

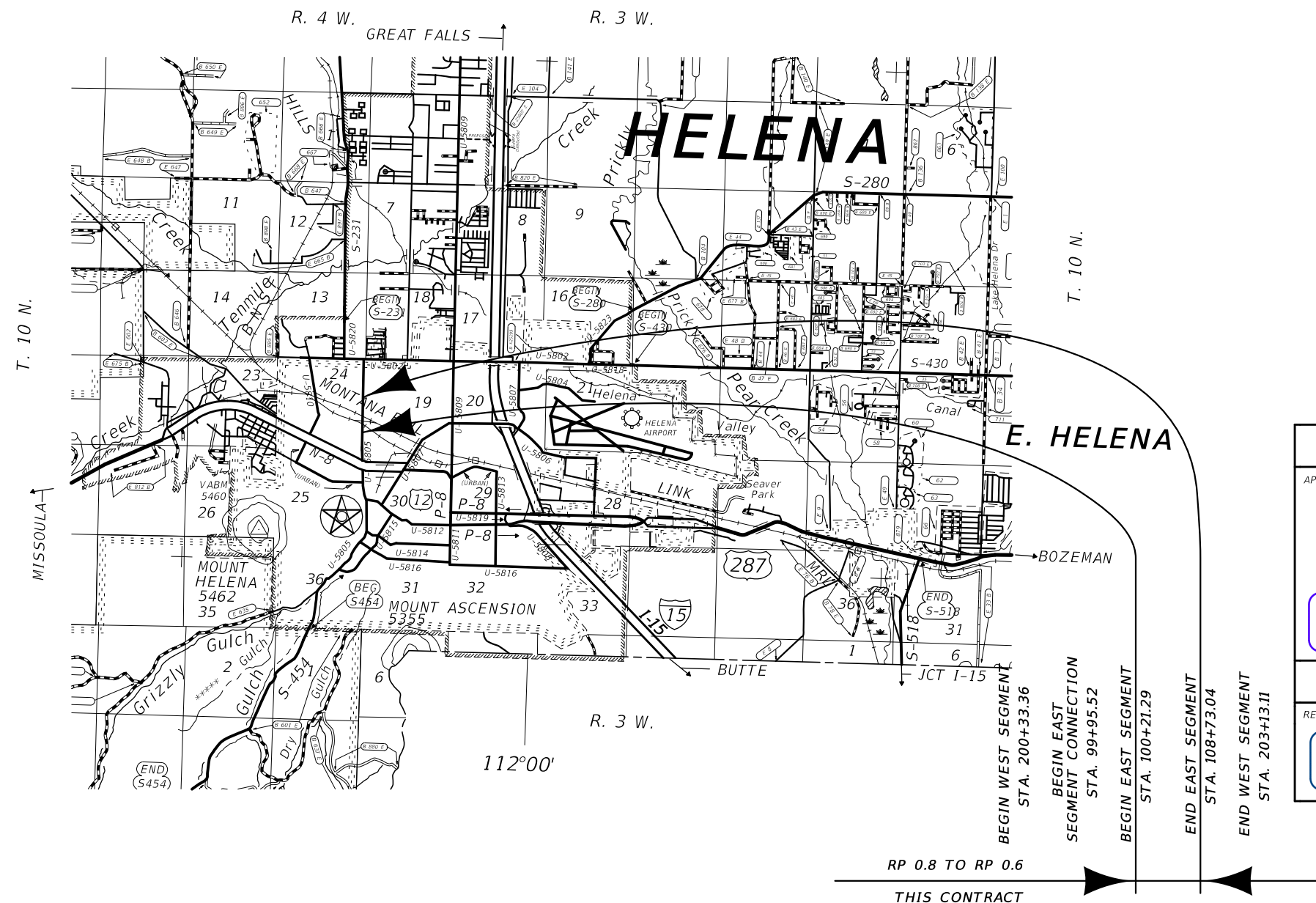


FEDERAL AID PROJECT RRP-TA-RRS 5805(17)
RAILROAD / HIGHWAY CROSSING
SAFETY IMPROVEMENTS
RRXING-BENTON AVE-HELENA
LEWIS AND CLARK COUNTY

LENGTH 0.2 MILES

PROJECT DESIGN DATA		
PRESENT	2025	A.D.T. = 6,780
LETTING	2026	A.D.T. = 6,850
DESIGN	2046	A.D.T. = 8,360
		D.H.V. = 890
		TRUCKS = 2.3%
		V. = 35 MPH
		18 KIP ESAL'S = 68
		GROWTH RATE = 1.0 % ANNUALLY

SURFACING SOURCES-CONTRACTOR FURNISHED



A S S O C I A T E D P R O J E C T A G R E E M E N T N U M B E R S	
R / W	TA 5805(19)
I.C.	RRP-L 5805(18)
P. E.	RRP 5805 (16)




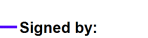
 sanbell	
APPROVED BY:	
	
Signed by:	
	5/4/2026
A1315D093BCD4D5...	DATE
MONTANA DEPARTMENT OF TRANSPORTATION	
RECEIVED BY: CONSULTANT DESIGN ENGINEER	
DocuSigned by:	
	5/4/2026
EF7F5DDAB5A741...	DATE

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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.	= 5.4% OF PL. MIX BIT. SURF.
ASPHALT BINDER - GRADE S - 3/8" AGG.	= 6.2% OF PL. MIX BIT. SURF.
HYDRATED LIME	= 1.4% OF PL. MIX BIT. SURF.
BITUMINOUS MATERIAL	= 8.5 LBS. PER GAL.
EMULSIFIED ASPHALT - TACK	= 0.05 GAL. PER SQ.YARD (UNDILUTED)

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.

CONTACT BNSF TELECOM (1-800-533-2891) AND BNSF SIGNAL (1-800-832-5452) TO CONFIRM UNDERGROUND UTILITY LOCATIONS PRIOR TO ANY WORK WITHIN BNSF RIGHT-OF-WAY.

PEDESTRIAN FACILITIES

CROSS SLOPE ON ALL PEDESTRIAN FACILITIES IS NOT TO EXCEED 2.1% MAXIMUM SLOPE.

PLANT MIX SURFACING

PROVIDE NEW PLANT MIX SURFACING FOR ROADWAY AREAS AT LOCATIONS INDICATED IN THE PLANS.

STATIONING - REFERENCE POSTS

STATIONING ON THE EAST AND WEST SEGMENTS RUN FROM SOUTH TO NORTH. REFERENCE POSTS RUN FROM NORTH TO SOUTH.

BNSF

CONTACT BNSF MANAGER OF PUBLIC PROJECTS PRIOR TO ANY WORK WITHIN BNSF RIGHT-OF-WAY OR ANY WORK AFFECTING GRADE CROSSING OPERATIONS.

DO NOT DISTURB

DO NOT DISTURB EXISTING VEGETATION BEYOND THE CONSTRUCTION LIMITS NECESSARY TO COMPLETE THE WORK.

MISC. TO BE MOVED OR REMOVED BY OTHERS

ALL PRIVATELY OWNED SIGNS TO BE REMOVED BY OWNER.

WETLANDS

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

CLEARING AND GRUBBING

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

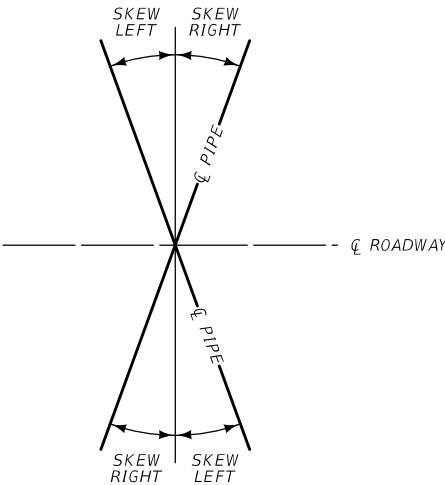
PLANT MIX SAWCUTS

SAWCUT ALL PLANT MIX CONNECTIONS TO A NEAT EDGE. PAYMENT FOR SAWCUTS IS INCLUDED IN THE UNIT BID PRICE FOR PLANT MIX SURFACING.

CURB RADIUS

ALL CURB RADIII CALL OUTS ARE TO THE TOP BACK OF CURB

SKEW DIAGRAM



NOTES

APPROACHES (For Information Only/Incl in Additional Surfacing Frame)												
STATION	TYPE	linear feet				DR. APP. RAMP STYLE	EXISTING SURFACING	PROPOSED SURFACING SECTION	tons	cu. yards	gals.	REMARKS
		WIDTH *	RADIUS*		LENGTH (CL TO R/W)				COMM. PL. MIX - 3/4" PG 58H-34	CRUSHED AGG. COURSE	EMULSIFIED ASPHALT TACK **	
			LEFT	RIGHT								
EAST SEGMENT												
100+62.17	PRM/ATE	40.0	%	%	35.0	PERP.	GRAVEL	B		37		RINKER MATERIALS APPROACH
101+91.22	PRM/ATE	60.0	%	%	35.0	PARA.	GRAVEL	B		6		RINKER MATERIALS APPROACH
105+12.80	PUBLIC	28.0	%	45.0	35.0	~	ASPHALT	A	38	91	14	BATCH FIELDS APPROACH
WEST SEGMENT												
201+42.68	PRM/ATE	20.0	%	%	35.0	PARA.	GRAVEL	B		6		BNSF APPROACH
SUBTOTAL	PRM/ATE								0	49	0	
SUBTOTAL	PUBLIC								38	91	14	

APPROACHES

CONSTRUCT APPROACHES TO THE WIDTHS SPECIFIED IN THE APPROACHES SUMMARY FRAME.

RE-SURFACE APPROACHES PER LIMITS SHOWN IN PLANS.

PROVIDE THE FOLLOWING SURFACING SECTIONS TO APPROACHES AS DENOTED IN THE SURFACING SUMMARY FRAME:

SURFACING SECTION A:

- 0.20' 3/4" PLANT MIX BITUMINOUS SURF.
- 0.60' CRUSHED AGGREGATE COURSE

SURFACING SECTION B:

- 0.60' CRUSHED AGGREGATE COURSE

APPROACH SUMMARY FRAME FOOTNOTES:

UNLESS OTHERWISE NOTED UNDER PROPOSED SURFACE, SURFACE APPROACH TO CONSTRUCTION LIMITS USING THE NOTED APPROACH SURFACING SECTION.

* WIDTH AND RADII ARE DIMENSIONED TO TOP BACK OF CURB, WHERE APPLICABLE.

** BASED ON 1 APPLICATION

% SEE APPROACH DETAILS



CENTERLINE COORDINATE TABLES

EAST SEGMENT ALIGNMENT COORDINATE TABLE				
STATION	DESCRIPTION	N OR Y COORDINATE	E OR X COORDINATE	REMARKS
99+50.00	P0B	869,067.866	1,330,233.568	
99+95.52	P0T	869,113.371	1,330,229.387	BEGIN CONNECTION
100+21.29	P0T	869,139.154	1,330,233.223	BEGIN EAST SEGMENT
101+14.17	PC	869,232.037	1,330,232.775	
101+22.65	PI	869,240.517	1,330,232.734	
101+31.02	PRC	869,248.653	1,330,230.344	
101+39.26	PI	869,256.556	1,330,228.023	
101+47.39	PT	869,264.792	1,330,227.918	
102+42.82	PI	869,360.216	1,330,226.698	Δ = 00° 24' 04" (RT)
102+99.77	PC	869,417.147	1,330,227.825	
103+12.07	PI	869,429.452	1,330,228.068	
103+24.05	PT	869,440.668	1,330,233.136	
104+20.23	PC	869,528.320	1,330,272.746	
104+41.36	PI	869,547.572	1,330,281.446	
104+61.87	PT	869,568.697	1,330,281.615	
105+85.81	PC	869,692.630	1,330,282.611	
105+89.51	PI	869,696.328	1,330,282.640	
105+93.20	PT	869,700.002	1,330,282.216	
107+77.69	PC	869,883.278	1,330,261.028	
108+10.85	PI	869,916.215	1,330,257.220	
108+41.72	PRC	869,944.903	1,330,273.845	
108+57.44	PI	869,958.502	1,330,281.726	
108+72.47	PT	869,974.219	1,330,281.927	
108+73.04	P0T	869,974.787	1,330,281.935	END EAST SEGMENT
108+86.62	P0E	869,988.368	1,330,282.108	

GPK NAME: JOB R03.GPKCHAIN NAME: EAST_SEGPROFILE NAME: EAST_SEG

EAST CURB ALIGNMENT COORDINATE TABLE				
STATDN	DESCRIPTDN	N OR Y COORDINATE	E OR X COORDINATE	REMARKS
400+00.00	P0B	869,144.465	1,330,221.697	
400+95.33	PI	869,239.794	1,330,221.237	Δ =00° 27' 20" (LT)
402+15.79	PI	869,360.240	1,330,219.697	Δ =00° 24' 04" (RT)
403+03.30	P0E	869,447.737	1,330,221.428	

GPK NAME: JO BR03.GPKCHAIN NAME: EAST_CURBPROFILE NAME: EAST_CURB

WEST SEGMENT ALIGNMENT COORDINATE TABLE				
STATDN	DESCRIPTDN	N OR Y COORDINATE	E OR X COORDINATE	REMARKS
200+00.00	P0B	869,279.942	1,330,181.779	
200+33.36	P0T	869,313.287	1,330,182.639	BEG N WEST SEGMENT
201+58.15	PC	869,438.042	1,330,185.848	
201+68.39	PI	869,448.275	1,330,186.111	
201+77.07	PT	869,454.473	1,330,177.965	
201+89.90	PC	869,462.236	1,330,167.762	
202+05.83	PI	869,471.886	1,330,155.079	
202+16.81	PT	869,486.403	1,330,161.653	
202+69.65	PC	869,534.539	1,330,183.450	
202+81.88	PI	869,545.682	1,330,188.496	
202+93.78	PT	869,557.910	1,330,188.777	
203+13.11	P0T	869,577.229	1,330,189.222	END WEST SEGMENT
203+45.91	P0E	869,610.024	1,330,189.976	

GPK NAME: JO BR03.GPKCHAIN NAME: W EST_SEGPROFILE NAME: W EST_SEG

WEST CURB ALIGNMENT COORDINATE TABLE				
STATDN	DESCRIPTDN	N OR Y COORDINATE	E OR X COORDINATE	REMARKS
500+00.00	P0B	869,313.158	1,330,187.637	
501+44.95	P0E	869,458.062	1,330,191.375	

GPK NAME: JO BR03.GPKCHAIN NAME: W EST_CURBPROFILE NAME: W EST_CURB

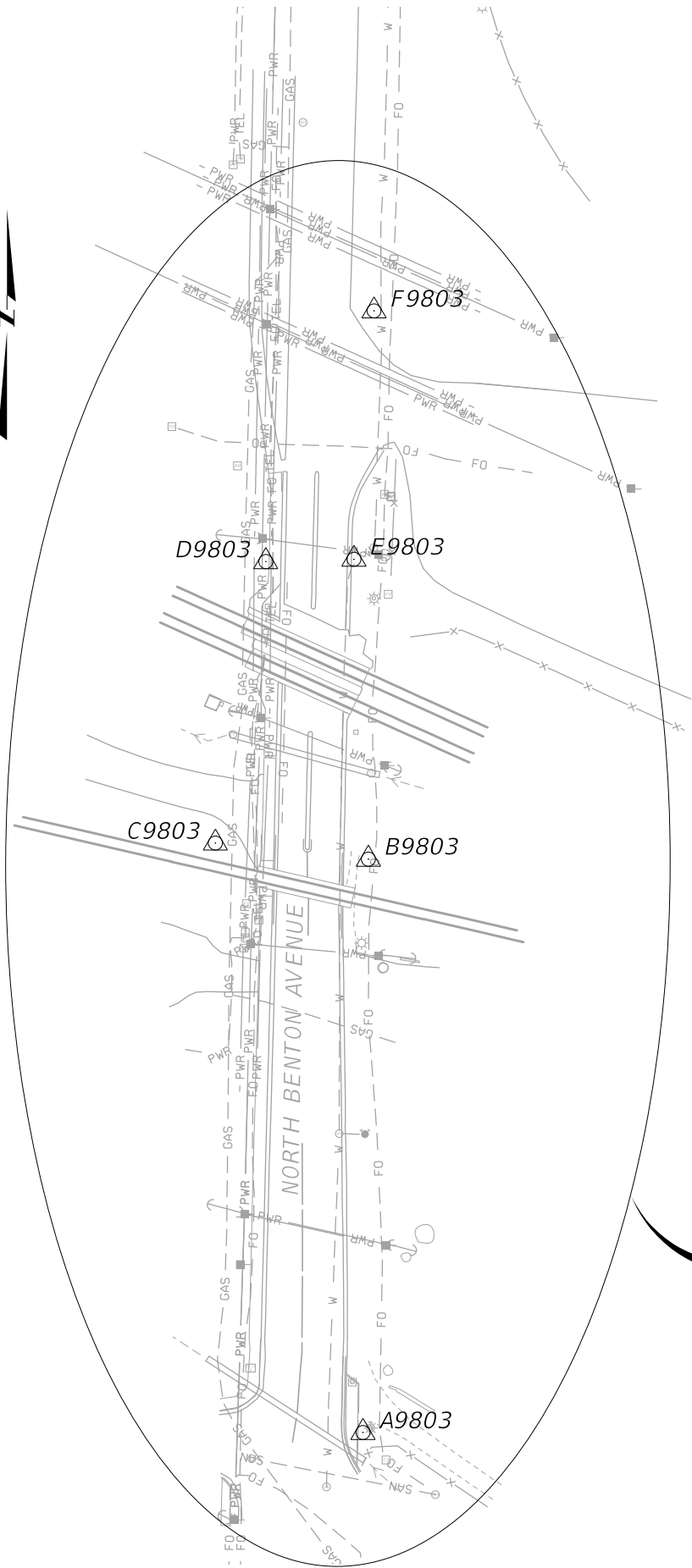
BENTON CENTERLINE ALIGNMENT COORDINATE TABLE				
STATDN	DESCRIPTDN	N OR Y COORDINATE	E OR X COORDINATE	REMARKS
300+00.00	P0B	869,094.090	1,330,196.652	
313+33.24	P0E	870,426.971	1,330,227.638	

GPK NAME: JO BR03.GPKCHAIN NAME: BENTON_CL



AWARD COPY
CONTROL DIAGRAM

SCALE: 1" = 40'



CONTROL ABSTRACT				
POINT NAME/NUMBER	N OR Y COORDINATE	E OR X COORDINATE	POINT ELEVATION	LOCATION AND DESCRIPTION
A9803	869,115.115	1,330,231.750	3955.15	SET 5/8"X30" REBAR W/ 2" MDT ALUMINUM CONTROL CAP STAMPED "A9803 2020", 34.6' EAST FROM BENTON AVE PTW, 25.5' SOUTHEAST FROM PEDESTRIAN CROSSING SIGN, 8.4' EAST FROM TOP BACK OF CURB, 3.8' SOUTHWEST OF LUMINAIRE.
B9803	869,397.329	1,330,234.399	3946.36	SET 5/8"X30" REBAR W/ 2" MDT ALUMINUM CONTROL CAP STAMPED "B9803 2020", 30.5' EAST FROM CENTER OF SOUTH END OF BULLNOSE CURB IN MIDDLE OF BENTON AVE, 63.8' SOUTH OF SOUTH RAILROAD CROSSING ARM, 41.2' NORTH OF LUMINAIRE, 18.2' NORTH OF THE NORTH RAIL OF ABANDONED RAILROAD SPUR.
C9803	869,405.277	1,330,159.105	3944.70	SET 5/8"X30" REBAR W/ 2" MDT ALUMINUM CONTROL CAP STAMPED "C9803 2020", 45.5' WEST OF CENTER OF SOUTH END OF BULLNOSE CURB IN MIDDLE OF BENTON AVE, 29' WEST FROM TOP BACK OF CURB, 8.8' NORTH OF THE NORTH RAIL OF ABANDONED RAILROAD SPUR, 65.2' SOUTH OF SOUTHEAST CORNER OF RAILROAD CROSSING POWER BOX, 7' WEST OF RAILROAD CROSSING SIGN.
D9803	869,543.813	1,330,183.905	3944.71	SET 5/8"X30" REBAR W/ 2" MDT ALUMINUM CONTROL CAP STAMPED "D9803 2020", 7.5' WEST FROM TOP BACK OF CURB OF BENTON AVE, 29.5' NORTH OF THE NORTH RAIL OF NORTHERN-MOST RAILROAD TRACKS, 21.5' NORTH OF THE NORTH RAILROAD CROSSING ARM, 11.5' SOUTH OF POWER POLE.
E9803	869,544.946	1,330,227.277	3944.47	SET 5/8"X30" REBAR W/ 2" MDT ALUMINUM CONTROL CAP STAMPED "E9803 2020", 1' EAST FROM TOP BACK OF CURB OF BENTON AVE, 53' NORTH OF NORTH RAIL OF NORTHERN-MOST RAILROAD TRACKS, 21.2' NORTHWEST OF LUMINAIRE, 12.6' WEST OF SECONDARY POWER POLE WITH GUY WIRE.
F9803	869,667.238	1,330,237.168	3937.59	SET 5/8"X30" REBAR W/ 2" MDT ALUMINUM CONTROL CAP STAMPED "F9803 2020", 26.5' EAST FROM BENTON AVE PTW, 47' NORTH OF CENTER OF ENTRANCE TO BATCH MEMORIAL PARK, 28.9' NORTHWEST OF STOP SIGN, 24' WEST OF 10" DIAMETER TREE.

BEARING SOURCE

GRID -- MONTANA COORDINATE SYSTEM NAD 83
HORIZONTAL DATUM - NAD83 (2011)

LEVEL DATUM SOURCE

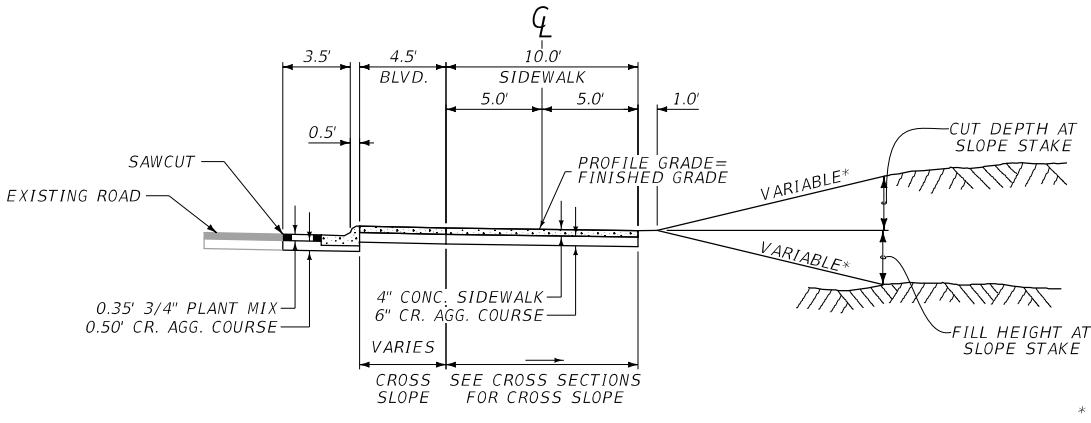
NAVD 88 (GNSS DERIVED ELEVATIONS USING GEOID 12A AND HOLDING BMS F468)

CONTROL NOTE

THIS PROJECT IS ON THE MONTANA COORDINATE SYSTEM NAD83. 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 DIVIDED BY CSF = GROUND DISTANCE). THE CSF FOR THIS PROJECT IS 0.99923130.

TYPICAL SECTION NO. 1
EAST SEGMENT



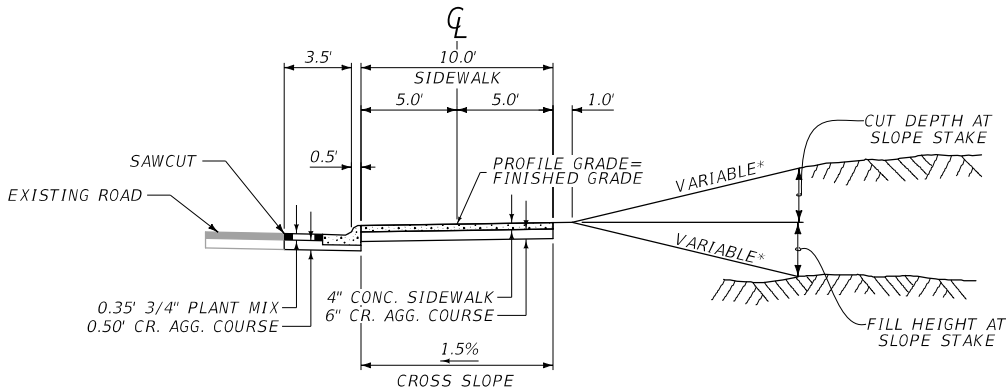
* SEE CROSS SECTIONS

QUANTITIES CALCULATED FROM SURFACE AREA.

99+95.52	
99+95.52	TO 100+02.98
100+21.29	
100+21.29	TO 100+37.12
100+37.12	ONLY
100+37.12	TO 100+94.17
100+94.17	TO 101+14.17
101+14.17	TO 102+31.39

BEGIN CONNECTION
SEE DETAILS
BEGIN EAST SEGMENT
SEE DETAILS
TYP. NO. 1 (1.5% RT.)
SEE DETAILS
TYP. NO. 1 (1.5% LT.)
SEE DETAILS
THEN TO TYP. NO. 2

TYPICAL SECTION NO. 2
EAST SEGMENT - CONCRETE SHARED USE PATH



* SEE CROSS SECTIONS

QUANTITIES CALCULATED FROM SURFACE AREA.

102+31.39	TO 102+99.77
102+99.77	TO 103+99.99

TYP. NO. 2
SEE DETAILS
THEN TO TYP. NO. 3

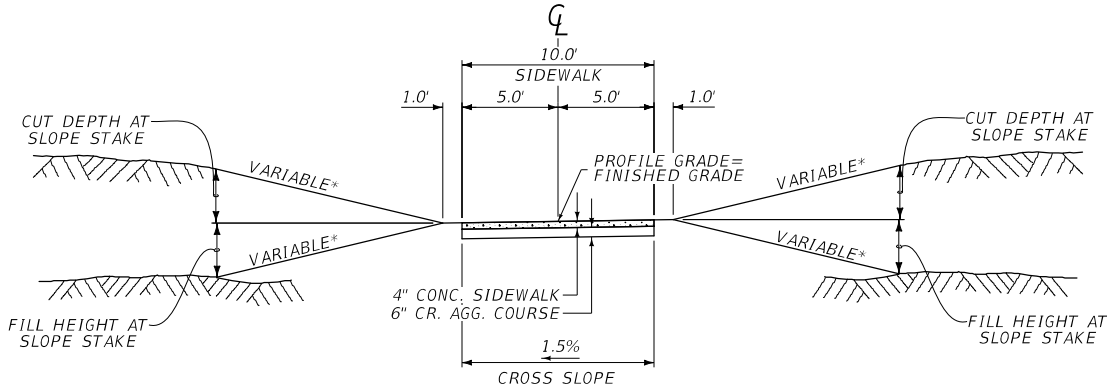


TYPICAL SECTION NO. 3
EAST SEGMENT - CONCRETE SHARED USE PATH

103+99.99
104+92.79

TO 104+92.79
TO 105+32.65

TYP. NO. 3
SEE DETAILS
THEN TO TYP. NO. 4



* SEE CROSS SECTIONS

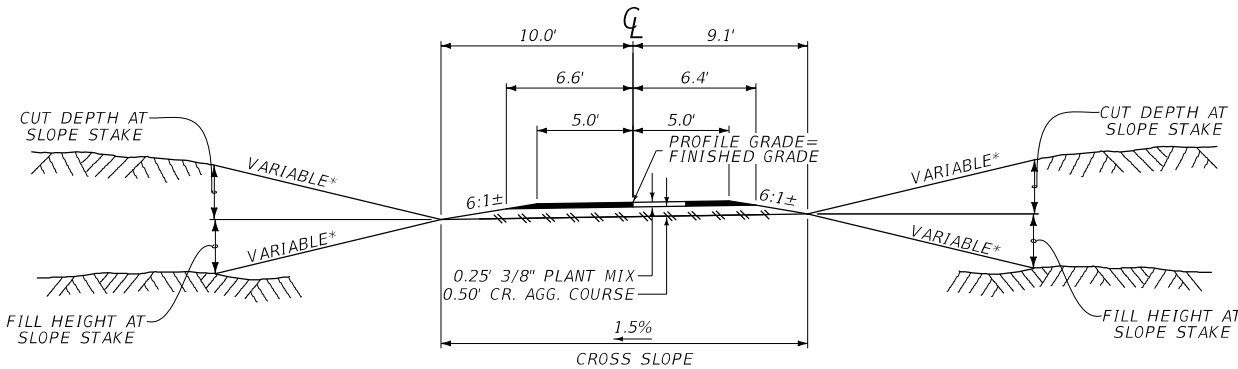
QUANTITIES CALCULATED FROM SURFACE AREA.

TYPICAL SECTION NO. 4
EAST SEGMENT - PLANT MIX SHARED USE PATH

105+32.65

TO 108+00.00

TYP NO. 4
THEN TO TYP. NO. 5



* SEE CROSS SECTIONS

QUANTITIES

UNIT	AGGREGATE		UNIT	SEPARATION GEOTEXTILE	TACK*
	3/8" PLANT MIX	CR. AGG. COURSE			
AREA square feet	2.88	8.03	square yards PER STATION	212	288
cubic yards PER STATION	10.7	29.7	gallons PER STATION		14
tons PER STATION	20.6				

* BASED ON 2 APPLICATIONS

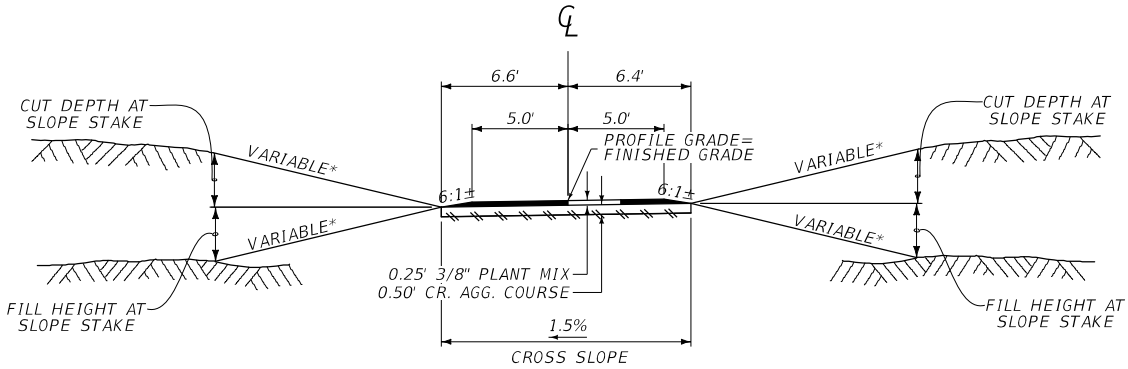


108+00.00
108+73.04

TO 108+73.04

TYP. NO. 5
END EAST SEGMENT

TYPICAL SECTION NO. 5
EAST SEGMENT - PLANT MIX SHARED USE PATH



* SEE CROSS SECTIONS

QUANTITIES					
UNIT	AGGREGATE		UNIT	SEPARATION GEOTEXTILE	TACK*
	3/8" PLANT MIX	CR. AGG. COURSE			
AREA square feet	2.88	6.50	square yards PER STATION	144	288
cubic yards PER STATION	10.7	24.1	gallons PER STATION		14
tons PER STATION	20.6				

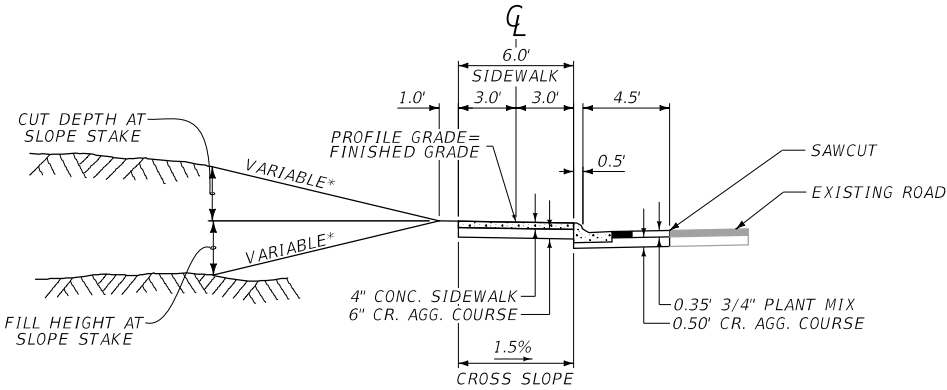
* BASED ON 2 APPLICATIONS

200+33.36
200+33.36
201+27.68
201+57.68

TO 201+27.68
TO 201+57.68
201+58.15

BEGIN WEST SEGMENT
TYP. NO. 6
SEE DETAILS
TRANS. TYP. NO. 6 TO TYP. NO. 7 (1.5% RT.)
THEN TO TYP. NO. 7

TYPICAL SECTION NO. 6
WEST SEGMENT - CONCRETE SIDEWALK



* SEE CROSS SECTIONS

QUANTITIES CALCULATED FROM SURFACE AREA.

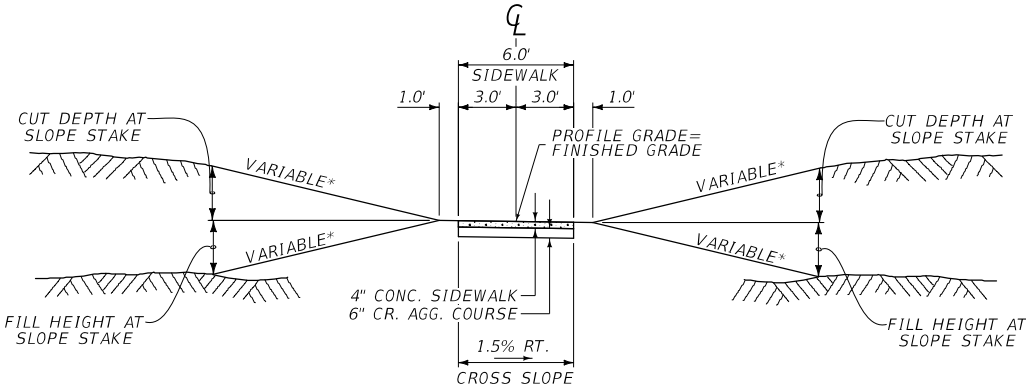


TYPICAL SECTION NO. 7
WEST SEGMENT - CONCRETE SIDEWALK

201+58.15
201+67.61
201+68.17
202+76.52
202+81.71

TO 201+67.61
TO 201+68.17
TO 202+76.52
TO 202+81.71
TO 202+93.78

TYP. NO. 7 (TRANS. 1.5% RT. TO 1.5% LT.)
TYP. NO. 7 (1.5% LT.)
SEE DETAILS
TYP. NO. 7 (1.5% LT.)
TYP. NO. 7 (TRANS. 1.5% LT. TO 1.5% RT.);
THEN TO TYP. NO. 8



* SEE CROSS SECTIONS

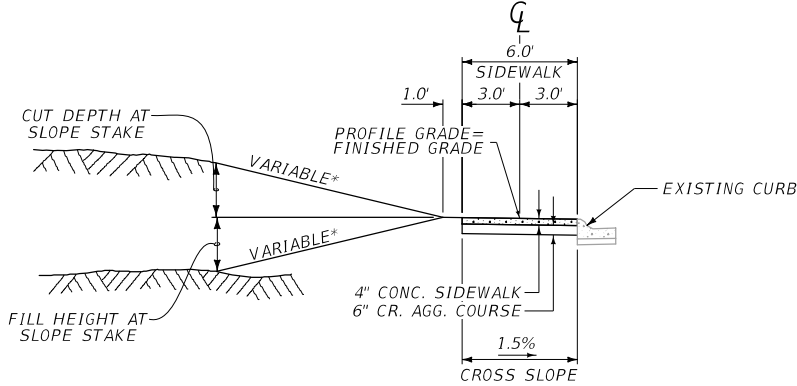
QUANTITIES CALCULATED FROM SURFACE AREA.

TYPICAL SECTION NO. 8
WEST SEGMENT - CONCRETE SIDEWALK

202+93.78
203+13.11

TO 203+13.11

TYP. NO. 8
END WEST SEGMENT



* SEE CROSS SECTIONS

QUANTITIES CALCULATED FROM SURFACE AREA.



SUMMARY

SURFACING												
STATION		linear feet				FOR	AGGREGATE			gals.	sq. yards	REMARKS
		GROSS	NET	+	-		tons		cu. yards	EMULSIFIED ASPHALT TACK	SEPARATION GEOTEXTILE	
							COMM. PL. MIX - 3/8" PG 58H-34	COMM. PL. MIX - 3/4" PG 58H-34	CRUSHED AGG. COURSE			
FROM	TO											
EAST SEGMENT												
99+95.67	100+03.27					BENTON AVE -RESURFACING		2	2	1		QUANT. CALC. BY SURFACE AREA
100+21.29	100+37.12	15.83	15.83			EAST SEGMENT -PATH	3		5	1	25	QUANT. CALC. BY SURFACE AREA
100+24.66	103+27.50	302.84	302.84			BENTON AVE -RESURFACING		17	15	4		QUANT. CALC. BY SURFACE AREA
103+56.29	103+60.83	4.54	4.54			EAST SEGMENT -PATH		1	1	1		QUANT. CALC. BY SURFACE AREA
105+32.65	108+00.00	267.35	267.35			EAST SEGMENT -PATH	55		79	37	449	TYP. NO. 4
108+00.00	108+73.04	73.04	73.04			EAST SEGMENT -PATH	15		18	10	105	TYP. NO. 5
						ADDITIONAL SURFACING -EAST SEGMENT		38	134	14		
WEST SEGMENT												
200+31.36	201+72.65	141.29	141.29			BENTON AVE -RESURFACING		11	10	3		QUANT. CALC. BY SURFACE AREA
202+36.77	202+41.38	4.61	4.61			WEST SEGMENT -PATH		1	1	1		QUANT. CALC. BY SURFACE AREA
						ADDITIONAL SURFACING -WEST SEGMENT						
BENTON AVENUE												
302+79.28	302+98.78					SOUTHERN SPUR LINE RESURFACING		13	11	3		QUANT. CALC. BY SURFACE AREA
						ADDITIONAL SURFACING			6			
TOTAL TAFUNDED		~	~	~	~		73	58	254	68	579	
TOTAL RRS FUNDED		~	~	~	~		~	25	28	7	~	
TOTAL		~	~	~	~		73	83	282	75	579	

ADDITIONAL SURFACING (INCLUDED IN SURFACING FRAME)												
STATION		linear feet				FOR	AGGREGATE			gals.	sq. yards	REMARKS
		GROSS	NET	+	-		tons		cu. yards			
							COMM. PL. MIX - 3/8" PG 58H-34	COMM. PL. MIX - 3/4" PG 58H-34	CRUSHED AGG. COURSE	EMULSIFIED ASPHALT TACK	SEPARATION GEOTEXTILE	
FROM	TO											
EAST SEGMENT						1 -PUBLIC APPROACH		38	91	14		
						2 -PRVATE APPROACHES			43			
WEST SEGMENT												
						1-PRVATE APPROACH			6			
SUBTOTAL		~	~	~	~		0	38	140	14	0	

GRADING				
STATION		cu. yards		REMARKS
		EXC.	EMB. IN PLACE	
FROM	TO			
EAST SEGMENT				
100+21.29	108+73.04	326	503	
		35	55	ADDITIONAL GRADING -EAST SEGMENT
WEST SEGMENT				
200+33.36	203+13.11	93	48	
		5	0	ADDITIONAL GRADING -WEST SEGMENT
TOTAL TAFUNDED		~	558	
TOTAL RRS FUNDED		~	48	
TOTAL		#459	606	

#FOR INFORMATION ONLY

ADDITIONAL GRADING				
STATION		cu. yards		REMARKS
		INCL. IN GRADING FRAME		
		EXC.	EMB. IN PLACE	
FROM	TO			
EAST SEGMENT				
100+62		5	10	PRVATE APPROACH
101+91		5	0	PRVATE APPROACH
105+13		25	40	PUBLIC APPROACH
107+80			5	DITCH BLGCK RT.
WEST SEGMENT				
201+43		5	0	PRVATE APPROACH
SUBTOTAL		#40	55	

#FOR INFORMATION ONLY



SUMMARY

CULVERTS									
STATION	linear feet		END SECTIONS		linear feet	feet	SKEW ANGLE	CULVERT IN PL. in x ft	REMARKS
	RCP	RCP			REMOVE PIPE CULVERT	HEIGHT OF COVER			
	CLASS 5	CLASS 4							
	12"	24"	LEFT	RIGHT					
EAST SEGMENT									
103+23.56		40		FETS	15.9	4.2	8.2° LT.	24" X 76.2 RCP	
104+73.02	32		FETS	FETS		1.7	0°		
WEST SEGMENT									
201+77.78		50	FETS		23.5	6.2	64.7° RT.	24" x76.2 RCP	
TOTAL TA FUNDED	32	40	~	~	15.9	~	~	~	
TOTAL RRS FUNDED	~	50	~	~	23.5	~	~	~	
TOTAL	32	90	~	~	39.4	~	~	~	

TREES			
STATION	each		REMARKS
	REMOVE TREE*	NEW TREE	
EAST SEGMENT			
106+72.15, 10.1' LT.	1	1	PLACE NEW TREE AT 106+70, 14' LT.
107+16.02, 4.5' LT.	1	1	PLACE NEW TREE AT 107+16, 14' LT.
107+70.31, 2.7' RT.	1	1	PLACE NEW TREE AT 107+75, 12' RT.
108+10.56, 2.3' RT.	1	1	PLACE NEW TREE AT 108+15, 15' RT.
108+39.95, 8.1' LT.	1	1	PLACE NEW TREE AT 108+45, 15' LT.
SUBTOTAL	5	5	
TOTAL TA FUNDED	~	5	
TOTAL RRS FUNDED	~	~	
TOTAL	~	5	

*FOR INFORMATION ONLY - TREES WILL BE REMOVED BY OTHERS PRIOR TO PROJECT AWARD.

STORM DRAIN STRUCTURE SCHEDULE						
NAME	STATION	each			sq. yards	vertical feet
		MANHOLE BASE 48"	DROP INLET FRAME & GRATE	CONNECT TO EXISTING PIPE	CONCRETE APRON	ADDITIONAL BARREL
			TYPE IV			
EAST SEGMENT						
H1	103+22.53	1	1	1	3	
WEST SEGMENT						
H2	201+69.46	1	1	1	2	1
TOTAL TA FUNDED		1	1	1	3	~
TOTAL RRS FUNDED		1	1	1	2	1
TOTAL		2	2	2	5	1

FENCING				
STATION		linear feet		each
		REMOVE FENCE	RESET CHAIN LINK FENCE	SWING GATE *
FROM	TO			
EAST SEGMENT				
103+34.12				1
103+82.99				1
103+93.17	104+06.91	16	23	
104+16.74	104+86.93	57		
WEST SEGMENT				
202+13.11				1
202+63.48				1
TOTAL TA FUNDED		73	23	2
TOTAL RRS FUNDED		~	~	2
TOTAL		73	23	4

* PAID FOR AS MISCELLANEOUS ITEMS-EACH

SIDEWALK										
STATION		sq. yards					linear feet	each		REMARKS
		CONCRETE SIDEWALK*			DETECTABLE WARNING DEVICES	SIDEWALK PATTERNED CONC. 4 IN	REMOVE SIDEWALK #	WIDTH	SIDEWALK DRAIN **	REMOVE SIDEWALK DRAIN #
FROM	TO	4"	6"	REINFORCED 6"	TYPE 1					
EAST SEGMENT										
99+95.52	100+02.98	5.1						VARIES		
100+37.12	103+46.31	223.6		160.3	3.1	31.7		VARIES		INCLUDE 2-DRIVE APPROACHES
103+70.76	104+99.11	161.5			5.3			VARIES		NCLUDE 1-CONC. ADA RAMP
105+26.49	108+73.04	14.4			2.2			VARIES		NCLUDE 1-CONC. ADA RAMP
107+70.00									1	
WEST SEGMENT										
200+33.36	202+26.90	132.7	20.0		2.2	1.3	113.8	VARIES		NCLUDE 1-DRIVE APPROACH
202+51.50	203+13.11	56.5			2.2		40.7	VARIES	1	
SUBTOTAL		593.8	20.0	160.3	15.0	33.0	154.5	~	1	1
TOTAL TA FUNDED		404.6	~	160.3	10.6	33.0	~	~	1	~
TOTAL RRS FUNDED		189.2	20.0	~	4.4	~	~	~	~	~
TOTAL		593.8	20.0	160.3	15.0	33.0	~	~	1	~

#FOR INFORMATION ONLY - INCLUDE IN THE COST OF NEW SIDEWALK

* INCLUDES 6" CRUSHED AGGREGATE COURSE

** INCLUDES ADJACENT 4" CONCRETE SIDEWALK AND 6" CRUSHED AGGREGATE COURSE. SEE DETAILS.

PEDESTRIAN RAIL				
STATION		linear feet		REMARKS
		PEDESTRIAN RAIL		
FROM	TO	LEFT	RIGHT	
EAST SEGMENT				
103+17.73 LT.	103+36.36 LT.	19.2		
103+26.74 RT.	103+36.36 RT.		16.0	
103+80.92 RT.	103+99.99 RT.		19.2	
103+80.92 LT.	103+90.37 LT.	16.0		
WEST SEGMENT				
201+68.59 RT.	202+16.99 RT.		42.3	
201+86.47 LT.	202+16.99 LT.	35.2		
202+61.49 LT.	202+70.88 LT.	15.8		
202+61.49 RT.	202+76.05 RT.		15.0	
SUBTOTAL		86.2	92.5	
TOTAL TA FUNDED		70.4		
TOTAL RRS FUNDED		108.3		
TOTAL		178.7		



SUMMARY

REVEGETATION					
STATION		lump sum	cu. yards		REMARKS
		REVEGETATION	TOPSOIL SALVAGING & PLACING*	TOPSOIL SEEDING*	
FROM	TO				
EAST SEGMENT					
100+21.29	103+46.31			20	
103+70.76	104+98.79			61	INCL. BATCH FIELD APPROACH
105+26.81	108+73.04		112	0.3	
WEST SEGMENT					
200+33.36	202+26.91			21	
202+51.50	203+13.11			5	
SUBTOTAL		1	112	107	0.8
TOTAL TA FUNDED		0.8	~	81	~
TOTAL RRS FUNDED		0.2	~	26	~
TOTAL		1	~	107	~

*TOPSOIL SALVAGING & PLACING AND SEEDING ARE PAID FOR AS REVEGETATION (LUMP SUM).

CURB									
STATION		linear feet						sq. yards	REMARKS
		CONCRETE CURB AND GUTTER		REMOVE CURB AND GUTTER #		CONCRETE MEDIAN CURB ##		CONCRETE VALLEY GUTTER	
FROM	TO	LEFT	RIGHT	LEFT	RIGHT	LEFT	RIGHT	LEFT	
EAST SEGMENT									
99+95.67	100+03.27	7.7		7.7					
100+26.66	103+46.23	303.3		325.1					
104+40.25	105+61.24							114.5	
104+41.11	104+98.48	84.0	10.0	42.5				INCLUDE 53.0' R., AND 38.0' R.	
105+26.49	105+61.80	72.5	10.0					INCLUDE 45.0' R.	
WEST SEGMENT									
200+33.36	201+72.54		145.0		134.1				
BENTON AVENUE									
302+56.16	303+77.71			57.8	61.0	122.8	125.3		
304+15.73	304+98.78			55.4	82.0	83.9	87.6		
SUBTOTAL		467.5	165.0	488.5	277.1	206.7	212.9	114.5	
TOTAL TA FUNDED		487.5		~		~		114.5	
TOTAL RRS FUNDED		145.0		~		419.6		~	
TOTAL		632.5		~		419.6		114.5	

#FOR INFORMATION ONLY - INCLUDE IN THE COST OF NEW CURB AND GUTTER
##PAID FOR AS CURB-CONC MEDIAN TYPE A - SEE DETAIL

PERMANENT EROSION CONTROL *			
STATION		sq. yards	REMARKS
		EROSION CONTROL BLANKET	
		LONG TERM	
FROM	TO		
104+33 LT.	104+94 LT.	101	DETENTION POND
104+71 RT.	104+75 RT.	1	OUTLET PROTECTION
104+94 RT.	105+00 RT.	3	CURB END
TOTAL TA FUNDED		105	
TOTAL RRS FUNDED		~	
TOTAL		105	

* SEE DETAILS

REMOVE BITUMINOUS PAVEMENT			
STATION		square yards	REMARKS
		REMOVE BITUMINOUS PAVEMENT	
FROM	TO		
104+20.95 RT.	105+00.12 RT.	53	BATCH FIELD APPROACH, SEE DETAIL.
104+34.70 LT.	104+93.63 LT.	39	DETENTION BASIN
TOTAL TA FUNDED		92	
TOTAL RRS FUNDED		~	
TOTAL		92	

PAVEMENT MARKINGS						
ITEM	UNIT	INTERIM APPLICATION #	FINAL APPLICATION	TOTAL TA FUNDED	TOTAL RRS FUNDED	TOTAL
STRIPING -WHITE PAINT	gallon	4			4	4
STRIPING -YELLOW PAINT	gallon	5			5	5
WORDS & SYMBOLS -WHITE PAINT	gallon	14		8	6	14
WORDS & SYMBOLS -YELLOW PAINT	gallon	1			1	1
STRIPING -WHITE EPOXY	gallon		5		5	5
STRIPING -YELLOW EPOXY	gallon		7		7	7
CURB MARKINGS -YELLOW EPOXY	gallon		7		7	7
WORDS & SYMBOLS -WHITE EPOXY	gallon		17	9	8	17
WORDS & SYMBOLS -YELLOW EPOXY	gallon		2		2	2
WORDS & SYMBOLS -WHITE -HIGH PERF TAPE	square feet			124	12	136
TEMPORARY STRIPING	linear feet	3,425			3,425	3,425
REMOVE PAVEMENT MARKINGS	linear feet				3,128	3,128
DELNEATOR-FLEX DRIVABLE YLW	each		4		4	4
DELNEATOR-FLEX DRIVABLE WHITE	each		4	4		4

#BASED ON 1 APPLICATION.

CONCRETE CAP			
STATION		sq. yards	REMARKS
		CONCRETE CAP #	
FROM	TO	3'	
BENTON AVENUE			
302+57.07	303+76.83	26.5	
304+16.54	304+98.02	18.0	
TOTAL TA FUNDED		~	
TOTAL RRS FUNDED		44.5	
TOTAL		44.5	

#INCLUDES THE QUANTITY OF CRUSHED GRAVEL BASE FROM BOTTOM OF CURB TO BOTTOM OF CONCRETE CAP.

WATER VALVE BOXES #			
STATION	each		REMARKS
	REMOVE WATER VALVE BOX	ADJUST WATER VALVE BOX	
	LEFT	LEFT	
EAST SEGMENT			
101+45.10, 7.9' LT.	1		
108+60.04, 22.6' LT.		1	
108+60.55, 9.1' LT.		1	
TOTAL TA FUNDED	1	2	
TOTAL RRS FUNDED	~	~	
TOTAL	1	2	

#PERCENT COST SHARE BETWEEN THE STATE AND CITY (100% MDT,0% CITY)

HYDRANTS*						
STATION	each			feet		REMARKS
	FIRE HYDRANT**	ADJUST FIRE HYDRANT	REMOVE HYDRANT	BURY DEPTH	6" PIPE #	
	LEFT	LEFT	RIGHT			
EAST SEGMENT						
99+99.29 , 2.9 LT.	1			7.5	16	PROPOSED FLANGE ELEV. = 3955.48
101+44.12 , 4.8 RT.			1			
108+56.01 , 8.3 LT.		1				
SUBTOTAL	1		1	~	16	
TOTAL TA FUNDED	1		1	~	~	
TOTAL RRS FUNDED	~		~	~	~	
TOTAL	1		1	~	~	

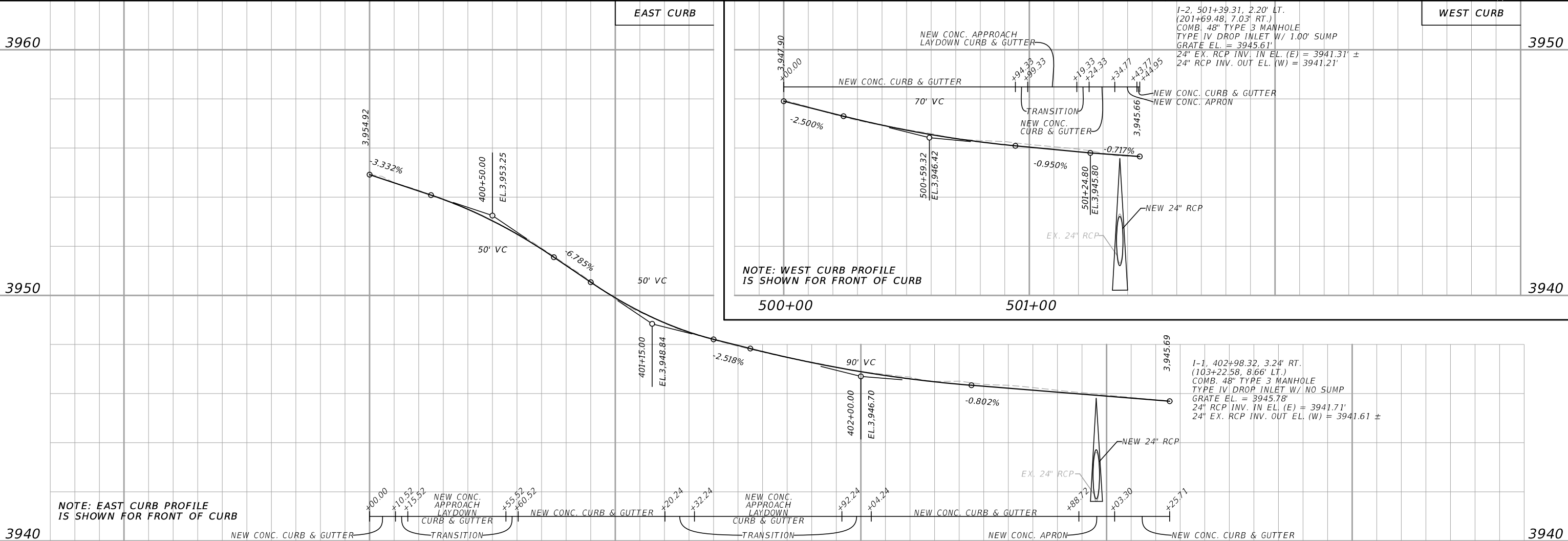
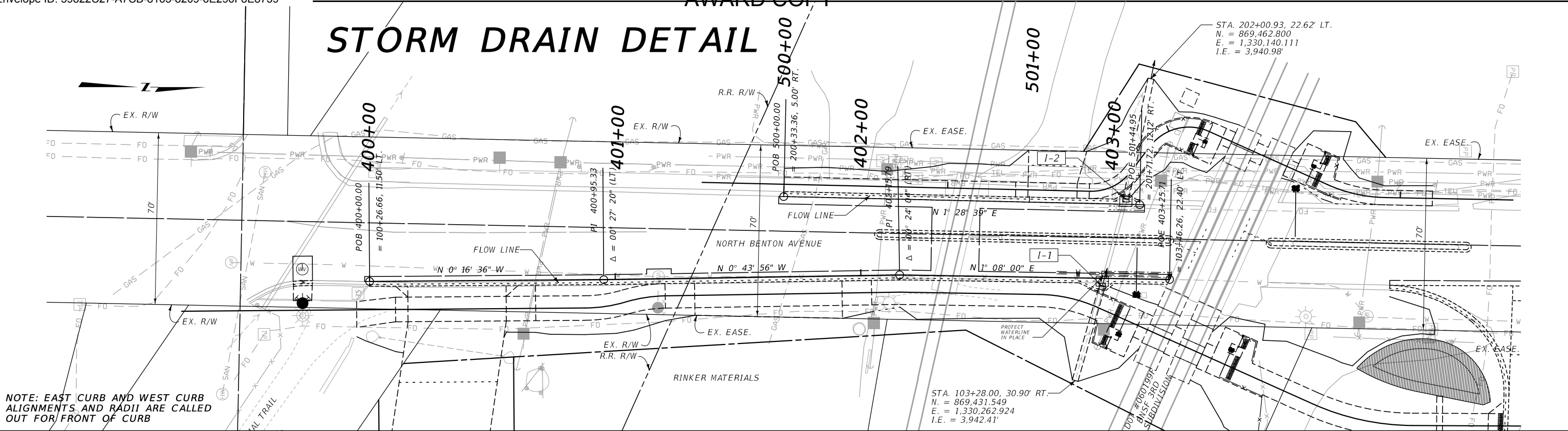
* PERCENT COST SHARE BETWEEN THE STATE AND CITY (100% MDT /0% CITY)


** VALVE INCLUDED IN THE COST OF NEW FIRE HYDRANT. INSTALL NEW FIRE HYDRANTS PER CITY OF HELENA STANDARD DRAWING 2-2. SEE FIRE HYDRANT DETAIL.

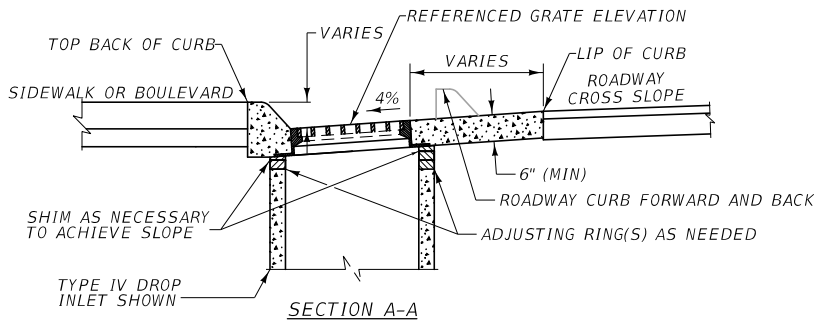
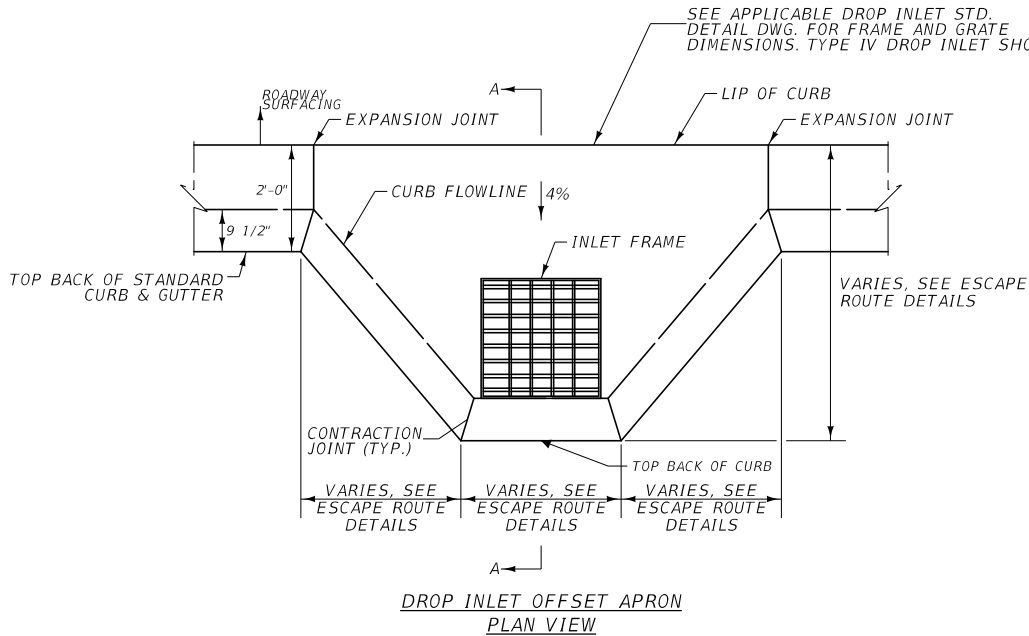
#FOR INFORMATION ONLY - INCLUDED IN THE COST OF NEW FIRE HYDRANT.



STORM DRAIN DETAIL



		400+00		401+00		402+00		403+00	
3 2		...\\9803000\RD\9803000RDD\DESIGNED BY			ROAD PLANS	RRXING-BENTON AVE-HELENA			RRP-TA-RRS 5805(17)
		3/24/2026	REVIEWED BY						
		4:47:12 PM kskerritt	CHECKED BY			LEWIS AND CLARK COUNTY			
								UPN 9803000	13



NOTES:
ALL CONCRETE IS CLASS GENERAL OR APPROVED EQUAL.
SHIM DROP INLET FRAME TO 4%. FILL SPACE BETWEEN GRATE AND ADJUSTING RING WITH CLASS GENERAL CONCRETE.
THE DROP INLET APRON IS MEASURED SEPARATELY FOR PAYMENT.

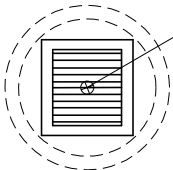
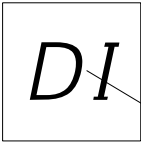
CONCRETE APRON
DETAIL



NEW DROP INLET - INSIDE DIAMETER NOTED



NEW INLET ID



TYPE IV DROP INLET
LOCATION

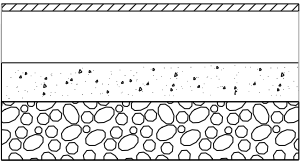
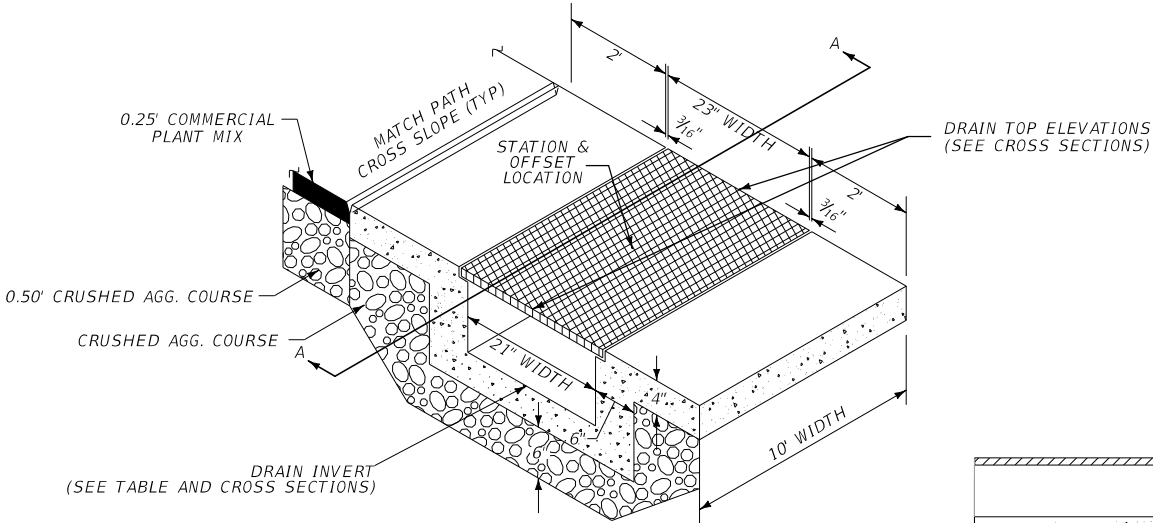
STATION AND OFFSET
REFERENCE LOCATION

NOTES:
SEE PLANS FOR LOCATIONS AND QUANTITIES.
PLAN STATION AND OFFSET IS CENTER OF STRUCTURE.
STANDARD UNLESS OTHERWISE NOTED ON PLANS.
SET ALL FINAL INLET GRATE ELEVATIONS TO ENSURE THAT POSITIVE DRAINAGE IS PROVIDED.
SEE QUALIFIED PRODUCTS LIST FOR APPROVED GRATES.
SEE DETAIL DRAWING NO.604-02 FOR REINFORCING REQUIREMENTS

STATION		EDGE TO EDGE LENGTH (ft)	CENTER TO CENTER LENGTH (ft)	CULVERT SLOPE (%)
FROM	TO			
103+22.53	103+28.00	28.0	40.0	1.75
201+69.46	202+00.93	48.0	50.0	0.46

INLET/MANHOLE COORDINATE TABLE					
INLET/MANHOLE NUMBER	STATION	OFFSET	N OR Y COORDINATE	E OR X COORDINATE	GRATE ELEVATION (ft)
I-1	402+98.32	3.24' RT.	869,442.693	1,330,224.574	3,945.78
I-2	501+39.31	2.20' LT.	869,452.474	1,330,189.027	3,945.61

STORM DRAIN
DETAIL



SECTION A-A

SIDEWALK DRAIN					
STATION	OFFSET	INVERT ELEV.		CUBIC YARDS	
		LT.	RT.	CONC. #	CRUSHED AGGREGATE COURSE #
107+70.00	0.0' LT.	3932.20'	3932.27'	1.2	1.6

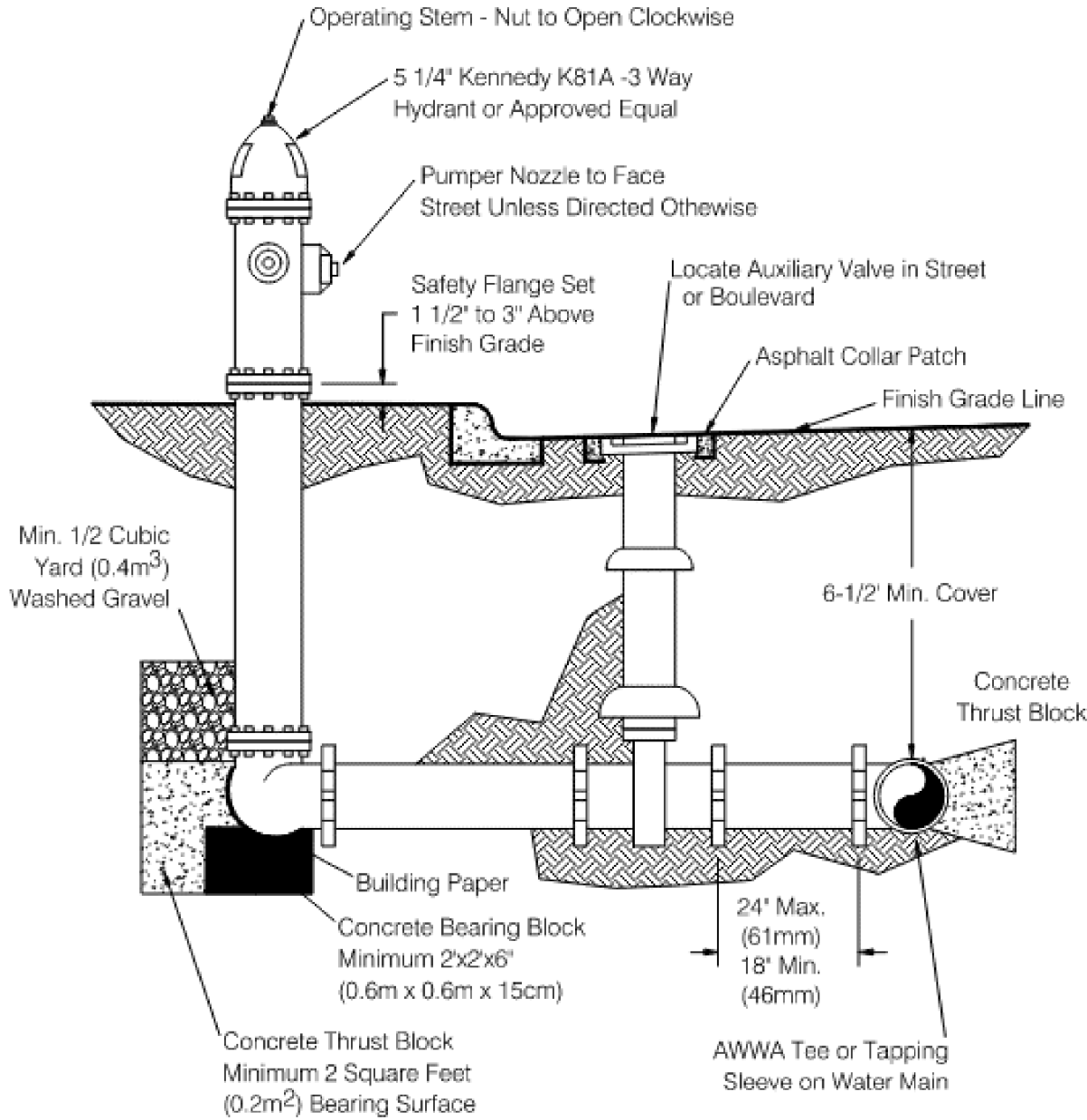
QUANTITIES PROVIDED FOR INFORMATION ONLY

NOTES:
BID ITEM IS SIDEWALK DRAIN PER EACH. INCLUDE ALL MATERIALS, LABOR, AND OTHER ITEMS INCIDENTAL TO CONSTRUCTION IN THE UNIT COST.
USE A 23" WIDE NEENAH R-4999-GX BOLTED HEAVY DUTY TRENCH DRAIN GRATE, TYPE D SOLID LID.

SIDEWALK DRAIN
DETAIL



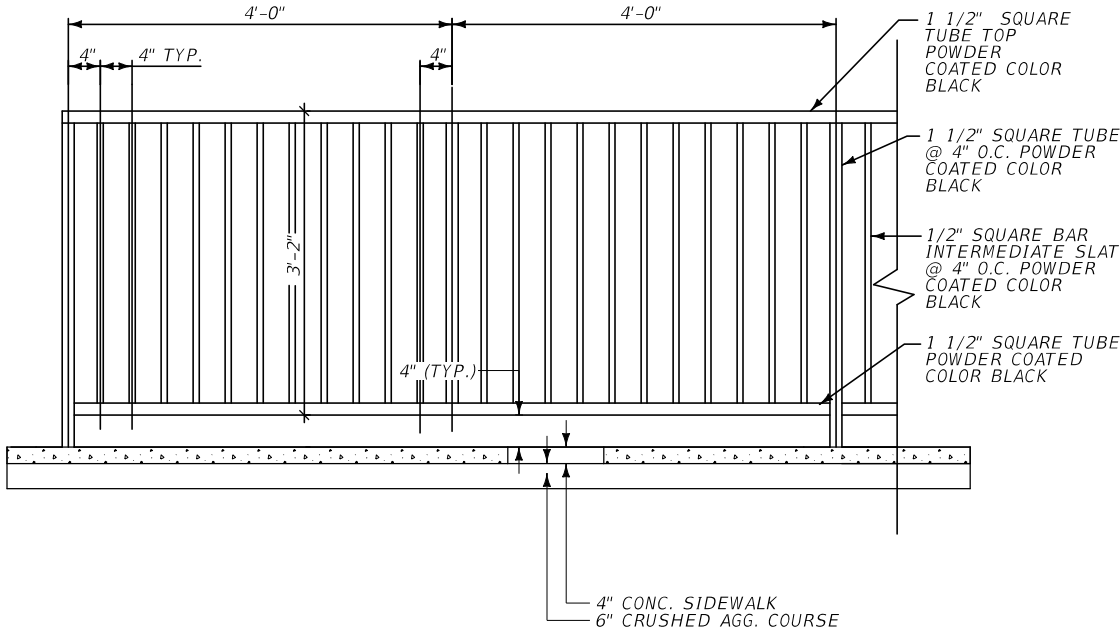




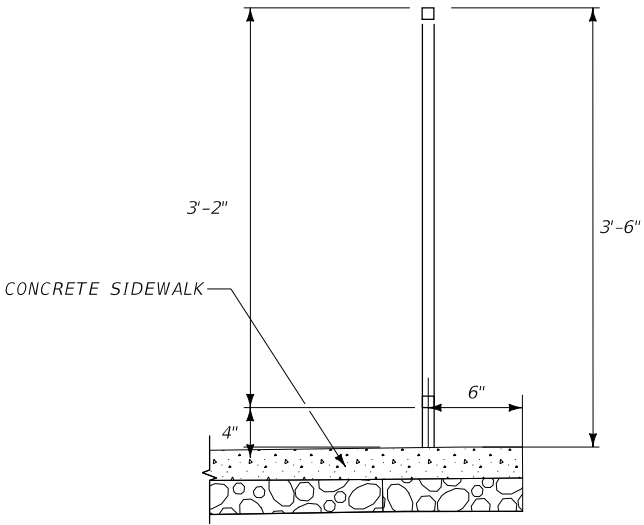
- NOTES:
1. THRUST BLOCKING TO BE IN CONFORMANCE WITH MPW STANDARD DRAWING 02660-1.
 2. FOR BOLTED FITTINGS, BLOCKING SHALL NOT OBSTRUCT BOLTS.
 3. HYDRANT WEEP HOLES TO REMAIN UNOBSTRUCTED.
 4. THRUST BLOCK SHALL BEAR HORIZONTALLY AGAINST UNDISTURBED SOIL.
 5. INSTALL NEW FIRE HYDRANT, VALVE, AND WATER LINE CONNECTION ACCORDING TO CITY OF HELENA STANDARD DRAWING 2-2 AS SHOWN IN THIS DETAIL.
 6. INCLUDE ALL LABOR, TOOLS, EQUIPMENT, AND OTHER INCIDENTAL MATERIALS IN THE UNIT BID PRICE FOR FIRE HYDRANT. COUPLINGS, GASKETS, AND ALL OTHER MATERIALS NECESSARY TO MAKE CONNECTIONS TO EXISTING WATER PIPING IS CONSIDERED INCIDENTAL TO THE COST OF EACH FIRE HYDRANT.
 7. FIELD VERIFY THE SIZE OF EXISTING WATER MAIN PRIOR TO ORDERING CONNECTION FITTING AT LOCATION WHERE PROPOSED IMPROVEMENTS CONNECT TO EXISTING FACILITIES.

FIRE HYDRANT
DETAIL

NOT TO SCALE



42 INCH PEDESTRIAN RAIL ELEVATION DETAIL

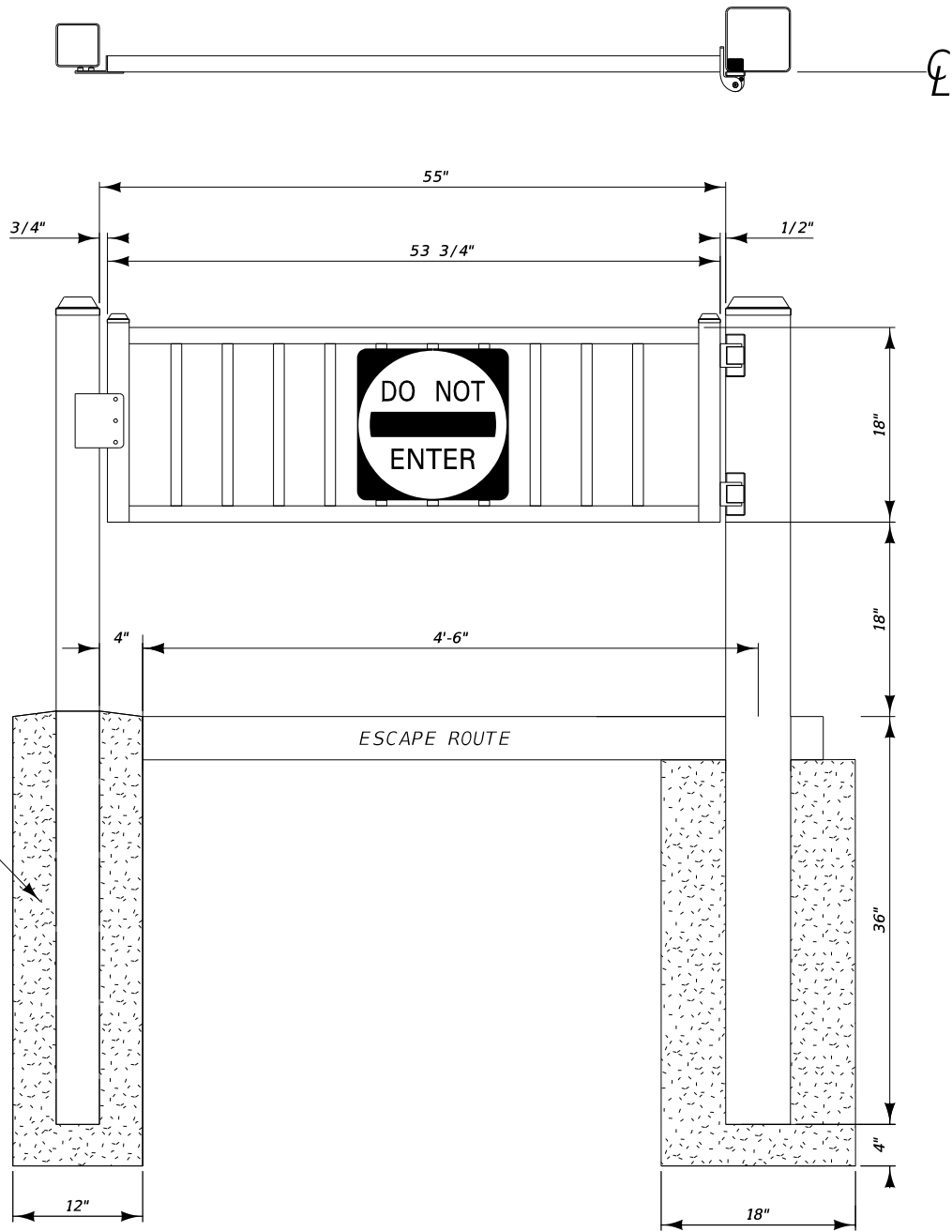


42 INCH PEDESTRIAN RAIL DETAIL

- NOTES:
- SEE SPECIAL PROVISIONS.
 - CONSTRUCT PEDESTRIAN RAIL PER MANUFACTURER'S RECOMMENDATIONS.
 - USE A BOLTED CONNECTION TO MOUNT THE RAILING TO THE CONCRETE. USE TAPPING SCREWS ON ALL BASEPLATES.
 - BOLTS, NUTS, AND PLATES MUST BE CORROSION RESISTANT AND MATERIALS ARE TO BE POWDER-COATED BLACK, CONSISTENT WITH COLORING OF POST/RAILING SYSTEM.
 - POWDER COAT ALL RAILING AND POSTS BLACK.
 - IT IS CONTRACTOR'S RESPONSIBILITY TO NOTIFY MDT EPM OF ANY ACCESSIBILITY COMPONENTS THAT DO NOT MEET ADA/PROWAG STANDARDS PRIOR TO FABRICATION AND INSTALLATION.

PEDESTRIAN RAIL
DETAILS

NOT TO SCALE



PEDESTRIAN SIGNS

- Gate Upright: 2"sq (11ga)
- Rails: 1.5"sq (14ga)
- Pickets: 1"sq (14ga)
- Posts: 6"sq (12ga) - Post at Hinge
4"sq (12ga) - Post at Gate Stop

- Hardware:
- Gate Stop
 - 14x14 Sign (Do Not Enter)
 - 18x9 Sign (Push To Exit)
- Hardware (Shall Be D&D Technologies):
- Bolt On Sure Close Flush Mount Hinge

SWING GATE MOUNT



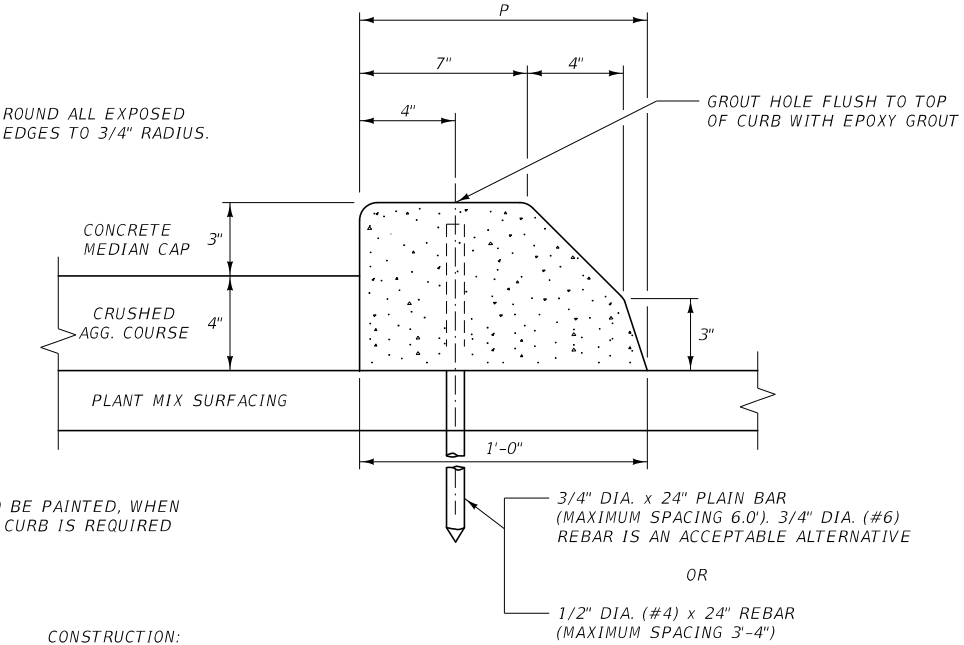
VIEW TO TRACK



VIEW FROM TRACK

SWING GATE DETAIL

NOT TO SCALE

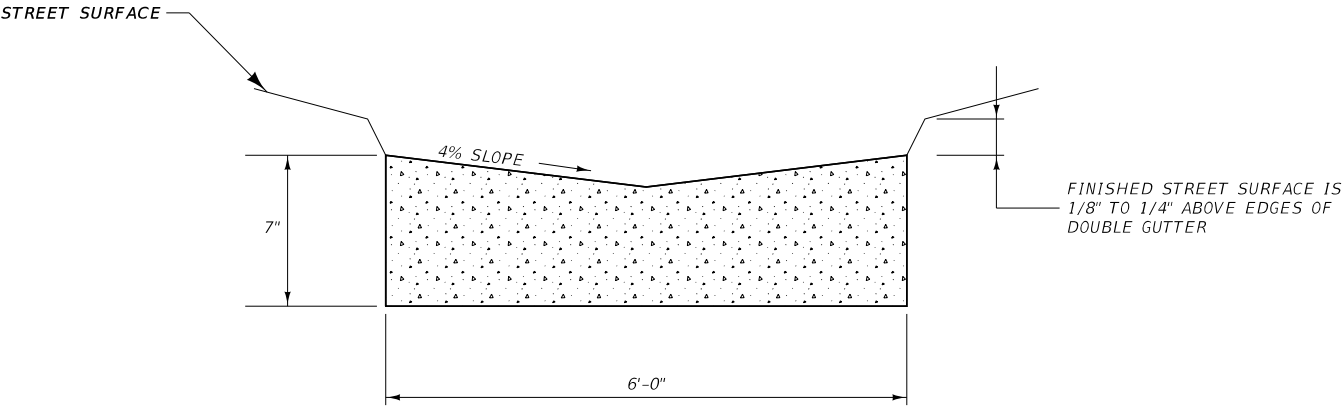


CONSTRUCTION:

- CURBS MAY BE CONSTRUCTED USING ANY OF THE FOLLOWING METHODS:
 - CAST IN PLACE
 - CONSTRUCTED BY THE USE OF AN APPROVED CURB FORMING OR SLIP FORM MACHINE
- SCORE OR SAWCUT CURBS TO A DEPTH OF 1" TO FORM CONTRACTION JOINTS AT INTERVALS OF 10' OR LESS. EXTEND 1/2" MIN. WIDTH EXPANSION JOINTS COMPLETELY THROUGH CURB EVERY 100' (\pm 30'), AT INTERVALS EQUAL TO THE NEAREST MULTIPLE OF THE CONTRACTION JOINT INTERVAL AND FILL WITH PREFORMED EXPANSION JOINT FILLER MEETING SECTION 707.

MATERIAL:

- CONSTRUCT CURBS WITH CLASS GENERAL CONCRETE OR AN APPROVED EQUIVALENT MIX.
- EPOXY BINDER FOR GROUTING MUST MEET THE REQUIREMENTS OF (AASHTO M 235) (ASTM C 881).



NOTES:

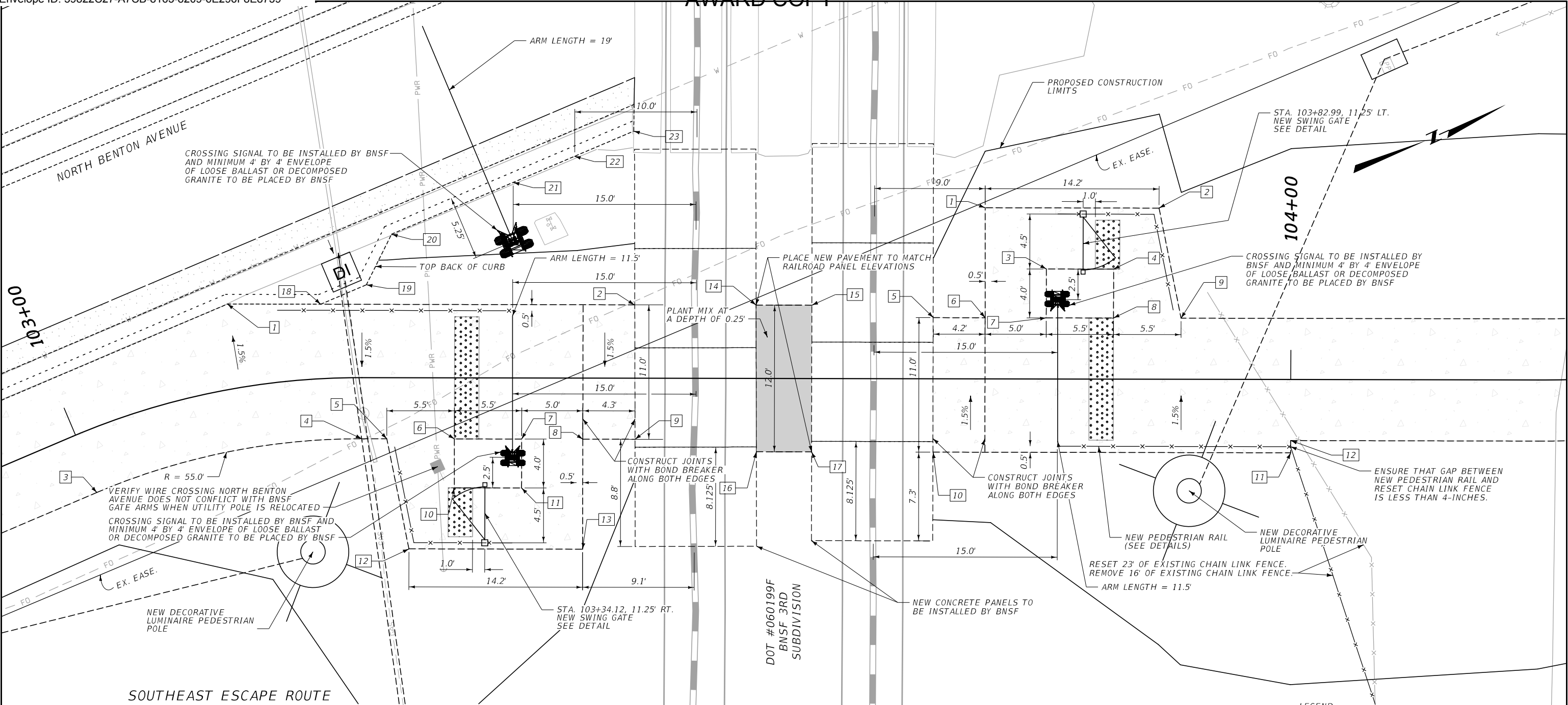
- INSTALL REINFORCEMENT AT ALL CONSTRUCTION JOINTS.
- CONTRACTION JOINTS ARE 1/8" MIN. AND 3/8" MAX. IN WIDTH. FORM JOINTS BY SAWING OR SCORING TO A MINIMUM DEPTH OF 1". FORM SCORED JOINTS BY A TOOL WHICH WILL LEAVE ROUNDED CORNERS AND DESTROY AGGREGATE INTERLOCK TO A MINIMUM DEPTH OF 1".

MEDIAN CURB DETAIL

NOT TO SCALE

CONCRETE VALLEY GUTTER DETAIL

NOT TO SCALE



SOUTHEAST ESCAPE ROUTE

SOUTHEAST ESCAPE ROUTE COORDINATE TABLE						
POINT	STATDN	OFFSET	N OR Y COORDINATE	E OR X COORDINATE	ELEVATION	REMARKS
1	103+14.14	6.91' LT	869,433.116	1,330,223.139	3,946.34	TBC -POT
2	103+46.35	6.00' LT	869,463.464	1,330,236.853	3,946.06	EW -POT
3	102+99.77	5.00' RT	869,417.048	1,330,232.824	3,946.74	EW -PC (R=55.0')
4	103+24.05	5.00' RT	869,438.613	1,330,237.694	3,946.08	EW -PT (R=55.0')
5	103+26.10	5.00' RT	869,440.481	1,330,238.539	3,946.04	EW -POT
6	103+31.61	5.00' RT	869,445.513	1,330,240.813	3,945.99	FG -POT
7	103+37.12	5.00' RT	869,450.525	1,330,243.077	3,945.95	FG -POT
8	103+42.12	5.00' RT	869,455.082	1,330,245.135	3,945.92	EW -POT
9	103+46.39	5.00' RT	869,458.972	1,330,246.893	3,945.90	EW -POT
10	103+31.62	9.00' RT	869,443.866	1,330,244.458	3,945.93	FG -POT
11	103+37.12	9.00' RT	869,448.878	1,330,246.722	3,945.89	FG -POT
12	103+27.92	14.00' RT	869,438.433	1,330,247.489	3,945.88	EW -POT
13	103+42.12	14.00' RT	869,451.375	1,330,253.338	3,945.78	EW -POT
14	103+56.27	6.00' LT	869,472.502	1,330,240.938	~	EW -POT -MATCH RAILROAD PANEL
15	103+60.83	6.00' LT	869,476.659	1,330,242.816	~	EW -POT -MATCH RAILROAD PANEL
16	103+56.31	6.00' RT	869,467.601	1,330,251.891	~	EW -POT -MATCH RAILROAD PANEL
17	103+60.83	6.00' RT	869,471.719	1,330,253.752	~	EW -POT -MATCH RAILROAD PANEL
18	103+20.98	6.09' LT	869,440.060	1,330,226.277	3,946.26	TBC -POT
19	103+24.40	7.60' LT	869,444.118	1,330,226.357	3,946.39	TBC -POT
20	103+26.45	11.74' LT	869,447.697	1,330,223.428	3,946.32	TBC -POT
21	103+36.40	16.00' LT	869,458.514	1,330,223.642	3,946.24	TBC -POT
22	103+41.40	18.14' LT	869,463.956	1,330,223.750	3,945.70	LD -POT
23	103+46.23	20.21' LT	869,469.211	1,330,223.854	3,945.81	LD -POT -MATCH EXISTING RAILROAD PANEL

NORTHEAST ESCAPE ROUTE

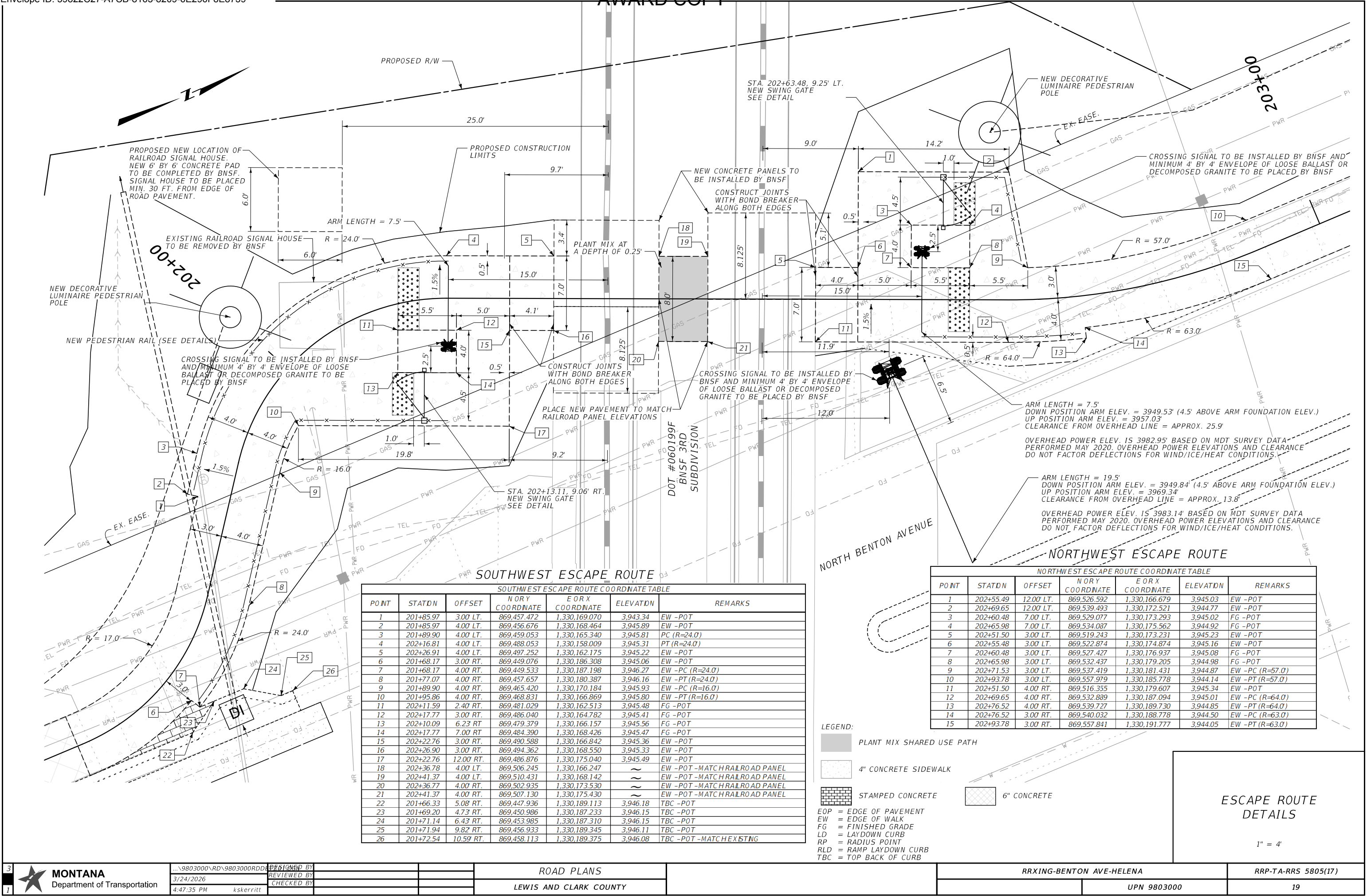
NORTHEAST ESCAPE ROUTE COORDINATE TABLE						
POINT	STATION	OFFSET	N OR Y COORDINATE	E OR X COORDINATE	ELEVATION	REMARKS
1	103+74.98	14.00' LT	869,492.848	1,330,241.353	3,945.74	EW -POT
2	103+89.20	14.00' LT	869,505.807	1,330,247.209	3,945.49	EW -POT
3	103+79.99	9.00' LT	869,495.360	1,330,247.975	3,945.73	FG -POT
4	103+85.49	9.00' LT	869,500.372	1,330,250.240	3,945.64	FG -POT
5	103+70.75	5.00' LT	869,485.285	1,330,247.811	3,945.95	EW -POT
6	103+74.99	5.00' LT	869,489.156	1,330,249.561	3,945.88	EW -POT
7	103+79.99	5.00' LT	869,493.713	1,330,251.620	3,945.79	FG -POT
8	103+85.49	5.00' LT	869,498.725	1,330,253.885	3,945.70	FG -POT
9	103+91.02	5.00' LT	869,503.756	1,330,256.159	3,945.59	EW -POT
10	103+70.75	6.00' RT	869,480.757	1,330,257.836	3,946.11	EW -POT
11	103+99.99	6.00' RT	869,507.407	1,330,269.880	3,945.55	EW -POT
12	103+99.99	5.00' RT	869,507.819	1,330,268.968	3,945.54	EW -POT

LEGEND:

- PLANT MIX SHARED USE PATH
- 4" CONCRETE SIDEWALK
- STAMPED CONCRETE
- 6" CONCRETE
- EOP = EDGE OF PAVEMENT
- EW = EDGE OF WALK
- FG = FINISHED GRADE
- LD = LAYDOWN CURB
- RP = RADIUS POINT
- RLD = RAMP LAYDOWN CURB
- TBC = TOP BACK OF CURB

ESCAPE ROUTE
DETAILS

1" = 4'



SOUTHWEST ESCAPE ROUTE COORDINATE TABLE						
POINT	STATDN	OFFSET	N O R Y COORDINATE	E O R X COORDINATE	ELEVATION	REMARKS
1	201+85.97	3.00' LT.	869,457.472	1,330,169.070	3,943.34	EW -POT
2	201+85.97	4.00' LT.	869,456.676	1,330,168.464	3,945.89	EW -POT
3	201+89.90	4.00' LT.	869,459.053	1,330,165.340	3,945.81	PT (R=24.0')
4	202+16.81	4.00' LT.	869,488.053	1,330,158.009	3,945.31	PT (R=24.0')
5	202+26.91	4.00' LT.	869,497.252	1,330,162.175	3,945.22	EW -POT
6	201+68.17	3.00' RT.	869,449.076	1,330,186.308	3,945.06	EW -POT
7	201+68.17	4.00' RT.	869,449.533	1,330,187.198	3,946.27	EW -PC (R=24.0')
8	201+77.07	4.00' RT.	869,457.657	1,330,180.387	3,946.16	EW -PT (R=24.0')
9	201+89.90	4.00' RT.	869,465.420	1,330,170.184	3,945.93	EW -PC (R=16.0')
10	201+95.86	4.00' RT.	869,468.831	1,330,166.869	3,945.80	EW -PT (R=16.0')
11	202+11.59	2.40' RT.	869,481.029	1,330,162.513	3,945.48	FG -POT
12	202+17.77	3.00' RT.	869,486.040	1,330,164.782	3,945.41	FG -POT
13	202+10.09	6.23' RT.	869,479.379	1,330,166.157	3,945.56	FG -POT
14	202+17.77	7.00' RT.	869,484.390	1,330,168.426	3,945.47	FG -POT
15	202+22.76	3.00' RT.	869,490.588	1,330,166.842	3,945.36	EW -POT
16	202+26.90	3.00' RT.	869,494.362	1,330,168.550	3,945.33	EW -POT
17	202+22.76	12.00' RT.	869,486.876	1,330,175.040	3,945.49	EW -POT
18	202+36.78	4.00' LT.	869,506.245	1,330,166.247	~	EW -POT -MATCH RAILROAD PANEL
19	202+41.37	4.00' LT.	869,510.431	1,330,168.142	~	EW -POT -MATCH RAILROAD PANEL
20	202+36.77	4.00' RT.	869,502.935	1,330,173.530	~	EW -POT -MATCH RAILROAD PANEL
21	202+41.37	4.00' RT.	869,507.130	1,330,175.430	~	EW -POT -MATCH RAILROAD PANEL
22	201+66.33	5.08' RT.	869,447.936	1,330,189.113	3,946.18	TBC -POT
23	201+69.20	4.73' RT.	869,450.986	1,330,187.233	3,946.15	TBC -POT
24	201+71.14	6.43' RT.	869,453.985	1,330,187.310	3,946.15	TBC -POT
25	201+71.94	9.82' RT.	869,456.933	1,330,189.345	3,946.11	TBC -POT
26	201+72.54	10.59' RT.	869,458.113	1,330,189.375	3,946.08	TBC -POT -MATCH EXISTING

NORTHWEST ESCAPE ROUTE COORDINATE TABLE						
POINT	STATDN	OFFSET	N O R Y COORDINATE	E O R X COORDINATE	ELEVATION	REMARKS
1	202+55.49	12.00' LT.	869,526.592	1,330,166.679	3,945.03	EW -POT
2	202+69.65	12.00' LT.	869,539.493	1,330,172.521	3,944.77	EW -POT
3	202+60.48	7.00' LT.	869,529.077	1,330,173.293	3,945.02	FG -POT
4	202+65.98	7.00' LT.	869,534.087	1,330,175.562	3,944.92	FG -POT
5	202+51.50	3.00' LT.	869,519.243	1,330,173.231	3,945.23	EW -POT
6	202+55.48	3.00' LT.	869,522.874	1,330,174.874	3,945.16	EW -POT
7	202+60.48	3.00' LT.	869,527.427	1,330,176.937	3,945.08	FG -POT
8	202+65.98	3.00' LT.	869,532.437	1,330,179.205	3,944.98	FG -POT
9	202+71.53	3.00' LT.	869,537.419	1,330,181.431	3,944.87	EW -PC (R=57.0')
10	202+93.78	3.00' LT.	869,557.979	1,330,185.778	3,944.14	EW -PT (R=57.0')
11	202+51.50	4.00' RT.	869,516.355	1,330,179.607	3,945.34	EW -POT
12	202+69.65	4.00' RT.	869,532.889	1,330,187.094	3,945.01	EW -PC (R=64.0')
13	202+76.52	4.00' RT.	869,539.727	1,330,189.730	3,944.85	EW -PT (R=64.0')
14	202+76.52	3.00' RT.	869,540.032	1,330,188.778	3,944.50	EW -PC (R=63.0')
15	202+93.78	3.00' RT.	869,557.841	1,330,191.777	3,944.05	EW -PT (R=63.0')

LEGEND:

PLANT MIX SHARED USE PATH

4" CONCRETE SIDEWALK

STAMPED CONCRETE

EOP = EDGE OF PAVEMENT
EW = EDGE OF WALK
FG = FINISHED GRADE
LD = LAYDOWN CURB
RP = RADIUS POINT
RLD = RAMP LAYDOWN CURB
TBC = TOP BACK OF CURB

6" CONCRETE

ESCAPE ROUTE
DETAILS

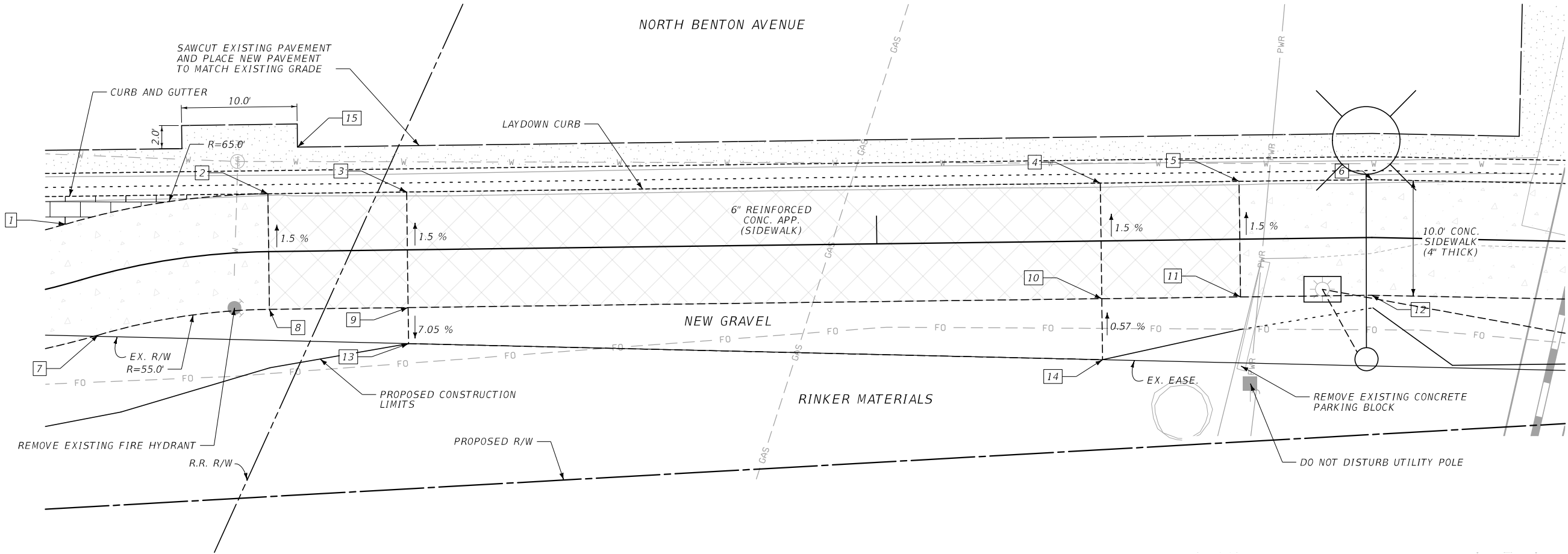
1" = 4'

SOUTH SIDEWALK SURFACING						
POINT	STATDN	OFFSET	NORY COORDINATE	EORX COORDINATE	ELEVATION	REMARKS
S1	99+95.51	22.01' LT.	869,113.264	1,330,211.337	~	EOP - POT - MATCH EXISTING
S2	100+03.42	22.01' LT.	869,121.184	1,330,211.299	~	EOP - POT - MATCH EXISTING
S3	99+95.51	11.76' LT.	869,113.315	1,330,221.592	~	EOP - PC (R=57.6) MATCH EXISTING
S4	100+03.27	10.01' LT.	869,121.090	1,330,223.309	~	EOP - PT (R=57.6) MATCH EXISTING
S5	99+95.67	9.74' LT.	869,113.484	1,330,223.607	~	TBC - PC (R=60.4) MATCH EXISTING
S6	100+03.27	10.00' LT.	869,121.090	1,330,223.309	~	TBC - PT (R=60.4) MATCH EXISTING
S7	99+95.55	4.38' LT.	869,113.394	1,330,228.970	~	EW - POT - MATCH EXISTING
S8	100+03.02	4.11' LT.	869,120.866	1,330,229.207	~	EW - POT - MATCH EXISTING
S9	99+95.52	3.96' LT.	869,113.371	1,330,229.387	~	TBC - POT - MATCH EXISTING
S10	100+02.98	3.79' LT.	869,120.822	1,330,229.525	~	TBC - POT - MATCH EXISTING





101+91 APPROACH COORDINATE TABLE						
POINT	STATDN	OFFSET	N OR Y COORDNATE	E OR X COORDNATE	ELEVATDN	REMARKS
1	101+31.02	5.00' LT	869,247.244	1,330,225.547	3,950.32	FG -PC (R=65.0')
2	101+47.39	5.00' LT	869,264.727	1,330,222.918	3,948.71	TBC -PT (R=65.0')
3	101+59.39	5.00' LT	869,276.728	1,330,222.765	3,948.54	LD -POT
4	102+19.39	5.00' LT	869,336.723	1,330,221.998	3,947.15	LD -POT
5	102+31.39	5.00' LT	869,438.722	1,330,221.845	3,947.28	TBC -POT
6	102+42.82	5.00' LT	869,360.233	1,330,221.698	3,947.11	TBC -PI
7	101+31.02	5.00' RT	869,250.062	1,330,235.142	3,950.47	EW -PC (R=55.0')
8	101+47.39	5.00' RT	869,264.856	1,330,232.918	3,949.47	EW -POT (R=55.0')
9	101+59.39	5.00' RT	869,276.855	1,330,232.764	3,948.69	EW -POT
10	102+19.39	5.00' RT	869,336.850	1,330,231.997	3,947.30	EW -POT
11	102+31.39	5.00' RT	869,348.849	1,330,231.844	3,947.43	EW -POT
12	102+42.74	5.00' RT	869,360.198	1,330,231.699	3,947.26	EW -PI
13	101+59.39	8.12' RT	869,276.895	1,330,235.884	3,948.47	POT
14	102+19.39	10.28' RT	869,336.918	1,330,237.279	3,947.33	POT
15	101+50.00	9.00' LT	869,267.287	1,330,218.885	3,948.83	POT -MATCH EXISTING



- LEGEND:
- PLANT MIX SHARED USE PATH

4" CONCRETE SIDEWALK

STAMPED CONCRETE

PLANT MIX ROAD RESURFACING

6" CONCRETE
- LEGEND:

EOP

=

EDGE OF PAVEMENT

EW

=

EDGE OF WALK

FG

=

FINISHED GRADE

LD

=

LAYDOWN CURB

RP

=

RADIUS POINT

RLD

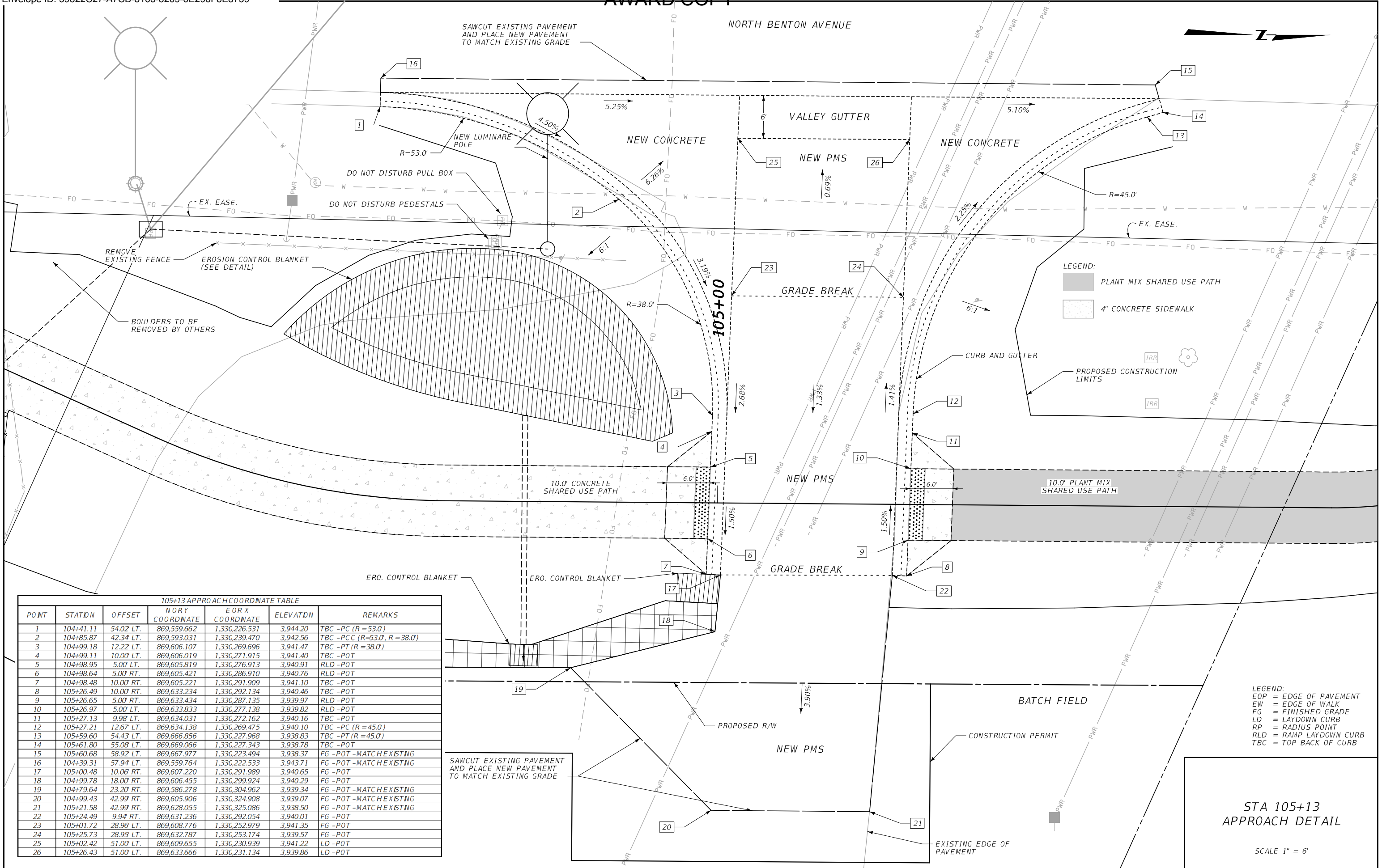
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RAMP LAYDOWN CURB

TBC

=

TOP BACK OF CURB
- STA 101+91
APPROACH DETAIL
- SCALE 1" = 5'
-
- 2
1
-
- MONTANA
Department of Transportation
- ...\\9803000\RD\9803000RDR\DESIGNED BY
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- ROAD PLANS
- LEWIS AND CLARK COUNTY
- RRXING-BENTON AVE-HELENA
- UPN 9803000
- RRP-TA-RRS 5805(17)
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105+13 APPROACH COORDINATE TABLE						
POINT	STATION	OFFSET	NOR Y COORDINATE	EOR X COORDINATE	ELEVATION	REMARKS
1	104+41.11	54.02 LT.	869,559.662	1,330,226.531	3,944.20	TBC -PC (R=53.0')
2	104+85.87	42.34 LT.	869,593.031	1,330,239.470	3,942.56	TBC -PCC (R=53.0', R=38.0')
3	104+99.18	12.22 LT.	869,606.107	1,330,269.696	3,941.47	TBC -PT (R=38.0')
4	104+99.11	10.00' LT.	869,606.019	1,330,271.915	3,941.40	TBC -POT
5	104+98.95	5.00' LT.	869,605.819	1,330,276.913	3,940.91	RLD -POT
6	104+98.64	5.00' RT.	869,605.421	1,330,286.910	3,940.76	RLD -POT
7	104+98.48	10.00' RT.	869,605.221	1,330,291.909	3,941.10	TBC -POT
8	105+26.49	10.00' RT.	869,633.234	1,330,292.134	3,940.46	TBC -POT
9	105+26.65	5.00' RT.	869,633.434	1,330,287.135	3,939.97	RLD -POT
10	105+26.97	5.00' LT.	869,633.833	1,330,277.138	3,939.82	RLD -POT
11	105+27.13	9.98' LT.	869,634.031	1,330,272.162	3,940.16	TBC -POT
12	105+27.21	12.67' LT.	869,634.138	1,330,269.475	3,940.10	TBC -PC (R=45.0')
13	105+59.60	54.43' LT.	869,666.856	1,330,227.968	3,938.83	TBC -PT (R=45.0')
14	105+61.80	55.08' LT.	869,669.066	1,330,227.343	3,938.78	TBC -POT
15	105+60.68	58.92' LT.	869,667.977	1,330,223.494	3,938.37	FG -POT -MATCH EXISTING
16	104+39.31	57.94' LT.	869,559.764	1,330,222.533	3,943.71	FG -POT -MATCH EXISTING
17	105+00.48	10.06' RT.	869,607.220	1,330,291.989	3,940.65	FG -POT
18	104+99.78	18.00' RT.	869,606.455	1,330,299.924	3,940.29	FG -POT
19	104+79.64	23.20' RT.	869,586.278	1,330,304.962	3,939.34	FG -POT -MATCH EXISTING
20	104+99.43	42.99' RT.	869,605.906	1,330,324.908	3,939.07	FG -POT -MATCH EXISTING
21	105+21.58	42.99' RT.	869,628.055	1,330,325.086	3,938.50	FG -POT -MATCH EXISTING
22	105+24.49	9.94' RT.	869,631.236	1,330,292.054	3,940.01	FG -POT
23	105+01.72	28.96' LT.	869,608.776	1,330,252.979	3,941.35	FG -POT
24	105+25.73	28.95' LT.	869,632.787	1,330,253.174	3,939.57	FG -POT
25	105+02.42	51.00' LT.	869,609.655	1,330,230.939	3,941.22	LD -POT
26	105+26.43	51.00' LT.	869,633.666	1,330,231.134	3,939.86	LD -POT

- LEGEND:
- EOP = EDGE OF PAVEMENT
 - EW = EDGE OF WALK
 - FG = FINISHED GRADE
 - LD = LAYDOWN CURB
 - RP = RADIUS POINT
 - RLD = RAMP LAYDOWN CURB
 - TBC = TOP BACK OF CURB

STA 105+13
APPROACH DETAIL

SCALE 1" = 6'

LEGEND:

- PLANT MIX SHARED USE PATH
- 4" CONCRETE SIDEWALK
- STAMPED CONCRETE
- PLANT MIX ROAD RESURFACING
- 6" CONCRETE

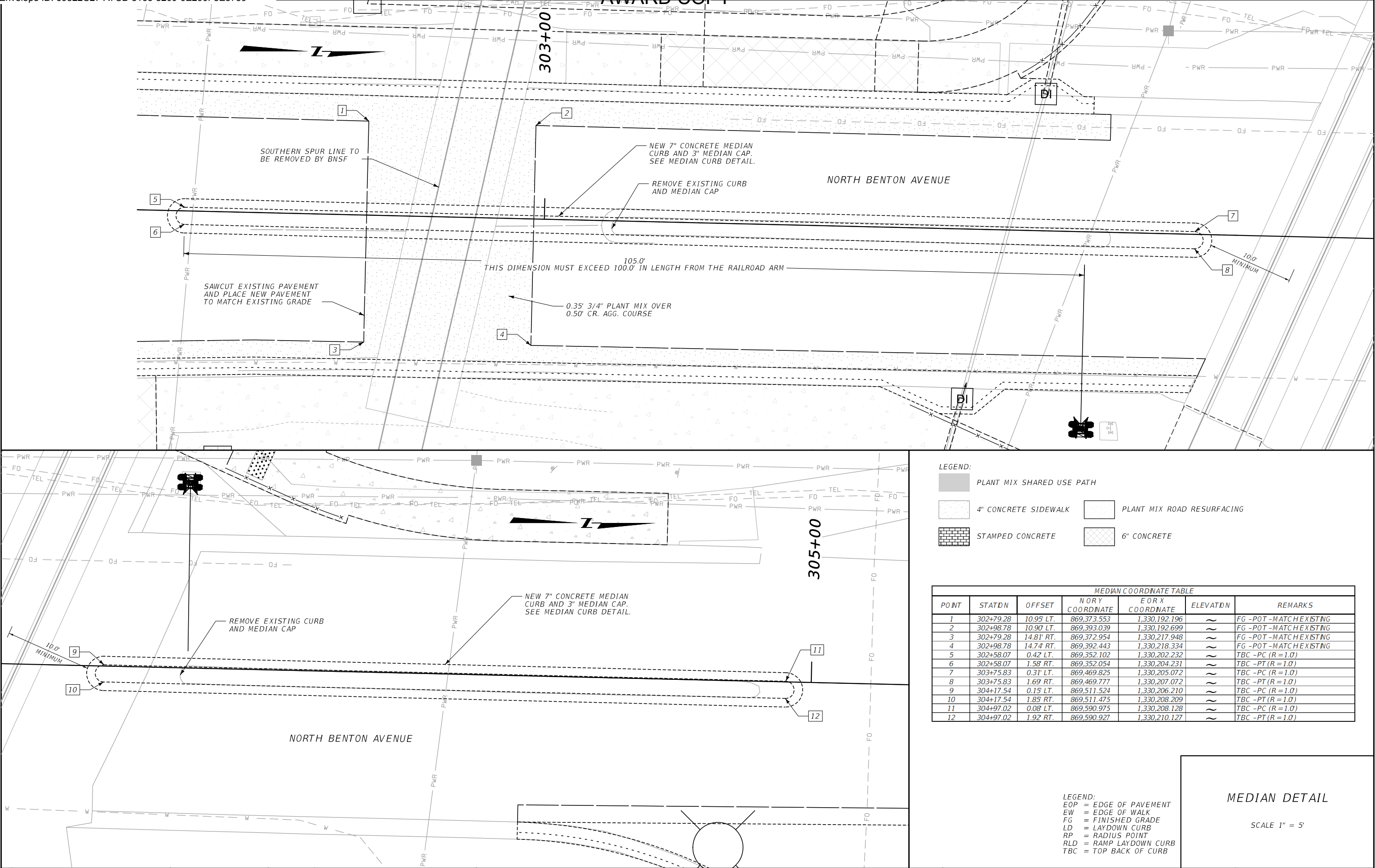
201+43 APPROACH COORDINATE TABLE						
POINT	STATION	OFFSET	N OR Y COORDINATE	E OR X COORDINATE	ELEVATION	REMARKS
1	201+52.68	3.00' LT	869,432.652	1,330,182.708	3,946.06	EW -POT
2	201+42.68	3.00' LT	869,422.655	1,330,182.451	3,946.16	EW -POT
3	201+32.68	3.00' LT	869,412.658	1,330,182.194	3,946.25	EW -POT
4	201+54.60	10.04' LT	869,434.748	1,330,175.723	3,945.85	POT
5	201+42.68	10.01' LT	869,422.836	1,330,175.446	3,945.95	POT
6	201+32.68	9.98' LT	869,412.839	1,330,175.213	3,946.04	POT
7	201+56.27	16.17' LT	869,436.575	1,330,169.631	3,944.58	POT, MATCH EXISTING
8	201+42.68	16.14' LT	869,422.994	1,330,169.315	3,945.14	POT, MATCH EXISTING
9	201+32.68	16.12' LT	869,412.997	1,330,169.083	3,945.18	POT, MATCH EXISTING
10	201+52.68	3.00' RT	869,432.497	1,330,188.715	3,945.97	TBC -POT
11	201+42.68	3.00' RT	869,422.500	1,330,188.457	3,946.07	TBC -POT
12	201+32.68	3.00' RT	869,412.504	1,330,188.199	3,946.16	TBC -POT

- LEGEND:
- EOP = EDGE OF PAVEMENT
 - EW = EDGE OF WALK
 - FG = FINISHED GRADE
 - LD = LAYDOWN CURB
 - RP = RADIUS POINT
 - RLD = RAMP LAYDOWN CURB
 - TBC = TOP BACK OF CURB

STA 201+43
APPROACH DETAIL

SCALE 1" = 5'





LEGEND:

PLANT MIX SHARED USE PATH

4" CONCRETE SIDEWALK

STAMPED CONCRETE

PLANT MIX ROAD RESURFACING

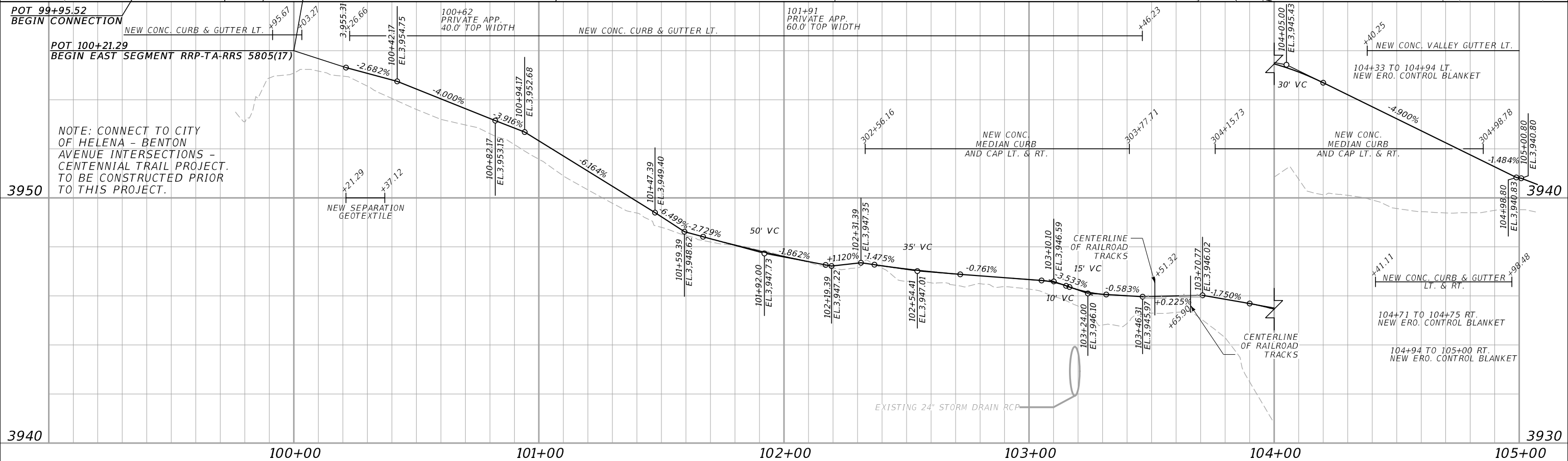
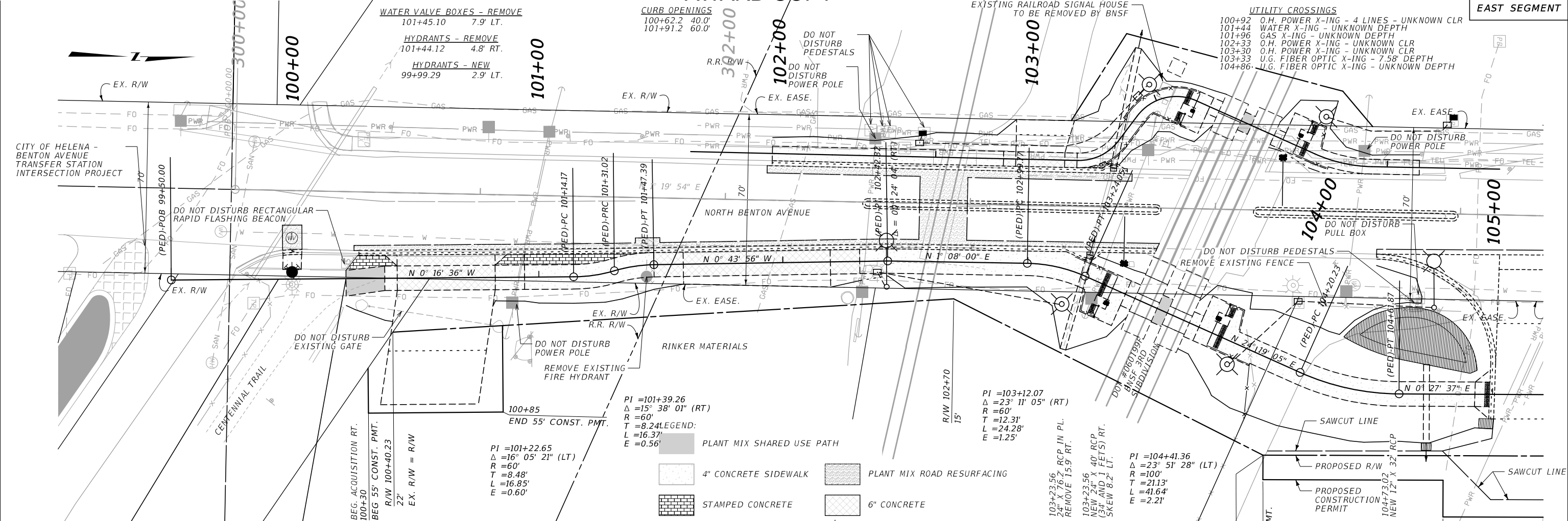
6" CONCRETE


MEDIAN COORDINATE TABLE						
POINT	STATDN	OFFSET	N O R Y COORDINATE	E O R X COORDINATE	ELEVATDN	REMARKS
1	302+79.28	10.95' LT.	869,373.553	1,330,192.196	~	FG -POT -MATCH EXISTING
2	302+98.78	10.90' LT.	869,393.039	1,330,192.699	~	FG -POT -MATCH EXISTING
3	302+79.28	14.81' RT.	869,372.954	1,330,217.948	~	FG -POT -MATCH EXISTING
4	302+98.78	14.74' RT.	869,392.443	1,330,218.334	~	FG -POT -MATCH EXISTING
5	302+58.07	0.42' LT.	869,352.102	1,330,202.232	~	TBC -PC (R=1.0')
6	302+58.07	1.58' RT.	869,352.054	1,330,204.231	~	TBC -PT (R=1.0')
7	303+75.83	0.31' LT.	869,469.825	1,330,205.072	~	TBC -PC (R=1.0')
8	303+75.83	1.69' RT.	869,469.777	1,330,207.072	~	TBC -PT (R=1.0')
9	304+17.54	0.15' LT.	869,511.524	1,330,206.210	~	TBC -PC (R=1.0')
10	304+17.54	1.85' RT.	869,511.475	1,330,208.209	~	TBC -PT (R=1.0')
11	304+97.02	0.08' LT.	869,590.975	1,330,208.128	~	TBC -PC (R=1.0')
12	304+97.02	1.92' RT.	869,590.927	1,330,210.127	~	TBC -PT (R=1.0')

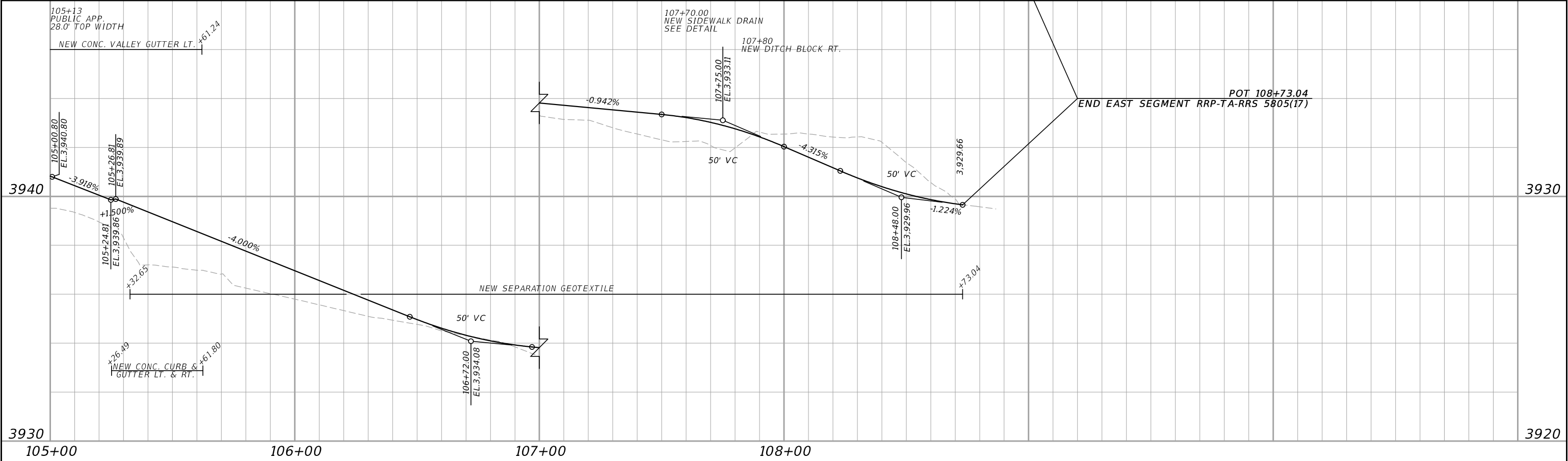
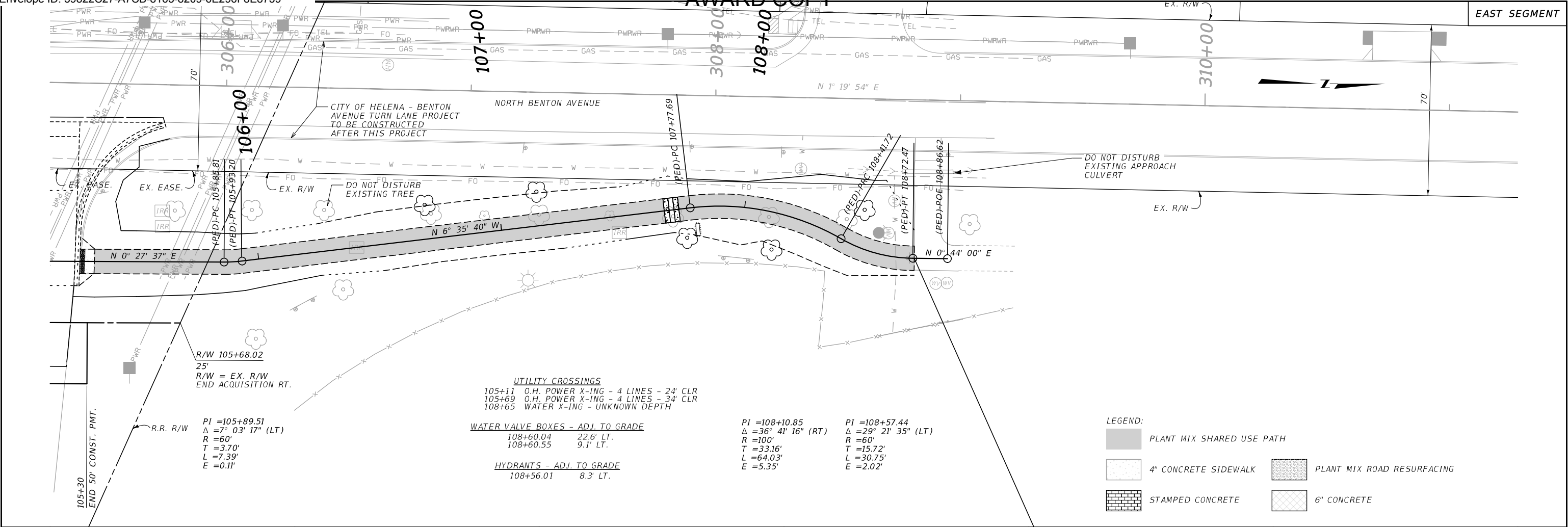
LEGEND:
EOP = EDGE OF PAVEMENT
EW = EDGE OF WALK
FG = FINISHED GRADE
LD = LAYDOWN CURB
RP = RADIUS POINT
RLD = RAMP LAYDOWN CURB
TBC = TOP BACK OF CURB

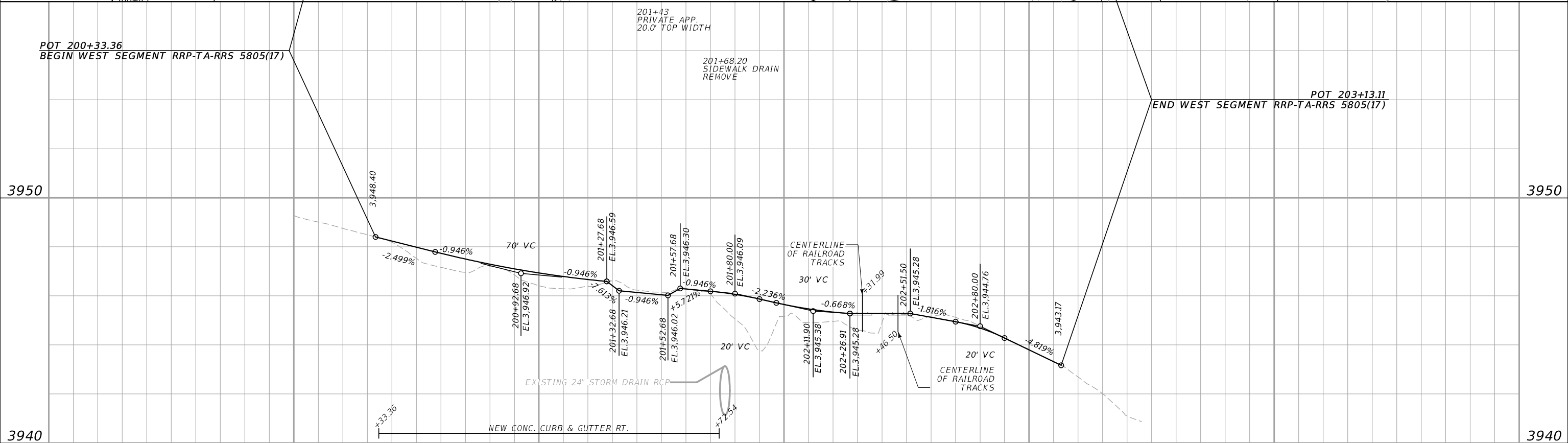
MEDIAN DETAIL

SCALE 1" = 5'

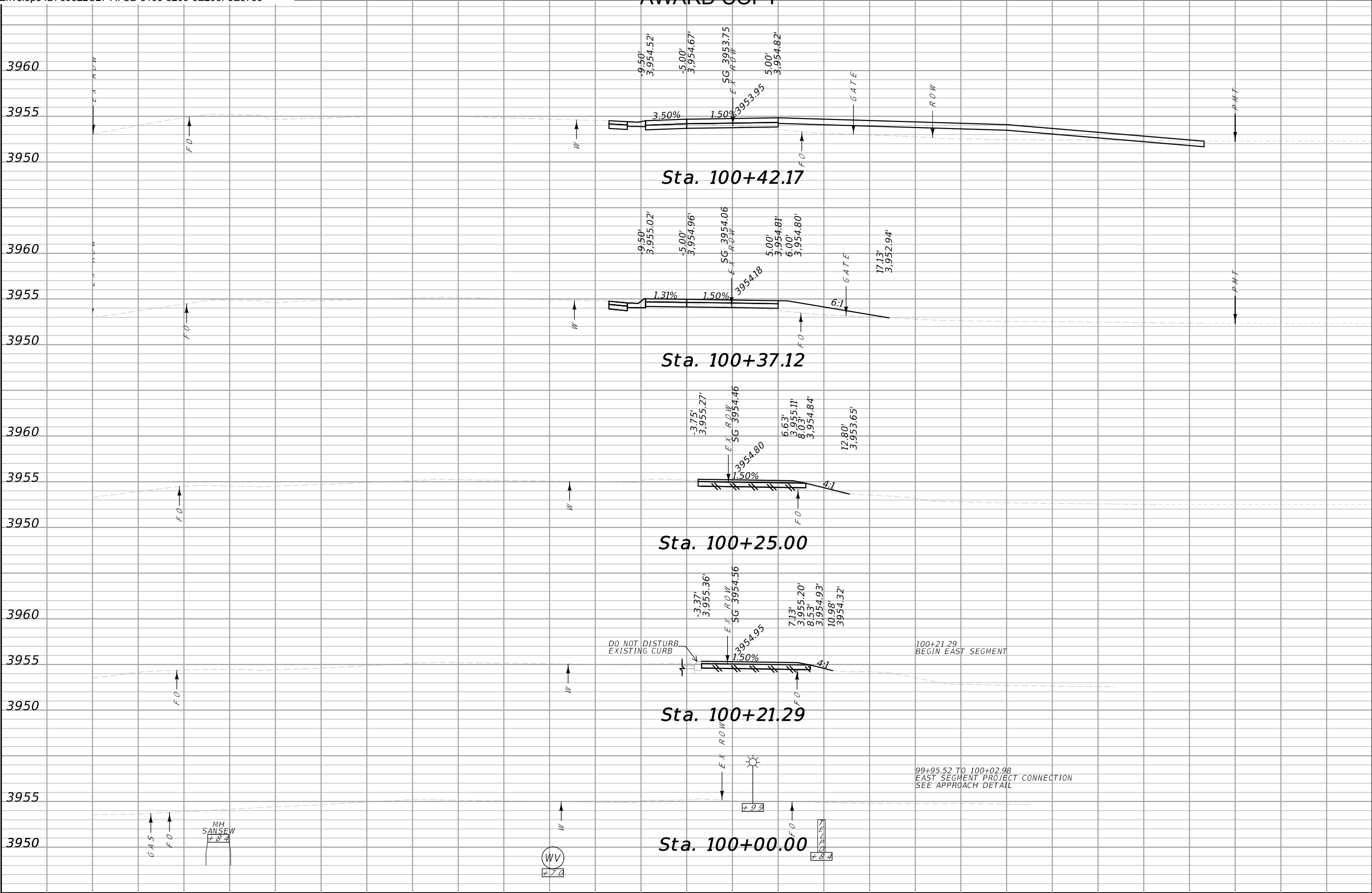


3		...9803000\RD\9803000RDP	DESIGNED BY		ROAD PLANS	PRELIMINARY FPR	RRXING-BENTON AVE-HELENA		RRP-TA-RRS 5805(17)
2		3/24/2026	REVIEWED BY				LEWIS AND CLARK COUNTY	UPN 9803000	25
		4:47:59 PM kskerritt	CHECKED BY						

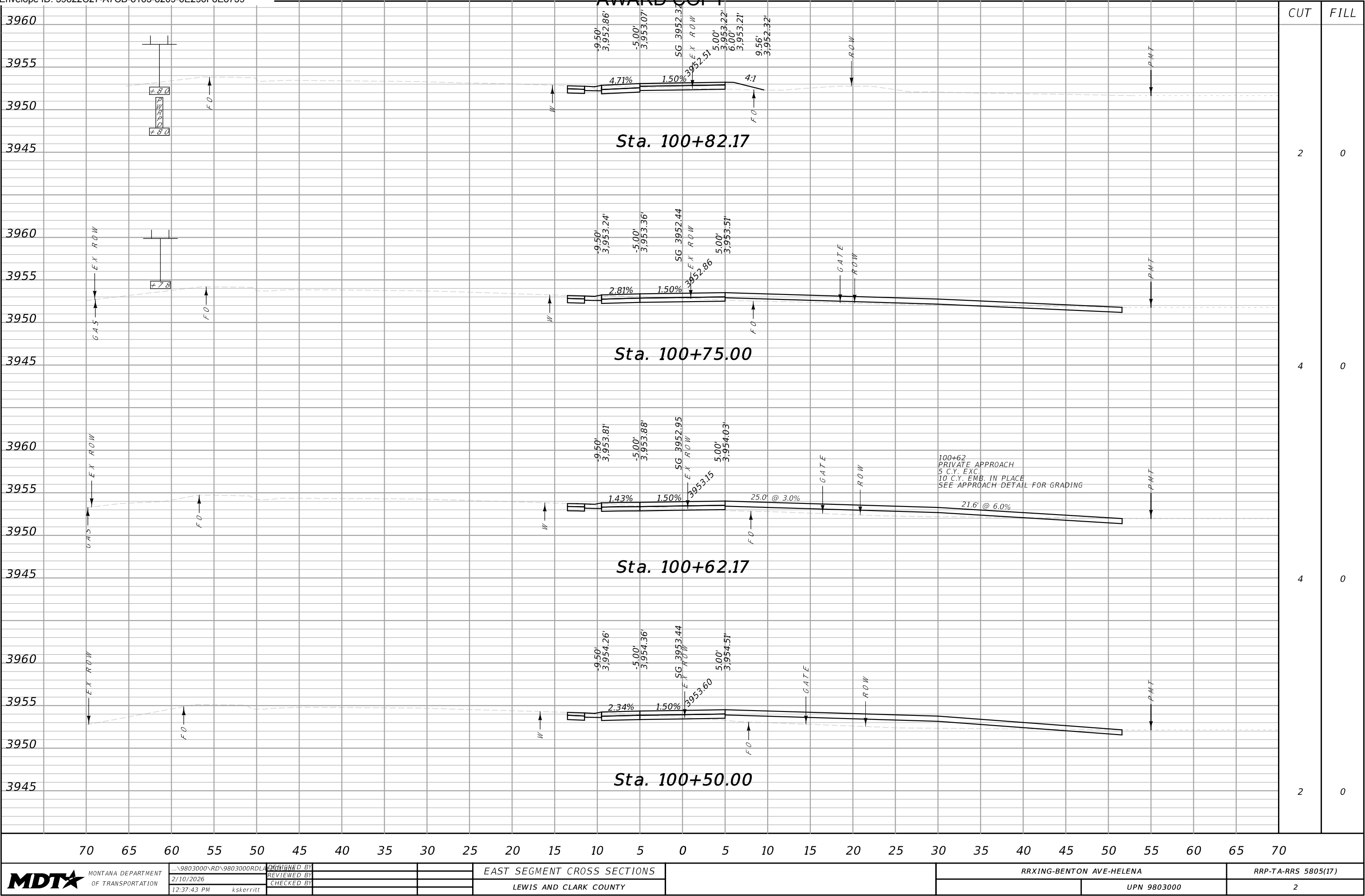


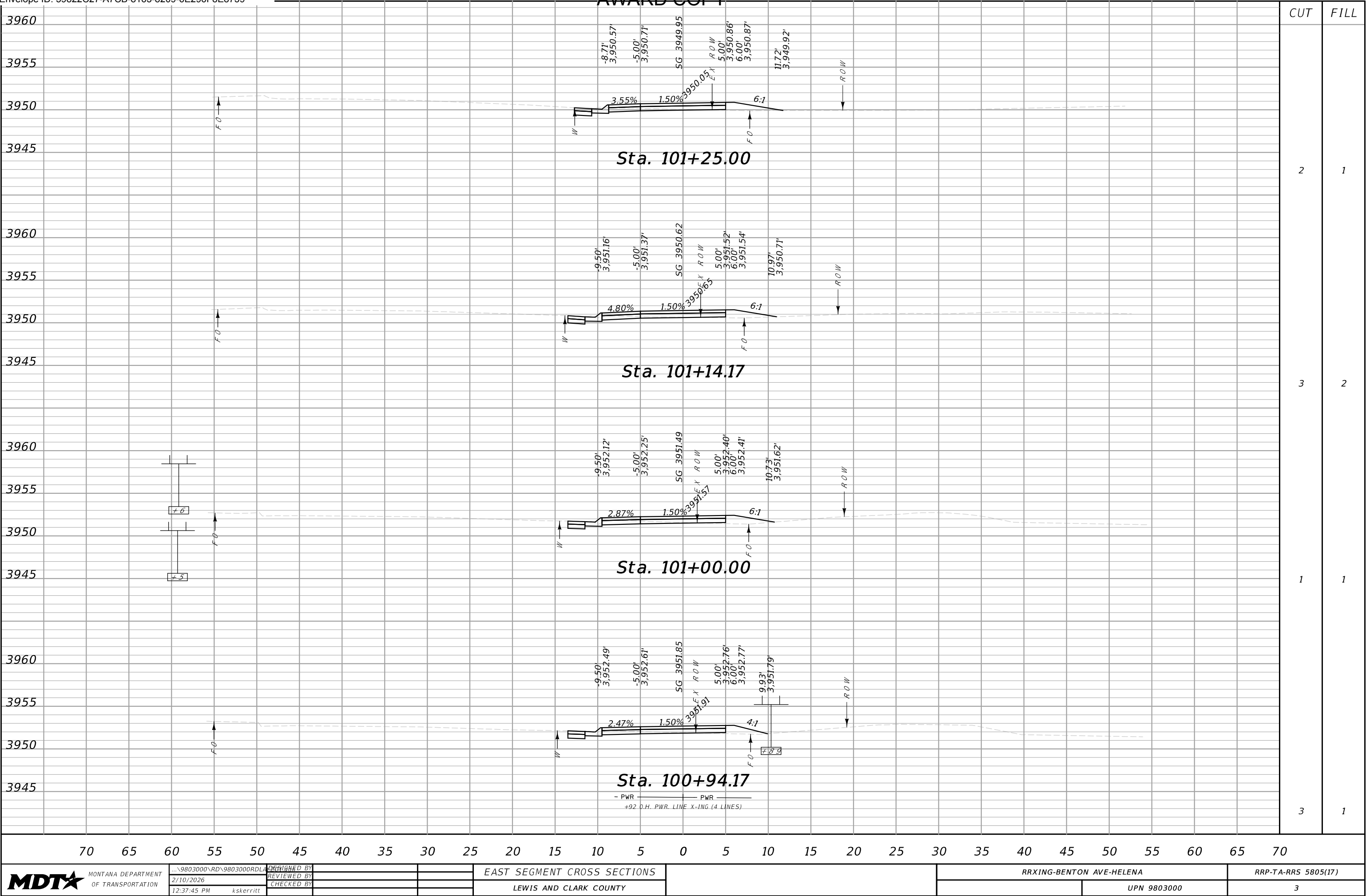


		... \9803000\RD\9803000RDP1	DESIGNED BY		ROAD PLANS	PRELIMINARY FPR	RRXING-BENTON AVE-HELENA		RRP-TA-RRS 5805(17)
		3/24/2026	REVIEWED BY						
		4:48:02 PM kskerritt	CHECKED BY					LEWIS AND CLARK COUNTY	



CUT	FILL
1	1
2	2
0	0
0	0





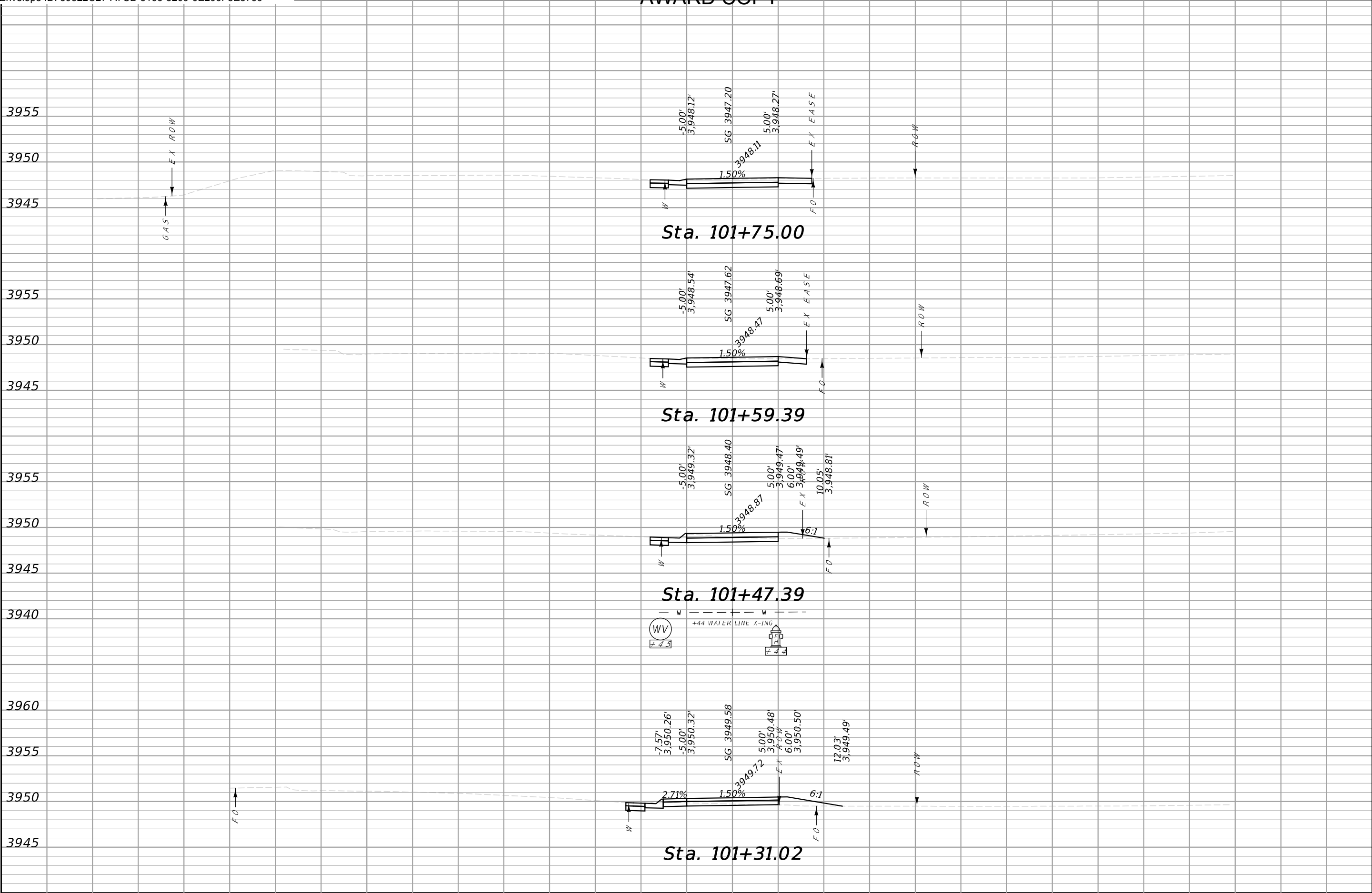
CUT FILL

2 1

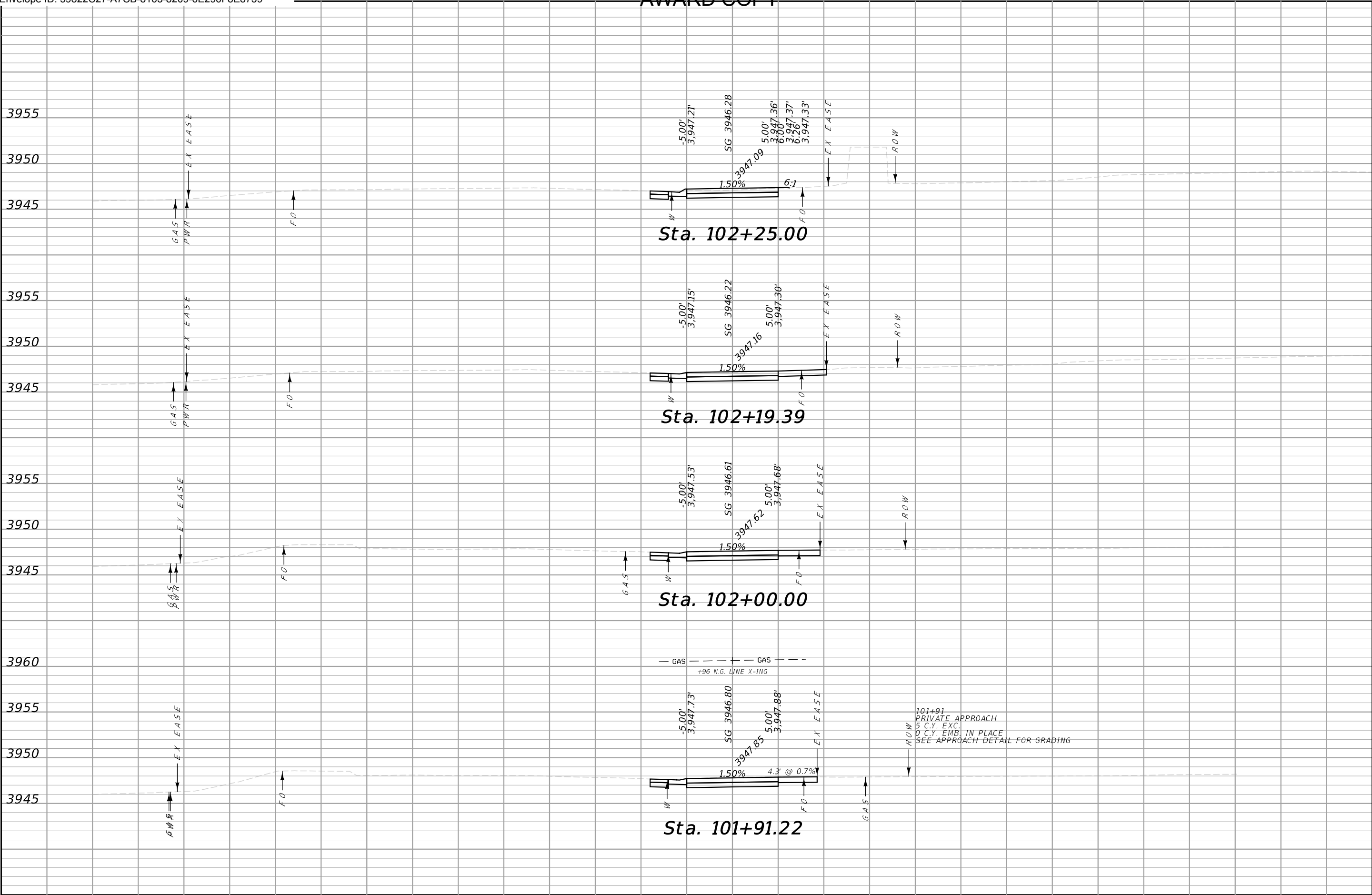
3 2

1 1

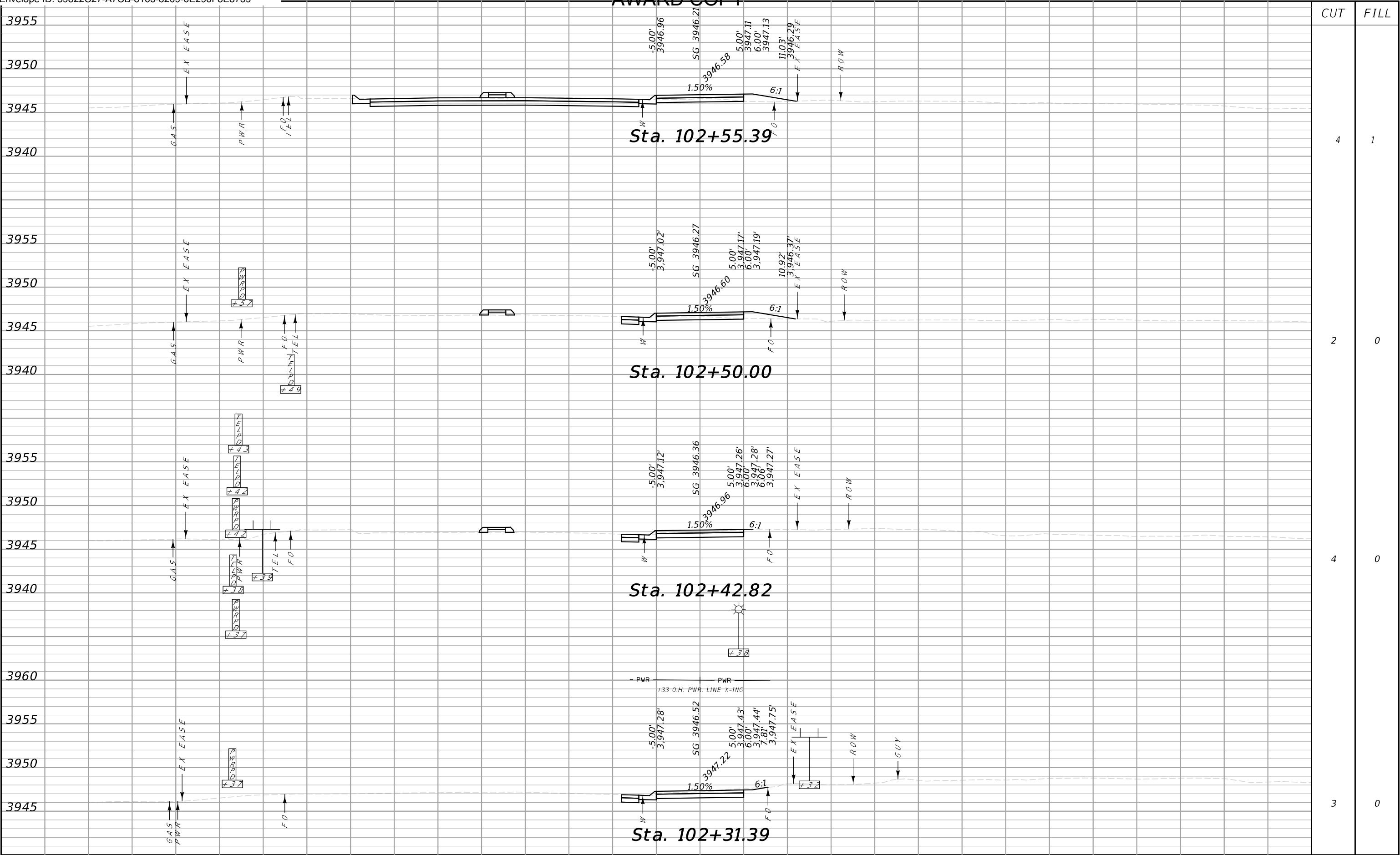
3 1



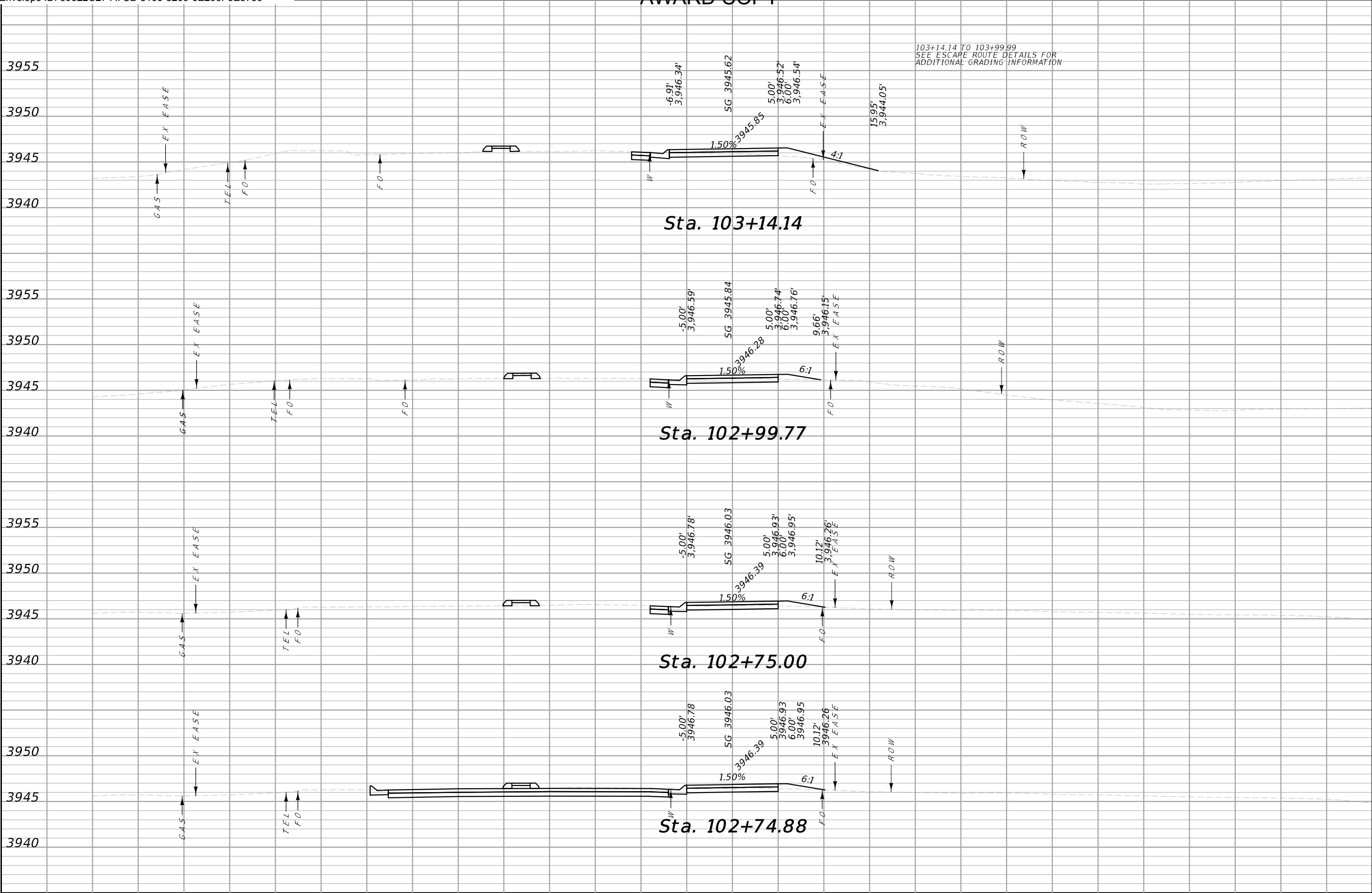
CUT	FILL
7	0
4	0
4	2
1	1



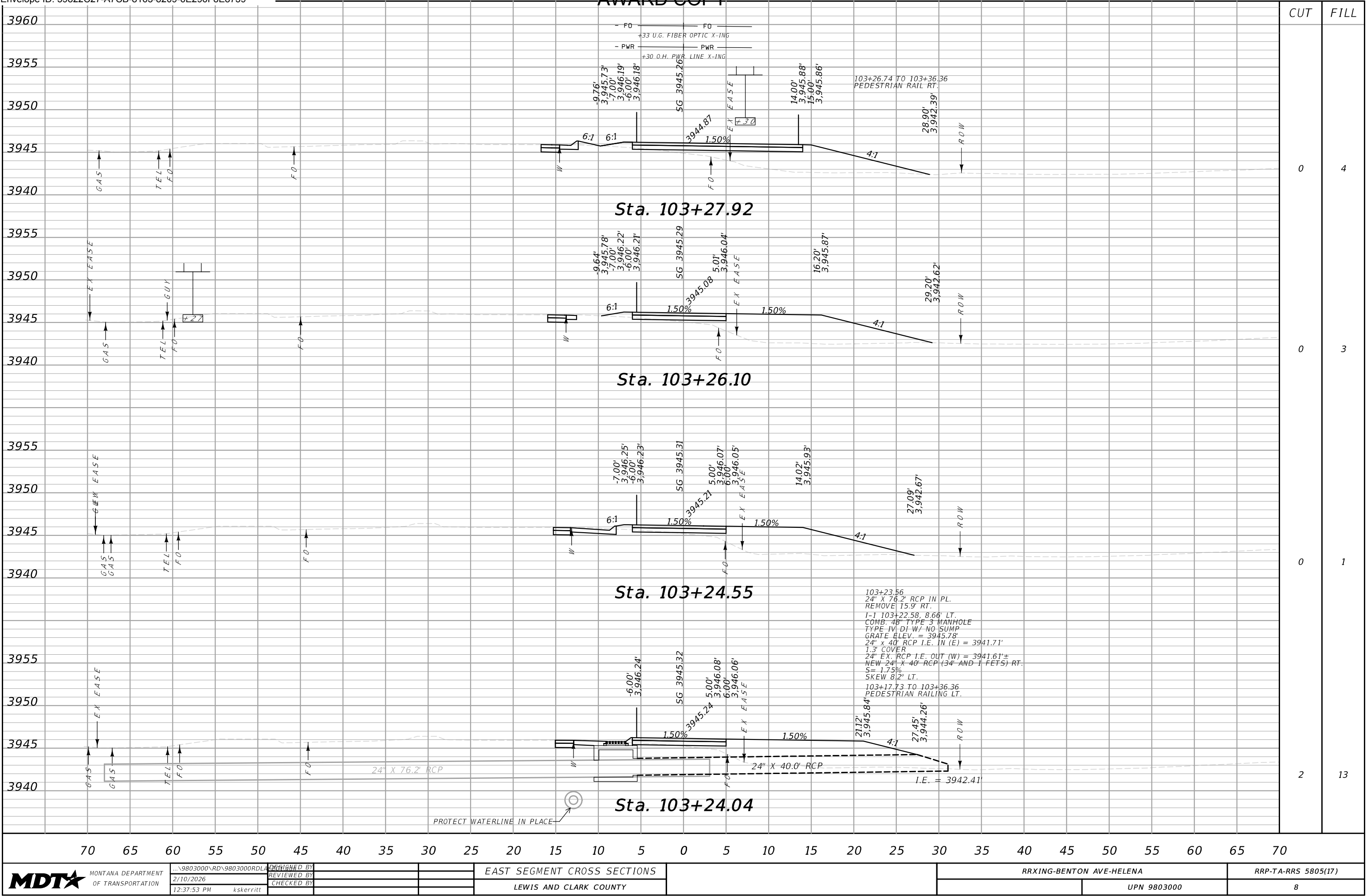
CUT	FILL
2	0
9	0
4	0
7	0

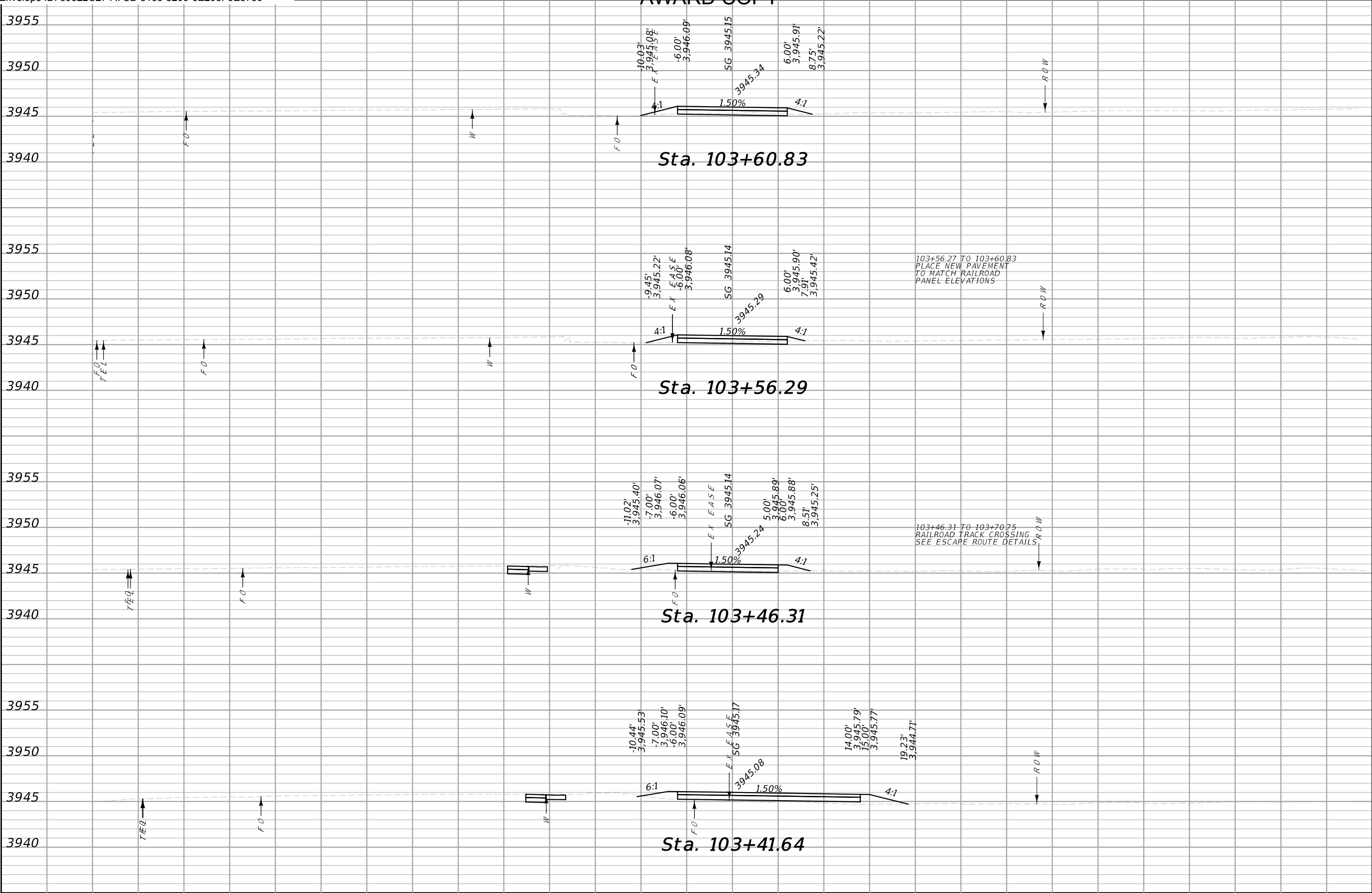


70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70																				CUT	FILL
<div><div>MDT</div><div>MONTANA DEPARTMENT OF TRANSPORTATION</div></div>										EAST SEGMENT CROSS SECTIONS										RRXING-BENTON AVE-HELENA	
...\\9803000\RD\9803000\RDLA										DESIGNED BY										RRP-TA-RRS 5805(17)	
2/10/2026										REVIEWED BY											
12:37:50 PM kskerritt										CHECKED BY											
										LEWIS AND CLARK COUNTY										UPN 9803000	
																				6	

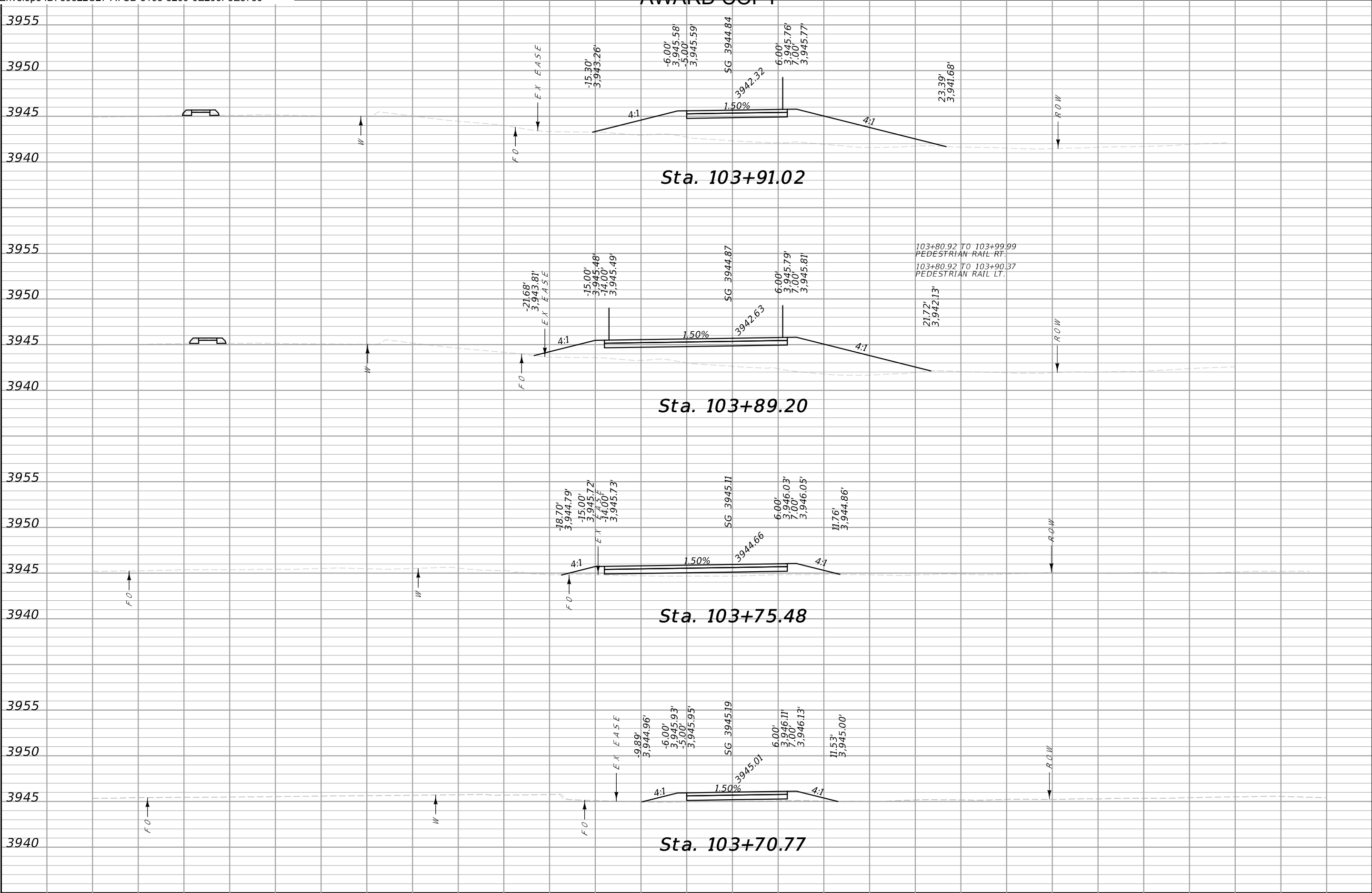


CUT	FILL
3	2
6	2
0	0
24	2

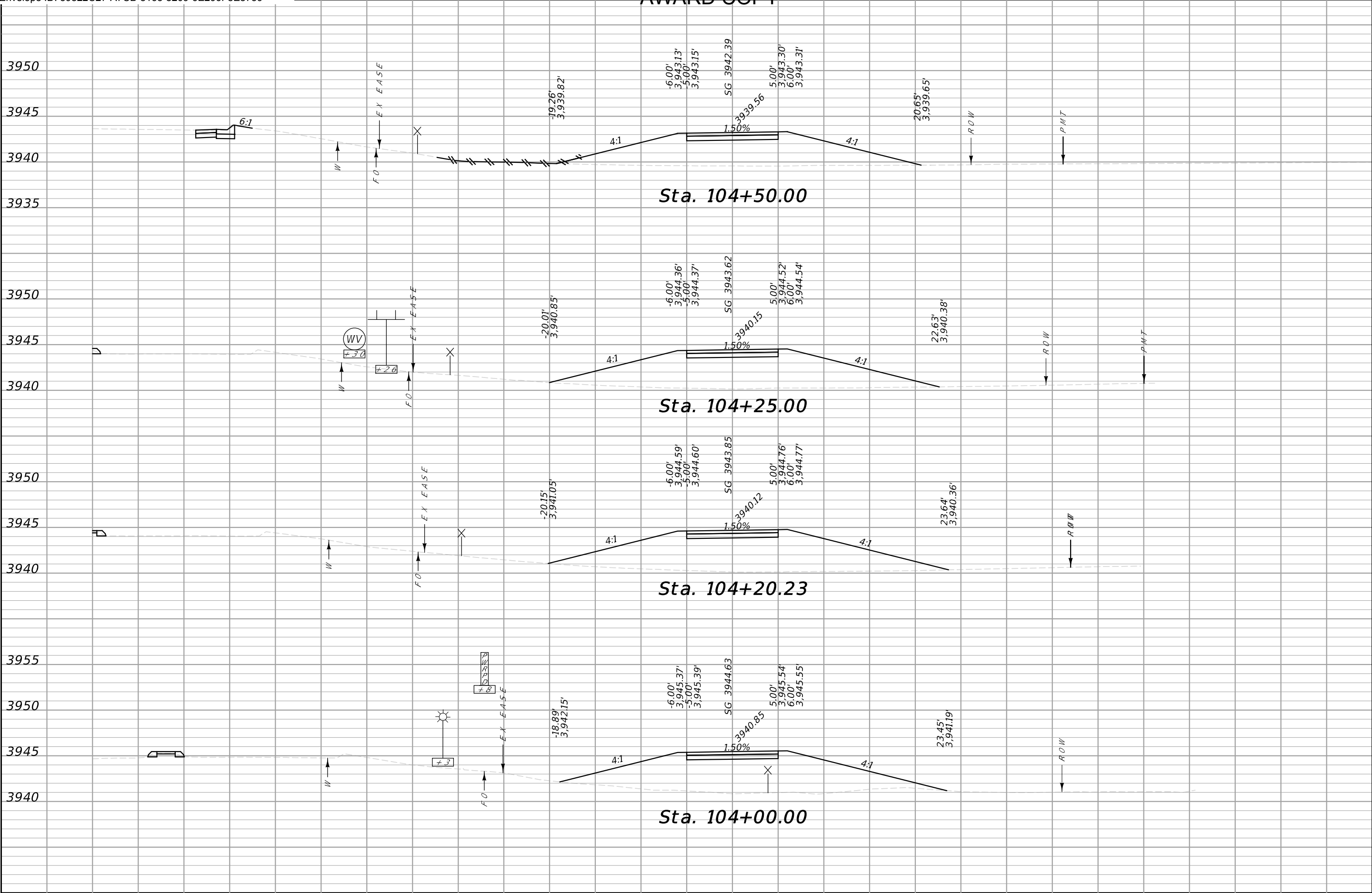




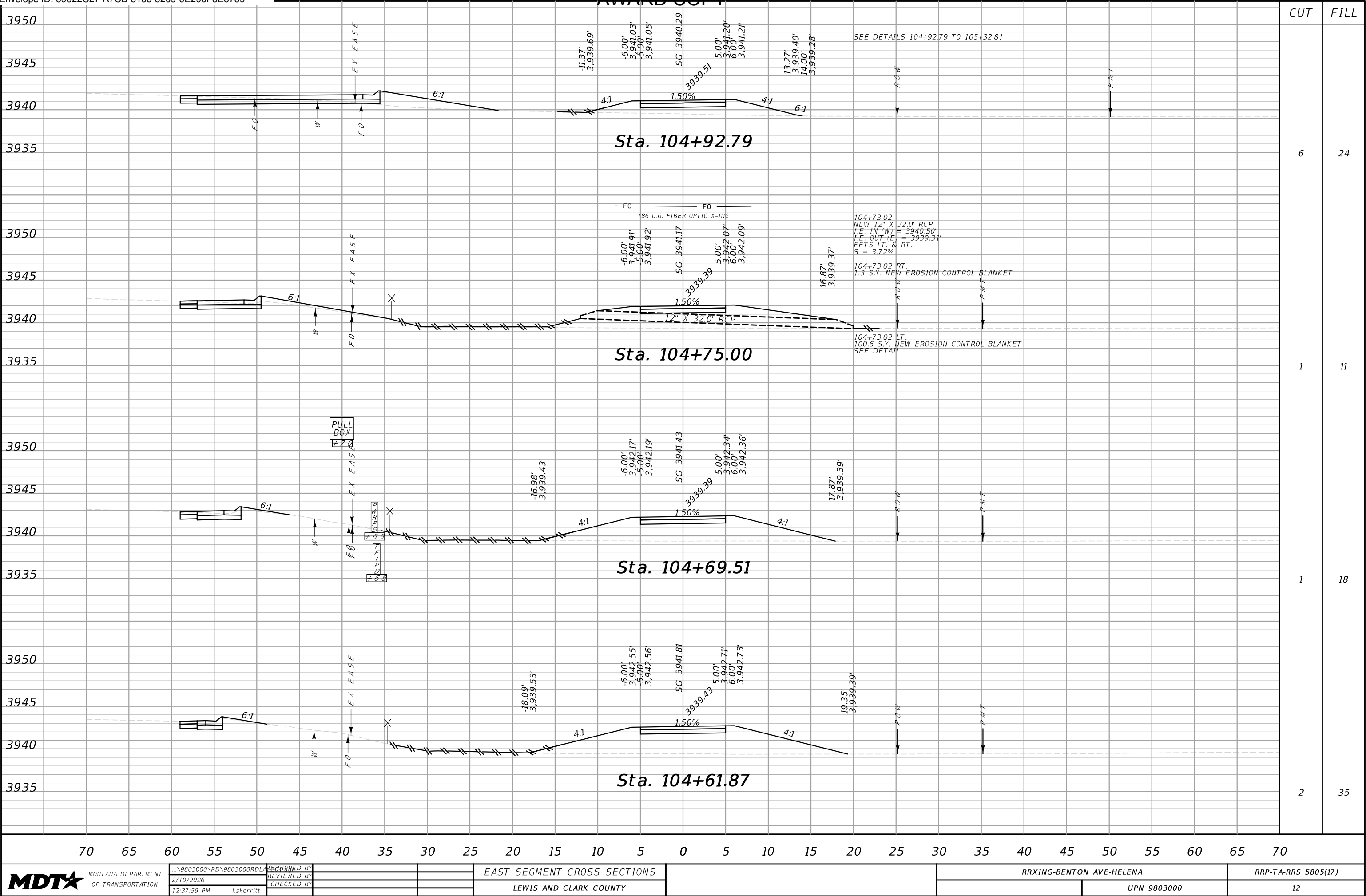
CUT	FILL
0	0
1	1
1	1
2	14

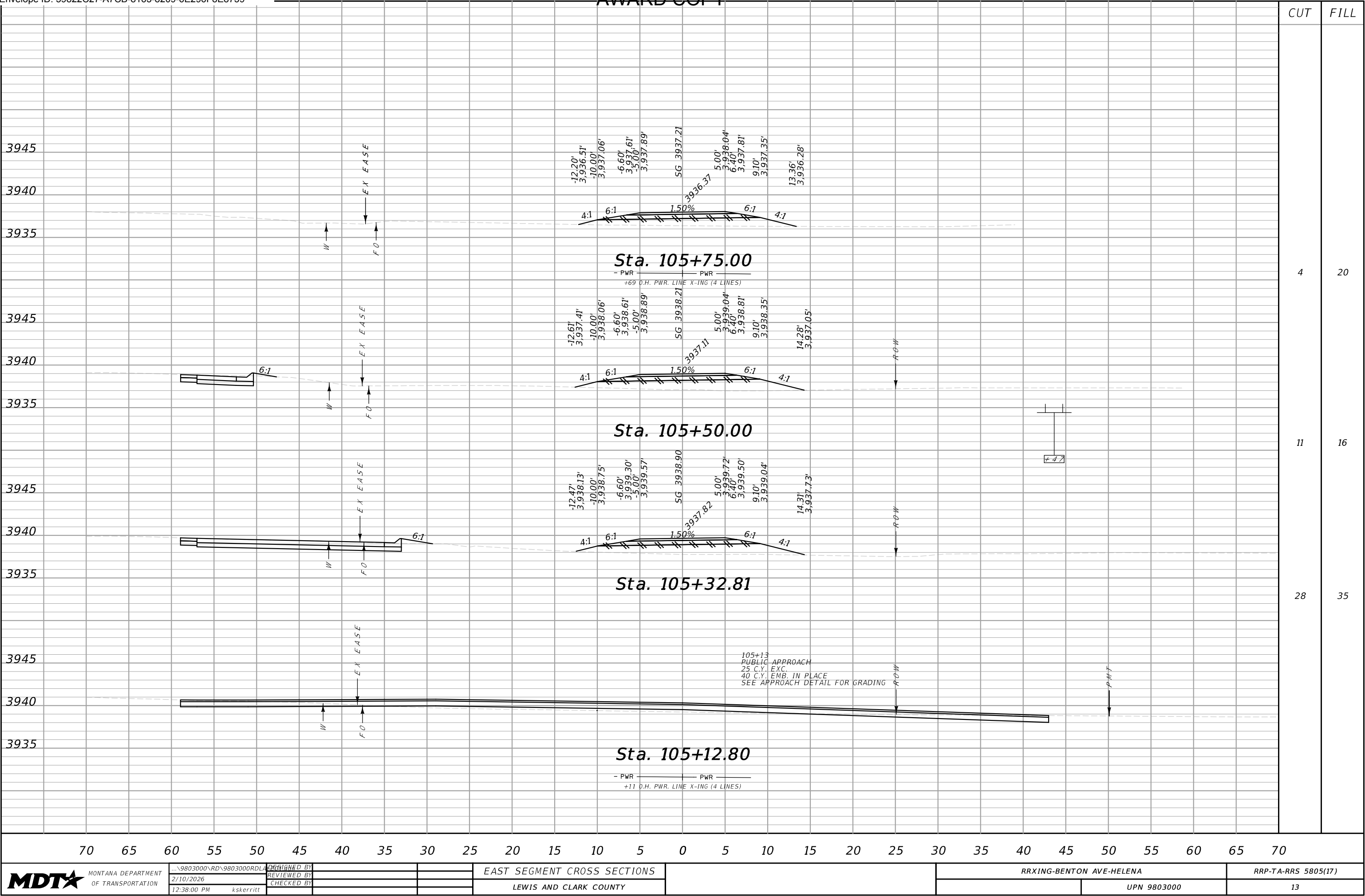


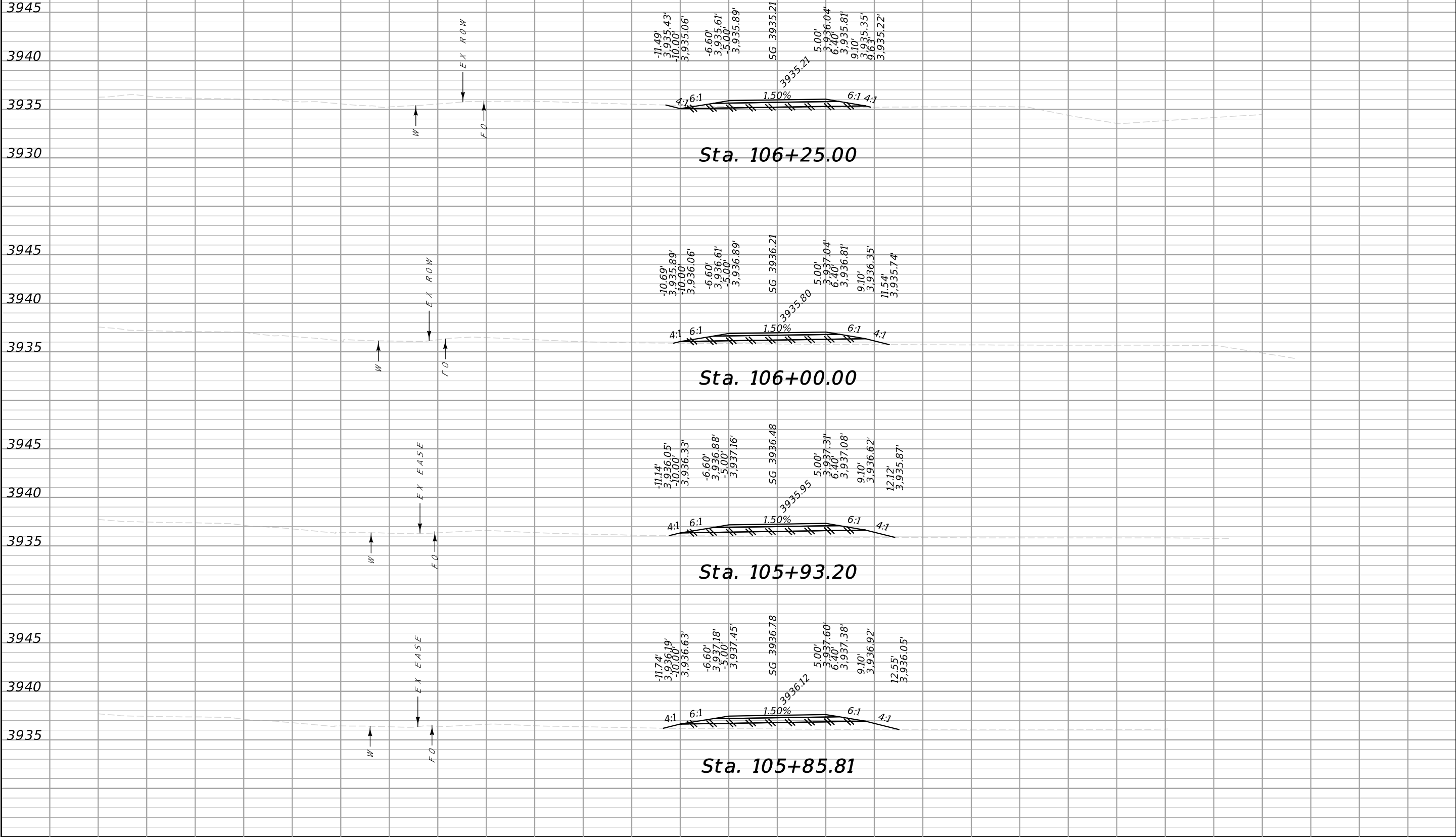
CUT	FILL
0	5
0	24
0	2
0	2



CUT	FILL
2	90
0	20
0	86
0	32

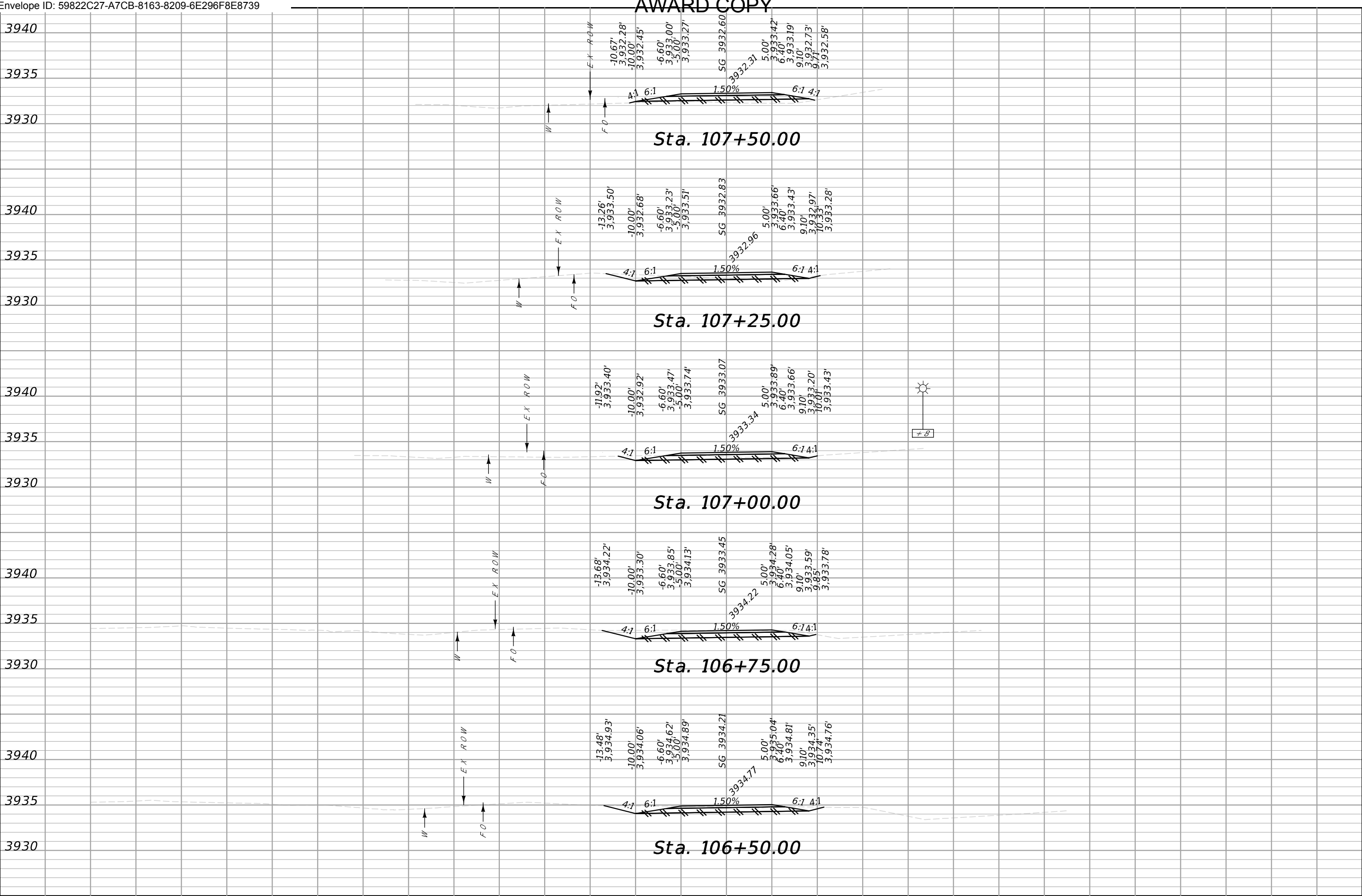




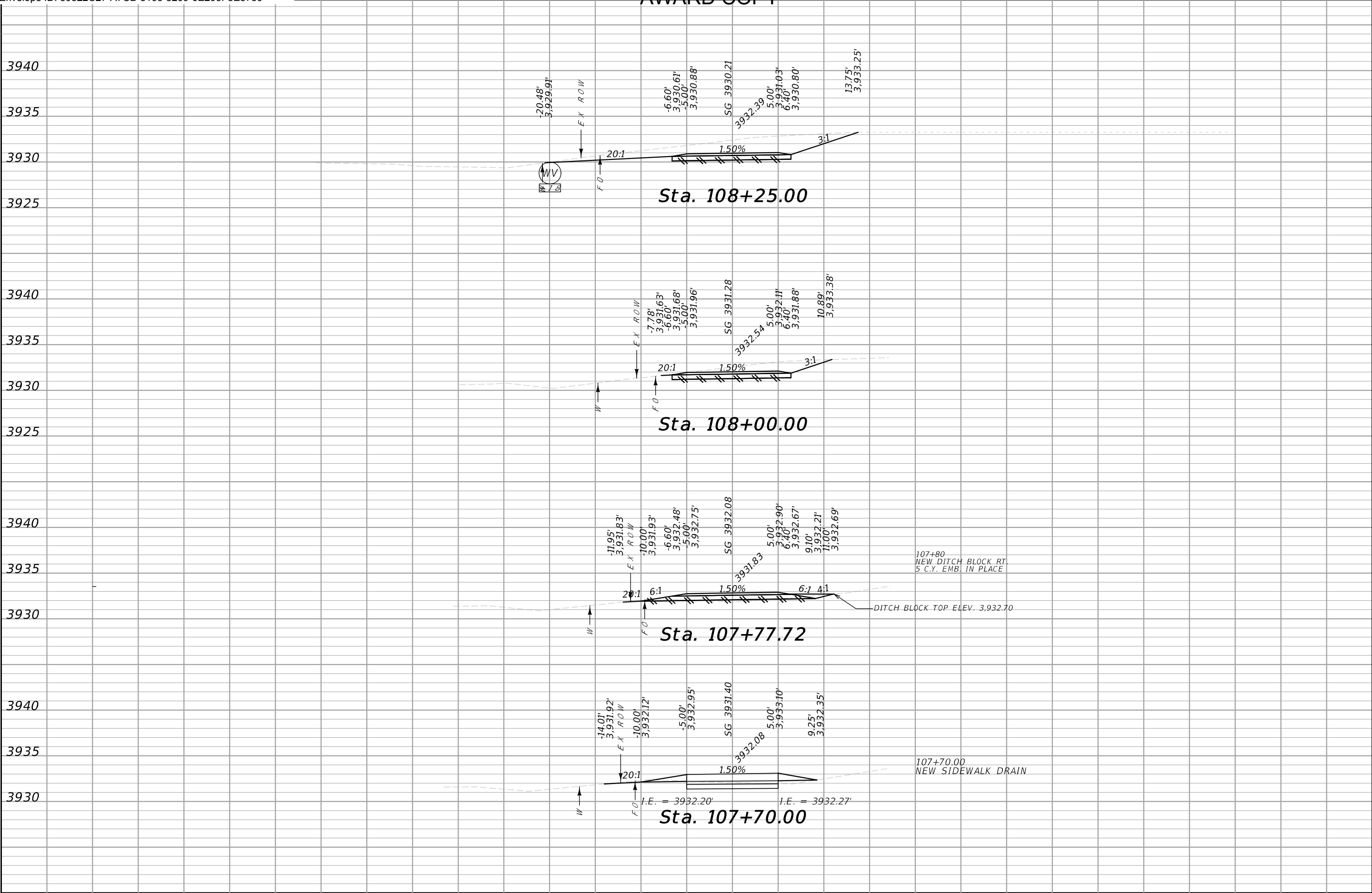


CUT FILL

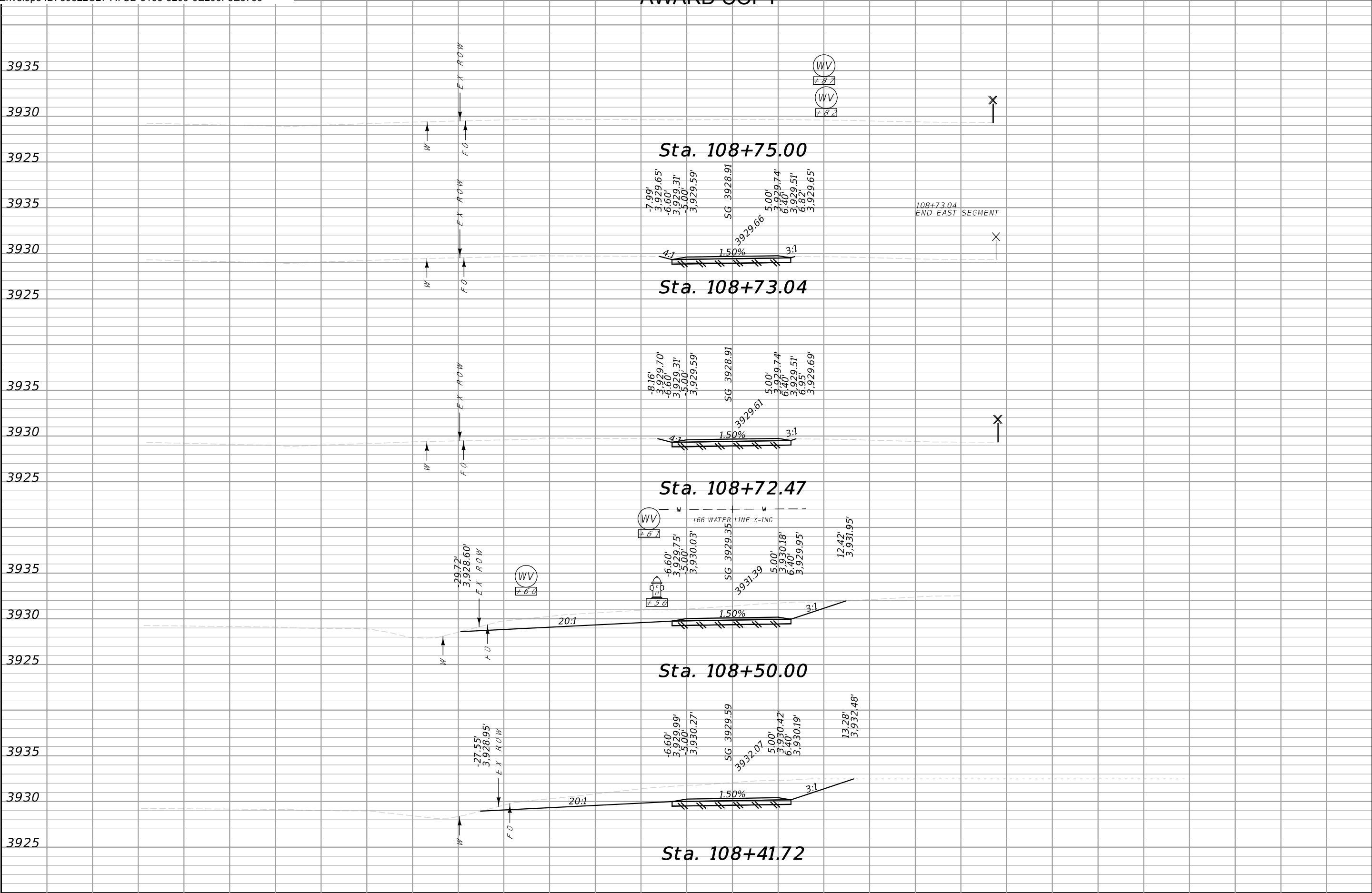
1	4
0	2
0	3
0	7



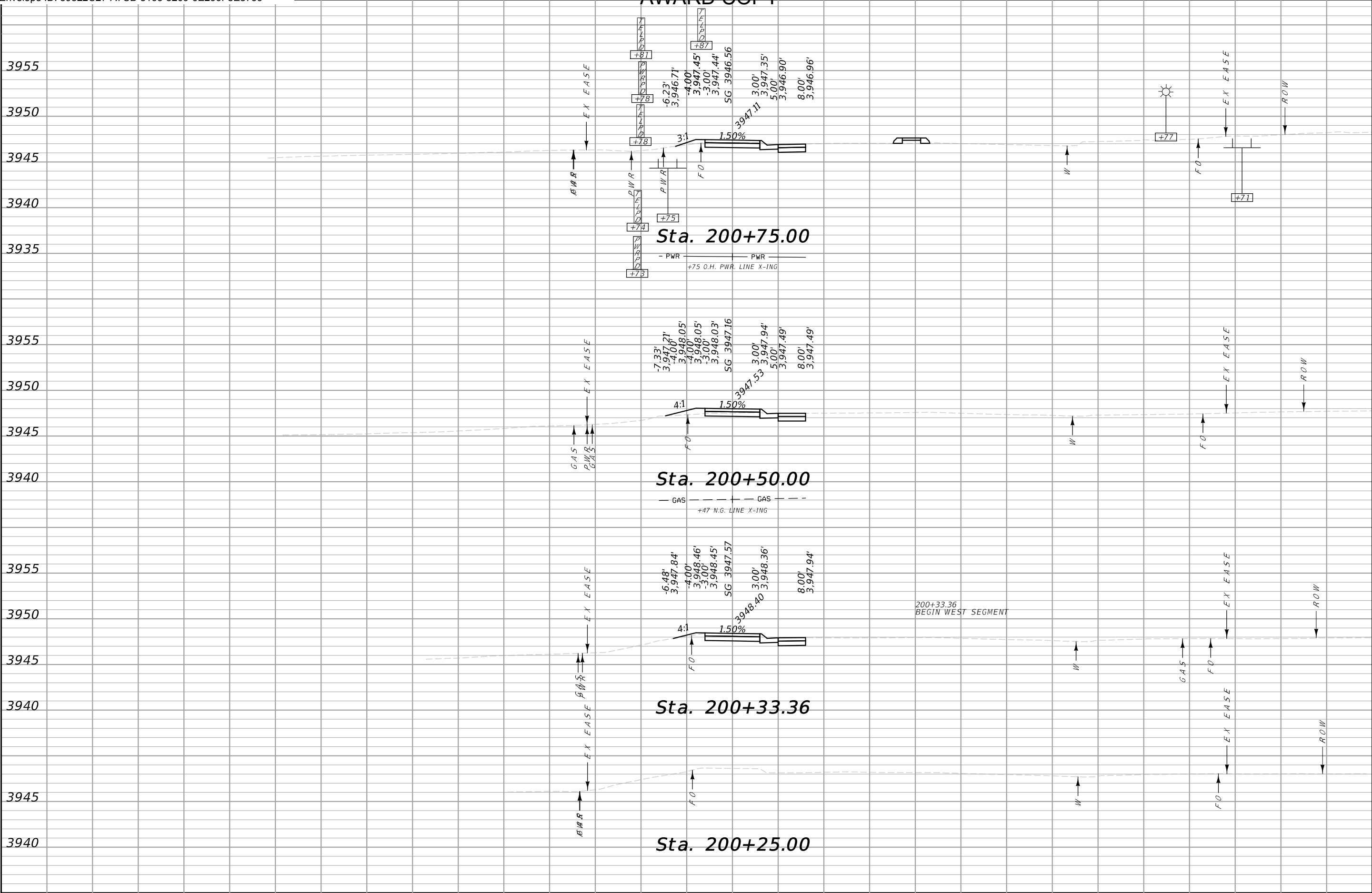
CUT	FILL
3	3
5	0
10	0
14	0
7	0



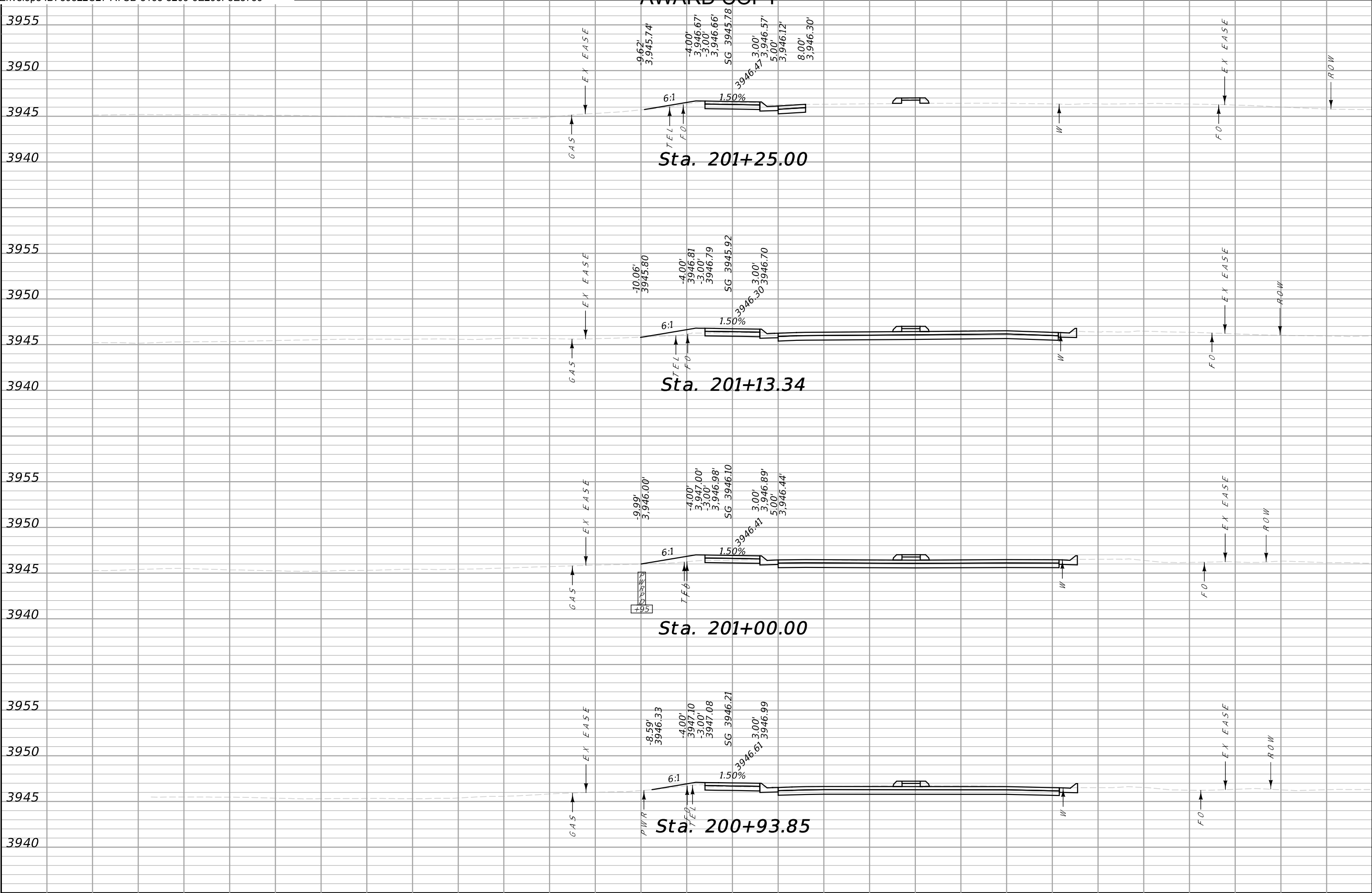
CUT	FILL
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9	0
0	2
0	7



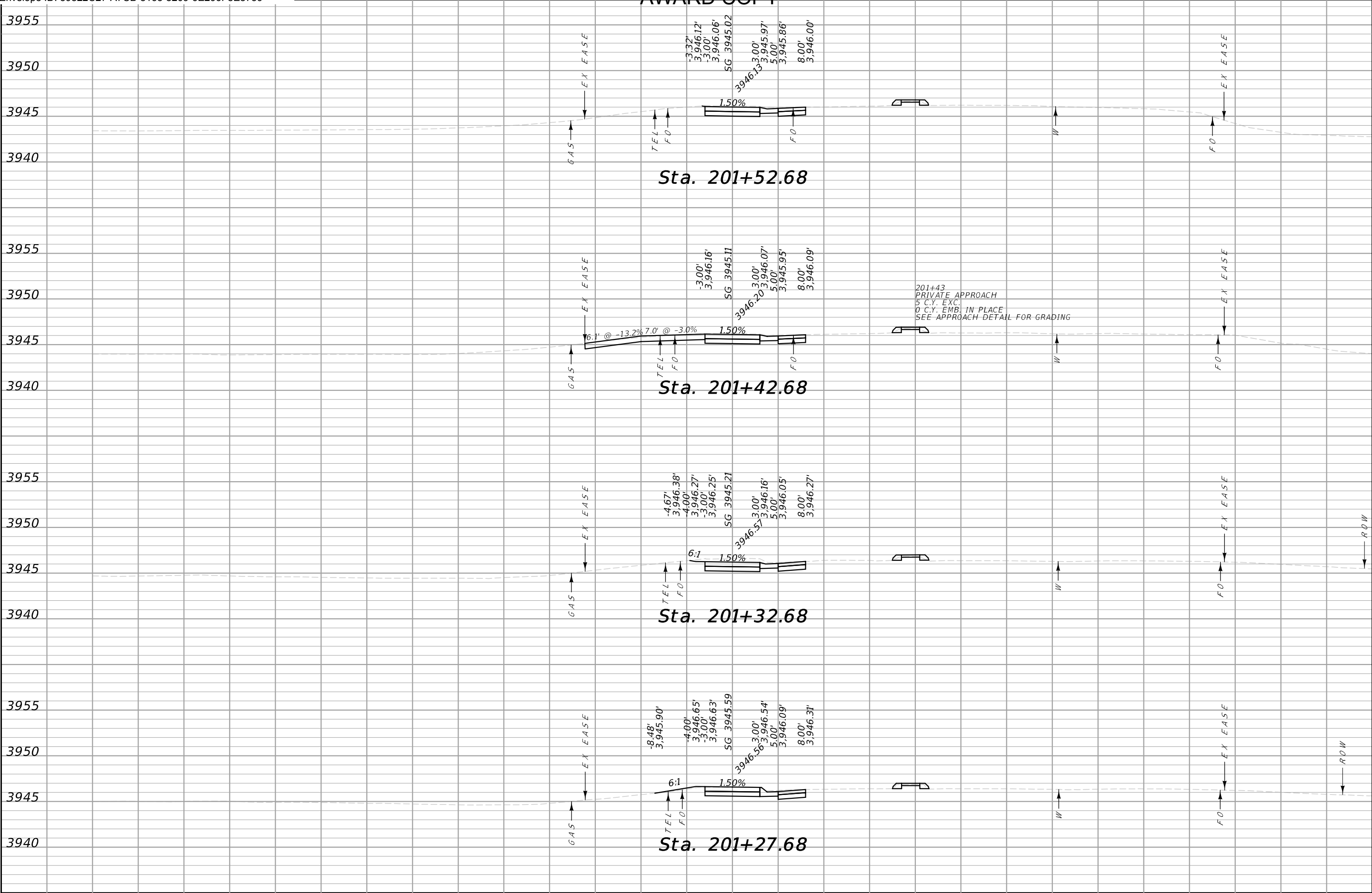
CUT	FILL
0	0
28	0
18	0
33	0



CUT	FILL
6	1
5	1
0	0



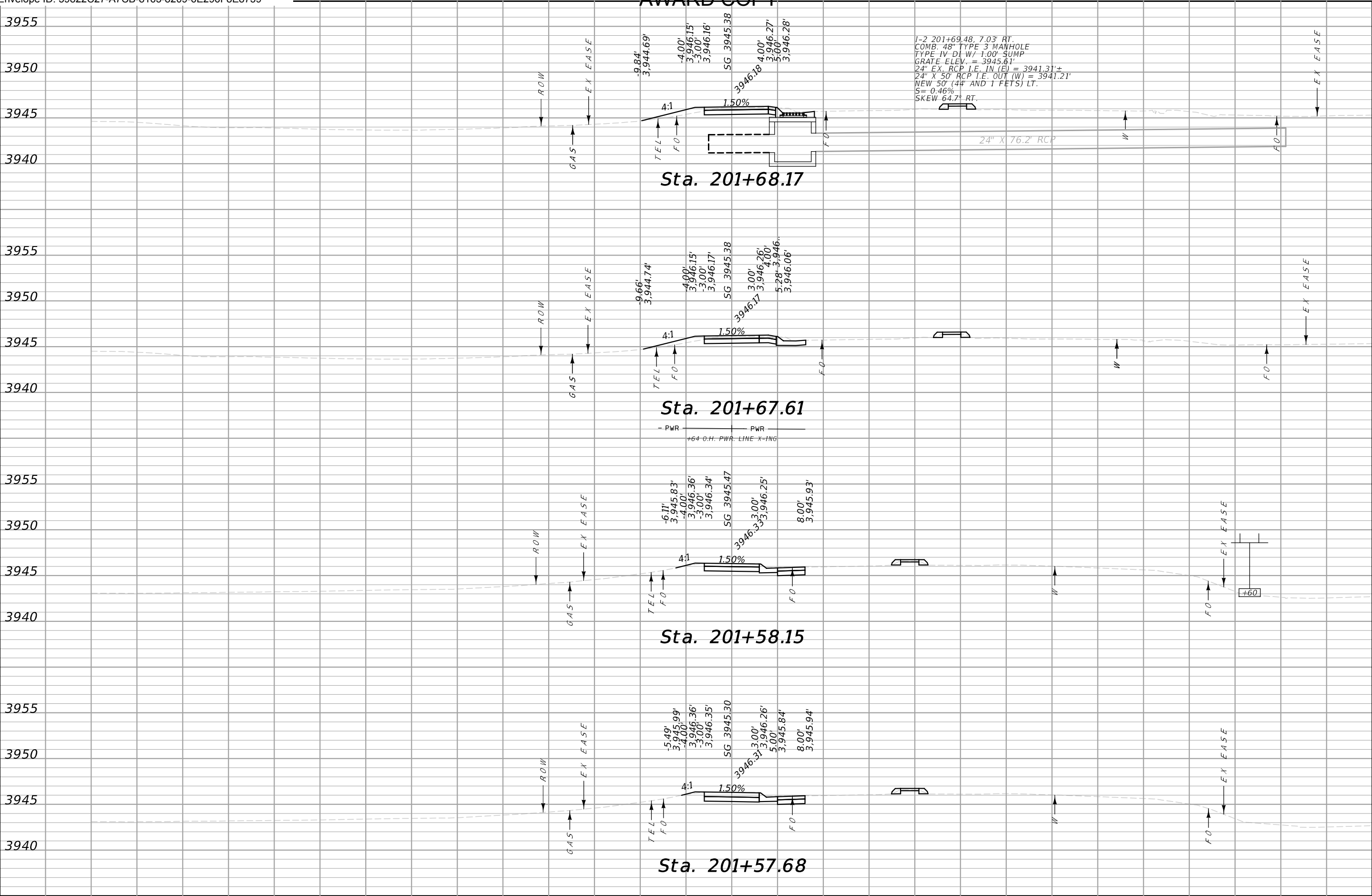
CUT	FILL
8	1
15	1
7	0
13	1



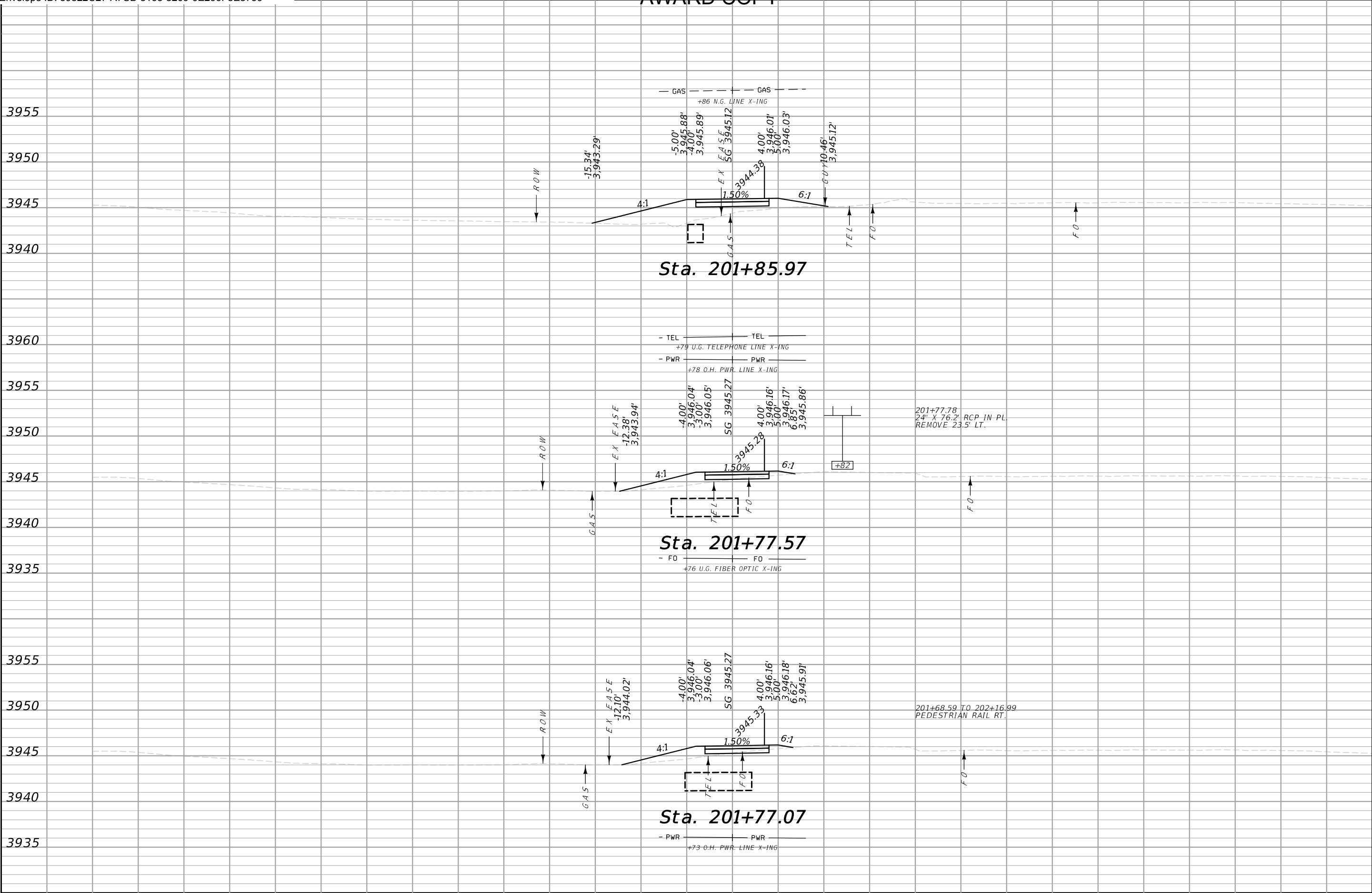
CUT	FILL
4	0
4	0
2	0
1	0



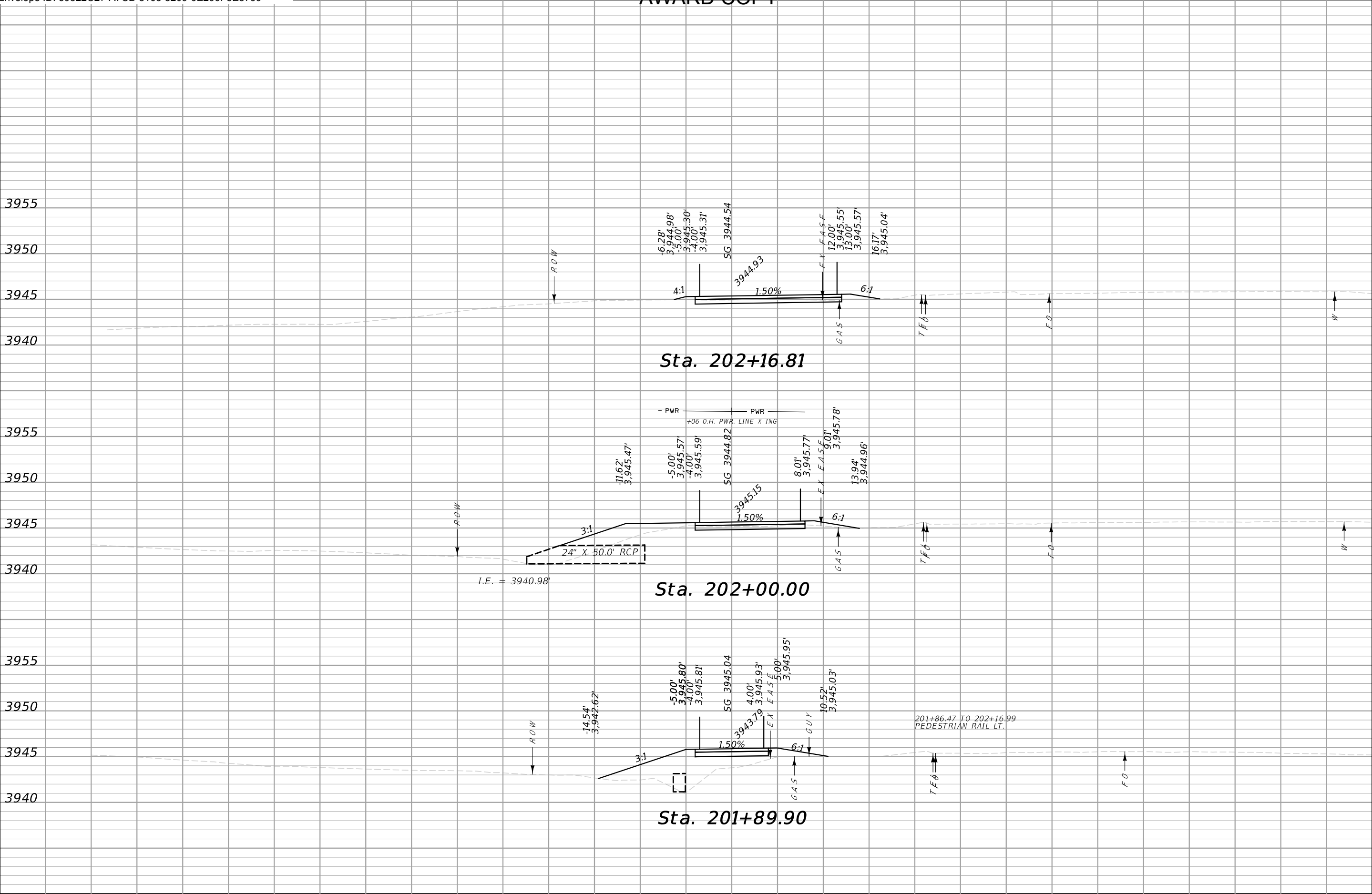
AWARD COPY



CUT	FILL
0	0
3	0
0	0
2	0

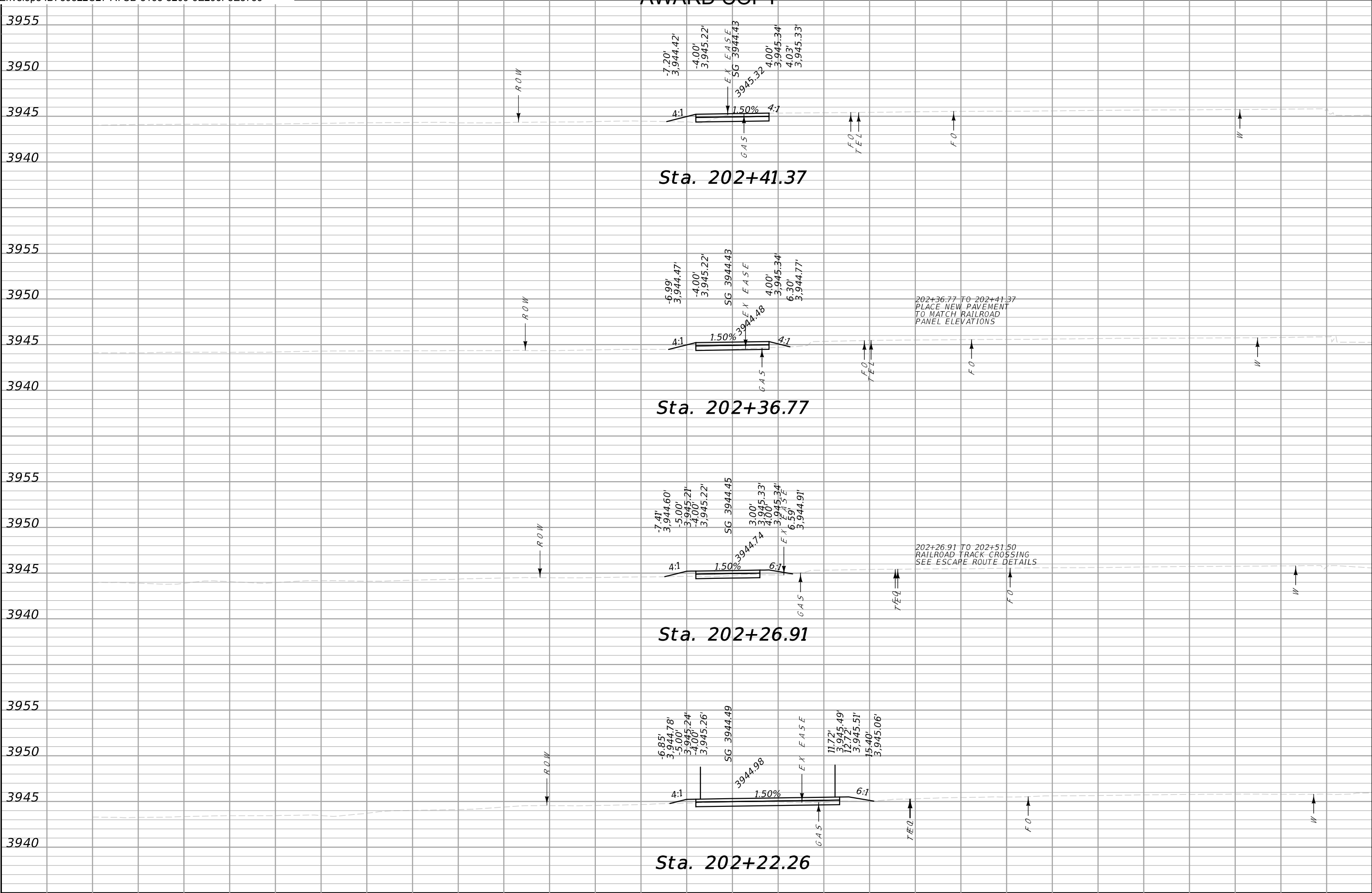


CUT	FILL
0	6
0	0
2	2



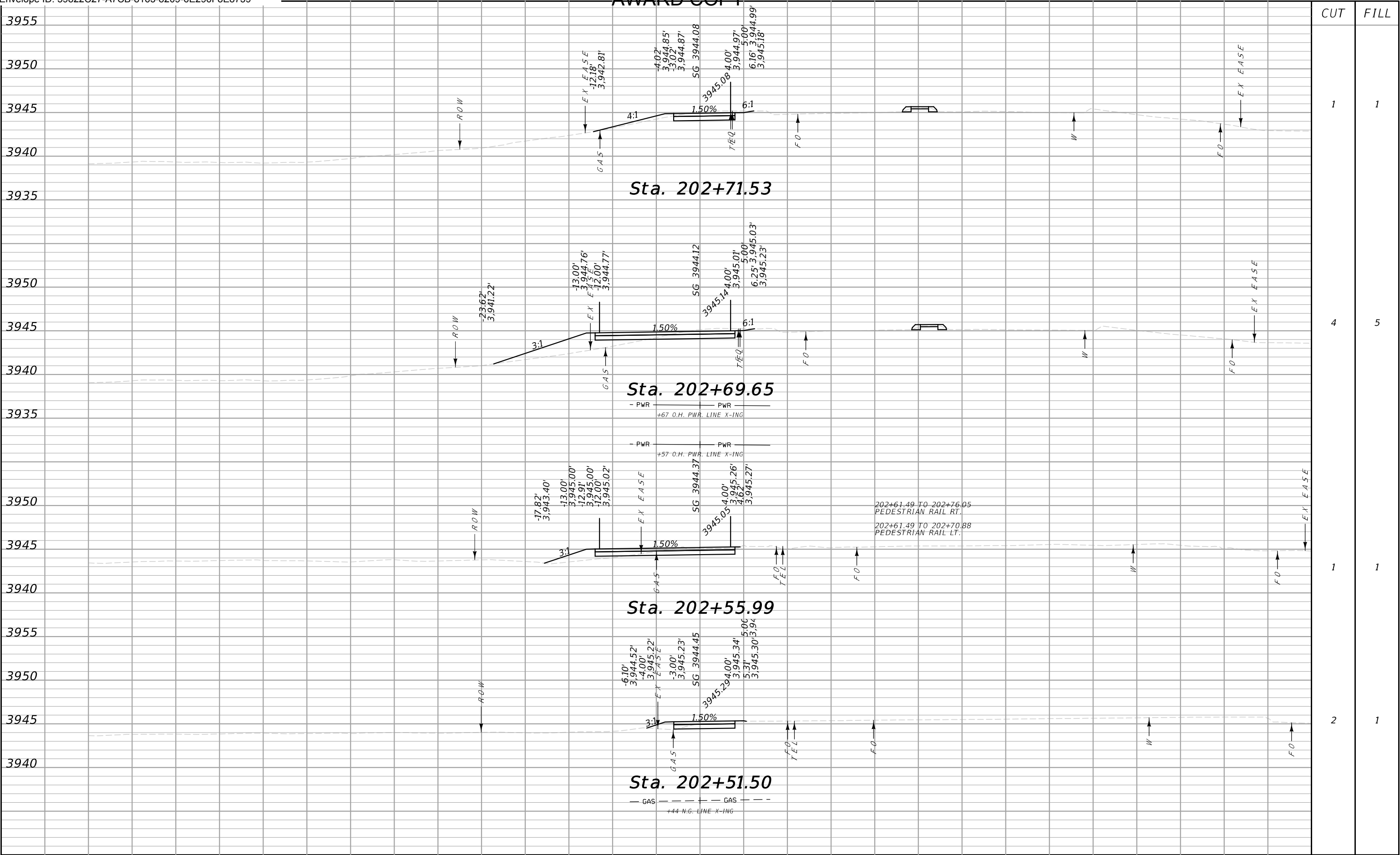
CUT	FILL
3	9
1	12
0	5

AWARD COPY



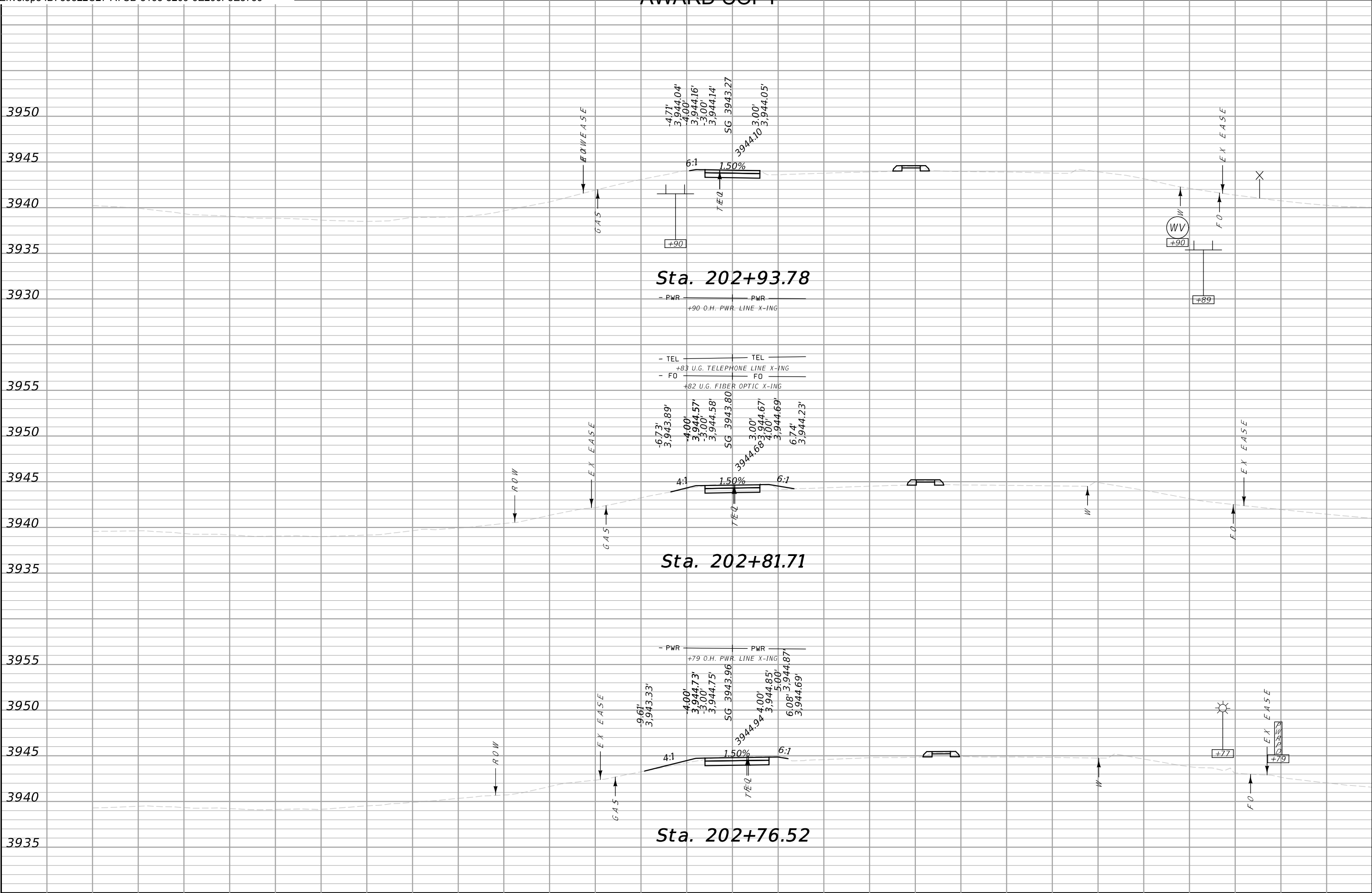
CUT	FILL
0	0
0	1
1	0
1	0

AWARD COPY

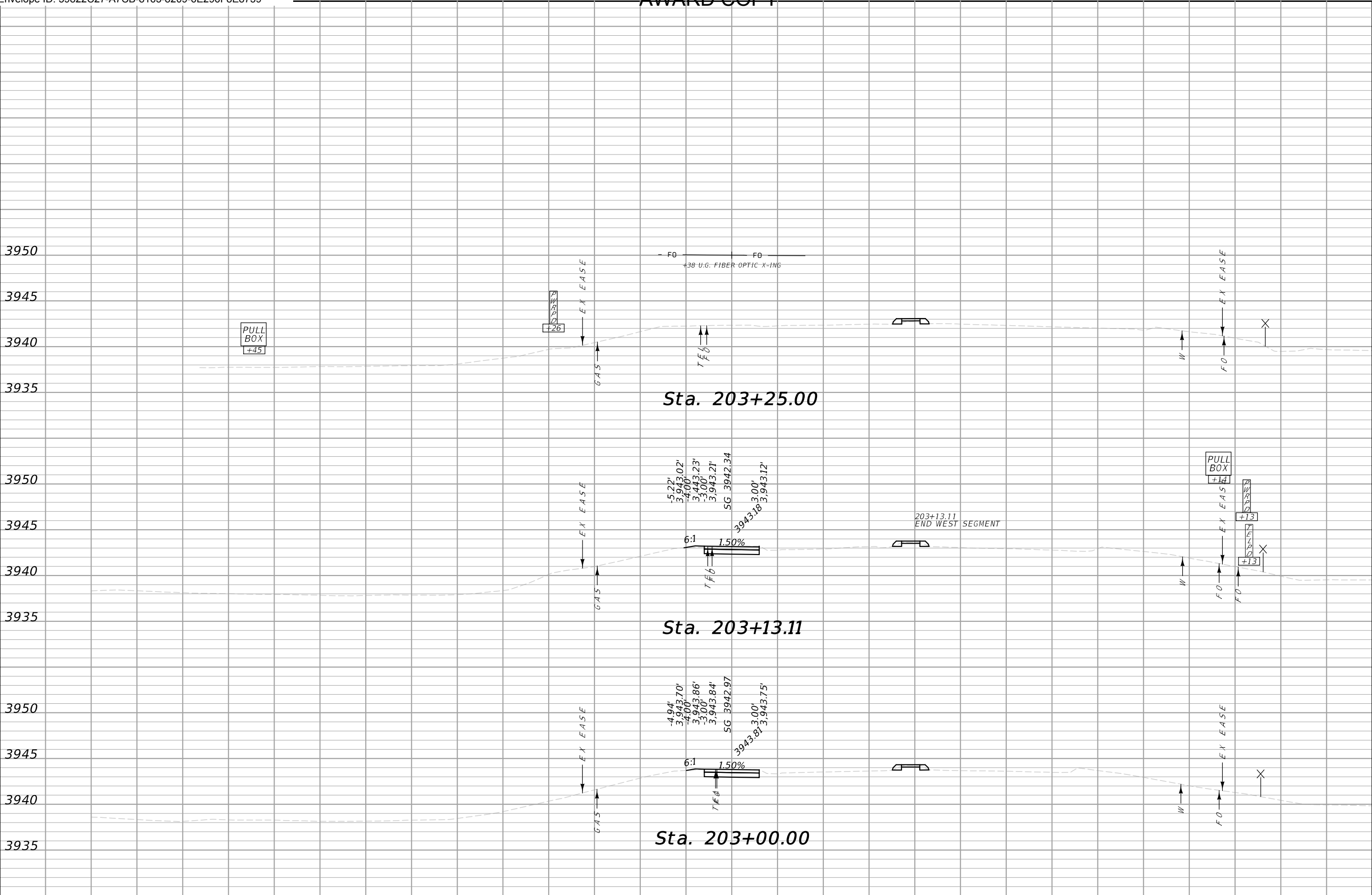


70656055504540353025201510500510152025303540455055606570										CUT	FILL
										1	1
										4	5
										1	1
										2	1

	MONTANA DEPARTMENT OF TRANSPORTATION	...\\9803000\RD\9803000RDLA	DESIGNED BY		WEST SEGMENT CROSS SECTIONS				RRXING-BENTON AVE-HELENA				RRP-TA-RRS 5805(17)
		2/10/2026	REVIEWED BY										
		12:38:20 PM	CHECKED BY	kskerritt	LEWIS AND CLARK COUNTY				UPN 9803000				25



CUT	FILL
2	0
1	0
1	0



CUT	FILL
2	0
1	0

sanbell

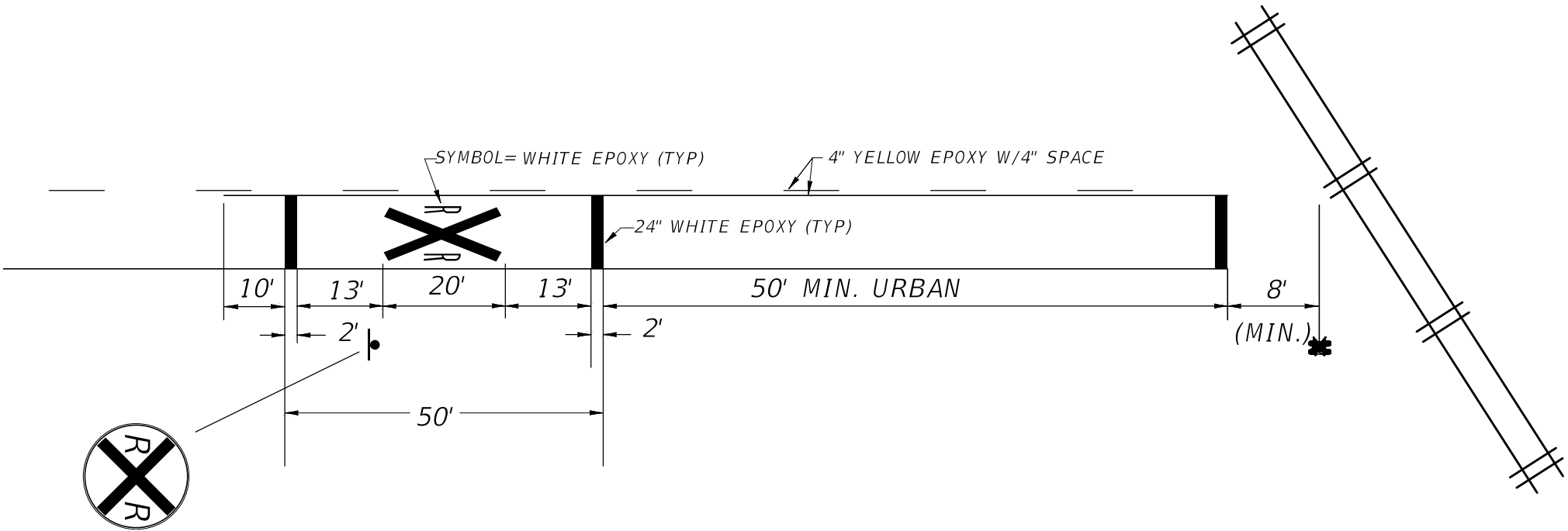
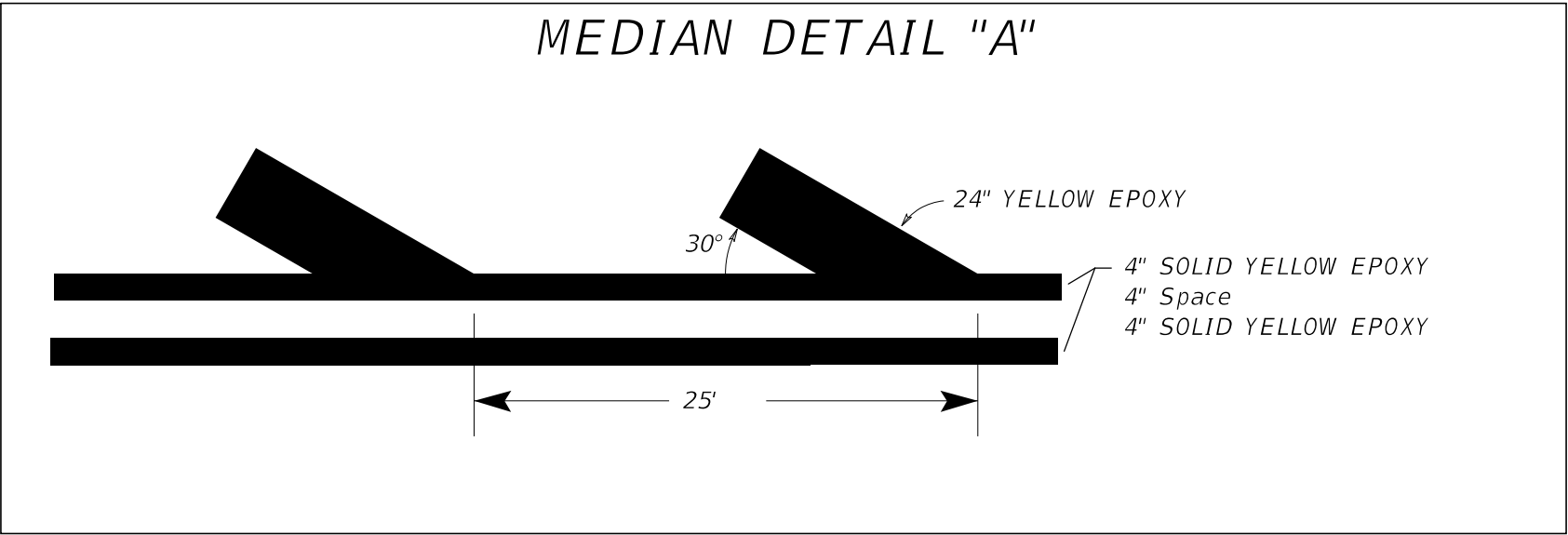
SUMMARY SIGNING AND DELINEATION QUANTITIES	TA FUNDED	RRS FUNDED	TOTAL	
MATERIAL	TOTALS	TOTALS	TOTALS	UNIT
SIGNS-ALUM REFL SHEET XI	74.0	35.7	109.7	SQFT
REMOVE SIGN	4	5	9	EACH
POSTS-TUBULAR STEEL-SQ-PERF	631	244	875	LB
SQ TUBLR SLIP BASE BKWY-3 IN (76MM)	1	1	2	EACH

★ = TELESCOPED SQUARE TUBES
(2 1/4" & 2 1/2") WITH SLIP
BASE BREAKAWAY 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.

DETAILS

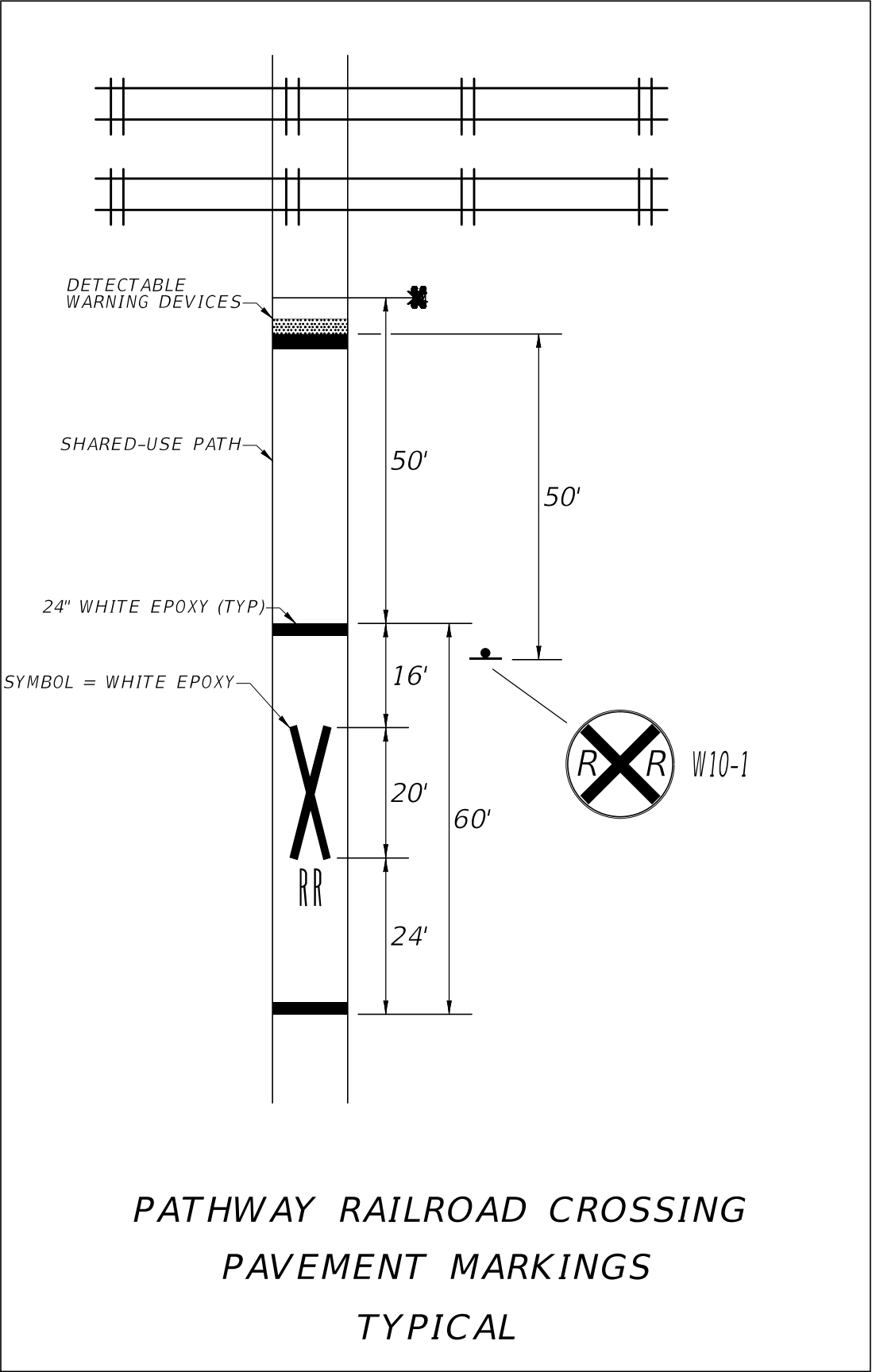
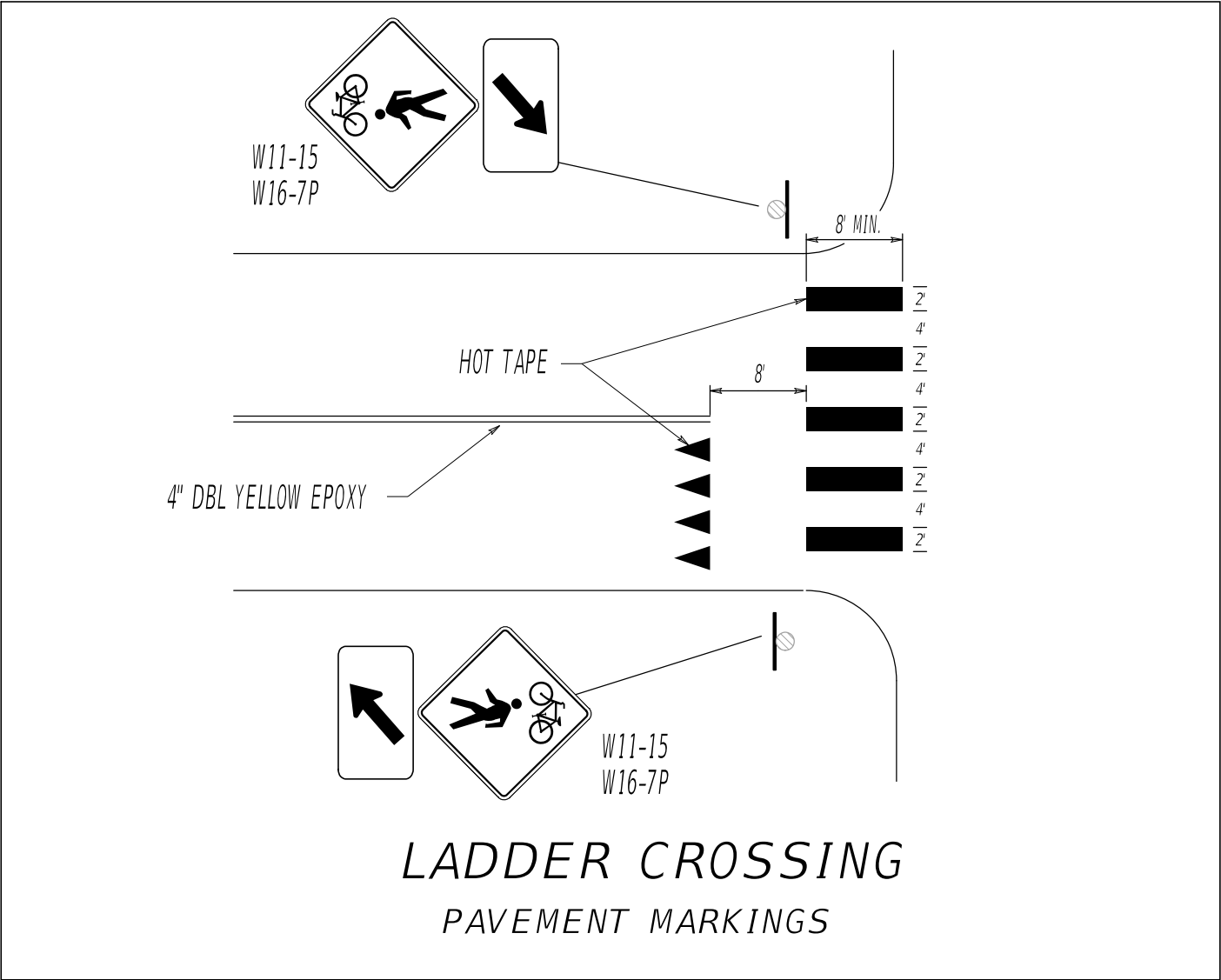
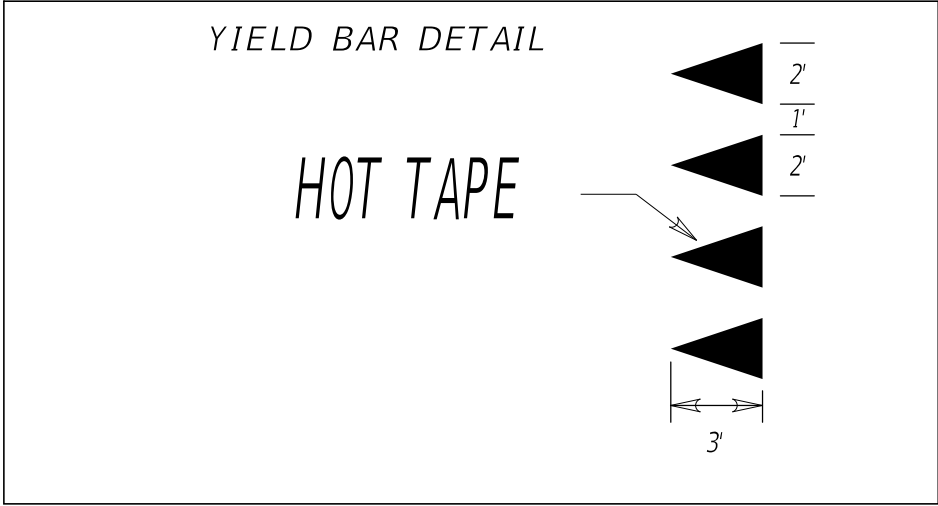
MEDIAN DETAIL "A"

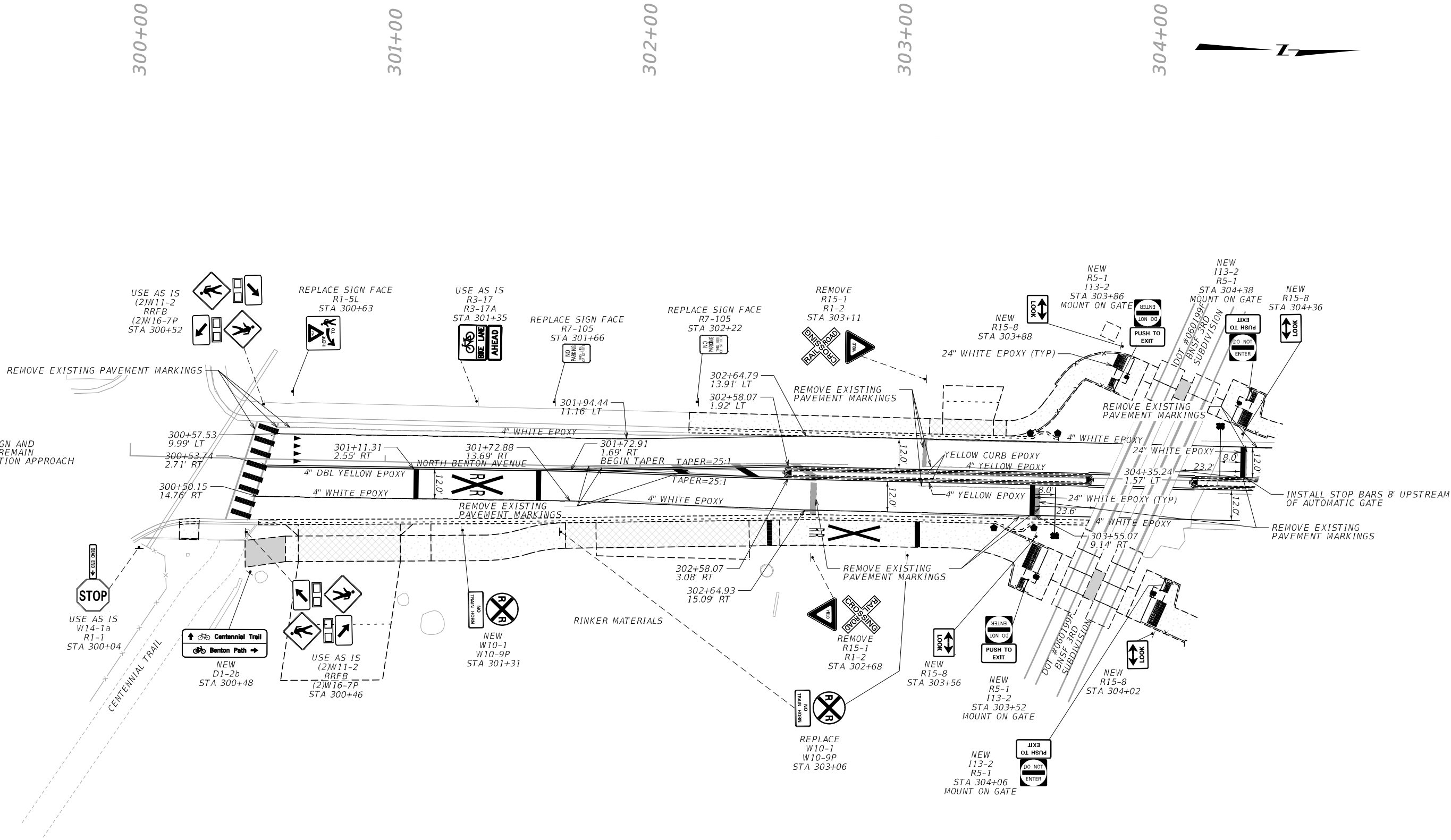


W10-1 TO BE PLACED WITHIN
PAVEMENT MARKING AREA

ROADWAY RAILROAD CROSSING
PAVEMENT MARKINGS
TYPICAL

DETAILS

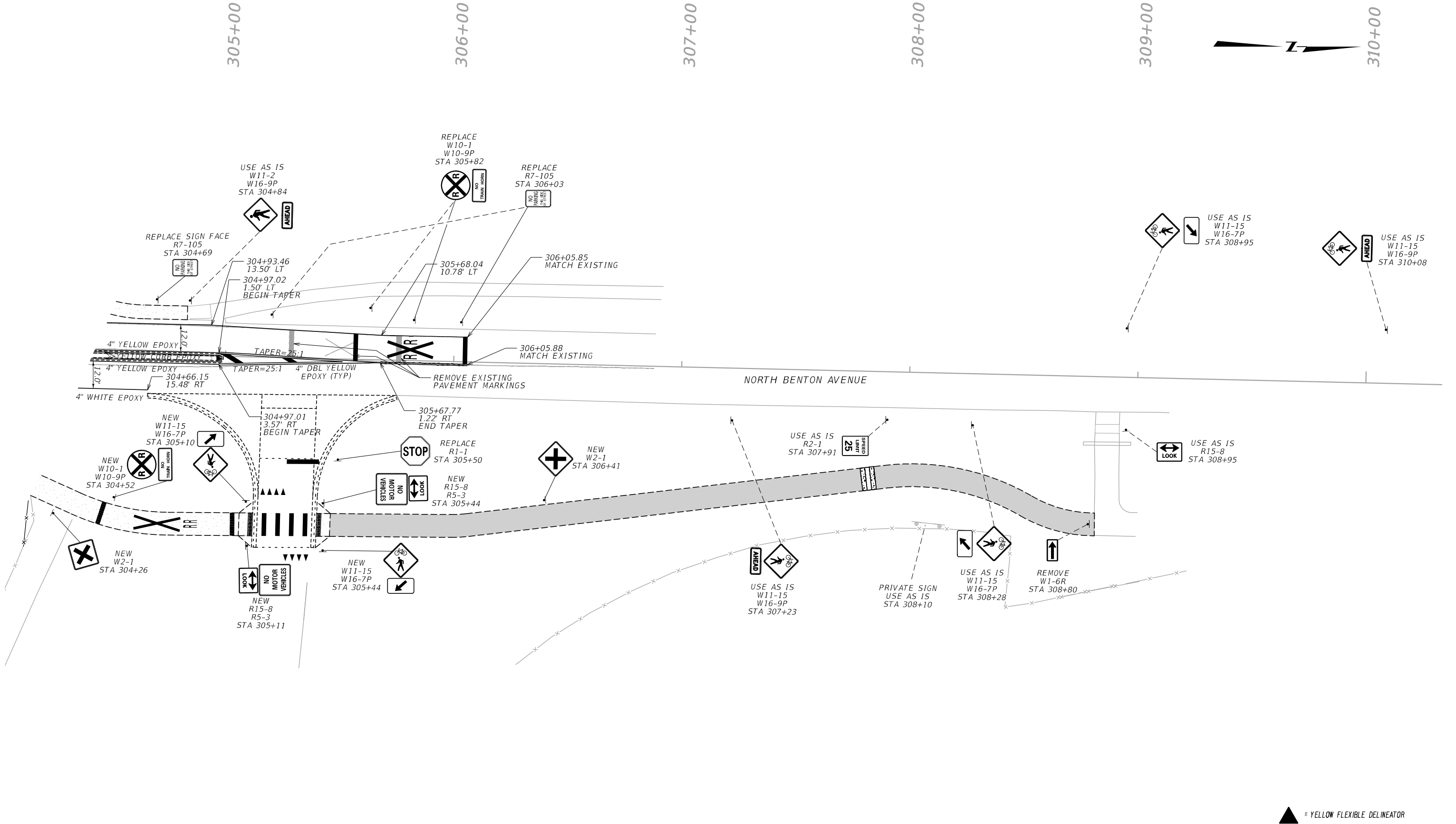




- = WHITE FLEXIBLE DELINEATOR
- = YELLOW FLEXIBLE DELINEATOR

SCALE: 1" = 20'

3		MONTANA Department of Transportation	...\\9803000\SI\9803000SIPLN\Z01.DGN				SIGNING PLANS		RRXING-BENTON AVE-HELENA		RRP-TA-RRS 5805(17)
2			3/24/2026				LEWIS AND CLARK COUNTY		UPN 9803000		57
1			3:29:21 PM	kskerritt							



▲ = YELLOW FLEXIBLE DELINEATOR

SCALE: 1" = 20'

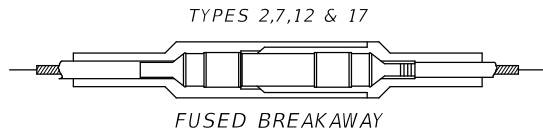
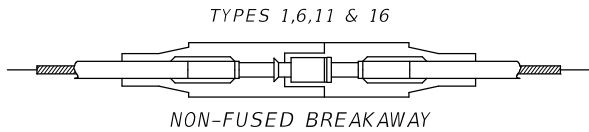
3		MONTANA Department of Transportation	...\\9803000\SI\9803000SIPLN\Z01.DGN				SIGNING PLANS		RRXING-BENTON AVE-HELENA		RRP-TA-RRS 5805(17)
2			3/24/2026				LEWIS AND CLARK COUNTY				
1			3:29:22 PM kskerritt						UPN 9803000		S8

ELECTRICAL QUANTITY SUMMARY

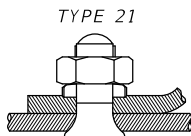
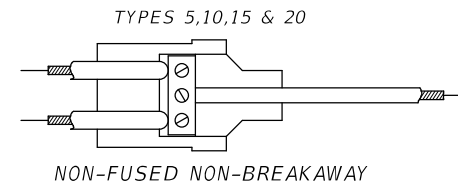
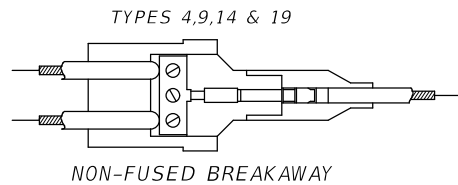
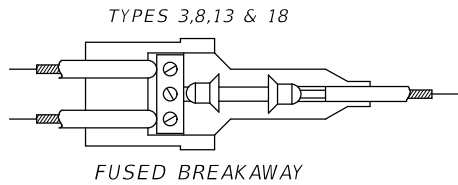
ITEM NO.	MATERIAL	TOTAL	TOTAL TA FUNDED	TOTAL RRS FUNDED	UNIT
616 343 914	CONDUIT-PLASTIC 1 1/2 IN	370	195	177	LNFT
616 783 007	PULL BOX- COMPOSITE TYPE 2	5	2	3	EACH
617 000 000	FOUNDATION-CONRETE	3.3	1.6	1.7	CUYD
617 123 108	CONDUCTOR-COPPER AWG8-600V	1080	580	500	LNFT
617 123 110	CONDUCTOR-COPPER AWG10-600V	540	290	250	LNFT
617 183 056	STANDARD-STL TYPE 10-A-500-6	2	2	0	EACH
617 300 065	DECORATIVE LUMINAIRE POLE	4	2	2	EACH
617 303 099	DECORATIVE LUMINAIRE ASSEMBLY	4	2	2	EACH
617 303 300	HIGH EFFICACY LUMINAIRE LED	2	2	0	EACH
617 781 000	REMOVE AND SALVAGE MISC ELECTRICAL	1	1	0	LS



WATERTIGHT CONNECTORS



IDENTITY NO.	DESCRIPTIVE SYMBOL & WIRE SIZES
1	8 8
2	8 10
3	8 10
4	8 8
5	8 8
6	6 6
7	6 10
8	6 10
9	6 6
10	6 6
11	4 4
12	4 10
13	4 10
14	4 4
15	4 4
16	10 10
17	10 10
18	10 10
19	10 10
20	10 10
21	VARIES VARIES

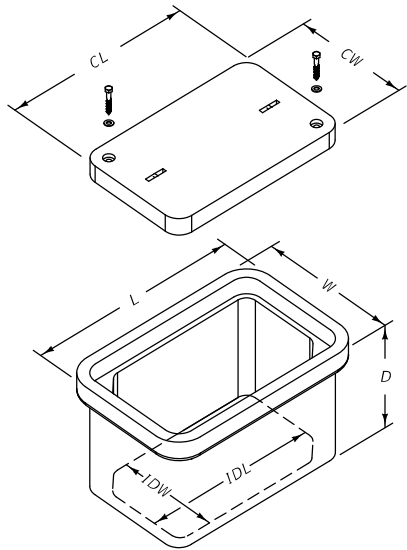


COPPER SPLIT BOLT -
MAKE WATERTIGHT USING
SELF ADHERING MASTIC

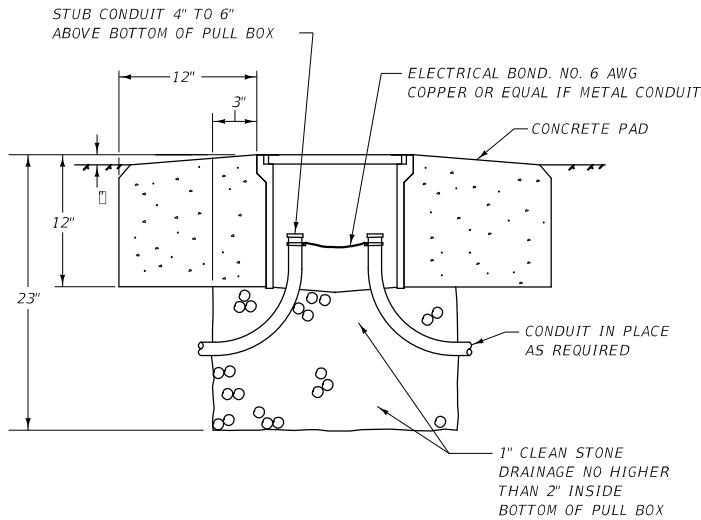
PROVIDE A PLUG AND RECEPTACLE HOUSED IN WATER-RESISTANT, SYNTHETIC RUBBER CAPABLE OF BURIAL IN THE GROUND OR INSTALLATION IN SUNLIGHT. THE HOUSING, CONSISTING OF 2 SECTIONS, PROVIDES A WATERTIGHT SEAL AROUND THE CABLE AND A WATERTIGHT SEAL BETWEEN THE TWO SECTIONS AT THE POINT OF DISCONNECTION. SUPPLY EACH KIT WITH SUFFICIENT SILICONE COMPOUND TO LUBRICATE METAL PARTS AND THE RUBBER HOUSINGS FOR EASY ASSEMBLY.

WHERE INDICATED, CRIMP A COPPER PIN AND A COPPER RECEPTACLE TO THE CABLE. THE RECEPTACLE IS TO ESTABLISH CONTACT PRESSURE WITH THE PIN THROUGH THE USE OF A COPPER BERYLLIUM SPRING AND BE EQUIPPED WITH A DISPOSABLE MOUNTING PIN. THE PIN IS TO BE CONSTRUCTED OF AT LEAST HALF-HARD MATERIAL. THE CRIMPING PORTION IS TO BE FULLY ANNEALED WHILE THE REST OF THE PIN IS MAINTAINED IN ITS ORIGINAL STATE OF HARDNESS. THE RECEPTACLE IS TO BE FULLY ANNEALED. THE PIN AND RECEPTACLE ARE TO LOCK TOGETHER SO THE CONNECTION IS MAINTAINED WHEN A MINIMUM FORCE OF 20 POUNDS TENSION IS APPLIED TO THE ATTACHED CABLES.

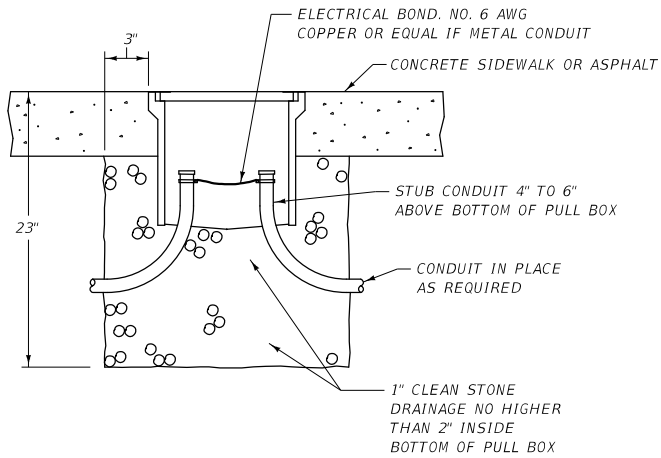
PROVIDE FUSED CONNECTOR KITS CONTAINING A PAIR OF SPRING LOADED 90% CONDUCTIVITY CONTACTS FOR GRIPPING A STANDARD MIDGET FERRULE TYPE FUSE. THE CONTACTS MUST BE FULLY ANNEALED AND ADAPTED TO BE CRIMPED TO THE CABLE.



PULL BOX - COMPOSITE MINIMUM DIMENSIONS		
TYPE 1	TYPE 2	TYPE 3
L = 20"	L = 25"	L = 32"
W = 13"	W = 15"	W = 19"
D = 12"	D = 12"	D = 12"
I D L = 17"	I D L = 21"	I D L = 28"
I D W = 10"	I D W = 11"	I D W = 15"
C L = 18"	C L = 23"	C L = 30"
C W = 11"	C W = 13"	C W = 17"



PULL BOX INSTALLED IN DIRT



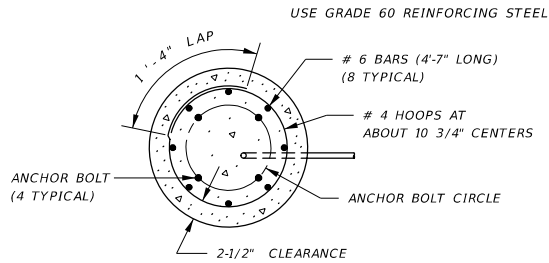
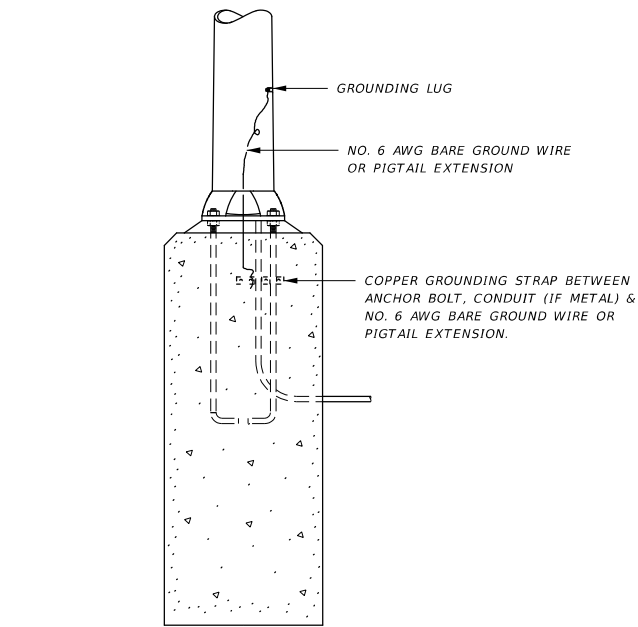
PULL BOX INSTALLED IN A SIDEWALK OR ASPHALT

ELECTRICAL DETAIL DRAWING		
WATER TIGHT CONNECTORS		
PULL BOX-COMPOSITE TYPE 1, 2 & 3		
NO SCALE		
RRXING-BENTON AVE-HELENA		
RRP-TA-RRS 5805(17)		
UPN 9803000		
E2		

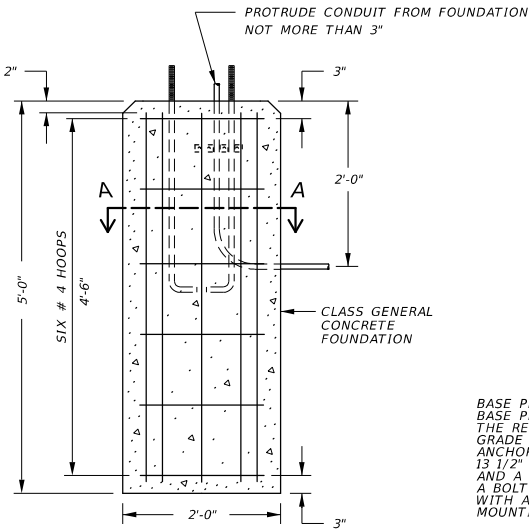


WELDING INSPECTION REQUIREMENTS:
25% OF ALL PARTIAL PENETRATION GROOVE AND FILLET WELDS PER
PIECE REQUIRES MAGNETIC-PARTICLE TESTING PER AWS D11.

100% OF ALL FULL PENETRATION GROOVE WELDS, INCLUDING BASE
CONNECTION WELD REQUIRE MAGNETIC-PARTICLE TESTING PER
AWS D11.



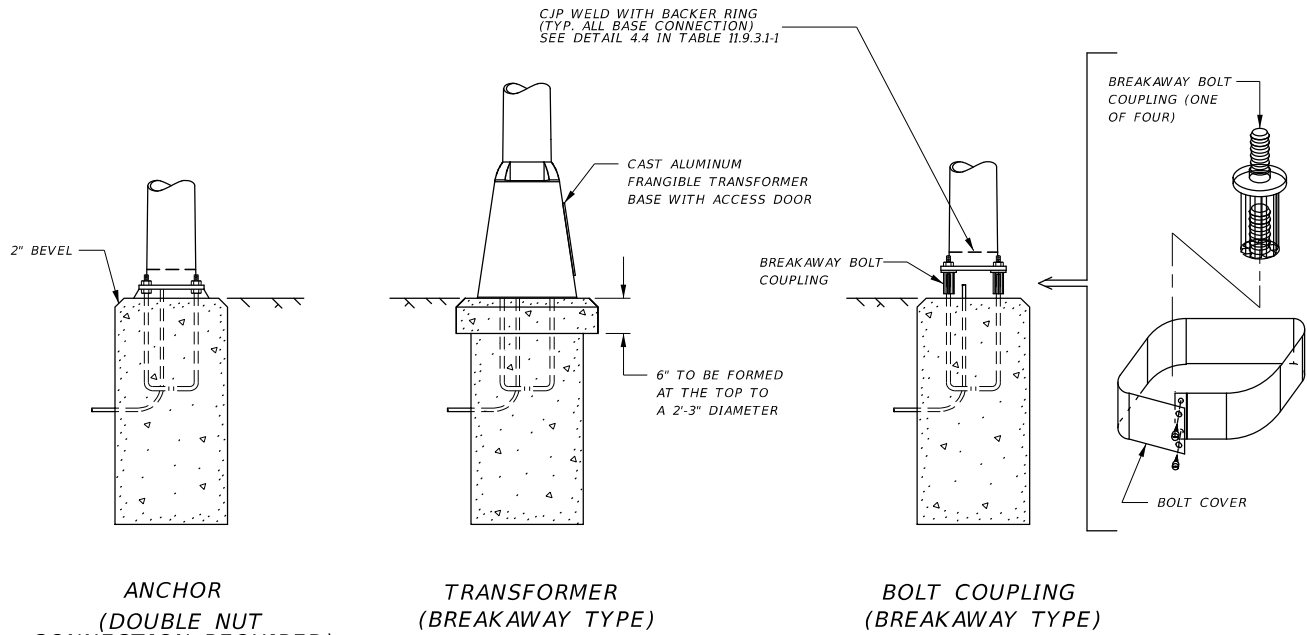
SECTION A-A



FACTORY INSTALLED CANISTER
VIBRATION DAMPER TO BE
INSTALLED INSIDE THE POLE
TWO THIRDS POLE HEIGHT
FROM THE BASE.
PROVIDE MANUFACTURER'S
PRODUCT DATA SHEET FOR
MDT APPROVAL.

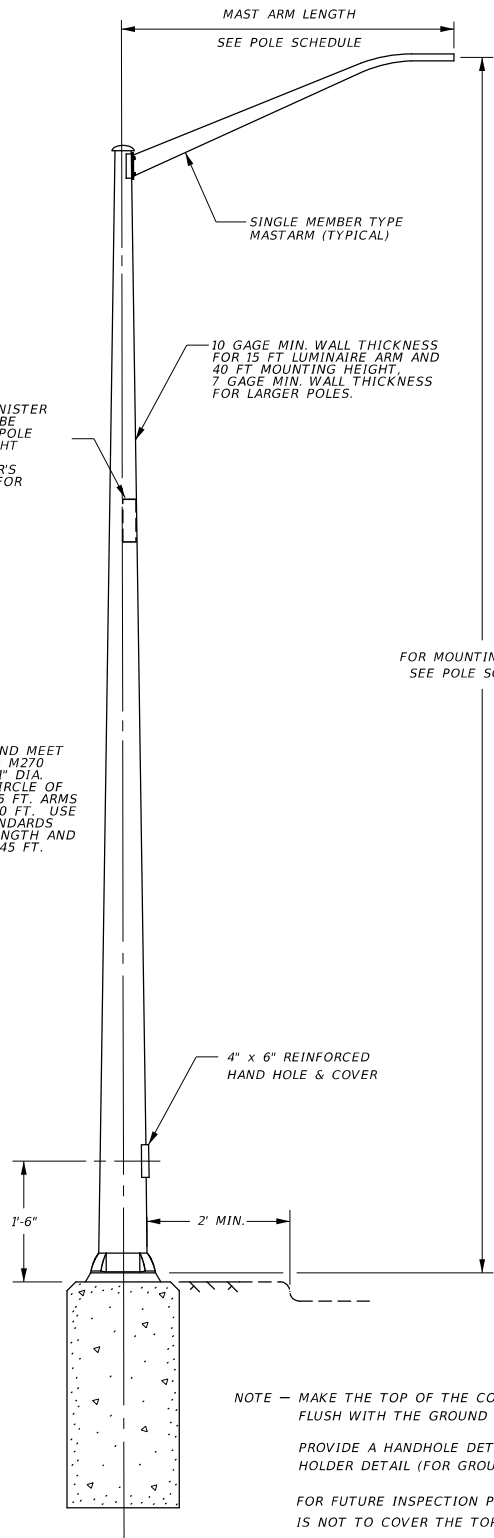
BASE PLATE REQUIREMENTS:
BASE PLATES TO BE 1" THICK AND MEET
THE REQUIREMENTS OF AASHTO M270
GRADE 50. HOLES TO ACCEPT 1" DIA.
ANCHOR BOLTS WITH A BOLT CIRCLE OF
13 1/2" FOR STANDARDS WITH 15 FT. ARMS
AND A MOUNTING HEIGHT OF 40 FT. USE
A BOLT CIRCLE OF 15" FOR STANDARDS
WITH ARMS UP TO 25 FT. IN LENGTH AND
MOUNTING HEIGHTS OF UP TO 45 FT.

TYPICAL OF ALL FOUNDATIONS



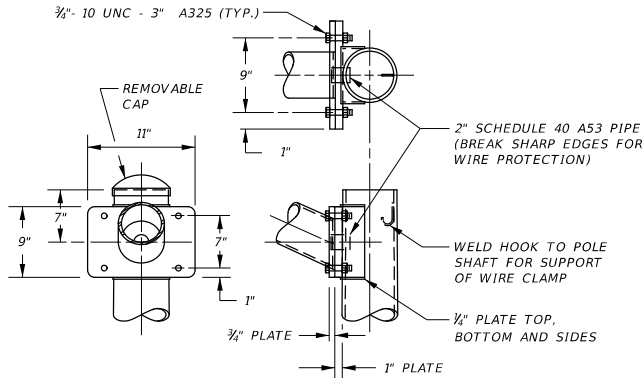
BASE TYPES FOR LUMINAIRE STANDARDS

NOTE — INSTALL AND PRETENSION ANCHOR BOLTS
PER 15.6.3 OF THE SPECIFICATIONS.



TYPE 10-A POLE

LUMINAIRE ARM CONNECTION
REQUIRES 4 BOLT DESIGN WITH
A325 BOLTS, NUTS AND WASHERS
(FULLY TENSIONED)
TUBE TO PLATE CONNECTION
TO BE SOCKET TYPE CONNECTION
WITH TWO FILLET WELDS PER 14.4.4.6
OF THE SPECIFICATIONS.



NOTE — FOR ARMS BETWEEN 16 FT. AND 25 FT. IN LENGTH, USE AN 11" SQUARE
PLATE WITH A BOLT SPACING OF 9 IN. VERTICAL AND 9" HORIZONTAL

DESIGN, FABRICATE, ERECT, AND INSPECT STANDARDS IN ACCORDANCE
WITH THE CURRENT EDITION AASHTO LRFD SPECIFICATIONS FOR STRUCTURAL
SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC
SIGNALS (AND ANY AMENDMENTS THERETO).

DESIGN PARAMETERS:

DESIGN WEIGHT = DEAD LOAD, ICE.

DESIGN AREA = AREA WITH MAXIMUM WIND LOAD (WIND IS
PERPENDICULAR TO STANDARD, AS SHOWN).

DIRECTIONAL FACTOR $K_d = 0.95$, GUST FACTOR = 1.14 DRAG
COEFFICIENTS LRFD TABLE 3.8.7-1

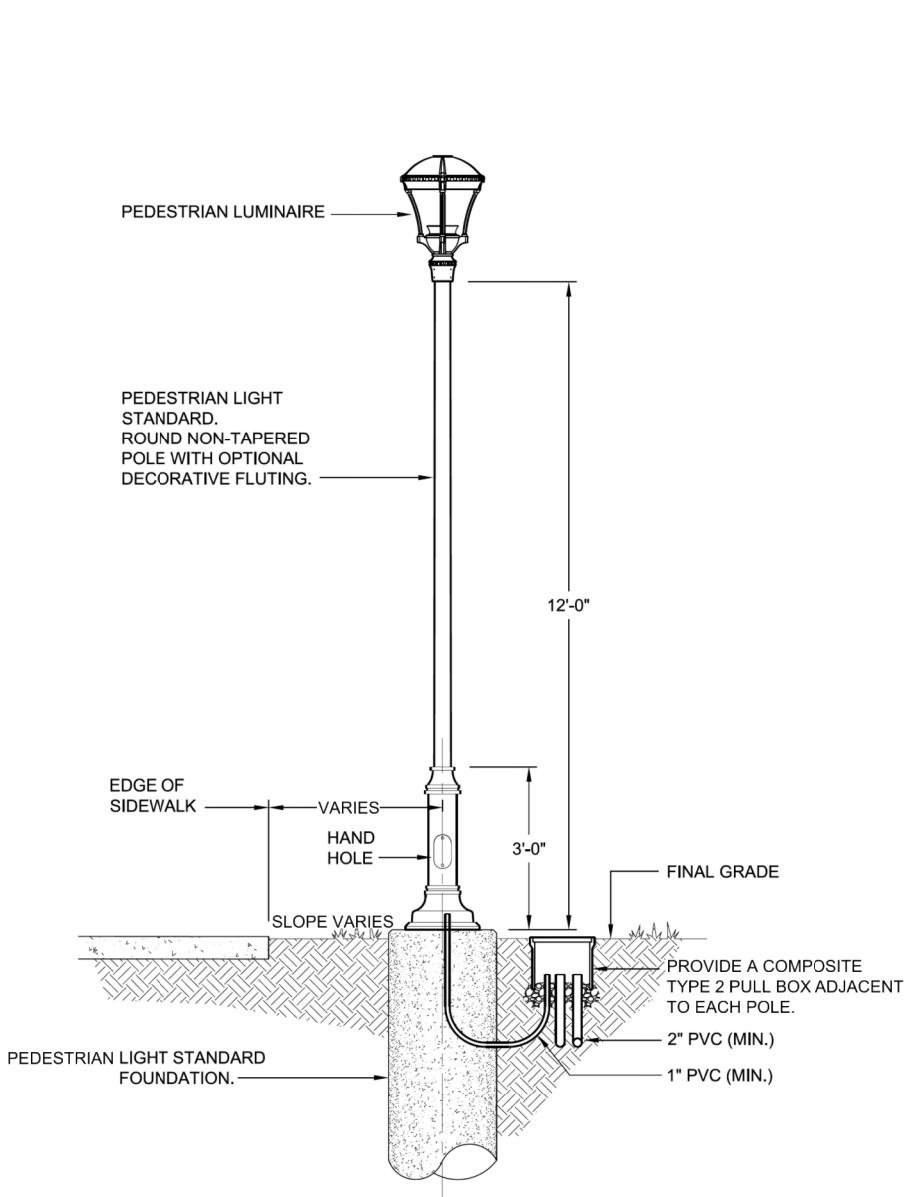
HEIGHT AND EXPOSURE FACTOR K_z
 z_g = TAKEN AS 900 FEET FOR EXPOSURE C
 $\alpha = 9.5$
 $z = 16$ FEET

DESIGN WIND VELOCITY 700 YEAR MRI BASIC WIND SPEED
(115 MPH)

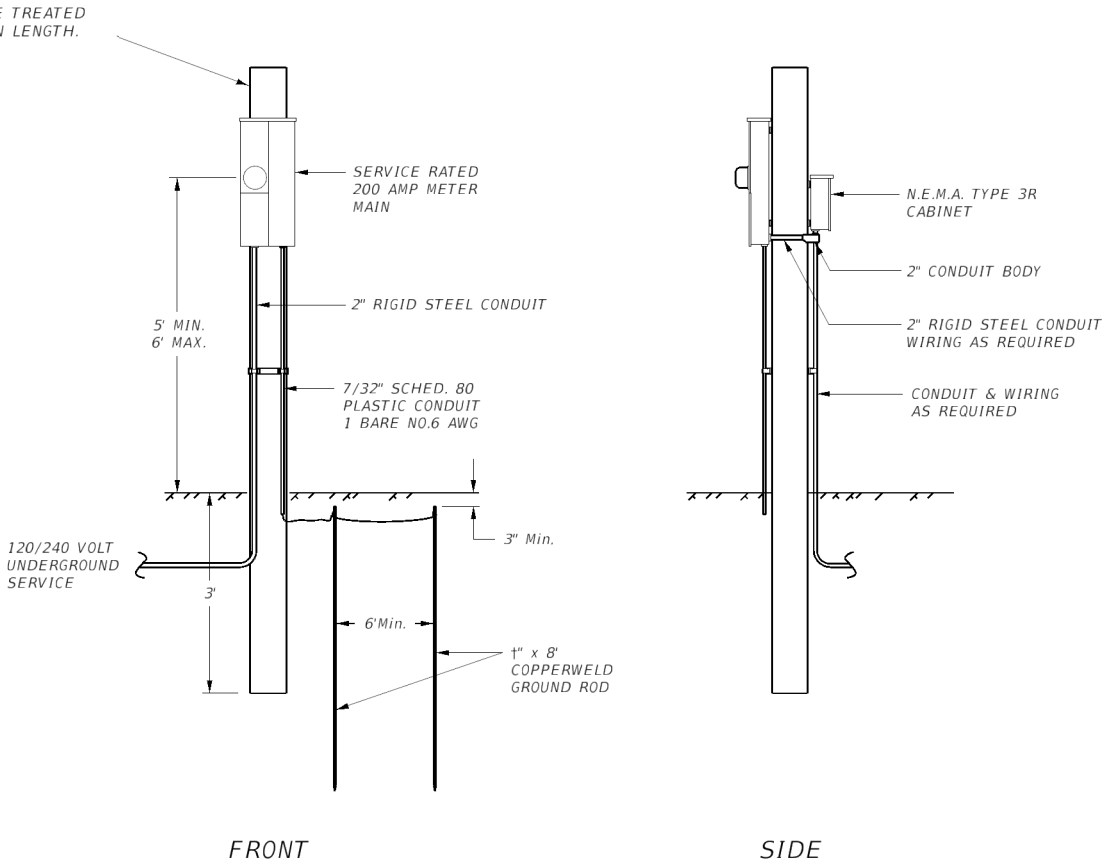
ELECTRICAL
DETAIL DRAWING

TYPE 10-A LUMINAIRE STANDARDS,
POLE BASES & FOUNDATION DETAILS

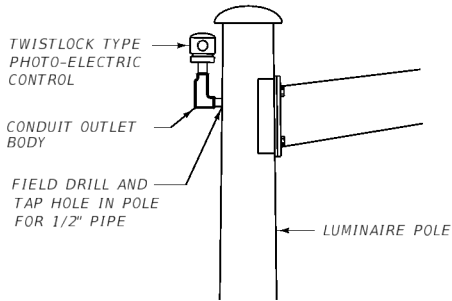
NO SCALE



- NOTES:
1. LUMINAIRES SHALL BE PROVIDENCE PROV2-36L-615-4K7-3-BLT-STND_MNT-SF-PCA-C-UNV OR APPROVED EQUIVALENT.
 2. LUMINAIRES SHALL BE LED.
 3. COLOR TEMPERATURE 4000K, PER ANSI C78.377-2011 STANDARD.
 4. LUMINAIRES SHALL BE EQUIPPED WITH A SURGE SUPPRESSION DEVICE WITH A MINIMUM IMMUNITY LEVEL OF 10KV.
 5. LUMINAIRES SHALL BE EQUIPPED WITH A 0-10V DIMMING DRIVER.
 6. LUMINAIRES SHALL BE EQUIPPED WITH AN ANSI C136.41 7-PIN RECEPTACLE AND PHOTOCCELL.
 7. LUMINAIRES SHALL HAVE TYPE III DISTRIBUTION.
 8. DECORATIVE PEDESTRIAN POLE FOUNDATION SHALL BE 2' X 3'.
 9. DECORATIVE PEDESTRIAN POLES SHALL BE POWDER COATED BLACK. PAINT AND GLOSS SHALL MATCH PROVIDENCE COLOR BLT (BLACK MATTE TEXTURED).



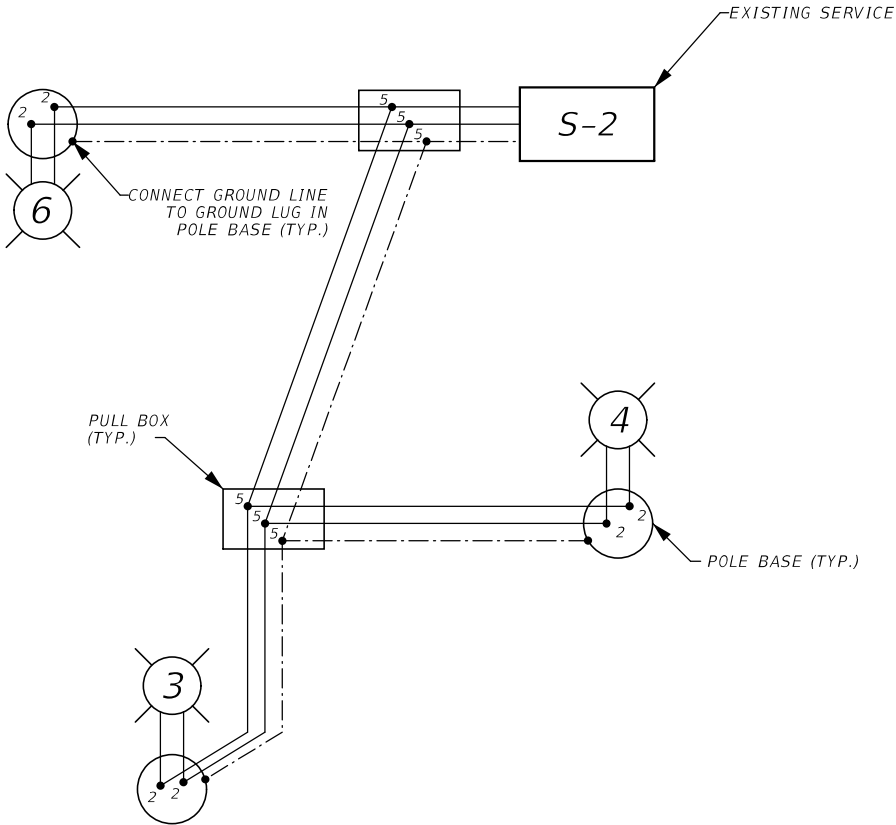
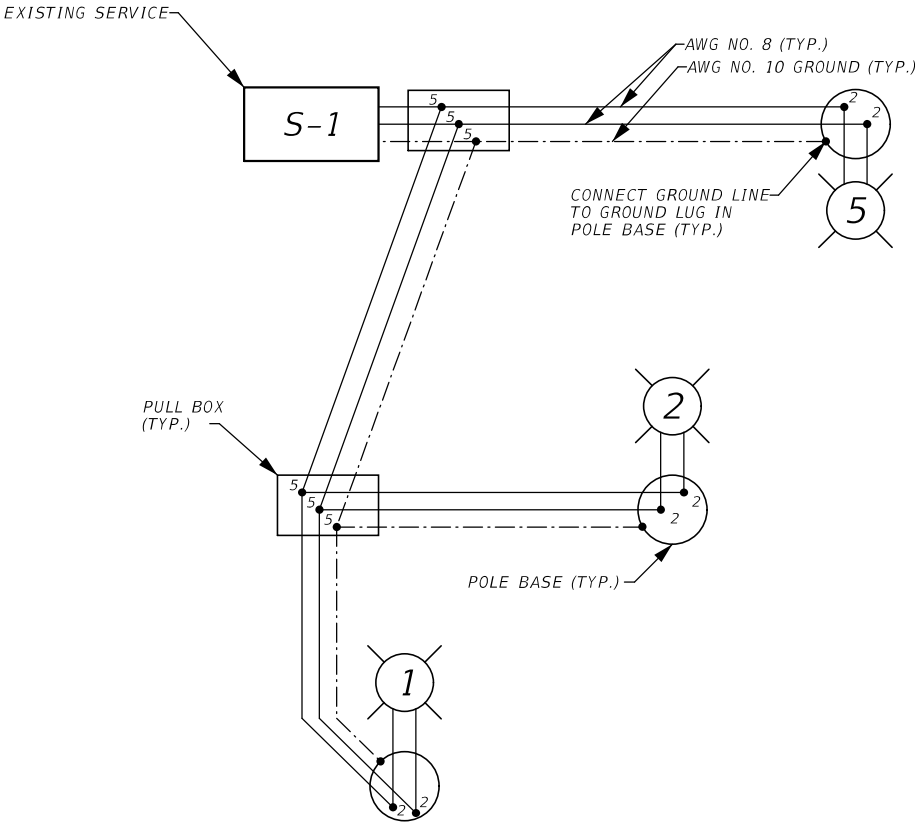
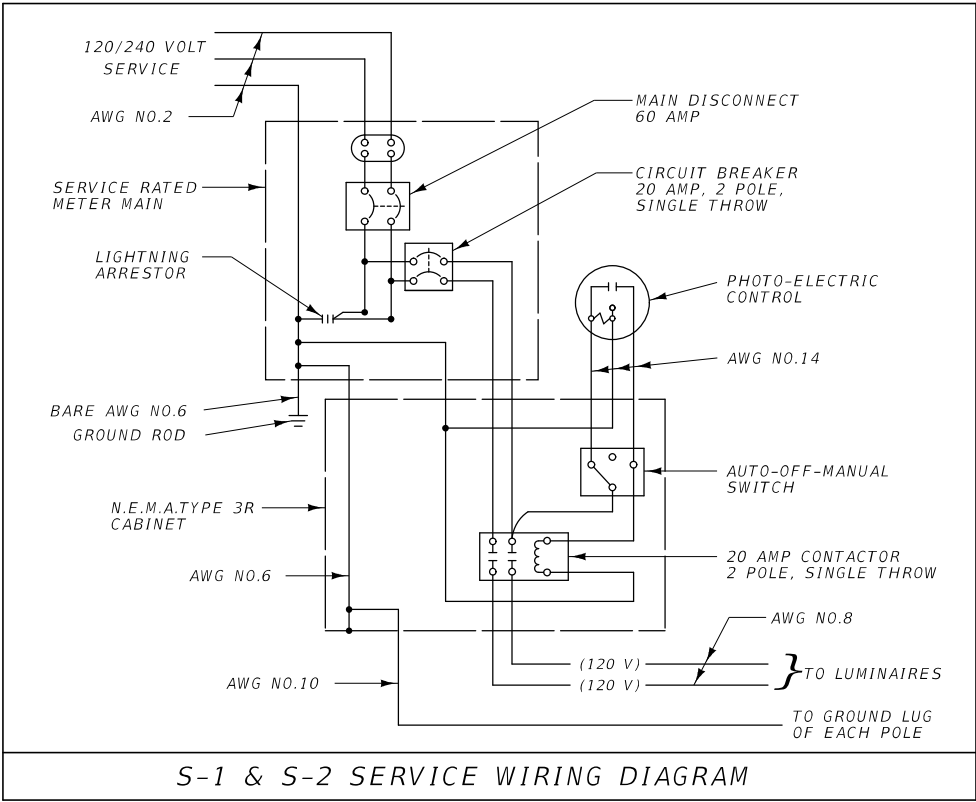
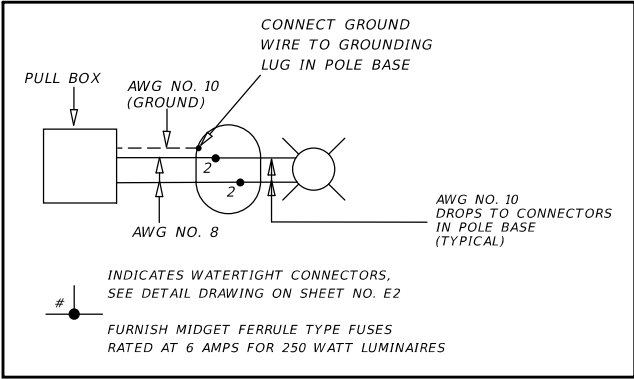
S-1 & S-2
UNDERGROUND SERVICE ASSEMBLY DETAIL



INSTALLATION DETAIL FOR
PHOTO-ELECTRIC CONTROL

ELECTRICAL DETAIL DRAWING	
TYPICAL DECORATIVE LUMINAIRE PEDESTRIAN POLE	
UNDERGROUND SERVICE ASSEMBLY	
PHOTO-ELECTRIC CONTROL INSTALLATION NO SCALE	

3 1	 <div>MONTANA Department of Transportation</div>	...\\9803000\\EL\\9803000ELDESIGNED BY				ELECTRICAL PLANS		RRXING-BENTON AVE-HELENA		RRP-TA-RRS 5805(17)
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					LEWIS AND CLARK COUNTY					



WIRING DIAGRAM

INDICATES WATERTIGHT CONNECTORS, SEE DETAIL DRAWING ON SHEET NO. E2

FURNISH MIDGET FERRULE TYPE FUSES RATED AT 6 AMPS FOR 250 WATT LUMINAIRES

ELECTRICAL
DETAIL DRAWING

WIRING DIAGRAM

NO SCALE



3
2

MONTANA
Department of Transportation

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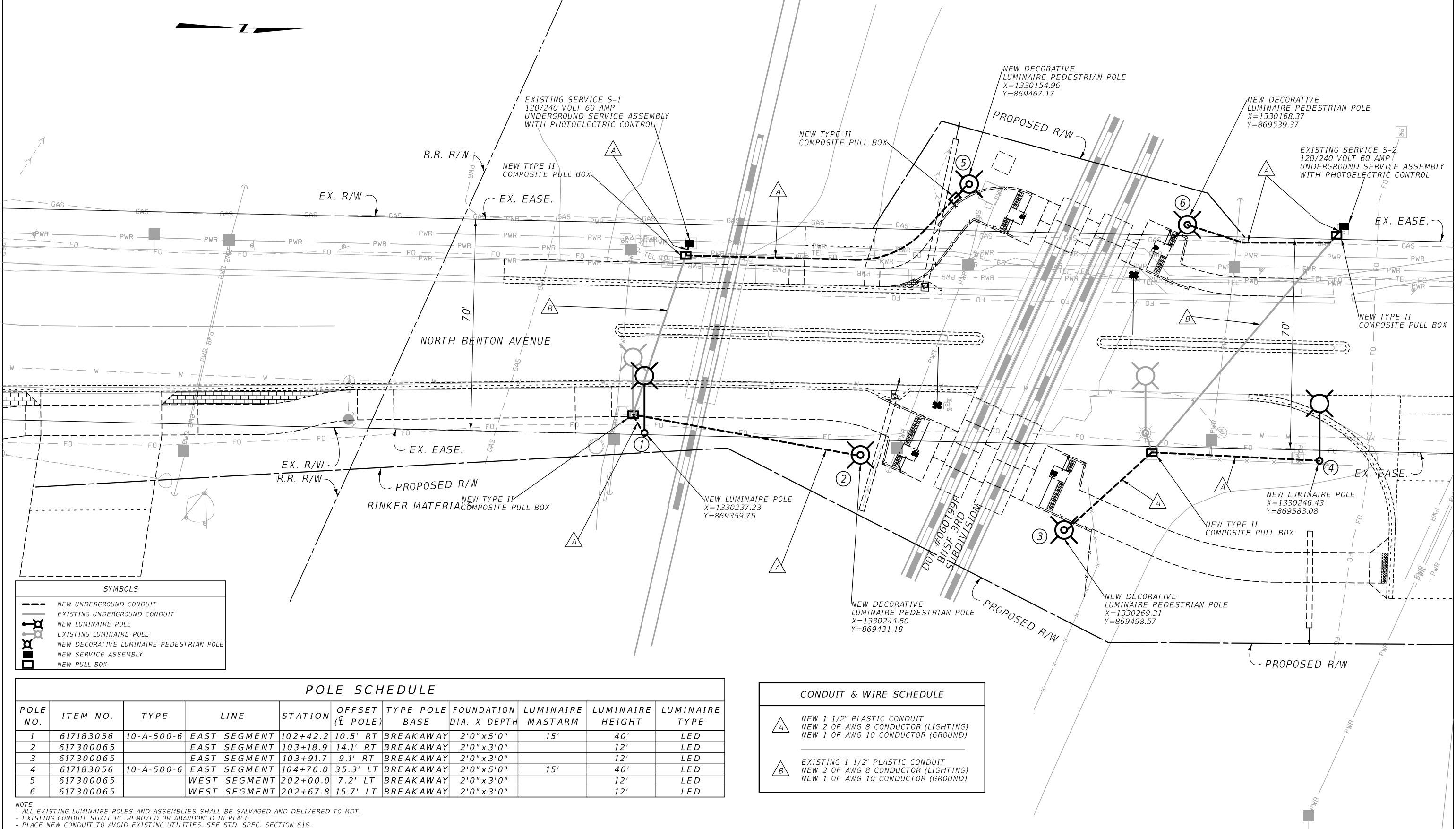
ELECTRICAL PLANS
LEWIS AND CLARK COUNTY

RRXING-BENTON AVE-HELENA

RRP-TA-RRS 5805(17)

UPN 9803000

E5



SYMBOLS

NEW UNDERGROUND CONDUIT

EXISTING UNDERGROUND CONDUIT

NEW LUMINAIRE POLE

EXISTING LUMINAIRE POLE

NEW DECORATIVE LUMINAIRE PEDESTRIAN POLE

NEW SERVICE ASSEMBLY

NEW PULL BOX

POLE SCHEDULE										
POLE NO.	ITEM NO.	TYPE	LINE	STATION	OFFSET (ft. POLE)	TYPE POLE BASE	FOUNDATION DIA. X DEPTH	LUMINAIRE MAST ARM	LUMINAIRE HEIGHT	LUMINAIRE TYPE
1	617183056	10-A-500-6	EAST SEGMENT	102+42.2	10.5' RT	BREAKAWAY	2'0"x5'0"	15'	40'	LED
2	617300065		EAST SEGMENT	103+18.9	14.1' RT	BREAKAWAY	2'0"x3'0"		12'	LED
3	617300065		EAST SEGMENT	103+91.7	9.1' RT	BREAKAWAY	2'0"x3'0"		12'	LED
4	617183056	10-A-500-6	EAST SEGMENT	104+76.0	35.3' LT	BREAKAWAY	2'0"x5'0"	15'	40'	LED
5	617300065		WEST SEGMENT	202+00.0	7.2' LT	BREAKAWAY	2'0"x3'0"		12'	LED
6	617300065		WEST SEGMENT	202+67.8	15.7' LT	BREAKAWAY	2'0"x3'0"		12'	LED

NOTE
- ALL EXISTING LUMINAIRE POLES AND ASSEMBLIES SHALL BE SALVAGED AND DELIVERED TO MDT.
- EXISTING CONDUIT SHALL BE REMOVED OR ABANDONED IN PLACE.
- PLACE NEW CONDUIT TO AVOID EXISTING UTILITIES. SEE STD. SPEC. SECTION 616.

CONDUIT & WIRE SCHEDULE

NEW 1 1/2" PLASTIC CONDUIT
NEW 2 OF AWG 8 CONDUCTOR (LIGHTING)
NEW 1 OF AWG 10 CONDUCTOR (GROUND)

EXISTING 1 1/2" PLASTIC CONDUIT
NEW 2 OF AWG 8 CONDUCTOR (LIGHTING)
NEW 1 OF AWG 10 CONDUCTOR (GROUND)