M.T.G.	J.L.J.	
				11-5-24	10-30-24	9-14-22	

MONTANA Department of Transportation — BRIDGE BUREAU

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ROUTE N-57

REF POINT 249.741

MDT STR. ID 06032

UPN NUMBER 9726000

DRAWING NO. 28716

ADVERTISED COPY

COORDINATE TABLE

Location	N OR Y COORDINATE	E OR X COORDINATE	DESCRIPTION
BENT NO. 1	1138958.62	2799266.61	℄ BRG. AT ℄ ROADWAY
PIER NO. 2	1138964.10	2799401.14	℄ BRG. AT ℄ ROADWAY
BENT NO. 3	1138967.75	2799490.76	℄ BRG. AT ℄ ROADWAY

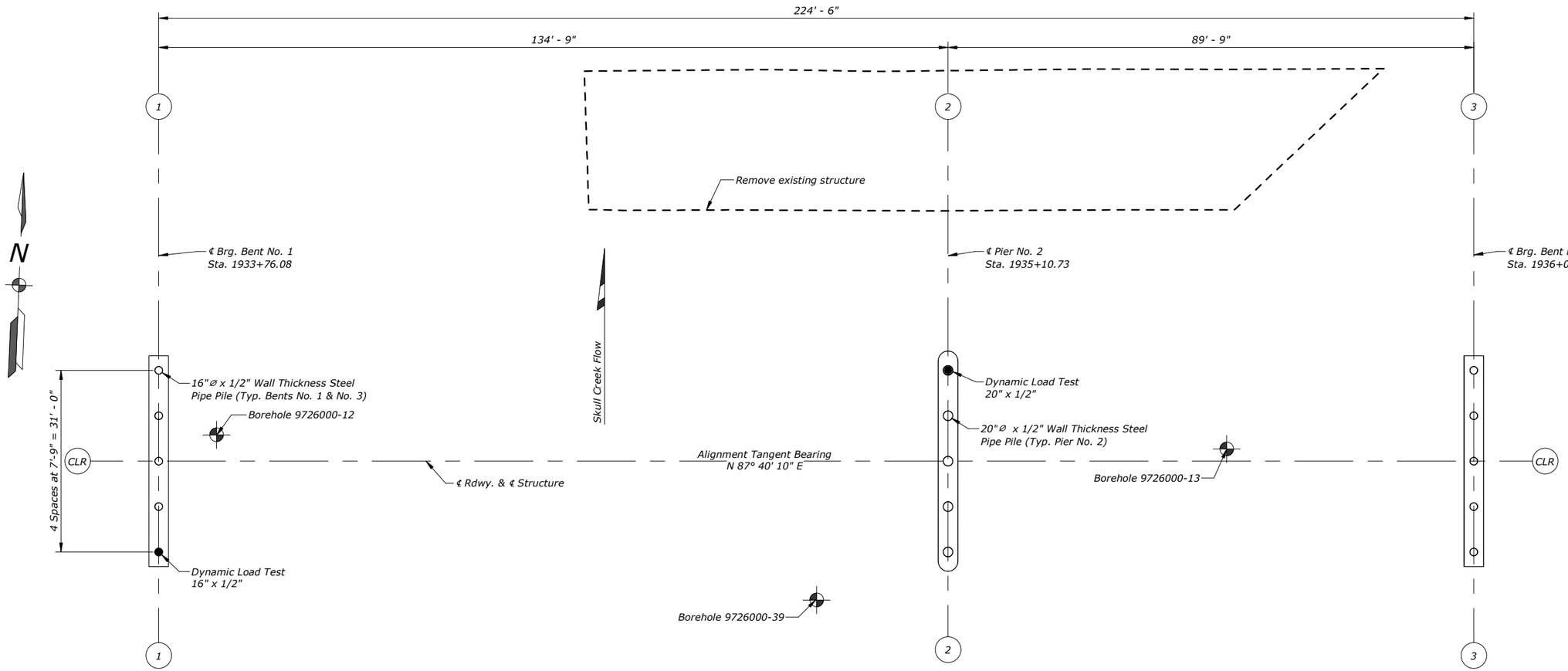
PILE INFORMATION

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	2418.4	2463.03	CUTTING SHOE	577	260
PIER NO. 2	2417.3	2461.92	CUTTING SHOE	800	375
BENT NO. 3	2421.5	2461.18	CUTTING SHOE	462	205

NOTE: Existing Structure location is approximate. Verify location.

NOTE: Dimensions shown for Bent No. 1 are typical for Pier No. 2 and Bent No. 3.

NOTE: ℄ Structure is located on CLR.



LEVEL: FOOTING PLAN

1 FOOTING PLAN

Scale ~ 1" = 20'-0"

SHEET NO. B14

FOOTING PLAN

SCALE: 1" = 20'-0"

BRIDGE OVER SKULL CREEK

AT STA. 1934+88.25

FEDERAL AID PROJECT NO. NH-HSIP 57-5(56)247

COUNTY McCONE

REVISED			S.E.W.	
REVISED			C.J.W./M.T.G.	
REVISED			10-30-24	
REVISED			J.L.J.	
CHECKED	11-5-24			
DRAWN	10-30-24			
DESIGNED	9-14-22			
FILENAME:	9726000BRKVT001.RVT			

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ROUTE N-57

REF POINT 249.741

MDT STR. ID 06032

UPN NUMBER 9726000

DRAWING NO. 28717

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NOTE: See Sheet B16 for additional bent sections, details, reinforcement and notes.

NOTE: See Sheet B21 for Bill of Reinforcing.

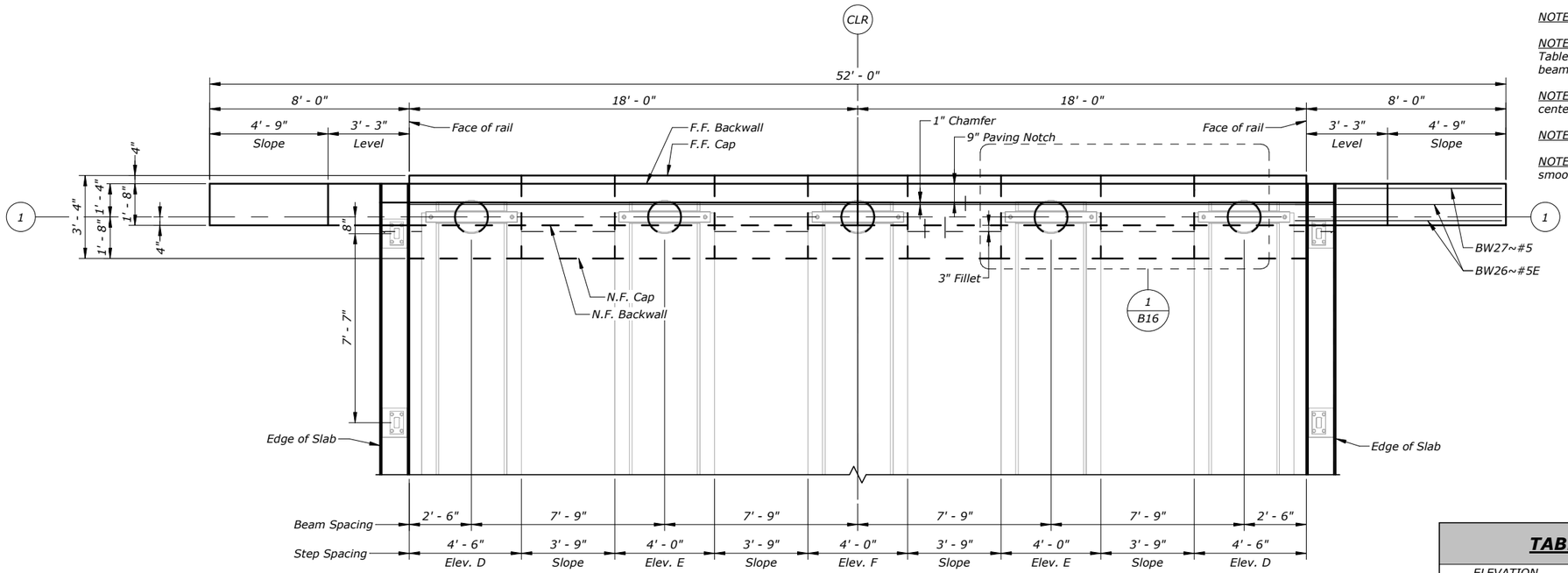
NOTE: See Sheet No. B22 for pile details.

NOTE: Finish beam seats level to elevations shown in Table of Elevations this sheet. Slope areas between beam seats as shown.

NOTE: Reinforcement is symmetrical about bent centerline.

NOTE: Bent No. 1 shown. Bent No. 3 similar.

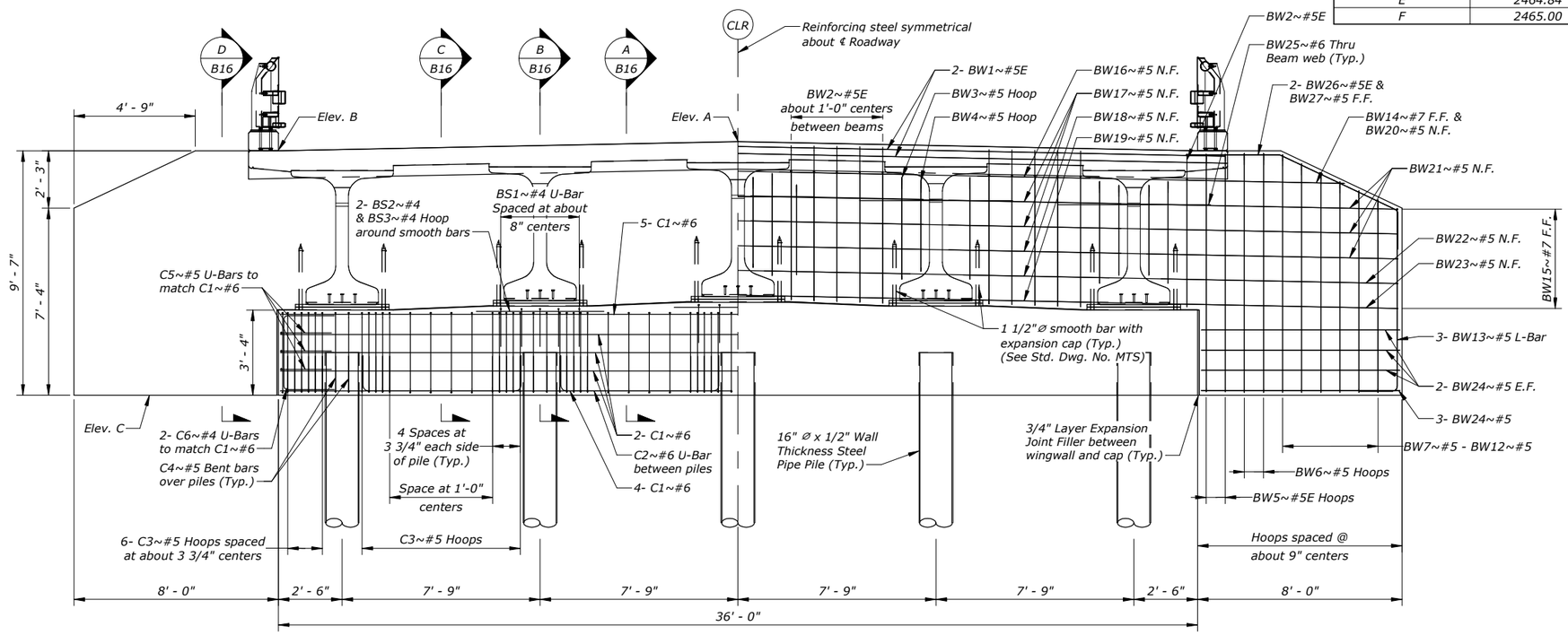
NOTE: Ensure reinforcing steel does not interfere with smooth bar placement.



1 ABUTMENT PLAN

TABLE OF ELEVATIONS

ELEVATION	BENT NO. 1	BENT NO. 3
A	2471.31	2469.46
B	2470.95	2469.10
C	2461.36	2459.51
D	2464.69	2462.84
E	2464.84	2462.99
F	2465.00	2463.15



2 ABUTMENT ELEVATION

Bent No. 1 shown back on line
Bent No. 3 shown ahead on line

SHEET NO. B15

BENT NO. 1 & NO. 3

SCALE: 3/16" = 1'-0"

BRIDGE OVER SKULL CREEK

AT STA. 1934+88.25

FEDERAL AID PROJECT NO. NH-HSIP 57-5(56)247

COUNTY McCONE

REVISED	REVISED	REVISED	REVISED	CHECKED	DRAWN	DESIGNED	FILENAME: 9726000BRVT001.RVT
				S.E.W.	C.J.W./M.T.G.	J.L.J.	
				11-5-24	10-30-24	9-28-23	

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ROUTE N-57

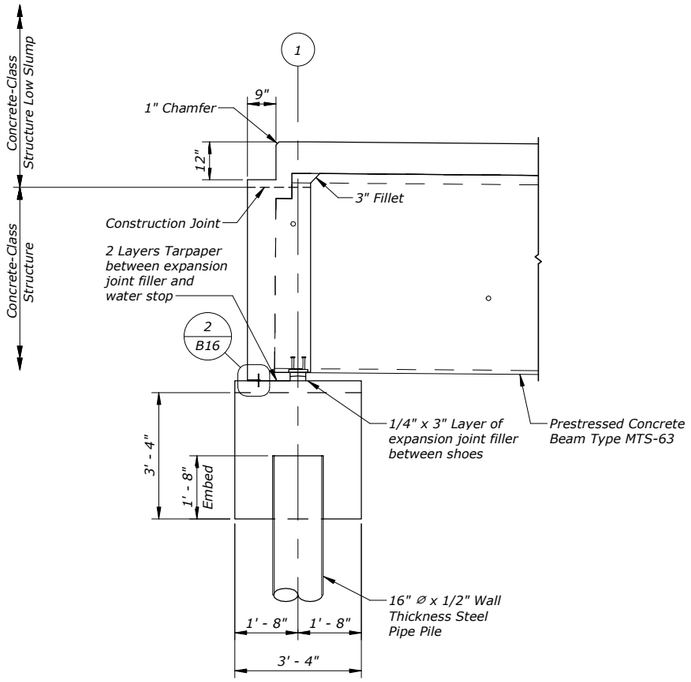
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UPN NUMBER 9726000

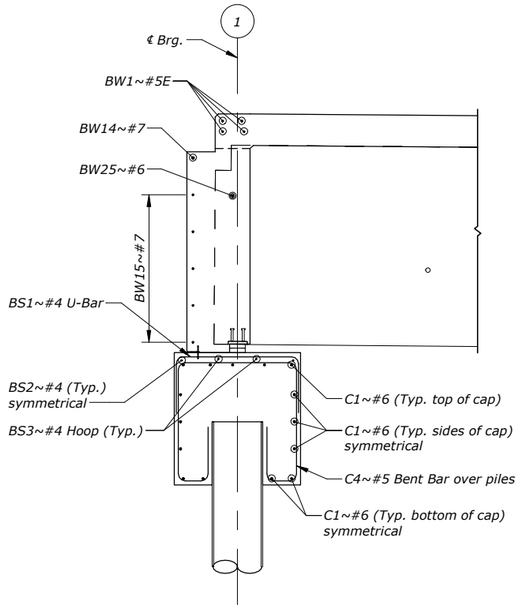
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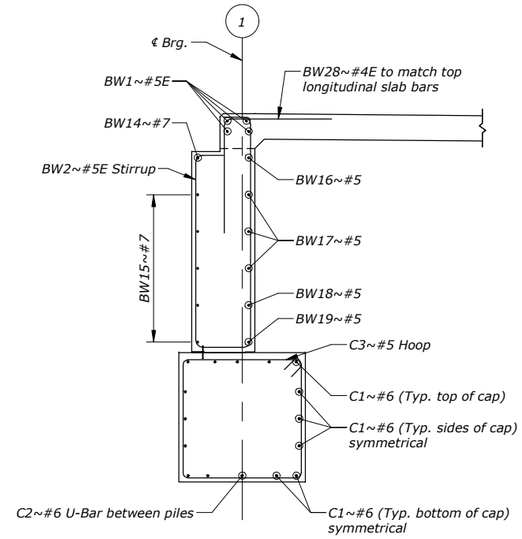
A | ABUTMENT SECTION

B15 | Scale ~ 1/4" = 1'-0"



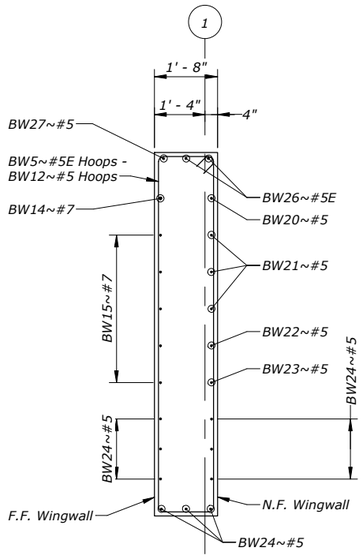
B | ABUTMENT REINFORCING AT PILES

B15 | Scale ~ 1/4" = 1'-0"



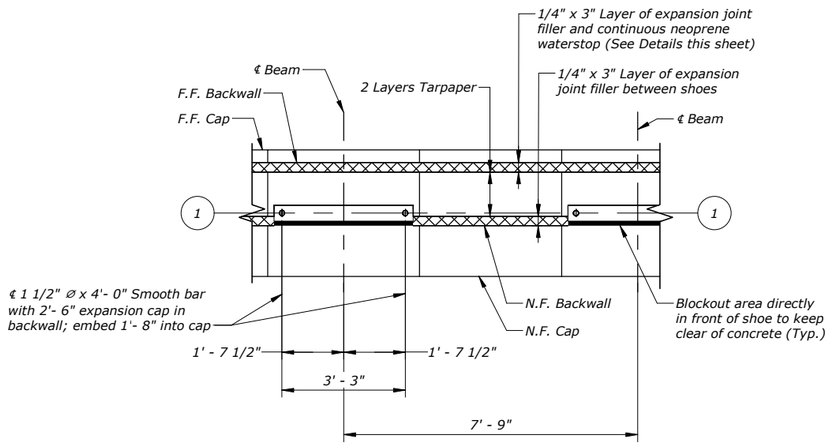
C | ABUTMENT REINFORCING BETWEEN PILES

B15 | Scale ~ 1/4" = 1'-0"



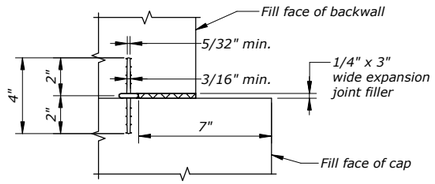
D | WINGWALL SECTION

B15 | Scale ~ 1/4" = 1'-0"



1 | TOP OF CAP DETAIL

B15 | Scale ~ 1/4" = 1'-0"



NOTE: Hold waterstop in accurate position while placing concrete.

2 | WATERSTOP DETAIL

B16 | Scale ~ 1 1/2" = 1'-0"

SHEET NO. B16

BENT NO. 1 & NO. 3 DETAILS

SCALE: As indicated

BRIDGE OVER SKULL CREEK

AT STA. 1934+88.25

FEDERAL AID PROJECT NO. NH-HSIP 57-5(56)247

COUNTY McCONE

REVISED			
REVISED			
REVISED			
REVISED			
CHECKED	11-5-24	S.E.W.	
DRAWN	10-30-24	C.J.W./M.T.G.	
DESIGNED	9-28-23	J.L.J.	
FILENAME:	9726000BRKVT001.RVT		

MONTANA Department of Transportation — BRIDGE BUREAU

12/10/2024 10:42:28 AM

ROUTE N-57

REF POINT 249.741

MDT STR. ID 06032

UPN NUMBER 9726000

DRAWING NO. 28719

ADVERTISED COPY

NOTE: See Sheet B18 for additional pier sections, details, reinforcement and notes.

NOTE: See Sheet B21 for Bill of Reinforcing.

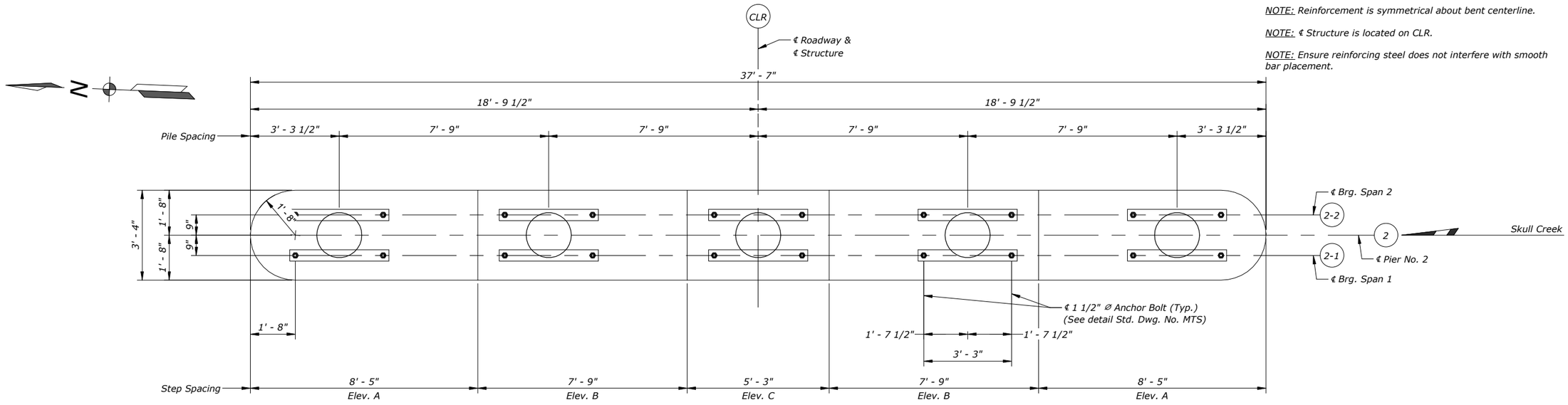
NOTE: See Sheet No. B22 for pile details.

NOTE: Finish beam seats level to elevations shown in Table of Elevations this sheet.

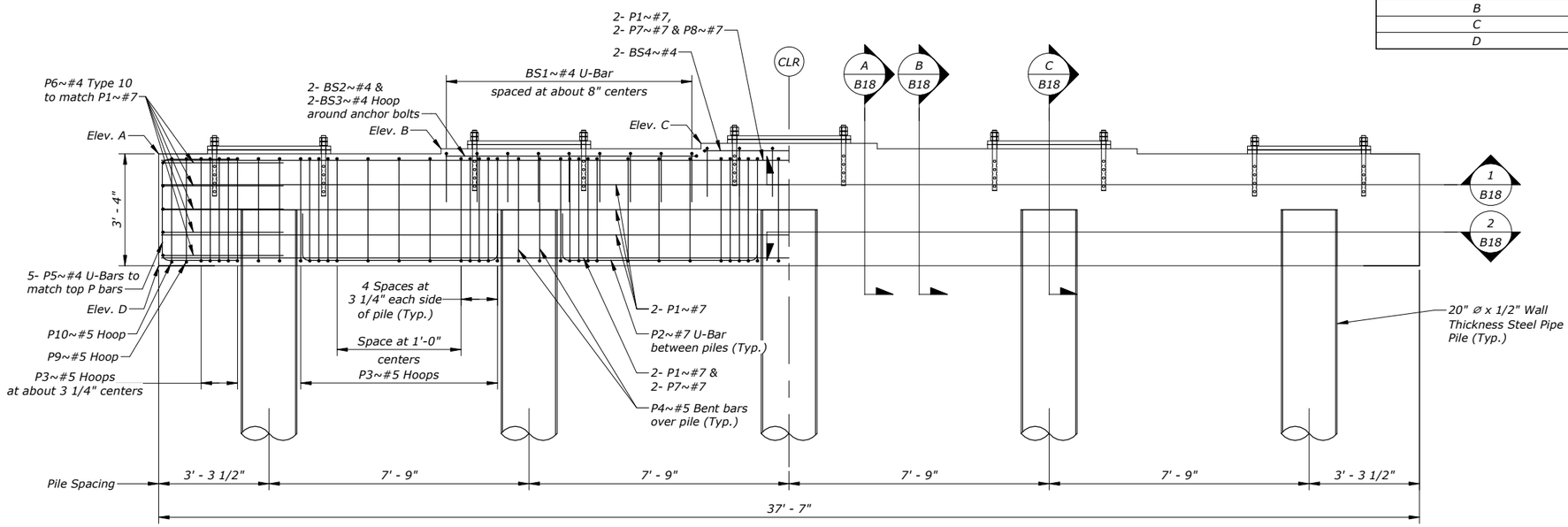
NOTE: Reinforcement is symmetrical about bent centerline.

NOTE: ℄ Structure is located on CLR.

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



1 | PIER PLAN



2 | PIER ELEVATION

Shown Ahead On Line

TABLE OF ELEVATIONS

ELEVATION	PIER NO. 2
A	2463.58
B	2463.74
C	2463.89
D	2460.25

SHEET NO. B17

PIER NO. 2

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

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REVISED			10-30-24	
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DRAWN				
DESIGNED				

FILENAME: 9726000BRVT001.RVT

MONTANA Department of Transportation — BRIDGE BUREAU

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ROUTE N-57

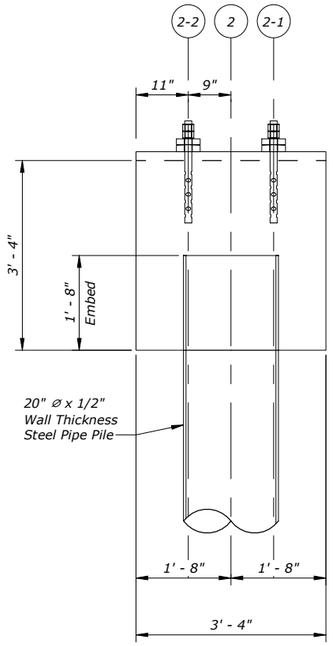
REF POINT 249.741

MDT STR. ID 06032

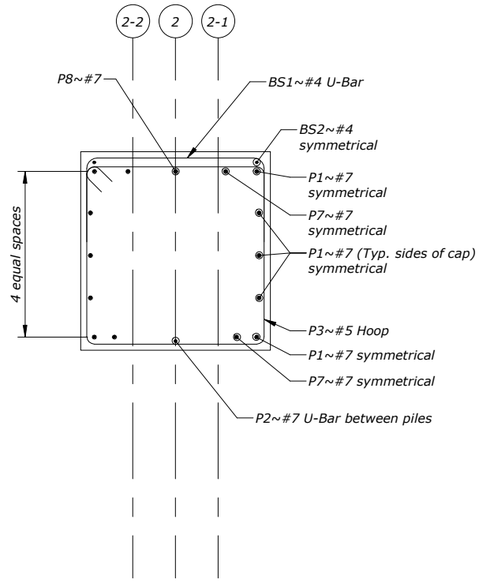
UPN NUMBER 9726000

DRAWING NO. 28720

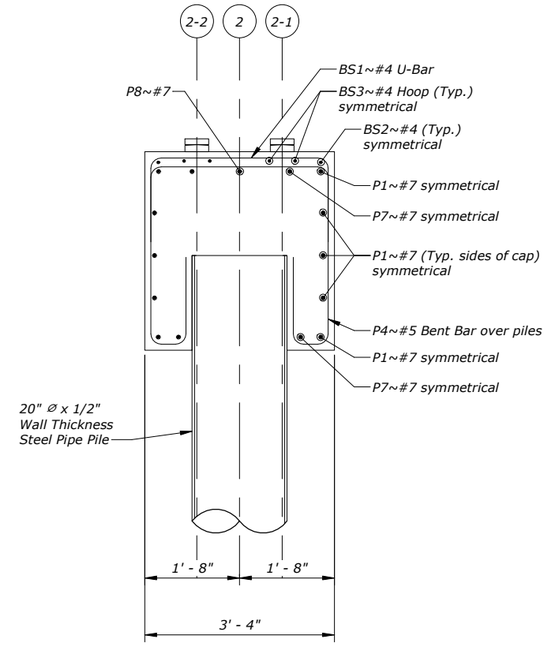
ADVERTISED COPY



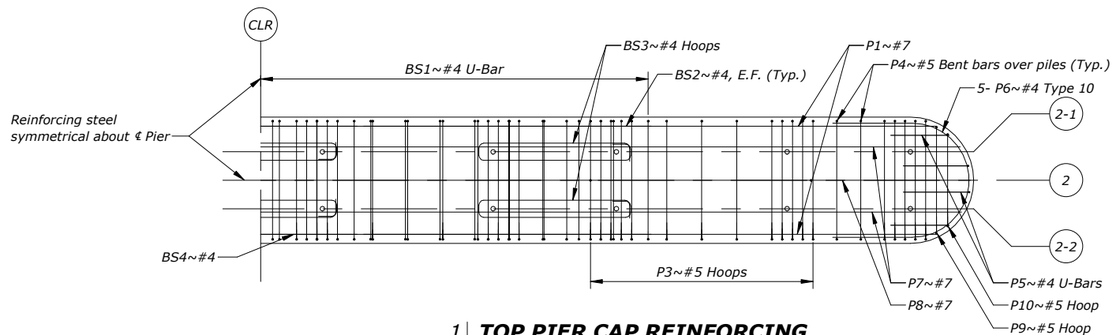
A | **PIER SECTION**
B17 | Scale ~ 3/8" = 1'-0"



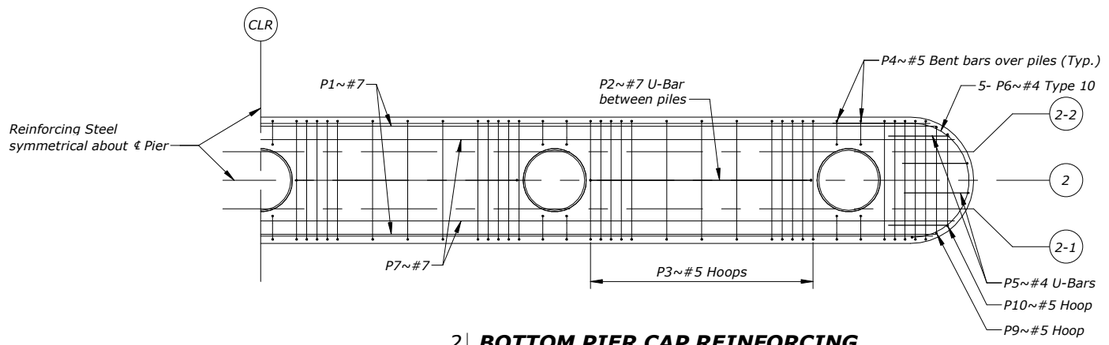
B | **PIER REINFORCING BETWEEN PILES**
B17 | Scale ~ 3/8" = 1'-0"



C | **PIER REINFORCING OVER PILES**
B17 | Scale ~ 3/8" = 1'-0"



1 | **TOP PIER CAP REINFORCING**
B17 | Scale ~ 1/4" = 1'-0"



2 | **BOTTOM PIER CAP REINFORCING**
B17 | Scale ~ 1/4" = 1'-0"

SHEET NO. B18

PIER NO. 2 DETAILS

SCALE: As indicated

BRIDGE OVER SKULL CREEK

AT STA. 1934+88.25

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FILENAME: 9726000BRVT001.RVT

MONTANA Department of Transportation
BRIDGE BUREAU

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ROUTE N-57

REF POINT 249.741

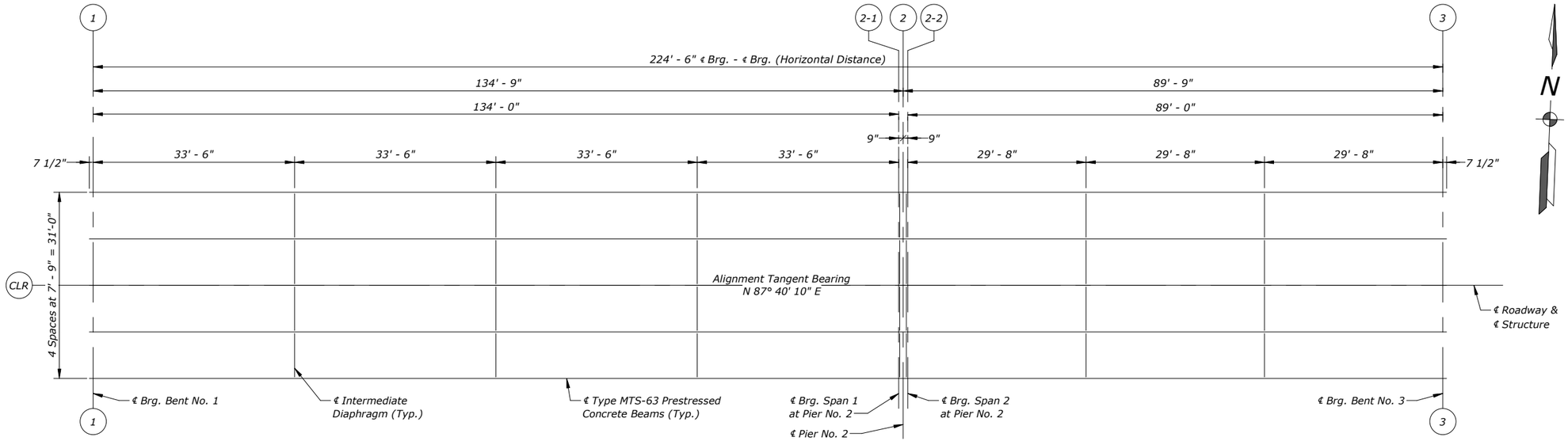
MDT STR. ID 06032

UPN NUMBER 9726000

DRAWING NO. 28721

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NOTE: See Standard Drawing No. SL-8 for diaphragm details.



1 ERECTION PLAN

PRESTRESSED BEAM DESIGN PARAMETERS	
AASHTO Specification	LRFD 9th Edition - 2020
Structure Type	Simple Span
Deck Concrete Strength	4000 psi
Deck Concrete Density	150 lb/cu. ft.
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 M5S, 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

PRESTRESSED BEAM LOAD TABLE		
LOAD TYPE	LOADS	APPLICATION METHOD
Barrier Load	0.184 kip/ft per rail	Equally to all beams
Future Wearing Surface	10 lb/sq. ft. applied between curbs	Equally to all beams
Interior Diaphragm	3.275 kip/diaphragm	At point load
Exterior Diaphragm	1.637 kip/diaphragm	At point load
Additional Dead Load	-----	----
Live Load	LRFD - HL-93	per AASHTO LRFD

DEAD LOAD DEFLECTION TABLE					
TYPE MTS-63 PRESTRESSED CONCRETE BEAM					
SPAN LENGTH 134'-0"					
	TENTH POINT				
	0.1	0.2	0.3	0.4	0.5
INT.	1"	1 7/8"	2 9/16"	3"	3 1/8"
EXT.	15/16"	1 3/4"	2 3/8"	2 13/16"	2 15/16"

DEAD LOAD DEFLECTION TABLE					
TYPE MTS-63 PRESTRESSED CONCRETE BEAM					
SPAN LENGTH 89'-0"					
TENTH POINT					
	0.1	0.2	0.3	0.4	0.5
INT.	3/16"	3/8"	1/2"	9/16"	5/8"
EXT.	3/16"	5/16"	7/16"	9/16"	9/16"

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

SHEET NO. B19

ERECTION PLAN

SCALE: 1" = 20'-0"

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REVISED				10-30-24	
REVISED				J.L.J.	
CHECKED	11-5-24				
DRAWN	10-30-24				
DESIGNED	9-28-23				
FILENAME:	9726008BRKVT001.RVT				

MONTANA Department of Transportation — BRIDGE BUREAU

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ROUTE N-57

REF POINT 249.741

MDT STR. ID 06032

UPN NUMBER 9726000

DRAWING NO. 28722

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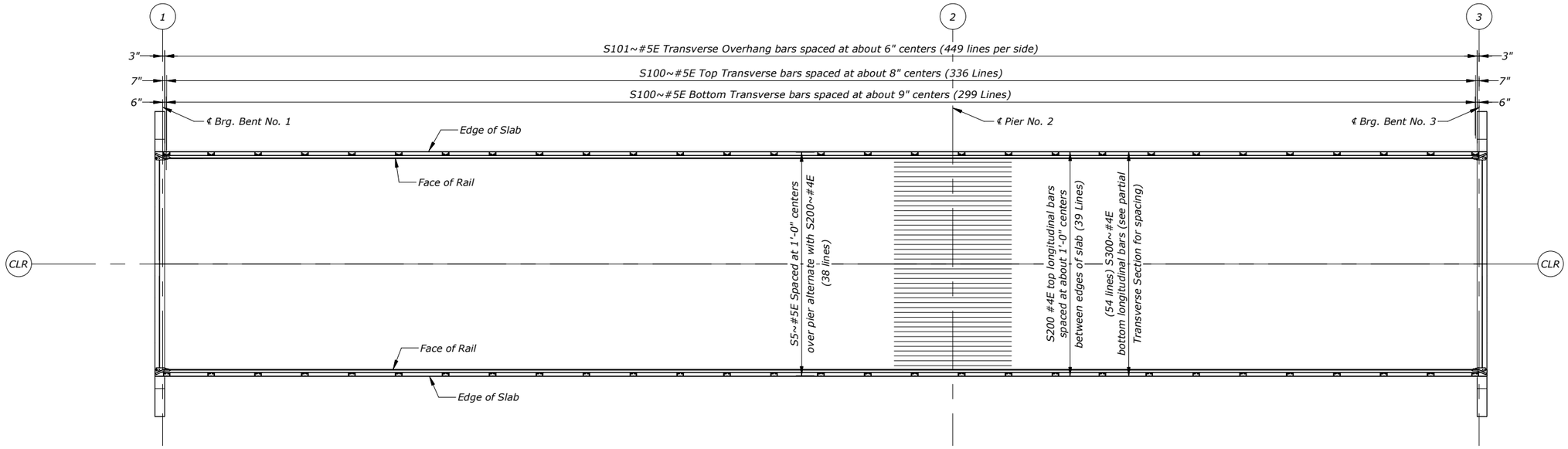
*NOTE: Dimension D = 9.5"

NOTE: Place transverse slab bars perpendicular to the structure center line.

NOTE: See Standard Drawing No. SL-8 and Sheet Nos. B23-B25 for additional slab and rail details.

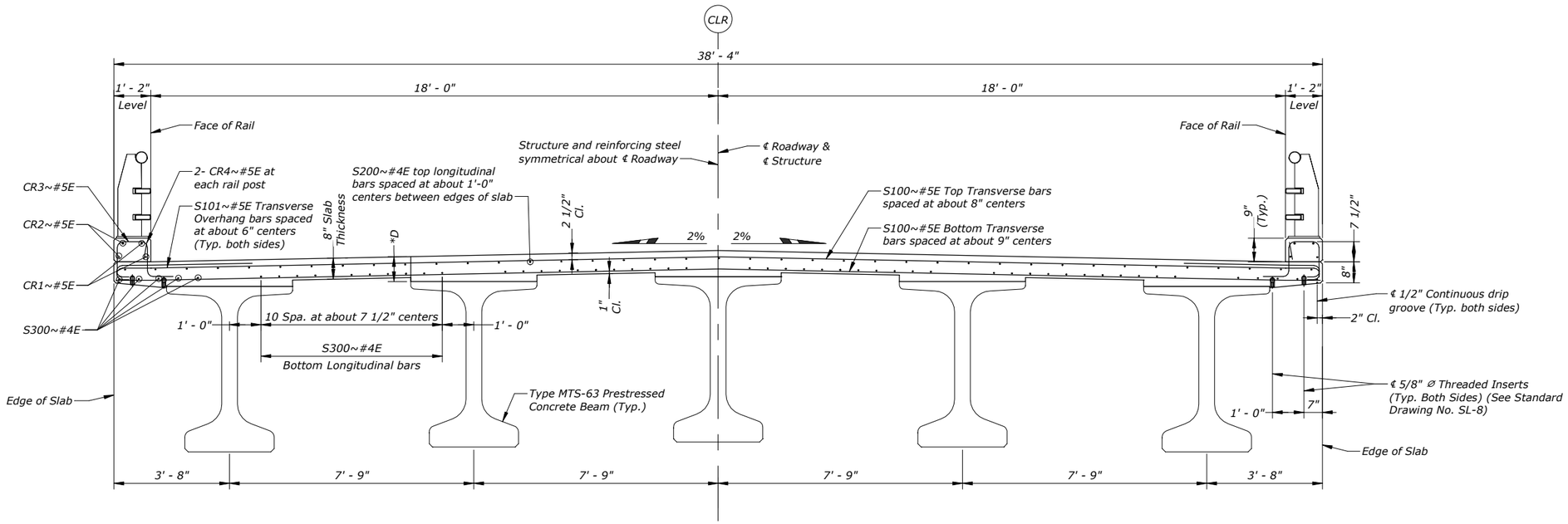
NOTE: See Bill of Reinforcing on Sheet B21.

NOTE: No more than 50% of laps allowed at (1) location in deck.



1 | SLAB REINFORCING DIAGRAM

Scale ~ 1" = 20'-0"



2 | TRANSVERSE SECTION

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

SHEET NO. B20

SLAB DETAILS

SCALE: As indicated

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DRAWN			9-28-23	
DESIGNED			FILENAME:	9726008BRVT001.RVT

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ROUTE N-57

REF POINT 249.741

MDT STR. ID 06032

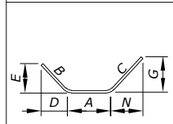
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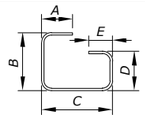
ADVERTISED COPY

ABUTMENT BILL OF REINFORCING STEEL

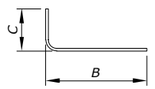
FOR ONE BENT ONLY
(ALL DIMENSIONS ARE OUT TO OUT)



TYPE 29



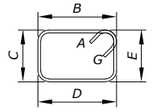
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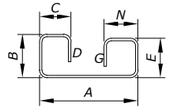
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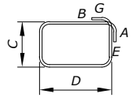
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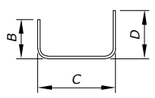
TYPE T1



TYPE 394



TYPE T2



TYPE 17

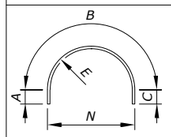
Mark	Size	No.	Type	Length	A	B	C	D	E	G	N
BW1	5E	4	STR	38'-0"							
BW2	5E	22	30	13'-5"	0'-9"	5'-10 1/2"	1'-4"	4'-10 1/2"	0'-7"		
BW3	5	10	T1	11'-7"	0'-5 1/2"	1'-4"	4'-0"	1'-4"	4'-0"	0'-5 1/2"	
BW4	5	10	T1	9'-11"	0'-5 1/2"	1'-4"	3'-2"	1'-4"	3'-2"	0'-5 1/2"	
BW5	5E	4	T1	21'-11"	0'-5 1/2"	1'-4"	9'-2"	1'-4"	9'-2"	0'-5 1/2"	
BW6	5	4	T1	21'-11"	0'-5 1/2"	1'-4"	9'-2"	1'-4"	9'-2"	0'-5 1/2"	
BW7	5	2	T1	21'-9"	0'-5 1/2"	1'-4"	9'-1"	1'-4"	9'-1"	0'-5 1/2"	
BW8	5	2	T1	21'-0"	0'-5 1/2"	1'-4"	8'-8 1/2"	1'-4"	8'-8 1/2"	0'-5 1/2"	
BW9	5	2	T1	20'-3"	0'-5 1/2""	1'-4"	8'-4"	1'-4"	8'-4"	0'-5 1/2"	
BW10	5	2	T1	19'-5"	0'-5 1/2"	1'-4"	7'-11"	1'-4"	7'-11"	0'-5 1/2"	
BW11	5	2	T1	18'-9"	0'-5 1/2"	1'-4"	7'-7"	1'-4"	7'-7"	0'-5 1/2"	
BW12	5	2	T1	18'-0"	0'-5 1/2"	1'-4"	7'-2 1/2"	1'-4"	7'-2 1/2"	0'-5 1/2"	
BW13	5	6	37	8'-5"		1'-6"	6'-11"				
BW14	7	1	STR	48'-0"							
BW15	7	5	STR	51'-8"							
BW16	5	4	STR	6'-5"							
BW17	5	16	STR	6'-11"							
BW18	5	4	STR	5'-6 1/2"							
BW19	5	4	STR	4'-7"							
BW20	5	2	STR	8'-8"							
BW21	5	6	STR	9'-8"							
BW22	5	2	STR	9'-2"							
BW23	5	2	STR	8'-9"							
BW24	5	18	STR	7'-8"							
BW25	6	5	STR	6'-0"							
BW26	5E	4	29	9'-4"	5'-1"	1'-6"	2'-9"	0'-7 1/2"	1'-4 1/2"	0'-8 1/2"	1'-7 1/2"
BW27	5	2	29	8'-4"	5'-1"	1'-6"	1'-9"	0'-7 1/2"	1'-4 1/2"	1'-1 1/2"	2'-6"
BW28	4E	39	37	6'-0"		3'-0"	3'-0"				
C1	6	15	STR	35'-8"							
C2	6	4	17	8'-11"		1'-5"	6'-1"	1'-5"			
C3	5	68	T1	12'-8"	0'-5 1/2"	3'-0"	2'-11"	3'-0"	2'-11"	0'-5 1/2"	
C4	5	10	394	12'-8"	3'-0"	2'-11"	0'-6"	1'-5"	2'-11"	1'-5"	0'-5 1/2"
C5	5	5	17	6'-10 1/2"		2'-0"	2'-10 1/2"	2'-0"			
C6	4	4	17	6'-9 1/2"		2'-0"	2'-9 1/2"	2'-0"			
BS1	4	15	17	6'-0"		1'-6"	3'-0"	1'-6"			
BS2	4	6	STR	4'-0"							
BS3	4	3	T2	10'-1"	0'-4 1/2"	4'-0"	0'-8"	4'-0"	0'-8"	0'-4 1/2"	

REINFORCING STEEL BAR MARK LOCATIONS

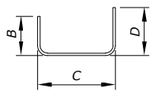
MARK	LOCATION
BS	BEAM SEAT
BW	BACKWALL
C	CAP
CR	CURB
CRE	CURB ENDS
D	DIAPHRAGM
P	PIER
S	SLAB

PIER BILL OF REINFORCING STEEL

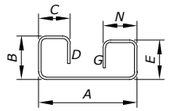
FOR ONE PIER ONLY
(ALL DIMENSIONS ARE OUT TO OUT)



TYPE 10



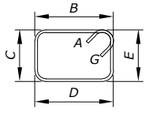
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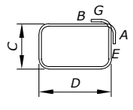
TYPE 394



TYPE STR



TYPE T1

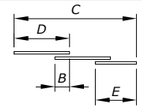


TYPE T2

Mark	Size	No.	Type	Length	A	B	C	D	E	G	N
P1	7	10	STR	34'-10 1/2"							
P2	7	4	17	8'-7"		1'-5"	5'-9"	1'-5"			
P3	5	66	T1	12'-11"	0'-5 1/2"	3'-0"	3'-0"	3'-0"	3'-0"	0'-5 1/2"	
P4	5	10	394	12'-10"	3'-0"	3'-0"	0'-6"	1'-5"	3'-0"	1'-5"	0'-6"
P5	4	10	17	5'-10"		1'-5"	3'-0"	1'-5"			
P6	4	10	10	7'-1 1/2"	1'-5"	4'-3 1/2"	1'-5"		1'-4 1/2"		2'-10 1/2"
P7	7	4	STR	36'-10"							
P8	7	1	STR	37'-3"							
P9	5	2	T1	12'-1"	0'-5 1/2"	2'-7"	3'-0"	2'-7"	3'-0"	0'-5 1/2"	
P10	5	2	T1	11'-3"	0'-5 1/2"	2'-1 1/2"	3'-0"	2'-1 1/2"	3'-0"	0'-5 1/2"	
BS1	4	33	17	6'-0"		1'-6"	3'-0"	1'-6"			
BS2	4	4	STR	7'-5"							
BS3	4	6	T2	10'-1"	0'-4 1/2"	4'-0"	0'-8"	4'-0"	0'-8"	0'-4 1/2"	
BS4	4	2	STR	4'-11"							

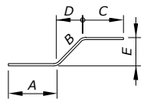
DECK, DIAPHRAGM & CURB BILL OF REINFORCING STEEL

(ALL DIMENSIONS ARE OUT TO OUT)

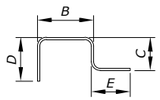


N = Number of laps

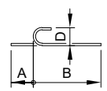
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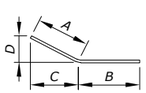
TYPE 41



TYPE 526



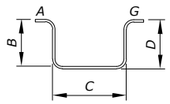
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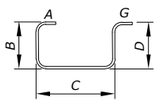
TYPE 28



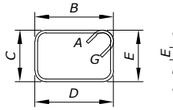
TYPE STR



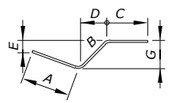
TYPE S4



TYPE S5



TYPE T1



TYPE 42

Mark	Size	No.	Type	Length	A	B	C	D	E	G	N
S100	5E	635	STR	38'-0"							
S101	5E	898	421	7'-6"	0'-8"	6'-10"		0'-5"			
S200	4E	39	27	239'-11"		2'-11"	225'-4"	40'-0"	39'-11"		5
S300	4E	54	27	239'-11"		2'-11"	225'-4"	40'-0"	39'-11"		5
S5	5E	38	STR	20'-0"							
D1	4E	100	S4	9'-4"	0'-4 1/2"	4'-0"	0'-7"	4'-0"		0'-4 1/2"	
D2	4E	40	T1	6'-11"	0'-4 1/2"	2'-6"	0'-7"	2'-6"	0'-7"	0'-4 1/2"	
D3	4E	40	T1	7'-5"	0'-4 1/2"	2'-9"	0'-7"	2'-9"	0'-7"	0'-4 1/2"	
D4	6E	32	STR	6'-11"							
D5	4E	80	STR	6'-11"							
D6	6E	15	STR	6'-0"							
D7	4E	40	S5	5'-0"	0'-4 1/2"	1'-10"	0'-7"	1'-10"		0'-4 1/2"	
D8	6E	16	STR	6'-11"							
CR1	5E	4	27	240'-6"		3'-8"	222'-2"	40'-0"	4'-2"		6
CR2	5E	4	27	248'-10"		3'-8"	226'-10"	40'-0"	8'-10"		6
CR3	5E	902	526	4'-1 1/2"		0'-11"	1'-2 1/2"	1'-2 1/2"	0'-9 1/2"		
CR4	5E	116	41	3'-8 1/2"	0'-9 1/2"	0'-11"	0'-9 1/2"	0'-8"	0'-6 1/2"		
CRE1	5E	4	526	4'-0 1/2"		0'-10"	1'-2 1/2"	1'-2 1/2"	0'-9 1/2"		
CRE2	5E	4	526	3'-11"		0'-8 1/2"	1'-2 1/2"	1'-2 1/2"	0'-9 1/2"		
CRE3	5E	4	526	3'-3 1/2"		0'-7"	1'-2 1/2"	1'-2 1/2"	0'-3 1/2"		
CRE4	5E	4	526	3'-3 1/2"		0'-4 1/2"	1'-2 1/2"	1'-2 1/2"	0'-6"		
CRE5	5E	4	526	3'-3 1/2"		0'-3"	1'-2 1/2"	1'-2 1/2"	0'-7 1/2"		
CRE6	5E	4	41	4'-1 1/2"	0'-9 1/2"	1'-1"	0'-9 1/2"	0'-8"	0'-9 1/2"		
CRE7	5E	4	42	4'-3"	0'-9 1/2"	0'-10"	0'-9 1/2"	0'-7"	0'-7 1/2"	0'-7 1/2"	
CRE8	5E	4	28	6'-1 1/2"	1'-3 1/2"	4'-10"	1'-4 1/2"	0'-6 1/2"			
CRE9	5E	4	28	6'-1"	1'-0"	5'-1"	1'-1"	0'-5"			

For diaphragm and curb steel layouts see Standard Detail Drawing SL-8 and Sheet No. B25.

SHEET NO. B21

STRUCTURE BILL OF REINFORCING STEEL

SCALE:

BRIDGE OVER SKULL CREEK

AT STA. 1934+88.25

FEDERAL AID PROJECT NO. NH-HSIP 57-5(56)247

COUNTY McCONE

REVISED				S.E.W.	
REVISED				C.J.W./M.T.G.	
REVISED				J.L.J.	
REVISED				11-5-24	
CHECKED				10-30-24	
DRAWN				9-28-23	
DESIGNED				FILENAME:	9726008BRVT001.RVT

MONTANA Department of Transportation
BRIDGE BUREAU

12/10/2024 10:42:34 AM

ROUTE N-57

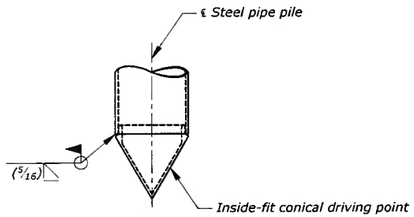
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MDT STR. ID 06032

UPN NUMBER 9726000

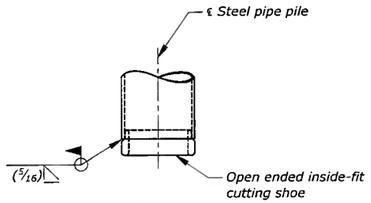
DRAWING NO. 28724

ADVERTISED COPY



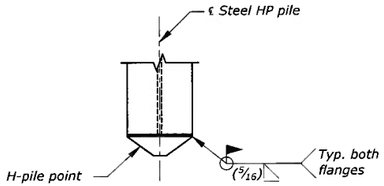
CONICAL DRIVING POINT WELD DETAIL

Slip driving point inside pipe



CUTTING SHOE WELD DETAIL

Slip driving point inside pipe



H-PILE POINT WELD DETAIL

Do not weld web or inside of flanges

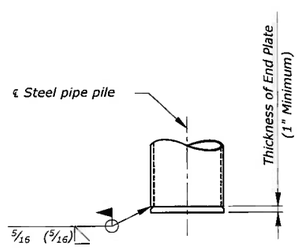
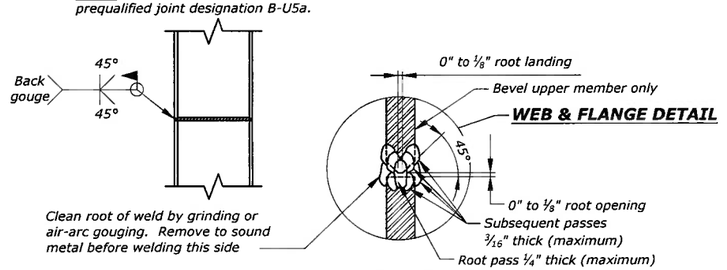


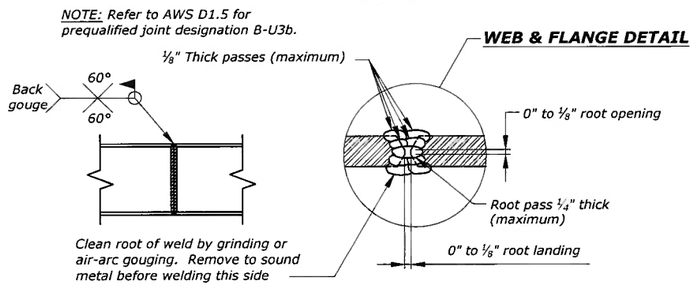
PLATE END WELD DETAIL

Align plate with outside of pipe



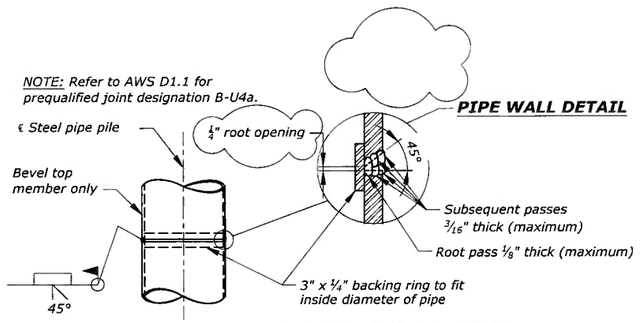
PILE EXTENSION AFTER DRIVING

(Pile Vertical)



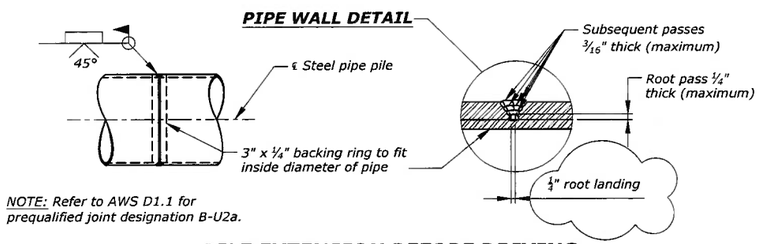
PILE EXTENSION BEFORE DRIVING

WELDED SPLICES FOR STEEL HP PILES



PILE EXTENSION AFTER DRIVING

(Pile Vertical)



PILE EXTENSION BEFORE DRIVING

WELDED SPLICES FOR STEEL PIPE PILES

NOTES:

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.

PILE TIPS: Use only 7018 series electrodes to attach pile tips.

PILE TYPE: See Footing Plan sheets for correct pile type, pile tim and pile tip elevations.

PIPE PILE WEIGHTS

PIPE PILE DIAMETER	WALL THICKNESS	WEIGHT (LBS / FT)
12"	1/2"	62
16"	1/2"	83
20"	1/2"	104
24"	1/2"	126
24"	3/4"	186
30"	3/4"	235

UPDATED 10-29-24 S.E.W.

SHEET NO. B22

PILE SPLICE DETAILS AND PILE TIPS

SCALE: NO SCALE

BRIDGE OVER TIBER CREEK & SKULL CREEK

AT STA. 1891+19.00 & 1934+88.25

FEDERAL AID PROJECT NO. NH-HSIP 57-5(56)247

COUNTY McCONE

REVISED		
REVISED		
REVISED		
REVISED		
CHECKED	1-30-15	D.F.J.
DRAWN	1-30-15	D.F.J.
DESIGNED	1-23-15	T.J.B.

FILENAME: 9726000BRRVT001.RVT

MONTANA Department of Transportation — BRIDGE BUREAU

12/4/2024 2:48:45 PM

ROUTE N-57

REF POINT MULTIPLE

MDT STR. ID MULTIPLE

UPN NUMBER 9726000

DRAWING NO. 28725

ADVERTISED COPY

GENERAL NOTES:

PLACEMENT: Do not disturb the deck cure to construct the curb and rail.

ERECTION: Place rail posts as shown in details, perpendicular to adjacent roadway grade and vertical in relation to roadway cross slopes. Adjust the completed railing to compensate for any unevenness in the structure. Do not place railing on a span until centering or falsework is removed.

REFLECTORS: Place a white reflector on top of the top tube rail at equal spacing (not to exceed 30 foot spacing) between ends of rail. See Dtl. Dwg. No. 605-00 for reflector detail. Mount the reflector on the tube rail with an approved adhesive. Include the cost of reflectors in the unit price bid for 42 IN Open Rail - BR - CSC.

PAYMENT: Payment for 42 IN Open Rail - BR - CSC per linear foot includes compensation for the cost of Concrete - Class Structure Low Slump in the curb and for all resources necessary to complete the work. See the General Layout for the number of linear feet for payment of 42 IN Open Rail - BR - CSC.

RAIL WEIGHT: For informational purposes only, the rail weight is approximately:
Curb weight = 131.3 lb/ft
Curb volume = 0.875 cu. ft / ft
Rail weight = 52.9 lb/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.

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

EXCEPTIONS: Use details shown on these sheets (B23-B26) only as they apply to the project. Anchorage details may vary. Refer to other drawings for variations in these details.

MATERIALS: Use rail post plates and base plates conforming to AASHTO M 270 Grade 50 T3. Use AASHTO M 270 Grade 50 for all other plates and ASTM A500 Grade B for structural tubing.

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.

GALVANIZING: Galvanize all bolts, nuts, washers and pipe sleeves in accordance with ASTM F 2329.

PAINTING: Paint all posts, structural tubing and plates (except as noted) in accordance with the Standard Specifications. Galvanizing the posts, structural tubing and plates in accordance with AASHTO M 111 will be allowed.

FIBER REINFORCED PADS: Use fiber reinforced pads meeting the requirements of subsection 711.6 of the Standard Specifications. Size and position the pads such that not less than ½" of the pad protrudes on all sides of the base plates. Punch holes in the pads to match base plate.

ANCHOR BOLTS: Use ⅞" Ø x 11½" Galvanized high strength bolts (ASTM F 3125 Grade A325) with heavy hex nut and galvanized hardened washer (2" thread, wrench tight, 4 required per post) for anchor bolts.

FINISHING: Finish top of curb under each rail post to a smooth and uniform surface to assure a proper alignment of the post and a tight fit between the fiber reinforced pad and concrete. Bush hammering is acceptable only to remove high spots.

RAILING:
Locate the splice on either side of post. Tube shop splices are not allowed.

Attach panel lengths of tube members continuously to minimum of two posts (except at abutments with expansion joints).

Show vent and pickup holes in rail and sleeves on Fabricator's shop drawings. Place vent holes on the underside of the rail members as installed.

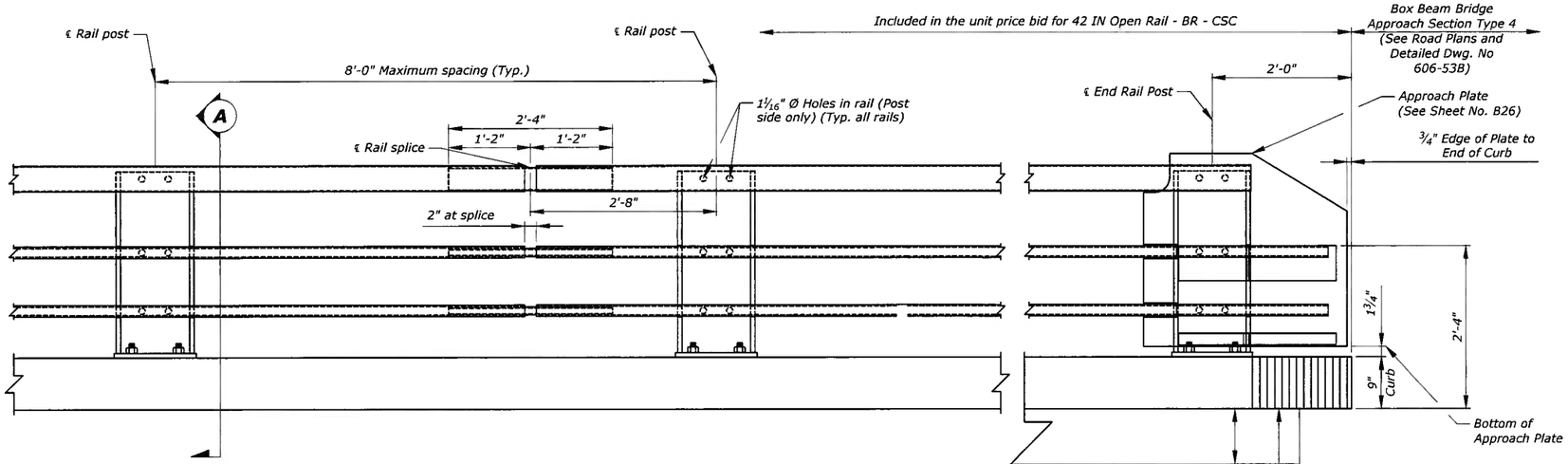
For Approach Plate details see Sheet No. B26.

For curb end reinforcing details see Sheet No. B25.

Do not provide a tube splice in first panel unless it crosses an expansion joint.

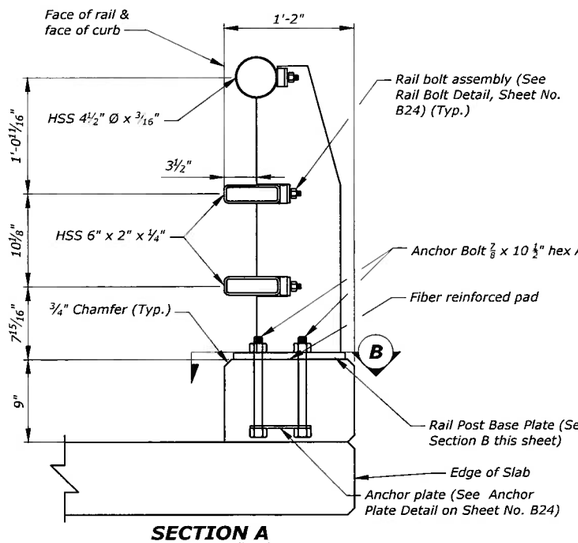
Place expansion splice in rail such that it is positioned between the same rail posts as expansion joint.

Fabricate rail tubing on a curve when face of rail radius is 600 feet or less.

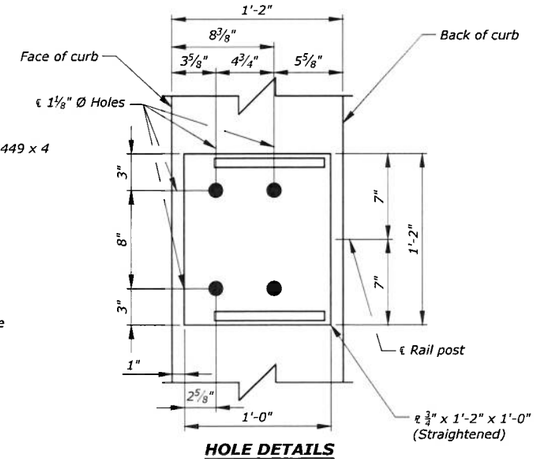


INSIDE ELEVATION OF RAIL
SCALE: ½" = 1'-0"

APPROACH PLATE END

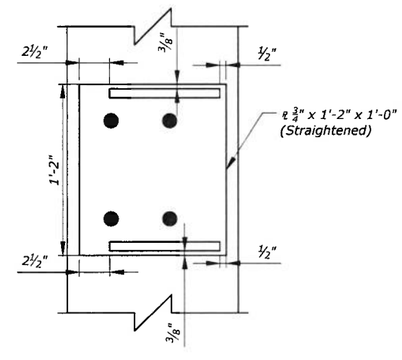


SECTION A
SCALE: ¾" = 1'-0"



HOLE DETAILS
(Anchor bolts not shown)

SECTION B
SCALE: 1" = 1'-0"



RAIL POST BASE PLATE DETAILS

SHEET NO. B23

BRIDGE RAIL TYPE OPEN RAIL 42" SHEET 1

SCALE: AS NOTED

BRIDGE OVER: TIBER CREEK & SKULL CREEK

AT STA.: 1891+19.00 & 1934+88.25

FEDERAL AID PROJECT NO.: NH-HSIP 57-5(56)247

COUNTY: McCONE

REVISED			
REVISED			
REVISED			
REVISED	S.E.W.	12-04-24	
CHECKED	T.J.B	08-29-23	
DRAWN			
DESIGNED			

FILENAME: 9726000BRRVT001.RVT

MONTANA Department of Transportation — BRIDGE BUREAU

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ROUTE: N-57

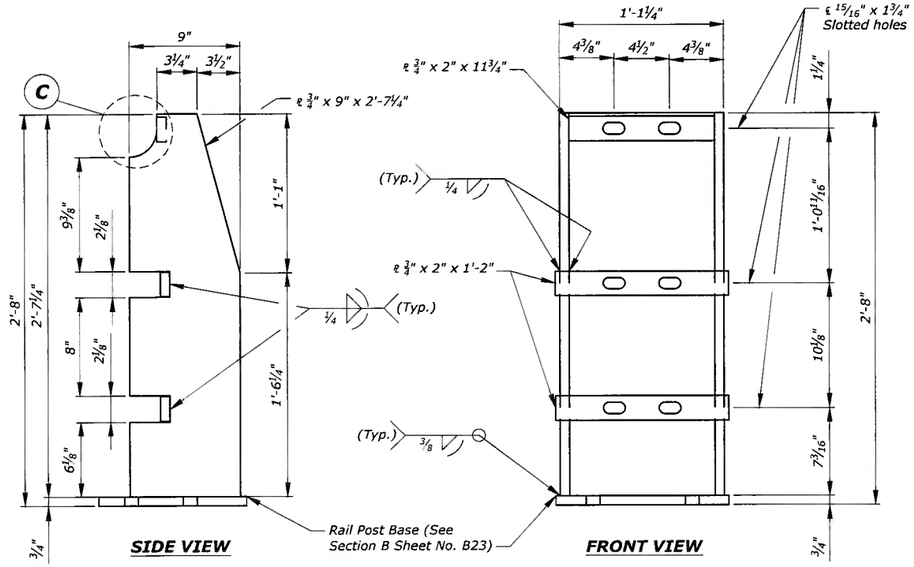
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MDT STR. ID: MULTIPLE

UPN NUMBER: 9726000

DRAWING NO.: 28726

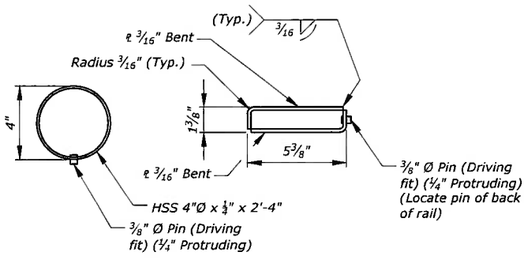
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SIDE VIEW **FRONT VIEW**

RAIL POST DETAIL

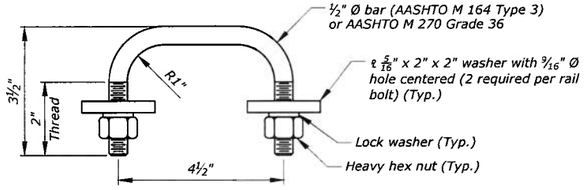
SCALE: 1" = 1'-0"



NOTE: Locate ⅜" Ø Pin at mid-length of sleeve.

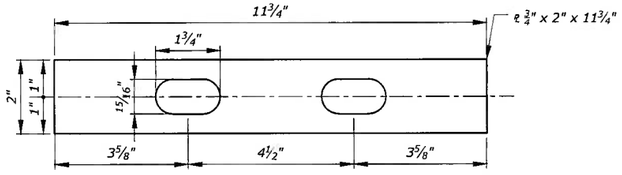
SLEEVE FABRICATION DETAILS

SCALE: 1 ½" = 1'-0"



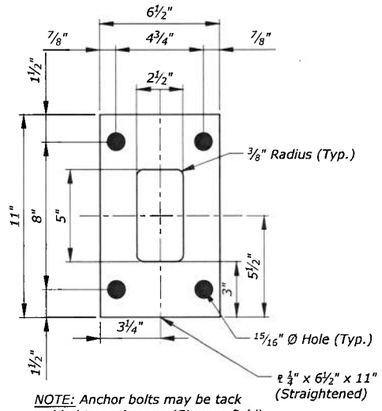
RAIL BOLT DETAIL

SCALE: 3" = 1'-0"



CIRCULAR RAIL TUBE PLATE DETAIL

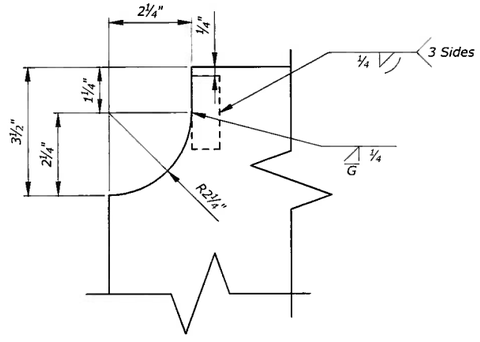
SCALE: 3" = 1'-0"



NOTE: Anchor bolts may be tack welded to anchorage (Shop or field)

ANCHOR PLATE DETAIL

SCALE: 1" = 1'-0"



DETAIL C

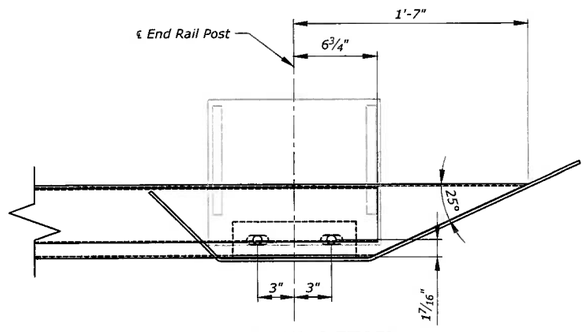
SCALE: 3" = 1'-0"

RECTANGULAR RAIL TUBE PLATE DETAIL

SCALE: 3" = 1'-0"

RAIL CAP DETAIL

SCALE: 3" = 1'-0"



RAIL END DETAIL

SCALE: 1" = 1'-0"

NOTE: See Sheet No. B26 for details.

SHEET NO. B24

BRIDGE RAIL TYPE OPEN RAIL 42" SHEET 2

SCALE: AS NOTED

BRIDGE OVER TIBER CREEK & SKULL CREEK

AT STA. 1891+19.00 & 1934+88.25

FEDERAL AID PROJECT NO. NH-HSIP 57-5(56)247

COUNTY McCONE

	REVISED	REVISED	REVISED	REVISED	CHECKED	DRAWN	DESIGNED	FILENAME: 9726000BRRVT001.RVT
				12-04-24	S.E.W.			
				08-29-23	T.J.B			

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ROUTE N-57

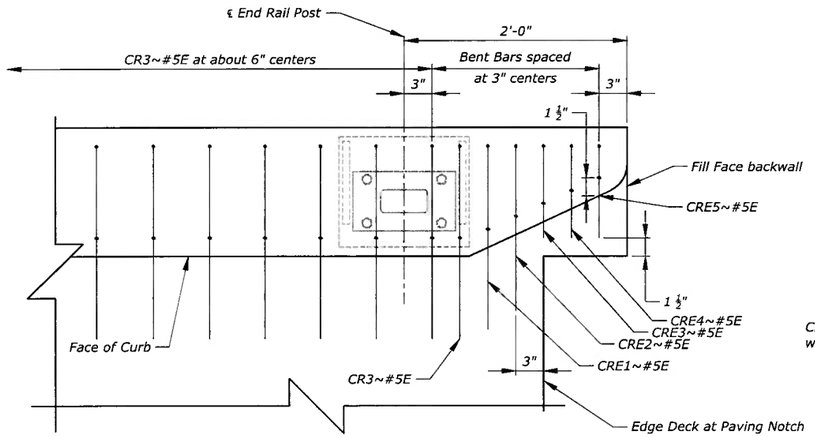
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MDT STR. ID MULTIPLE

UPN NUMBER 9726000

DRAWING NO. 28727

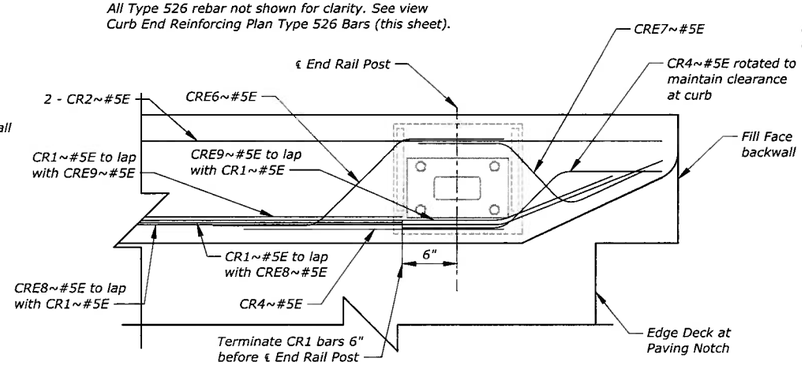
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Type 41, 42, 28, and 27 rebar not shown for clarity. See view Curb End Reinforcing Plan All Other Bars (this sheet).

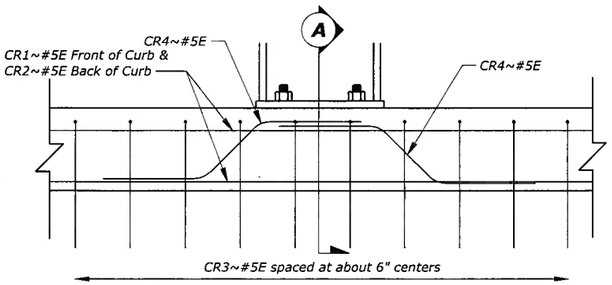
CURB END REINFORCING PLAN TYPE 526 BARS

SCALE: ¾" = 1'-0"



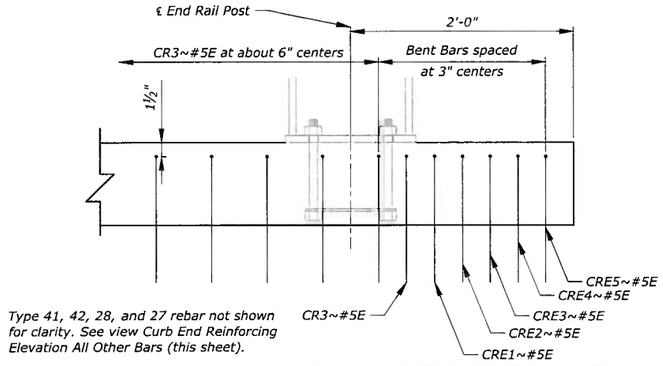
CURB END REINFORCING PLAN ALL OTHER BARS

SCALE: ¾" = 1'-0"



CURB REINFORCING AT RAIL POST ELEVATION

SCALE: ¾" = 1'-0"



Type 41, 42, 28, and 27 rebar not shown for clarity. See view Curb End Reinforcing Elevation All Other Bars (this sheet).

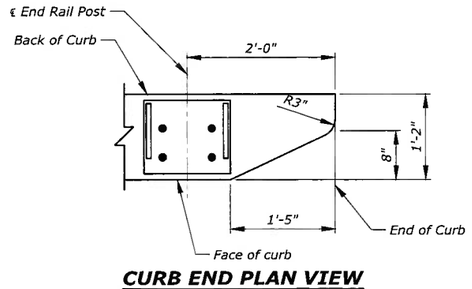
CURB END REINFORCING ELEVATION TYPE 526 BARS

SCALE: ¾" = 1'-0"

All Type 526 rebar not shown for clarity. See view Curb End Reinforcing Elevation Type 526 Bars (this sheet).

CURB END REINFORCING ELEVATION ALL OTHER BARS

SCALE: ¾" = 1'-0"



CURB END PLAN VIEW

SCALE: ½" = 1'-0"

SECTION A

SCALE: ¾" = 1'-0"

SHEET NO. B25

BRIDGE RAIL TYPE OPEN RAIL 42" SHEET 3

SCALE: AS NOTED

BRIDGE OVER TIBER CREEK & SKULL CREEK

AT STA. 1891+19.00 & 1934+88.25

FEDERAL AID PROJECT NO. NH-HSIP 57-5(56)247

COUNTY McCONE

	REVISED	REVISED	REVISED	REVISED
				12-04-24
CHECKED				S.E.W.
DRAWN				T.J.B
DESIGNED				08-29-23

FILENAME: 9726000BRRVT001.RVT

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ROUTE N-57

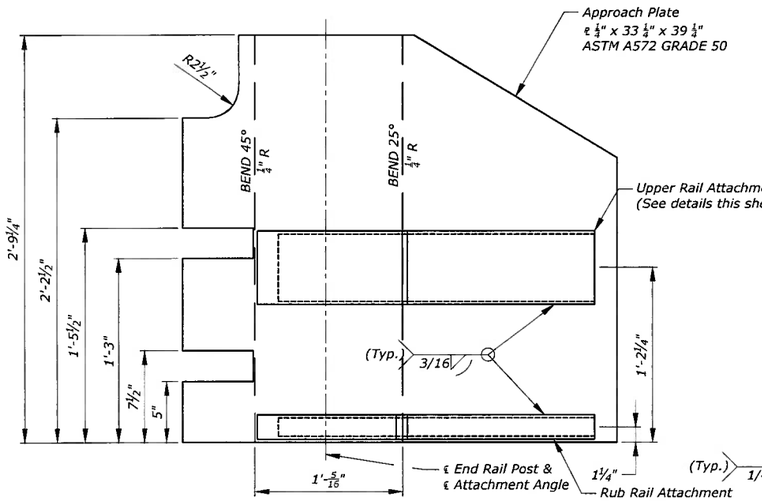
REF POINT MULTIPLE

MDT STR. ID MULTIPLE

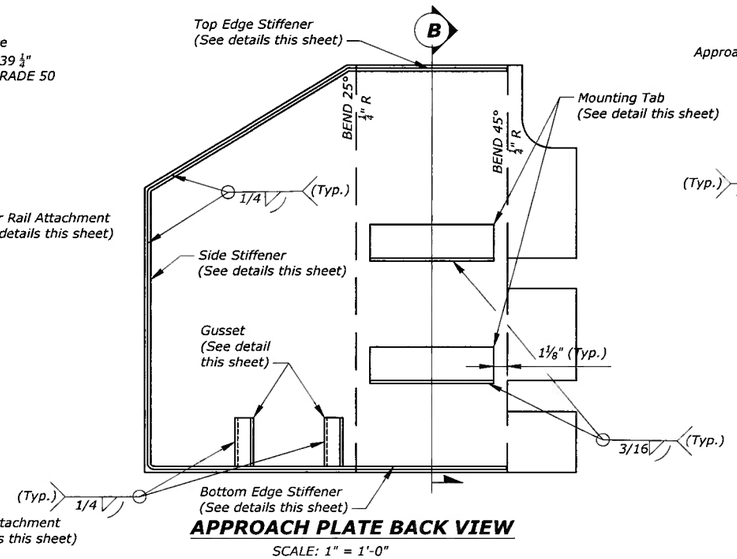
UPN NUMBER 9726000

DRAWING NO. 28728

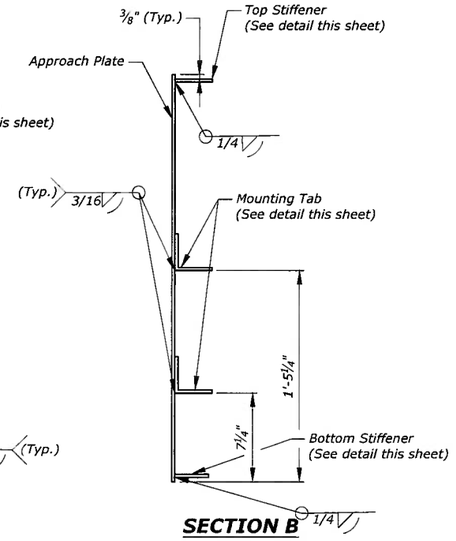
ADVERTISED COPY



APPROACH PLATE FRONT VIEW
SCALE: 1" = 1'-0"



APPROACH PLATE BACK VIEW
SCALE: 1" = 1'-0"



SECTION B
SCALE: 1" = 1'-0"

NOTES:

GENERAL: For additional rail notes and details see Sheets No. B23-B25.

GALVANIZING: Galvanize all bolts, nuts, washers and pipe sleeves in accordance with ASTM F 2329.

PAYMENT: Include all costs associated with furnishing and installing approach plate in the unit price bid 42 IN Open Rail - BR - CSC.

PAINTING: Paint all posts, structural tubing and plates (except as noted) in accordance with the Standard Specifications. Galvanizing the posts, structural tubing and plates in accordance with AASHTO M 111 will be allowed.

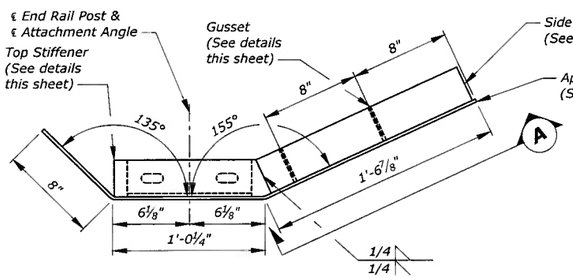
EXCEPTIONS: Use details shown on this drawing only as they apply to the project. Refer to other drawings for variations in these details.

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

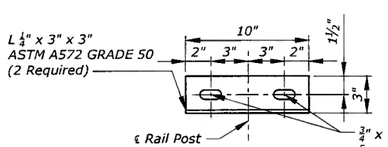
RAIL WEIGHT: For informational purposes only, the approach plate weight is approximately 148.7 lb.

MIRROR: Main plate details are for right side transition attachment part. Main plate for left side is a mirror image of this one (pre-bend details are identical, but bent in opposite direction).

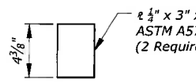
NOTE: For additional information, see Detail Drawing 606-99A.



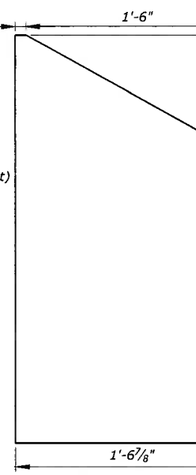
APPROACH PLATE TOP VIEW
SCALE: 1" = 1'-0"



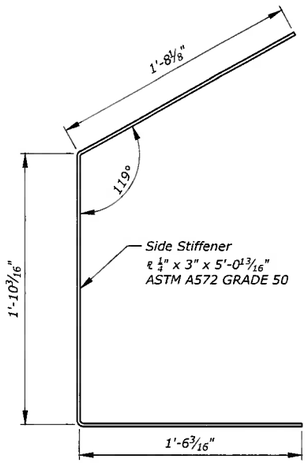
MOUNTING TAB
SCALE: 1" = 1'-0"



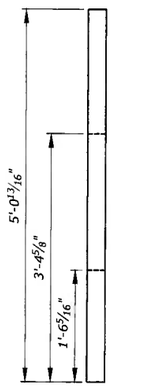
GUSSET
SCALE: 1" = 1'-0"



SECTION A
SCALE: 1" = 1'-0"

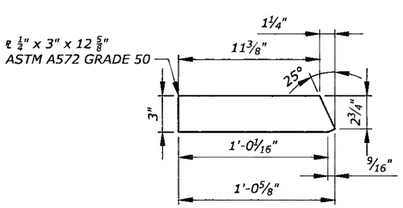


BENT
SCALE: 1" = 1'-0"

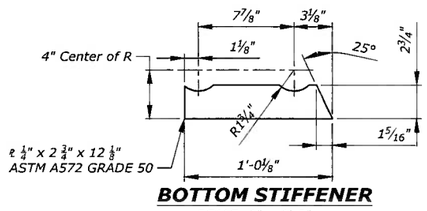


FLAT PATTERN
SCALE: ½" = 1'-0"

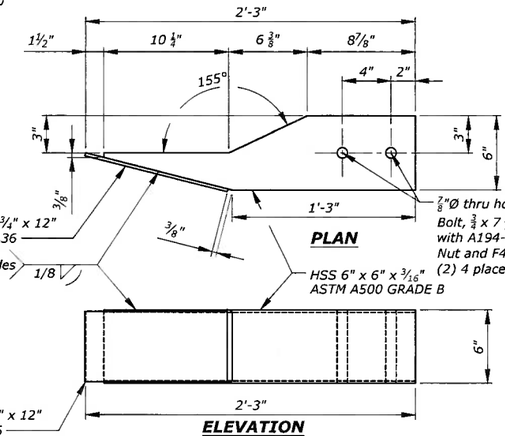
SIDE STIFFENER



TOP STIFFENER
SCALE: 1" = 1'-0"



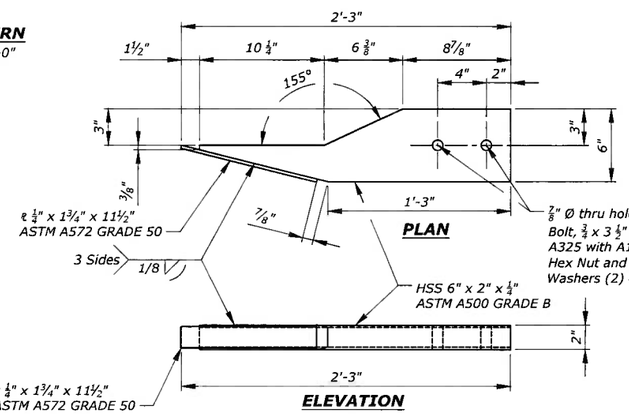
BOTTOM STIFFENER
SCALE: 1" = 1'-0"



PLAN

ELEVATION

UPPER RAIL ATTACHMENT
SCALE: 1" = 1'-0"



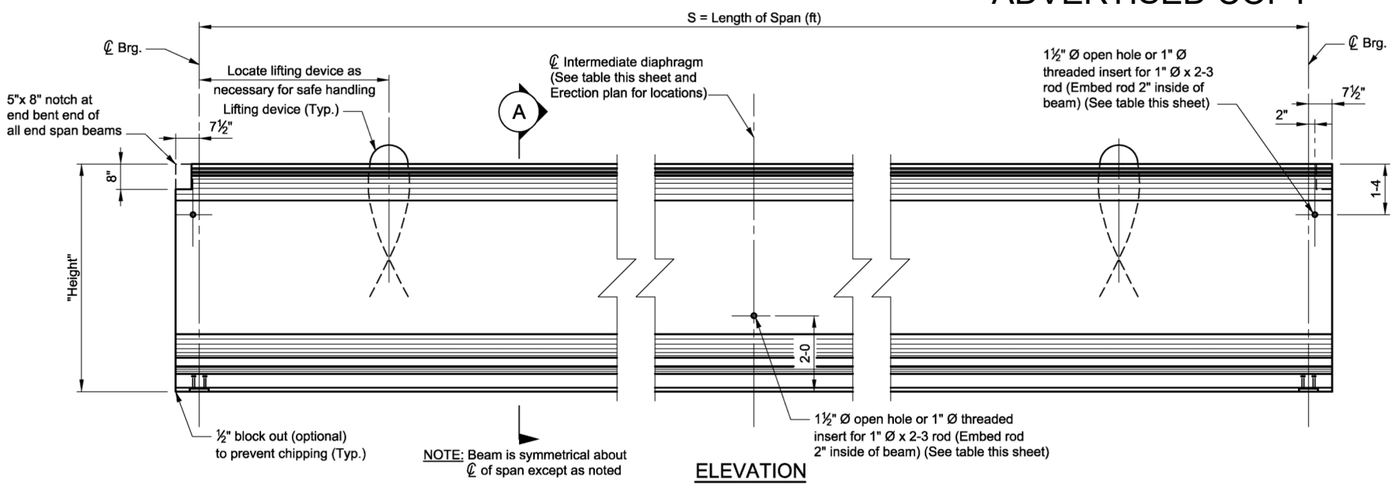
PLAN

ELEVATION

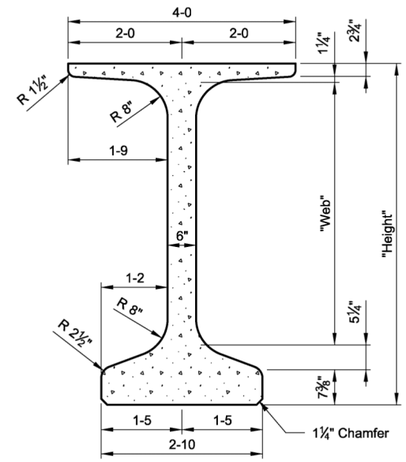
RUB RAIL ATTACHMENT
SCALE: 1" = 1'-0"

SHEET NO.	B26
BRIDGE RAIL TYPE OPEN RAIL 42" APPROACH PLATE	SCALE: AS NOTED
BRIDGE OVER	TIBER CREEK & SKULL CREEK
AT STA.	1891+19.00 & 1934+88.25
FEDERAL AID PROJECT NO.	NH-HSIP 57-5(56)247
COUNTY	McCONE
REVISED	
REVISED	
REVISED	
REVISED	S.E.W. 12-04-24
CHECKED	T.J.B 08-29-23
DRAWN	
DESIGNED	
FILENAME:	9726000BRVT001.RVT
MONTANA Department of Transportation	BRIDGE BUREAU
12/4/2024 2:48:45 PM	
ROUTE	N-57
REF POINT	MULTIPLE
MDT STR. ID	MULTIPLE
UPN NUMBER	9726000
DRAWING NO.	28729

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ELEVATION



SECTION A

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 to 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 donotes 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 (in²)	Ycg (in)	Ixo (in⁴)	Sx (Top) (in³)	Sx (Bot) (in³)	Weight (lb/ft)
MTS-36	36"	19⅜"	670	16.44	112 100	5 732	6 818	700
MTS-45	45"	28⅜"	724	20.28	197 679	7 998	9 746	755
MTS-54	54"	37⅜"	778	24.22	312 050	10 477	12 886	810
MTS-63	63"	46⅜"	832	28.22	457 505	13 155	16 210	865
MTS-72	72"	55⅜"	886	32.29	636 312	16 024	19 706	925
MTS-81	81"	64⅜"	940	36.41	850 718	19 077	23 368	980
MTS-96	96"	79⅜"	1030	43.36	1 293 240	24 566	29 829	1075

DIAPHRAGM LOCATIONS

SPAN LENGTH	DIAPHRAGM LOCATION
0 - 40 ft	NONE
40 - 80 ft	½ S
80 - 120 ft	⅓ S
120 - 160 ft	¼ S
greater than 160 ft	See Erection Plan

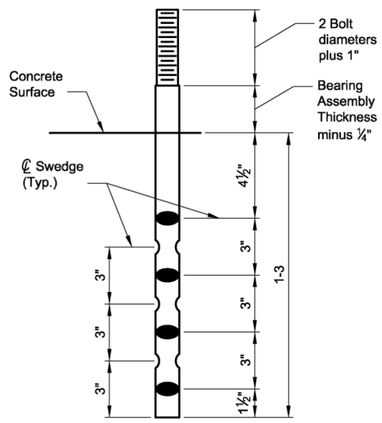
ANCHOR BOLT DIAMETERS

SPAN LENGTH	ANCHOR BOLT OR SMOOTH BAR DIAMETER	EXPANSION CAP DIAMETER
0 - 50 ft	1"	1⅛"
50 - 100 ft	1¼"	1⅜"
100 - 150 ft	1½"	1⅝"
greater than 150 ft	1¾"	1⅞"

WEB THREADED INSERT / HOLE

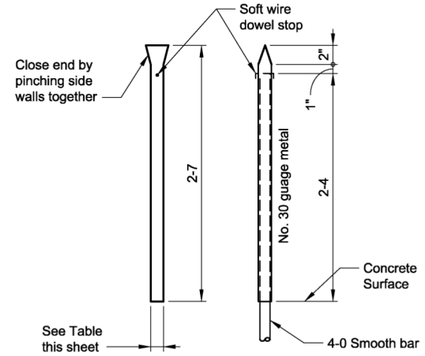
CONDITION	EXTERIOR BEAM	INTERIOR BEAM
End Bent Fixed Bearing	Open Hole	Open Hole
End Bent Exp Bearing	Threaded Insert	Open Hole
Intermediate Bent	Threaded Insert	Open Hole
Intermediate Diaphragm	Threaded Insert	Open Hole

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

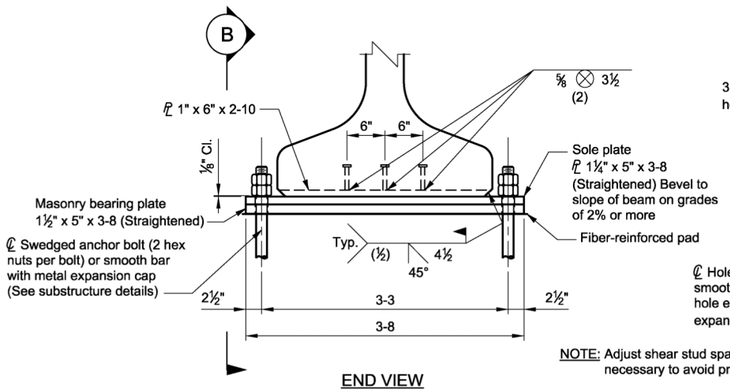


NOTE: Make swedge deformations 3/16" deep minimum without removing metal.

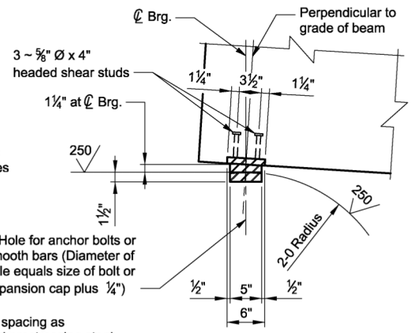
ANCHOR BOLT DETAIL



METAL EXPANSION CAP DETAIL



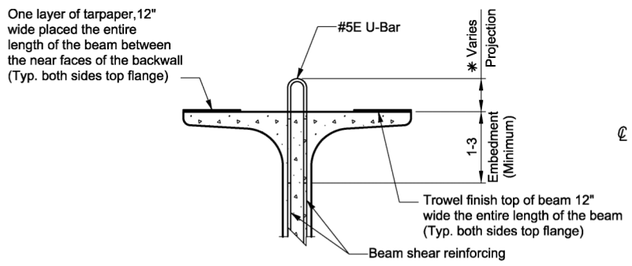
END VIEW



NOTE: Adjust shear stud spacing as necessary to avoid prestressing steel.

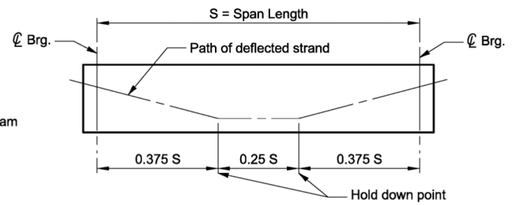
VIEW B

FIXED BEARING DETAILS



HORIZONTAL INTERFACE SHEAR REINFORCEMENT

*NOTE: Extend horizontal interface shear reinforcement such that is located between top and bottom deck mat reinforcing layers.



TYPICAL DEFLECTED STRAND FOR PRE-TENSIONING SYSTEM

STANDARD PRESTRESSED CONCRETE BEAM TYPE MTS

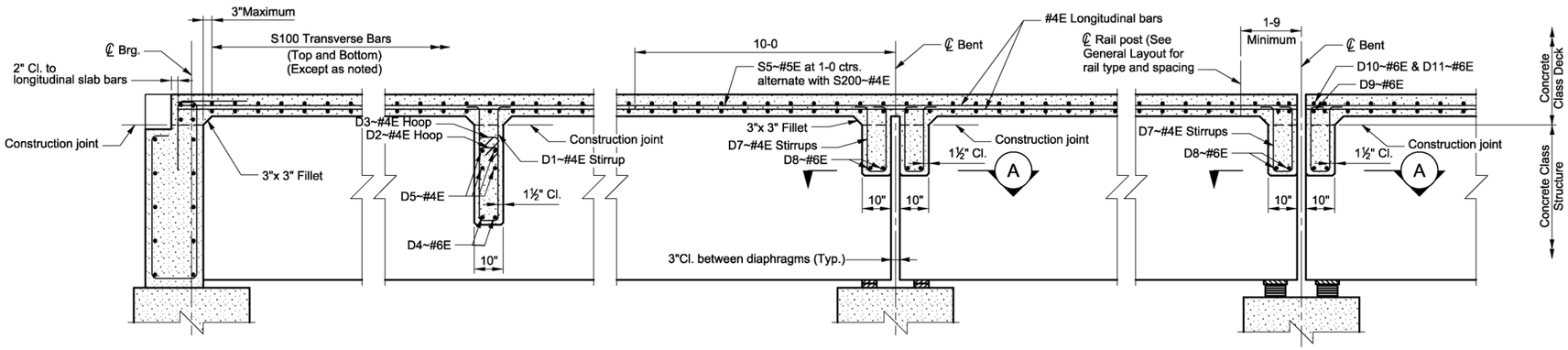
No Scale

MDT MONTANA DEPARTMENT OF TRANSPORTATION BRIDGE BUREAU

REVISED				
REVISED				
REVISED	D.F.J.	5-20-14		
APPROVED	D.F.J.	3-6-12		
CHECKED	D.F.J.	3-6-12		
DRAWN	T.J.B.	3-6-12		
$DATE$	$TIME$	$FILEABBREV$		

DRAWING NO. MTS

ADVERTISED COPY



DETAIL AT FIXED END BENT | INTERMEDIATE DIAPHRAGM | CONTINUOUS SLAB AT INTERMEDIATE BENT | EXPANSION JOINT AT INTERMEDIATE BENT

LONGITUDINAL SECTION

**NOTE: Use a detail for end bents with expansion joints similar to the detail for an expansion joint at an intermediate bent.

NOTES

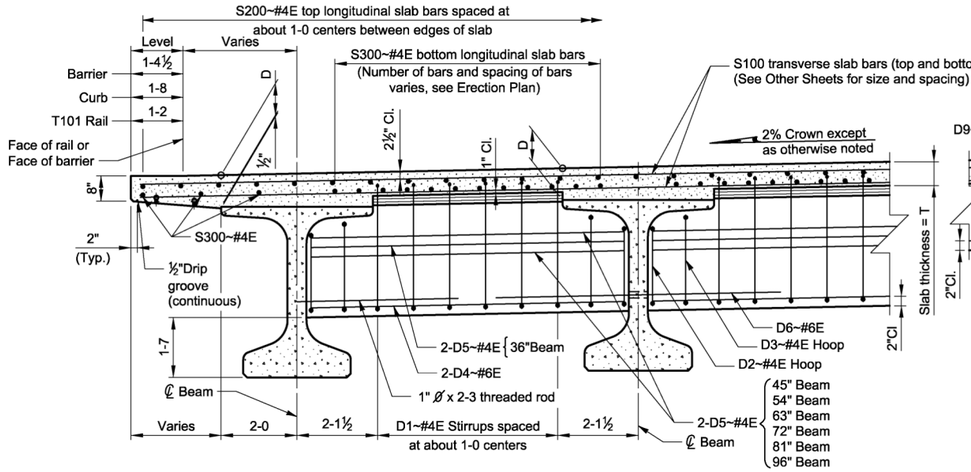
Use details shown on this sheet only as they apply to the project. See the General Layout or Other Sheets for beam spacing, slab thickness, size and spacing of S100 bars, number and spacing of S200 and S300~#4 bars, deck joint arrangement, rail and curb length, rail post spacing, bill of reinforcing steel and roadway width.

When adjoining spans have a different number of longitudinal slab bars, make the longitudinal bars of the shorter span continuous over the bent and extend them 3-0 into the longer span.

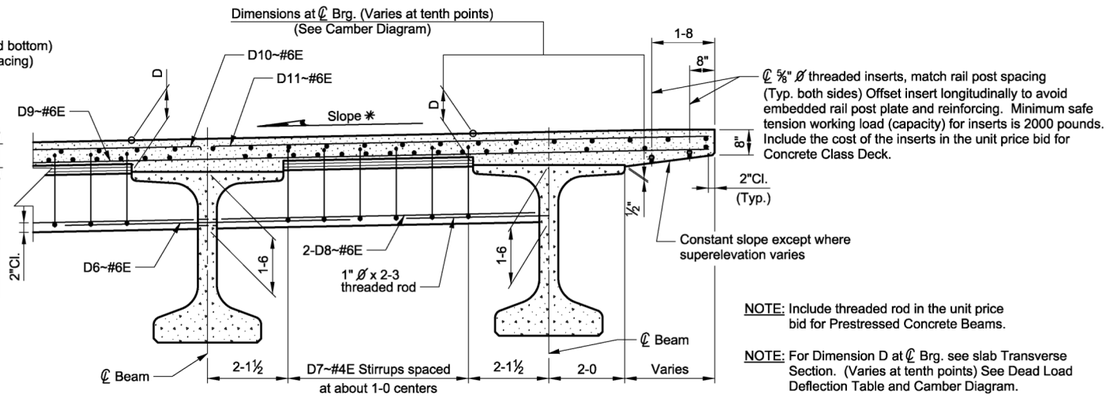
If the bridge is skewed, place the transverse slab reinforcing steel as shown on Other Sheets.

See Standard Bridge Rail drawings for rail details.

The suffix E denotes epoxy coated reinforcing.



TRANSVERSE SECTION NEAR INTERMEDIATE DIAPHRAGM AT LOW SIDE

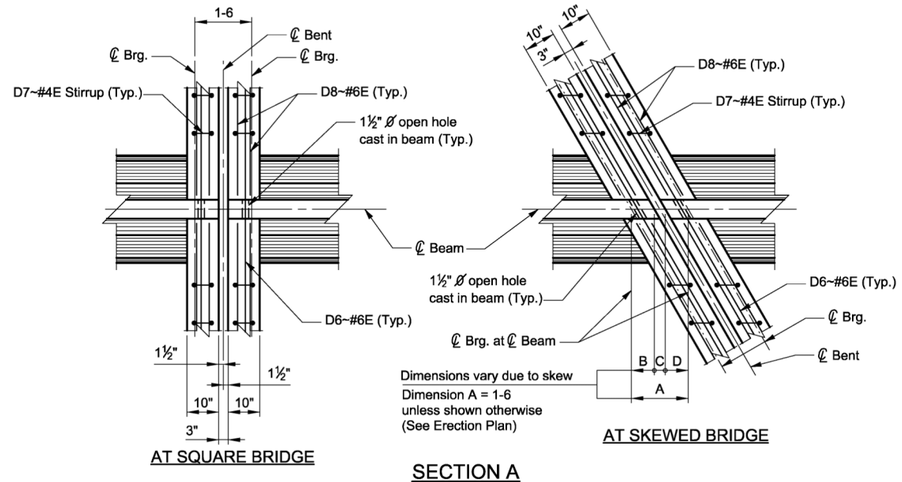


NOTE: Include threaded rod in the unit price bid for Prestressed Concrete Beams.

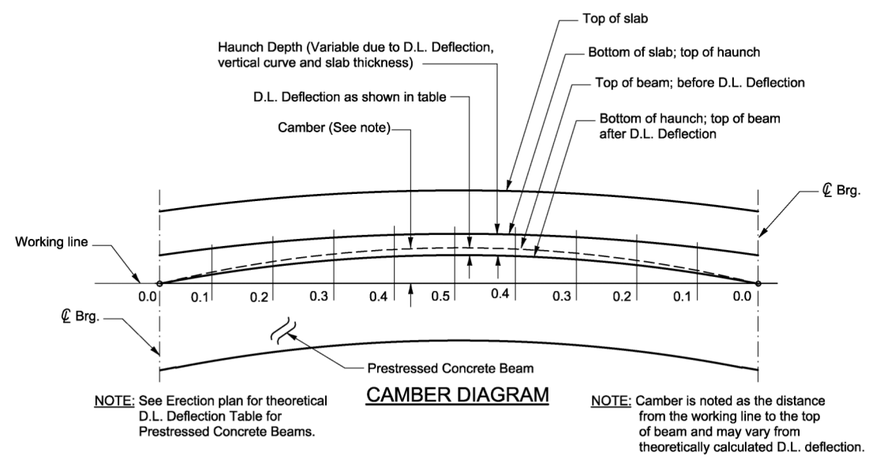
NOTE: For Dimension D at ℄ Brg. see slab Transverse Section. (Varies at tenth points) See Dead Load Deflection Table and Camber Diagram.

TRANSVERSE SECTION NEAR INTERMEDIATE BENT AT HIGH SIDE

*NOTE: Detail shown is for superelevations other than normal crown.



SECTION A



CAMBER DIAGRAM

NOTE: See Erection plan for theoretical D.L. Deflection Table for Prestressed Concrete Beams.

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.

STANDARD SLAB AND DIAPHRAGM DETAILS

No Scale

MDT MONTANA DEPARTMENT OF TRANSPORTATION — BRIDGE BUREAU

REVISED			$FILEABBREV$
REVISED	3-15-17	D.F.J.	
REVISED	5-20-14	D.F.J.	
APPROVED	3-6-12	D.F.J.	
CHECKED	3-6-12	D.F.J.	
DRAWN	3-6-12	T.J.B.	$TIME$
$DATE$			$TIME$

DRAWING NO. SL-8