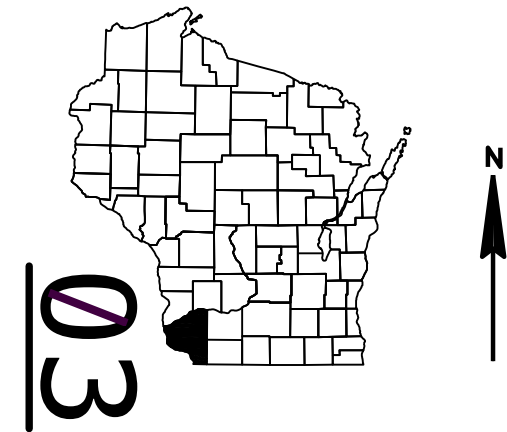


MAD WITH: N/A PROJECT ID: 5316-00-71 COUNTY: GRANT

OCTOBER 2026
ORDER OF SHEETS

Section No.	1	Title
Section No.	2	Typical Sections and Details
Section No.	3	Estimate of Quantities
Section No.	3	Miscellaneous Quantities
Section No.	4	Right of Way Plat
Section No.	5	Plan and Profile
Section No.	6	Standard Detail Drawings
Section No.	7	Sign Plates
Section No.	8	Structure Plans
Section No.	9	Computer Earthwork Data
Section No.	9	Cross Sections

TOTAL SHEETS = 216



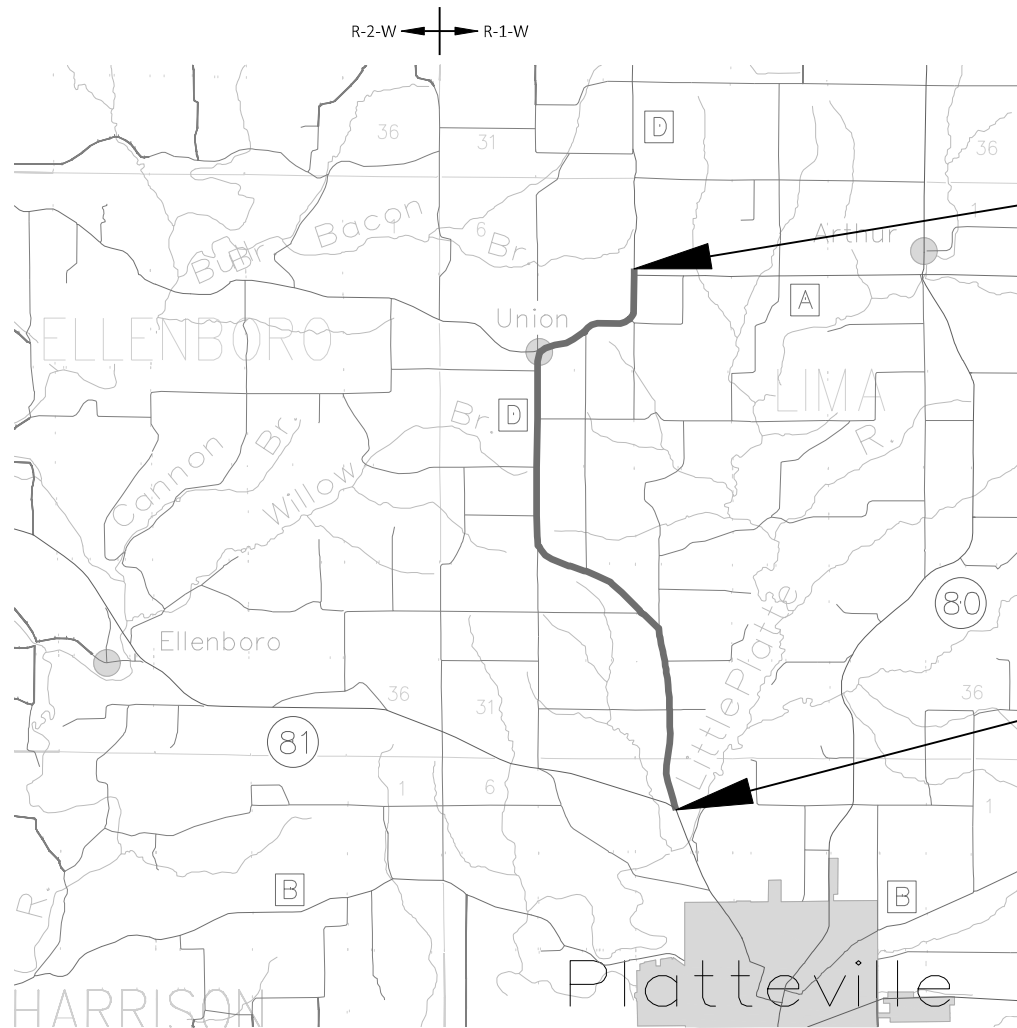
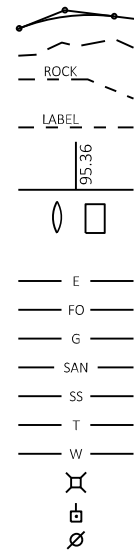
DESIGN DESIGNATION 5316-00-01

A.A.D.T.	2026	=	790
A.A.D.T.	2046	=	970
D.H.V.		=	120
D.D.		=	50/50
T.		=	15.7
DESIGN SPEED		=	50 MPH
ESALS		=	200,000

CONVENTIONAL SYMBOLS

<u>PLAN</u>	
CORPORATE LIMITS	
PROPERTY LINE	
LOT LINE	
LIMITED HIGHWAY EASEMENT	
EXISTING RIGHT OF WAY	
PROPOSED OR NEW R/W LINE	
SLOPE INTERCEPT	
REFERENCE LINE	
EXISTING CULVERT	
PROPOSED CULVERT (Box or Pipe)	
COMBUSTIBLE FLUIDS	
MARSH AREA	
WOODED OR SHRUB AREA	

<u>PROFILE</u>	
GRADE LINE	
ORIGINAL GROUND	
MARSH OR ROCK PROFILE (To be noted as such)	
SPECIAL DITCH	
GRADE ELEVATION	
CULVERT (Profile View)	
<u>UTILITIES</u>	
ELECTRIC	
FIBER OPTIC	
GAS	
SANITARY SEWER	
STORM SEWER	
TELEPHONE	
WATER	
UTILITY PEDESTAL	
POWER POLE	
TELEPHONE POLE	



STATE PROJECT NUMBER
5316-00-71

R-2-W R-1-W

STH 81 TO CTH A

CTH D

GRANT COUNTY

END PROJECT
STA 378+00.00
X = 873,771.381
Y = 521,975.111

BEGIN PROJECT
STA 6+27.98
X = 876,225.682
Y = 492,318.665

LAYOUT
SCALE 0 2 MI
TOTAL NET LENGTH OF CENTERLINE = 7.040 MI

HORIZONTAL POSITIONS SHOWN ON THIS PLAN ARE WISCONSIN COORDINATE REFERENCE SYSTEM (WISCRS), GRANT COUNTY, NAD83 (2011), IN U.S. SURVEY FEET. POSITIONS SHOWN ARE GRID COORDINATES, GRID BEARINGS, AND GRID DISTANCES. GRID DISTANCES ARE THE SAME AS GROUND DISTANCES.

ELEVATIONS ARE REFERENCED TO NAVD 88 (2012). GPS DERIVED ELEVATIONS ARE BASED ON GEOID 18.

STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
5316-00-71	WISC 2026002	1

ACCEPTED FOR
GRANT COUNTY
Date 03/13/2026 Steven D Morgan
(Signature and Title of Official)
Highway Commissioner

ORIGINAL PLANS PREPARED BY
TEAM ENGINEERING
WISCONSIN PROFESSIONAL ENGINEER
JEREMY F. KRACHEY
E-37258
WAUZEKA WIS.
DATE: 2025.03.16 14:47:41-0500
(Professional Engineer Signature)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
PREPARED BY
Surveyor TEAM ENGINEERING INC.
Designer TEAM ENGINEERING INC.
Project Manager DONALD CARPENTER, P.E.
Regional Examiner SW REGION
Regional Supervisor KYLE HEMP, P.E.

APPROVED FOR THE DEPARTMENT
DATE: 4/30/2026 Donald Carpenter
(Signature)
E

LIST OF STANDARD ABBREVIATIONS

ABUT.	Abutment	JT	Joint	SEC	Section
AC	Acre	JCT	Junction	SHLDR	Shoulder
AGG.	Aggregate	LHF	Left-Hand Forward	SHR	Shrinkage
AH	Ahead	L	Length of Curve	SW	Sidewalk
<	Angle	LIN FT OR LF	Linear Foot	S	South
ASPH	Asphaltic	LC	Long Chord of Curve	SQ	Square
AVG.	Average	MH	Manhole	SF OR SQ FT	Square Feet
A.D.T.	Average Daily Traffic	MB	Mailbox	SY OR SQ YD	Square Yard
BAD	Base Aggregate Dense	ML OR M/L	Match Line	STD	Standard
BK.	Back	N	North	SDD	Standard Detail Drawings
BF	Back Fence	Y	North Grid Coordinate	STH	State Trunk Highways
B.M	Bench Mark	OAL	Overall Length	STA	Station
BR.	Bridge	OD	Outside Diameter	SS	Storm Sewer
C/L	Center Line	PLE	Permanent Limited Easement	SG	Subgrade
CC	Center to Center	PT	Point	SE	Superelevation
CTH	County Truck Highway	PC	Point of Curvature	SL OR S/L	Survey Line
CR.	Creek	PI	Point of Intersection	SV	Septic Vent
CY OR CU YD	Cubic Yard	PRC	Point of Reverse Curvature	T	Tangent
CP	Culvert Pipe	PT	Point of Tangency	TEL	Telephone
C & G	Curb and Gutter	POC	Point on Curve	TEMP	Temporary
D	Degree of Curve	POT	Point on Tangent	TI	Temporary Interest
DHV	Design Hour Volume	PVC	Polyvinyl Chloride	TLE	Temporary Limited Easement
DIA	Diameter	PCC	Portland Cement Concrete	t	Ton
E	East	LB	Pound	T OR TN	Town
X	East Grid Coordinate	PSI	Pounds Per Square Inch	TRANS	Transition
ELEC	Electric	PE	Private Entrance	TL OR T/L	Transit Line
EL OR ELEV	Elevation	R	Radius	T	Trucks (percent of)
ESALS	Equivalent Single Axle Loads	RR	Railroad	TYP	Typical
EBS	Excavation Below Subgrade	RL OR R/L	Reference Line	UNCL	Unclassified
FF	Face to Face	RP	Reference Point	UG	Underground Cable
FE	Field Entrance	RCCP	Reinforced Concrete Culvert Pipe	USH	United States Highway
F	Fill	REQD	Required	VAR	Variable
FG	Finished Grade	RES	Residence or Residential	V	Velocity or Design Speed
FL OR F/L	Flow Line	RW	Retaining Wall	VERT	Vertical
FT	Foot	RT	Right	VC	Vertical Curve
FTG	Footing	RHF	Right-Hand Forward	VOL	Volume
GN	Grid North	R/W	Right-of-Way	WM	Water Main
HT	Height	R	River	WV	Water Valve
CWT	Hundredweight	RD	Road	W	West
HYD	Hydrant	RDWY	Roadway	WB	Westbound
INL	Inlet	SALV	Salvaged	YD	Yard
ID	Inside Diameter	SAN S	Sanitary Sewer		
INV	Invert				
IP	Iron Pipe or Pin				
IRS	Iron Rod Set				

GENERAL NOTES

DO NOT REMOVE ANY TREES OR SHRUBS WITHOUT APPROVAL OF THE ENGINEER.

THERE ARE UTILITY FACILITIES WITHIN THE PROJECT AREA THAT ARE NOT SHOWN ON THE PLANS. COORDINATE CONSTRUCTION ACTIVITIES WITH A CALL TO DIGGER'S HOTLINE AND/OR A CALL TO THE UTILITIES THAT HAVE INSTALLATIONS WITHIN THE PROJECT AREA. NOT ALL UTILITIES ARE MEMBERS OF DIGGER'S HOTLINE.

RIGHT OF WAY LINES SHOWN ON THE CROSS SECTIONS AND PLAN SHEETS ARE APPROXIMATE.

ALL RADII ARE MEASURED TO THE EDGE OF PAVEMENT UNLESS OTHERWISE SHOWN OR NOTED ON THE PLAN.

CONTRACTOR SHALL MAINTAIN ACCESS TO ALL DRIVEWAYS AT ALL TIMES EXCEPT WHEN WORK OPERATIONS REQUIRE THE DRIVEWAY TO BE CLOSED. ACCESS TO DRIVEWAY SHALL BE RE-ESTABLISHED IMMEDIATELY AFTER WORK OPERATIONS IN DRIVEWAY AREA IS INSTALLED. ACCESS SHALL BE PROVIDED DURING ALL NON-WORKING HOURS.

CONSTRUCTION LIMITS ON SIDE ROADS AND PRIVATE ENTRANCES SHALL BE DETERMINED BY THE ENGINEER AND SHALL BE RESTORED IN KIND.

BID ITEM PREPARE FOUNDATION FOR ASPHALTIC PAVING (5780-03-61), APPLIES TO THE LIMITS AS SHOWN IN PROJECT PLANS FOR BID ITEM REMOVING ASPHALTIC SURFACE BUTT JOINTS ONLY. ALL OTHER AREAS ARE CONSIDERED INCIDENTAL TO OTHER ITEMS OF WORK.

ALL SIGN LOCATIONS SHALL BE REVIEWED BY THE ENGINEER PRIOR TO INSTALLATION.

HMA PAVEMENT WEIGHT CALCULATIONS ARE BASED ON 112/LB/SY/IN.

APPLY TACK COAT BETWEEN LAYERS OF PAVEMENT AND TO MILLED SURFACES. THE APPLICATION RATE IS 0.07 GALLONS PER SQUARE YARD BETWEEN THE MILLED SURFACE, 0.05 GALLONS PER SQUARE YARD BETWEEN NEW HMA PAVEMENT LAYERS, OR AS DIRECTED BY THE ENGINEER.

THE EXACT LOCATIONS AND LIMITS OF PRIVATE ENTRANCES, COMMERCIAL, AND FIELD ENTRANCES SHALL BE DETERMINED BY THE ENGINEER IN THE FIELD.

TEMPORARY PAINT 6-INCH SHALL BE USED ON THE NEW HMA 3LT BINDER. TEMPORARY PAINT 6-INCH SHALL BE USED ON THE HMA 4LT SURFACE (RURAL). PERMANENT MARKING LINE GROOVED WET REF EPOXY 6-INCH TO BE PLACED PRIOR TO OPENING ROADWAY.

ALL LAYOUT DATA IS REFERENCED TO THE C/L UNLESS OTHERWISE NOTED.

THE QUANTITY OF THE ITEMS FOR EROSION PROTECTION INCLUDES AN UNDISTRIBUTED AMOUNT FOR PROTECTION, CONTROL AND ABATEMENT OF WATER POLLUTION RESULTING FROM SOIL EROSION. THE DISTRIBUTION AND LOCATION OF THESE MATERIALS ARE TO BE DETERMINED BY THE ENGINEER.

UTILITIES

DAIRYLAND POWER COOPERATIVE - ELECTRIC
ROB MALY
3200 EAST AVE S P.O. BOX 817
LA CROSSE, WI 54602
WORK PHONE: (608) 788-4000
EMAIL: rob.maly@dairlandpower.com

GRANT COUNTY - COMMUNICATION LINE
SHANE DRINKWATER
111 SOUTH JEFFERSON STREET P.O. BOX 529
LANCASTER, WI 53813
PHONE: (608) 723-1668
EMAIL: doit@co.grant.wi.gov

BRIGHTSPEED OF WESTERN WISCONSIN, LLC - COMMUNICATION LINE
THOMAS DINEEN
1905 WARD AVENUE
LA CROSSE, WI 54601
PHONE: (319) 423-5242
EMAIL: thomas.dineen@brightspeed.com
EMAIL: relocations@brightspeed.com
EMAIL: dshea@congruex.com

SCENIC RIVERS ENERGY COOPERATIVE - ELECTRIC
CHAD OLMSTEAD
206 COUNTY ROAD K
LANCASTER, WI 53813
WORK PHONE: (608) 723-2121 ext 561 (PRIMARY)
EMAIL: colmstead@srec.net

ORDER OF SHEETS

- GENERAL NOTES
- PROJECT OVERVIEW
- TYPICAL SECTIONS
- CONSTRUCTION DETAILS
- PLAN DETAILS - INTERSECTION
- PLAN DETAILS - EROSION CONTROL
- PLAN DETAILS - STORM SEWER
- PLAN DETAILS - BEAMGUARD
- PLAN DETAILS - PAVEMENT MARKING & SIGNING
- PLAN DETIALS - TRAFFIC CONTROL
- PLAN DETAILS - ALIGNMENT
- PLAN SHEETS

DESIGNER

TEAM ENGINEERING, INC.
210 GUARD STREET
WAUZeka, WI 53826
ATTN: JEREMY KRACHEY, P.E.
PH: (608) 875-5075
EMAIL: jkrachey@teamenginc.com

DNR CONTACT

DEPARTMENT OF NATURAL RESOURCES
3911 FISH HATCHERY ROAD
FITCHBURG, WI 53711
ATTN: ANDY BARTA
PH: (608) 785-9115
EMAIL: andrew.barta@wisconsin.gov

WISDOT CONTACT

DEPARTMENT OF TRANSPORTATION
2101 WRIGHT STREET
MADISON, WI 53704
ATTN: DONALD CARPENTER, P.E.
WORK: (608) 246-5317
EMAIL: donald2.carpenter@dot.wi.gov



Dial 811 or (800)242-8511
www.DiggersHotline.com

SOIL BORING LOG					
BORING NUMBER	STATION (CTH D)	OFFSET	ELEVATION	HMA DEPTH (INCHES)	BASE DEPTH (INCHES)
1	36+83.25	5.92 LT	1001.29	4.50	36.00
2	43+04.87	5.79 RT	1012.10	5.50	36.00
3	90+86.77	5.38 LT	1033.67	4.50	27.00
4	137+17.90	4.86 RT	1078.63	4.00	30.00
5	138+02.96	6.52 LT	1077.00	4.00	30.00
6	185+36.11	6.16 LT	1109.84	5.00	30.00
7	198+99.39	4.78 RT	1106.39	5.75	27.00
8	219+54.60	5.97 RT	1101.74	3.00	26.00
9	279+99.76	4.31 LT	1113.46	3.50	30.00
10	288+48.57	5.68 RT	1111.43	7.00	34.00
11	321+99.30	5.45 RT	1116.77	5.00	26.00
12	370+01.90	3.29 RT	1097.64	4.00	20.00
13	372+01.54	9.79 LT	1093.57	5.00	24.00
14	109+36.87	4.71 RT	1075.79	4.00	27.00
15	231+00.94	4.63 LT	1065.01	8.00	24.00
16	335+16.74	5.36 LT	1100.93	4.00	24.00

PWL MIXTURE USE TABLE

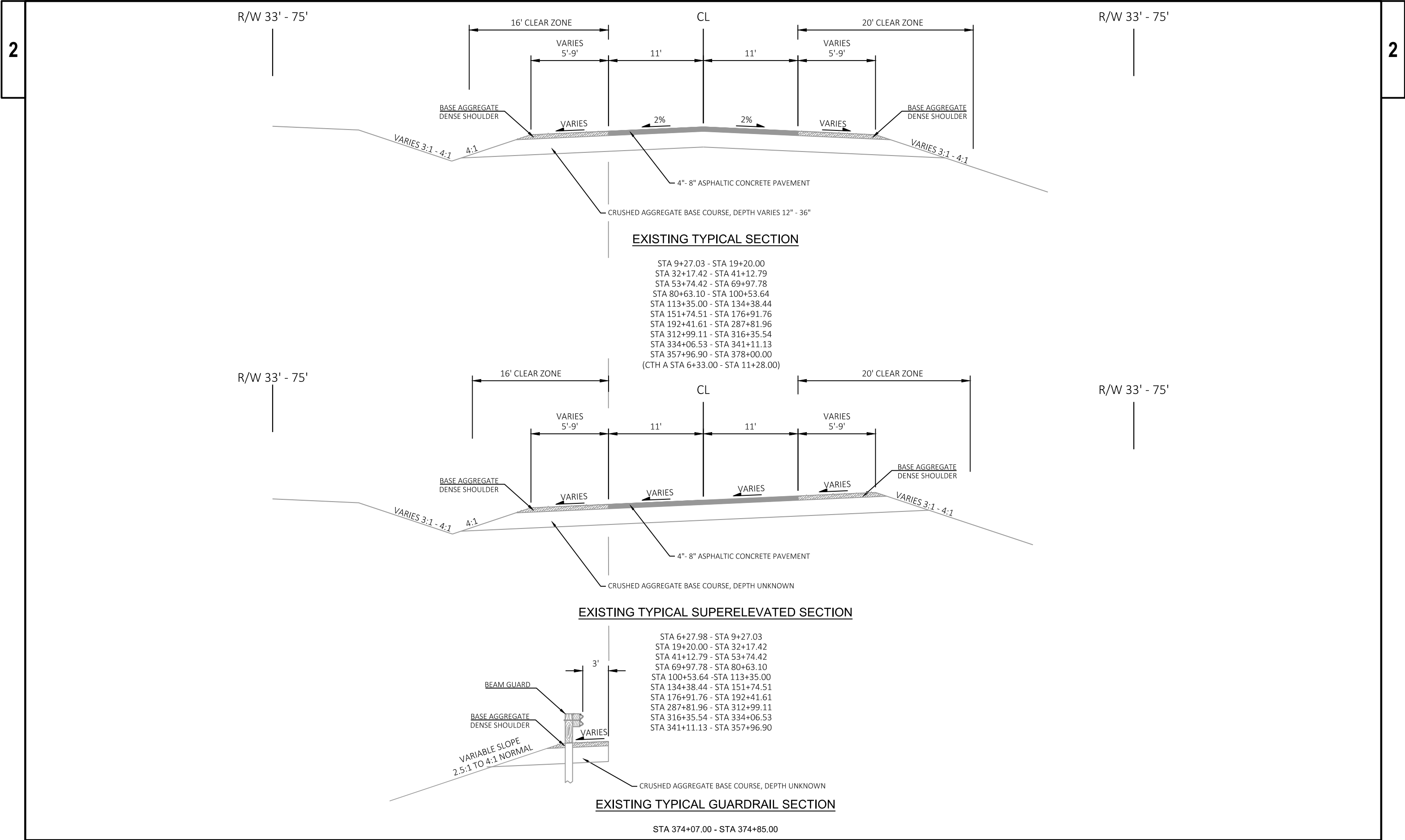
STATION - STATION	LOCATION	LAYER / USE	UNDERLYING SURFACE	BID ITEM	QUANTITY (TONS)	LAYER THICKNESS	QUALITY MANAGEMENT PROGRAM TO BE USED FOR:	
							MIXTURE ACCEPTANCE	DENSITY ACCEPTANCE
6+27.98 TO 378+00	12' DRIVING LANE	UPPER LAYER	4 LT 58-28 S	4 LT 58-28 S	13878	2-1/2"	460.2010 INCENTIVE AIR VOIDS HMA PAVEMENT (PWL)	460.2005 INCENTIVE DENSITY PWL HMA PAVEMENT
	SHOULDER / INTERSECTIONS / SIDEROADS	UPPER LAYER	4 LT 58-28 S	4 LT 58-28 S	6172	2-1/2"	460.2010 INCENTIVE AIR VOIDS HMA PAVEMENT (PWL)	ACCEPTANCE TESTING BY THE DEPARTMENT. NOT ELIGIBLE FOR INCENTIVE
	12' DRIVING LANE	LOWER LAYER	PULVERIZE & RELAY ASPHALTIC PAVEMENT	3 LT 58-28 S	13878	2-1/2"	460.2010 INCENTIVE AIR VOIDS HMA PAVEMENT (PWL)	INCENTIVE DENSITY PWL HMA PAVEMENT SPV.0055.01
	SHOULDER / INTERSECTIONS / SIDEROADS	LOWER LAYER	PULVERIZE & RELAY ASPHALTIC PAVEMENT	3 LT 58-28 S	6172	2-1/2"	460.2010 INCENTIVE AIR VOIDS HMA PAVEMENT (PWL)	ACCEPTANCE TESTING BY THE DEPARTMENT. NOT ELIGIBLE FOR INCENTIVE

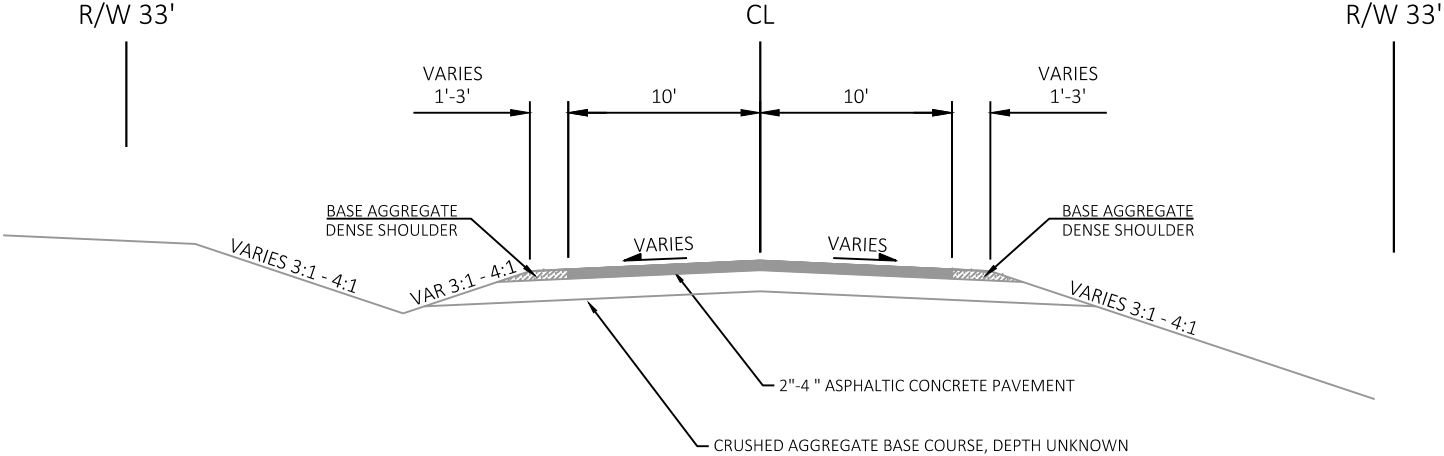


BEGIN PROJECT
STA 6+27.98
X = 876,225.682
Y = 492,318.665

CULTURAL SENSITIVE AREA -
DO NOT DISTURB
BGT-0055, LIMA-UNION CEMETERY

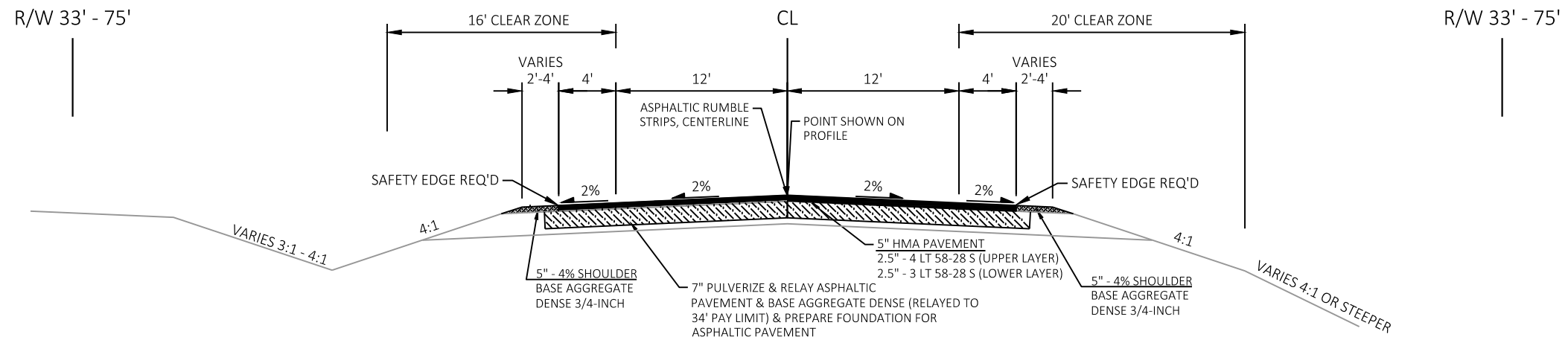
END PROJECT
STA 378+00.00
X = 873,771.381
Y = 521,975.111





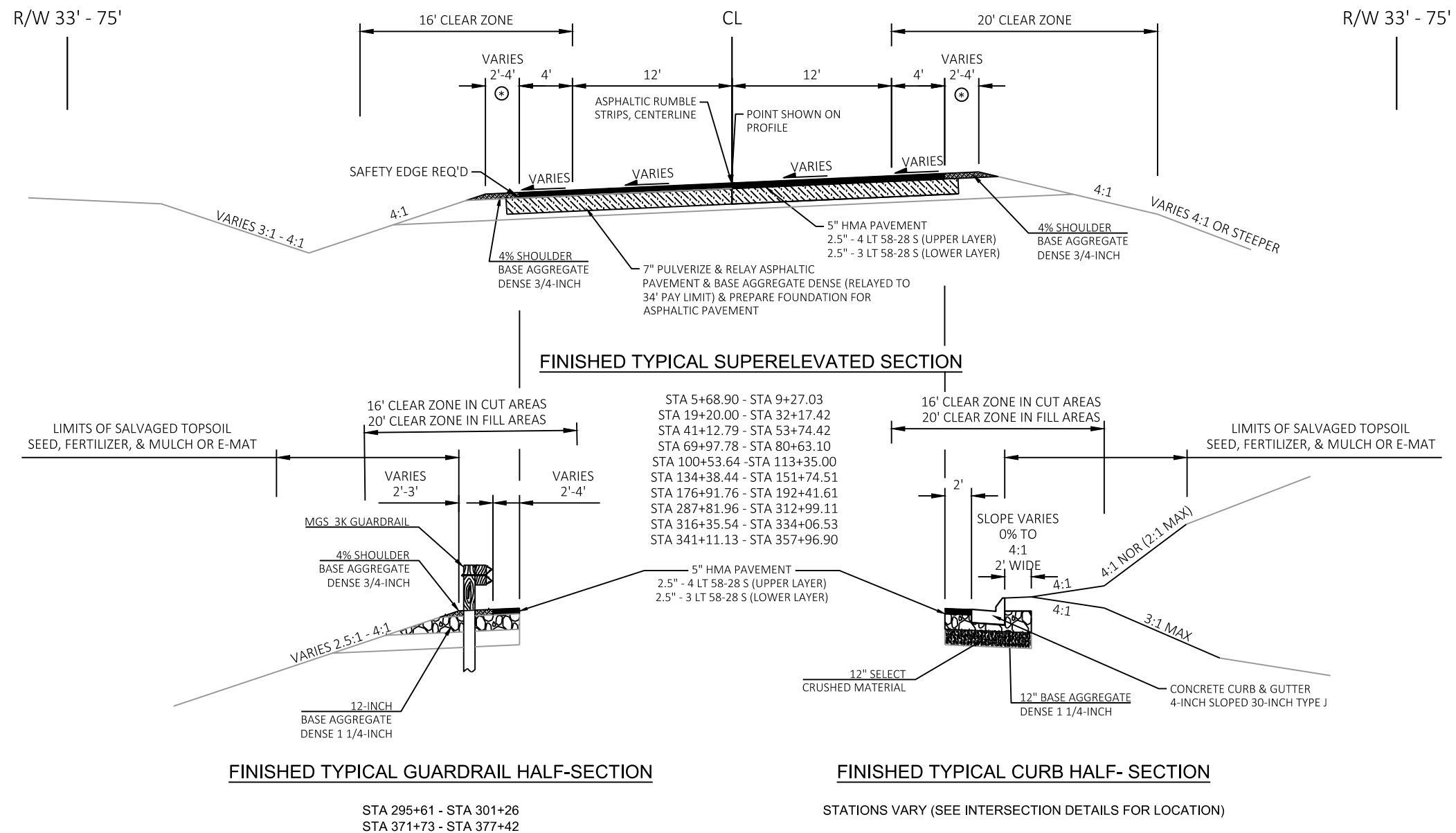
EXISTING SIDE ROAD TYPICAL SECTION

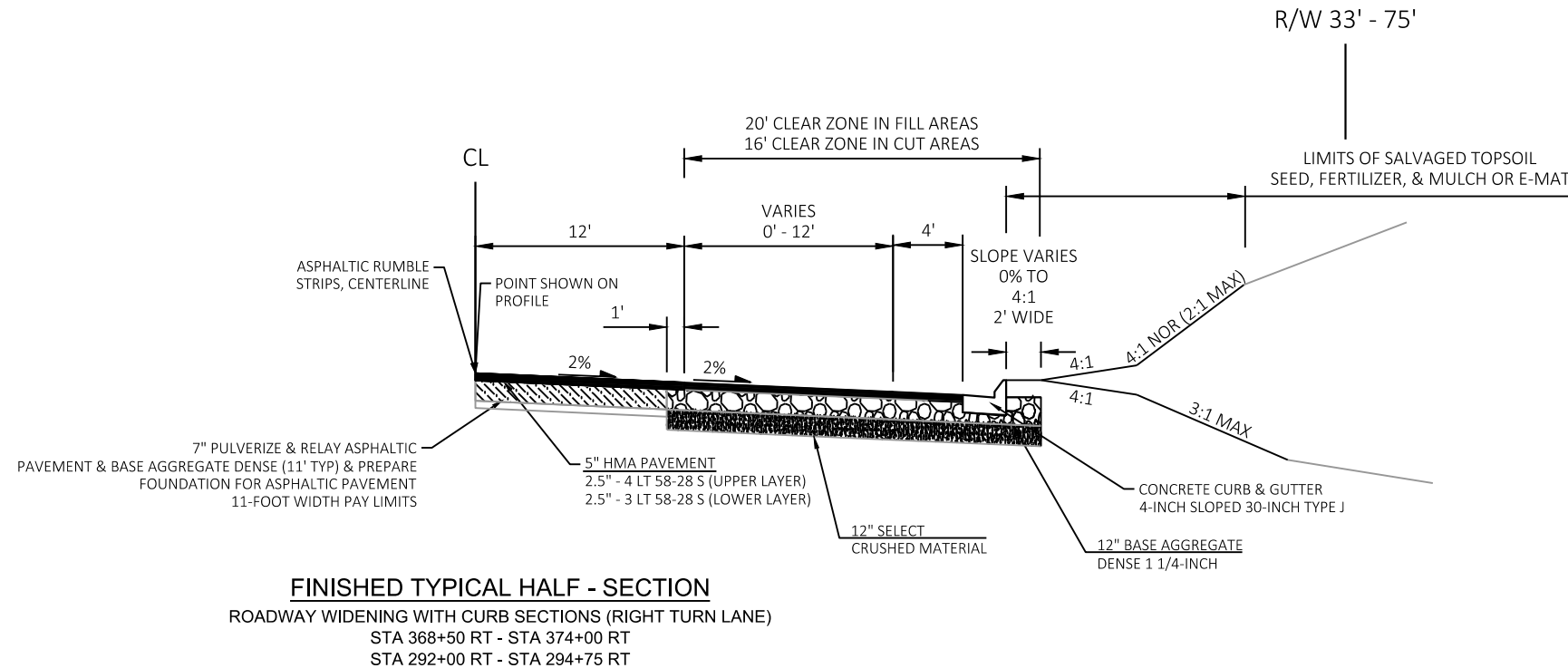
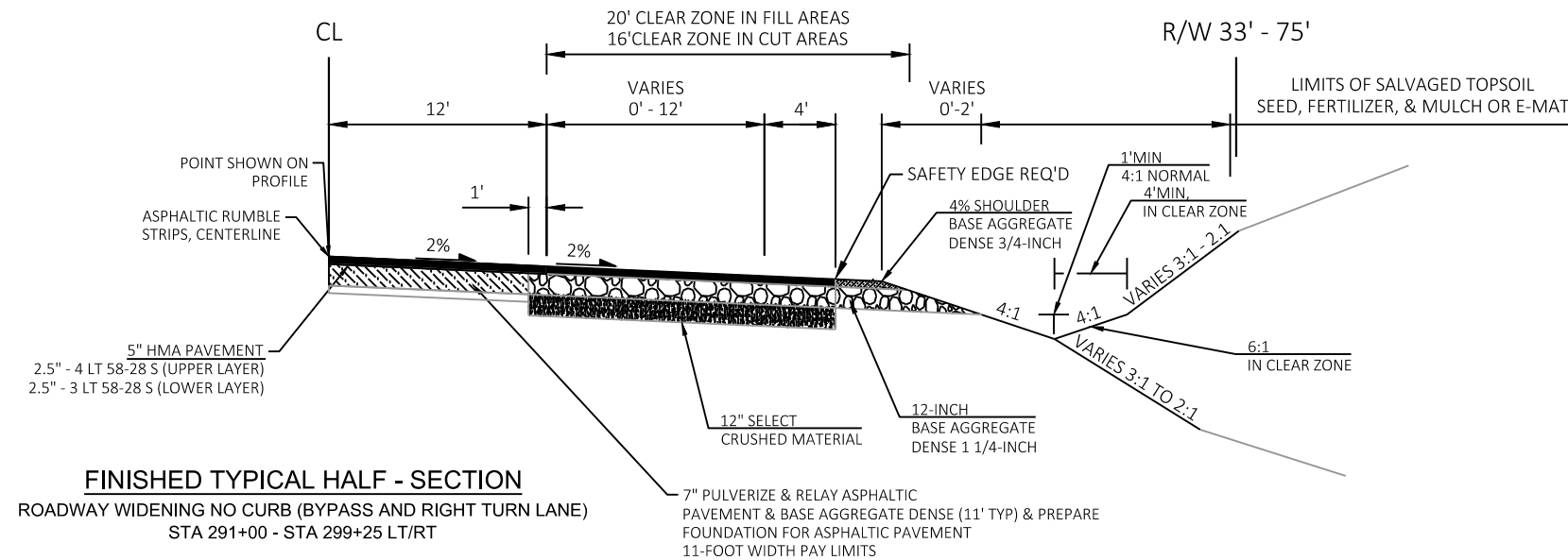
- STA 0+67 TO STA 1+75 BUTSON ROAD
- STA 0+00 TO STA 1+50 SANDHILL ROAD
- STA 0+71 TO STA 1+75 REX'S ROAD
- STA 0+00 TO STA 0+98 TOWNHALL ROAD SOUTH
- STA 2+00 TO STA 3+00 BANNER ROAD
- STA 1+47 TO STA 2+50 DUTCHES ROAD
- STA 1+97 TO STA 3+00 CONDRY ROAD
- STA 0+00 TO STA 1+01 WATERFALL ROAD
- STA 1+71 TO STA 2+75 UNION CHURCH ROAD
- STA 0+00 TO STA 0+77 UNION ROAD
- STA 6+33 TO STA 9+00 CTH A WEST
- STA 4+97 TO STA 6+00 TOWNHALL ROAD NORTH
- STA 1+90 TO STA 2+75 RUNDE ROAD
- STA 9+00 TO STA 11+28 CTH A EAST

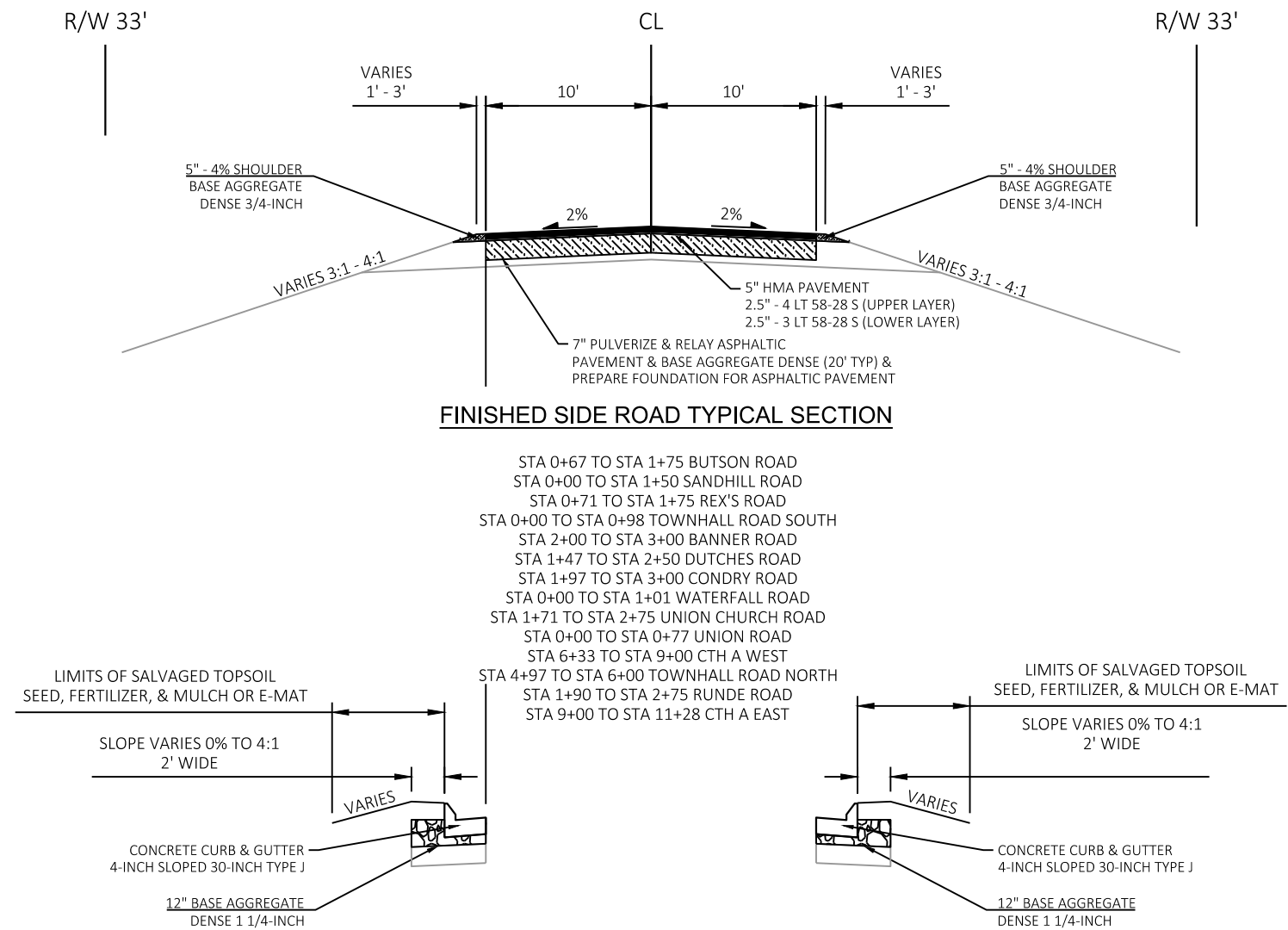


FINISHED TYPICAL SECTION

ROADWAY PULVERIZE SECTIONS
STA 9+27.03 - STA 19+20.00
STA 32+17.42 - STA 41+12.79
STA 53+74.42 - STA 69+97.78
STA 80+63.10 - STA 100+53.64
STA 113+35.00 - STA 134+38.44
STA 151+74.51 - STA 176+91.76
STA 192+41.61 - STA 287+81.96
STA 312+99.11 - STA 316+35.54
STA 334+06.53 - STA 341+11.13
STA 357+96.90 - STA 378+00.00
(CTH A STA 6+33.00 - STA 11+28.00)

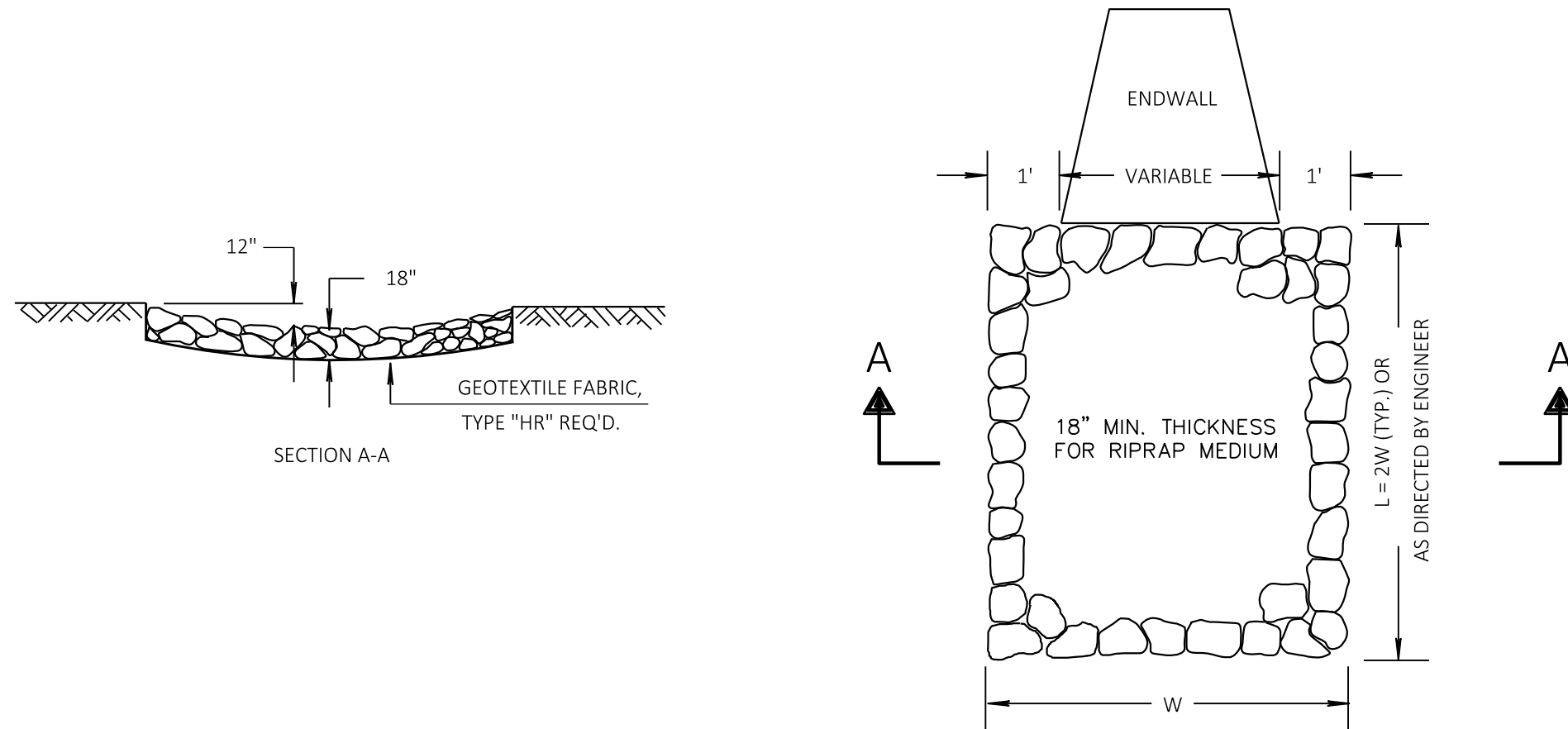




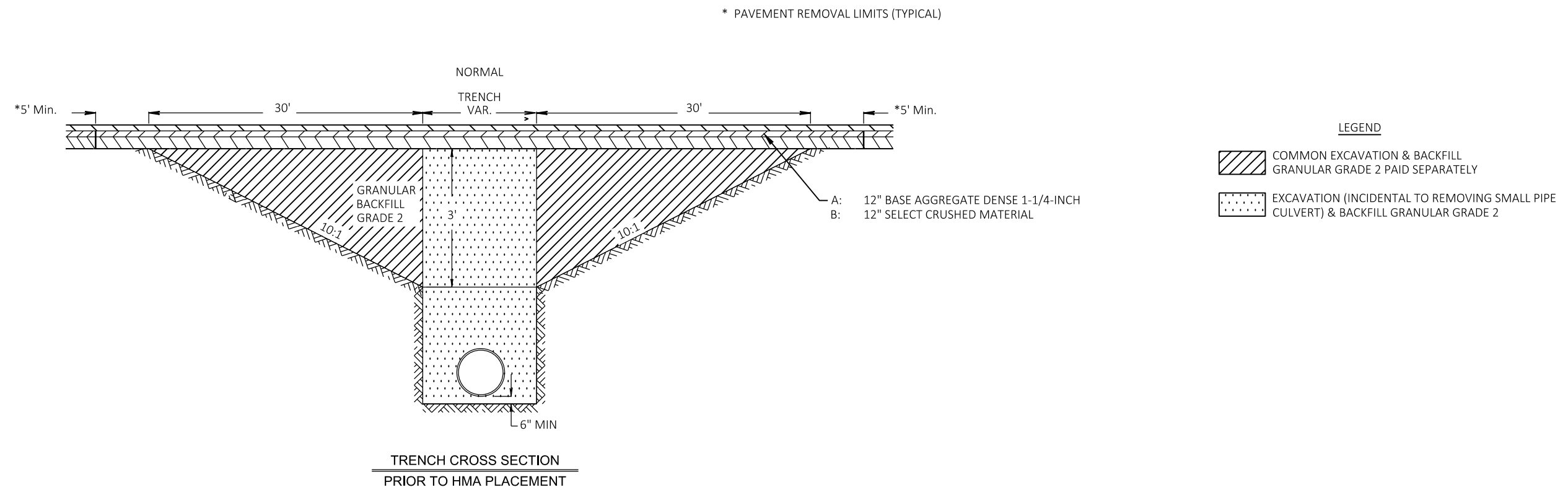


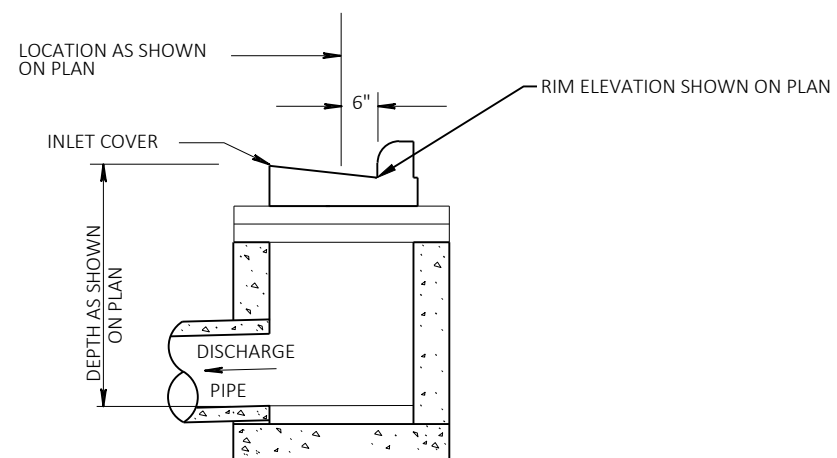
FINISHED TYPICAL CURB HALF- SECTION

STATIONS VARY (SEE INTERSECTION DETAILS FOR LOCATION)



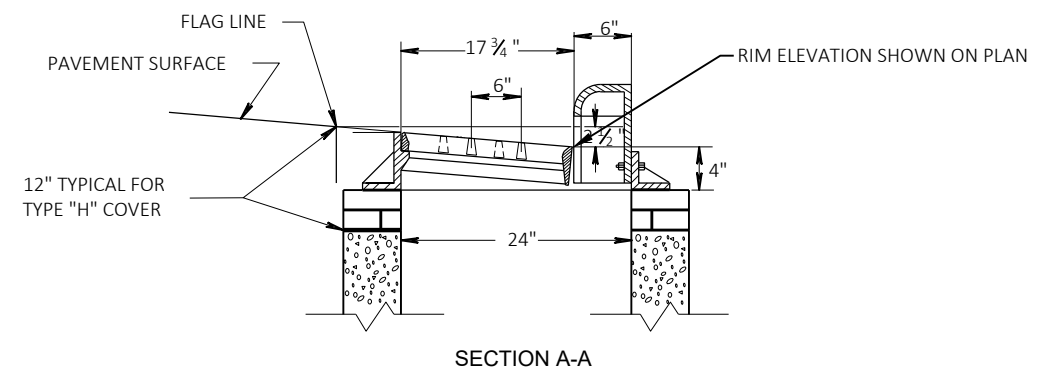
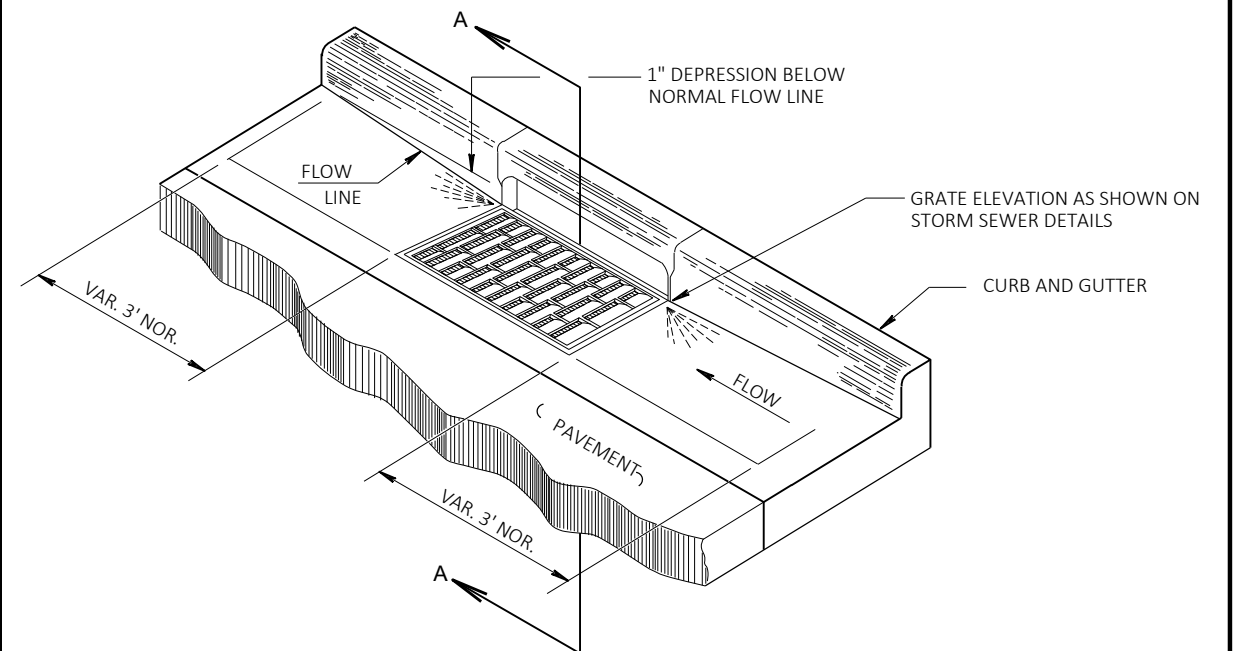
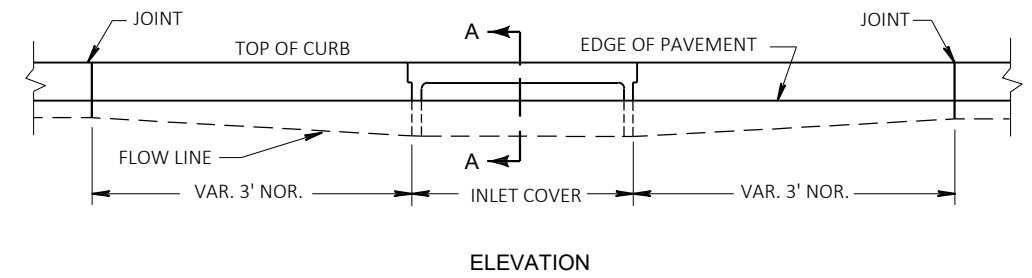
RIPRAP MEDIUM TREATMENT AT CULVERTS





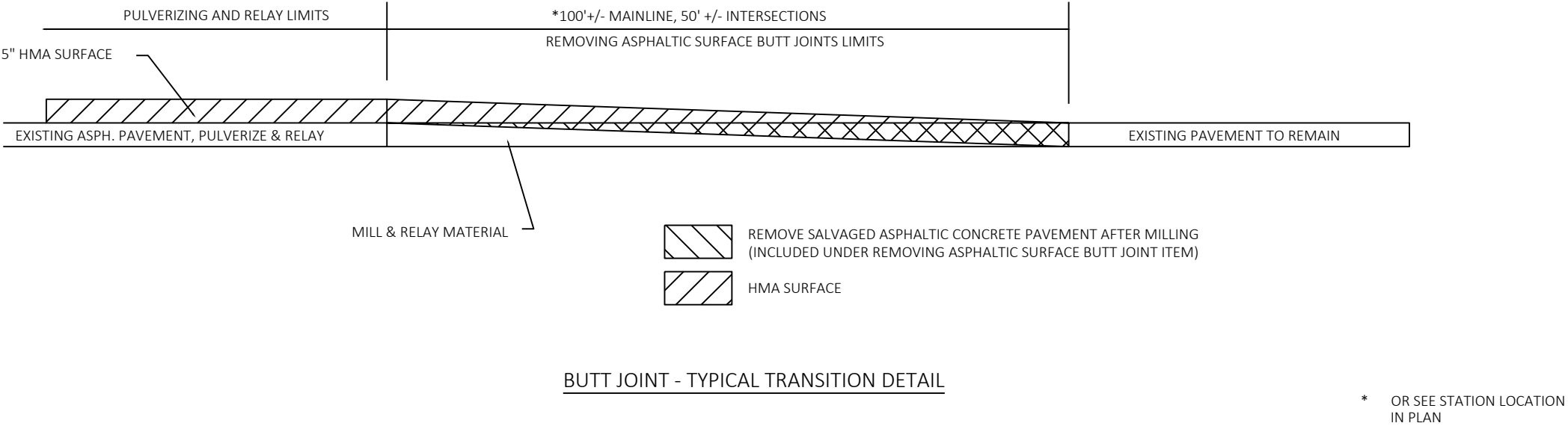
NOTE: DETAILS NOT SHOWN SHALL CONFORM TO
STANDARD DETAIL DRAWINGS

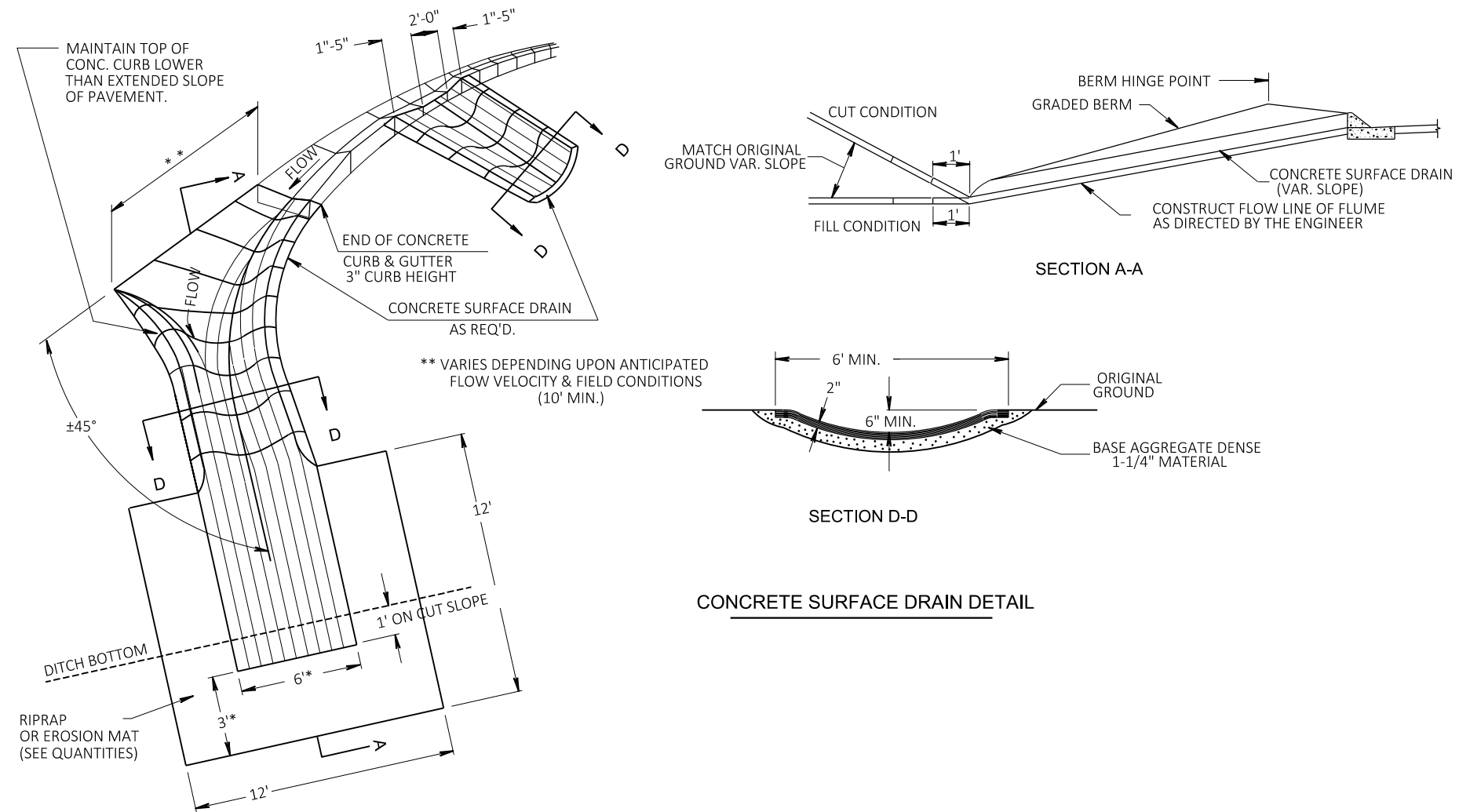
DETAIL FOR COMPUTING ELEVATIONS (INLETS AND MANHOLES)

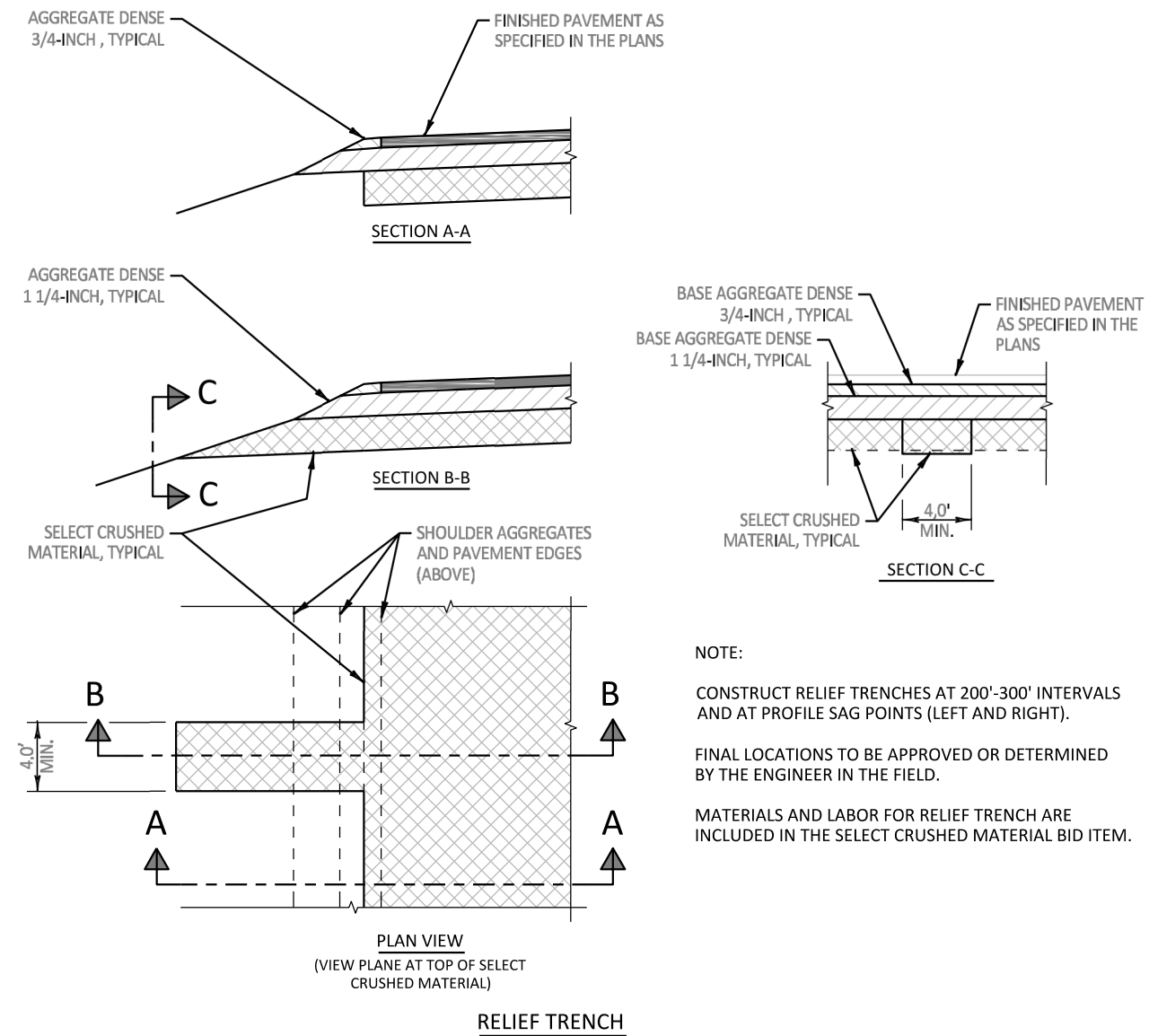


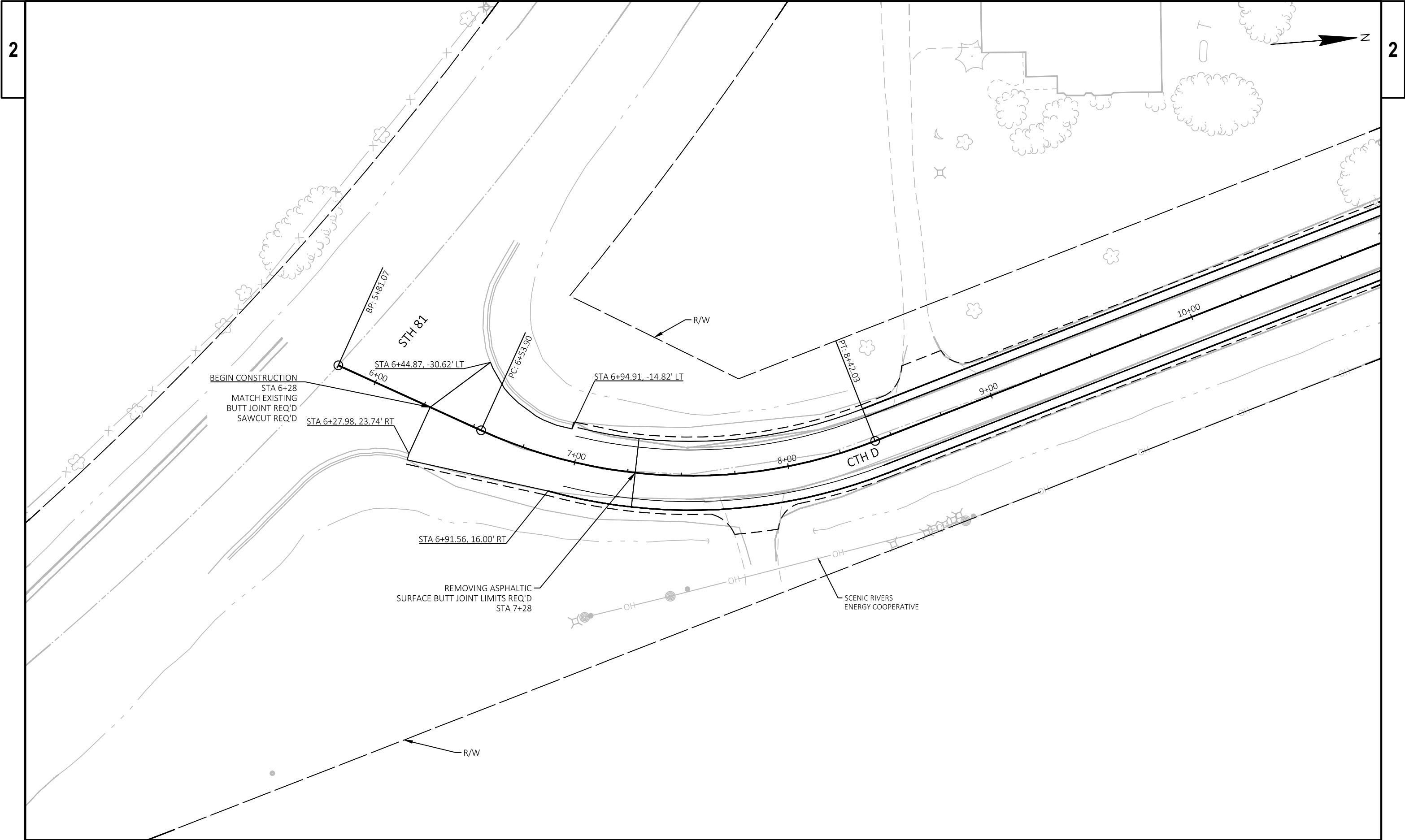
DETAIL OF CURB AND GUTTER AT INLETS

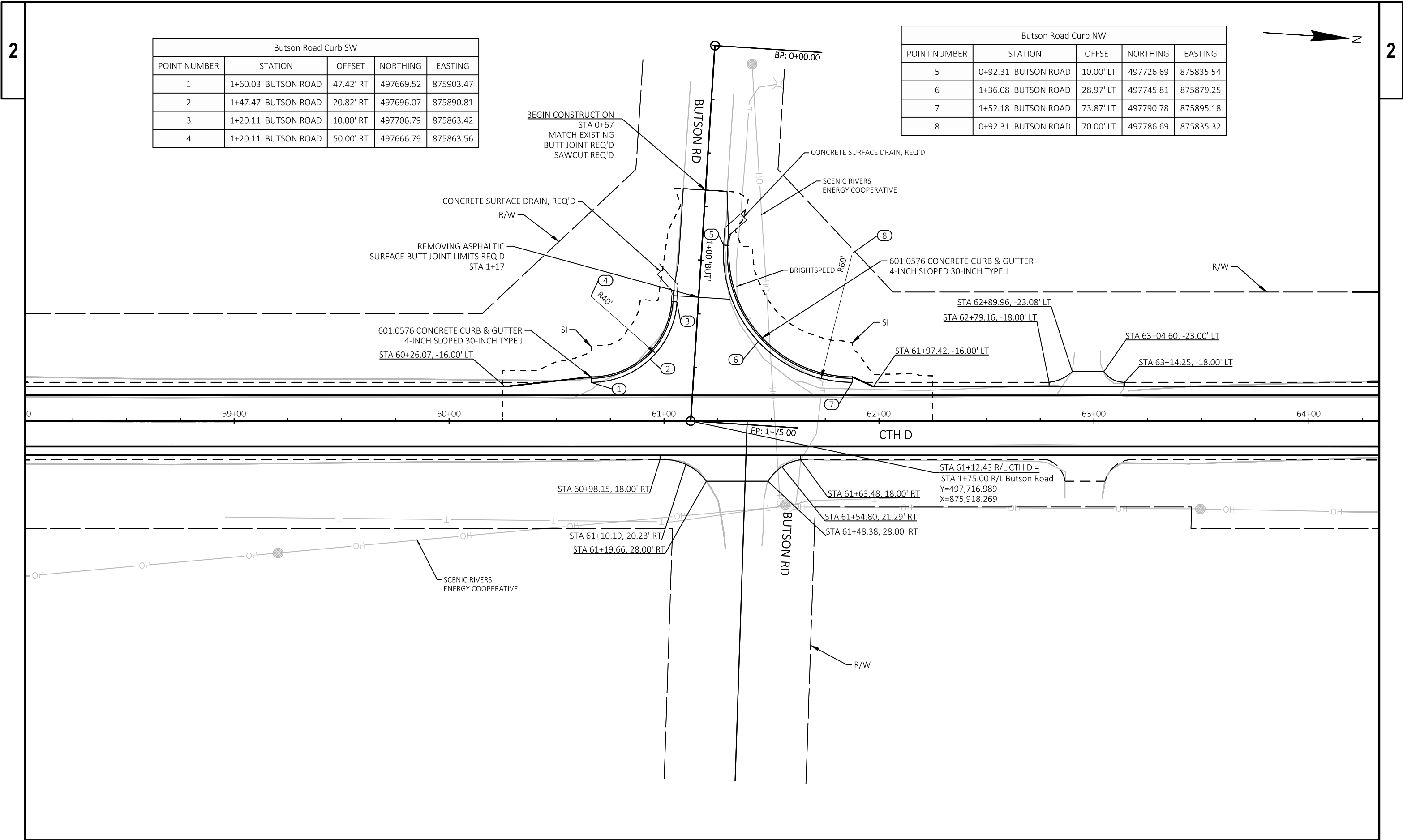
(TYPE 3-H INLET SHOWN)











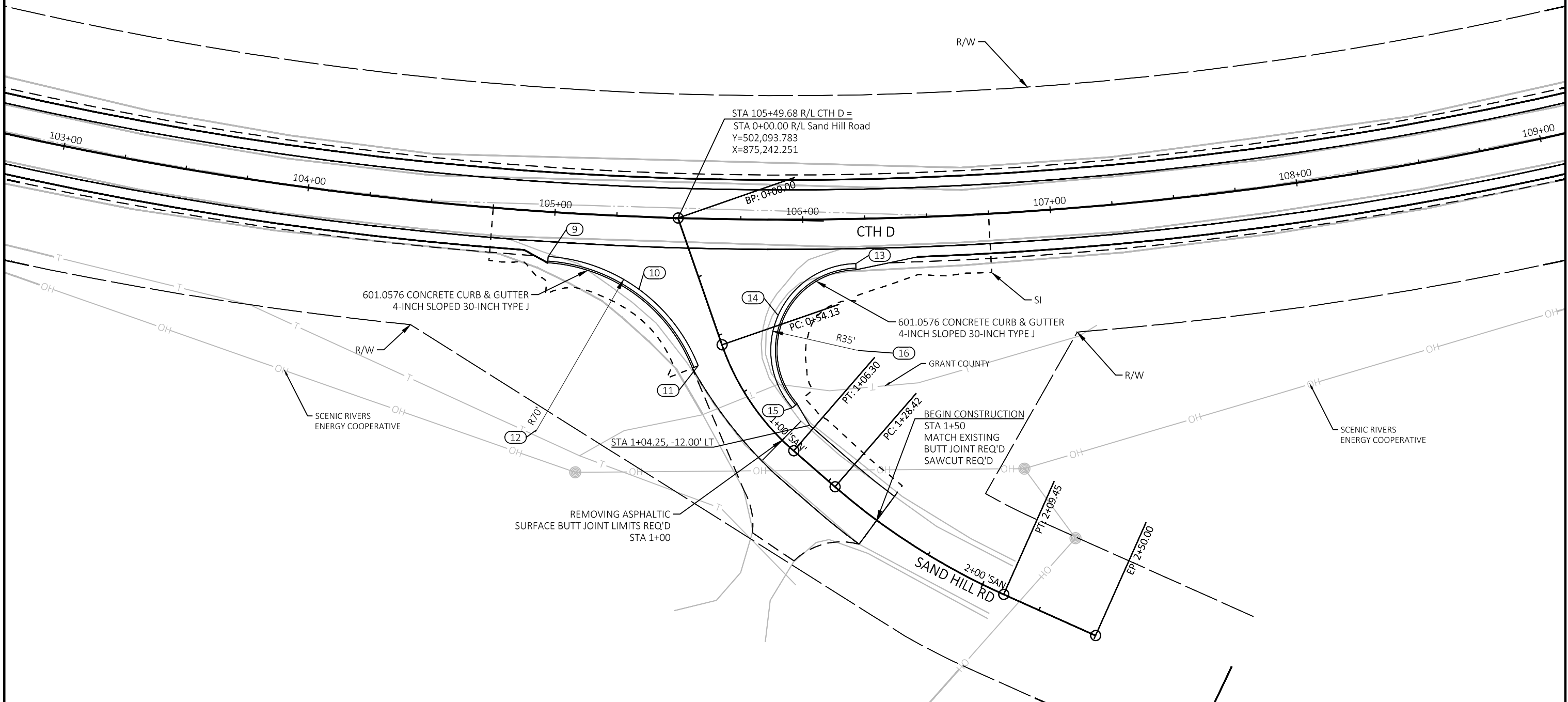
Butson Road Curb SW				
POINT NUMBER	STATION	OFFSET	NORTHING	EASTING
1	1+60.03 BUTSON ROAD	47.42' RT	497669.52	875903.47
2	1+47.47 BUTSON ROAD	20.82' RT	497696.07	875890.81
3	1+20.11 BUTSON ROAD	10.00' RT	497706.79	875863.42
4	1+20.11 BUTSON ROAD	50.00' RT	497666.79	875863.56

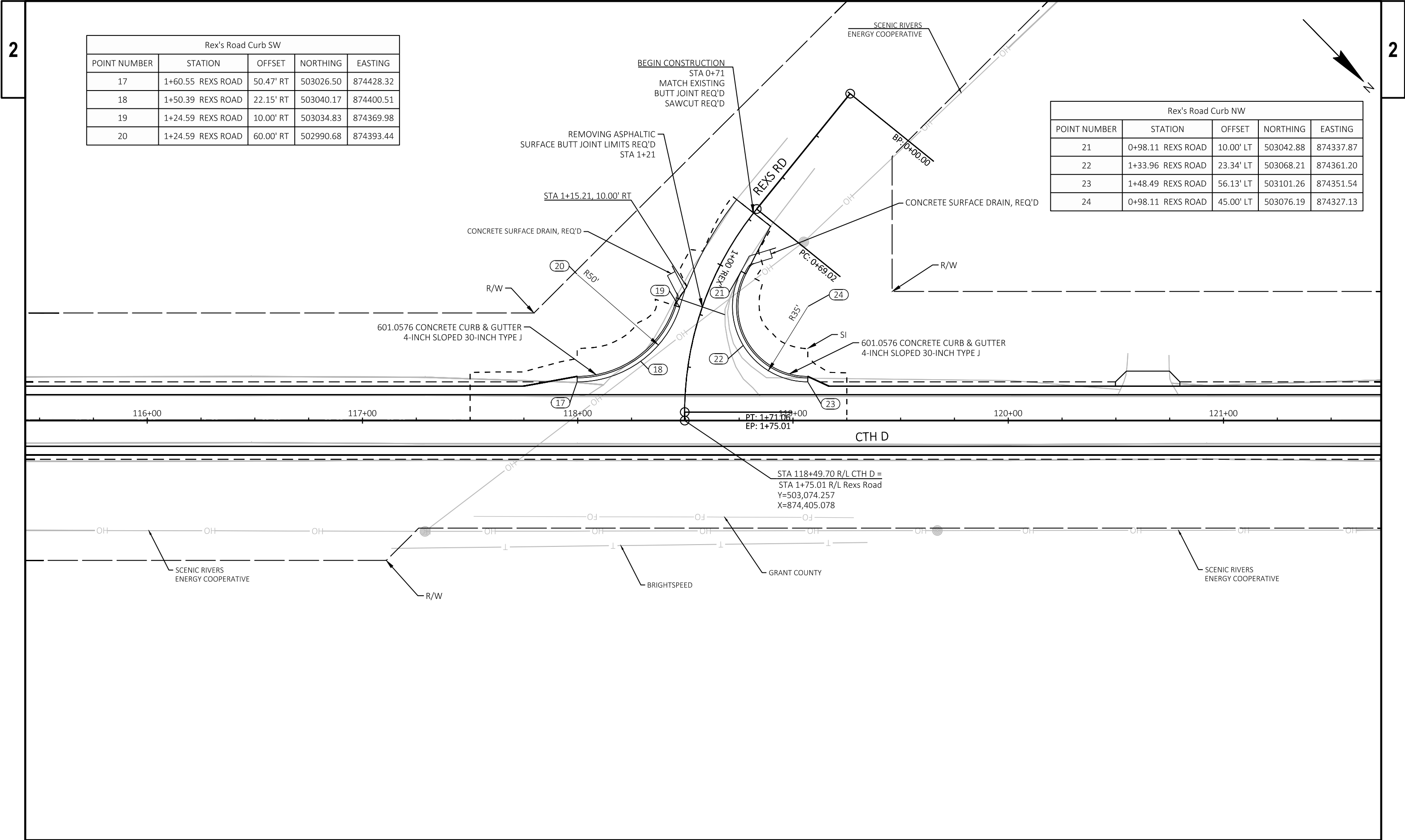
Butson Road Curb NW				
POINT NUMBER	STATION	OFFSET	NORTHING	EASTING
5	0+92.31 BUTSON ROAD	10.00' LT	497726.69	875835.54
6	1+36.08 BUTSON ROAD	28.97' LT	497745.81	875879.25
7	1+52.18 BUTSON ROAD	73.87' LT	497790.78	875895.18
8	0+92.31 BUTSON ROAD	70.00' LT	497786.69	875835.32



Sandhill Road Curb SE				
POINT NUMBER	STATION	OFFSET	NORTHING	EASTING
9	104+98.39 CTH D	18.00' RT	502052.27	875277.80
10	0+22.02 SAND HILL ROAD	24.34' RT	502091.13	875274.97
11	0+58.43 SAND HILL ROAD	12.00' RT	502125.48	875293.35
12	0+58.43 SAND HILL ROAD	82.00' RT	502076.59	875343.44

Sandhill Road Curb NE				
POINT NUMBER	STATION	OFFSET	NORTHING	EASTING
13	0+40.87 SAND HILL ROAD	61.75' LT	502166.77	875229.74
14	0+50.33 SAND HILL ROAD	25.29' LT	502146.68	875261.60
15	0+92.88 SAND HILL ROAD	12.00' LT	502167.13	875293.24
16	0+92.88 SAND HILL ROAD	47.00' LT	502181.68	875261.41



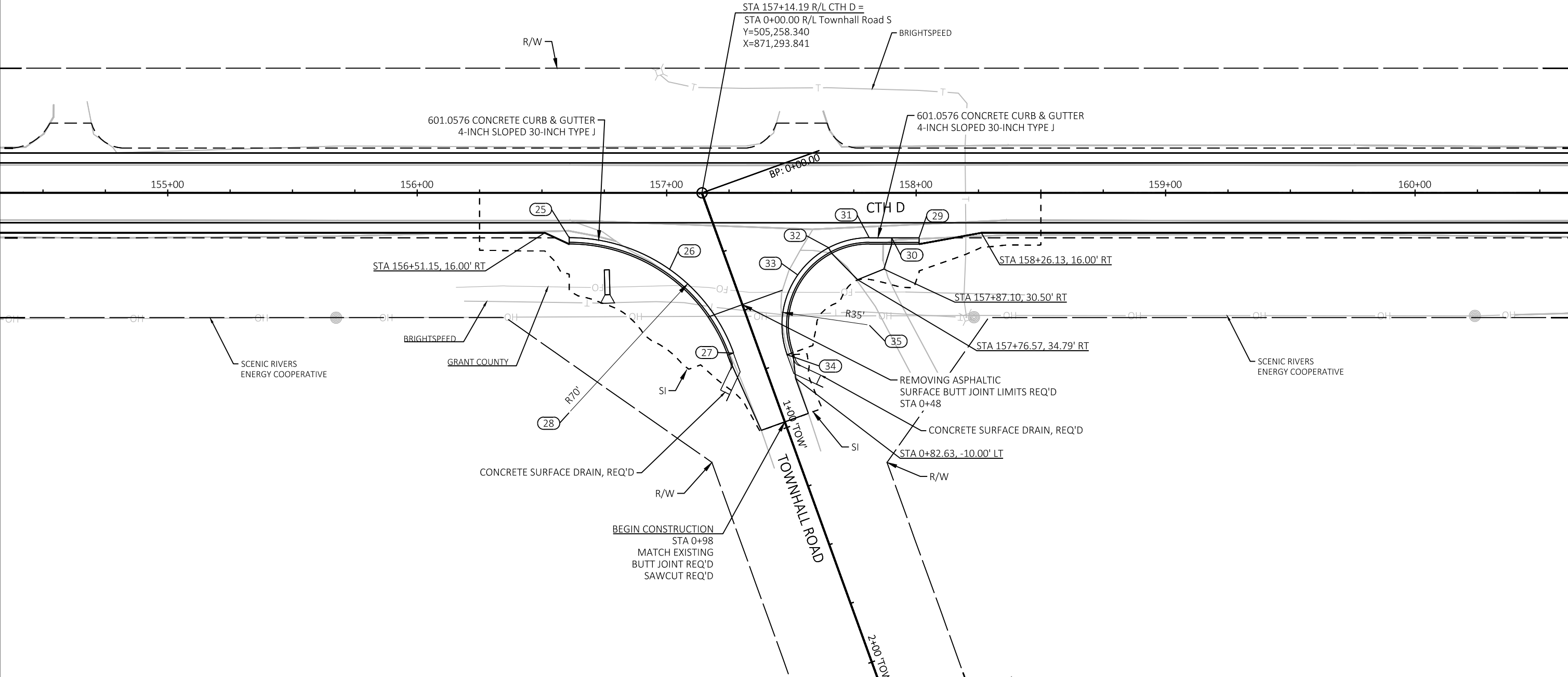


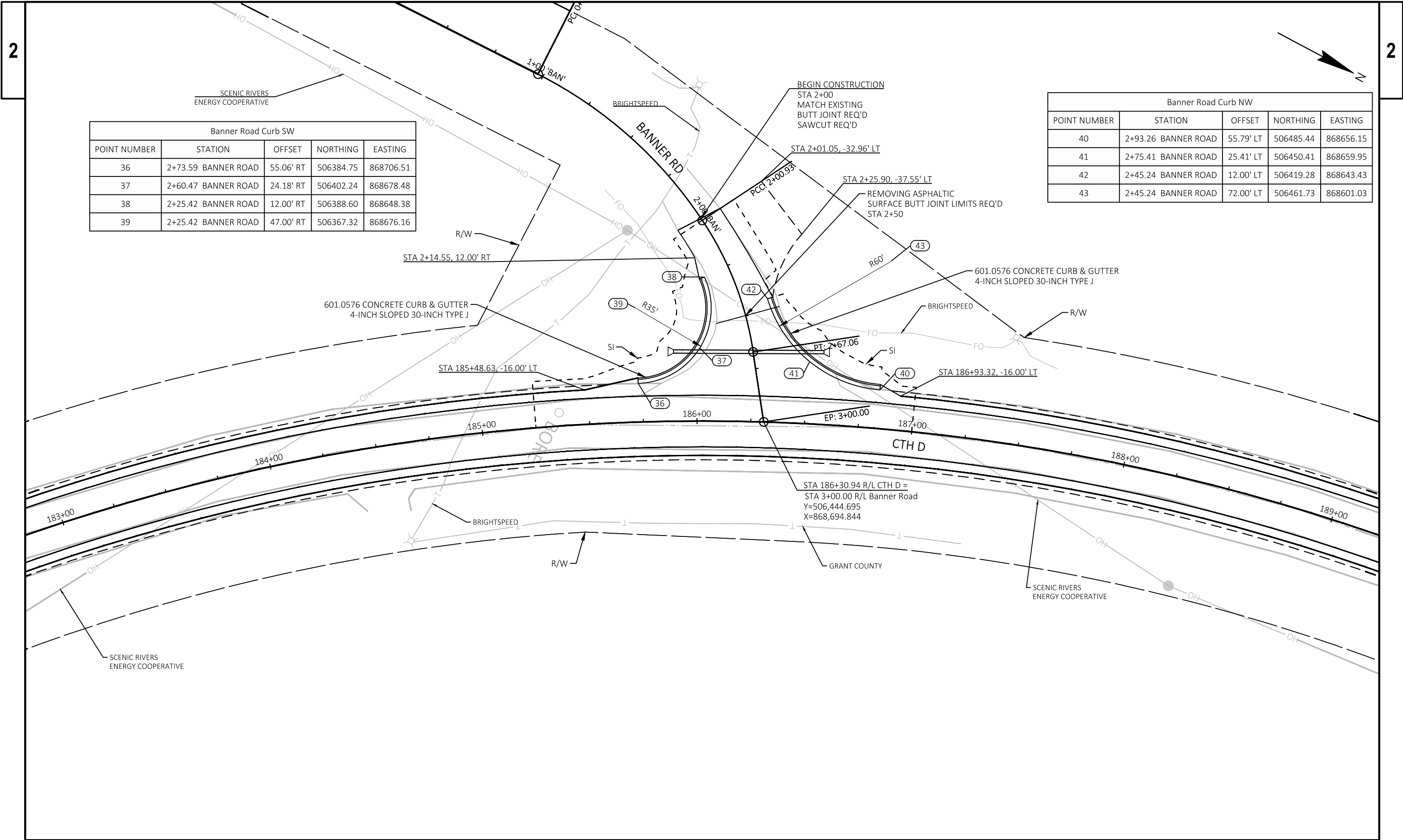
Rex's Road Curb SW				
POINT NUMBER	STATION	OFFSET	NORTHING	EASTING
17	1+60.55 REXS ROAD	50.47' RT	503026.50	874428.32
18	1+50.39 REXS ROAD	22.15' RT	503040.17	874400.51
19	1+24.59 REXS ROAD	10.00' RT	503034.83	874369.98
20	1+24.59 REXS ROAD	60.00' RT	502990.68	874393.44

Rex's Road Curb NW				
POINT NUMBER	STATION	OFFSET	NORTHING	EASTING
21	0+98.11 REXS ROAD	10.00' LT	503042.88	874337.87
22	1+33.96 REXS ROAD	23.34' LT	503068.21	874361.20
23	1+48.49 REXS ROAD	56.13' LT	503101.26	874351.54
24	0+98.11 REXS ROAD	45.00' LT	503076.19	874327.13

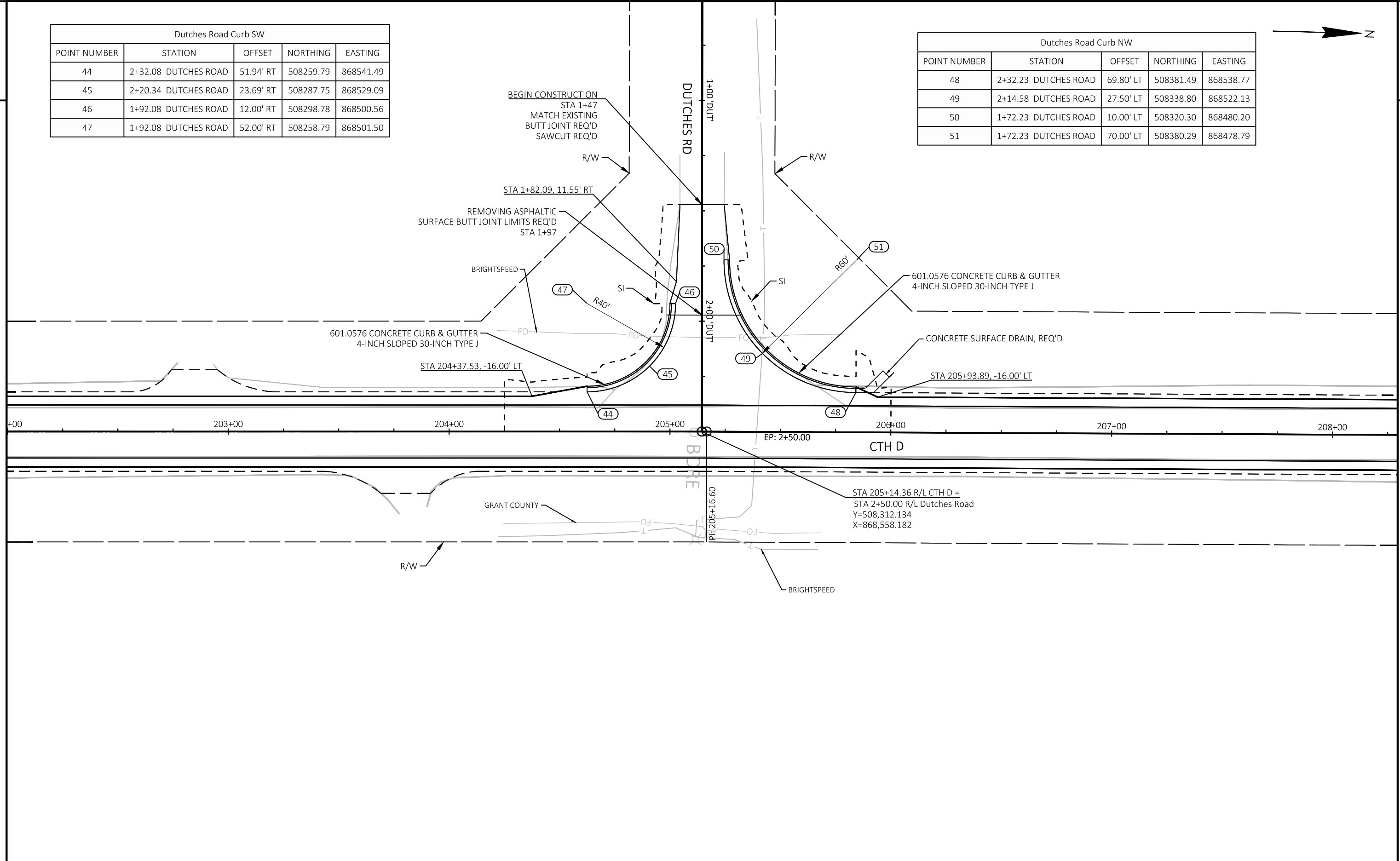
Townhall Road South Curb NE				
POINT NUMBER	STATION	OFFSET	NORTHING	EASTING
25	156+60.95 CTH D	18.00' RT	505258.04	871350.05
26	0+24.44 TOWNHALL ROAD S	22.70' RT	505283.13	871316.16
27	0+64.65 TOWNHALL ROAD S	10.00' RT	505323.14	871302.83
28	0+64.65 TOWNHALL ROAD S	80.00' RT	505324.23	871372.82

Townhall Road South Curb NW				
POINT NUMBER	STATION	OFFSET	NORTHING	EASTING
29	0+46.52 TOWNHALL ROAD S	75.71' LT	505303.67	871217.41
30	0+42.79 TOWNHALL ROAD S	65.40' LT	505300.10	871227.78
31	0+39.72 TOWNHALL ROAD S	56.90' LT	505297.16	871236.32
32	0+37.95 TOWNHALL ROAD S	40.27' LT	505295.66	871252.98
33	0+43.98 TOWNHALL ROAD S	24.90' LT	505301.93	871268.26
34	0+72.63 TOWNHALL ROAD S	10.00' LT	505330.81	871282.70
35	0+72.63 TOWNHALL ROAD S	45.00' LT	505330.26	871247.71

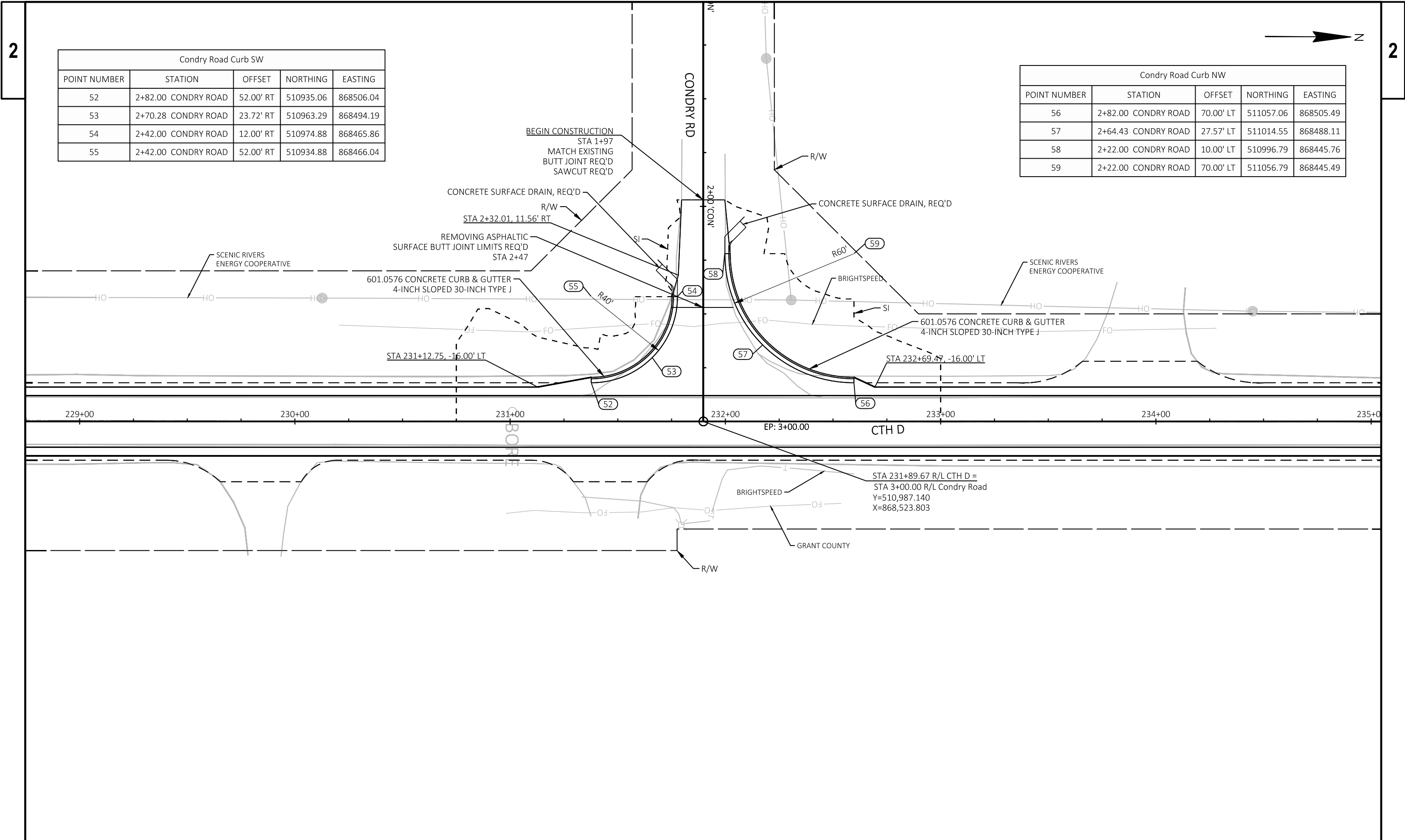




Dutches Road Curb SW				
POINT NUMBER	STATION	OFFSET	NORTHING	EASTING
44	2+32.08 DUTCHES ROAD	51.94' RT	508259.79	868541.49
45	2+20.34 DUTCHES ROAD	23.69' RT	508287.75	868529.09
46	1+92.08 DUTCHES ROAD	12.00' RT	508298.78	868500.56
47	1+92.08 DUTCHES ROAD	52.00' RT	508258.79	868501.50

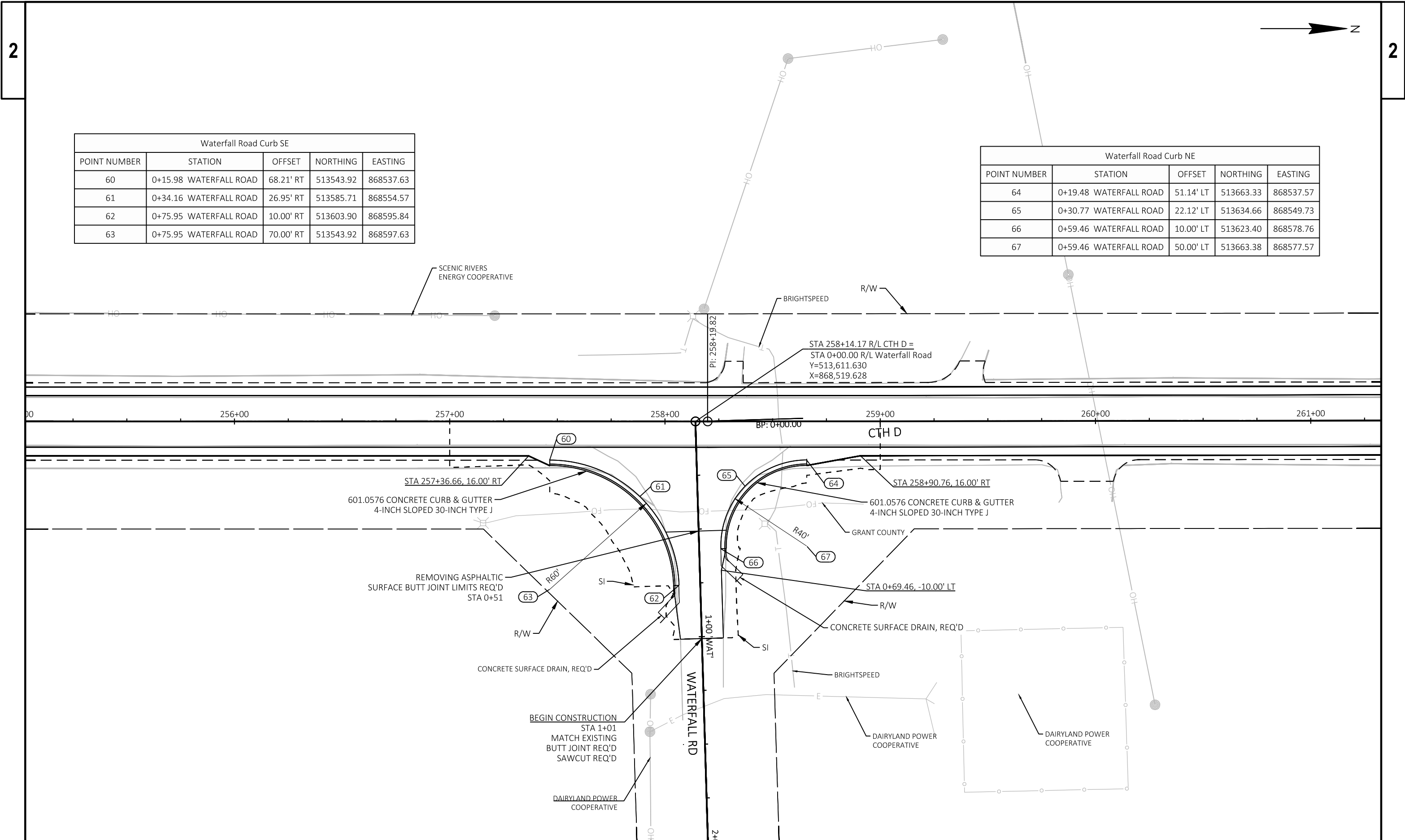


Dutches Road Curb NW				
POINT NUMBER	STATION	OFFSET	NORTHING	EASTING
48	2+32.23 DUTCHES ROAD	69.80' LT	508381.49	868538.77
49	2+14.58 DUTCHES ROAD	27.50' LT	508338.80	868522.13
50	1+72.23 DUTCHES ROAD	10.00' LT	508320.30	868480.20
51	1+72.23 DUTCHES ROAD	70.00' LT	508380.29	868478.79



Condry Road Curb SW				
POINT NUMBER	STATION	OFFSET	NORTHING	EASTING
52	2+82.00 CONDRY ROAD	52.00' RT	510935.06	868506.04
53	2+70.28 CONDRY ROAD	23.72' RT	510963.29	868494.19
54	2+42.00 CONDRY ROAD	12.00' RT	510974.88	868465.86
55	2+42.00 CONDRY ROAD	52.00' RT	510934.88	868466.04

Condry Road Curb NW				
POINT NUMBER	STATION	OFFSET	NORTHING	EASTING
56	2+82.00 CONDRY ROAD	70.00' LT	511057.06	868505.49
57	2+64.43 CONDRY ROAD	27.57' LT	511014.55	868488.11
58	2+22.00 CONDRY ROAD	10.00' LT	510996.79	868445.76
59	2+22.00 CONDRY ROAD	70.00' LT	511056.79	868445.49



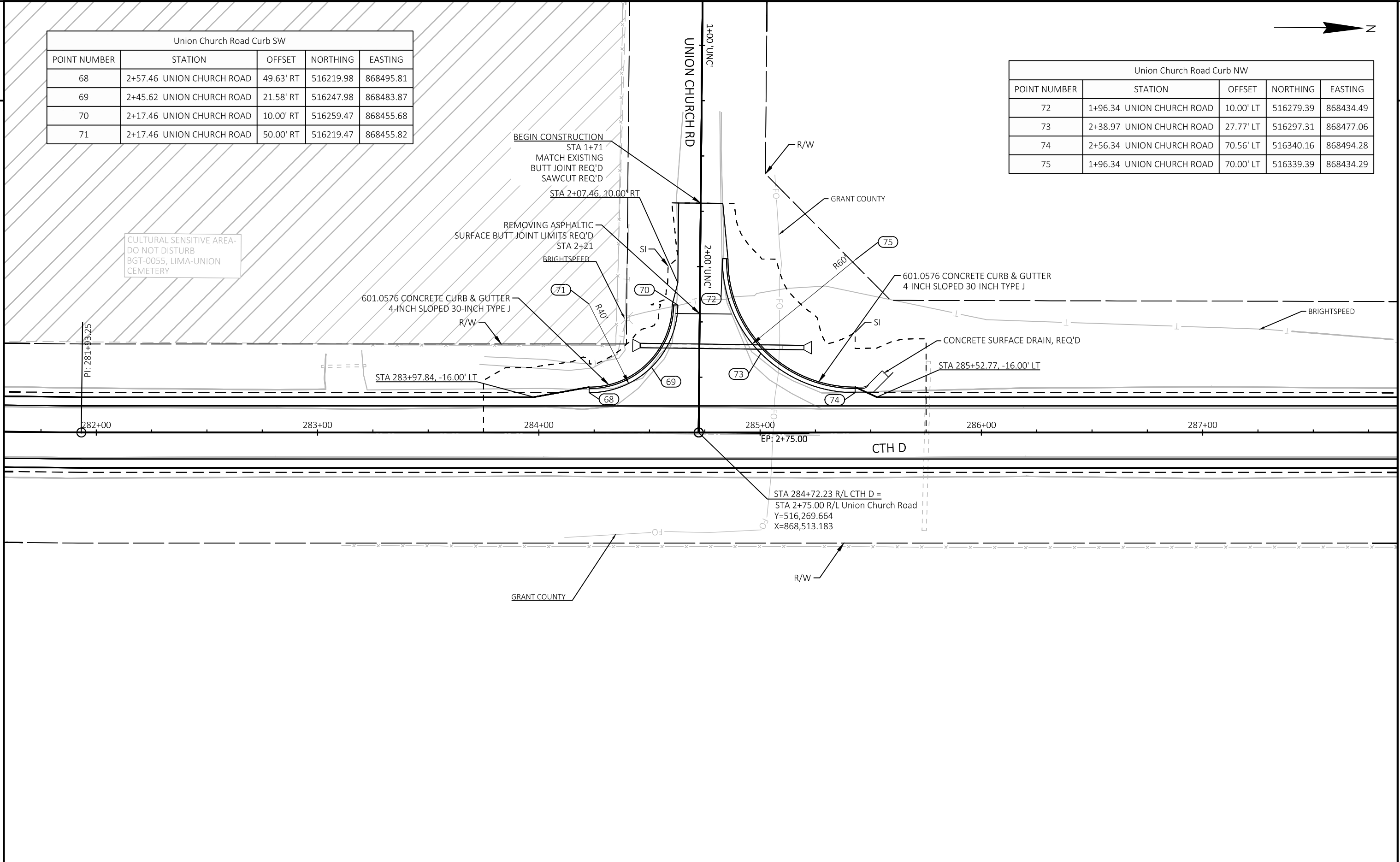
Waterfall Road Curb SE				
POINT NUMBER	STATION	OFFSET	NORTHING	EASTING
60	0+15.98 WATERFALL ROAD	68.21' RT	513543.92	868537.63
61	0+34.16 WATERFALL ROAD	26.95' RT	513585.71	868554.57
62	0+75.95 WATERFALL ROAD	10.00' RT	513603.90	868595.84
63	0+75.95 WATERFALL ROAD	70.00' RT	513543.92	868597.63

Waterfall Road Curb NE				
POINT NUMBER	STATION	OFFSET	NORTHING	EASTING
64	0+19.48 WATERFALL ROAD	51.14' LT	513663.33	868537.57
65	0+30.77 WATERFALL ROAD	22.12' LT	513634.66	868549.73
66	0+59.46 WATERFALL ROAD	10.00' LT	513623.40	868578.76
67	0+59.46 WATERFALL ROAD	50.00' LT	513663.38	868577.57

2

Union Church Road Curb SW				
POINT NUMBER	STATION	OFFSET	NORTHING	EASTING
68	2+57.46 UNION CHURCH ROAD	49.63' RT	516219.98	868495.81
69	2+45.62 UNION CHURCH ROAD	21.58' RT	516247.98	868483.87
70	2+17.46 UNION CHURCH ROAD	10.00' RT	516259.47	868455.68
71	2+17.46 UNION CHURCH ROAD	50.00' RT	516219.47	868455.82

CULTURAL SENSITIVE AREA-
DO NOT DISTURB
BGT-0055, LIMA-UNION
CEMETERY



Union Church Road Curb NW				
POINT NUMBER	STATION	OFFSET	NORTHING	EASTING
72	1+96.34 UNION CHURCH ROAD	10.00' LT	516279.39	868434.49
73	2+38.97 UNION CHURCH ROAD	27.77' LT	516297.31	868477.06
74	2+56.34 UNION CHURCH ROAD	70.56' LT	516340.16	868494.28
75	1+96.34 UNION CHURCH ROAD	70.00' LT	516339.39	868434.29

2

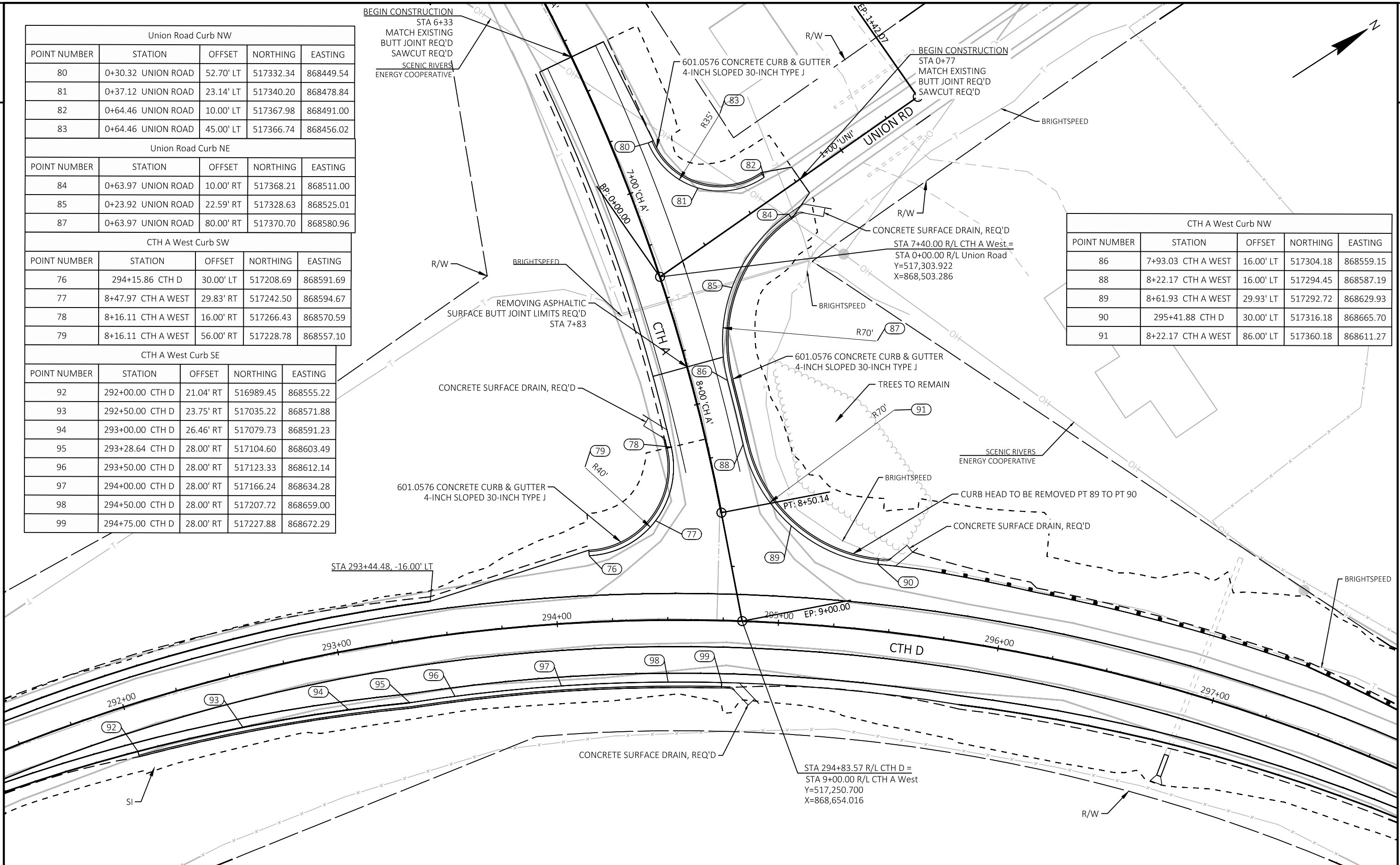
Union Road Curb NW				
POINT NUMBER	STATION	OFFSET	NORTHING	EASTING
80	0+30.32 UNION ROAD	52.70' LT	517332.34	868449.54
81	0+37.12 UNION ROAD	23.14' LT	517340.20	868478.84
82	0+64.46 UNION ROAD	10.00' LT	517367.98	868491.00
83	0+64.46 UNION ROAD	45.00' LT	517366.74	868456.02

Union Road Curb NE				
POINT NUMBER	STATION	OFFSET	NORTHING	EASTING
84	0+63.97 UNION ROAD	10.00' RT	517368.21	868511.00
85	0+23.92 UNION ROAD	22.59' RT	517328.63	868525.01
87	0+63.97 UNION ROAD	80.00' RT	517370.70	868580.96

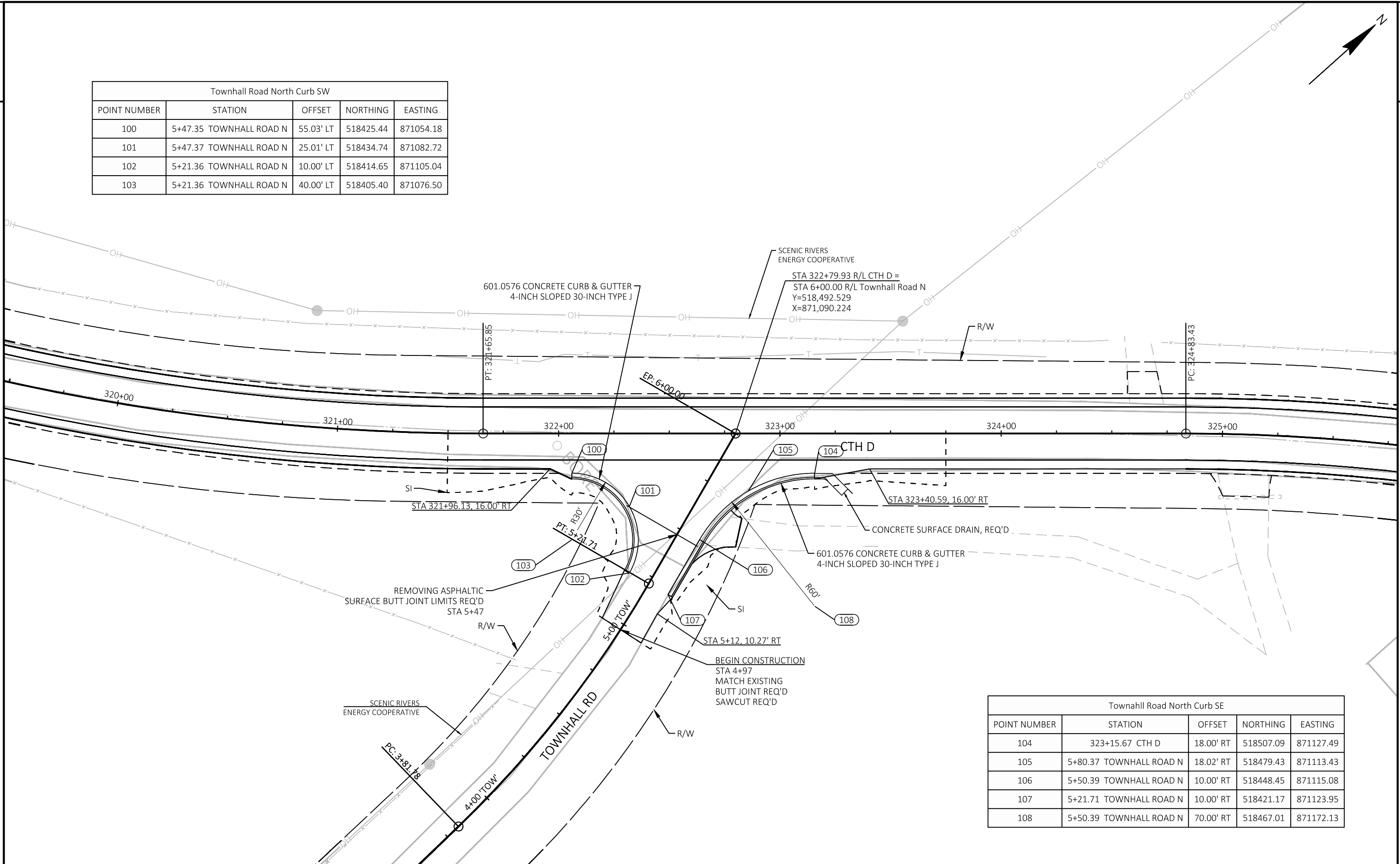
CTH A West Curb SW				
POINT NUMBER	STATION	OFFSET	NORTHING	EASTING
76	294+15.86 CTH D	30.00' LT	517208.69	868591.69
77	8+47.97 CTH A WEST	29.83' RT	517242.50	868594.67
78	8+16.11 CTH A WEST	16.00' RT	517266.43	868570.59
79	8+16.11 CTH A WEST	56.00' RT	517228.78	868557.10

CTH A West Curb SE				
POINT NUMBER	STATION	OFFSET	NORTHING	EASTING
92	292+00.00 CTH D	21.04' RT	516989.45	868555.22
93	292+50.00 CTH D	23.75' RT	517035.22	868571.88
94	293+00.00 CTH D	26.46' RT	517079.73	868591.23
95	293+28.64 CTH D	28.00' RT	517104.60	868603.49
96	293+50.00 CTH D	28.00' RT	517123.33	868612.14
97	294+00.00 CTH D	28.00' RT	517166.24	868634.28
98	294+50.00 CTH D	28.00' RT	517207.72	868659.00
99	294+75.00 CTH D	28.00' RT	517227.88	868672.29

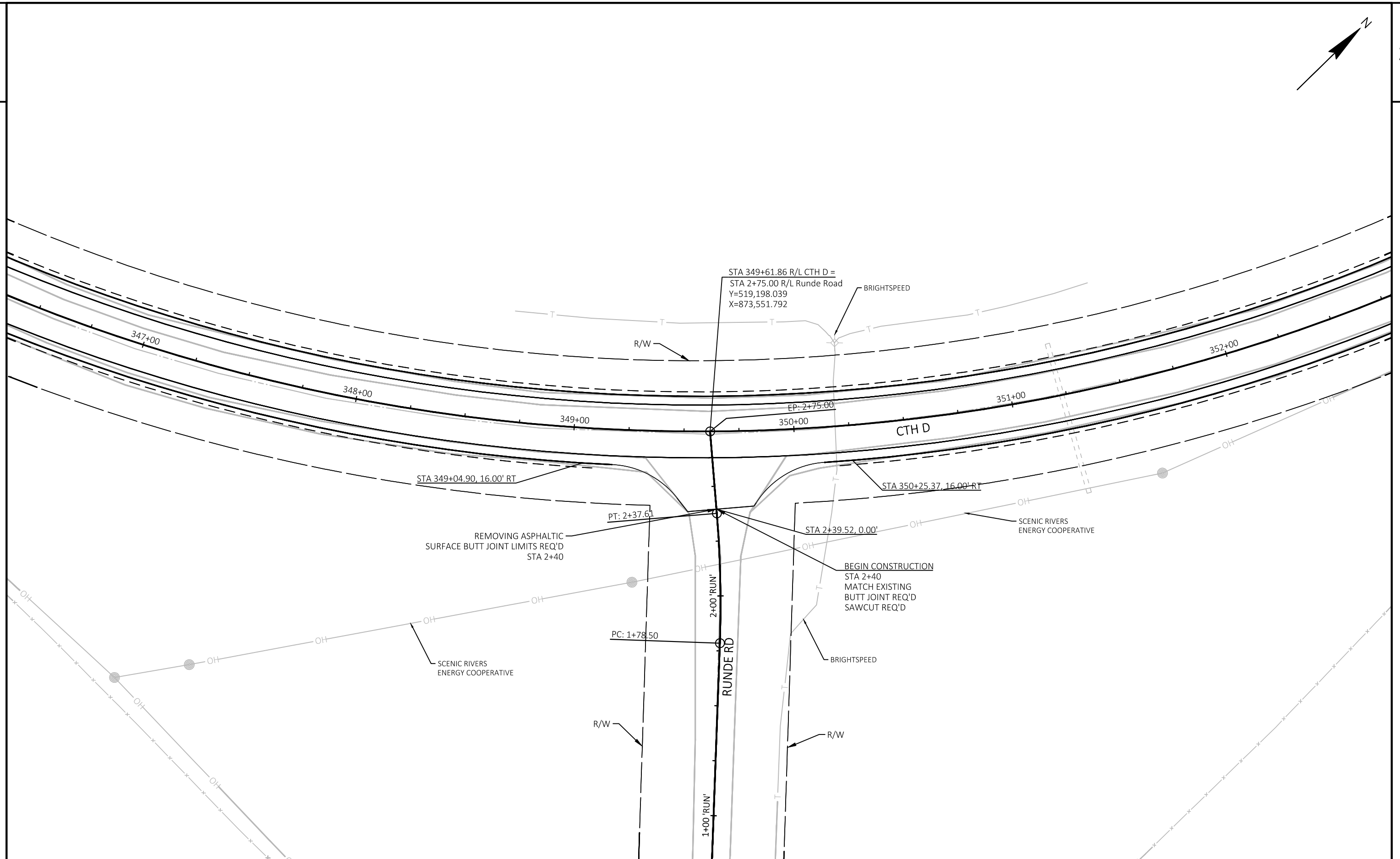
CTH A West Curb NW				
POINT NUMBER	STATION	OFFSET	NORTHING	EASTING
86	7+93.03 CTH A WEST	16.00' LT	517304.18	868559.15
88	8+22.17 CTH A WEST	16.00' LT	517294.45	868587.19
89	8+61.93 CTH A WEST	29.93' LT	517292.72	868629.93
90	295+41.88 CTH D	30.00' LT	517316.18	868665.70
91	8+22.17 CTH A WEST	86.00' LT	517360.18	868611.27



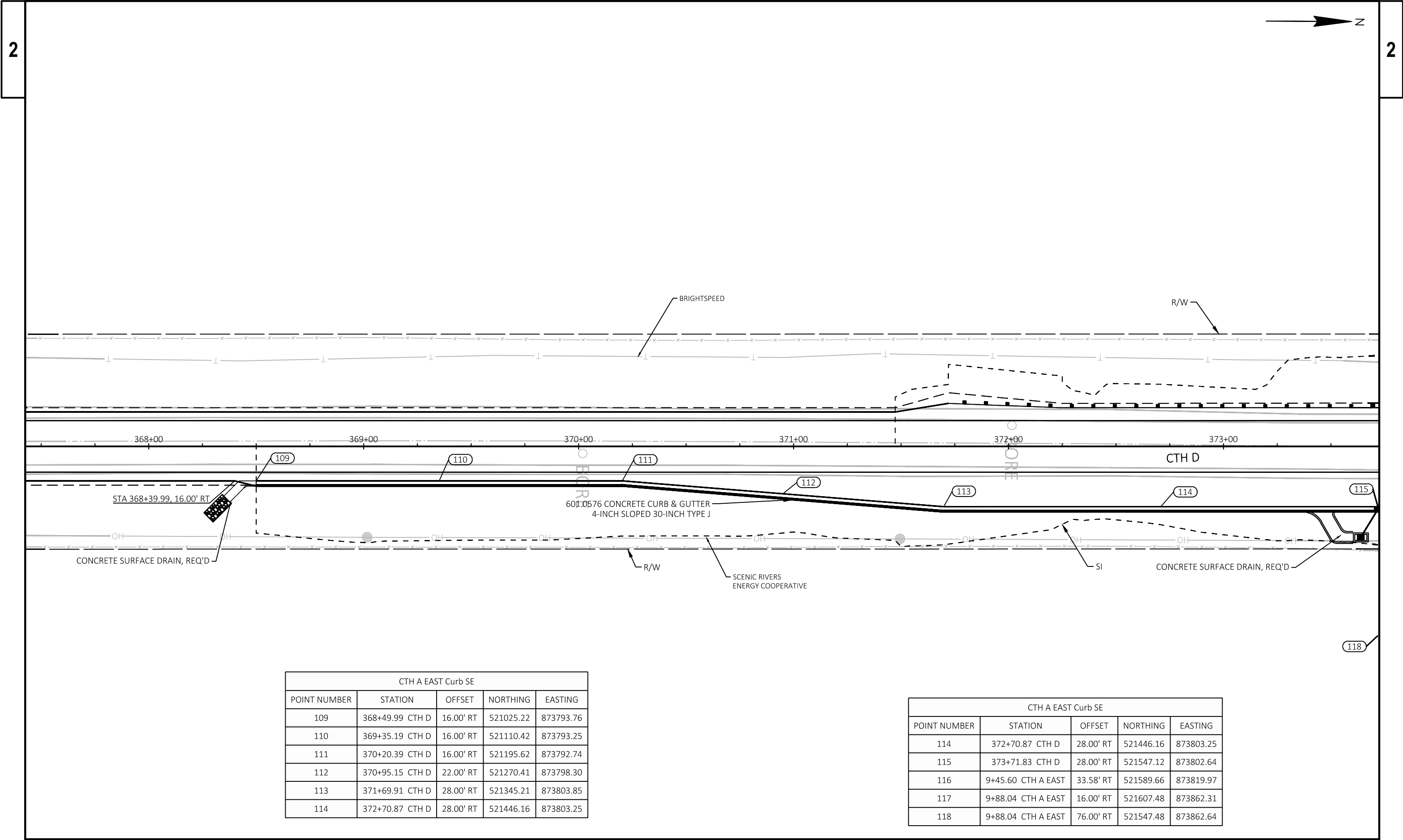
Townhall Road North Curb SW				
POINT NUMBER	STATION	OFFSET	NORTHING	EASTING
100	5+47.35 TOWNHALL ROAD N	55.03' LT	518425.44	871054.18
101	5+47.37 TOWNHALL ROAD N	25.01' LT	518434.74	871082.72
102	5+21.36 TOWNHALL ROAD N	10.00' LT	518414.65	871105.04
103	5+21.36 TOWNHALL ROAD N	40.00' LT	518405.40	871076.50



Townhall Road North Curb SE				
POINT NUMBER	STATION	OFFSET	NORTHING	EASTING
104	323+15.67 CTH D	18.00' RT	518507.09	871127.49
105	5+80.37 TOWNHALL ROAD N	18.02' RT	518479.43	871113.43
106	5+50.39 TOWNHALL ROAD N	10.00' RT	518448.45	871115.08
107	5+21.71 TOWNHALL ROAD N	10.00' RT	518421.17	871123.95
108	5+50.39 TOWNHALL ROAD N	70.00' RT	518467.01	871172.13

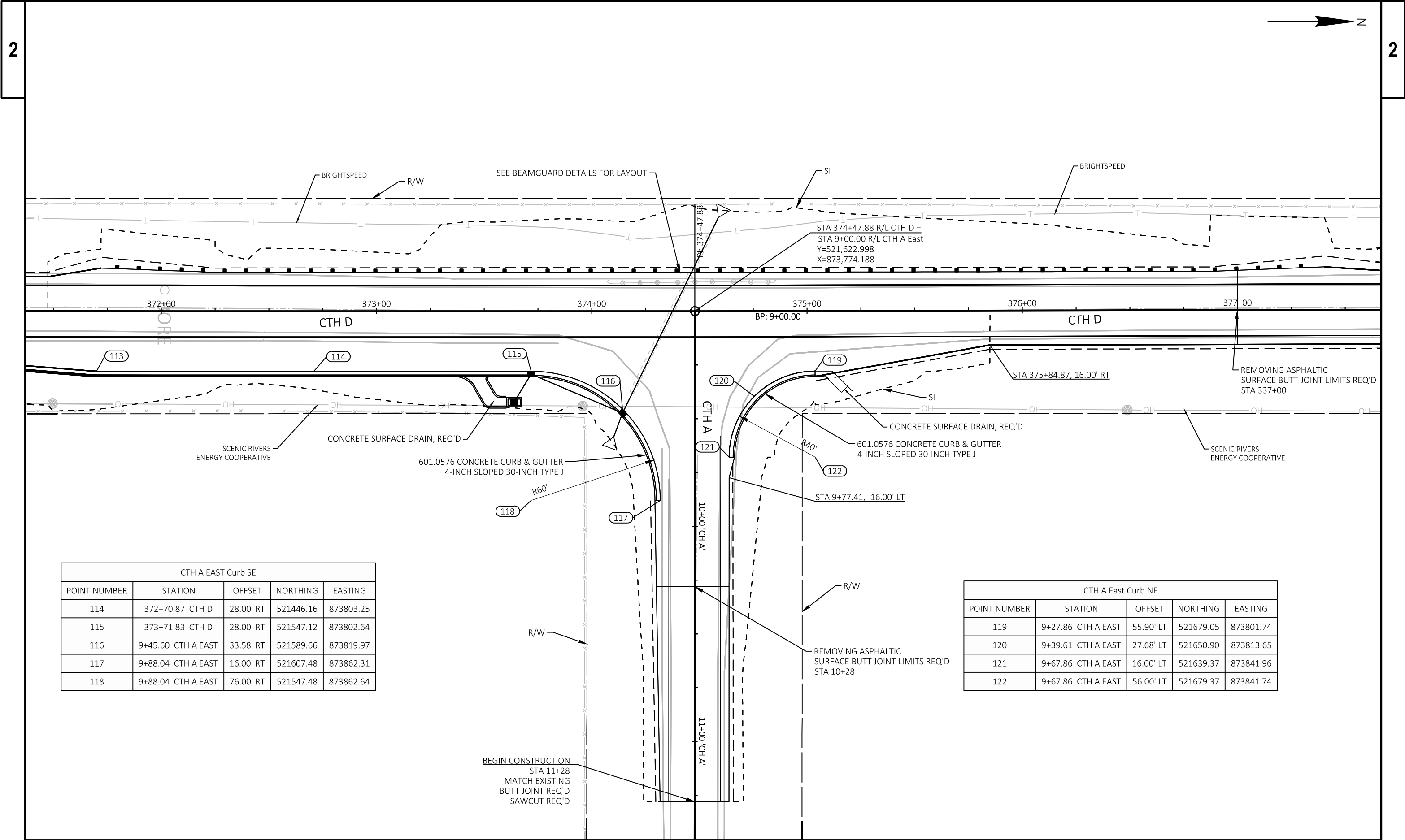


PROJECT NO: 5316-00-71	HWY: CTH D	COUNTY: GRANT	PLAN DETAILS - INTERSECTION	SHEET 30	E
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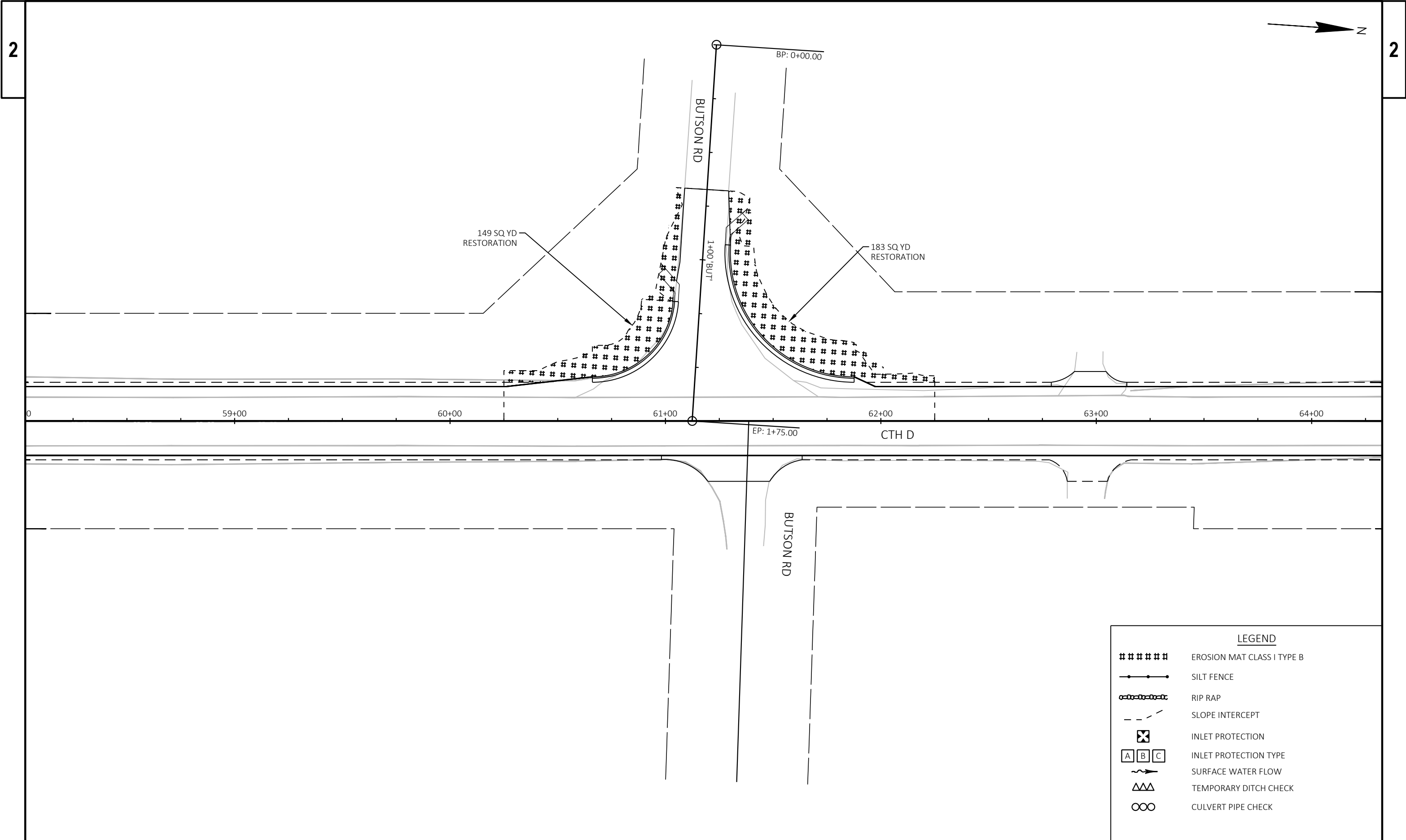
CTH A EAST Curb SE				
POINT NUMBER	STATION	OFFSET	NORTHING	EASTING
109	368+49.99 CTH D	16.00' RT	521025.22	873793.76
110	369+35.19 CTH D	16.00' RT	521110.42	873793.25
111	370+20.39 CTH D	16.00' RT	521195.62	873792.74
112	370+95.15 CTH D	22.00' RT	521270.41	873798.30
113	371+69.91 CTH D	28.00' RT	521345.21	873803.85
114	372+70.87 CTH D	28.00' RT	521446.16	873803.25

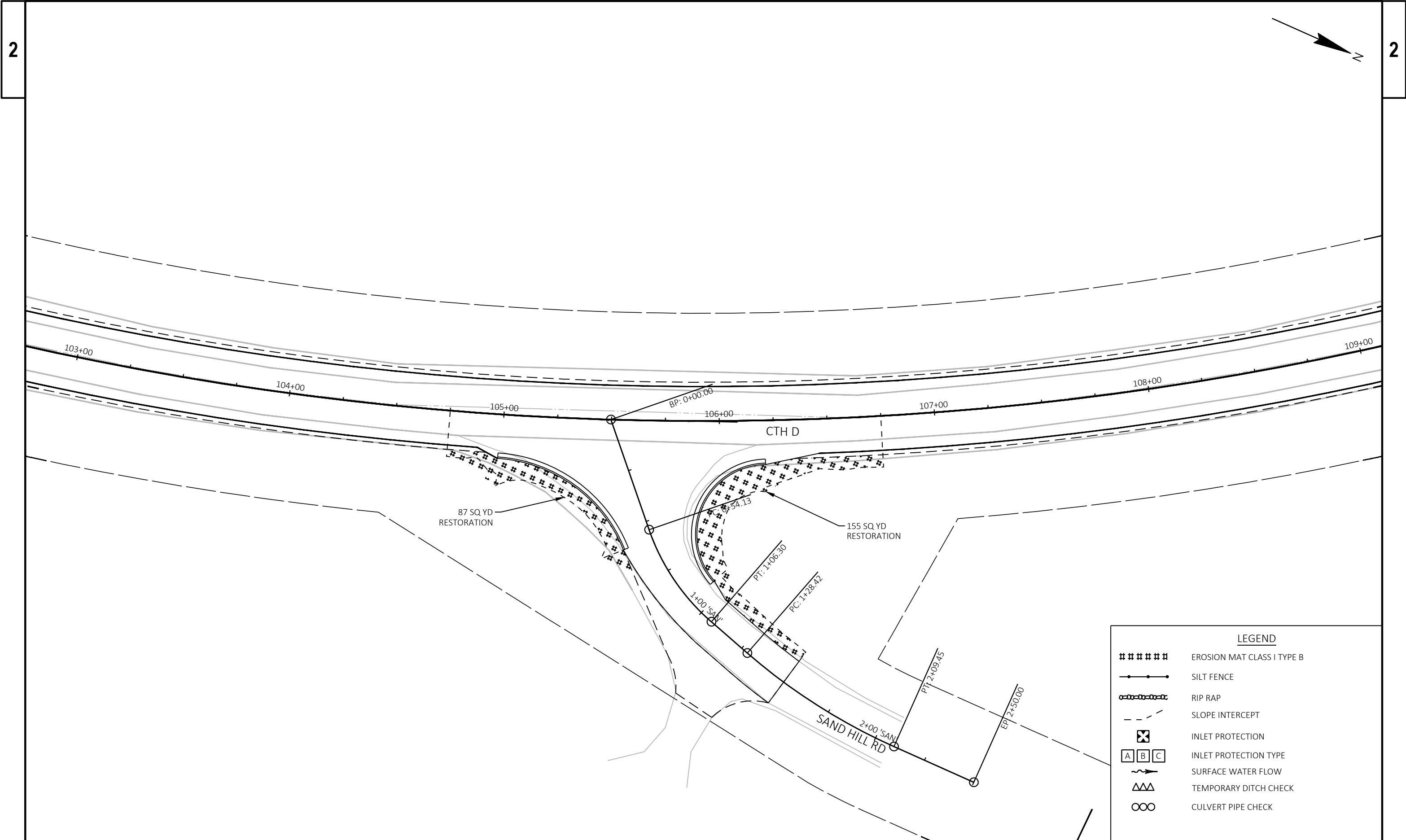
CTH A EAST Curb SE				
POINT NUMBER	STATION	OFFSET	NORTHING	EASTING
114	372+70.87 CTH D	28.00' RT	521446.16	873803.25
115	373+71.83 CTH D	28.00' RT	521547.12	873802.64
116	9+45.60 CTH A EAST	33.58' RT	521589.66	873819.97
117	9+88.04 CTH A EAST	16.00' RT	521607.48	873862.31
118	9+88.04 CTH A EAST	76.00' RT	521547.48	873862.64

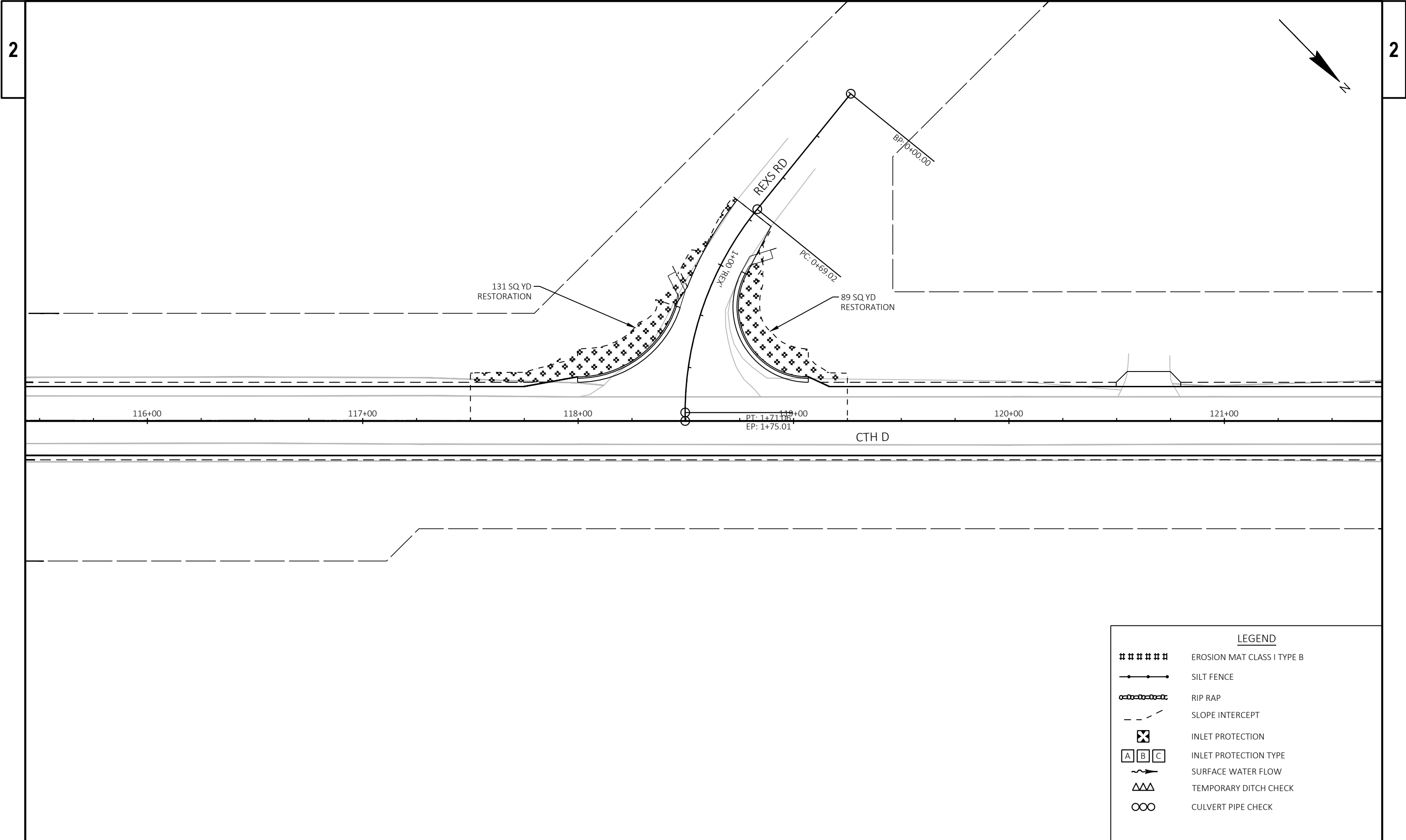


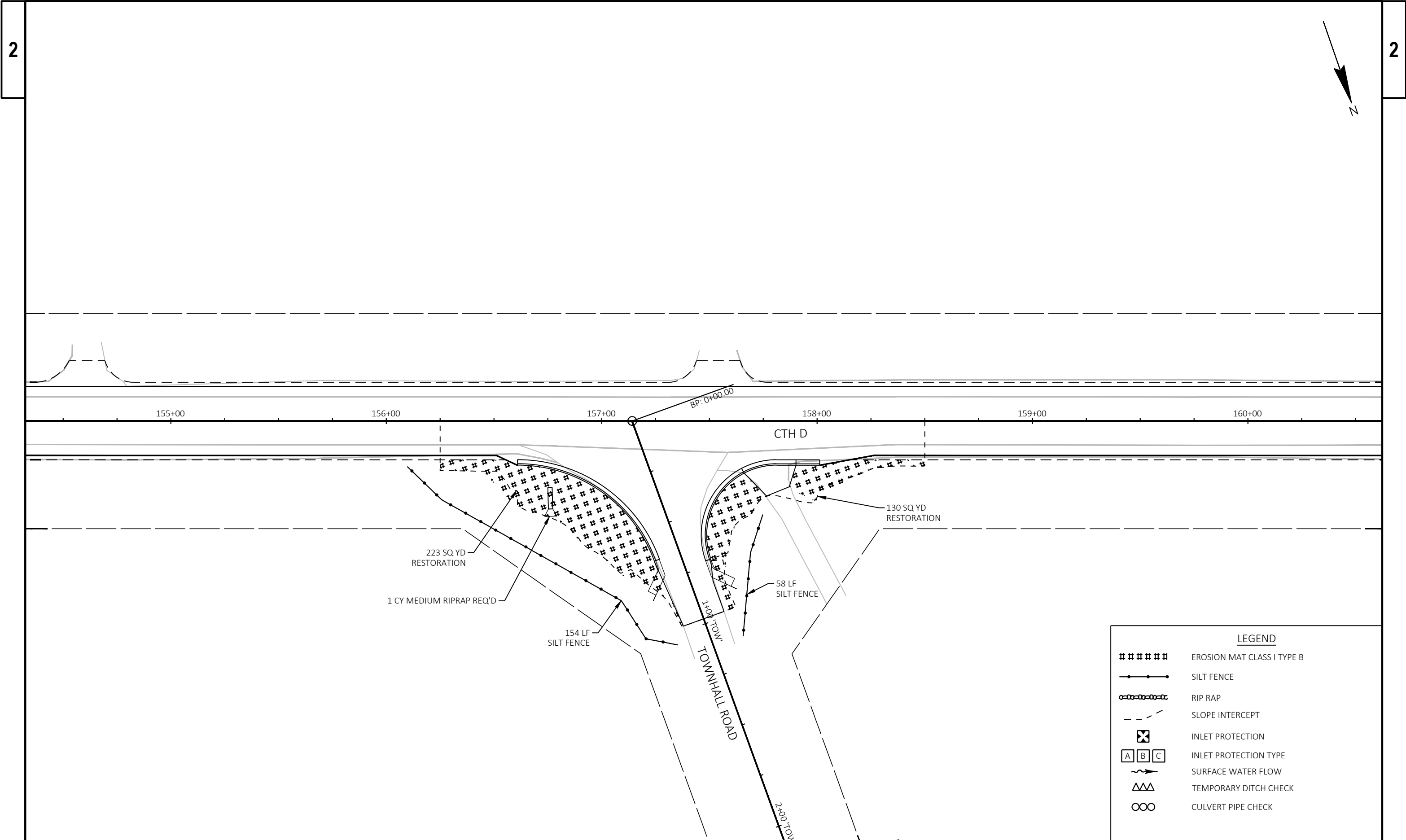
CTH A EAST Curb SE				
POINT NUMBER	STATION	OFFSET	NORTHING	EASTING
114	372+70.87 CTH D	28.00' RT	521446.16	873803.25
115	373+71.83 CTH D	28.00' RT	521547.12	873802.64
116	9+45.60 CTH A EAST	33.58' RT	521589.66	873819.97
117	9+88.04 CTH A EAST	16.00' RT	521607.48	873862.31
118	9+88.04 CTH A EAST	76.00' RT	521547.48	873862.64

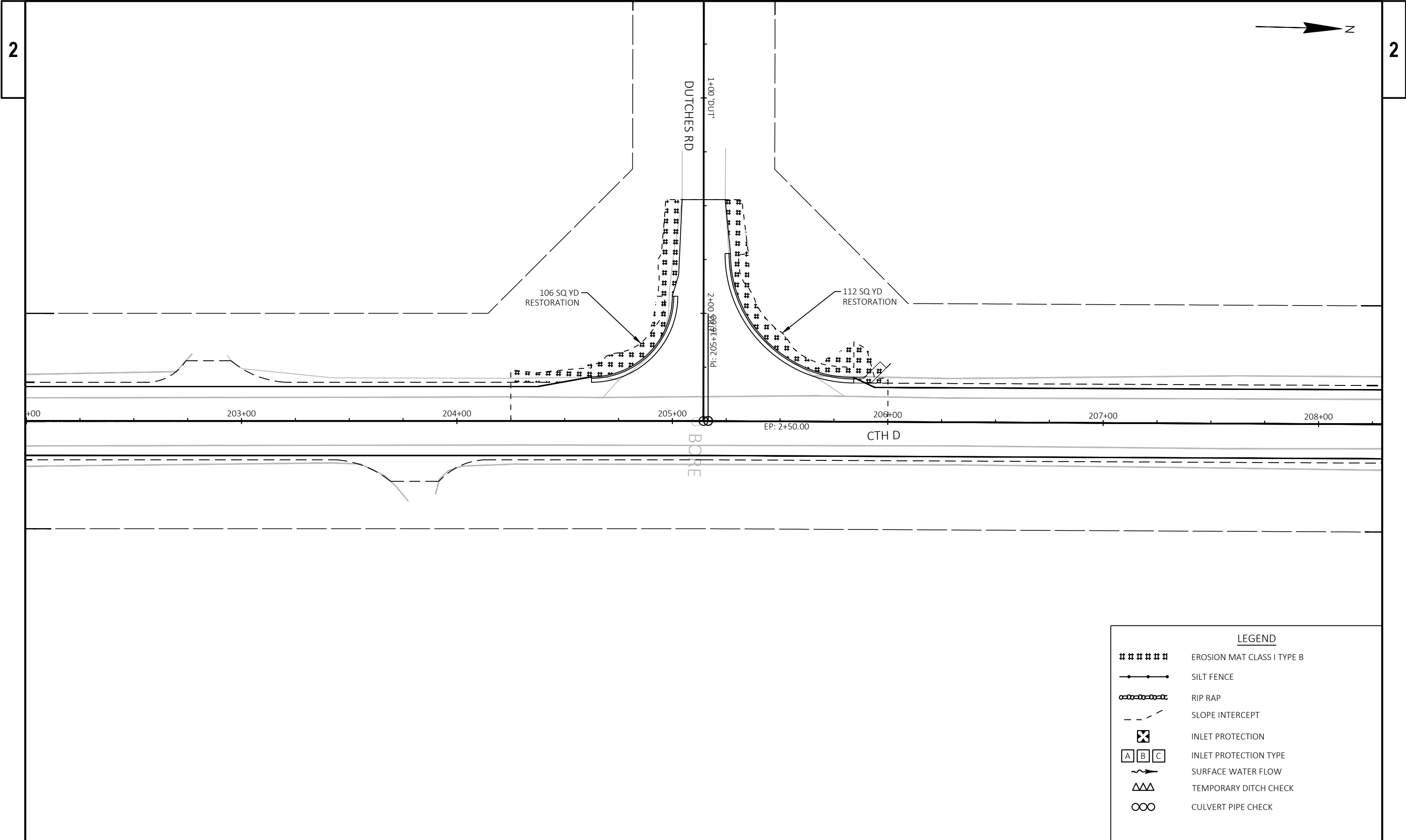
CTH A East Curb NE				
POINT NUMBER	STATION	OFFSET	NORTHING	EASTING
119	9+27.86 CTH A EAST	55.90' LT	521679.05	873801.74
120	9+39.61 CTH A EAST	27.68' LT	521650.90	873813.65
121	9+67.86 CTH A EAST	16.00' LT	521639.37	873841.96
122	9+67.86 CTH A EAST	56.00' LT	521679.37	873841.74

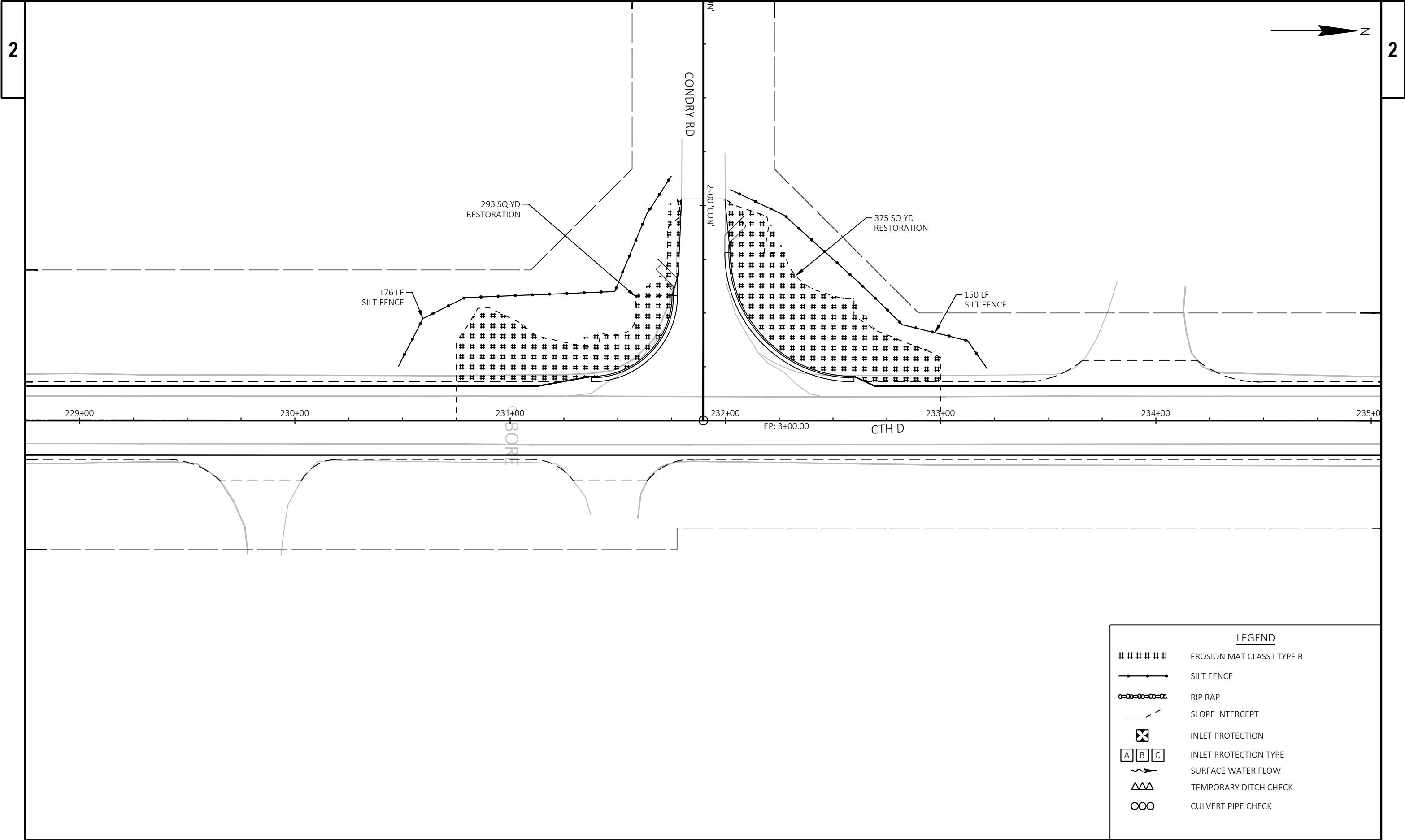


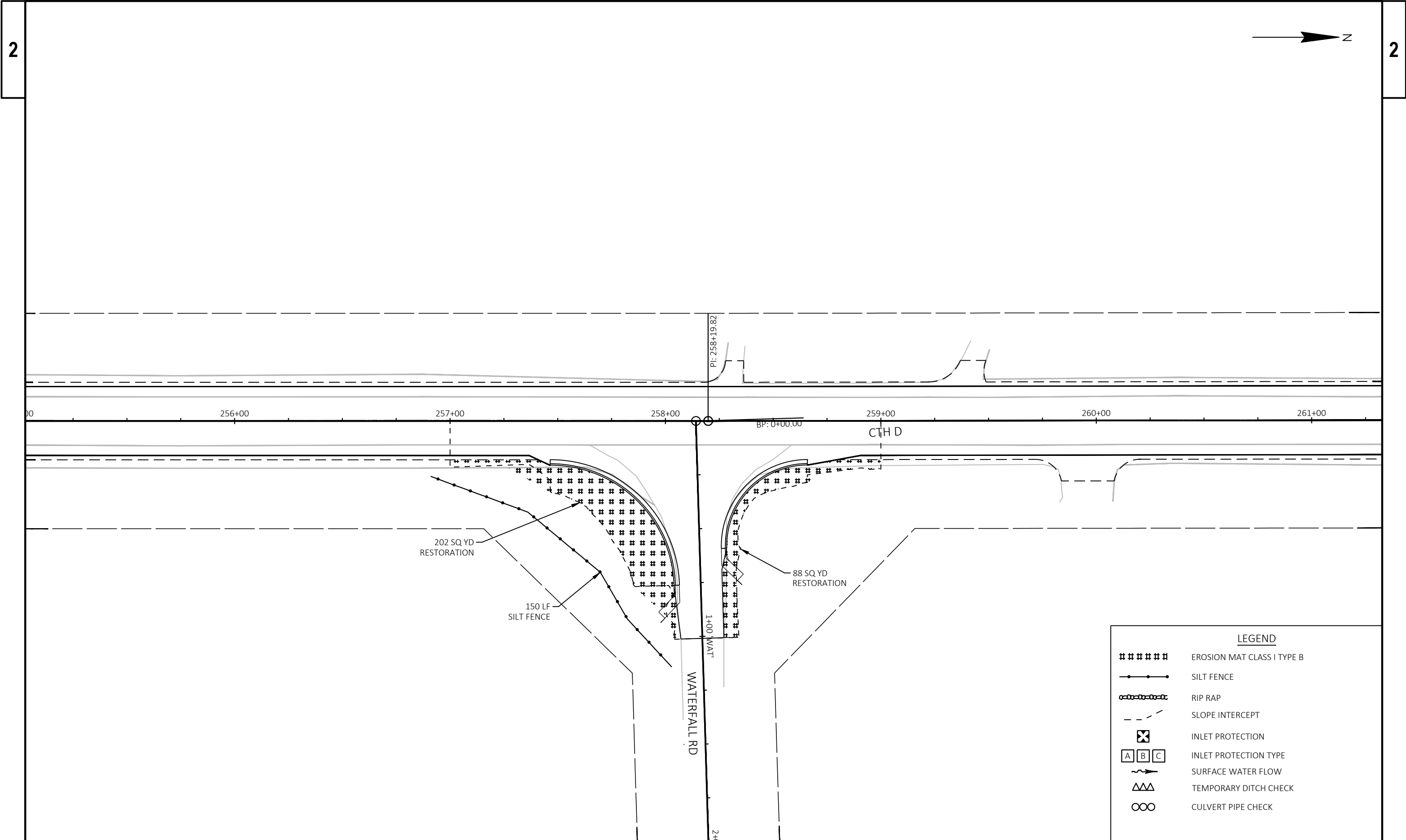


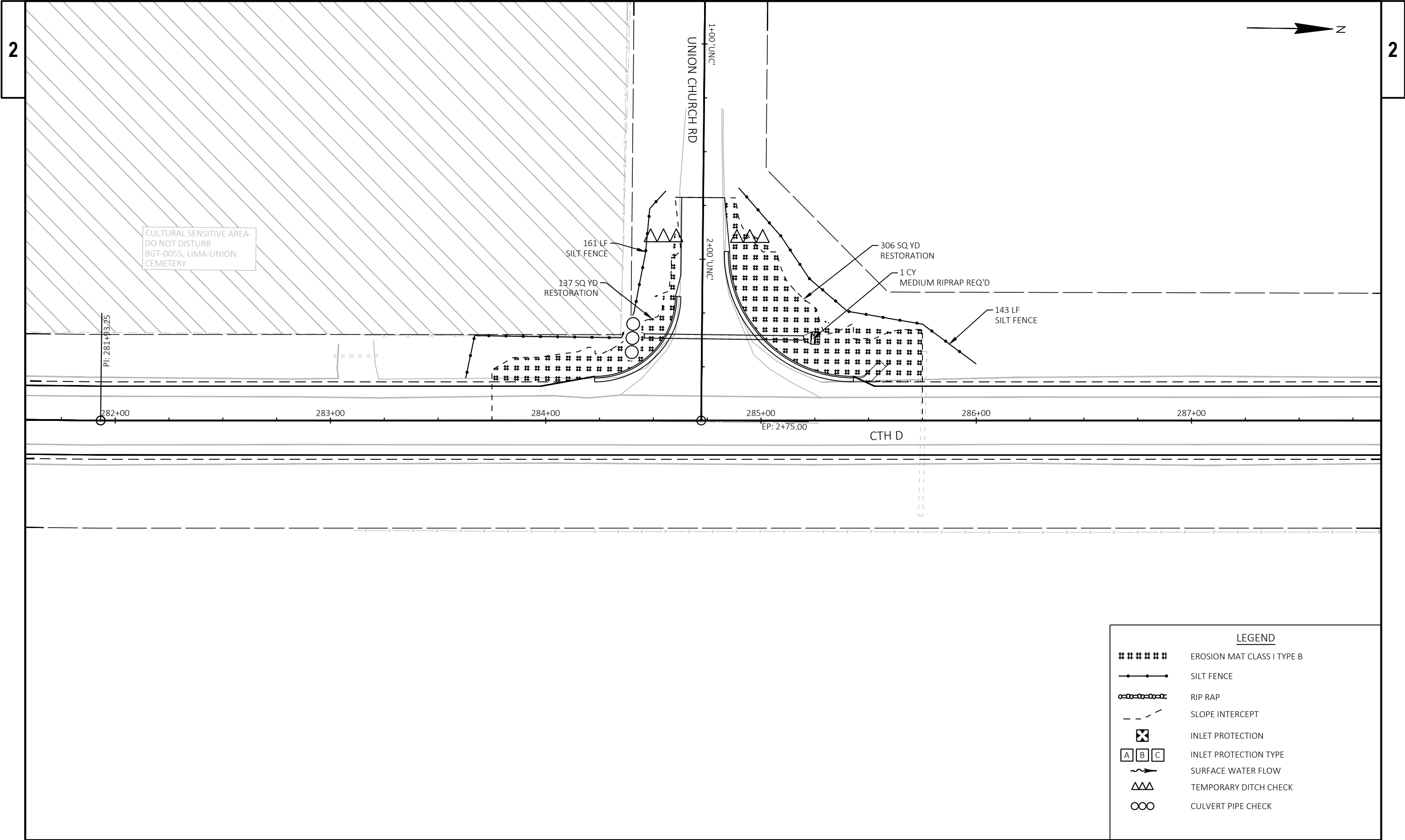




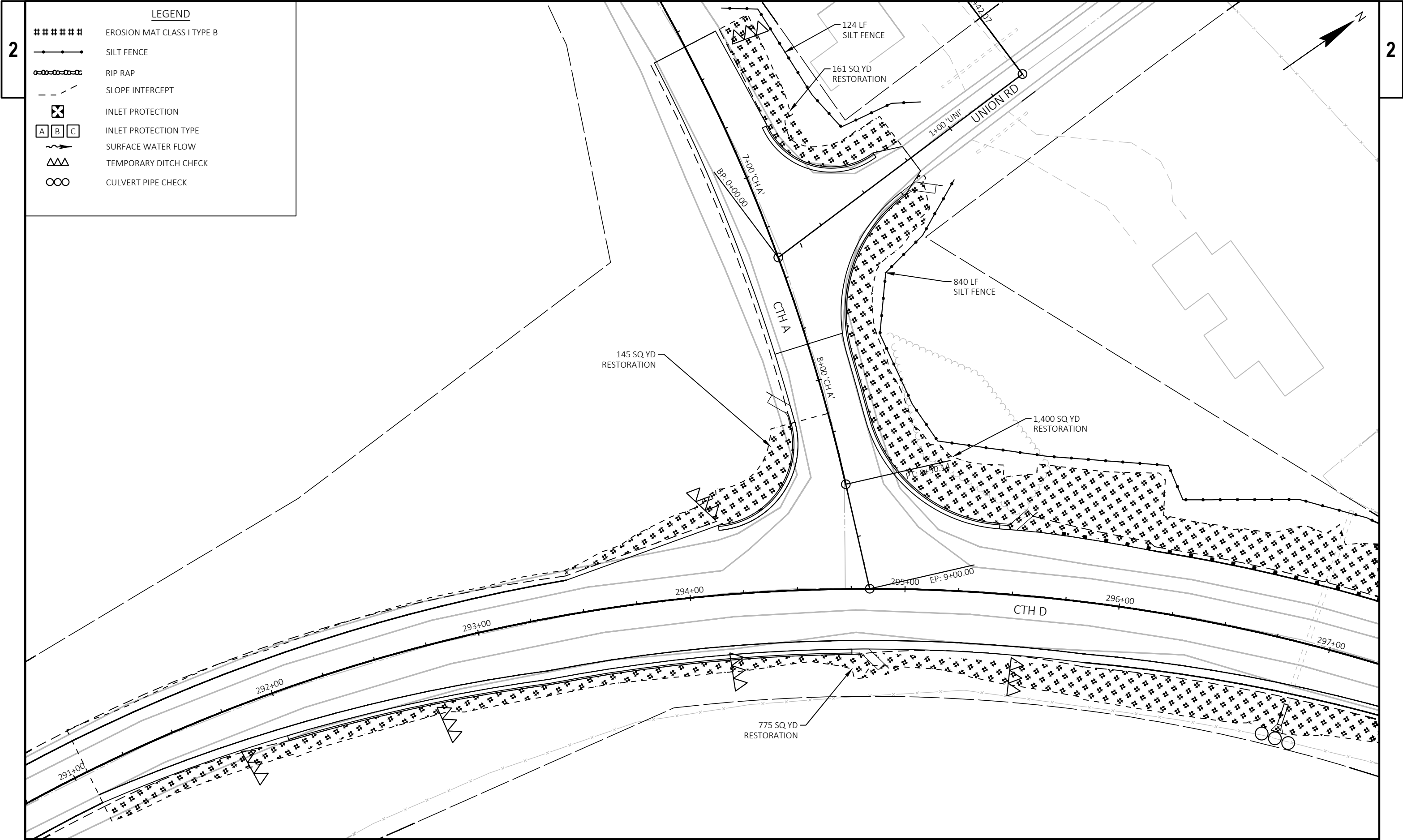


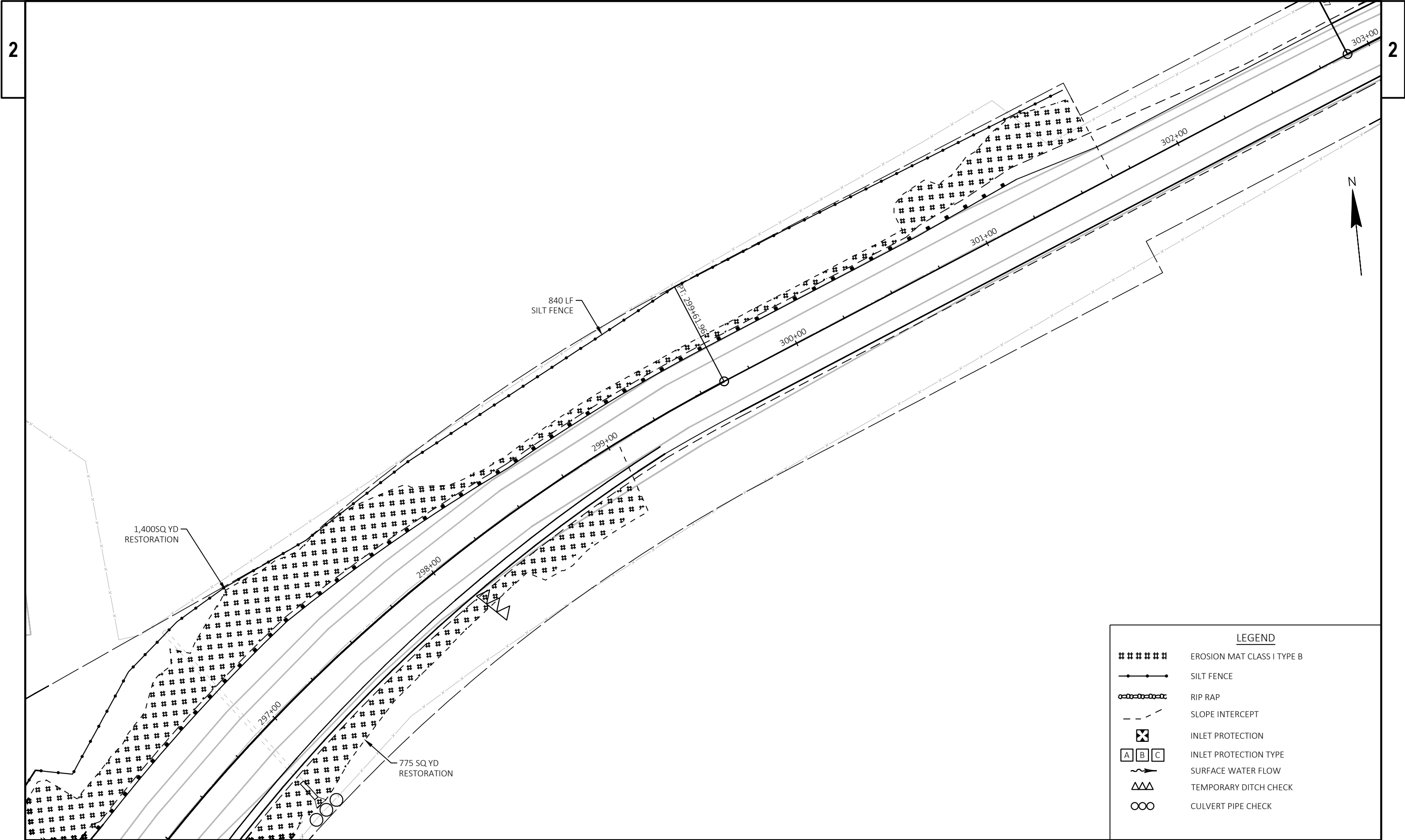


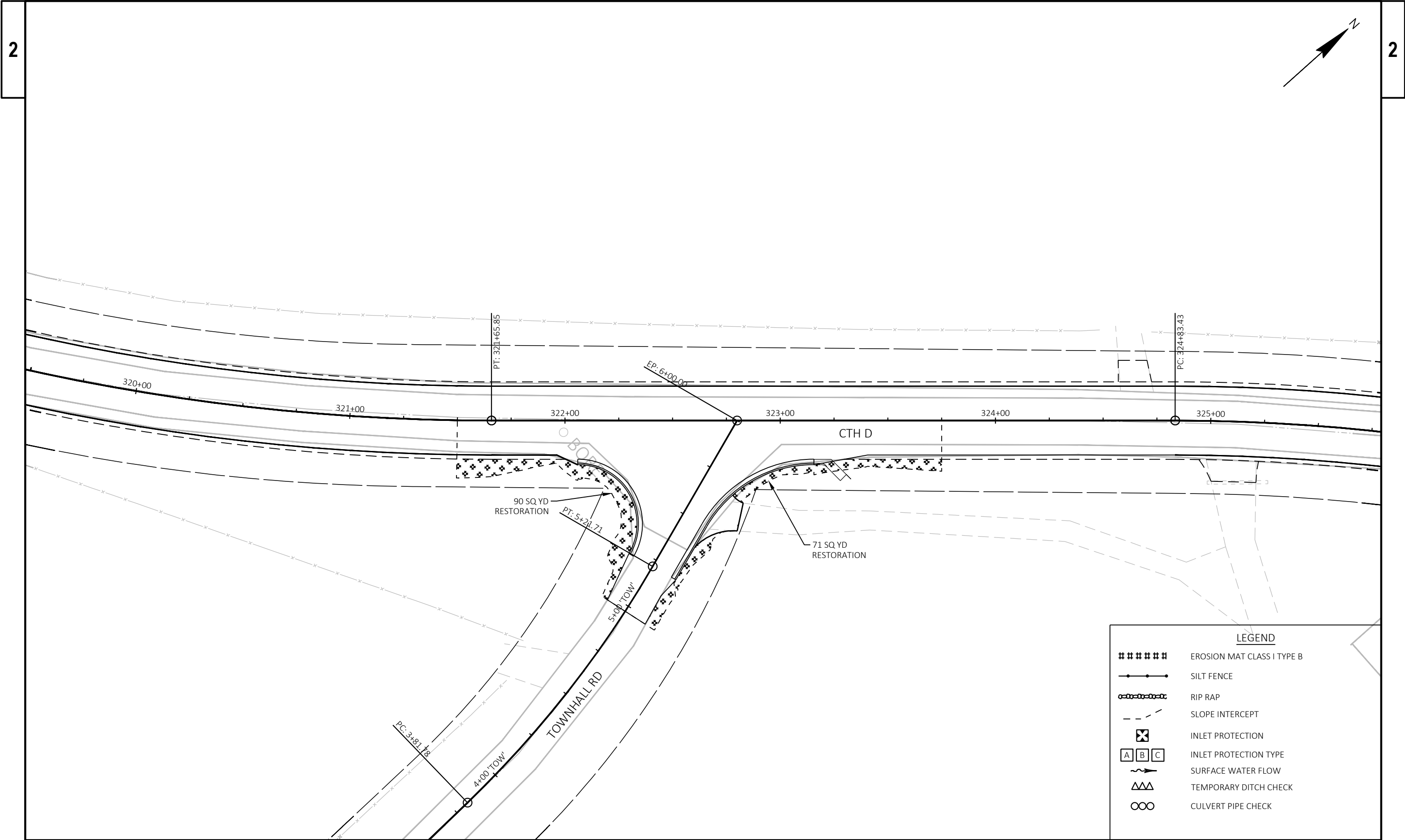




LEGEND	
#####	EROSION MAT CLASS I TYPE B
—●—●—●—	SILT FENCE
—○—○—○—○—	RIP RAP
- - -	SLOPE INTERCEPT
⊗	INLET PROTECTION
A B C	INLET PROTECTION TYPE
~>	SURFACE WATER FLOW
△△△	TEMPORARY DITCH CHECK
○○○	CULVERT PIPE CHECK

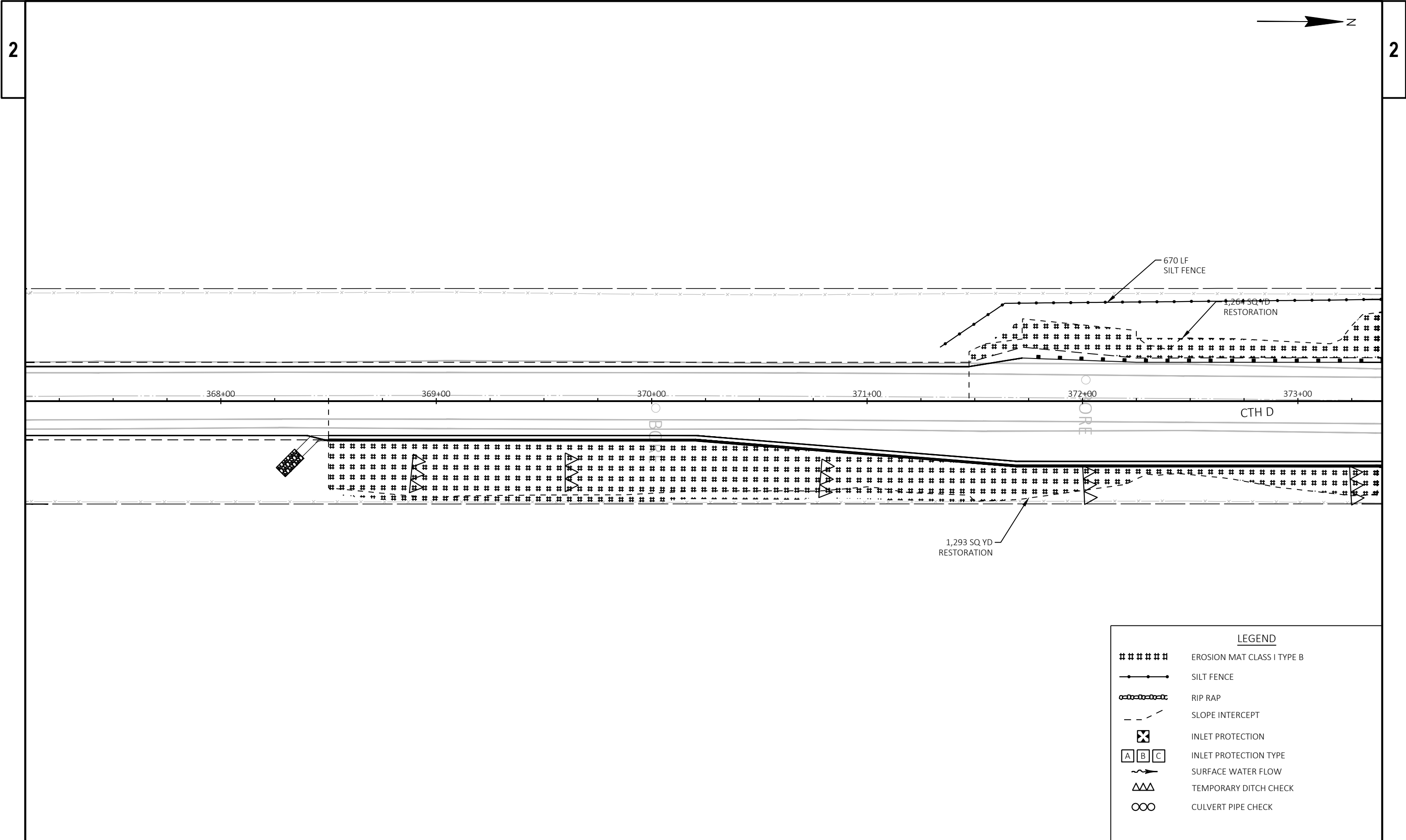


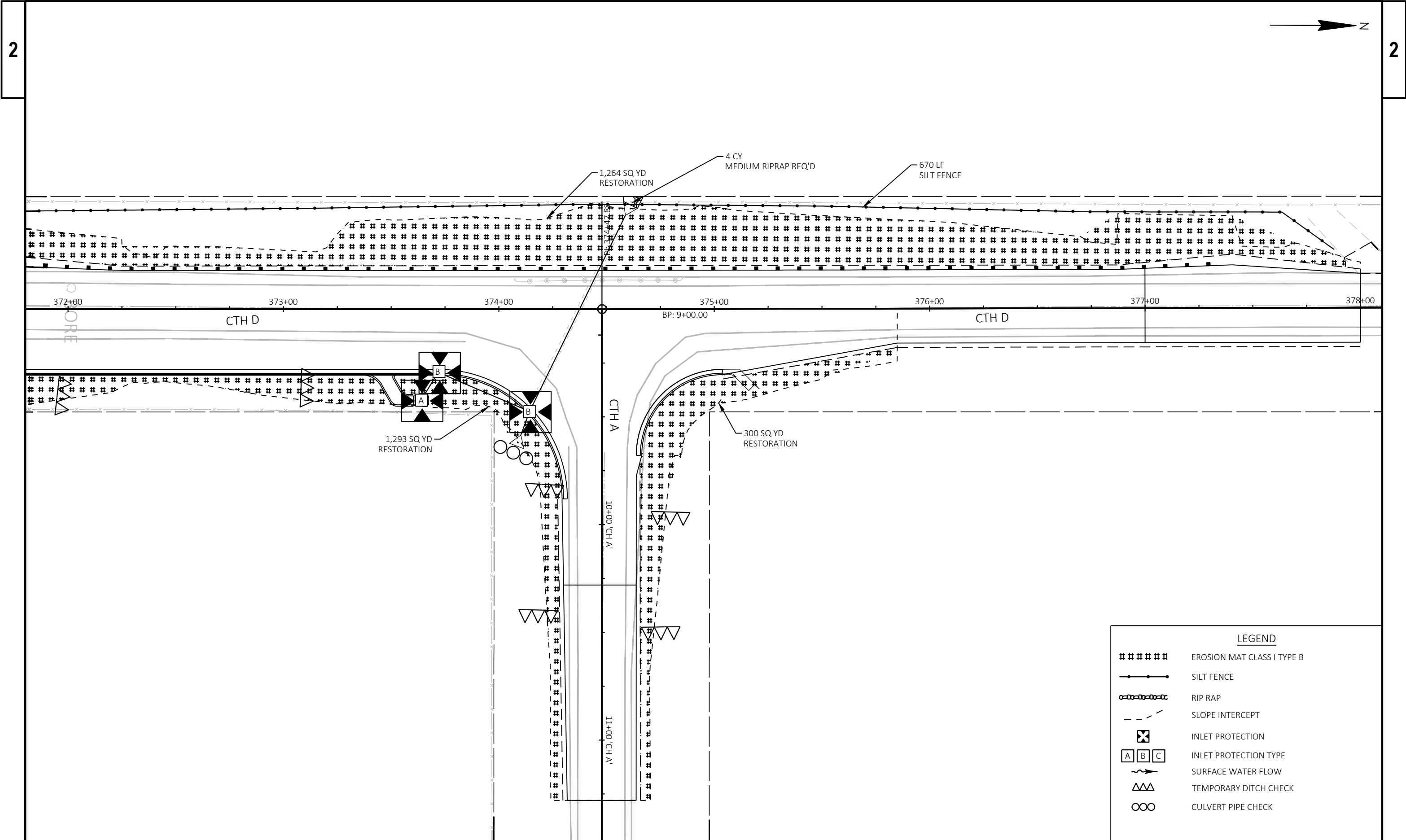


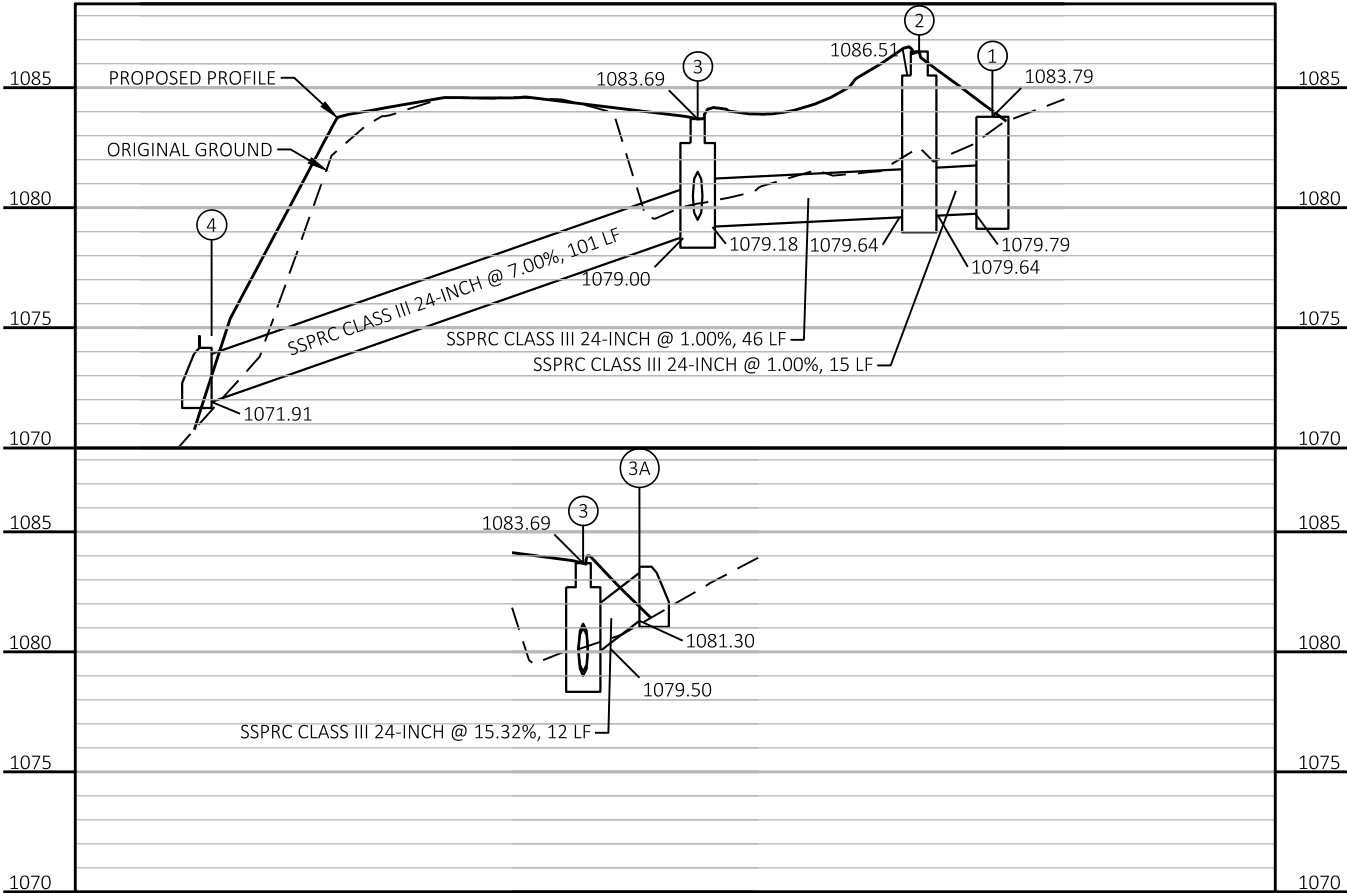
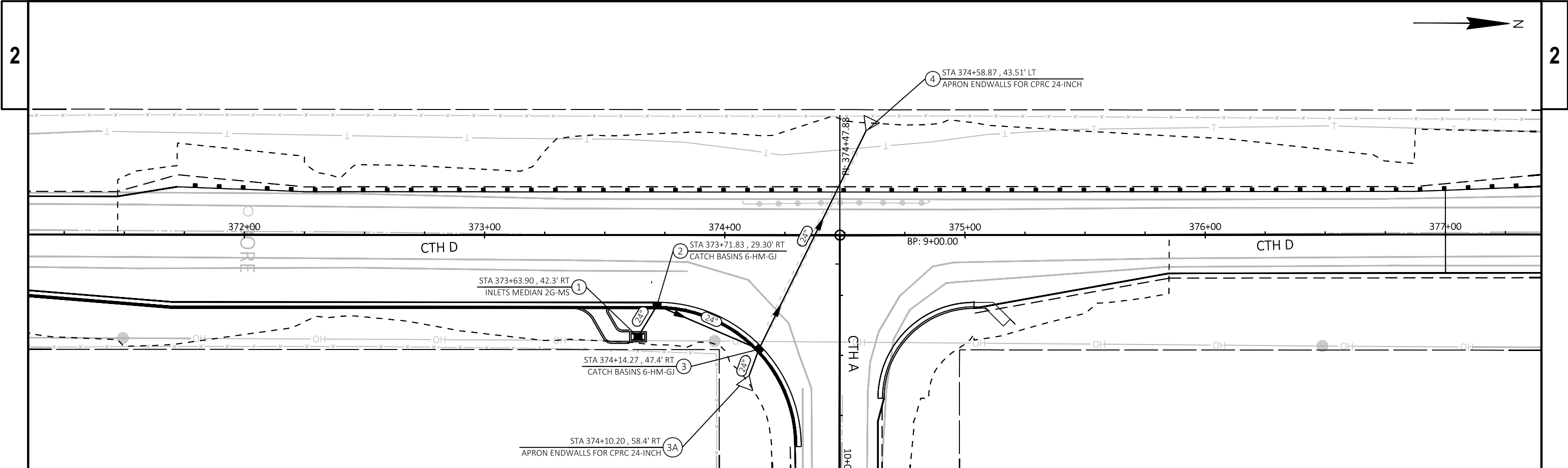


LEGEND

- ##### EROSION MAT CLASS I TYPE B
- SILT FENCE
- o—o—o— RIP RAP
- - - SLOPE INTERCEPT
- ⊠ INLET PROTECTION
- [A][B][C] INLET PROTECTION TYPE
- ~> SURFACE WATER FLOW
- △△△ TEMPORARY DITCH CHECK
- CULVERT PIPE CHECK







PROJECT NO: 5316-00-71

HWY: CTH D

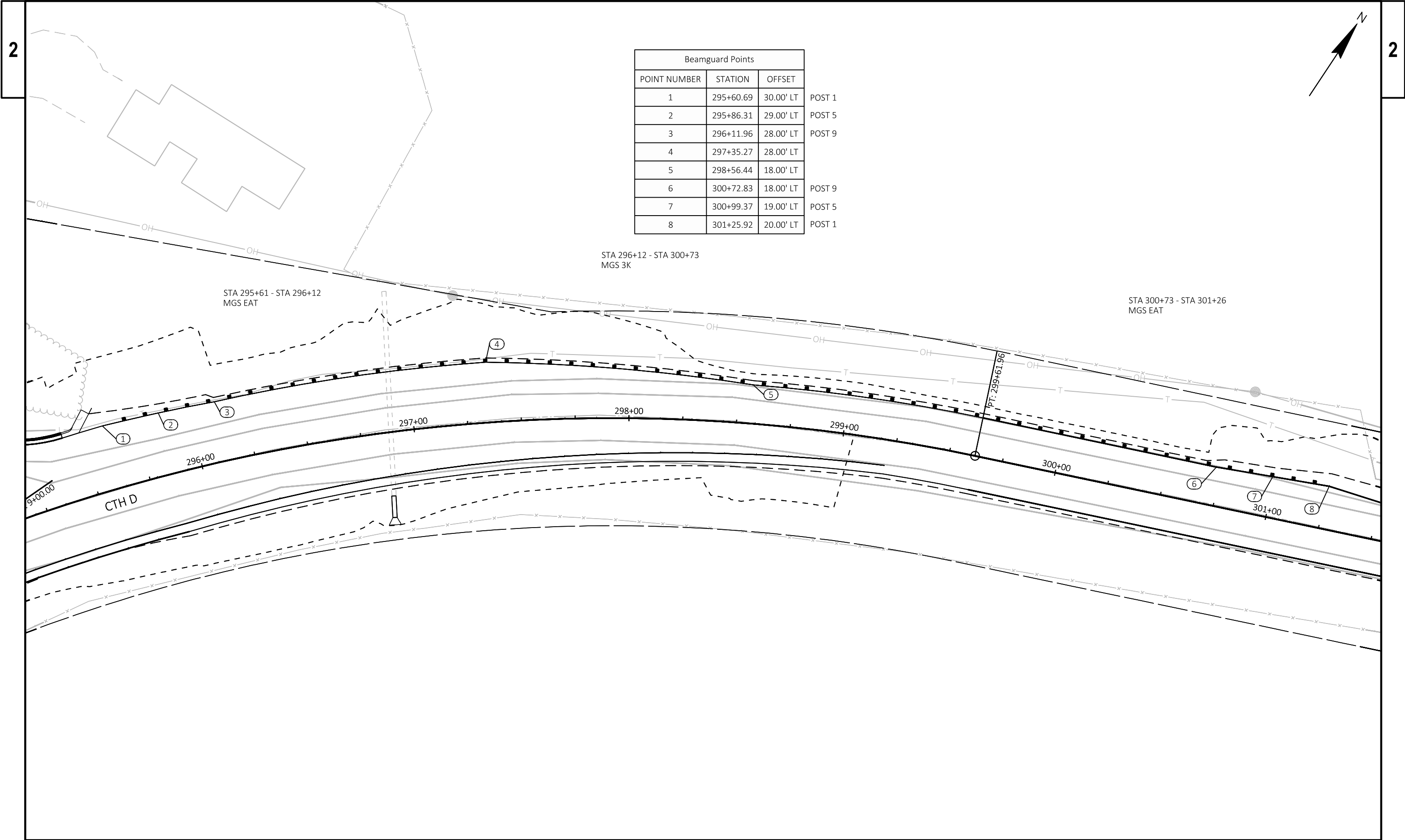
COUNTY: GRANT

PLAN DETAILS - STORM SEWER

SHEET

47

E



Beamguard Points		
POINT NUMBER	STATION	OFFSET
1	295+60.69	30.00' LT
2	295+86.31	29.00' LT
3	296+11.96	28.00' LT
4	297+35.27	28.00' LT
5	298+56.44	18.00' LT
6	300+72.83	18.00' LT
7	300+99.37	19.00' LT
8	301+25.92	20.00' LT

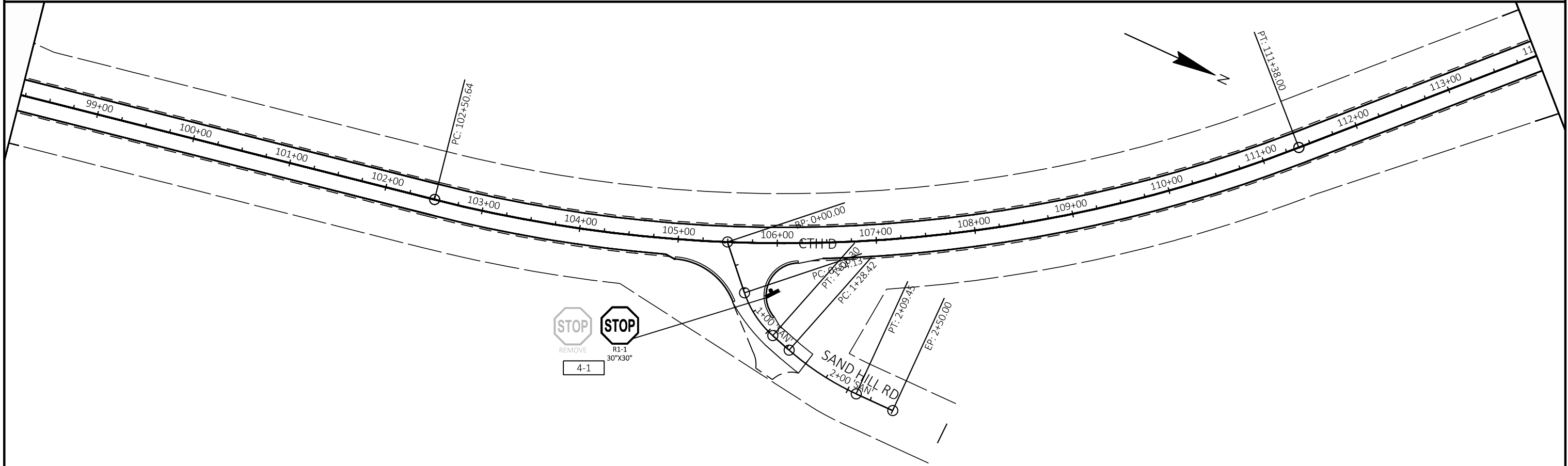
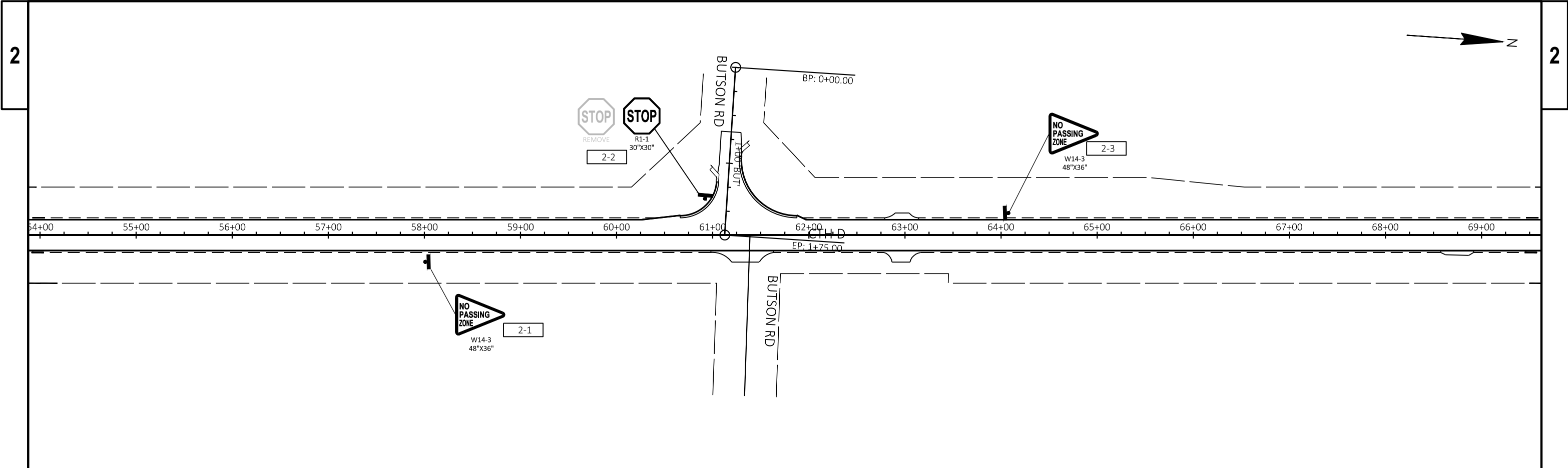
STA 296+12 - STA 300+73
MGS 3K

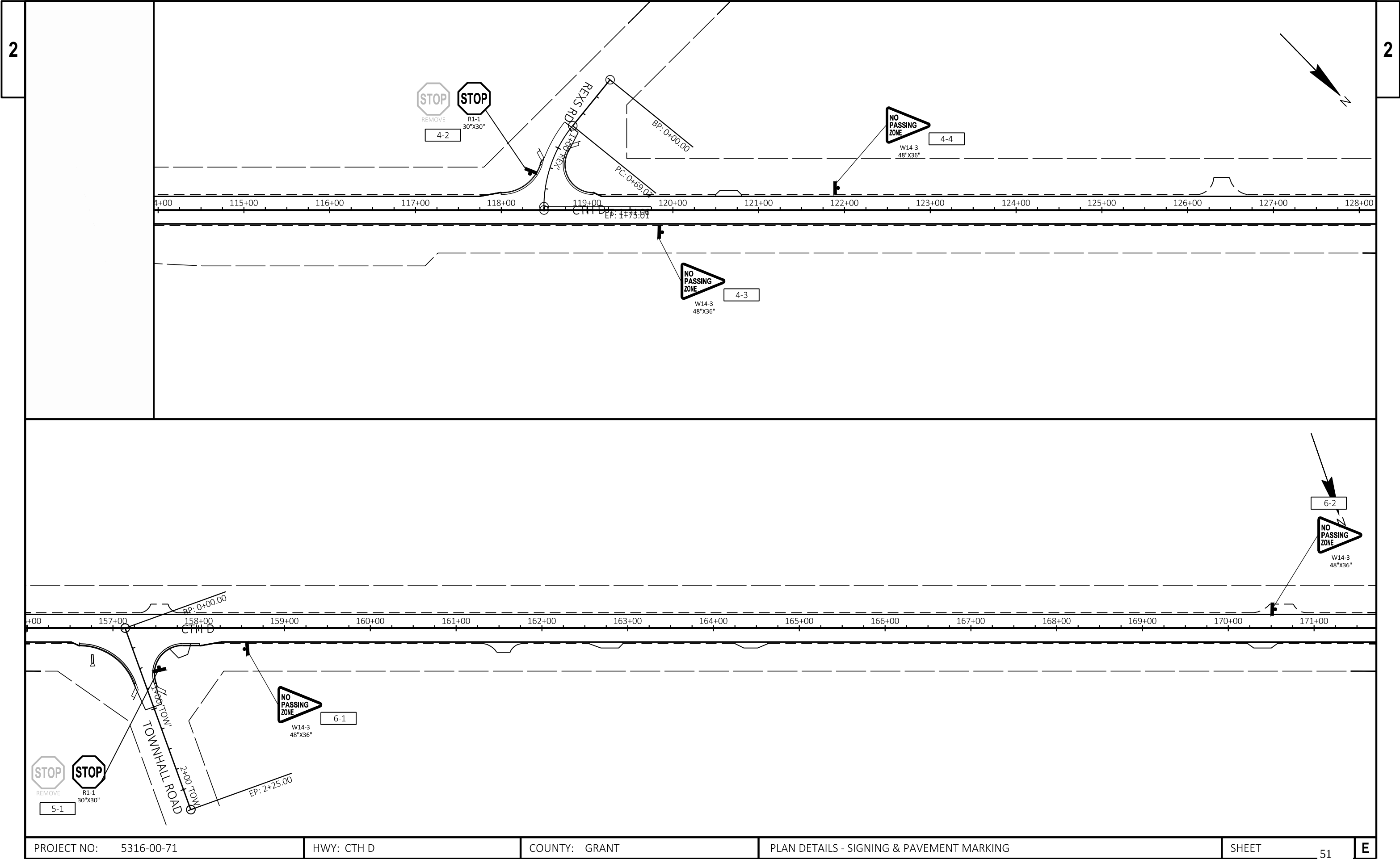
STA 295+61 - STA 296+12
MGS EAT

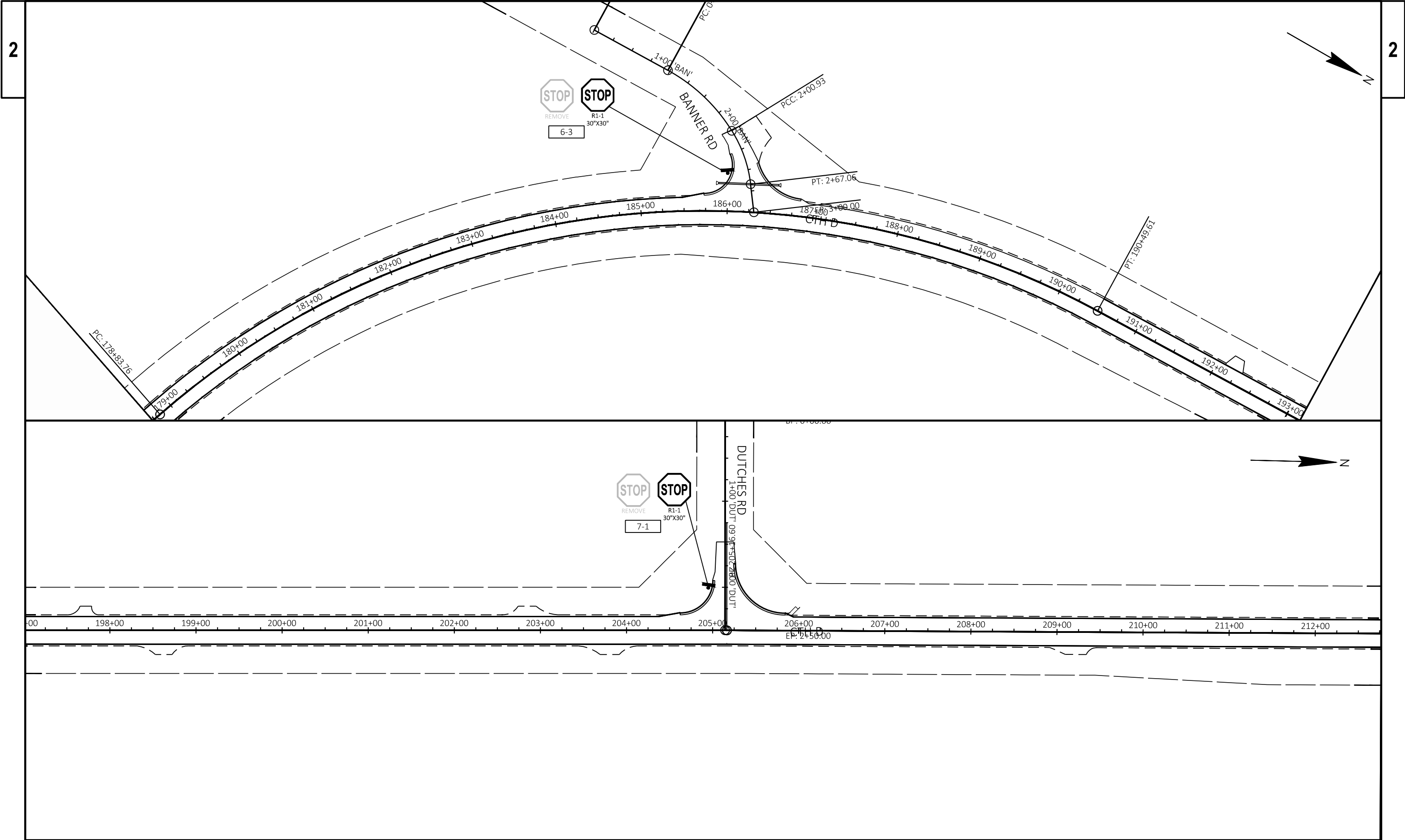
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MGS EAT

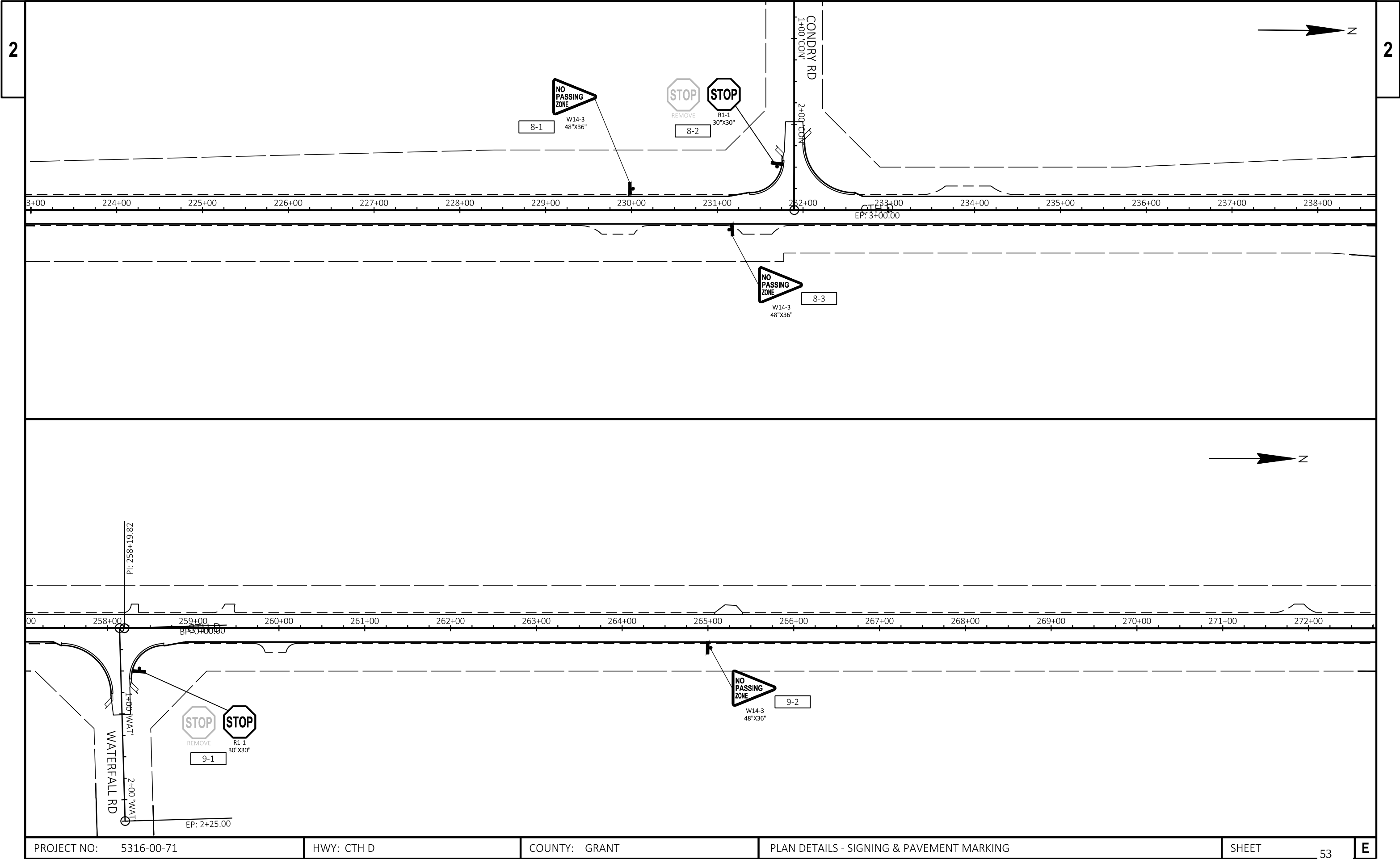
POST 1
POST 5
POST 9
POST 9
POST 5
POST 1

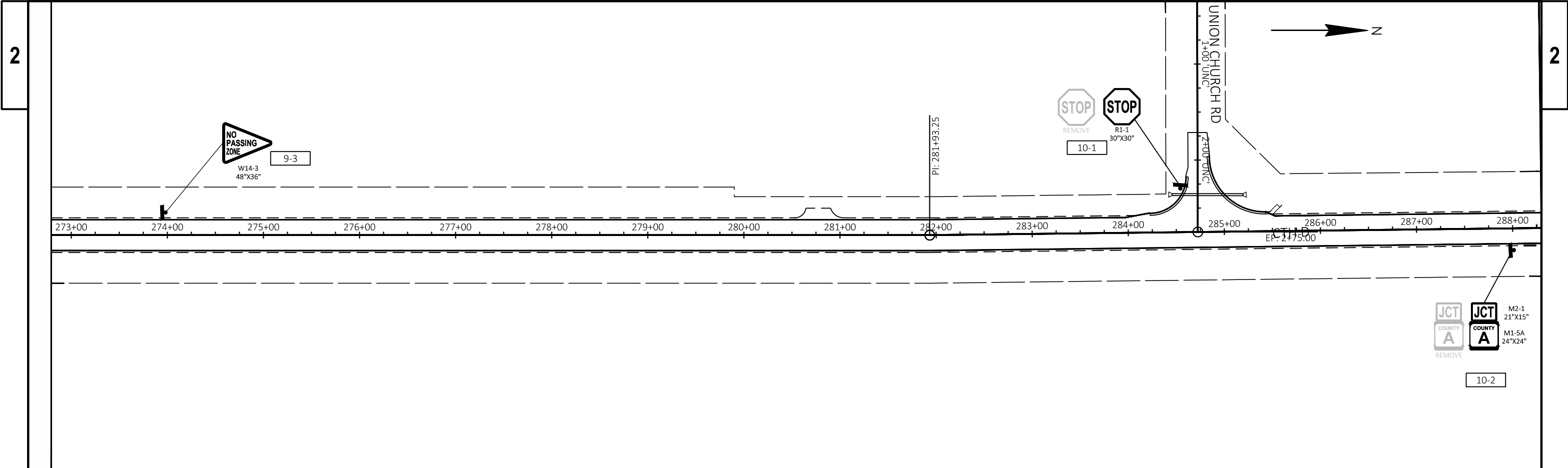




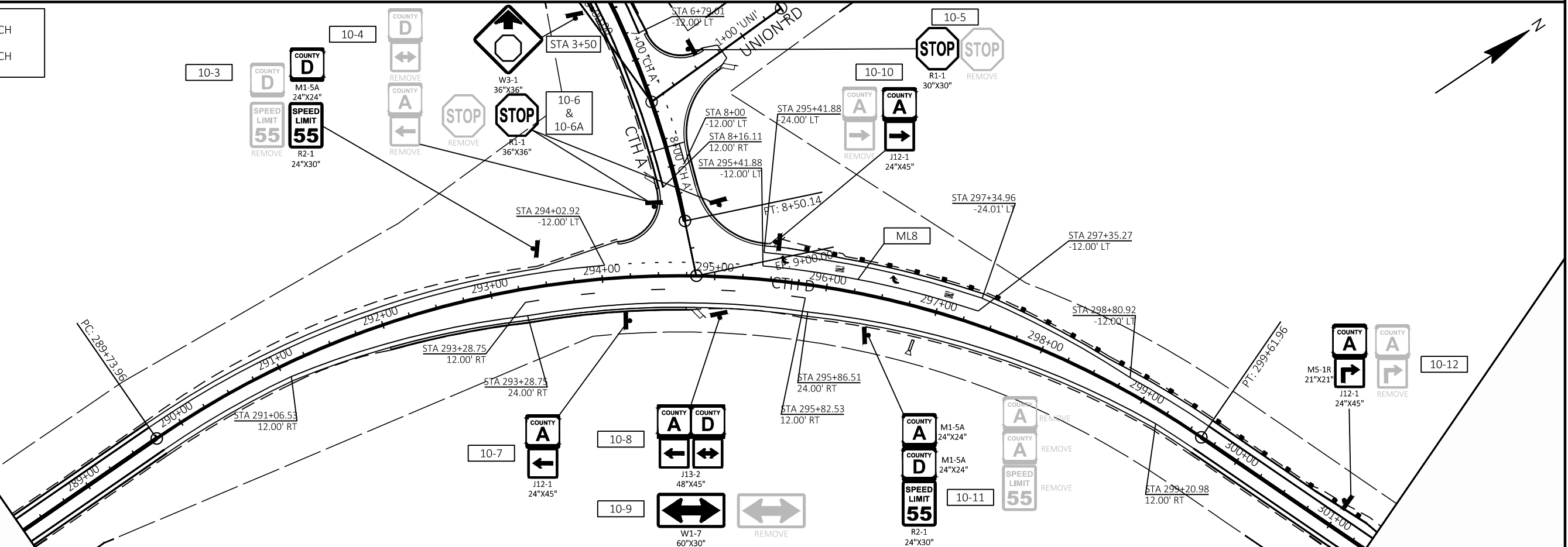


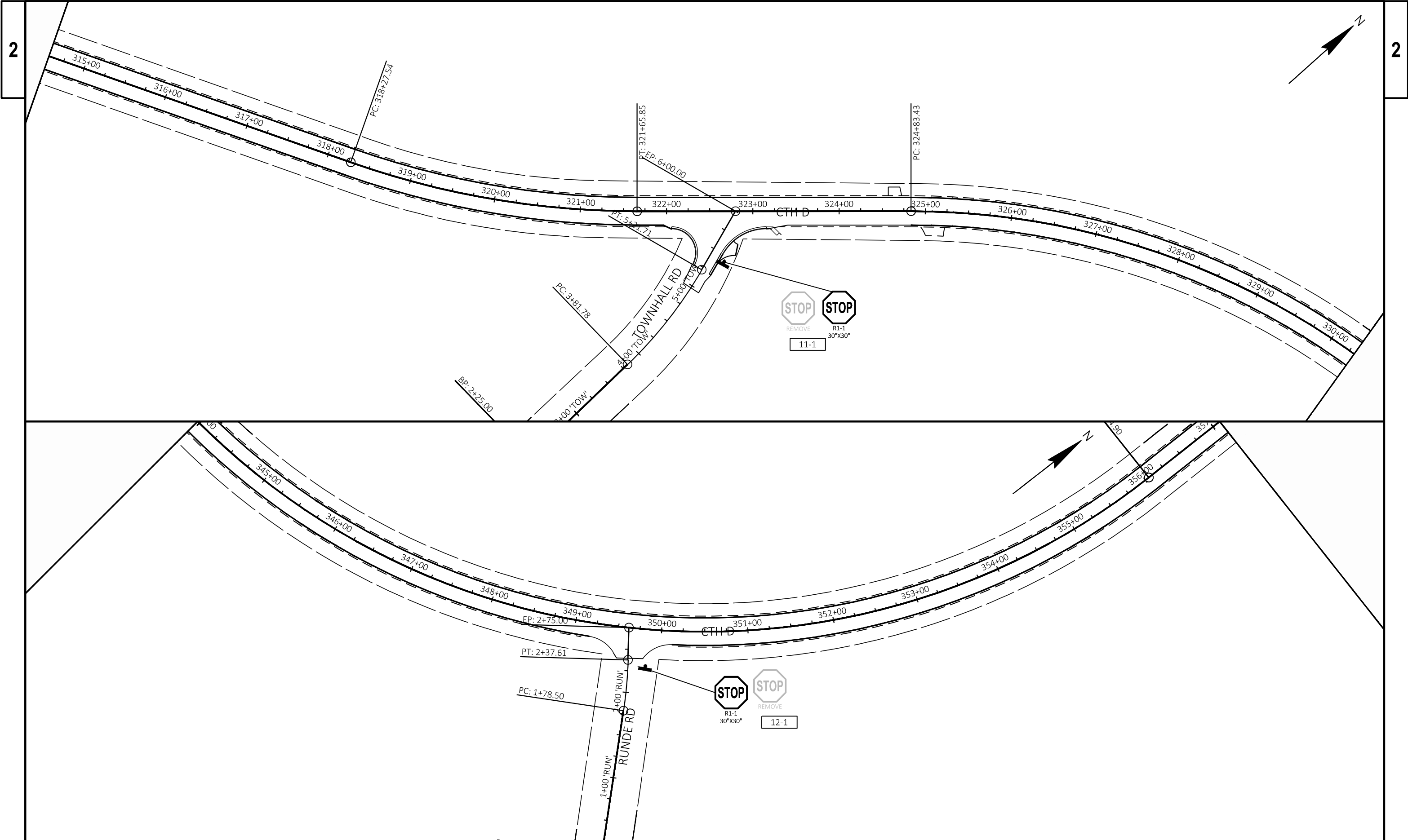






ALL PAVEMENT MARKING
ML6 - MARKING LINE EPOXY 6-INCH
EXCEPT WHERE IS SHOWN
ML8 - MARKING LINE EPOXY 8-INCH
SEE SDD'S FOR PLACEMENT

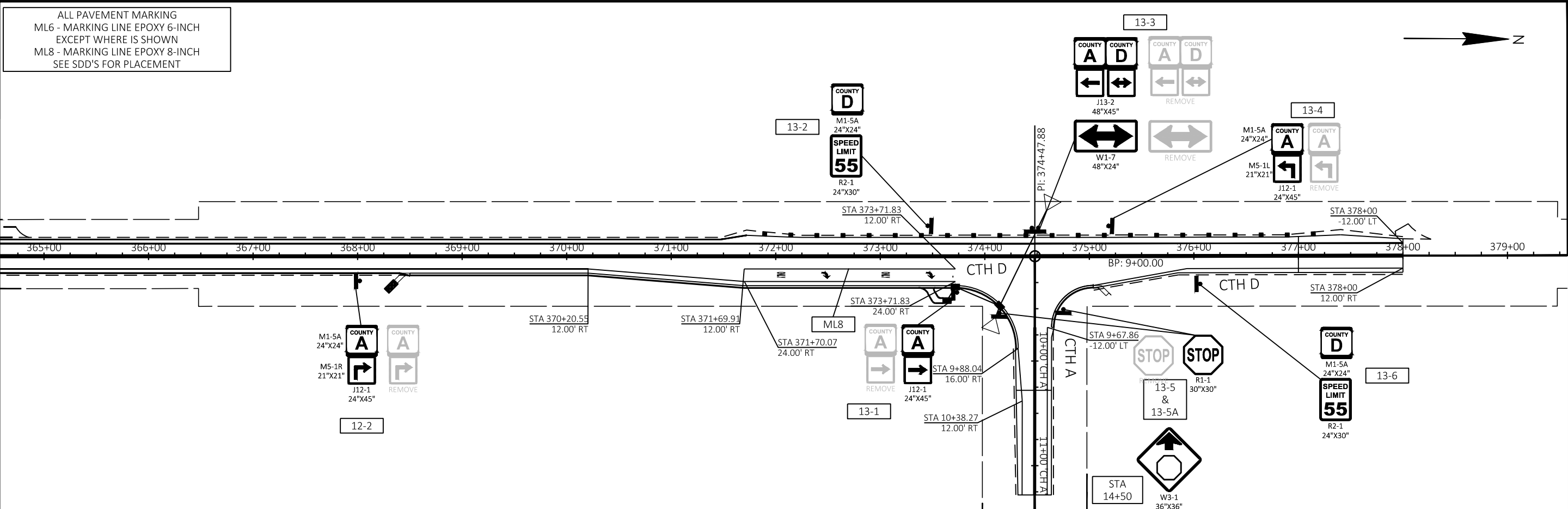




2

ALL PAVEMENT MARKING ML6 - MARKING LINE EPOXY 6-INCH EXCEPT WHERE IS SHOWN ML8 - MARKING LINE EPOXY 8-INCH SEE SDD'S FOR PLACEMENT

2



PROJECT NO: 5316-00-71

HWY: CTH D

COUNTY: GRANT

PLAN DETAILS - SIGNING & PAVEMENT MARKING

SHEET

56

FILE NAME : T:\PROJECTS\2024\24-2099-1 CTH D - GRANT CO. 5316-00-01\DRAWINGS\CTH D PAVEMENT MARKING & SIGNING.DWG
LAYOUT NAME - Sign 7

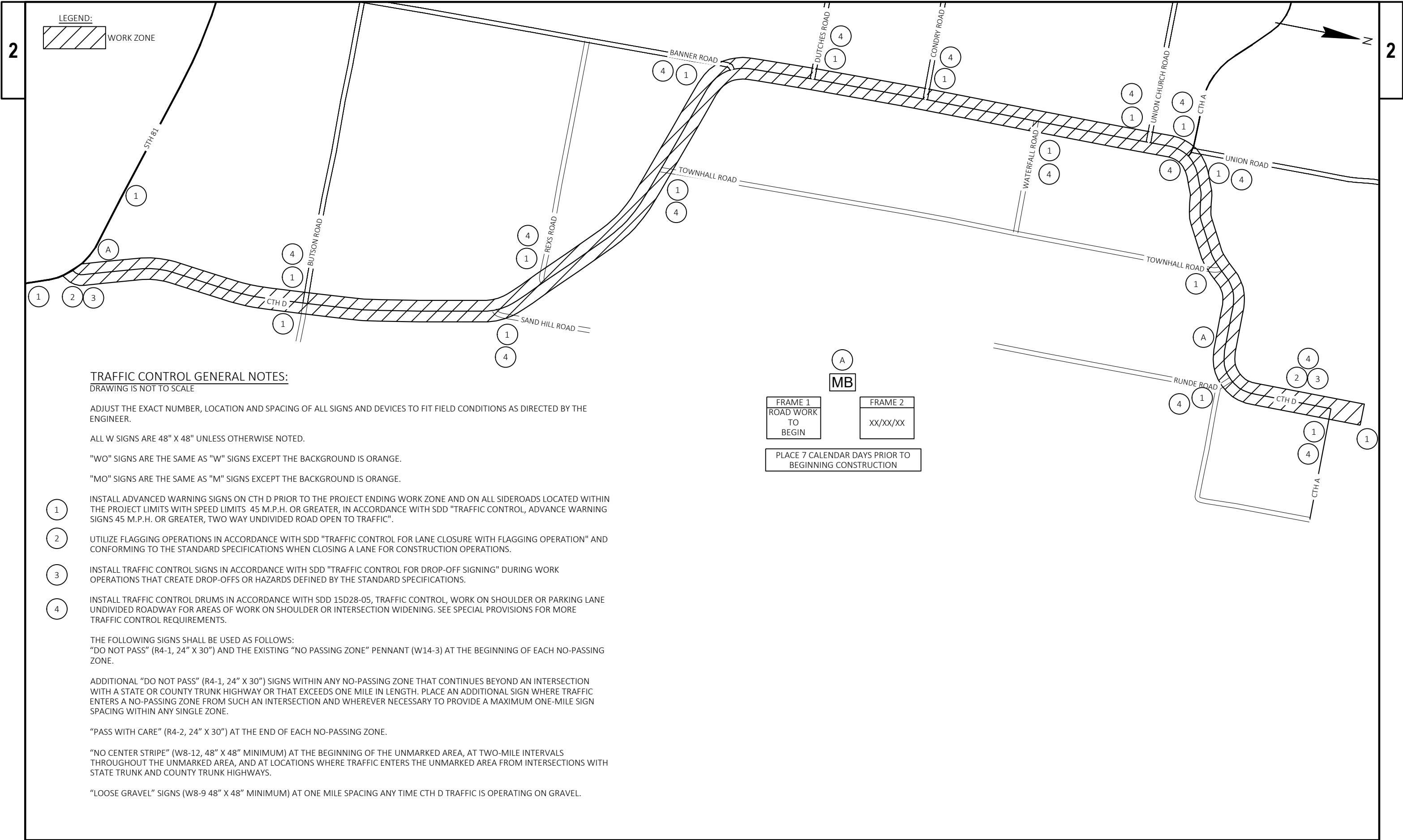
PLOT DATE : 4/2/2026 9:40 AM

PLOT BY : TYLER BUCHANAN

PLOT NAME :

PLOT SCALE : 1 IN:100 FT

WISDOT/CADDS SHEET 44



TRAFFIC CONTROL GENERAL NOTES:

DRAWING IS NOT TO SCALE

ADJUST THE EXACT NUMBER, LOCATION AND SPACING OF ALL SIGNS AND DEVICES TO FIT FIELD CONDITIONS AS DIRECTED BY THE ENGINEER.

ALL W SIGNS ARE 48" X 48" UNLESS OTHERWISE NOTED.

"WO" SIGNS ARE THE SAME AS "W" SIGNS EXCEPT THE BACKGROUND IS ORANGE.

"MO" SIGNS ARE THE SAME AS "M" SIGNS EXCEPT THE BACKGROUND IS ORANGE.

1. INSTALL ADVANCED WARNING SIGNS ON CTH D PRIOR TO THE PROJECT ENDING WORK ZONE AND ON ALL SIDEROADS LOCATED WITHIN THE PROJECT LIMITS WITH SPEED LIMITS 45 M.P.H. OR GREATER, IN ACCORDANCE WITH SDD "TRAFFIC CONTROL, ADVANCE WARNING SIGNS 45 M.P.H. OR GREATER, TWO WAY UNDIVIDED ROAD OPEN TO TRAFFIC".
2. UTILIZE FLAGGING OPERATIONS IN ACCORDANCE WITH SDD "TRAFFIC CONTROL FOR LANE CLOSURE WITH FLAGGING OPERATION" AND CONFORMING TO THE STANDARD SPECIFICATIONS WHEN CLOSING A LANE FOR CONSTRUCTION OPERATIONS.
3. INSTALL TRAFFIC CONTROL SIGNS IN ACCORDANCE WITH SDD "TRAFFIC CONTROL FOR DROP-OFF SIGNING" DURING WORK OPERATIONS THAT CREATE DROP-OFFS OR HAZARDS DEFINED BY THE STANDARD SPECIFICATIONS.
4. INSTALL TRAFFIC CONTROL DRUMS IN ACCORDANCE WITH SDD 15D28-05, TRAFFIC CONTROL, WORK ON SHOULDER OR PARKING LANE UNDIVIDED ROADWAY FOR AREAS OF WORK ON SHOULDER OR INTERSECTION WIDENING. SEE SPECIAL PROVISIONS FOR MORE TRAFFIC CONTROL REQUIREMENTS.

THE FOLLOWING SIGNS SHALL BE USED AS FOLLOWS:

"DO NOT PASS" (R4-1, 24" X 30") AND THE EXISTING "NO PASSING ZONE" PENNANT (W14-3) AT THE BEGINNING OF EACH NO-PASSING ZONE.

ADDITIONAL "DO NOT PASS" (R4-1, 24" X 30") SIGNS WITHIN ANY NO-PASSING ZONE THAT CONTINUES BEYOND AN INTERSECTION WITH A STATE OR COUNTY TRUNK HIGHWAY OR THAT EXCEEDS ONE MILE IN LENGTH. PLACE AN ADDITIONAL SIGN WHERE TRAFFIC ENTERS A NO-PASSING ZONE FROM SUCH AN INTERSECTION AND WHEREVER NECESSARY TO PROVIDE A MAXIMUM ONE-MILE SIGN SPACING WITHIN ANY SINGLE ZONE.

"PASS WITH CARE" (R4-2, 24" X 30") AT THE END OF EACH NO-PASSING ZONE.

"NO CENTER STRIPE" (W8-12, 48" X 48" MINIMUM) AT THE BEGINNING OF THE UNMARKED AREA, AT TWO-MILE INTERVALS THROUGHOUT THE UNMARKED AREA, AND AT LOCATIONS WHERE TRAFFIC ENTERS THE UNMARKED AREA FROM INTERSECTIONS WITH STATE TRUNK AND COUNTY TRUNK HIGHWAYS.

"LOOSE GRAVEL" SIGNS (W8-9 48" X 48" MINIMUM) AT ONE MILE SPACING ANY TIME CTH D TRAFFIC IS OPERATING ON GRAVEL.

A
MB

FRAME 1 ROAD WORK TO BEGIN	FRAME 2 XX/XX/XX
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PLACE 7 CALENDAR DAYS PRIOR TO
BEGINNING CONSTRUCTION

PROJECT NO: 5316-00-71

HWY: CTH D

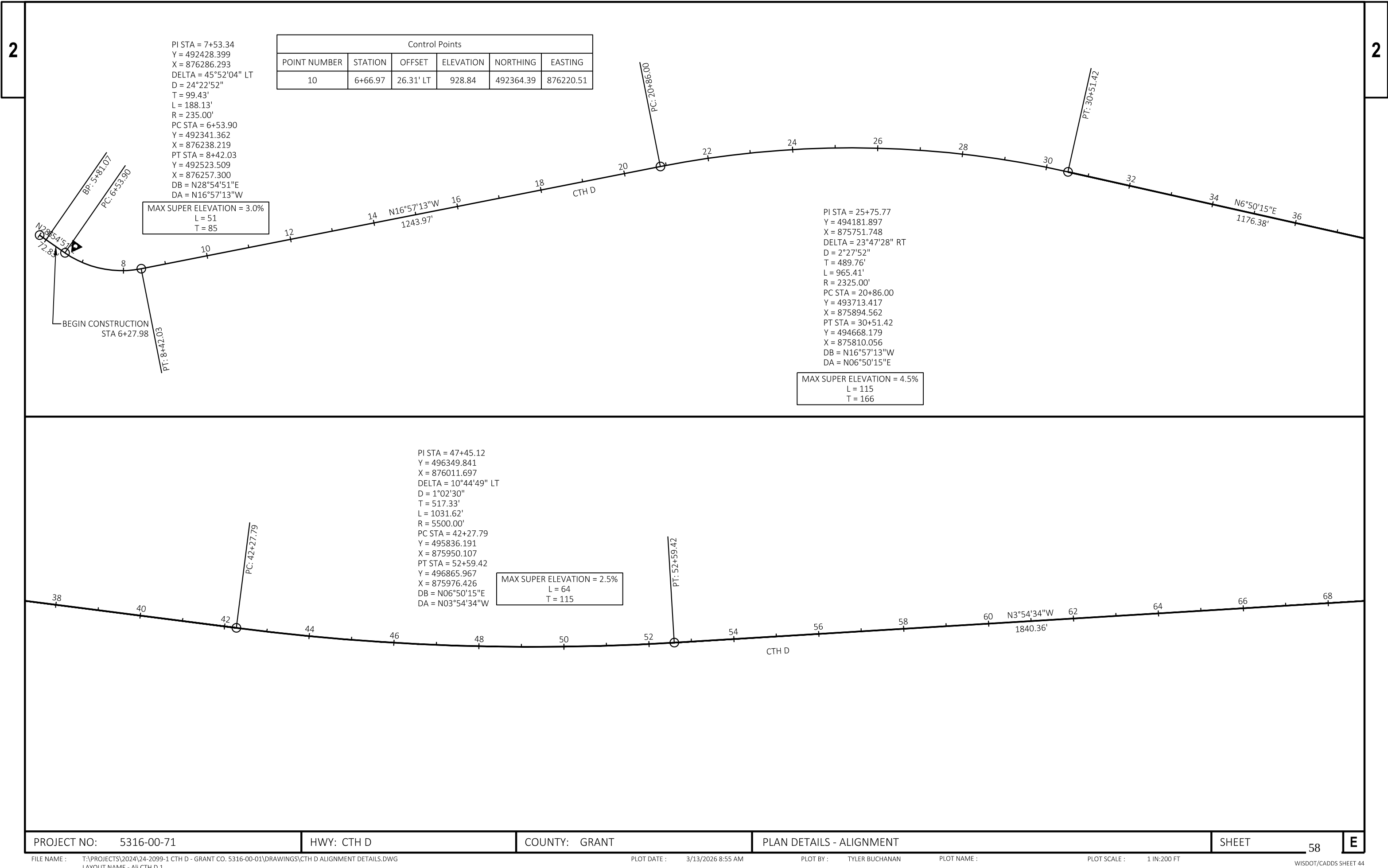
COUNTY: GRANT

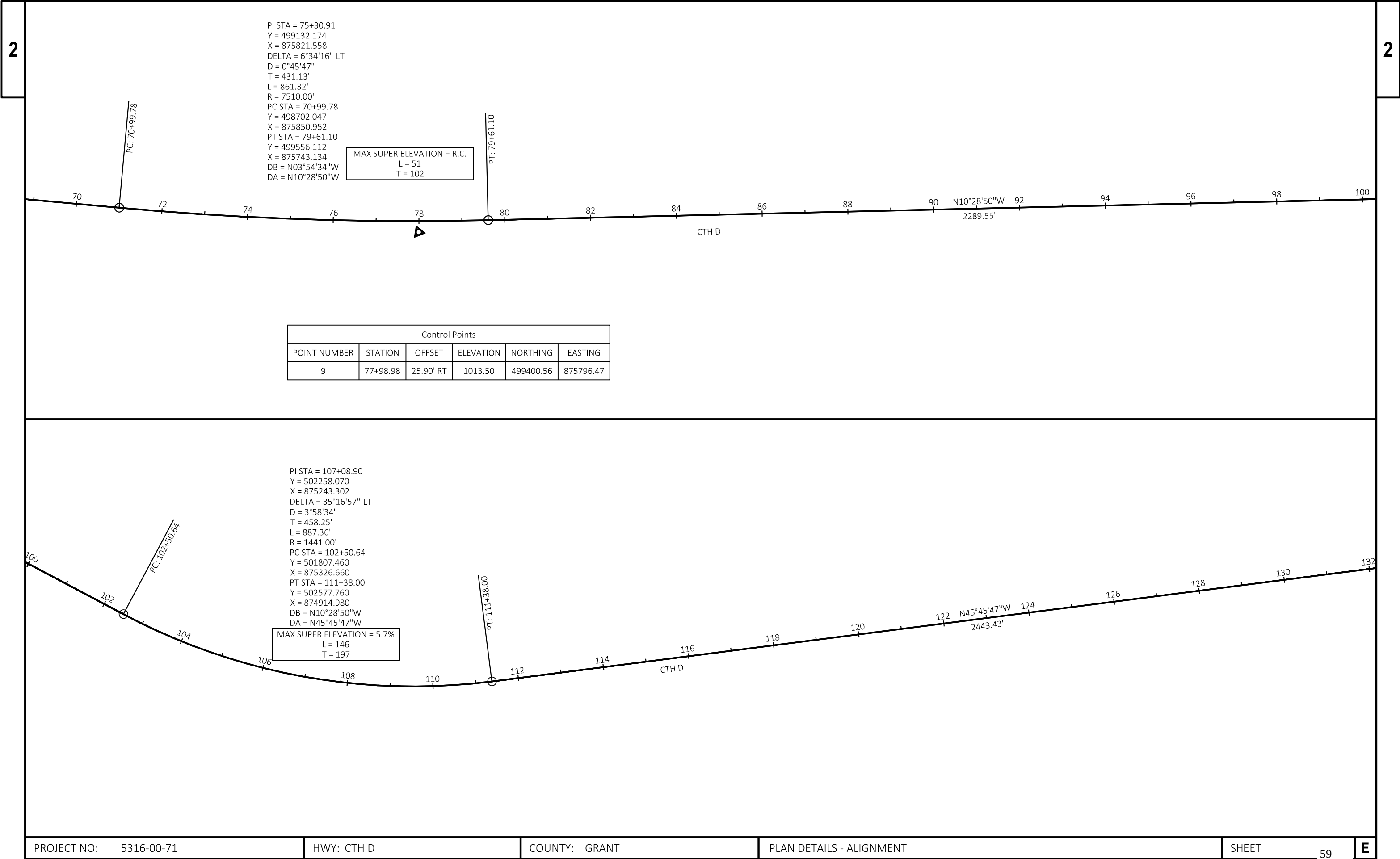
PLAN DETAILS - TRAFFIC CONTROL

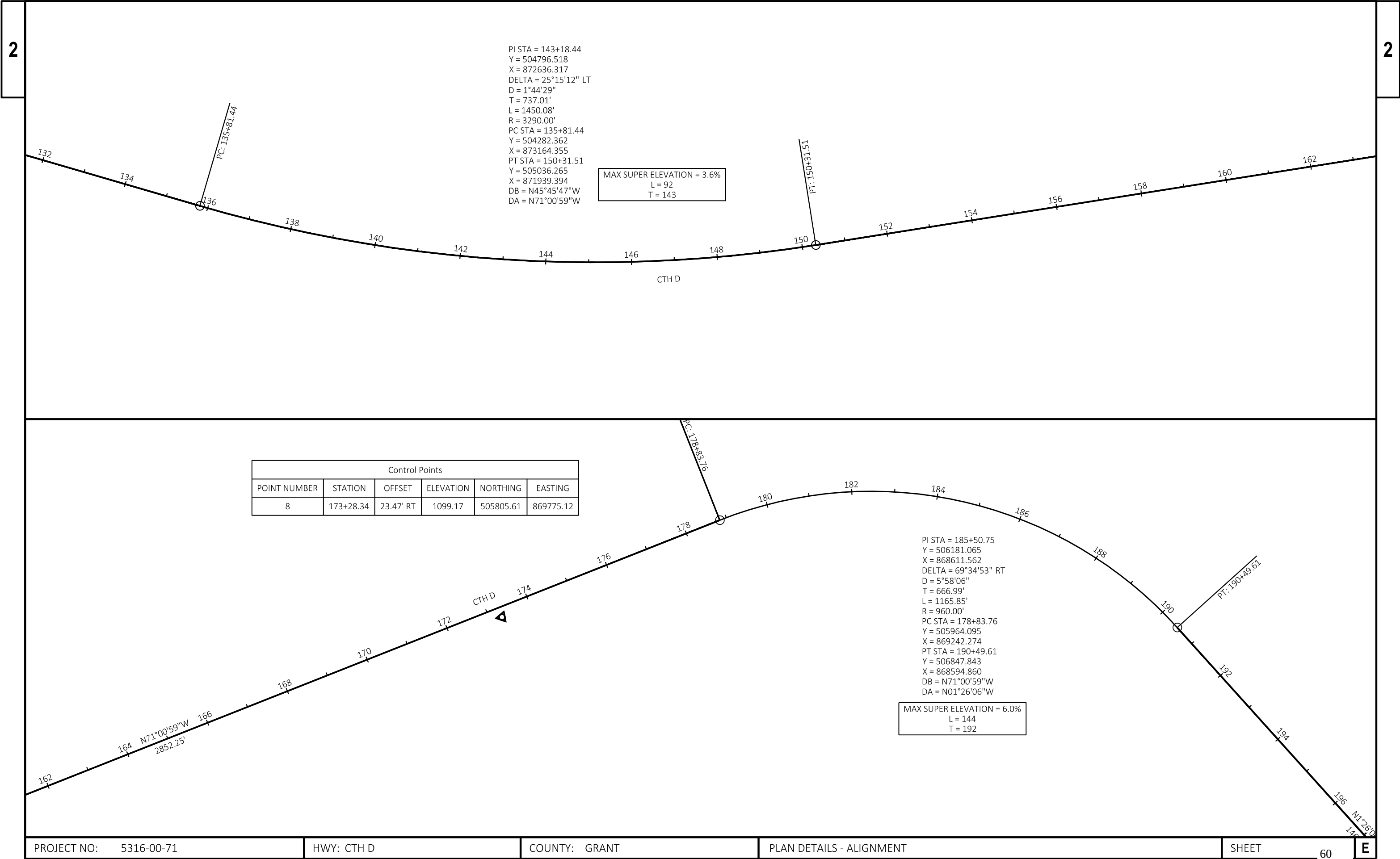
SHEET

57

E





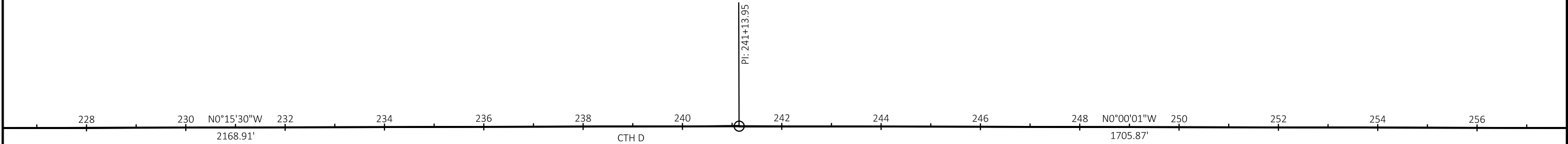
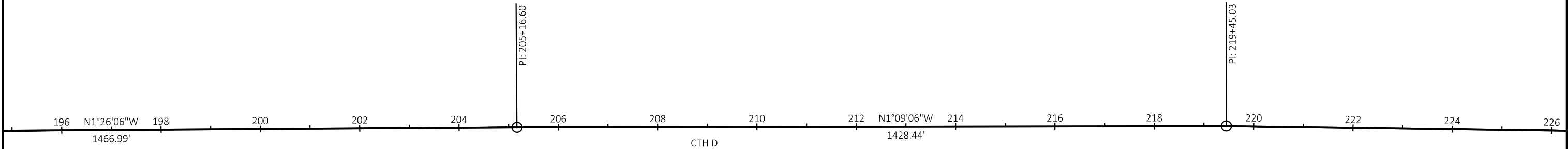


PI STA = 143+18.44
Y = 504796.518
X = 872636.317
DELTA = 25°15'12" LT
D = 1°44'29"
T = 737.01'
L = 1450.08'
R = 3290.00'
PC STA = 135+81.44
Y = 504282.362
X = 873164.355
PT STA = 150+31.51
Y = 505036.265
X = 871939.394
DB = N45°45'47"W
DA = N71°00'59"W

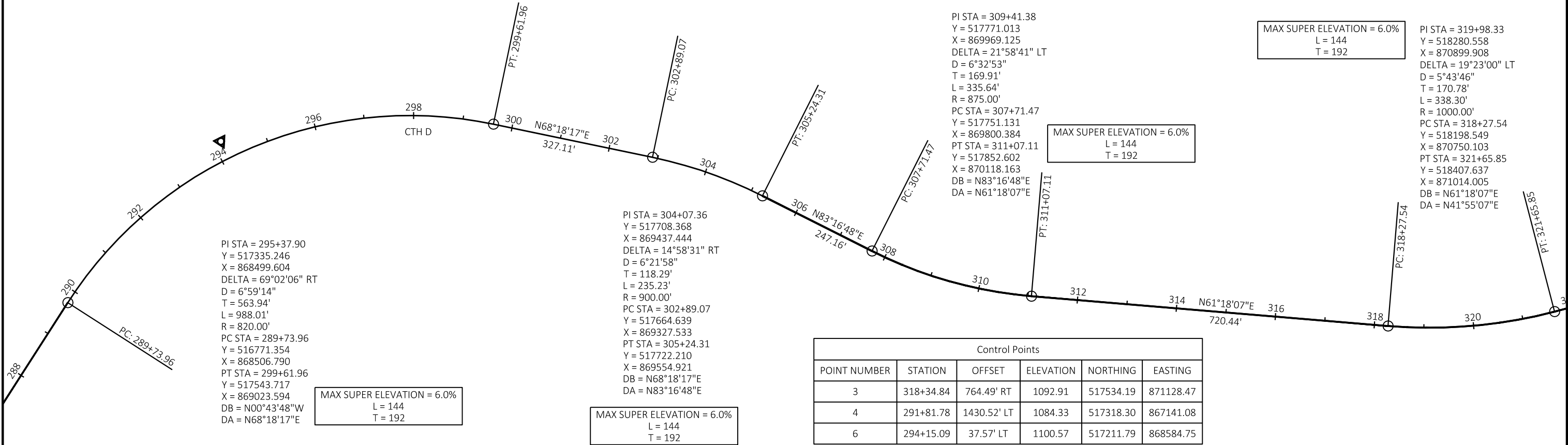
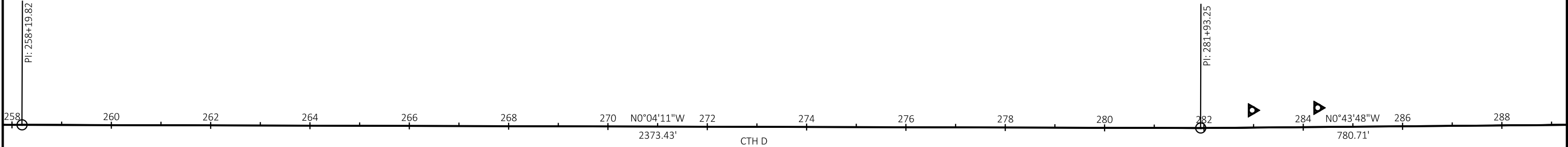
MAX SUPER ELEVATION = 3.6%
L = 92
T = 143

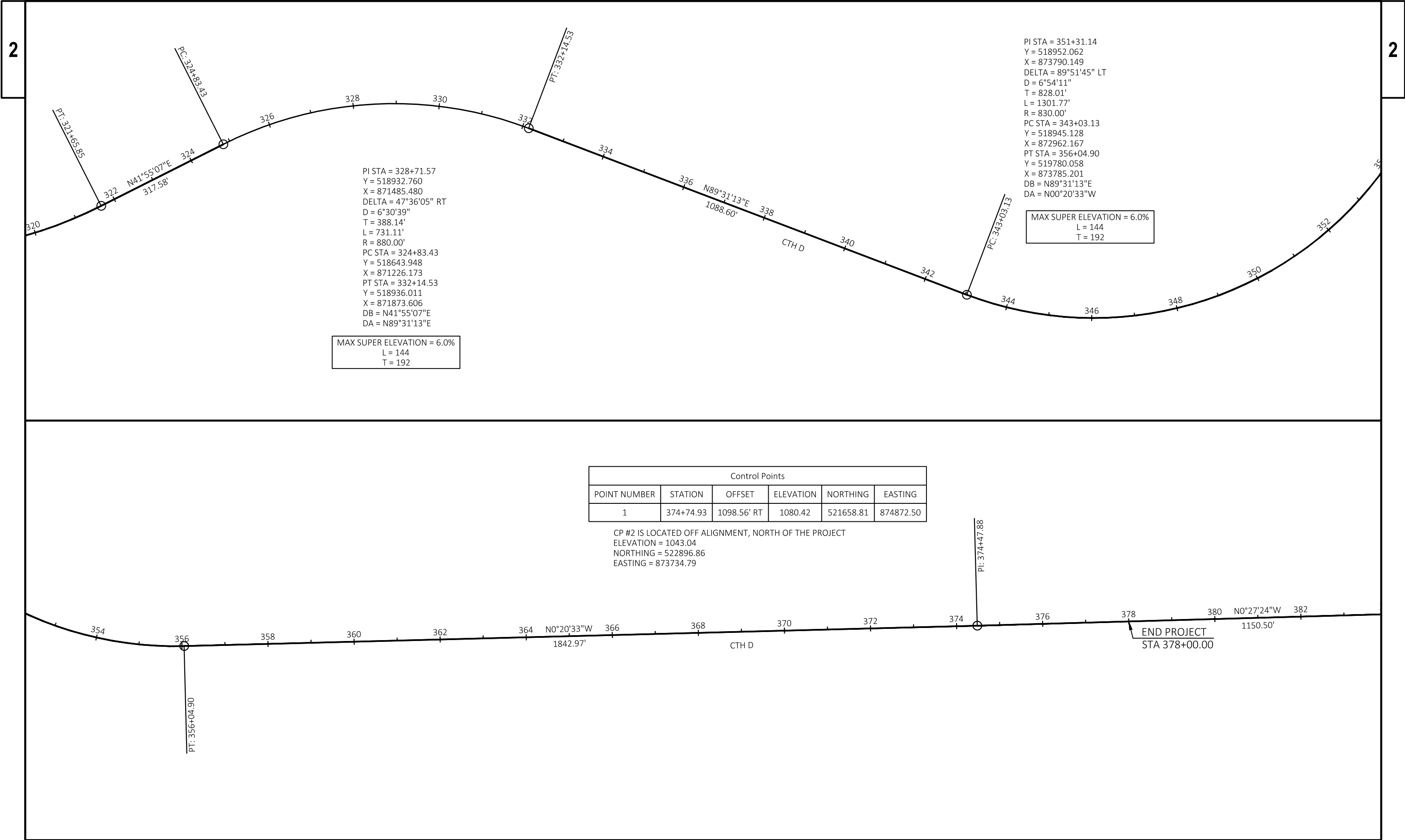
PI STA = 185+50.75
Y = 506181.065
X = 868611.562
DELTA = 69°34'53" RT
D = 5°58'06"
T = 666.99'
L = 1165.85'
R = 960.00'
PC STA = 178+83.76
Y = 505964.095
X = 869242.274
PT STA = 190+49.61
Y = 506847.843
X = 868594.860
DB = N71°00'59"W
DA = N01°26'06"W

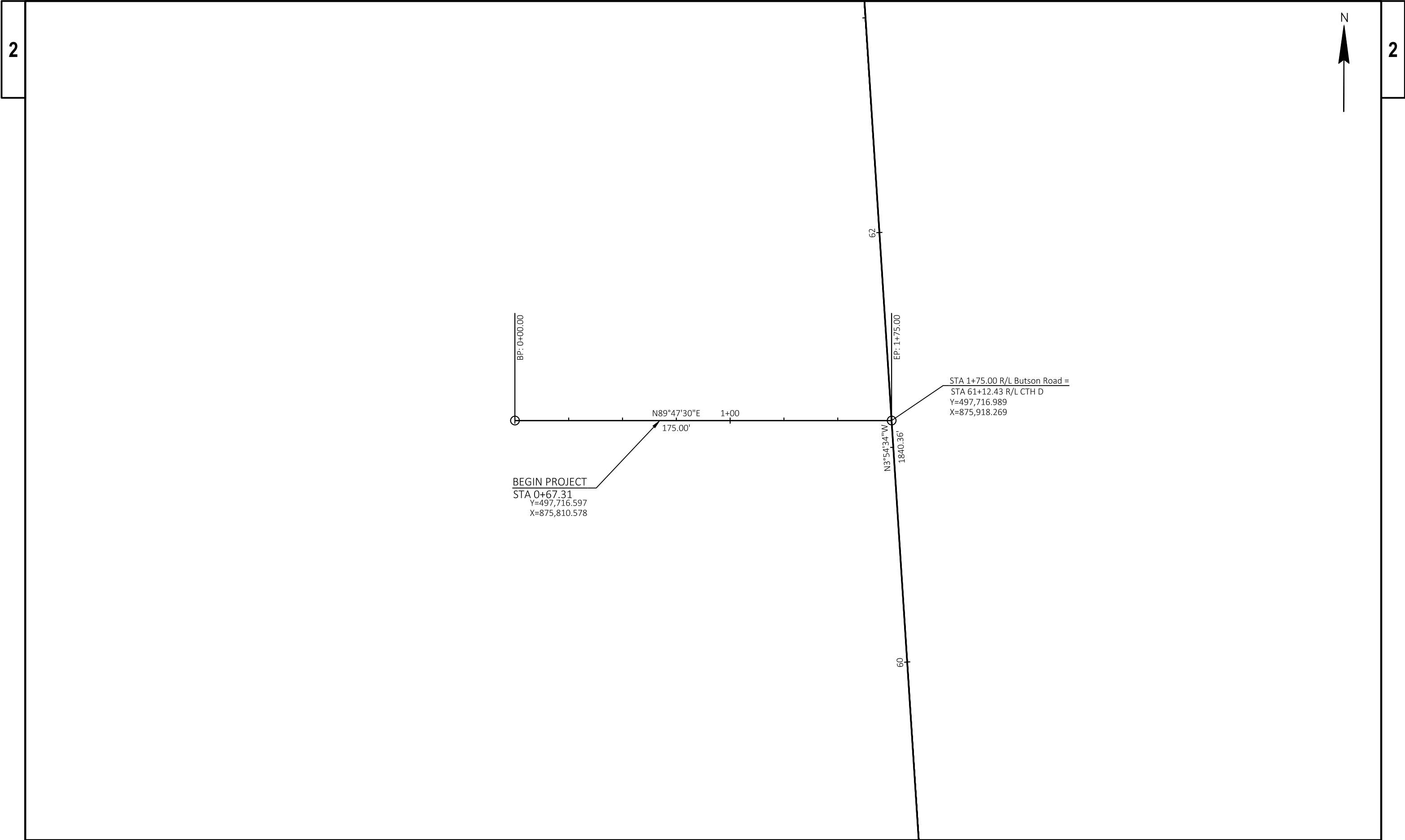
MAX SUPER ELEVATION = 6.0%
L = 144
T = 192

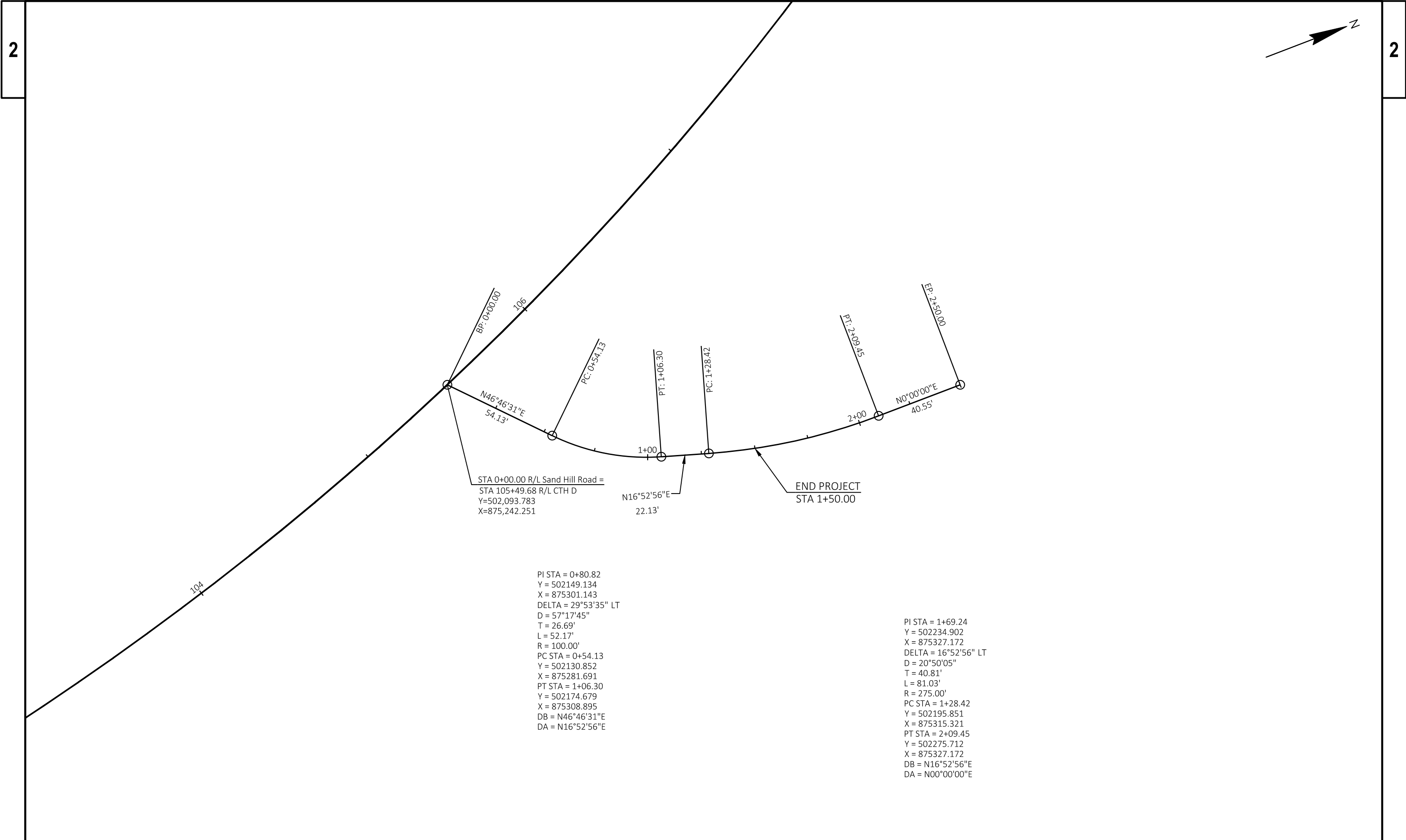


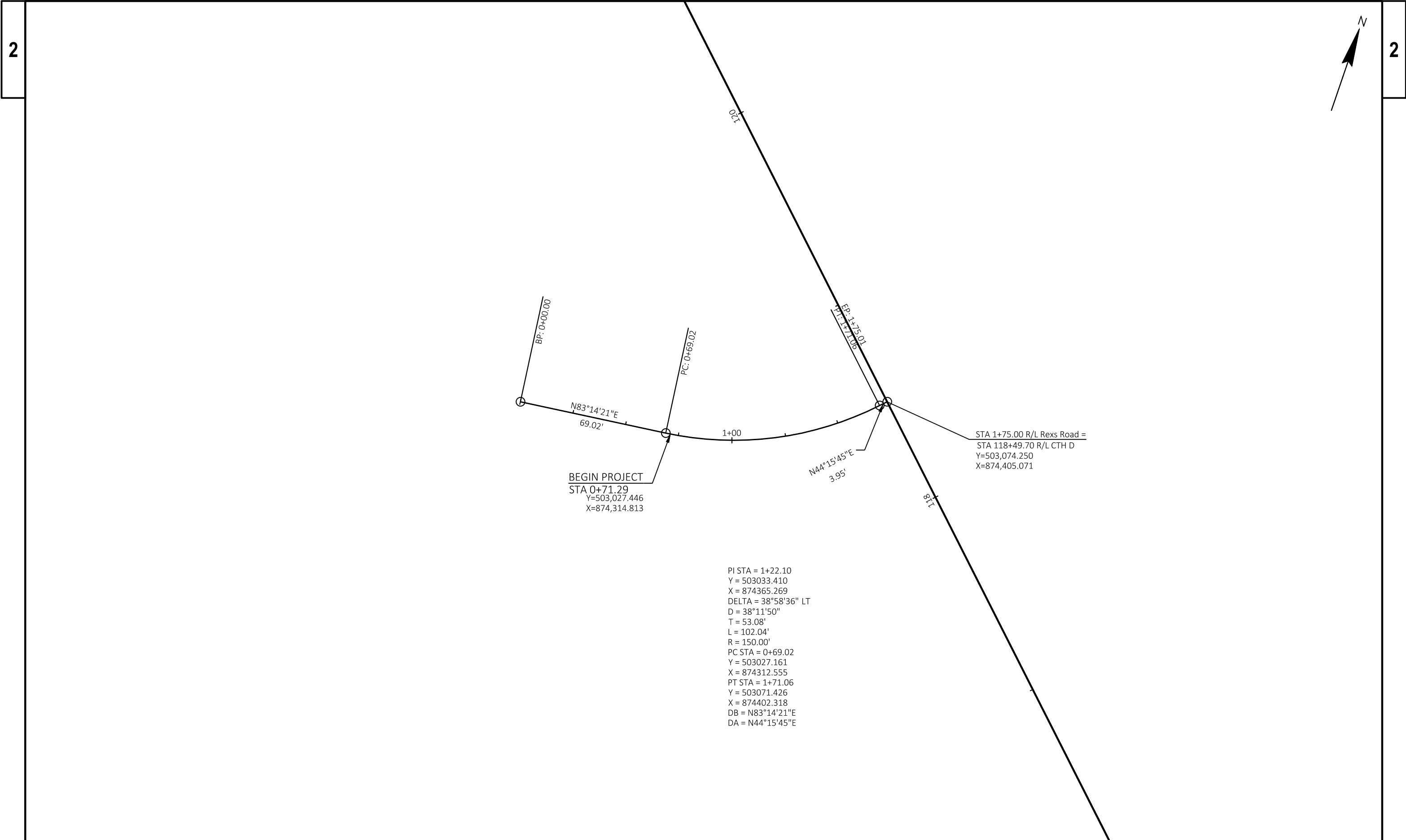
Control Points					
POINT NUMBER	STATION	OFFSET	ELEVATION	NORTHING	EASTING
5	284+29.41	38.65' LT	1110.35	516226.36	868475.08
7	282+97.19	34.88' LT	1112.82	516094.20	868480.54

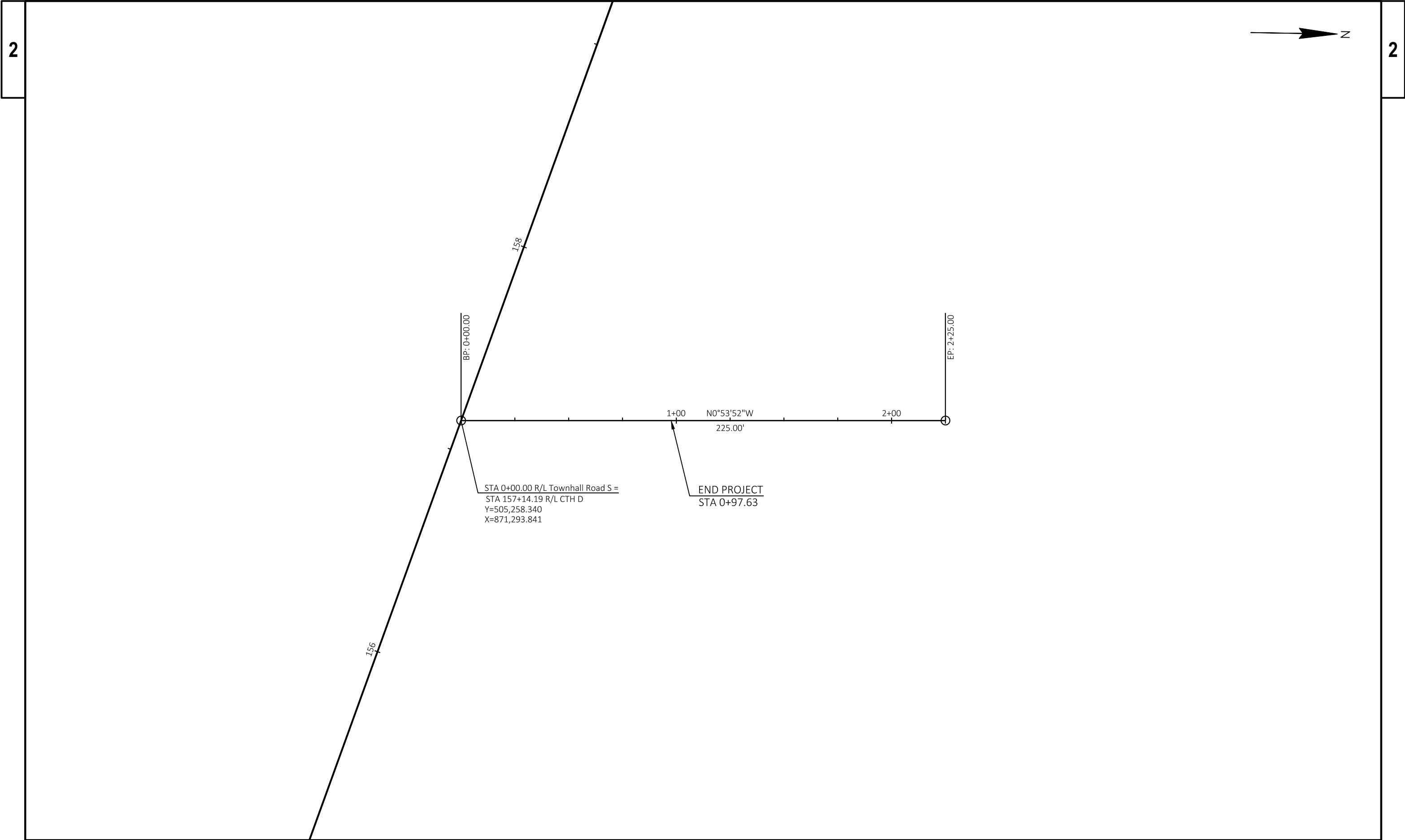


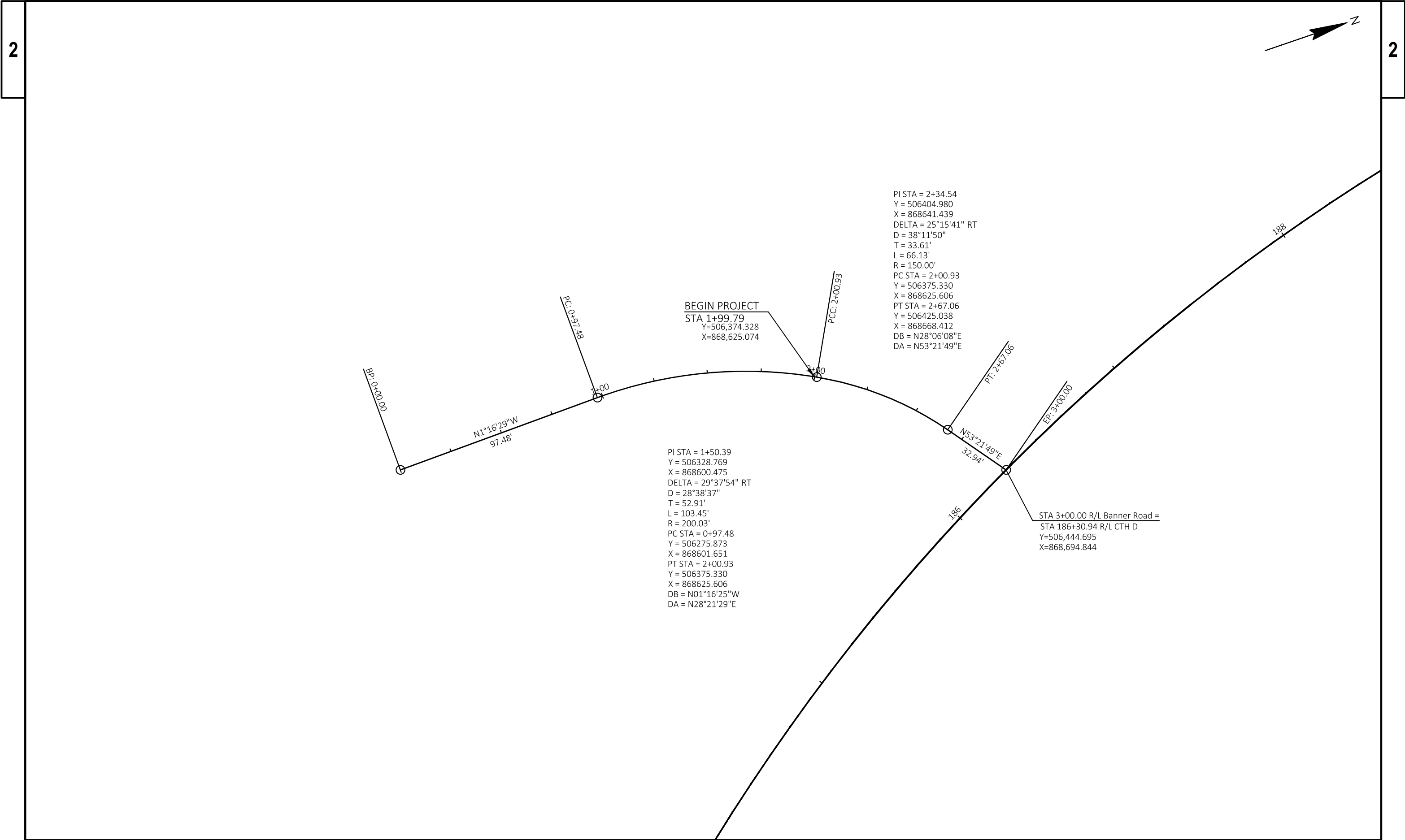


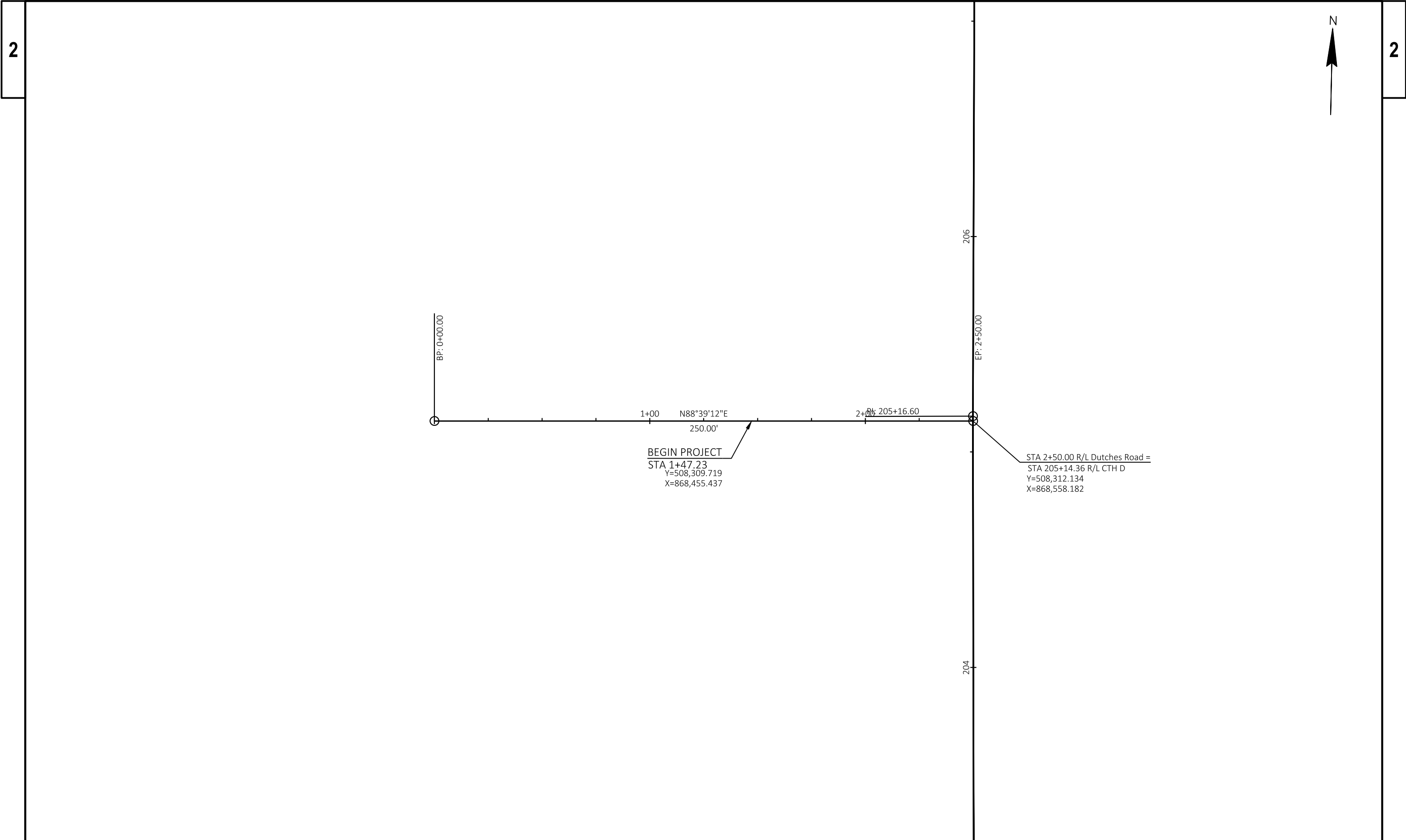


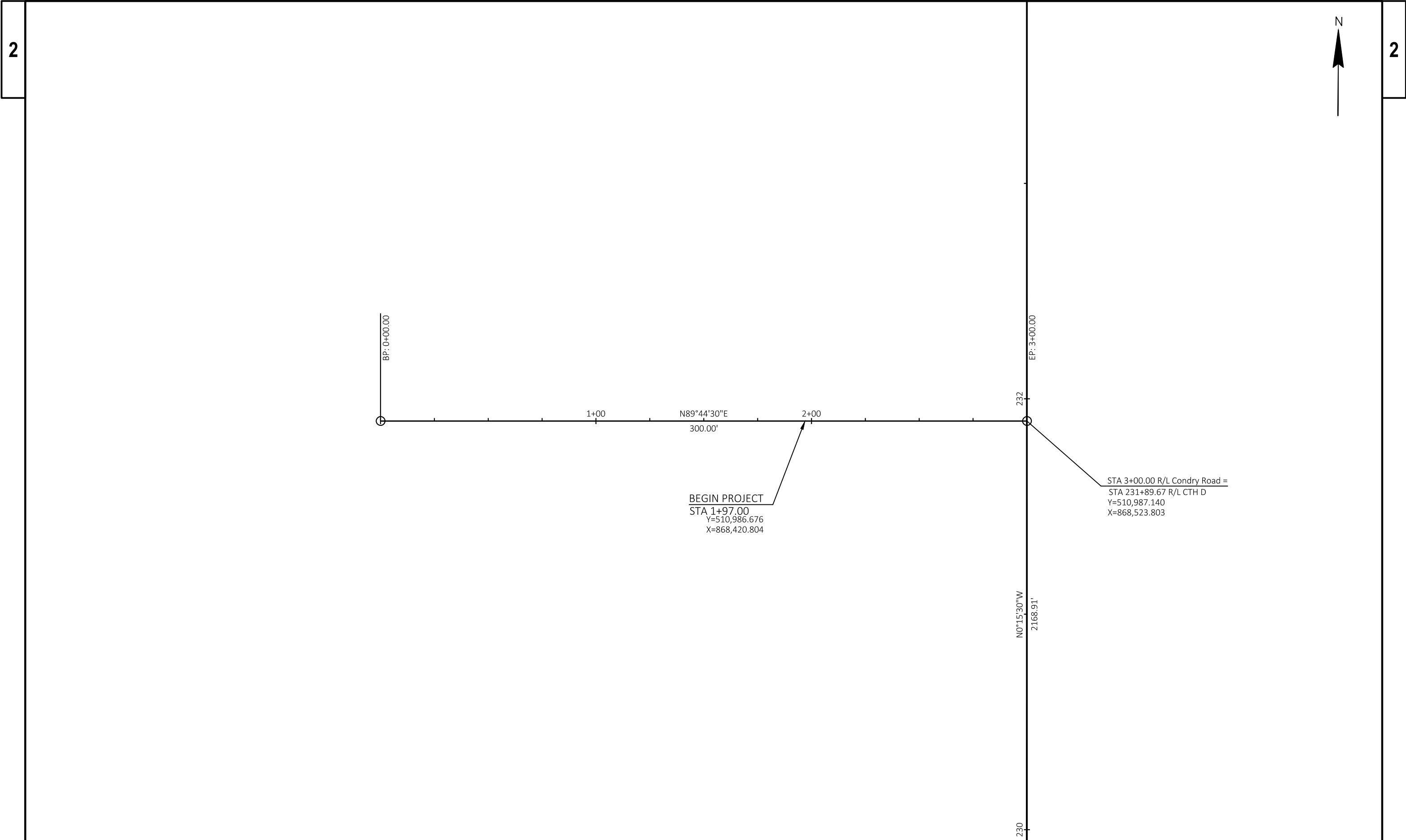


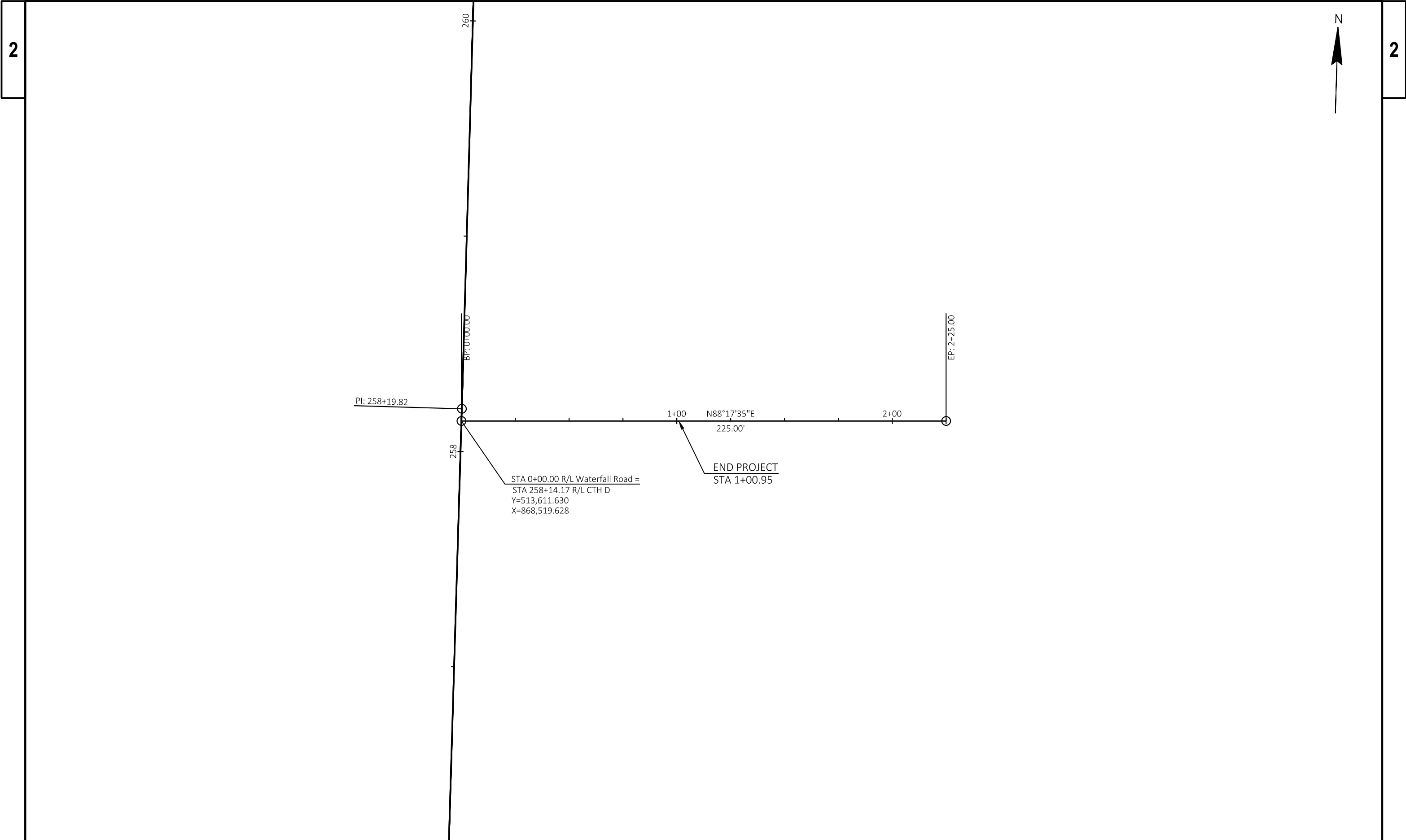


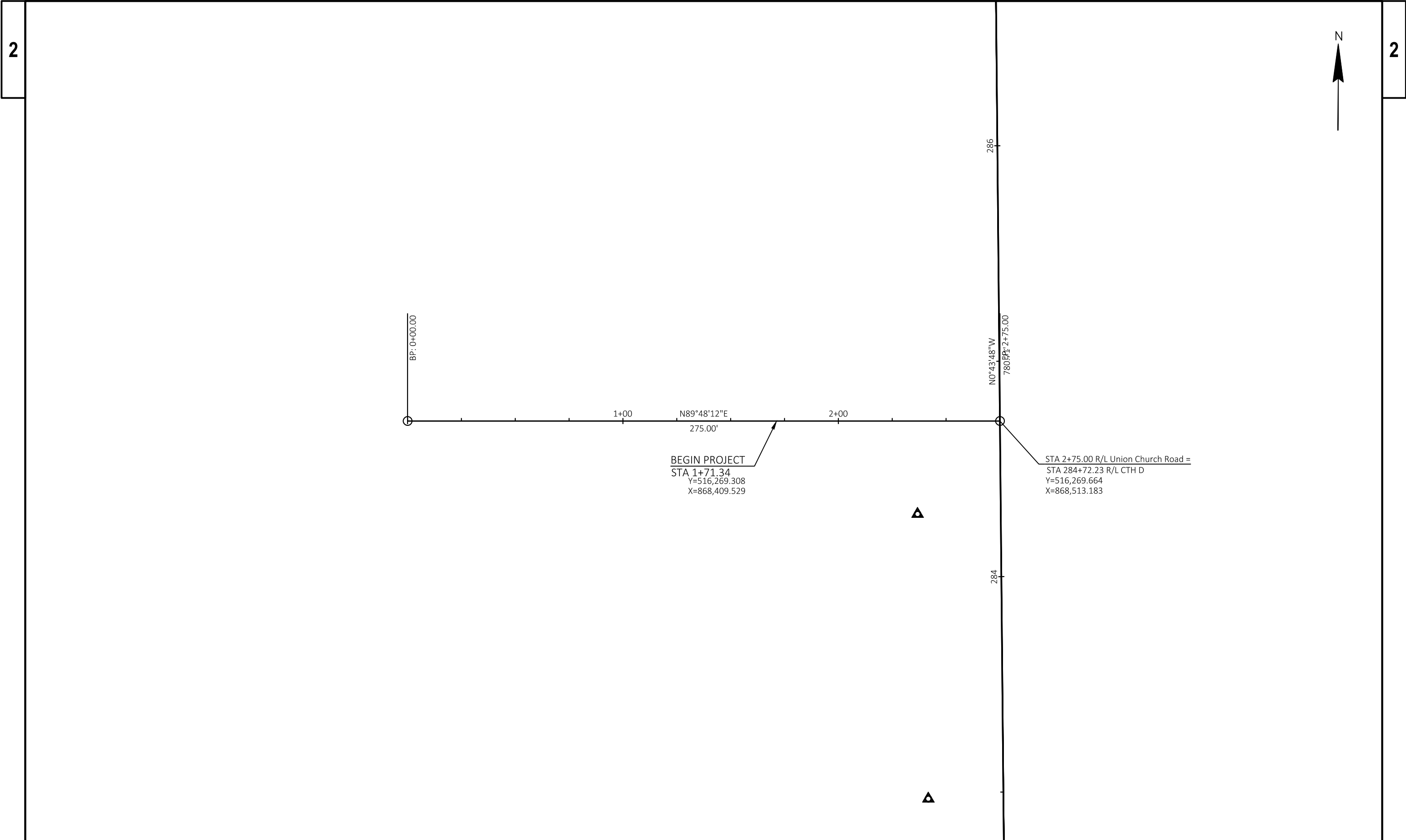


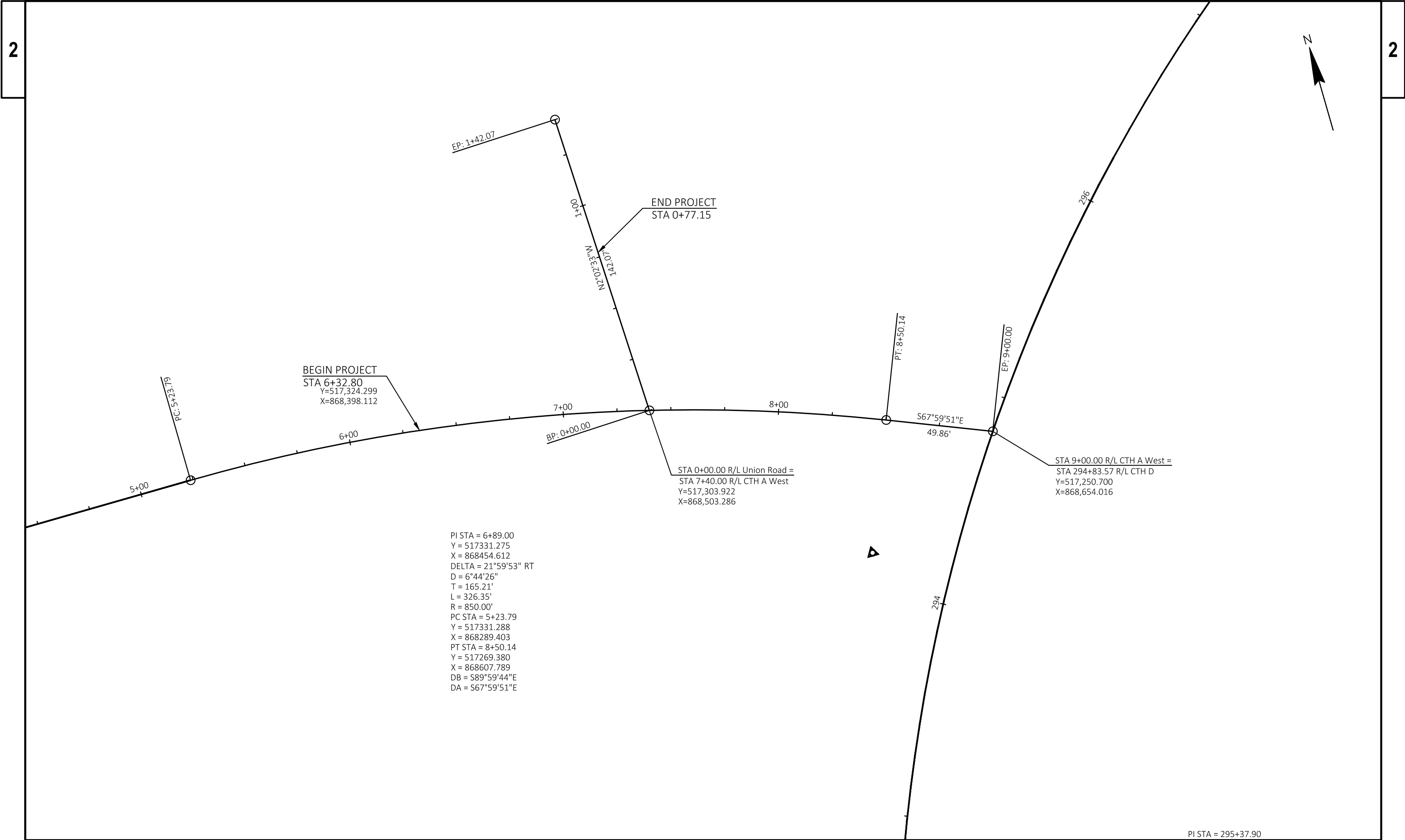


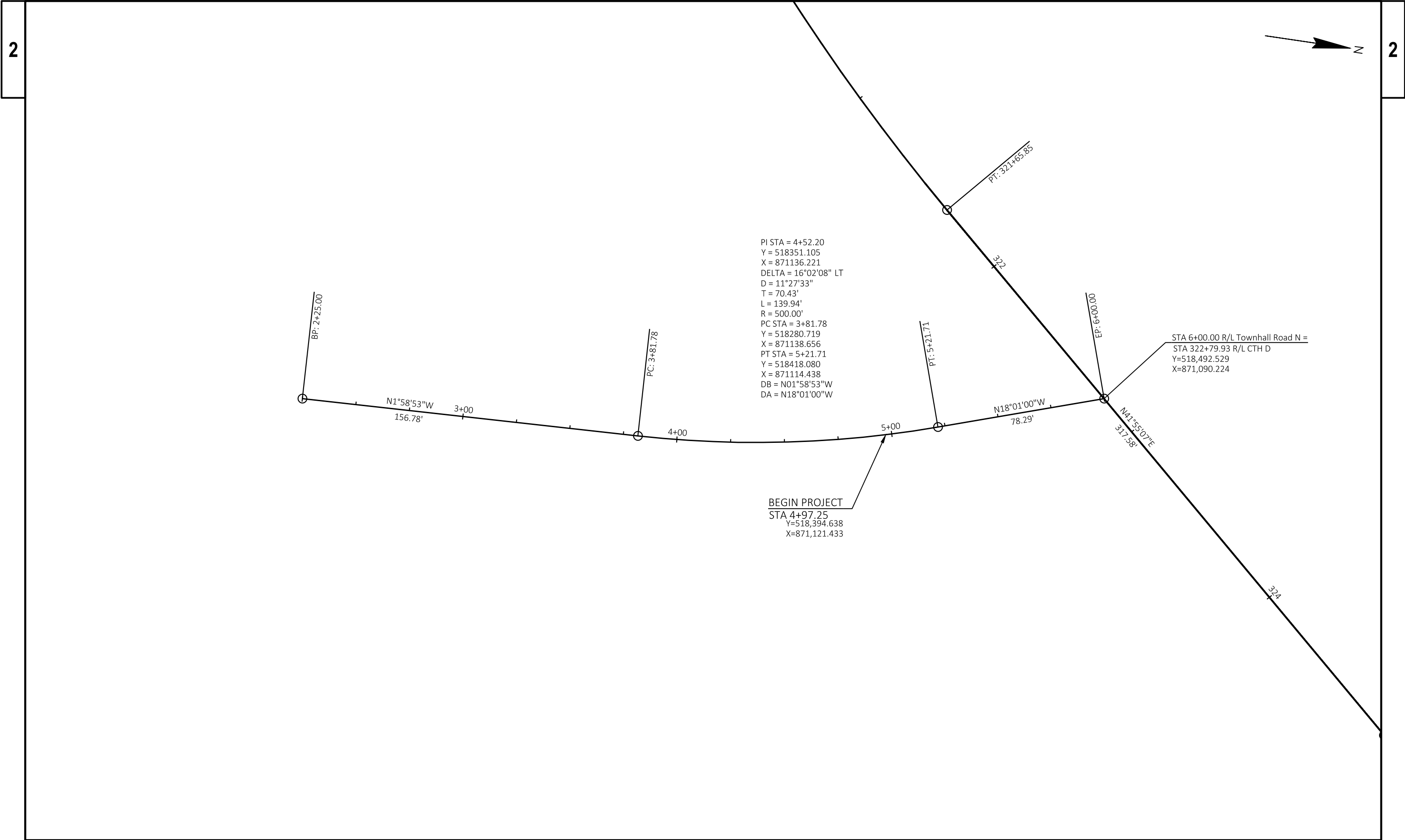


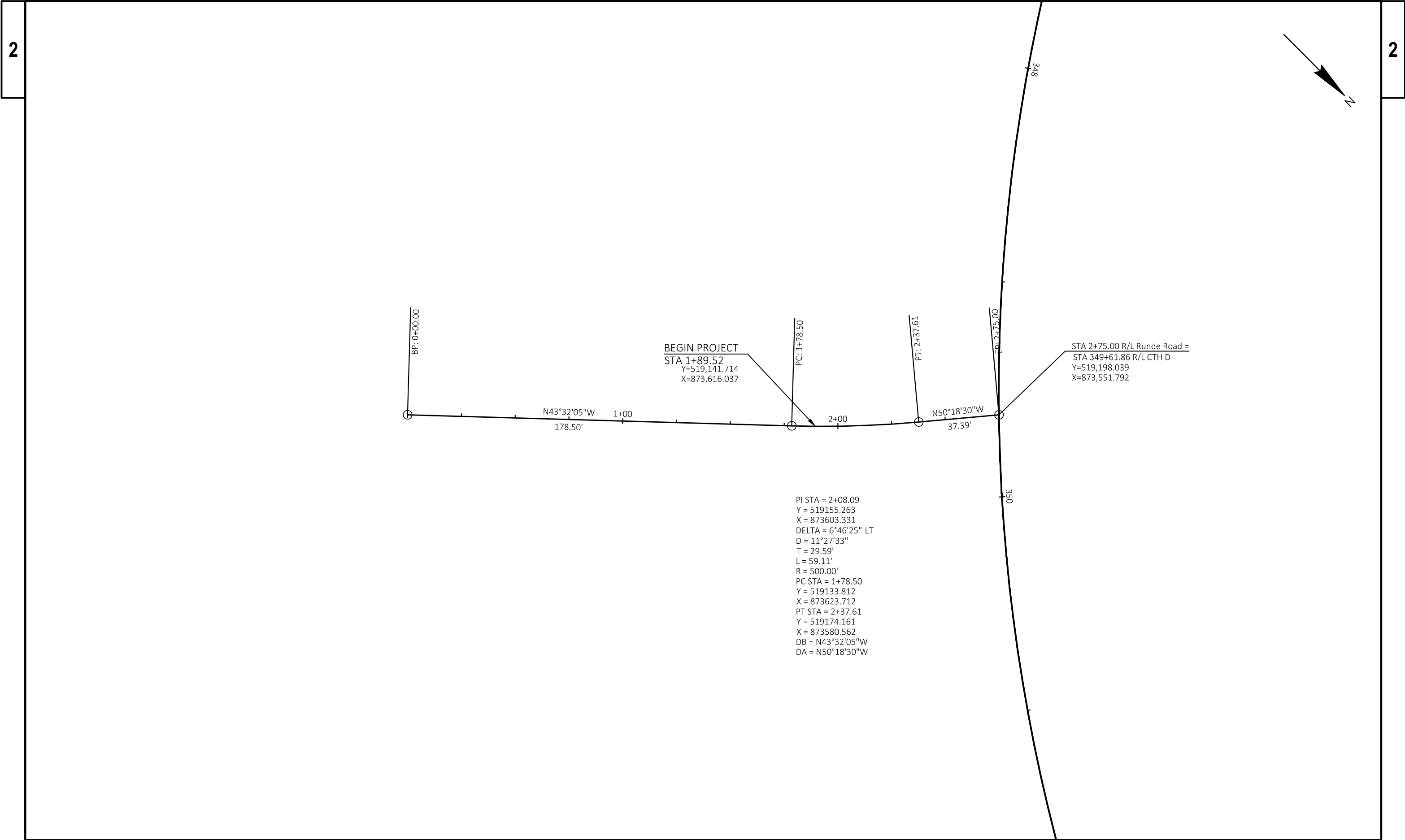








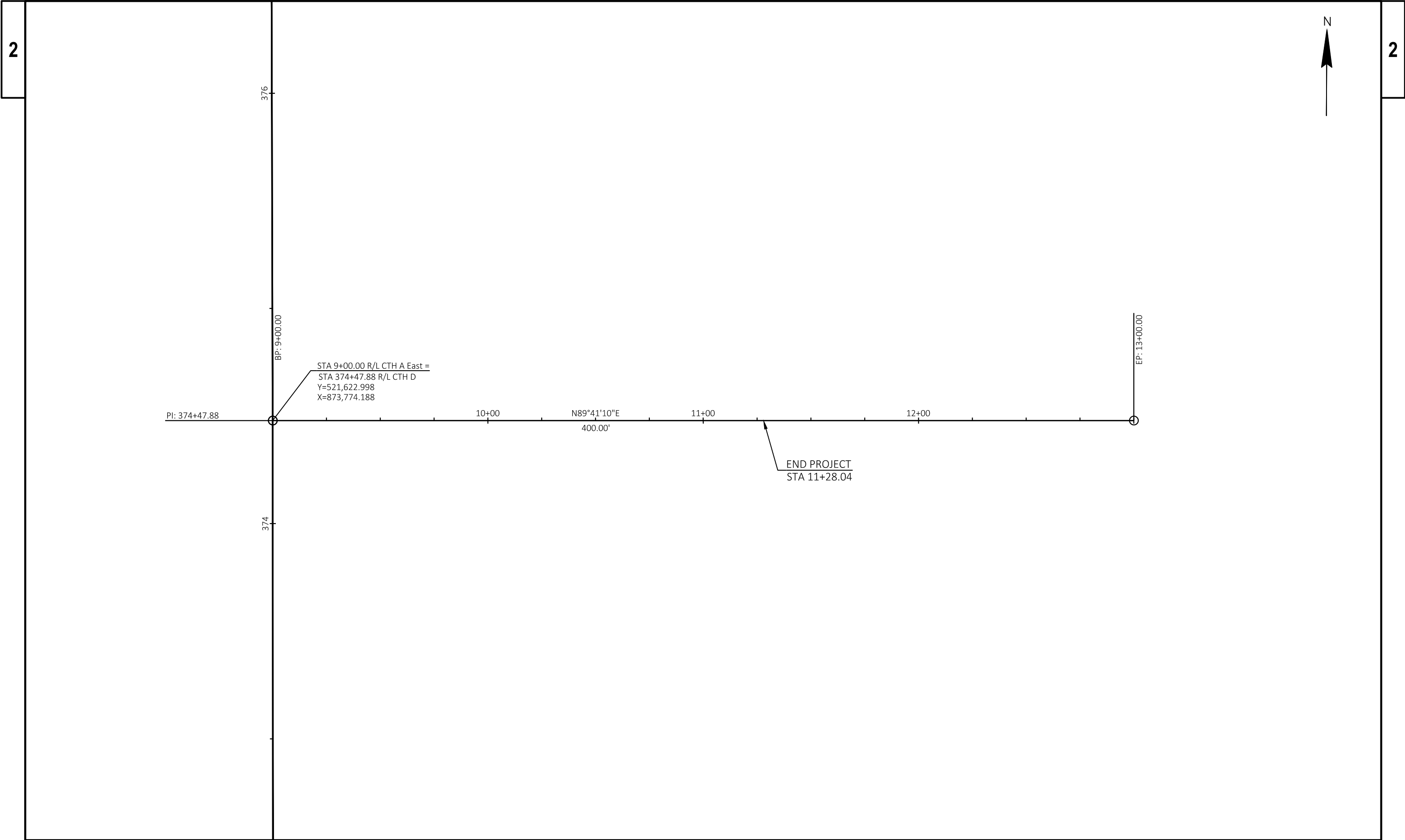


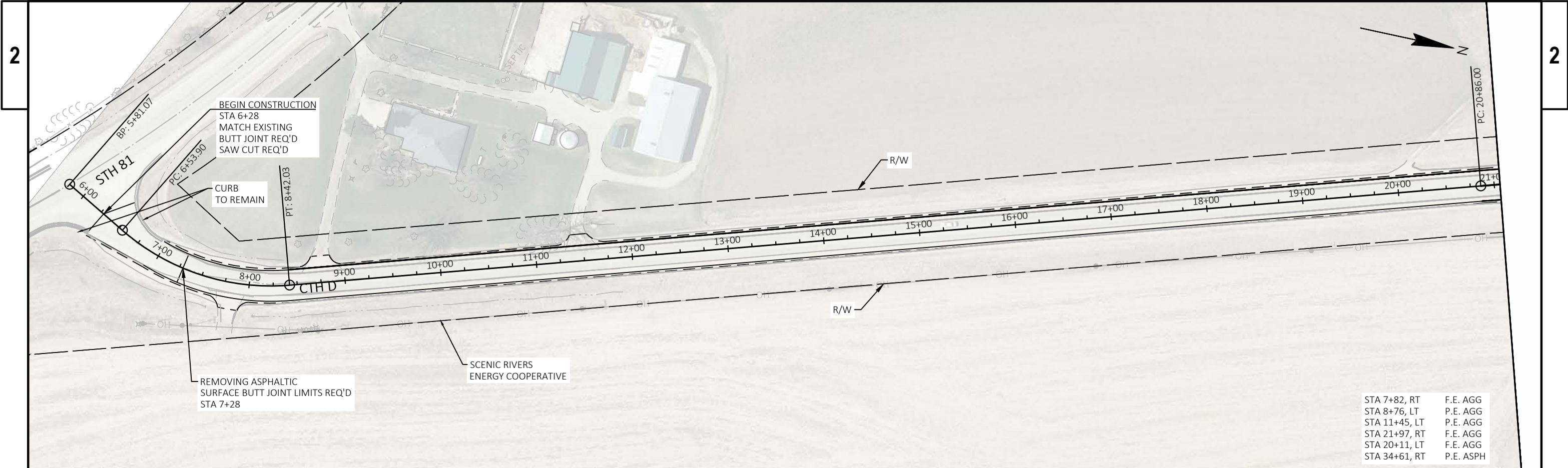


BEGIN PROJECT
STA 1+89.52
Y=519,141.714
X=873,616.037

STA 2+75.00 R/L Runde Road =
STA 349+61.86 R/L CTH D
Y=519,198.039
X=873,551.792

PI STA = 2+08.09
Y = 519155.263
X = 873603.331
DELTA = 6°46'25" LT
D = 11°27'33"
T = 29.59'
L = 59.11'
R = 500.00'
PC STA = 1+78.50
Y = 519133.812
X = 873623.712
PT STA = 2+37.61
Y = 519174.161
X = 873580.562
DB = N43°32'05"W
DA = N50°18'30"W





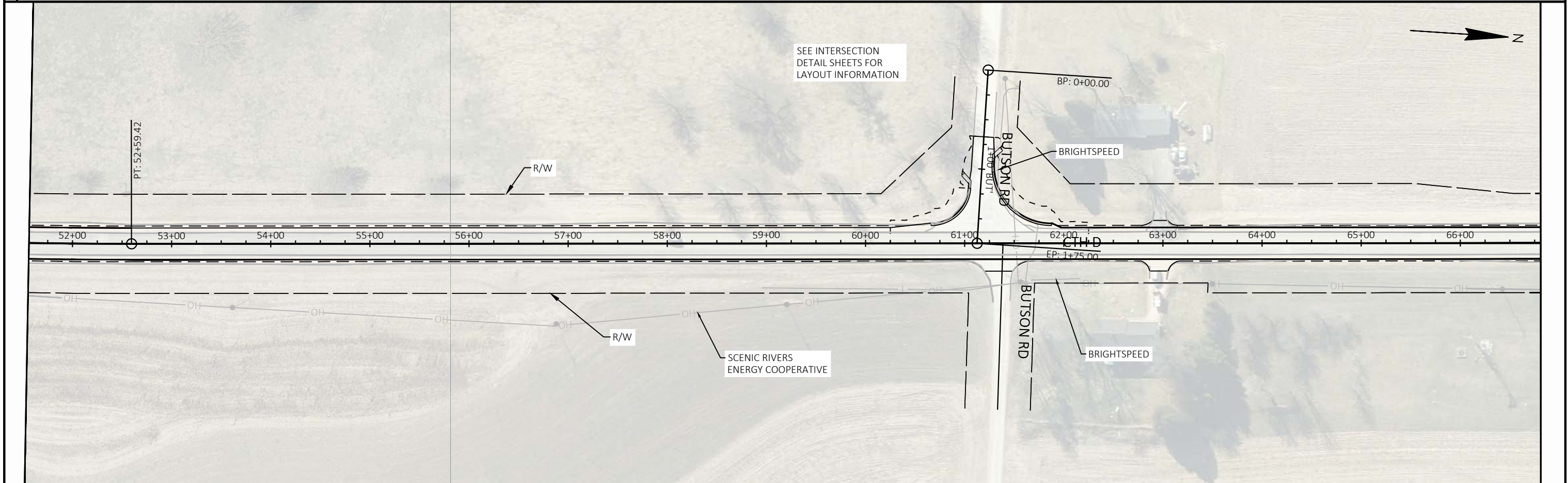
STA 7+82, RT	F.E. AGG
STA 8+76, LT	P.E. AGG
STA 11+45, LT	P.E. AGG
STA 21+97, RT	F.E. AGG
STA 20+11, LT	F.E. AGG
STA 34+61, RT	P.E. ASPH

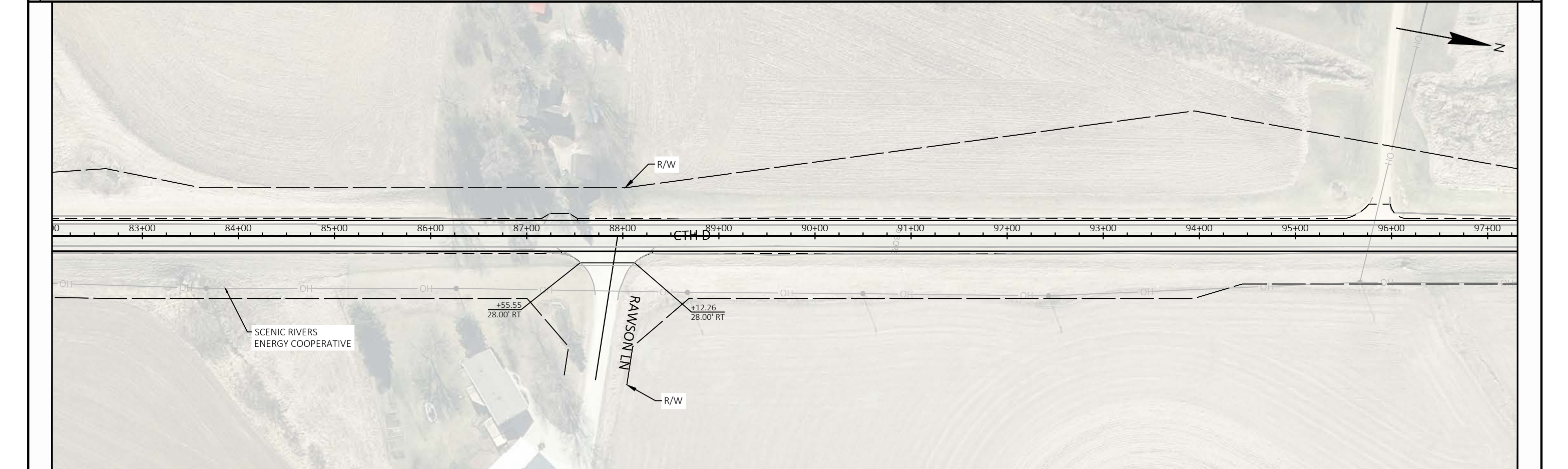
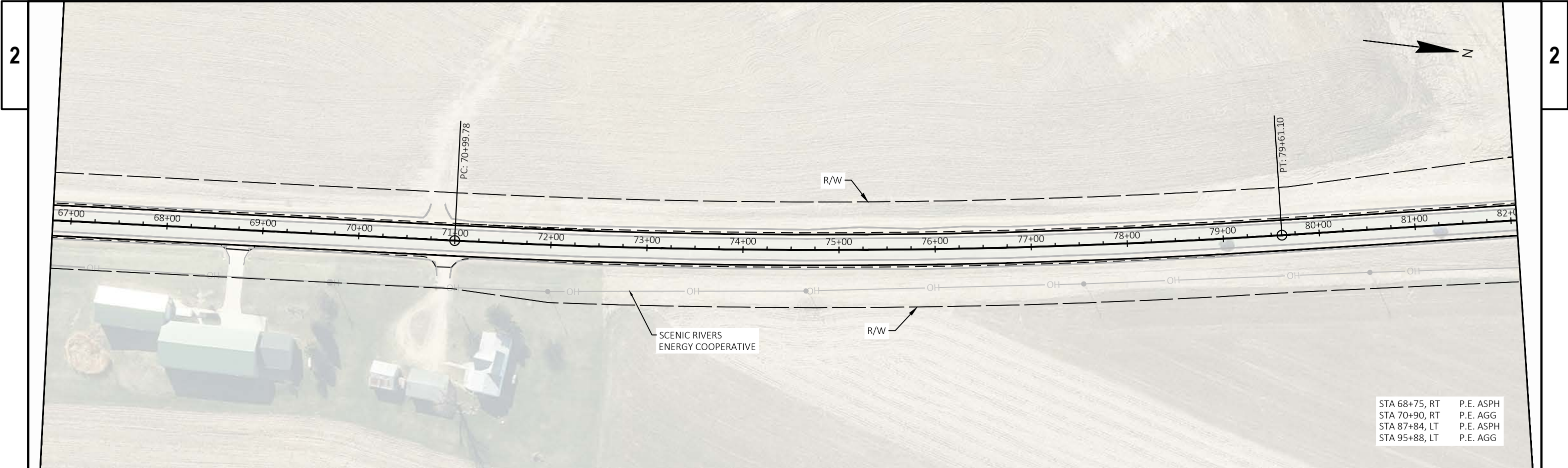


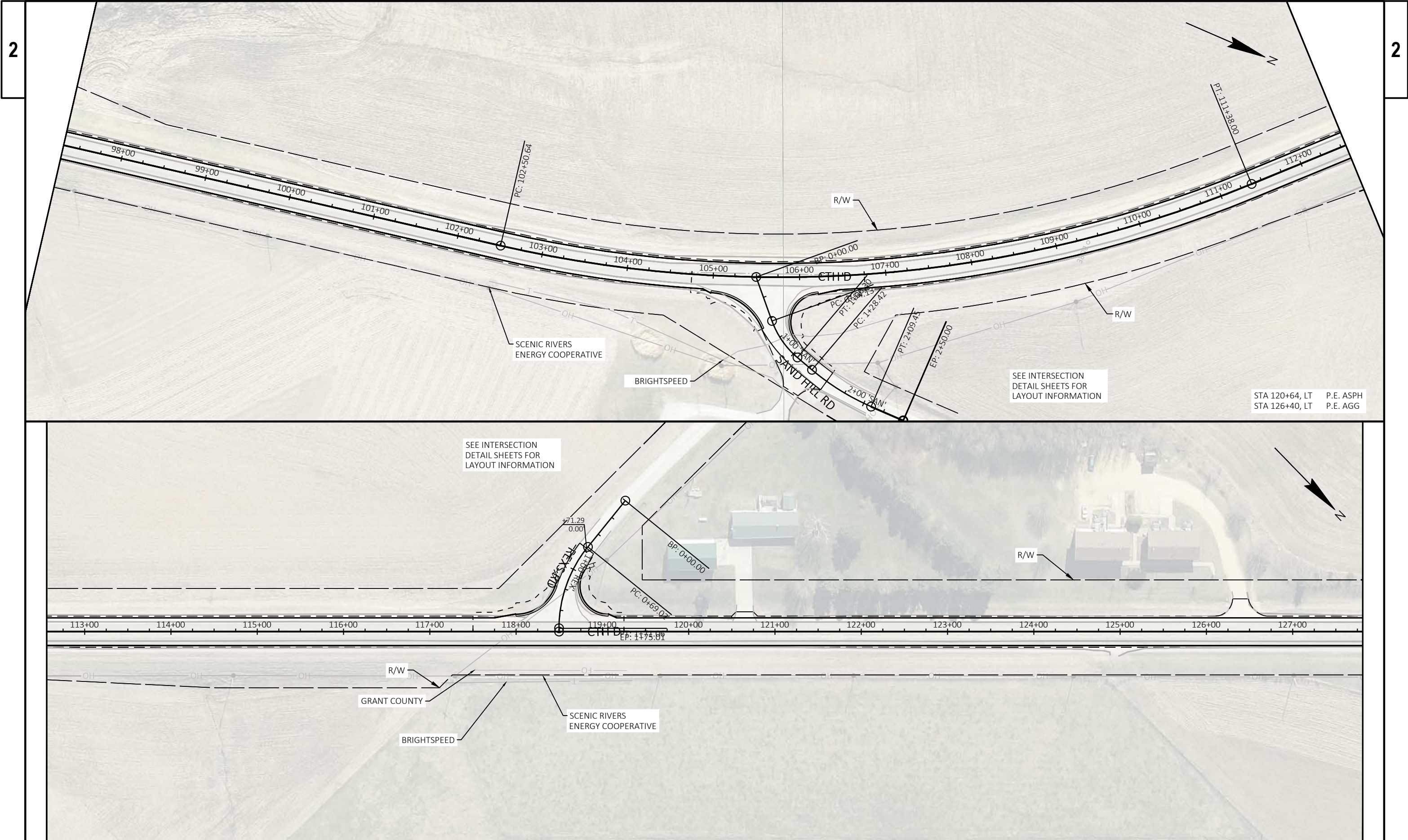
PROJECT NO: 5316-00-71	HWY: CTH D	COUNTY: GRANT	PLAN DETAILS	SHEET 77	E
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STA 46+66, RT	F.E. AGG
STA 47+07, LT	F.E. AGG
STA 61+34, RT	P.E. ASPH
STA 62+96, RT	P.E. AGG
STA 62+97, LT	P.E. ASPH







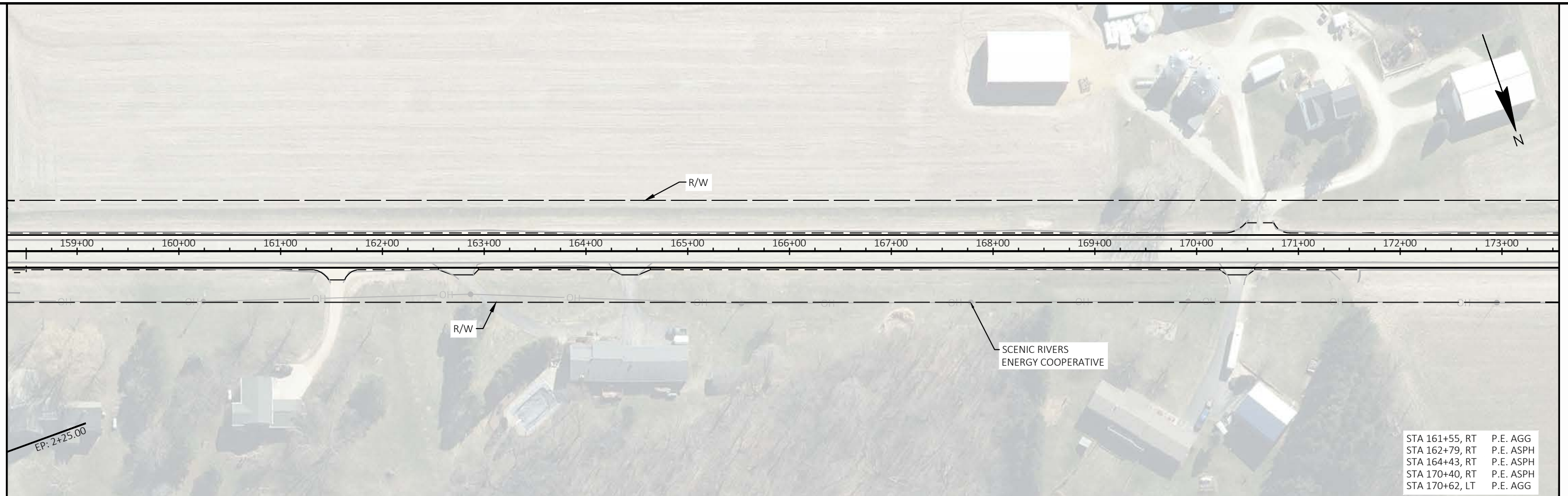


STA 131+70, RT	P.E. AGG
STA 138+72, LT	P.E. ASPH
STA 142+64, RT	F.E. AGG
STA 143+86, RT	P.E. ASPH
STA 145+33, RT	P.E. ASPH
STA 147+00, RT	P.E. AGG
STA 148+56, RT	P.E. AGG
STA 150+05, RT	P.E. ASPH
STA 154+61, LT	P.E. AGG
STA 157+54, LT	P.E. AGG
STA 157+81, RT	P.E. AGG

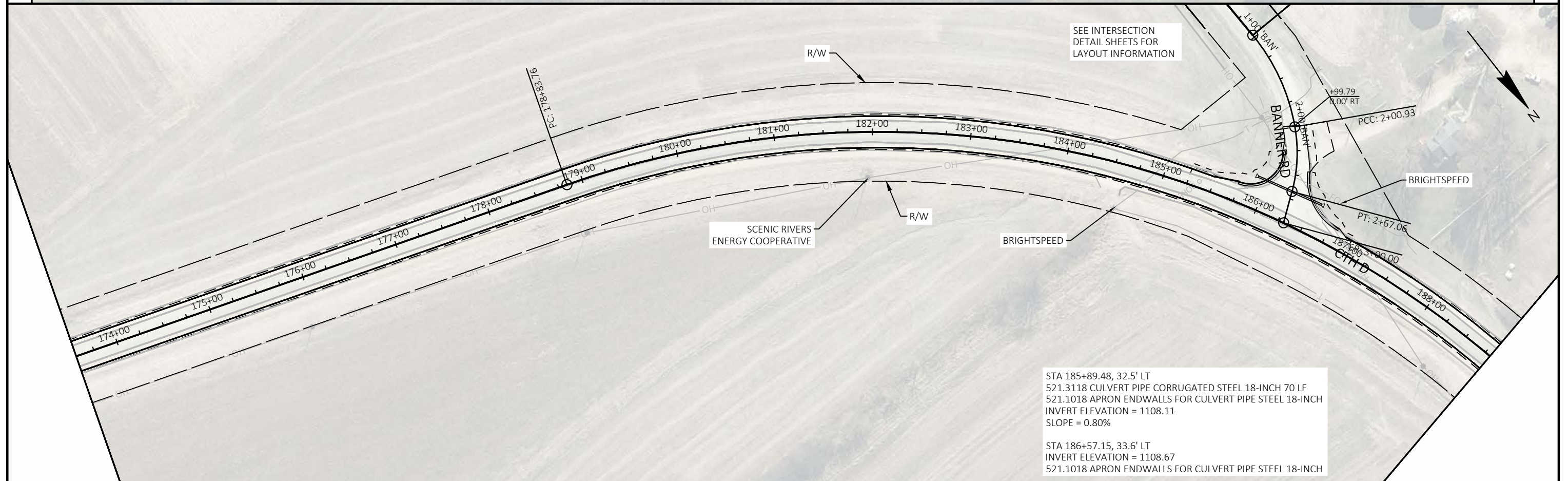
STA 156+76.01, 30.8' RT
CONNECT TO EXISTING PIPE
521.3124 CULVERT PIPE CORRUGATED STEEL 24-INCH 10 LF
INVERT ELEVATION = 1082.00
SLOPE = 1.50%

STA 156+76.28, 40.8' RT
INVERT ELEVATION = 1081.86
521.1024 APRON ENDWALLS FOR CULVERT PIPE STEEL 24-INCH

2



STA 161+55, RT	P.E. AGG
STA 162+79, RT	P.E. ASPH
STA 164+43, RT	P.E. ASPH
STA 170+40, RT	P.E. ASPH
STA 170+62, LT	P.E. AGG



STA 185+89.48, 32.5' LT
521.3118 CULVERT PIPE CORRUGATED STEEL 18-INCH 70 LF
521.1018 APRON ENDWALLS FOR CULVERT PIPE STEEL 18-INCH
INVERT ELEVATION = 1108.11
SLOPE = 0.80%

STA 186+57.15, 33.6' LT
INVERT ELEVATION = 1108.67
521.1018 APRON ENDWALLS FOR CULVERT PIPE STEEL 18-INCH

PROJECT NO:	5316-00-71
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HWY: CTH D

COUNTY: GRANT

PLAN DETAILS

SHEET 82

FILE NAME : T:\PROJECTS\2024\24-2099-1 CTH D - GRANT CO. 5316-00-01\DRAWINGS\CTH D PROPOSED LINEWORK.DWG
LAYOUT NAME - Plan Sheets 6

PLOT DATE : 8/18/2026 12:54 PM

PLOT BY : TYLER BUCHANAN

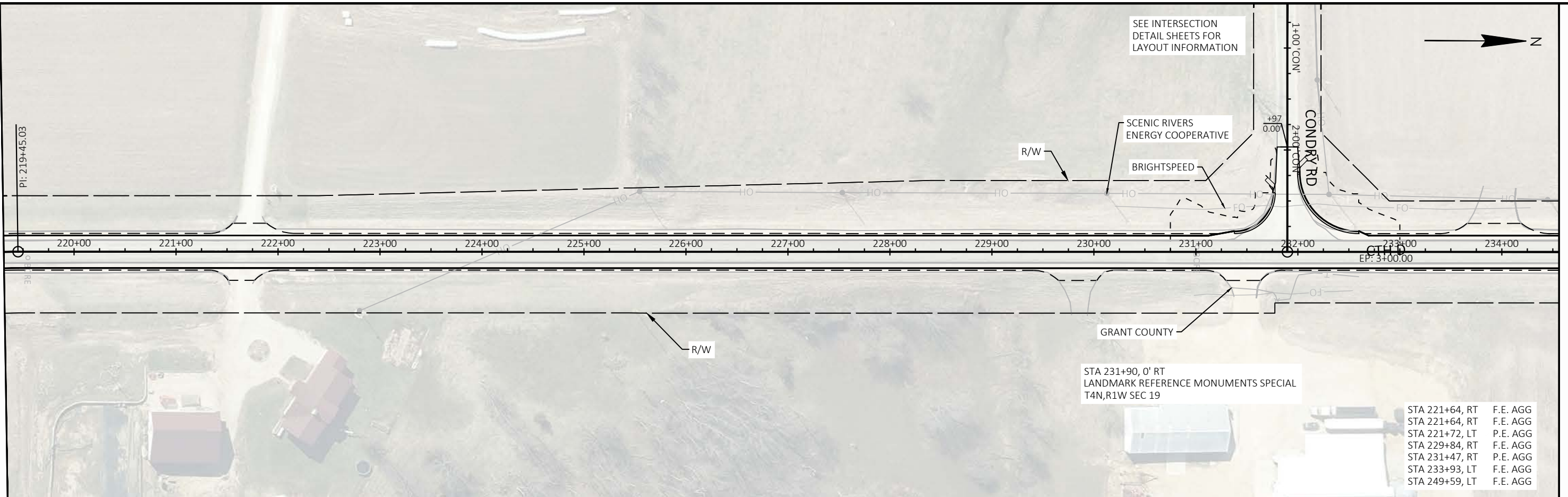
PLOT NAME :

PLOT SCALE : 1 IN:100 FT

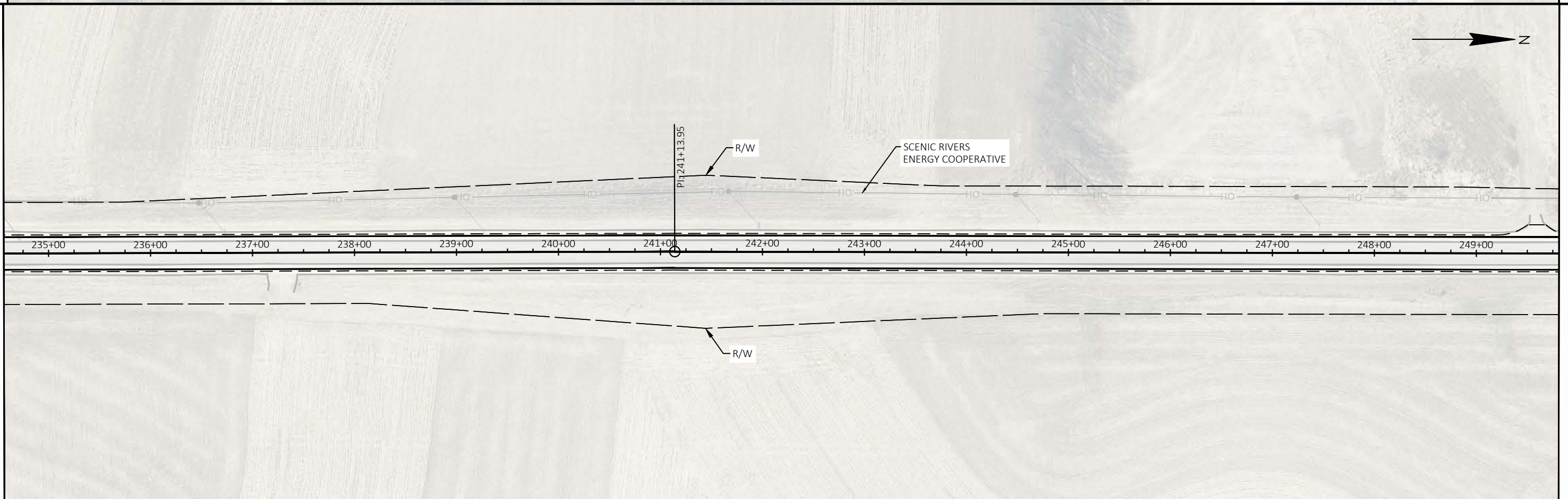
WISDOT/CADDS SHEET 44



2



2 |



PROJECT NO:	5316-00-71
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HWY: CTH D

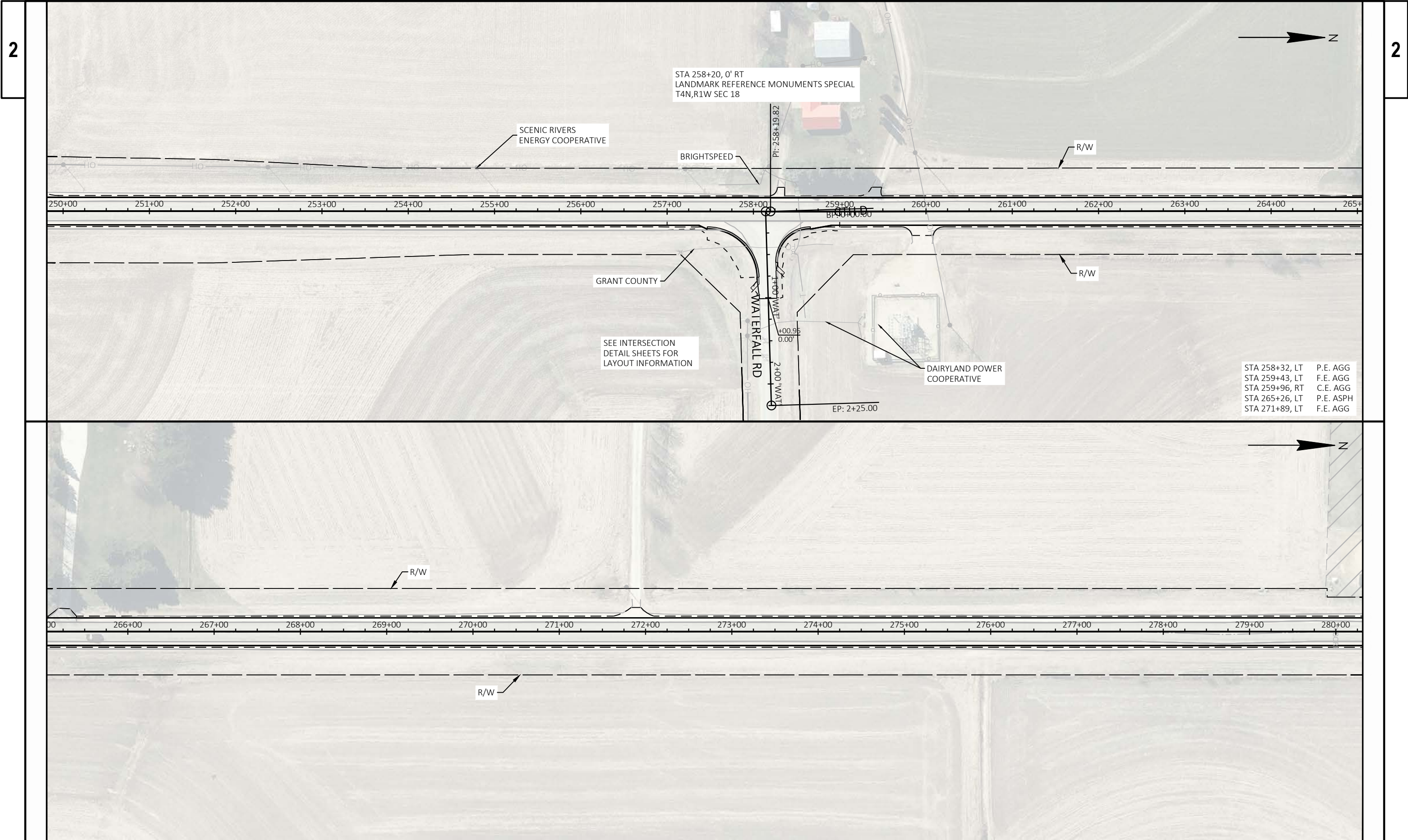
COUNTY: GRANT

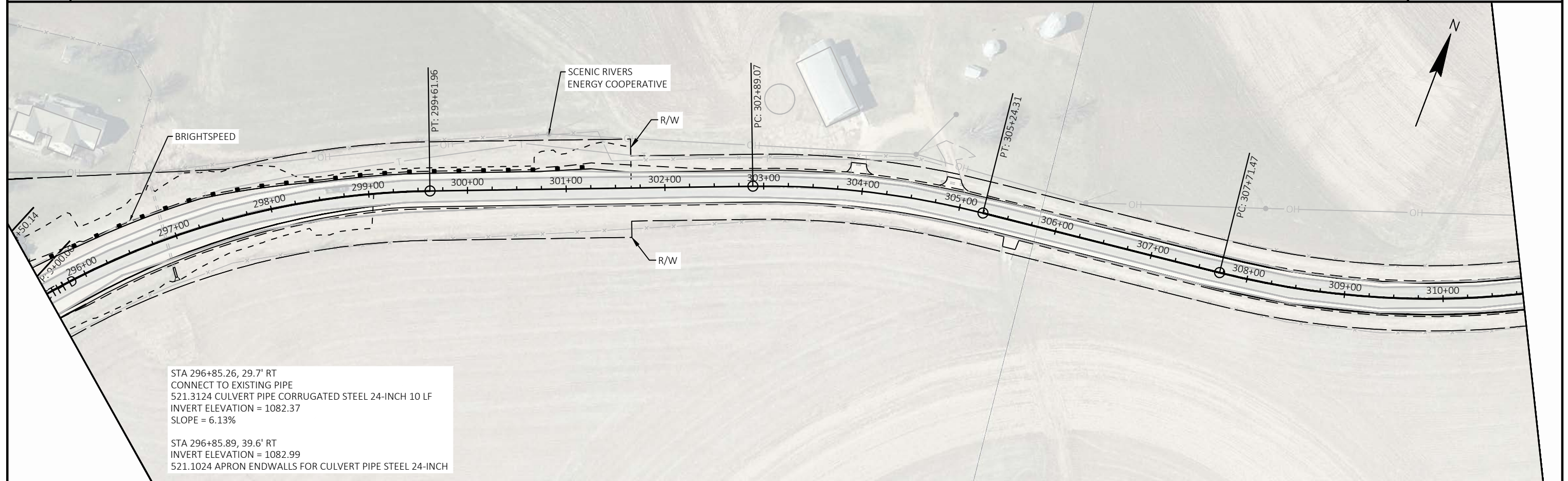
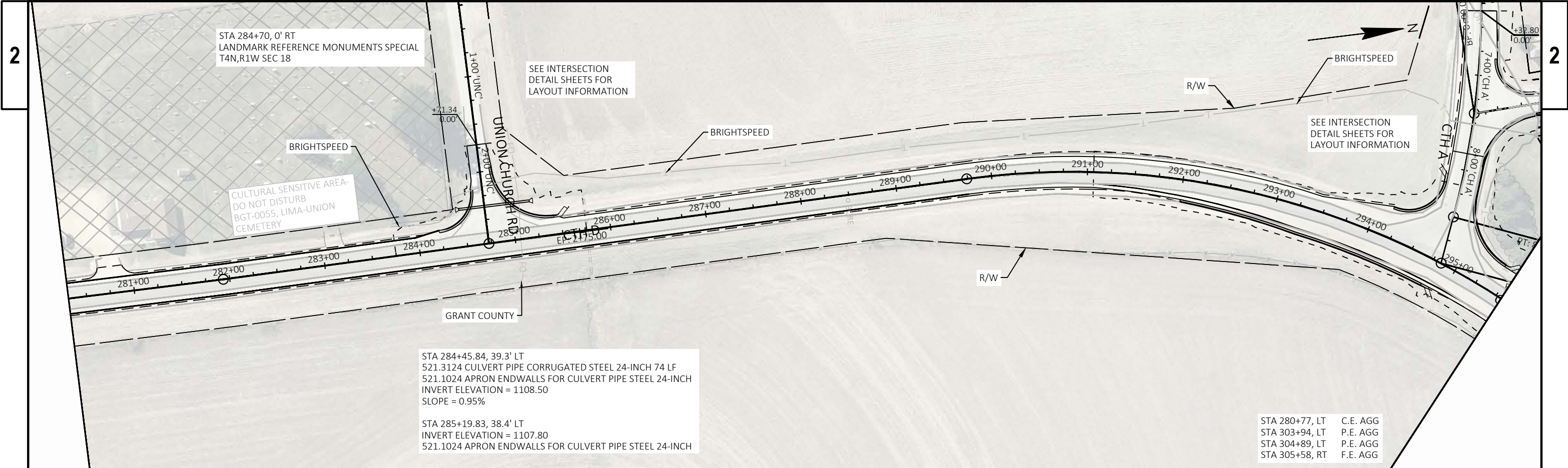
PLAN DETAILS

SHEET

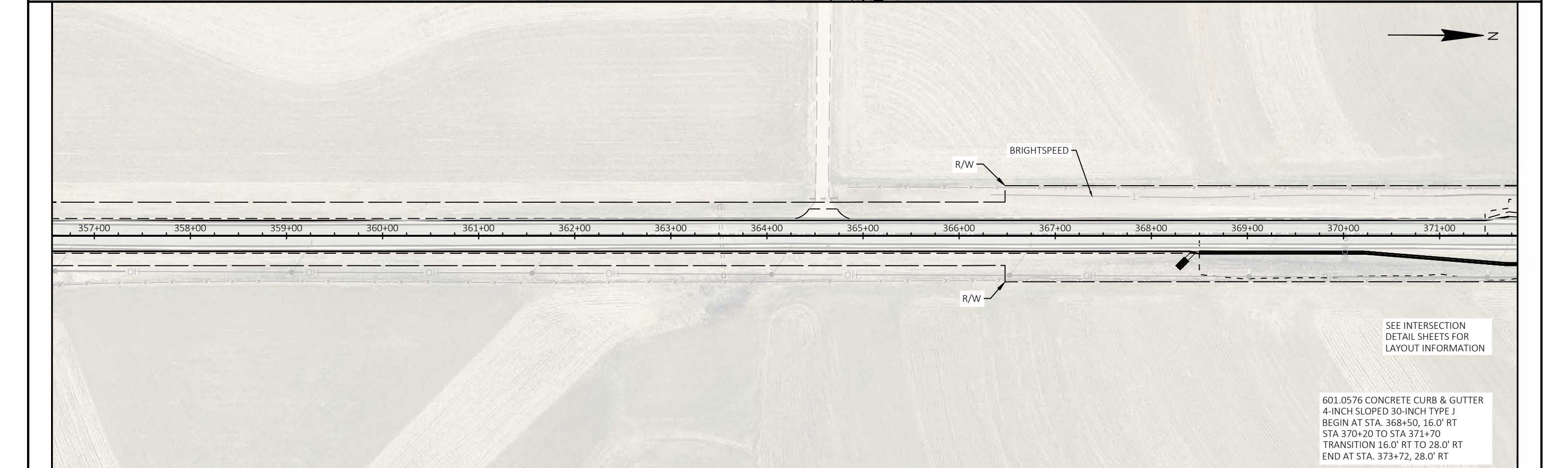
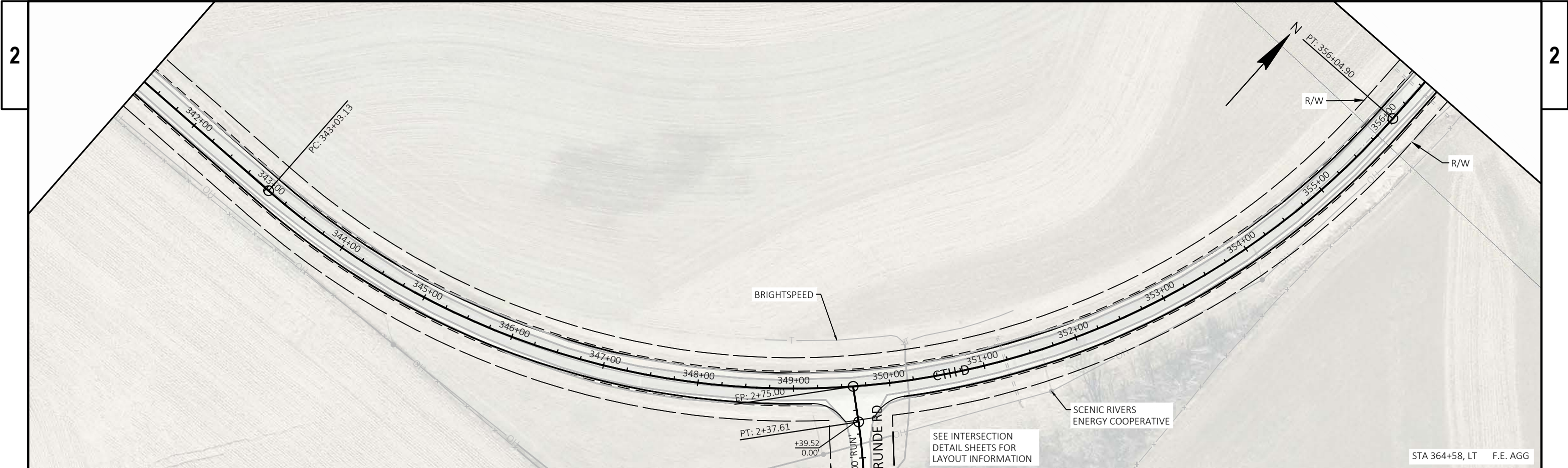
34

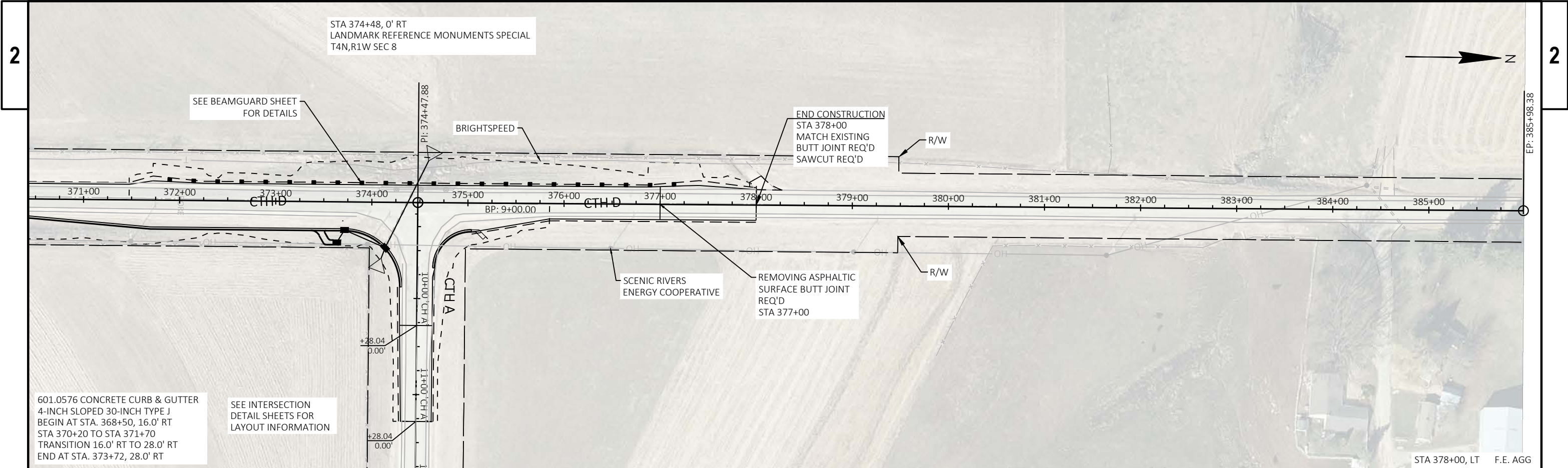
11











Estimate Of Quantities

5316-00-71					
Line	Item	Item Description	Unit	Total	Qty
0002	203.0100	Removing Small Pipe Culverts	EACH	5.000	5.000
0004	204.0115	Removing Asphaltic Surface Butt Joints	SY	2,923.000	2,923.000
0006	204.0165	Removing Guardrail	LF	75.000	75.000
0008	205.0100	Excavation Common	CY	4,340.000	4,340.000
0010	208.0100	Borrow	CY	946.000	946.000
0012	209.2500	Backfill Granular Grade 2	TON	426.000	426.000
0014	211.0101	Prepare Foundation for Asphaltic Paving (project) 01. 5316-00-71	EACH	1.000	1.000
0016	213.0100	Finishing Roadway (project) 01. 5316-00-71	EACH	1.000	1.000
0018	305.0110	Base Aggregate Dense 3/4-Inch	TON	6,800.000	6,800.000
0020	305.0120	Base Aggregate Dense 1 1/4-Inch	TON	6,440.000	6,440.000
0022	312.0110	Select Crushed Material	TON	3,350.000	3,350.000
0024	325.0100	Pulverize and Relay	SY	142,126.000	142,126.000
0026	374.1020.S	QMP Pulverize and Relay Compaction	SY	142,126.000	142,126.000
0028	455.0605	Tack Coat	GAL	16,852.000	16,852.000
0030	460.0105.S	HMA Percent Within Limits (PWL) Test Strip Volumetrics	EACH	2.000	2.000
0032	460.0110.S	HMA Percent Within Limits (PWL) Test Strip Density	EACH	1.000	1.000
0034	460.2005	Incentive Density PWL HMA Pavement	DOL	8,500.000	8,500.000
0036	460.2007	Incentive Density HMA Pavement Longitudinal Joints	DOL	18,000.000	18,000.000
0038	460.2010	Incentive Air Voids HMA Pavement	DOL	38,000.000	38,000.000
0040	460.5223	HMA Pavement 3 LT 58-28 S	TON	19,652.000	19,652.000
0042	460.5224	HMA Pavement 4 LT 58-28 S	TON	19,652.000	19,652.000
0044	465.0120	Asphaltic Surface Driveways and Field Entrances	TON	56.000	56.000
0046	465.0560	Asphaltic Rumble Strips, Centerline	LF	30,922.000	30,922.000
0048	521.1018	Apron Endwalls for Culvert Pipe Steel 18-Inch	EACH	2.000	2.000
0050	521.1024	Apron Endwalls for Culvert Pipe Steel 24-Inch	EACH	4.000	4.000
0052	521.3118	Culvert Pipe Corrugated Steel 18-Inch	LF	70.000	70.000
0054	521.3124	Culvert Pipe Corrugated Steel 24-Inch	LF	104.000	104.000
0056	522.1024	Apron Endwalls for Culvert Pipe Reinforced Concrete 24-Inch	EACH	2.000	2.000
0058	601.0576	Concrete Curb & Gutter 4-Inch Sloped 30-Inch Type J	LF	2,777.000	2,777.000
0060	602.3010	Concrete Surface Drains	CY	32.000	32.000
0062	606.0200	Riprap Medium	CY	39.000	39.000
0064	608.0324	Storm Sewer Pipe Reinforced Concrete Class III 24-Inch	LF	174.000	174.000
0066	611.0630	Inlet Covers Type HM-GJ	EACH	2.000	2.000
0068	611.0642	Inlet Covers Type MS	EACH	2.000	2.000
0070	611.1006	Catch Basins 6-FT Diameter	EACH	2.000	2.000
0072	611.3902	Inlets Median 2 Grate	EACH	1.000	1.000
0074	614.2330	MGS Guardrail 3 K	LF	926.000	926.000
0076	614.2610	MGS Guardrail Terminal EAT	EACH	4.000	4.000
0078	618.0100	Maintenance and Repair of Haul Roads (project) 01. 5316-00-71	EACH	1.000	1.000
0080	619.1000	Mobilization	EACH	1.000	1.000
0082	624.0100	Water	MGAL	230.000	230.000
0084	625.0500	Salvaged Topsoil	SY	8,444.000	8,444.000
0086	627.0200	Mulching	SY	2,500.000	2,500.000
0088	628.1504	Silt Fence	LF	3,641.000	3,641.000
0090	628.1520	Silt Fence Maintenance	LF	7,282.000	7,282.000
0092	628.1905	Mobilizations Erosion Control	EACH	3.000	3.000
0094	628.1910	Mobilizations Emergency Erosion Control	EACH	2.000	2.000
0096	628.2004	Erosion Mat Class I Type B	SY	12,944.000	12,944.000
0098	628.7005	Inlet Protection Type A	EACH	1.000	1.000

Estimate Of Quantities

5316-00-71

Line	Item	Item Description	Unit	Total	Qty
0100	628.7010	Inlet Protection Type B	EACH	2.000	2.000
0102	628.7504	Temporary Ditch Checks	LF	190.000	190.000
0104	628.7555	Culvert Pipe Checks	EACH	15.000	15.000
0106	628.7560	Tracking Pads	EACH	1.000	1.000
0108	629.0210	Fertilizer Type B	CWT	9.600	9.600
0110	630.0120	Seeding Mixture No. 20	LB	279.000	279.000
0112	630.0200	Seeding Temporary	LB	279.000	279.000
0114	630.0300	Seeding Borrow Pit	LB	125.000	125.000
0116	630.0500	Seed Water	MGAL	64.000	64.000
0118	634.0614	Posts Wood 4x6-Inch x 14-FT	EACH	30.000	30.000
0120	634.0616	Posts Wood 4x6-Inch x 16-FT	EACH	13.000	13.000
0122	637.2210	Signs Type II Reflective H	SF	230.940	230.940
0124	637.2230	Signs Type II Reflective F	SF	85.600	85.600
0126	638.2602	Removing Signs Type II	EACH	44.000	44.000
0128	638.3000	Removing Small Sign Supports	EACH	33.000	33.000
0130	642.5001	Field Office Type B	EACH	1.000	1.000
0132	643.0300	Traffic Control Drums	DAY	5,920.000	5,920.000
0134	643.0900	Traffic Control Signs	DAY	8,375.000	8,375.000
0136	643.1050	Traffic Control Signs PCMS	DAY	14.000	14.000
0138	643.3165	Temporary Marking Line Paint 6-Inch	LF	148,688.000	148,688.000
0140	643.5000	Traffic Control	EACH	1.000	1.000
0142	645.0120	Geotextile Type HR	SY	136.000	136.000
0144	646.2020	Marking Line Epoxy 6-Inch	LF	120,710.000	120,710.000
0146	646.3020	Marking Line Epoxy 8-Inch	LF	400.000	400.000
0148	646.5020	Marking Arrow Epoxy	EACH	4.000	4.000
0150	646.5120	Marking Word Epoxy	EACH	4.000	4.000
0152	648.0100	Locating No-Passing Zones	MI	7.100	7.100
0154	650.4000	Construction Staking Storm Sewer	EACH	5.000	5.000
0156	650.4500	Construction Staking Subgrade	LF	2,866.000	2,866.000
0158	650.5500	Construction Staking Curb Gutter and Curb & Gutter	LF	2,777.000	2,777.000
0160	650.6000	Construction Staking Pipe Culverts	EACH	4.000	4.000
0162	650.8000	Construction Staking Resurfacing Reference	LF	37,172.000	37,172.000
0164	650.9911	Construction Staking Supplemental Control (project) 01. 5316-00-71	EACH	1.000	1.000
0166	650.9920	Construction Staking Slope Stakes	LF	2,676.000	2,676.000
0168	690.0150	Sawing Asphalt	LF	542.000	542.000
0170	740.0440	Incentive IRI Ride	DOL	11,100.000	11,100.000
0172	ASP.1T0A	On-the-Job Training Apprentice at \$5.00/HR	HRS	2,500.000	2,500.000
0174	ASP.1T0G	On-the-Job Training Graduate at \$5.00/HR	HRS	3,250.000	3,250.000
0176	SPV.0055	Special 01. Incentive Density PWL, HMA Pavement	DOL	8,500.000	8,500.000
0178	SPV.0055	Special 02. Incentive Density PWL, HMA Pavement Longitudinal Joints	DOL	18,000.000	18,000.000
0180	SPV.0060	Special 01. Landmark Reference Monuments Special	EACH	5.000	5.000

3

DIVISION	FROM/TO STATION	LOCATION	205.0100 EXCAVATION COMMON (1)	AVAILABLE MATERIAL (5)	UNEXPANDED FILL	EXPANDED FILL (13)	MASS ORDINATE +/- (14)	WASTE	208.0100 BORROW	COMMENT
			CUT (2)			FACTOR 1.25				
DIVISION 1										
CTH D @ BUTSON	60+25.00/62+25.00		50	50	76	95	-45			
BUTSON	0+67.31/1+25.00		24	24	23	29	-5			
DIVISION 1 SUBTOTAL			74	74	99	124	-50	0	50	
DIVISION 2										
CTH D @ SANDHILL	104+75.00/106+75.00		46	46	53	66	-20			
SANDHILL	0+50.00/1+50.00		21	21	38	48	-27			
DIVISION 2 SUBTOTAL			67	67	91	114	-47	0	47	
DIVISION 3										
CTHD @ REXS	117+50.00/119+25.00		43	43	69	86	-43			
REXS	0+71.29/1+25.00		14	14	21	26	-12			
DIVISION 3 SUBTOTAL			57	57	90	113	-56	0	56	
DIVISION 4										
CTH D @ TOWNHALL S	156+25.00/158+50.00		56	56	133	166	-110			
TOWNHALL S	0+50.00/0+97.63		19	19	50	63	-44			
DIVISION 4 SUBTOTAL			75	75	183	229	-154	0	154	
DIVISION 5										
CTH D @ BANNER	185+25.00/187+00.00		41	41	85	106	-65			
BANNER	2+00.88/2+50.00		18	18	15	19	-1			
DIVISION 5 SUBTOTAL			59	59	100	125	-66	0	66	
DIVISION 6										
CTH D @ DUTCHES	204+25.00/206+00.00		134	134	16	20	114			
DUTCHES	1+47.23/2+25.00		79	79	12	15	64			
DIVISION 6 SUBTOTAL			213	213	28	35	178	178	0	
DIVISION 7										
CTH D @ CONDRY	230+75.00/233+00.00		39	39	201	251	-212			
CONDRY	1+97.00/2+50.00		22	22	69	86	-64			
DIVISION 7 SUBTOTAL			61	61	270	338	-277	0	277	
DIVISION 8										
CTH D @ WATERFALL	257+00.00/259+00.00		166	166	56	70	96			
WATERFALL	0+50.00/1+00.00		48	48	31	39	9			
DIVISION 8 SUBTOTAL			214	214	87	109	105	105	0	
DIVISION 9										
CTH D @ UNION CHURCH	283+75.00/285+75.00		53	53	232	290	-237			
UNION CHURCH	1+71.34/2+25.00		13	13	59	74	-61			
DIVISION 9 SUBTOTAL			66	66	291	364	-298	0	298	
DIVISION 10										
CTH D @ CTH E WEST	291+06.53/301+25.92		1,732	1,732	896	1,120	612			
CTH E WEST	6+32.80/8+29.16		27	27	90	113	-86			
UNION	0+50.00/0+77.15		8	8	26	33	-25			
DIVISION 10 SUBTOTAL			1,767	1,767	1,012	1,265	502	502	0	
DIVISION 11										
CTH D @ TOWNHALL N	321+50.00/323+75.00		170	170	22	28	143			
TOWNHALL N	4+97.25/5+25.00		17	17	3	4	13			
DIVISION 11 SUBTOTAL			187	187	25	31	156	156	0	
DIVISION 12										
CTH D @ CTH E EAST	368+50.00/378+00.00		1,435	1,435	949	1,186	249			
CTH E EAST	9+50.00/11+28.04		65	65	138	173	-108			
DIVISION 12 SUBTOTAL			1,500	1,500	1,087	1,359	141	141	0	
GRAND TOTAL			4,340	4,340	3,363	4,204	136	1,082	946	
NOTES: (1) COMMON EXCAVATION IS THE SUM OF THE CUT AND EBS EXCAVATION COLUMNS. ITEM NUMBER 205.0100 (13) EXPANDED FILL FACTOR = 1.25 (14) THE MASS ORDINATE + OR - QTY CALCULATED FOR THE DIVISION. PLUS QUANTITY INDICATES AN EXCESS OF MATERIAL WITHIN THE DIVISION. MINUS INDICATES A SHORTAGE OF MATERIAL WITHIN THE DIVISION. (15) FACTORS USED TO COMPUTE ANTICIPATED WASTE AND THE COMPUTED WASTE VOLUME IDENTIFIED ARE FOR GENERAL INFORMATION ONLY.										

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REMOVAL ITEMS

						204.0165	
						REMOVING GUARDRAIL	
CATEGORY	STATION	TO	STATION	LOCATION		LF	REMARKS
0010	374+15	-	374+90	LT		75	
TOTAL 0010						75	

AGGREGATE ITEMS

					305.0110	305.0120	312.0110	624.0100	650.4500	
					BASE AGGREGATE DENSE 3/4-INCH	BASE AGGREGATE DENSE 1 1/4-INCH	SELECT CRUSHED MATERIAL	WATER	CONSTRUCTION STAKING SUBGRADE	
CATEGORY	STATION	TO	STATION	LOCATION	TON	TON	TON	MGAL	LF	REMARKS
0010	6+28	-	105+50	CTH D	1,837	-	-	37	-	
0010	105+50	-	205+00	CTH D	1,842	-	-	37	-	
0010	205+00	-	299+00	CTH D	1,740	-	-	35	-	
0010	299+00	-	378+00	CTH D	627	-	-	13	-	
0010	291+17	-	299+09	RT, CTH D	-	1,110	720	22	792	BYPASS LANE
0010	293+15	-	298+85	LT, CTH D	-	860	580	17	570	RT-TURN LANE @ CTH A WEST
0010	368+50	-	376+05	RT, CTH D	-	960	870	19	755	RT-TURN LANE @ CTH A EAST
0010	370+82	-	378+31	LT, CTH D	112	490	-	12	749	MGS GUARDRAIL AREA
0010	INTERSECTIONS & DRIVEWAYS				400	1,020	970	28	-	
0010	UNDISTRIBUTED				242	2,000	210	10	-	CROWN CORRECTION PRIOR TO PULVERIZIING & CULVERTS
TOTAL 0010					6,800	6,440	3,350	230	2,866	

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PULVERIZE AND ASPHALT ITEMS

					204.0115	325.0100		374.1020.S	455.0605		460.5223	460.5224	465.0120	465.0560	650.8000	650.9920	690.0150	
					BUTT JOINT SURFACE AREA	REMOVING ASPHALTIC SURFACE BUTT JOINTS	PULVERIZE & RELAY AREA	PULVERIZE AND RELAY	QMP PULVERIZE AND RELAY COMPACTION	TACK COAT SURFACE AREA	TACK COAT	HMA PAVEMENT 3 LT 58-28 S	HMA PAVEMENT 4 LT 58-28 S	ASPHALTIC SURFACE DRIVEWAYS AND FIELD ENTRANCES	ASPHALTIC RUMBLE STRIPS, CENTERLINE	CONSTRUCTION STAKING RESURFACING REFERENCE	CONSTRUCTION STAKING SLOPE STAKES	SAWING ASPHALT
CATEGORY	STATION	TO	STATION	LOCATION	SF	SY	SF	SY	SY	SF	GAL	TON	TON	TON	LF	LF	LF	LF
0010	6+28	-	105+50	CTH D		-	-	37,483	37,483	317,867	4,239	4,945	4,945	-	8,472	9,922	-	-
0010	105+50	-	205+00	CTH D		-	-	37,589	37,589	318,400	4,246	4,953	4,953	-	8,350	9,950	-	-
0010	205+00	-	299+09	CTH D		-	-	34,637	34,637	310,556	4,141	4,831	4,831	-	7,409	9,409	-	-
0010	299+09	-	378+00	CTH D		-	-	28,808	28,808	257,104	3,429	3,999	3,999	-	6,691	7,891	-	-
0010	6+28	-	7+28	CTH D	3,563	396	-	-	-	-	-	-	-	-	-	-	-	52
0010	0'BUT'+67	-	1'BUT'+17	BUTSON ROAD	1,133	126	2,594	289	289	3,396	46	53	53	-	-	-	58	20
0010	1'SAN'+00	-	1'SAN'+50	SAND HILL ROAD	1,134	126	3,785	421	421	4,625	62	72	72	-	-	-	100	24
0010	0'REX'+71	-	1'REX'+21	REXS ROAD	1,039	115	1,906	212	212	3,023	41	47	47	-	-	-	54	20
0010	0'TOW'+48	-	0'TOW'+98	TOWNHALL ROAD S	1,156	128	1,853	206	206	3,063	41	48	48	-	-	-	48	20
0010	2'BAN'+00	-	2'BAN'+50	BANNER ROAD	1,208	134	2,163	241	241	3,192	43	50	50	-	-	-	49	22
0010	1'DUT'+47	-	1'DUT'+97	DUTCHES ROAD	1,291	143	2,615	291	291	3,394	46	53	53	-	-	-	78	20
0010	1'CON'+97	-	2'CON'+47	CONDRIY ROAD	1,133	126	2,332	260	260	3,386	46	53	53	-	-	-	53	20
0010	0'WAT'+51	-	1'WAT'+01	WATERFALL ROAD	1,157	129	1,907	212	212	3,189	43	50	50	-	-	-	50	20
0010	1'UNC'+71	-	2'UNC'+21	UNION CHURCH ROAD	1,043	116	1,908	212	212	3,307	45	51	51	-	-	-	54	20
0010	6'CH A'+33	-	7'CH A'+83	CTH A WEST	6,759	751	4,627	515	515	13,424	179	209	209	-	-	-	941	47
0010	4'TOW'+97	-	5'TOW'+47	TOWNHALL ROAD N	333	37	1,772	197	197	2,884	39	45	45	-	-	-	28	0
0010	1'RUN'+90	-	2'RUN'+40	RUNDE ROAD	1,114	124	1,113	124	124	2,378	32	37	37	-	-	-	35	20
0010	10'CH A'+28	-	11'CH A'+28	CTH A EAST	2,215	246	3,855	429	429	10,015	134	156	156	-	-	-	1,128	22
0010	377+00	-	378+00	EOP	2,034	226	-	-	-	-	-	-	-	-	-	-	-	20
0010	DRIVEWAYS (15)					-	-	-	-	-	-	-	-	56	-	-	-	195
TOTAL 0010						2,923		142,126	142,126		16,852	19,652	19,652	56	30,922	37,172	2,676	542

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CULVERT PIPE ITEMS												
NOTE: STEEL THICKNESS 0.064 (INCHES) 18-INCH AND 24-INCH												
* QUANTITIES SHOWN ELSEWHERE												
				203.0100	209.2500	521.1018	521.1024	521.3118	521.3124	606.0200	645.0120	650.6000
CULVERT PIPE REMOVAL NOTES				REMOVING SMALL PIPE CULVERTS EACH	BACKFILL GRANULAR GRADE 2 TON	APRON ENDWALLS FOR CULVERT PIPE STEEL 18-INCH EACH	APRON ENDWALLS FOR CULVERT PIPE STEEL 24-INCH EACH	CULVERT PIPE CORRUGATED STEEL 18-INCH LF	CULVERT PIPE CORRUGATED STEEL 24-INCH LF	RIPRAP MEDIUM CY	GEOTEXTILE TYPE HR SY	CONSTRUCTION STAKING PIPE CULVERTS EACH
CATEGORY	STATION	LOCATION										
0010	156+76	RT, TOWNHALL ROAD	IF DAMAGED, CUT AND REMOVE EXISTING 24-INCH PIPE, LENGTH TO BE DETERMINED IN THE FIELD	1	-	-	1	-	10	1	4	1
0010	186+23	LT, UNDER BANNER ROAD	EXISTING 18-INCH CULVERT PIPE	1	204	2	-	70	-	1	4	1
0010	284+83	LT, UNDER UNION CHURCH ROAD	EXSITING 24-INCH CULVERT PIPE	1	192	-	2	-	74	1	4	1
0010	296+85	RT	IF DAMAGED, CUT AND REMOVE EXISTING 24-INCH PIPE, LENGTH TO BE DETERMINED IN THE FIELD	1	30	-	1	-	20	-	-	1
0010	374+35	CL	EXSITING 24-INCH CULVERT PIPE	1	-	-	-	-	-	-	-	-
TOTAL 0010				5	426	2	4	70	104	3	12	4

STORM SEWER RURAL														
* QUANTITIES SHOWN ELSEWHERE														
* 522.1024 606.0200 608.0324 611.0630 611.0642 611.1006 611.3902 645.0120 650.4000														
APRON ENDWALLS FOR CULVERT PIPE REINFORCED CONCRETE 24-INCH EACH RIPRAP MEDIUM CY STORM SEWER PIPE REINFORCED CONCRETE CLASS III 24-INCH LF INLET COVERS TYPE HM-GJ EACH INLET COVERS TYPE MS EACH CATCH BASINS 6-FT DIAMETER EACH INLETS MEDIAN 2 GRATE EACH GEOTEXTILE TYPE HR SY CONSTRUCTION STAKING STORM SEWER EACH														
CATEGORY	STRUCTURE	TO	STRUCTURE	LOCATION	24-INCH EACH	RIPRAP MEDIUM CY	CLASS III 24-INCH LF	TYPE HM-GJ EACH	TYPE MS EACH	6-FT DIAMETER EACH	MEDIAN 2 GRATE EACH	TYPE HR SY	STORM SEWER EACH	REMARKS
0010			INLET 1		-	-	-	-	2	-	1	-	1	
0010	INLET 1	-	INLET 2		-	-	15	-	-	-	-	-	-	
0010			INLET 2		-	-	-	1	-	1	-	-	1	
0010	INLET 2	-	INLET 3		-	-	46	-	-	-	-	-	-	
0010			INLET 3		-	-	-	1	-	1	-	-	1	
0010	INLET 3	-	ENDWALL 4		1	4	101	-	-	-	-	12	1	
0010	ENDWALL 3A	-	INLET 3		1	-	12	-	-	-	-	-	1	
TOTAL 0010					2	4	174	2	2	2	1	12	5	

CONCRETE CURB ITEMS					* QUANTITIES SHOWN ELSEWHERE				
					601.0576	602.3010	*	*	650.5500
							606.0200	645.0120	
					CONCRETE CURB & GUTTER 4- INCH SLOPED 30- INCH TYPE J	CONCRETE SURFACE DRAINS	RIPRAP MEDIUM	GEOTEXTILE TYPE HR	CONSTRUCTION STAKING CURB GUTTER AND CURB & GUTTER
CATEGORY	STATION	TO	STATION	LOCATION	LF	CY	CY	SY	LF
0010		-		BUTSON ROAD RADII	154	2	2	8	154
0010		-		SAND HILL ROAD RADII	152	1	-	-	152
0010		-		REXS ROAD RADII	131	1	4	12	131
0010		-		TOWNHALL ROAD S RADII	168	1	4	12	168
0010		-		BANNER ROAD RADII	136	1	-	-	136
0010		-		DUTCHES ROAD RADII	152	1	2	8	152
0010		-		CONDY ROAD RADII	152	2	2	8	152
0010		-		WATERFALL ROAD RADII	153	1	2	8	153
0010		-		UNION CHURCH ROAD RADII	152	1	2	8	152
0010		-		CTH A WEST RADII	152	4	-	-	152
0010	7+93	-	8+22	CTH A WEST, LT	29	4	-	-	29
0010		-		CTH A WEST / UNION ROAD RADII	144	3	2	8	144
0010	292+00	-	294+75	CTH A West RT	275	3	4	12	275
0010		-		TOWNHALL ROAD N RADII	152	1	2	8	152
0010	368+50	-	373+72	RT ALONG TURN LANE	522	3	4	12	522
0010		-		CTH A EAST RADII	153	3	2	8	153
TOTAL 0010					2,777	32	32	112	2,777

EROSION CONTROL ITEMS													
				628.1504	628.1520	628.1905	628.1910	628.7005	628.7010	628.7504	628.7555	628.7560	
CATEGORY	STATION	TO	STATION	LOCATION	SILT FENCE	SILT FENCE	MOBILIZATIONS	MOBILIZATIONS	INLET	INLET	TEMPORARY	CULVERT PIPE	TRACKING
					LF	MAINTENANCE	EROSION CONTROL	EROSION CONTROL	PROTECTION	PROTECTION	DITCH CHECKS	CHECKS	PADS
					LF	LF	EACH	EACH	TYPE A	TYPE B	LF	EACH	EACH
									EACH	EACH			REMARKS
0010				BUTSON ROAD	0	0	-	-	-	-	-	-	-
0010				SAND HILL ROAD	0	0	-	-	-	-	-	-	-
0010				REXS ROAD	0	0	-	-	-	-	-	-	-
0010				TOWNHALL ROAD S	212	424	-	-	-	-	-	-	-
0010				BANNER ROAD	125	250	-	-	-	-	-	2	-
0010				DUTCHES ROAD	0	0	-	-	-	-	-	-	-
0010				CONDRY ROAD	326	652	-	-	-	-	-	-	-
0010				WATERFALL ROAD	150	300	-	-	-	-	-	-	-
0010				UNION CHURCH ROAD	304	608	-	-	-	-	-	3	-
0010				CTH A WEST / UNION ROAD	924	1,848	-	-	-	-	60	-	-
0010	291+07	-	298+25	RT (BYPASS LANE)	0	0	-	-	-	-	-	3	-
0010				TOWNHALL ROAD N	0	0	-	-	-	-	-	-	-
0010				CTH A EAST / RT-TURN LANE	0	0	-	-	-	-	90	4	-
0010	371+47	-	378+00	LT	670	1,340	-	-	-	-	-	-	-
0010				STORM INLET 1	-	-	-	-	1	-	-	-	-
0010				STORM INLET 2 AND 3	-	-	-	-	-	2	-	-	-
0010				BORROW PIT	200	400	-	-	-	-	-	-	1
0010				UNDISTRIBUTED	730	1,460	3	2	-	-	40	3	-
TOTAL 0010					3,641	7,282	3	2	1	2	190	15	1

LANDSCAPING ITEMS

		625.0500	627.0200	628.2004	629.0210	630.0120	630.0200	630.0300	630.0500		
		SALVAGED TOPSOIL	MULCHING	EROSION MAT CLASS I TYPE B	FERTILIZER TYPE B	SEEDING MIXTURE NO. 20	SEEDING TEMPORARY	SEEDING BORROW PIT	SEED WATER		
CATEGORY	STATION TO STATION	SY	SY	SY	CWT	LB	LB	LB	MGAL	REMARKS	
0010		BUTSON ROAD	332	-	332	0.2	9	9	-	2	
0010		SAND HILL ROAD	242	-	242	0.2	7	7	-	1	
0010		REXS ROAD	220	-	220	0.1	6	6	-	1	
0010		TOWNHALL ROAD SOUTH	353	-	353	0.2	10	10	-	2	
0010		BANNER ROAD	193	-	193	0.1	5	5	-	1	
0010		DUTCHES ROAD	218	-	218	0.1	6	6	-	1	
0010		CONDRIY ROAD	668	-	668	0.4	18	18	-	4	
0010		WATERFALL ROAD	290	-	290	0.2	8	8	-	2	
0010		UNION CHURCH ROAD	443	-	443	0.3	12	12	-	2	
0010		CTH A WEST / UNION ROAD	1,706	-	1,706	1.1	46	46	-	8	
0010	291+07 - 298+25	RT (BYPASS LANE)	775	-	775	0.5	21	21	-	6	
0010		TOWNHALL ROAD NORTH	161	-	161	0.1	4	4	-	1	
0010		CTH A EAST / RT-TURN LANE	1,579	-	1,579	1.0	43	43	-	9	
0010	371+47 - 378+00	LT	1,264	-	1,264	0.8	34	34	-	7	
0010		BORROW PIT	-	2,000	2,000	2.3	-	-	100	4	
		UNDISTRIBUTED		500	2,500	2.0	50	50	25	13	
		TOTAL 0010	8,444	2,500	12,944	9.6	279	279	125	64	

GUARDRAIL ITEMS

					614.2330	614.2610		
					MGS GUARDRAIL 3 K	MGS GUARDRAIL TERMINAL EAT		
CATEGORY	STATION	TO	STATION	LOCATION	LF	EACH	REMARKS	
0010	295+60	-	301+25	LT	463	2		
0010	371+72	-	377+40	LT	463	2		
TOTAL 0010					926	4		

PAVEMENT MARKING ITEMS

					643.3165		646.2020		646.3020		646.5020		646.5120		648.0100	
					TEMPORARY MARKING LINE PAINT 6-INCH		MARKING LINE EPOXY 6-INCH		MARKING LINE EPOXY 8-INCH		MARKING ARROW EPOXY		MARKING WORD EPOXY		LOCATING NO- PASSING ZONES	
CATEGORY	STATION	TO	STATION	LOCATION	COLOR	LF	COLOR	LF	LF	EACH	EACH	MI	REMARKS			
0010	6+28	-	378+00	CENTERLINE ON BINDER	YELLOW	74,344	-		-	-	-	-				
0010	6+28	-	378+00	CENTERLINE ON SURFACE - RUMBLES	YELLOW	74,344	-		-	-	-	-				
0010	6+28	-	378+00	LT EDGELINE	-	-	WHITE	37,172	-	-	-	-				
0010	6+28	-	378+00	RT EDGELINE	-	-	WHITE	37,172	-	-	-	-				
0010	6+28	-	378+00	CENTERLINE	-	-	YELLOW	44,606	-	-	-	-	7.1			
0010	CTH A WEST			LT EDGELINE	-	-	WHITE	240	200	2	2	-				
0010	CTH A WEST			RT EDGELINE	-	-	WHITE	240	-	-	-	-				
0010	CTH A WEST			CENTERLINE	-	-	YELLOW	480	-	-	-	-				
0010	CTH A EAST			LT EDGELINE	-	-	WHITE	200	200	2	2	-				
0010	CTH A EAST			RT EDGELINE	-	-	WHITE	200	-	-	-	-				
0010	CTH A EAST			CENTERLINE	-	-	YELLOW	400	-	-	-	-				
TOTAL 0010						148,688		120,710	400	4	4	7.1				

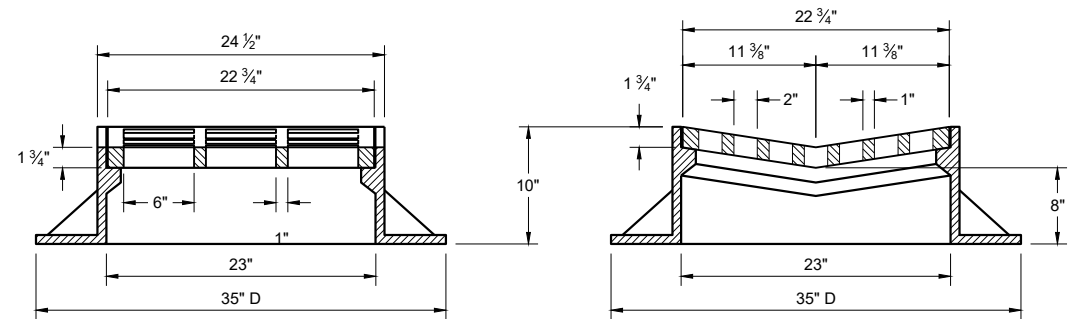
SIGN ITEMS							634.0614	634.0616	637.2210	637.2230	638.2602	638.3000	REMARKS
CATEGORY	SIGN NUMBER	LT / RT	SIGN CODE	SIGN MESSAGE	SIZE W" x H"	LOCATION	POSTS WOOD 4X6- INCH X 14-FT	POSTS WOOD 4X6- INCH X 16-FT	SIGNS TYPE II REFLECTIVE H	SIGNS TYPE II REFLECTIVE F	REMOVING SIGNS TYPE II	REMOVING SMALL SIGN SUPPORTS	
							EACH	EACH	SF	SF	EACH	EACH	
0010	2-1	RT	W14-3	NO PASSING ZONE	48" x 36"	CTH D	1	-	-	5.56	-	-	COUNTY D, COUNTA, & 2 ARROWS
0010	2-2	LT	R1-1	STOP	30" x 30"	BUTSON RD @ CTH D	1	-	5.18	-	1	1	
0010	2-3	LT	W14-3	NO PASSING ZONE	48" x 36"	CTH D	1	-	-	5.56	-	-	
0010	4-1	RT	R1-1	STOP	30" x 30"	SAND HILL RD @ CTH D	1	-	5.18	-	1	1	
0010	4-2	LT	R1-1	STOP	30" x 30"	REXS RD @ CTH D	1	-	5.18	-	1	1	
0010	4-3	RT	W14-3	NO PASSING ZONE	48" x 36"	CTH D	1	-	-	5.56	-	-	
0010	4-4	LT	W14-3	NO PASSING ZONE	48" x 36"	CTH D	1	-	-	5.56	-	-	
0010	5-1	RT	R1-1	STOP	30" x 30"	TOWNHALL RD SOUTH @ CTH D	1	-	5.18	-	1	1	
0010	6-1	RT	W14-3	NO PASSING ZONE	48" x 36"	CTH D	1	-	-	5.56	-	-	
0010	6-2	LT	W14-3	NO PASSING ZONE	48" x 36"	CTH D	1	-	-	5.56	-	-	
0010	6-3	LT	R1-1	STOP	30" x 30"	BANNER RD @ CTH D	1	-	5.18	-	1	1	
0010	7-1	LT	R1-1	STOP	30" x 30"	DUTCHES RD @ CTH D	1	-	5.18	-	1	1	
0010	8-1	LT	W14-3	NO PASSING ZONE	48" x 36"	CTH D	-	1	-	5.56	-	-	
0010	8-2	LT	R1-1	STOP	30" x 30"	CONDRY RD @ CTH D	1	-	5.18	-	1	1	
0010	8-3	RT	W14-3	NO PASSING ZONE	48" x 36"	CTH D	-	1	-	5.56	-	-	
0010	9-1	RT	R1-1	STOP	30" x 30"	WATERFALL RD @ CTH D	1	-	5.18	-	1	1	
0010	9-2	RT	W14-3	NO PASSING ZONE	48" x 36"	CTH D	1	-	-	5.56	-	-	
0010	9-3	LT	W14-3	NO PASSING ZONE	48" x 36"	CTH D	1	-	-	5.56	-	-	
0010	10-1	LT	R1-1	STOP	30" x 30"	UNION CHURCH RD @ CTH D	1	-	5.18	-	1	1	
0010	10-2	RT	J12-1	JCT & COUNTY A	24" x 45"	CTH D	-	1	7.50	-	2	1	
0010	10-3	LT	M1-5A	COUNTY D	24" x 24"	CTH D	1	-	4.00	-	1	1	
0010	10-3	LT	R2-1	SPEED LIMIT 55	24" x 30"	CTH D	-	-	5.00	-	1	-	
0010	10-4	LT	-	-	-	CTH D	-	-	-	-	4	1	
0010	10-5	LT	R1-1	STOP	30" x 30"	CTH A WEST @ CTH D	1	-	5.18	-	1	1	
0010	10-6B	LT	W3-1	STOP AHEAD	36" x 36"	UNION RD @ CTH A WEST	1	-	9.00	-	1	1	
0010	10-6	LT	R1-1	STOP	36" x 36"	UNION RD @ CTH A WEST	1	-	7.07	-	1	1	
0010	10-6A	LT	R1-1	STOP	36" x 36"	UNION RD @ CTH A WEST	1	-	7.07	-	1	1	
0010	10-7	RT	J12-1	COUNTY A & LT ARROW	24" x 45"	CTH D	-	1	7.50	-	-	-	
0010	10-8	RT	J13-2	COUNTY A, COUNTY D, & ARROWS	48" x 45"	CTH D	-	2	15.00	-	-	-	
0010	10-9	RT	W1-7	DOUBLE ARROW	60" x 30"	CTH D	-	-	-	15.00	1	2	
0010	10-10	LT	J12-1	COUNTY A & RT ARROW	24" x 45"	CTH D	-	1	7.50	-	1	1	
0010	10-11	RT	M1-5A	COUNTY A & COUNTY D	24" x 48"	CTH D	-	1	8.00	-	2	1	
0010	10-11	RT	R2-1	SPEED LIMIT 55	24" x 30"	CTH D	-	-	5.00	-	1	-	
0010	10-12	LT	J12-1	COUNTY A & UP-RT ARROW	24" x 45"	CTH D	1	-	7.50	-	2	1	
0010	11-1	RT	R1-1	STOP	30" x 30"	TOWNHALL RD NORTH @ CTH D	1	-	5.18	-	1	1	
0010	12-1	RT	R1-1	STOP	30" x 30"	RUNDER D @ CTH D	1	-	5.18	-	1	1	
0010	12-2	RT	J12-1	COUNTY A & UP-RT ARROW	24" x 45"	CTH D	-	1	7.50	-	2	1	
0010	13-1	RT	J12-1	COUNTY A & RT ARROW	24" x 45"	CTH D	1	-	7.50	-	2	1	
0010	13-2	LT	M1-5A	COUNTY D	24" x 24"	CTH D	-	1	4.00	-	-	-	
0010	13-2	LT	R2-1	SPEED LIMIT 55	24" x 30"	CTH D	-	-	5.00	-	-	-	
0010	13-3	LT	J13-2	COUNTY A, COUNTY D, & 2 ARROWS	48" x 45"	CTH D	-	2	15.00	-	4	2	
0010	13-3	LT	W1-7	DOUBLE ARROW	60" x 30"	CTH D	-	-	-	15.00	1	2	
0010	13-4	LT	J12-1	COUNTY A & UP-LT ARROW	24" x 45"	CTH D	-	1	7.50	-	2	1	
0010	13-5	RT	R1-1	STOP	36" x 36"	CTH A EAST @ CTH D	1	-	7.07	-	1	1	
0010	13-5A	RT	R1-1	STOP	36" x 36"	CTH A EAST @ CTH D	1	-	7.07	-	1	1	
0010	13-5B	LT	W3-1	STOP AHEAD	36" x 36"	CTH A EAST @ CTH D	1	-	9.00	-	1	1	
0010	13-6	RT	M1-5A	COUNTY D	24" x 24"	CTH D	1	-	4.00	-	-	-	
0010	13-6	RT	R2-1	SPEED LIMIT 55	24" x 30"	CTH D	-	-	5.00	-	-	-	
TOTAL 0010							30	13	230.94	85.60	44	33	

TRAFFIC CONTROL ITEMS

				643.0300			643.0900			643.1050		
				TRAFFIC			TRAFFIC			TRAFFIC		
				CONTROL			CONTROL			CONTROL		
				DRUMS			CONTROL			PCMS		
CATEGORY	LOCATION	DAYS	QTY	DAY	QTY	DAY	QTY	DAY	QTY	REMARKS		
0010	CTH D	7	-	-	-	-	2	14		PCMS BOARDS		
0010	CTH D	125	-	-	33	4,125	-	-		ADVANCE WARNING		
0010	CTH D	125	-	-	34	4,250	-	-		R4-1, R4-2, WB-12, W8-9		
0010	CTH D	90	8	720	-	-	-	-		MGS GUARDRAIL AREA		
0010	CTH D	40	105	4,200	-	-	-	-		C&G AREAS		
0010	CTH D	40	25	1,000	-	-	-	-		BYPASS LANE & RT-TURN LANES		
TOTAL 0010				5,920		8,375		14				

Standard Detail Drawing List

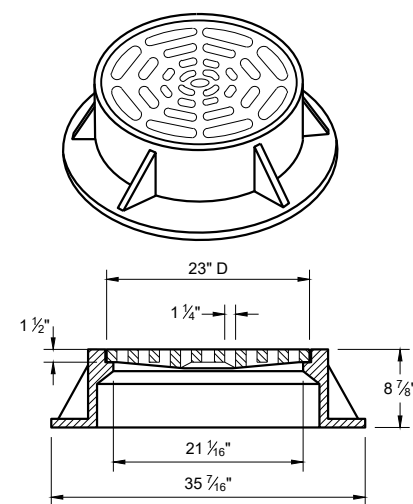
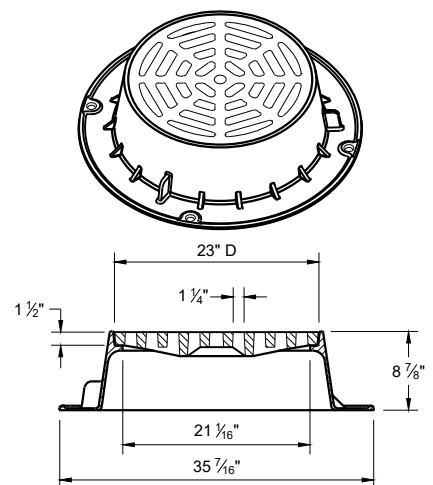
08A05-22B	INLET COVERS TYPE B, B-A, C, MS, MS-A, DW & WM
08A05-22C	INLET COVERS TYPE F, HM, HM-S, S, T, HM-GJ & HM-GJ-S
08A08-03	CATCH BASINS 3-FT, 4-FT, 5-FT AND 6-FT DIAMETER
08C08-03	INLETS MEDIAN 1 AND 2 GRATE
08D01-24A	CONCRETE CURB & GUTTER
08D01-24B	CONCRETE CURB, TIES AND CURB AND GUTTER APPLICATIONS
08D04-07	CONCRETE SURFACE DRAINS & ASPHALTIC FLUMES
08E08-03	TYPICAL INSTALLATIONS OF EROSION BALES / TEMPORARY DITCH CHECKS
08E09-06	SILT FENCE
08E10-02	INLET PROTECTION TYPE A, B, C AND D
08E14-01	TRACKING PAD
08E15-01	CULVERT PIPE CHECK
08F01-11	APRON ENDWALLS FOR CULVERT PIPE
08F04-08	JOINT TIES FOR CONCRETE PIPE AND CONCRETE COLLAR DETAIL
09A01-14A	AT-GRADE SIDE ROAD INTERSECTION, TYPES "B1", "B2", "C" AND D AND TEE INTERSECTION BYPASS LANE
13A11-04A	CENTERLINE RUMBLE STRIPS - ASPHALT
13A11-04D	CENTERLINE RUMBLE STRIPS - INTERSECTIONS, DRIVEWAYS, BRIDGES, RAILROADS
13C19-03	HMA LONGITUDINAL JOINTS
14B29-01	SAFETY EDGE
14B42-07A	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-07B	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-07C	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-07D	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B44-04A	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B44-04B	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B44-04C	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
15C04-05	TRAFFIC CONTROL, ADVANCE WARNING SIGNS 45 M.P.H. OR GREATER TWO-WAY UNDIVIDED ROAD OPEN TO TRAFFIC
15C07-16B	PAVEMENT MARKING WORDS
15C07-16C	PAVEMENT MARKING ARROWS
15C08-24A	PERMANENT LONGITUDINAL PAVEMENT MARKINGS
15C08-24B	TEMPORARY LONGITUDINAL PAVEMENT MARKING
15C08-24C	PAVEMENT MARKING (TURN LANES)
15C08-24D	PAVEMENT MARKING (TURN LANES)
15C11-11B	CHANNELIZING DEVICES DRUMS, CONES, BARRICADES AND VERTICAL PANELS
15C12-09A	TRAFFIC CONTROL FOR LANE CLOSURE WITH FLAGGING OPERATION
15C12-09B	TRAFFIC CONTROL, LANE CLOSURE WITH AUTOMATED FLAGGER ASSISTANCE DEVICE
15C19-11A	MOVING PAVEMENT MARKING OPERATION TWO-LANE TWO-WAY ROADWAY
15C35-06A	PAVEMENT MARKING (INTERSECTIONS)
15D28-05	TRAFFIC CONTROL, WORK ON SHOULDER OR PARKING LANE, UNDIVIDED ROADWAY
15D39-03	TRAFFIC CONTROL, DROP-OFF SIGNING
15D51-02	TRAFFIC CONTROL, MOBILE OPERATIONS ON AN UNDIVIDED ROADWAY



TYPE "B"

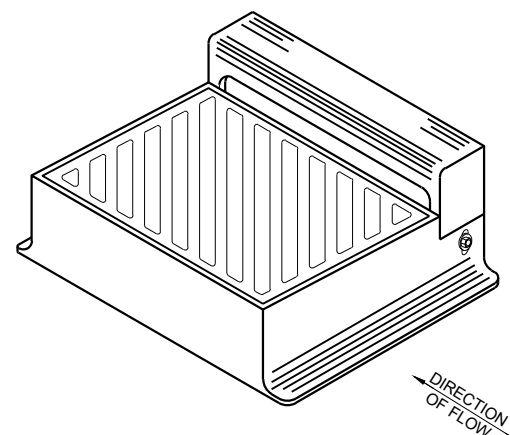
**ALTERNATIVE GRATE FOR
TYPE "B" COVER**

USE WHERE PEDESTRIAN OF BICYCLE TRAFFIC IS POSSIBLE
NOTED AS TYPE B - A ON THE DRAINAGE TABLE

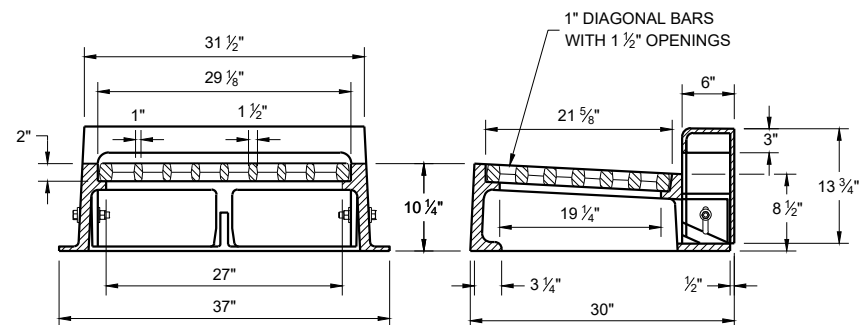


TYPE "C"

NOTE: EITHER CASTING IS ACCEPTABLE



DIAGONAL SLOTS SHALL BE ORIENTED TO THE
DIRECTION OF FLOW AS ILLUSTRATED.
GRATES ARE MANUFACTURED TO BE REVERSIBLE.



TYPE "WM"

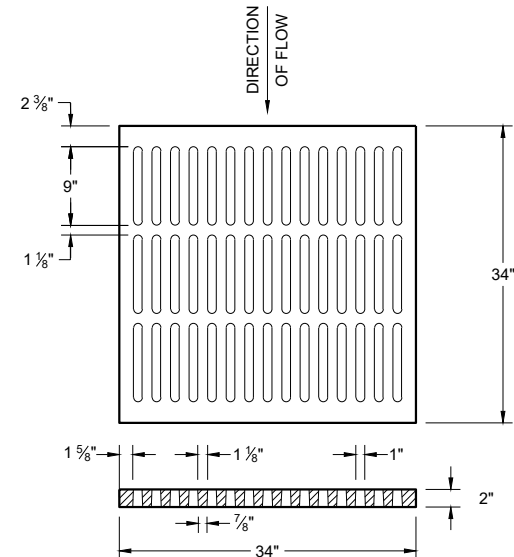
NOTE: CURB BOX HEIGHT ADJUSTABLE 6" - 9"

GENERAL NOTES

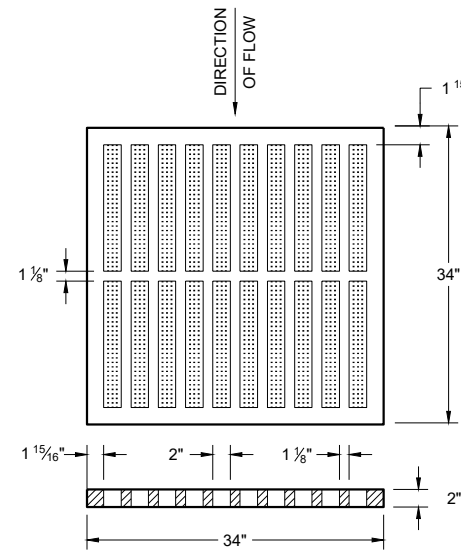
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

DETAIL DRAWINGS FOR PROPOSED ALTERNATE DESIGNS FOR CATCH BASIN, MANHOLE AND INLET COVERS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PROVIDING THAT SUCH ALTERNATE DESIGNS MAKE PROVISION FOR EQUIVALENT CAPACITY AND STRENGTH.

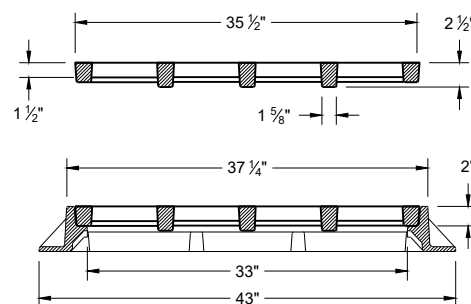
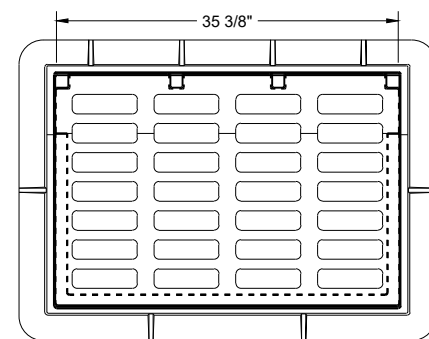
ROUND FRAMES AND COVERS SHALL HAVE CONTINUOUSLY MACHINED BEARING SURFACES TO PREVENT ROCKING AND RATTLING.



ALTERNATIVE TYPE "MS"
USE WHERE PEDESTRIAN OF BICYCLE
TRAFFIC IS PERMITTED
**NOTED AS TYPE MS-A ON THE
DRAINAGE TABLE**

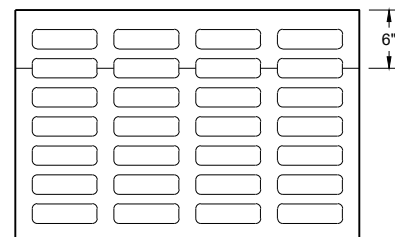
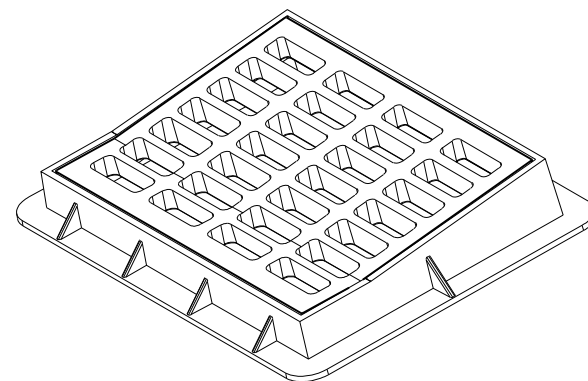


TYPE "MS"
USE ON FREEWAYS AND EXPRESSWAYS
**NOTED AS TYPE MS ON THE
DRAINAGE TABLE**



TYPE "DW"

NOTES: FOR USE IN A SUMP CONDITION. THIS OPTION IS
ONLY TO BE USED IF NO OTHER INLETS ARE APPLICABLE.



**INLET COVERS
TYPES B, B-A, C,
MS, MS-A ,DW AND WM**

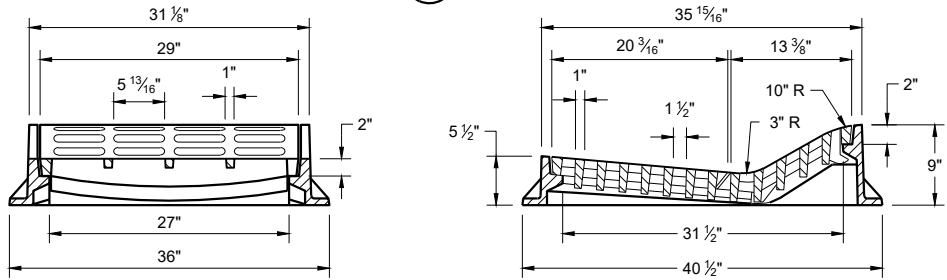
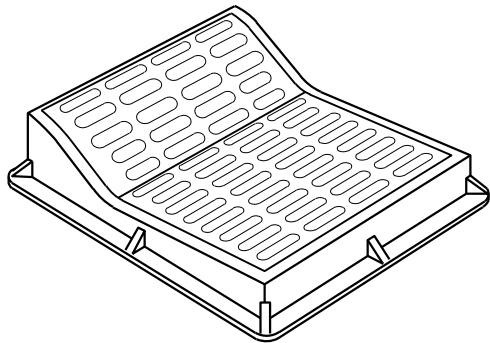
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
February 2025 DATE /S/ Rodney Taylor
ROADWAY STANDARDS DEVELOPMENT
UNIT SUPERVISOR
FHWA

GENERAL NOTES

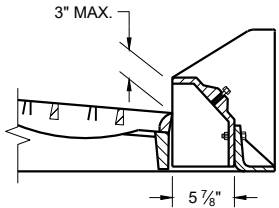
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

DETAIL DRAWINGS FOR PROPOSED ALTERNATE DESIGNS FOR INLET COVERS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PROVIDING THAT SUCH ALTERNATE DESIGNS MAKE PROVISION FOR EQUIVALENT CAPACITY AND STRENGTH.



TYPE "F"

USE WITH TYPES "A" AND "D" CONCRETE CURB AND GUTTER, 36"

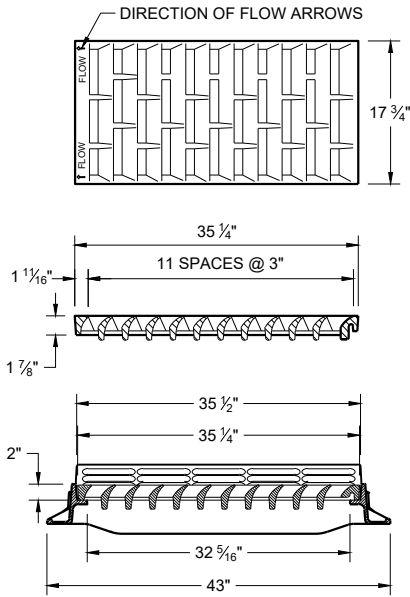


ALTERNATIVE CURB BOX
FOR TYPE "HM" COVER

USE WITH TYPES "G" AND "J" CONCRETE CURB AND GUTTER, 30 INCH
NOTED AS TYP "HM-GJ" ON DRAINAGE TABLE

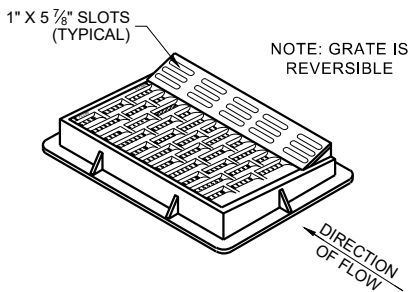
NOTE:
SPECIAL GRATE FOR THE TYPE "H" COVER MAY ALSO BE USED FOR THE TYPE "HM-GJ" COVER.

NOTED AS TYPE HM-GJ-S ON THE DRAINAGE TABLE.

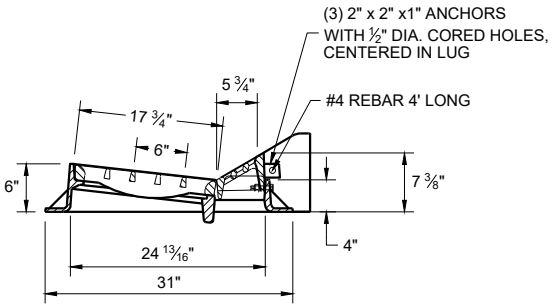


TYPE "HM"

USE WITH TYPES "A" AND "D" CONCRETE CURB AND GUTTER, 36"

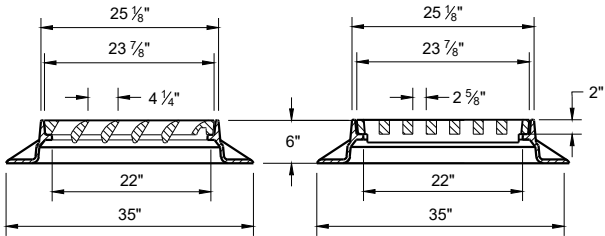
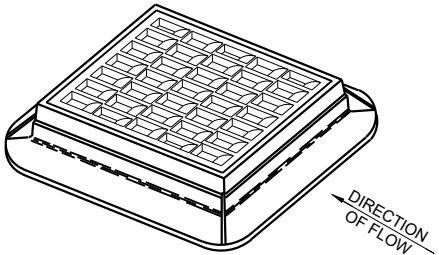


NOTE: GRATE IS REVERSIBLE

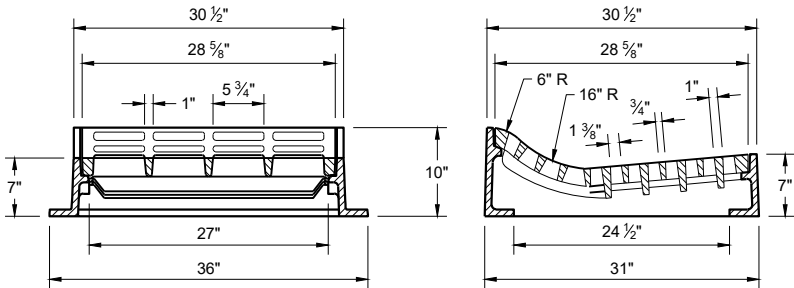
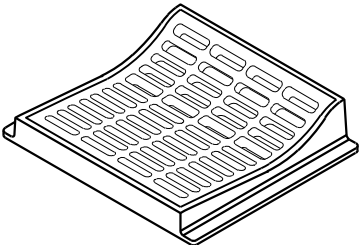


NOTE:
SPECIAL GRATE FOR THE TYPE "H" COVER MAY ALSO BE USED FOR THE TYPE "HM-GJ" COVER.

NOTED AS TYPE HM-GJ-S ON THE DRAINAGE TABLE.



TYPE "S"



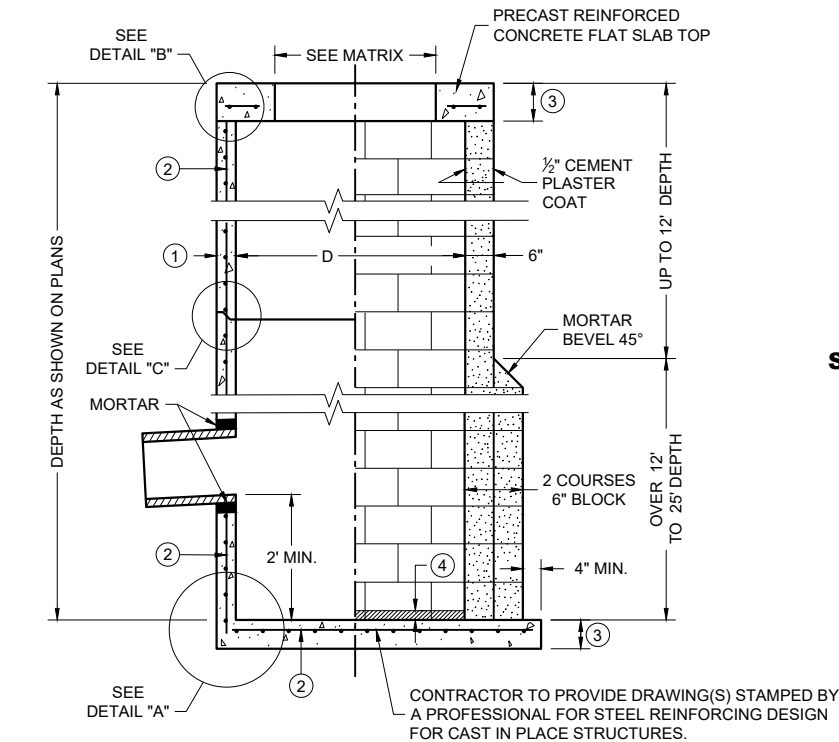
TYPE "T"

USE WITH TYPES "R" AND "T" CONCRETE CURB AND GUTTER, 36"

INLET COVERS
TYPES F, HM, HM-S, S, T,
HM-GJ AND HM-GJ-S

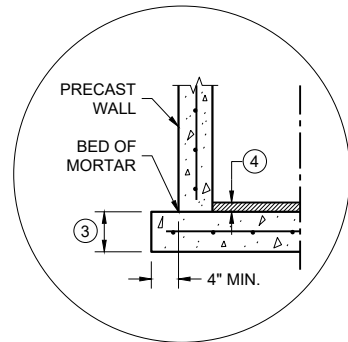
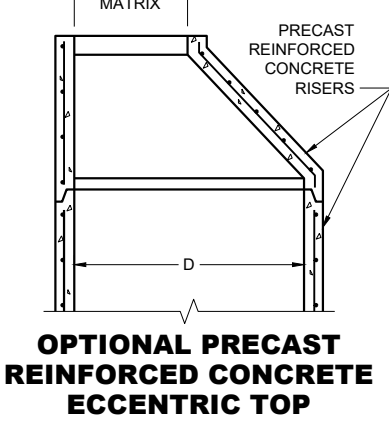
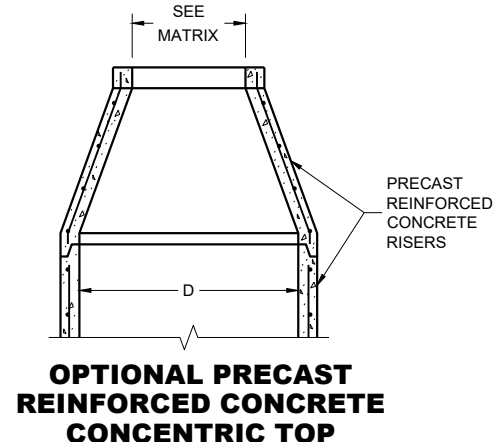
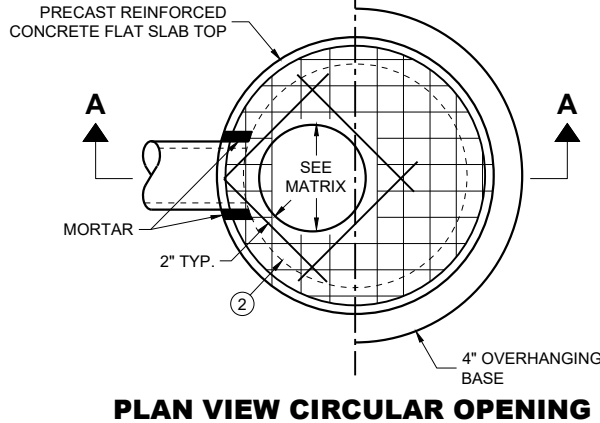
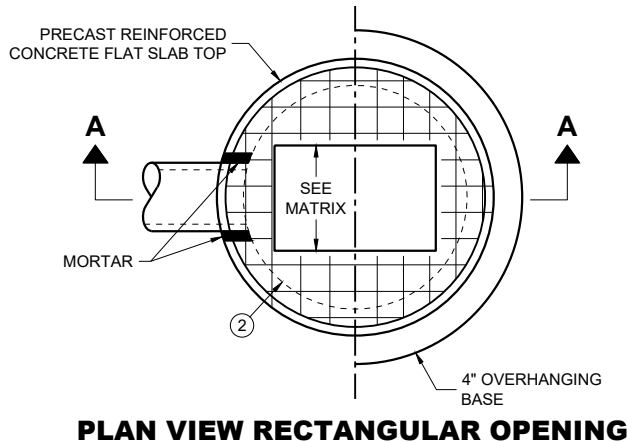
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
February 2025 /S/ Rodney Taylor
DATE ROADWAY STANDARDS DEVELOPMENT
FHWA UNIT SUPERVISOR

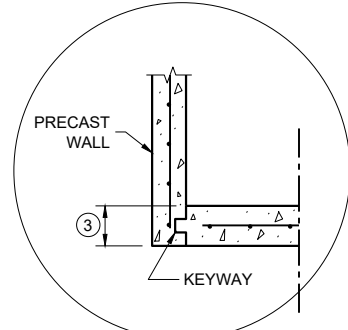


PRECAST REINFORCED CONCRETE WITH MONOLITHIC BASE

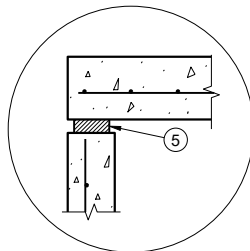
CONCRETE BLOCK WITH CAST IN PLACE OR PRECAST REINFORCED CONCRETE BASE ②



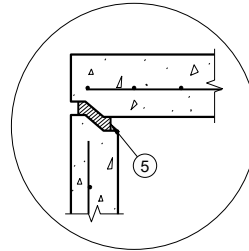
SEPARATE PRECAST REINFORCED CONCRETE BASE OPTION



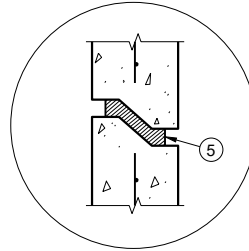
PRECAST REINFORCED CONCRETE WITH INTEGRAL BASE OPTION



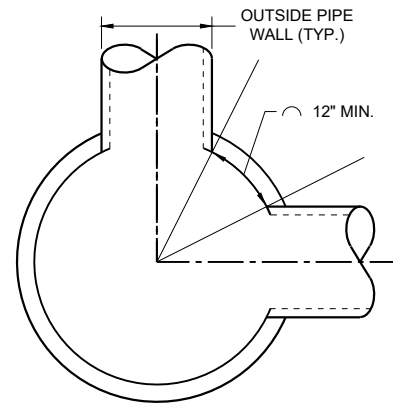
TOP WITH PLAIN END JOINT



TOP WITH TONGUE AND GROOVE JOINT



RISER WITH TONGUE AND GROOVE JOINT



MINIMUM HORIZONTAL PIPE SEPARATION

DETAIL "B"

DETAIL "C"

DETAIL "D"

**CATCH BASINS
3-FT, 4-FT, 5-FT AND 6-FT DIAMETER**

CATCH BASIN SIZE	MAXIMUM INSIDE PIPE DIAMETER FOR TWO PIPES	
	180° SEPARATION (IN)	90° SEPARATION (IN)
3-FT	15	12
4-FT	24	18
5-FT	36	24
6-FT	42	30

PIPE MATRIX

CATCH BASIN SIZE	INLET COVER TYPE	ALL A'S	ALL B'S	BW	C	F	ALL H'S	S	T	V V-B	VV-B	WM	Z
	OPENING SIZE (FT.)												
3-FT	2 X 2	X	X					X		X			
	2 DIA.				X								X
4-FT TO 6-FT	2 X 2	X	X					X		X			
	2 X 2.5			X				X	X	X		X	
	2 DIA.				X								X
	2 X 3						X						
	2.5 X 3					X							
	2 X 3.5*										X*		

* REQUIRES 5-FT DIAMETER OR LARGER STRUCTURE

COVER MATRIX

GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

UNLESS OTHERWISE AUTHORIZED IN WRITING BY THE ENGINEER, THE CONTRACTOR SHALL NOT ORDER AND DELIVER PRECAST CATCH BASIN UNITS REQUIRED FOR THE PROJECT UNTIL A LIST OF SIZES IS FURNISHED BY THE ENGINEER.

DETAILED DRAWINGS FOR PROPOSED ALTERNATE DESIGNS FOR UNDERGROUND DRAINAGE STRUCTURES SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PROVIDING THAT SUCH ALTERNATE DESIGNS MAKE PROVISION FOR EQUIVALENT CAPACITY AND STRENGTH.

ALL DRAINAGE STRUCTURES ARE DESIGNATED ON THE PLANS AS "MANHOLES 3X3-L", "CATCH BASINS 4-B", "INLETS 2X3-H", ETC. THE FIRST NUMBERS DESIGNATE THE SIZE OF THE STRUCTURE, AND THE FOLLOWING LETTER DESIGNATES THE TYPE OF COVER TO BE USED TO COMPRISE THE COMPLETE UNIT.

BASES SHALL BE PLACED ON A BED OF MATERIAL AT LEAST 6 INCHES IN DEPTH, WHICH MEETS THE REQUIREMENTS OF FOUNDATION BACKFILL. THIS BEDDING SHALL BE COMPACTED AND PROVIDE UNIFORM SUPPORT FOR THE ENTIRE AREA OF THE BASE.

PRECAST REINFORCED CONCRETE CONE TOPS (ECCENTRIC OR CONCENTRIC) OR PRECAST REINFORCED CONCRETE FLAT SLAB TOPS MAY BE USED ON CONCRETE BLOCK STRUCTURES.

ECCENTRIC CONE TOPS MAY BE USED ON ALL STRUCTURES. CONCENTRIC CONE TOPS SHALL BE USE ONLY ON STRUCTURES 5 FEET OR LESS IN DEPTH UNLESS OTHERWISE DIRECTED BY THE ENGINEER.

STEPS MEETING AASHTO M199 AND THE FOLLOWING REQUIREMENTS SHALL BE INSTALLED IN ALL STRUCTURES OVER 5 FEET IN DEPTH: 16 INCH C-C MAXIMUM SPACING; PROJECT A MINIMUM CLEAR DISTANCE OF 4 INCHES FROM THE WALL AT THE POINT OF EMBEDMENT; MINIMUM LENGTH OF 10 INCHES; MINIMUM WALL EMBEDMENT OF 3 INCHES. FERROUS METAL STEPS NOT PAINTED OR TREATED TO RESIST CORROSION SHALL HAVE A MINIMUM CROSS SECTIONAL DIMENSION OF 1 INCH.

STEPS OF APPROVED POLYPROPYLENE PLASTIC COATED REINFORCEMENT BAR ARE ACCEPTABLE. REINFORCING BAR MUST BE A MINIMUM OF 1/2 INCH AND MEET THE REQUIREMENTS OF ASTM A615.

CERTIFICATION SHALL BE PROVIDED THAT INSTALLED STEPS WHEN TESTED IN ACCORDANCE WITH SECTION 10 OF AASHTO T280 CAN WITHSTAND A VERTICAL LOAD OF 800 LBS. AND A HORIZONTAL LOAD OF 400 LBS.

ALL BAR STEEL REINFORCEMENT SHALL BE EMBEDDED 2 INCHES CLEAR UNLESS OTHERWISE SHOWN OR NOTED.

ALL PRECAST INLET UNITS SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF AASHTO DESIGNATION M199.

PRECAST REINFORCED RISERS SHALL HAVE A TONGUE AND GROOVE JOINT WITH TONGUE UP OR DOWN.

CONCRETE BLOCK WILL NOT BE PERMITTED FOR STRUCTURES GREATER THAN 4 FEET IN DIAMETER.

4" OVERHANGING BASES ARE REQUIRED FOR ALL CONCRETE BLOCK INSTALLATIONS. 4" OVERHANG IS REQUIRED WHEN SEPARATE PRECAST BASE IS PROVIDED. OVERHANG IS NOT REQUIRED ON PRECAST STRUCTURES WITH AN INTEGRAL OR MONOLITHIC BASE.

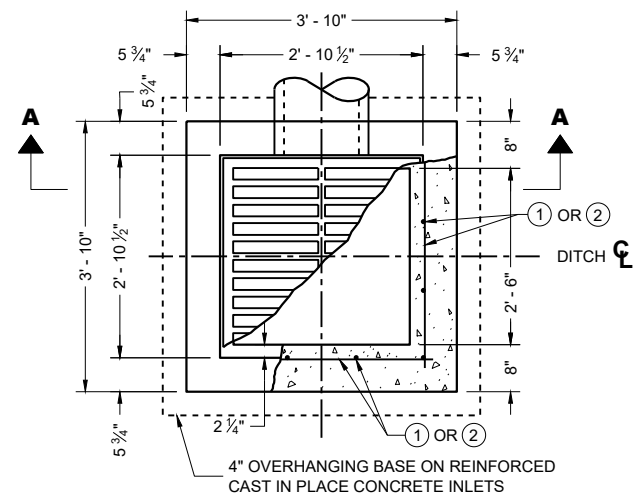
FOR ADDITIONAL CONFIGURATIONS, MAINTAIN A MINIMUM OF 12 INCHES AS MEASURED FROM THE INSIDE OF THE STRUCTURE WALL BETWEEN THE OUTSIDE PIPE WALLS OF ADJACENT PIPES. SEE DETAIL "D".

- ① MINIMUM WALL THICKNESS SHALL BE 4 INCHES FOR 3-FT, 5 INCHES FOR 4-FT, 6 INCHES FOR 5-FT AND 7 INCHES FOR 6-FT DIAMETER PRECAST CATCH BASINS.
- ② FOR PRECAST CATCH BASINS AND REINFORCED CONCRETE BASES PROVIDE REINFORCING STEEL IN ACCORDANCE TO AASHTO M199.
- ③ PRECAST FLAT SLAB TOPS AND BASES WITH A DIAMETER OF 48" AND LESS SHALL HAVE A MINIMUM THICKNESS OF 6". PRECAST FLAT SLAB TOPS AND BASES WITH A DIAMETER LARGER THAN 48" SHALL HAVE A MINIMUM THICKNESS OF 8".
- ④ 1" CONCRETE KEY POURED AFTER INSTALLATION. 2' SUMP MEASURED FROM TOP OF KEY.
- ⑤ JOINTS TO BE SEALED WITH A BUTYL RUBBER SEAL PER SEALANT MANUFACTURERS RECOMMENDATIONS CONFORMING TO ASTM C 990 OR RUBBER GASKETS CONFROMING TO ASTM C443.

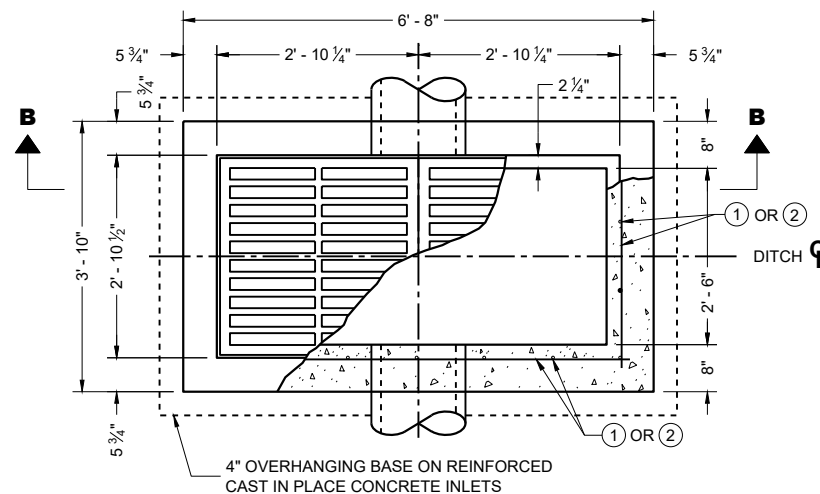
**CATCH BASINS, 3-FT.
4-FT., 5 FT., AND
6-FT. DIAMETER**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

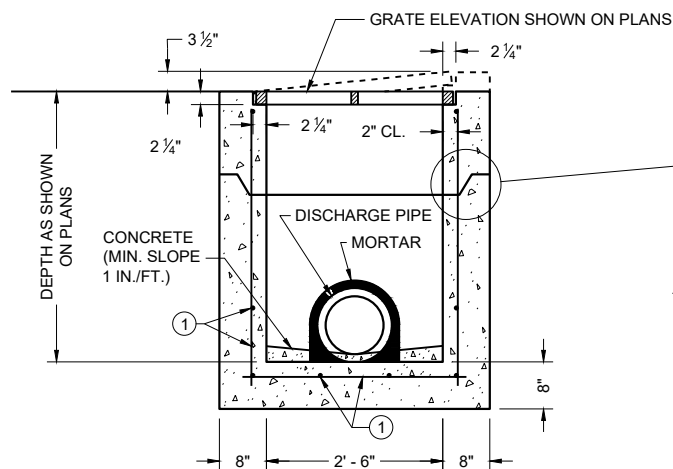
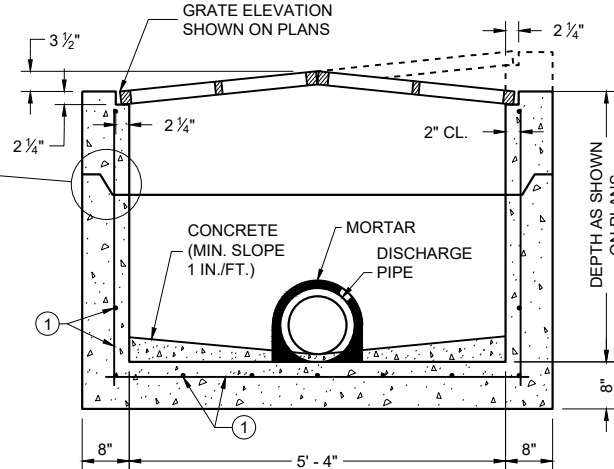
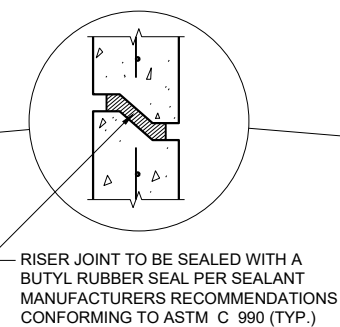
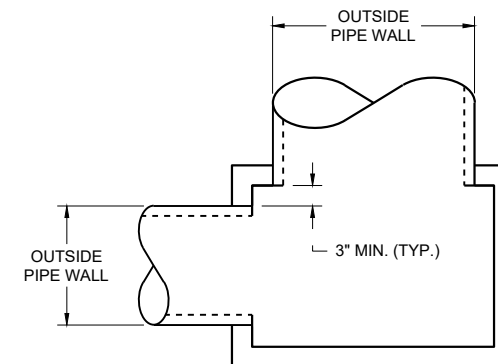
APPROVED
December 2023 /S/ Rodney Taylor
DATE ROADWAY STANDARDS DEVELOPMENT UNIT SUPERVISOR
FHWA



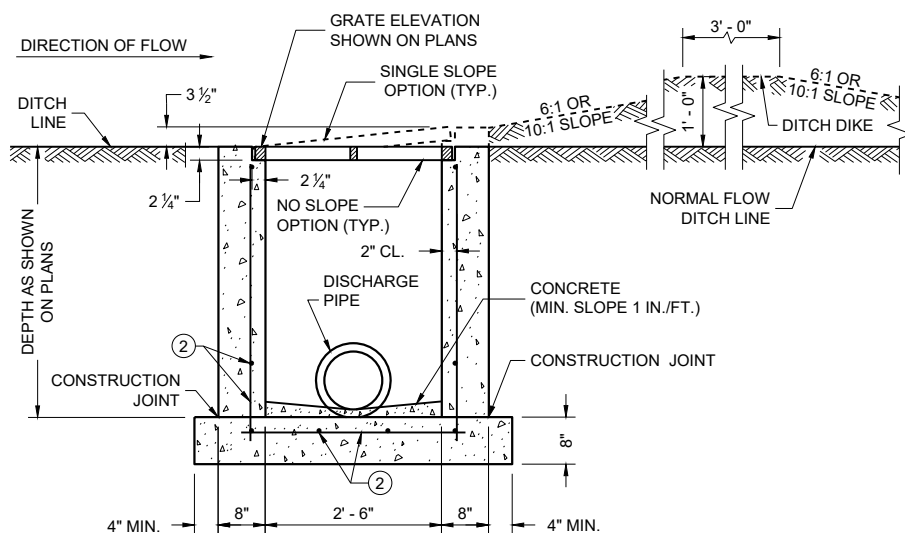
PLAN VIEW



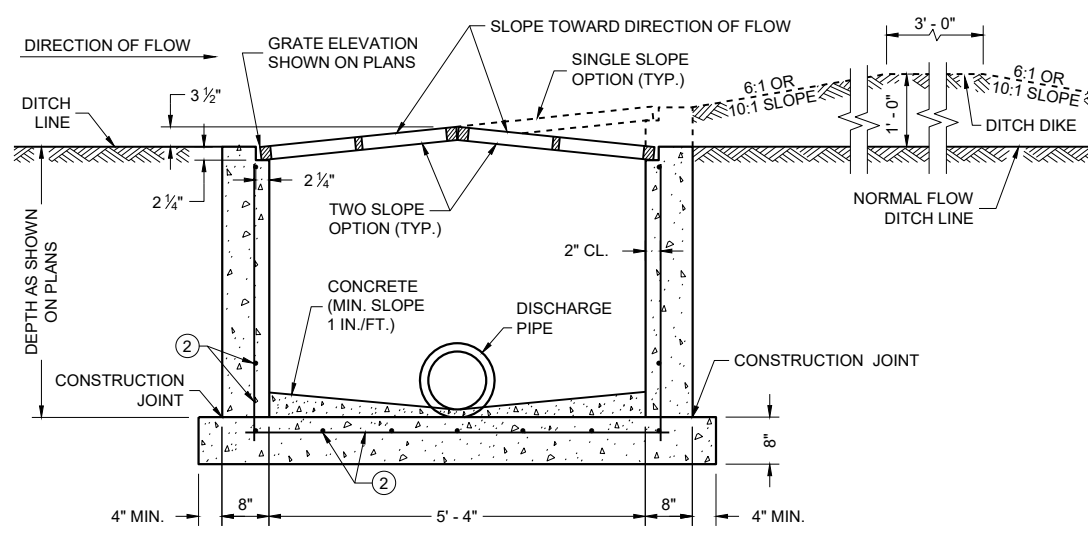
PLAN VIEW

PRECAST REINFORCED CONCRETE
SECTION A - APRECAST REINFORCED CONCRETE
SECTION B - B

DETAIL "A"

REINFORCED CAST IN PLACE CONCRETE
SECTION A - A

INLETS MEDIAN 1 GRATE

REINFORCED CAST IN PLACE CONCRETE
SECTION B - B

INLETS MEDIAN 2 GRATE

GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

UNLESS OTHERWISE AUTHORIZED IN WRITING BY THE ENGINEER, THE CONTRACTOR SHALL NOT ORDER AND DELIVER PRECAST INLET UNITS REQUIRED FOR THE PROJECT UNTIL A LIST OF SIZES IS FURNISHED BY THE ENGINEER.

DETAILED DRAWINGS FOR PROPOSED ALTERNATE DESIGNS FOR INLETS WHICH MAY INCLUDE PRECAST REINFORCED CONCRETE INLETS, SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PROVIDING THAT SUCH ALTERNATE DESIGNS MAKE PROVISION FOR EQUIVALENT CAPACITY AND STRENGTH.

ALL MEDIAN INLETS ARE DESIGNATED ON THE PLANS AS "INLETS, 1G-MS", ETC. THE FIRST NUMBER AND LETTER DESIGNATE THE TYPE OF STRUCTURE, AND THE FOLLOWING LETTERS DESIGNATE THE TYPE OF COVER TO BE USED TO COMPRISE THE COMPLETE UNIT.

BASES SHALL BE PLACED ON A BED OF MATERIAL AT LEAST 6 INCHES IN DEPTH, WHICH MEETS THE REQUIREMENTS OF FOUNDATION BACKFILL. THIS BEDDING SHALL BE COMPACTED AND PROVIDE UNIFORM SUPPORT FOR THE ENTIRE AREA OF THE BASE.

ALL PRECAST INLET UNITS SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF ASTM C 913.

ALL BAR STEEL REINFORCEMENT SHALL BE EMBEDDED 2 INCHES CLEAR UNLESS OTHERWISE SHOWN OR NOTED.

PRECAST REINFORCED RISERS SHALL HAVE A TONGUE AND GROOVE JOINT WITH TONGUE UP OR DOWN.

MAXIMUM INSIDE PIPE DIAMETER DETERMINED BY 3" CLEARANCE ON EACH SIDE OF THE OUTSIDE WALL OF THE PIPE. SEE DETAIL "A". ASSUMES PIPE ENTERS PERPENDICULAR TO THE STRUCTURE.

- ① FOR PRECAST INLETS AND REINFORCED CONCRETE BASES PROVIDE REINFORCING STEEL IN ACCORDANCE TO ASTM C 913.
- ② CONTRACTOR TO PROVIDE DRAWING(S) STAMPED BY A PROFESSIONAL ENGINEER FOR STEEL REINFORCING DESIGN FOR CAST-IN-PLACE STRUCTURES.

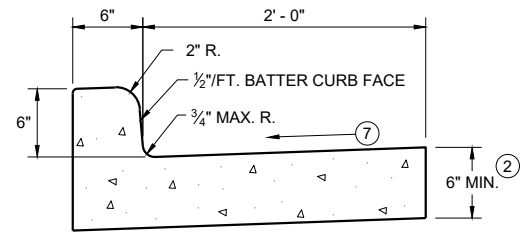
PIPE MATRIX

INLET SIZE	MAXIMUM INSIDE PIPE DIAMETER	
	WIDTH (IN)	LENGTH (IN)
1 GRATE	18	18
2 GRATE	18	42

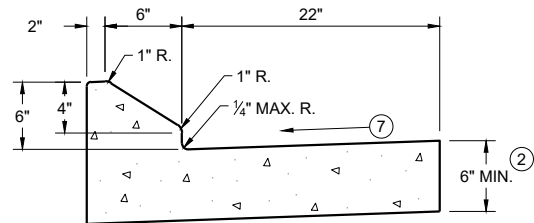
INLETS
MEDIAN 1 AND 2 GRATE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

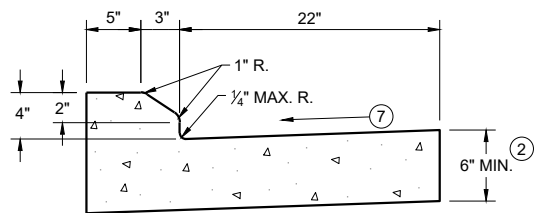
APPROVED
December 2023 /S/ Rodney Taylor
DATE ROADWAY STANDARDS DEVELOPMENT
FHWA UNIT SUPERVISOR



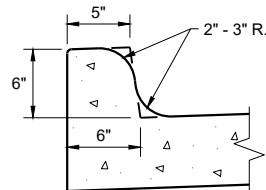
TYPES A^① & D



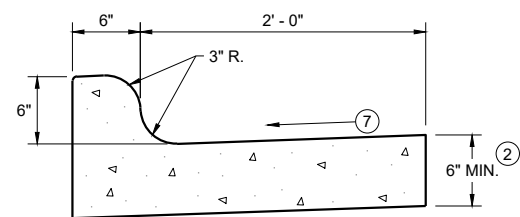
6" SLOPED CURB TYPES G^① & J



4" SLOPED CURB TYPES G^① & J

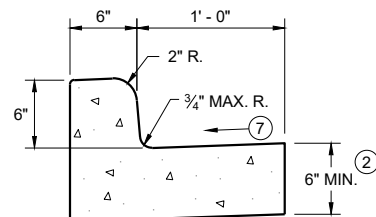


TYPES K^① & L
(OPTIONAL CURB SHAPE)



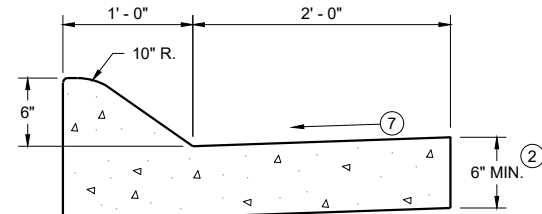
TYPES K^① & L

CONCRETE CURB AND GUTTER 30"

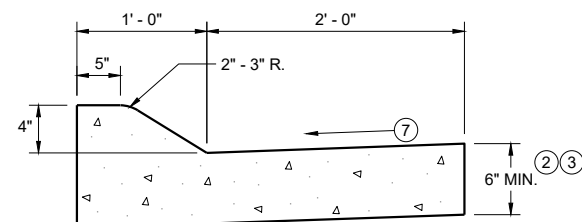


TYPES A^① & D

CONCRETE CURB AND GUTTER 18"

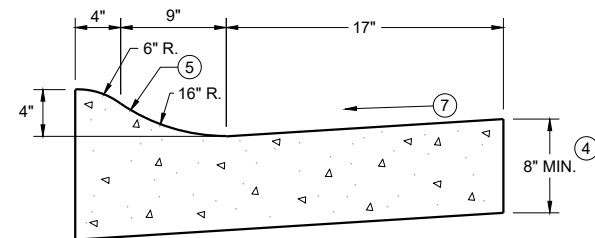


6" SLOPED CURB TYPES A^① & D



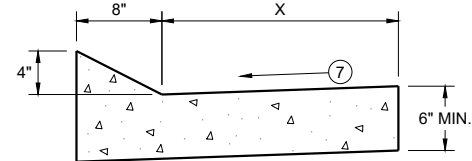
4" SLOPED CURB TYPES A^① & D

CONCRETE CURB AND GUTTER 36"



4" SLOPED CURB TYPES R^① & T
CONCRETE CURB AND GUTTER 30"

TBT & TBTT	X
30"	22"
36"	28"

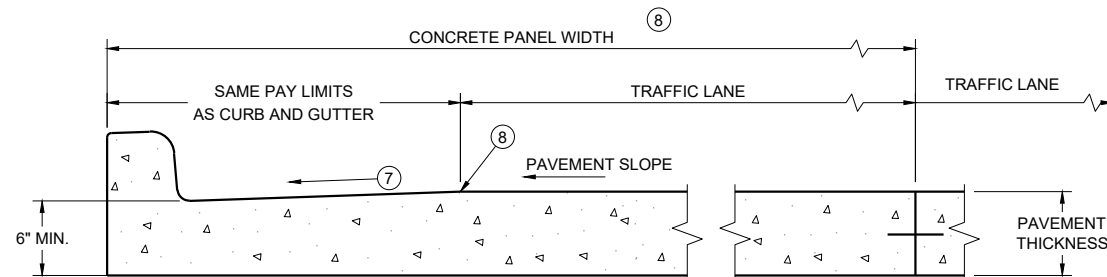


TYPES TBT & TBTT^①

CONCRETE CURB AND GUTTER

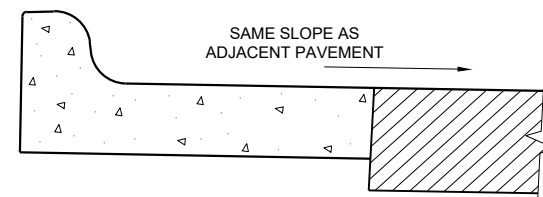
PAVEMENT THICKNESS
AND MAXIMUM CONCRETE
PANEL WIDTH TABLE

PAVEMENT THICKNESS	MAXIMUM PANEL WIDTH
LESS THAN 10"	12'
10" & ABOVE	15'

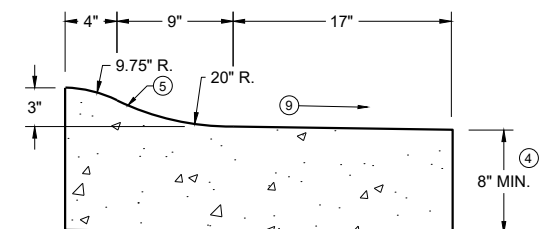


PARTIAL SECTION OF PAVEMENT
WITH INTEGRAL CURB AND GUTTER

* BIKE LANE IS NOT SHOWN



REVERSE SLOPE GUTTER^⑥
(TYPICAL FOR ALL CURB & GUTTER TYPES)



3" SLOPED CURB TYPES R^① & T

CONCRETE CURB AND GUTTER

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

GENERAL NOTES

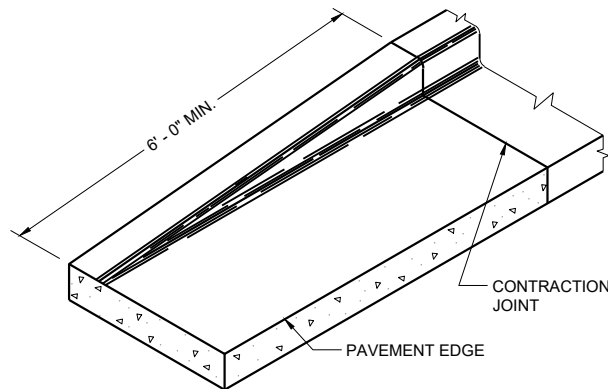
DETAILS OF CONSTRUCTION AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE CONTRACT.

PAVEMENT TIES AND TIE BARS SHALL BE EPOXY COATED IN CONFORMANCE WITH SUBSECTION 505.2.6.2 OF THE STANDARD SPECIFICATIONS.

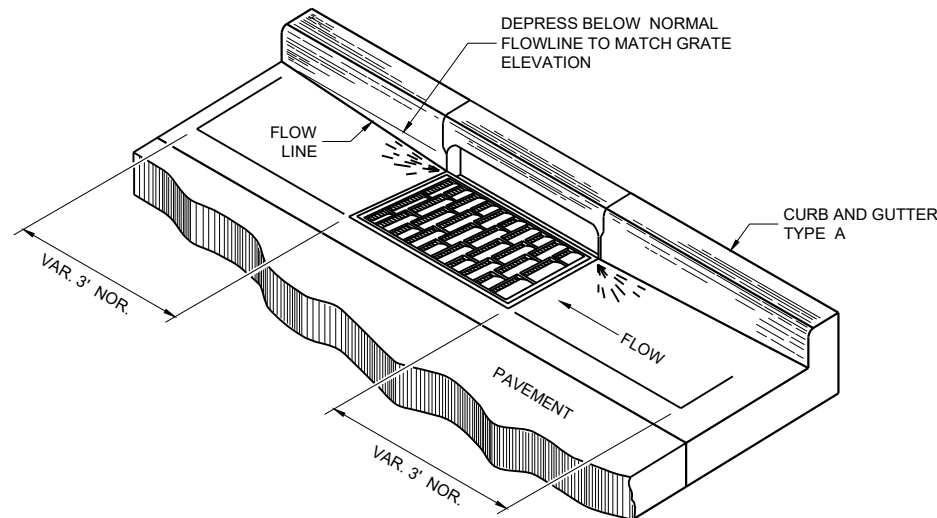
INTEGRAL CURB AND GUTTER SHALL CONFORM TO THE DETAILS SHOWN FOR CONCRETE CURB AND GUTTER INCLUDING THE TRANSVERSE GUTTER SLOPE.

UNLESS OTHERWISE SHOWN ON THE TYPICAL CROSS SECTIONS, THE BASE AGGREGATE AND COMMON EXCAVATION LIMITS ARE 2' - 0" BEHIND THE BACK OF CURBS.

- ① TIE BARS ARE REQUIRED FOR CURB AND GUTTERS TYPES A, G, K, R, AND TBTT.
- ② THE BOTTOM OF CURB AND GUTTER MAY BE CONSTRUCTED EITHER LEVEL OR PARALLEL TO THE SLOPE OF THE SUBGRADE OR BASE AGGREGATE PROVIDED A 6" MINIMUM GUTTER THICKNESS IS MAINTAINED.
- ③ USE 8" MINIMUM GUTTER THICKNESS WHEN USED WITH AN ADJACENT CONCRETE TRUCK APRON PLACED BEHIND BACK OF CURB.
- ④ THE BOTTOM OF CURB AND GUTTER MAY BE CONSTRUCTED EITHER LEVEL OR PARALLEL TO THE SLOPE OF THE SUBGRADE OR BASE AGGREGATE PROVIDED A 8" MINIMUM GUTTER THICKNESS IS MAINTAINED.
- ⑤ UNLESS OTHERWISE NOTED, FOR STAKING PURPOSES THE FACE OF CURB IS 6" FROM THE BACK OF CURB.
- ⑥ WHEN REVERSE SLOPE GUTTER IS REQUIRED, THE LOCATION(S) WILL BE SHOWN ELSEWHERE IN THE PLAN.
- ⑦ USE 4% GUTTER CROSS SLOPE UNLESS OTHERWISE NOTED IN THE PLANS.
- ⑧ INCLUDE LONGITUDINAL JOINT AND TIE BARS ALONG LANE EDGE WHEN CONCRETE PANEL WIDTH EXCEEDS THE MAXIMUM WIDTH PER TABLE BELOW. LONGITUDINAL JOINT(S) ARE NOT ALLOWED WITHIN TRAFFIC LANES AND BIKE LANES. LONGITUDINAL JOINT MAY BE SAWED.
- ⑨ SLOPE TO BE REVERSE SLOPE MATCHING THE SLOPE OF THE PAVEMENT AND THE CIRCULATORY ROADWAY

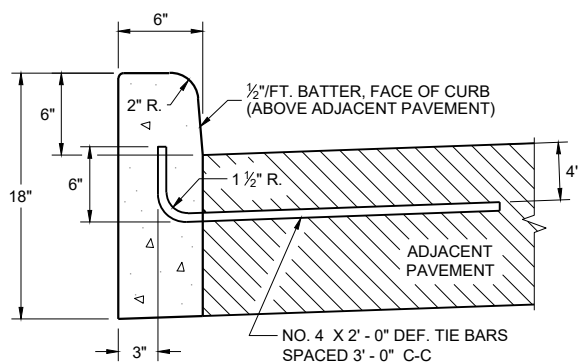


END SECTION CURB AND GUTTER

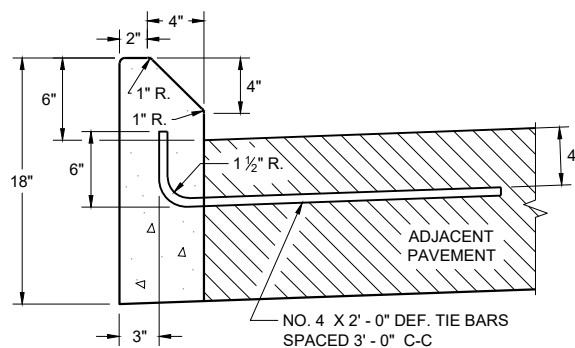


DETAIL OF CURB AND GUTTER AT INLETS

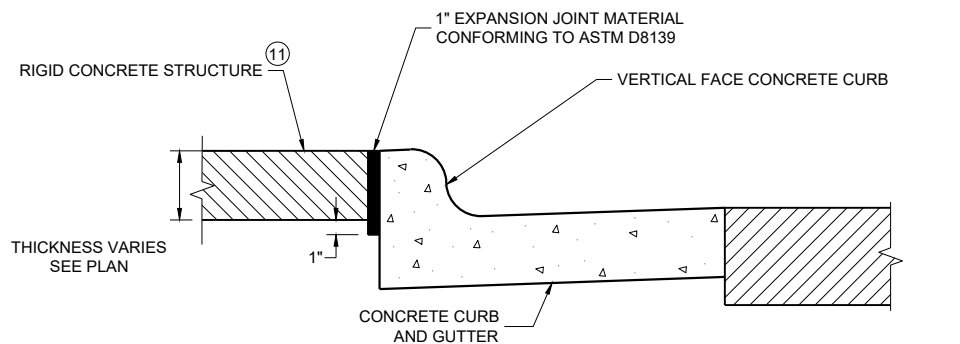
(TYPICAL H INLET COVER SHOWN)



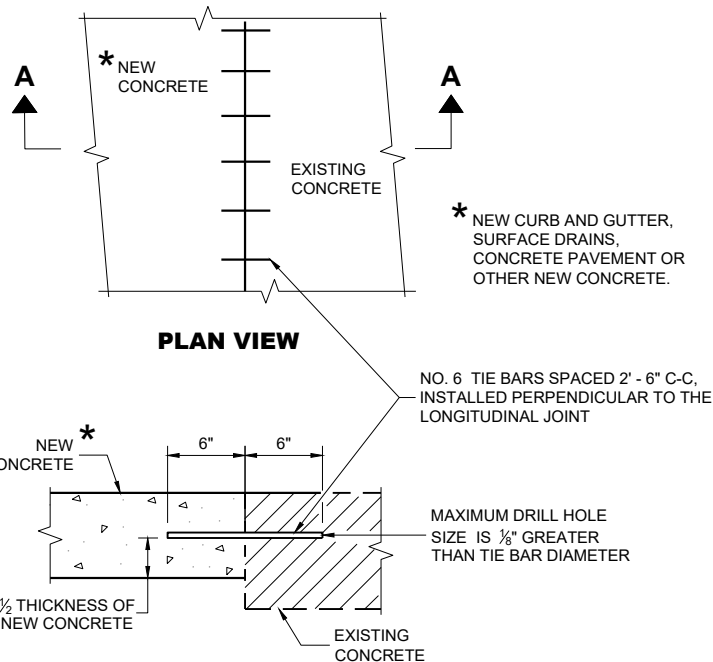
TYPES A^① & D



**TYPES G^① & J
CONCRETE CURB**



EXPANSION JOINT DETAIL FOR VERTICAL CURB ABUTTING A RIGID STRUCTURE^⑪



**SECTION A - A
TIE BARS DRILLED INTO EXISTING PAVEMENT**

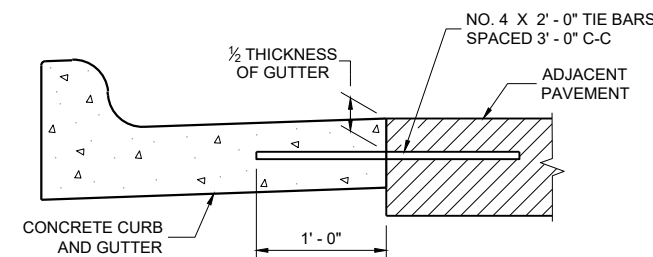
GENERAL NOTES

DETAILS OF CONSTRUCTION AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE CONTRACT.

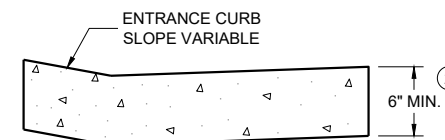
PAVEMENT TIES AND TIE BARS SHALL BE EPOXY COATED IN CONFORMANCE WITH SUBSECTION 505.2.6.2 OF THE STANDARD SPECIFICATIONS.

UNLESS OTHERWISE SHOWN ON THE TYPICAL CROSS SECTIONS, THE BASE AGGREGATE AND COMMON EXCAVATION LIMITS ARE 2' - 0" BEHIND THE BACK OF CURBS.

- ① TIE BARS ARE REQUIRED FOR CURB AND GUTTERS TYPES A, G, K, R, AND TBTT.
- ② THE BOTTOM OF CURB AND GUTTER MAY BE CONSTRUCTED EITHER LEVEL OR PARALLEL TO THE SLOPE OF THE SUBGRADE OR BASE AGGREGATE PROVIDED A 6" MINIMUM GUTTER THICKNESS IS MAINTAINED.
- ⑩ REFER TO SDD 08D18 AND 08D19 FOR ADDITIONAL DRIVEWAY ENTRANCE CURB DETAILS.
- ⑪ PLACE 1" THICK EXPANSION JOINT MATERIAL BETWEEN VERTICAL FACE CURB TYPES EXTENDING FROM THE TOP OF CURB TO 1 INCH BELOW THE ADJOINING CONCRETE SURFACE. RIGID CONCRETE STRUCTURES INCLUDE RAISED CONCRETE MEDIANS, CONCRETE SAFETY ISLANDS, SPLITTER ISLANDS, OR LOCATIONS IDENTIFIED ON THE PLANS.



TYPICAL TIE BAR LOCATION^①



**DRIVEWAY ENTRANCE CURB^⑩
(WHEN DIRECTED BY THE ENGINEER)**

**CONCRETE CURB, TIES
AND CURB AND GUTTER
APPLICATIONS**

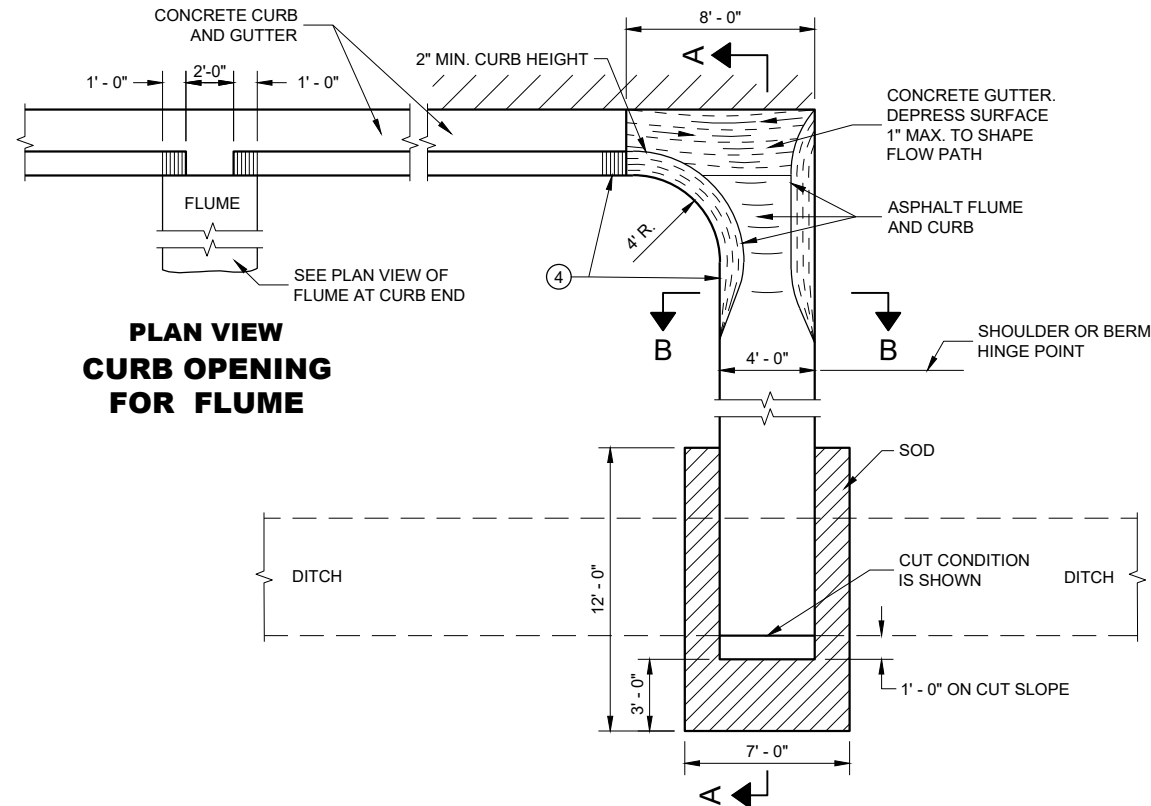
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
February 2025
DATE /S/ Rodney Taylor
ROADWAY STANDARDS DEVELOPMENT
UNIT SUPERVISOR

FHWA

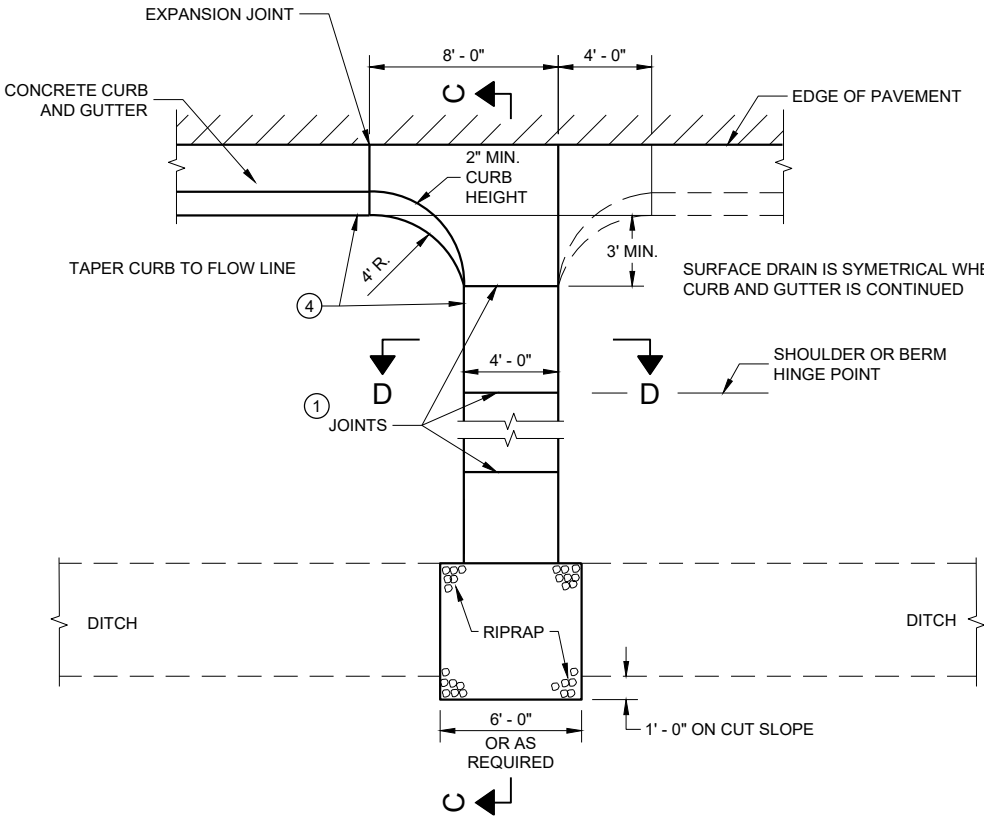
NOTE: TAPER CURB ENDS TO GUTTER IN 1' - 0"

ASPHALTIC FLUME



PLAN VIEW
CURB OPENING
FOR FLUME

PLAN VIEW
FLUME AT CURB END



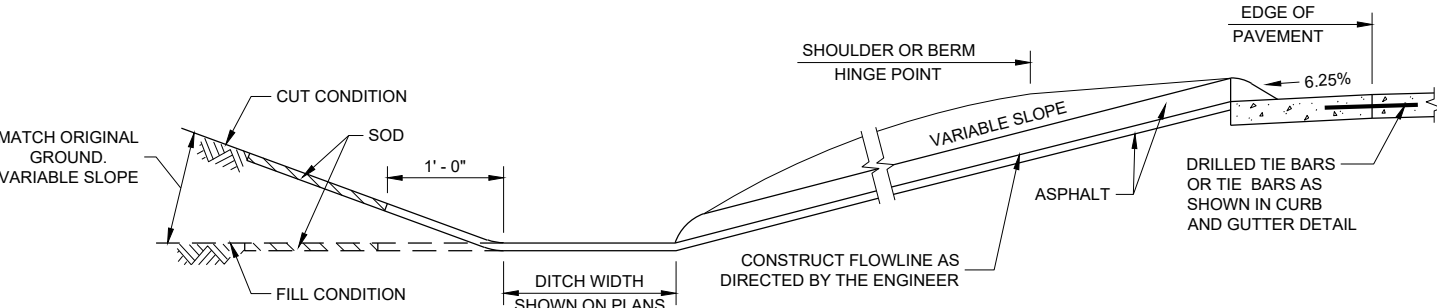
PLAN VIEW
CONCRETE SURFACE DRAIN

GENERAL NOTES

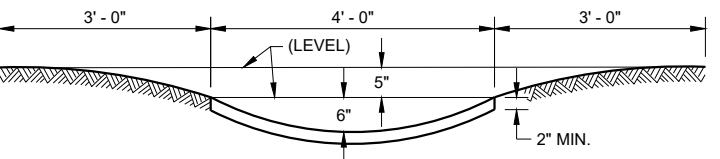
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.

4" X 4" - W3.0 X W3.0 CONCRETE REINFORCEMENT SHALL BE IN ACCORDANCE WITH AASHTO SPECIFICATION M55.

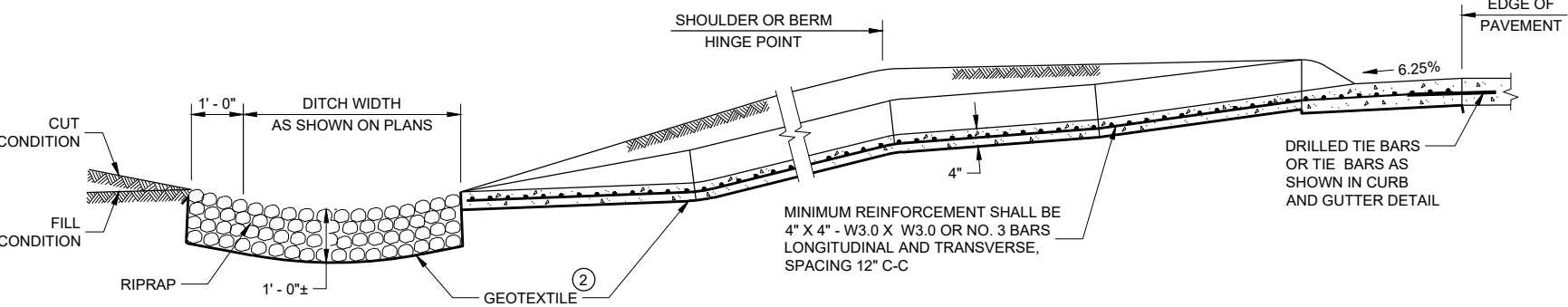
- JOINTS SHALL BE $\frac{1}{8}$ " TO $\frac{1}{4}$ " WIDE BY $\frac{1}{2}$ " DEEP AND SPACED AT UNIFORM INTERVALS OF APPROXIMATELY 4 FEET.
- GEOTEXTILE TYPE "R" SHALL UNDERLAY THE FULL LENGTH AND WIDTH OF THE CONCRETE SURFACE DRAIN AND RIPRAP.
- CONCRETE SURFACE DRAIN WITHOUT CURB AND GUTTER MAY BE USED ON BACKSLOPES WHEN SPECIFIED.
- ANGLE OF FLUME IN RELATION TO BACK OF CURB TO BE CONSTRUCTED PER THE PLAN DETAILS OR AS DIRECTED BY THE ENGINEER. ANGLE OF FLUME MAY BE OTHER THAN 90 DEGREES AS SHOWN.



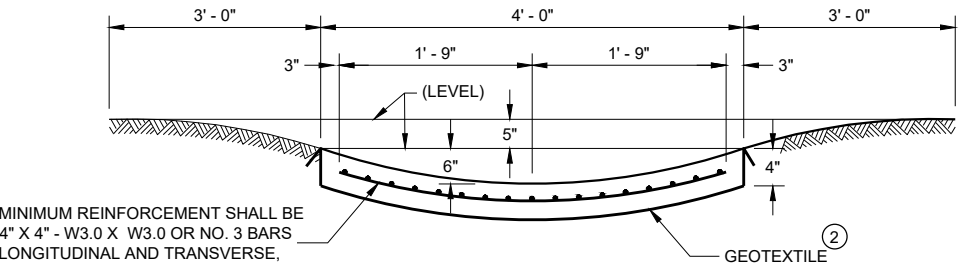
SECTION A - A



SECTION B - B



SECTION C - C



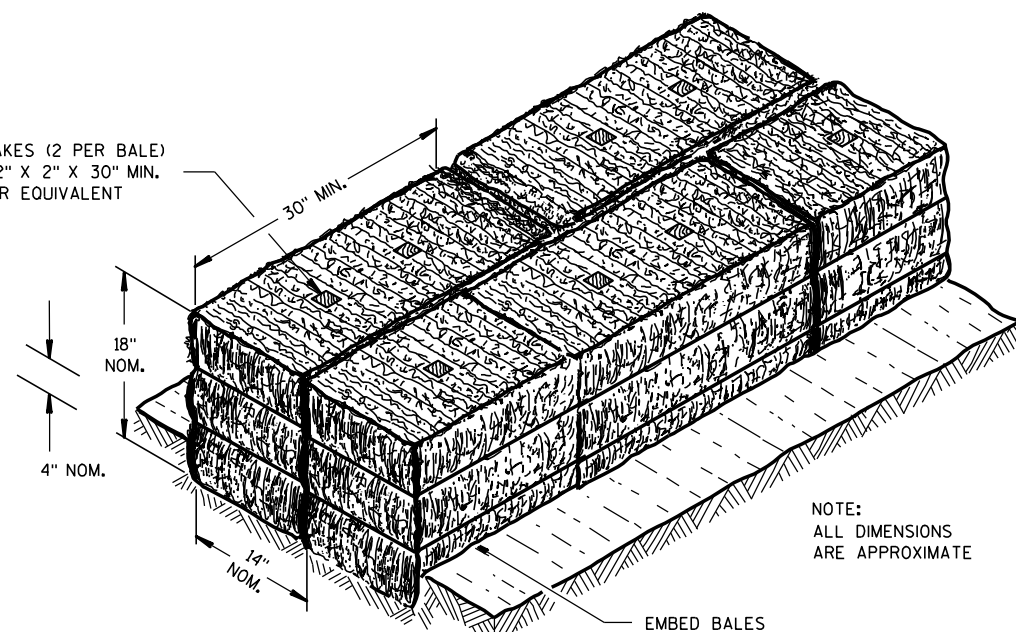
SECTION D - D

CONCRETE SURFACE
DRAINS AND
ASPHALTIC FLUMES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
May 2023 /S/ Rodney Taylor
DATE ROADWAY STANDARDS DEVELOPMENT ENGINEER
FHWA 109

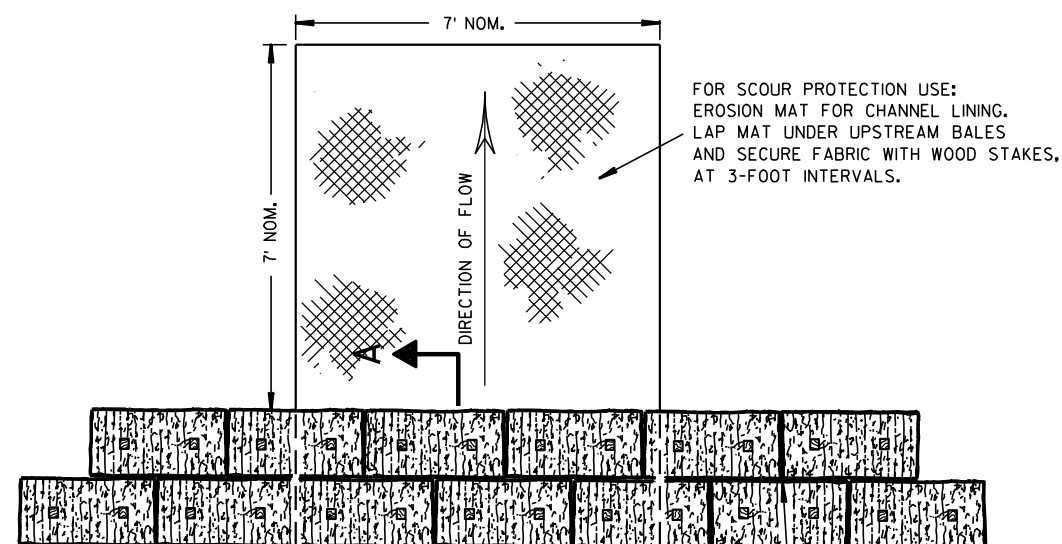
WOOD STAKES (2 PER BALE)
NOMINAL 2" X 2" X 30" MIN.
LENGTH OR EQUIVALENT



NOTE:
ALL DIMENSIONS
ARE APPROXIMATE

EMBED BALES

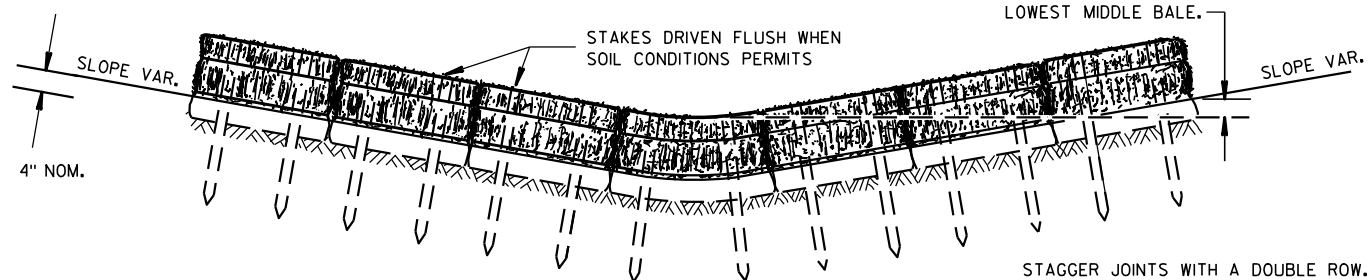
SECTION A-A



PLAN VIEW

STAGGER JOINTS BETWEEN ADJACENT
ROWS OF BALES.

BOTTOM ELEVATION OF END BALE SHALL
BE EQUAL TO OR GREATER THAN TOP OF
LOWEST MIDDLE BALE.



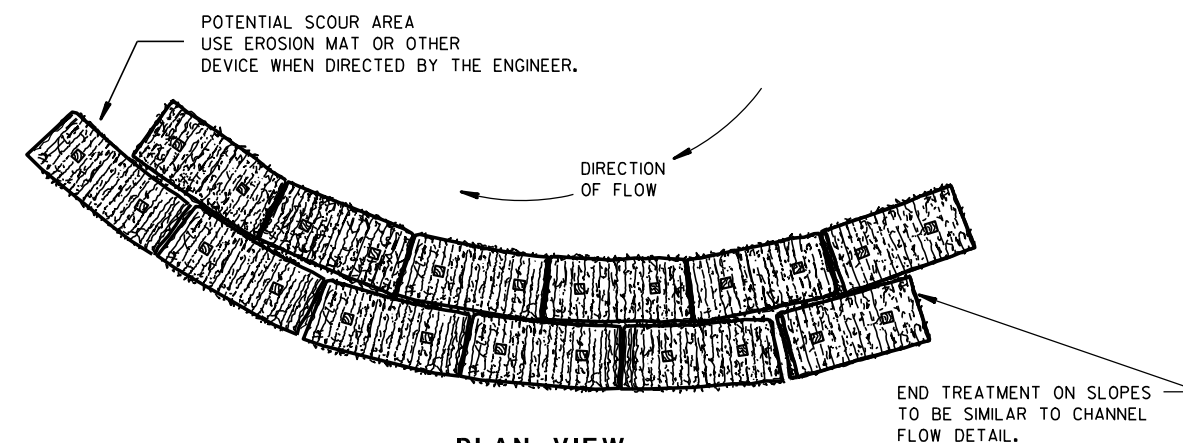
FRONT ELEVATION

TEMPORARY DITCH CHECK USING EROSION BALES ①

GENERAL NOTES

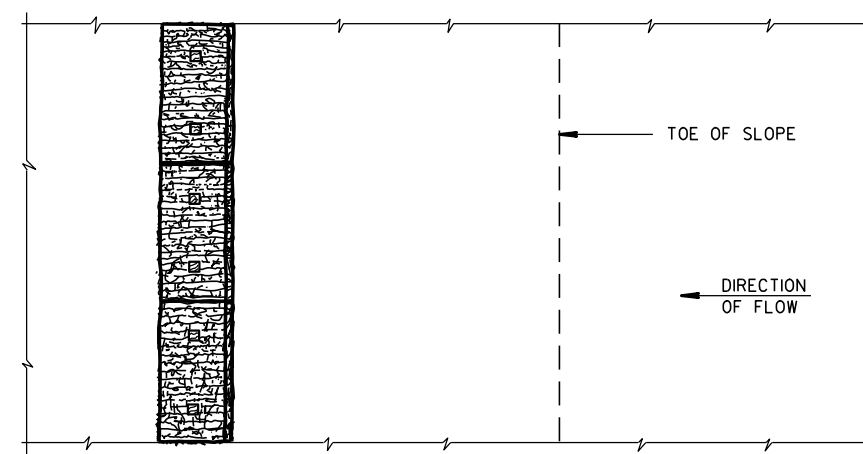
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

- ① TEMPORARY DITCH CHECKS EITHER EROSION BALES OR MANUFACTURED SHALL BE PAID FOR UNDER THE BID ITEM OF TEMPORARY DITCH CHECK. THE DEPARTMENT WILL NOT PAY FOR TEMPORARY DITCH CHECKS CONSTRUCTED OF A SINGLE ROW OF EROSION BALES.

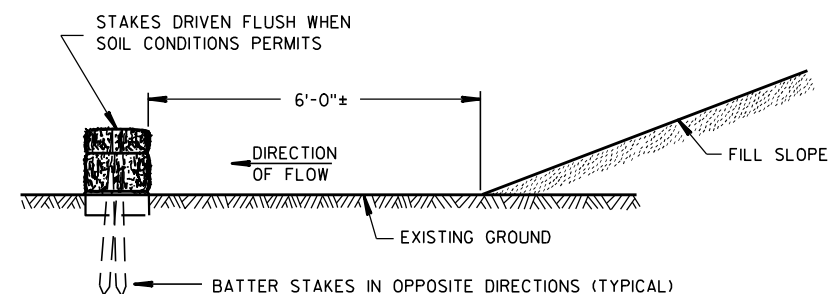


PLAN VIEW

WHEN ALTERING THE DIRECTION OF FLOW



PLAN VIEW



FRONT ELEVATION

WHEN EXISTING GROUND SLOPES AWAY FROM FILL SLOPE

EROSION BALES FOR SHEET FLOW

TYPICAL INSTALLATIONS OF EROSION BALES / TEMPORARY DITCH CHECKS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

6/04/02
DATE

/S/ Beth Conn
CHIEF ROADWAY DEVELOPER 110 ENGINEER

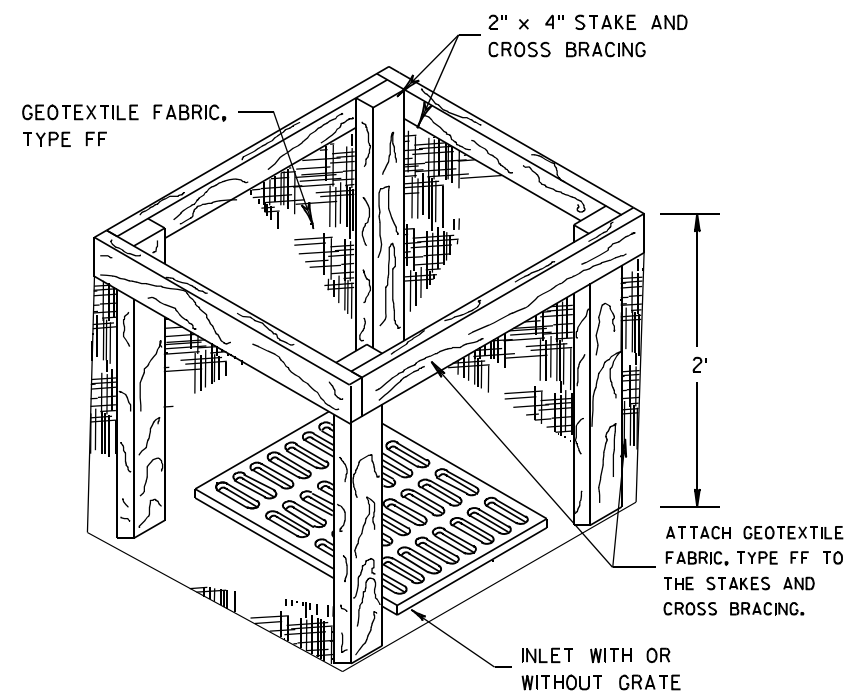
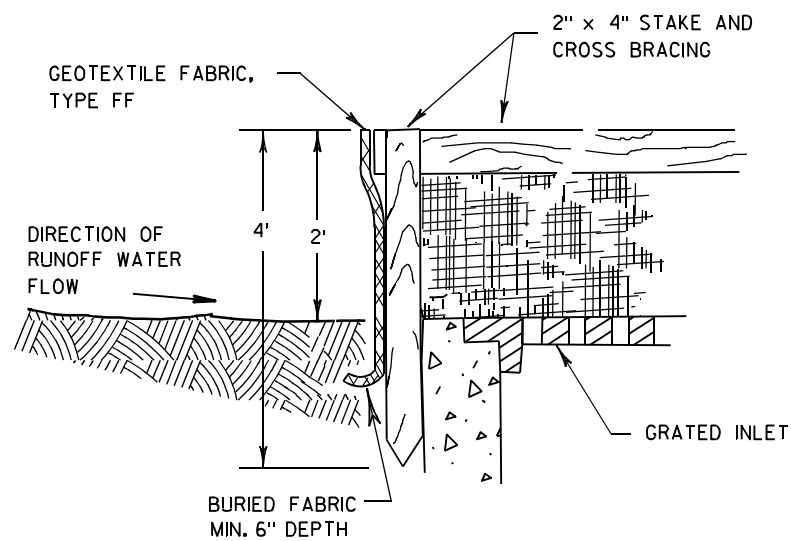
FHWA



- ① HORIZONTAL BRACE REQUIRED WITH 2" X 4" WOODEN FRAME OR EQUIVALENT AT TOP OF POSTS.
- ② FOR MANUAL INSTALLATIONS THE TRENCH SHALL BE A MINIMUM OF 4" WIDE & 6" DEEP TO BURY AND ANCHOR THE GEOTEXTILE FABRIC. FOLD MATERIAL TO FIT TRENCH AND BACKFILL & COMPACT TRENCH WITH EXCAVATED SOIL.
- ③ WOOD POSTS SHALL BE A MINIMUM SIZE OF 1½" X 1½" OF OAK OR HICKORY.
- ④ SILT FENCE TO EXTEND ACROSS THE TOP OF THE PIPE.
- ⑤ CONSTRUCT SILT FENCE FROM A CONTINUOUS ROLL IF POSSIBLE BY CUTTING LENGTHS TO AVOID JOINTS. IF A JOINT IS NECESSARY USE ONE OF THE FOLLOWING TWO METHODS; A) OVERLAP THE END POSTS AND TWIST, OR ROTATE, AT LEAST 180 DEGREES, B) HOOK THE END OF EACH SILT FENCE LENGTH.



SILT FENCE	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 4-29-05 DATE	/S/ Beth Conn***** CHIEF ROADWAY DEVELOP 111 INEER
FHWA	



INLET PROTECTION, TYPE A

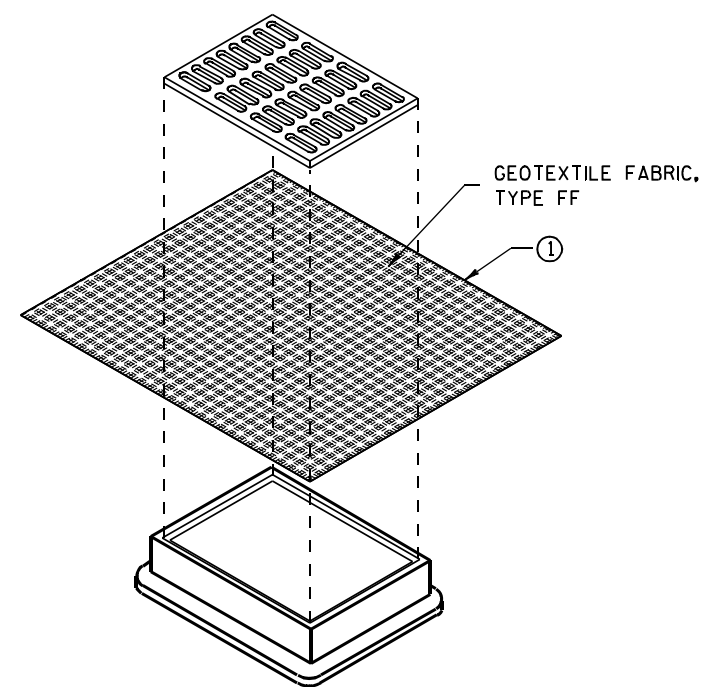
GENERAL NOTES

INLET PROTECTION DEVICES SHALL BE MAINTAINED OR REPLACED AT THE DIRECTION OF THE ENGINEER.

MANUFACTURED ALTERNATIVES APPROVED AND LISTED ON THE DEPARTMENT'S EROSION CONTROL PRODUCT ACCEPTABILITY LIST MAY BE SUBSTITUTED.

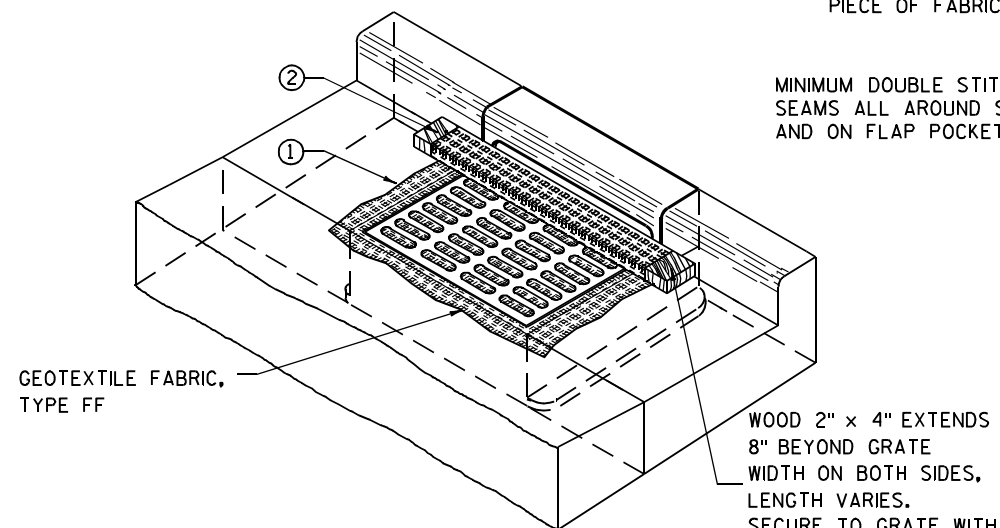
WHEN REMOVING OR MAINTAINING INLET PROTECTION, CARE SHALL BE TAKEN SO THAT THE SEDIMENT TRAPPED ON THE GEOTEXTILE FABRIC DOES NOT FALL INTO THE INLET. ANY MATERIAL FALLING INTO THE INLET SHALL BE REMOVED IMMEDIATELY.

- ① FINISHED SIZE, INCLUDING FLAP POCKETS WHERE REQUIRED, SHALL EXTEND A MINIMUM OF 10" AROUND THE PERIMETER TO FACILITATE MAINTENANCE OR REMOVAL.
- ② FOR INLET PROTECTION, TYPE C (WITH CURB BOX), AN ADDITIONAL 18" OF FABRIC IS WRAPPED AROUND THE WOOD AND SECURED WITH STAPLES. THE WOOD SHALL NOT BLOCK THE ENTIRE HEIGHT OF THE CURB BOX OPENING.
- ③ FLAP POCKETS SHALL BE LARGE ENOUGH TO ACCEPT WOOD 2X4.



**INLET PROTECTION, TYPE B
(WITHOUT CURB BOX)**

(CAN BE INSTALLED IN ANY INLET WITHOUT A CURB BOX)



INLET PROTECTION, TYPE C (WITH CURB BOX)

INSTALLATION NOTES

TYPE B & C

TRIM EXCESS FABRIC IN THE FLOW LINE TO WITHIN 3" OF THE GRATE.

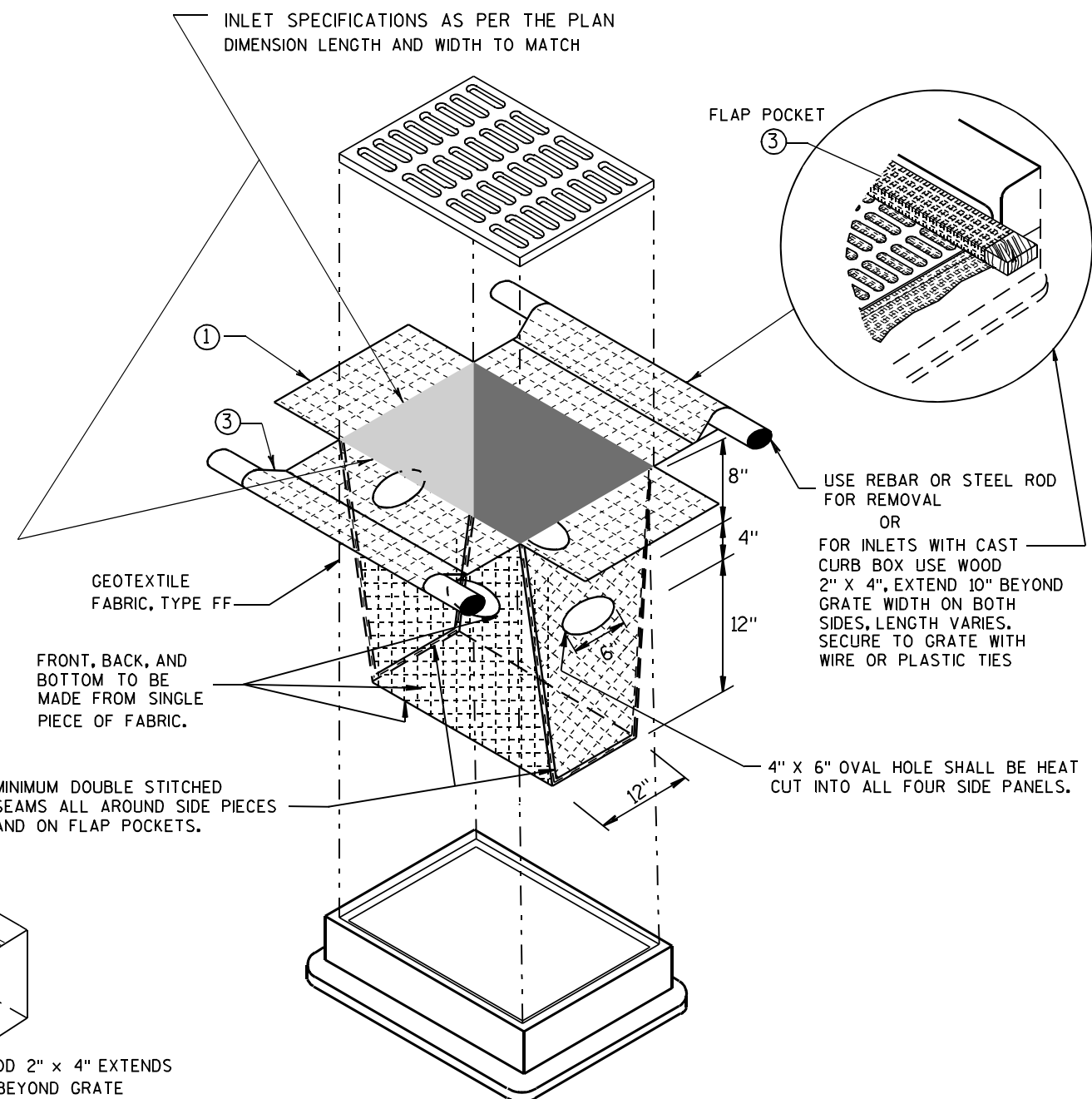
THE CONTRACTOR SHALL DEMONSTRATE A METHOD OF MAINTENANCE, USING A SEWN FLAP, HAND HOLDS OR OTHER METHOD TO PREVENT ACCUMULATED SEDIMENT FROM ENTERING THE INLET.

TYPE D

DO NOT INSTALL INLET PROTECTION TYPE D IN INLETS SHALLOWER THAN 30", MEASURED FROM THE BOTTOM OF THE INLET TO THE TOP OF THE GRATE.

TRIM EXCESS FABRIC IN THE FLOW LINE TO WITHIN 3" OF THE GRATE.

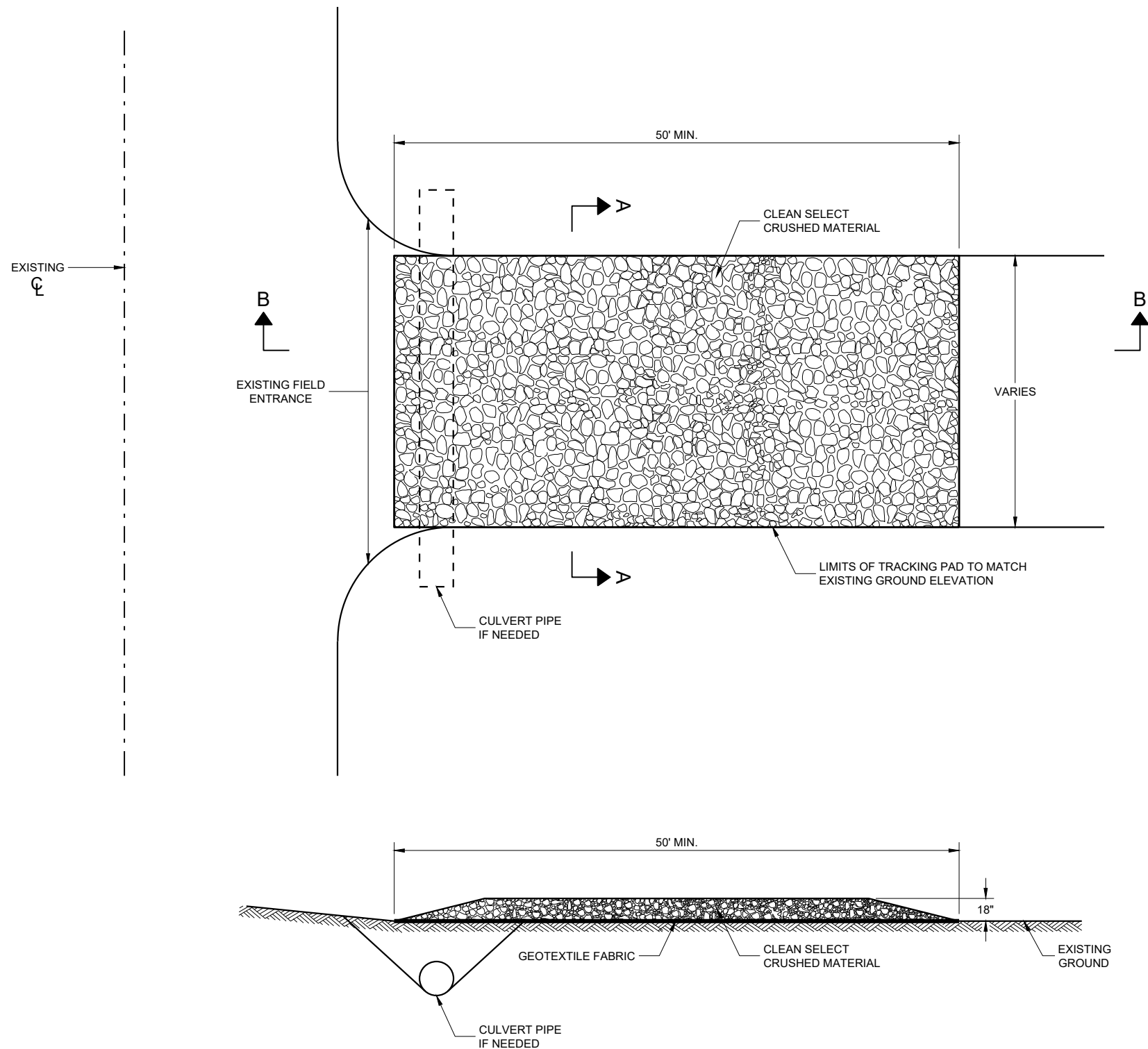
THE INSTALLED BAG SHALL HAVE A MINIMUM SIDE CLEARANCE, BETWEEN THE INLET WALLS AND THE BAG, MEASURED AT THE BOTTOM OF THE OVERFLOW HOLES, OF 3". WHERE NECESSARY THE CONTRACTOR SHALL CINCH THE BAG, USING PLASTIC ZIP TIES, TO ACHIEVE THE 3" CLEARANCE. THE TIES SHALL BE PLACED AT A MAXIMUM OF 4" FROM THE BOTTOM OF THE BAG.



INLET PROTECTION, TYPE D

(CAN BE INSTALLED IN ANY INLET TYPE WITH OR WITHOUT A CURB BOX AS PER NOTE ②)

INLET PROTECTION TYPE A, B, C, AND D	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 10/16/02 DATE	/S/ Beth Connolly 112 CHIEF ROADWAY DEVELOPMENT ENGINEER
FHWA	



SECTION B - B

GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

TRACKING PAD SHALL BE INSPECTED DAILY. DEFICIENT AREAS SHALL BE REPAIRED OR REPLACED IMMEDIATELY.

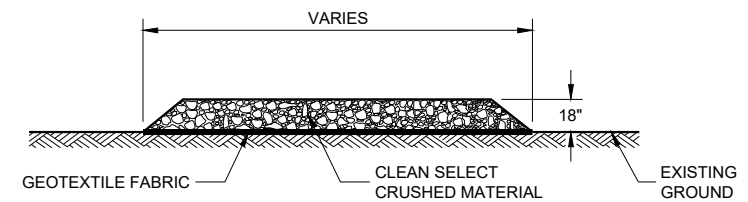
TRACKING PAD TO BE REMOVED AFTER CONSTRUCTION IS COMPLETED.

TRACKING PAD SHALL BE THE FULL WIDTH OF THE EGRESS POINT.

SURFACE WATER MUST BE PREVENTED FROM PASSING THROUGH THE TRACKING PAD. FLOWS SHALL BE DIVERTED AWAY, AROUND OR CONVEYED UNDER THE TRACKING PAD.

CULVERT PIPE OR OTHER BMP USED TO DIVERT WATER AWAY, AROUND OR UNDER THE TRACKING PAD SHALL BE DESIGNED TO CONVEY THE 2 YEAR - 24 HOUR EVENT.

THE COST OF ADDITIONAL BMP TO DIVERT WATER ARE INCIDENTAL TO THE TRACKING PAD BID ITEM.



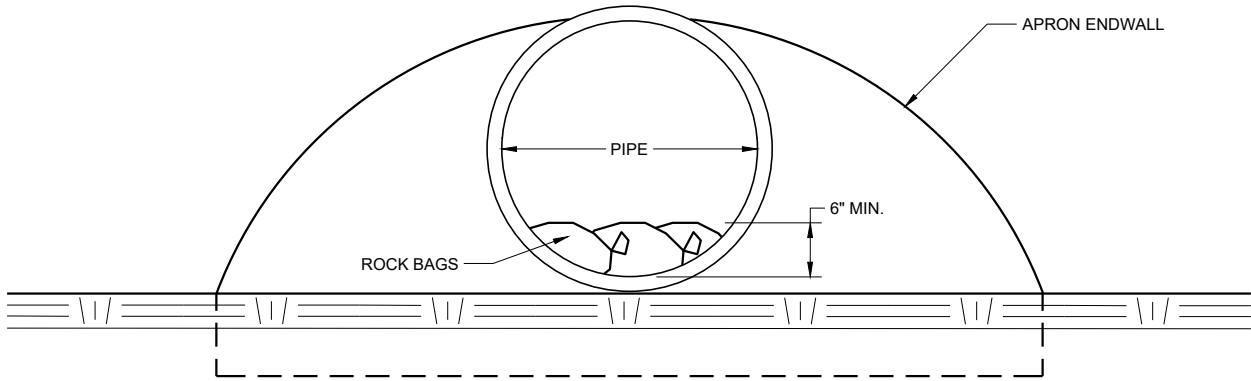
SECTION A - A

TRACKING PAD

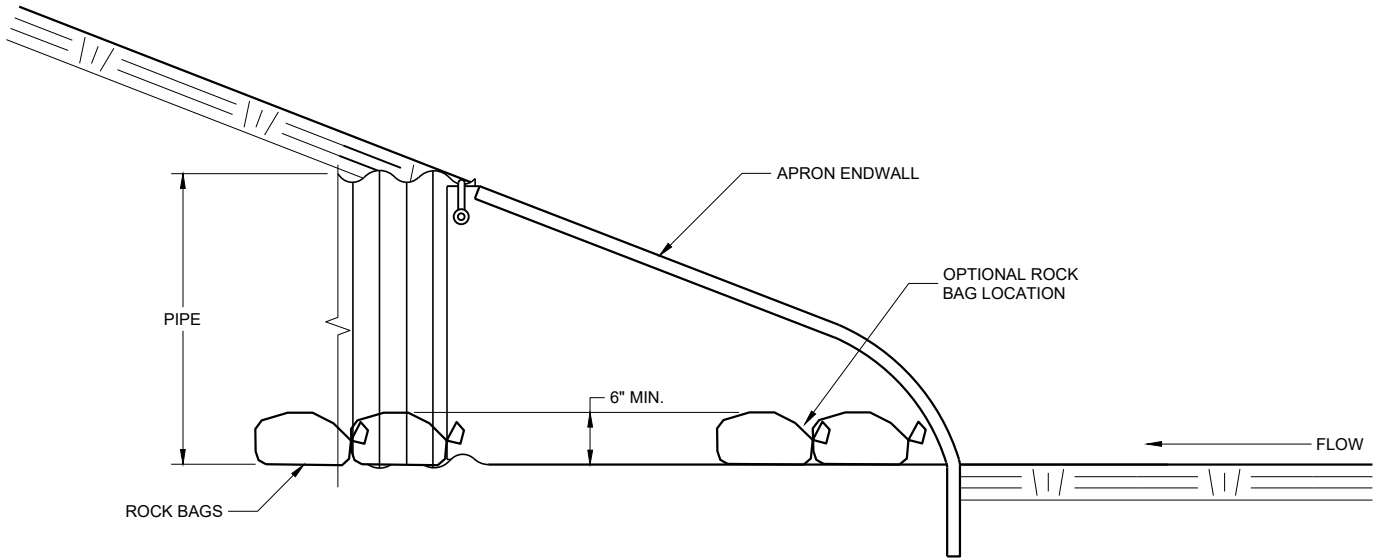
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
3/24/2011
DATE
/S/ Jerry H. Zogg
ROADWAY STANDARDS DEVELOPMENT ENGINEER

FHWA



END VIEW



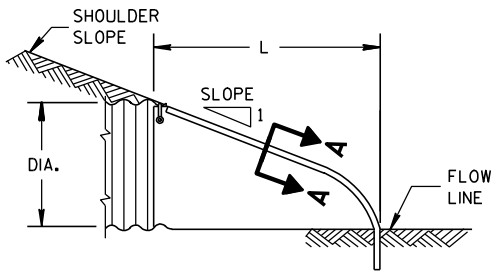
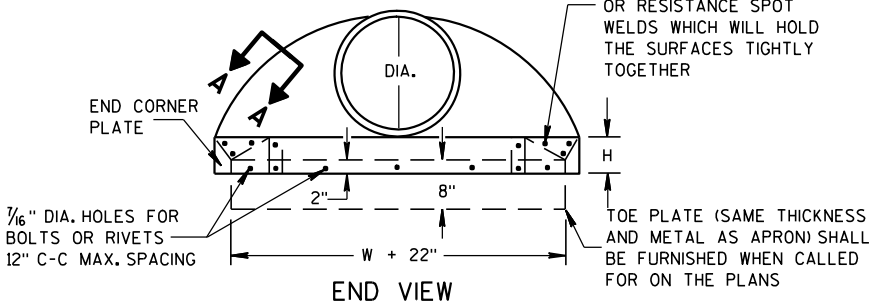
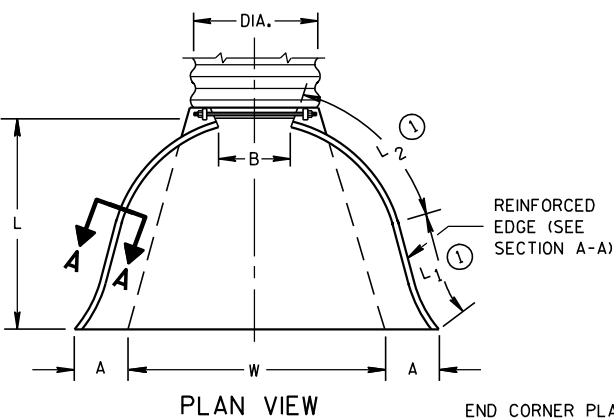
SIDE VIEW

CULVERT PIPE CHECK
(INSTALL ON INLET END ONLY)

CULVERT PIPE CHECK		
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION		
APPROVED May 2019 DATE	/S/ Daniel Schave	-
FHWA	EROSION CONTROL ENGI	114

METAL APRON ENDWALLS												
PIPE DIA. (IN.)	MIN. THICK. (Inches)		DIMENSIONS (Inches)							APPROX. SLOPE	BODY	
	STEEL	ALUM.	A (±1")	B (MAX.)	H (±1")	L (±1 1/2")	L ₁ ①	L ₂ ①	W (±2")			
12	.064	.060	6	6	6	21	12	17 1/2	24	2 1/2 to 1	1 Pc.	
15	.064	.060	7	8	6	26	14	21 3/4	30	2 1/2 to 1	1 Pc.	
18	.064	.060	8	10	6	31	15	28 1/4	36	2 1/2 to 1	1 Pc.	
21	.064	.060	9	12	6	36	18	29 5/8	42	2 1/2 to 1	1 Pc.	
24	.064	.075	10	13	6	41	18	37 1/4	48	2 1/2 to 1	1 Pc.	
30	.079	.075	12	16	8	51	18	52 1/4	60	2 1/2 to 1	1 Pc.	
36	.079	.105	14	19	9	60	24	59 3/4	72	2 1/2 to 1	2 Pc.	
42	.109	.105	16	22	11	69	24	75 5/8	84	2 1/2 to 1	2 Pc.	
48	.109	.105	18	27	12	78	24	81	90	2 1/4 to 1	3 Pc.	
54	.109	.105	18	30	12	84	30	85 1/2	102	2 1/4 to 1	3 Pc.	
60	.109x	.105x	18	33	12	87	—	—	114	2 to 1	3 Pc.	
66	.109x	.105x	18	36	12	87	—	—	120	2 to 1	3 Pc.	
72	.109x	.105x	18	39	12	87	—	—	126	2 to 1	3 Pc.	
78	.109x	.105x	18	42	12	87	—	—	132	1 1/2 to 1	3 Pc.	
84	.109x	.105x	18	45	12	87	—	—	138	1 1/2 to 1	3 Pc.	
90	.109x	.105x	18	37	12	87	—	—	144	1 1/2 to 1	3 Pc.	
96	.109x	.105x	18	35	12	87	—	—	150	1 1/2 to 1	3 Pc.	

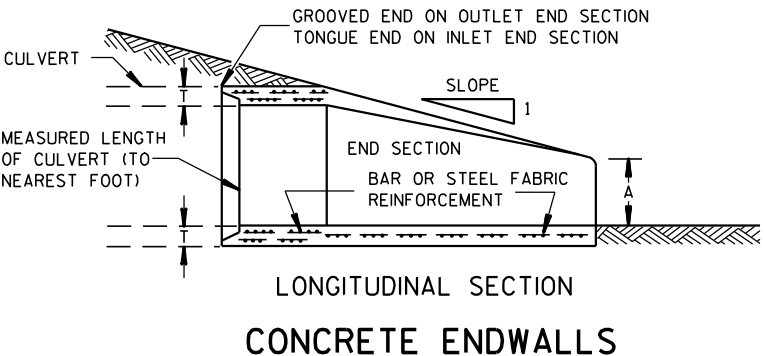
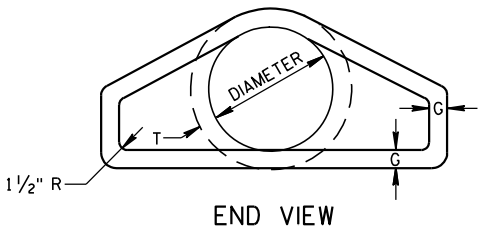
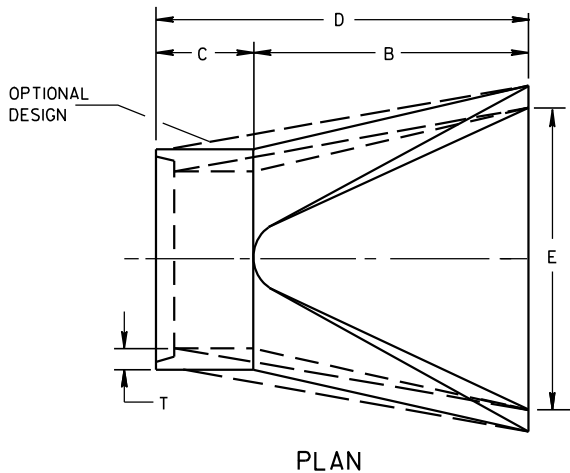
* EXCEPT CENTER PANEL
SEE GENERAL NOTES



SIDE ELEVATION
METAL ENDWALLS

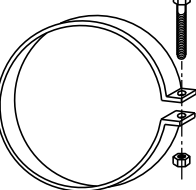
REINFORCED CONCRETE APRON ENDWALLS									
PIPE DIA. (IN.)	DIMENSIONS (Inches)							APPROX. SLOPE	
	T	A	B	C	D	E	G		
12	2	4	24	48 ¹ / ₈	72 ¹ / ₈	24	2	3 to 1	
15	2 ¹ / ₄	6	27	46	73	30	2 ¹ / ₄	3 to 1	
18	2 ¹ / ₂	9	27	46	73	36	2 ¹ / ₂	3 to 1	
21	2 ³ / ₄	9	36	37 ¹ / ₂	73 ¹ / ₂	42	2 ³ / ₄	3 to 1	
24	3	9 ¹ / ₂	43 ¹ / ₂	30	73 ¹ / ₂	48	3	3 to 1	
27	3 ¹ / ₄	10 ¹ / ₂	49 ¹ / ₂	24	73 ¹ / ₂	54	3 ¹ / ₄	3 to 1	
30	3 ¹ / ₂	12	54	19 ³ / ₄	73 ¹ / ₂	60	3 ¹ / ₂	3 to 1	
36	4	15	63	34 ³ / ₄	97 ³ / ₄	72	4	3 to 1	
42	4 ¹ / ₂	21	63	35	98	78	4 ¹ / ₂	3 to 1	
48	5	24	72	26	98	84	5	3 to 1	
54	5 ¹ / ₂	27	65	33 ¹ / ₄ -35	98 ¹ / ₄ -100	90	5 ¹ / ₂	2 ¹ / ₂ to 1	
60	6	30-35	60	39	99	96	5	2 to 1	
66	6 ¹ / ₂	24-30	72-78	21-27	99	102	5 ¹ / ₂	2 to 1	
72	7	24-36	78	21	99	108	6	2 to 1	
78	7 ¹ / ₂	24-36	78	21	99	114	6 ¹ / ₂	2 to 1	
84	8	36	90 ¹ / ₂	21	111 ¹ / ₂	120	6 ¹ / ₂	1 ¹ / ₂ to 1	
90	8 ¹ / ₂	41	87 ¹ / ₂	24	111 ¹ / ₂	132	6 ¹ / ₂	1 ¹ / ₂ to 1	

* MINIMUM
** MAXIMUM

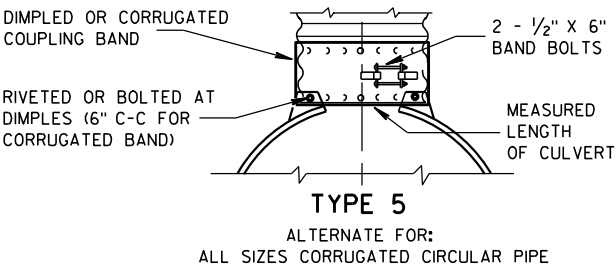
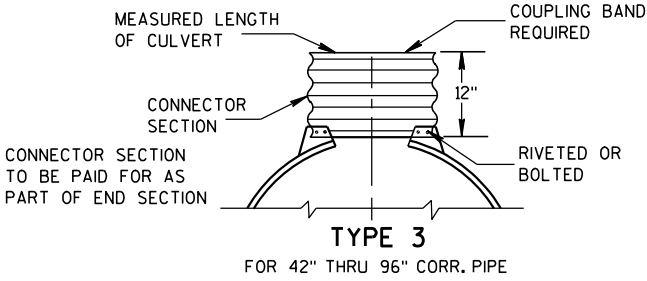
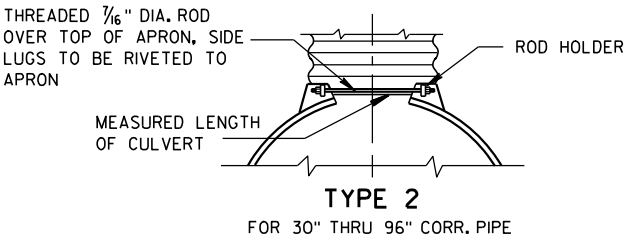
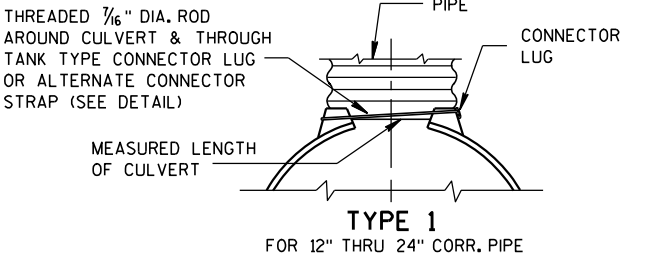


LONGITUDINAL SECTION
CONCRETE ENDWALLS

1" WIDE, 12 GA. (0.109" THICK) GALVANIZED STRAP WITH STANDARD 6" X 1/2" BAND BOLT AND NUT



ALTERNATE FOR TYPE 1 CONNECTION
END SECTION CONNECTOR STRAP



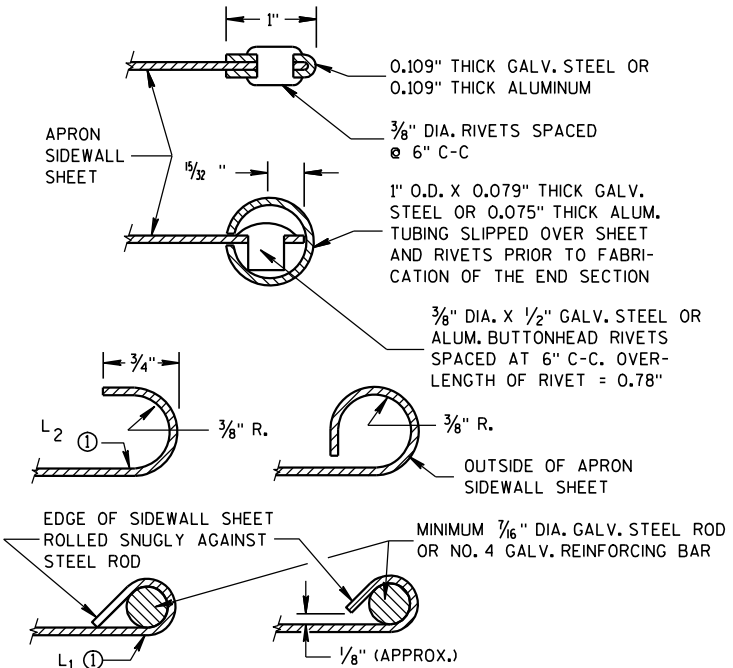
NOTE: DIMPLED BAND FITS OVER OUTSIDE OF ENDWALL, AND CORRUGATED BAND FITS INSIDE ENDWALL. DIMPLED BAND MAY BE USED WITH HELICALLY CORRUGATED PIPE.

FOR CIRCUMFERENTIALLY CORRUGATED PIPE USE ENDWALL CONNECTION DETAILS 1, 2, 3 OR 5 AS APPLICABLE.

FOR HELICALLY CORRUGATED PIPE USE ENDWALL CONNECTION DETAILS 1, 2 OR 5.

FOR HELICALLY CORRUGATED PIPES WITH TWO CIRCUMFERENTIAL CORRUGATIONS AT EACH END USE ENDWALL CONNECTION DETAILS 1, 2 OR 3.

CONNECTION DETAILS



SECTION A-A

GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

CONCRETE CULVERT ENDWALLS MAY NOT BE USED WITH GALVANIZED STEEL OR ALUMINUM CULVERT PIPE OR VISE VERSA. GALVANIZED STEEL OR ALUMINUM ENDWALLS SHALL NORMALLY BE INSTALLED ON CULVERT PIPE OF THE SAME METAL.

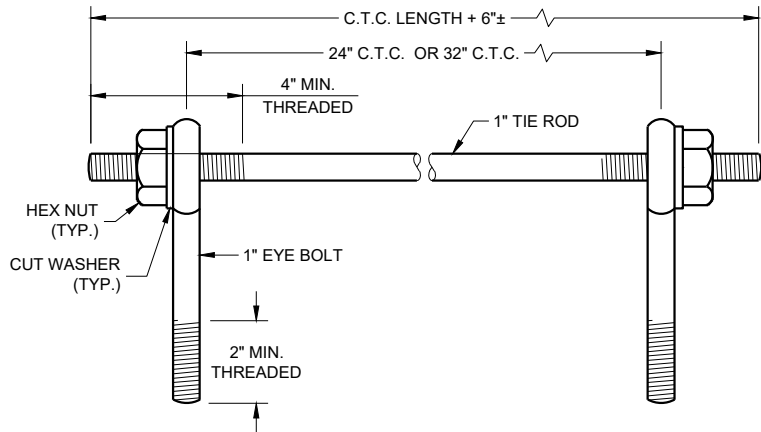
ALL THREE PIECE STEEL APRON ENDWALLS FOR 60" DIAMETER PIPE AND LARGER SHALL HAVE 0.109" SIDES AND 0.138" CENTER PANELS. ALL THREE PIECE ALUMINUM APRON ENDWALLS FOR 60" DIAMETER PIPE AND LARGER SHALL HAVE 0.105" SIDES AND 0.134" CENTER PANELS. THE WIDTH OF CENTER PANELS SHALL BE GREATER THAN 20 PERCENT OF THE PIPE PERIMETER.

LAP SEAMS SHALL BE TIGHTLY JOINED BY GALVANIZED RIVETS OR BOLTS FOR STEEL UNITS AND ALUMINUM RIVETS AND BOLTS FOR ALUMINUM UNITS. FOR THE 60" THROUGH 96" DIAMETER APRON ENDWALL SIZES, THE REINFORCED EDGES AND CENTER PANEL SEAMS SHALL BE FURTHER REINFORCED WITH GALVANIZED STEEL OR ALUMINUM STIFFENER ANGLES. THE ANGLES SHALL BE ATTACHED BY GALVANIZED NUTS AND BOLTS FOR STEEL UNITS AND ALUMINUM NUTS AND BOLTS FOR ALUMINUM UNITS.

WHERE TWO OR MORE PIPES WITH APRON ENDWALLS ARE LAID ADJACENT TO EACH OTHER, THEY SHALL BE SEPARATED BY A DISTANCE SUFFICIENT TO PROVIDE A MINIMUM CLEARANCE OF 6 INCHES BETWEEN APRON ENDWALLS.

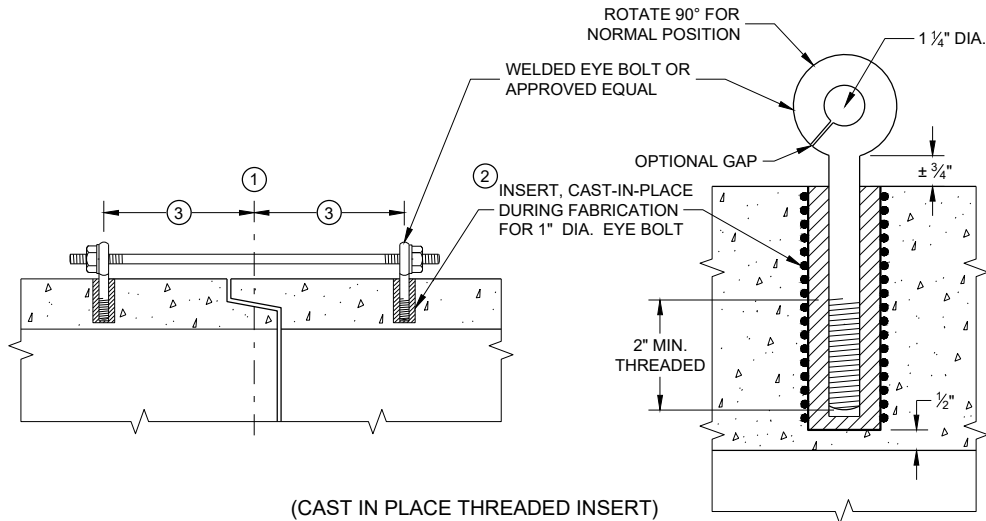
① FOR PIPE SIZES UP TO 60" DIAMETER, A 180° ROLLED EDGE MAY BE USED INSTEAD OF STEEL ROD REINFORCEMENT. SEE SECTION A-A.

APRON ENDWALLS FOR CULVERT PIPE			
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
APPROVED 11/30/94 DATE	/S/ Rory L. Rhinehart CHIEF ROADWAY DEVELOP	115	NEER
FHWA			



EYE BOLTS AND TIE ROD

EYE BOLT AND TIE ROD ASSEMBLY (ALTERNATE NO. 1)



(CAST IN PLACE THREADED INSERT)

LONGITUDINAL SECTIONS

GENERAL NOTES

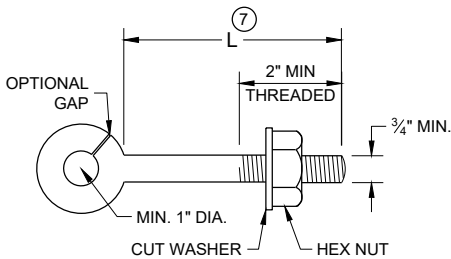
DETAILS OF CONSTRUCTION, MATERIALS, AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.

CONCRETE CULVERT AND STORM SEWER PIPE SHALL BE TIED TOGETHER IN THE MANNER ILLUSTRATED BY THIS DETAIL AT LOCATIONS DESIGNATED IN THE STANDARD SPECIFICATIONS AND THE PLAN. THE CONTRACTOR MAY USE EITHER ALTERNATE 1, 2 OR 3 FOR DRAINAGE STRUCTURES. ONLY ALTERNATE 1 AND 3 MAY BE USED FOR CATTLE PASSES, UNLESS OTHERWISE STATED IN THE CONTRACT. THE MATERIALS, FABRICATION AND WORK NECESSARY TO TIE THE PIPE BY THIS DETAIL WILL BE CONSIDERED INCIDENTAL TO THE PIPE AND APRON ENDWALLS IF REQUIRED.

DETAILED DRAWINGS FOR PROPOSED ALTERNATE DESIGNS FOR JOINT TIES SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL.

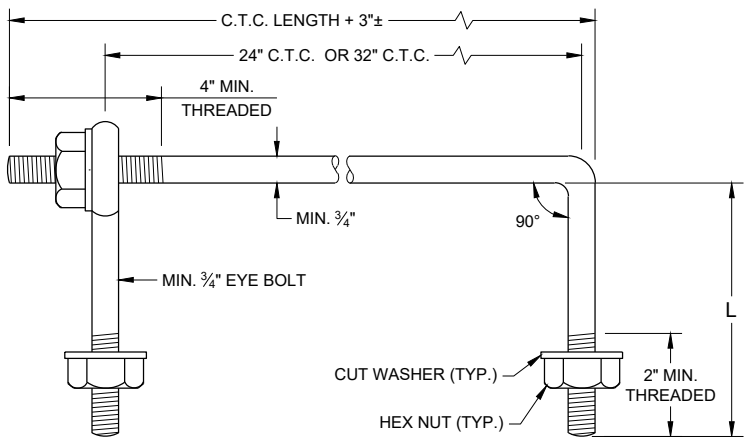
JOINT TIES TO BE HOT-DIP GALVANIZED PER ASTM A 153.

- 1 CENTER LINE OF TONGUE AND GROOVE OR BELL AND SPIGOT JOINTS.
- 2 THE INSIDE OF THE THREADED INSERTS SHALL BE CLEAN TO ALLOW THE INSERTION OF THREADED EYE BOLTS.
- 3 HOLES SHALL BE CAST-IN-PLACE OR DRILLED PER THE APPLICABLE DETAIL, AND EQUAL DISTANCE FROM THE CENTERLINE OF THE JOINT.
- 4 BOLT PROJECTION INSIDE OF PIPE SHALL NOT EXCEED 2 INCHES.
- 5 OPENING TO BE ROD DIAMETER PLUS 1 INCH.
- 6 LENGTH ADEQUATE TO EXTEND TO WITHIN 1/2 INCH OF THE INNER SURFACE OF THE PIPE.
- 7 EYE BOLT LENGTH DETERMINED BY WALL THICKNESS, BELL THICKNESS AND BOLT PROJECTION INSIDE PIPE.

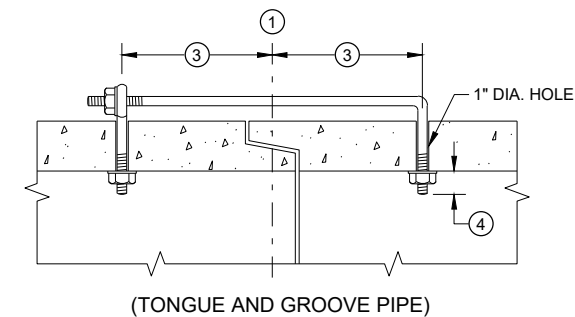


EYE BOLT 7

NOTE: TWO EYE BOLTS MAY BE USED WITH A 30" OR 38" LONG THREADED ROD IN LIEU OF THE 90° BENT TIE ROD.



EYE BOLT AND TIE ROD

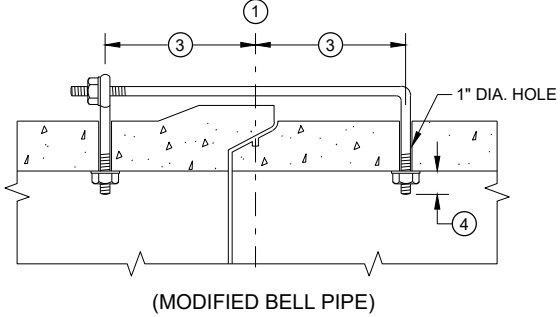


(TONGUE AND GROOVE PIPE)

LONGITUDINAL SECTION

(JOINT TIES FOR 18" TO 66" DIA. CONCRETE PIPE)

EYE BOLT AND TIE ROD ASSEMBLY (ALTERNATE NO. 2)

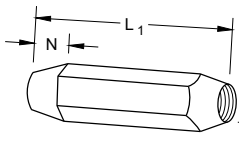


(MODIFIED BELL PIPE)

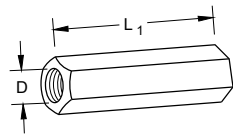
ADJUSTABLE TIE ROD TABLE

PIPE DIAMETER	TIE ROD DIAMETER	D	L ₁	N
12 - 60	5/8	5/8	5	1/2
66 - 84	3/4	3/4	5	1/2
90 - 144	1	1	7	1 1/16

DIMENSIONS SHOWN ARE IN INCHES

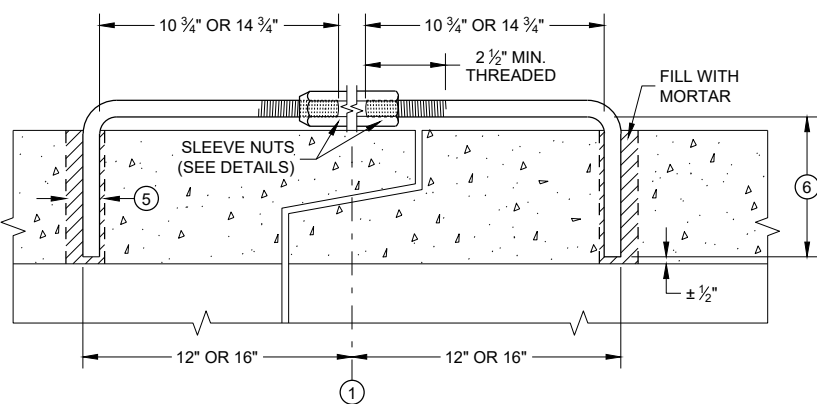


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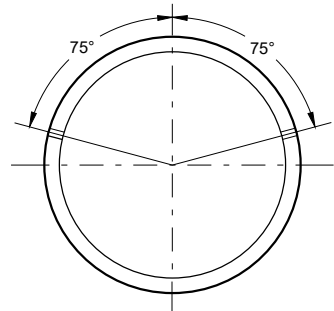
PLAIN

RIGHT AND LEFT THREADS
SLEEVE NUTS



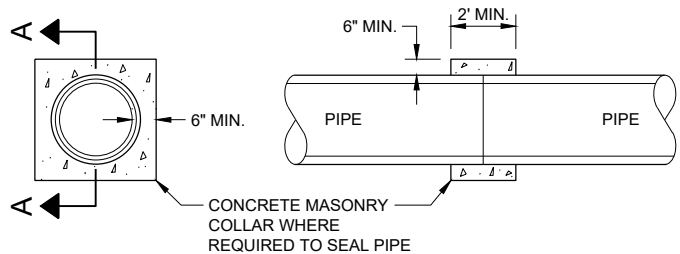
LONGITUDINAL SECTION

ADJUSTABLE TIE ROD (ALTERNATE NO. 3)



PLACEMENT OF (2) CAST-IN-PLACE INSERTS OR HOLES DURING FABRICATION FOR PIPE SECTIONS REQUIRING TIE RODS

TRANSVERSE SECTION



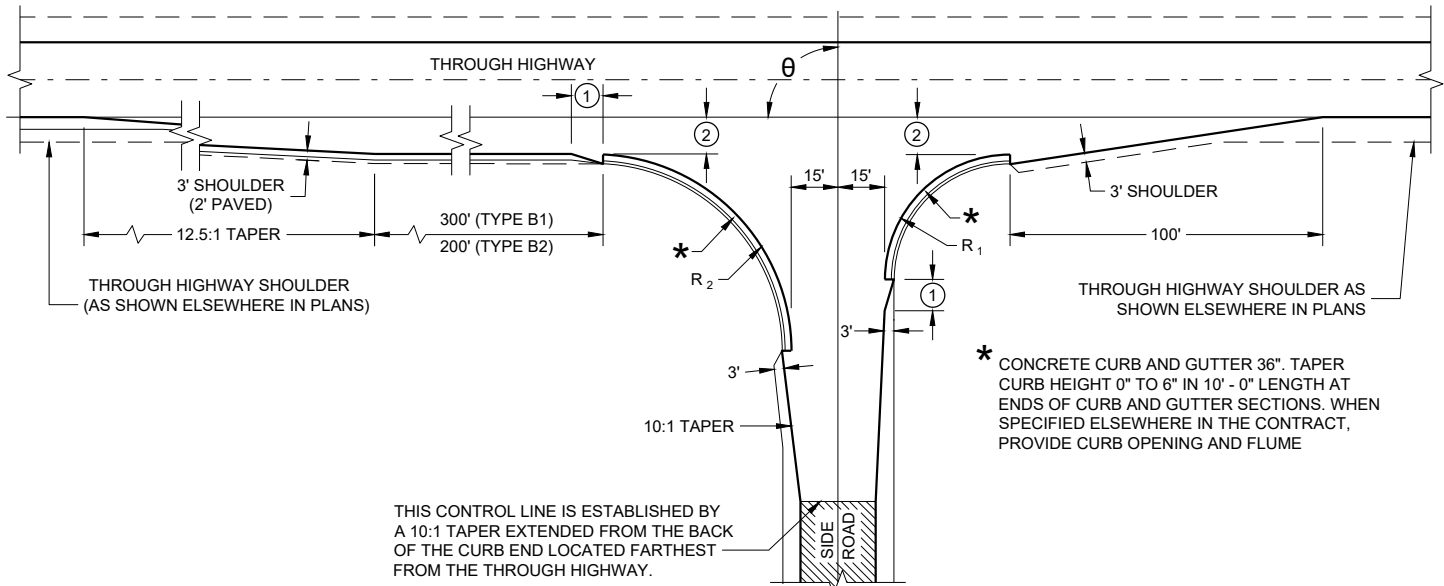
SECTION A - A

CONCRETE COLLAR DETAIL

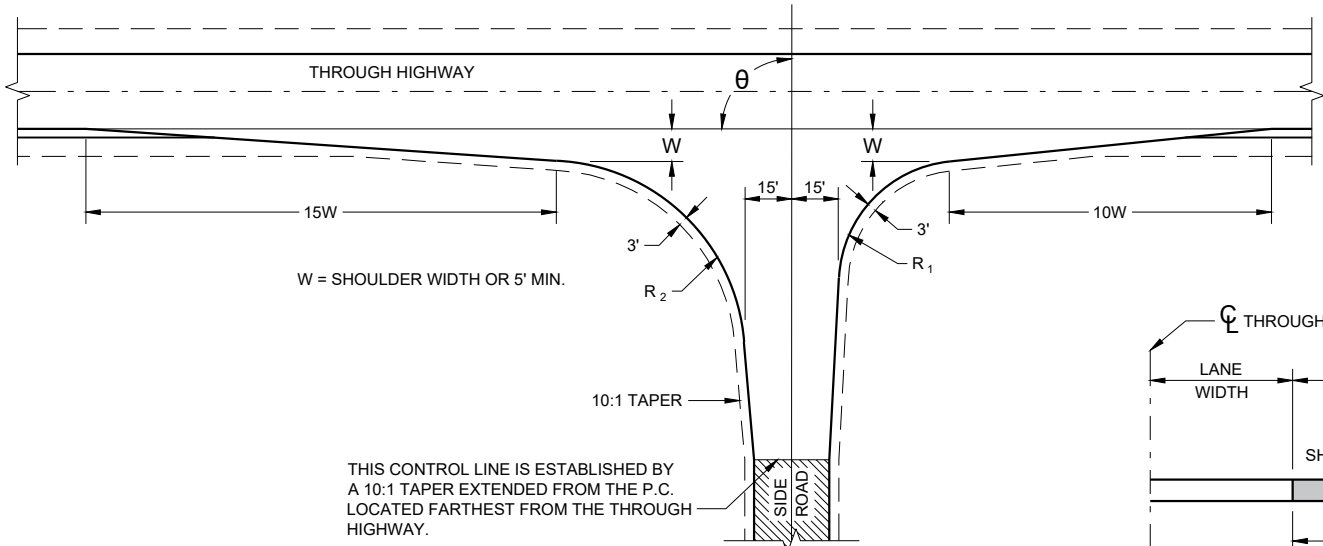
JOINT TIES FOR CONCRETE PIPE AND CONCRETE COLLAR DETAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

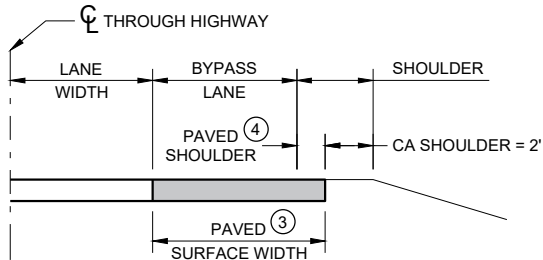
APPROVED
November 2021 /S/ Rodney Taylor
DATE ROADWAY STANDARDS DEVELOPMENT ENGINEER
FHWA



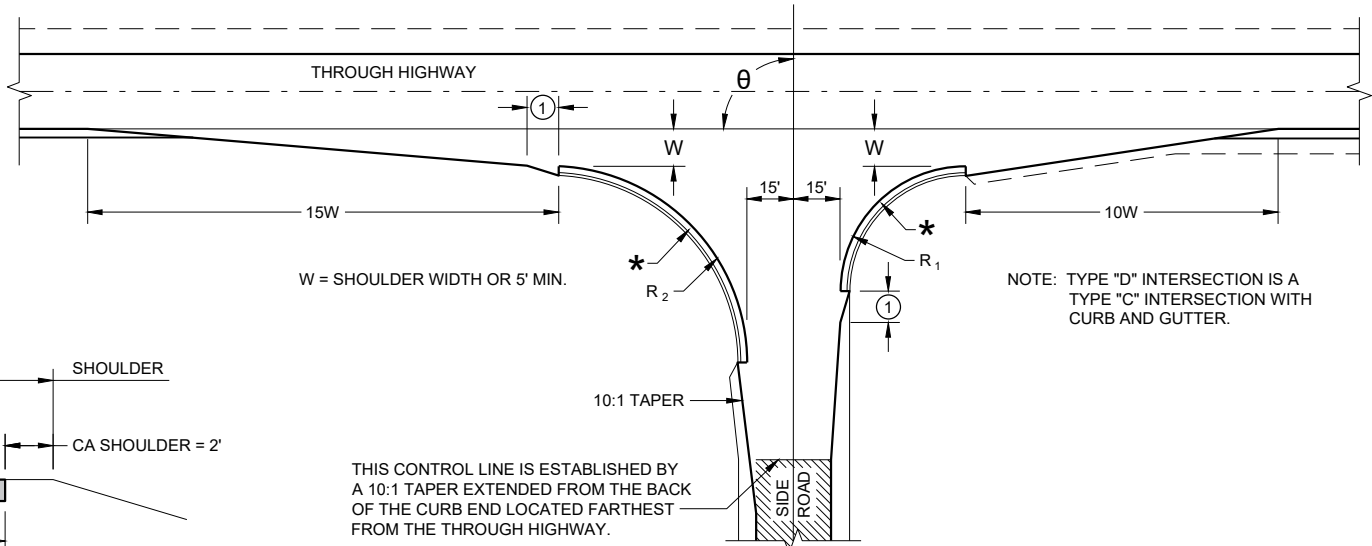
TYPE "B1" AND "B2"



TYPE "C"



SECTION A - A
(SHOWING BYPASS LANE AND SHOULDER)



TYPE "D"

RADII DIMENSIONS FOR TYPES "B1", "B2", "C" AND "D" INTERSECTIONS

θ	R_1	R_2
65 - 70	35	70
71 - 80	40	70
81 - 90	40	60
91 - 100	50	55
101 - 110	60	45

GENERAL NOTES

DESIGNS MAY BE USED INTERCHANGEABLY IN COMBINATION OR SEPARATELY FOR ANY ONE COMPLETE INTERSECTION DEPENDING UPON INTERSECTION ANGLE AND SURFACING OF EACH APPROACH ROADWAY.

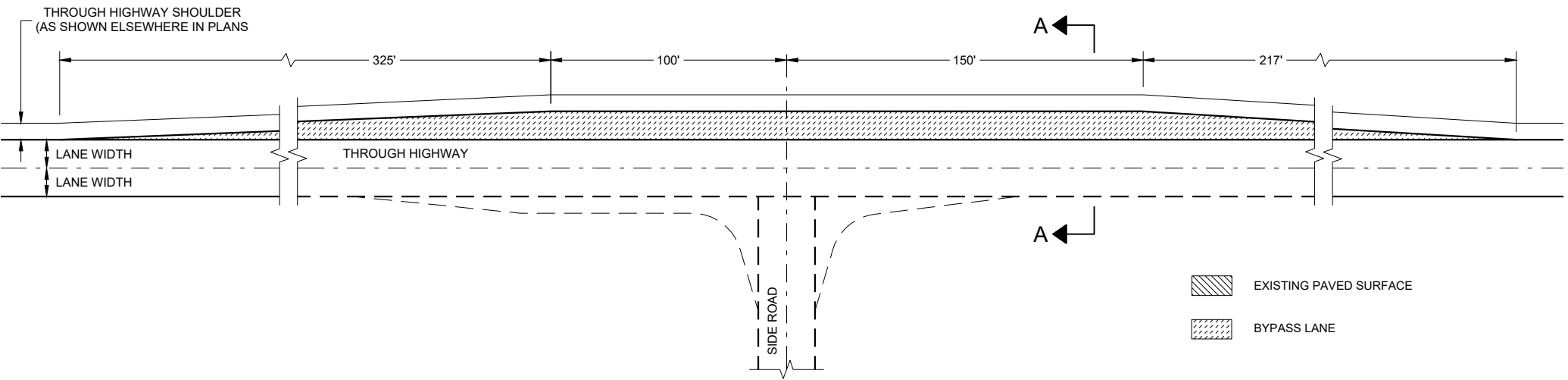
SIDE ROAD SURFACING NOTE

WHEN THE SIDE ROAD IS NOT PRESENTLY PAVED, PAVEMENT SHALL BE PLACED TO THE LIMITS SHOWN UNLESS OTHERWISE PROVIDED IN THE CONTRACT. WHERE THE CONSTRUCTION LIMITS ARE BEYOND THE PAVING LIMITS, CRUSHED AGGREGATE SURFACING SHALL BE PLACED BETWEEN THE PAVING LIMITS AND CONSTRUCTION LIMITS.

WHEN THE SIDE ROAD IS PRESENTLY PAVED, NEW PAVEMENT SHALL BE PLACED TO THE LIMITS OF DESIGN AS SHOWN AND BEYOND, IF NECESSARY, TO MEET EXISTING PAVEMENT.

WHEN THE SIDE ROAD IS THE CONSTRUCTION PROJECT, THE INTERSECTION SURFACING SHALL BE THE SAME AS FOR THE PROJECT.

- ① 10-FT TYPICAL.
- ② 12-FT** PLUS ADDITIONAL WIDTH FOR BIKE LANE IF SHOWN ELSEWHERE IN THE PLAN.
** 10-FT MAY BE USED ON TYPE B2 ON RESURFACING PROJECTS IF SPECIFIED IN THE CONTRACT.
- ③ BYPASS LANE PAVED SURFACE WIDTH OUTSIDE OF TRAVEL LANE
- ASPHALT = 12-FT PLUS PAVED SHOULDER WIDTH
- PC CONCRETE = 13-FT PLUS PAVED SHOULDER WIDTH
- ④ BYPASS LANE PAVED SHOULDER WIDTH = THE GREATER OF 1-FT OR THE PAVED SHOULDER WIDTH OF THE THROUGH HIGHWAY.

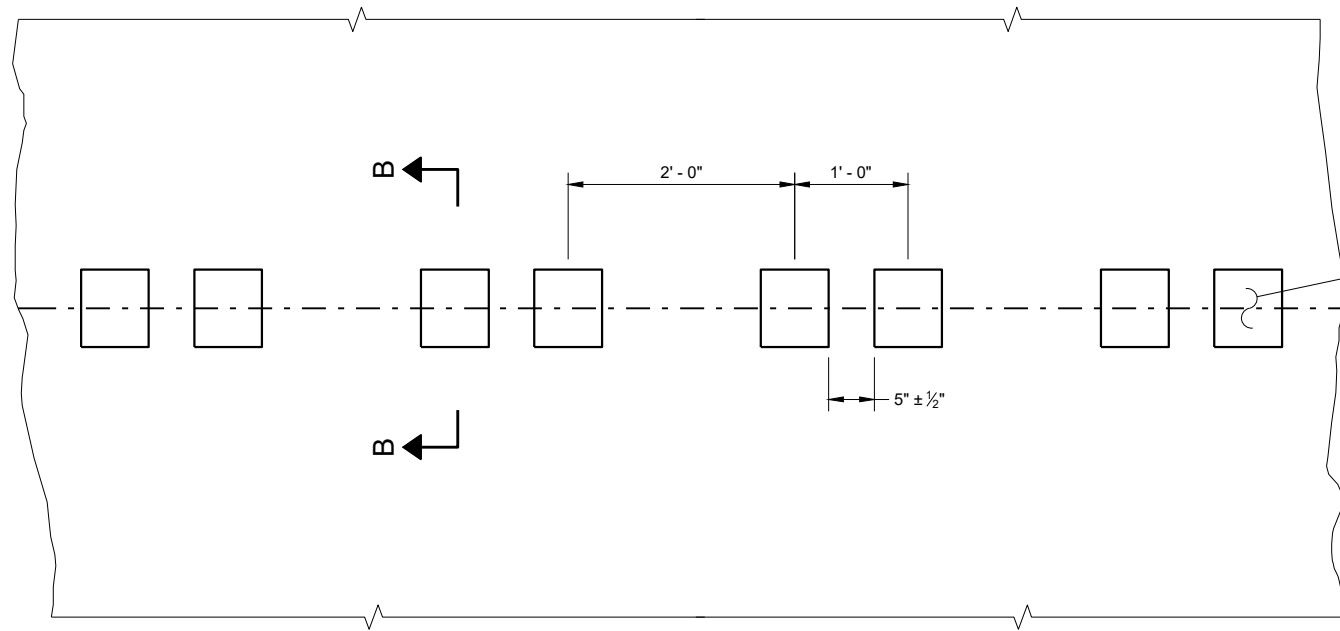


TEE INTERSECTION BYPASS LANE DETAIL

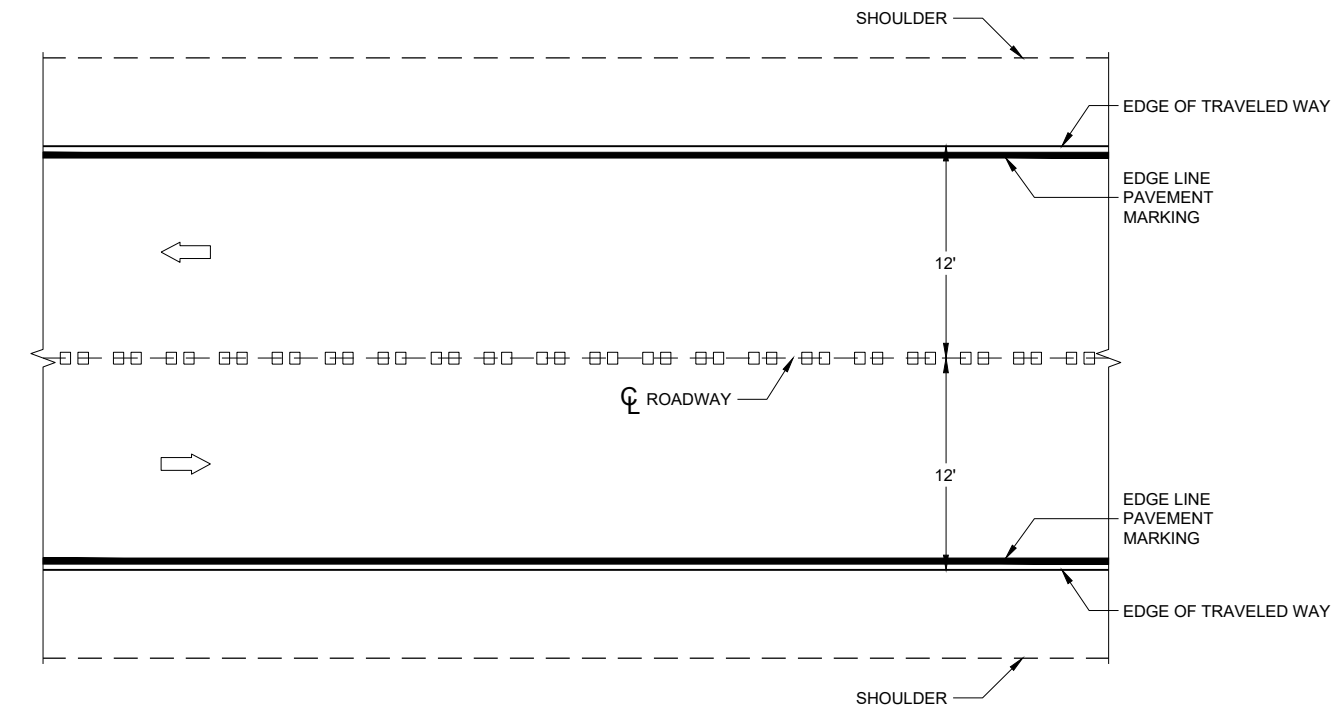
- EXISTING PAVED SURFACE
- BYPASS LANE

**AT GRADE SIDE ROAD
INTERSECTION TYPES "B1",
"B2", "C", "D" AND TEE
INTERSECTION BYPASS LANE**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION 117

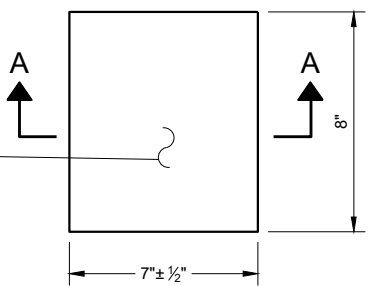


PLAN DETAIL VIEW

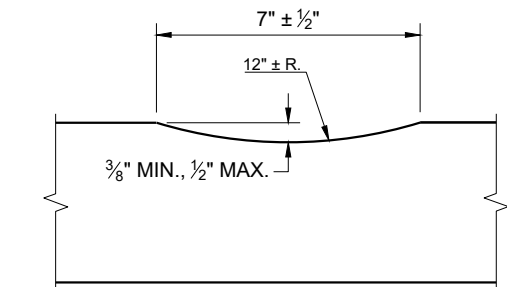


PLAN VIEW

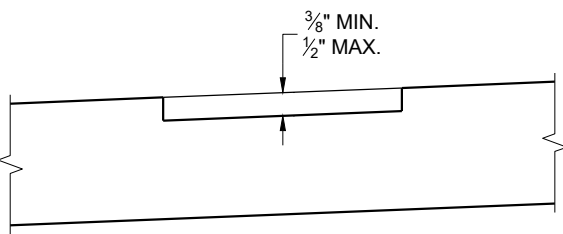
CENTERLINE RUMBLE STRIPS - ASPHALT



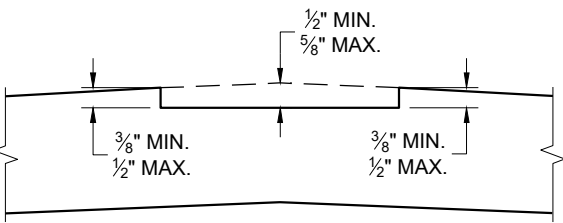
PLAN VIEW
(SINGLE GROOVE)



SECTION A - A



SECTION B - B
SUPERELEVATED ROADWAY

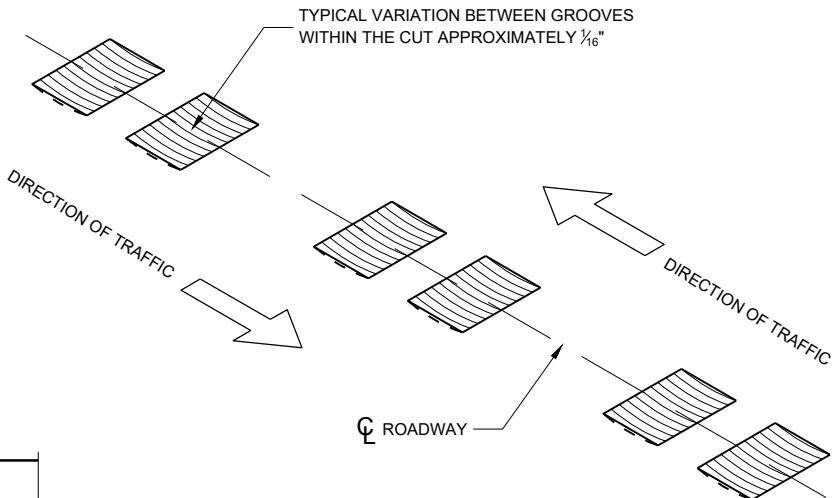


SECTION B - B
CROWNED ROADWAY

GENERAL NOTES

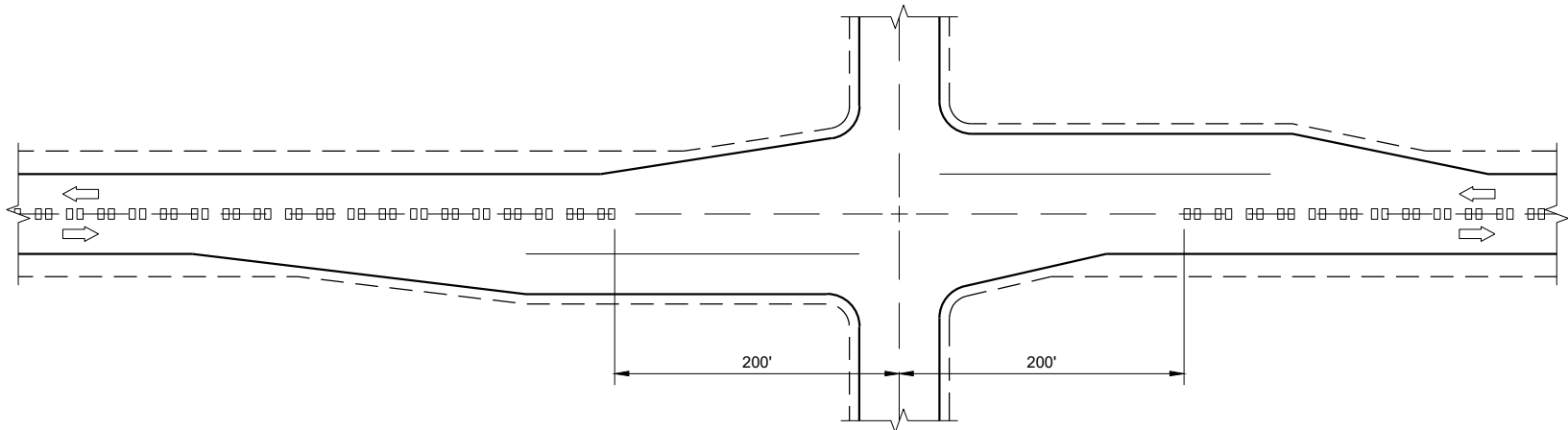
DO NOT MILL SHOULDER GROOVES THROUGH INTERSECTIONS, MARKED CROSSWALKS, NON-MOTORIZED PATH CROSSINGS, ETC. REFER TO SDD 13A11 SHEETS "d" AND "e".

CENTERLINE GROOVES MAY BE OMITTED IN AREAS WITH HIGH CONCENTRATIONS OF DRIVEWAYS WHEN DIRECTED BY THE ENGINEER.

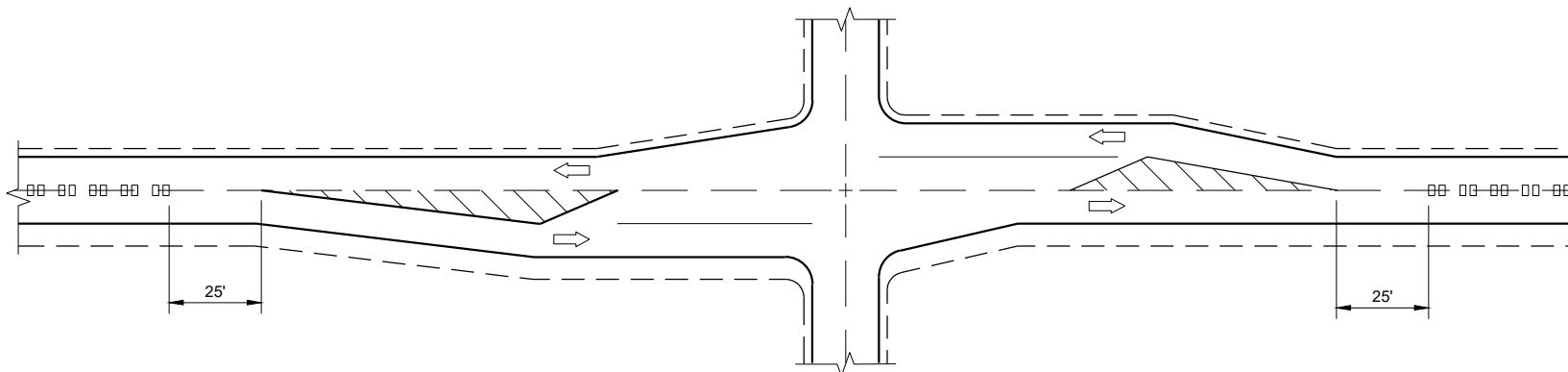


CENTERLINE RUMBLE
STRIPS - ASPHALT

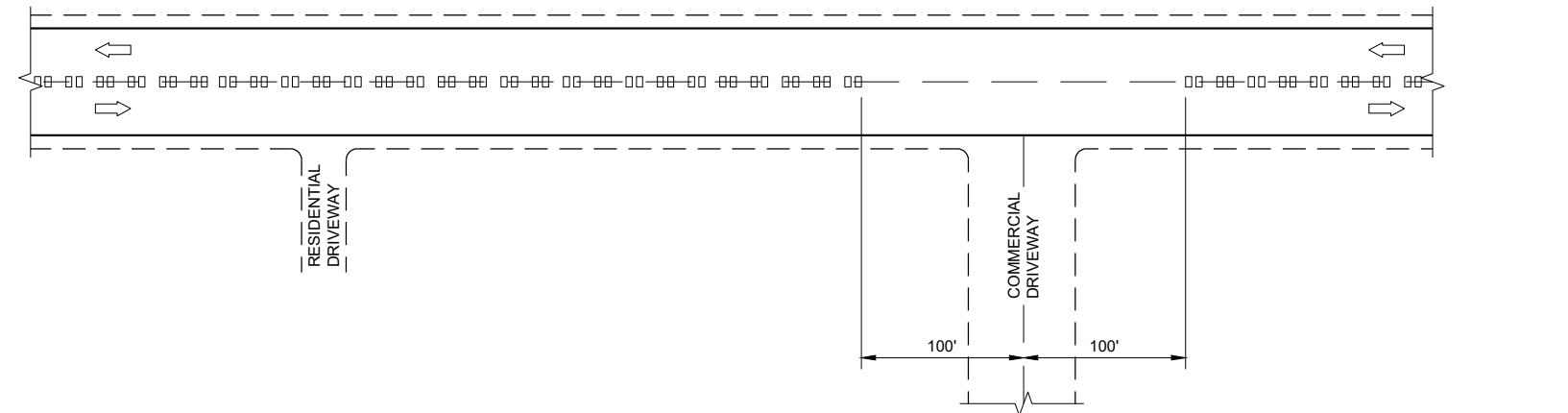
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



CENTERLINE GROOVES AT INTERSECTIONS



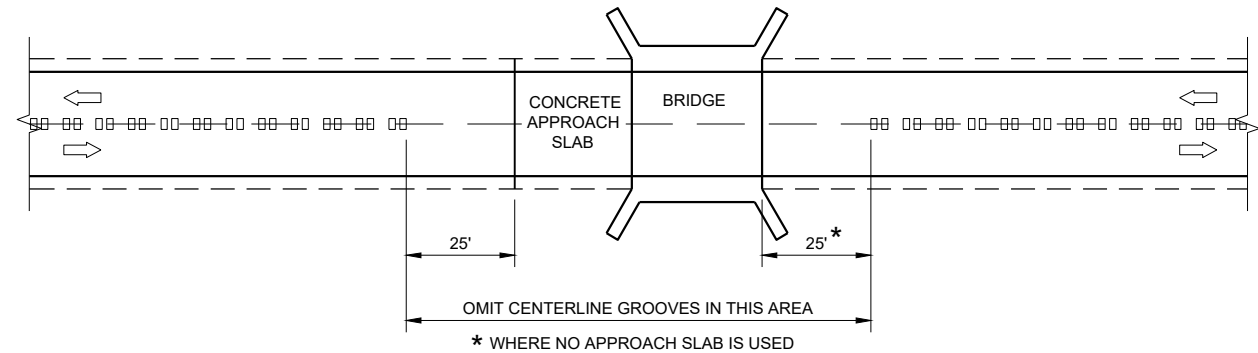
CENTERLINE GROOVES AT INTERSECTIONS
(WITH LEFT TURN LANES)



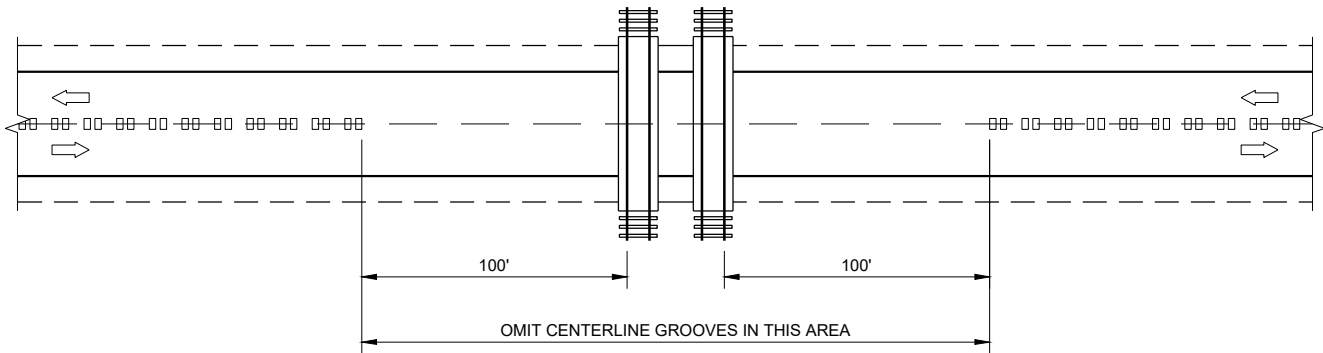
CENTERLINE GROOVES AT DRIVEWAYS^①

GENERAL NOTES

- ① CENTERLINE GROOVES MAY BE OMITTED IN AREAS WITH HIGH CONCENTRATIONS OF DRIVEWAYS WHEN DIRECTED BY THE ENGINEER.



CENTERLINE GROOVES AT BRIDGES

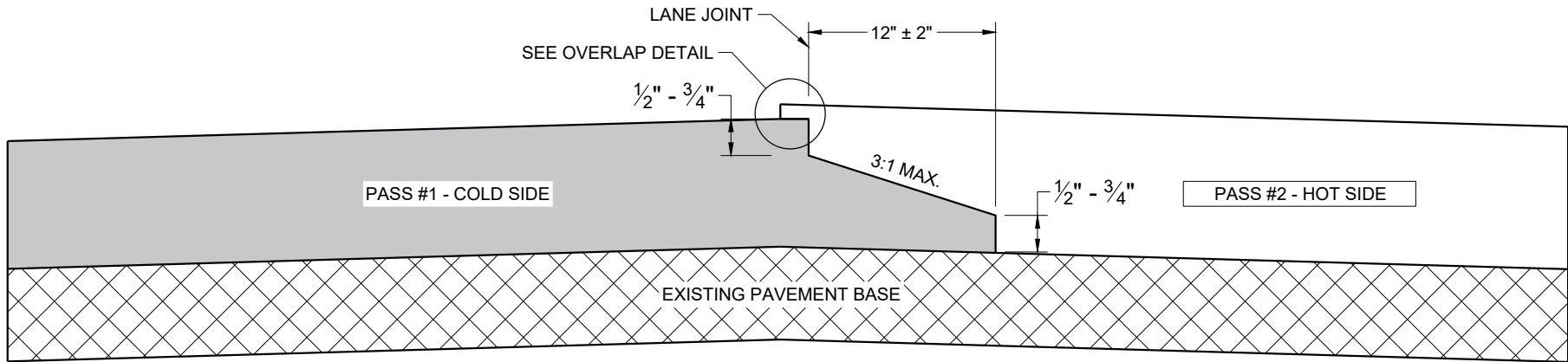


CENTERLINE GROOVES AT RAILROADS

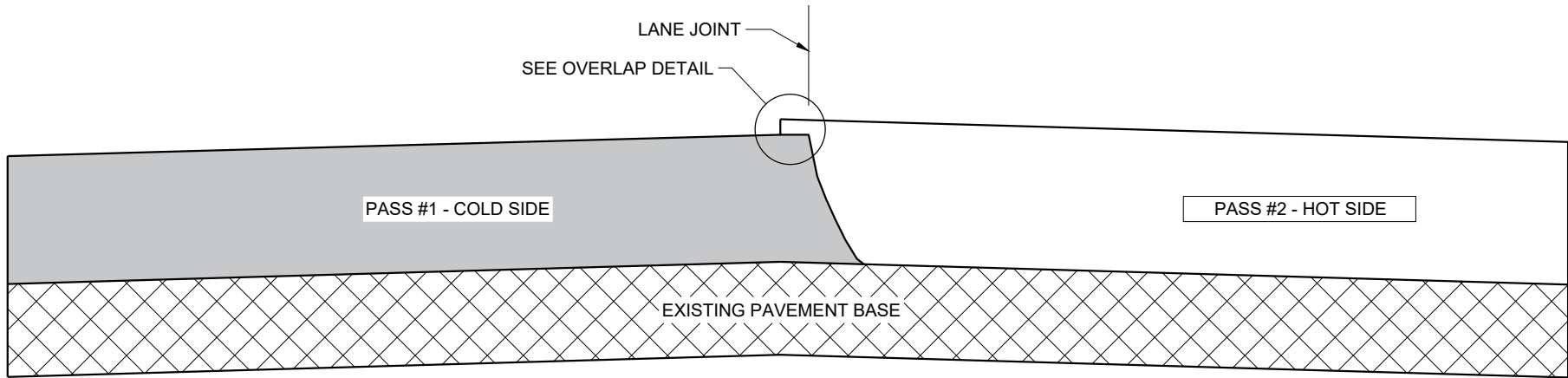
CENTER LINE
RUMBLE STRIPS -
INTERSECTIONS, DRIVEWAYS,
BRIDGES, RAIL ROADS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

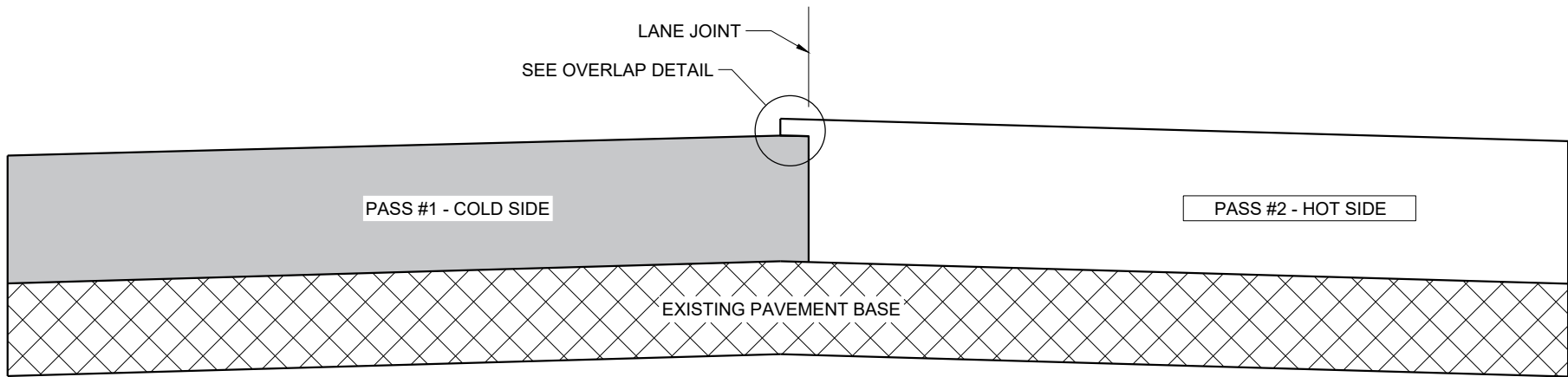
APPROVED
May 2023
DATE
/S/ John Jenkins
ROADWAY STANDARDS DEVELOPMENT ENGINEER



TYPICAL PAVEMENT CROSS SECTION
NOTCHED WEDGE JOINT



TYPICAL PAVEMENT CROSS SECTION
VERTICAL JOINT



TYPICAL PAVEMENT CROSS SECTION
VERTICAL JOINT (MILLED)

GENERAL NOTES

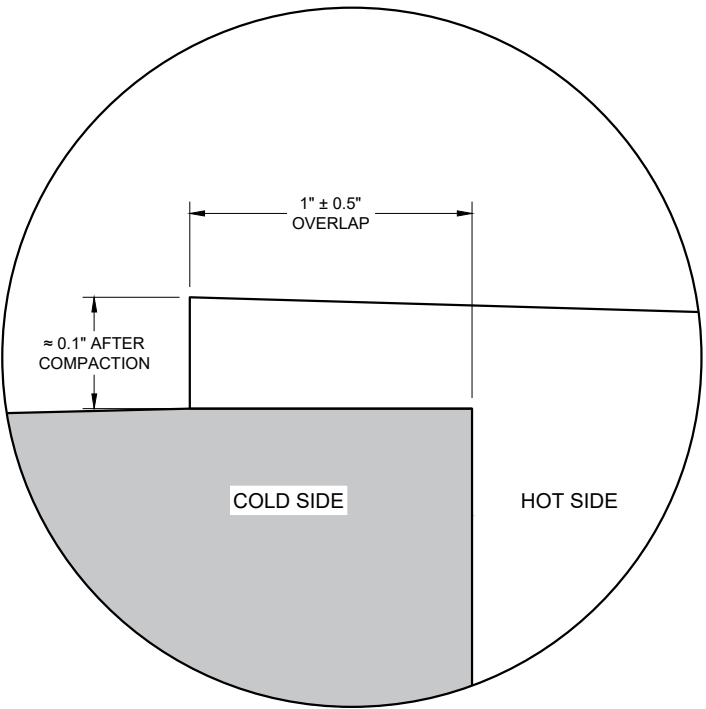
IN ADDITION TO THE DETAILS PROVIDED IN THIS DRAWING, CONFORM TO STANDARD SPECIFICATION 450.3.2.8 FOR WHEN A NOTCHED WEDGE JOINT IS REQUIRED AND FOR GENERAL JOINT CONSTRUCTION REQUIREMENTS.

FOR ALL LONGITUDINAL JOINTS, ENSURE THE PAVER SCREED OVERLAPS THE PREVIOUSLY PLACED PAVEMENT BY $1" \pm 0.5"$ AND THE HOT SIDE OF THE JOINT REMAINS HIGHER THAN THE COLD SIDE BY APPROXIMATELY $0.1"$ AFTER FINAL COMPACTION. (IT WILL BE FLUSH WHEN PAVING IN ECHELON.)

ONLY REMOVE THE LONGITUDINAL NOTCHED WEDGE JOINT FOR SMA PAVEMENT OR AS DIRECTED BY THE ENGINEER TO ADDRESS SPECIFIC LENGTHS OF JOINT DAMAGED BY TRAFFIC.

WHEN MILLING BACK OR REMOVING ANY LONGITUDINAL JOINT, LIMIT THE MATERIAL REMOVED TO $2"$ FROM THE TOP NOTCH OR FROM THE VERTICAL JOINT EDGE ON THE COLD SIDE OF THE JOINT.

USE LONGITUDINAL MILLED JOINT AS PLANS SHOW OR THE AS THE ENGINEER DIRECTS.

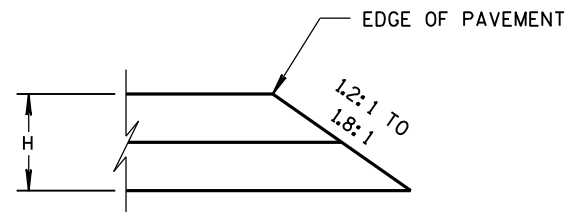


OVERLAP DETAIL (TYPICAL)

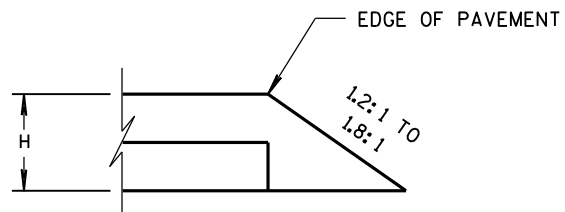
HMA LONGITUDINAL JOINTS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

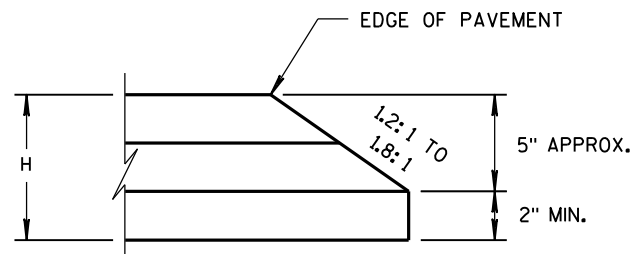
APPROVED
November 2020 /S/ Steven Hefel
DATE HMA PAVEMENT ENGIN 120
FHWA



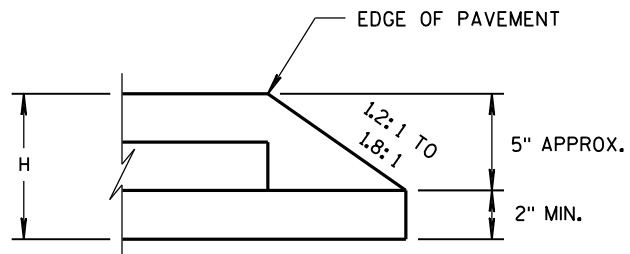
CONSTRUCTED WITH FINAL TWO LAYERS
FOR H 5" OR LESS



CONSTRUCTED WITH FINAL LAYER
FOR H 5" OR LESS

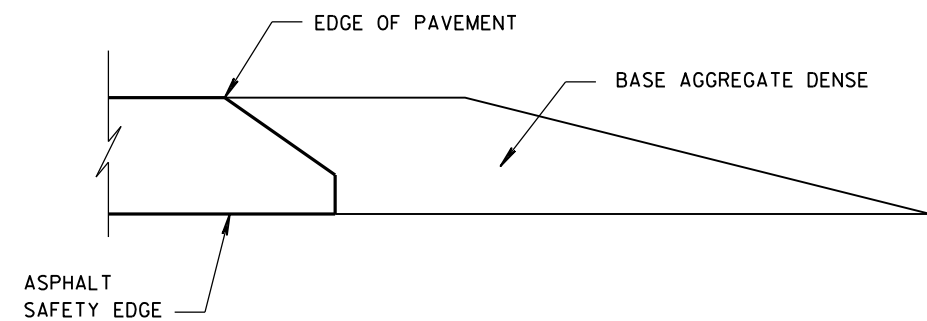


CONSTRUCTED WITH FINAL TWO LAYERS
FOR H GREATER THAN 5"



CONSTRUCTED WITH FINAL LAYER
FOR H GREATER THAN 5"

HMA PAVEMENT AND HMA OVERLAYS



FINISHED SHOULDER AGGREGATE PLACEMENT

SAFETY EDGE_{SM}

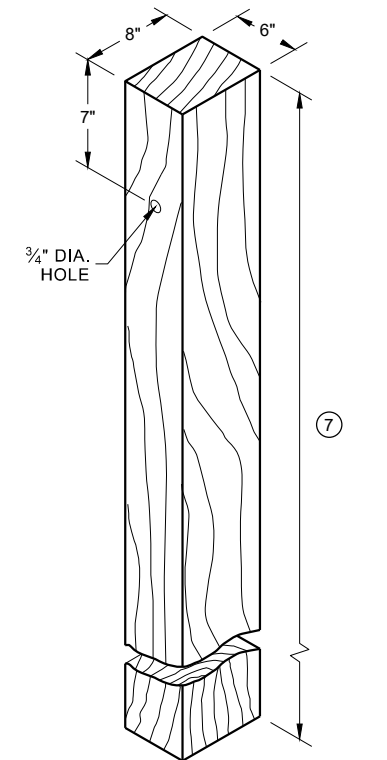
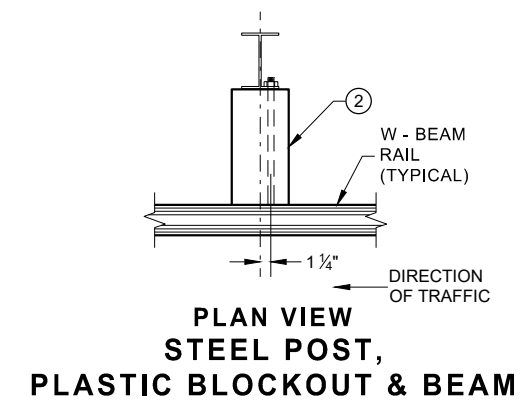
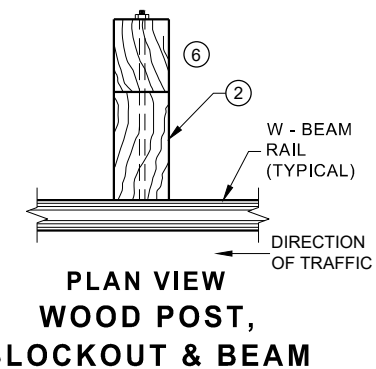
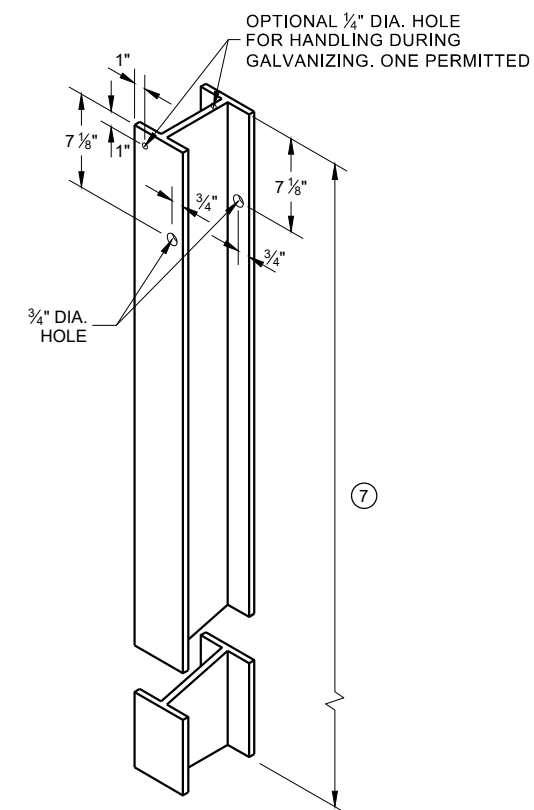
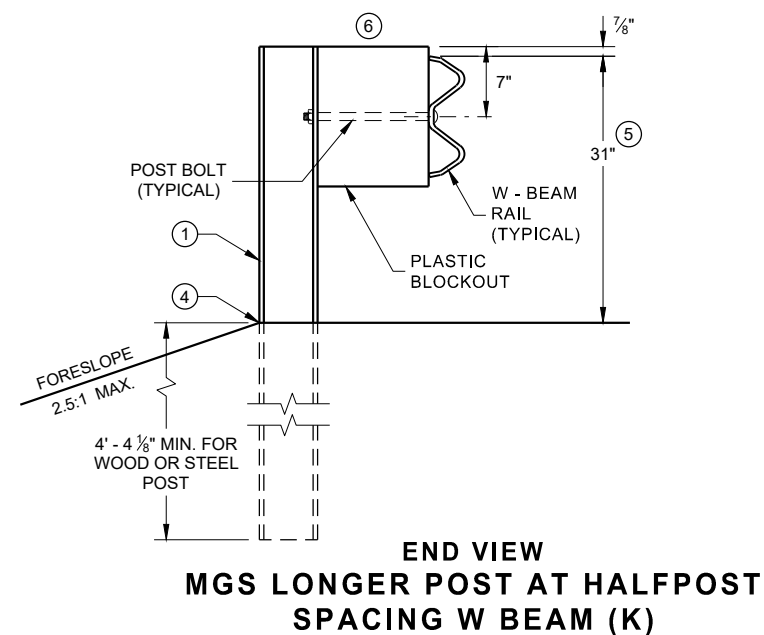
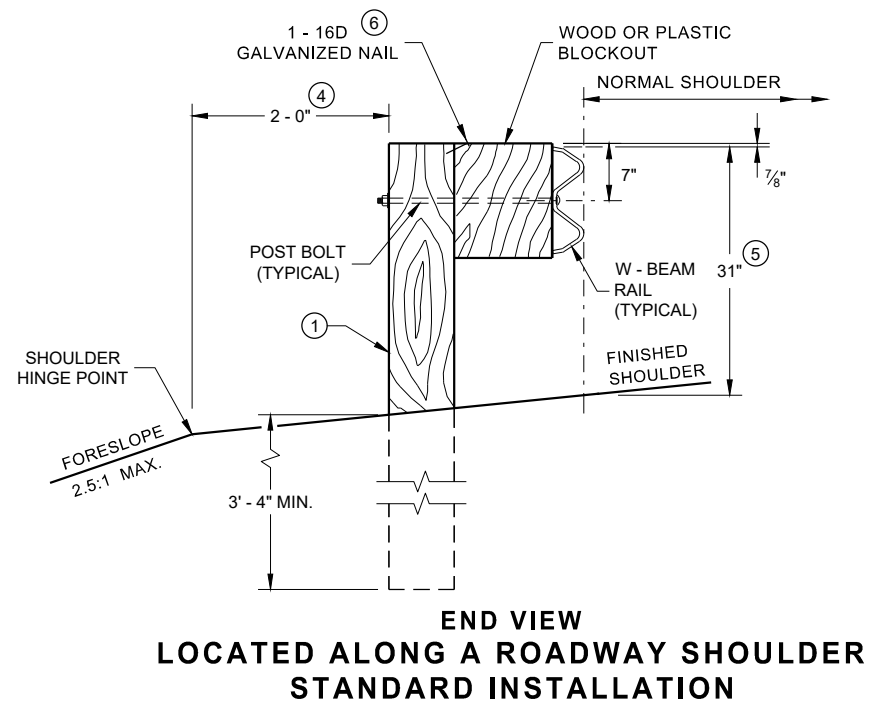
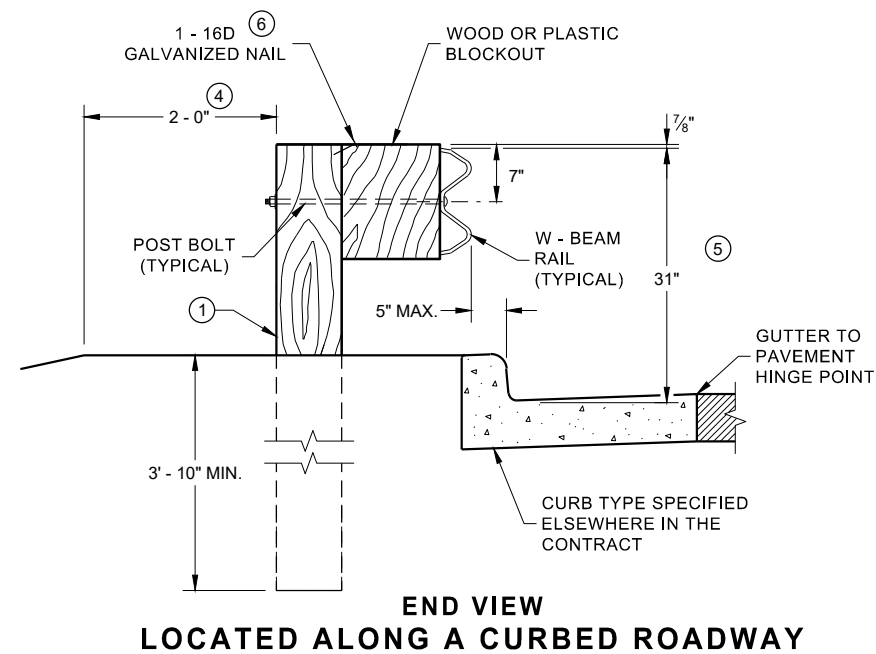
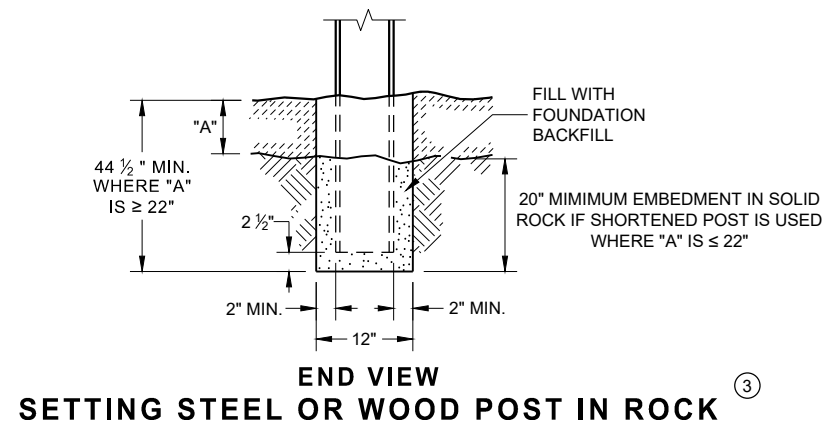
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
DATE 11/30/2012

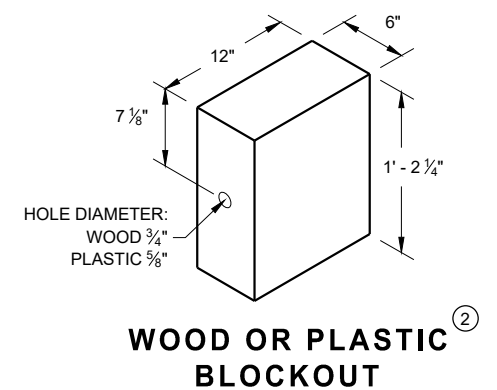
/s/ Jerry H. Zoaga
ROADWAY STANDARDS ENGINEER 121 ENT

FHWA

- ① WOOD OR STEEL POSTS (w6X9 OR w6X8.5) MAY BE USED. DO NOT INTERMIX WOOD AND STEEL POSTS. INSTALL STEEL POSTS WITH HOLES ON APPROACHING TRAFFIC SIDE.
- ② USE WOOD OR APPROVED PLASTIC BLOCKOUTS. WOOD BLOCKOUTS MAY BE CONSTRUCTED OUT OF TWO OR MORE WOOD BLOCKOUTS. SEE ALTERNATE WOOD BLOCKOUT DETAIL. DIMENSIONS OF APPROVED PLASTIC BLOCKOUTS MAY VARY.
- ③ IF ROCK IS ENCOUNTERED DURING EXCAVATION, PROVIDE A HOLE 12 INCHES IN DIAMETER EXTENDING 20 INCHES DEEP INTO THE ROCK. PLACE APPROXIMATELY 2 1/2" INCHES OF GRANULAR MATERIAL IN THE BOTTOM OF THE HOLE. CUT THE POSTS TO LENGTH AND INSTALL. BACKFILL WITH EXCAVATED MATERIAL AND COMPACT. BACKFILL IS TO BE FREE OF LARGE ROCKS.
- ④ WHEN THE DISTANCE FROM BACK OF POST TO SHOULDER HINGE POINT IS LESS THAN 2 FEET INSTALL LONGER POST AT HALF POST SPACING (K).
- ⑤ FOR NEW MGS INSTALLATION TOP OF W-BEAM RAIL TOLERANCE IS $\pm 1"$. FOR EXISTING MGS INSTALLATION TOP OF W-BEAM IS BETWEEN 27 3/4" TO 32".
- ⑥ WHEN USING STEEL POST AND WOOD BLOCKOUTS INSTALL FOUR 16D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.
- ⑦ TOTAL POST LENGTH FOR TYPE K IS 7' - 0".
TOTAL POST LENGTH FOR OTHER MGS TYPES IS 6' - 0".



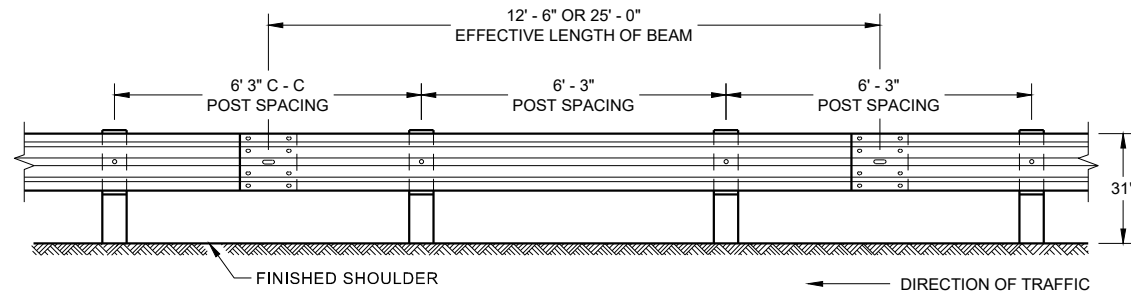
WOOD POST (6" X 8") NOMINAL ⁽¹⁾



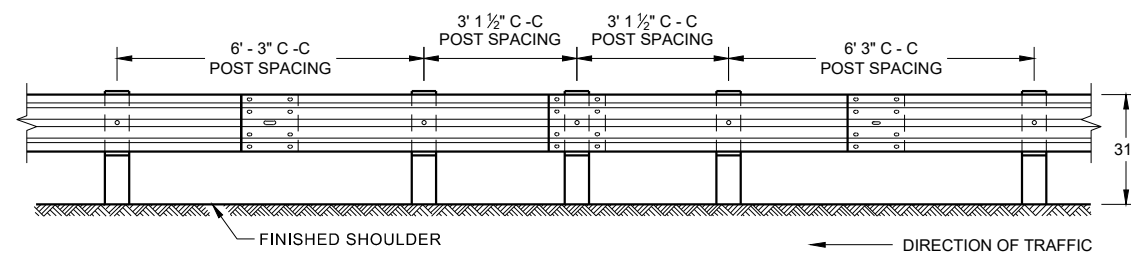
**WOOD OR PLASTIC
BLOCKOUT**

MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL

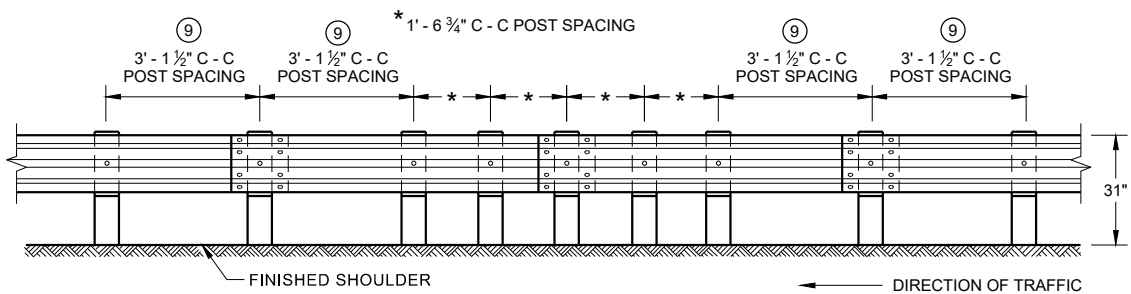
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION 122



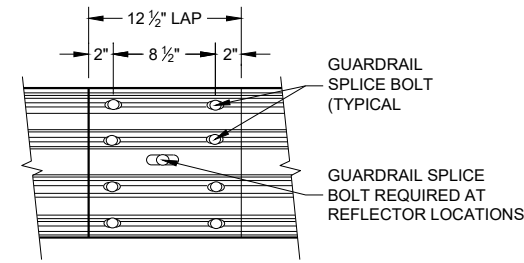
**FRONT VIEW
POST SPACING STANDARD INSTALLATION**



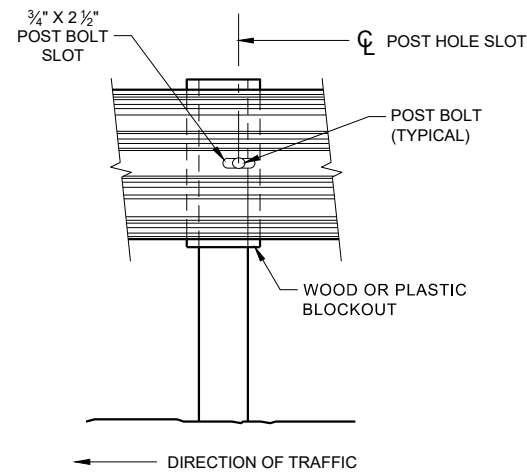
**FRONT VIEW
HALF POST SPACING (HS) AND
HALF POST SPACING WITH LONGER POSTS (K)**



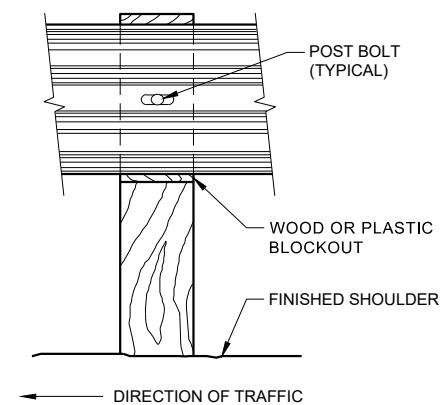
**FRONT VIEW
QUARTER POST SPACING (QS)**



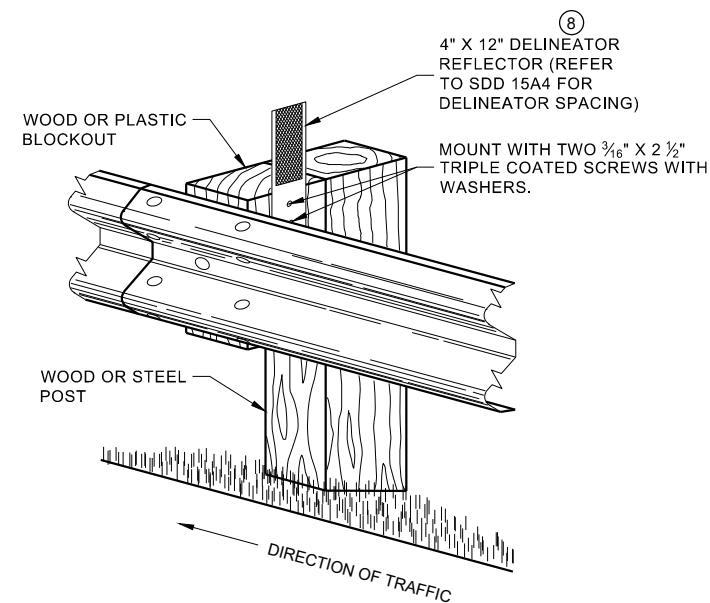
**FRONT VIEW
MID-SPAN BEAM SPLICE**



FRONT VIEW AT STEEL POST



FRONT VIEW AT WOOD POST



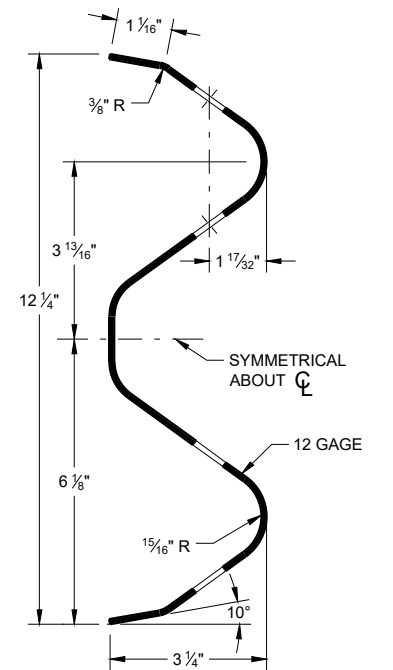
**ONE SIDED REFLECTOR DETAIL
AND TYPICAL INSTALLATION**

GENERAL NOTES

- 8 DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINAL.
- 9 25 FEET OF HALF POST SPACING IS REQUIRED ON APPROACH AND DEPARTURE ENDS OF QUARTER POST SPACING.

POST BOLTS ARE A 3/8" DIAMETER ASTM A307 GUARDRAIL BOLT. A POST BOLT REQUIRES 3/8" DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX NUT AND 3/8" DIAMETER F844 FLAT WASHER. POST BOLTS MAY BE LONGER IF MULTIPLE BLOCKOUTS ARE BEING USED.

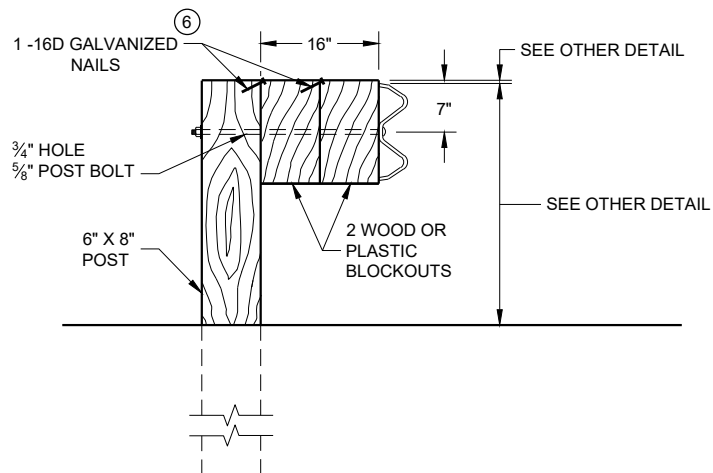
GUARD RAIL SPLICE BOLTS ARE A 3/8" DIAMETER ASTM A307 GUARDRAIL HEAD BOLT. A GUARDRAIL SPLICE BOLT REQUIRES 3/8" DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX NUT.



SECTION THRU W-BEAM RAIL

**MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL**

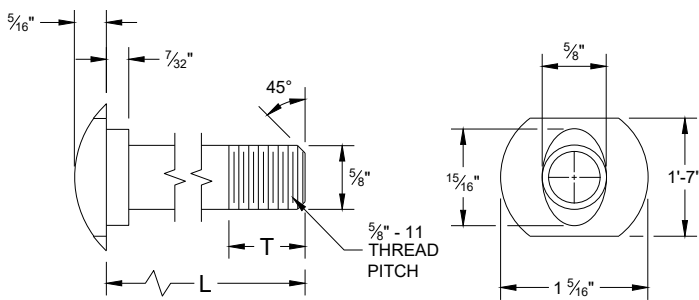
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION 123



DETAIL FOR 16" BLOCKOUT DEPTH

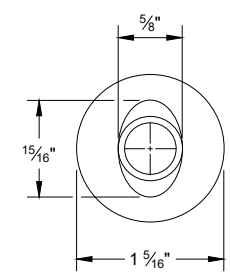
IT IS ACCEPTABLE TO USE BLOCKOUTS UP TO 16" DEEP TO INCREASE THE POST OFFSET TO AVOID UNDERGROUND OBSTACLES. THERE IS NO LIMIT TO THE NUMBER OF POSTS THAT CAN HAVE ADDITIONAL BLOCKOUTS UP TO 16" DEEP.

- NOTE:
- 1. ALL FILLETS SHALL HAVE A MINIMUM RADIUS OF 3/16".
 - 2. IF THE BOLT EXTENDS MORE THAN 1/4" FROM THE NUT THE BOLT SHOULD BE TRIMMED BACK.

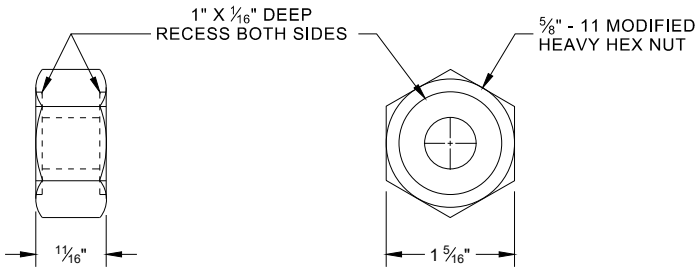


POST BOLT TABLE

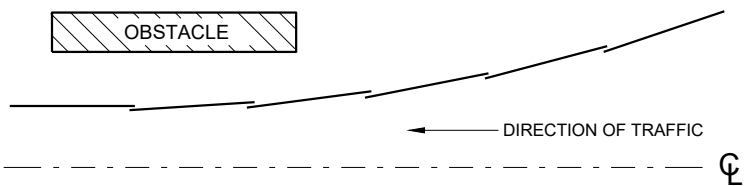
L	T (MIN.)
1 1/4"	1 1/8"
2"	1 3/4"
10"	4"
14"	4 1/16"
18"	4"
21"	4 1/16"
25"	4"



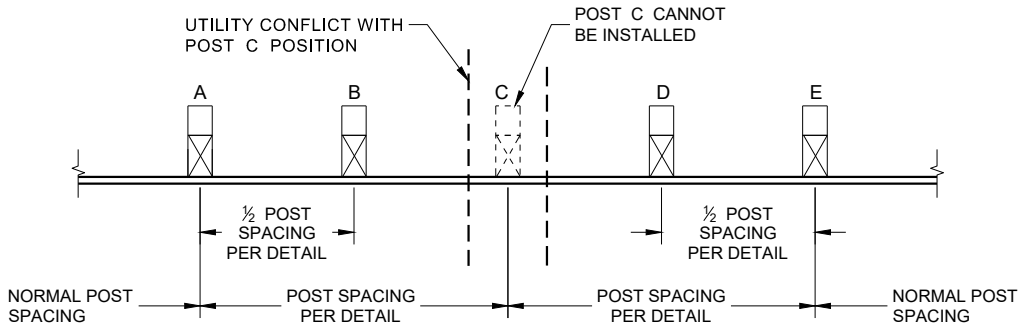
ALTERNATE BOLT HEAD



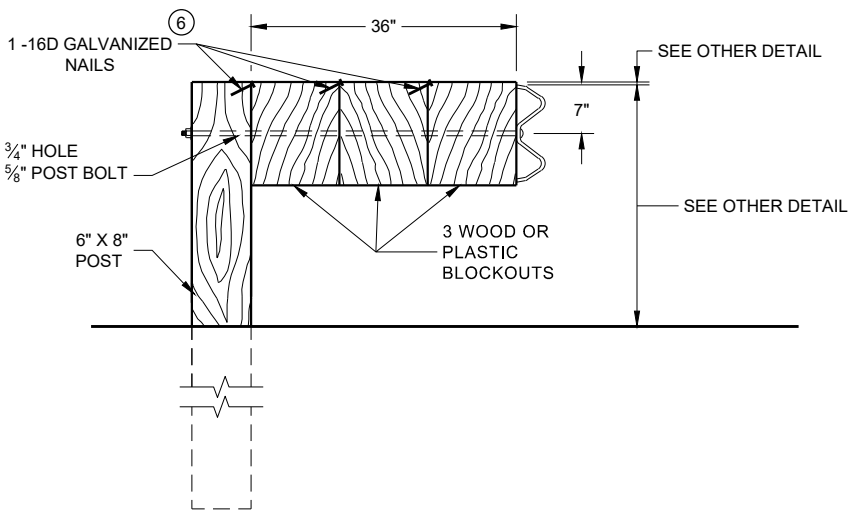
POST BOLT, SPLICE BOLT AND RECESS NUT



PLAN VIEW
BEAM LAPPING DETAIL



POST DRIVING FOR CONTINUOUS
UNDERGROUND OBSTRUCTION

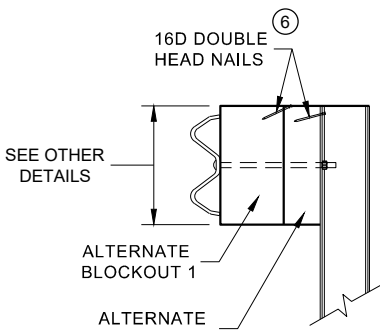


DETAIL FOR 36" BLOCKOUT DEPTH

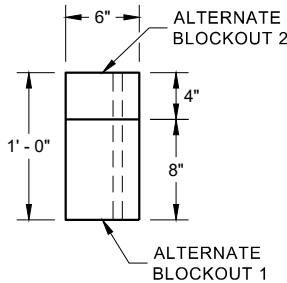
NOTES: UNDER SPECIAL CIRCUMSTANCES, SUCH AS AVOIDING OBSTACLES THAT ARE NOT RELOCATED, IT IS ACCEPTABLE TO INSTALL ADDITIONAL BLOCKOUTS TO OBTAIN UP TO 36" DEPTH FOR ONE OR TWO POSTS IN A SECTION OF GUARDRAIL.

DO NOT USE 16" OR 36" BLOCKOUTS IF IT CAUSES THE POST TO BE DRIVEN BEYOND SHOULDER HINGE POINT OR CAUSES A FIXED OBJECT TO BE WITHIN THE DEFLECTION DISTANCE OF THE BARRIER.

6 WHEN USING STEEL POST AD WOOD BLOCKOUTS, INSTALL FOUR 16D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.



SIDE VIEW

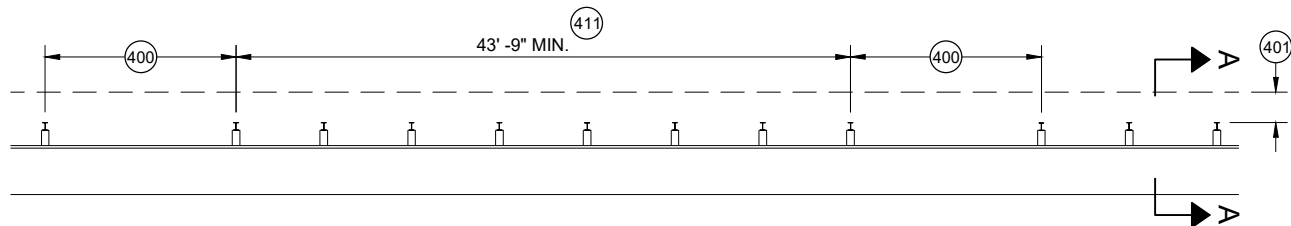


PLAN VIEW

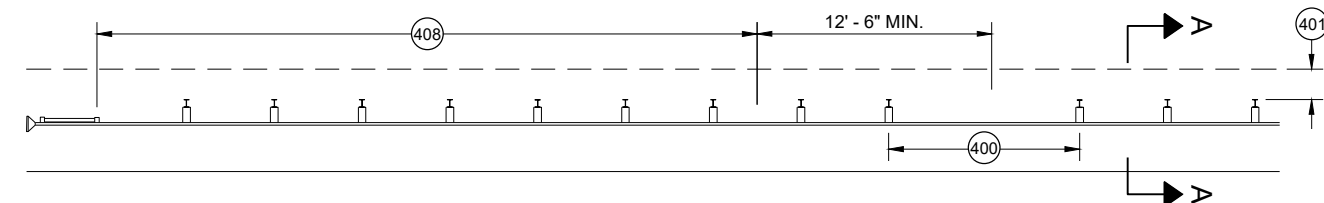
ALTERNATE WOOD
BLOCKOUT DETAIL

MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL

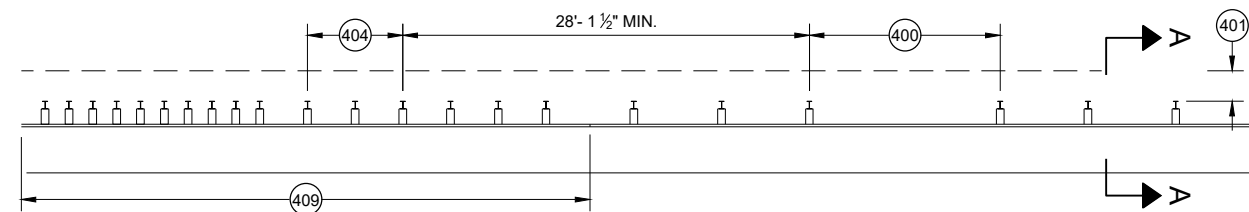
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION 124



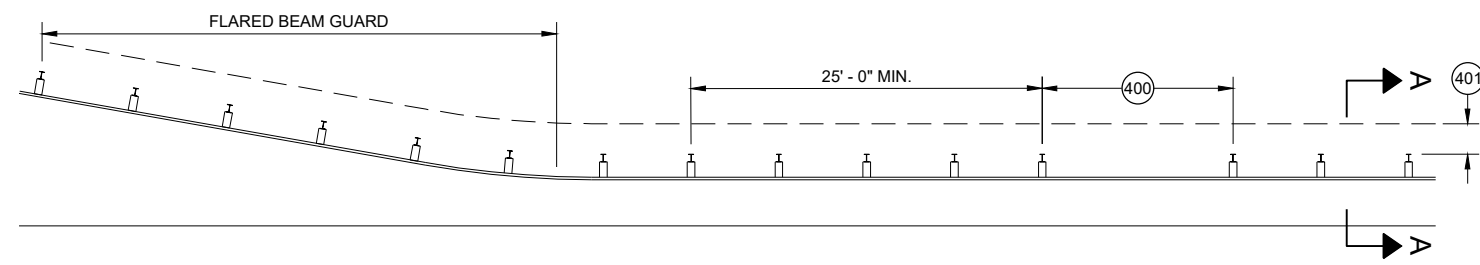
MISSING POST IN MGS GUARDRAIL



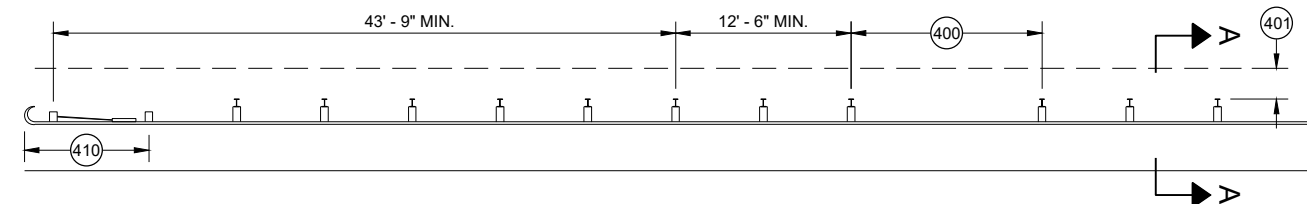
MISSING POST IN MGS GUARDRAIL NEAR EAT



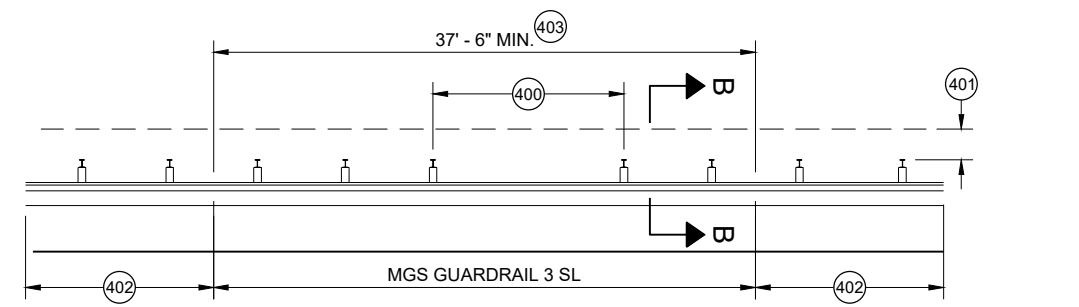
MISSING POST IN MGS GUARDRAIL NEAR AN APPROACH TRANSITION



MISSING POST IN MGS GUARDRAIL NEAR FLARED BEAM GUARD

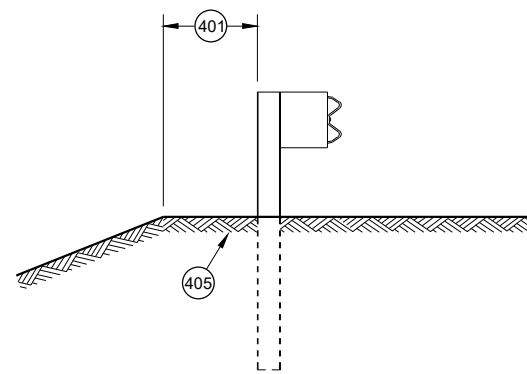


MISSING POST IN MGS GUARDRAIL NEAR A TYPE 2 END TERMINAL

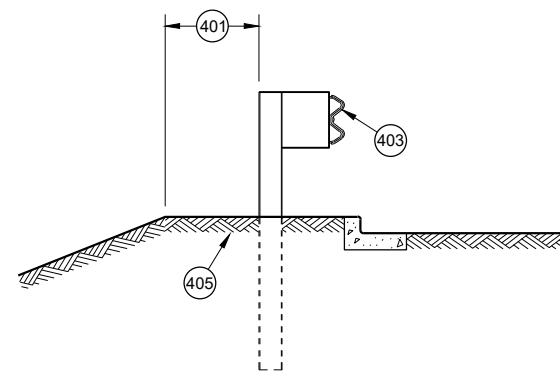


MISSING POST IN SHORT SPAN MGS GUARDRAIL NEAR CURB (SL)

- (400) MAX SPAN 12' - 6"
- (401) 2' MIN.
- (402) MGS GUARDRAIL 3
- (403) NESTING BEAM GUARD
- (404) ASYMMETRIC TRANSITION
- (405) SOIL WELL DRAINED AND COMPACTED
- (406) SEE OTHER DRAWINGS IN THIS SDD
- (407) SEE OTHER DRAWINGS FOR MIN. SPACING BETWEEN SPANS
- (408) SEE SDD 14B44
- (409) SEE SDD 14B45
- (410) SEE SDD 14B47
- (411) MINIMUM DISTANCE BETWEEN MISSING POST SPANS.



SECTION A - A



SECTION B - B

**MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
May 2021
DATE
/S/ Rodney Taylor
ROADWAY STANDARDS DEVELOPMENT
UNIT SUPERVISOR

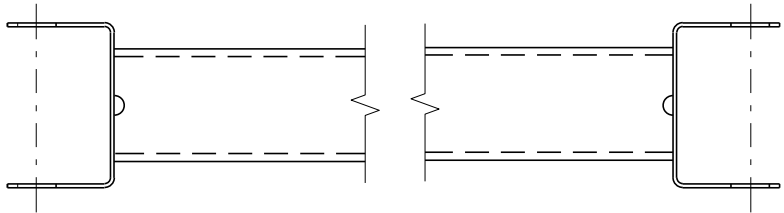
FHWA

- (A) THE SLOPE IN THE AREA BOUNDED BY THE GRADELINE, THE HINGE POINT LINE (HPL) AND THE CLEAR ZONE LIMITS (CZL) SHALL BE 4:1 OR FLATTER.
- (B) AFTER FINAL ASSEMBLY, RECHECK CABLE TO BE SURE IT IS TAUT AND HAS NOT RELAXED
- (C) DIFFERENT MANUFACTURERS REQUIRE DIFFERENT PERFORATED W - BEAM RAIL END PANELS. SEE MANUFACTURER'S INFORMATION.
- (D) ATTACH ALUMINUM SHEET TO E.A.T. HEAD USING 4 STAINLESS STEEL SELF - TAPPING SCREWS, ONE SCREW PER CORNER.
- (E) HARDWARE MAY VARY BETWEEN MANUFACTURER. SEE MANUFACTURER'S DRAWING FOR INFORMATION.

DIMENSIONS MAY VARY, MANUFACTURER'S INFORMATION.

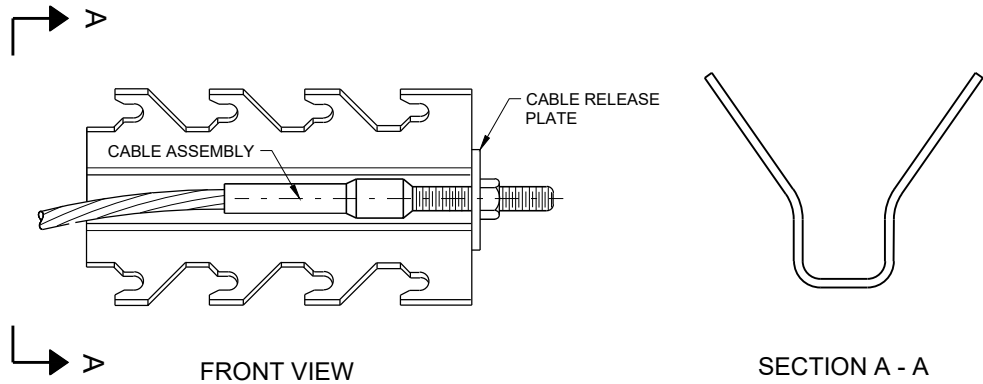
THE CENTER OF THE UPPER 3 1/2" DIAMETER HOLE ON POST NUMBER 3 THROUGH POST 9 IS TO BE FLUSH WITH THE GROUND LINE UP TO A MAXIMUM OF 2" ABOVE GROUND LINE. WOOD BLOCKS ON POSTS NUMBERED 3 THROUGH 9 MAY BE ADJUSTED UP TO 3" ABOVE THE TOP OF POST.

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION 126

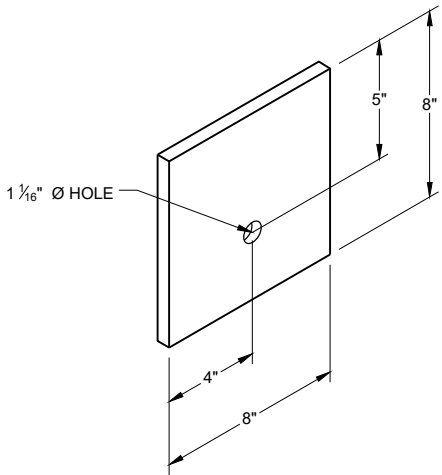


GENERIC GROUND STRUT⁹ E

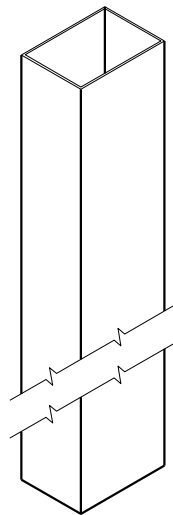
BILL OF MATERIALS	
PART NO.	DESCRIPTION MATERIALS PROVIDED BY MGS EAT MANUFACTURER. SEE MANUFACTURER'S DETAILS FOR MORE INFORMATION.
①	UPPER POST NO. 1 6" X 6" TUBE
②	LOWER POST NO. 1
③	WOOD CRT
④	WOOD BLOCKOUT
⑤	PIPE SLEEVE
⑥	BEARING PLATE
⑦	BCT CABLE ASSEMBLY
⑧	ANCHOR CABLE BOX
⑨	GROUND STRUT
⑩	PERFORATED W-BEAM RAIL END PANEL, 12'-6" LONG.
⑪	STANDARD W-BEAM RAIL. MULTIPLE SECTIONS REQUIRED. SECTIONS VARY IN LENGTH.
⑫	IMPACT HEAD
⑬	EAT MARKER POST - YELLOW (SEE APPROVED PRODUCTS LIST)
⑭	SOIL PLATE
⑮	UPPER POST NO. 2
⑯	LOWER POST NO. 2



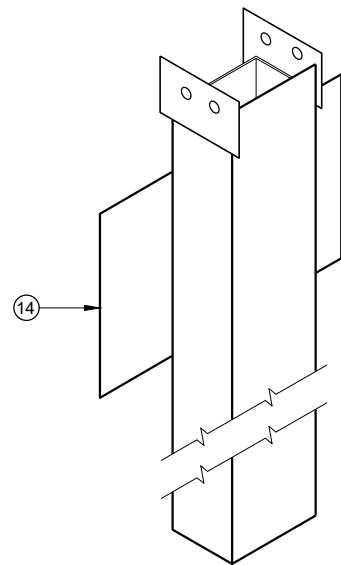
GENERIC ANCHOR CABLE BOX⁹ E



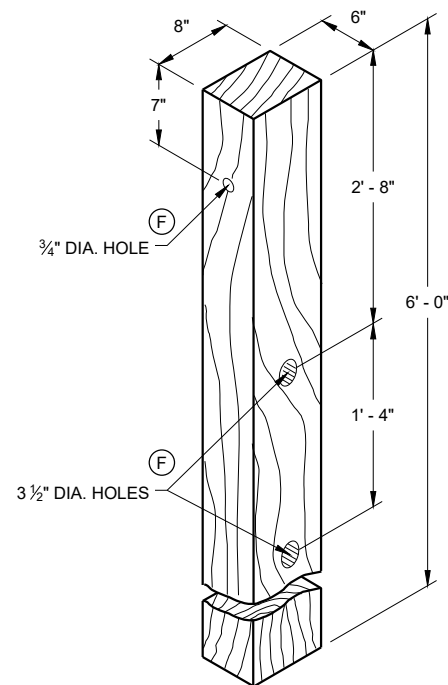
BEARING PLATE⁶ E



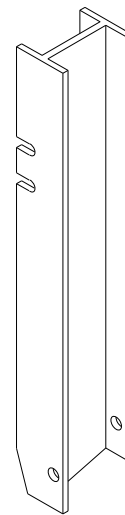
UPPER POST NO. 1 ⁽¹⁾ (E)



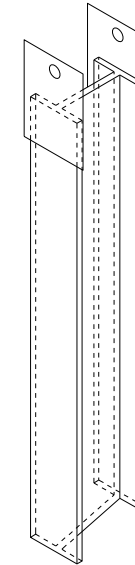
LOWER POST NO. 1 ⁽²⁾ (E)



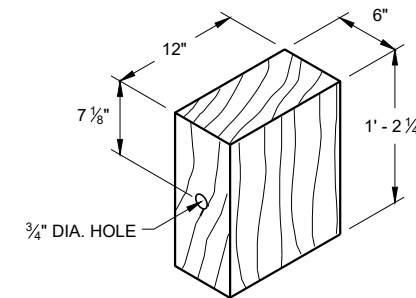
WOOD CRT POST ⁽³⁾ (E)
POSTS NUMBER 3-9



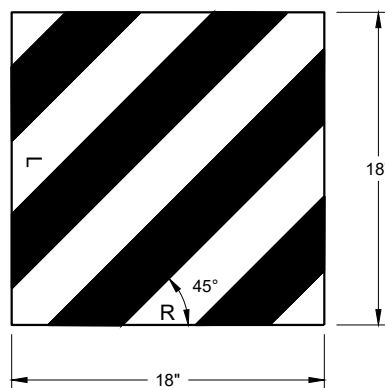
UPPER POST NO. 2 ⁽¹⁵⁾ (E)



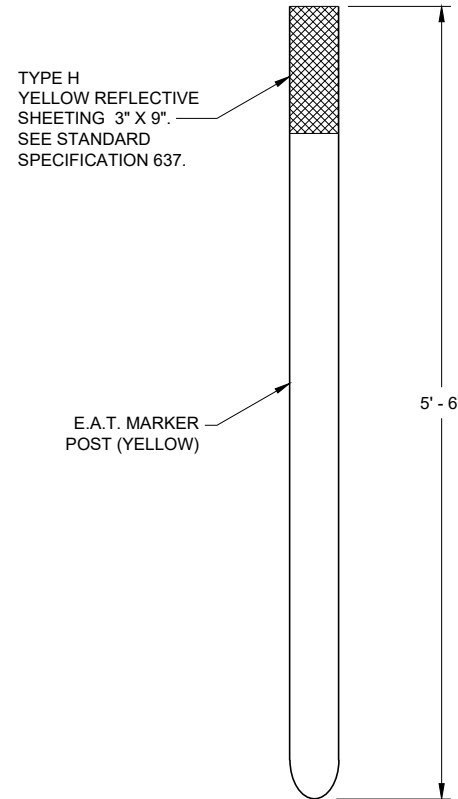
LOWER POST NO. 2 ⁽¹⁶⁾ (E)



WOOD BLOCKOUT ⁽⁴⁾
REQ'D. AT ALL POSTS EXCEPT POST NO'S 1 & 2



REFLECTIVE SHEETING DETAIL ^(E)

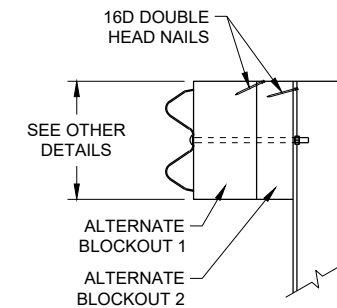


FRONT VIEW

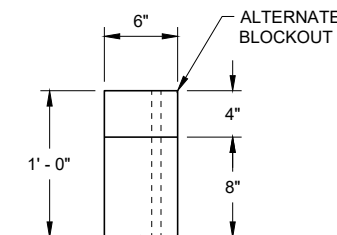


SIDE VIEW

E.A.T. MARKER POST ⁽¹³⁾



SIDE VIEW



TOP VIEW

ALTERNATE WOOD
BLOCKOUT DETAIL

**MIDWEST GUARDRAIL SYSTEM
ENERGY ABSORBING TERMINAL
(MGS)**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
7/2018 DATE /S/ Rodney Taylor
ROADWAY STANDARDS DEVELOPMENT UNIT SUPERVISOR 128
FHWA

GENERAL NOTES

THE EXACT NUMBER, LOCATION, AND SPACING OF ALL SIGNS AND DEVICES SHALL BE ADJUSTED TO FIT FIELD CONDITIONS.

THE SPACING BETWEEN TRAFFIC CONTROL SIGNS SHOULD BE ADJUSTED TO NOT CONFLICT WITH AND SHOULD PROVIDE A MINIMUM OF 200 FEET (500 FEET DESIRABLE) CLEARANCE TO EXISTING SIGNS THAT WILL REMAIN IN PLACE.

ALL SIGNS ARE 48" X 48" UNLESS OTHERWISE NOTED.

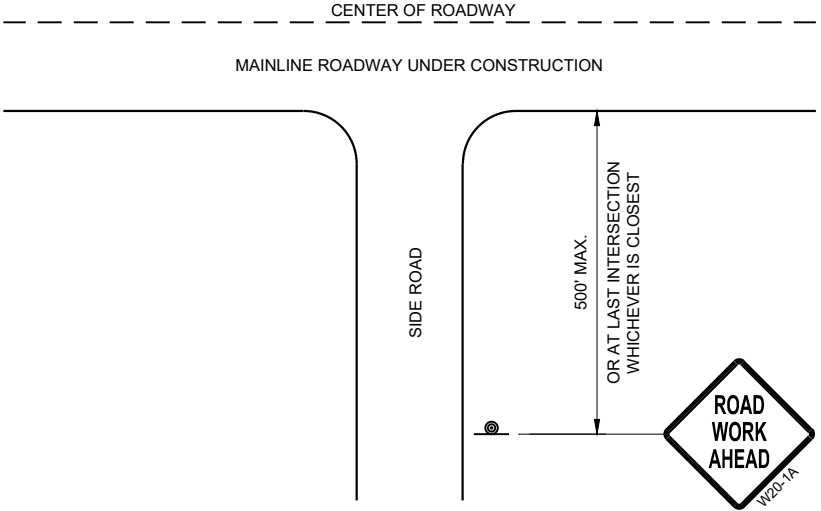
SIGNS THAT WILL BE IN PLACE LESS THAN SEVEN CONTINUOUS DAYS AND NIGHTS MAY BE MOUNTED ON PORTABLE SUPPORTS.

IF A "STOP" SIGN MUST BE REMOVED FOR A WORK OPERATION, A TEMPORARY "STOP" SIGN SHALL BE PLACED PRIOR TO THE SIGN REMOVAL, OR A FLAGGER SHALL BE PROVIDED UNTIL THE SIGN IS REESTABLISHED.

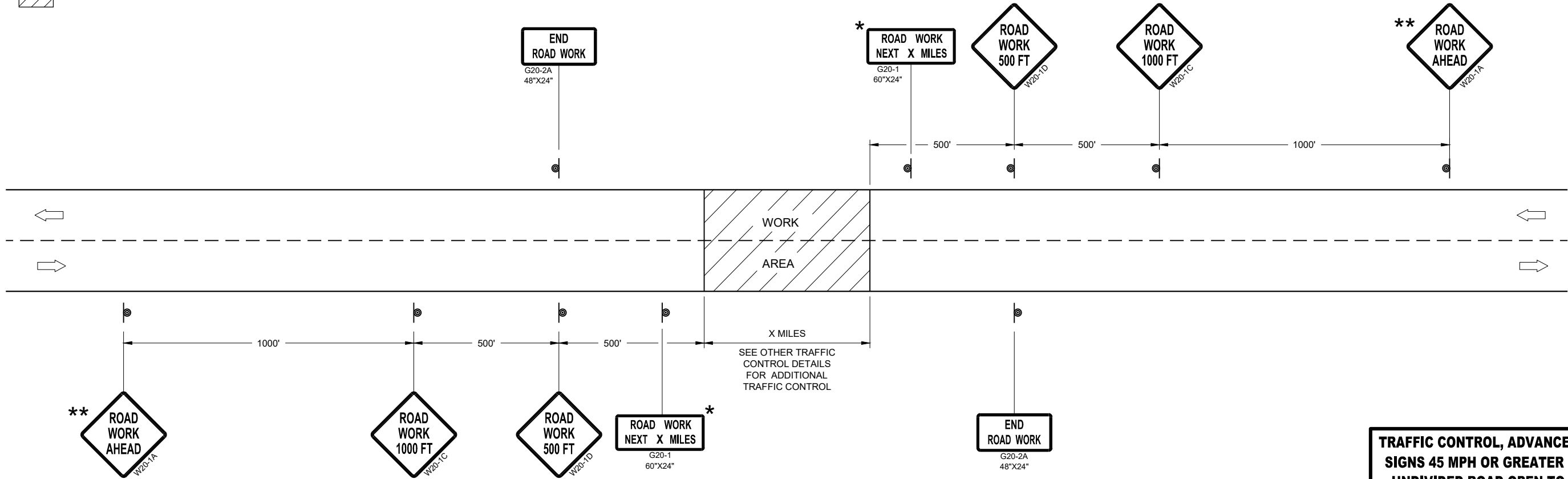
- * OMIT G20-1 SIGNS IF LENGTH OF WORK AREA IS 2 MILES OR LESS
- ** PLACE AN ADDITIONAL W20-1A "ROAD WORK AHEAD" SIGN IF WORK AREA WITHIN THE PROJECT IS SEPARATED BY MORE THAN 2 MILES FROM PREVIOUS WORK AREA.

LEGEND

-  SIGN ON PERMANENT SUPPORT
-  DIRECTION OF TRAFFIC
-  WORK AREA



TYPICAL SIDE ROAD APPROACH
WARNING SIGN DETAIL

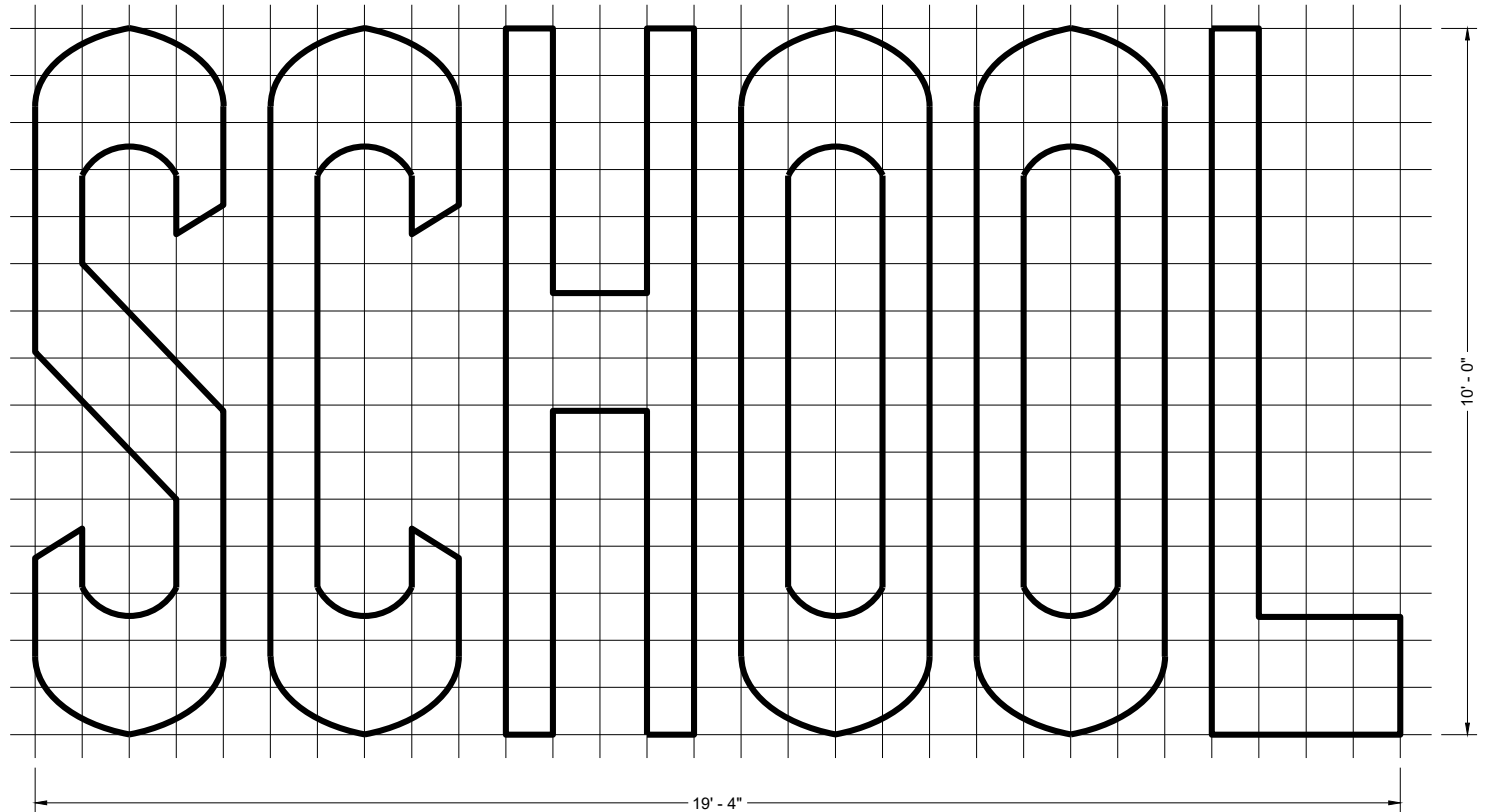
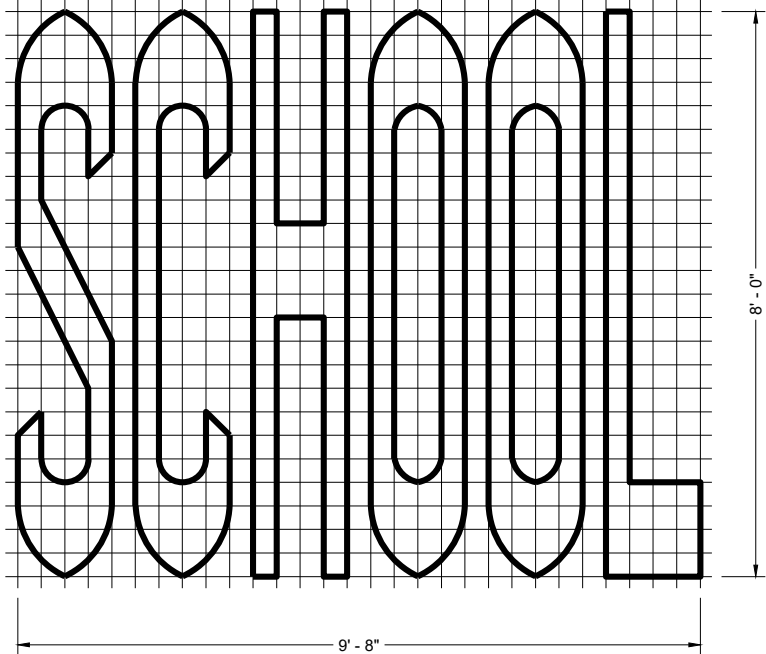
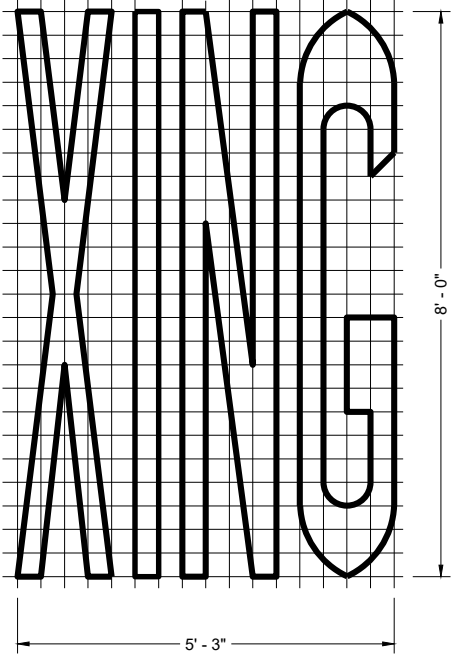
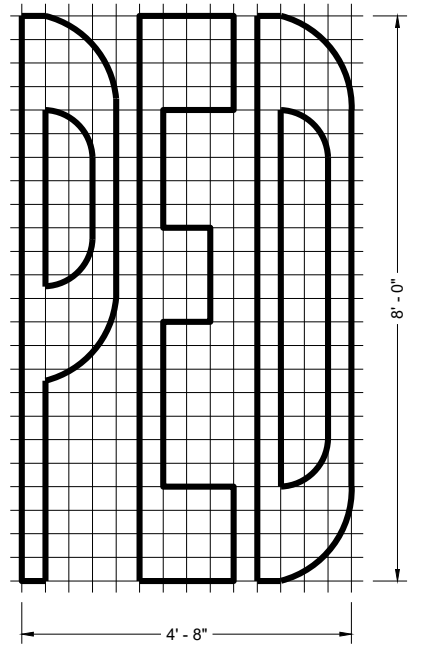
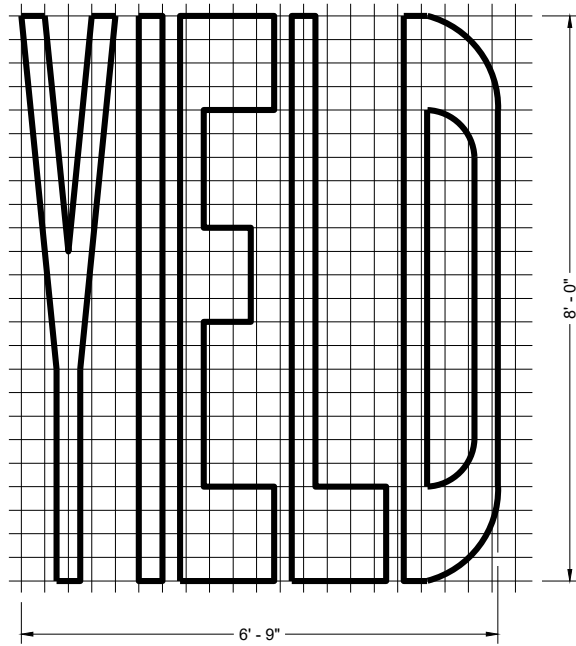
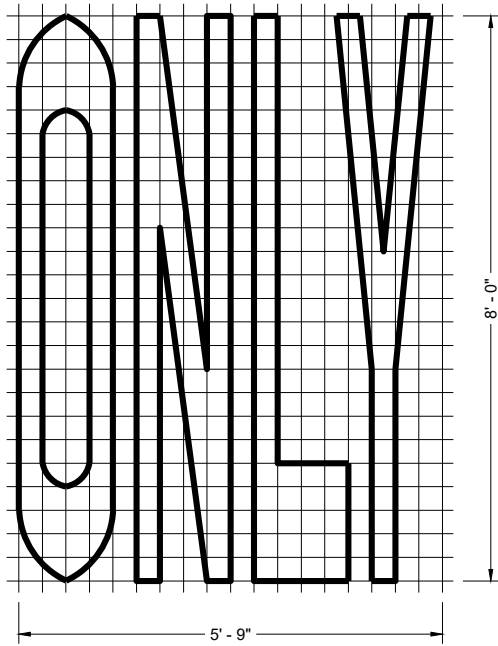
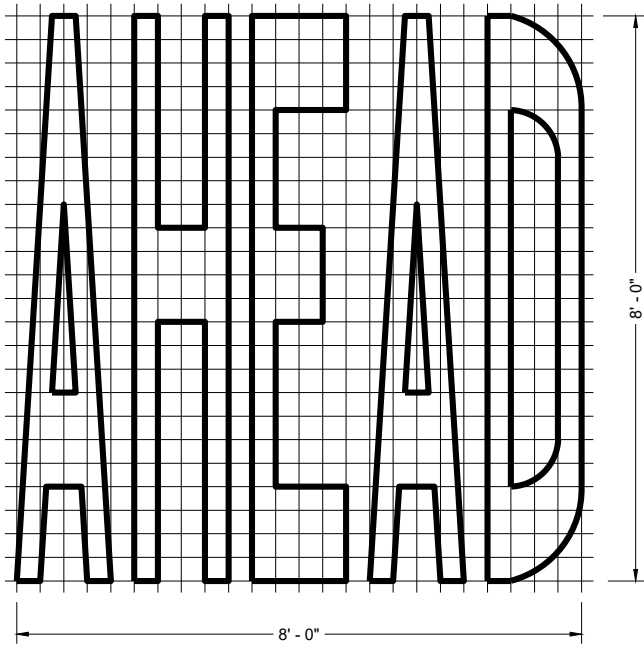
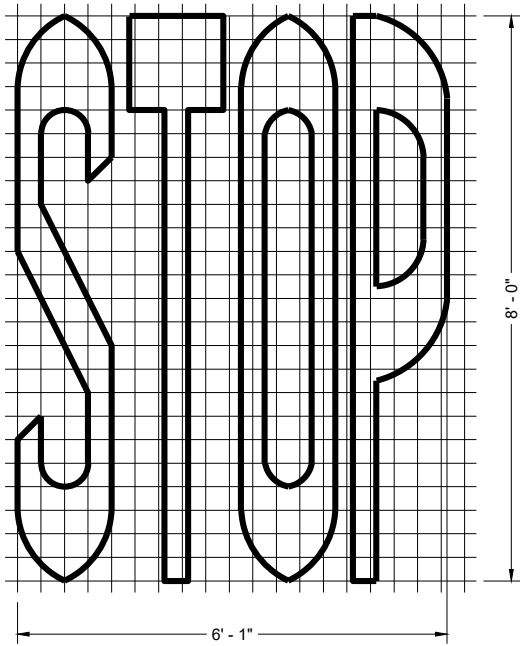


TRAFFIC CONTROL, ADVANCE WARNING SIGNS 45MPH OR GREATER

TRAFFIC CONTROL, ADVANCE WARNING
SIGNS 45 MPH OR GREATER TWO-WAY
UNDIVIDED ROAD OPEN TO TRAFFIC

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
July 2018 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER 129
FHWA



SINGLE LANE

TWO - LANE

GENERAL NOTES

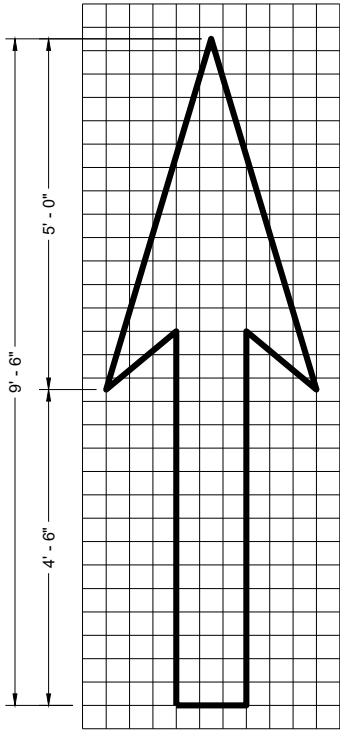
DETAILS OF INSTALLATION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.

PAVEMENT MARKING WORDS

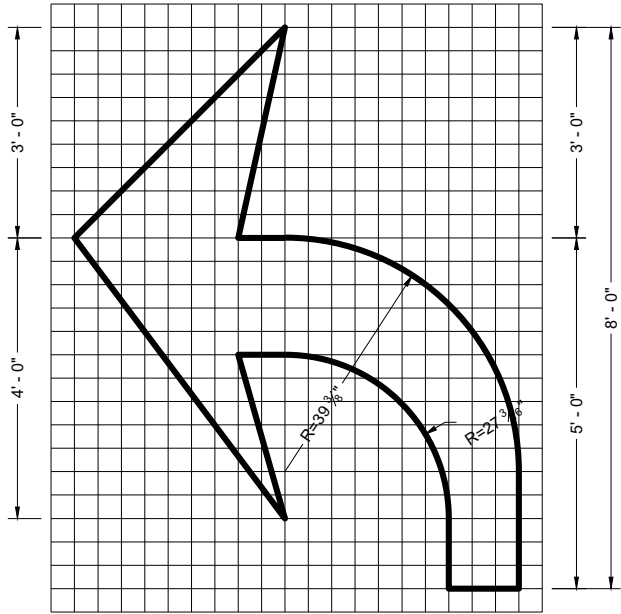
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
November 2024 /S/ Jeannie Silver
DATE STATE SIGNING AND MARKING ENGINEER

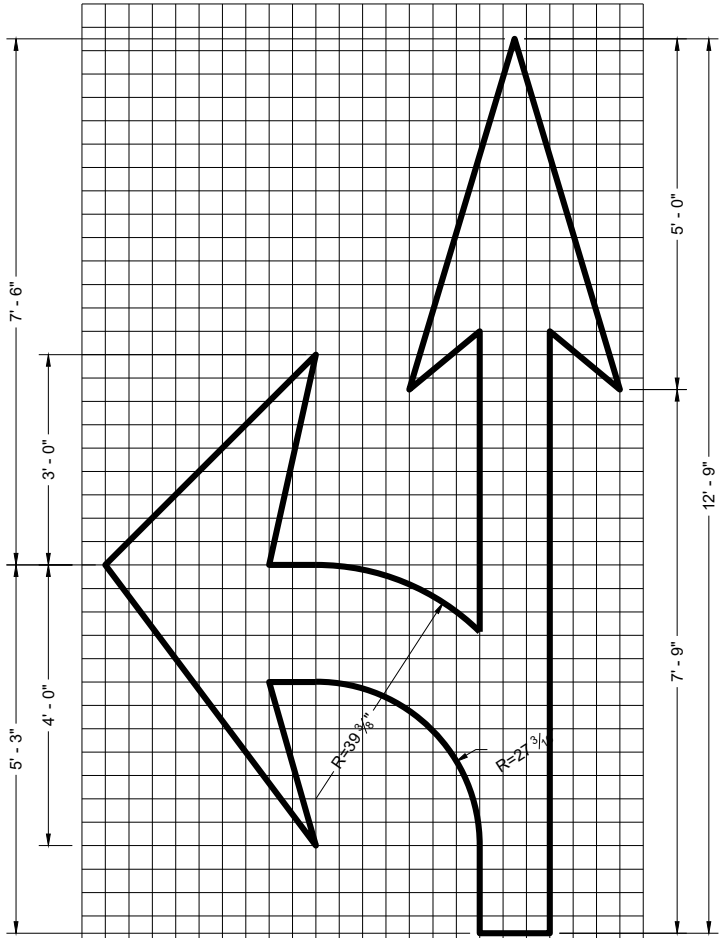
FHWA



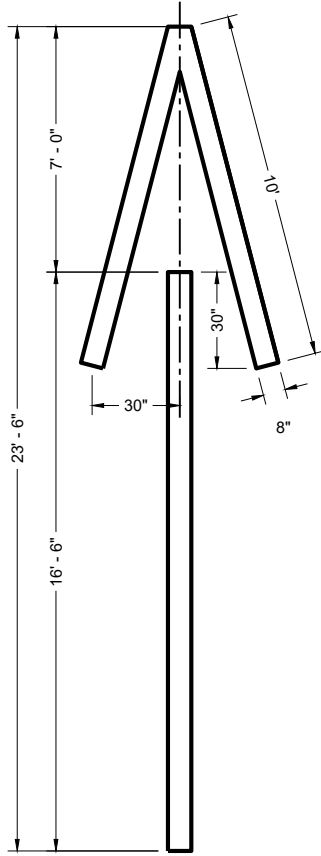
TYPE 1



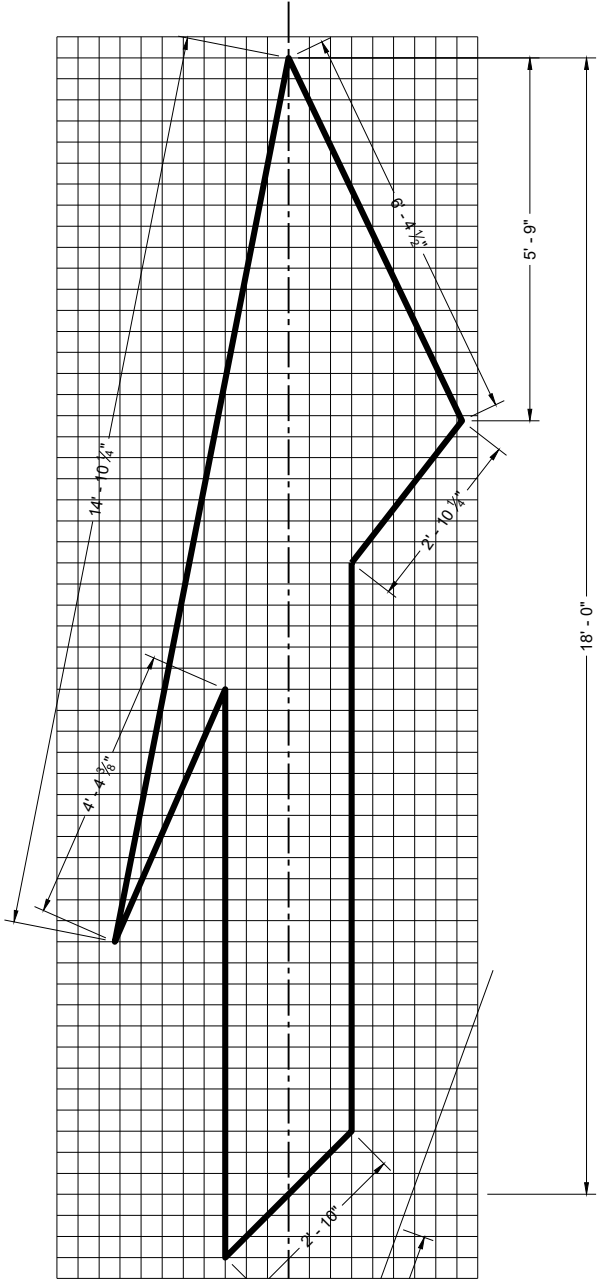
TYPE 2



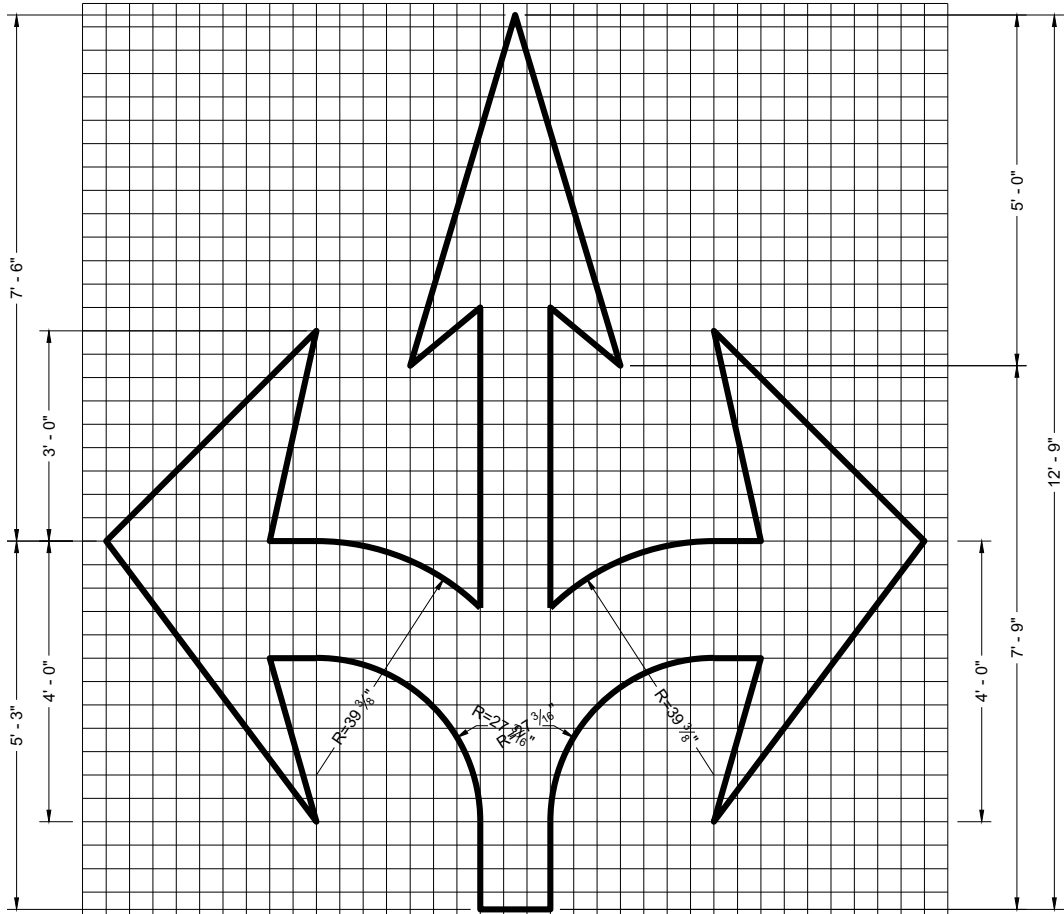
TYPE 3



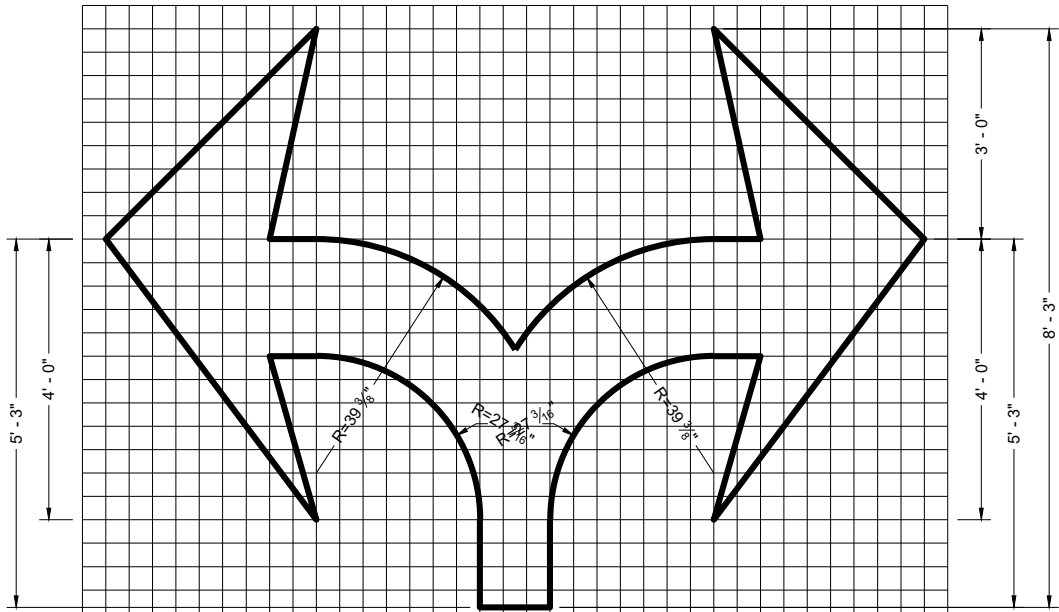
TYPE 4



TYPE 5 LANE DROP ARROW



TYPE 6



TYPE 7

GENERAL NOTES

DETAILS OF INSTALLATION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.

PAVEMENT MARKING ARROWS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

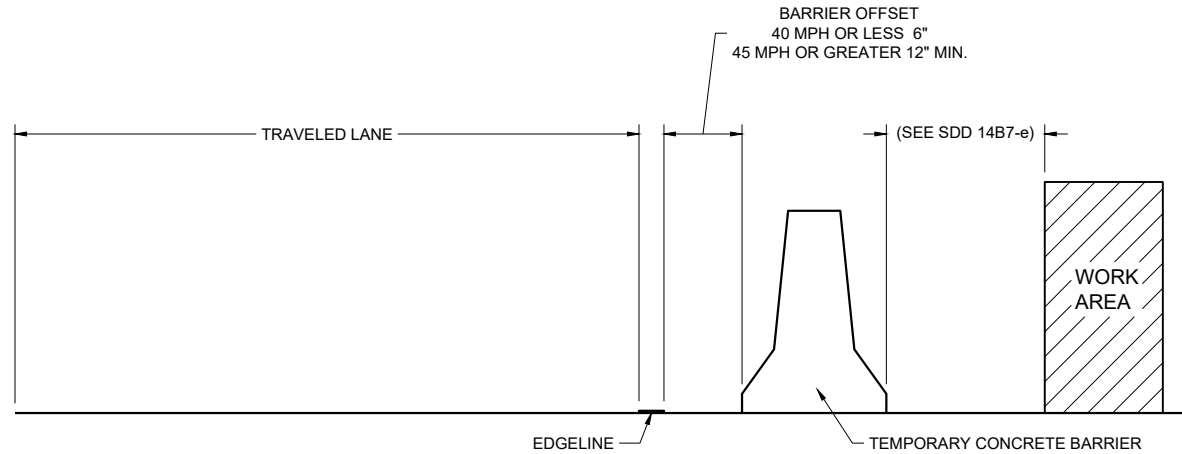
APPROVED
November 2024 /S/ Jeannie Silver
DATE STATE SIGNING AND MARKING ENGINEER

FHWA

SDD 15C08-24a



SDD 15C08-24a



TEMPORARY BARRIER OFFSET FROM EDGE LINE

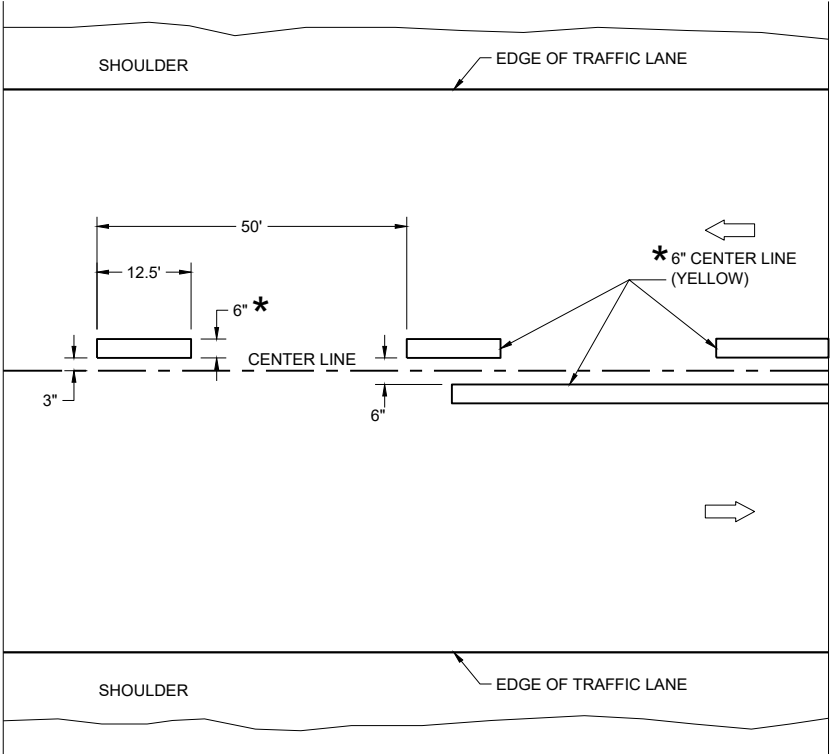
GENERAL NOTES

DETAILS OF CONSTRUCTION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO STANDARD SPECIFICATIONS AND SPECIAL PROVISIONS.

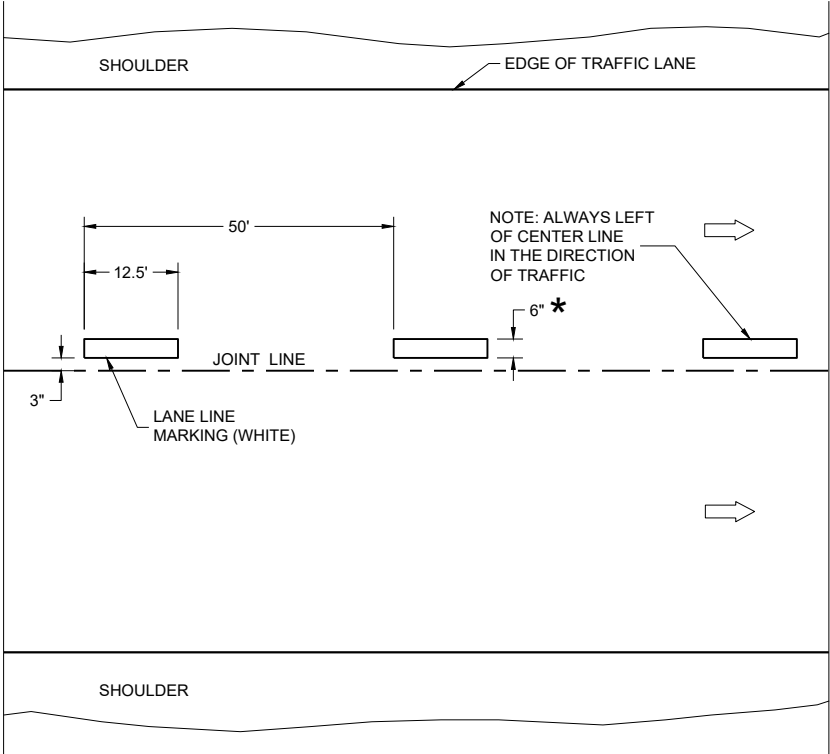
LEGEND

DIRECTION OF TRAFFIC

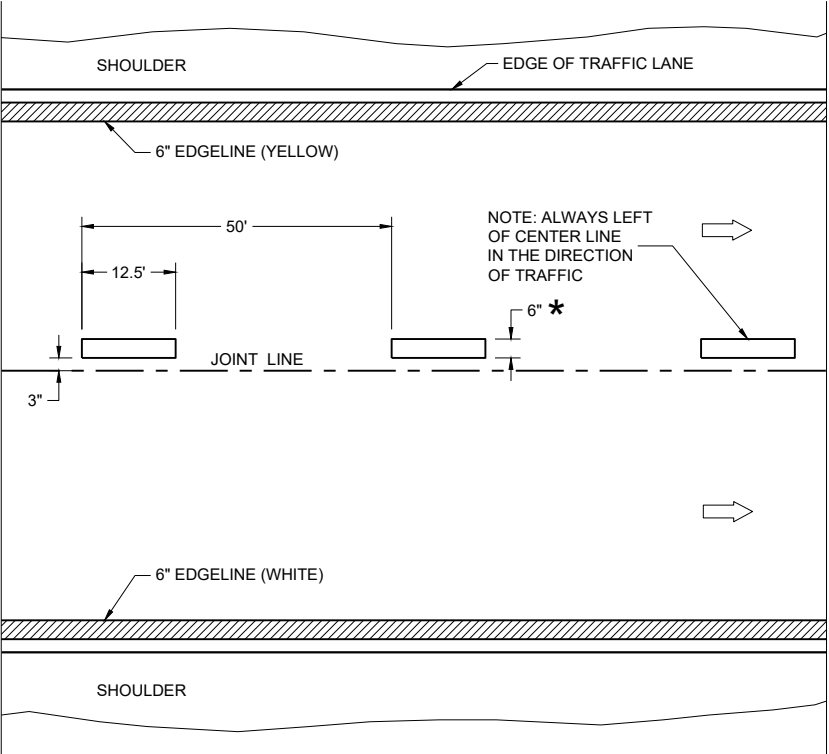
* CONFIRM MARKING LINE WIDTH WITH THE MISCELLANEOUS QUANTITIES



TWO WAY TRAFFIC



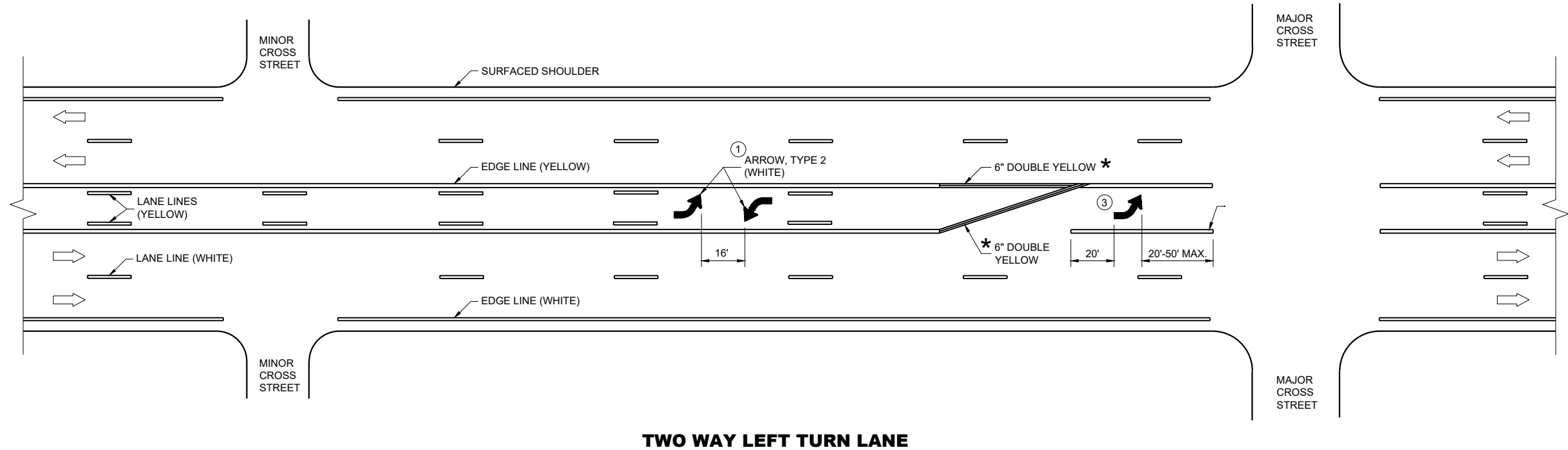
ONE WAY TRAFFIC



FREEWAYS AND EXPRESSWAYS

TEMPORARY PAVEMENT MARKING

TEMPORARY LONGITUDINAL PAVEMENT MARKING	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED December 2024 DATE	/S/ Jeannie Silver Statewide Pavement Marking Engineer
FHWA	133

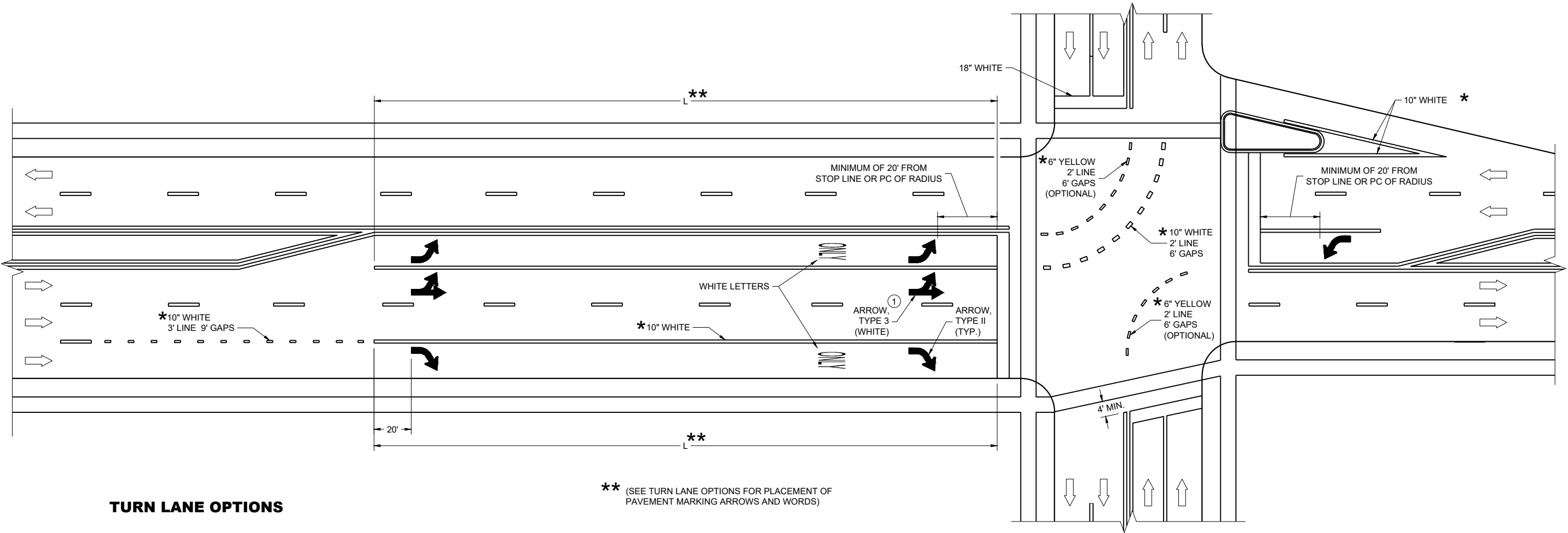


GENERAL NOTES

- ① A SET OF ARROWS IS REQUIRED EVERY 400 FEET OR NEAR INTERSECTIONS OR DRIVEWAYS WITH TURNING TRAFFIC.
- ② 10" WHITE
- ③ TURN BAY LENGTH OF LESS THAN 48' DOES NOT REQUIRE PAVEMENT ARROWS OR TEXT.

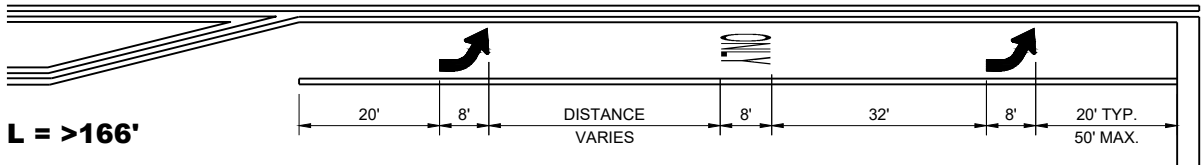
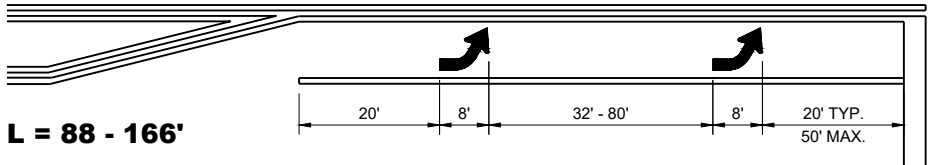
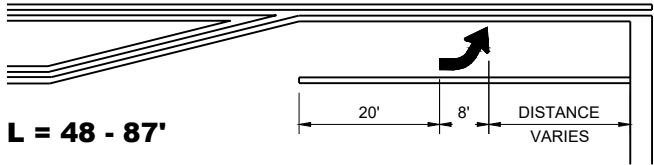
➡ DIRECTION OF TRAFFIC

*CONFIRM MARKING LINE WIDTH WITH THE MISCELLANEOUS QUANTITIES



TURN LANE OPTIONS

LENGTH OF TURN BAY (**L**) OF 0 - 47' DOES NOT REQUIRE PAVEMENT MARKING ARROWS OR WORDS



GENERAL NOTES

① QUANTITY AND LOCATION OF TYPE 3 ARROWS ARE THE SAME AS THE TYPE II ARROWS IN THE ADJACENT TURN LANE. FOR TURN LANES WITH A PHYSICAL SEPARATION IN THE SAME DIRECTION OF TRAVEL, THE ARROWS AND "ONLY" MARKING MAY BE ELIMINATED.

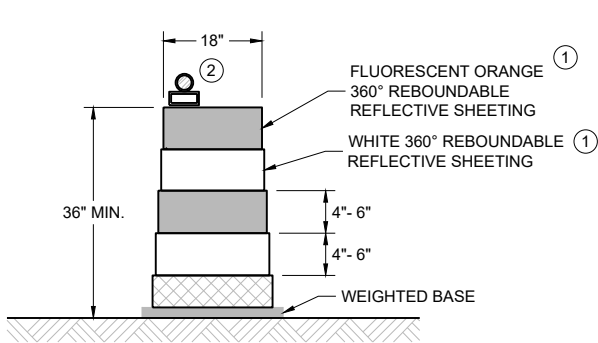
➡ DIRECTION OF TRAFFIC

L = LENGTH OF TURN BAY

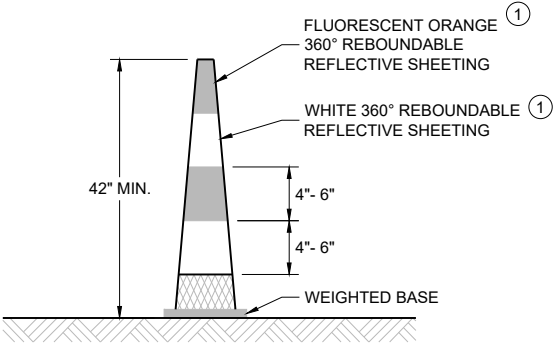
*CONFIRM MARKING LINE WIDTH WITH THE MISCELLANEOUS QUANTITIES

**PAVEMENT MARKING
(TURN LANES)**

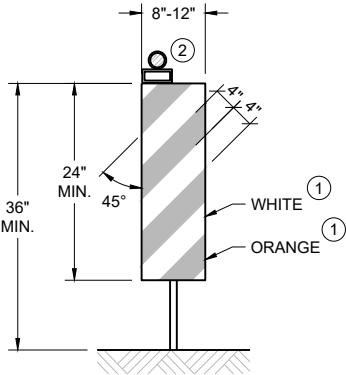
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



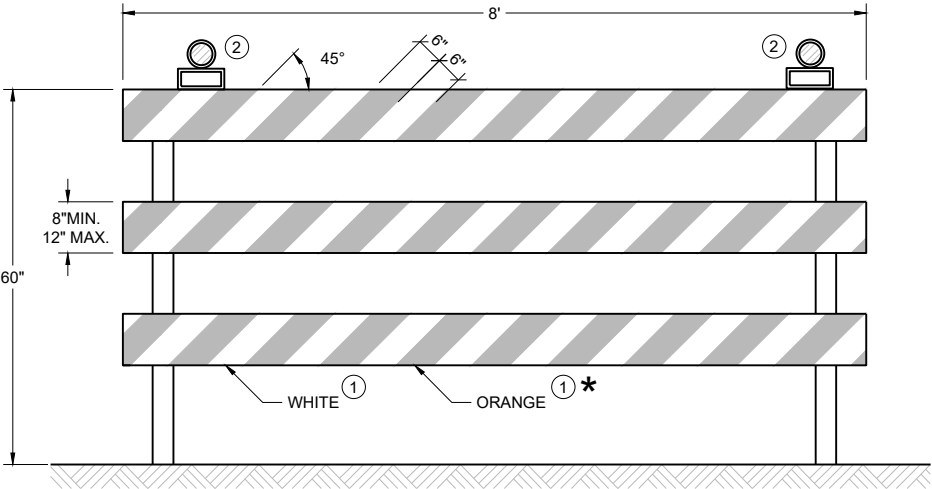
DRUM
BALLAST WIDTHS
RANGE FROM 24"-36"



42" CONE
DO NOT USE IN TAPERS
½ SPACING OF DRUMS
BALLAST WIDTHS
RANGE FROM 14"-20"



VERTICAL PANEL
THE STRIPES SHALL SLOPE DOWNWARD TO
THE TRAFFIC SIDE FOR CHANNELIZATION.



TYPE III BARRICADE
IF SIGN MOUNTED, DO NOT COVER MORE THAN 50% OF THE TOP
TWO RAILS OR 33% OF THE TOTAL AREA OF THE THREE RAILS.
★ IF USED FOR A PERMANENT APPLICATION USE RED SHEETING.

GENERAL NOTES

- ① REFLECTIVE SHEETING SHALL FOLLOW THE REQUIREMENTS IN THE APPROVED PRODUCTS LISTING FOR SIGN SHEETING.
- ② LOCATION OF WARNING LIGHTS WHEN SHOWN ON THE PLAN.

CHANNELIZING DEVICES DRUMS, CONES, BARRICADES AND VERTICAL PANELS	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED February 2026 DATE	/S/ Andrew Heidtke WORK ZONE ENGINEER
FHWA	

LEGEND

-  SIGN ON PORTABLE OR PERMANENT SUPPORT
-  TEMPORARY PORTABLE RUMBLE STRIP ARRAY
-  DIRECTION OF TRAFFIC
-  WORK AREA
-  FLAGGER, EQUIPPED WITH STOP/SLOW PADDLE FASTENED ON SUPPORT STAFF

GENERAL NOTES

DETAILS OF TRAFFIC CONTROL DEVICES AND INSTALLATION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS, THE SPECIAL PROVISIONS, AND THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

ALL SIGNS ARE 48" X 48" UNLESS OTHERWISE NOTED.

"WO" SIGNS ARE THE SAME AS "W" SIGNS EXCEPT THE BACKGROUND IS ORANGE.

THE EXACT NUMBER, LOCATION AND SPACING OF ALL SIGNS, DEVICES, AND LOCATION OF ALL FLAGGERS SHALL BE ADJUSTED TO FIT FIELD CONDITIONS AS APPROVED BY THE ENGINEER.

THE FIRST ADVANCE WARNING SIGN SHOULD TYPICALLY BE LOCATED IN ADVANCE OF THE ANTICIPATED TRAFFIC BACKUP OR QUEUE.

WHEN A SIDE ROAD OR RAMP INTERSECTS THE FACILITY ON WHICH THE WORK IS BEING PERFORMED, ADDITIONAL TRAFFIC CONTROLS SHALL BE PROVIDED AS SPECIFIED IN THE PLANS AND/OR THE SPECIAL PROVISIONS OR AS APPROVED BY THE ENGINEER.

FLAGGING

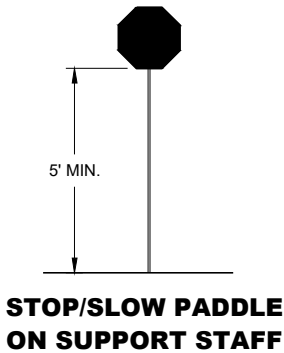
FLAGGERS SHALL BE IN SIGHT OF EACH OTHER OR IN DIRECT COMMUNICATION AT ALL TIMES. THEY SHALL BE EQUIPPED WITH STOP/SLOW PADDLES FASTENED ON SUPPORT STAFFS. WHEN THE FLAGGING OPERATION IS NOT IN EFFECT REMOVE TEMPORARY PORTABLE RUMBLE STRIPS PRIOR TO COVERING OR REMOVING ALL ADVANCE SIGNING.

- ① FOR MOVING WORK OPERATIONS, POST ADDITIONAL W20-7A FLAGGER SIGNS AT APPROXIMATELY 3,500' INTERVALS IN THE MOVING WORK OPERATION OR AS APPROVED BY THE ENGINEER.
- ② SIGN NOT REQUIRED IF FLAGGING OPERATION OCCURS WITHIN A SIGNED ROAD WORK ZONE AREA.

WHEN THE DISTANCE BETWEEN FLAGGERS EXCEEDS 2 MILES, A PILOT CAR IS REQUIRED. WHEN CURVES REDUCE SIGHT DISTANCE BELOW 400', A PILOT CAR IS REQUIRED.

TEMPORARY PORTABLE RUMBLE STRIPS

- UTILIZE TEMPORARY PORTABLE RUMBLE STRIPS ON ALL FLAGGING OPERATIONS.
- ③ EACH TEMPORARY PORTABLE RUMBLE STRIP ARRAY CONSISTS OF THREE RUMBLE STRIPS PLACED TRANSVERSE ACROSS THE LANE AT THE LOCATIONS SHOWN. WITHIN EACH ARRAY, SPACING BETWEEN RUMBLE STRIPS SHALL BE 15 FEET ON CENTER
- ONLY USE TEMPORARY PORTABLE RUMBLE STRIPS FROM THE APPROVED PRODUCTS LIST.
- INSTALL TEMPORARY RUMBLE STRIPS PER MANUFACTURER'S RECOMMENDATIONS.
- PLACE ADVANCE SIGNING PRIOR TO INSTALLING TEMPORARY RUMBLE STRIPS.
- DO NOT INSTALL TEMPORARY PORTABLE RUMBLE STRIPS ON GRAVEL, MILLED SURFACES, OR ASPHALT THAT HAS BEEN PAVED LESS THAN 12 HOURS.

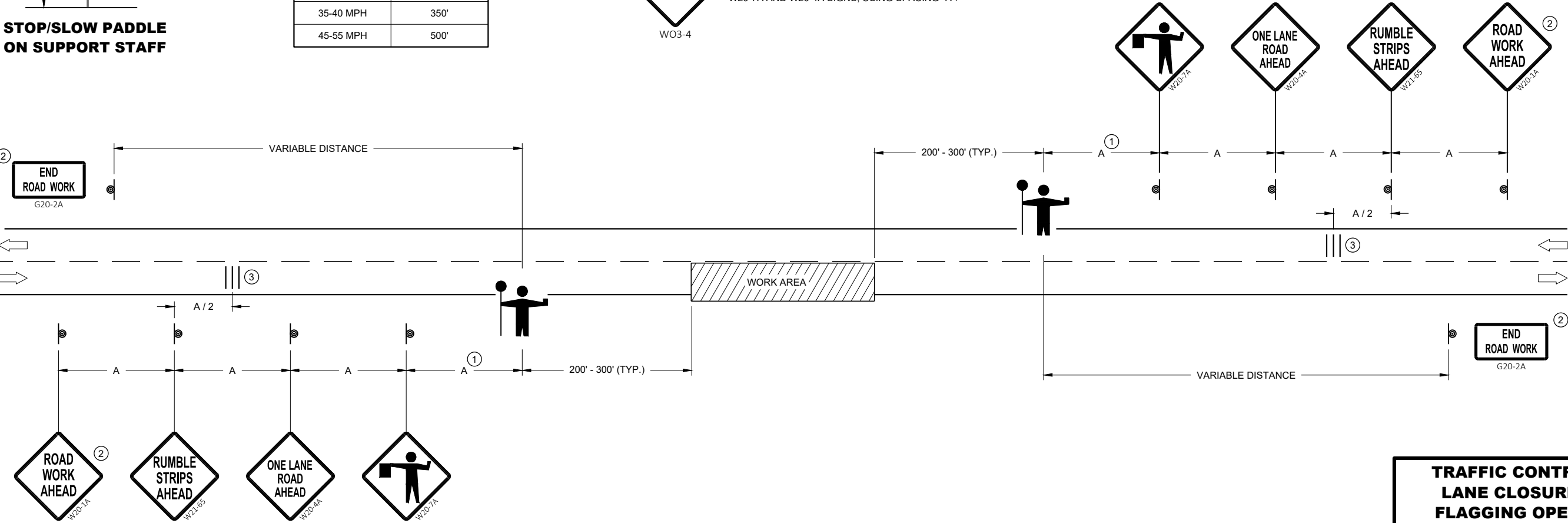


SIGN AND TEMPORARY RUMBLE STRIP ARRAY SPACING TABLE

SPEED LIMIT	SPACING "A"
25-30 MPH	200'
35-40 MPH	350'
45-55 MPH	500'



USE OF W03-4 SIGN IS OPTIONAL. WHEN USED, THIS SIGN SHALL BE LOCATED BETWEEN THE W20-7A AND W20-4A SIGNS, USING SPACING "A".



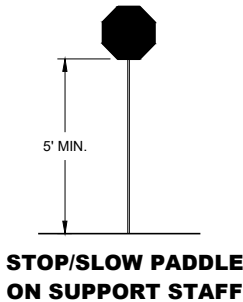
**TRAFFIC CONTROL FOR
LANE CLOSURE WITH
FLAGGING OPERATION**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
May 2022 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER 137

FHWA

- **GENERAL NOTES**
SIGN ON PERMANENT SUPPORT
- 
TRAFFIC CONTROL CONE 42-INCH
- 
TRAFFIC CONTROL DRUM
- 
TEMPORARY PORTABLE RUMBLE STRIP ARRAY
- 
DIRECTION OF TRAFFIC
- 
WORK AREA
- 
AUTOMATED FLAGGER ASSISTANCE DEVICE (AFAD)



- GENERAL NOTES**
DETAILS OF TRAFFIC CONTROL DEVICES AND INSTALLATION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS, THE SPECIAL PROVISIONS, AND THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

ALL SIGNS ARE 48" X 48" UNLESS OTHERWISE NOTED.

"WO" SIGNS ARE THE SAME AS "W" SIGNS EXCEPT THE BACKGROUND IS ORANGE.

THE EXACT NUMBER, LOCATION AND SPACING OF ALL SIGNS, DEVICES, AND LOCATION OF ALL FLAGGERS SHALL BE ADJUSTED TO FIT FIELD CONDITIONS AS APPROVED BY THE ENGINEER.

THE FIRST ADVANCE WARNING SIGN SHOULD TYPICALLY BE LOCATED IN ADVANCE OF THE ANTICIPATED TRAFFIC BACKUP OR QUEUE.

WHEN A SIDE ROAD OR RAMP INTERSECTS THE FACILITY ON WHICH THE WORK IS BEING PERFORMED, ADDITIONAL TRAFFIC CONTROLS SHALL BE PROVIDED AS SPECIFIED IN THE PLANS AND/OR THE SPECIAL PROVISIONS OR AS APPROVED BY THE ENGINEER.

SIGN AND TEMPORARY RUMBLE STRIP ARRAY SPACING TABLE

SPEED LIMIT	SPACING "A"
25-30 MPH	200'
35-40 MPH	350'
45-55 MPH	500'

- FLAGGING**
IF THE AUTOMATED FLAGGER ASSISTANCE DEVICE (AFAD) STOPS WORKING, FLAGGERS SHALL BE IN SIGHT OF EACH OTHER OR IN DIRECT COMMUNICATION AT ALL TIMES. THEY SHALL BE EQUIPPED WITH STOP/SLOW PADDLES FASTENED ON SUPPORT STAFFS. WHEN THE FLAGGING OPERATION IS NOT IN EFFECT REMOVE TEMPORARY PORTABLE RUMBLE STRIPS PRIOR TO COVERING OR REMOVING ALL ADVANCE SIGNING.

WHEN THE DISTANCE BETWEEN FLAGGERS EXCEEDS 2 MILES, A PILOT CAR IS REQUIRED. WHEN CURVES REDUCE SIGHT DISTANCE BELOW 400', A PILOT CAR IS REQUIRED.
- ① SIGN NOT REQUIRED IF FLAGGING OPERATION OCCURS WITHIN A SIGNED ROAD WORK ZONE AREA.

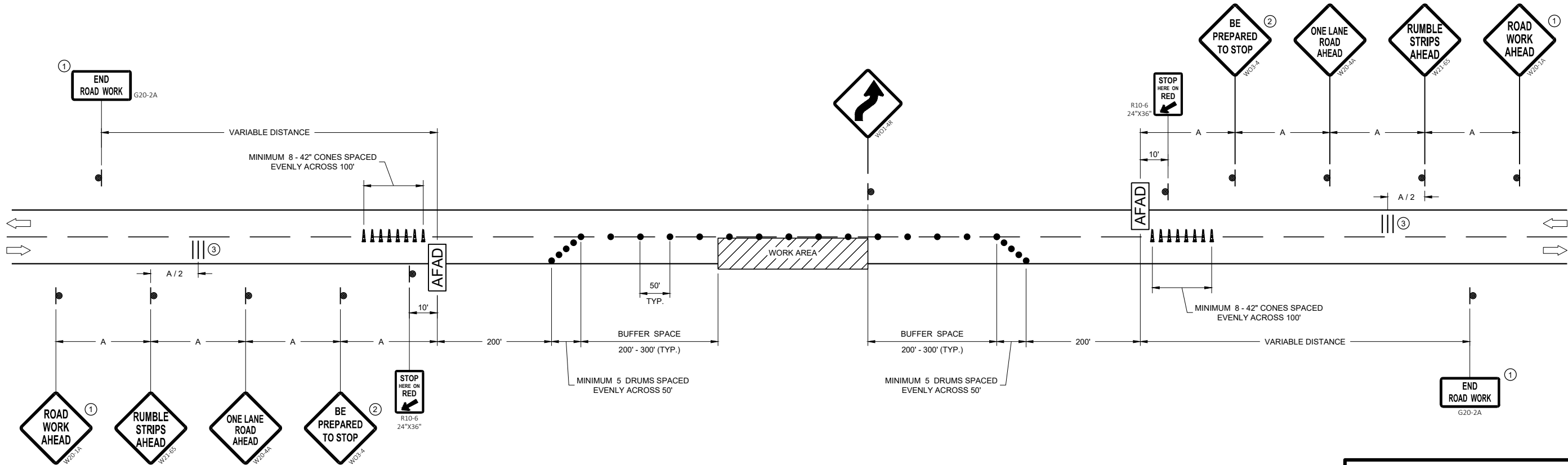
② IF FLAGGERS ARE PHYSICALLY NEEDED TO FLAG, REPLACE WO3-4 SIGNS WITH W20-7A SIGNS.
- TEMPORARY PORTABLE RUMBLE STRIPS**
UTILIZE TEMPORARY PORTABLE RUMBLE STRIPS ON ALL FLAGGING OPERATIONS.

ONLY USE TEMPORARY PORTABLE RUMBLE STRIPS FROM THE APPROVED PRODUCTS LIST.

PLACE ADVANCE SIGNING PRIOR TO INSTALLING TEMPORARY RUMBLE STRIPS.

DO NOT INSTALL TEMPORARY PORTABLE RUMBLE STRIPS ON GRAVEL, MILLED SURFACES, OR ASPHALT THAT HAS BEEN PAVED LESS THAN 12 HOURS.

③ EACH TEMPORARY PORTABLE RUMBLE STRIP ARRAY CONSISTS OF THREE RUMBLE STRIPS PLACED TRANSVERSELY AT THE LOCATIONS SHOWN. WITHIN EACH ARRAY, SPACING BETWEEN RUMBLE STRIPS SHALL BE 15 FEET ON CENTER.



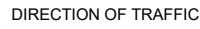
TRAFFIC CONTROL, LANE CLOSURE WITH AUTOMATED FLAGGER ASSISTANCE DEVICE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
May 2022 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER 138

FHWA

V1	LEAD VEHICLE
V2	MARKING VEHICLE
V3	SHADOW VEHICLE



ALL VEHICLES SHALL BE EQUIPPED WITH TWO 360 DEGREE HIGH INTENSITY YELLOW FLASHING LIGHTS OR STROBE LIGHTS AND OPERATED WITH HEADLIGHTS TURNED ON.

ALL SIGNS ARE 48" X 48" UNLESS OTHERWISE SPECIFIED.

THE WORK AND SHADOW VEHICLES SHOULD PULL OVER PERIODICALLY TO ALLOW TRAFFIC TO PASS.

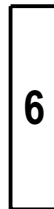
WHEN NO WORK ACTIVITY IS TAKING PLACE, REMOVE OR LAY STATIONARY SIGNS AND SUPPORTS FLAT ON THE GRADE WITH

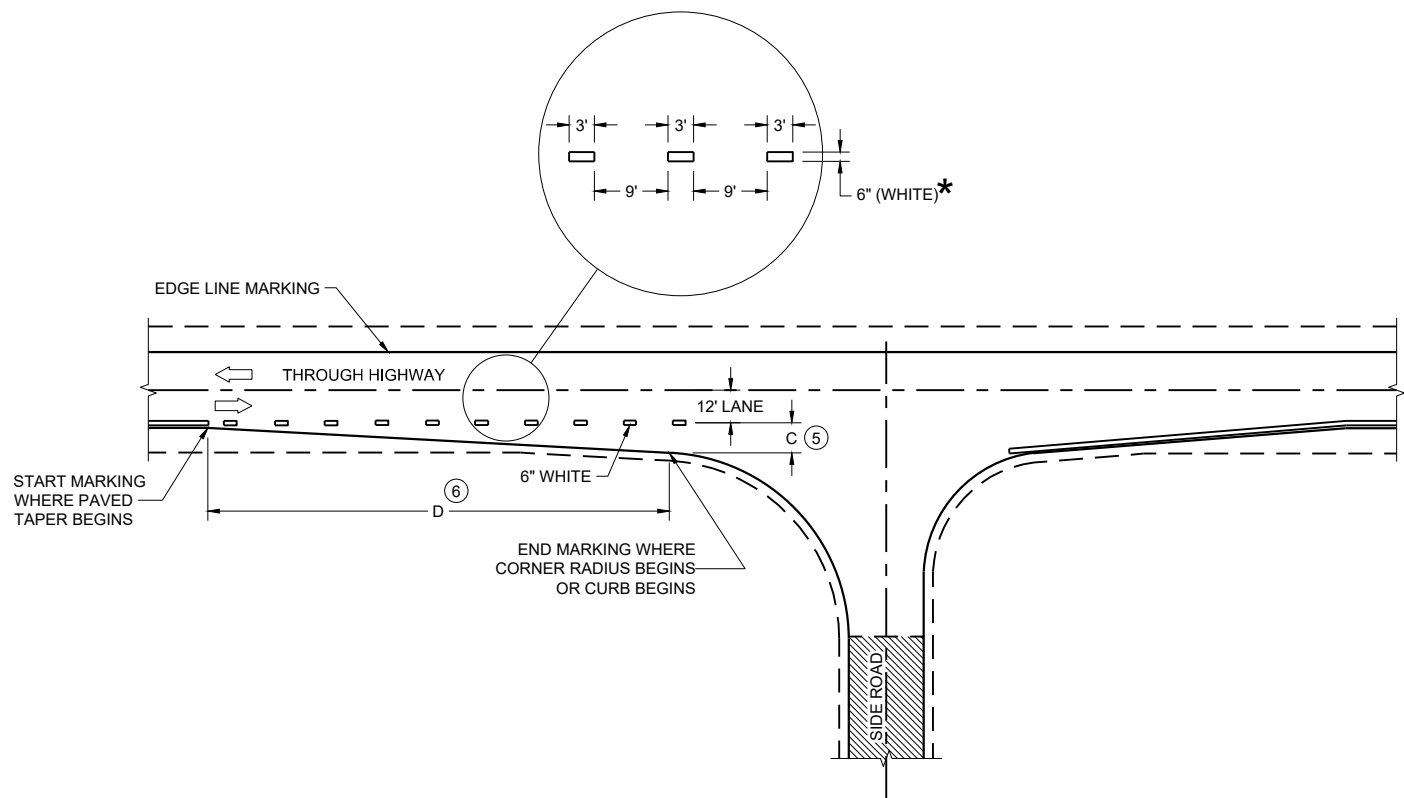
WORKERS SHALL NOT PERFORM WORK FROM ANY SHADOW OR PROTECTION VEHICLES.

CONES SHOULD BE USED BETWEEN THE MARKING AND SHADOW VEHICLE AT 100 FOOT SPACING. CONES MAY BE OMITTED ON PAINTED LINE IF APPROVED BY THE ENGINEER. CONSIDER PAVEMENT MARKING DRY OR CURE TIMES AND TRAFFIC VOLUME.

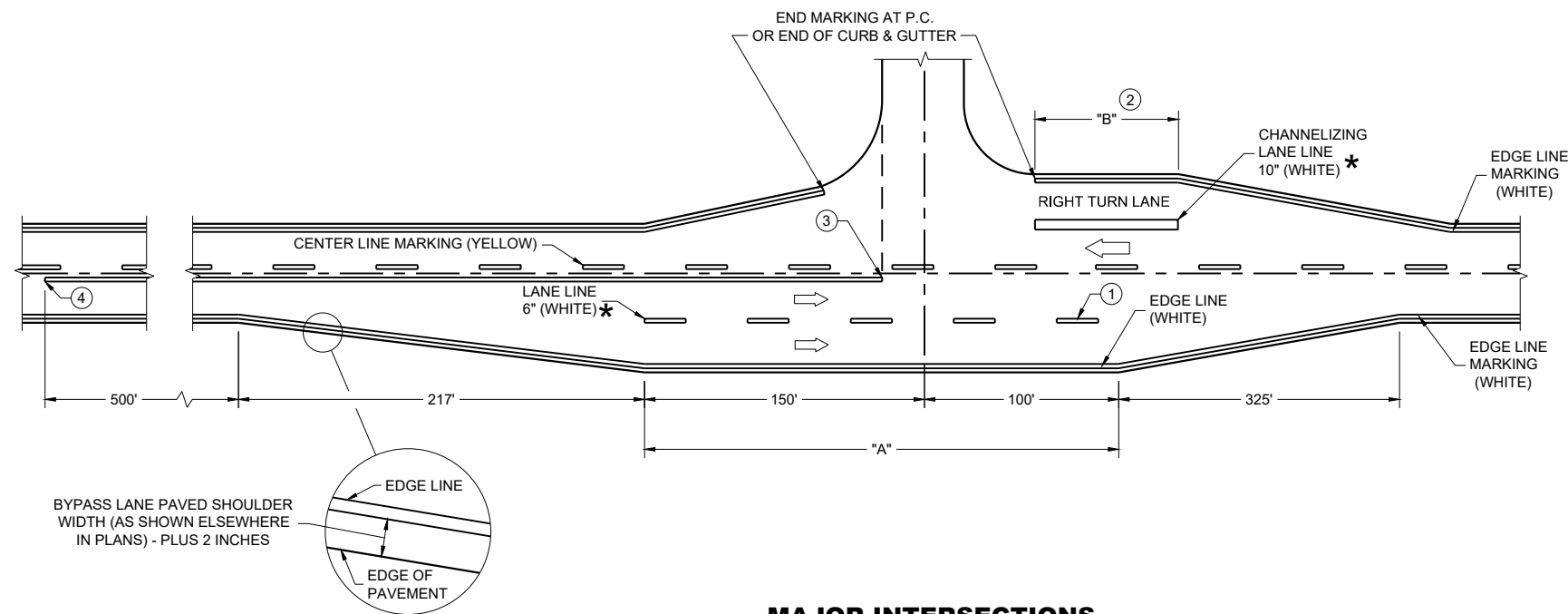
CONES SHALL BE A MINIMUM OF 28" FOR WET PAVEMENT MARKING .

- ① SIGNS SHALL BE REPEATED APPROXIMATELY EVERY THREE MILES AND AFTER EVERY MAJOR INTERSECTION.
- ② IF CONSTRUCTION WORK ZONE SIGNS ARE IN PLACE, W20-1A OR W21-63 ARE NOT REQUIRED.
- ③ V1 AND V2 CAN BE SWITCHED SO THAT THE MARKER IS THE LEAD VEHICLE.





MINOR INTERSECTION



MAJOR INTERSECTIONS
(INTERSECTION WITH FULL RIGHT TURN LANE OR BYPASS LANE)

*CONFIRM MARKING LINE WIDTH WITH THE MISCELLANEOUS QUANTITIES

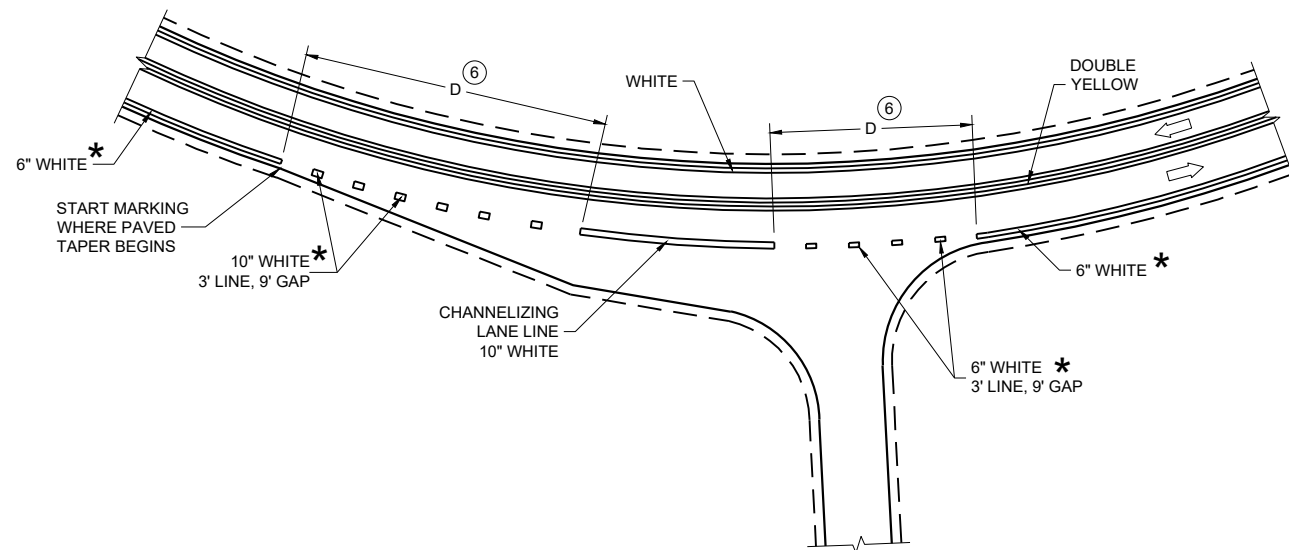
GENERAL NOTES

OMIT EDGE LINES THROUGH INTERSECTIONS. CONTINUE EDGE LINES THROUGH DRIVEWAYS.

- ① WHEN DISTANCE "A" IS LESS THAN 250 FEET, OMIT LANE LINE.
- ② WHEN DISTANCE "B" IS LESS THAN 100 FEET, OMIT CHANNELIZING LANE LINE.
- ③ BARRIER LINE ENDS AT SIDE ROAD PAVEMENT / SURFACE EDGE EXTENSION.
- ④ BARRIER LINE STARTS 500 FEET PRIOR TO THE BYPASS TAPER.
- ⑤ WHEN DISTANCE "C" IS LESS THAN 4 FEET, OMIT DOTTED EXTENSION.
- ⑥ WHEN DISTANCE "D" IS LESS THAN 50 FEET, OMIT DOTTED EXTENSION.

LEGEND

➡ DIRECTION OF TRAVEL



INTERSECTION ON OUTSIDE OF CURVE

PAVEMENT MARKING
(INTERSECTIONS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

- SIGN ON PERMANENT SUPPORT
- TRAFFIC CONTROL DRUM
- DIRECTION OF TRAFFIC
- WORK ZONE

ALL SIGNS ARE 48"X48" UNLESS OTHERWISE NOTED. IF NECESSARY DUE TO SPACE CONSTRAINTS IN URBAN AREAS, 36" X 36" SIGNS MAY BE USED IF APPROVED BY THE REGIONAL TRAFFIC UNIT.

"WO" SIGN IS THE SAME AS "W" SIGN EXCEPT THE BACKGROUND IS ORANGE.

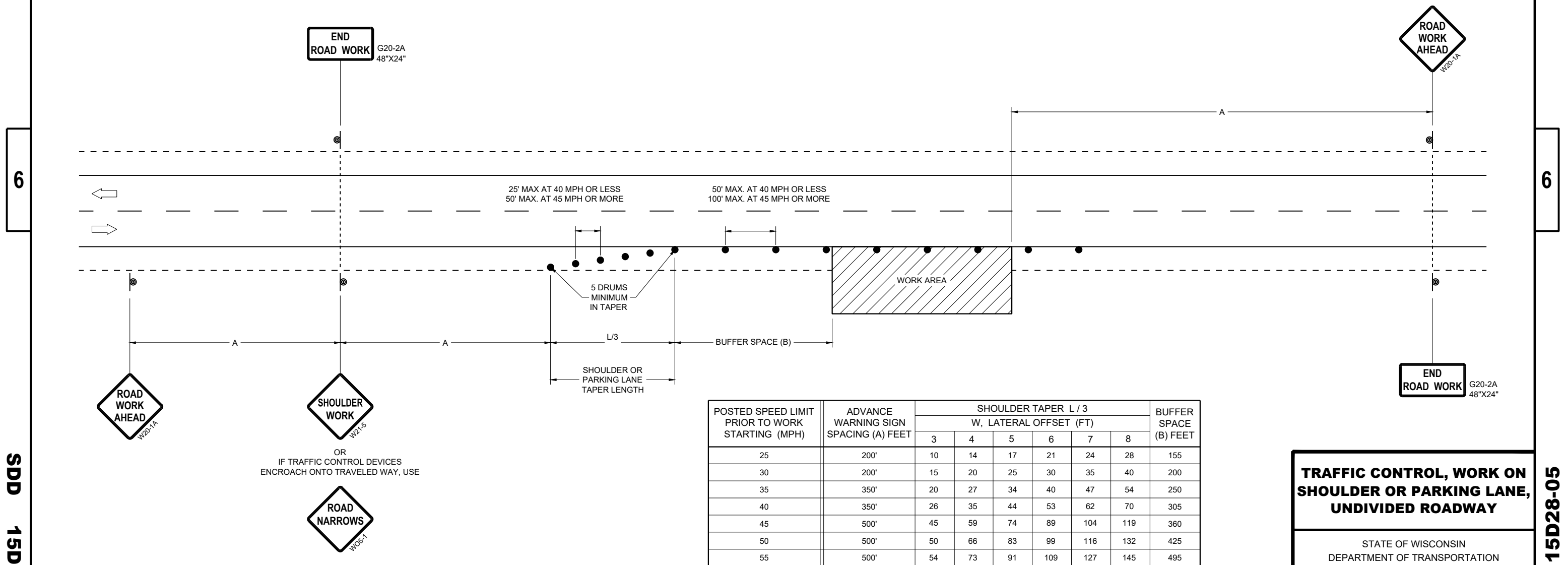
ANY SIGNS TEMPORARY OR EXISTING, WHICH CONFLICT WITH THE TRAFFIC CONTROL "IN USE" SHALL BE REMOVED OR COVERED AS NEEDED AND AS APPROVED BY THE ENGINEER.

THE EXACT NUMBER, LOCATION, AND SPACING OF ALL SIGNS AND DEVICES SHALL BE ADJUSTED TO FIT FIELD CONDITIONS AS APPROVED BY THE ENGINEER.

CHANNELIZING DEVICES PLACED ADJACENT TO WORK AREA SHALL BE PULLED BACK FROM THE TRAVEL LANE WHEN WORK IS NOT IN PROGRESS.

SIGNS THAT WILL BE IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS MAY BE MOUNTED ON PORTABLE SUPPORTS.

W20-1A AND G20-2A SIGNS ARE NOT REQUIRED IF THE WORK AREA IS WITHIN A LARGER WORK ZONE WHERE THESE SIGNS ARE ALREADY PRESENT. G20-2A SIGNS MAY ALSO BE OMITTED IF DURATION OF WORK IS LESS THAN 7 CONTINUOUS DAYS AND NIGHTS.



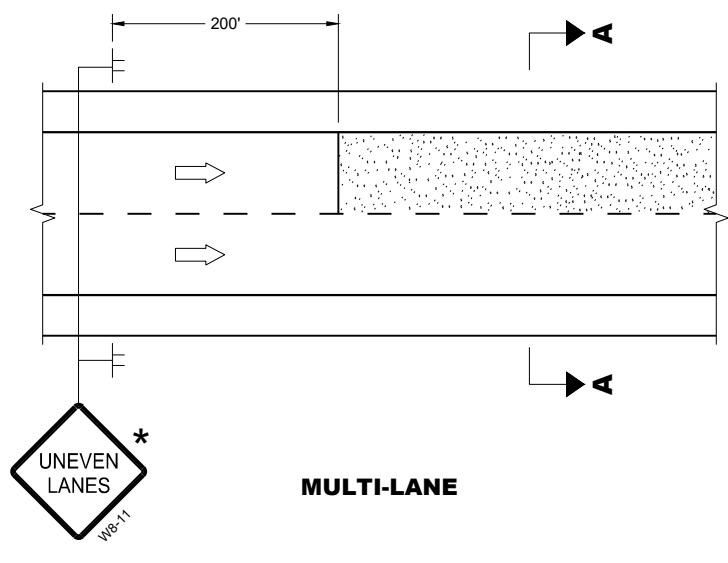
POSTED SPEED LIMIT PRIOR TO WORK STARTING (MPH)	ADVANCE WARNING SIGN SPACING (A) FEET	SHOULDER TAPER L / 3						BUFFER SPACE (B) FEET
		W, LATERAL OFFSET (FT)						
		3	4	5	6	7	8	
25	200'	10	14	17	21	24	28	155
30	200'	15	20	25	30	35	40	200
35	350'	20	27	34	40	47	54	250
40	350'	26	35	44	53	62	70	305
45	500'	45	59	74	89	104	119	360
50	500'	50	66	83	99	116	132	425
55	500'	54	73	91	109	127	145	495

TRAFFIC CONTROL, WORK ON SHOULDER OR PARKING LANE, UNDIVIDED ROADWAY

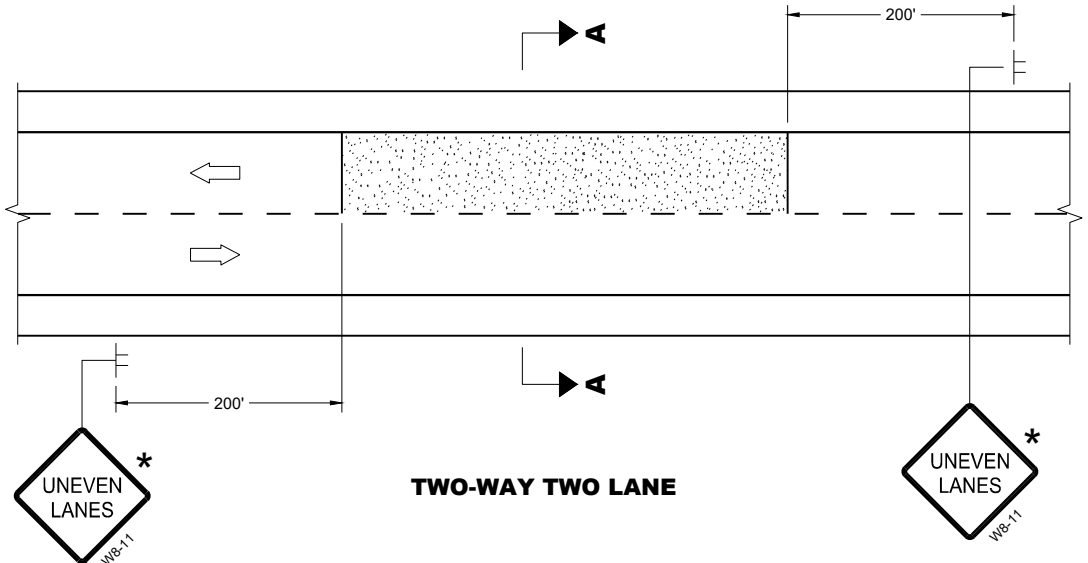
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
November 2025
DATE

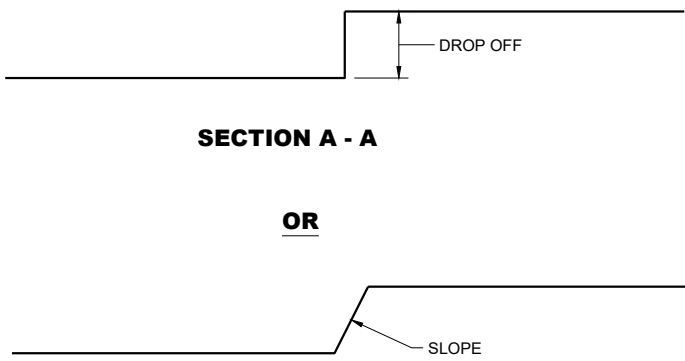
/S/ ANDREW HEIDTKE
STATEWIDE WORK ZONE TRAFFIC
SAFETY ENGINEER



MULTI-LANE



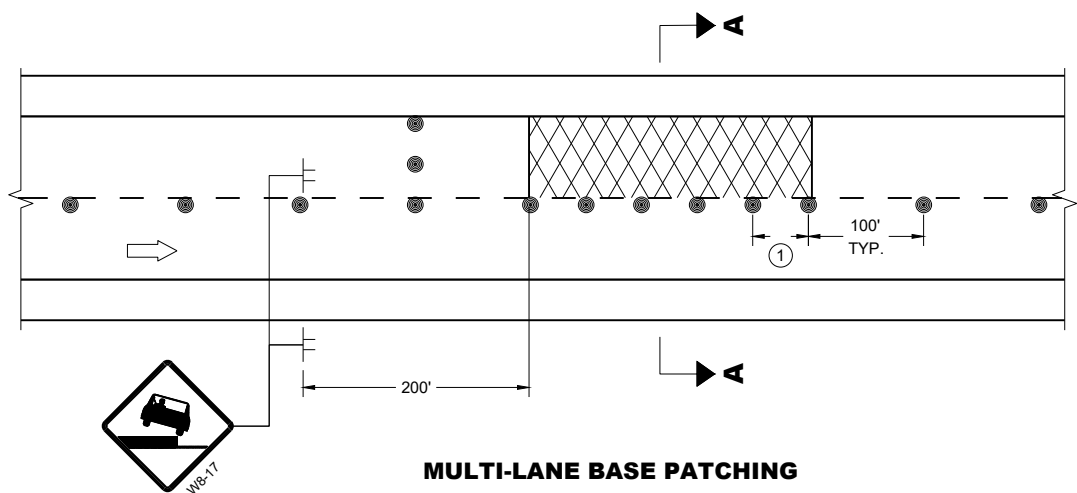
TWO-WAY TWO LANE



SECTION A - A

OR

SECTION A - A



MULTI-LANE BASE PATCHING

ADJACENT LANE DROP-OFFS

GENERAL NOTES

FOR SPOT LOCATIONS USE ENGINEERING JUDGEMENT WHEN PLACING ADDITIONAL SIGNS.

ALL SIGNS ARE 48" X 48" UNLESS OTHERWISE NOTED.

"WO" SIGNS ARE THE SAME AS "W" SIGNS EXCEPT THE BACKGROUND IS ORANGE.

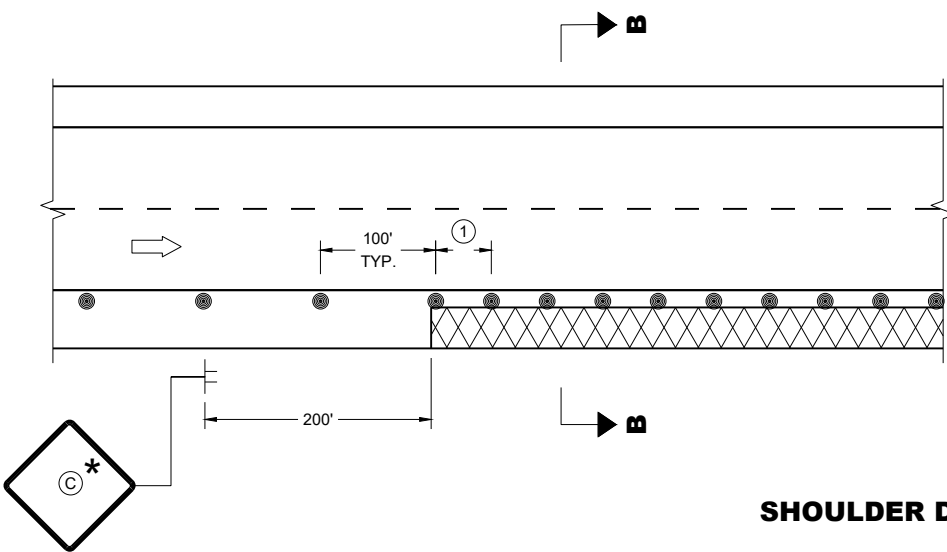
WARNING LIGHTS ARE NOT REQUIRED IF THE LANE CLOSURE IS A DAYTIME ONLY OPERATION.

★ IF THE DROP-OFF IS CONTINUOUS ALONG THE PROJECT, PLACE ADDITIONAL SIGNS EVERY 1 MILE AND AFTER EVERY ENTRANCE RAMP.

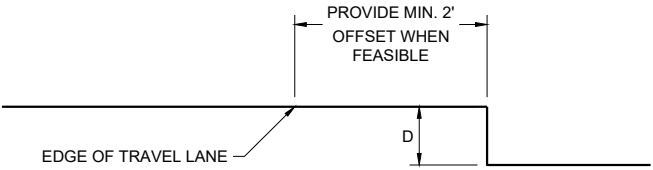
① USE CLOSER SPACING WHEN DELINEATING DROP-OFF.

LEGEND

- SIGN ON TEMPORARY SUPPORT
- TRAFFIC CONTROL DRUM
- TYPE III BARRICADE WITH ATTACHED SIGN
- TYPE "A" WARNING LIGHT (FLASHING)
- DIRECTION OF TRAFFIC
- WORK AREA WITH DROP-OFF
- MILLED SURFACE



SHOULDER DROP-OFFS



SECTION B - B

D	SIGN ③
< 2" WITH A SLOPE STEEPER THAN 3:1	LOW SHOULDER WO8-9
2" < 6" WITH A SLOPE STEEPER THAN 3:1	SHOULDER DROP - OFF WB-9A
PROVIDE A 3:1 OR FLATTER SLOPE OF MATERIAL ADJACENT TO THE PAVEMENT	

TRAFFIC CONTROL,
DROP-OFF SIGNING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
February 2025
DATE

/S/ Andrew Heidtke
WORK ZONE ENGINEER

FHWA

LEGEND

- V1

WORK VEHICLE
- V2

SHADOW VEHICLE
- 

TRUCK MOUNTED ATTENUATOR (TMA)
- 

FLASHING ARROW PANEL (CAUTION)
- 

WORK AREA
- 

DIRECTION OF TRAFFIC

POSTED SPEED PRIOR TO WORK STARTING (MPH)	DECISION SIGHT DISTANCE (D)
0 - 25	550'
30	550'
35	700'
40	700'
45	900'
50	900'
55	1200'

GENERAL NOTES

ALL SIGNS ARE 48"X48" UNLESS OTHERWISE NOTED.

MOBILE IS WORK THAT MOVES CONTINUOUSLY OR MOVES AT LEAST THE DECISION SIGHT DISTANCE EVERY 15 MINUTES.

ALL VEHICLES SHALL BE EQUIPPED WITH TWO 360 DEGREE HIGH INTENSITY YELLOW FLASHING LIGHTS OR STROBE LIGHTS AND OPERATED WITH HEADLIGHTS TURNED ON.

ALL ARROW PANELS SHALL BE REAR FACING, TYPE "B" OR "C", AND DISPLAYING THE FLASHING CAUTION MODE. SIGNS PLACED ON VEHICLES MUST NOT OBSCURE THE ARROW PANEL.

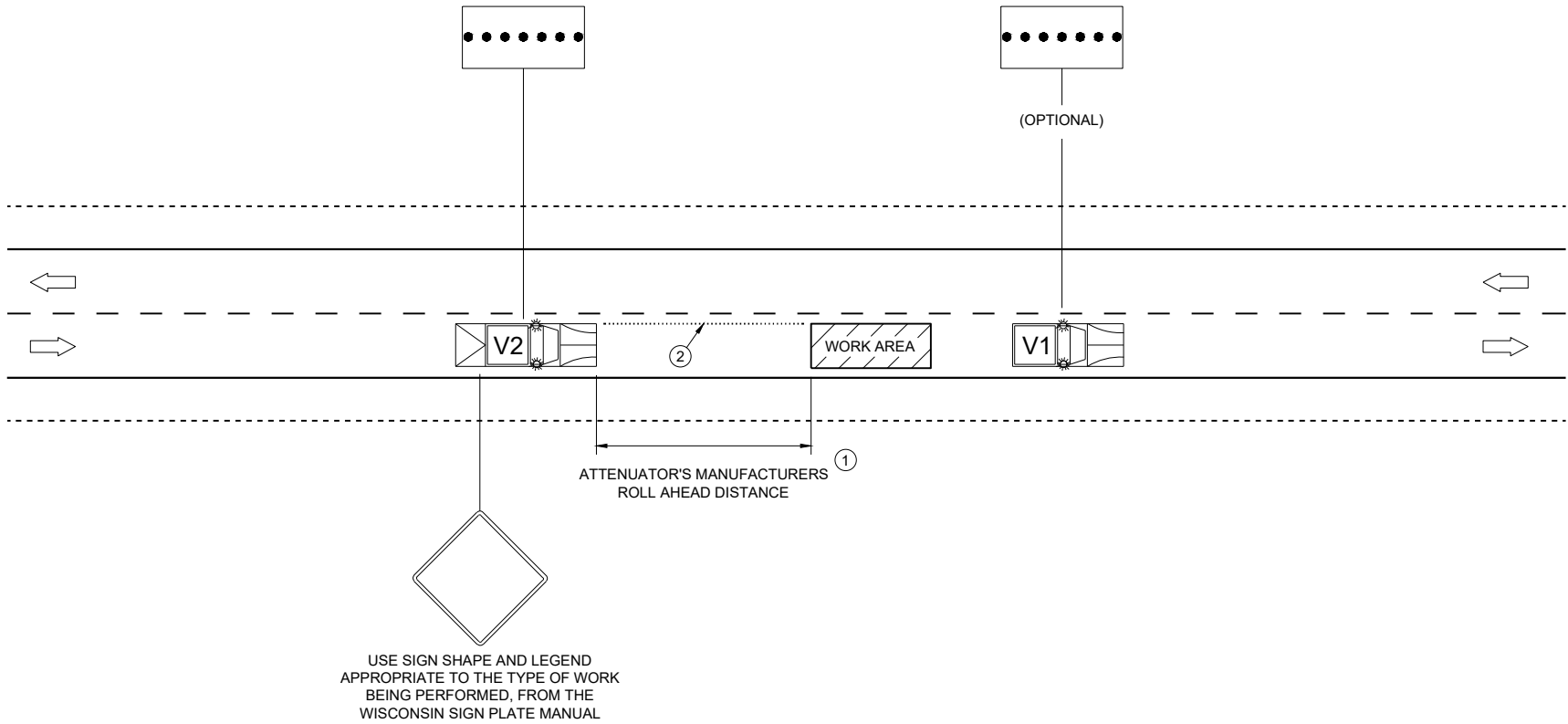
USE AN ATTENUATOR ON THE REARMOST VEHICLE THAT BLOCKS ALL OR PART OF THE TRAFFIC LANE.

WORKERS SHALL NOT PERFORM WORK FROM ANY SHADOW OR PROTECTION VEHICLES.

- 1

DISTANCE BETWEEN VEHICLES MAY INCREASE FROM THE ATTENUATOR'S ROLL AHEAD BASED ON TERRAIN, SIGHT DISTANCE, AND OTHER FACTORS. WHENEVER ADEQUATE STOPPING SIGHT DISTANCE EXISTS TO THE REAR, SHADOW VEHICLES SHOULD MAINTAIN THE MINIMUM DISTANCE FROM THE WORK VEHICLE AND PROCEED AT THE SAME SPEED AS THE WORK VEHICLE. SHADOW VEHICLES SHOULD SLOW DOWN IN ADVANCE OF VERTICAL OR HORIZONTAL CURVES THAT RESTRICT SIGHT DISTANCE.
- 2

ALIGN LEFT SIDE OF SHADOW VEHICLE WITH EDGE OF WORK AREA.



TRAFFIC CONTROL,
MOBILE OPERATIONS ON
AN UNDIVIDED ROADWAY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

November 2025

DATE

/S/ Andrew Heidtke

STATEWIDE WORK ZONE TRAFFIC SAFETY ENGINEER

FHWA

JCT

INTERSTATE

00

J1-1

JCT

END

INTERSTATE

00

00

J1-2

JCT

JCT

END

INTERSTATE

00

00

COUNTY

0

J1-3

END

RUSTIC ROAD

JR1-1

NORTH

INTERSTATE

00

↶

J2-1

WEST

NORTH

INTERSTATE

00

00

↶

↱

J2-2

WEST

NORTH

EAST

INTERSTATE

00

00

00

↶

↱

↗

J2-3

NORTH

00

↶

J3-1

EAST

EAST

INTERSTATE

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J3-2

EAST

SOUTH

WEST

INTERSTATE

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J3-3

NORTH

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J4-1

ALT

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COUNTY

0

J4-2

WEST

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COUNTY

0

J4-2

TO

EAST

INTERSTATE

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J32-1

TO

WEST

INTERSTATE

00

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J33-1

TO

INTERSTATE

00

↶

J22-1

TO

INTERSTATE

00

↶

J23-1

RUSTIC ROAD

↶

JR13-1

TO

RUSTIC ROAD

↶

JR23-1

RUSTIC ROAD

R 120

NEXT 2 MILES

JR99-1

FRONTAGE ROAD

↶

J12-1

COUNTY

0

↶

J13-1

WEST

00

↶

JV

(Typical Vertical J-Assembly
See Note 10 and 11)

H

↶

JH-1

Blue Background

Black

blue background with interstate

blue

white

black

white

blue

WEST

NORTH

EAST

INTERSTATE

00

00

00

↶

↱

↗

black

white

black background

ROUTE MARKERS & COMPONENTS
IN TYPICAL ASSEMBLIES

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 6/7/23 PLATE NO. A2-1S.10

NOTES

1. Signs are Type II - Type H Reflective

2. Color:
Background - Black Non-reflective
Message - see Note 4

3. Message Series - See Note 4

4. The colors and message spacing on each marker shall be according to the applicable route marker panel specifications.

5. Certain marker heads require the component pieces to be the same color. As an example, all the components used with an M1-1 Interstate marker shall be blue.

6. Single panel j-assemblies shall only be used with route marker shields that are same size. If the route marker shields are different size use multiple piece component.

7. Route assemblies that have 24 inch route shields and have dimensions greater than 48 inches (both vertical and horizontal) shall have one horizontal splice between the arrows and route shields. Vertical splices shall not be used on route assemblies with a horizontal dimension of 144 inches or less. The contractor shall not use more than one vertical joint per sign and the joint shall be between route shields.

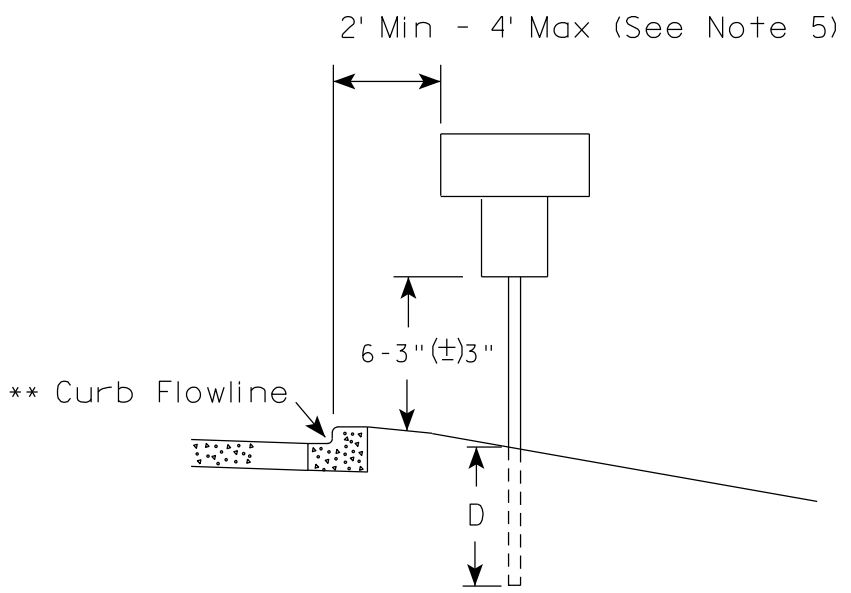
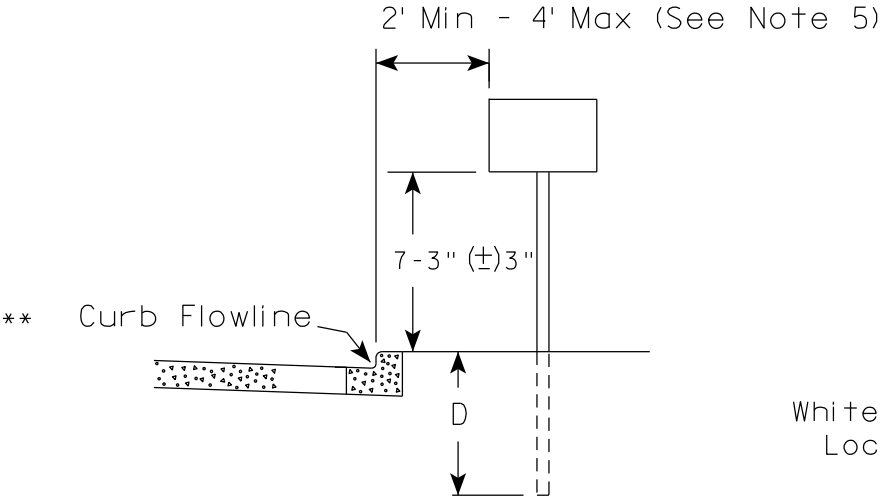
8. Route assemblies that have 36 inch shields and have dimensions greater than 48 inches (both vertical and horizontal) shall have two horizontal splices. One horizontal splice shall be between the cardinal direction and route shields and the other horizontal splice shall be between the arrows and route shields. Vertical splices shall not be used on route assemblies with a horizontal dimension of 144 or less. The contractor shall not use more than one vertical joint per sign and the joint shall be between route shields.

9. All Vertical J Assemblies are given a Sign Code of JV

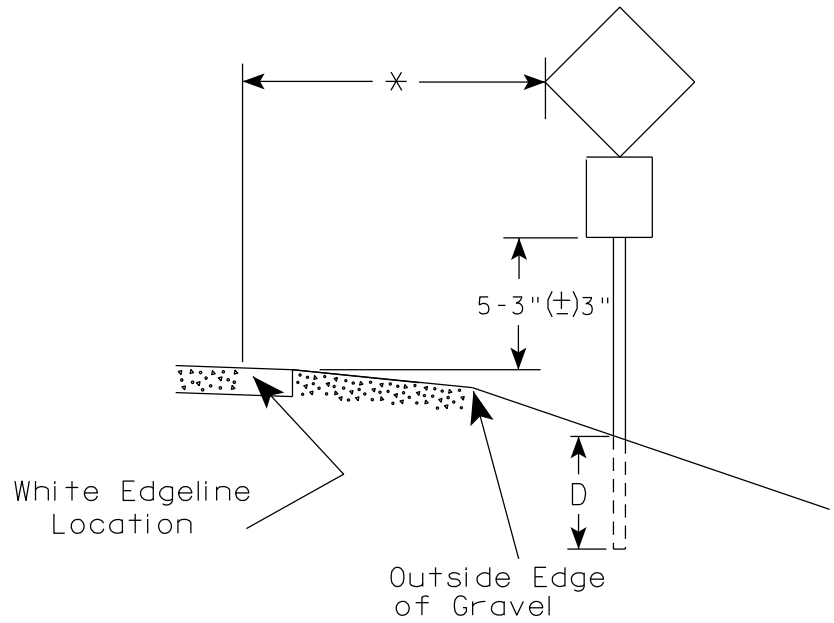
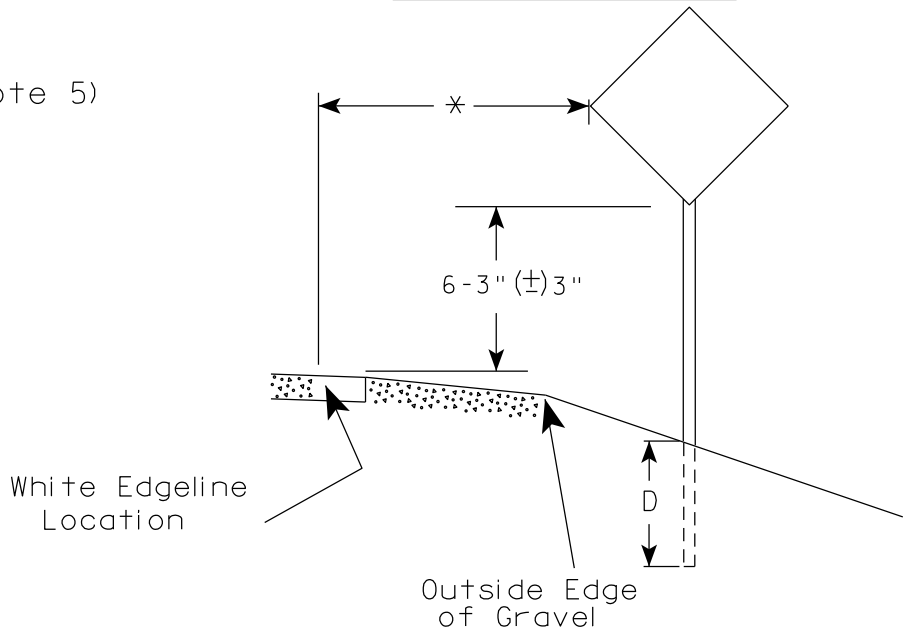
10. For JV Assemblies that have a mixture of Interstate and Non-Interstate shields, arrows and cardinals shall be white on blue.

11. For JV Assemblies that have a mixture of Non-Interstate and Auto-Tour shields, arrows and cardinals shall be black on white.

URBAN AREA



RURAL AREA (See Note 2)



GENERAL NOTES

1. Signs wider than 4 feet or 20 sq.ft or larger, shall be mounted on multiple posts. Refer to plate A4-4.
2. If signs are mounted on or behind barrier wall, see A4-10 sign plate.
The Double Arrow sign (W12-1D) shall be mounted at a height of 2'-3" (±) 3". The Chevron sign (W1-8), Roundabout Chevron panel (R6-4B), Enhanced Reference Markers, Clearance Markers (W5-52), Mile Markers (D10 series), In Road Object Markers (W5-54) & End of Road Markers (W5-56) shall be mounted at a height of 4'-3" (±) 3".
3. For expressways and freeways, mounting height is 7'- 3" (±) 3" or 6'-3" (±) 3" depending upon existence of a sub-sign.
4. Minimum mounting height for signs mounted on traffic signal poles is 5'- 3" (±) 3".
5. Offset distance shall be consistent with existing signs or consistent throughout length of project.
6. Folding signs shall be mounted at a height of 5'-3" (±) 3" or as directed by the Engineer.

POST EMBEDMENT DEPTH

Area of Sign Installation (Sq. Ft.)	D (Min)
20 or Less	4'
Greater than 20	5'

* * The existence of curb and gutter does not in itself mandate the vertical clearance illustrated. That height is typically measured where there is sidewalk adjacent to the roadway or parking is permitted. In the absence of sidewalk vertical clearance is measured from the top of the curb. Offset of signs is measured from the flow line.

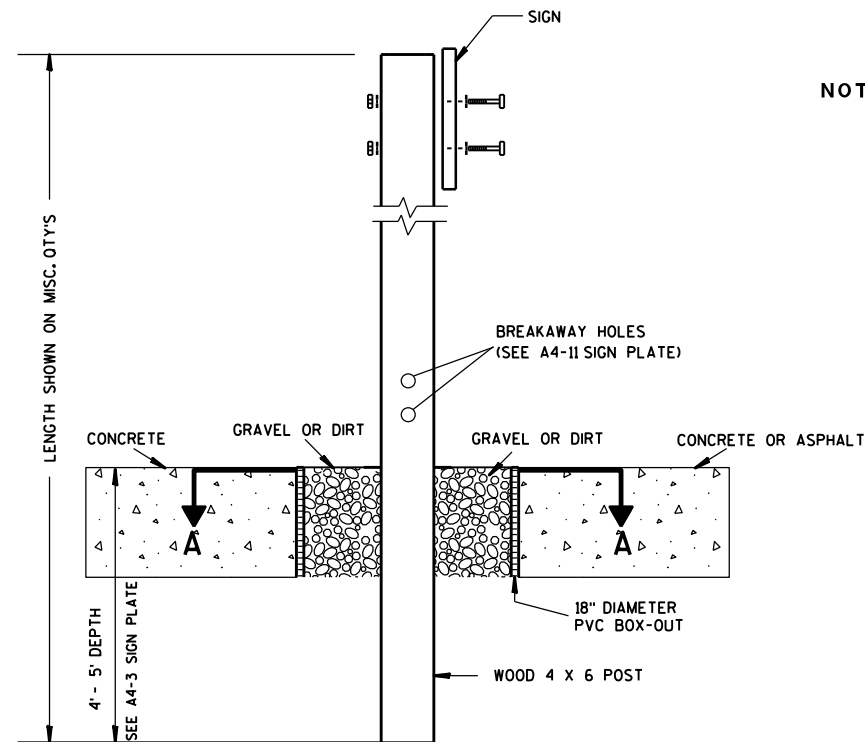
* 6 feet from edge of a paved shoulder or 12 feet from the edge of pavement (edge line location) or 2 feet from outside edge of gravel, whichever is greater unless directed by project engineer.

TYPICAL INSTALLATION
OF PERMANENT TYPE II
SIGNS ON SINGLE POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED 
for State Traffic Engineer

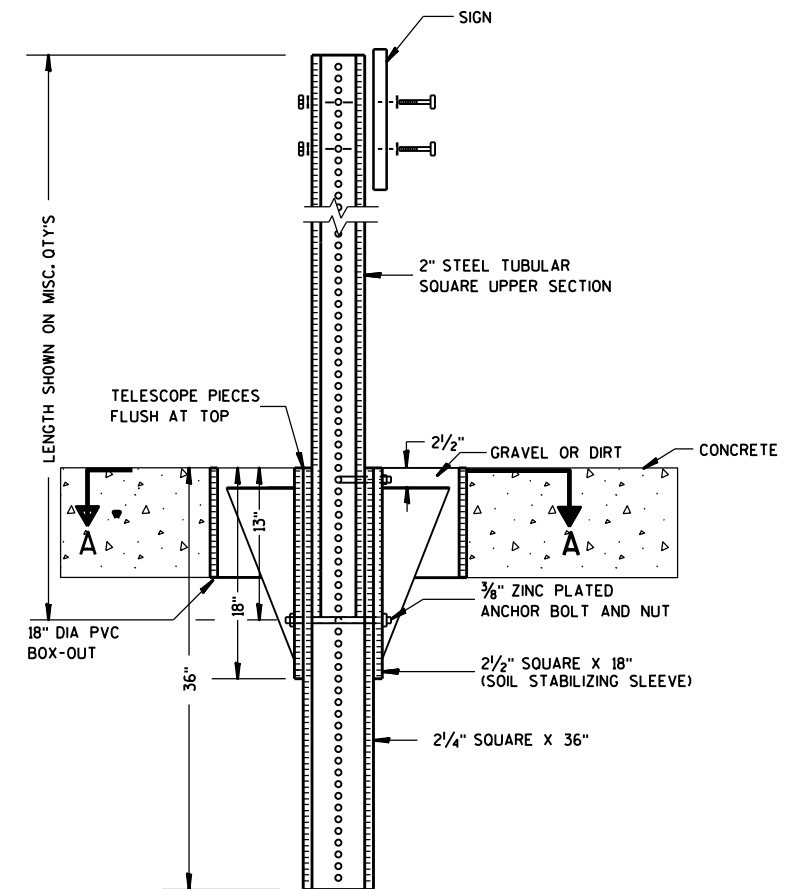
DATE 12/6/23 PLATE NO. A4-3.23



ELEVATION VIEW

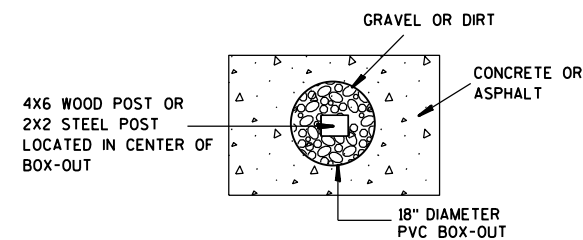
DETAIL OF WOOD 4 X 6 SIGN POST IN BOX-OUT

- NOTES: 1. ALL MATERIAL TO BE APPROVED BY ENGINEER PRIOR TO INSTALLATION
2. SEE SIGN PLATE A4-8 FOR SIGN HARDWARE REQUIREMENTS
3. 18 INCH X 18 INCH SQUARE BOX-OUTS MAY BE USED FOR INSTALLATIONS IN EXISTING CONCRETE OR ASPHALT LOCATIONS.



ELEVATION VIEW

DETAIL OF STEEL 2 X 2 SIGN POST IN BOX-OUT



PLAN VIEW

FOR NEW CONCRETE/ASPHALT INSTALLATIONS

SIGN POST
BOX-OUTS
A4-3B

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 1/27/14 PLAT 146 A4-3B.1

PROJECT NO:

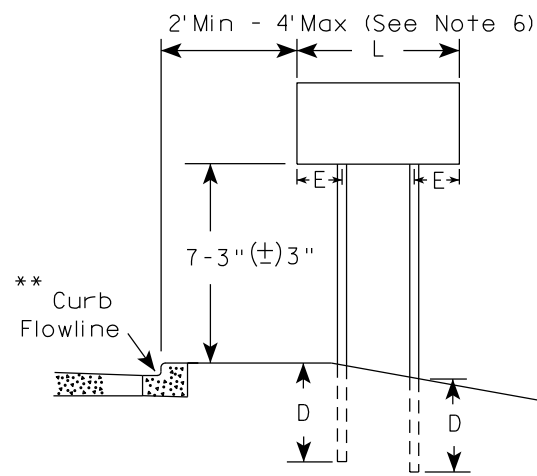
HWY:

COUNTY:

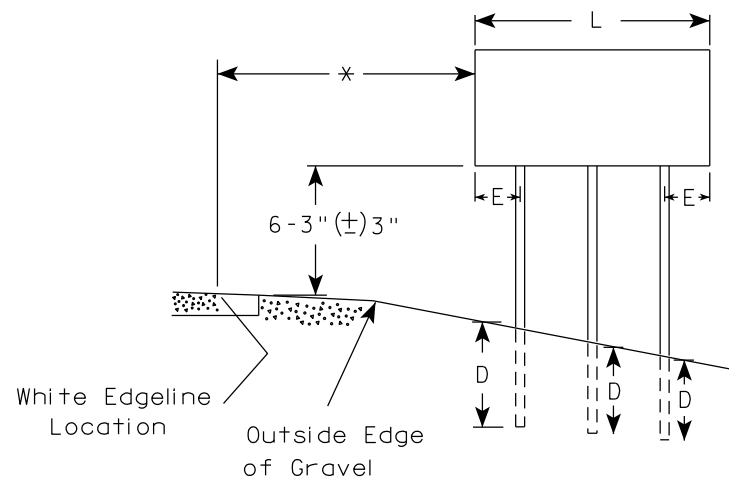
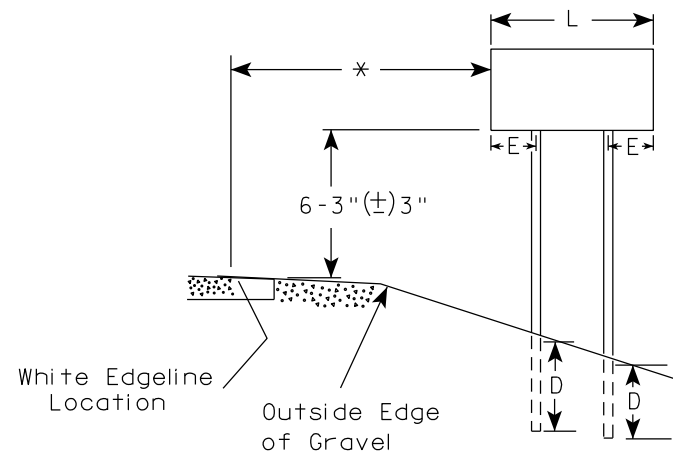
SHEET NO:

E

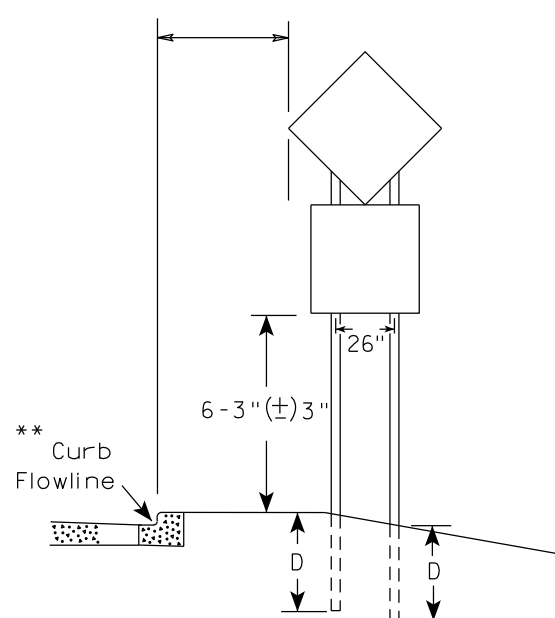
URBAN AREA



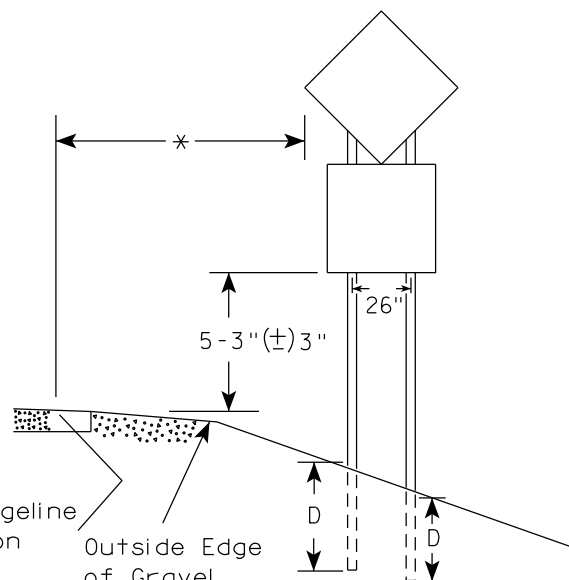
RURAL AREA (See Note 3)



2' Min - 4' Max (See Note 6)



48" DIAMOND WARNING SIGN



48" DIAMOND WARNING SIGN

SIGN SHAPE OTHER THAN DIAMOND (TWO POSTS REQUIRED)	
L	E
Greater than 48" Less than 60"	12"
60" to 108"	L/5

SIGN SHAPE OTHER THAN DIAMOND (THREE POSTS REQUIRED)	
L	E
Greater than 108" to 144"	12"

POST EMBEDMENT DEPTH

Area of Sign Installation (Sq.Ft.)	D (Min)
20 or Less	4'
Greater than 20	5'

TYPICAL INSTALLATION
OF TYPE II SIGNS
ON MULTIPLE POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 12/6/23 PLATE NO. A4-4.16

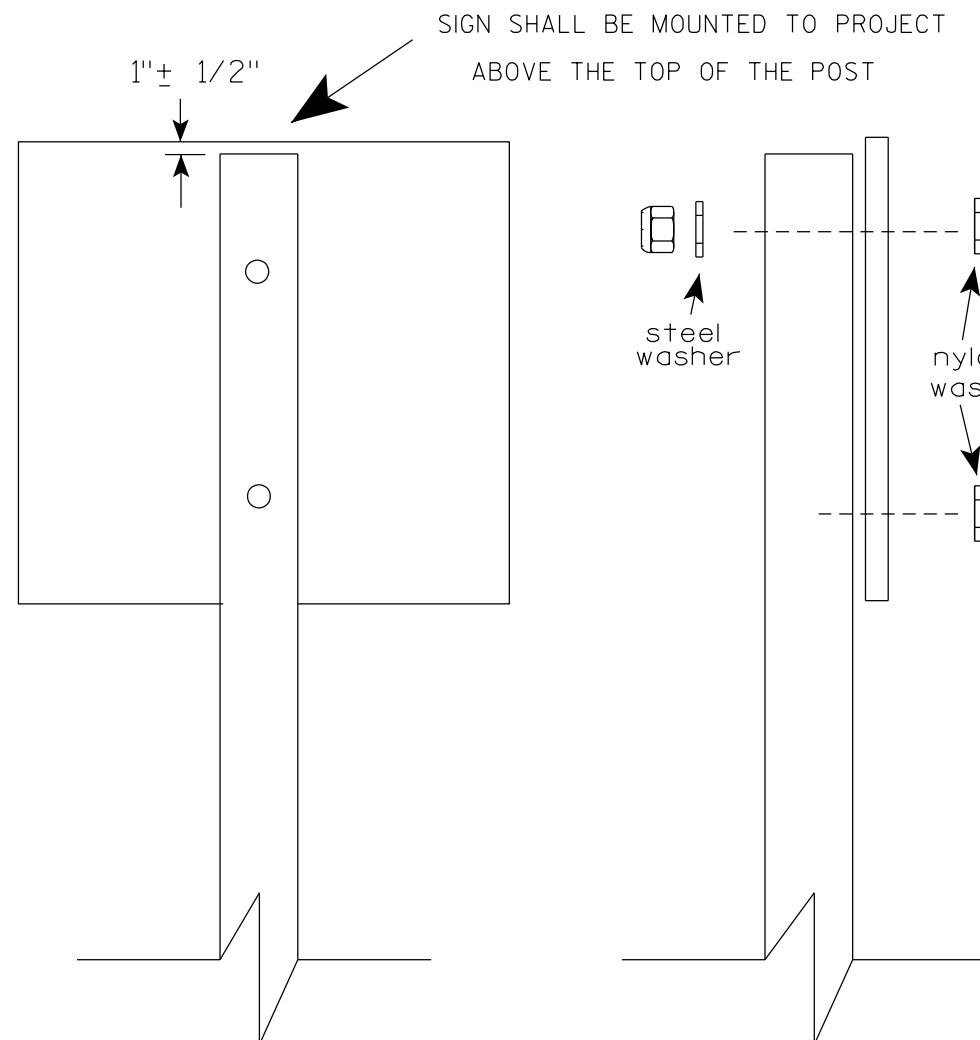
GENERAL NOTES

- For 3 or 4 post installations, individual post spacing shall be greater than 3'-6".
- See tables below for required number of posts.
- For expressways and freeways, mounting height is 7'-3" (±) 3" or 6'-3" (±) 3" depending upon existence of sub-sign.
- The (±) tolerance for mounting height is 3 inches.
- J-Assemblies are considered to be one sign for mounting height.
- Offset distance shall be consistent with existing signs or consistent throughout length of project.
- Folding signs shall be mounted at a height of 5'-3" (±) 3" or as directed by the engineer.
- The Double Arrow sign (W12-1) shall be mounted at a height of 2'-3" (±) 3". The Chevron sign (W1-8), Roundabout Chevron panel (R6-4B), Clearance Markers (W5-52), Mile Markers (D10 series), In Road Object Markers (W5-54) & End of Road Markers (W5-56) shall be mounted at a height of 4'-3" (±) 3".

* 6 feet from edge of a paved shoulder or 12 feet from the edge of pavement (edge line location) or 2 feet from outside edge of gravel, whichever is greater unless directed by project engineer.

** The existence of curb and gutter does not in itself mandate the vertical clearance illustrated. That height is typically measured where there is sidewalk adjacent to the roadway or parking is permitted. In the absence of sidewalk vertical clearance is measured from the top of the curb. Offset of signs is measured from the flow line.

*** See A4-3 sign plate for signs 4' or less in width and less than 20 S.F. in area.



Nuts, bolts and lags used for mounting signs shall have hexagonal heads and shall be either :

- a. Hot dip galvanized in accordance with ASTM Designation: A 153, Class D, or SC 3
- b. Electro-galvanized in accordance with ASTM Designation : B 633, TYPE III, SC 3.

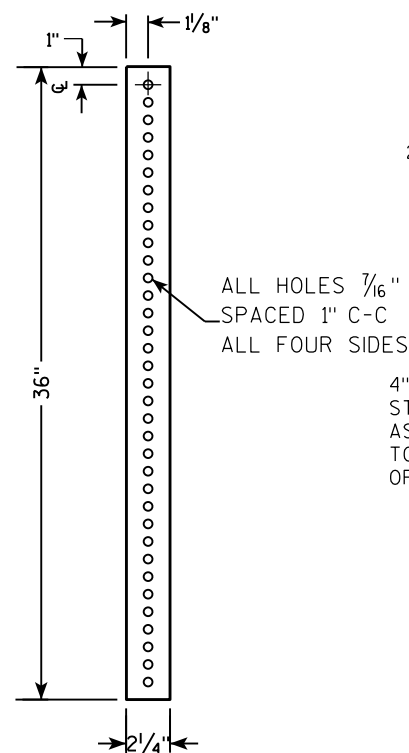
Threads on bolts and nuts shall be manufactured with sufficient allowance for the cadmium plate or galvanized coating to permit the nuts to run freely on the bolts.

- STRINGER BOLTING TO ALUMINUM SIGNS (SEE SIGN PLATE A4-18)
- MACHINE BOLTS - $\frac{5}{16}$ " X 1-3/4" Length w/ lock nuts
- WOOD POSTS (4" x 6")
- LAG SCREWS - $\frac{3}{8}$ " X 3" (NO STRINGERS ON BACK OF SIGN)
 $\frac{3}{8}$ " X 4" (STRINGERS ON BACK OF SIGN)
- SQUARE STEEL POSTS (2" x 2")
- MACHINE BOLTS - $\frac{3}{8}$ " X 3-1/4" Length w/ nuts (NO STRINGER ON BACK OF SIGN)
 $\frac{3}{8}$ " X 5" Length w/ nuts (STRINGERS ON BACK OF SIGN)
- RIVETS - $\frac{9}{32}$ " (6605-9-6) BULB-TITE, TRI-FOLD, ALUMINUM BODY/MANDREL
O.D. FLANGE .720-.765 INCH, GRIP RANGE .042-.375 INCH
- WASHERS (ALL POSTS) -
- 1-1/4" O.D. X $\frac{3}{8}$ " I.D. X $\frac{1}{16}$ " STEEL
 - 1-1/4" O.D. X $\frac{3}{8}$ " I.D. X .080 NYLON

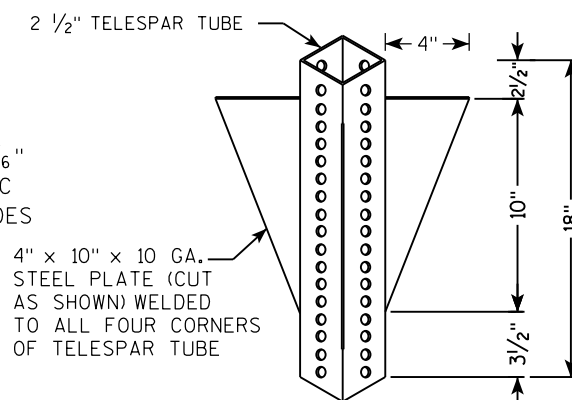
* Two different fastening systems are shown for illustration purposes. On any individual sign, either one or the other system shall be used. Actual number of fasteners per sign varies with the sign area, but normally there are two. For a single post installation, all signs greater than 9 sq. ft. require the use of 3 fasteners.

ATTACHMENT OF SIGNS TO POSTS	
WISCONSIN DEPT OF TRANSPORTATION	
APPROVED	<i>Matthew R. Rauch</i> For State Traffic Engineer
DATE 4/1/2020	PLATE NO. A4-8.9

**2 1/4" SQUARE
12 GAUGE
PERFORATED
GALVANIZED FINISH**



**2 1/2" SQUARE
12 GAUGE
OMNI-DIRECTIONAL
PERFORATED
SOIL STABILIZING SLEEVE
GALVANIZED FINISH**

[illegible]

TECHNICAL DRAWING OF A SIGNPOST ASSEMBLY.

Side View Dimensions:

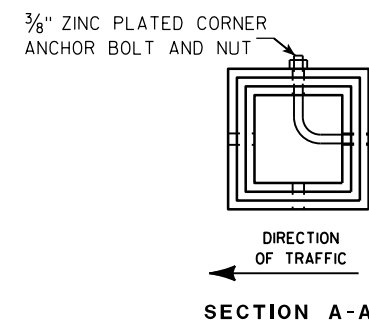
- Overall height: LENGTH SHOWN ON MISC. Q'TYS
- Section 1: 2" STEEL TUBULAR SQUARE UPPER SECTION
- Section 2: 2 1/2" SQUARE X 18" (SOIL STABILIZING SLEEVE)
- Section 3: 2 1/4" SQUARE X 36"
- Section 4: 36" (Total length of the bottom section)
- Section 5: 18"
- Section 6: 12"

Top View Dimensions:

- Overall width: 36"
- Section 1: 18"
- Section 2: 12"

Material and Assembly Details:

- ALL HOLES 7/16" SPACED 1" C-C ALL FOUR SIDES
- 3/8" ZINC PLATED CORNER ANCHOR BOLT AND NUT
- 3/8" ZINC PLATED ANCHOR BOLT AND NUT
- 2 1/2" SQUARE X 18" (SOIL STABILIZING SLEEVE)
- 2 1/4" SQUARE X 36"
- SEE SIGN PLATE A4-8 FOR BOLT WASHER, & NUT MATERIAL
- SIGN
- TELESCOPE PIECES FLUSH AT TOP



Area of Sign Installation (Sq. Ft.)	Number of Required Posts
9 or less	1
Greater than 9 less than or equal to 18	2
Greater than 18 less than or equal to 27	3

Signs wider than 3 feet or larger than 9 sq. ft shall be mounted on multiple posts (see above table).

TUBULAR STEEL
SIGN POST
A4-9

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R. Rauch

for State Traffic Engineer

DATE 2/05/15 PLATI 149 14-9.9

SHEET NO:

E

PROJECT NO:

HWY:

COUNTY:

FILE NAME : C:\CAEFiles\Projects\tr_stdplate\A49.DGN

PLOT DATE : 05-FEB-2015 17:09

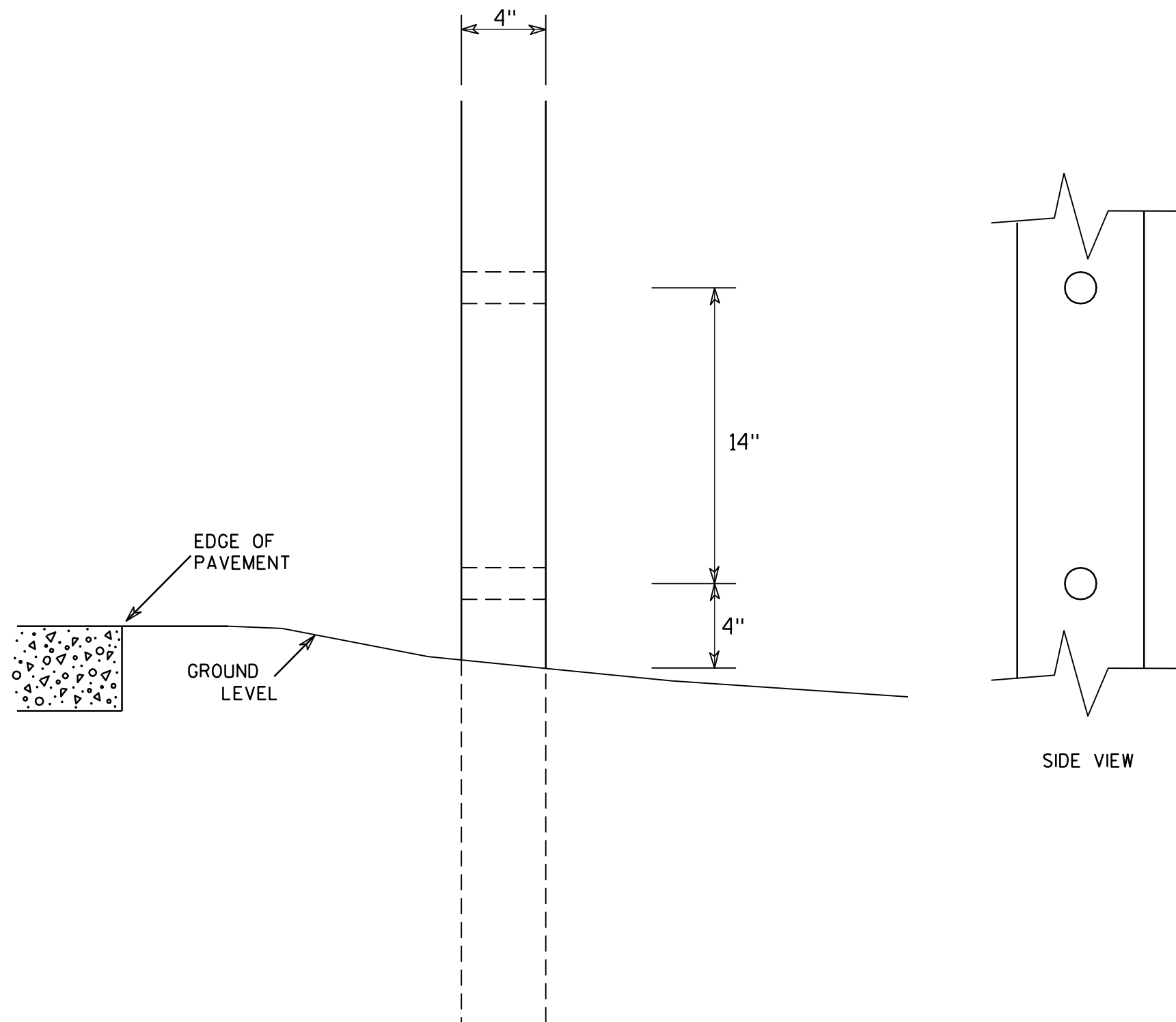
PLOT BY : mscs_ja

PLOT NAME :

PLOT SCALE : 13.659812:1.000000

WISDOT/CADDS SHEET 42

7

GENERAL NOTES

1. All 4 x 6 Wood Posts shall be modified by having two 1½" diameter holes drilled perpendicular to the roadway centerline.

7

**4 X 6 WOOD POST
MODIFICATIONS**

WISCONSIN DEPT OF TRANSPORTATION

APPROVED

Chester J. Spang
for State Traffic Engineer

DATE 3/27/97

PLATE NO. A4-11.2

PROJECT NO:

HWY:

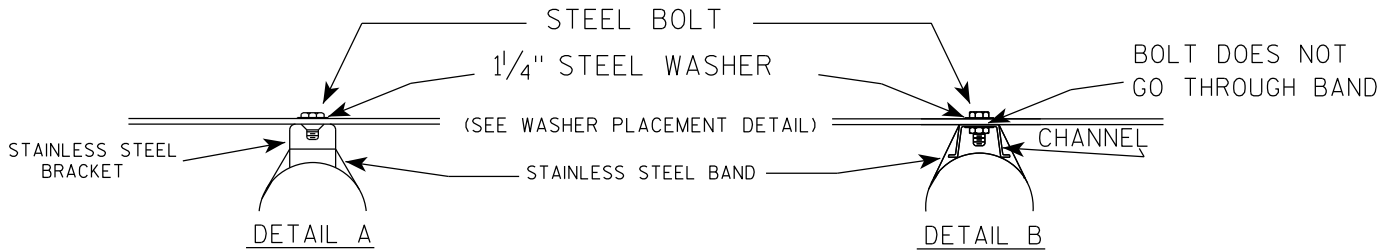
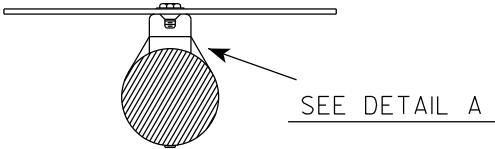
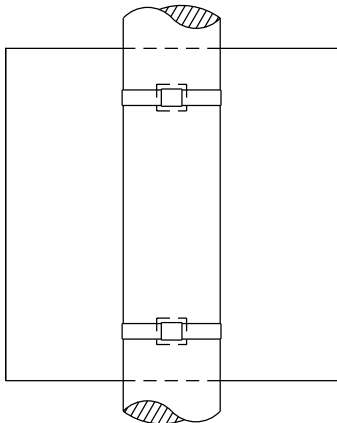
COUNTY:

SHEET NO: 150

E

BANDING

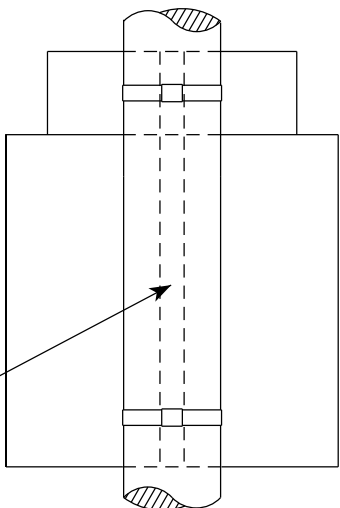
SINGLE SIGN



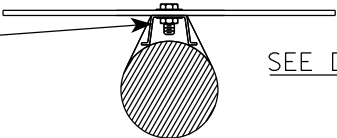
GENERAL NOTES

1. Any sign over 3 feet in width shall use the V-Block banding method. See A5-10 standard plate.
2. Signs 3 feet or greater in height shall have three bracket bands installed. Signs less than 3 feet in height shall have two bracket bands installed.
3. Banding and assembly bracket shall be stainless steel. All bands shall be $\frac{3}{4}$ " in width and 0.025" thickness.
4. ALL SIGN MOUNTING BOLTS AND WASHERS SHALL BE EITHER:
 - a. Hot dip or mechanically galvanized in accordance with ASTM Designation: A 153, Class D
 - b. Electro-galvanized in accordance with ASTM designation: B 633, Type III, SC 3

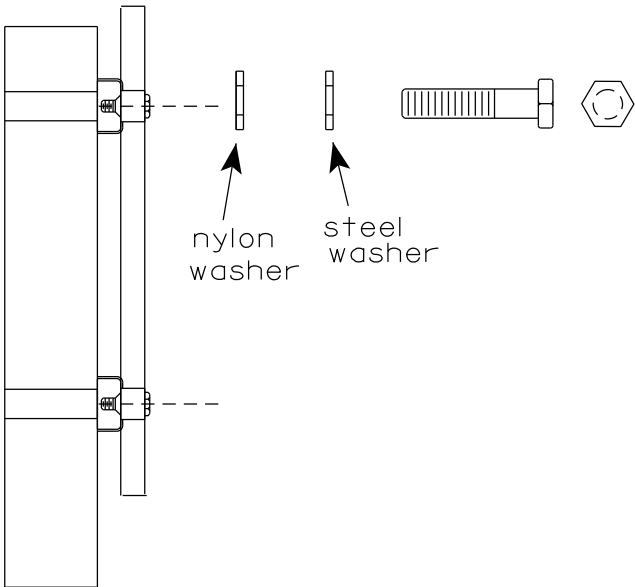
"J" ASSEMBLY



CHANNEL
SEE TYPICAL PANEL
INSTALLATION SHEET



WASHER PLACEMENT

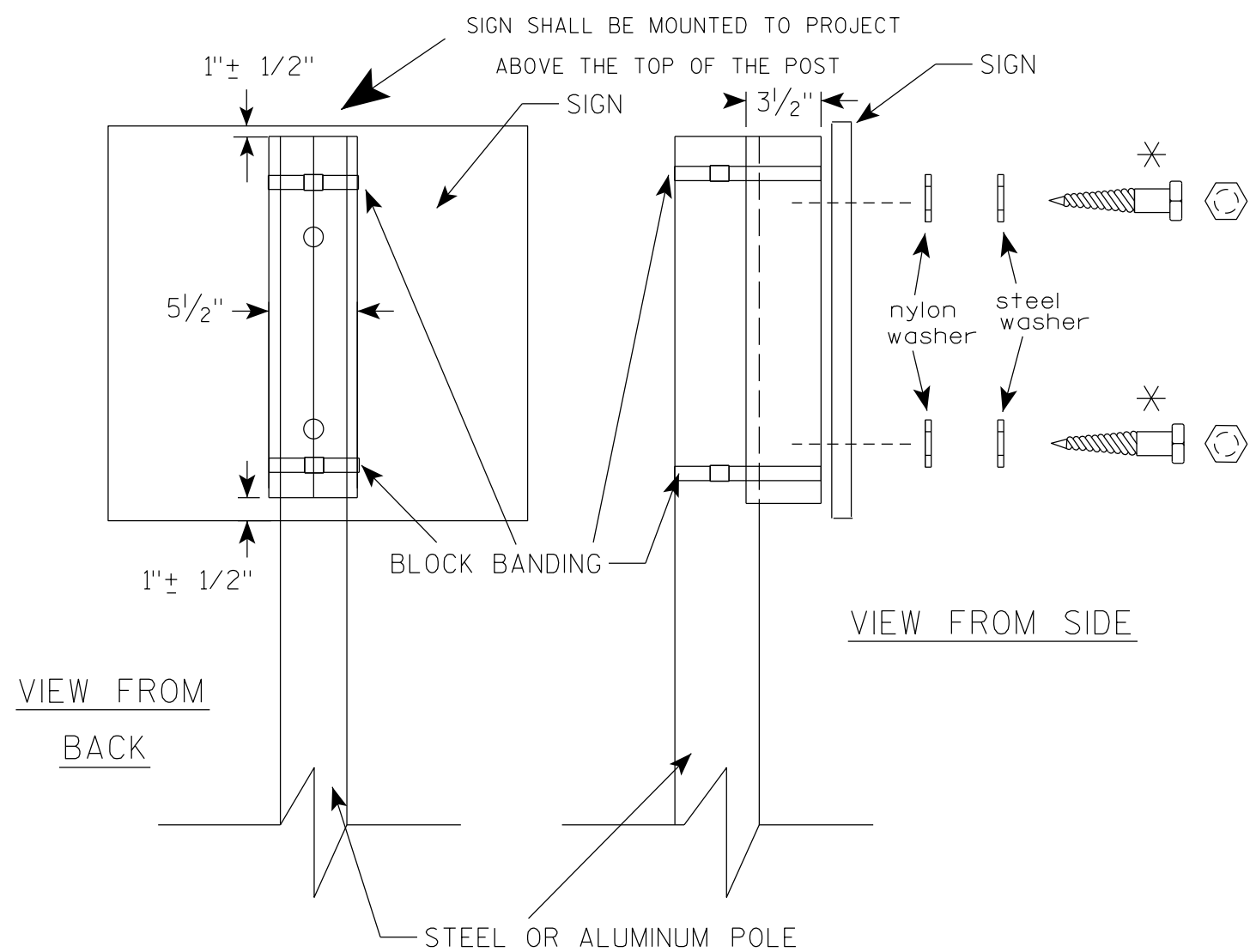


WASHERS (ALL POSTS) -
1-1/4" O.D. X $\frac{3}{8}$ " I.D. X $\frac{1}{16}$ " STEEL
1-1/4" O.D. X $\frac{3}{8}$ " I.D. X .080 NYLON
FOR ALL TYPE H SIGNS

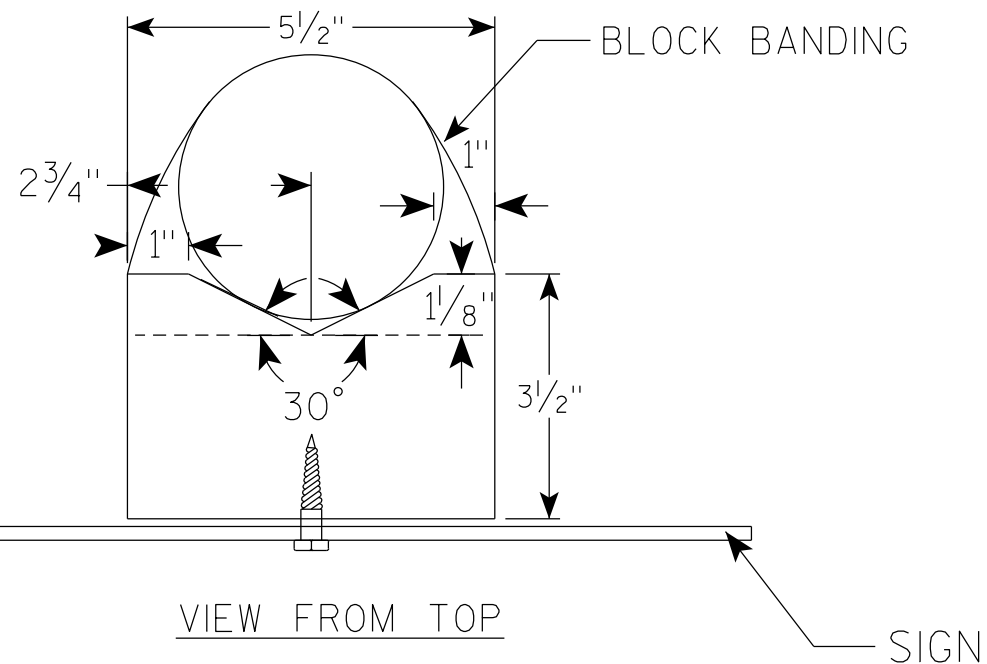
STANDARD SIGN
SIGN BANDING DETAILS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer
DATE 6/10/19 PLATE NO. A5-9.4



VIEW FROM
BACK



GENERAL NOTES

1. WOOD 4"X6" POST MATERIAL SHALL CONFORM TO 507.2.2 OF THE WISDOT STANDARD SPECIFICATIONS
2. BLOCK BANDING AND CLIPS SHALL BE STAINLESS STEEL, 3/4" WIDTH AND 0.025" THICKNESS
3. SIGNS 3' OR GREATER IN HEIGHT SHALL UTILIZE 3 BLOCK BANDS. SIGNS UNDER 3' IN HEIGHT SHALL UTILIZE 2 BLOCK BANDS
4. ACTUAL NUMBER OF FASTENERS PER SIGN VARIES WITH THE SIGN AREA, BUT NORMALLY THERE ARE TWO. FOR SIGNS GREATER THAN 9 S.F. 3 FASTENERS SHALL BE USED.
5. ALL SIGN MOUNTING BOLTS AND WASHERS SHALL BE EITHER:
 - a. Hot dip or mechanically galvanized in accordance with ASTM Designation: A 153, Class D
 - b. Electro-galvanized in accordance with ASTM Designation : B 633, TYPE III, SC 3
6. ALL BOLTS SHALL HAVE HEXAGONAL HEADS.
7. STEEL WASHERS SHALL BE 1 1/4" O.D. X 3/8" I.D. X 1/16"
8. NYLON WASHERS SHALL BE 1 1/4" O.D. X 3/8" I.D. X .080 FOR TYPE H OR TYPE F FACE SIGN

✱ LAG BOLTS SHALL BE 3/8" X 2 1/2"

BLOCK BANDING DETAIL
(V-BLOCK OPTION)

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

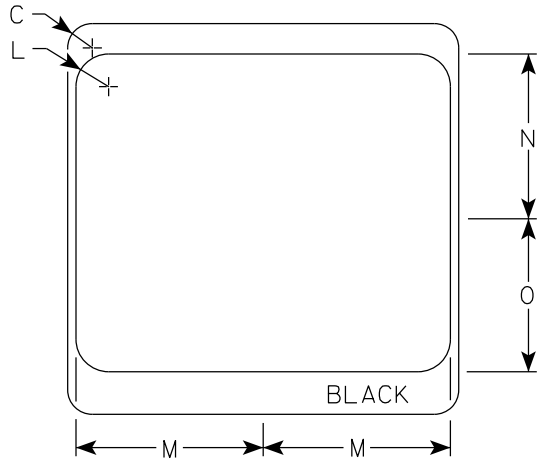
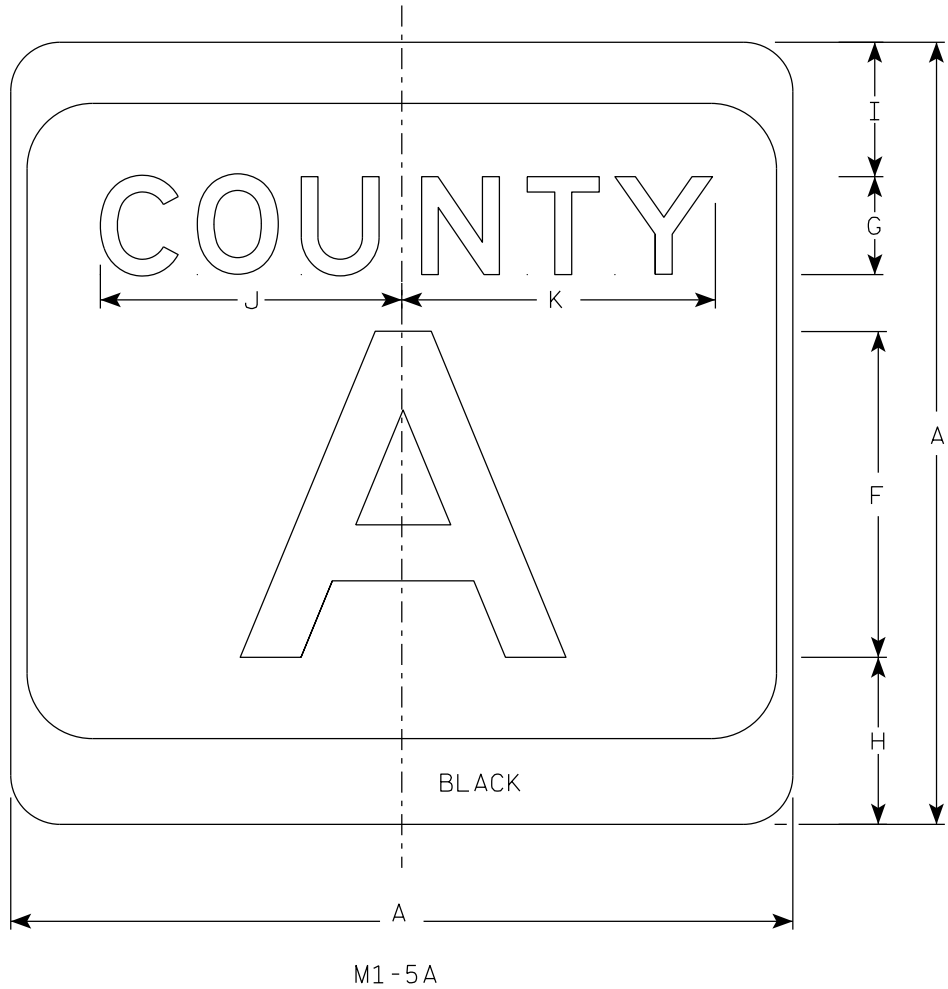
DATE 4/19/2022 PLATE NO. A5-10.3

PROJECT NO:

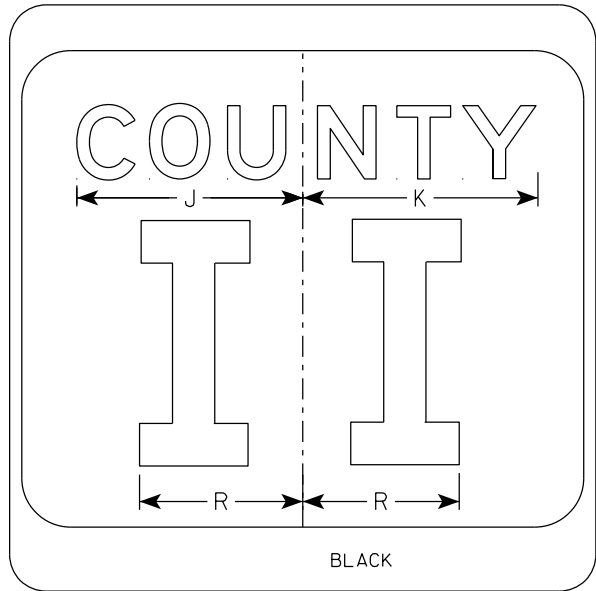
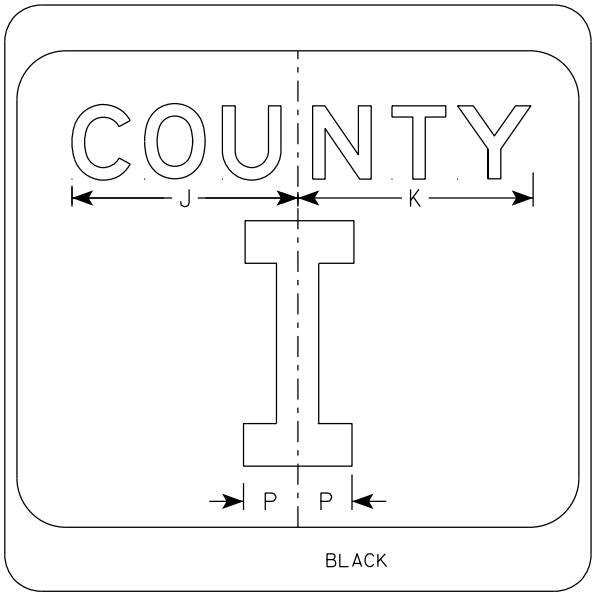
SHEET NO: 152

E

7



- NOTES
- Sign is Type II - Type H Reflective
 - Color:
Background - White & Black
Message - Black
 - Message Series - see Note 4
 - Message Series E for 1 letter.
Message Series D for 2 letters unless
message is too big then Series C.
Message Series C for 3 letters unless
message is too big then Series B.
 - Substitute appropriate letters & optically
center to achieve proper balance.



SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2	24		1 1/2			10	3	5 1/8	4 1/8	9 1/4	9 5/8	2	11 1/2	10 1/8	9 3/8	2 1/4		6 5/8									4.0
2M	24		1 1/2			10	3	5 1/8	4 1/8	9 1/4	9 5/8	2	11 1/2	10 1/8	9 3/8	2 1/4		6 5/8									4.0
3	36		2 1/4			16	4	7 5/8	5 5/8	12 1/4	12 7/8	3	17 1/8	15 1/4	14	3 3/8		10									9.0
4	36		2 1/4			16	4	7 5/8	5 5/8	12 1/4	12 7/8	3	17 1/8	15 1/4	14	3 3/8		10									9.0
5	36		2 1/4			16	4	7 5/8	5 5/8	12 1/4	12 7/8	3	17 1/8	15 1/4	14	3 3/8		10									9.0

CTH MARKER

M1-5A FOR ASSEMBLIES

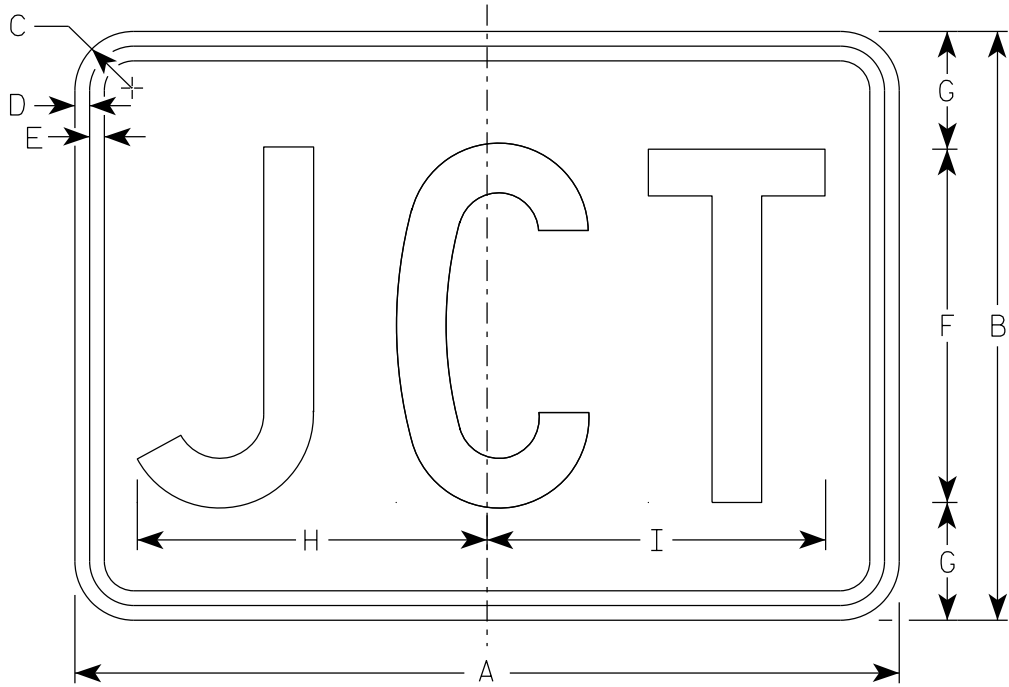
WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

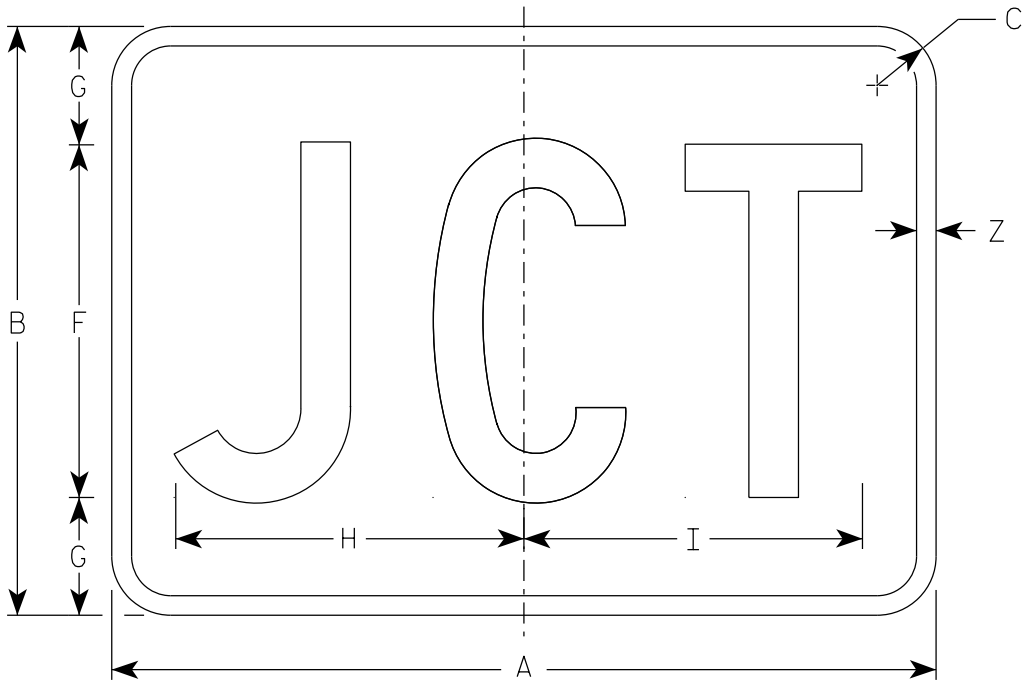
DATE 11/8/2022 PLATE NO. M1-5A.9

7

7



M2-1
MM2-1
MP2-1



MB2-1
MK2-1
MN2-1
MR2-1

NOTES

1. Sign is Type II - Type H Reflective
2. Color:
Background - See note 5
Message - See note 5
3. Message Series - C
4. M2-1 Background - White
Message - Black
MB2-1 Background - Blue
Message - White
MK2-1 Background - Green
Message - White
MM2-1 Background - White
Message - Green
MN2-1 Background - Brown
Message - White
MP2-1 Background - White
Message - Blue
MR2-1 Background - Brown
Message - Yellow

7

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	21	15	1 1/2	3/8	3/8	9	3	8 7/8	8 5/8																	1/2	2.20
2M	21	15	1 1/2	3/8	3/8	9	3	8 7/8	8 5/8																	1/2	2.20
3	30	21	1 1/2	3/8	3/8	13	4	12 7/8	12 3/8																	1/2	4.40
4	30	21	1 1/2	3/8	3/8	13	4	12 7/8	12 3/8																	1/2	4.40
5	30	21	1 1/2	3/8	3/8	13	4	12 7/8	12 3/8																	1/2	4.40

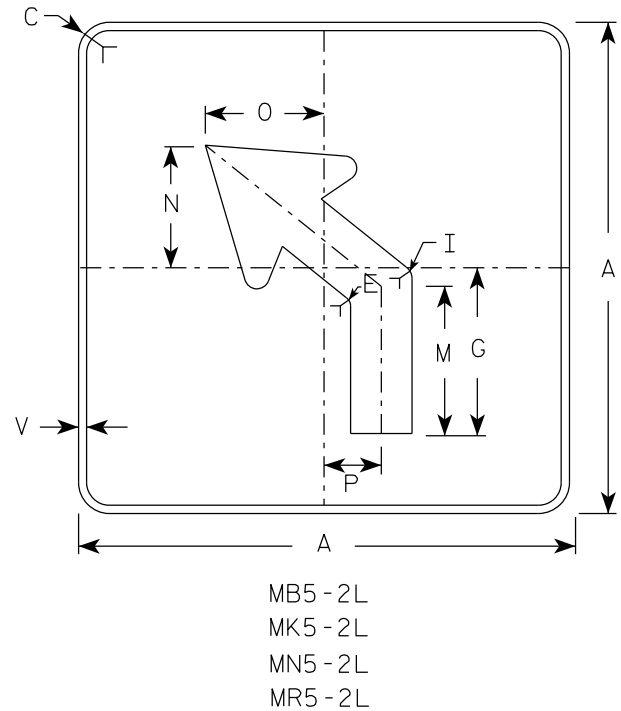
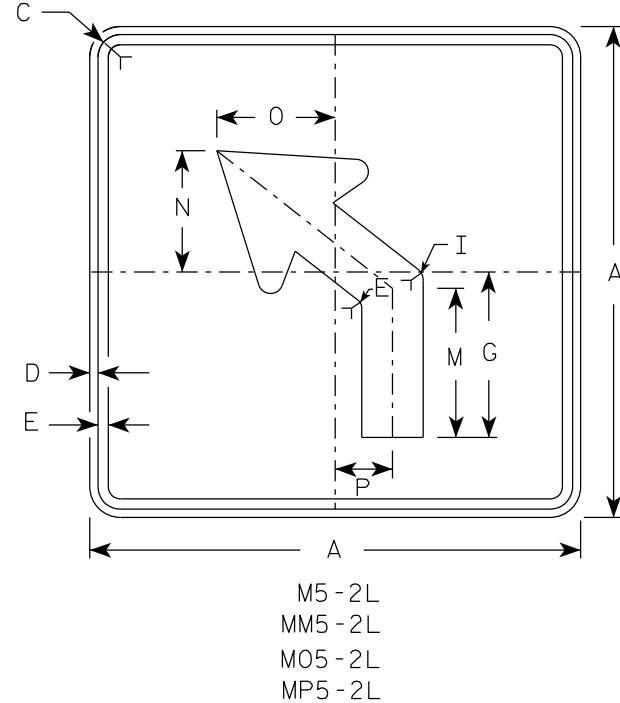
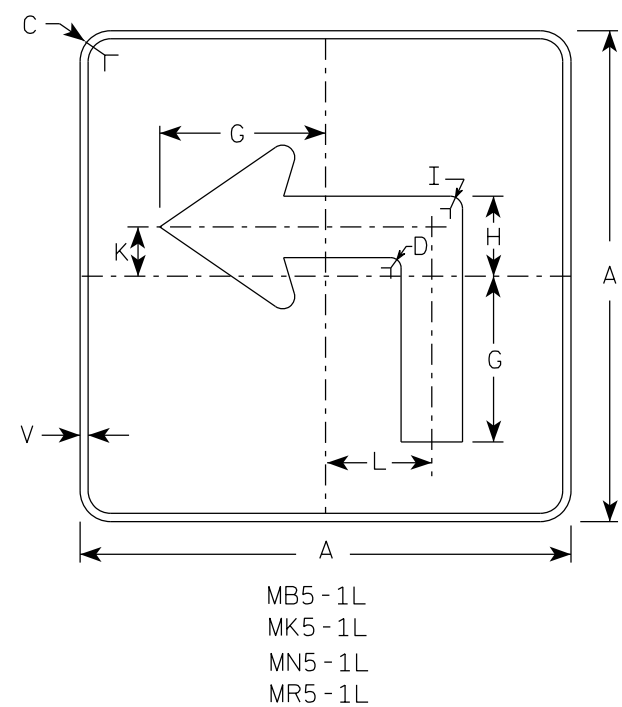
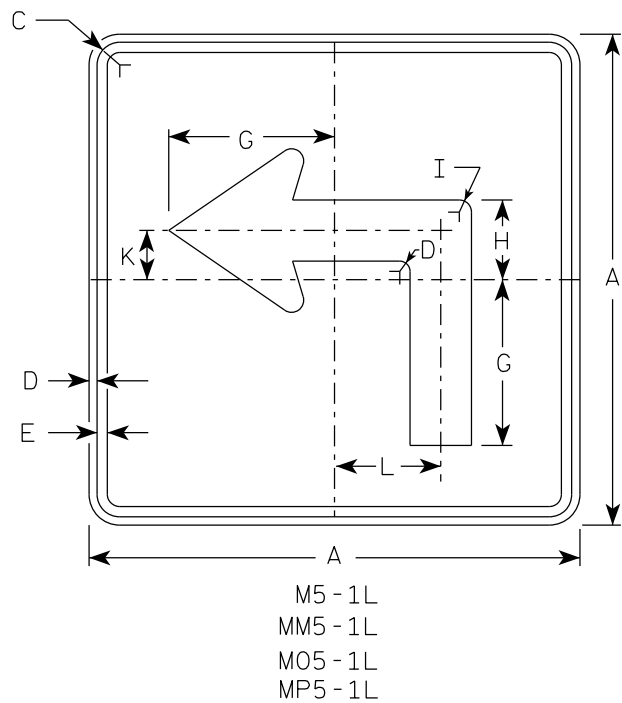
PROJECT NO:

HWY:

COUNTY:

SHEET NO: 154

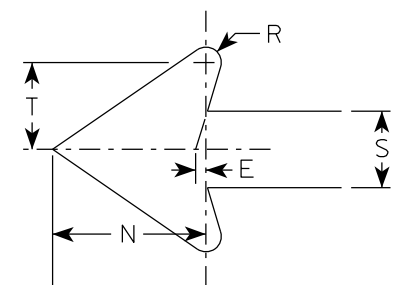
E



NOTES

- Signs are Type II - Type H reflective except as shown
- Color:
Background - See note 4
Message - See note 4
- Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
- | | | |
|-----------|-------|---|
| M5-1 and | M5-2 | Background - White |
| | | Message - Black |
| MB5-1 and | MB5-2 | Background - Blue |
| | | Message - White |
| MK5-1 and | MK5-2 | Background - Green |
| | | Message - White |
| MM5-1 and | MM5-2 | Background - White |
| | | Message - Green |
| MN5-1 and | MN5-2 | Background - Brown |
| | | Message - White |
| M05-1 and | M05-2 | Background - Orange - Type F Reflective |
| | | Message - Black |
| MP5-1 and | MP5-2 | Background - White |
| | | Message - Blue |
| MR5-1 and | MR5-2 | Background - Brown |
| | | Message - Yellow |
- M5-1R same as M5-1L except arrow points right.
- M5-2R same as M5-2L except arrow tilts right.

ARROW DETAIL



SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	21		1 1/2	3/8	3/8		7	3 3/8	5/8		2 1/8	4 1/2	6 3/8	5 1/4	5	2 1/2		1/2	2 5/8	3		1/2					3.06
2M	21		1 1/2	3/8	3/8		7	3 3/8	5/8		2 1/8	4 1/2	6 3/8	5 1/4	5	2 1/2		1/2	2 5/8	3		1/2					3.06
3	30		1 7/8	1/2	5/8		10 1/8	4 7/8	7/8		3	6 1/2	9 1/8	7 1/2	7 1/4	3 1/2		3/4	3 3/4	4 1/4		1/2					6.25
4	30		1 7/8	1/2	5/8		10 1/8	4 7/8	7/8		3	6 1/2	9 1/8	7 1/2	7 1/4	3 1/2		3/4	3 3/4	4 1/4		1/2					6.25
5	30		1 7/8	1/2	5/8		10 1/8	4 7/8	7/8		3	6 1/2	9 1/8	7 1/2	7 1/4	3 1/2		3/4	3 3/4	4 1/4		1/2					6.25

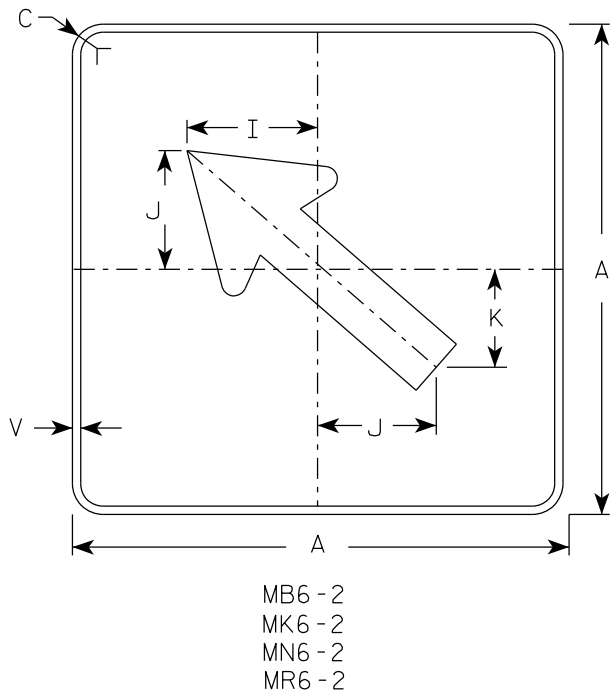
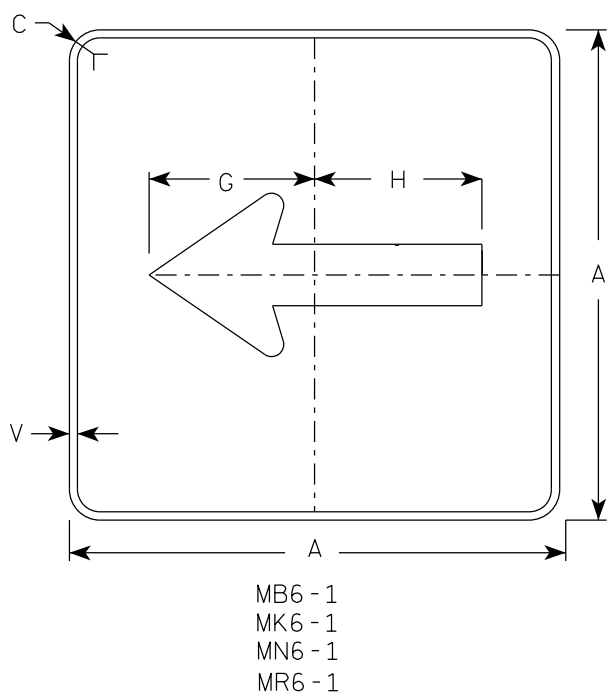
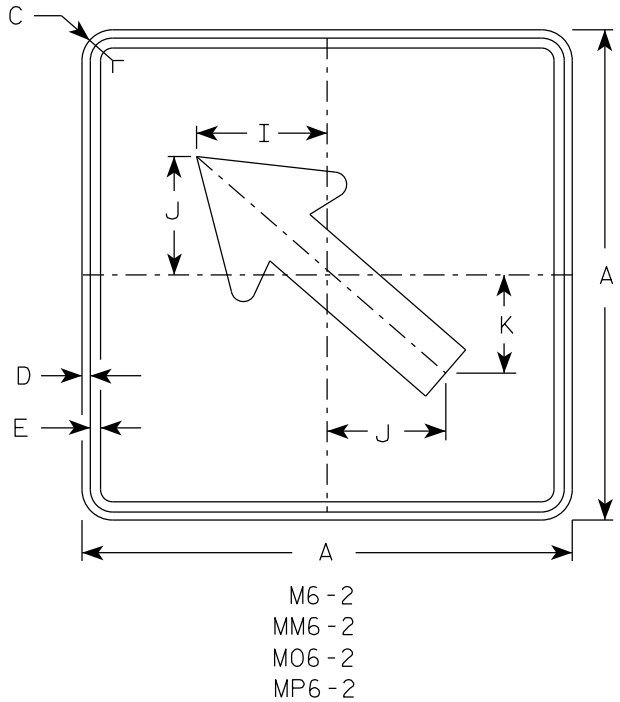
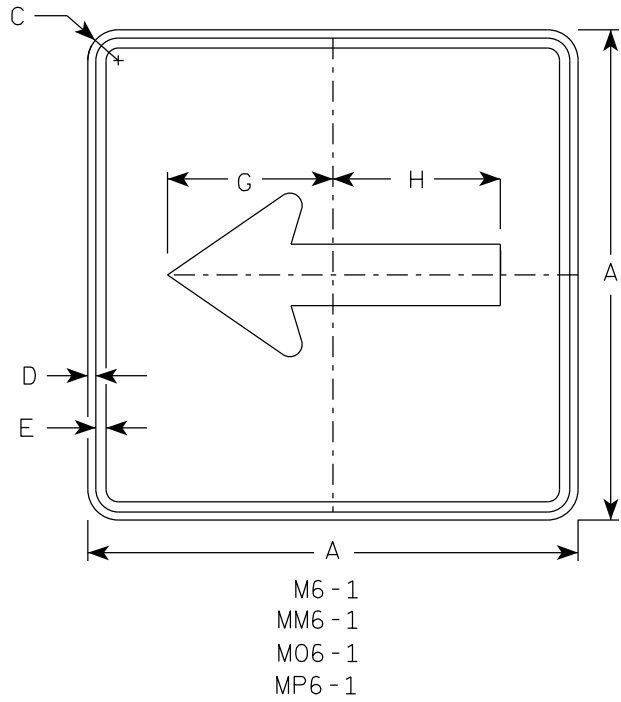
PROJECT NO:

HWY:

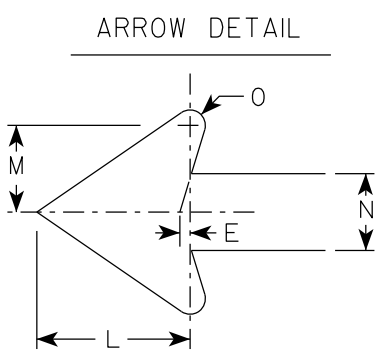
COUNTY:

SHEET NO: 155

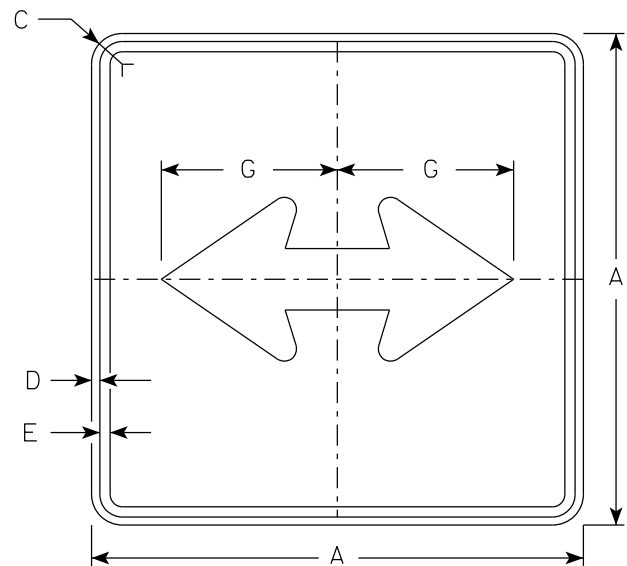
E



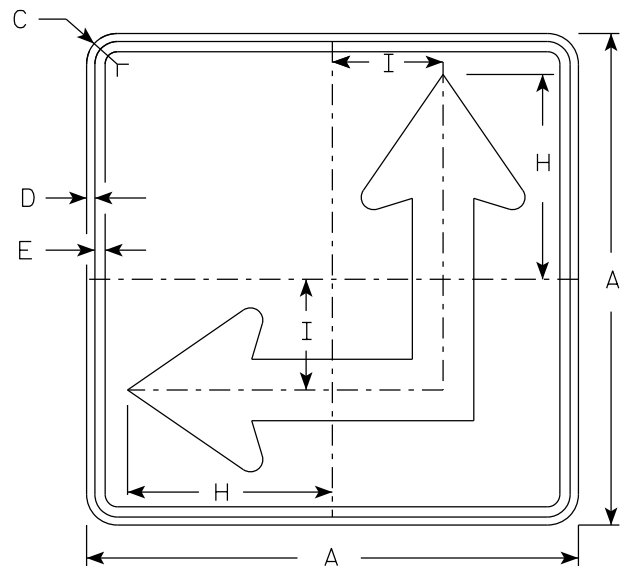
- NOTES**
- Signs are Type II - Type H Reflective except as Shown
 - Color:
Background - See note 4
Message - See note 4
 - Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
 - M6-1 and M6-2 Background - White
Message - Black
MB6-1 and MB6-2 Background - Blue
Message - White
MK6-1 and MK6-2 Background - Green
Message - White
MM6-1 and MM6-2 Background - White
Message - Green
MN6-1 and MN6-2 Background - Brown
Message - White
M06-1 and M06-2 Background - Orange - Type F Reflective
Message - Black
MP6-1 and MP6-2 Background - White
Message - Blue
MR6-1 and MR6-2 Background - Brown
Message - Yellow



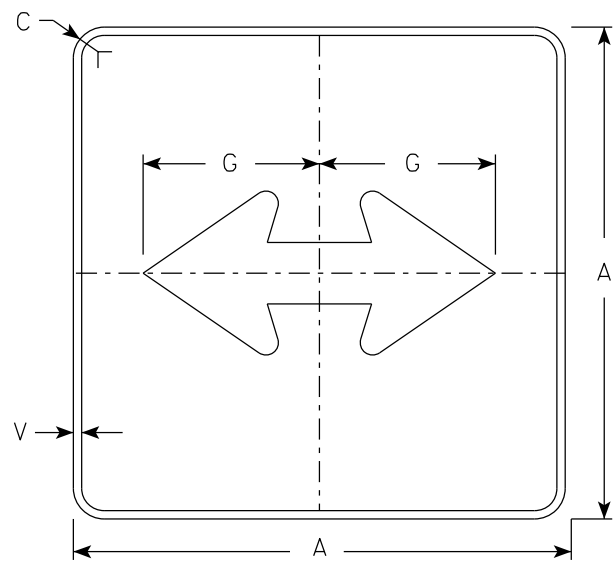
SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	21		1 1/2	3/8	3/8		7 1/2	7 1/8	5 5/8	5	4 1/4	5 1/4	3	2 5/8	1/2							1/2					3.06
2M	21		1 1/2	3/8	3/8		7 1/2	7 1/8	5 5/8	5	4 1/4	5 1/4	3	2 5/8	1/2							1/2					3.06
3	30		1 7/8	1/2	5/8		10 3/4	10 1/4	8	7 1/4	6	7 1/2	4 1/4	3 3/4	3/4							1/2					6.25
4	30		1 7/8	1/2	5/8		10 3/4	10 1/4	8	7 1/4	6	7 1/2	4 1/4	3 3/4	3/4							1/2					6.25
5	30		1 7/8	1/2	5/8		10 3/4	10 1/4	8	7 1/4	6	7 1/2	4 1/4	3 3/4	3/4							1/2					6.25



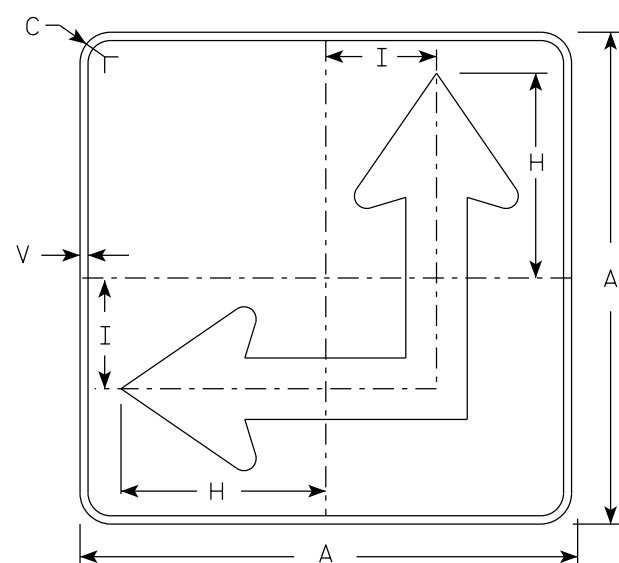
M6 - 4
MM6 - 4
M06 - 4
MP6 - 4



M6 - 6
MM6 - 6
M06 - 6
MP6 - 6



MB6 - 4
MK6 - 4
MN6 - 4
MR6 - 4

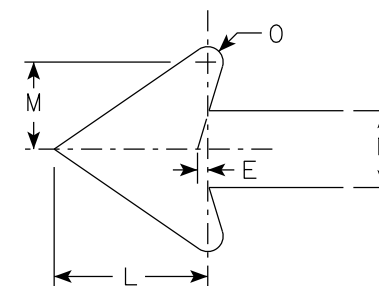


MB6 - 6
MK6 - 6
MN6 - 6
MR6 - 6

NOTES

- Signs are Type II - Type H Reflective except as Shown
- Color:
Background - See Note 4
Message - See Note 4
- Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
- M6-4 and M6-6 Background - White
Message - Black
MB6-4 and MB6-6 Background - Blue
Message - White
MK6-4 and MK6-6 Background - Green
Message - White
MM6-4 and MM6-6 Background - White
Message - Green
MN6-4 and MN6-6 Background - Brown
Message - White
M06-4 and M06-6 Background - Orange - Type F Reflective
Message - Black
MP6-4 and MP6-6 Background - White
Message - Blue
MR6-4 and MR6-6 Background - Brown
Message - Yellow
- M6-6R same as M6-6L except arrow points ahead and right.

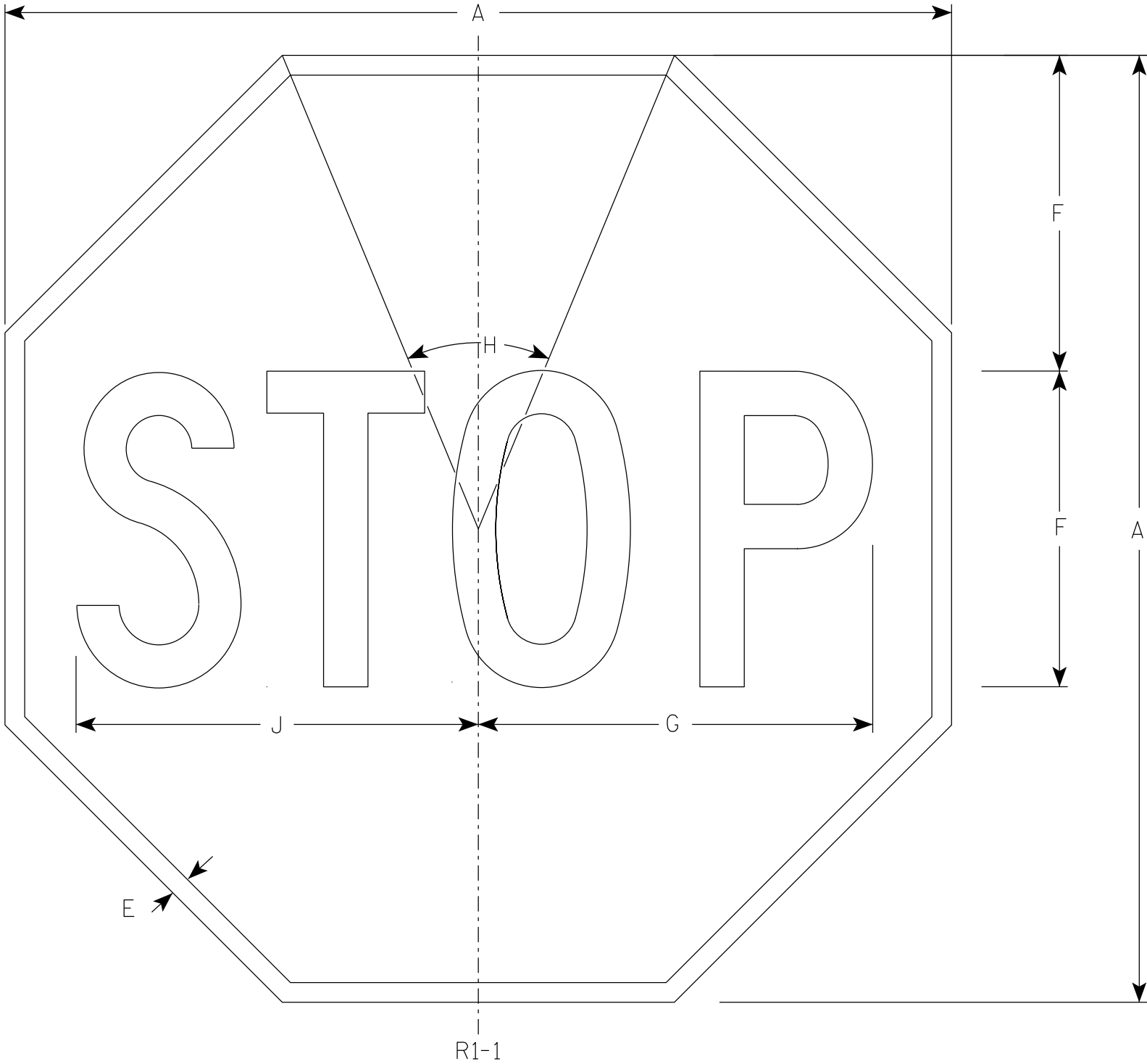
ARROW DETAIL



SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	21		1 1/2	3/8	3/8		7 1/2	8 3/4	4 1/4			5 1/4	3	2 5/8	1/2							1/2					3.06
2M	21		1 1/2	3/8	3/8		7 1/2	8 3/4	4 1/4			5 1/4	3	2 5/8	1/2							1/2					3.06
3	30		1 7/8	1/2	5/8		10 3/4	12 1/2	6 3/4			7 1/2	4 1/4	3 3/4	3/4							1/2					6.25
4	30		1 7/8	1/2	5/8		10 3/4	12 1/2	6 3/4			7 1/2	4 1/4	3 3/4	3/4							1/2					6.25
5	30		1 7/8	1/2	5/8		10 3/4	12 1/2	6 3/4			7 1/2	4 1/4	3 3/4	3/4							1/2					6.25

PROJECT NO:	HWY:	COUNTY:	SHEET NO: 157												E
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7



NOTES

- 1. Sign is Type II - Type H Reflective
- 2. Color:
Background - Red
Message - White
- 3. Message Series - C

7

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	30				5/8	10	12 1/2	45°		12 3/4																	5.18
2S	30				5/8	10	12 1/2	45°		12 3/4																	5.18
2M	36				3/4	12	15	45°		15 3/8																	7.46
3	36				3/4	12	15	45°		15 3/8																	7.46
4	48				1	16	20	45°		20 1/2																	13.25
5	48				1	16	20	45°		20 1/2																	13.25
6	18				3/8	6	7 3/4	45°		7 3/4																	1.86

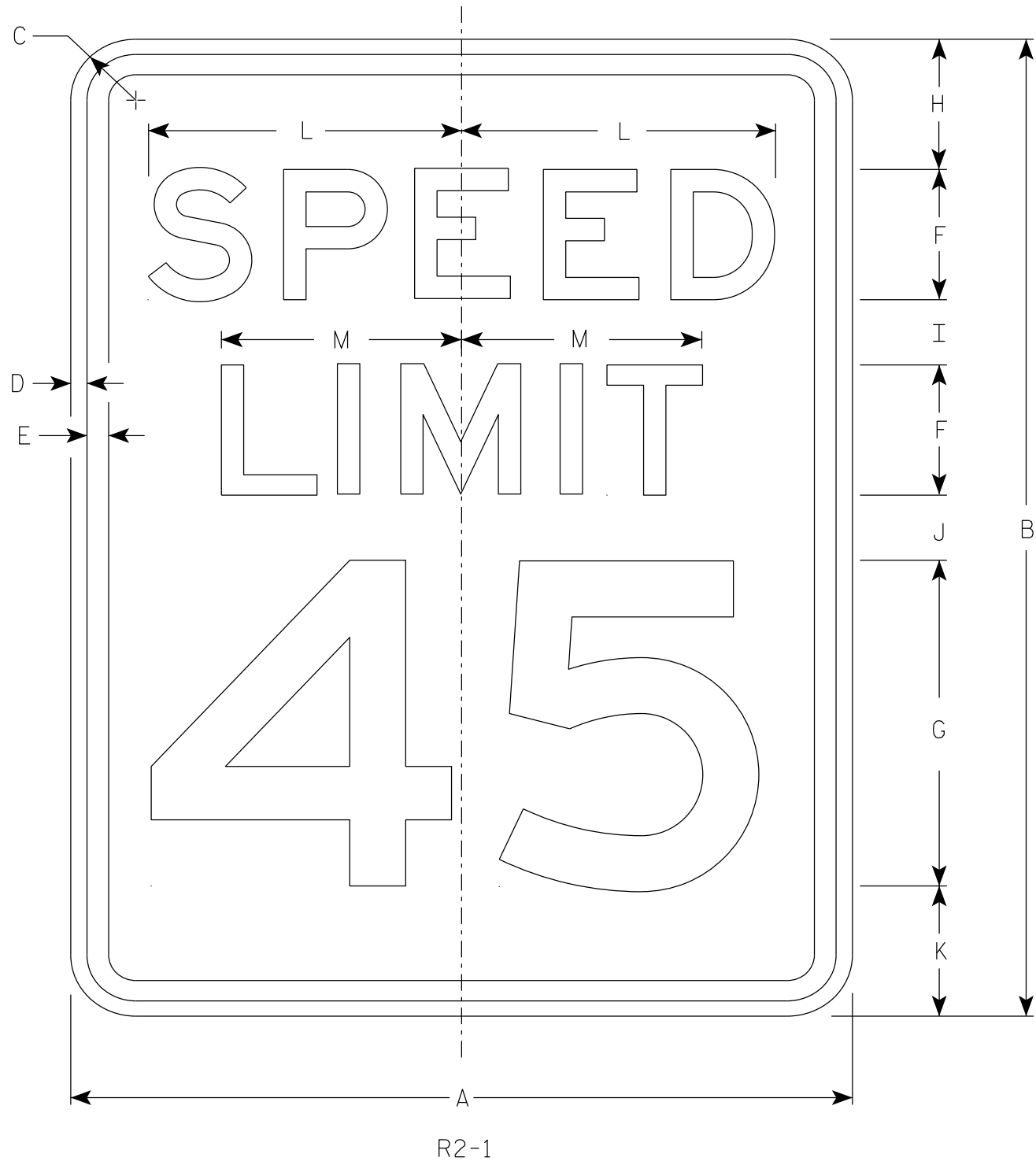
STANDARD SIGN
R1-1

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 7/9/2025 PLATE NO. R1-1.14

7



NOTES

- 1. Sign is Type II - Type H Reflective
- 2. Color:
 - Background - White
 - Message - Black
- 3. Message Series - E
- 4. Substitute appropriate numerals and optically adjust spacing to achieve proper balance.

7

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	18	24	1 1/2	3/8	1/2	3	8	3	2	2	3	7 1/4	5 1/2														3.0
2S	24	30	1 1/2	3/8	1/2	4	10	3	2 1/4	3 3/8	3 3/8	9 5/8	7 3/8														5.0
2M	30	36	1 7/8	1/2	5/8	5	12	5	2 1/2	2 1/2	4	12	9 1/4														7.5
3	36	48	1 7/8	1/2	5/8	6	14	6	5	5	6	14 3/8	11														12.0
4	36	48	1 7/8	1/2	5/8	6	14	6	5	5	6	14 3/8	11														12.0
5	48	60	3	3/4	1	8	20	6	4 1/2	6 3/4	6 3/4	19 1/4	14 5/8														20.0

STANDARD SIGN

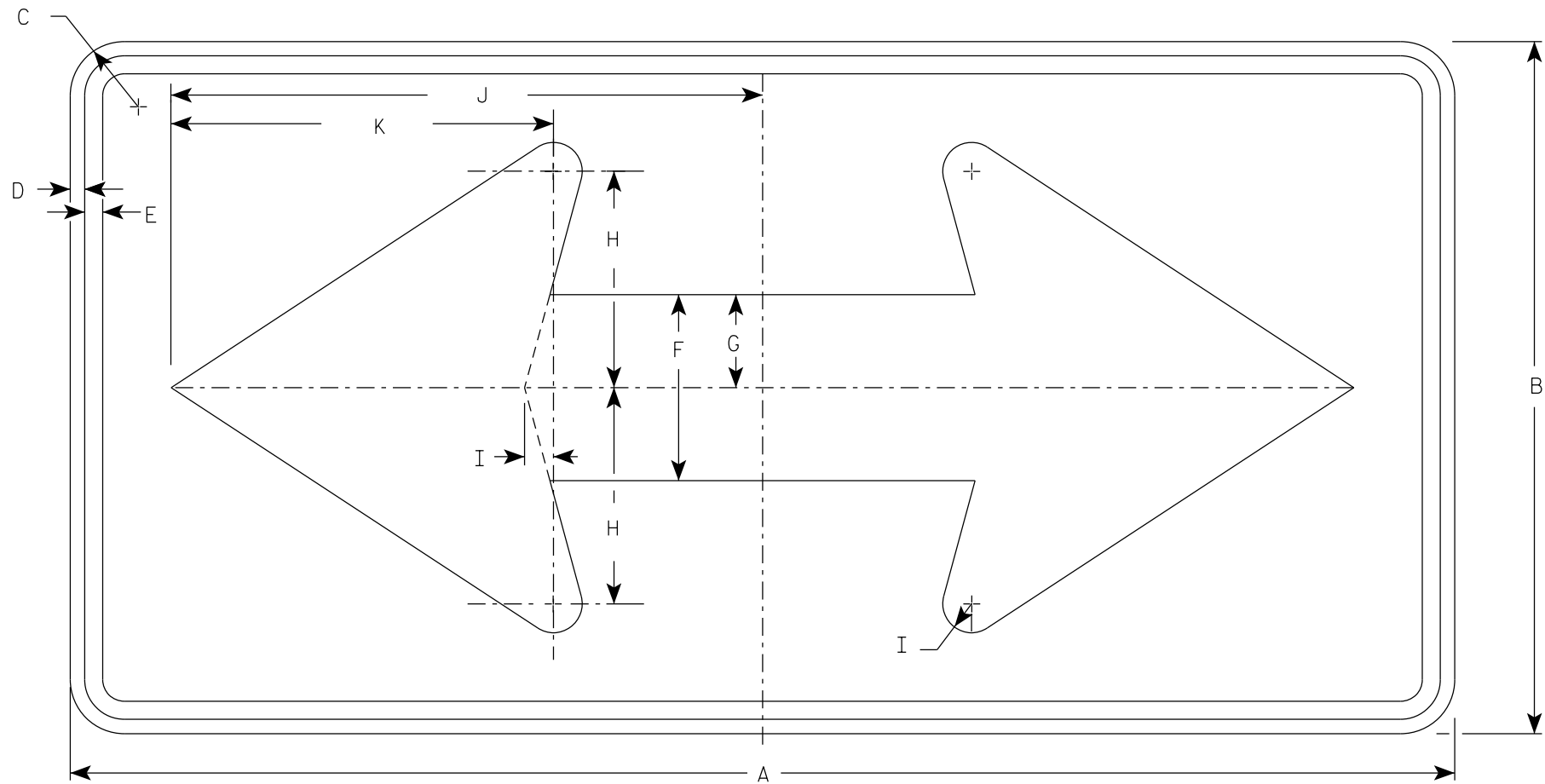
R2 - 1

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 2/1/23 PLATE NO. R2-1.14

7



W1-7

NOTES

- 1. Sign is Type II - Type F Reflective
- 2. Color:
Background - Yellow
Message - Black

7

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	36	18	1 1/2	3/8	1/2	5	2 1/2	5 3/4	3/4	15 5/8	10 1/8																4.5
2S	48	24	1 7/8	1/2	5/8	6 1/2	3 1/4	7 1/2	1	20 1/2	13 1/4																8.0
2M	48	24	1 7/8	1/2	5/8	6 1/2	3 1/4	7 1/2	1	20 1/2	13 1/4																8.0
3	60	30	1 7/8	1/2	5/8	8	4	9 1/4	1 1/4	25 3/8	16 1/4																12.5
4	60	30	1 7/8	1/2	5/8	8	4	9 1/4	1 1/4	25 3/8	16 1/4																12.5
5	96	48	3	3/4	1	13	6 1/2	15	2	41	26 1/2																32.0

STANDARD SIGN
W1-7

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 5/10/2023 PLATE NO. W1-7.8

PROJECT NO:

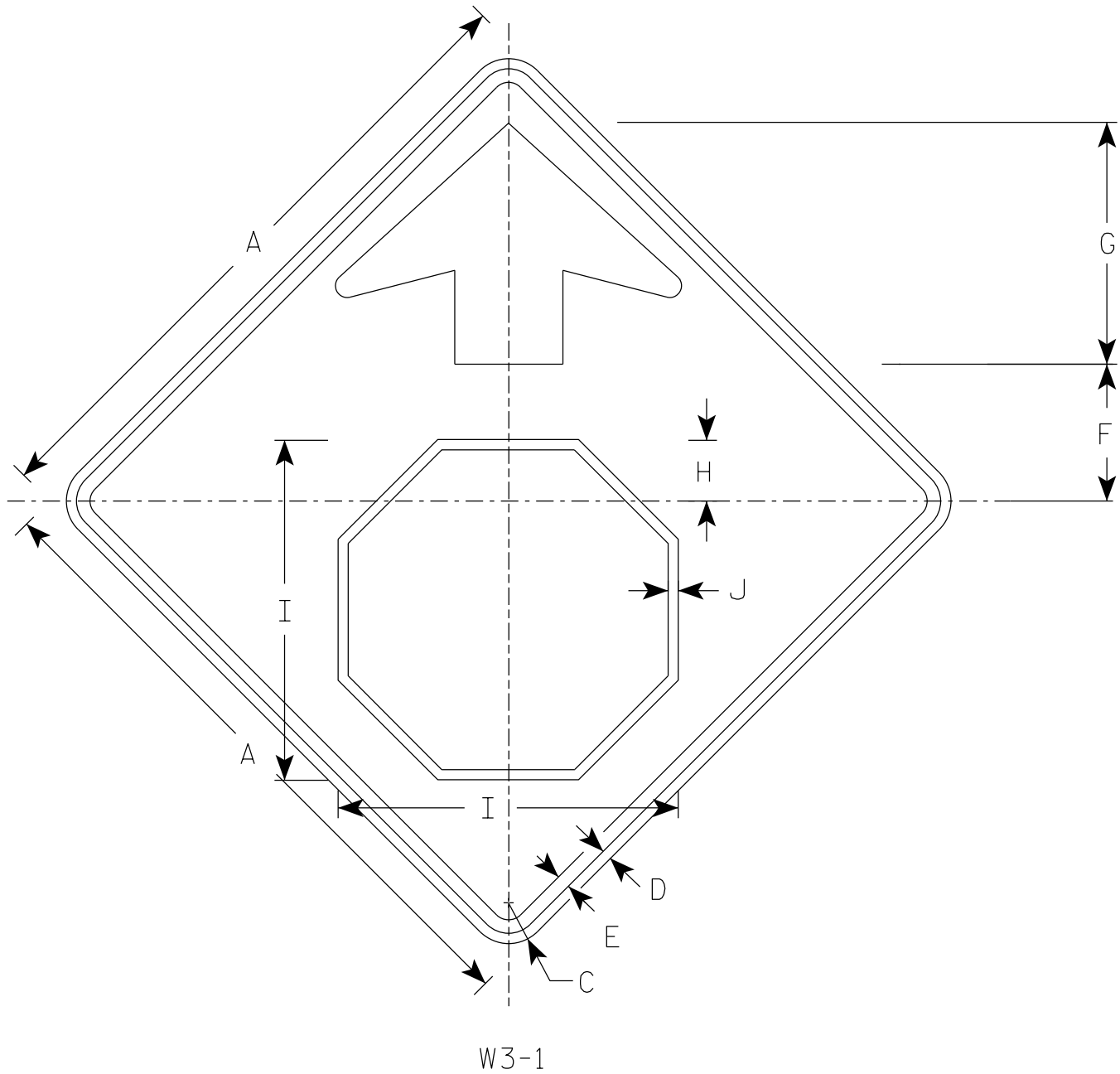
HWY:

COUNTY:

SHEET NO: 160

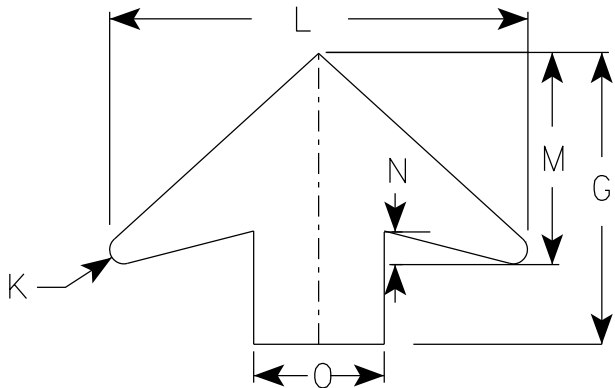
E

7



NOTES

- 1. Sign is Type II - Type F Reflective
- 2. Color:
 - Background - Yellow
 - Arrow & Border - Black
 - Stop Symbol - White Border on Red Background



ARROW DETAIL

7

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	30		1 7⁄8	1⁄2	5⁄8	6 1⁄4	11 1⁄4	2 7⁄8	15 3⁄4	1⁄2	1⁄2	16	8	1 1⁄4	5												6.25
2S	36		2 1⁄4	5⁄8	3⁄4	7 1⁄2	13 1⁄2	3 1⁄2	19	5⁄8	5⁄8	19 1⁄4	9 3⁄4	1 5⁄8	6												9.0
2M	36		2 1⁄4	5⁄8	3⁄4	7 1⁄2	13 1⁄2	3 1⁄2	19	5⁄8	5⁄8	19 1⁄4	9 3⁄4	1 5⁄8	6												9.0
3	36		2 1⁄4	5⁄8	3⁄4	7 1⁄2	13 1⁄2	3 1⁄2	19	5⁄8	5⁄8	19 1⁄4	9 3⁄4	1 5⁄8	6												9.0
4	48		3	3⁄4	1	10	17 7⁄8	4 1⁄2	25 1⁄8	3⁄4	7⁄8	25 5⁄8	13	2	8												16.0
5	48		3	3⁄4	1	10	17 7⁄8	4 1⁄2	25 1⁄8	3⁄4	7⁄8	25 5⁄8	13	2	8												16.0

STANDARD SIGN

W3-1

WISCONSIN DEPT OF TRANSPORTATION

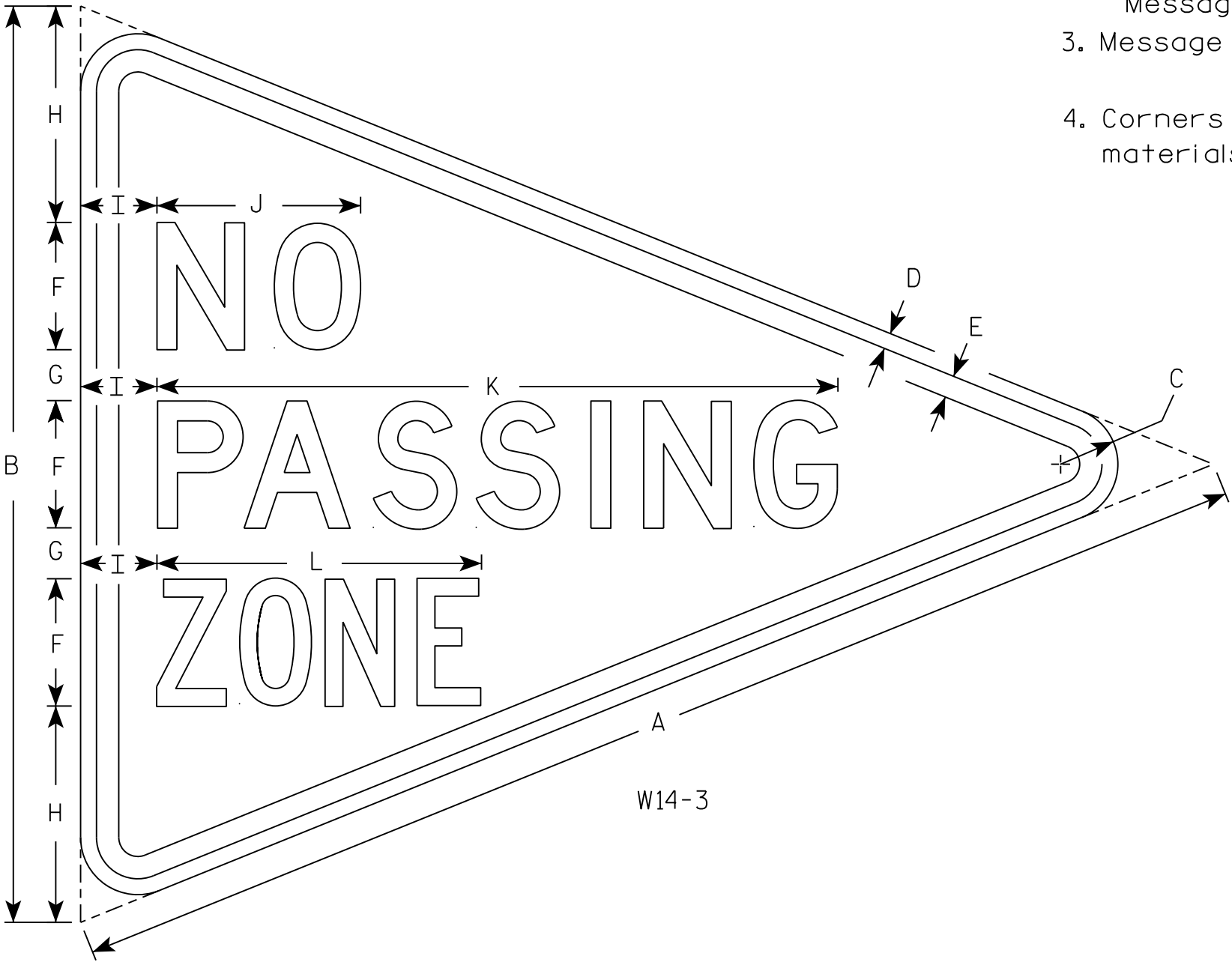
APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 8/17/2023

PLATE NO. W3-1.13

NOTES

- 1. Sign is Type II - Type F Reflective
- 2. Color:
Background - Yellow
Message - Black
- 3. Message Series - Lines 1 and 2 are Series D.
Line 3 is series C.
- 4. Corners and borders shall be rounded on all base materials for this sign.



7

7

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	48	36	2 1/4	5/8	7/8	5	2	8 1/2	3	8	26 3/4	12 3/4															5.56
2M																											
3																											
4																											
5																											

PROJECT NO:

HWY:

COUNTY:

SHEET NO: 162

E

STANDARD SIGN
W14-3

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 3/21/17 PLATE NO. W14-3.10

DIVISION 1 - CTH D

STATION	REAL STATION	DISTANCE	AREA (SF)		INCREMENTAL VOL (CY) (UNADJUSTED)		CUMULATIVE VOL (CY)		
			CUT	FILL	CUT	FILL	CUT	EXPANDED FILL	MASS ORDINATE
					NOTE 1	NOTE 3	1.00 NOTE 1	1.25	NOTE 8
60+25.00	6025.00	0.00	4.26	1.25	0	0	0	0	0
60+50.00	6050.00	25.00	4.64	4.30	4	3	4	4	0
60+75.00	6075.00	25.00	4.73	10.87	4	7	8	13	-5
61+00.00	6100.00	25.00	6.07	20.33	5	14	13	30	-17
61+25.00	6125.00	25.00	19.41	0.57	12	10	25	43	-18
61+50.00	6150.00	25.00	5.80	23.02	12	11	37	56	-19
61+75.00	6175.00	25.00	4.01	19.91	5	20	42	81	-39
62+00.00	6200.00	25.00	4.29	0.73	4	10	46	94	-48
62+25.00	6225.00	25.00	4.40	0.60	4	1	50	95	-45

DIVISION 1 - BUTSON ROAD

STATION	REAL STATION	DISTANCE	AREA (SF)		INCREMENTAL VOL (CY) (UNADJUSTED)		CUMULATIVE VOL (CY)		
			CUT	FILL	CUT	FILL	CUT	EXPANDED FILL	MASS ORDINATE
					NOTE 1	NOTE 3	1.00 NOTE 1	1.25	NOTE 8
0+67.31	67.31	0.00	11.73	0.01	0	0	0	0	0
0+75.00	75.00	7.69	12.97	0.00	4	0	4	0	4
1+00.00	100.00	25.00	10.04	11.06	11	5	15	6	9
1+25.00	125.00	25.00	8.39	27.85	9	18	24	29	-5

DIVISION 2 - CTH D

STATION	REAL STATION	DISTANCE	AREA (SF)		INCREMENTAL VOL (CY) (UNADJUSTED)		CUMULATIVE VOL (CY)		
			CUT	FILL	CUT	FILL	CUT	EXPANDED FILL	MASS ORDINATE
					NOTE 1	NOTE 3	1.00 NOTE 1	1.25	NOTE 8
104+75.00	10475.00	0.00	4.29	0.72	0	0	0	0	0
105+00.00	10500.00	25.00	4.13	6.89	4	4	4	5	-1
105+25.00	10525.00	25.00	4.53	4.76	4	5	8	11	-3
105+50.00	10550.00	25.00	10.44	4.60	7	4	15	16	-1
105+75.00	10575.00	25.00	8.40	0.35	9	2	24	19	5
106+00.00	10600.00	25.00	6.56	30.85	7	14	31	36	-5
106+25.00	10625.00	25.00	6.50	5.46	6	17	37	58	-21
106+50.00	10650.00	25.00	4.93	2.72	5	4	42	63	-21
106+75.00	10675.00	25.00	3.75	4.22	4	3	46	66	-20

DIVISION 2 - SAND HILL ROAD

STATION	REAL STATION	DISTANCE	AREA (SF)		INCREMENTAL VOL (CY) (UNADJUSTED)		CUMULATIVE VOL (CY)		
			CUT	FILL	CUT	FILL	CUT	EXPANDED FILL	MASS ORDINATE
					NOTE 1	NOTE 3	1.00 NOTE 1	1.25	NOTE 8
0+50.00	50.00	0.00	3.74	39.89	0	0	0	0	0
0+75.00	75.00	25.00	1.24	16.16	2	26	2	33	-31
1+00.00	100.00	25.00	6.91	2.94	4	9	6	44	-38
1+25.00	125.00	25.00	8.68	1.06	7	2	13	46	-33
1+50.00	150.00	25.00	8.80	0.92	8	1	21	48	-27

NOTES:	
1 - CUT	CUT INCLUDES SALVAGED/UNUSABLE PAVEMENT MATERIAL
3 - FILL	DOES NOT INCLUDE UNUSABLE PAVEMENT EXC VOLUME
8 - MASS ORDINATE	IF MARSH AND EBS TO BE BACKFILLED WITH GRANULAR: [CUT - SALVAGED PAVT - ((FILL - EXPANDED ROCK) * FILL FACTOR)]

DIVISION 3 - CTH D

STATION	REAL STATION	DISTANCE	AREA (SF)		INCREMENTAL VOL (CY) (UNADJUSTED)		CUMULATIVE VOL (CY)		
			CUT	FILL	CUT	FILL	CUT 1.00 NOTE 1	EXPANDED FILL 1.25	MASS ORDINATE NOTE 8
117+50.00	11750.00	0.00	3.77	2.12	0	0	0	0	0
117+75.00	11775.00	25.00	3.00	1.48	3	2	3	3	1
118+00.00	11800.00	25.00	4.81	11.04	4	6	7	10	-3
118+25.00	11825.00	25.00	6.10	9.87	5	10	12	23	-11
118+50.00	11850.00	25.00	15.28	1.95	10	5	22	29	-7
118+75.00	11875.00	25.00	7.75	32.26	11	16	33	49	-16
119+00.00	11900.00	25.00	4.19	15.11	6	22	39	76	-37
119+25.00	11925.00	25.00	3.55	1.26	4	8	43	86	-43

DIVISION 3 - REXS ROAD

STATION	REAL STATION	DISTANCE	AREA (SF)		INCREMENTAL VOL (CY) (UNADJUSTED)		CUMULATIVE VOL (CY)		
			CUT	FILL	CUT	FILL	CUT 1.00 NOTE 1	EXPANDED FILL 1.25	MASS ORDINATE NOTE 8
0+71.29	71.29	0.00	6.31	0.00	0	0	0	0	0
0+75.00	75.00	3.71	6.92	0.00	1	0	1	0	1
1+00.00	100.00	25.00	10.33	8.65	8	4	9	5	4
1+25.00	125.00	25.00	1.50	26.99	5	17	14	26	-12

DIVISION 4 - CTH D

STATION	REAL STATION	DISTANCE	AREA (SF)		INCREMENTAL VOL (CY) (UNADJUSTED)		CUMULATIVE VOL (CY)		
			CUT	FILL	CUT	FILL	CUT 1.00 NOTE 1	EXPANDED FILL 1.25	MASS ORDINATE NOTE 8
156+25.00	15625.00	0.00	3.65	1.67	0	0	0	0	0
156+50.00	15650.00	25.00	3.93	2.12	4	2	4	3	2
156+75.00	15675.00	25.00	5.66	32.01	4	16	8	23	-15
157+00.00	15700.00	25.00	4.77	67.67	5	46	13	80	-67
157+25.00	15725.00	25.00	10.01	3.85	7	33	20	121	-101
157+50.00	15750.00	25.00	13.75	15.84	11	9	31	133	-102
157+75.00	15775.00	25.00	5.89	11.34	9	13	40	149	-109
158+00.00	15800.00	25.00	6.43	9.27	6	10	46	161	-115
158+25.00	15825.00	25.00	4.75	0.44	5	4	51	166	-115
158+50.00	15850.00	25.00	6.06	0.16	5	0	56	166	-110

DIVISION 4 - TOWNHALL ROAD S

STATION	REAL STATION	DISTANCE	AREA (SF)		INCREMENTAL VOL (CY) (UNADJUSTED)		CUMULATIVE VOL (CY)		
			CUT	FILL	CUT	FILL	CUT 1.00 NOTE 1	EXPANDED FILL 1.25	MASS ORDINATE NOTE 8
0+50.00	50.00	0.00	11.97	107.17	0	0	0	0	0
0+75.00	75.00	25	8.41	0.23	9	50	9	63	-54
0+97.63	97.63	22.63	14.56	0.00	10	0	19	63	-44

NOTES:	
1 - CUT	CUT INCLUDES SALVAGED/UNUSABLE PAVEMENT MATERIAL
3 - FILL	DOES NOT INCLUDE UNUSABLE PAVEMENT EXC VOLUME
8 - MASS ORDINATE	IF MARSH AND EBS TO BE BACKFILLED WITH GRANULAR: [CUT - SALVAGED PAVT - ((FILL - EXPANDED ROCK) * FILL FACTOR)]

DIVISION 5 - CTH D

STATION	REAL STATION	DISTANCE	AREA (SF)		INCREMENTAL VOL (CY) (UNADJUSTED)		CUMULATIVE VOL (CY)		
			CUT	FILL	CUT	FILL	CUT 1.00 NOTE 1	EXPANDED FILL 1.25	MASS ORDINATE NOTE 8
185+25.00	18525.00	0.00	4.81	1.44	0	0	0	0	0
185+50.00	18550.00	25.00	5.51	1.26	5	1	5	1	4
185+75.00	18575.00	25.00	5.58	8.43	5	4	10	6	4
186+00.00	18600.00	25.00	4.95	48.53	5	26	15	39	-24
186+25.00	18625.00	25.00	16.70	7.01	10	26	25	71	-46
186+50.00	18650.00	25.00	2.46	18.69	9	12	34	86	-52
186+75.00	18675.00	25.00	3.13	7.75	3	12	37	101	-64
187+00.00	18700.00	25.00	4.87	0.26	4	4	41	106	-65

DIVISION 5 - BANNER ROAD

STATION	REAL STATION	DISTANCE	AREA (SF)		INCREMENTAL VOL (CY) (UNADJUSTED)		CUMULATIVE VOL (CY)		
			CUT	FILL	CUT	FILL	CUT 1.00 NOTE 1	EXPANDED FILL 1.25	MASS ORDINATE NOTE 8
2+00.88	200.88	0.00	11.17	1.67	0	0	0	0	0
2+25.00	225.00	24.12	11.11	4.87	10	3	10	4	6
2+50.00	250.00	25.00	7.00	20.34	8	12	18	19	-1

DIVISION 6 - CTH D

STATION	REAL STATION	DISTANCE	AREA (SF)		INCREMENTAL VOL (CY) (UNADJUSTED)		CUMULATIVE VOL (CY)		
			CUT	FILL	CUT	FILL	CUT 1.00 NOTE 1	EXPANDED FILL 1.25	MASS ORDINATE NOTE 8
204+25.00	20425.00	0.00	3.87	2.96	0	0	0	0	0
204+50.00	20450.00	25.00	6.37	1.27	5	2	5	3	3
204+75.00	20475.00	25.00	9.22	5.41	7	3	12	6	6
205+00.00	20500.00	25.00	53.47	0.00	29	3	41	10	31
205+25.00	20525.00	25.00	48.15	0.00	47	0	88	10	78
205+50.00	20550.00	25.00	13.24	5.79	28	3	116	14	102
205+75.00	20575.00	25.00	9.03	2.34	10	4	126	19	107
206+00.00	20600.00	25.00	7.35	0.11	8	1	134	20	114

DIVISION 6 - DUTCHESS ROAD

STATION	REAL STATION	DISTANCE	AREA (SF)		INCREMENTAL VOL (CY) (UNADJUSTED)		CUMULATIVE VOL (CY)		
			CUT	FILL	CUT	FILL	CUT 1.00 NOTE 1	EXPANDED FILL 1.25	MASS ORDINATE NOTE 8
1+47.23	147.23	0.00	22.44	0.00	0	0	0	0	0
1+50.00	150.00	2.77	23.37	0.00	2	0	2	0	2
1+75.00	175.00	25.00	28.45	0.00	24	0	26	0	26
2+00.00	200.00	25.00	30.91	4.70	27	2	53	3	51
2+25.00	225.00	25.00	24.38	17.79	26	10	79	15	64

NOTES:	
1 - CUT	CUT INCLUDES SALVAGED/UNUSABLE PAVEMENT MATERIAL
3 - FILL	DOES NOT INCLUDE UNUSABLE PAVEMENT EXC VOLUME
8 - MASS ORDINATE	IF MARSH AND EBS TO BE BACKFILLED WITH GRANULAR: [CUT - SALVAGED PAVT - ((FILL - EXPANDED ROCK) * FILL FACTOR)]

DIVISION 7 - CTH D

STATION	REAL STATION	DISTANCE	AREA (SF)		INCREMENTAL VOL (CY) (UNADJUSTED)		CUMULATIVE VOL (CY)		
			CUT	FILL	CUT	FILL	CUT 1.00 NOTE 1	EXPANDED FILL 1.25	MASS ORDINATE NOTE 8
230+75.00	23075.00	0.00	5.37	2.71	0	0	0	0	0
231+00.00	23100.00	25	1.18	9.69	3	6	3	8	-5
231+25.00	23125.00	25	1.11	13.70	1	11	4	21	-17
231+50.00	23150.00	25	1.12	19.61	1	15	5	40	-35
231+75.00	23175.00	25	12.25	7.48	6	13	11	56	-45
232+00.00	23200.00	25	15.67	7.32	13	7	24	65	-41
232+25.00	23225.00	25	1.24	75.58	8	38	32	113	-81
232+50.00	23250.00	25	1.28	73.64	1	69	33	199	-166
232+75.00	23275.00	25	2.18	8.57	2	38	35	246	-211
233+00.00	23300.00	25	5.79	1.08	4	4	39	251	-212

DIVISION 7 - CONDRY ROAD

STATION	REAL STATION	DISTANCE	AREA (SF)		INCREMENTAL VOL (CY) (UNADJUSTED)		CUMULATIVE VOL (CY)		
			CUT	FILL	CUT	FILL	CUT 1.00 NOTE 1	EXPANDED FILL 1.25	MASS ORDINATE NOTE 8
1+97.00	197.00	0.00	8.93	0.00	0	0	0	0	0
2+00.00	200.00	3.00	10.21	0.00	1	0	1	0	1
2+25.00	225.00	25.00	12.44	23.70	10	11	11	14	-3
2+50.00	250.00	25.00	10.88	100.91	11	58	22	86	-64

DIVISION 8 - CTH D

STATION	REAL STATION	DISTANCE	AREA (SF)		INCREMENTAL VOL (CY) (UNADJUSTED)		CUMULATIVE VOL (CY)		
			CUT	FILL	CUT	FILL	CUT 1.00 NOTE 1	EXPANDED FILL 1.25	MASS ORDINATE NOTE 8
257+00.00	25700.00	0.00	5.06	0.74	0	0	0	0	0
257+25.00	25725.00	25.00	5.78	0.19	5	0	5	0	5
257+50.00	25750.00	25.00	10.96	9.40	8	4	13	5	8
257+75.00	25775.00	25.00	16.40	28.50	13	18	26	28	-2
258+00.00	25800.00	25.00	38.71	16.88	26	21	52	54	-2
258+25.00	25825.00	25.00	77.50	0.00	54	8	106	64	42
258+50.00	25850.00	25.00	16.94	3.66	44	2	150	66	84
258+75.00	25875.00	25.00	5.79	1.06	11	2	161	69	92
259+00.00	25900.00	25.00	3.95	1.69	5	1	166	70	96

DIVISION 8 - WATERFALL ROAD

STATION	REAL STATION	DISTANCE	AREA (SF)		INCREMENTAL VOL (CY) (UNADJUSTED)		CUMULATIVE VOL (CY)		
			CUT	FILL	CUT	FILL	CUT 1.00 NOTE 1	EXPANDED FILL 1.25	MASS ORDINATE NOTE 8
0+50.00	50.00	0.00	39.51	34.50	0	0	0	0	0
0+75.00	75.00	25.00	24.72	14.76	30	23	30	29	1
1+00.00	100.00	25.00	13.21	1.75	18	8	48	39	9

NOTES:	
1 - CUT	CUT INCLUDES SALVAGED/UNUSABLE PAVEMENT MATERIAL
3 - FILL	DOES NOT INCLUDE UNUSABLE PAVEMENT EXC VOLUME
8 - MASS ORDINATE	IF MARSH AND EBS TO BE BACKFILLED WITH GRANULAR: [CUT - SALVAGED PAVT - ((FILL - EXPANDED ROCK) * FILL FACTOR)]

DIVISION 9 - CTH D

STATION	REAL STATION	DISTANCE	AREA (SF)		INCREMENTAL VOL (CY) (UNADJUSTED)		CUMULATIVE VOL (CY)		
			CUT	FILL	CUT	FILL	CUT 1.00 NOTE 1	EXPANDED FILL 1.25	MASS ORDINATE NOTE 8
283+75.00	28375.00	0.00	5.44	1.44	0	0	0	0	0
284+00.00	28400.00	25.00	4.44	5.29	5	3	5	4	1
284+25.00	28425.00	25.00	5.95	13.95	5	9	10	15	-5
284+50.00	28450.00	25.00	7.99	22.98	6	17	16	36	-20
284+75.00	28475.00	25.00	15.76	3.82	11	12	27	51	-24
285+00.00	28500.00	25.00	6.53	67.52	10	33	37	93	-56
285+25.00	28525.00	25.00	5.70	57.57	6	58	43	165	-122
285+50.00	28550.00	25.00	5.42	43.06	5	47	48	224	-176
285+75.00	28575.00	25.00	5.11	71.41	5	53	53	290	-237

DIVISION 9 - UNION CHURCH ROAD

STATION	REAL STATION	DISTANCE	AREA (SF)		INCREMENTAL VOL (CY) (UNADJUSTED)		CUMULATIVE VOL (CY)		
			CUT	FILL	CUT	FILL	CUT 1.00 NOTE 1	EXPANDED FILL 1.25	MASS ORDINATE NOTE 8
1+71.34	171.34	0.00	4.16	0.96	0	0	0	0	0
1+75.00	175.00	3.66	4.48	1.06	1	0	1	0	1
2+00.00	200.00	25.00	9.25	30.52	6	15	7	19	-12
2+25.00	225.00	25.00	4.25	65.14	6	44	13	74	-61

NOTES:	
1 - CUT	CUT INCLUDES SALVAGED/UNUSABLE PAVEMENT MATERIAL
3 - FILL	DOES NOT INCLUDE UNUSABLE PAVEMENT EXC VOLUME
8 - MASS ORDINATE	IF MARSH AND EBS TO BE BACKFILLED WITH GRANULAR: [CUT - SALVAGED PAVT - ((FILL - EXPANDED ROCK) * FILL FACTOR)]

DIVISION 10 - CTH D

STATION	REAL STATION	DISTANCE	AREA (SF)		INCREMENTAL VOL (CY) (UNADJUSTED)		CUMULATIVE VOL (CY)		
			CUT	FILL	CUT	FILL	CUT 1.00 NOTE 1	EXPANDED FILL 1.25	MASS ORDINATE NOTE 8
291+06.53	29106.53	0.00	30.35	1.01	0	0	0	0	0
291+25.00	29125.00	18.47	31.45	0.83	21	1	21	1	20
291+50.00	29150.00	25.00	32.32	0.92	30	1	51	3	49
291+75.00	29175.00	25.00	34.72	1.52	31	1	82	4	78
292+00.00	29200.00	25.00	34.18	0.95	32	1	114	5	109
292+25.00	29225.00	25.00	30.22	3.11	30	2	144	8	137
292+50.00	29250.00	25.00	29.45	4.69	28	4	172	13	160
292+75.00	29275.00	25.00	27.91	4.69	27	4	199	18	182
293+00.00	29300.00	25.00	28.38	4.79	26	4	225	23	203
293+25.00	29325.00	25.00	30.20	4.04	27	4	252	28	225
293+50.00	29350.00	25.00	32.05	2.93	29	3	281	31	250
293+75.00	29375.00	25.00	30.63	8.53	29	5	310	38	273
294+00.00	29400.00	25.00	28.34	29.20	27	17	337	59	278
294+25.00	29425.00	25.00	29.57	46.73	27	35	364	103	262
294+50.00	29450.00	25.00	36.92	29.52	31	35	395	146	249
294+75.00	29475.00	25.00	51.06	1.77	41	14	436	164	272
295+00.00	29500.00	25.00	40.93	60.93	43	29	479	200	279
295+25.00	29525.00	25.00	37.96	87.07	37	69	516	286	230
295+60.69	29560.69	35.69	65.36	83.30	68	113	584	428	157
295+84.80	29584.80	24.11	73.14	88.97	62	77	646	524	122
296+08.94	29608.94	24.14	67.01	69.40	63	71	709	613	97
296+25.00	29625.00	16.06	70.19	47.90	41	35	750	656	94
296+50.00	29650.00	25.00	66.23	47.45	63	44	813	711	102
296+75.00	29675.00	25.00	69.00	47.70	63	44	876	766	110
297+00.00	29700.00	25.00	69.41	68.77	64	54	940	834	106
297+25.00	29725.00	25.00	64.40	74.69	62	66	1002	916	86
297+50.00	29750.00	25.00	66.86	47.07	61	56	1063	986	77
297+75.00	29775.00	25.00	65.85	41.33	61	41	1124	1038	87
298+00.00	29800.00	25.00	66.57	19.41	61	28	1185	1073	113
298+25.00	29825.00	25.00	67.24	1.96	62	10	1247	1085	162
298+50.00	29850.00	25.00	75.11	0.00	66	1	1313	1086	227
298+75.00	29875.00	25.00	70.14	0.09	67	0	1380	1086	294
299+00.00	29900.00	25.00	68.95	0.23	64	0	1444	1086	358
299+25.00	29925.00	25.00	32.75	0.06	47	0	1491	1086	405
299+50.00	29950.00	25.00	32.55	0.01	30	0	1521	1086	435
299+75.00	29975.00	25.00	31.96	0.00	30	0	1551	1086	465
300+00.00	30000.00	25.00	32.73	0.00	30	0	1581	1086	495
300+25.00	30025.00	25.00	34.07	0.00	31	0	1612	1086	526
300+50.00	30050.00	25.00	33.96	0.00	31	0	1643	1086	557
300+75.95	30075.95	25.95	34.78	9.10	33	4	1676	1091	585
301+00.93	30100.93	24.98	30.88	4.53	30	6	1706	1099	607
301+25.92	30125.92	24.99	25.76	33.21	26	17	1732	1120	612

DIVISION 10 - CTH A WEST

STATION	REAL STATION	DISTANCE	AREA (SF)		INCREMENTAL VOL (CY) (UNADJUSTED)		CUMULATIVE VOL (CY)		
			CUT	FILL	CUT	FILL	CUT 1.00 NOTE 1	EXPANDED FILL 1.25	MASS ORDINATE NOTE 8
6+32.80	632.80	0.00	5.37	8.11	0	0	0	0	0
6+50.00	650.00	17.20	4.71	5.36	3	4	3	5	-2
6+75.00	675.00	25.00	2.66	7.51	3	6	6	13	-7
8+00.00	800.00	125.00	3.65	14.61	15	51	21	76	-55
8+25.00	825.00	25.00	6.44	36.05	5	23	26	105	-79
8+29.16	829.16	4.16	5.18	43.30	1	6	27	113	-86

NOTES:	
1 - CUT	CUT INCLUDES SALVAGED/UNUSABLE PAVEMENT MATERIAL
3 - FILL	DOES NOT INCLUDE UNUSABLE PAVEMENT EXC VOLUME
8 - MASS ORDINATE	IF MARSH AND EBS TO BE BACKFILLED WITH GRANULAR: [CUT - SALVAGED PAVT - ((FILL - EXPANDED ROCK) * FILL FACTOR)]

DIVISION 10 - UNION ROAD

STATION	REAL STATION	DISTANCE	AREA (SF)		INCREMENTAL VOL (CY) (UNADJUSTED)		CUMULATIVE VOL (CY)		
			CUT	FILL	CUT	FILL	CUT 1.00 NOTE 1	EXPANDED FILL 1.25	MASS ORDINATE NOTE 8
0+50.00	50.00	0.00	16.22	37.29	0	0	0	0	0
0+75.00	75.00	25.00	1.14	16.28	8	25	8	31	-23
0+77.15	77.15	2.15	0.11	16.07	0	1	8	33	-25

DIVISION 11 - CTH D

STATION	REAL STATION	DISTANCE	AREA (SF)		INCREMENTAL VOL (CY) (UNADJUSTED)		CUMULATIVE VOL (CY)		
			CUT	FILL	CUT	FILL	CUT 1.00 NOTE 1	EXPANDED FILL 1.25	MASS ORDINATE NOTE 8
321+50.00	32150.00	0.00	4.67	6.99	0	0	0	0	0
321+75.00	32175.00	25.00	8.09	2.71	6	4	6	5	1
322+00.00	32200.00	25.00	12.04	1.02	9	2	15	8	8
322+25.00	32225.00	25.00	20.60	11.33	15	6	30	15	15
322+50.00	32250.00	25.00	68.65	0.00	41	5	71	21	50
322+75.00	32275.00	25.00	33.31	2.82	47	1	118	23	96
323+00.00	32300.00	25.00	18.67	0.64	24	2	142	25	117
323+25.00	32325.00	25.00	9.98	0.24	13	0	155	25	130
323+50.00	32350.00	25.00	7.12	0.87	8	1	163	26	137
323+75.00	32375.00	25.00	7.22	1.93	7	1	170	28	143

DIVISION 11 - TOWNHALL ROAD N

STATION	REAL STATION	DISTANCE	AREA (SF)		INCREMENTAL VOL (CY) (UNADJUSTED)		CUMULATIVE VOL (CY)		
			CUT	FILL	CUT	FILL	CUT 1.00 NOTE 1	EXPANDED FILL 1.25	MASS ORDINATE NOTE 8
4+97.25	497.25	0.00	9.82	0.00	0	0	0	0	0
5+00.00	500.00	2.75	10.03	0.00	1	0	1	0	1
5+25.00	525.00	25.00	24.54	6.93	16	3	17	4	13

NOTES:	
1 - CUT	CUT INCLUDES SALVAGED/UNUSABLE PAVEMENT MATERIAL
3 - FILL	DOES NOT INCLUDE UNUSABLE PAVEMENT EXC VOLUME
8 - MASS ORDINATE	IF MARSH AND EBS TO BE BACKFILLED WITH GRANULAR: [CUT - SALVAGED PAVT - ((FILL - EXPANDED ROCK) * FILL FACTOR)]

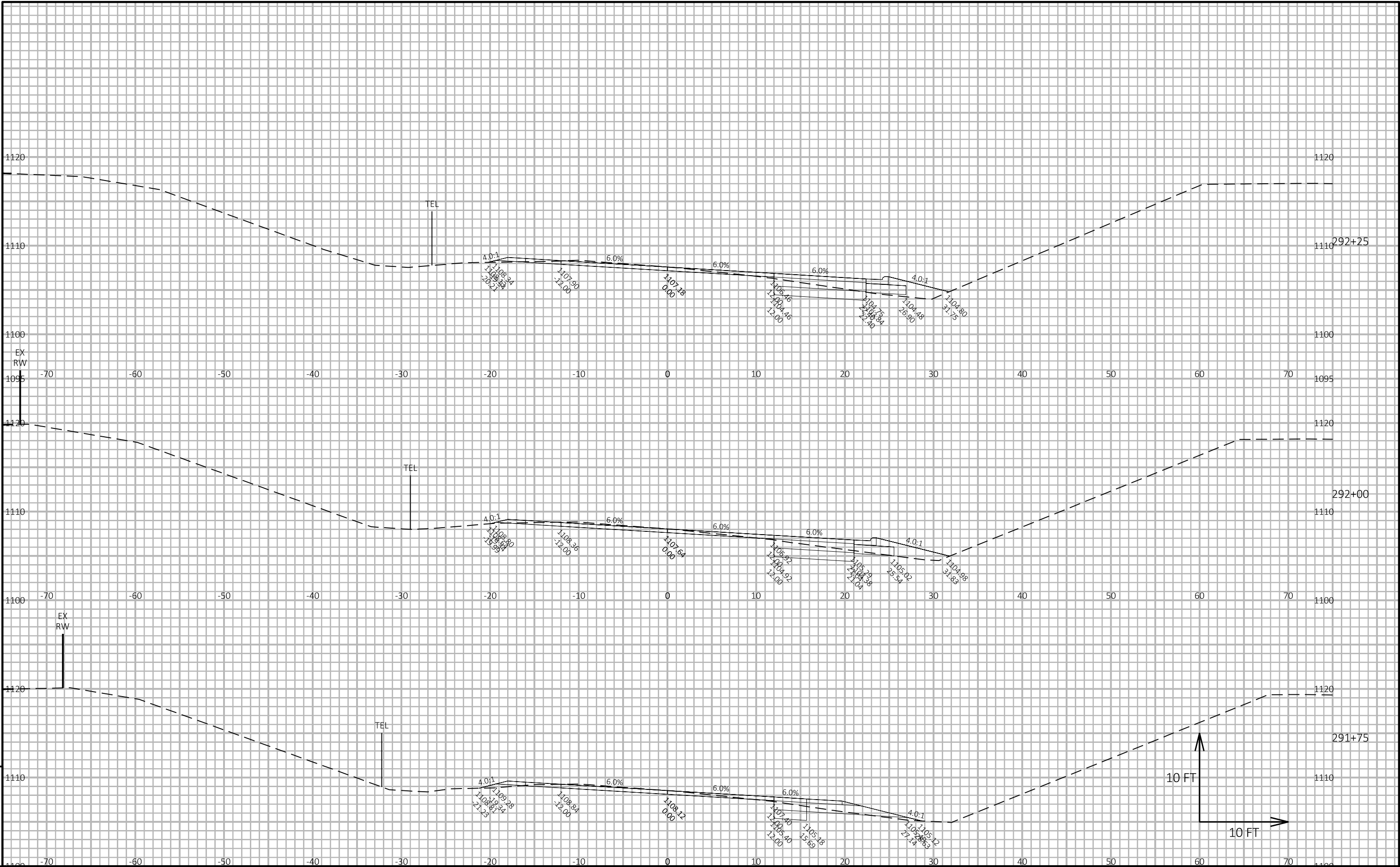
DIVISION 12 - CTH D

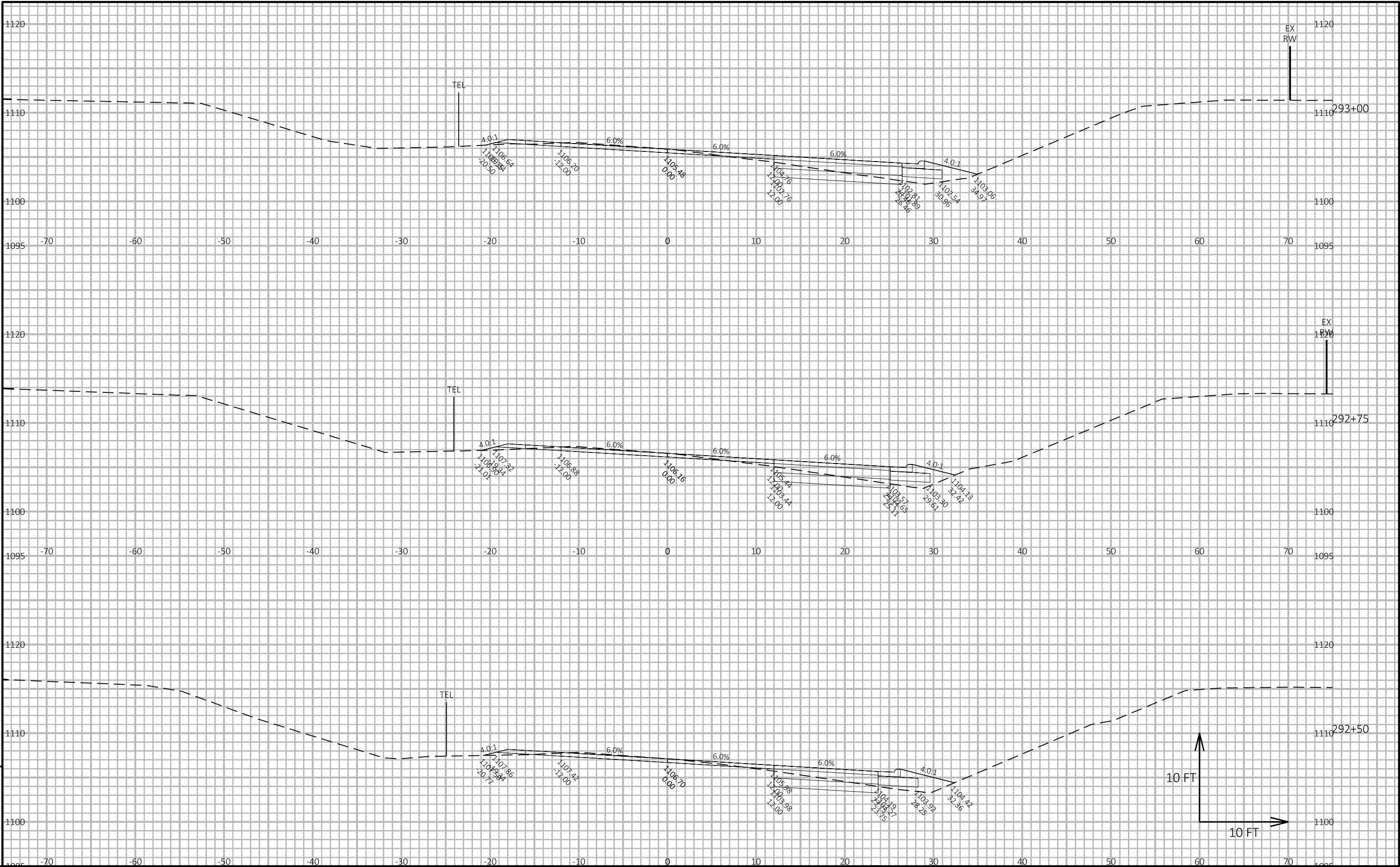
STATION	REAL STATION	DISTANCE	AREA (SF)		INCREMENTAL VOL (CY) (UNADJUSTED)		CUMULATIVE VOL (CY)		
			CUT	FILL	CUT	FILL	CUT 1.00 NOTE 1	EXPANDED FILL 1.25	MASS ORDINATE NOTE 8
					NOTE 1	NOTE 3			
368+50.00	36850.00	0.00	50.41	0.00	0	0	0	0	0
368+75.00	36875.00	25.00	60.77	0.00	51	0	51	0	51
369+00.00	36900.00	25.00	67.40	0.00	59	0	110	0	110
369+25.00	36925.00	25.00	72.64	0.00	65	0	175	0	175
369+50.00	36950.00	25.00	69.32	0.00	66	0	241	0	241
369+75.00	36975.00	25.00	64.52	0.00	62	0	303	0	303
370+00.00	37000.00	25.00	67.86	0.00	61	0	364	0	364
370+25.00	37025.00	25.00	67.31	0.00	63	0	427	0	427
370+50.00	37050.00	25.00	62.67	0.00	60	0	487	0	487
370+75.00	37075.00	25.00	49.26	0.00	52	0	539	0	539
371+00.00	37100.00	25.00	50.06	0.00	46	0	585	0	585
371+25.00	37125.00	25.00	61.75	0.00	52	0	637	0	637
371+50.00	37150.00	25.00	85.23	2.46	68	1	705	1	704
371+72.07	37172.07	22.07	96.40	9.25	74	5	779	8	772
371+75.00	37175.00	2.93	97.31	7.61	11	1	790	9	781
371+98.49	37198.49	23.49	85.46	0.30	80	3	870	13	858
372+00.00	37200.00	1.51	84.60	0.24	5	0	875	13	863
372+25.00	37225.00	25.00	72.33	0.00	73	0	948	13	936
372+50.00	37250.00	25.00	51.47	6.74	57	3	1005	16	989
372+75.00	37275.00	25.00	44.54	6.07	44	6	1049	24	1025
373+00.00	37300.00	25.00	37.38	8.80	38	7	1087	33	1055
373+25.00	37325.00	25.00	34.40	22.49	33	14	1120	50	1070
373+50.00	37350.00	25.00	32.31	60.65	31	38	1151	98	1054
373+75.00	37375.00	25.00	2.17	114.88	16	81	1167	199	968
374+00.00	37400.00	25.00	3.04	98.75	2	99	1169	323	847
374+25.00	37425.00	25.00	20.22	82.97	11	84	1180	428	753
374+50.00	37450.00	25.00	30.45	71.46	23	71	1203	516	687
374+75.00	37475.00	25.00	24.03	124.22	25	91	1228	630	598
375+00.00	37500.00	25.00	6.76	95.35	14	102	1242	758	485
375+25.00	37525.00	25.00	62.59	51.77	32	68	1274	843	432
375+50.00	37550.00	25.00	52.65	46.34	53	45	1327	899	428
375+75.00	37575.00	25.00	37.87	39.43	42	40	1369	949	420
376+00.00	37600.00	25.00	9.93	34.42	22	34	1391	991	400
376+25.00	37625.00	25.00	10.31	31.56	9	31	1400	1030	370
376+50.00	37650.00	25.00	10.67	26.41	10	27	1410	1064	346
376+75.00	37675.00	25.00	9.36	17.48	9	20	1419	1089	330
376+87.54	37687.54	12.54	2.58	16.22	3	8	1422	1099	323
377+00.00	37700.00	12.46	2.49	29.62	1	11	1423	1113	311
377+14.02	37714.02	14.02	2.62	24.53	1	14	1424	1130	294
377+25.00	37725.00	10.98	2.77	22.12	1	9	1425	1141	284
377+40.50	37740.50	15.50	3.02	25.36	2	14	1427	1159	268
377+50.00	37750.00	9.50	3.21	13.28	1	7	1428	1168	261
377+75.00	37775.00	25.00	3.80	9.15	3	10	1431	1180	251
378+00.00	37800.00	25.00	4.01	1.58	4	5	1435	1186	249

DIVISION 12 - CTH A EAST

STATION	REAL STATION	DISTANCE	AREA (SF)		INCREMENTAL VOL (CY) (UNADJUSTED)		CUMULATIVE VOL (CY)		
			CUT	FILL	CUT	FILL	CUT 1.00 NOTE 1	EXPANDED FILL 1.25	MASS ORDINATE NOTE 8
					NOTE 1	NOTE 3			
9+50.00	950.00	0.00	22.37	82.65	0	0	0	0	0
9+75.00	975.00	25.00	17.24	22.77	18	49	18	61	-43
10+00.00	1000.00	25.00	8.69	16.45	12	18	30	84	-54
10+25.00	1025.00	25.00	6.64	17.49	7	16	37	104	-67
10+50.00	1050.00	25.00	6.44	15.02	6	15	43	123	-80
10+75.00	1075.00	25.00	7.63	12.29	7	13	50	139	-89
11+00.00	1100.00	25.00	7.46	13.41	7	12	57	154	-97
11+25.00	1125.00	25.00	8.02	13.62	7	13	64	170	-106
11+28.04	1128.04	3.04	8.12	13.60	1	2	65	173	-108

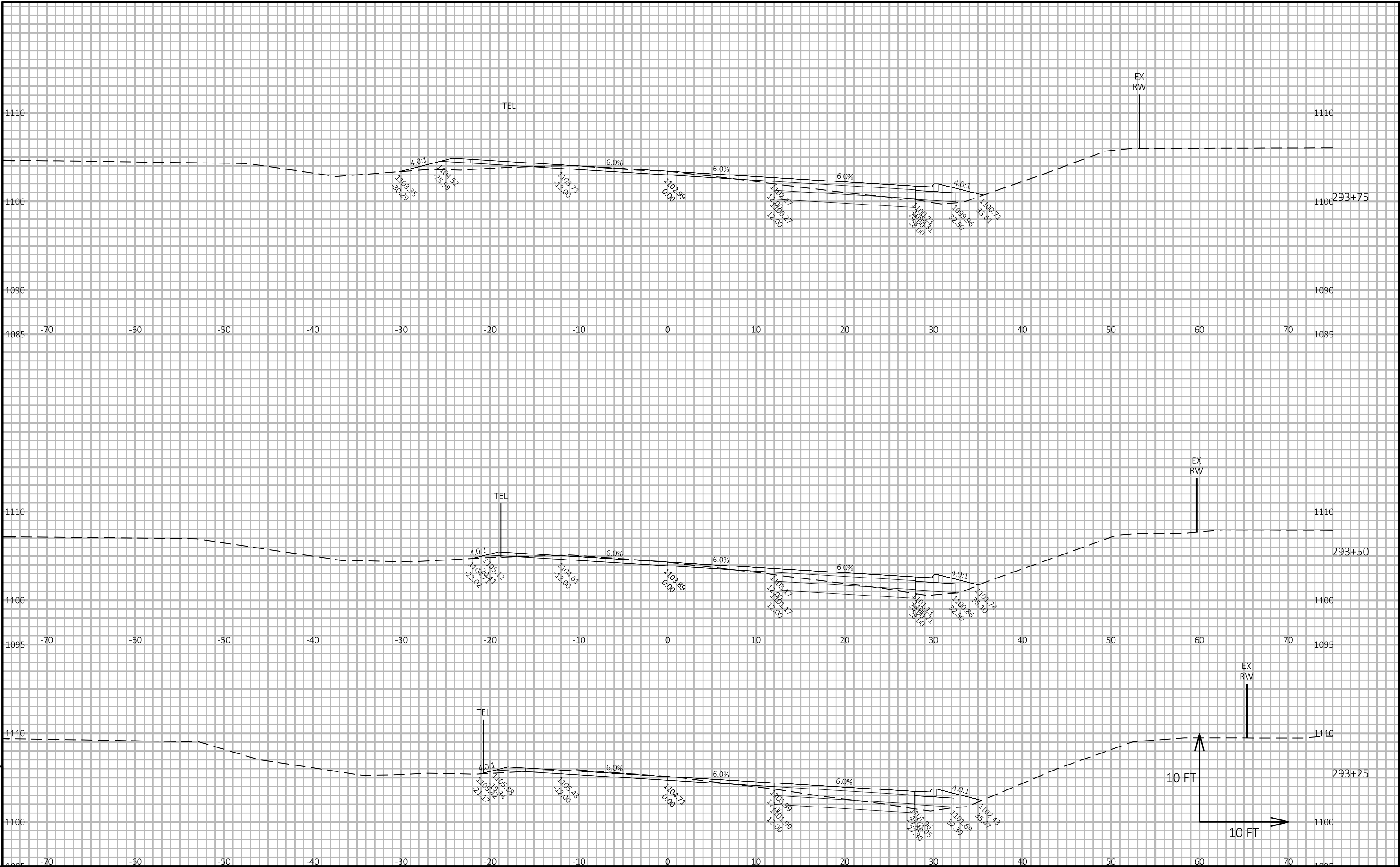
NOTES:	
1 - CUT	CUT INCLUDES SALVAGED/UNUSABLE PAVEMENT MATERIAL
3 - FILL	DOES NOT INCLUDE UNUSABLE PAVEMENT EXC VOLUME
8 - MASS ORDINATE	IF MARSH AND EBS TO BE BACKFILLED WITH GRANULAR: [CUT - SALVAGED PAVT - ((FILL - EXPANDED ROCK) * FILL FACTOR)]

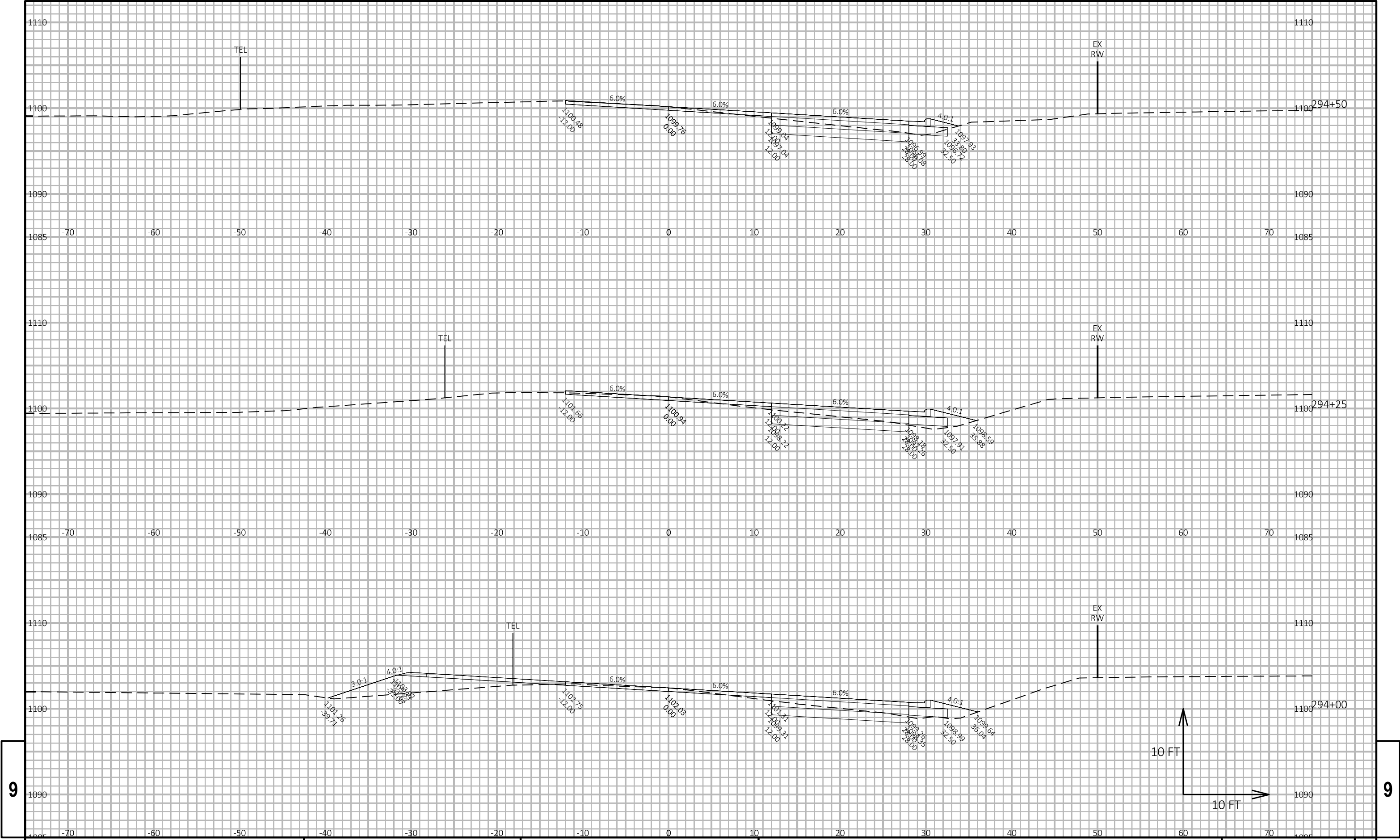




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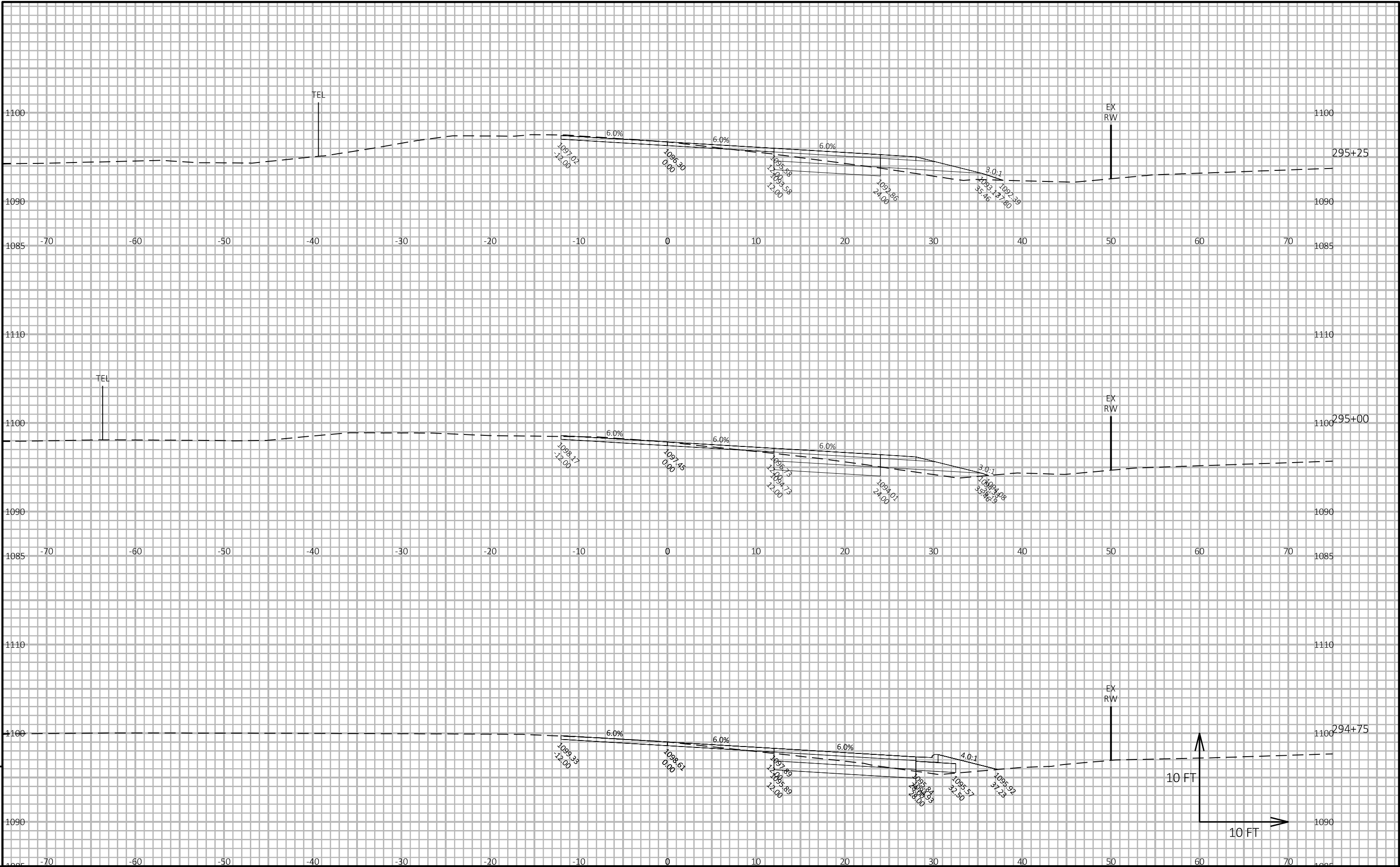
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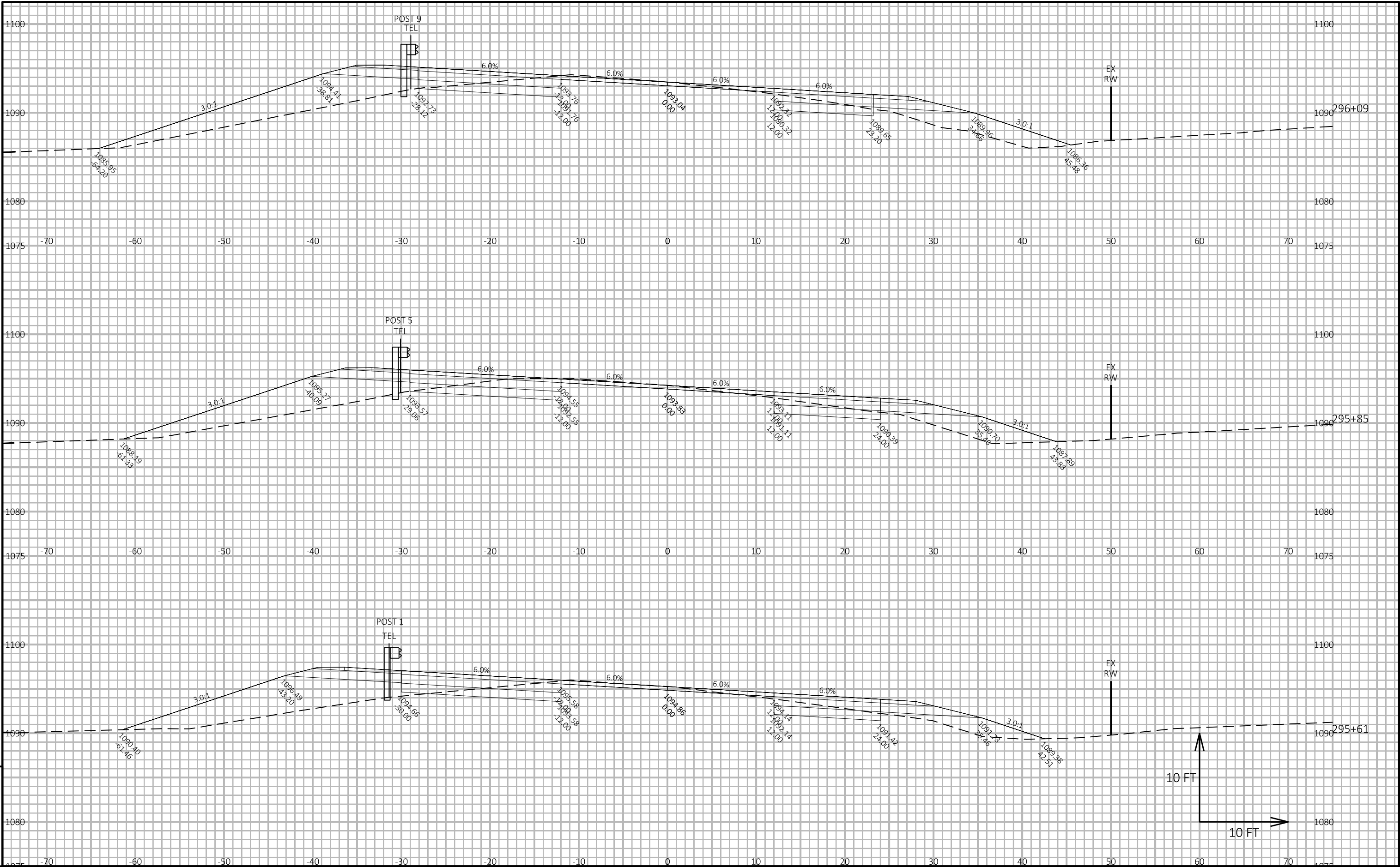


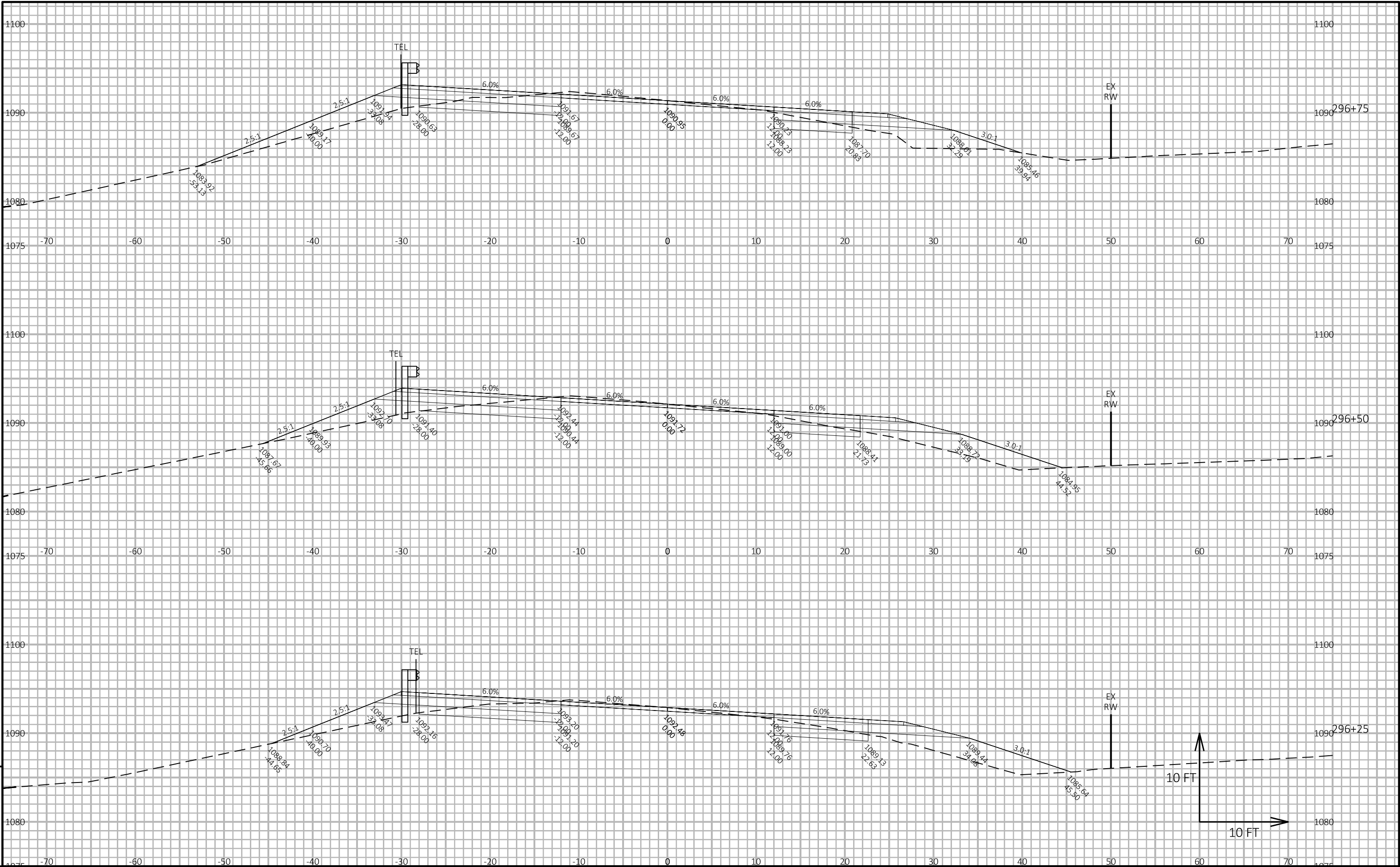


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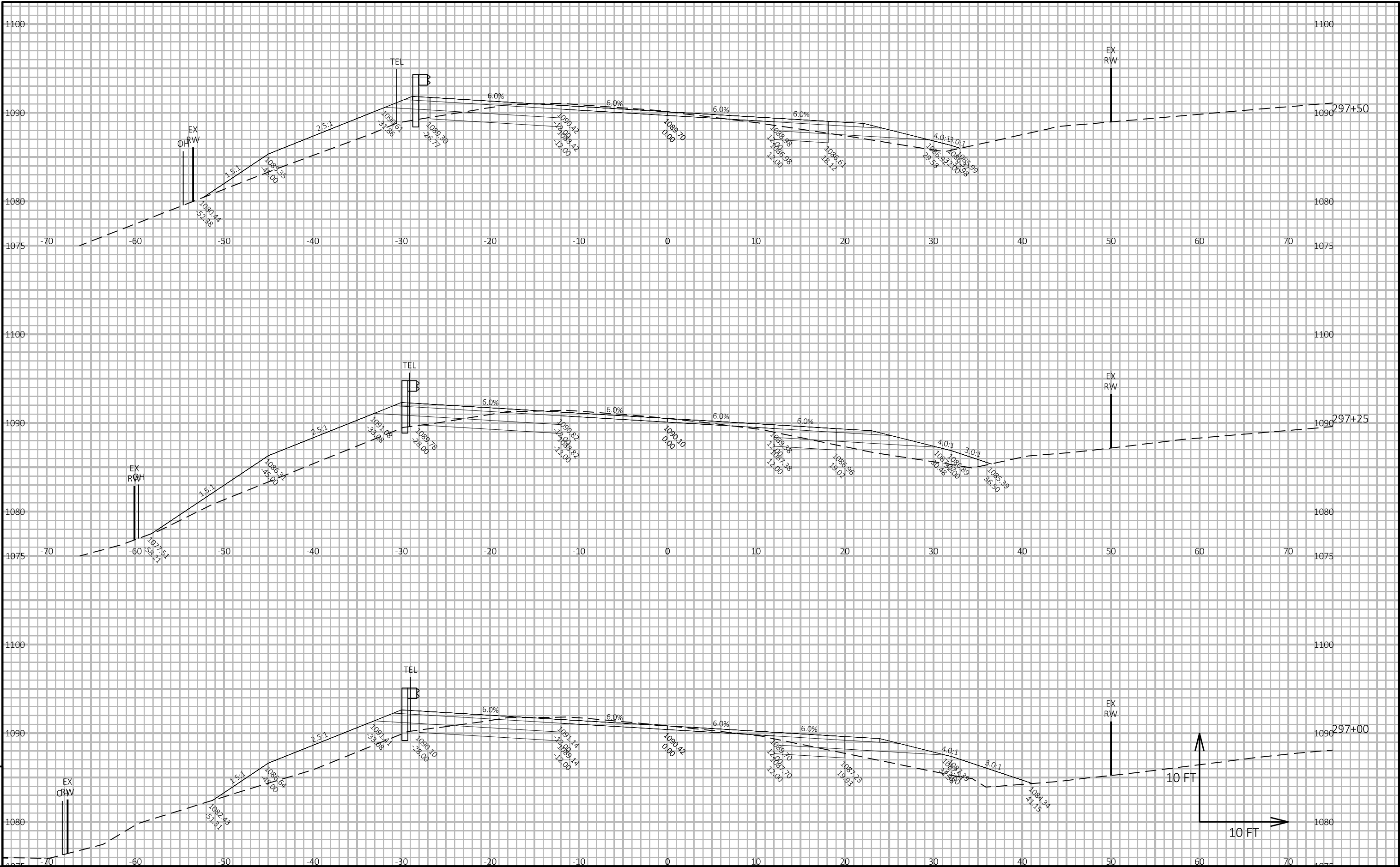


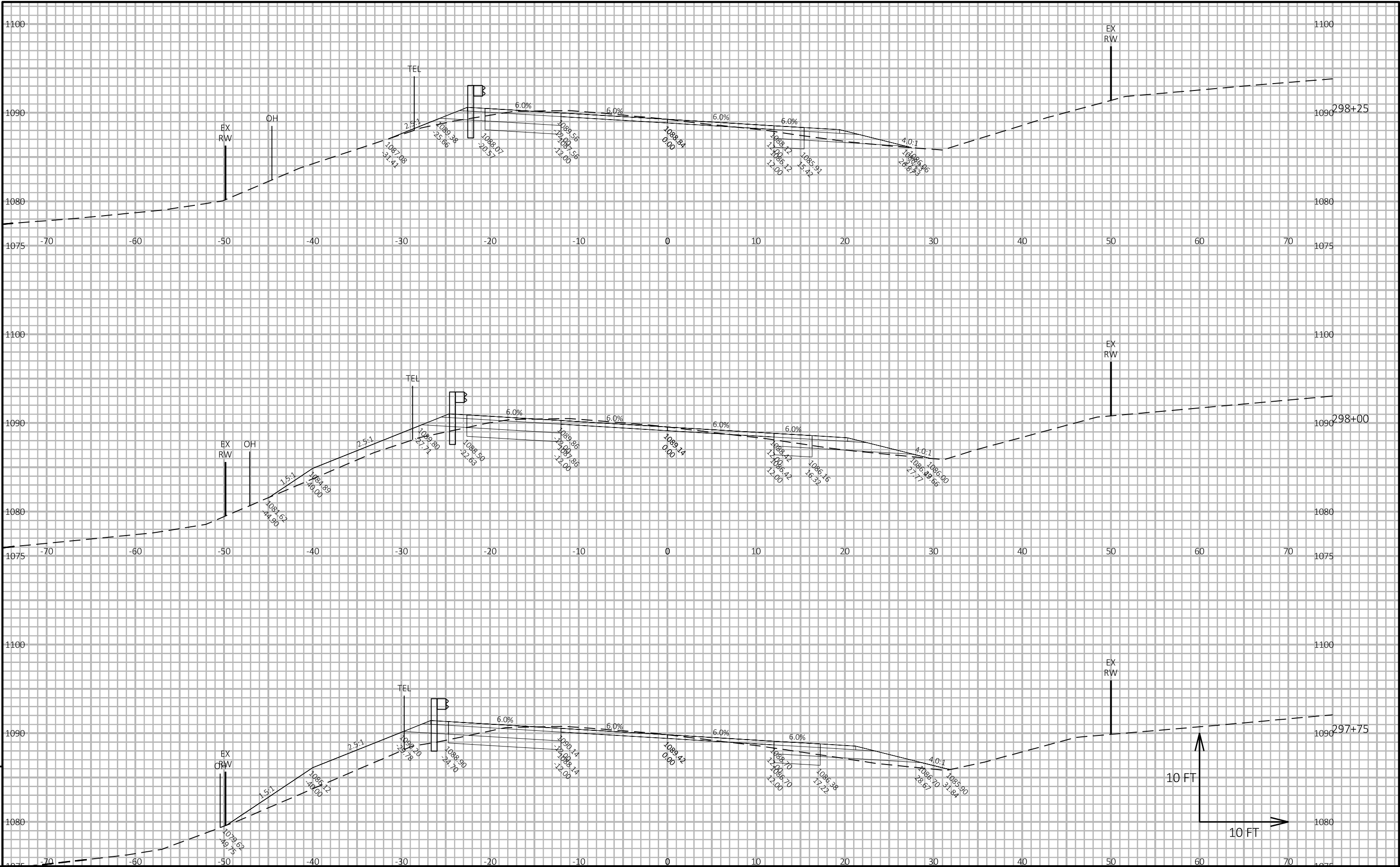


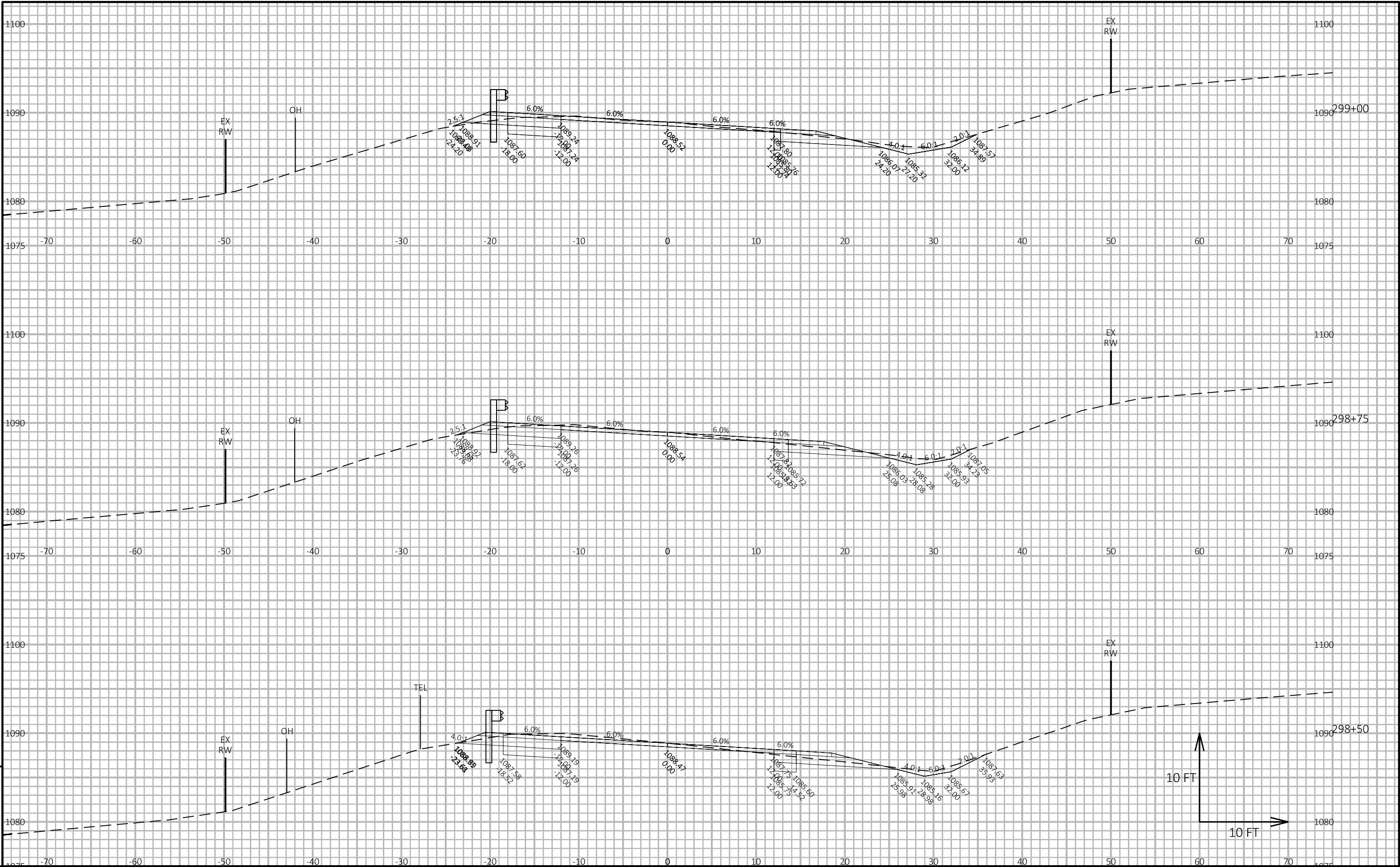


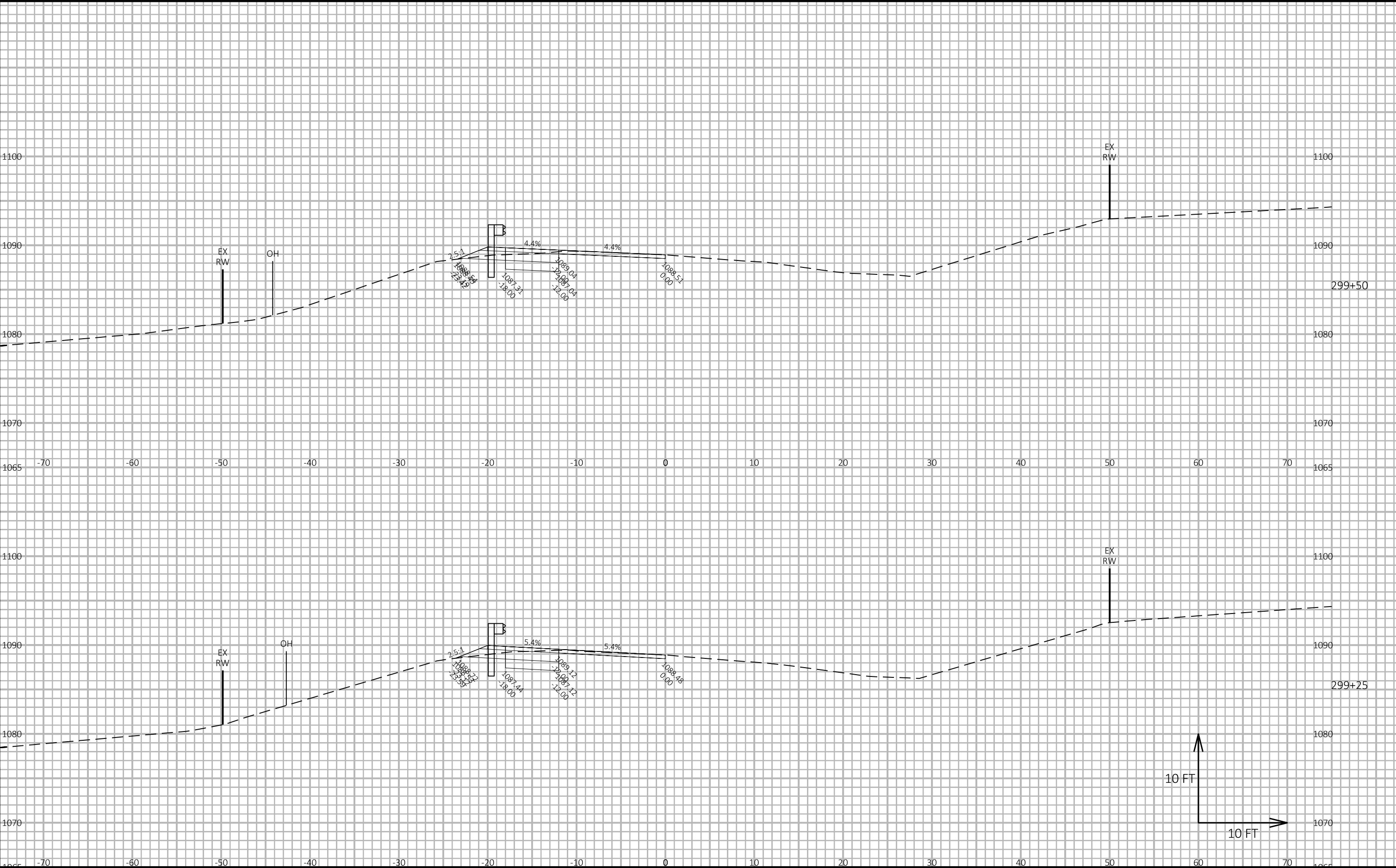
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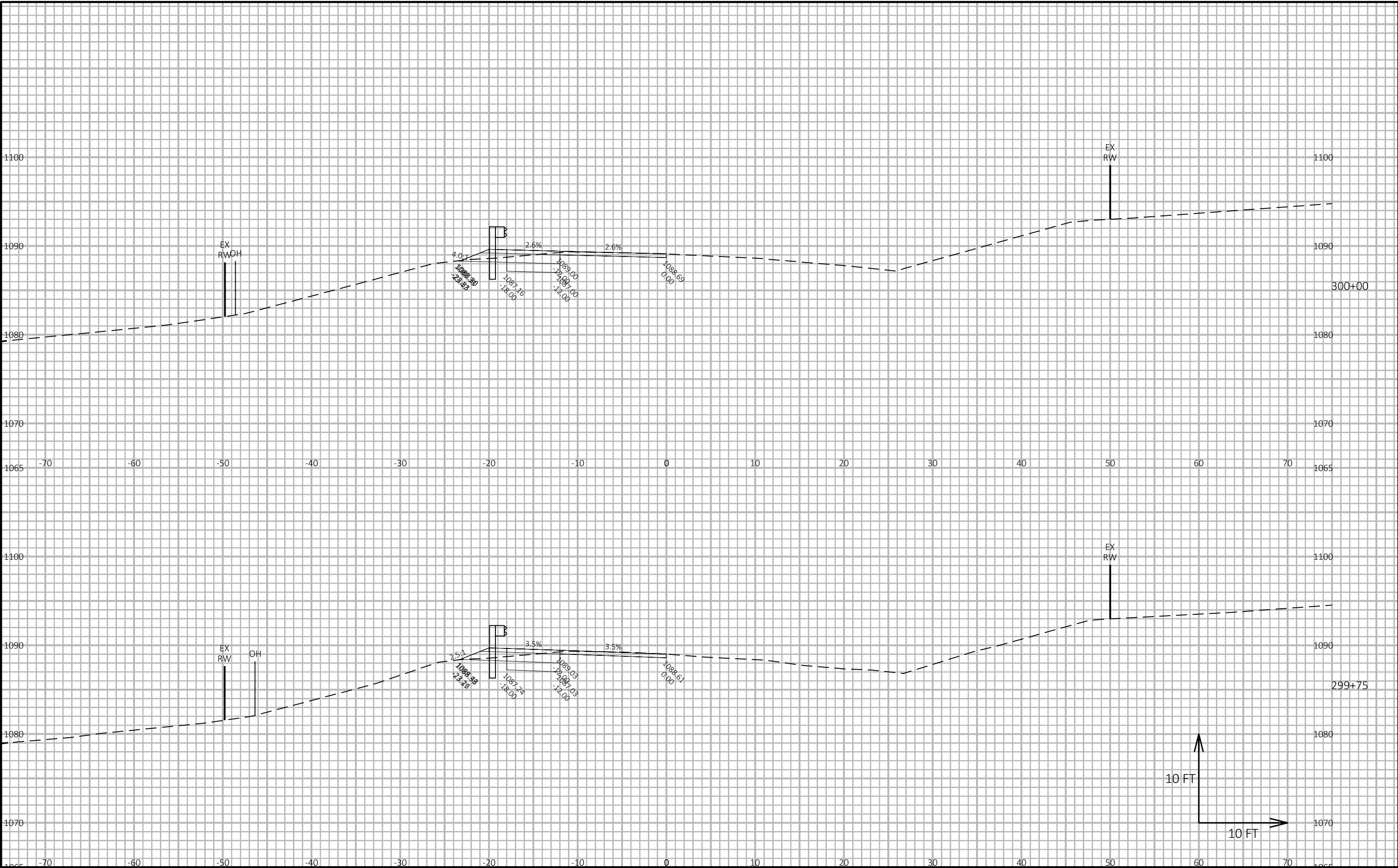
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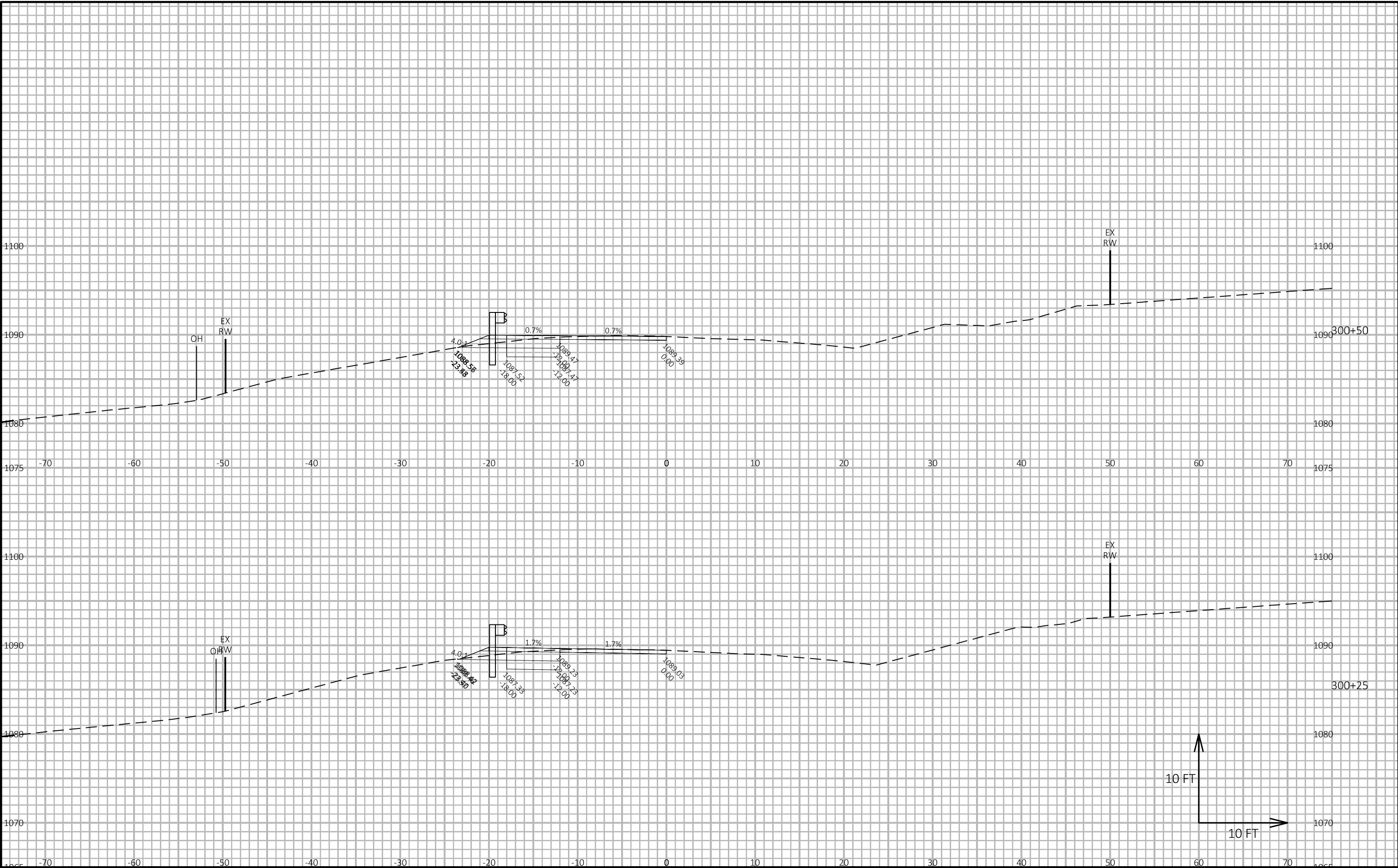


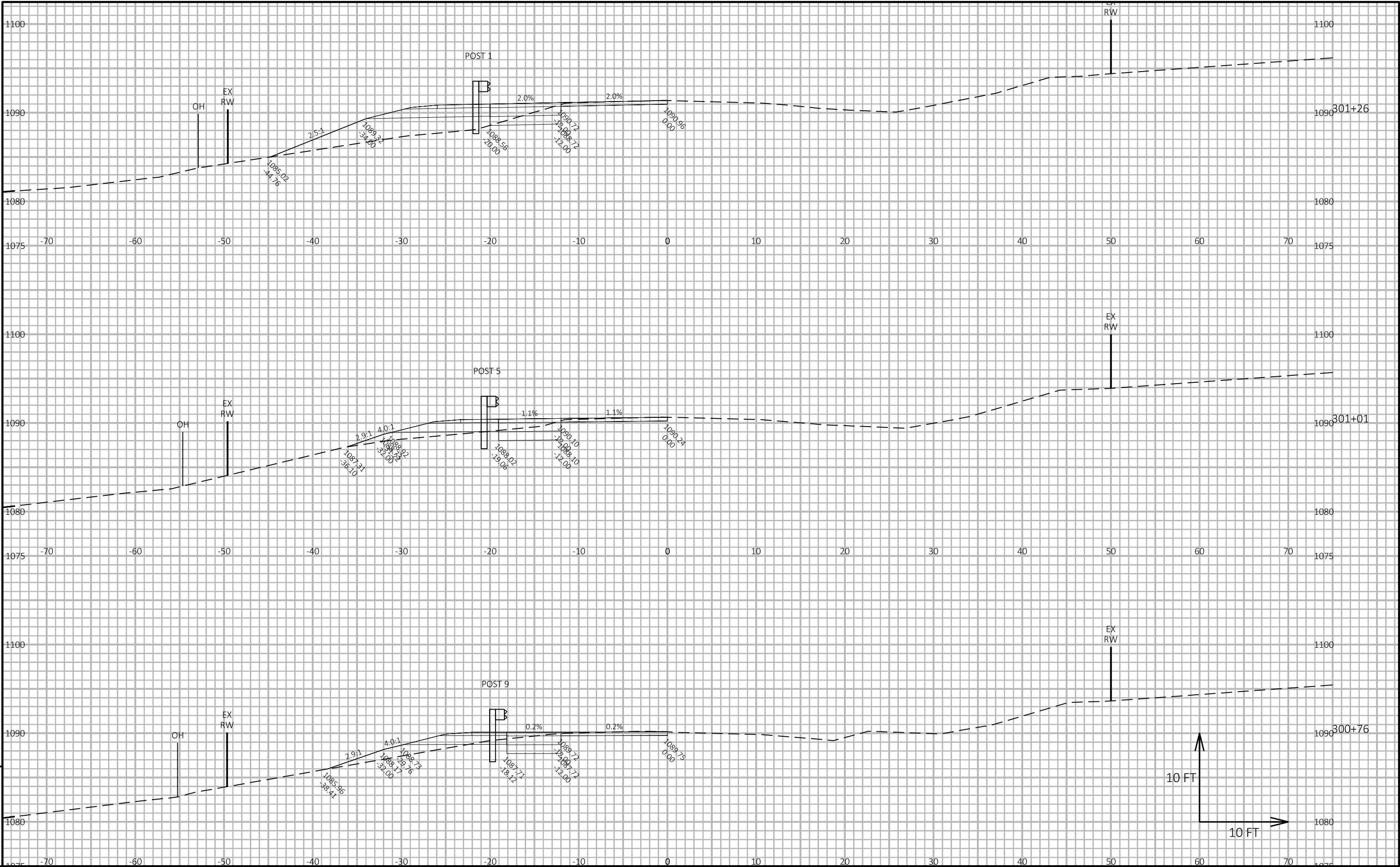


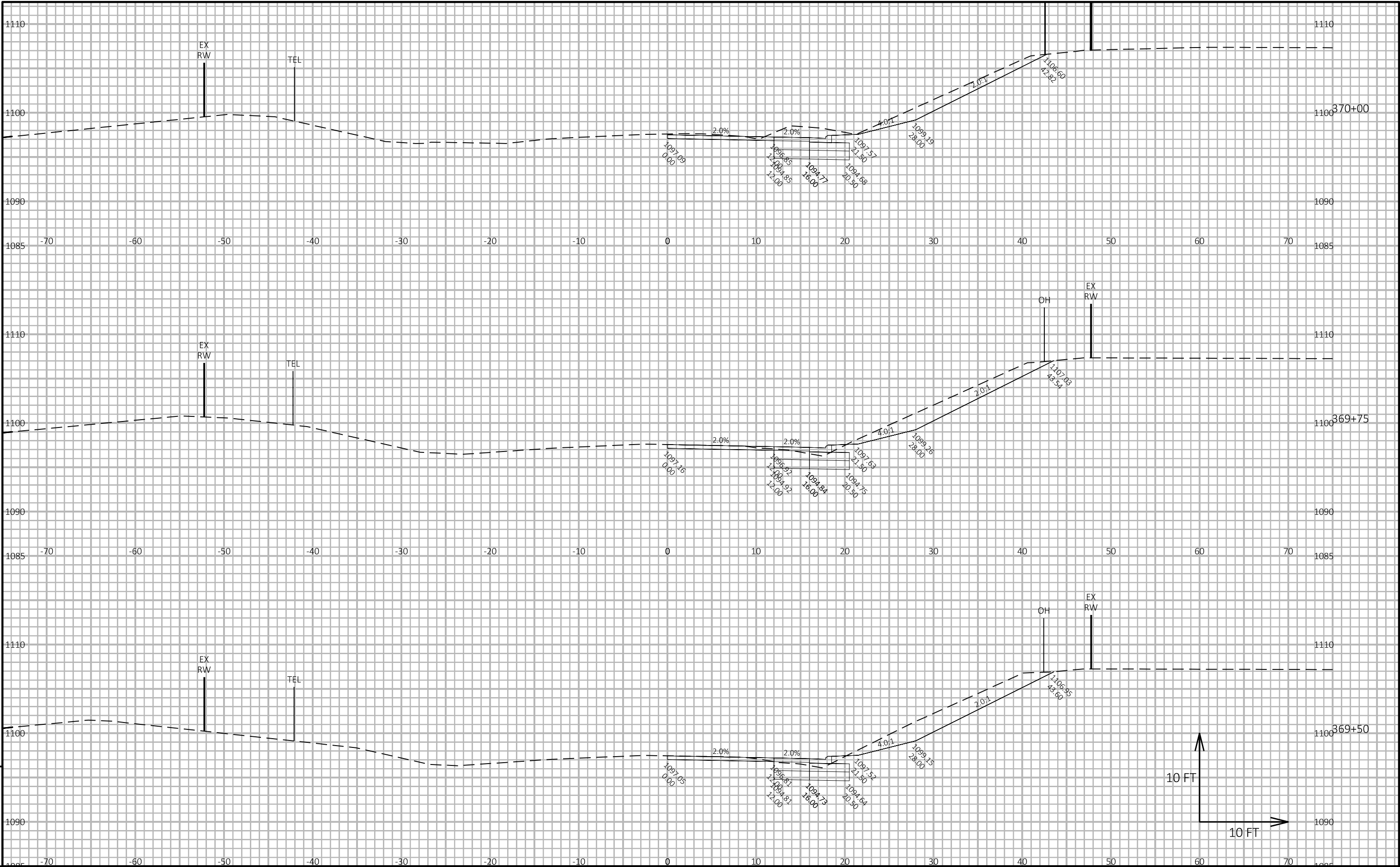






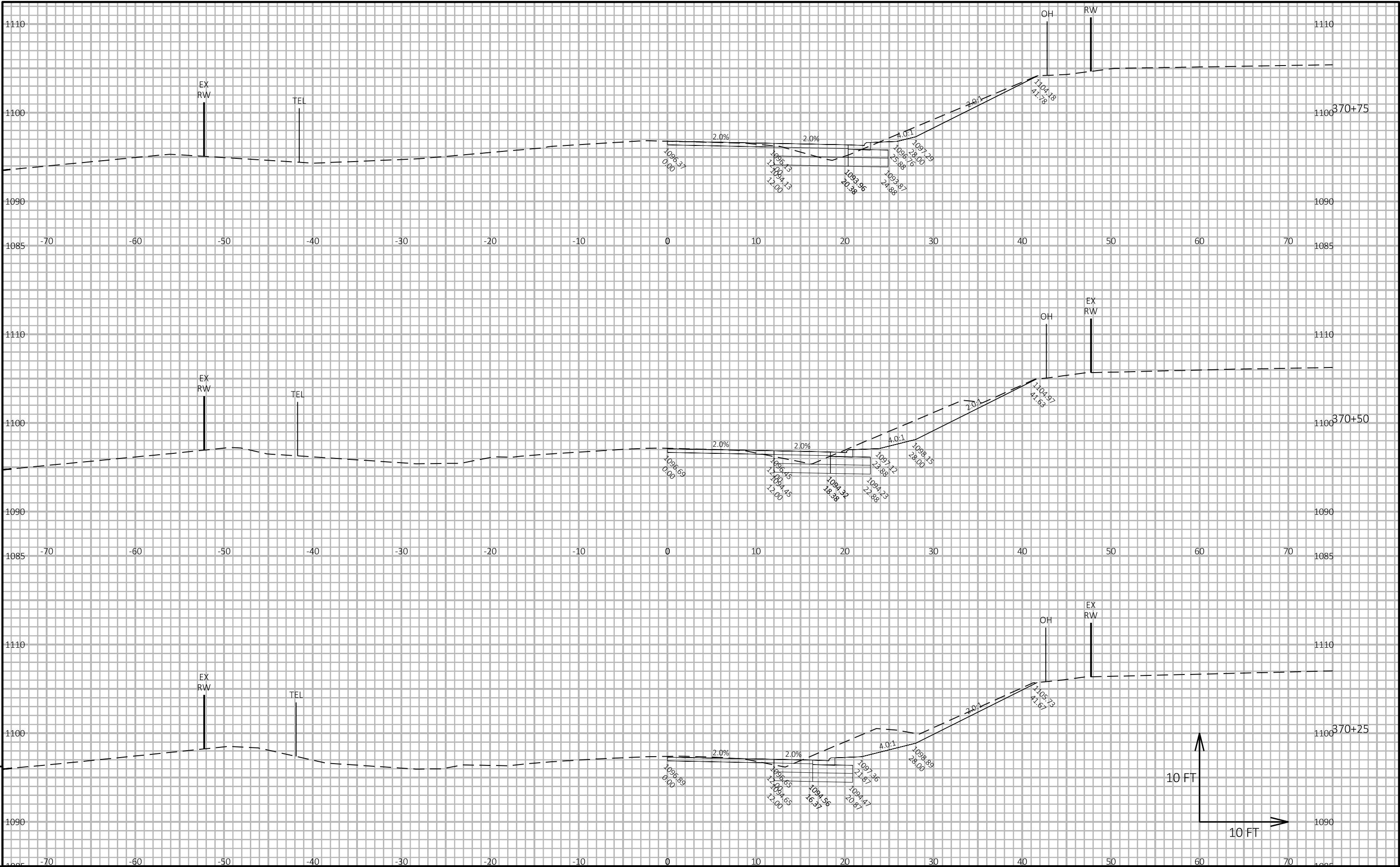


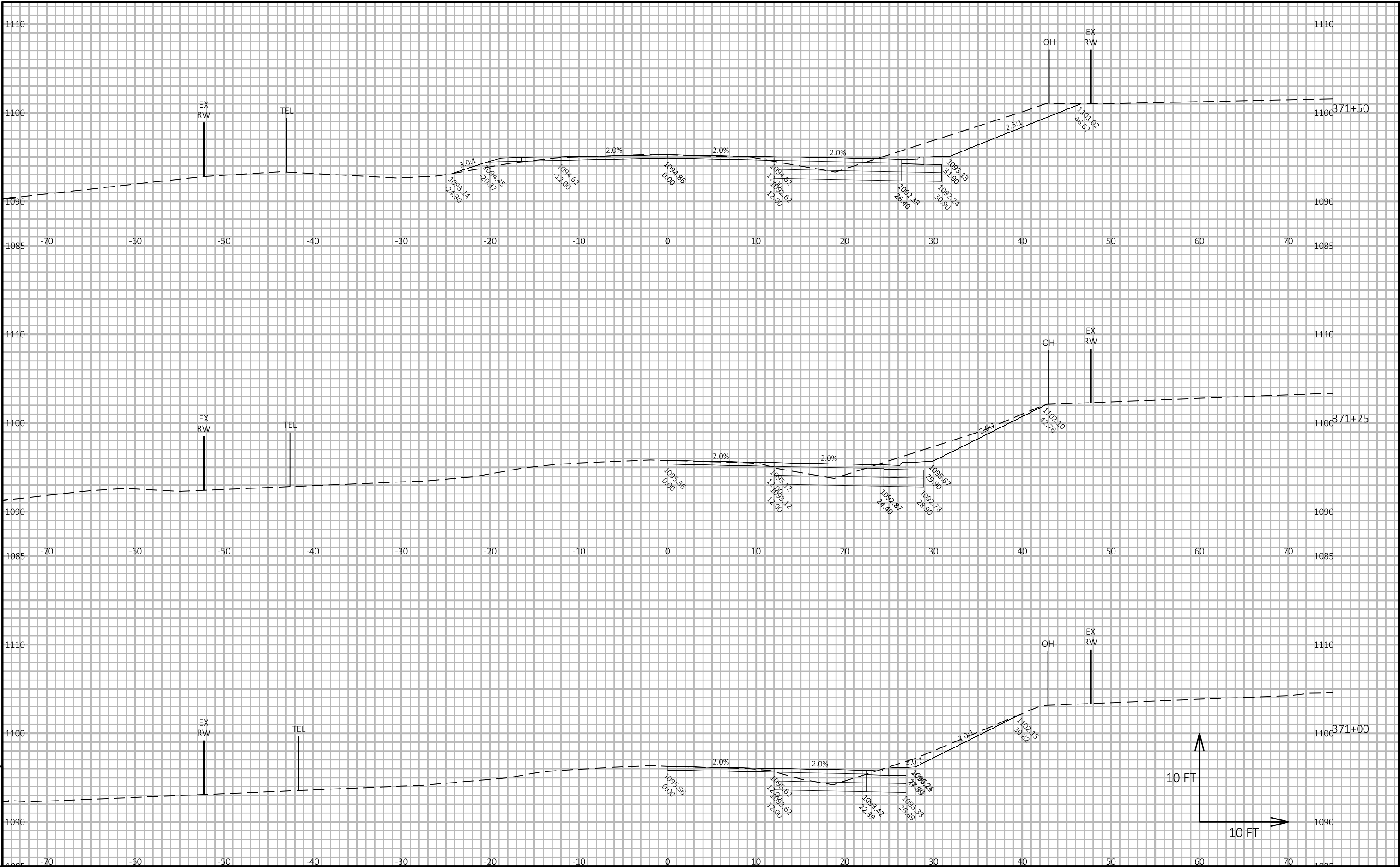


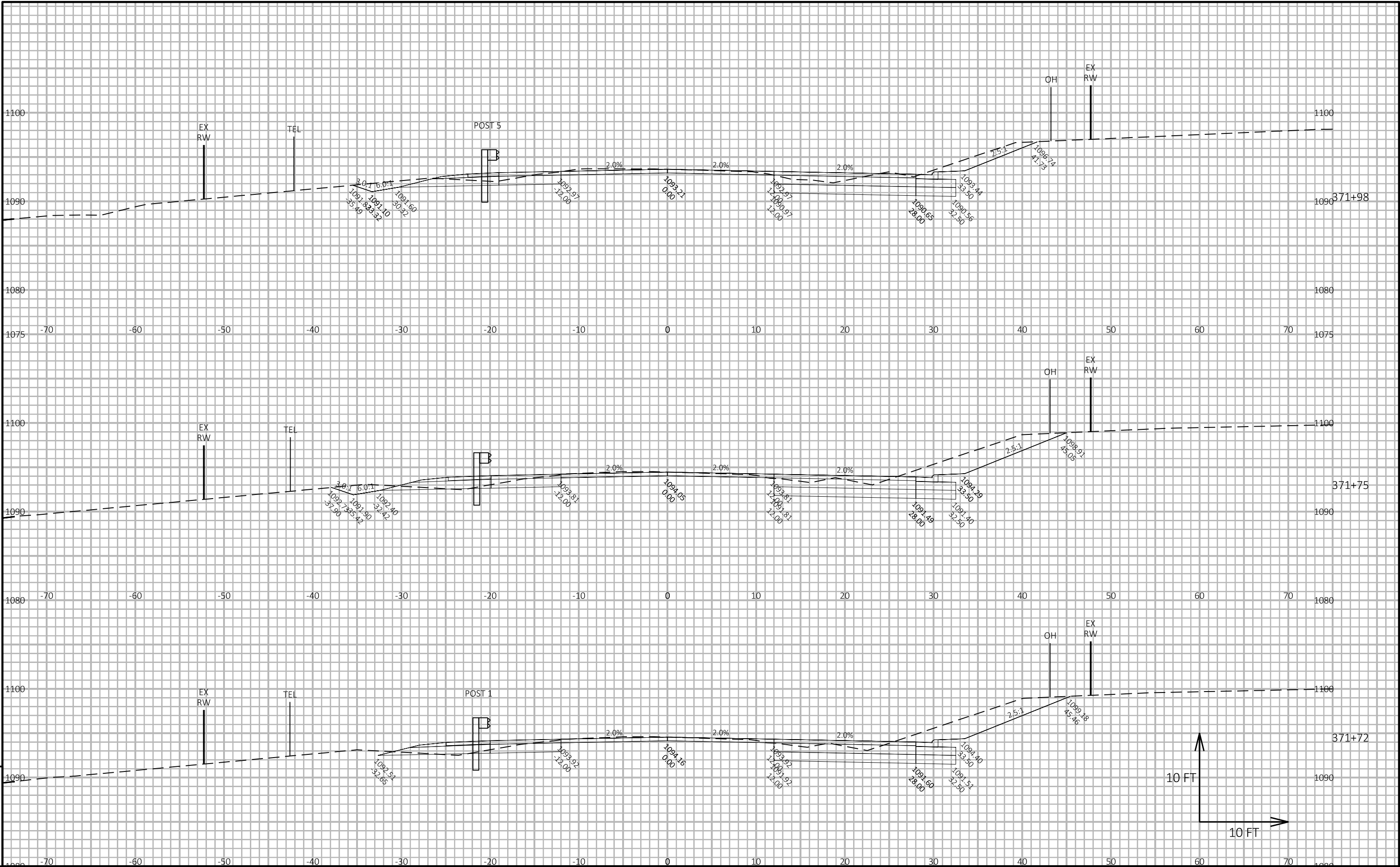


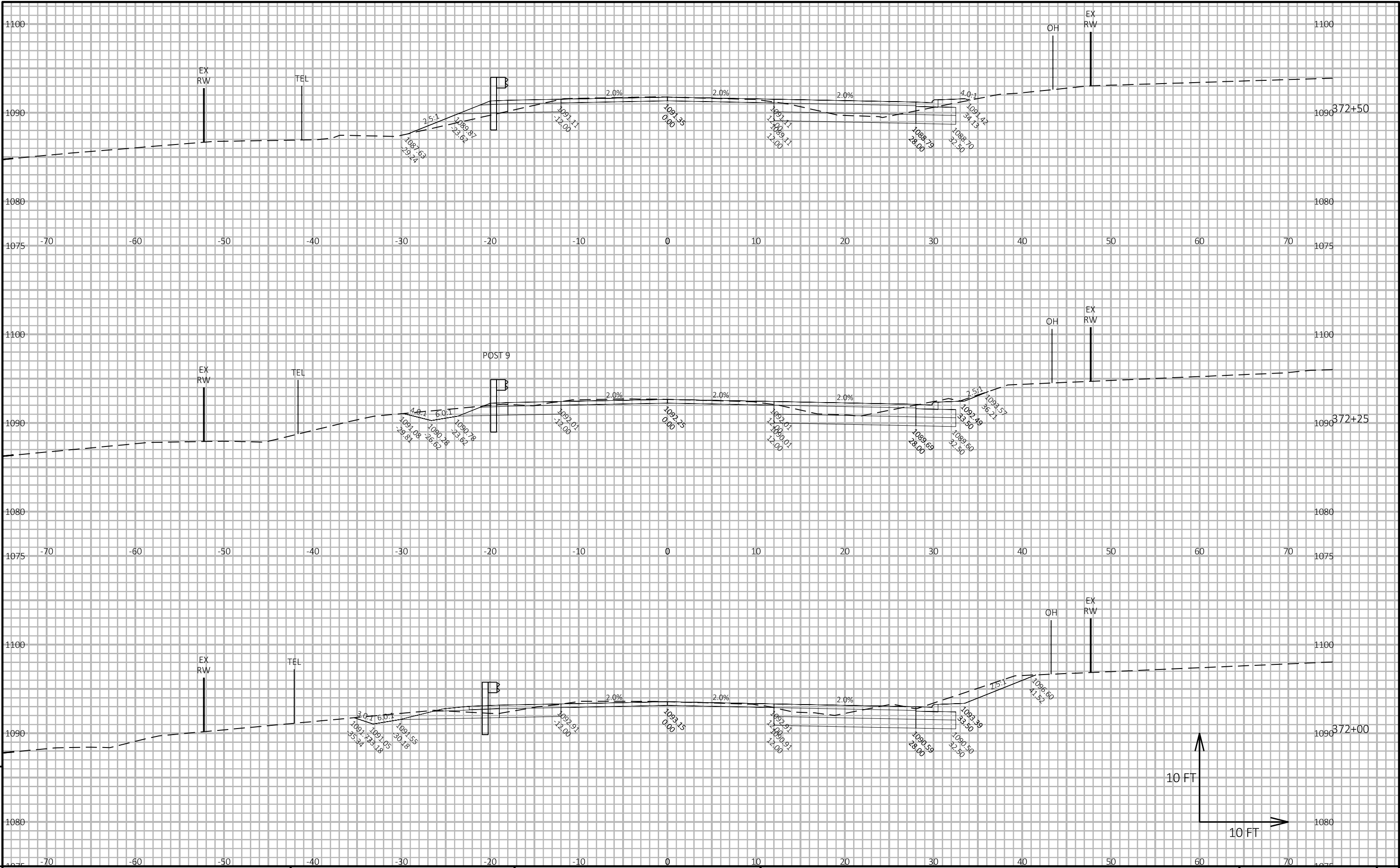
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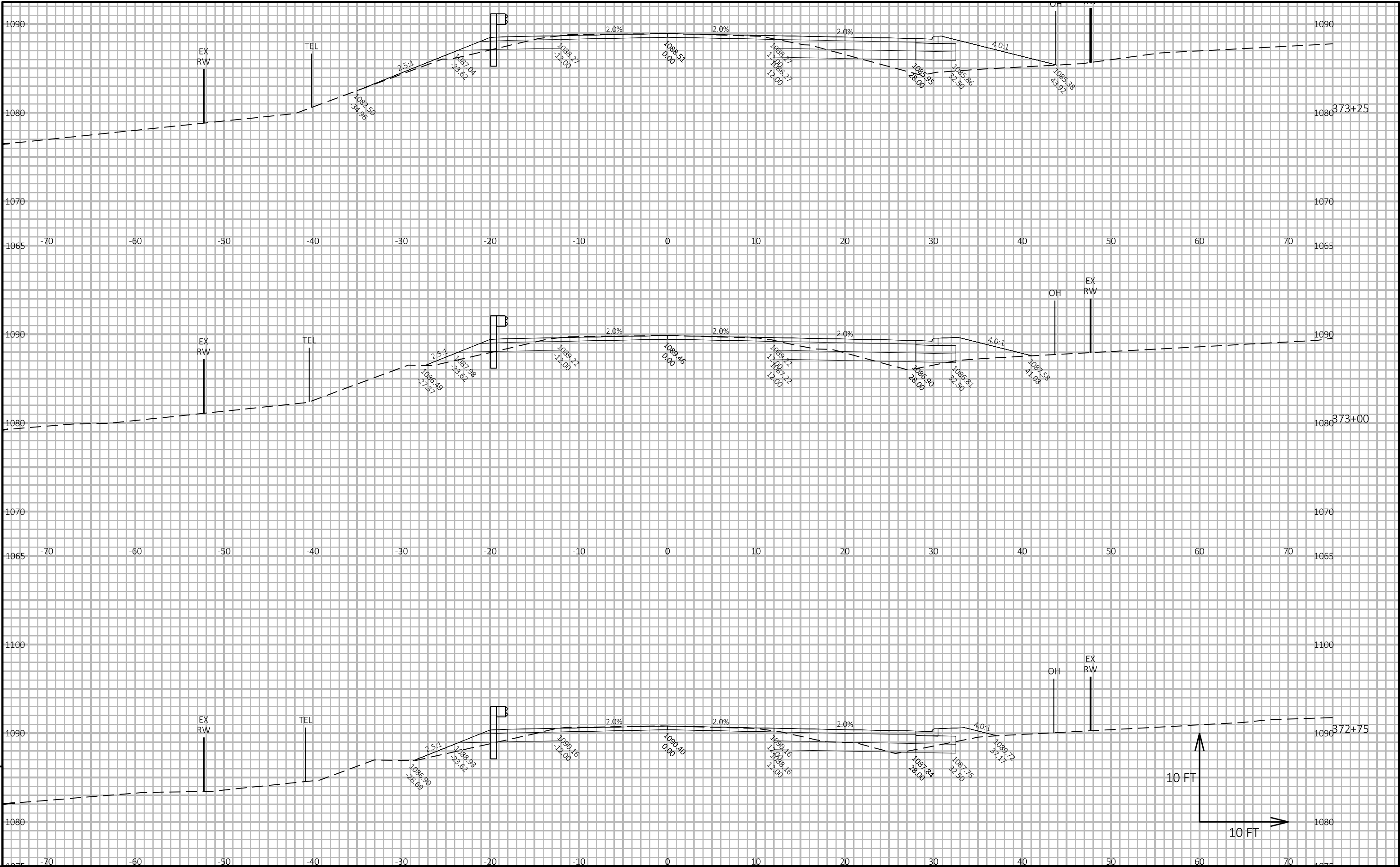


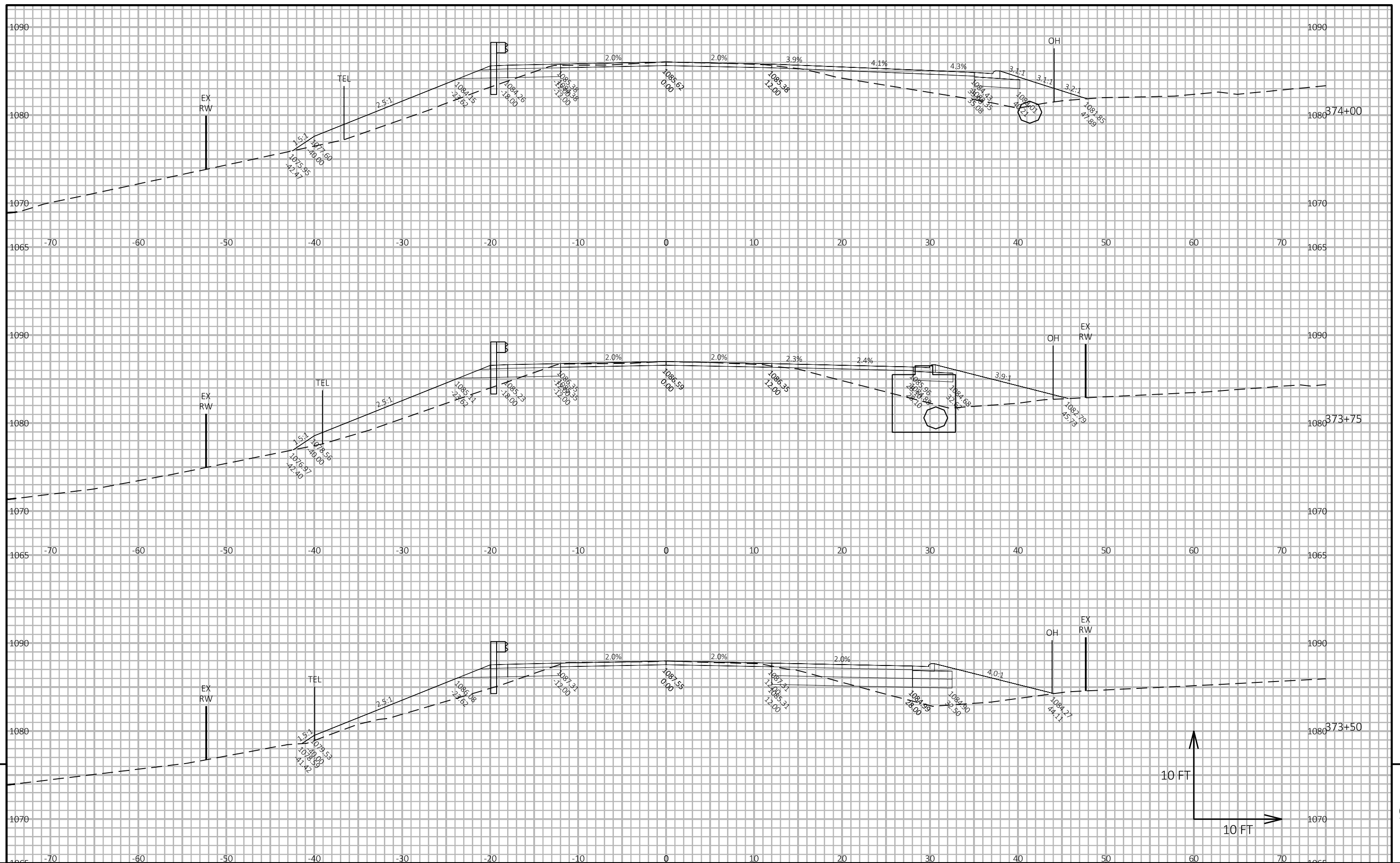


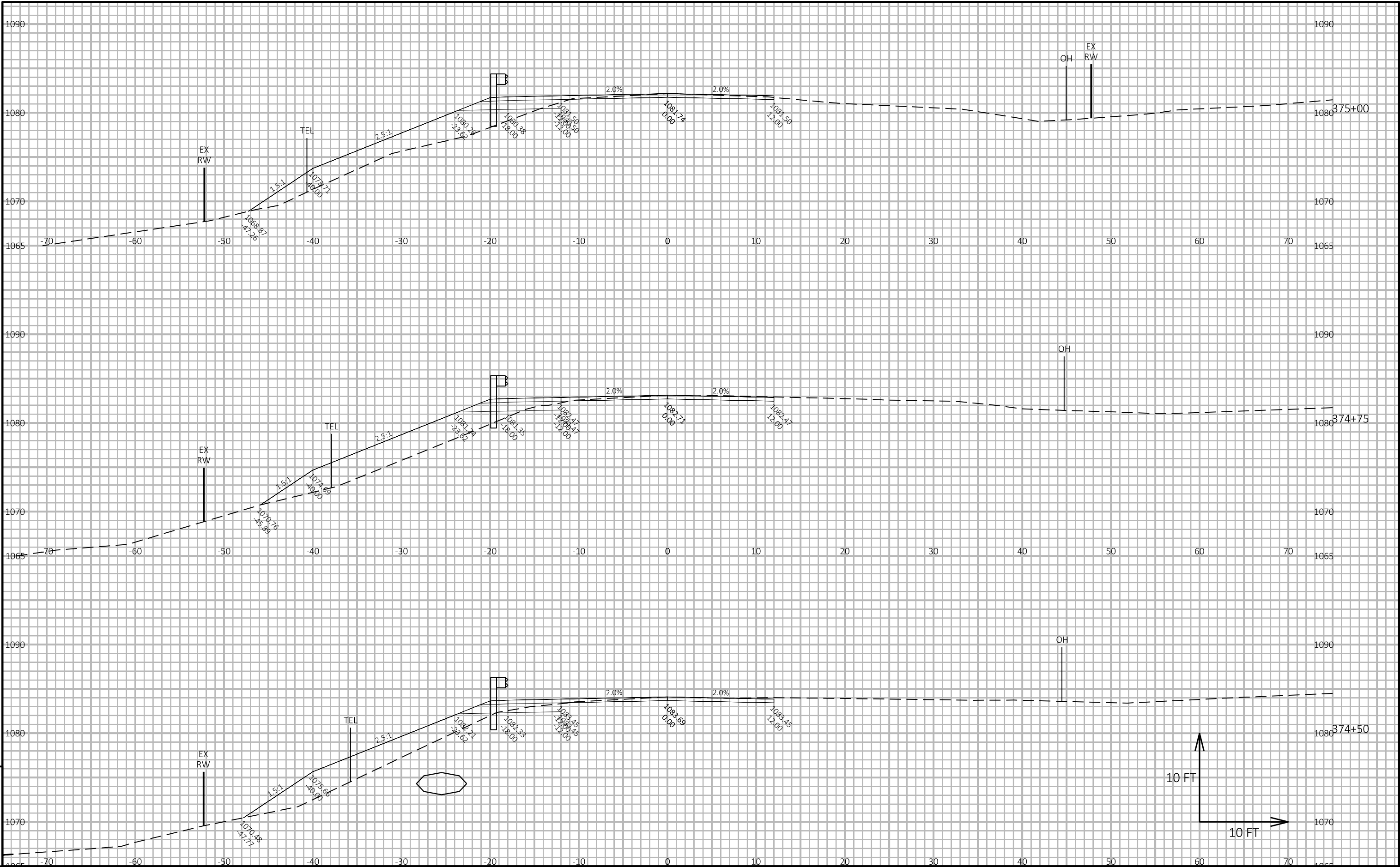


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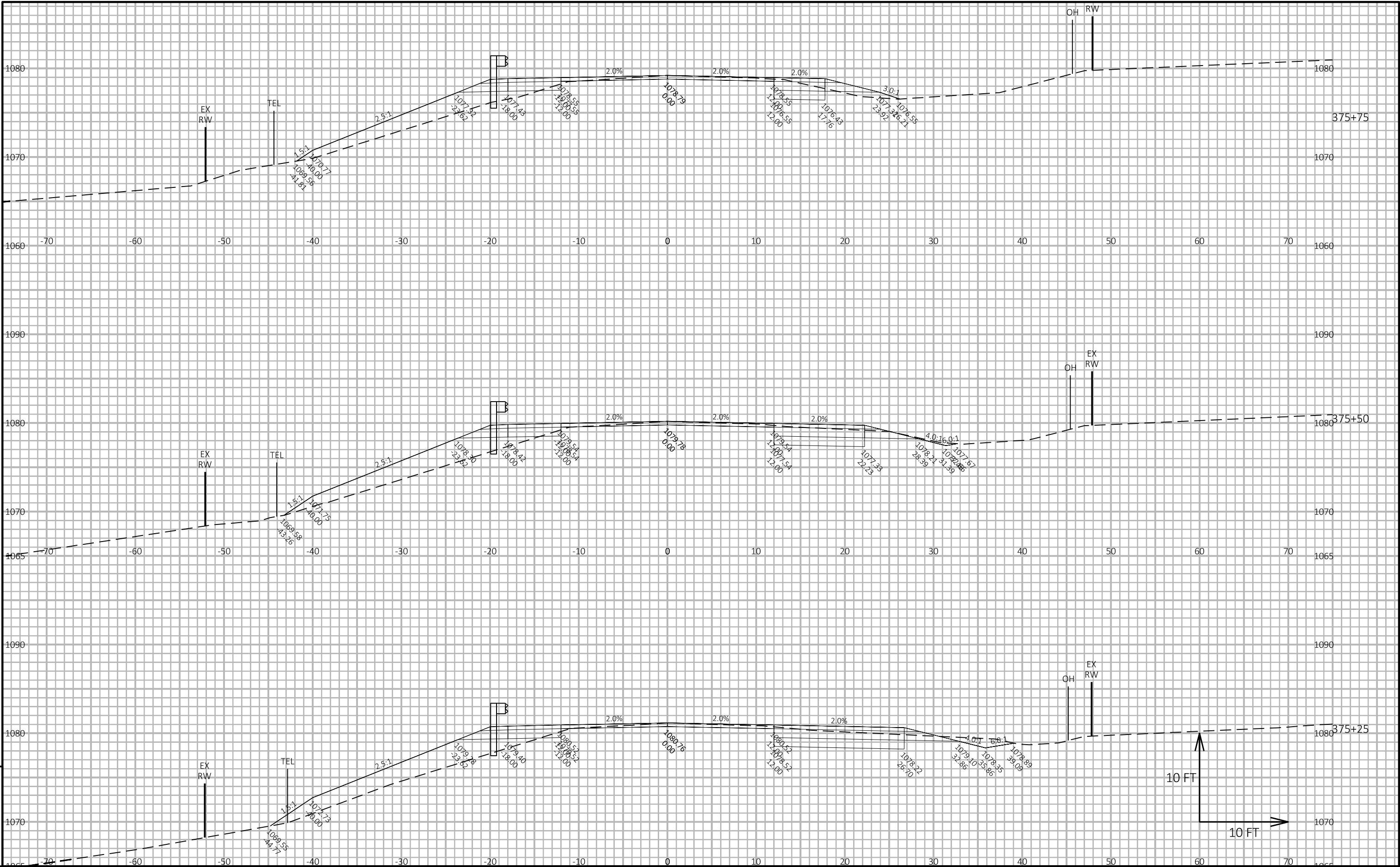






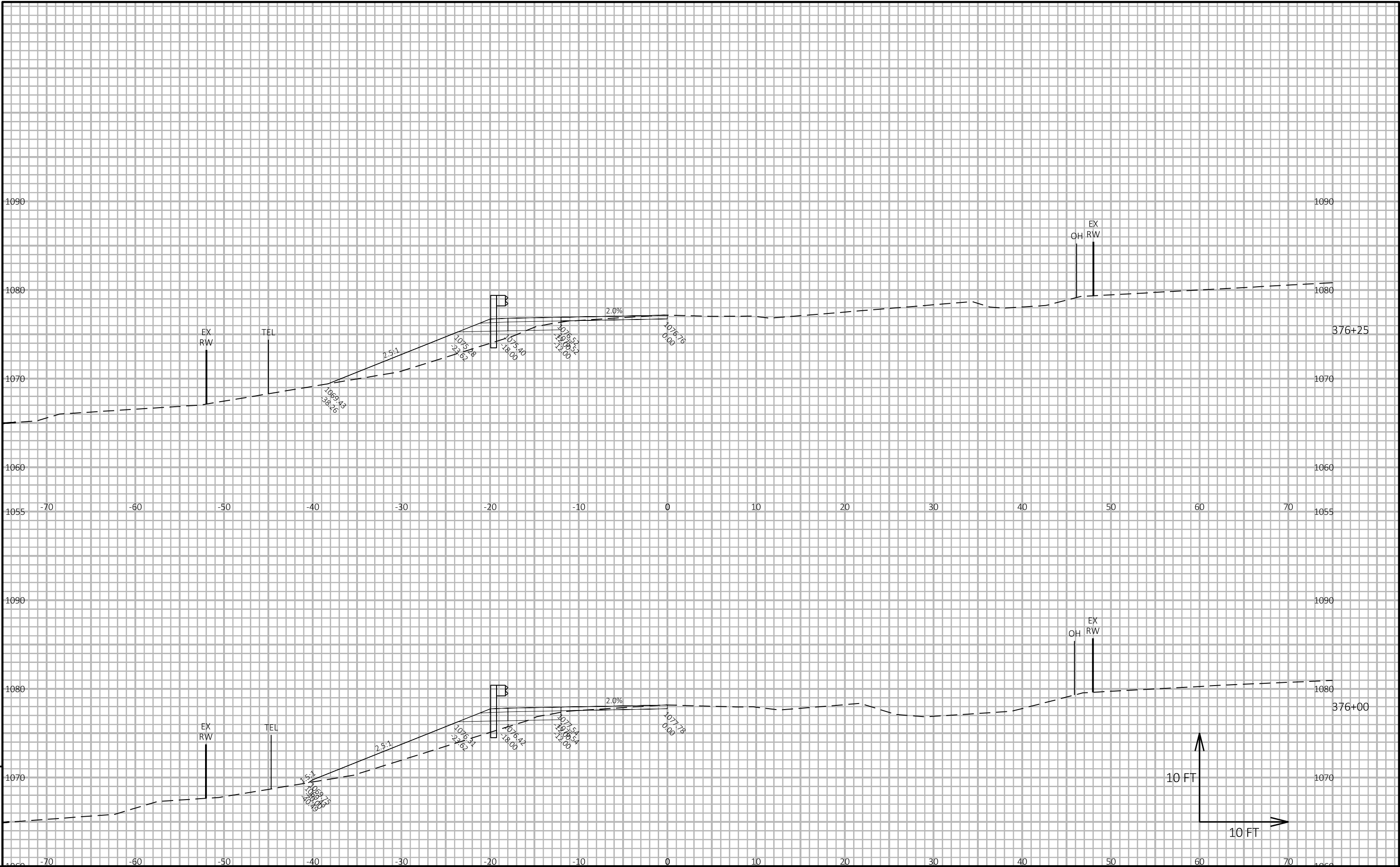
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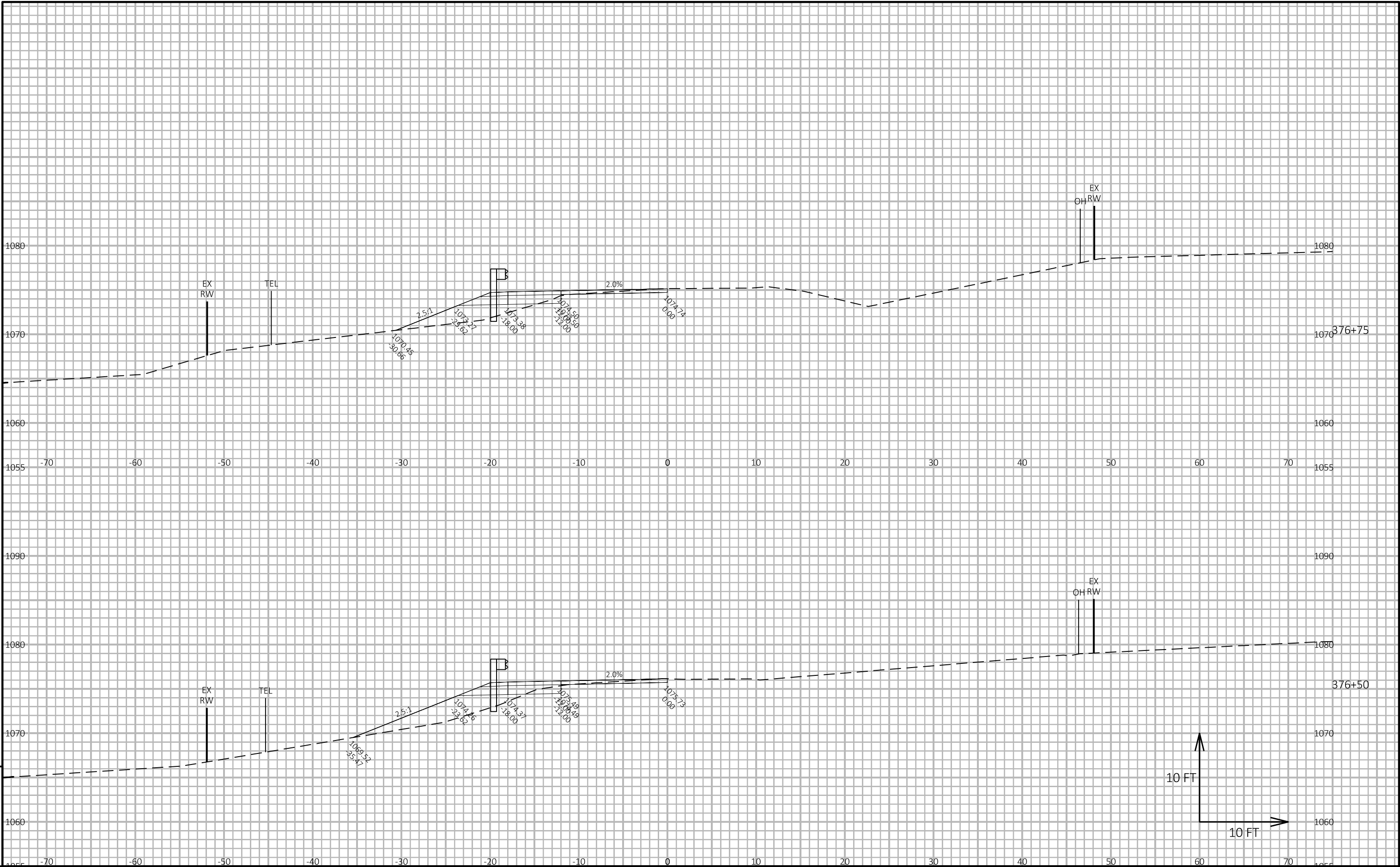
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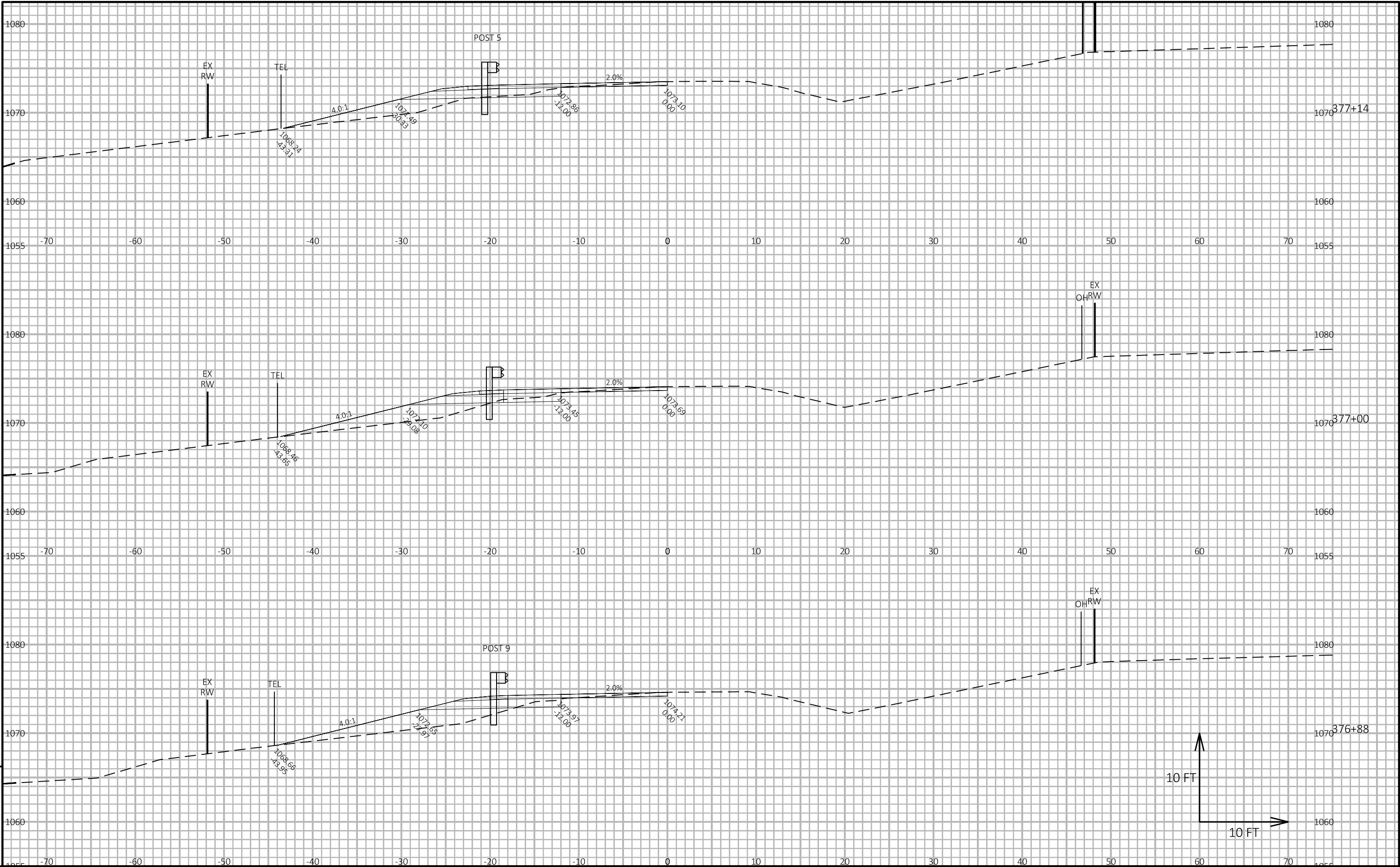


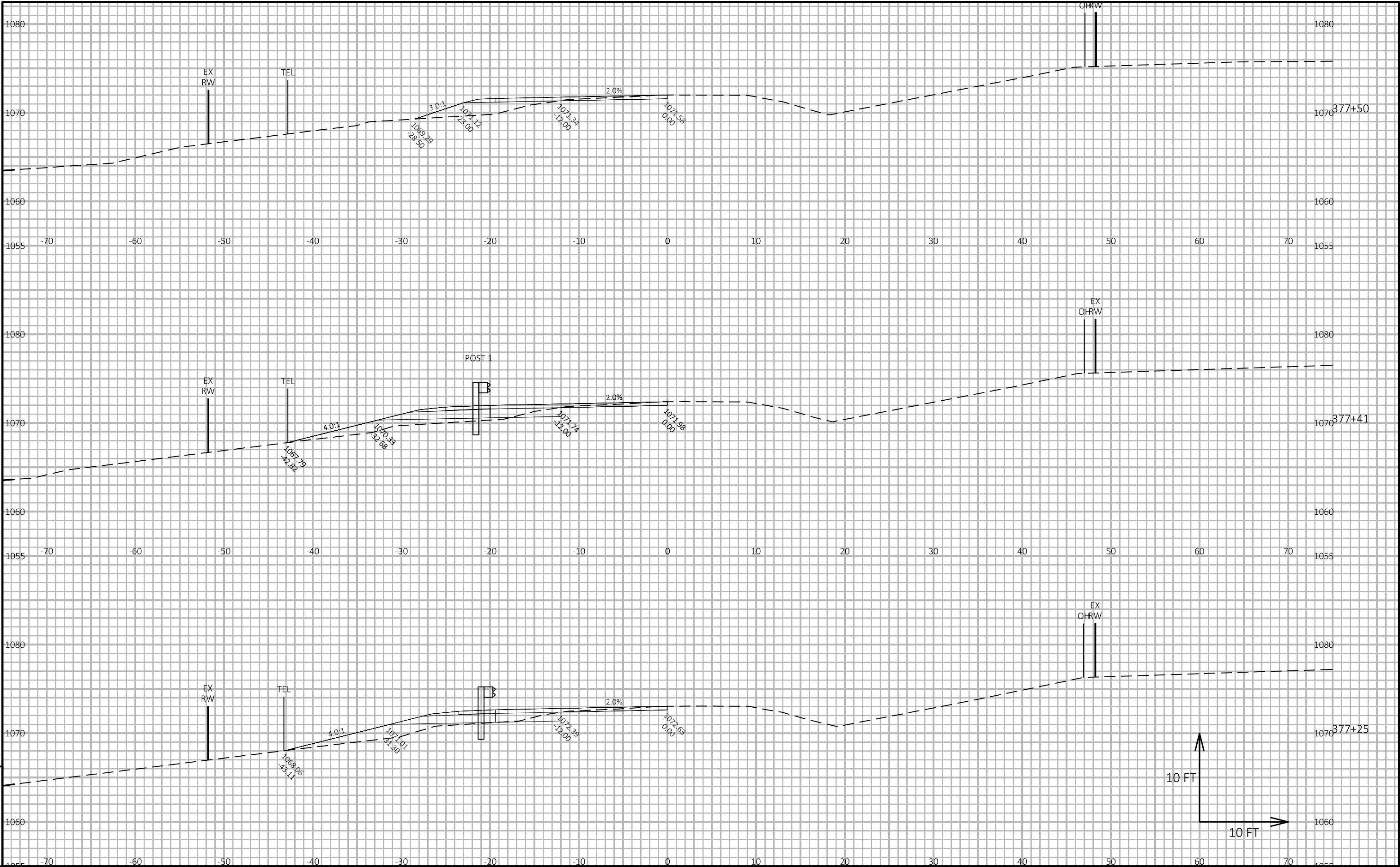
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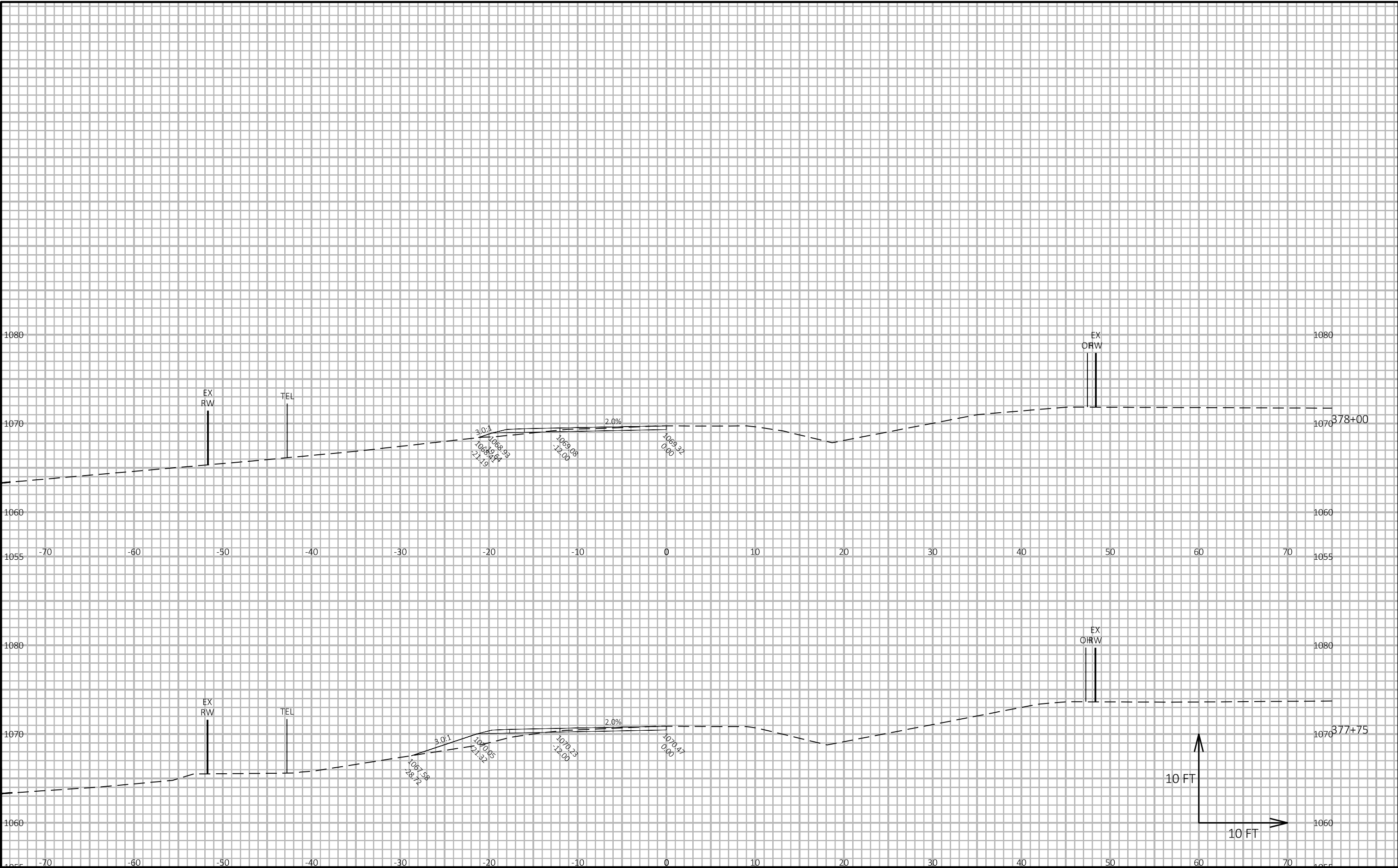


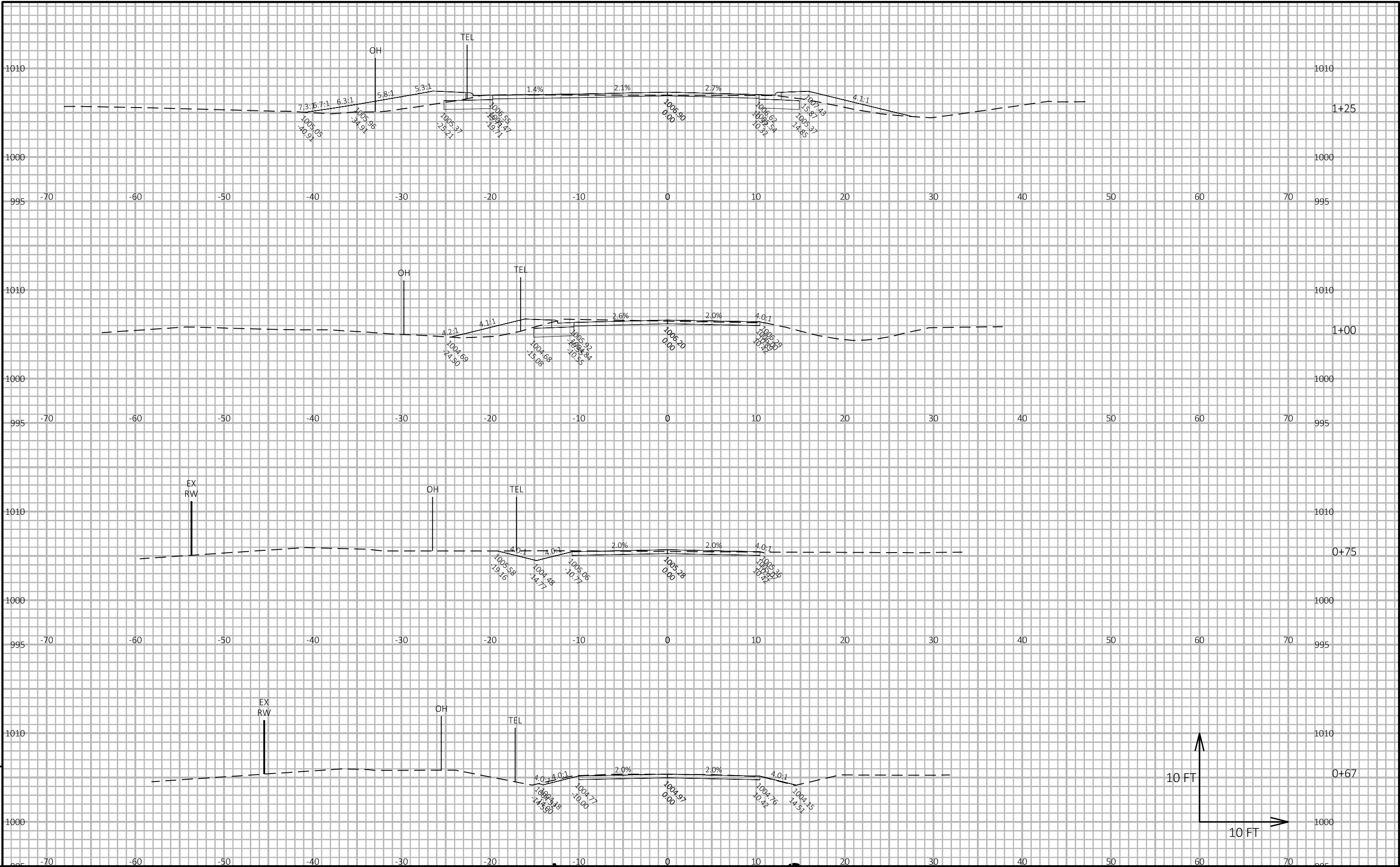


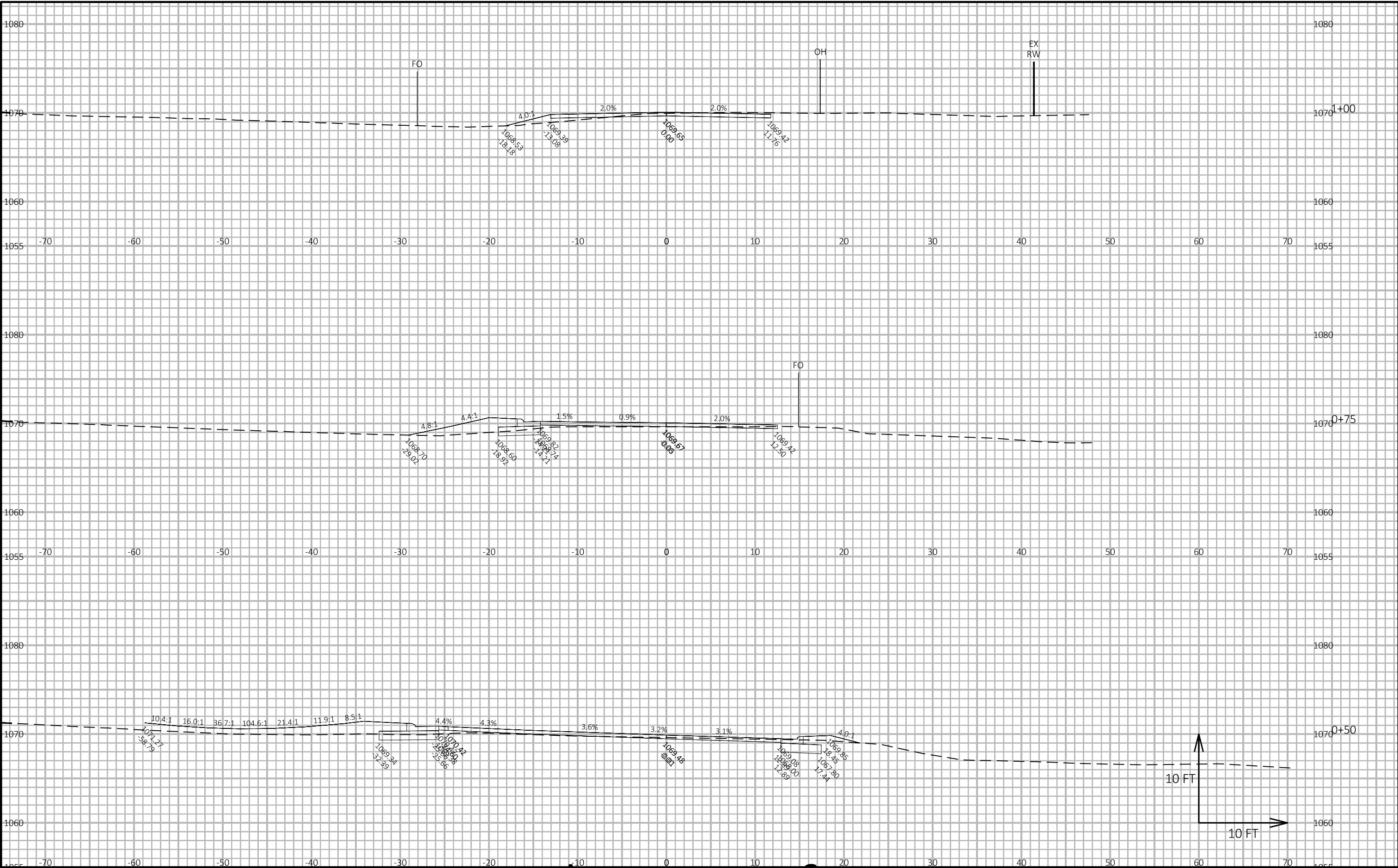
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PROJECT NO: 5316-00-71	HWY: CTH D	COUNTY: GRANT	CROSS SECTIONS: CTH D	SHEET 197	E
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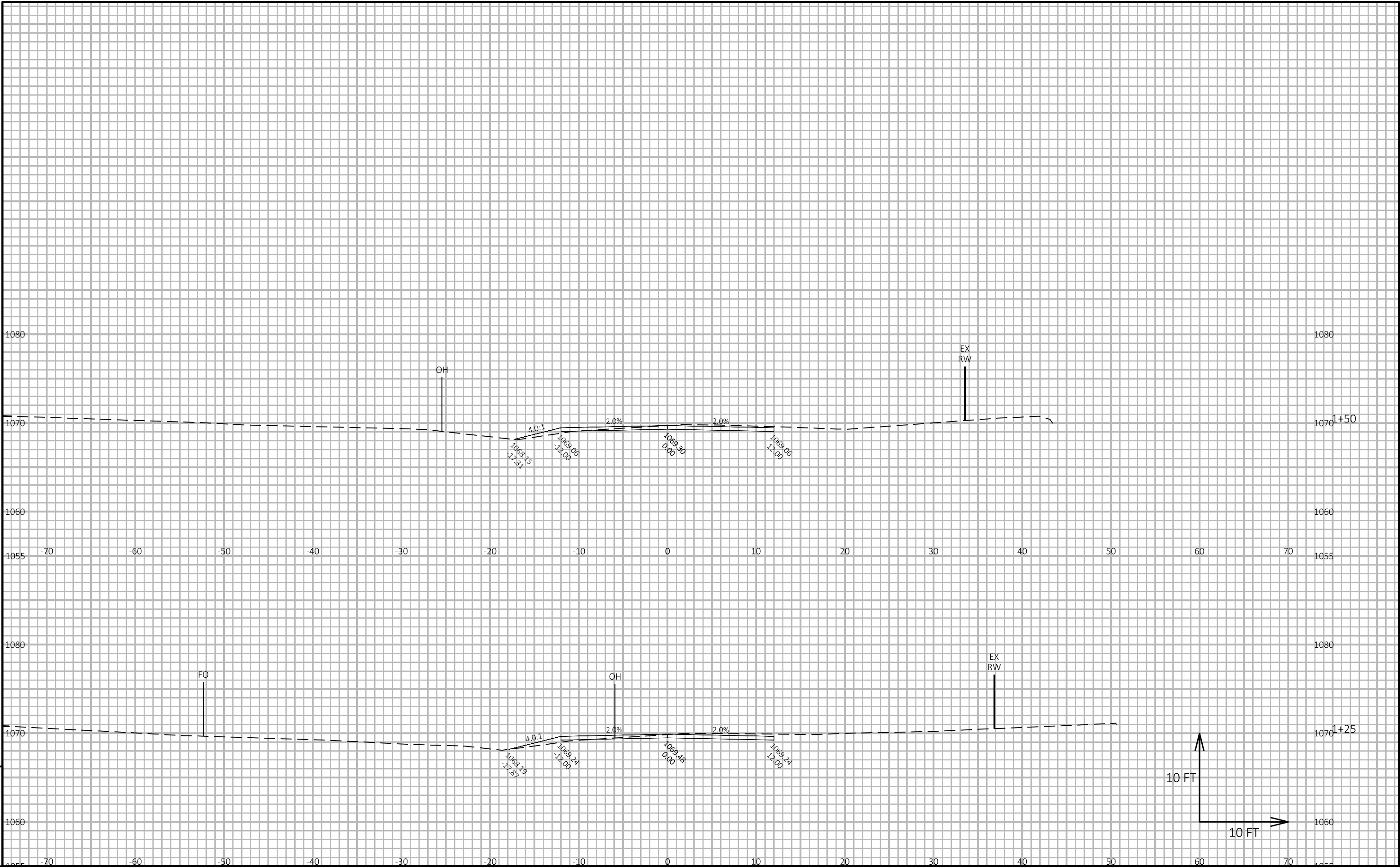


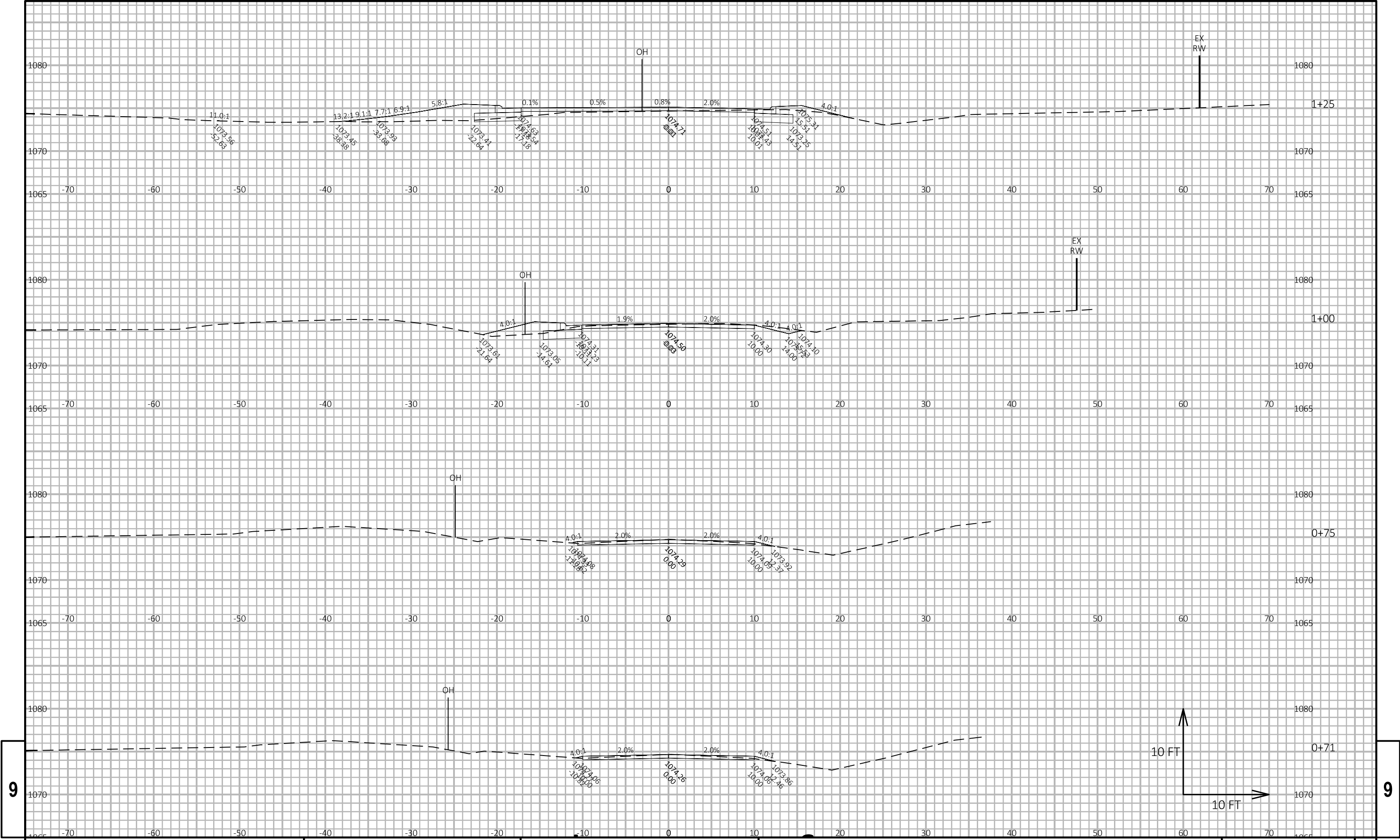




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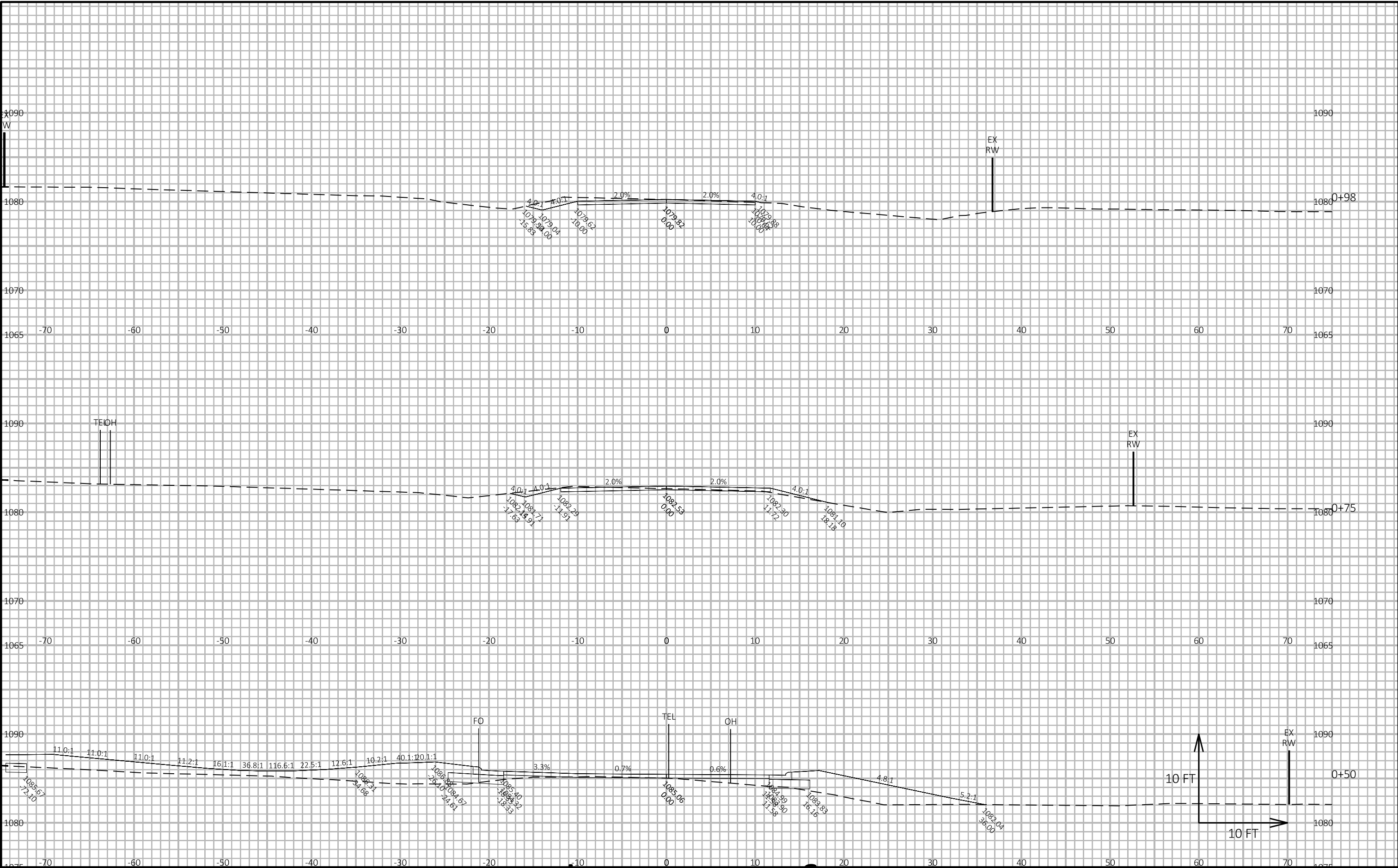
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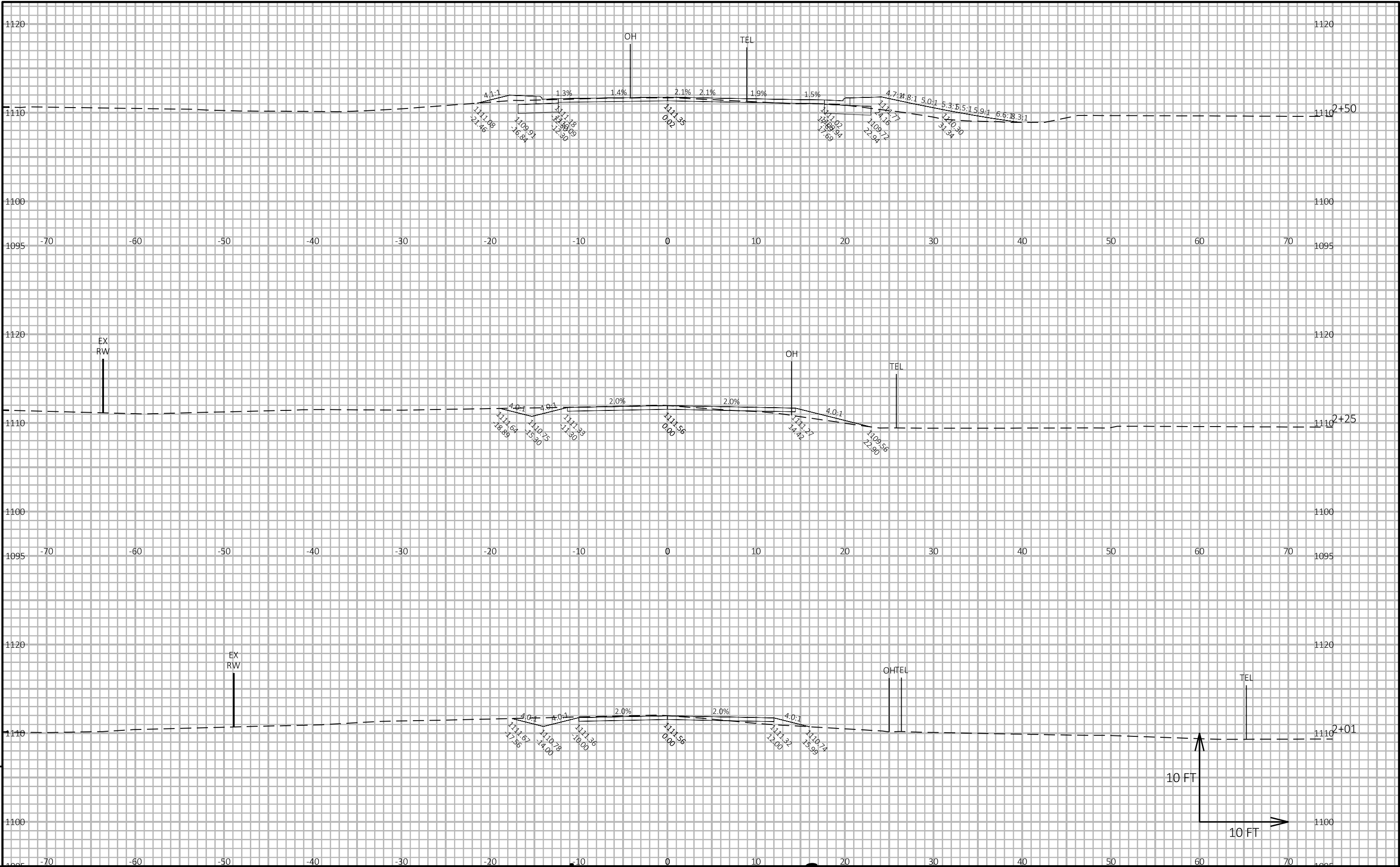


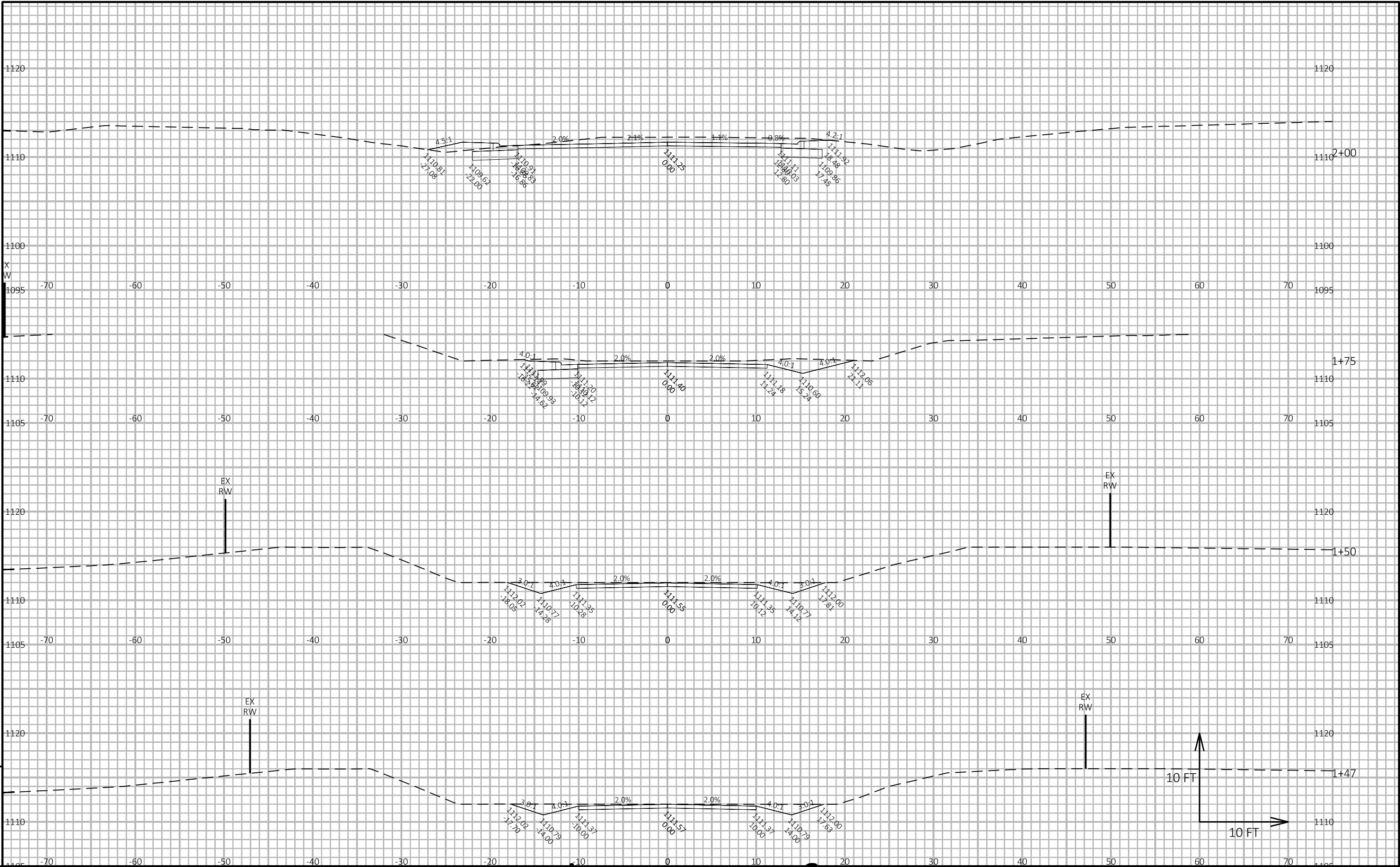


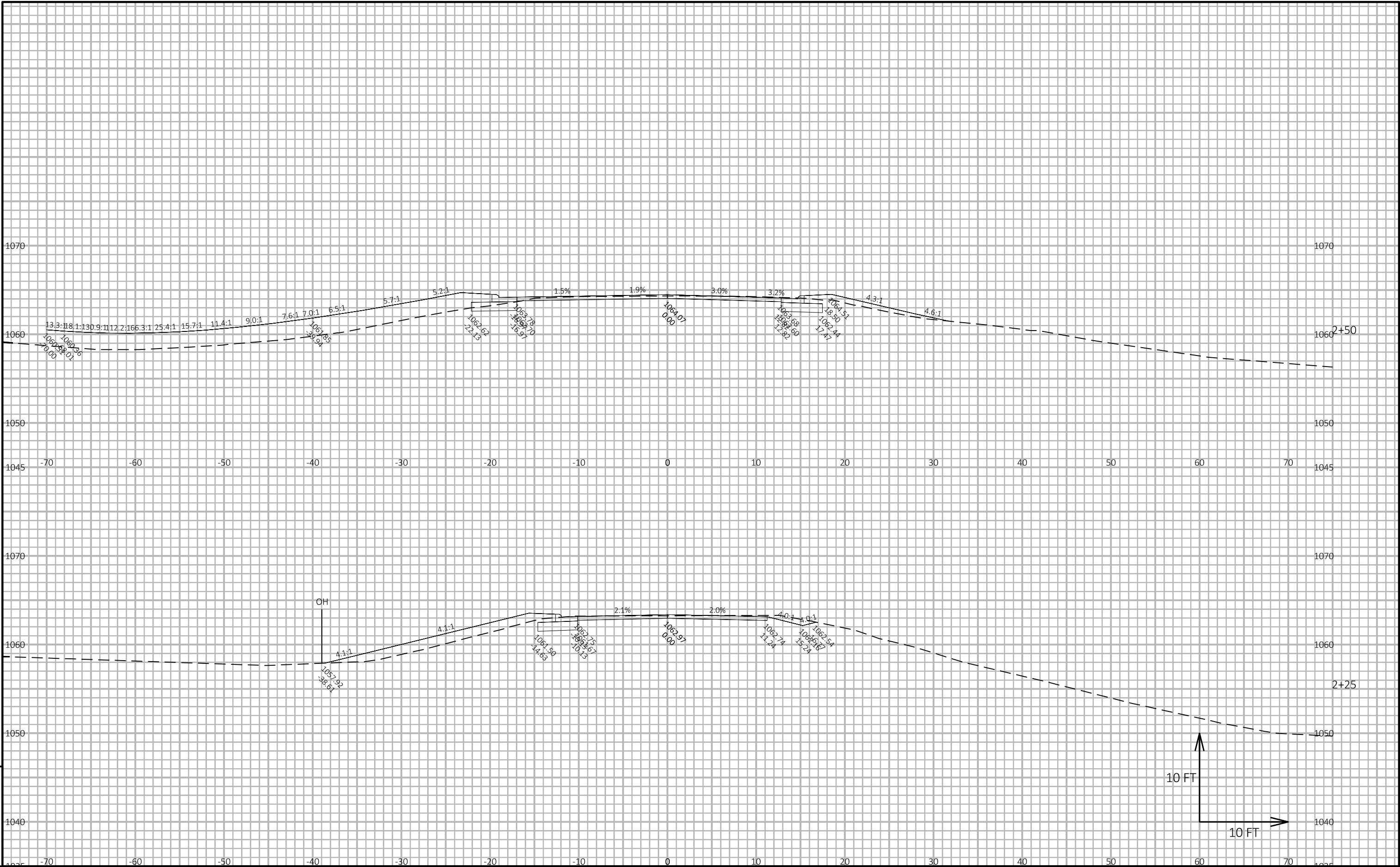
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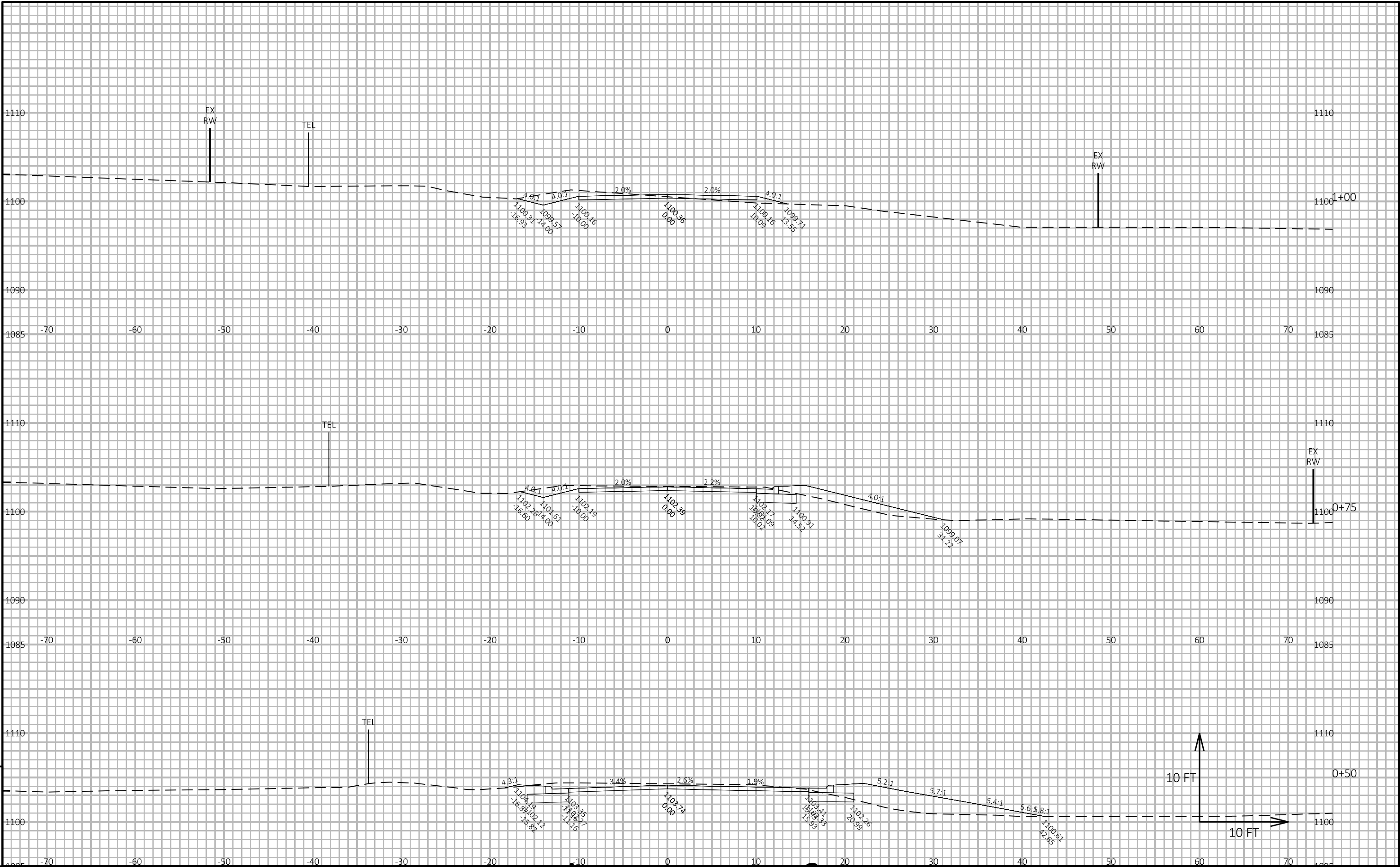
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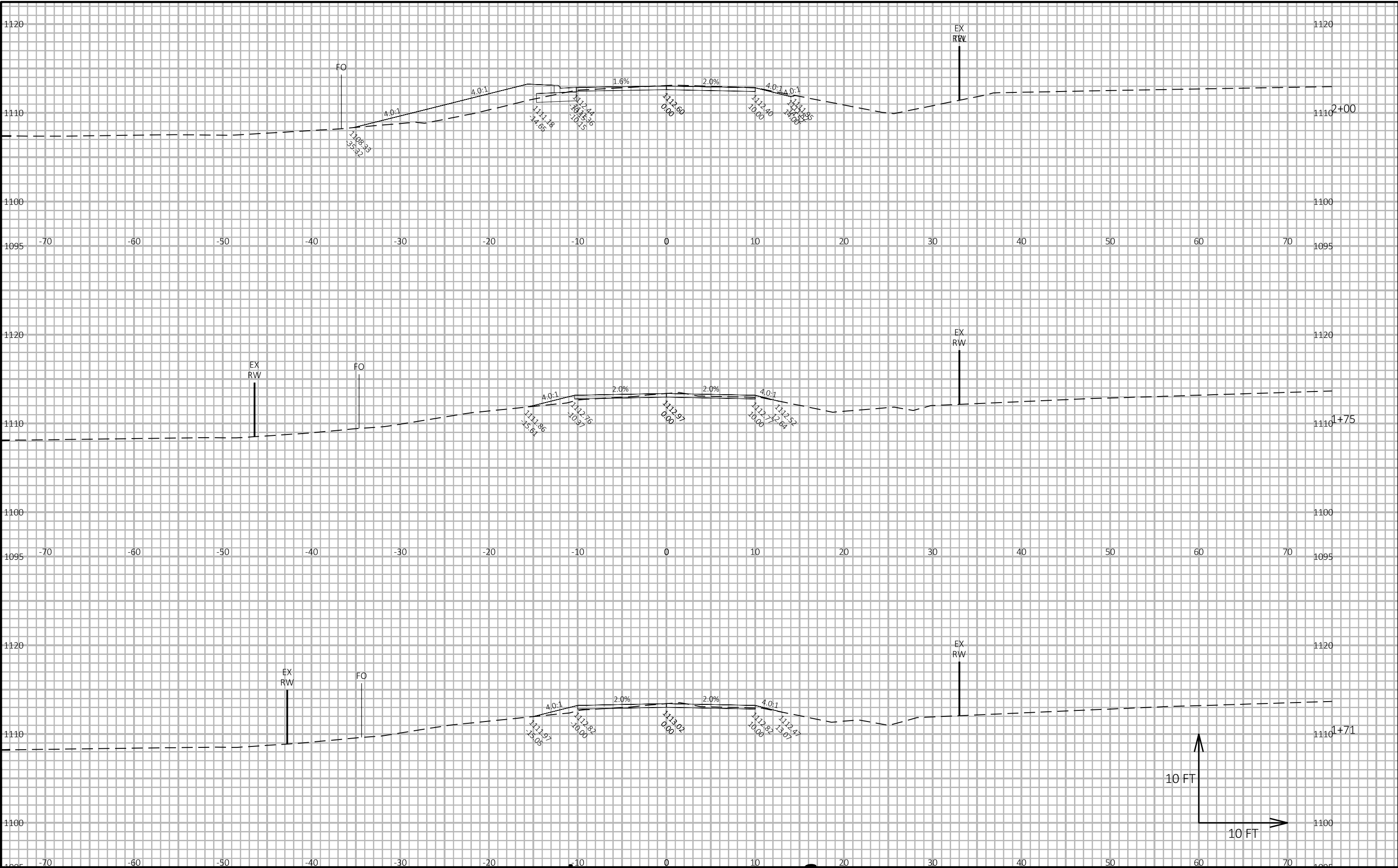


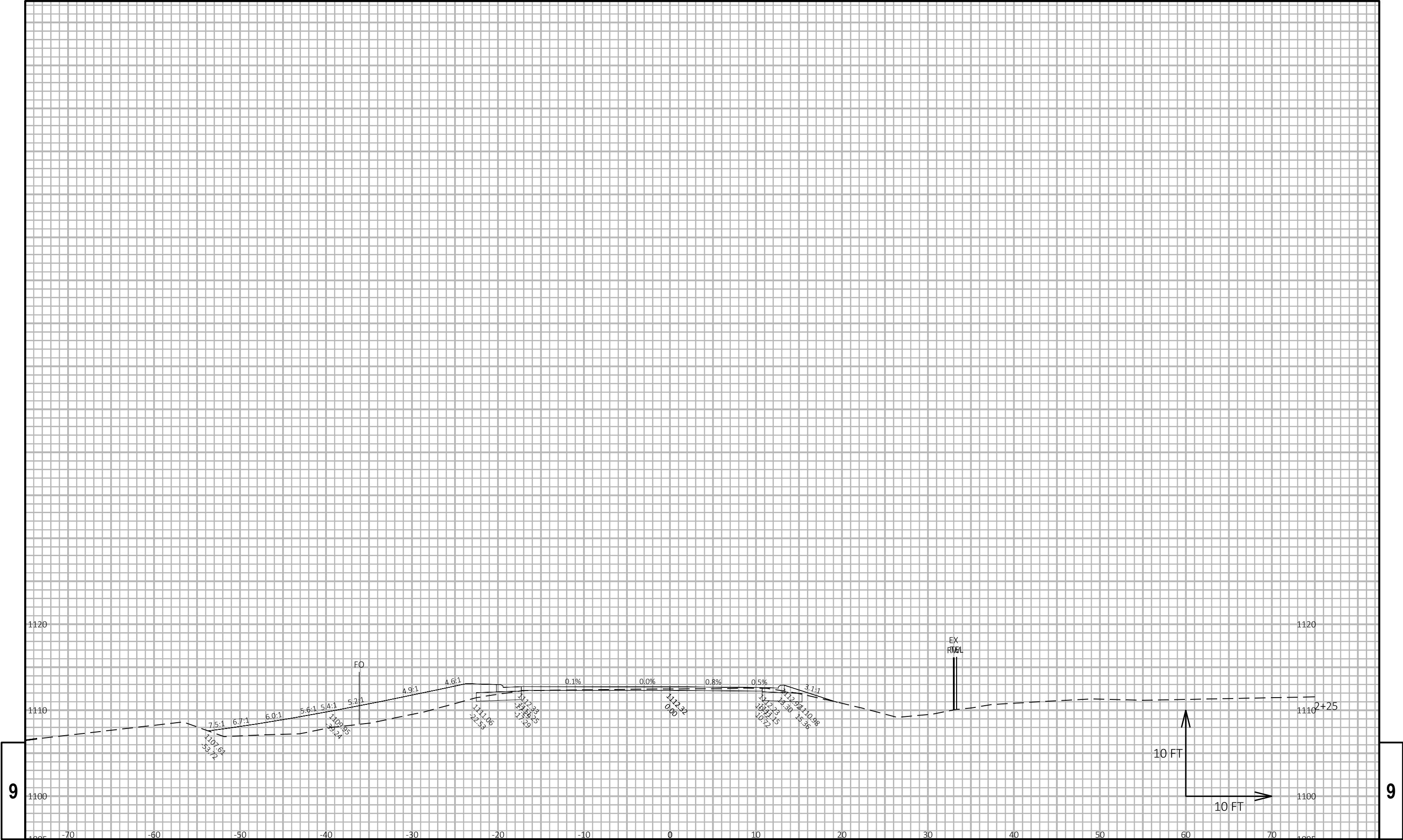


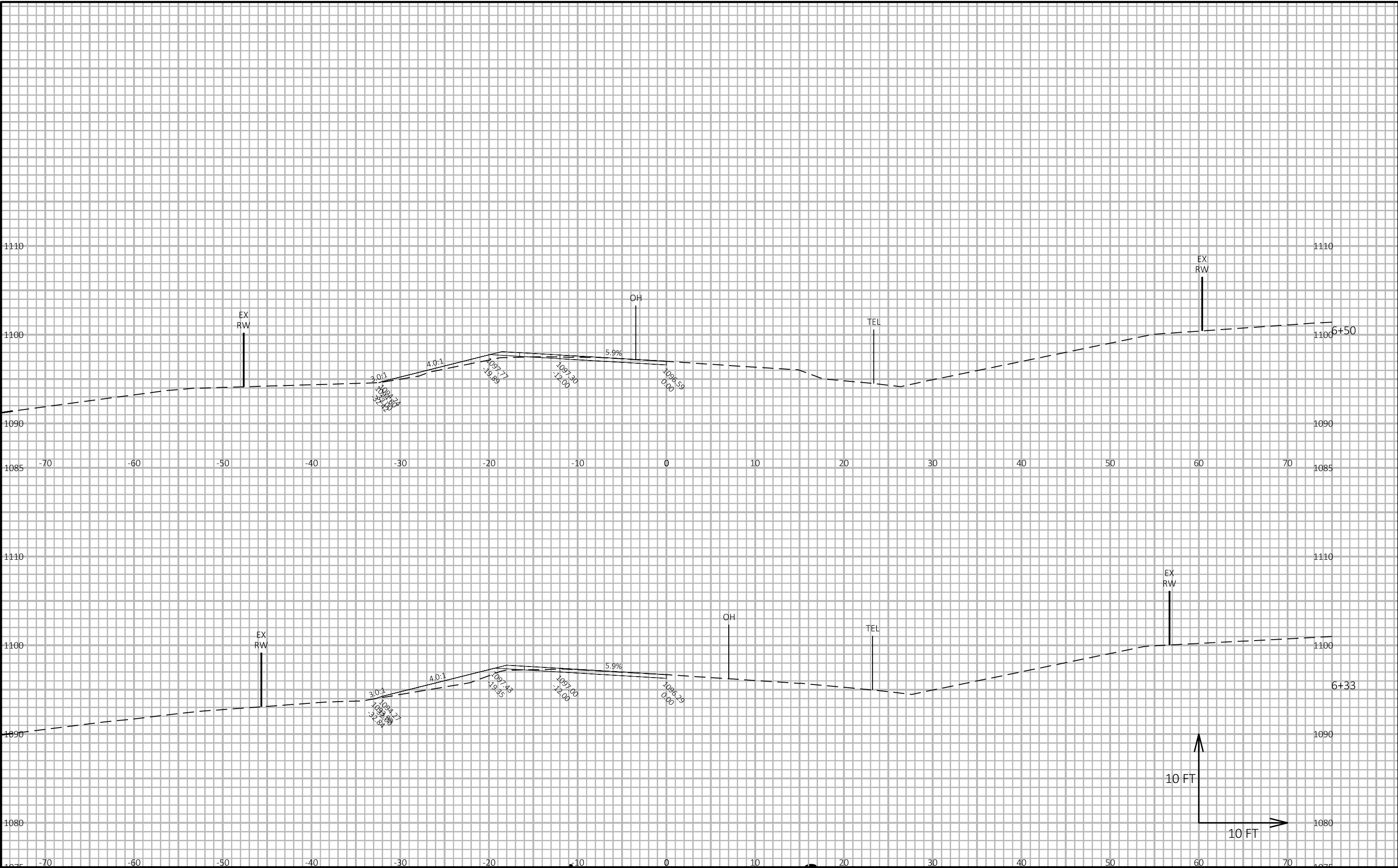


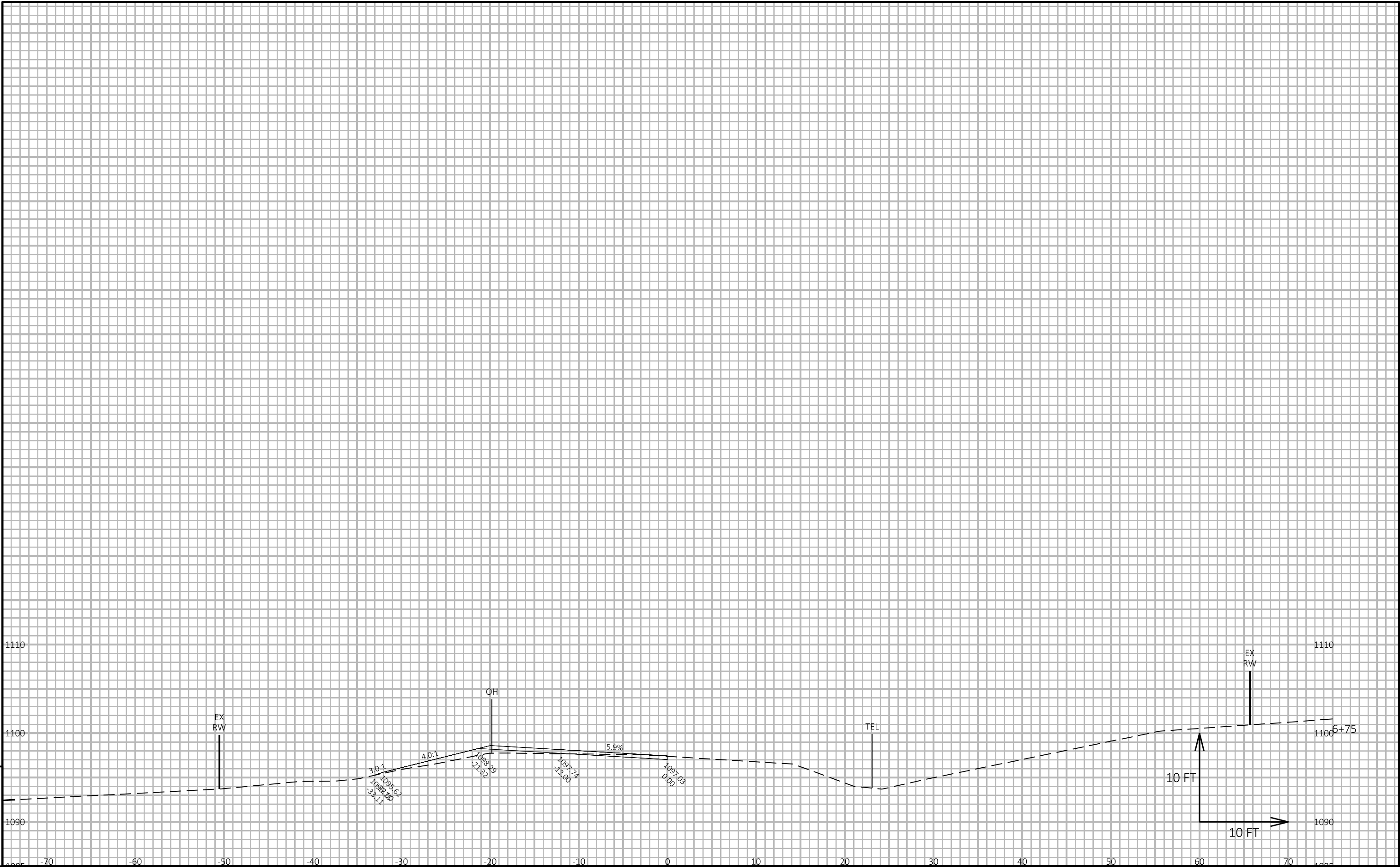


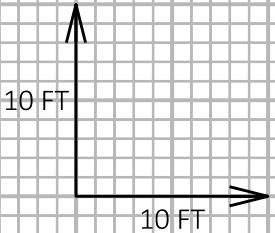
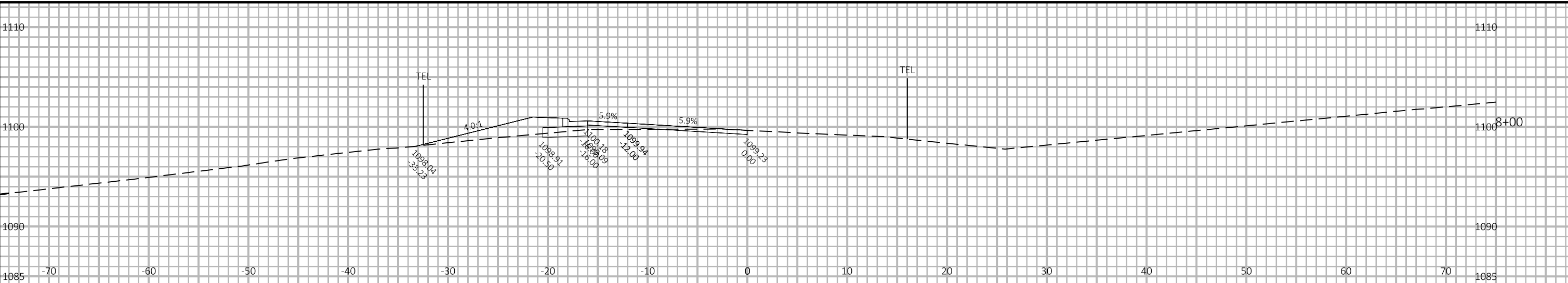


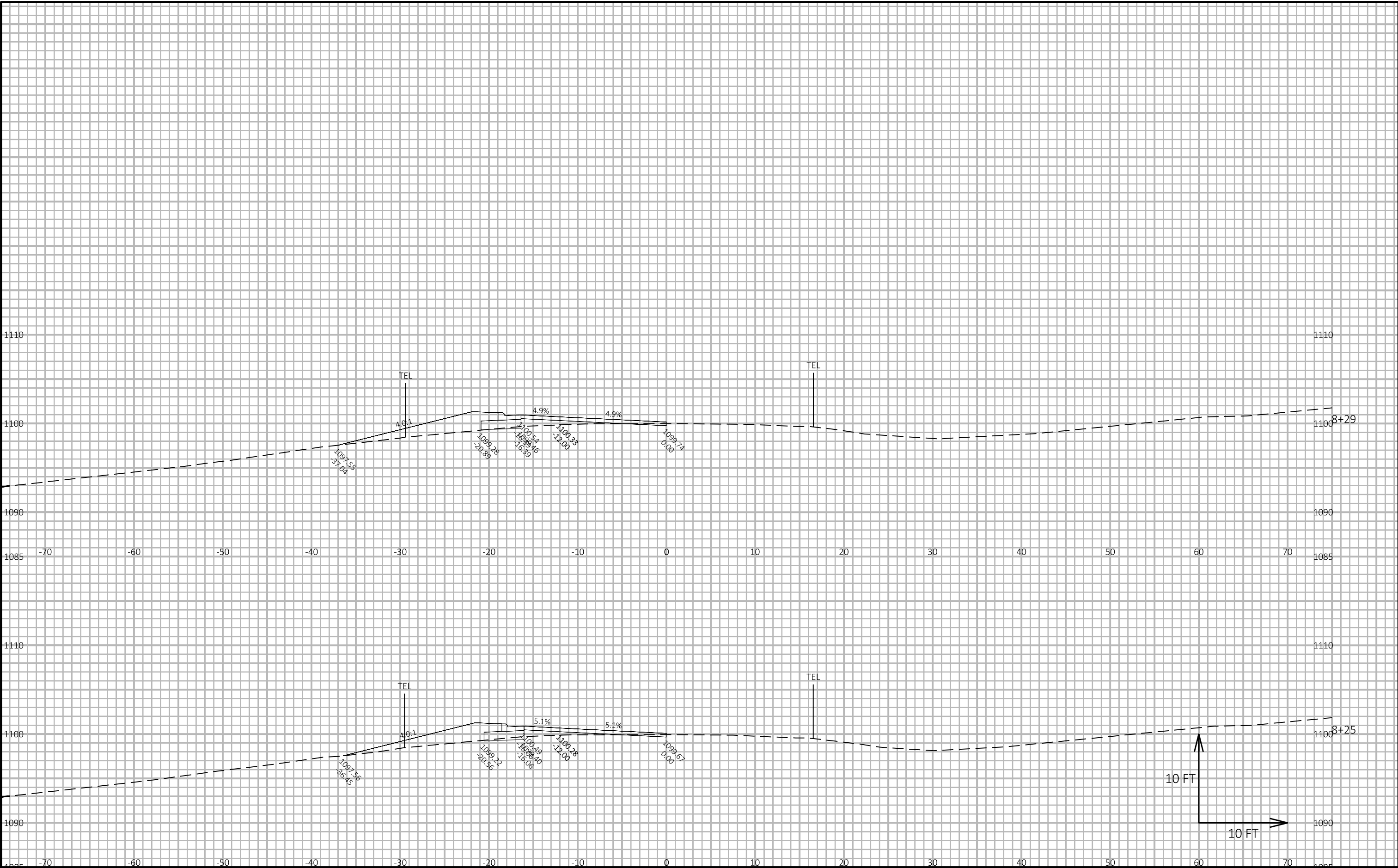


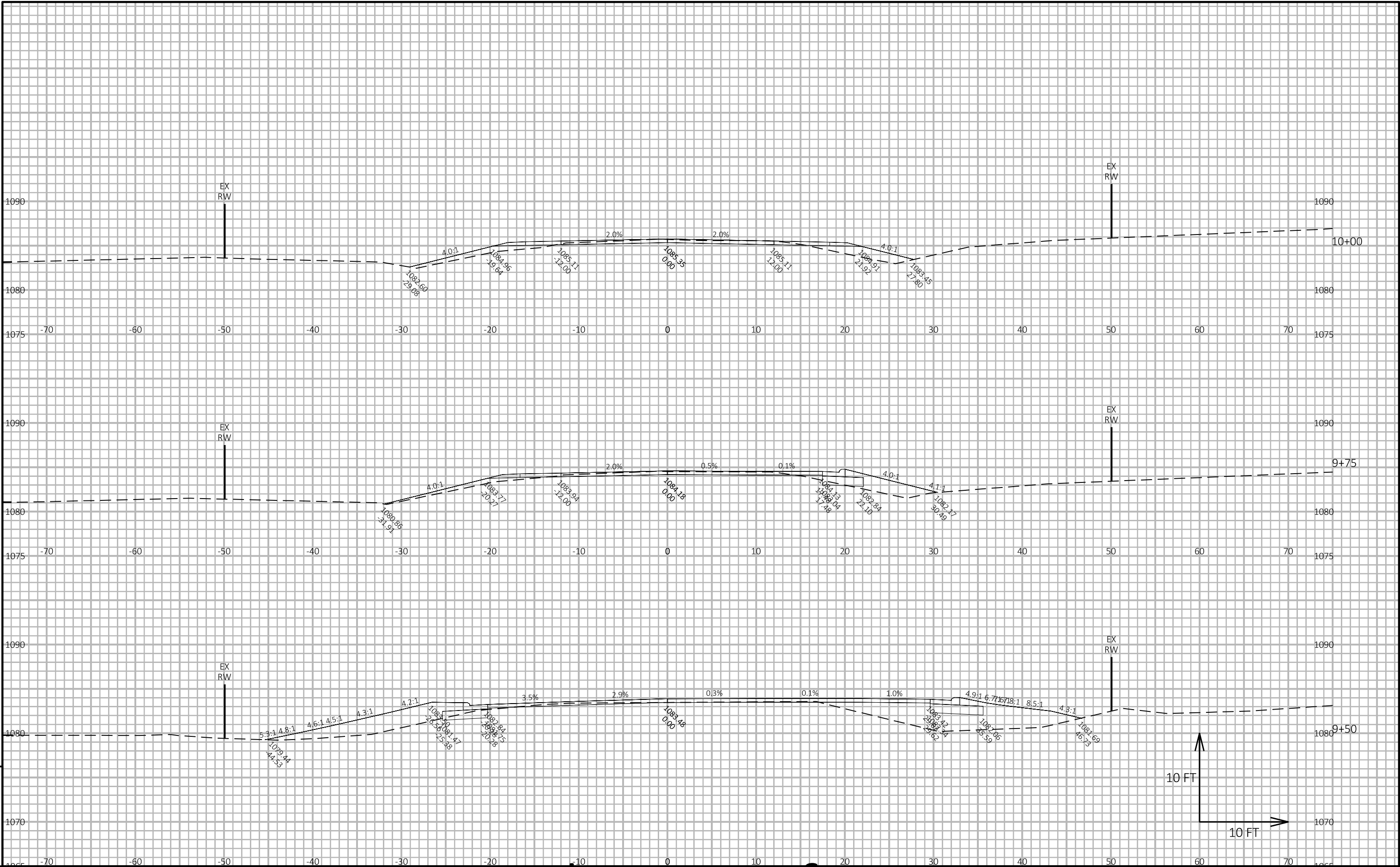


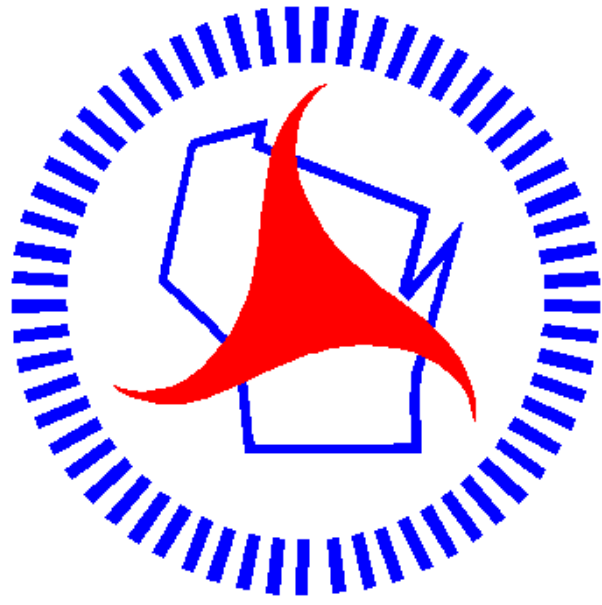












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