

MAD

PROJECT ID:
WITH: N/A

1204-05-77

COUNTY:

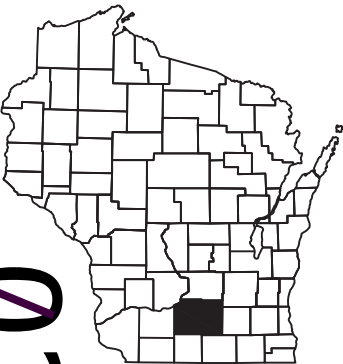
DANE

DECEMBER 2025

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 = 270



DESIGN DESIGNATION	1204-05-07	
	<u>USH 18/151</u>	<u>CTH F</u>
A.A.D.T. (2025)	= 18,500	870
A.A.D.T. (2045)	= 21,200	870
D.H.V.	= 1630	
D.D.	= 50/50	
T.	= 16.2%	
DESIGN SPEED	= 70 mph	35 mph
ESALS	= 7,900,000	380,000

CONVENTIONAL SYMBOLS

PLAN

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	

PROFILE

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PLAN OF PROPOSED IMPROVEMENT

DODGEVILLE - MOUNT HOREB

CTH F INTERSECTION

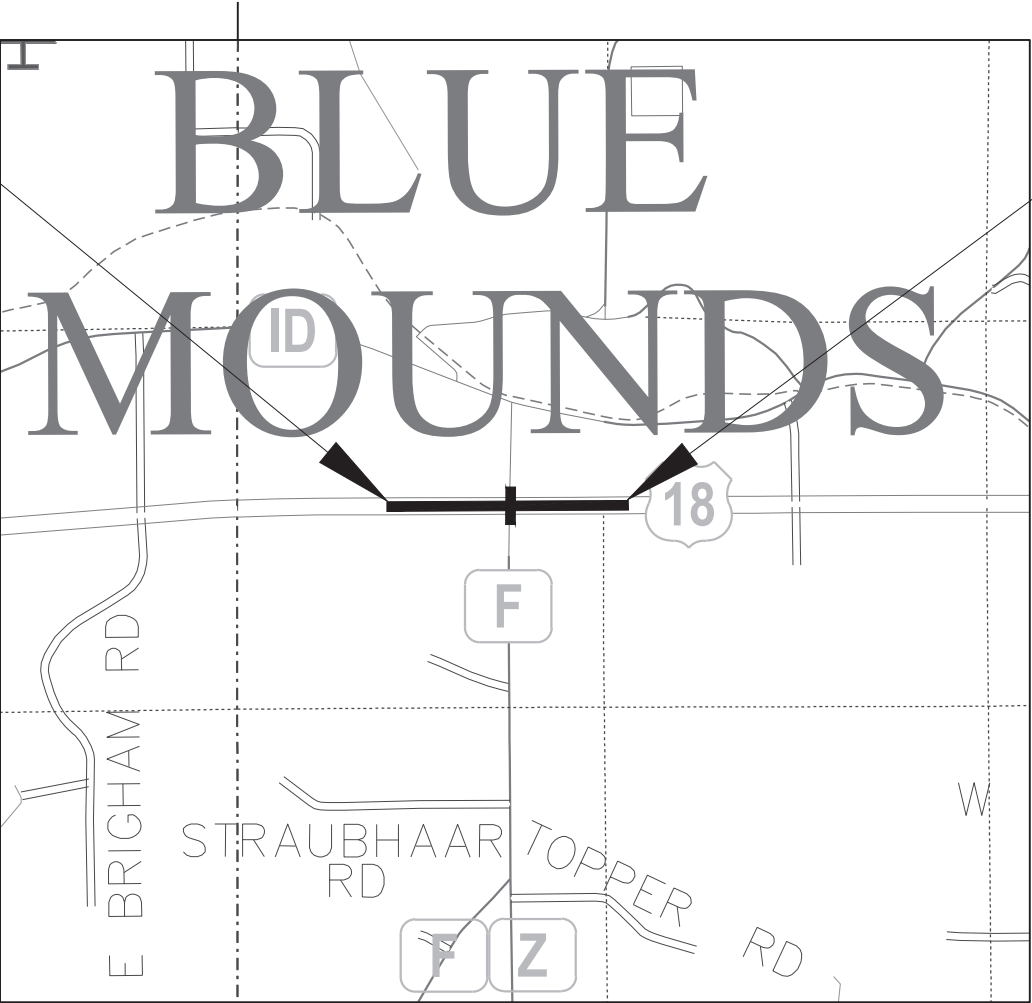
USH 18

DANE COUNTY

STATE PROJECT NUMBER
1204-05-77

BEGIN PROJECT
STA 1649+68 EB
X = 701596.43
Y = 459622.26

END PROJECT
STA 1683+75 EB



LAYOUT
SCALE 0 0.5 MI

TOTAL NET LENGTH OF CENTERLINE = 0.645 MI.

HORIZONTAL POSITIONS SHOWN ON THIS PLAN ARE WISCONSIN COORDINATE REFERENCE SYSTEM (WISCRS), DANE 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 12B.

STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
1204-05-77	WISC 2026094	1

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PREPARED BY	
Surveyor	STRAND ASSOCIATES, INC.
Designer	TIM CAMPBELL
Project Manager	CODY KAMMERZELT, P.E.
Regional Examiner	SW REGION
Regional Supervisor	JENNIFER KOBYRN, P.E.

APPROVED FOR THE DEPARTMENT
DATE: 10/20/25

(Signature)

E

GENERAL NOTES

1. THE LOCATION OF EXISTING AND PROPOSED UTILITY INSTALLATIONS AS SHOWN ON THE PLANS ARE APPROXIMATE. THERE MAY BE OTHER UTILITY INSTALLATIONS WITHIN THE PROJECT AREA THAT ARE NOT SHOWN.
2. ALL RADII ARE MEASURED TO EDGE OF PAVEMENT UNLESS OTHERWISE SHOWN OR NOTED ON THE PLAN.
3. PAVING OPERATIONS SHALL BE CONSISTENT WITH THE PLAN TYPICAL SECTIONS AND CONSTRUCTED TO PREVENT HMA LONGITUDINAL JOINTS FROM BEING LOCATED WITHIN A DRIVING, TURNING, BIKE OR PARKING LANE.
4. HMA PAVEMENT WEIGHT CALCULATIONS ARE BASED ON 112 LB/SY/IN.
5. RIGHT OF WAY LINES SHOWN ON THE CROSS SECTIONS ARE APPROXIMATE.
6. PRIOR TO THE PLACEMENT OF MGS GUARDRAIL, THE SHOULDERS SHALL BE IN PLACE, SHAPED AND COMPACTED UNLESS OTHERWISE SHOWN.
7. CONTRACTOR SHALL BE RESPONSIBLE FOR RESHAPING AND SEEDING ANY PREVIOUS GRASSED AREAS WHICH ARE DISTURBED BY CONSTRUCTION OPERATIONS OUTSIDE OF THE NORMAL CONSTRUCTION LIMITS.
8. DISTURBED AREAS WITHIN THE RIGHT OF WAY ARE TO BE TOPSOILED (SALVAGED), FERTILIZED, SEEDED AND COVERED WITH EROSION MAT AS SHOWN IN THE PLANS AND AS DIRECTED BY THE ENGINEER.
9. THE QUANTITY OF 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.
10. STATIONING, DISTANCES AND OFFSETS FOR SIGNS AND TRAFFIC CONTROL DEVICES AS SHOWN ON THE PLANS ARE APPROXIMATE. EXACT LOCATIONS ARE TO BE DETERMINED BY THE ENGINEER.

BORING SUMMARY TABLE

BORING	STATION	OFFSET	HMA OVER BASE	LAYER 1	LAYER 2	LAYER 3
A	1660+37 'EB'	-23.8' LT	-	16" TOPSOIL	3' 2" SILTY SAND	3' 3" W.B.
B	1669+88 'EB'	-28.8' LT	-	26" TOPSOIL	3' 6" W.B.	-
C	1680+15 'WB'	-33.0' LT	6.5" OVER 18"	13' SILT	-	-

NOTES

BORINGS TAKEN 04/27/2023
STATIONS AND OFFSETS ARE APPROXIMATE
W.B. = WEATHERED BEDROCK
BORING A: TERMINATED AT 7-FEET 9-INCHES DUE TO BEDROCK
BORING B: TERMINATED AT 5-FEET 6-INCHES DUE TO BEDROCK
BORING C: TERMINATED AT 15-FEET, NO BEDROCK ENCOUNTERED

RUNOFF COEFFICIENT TABLE

LAND USE:	HYDROLOGIC SOIL GROUP											
	A			B			C			D		
	SLOPE RANGE (PERCENT)			SLOPE RANGE (PERCENT)			SLOPE RANGE (PERCENT)			SLOPE RANGE (PERCENT)		
	0-2	2-6	6 & OVER	0-2	2-6	6 & OVER	0-2	2-6	6 & OVER	0-2	2-6	6 & OVER
ROW CROPS:	.08	.16	.22	.12	.20	.27	.15	.24	.33	.19	.28	.38
	.22	.30	.38	.26	.34	.44	.30	.37	.50	.34	.41	.56
MEDIAN STRIPTURF:	.19	.20	.24	.19	.22	.26	.20	.23	.30	.20	.25	.30
	.24	.26	.30	.25	.28	.33	.26	.30	.37	.27	.32	.40
SIDE SLOPETURF:			.25			.27			.28			.30
			.32			.34			.36			.38
PAVEMENT:												
ASPHALT:	.70 - .95											
CONCRETE:	.80 - .95											
BRICK:	.70 - .80											
DRIVES, WALKS:	.75 - .85											
ROOFS:	.75 - .95											
GRAVEL ROADS, SHOULDERS:	.40 - .60											

TOTAL PROJECT AREA = 46.0 ACRES
TOTAL AREA EXPECTED TO BE DISTURBED BY CONSTRUCTION ACTIVITIES = 3.4 ACRES

UTILITY CONTACTS

ELECTRICAL

ALLIANT ENERGY
CHRIS GILL
2147 COUNTY RD PB
VERONA WI 53593
(608) 845-1135
CHRISGILL@ALLIANTENERGY.COM

ELECTRICAL - TRANSMISSION

ATC MANAGEMENT, INC.
DOUG VOSBERG
2489 RINDEN RD
COTTAGE GROVE WI 53527
(608) 877-7650
DVOSBERG@ATCLLC.COM

GAS

MADISON GAS AND ELECTRIC COMPANY
ROGER AHLES
623 RAILROAD ST
MADISON WI 53788
(608) 252-5682
RAHLES@MGE.COM

COMMUNICATIONS

MOUNT HOREB TELEPHONE COMPANY
JEFFERY INABNIT
200 E MAIN ST PO BOX 65
MT HOREB WI 53572
(608) 437-5551
(608) 751-7042 (M)
JEFFERY.INABNIT@MHTCINC.COM

COMMUNICATIONS

SPECTRUM (FORMERLY ASTREA)
NEIL HUNTAMER
2701 DANIELS ST
MADISON WI 53718
(608) 219-1321
NEIL.HUNTAMER@CHARTER.COM

ORDER OF SECTION 2 SHEETS

GENERAL NOTES
PROJECT OVERVIEW
TYPICAL SECTIONS
CONSTRUCTION DETAILS
INTERSECTION DETAILS
EROSION CONTROL
STORM SEWER
LIGHTING
EXISTING SIGN REMOVALS
PERMANENT SIGNING
PAVEMENT MARKING
TRAFFIC CONTROL STAGED CONSTRUCTION

WISDOT CONTACTS

WISDOT SW REGION
2101 WRIGHT ST.
MADISON, WI 53704

PROJECT DESIGNER
TIMOTHY CAMPBELL
(608) 246-3842
TIMOTHYJ.CAMPBELL@DOT.WI.GOV

PROJECT MANAGER
CODY KAMMERZELT, P.E.
(608) 243-5995
CODY.KAMMERZELT@DOT.WI.GOV

WDNR LIAISON

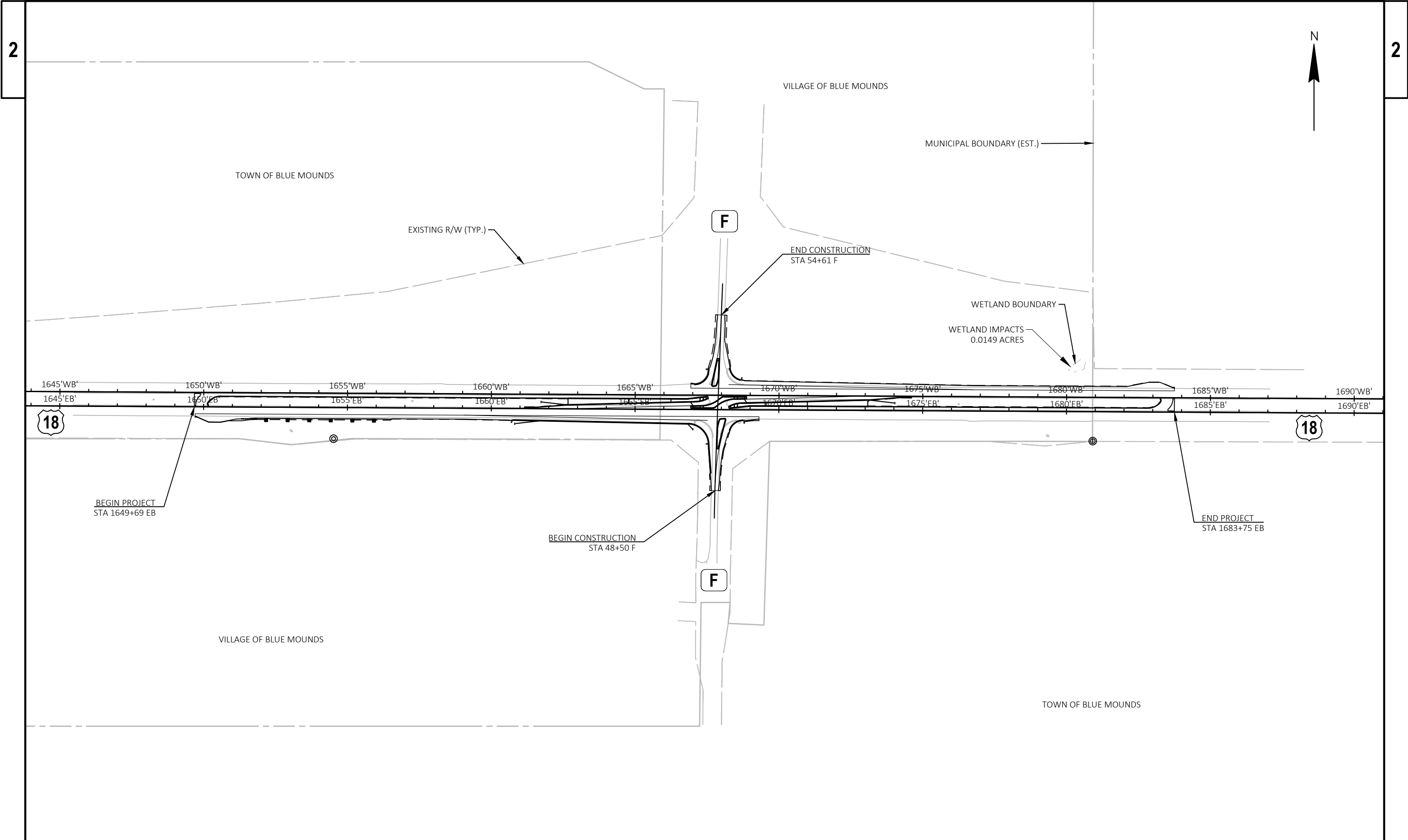
ENVIRONMENTAL ANALYSIS & REVIEW SPECIALIST
ERIC HEGGELUND
WISCONSIN DEPT. OF NATURAL RESOURCES
3911 FISH HATCHERY RD.
FITCHBURG, WI 53711
(608) 275-3301
ERIC.HEGGELUND@WISCONSIN.GOV

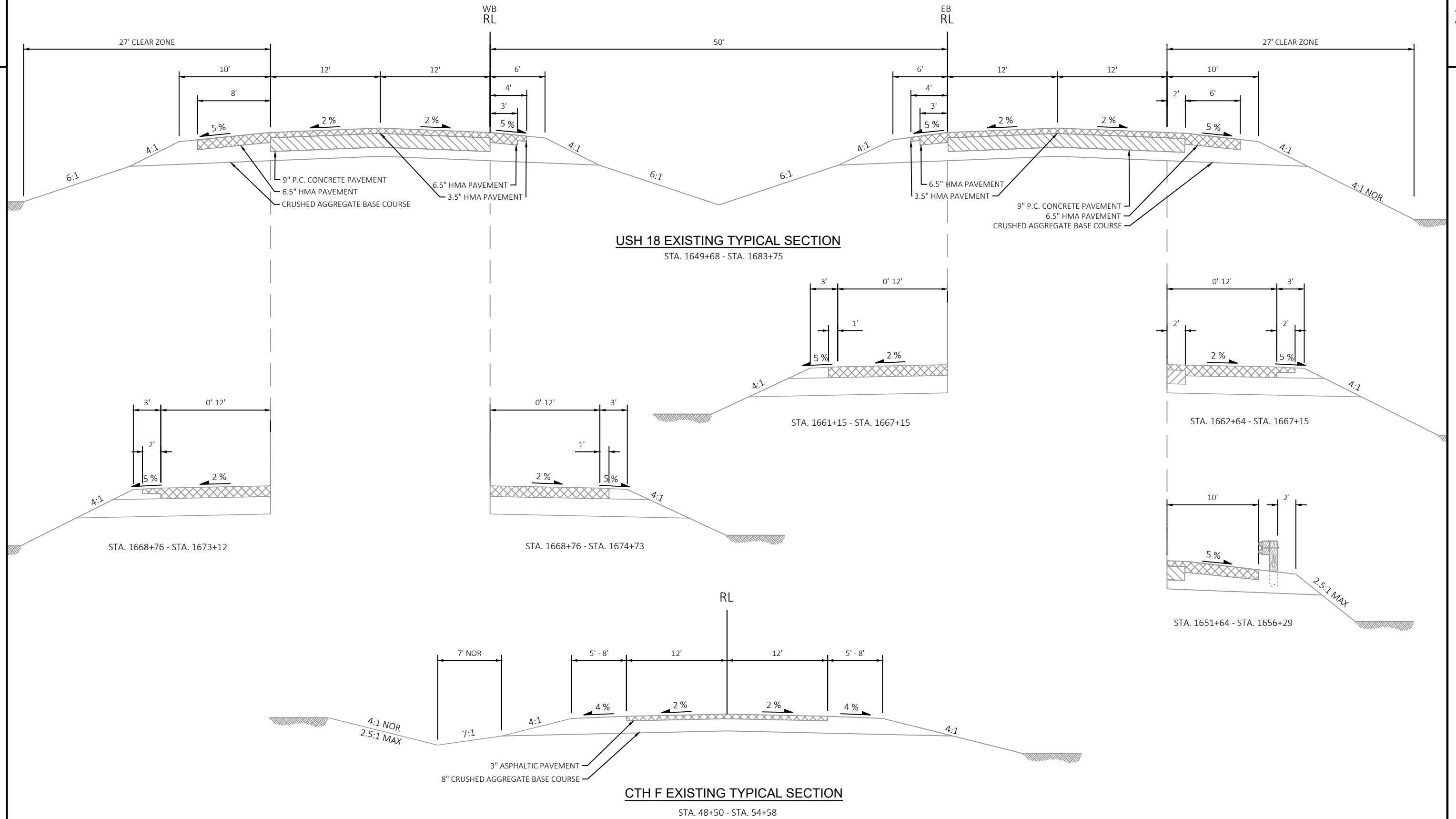
DANE COUNTY

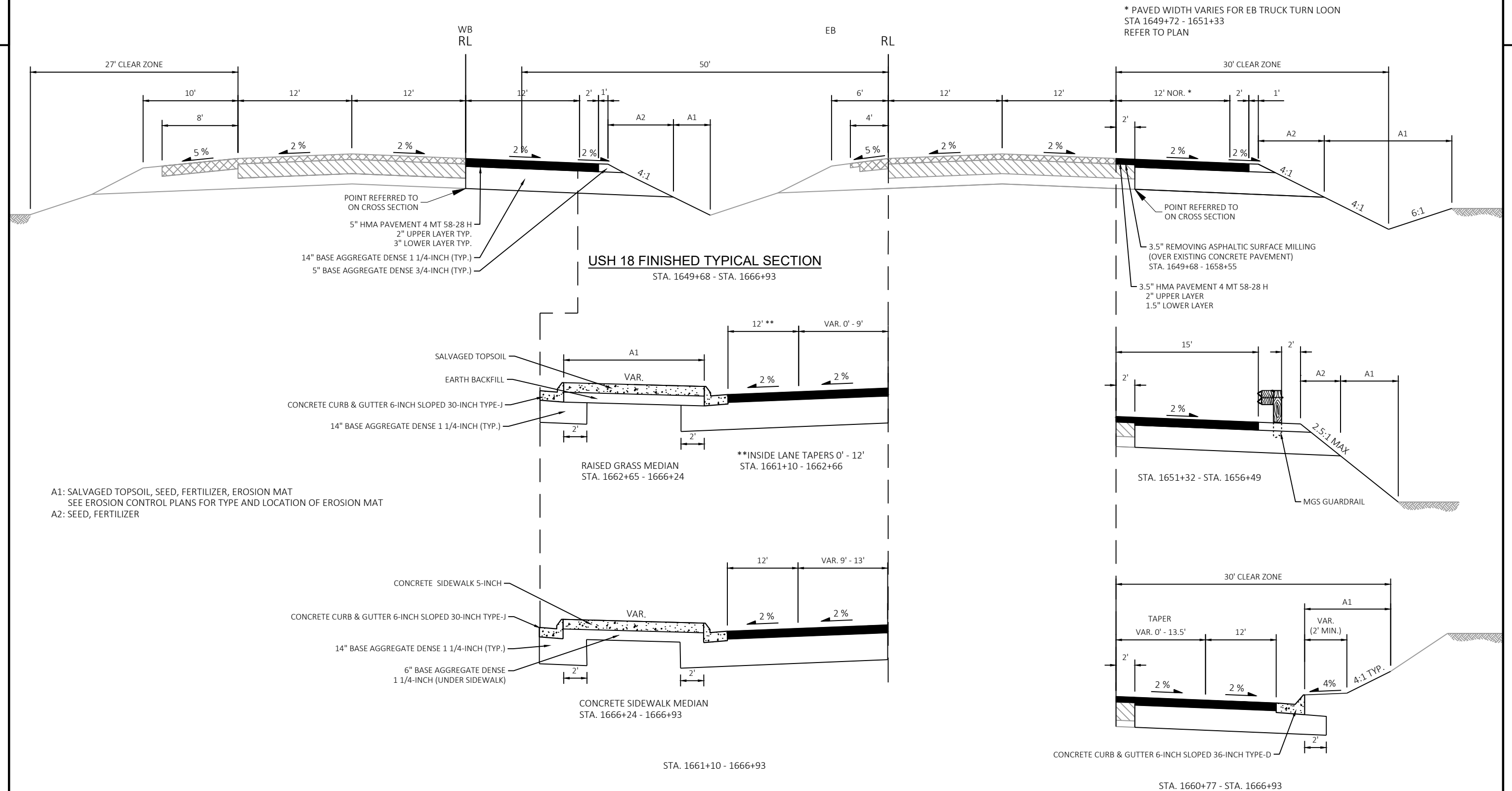
DANE COUNTY HIGHWAY DEPARTMENT
2302 FISH HATCHERY RD.
MADISON, WI 53713

COMMISSIONER
CLEMENT ABONGWA, P.E.
(608) 266-4039

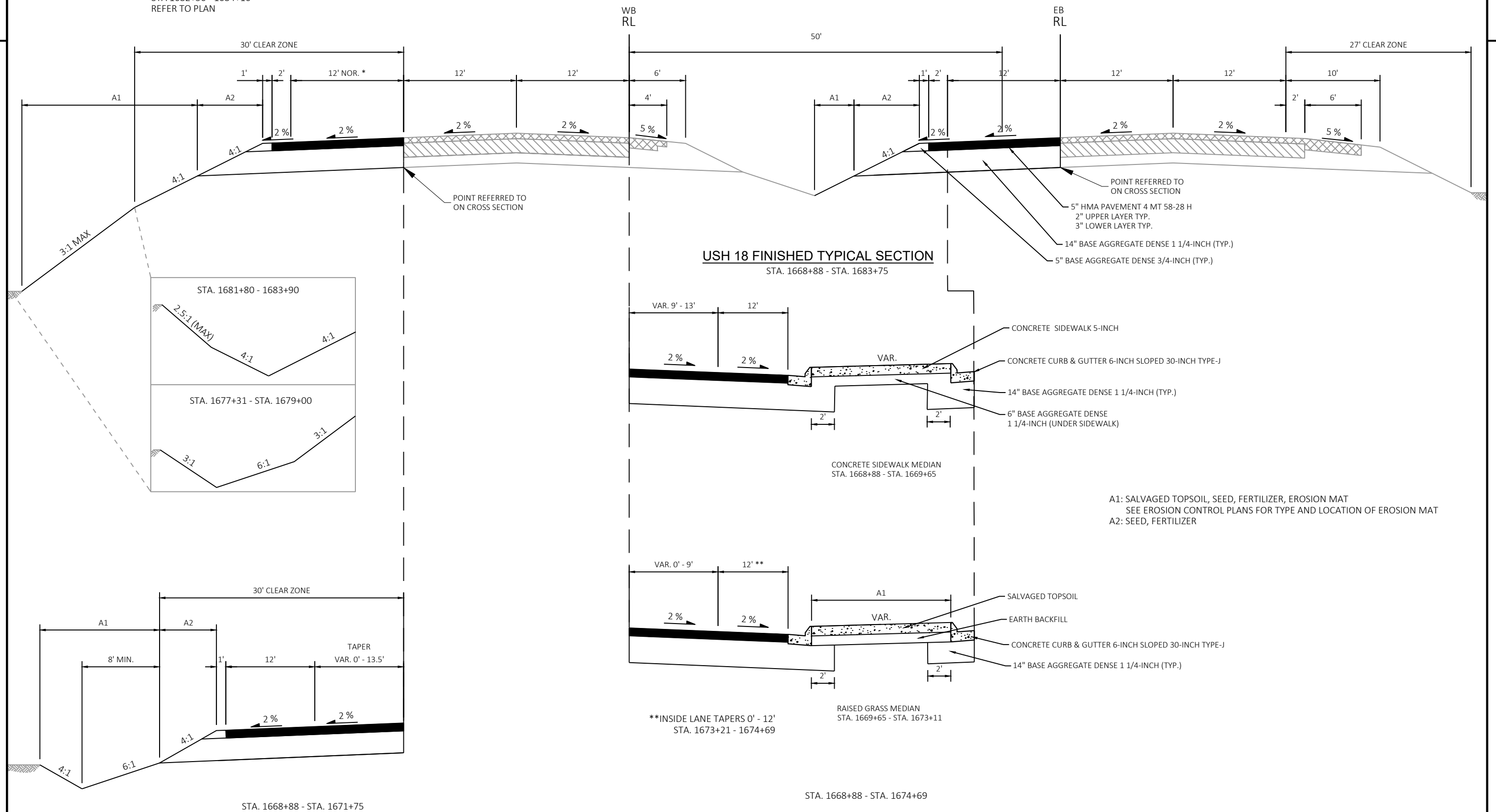


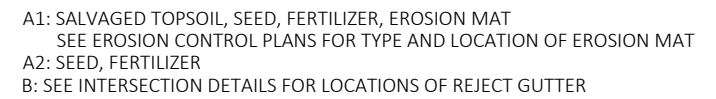


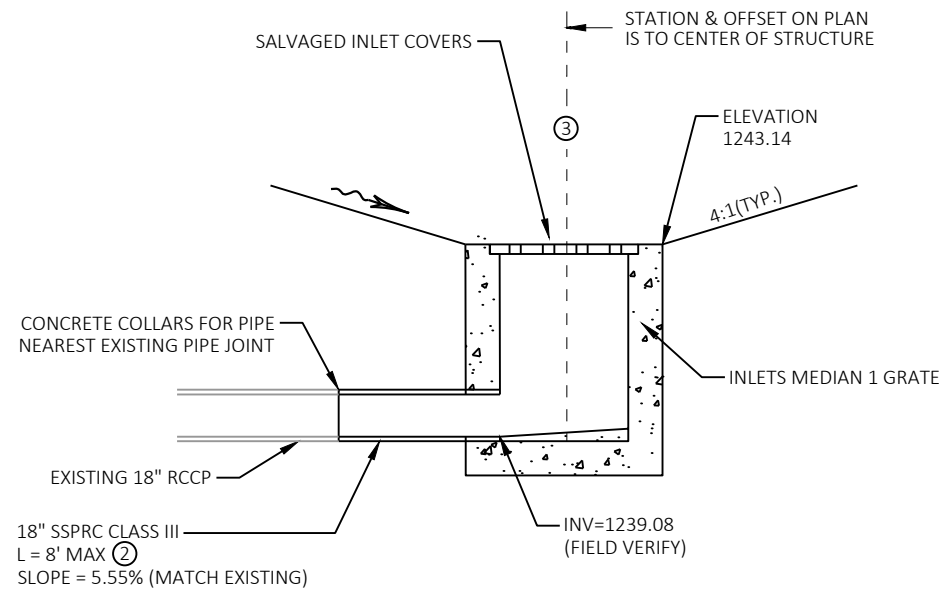




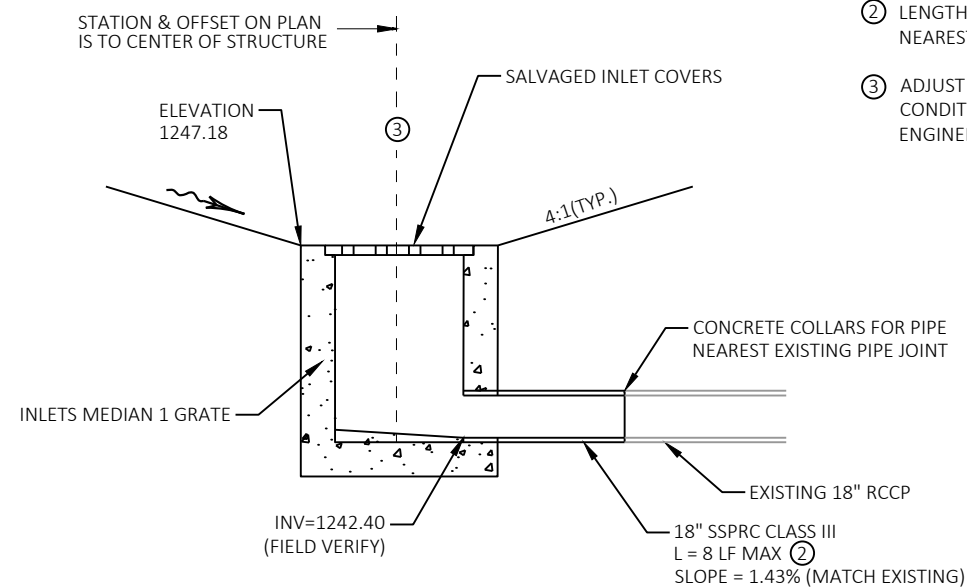
* PAVED WIDTH VARIES FOR WB TRUCK TURN LOON
STA 1682+50 - 1684+16
REFER TO PLAN







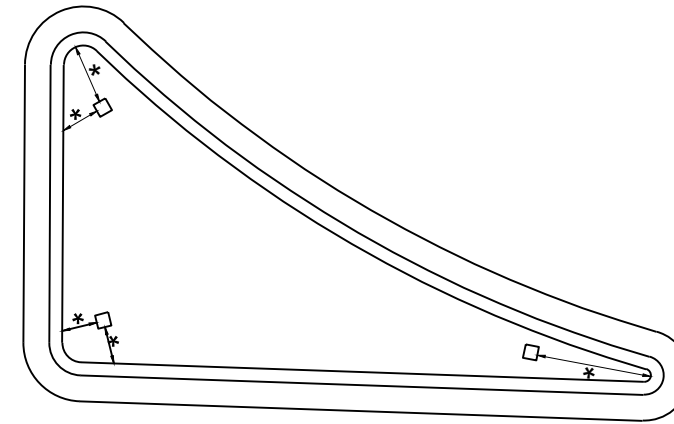
MEDIAN INLET REPLACEMENT - WEST ①
STA 1657+25



MEDIAN INLET REPLACEMENT - EAST ①
STA 1676+25

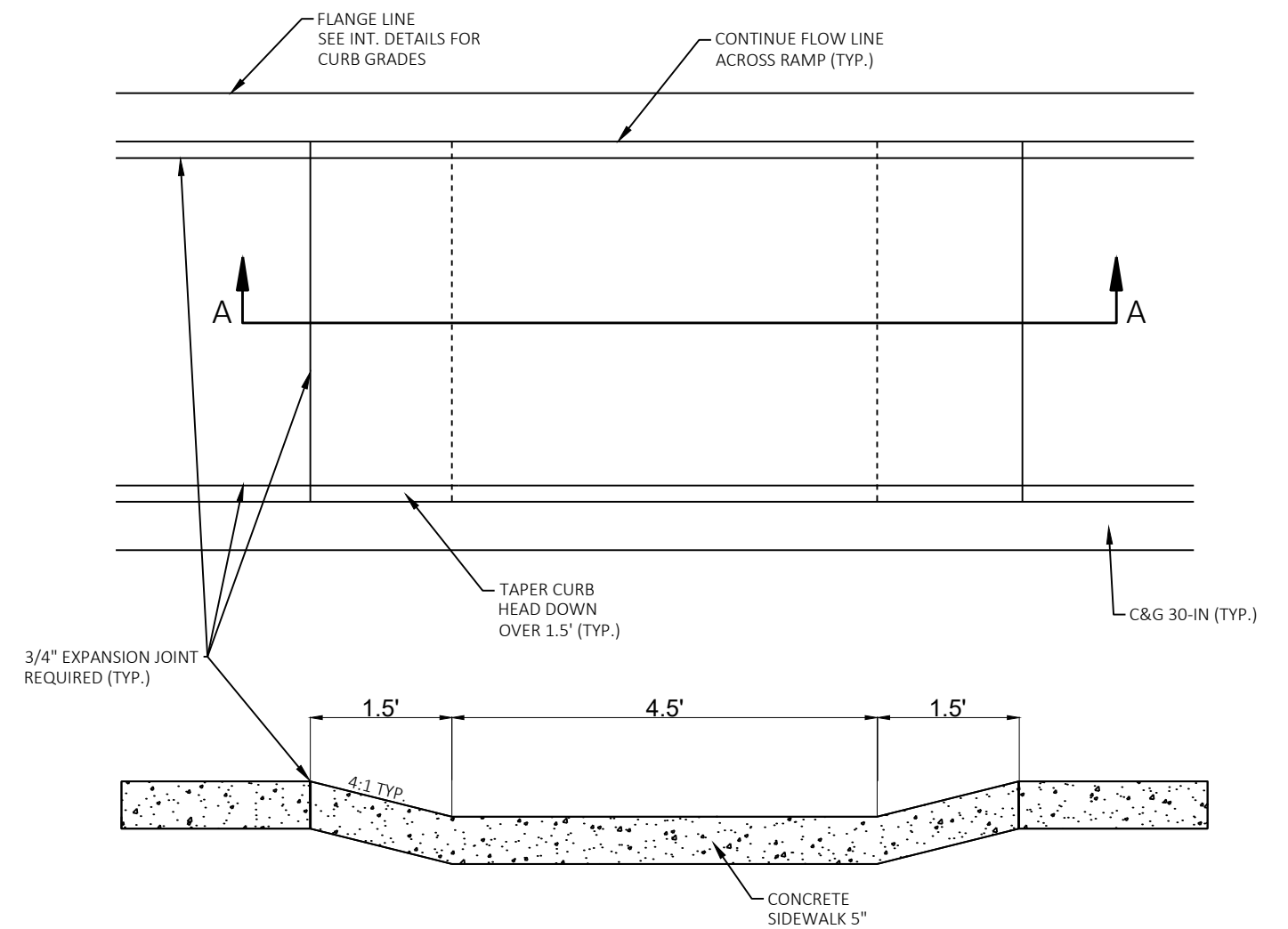
NOTES

- ① DETAILS NOT SHOWN SHALL CONFORM TO STANDARD DETAIL DRAWING FOR INLETS MEDIAN 1 GRATE.
- ② LENGTH AS NEEDED TO TIE INTO NEAREST EXISTING PIPE JOINT.
- ③ ADJUST AS NECESSARY TO FIT FIELD CONDITIONS AND WHEN DIRECTED BY ENGINEER.

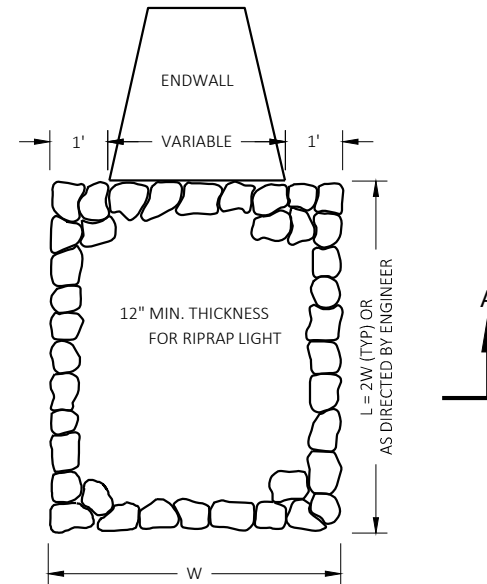
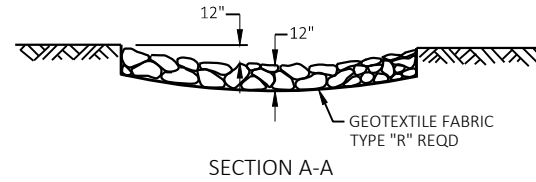


ISLAND SIGN PLACEMENT

- * NOTE: ALL OPENINGS IN ISLAND FOR SIGN PLACEMENT SHALL BE DETERMINED BY SIGN SIZE AND NUMBER. TWO FOOT MINIMUM CLEARANCE FROM EDGE OF SIGN TO BACK OF CURB IS REQUIRED.

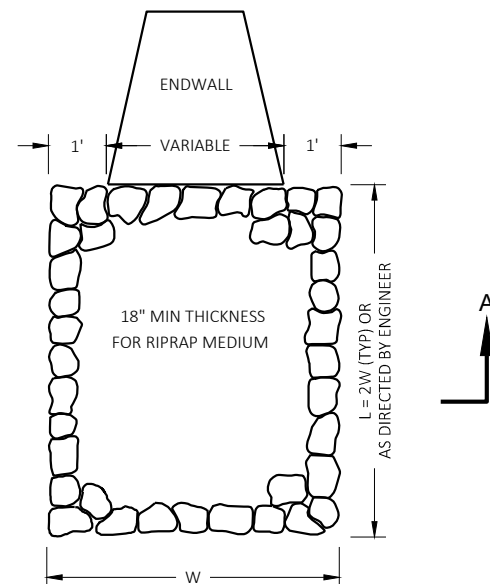
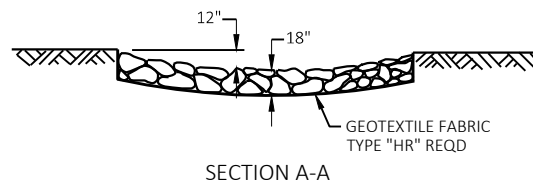


SECTION A-A
BIKE RAMP DETAIL



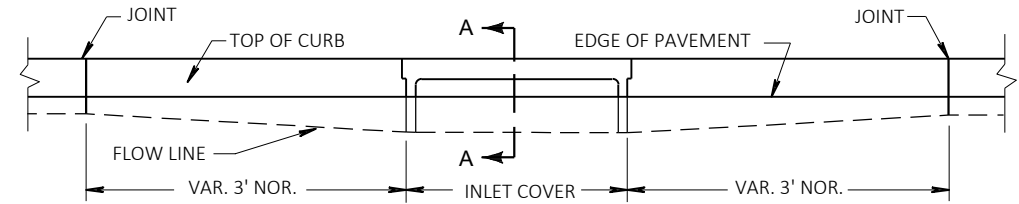
RIPRAP TREATMENT AT CULVERTS

MEDIAN CULVERT PIPES
STORM SEWER ENDWALLS 11 AND 15

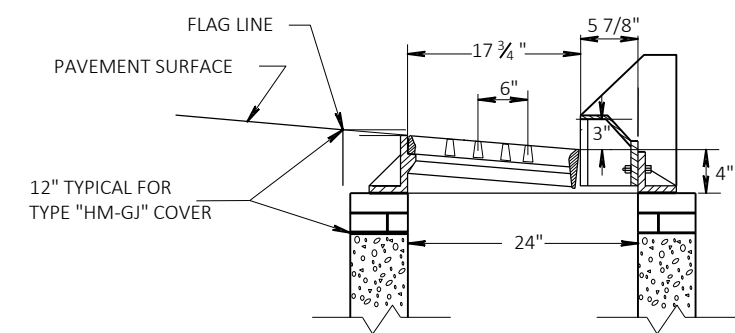
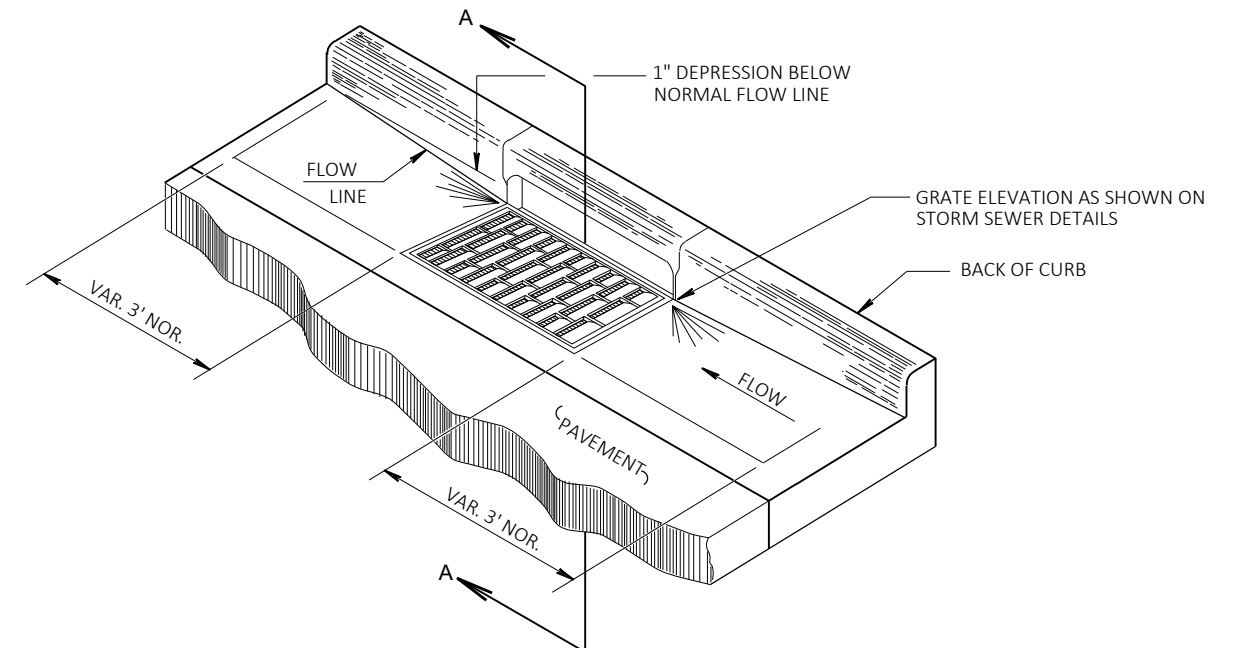


RIPRAP MEDIUM TREATMENT AT CULVERTS

CULVERT PIPE EXTENSION
STORM SEWER ENDWALL 7



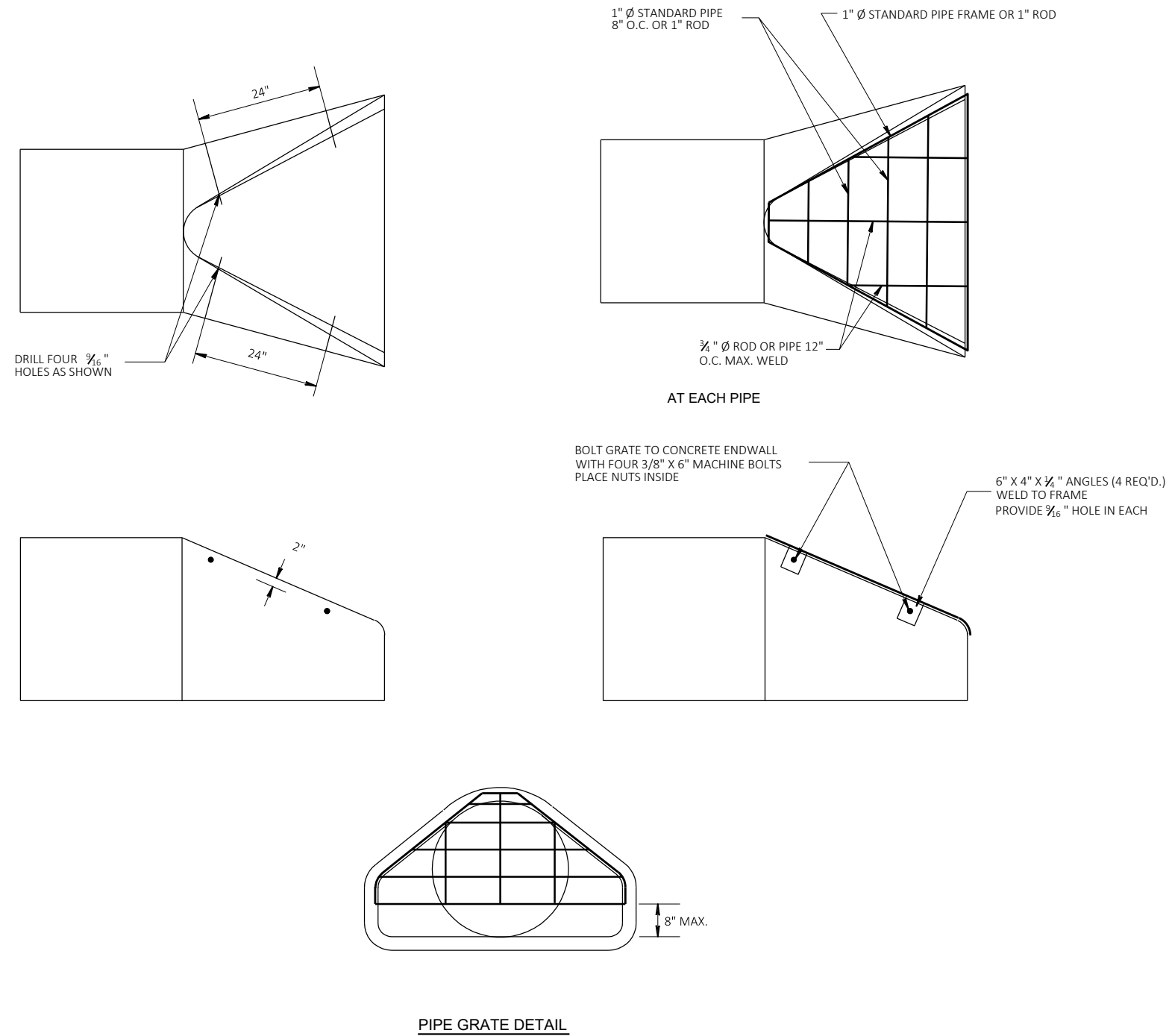
ELEVATION

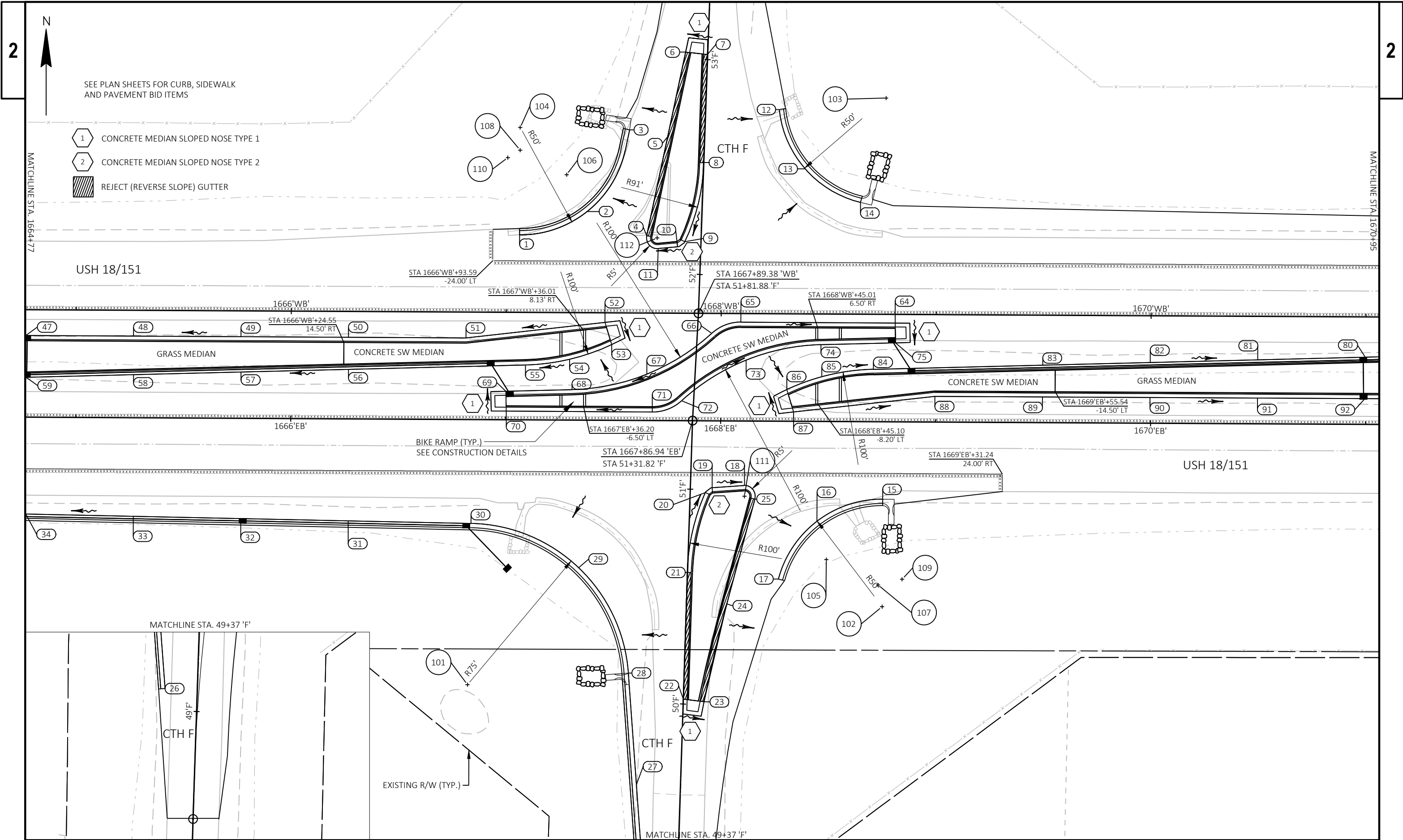


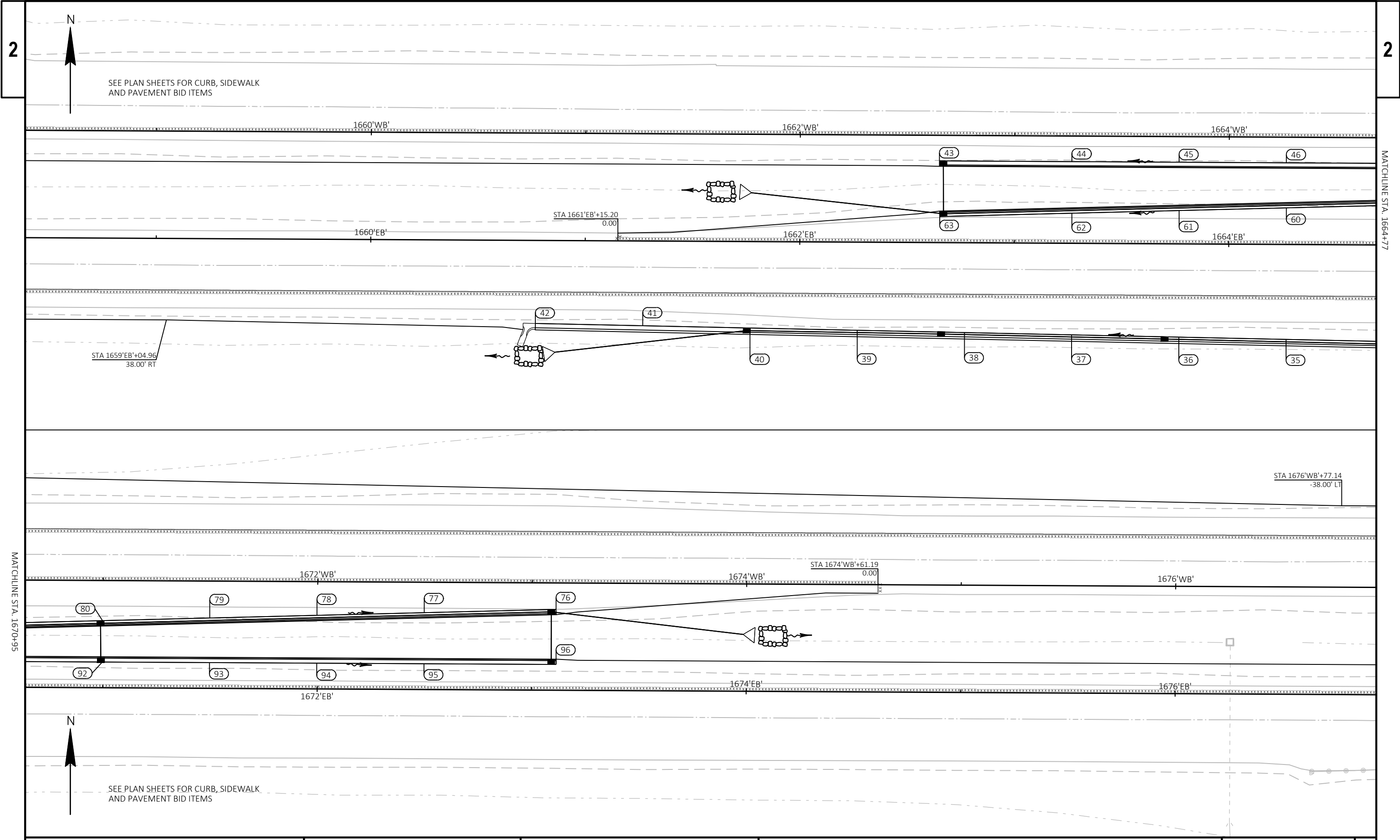
SECTION A-A

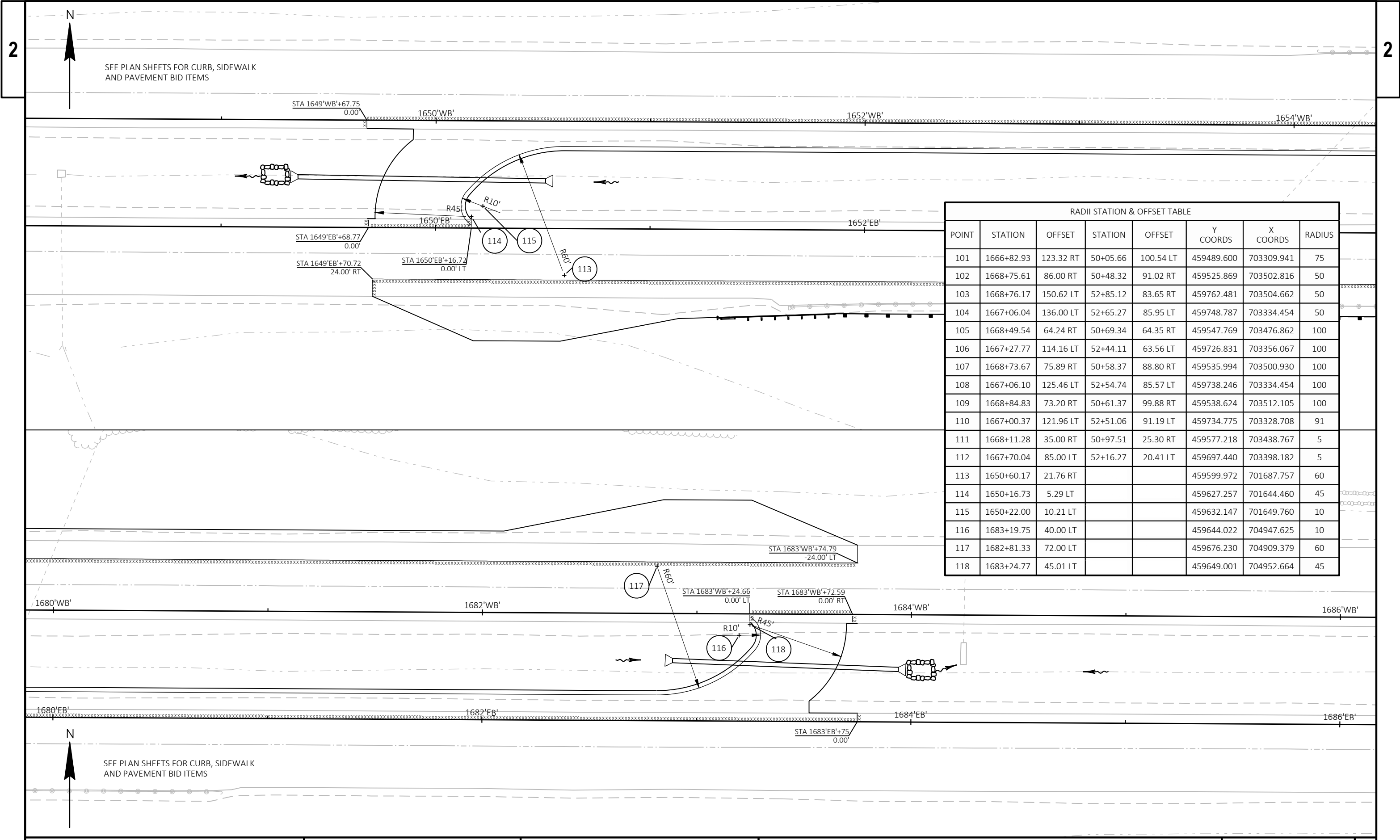
DETAIL OF CURB AND GUTTER AT INLETS

(TYPE 2X3-HM-GJ INLET SHOWN)









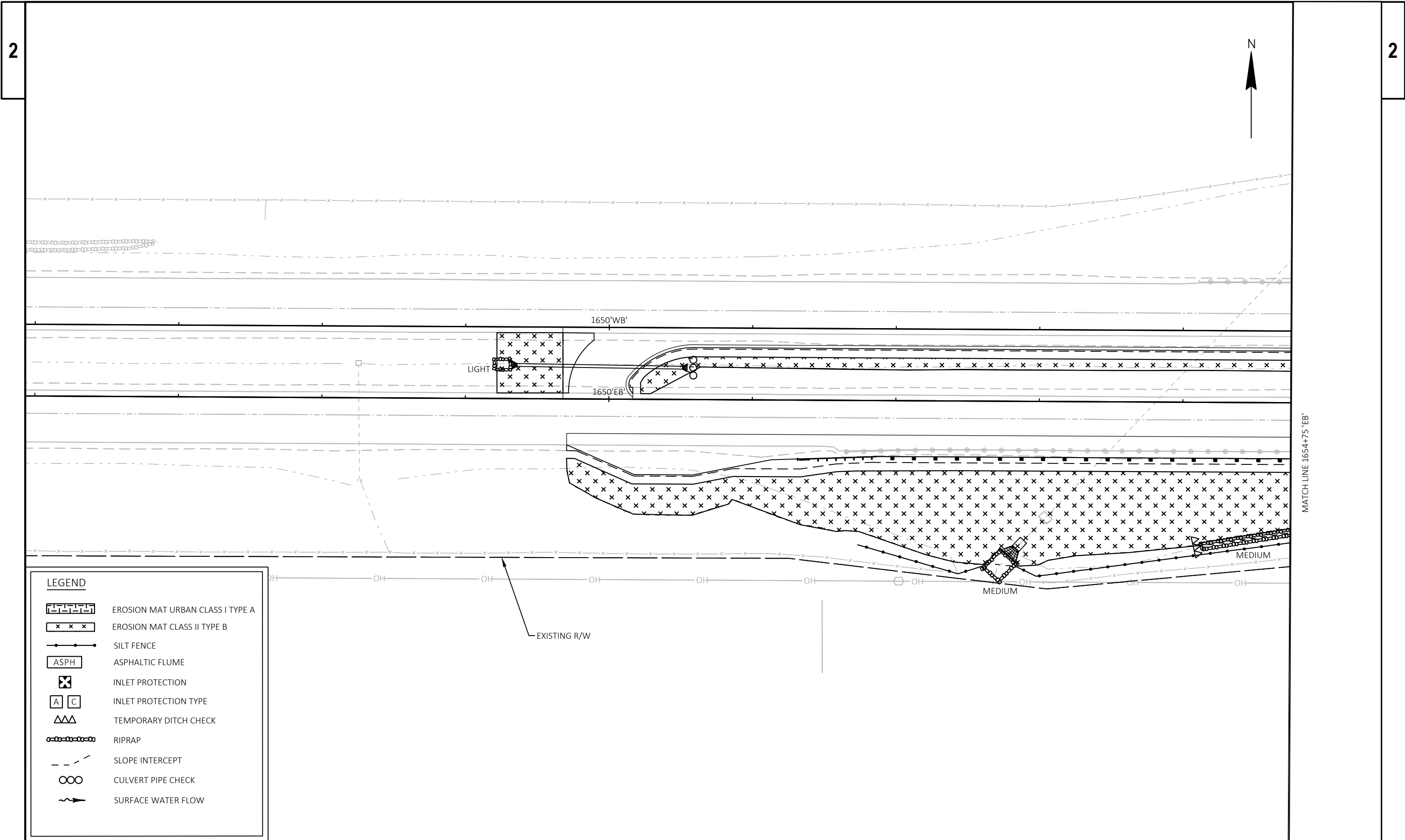
RADII STATION & OFFSET TABLE							
POINT	STATION	OFFSET	STATION	OFFSET	Y COORDS	X COORDS	RADIUS
101	1666+82.93	123.32 RT	50+05.66	100.54 LT	459489.600	703309.941	75
102	1668+75.61	86.00 RT	50+48.32	91.02 RT	459525.869	703502.816	50
103	1668+76.17	150.62 LT	52+85.12	83.65 RT	459762.481	703504.662	50
104	1667+06.04	136.00 LT	52+65.27	85.95 LT	459748.787	703334.454	50
105	1668+49.54	64.24 RT	50+69.34	64.35 RT	459547.769	703476.862	100
106	1667+27.77	114.16 LT	52+44.11	63.56 LT	459726.831	703356.067	100
107	1668+73.67	75.89 RT	50+58.37	88.80 RT	459535.994	703500.930	100
108	1667+06.10	125.46 LT	52+54.74	85.57 LT	459738.246	703334.454	100
109	1668+84.83	73.20 RT	50+61.37	99.88 RT	459538.624	703512.105	100
110	1667+00.37	121.96 LT	52+51.06	91.19 LT	459734.775	703328.708	91
111	1668+11.28	35.00 RT	50+97.51	25.30 RT	459577.218	703438.767	5
112	1667+70.04	85.00 LT	52+16.27	20.41 LT	459697.440	703398.182	5
113	1650+60.17	21.76 RT			459599.972	701687.757	60
114	1650+16.73	5.29 LT			459627.257	701644.460	45
115	1650+22.00	10.21 LT			459632.147	701649.760	10
116	1683+19.75	40.00 LT			459644.022	704947.625	10
117	1682+81.33	72.00 LT			459676.230	704909.379	60
118	1683+24.77	45.01 LT			459649.001	704952.664	45

CURB GRADES					
POINT NUMBER	STATION	OFFSET	ELEVATION	NORTHING	EASTING
1	1667+06.04	86.00' LT	1259.43	459698.79	703334.18
2	1667+37.42	97.08' LT	1259.16	459709.69	703365.63
3	1667+56.93	135.19' LT	1258.82	459747.70	703385.34
4	1667+65.15	86.01' LT	1259.45	459698.48	703393.29
5	1667+74.67	132.11' LT	1259.22	459744.52	703403.06
6	1667+82.80	171.48' LT	1259.48	459783.85	703411.41
7	1667+92.95	170.43' LT	1259.68	459782.74	703421.55
8	1667+91.49	120.16' LT	1259.58	459732.49	703419.81
9	1667+82.91	83.33' LT	1259.51	459695.70	703411.04
10	1667+79.53	80.93' LT	1259.51	459693.32	703407.65
11	1667+70.55	80.03' LT	1259.51	459692.46	703398.66
12	1668+26.49	145.00' LT	1259.02	459757.13	703454.95
13	1668+38.71	117.50' LT	1258.80	459729.57	703467.02
14	1668+64.50	102.00' LT	1258.57	459713.93	703492.73
15	1668+75.61	36.00' RT	1258.70	459575.87	703503.09
16	1668+45.04	46.43' RT	1258.79	459565.60	703472.46
17	1668+27.23	73.38' RT	1258.89	459538.75	703454.50
18	1668+11.33	30.00' RT	1259.63	459582.22	703438.85
19	1667+96.23	31.10' RT	1259.61	459581.20	703423.74
20	1667+93.10	33.37' RT	1259.61	459578.95	703420.60
21	1667+84.86	70.56' RT	1259.63	459541.81	703412.15
22	1667+83.35	129.50' RT	1259.83	459482.88	703410.32
23	1667+92.98	130.64' RT	1259.65	459481.68	703419.95
24	1668+03.37	85.12' RT	1259.27	459527.14	703430.59
25	1668+16.12	36.26' RT	1259.48	459575.93	703443.60
26	1667+65.79	221.15' RT	1260.83	459391.32	703392.26
27	1667+61.75	169.32' RT	1259.86	459443.17	703388.50
28	1667+57.71	117.49' RT	1259.35	459495.02	703384.74
29	1667+34.30	68.67' RT	1259.22	459543.97	703361.60
30	1666+84.12	48.33' RT	1259.12	459564.58	703311.53
31	1666+27.01	47.42' RT	1258.96	459565.80	703254.43
32	1665+77.01	46.63' RT	1258.74	459566.86	703204.44
33	1665+27.01	45.84' RT	1258.53	459567.92	703154.44
34	1664+77.00	45.05' RT	1258.32	459568.98	703104.43

CURB GRADES					
POINT NUMBER	STATION	OFFSET	ELEVATION	NORTHING	EASTING
35	1664+26.99	44.26' RT	1257.97	459570.05	703054.43
36	1663+77.00	43.47' RT	1257.50	459571.11	703004.45
37	1663+26.98	42.68' RT	1256.98	459572.17	702954.44
38	1662+77.00	41.89' RT	1256.40	459573.23	702904.46
39	1662+27.00	41.10' RT	1255.80	459574.30	702854.46
40	1661+76.99	40.31' RT	1255.14	459575.36	702804.45
41	1661+27.00	39.51' RT	1254.39	459576.42	702754.47
42	1660+76.91	38.72' RT	1253.61	459577.49	702704.39
43	1662+64.96	38.06' LT	1256.40	459653.25	702892.85
44	1663+26.67	38.05' LT	1257.17	459652.90	702954.56
45	1663+76.67	38.05' LT	1257.61	459652.62	703004.56
46	1664+26.67	38.04' LT	1258.05	459652.34	703054.56
47	1664+76.67	38.03' LT	1258.42	459652.07	703104.56
48	1665+26.67	38.02' LT	1258.73	459651.79	703154.56
49	1665+76.68	38.02' LT	1258.96	459651.51	703204.57
50	1666+26.70	38.01' LT	1259.13	459651.23	703254.59
51	1666+81.31	38.00' LT	1259.25	459650.92	703309.19
52	1667+45.97	45.56' LT	1259.46	459658.13	703373.90
53	1667+49.14	35.26' LT	1259.28	459647.81	703377.01
54	1667+29.63	28.32' LT	1259.15	459640.98	703357.46
55	1667+09.10	25.56' LT	1259.03	459638.33	703336.92
56	1666+26.78	23.07' LT	1258.84	459636.29	703254.58
57	1665+76.78	21.57' LT	1258.71	459635.06	703204.58
58	1665+26.80	20.06' LT	1258.51	459633.82	703154.58
59	1664+76.80	18.55' LT	1258.21	459632.58	703104.58
60	1664+26.81	17.04' LT	1257.82	459631.35	703054.58
61	1663+76.82	15.53' LT	1257.40	459630.11	703004.59
62	1663+26.82	14.03' LT	1256.97	459628.88	702954.58
63	1662+65.20	12.17' LT	1256.36	459627.35	702892.94
64	1668+80.95	45.98' LT	1259.30	459657.82	703508.88
65	1668+09.18	46.00' LT	1259.52	459658.23	703437.11
66	1667+95.61	40.69' LT	1259.48	459653.00	703423.51
67	1667+65.60	21.59' LT	1259.37	459634.05	703393.39
68	1667+30.79	14.21' LT	1259.26	459626.86	703358.54

CURB GRADES					
POINT NUMBER	STATION	OFFSET	ELEVATION	NORTHING	EASTING
69	1667+00.02	13.25' LT	1259.17	459626.07	703327.76
70	1667+00.26	4.03' LT	1259.40	459616.85	703327.96
71	1667+68.21	4.00' LT	1259.54	459616.45	703395.91
72	1667+81.77	9.29' LT	1259.50	459621.67	703409.49
73	1668+11.76	28.35' LT	1259.39	459640.56	703439.59
74	1668+46.52	35.71' LT	1259.28	459647.74	703474.39
75	1668+81.19	36.77' LT	1259.18	459648.61	703509.06
76	1673+11.19	37.71' LT	1255.61	459647.21	703939.06
77	1672+49.73	35.85' LT	1256.26	459645.69	703877.60
78	1671+99.73	34.34' LT	1256.83	459644.44	703827.59
79	1671+49.73	32.82' LT	1257.32	459643.20	703777.58
80	1670+99.73	31.32' LT	1257.78	459641.97	703727.57
81	1670+49.73	29.81' LT	1258.18	459640.73	703677.56
82	1669+99.73	28.27' LT	1258.45	459639.47	703627.56
83	1669+49.73	26.76' LT	1258.74	459638.22	703577.55
84	1668+70.92	24.44' LT	1258.95	459636.34	703498.73
85	1668+46.98	20.79' LT	1259.16	459632.81	703474.77
86	1668+30.75	14.75' LT	1259.31	459626.86	703458.50
87	1668+33.94	4.38' LT	1259.48	459616.47	703461.64
88	1668+99.59	12.00' LT	1259.18	459623.74	703527.33
89	1669+49.72	12.00' LT	1259.03	459623.47	703577.46
90	1669+99.72	12.00' LT	1258.76	459623.19	703627.46
91	1670+49.72	12.00' LT	1258.47	459622.92	703677.46
92	1670+99.72	12.00' LT	1258.10	459622.65	703727.46
93	1671+49.72	12.00' LT	1257.61	459622.38	703777.45
94	1671+99.72	12.00' LT	1257.13	459622.11	703827.45
95	1672+49.72	12.00' LT	1256.57	459621.84	703877.45
96	1673+11.33	12.00' LT	1255.78	459621.50	703939.06

NOTE: ALL STATIONS AND OFFSETS ARE IN REFERENCE TO 'EB'



LEGEND

EROSION MAT URBAN CLASS I TYPE A

EROSION MAT CLASS II TYPE B

SILT FENCE

ASPH

ASP

FLUME

INLET PROTECTION

A

INLET PROTECTION TYPE

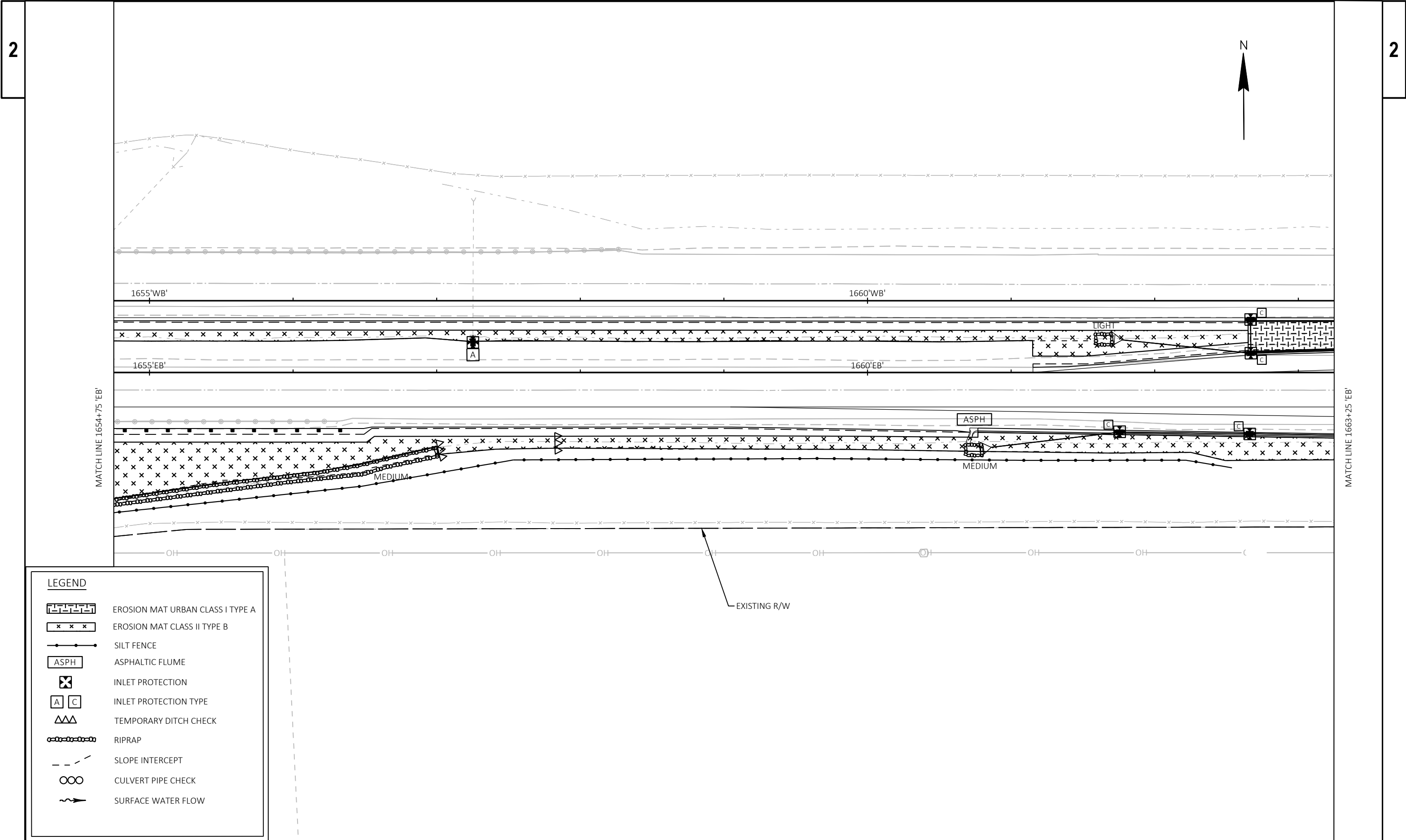
TEMPORARY DITCH CHECK

RIPRAP

SLOPE INTERCEPT

CULVERT PIPE CHECK

SURFACE WATER FLOW



LEGEND

EROSION MAT URBAN CLASS I TYPE A

EROSION MAT CLASS II TYPE B

SILTS FENCE

ASPHALTIC FLUME

INLET PROTECTION TYPE A

INLET PROTECTION TYPE C

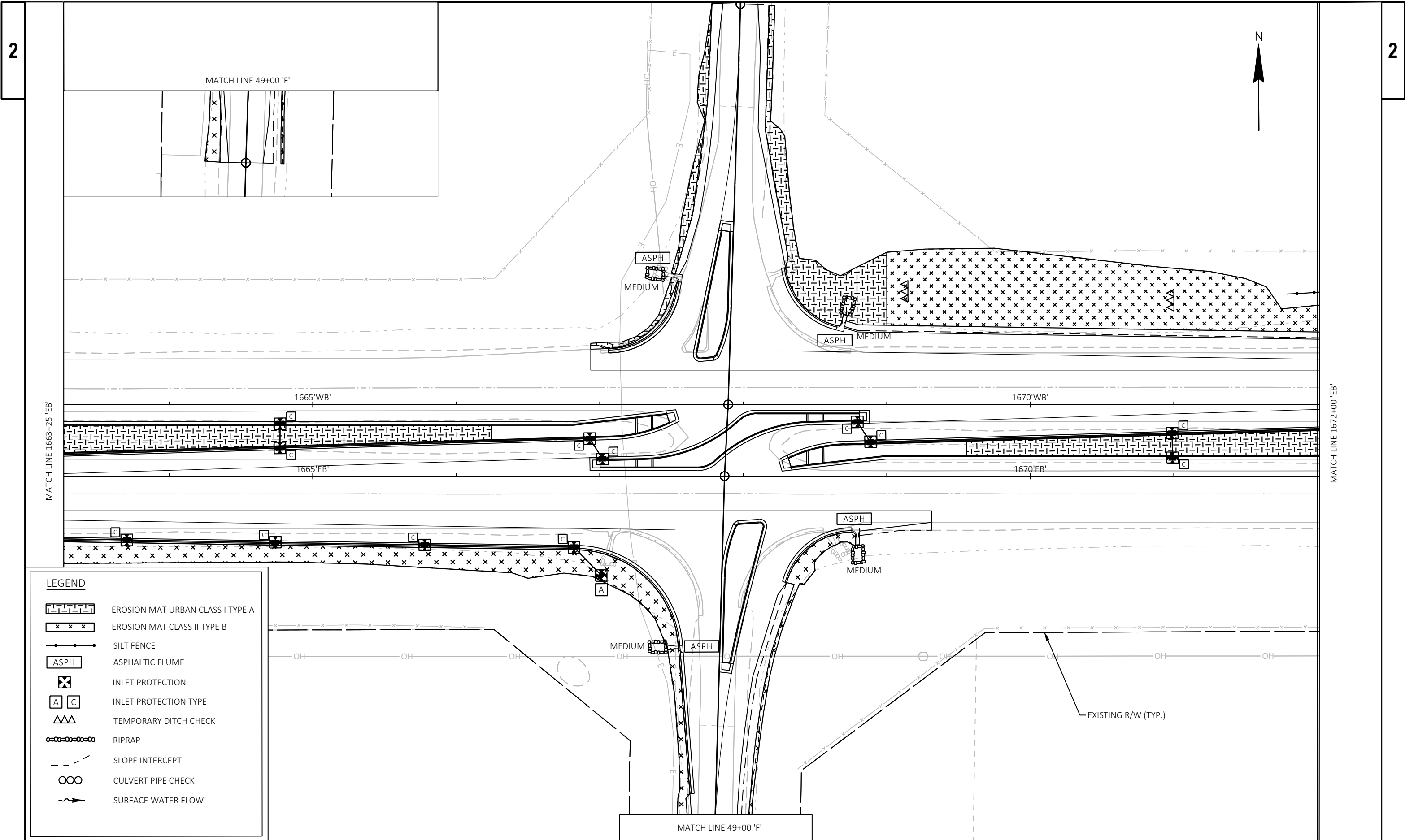
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RIPRAP

SLOPE INTERCEPT

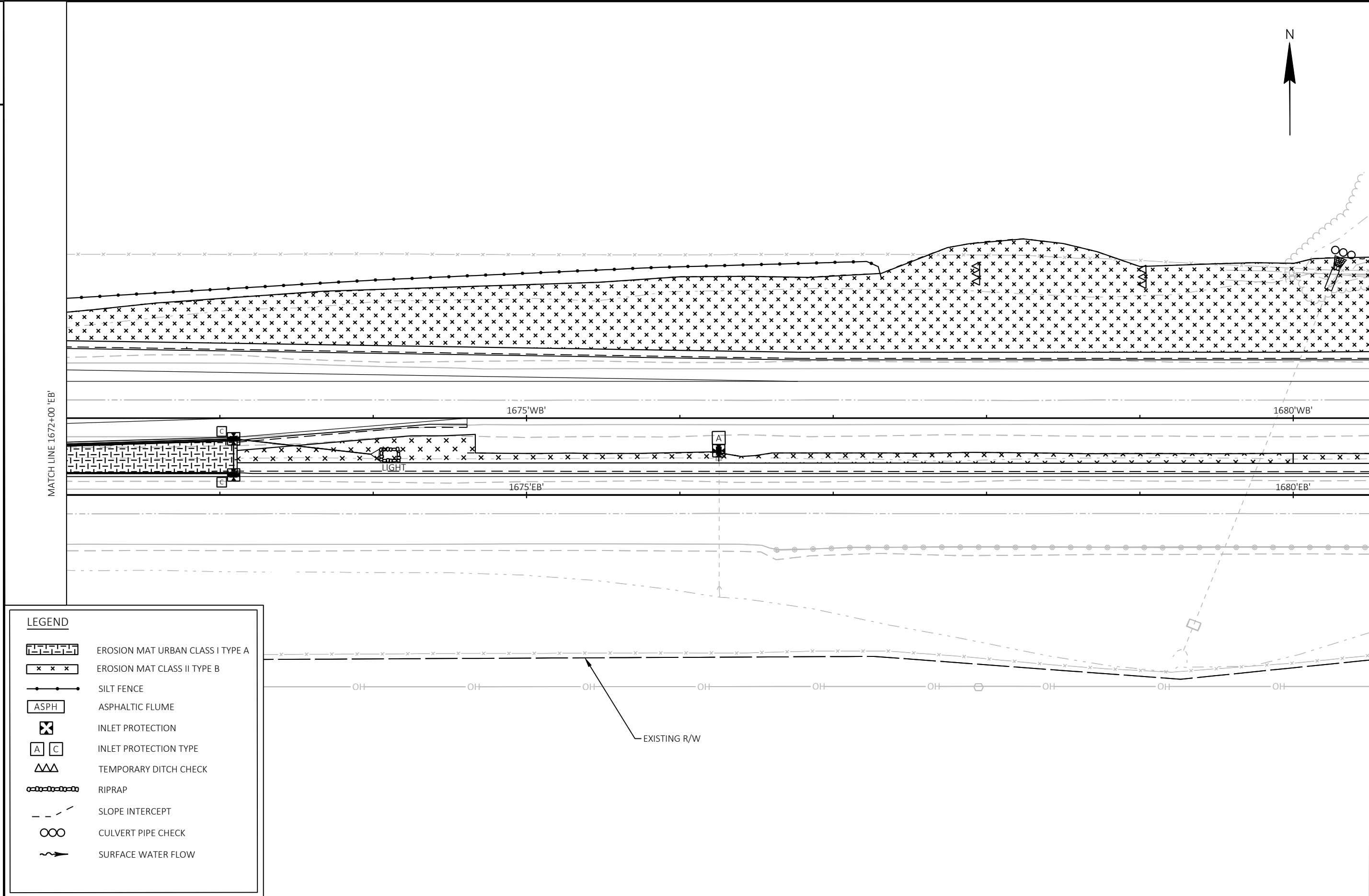
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SURFACE WATER FLOW



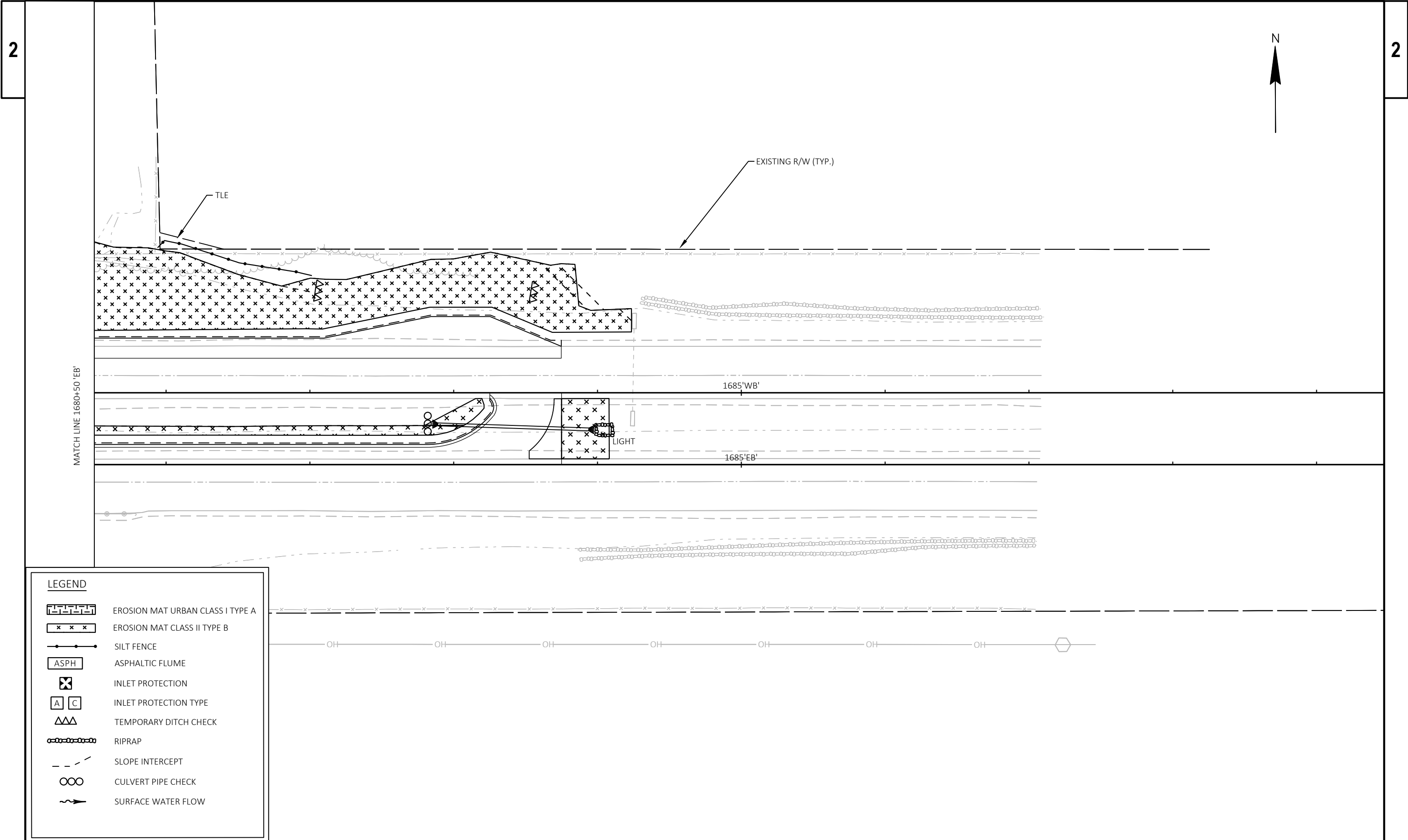
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PROJECT NO: 1204-05-77	HWY: USH 18/151	COUNTY: DANE	EROSION CONTROL	SHEET 18	E
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[illegible]



LEGEND

EROSION MAT URBAN CLASS I TYPE A

EROSION MAT CLASS II TYPE B

SILT FENCE

ASPH

INLET PROTECTION

INLET PROTECTION TYPE

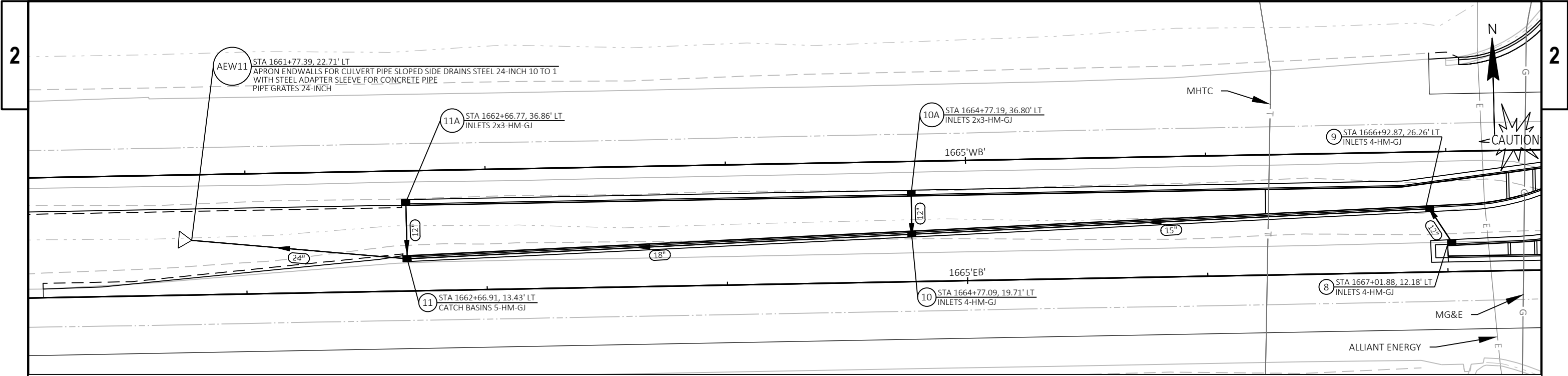
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RIPRAP

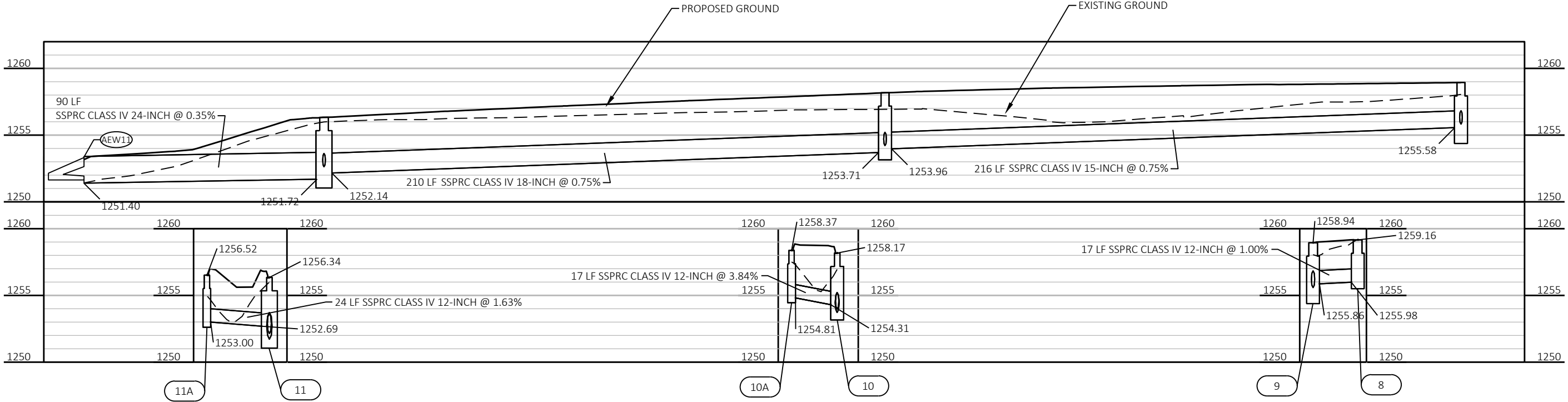
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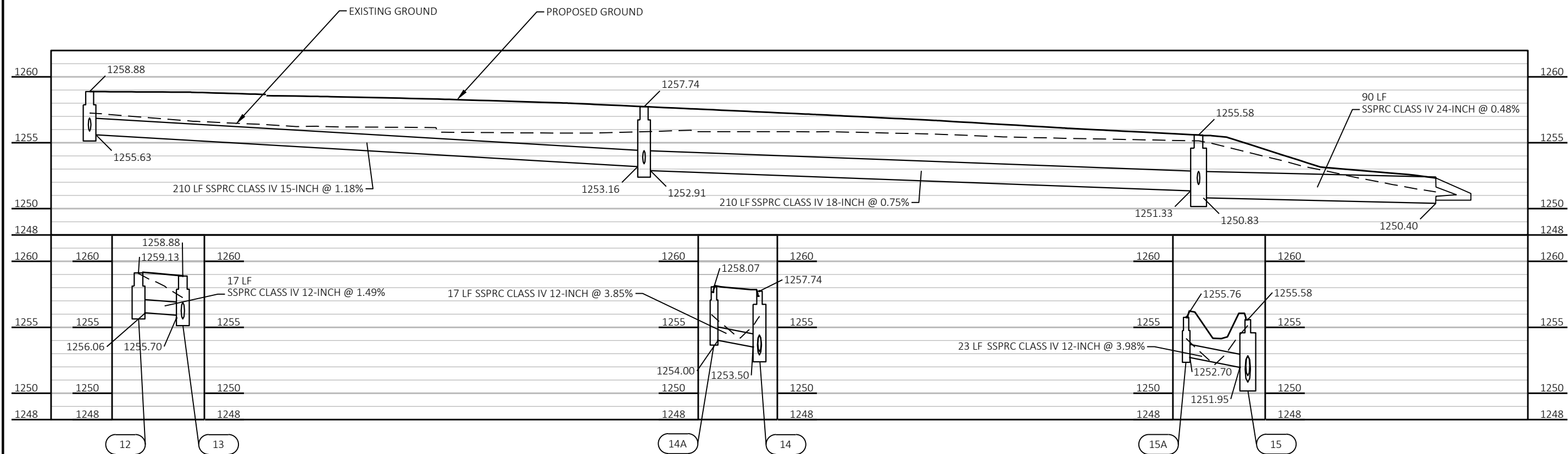
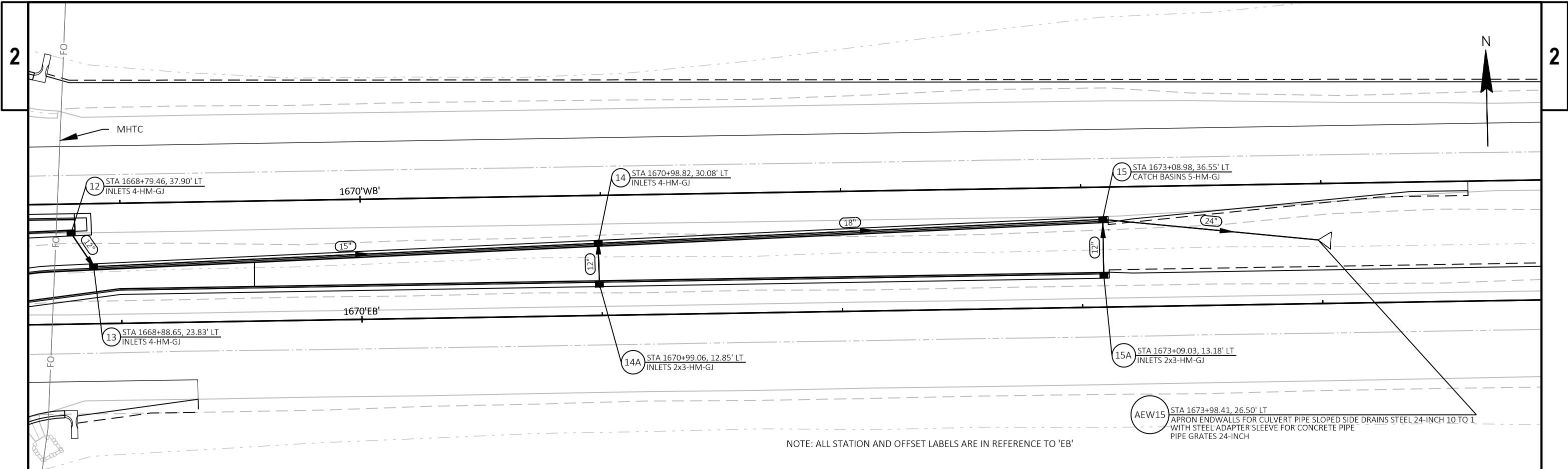
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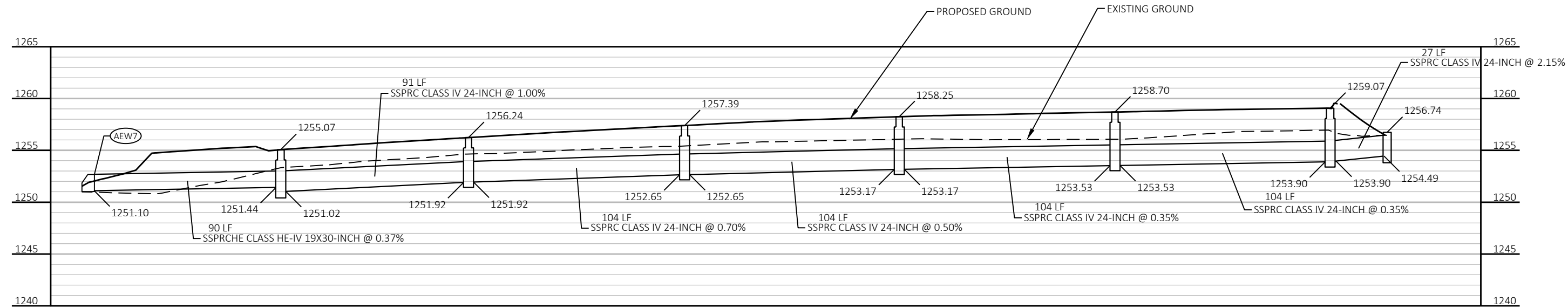
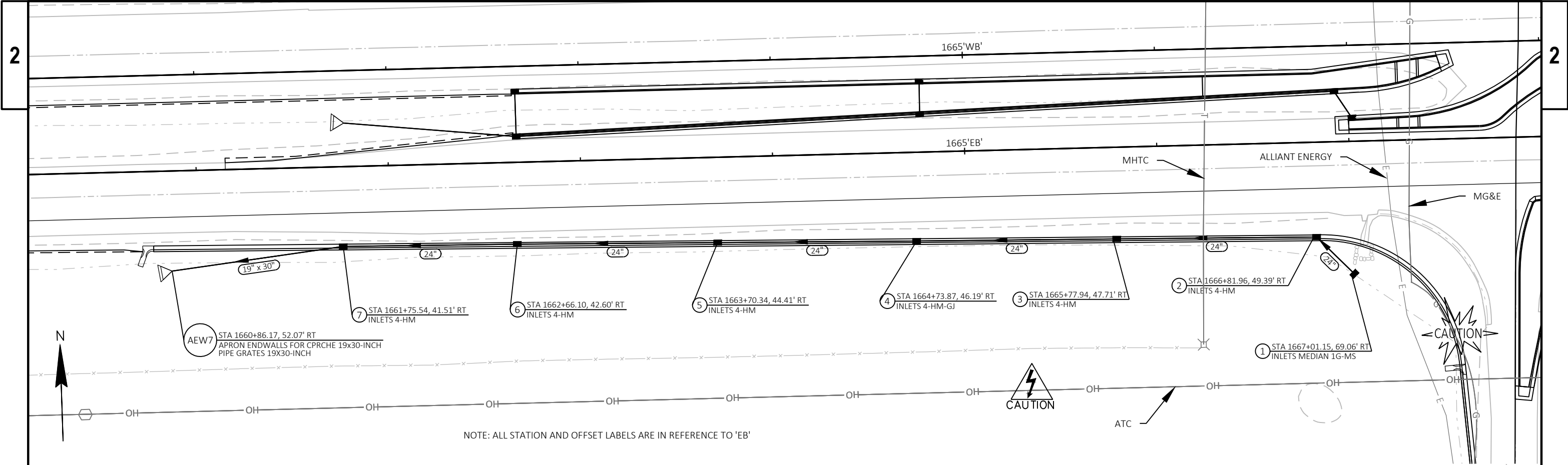
SURFACE WATER FLOW



NOTE: ALL STATION AND OFFSET LABELS ARE IN REFERENCE TO 'EB'







GENERAL STREET LIGHTING NOTES:

- 1) THE ENGINEER SHALL APPROVE THE FINAL LOCATION FOR ALL CONCRETE BASES IN THE FIELD PRIOR TO CONSTRUCTION.
- 2) PITCH ALL CONDUITS TOWARD PULL BOXES, INSTALL A 2" DRAIN DUCT TO DITCH OR STORM SEWER AS REQUIRED FOR DAMAGE. THIS 2" DRAIN DUCT IS INCIDENTAL TO THE PULL BOX BID ITEM. DRAIN DUCT IS NOT SHOWN.
- 3) THE LOCATION OF EXISTING AND PROPOSED UTILITIES AS SHOWN ON THE PLANS ARE APPROXIMATE. IN ADDITION THERE MAY BE OTHER UTILITIES WITHIN THE PROJECT AREA WHICH ARE NOT SHOWN. THE CONTRACTOR SHALL VERIFY THE LOCATIONS OF ALL UTILITIES PRIOR TO CONSTRUCTION.
- 4) ROCK AUGERING WILL BE REQUIRED FOR CONCRETE BASE INSTALLATION.
- 5) ROCK TRENCHING MAY BE REQUIRED FOR CONDUIT INSTALLATION TO PROPER BURIAL DEPTH.

CONDUCTOR COLOR LEGEND

CB100

WISDOT SERVICE

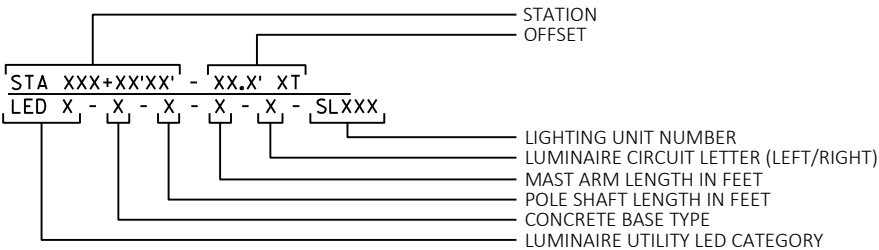
LIGHTING CONDUCTORS
A - BLACK
B - RED
C - BLACK
D - RED
240V PHASE TO PHASE

ABBREVIATIONS

T.W.O. - TRACER WIRE ONLY REQ'D

LIGHTING PLAN LEGEND

- PROPOSED CONCRETE CONTROL CABINET BASE/ELEC. SERVICE
- PROPOSED PULL BOX NON-CONDUCTIVE (24"x42")
- PROPOSED CONDUIT 2-INCH (SCHEDULE 40 PVC UNLESS SPECIFIED OTHERWISE)
- PROPOSED CONDUIT SPECIAL 2-INCH
- PROPOSED SINGLE ARM LUMINAIRE
- PROPOSED TWIN ARM LUMINAIRE



CONDUIT/CONDUCTOR LEGEND

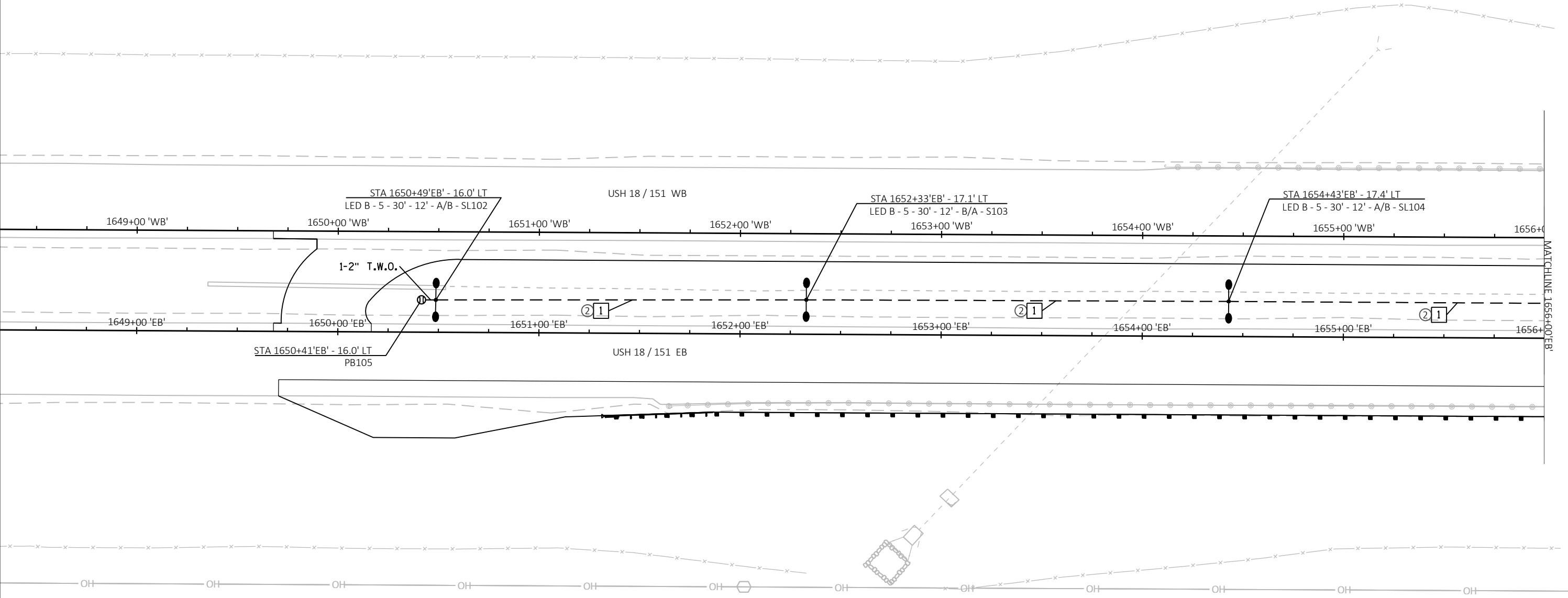
- SERVICE CABINET
- NO. OF CONDUITS
- CONDUIT SIZE
- SIZE (AWG) OF GROUNDING CONDUCTOR
- QTY. OF GROUNDING CONDUCTOR
- SIZE (AWG) OF CONDUCTORS
- QTY. OF CONDUCTORS
- CIRCUIT

CB100	1	2"
A	1	#2
	1	#2

HIGHWAY LIGHTING USH 18/151 & CTH F DANE COUNTY	
LIGHTING NO. L13-0879	
DESIGNER: KL ENGINEERING, INC.	
DATE: 08-01-2025	SHEET 1 OF 8

KEYED NOTES:

- ① INSTALL CONDUIT VIA DIRECTIONAL BORE
- ② ROCK TRENCHING MAY BE REQUIRED FOR CONDUIT INSTALLATION TO PROPER BURIAL DEPTH



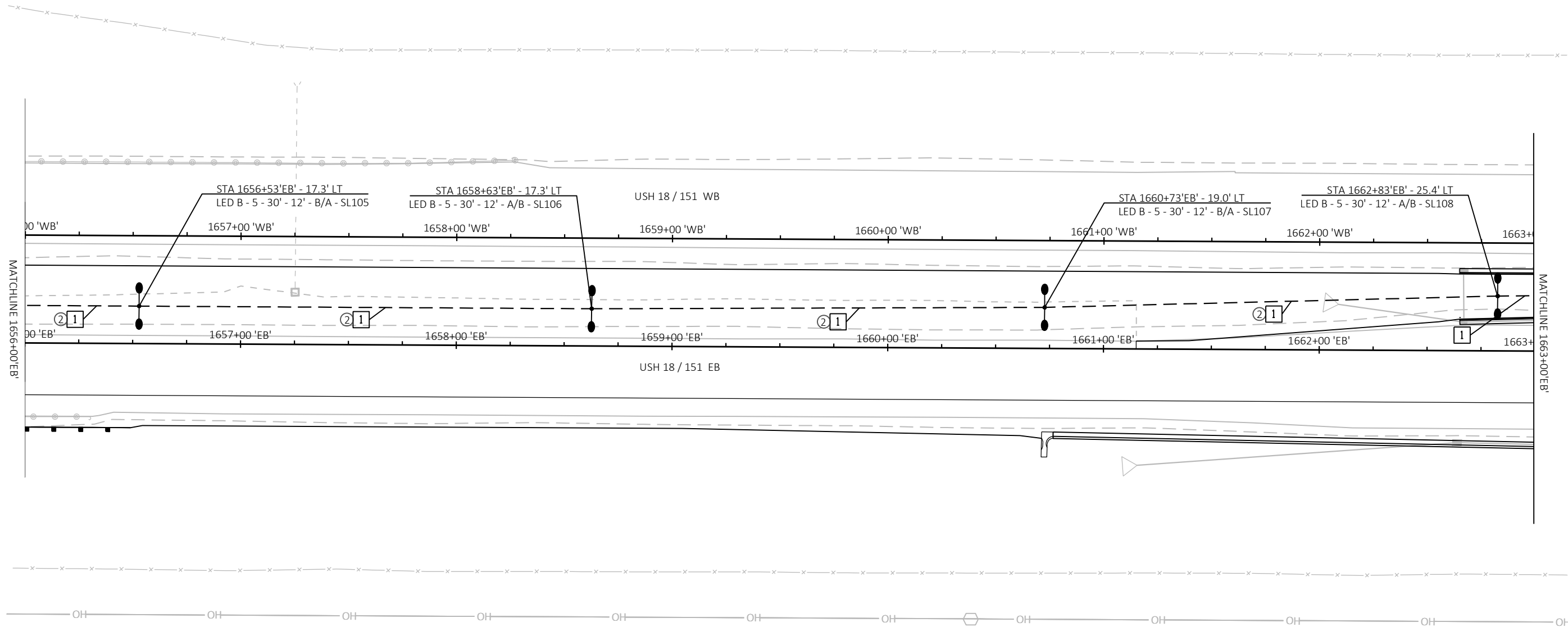
1	=	CB100		1	2"	
		A	2	#6	1	#6
		B	2	#6	--	--

HIGHWAY LIGHTING USH 18/151 & CTH F DANE COUNTY	
LIGHTING NO. L13-0879	
DESIGNER: KL ENGINEERING, INC.	
DATE: 08-01-2025	SHEET 2 OF 8

PROJECT NO: 1204-05-77	HWY: CTH F	COUNTY: DANE	LIGHTING PLANS	SHEET 24	E
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KEYED NOTES:

- ① INSTALL CONDUIT VIA DIRECTIONAL BORE
- ② ROCK TRENCHING MAY BE REQUIRED FOR CONDUIT INSTALLATION TO PROPER BURIAL DEPTH



1	=			
	CB100	1	2"	
	A	2	#6	1 #6
	B	2	#6	-- --

HIGHWAY LIGHTING USH 18/151 & CTH F DANE COUNTY	
LIGHTING NO. L13-0879	
DESIGNER: KL ENGINEERING, INC.	
DATE: 08-01-2025	SHEET 3 OF 8

PROJECT NO: 1204-05-77

HWY: CTH F

COUNTY: DANE

LIGHTING PLANS

SHEET 25

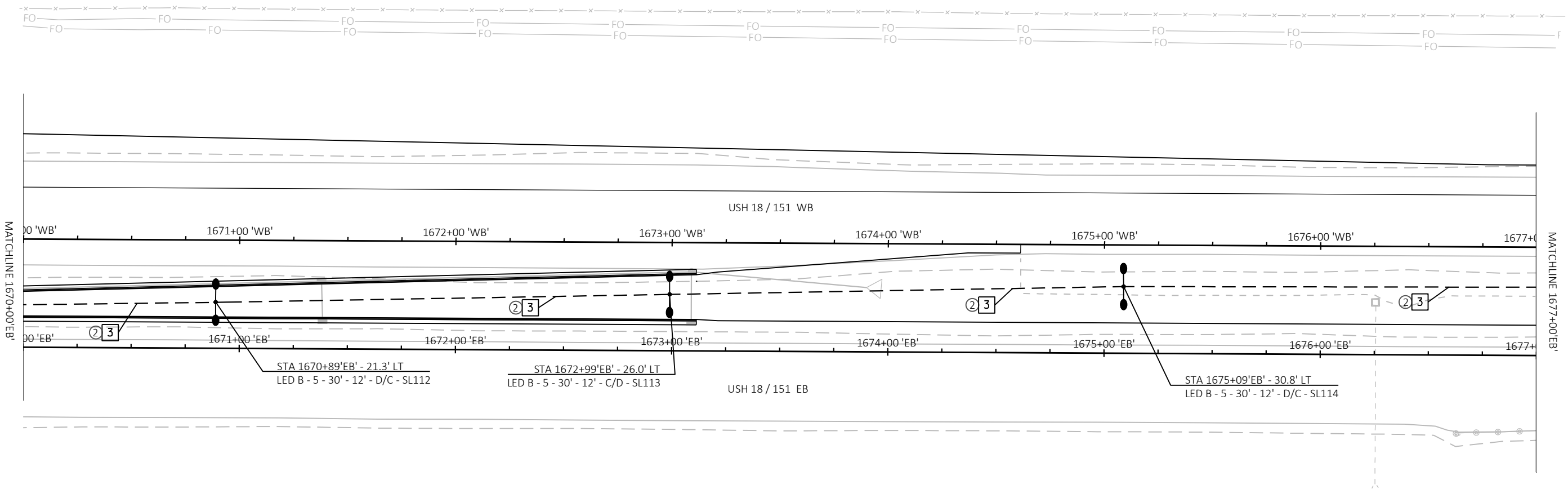
E

-
- 1 = INSTALL CONDUIT VIA DIRECTIONAL BORE
2 = ROCK TRENCHING MAY BE REQUIRED FOR CONDUIT INSTALLATION TO PROPER BURIAL DEPTH
- STA 52+44'F' - 10.5' LT
PB109
- STA 52+30'F' - 82.6' LT
PB107
- STA 52+56'F' - 53.6' RT
PB110
- STA 52+51'F' - 56.0' RT
LED B - 5 - 30' - 12' - C - SL119
- STA 1664+93'EB' - 28.5' LT
LED B - 5 - 30' - 12' - B/A - SL109
- STA 1667+03'EB' - 33.2' LT
LED B - 5 - 30' - 12' - A/B - SL110
- 1-2" T.W.O.*1
- STA 1667+09'EB' - 33.4' LT
PB106
- STA 50+63'F' - 75.9' LT
PB104
- STA 50+78'F' - 59.7' RT
PB101
- STA 50+72'F' - 55' RT
PB100
- STA 50+71'F' - 70.9' RT
CB100
- 2-3" T.W.O.
- STA 50+61'F' - 59.2' LT
LED B - 5 - 30' - 12' - A - SL100
- STA 1668+79'EB' - 17.5' LT
LED B - 5 - 30' - 12' - C/D - SL111
- STA 1668+62'EB' - 15.8' LT
PB111
- STA 50+69'F' - 11.9' RT
PB103
- 1-2" T.W.O.*2
- 1-2" T.W.O.*3
- 2-3" T.W.O.*4
- 2-3" T.W.O.*5
- 2-3" T.W.O.*6
- 2-3" T.W.O.*7
- 2-3" T.W.O.*8
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- 2-3" T.W.O.*11
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- 2-3" T.W.O.*200
- 2-3" T.W

HIGHWAY LIGHTING USH 18/151 & CTH F DANE COUNTY	
LIGHTING NO. L13-0879	
DESIGNER: KL ENGINEERING, INC.	
DATE: 08-01-2025	SHEET 4 OF 8

KEYED NOTES:

- ① INSTALL CONDUIT VIA DIRECTIONAL BORE
- ② ROCK TRENCHING MAY BE REQUIRED FOR CONDUIT INSTALLATION TO PROPER BURIAL DEPTH

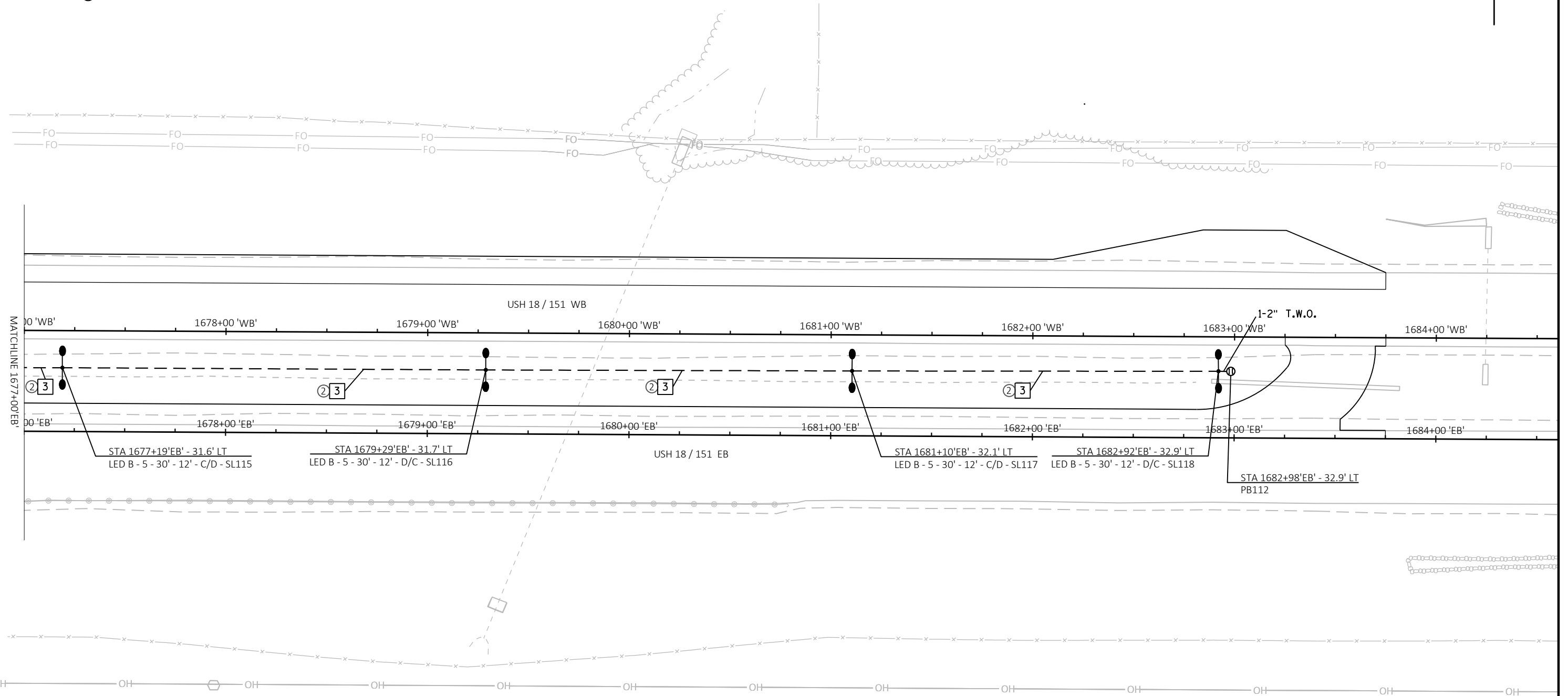


3	=	CB100	1	2"
		C	2 #6	1 #6
		D	2 #6	-- --

HIGHWAY LIGHTING US 18/151 & CTH F DANE COUNTY	
LIGHTING NO. L13-0879	
DESIGNER: KL ENGINEERING, INC.	
DATE: 08-01-2025	SHEET 5 OF 8

KEYED NOTES:

- ① INSTALL CONDUIT VIA DIRECTIONAL BORE
- ② ROCK TRENCHING MAY BE REQUIRED FOR CONDUIT INSTALLATION TO PROPER BURIAL DEPTH



3	=	CB100	1	2"
		C	2 #6	1 #6
		D	2 #6	-- --

HIGHWAY LIGHTING
USH 18/151 & CTH F
DANE COUNTY

LIGHTING NO. L13-0879

DESIGNER: KL ENGINEERING, INC.

DATE: 08-01-2025

SHEET 6 OF 8

PROJECT NO: 1204-05-77

HWY: CTH F

COUNTY: DANE

LIGHTING PLANS

SHEET

28

E

FILE NAME : G:\WDOTSW\24041-001 SWR ELECTRICAL DESIGN\LIGHTING PROJECTS\1204-05-07_CTH F INTERSECTION_RCUT LIGHTING\CIVIL 3D\SHEETSPLAN\023601-LP_ALT CONDUIT ROUTING.DWG PLOT DATE : 7/28/2025 11:25 AM

PLOT BY : KL ENGINEERING

PLOT NAME :

PLOT SCALE : 1 IN:50 FT

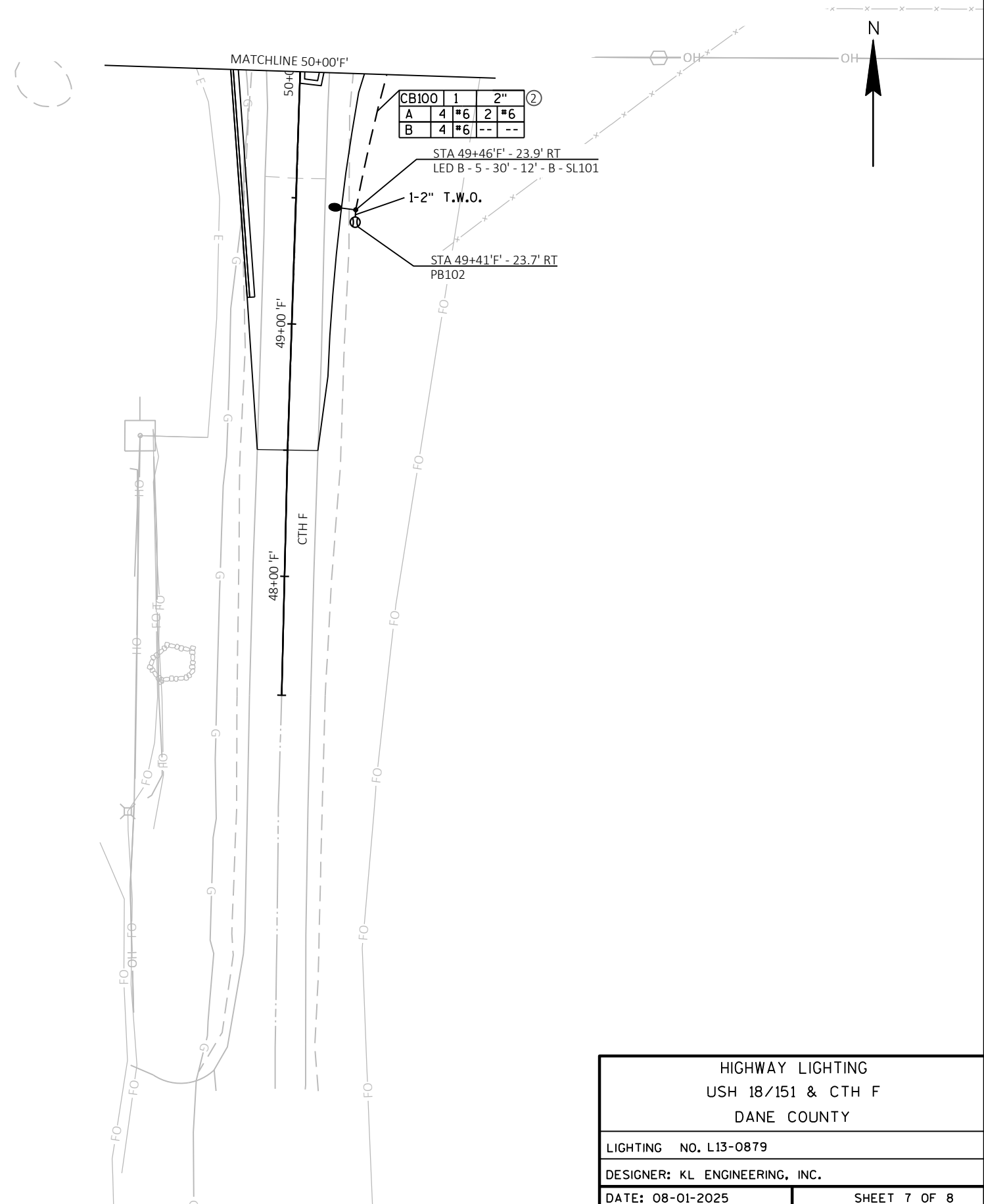
WISDOT/CADDs SHEET 42

2

2

KEYED NOTES:

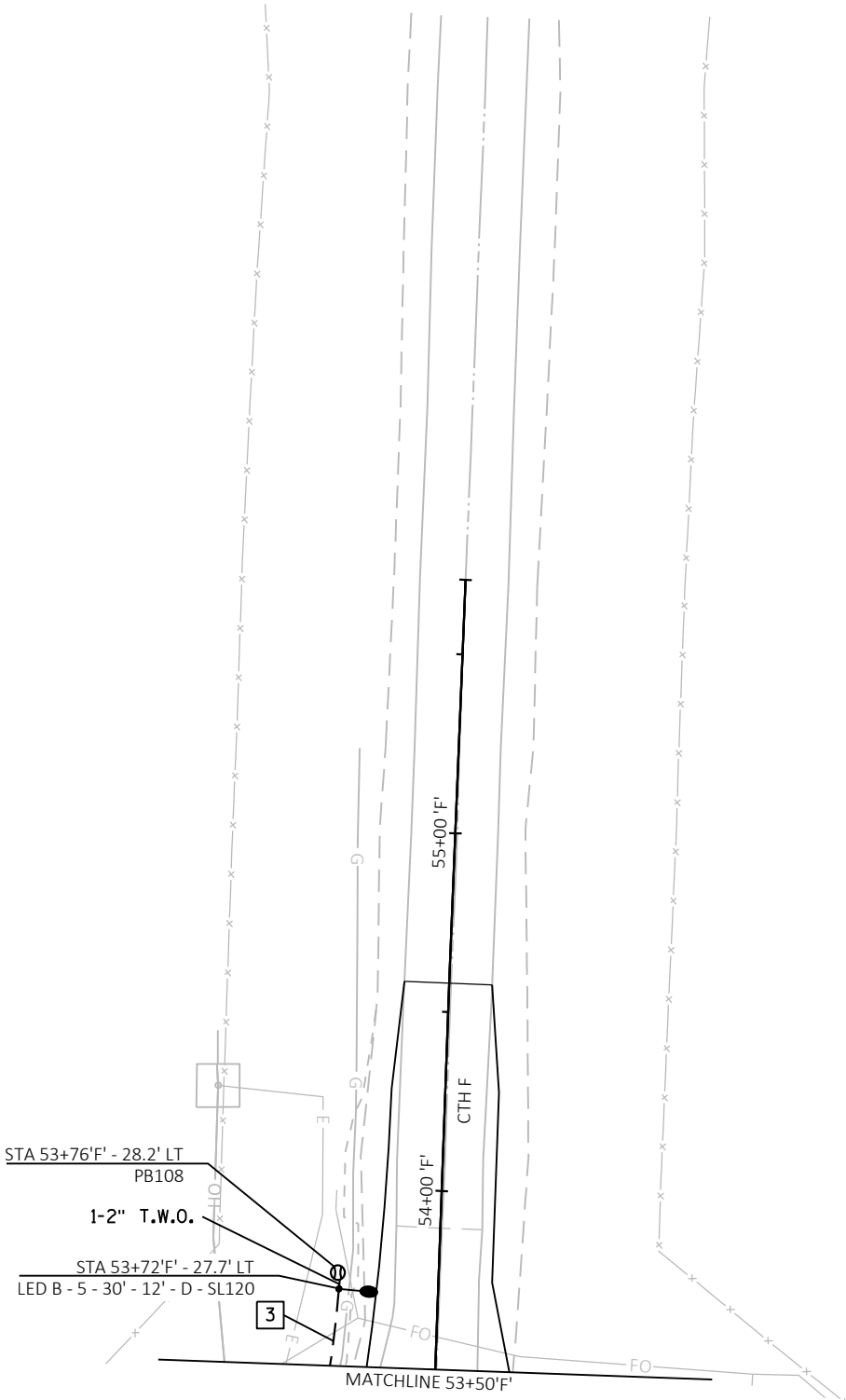
- ① INSTALL CONDUIT VIA DIRECTIONAL BORE
- ② ROCK TRENCHING MAY BE REQUIRED FOR CONDUIT INSTALLATION TO PROPER BURIAL DEPTH



HIGHWAY LIGHTING USH 18/151 & CTH F DANE COUNTY	
LIGHTING NO. L13-0879	
DESIGNER: KL ENGINEERING, INC.	
DATE: 08-01-2025	SHEET 7 OF 8

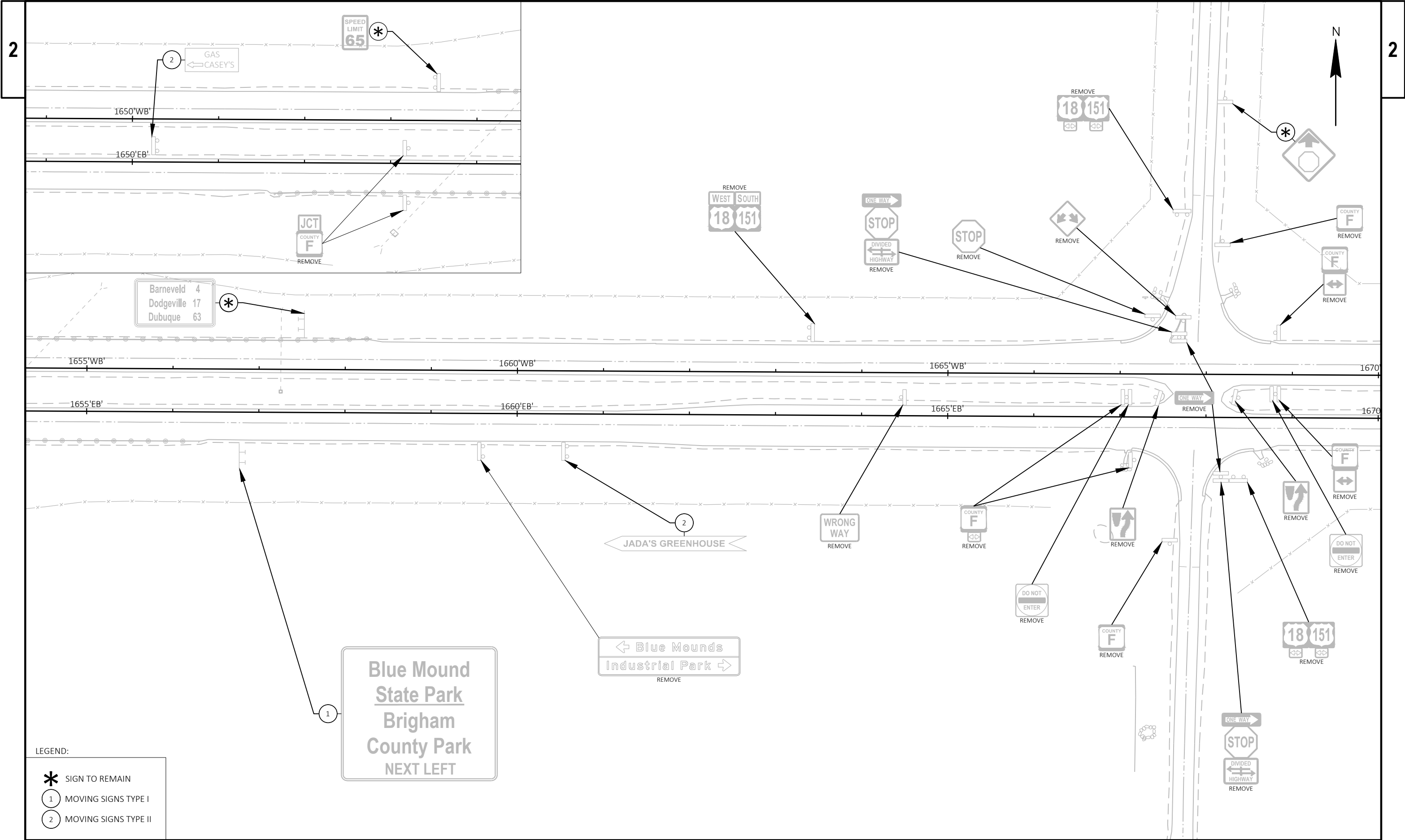
KEYED NOTES:

- ① INSTALL CONDUIT VIA DIRECTIONAL BORE
- ② ROCK TRENCHING MAY BE REQUIRED FOR CONDUIT INSTALLATION TO PROPER BURIAL DEPTH



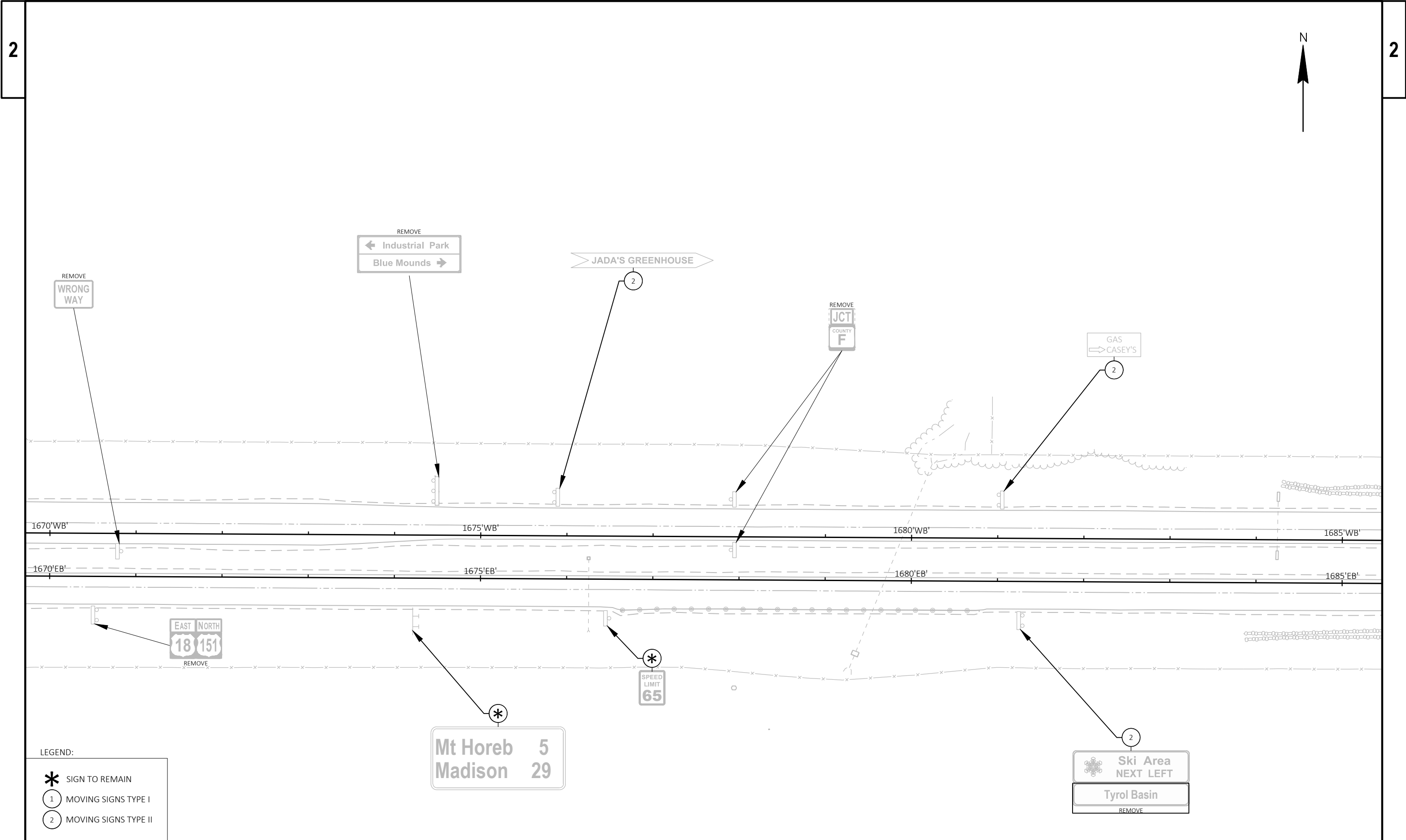
3	=				CB100	1	2"
	C	2	#6	1	#6		
	D	2	#6	--	--		

HIGHWAY LIGHTING	
USH 18/151 & CTH F	
DANE COUNTY	
LIGHTING NO.	L13-0879
DESIGNER: KL ENGINEERING, INC.	
DATE: 08-01-2025	SHEET 8 OF 8



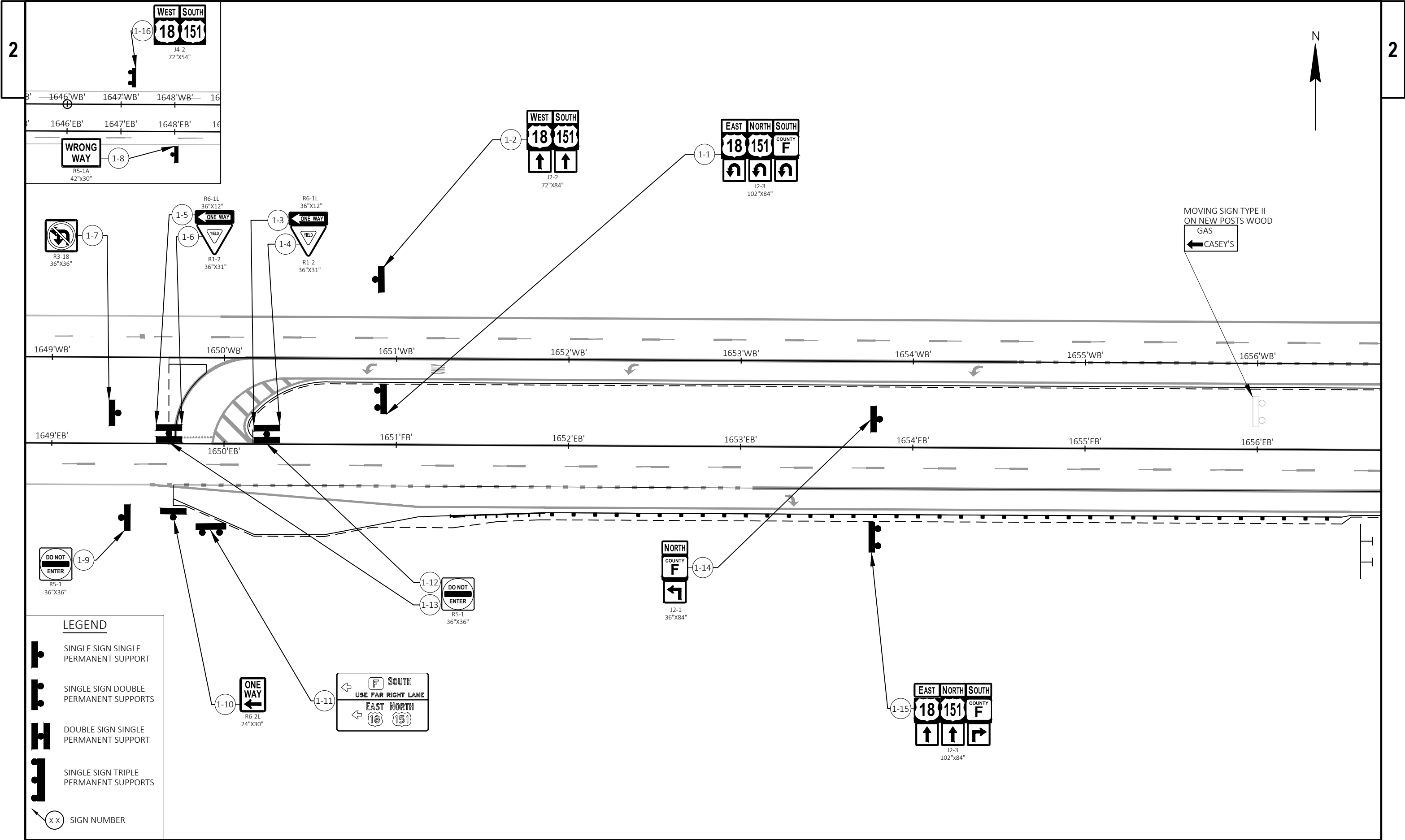
LEGEND:

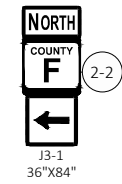
- * SIGN TO REMAIN
- 1 MOVING SIGNS TYPE I
- 2 MOVING SIGNS TYPE II



LEGEND:

- * SIGN TO REMAIN
- 1 MOVING SIGNS TYPE I
- 2 MOVING SIGNS TYPE II

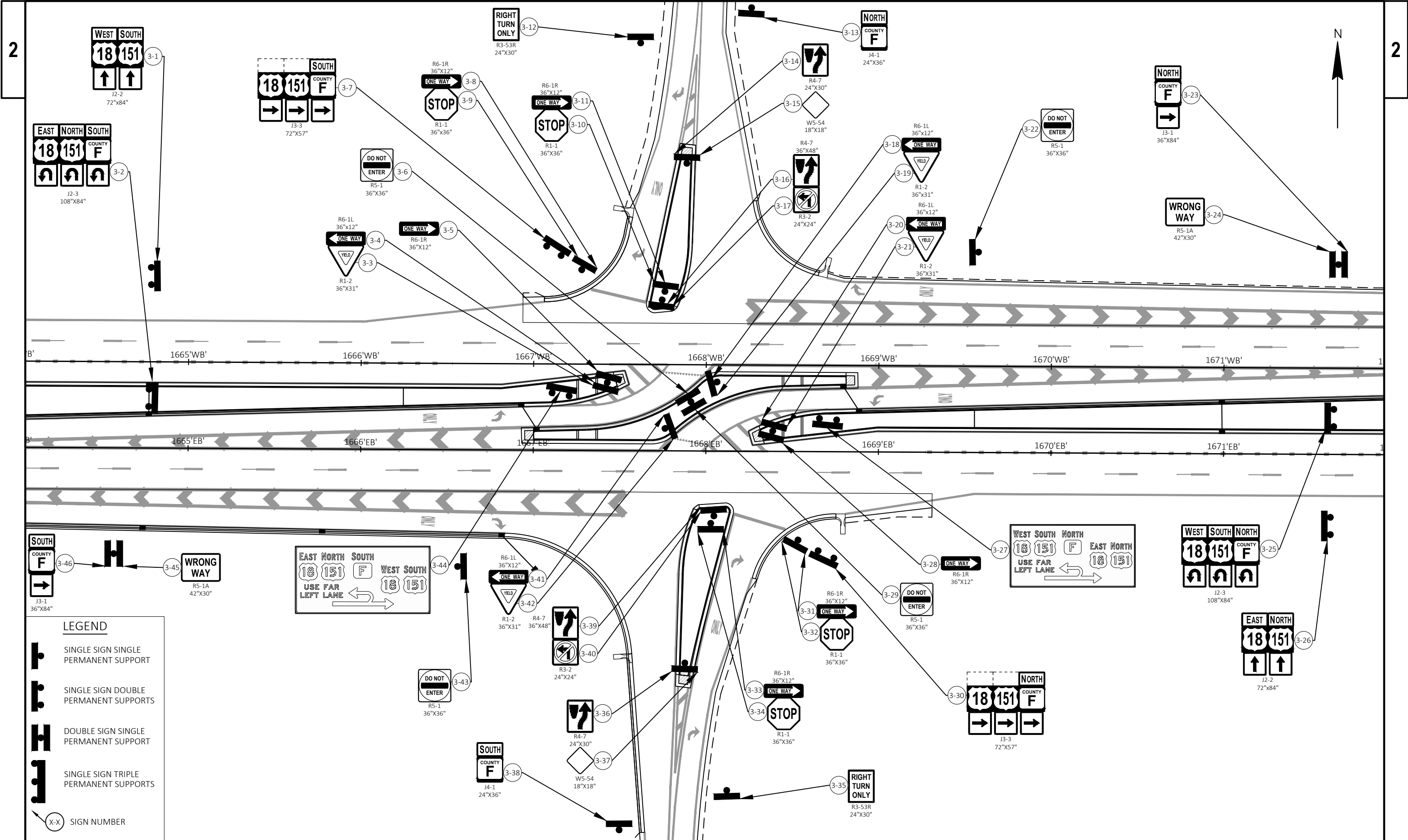




← Blue Mounds
Industrial Park →

JADA'S GREENHOUSE

X-X SIGN NUMBER



LEGEND

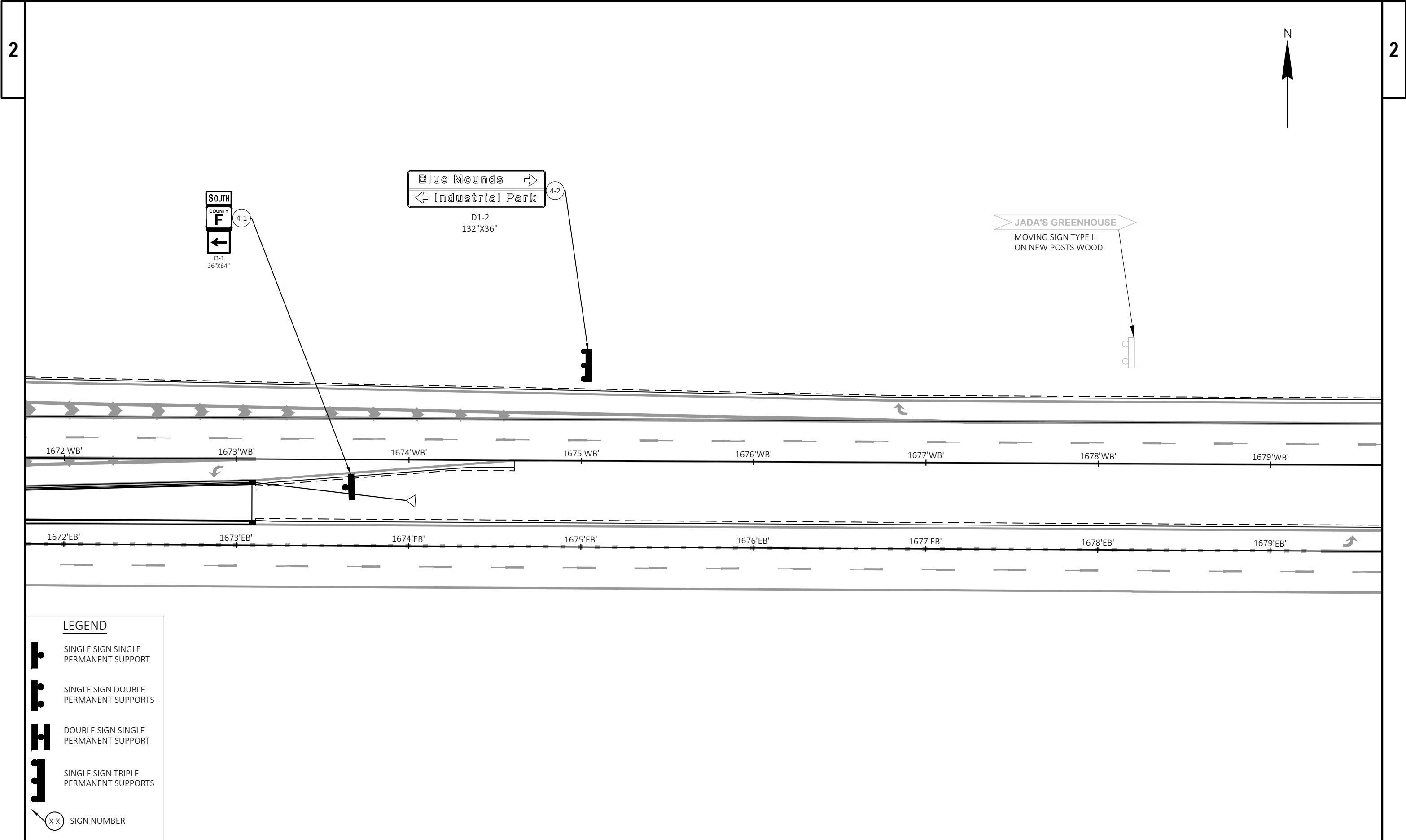
SINGLE SIGN SINGLE PERMANENT SUPPORT

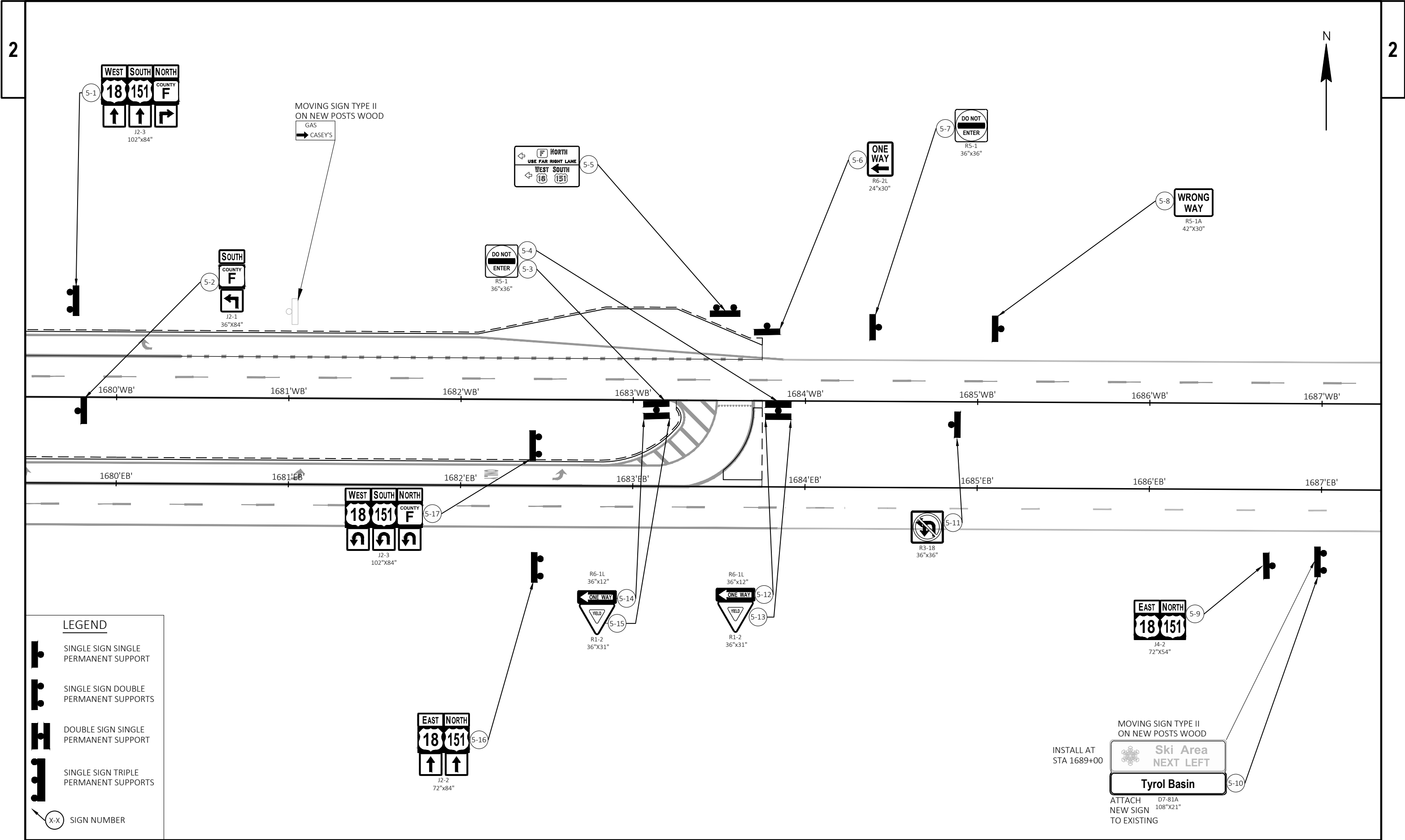
SINGLE SIGN DOUBLE PERMANENT SUPPORTS

DOUBLE SIGN SINGLE PERMANENT SUPPORT

SINGLE SIGN TRIPLE PERMANENT SUPPORTS

SIGN NUMBER





LEGEND

SINGLE SIGN SINGLE
PERMANENT SUPPORT

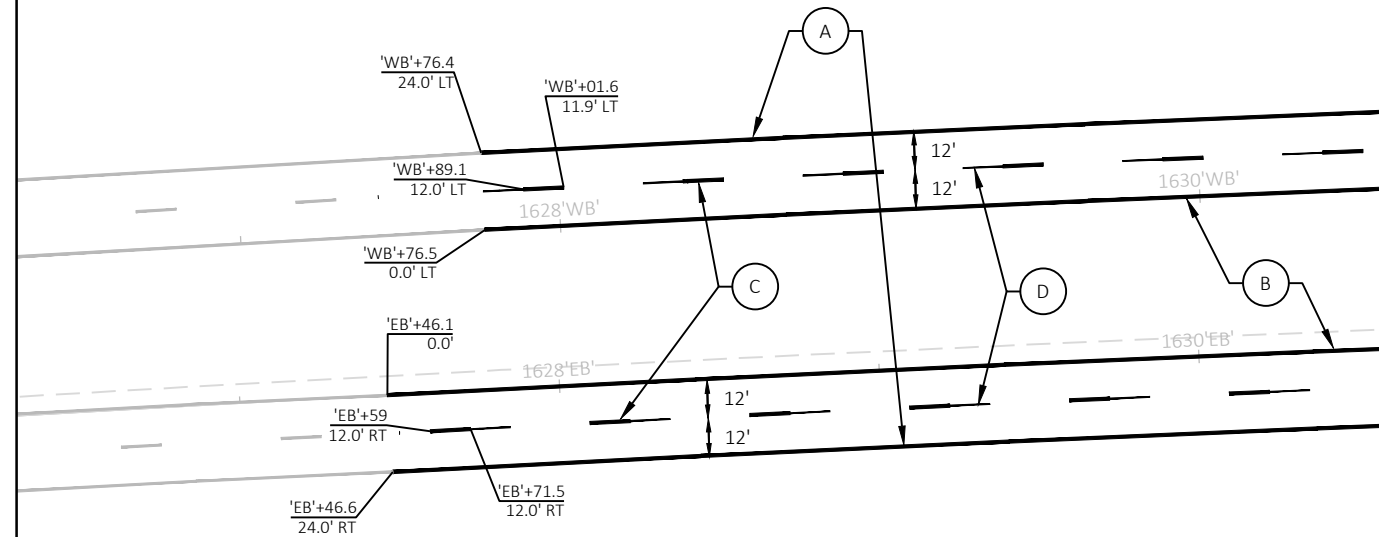
SINGLE SIGN DOUBLE
PERMANENT SUPPORTS

DOUBLE SIGN SINGLE
PERMANENT SUPPORT

SINGLE SIGN TRIPLE
PERMANENT SUPPORTS

SIGN NUMBER

2

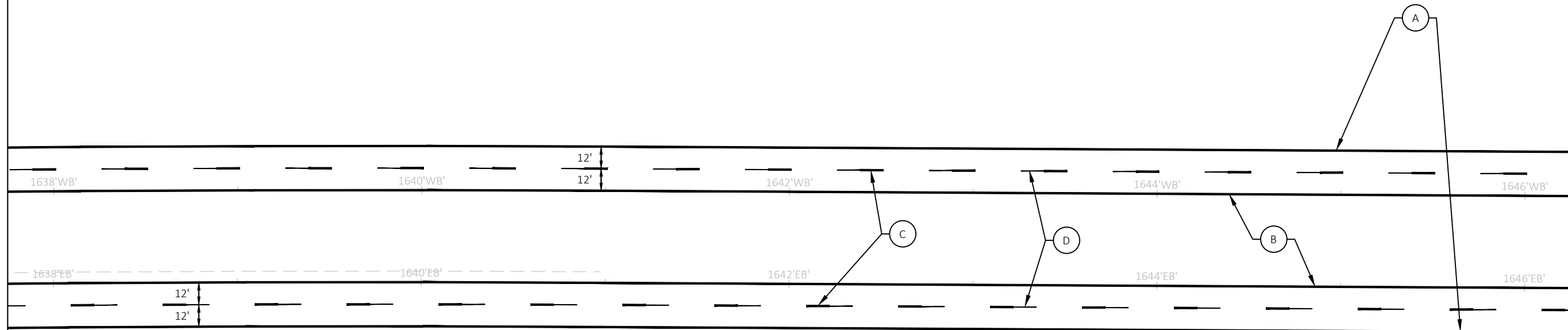


CONTINUE MARKING TO STA.
1637+75 'EB'

- | | | | |
|----------|---|----------|--|
| A | MARKING LINE GROOVED WET REF EPOXY 6-INCH, WHITE | I | MARKING YIELD LINE EPOXY 18-INCH, WHITE |
| B | MARKING LINE GROOVED WET REF EPOXY 6-INCH, YELLOW | J | MARKING STOP LINE EPOXY 18-INCH, WHITE |
| C | MARKING LINE GROOVED PERMANENT 6" TAPE, 12.5' SEG., 37.5' GAP | K | MARKING LINE EPOXY 4-INCH, WHITE |
| D | MARKING LINE GROOVED BLACK EPOXY 6-INCH, 12.5' SEG., 37.5' GAP | L | MARKING LINE EPOXY 4-INCH, DOUBLE YELLOW |
| E | MARKING LINE GROOVED PERMANENT TAPE 10-INCH, WHITE, 3' SEG., 9' GAP | M | MARKING ARROW EPOXY, TYPE 2 |
| F | MARKING LINE GROOVED PERMANENT TAPE 10-INCH, WHITE | N | MARKING WORD EPOXY |
| G | MARKING CHEVRON EPOXY 12-INCH, WHITE, 25-FT SPACING | O | MARKING CURB EPOXY, YELLOW |
| H | MARKING DIAGONAL EPOXY 12-INCH, YELLOW, 10-FT SPACING | P | MARKING ISLAND NOSE EPOXY, YELLOW |
| | | Q | MARKING LINE EPOXY 6-INCH, YELLOW |



CONTINUE MARKING TO
1630+60 'EB'



MATCH LINE 1646+25 'EB'

PROJECT NO:	1204-05-77
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HWY: USH 18/151

COUNTY: DANE

PAVEMENT MARKING

SHEET

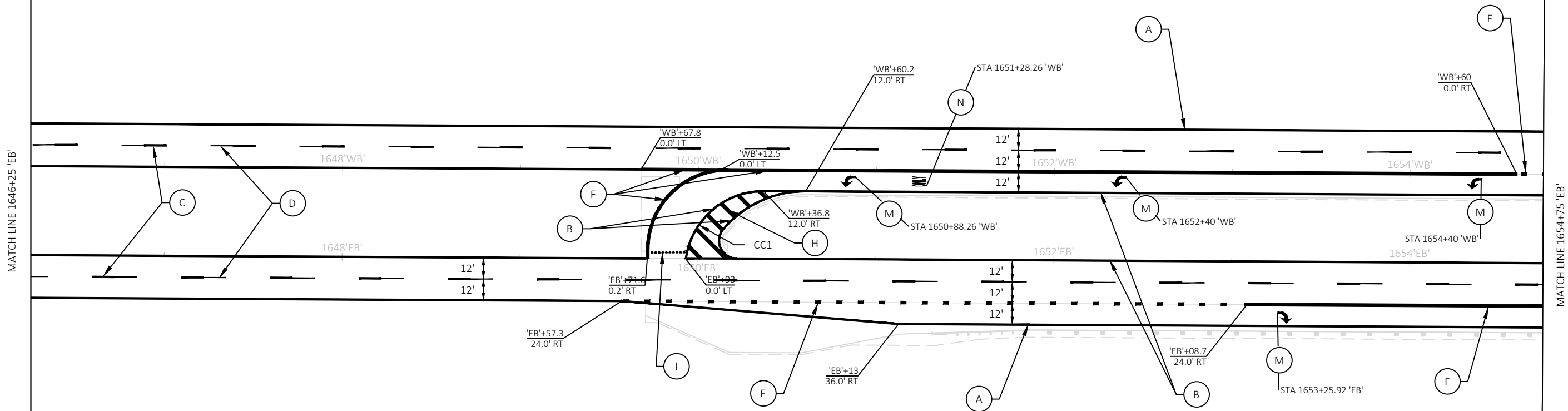
38

11

2

2

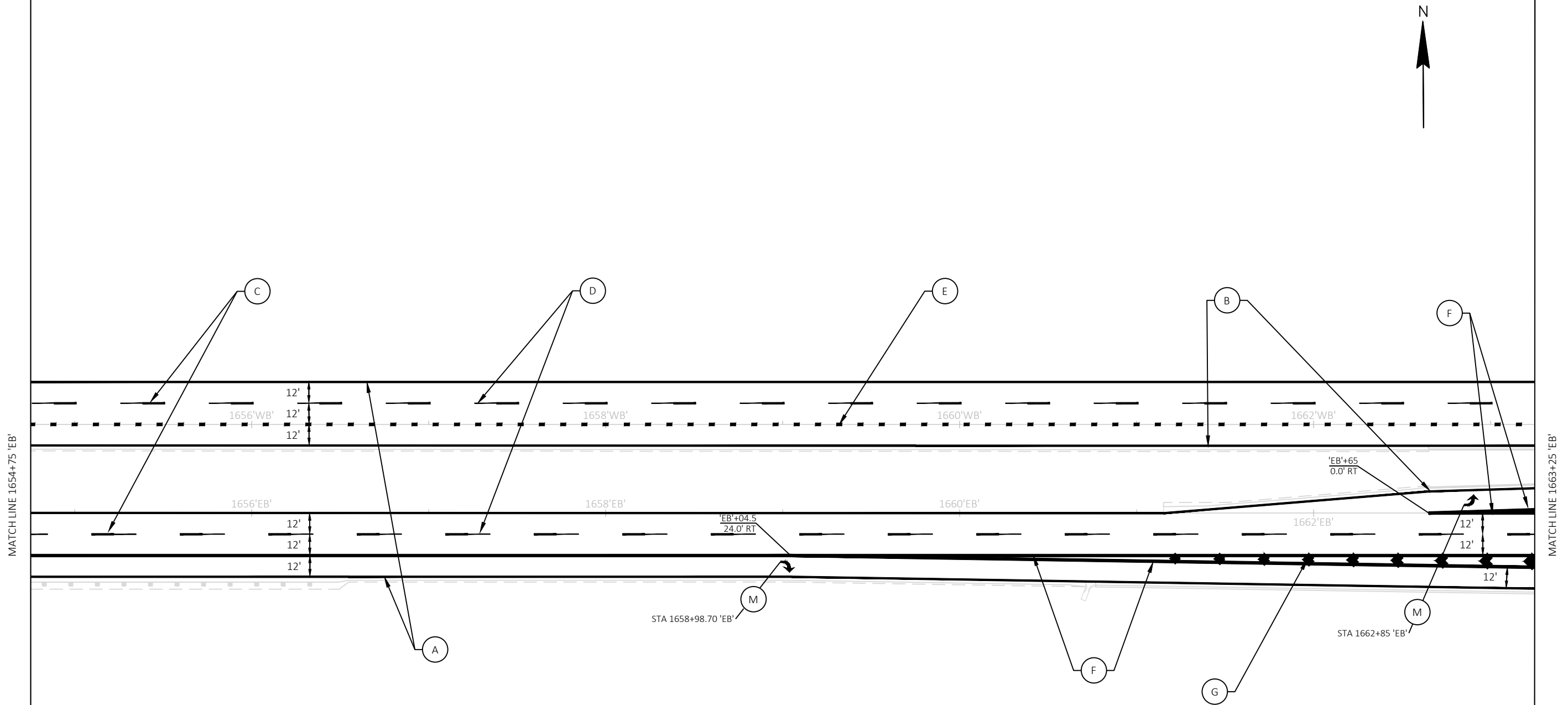
RADIUS POINT TABLE			
CURVE	STATION AND OFFSET	RADIUS	COORDINATES
CC1	STA 1650+36.81 'EB'	44.0 FT	Y= 459616.10
	5.75 RT		X= 701664.48
CC2	STA 0+81.59 'CTH F SB RT Gore'	697.2 FT	Y= 459925.05
	697.3 LT		X= 702728.14
CC3	STA 1667+31.6 'WB'	57.2 FT	Y= 459696.10
	33.45 LT		X= 703359.73
CC4	STA 1668+52.97 'EB'	75.3 FT	Y= 459560.60
	51.4 RT		X= 703480.37
CC5	STA 1+59.38 'CTH F NB RT Gore'	669.1 FT	Y= 459349.48
	669.3 RT		X= 704096.22
CC6	STA 1683+50.80 'WB'	38.6 FT	Y= 459654.15
	0.3 LT		X= 704978.72



- | | | | |
|---|---|---|--|
| A | MARKING LINE GROOVED WET REF EPOXY 6-INCH, WHITE | I | MARKING YIELD LINE EPOXY 18-INCH, WHITE |
| B | MARKING LINE GROOVED WET REF EPOXY 6-INCH, YELLOW | J | MARKING STOP LINE EPOXY 18-INCH, WHITE |
| C | MARKING LINE GROOVED PERMANENT 6" TAPE, 12.5' SEG., 37.5' GAP | K | MARKING LINE EPOXY 4-INCH, WHITE |
| D | MARKING LINE GROOVED BLACK EPOXY 6-INCH, 12.5' SEG., 37.5' GAP | L | MARKING LINE EPOXY 4-INCH, DOUBLE YELLOW |
| E | MARKING LINE GROOVED PERMANENT TAPE 10-INCH, WHITE, 3' SEG., 9' GAP | M | MARKING ARROW EPOXY, TYPE 2 |
| F | MARKING LINE GROOVED PERMANENT TAPE 10-INCH, WHITE | N | MARKING WORD EPOXY |
| G | MARKING CHEVRON EPOXY 12-INCH, WHITE, 25-FT SPACING | O | MARKING CURB EPOXY, YELLOW |
| H | MARKING DIAGONAL EPOXY 12-INCH, YELLOW, 10-FT SPACING | P | MARKING ISLAND NOSE EPOXY, YELLOW |
| | | Q | MARKING LINE EPOXY 6-INCH, YELLOW |

2

2 |



- | | | | |
|----------|---|----------|--|
| A | MARKING LINE GROOVED WET REF EPOXY 6-INCH, WHITE | I | MARKING YIELD LINE EPOXY 18-INCH, WHITE |
| B | MARKING LINE GROOVED WET REF EPOXY 6-INCH, YELLOW | J | MARKING STOP LINE EPOXY 18-INCH, WHITE |
| C | MARKING LINE GROOVED PERMANENT 6" TAPE, 12.5' SEG., 37.5' GAP | K | MARKING LINE EPOXY 4-INCH, WHITE |
| D | MARKING LINE GROOVED BLACK EPOXY 6-INCH, 12.5' SEG., 37.5' GAP | L | MARKING LINE EPOXY 4-INCH, DOUBLE YELLOW |
| E | MARKING LINE GROOVED PERMANENT TAPE 10-INCH, WHITE, 3' SEG., 9' GAP | M | MARKING ARROW EPOXY, TYPE 2 |
| F | MARKING LINE GROOVED PERMANENT TAPE 10-INCH, WHITE | N | MARKING WORD EPOXY |
| G | MARKING CHEVRON EPOXY 12-INCH, WHITE, 25-FT SPACING | O | MARKING CURB EPOXY, YELLOW |
| H | MARKING DIAGONAL EPOXY 12-INCH, YELLOW, 10-FT SPACING | P | MARKING ISLAND NOSE EPOXY, YELLOW |
| | | Q | MARKING LINE EPOXY 6-INCH, YELLOW |

PROJECT NO:	1204-05-77
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HWY: USH 18/151

COUNTY: DANE

PAVEMENT MARKING

SHEET

10

DETAIL A

MATCH LINE 1663+25 'FB'

MATCH LINE 1672+00 'EB'

RADIUS POINT TABLE			
CURVE	STATION AND OFFSET	RADIUS	COORDINATES
CC1	STA 1650+36.81 'EB' 5.75 RT	44.0 FT	Y= 459616.1 X= 701664.4
CC2	STA 0+81.59 'CTH F SB RT Gore' 697.3 LT	697.2 FT	Y= 459925.0 X= 702728.1
CC3	STA 1667+31.6 'WB' 33.45 LT	57.2 FT	Y= 459696.1 X= 703359.7
CC4	STA 1668+52.97 'EB' 51.4 RT	75.3 FT	Y= 459560.6 X= 703480.3
CC5	STA 1+59.38 'CTH F NB RT Gore' 669.3 RT	669.1 FT	Y= 459349.4 X= 704096.2
CC6	STA 1683+50.80 'WB' 0.3 LT	38.6 FT	Y= 459654.1 X= 704978.7



2

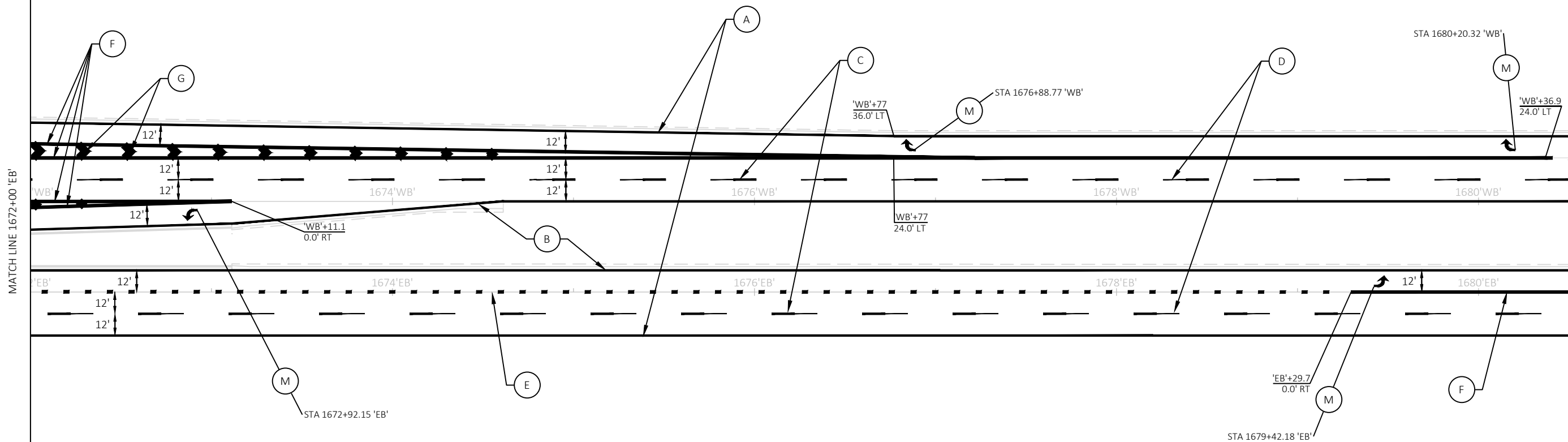
- | | | | |
|----------|---|----------|--|
| A | MARKING LINE GROOVED WET REF EPOXY 6-INCH, WHITE | I | MARKING YIELD LINE EPOXY 18-INCH, WHITE |
| B | MARKING LINE GROOVED WET REF EPOXY 6-INCH, YELLOW | J | MARKING STOP LINE EPOXY 18-INCH, WHITE |
| C | MARKING LINE GROOVED PERMANENT 6" TAPE, 12.5' SEG., 37.5' GAP | K | MARKING LINE EPOXY 4-INCH, WHITE |
| D | MARKING LINE GROOVED BLACK EPOXY 6-INCH, 12.5' SEG., 37.5' GAP | L | MARKING LINE EPOXY 4-INCH, DOUBLE YELLOW |
| E | MARKING LINE GROOVED PERMANENT TAPE 10-INCH, WHITE, 3' SEG., 9' GAP | M | MARKING ARROW EPOXY, TYPE 2 |
| F | MARKING LINE GROOVED PERMANENT TAPE 10-INCH, WHITE | N | MARKING WORD EPOXY |
| G | MARKING CHEVRON EPOXY 12-INCH, WHITE, 25-FT SPACING | O | MARKING CURB EPOXY, YELLOW |
| H | MARKING DIAGONAL EPOXY 12-INCH, YELLOW, 10-FT SPACING | P | MARKING ISLAND NOSE EPOXY, YELLOW |
| | | Q | MARKING LINE EPOXY 6-INCH, YELLOW |

MATCH LINE 49+00 'F'

MATCH LINE 49+00 'F'

E

WISDOT/CADDS SHEET 42



- | | |
|---|--|
| (A) MARKING LINE GROOVED WET REF EPOXY 6-INCH, WHITE | (I) MARKING YIELD LINE EPOXY 18-INCH, WHITE |
| (B) MARKING LINE GROOVED WET REF EPOXY 6-INCH, YELLOW | (J) MARKING STOP LINE EPOXY 18-INCH, WHITE |
| (C) MARKING LINE GROOVED PERMANENT 6" TAPE, 12.5' SEG., 37.5' GAP | (K) MARKING LINE EPOXY 4-INCH, WHITE |
| (D) MARKING LINE GROOVED BLACK EPOXY 6-INCH, 12.5' SEG., 37.5' GAP | (L) MARKING LINE EPOXY 4-INCH, DOUBLE YELLOW |
| (E) MARKING LINE GROOVED PERMANENT TAPE 10-INCH, WHITE, 3' SEG., 9' GAP | (M) MARKING ARROW EPOXY, TYPE 2 |
| (F) MARKING LINE GROOVED PERMANENT TAPE 10-INCH, WHITE | (N) MARKING WORD EPOXY |
| (G) MARKING CHEVRON EPOXY 12-INCH, WHITE, 25-FT SPACING | (O) MARKING CURB EPOXY, YELLOW |
| (H) MARKING DIAGONAL EPOXY 12-INCH, YELLOW, 10-FT SPACING | (P) MARKING ISLAND NOSE EPOXY, YELLOW |
| | (Q) MARKING LINE EPOXY 6-INCH, YELLOW |

PROJECT NO: 1204-05-77

HWY: USH 18/151

COUNTY: DANE

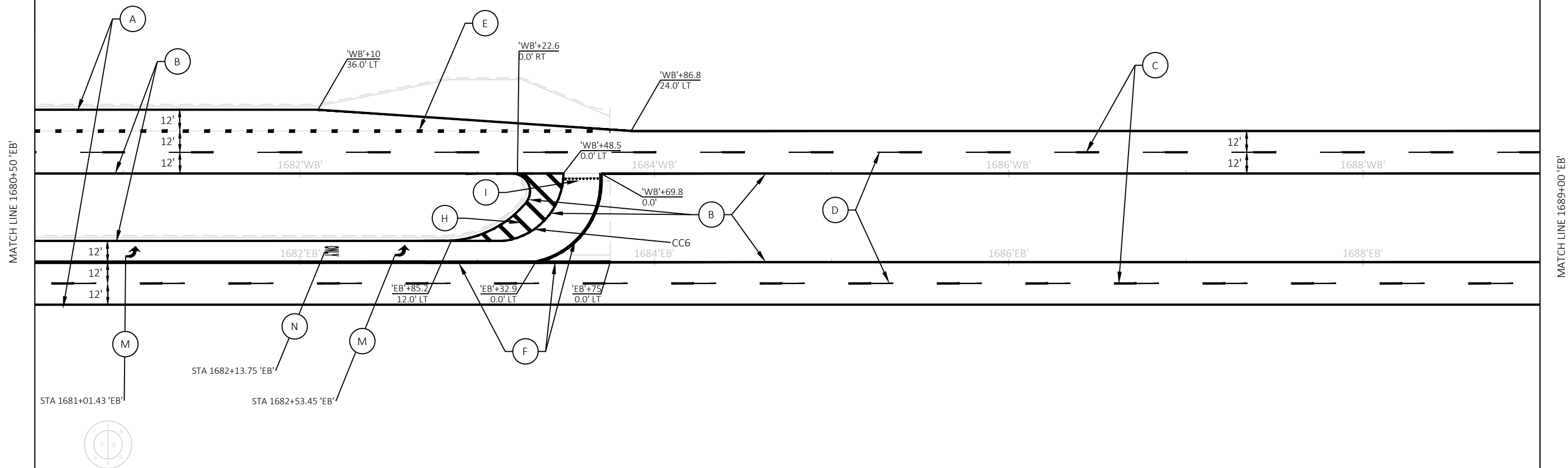
PAVEMENT MARKING

SHEET

42

E

RADIUS POINT TABLE			
CURVE	STATION AND OFFSET	RADIUS	COORDINATES
CC1	STA 1650+36.81 'EB'	44.0 FT	Y= 459616.10
	5.75 RT		X= 701664.48
CC2	STA 0+81.59 'CTH F SB RT Gore'	697.2 FT	Y= 459925.05
	697.3 LT		X= 702728.14
CC3	STA 1667+31.6 'WB'	57.2 FT	Y= 459696.10
	33.45 LT		X= 703359.73
CC4	STA 1668+52.97 'EB'	75.3 FT	Y= 459560.60
	51.4 RT		X= 703480.37
CC5	STA 1+59.38 'CTH F NB RT Gore'	669.1 FT	Y= 459349.48
	669.3 RT		X= 704096.22
CC6	STA 1683+50.80 'WB'	38.6 FT	Y= 459654.15
	0.3 LT		X= 704978.72



- | | | | |
|---|---|---|--|
| A | MARKING LINE GROOVED WET REF EPOXY 6-INCH, WHITE | I | MARKING YIELD LINE EPOXY 18-INCH, WHITE |
| B | MARKING LINE GROOVED WET REF EPOXY 6-INCH, YELLOW | J | MARKING STOP LINE EPOXY 18-INCH, WHITE |
| C | MARKING LINE GROOVED PERMANENT 6" TAPE, 12.5' SEG., 37.5' GAP | K | MARKING LINE EPOXY 4-INCH, WHITE |
| D | MARKING LINE GROOVED BLACK EPOXY 6-INCH, 12.5' SEG., 37.5' GAP | L | MARKING LINE EPOXY 4-INCH, DOUBLE YELLOW |
| E | MARKING LINE GROOVED PERMANENT TAPE 10-INCH, WHITE, 3' SEG., 9' GAP | M | MARKING ARROW EPOXY, TYPE 2 |
| F | MARKING LINE GROOVED PERMANENT TAPE 10-INCH, WHITE | N | MARKING WORD EPOXY |
| G | MARKING CHEVRON EPOXY 12-INCH, WHITE, 25-FT SPACING | O | MARKING CURB EPOXY, YELLOW |
| H | MARKING DIAGONAL EPOXY 12-INCH, YELLOW, 10-FT SPACING | P | MARKING ISLAND NOSE EPOXY, YELLOW |
| | | Q | MARKING LINE EPOXY 6-INCH, YELLOW |

PROJECT NO: 1204-05-77

HWY: USH 18/151

COUNTY: DANE

PAVEMENT MARKING

SHEET

43

E

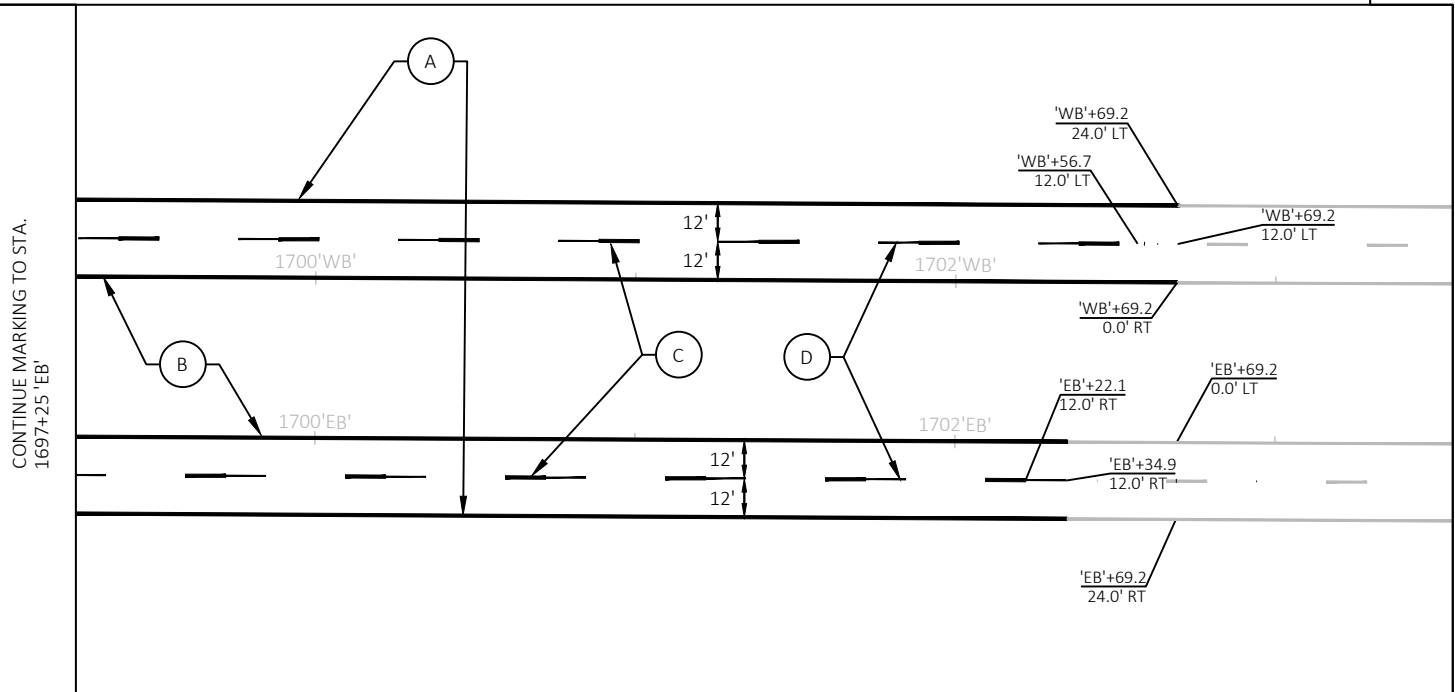


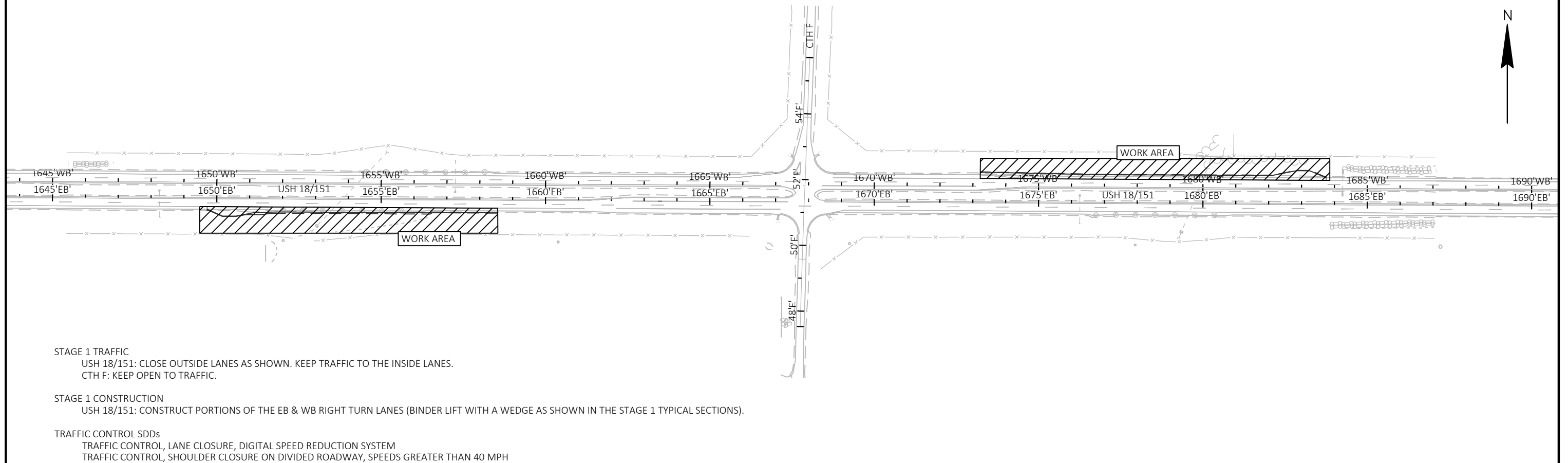
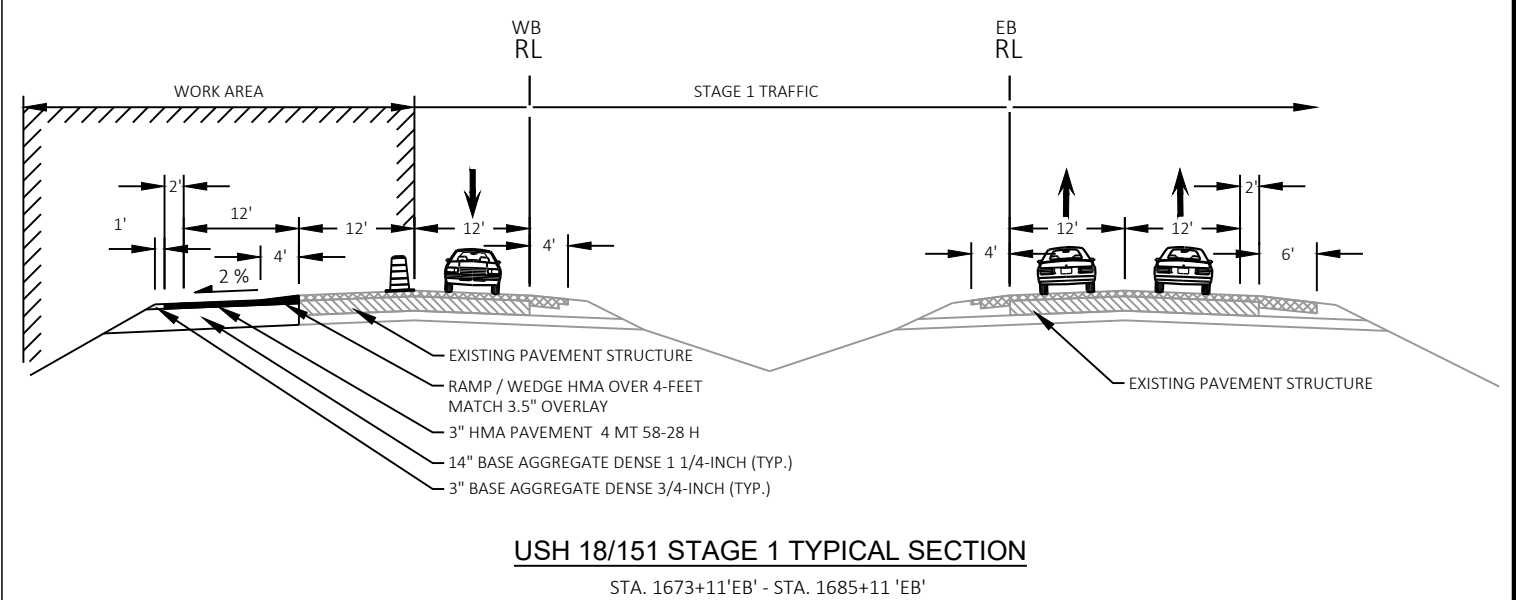
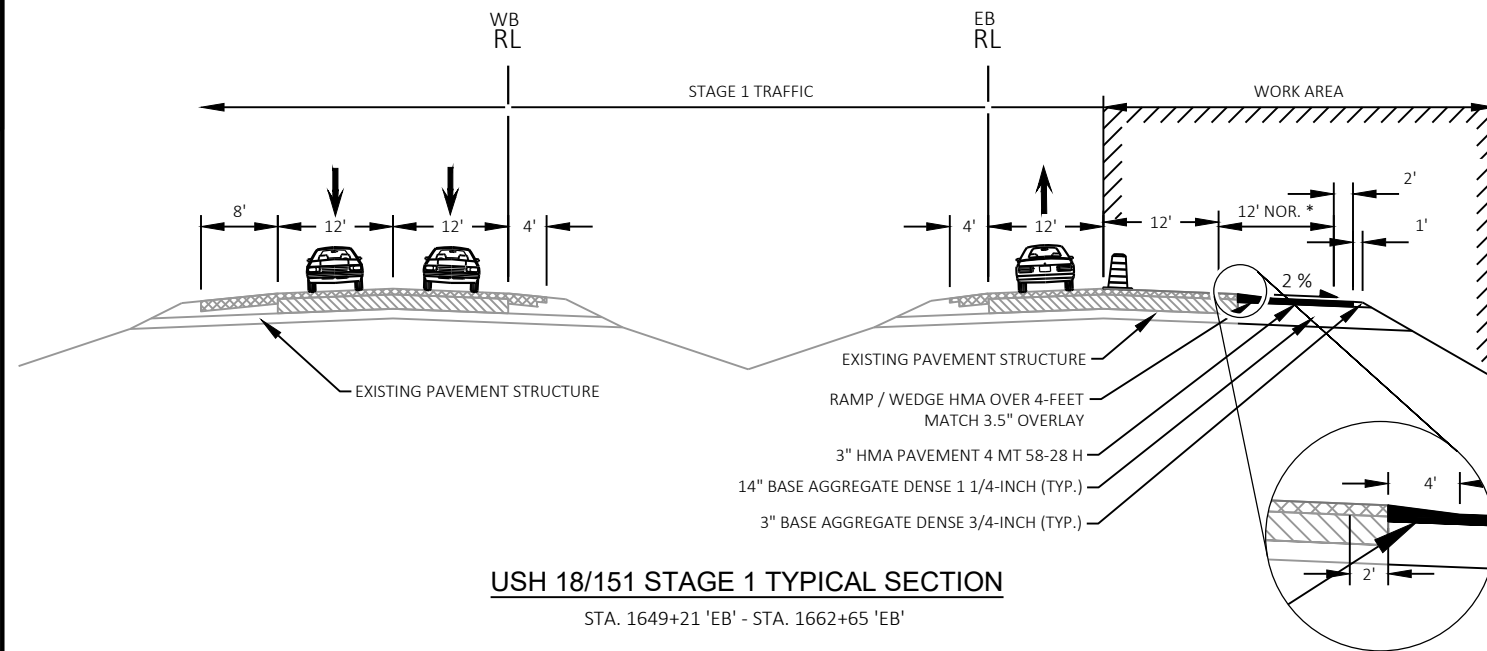
MATCH LINE 1689+00 'EB'

CONTINUE MARKING TO STA.
1699+25 'EB'

- | | |
|---|--|
| (A) MARKING LINE GROOVED WET REF EPOXY 6-INCH, WHITE | (I) MARKING YIELD LINE EPOXY 18-INCH, WHITE |
| (B) MARKING LINE GROOVED WET REF EPOXY 6-INCH, YELLOW | (J) MARKING STOP LINE EPOXY 18-INCH, WHITE |
| (C) MARKING LINE GROOVED PERMANENT 6" TAPE, 12.5' SEG., 37.5' GAP | (K) MARKING LINE EPOXY 4-INCH, WHITE |
| (D) MARKING LINE GROOVED BLACK EPOXY 6-INCH, 12.5' SEG., 37.5' GAP | (L) MARKING LINE EPOXY 4-INCH, DOUBLE YELLOW |
| (E) MARKING LINE GROOVED PERMANENT TAPE 10-INCH, WHITE, 3' SEG., 9' GAP | (M) MARKING ARROW EPOXY, TYPE 2 |
| (F) MARKING LINE GROOVED PERMANENT TAPE 10-INCH, WHITE | (N) MARKING WORD EPOXY |
| (G) MARKING CHEVRON EPOXY 12-INCH, WHITE, 25-FT SPACING | (O) MARKING CURB EPOXY, YELLOW |
| (H) MARKING DIAGONAL EPOXY 12-INCH, YELLOW, 10-FT SPACING | (P) MARKING ISLAND NOSE EPOXY, YELLOW |
| | (Q) MARKING LINE EPOXY 6-INCH, YELLOW |

CONTINUE MARKING TO STA.
1697+25 'EB'

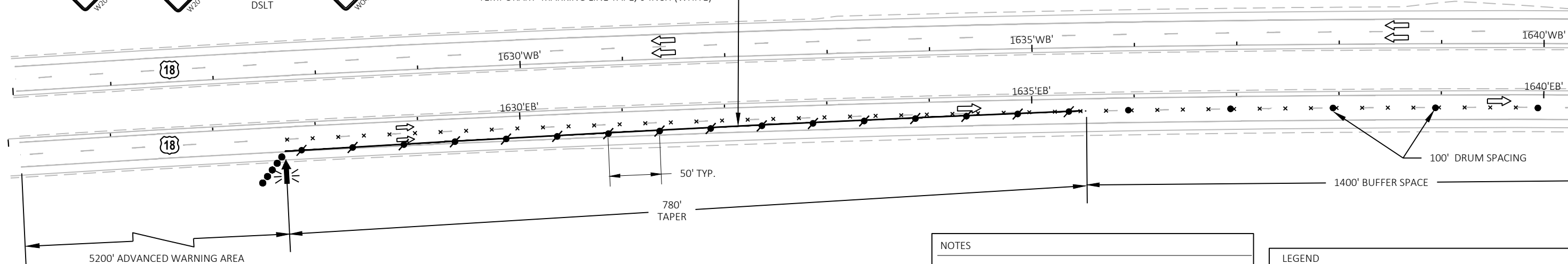




ADVANCED WARNING
PLACE SIGNS, DRUMS AND DIGITAL SPEED LIMIT TRAILER PER SDD
"TRAFFIC CONTROL, LANE CLOSURE, DIGITAL SPEED REDUCTION SYSTEM"



TEMPORARY MARKING LINE TAPE, 6-INCH (WHITE)

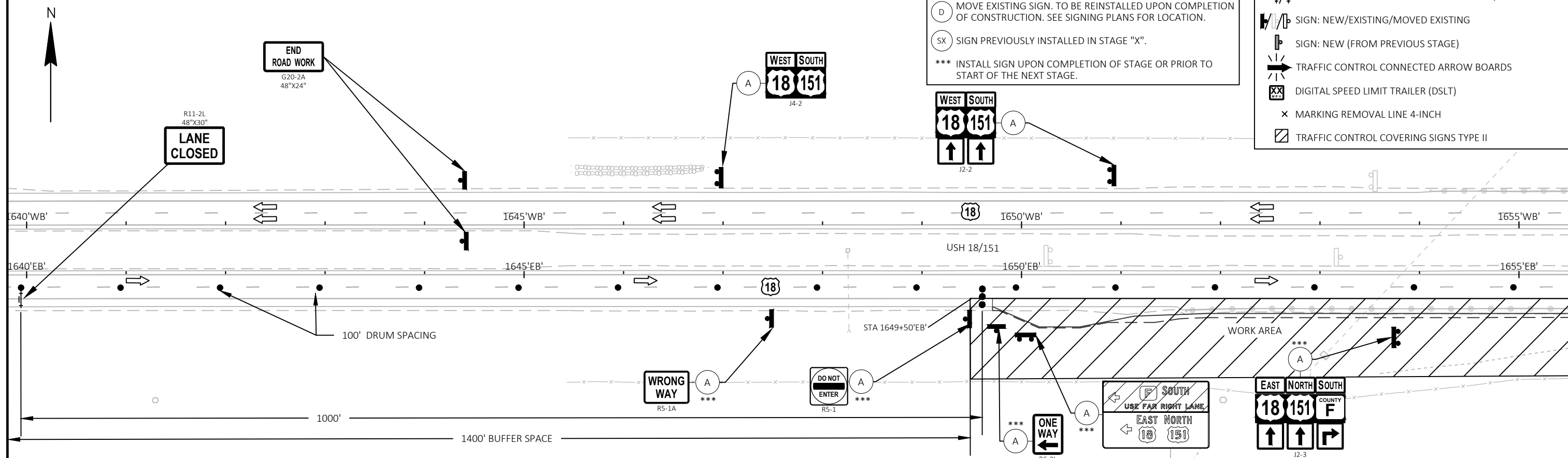


NOTES

- (A) PERMANENT SIGNS AND SUPPORTS. SEE SIGNING PLANS FOR TYPE, SIZE, AND LOCATION.
- (B) PERMANENT SIGN. SIGN TO BE MOVED IN LATER STAGE. SEE SIGNING PLANS FOR TYPE AND SIZE.
- (C) MOVED EXISTING SIGN.
- (D) MOVE EXISTING SIGN. TO BE REINSTALLED UPON COMPLETION OF CONSTRUCTION. SEE SIGNING PLANS FOR LOCATION.
- (SX) SIGN PREVIOUSLY INSTALLED IN STAGE "X".
- *** INSTALL SIGN UPON COMPLETION OF STAGE OR PRIOR TO START OF THE NEXT STAGE.

LEGEND

- TRAFFIC CONTROL DRUMS
- DRUM WITH TRAFFIC CONTROL WARNING LIGHTS TYPE C
- ≡ SIGN ON TEMPORARY SUPPORT
- ≡ TRAFFIC CONTROL BARRICADE TYPE III WITH / WITHOUT SIGN
- ≡ SIGN: NEW/EXISTING/MOVED EXISTING
- ≡ SIGN: NEW (FROM PREVIOUS STAGE)
- TRAFFIC CONTROL CONNECTED ARROW BOARDS
- XX DIGITAL SPEED LIMIT TRAILER (DSLT)
- x MARKING REMOVAL LINE 4-INCH
- ▨ TRAFFIC CONTROL COVERING SIGNS TYPE II



PROJECT NO: 1204-05-77

HWY: USH 18/151

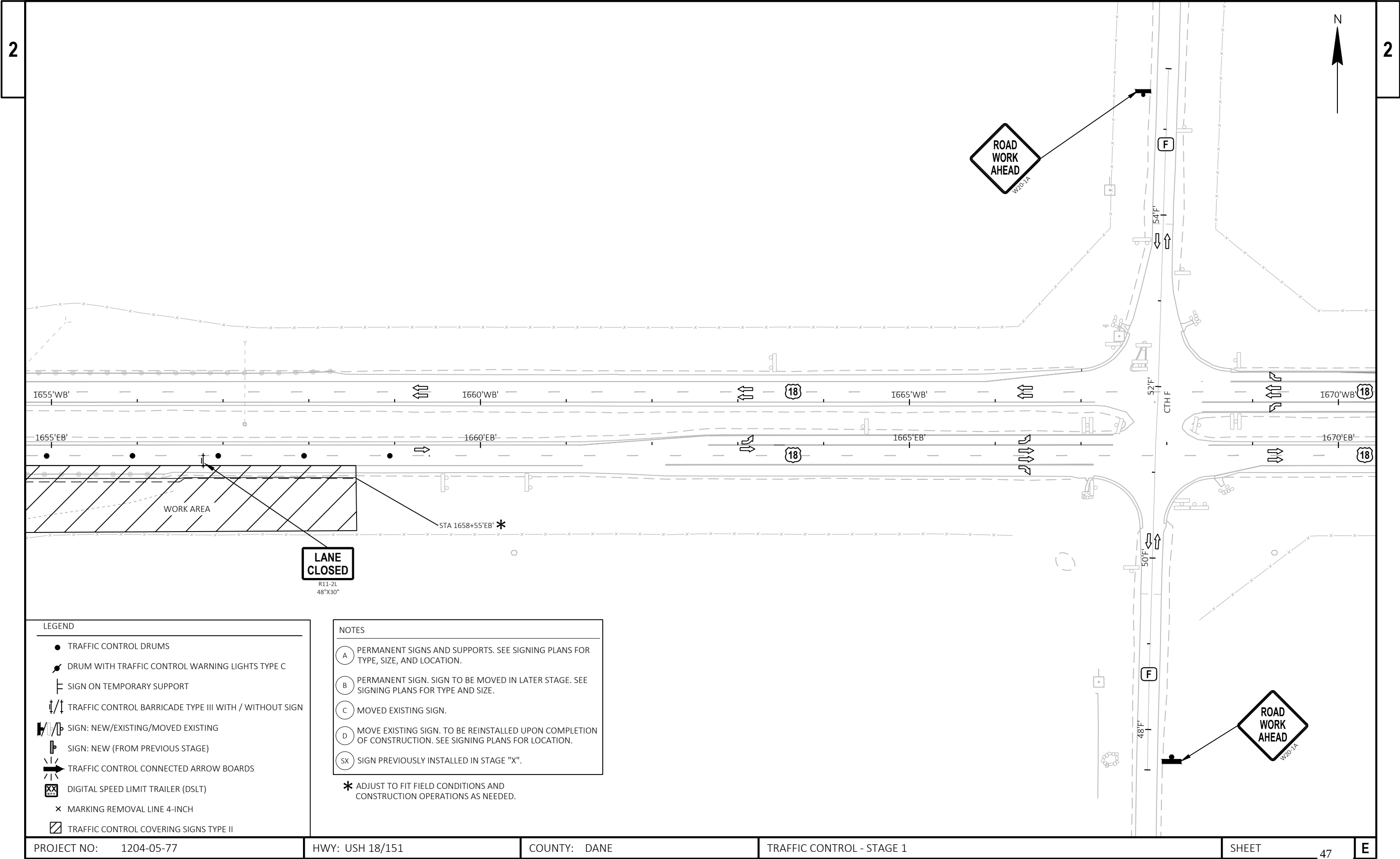
COUNTY: DANE

TRAFFIC CONTROL - STAGE 1

SHEET

46

E



LEGEND

- TRAFFIC CONTROL DRUMS
- ⦿ DRUM WITH TRAFFIC CONTROL WARNING LIGHTS TYPE C
- ├ SIGN ON TEMPORARY SUPPORT
- ⇄ TRAFFIC CONTROL BARRICADE TYPE III WITH / WITHOUT SIGN
- ⦿ SIGN: NEW/EXISTING/MOVED EXISTING
- └ SIGN: NEW (FROM PREVIOUS STAGE)
- ➡ TRAFFIC CONTROL CONNECTED ARROW BOARDS
- XX DIGITAL SPEED LIMIT TRAILER (DSLTT)
- × MARKING REMOVAL LINE 4-INCH
- ▣ TRAFFIC CONTROL COVERING SIGNS TYPE II

NOTES

- (A) PERMANENT SIGNS AND SUPPORTS. SEE SIGNING PLANS FOR TYPE, SIZE, AND LOCATION.
- (B) PERMANENT SIGN. SIGN TO BE MOVED IN LATER STAGE. SEE SIGNING PLANS FOR TYPE AND SIZE.
- (C) MOVED EXISTING SIGN.
- (D) MOVE EXISTING SIGN. TO BE REINSTALLED UPON COMPLETION OF CONSTRUCTION. SEE SIGNING PLANS FOR LOCATION.
- (SX) SIGN PREVIOUSLY INSTALLED IN STAGE "X".

* ADJUST TO FIT FIELD CONDITIONS AND CONSTRUCTION OPERATIONS AS NEEDED.

PROJECT NO: 1204-05-77

HWY: USH 18/151

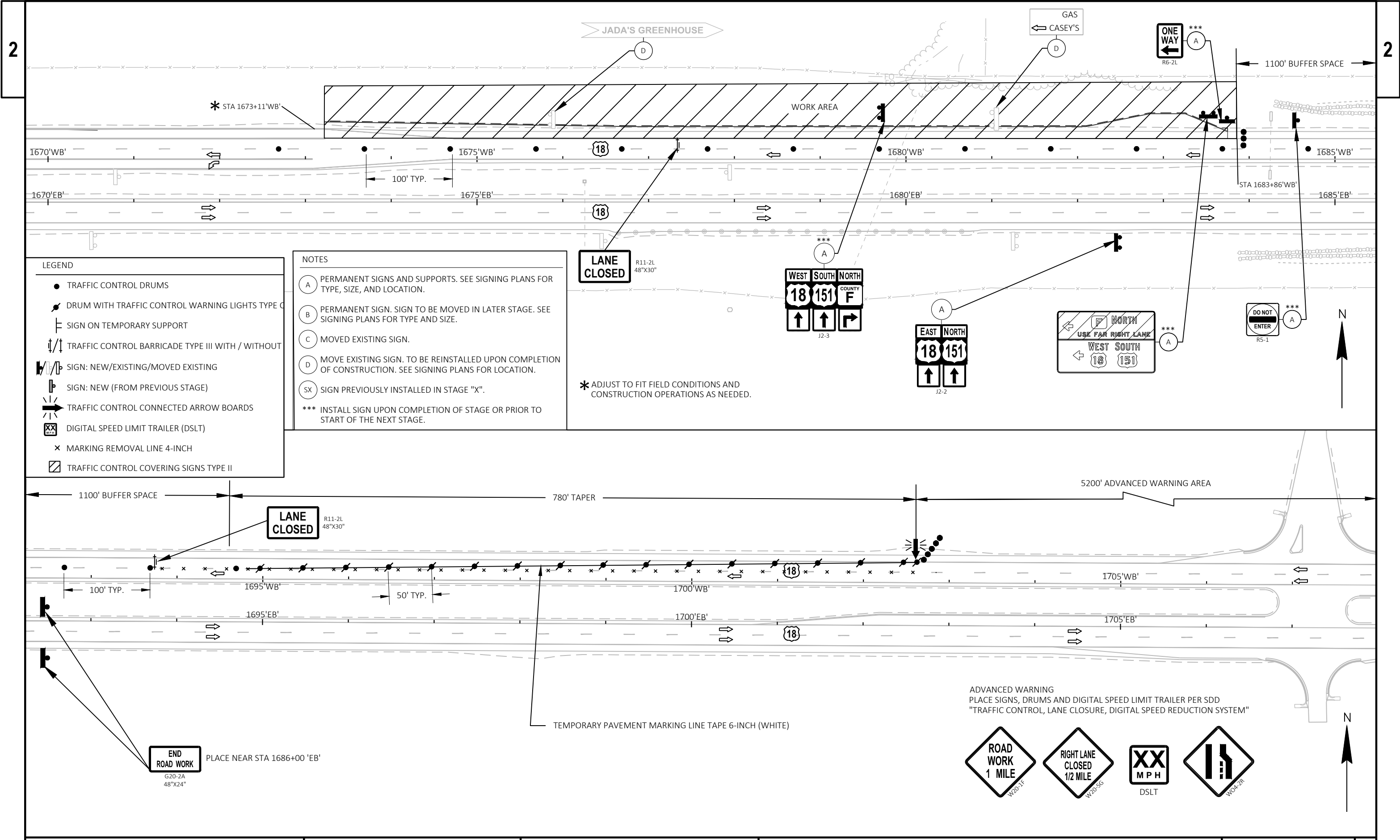
COUNTY: DANE

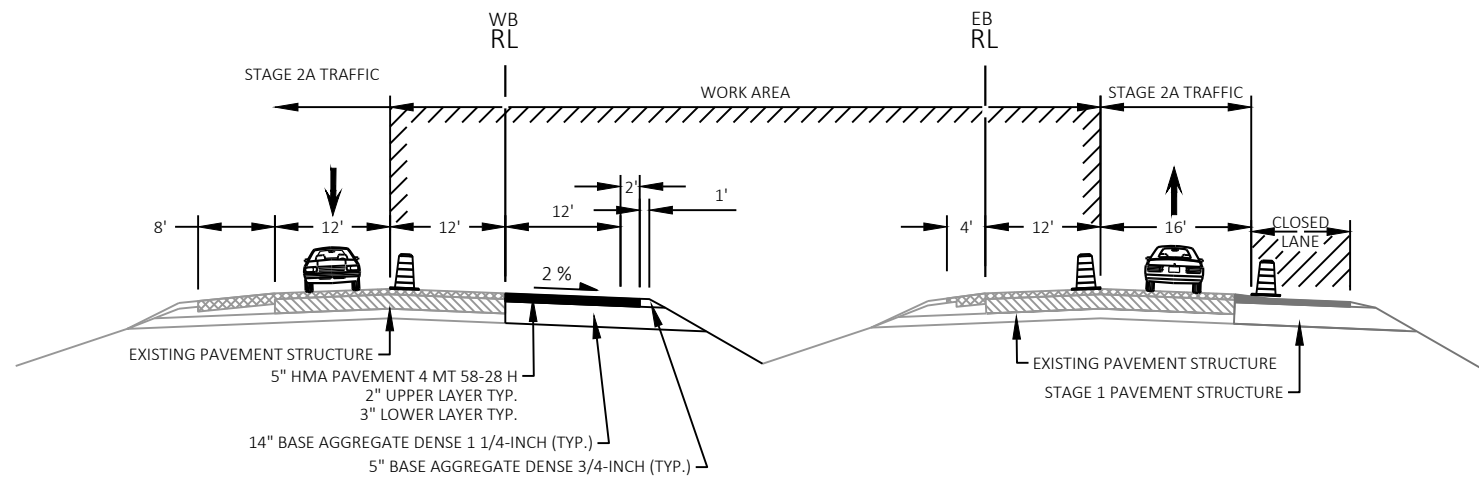
TRAFFIC CONTROL - STAGE 1

SHEET

47

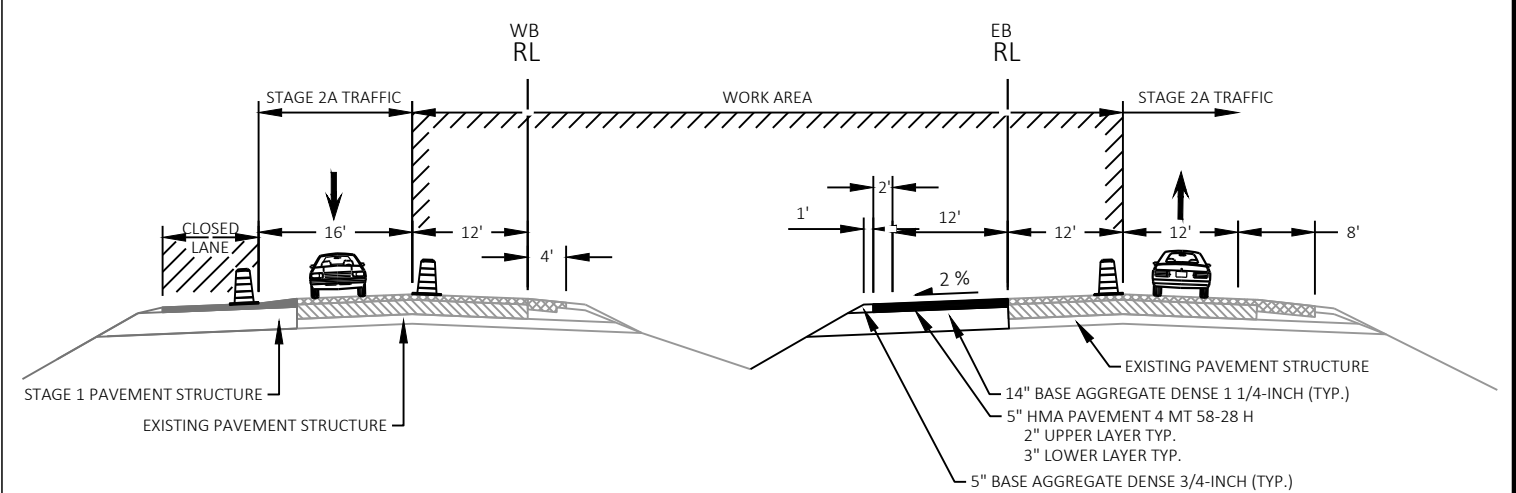
E





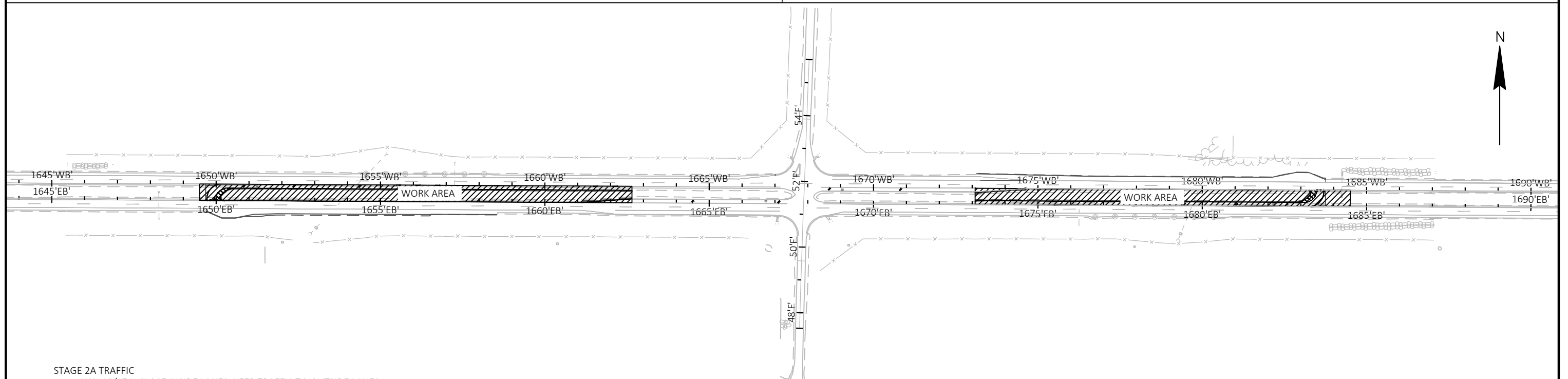
USH 18/151 STAGE 2A TYPICAL SECTION

STA. 1649+21 'EB' - STA. 1661+16 'EB'



USH 18/151 STAGE 2A TYPICAL SECTION

STA. 1674+71 'EB' - STA. 1685+11 'EB'



STAGE 2A TRAFFIC

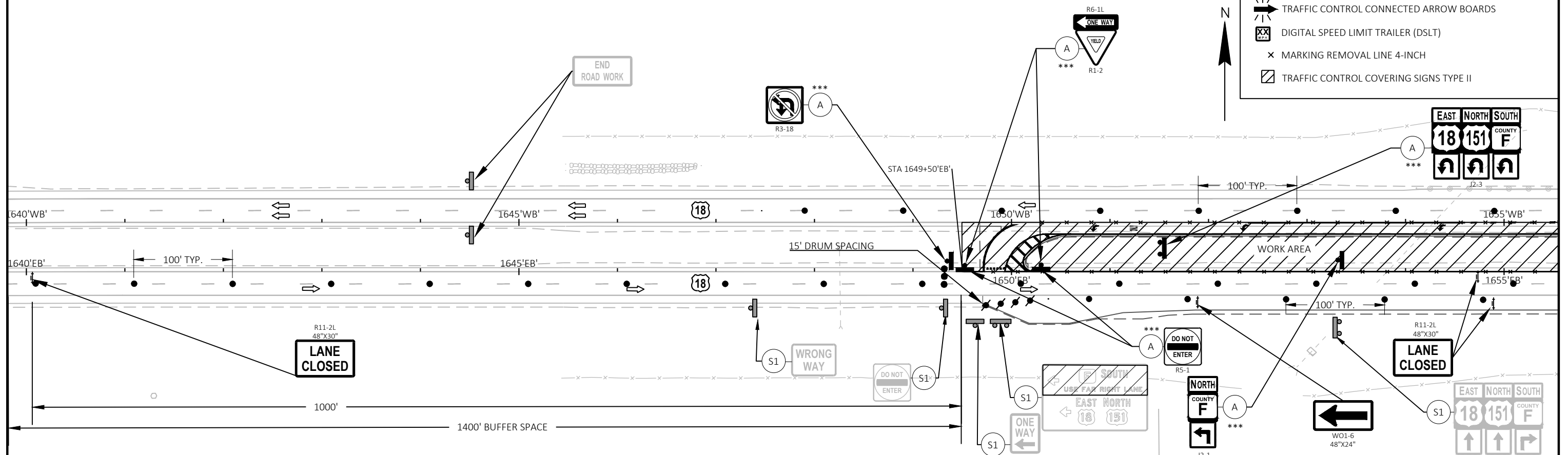
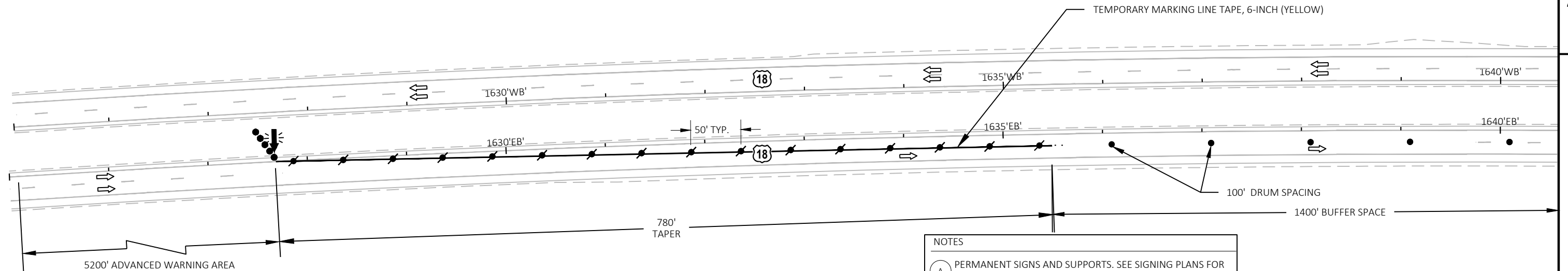
USH 18/151: CLOSE INSIDE LANES. KEEP TRAFFIC TO OUTSIDE LANES.
KEEP LEFT TURN LANES AND INTERSECTION OPEN TO TRAFFIC.

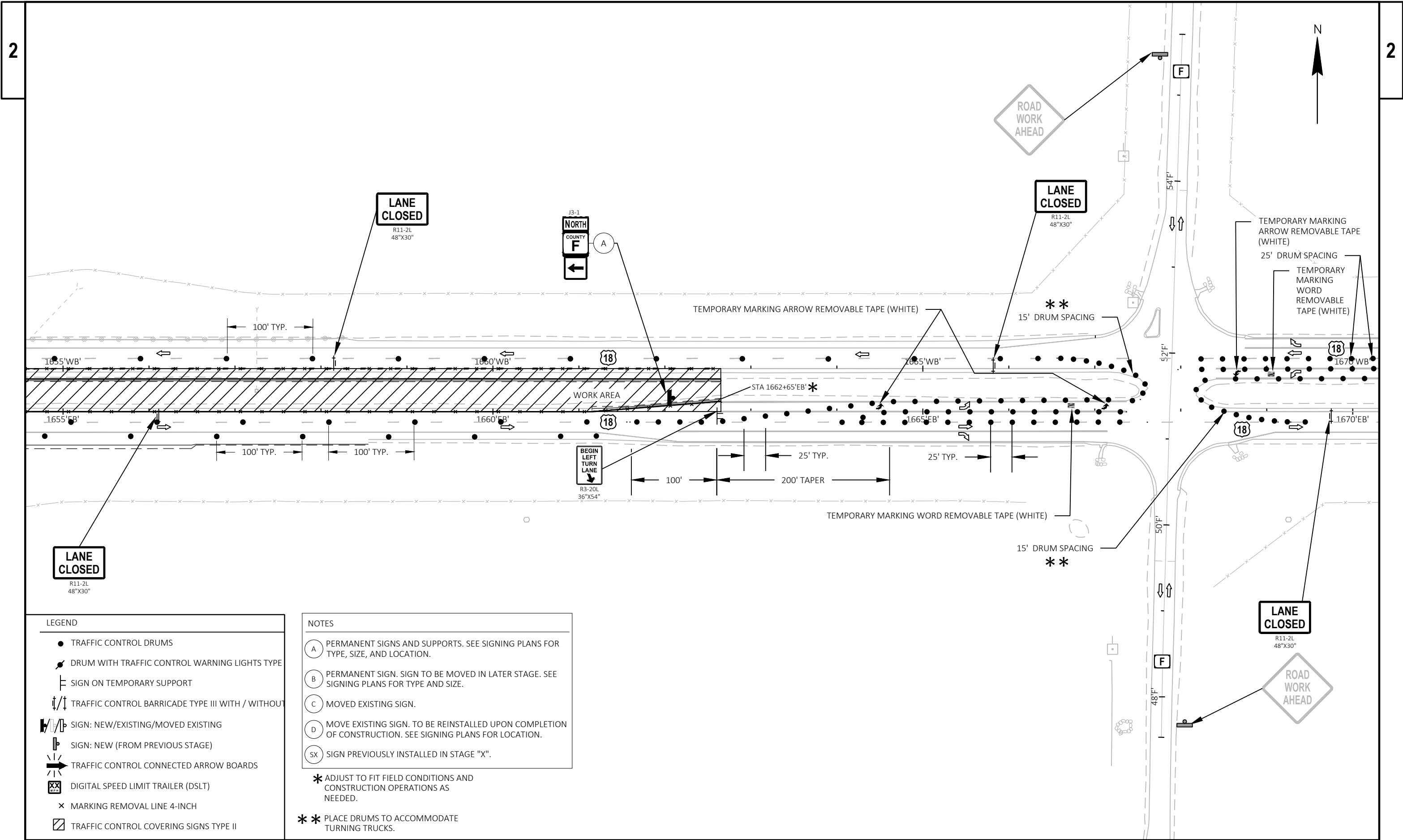
STAGE 2A CONSTRUCTION

USH 18/151: CONSTRUCT PORTIONS OF THE EB & WB LEFT TURNING LANES AND U-TURN CROSS OVERS.
INSTALL PERMANENT PAVEMENT MARKINGS AND PERMANENT SIGNING WHERE SHOWN OR AS DIRECTED BY THE ENGINEER.

TRAFFIC CONTROL SDDs

TRAFFIC CONTROL, LANE CLOSURE, DIGITAL SPEED REDUCTION SYSTEM
TRAFFIC CONTROL, SHOULDER CLOSURE ON DIVIDED ROADWAY, SPEEDS GREATER THAN 40 MPH
TRAFFIC CONTROL, INTERSECTION WITHIN SINGLE LEFT LANE CLOSURE





LEGEND

- TRAFFIC CONTROL DRUMS
- DRUM WITH TRAFFIC CONTROL WARNING LIGHTS TYPE
- SIGN ON TEMPORARY SUPPORT
- ↑/↓ TRAFFIC CONTROL BARRICADE TYPE III WITH / WITHOUT
- SIGN: NEW/EXISTING/MOVED EXISTING
- SIGN: NEW (FROM PREVIOUS STAGE)
- TRAFFIC CONTROL CONNECTED ARROW BOARDS
- XX DIGITAL SPEED LIMIT TRAILER (DSLTT)
- × MARKING REMOVAL LINE 4-INCH
- TRAFFIC CONTROL COVERING SIGNS TYPE II

NOTES

- (A) PERMANENT SIGNS AND SUPPORTS. SEE SIGNING PLANS FOR TYPE, SIZE, AND LOCATION.
- (B) PERMANENT SIGN. SIGN TO BE MOVED IN LATER STAGE. SEE SIGNING PLANS FOR TYPE AND SIZE.
- (C) MOVED EXISTING SIGN.
- (D) MOVE EXISTING SIGN. TO BE REINSTALLED UPON COMPLETION OF CONSTRUCTION. SEE SIGNING PLANS FOR LOCATION.
- (SX) SIGN PREVIOUSLY INSTALLED IN STAGE "X".

* ADJUST TO FIT FIELD CONDITIONS AND CONSTRUCTION OPERATIONS AS NEEDED.

** PLACE DRUMS TO ACCOMMODATE TURNING TRUCKS.

PROJECT NO: 1204-05-77

HWY: USH 18/151

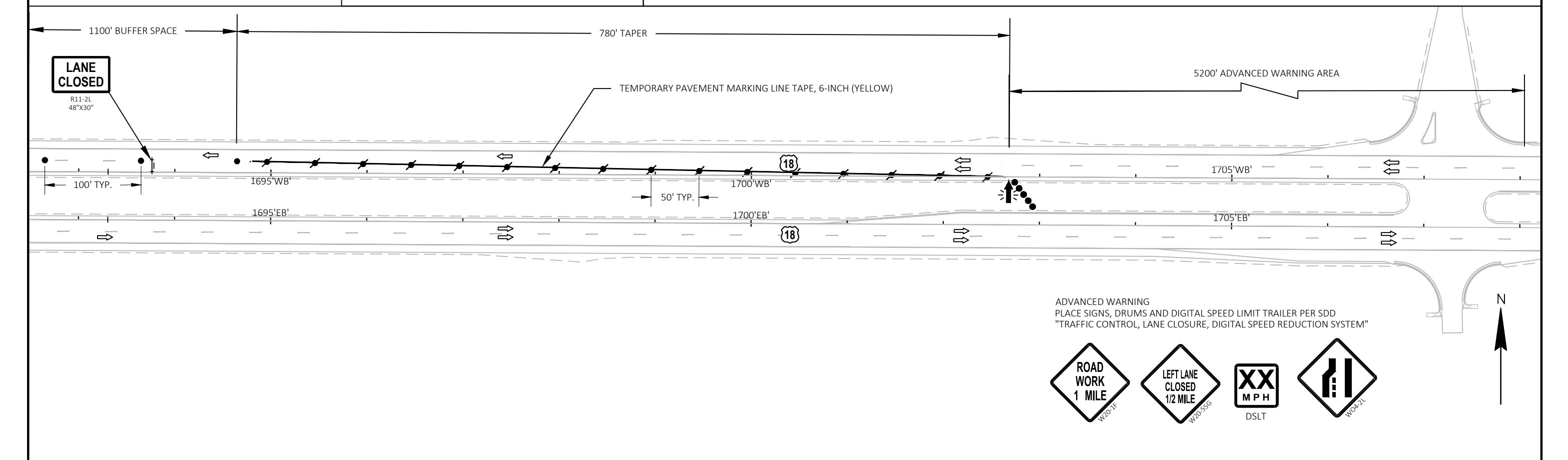
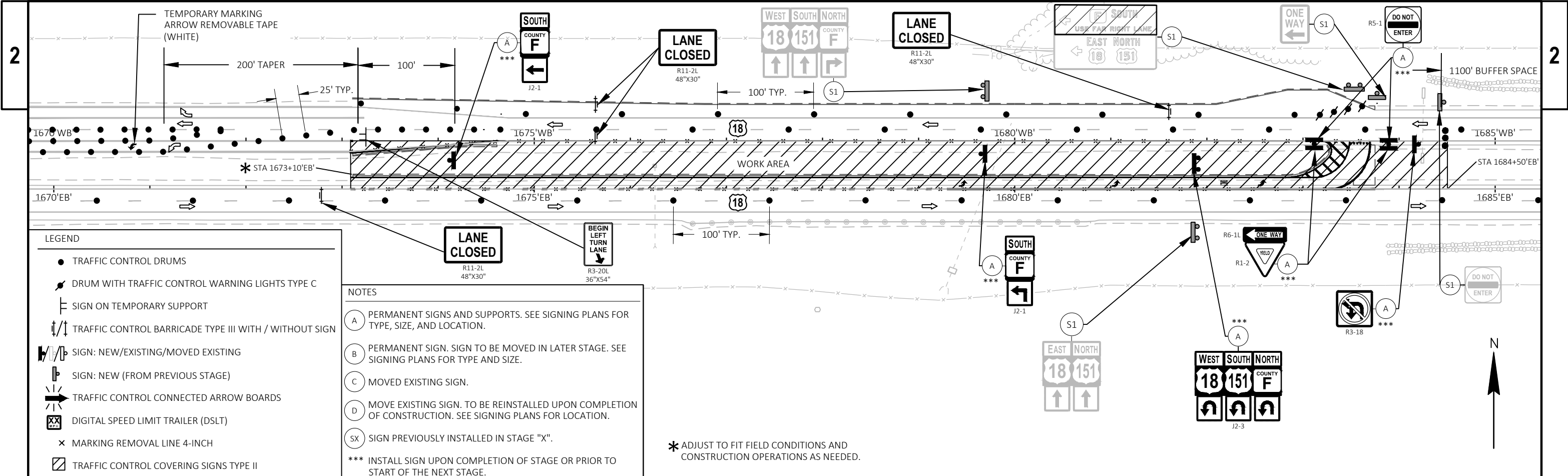
COUNTY: DANE

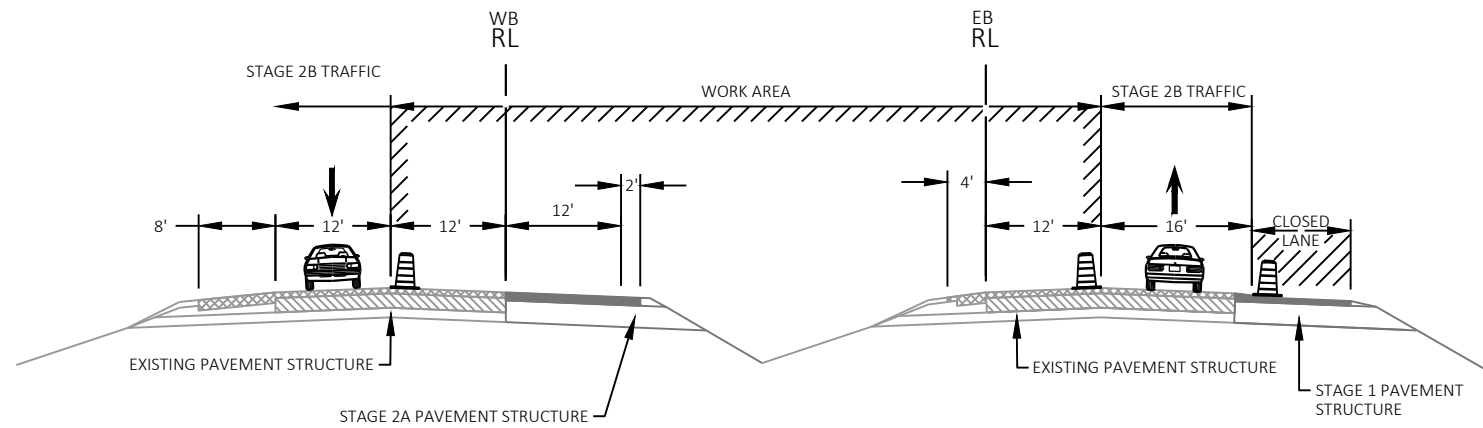
TRAFFIC CONTROL - STAGE 2A

SHEET

51

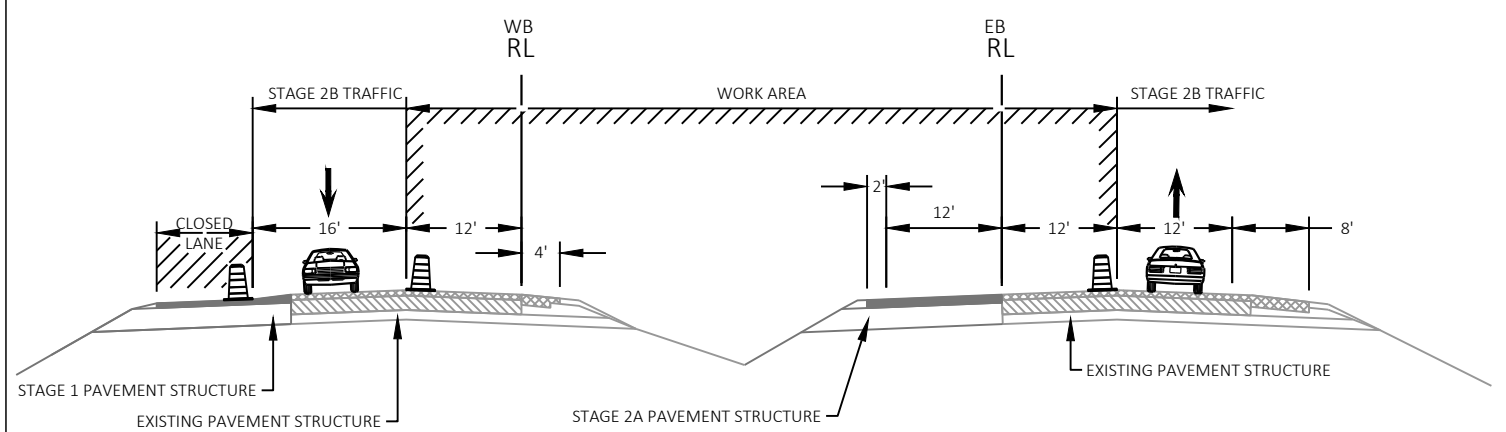
E





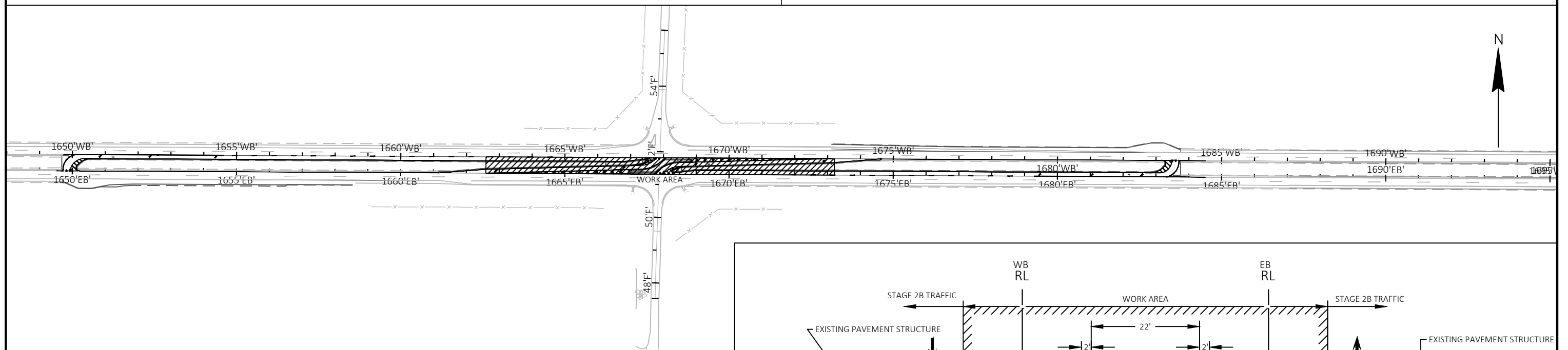
USH 18/151 STAGE 2B TYPICAL SECTION

STA. 1649+21 'EB' - STA. 1661+16 'EB'



USH 18/151 STAGE 2B TYPICAL SECTION

STA. 1674+71 'EB' - STA. 1685+11 'EB'



STAGE 2B TRAFFIC

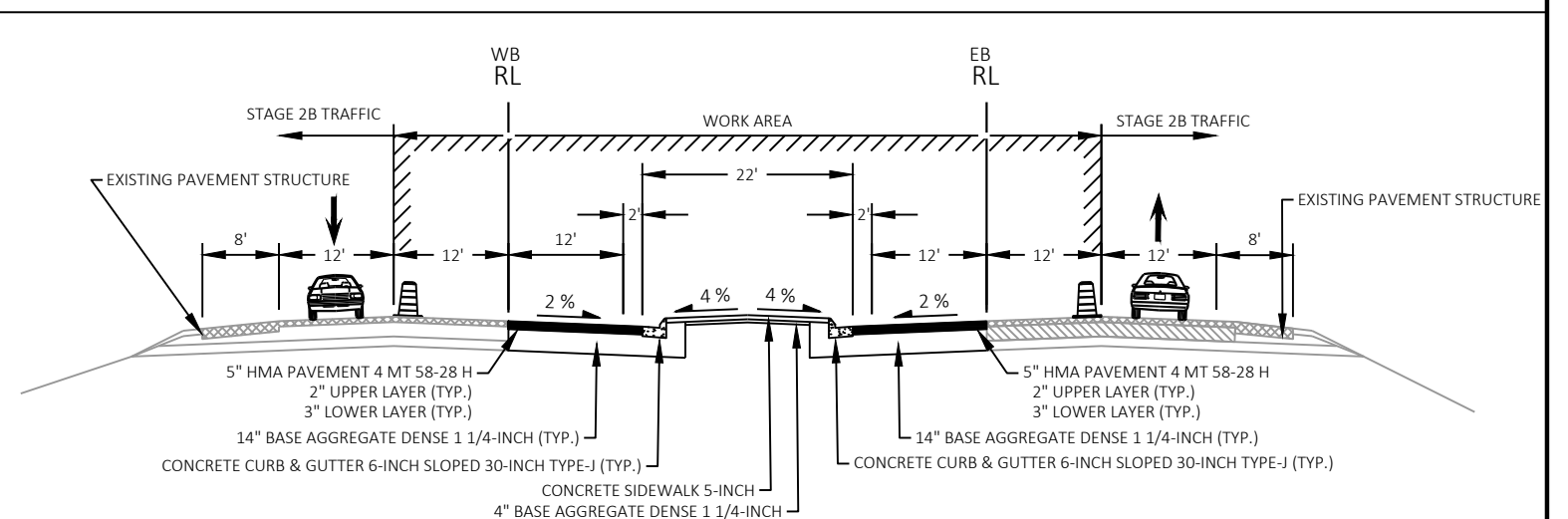
USH 18/151: CLOSE INSIDE LANES. KEEP TRAFFIC TO OUTSIDE LANES. RESTRICT INTERSECTION TO RIGHT TURNING TRAFFIC.
OPEN U-TURN CUTS TO TRAFFIC.
CTH F: KEEP OPEN TO RIGHT TURNING TRAFFIC.

STAGE 2B CONSTRUCTION

USH 18/151: CONSTRUCT REMAINING PORTIONS OF THE LEFT TURN LANES, MEDIAN AND ISLANDS THROUGH THE INTERSECTION.
INSTALL PERMANENT PAVEMENT MARKINGS AND PERMANENT SIGNING WHERE SHOWN OR AS DIRECTED BY THE ENGINEER.

TRAFFIC CONTROL SDDs

TRAFFIC CONTROL, LANE CLOSURE, DIGITAL SPEED REDUCTION SYSTEM
TRAFFIC CONTROL, SHOULDER CLOSURE ON DIVIDED ROADWAY, SPEEDS GREATER THAN 40 MPH
TRAFFIC CONTROL, INTERSECTION WITHIN SINGLE LEFT LANE CLOSURE



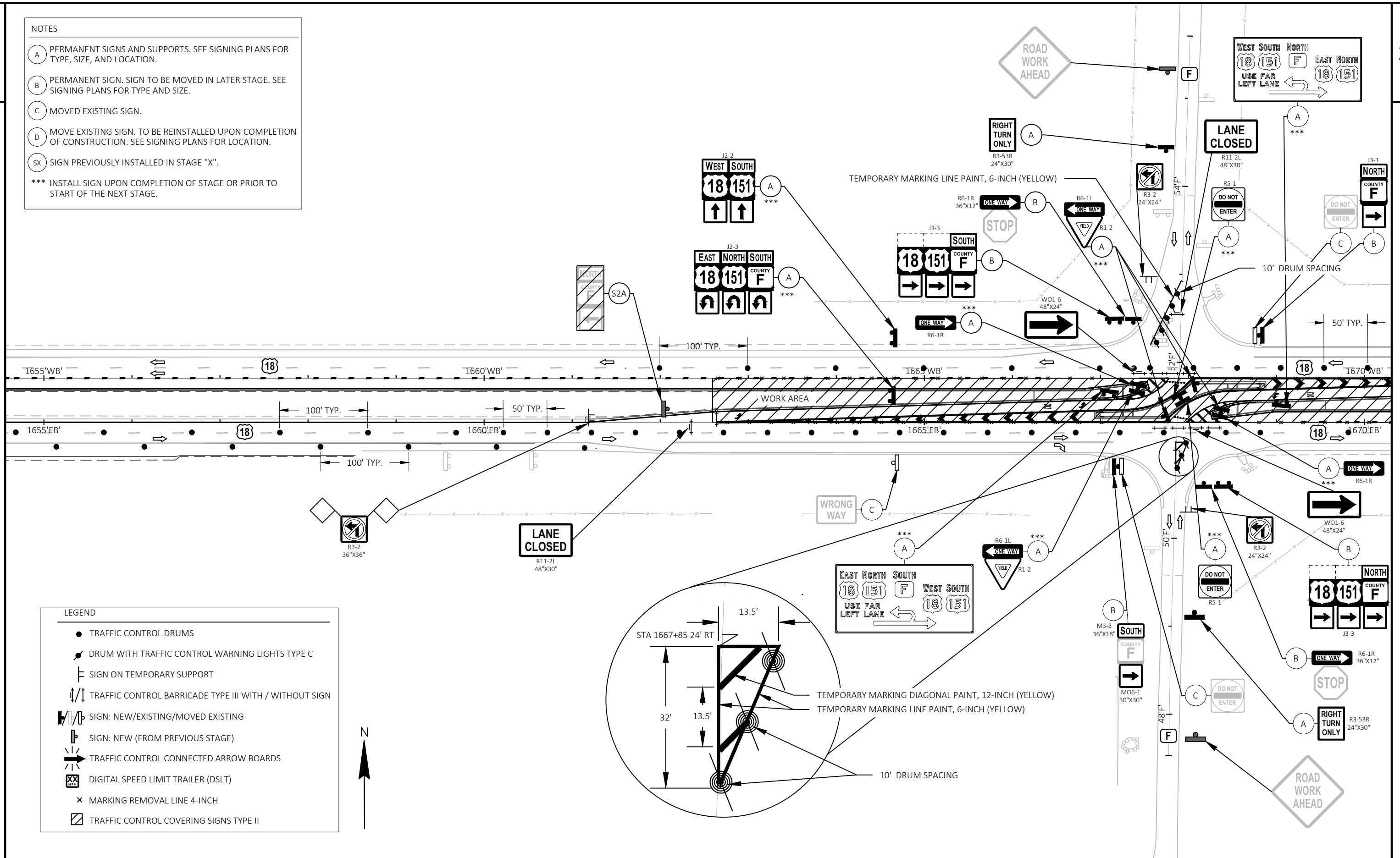
USH 18/151 STAGE 2B TYPICAL SECTION

STA. 1661+16 'EB' - STA. 1674+71 'EB'



NOTES

- (A) PERMANENT SIGNS AND SUPPORTS. SEE SIGNING PLANS FOR TYPE, SIZE, AND LOCATION.
- (B) PERMANENT SIGN. SIGN TO BE MOVED IN LATER STAGE. SEE SIGNING PLANS FOR TYPE AND SIZE.
- (C) MOVED EXISTING SIGN.
- (D) MOVE EXISTING SIGN. TO BE REINSTALLED UPON COMPLETION OF CONSTRUCTION. SEE SIGNING PLANS FOR LOCATION.
- (SX) SIGN PREVIOUSLY INSTALLED IN STAGE "X".
- *** INSTALL SIGN UPON COMPLETION OF STAGE OR PRIOR TO START OF THE NEXT STAGE.



PROJECT NO: 1204-05-77

HWY: USH 18/151

COUNTY: DANE

TRAFFIC CONTROL - STAGE 2B

SHEET

55

E

FILE NAME : N:\PDS\C3D\12040507\SHEETPLAN\025100-TC-S2B.DWG
LAYOUT NAME - STAGE 2B-B

PLOT DATE : 10/20/2025 1:17 PM

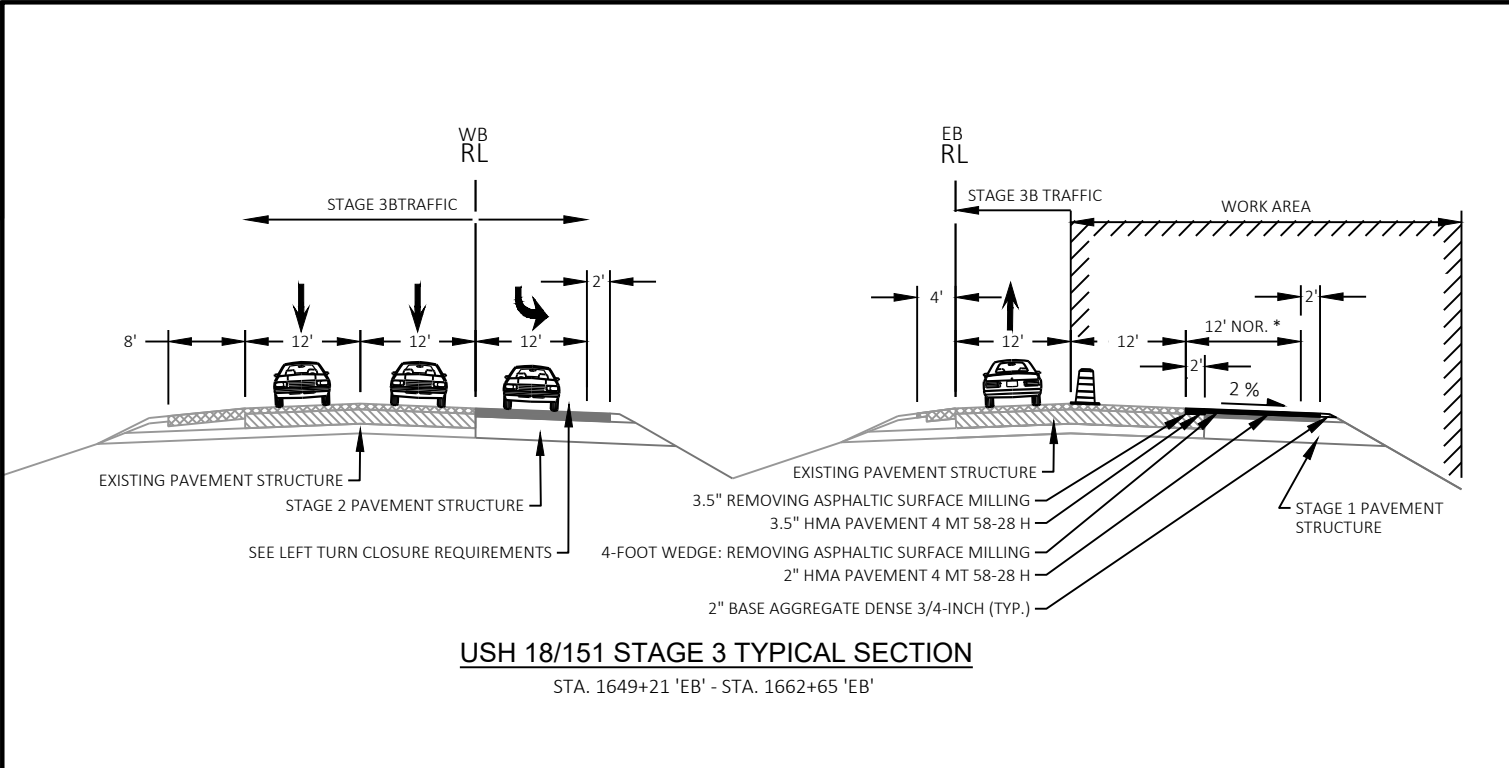
PLOT BY : CAMPBELL, TIMOTHY J

PLOT NAME :

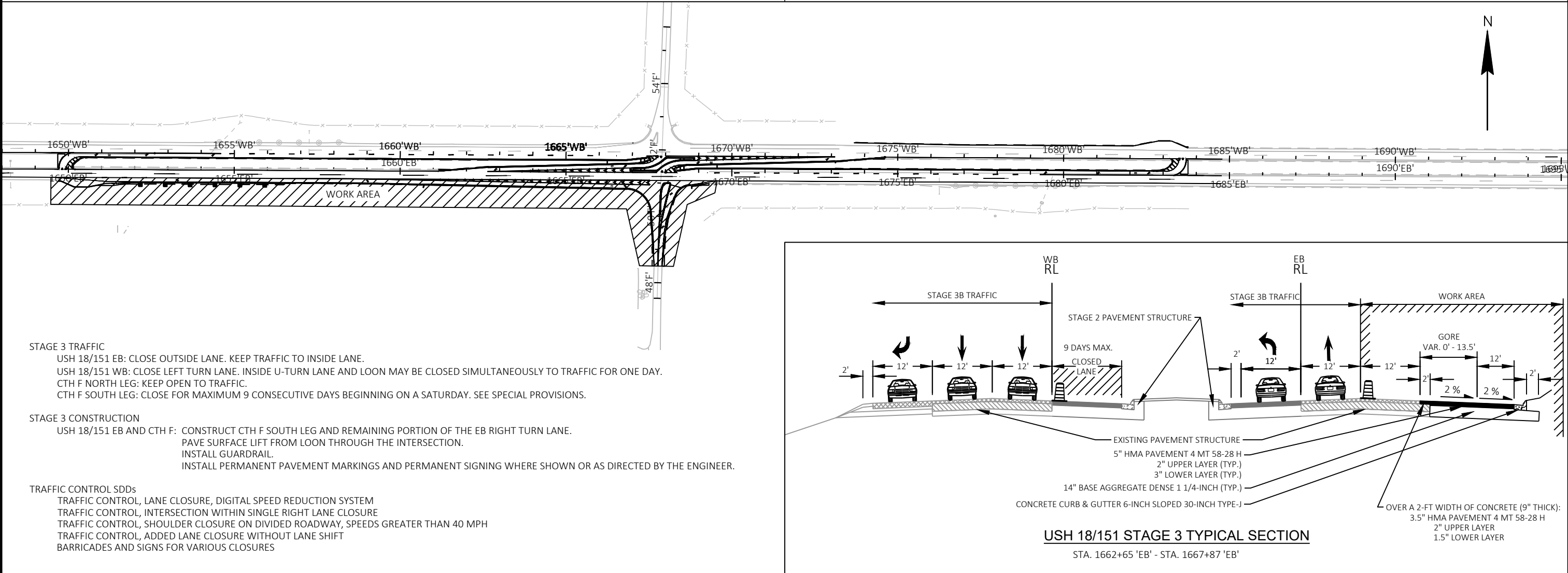
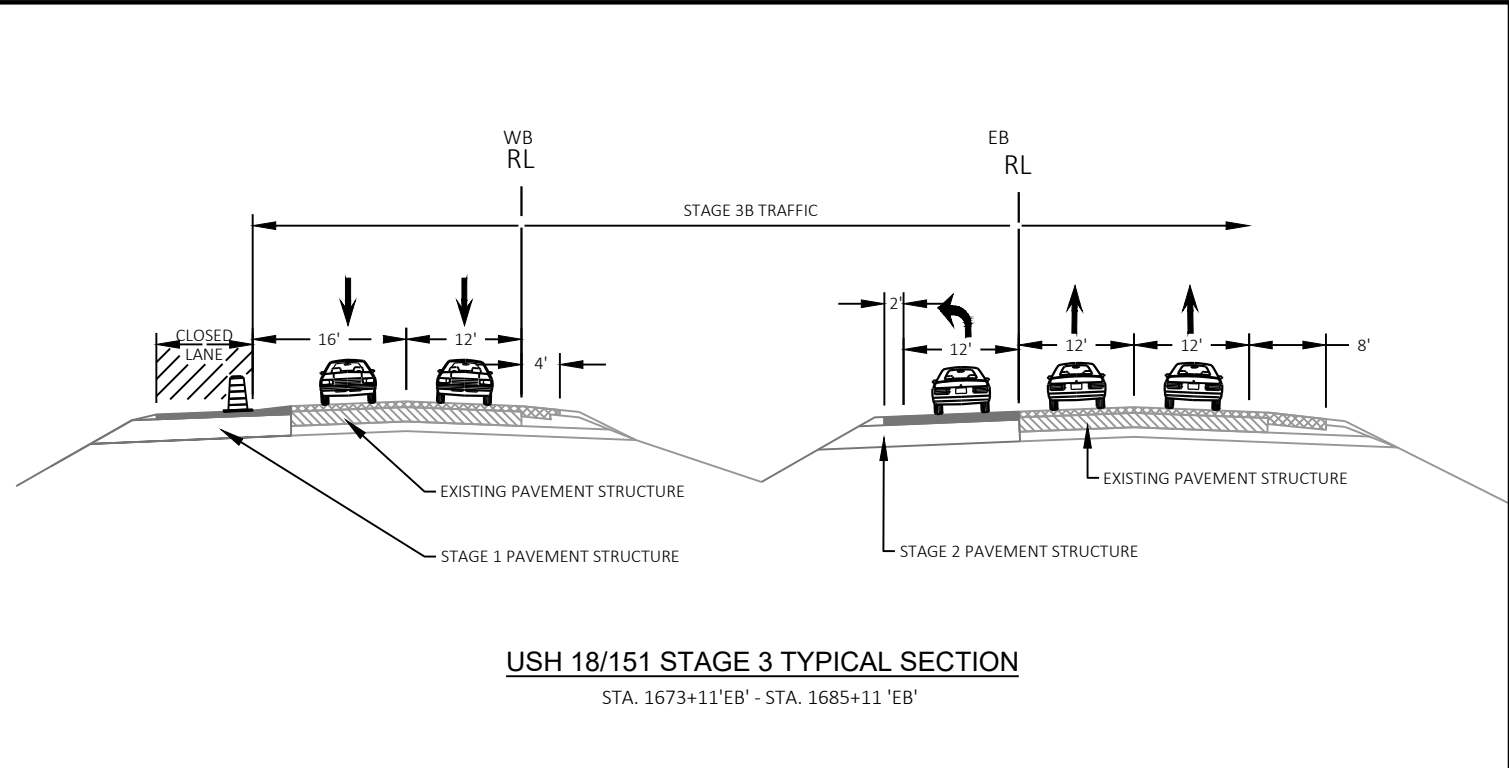
PLOT SCALE : 1 IN:100 FT

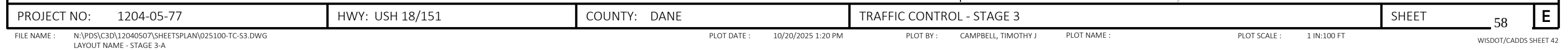
WISDOT/CADDs SHEET 42

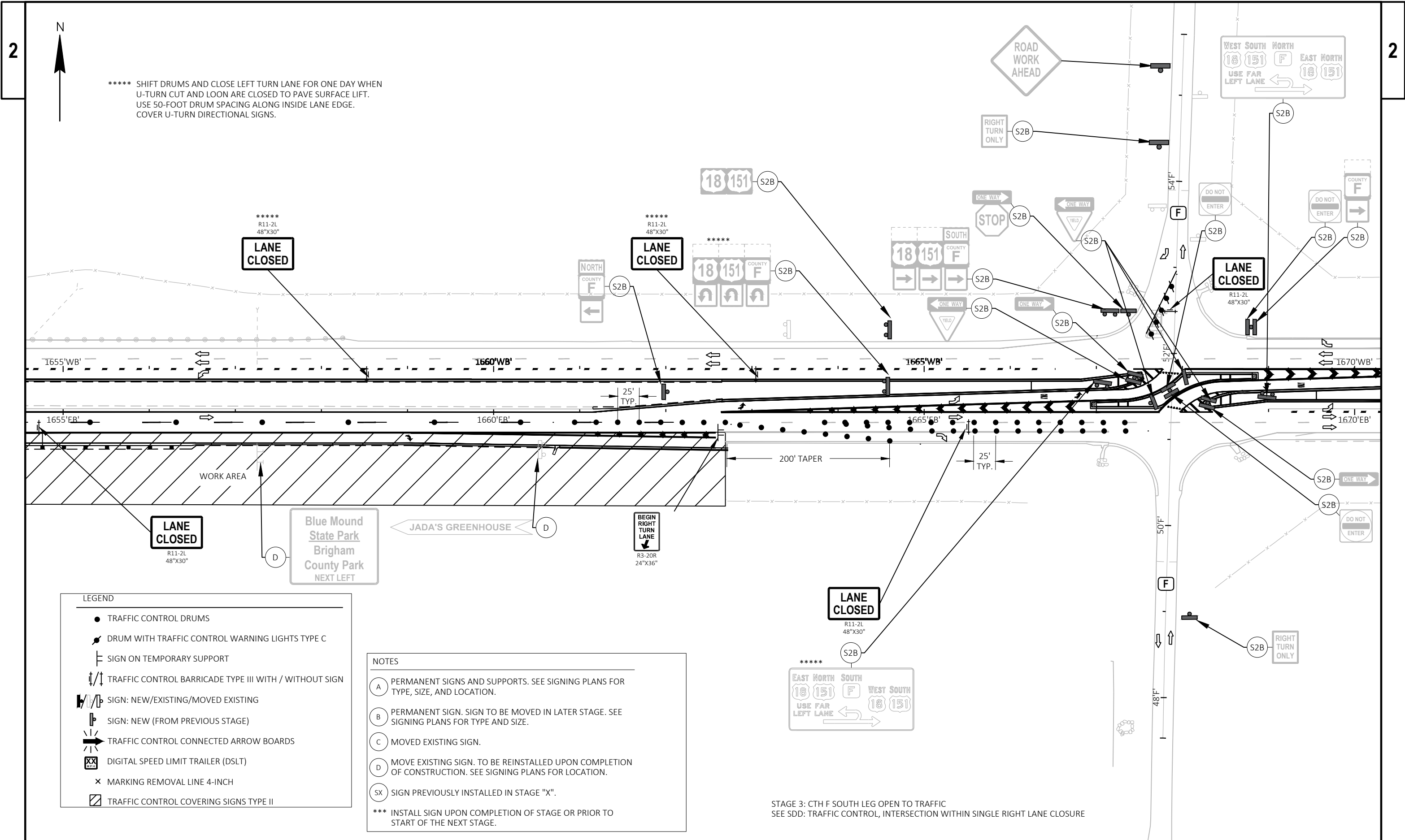
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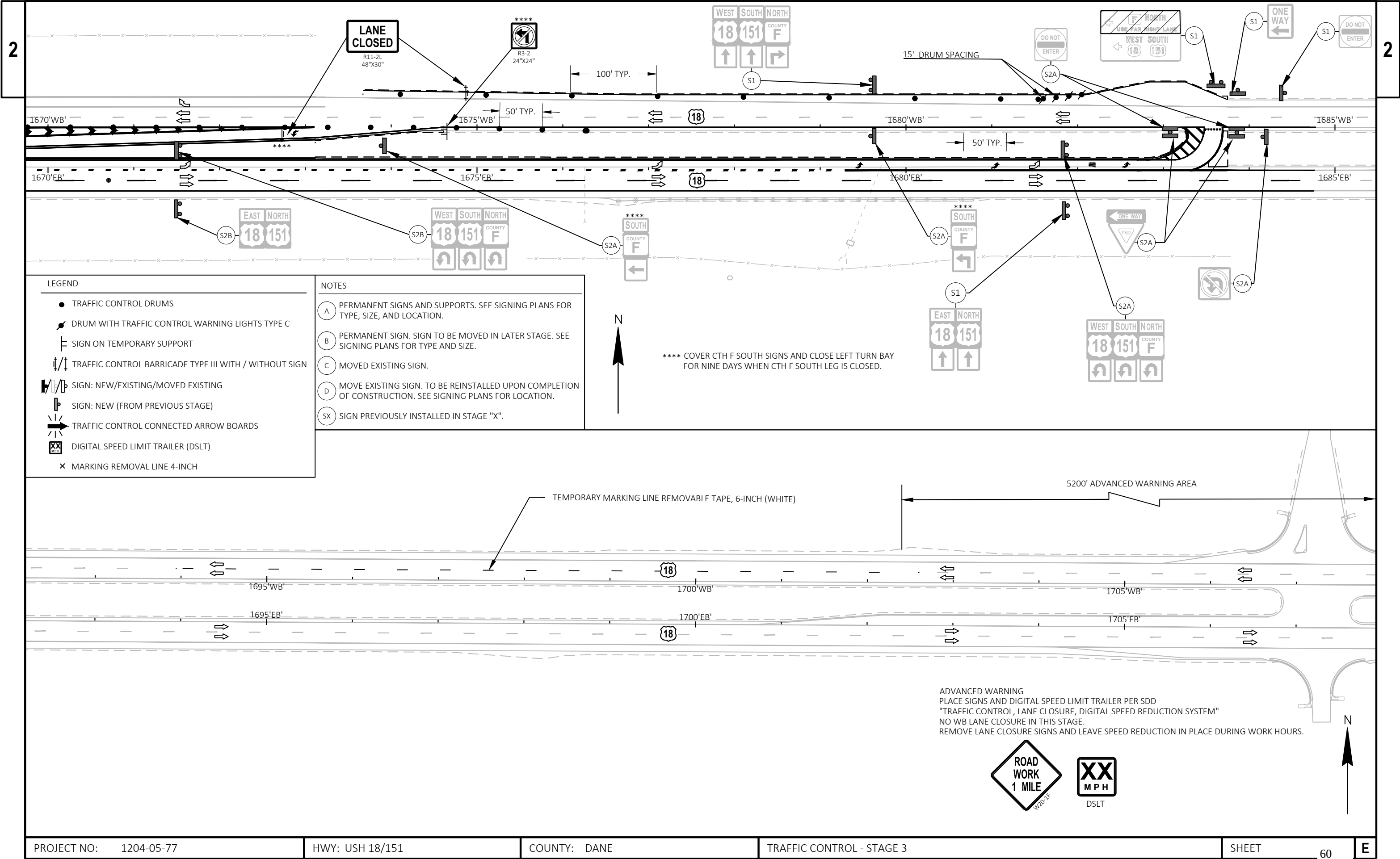


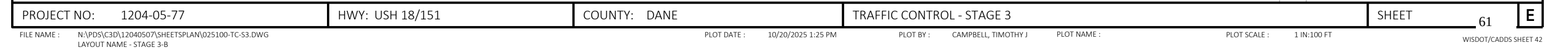
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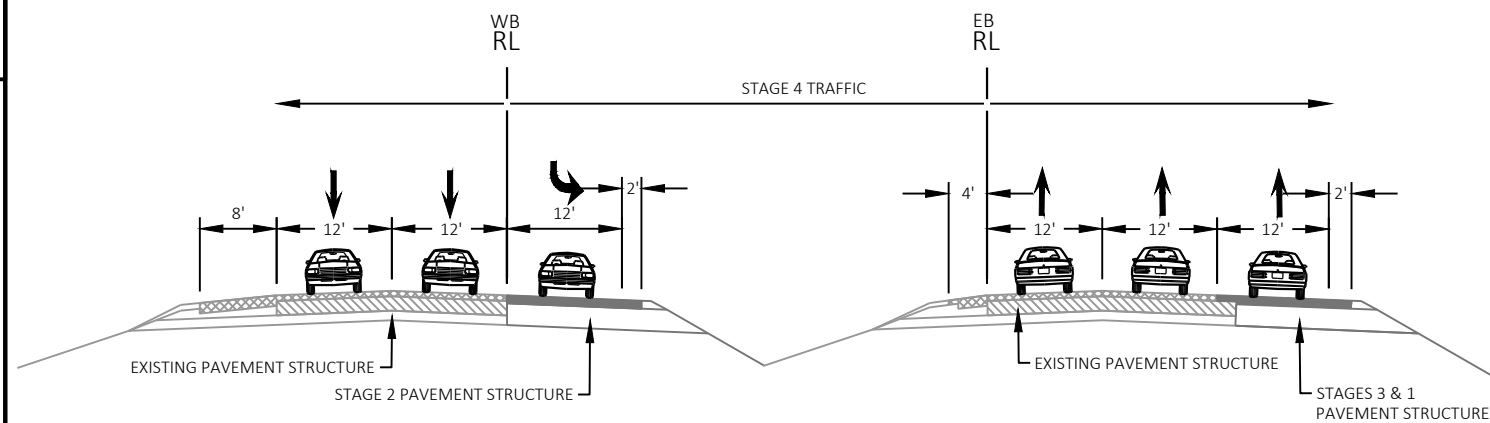






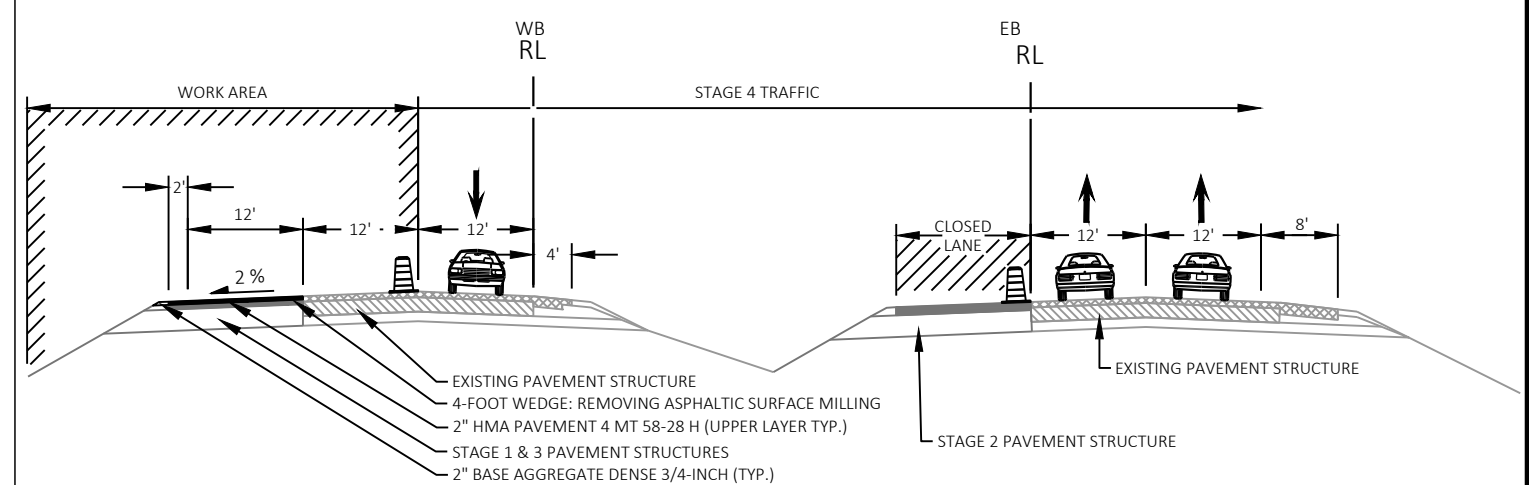






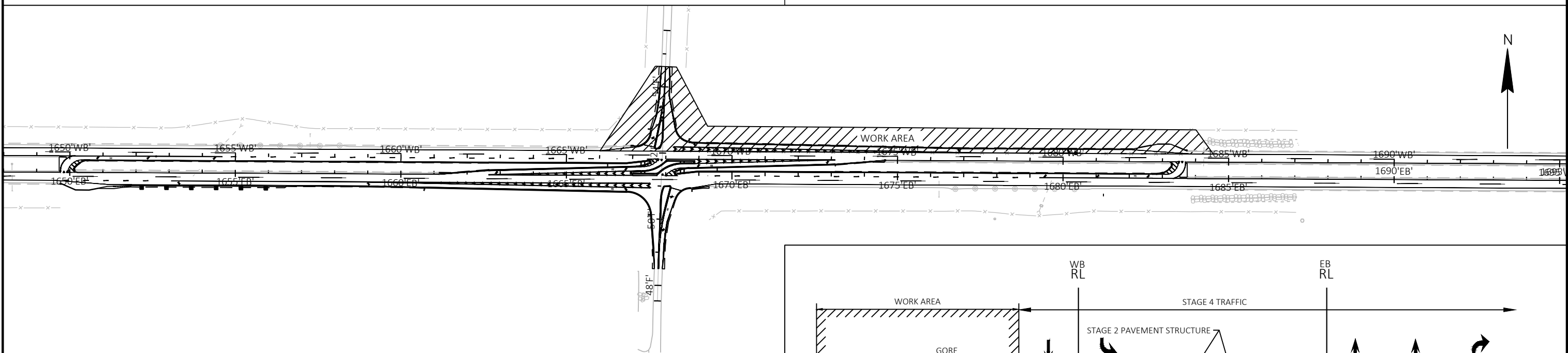
USH 18/151 STAGE 4 TYPICAL SECTION

STA. 1649+21 'EB' - STA. 1662+65 'EB'



USH 18/151 STAGE 4 TYPICAL SECTION

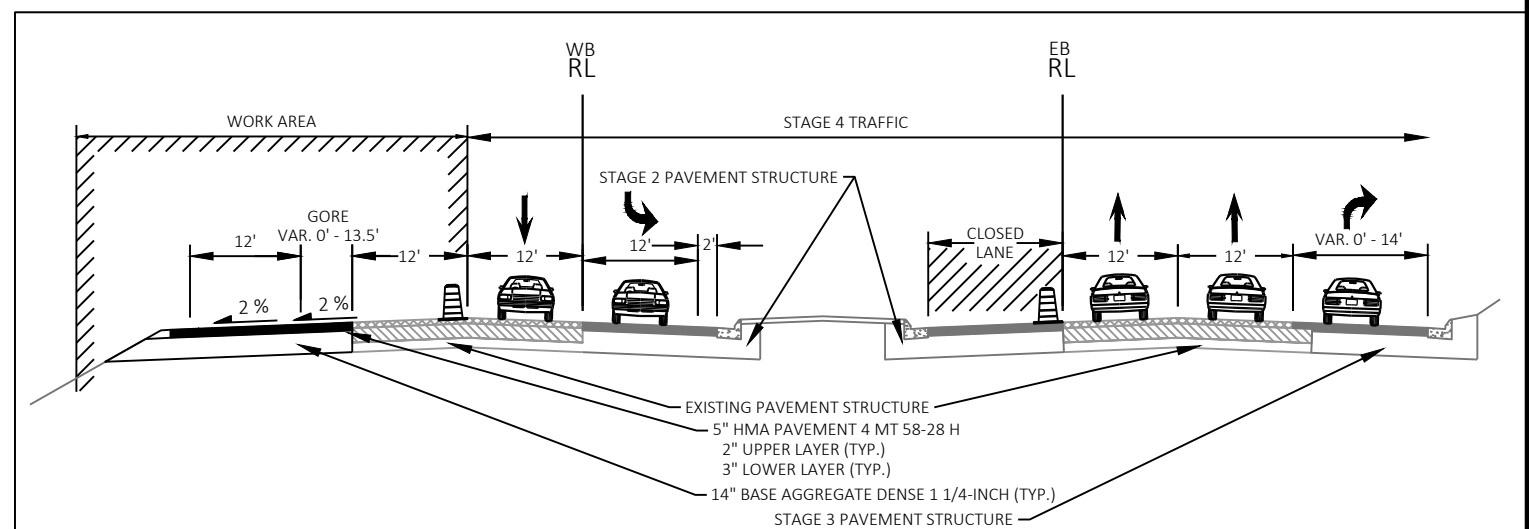
STA. 1673+11 'EB' - STA. 1685+11 'EB'



STAGE 4 TRAFFIC
 USH 18/151 EB: CLOSE LEFT TURN LANE. INSIDE U-TURN LANE AND LOON MAY BE CLOSED SIMULTANEOUSLY TO TRAFFIC FOR ONE DAY.
 USH 18/151 WB: CLOSE OUTSIDE LANE. KEEP TRAFFIC TO INSIDE LANE.
 CTH F NORTH LEG: CLOSE FOR MAXIMUM 14 CONSECUTIVE DAYS BEGINNING ON SATURDAY. SEE SPECIAL PROVISIONS.
 CTH F SOUTH LEG: OPEN TO TRAFFIC.

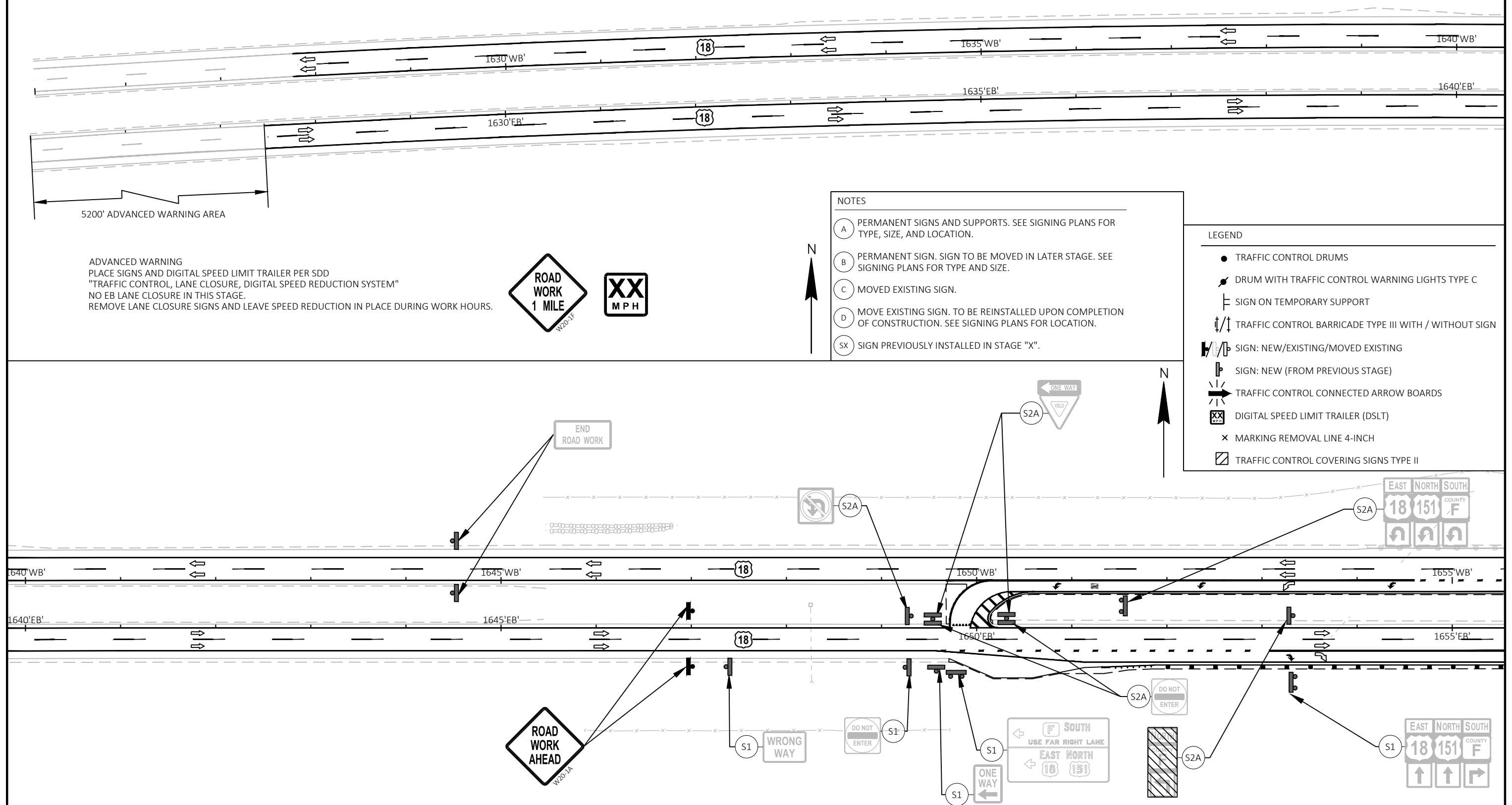
STAGE 4 CONSTRUCTION
 USH 18/151 WB AND CTH F: CONSTRUCT CTH F NORTH LEG AND REMAINING PORTION OF THE WB RIGHT TURN LANE.
 PAVE SURFACE LIFT FROM LOON THROUGH THE INTERSECTION.
 INSTALL PERMANENT PAVEMENT MARKINGS AND PERMANENT SIGNING WHERE SHOWN OR AS DIRECTED BY THE ENGINEER.

TRAFFIC CONTROL SDDs
 TRAFFIC CONTROL, LANE CLOSURE, DIGITAL SPEED REDUCTION SYSTEM
 TRAFFIC CONTROL, SHOULDER CLOSURE ON DIVIDED ROADWAY, SPEEDS GREATER THAN 40 MPH
 TRAFFIC CONTROL, ADDED LANE CLOSURE WITHOUT LANE SHIFT
 BARRICADES AND SIGNS FOR VARIOUS CLOSURES

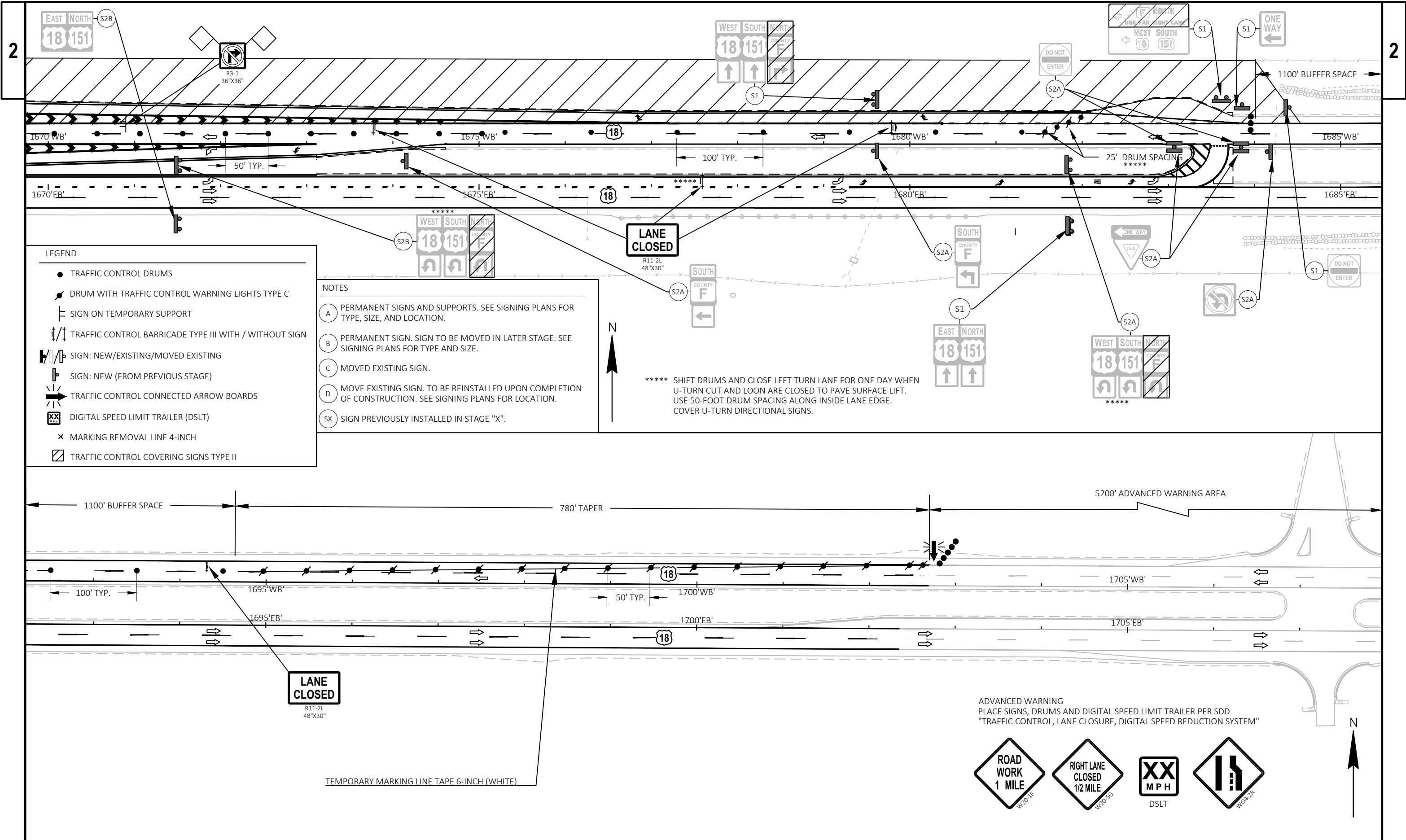


USH 18/151 STAGE 4 TYPICAL SECTION

STA. 1662+65 'EB' - STA. 1673+11 'EB'



WISDOT/CADDS SHEET 42



Estimate Of Quantities

1204-05-77

Line	Item	Item Description	Unit	Total	Qty
0002	201.0205	Grubbing	STA	2.000	2.000
0004	204.0120	Removing Asphaltic Surface Milling	SY	1,065.000	1,065.000
0006	204.0150	Removing Curb & Gutter	LF	340.000	340.000
0008	204.0165	Removing Guardrail	LF	472.000	472.000
0010	204.0180	Removing Delineators and Markers	EACH	1.000	1.000
0012	204.0220	Removing Inlets	EACH	2.000	2.000
0014	205.0100	Excavation Common	CY	8,368.000	8,368.000
0016	208.0100	Borrow	CY	4,551.000	4,551.000
0018	211.0101	Prepare Foundation for Asphaltic Paving (project) 01. 1204-05-77	EACH	1.000	1.000
0020	213.0100	Finishing Roadway (project) 01. 1204-05-77	EACH	1.000	1.000
0022	305.0110	Base Aggregate Dense 3/4-Inch	TON	664.000	664.000
0024	305.0120	Base Aggregate Dense 1 1/4-Inch	TON	19,061.000	19,061.000
0026	371.2000.S	QMP Base Aggregate Dense 1 1/4-Inch Compaction	EACH	18.000	18.000
0028	455.0605	Tack Coat	GAL	1,120.000	1,120.000
0030	460.2000	Incentive Density HMA Pavement	DOL	3,238.000	3,238.000
0032	460.6424	HMA Pavement 4 MT 58-28 H	TON	5,055.000	5,055.000
0034	465.0315	Asphaltic Flumes	SY	12.000	12.000
0036	520.1024	Apron Endwalls for Culvert Pipe 24-Inch	EACH	4.000	4.000
0038	520.3324	Culvert Pipe Class III-A 24-Inch	LF	220.000	220.000
0040	520.8000	Concrete Collars for Pipe	EACH	2.000	2.000
0042	521.1624	Apron Endwalls for Culvert Pipe Sloped Side Drains Steel 24-Inch 10 to 1	EACH	2.000	2.000
0044	521.3172	Culvert Pipe Corrugated Steel 72-Inch	LF	8.000	8.000
0046	522.0160	Culvert Pipe Reinforced Concrete Class III 60-Inch	LF	14.000	14.000
0048	522.2619	Apron Endwalls for Culvert Pipe Reinforced Concrete Horizontal Elliptical 19x30-Inch	EACH	1.000	1.000
0050	524.0660	Apron Endwalls for Culvert Pipe Salvaged 60-Inch	EACH	1.000	1.000
0052	524.0672	Apron Endwalls for Culvert Pipe Salvaged 72-Inch	EACH	1.000	1.000
0054	531.1100	Concrete Masonry Ancillary Structures Type NS	CY	2.000	2.000
0056	531.1140	Steel Reinforcement HS Ancillary Structures Type NS	LB	220.000	220.000
0058	531.2024	Drilling Shaft 24-Inch	LF	16.000	16.000
0060	601.0415	Concrete Curb & Gutter 6-Inch Sloped 30-Inch Type J	LF	2,711.000	2,711.000
0062	601.0557	Concrete Curb & Gutter 6-Inch Sloped 36-Inch Type D	LF	1,222.000	1,222.000
0064	602.0410	Concrete Sidewalk 5-Inch	SF	6,225.000	6,225.000
0066	606.0100	Riprap Light	CY	17.000	17.000
0068	606.0200	Riprap Medium	CY	122.000	122.000
0070	608.0005	Storm Sewer Rock Excavation	CY	207.000	207.000
0072	608.0318	Storm Sewer Pipe Reinforced Concrete Class III 18-Inch	LF	16.000	16.000
0074	608.0412	Storm Sewer Pipe Reinforced Concrete Class IV 12-Inch	LF	115.000	115.000
0076	608.0415	Storm Sewer Pipe Reinforced Concrete Class IV 15-Inch	LF	426.000	426.000
0078	608.0418	Storm Sewer Pipe Reinforced Concrete Class IV 18-Inch	LF	420.000	420.000
0080	608.0424	Storm Sewer Pipe Reinforced Concrete Class IV 24-Inch	LF	714.000	714.000
0082	608.2419	Storm Sewer Pipe Reinforced Concrete Horizontal Elliptical Class HE-IV 19x30-Inch	LF	90.000	90.000
0084	611.0630	Inlet Covers Type HM-GJ	EACH	18.000	18.000
0086	611.0642	Inlet Covers Type MS	EACH	1.000	1.000
0088	611.1005	Catch Basins 5-FT Diameter	EACH	2.000	2.000
0090	611.3004	Inlets 4-FT Diameter	EACH	12.000	12.000
0092	611.3230	Inlets 2x3-FT	EACH	4.000	4.000
0094	611.3901	Inlets Median 1 Grate	EACH	3.000	3.000
0096	611.9710	Salvaged Inlet Covers	EACH	2.000	2.000
0098	611.9850.S	Pipe Grates (size) 01. 24-Inch	EACH	6.000	6.000

Estimate Of Quantities

1204-05-77

Line	Item	Item Description	Unit	Total	Qty
0100	611.9850.S	Pipe Grates (size) 02. 19x30-Inch	EACH	1.000	1.000
0102	614.2300	MGS Guardrail 3	LF	462.000	462.000
0104	614.2610	MGS Guardrail Terminal EAT	EACH	1.000	1.000
0106	614.2620	MGS Guardrail Terminal Type 2	EACH	1.000	1.000
0108	616.0100	Fence Woven Wire (height) 01. 4.5-FT	LF	440.000	440.000
0110	618.0100	Maintenance and Repair of Haul Roads (project) 01. 1204-05-77	EACH	1.000	1.000
0112	619.1000	Mobilization	EACH	1.000	1.000
0114	620.0300	Concrete Median Sloped Nose	SF	402.000	402.000
0116	624.0100	Water	MGAL	300.000	300.000
0118	625.0500	Salvaged Topsoil	SY	20,629.000	20,629.000
0120	628.1504	Silt Fence	LF	2,178.000	2,178.000
0122	628.1520	Silt Fence Maintenance	LF	2,178.000	2,178.000
0124	628.1905	Mobilizations Erosion Control	EACH	6.000	6.000
0126	628.1910	Mobilizations Emergency Erosion Control	EACH	5.000	5.000
0128	628.2006	Erosion Mat Urban Class I Type A	SY	2,202.000	2,202.000
0130	628.2023	Erosion Mat Class II Type B	SY	18,428.000	18,428.000
0132	628.7005	Inlet Protection Type A	EACH	3.000	3.000
0134	628.7015	Inlet Protection Type C	EACH	18.000	18.000
0136	628.7504	Temporary Ditch Checks	LF	140.000	140.000
0138	628.7555	Culvert Pipe Checks	EACH	13.000	13.000
0140	628.7560	Tracking Pads	EACH	5.000	5.000
0142	629.0210	Fertilizer Type B	CWT	12.000	12.000
0144	630.0130	Seeding Mixture No. 30	LB	934.000	934.000
0146	630.0200	Seeding Temporary	LB	560.000	560.000
0148	630.0500	Seed Water	MGAL	1,163.000	1,163.000
0150	634.0616	Posts Wood 4x6-Inch X 16-FT	EACH	83.000	83.000
0152	635.0200	Sign Supports Structural Steel HS	LB	1,928.000	1,928.000
0154	637.2210	Signs Type II Reflective H	SF	1,300.250	1,300.250
0156	638.2101	Moving Signs Type I	EACH	1.000	1.000
0158	638.2102	Moving Signs Type II	EACH	5.000	5.000
0160	638.2602	Removing Signs Type II	EACH	31.000	31.000
0162	638.3000	Removing Small Sign Supports	EACH	26.000	26.000
0164	642.5001	Field Office Type B	EACH	1.000	1.000
0166	643.0300	Traffic Control Drums	DAY	10,408.000	10,408.000
0168	643.0370.S	Digital Speed Reduction System (DSRS)	DAY	140.000	140.000
0170	643.0420	Traffic Control Barricades Type III	DAY	950.000	950.000
0172	643.0705	Traffic Control Warning Lights Type A	DAY	1,900.000	1,900.000
0174	643.0715	Traffic Control Warning Lights Type C	DAY	1,891.000	1,891.000
0176	643.0810	Traffic Control Connected Arrow Boards	DAY	114.000	114.000
0178	643.0900	Traffic Control Signs	DAY	2,548.000	2,548.000
0180	643.0920	Traffic Control Covering Signs Type II	EACH	22.000	22.000
0182	643.1050	Traffic Control Signs PCMS	DAY	140.000	140.000
0184	643.1220	Traffic Control Connected Work Zone Start and End Location Markers	DAY	70.000	70.000
0186	643.3165	Temporary Marking Line Paint 6-Inch	LF	160.000	160.000
0188	643.3180	Temporary Marking Line Removable Tape 6-Inch	LF	4,899.000	4,899.000
0190	643.3550	Temporary Marking Arrow Removable Tape	EACH	4.000	4.000
0192	643.3650	Temporary Marking Word Removable Tape	EACH	2.000	2.000
0194	643.3905	Temporary Marking Diagonal Paint 12-Inch	LF	23.000	23.000
0196	643.5000	Traffic Control	EACH	1.000	1.000

Estimate Of Quantities

1204-05-77

Line	Item	Item Description	Unit	Total	Qty
0198	645.0120	Geotextile Type HR	SY	320.000	320.000
0200	645.0130	Geotextile Type R	SY	53.000	53.000
0202	646.1020	Marking Line Epoxy 4-Inch	LF	1,453.000	1,453.000
0204	646.2020	Marking Line Epoxy 6-Inch	LF	397.000	397.000
0206	646.2025	Marking Line Grooved Black Epoxy 6-Inch	LF	3,759.000	3,759.000
0208	646.2040	Marking Line Grooved Wet Ref Epoxy 6-Inch	LF	29,825.000	29,825.000
0210	646.2050	Marking Line Grooved Permanent Tape 6-Inch	LF	3,759.000	3,759.000
0212	646.4050	Marking Line Grooved Permanent Tape 10-Inch	LF	8,321.000	8,321.000
0214	646.5020	Marking Arrow Epoxy	EACH	20.000	20.000
0216	646.5120	Marking Word Epoxy	EACH	8.000	8.000
0218	646.6120	Marking Stop Line Epoxy 18-Inch	LF	63.000	63.000
0220	646.6220	Marking Yield Line Epoxy 18-Inch	EACH	40.000	40.000
0222	646.7120	Marking Diagonal Epoxy 12-Inch	LF	263.000	263.000
0224	646.7320	Marking Chevron Epoxy 12-Inch	LF	630.000	630.000
0226	646.8120	Marking Curb Epoxy	LF	258.000	258.000
0228	646.8220	Marking Island Nose Epoxy	EACH	8.000	8.000
0230	646.9000	Marking Removal Line 4-Inch	LF	8,705.000	8,705.000
0232	650.4000	Construction Staking Storm Sewer	EACH	24.000	24.000
0234	650.4500	Construction Staking Subgrade	LF	8,910.000	8,910.000
0236	650.5000	Construction Staking Base	LF	8,910.000	8,910.000
0238	650.5500	Construction Staking Curb Gutter and Curb & Gutter	LF	2,711.000	2,711.000
0240	650.6000	Construction Staking Pipe Culverts	EACH	4.000	4.000
0242	650.8501	Construction Staking Electrical Installations (project) 01. 1204-05-77	EACH	1.000	1.000
0244	650.9500	Construction Staking Sidewalk (project) 01. 1204-05-77	EACH	1.000	1.000
0246	650.9911	Construction Staking Supplemental Control (project) 01. 1204-05-77	EACH	1.000	1.000
0248	650.9920	Construction Staking Slope Stakes	LF	6,085.000	6,085.000
0250	652.0225	Conduit Rigid Nonmetallic Schedule 40 2-Inch	LF	3,460.000	3,460.000
0252	652.0235	Conduit Rigid Nonmetallic Schedule 40 3-Inch	LF	60.000	60.000
0254	652.0325	Conduit Rigid Nonmetallic Schedule 80 2-Inch	LF	430.000	430.000
0256	652.0605	Conduit Special 2-Inch	LF	355.000	355.000
0258	653.0164	Pull Boxes Non-Conductive 24x42-Inch	EACH	13.000	13.000
0260	654.0105	Concrete Bases Type 5	EACH	21.000	21.000
0262	654.0230	Concrete Control Cabinet Bases Type L30	EACH	1.000	1.000
0264	655.0610	Electrical Wire Lighting 12 AWG	LF	6,464.000	6,464.000
0266	655.0625	Electrical Wire Lighting 6 AWG	LF	22,880.000	22,880.000
0268	656.0201	Electrical Service Meter Breaker Pedestal (location) 01. CB100	EACH	1.000	1.000
0270	657.0255	Transformer Bases Breakaway 11 1/2-Inch Bolt Circle	EACH	21.000	21.000
0272	657.0322	Poles Type 5-Aluminum	EACH	21.000	21.000
0274	657.0710	Luminaire Arms Truss Type 4 1/2-Inch Clamp 12-FT	EACH	38.000	38.000
0276	659.1120	Luminaires Utility LED B	EACH	38.000	38.000
0278	659.2130	Lighting Control Cabinets 120/240 30-Inch	EACH	1.000	1.000
0280	690.0150	Sawing Asphalt	LF	9,497.000	9,497.000
0282	740.0440	Incentive IRI Ride	DOL	1,290.000	1,290.000
0284	ASP.1T0A	On-the-Job Training Apprentice at \$5.00/HR	HRS	2,000.000	2,000.000
0286	ASP.1T0G	On-the-Job Training Graduate at \$5.00/HR	HRS	1,320.000	1,320.000
0288	SPV.0060	Special 01. Research and Locate Existing Land Parcel Monuments	EACH	1.000	1.000
0290	SPV.0060	Special 02. Verify and Replace Existing Land Parcel Monuments	EACH	1.000	1.000
0292	SPV.0090	Special 01. Foundation Drilling 20-Inch Diameter	LF	105.000	105.000

Estimate Of Quantities

1204-05-77

GRUBBING

					201.0205 GRUBBING	
CATEGORY	STATION	TO	STATION	LOCATION	STA	REMARKS
0010	1680+00	-	1681+50	WB LT	2	
TOTAL 0010					2	

SAWING

690.0150 SAWING ASPHALT			
CATEGORY	LOCATION	LF	REMARKS
0010	EB	5,186	
0010	WB	4,263	
0010	CTH F	48	
TOTAL 0010		9,497	

REMOVAL ITEMS

					204.0120	204.0150	204.0165	204.0180	204.0220		
					REMOVING ASPHALTIC SURFACE MILLING	REMOVING CURB & GUTTER	REMOVING GUARDRAIL	REMOVING DELINEATORS AND MARKERS	REMOVING INLETS		
CATEGORY	STATION	TO	STATION	LOCATION	SY	LF	LF	EACH	EACH	REMARKS	
0010	1658+55	-	1668+76	CTH F	-	340	-	-	-		
0010	1651+60	-	1658+55	EB RT	592	-	472	-	-		
0010	1672+50	-	1683+75	WB LT	473	-	-	1	-		
0010	1657+25			MEDIAN	-	-	-	-	1		
0010	1676+25			MEDIAN	-	-	-	-	1		
TOTAL 0010					1,065	340	472	1	2		

3

DIVISION	FROM/TO STATION	LOCATION	205.0100 EXCAVATION COMMON (1)		UNEXPANDED FILL	EXPANDED FILL (13)	MASS ORDINATE +/- (14)	WASTE (15)	208.0100 BORROW	COMMENT
			CUT (2)	EBS EXCAVATION (3)		FACTOR 1.25				
DIVISION 1										
18 EB STAGE 1	1649+35.32/1659+00.00		732	-	2,309	2,886	-2,154	0	2,154	
18WB STAGE 1	1673+11.00/1683+76.00		1,435	-	4,279	5,349	-3,914	0	3,914	
STAGE 2A EAST	1673+50.00/1684+50.00		571	-	631	789	-218	0	218	
STAGE 2A WEST	1649+50.00/1662+65.00		785	-	704	880	-95	0	95	
STAGE 2B	1662+65.00/1673+40.00		1,602	-	1,083	1,354	248	248	0	
18EB STAGE 3	1659+00.00/1666+84.71		639	-	745	931	-292	0	292	
CTH F STAGE 3	48+50.00/51+31.82		600	-	52	65	535	535	0	
18WB STAGE 4	1668+92.97/1673+11.00		1,147	-	433	541	606	606	0	
CTH F STAGE 4	51+81.88/54+57.63		857	-	99	124	733	733	0	
DIVISION 1 SUBTOTAL			8,368	0	10,335	12,919	-4,551	2,122	6,673	
GRAND TOTAL			8,368	0	10,335	12,919	-4,551	0	4,551	
TOTAL COMMON EXC			8,368							

NOTES:
(1) COMMON EXCAVATION IS THE SUM OF THE CUT AND EBS EXCAVATION COLUMNS. ITEM NUMBER 205.0100
(13) EXPANDED FILL FACTOR = 1.25
EXPANDED FILL = UNEXPANDED FILL * FILL FACTOR
(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.

BASE AGGREGATE								
CATEGORY	STATION	TO	STATION	LOCATION	305.0110	305.0120	371.2000.S	624.0100
					BASE AGGREGATE DENSE	BASE AGGREGATE	QMP BASE AGGREGATE DENSE 1	
					3/4-INCH	DENSE 1 1/4-INCH	1/4-INCH COMPACTION	WATER
					TON	TON	EACH	MGAL
								REMARKS
0010	1649+50	-	1662+65	Stage 1 EB	62	1,990	18	31
0010	1673+11	-	1685+11	Stage 1 WB	32	1,849	-	29
0010	1649+21	-	1661+16	Stage 2A	84	1,823	-	29
0010	1674+70	-	1685+11	Stage 2A	294	3,519	-	58
0010	1661+16	-	1674+71	Stage 2B	16	4,273	-	65
0010	1649+21	-	1673+11	Stage 3	77	2,895	-	45
0010	1662+65	-	1685+11	Stage 4	99	2,712	-	43
TOTAL 0010					664	19,061	18	300

ASPHALTIC ITEMS

					455.0605	460.6424	465.0315	
					TACK COAT	HMA PAVEMENT 4	ASPHALTIC	
					GAL	MT 58-28 H	FLUMES	
CATEGORY	STATION	TO	STATION	LOCATION		TON	SY	REMARKS
0010	1649+50	-	1662+65	Stage 1 EB	118	378	-	
0010	1673+11	-	1685+11	Stage 1 WB	101	366	-	
0010	1649+21	-	1661+16	Stage 2A	99	550	-	
0010	1674+70	-	1685+11	Stage 2A	80	447	-	
0010	1661+16	-	1674+71	Stage 2B	213	1,189	-	
0010	1649+21	-	1673+11	Stage 3	261	1,077	4	
0010	1662+65	-	1685+11	Stage 4	248	1,048	8	
TOTAL 0010					1,120	5,055	12	

CULVERT ITEMS

					520.1024	520.3324	521.3172	522.0160	524.0660	524.0672	*	*	*			
					APRON ENDWALLS	CULVERT PIPE	CULVERT PIPE	CULVERT PIPE	APRON ENDWALLS	APRON ENDWALLS						
					FOR CULVERT PIPE	CLASS III-A 24-	CORRUGATED	REINFORCED	FOR CULVERT PIPE	FOR CULVERT PIPE			PIPE GRATES (SIZE)	CULVERT PIPE	GEOTEXTILE TYPE	GEOTEXTILE TYPE
					24-INCH	INCH	STEEL 72-INCH	CONCRETE CLASS	SALVAGED 60-	SALVAGED 72-			(01. 24-INCH)	CHECKS	HR	R
CATEGORY	STATION	TO	STATION	LOCATION	EACH	LF	LF	LF	EACH	EACH	RIPRAP LIGHT	RIPRAP MEDIUM	EACH	EACH	SY	SY
0010	1649+36	-	1650+51	WEST U-TURN	2	115	-	-	-	-	4	-	2	3	-	14
0010	1682+89	-	1683+94	EAST U-TURN	2	105	-	-	-	-	4	-	2	3	-	14
0010	1652+84			EB RT	-	-	8	-	-	1	-	12	-	-	42	-
0010	1680+25			WB LT	-	-	-	14	1	-	-	-	-	7	-	-
TOTAL 0010					4	220	8	14	1	1	8	12	4	13	42	28

* ADDITIONAL QUANTITIES LISTED ELSEWHERE

(1) Minimum steel pipe thickness = 0.064"

(2) Minimum steel pipe thickness = 0.168"

STORM SEWER MISC. ITEMS

					520.8000	608.0005	608.0318	611.3901	611.9710	611.9850.S.01	611.9850.S.02	
					CONCRETE	STORM SEWER	STORM SEWER					
					COLLARS FOR PIPE	ROCK	PIPE REINFORCED	INLETS MEDIAN 1	SALVAGED INLET	PIPE GRATES (SIZE) (01. 24-	PIPE GRATES (SIZE) (02.	
					EACH	EXCAVATION	CONCRETE CLASS	GRATE	COVERS	INCH)	19X30-INCH)	
CATEGORY	LOCATION				EACH	CY	III 18-INCH	EACH	EACH	EACH	EACH	REMARKS
0010	CONCRETE MEDIAN WEST				-	46	-	-	-	1	-	
0010	CONCRETE MEDIAN EAST				-	25	-	-	-	1	-	
0010	CTH F SW QUADRANT				-	136	-	-	-	-	1	
0010	GRASS MEDIAN WEST				1	-	8	1	1	-	-	
0010	GRASS MEDIAN EAST				1	-	8	1	1	-	-	
TOTAL 0010					2	207	16	2	2	2	1	

* ADDITIONAL QUANTITIES LISTED ELSEWHERE

STORM SEWER STRUCTURES															
				521.1624	522.2619	611.0627	611.0630	611.0642	611.1005	611.3004	611.3230	611.3901	650.4000		
				APRON ENDWALLS FOR CULVERT PIPE SLOPED SIDE DRAINS STEEL 24- INCH 10 TO 1	APRON ENDWALLS FOR CULVERT PIPE REINFORCED CONCRETE HORIZONTAL ELLIPTICAL 19X30- INCH	INLET COVERS TYPE HM	INLET COVERS TYPE HM-GJ	INLET COVERS TYPE MS	CATCH BASINS 5-FT DIAMETER	INLETS 4-FT DIAMETER	INLETS 2X3-FT	INLETS MEDIAN 1 GRATE	CONSTRUCTION STAKING STORM SEWER	RIM**	INVERT***
STRUCTURE	STATION	OFFSET*	LOCATION	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	ELEVATION	ELEVATION
1	1667+01.15	69.06' RT	USH 18/151					1				1	1	1256.74	1254.49
2	1666+81.96	49.39' RT	USH 18/151			1				1			1	1259.07	1253.90
3	1665+77.94	47.71' RT	USH 18/151			1				1			1	1258.70	1253.53
4	1664+73.87	46.19' RT	USH 18/151				1			1			1	1258.25	1253.17
5	1663+70.34	44.41' RT	USH 18/151			1				1			1	1257.39	1252.65
6	1662+66.10	42.60' RT	USH 18/151			1				1			1	1256.24	1251.92
7	1661+75.54	41.51' RT	USH 18/151			1				1			1	1255.07	1251.02
8	1667+01.88	12.18' LT	USH 18/151				1			1			1	1259.16	1256.00
9	1666+92.87	26.26' LT	USH 18/151				1			1			1	1258.94	1254.88
10	1664+77.09	19.71' LT	USH 18/151				1			1			1	1258.17	1253.71
10A	1664+77.19	36.80' LT	USH 18/151				1				1		1	1258.37	1254.87
11	1662+66.91	13.43' LT	USH 18/151				1		1				1	1256.34	1251.72
11A	1662+66.77	36.86' LT	USH 18/151				1				1		1	1256.52	1253.02
12	1668+79.46	37.90' LT	USH 18/151				1			1			1	1259.13	1256.13
13	1668+88.65	23.83' LT	USH 18/151				1			1			1	1258.88	1255.63
14	1670+98.82	30.08' LT	USH 18/151				1			1			1	1257.74	1252.91
14A	1670+99.06	12.85' LT	USH 18/151				1				1		1	1258.07	1254.07
15	1673+08.98	36.55' LT	USH 18/151				1		1				1	1255.58	1250.83
15A	1673+09.03	13.18' LT	USH 18/151				1				1		1	1255.76	1252.76
AEW7	1660+86.17	52.07' RT	USH 18/151		1								1		1251.10
AEW11	1661+77.39	22.71' LT	USH 18/151	1									1		1251.40
AEW15	1673+98.41	26.50' LT	USH 18/151	1									1		1250.40
			TOTALS	2	1	5	13	1	2	12	4	1	22		
		REMARKS:													
		*STATIONS AND OFFSETS ARE TO CENTER OF STRUCTURE FROM 'EB'													
		**RIM ELEV IS AT THE INLET COVER FLANGE LOCATION													
		***FOR STRUCTURES WITH SUMPS, THE INVERT ELEVATION IS THE ELEVATION OF THE SUMP. FOR STRUCTURES WITHOUT SUMPS, THE INVERT ELEVATION IS THE ELEVATION OF THE LOWEST PIPE FLOW LINE													
		****DEPTH = RIM ELEV - TOP OF STRUCTURE BASE ELEV - COVER HEIGHT - 6-INCH ADJUSTMENT RING HEIGHT													

STORM SEWER PIPES												
				608.0412	608.0415	608.0418	608.0424	608.2419				
				STORM SEWER PIPE REINFORCED CONCRETE CLASS IV 12-INCH	STORM SEWER PIPE REINFORCED CONCRETE CLASS IV 15-INCH	STORM SEWER PIPE REINFORCED CONCRETE CLASS IV 18-INCH	STORM SEWER PIPE REINFORCED CONCRETE CLASS IV 24-INCH	STORM SEWER PIPE REINFORCED CONCRETE HORIZONTAL ELLIPTICAL CLASS HE-IV 19X30-INCH				
FROM	-	TO	LOCATION	LF	LF	LF	LF	LF	INLET ELEVATION	DISCHARGE ELEVATION	SLOPE FT/FT	
1	-	2	USH 18/151				27		1254.49	1253.90	0.0215	
2	-	3	USH 18/151				104		1253.90	1253.53	0.0035	
3	-	4	USH 18/151				104		1253.53	1253.17	0.0035	
4	-	5	USH 18/151				104		1253.17	1252.65	0.0050	
5	-	6	USH 18/151				104		1252.65	1251.92	0.0070	
6	-	7	USH 18/151				91		1251.92	1251.02	0.0100	
7	-	AEW7	USH 18/151					90	1251.44	1251.10	0.0037	
8	-	9	USH 18/151	17					1256.00	1255.83	0.0100	
9	-	10	USH 18/151		216				1255.58	1253.96	0.0075	
10	-	11	USH 18/151			210			1253.71	1252.14	0.0075	
10A	-	10	USH 18/151	17					1254.87	1254.21	0.0384	
11	-	AEW11	USH 18/151				90		1251.72	1251.40	0.0035	
11A	-	11	USH 18/151	23					1253.02	1252.64	0.0163	
12	-	13	USH 18/151	17					1256.13	1255.88	0.0149	
13	-	14	USH 18/151		210				1255.63	1253.16	0.0118	
14	-	15	USH 18/151			210			1252.91	1251.33	0.0075	
14A	-	14	USH 18/151	17					1254.07	1253.41	0.0385	
15	-	AEW15	USH 18/151				90		1250.83	1250.40	0.0048	
15A	-	15	USH 18/151	23					1252.76	1251.83	0.0398	
			TOTALS	114	426	420	714	90				

CONCRETE ITEMS

					601.0415 CONCRETE CURB & GUTTER 6-INCH SLOPED 30-INCH TYPE J	601.0557 CONCRETE CURB & GUTTER 6-INCH SLOPED 36-INCH TYPE D	602.0410 CONCRETE SIDEWALK 5-INCH	620.0300 CONCRETE MEDIAN SLOPED NOSE		
CATEGORY	STATION	TO	STATION	LOCATION	LF	LF	SF	SF	REMARKS	
0010	1649+50	-	1662+65	Stage 1 EB	-	-	-	-		
0010	1673+11	-	1685+11	Stage 1 WB	-	-	-	-		
0010	1649+21	-	1661+16	Stage 2A	-	-	-	-		
0010	1674+70	-	1685+11	Stage 2A	-	-	-	-		
0010	1661+16	-	1674+71	Stage 2B	2305	-	3827	259		
0010	1649+21	-	1673+11	Stage 3	215	1100	1348	69		
0010	1662+65	-	1685+11	Stage 4	191	122	1050	74		
TOTAL 0010					2,711	1,222	6,225	402		

EROSION CONTROL & LANDSCAPE

		* 606.0100	* 606.0200	616.0100.01	625.0500	628.1504	628.1520	628.1905	628.1910	628.2006	628.2023	628.7005	628.7015	628.7504	628.7560	629.0210	630.0130	630.0200	630.0500	* 645.0120	* 645.0130
		RIPRAP LIGHT	RIPRAP MEDIUM	FENCE WOVEN WIRE (HEIGHT) (01. 4.5-FT)	SALVAGED TOPSOIL	SILT FENCE	SILT FENCE MAINTENANCE	MOBILIZATION S EROSION CONTROL	MOBILIZATIONS EMERGENCY EROSION CONTROL	EROSION MAT URBAN CLASS I TYPE A	EROSION MAT CLASS II TYPE B	INLET PROTECTION TYPE A	INLET PROTECTION TYPE C	TEMPORARY DITCH CHECKS	TRACKING PADS	FERTILIZER TYPE B	SEEDING MIXTURE NO. 30	SEEDING TEMPORARY	SEED WATER	GEOTEXTILE TYPE HR	GEOTEXTILE TYPE R
CATEGORY	LOCATION	CY	CY	LF	SY	LF	LF	EACH	EACH	SY	SY	EACH	EACH	LF	EACH	CWT	LB	LB	MGAL	SY	SY
0010	Stage 1 EB	-	72	-	3,663	1068.00	1068.00	-	-	0	3,663	-	2	48	1	2	165	99	206	184	-
0010	Stage 1 WB	-	-	440	5,792	674.00	674.00	-	-	0	5,792	-	-	64	1	2	261	157	326	-	-
0010	Stage 2A EB	-	-	-	1,405	-	-	-	-	0	1,405	1	2	-	1	1	64	38	79	-	-
0010	Stage 2A WB	-	-	-	1,033	-	-	-	-	0	1,033	1	2	-	1	1	47	28	59	-	-
0010	Stage 2B	7	-	-	1,224	-	-	-	-	1,224	0	-	8	-	-	1	56	34	69	-	20
0010	Stage 3	-	8	-	1,067	-	-	-	-	0	1,067	1	4	-	-	1	49	29	60	19	-
0010	Stage 4	-	8	-	2,319	-	-	-	-	537	1,782	-	-	-	-	1	105	63	131	19	-
0010	UNDISTRIBUTED	2	22	-	4,126	436	436	6	5	441	3,686	-	-	28	1	3	187	112	233	56	5
TOTAL 0010		9	110	440	20,629	2,178	2,178	6	5	2,202	18,428	3	18	140	5	12	934	560	1,163	278	25

* ADDITIONAL QUANTITIES LISTED ELSEWHERE

MGS GUARDRAIL

		614.2300		614.2610		614.2620			
		MGS GUARDRAIL 3		MGS GUARDRAIL		MGS GUARDRAIL			
		LF		TERMINAL EAT		TERMINAL TYPE 2			
CATEGORY	STATION	TO	STATION	LOCATION					REMARKS
0010	1651+33	-	1656+49	EB RT	462	1	1		
TOTAL 0010					462	1	1		

SIGNING ITEMS

		531.1100	531.1140	531.2024	634.0616	635.0200	637.2210	638.2101	638.2102	638.2602	638.3000		
		CONCRETE	STEEL										
		MASONRY	REINFORCEMENT										
		ANCILLARY	HS ANCILLARY										
		STRUCTURES TYPE	STRUCTURES TYPE	DRILLING SHAFT	POSTS WOOD 4X6-	STRUCTURAL STEEL	SIGNS TYPE II	MOVING SIGNS	MOVING SIGNS	REMOVING SIGNS	REMOVING SMALL		
		NS	NS	24-INCH	INCH X 16-FT	HS	REFLECTIVE H	TYPE I	TYPE II	TYPE II	SIGN SUPPORTS		
CATEGORY	LOCATION	CY	LB	LF	EACH	LB	SF	EACH	EACH	EACH	EACH		REMARKS
0010	EB RT	2	220	16	28	1,928	336.00	1	2	10	9		
0010	WB LT	-	-	-	26	-	350.25	-	2	10	9		
0010	MEDIAN	-	-	-	29	-	614.00	-	1	11	8		
TOTAL 0010		2	220	16	83	1,928	1,300.25	1	5	31	26		

TEMPORARY PAVEMENT MARKING

CATEGORY	LOCATION	643.3165	643.3180	643.3550	643.3650	643.3905	646.9000	REMARKS
		TEMPORARY MARKING LINE PAINT 6-INCH LF	TEMPORARY MARKING LINE REMOVABLE TAPE 6-INCH LF	TEMPORARY MARKING ARROW REMOVABLE TAPE EACH	TEMPORARY MARKING WORD REMOVABLE TAPE EACH	TEMPORARY MARKING DIAGONAL PAINT 12-INCH LF	MARKING REMOVAL LINE 4- INCH LF	
0010	STAGE 1	-	1,560	-	-	-	2130	
0010	STAGE 2A	-	1,560	4	2	-	4,737	
0010	STAGE 2B	160	-	-	-	23	1,838	
0010	STAGE 3	-	997	-	-	-	-	
0010	STAGE 4	-	782	-	-	-	-	
TOTAL 0010		160	4,899	4	2	23	8,705	

TRAFFIC CONTROL ITEMS

CATEGORY	LOCATION	APPROXIMATE SERVICE PERIOD DAYS	NO.	643.0300	NO.	643.0370.S	NO.	643.0420	NO.	643.0705	NO.	643.0715	NO.	643.0810	NO.	643.0900	643.0920	643.1050	643.1220
				TRAFFIC CONTROL DRUMS DAY		DIGITAL SPEED REDUCTION SYSTEM (DSRS) DAY		TRAFFIC CONTROL BARRICADES TYPE III DAY		TRAFFIC CONTROL WARNING LIGHTS TYPE A DAY		TRAFFIC CONTROL WARNING LIGHTS TYPE C DAY		TRAFFIC CONTROL CONNECTED ARROW BOARDS DAY		TRAFFIC CONTROL SIGNS DAY	TRAFFIC CONTROL COVERING SIGNS TYPE II EACH	TRAFFIC CONTROL SIGNS PCMS DAY	CONNECTED WORK ZONE START AND END LOCATION DAY
0010	STAGE 1	13	82	1,066	2	26	4	52	8	104	22	286	2	26	30	390	2	28	13
0010	STAGE 2A	14	272	3,808	2	28	12	168	24	336	33	462	2	28	40	560	-	28	14
0010	STAGE 2B	17	180	3,060	2	34	20	340	40	680	33	561	2	34	38	646	4	28	17
0010	STAGE 3	14	115	1,610	2	28	15	210	30	420	33	462	1	14	38	532	8	28	14
0010	STAGE 4	12	72	864	2	24	15	180	30	360	10	120	1	12	35	420	8	28	12
TOTAL 0010				10,408		140		950		1,900		1,891		114		2,548	22	140	70

3

3

PAVEMENT MARKING

		646.1020		646.2020	646.2025	646.2040		646.2050	646.4050	646.5020	646.5120	646.6120	646.6220	646.7120	646.7320	646.8120	646.8220	REMARKS
CATEGORY	LOCATION	MARKING LINE EPOXY 4-INCH		MARKING LINE EPOXY 6-INCH	MARKING LINE GROOVED BLACK EPOXY 6-INCH	MARKING LINE GROOVED WET REF EPOXY 6-INCH		MARKING LINE GROOVED PERMANENT TAPE 6-INCH	MARKING LINE GROOVED PERMANENT TAPE 10-INCH	MARKING ARROW EPOXY	MARKING WORD EPOXY	MARKING STOP LINE EPOXY 18-INCH	MARKING YIELD LINE EPOXY 18-INCH	MARKING DIAGONAL EPOXY 12-INCH	MARKING CHEVRON EPOXY 12-INCH	MARKING CURB EPOXY	MARKING ISLAND NOSE EPOXY	
		LF (YELLOW)	LF (WHITE)	LF	LF	LF (YELLOW)	LF (WHITE)	LF	LF	EACH	EACH	LF	EACH	LF	LF	LF	EACH	
0010	EB RT	-	-	-	1880.00	-	7294.00	1880.00	2384.00	3.00	1.00	-	-	-	309.00	-	-	
0010	WB LT	-	-	-	1879.00	-	7333.00	1879.00	2196.00	3.00	1.00	-	-	-	321.00	-	-	
0010	MEDIAN	-	-	-	-	15198.00	-	-	3741.00	10.00	4.00	-	40.00	238.00	-	116.00	4.00	
0010	CTH F SOUTH LEG	391.00	274.00	208.00	-	-	-	-	-	2.00	1.00	31.00	-	13.00	-	75.00	2.00	
0010	CTH F NORTH LEG	410.00	378.00	189.00	-	-	-	-	-	2.00	1.00	32.00	-	12.00	-	67.00	2.00	
SUBTOTALS		801	652			15,198	14,627											
TOTAL 0010		1,453		397	3,759	29,825		3,759	8,321	20	8	63	40	263	630	258	8	

CONSTRUCTION STAKING

		650.4500	650.5000	650.5500	650.6000	650.8501.01	650.9500.01	650.9911.01	650.9920	SPV.0060.01	SPV.0060.02	REMARKS
CATEGORY	LOCATION	CONSTRUCTION STAKING SUBGRADE	CONSTRUCTION STAKING BASE	CONSTRUCTION STAKING CURB & GUTTER	CONSTRUCTION STAKING PIPE CULVERTS	CONSTRUCTION STAKING ELECTRICAL INSTALLATIONS (PROJECT) (01. 1204-05-77)	CONSTRUCTION STAKING SIDEWALK (PROJECT) (01. 1204-05-77)	CONSTRUCTION STAKING SUPPLEMENTAL CONTROL (PROJECT) (01. 1204-05-77)	CONSTRUCTION STAKING SLOPE STAKES	SPECIAL (01. RESEARCH AND LOCATE EXISTING LAND PARCEL MONUMENTS)	SPECIAL (02. VERIFY AND REPLACE EXISTING LAND PARCEL MONUMENTS)	
		LF	LF	LF	EACH	EACH	EACH	EACH	LF	EACH	EACH	
0010	EB RT	2,220	2,220	215	1	-	-	-	1,985	-	-	
0010	WB LT	1,935	1,935	191	1	-	-	-	1,750	-	-	
0010	MEDIAN	4,755	4,755	2,305	2	1	1	1	2,350	1	1	
TOTAL 0010		8,910	8,910	2,711	4	1	1	1	6,085	1	1	

LIGHTING CONTROL						
		654.0230		656.0201		659.2130
		CONCRETE CONTROL		ELECTRICAL SERVICE		LIGHTING CONTROL
		CABINET BASES		METER BREAKER		CABINETS 120/240
		TYPE L30		PEDESTAL (CB100)		30-INCH
CABINET		EACH		EACH		EACH
NUMBER	STATION	OFFSET	R/L			
ALL ITEMS ARE CATEGORY 0010						
CB100	50+71'F'	70.9'	RT	1	1	1
PROJECT TOTALS				1	1	1

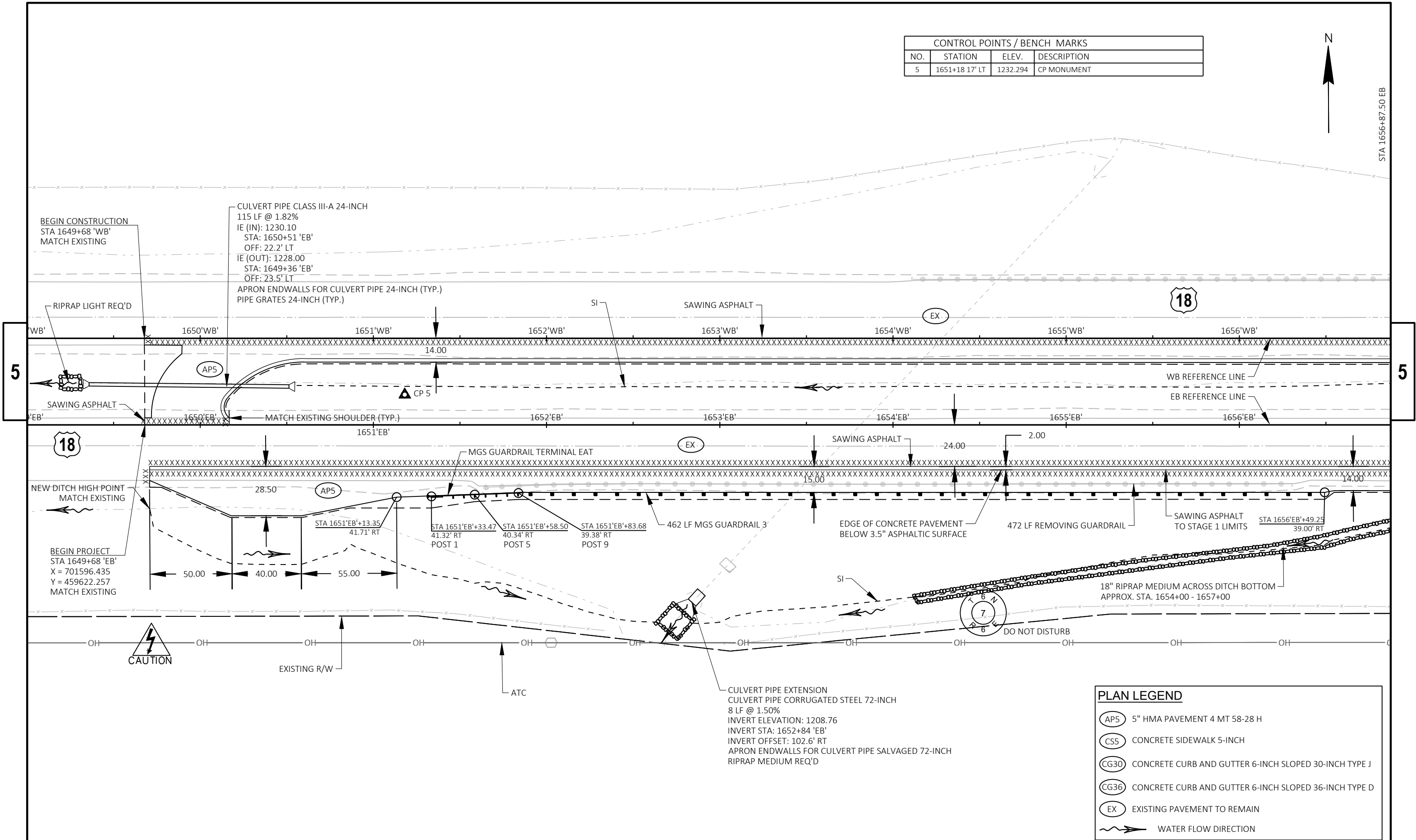
LIGHTING PULLBOXES					653.0164
					PULL BOXES
					NON-CONDUCTIVE
					24X42-INCH
PULLBOX					EACH
NUMBER	STATION	OFFSET	R/L		
ALL ITEMS ARE CATEGORY 0010					
PB 100	50+72'F'	55.0'	RT		1
PB 101	50+78'F'	59.7'	RT		1
PB 102	49+41'F'	23.7'	RT		1
PB 103	50+69'F'	11.9'	RT		1
PB 104	50+63'F'	75.9'	LT		1
PB 105	1650+41'EB'	16.0'	LT		1
PB 106	1667+09'EB'	33.4'	LT		1
PB 107	52+30'F'	82.6'	LT		1
PB 108	53+76'F'	28.2'	LT		1
PB 109	52+44'F'	10.5'	LT		1
PB 110	52+56'F'	53.6'	RT		1
PB 111	1668+62'EB'	15.8'	LT		1
PB 112	1682+98'EB'	32.9'	LT		1
PROJECT TOTALS					13

LIGHTING CONDUIT AND WIRE									
			652.0225	652.0235	652.0325	652.0605	* 655.0610	655.0625	
			CONDUIT RIGID NONMETALLIC			CONDUIT	ELECTRICAL WIRE	ELECTRICAL WIRE	
			SCHEDULE 40		SCHEDULE 80	SPECIAL	LIGHTING	LIGHTING	
			2-INCH	3-INCH	2-INCH	2-INCH	12 AWG	6 AWG	
FROM	-	TO	LF	LF	LF	LF	LF	LF	REMARKS
ALL ITEMS ARE CATEGORY 0010									
	CB 100	-	PB 100	--	10	--	--	130	
	CB 100	-	PB 100	--	10	--	--	26	TRACER WIRE ONLY
	CB 100	-	PB 100	--	10	--	--	26	TRACER WIRE ONLY
	CB 100	-	PB 101	--	10	--	--	130	
	CB 100	-	PB 101	--	10	--	--	26	TRACER WIRE ONLY
	CB 100	-	PB 101	--	10	--	--	26	TRACER WIRE ONLY
	PB 101	-	PB 111	--	--	--	75	435	
	PB 111	-	PB 110	--	--		110	610	
	PB 100	-	SL 101	135	--	--	--	1,460	
	SL 101	-	PB 102	5	--	--	--	16	TRACER WIRE ONLY
	PB 100	-	PB 103	--	--	45	--	285	
	PB 103	-	PB 104	--	--	90	--	510	
	PB 104	-	PB 106	--	--	--	105	585	
	PB 104	-	SL 100	20	--	--	--	310	
	PB 106	-	SL 110	10	--	--	--	105	
	PB 106	-	PB 107	--	--	--	65	77	TRACER WIRE ONLY
	PB 107	-	PB 109	--	--	75	--	435	
	PB 107	-	SL 120	160	--	--	--	855	
	SL 120	-	PB 108	5	--	--	--	16	TRACER WIRE ONLY
	PB 109	-	PB 110	--	--	65	--	385	
	PB 110	-	SL 119	10	--	--	--	210	
	PB 106	-	PB 111	--	--	155	--	167	TRACER WIRE ONLY
	PB 111	-	SL 111	20	--	--	--	310	
	SL 110	-	SL 109	210	--	--	--	1,100	
	SL 109	-	SL 108	210	--	--	--	1,100	
	SL 108	-	SL 107	210	--	--	--	1,100	
	SL 107	-	SL 106	210	--	--	--	1,100	
	SL 106	-	SL 105	210	--	--	--	1,100	
	SL 105	-	SL 104	210	--	--	--	1,100	
	SL 104	-	SL 103	210	--	--	--	1,100	
	SL 103	-	SL 102	185	--	--	--	975	
	SL 102	-	PB 105	10	--	--	--	21	TRACER WIRE ONLY
	SL 111	-	SL 112	210	--	--	--	1,100	
	SL 112	-	SL 113	210	--	--	--	1,100	
	SL 113	-	SL 114	210	--	--	--	1,100	
	SL 114	-	SL 115	210	--	--	--	1,100	
	SL 115	-	SL 116	210	--	--	--	1,100	
	SL 116	-	SL 117	185	--	--	--	975	
	SL 117	-	SL 118	185	--	--	--	975	
	SL 118	-	PB 112	10	--	--	--	21	TRACER WIRE ONLY
PRJOECT TOTALS			3,460	60	430	355	422	22,880	

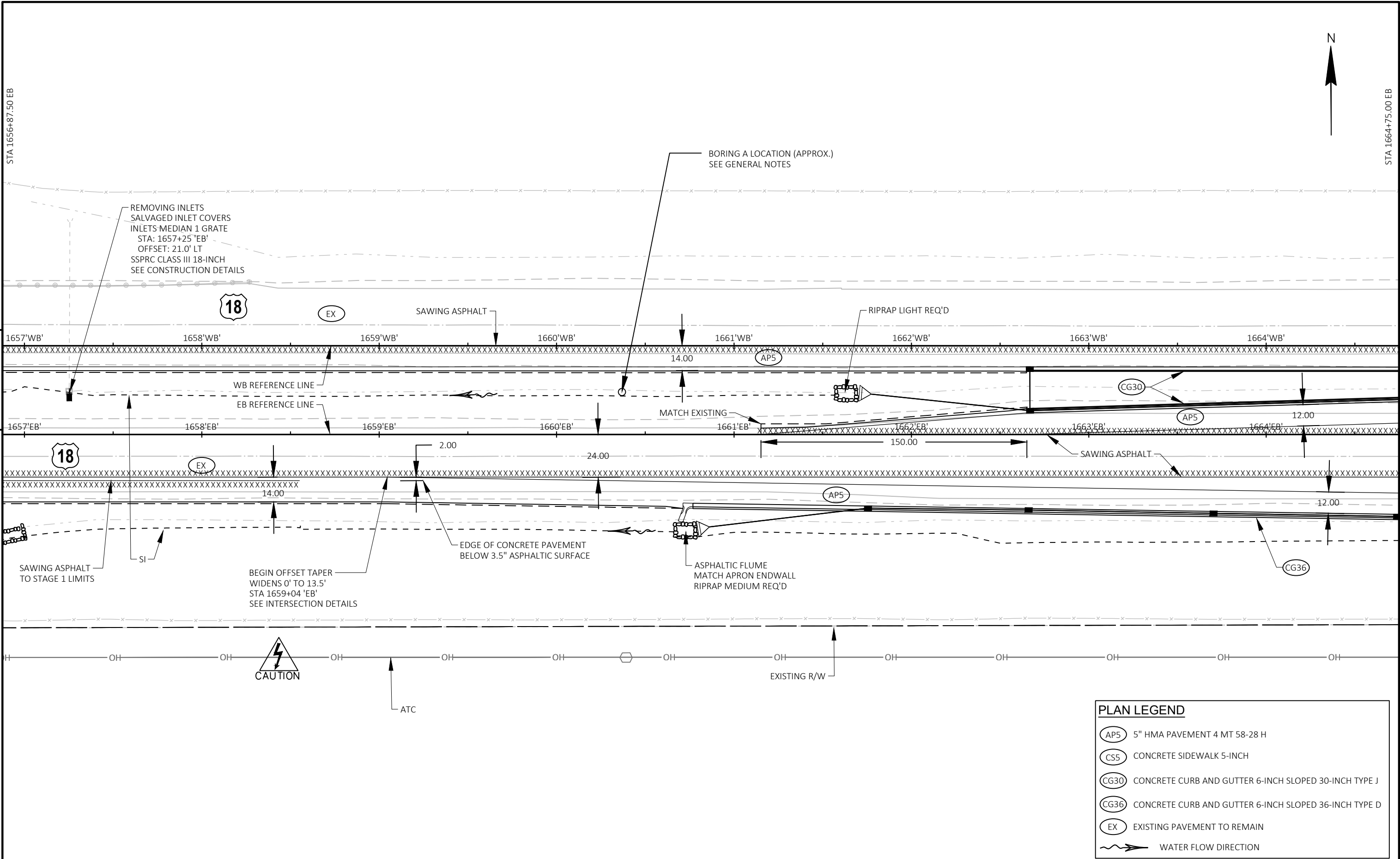
* ADDITIONAL QUANTITIES LISTED ELSEWHERE

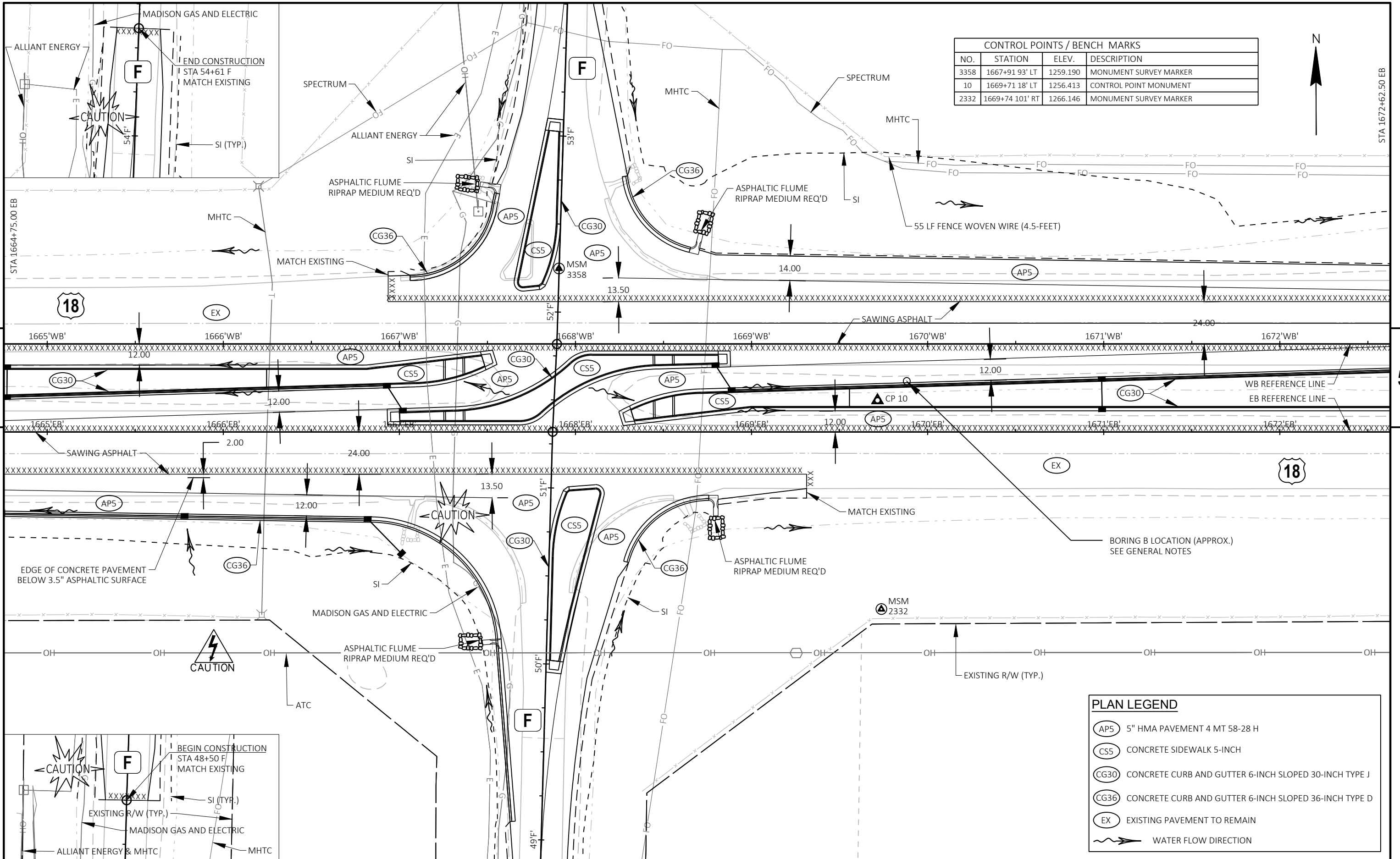
STREET LIGHTING										
LIGHT NUMBER	STATION	OFFSET	R/L	SPV.0090.01	654.0105	657.0255	657.0322	657.0710	659.1120	* 655.0610
				FOUNDATION	CONCRETE	TRANSFORMER BASES	POLES	LUMINAIRE ARMS	LUMINAIRES	ELECTRICAL
				DRILLING	BASES	BREAKAWAY 11 1/12-INCH	TYPE 5	TRUSS TYPE	UTILITY	WIRE LIGHTING
				20-INCH DIAMETER	TYPE 5	BOLT CIRCLE	ALUMINUM	4 1/2-INCH CLAMP 12-FT	LED B	12 AWG
				LF	EACH	EACH	EACH	EACH	EACH	LF
ALL ITEMS ARE CATEGORY 0010										
SL 100	50+61'F'	59.2'	LT	5	1	1	1	1	1	159
SL 101	49+46'F'	23.9'	RT	5	1	1	1	1	1	159
SL 102	1650+49'EB'	16.0'	LT	5	1	1	1	2	2	318
SL 103	1652+33'EB'	17.1'	LT	5	1	1	1	2	2	318
SL 104	1654+43'EB'	17.4'	LT	5	1	1	1	2	2	318
SL 105	1656+53'EB'	17.3'	LT	5	1	1	1	2	2	318
SL 106	1658+63'EB'	17.3'	LT	5	1	1	1	2	2	318
SL 107	1660+73'EB'	19.0'	LT	5	1	1	1	2	2	318
SL 108	1662+83'EB'	25.4'	LT	5	1	1	1	2	2	318
SL 109	1664+93'EB'	28.5'	LT	5	1	1	1	2	2	318
SL 110	1667+03'EB'	33.2'	LT	5	1	1	1	2	2	318
SL 111	1668+79'EB'	17.5'	LT	5	1	1	1	2	2	318
SL 112	1670+89'EB'	21.3'	LT	5	1	1	1	2	2	318
SL 113	1672+99'EB'	26.0'	LT	5	1	1	1	2	2	318
SL 114	1675+09'EB'	30.8'	LT	5	1	1	1	2	2	318
SL 115	1677+19'EB'	31.6'	LT	5	1	1	1	2	2	318
SL 116	1679+29'EB'	31.7'	LT	5	1	1	1	2	2	318
SL 117	1681+10'EB'	32.1'	LT	5	1	1	1	2	2	318
SL 118	1682+92'EB'	32.9'	LT	5	1	1	1	2	2	318
SL 119	52+51'F'	56.0'	RT	5	1	1	1	1	1	159
SL 120	53+72'F'	27.7'	LT	5	1	1	1	1	1	159
PROJECT TOTALS				105	21	21	21	38	38	6,042
* ADDITIONAL QUANTITIES LISTED ELSEWHERE										

CONTROL POINTS / BENCH MARKS			
NO.	STATION	ELEV.	DESCRIPTION
5	1651+18 17' LT	1232.294	CP MONUMENT



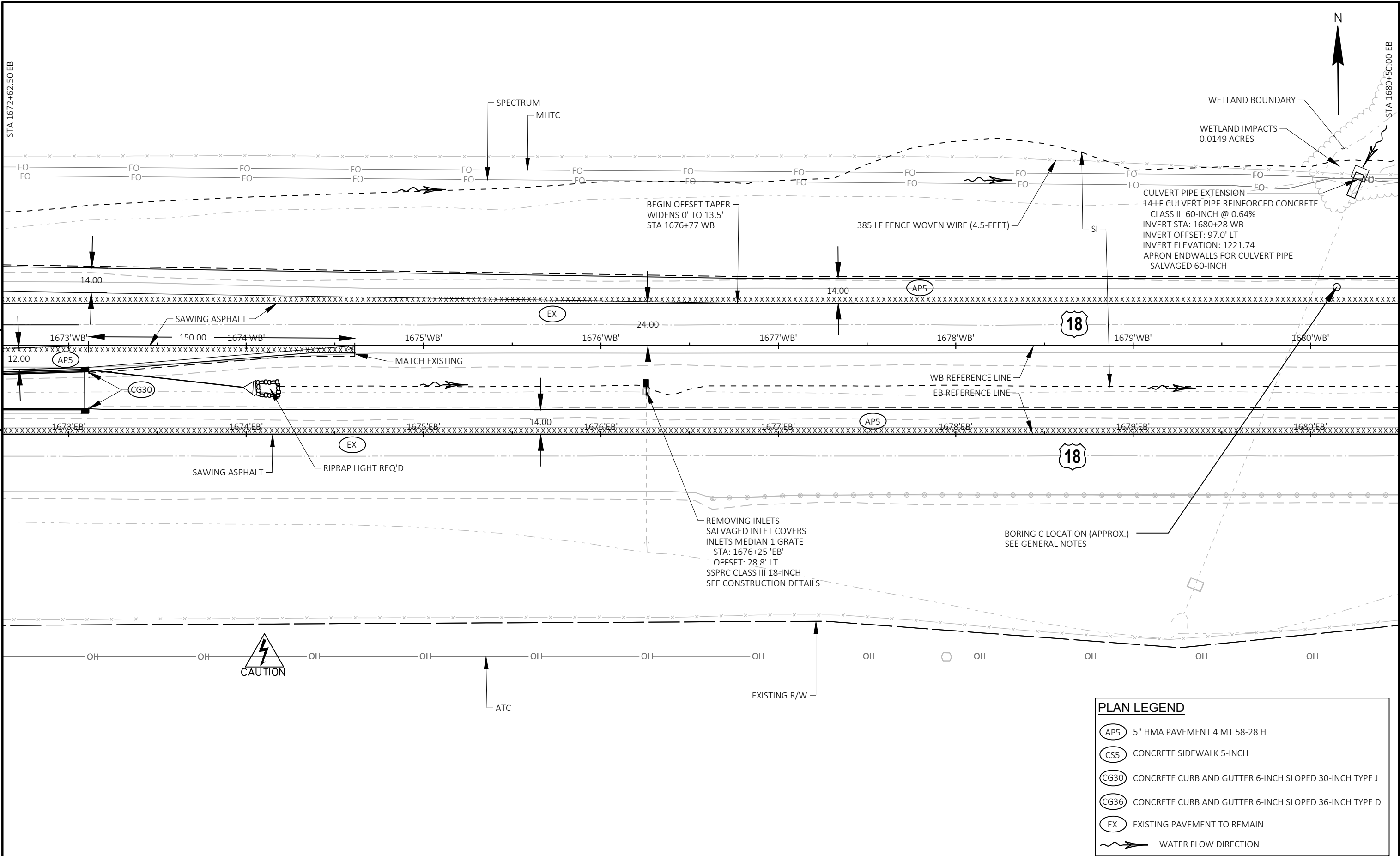
PLAN LEGEND	
AP5	5" HMA PAVEMENT 4 MT 58-28 H
CS5	CONCRETE SIDEWALK 5-INCH
CG30	CONCRETE CURB AND GUTTER 6-INCH SLOPED 30-INCH TYPE J
CG36	CONCRETE CURB AND GUTTER 6-INCH SLOPED 36-INCH TYPE D
EX	EXISTING PAVEMENT TO REMAIN
	WATER FLOW DIRECTION





CONTROL POINTS / BENCH MARKS			
NO.	STATION	ELEV.	DESCRIPTION
3358	1667+91.93' LT	1259.190	MONUMENT SURVEY MARKER
10	1669+71.18' LT	1256.413	CONTROL POINT MONUMENT
2332	1669+74.101' RT	1266.146	MONUMENT SURVEY MARKER

PLAN LEGEND	
AP5	5" HMA PAVEMENT 4 MT 58-28 H
CS5	CONCRETE SIDEWALK 5-INCH
CG30	CONCRETE CURB AND GUTTER 6-INCH SLOPED 30-INCH TYPE J
CG36	CONCRETE CURB AND GUTTER 6-INCH SLOPED 36-INCH TYPE D
EX	EXISTING PAVEMENT TO REMAIN
~>	WATER FLOW DIRECTION



PLAN LEGEND	
AP5	5" HMA PAVEMENT 4 MT 58-28 H
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CG36	CONCRETE CURB AND GUTTER 6-INCH SLOPED 36-INCH TYPE D
EX	EXISTING PAVEMENT TO REMAIN
	WATER FLOW DIRECTION



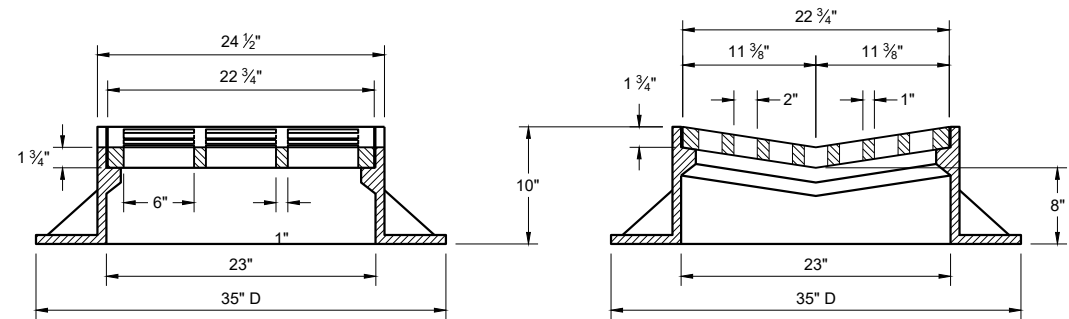
5

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
08C06-03	INLETS 3-FT AND 4-FT DIAMETER
08C07-03	INLETS 2X2-FT, 2X2.5-FT, 2X3-FT, 2.5X3-FT & 2X3.5-FT
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
08F02-01	APRON ENDWALLS FOR PIPE ARCH AND ELLIPTICAL PIPE
08F04-08	JOINT TIES FOR CONCRETE PIPE AND CONCRETE COLLAR DETAIL
08F07-05	STEEL APRON ENDWALLS FOR CULVERT PIPE AND PIPE ARCH SLOPED SIDE DRAINS
09B02-10	CONDUIT
09B16-03	PULL BOX NON-CONDUCTIVE
09C02-09	CONCRETE BASES, TYPES 1, 2, 5, & 6
09C03-04	TRANSFORMER/PEDESTAL BASES
09C14-03	CONCRETE CONTROL CABINET BASE, TYPE L
09D01-05	CABINET SERVICE INSTALLATION (METER BREAKER PEDESTAL)
09D04-03	LIGHTING CONTROL CABINET 120/240 VOLT
09E01-15D	POLE MOUNTINGS FOR LIGHTING UNITS, TYPE 5 (30 FEET)
09E01-15G	HARDWARE DETAILS FOR POLE MOUNTINGS
09E03-06	NON-FREEWAY LIGHTING UNIT POLE WIRING
11B02-02	CONCRETE MEDIAN NOSE
13C19-03	HMA LONGITUDINAL JOINTS
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)
14B47-06A	MIDWEST GUARDRAIL SYSTEM (MGS) TYPE 2 TERMINAL
14B47-06B	MIDWEST GUARDRAIL SYSTEM (MGS) TYPE 2 TERMINAL
14B47-06C	MIDWEST GUARDRAIL SYSTEM (MGS) TYPE 2 TERMINAL
14B47-06D	MIDWEST GUARDRAIL SYSTEM (MGS) TYPE 2 TERMINAL
14B47-06E	MIDWEST GUARDRAIL SYSTEM (MGS) TYPE 2 TERMINAL
14B47-06F	MIDWEST GUARDRAIL SYSTEM (MGS) TYPE 2 TERMINAL
14B47-06G	MIDWEST GUARDRAIL SYSTEM (MGS) TYPE 2 TERMINAL
15B01-08A	FENCE WOVEN WIRE
15B01-08B	FENCE WOVEN WIRE
15C02-09B	BARRICADES AND SIGNS FOR VARIOUS CLOSURES
15C02-09F	ADVANCED WIDTH RESTRICTION SIGNING
15C03-05	BARRICADES AND SIGNS FOR SIDEROAD CLOSURES
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)
15C11-10B	CHANNELIZING DEVICES DRUMS, CONES, BARRICADES AND VERTICAL PANELS
15C12-09A	TRAFFIC CONTROL FOR LANE CLOSURE WITH FLAGGING OPERATION
15C18-09A	MEDIAN ISLAND PAVEMENT MARKINGS
15C18-09B	PAVEMENT MARKINGS, MEDIAN ISLAND NOSE
15C18-09C	MEDIAN PAVEMENT MARKINGS DOUBLE ARROW WARNING SIGN PLACEMENT
15C20-02	YIELD MARKING
15C33-05	STOP LINE AND CROSSWALK PAVEMENT MARKING
15C35-06A	PAVEMENT MARKING (INTERSECTIONS)
15D12-15A	TRAFFIC CONTROL, VEHICLE ENTRANCE/EXIT OR HAUL ROAD
15D12-15G	TRAFFIC CONTROL, PEDESTRIAN ACCOMMODATION
15D20-10A	TRAFFIC CONTROL, SINGLE LANE CLOSURE, DIVIDED NON-FREEWAY/EXPRESSWAY
15D21-07A	TRAFFIC CONTROL, INTERSECTION WITHIN SINGLE LANE CLOSURE
15D21-07B	TRAFFIC CONTROL, INTERSECTION WITHIN SINGLE LANE CLOSURE

Standard Detail Drawing List

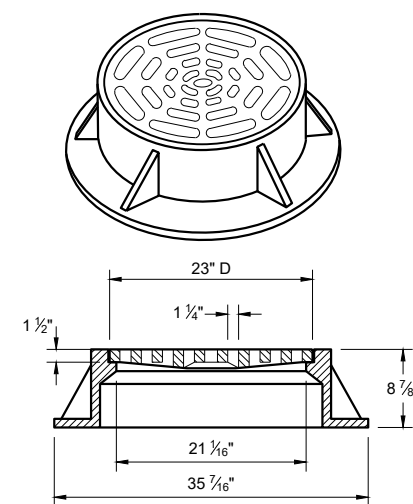
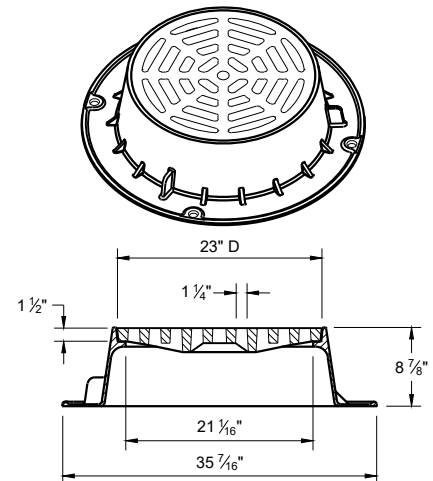
15D23-07A	TRAFFIC CONTROL, INTERSECTION WITHIN TWO LANE CLOSURE
15D23-07B	TRAFFIC CONTROL, INTERSECTION WITHIN TWO LANE CLOSURE
15D27-03	TRAFFIC CONTROL, SHOULDER CLOSURE ON DIVIDED ROADWAY, SPEEDS GREATER THAN 40 MPH
15D27-04	TRAFFIC CONTROL, SHOULDER CLOSURE ON DIVIDED ROADWAY, SPEEDS GREATER THAN 40 MPH
15D50-03A	TRAFFIC CONTROL, ADDED LANE CLOSURE WITHOUT LANE SHIFT
15D50-04A	TRAFFIC CONTROL, ADDED LANE CLOSURE WITHOUT LANE SHIFT
16A01-07	LANDMARK REFERENCE MONUMENTS AND COVERS



TYPE "B"

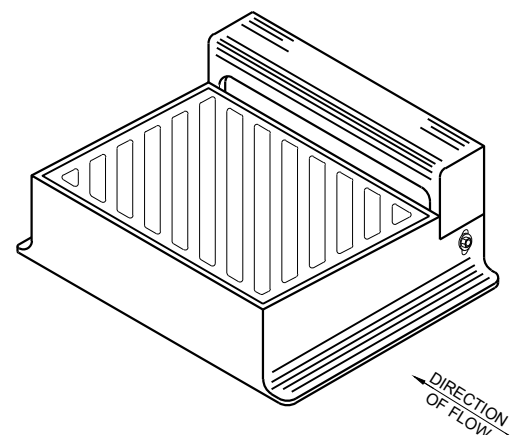
**ALTERNATIVE GRATE FOR
TYPE "B" COVER**

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

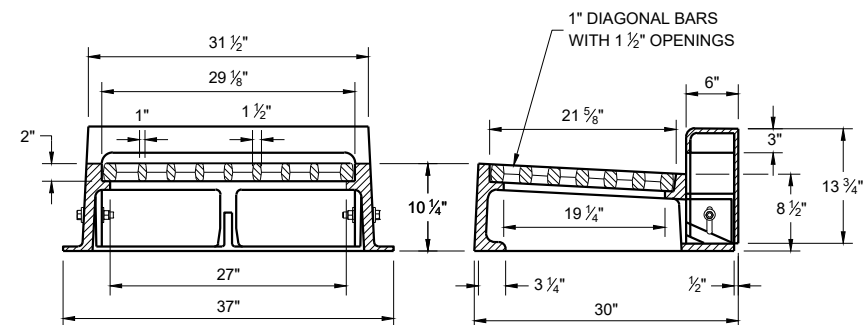


TYPE "C"

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"

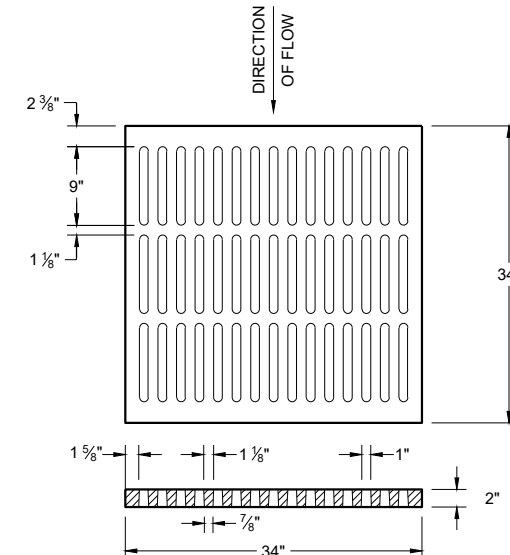
NOTE: CURB BOX HEIGHT ADJUSTABLE 6" - 9"

GENERAL NOTES

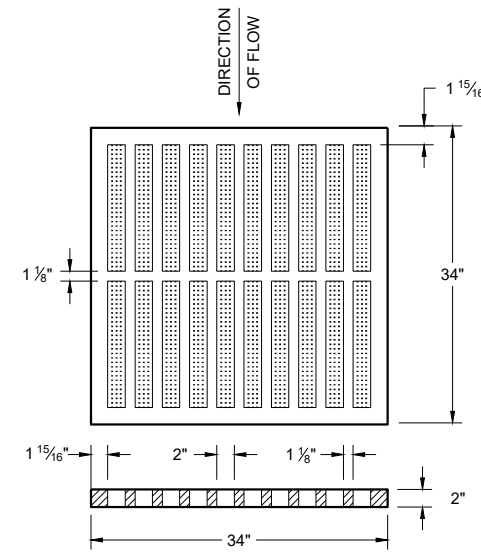
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

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.

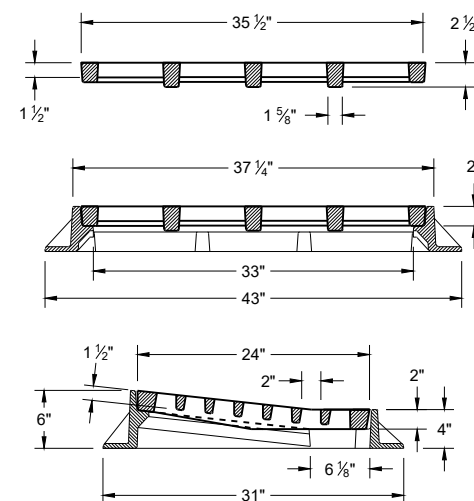
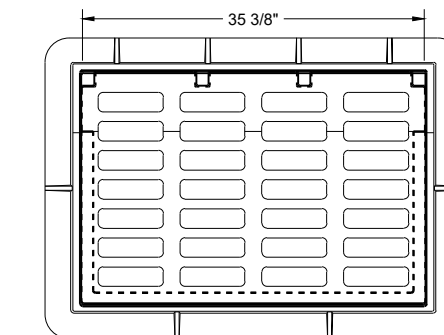
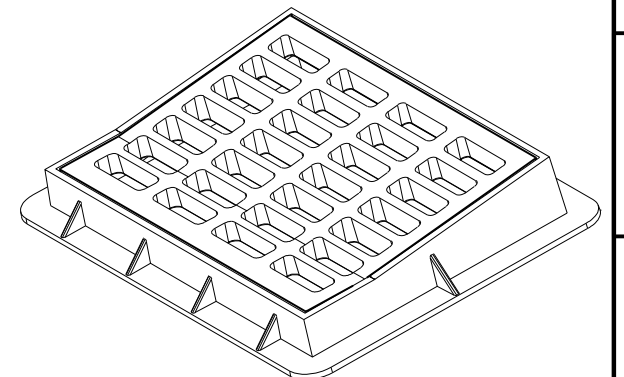
ROUND FRAMES AND COVERS SHALL HAVE CONTINUOUSLY MACHINED BEARING SURFACES TO PREVENT ROCKING AND RATTLING.



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**

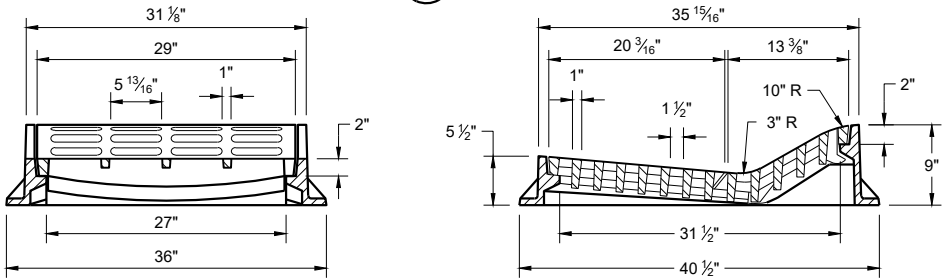
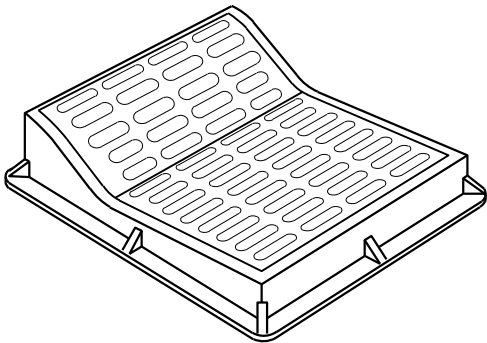
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

GENERAL NOTES

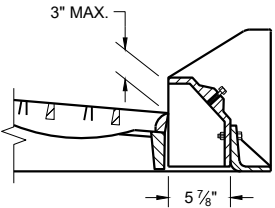
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

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"

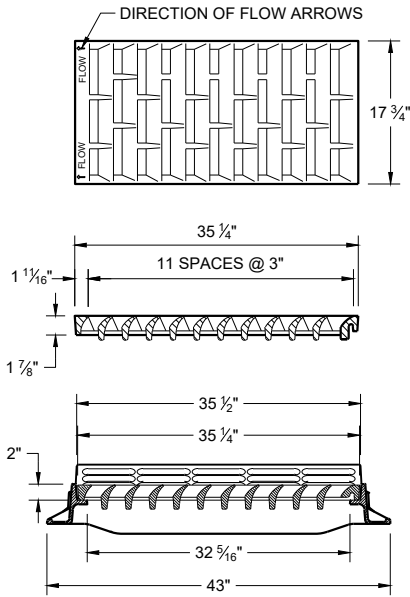


ALTERNATIVE CURB BOX
FOR TYPE "HM" COVER

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

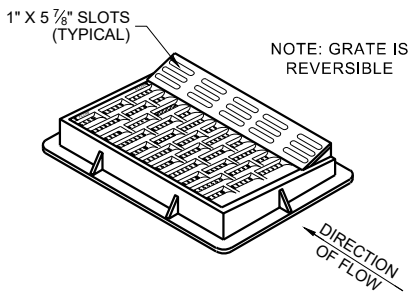
NOTE:
SPECIAL GRATE FOR THE TYPE "H" COVER MAY ALSO BE USED FOR THE TYPE "HM-GJ" COVER.

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

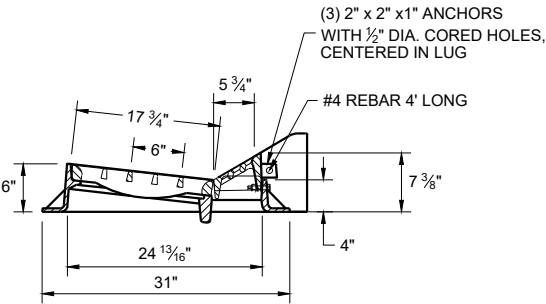


TYPE "HM"

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

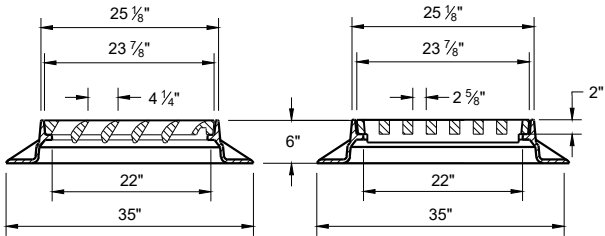
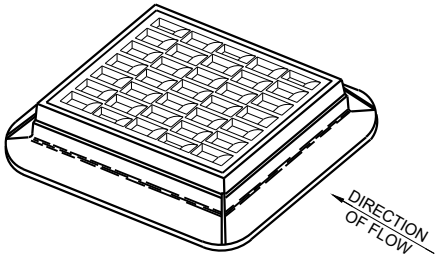


NOTE: GRATE IS REVERSIBLE

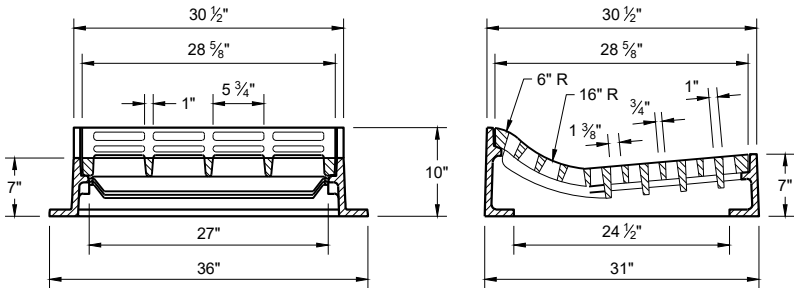
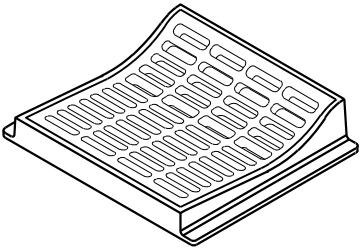


NOTE:
SPECIAL GRATE FOR THE TYPE "H" COVER MAY ALSO BE USED FOR THE TYPE "HM-GJ" COVER.

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

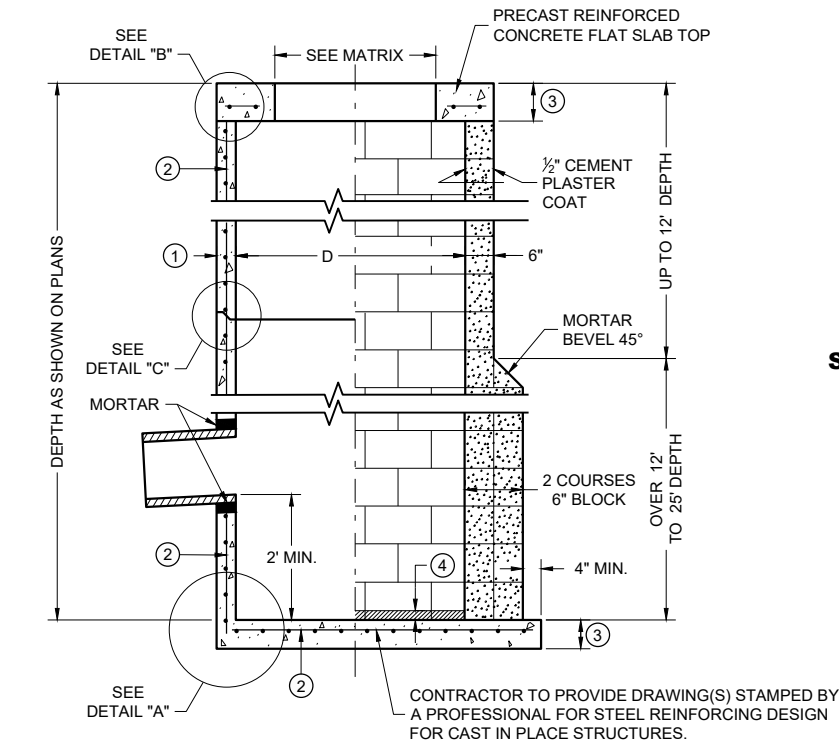
APPROVED

February 2025
DATE

/S/ Rodney Taylor
ROADWAY STANDARDS DEVELOPMENT
UNIT SUPERVISOR

FHWA

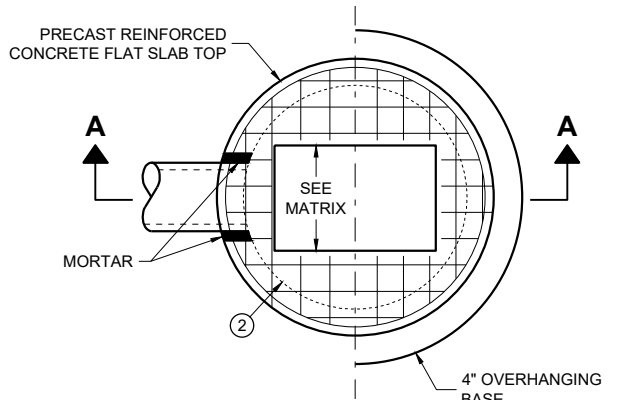
89



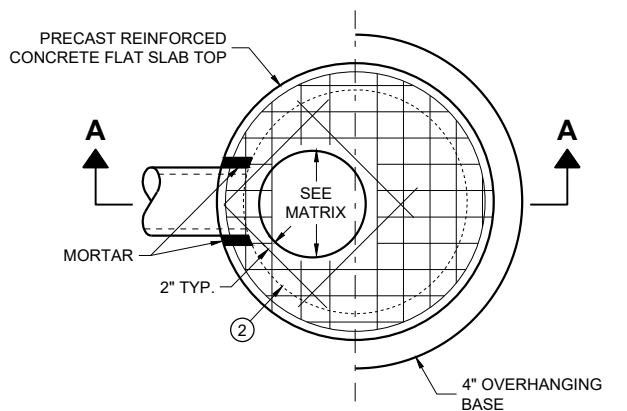
PRECAST REINFORCED CONCRETE WITH MONOLITHIC BASE

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

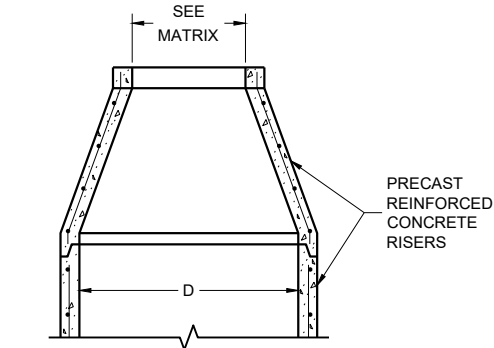
SECTION A - A



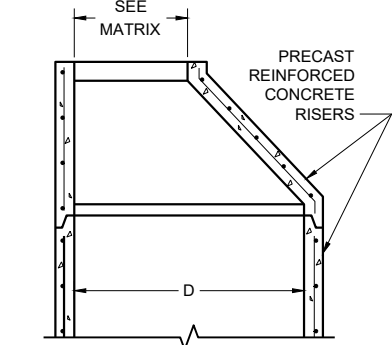
PLAN VIEW RECTANGULAR OPENING



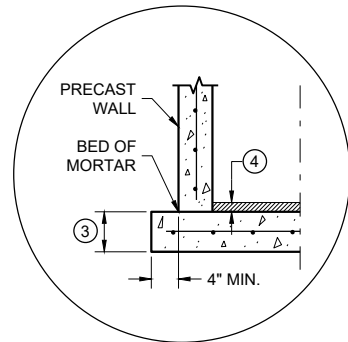
PLAN VIEW CIRCULAR OPENING



OPTIONAL PRECAST REINFORCED CONCRETE CONCENTRIC TOP

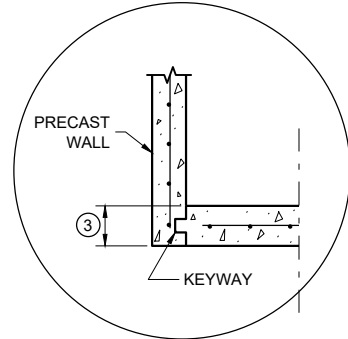


OPTIONAL PRECAST REINFORCED CONCRETE ECCENTRIC TOP

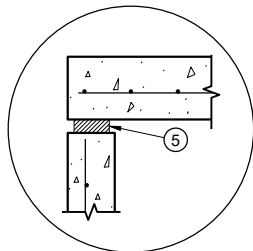


SEPARATE PRECAST REINFORCED CONCRETE BASE OPTION

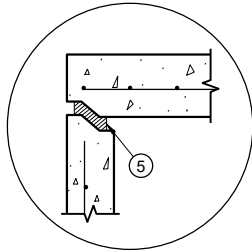
DETAIL "A"



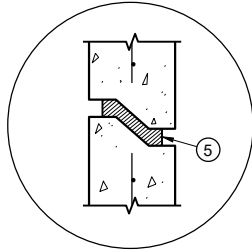
PRECAST REINFORCED CONCRETE WITH INTEGRAL BASE OPTION



TOP WITH PLAIN END JOINT



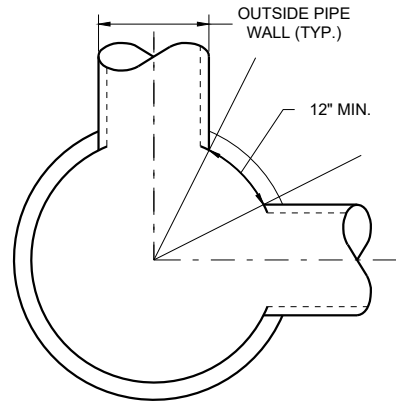
TOP WITH TONGUE AND GROOVE JOINT



RISER WITH TONGUE AND GROOVE JOINT

DETAIL "B"

DETAIL "C"



MINIMUM HORIZONTAL PIPE SEPARATION

DETAIL "D"

COVER 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

PIPE MATRIX

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

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

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.

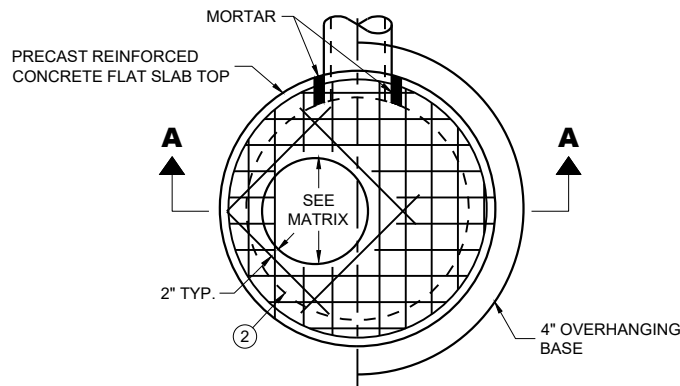
FOR ADDITIONAL CONFIGURATIONS, MAINTAIN A MINIMUM OF 12 INCHES AS MEASURED FROM THE INSIDE OF THE STRUCTURE WALL BETWEEN THE OUTSIDE PIPE WALLS OF ADJACENT PIPES. SEE DETAIL "D".

- 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.

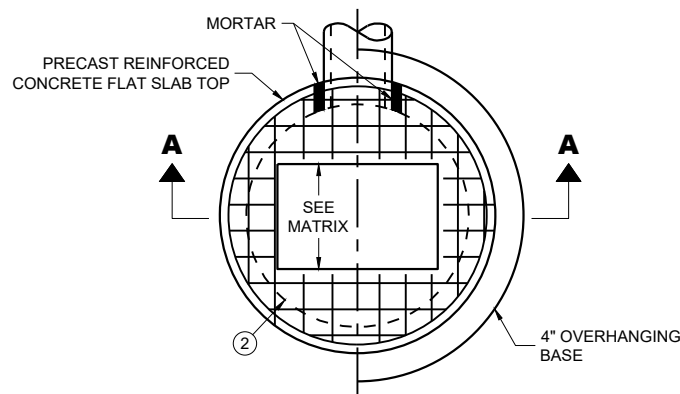
**CATCH BASINS, 3-FT.
4-FT., 5 FT., AND
6-FT. DIAMETER**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

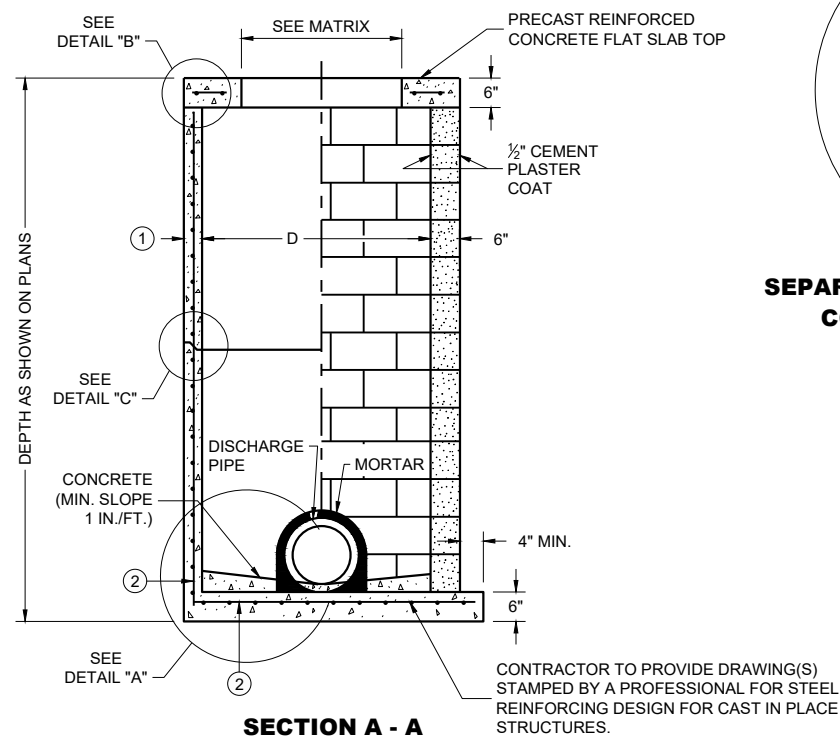
APPROVED
December 2023 /S/ Rodney Taylor
DATE ROADWAY STANDARDS DEVELOPMENT
FHWA UNIT SUPERVISOR



PLAN VIEW CIRCULAR OPENING



PLAN VIEW RECTANGULAR OPENING



SECTION A - A

PRECAST REINFORCED
CONCRETE WITH
MONOLITHIC BASE

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

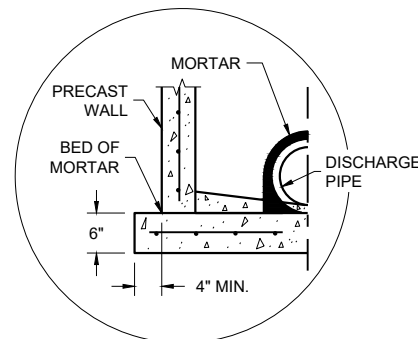
CIRCULAR INLETS WITH FLAT TOP

CATCH BASIN COVER OPENING MATRIX

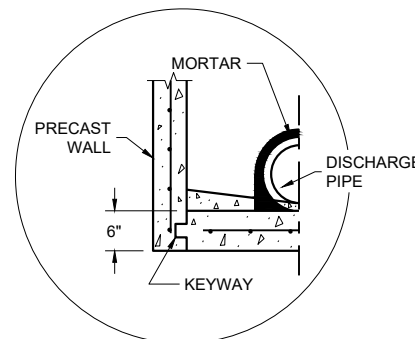
INLET SIZE	INLET COVER TYPE	ALL A'S	ALL B'S	BW	C	F	ALL H'S	S	T	V	WM	Z
	OPENING SIZE (FT.)											
3-FT	2 DIA.				X							X
	2 X 2	X	X					X		X		
4-FT	2 DIA.				X							X
	2 X 2	X	X					X		X		
	2 X 2.5			X				X	X	X	X	
	2 X 3						X					
	2.5 X 3					X						

PIPE MATRIX

INLET SIZE	MAXIMUM INSIDE PIPE DIAMETER FOR TWO PIPES	
	180° SEPARATION (IN)	90° SEPARATION (IN)
3-FT	15	12
4-FT	24	18

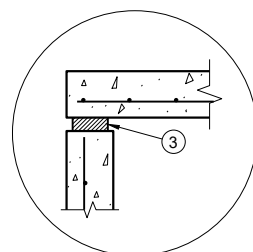


SEPARATE PRECAST REINFORCED
CONCRETE BASE OPTION

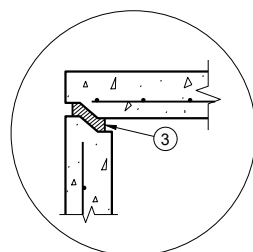


PRECAST REINFORCED CONCRETE
WITH INTEGRAL BASE OPTION

DETAIL "A"

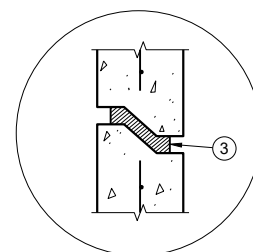


TOP WITH PLAIN
END JOINT



TOP WITH TONGUE
AND GROOVE JOINT

DETAIL "B"



RISER WITH TONGUE
AND GROOVE JOINT

DETAIL "C"

INLETS 3-FT AND 4-FT DIAMETER

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 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.

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

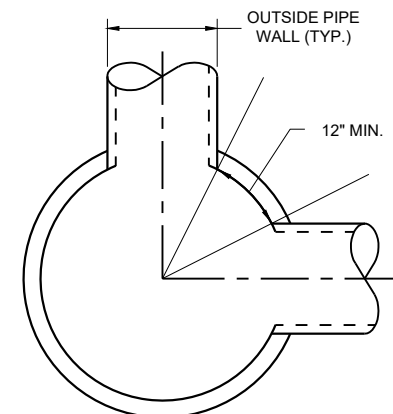
ALL PRECAST INLET UNITS SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF AASHTO DESIGNATION M199.

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

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 DIAMETER AND 5 INCHES FOR 4-FT DIAMETER PRECAST INLETS.
- ② FOR PRECAST INLETS AND REINFORCED CONCRETE BASES PROVIDE REINFORCING STEEL IN ACCORDANCE TO AASHTO M199.
- ③ JOINTS TO BE SEALED WITH A BUTYL RUBBER SEAL PER SEALANT MANUFACTURERS RECOMMENDATIONS CONFORMING TO ASTM C 990 OR RUBBER GASKETS CONFORMING TO ASTM C443.

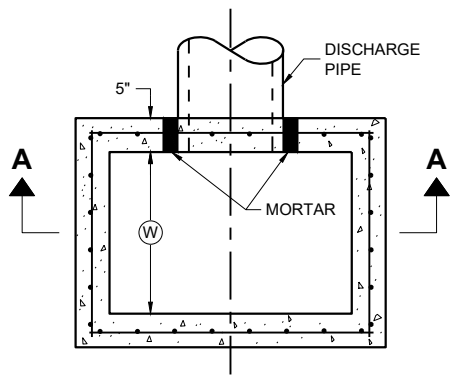


MINIMUM HORIZONTAL PIPE
SEPARATION
DETAIL "D"

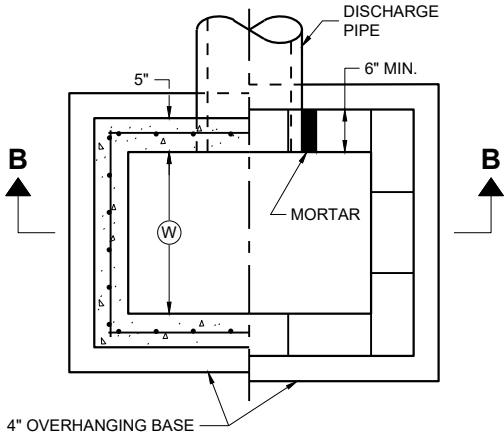
INLETS 3-FT
AND 4-FT DIAMETER

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

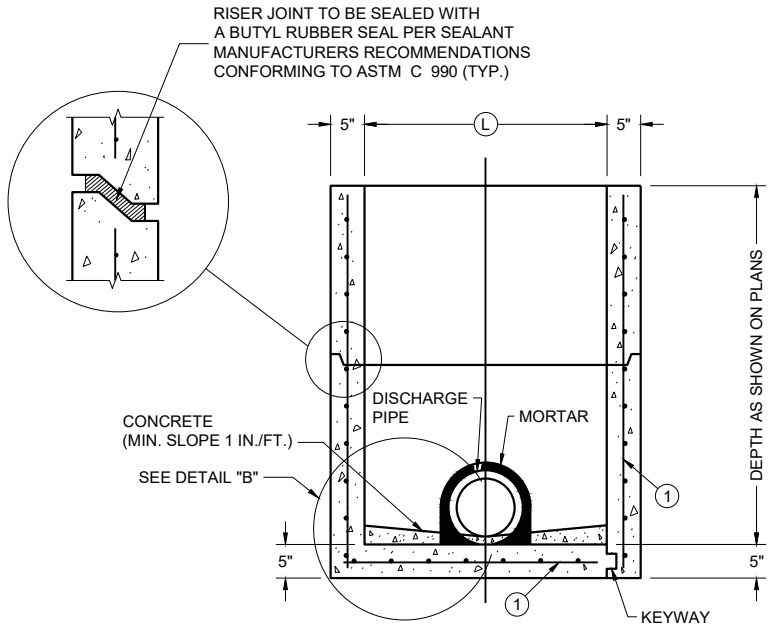
APPROVED
December 2023 /S/ Rodney Taylor
DATE ROADWAY STANDARDS DEVELOPMENT
FHWA UNIT SUPERVISOR



PLAN VIEW



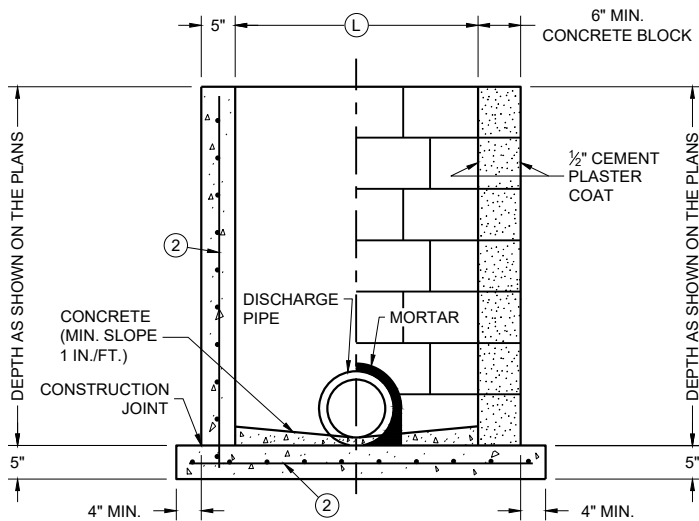
PLAN VIEW



PRECAST REINFORCED
CONCRETE WITH
MONOLITHIC BASE

PRECAST REINFORCED
CONCRETE WITH
INTEGRAL BASE

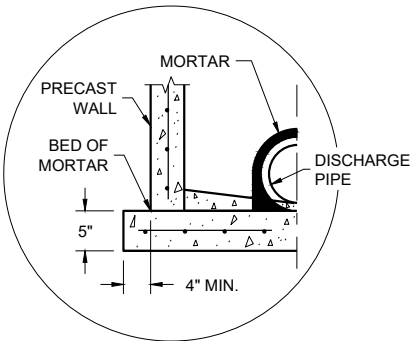
SECTION A - A



CAST IN PLACE
REINFORCED
CONCRETE

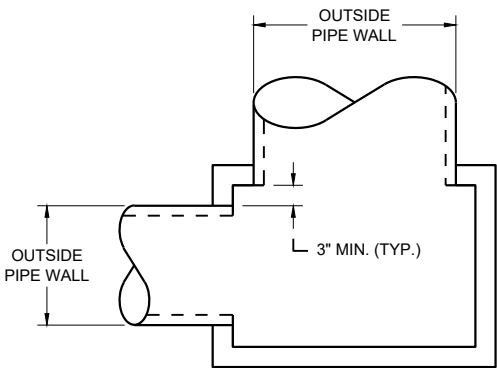
CONCRETE BLOCK WITH
CAST IN PLACE OR
PRECAST REINFORCED
CONCRETE BASE ①

SECTION B - B



SEPARATE PRECAST REINFORCED
CONCRETE BASE OPTION

DETAIL "B"



DETAIL "A"

INLETS 2 X 2-FT, 2 X 2.5-FT, 2 X 3-FT, 2.5 X 3-FT AND 2X3.5-FT

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

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

ALL DRAINAGE STRUCTURES ARE DESIGNATED ON THE PLANS AS "MANHOLES 3X3-L", "CATCH BASINS 4-B", "INLETS 2X3-H", ETC. THE FIRST NUMBERS DESIGNATES 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.

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.

4" OVERHANGING BASES ARE REQUIRED FOR CAST-IN-PLACE REINFORCED CONCRETE AND 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.

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.

CATCH BASIN COVER MATRIX

INLET SIZE	WIDTH (W) (FT.)	LENGTH (L) (FT.)	INLET COVER TYPE									
			ALL A'S	ALL B'S	BW	F	ALL H'S	S	T	V	WM	V V-B
2 X 2-FT	2	2	X	X				X				
2 X 2.5-FT	2	2.5			X			X	X	X	X	
2 X 3-FT	2	3					X					
2.5 X 3-FT	2.5	3				X						
2 X 3.5-FT	2	3.5										X

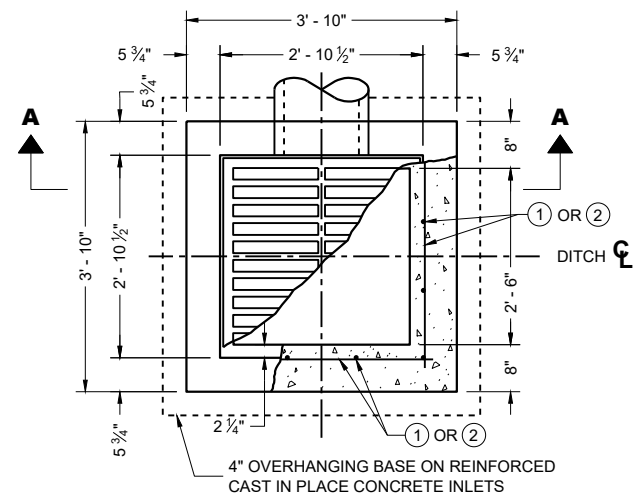
PIPE MATRIX

CATCH BASIN SIZE	MAXIMUM INSIDE PIPE DIAMETER FOR TWO PIPES	
	WIDTH (IN)	LENGTH (IN)
2 X 2-FT	12	12
2 X 2.5-FT	12	18
2 X 3-FT	12	24
2.5 X 3-FT	18	24
2 X 3.5-FT	12	30

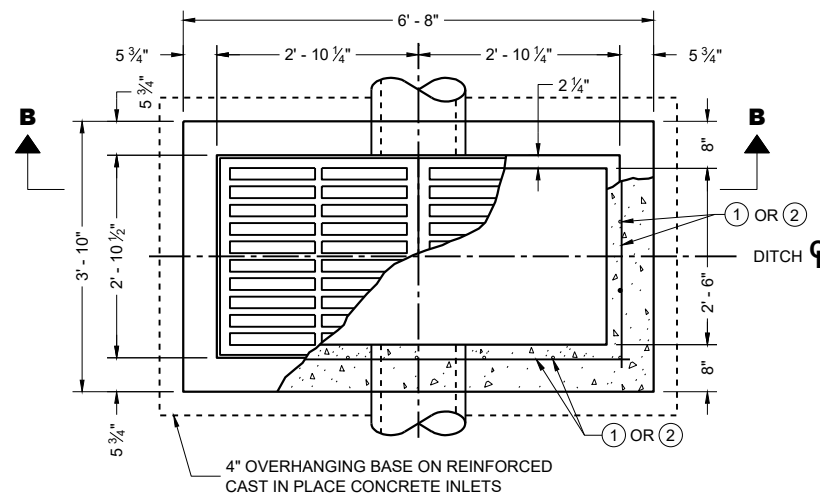
INLETS 2 X 2-FT, 2 X 2.5-FT,
2 X 3-FT, 2.5 X 3-FT
AND 2 X 3.5-FT

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

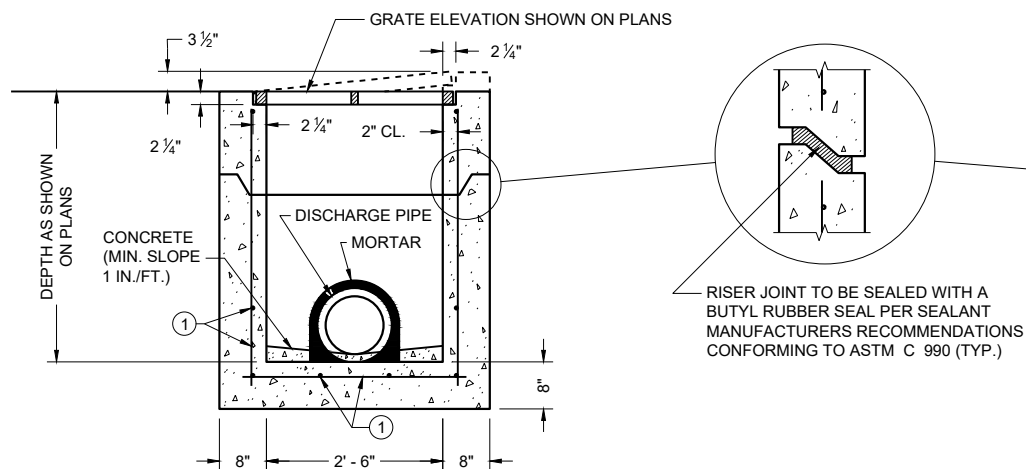
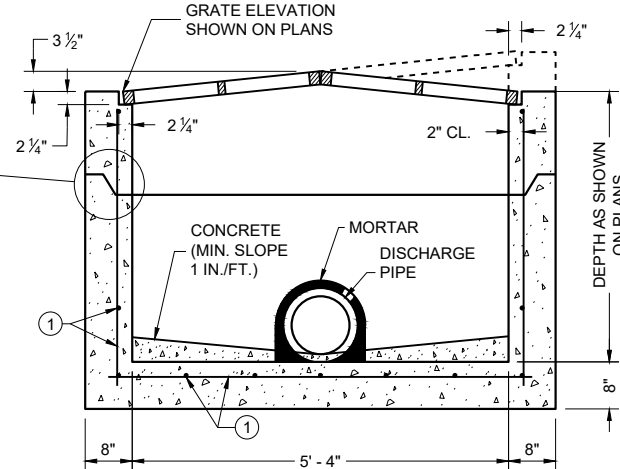
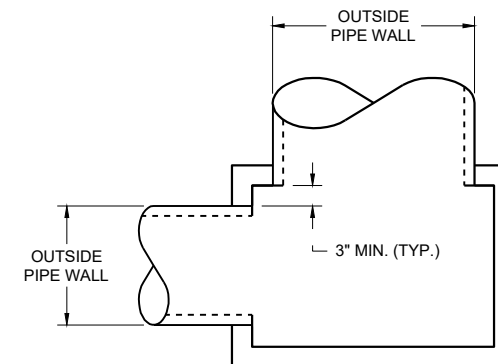
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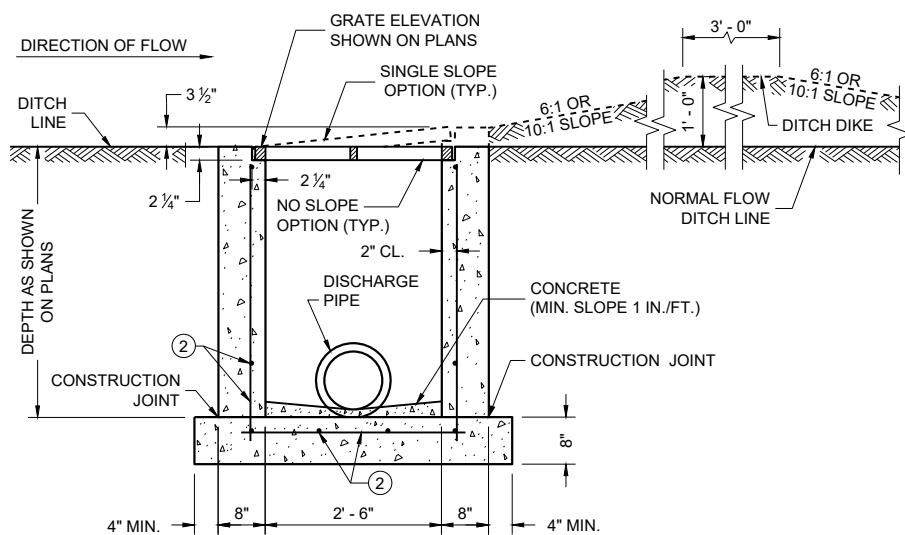
PLAN VIEW



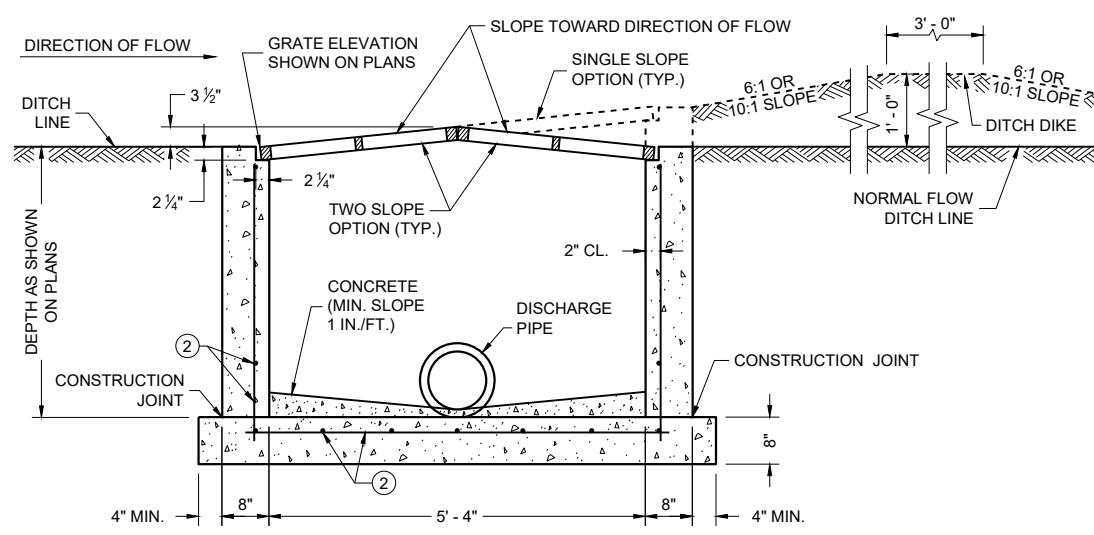
PLAN VIEW

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.

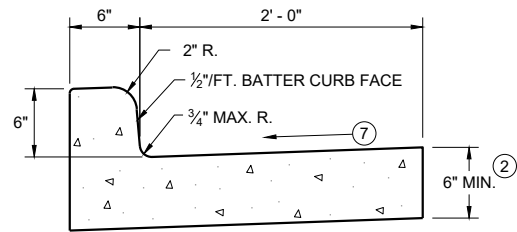
PIPE MATRIX

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

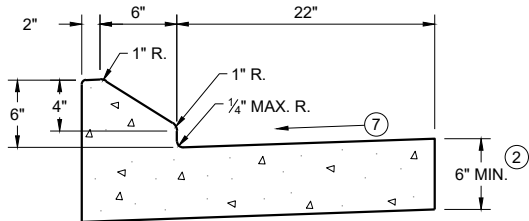
INLETS
MEDIAN 1 AND 2 GRATE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

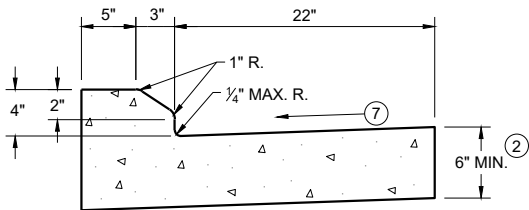
APPROVED
December 2023 /S/ Rodney Taylor
DATE ROADWAY STANDARDS DEVELOPMENT
FHWA UNIT SUPERVISOR



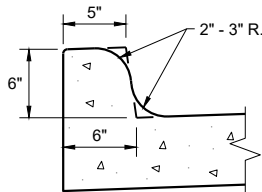
TYPES A^① & D



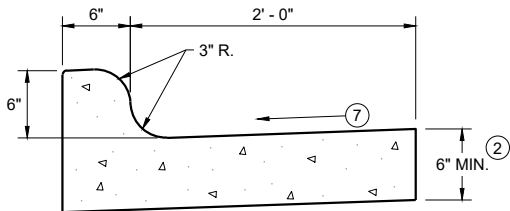
6" SLOPED CURB TYPES G^① & J



4" SLOPED CURB TYPES G^① & J

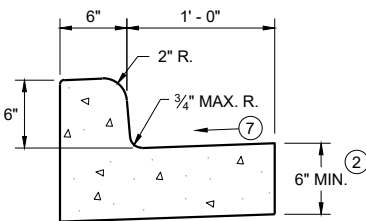


TYPES K^① & L
(OPTIONAL CURB SHAPE)



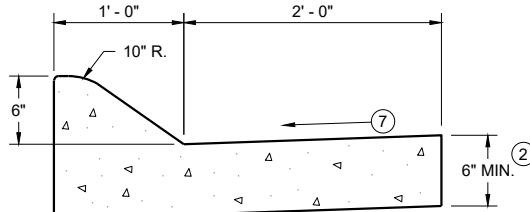
TYPES K^① & L

CONCRETE CURB AND GUTTER 30"

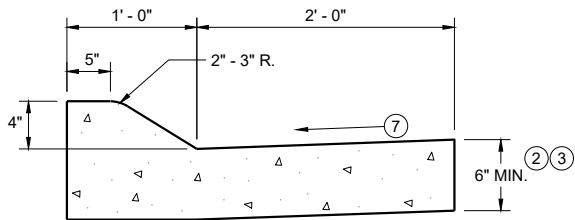


TYPES A^① & D

CONCRETE CURB AND GUTTER 18"

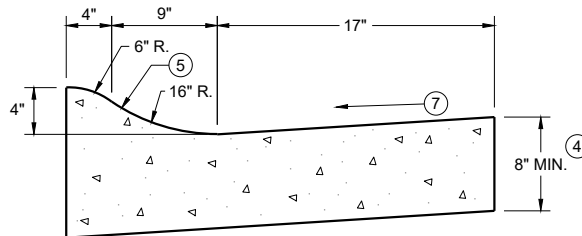


6" SLOPED CURB TYPES A^① & D



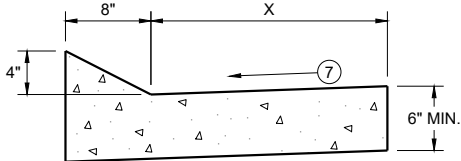
4" SLOPED CURB TYPES A^① & D

CONCRETE CURB AND GUTTER 36"



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

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

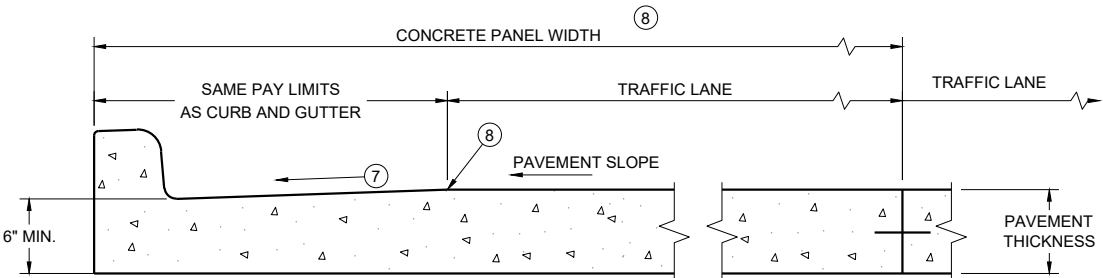


TYPES TBT & TBTT^①

CONCRETE CURB AND GUTTER

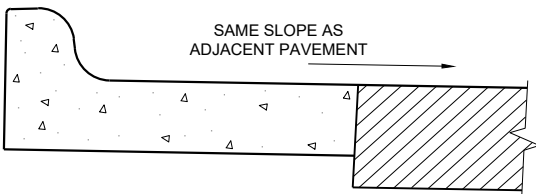
PAVEMENT THICKNESS
AND MAXIMUM CONCRETE
PANEL WIDTH TABLE

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

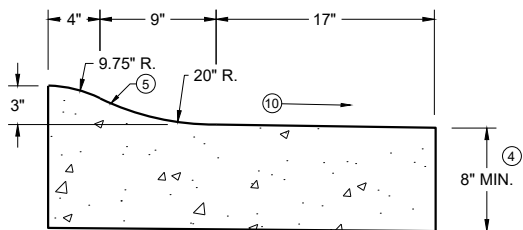


PARTIAL SECTION OF PAVEMENT
WITH INTEGRAL CURB AND GUTTER

* 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

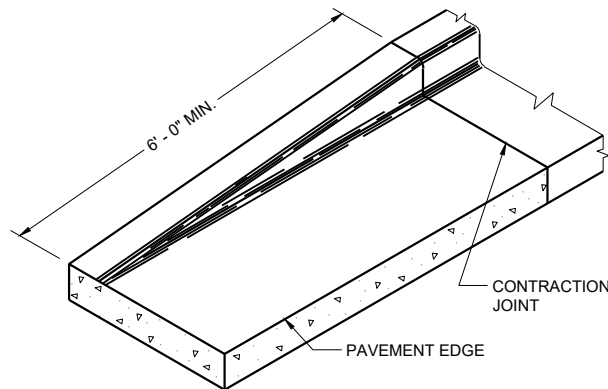
DETAILS OF CONSTRUCTION AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE CONTRACT.

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

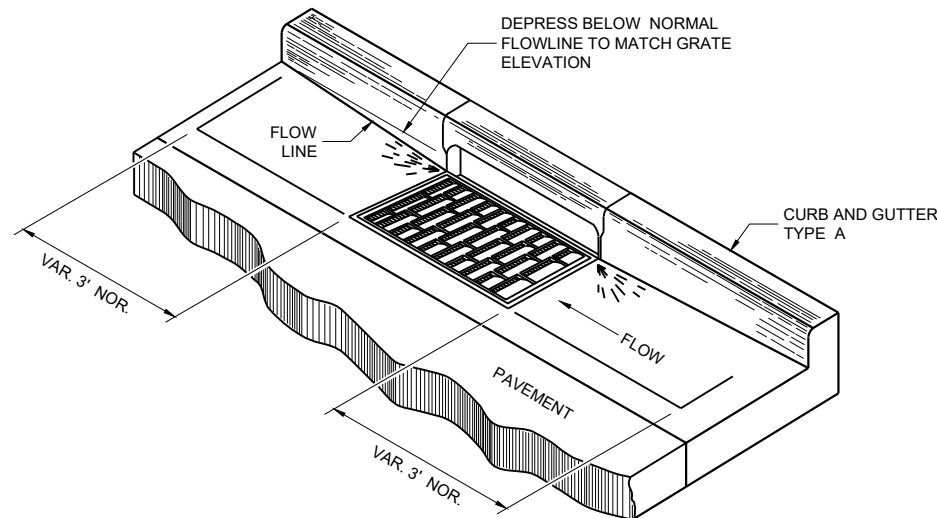
INTEGRAL CURB AND GUTTER SHALL CONFORM TO THE DETAILS SHOWN FOR CONCRETE CURB AND GUTTER INCLUDING THE TRANSVERSE GUTTER SLOPE.

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

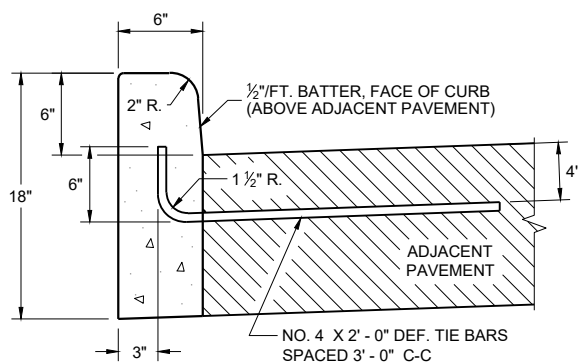


END SECTION CURB AND GUTTER

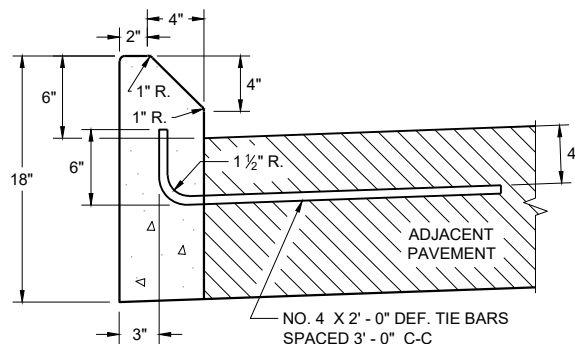


DETAIL OF CURB AND GUTTER AT INLETS

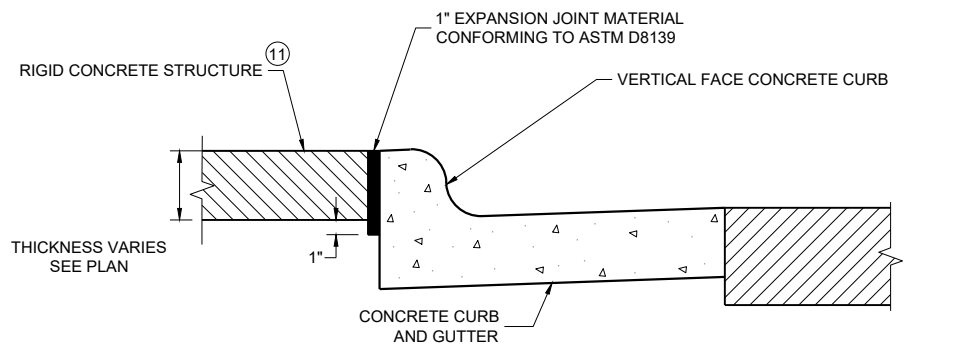
(TYPICAL H INLET COVER SHOWN)



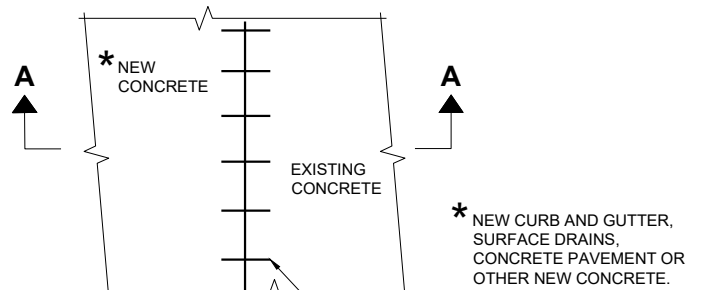
TYPES A^① & D



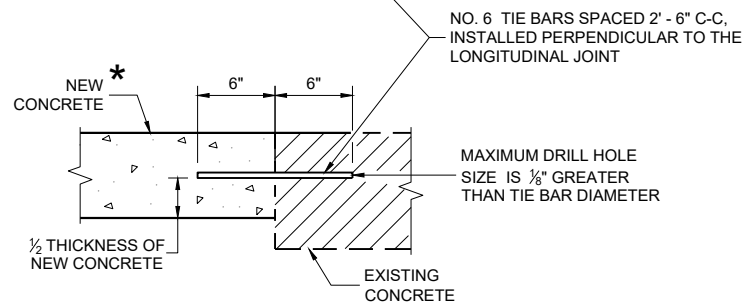
**TYPES G^① & J
CONCRETE CURB**



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



PLAN VIEW



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

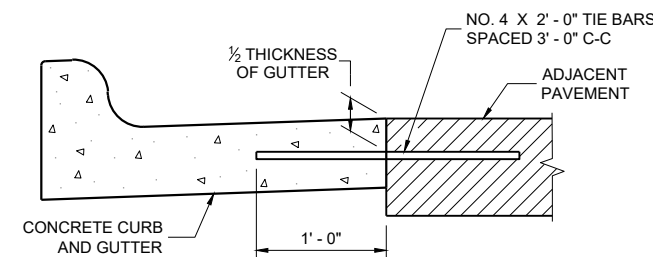
GENERAL NOTES

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

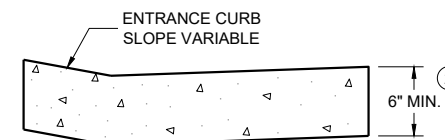
PAVEMENT TIES AND TIE BARS SHALL BE EPOXY COATED IN CONFORMANCE WITH SUBSECTION 505.2.6.2 OF THE STANDARD SPECIFICATIONS.

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)**

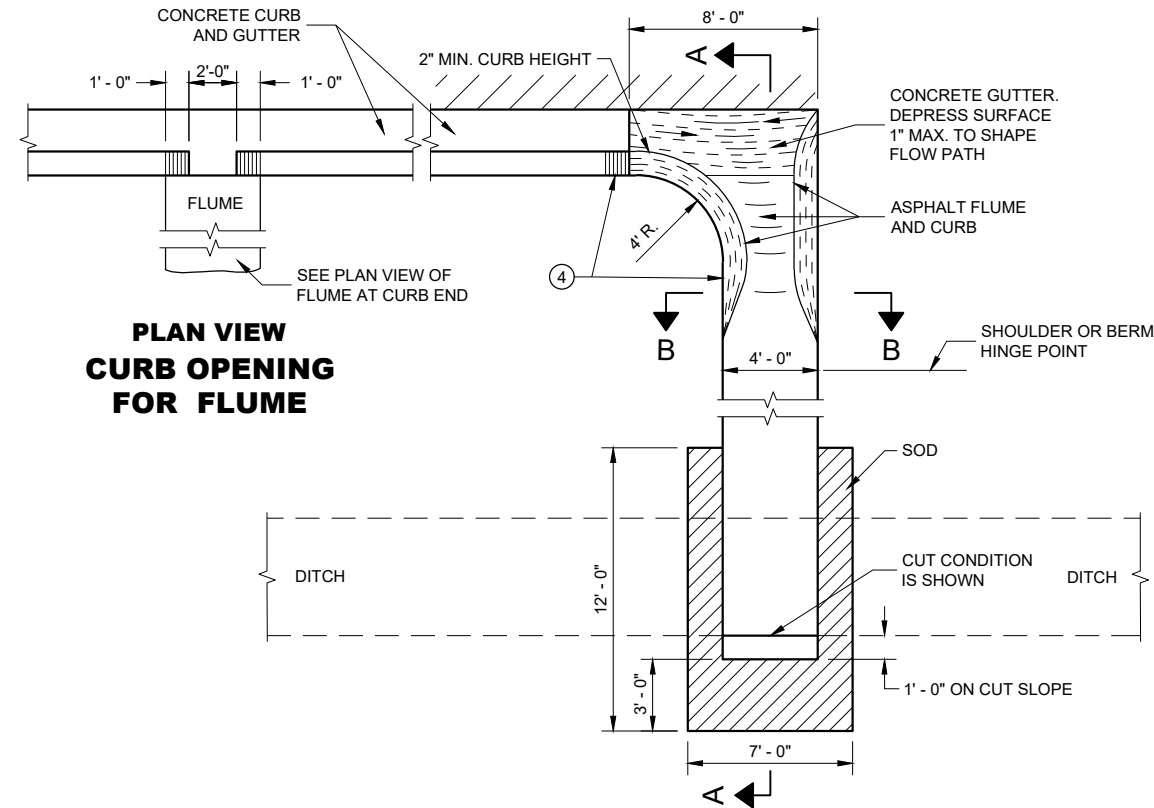
**CONCRETE CURB, TIES
AND CURB AND GUTTER
APPLICATIONS**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

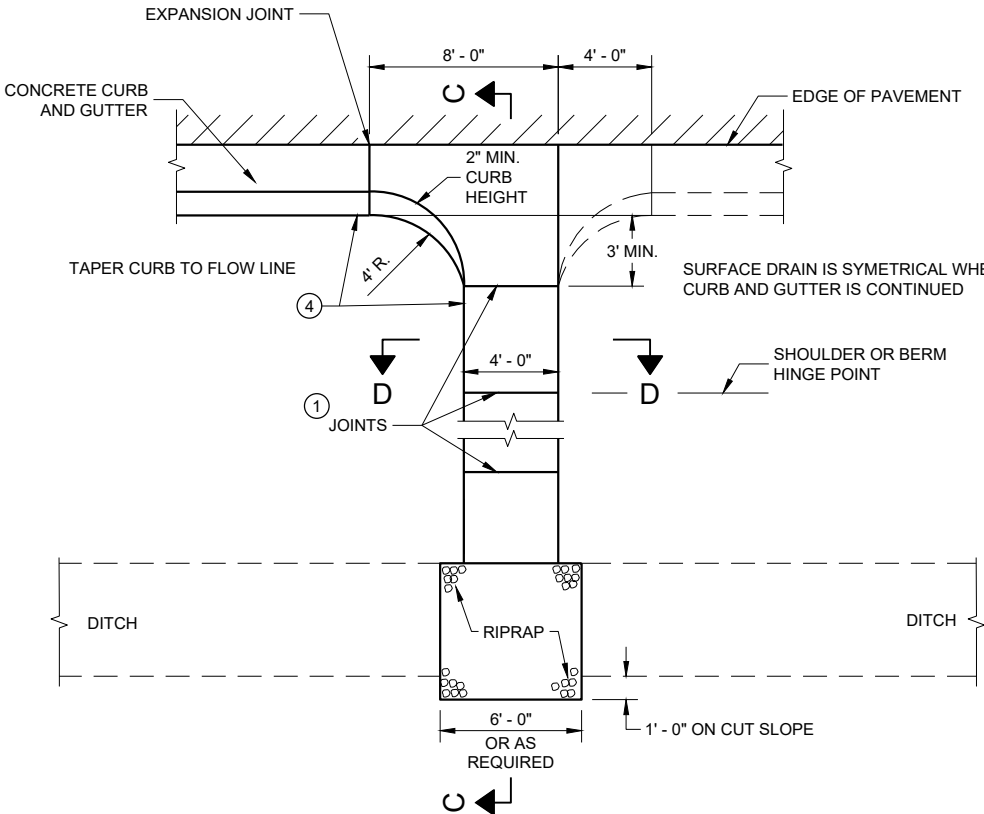
NOTE: TAPER CURB ENDS TO GUTTER IN 1' - 0"

ASPHALTIC FLUME



PLAN VIEW
CURB OPENING
FOR FLUME

PLAN VIEW
FLUME AT CURB END



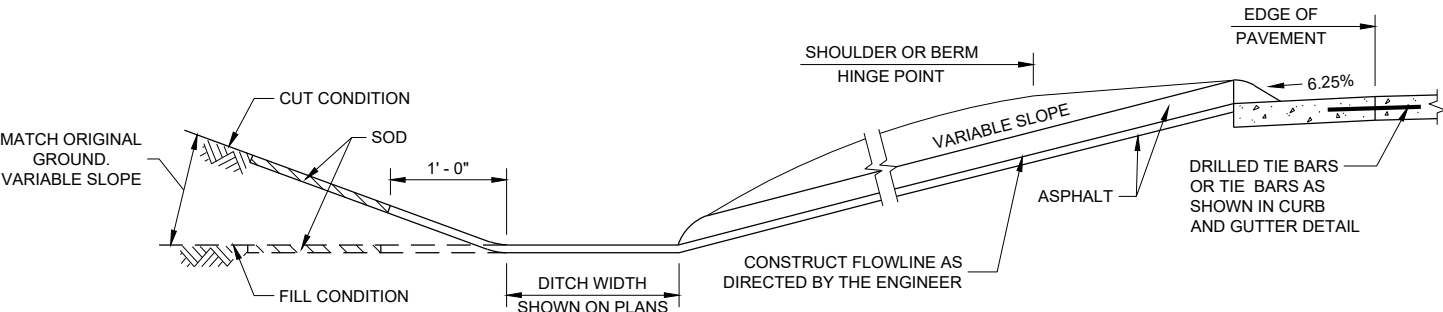
PLAN VIEW
CONCRETE SURFACE DRAIN

GENERAL NOTES

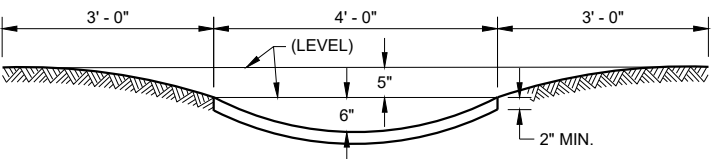
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.

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

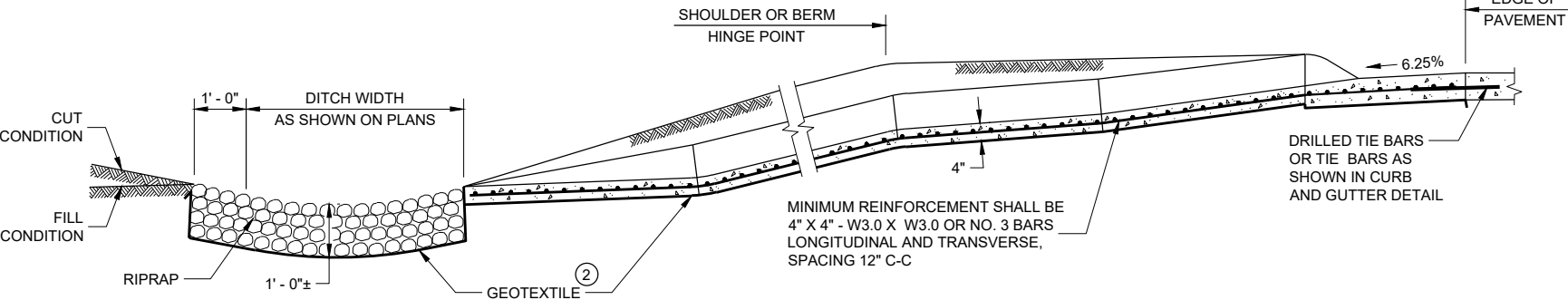
- JOINTS SHALL BE 1/8" TO 1/4" WIDE BY 1 1/2" DEEP AND SPACED AT UNIFORM INTERVALS OF APPROXIMATELY 4 FEET.
- GEOTEXTILE TYPE "R" SHALL UNDERLAY THE FULL LENGTH AND WIDTH OF THE CONCRETE SURFACE DRAIN AND RIPRAP.
- CONCRETE SURFACE DRAIN WITHOUT CURB AND GUTTER MAY BE USED ON BACKSLOPES WHEN SPECIFIED.
- 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.



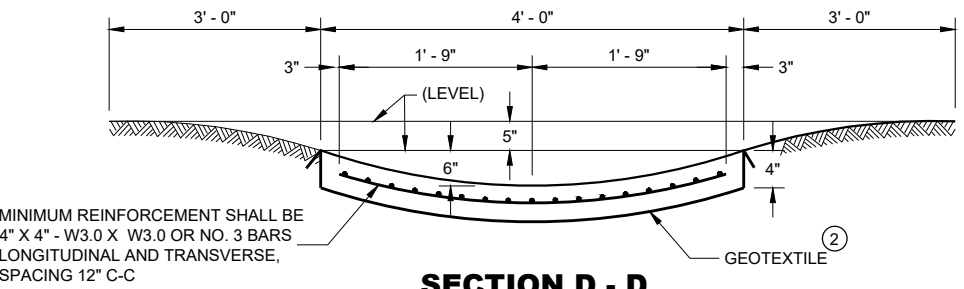
SECTION A - A



SECTION B - B



SECTION C - C

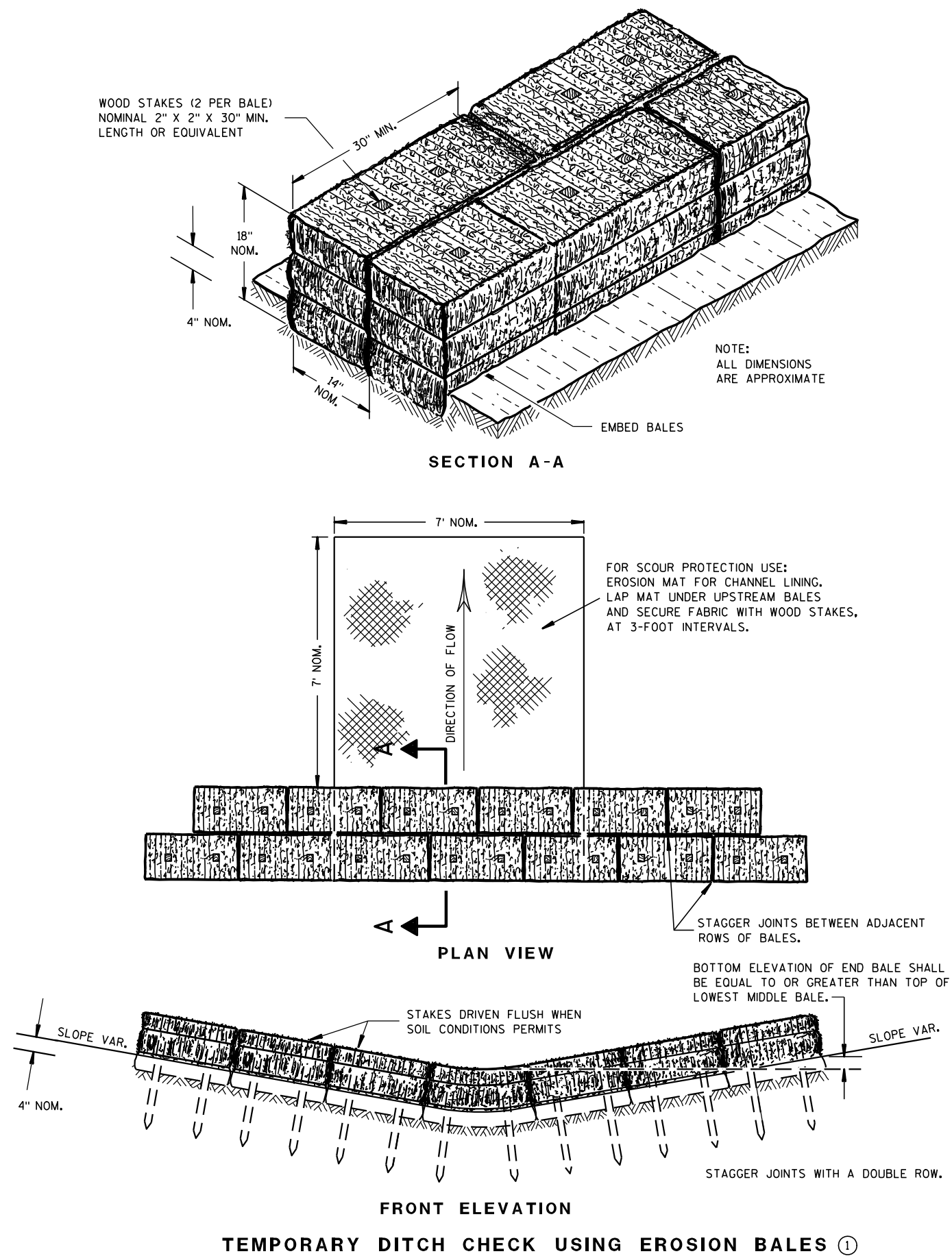


SECTION D - D

CONCRETE SURFACE
DRAINS AND
ASPHALTIC FLUMES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

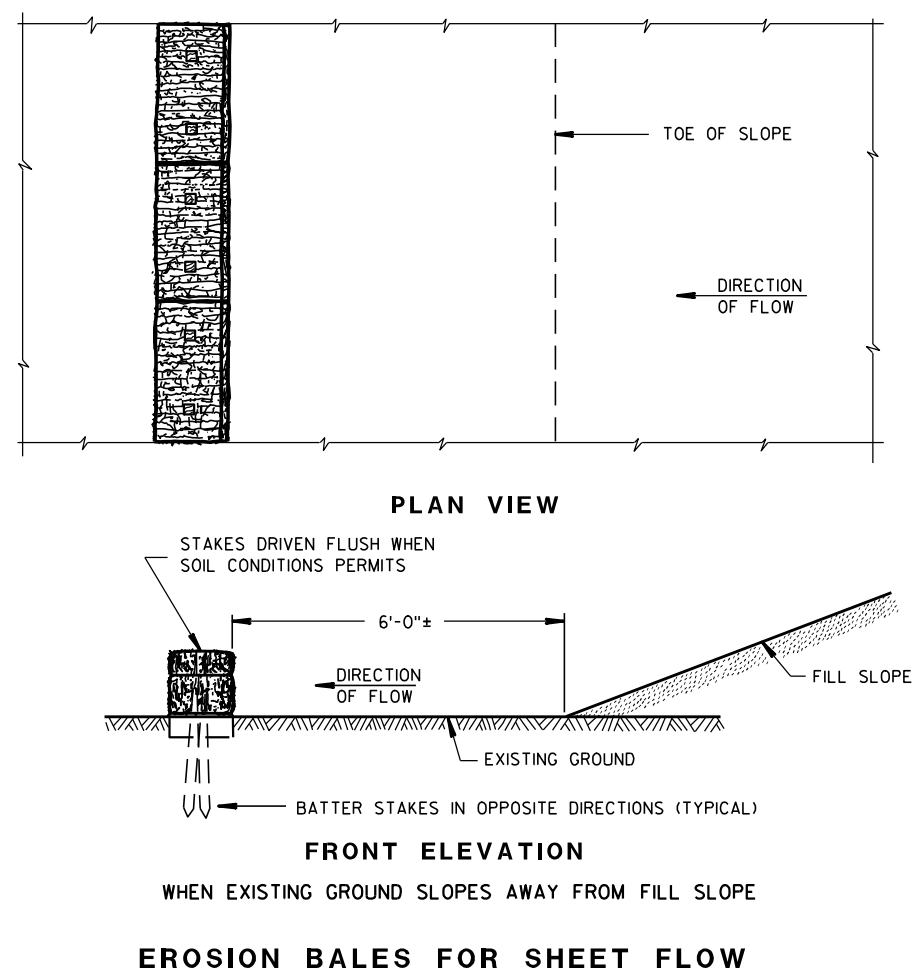
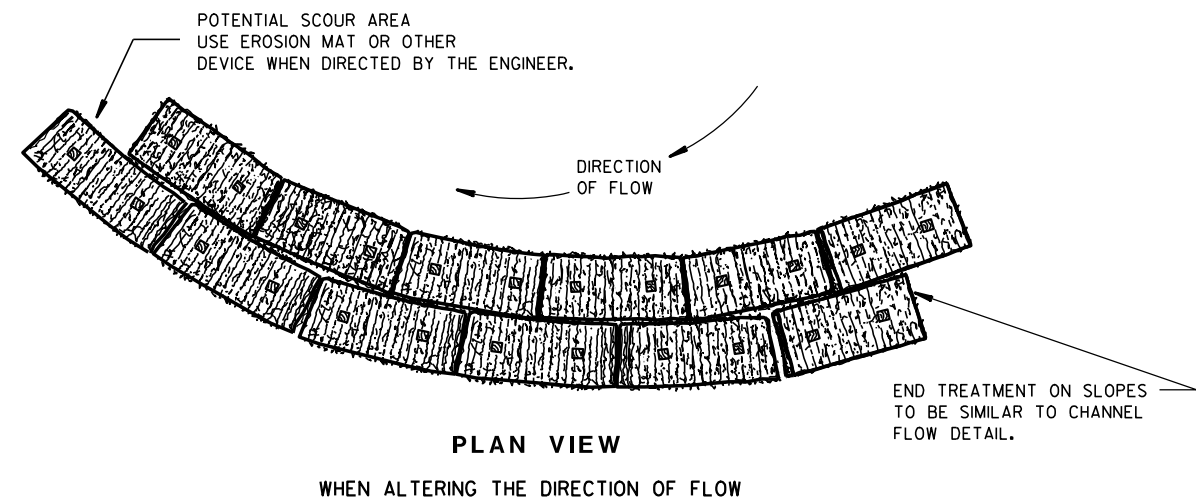
APPROVED
May 2023 /S/ Rodney Taylor
DATE ROADWAY STANDARDS DEVELOPMENT ENGINEER 96
FHWA



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.

- 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.



TYPICAL INSTALLATIONS OF EROSION BALES / TEMPORARY DITCH CHECKS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

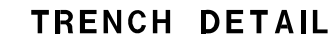
6/04/02
DATE

/S/ Beth Conn-----
CHIEF ROADWAY DEVELOPER 97 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.

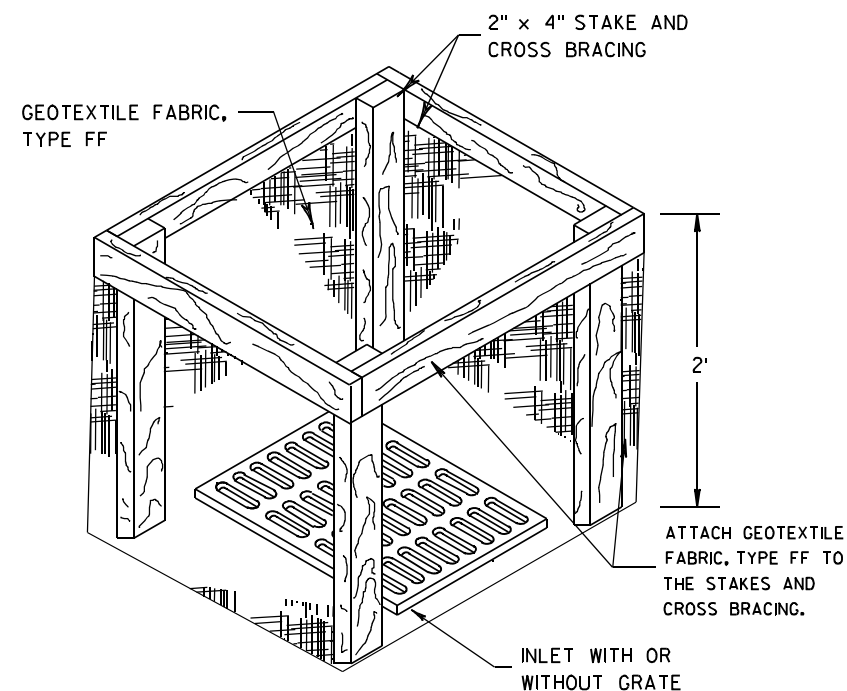
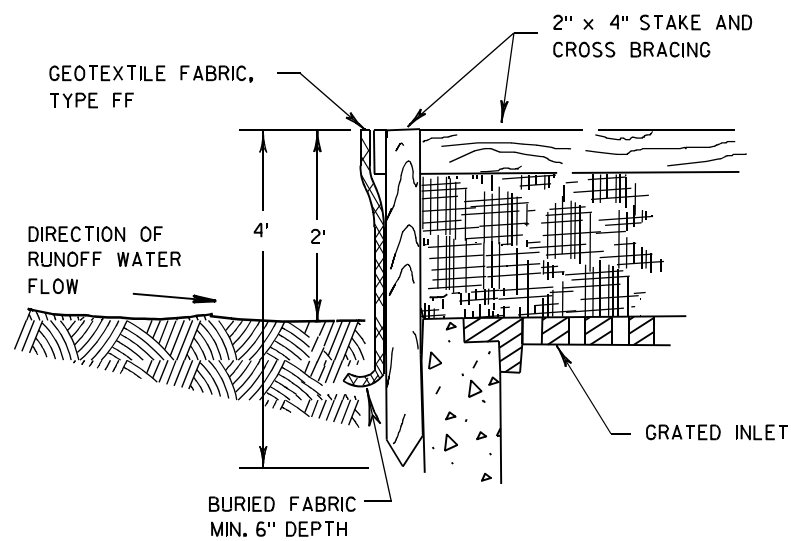


SILT FENCE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
4-29-05
DATE _____ /S/ Beth Cannata _____
CHIEF ROADWAY DEVELOPMENT 98 INCHES

FHWA



INLET PROTECTION, TYPE A

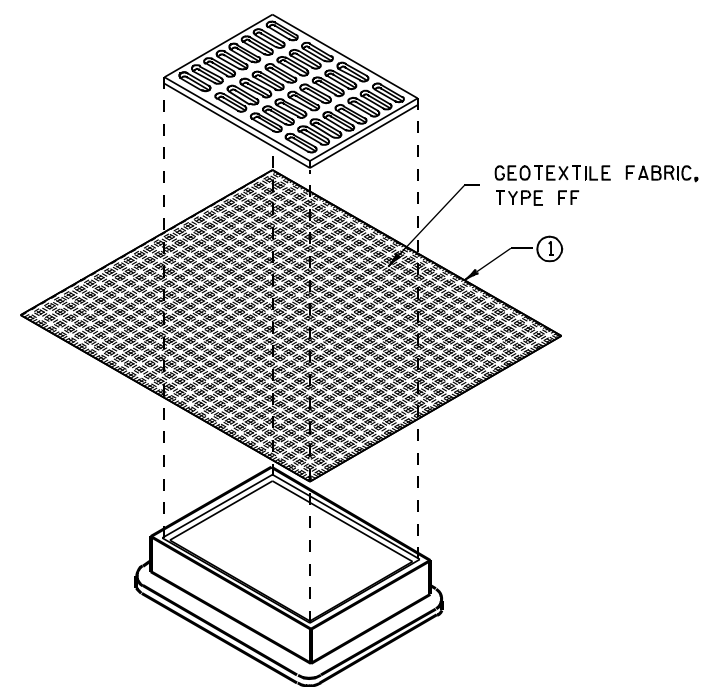
GENERAL NOTES

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.

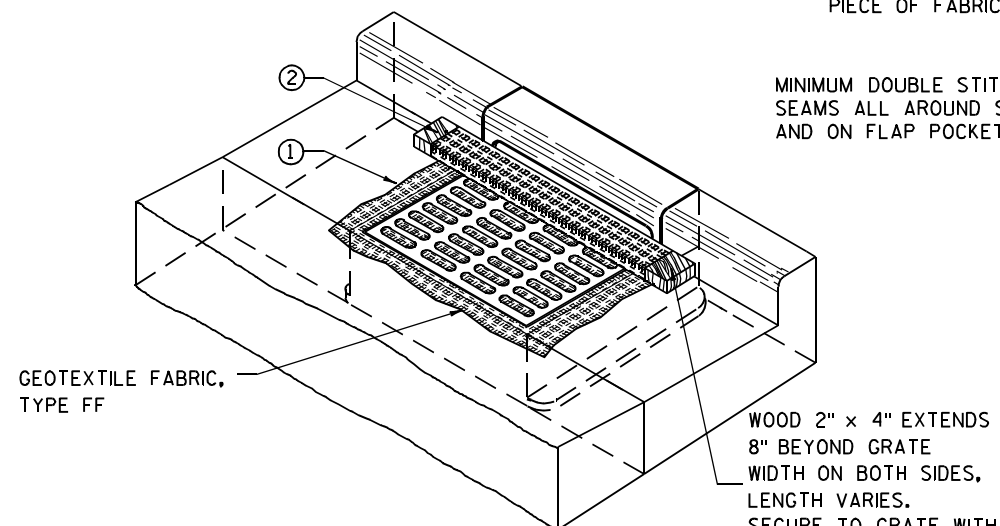
WHEN REMOVING OR MAINTAINING INLET PROTECTION, CARE SHALL BE TAKEN SO THAT THE SEDIMENT TRAPPED ON THE GEOTEXTILE FABRIC DOES NOT FALL INTO THE INLET. ANY MATERIAL FALLING INTO THE INLET SHALL BE REMOVED IMMEDIATELY.

- 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.

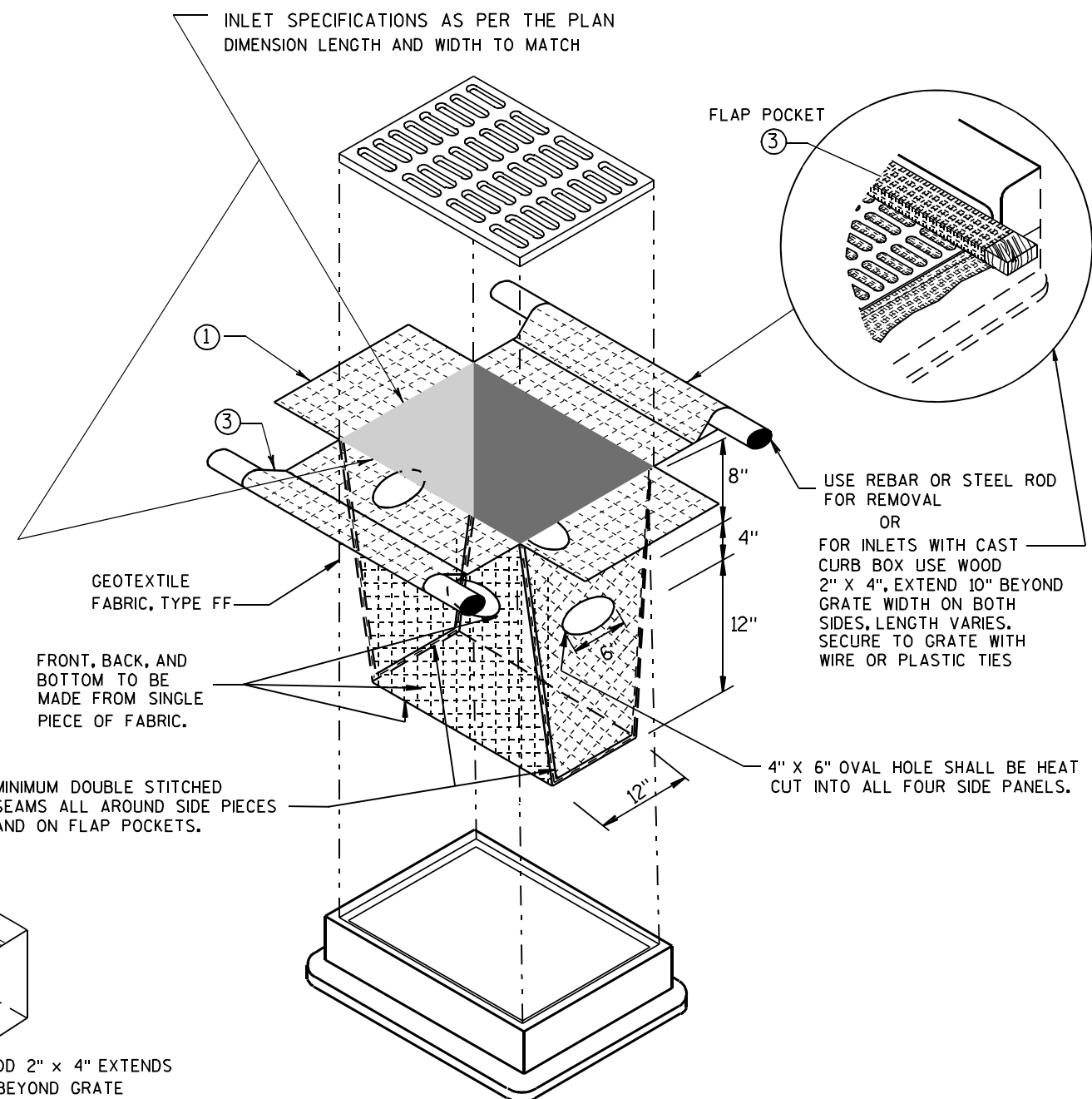
THE CONTRACTOR SHALL DEMONSTRATE A METHOD OF MAINTENANCE, USING A SEWN FLAP, HAND HOLDS OR OTHER METHOD TO PREVENT ACCUMULATED SEDIMENT FROM ENTERING THE INLET.

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.

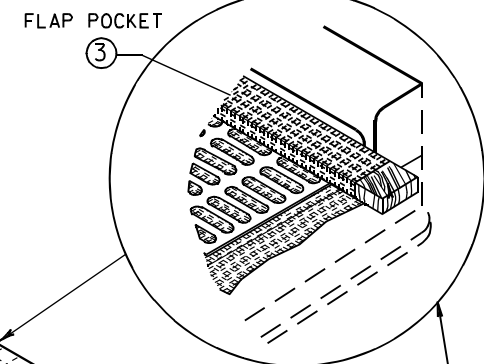
TRIM EXCESS FABRIC IN THE FLOW LINE TO WITHIN 3" OF THE GRATE.

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)



USE REBAR OR STEEL ROD FOR REMOVAL OR
FOR INLETS WITH CAST CURB BOX USE WOOD 2" X 4", EXTEND 10" BEYOND GRATE WIDTH ON BOTH SIDES, LENGTH VARIES. SECURE TO GRATE WITH WIRE OR PLASTIC TIES

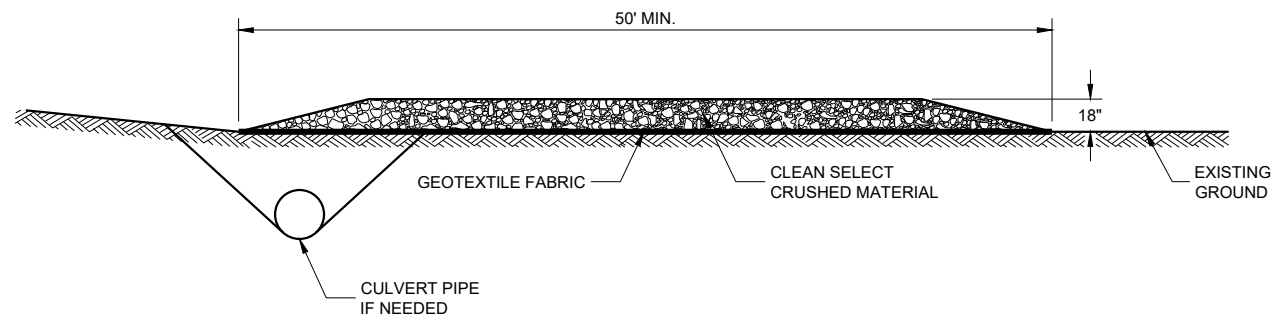
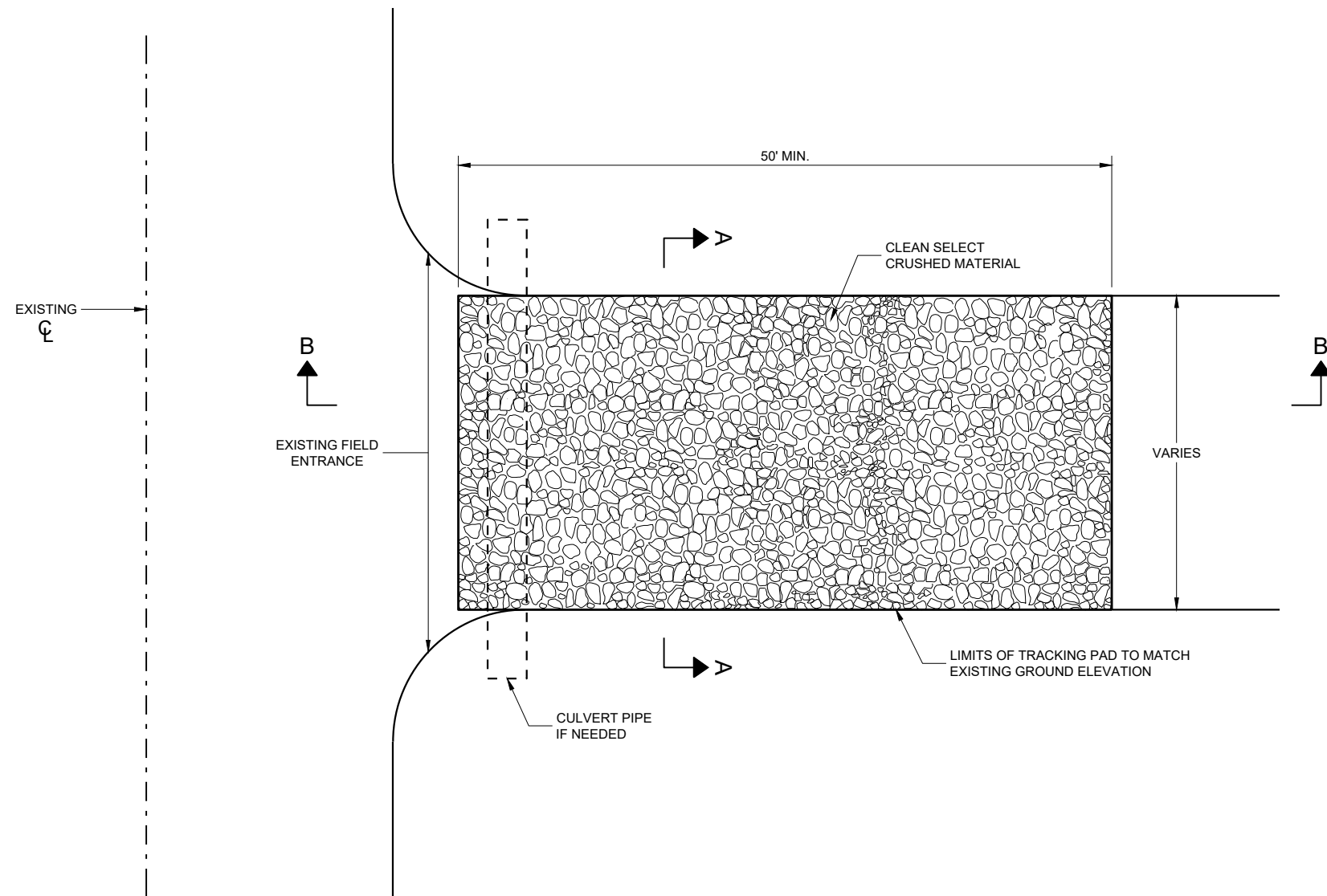
MINIMUM DOUBLE STITCHED SEAMS ALL AROUND SIDE PIECES AND ON FLAP POCKETS.

4" X 6" OVAL HOLE SHALL BE HEAT CUT INTO ALL FOUR SIDE PANELS.

**INLET PROTECTION
TYPE A, B, C, AND D**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
10/16/02 /S/ Beth Connolly
DATE 99
FHWA CHIEF ROADWAY DEVELOPMENT ENGINEER



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.

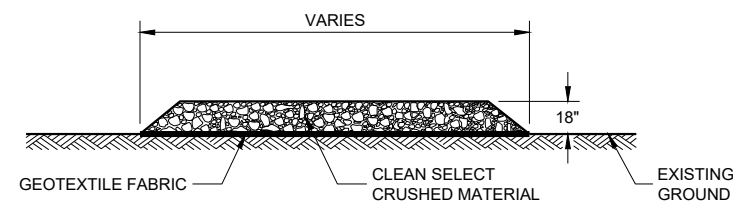
TRACKING PAD TO BE REMOVED AFTER CONSTRUCTION IS COMPLETED.

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.



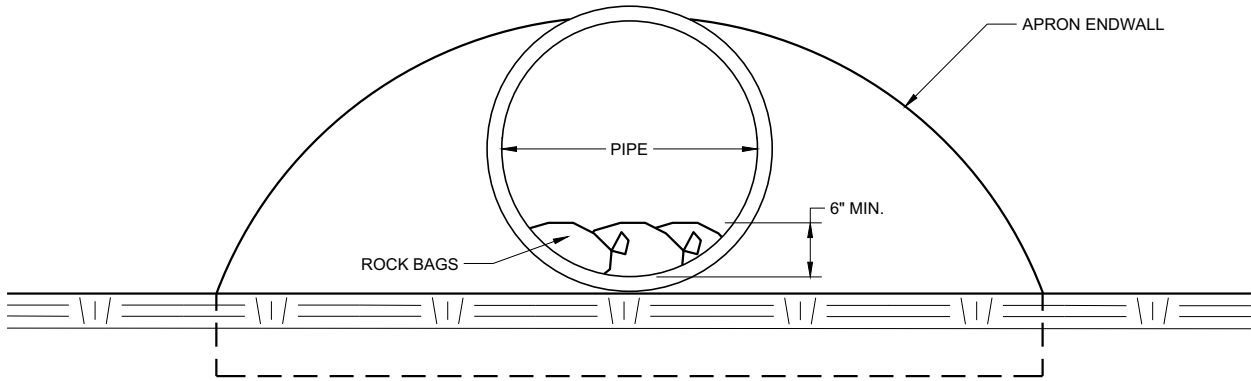
SECTION A - A

TRACKING PAD

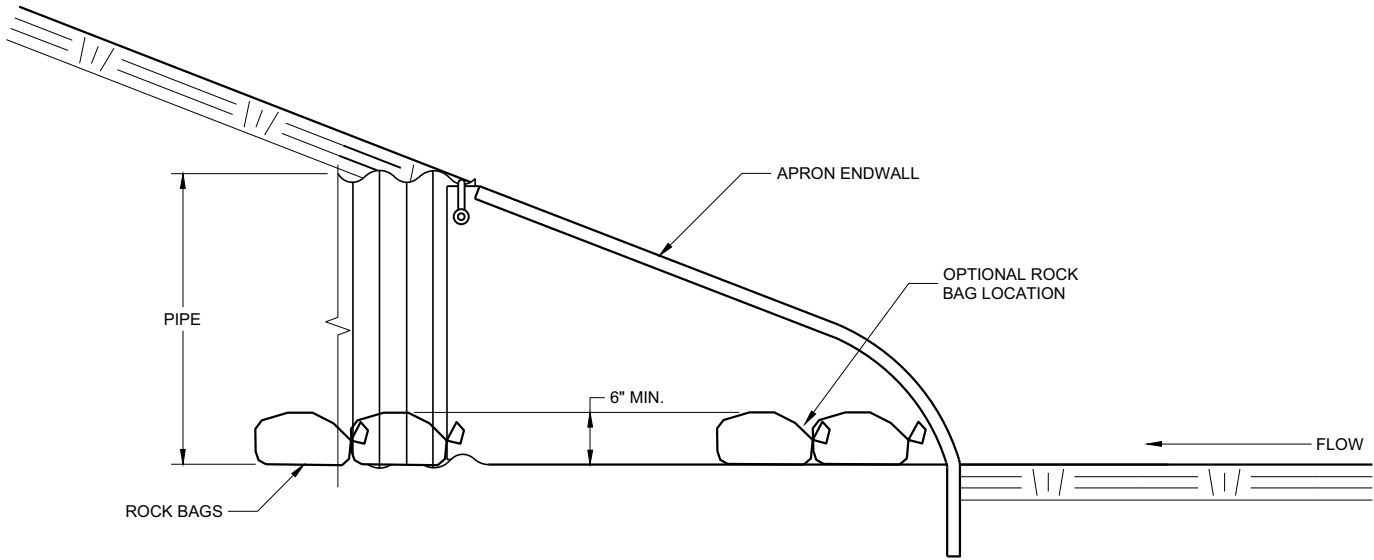
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
3/24/2011
DATE
/S/ Jerry H. Zogg
ROADWAY STANDARDS DEVELOPMENT ENGINEER
100

FHWA



END VIEW



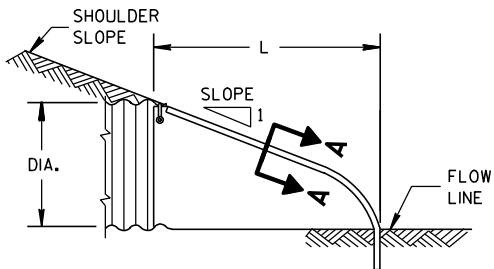
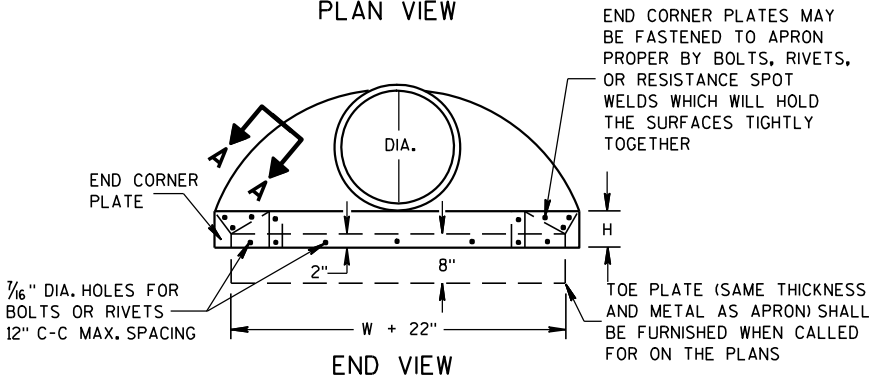
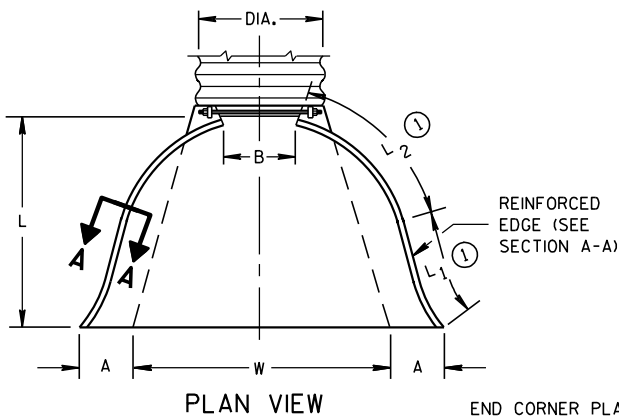
SIDE VIEW

CULVERT PIPE CHECK
(INSTALL ON INLET END ONLY)

CULVERT PIPE CHECK	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED May 2019 DATE	/S/ Daniel Schave EROSION CONTROL ENGI 101
FHWA	

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")	L1 ①	L2 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.

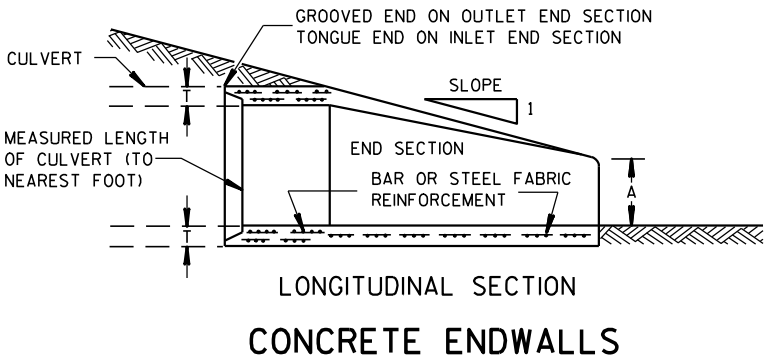
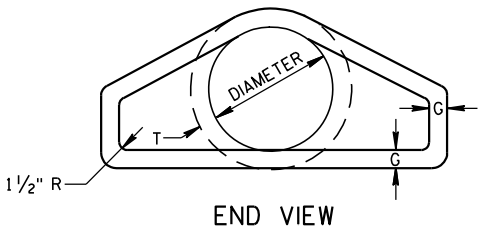
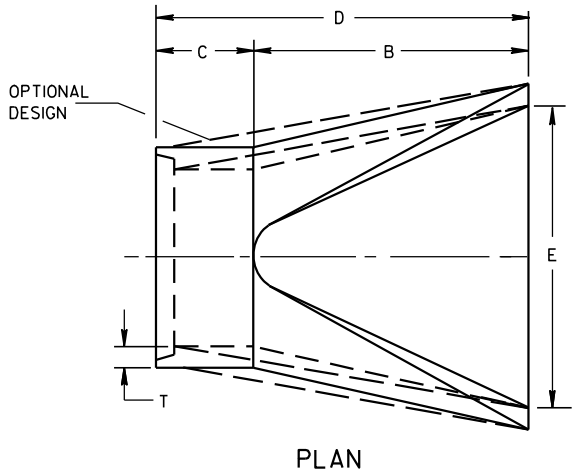
* EXCEPT CENTER PANEL
SEE GENERAL NOTES



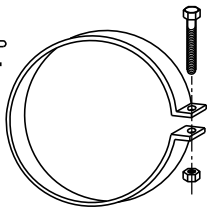
METAL ENDWALLS

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				

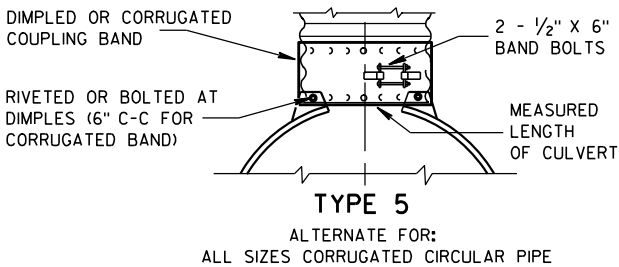
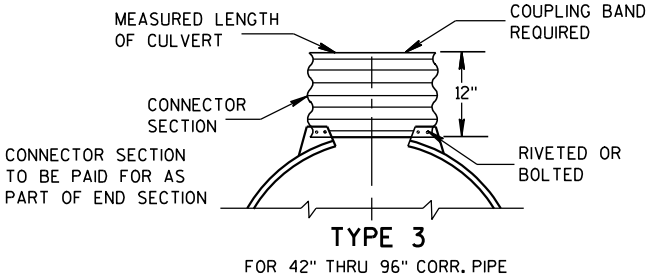
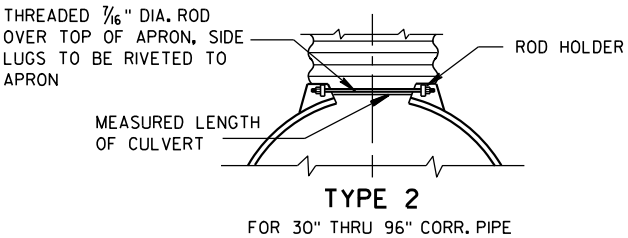
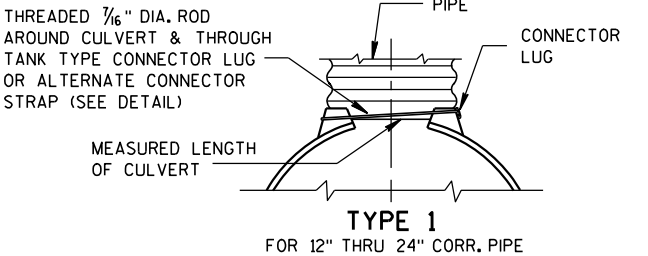
* MINIMUM
** MAXIMUM



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



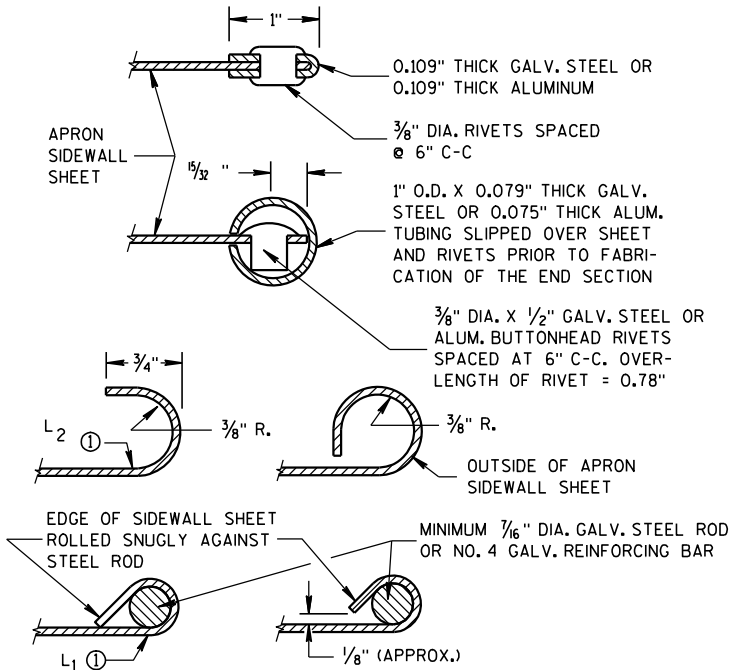
NOTE: DIMPLED BAND FITS OVER OUTSIDE OF ENDWALL, AND CORRUGATED BAND FITS INSIDE ENDWALL. DIMPLED BAND MAY BE USED WITH HELICALLY CORRUGATED PIPE.

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.

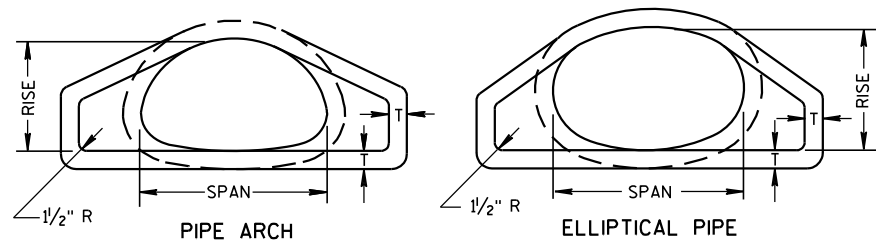
CONNECTION DETAILS



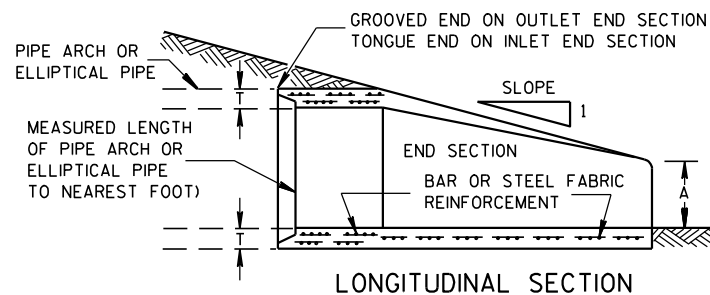
GENERAL NOTES

- 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. Rhin... CHIEF ROADWAY DEVELOP 102		NEER
FHWA			

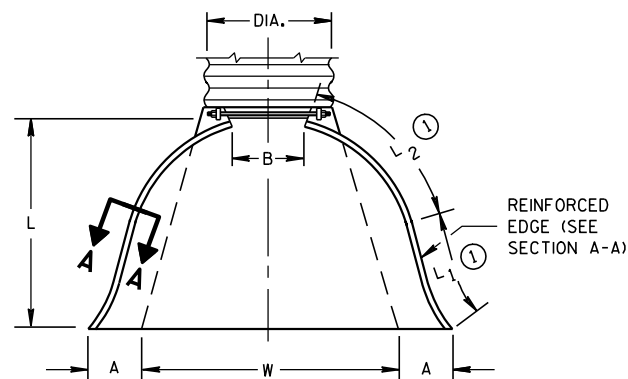


END VIEW



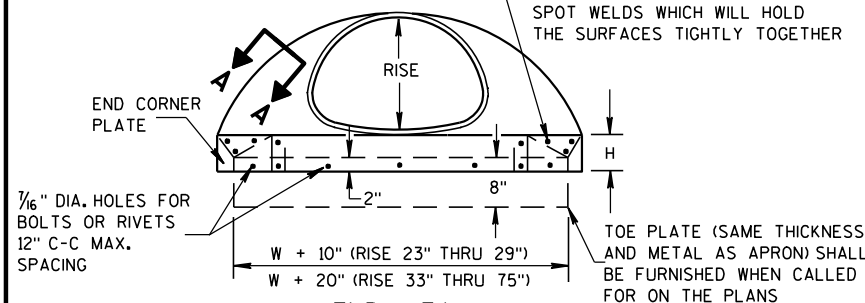
LONGITUDINAL SECTION

CONCRETE ENDWALLS

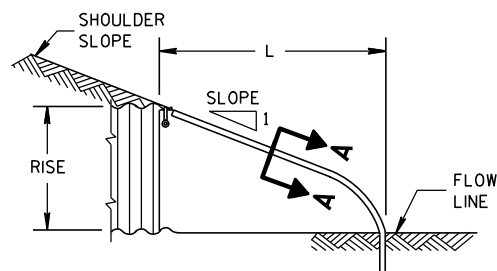
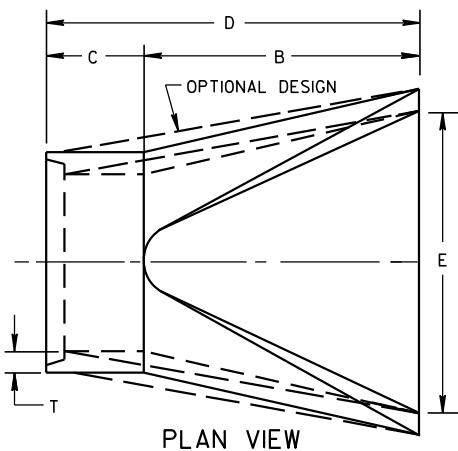


PLAN VIEW

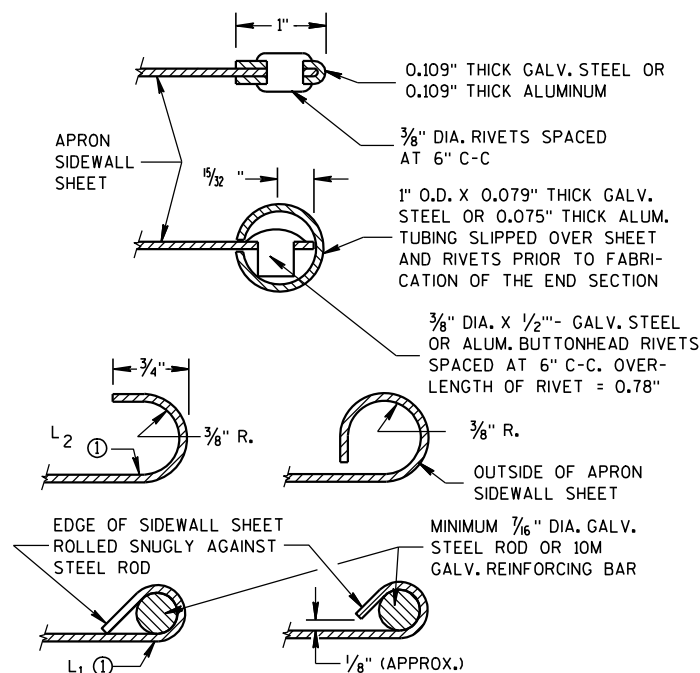
END CORNER PLATES MAY BE FASTENED TO APRON PROPER BY BOLTS, RIVETS, OR RESISTANCE SPOT WELDS WHICH WILL HOLD THE SURFACES TIGHTLY TOGETHER



END VIEW

SIDE ELEVATION
METAL ENDWALLS

PLAN VIEW



SECTION A-A

2- 2 2/3" X 1/2" CORRUGATIONS													
EQUIV. DIA. (Inches)	(Inches)		MIN. THICK. (Inches)		DIMENSIONS (Inches)							APPROX. SLOPE	BODY
	SPAN	RISE	STEEL	ALUM.	A (±1")	B (MAX.)	H (±1")	L (±1 1/2")	L1 ①	L2 ①	W (±2")		
15	17	13	.064	.060	7	9	6	19	14	16	30	2 1/2 to 1	1 Pc.
18	21	15	.064	.060	7	10	6	23	14	19 3/8	36	2 1/2 to 1	1 Pc.
21	24	18	.064	.060	8	12	6	28	18	21 3/4	42	2 1/2 to 1	1 Pc.
24	28	20	.064	.060	9	14	6	32	18	27 1/2	48	2 1/2 to 1	1 Pc.
30	35	24	.079	.075	10	16	6	39	18	37 5/8	60	2 1/2 to 1	1 Pc.
36	42	29	.079	.075	12	18	8	46	24	45 3/8	75	2 1/2 to 1	1 Pc.
42	49	33	.109	.105	13	21	9	53	24	54 3/4	85	2 1/2 to 1	2 Pc.
48	57	38	.109	.105	18	26	12	63	24	68	90	2 1/2 to 1	3 Pc.
54	64	43	.109	.105	18	30	12	70	24	72 3/4	102	2 1/4 to 1	3 Pc.
60	71	47	.109*	.105*	18	33	12	77	30	82 1/4	114	2 1/4 to 1	3 Pc.
66	77	52	.109*	.105*	18	36	12	77	—	—	126	2 to 1	3 Pc.
72	83	57	.109*	.105*	18	39	12	77	—	—	138	2 to 1	3 Pc.

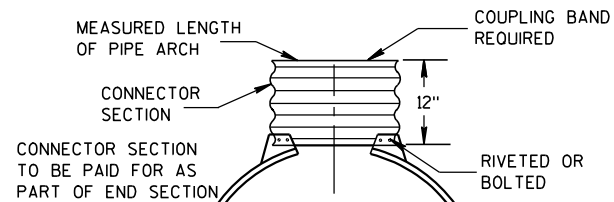
3" X 1" CORRUGATIONS													
EQUIV. DIA. (Inches)	(Inches)		MIN. THICK. (Inches)		DIMENSIONS (Inches)							APPROX. SLOPE	BODY
	SPAN	RISE	STEEL	ALUM.	A (±1")	B (MAX.)	H (±1")	L (±1 1/2")	L1 ①	L2 ①	W (±2")		
48	53	41	.109	.105	18	26	12	63	24	72 3/4	90	2 1/2 to 1	2 Pc.
54	60	46	.109	.105	18	30	12	70	30	82 1/4	102	2 to 1	2 Pc.
60	66	51	.109*	.105*	18	33	12	77	—	—	114	1 1/2 to 1	3 Pc.
66	73	55	.109*	.105*	18	36	12	77	—	—	126	1 1/2 to 1	3 Pc.
72	81	59	.109*	.105*	18	39	12	77	—	—	138	2 to 1	3 Pc.
78	87	63	.109*	.105*	22	38	12	77	—	—	148	1 1/2 to 1	3 Pc.
84	95	67	.109*	.105*	22	34	12	77	—	—	162	1 1/2 to 1	3 Pc.
90	103	71	.109*	.105*	22	38	12	77	—	—	174	1 1/2 to 1	3 Pc.
96	112	75	.109*	.105*	24	40	12	77	—	—	174	1 1/2 to 1	3 Pc.

NOTE: ALL SPLICES TO BE LAP RIVETED OR BOLTED.

* EXCEPT CENTER PANEL
SEE GENERAL NOTES

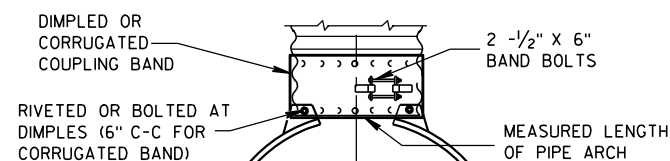
TYPE 2

FOR 17" X 13" THRU 112" X 75" PIPE ARCH



TYPE 3

FOR 64" X 43" THRU 112" X 75" PIPE ARCH



TYPE 5

ALTERNATE FOR:
ALL SIZES CORRUGATED PIPE ARCHESNOTE: DIMPLED BAND FITS OVER OUTSIDE OF ENDWALL,
AND CORRUGATED BAND FITS INSIDE ENDWALL.

CONNECTION DETAILS

REINFORCED CONCRETE PIPE ARCH

EQUIV. DIA. (Inches)	DIMENSIONS (Inches)								APPROX. SLOPE
	** SPAN	** RISE	T	A	B	C	D	E	
24	29	18	3	8 1/2	39	33	72	48	3 to 1
30	36	22	3 1/2	9 1/2	50	46	96	60	3 to 1
36	44	27	4	11 1/8	60	36	96	72	3 to 1
42	51	31	4 1/2	15 1/8	60	36	96	78	3 to 1
48	58	36	5	21	60	36	96	84	3 to 1
54	65	40	5 1/2	25 1/2	60	36	96	90	3 to 1
60	73	45	6	31	60	36	96	96	3 to 1
72	88	54	7	31	60	39	99	120	2 to 1
84	102	62	8	28 1/2	83	19	102	144	2 to 1

REINFORCED CONCRETE ELLIPTICAL PIPE

EQUIV. DIA. (Inches)	DIMENSIONS (Inches)								APPROX. SLOPE
	** SPAN	** RISE	T	A	B	C	D	E	
24	30	19	3 1/4	8 1/2	39	33	72	48	3 to 1
30	38	24	3 3/4	9 1/2	54	18	72	60	3 to 1
36	45	29	4 1/2	11 1/8	60	24	84	72	2 1/2 to 1
42	53	34	5	15 1/4	60	36	96	78	2 1/2 to 1
48	60	38	5 1/2	21	60	36	96	84	2 1/2 to 1
54	68	43	6	25 1/2	60	36	96	90	2 1/2 to 1
60	76	48	6 1/2	30	60	36	96	96	2 1/2 to 1

**NOMINAL SIZE

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

ALL THREE PIECE STEEL APRON ENDWALLS FOR 66" X 51" PIPE ARCH AND LARGER SHALL HAVE 0.109" SIDES AND 0.138" CENTER PANELS. ALL THREE PIECE ALUMINUM APRON ENDWALLS FOR 66" X 51" PIPE ARCH 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 ARCH 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 77" X 52" THROUGH 112" X 75" 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 ARCH SIZES UP TO 73" X 55" A 180° ROLLED EDGE MAY BE USED INSTEAD OF STEEL ROD REINFORCEMENT. SEE SECTION A-A.

APRON ENDWALLS FOR
PIPE ARCH AND
ELLIPTICAL PIPESTATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

11/30/94

DATE

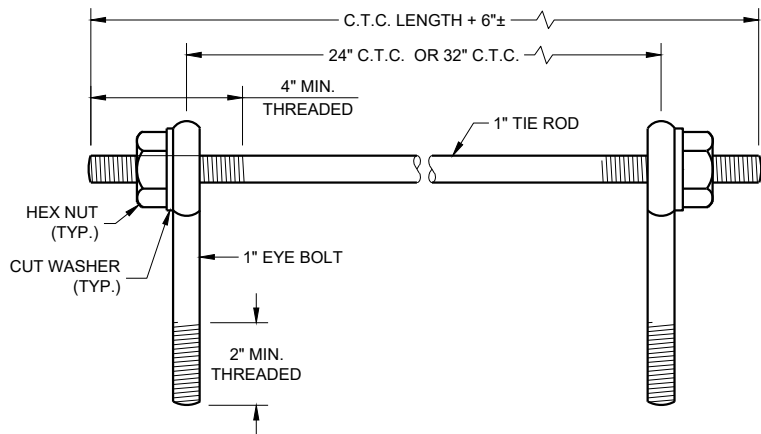
/S/ Rory L. Rhinehart

CHIEF ROADWAY DEVELOPER

FHWA

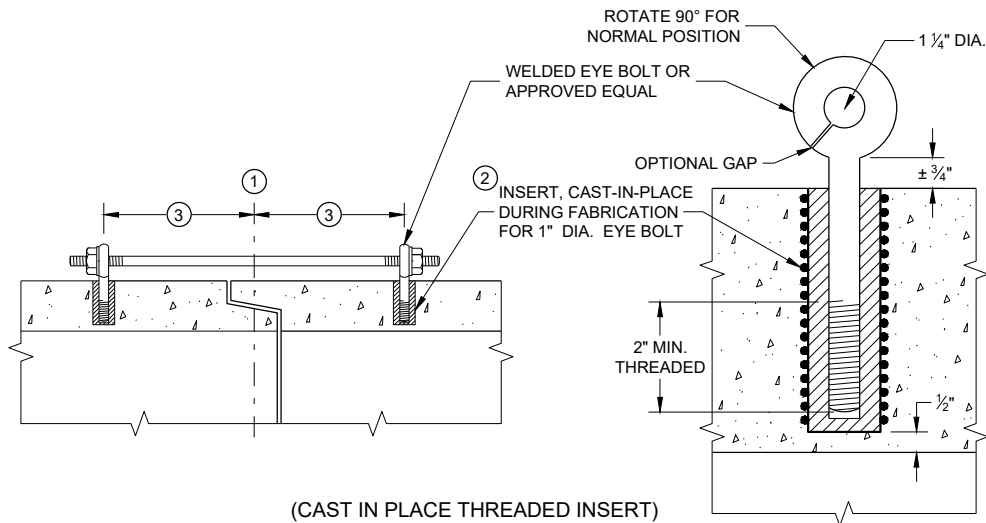
103

ENGINEER



EYE BOLTS AND TIE ROD

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



(CAST IN PLACE THREADED INSERT)
LONGITUDINAL SECTIONS

GENERAL NOTES

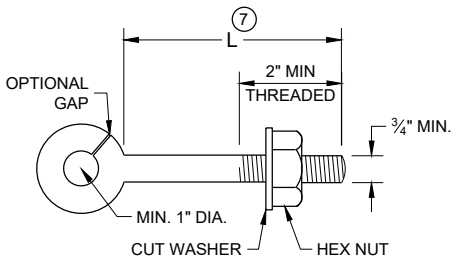
DETAILS OF CONSTRUCTION, MATERIALS, AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.

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.

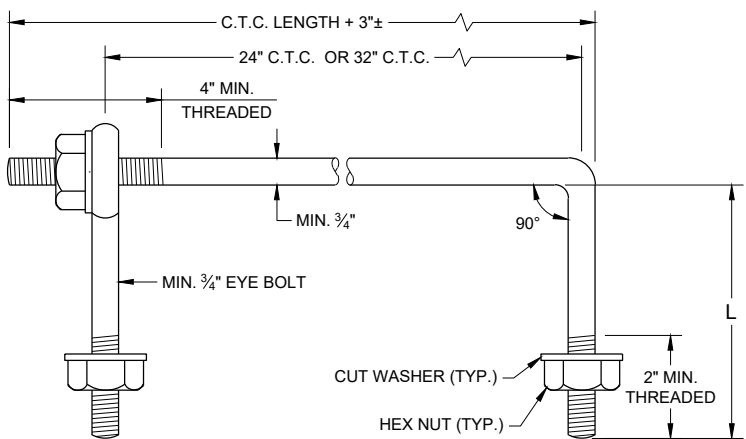
JOINT TIES TO BE HOT-DIP GALVANIZED PER ASTM A 153.

- 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.

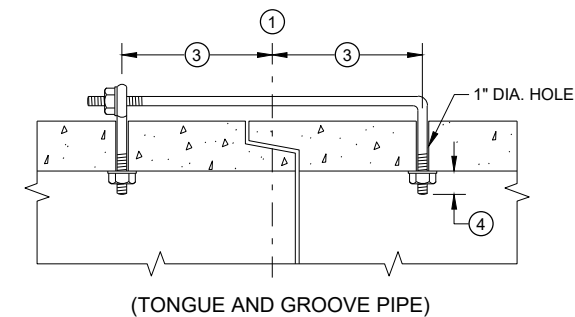


EYE BOLT 7

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



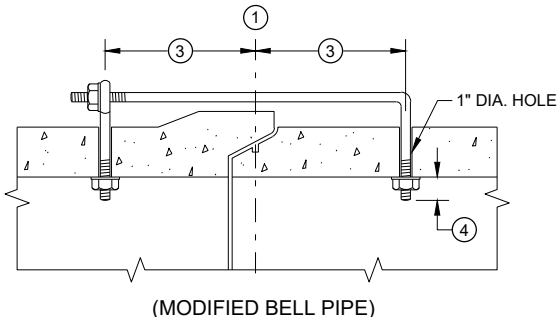
EYE BOLT AND TIE ROD



LONGITUDINAL SECTION

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

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

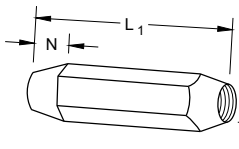


(MODIFIED BELL PIPE)

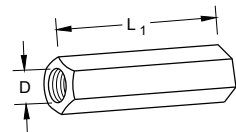
ADJUSTABLE TIE ROD TABLE

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

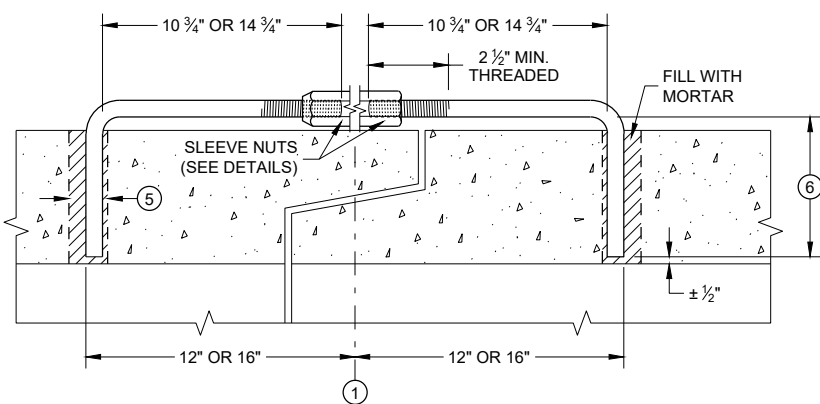


TAPERED



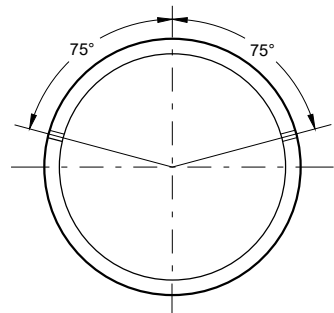
PLAIN

RIGHT AND LEFT THREADS
SLEEVE NUTS



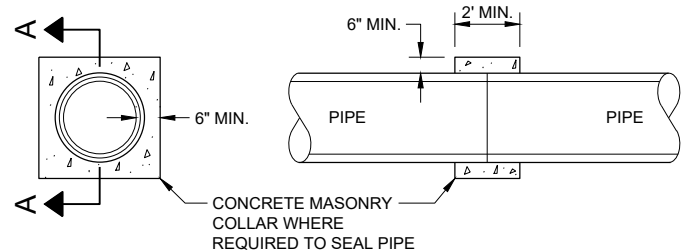
LONGITUDINAL SECTION

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



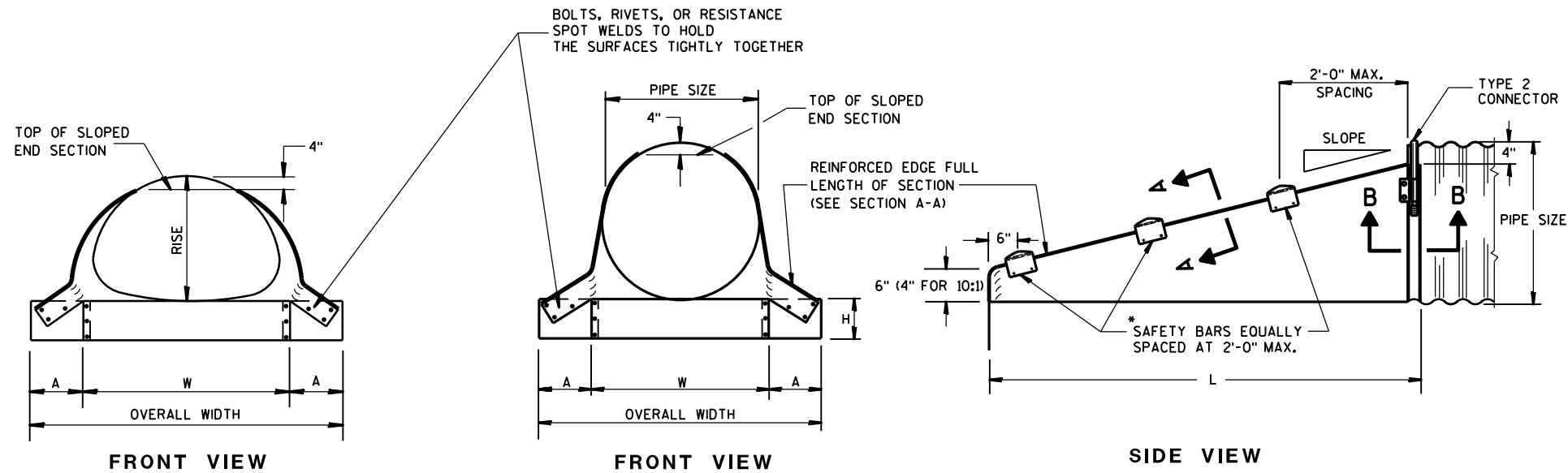
SECTION A - A

CONCRETE COLLAR DETAIL

JOINT TIES FOR CONCRETE PIPE AND CONCRETE COLLAR DETAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
November 2021 DATE /S/ Rodney Taylor
ROADWAY STANDARDS DEVELOPMENT ENGINEER
FHWA 104



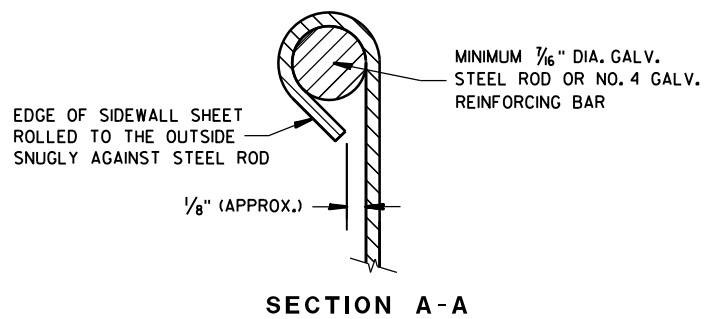
GENERAL NOTES

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.

SLOPED END SECTIONS SHALL CONFORM TO THE REQUIREMENTS OF THE STANDARD SPECIFICATIONS, SECTION 521 FOR STEEL APRON ENDWALLS.

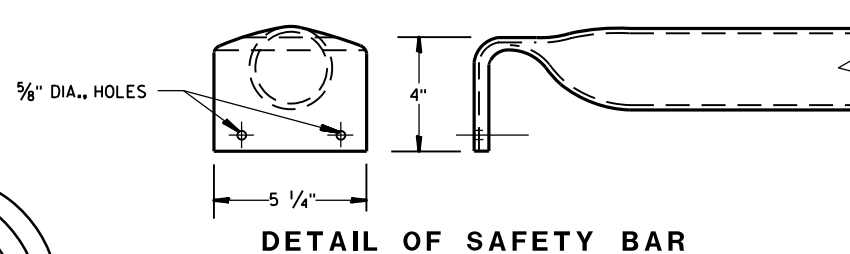
SAFETY BARS SHALL BE FABRICATED FROM GALVANIZED STEEL PIPE MEETING THE REQUIREMENTS OF ASTM A-53, GRADE B, SCHEDULE 40 OR APPROVED EQUAL.

STEEL APRON ENDWALLS FOR CULVERT PIPE SLOPED SIDE DRAINS											
PIPE DIA. (IN.)	MIN. THICK. (Inches)	DIMENSIONS (Inches)				L DIMENSIONS					
		A	H	W	OVERALL WIDTH	SLOPE	LENGTH INCHES	SLOPE	LENGTH INCHES	SLOPE	LENGTH INCHES
15	.064	8	6	21	37	4:1	20	6:1	30	10:1	70
18	.064	8	6	24	40	4:1	32	6:1	48	10:1	100
21	.064	8	6	27	43	4:1	44	6:1	66	10:1	130
24	.064	8	6	30	46	4:1	56	6:1	84	10:1	160
30	.109	12	9	36	60	4:1	80	6:1	120	10:1	220
36	.109	12	9	42	66	4:1	104	6:1	156	10:1	280
42	.109	16	12	48	80	4:1	128	6:1	192	—	—
48	.109	16	12	54	86	4:1	152	6:1	228	—	—
54	.109	16	12	60	92	4:1	176	6:1	264	—	—
60	.109	16	12	66	98	4:1	200	6:1	300	—	—



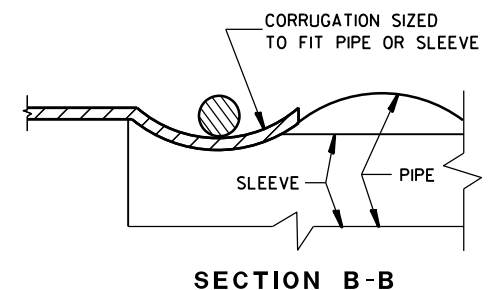
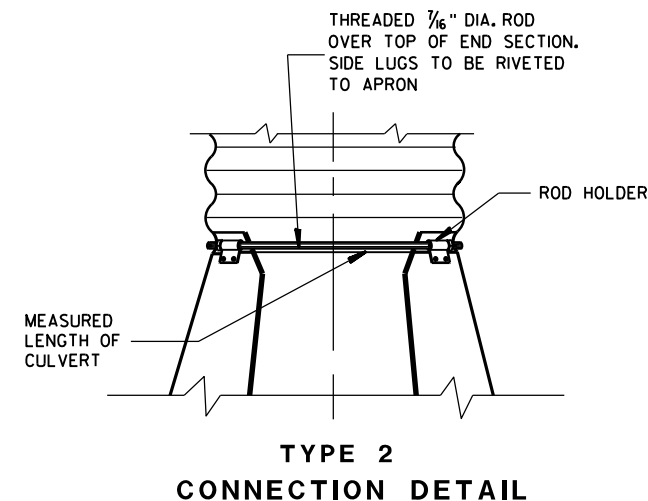
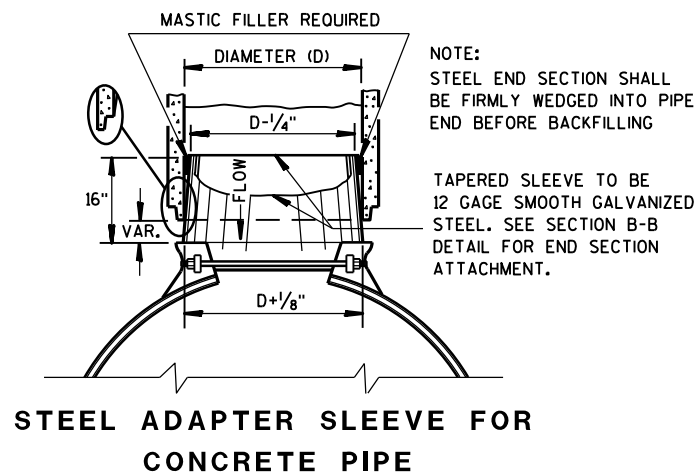
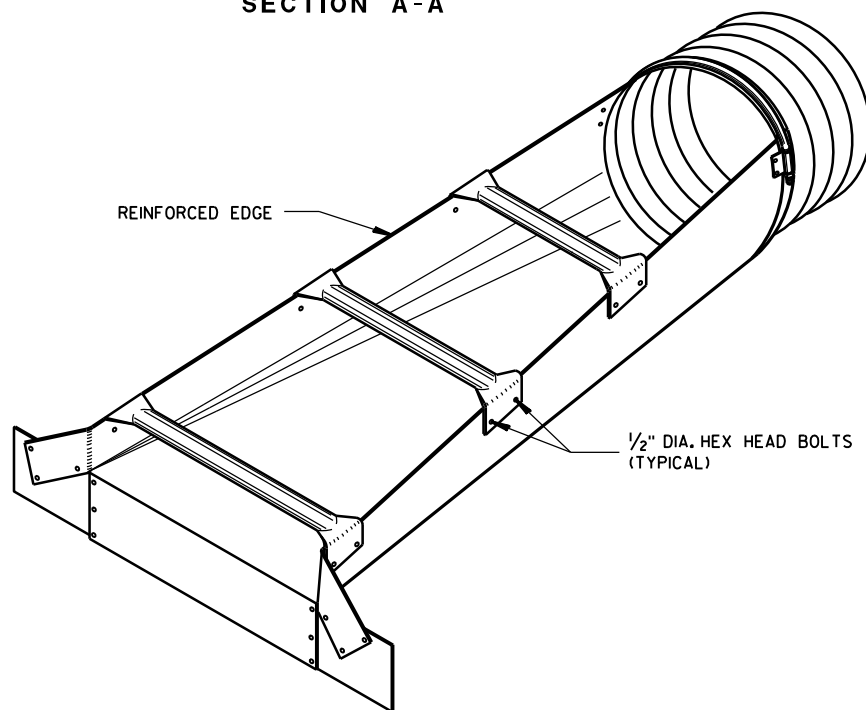
*NOTE:
THREE SAFETY BARS ARE SHOWN.
ACTUAL NUMBER OF BARS REQUIRED AT
A 2'-0" C-C MAX. SPACING WILL VARY
DEPENDING ON THE LENGTH OF THE
END SECTION.

3" GALVANIZED PIPE, FLATTEN
ENDS, THEN BEND OUTSIDE 4"
TO MATCH END SECTION SIDES.



STEEL APRON ENDWALLS FOR PIPE ARCH SLOPED SIDE DRAINS											
EQUIV. DIA. (Inches)	(Inches)		MIN. THICK. (Inches) ①	DIMENSIONS (Inches)				L DIMENSIONS			
	SPAN	RISE		A	H	W	OVERALL WIDTH	SLOPE	LENGTH INCHES	SLOPE	LENGTH INCHES
15	17	13	.064 *	7	6	30	44	4:1	19	6:1	30
18	21	15	.064 *	8	6	27	43	4:1	20	6:1	30
21	24	18	.064 *	8	6	30	46	4:1	32	6:1	48
24	28	20	.064 *	8	6	34	50	4:1	40	6:1	60
30	35	24	.079 *	12	9	41	65	4:1	56	6:1	84
36	42	29	.109 *	12	9	48	72	4:1	76	6:1	114
42	49	33	.109	16	12	55	87	4:1	92	6:1	138
48	57	38	.109	16	12	63	95	4:1	112	6:1	168
54	64	43	.109	16	12	70	102	4:1	132	6:1	198

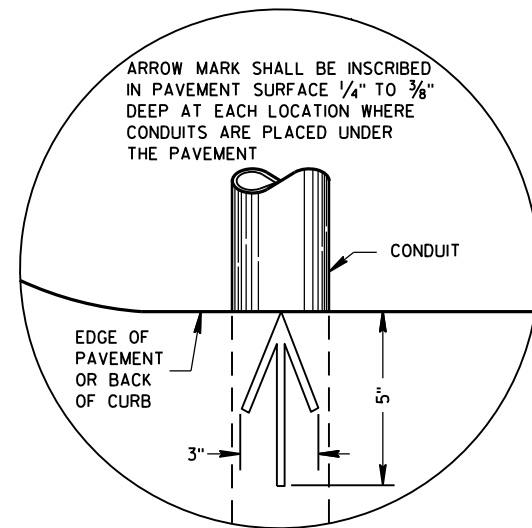
① * MINIMUM THICKNESS OF ALL 10:1 SLOPED SIDE DRAINS IS 0.109".
② ACTUAL SLOPE GREATER THAN 10:1.



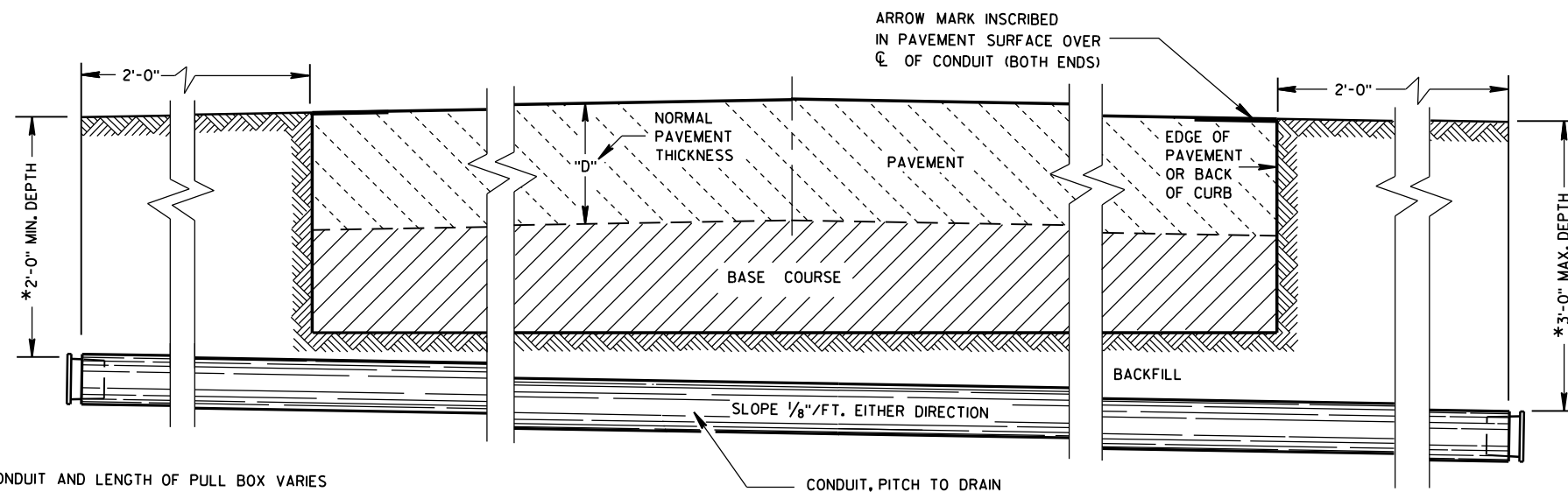
STEEL APRON ENDWALLS FOR CULVERT PIPE AND PIPE ARCH SLOPED SIDE DRAINS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
9/14/2012
DATE
/S/ Jerry H. Zoog
ROADWAY STANDARDS ENGINEER
105
NT
FHWA



PLAN VIEW
ARROW MARK



SIDE ELEVATION
DETAIL FOR CONDUIT UNDER PAVED HIGHWAYS

*DEPTH OF CONDUIT AND LENGTH OF PULL BOX VARIES
WITH HEIGHT OF CURB USED. ALSO SEE PULL BOX S.D.D. 9B4

GENERAL NOTES

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

METALLIC (STANDARD SPECIFICATION 652.2.2) OR NONMETALLIC (STANDARD SPECIFICATION 652.2.3) CONDUIT SHALL BE FURNISHED AND PLACED AS SHOWN.

DEPTH OF CONDUIT INSTALLED BELOW THE TRAVELED WAY SHALL BE 24 INCHES MINIMUM AND 36 INCHES MAXIMUM.

DEPTH OF CONDUIT INSTALLED THAT IS NOT BELOW THE TRAVELED WAY SHALL BE 18 INCHES MINIMUM AND 36 INCHES MAXIMUM.

ANY EXCEPTION TO THE MAXIMUM DEPTH SHALL BE ONLY WITH THE WRITTEN APPROVAL OF THE ENGINEER.

THE TRENCH SHALL NOT BE BACKFILLED PRIOR TO INSPECTION OF THE CONDUIT.

ALL METALLIC CONDUIT RACEWAY ENDS SHALL BE REAMED AND THREADED.

ALL METALLIC CONDUIT IN WHICH WIRE OR CABLE IS TO BE INSTALLED SHALL BE BUSHED WITH APPROVED THREADED BUSHINGS BEFORE INSTALLATION OF THE WIRE OR CABLE.

ALL METALLIC CONDUITS IN WHICH WIRE OR CABLE IS NOT TO BE INSTALLED SHALL BE CAPPED WITH THREADED PROTECTIVE CAPS, AS APPROVED BY THE ENGINEER.

ALL NONMETALLIC CONDUIT SHALL BE CAPPED OR PLUGGED IMMEDIATELY AFTER INSTALLATION AND SHALL REMAIN CAPPED OR PLUGGED UNTIL WIRE/CABLES ARE INSTALLED.

NONMETALLIC CONDUITS IN WHICH WIRE OR CABLE IS NOT BEING INSTALLED SHALL REMAIN CAPPED OR PLUGGED.

BENDING OF PVC ELECTRICAL CONDUIT SHALL BE ACCOMPLISHED BY USING A BLANKET OR EMERSION TYPE TANK DESIGNED FOR THE PURPOSE OF BENDING PVC ELECTRICAL CONDUIT.

ALL CUT ENDS SHALL BE TRIMMED INSIDE AND OUTSIDE TO REMOVE ALL ROUGH EDGES ON NONMETALLIC CONDUIT. (SEE NEC 347.5)

WHEN REQUIRED TO CONNECT NONMETALLIC CONDUIT TO METALLIC CONDUIT, ONLY U.L. LISTED ADAPTER FITTINGS SHALL BE USED.

PRIOR TO CONDUIT ACCEPTANCE, CONDUIT CAPS OR PLUGS SHALL BE REMOVED, AND THE CAPS, PLUGS AND CONDUIT ENDS SHALL BE THOROUGHLY CLEANED AND THEN THE CAPS OR PLUGS REINSTALLED TO ENSURE THAT THE CAPS OR PLUGS CAN BE EASILY REMOVED IN THE FUTURE.

ALL CONDUIT BEING FURNISHED AND INSTALLED SHALL HAVE THE U.L. LABEL FIRMLY ATTACHED.

CONDUIT RUNS SHALL BE THE SAME SIZE OF CONDUIT FROM ONE END TO THE OTHER (FROM PULL BOX TO PULL BOX-OR-JUNCTION BOX TO JUNCTION BOX-OR-BASE TO BASE, ETC.).

TRACER WIRE SHALL BE INSTALLED AS STATED IN THE STANDARD SPECIFICATION, ITEM 652.3.1.1.

ALL CONDUIT RUNS SHALL BE STRAIGHT (WITHOUT BENDS) FROM PULL BOX TO PULL BOX, PULL BOX TO BASE AND BASE TO BASE AS SHOWN ON THE PLANS.

CONDUIT

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

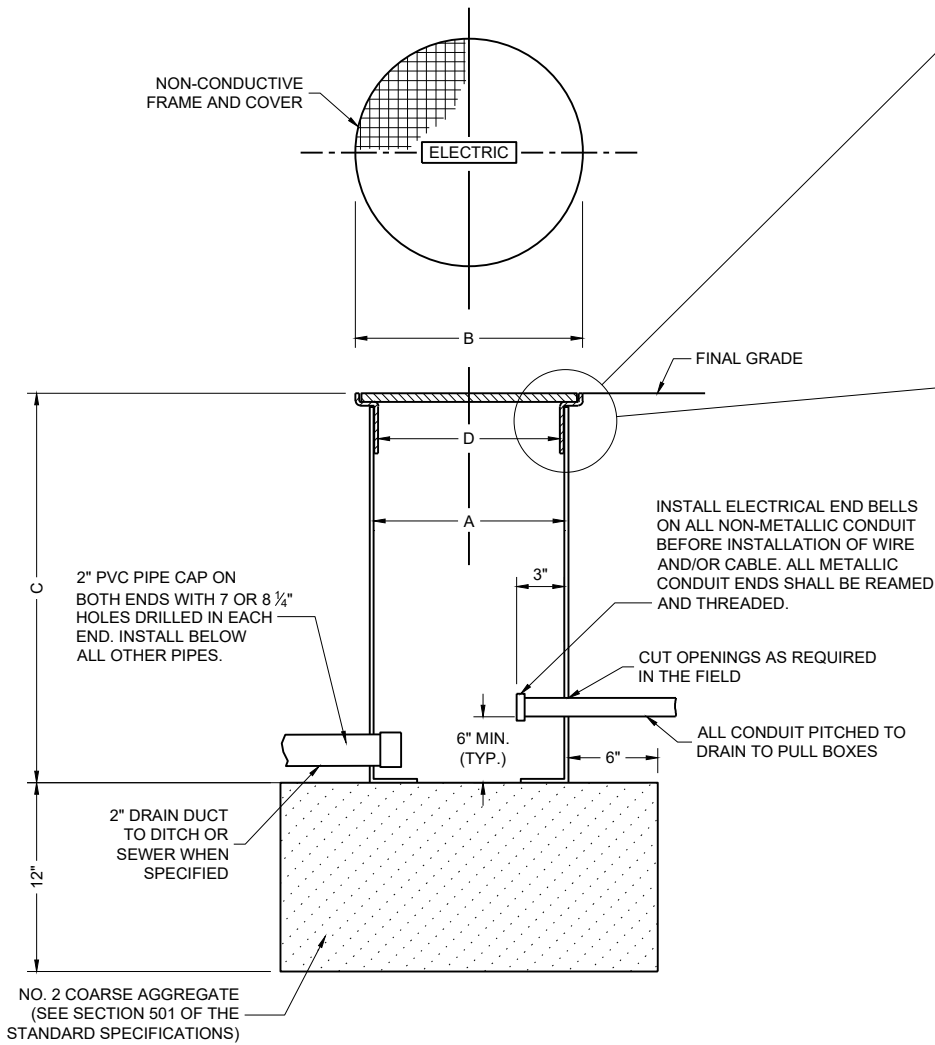
APPROVED
March, 2017 /S/ Ahmet Demirbilek
DATE STATE ELECTRICAL 106
FHWA

TABLE OF NOMINAL DIMENSIONS
AND WEIGHTS

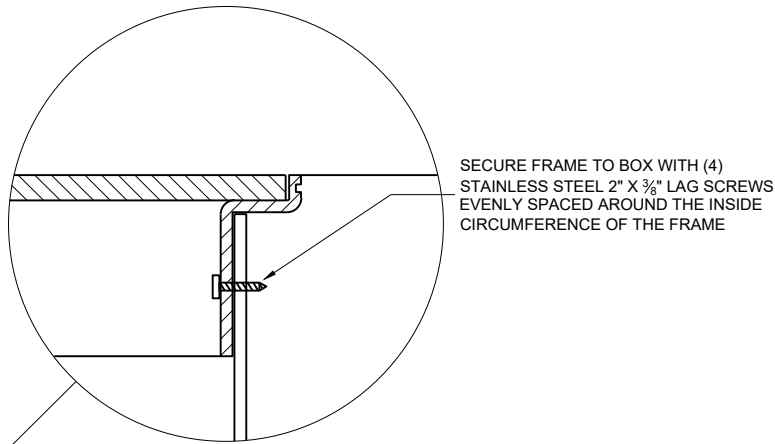
DIMENSION IN INCHES		NON- CONDUCTIVE PULL BOX	
BOX DIAMETER ** (INSIDE)	A	24	24
BOX OVERALL OUTSIDE DIAMETER	B	27	27
BOX LENGTH	C	36	42
FRAME OPENING	D	22 ½	22 ½
WEIGHT IN POUNDS *			
COVER		50	50
BOX ONLY		75	85

*THE ACTUAL WEIGHT OF THE COVER OR BOX ONLY MAY VARY NOT TO EXCEED 100 LBS INDIVIDUALLY.

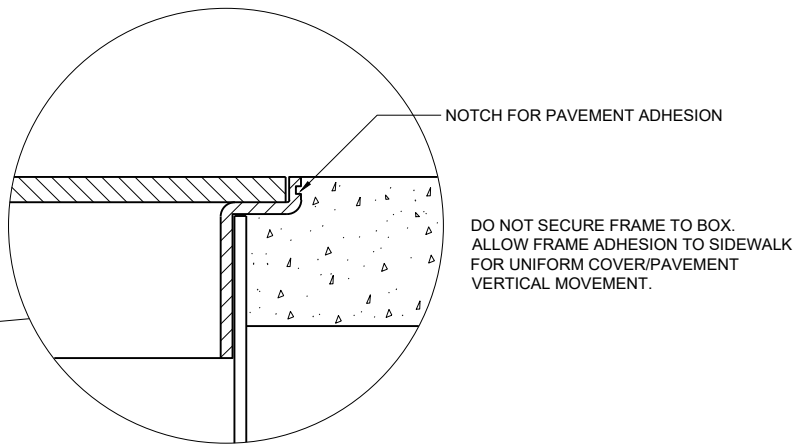
** DIAMETER VARIES FROM TOP TO BOTTOM WITH THE DIAMETER LARGER AT THE BOTTOM TO PREVENT FROST HEAVE.



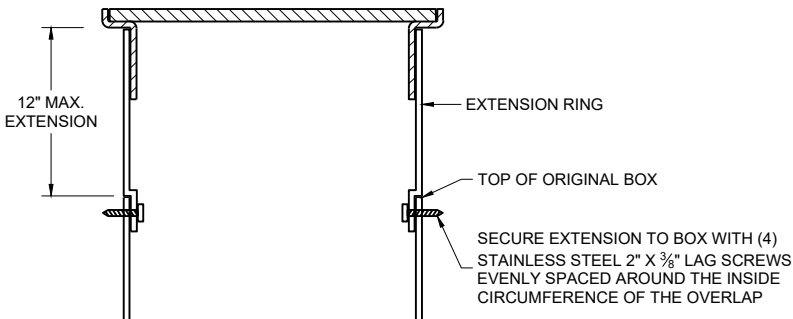
NON-CONDUCTIVE PULL BOX



INSTALLED IN SOD
OR CRUSHED AGGREGATE



INSTALLED IN SIDEWALK



BOX EXTENSION

GENERAL NOTES

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

ALL BOXES, FRAMES AND COVERS SHALL BE SUITABLE FOR TIER 15 LOADING AS SPECIFIED IN ANSI/SCTE 77.

PROVIDE AN OPENING FOR TOOL ASSISTED COVER REMOVAL NOT LARGE ENOUGH TO PERMIT PASSAGE OF A SPHERE MORE THAN ½" DIAMETER

ENSURE COVER SURFACE IS SKID RESISTANT WITH A COEFFICIENT OF FRICTION OF AT LEAST 0.5 AND VERTICAL SURFACE DISCONTINUITIES LESS THAN ¼".

COVER SHALL BE MAGNETICALLY LOCATABLE.

BOXES AND EXTENSIONS ARE TRIMMABLE FOR CUSTOM LENGTHS. TRIMMED PIECES SHALL MAINTAIN A UNIFORM LENGTH.

ENTRANCE HOLES INTO PULL BOXES SHALL BE CUT WITH A CIRCULAR HOLE SAW OR HYDRAULIC CONDUIT PUNCH. HOLE SIZE SHALL BE THE OUTSIDE DIAMETER OF THE CONDUIT THAT IS TO FIT IN THE OPENING PLUS NO MORE THAN ¼".

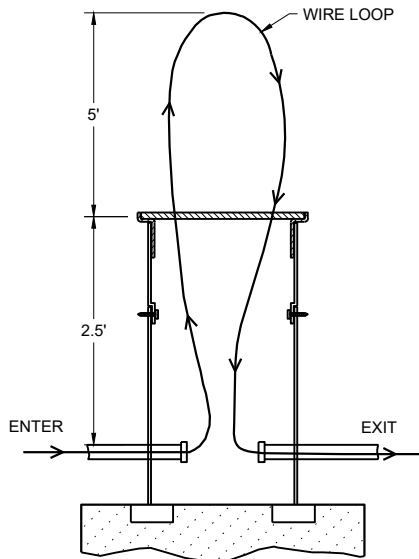
THE CONTRACTOR SHALL NOT INSTALL WIRE IN ANY PULL BOX UNTIL ITS INSTALLATION HAS BEEN INSPECTED AND ACCEPTED BY THE ENGINEER.

ALL METALLIC CONDUIT IN WHICH WIRE AND/OR CABLE IS TO BE INSTALLED, SHALL BE BUSHED BEFORE INSTALLATION OF THE WIRE AND/OR CABLE.

ENTIRE BOX MUST BE CONSTRUCTED OF NON-CONDUCTIVE MATERIALS WITH THE EXCEPTION OF STAINLESS STEEL FASTENERS AND MAGNETIC LOCATABLE DEVICE.

WHEN A PULL BOX IS INSTALLED IN CRUSHED AGGREGATE SHOULDERS, PLACE IT 2-3 INCHES BELOW GRADE AND COVER IT WITH 2-3 INCHES OF CRUSHED AGGREGATE.

LABEL ON COVER SHALL READ "ELECTRIC" FOR SIGNAL AND LIGHTING SYSTEMS, "WISDOT ITS" FOR COMMUNICATIONS AND ITS EQUIPMENT SYSTEMS.



MEASUREMENT DETAIL FOR
WIRE/CABLE IN THE PULL BOX

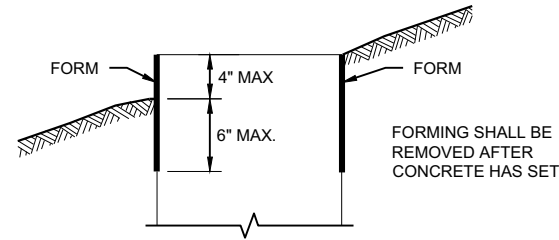
PULL BOXES
NON-CONDUCTIVE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
November 2024 /S/ Ahmet Demirbilek
DATE STATE ELECTRICAL ENGINEER

FHWA

FORM DEPTH SHALL BE NO MORE THAN 6" BELOW GRADE ON THE LOWER SIDE OF BASE



FORMING DETAIL

QUANTITY REQUIREMENTS	CONCRETE BASE TYPE		
	1	2	5 & 6
APPROX. CUBIC YARDS OF CONCRETE	0.40	0.57	0.40
LBS. OF HOOP BAR STEEL	NONE	23	16
LBS. OF VERTICAL BAR STEEL	NONE	60	18

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

BASES SHALL BE EXCAVATED BY USE OF A CIRCULAR AUGER.

TOP SURFACES OF CONCRETE BASES SHALL BE TROWEL FINISHED SMOOTH AND LEVEL.

CONDUIT SIZES AND LOCATIONS SHALL BE SHOWN ON THE PLANS

THE FINAL OR TERMINATING CONCRETE BASE IN A CONDUIT RUN SHALL HAVE A 6" EXIT STUB INSTALLED FOR FUTURE CABLING USE. THE EXIT STUB SHALL BE SIZED AS USED THROUGHOUT THE CONDUIT RUN AS SHOWN AT THE ENTRANCE OF THE BASE.

ENDS OF CONDUIT INSTALLED BELOW GRADE FOR FUTURE USE SHALL BE CAPPED IF METALLIC OR PLUGGED IF NON-METALLIC.

MINIMUM BENDING RADIUS OF CONDUIT IS EQUAL TO 6X THE DIAMETER.

CONDUIT HEIGHT ABOVE CONCRETE BASES SHALL BE 1 INCH. ALL METALLIC CONDUIT ENDS SHALL BE REAMED AND THREADED.

ALL CONDUIT ENDS AT THE TOP OF CONCRETE BASES SHALL BE CAPPED IF METALLIC OR PLUGGED IF NON-METALLIC IMMEDIATELY AFTER PLACEMENT AND BEFORE CONCRETE IS POURED. CONDUITS IN WHICH WIRE OR CABLE IS NOT INSTALLED SHALL REMAIN CAPPED OR PLUGGED.

GENERAL NOTES

BELL ENDS SHALL BE INSTALLED ON ALL PVC CONDUIT EXPOSED AT THE TOP OF CONCRETE BASES BEFORE INSTALLATION.

WHEN REQUIRED TO CONNECT NON-METALLIC CONDUIT TO METALLIC CONDUIT, ONLY ADAPTER FITTINGS, U.L. LISTED FOR ELECTRICAL USE, SHALL BE USED.

IF A BASE REQUIRES A DEEP FORM BECAUSE OF LOOSE DIRT OR FILL, THE FORM SHALL BE REMOVED BEFORE BACKFILLING AROUND THE BASE. BACKFILL SHALL BE TAMPED TIGHT AGAINST THE BARE CONCRETE BASE IN LAYERS OF 1 FOOT OR LESS.

A NO. 4 AWG STRANDED COPPER EQUIPMENT GROUNDING CONDUCTOR SHALL BE EXOTHERMICALLY WELDED TO THE EQUIPMENT GROUNDING ELECTRODE (GROUND ROD) FOR TYPE 2, TYPE 5 AND TYPE 6 BASES.

THE EQUIPMENT GROUNDING CONDUCTOR SHALL BE FURNISHED AND INSTALLED TO ENTER ALL BASE TYPES THROUGH A 1 INCH CONDUIT INSTALLED FOR GROUNDING PURPOSES, LEAVING A 4 FOOT COIL OF WIRE ABOVE THE CONCRETE BASE. THE EQUIPMENT GROUNDING CONDUCTOR SHALL BE NEATLY COILED AND THE COILS TIED TOGETHER.

ANCHOR RODS SHALL BE THREADED 12" IN LENGTH ON EACH END OF THE ROD. ANCHOR RODS SHALL BE MANUFACTURED IN ACCORDANCE WITH SECTION 654.2.1 OF THE STANDARD SPECIFICATIONS.

WASHERS AND LOCK WASHERS ARE REQUIRED ON ALL ANCHOR RODS.

WHEN ANCHOR RODS USING THE ALTERNATE "L" BEND ARE FURNISHED, THE 4 INCH "L" BEND SHALL BE IN ADDITION TO THE SPECIFIED ANCHOR ROD BAR LENGTH. THE "L" BEND SHALL NOT BE THREADED.

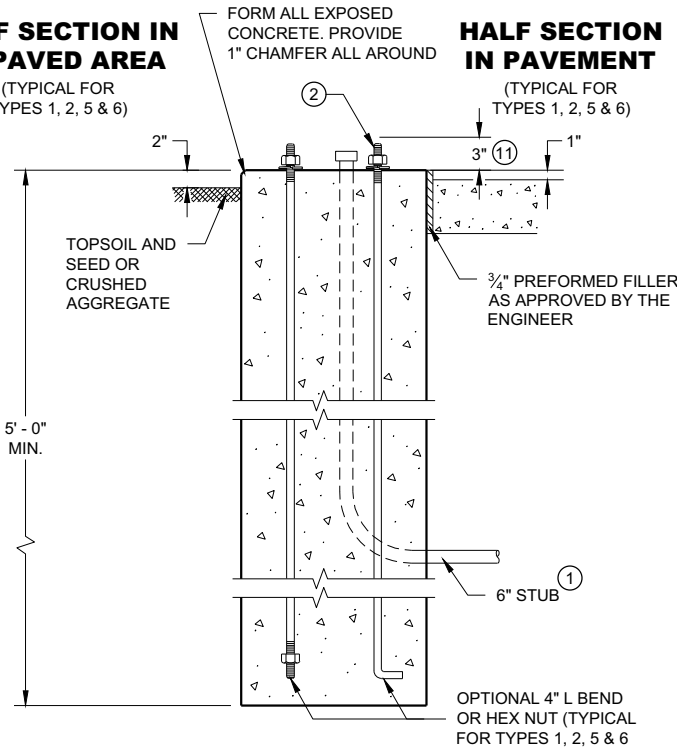
ANCHOR RODS SHALL BE INSTALLED WITH MISALIGNMENTS OF LESS THAN 1:40 FROM VERTICAL.

WELDING OF THE ANCHOR RODS TO THE CAGE IS UNACCEPTABLE. TIE WIRES SHALL BE USED.

BAR STEEL REINFORCEMENT SHALL BE COATED WITH POWDERED EPOXY RESIN IN ACCORDANCE WITH SECTION 505 OF THE STANDARD SPECIFICATIONS (LATEST EDITION).

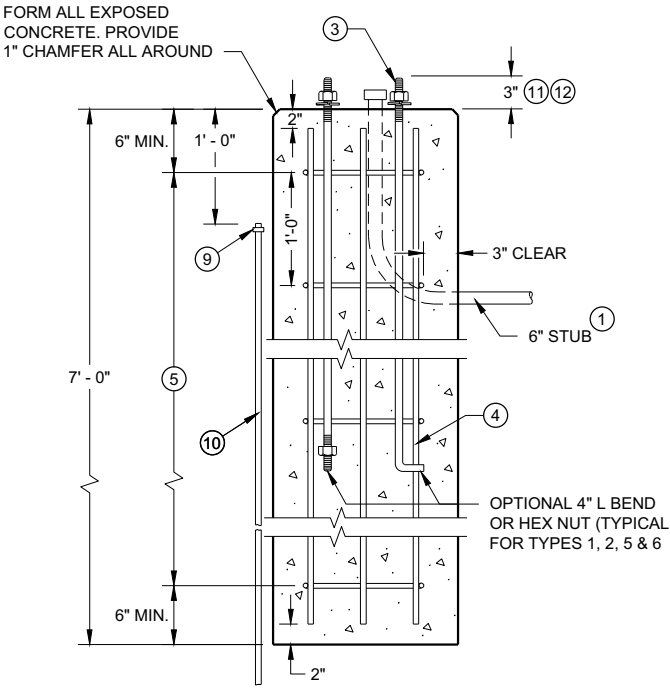
- 1 THE MINIMUM DEPTH OF CONDUIT EXITING THE CONCRETE BASE AND INSTALLED BELOW THE TRAVELED WAY SHALL BE 24 INCHES. THE MINIMUM DEPTH OF CONDUIT EXITING THE CONCRETE BASE THAT IS NOT INSTALLED BELOW THE TRAVELED WAY SHALL BE 18 INCHES. THE MAXIMUM DEPTH OF ALL CONDUIT SHALL BE 36 INCHES EXCEPT WITH WRITTEN APPROVAL OF THE ENGINEER.
- 2 (4) 1" DIA. X 3' - 6" ANCHOR RODS.
- 3 (4) 1" DIA. X 5' - 0" ANCHOR RODS.
- 4 (6) NO. 6 X 6' - 8" BAR STEEL REINFORCEMENT.
- 5 (7) NO. 4 X 5' - 1" BAR STEEL REINFORCEMENT @ 1' - 0" C - C.
- 6 (4) 1" DIA. X 3' - 6" ANCHOR RODS.
- 7 (6) NO. 4 X 4' - 8" BAR STEEL REINFORCEMENT.
- 8 (5) NO. 4 X 5' - 1" BAR STEEL REINFORCEMENT @ 1' - 0" C - C.
- 9 EXOTHERMIC CONNECTION TO EQUIPMENT GROUNDING CONDUCTOR
- 10 5/8" DIA. X 8' - 0" COPPERCLAD EQUIPMENT GROUNDING ELECTRODE REQUIRED
- 11 ANY ANCHOR ROD PROJECTION SHORTER THAN 2 3/4" OR LONGER THAN 3 1/2" SHALL REQUIRE THE BASE TO BE REMOVED AND REPLACED AT THE CONTRACTOR'S EXPENSE.
- 12 FOR NON - BREAKAWAY INSTALLATIONS, 4 1/2" ± ANCHOR ROD PROJECTION WITH THE USE OF LEVELING NUTS. RODENT SCREEN REQUIRED.

HALF SECTION IN UNPAVED AREA



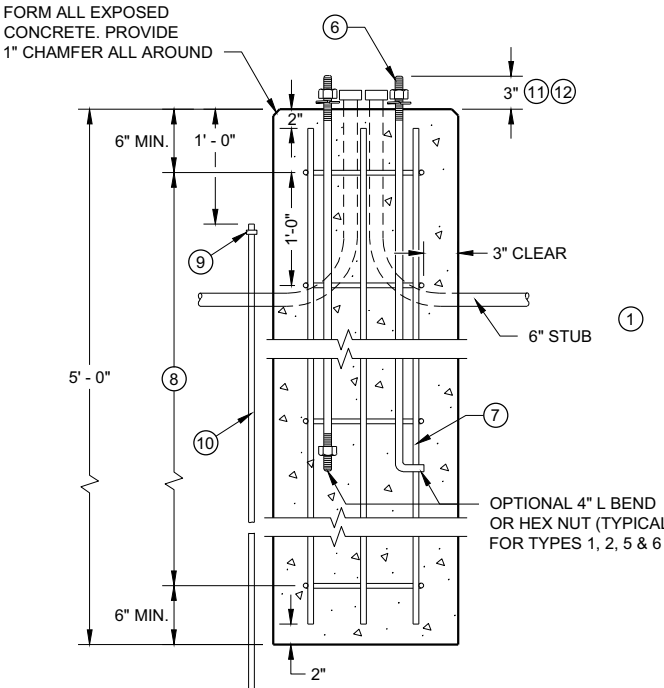
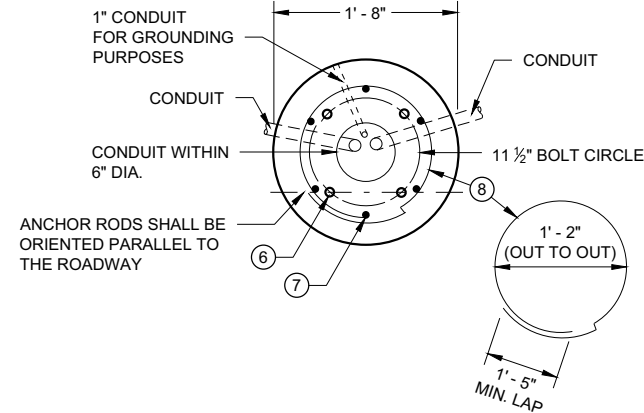
TYPE 1

HALF SECTION IN PAVEMENT



TYPE 2

CONCRETE BASES

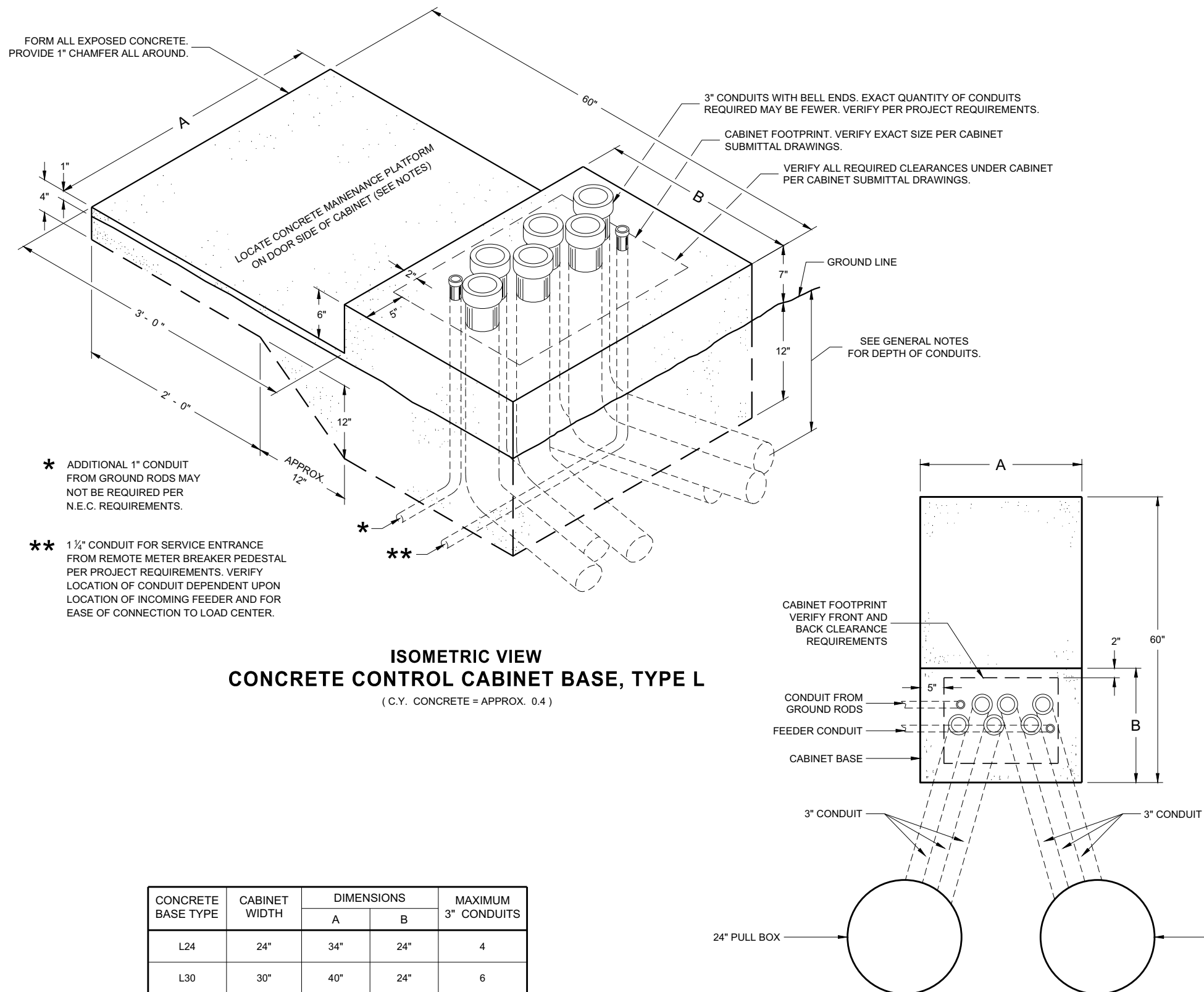


TYPE 5 & 6

6

S.D.D. 9 C 3-4

S.D.D. 9 C 3-4



**PLAN VIEW
CONCRETE CONTROL CABINET BASE, TYPE L**

GENERAL NOTES

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

INSTALL FOUR STAINLESS STEEL APPROVED CONCRETE MASONRY ANCHORS TO ANCHOR THE CABINET BASES. THE ANCHORS SHALL BE LOCATED AS DIRECTED BY THE ENGINEER TO PROPERLY ANCHOR THE CONTROL CABINET TO THE BASE.

WHEN REQUIRED TO CONNECT NON - METALLIC CONDUIT TO METALLIC CONDUIT, ONLY ADAPTER FITTINGS, U. L. LISTED FOR ELECTRICAL USE, SHALL BE USED.

CONDUIT HEIGHT ABOVE THE CONCRETE BASE SHALL BE 1 INCH.

DEPTH OF CONDUIT INSTALLED BELOW THE TRAVELED WAY SHALL BE 24 INCHES MINIMUM AND 36 INCHES MAXIMUM.

DEPTH OF CONDUIT INSTALLED THAT IS NOT BELOW THE TRAVELED WAY SHALL BE 18 INCHES MINIMUM AND 36 INCHES MAXIMUM.

ANY EXCEPTION TO THE MAXIMUM DEPTH SHALL BE ONLY WITH THE WRITTEN APPROVAL OF THE ENGINEER.

LOCATIONS SHALL BE AS SHOWN ON THE PLANS UNLESS DETERMINED BY THE ENGINEER IN THE FIELD.

CONTROL CABINET BASE TOP SURFACE SHALL BE TROWEL FINISHED SMOOTH AND LEVEL.

MAINTENANCE PLATFORM SHALL BE FLOAT OR BROOM FINISHED AND LEVEL.

MAINTENANCE PLATFORMS ARE NOT REQUIRED WHEN THE SURROUNDING AREA IS PAVED.

MINIMUM BENDING RADIUS OF CONDUIT EQUALS 6 TIMES THE DIAMETER.

ALL METALLIC CONDUIT ENDS SHALL BE REAMED AND THREADED.

CAP ALL BELOW GRADE METALLIC CONDUIT ENDS IN WHICH WIRE OR CABLE IS NOT BEING INSTALLED.

PLUG ALL BELOW GRADE NON - METALLIC CONDUIT ENDS IN WHICH WIRE OR CABLE IS NOT BEING INSTALLED.

ALL CONDUIT ENDS AT THE TOP OF CONCRETE BASES SHALL BE CAPPED IF METALLIC OR PLUGGED IF NON - METALLIC IMMEDIATELY AFTER PLACEMENT AND BEFORE CONCRETE IS POURED. CONDUITS IN WHICH WIRE OR CABLE IS NOT BEING INSTALLED SHALL REMAIN CAPPED OR PLUGGED.

CONCRETE FORM DEPTH BELOW FINISHED GRADE SHALL BE 6 INCHES MAXIMUM. CONCRETE FORMS SHALL BE REMOVED AFTER CONCRETE HAS SET.

CONDUIT EXITING THE CONCRETE BASE SHALL TERMINATE IN PULL BOXES AS SHOWN ON THE PLANS.

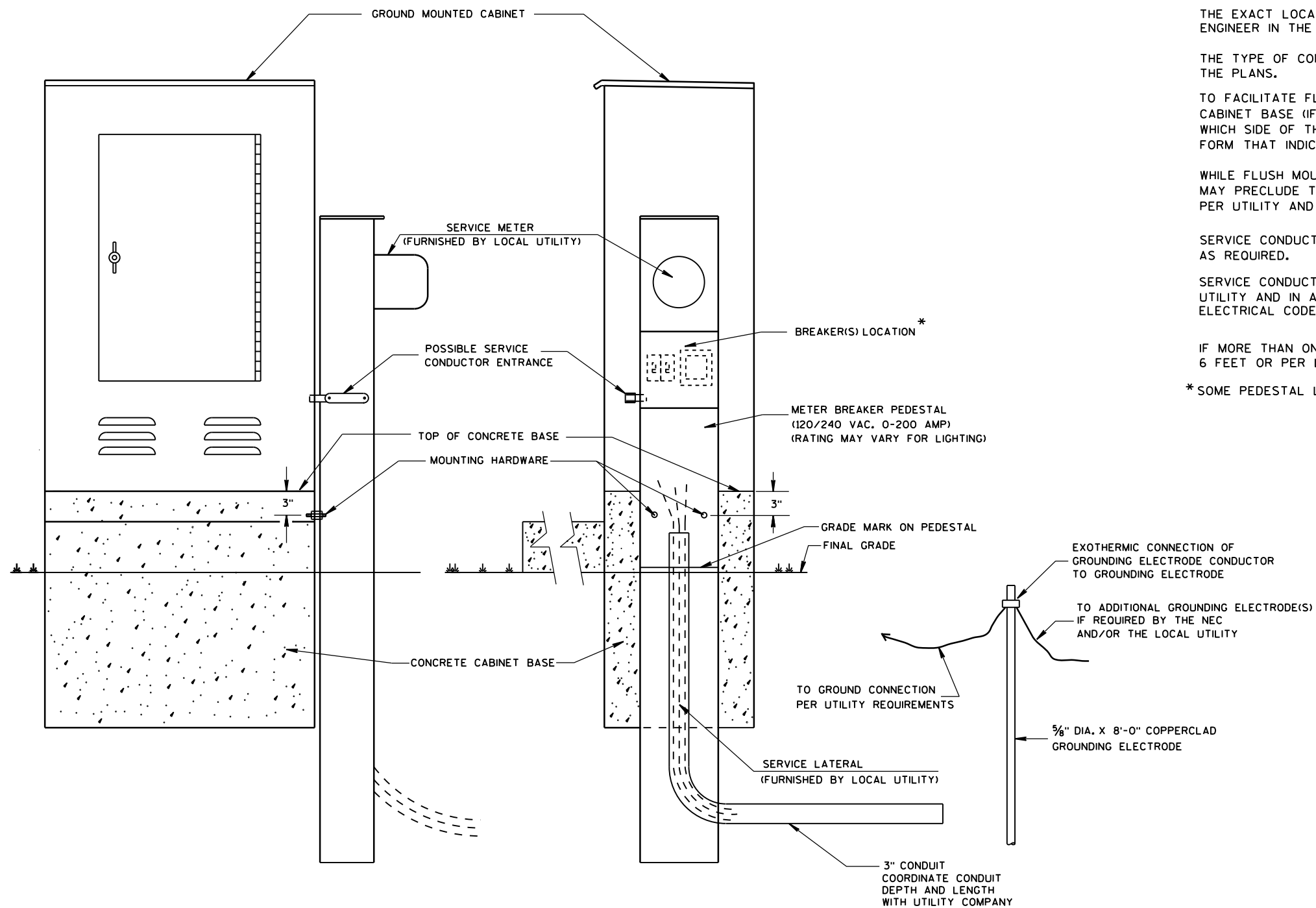
CONCRETE FORM DEPTH BELOW FINISHED GRADE SHALL BE 6 INCH MAXIMUM. CONCRETE FORMS SHALL BE REMOVED AFTER CONCRETE HAS SET.

BELL ENDS SHALL BE INSTALLED ON ALL PVC CONDUIT EXPOSED AT THE TOP OF THE CONCRETE BASE BEFORE INSTALLATION OF CABLE OR WIRE.

CONCRETE CONTROL CABINET BASE, TYPE L

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
November 2018 /S/ Ahmet Demirbilek
DATE
STATE ELECTRICAL ENGI 110
FHWA



TYPICAL CABINET SERVICE INSTALLATION

GENERAL NOTES

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

THE EXACT LOCATION OF THE METER BREAKER PEDESTAL SHALL BE DETERMINED BY THE ENGINEER IN THE FIELD.

THE TYPE OF CONCRETE CABINET BASE TO BE INSTALLED SHALL BE AS CALLED FOR IN THE PLANS.

TO FACILITATE FLUSH MOUNTING OF THE METER BREAKER PEDESTAL AGAINST THE SIDE OF THE CABINET BASE (IF FLUSH MOUNTING POSSIBLE, CONFER WITH THE LOCAL UTILITY TO DETERMINE WHICH SIDE OF THE CONCRETE BASE THE ELECTRICAL SERVICE LATERAL WILL APPROACH, THEN FORM THAT INDICATED SIDE FOR FULL SIDE DEPTH.

WHILE FLUSH MOUNTING IS THE MOST DESIRABLE MOUNTING CONFIGURATION UTILITY REQUIREMENTS MAY PRECLUDE THIS OPTION. CONTRACTOR MUST PROVIDE UTILITY APPROVED PEDESTAL AND INSTALL PER UTILITY AND MANUFACTURERS REQUIREMENTS.

SERVICE CONDUCTOR ENTRANCES SHALL BE RIGID METALLIC CONDUIT, NIPPLES AND/OR CONDULETS AS REQUIRED.

SERVICE CONDUCTOR ENTRANCES SHALL BE SIZED AND LOCATED AS REQUIRED BY THE LOCAL UTILITY AND IN ACCORDANCE WITH APPROPRIATE ARTICLES OF THE LATEST ACCEPTED NATIONAL ELECTRICAL CODE.

IF MORE THAN ONE GROUNDING ELECTRODE IS REQUIRED, THE DISTANCE APART SHALL BE 6 FEET OR PER LOCAL UTILITY REGULATIONS.

* SOME PEDESTAL LIGHTING PLANS SHOW MAIN LUGS ONLY.

CABINET SERVICE INSTALLATION
(METER BREAKER PEDESTAL)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

Sept. 2014

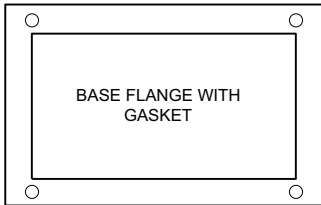
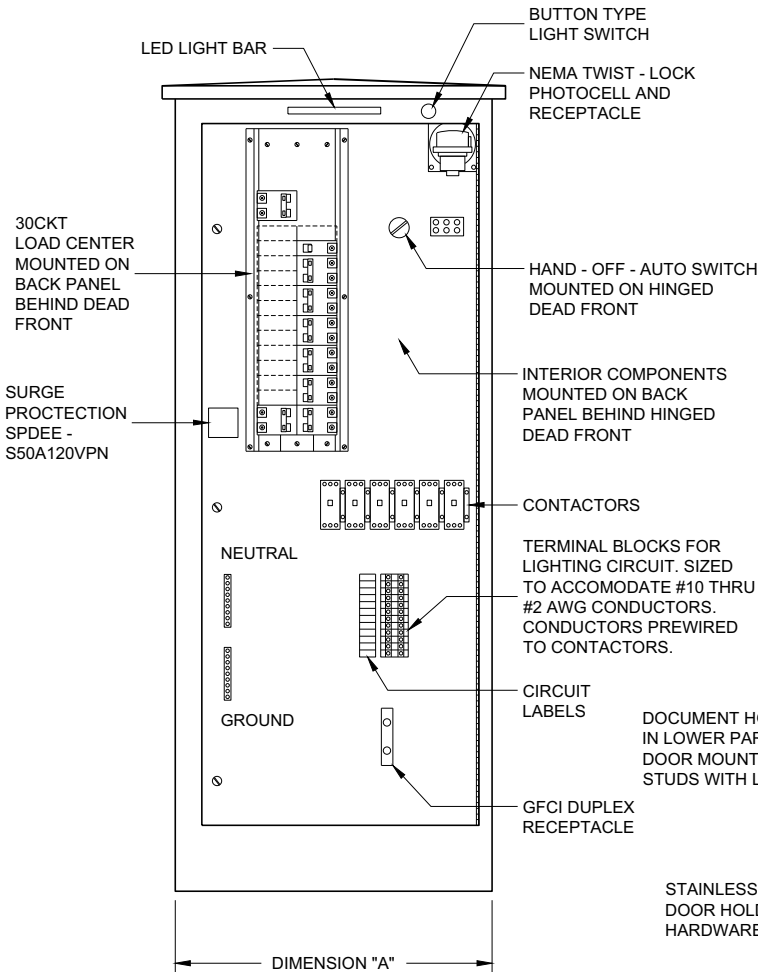
DATE

FHWA

/S/ Ahmet Demirbilek

STATE ELECTRICAL 111

FRONT INTERIOR
ELEVATION



LIGHTING CONTROL CABINET

SIDE VIEW

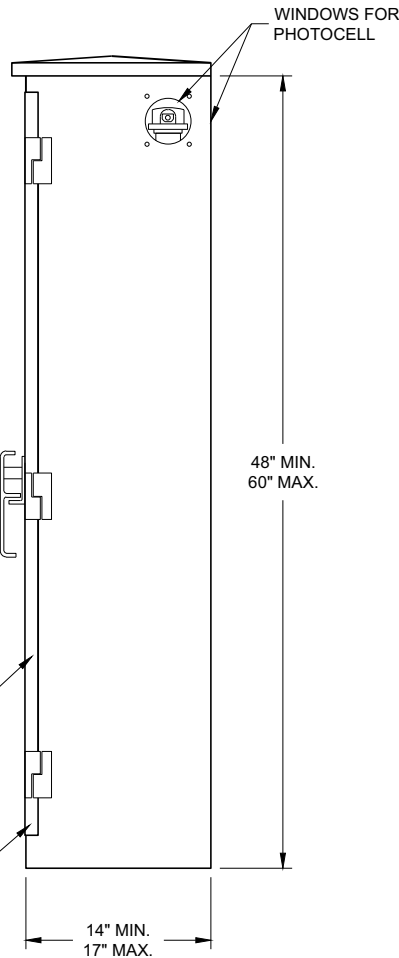
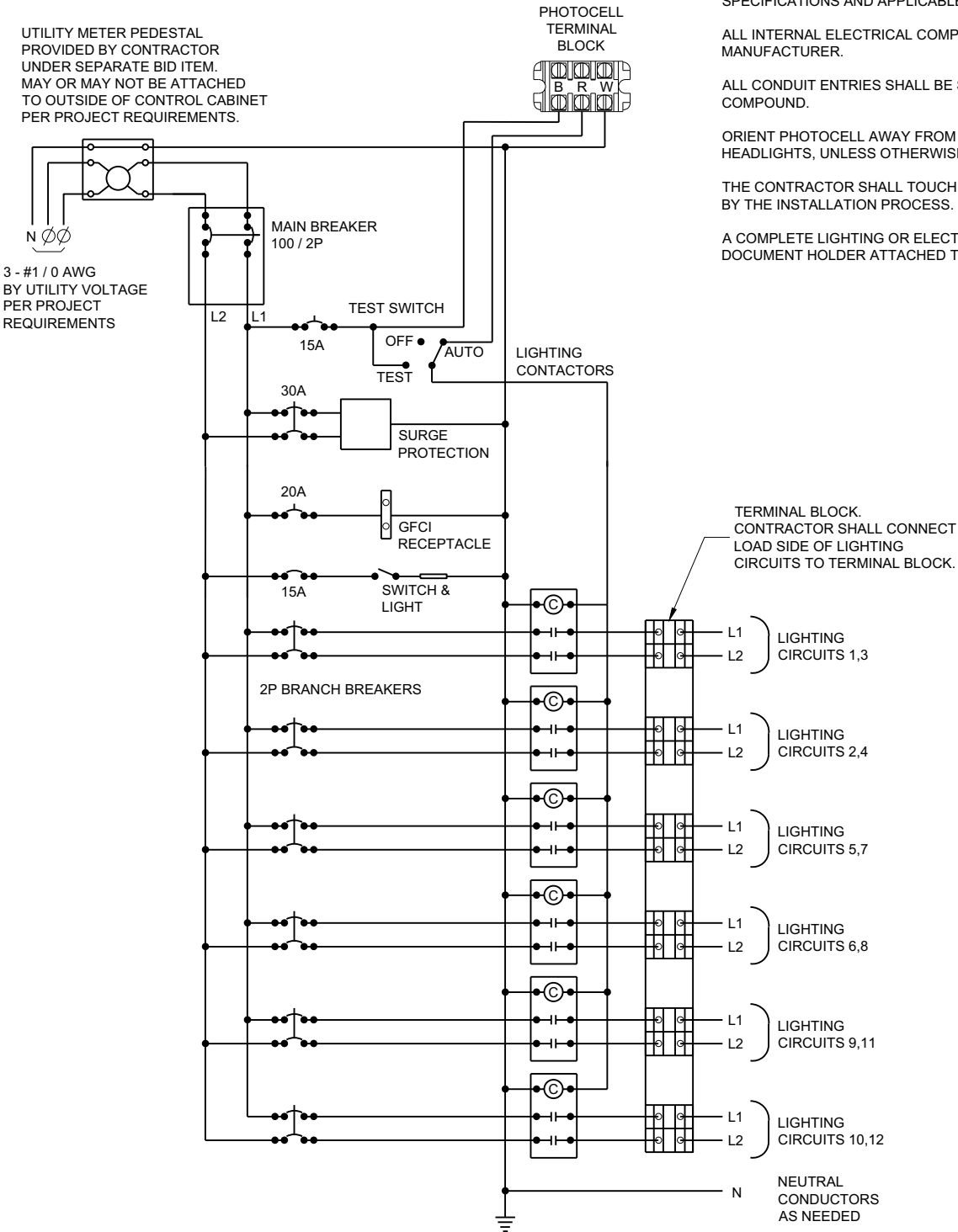


TABLE OF DIMENSIONS (INCHES)		
CONCRETE BASE TYPE	CABINET WIDTH	DIMENSION "A"
L24	24"	24"
L30	30"	30"

UTILITY METER PEDESTAL PROVIDED BY CONTRACTOR UNDER SEPARATE BID ITEM. MAY OR MAY NOT BE ATTACHED TO OUTSIDE OF CONTROL CABINET PER PROJECT REQUIREMENTS.



CONTROL CABINET SCHEMATIC

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.

ALL INTERNAL ELECTRICAL COMPONENTS WILL BE PRE - WIRED BY THE CABINET MANUFACTURER.

ALL CONDUIT ENTRIES SHALL BE SEALED WITH AN APPROPRIATE DUCT SEALING COMPOUND.

ORIENT PHOTOCELL AWAY FROM AMBIENT LIGHT SOURCES AND ONCOMING TRAFFIC HEADLIGHTS, UNLESS OTHERWISE CALLED FOR IN THE SPECIAL PROVISION.

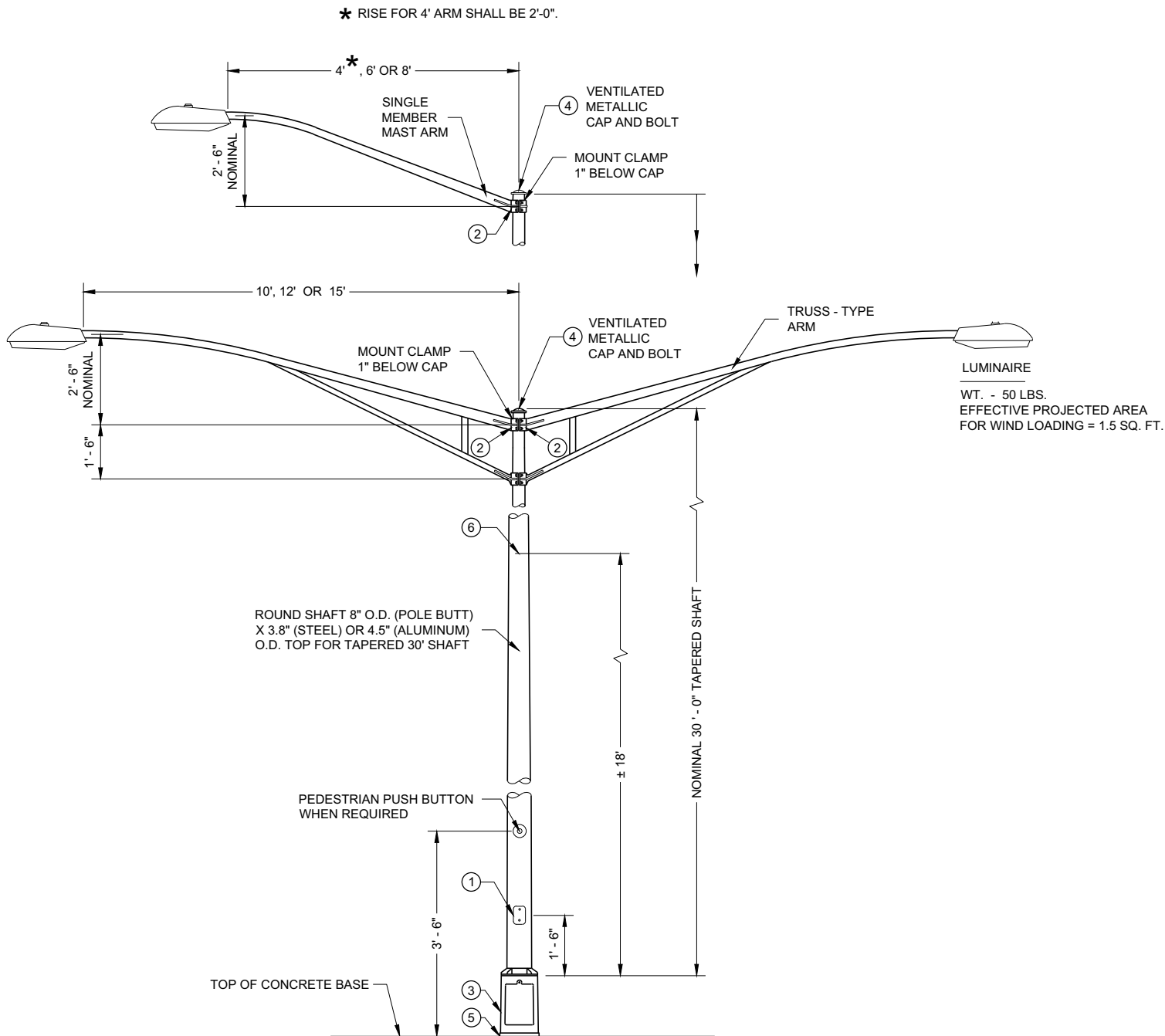
THE CONTRACTOR SHALL TOUCH UP ANY DAMAGE TO THE ANODIZED FINISH CAUSED BY THE INSTALLATION PROCESS. COLOR MATCH PAINT SHALL BE USED.

A COMPLETE LIGHTING OR ELECTRICAL PLAN SHALL BE SECURELY PLACED IN THE DOCUMENT HOLDER ATTACHED TO THE DOOR.

LIGHTING CONTROL CABINET
120 / 240 VOLT

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
November 2018 /S/ Ahmet Demirelek
DATE STATE ELECTRICAL ENGI 112
FHWA



**TYPE 5 POLE MOUNTING CONFIGURATION
(MAXIMUM LOAD)
LIGHTING ONLY**

GENERAL NOTES

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

SECTION 657, POLES, OF THE STANDARD SPECIFICATIONS SHALL APPLY TO THIS DRAWING.

ALL TYPE 5 POLE MOUNTINGS SHALL BE DESIGNED TO INCLUDE TWIN 15' ARMS WITH LUMINAIRES.

POLES SHALL BE GALVANIZED STEEL OR ALUMINUM, AS CALLED FOR IN THE CONTRACT.

TYPE 5 ALUMINUM POLES SHALL BE CONSTRUCTED OF 6063 - T6 ALUMINUM ALLOY. SLEEVEING INSIDE THE POLE IS NOT ACCEPTABLE.

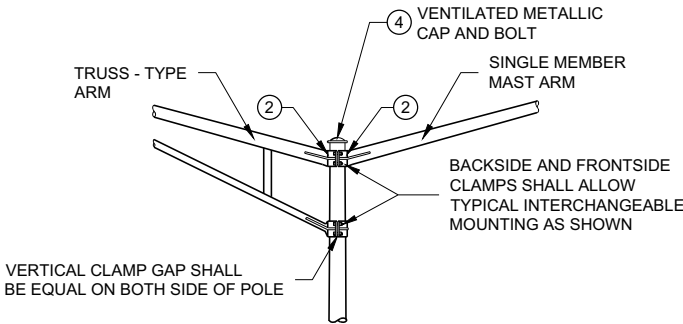
TYPE 5 ALUMINUM POLES SHALL HAVE A MINIMUM WALL THICKNESS OF 0.1888".

TYPE 5 STEEL POLES SHALL HAVE A MINIMUM WALL THICKNESS OF U.S. STANDARD 11 GAGE (0.1196").

THE SLIPFITTER END OF THE LUMINAIRE MAST ARM SHALL BE A NOMINAL 2 3/8 INCHES IN OUTSIDE DIAMETER. THE STRAIGHT PORTION OF THE SLIPFITTER END OF THE LUMINAIRE MAST ARM SHALL BE A NOMINAL 12 INCHES IN LENGTH.

WHEN TRANSFORMER BASES ARE USED, WIRE CONNECTIONS SHALL BE MADE IN THE TRANSFORMER BASE.

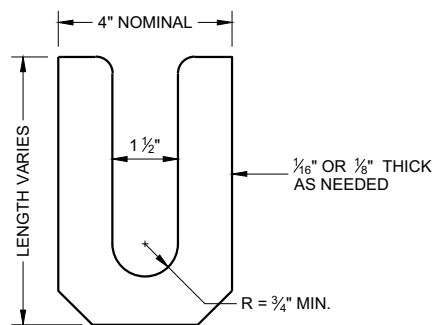
- ① 4" X 6" REINFORCED HANDHOLE AND COVER ASSEMBLY WITH TWO (2) 3/4" X 3/4" - 20 TPI , STAINLESS STEEL, HEX HEAD BOLTS.
- ② GROMMETS. 1" CHASE NIPPLES OR 1" CLOSE CONDUIT NIPPLES WITH BUSHINGS SHALL BE PROVIDED FOR 1 3/8" HOLE IN POLE SHAFT FOR WIRING.
- ③ CAST ALUMINUM TRANSFORMER BASE, WHEN REQUIRED.
- ④ FURNISH AND INSTALL VENTILATED, CAST METALLIC (ALUMINUM ALLOY) CAPS. FASTEN CAPS WITH ONE (1) 3/4" X 3/4" - 20 TPI STAINLESS STEEL, HEX HEAD BOLT.
- ⑤ SHIMMING, IF NEEDED, SHALL BE LOCATED BETWEEN THE CONCRETE FOUNDATION AND POLE.
- ⑥ INTERNAL DUMBBELL - TYPE VIBRATION DAMPER.



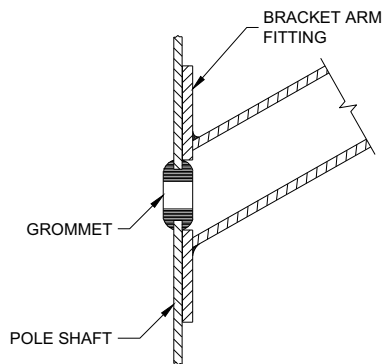
INTERCHANGEABLE MOUNTING DETAIL

**POLE MOUNTINGS FOR
LIGHTING UNITS, TYPE 5
(30 FEET)**

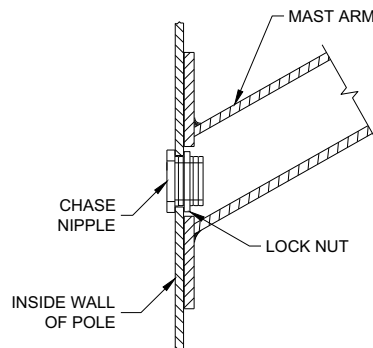
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DEPARTMENT OF TRANSPORTATION



LEVELING SHIM
SHALL BE ALUMINUM



TYPICAL APPLICATION OF GROMMET IN POLE SHAFT



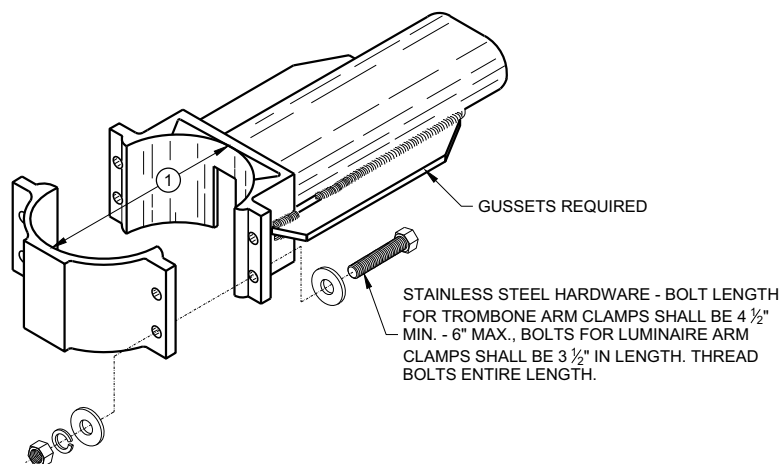
TYPICAL APPLICATION OF CHASE NIPPLE IN POLE SHAFT

GENERAL NOTES

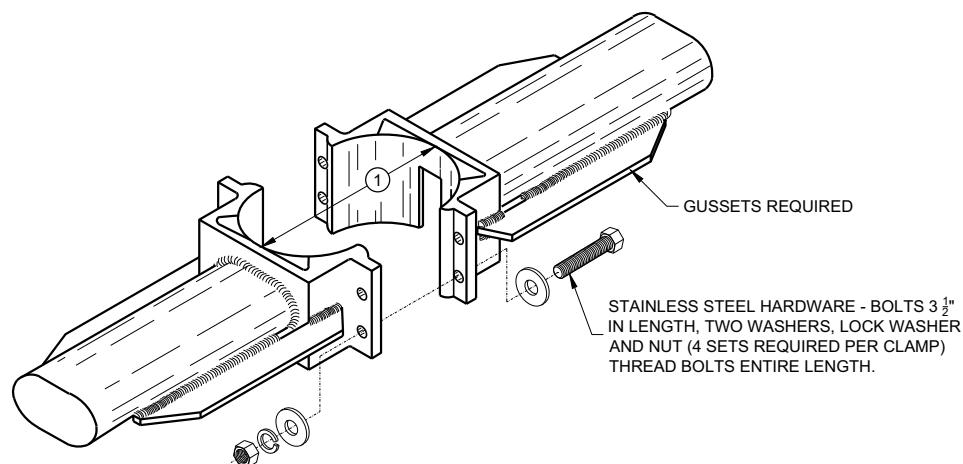
CLAMP BOLT-NUT TIGHTENING TORQUE SHALL BE INDICATED BY INDENT STAMPING (1/2 INCH NUMERALS AND LETTERS) OR WEATHERPROOF PRINTING ON THE INSIDE OF THE CLAMP THAT IS WELDED TO THE ARM MEMBER.

- ① 4.5" I.D. FOR LUMINAIRE MAST ARM CLAMP. 6.625" I.D. FOR TROMBONE MAST ARM CLAMP.
- ② INDIVIDUAL BASE PLATE ANCHOR ROD COVERS. (4 REQUIRED)
- ③ BASE PLATE SLOTTED TO ACCEPT 11" THROUGH 12" BOLT CIRCLE USING 1" DIAMETER ANCHOR RODS.
- ④ LEVELING SHIMS, DESIGNED FOR THE PURPOSE, SHALL BE USED WHEN PLUMBING POLES. THE USE OF WASHERS IN LIEU OF PROPER LEVELING SHIMS IS NOT ACCEPTABLE. LEVELING SHIMS SHALL BE USED ONLY BETWEEN THE TOP OF THE CONCRETE BASE AND A METALLIC BASE PLATE.

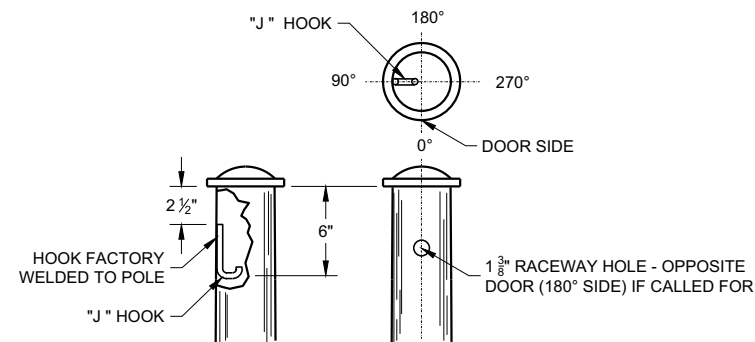
SHIMS SHALL BE LONG ENOUGH AND WIDE ENOUGH TO COMPLETELY COVER THE AREA UNDER THE LENGTH AND WIDTH OF THE BASE MOUNTING FLANGE.



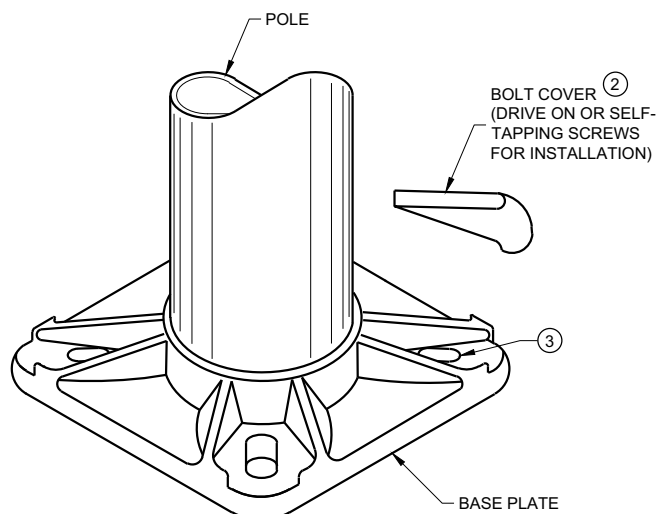
TYPICAL TROMBONE MAST ARM AND SINGLE LUMINAIRE MAST ARM MOUNTING CLAMP



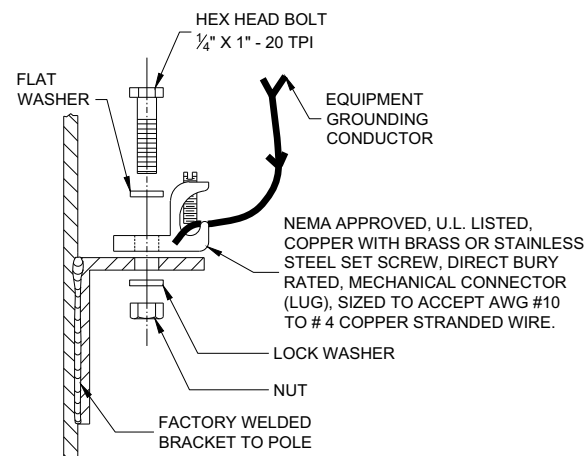
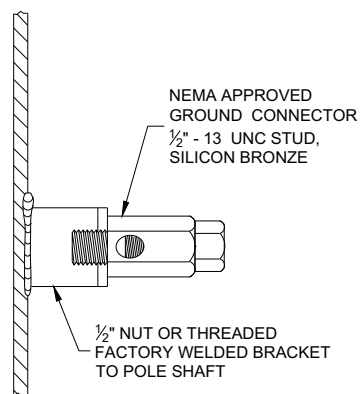
TYPICAL LUMINAIRE MAST ARM (DOUBLE) MOUNTING BRACKETS



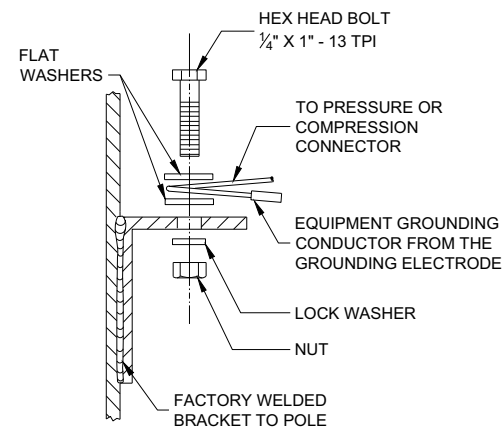
TYPICAL "J" HOOK LOCATION



BASE PLATE



TYPICAL GROUNDING CONNECTIONS
NUT, BOLT AND WASHERS SHALL BE STAINLESS STEEL



HARDWARE DETAILS FOR POLE MOUNTING

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DEPARTMENT OF TRANSPORTATION

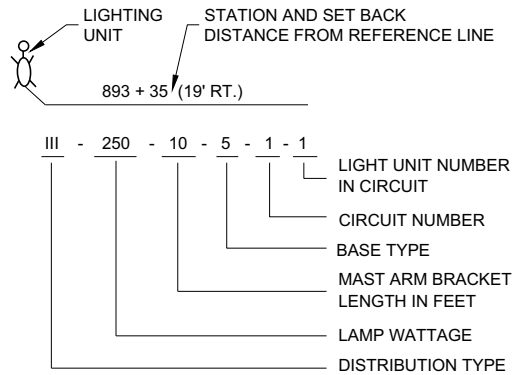
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November 2018 /S/ Ahmet Demirbilek
DATE STATE ELECTRICAL ENGI 114
FHWA

GENERAL NOTES

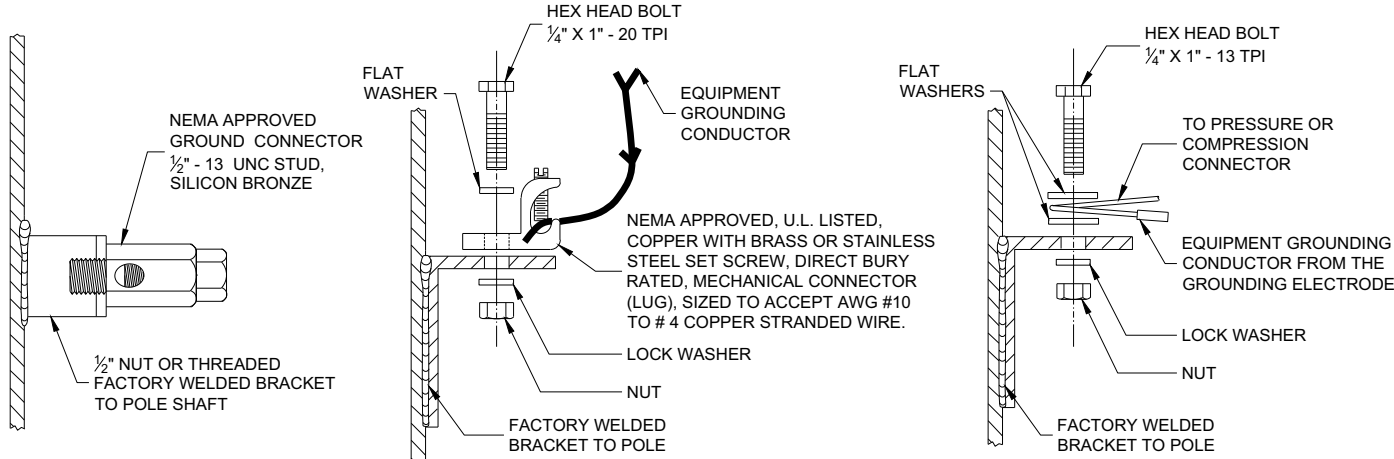
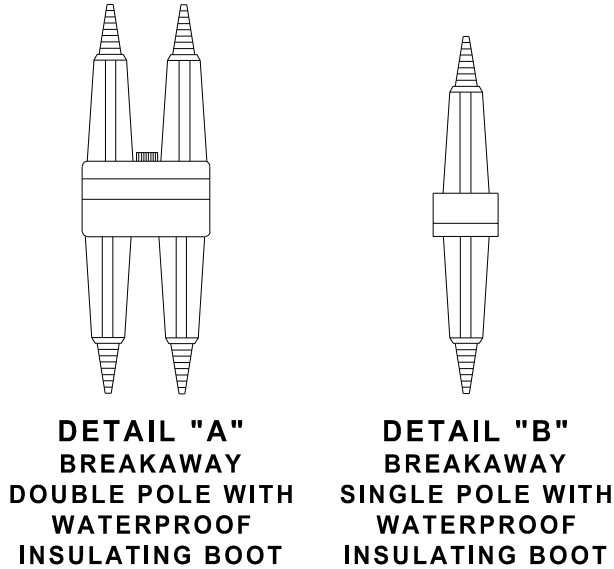
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE CONTRACT.

THE EQUIPMENT GROUND CONNECTOR SHALL BE TAPED WITH 3 WRAPS (MINIMUM) OF APPROVED RUBBER TAPE AND 3 WRAPS (MINIMUM) OF APPROVED VINYL TAPE TO COVER SHARP WIRE ENDS AFTER THE CONNECTION IS COMPLETED.

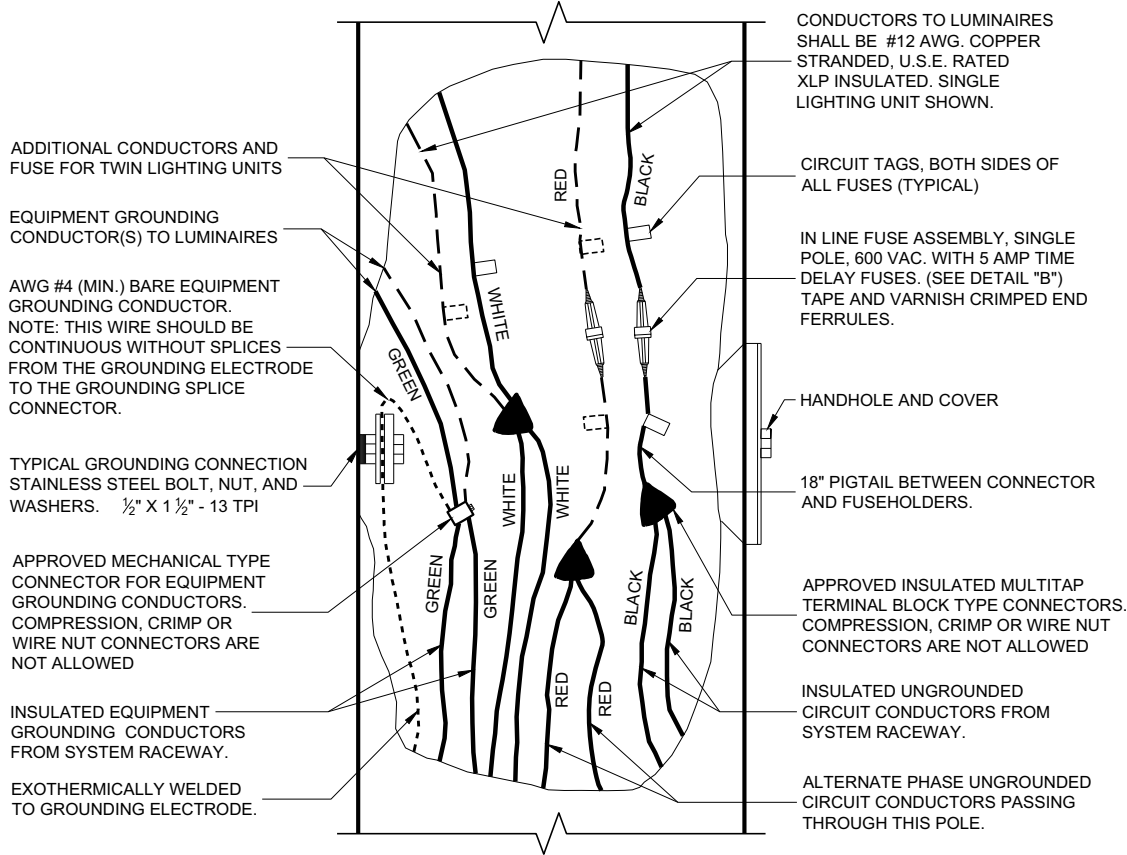
WHEN TRANSFORMER BASES ARE USED, ALL WIRING CONNECTIONS SHALL OCCUR WITHIN THE TRANSFORMER BASES.



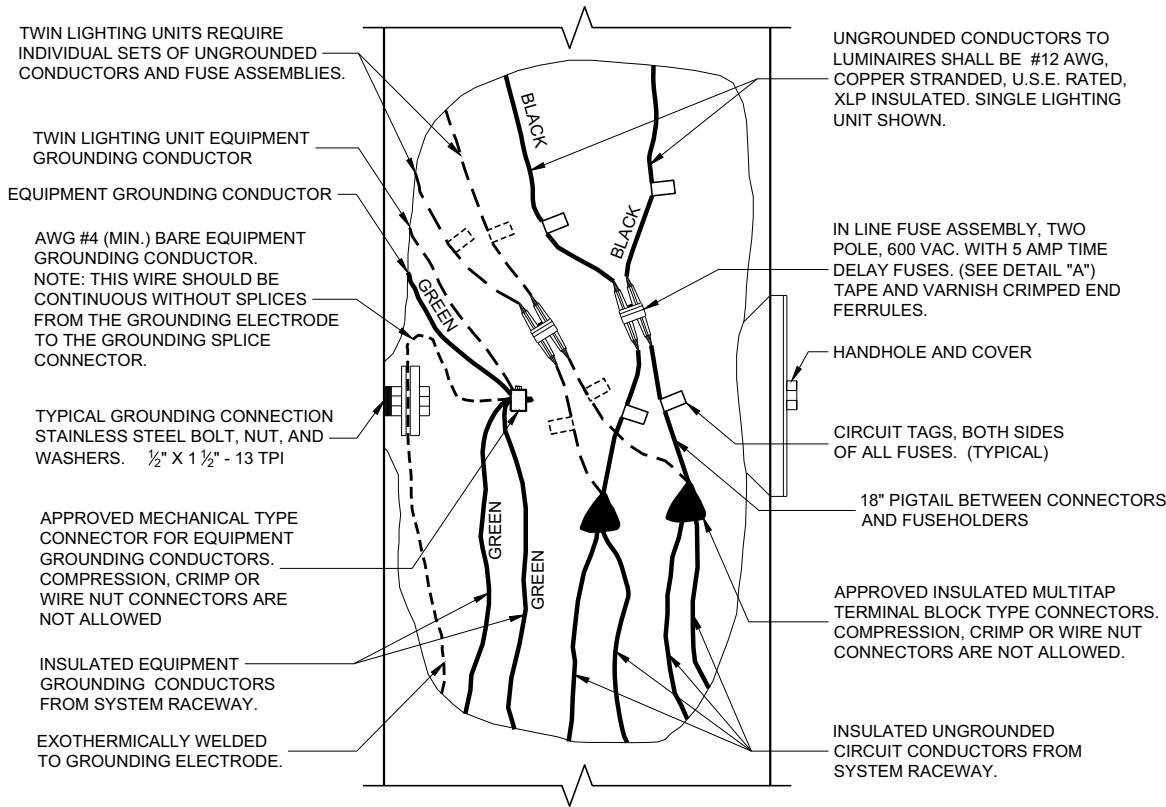
LIGHTING UNIT CODE
(TYPICAL)



TYPICAL GROUNDING CONNECTIONS
NUT, BOLT AND WASHERS SHALL BE STAINLESS STEEL



3 WIRE - 120, 240 OR 480 VAC (UNGROUNDING CONDUCTORS)
WITH GROUNDING CONDUCTOR AND
EQUIPMENT GROUNDING CONDUCTOR

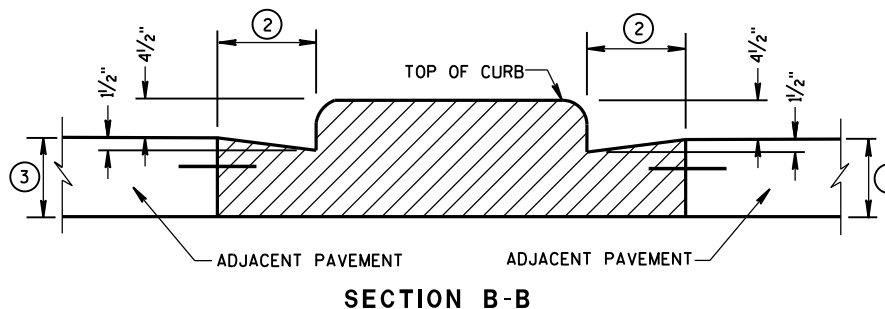
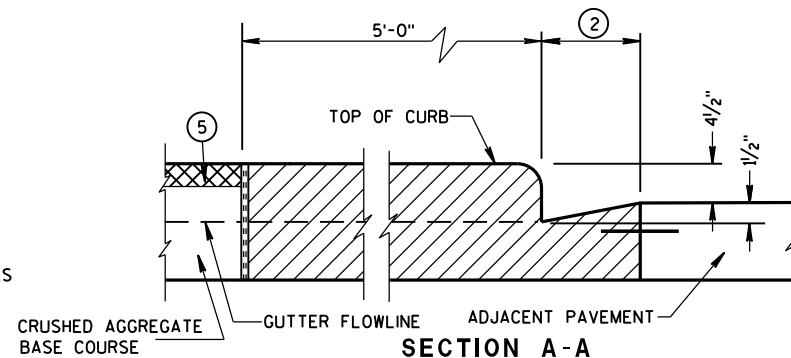
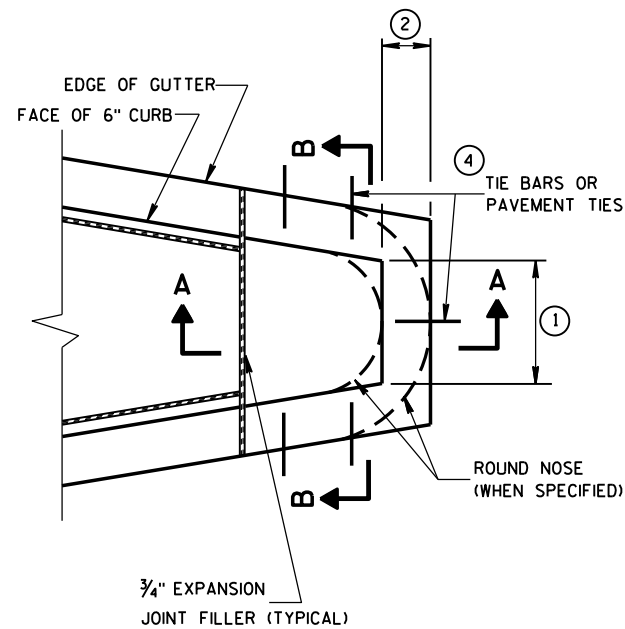
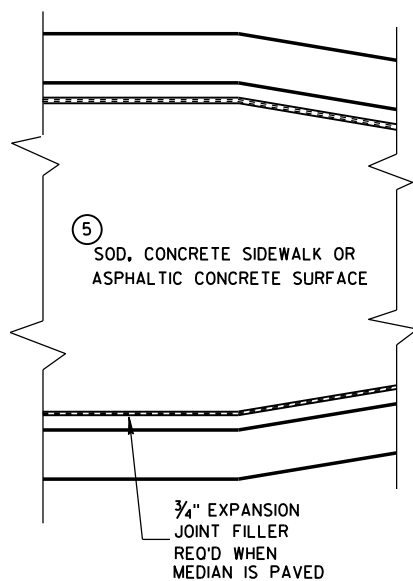


2 WIRE - 240 OR 480 VAC (UNGROUNDING CONDUCTORS)
WITH EQUIPMENT GROUNDING CONDUCTOR

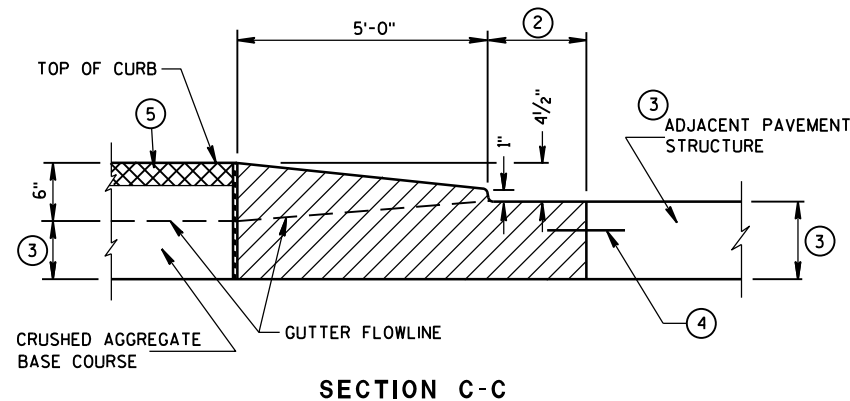
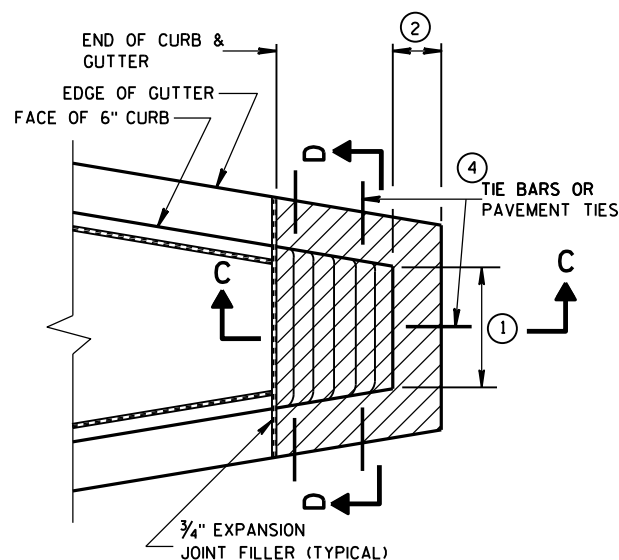
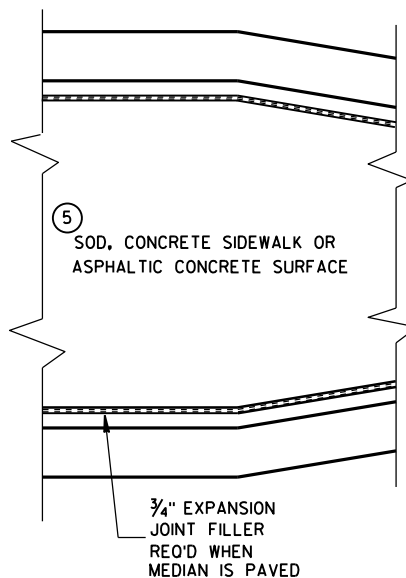
NON - FREEWAY LIGHTING UNIT
POLE WIRING

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DEPARTMENT OF TRANSPORTATION

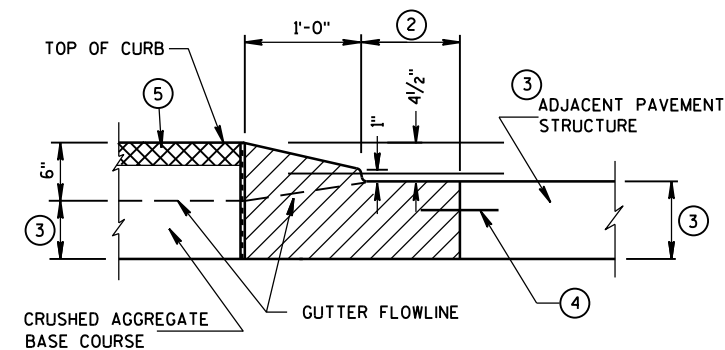
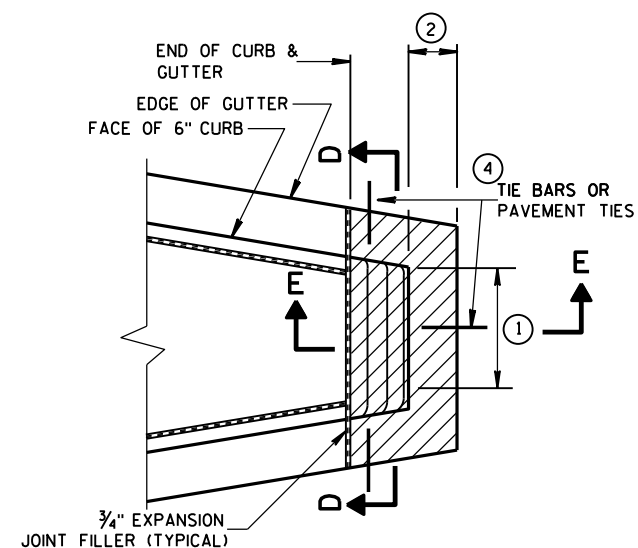
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DATE STATE ELECTRICAL ENGI 115
FHWA



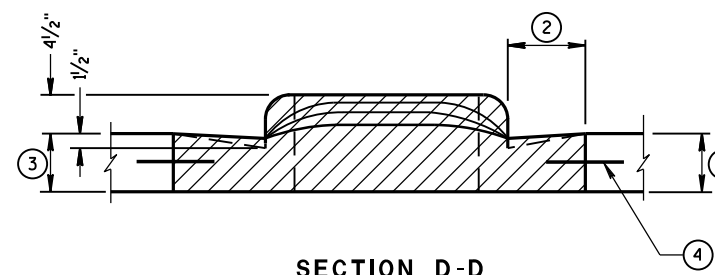
CONCRETE MEDIAN BLUNT NOSE DETAIL



CONCRETE MEDIAN SLOPED NOSE TYPE 1



CONCRETE MEDIAN SLOPED NOSE TYPE 2



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 SEE PLAN FOR MEDIAN NOSE WIDTH AND RADIUS (FOR ROUND NOSE ALTERNATE).
- ② WIDTH OF GUTTER TO MATCH EXISTING ADJACENT GUTTER OR AS SPECIFIED ELSEWHERE IN THE PLAN.
- ③ DEPTH EQUAL TO ADJACENT PAVEMENT. ADJACENT PAVEMENT STRUCTURE DETAILS ARE SHOWN ON THE PLAN. TYPICAL OPTIONS ARE:
 - (1) NEW OR EXISTING CONCRETE PAVEMENT.
 - (2) ASPHALTIC CONCRETE PAVEMENT OVER NEW OR EXISTING CONCRETE BASE COURSE.
 - (3) ASPHALTIC CONCRETE PAVEMENT OVER CRUSHED AGGREGATE BASE COURSE.

- ④ TIE BARS OR PAVEMENT TIES REQUIRED IN NEW CONCRETE PAVEMENT OR CONCRETE BASE COURSE. TIE BARS SHALL BE NO. 4 X 2'-0" SPACED AT 2'-0" C-C.

PAVEMENT TIES REQUIRED IN EXISTING CONCRETE BASE COURSE. PAVEMENT TIES SHALL BE NO. 6 X 1'-0" SPACED AT 3'-0" C-C INSTALLED ON A HORIZONTAL SKEW OF 6:1. THE DIRECTION OF SKEW SHALL ALTERNATE AFTER EVERY ONE OR TWO BARS.

- ⑤ SURFACE TYPE AND DETAILS ARE SHOWN ELSEWHERE IN THE PLAN.

CONCRETE MEDIAN NOSE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

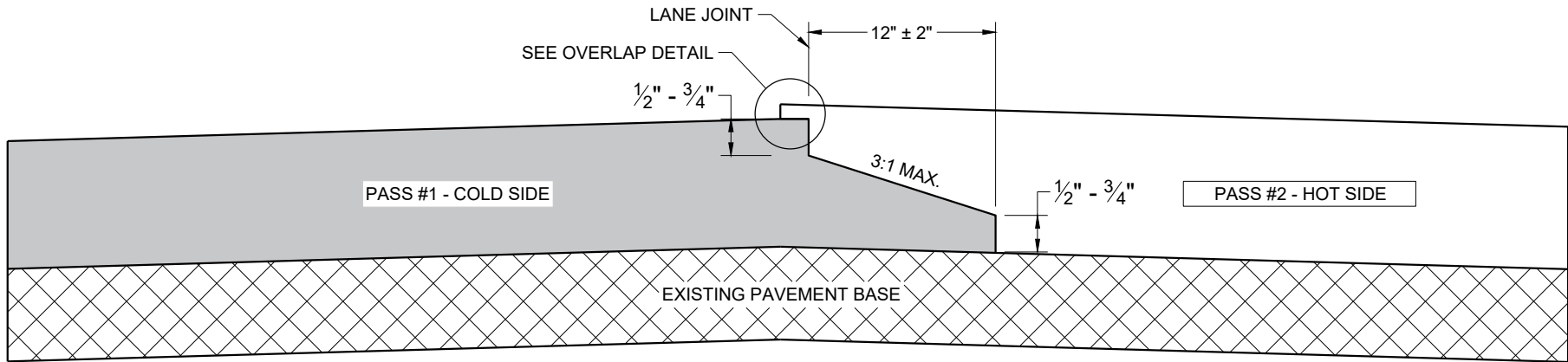
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DATE

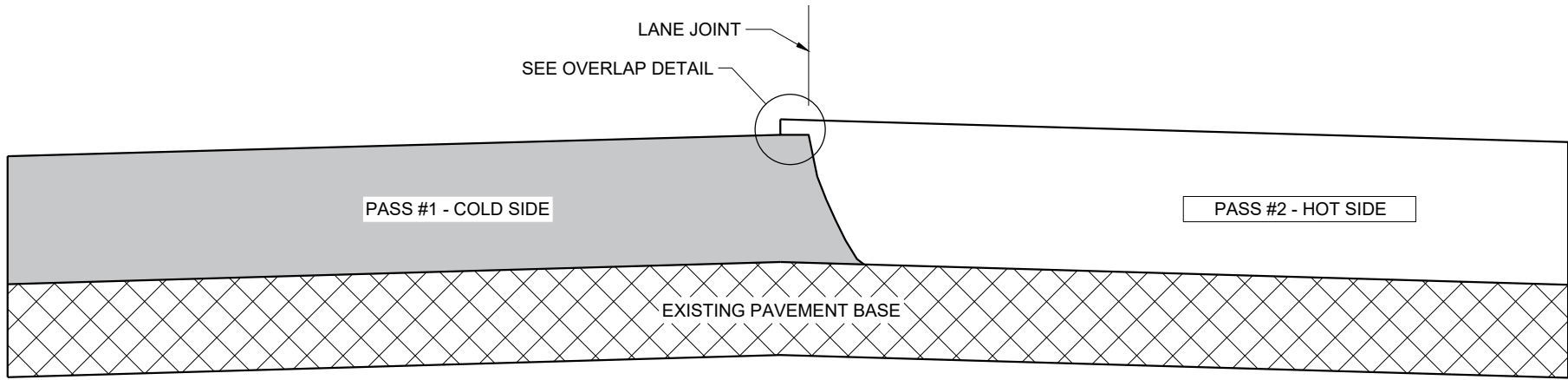
FHWA

/S/ Jerry H. Zoag
ROADWAY STANDARDS ENGINEER

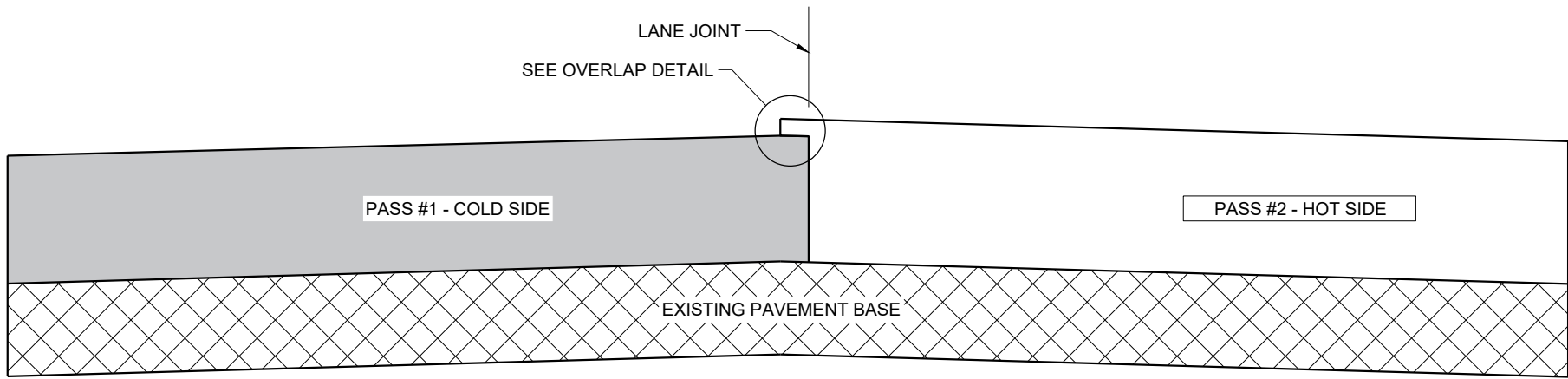
116



**TYPICAL PAVEMENT CROSS SECTION
NOTCHED WEDGE JOINT**



**TYPICAL PAVEMENT CROSS SECTION
VERTICAL JOINT**



**TYPICAL PAVEMENT CROSS SECTION
VERTICAL JOINT (MILLED)**

GENERAL NOTES

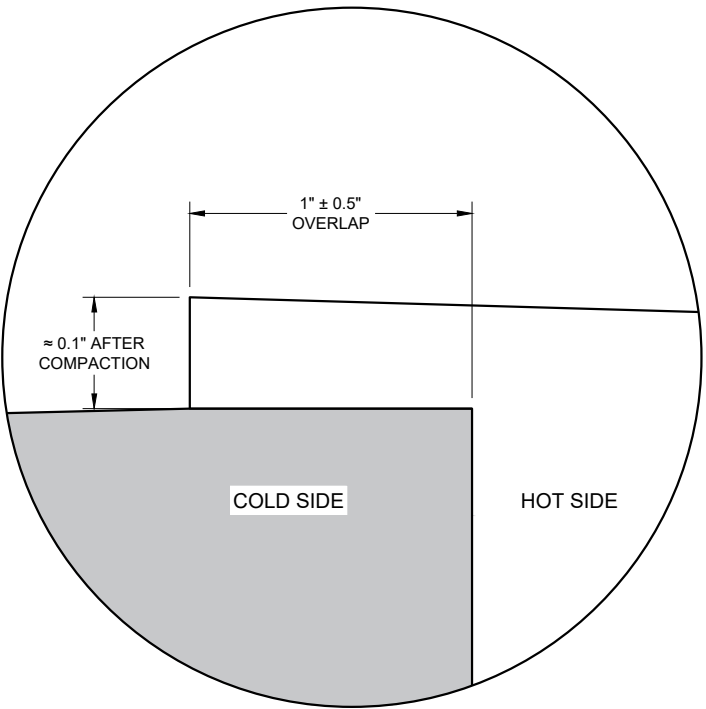
IN ADDITION TO THE DETAILS PROVIDED IN THIS DRAWING, CONFORM TO STANDARD SPECIFICATION 450.3.2.8 FOR WHEN A NOTCHED WEDGE JOINT IS REQUIRED AND FOR GENERAL JOINT CONSTRUCTION REQUIREMENTS.

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)

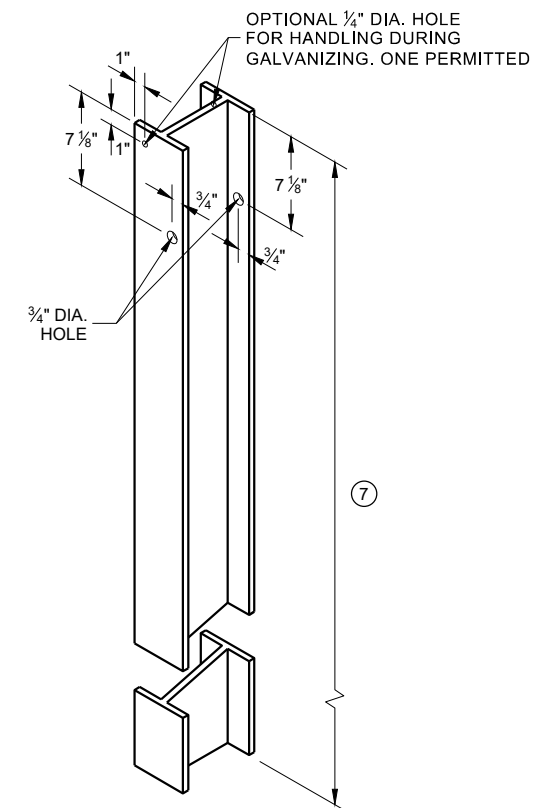
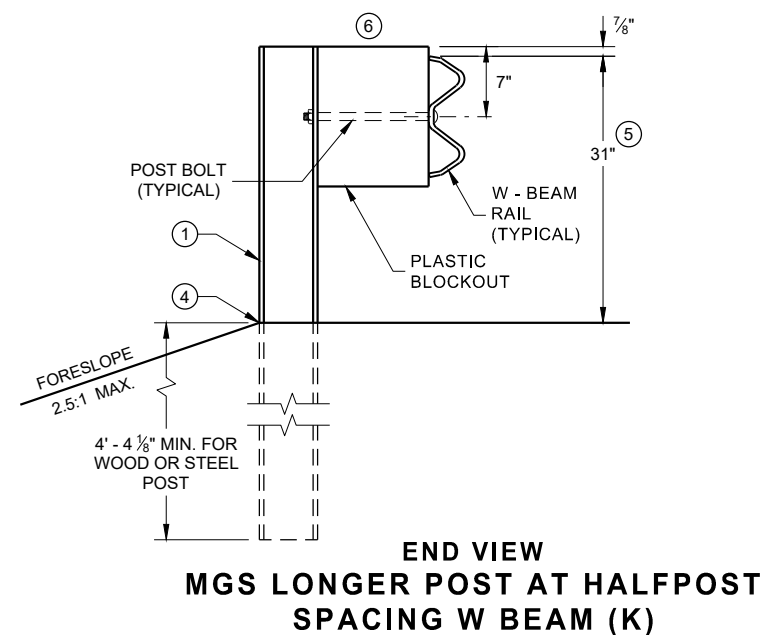
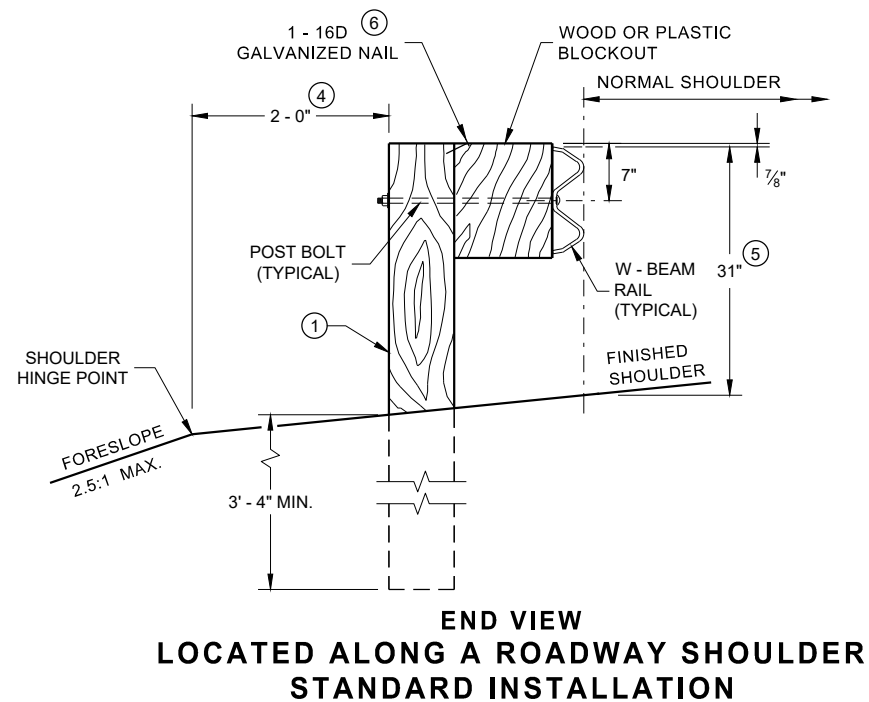
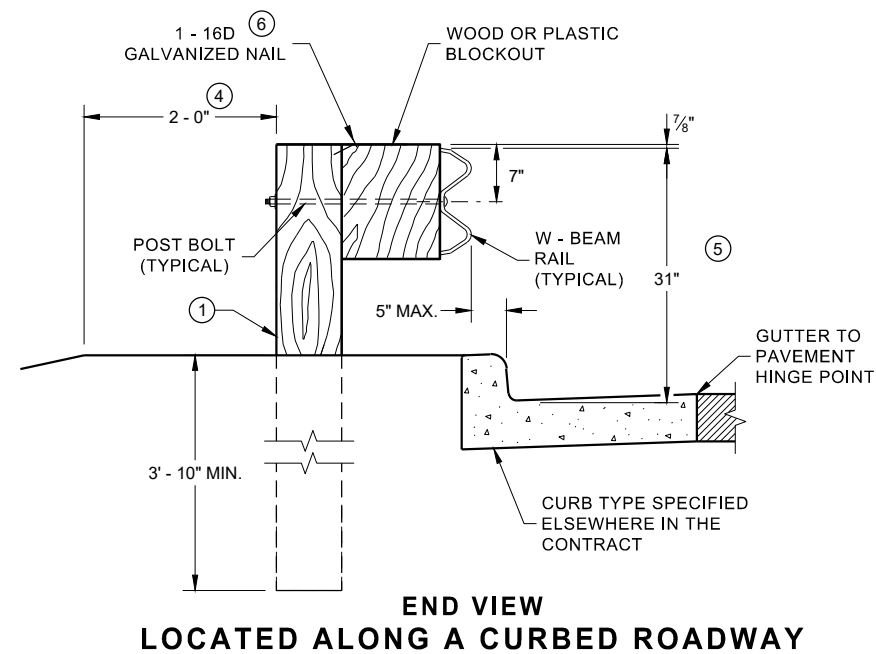
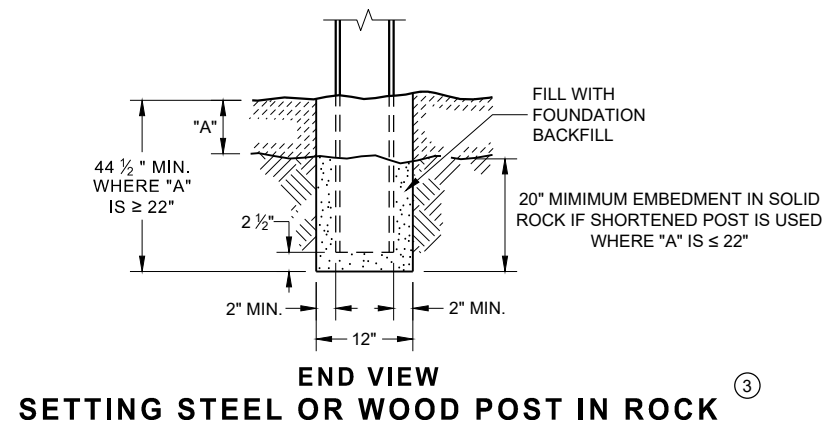
HMA LONGITUDINAL JOINTS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

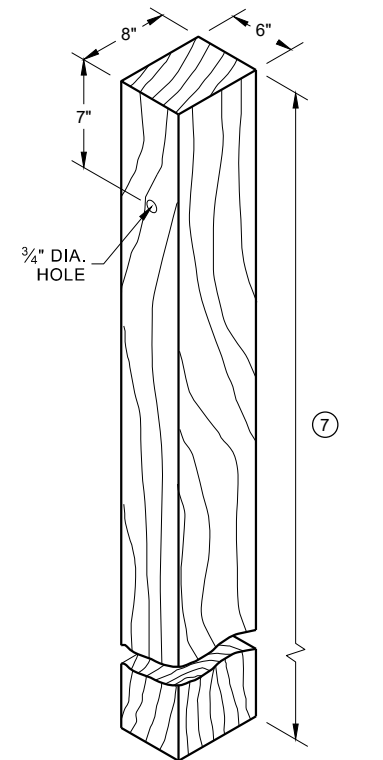
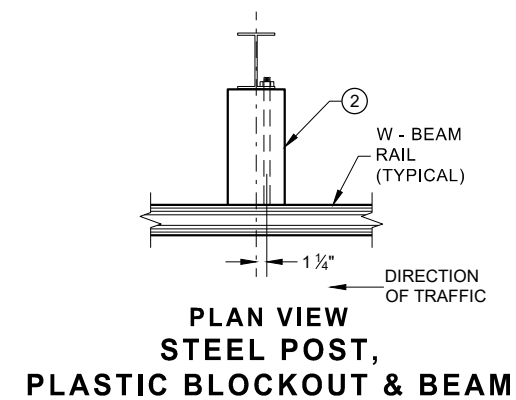
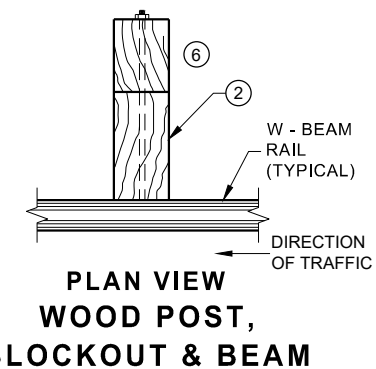
APPROVED
November 2020 /S/ Steven Hefel
DATE HMA PAVEMENT ENGIN 117

FHWA

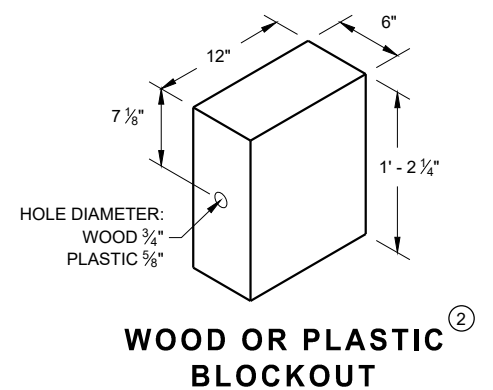
- ① WOOD OR STEEL POSTS (w6X9 OR w6X8.5) MAY BE USED. DO NOT INTERMIX WOOD AND STEEL POSTS. INSTALL STEEL POSTS WITH HOLES ON APPROACHING TRAFFIC SIDE.
- ② USE WOOD OR APPROVED PLASTIC BLOCKOUTS. WOOD BLOCKOUTS MAY BE CONSTRUCTED OUT OF TWO OR MORE WOOD BLOCKOUTS. SEE ALTERNATE WOOD BLOCKOUT DETAIL. 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".



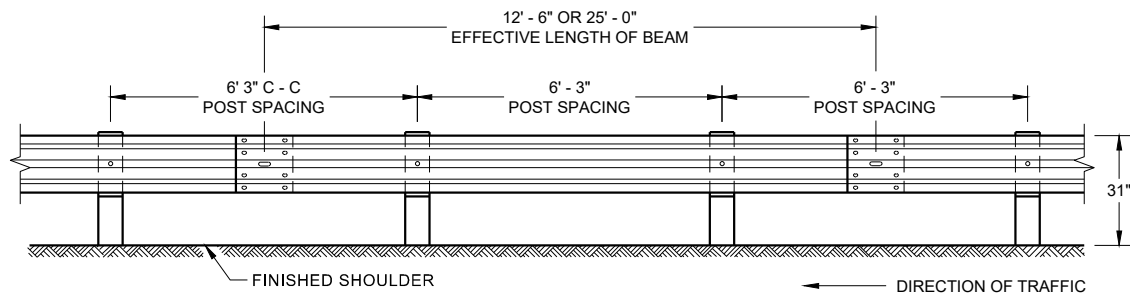
**STEEL POST & HOLE
PUNCHING DETAIL
(W 6 X 9) ①**



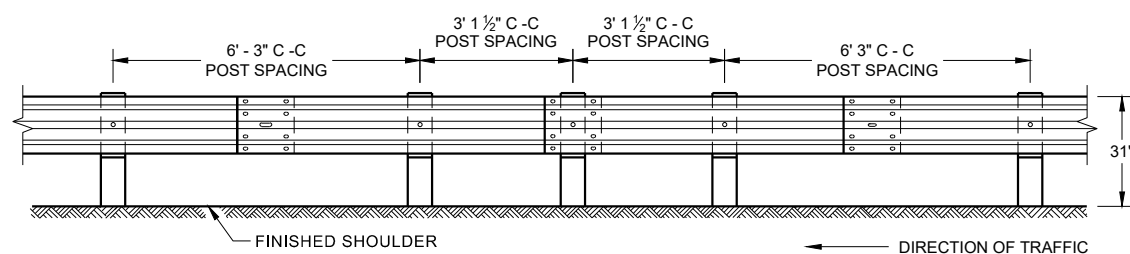
WOOD POST (6" X 8") NOMINAL ⁽¹⁾



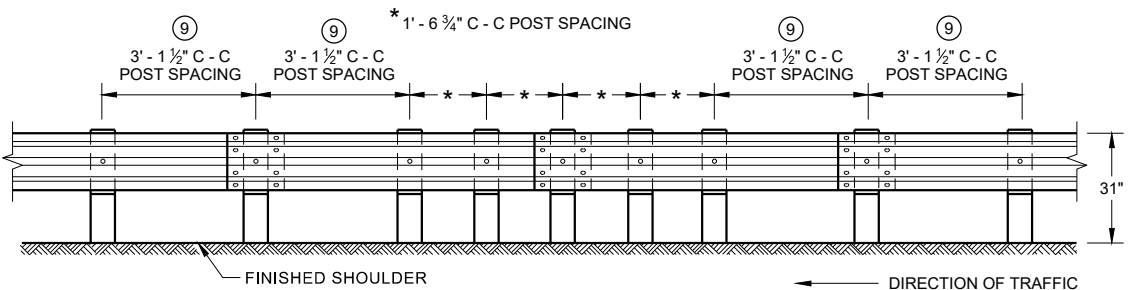
**WOOD OR PLASTIC
BLOCKOUT** ⁽²⁾



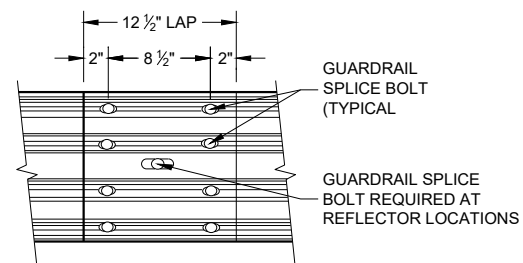
**FRONT VIEW
POST SPACING STANDARD INSTALLATION**



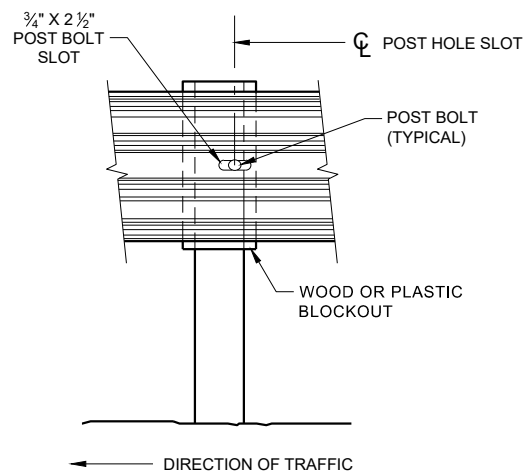
**FRONT VIEW
HALF POST SPACING (HS) AND
HALF POST SPACING WITH LONGER POSTS (K)**



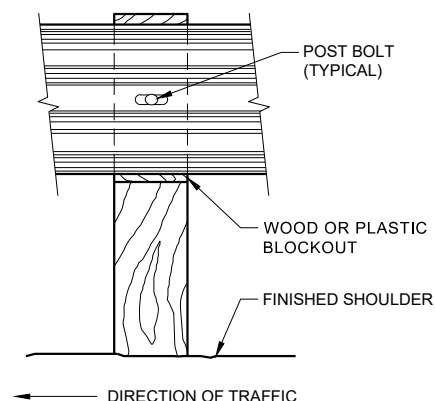
**FRONT VIEW
QUARTER POST SPACING (QS)**



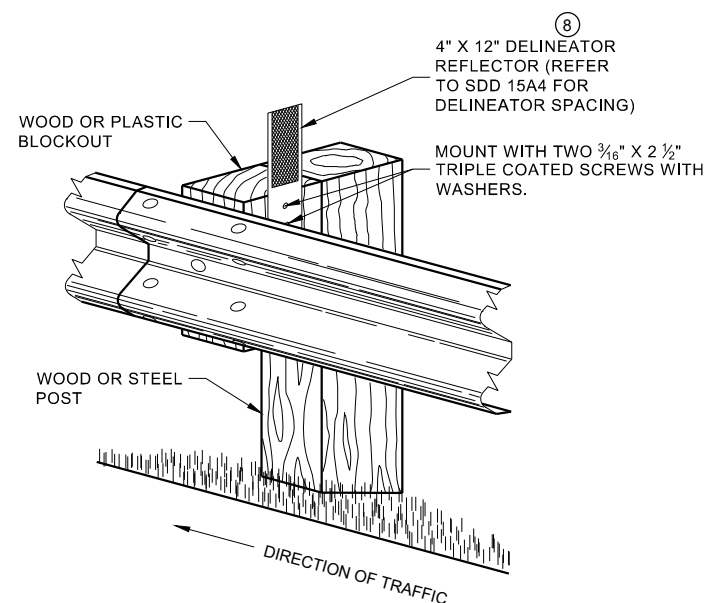
**FRONT VIEW
MID-SPAN BEAM SPLICE**



FRONT VIEW AT STEEL POST



FRONT VIEW AT WOOD POST



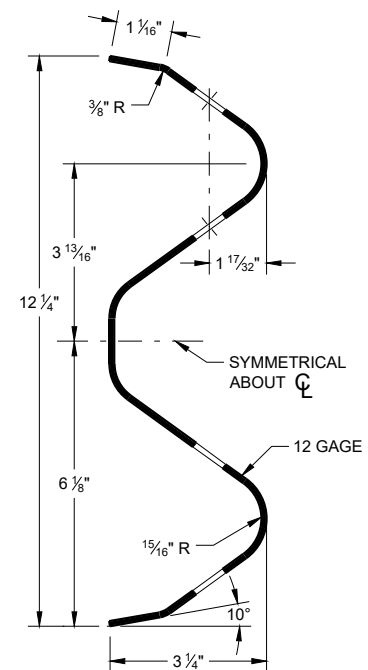
**ONE SIDED REFLECTOR DETAIL
AND TYPICAL INSTALLATION**

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 3/4" 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.

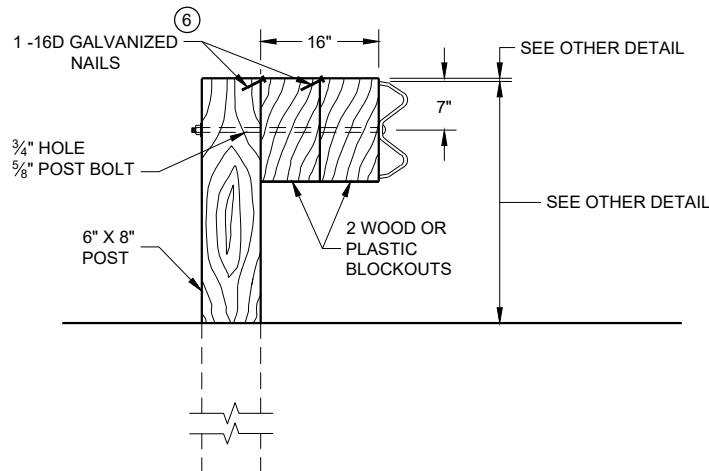
GUARD RAIL SPLICE BOLTS ARE A 3/8" DIAMETER ASTM A307 GUARDRAIL HEAD BOLT. A GUARDRAIL SPLICE BOLT REQUIRES 3/4" DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX NUT.



SECTION THRU W-BEAM RAIL

**MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL**

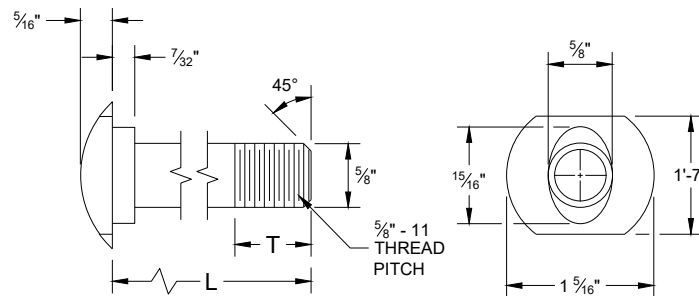
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



DETAIL FOR 16" BLOCKOUT DEPTH

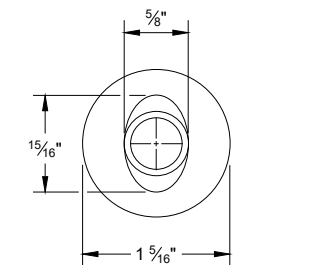
IT IS ACCEPTABLE TO USE BLOCKOUTS UP TO 16" DEEP TO INCREASE THE POST OFFSET TO AVOID UNDERGROUND OBSTACLES. THERE IS NO LIMIT TO THE NUMBER OF POSTS THAT CAN HAVE ADDITIONAL BLOCKOUTS UP TO 16" DEEP.

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

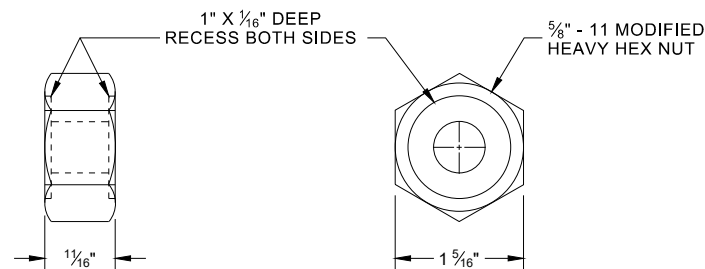


POST BOLT TABLE

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"

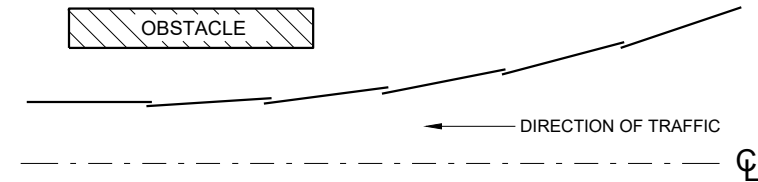


ALTERNATE BOLT HEAD

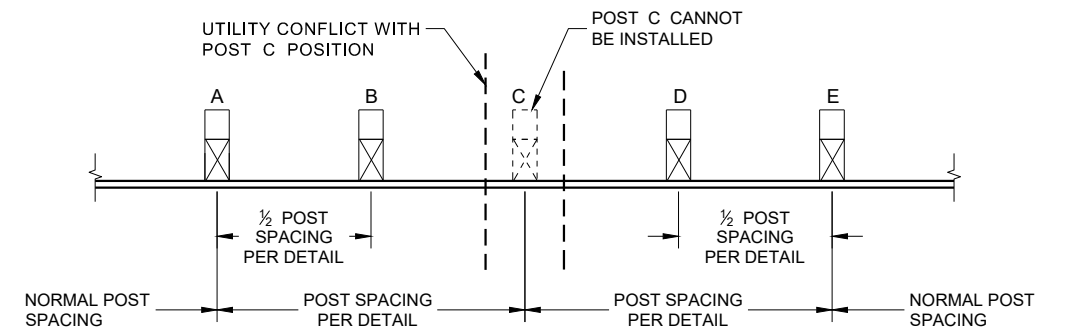


POST BOLT, SPLICE BOLT
AND RECESS NUT

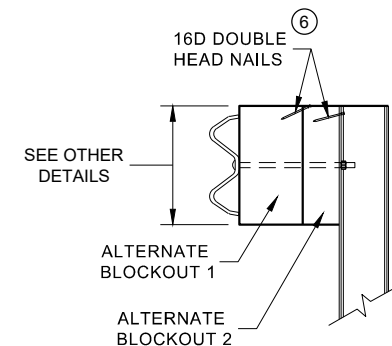
- 6 WHEN USING STEEL POST AD WOOD BLOCKOUTS, INSTALL FOUR 16D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.



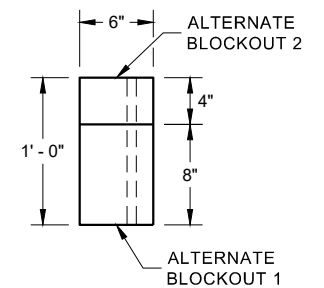
PLAN VIEW
BEAM LAPPING DETAIL



POST DRIVING FOR CONTINUOUS
UNDERGROUND OBSTRUCTION



SIDE VIEW



PLAN VIEW

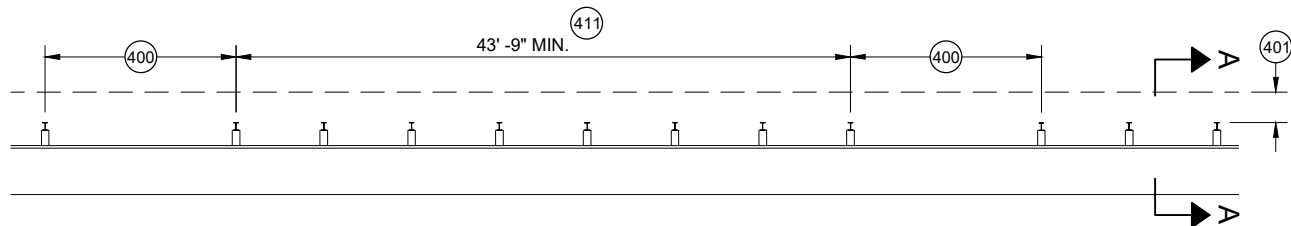
ALTERNATE WOOD
BLOCKOUT DETAIL

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.

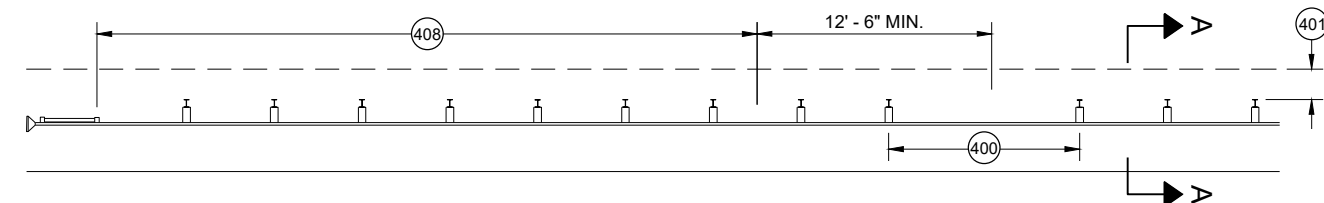
DO NOT USE 16" OR 36" BLOCKOUTS IF IT CAUSES THE POST TO BE DRIVEN BEYOND SHOULDER HINGE POINT OR CAUSES A FIXED OBJECT TO BE WITHIN THE DEFLECTION DISTANCE OF THE BARRIER.

MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL

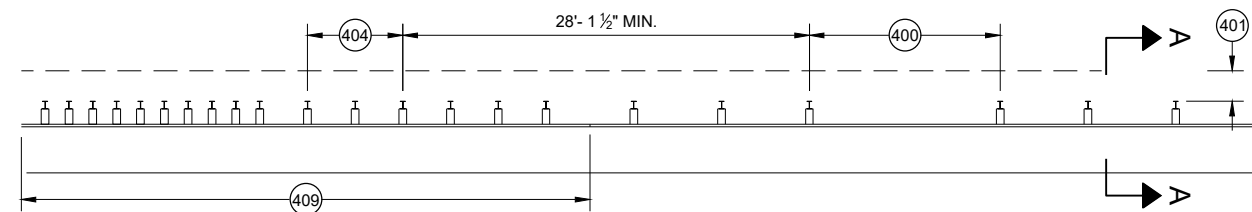
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION 120



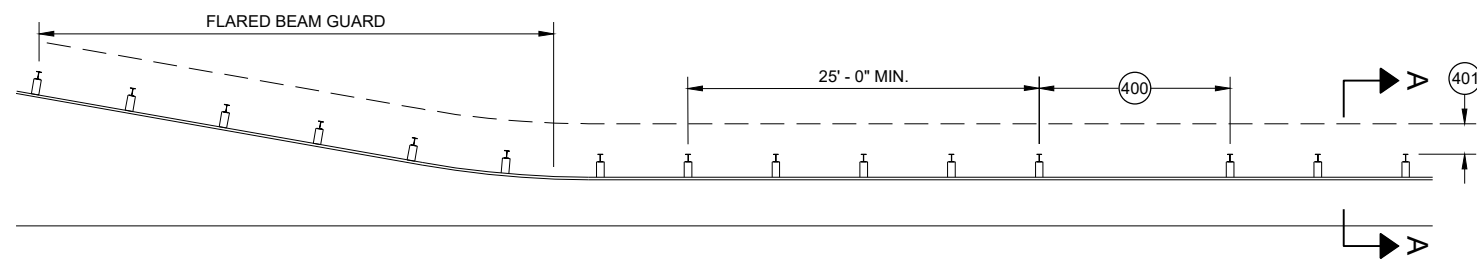
MISSING POST IN MGS GUARDRAIL



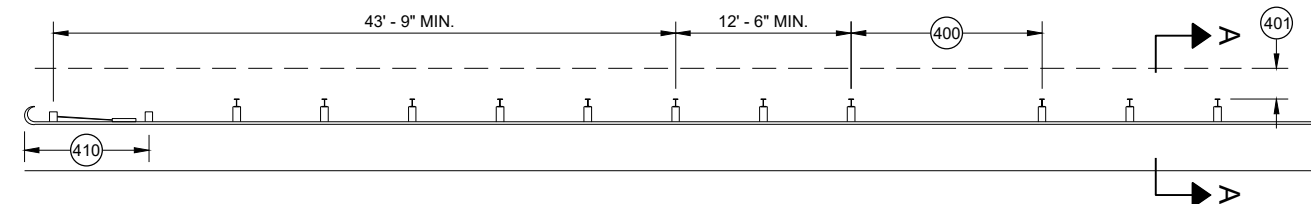
MISSING POST IN MGS GUARDRAIL NEAR EAT



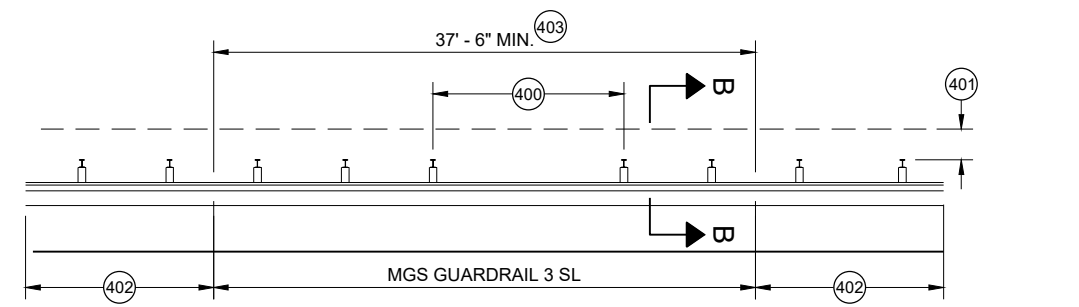
MISSING POST IN MGS GUARDRAIL NEAR AN APPROACH TRANSITION



MISSING POST IN MGS GUARDRAIL NEAR FLARED BEAM GUARD

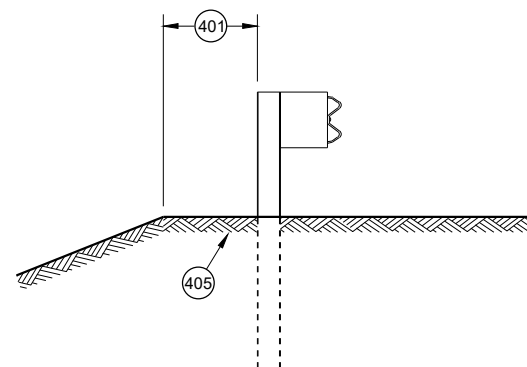


MISSING POST IN MGS GUARDRAIL NEAR A TYPE 2 END TERMINAL

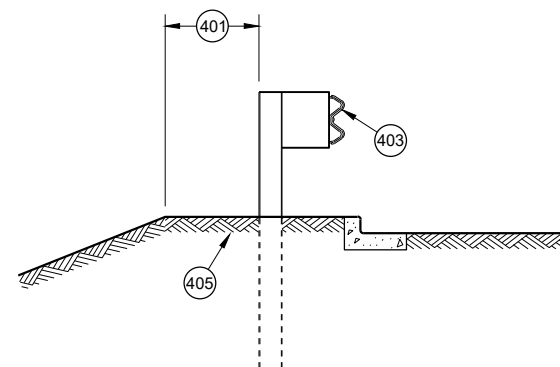


MISSING POST IN SHORT SPAN MGS GUARDRAIL NEAR CURB (SL)

- (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

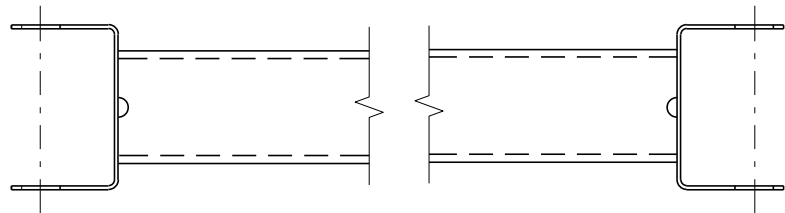
- A) THE SLOPE IN THE AREA BOUNDED BY THE GRADELINE, THE HINGE POINT LINE (HPL) AND THE CLEAR ZONE LIMITS (CZL) SHALL BE 4:1 OR FLATTER.
- B) AFTER FINAL ASSEMBLY, RECHECK CABLE TO BE SURE IT IS TAUT AND HAS NOT RELAXED
- C) DIFFERENT MANUFACTURERS REQUIRE DIFFERENT PERFORATED W - BEAM RAIL END PANELS. 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.

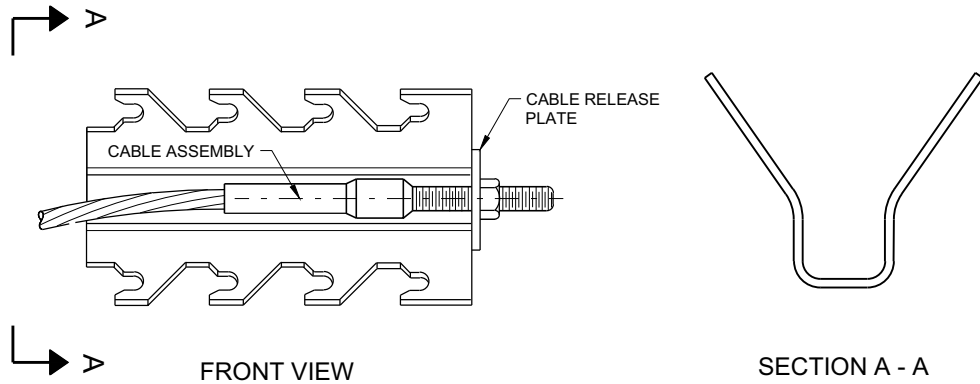


STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION 122

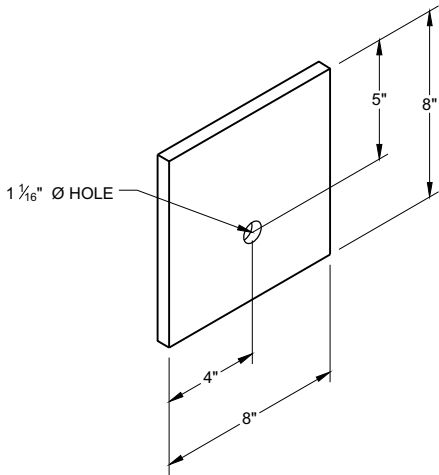


GENERIC GROUND STRUT⁹ E

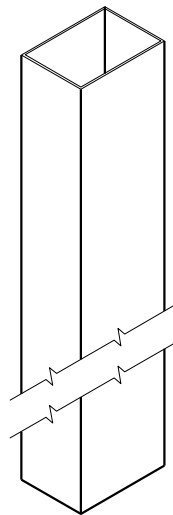
BILL OF MATERIALS	
PART NO.	DESCRIPTION MATERIALS PROVIDED BY MGS EAT MANUFACTURER. SEE MANUFACTURER'S DETAILS FOR MORE INFORMATION.
①	UPPER POST NO. 1 6" X 6" TUBE
②	LOWER POST NO. 1
③	WOOD CRT
④	WOOD BLOCKOUT
⑤	PIPE SLEEVE
⑥	BEARING PLATE
⑦	BCT CABLE ASSEMBLY
⑧	ANCHOR CABLE BOX
⑨	GROUND STRUT
⑩	PERFORATED 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



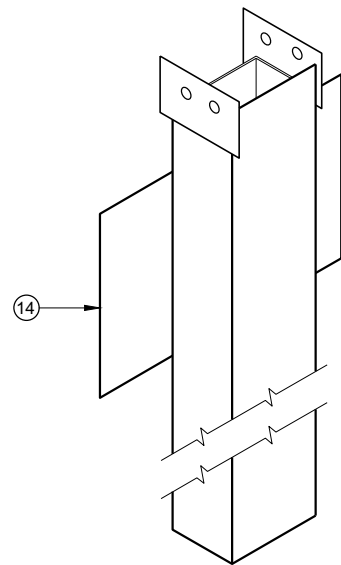
GENERIC ANCHOR CABLE BOX⁹ E



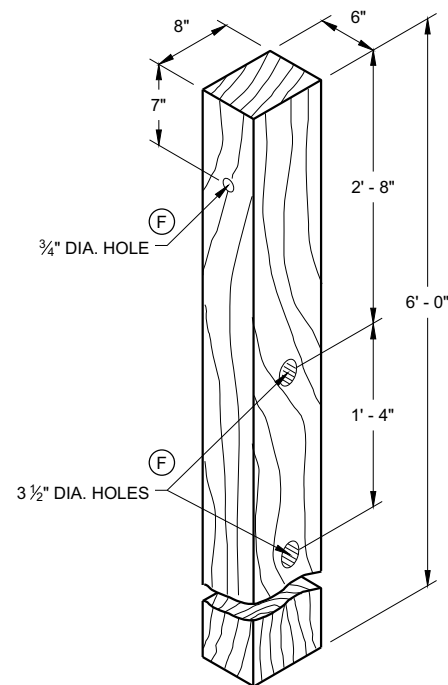
BEARING PLATE⁶ E



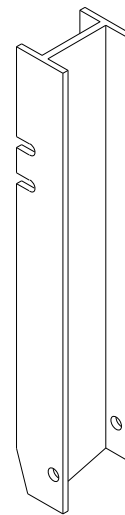
UPPER POST NO. 1 ⁽¹⁾ (E)



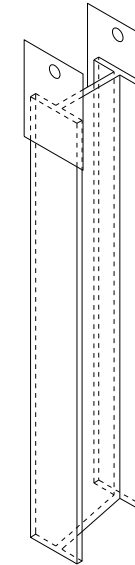
LOWER POST NO. 1 ⁽²⁾ (E)



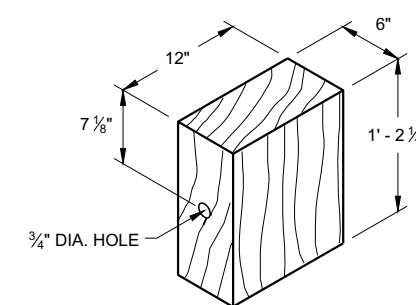
WOOD CRT POST ⁽³⁾ (E)
POSTS NUMBER 3-9



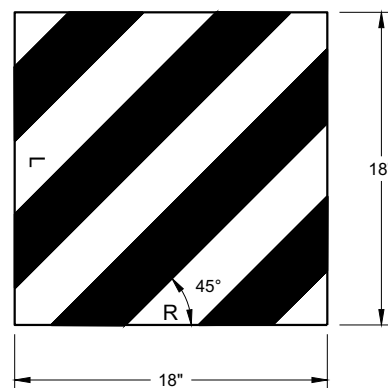
UPPER POST NO. 2 ⁽¹⁵⁾ (E)



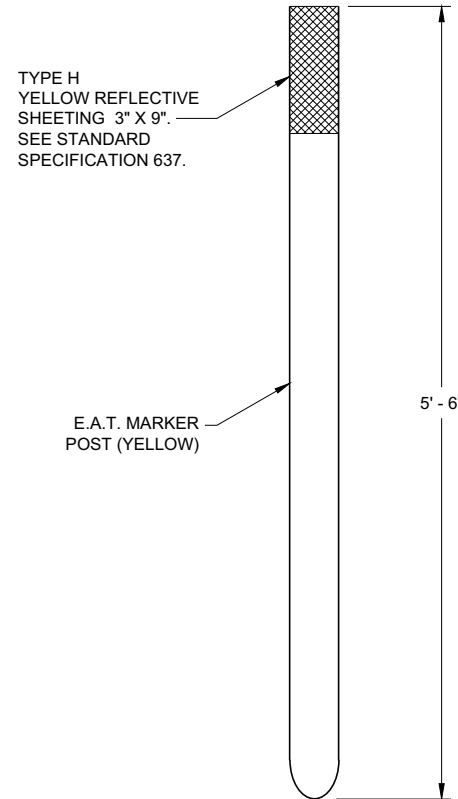
LOWER POST NO. 2 ⁽¹⁶⁾ (E)



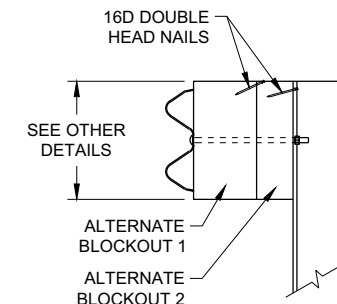
WOOD BLOCKOUT ⁽⁴⁾
REQ'D. AT ALL POSTS EXCEPT POST NO'S 1 & 2



W5 - 59
REFLECTIVE SHEETING DETAIL ^(E)

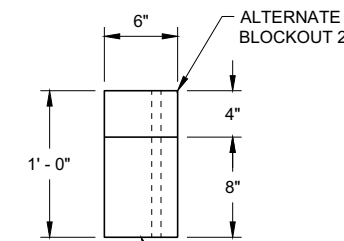


FRONT VIEW
SIDE VIEW
E.A.T. MARKER POST ⁽¹³⁾



SIDE VIEW

ALTERNATE WOOD
BLOCKOUT DETAIL

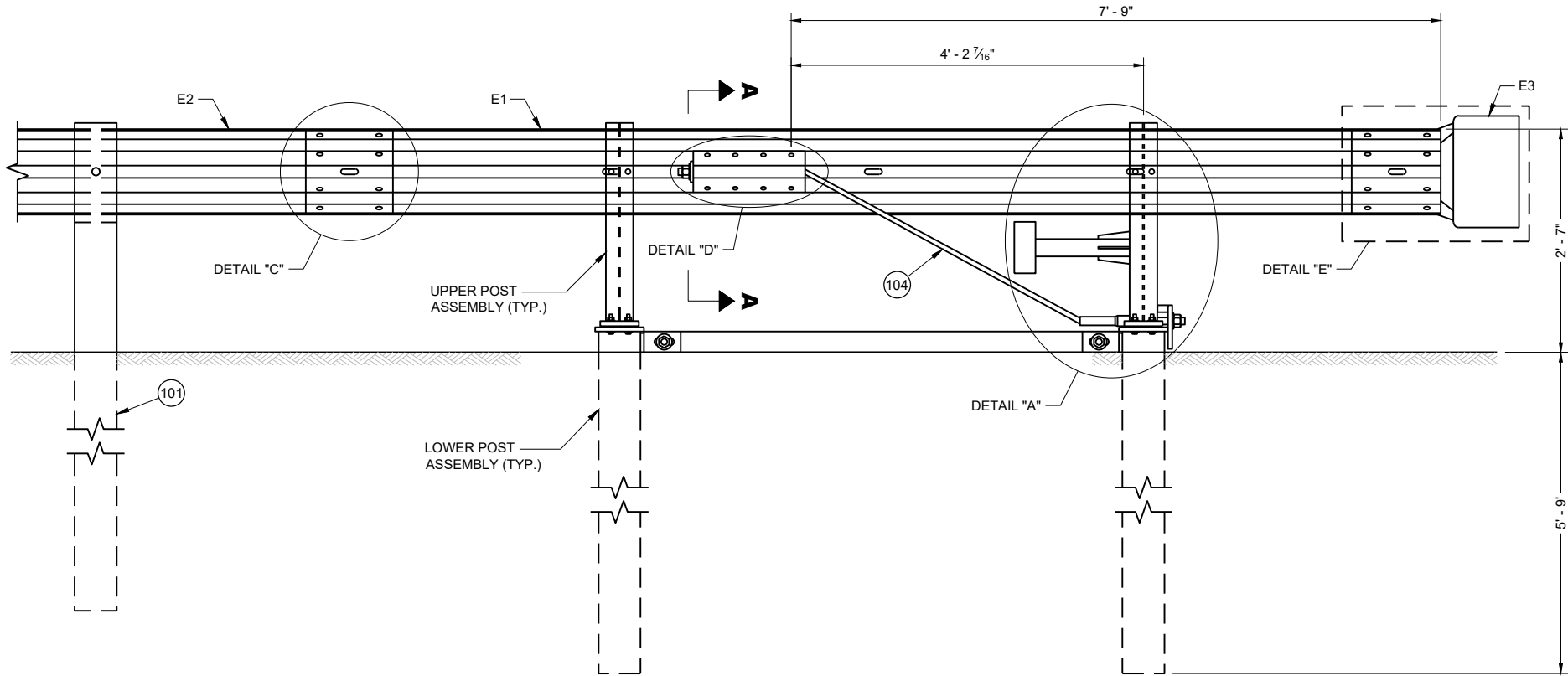


TOP VIEW

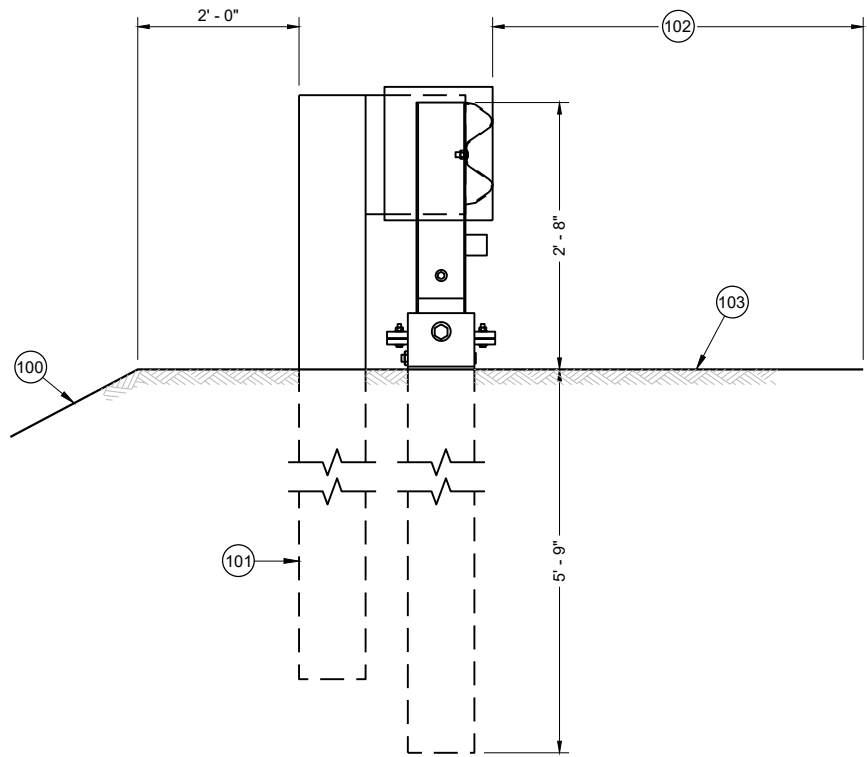
**MIDWEST GUARDRAIL SYSTEM
ENERGY ABSORBING TERMINAL
(MGS)**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

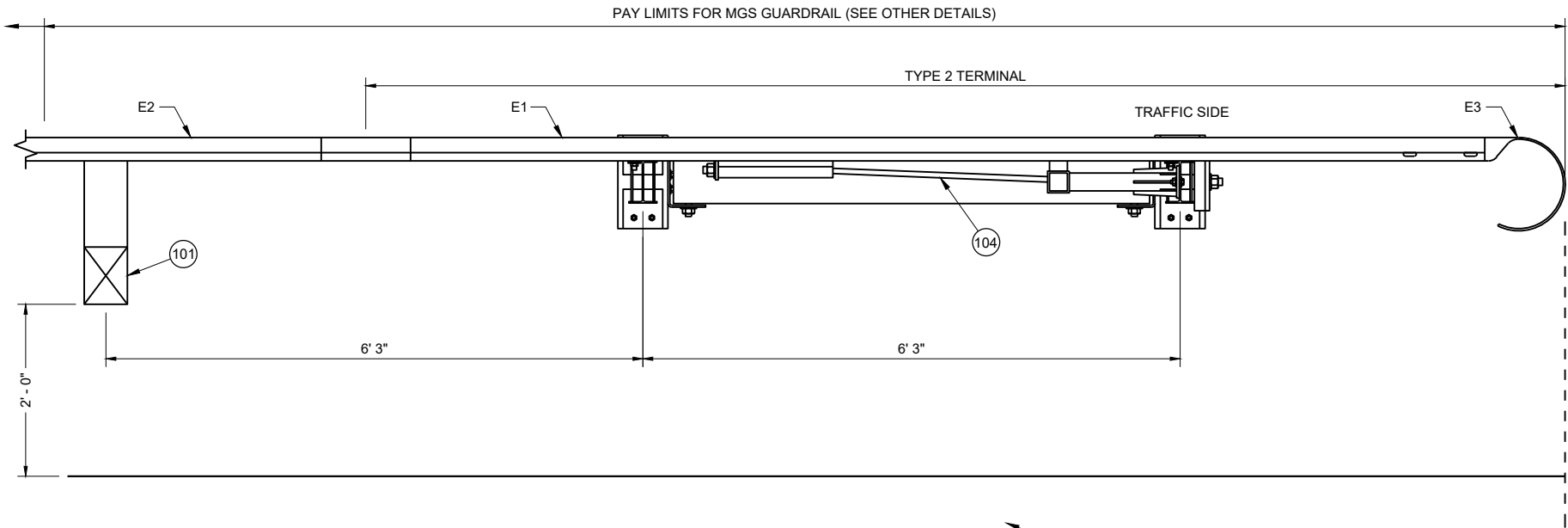
APPROVED
7/2018 DATE /S/ Rodney Taylor
ROADWAY STANDARDS DEVELOPMENT UNIT SUPERVISOR 124
FHWA



BACK VIEW
TYPE 2 TERMINAL



SIDE VIEW
TYPE 2 TERMINAL



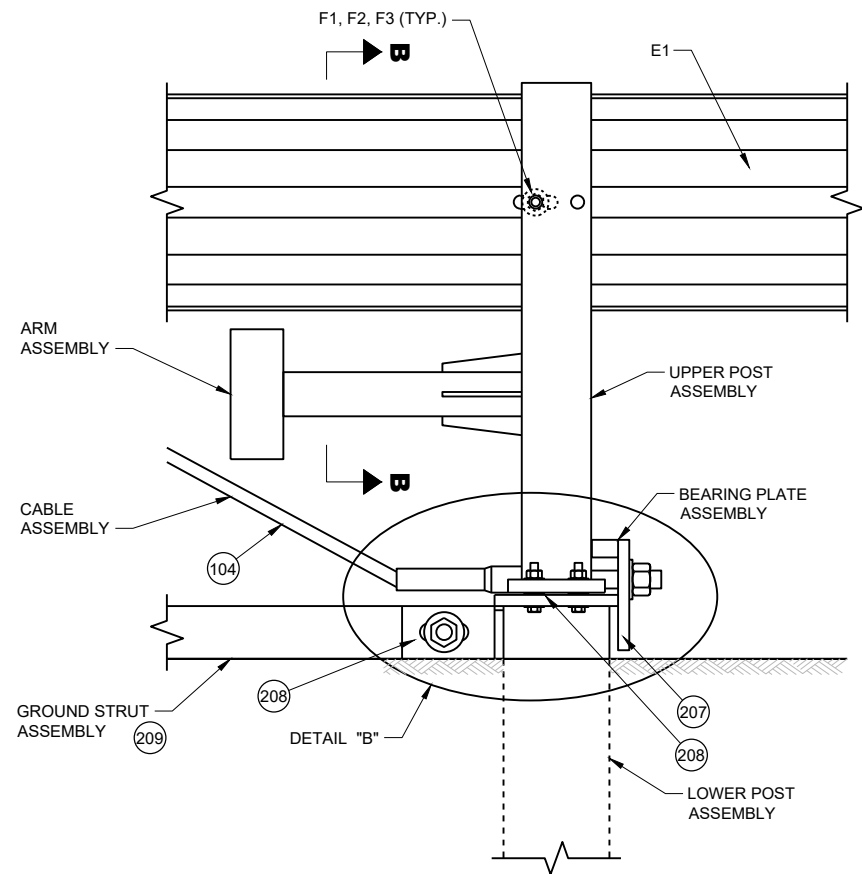
TOP VIEW
TYPE 2 TERMINAL

GENERAL NOTES

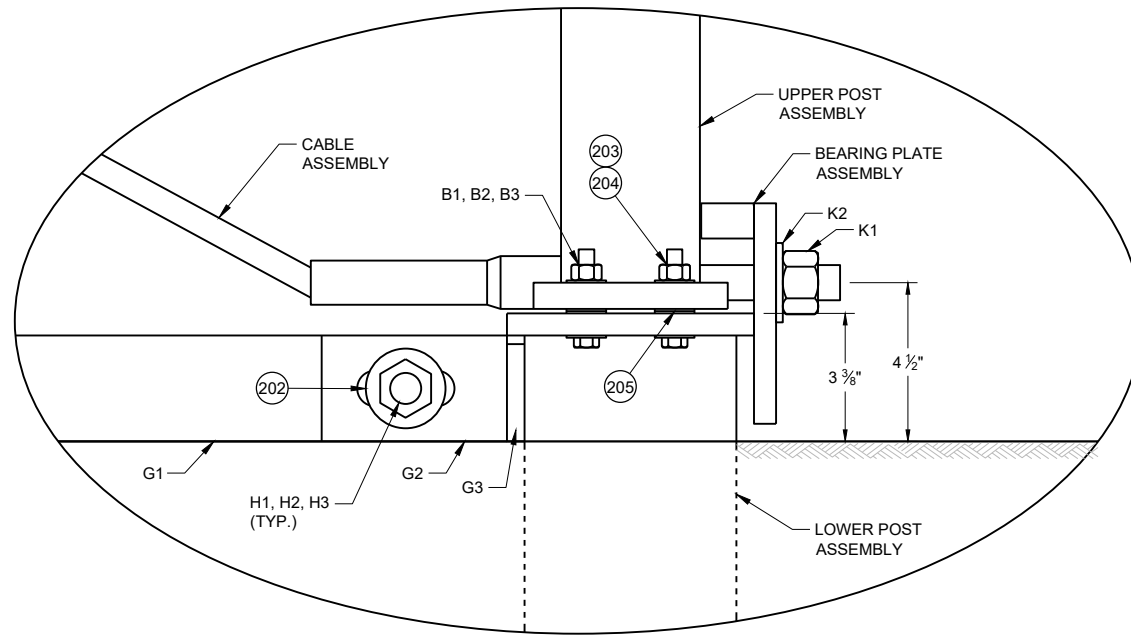
- (100) MAXIMUM SLOPE IS 2.5:1.
- (101) SEE SDD 14B42 FOR MORE INFORMATION.
- (102) SHOULDER
- (103) MAXIMUM SLOPE IS 10:1.
- (104) AFTER ASSEMBLY, CABLE IS TO BE TIGHTENED WITHOUT TWISTING THE CABLE.

MIDWEST GUARDRAIL
SYSTEM (MGS)
TYPE 2 TERMINAL

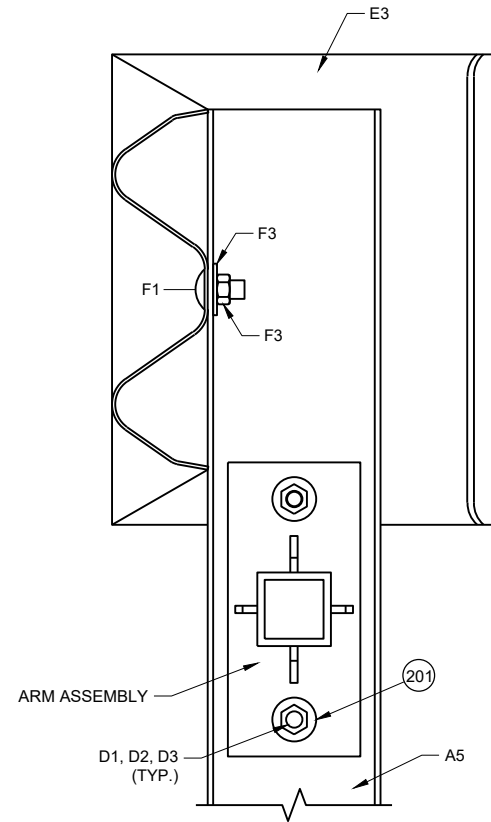
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



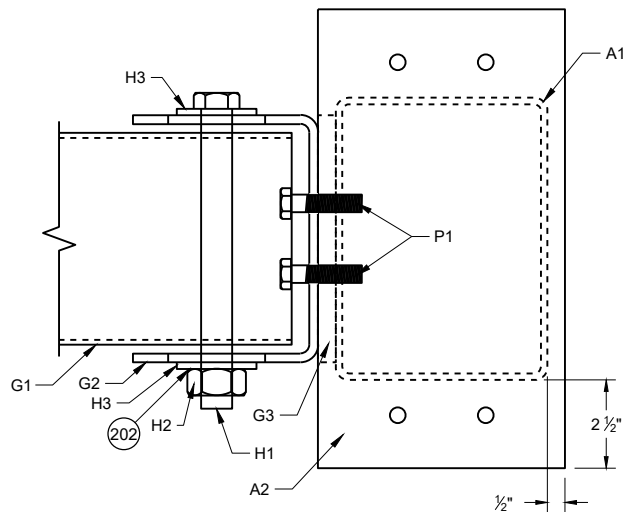
DETAIL "A"



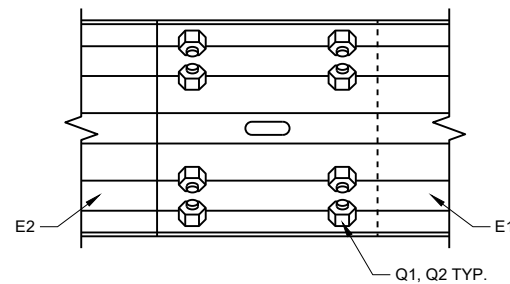
DETAIL "B"



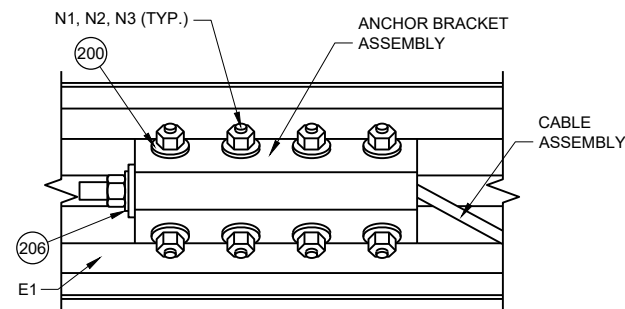
SECTION B - B



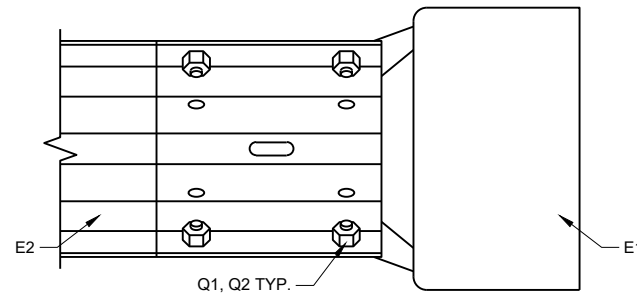
TOP VIEW
GROUND STRUT
CONNECTION DETAIL



DETAIL "C"



DETAIL "D"



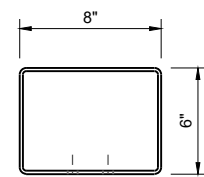
DETAIL "E"

GENERAL NOTES

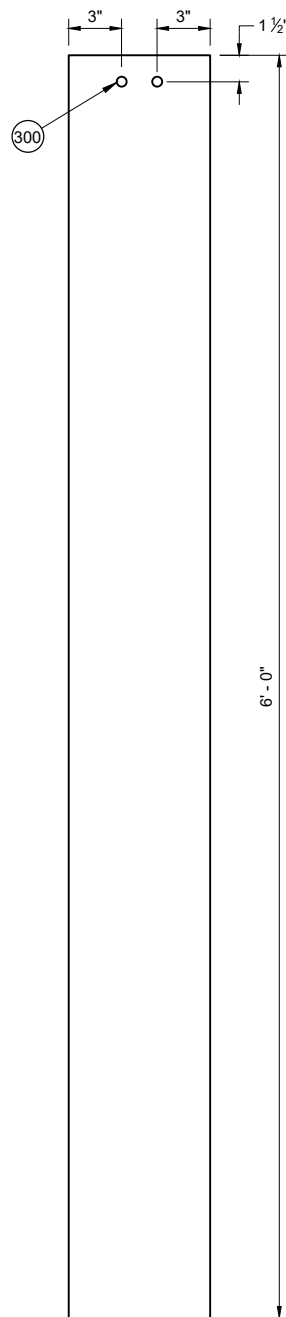
- (200) INSTALL ONE WASHER UNDER BOLT HEAD AND RAIL AND ON WASHER BETWEEN NUT AND ANCHOR BRACKET ASSEMBLY.
- (201) INSTALL ONE WASHER UNDER BOLT HEAD AND UPPER POST ASSEMBLY AND ONE WASHER BETWEEN NUT AND ARM PLATE.
- (202) INSTALL ONE WASHER UNDER BOLT HEAD AND GROUND STRUT CONNECTOR AND ONE WASHER BETWEEN NUT AND GROUND STRUT CONNECTOR.
- (203) INSTALL ONE WASHER UNDER BOLT HEAD AND LOWER POST ASSEMBLY AND ONE WASHER BETWEEN NUT AND UPPER POST ASSEMBLY.
- (204) TORQUE VALUE IS BETWEEN 60 - 75 FT-LB.
- (205) TWO WASHERS BETWEEN UPPER AND LOWER POST ASSEMBLY.
- (206) INSTALL ONE WASHER BETWEEN NUT AND ANCHOR BRACKET ASSEMBLY.
- (207) NO MATERIAL IS TO BE PLACED AGAINST THE VERTICAL FACES OF BEARING PLATE.
- (208) PREVENT OR REMOVE MATERIALS THAT BLOCK ACCESS TO BOLTS FOR POST ASSEMBLIES AND GROUND STRUT.
- (209) PREVENT OR REMOVE MATERIALS THAT IMPEDE REMOVAL OF GROUND STRUT.

MIDWEST GUARDRAIL
SYSTEM (MGS)
TYPE 2 TERMINAL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

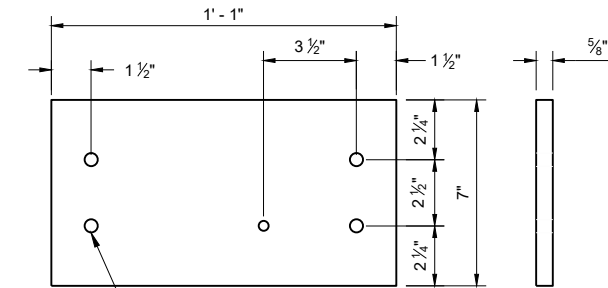


TOP VIEW

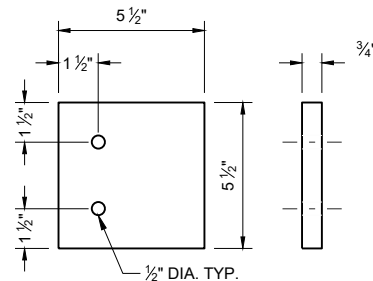


SIDE VIEW

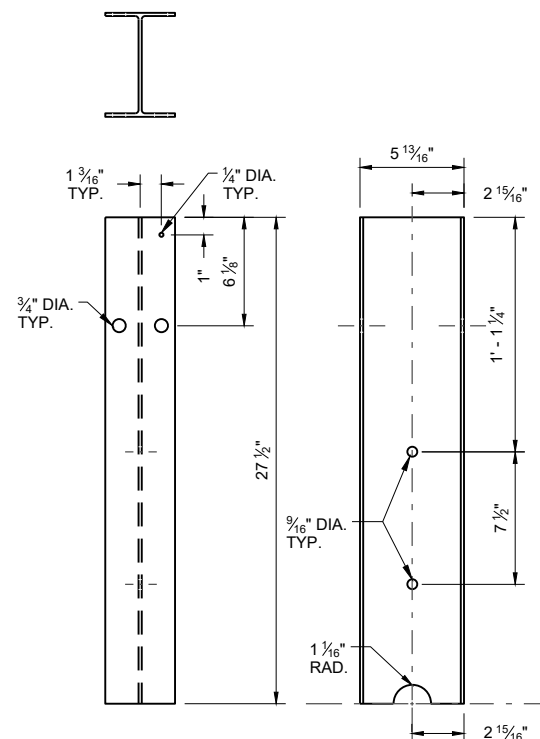
FOUNDATION TUBE (A1)



LOWER PLATE (A2)



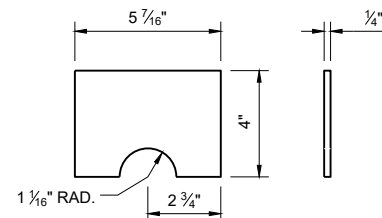
UPPER PLATE (A4)



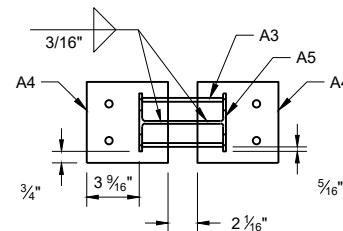
FRONT VIEW

SIDE VIEW

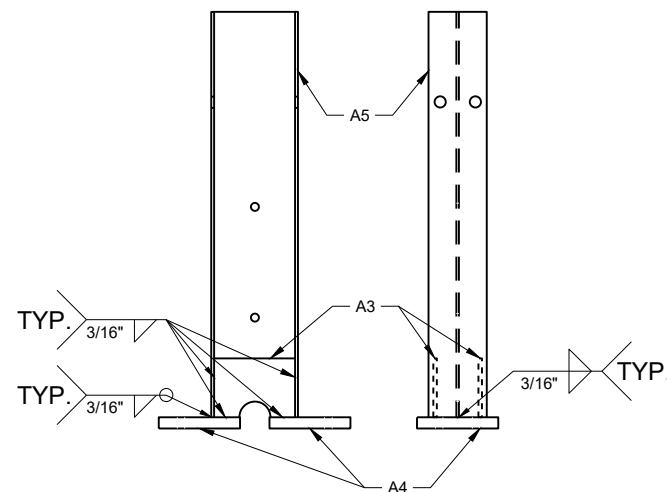
TYPE 2 POST (A5)



POST GUSSET (A3)



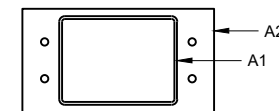
PLAN VIEW



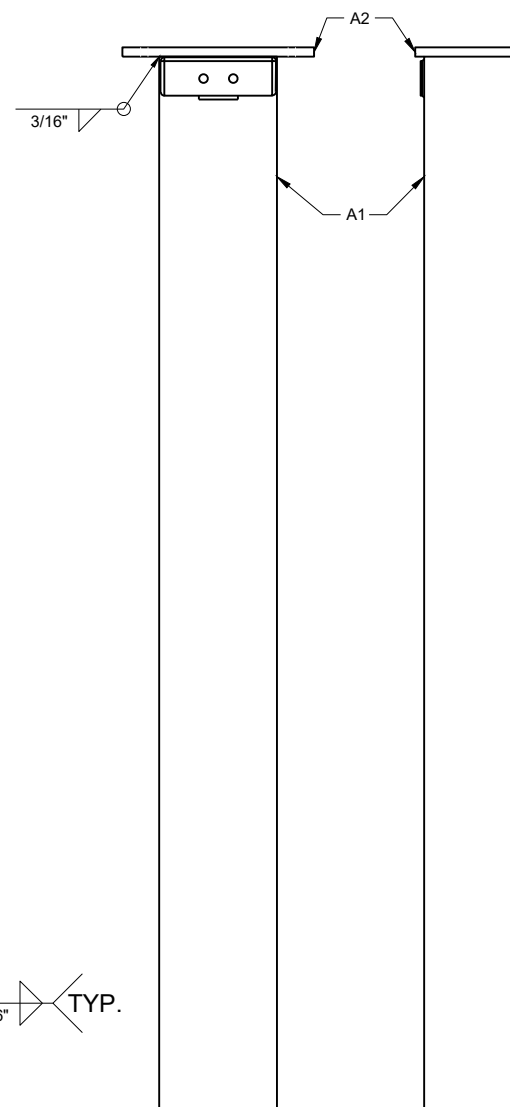
SIDE VIEW

FRONT VIEW

UPPER POST ASSEMBLY



PLAN VIEW



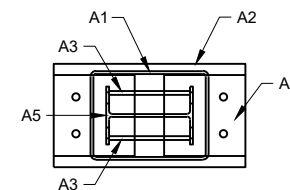
FRONT VIEW

SIDE VIEW

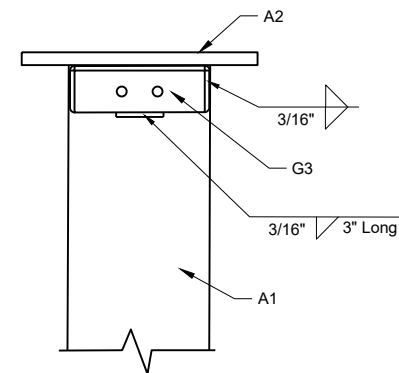
LOWER POST ASSEMBLY

GENERAL NOTES

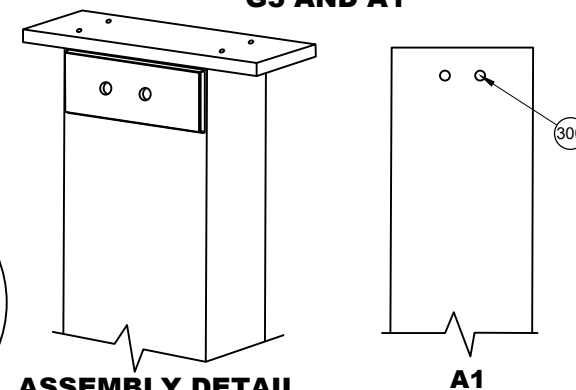
(300) TAP FOR 1/2" AFTER GALVANIZATION



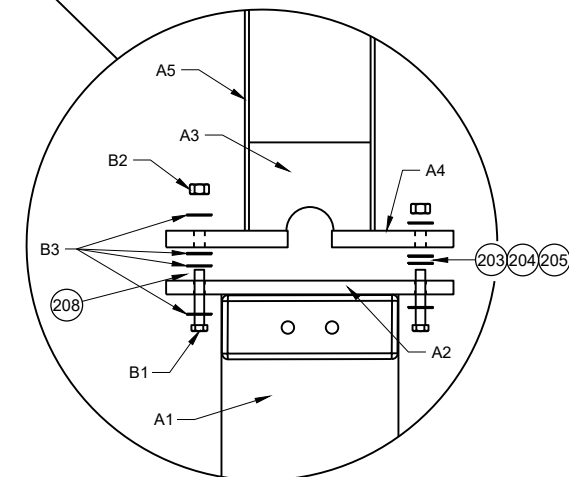
ASSEMBLED POST



WELDING DETAIL G3 AND A1



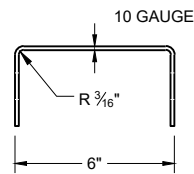
ASSEMBLY DETAIL ISOMETRIC



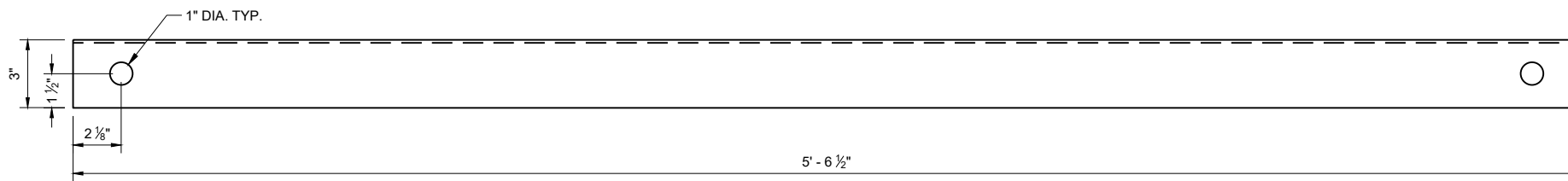
POST CONNECTION DETAIL

MIDWEST GUARDRAIL SYSTEM (MGS) TYPE 2 TERMINAL

STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION

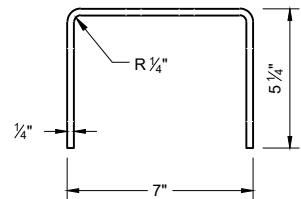


SIDE VIEW

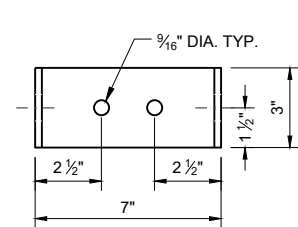


FRONT VIEW

GROUND STRUT CHANNEL (G1)

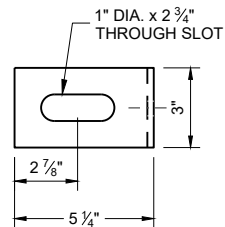


TOP VIEW



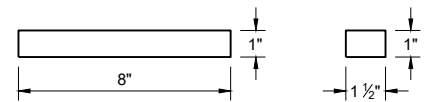
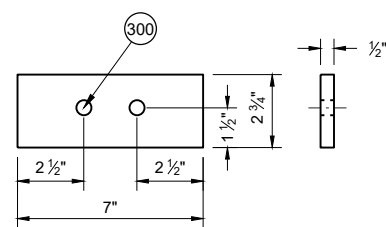
FRONT VIEW

GROUND STRUT CONNECTOR (G2)

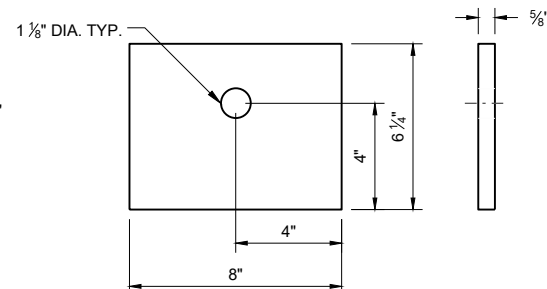


SIDE VIEW

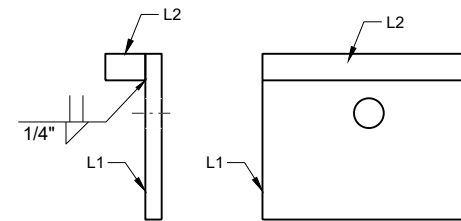
GROUND STRUT PLATE (G3)



BEARING PLATE FLANGE (L2)



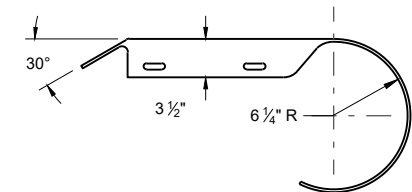
BEARING PLATE (L1)



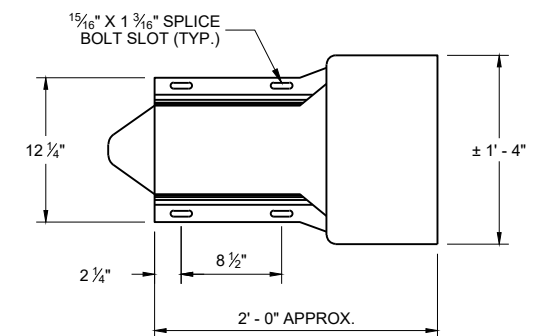
SIDE VIEW

FRONT VIEW

BEARING PLATE ASSEMBLY

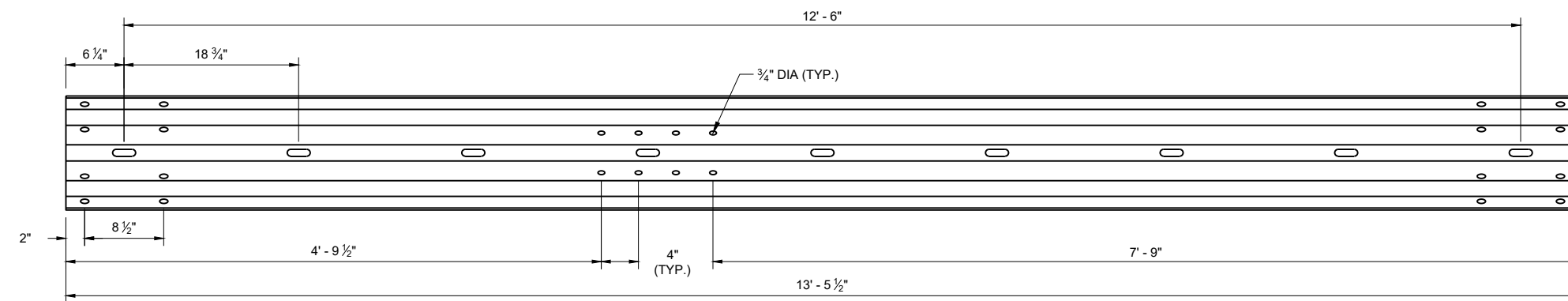


PLAN VIEW

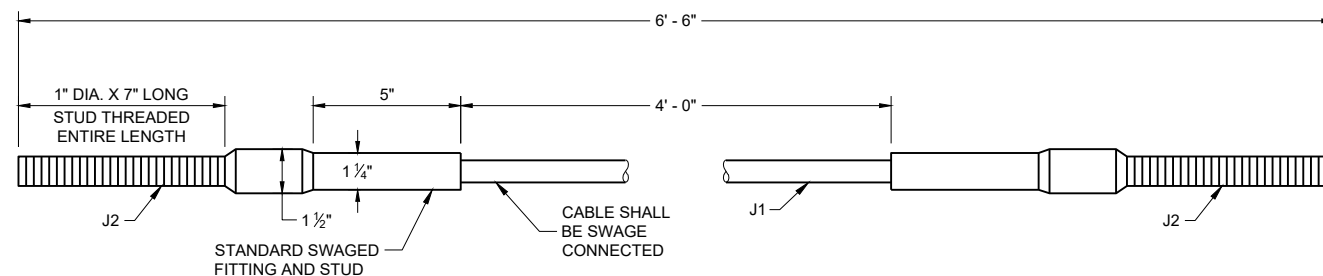


ELEVATION VIEW

ROUNDED BUFFER END (E3)



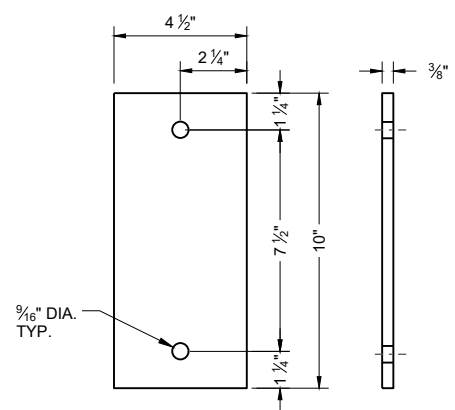
TYPE 2 GUARDRAIL (E1)



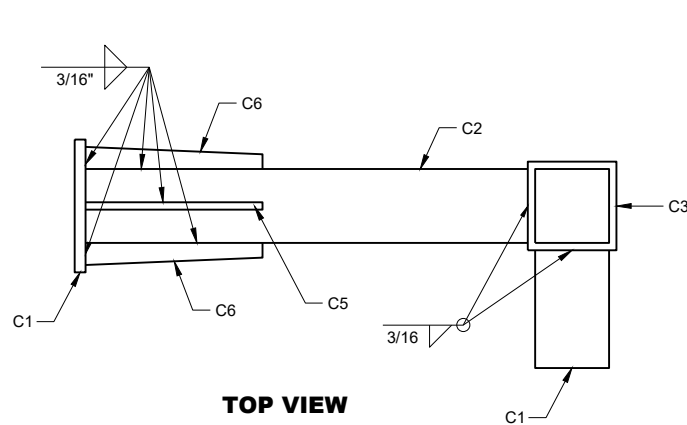
CABLE ASSEMBLY

MIDWEST GUARDRAIL
SYSTEM (MGS)
TYPE 2 TERMINAL

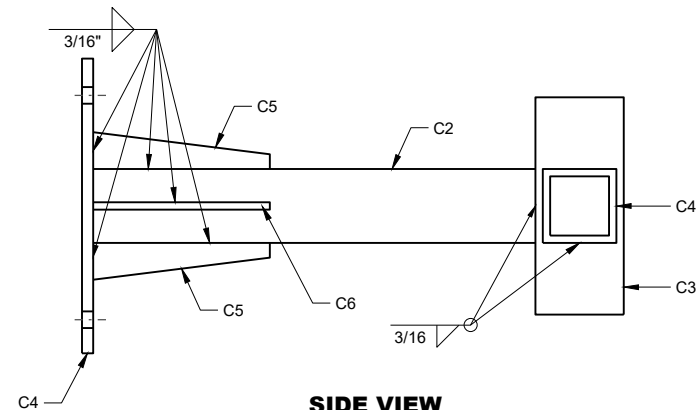
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



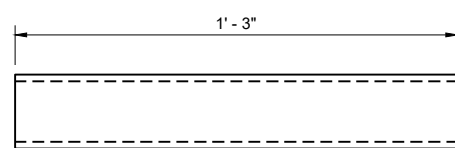
ARM PLATE (C1)



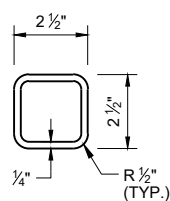
TOP VIEW
ARM ASSEMBLY



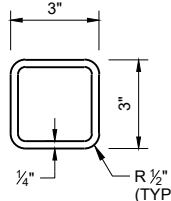
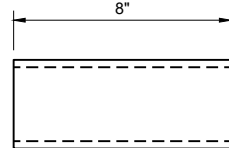
SIDE VIEW
ARM ASSEMBLY



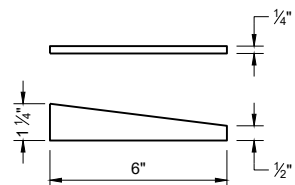
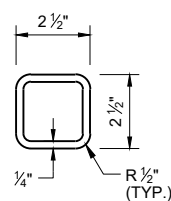
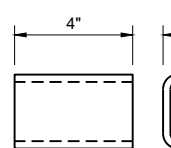
ARM TUBE 1 (C2)



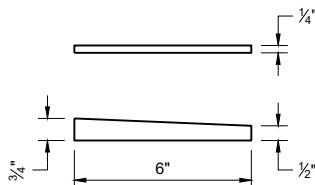
ARM TUBE 2 (C3)



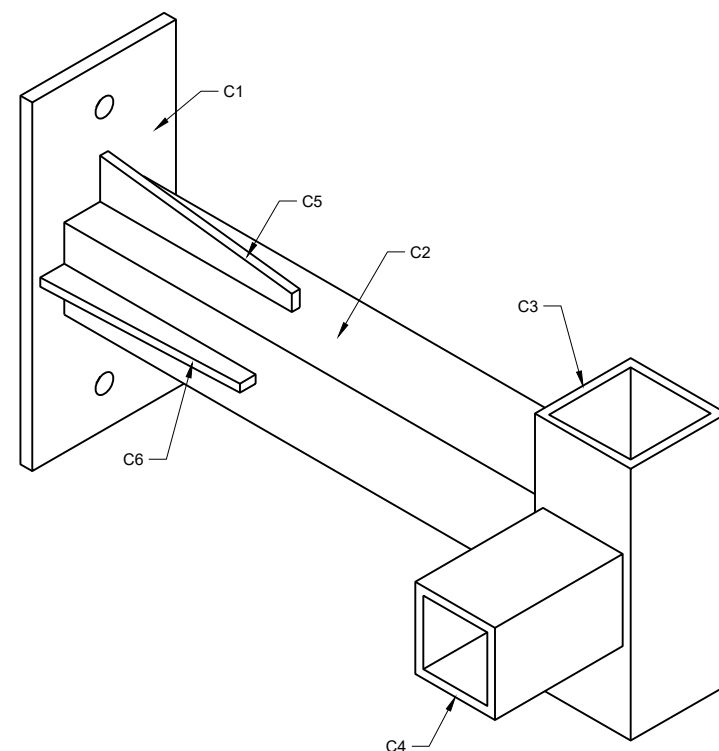
ARM TUBE 3 (C4)



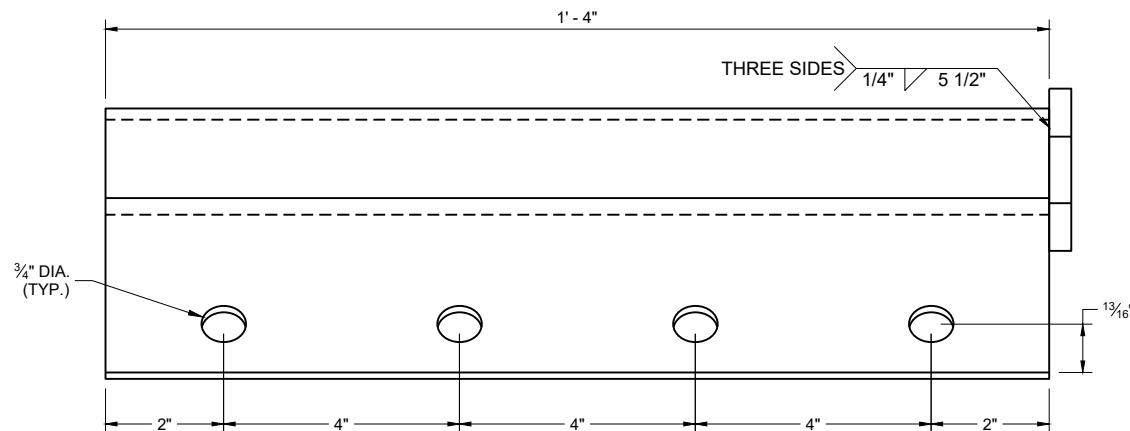
ARM GUSSET
PLATE 1 (C5)



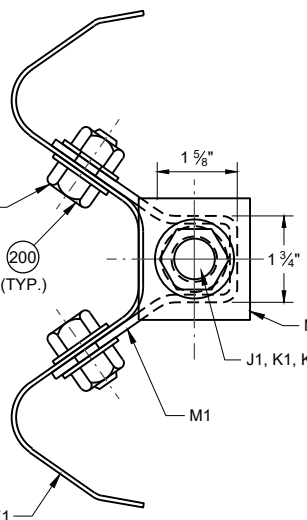
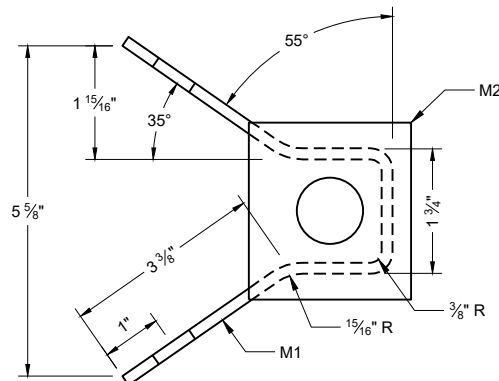
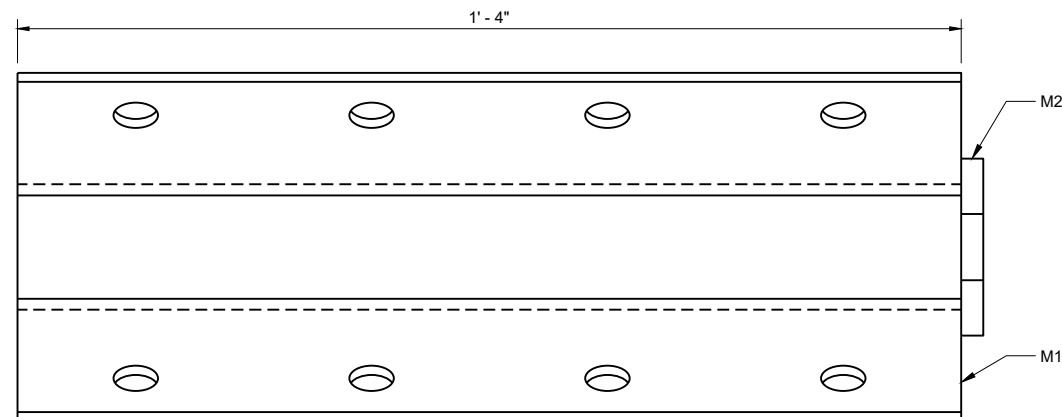
ARM GUSSET
PLATE 2 (C6)



ISOMETRIC VIEW
ARM ASSEMBLY

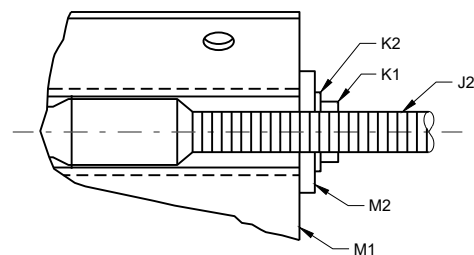
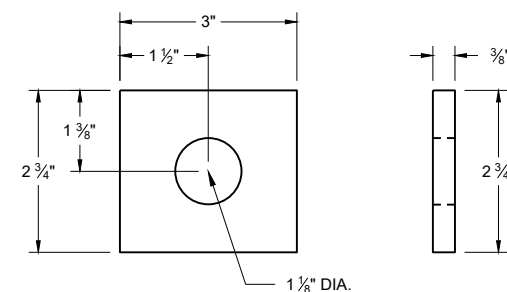


ANCHOR BRACKET (M1, M2)



ANCHOR BRACKET BEARING PLATE (M2)

SECTION A - A



MIDWEST GUARDRAIL
SYSTEM (MGS)
TYPE 2 TERMINAL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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SDD 14B47-06f

BILL OF MATERIALS - TYPE 2 TERMINAL (MGS)

PART	DESCRIPTION	MATERIALS SPECIFICATIONS	NOTES
A1	TYPE 2 FOUNDATION TUBE	AASHTO M111 / ASTM A123 ASTM A500 GRADE B OR ASTM A-501	TS 8" x 6" x $\frac{3}{16}$ "
A2	LOWER PLATE	AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI, OR ASTM A709 MAX STRENGTH 50 KSI, OR ASTM A992 MAX STRENGTH 50 KSI	$\frac{5}{8}$ " THICKNESS
A3	POST GUSSET	AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI, OR ASTM A709 MAX STRENGTH 50 KSI, OR ASTM A992 MAX STRENGTH 50 KSI	$\frac{1}{4}$ " THICKNESS
A4	UPPER PLATE	AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI, OR ASTM A709 MAX STRENGTH 50 KSI, OR ASTM A992 MAX STRENGTH 50 KSI	$\frac{3}{4}$ " THICKNESS
A5	TYPE 2 POST	AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI, OR ASTM A709 MAX STRENGTH 50 KSI, OR ASTM A992 MAX STRENGTH 50 KSI, w6x9 or w6x8.5	
B1	BREAKAWAY BOLT	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 UNC HEAVY HEX HEAD ASTM F3125 GRADE A325 TYPE 1 HEAVY HEX HEAD OR SAE J429 GRADE 5 HEAVY HEX HEAD / ASTM A449 TYPE 1 HEAVY HEX HEAD. BOLTS MAY BE FULLY THREADED . PROVIDE ENOUGH THREADING FOR PROPER TIGHTENING OF BOLT.	$\frac{7}{16}$ " DIA.
B2	BREAKAWAY BOLT WASHER	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 F436 TYPE 1 (HARDEN WASHER ONLY)	$\frac{7}{16}$ " DIA.
B3	BREAKAWAY BOLT NUT	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 UNC OVER TAP NUTS AS SPECIFIED IN AASHTO 291/ASTM A 563 HEAVY HEX HEAD ASTM A563DH OR SAE J995 GRADE 5	
C1	ARM ASSEMBLY PLATE	AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI, OR ASTM A709 MAX STRENGTH 50 KSI, OR ASTM A992 MAX STRENGTH 50 KSI	$\frac{3}{8}$ " THICKNESS
C2	ARM ASSEMBLY TUBE 1	AASHTO M111 / ASTM A123 ASTM A500 GRADE B OR ASTM A-501	TS 8" x 6" x $\frac{3}{16}$ "
C3	ARM ASSEMBLY TUBE 2	AASHTO M111 / ASTM A123 ASTM A500 GRADE B OR ASTM A-501	TS 3" x 3" x $\frac{1}{4}$ "
C4	ARM ASSEMBLY TUBE 3	AASHTO M111 / ASTM A123 ASTM A500 GRADE B OR ASTM A-501	TS 2 $\frac{1}{2}$ " x 2 $\frac{1}{2}$ " X $\frac{1}{4}$ "
C5	ARM ASSEMBLY GUSSET PLATE 1	AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI, OR ASTM A709 MAX STRENGTH 50 KSI, OR ASTM A992 MAX STRENGTH 50 KSI	$\frac{1}{4}$ " THICKNESS
C6	ARM ASSEMBLY GUSSET PLATE 2	AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI, OR ASTM A709 MAX STRENGTH 50 KSI, OR ASTM A992 MAX STRENGTH 50 KSI	$\frac{1}{4}$ " THICKNESS
D1	ARM ASSEMBLY BOLT	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 UNC HEAVY HEX HEAD ASTM A307 GRADE B OR SAE J429 GRADE 2 OR ASTM F1554 GRADE 36	$\frac{1}{2}$ " DIA.
D2	ARM ASSEMBLY WASHER	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 F436 TYPE 1 (HARDEN WASHER ONLY)	$\frac{1}{2}$ " DIA.
D3	ARM ASSEMBLY NUT	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 UNC OVER TAP NUTS AS SPECIFIED IN AASHTO 291 / ASTM A 563 HEAVY HEX HEAD ASTM A563DH OR SAE J995 GRADE 5	$\frac{1}{2}$ " DIA.
E1	TYPE 2 GUARD RAIL	AASHTO M180 CLASS A TYPE 2 12 GAUGE APPROVED PRODUCER	
E2	BEAM GUARD RAIL	AASHTO M180 CLASS A TYPE 2 12 GAUGE APPROVED PRODUCER	
E3	BEAM GUARD ROUNDED BUFFER END	AASHTO M180 CLASS A TYPE 2 12 GAUGE APPROVED PRODUCER	
F1	POST BOLT	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 UNC HEAVY HEX HEAD ASTM A307 GRADE B OR SAE J429 GRADE 2 OR ASTM F1554 GRADE 36	$\frac{5}{8}$ " DIA.
F2	POST BOLT WASHER	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 F436 TYPE 1 (HARDEN WASHER ONLY)	$\frac{5}{8}$ " DIA.
F3	POST BOLT NUT	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 UNC OVER TAP NUTS AS SPECIFIED IN AASHTO 291/ASTM A 563 AASHTO M180 RECESSED HEAVY HEX HEAD ASTM A563DH OR SAE J995 GRADE 5	
G1	GROUND STRUT CHANNEL	AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI, OR ASTM A709 MAX STRENGTH 50 KSI, OR ASTM A992 MAX STRENGTH 50 KSI	$\frac{1}{2}$ " x 11 $\frac{3}{4}$ " x 10 GAUGE
G2	GROUND STRUT CONNECTOR	AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI, OR ASTM A709 MAX STRENGTH 50 KSI, OR ASTM A992 MAX STRENGTH 50 KSI	$\frac{1}{4}$ " THICKNESS
G3	GROUND STRUT PLATE	AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI, OR ASTM A709 MAX STRENGTH 50 KSI, OR ASTM A992 MAX STRENGTH 50 KSI	$\frac{1}{2}$ " THICKNESS

MIDWEST GUARDRAIL
SYSTEM (MGS)
TYPE 2 TERMINAL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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SDD 14B47-06f

BILL OF MATERIALS - TYPE 2 TERMINAL (MGS)

PART	DESCRIPTION	MATERIALS SPECIFICATIONS	NOTES
H1	GROUND STRUT BOLT	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 UNC HEAVY HEX HEAD ASTM A307 GRADE B OR SAE J429 GRADE 2 OR ASTM F1554 GRADE 36	7/8" DIA.
H2	GROUND STRUT BOLT WASHER	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1/ ASTM B695 CLASS 50 TYPE 1 F436 TYPE 1 (HARDEN WASHER ONLY)	7/8" DIA.
H3	GROUND STRUT BOLT NUT	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 UNC HEAVY HEX HEAD 5/8" ASTM A307 GRADE B OR SAE J429 GRADE 2 OR ASTM F1554 GRADE 36	
J1	BCT CABLE	AASHTO M30 / ASTM A741 6 x 19 INDEPENDENT WIRE CORE (IWRC) IMPROVED PLOW STEEL (IPS), 6 x 19 INDEPENDENT WIRE CORE (IWRC) IMPROVED PLOW STEEL (IPS) TYPE II OR IIC, CLASS C ZINC COATED MIN. BREAKING STRENGTH OF 42.7 KIPS	3/4" DIA.
J2	BCT CABLE	UNC 1" ASTM A576 GRADE 1035 SWAGE FITTINGS ARE TO BE FACTORY SWEDGED. MIN BREAKING STRENGTH OF 42.7 KIPS ASME B30.26 "FORGED, CAST, OR DIE STAMPED WITH THE FOLLOWING IN TO CONNECTION: NAME OF MANUFACTURE OR TRADEMARK OF CONNECTION'S MANUFACTURER, SIZE OR RATED LOAD, GRADE FOR ALLOY EYEBOLTS."	
K1	CABLE ASSEMBLY NUT	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 UNC OVER TAP NUTS AS SPECIFIED IN AASHTO 291 / ASTM A 563 HEAVY HEX HEAD ASTM A563DH OR SAE J995 GRADE 5	1" DIA.
K2	CABLE ASSEMBLY WASHER	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1	1" DIA.
L1	BEARING PLATE	AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI, OR ASTM A709 MAX STRENGTH 50 KSI, OR ASTM A992 MAX STRENGTH 50 KSI	5/8" THICKNESS
L2	BEARING PLATE FLANGE	AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI, OR ASTM A709 MAX STRENGTH 50 KSI, OR ASTM A992 MAX STRENGTH 50 KSI	1" THICKNESS
M1	BEAM GUARD ANCHOR BRACKET	AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI, OR ASTM A709 MAX STRENGTH 50 KSI, OR ASTM A992 MAX STRENGTH 50 KSI	
M2	BEAM GUARD ANCHOR END PLATE	AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI, OR ASTM A709 MAX STRENGTH 50 KSI, OR ASTM A992 MAX STRENGTH 50 KSI	3/8" THICKNESS
N1	ANCHOR BRACKET BOLT	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 UNC AASHTO M180 HEAD ASTM A307 GRADE B OR SAE J429 GRADE 2 OR ASTM F1554 GRADE 36	5/8" DIA.
N2	ANCHOR BRACKET BOLT WASHER	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1/ ASTM B695 CLASS 50 TYPE 1 F436 TYPE 1 (HARDEN WASHER ONLY)	5/8" DIA.
N3	ANCHOR BRACKET BOLT NUT	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 UNC OVER TAP NUTS AS SPECIFIED IN AASHTO 291 / ASTM A 563 HEAVY HEX HEAD ASTM A563DH OR SAE J995 GRADE 5	
P1	FOUNDATION TUBE BOLT	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1/ ASTM B695 CLASS 50 TYPE 1 UNC OVER TAP NUTS AS SPECIFIED IN AASHTO 291 / ASTM A 563 HEAVY HEX HEAD ASTM A563DH OR SAE J995 GRADE 5	1/2" DIA.
Q1	SPLICE BOLT	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 UNC AASHTO M180 HEAD ASTM A307 GRADE B OR SAE J429 GRADE 2 OR ASTM F1554 GRADE 36	
Q2	SPLICE NUT	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 UNC OVER TAP NUTS AS SPECIFIED IN AASHTO 291 / ASTM A 563 AASHTO M180 RECESSED HEAVY HEX HEAD ASTM A563DH OR SAE J995 GRADE 5	5/8" DIA.

MIDWEST GUARDRAIL
SYSTEM (MGS)
TYPE 2 TERMINAL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
December 2024
DATE

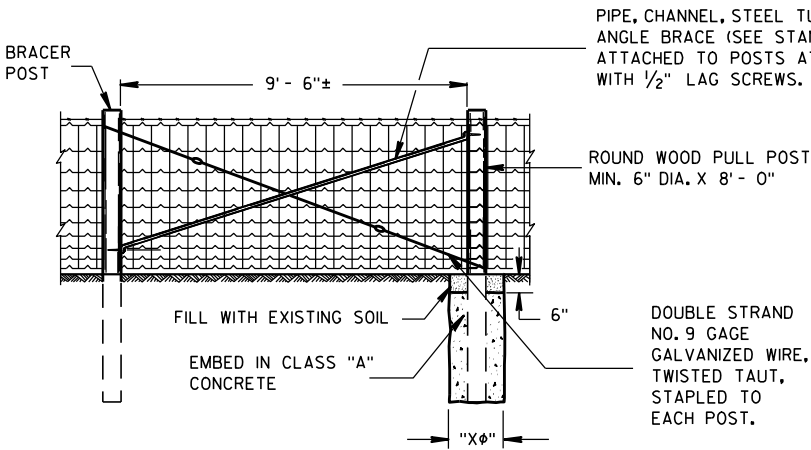
/S/ Rodney Taylor
ROADWAY STANDARDS DEVELOPMENT
UNIT SUPERVISOR

FHWA

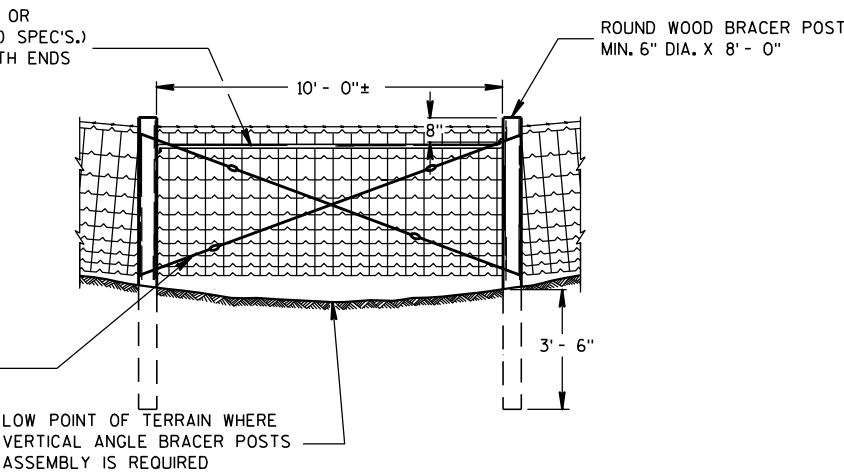
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NOTE: PULL OR STRETCHER POST ASSEMBLIES SHALL BE PLACED MIDWAY BETWEEN END POSTS AND CORNER POSTS WHERE A RUN OF FENCE EXCEEDS 660' BUT IS LESS THAN 1,320'. FOR RUNS OF FENCE IN EXCESS OF 1,320' MAXIMUM SPACING OF PULL OR STRETCHER POST ASSEMBLIES SHALL BE 660'± C-C.

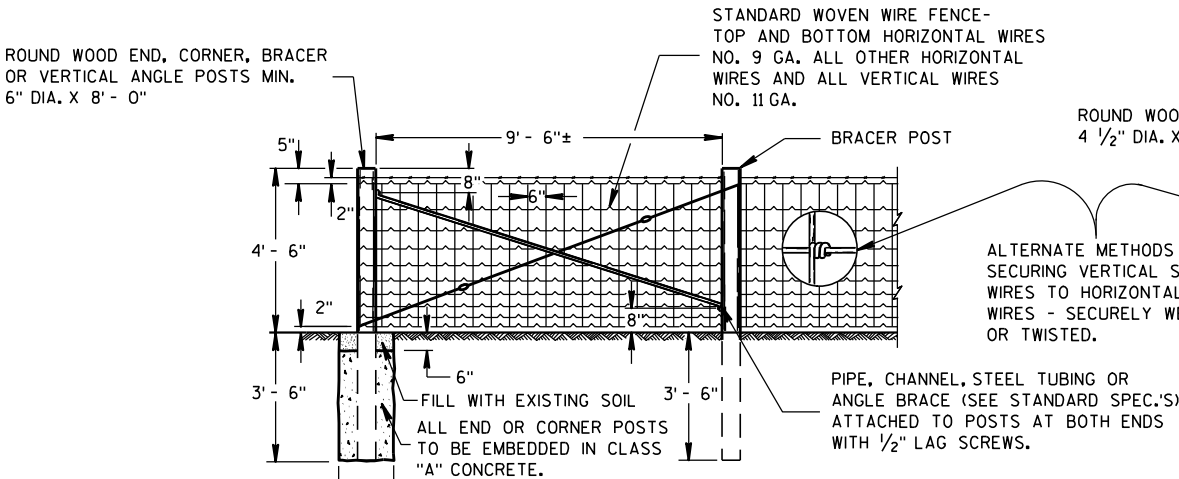
ILLUSTRATION SHOWS POSITION OF STANDARD STEEL BRACE, DOUBLE STRAND GALVANIZED WIRE, AND THE POST TO BE EMBEDDED IN CONCRETE WHEN WIRE FENCE IS INSTALLED FROM LEFT TO RIGHT. THE BRACES SHALL BE POSITIONED ON THE OPPOSITE DIAGONALS AND THE OPPOSITE POST SHALL BE EMBEDDED IN CONCRETE WHEN WIRE FENCE IS INSTALLED FROM RIGHT TO LEFT.



PULL OR STRETCHER POSTS ASSEMBLY

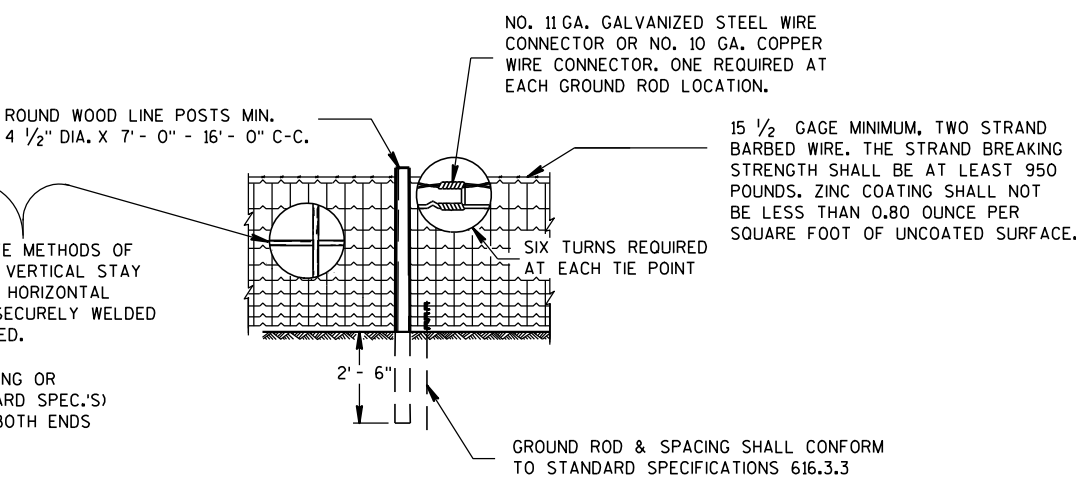


VERTICAL ANGLE BRACER POSTS ASSEMBLY



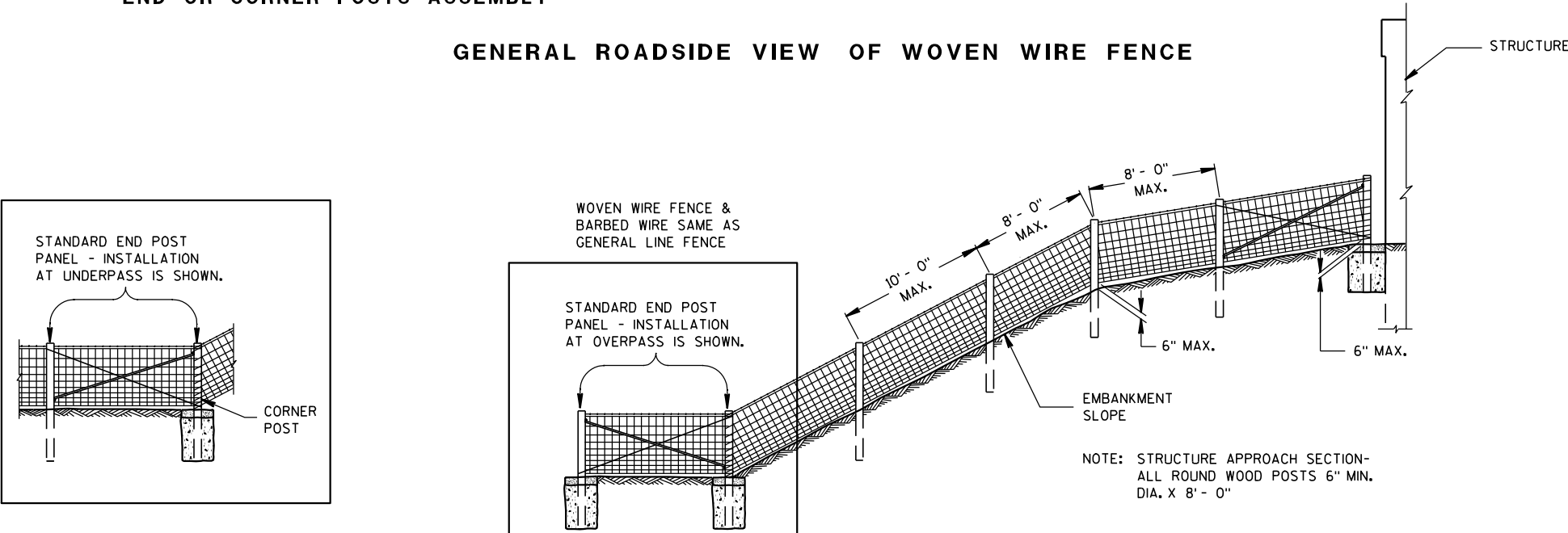
NOTE: FENCE CORNERS - ABOVE ILLUSTRATION SHOWS ONE LEG OF FENCE CONSTRUCTION AT FENCE CORNER. THE CONTIGUOUS LEG TO BE IDENTICAL CONSTRUCTION.

END OR CORNER POSTS ASSEMBLY



LINE FENCE CONSTRUCTION

GENERAL ROADSIDE VIEW OF WOVEN WIRE FENCE



FENCE DESIGN AT STRUCTURE APPROACH

GENERAL NOTES

"Xφ" = DIAMETER OF THE POST PLUS 12".

FENCE STAPLES SHOULD NEVER BE DRIVEN VERTICALLY INTO WOOD POSTS (WITH BOTH LEGS PARALLEL WITH THE WOOD GRAIN). DOING SO CAN SEPARATE THE GRAIN AND SIGNIFICANTLY REDUCE THE HOLDING POWER. ROTATING THE STAPLES SLIGHTLY OFF VERTICAL STRADDLES THE GRAIN AND PROVIDES MORE RESISTANCE TO PULL-OUT.

DO NOT STAPLE WIRE TIGHT TO THE LINE POSTS. ALLOW MOVEMENT OF WIRE FOR EXPANSION AND CONTRACTION. STAPLE ARRANGEMENT SHALL BE THE SAME FOR ALL OTHER POSTS EXCEPT THAT THEY SHALL BE DRIVEN TIGHT TO POSTS. ALL STAPLES SHALL BE 2" X 9 GAGE AND SHALL BE MANUFACTURED FROM GALVANIZED WIRE OR HOT DIP GALVANIZED AFTER FORMING. STAPLES SHALL HAVE SLASH-CUT POINTS.

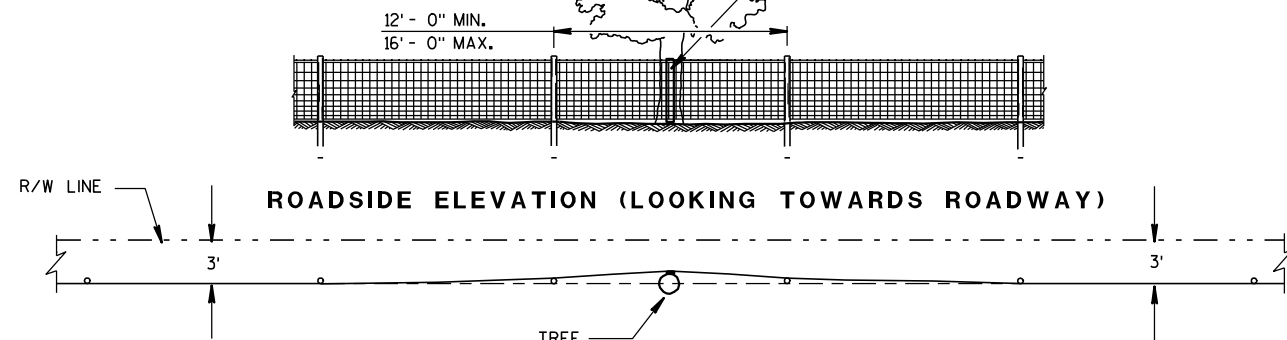
FENCE SHALL BE LOCATED 3'-0" INSIDE THE RIGHT OF WAY LINE UNLESS OTHERWISE INDICATED ON THE PLANS.

FENCE WOVEN WIRE

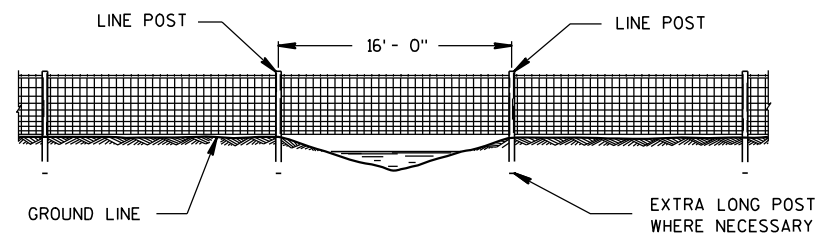
STATE OF WISCONSIN
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NOTE: TREE IN NORMAL FENCE LINE SPECIFICALLY ORDERED BY ENGINEER TO REMAIN IN PLACE.

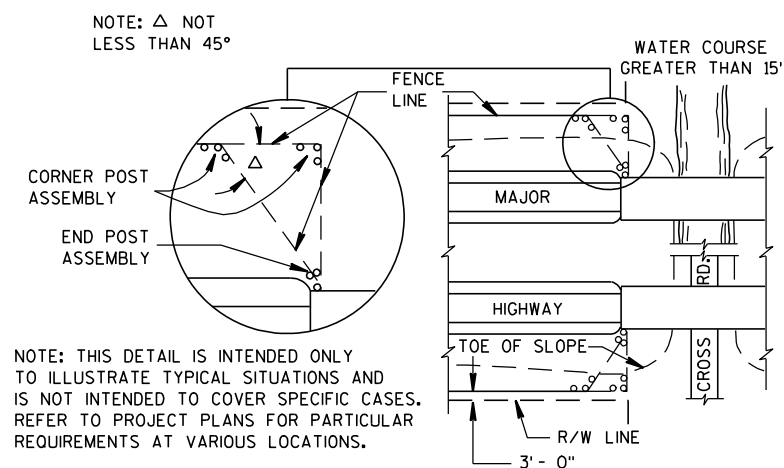
2" X 6" DOUGLAS FIR OR SO. YELLOW PINE PLACED BETWEEN TREE AND WOVEN WIRE FENCE. WOVEN WIRE FENCE AND BARBED WIRE TO BE STAPLED TO 2" X 6" LIKE AS TO LINE POST. 2" X 6" NOT FASTENED TO TREE.



PLAN VIEW
FENCE DESIGN AT TREES REMAINING
IN NORMAL FENCE LINE

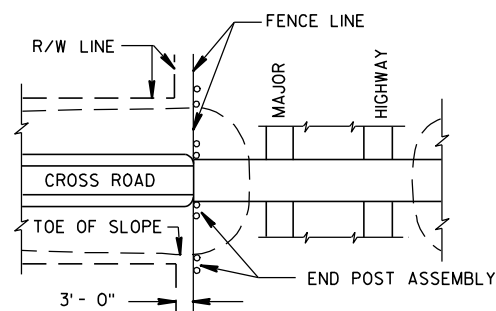


FENCE CONSTRUCTION OVER STREAM
COURSES OF 15 FT. OR LESS IN WIDTH

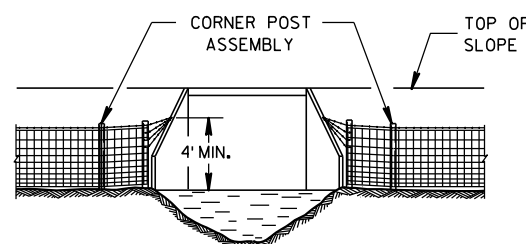


PLAN VIEW
MAJOR HIGHWAY OVERPASS OR STREAM COURSE
CROSSING OF GREATER THAN 15 FT. IN WIDTH

FENCE LOCATION AT STRUCTURES

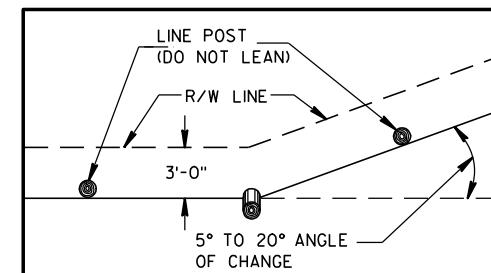


PLAN VIEW
MAJOR HIGHWAY UNDERPASS

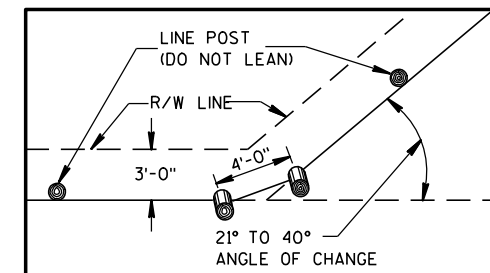


FENCE INSTALLATION TO WINGWALLS

NOTE: PLACE A MINIMUM OF 4 STRANDS OF BARBED WIRE, 6" MAXIMUM CENTERS IN FAN SHAPE CONNECTED TO AN EYE BOLT ON WINGWALL OR SET A LONE POST WHEN NECESSARY TO CONNECT BARBED WIRE.



PLAN VIEW
SINGLE POST CORNER

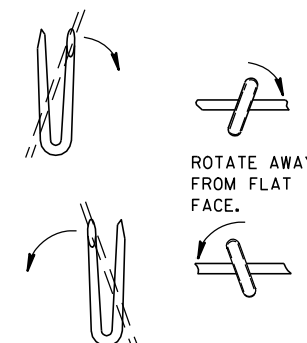


PLAN VIEW
DOUBLE POST CORNER

RIGHT OF WAY LINE CHANGE 40° AND LESS

NOTE: SINGLE AND DOUBLE POSTS SHALL BE A MIN. 6" DIA. X 8'-0" WITH A LEAN OF 4" TOWARD THE OUTSIDE OF THE CURVE.

WHEN THE RIGHT OF WAY LINE CHANGE IS MORE THAN 40° USE THE CORNER OR STRETCHER POSTS ASSEMBLY.



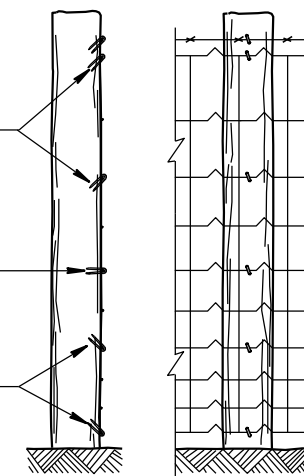
LINE POST

NOTE: WHEN POSTS ARE DRIVEN THE SMALL END SHALL BE DOWN.

STAPLES SLOPED DOWNWARD FOR SUSTAINED GRADES AND OVER KNOLLS.

STAPLES LEVEL FOR LEVEL GROUND.

SLOPE UPWARDS WHEN FENCE TENDS TO LIFT.



END ELEVATION
FARM SIDE ELEVATION
FENCE MOUNTING DETAIL

FENCE WOVEN WIRE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

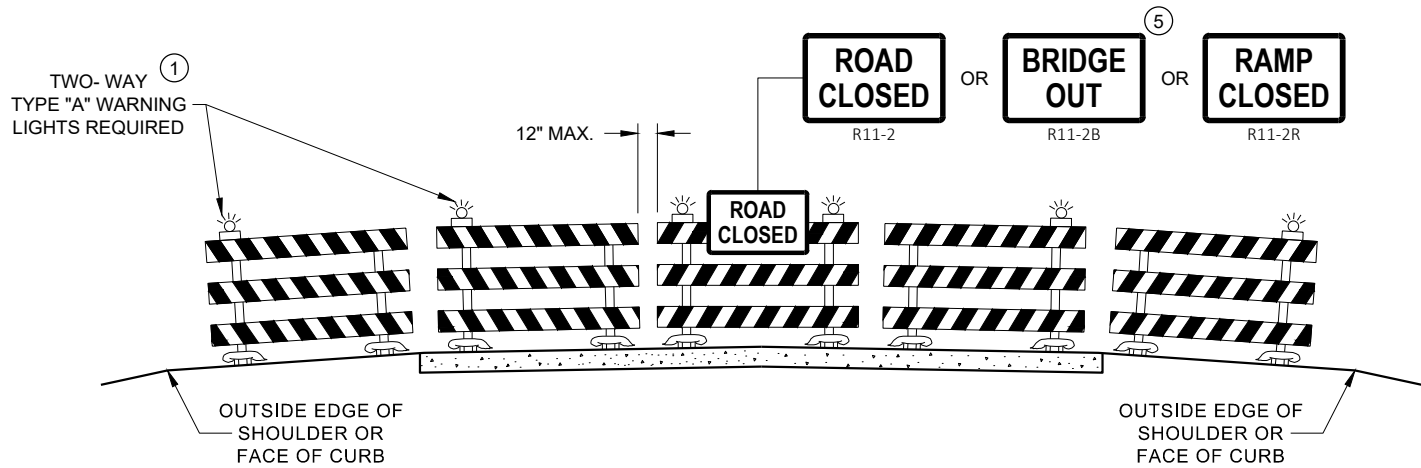
4/4/2008

DATE

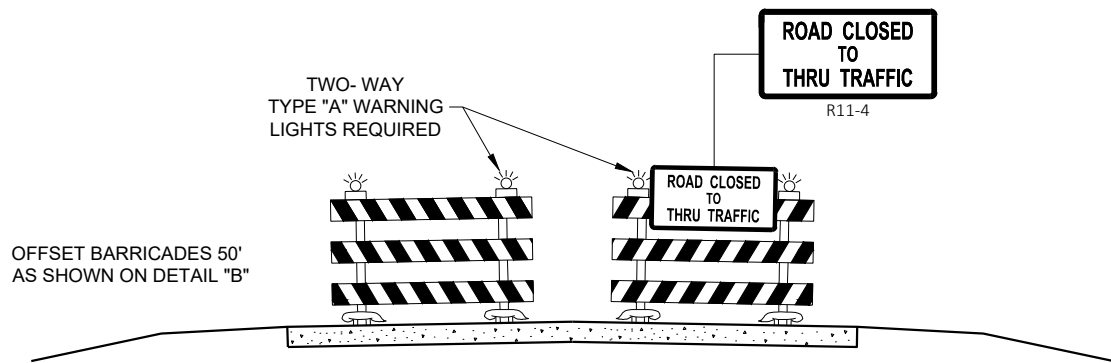
FHWA

/S/ Jerry H. 7-
ROADWAY STANDARDS 133
ENGINEER

ENT



DETAIL D
ROAD CLOSURE BARRICADE DETAIL
APPROACH VIEW



DETAIL E
LANE CLOSURE BARRICADE DETAIL
APPROACH VIEW

SEE SDD 15C2 - SHEET "a" FOR LEGEND

GENERAL NOTES

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

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

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

BARRICADES THAT MUST BE MOVED FOR A WORK OPERATION SHALL BE IMMEDIATELY RE-ESTABLISHED UPON COMPLETION OF THE OPERATION, OR FOR CONTINUING OPERATIONS, AT THE END OF EACH WORKING DAY.

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

ALL TYPE III BARRICADES SHALL HAVE RAILS REFLECTORIZED ON BOTH FACES. STRIPES SHALL BE PROPERLY SLOPED DOWN TOWARD THE TRAFFIC SIDE OR AS SHOWN IN THE ROAD CLOSURE BARRICADE DETAIL "D" FOR FULL ROAD CLOSURES.

TYPE "A" LOW - INTENSITY FLASHING WARNING LIGHTS SHALL BE VISIBLE ON BOTH SIDES OF THE BARRICADE.

THE R11 - 2, R11 - 3, M4 - 9, R11 - 4, AND R10 - 61 SIGNS PLACED ON THE BARRICADES SHALL COVER NO MORE THAN THE TOP RAIL. THE SIGNS SHALL NOT COVER ANY PORTION OF THE MIDDLE RAIL OR BOTTOM RAILS.

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

ALL SIGNS SHALL BE 48" X 48" UNLESS OTHERWISE NOTED BELOW:

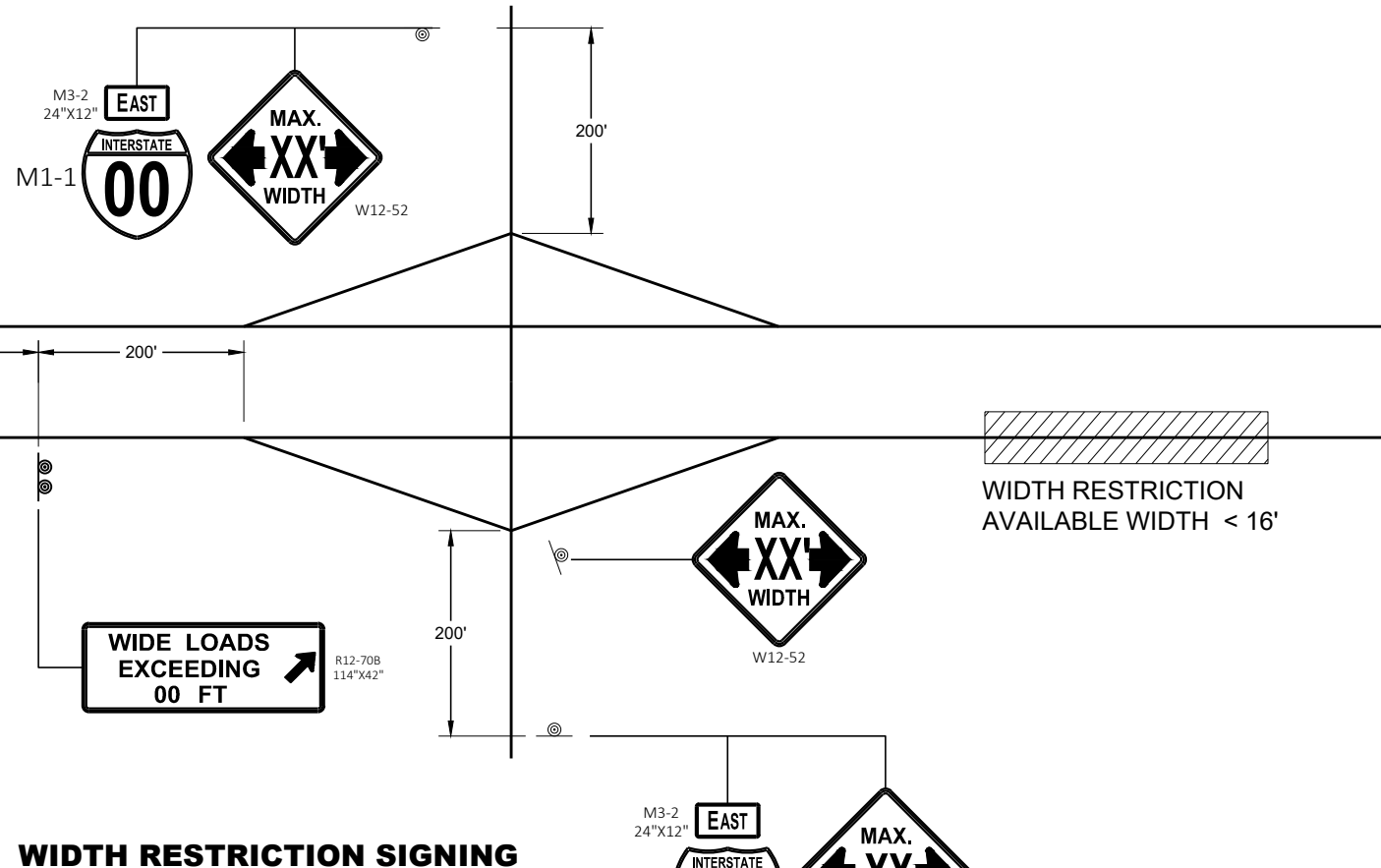
- R11 - 2 SHALL BE 48" X 30"
- R11 - 3 SHALL, R11 - 4 AND R10 - 61 SHALL BE 60 " X 30"
- M4 - 9 SHALL BE 30" X 24"
- M3 - X SHALL BE 24" X 12" (36" X 18" IF NEEDED TO MATCH EXISTING SIGNS)
- M4 - 8 SHALL BE 24" X 12" (36" X 18" IF NEEDED TO MATCH EXISTING SIGNS)
- M1 - 4, M1 - 5A AND M1 - 6 SHALL BE 24" X 24" (36" X 36" IF NEEDED TO MATCH EXISTING SIGNS)
- MO5 - 1 AND MO6 - 1 SHALL BE 21" X 21" (30" X 30" IF NEEDED TO MATCH EXISTING SIGNS)
- D1 - X SHALL BE AS SHOWN ON SPECIFIC PROJECT SIGNING DETAIL SHEETS.
- R1 - 1 SHALL BE 36" X 36"

- 1 TWO WARNING LIGHTS SHALL BE PROVIDED ON THE CENTER BARRICADE AND A MINIMUM OF ONE WARNING LIGHT SHALL BE PROVIDED ON EACH OF THE OTHER BARRICADES WITHIN THE ROADWAY LIMITS. SPACING OF THE WARNING LIGHTS SHALL BE UNIFORM TO THE EDGE OF ROADWAY AS SHOWN (APPROX. 8 FOOT LIGHT SPACING).
- 2 THESE SIGNS AND BARRICADES ARE NOT REQUIRED IF ROAD CLOSURE BEGINS AT AN INTERSECTION.
- 3 FOR ROAD CLOSURE WITHOUT LOCAL ACCESS TO PROJECT, SEE ROAD CLOSURE BARRICADE DETAIL "D".
- 4 FOR ROAD CLOSURE WITH LOCAL ACCESS TO PROJECT, SEE ROAD CLOSURE BARRICADE DETAIL "E".
- 5 FOR BRIDGE OR CULVERT REPLACEMENTS, SUBSTITUTE "BRIDGE OUT" INSTEAD OF "ROAD CLOSED" ON R11 - 2 AND R11 - 3 SIGNS.
- 6 INSTALL DETOUR AND COMMUNITY GUIDE SIGNS AND ARROWS ONLY IF SPECIFIED IN THE CONTRACT. IF THERE ARE EXISTING ROUTE MARKER ASSEMBLIES THAT WILL REMAIN IN PLACE, ADJUST THE LOCATION OF THE DETOUR ROUTE SIGNS TO CORRESPOND WITH THE EXISTING ASSEMBLIES. MODIFY EXISTING SIGNS WHERE POSSIBLE. SEE SPECIFIC PROJECT DETOUR SIGNING DETAIL SHEETS. IF DETOUR SIGNS ARE BEING INSTALLED BY OTHERS, PLACE THE CONTRACTED TRAFFIC CONTROL SIGNS TO ALLOW FOR PLACEMENT OF ALL WARNING, DETOUR AND GUIDE SIGNS AS SHOWN.
- 7 "EAST" CARDINAL DIRECTION MARKERS AND RIGHT TURN ARROWS ARE SHOWN. USE OTHER CARDINAL DIRECTIONS AND ARROWS AS APPROPRIATE.

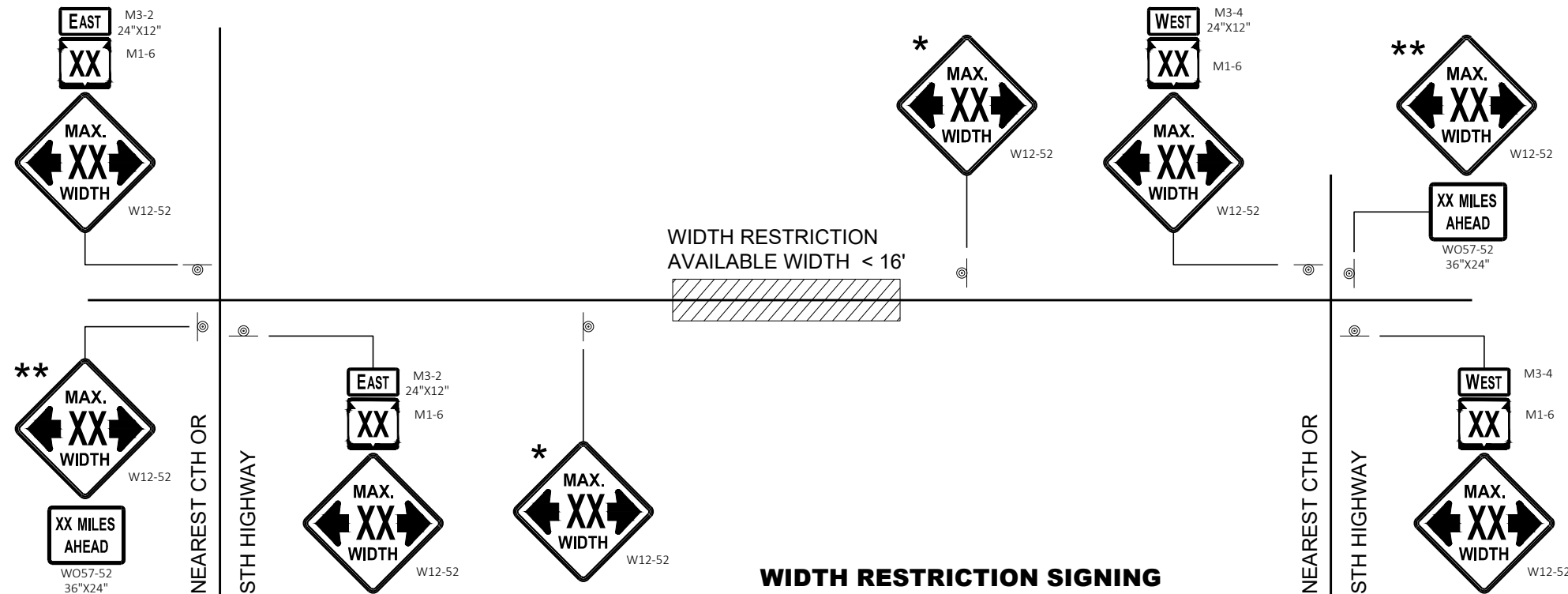
BARRICADES AND SIGNS
FOR
VARIOUS CLOSURES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
May 2023 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER 134
FHWA



WIDTH RESTRICTION SIGNING



WIDTH RESTRICTION SIGNING
2 LANE HIGHWAY

LEGEND

⊙ SIGN ON PERMANENT SUPPORT

GENERAL NOTES

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

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

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

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

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

WIDTH ON SIGN TO BE APPROXIMATELY ONE FOOT LESS THAN AVAILABLE WIDTH.

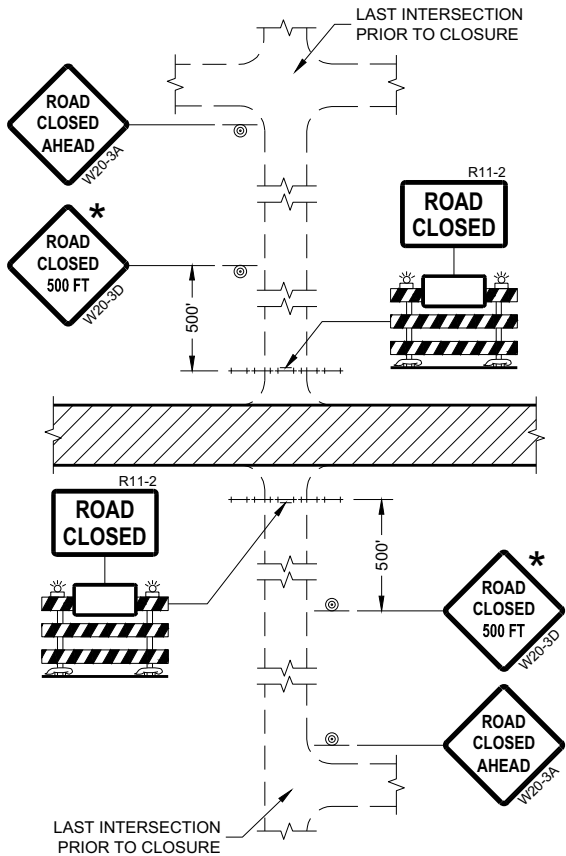
- * PLACE 500 FEET AFTER THE W20 - 1A AND 500 FEET BEFORE ADDITIONAL SIGNS FOR ROADWAYS WITH A PRE - CONSTRUCTION SPEED LIMIT OF 45 MPH OR MORE. FOR 35-40 MPH, USE 350 FOOT TYPICAL SPACING. FOR 25-30 MPH, USE 200 FOOT TYPICAL SPACING.
- ** SIGN SHALL BE VISIBLE FROM ROADWAY.
- *** ADDITIONAL SIGNS NEEDED IF THERE IS AN ON RAMP BETWEEN SIGNS.



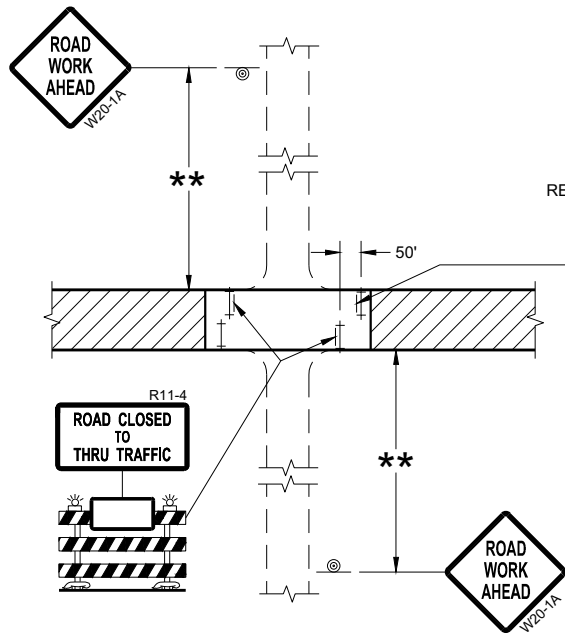
ADVANCED WIDTH
RESTRICTION SIGNING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

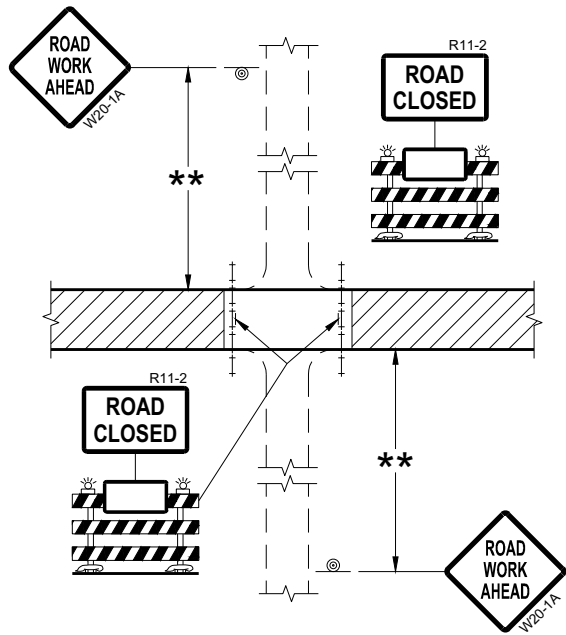
APPROVED
May 2023 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER 135
FHWA



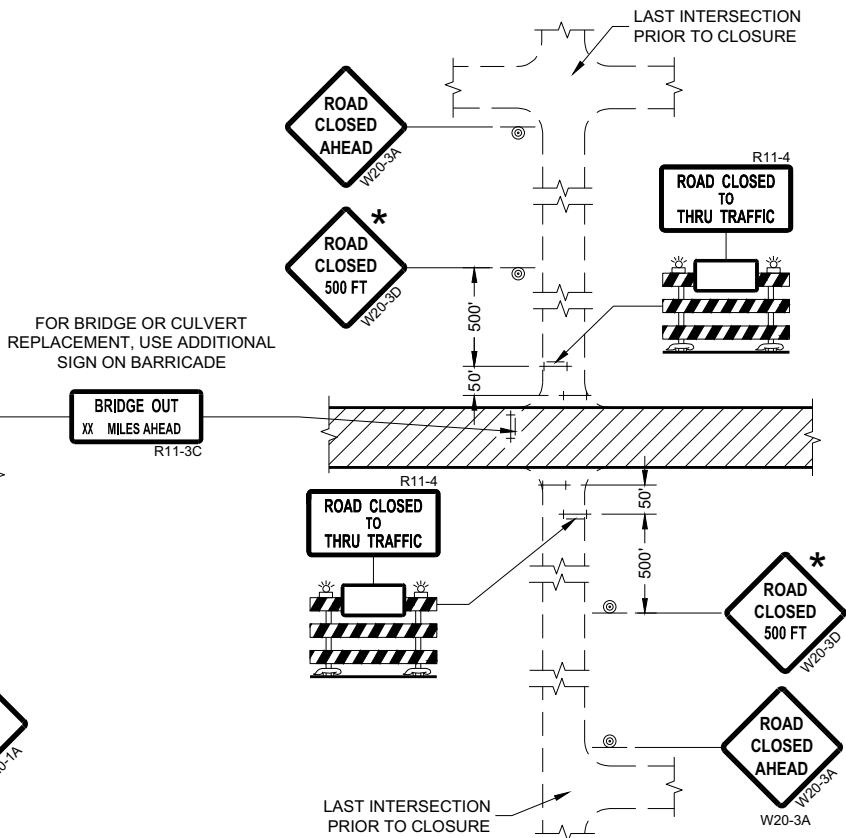
DETAIL 1
(NO ACCESS TO PROJECT)



DETAIL 3
(PUBLIC CROSS-TRAFFIC MAINTAINED.
CONTRACTOR, LOCAL BUSINESS AND
RESIDENT ACCESS TO PROJECT)



DETAIL 2
(PUBLIC CROSS-TRAFFIC MAINTAINED.
NO ACCESS TO PROJECT)



DETAIL 4
(CONTRACTOR, LOCAL BUSINESS AND
RESIDENT ACCESS TO PROJECT)

GENERAL NOTES

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

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

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

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.

BARRICADES THAT MUST BE MOVED FOR A WORK OPERATION SHALL BE IMMEDIATELY REESTABLISHED UPON COMPLETION OF THE OPERATION OR FOR CONTINUING OPERATIONS, AT THE END OF EACH WORKING DAY.

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

ALL TYPE III BARRICADES SHALL HAVE RAILS REFLECTORIZED ON BOTH FACES. STRIPES SHALL BE PROPERLY SLOPED DOWN TOWARD THE TRAFFIC SIDE OR AS SHOWN IN THE ROAD CLOSURE BARRICADE DETAIL "D" FOR FULL ROAD CLOSURES.

TYPE "A" LOW-INTENSITY FLASHING WARNING LIGHTS SHALL BE VISIBLE ON BOTH SIDES OF THE BARRICADE.

THE R11-2, R11-3, AND R11-4 SIGNS PLACED ON BARRICADES SHALL COVER NO MORE THAN THE TOP RAIL. THE SIGNS SHALL NOT COVER ANY PORTION OF THE MIDDLE OR BOTTOM RAILS.

ALL SIGNS SHALL BE 48" X 48" UNLESS OTHERWISE NOTED BELOW:
R11-2 SHALL BE 48" X 30".
R11-4 AND R11-3 SHALL BE 60" X 30".

- * OMIT THE "ROAD CLOSED 500 FT." SIGN IF THE LAST INTERSECTION IS 500 FEET OR LESS FROM THE WORK ZONE.
- ** 500' MAX. OR AT LAST INTERSECTION, WHICHEVER IS CLOSEST.

LEGEND

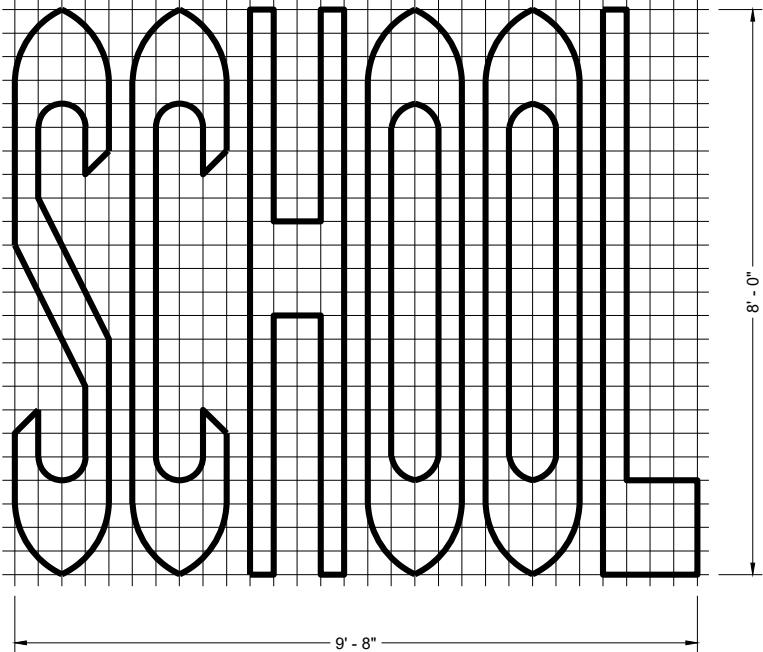
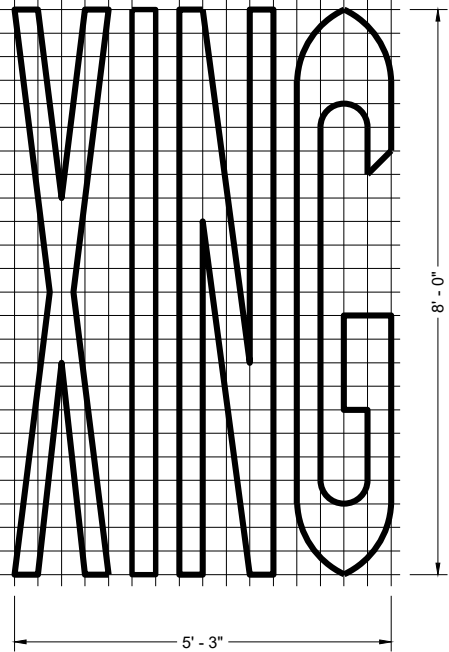
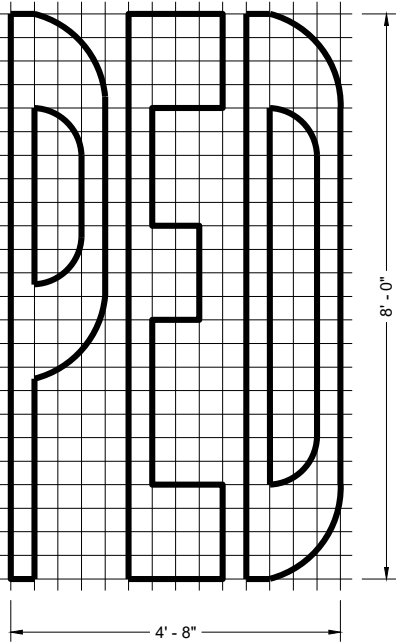
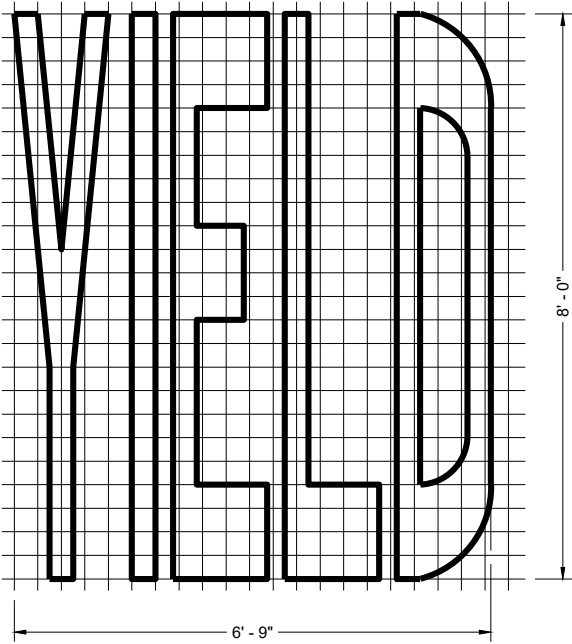
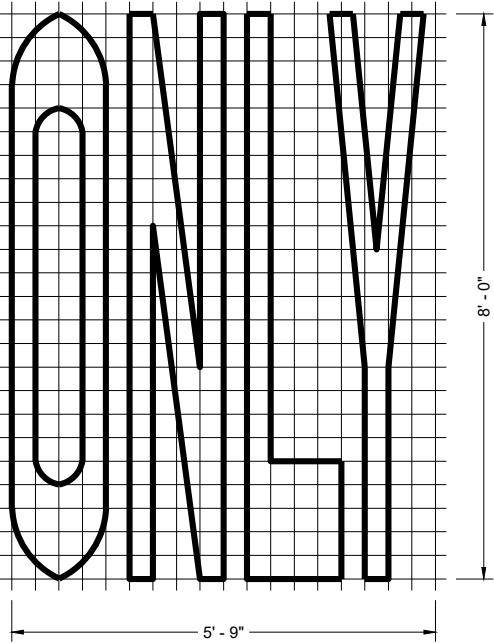
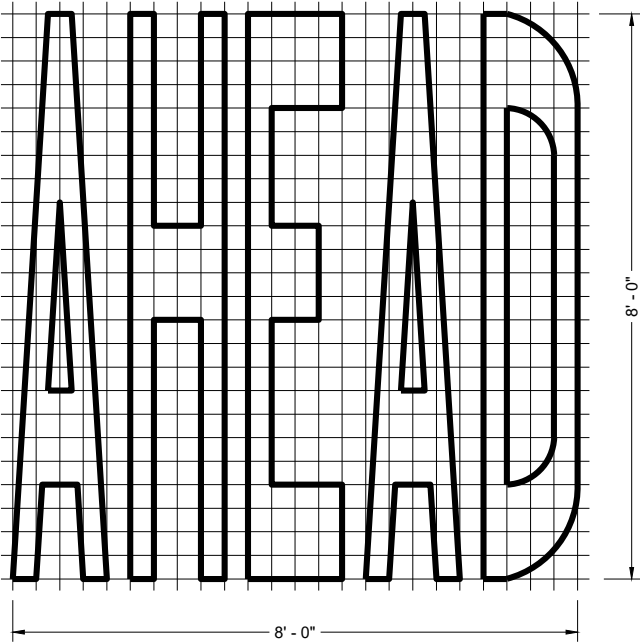
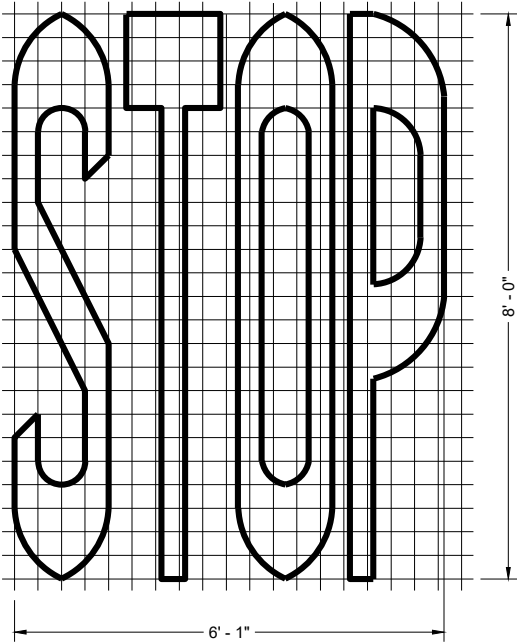
- SIGN ON PERMANENT SUPPORT
- TYPE III BARRICADE
- TYPE III BARRICADE WITH ATTACHED SIGN
- TYPE "A" WARNING LIGHT (FLASHING)
- WORK AREA

BARRICADES AND SIGNS FOR SIDEROAD CLOSURES

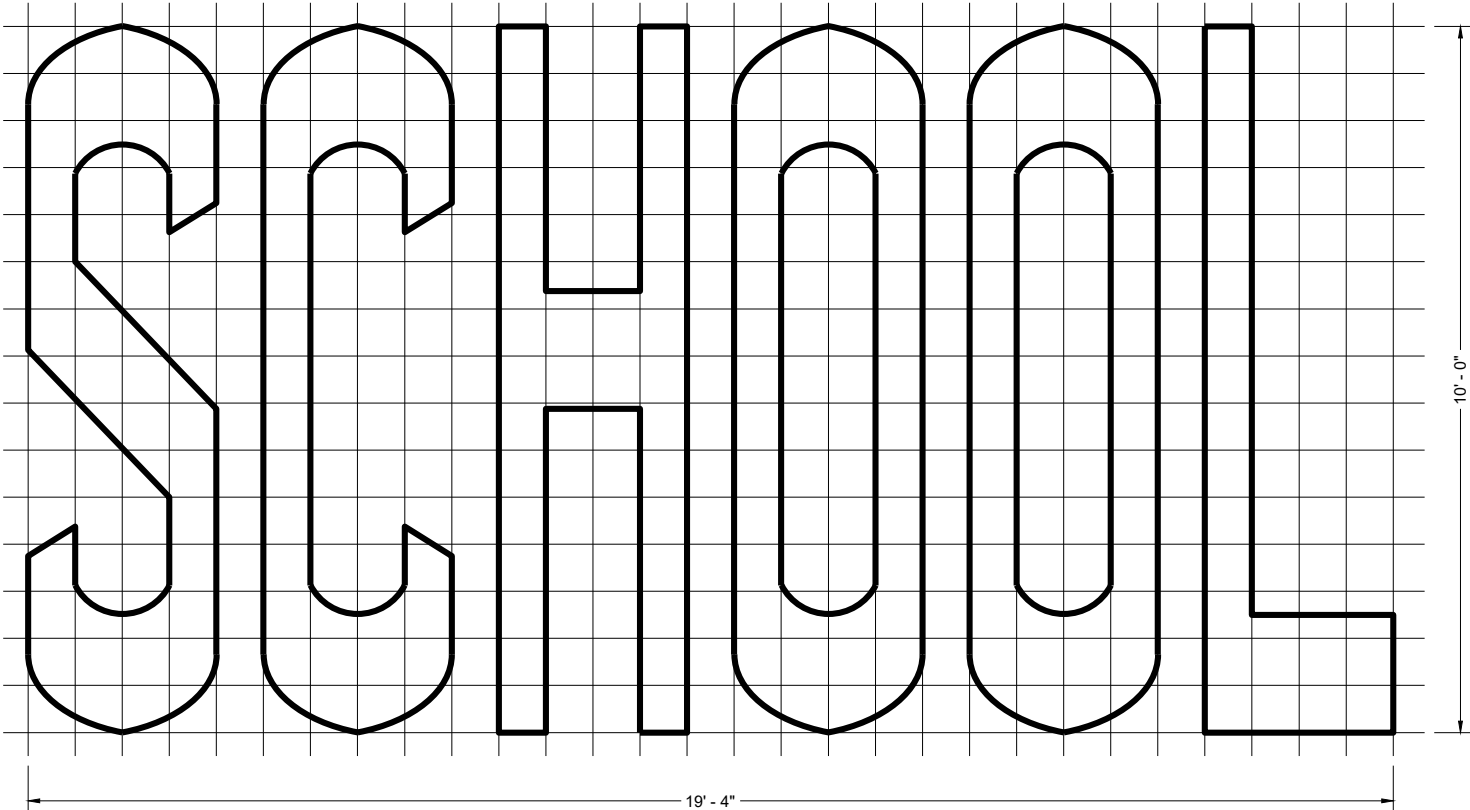
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
July 2018 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER 136

FHWA



SINGLE LANE

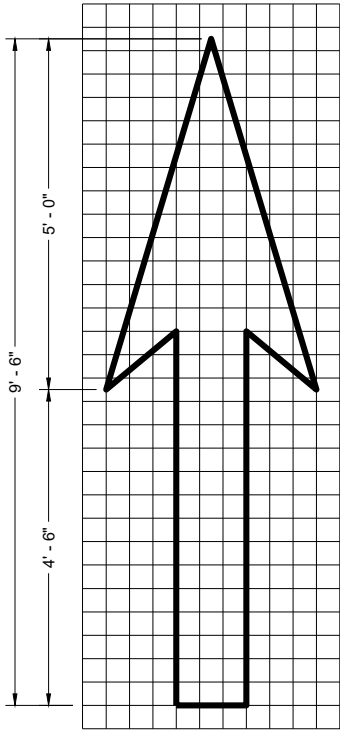


TWO - LANE

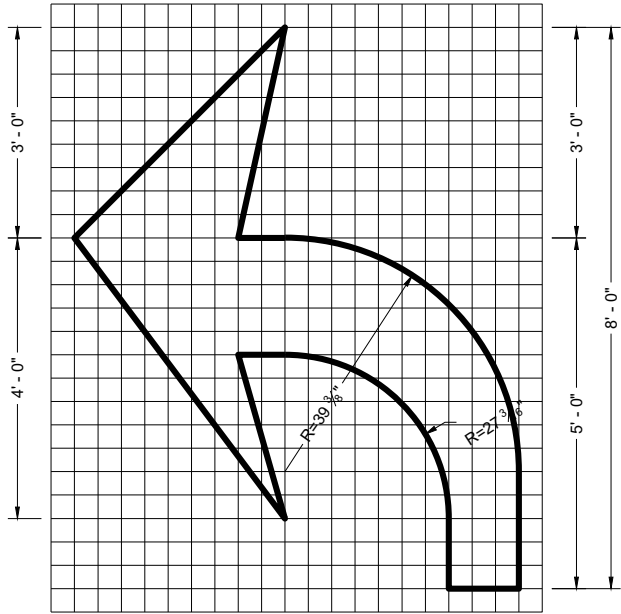
GENERAL NOTES

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.

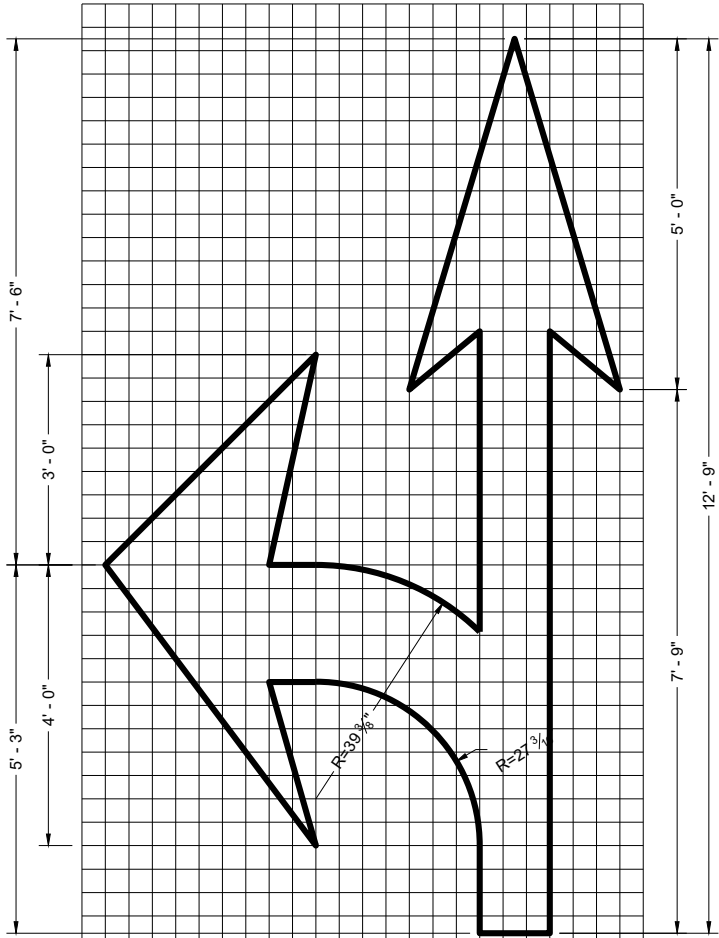
PAVEMENT MARKING WORDS	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED November 2024 DATE	/S/ Matthew Rauch STATE SIGNING AND MARKING ENGINEER
FHWA	137



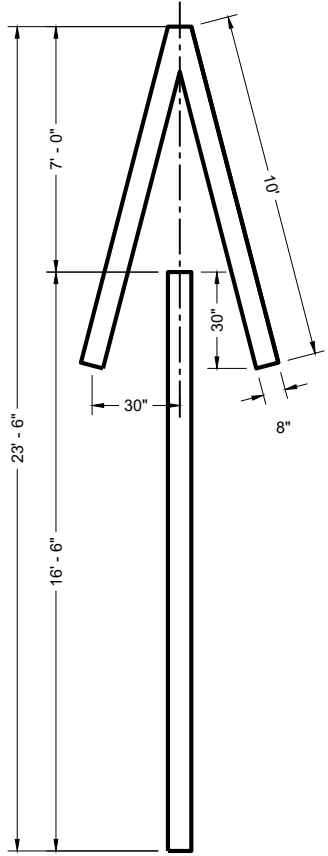
TYPE 1



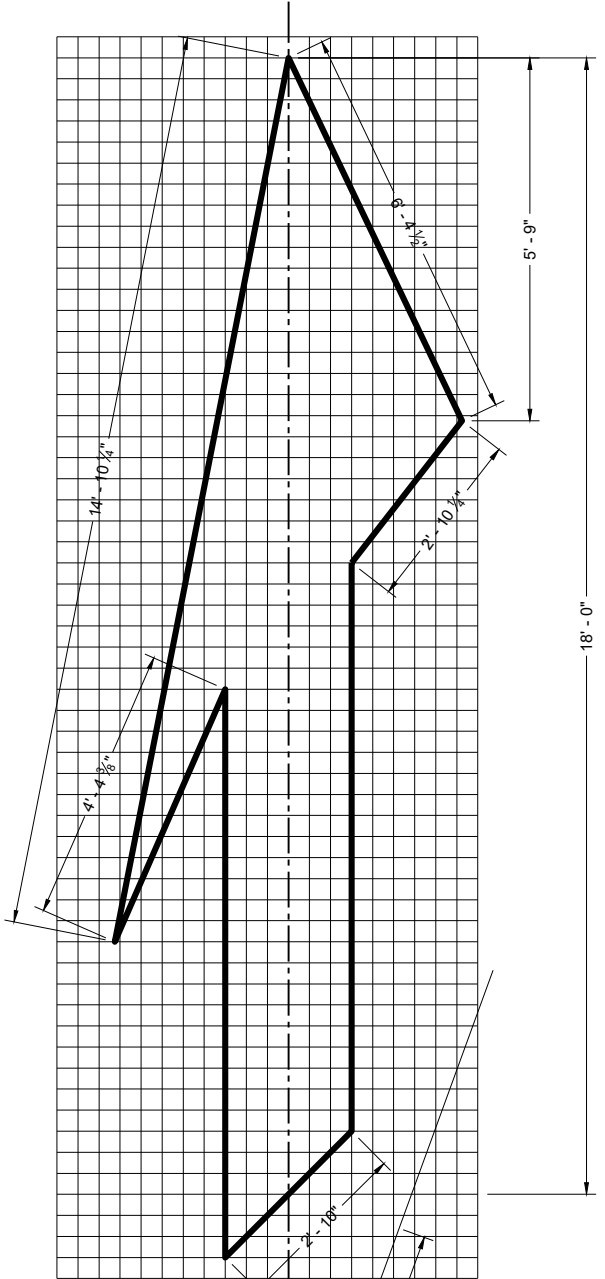
TYPE 2



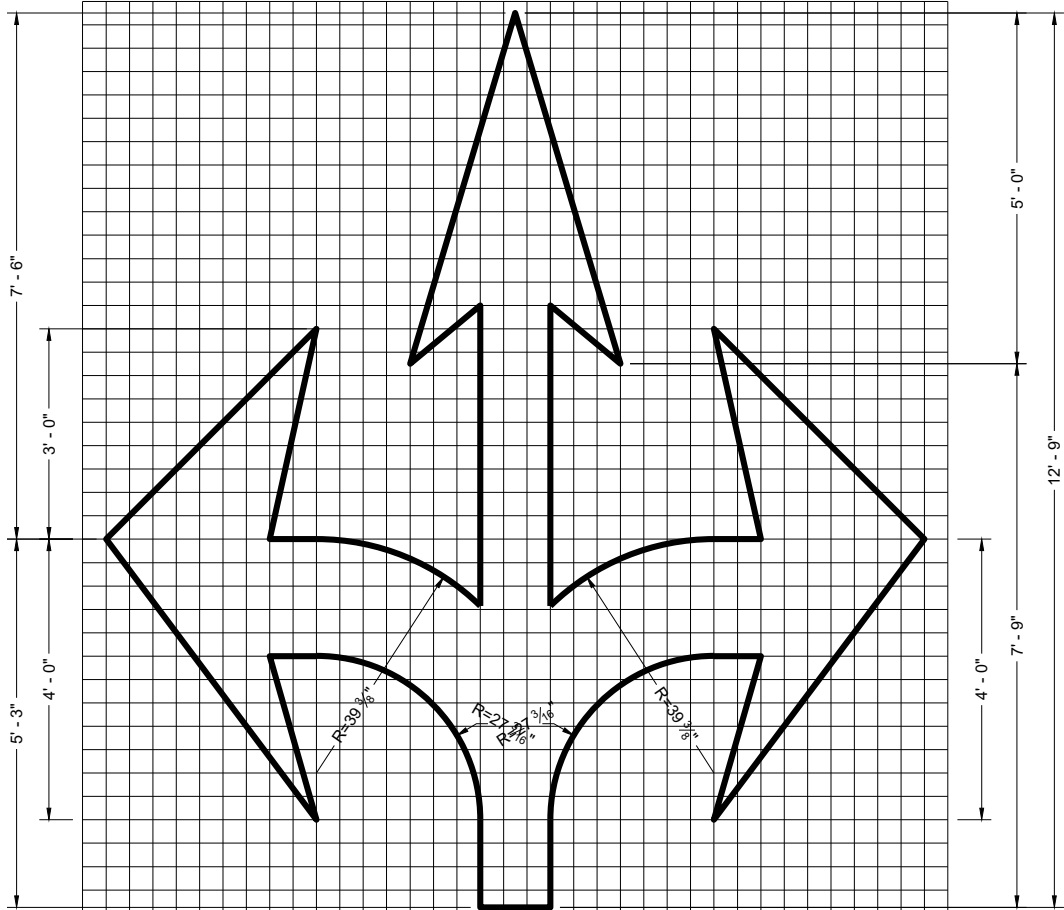
TYPE 3



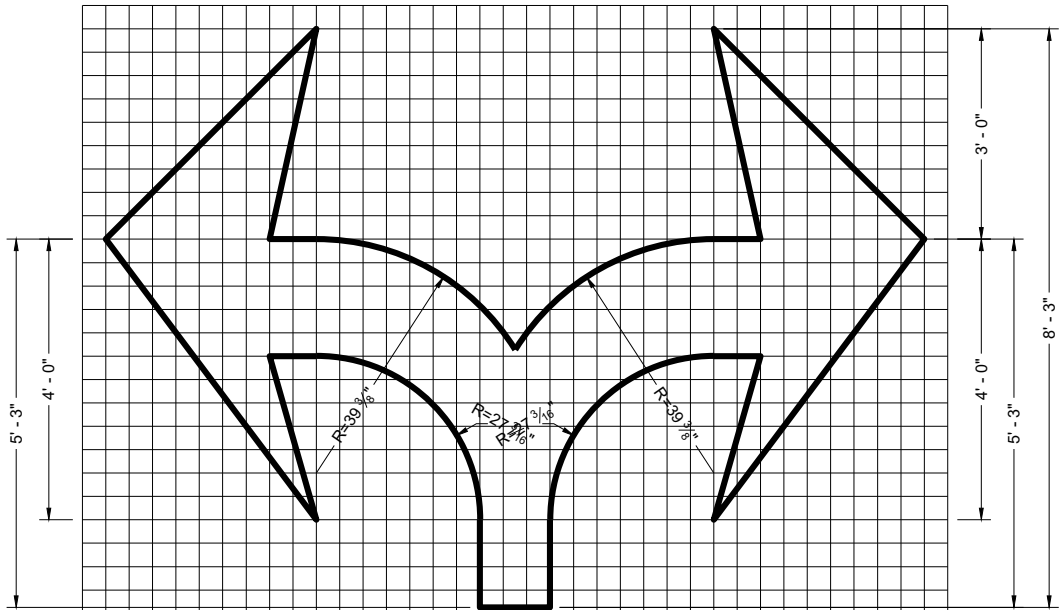
TYPE 4



TYPE 5 LANE DROP ARROW



TYPE 6



TYPE 7

GENERAL NOTES

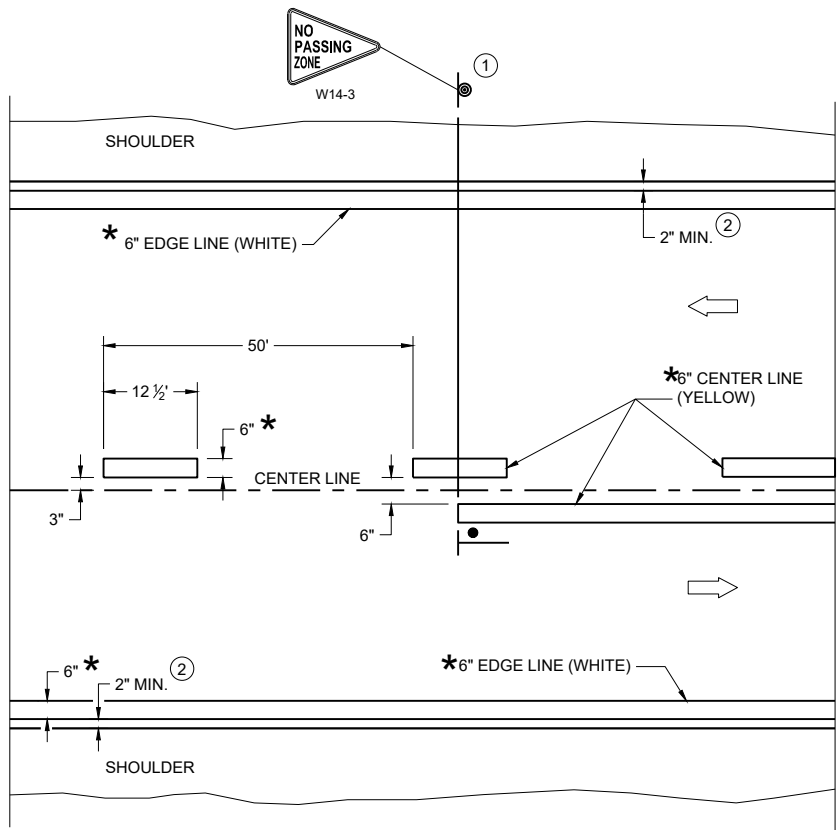
DETAILS OF INSTALLATION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.

PAVEMENT MARKING ARROWS

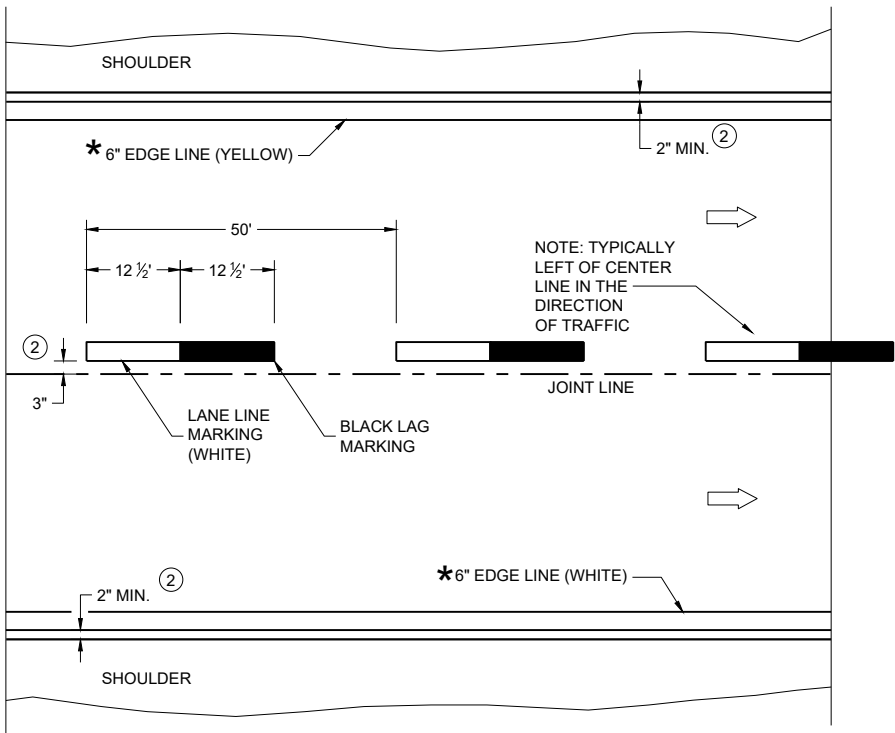
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
November 2024 /S/ Matthew Rauch
DATE STATE SIGNING AND MARKING ENGINEER

FHWA



TWO WAY TRAFFIC



ONE WAY TRAFFIC

PERMANENT PAVEMENT MARKING

* CONFIRM MARKING LINE WIDTH WITH THE MISCELLANEOUS QUANTITIES

GENERAL NOTES

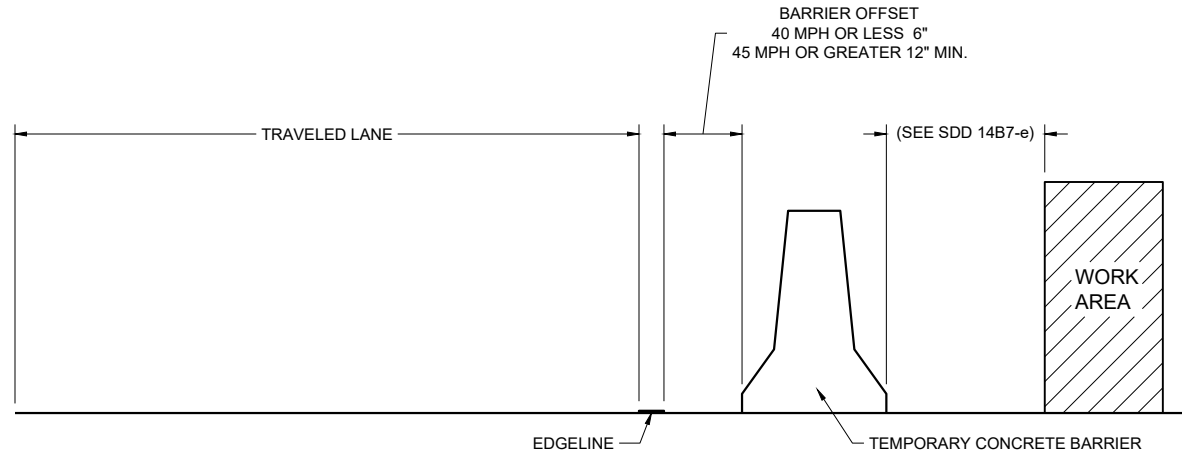
DETAILS OF CONSTRUCTION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO STANDARD SPECIFICATIONS AND SPECIAL PROVISIONS.

- ① LOCATE THE NO PASSING ZONE W14-3 SIGN WITHIN 50 FEET OF THE "T" MARKING
- ② MEASURE FROM EDGE OF MARKING TO JOINT LINE. THIS DOES NOT INCLUDE SPACE NEEDED FOR GROOVING OPERATIONS.

LEGEND

- "T" MARKING
- SIGN ON PERMANENT SUPPORT
- DIRECTION OF TRAFFIC

PERMANENT LONGITUDINAL PAVEMENT MARKINGS	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED December 2024 DATE	/S/ Jeannie Silver Statewide Pavement Marking Engineer
FHWA 139	



TEMPORARY BARRIER OFFSET FROM EDGE LINE

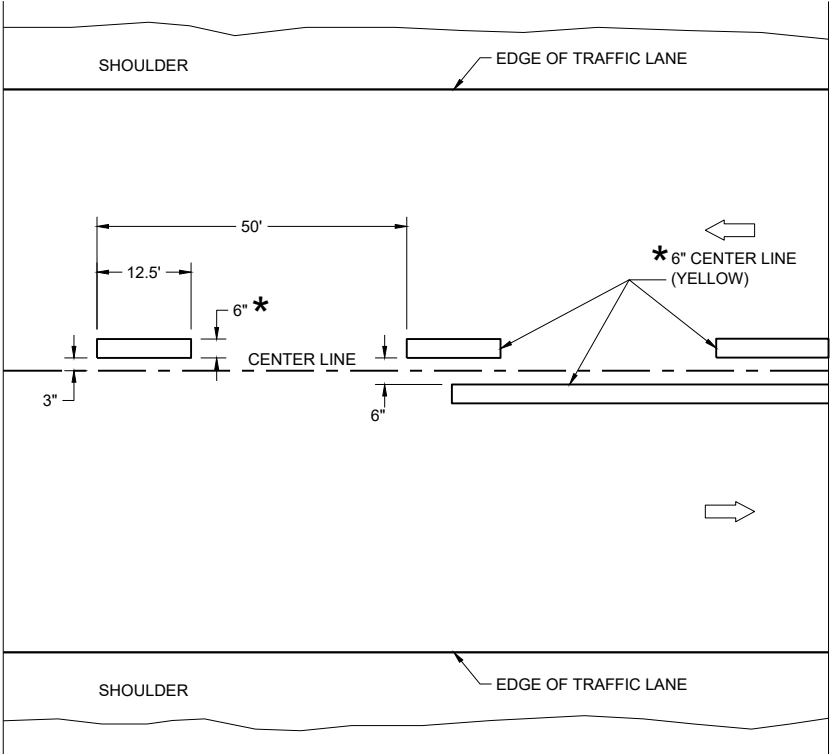
GENERAL NOTES

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

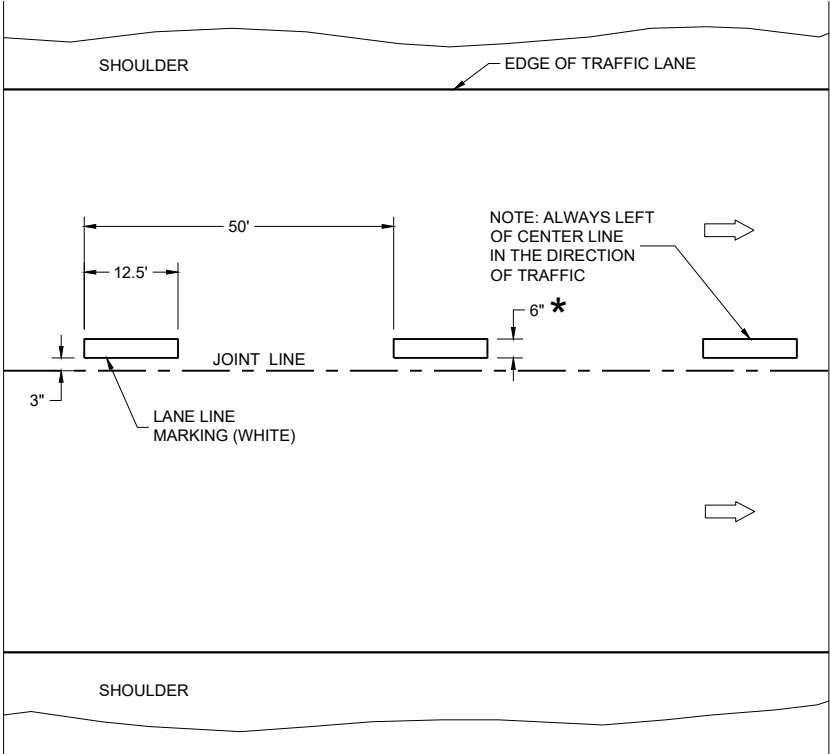
LEGEND

➡ DIRECTION OF TRAFFIC

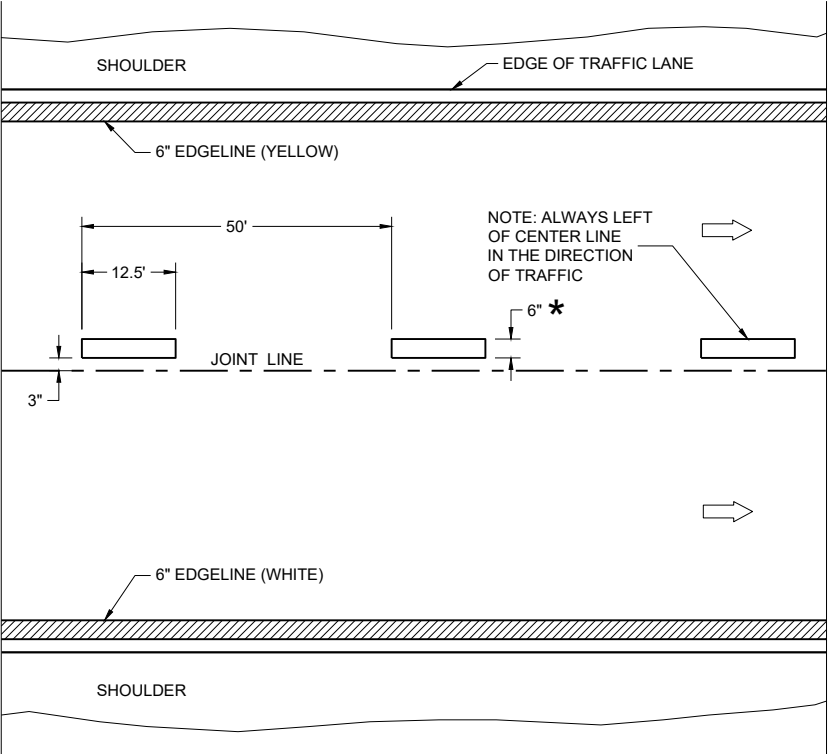
* CONFIRM MARKING LINE WIDTH WITH THE MISCELLANEOUS QUANTITIES



TWO WAY TRAFFIC



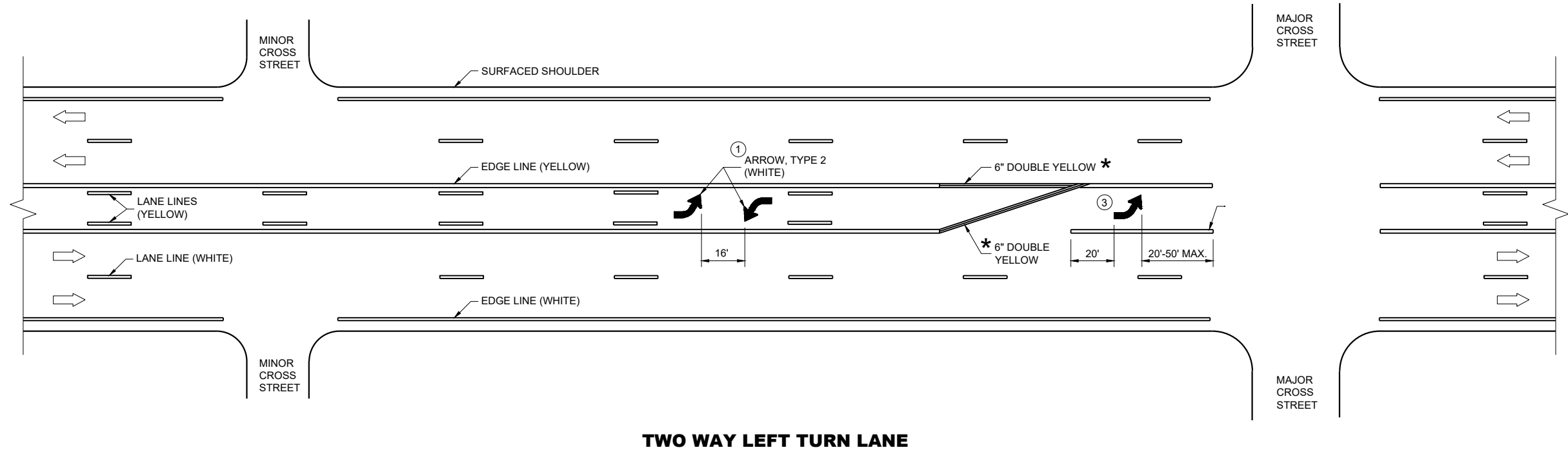
ONE WAY TRAFFIC



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	

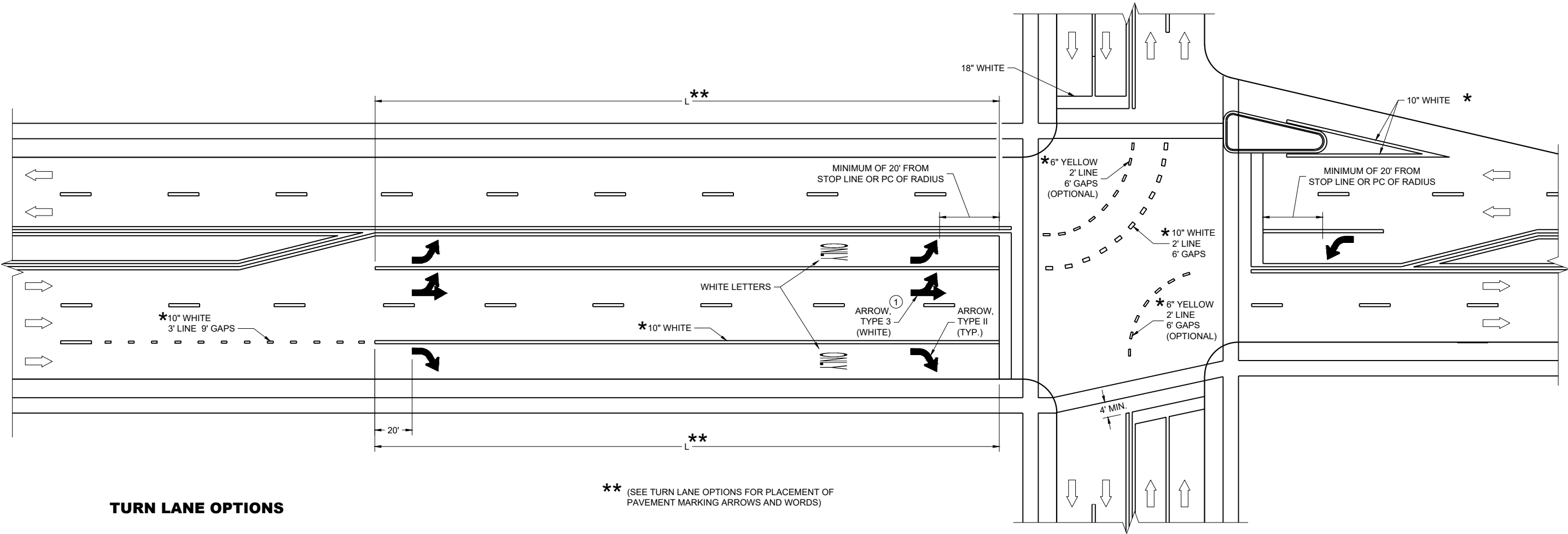


GENERAL NOTES

- 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.

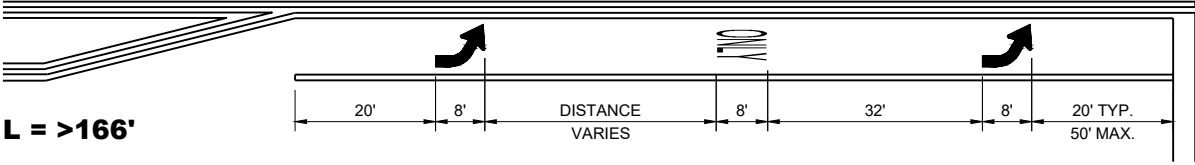
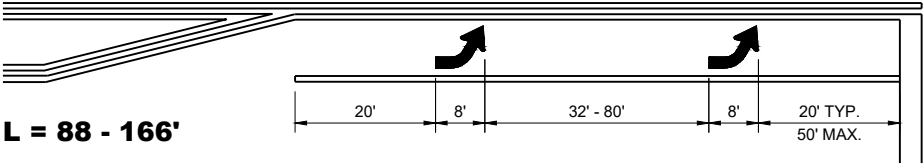
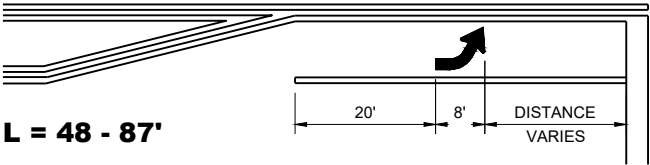
➡ DIRECTION OF TRAFFIC

*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



** (SEE TURN LANE OPTIONS FOR PLACEMENT OF PAVEMENT MARKING ARROWS AND 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.

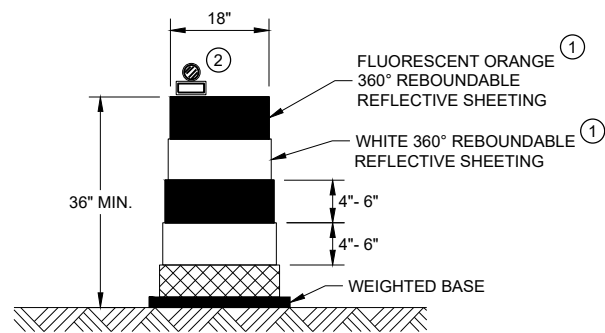
➡ DIRECTION OF TRAFFIC

L = LENGTH OF TURN BAY

*CONFIRM MARKING LINE WIDTH WITH THE MISCELLANEOUS QUANTITIES

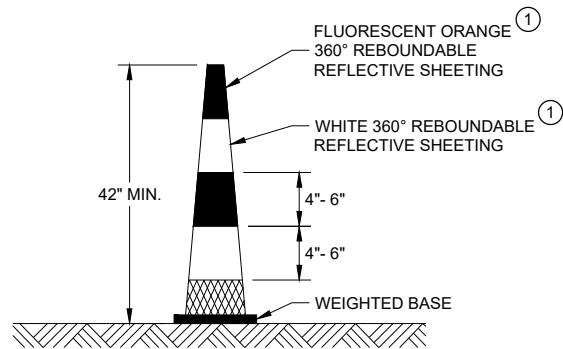
PAVEMENT MARKING
(TURN LANES)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



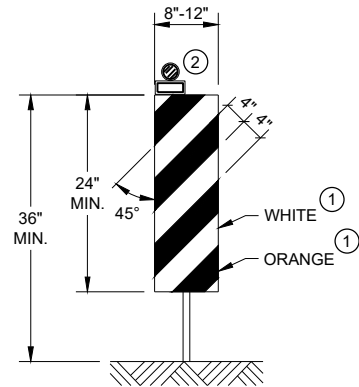
DRUM

BALLAST WIDTHS
RANGE FROM 24"-36"



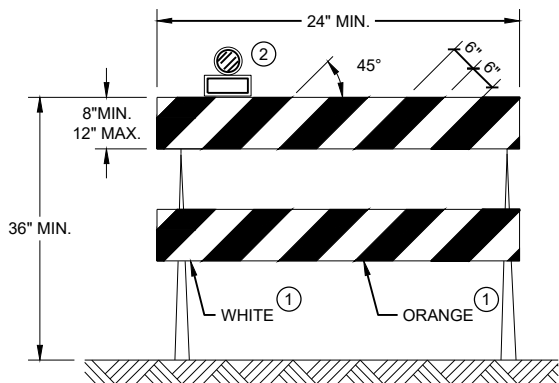
42" CONE

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



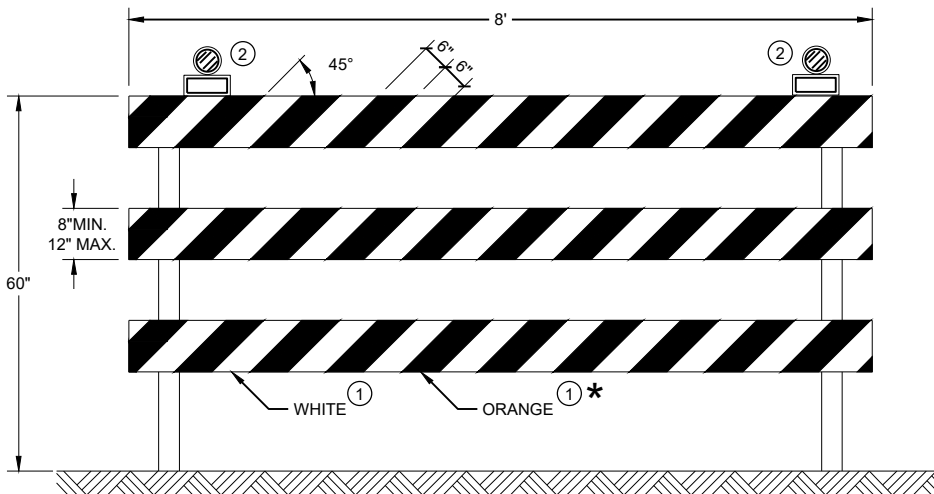
VERTICAL PANEL

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



TYPE II BARRICADE

FOR RAILS LESS THAN 36" LONG, 4" WIDE STRIPES
MAY BE USED. ALL 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
November 2022 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER 143
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

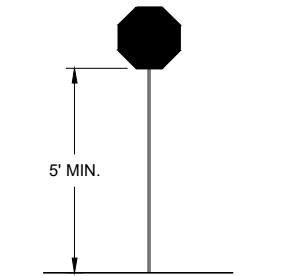
FLAGGERS SHALL BE IN SIGHT OF EACH OTHER OR IN DIRECT COMMUNICATION AT ALL TIMES. THEY SHALL BE EQUIPPED WITH STOP/SLOW PADDLES FASTENED ON SUPPORT STAFFS. WHEN THE FLAGGING OPERATION IS NOT IN EFFECT REMOVE TEMPORARY PORTABLE RUMBLE STRIPS PRIOR TO COVERING OR REMOVING ALL ADVANCE SIGNING.

- 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.



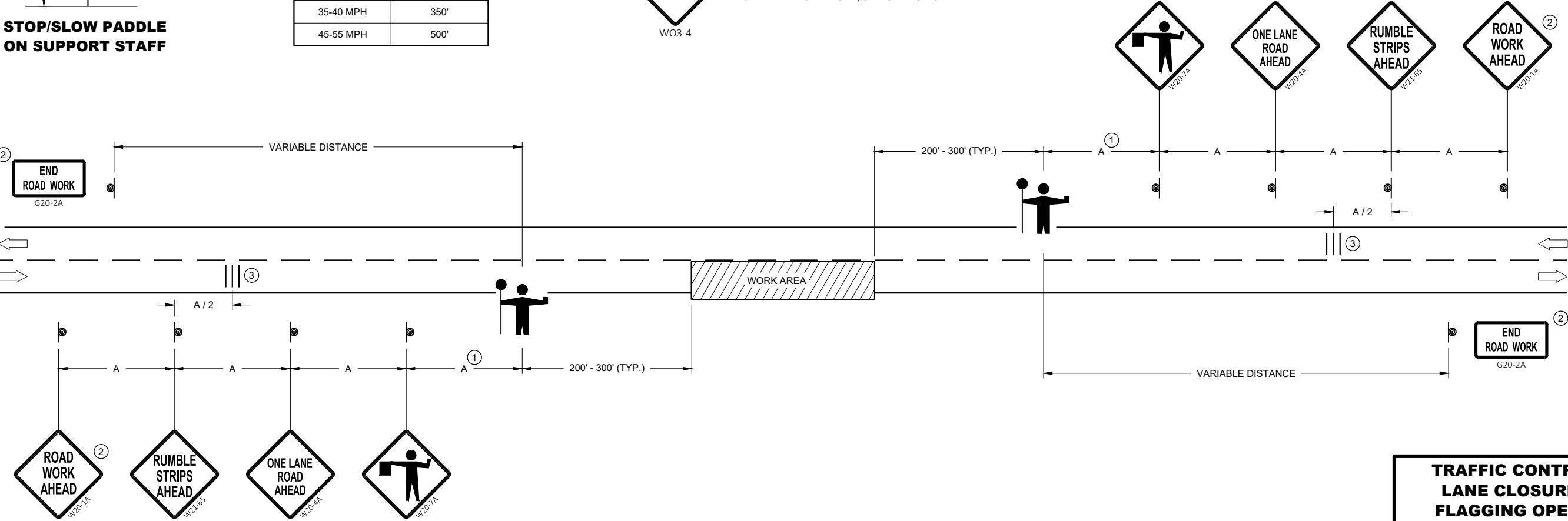
STOP/SLOW PADDLE ON SUPPORT STAFF

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".

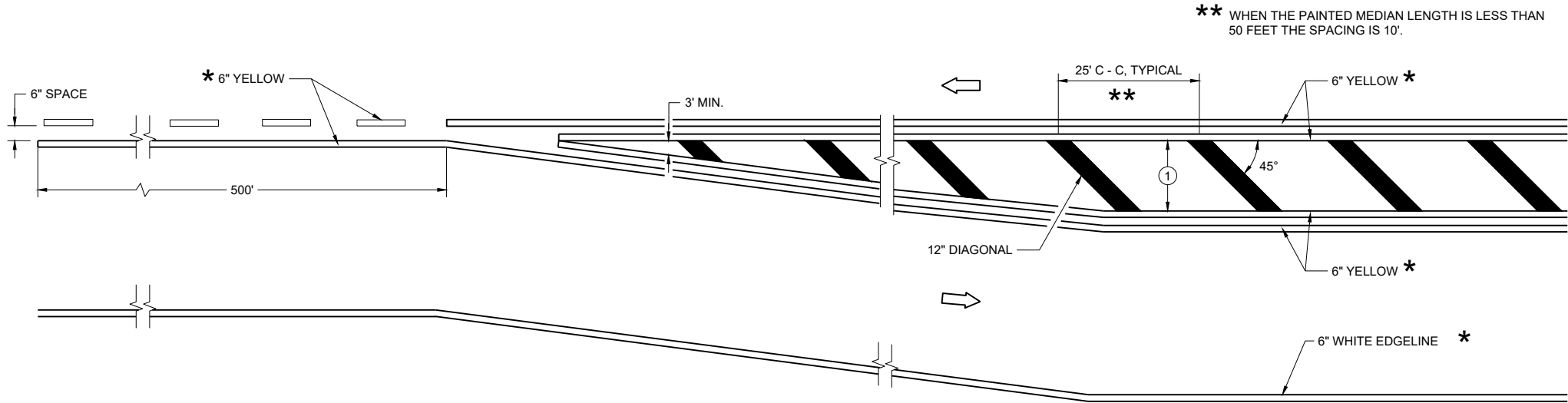


**TRAFFIC CONTROL FOR
LANE CLOSURE WITH
FLAGGING OPERATION**

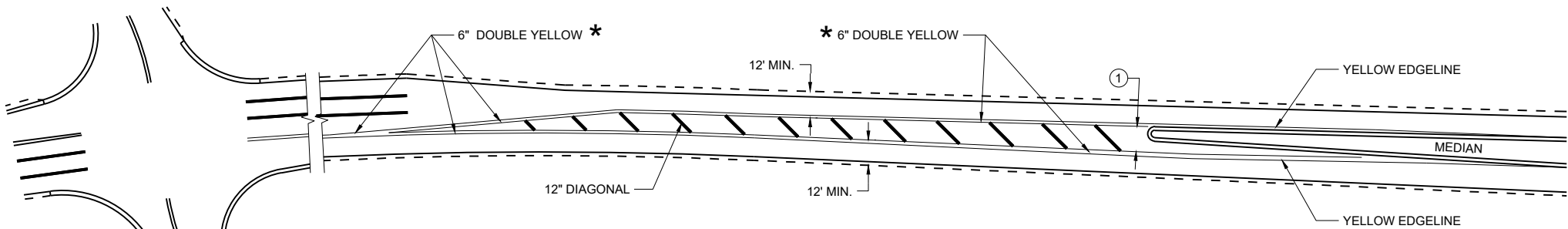
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
May 2022 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER 144

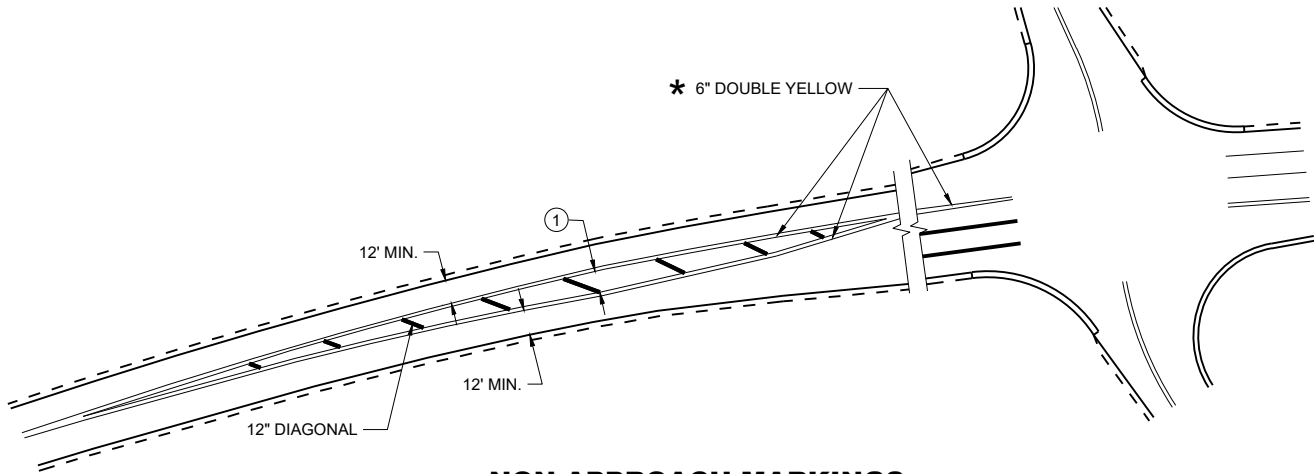
FHWA



MEDIAN ISLAND DETAIL



APPROACH MARKINGS FOR OTHER MEDIAN TYPES



NON-APPROACH MARKINGS

GENERAL NOTES

- ① DIAGONALS ARE OPTIONAL WHEN PAINTED ISLAND IS LESS THAN 6 FEET AT THE WIDEST POINT. OMIT DIAGONALS IF WIDTH IS LESS THAN 4 FEET.

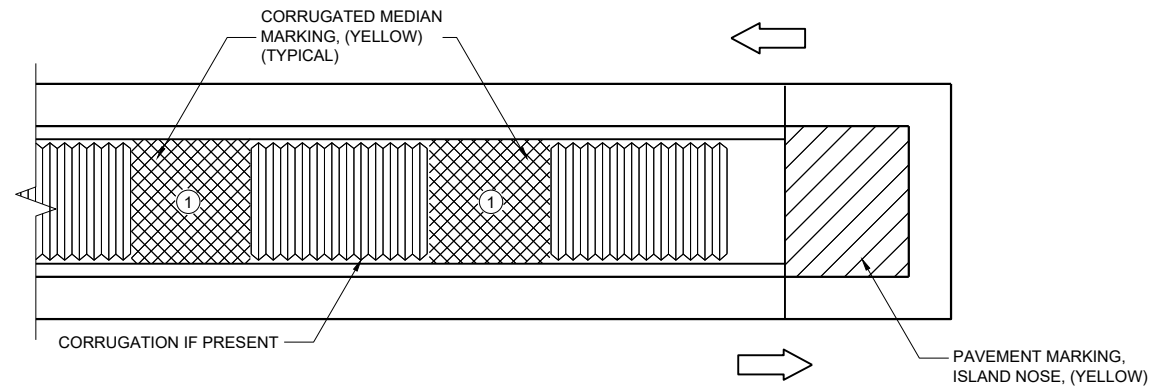
DIRECTION OF TRAVEL

*CONFIRM MARKING LINE WIDTH WITH THE MISCELLANEOUS QUANTITIES

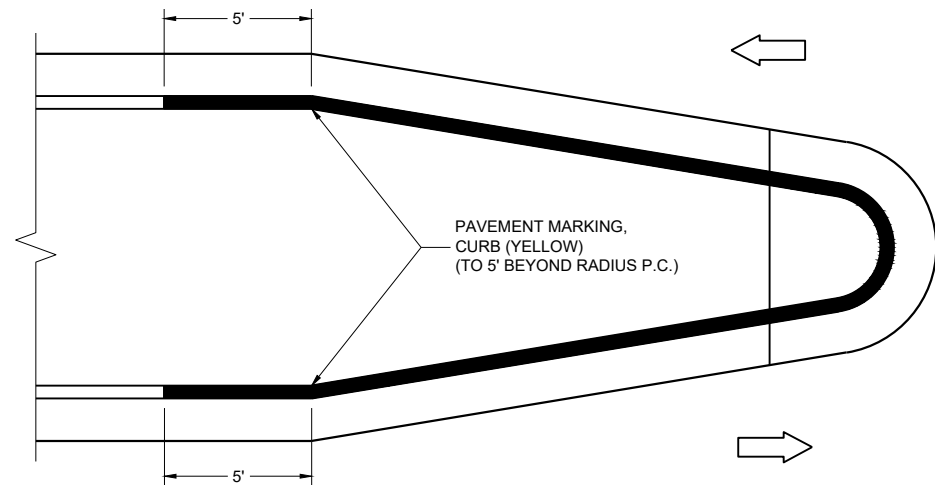
MEDIAN ISLAND PAVEMENT MARKINGS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

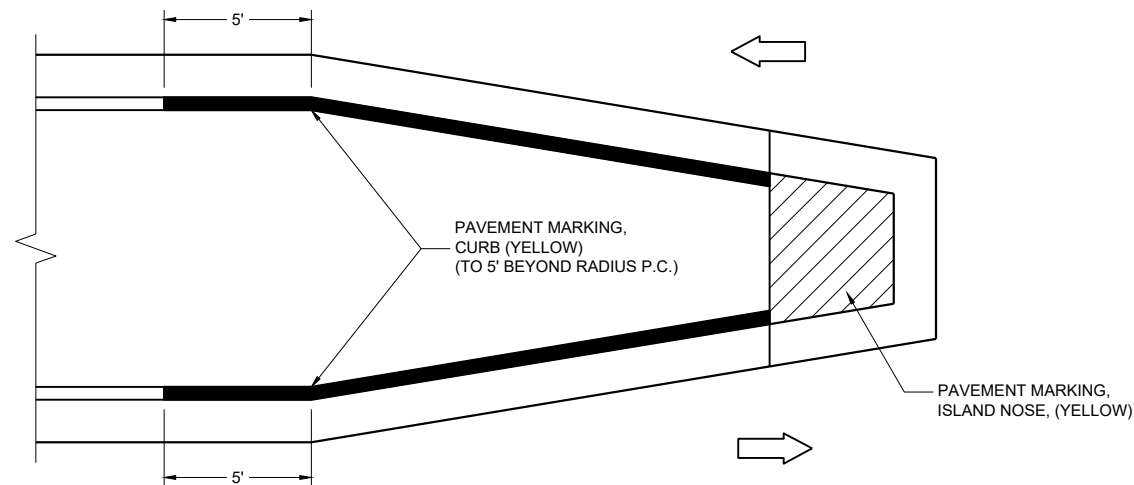
APPROVED
August 2024 /S/ Jeannie Silver
DATE Statewide Pavement Marking Engineer



MEDIAN ISLAND WITH SQUARE BLUNT NOSE



MEDIAN ISLAND WITH ROUND BLUNT NOSE



MEDIAN ISLAND WITH SLOPED NOSE

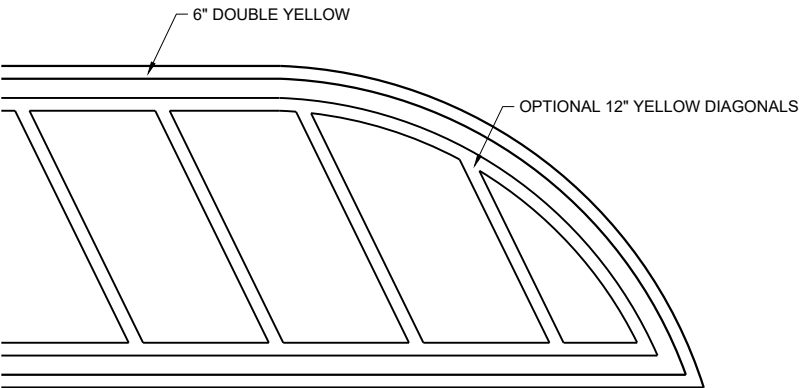
TYPICAL PLACEMENT OF PAVEMENT MARKING ON MEDIAN ISLANDS

GENERAL NOTES

WHEN CONCRETE CORRUGATED MEDIAN IS CONSTRUCTED TO SEPARATE TRAFFIC OPERATING IN THE OPPOSING DIRECTION, YELLOW PAVEMENT MARKING SHALL BE APPLIED TO THE FLAT PORTION OF THE CONCRETE CORRUGATED MEDIAN. THE ITEM OF PAVEMENT MARKING, CONCRETE CORRUGATED MEDIAN, WILL BE MEASURED IN PLACE AND ACCEPTED IN ACCORDANCE WITH THE CONTRACT AND PAID FOR AT THE CONTRACT UNIT PRICE PER SQUARE FOOT.

① APPLY PAVEMENT MARKING TO THE FLAT PORTION OF CORRUGATED MEDIAN.

- ISLAND NOSE MARKING
- CURB MARKING
- CORRUGATED MEDIAN MARKING
- DIRECTION OF TRAVEL



FLUSH MEDIAN ISLAND NOSE

PAVEMENT MARKINGS, MEDIAN ISLAND NOSE	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED August 2024 DATE	/S/ Jeannie Silver Statewide Pavement Marking Engineer
FHWA	146

REQUIREMENTS FOR EDGE LINES		
POSTED SPEED	IS THERE CONTINUOUS LIGHTING?	
	YES	NO
≤ 30 MPH	NO	OPTIONAL
35 OR 40 MPH	OPTIONAL	RECOMMENDED
≥ 45 MPH	RECOMMENDED	REQUIRED

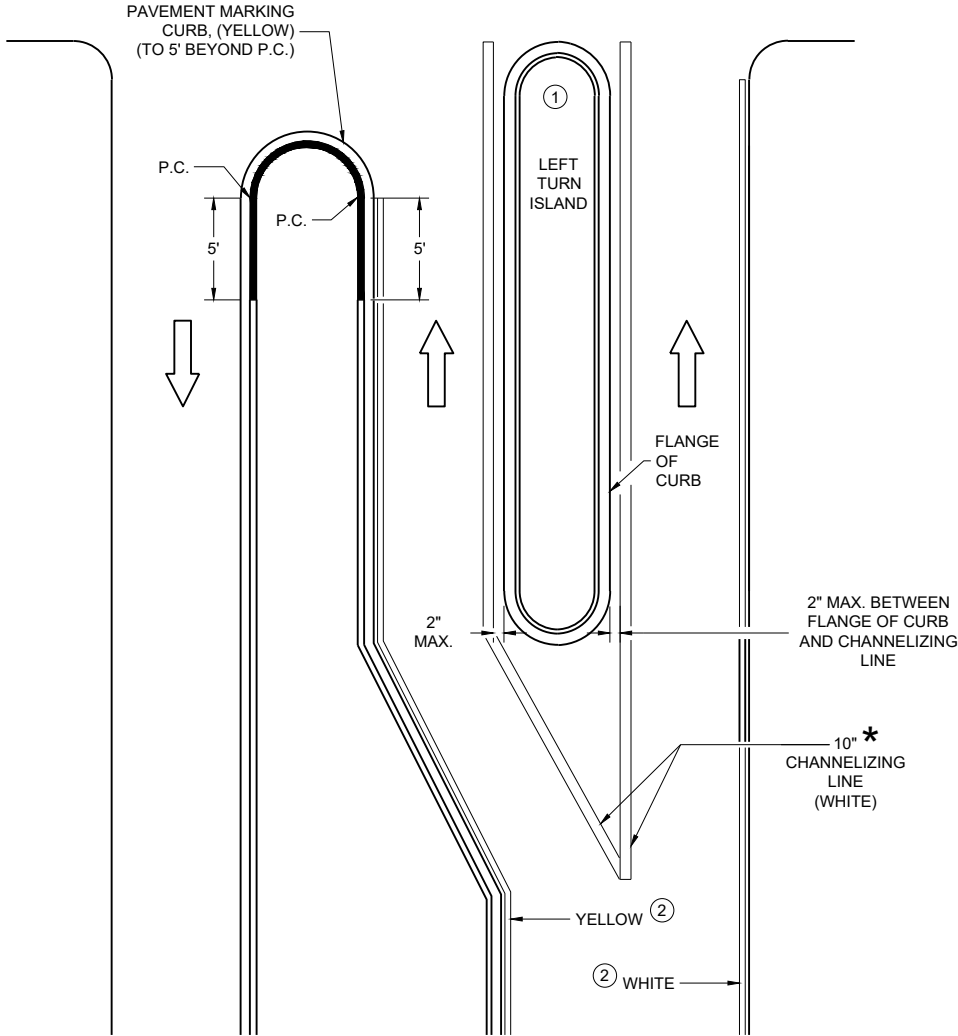
*CONFIRM MARKING LINE WIDTH WITH THE MISCELLANEOUS QUANTITIES

GENERAL NOTES

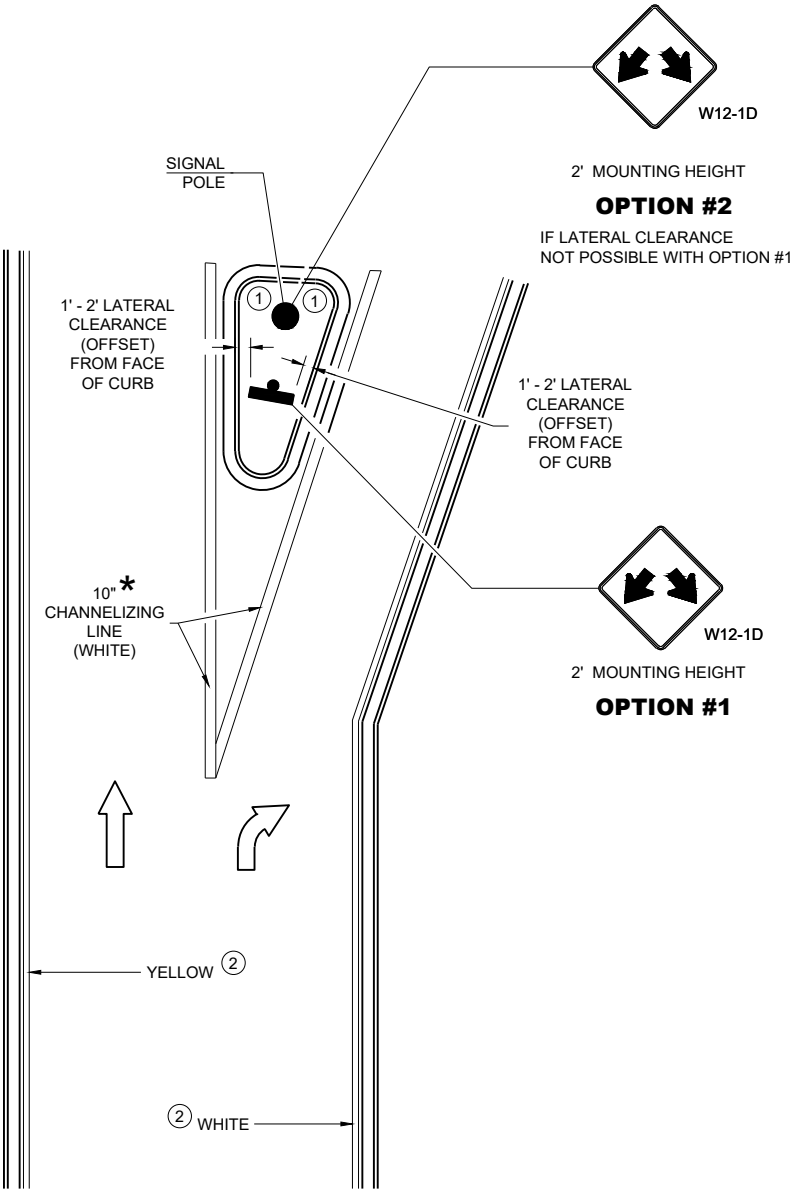
APPLIES TO ISLANDS AT LEFT TURNS AT ONE WAY ROADWAYS AS WELL.
SEE MISCELLANEOUS QUANTITIES FOR SIGN SIZE.

- ① MARK CURB NOSES YELLOW.
- ② MARK ACCORDING TO TABLE.
- ③ CHEVRON MAY BE OMITTED IF LESS THAN 4" WIDE

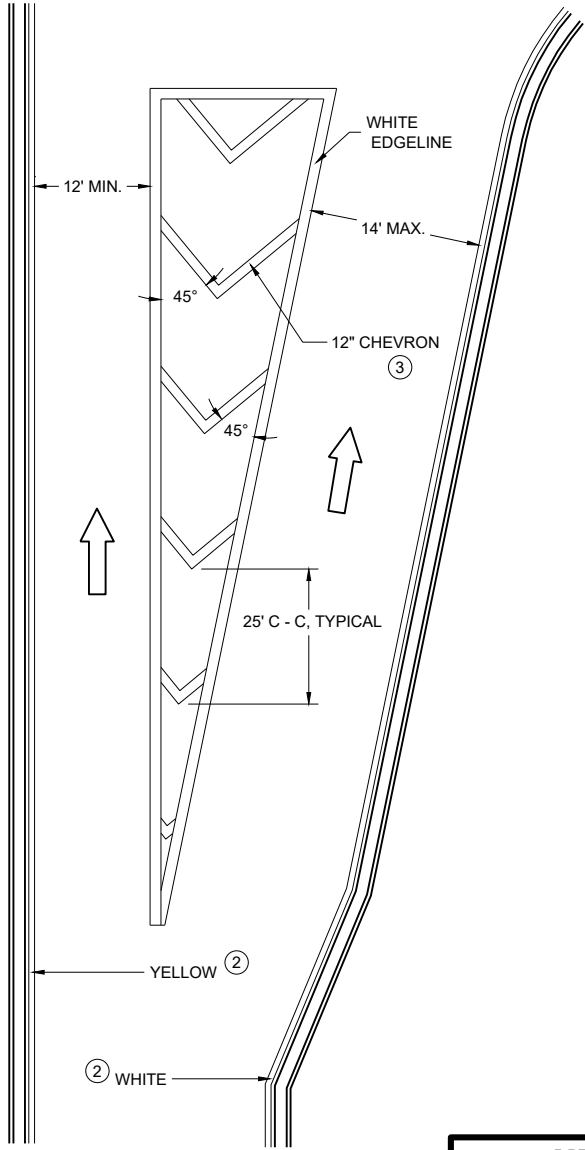
DIRECTION OF TRAVEL



LEFT TURN & MEDIAN ISLAND



RIGHT TURN ISLAND



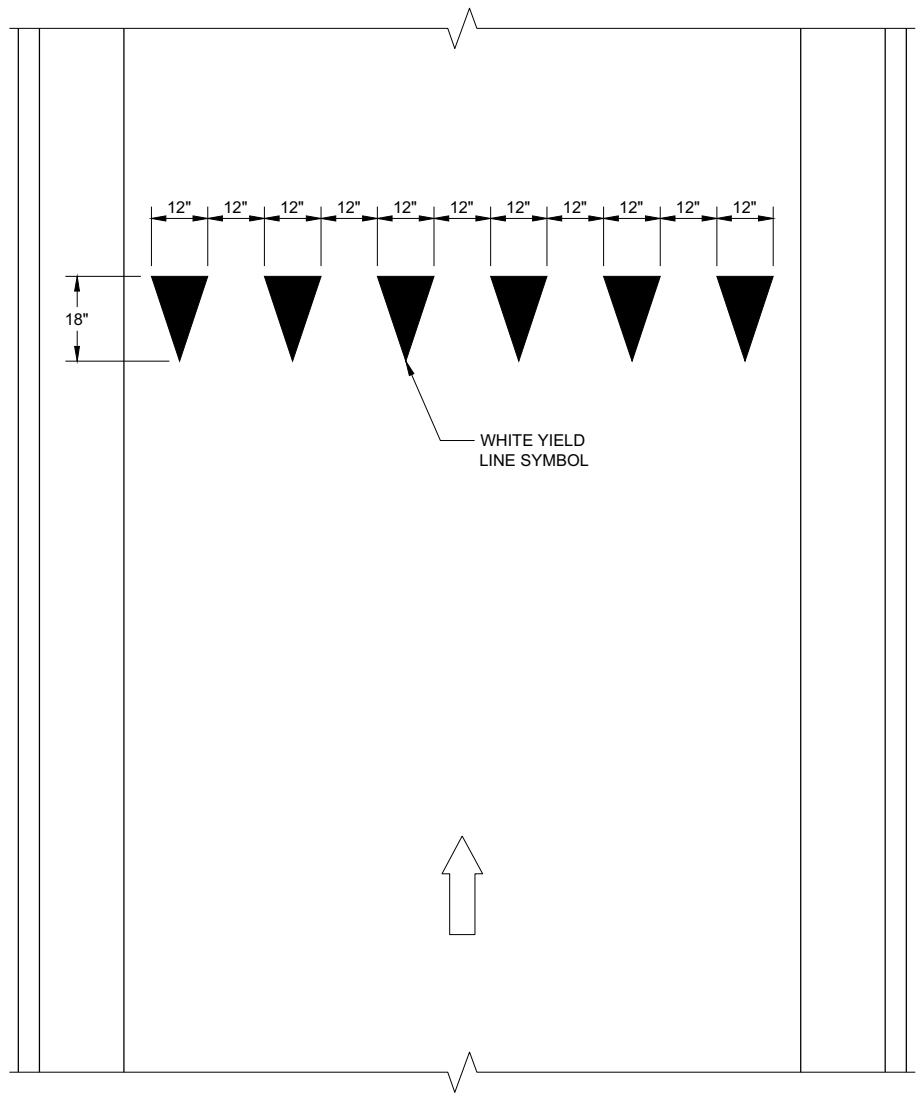
TURN LANE DETAIL

MEDIAN PAVEMENT MARKINGS, DOUBLE ARROW WARNING SIGN PLACEMENT

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
August 2024 /S/ Jeannie Silver
DATE Statewide Pavement Marking Engineer

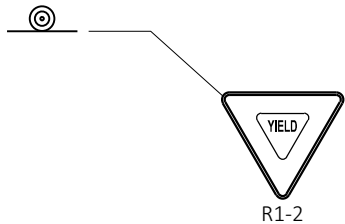
FHWA 147



YIELD LINE

LEGEND

-  SIGN ON PERMANENT SUPPORT
-  DIRECTION OF TRAVEL



YIELD MARKINGS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

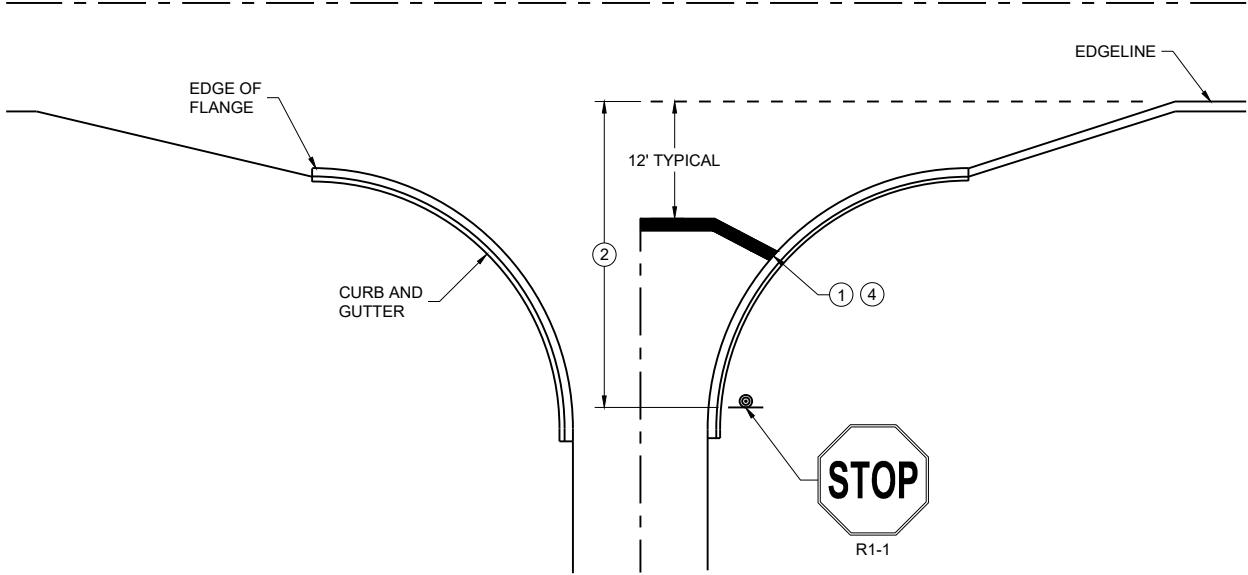
APPROVED

4-81-2016
DATE

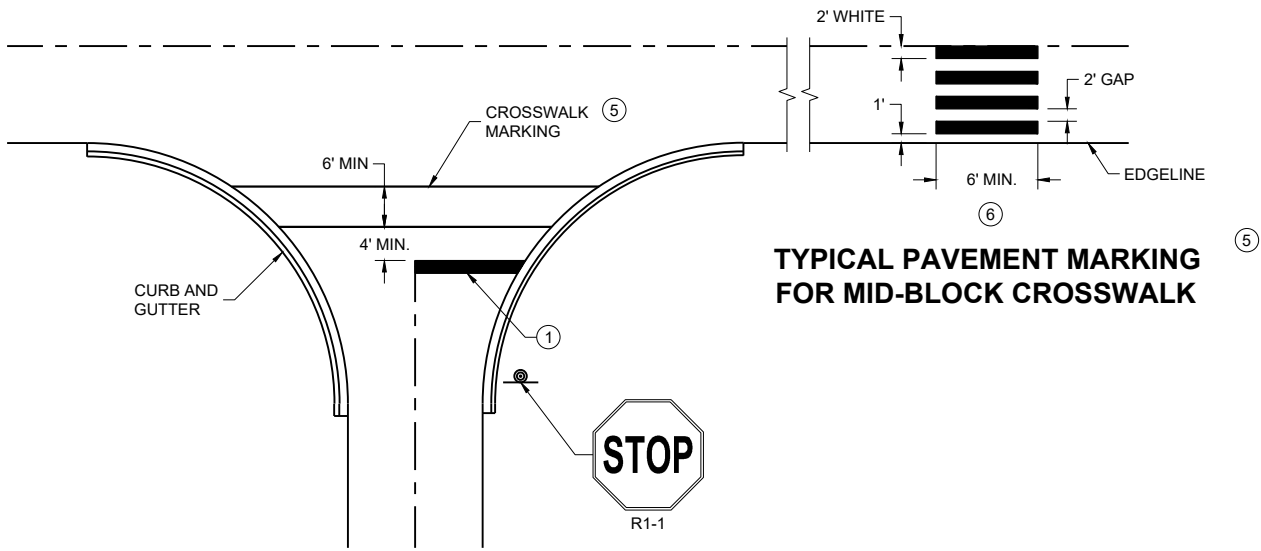
FHWA

/S/ Matthew R. Rauch
STATE SIGNING AND MAP
ENGINEER

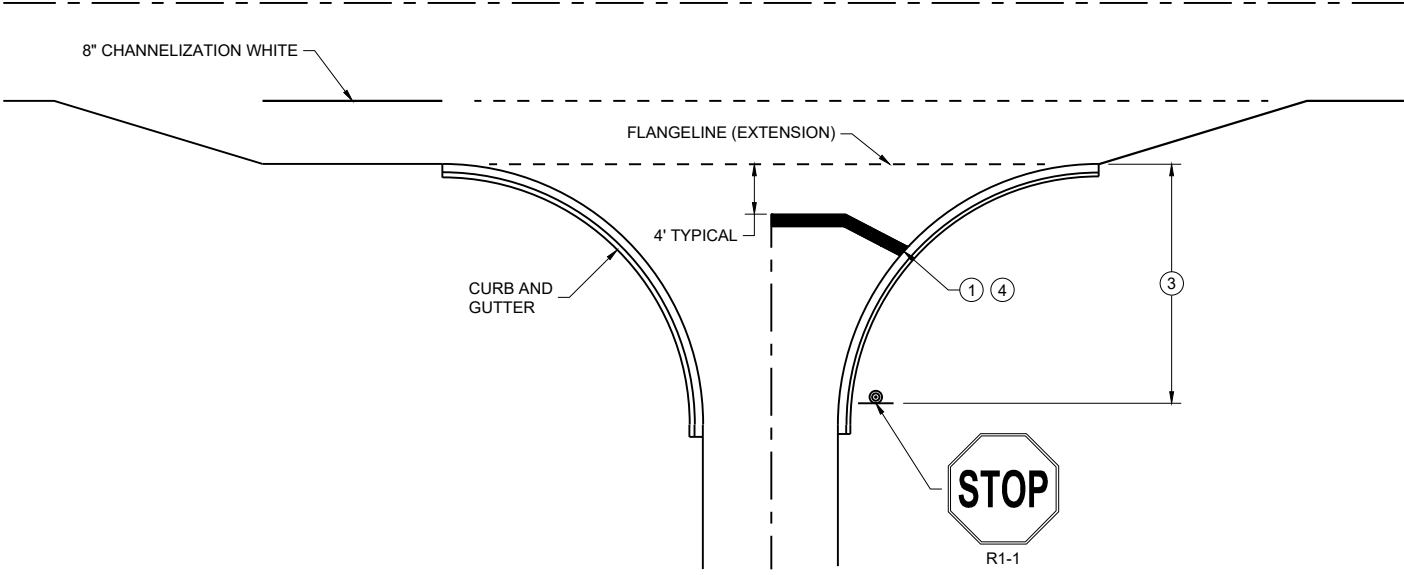
148



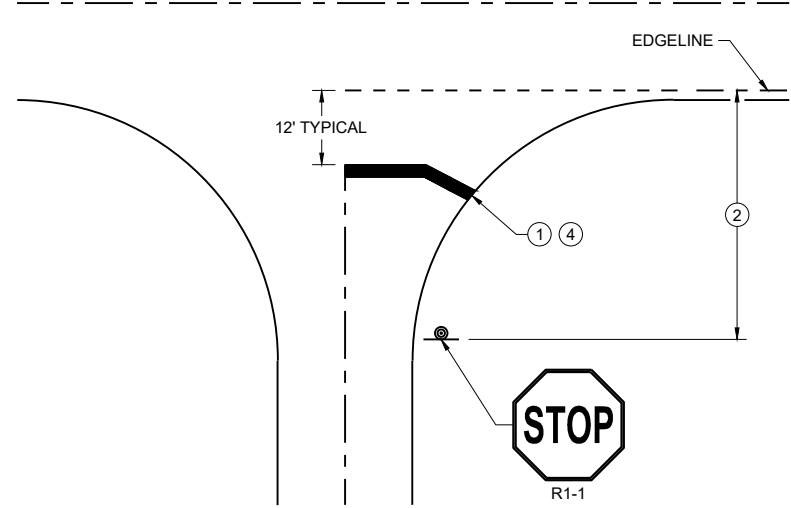
TYPICAL STOP LINE PAVEMENT MARKING WITH CURB AND GUTTER



TYPICAL STOP LINE PAVEMENT MARKING FOR SIDE ROADS WITH CROSSWALK MARKING



TYPICAL STOP LINE PAVEMENT MARKING FOR SIDE ROADS WITH RIGHT TURN LANE



TYPICAL STOP LINE PAVEMENT MARKING WITHOUT CURB AND GUTTER

GENERAL NOTES

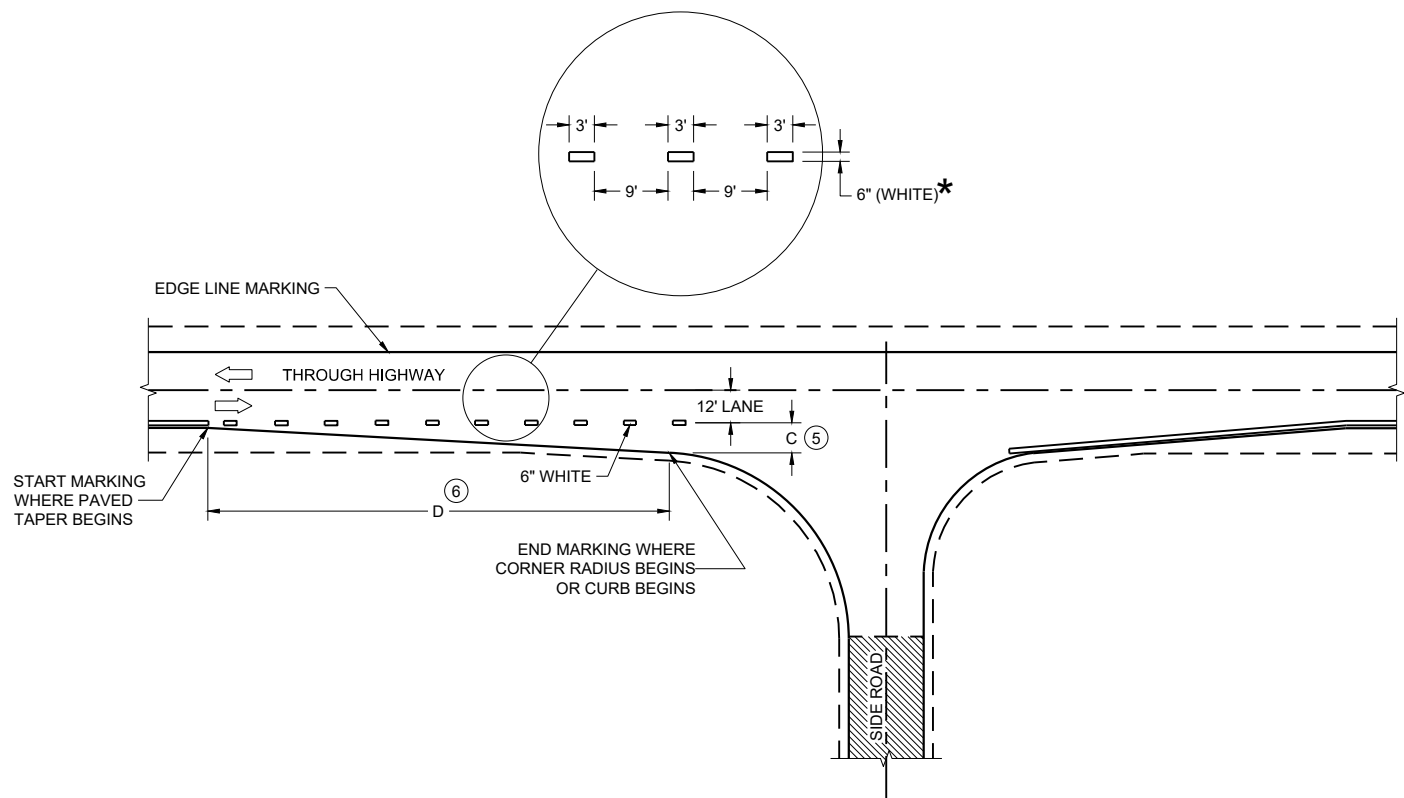
STOP SIGN SHALL BE PLACED A MINIMUM OF 6 FEET TO A MAXIMUM OF 50 FEET FROM THE EDGELINE LOCATION.

- ① 18-INCH STOP LINES MAY BE DELETED OR ADDED BY THE REGION MARKING ENGINEER BASED ON VISIBILITY AND SIGHT LINES.
- ② NO STOP LINE IS REQUIRED IF STOP SIGN IS LESS THAN OR EQUAL TO 40 FEET FROM THE EDGELINE.
- ③ NO STOP LINE IS REQUIRED IF STOP SIGN IS LESS THAN OR EQUAL TO 30 FEET FROM THE FLANGE LINE EXTENSION.
- ④ MOVE CLOSER TO THE EDGE OF TRAVEL LINE AS NEEDED FOR VISIBILITY AND SIGHT LINES (NO CLOSER THAN 4 FEET).
- ⑤ LADDER BAR CROSSWALKS SHOULD ONLY BE USED FOR MID BLOCK CROSSINGS. USE 2 - 6" TRANSVERSE LINES.
- ⑥ POSTED SPEED LIMITS OF 40 MPH OR GREATER USE A MINIMUM WIDTH OF 8' FOR MIDBLOCK CROSSWALKS

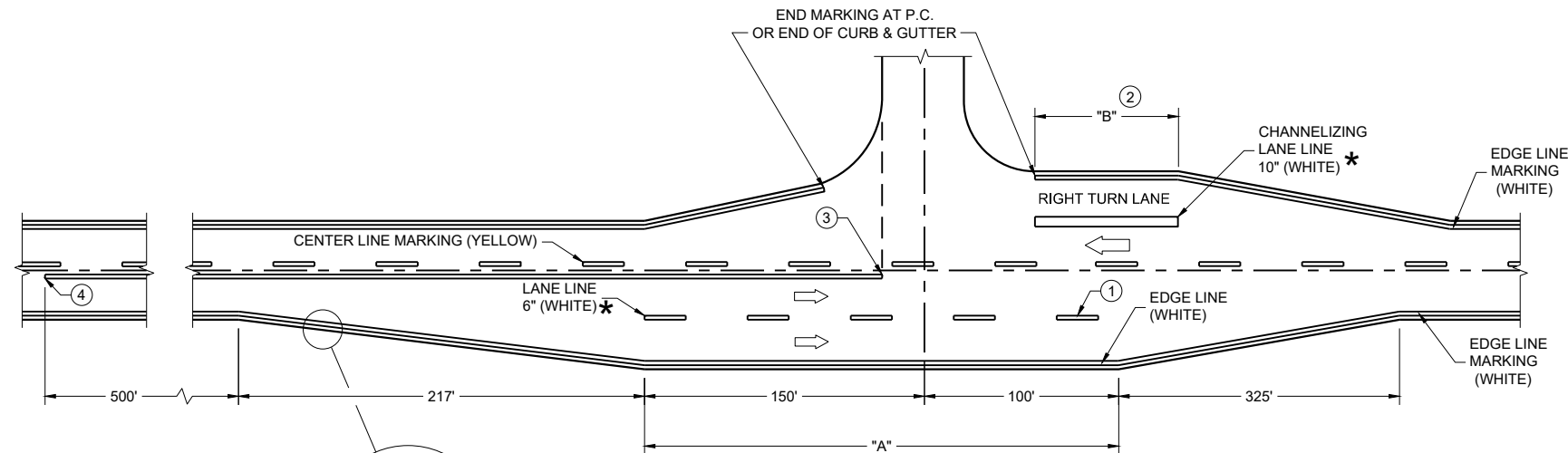
STOP LINE AND CROSSWALK PAVEMENT MARKING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
March 2024 /S/ Matthew Rauch
DATE STATE SIGNING AND MARKING
ENGINEER
FHWA



MINOR INTERSECTION



MAJOR INTERSECTIONS

(INTERSECTION WITH FULL RIGHT TURN LANE OR BYPASS LANE)

*CONFIRM MARKING LINE WIDTH WITH THE MISCELLANEOUS QUANTITIES

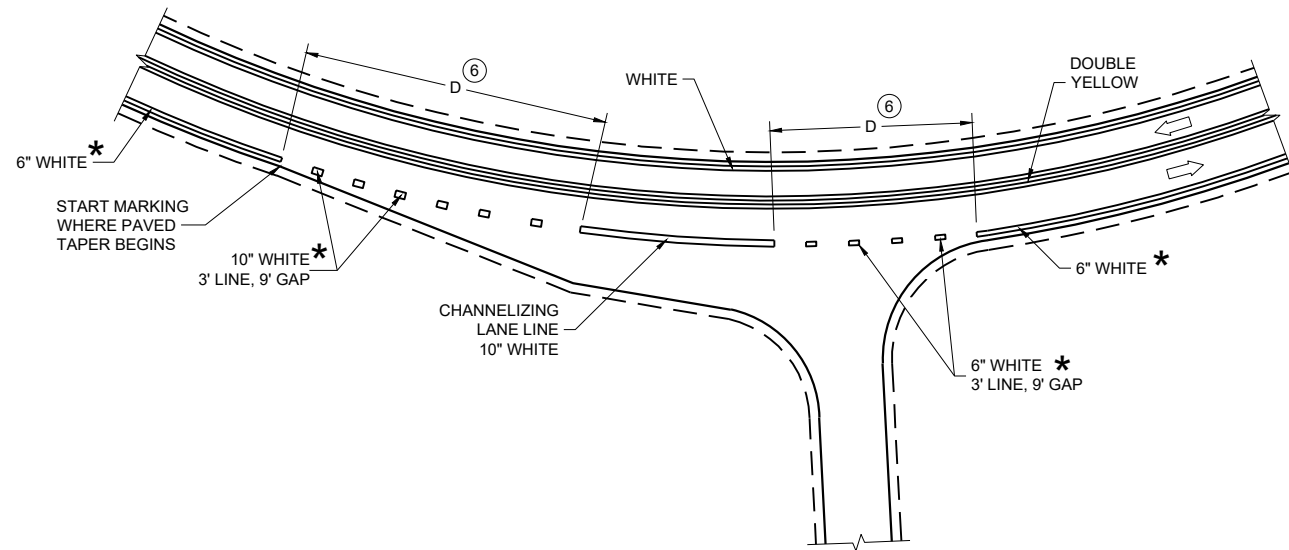
GENERAL NOTES

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

GENERAL NOTES

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

THE SPACING BETWEEN SIGNS SHOULD BE ADJUSTED TO NOT CONFLICT WITH AND TO PROVIDE A MINIMUM OF 200 FEET (500 FEET DESIRABLE) CLEARANCE TO EXISTING SIGNS.

THIS LANE CLOSURE IS TYPICAL FOR CLOSING RIGHT LANE - REVERSE FOR CLOSING LEFT LANE.

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

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

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

FOR A LANE CLOSURE THAT IS IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS, THE ADVANCED WARNING SIGNS MAY BE MOUNTED ON PORTABLE SUPPORTS.

REMOVE PAVEMENT MARKINGS AND PLACE TEMPORARY PAVEMENT MARKING LINE IF LANE CLOSURE IS TO BE IN PLACE 4 OR MORE CONTINUOUS DAYS AND NIGHTS.

IF THE HORIZONTAL ALIGNMENT IS SUCH THAT A CURVE MAY REQUIRE ADDITIONAL DELINEATION, THE DEVICE SPACING MAY BE DECREASED TO 50 FEET.

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

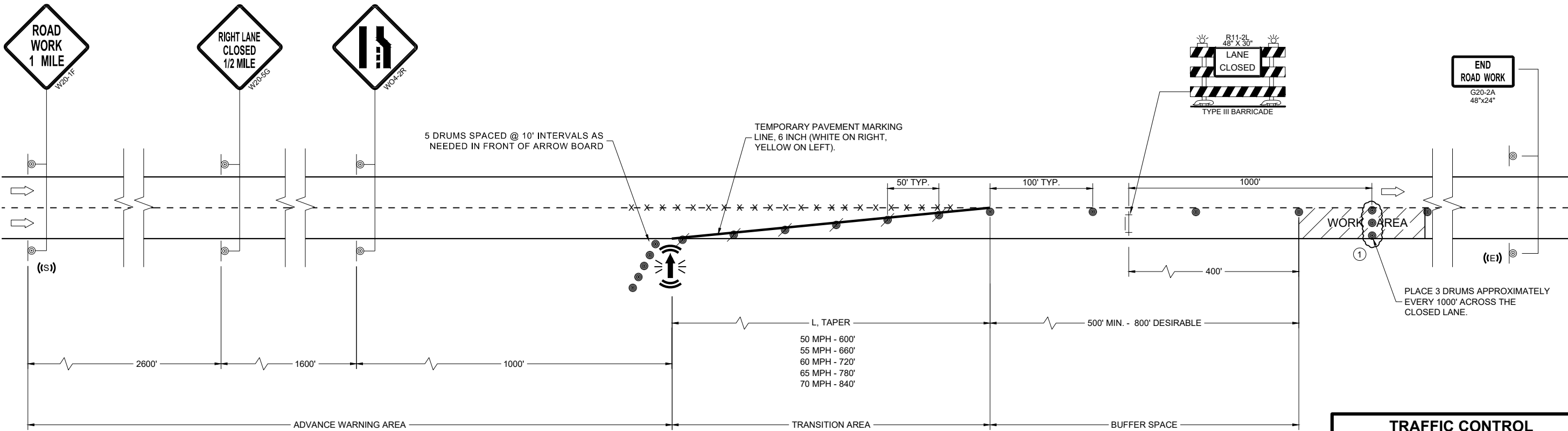
ADJUSTMENTS IN BUFFER SPACE NEED TO BE INCORPORATED WHEN THE LANE CLOSURE OCCURS NEAR AN INTERCHANGE EXIT OR ENTRANCE RAMP OR INTERSECTION. THE LANE CLOSURE MUST TAKE PLACE FAR ENOUGH IN ADVANCE OF AN EXIT OR ENTRANCE RAMP TO STILL ALLOW FOR ADEQUATE BUFFER SPACE. THE MINIMUM LENGTH OF THE BUFFER SPACE BEFORE AN EXIT RAMP SHOULD BE ONE HALF THE LENGTH OF THE TRANSITION AREA. THE ENTRANCE RAMP SHOULD BE FOLLOWED BY THE ORIGINAL BUFFER SPACE LENGTH OF 800 FEET DESIRABLE PRIOR TO ANOTHER TRAFFIC CONTROL CHANGE SUCH AS A CROSSOVER MANEUVER.

CONSIDER ROADWAY GEOMETRICS WHEN LOCATING SIGNS AND ARROW BOARD SO THE DRIVER HAS A CLEAR VIEW OF THE ARROW BOARD AND LANE CLOSURE DRUMS.

① DRUMS IN A CLOSED LANE THAT MUST BE MOVED FOR A WORK OPERATION SHALL BE IMMEDIATELY REESTABLISHED UPON COMPLETION OF THE OPERATION, OR FOR CONTINUING OPERATIONS, AT THE END OF EACH WORKING DAY.

LEGEND

- ⊙ SIGN ON PERMANENT SUPPORT
- ⊙ TRAFFIC CONTROL DRUM
- ⊙ TRAFFIC CONTROL DRUM WITH TYPE "C" STEADY BURN LIGHT
- ⊙ TYPE III BARRICADE WITH ATTACHED SIGN
- ⊙ TYPE "A" WARNING LIGHT (FLASHING)
- ✕ ✕ ✕ REMOVING PAVEMENT MARKINGS
- ➡ DIRECTION OF TRAFFIC
- ▨ WORK AREA
- ⊙ CONNECTED ARROW BOARD
- (S) WZ START LOCATION MARKER
- (E) WZ END LOCATION MARKER



TRAFFIC CONTROL LANE CLOSURE	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED February 2025 DATE	/S/ Andrew Heidtke ROADWAY STANDARDS DEVELOPMENT UNIT SUPERVISOR
FHWA	

GENERAL NOTES

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

THE SPACING BETWEEN SIGNS SHOULD BE ADJUSTED TO NOT CONFLICT WITH AND TO PROVIDE A MINIMUM OF 200 FEET (500 FEET DESIRABLE) CLEARANCE TO EXISTING SIGNS.

THIS LANE CLOSURE IS TYPICAL FOR CLOSING RIGHT LANE - REVERSE FOR CLOSING LEFT LANE.

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

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

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

CONSIDER ROADWAY GEOMETRICS WHEN LOCATING SIGNS AND ARROW BOARD SO THE DRIVER HAS A CLEAR VIEW OF THE ARROW BOARD AND LANE CLOSURE DRUMS.

FOR A LANE CLOSURE THAT IS IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS, THE ADVANCED WARNING SIGNS MAY BE MOUNTED ON PORTABLE SUPPORTS.

REMOVE PAVEMENT MARKINGS AND PLACE TEMPORARY PAVEMENT MARKING LINE IF LANE CLOSURE IS TO BE IN PLACE 4 OR MORE CONTINUOUS DAYS AND NIGHTS.

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

IF THE HORIZONTAL ALIGNMENT IS SUCH THAT A CURVE MAY REQUIRE ADDITIONAL DELINEATION, THE DEVICE SPACING MAY BE DECREASED TO 50 FEET.

ADJUSTMENTS IN BUFFER SPACE NEED TO BE INCORPORATED WHEN THE LANE CLOSURE OCCURS NEAR AN INTERCHANGE EXIT OR ENTRANCE RAMP OR INTERSECTION. THE LANE CLOSURE MUST TAKE PLACE FAR ENOUGH IN ADVANCE OF AN EXIT OR ENTRANCE RAMP TO STILL ALLOW FOR ADEQUATE BUFFER SPACE. THE MINIMUM LENGTH OF THE BUFFER SPACE BEFORE AN EXIT RAMP SHOULD BE ONE HALF THE LENGTH OF THE TRANSITION AREA. THE ENTRANCE RAMP SHOULD BE FOLLOWED BY THE ORIGINAL BUFFER SPACE LENGTH OF 800 FEET DESIRABLE PRIOR TO ANOTHER TRAFFIC CONTROL CHANGE SUCH AS A CROSSOVER MANEUVER.

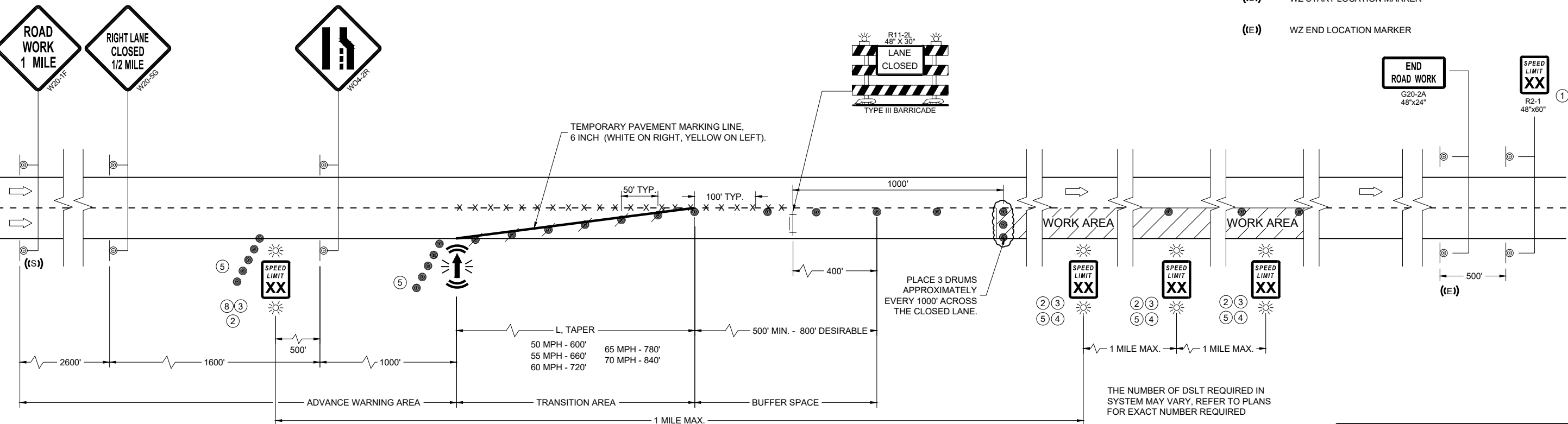
IF THE SPEED LIMIT WILL CHANGE BASED ON THE PRESENCE OF WORKERS, USE THE TAPER LENGTH THAT MATCHES THE HIGHER OF THE TWO SPEEDS FOR A CONTINUOUS LANE CLOSURE.

EXISTING POST MOUNTED SPEED LIMIT SIGNS SHOULD BE COVERED OR REMOVED.

- 1 POST NON-CONSTRUCTION SPEED LIMIT.
- 2 IF THE LANE CLOSURE MOVES DOWNSTREAM, LEAVE DSLT IN PLACE.
- 3 PLACE DSLT AT EXISTING POST MOUNTED SPEED LIMIT SIGN AFTER THE END OF THE ACCELERATION LANE OF EACH ENTRANCE RAMP. IF THERE IS NOT AN EXISTING SIGN, PLACE 1,500 FEET BEYOND THE END OF THE ACCELERATION LANE OF EACH ENTRANCE RAMP
- 4 FOR LEFT LANE CLOSURES, DSLT REMAINS ON RIGHT SHOULDER.
- 5 5 DRUMS SPACED @ 10' INTERVALS AS NEEDED.

LEGEND

- SIGN ON PERMANENT SUPPORT
- TRAFFIC CONTROL DRUM
- TRAFFIC CONTROL DRUM WITH TYPE "C" STEADY BURN LIGHT
- TYPE III BARRICADE WITH ATTACHED SIGN
- TYPE "A" WARNING LIGHT (FLASHING)
- REMOVING PAVEMENT MARKINGS
- DIRECTION OF TRAFFIC
- WORK AREA
- CONNECTED ARROW BOARD
- DIGITAL SPEED LIMIT TRAILER (DSLT)
- WZ START LOCATION MARKER
- WZ END LOCATION MARKER



TRAFFIC CONTROL, LANE CLOSURE, DIGITAL SPEED REDUCTION SYSTEM

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
February 2025 /S/ Andrew Heidtke
DATE ROADWAY STANDARDS DEVELOPMENT UNIT SUPERVISOR

FHWA

	SIGN ON PERMANENT SUPPORT
	TRAFFIC CONTROL DRUM
	TRAFFIC CONTROL DRUM WITH TYPE "C" STEADY BURN LIGHT
	TYPE III BARRICADE WITH ATTACHED SIGN
	TYPE "A" WARNING LIGHT (FLASHING)
	REMOVING PAVEMENT MARKINGS
	DIRECTION OF TRAFFIC
	WORK AREA
	CONNECTED ARROW BOARD
	WZ START LOCATION MARKER
	WZ END LOCATION MARKER

FOR WORK ON ROADWAYS WITH SPEEDS GREATER THAN 45MPH, USE SDD 15D12.

THIS LANE CLOSURE DETAIL IS TYPICAL FOR CLOSING THE LEFT LANE. FOR A RIGHT LANE CLOSURE, REVERSE THE TRAFFIC CONTROL.

THIS DETAIL MAY BE USED FOR ROADWAYS WITH EITHER TWO OR THREE LANES IN EACH DIRECTION.

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 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. NO WARNING LIGHTS SHALL BE WORKING ON COVERED OR "DOWNED" SIGNS.

SIGNS THAT WILL BE IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS OR THAT WILL BE PLACED IN A CLOSED LANE MAY BE MOUNTED ON TEMPORARY SUPPORTS.

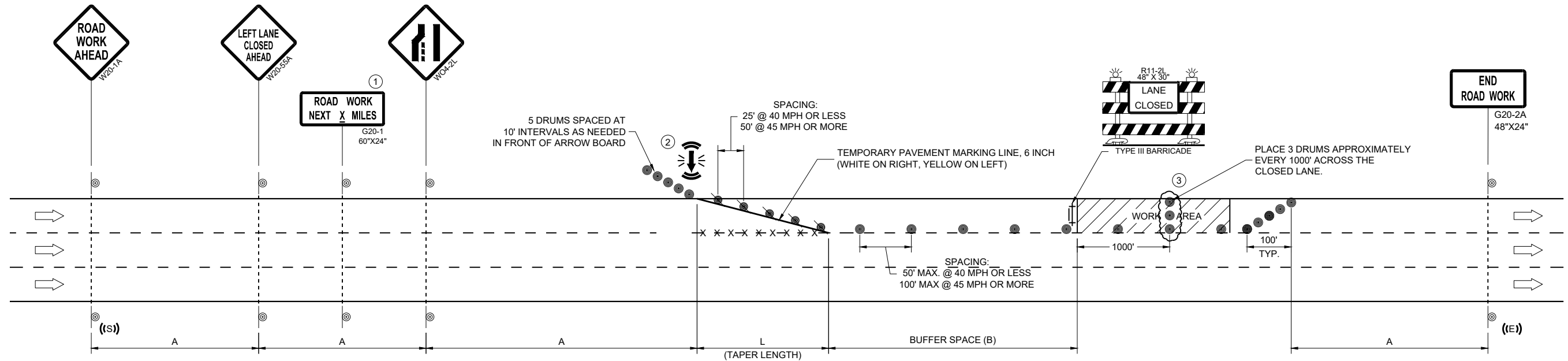
THE EXACT NUMBER, LOCATION, AND SPACING OF ALL SIGNS AND DEVICES SHALL BE ADJUSTED TO FIT FIELD CONDITIONS AS APPROVED BY THE ENGINEER.

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

W20-1A, G20-1 AND G20-2A SIGNS ARE NOT REQUIRED IF THE LANE CLOSURE IS WITHIN A LARGER WORK ZONE WHERE THESE SIGNS ARE ALREADY PRESENT.

REMOVE PAVEMENT MARKINGS AND PLACE TEMPORARY PAVEMENT MARKING LINE IF LANE CLOSURE IS TO BE IN

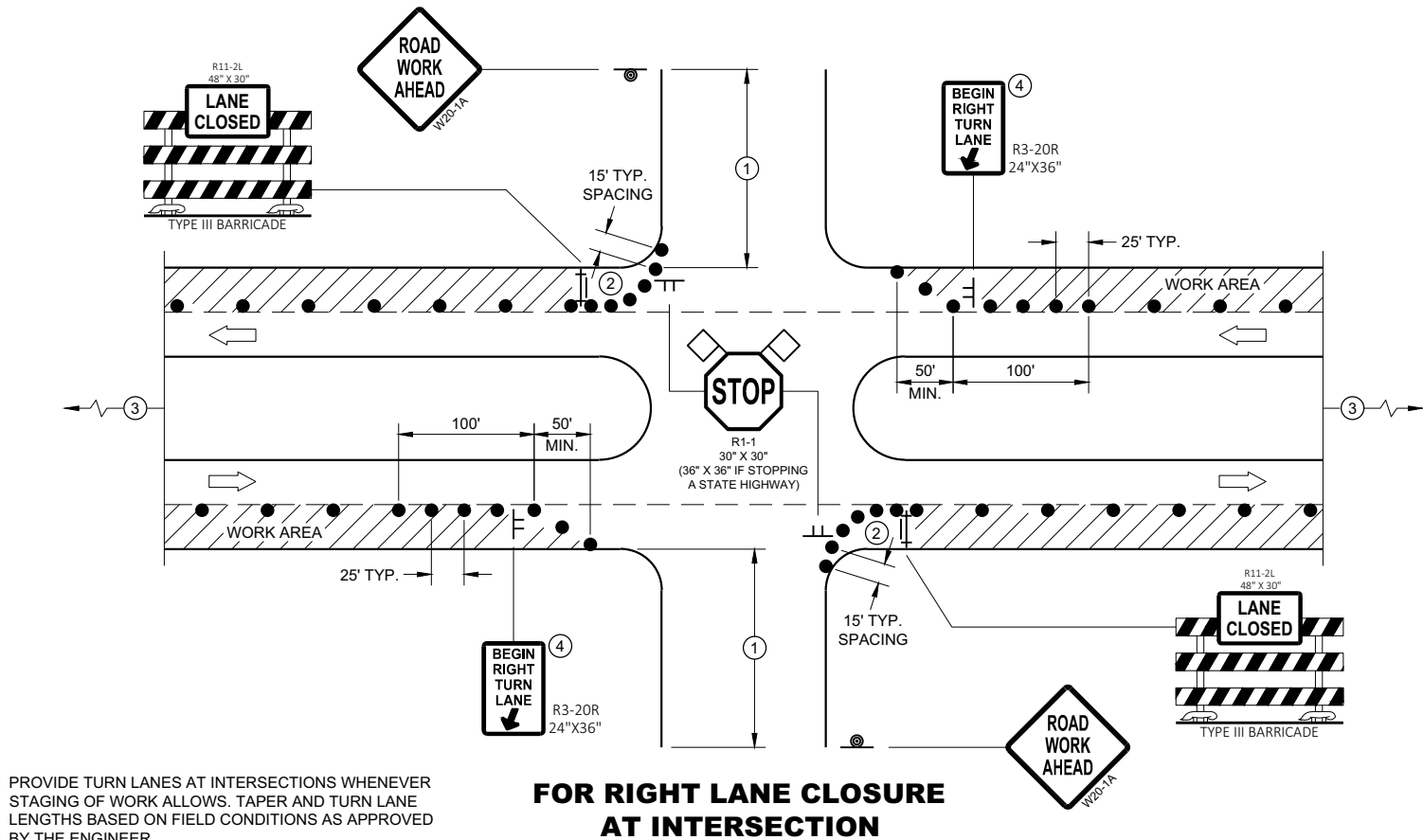
- ① OMIT G20-1 SIGNS IF LENGTH OF WORK AREA IS 2 MILES OR LESS.
- ② WHERE THE SHOULDER OR TERRACE HAS INSUFFICIENT SPACE TO PLACE THE ARROW BOARD AS SHOWN, PLACE THE ARROW BOARD AT THE END OF THE TAPER.
- ③ DRUMS IN A CLOSED LANE THAT MUST BE MOVED FOR A WORK OPERATION SHALL BE IMMEDIATELY REESTABLISHED UPON COMPLETION OF THE OPERATION, OR FOR CONTINUING OPERATIONS, AT THE END OF EACH WORKING DAY.



POSTED SPEED LIMIT PRIOR TO WORK STARTING (MPH)	ADVANCE WARNING SIGN SPACING (A) FEET	TAPER LENGTH (12 FT. LANE) (L) FEET	BUFFER SPACE (B) FEET
25	200'	125'	155'
30	200'	180'	200'
35	350'	245'	250'
40	350'	320'	305'
45	500'	540'	360'

APPROVED
February 2025
DATE

/S/ Andrew Heidtke
WORK ZONE ENGINEER



PROVIDE TURN LANES AT INTERSECTIONS WHENEVER STAGING OF WORK ALLOWS. TAPER AND TURN LANE LENGTHS BASED ON FIELD CONDITIONS AS APPROVED BY THE ENGINEER.

FOR RIGHT LANE CLOSURE AT INTERSECTION

GENERAL NOTES

ALL SIGNS ARE 48"X48" UNLESS OTHERWISE NOTED. IF NECESSARY DUE TO SPACE CONSTRAINTS IN URBAN AREAS, 36" X 36" MAY BE USED IF APPROVED BY THE DISTRICT 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. NO WARNING LIGHTS SHALL BE WORKING ON COVERED OR "DOWNED" SIGNS.

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

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

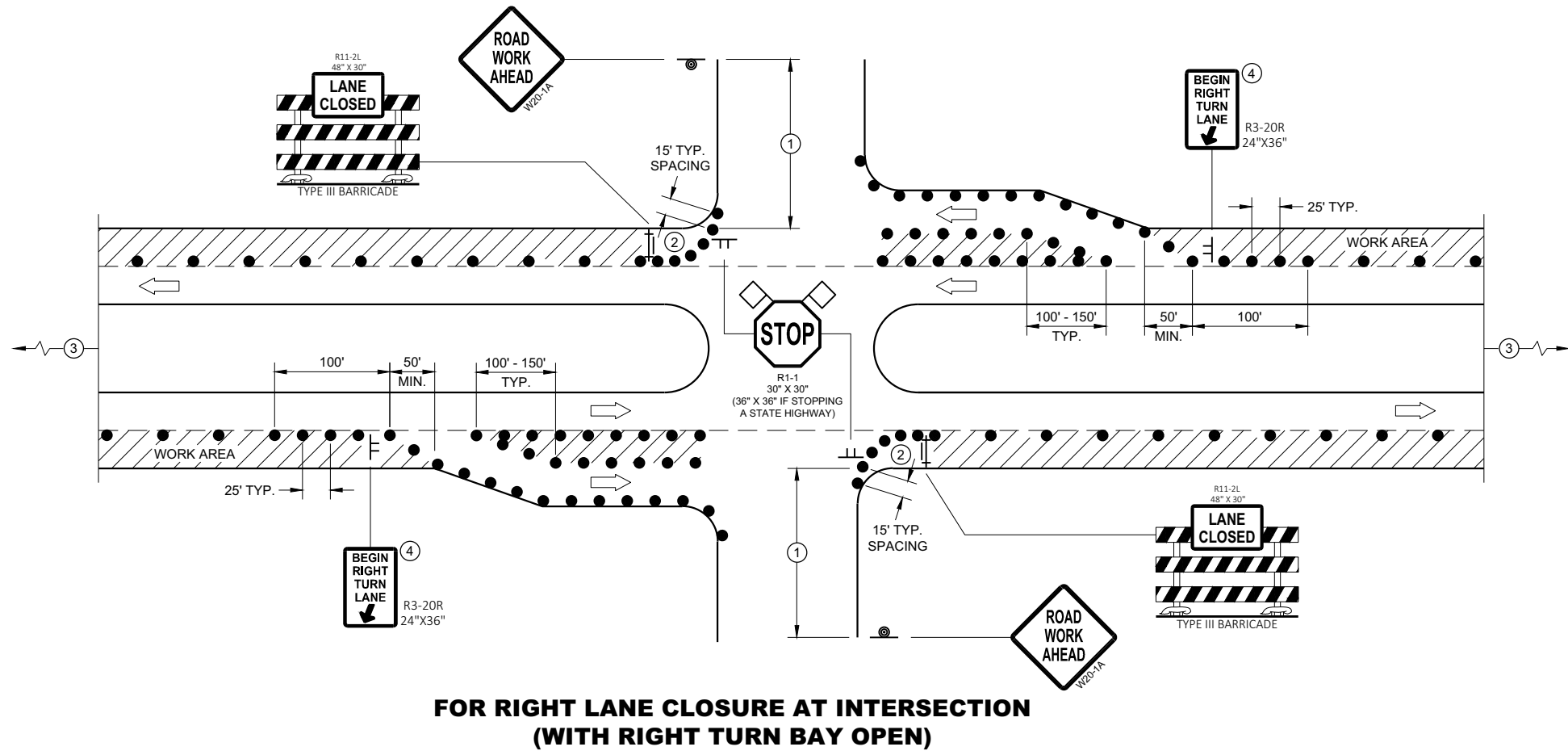
SIGN LAYOUTS SHALL BE IN ACCORDANCE WITH THE FHWA'S MANUAL OF STANDARD HIGHWAY SIGNS OR THE WISCONSIN STANDARD SIGN PLATES.

SIGNS THAT WILL REMAIN IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS OR THAT WILL BE PLACED IN A CLOSED LANE MAY BE MOUNTED ON PORTABLE SUPPORTS.

BARRICADES IN A CLOSED LANE THAT MUST BE MOVED FOR A WORK OPERATION SHALL BE IMMEDIATELY REESTABLISHED UPON COMPLETION OF THE OPERATION, OR FOR CONTINUING OPERATIONS, AT THE END OF EACH WORKING DAY.

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

- ① 500' TYPICAL OR AT LAST INTERSECTION, WHICHEVER IS CLOSER.
350' IF 35 - 40 MPH.
200' IF 25 - 30 MPH.
- ② ALSO USE BARRICADE AND 15 FOOT TYPICAL DRUM SPACING AT COMMERCIAL DRIVEWAYS
- ③ SEE SEPARATE LANE CLOSURE DETAIL FOR ADDITIONAL TRAFFIC CONTROL.
- ④ MINIMUM MOUNTING HEIGHT OF 5 FEET FROM EDGE OF PAVEMENT (AT EDGE LINE LOCATION) TO BOTTOM OF SIGN.



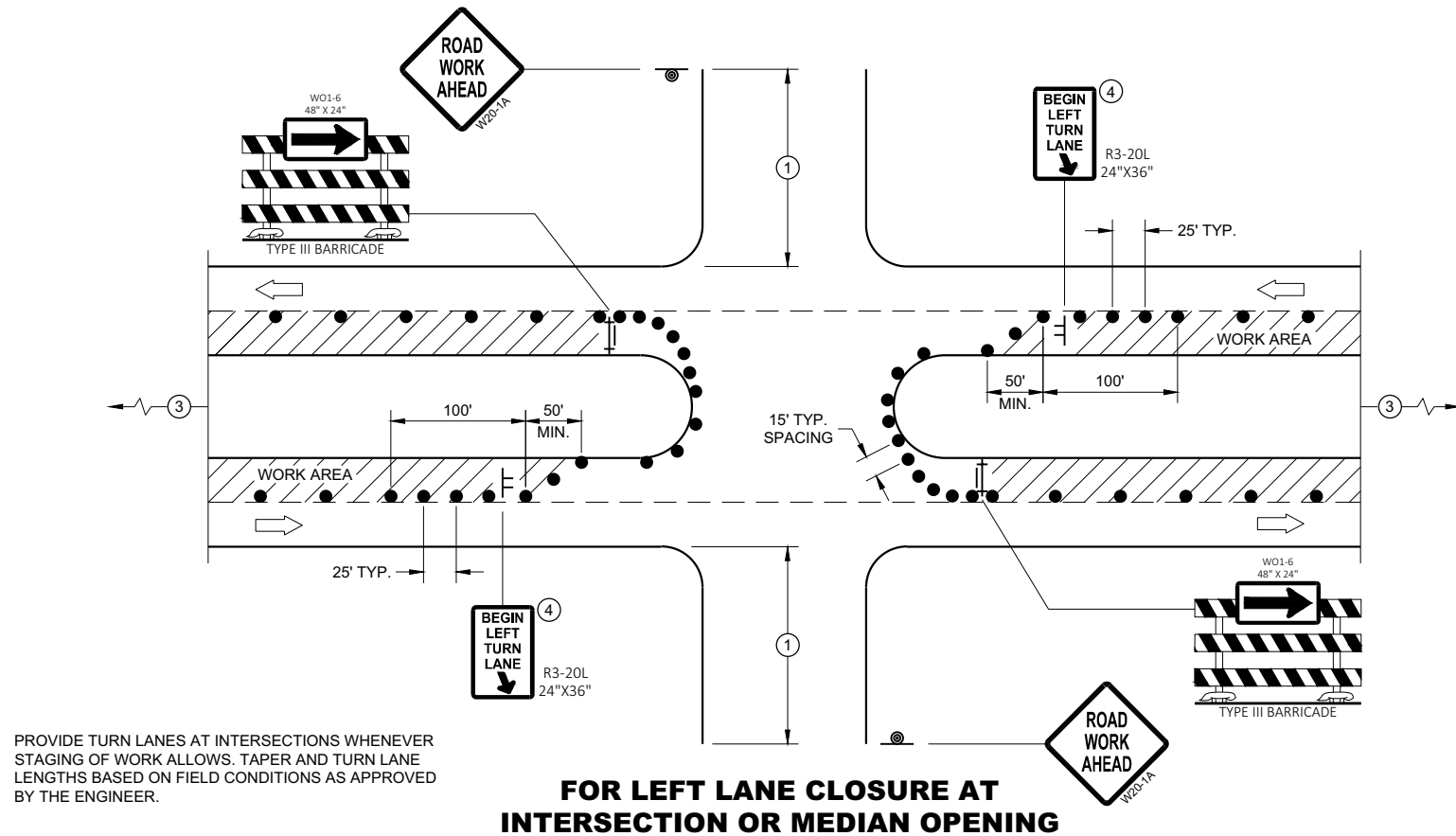
FOR RIGHT LANE CLOSURE AT INTERSECTION (WITH RIGHT TURN BAY OPEN)

LEGEND

- SIGN ON TEMPORARY SUPPORT
- SIGN ON PERMANENT SUPPORT
- TRAFFIC CONTROL DRUM
- TYPE III BARRICADE WITH ATTACHED SIGN
- DIRECTION OF TRAFFIC
- ◇ ◇ FLAGS, 16" X 16" MIN., ORANGE
- ▨ WORK AREA

TRAFFIC CONTROL, INTERSECTION WITHIN SINGLE RIGHT LANE CLOSURE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION 154

**GENERAL NOTES**

ALL SIGNS ARE 48"X48" UNLESS OTHERWISE NOTED. IF NECESSARY DUE TO SPACE CONSTRAINTS IN URBAN AREAS, 36" X 36" MAY BE USED IF APPROVED BY THE DISTRICT 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. NO WARNING LIGHTS SHALL BE WORKING ON COVERED OR "DOWNED" SIGNS.

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

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

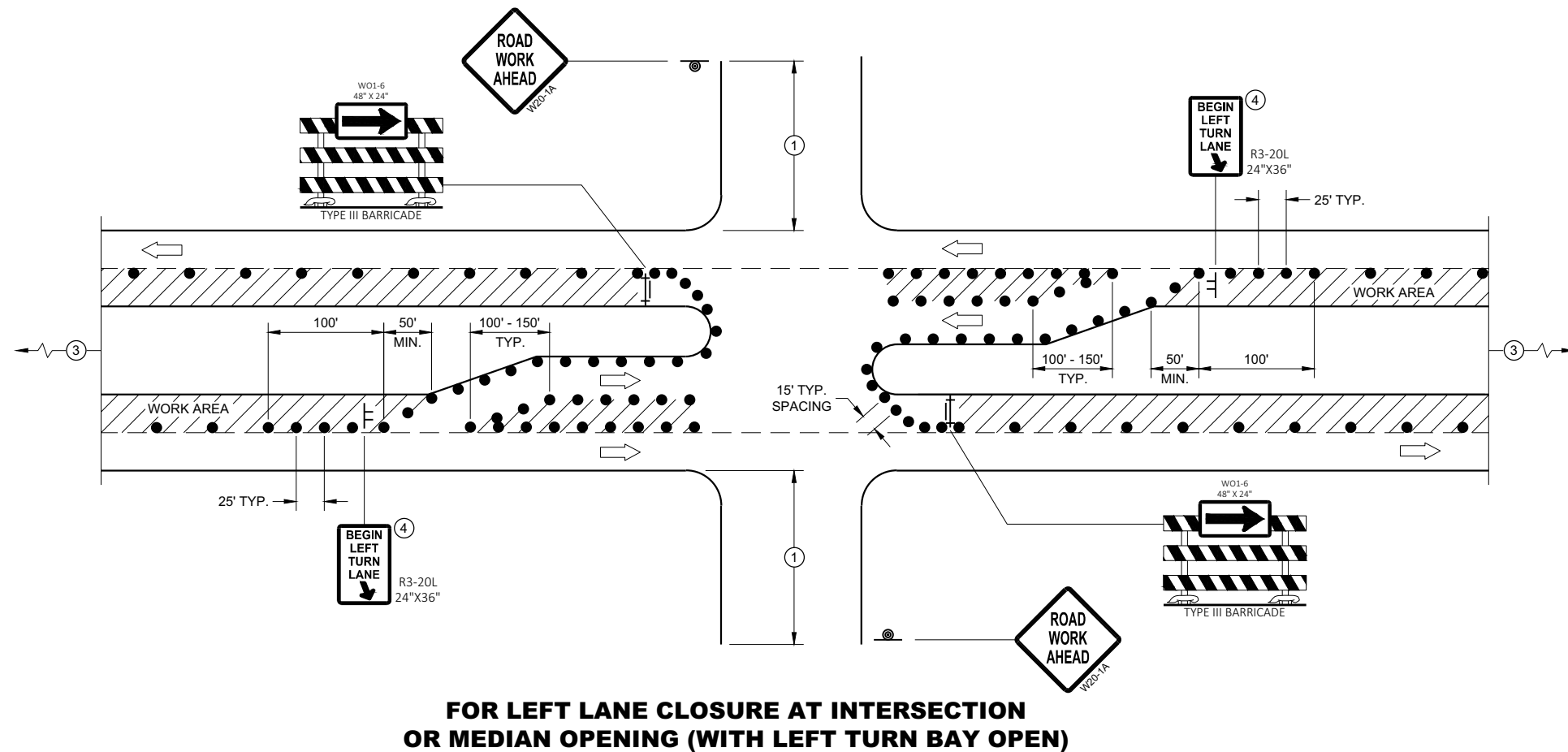
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SIGNS THAT WILL REMAIN IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS OR THAT WILL BE PLACED IN A CLOSED LANE MAY BE MOUNTED ON PORTABLE SUPPORTS.

BARRICADES IN A CLOSED LANE THAT MUST BE MOVED FOR A WORK OPERATION SHALL BE IMMEDIATELY REESTABLISHED UPON COMPLETION OF THE OPERATION, OR FOR CONTINUING OPERATIONS, AT THE END OF EACH WORKING DAY.

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

- 500' TYPICAL OR AT LAST INTERSECTION, WHICHEVER IS CLOSER.
350' IF 35 - 40 MPH.
200' IF 25 - 30 MPH.
- ALSO USE BARRICADE AND 15 FOOT TYPICAL DRUM SPACING AT COMMERCIAL DRIVEWAYS
- SEE SEPARATE LANE CLOSURE DETAIL FOR ADDITIONAL TRAFFIC CONTROL.
- MINIMUM MOUNTING HEIGHT OF 5 FEET FROM EDGE OF PAVEMENT (AT EDGE LINE LOCATION) TO BOTTOM OF SIGN.

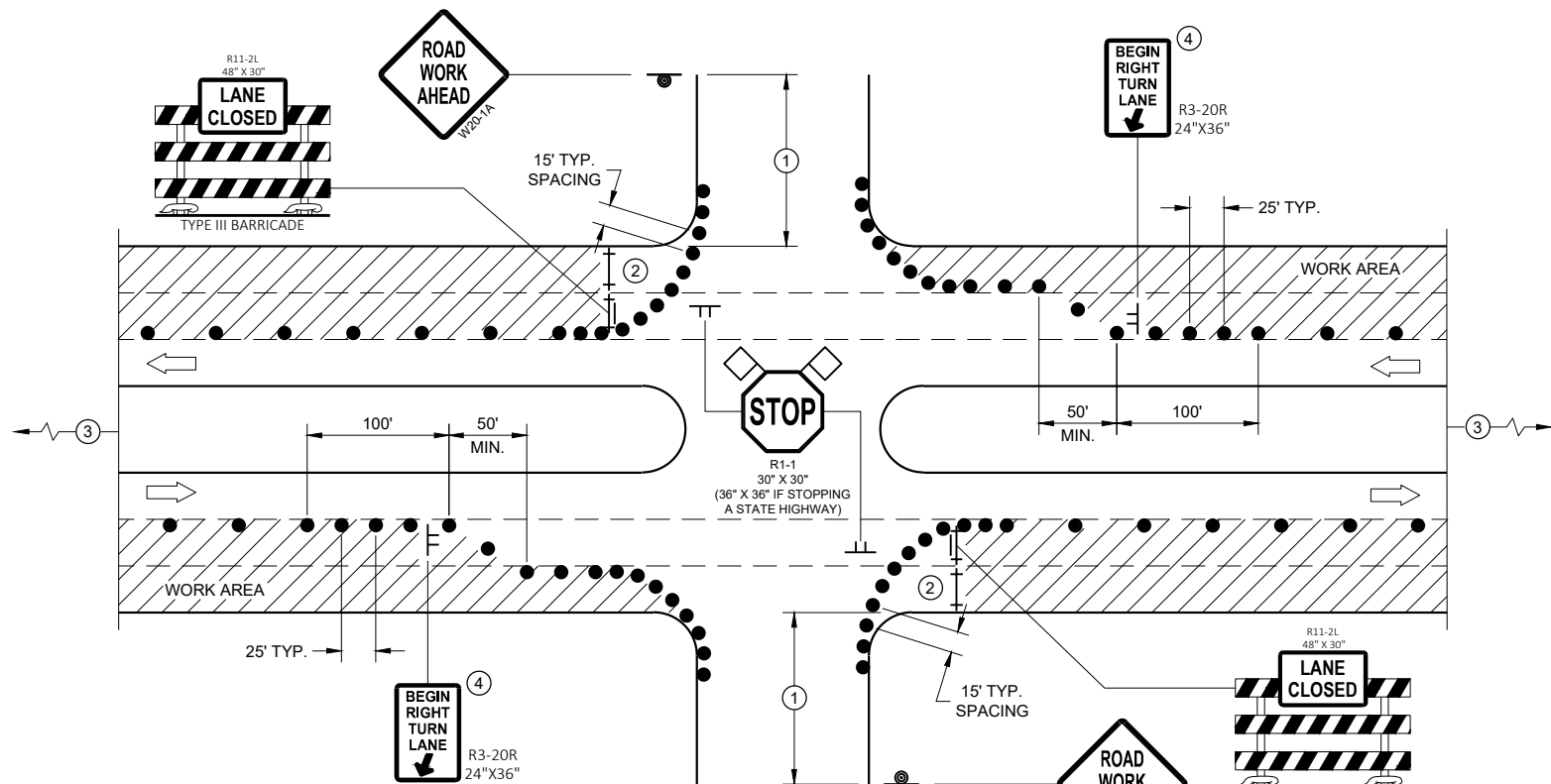
**LEGEND**

- SIGN ON TEMPORARY SUPPORT
- SIGN ON PERMANENT SUPPORT
- TRAFFIC CONTROL DRUM
- TYPE III BARRICADE WITH ATTACHED SIGN
- DIRECTION OF TRAFFIC
- FLAGS, 16" X 16" MIN., ORANGE
- WORK AREA

**TRAFFIC CONTROL,
INTERSECTION WITHIN SINGLE
LEFT LANE CLOSURE**

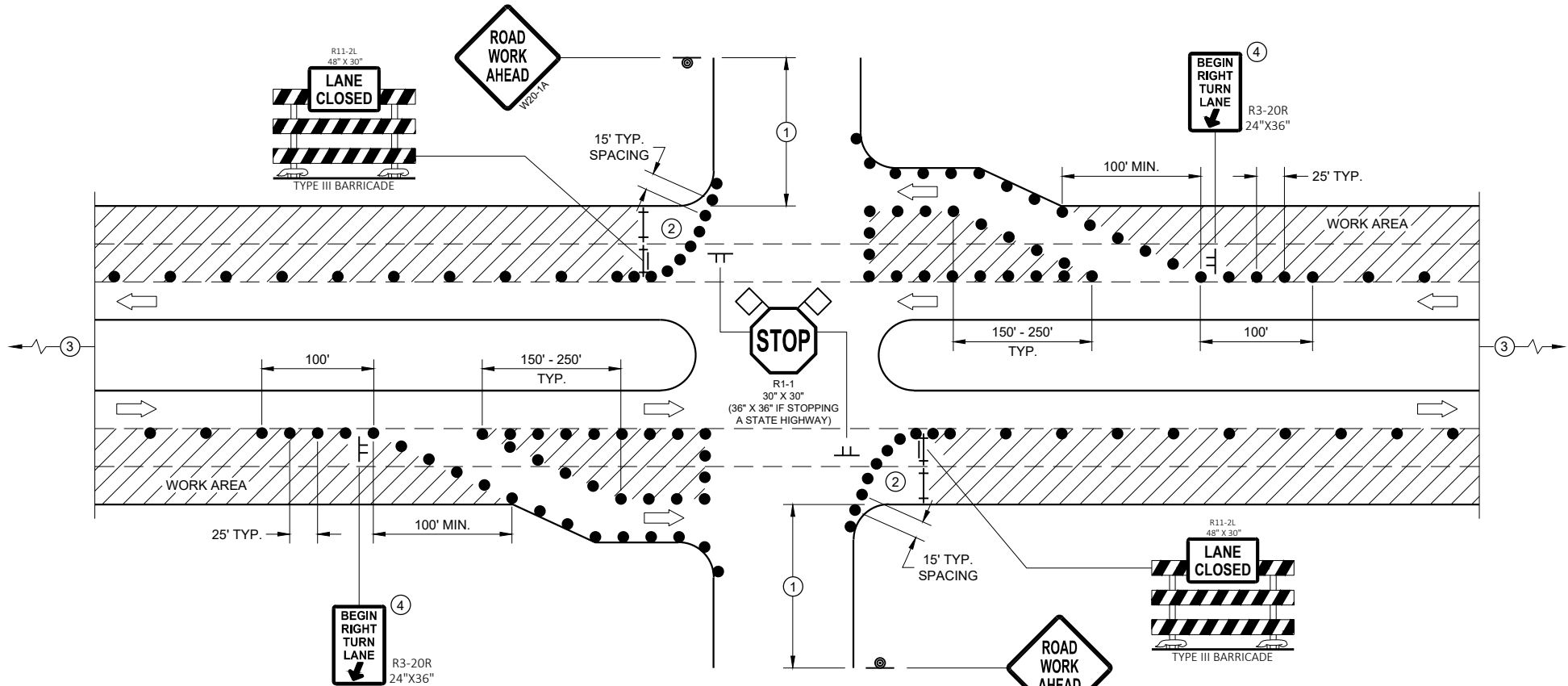
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
August 2020 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER 155
FHWA



PROVIDE TURN LANES AT INTERSECTIONS WHENEVER STAGING OF WORK ALLOWS. TAPER AND TURN LANE LENGTHS BASED ON FIELD CONDITIONS AS APPROVED BY THE ENGINEER.

**FOR RIGHT TWO LANES
CLOSED AT INTERSECTION**



**FOR RIGHT TWO LANES CLOSED AT
INTERSECTION (WITH RIGHT TURN BAY OPEN)**

GENERAL NOTES

ALL SIGNS ARE 48"X48" UNLESS OTHERWISE NOTED. IF NECESSARY DUE TO SPACE CONSTRAINTS IN URBAN AREAS, 36" X 36" MAY BE USED IF APPROVED BY THE DISTRICT 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. NO WARNING LIGHTS SHALL BE WORKING ON COVERED OR "DOWNED" SIGNS.

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SIGN LAYOUTS SHALL BE IN ACCORDANCE WITH THE FHWA'S MANUAL OF STANDARD HIGHWAY SIGNS OR THE WISCONSIN STANDARD SIGN PLATES.

SIGNS THAT WILL REMAIN IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS OR THAT WILL BE PLACED IN A CLOSED LANE MAY BE MOUNTED ON PORTABLE SUPPORTS.

BARRICADES IN A CLOSED LANE THAT MUST BE MOVED FOR A WORK OPERATION SHALL BE IMMEDIATELY REESTABLISHED UPON COMPLETION OF THE OPERATION, OR FOR CONTINUING OPERATIONS, AT THE END OF EACH WORKING DAY.

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

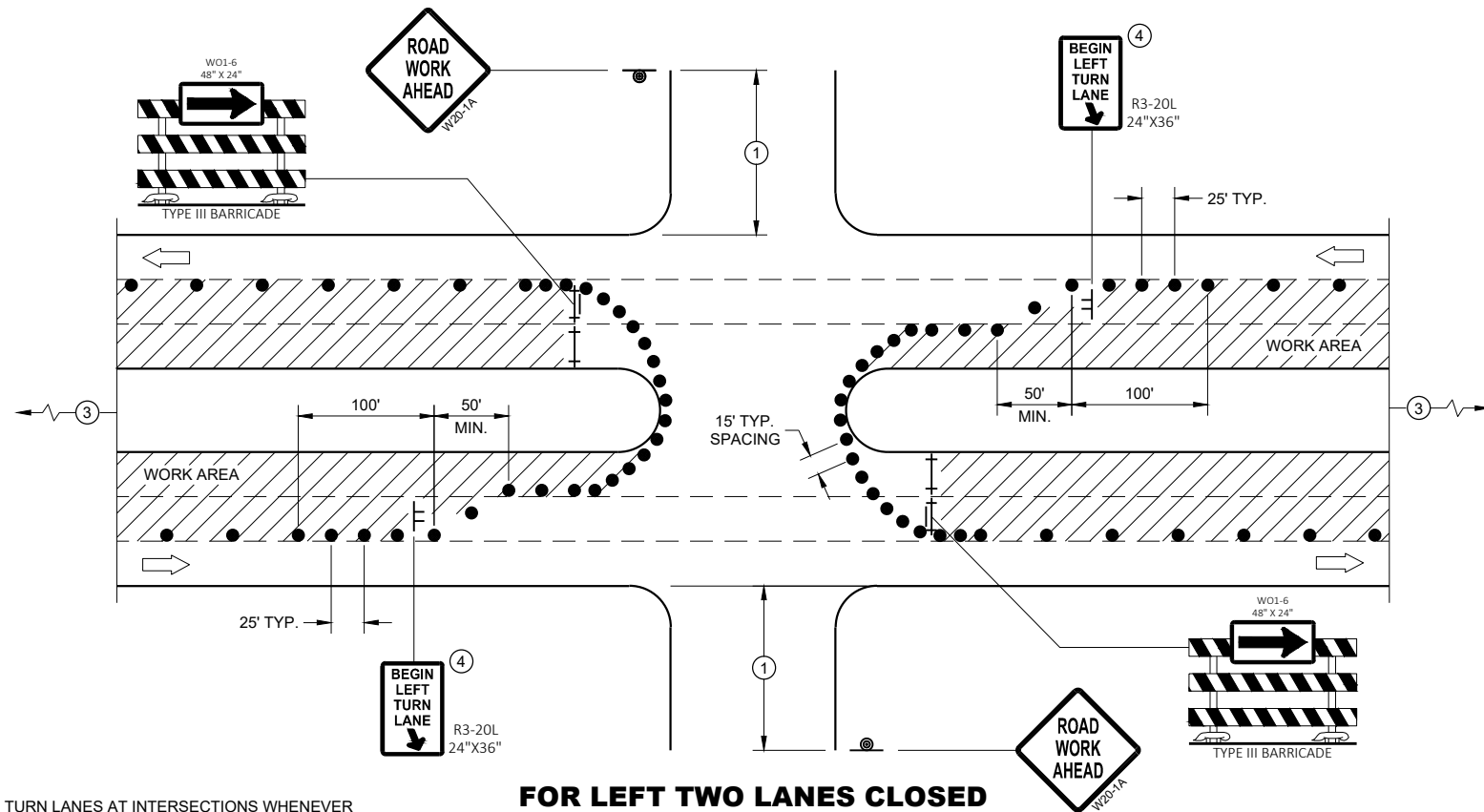
- ① 500' TYPICAL OR AT LAST INTERSECTION, WHICHEVER IS CLOSER.
350' IF 35 - 40 MPH.
200' IF 25 - 30 MPH.
- ② ALSO USE BARRICADE AND 15 FOOT TYPICAL DRUM SPACING AT COMMERCIAL DRIVEWAYS
- ③ SEE SEPARATE LANE CLOSURE DETAIL FOR ADDITIONAL TRAFFIC CONTROL.
- ④ MINIMUM MOUNTING HEIGHT OF 5 FEET FROM EDGE OF PAVEMENT (AT EDGE LINE LOCATION) TO BOTTOM OF SIGN.

LEGEND

- SIGN ON TEMPORARY SUPPORT
- SIGN ON PERMANENT SUPPORT
- TRAFFIC CONTROL DRUM
- TYPE III BARRICADE
- TYPE III BARRICADE WITH ATTACHED SIGN
- DIRECTION OF TRAFFIC
- FLAGS, 16" X 16" MIN., ORANGE
- WORK AREA

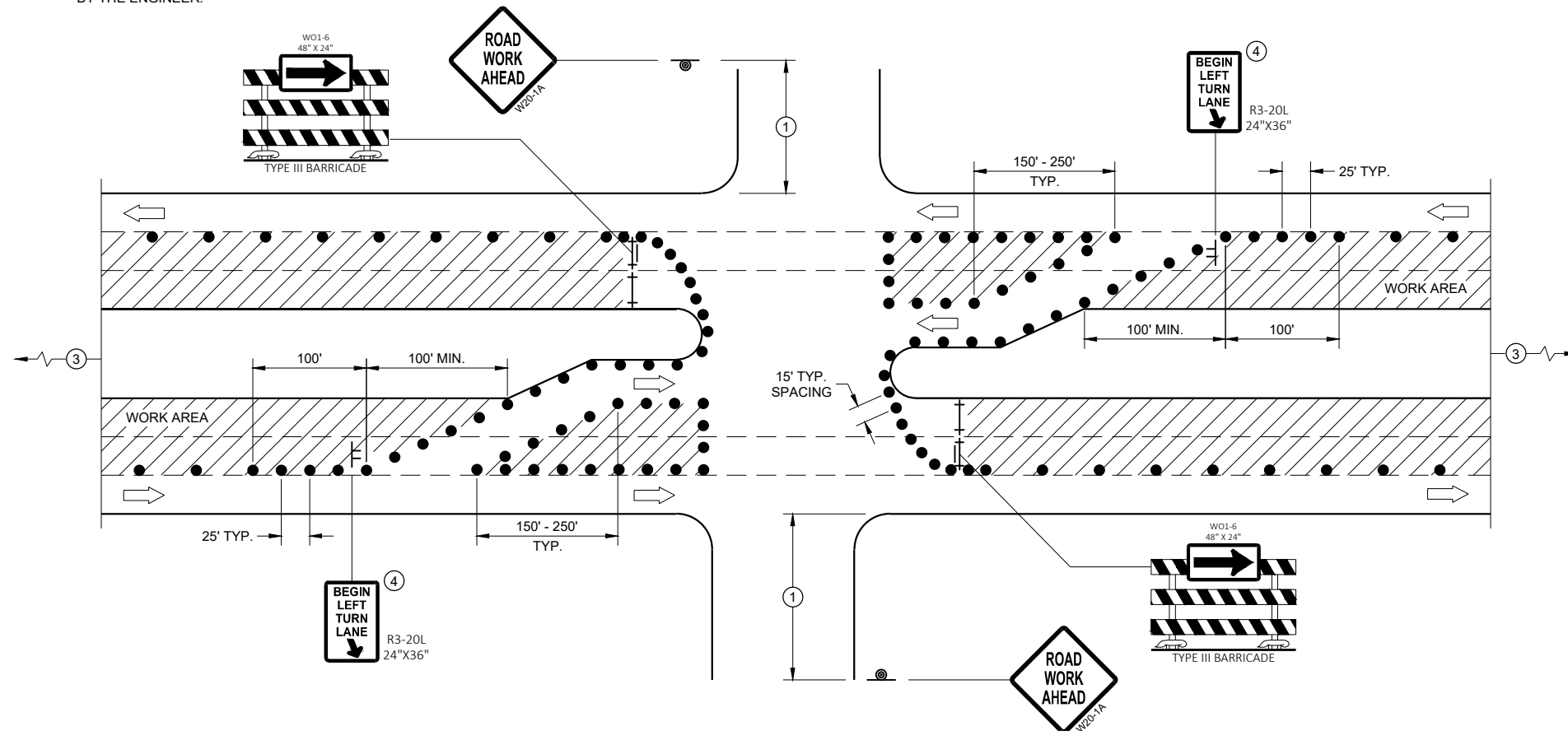
**TRAFFIC CONTROL,
INTERSECTION WITHIN
TWO RIGHT LANE CLOSURE**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION 156



PROVIDE TURN LANES AT INTERSECTIONS WHENEVER STAGING OF WORK ALLOWS. TAPER AND TURN LANE LENGTHS BASED ON FIELD CONDITIONS AS APPROVED BY THE ENGINEER.

FOR LEFT TWO LANES CLOSED AT INTERSECTION OR MEDIAN BREAK



FOR LEFT TWO LANES CLOSED AT INTERSECTION OR MEDIAN BREAK (WITH LEFT TURN BAY OPEN)

GENERAL NOTES

ALL SIGNS ARE 48"X48" UNLESS OTHERWISE NOTED. IF NECESSARY DUE TO SPACE CONSTRAINTS IN URBAN AREAS, 36" X 36" MAY BE USED IF APPROVED BY THE DISTRICT 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. NO WARNING LIGHTS SHALL BE WORKING ON COVERED OR "DOWNED" SIGNS.

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BARRICADES IN A CLOSED LANE THAT MUST BE MOVED FOR A WORK OPERATION SHALL BE IMMEDIATELY REESTABLISHED UPON COMPLETION OF THE OPERATION, OR FOR CONTINUING OPERATIONS, AT THE END OF EACH WORKING DAY.

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

- 500' TYPICAL OR AT LAST INTERSECTION, WHICHEVER IS CLOSER.
350' IF 35 - 40 MPH.
200' IF 25 - 30 MPH.
- ALSO USE BARRICADE AND 15 FOOT TYPICAL DRUM SPACING AT COMMERCIAL DRIVEWAYS
- SEE SEPARATE LANE CLOSURE DETAIL FOR ADDITIONAL TRAFFIC CONTROL.
- MINIMUM MOUNTING HEIGHT OF 5 FEET FROM EDGE OF PAVEMENT (AT EDGE LINE LOCATION) TO BOTTOM OF SIGN.

LEGEND

- SIGN ON TEMPORARY SUPPORT
- SIGN ON PERMANENT SUPPORT
- TRAFFIC CONTROL DRUM
- TYPE III BARRICADE
- TYPE III BARRICADE WITH ATTACHED SIGN
- DIRECTION OF TRAFFIC
- FLAGS, 16" X 16" MIN., ORANGE
- WORK AREA

TRAFFIC CONTROL, INTERSECTION WITHIN TWO LEFT LANE CLOSURE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
August 2021 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER 157
FHWA

LEGEND

- TRAFFIC CONTROL DRUM
- ⦿ SIGN ON PERMANENT SUPPORT
- ➡ DIRECTION OF TRAFFIC
- ⚡➡ FLASHING ARROW BOARD
- ▨ WORK AREA

GENERAL NOTES

THIS DETAIL IS TYPICAL FOR CLOSING THE RIGHT SHOULDER. FOR CLOSING THE LEFT SHOULDER, REVERSE THE TRAFFIC CONTROL.

THIS DETAIL MAY BE USED FOR DIVIDED ROADWAYS WITH ANY NUMBER OF TRAVEL LANES.

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

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

SIGN LAYOUTS SHALL BE IN ACCORDANCE WITH THE FHWA'S MANUAL OF STANDARD HIGHWAY SIGNS OR THE WISCONSIN STANDARD SIGN PLATES.

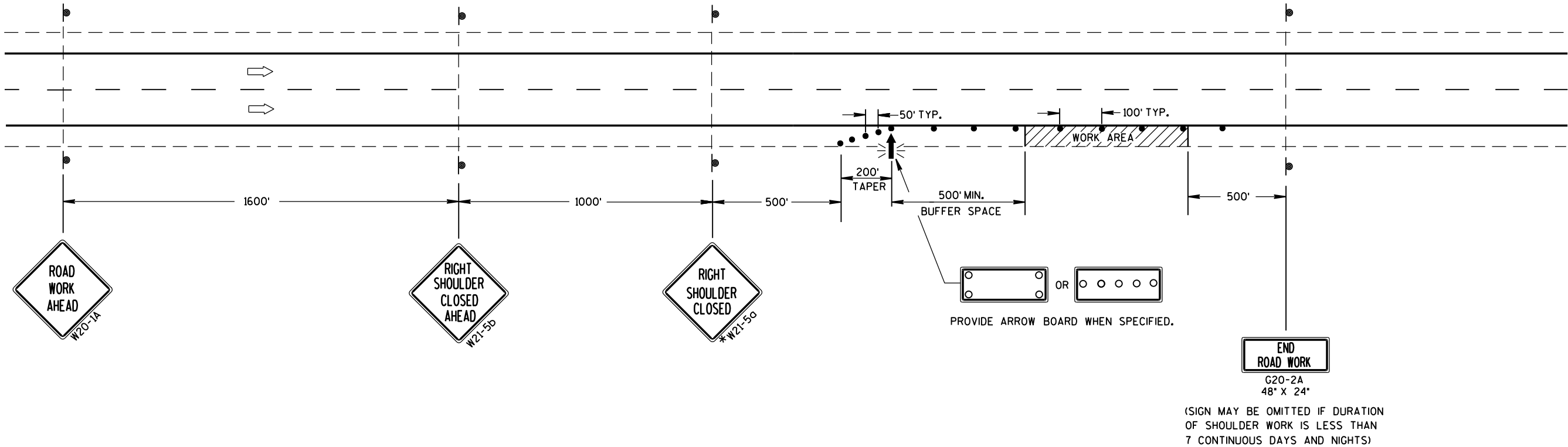
SIGNS THAT WILL BE IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS MAY BE MOUNTED ON PORTABLE SUPPORTS.

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

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

WHEN A 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.

*FOR SHORT DURATION SHOULDER WORK OF LESS THAN ONE HOUR, THE W21-5a SIGN MAY BE OMITTED.



TRAFFIC CONTROL
SHOULDER CLOSURE ON DIVIDED
ROADWAY, SPEEDS GREATER
THAN 40 MPH

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June 2016 /S/ Peter Amakobe Atepe
DATE STATEWIDE WORK ZONE SAFETY ENGINEER 158
FHWA

LEGEND

-  SIGN ON PERMANENT SUPPORT
-  TRAFFIC CONTROL DRUM
-  DIRECTION OF TRAFFIC
-  CONNECTED ARROW BOARD
-  WORK AREA
- ((S))** WZ START LOCATION MARKER
- ((E))** WZ END LOCATION MARKER

GENERAL NOTES

THIS DETAIL IS TYPICAL FOR CLOSING THE RIGHT SHOULDER. FOR CLOSING THE LEFT SHOULDER, REVERSE THE TRAFFIC CONTROL.

THIS DETAIL MAY BE USED FOR DIVIDED ROADWAYS WITH ANY NUMBER OF TRAVEL LANES.

ALL SIGNS ARE 48"X48" UNLESS OTHERWISE NOTED.

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.

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

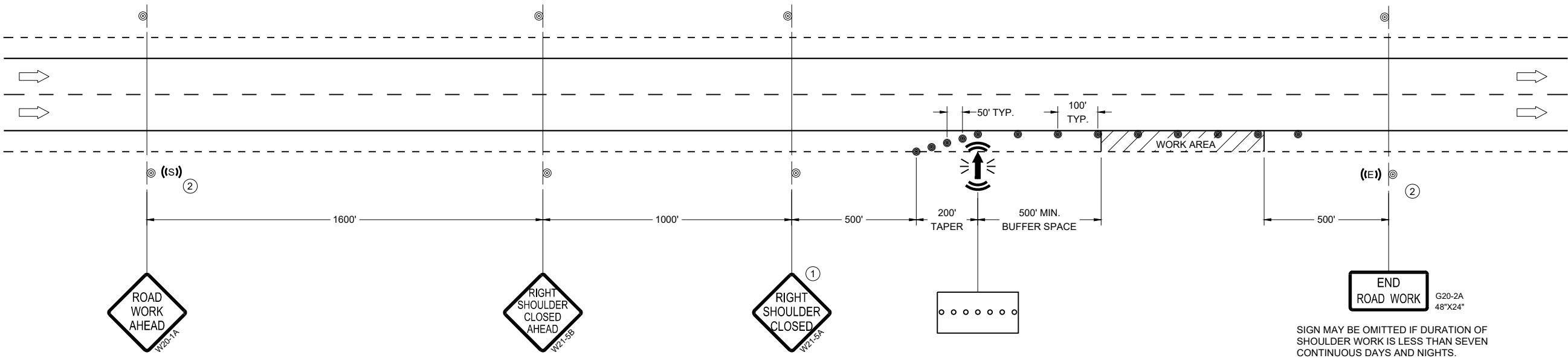
CHANNELIZING DEVICES PLACED ADJACENT TO WORK AREA SHALL BE PULLED BACK FROM THE TRAVEL LANE WHEN WORK IS NOT IN PROGRESS.

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

SIGN LAYOUTS SHALL BE IN ACCORDANCE WITH THE FHWA'S MANUAL OF STANDARD HIGHWAY SIGNS OR THE WISCONSIN STANDARD SIGN PLATES.

① FOR SHORT DURATION SHOULDER WORK OF LESS THAN ONE HOUR THE W21-5A SIGN MAY BE OMITTED.

② IF ALREADY PRESENT WITHIN PROJECT , DO NOT INCLUDE ADDITIONAL DEVICE.



**TRAFFIC CONTROL,
SHOULDER CLOSURE ON
DIVIDED ROADWAY, SPEEDS
GREATER THAN 40 MPH**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
February 2025
DATE

/S/ Andrew Heidtke
STATEWIDE WORK ZONE TRAFFIC
SAFETY ENGINEER

FHWA

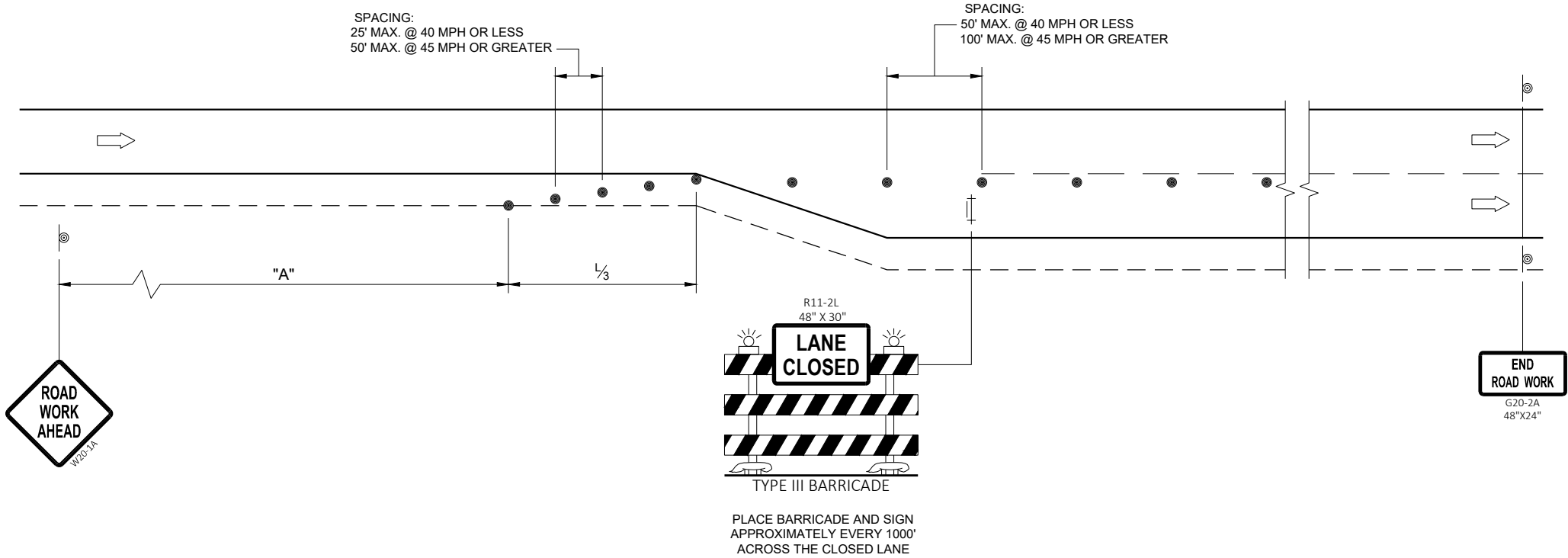
LEGEND

- TYPE III BARRICADE WITH ATTACHED SIGN
- SIGN ON PERMANENT SUPPORT
- TRAFFIC CONTROL DRUM
- TRAFFIC CONTROL DRUM WITH TYPE "C" STEADY BURN LIGHT
- TYPE "A" WARNING LIGHT (FLASHING)
- DIRECTION OF TRAFFIC
- WORK AREA

POSTED SPEED LIMIT PRIOR TO WORK STARTING (MPH)	ADVANCE WARNING SIGN SPACING (A) FEET	SHIFTING TAPER $L/2$					
		W, LATERAL OFFSET (FT)					
3	4	5	6	7	8		
25	200	10	14	17	21	24	28
30	200	15	20	25	30	35	40
35	350	20	27	34	40	47	54
40	350	26	35	44	53	62	70
45	500	45	59	74	89	104	119
50	500	50	66	83	99	116	132
55	500	54	73	91	109	127	145

GENERAL NOTES

- THE EXACT NUMBER, LOCATION, AND SPACING OF ALL SIGNS AND DEVICES SHALL BE ADJUSTED TO FIT FIELD CONDITIONS AS APPROVED BY THE ENGINEER.
- ALL SIGNS ARE 48"x48" UNLESS OTHERWISE NOTED. IF NECESSARY DUE TO SPACE CONSTRAINTS IN URBAN AREAS, 36"x36" SIGNS MAY BE USED IF APPROVED BY THE REGIONAL TRAFFIC UNIT.
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- SIGNS THAT WILL BE IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS MAY BE MOUNTED ON PORTABLE SUPPORTS.
- W20-1 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 WORK IS LESS THAN SEVEN CONTINUOUS DAYS AND NIGHTS.



**TRAFFIC CONTROL
ADDED LANE CLOSURE
WITHOUT LANE SHIFT**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
May 2023 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER 160

FHWA

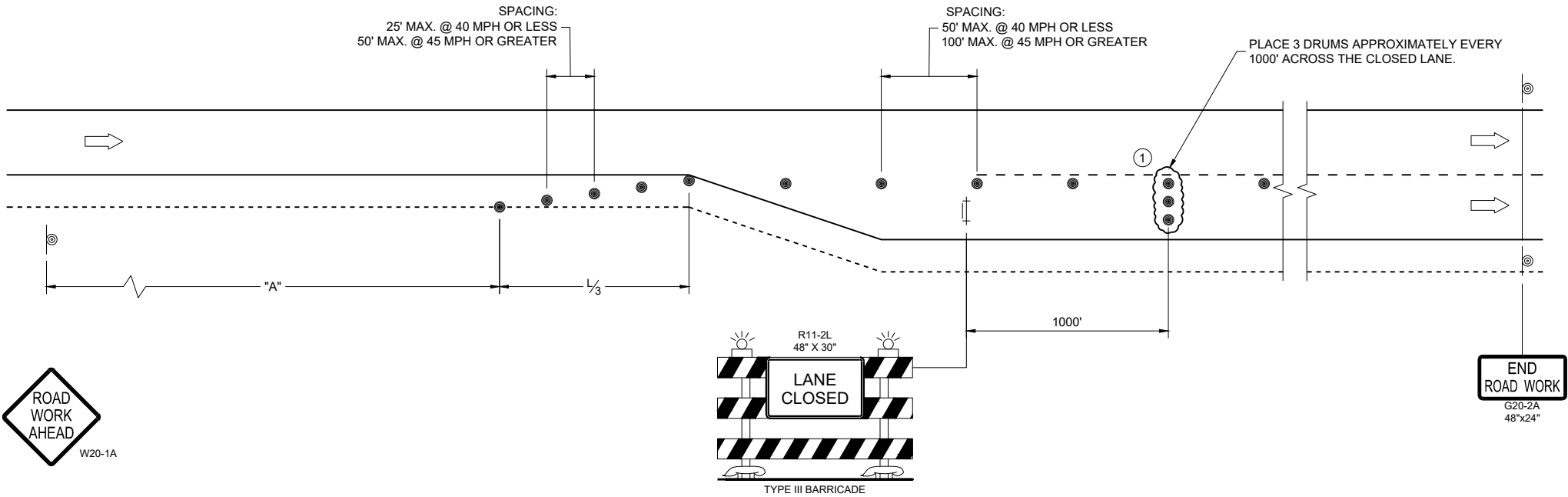
LEGEND

- TYPE III BARRICADE WITH ATTACHED SIGN
- SIGN ON PERMANENT SUPPORT
- TRAFFIC CONTROL DRUM
- TRAFFIC CONTROL DRUM WITH TYPE "C" STEADY BURN LIGHT
- TYPE "A" WARNING LIGHT (FLASHING)
- DIRECTION OF TRAFFIC
- WORK AREA

POSTED SPEED LIMIT PRIOR TO WORK STARTING (MPH)	ADVANCE WARNING SIGN SPACING (A) FEET	SHIFTING TAPER $L\frac{1}{2}$					
		W, LATERAL OFFSET (FT)					
25	200	10	14	17	21	24	28
30	200	15	20	25	30	35	40
35	350	20	27	34	40	47	54
40	350	26	35	44	53	62	70
45	500	45	59	74	89	104	119
50	500	50	66	83	99	116	132
55	500	54	73	91	109	127	145

GENERAL NOTES

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- ① DRUMS IN A CLOSED LANE THAT MUST BE MOVED FOR A WORK OPERATION SHALL BE IMMEDIATELY REESTABLISHED UPON COMPLETION OF THE OPERATION, OR FOR CONTINUING OPERATIONS, AT THE END OF EACH WORKING DAY.

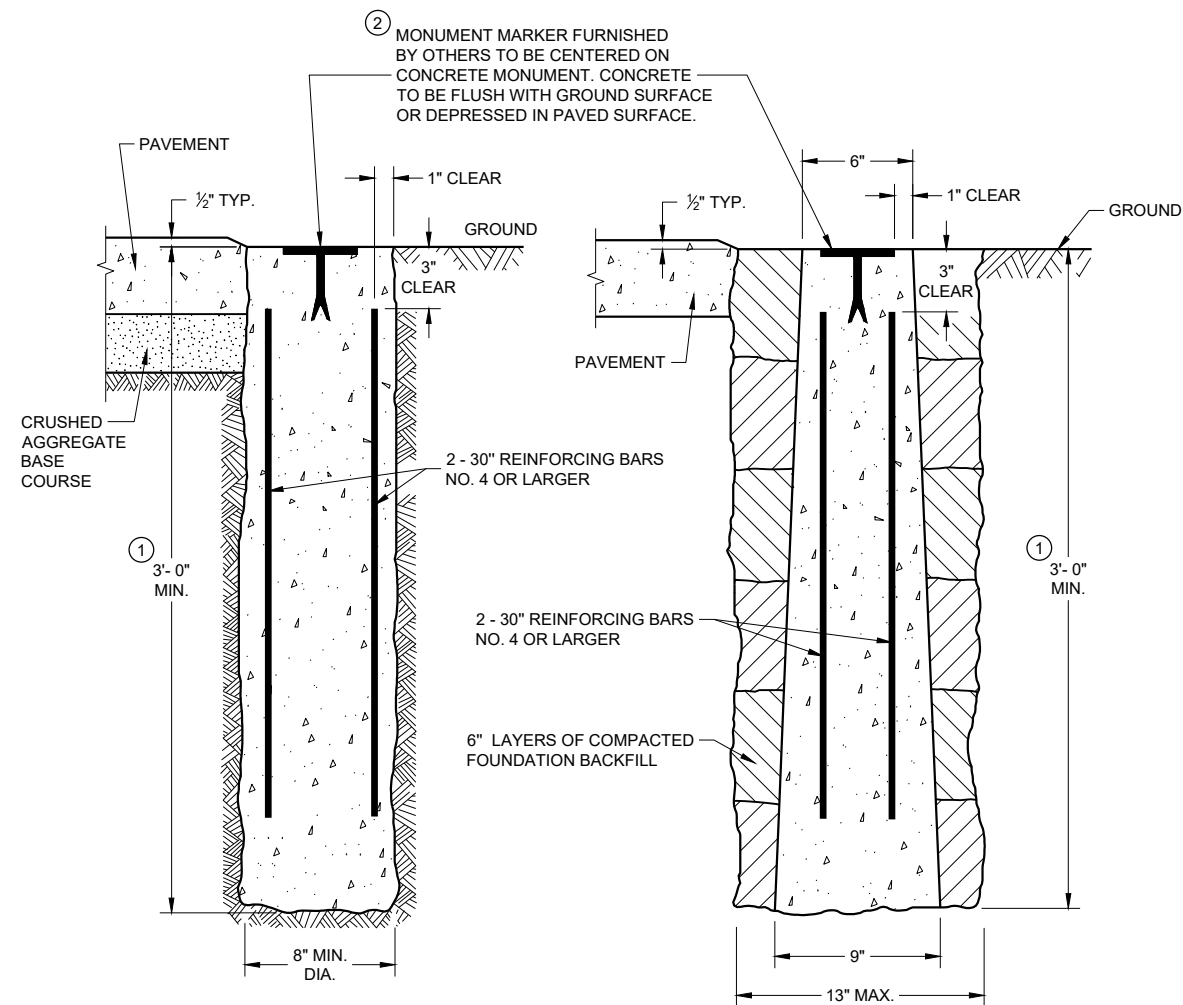


TRAFFIC CONTROL
ADDED LANE CLOSURE
WITHOUT LANE SHIFT

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
February 2025 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER

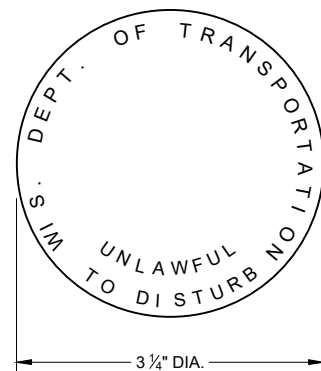
FHWA



CAST-IN-PLACE

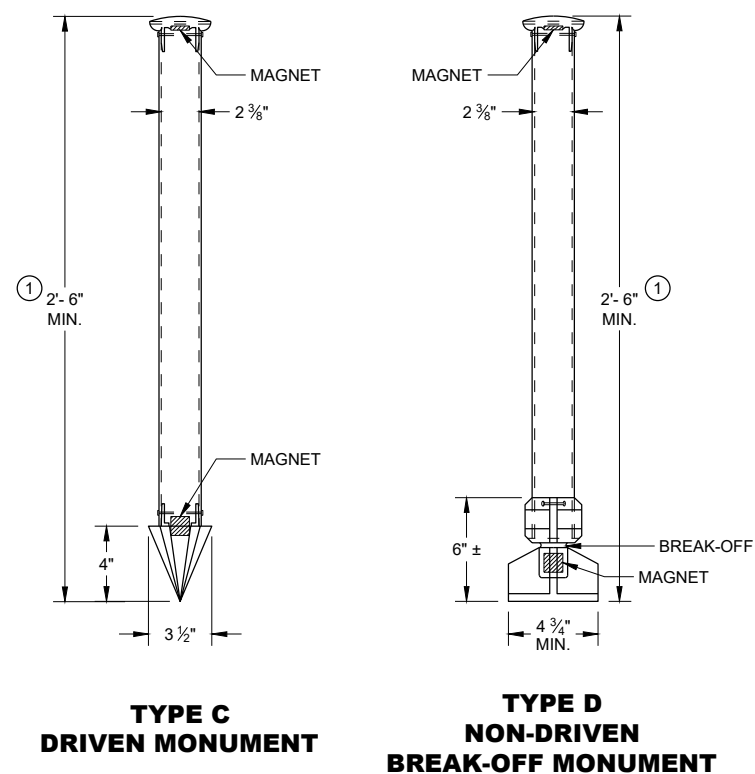
CONCRETE MONUMENTS

TYPE A

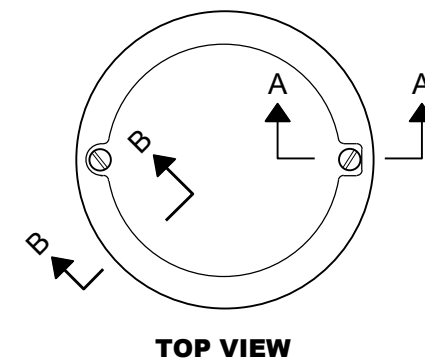


② **WIS DOT MONUMENT
MARKER LOGO**

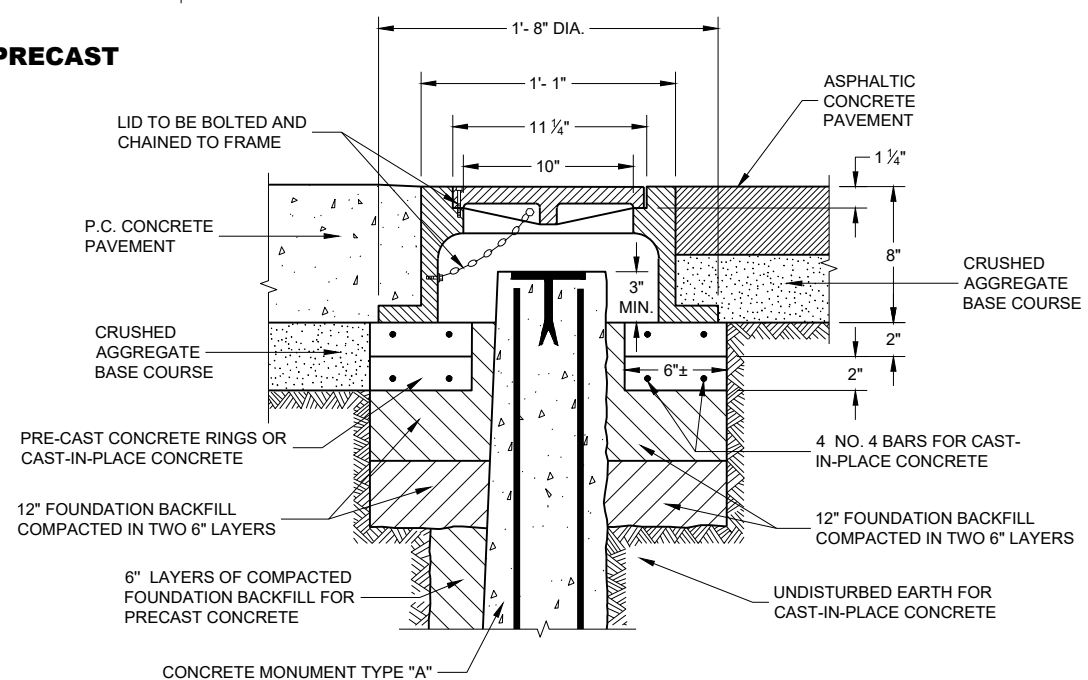
FOR TYPES "A", "C" & "D"



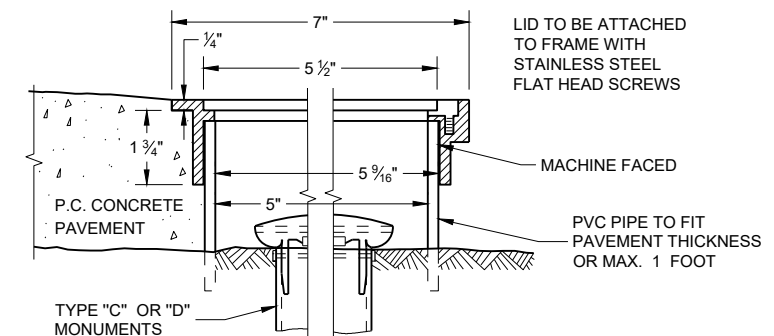
ALUMINUM MONUMENTS
(INCLUDES MARKER)



TOP VIEW



CAST IRON MONUMENT COVER
(APPROXIMATE WEIGHT 95 LBS)



SECTION B-B **SECTION A-A**
ALUMINUM MONUMENT COVER
 (APPROXIMATE WEIGHT 2 LBS)
 (FOR CONCRETE PAVEMENT ONLY)

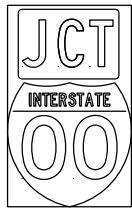
LANDMARK REFERENCE MONUMENTS AND COVERS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

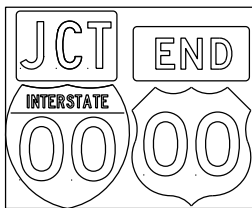
APPROVED
March 2018
DATE

/S/ Raymond A. Kumabavii
CHIEF SURVEYING AND MAPPING ENGINEER 162

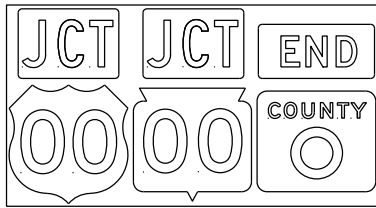
TYPICAL ASSEMBLIES



J1-1



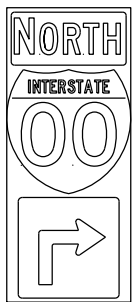
J1-2



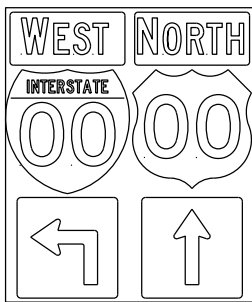
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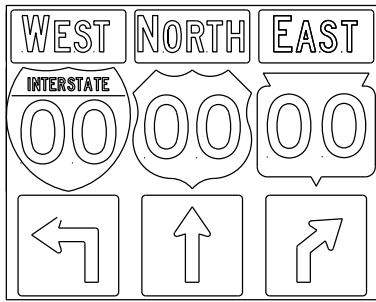
JR1-1



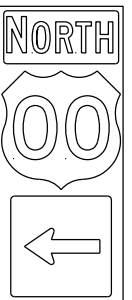
J2-1



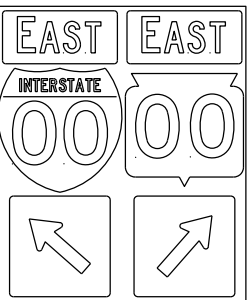
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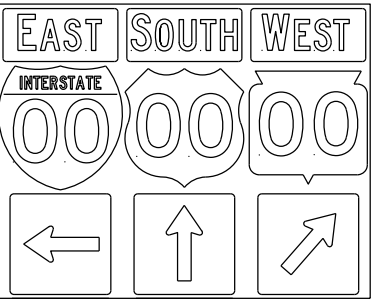
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J3-1



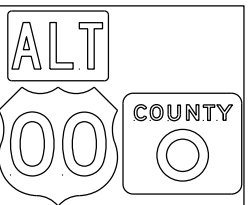
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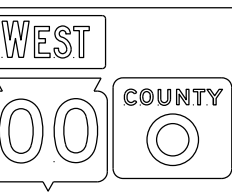
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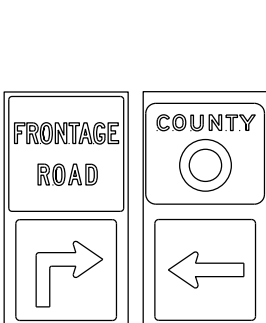
J4-1



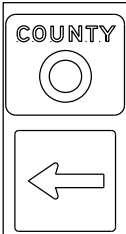
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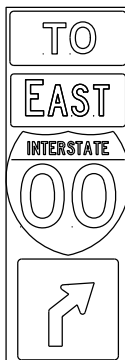
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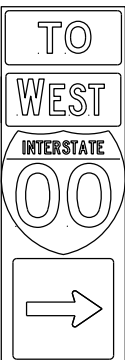
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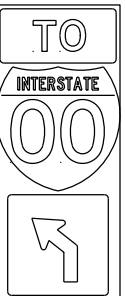
J13-1



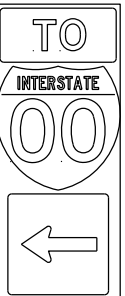
J32-1



J33-1



J22-1



J23-1



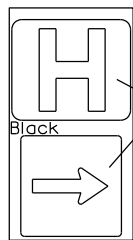
JR13-1



JR23-1



JR99-1

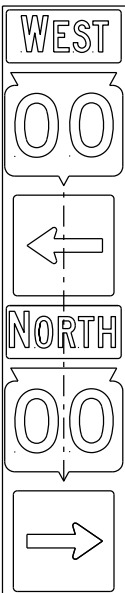
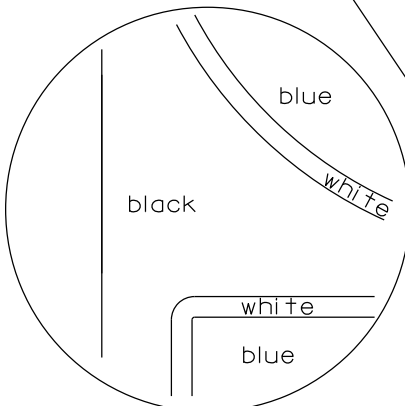


JH-1

Blue Background

Black

blue background with interstate

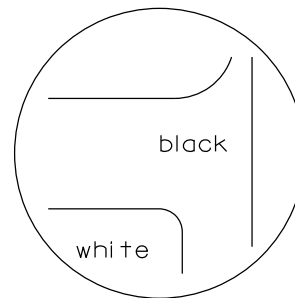
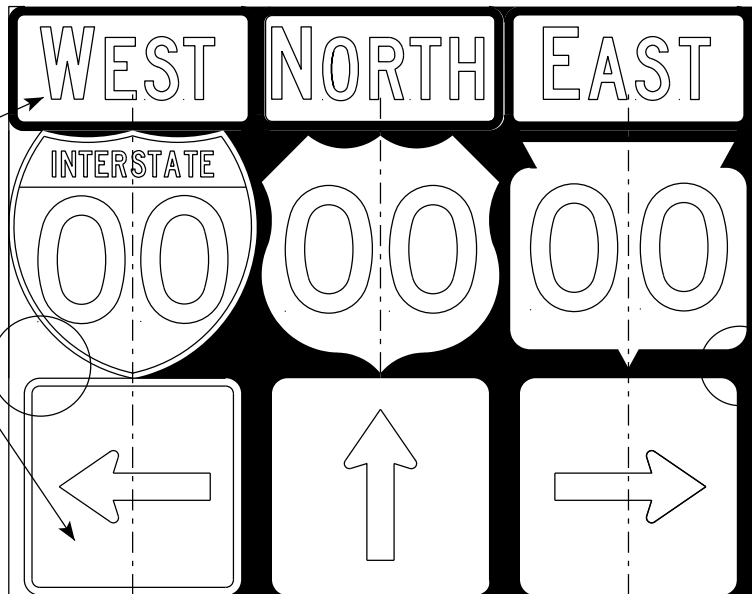


JV

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

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.



black background

ROUTE MARKERS & COMPONENTS
IN TYPICAL ASSEMBLIES

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

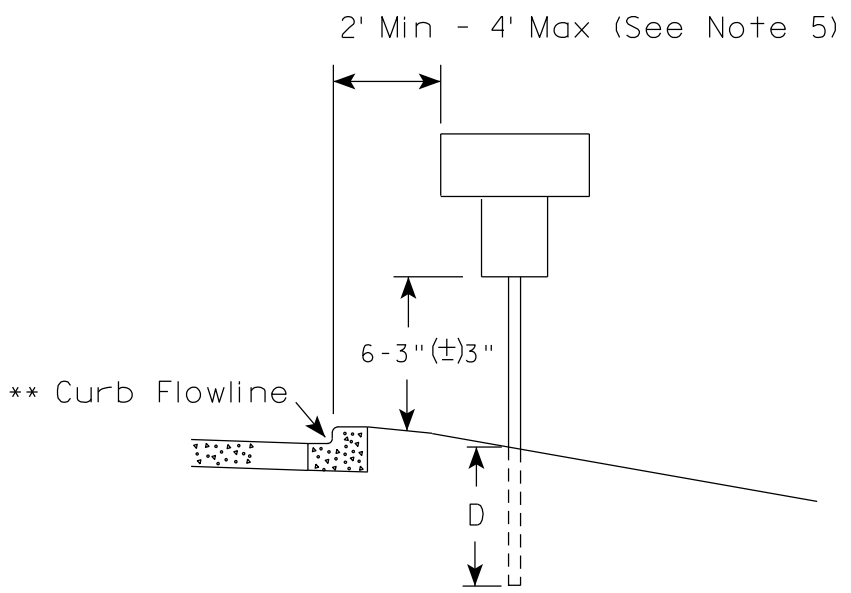
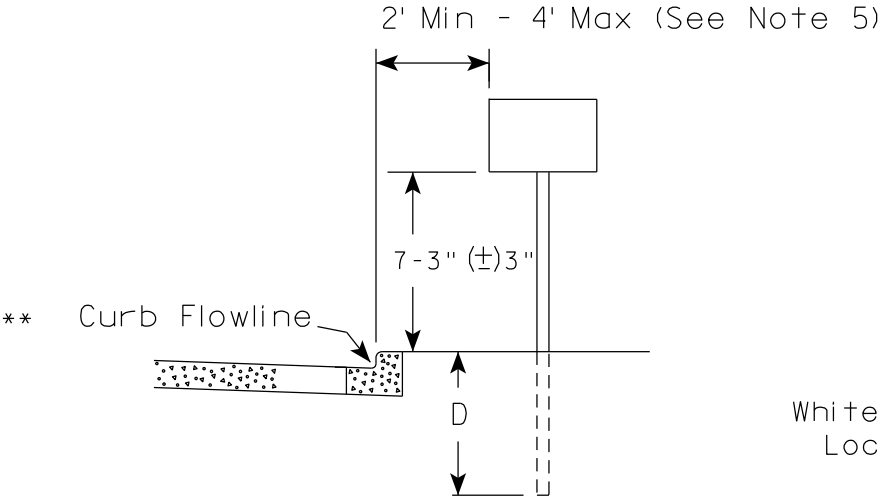
DATE 6/7/23 PLATE NO. A2-1S.10

PROJECT NO:

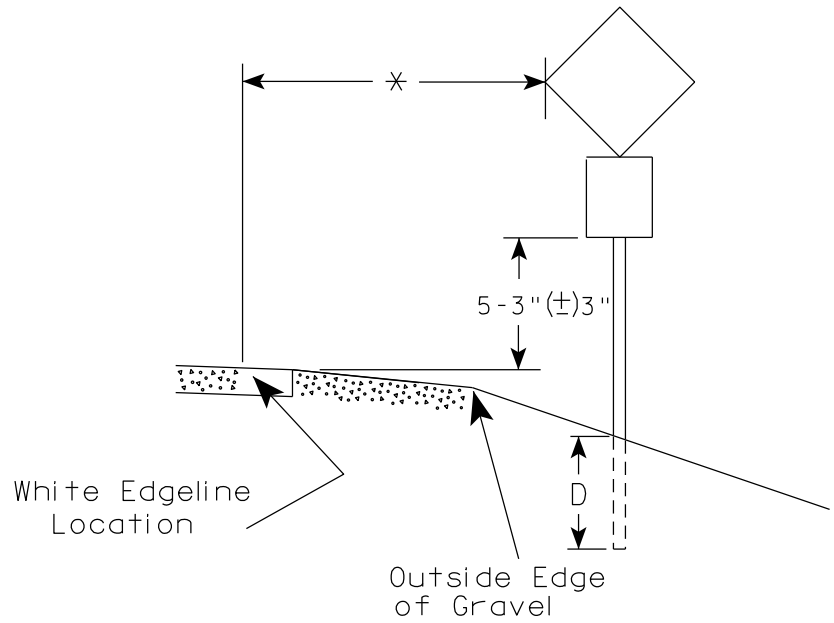
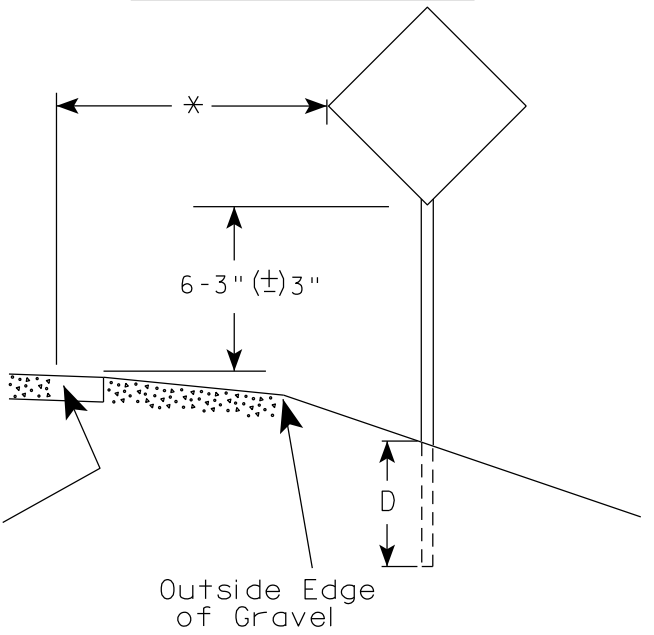
SHEET NO: 163

E

URBAN AREA



RURAL AREA (See Note 2)



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

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.

* * 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.

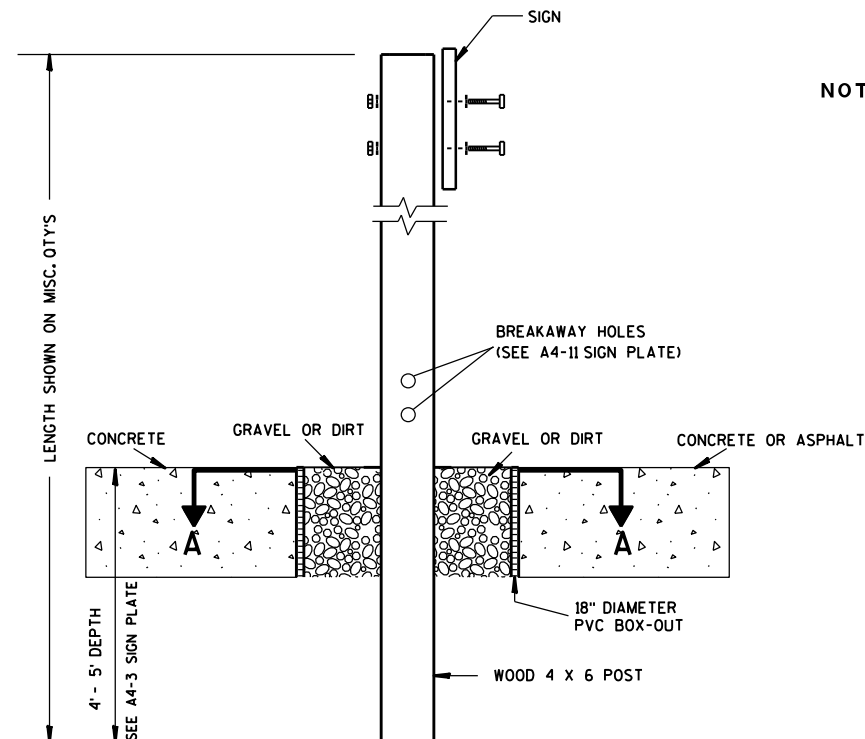
* 6 feet from edge of a paved shoulder or 12 feet from the edge of pavement (edge line location) or 2 feet from outside edge of gravel, whichever is greater unless directed by project engineer.

TYPICAL INSTALLATION
OF PERMANENT TYPE II
SIGNS ON SINGLE POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED 
for State Traffic Engineer

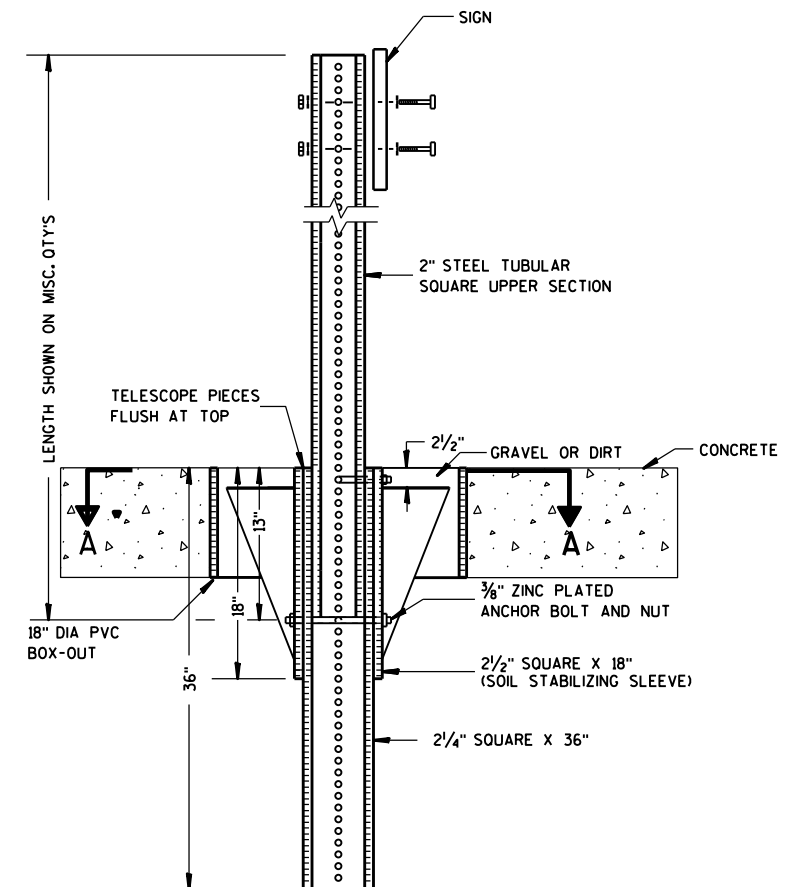
DATE 12/6/23 PLATE NO. A4-3.23



ELEVATION VIEW

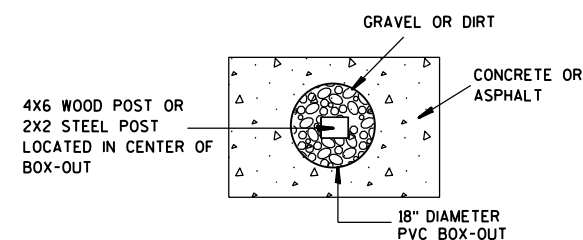
DETAIL OF WOOD 4 X 6 SIGN POST IN BOX-OUT

- 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 165 A4-3B.1

PROJECT NO:

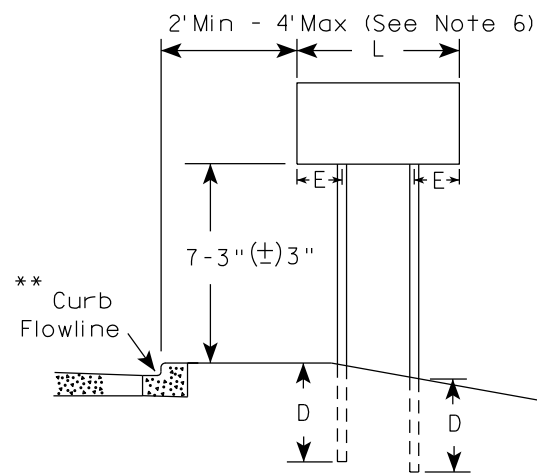
HWY:

COUNTY:

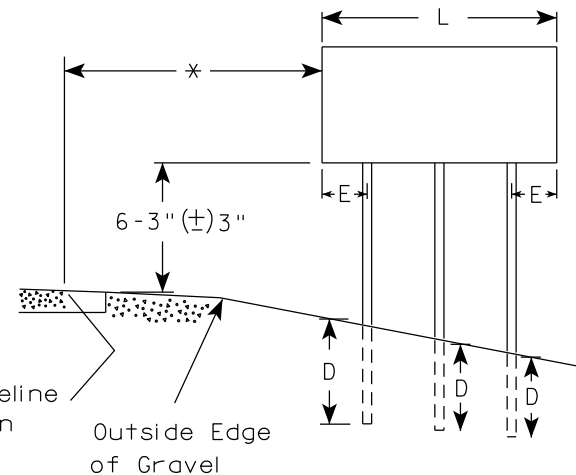
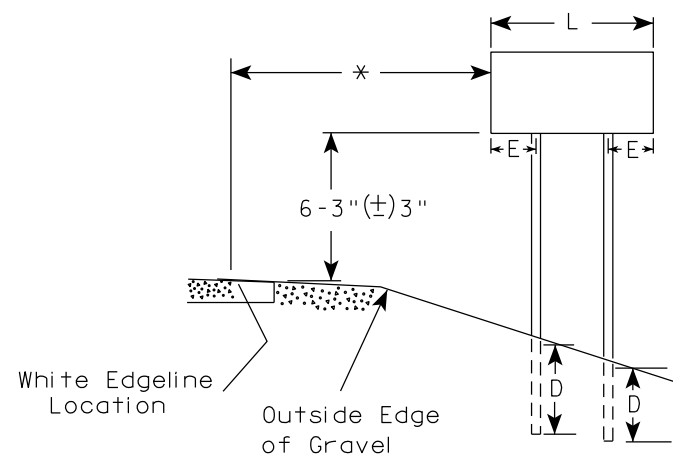
SHEET NO:

E

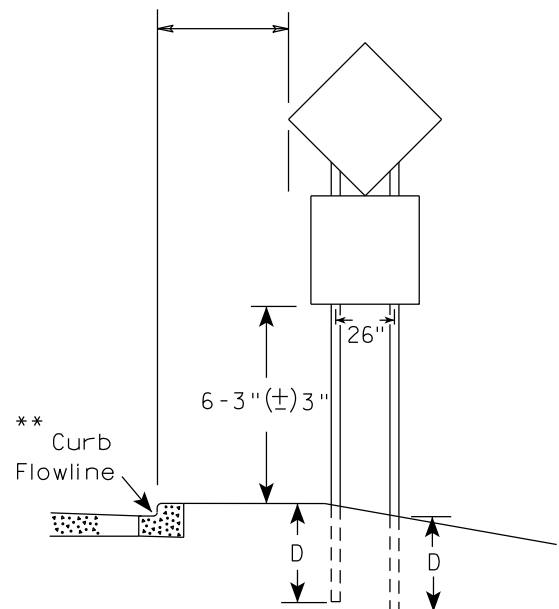
URBAN AREA



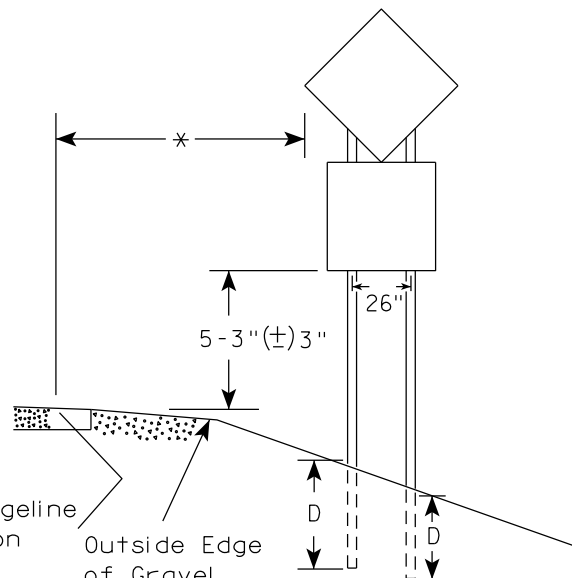
RURAL AREA (See Note 3)



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

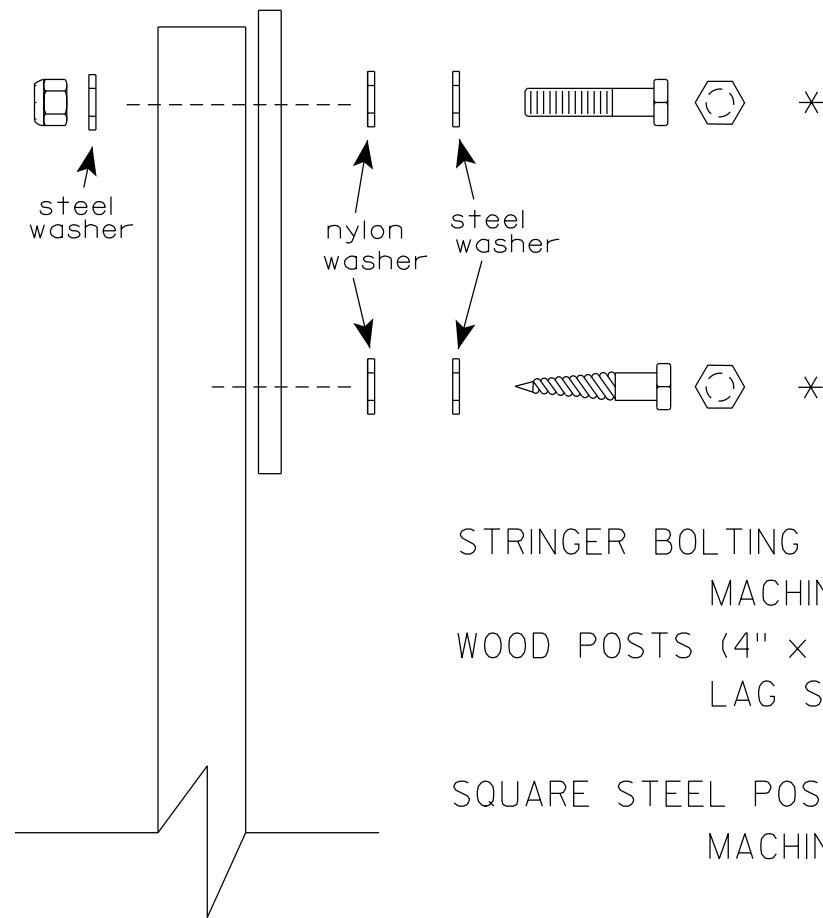
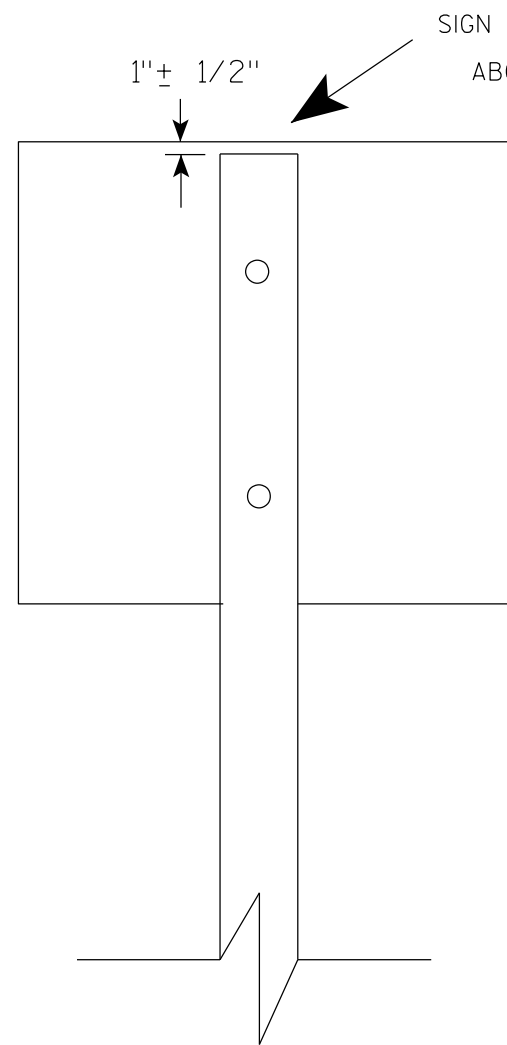
GENERAL NOTES

- 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.

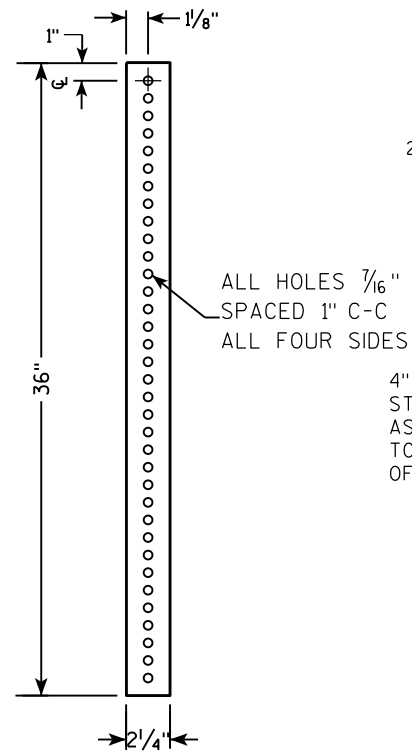
Threads on bolts and nuts shall be manufactured with sufficient allowance for the cadmium plate or galvanized coating to permit the nuts to run freely on the bolts.

- 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

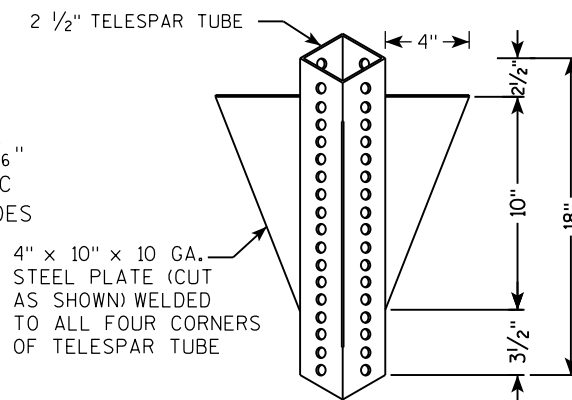
* Two different fastening systems are shown for illustration purposes. On any individual sign, either one or the other system shall be used. Actual number of fasteners per sign varies with the sign area, but normally there are two. For a single post installation, all signs greater than 9 sq. ft. require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



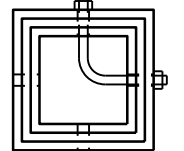
**2 1/2" SQUARE
12 GAUGE
OMNI-DIRECTIONAL
PERFORATED
SOIL STABILIZING SLEEVE
GALVANIZED FINISH**



LENGTH SHOWN ON MISC. QTY'S
 18" DIA SCHEDULE 40 PVC BOX-OUT
 TELESCOPE PIECES FLUSH AT TOP
 36"
 18"
 13"
 2 1/2"
 2 1/4" SQUARE X 36"
 2 1/2" SQUARE X 18" (SOIL STABILIZING SLEEVE)
 3/8" ZINC PLATED ANCHOR BOLT AND NUT
 2 1/2" GRAVEL OR DIRT
 3/8" ZINC PLATED ANCHOR BOLT AND NUT
 ALL HOLES 7/16" SPACED 1" C-C ALL FOUR SIDES
 2" STEEL TUBULAR SQUARE UPPER SECTION
 SEE SIGN PLATE A4-8 FOR BOLT WASHER, & NUT MATERIAL
 SIGN

[illegible]

3/8" ZINC PLATED CORNER
ANCHOR BOLT AND NUT



DIRECTION
OF TRAFFIC

SECTION A-A

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

TUBULAR STEEL
SIGN POST
A4-9

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch

for State Traffic Engineer

DATE 2/05/15 PLATI 168 14-9.9

SHEET NO: E

PROJECT NO:	HWY:	COUNTY:	SHEET NO:
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PLOT DATE : 05-FEB-2015 17:09

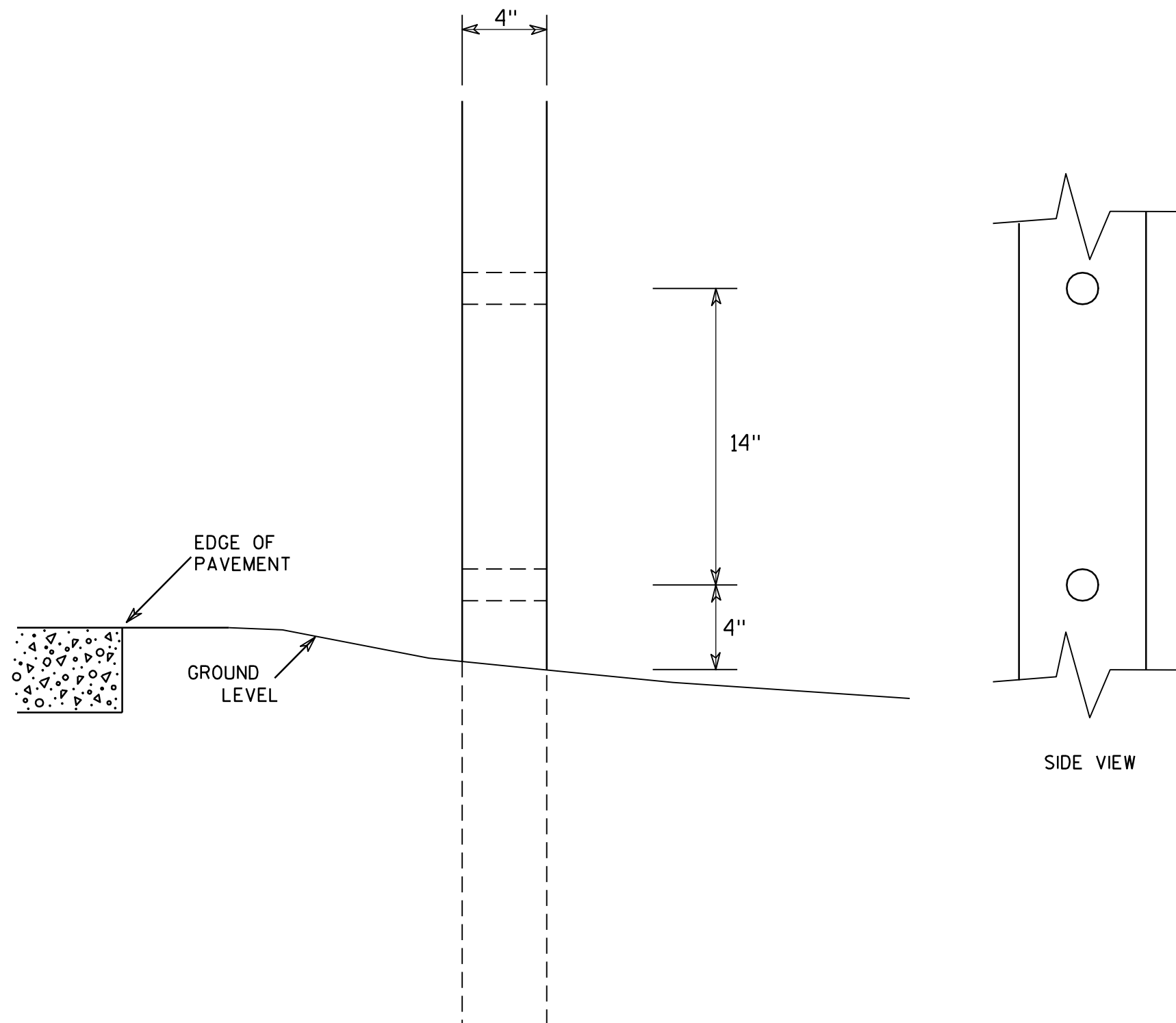
PLOT BY : mscs_ja

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

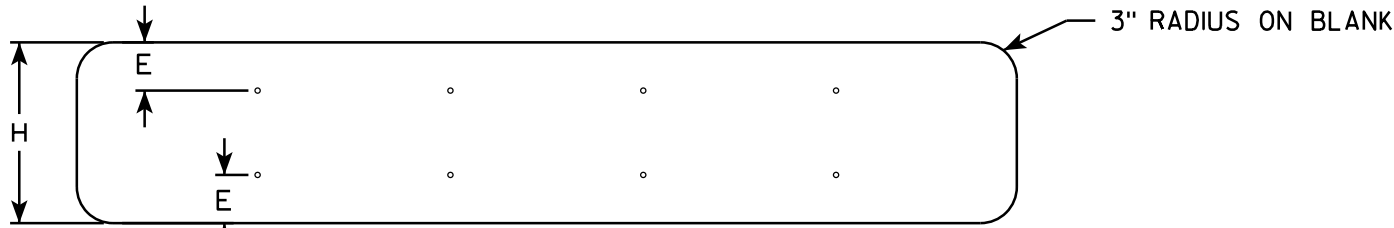
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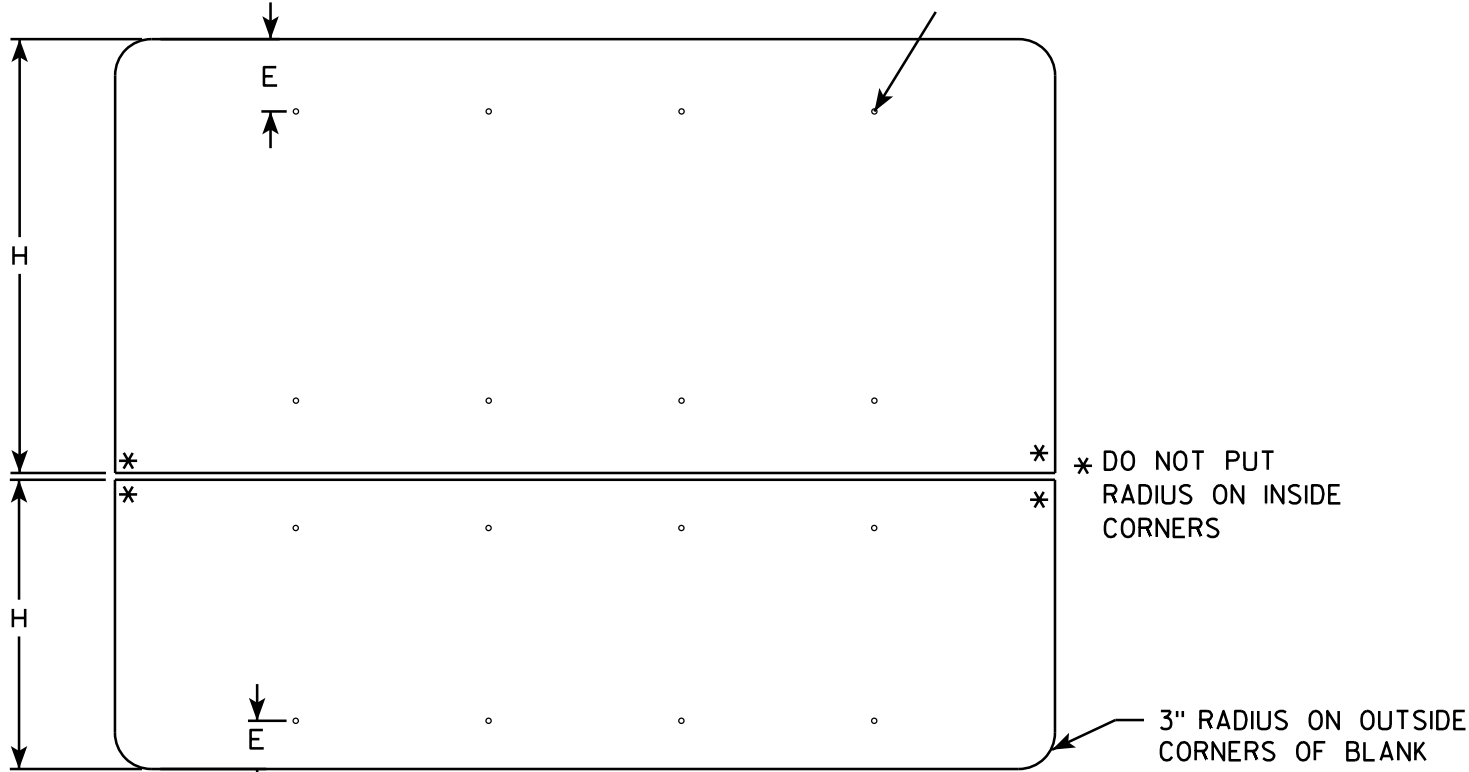
COUNTY:

SHEET NO: 169

E



SINGLE PIECE ALUMINUM SIGN 1/16" MOUNTING HOLES

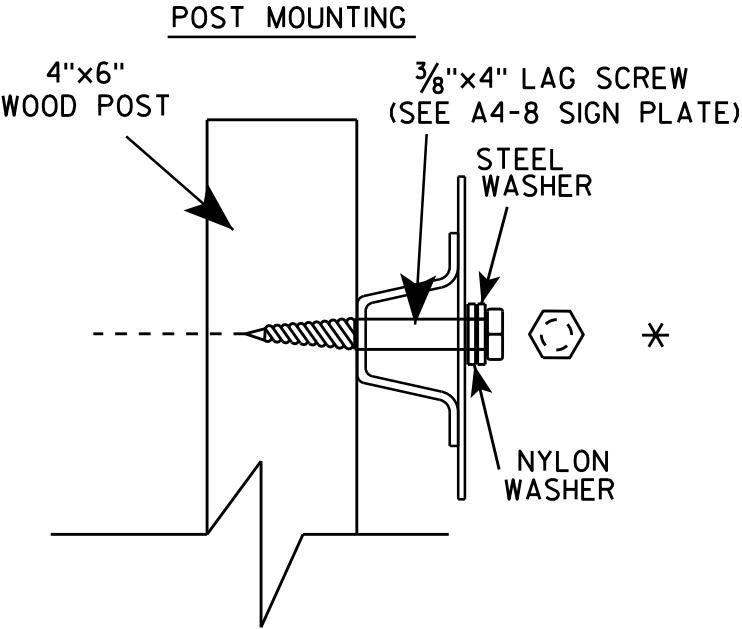
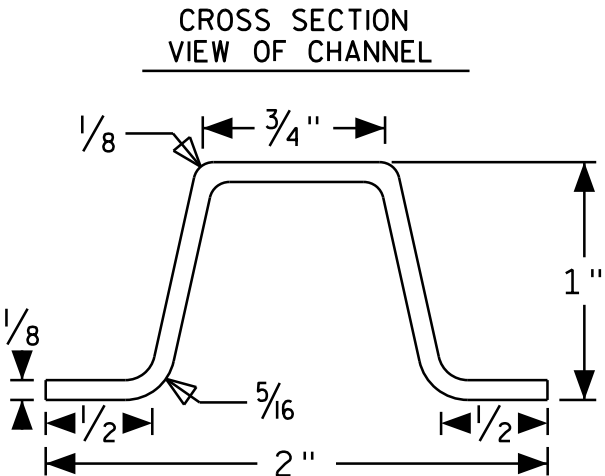
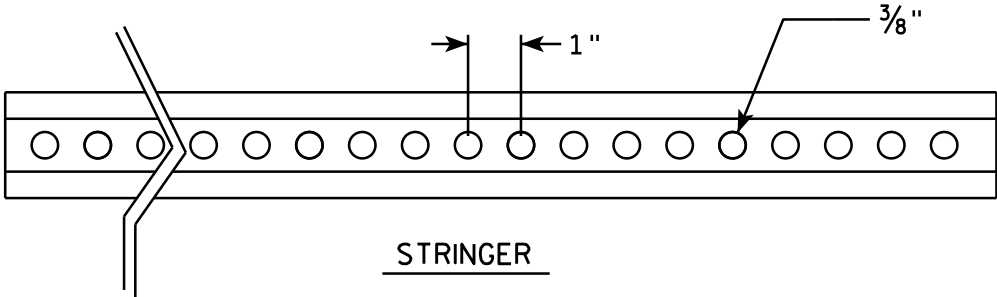


MULTI-PIECE ALUMINUM SIGN

GENERAL NOTES

- ALL SIGNS OVER 60" IN WIDTH SHALL HAVE A 3" RADIUS ON THE OUTSIDE CORNERS OF THE ALUMINUM BLANK.
- MOUNTING HOLES SHALL BE 7/16" DIAMETER.
- SEE CHART FOR HOLE SPACING REQUIREMENTS
- FOR SIGN PANELS WITH DIMENSION (H) 36" AND OVER, DIMENSION E SHALL BE 6"
- FOR SIGN PANELS WITH DIMENSION (H) UNDER 36", DIMENSION E SHALL BE 4"
- SIGN STRINGER MATERIAL SHALL CONSIST OF STEEL CHANNEL POST SECTIONS, WEIGHING 1.12 LBS/FT IN ACCORDANCE WITH SECTION 633.2.1 OF THE STANDARD SPECIFICATIONS FOR HIGHWAY AND STRUCTURE CONSTRUCTION.
- SEE SIGN PLATE A4-8 FOR SIGN STRINGER BOLTING REQUIREMENTS.

SIGN WIDTH	STRINGER WIDTH	POSTS	HOLE SPACING	MOUNTING HOLES			
78"	72"	2	16"	15"	31"	47"	63"
84"	72"	2	17"	16 1/2"	33 1/2"	50 1/2"	67 1/2"
90"	72"	2	18"	18"	36"	54"	72"
96"	90"	2	19"	19 1/2"	38 1/2"	57 1/2"	76 1/2"
102"	90"	2	20"	21"	41"	61"	81"
108"	90"	2	21"	22 1/2"	43 1/2"	64 1/2"	85 1/2"
114"	108"	3	15"	12"	27"	42"	57" 72" 87" 102"
120"	108"	3	16"	12"	28"	44"	60" 76" 92" 108"
126"	108"	3	17"	12"	29"	46"	63" 80" 97" 114"
132"	126"	3	18"	12"	30"	48"	66" 84" 102" 120"
138"	126"	3	19"	12"	31"	50"	69" 88" 107" 126"
144"	126"	3	20"	12"	32"	52"	72" 92" 112" 132"



SIGN STRINGER
MOUNTING REQUIREMENTS

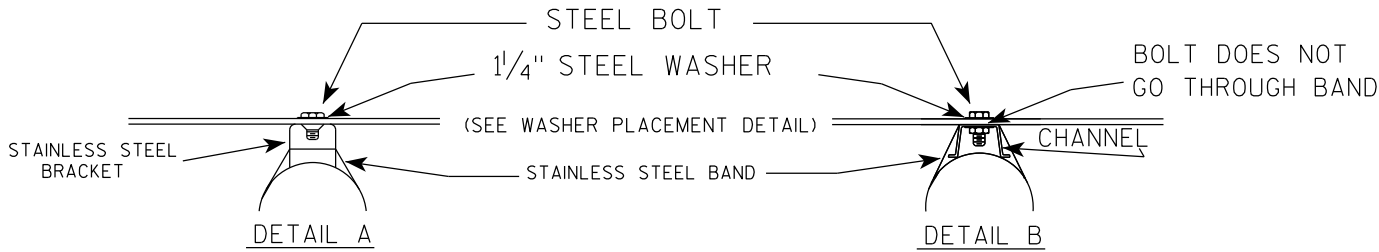
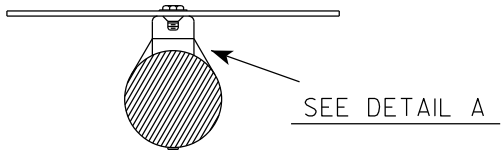
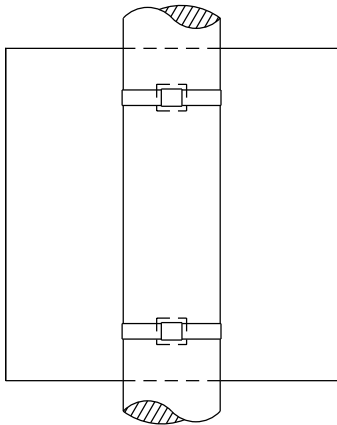
WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 4/26/16 PLATE No A4-18.1
170

BANDING

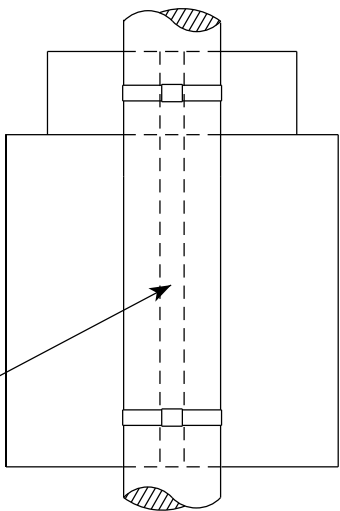
SINGLE SIGN



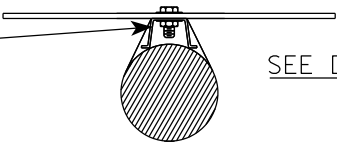
GENERAL NOTES

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

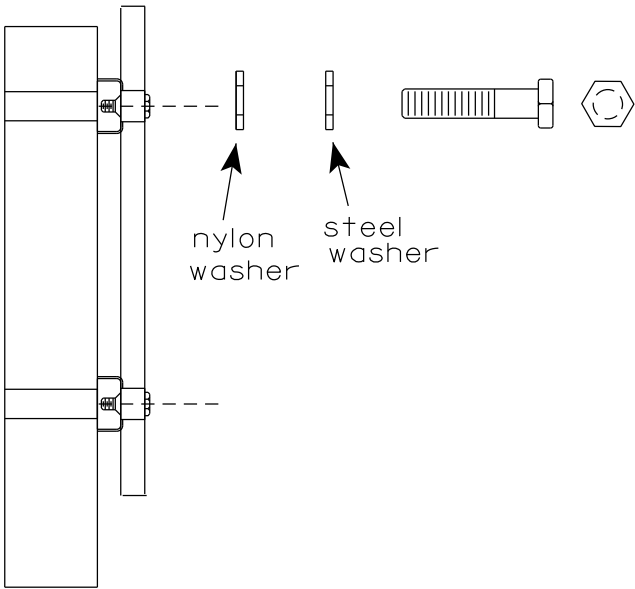
"J" ASSEMBLY



CHANNEL
SEE TYPICAL PANEL
INSTALLATION SHEET



WASHER PLACEMENT

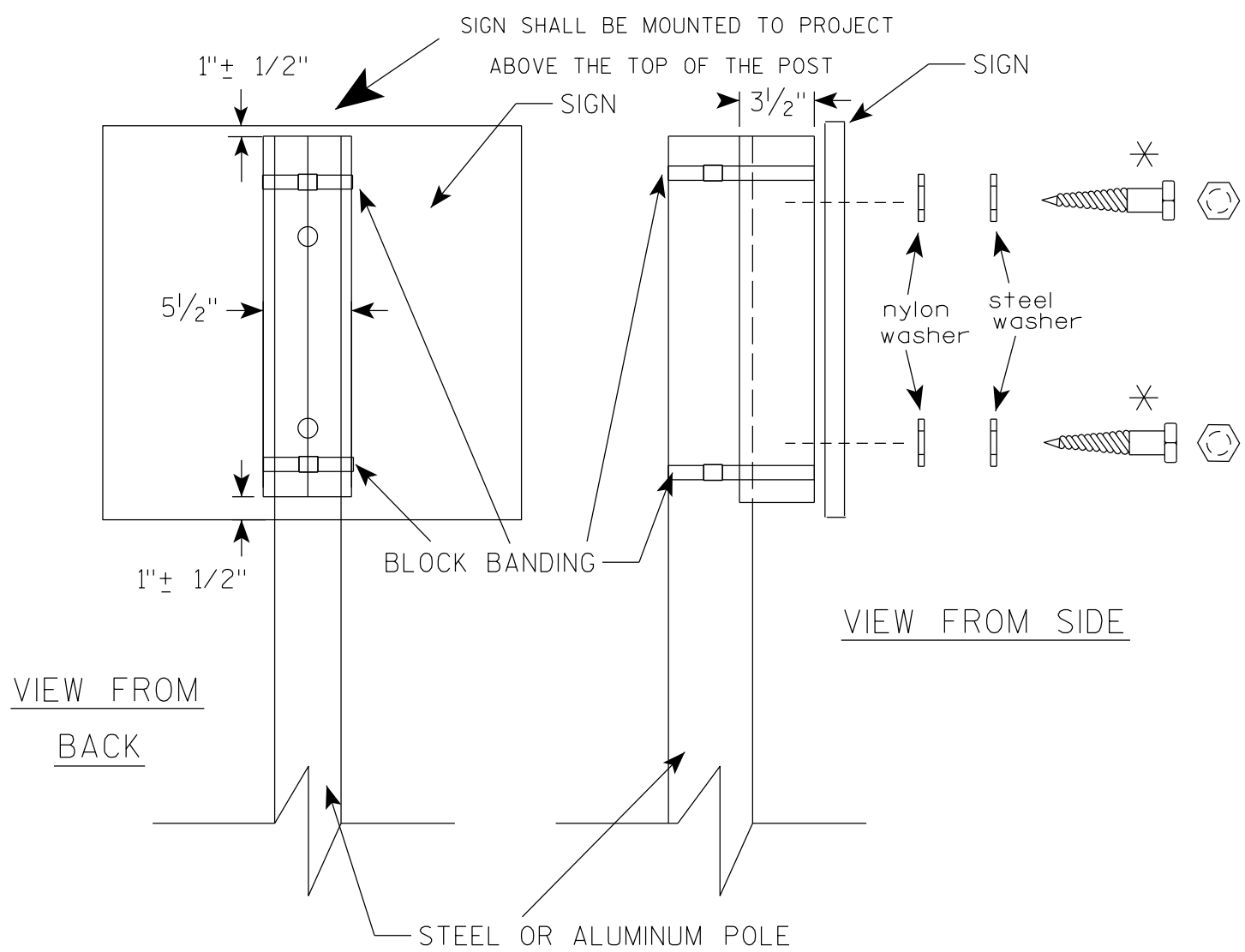


WASHERS (ALL POSTS) -
1-1/4" O.D. X $\frac{3}{8}$ " I.D. X $\frac{1}{16}$ " STEEL
1-1/4" O.D. X $\frac{3}{8}$ " I.D. X .080 NYLON
FOR ALL TYPE H SIGNS

STANDARD SIGN
SIGN BANDING DETAILS

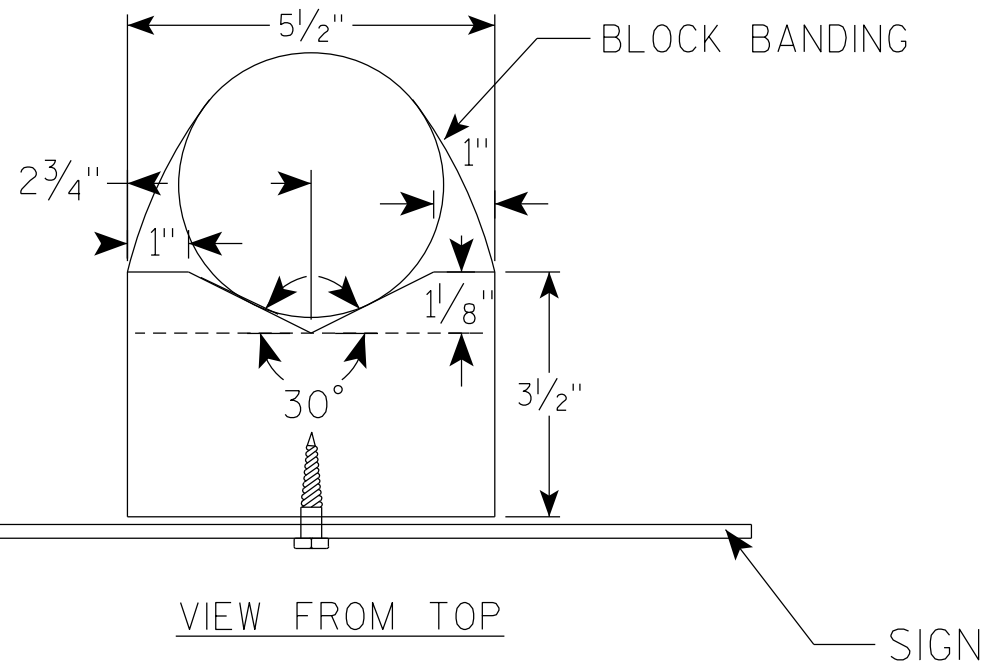
WISCONSIN DEPT OF TRANSPORTATION

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



VIEW FROM
BACK

VIEW FROM SIDE



VIEW FROM TOP

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, $\frac{3}{4}$ " 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 $\frac{1}{4}$ " O.D. X $\frac{3}{8}$ " I.D. X $\frac{1}{16}$ "
8. NYLON WASHERS SHALL BE $\frac{1}{4}$ " O.D. X $\frac{3}{8}$ " I.D. X .080 FOR TYPE H OR TYPE F FACE SIGN

✱ LAG BOLTS SHALL BE $\frac{3}{8}$ " X $2\frac{1}{2}$ "

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: 172

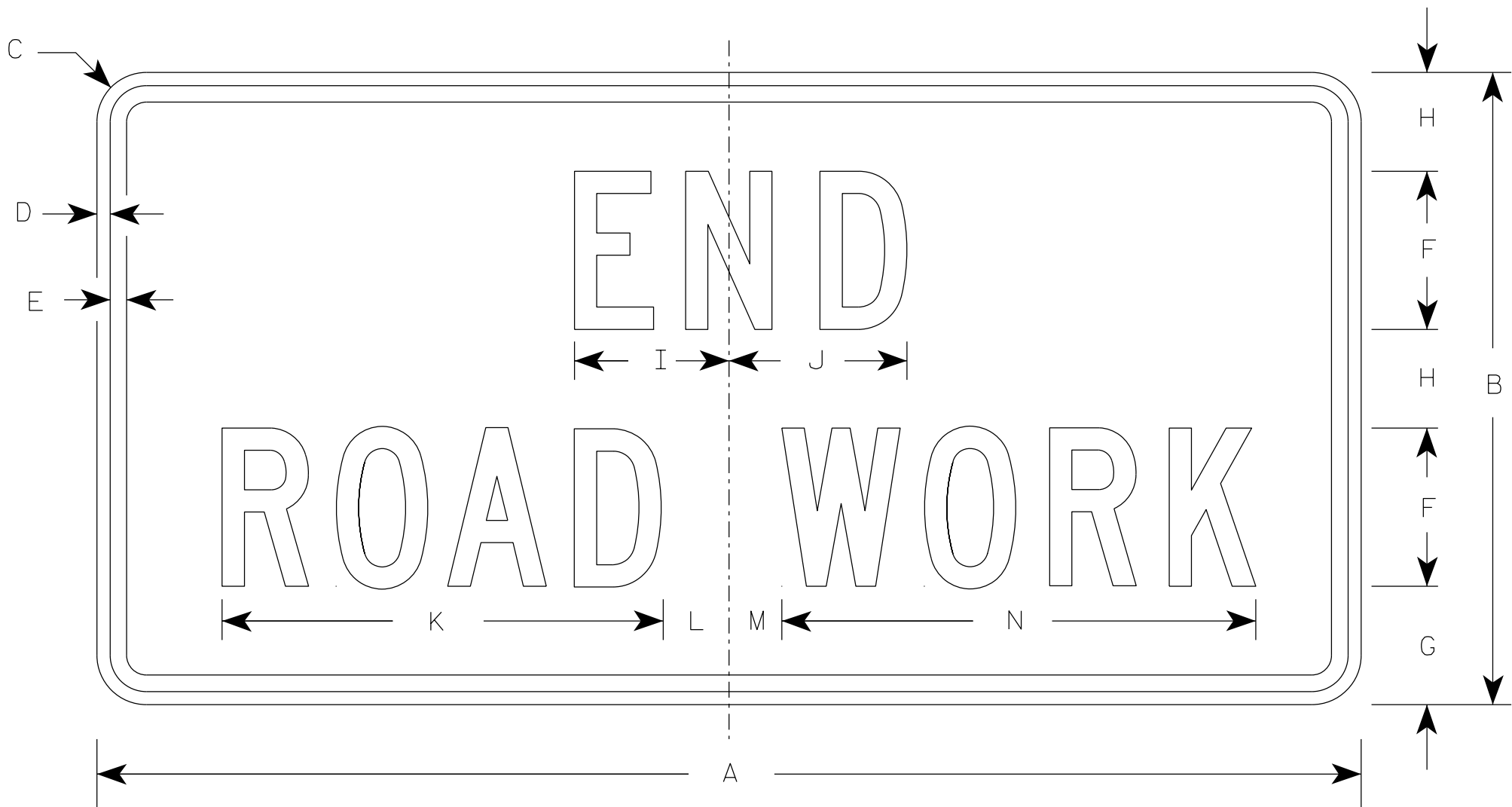
E

NOTES

1. Sign is Type II - Type F Reflective
2. Color:

Background - Orange

Message - Black
3. Message Series - C
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.



G20-2A

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	4	3 3/4	2 1/2	4 1/8	4 1/8	11 1/8	2	1	12 1/8													4.5
2	48	24	1 7/8	1/2	5/8	6	4 1/2	3 3/4	5 7/8	6 3/4	16 3/4	2 1/2	1 3/4	18 1/2													8.0
2M	48	24	1 7/8	1/2	5/8	6	4 1/2	3 3/4	5 7/8	6 3/4	16 3/4	2 1/2	1 3/4	18 1/2													8.0
3	48	24	1 7/8	1/2	5/8	6	4 1/2	3 3/4	5 7/8	6 3/4	16 3/4	2 1/2	1 3/4	18 1/2													8.0
4	48	24	1 7/8	1/2	5/8	6	4 1/2	3 3/4	5 7/8	6 3/4	16 3/4	2 1/2	1 3/4	18 1/2													8.0
5	48	24	1 7/8	1/2	5/8	6	4 1/2	3 3/4	5 7/8	6 3/4	16 3/4	2 1/2	1 3/4	18 1/2													8.0

STANDARD SIGN

G20-2A

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 1/26/2023 PLATE NO. G20-2A.10

PROJECT NO:

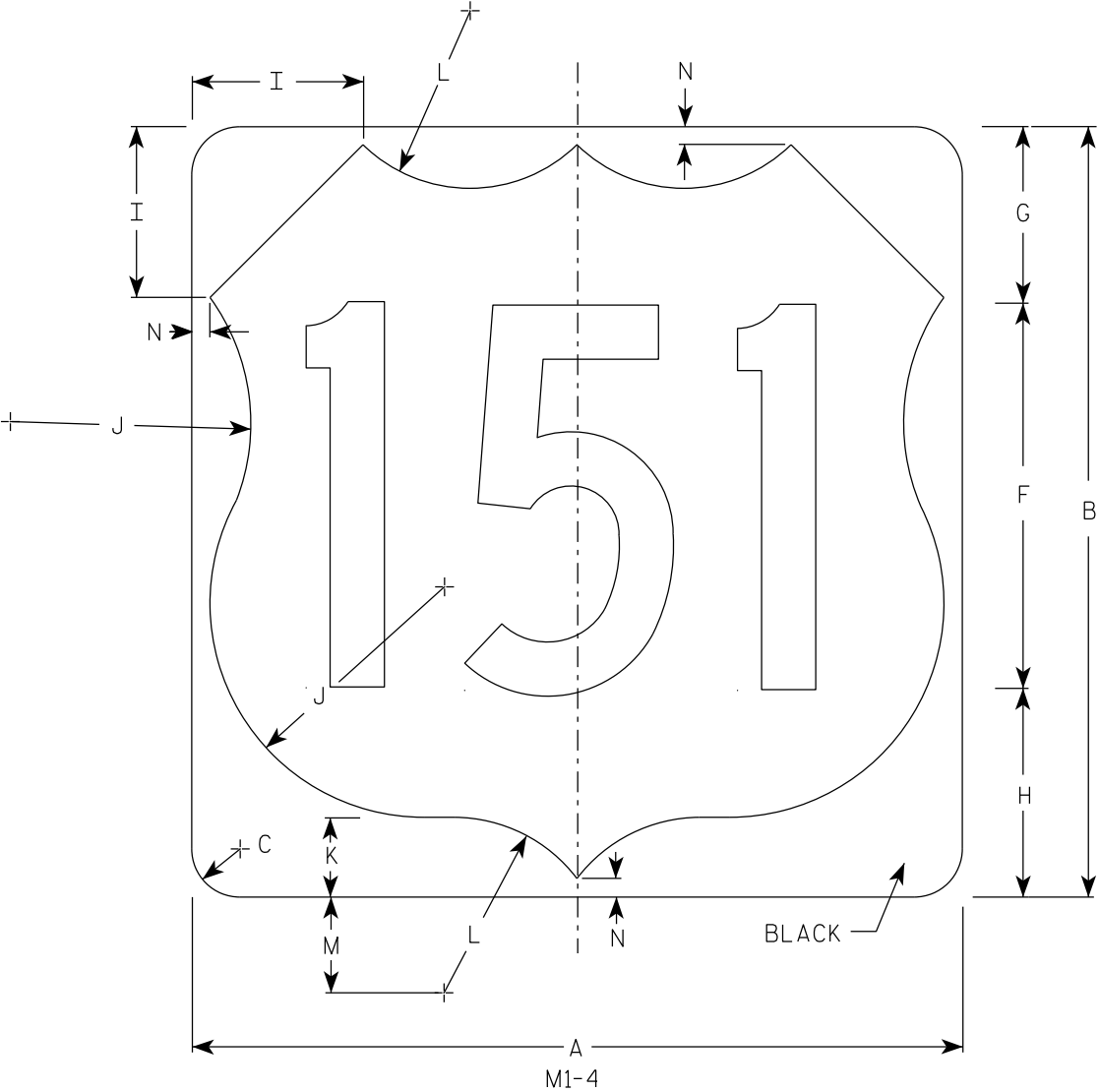
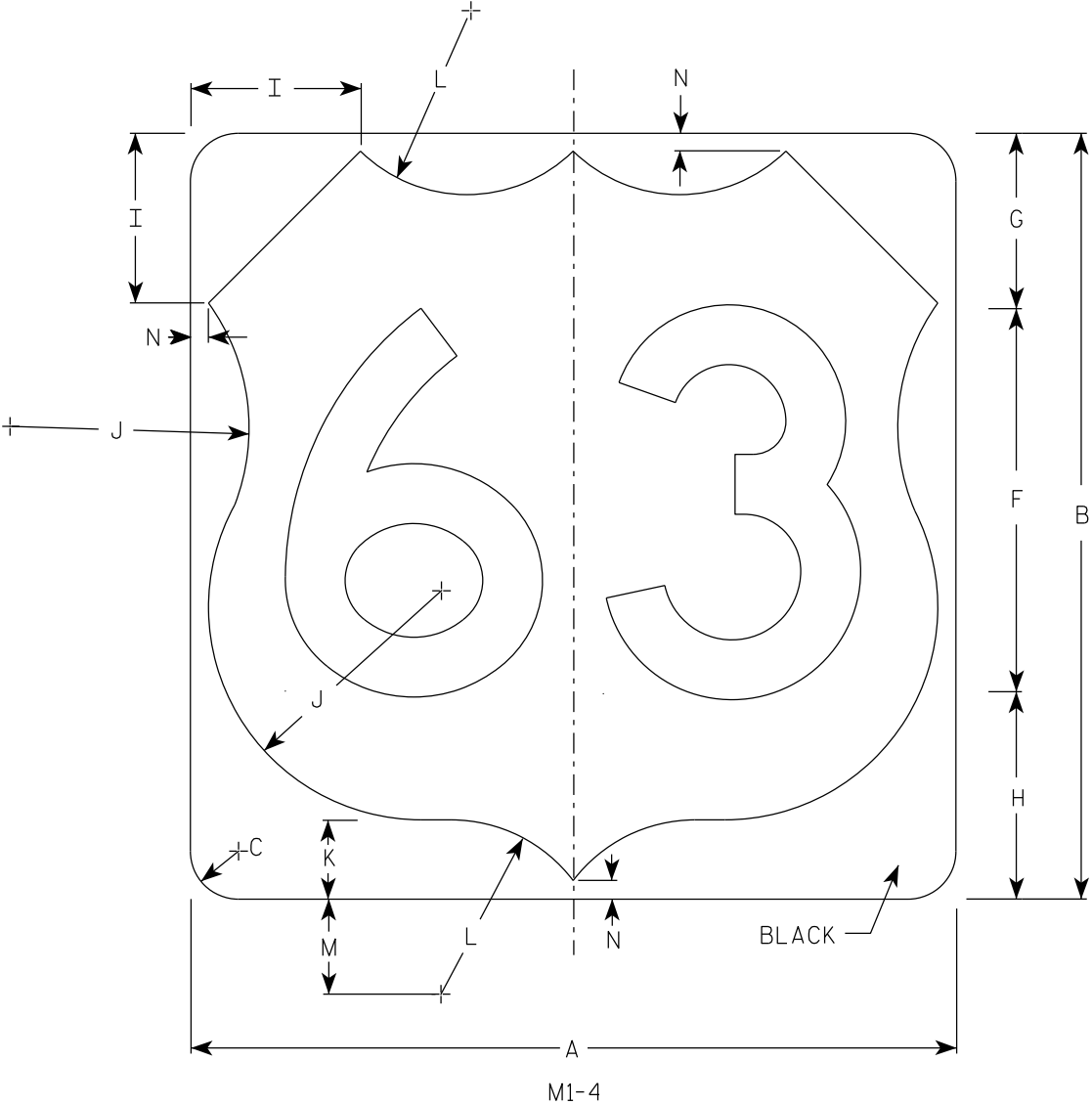
HWY:

COUNTY:

SHEET NO: 173

E

7



NOTES

- 1. Sign is Type II - Type H Reflective
- 2. Color:
Background - White
Message - Black
- 3. Message Series - D except 3 number signs Series C

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	24	1 1/2			12	5 1/2	6 1/2	5	7 1/2	2 1/2	5 1/2	3	1/2													4.0
2M	24	24	1 1/2			12	5 1/2	6 1/2	5	7 1/2	2 1/2	5 1/2	3	1/2													4.0
3	36	36	2 1/4			18	8 1/4	9 1/4	7 1/4	11 1/4	3 3/4	8 1/4	4 1/2	3/4													9.0
4	36	36	2 1/4			18	8 1/4	9 1/4	7 1/4	11 1/4	3 3/4	8 1/4	4 1/2	3/4													9.0
5	36	36	2 1/4			18	8 1/4	9 1/4	7 1/4	11 1/4	3 3/4	8 1/4	4 1/2	3/4													9.0

USH MARKER
M1-4 FOR ASSEMBLIES

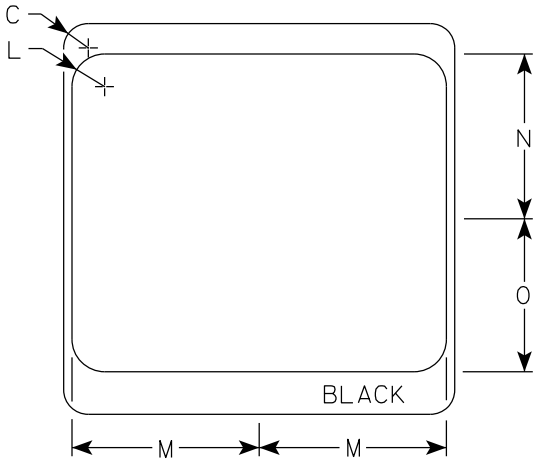
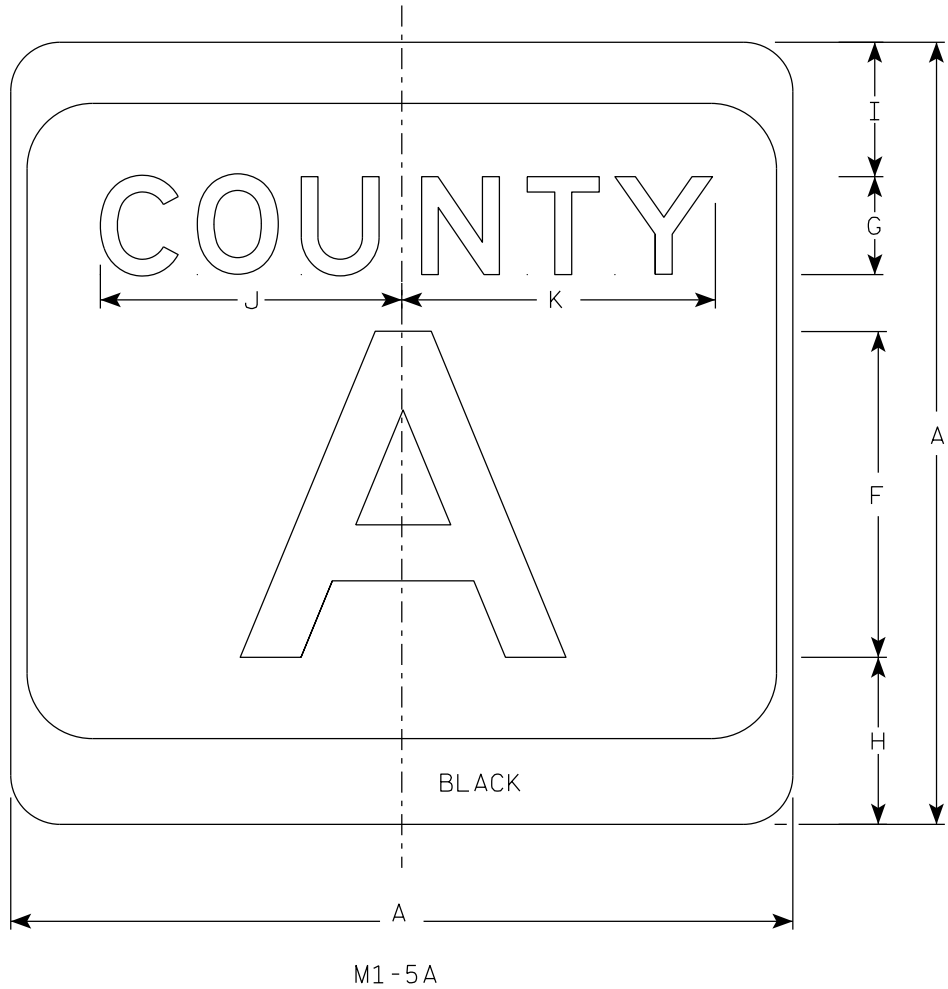
WISCONSIN DEPT OF TRANSPORTATION

APPROVED
Matthew R. Rauch
for State Traffic Engineer

DATE 12/20/22 PLATE NO. M1-4.11

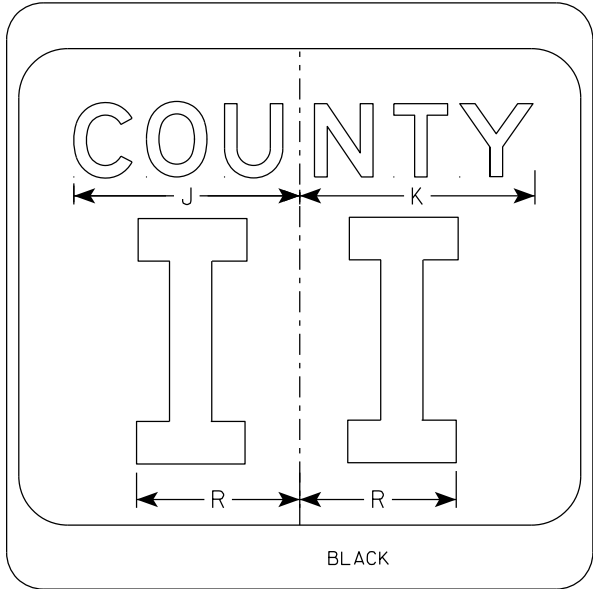
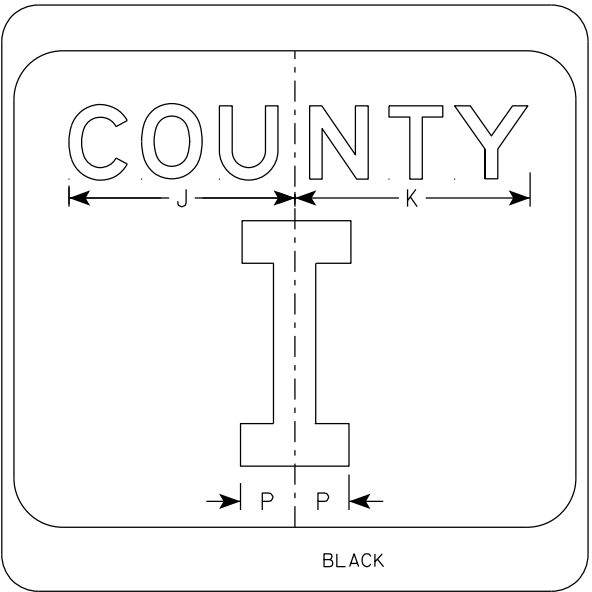
7

7



NOTES

1. Sign is Type II - Type H Reflective
2. Color:
Background - White & Black
Message - Black
3. Message Series - see Note 4
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.
5. 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

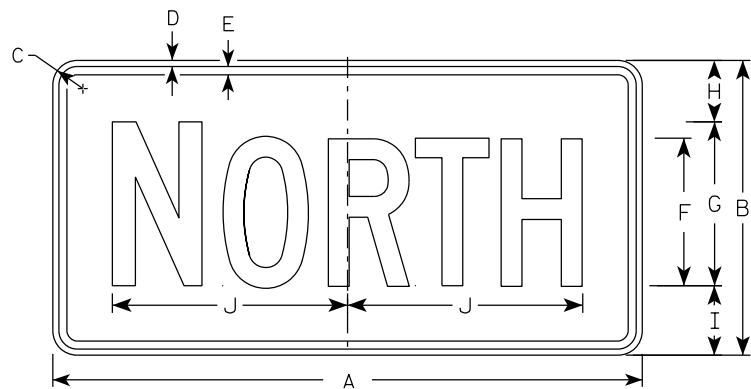
M1-5A FOR ASSEMBLIES

WISCONSIN DEPT OF TRANSPORTATION

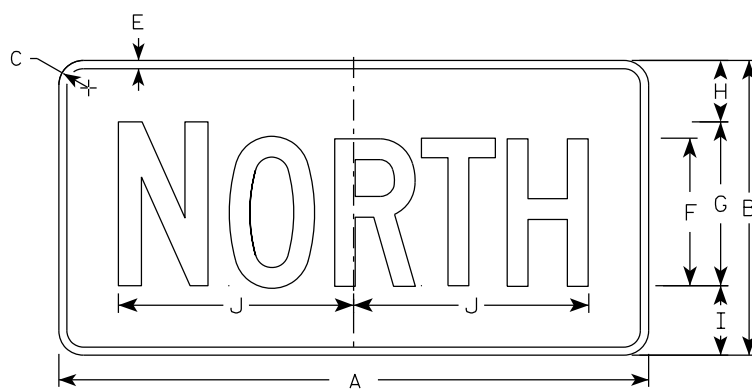
APPROVED *Matthew R. Rauch*
for State Traffic Engineer

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

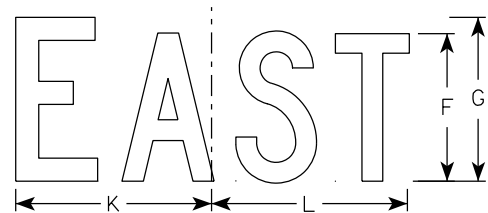
7



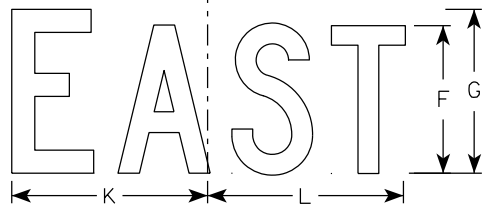
M3-1
MM3-1
MP3-1



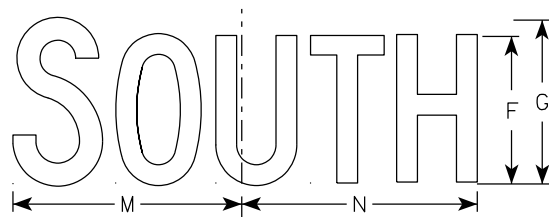
MB3-1
MK3-1
MN3-1



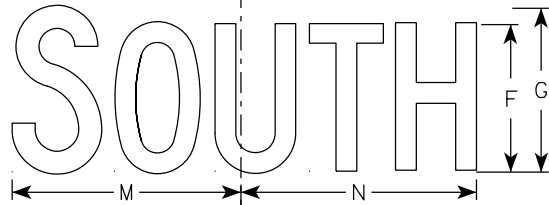
M3-2
MM3-2
MP3-2



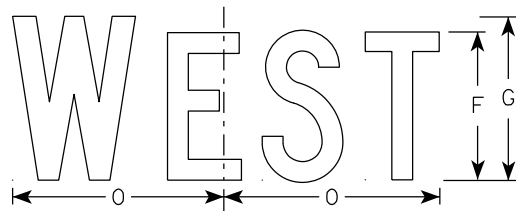
MB3-2
MK3-2
MN3-2



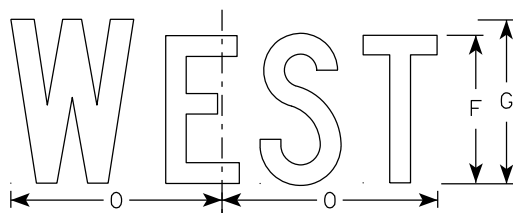
M3-3
MM3-3
MP3-3



MB3-3
MK3-3
MN3-3



M3-4
MM3-4
MP3-4



MB3-4
MK3-4
MN3-4

NOTES

- All Signs Type II - Type H Reflective
- Color:
 - Background - See note 5
 - Message - See note 5
- Message Series - C
- 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.
- M3-1 thru M3-4 Background - White
Message - Black
MB3-1 thru MB3-4 Background - Blue
Message - White
MK3-1 thru MK3-4 Background - Green
Message - White
MM3-1 thru MM3-4 Background - White
Message - Green
MN3-1 thru MN3-4 Background - Brown
Message - White
MP3-1 thru MP3-4 Background - White
Message - Blue
- Note the first letter of each direction is larger than the remainder of the message.

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	24	12	1 1/2	3/8	3/8	6	7	2 1/4	2 3/4	10 1/4	7 7/8	8 3/8	10 1/4	9 3/4	8 3/4												2.00
2M	24	12	1 1/2	3/8	3/8	6	7	2 1/4	2 3/4	10 1/4	7 7/8	8 3/8	10 1/4	9 3/4	8 3/4												2.00
3	36	18	1 1/2	3/8	1/2	9	10	3 3/4	4 1/4	14 3/8	12	12 1/8	14	14 1/8	13												4.5
4	36	18	1 1/2	3/8	1/2	9	10	3 3/4	4 1/4	14 3/8	12	12 1/8	14	14 1/8	13												4.5
5	36	18	1 1/2	3/8	1/2	9	10	3 3/4	4 1/4	14 3/8	12	12 1/8	14	14 1/8	13												4.5

STANDARD SIGNS M3-1 THRU M3-4 SERIES

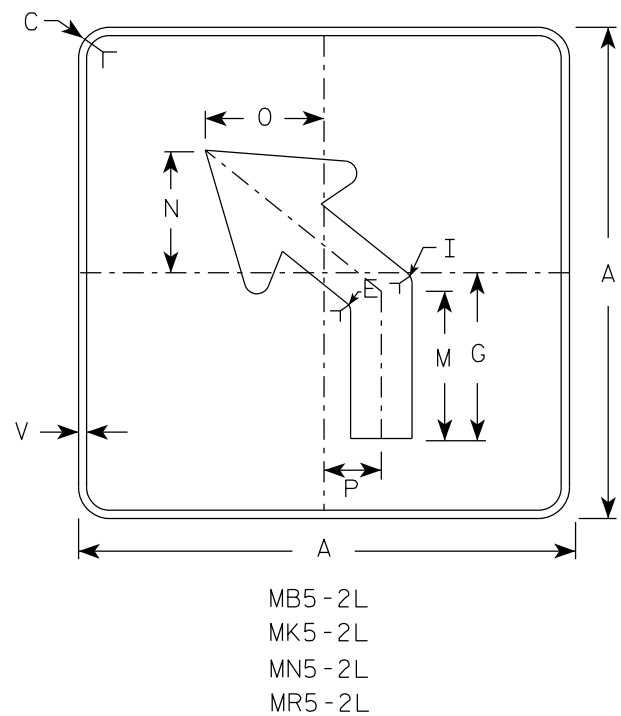
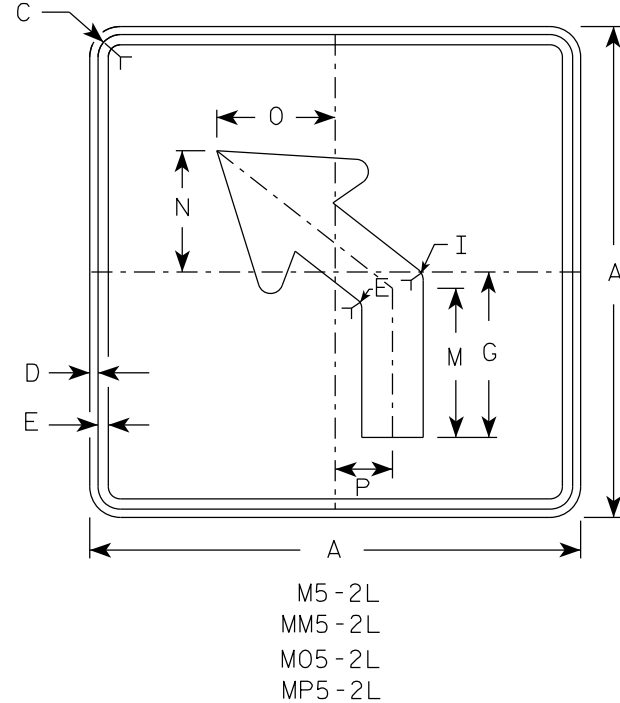
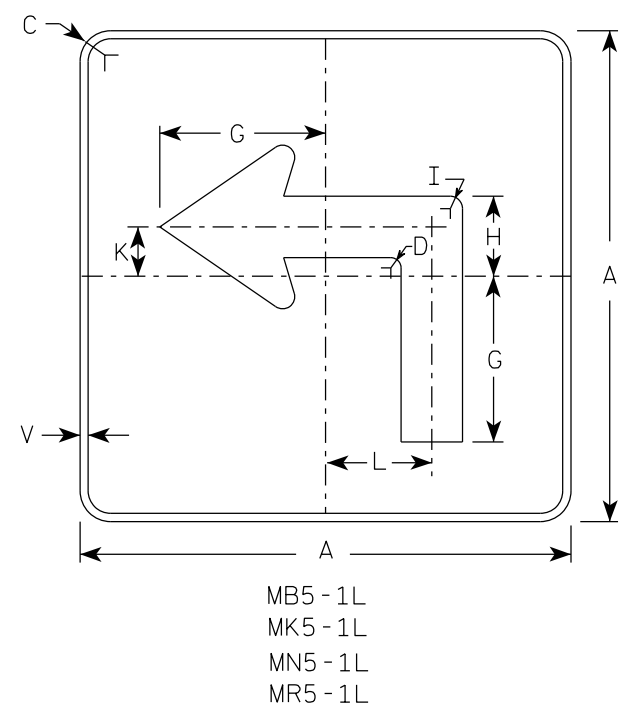
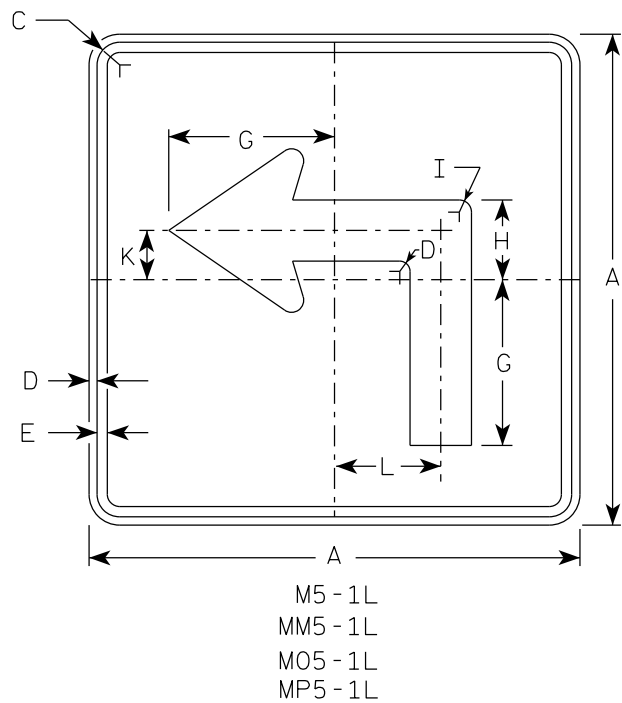
WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 2/8/2023 PLATE NO. M3-1.15

PROJECT NO: HWY: COUNTY: SHEET NO: 176 E

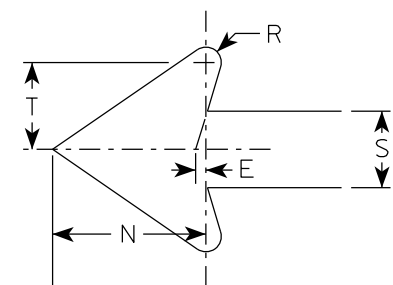
FILE NAME : C:\CAEfiles\Projects\tr_stdplate-M31.dgn PLOT DATE : 8-FEB 2023 11:00 PLOT BY : dotc4c PLOT NAME : PLOT SCALE : \$\$.....plotscale.....\$\$WISDOT/CADDS SHEET 42



NOTES

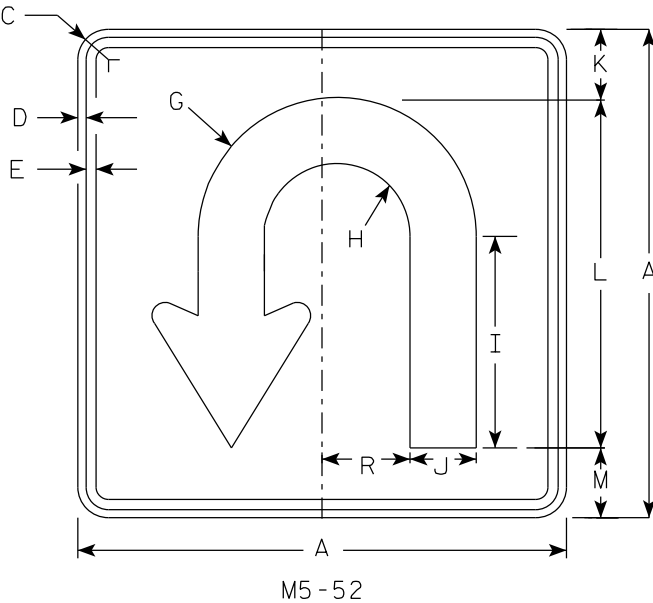
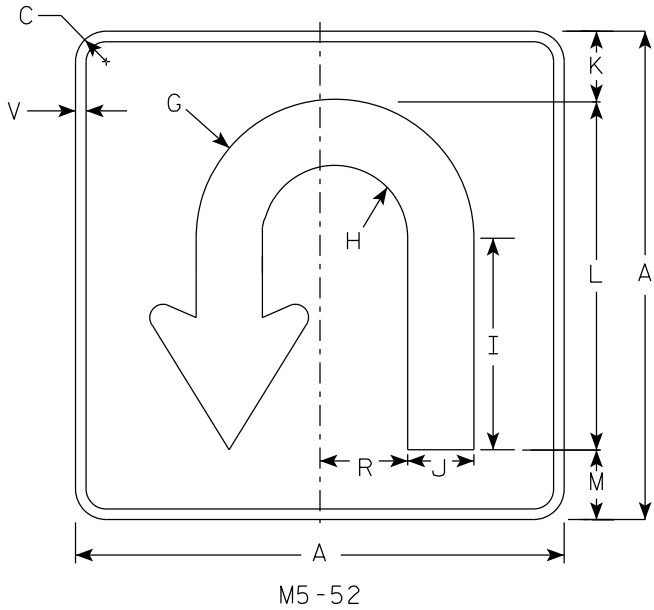
- Signs are Type II - Type H reflective except as shown
- Color:
Background - See note 4
Message - See note 4
- Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
- | | | |
|-----------|-------|---|
| 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

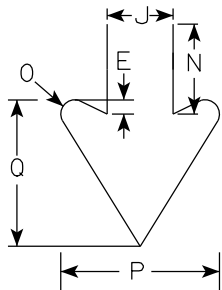


SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	21		1 1/2	3/8	3/8		7	3 3/8	5/8		2 1/8	4 1/2	6 3/8	5 1/4	5	2 1/2		1/2	2 5/8	3		1/2					3.06
2M	21		1 1/2	3/8	3/8		7	3 3/8	5/8		2 1/8	4 1/2	6 3/8	5 1/4	5	2 1/2		1/2	2 5/8	3		1/2					3.06
3	30		1 7/8	1/2	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: 177	E
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- NOTES
- Signs are Type II - Type H Reflective except as Shown
 - Color:
Background - See Note 4
Message - See note 4
 - M5-52 Background - White
Message - Black
MB5-52 Background - Blue
Message - White
MK5-52 Background - Green
Message - White
MM5-52 Background - White
Message - Green
MN5-52 Background - Brown
Message - White
M05-52 Background - Orange - Type F Reflective
Message - Black
MP5-52 Background - White
Message - Blue
MR5-52 Background - Brown
Message - Yellow



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		6	3 1/8	9 1/8	2 7/8	3	15	3	3 7/8	5/8	6 7/8	6 3/4	3 3/4				1/2					3.06
2M	21		1 1/2	3/8	3/8		6	3 1/8	9 1/8	2 7/8	3	15	3	3 7/8	5/8	6 7/8	6 3/4	3 3/4				1/2					3.06
3	30		1 7/8	1/2	5/8		8 1/2	4 1/2	13	4 1/8	4 3/8	21 3/8	4 1/4	5 1/2	7/8	9 3/4	8 1/8	5 1/4				5/8					6.25
4	30		1 7/8	1/2	5/8		8 1/2	4 1/2	13	4 1/8	4 3/8	21 3/8	4 1/4	5 1/2	7/8	9 3/4	8 1/8	5 1/4				5/8					6.25
5	30		1 7/8	1/2	5/8		8 1/2	4 1/2	13	4 1/8	4 3/8	21 3/8	4 1/4	5 1/2	7/8	9 3/4	8 1/8	5 1/4				5/8					6.25

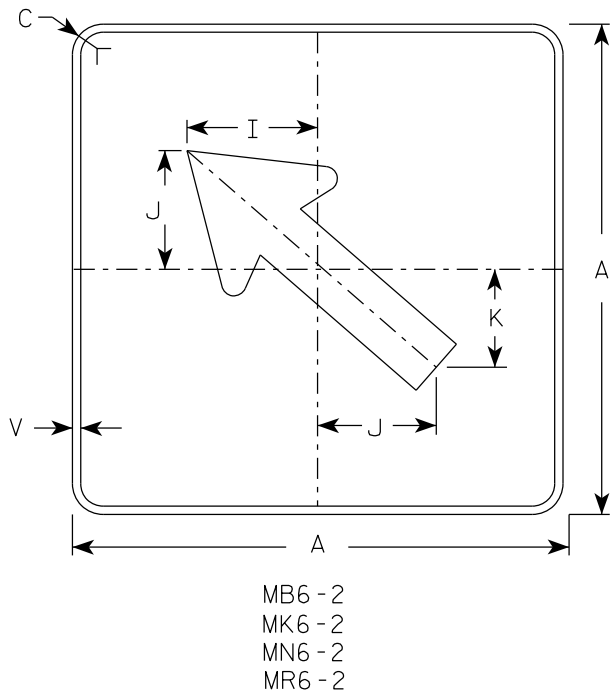
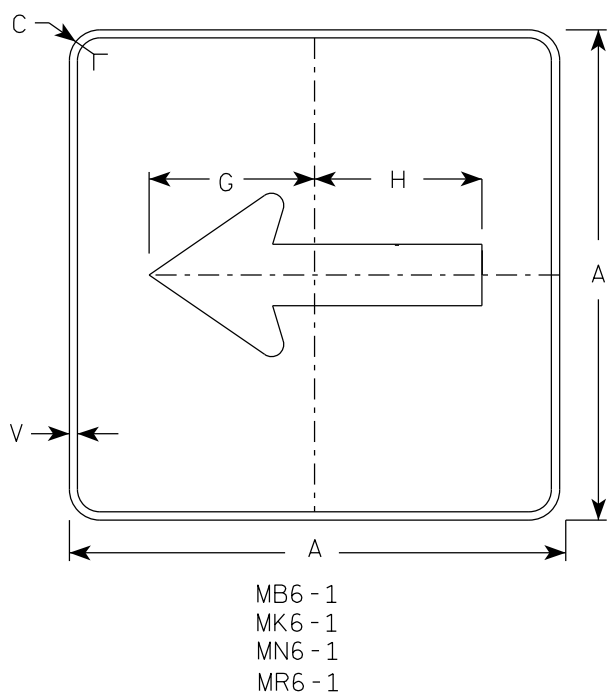
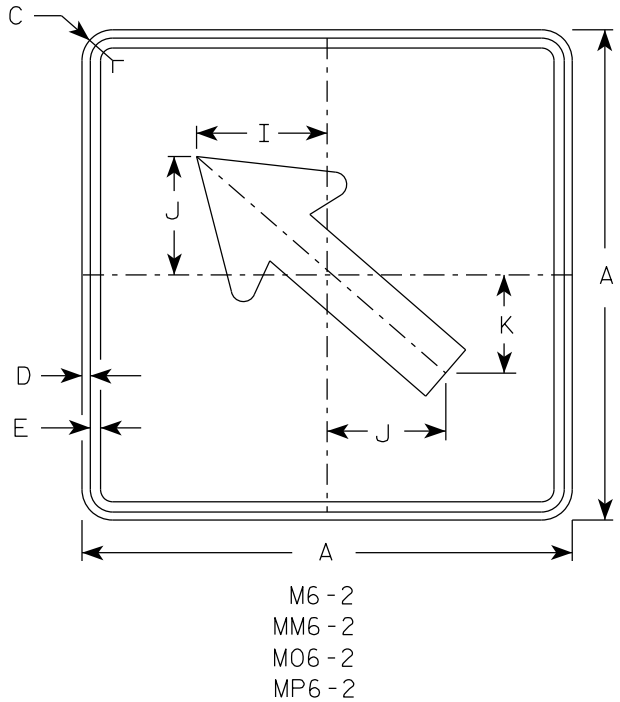
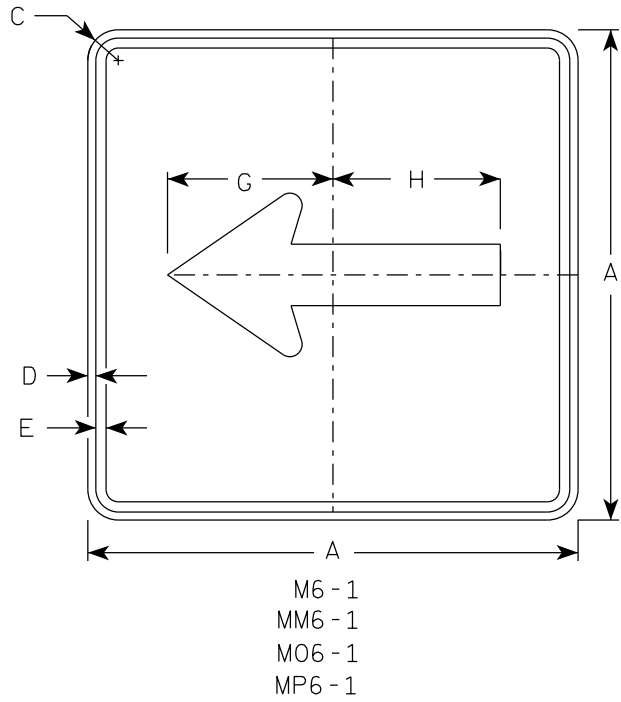
PROJECT NO:

HWY:

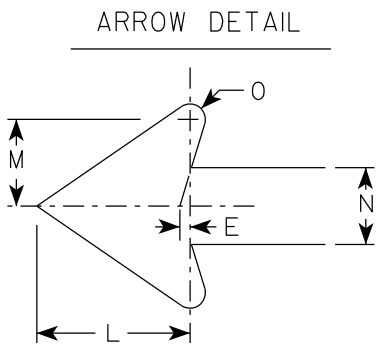
COUNTY:

SHEET NO: 178

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

PROJECT NO:

HWY:

COUNTY:

SHEET NO: 179

E

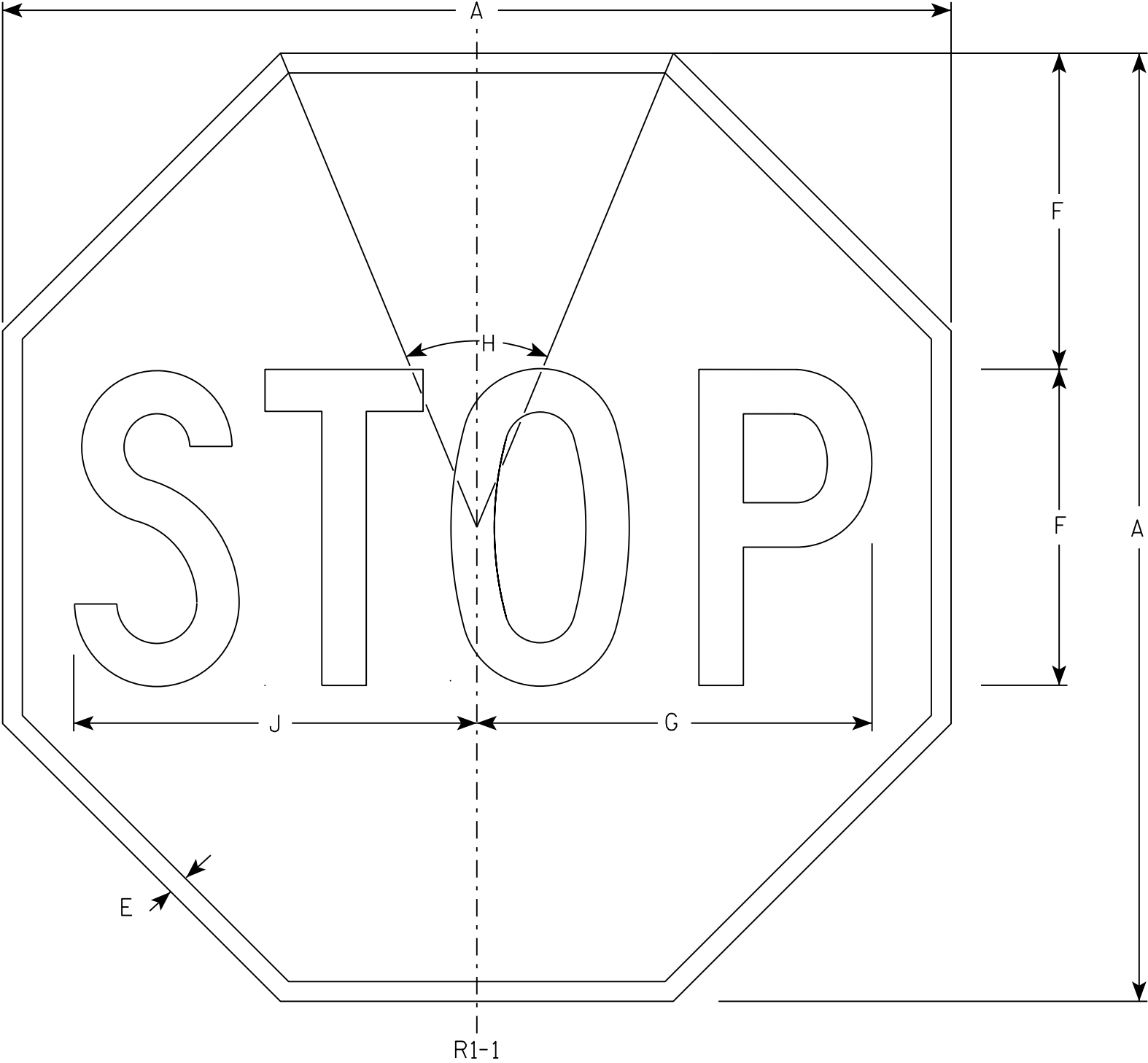
STANDARD SIGN
M6-1 & M6-2
SERIES

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
For State Traffic Engineer

DATE 2/13/2023 PLATE NO. M6-1.16

7



NOTES

- 1. Sign is Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
- 2. Color:
Background - Red
Message - White
- 3. Message Series - C

7

R1-1

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
7	12				1/4	4	5	45°		5 1/8																	0.78

STANDARD SIGN

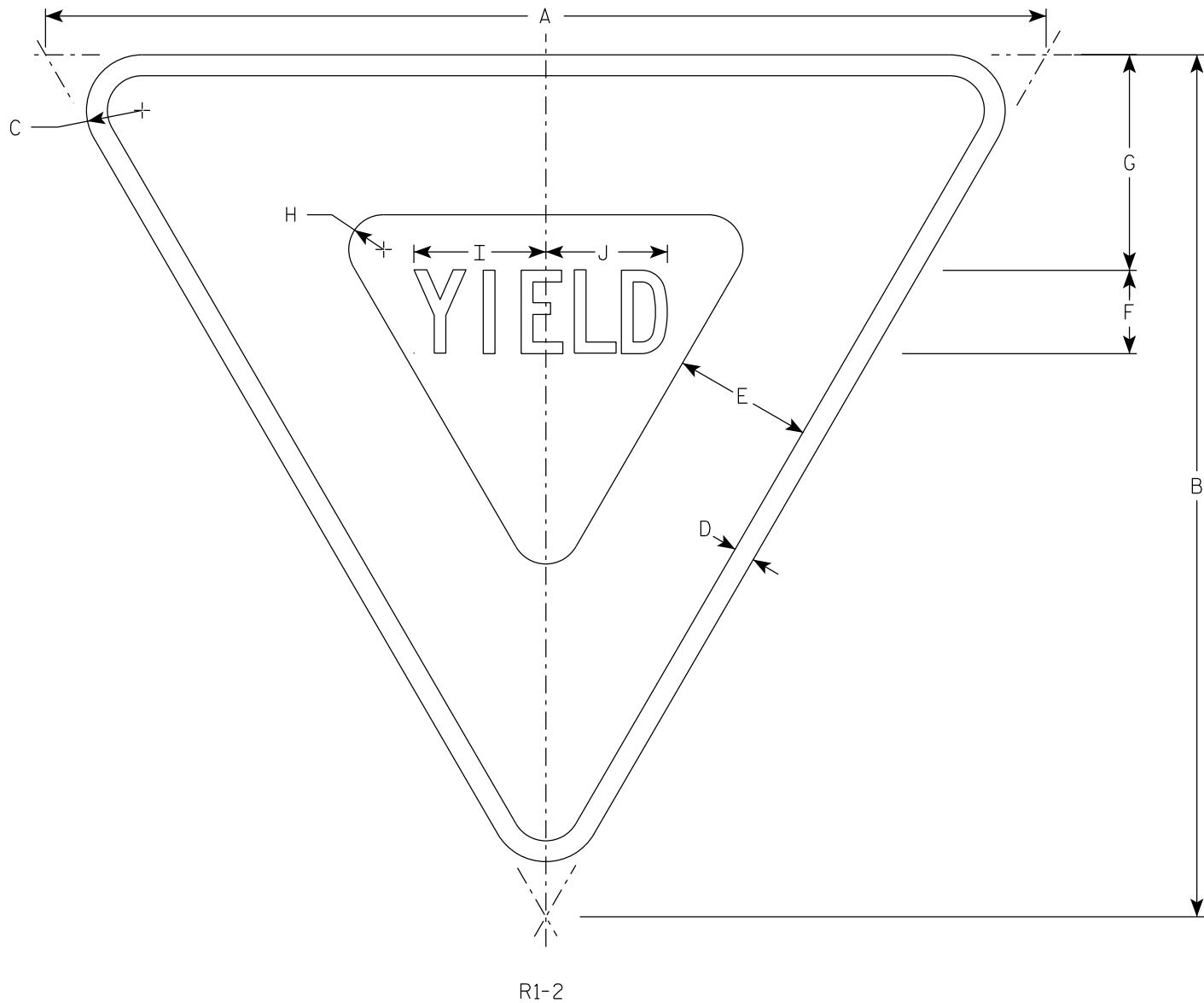
R1 - 1

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 11/12/15 PLATE NO. R1-1.13

7



NOTES

- 1. Sign is Type II - Type H Reflective
- 2. Color:
Background - White
Message - See note 4
- 3. Message Series - C
- 4. The border strip and word message are reflectorized red.

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	26	2	5⁄8	4	2 1⁄2	6 3⁄8	7⁄8	4	3 5⁄8																	2.71
2S	36	31	2	3⁄4	5	3	7 3⁄4	1 1⁄4	4 3⁄4	4 3⁄8																	3.88
2M	48	42	3	1	6	4	9 3⁄4	2	6 1⁄4	5 7⁄8																	7.00
3	48	42	3	1	6	4	9 3⁄4	2	6 1⁄4	5 7⁄8																	7.00
4	48	42	3	1	6	4	9 3⁄4	2	6 1⁄4	5 7⁄8																	7.00
5	60	52	3	1 1⁄2	8	5	13	2 1⁄2	7 7⁄8	7 1⁄4																	10.83
6																											
7	18	15 1⁄2	1	3⁄8	2 1⁄2	1 1⁄2	3 7⁄8	5⁄8	2 3⁄8	2 1⁄4																	0.97

PROJECT NO:

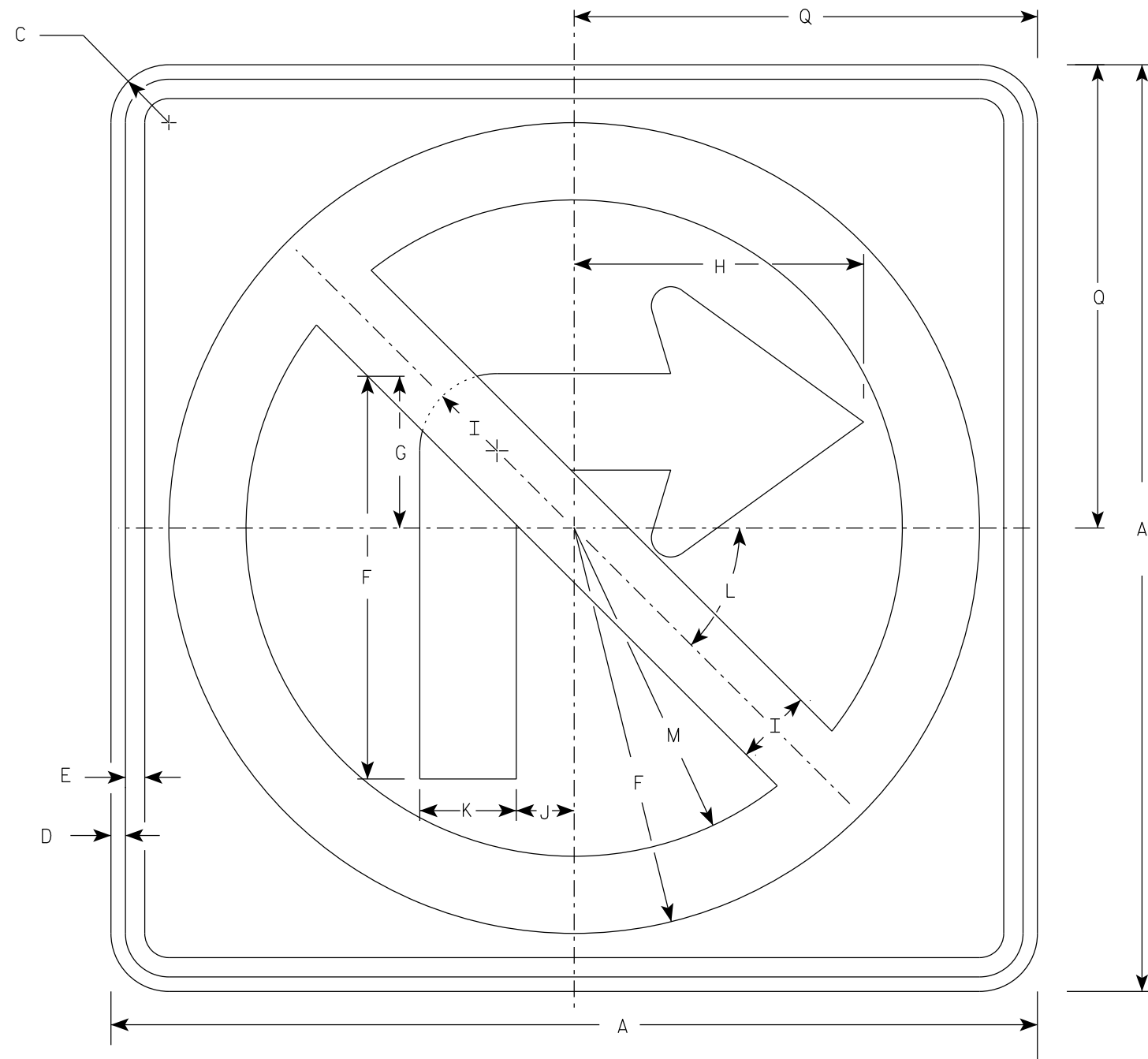
HWY:

COUNTY:

SHEET NO: 181

E

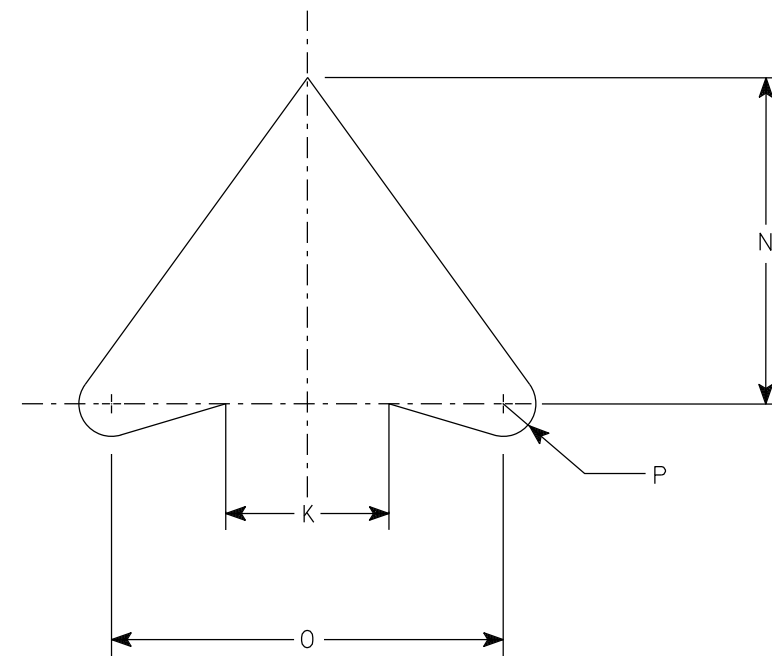
7



R3-1

NOTES

1. Sign is Type II - Type H Reflective
2. Color:
Background - White
Message - See note 3
3. Border & Arrow are non reflective black, the circle with diagonal bar is reflective red.

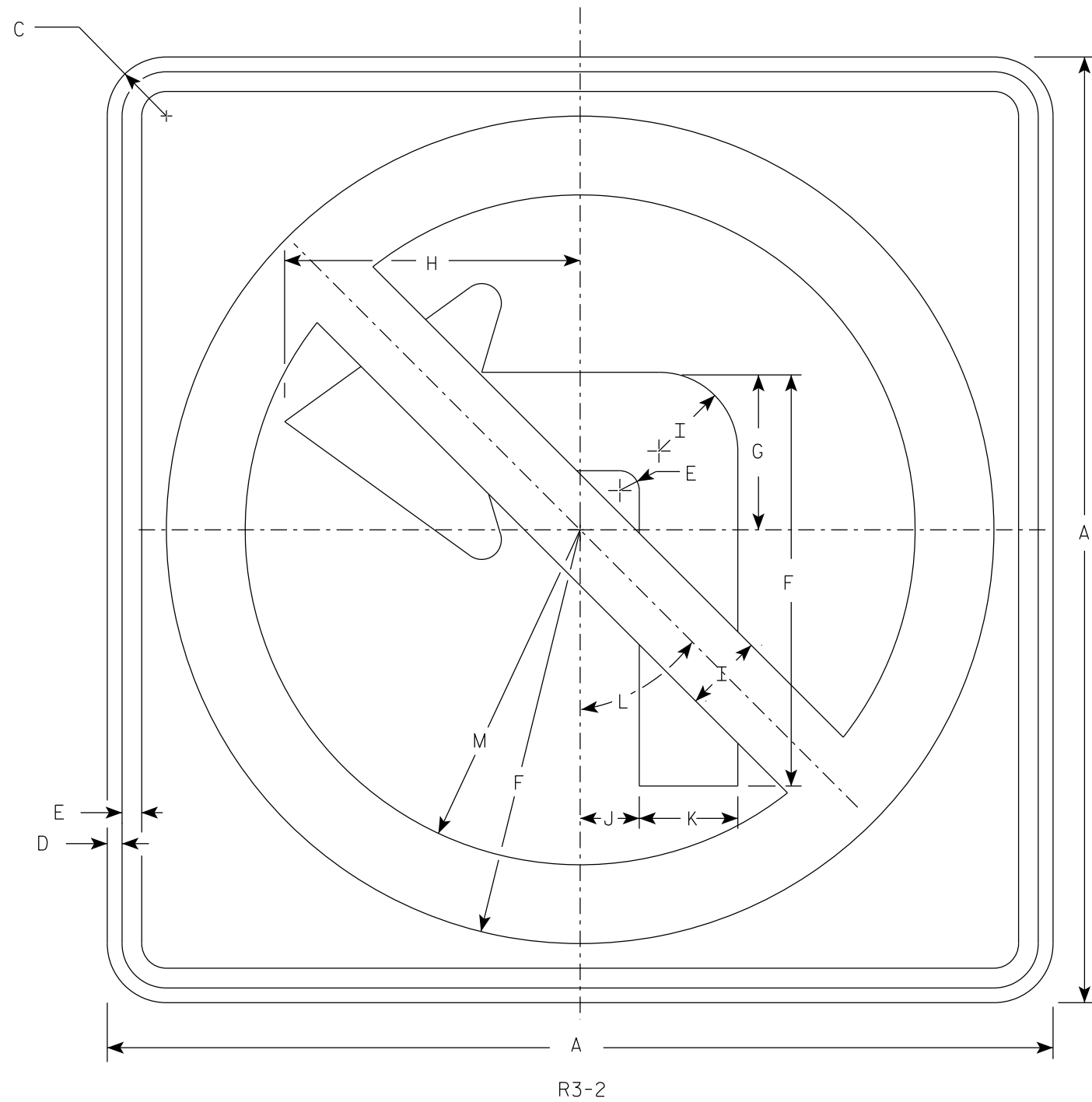


ARROW DETAIL

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	24		1 1/2	3/8	1/2	10 1/2	4	7 1/2	2	1 1/2	2 1/2	45	8 1/2	5	6	1/2	12										4.0
2S	24		1 1/2	3/8	1/2	10 1/2	4	7 1/2	2	1 1/2	2 1/2	45°	8 1/2	5	6	1/2	12										4.0
2M	36		2 1/4	5/8	3/4	15 3/4	6	11 1/4	3	2 1/4	3 3/4	45	12 3/4	7 1/2	9	3/4	18										9.0
3	36		2 1/4	5/8	3/4	15 3/4	6	11 1/4	3	2 1/4	3 3/4	45	12 3/4	7 1/2	9	3/4	18										9.0
4	36		2 1/4	5/8	3/4	15 3/4	6	11 1/4	3	2 1/4	3 3/4	45°	12 3/4	7 1/2	9	3/4	18										9.0
5	48		2 1/4	3/4	1	21	8	15	4	3	5	45°	17	10	12	1	24										16.0

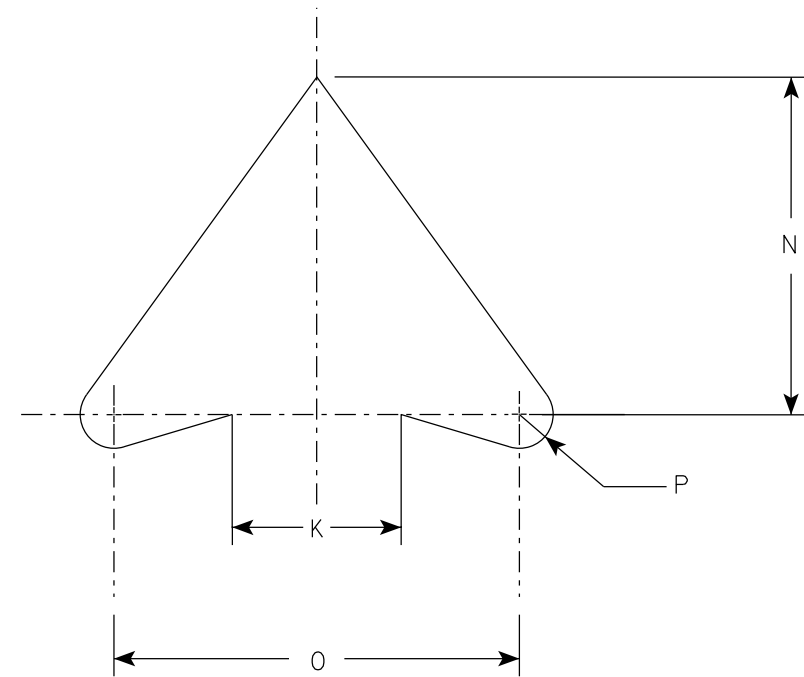
PROJECT NO:	HWY:	COUNTY:	SHEET NO: 182												E
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7



NOTES

- 1. Sign is Type II - Type H Reflective
- 2. Color:
Background - White
Message - See note 3
- 3. Border & Arrow are non reflective black, the circle with diagonal bar is reflective red.



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	24		1 1/2	3/8	1/2	10 1/2	4	7 1/2	2	1 1/2	2 1/2	45°	8 1/2	5	6	1/2											4.0
2S	24		1 1/2	3/8	1/2	10 1/2	4	7 1/2	2	1 1/2	2 1/2	45°	8 1/2	5	6	1/2											4.0
2M	36		2 1/4	5/8	3/4	15 3/4	6	11 1/4	3	2 1/4	3 3/4	45°	12 3/4	7 1/2	9	3/4											9.0
3	36		2 1/4	5/8	3/4	15 3/4	6	11 1/4	3	2 1/4	3 3/4	45°	12 3/4	7 1/2	9	3/4											9.0
4	36		2 1/4	5/8	3/4	15 3/4	6	11 1/4	3	2 1/4	3 3/4	45°	12 3/4	7 1/2	9	3/4											9.0
5	48		2 1/4	3/4	1	21	8	15	4	3	5	45°	17	10	12	1											16.0

PROJECT NO:

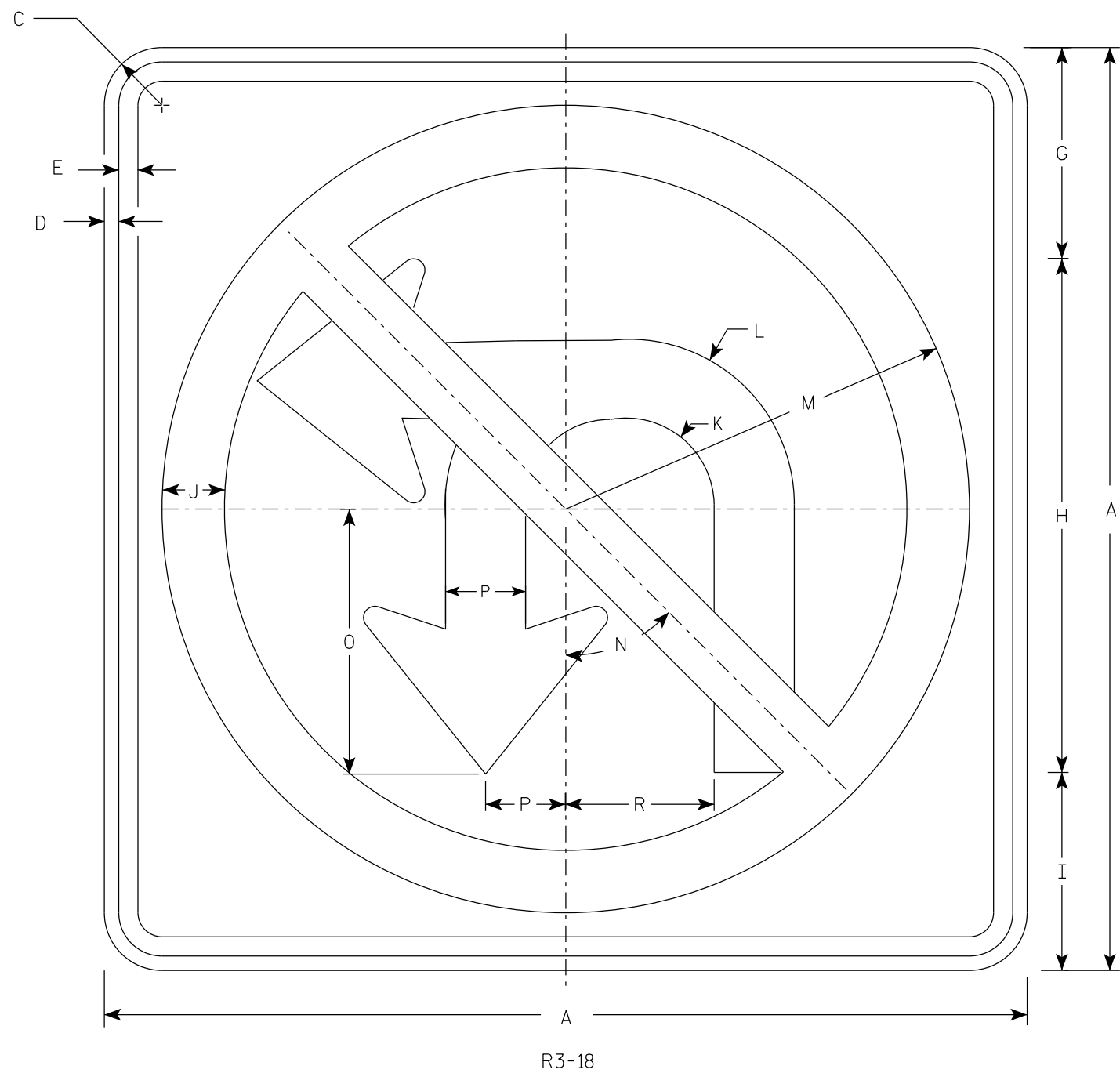
HWY:

COUNTY:

SHEET NO: 183

E

7



NOTES

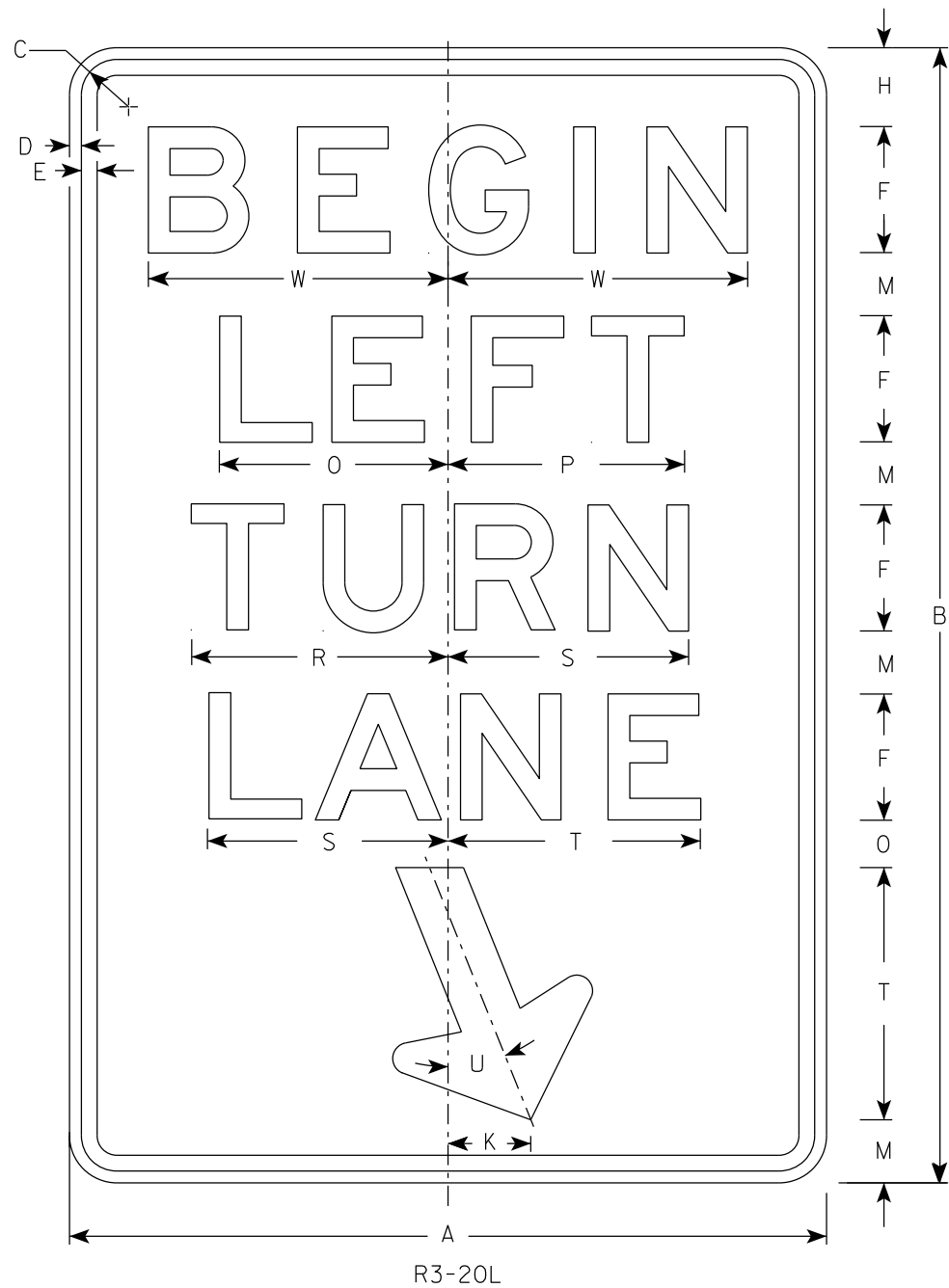
1. Sign is Type II - Type H Reflective
2. Color:
Background - White
Message - See note 3
3. Border & Arrow are non reflective black, the circle with diagonal bar is reflective red.

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	24		1 1/2	3/8	1/2		5 1/2	13 3/8	5 1/8	1 5/8	2 1/4	4 1/4	10 1/2	45°	6 7/8	2 1/8		3 7/8									4.0
2M	36		2 1/4	5/8	3/4		8 1/4	20	7 3/4	2 1/2	3 3/8	6 1/2	15 3/4	45°	10 3/8	3 1/8		5 3/4									9.0
3	36		2 1/4	5/8	3/4		8 1/4	20	7 3/4	2 1/2	3 3/8	6 1/2	15 3/4	45	10 3/8	3 1/8		5 3/4									9.0
4	36		2 1/4	5/8	3/4		8 1/4	20	7 3/4	2 1/2	3 3/8	6 1/2	15 3/4	45	10 3/8	3 1/8		5 3/4									9.0
5	48		2 1/4	3/4	1		11	26 3/4	10 1/4	3 1/4	4 5/8	8 5/8	21	45°	13 3/4	4 1/8		7 3/4									16.0

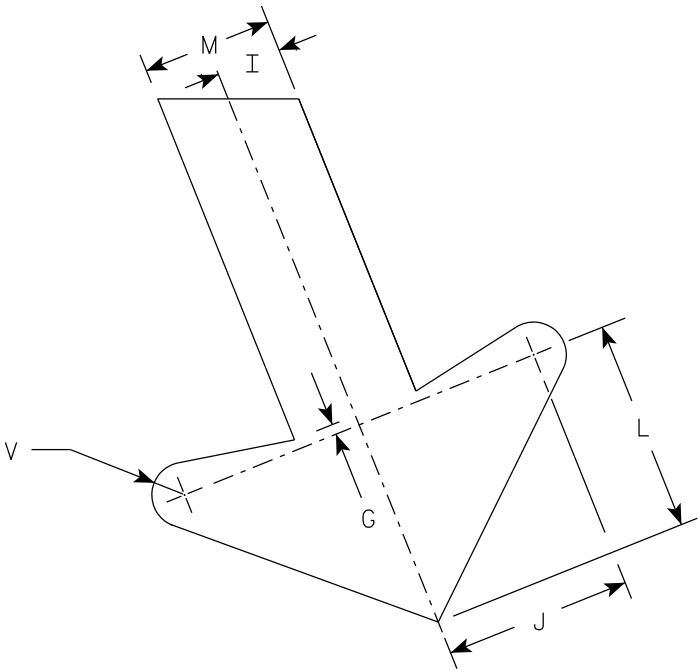
PROJECT NO:		HWY:		COUNTY:		SHEET NO: 184										E
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7



NOTES

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



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																											
2S	24	36	1 1/2	3/8	1/2	4	1/4	2 1/2	1	2 7/8	2 5/8	3 1/4	2	1 1/2	7 1/4	7 1/2		8 1/8	7 5/8	8	22°	1/2	9 1/2				6.0
2M	24	36	1 1/2	3/8	1/2	4	1/4	2 1/2	1	2 7/8	2 5/8	3 1/4	2	1 1/2	7 1/4	7 1/2		8 1/8	7 5/8	8	22°	1/2	9 1/2				6.0
3	36	54	1 7/8	1/2	5/8	6	3/8	3 3/4	1 1/2	4 1/4	4	4 7/8	3	2 1/4	10 7/8	11 1/4		12 1/4	11 1/2	12	22°	3/4	13 1/4				13.5
4																											
5																											

PROJECT NO:

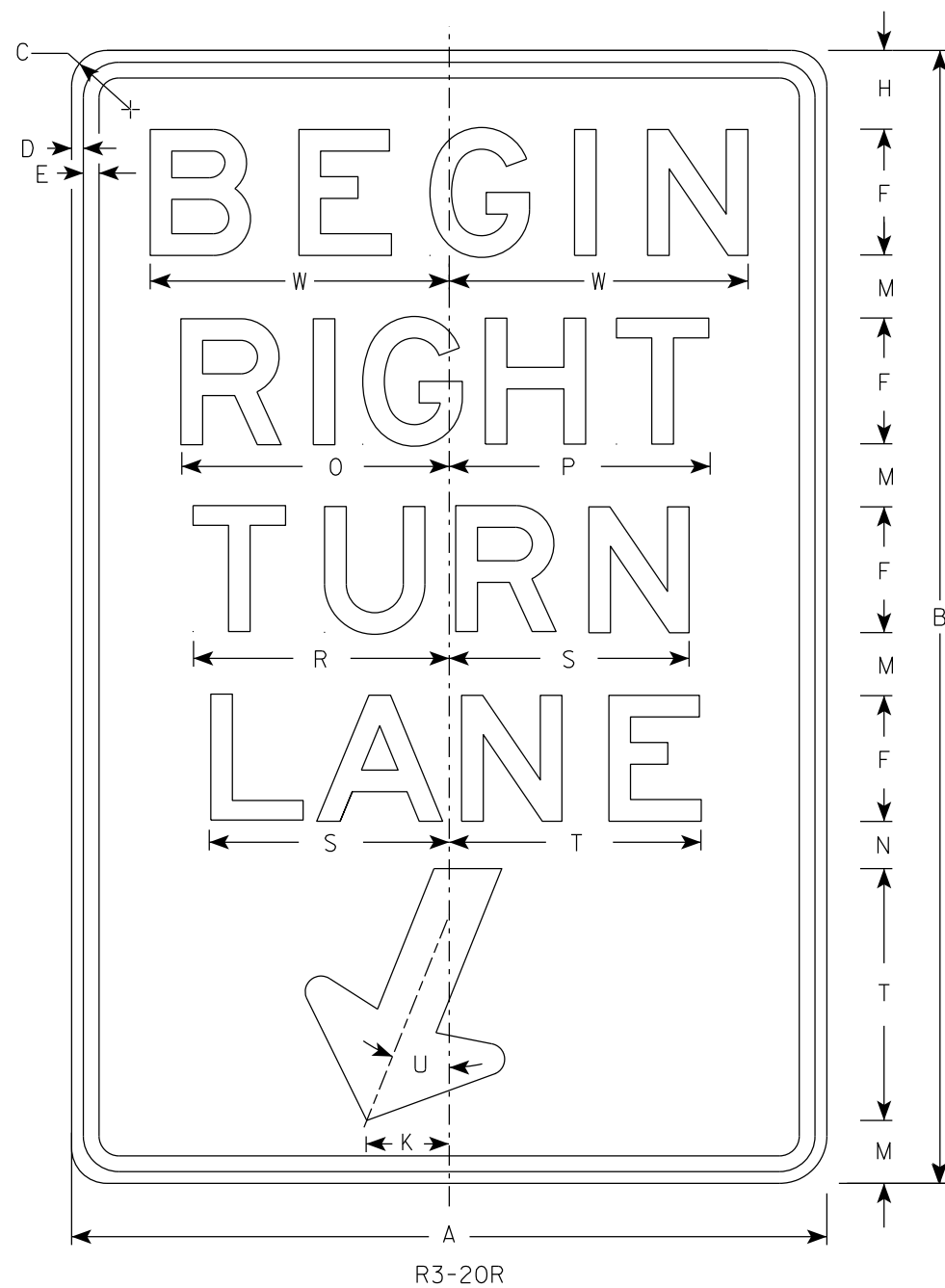
HWY:

COUNTY:

SHEET NO: 185

E

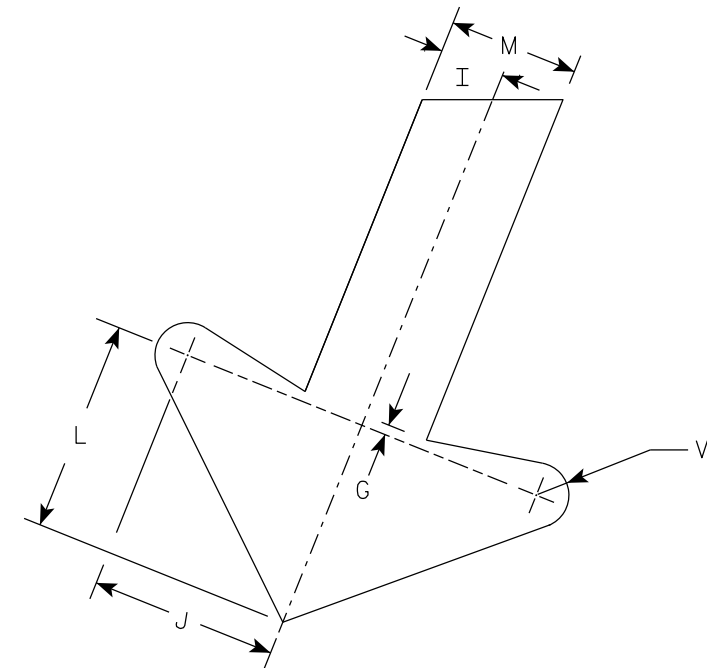
7



R3-20R

NOTES

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



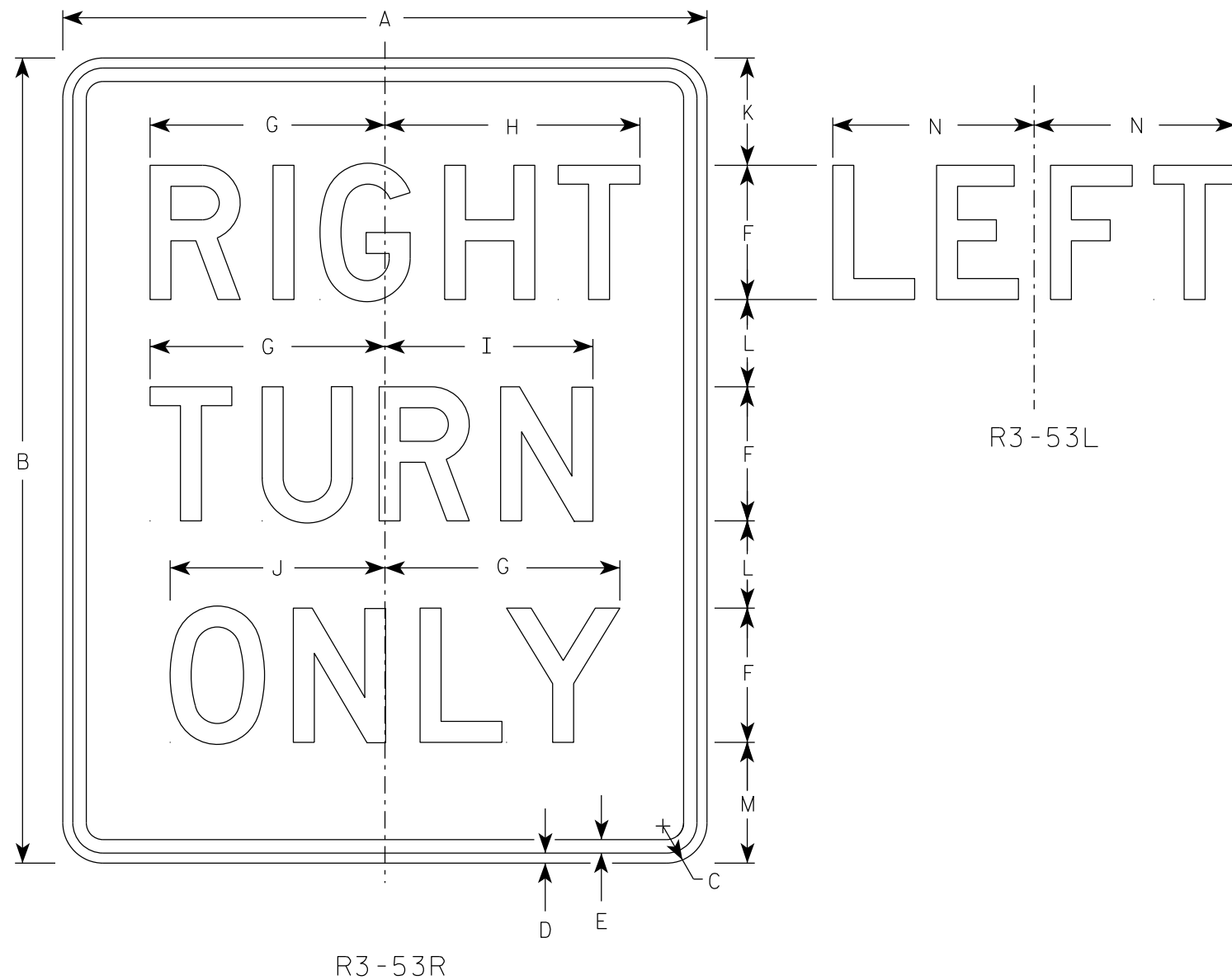
ARROW DETAIL

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																											
2S	24	36	1 1/2	3/8	1/2	4	1/4	2 1/2	1	2 7/8	2 5/8	3 1/4	2	1 1/2	8 1/2	8 1/4		8 1/8	7 5/8	8	22°	1/2	9 1/2				6.0
2M	24	36	1 1/2	3/8	1/2	4	1/4	2 1/2	1	2 7/8	2 5/8	3 1/4	2	1 1/2	8 1/2	8 1/4		8 1/8	7 5/8	8	22°	1/2	9 1/2				6.0
3	36	54	1 7/8	1/2	5/8	6	3/8	3 3/4	1 1/2	4 1/4	4	4 7/8	3	2 1/4	12 3/4	12 1/2		12 1/4	11 1/2	12	22°	3/4	13 1/4				13.5
4																											
5																											

PROJECT NO:	HWY:	COUNTY:	SHEET NO: 186	E
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7



NOTES

1. Sign is Type II - Type H Reflective
2. Color:
Background - White
Message - Black
3. Message Series - D
4. R3-53L same as R3-53R except LEFT is substituted for RIGHT

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	24	30	1 1/2	3/8	1/2	5	8 3/4	9 1/2	7 3/4	8	4	3 1/4	4 1/2	7 1/2													5.0
2M	24	30	1 1/2	3/8	1/2	5	8 3/4	9 1/2	7 3/4	8	4	3 1/4	4 1/2	7 1/2													5.0
3	24	30	1 1/2	3/8	1/2	5	8 3/4	9 1/2	7 3/4	8	4	3 1/4	4 1/2	7 1/2													5.0
4																											
5																											

PROJECT NO:		HWY:		COUNTY:		SHEET NO: 187		E
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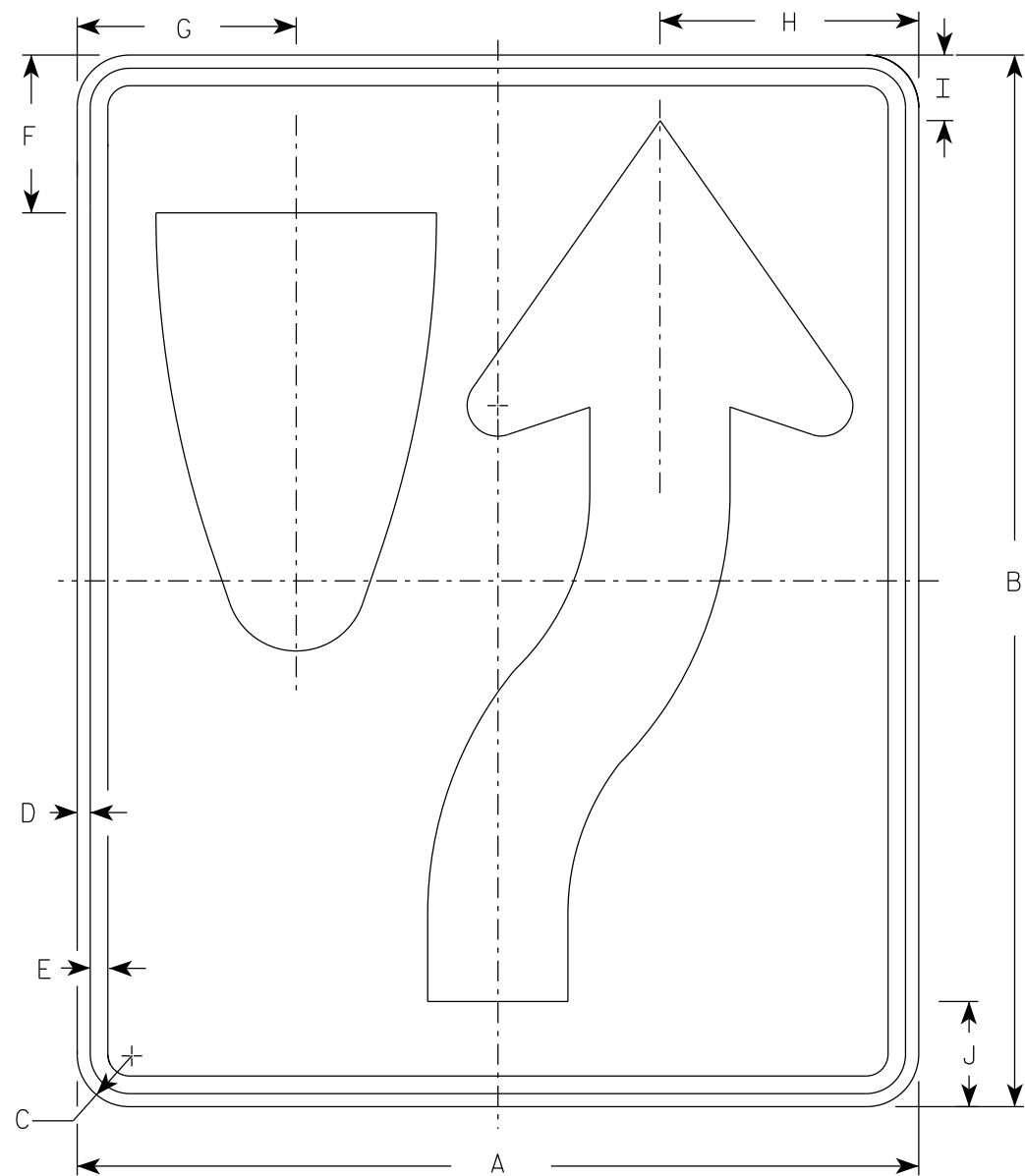
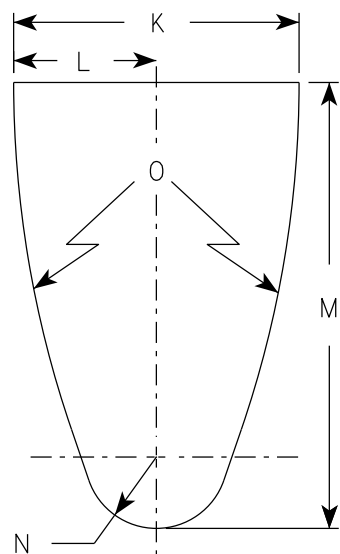
STANDARD SIGN
R3-53

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 2/23/23 PLATE NO. R3-53.9

DIVIDER DETAIL

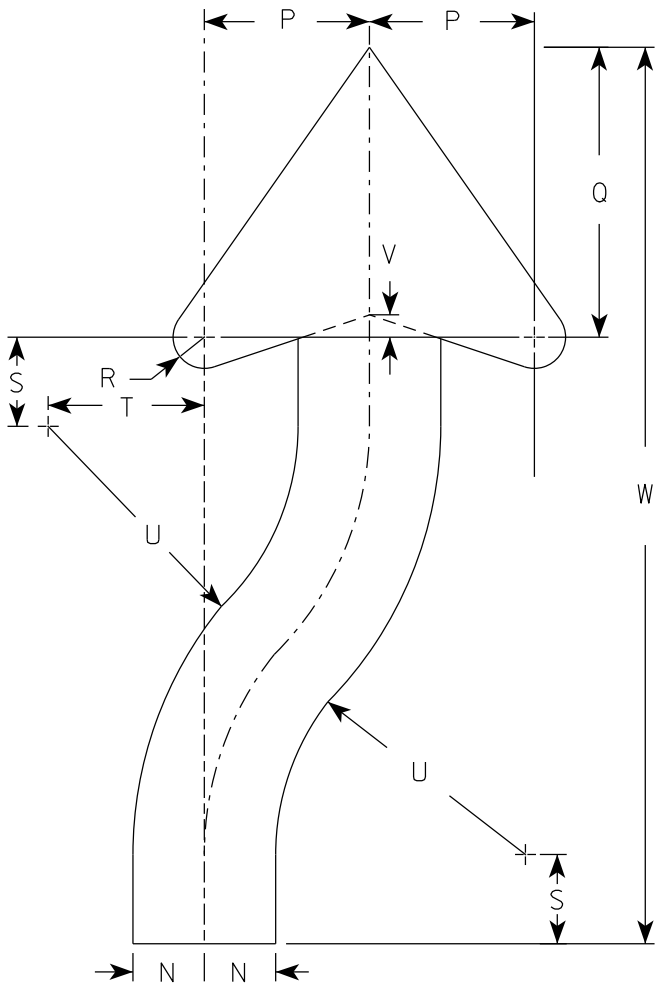


R4-7

NOTES

- 1. Sign is Type II - Type H Reflective
- 2. Color:
 - Background - White
 - Message - Black
- 3. R4-8 is the same as R4-7 except Legend is reversed.

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	18	24	1 1/2	3/8	1/2	3 3/8	4 3/4	5 1/2	1 3/8	2 1/4	6	3	9 3/8	1 1/2	22 1/2	3 1/2	6 1/8	5/8	1 7/8	3 1/4	6 3/4	1/2	20 3/8				3.0
2S	24	30	1 1/2	3/8	1/2	4 1/2	6 1/4	7 3/8	1 7/8	3	8	4	12 1/2	2	30	4 5/8	8 1/8	7/8	2 1/2	4 3/8	9	5/8	25 1/8				5.0
2M	24	30	1 1/2	3/8	1/2	4 1/2	6 1/4	7 3/8	1 7/8	3	8	4	12 1/2	2	30	4 5/8	8 1/8	7/8	2 1/2	4 3/8	9	5/8	25 1/8				5.0
3	36	48	1 7/8	1/2	5/8	6 3/4	9 3/8	11 1/8	2 7/8	4 1/2	12	6	18 3/4	3	45	6 7/8	12 1/4	1 1/4	3 3/4	6 5/8	13 1/2	1	40 3/4				12.0
4	36	48	1 7/8	1/2	5/8	6 3/4	9 3/8	11 1/8	2 7/8	4 1/2	12	6	18 3/4	3	45	6 7/8	12 1/4	1 1/4	3 3/4	6 5/8	13 1/2	1	40 3/4				12.0
5	48	60	3	3/4	1	9	12 1/2	14 3/4	3 3/4	6	16	8	25	4	60	9 1/4	16 1/4	1 5/8	5	8 3/4	18	1 1/4	50 1/4				20.0

PROJECT NO:

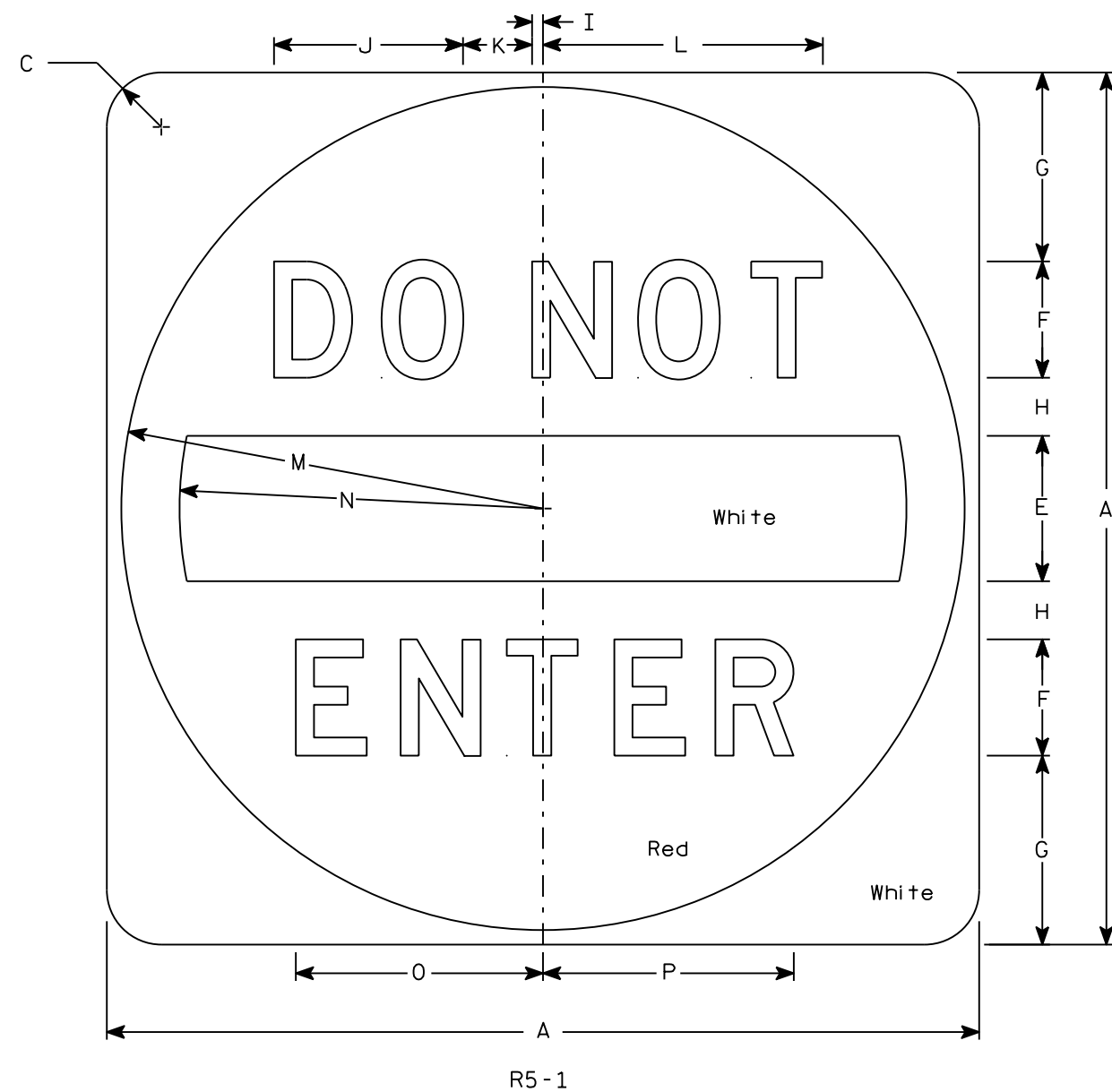
HWY:

COUNTY:

SHEET NO: 188

E

7



NOTES

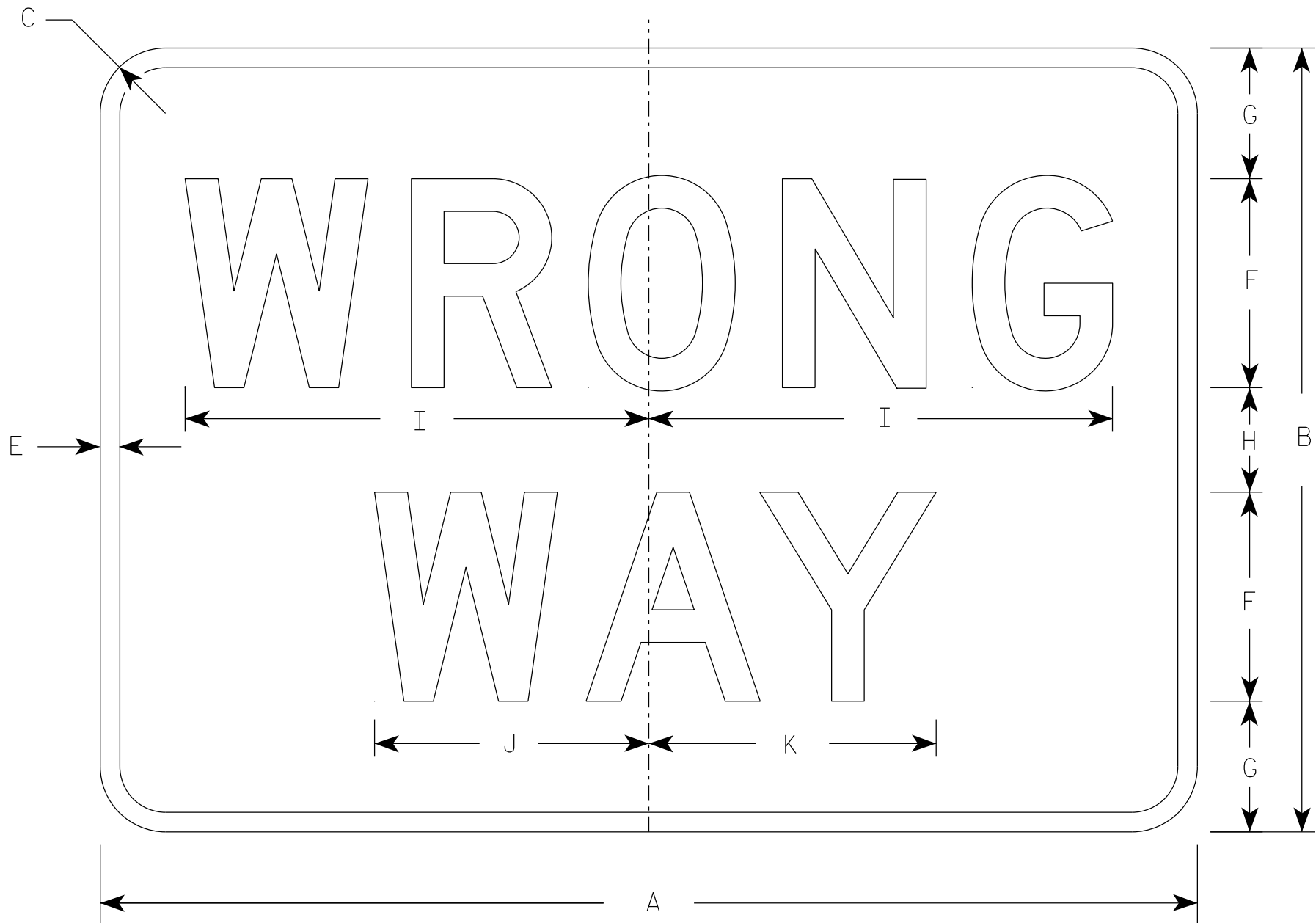
1. Sign is Type II - Type H Reflective
2. Color:
Background - See detail
Message - White
3. Message Series - D

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	30		1 7⁄8		5	4	6 1⁄2	2	3⁄8	6 1⁄2	2 3⁄8	9 5⁄8	14 1⁄2	12 1⁄2	8 1⁄2	8 5⁄8											6.25
2M	36		2 1⁄4		6	5	7 1⁄2	2 1⁄2	1⁄2	8 1⁄8	3	12 1⁄8	17 1⁄2	15	10 5⁄8	10 3⁄4											9.0
3	36		2 1⁄4		6	5	7 1⁄2	2 1⁄2	1⁄2	8 1⁄8	3	12 1⁄8	17 1⁄2	15	10 5⁄8	10 3⁄4											9.0
4	36		2 1⁄4		6	5	7 1⁄2	2 1⁄2	1⁄2	8 1⁄8	3	12 1⁄8	17 1⁄2	15	10 5⁄8	10 3⁄4											9.0
5	48		3		8	6	11	3	5⁄8	9 3⁄4	3 5⁄8	14 1⁄2	23 1⁄2	20	12 3⁄4	12 7⁄8											16.0

STANDARD SIGN R5-1	
WISCONSIN DEPT OF TRANSPORTATION	
APPROVED	<i>Matthew R. Rauch</i> for State Traffic Engineer
DATE 3/15/18	PLATE NO. R5-1.16

7



R5-1A

NOTES

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

7

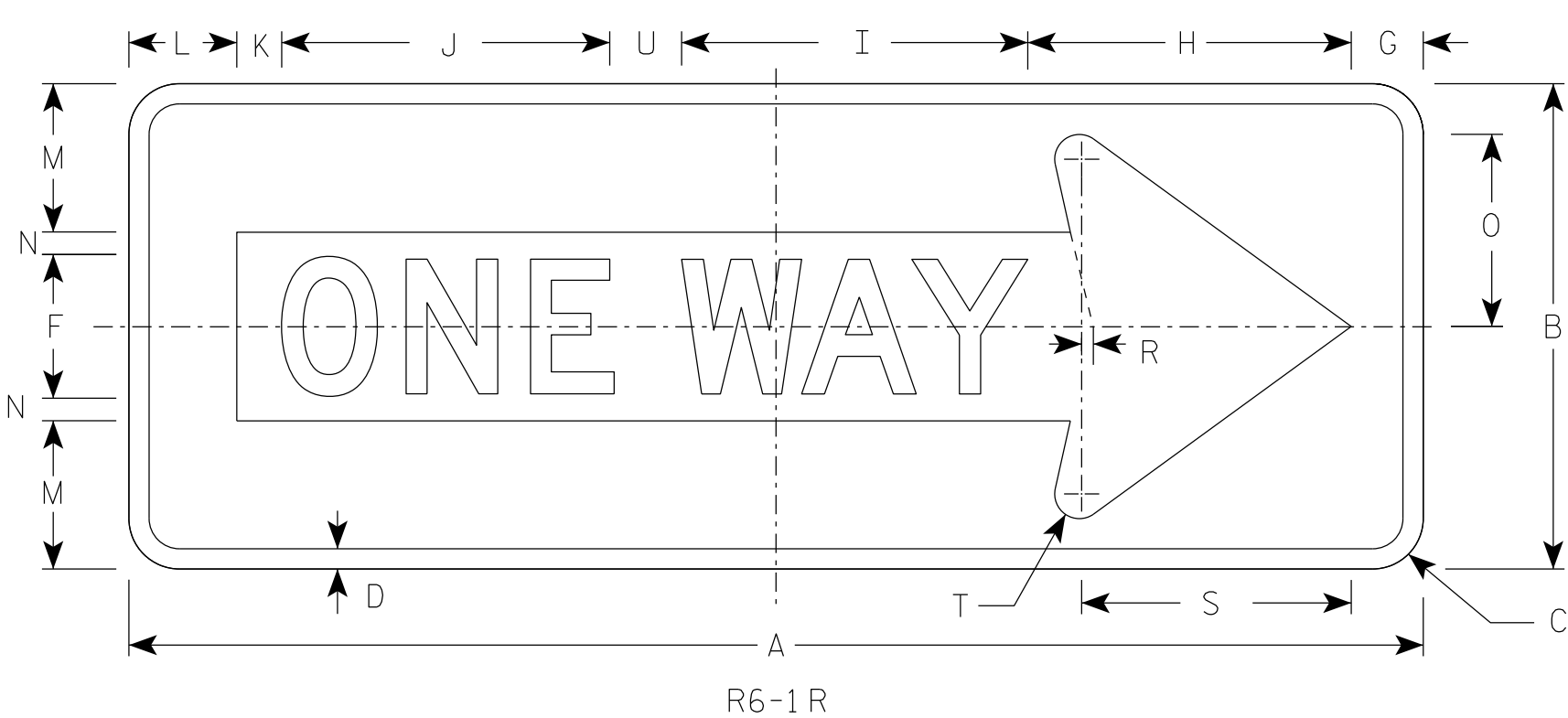
SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	30	18	1 1/2		1/2	5	3	2	11	6 1/2	6 7/8																3.75
2S	36	24	1 1/2		5/8	6	4 1/2	3	13 1/4	7 7/8	8 1/4																6.00
2M	42	30	1 7/8		3/4	8	5	4	17 3/4	10 1/2	11																8.75
3	42	30	1 7/8		3/4	8	5	4	17 3/4	10 1/2	11																8.75
4	42	30	1 7/8		3/4	8	5	4	17 3/4	10 1/2	11																8.75
5	42	30	1 7/8		3/4	8	5	4	17 3/4	10 1/2	11																8.75

STANDARD SIGN
R5-1A

WISCONSIN DEPT OF TRANSPORTATION

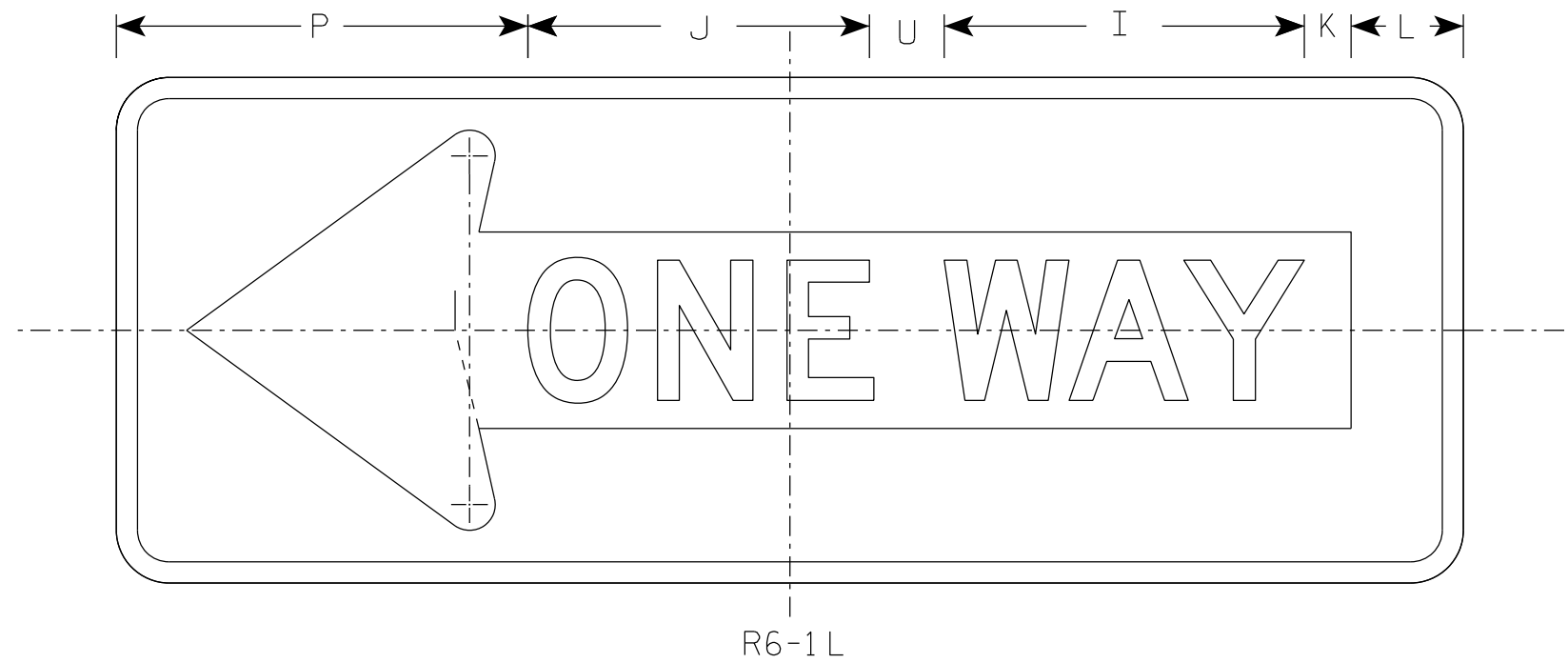
APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 8/17/23 PLATE NO. R5-1A.3



NOTES

1. Sign is Type II - Type H Reflective
2. Color:
Background - Black
Message - Black Legend & White Arrow & Border
3. Message Series - D



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	36	12	1 1/2	1/2		4	2	7 1/2	9 5/8	9 1/8	1 1/4	3	3 3/8	5/8	4 3/8	11		3/8	7 1/2	3/4	2						3.0
2M	48	18	1 7/8	3/4		5	2 1/2	11	13	12 1/4	2 3/4	3 1/2	5 1/2	1	7 1/8	13 1/2		1/2	10 1/8	7/8	3						6.0
3	48	18	1 7/8	3/4		5	2 1/2	11	13	12 1/4	2 3/4	3 1/2	5 1/2	1	7 1/8	13 1/2		1/2	10 1/8	7/8	3						6.0
4	48	18	1 7/8	3/4		5	2 1/2	11	13	12 1/4	2 3/4	3 1/2	5 1/2	1	7 1/8	13 1/2		1/2	10 1/8	7/8	3						6.0
5																											

STANDARD SIGN
R6-1 L&R

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 4/7/2025 PLATE NO. R6-1.5

PROJECT NO: SHEET NO: 191 E

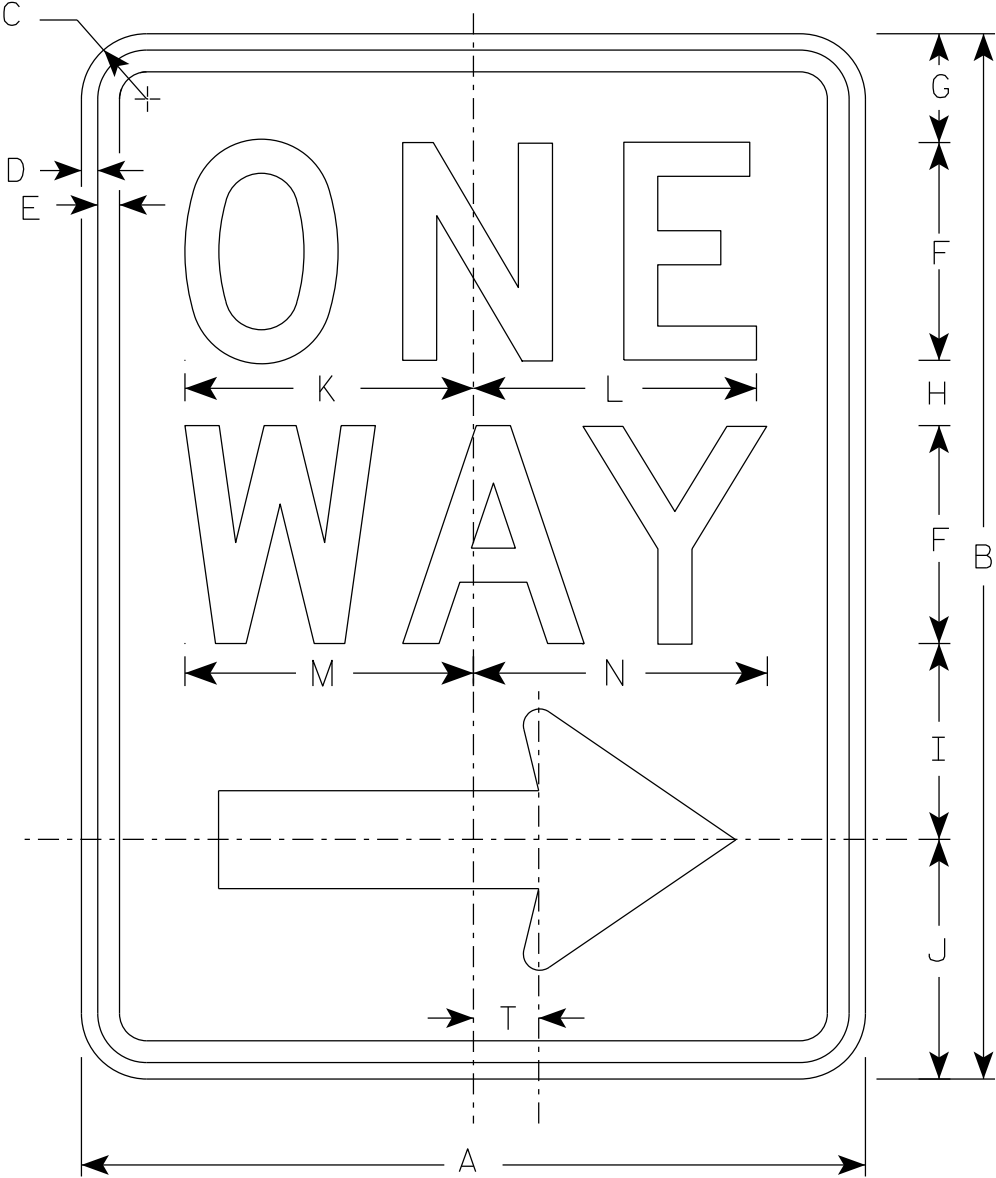
FILE NAME : C:\CAEfiles\Projects\tr_stdplate\R61.dgn

PLOT DATE : 7-APR 2025 1:18

PLOT BY : dotc4c

WISDOT/CADDs SHEET 42

7

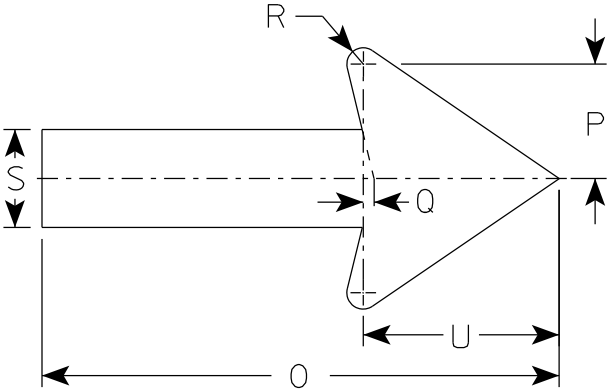


R6 - 2R

NOTES

- 1. Sign is Type II - Type H Reflective
- 2. Color:
Background - White
Message - Black
- 3. Message Series - D
- 4. R6-2L same as R6-2R except arrow points to the left.

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
1	18	24	1 1/2	3/8	1/2	5	2 1/2	1 1/2	4 1/2	5 1/2	6 5/8	6 1/2	6 5/8	6 3/4	11 7/8	2 5/8	1/4	3/8	2 1/4	1 1/2	4 1/2					
2S	24	36	1 1/2	3/8	1/2	6	3	2 1/2	5 1/2	7	8 1/8	8 1/8	8 1/2	8 5/8	16	3 1/2	3/8	1/2	3	2	6					
2M	30	36	1 7/8	1/2	5/8	8	2 1/2	2 5/8	6 7/8	8	10 1/2	10 1/2	11 1/4	11 1/4	20	4 3/8	1/2	5/8	3 3/4	2 1/2	7 1/2					
3	36	48	1 7/8	1/2	5/8	10	5 1/4	3 1/4	9	10 1/2	12 3/4	12 3/4	13 1/4	13 1/2	24	5 5/8	1/2	3/4	4 3/4	3	9					
4	36	48	1 7/8	1/2	5/8	10	5 1/4	3 1/4	9	10 1/2	12 3/4	12 3/4	13 1/4	13 1/2	24	5 5/8	1/2	3/4	4 3/4	3	9					
5																										

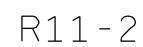
PROJECT NO:

HWY:

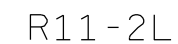
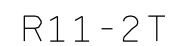
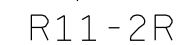
COUNTY:

SHEET NO: 192

E



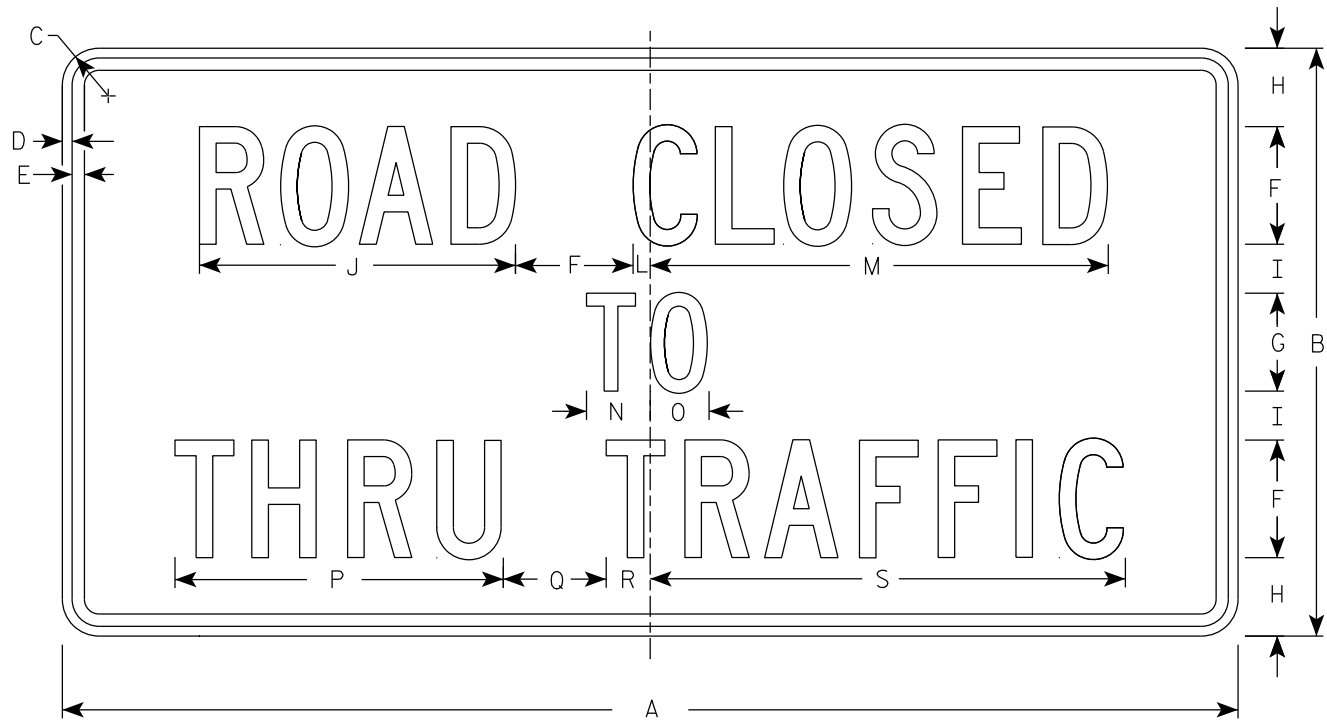
1. Sign is Type II - Type H Reflective
2. Color:
 - Background - White
 - Message - Black
3. Message Series - D
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. Modify the message as required.



STANDARD SIGN	
R11-2	
WISCONSIN DEPT OF TRANSPORTATION	
APPROVED	<u>Matthew R. Rauch</u> for State Traffic Engineer
DATE <u>2/5/24</u>	PLATE NO. <u>R11-2.12</u>

FILE NAME : C:\Users\PROJECTS\tr_stdplate\R112.dgn PLOT DATE : 5-FEB 2024 2:10 PLOT BY : mscj9h PLOT NAME : PLOT SCALE : \$\$.plot\$scale\$. WISDOT/CADD\$ SHEET 42

7



R11-4

NOTES

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

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	60	30	1 7/8	1/2	5/8	6	5	4	2 1/2	16 1/8		7/8	23 3/8	3 1/4	3	16 3/4	5 1/4	2 1/4	24 1/4								12.5
2M	60	30	1 7/8	1/2	5/8	6	5	4	2 1/2	16 1/8		7/8	23 3/8	3 1/4	3	16 3/4	5 1/4	2 1/4	24 1/4								12.5
3																											
4																											
5																											

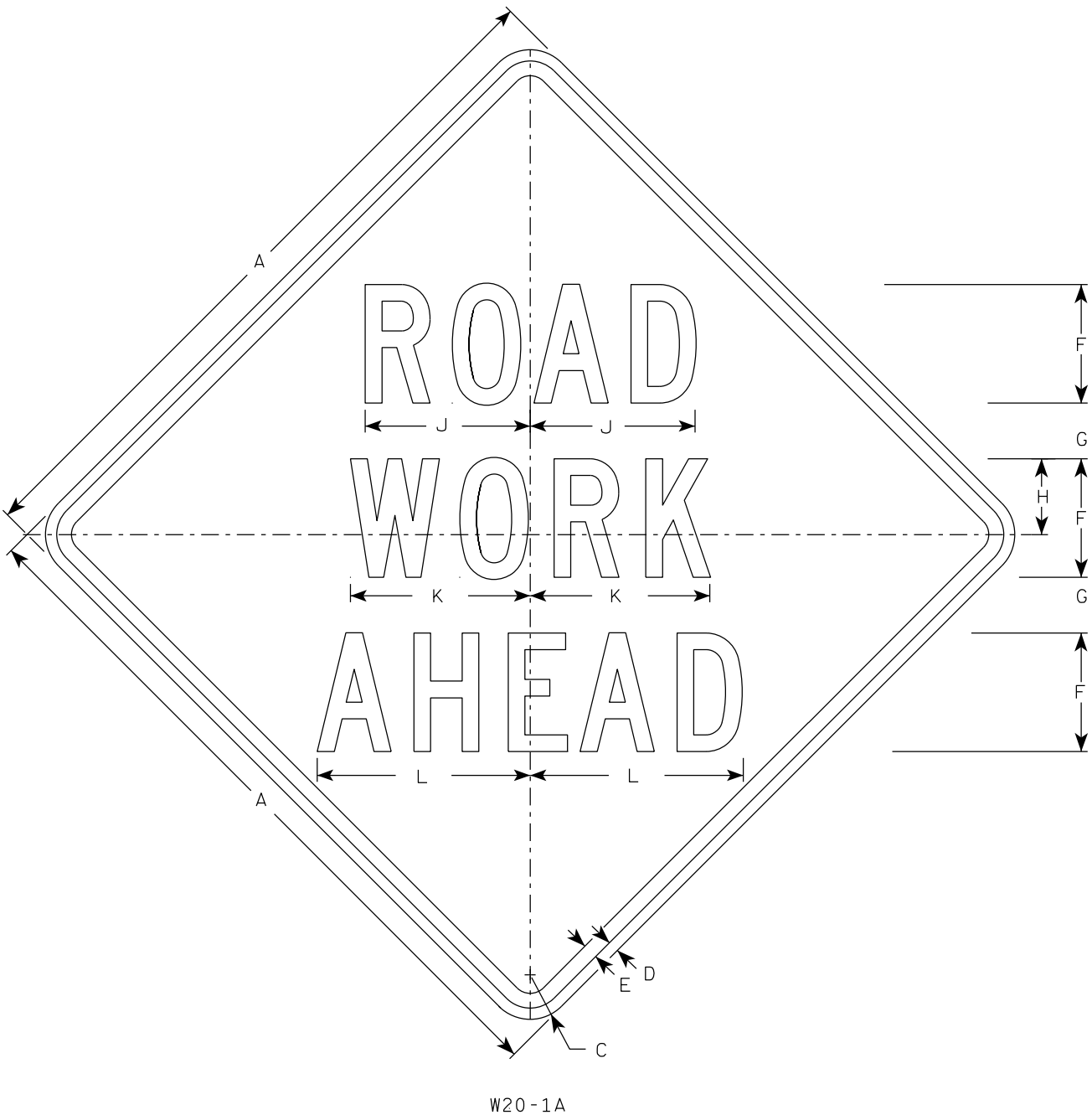
PROJECT NO:

HWY:

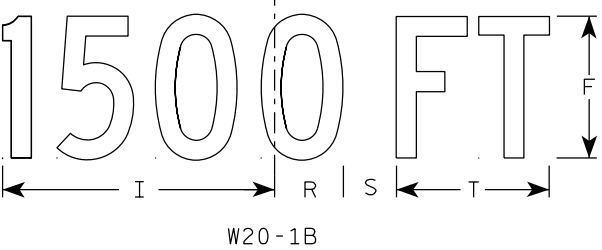
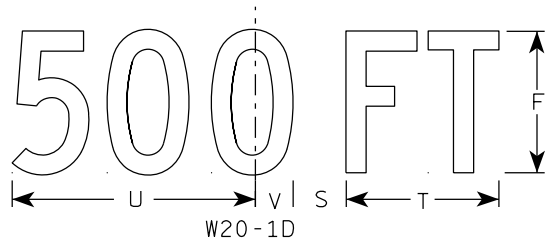
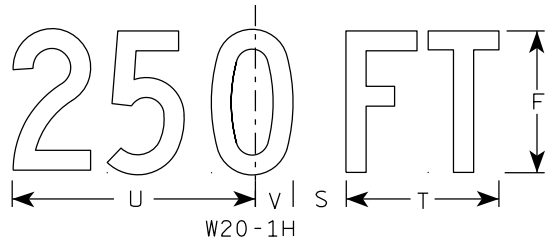
COUNTY:

SHEET NO: 194

E

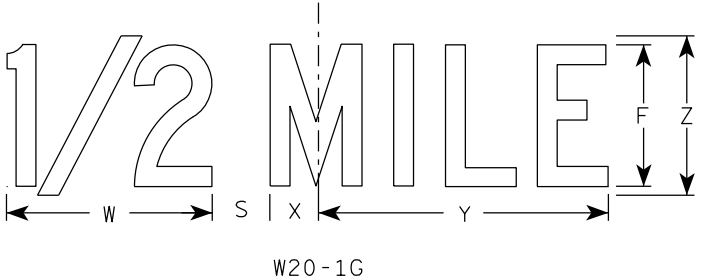


W20-1A

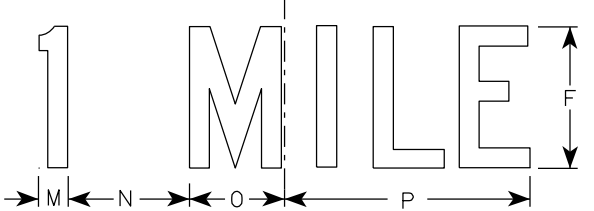


W20-1B

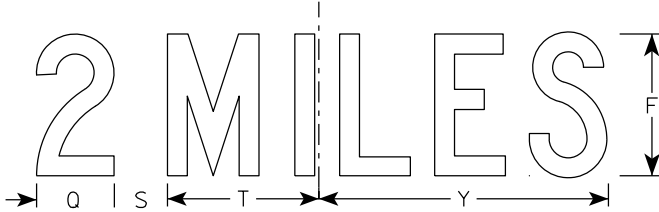
- NOTES
1. Sign is Type II - Type F Reflective
 2. Color:
Background - Orange
Message - Black
 3. Message Series - C
 4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.



W20-1G



W20-1F



W20-1E

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		2 1/4	5/8	3/4	5	2 5/8	3 1/4	10 1/8	7	7 5/8	8 7/8	1 1/8	4 1/2	3 1/2	9	3 1/4	2 1/2	2 1/4	5 5/8	9	1 3/8	8	1 3/4	10 3/4	6	9.0
2S	48		3	3/4	1	8	3 3/4	5 1/8	15 3/8	11 1/8	12 1/8	14 3/8	1 5/8	6 7/8	5 3/8	13 7/8	4 3/8	3 7/8	3	8 5/8	13 3/4	2 1/8	11 7/8	2 3/4	16 3/8	9	16.0
2M	48		3	3/4	1	8	3 3/4	5 1/8	15 3/8	11 1/8	12 1/8	14 3/8	1 5/8	6 7/8	5 3/8	13 7/8	4 3/8	3 7/8	3	8 5/8	13 3/4	2 1/8	11 7/8	2 3/4	16 3/8	9	16.0
3	48		3	3/4	1	8	3 3/4	5 1/8	15 3/8	11 1/8	12 1/8	14 3/8	1 5/8	6 7/8	5 3/8	13 7/8	4 3/8	3 7/8	3	8 5/8	13 3/4	2 1/8	11 7/8	2 3/4	16 3/8	9	16.0
4	48		3	3/4	1	8	3 3/4	5 1/8	15 3/8	11 1/8	12 1/8	14 3/8	1 5/8	6 7/8	5 3/8	13 7/8	4 3/8	3 7/8	3	8 5/8	13 3/4	2 1/8	11 7/8	2 3/4	16 3/8	9	16.0
5	48		3	3/4	1	8	3 3/4	5 1/8	15 3/8	11 1/8	12 1/8	14 3/8	1 5/8	6 7/8	5 3/8	13 7/8	4 3/8	3 7/8	3	8 5/8	13 3/4	2 1/8	11 7/8	2 3/4	16 3/8	9	16.0

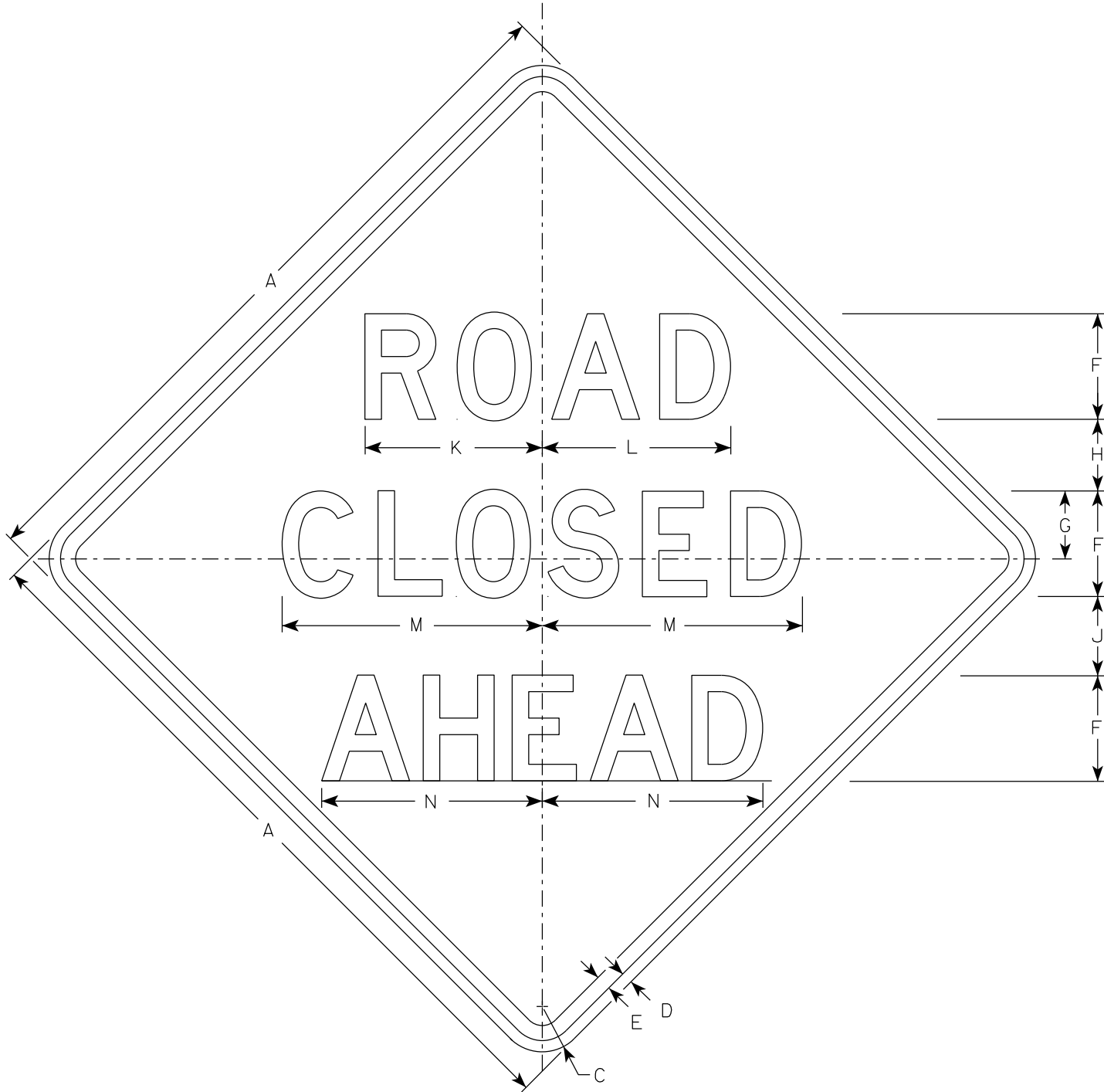
STANDARD SIGN
W20-1A, B, C, D, E, F, G & H

WISCONSIN DEPT OF TRANSPORTATION

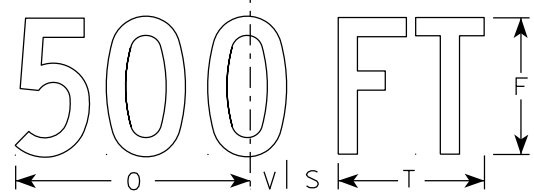
APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 1/10/2024 PLATE NO. W20-1.12

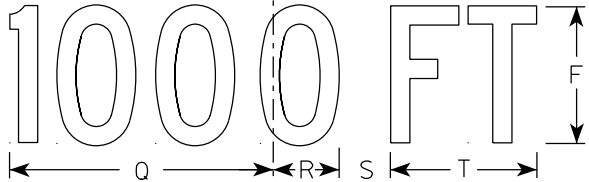
7



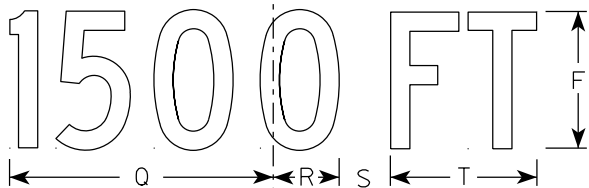
W20-3A



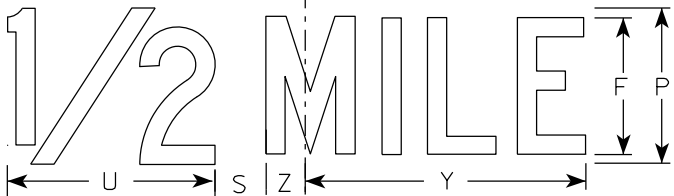
W20-3D



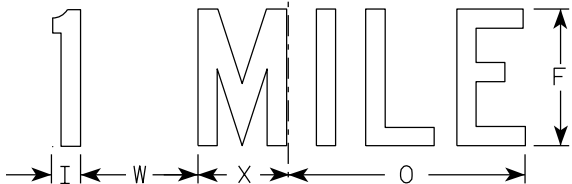
W20-3C



W20-3B



W20-3G



W20-3F

NOTES

1. Sign is Type II - Type F Reflective
2. Color:
Background - Orange
Message - Black
3. Message Series - see note 5
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.
5. Lines 1 and 2 are Series D.
Line 3 is Series D for AHEAD and Series C for all other distances.

7

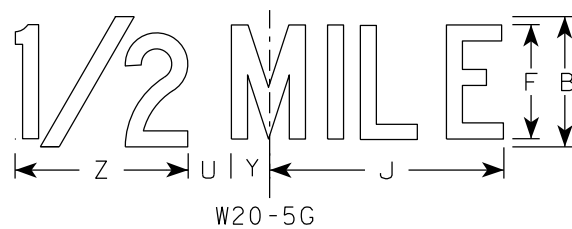
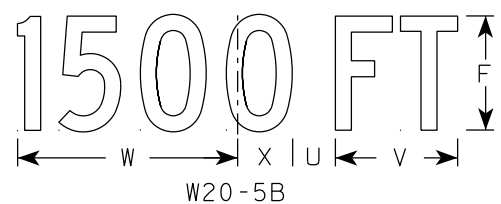
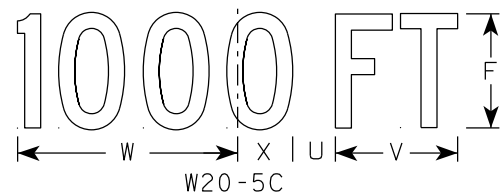
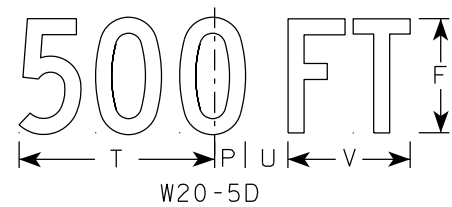
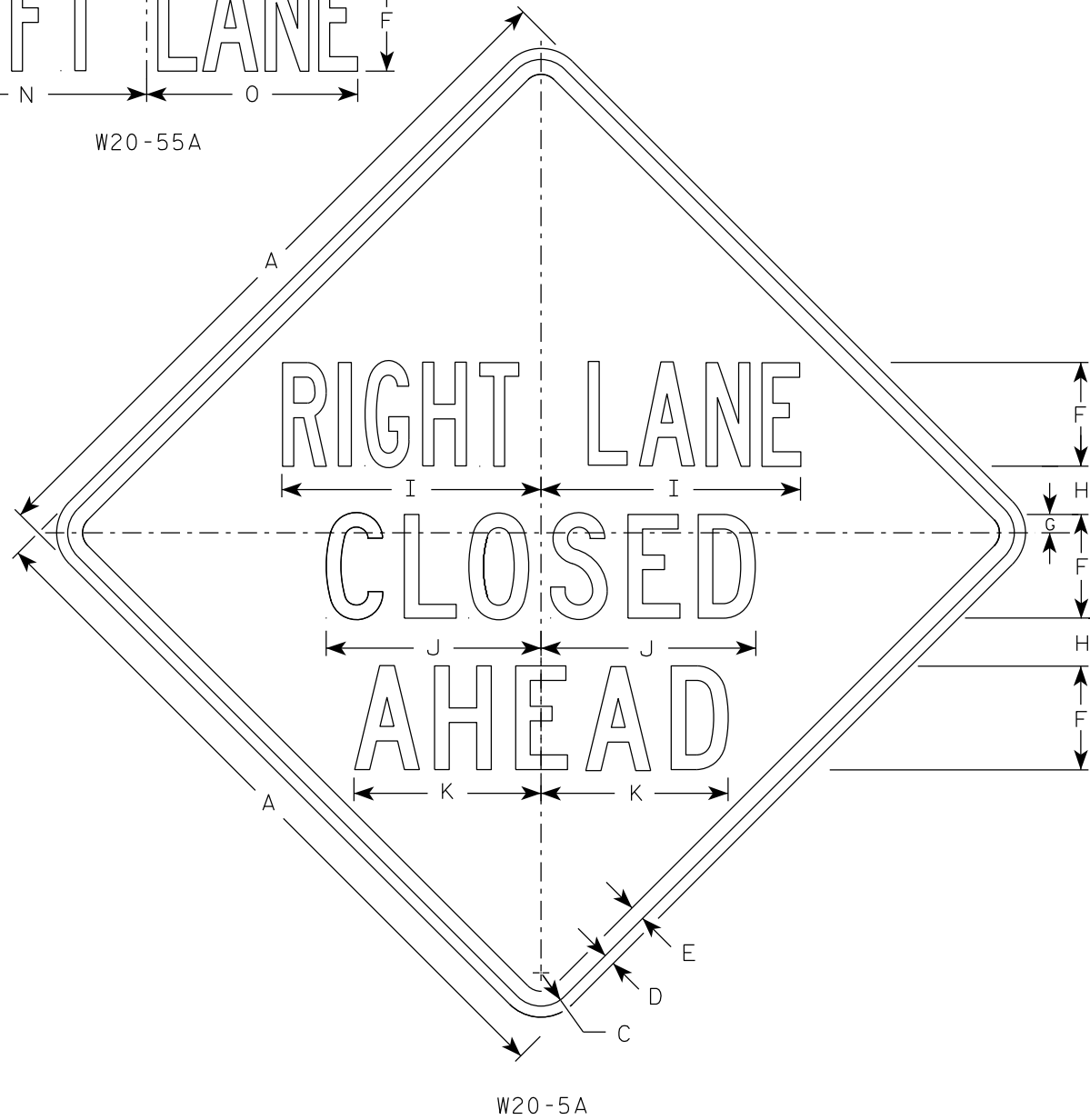
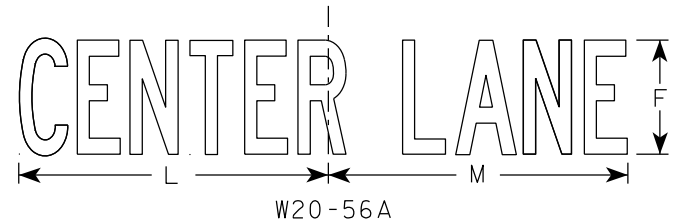
SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	v	W	X	Y	Z	Area sq. ft.
1	36		2 1/4	5/8	3/4	5	3 3/8	3 1/2	1 1/8	4	8 3/8	8 7/8	12 1/2	11	9	6	10 1/8	2 1/2	1 7/8	5 5/8	8	1 3/8	4 1/2	3 1/2	10 3/4	1 3/4	9.0
2S	48		3	3/4	1	7	4 1/2	4 3/4	1 1/2	5 1/4	11 3/4	12 1/2	17 1/4	14 5/8	12	8	13 1/2	3 3/8	2 5/8	7 1/2	10 5/8	1 7/8	6	4 5/8	14 3/8	2 3/8	16.0
2M	48		3	3/4	1	7	4 1/2	4 3/4	1 1/2	5 1/4	11 3/4	12 1/2	17 1/4	14 5/8	12	8	13 1/2	3 3/8	2 5/8	7 1/2	10 5/8	1 7/8	6	4 5/8	14 3/8	2 3/8	16.0
3	48		3	3/4	1	7	4 1/2	4 3/4	1 1/2	5 1/4	11 3/4	12 1/2	17 1/4	14 5/8	12	8	13 1/2	3 3/8	2 5/8	7 1/2	10 5/8	1 7/8	6	4 5/8	14 3/8	2 3/8	16.0
4	48		3	3/4	1	7	4 1/2	4 3/4	1 1/2	5 1/4	11 3/4	12 1/2	17 1/4	14 5/8	12	8	13 1/2	3 3/8	2 5/8	7 1/2	10 5/8	1 7/8	6	4 5/8	14 3/8	2 3/8	16.0
5	48		3	3/4	1	7	4 1/2	4 3/4	1 1/2	5 1/4	11 3/4	12 1/2	17 1/4	14 5/8	12	8	13 1/2	3 3/8	2 5/8	7 1/2	10 5/8	1 7/8	6	4 5/8	14 3/8	2 3/8	16.0

STANDARD SIGN
W20-3A, B, C, D, F & G

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 1/10/2024 PLATE NO. W20-3.8



NOTES

- 1. Sign is Type II - Type F Reflective
- 2. Color:
Background - Orange
Message - Black
- 3. Message Series - See Note 5
- 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.
- 5. " _____ LANE" is Series B.
All other copy is Series C.

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	36	6	2 1/4	5/8	3/4	5	7/8	2 1/2	13 1/8	10 3/4	9 1/2	14 1/4	13 5/8	12	12	1 3/8	1 1/8	4 1/2	3 1/2	9	1 7/8	5 5/8	10 1/8	2 1/2	1 3/4	8	9.0
2S	48	8	3	3/4	1	7	1 1/4	3 1/4	17 1/2	14 3/8	12 5/8	19	18 3/8	16	14 1/4	1 7/8	1 1/2	6	4 5/8	12	2 5/8	7 1/2	13 1/2	3 3/8	2 3/8	10 5/8	16.0
2M	48	8	3	3/4	1	7	1 1/4	3 1/4	17 1/2	14 3/8	12 5/8	19	18 3/8	16	14 1/4	1 7/8	1 1/2	6	4 5/8	12	2 5/8	7 1/2	13 1/2	3 3/8	2 3/8	10 5/8	16.0
3	48	8	3	3/4	1	7	1 1/4	3 1/4	17 1/2	14 3/8	12 5/8	19	18 3/8	16	14 1/4	1 7/8	1 1/2	6	4 5/8	12	2 5/8	7 1/2	13 1/2	3 3/8	2 3/8	10 5/8	16.0
4	48	8	3	3/4	1	7	1 1/4	3 1/4	17 1/2	14 3/8	12 5/8	19	18 3/8	16	14 1/4	1 7/8	1 1/2	6	4 5/8	12	2 5/8	7 1/2	13 1/2	3 3/8	2 3/8	10 5/8	16.0
5	48	8	3	3/4	1	7	1 1/4	3 1/4	17 1/2	14 3/8	12 5/8	19	18 3/8	16	14 1/4	1 7/8	1 1/2	6	4 5/8	12	2 5/8	7 1/2	13 1/2	3 3/8	2 3/8	10 5/8	16.0

PROJECT NO:

HWY:

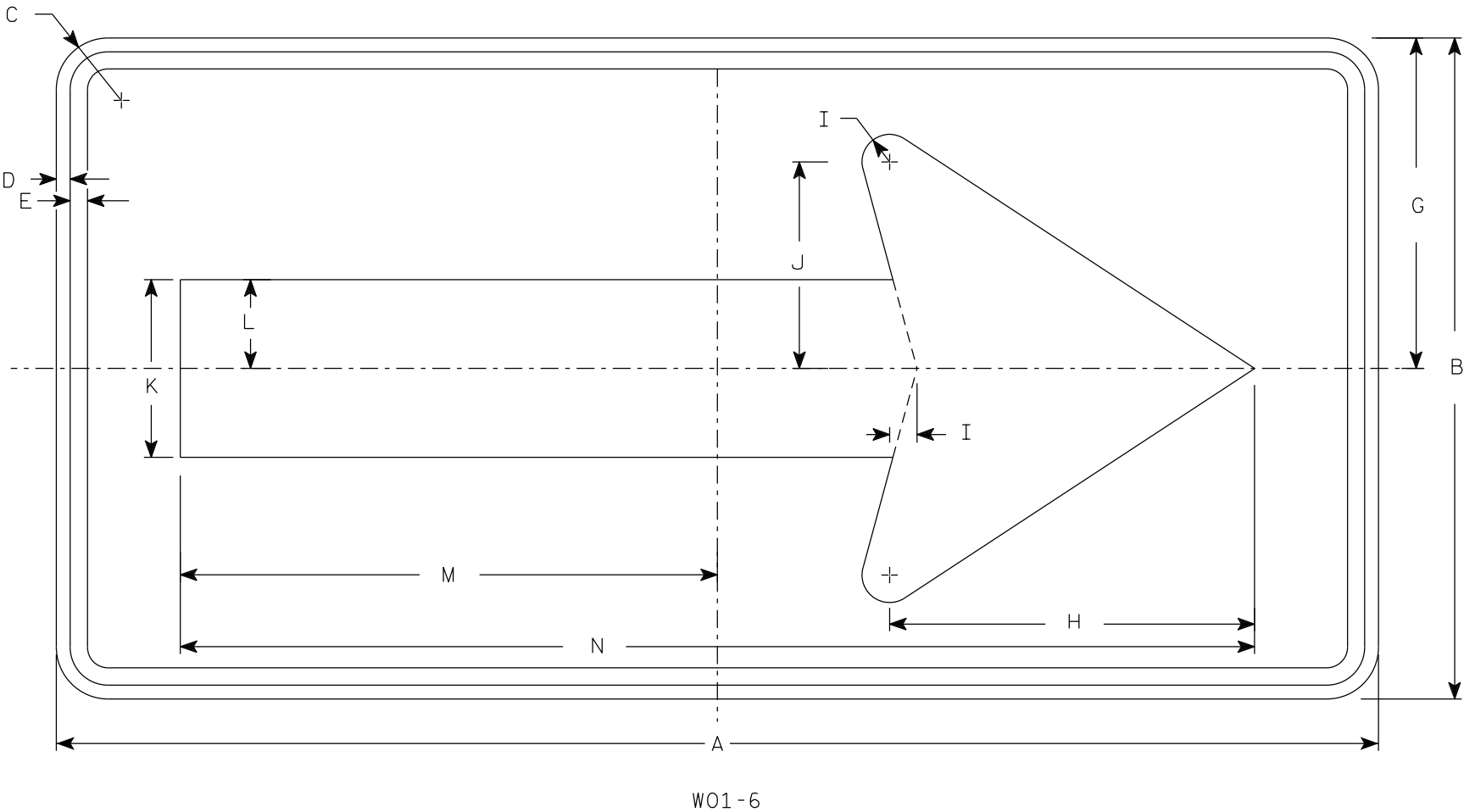
COUNTY:

SHEET NO: 197

E

7

7



NOTES

1. Sign is Type II - Type F Reflective
2. Color:
Background - Orange
Message - Black
3. 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.

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	24	1 7/8	1/2	5/8		12	13 1/4	1	7 1/2	6 1/2	3 1/4	19 1/2	39													8.0
2M	48	24	1 7/8	1/2	5/8		12	13 1/4	1	7 1/2	6 1/2	3 1/4	19 1/2	39													8.0
3	60	30	1 7/8	1/2	5/8		15	16 1/4	1 1/4	9 1/4	8	4	24 3/8	48 3/4													12.5
4	60	30	1 7/8	1/2	5/8		15	16 1/4	1 1/4	9 1/4	8	4	24 3/8	48 3/4													12.5
5	60	30	1 7/8	1/2	5/8		15	16 1/4	1 1/4	9 1/4	8	4	24 3/8	48 3/4													12.5

STANDARD SIGN

W01-6

WISCONSIN DEPT OF TRANSPORTATION

APPROVED

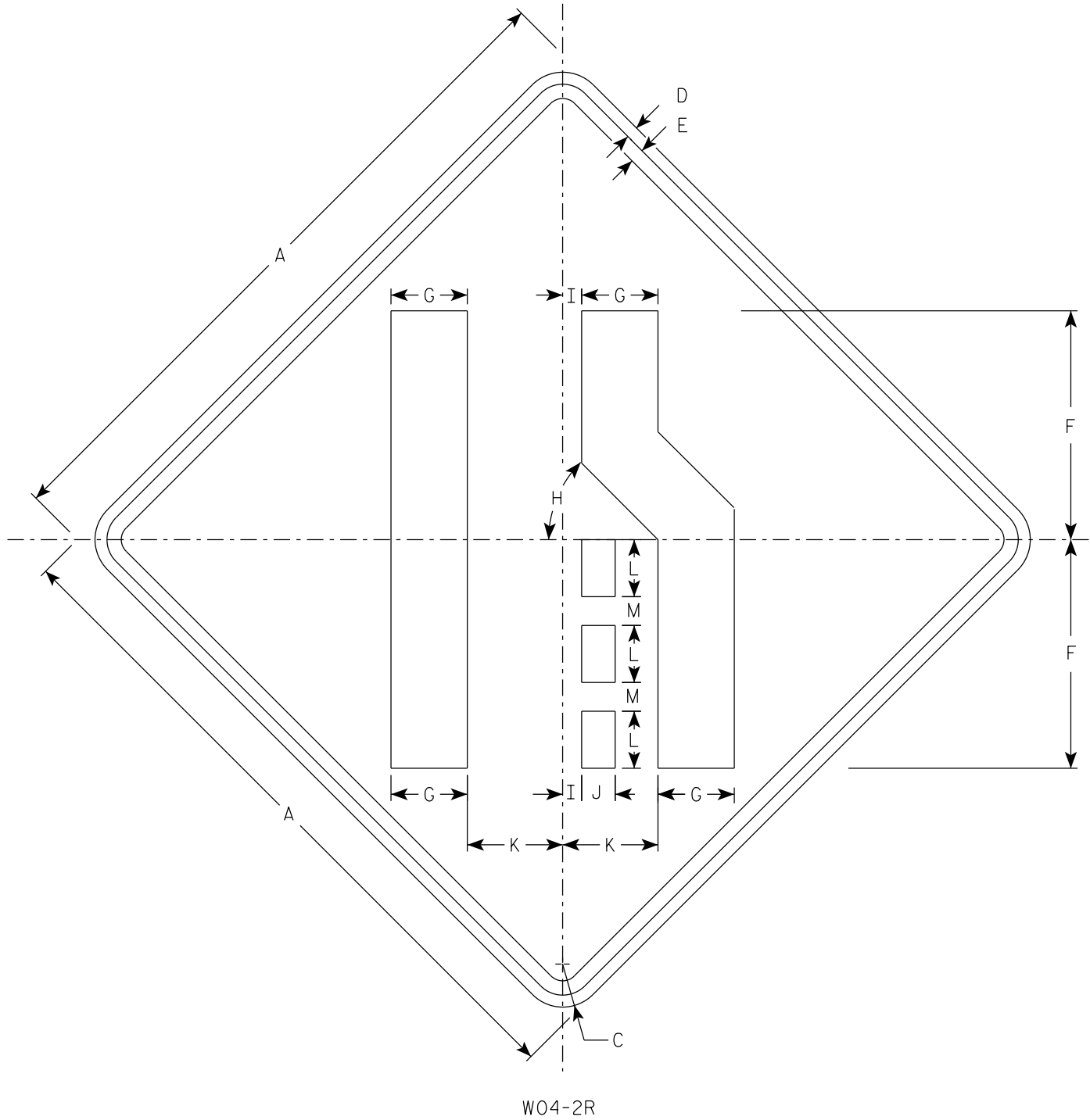
Matthew R. Rauch

for State Traffic Engineer

DATE 1/24/2024

PLATE NO. W01-6.2

7



NOTES

- 1. Sign is Type II - Type F Reflective
- 2. Color:
Background - Orange
Message - Black
- 3. 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.
- 4. W04-2L is the same as W04-2R except the symbol is reversed along the vertical centerline.

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		2 1/4	5/8	3/4	12	4	45°	1	1 3/4	5	3	1 1/2														9.0
2S	48		3	3/4	1	16	5 3/8	45°	1 1/4	2 3/8	6 3/4	4	2														16.0
2M	48		3	3/4	1	16	5 3/8	45°	1 1/4	2 3/8	6 3/4	4	2														16.0
3	48		3	3/4	1	16	5 3/8	45°	1 1/4	2 3/8	6 3/4	4	2														16.0
4	48		3	3/4	1	16	5 3/8	45°	1 1/4	2 3/8	6 3/4	4	2														16.0
5	48		3	3/4	1	16	5 3/8	45°	1 1/4	2 3/8	6 3/4	4	2														16.0

DIVISION 1 - US 18_151_EB_DANE COUNTY

STATION	REAL STATION	DISTANCE	AREA (SF)			INCREMENTAL VOL (CY) (UNADJUSTED)			CUMULATIVE VOL (CY)		
			CUT	SALVAGED/UNUSABLE PAVEMENT MATERIAL	FILL	CUT NOTE 1	SALVAGED/UNUSABLE PAVEMENT MATERIAL NOTE 2	FILL NOTE 3	CUT 1.00	EXPANDED FILL 1.25	MASS ORDNATE
									NOTE 1		NOTE 8
1649+35.32	164935.32	0.00	0.00	0.00	0.00	0	0	0	0	0	0
1649+50.00	164950.00	14.68	0.00	0.00	0.00	0	0	0	0	0	0
1650+00.00	165000.00	50.00	46.39	0.00	8.52	43	0	8	43	10	33
1650+50.00	165050.00	50.00	33.23	0.00	23.08	74	0	29	117	46	71
1651+00.00	165100.00	50.00	19.20	0.00	58.07	49	0	75	166	140	26
1651+50.00	165150.00	50.00	24.53	0.00	116.34	40	0	161	206	341	-135
1652+00.00	165200.00	50.00	21.73	0.00	124.53	43	0	223	249	620	-371
1652+50.00	165250.00	50.00	19.98	0.00	161.42	39	0	265	288	951	-663
1653+00.00	165300.00	50.00	18.98	0.00	152.69	36	0	291	324	1315	-991
1653+50.00	165350.00	50.00	18.87	0.00	125.99	35	0	258	359	1638	-1279
1654+00.00	165400.00	50.00	19.61	0.00	107.17	36	0	216	395	1908	-1513
1654+50.00	165450.00	50.00	20.11	0.00	80.11	37	0	173	432	2124	-1692
1655+00.00	165500.00	50.00	20.65	0.00	61.36	38	0	131	470	2288	-1818
1655+50.00	165550.00	50.00	18.57	0.00	45.46	36	0	99	506	2411	-1905
1656+00.00	165600.00	50.00	18.65	0.00	48.40	34	0	87	540	2520	-1980
1656+50.00	165650.00	50.00	16.67	0.00	58.44	33	0	99	573	2644	-2071
1657+00.00	165700.00	50.00	16.83	0.00	23.44	31	0	76	604	2739	-2135
1657+50.00	165750.00	50.00	16.99	0.00	20.17	31	0	40	635	2789	-2154
1658+00.00	165800.00	50.00	16.97	0.00	14.95	31	0	33	666	2830	-2164
1658+50.00	165850.00	50.00	17.92	0.00	12.16	32	0	25	698	2861	-2163
1659+00.00	165900.00	50.00	18.35	0.00	9.95	34	0	20	732	2886	-2154

DIVISION 1 - US 18_151_WB_DANE COUNTY

STATION	REAL STATION	DISTANCE	AREA (SF)			INCREMENTAL VOL (CY) (UNADJUSTED)			CUMULATIVE VOL (CY)		
			CUT	SALVAGED/UNUSABLE PAVEMENT MATERIAL	FILL	CUT NOTE 1	SALVAGED/UNUSABLE PAVEMENT MATERIAL NOTE 2	FILL NOTE 3	CUT 1.00	EXPANDED FILL 1.25	MASS ORDNATE
									NOTE 1		NOTE 8
1673+11.00	167311.00	0.00	25.15	0.00	79.10	0	0	0	0	0	0
1673+50.00	167350.00	39.00	23.17	0.00	84.47	35	0	118	35	148	-113
1674+00.00	167400.00	50.00	21.42	0.00	92.81	41	0	164	76	353	-277
1674+50.00	167450.00	50.00	19.82	0.00	101.69	38	0	180	114	578	-464
1675+00.00	167500.00	50.00	18.41	0.00	113.76	35	0	199	149	826	-677
1675+50.00	167550.00	50.00	18.71	0.00	121.09	34	0	217	183	1098	-915
1676+00.00	167600.00	50.00	18.05	0.00	143.09	34	0	245	217	1404	-1187
1676+50.00	167650.00	50.00	17.93	0.00	136.33	33	0	259	250	1728	-1478
1677+00.00	167700.00	50.00	19.66	0.00	121.59	35	0	239	285	2026	-1741
1677+50.00	167750.00	50.00	44.86	0.00	99.02	60	0	204	345	2281	-1936
1678+00.00	167800.00	50.00	90.15	0.00	88.64	125	0	174	470	2499	-2029
1678+50.00	167850.00	50.00	100.74	0.00	82.91	177	0	159	647	2698	-2051
1679+00.00	167900.00	50.00	43.01	0.00	91.95	133	0	162	780	2900	-2120
1679+50.00	167950.00	50.00	29.16	0.00	116.36	67	0	193	847	3141	-2294
1680+00.00	168000.00	50.00	17.54	0.00	153.71	43	0	250	890	3454	-2564
1680+50.00	168050.00	50.00	16.88	0.00	213.13	32	0	340	922	3879	-2957
1681+00.00	168100.00	50.00	16.90	0.00	183.30	31	0	367	953	4338	-3385
1681+50.00	168150.00	50.00	18.34	0.00	108.48	33	0	270	986	4675	-3689
1682+00.00	168200.00	50.00	25.54	0.00	67.93	41	0	163	1027	4879	-3852
1682+50.00	168250.00	50.00	40.46	0.00	72.29	61	0	130	1088	5041	-3953
1683+00.00	168300.00	50.00	87.59	0.00	68.56	119	0	130	1207	5204	-3997
1683+50.00	168350.00	50.00	104.30	0.00	37.57	178	0	98	1385	5326	-3941
1683+76.00	168376.00	26.00	0.00	0.00	0.00	50	0	18	1435	5349	-3914

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

DIVISION 1 - US 18_151_WB_DANE COUNTY

STATION	REAL STATION	DISTANCE	AREA (SF)			INCREMENTAL VOL (CY) (UNADJUSTED)			CUMULATIVE VOL (CY)		
			CUT	SALVAGED/UNUSABLE PAVEMENT MATERIAL	FILL	CUT	SALVAGED/UNUSABLE PAVEMENT MATERIAL	FILL	CUT	EXPANDED FILL	MASS ORDINATE
						NOTE 1	NOTE 2	NOTE 3	NOTE 1	NOTE 2	NOTE 8
1673+50.00	167350.00	0.00	33.57	0.00	17.28	0	0	0	0	0	0
1674+00.00	167400.00	50.00	30.97	0.00	19.49	60	0	34	60	43	18
1674+50.00	167450.00	50.00	30.43	0.00	14.32	57	0	31	117	81	36
1675+00.00	167500.00	50.00	13.17	0.00	13.52	40	0	26	157	114	43
1675+50.00	167550.00	50.00	12.44	0.00	15.32	24	0	27	181	148	34
1676+00.00	167600.00	50.00	12.88	0.00	18.13	23	0	31	204	186	18
1676+50.00	167650.00	50.00	12.51	0.00	8.42	24	0	25	228	218	11
1677+00.00	167700.00	50.00	12.15	0.00	17.69	23	0	24	251	248	4
1677+50.00	167750.00	50.00	12.34	0.00	18.49	23	0	34	274	290	-16
1678+00.00	167800.00	50.00	12.32	0.00	18.84	23	0	35	297	334	-37
1678+50.00	167850.00	50.00	12.66	0.00	17.14	23	0	33	320	375	-55
1679+00.00	167900.00	50.00	12.86	0.00	15.61	24	0	30	344	413	-69
1679+50.00	167950.00	50.00	12.36	0.00	15.70	23	0	29	367	449	-82
1680+00.00	168000.00	50.00	12.35	0.00	16.49	23	0	30	390	486	-96
1680+50.00	168050.00	50.00	12.56	0.00	14.83	23	0	29	413	523	-110
1681+00.00	168100.00	50.00	12.31	0.00	14.74	23	0	27	436	556	-120
1681+50.00	168150.00	50.00	12.22	0.00	15.10	23	0	28	459	591	-132
1682+00.00	168200.00	50.00	12.09	0.00	15.75	23	0	29	482	628	-146
1682+50.00	168250.00	50.00	12.49	0.00	14.97	23	0	28	505	663	-158
1683+00.00	168300.00	50.00	12.04	0.00	22.08	23	0	34	528	705	-177
1683+50.00	168350.00	50.00	17.31	0.00	25.03	27	0	44	555	760	-205
1684+00.00	168400.00	50.00	0.00	0.00	0.00	16	0	23	571	789	-218
1684+50.00	168450.00	50.00	0.00	0.00	0.00	0	0	0	571	789	-218

DIVISION 1 - US 18_151_WB_DANE COUNTY

STATION	REAL STATION	DISTANCE	AREA (SF)			INCREMENTAL VOL (CY) (UNADJUSTED)			CUMULATIVE VOL (CY)		
			CUT	SALVAGED/UNUSABLE PAVEMENT MATERIAL	FILL	CUT	SALVAGED/UNUSABLE PAVEMENT MATERIAL	FILL	CUT	EXPANDED FILL	MASS ORDINATE
						NOTE 1	NOTE 2	NOTE 3	NOTE 1	NOTE 2	NOTE 8
1649+50.00	164950.00	0.00	0.02	0.00	32.64	0	0	0	0	0	0
1650+00.00	165000.00	50.00	12.64	0.00	29.87	12	0	58	12	73	-61
1650+50.00	165050.00	50.00	16.30	0.00	8.79	27	0	36	39	118	-79
1651+00.00	165100.00	50.00	15.91	0.00	8.24	30	0	16	69	138	-69
1651+50.00	165150.00	50.00	15.11	0.00	9.72	29	0	17	98	159	-61
1652+00.00	165200.00	50.00	14.79	0.00	12.45	28	0	21	126	185	-59
1652+50.00	165250.00	50.00	14.57	0.00	14.19	27	0	25	153	216	-63
1653+00.00	165300.00	50.00	14.23	0.00	14.10	27	0	26	180	249	-69
1653+50.00	165350.00	50.00	14.62	0.00	12.87	27	0	25	207	280	-73
1654+00.00	165400.00	50.00	13.68	0.00	14.81	26	0	26	233	313	-80
1654+50.00	165450.00	50.00	13.26	0.00	14.25	25	0	27	258	346	-88
1655+00.00	165500.00	50.00	12.78	0.00	16.46	24	0	28	282	381	-99
1655+50.00	165550.00	50.00	14.24	0.00	13.03	25	0	27	307	415	-108
1656+00.00	165600.00	50.00	13.72	0.00	13.83	26	0	25	333	446	-113
1656+50.00	165650.00	50.00	13.50	0.00	11.94	25	0	24	358	476	-118
1657+00.00	165700.00	50.00	15.21	0.00	4.12	27	0	15	385	495	-110
1657+50.00	165750.00	50.00	13.68	0.00	15.83	27	0	18	412	518	-106
1658+00.00	165800.00	50.00	13.77	0.00	15.94	25	0	29	437	554	-117
1658+50.00	165850.00	50.00	14.22	0.00	13.03	26	0	27	463	588	-125
1659+00.00	165900.00	50.00	14.41	0.00	13.60	27	0	25	490	619	-129
1659+50.00	165950.00	50.00	14.91	0.00	14.00	27	0	26	517	651	-134
1660+00.00	166000.00	50.00	14.59	0.00	15.58	27	0	27	544	685	-141
1660+50.00	166050.00	50.00	14.86	0.00	14.86	27	0	28	571	720	-149
1661+00.00	166100.00	50.00	15.50	0.00	13.00	28	0	26	599	753	-154
1661+50.00	166150.00	50.00	29.75	0.00	13.85	42	0	25	641	784	-143
1662+00.00	166200.00	50.00	32.37	0.00	23.30	58	0	34	699	826	-127
1662+50.00	166250.00	50.00	37.44	0.00	16.49	65	0	37	764	873	-109
1662+65.00	166265.00	15.00	38.17	0.00	6.43	21	0	6	785	880	-95

NOTES:	
1 - CUT	CUT INCLUDES SALVAGED/UNUSABLE PAVEMENT MATERIAL
2 - SALVAGED/UNUSABLE PAVEMENT MATERIAL	THIS DOES NOT SHOW UP IN CROSS SECTIONS
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)]

STATION	REAL STATION	DISTANCE	AREA (SF)			INCREMENTAL VOL (CY) (UNADJUSTED)			CUMULATIVE VOL (CY)		
			CUT	SALVAGED/UNUSABLE PAVEMENT MATERIAL	FILL	CUT NOTE 1	SALVAGED/UNUSABLE PAVEMENT MATERIAL NOTE 2	FILL NOTE 3	CUT 1.00 NOTE 1	EXPANDED FILL 1.25	MASS ORDINATE NOTE 8
1662+65.00	166265.00	0.00	38.17	0.00	6.43	0	0	0	0	0	0
1663+00.00	166300.00	35.00	38.09	0.00	49.33	49	0	36	49	45	4
1663+50.00	166350.00	50.00	40.30	0.00	42.35	73	0	85	122	151	-29
1664+00.00	166400.00	50.00	41.40	0.00	38.20	76	0	75	198	245	-47
1664+50.00	166450.00	50.00	42.41	0.00	33.69	78	0	67	276	329	-53
1665+00.00	166500.00	50.00	43.80	0.00	29.66	80	0	59	356	403	-47
1665+50.00	166550.00	50.00	40.22	0.00	29.13	78	0	54	434	470	-36
1666+00.00	166600.00	50.00	42.21	0.00	17.11	76	0	43	510	524	-14
1666+50.00	166650.00	50.00	50.51	0.00	7.60	86	0	23	596	553	44
1667+00.00	166700.00	50.00	44.43	0.00	4.62	88	0	11	684	566	118
1667+50.00	166750.00	50.00	49.93	0.00	0.44	87	0	5	771	573	199
1668+00.00	166800.00	50.00	43.77	0.00	0.00	87	0	0	858	573	286
1668+50.00	166850.00	50.00	41.29	0.00	7.09	79	0	7	937	581	356
1669+00.00	166900.00	50.00	40.77	0.00	13.38	76	0	19	1013	605	408
1669+50.00	166950.00	50.00	37.28	0.00	23.88	72	0	34	1085	648	438
1670+00.00	167000.00	50.00	37.58	0.00	29.31	69	0	49	1154	709	445
1670+50.00	167050.00	50.00	35.28	0.00	34.77	67	0	59	1221	783	439
1671+00.00	167100.00	50.00	35.33	0.00	37.40	65	0	67	1286	866	420
1671+50.00	167150.00	50.00	36.19	0.00	41.91	66	0	73	1352	958	395
1672+00.00	167200.00	50.00	35.67	0.00	45.83	67	0	81	1419	1059	360
1672+50.00	167250.00	50.00	35.15	0.00	49.94	66	0	89	1485	1170	315
1673+00.00	167300.00	50.00	35.51	0.00	52.34	65	0	95	1550	1289	261
1673+40.00	167340.00	40.00	34.29	0.00	17.18	52	0	52	1602	1354	248

NOTES:	
1 - CUT	CUT INCLUDES SALVAGED/UNUSABLE PAVEMENT MATERIAL
2 - SALVAGED/UNUSABLE PAVEMENT MATERIAL	THIS DOES NOT SHOW UP IN CROSS SECTIONS
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 1 - US 18_151_EB_DANE COUNTY

STATION	REAL STATION	DISTANCE	AREA (SF)			INCREMENTAL VOL (CY) (UNADJUSTED)			CUMULATIVE VOL (CY)		
			CUT	SALVAGED/UNUSABLE PAVEMENT MATERIAL	FILL	CUT NOTE 1	SALVAGED/UNUSABLE PAVEMENT MATERIAL NOTE 2	FILL NOTE 3	CUT 1.00	EXPANDED FILL 1.25	MASS ORDINATE
									NOTE 1		NOTE 8
1659+00.00	165900.00	0.00	18.35	0.00	9.95	0	0	0	0	0	0
1659+50.00	165950.00	50.00	18.43	0.00	8.32	34	0	17	34	21	13
1660+00.00	166000.00	50.00	18.56	0.00	7.32	34	0	14	68	39	29
1660+50.00	166050.00	50.00	19.09	0.00	10.04	35	0	16	103	59	44
1661+00.00	166100.00	50.00	19.51	0.00	22.36	36	0	30	139	96	43
1661+50.00	166150.00	50.00	20.88	0.00	48.51	37	0	66	176	179	-3
1662+00.00	166200.00	50.00	23.40	0.00	42.27	41	0	84	217	284	-67
1662+50.00	166250.00	50.00	23.34	0.00	36.99	43	0	73	260	375	-115
1663+00.00	166300.00	50.00	24.23	0.00	31.67	44	0	64	304	455	-151
1663+50.00	166350.00	50.00	24.33	0.00	28.35	45	0	56	349	525	-176
1664+00.00	166400.00	50.00	23.63	0.00	25.34	44	0	50	393	588	-195
1664+50.00	166450.00	50.00	25.36	0.00	21.63	45	0	43	438	641	-203
1665+00.00	166500.00	50.00	25.48	0.00	20.52	47	0	39	485	690	-205
1665+50.00	166550.00	50.00	22.68	0.00	25.28	45	0	42	530	743	-213
1666+00.00	166600.00	50.00	24.14	0.00	29.84	43	0	51	573	806	-233
1666+50.00	166650.00	50.00	27.42	0.00	43.35	48	0	68	621	891	-270
1666+84.71	166684.71	34.71	0.00	0.00	7.03	18	0	32	639	931	-292

DIVISION 1 - CTH F

STATION	REAL STATION	DISTANCE	AREA (SF)			INCREMENTAL VOL (CY) (UNADJUSTED)			CUMULATIVE VOL (CY)		
			CUT	SALVAGED/UNUSABLE PAVEMENT MATERIAL	FILL	CUT NOTE 1	SALVAGED/UNUSABLE PAVEMENT MATERIAL NOTE 2	FILL NOTE 3	CUT 1.00	EXPANDED FILL 1.25	MASS ORDINATE
									NOTE 1		NOTE 8
48+50.00	4850.00	0.00	0.00	0.00	0.00	0	0	0	0	0	0
49+00.00	4900.00	50.00	12.95	0.00	3.64	12	0	3	12	4	8
49+50.00	4950.00	50.00	31.03	0.00	2.96	41	0	6	53	11	42
50+00.00	5000.00	50.00	29.89	0.00	7.44	56	0	10	109	24	85
50+50.00	5050.00	50.00	50.22	0.00	14.06	74	0	20	183	49	134
51+00.00	5100.00	50.00	121.63	0.00	0.00	159	0	13	342	65	277
51+31.82	5131.82	31.82	316.38	0.00	0.00	258	0	0	600	65	535

NOTES:	
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2 - SALVAGED/UNUSABLE PAVEMENT MATERIAL	THIS DOES NOT SHOW UP IN CROSS SECTIONS
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)]

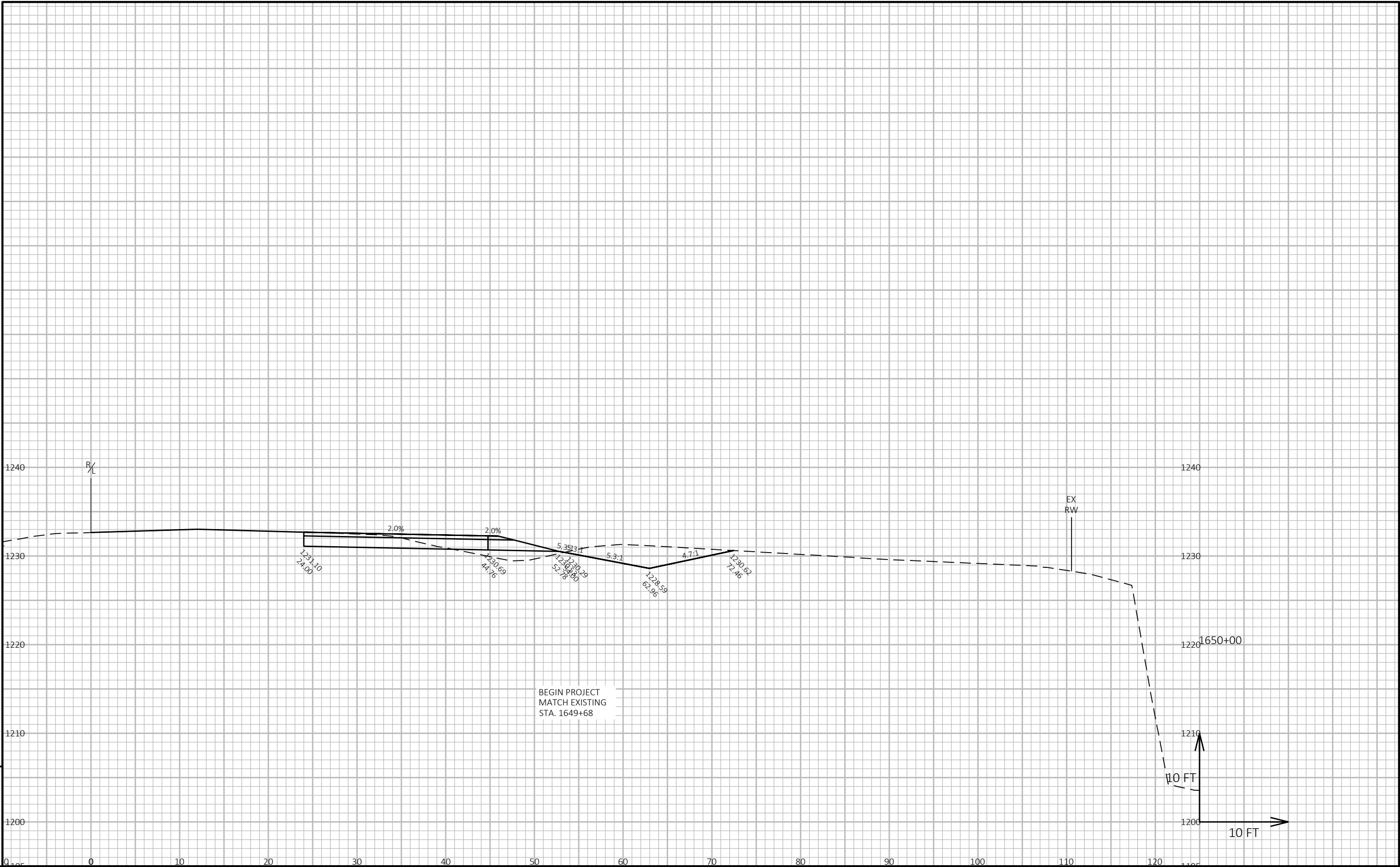
DIVISION 1 - US 18_151_WB_DANE COUNTY

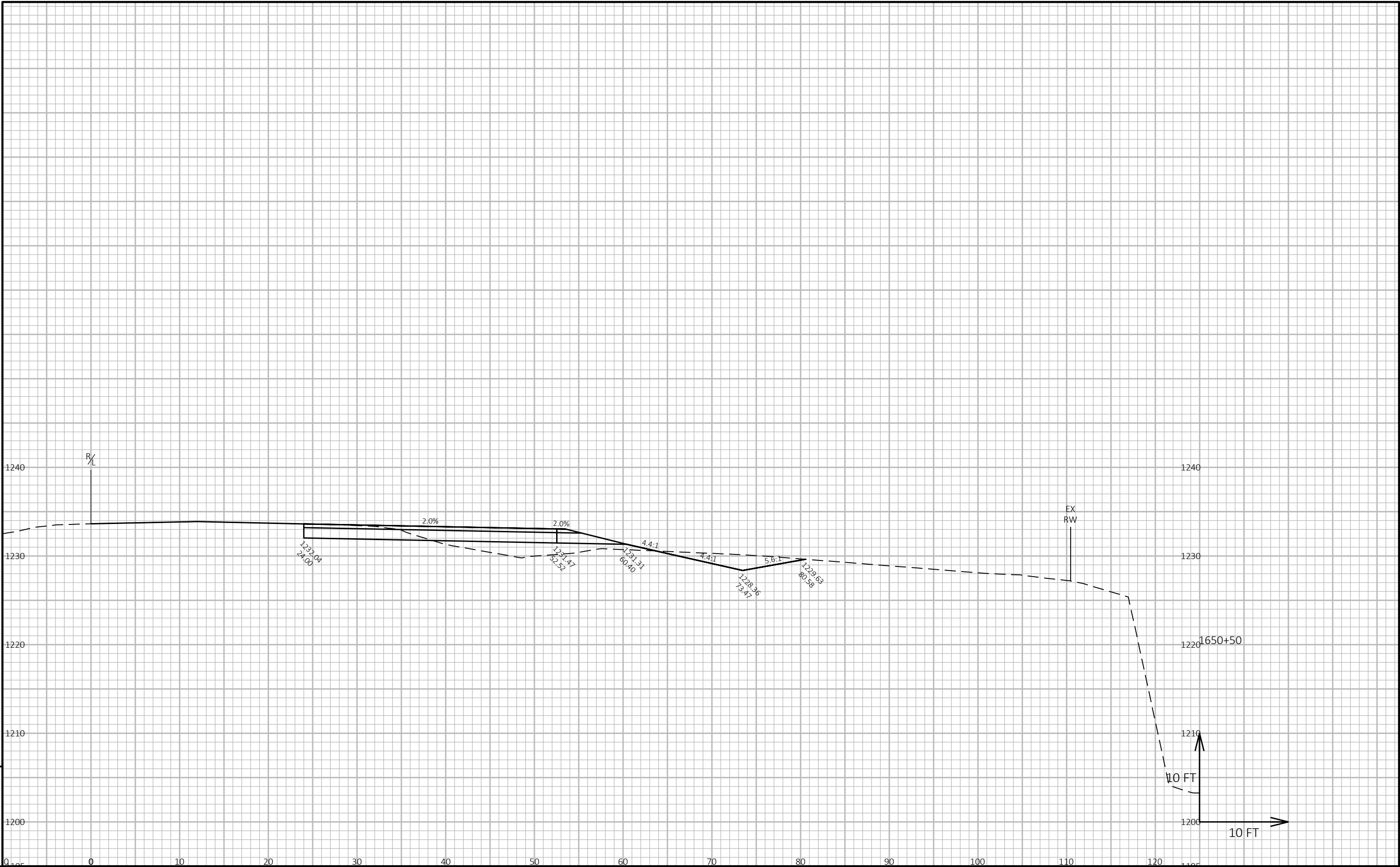
STATION	REAL STATION	DISTANCE	AREA (SF)			INCREMENTAL VOL (CY) (UNADJUSTED)			CUMULATIVE VOL (CY)		
			CUT	SALVAGED/UNUSABLE PAVEMENT MATERIAL	FILL	CUT NOTE 1	SALVAGED/UNUSABLE PAVEMENT MATERIAL NOTE 2	FILL NOTE 3	CUT	EXPANDED FILL	MASS ORDNATE NOTE 8
									1.00 NOTE 1	1.25	
1668+92.97	166892.97	0.00	60.21	0.00	11.02	0	0	0	0	0	0
1669+00.00	166900.00	7.03	67.19	0.00	11.24	17	0	3	17	4	13
1669+50.00	166950.00	50.00	120.57	0.00	11.90	174	0	21	191	30	161
1670+00.00	167000.00	50.00	135.39	0.00	9.95	237	0	20	428	55	373
1670+50.00	167050.00	50.00	122.70	0.00	9.71	239	0	18	667	78	590
1671+00.00	167100.00	50.00	89.23	0.00	15.10	196	0	23	863	106	757
1671+50.00	167150.00	50.00	41.05	0.00	23.58	121	0	36	984	151	833
1672+00.00	167200.00	50.00	24.33	0.00	43.76	61	0	62	1045	229	816
1672+50.00	167250.00	50.00	25.00	0.00	58.61	46	0	95	1091	348	744
1673+00.00	167300.00	50.00	25.18	0.00	75.37	46	0	124	1137	503	635
1673+11.00	167311.00	11.00	25.15	0.00	79.10	10	0	31	1147	541	606

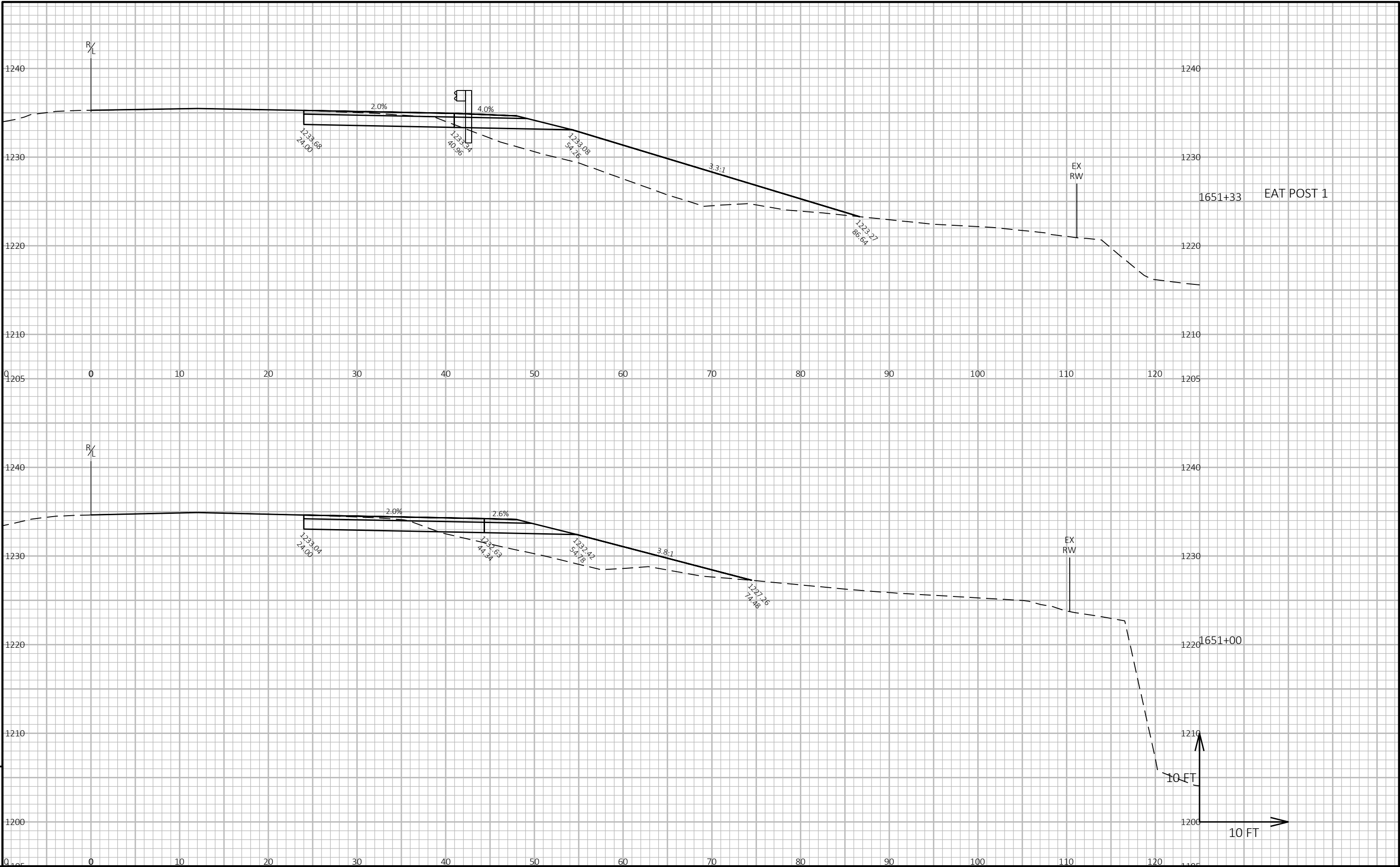
DIVISION 1 - CTH F

STATION	REAL STATION	DISTANCE	AREA (SF)			INCREMENTAL VOL (CY) (UNADJUSTED)			CUMULATIVE VOL (CY)		
			CUT	SALVAGED/UNUSABLE PAVEMENT MATERIAL	FILL	CUT NOTE 1	SALVAGED/UNUSABLE PAVEMENT MATERIAL NOTE 2	FILL NOTE 3	CUT	EXPANDED FILL	MASS ORDNATE NOTE 8
									1.00 NOTE 1	1.25	
51+81.88	5181.88	0.00	313.15	0.00	0.00	0	0	0	0	0	0
52+00.00	5200.00	18.12	0.00	0.00	0.00	105	0	0	105	0	105
52+50.00	5250.00	50.00	169.48	0.00	29.90	157	0	28	262	35	227
53+00.00	5300.00	50.00	84.03	0.00	14.06	235	0	41	497	86	411
53+50.00	5350.00	50.00	67.40	0.00	7.21	140	0	20	637	111	526
54+00.00	5400.00	50.00	53.14	0.00	1.37	112	0	8	749	121	628
54+50.00	5450.00	50.00	51.18	0.00	0.58	97	0	2	846	124	722
54+57.63	5457.63	7.63	24.74	0.00	0.55	11	0	0	857	124	733

NOTES:	
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2 - SALVAGED/UNUSABLE PAVEMENT MATERIAL	THIS DOES NOT SHOW UP IN CROSS SECTIONS
3 - FILL	DOES NOT INCLUDE UNUSABLE PAVEMENT EXC VOLUME
8 - MASS ORDNATE	IF MARSH AND EBS TO BE BACKFILLED WITH GRANULAR: [CUT - SALVAGED PAVT - ((FILL - EXPANDED ROCK) * FILL FACTOR)]

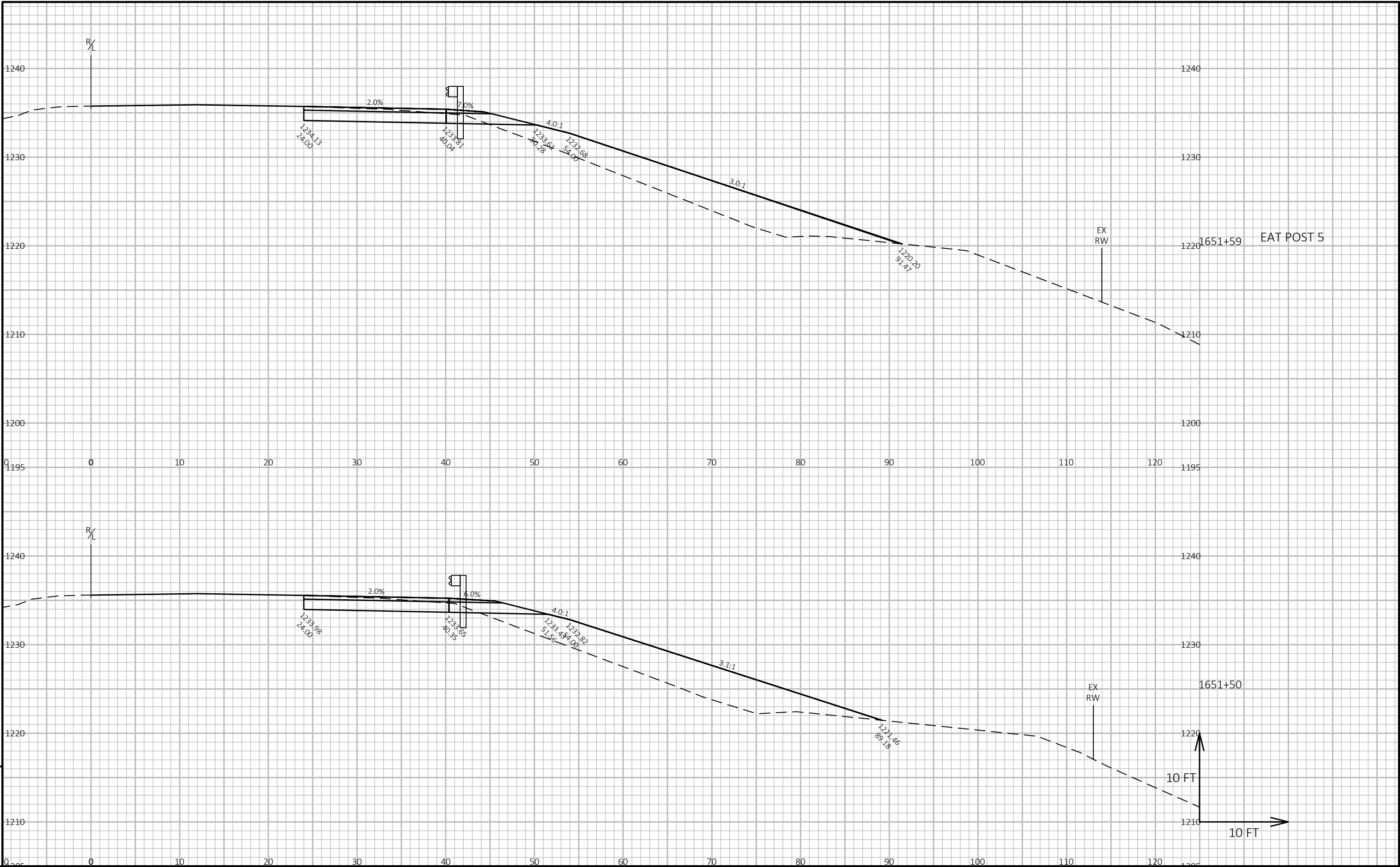


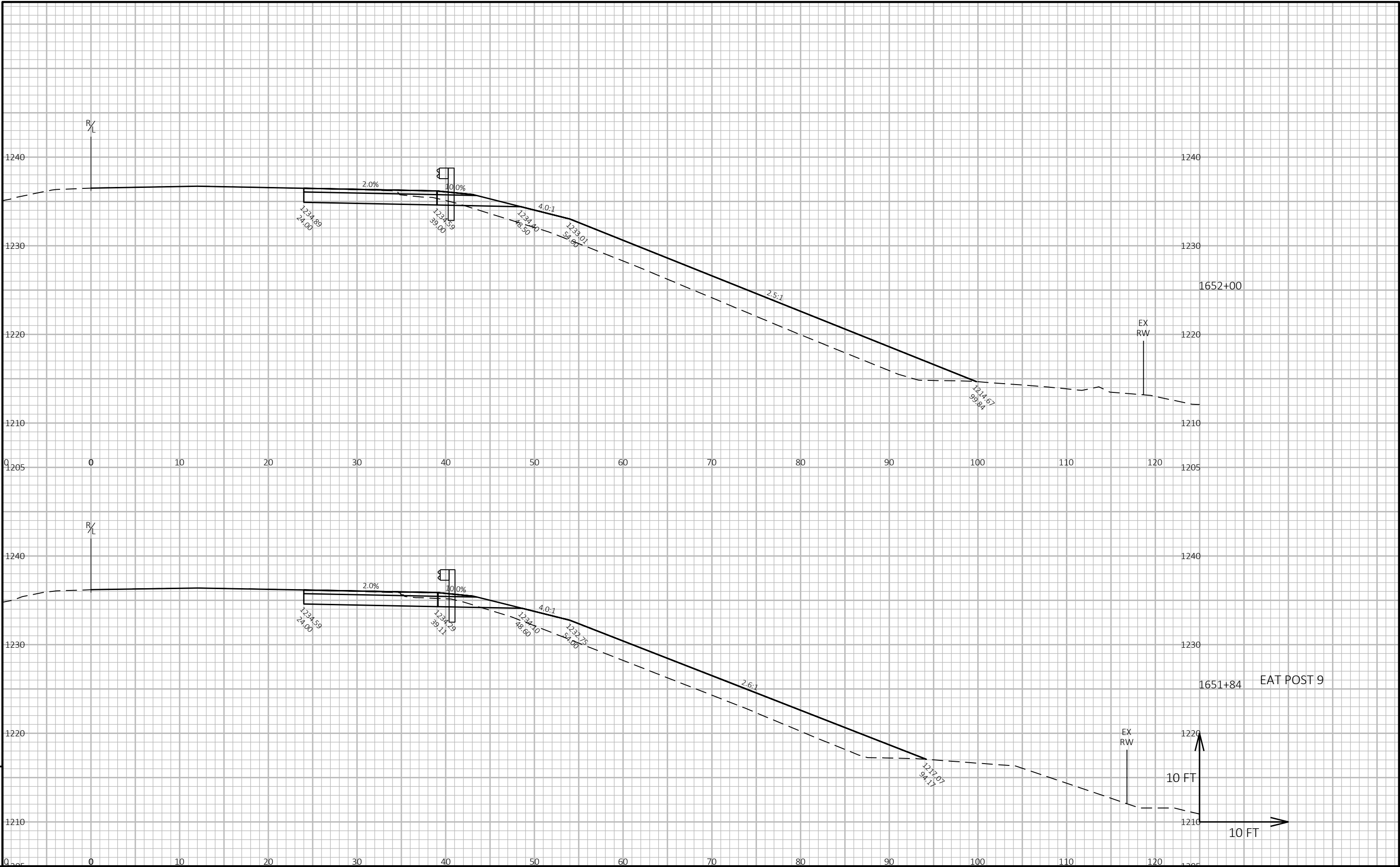


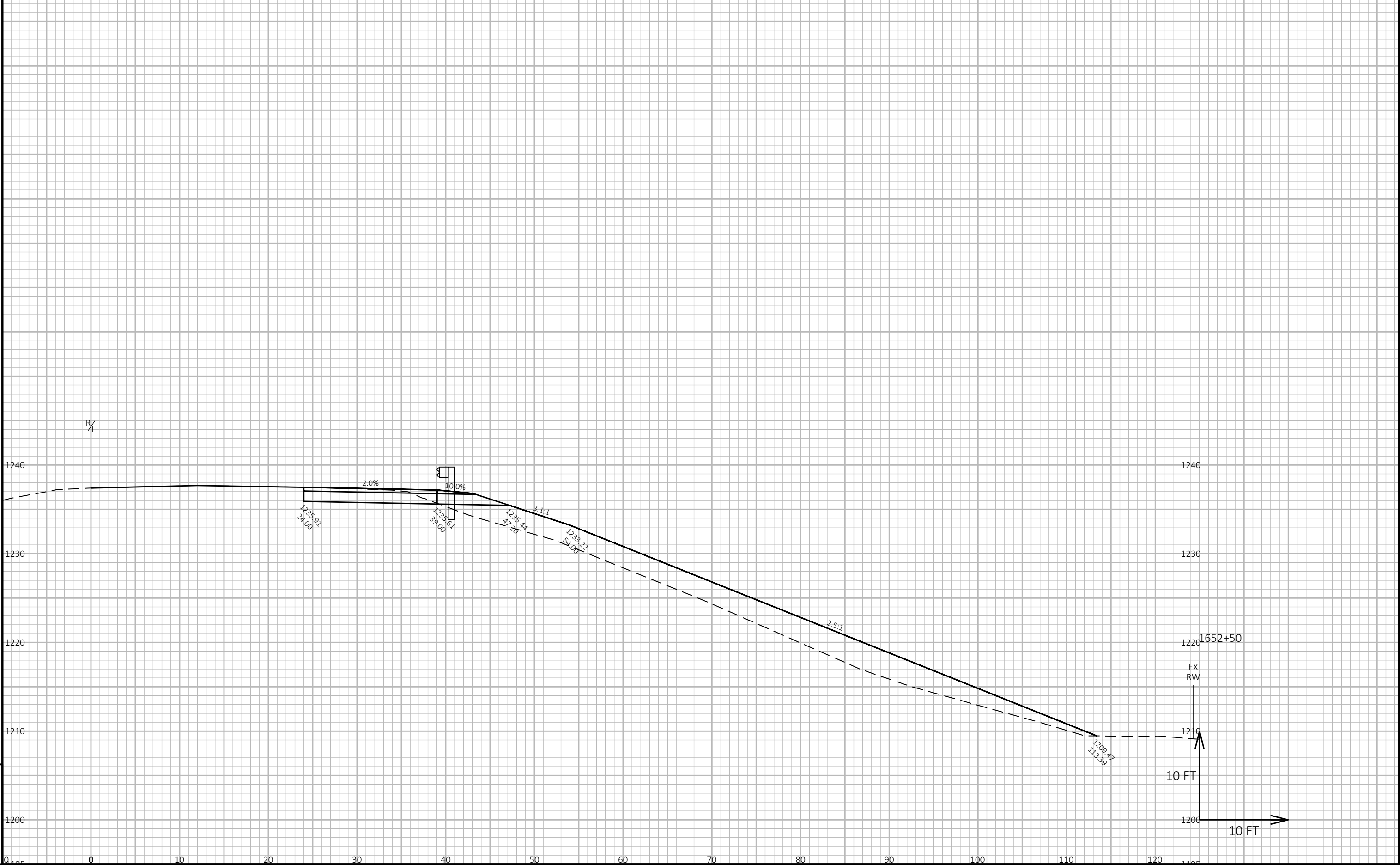


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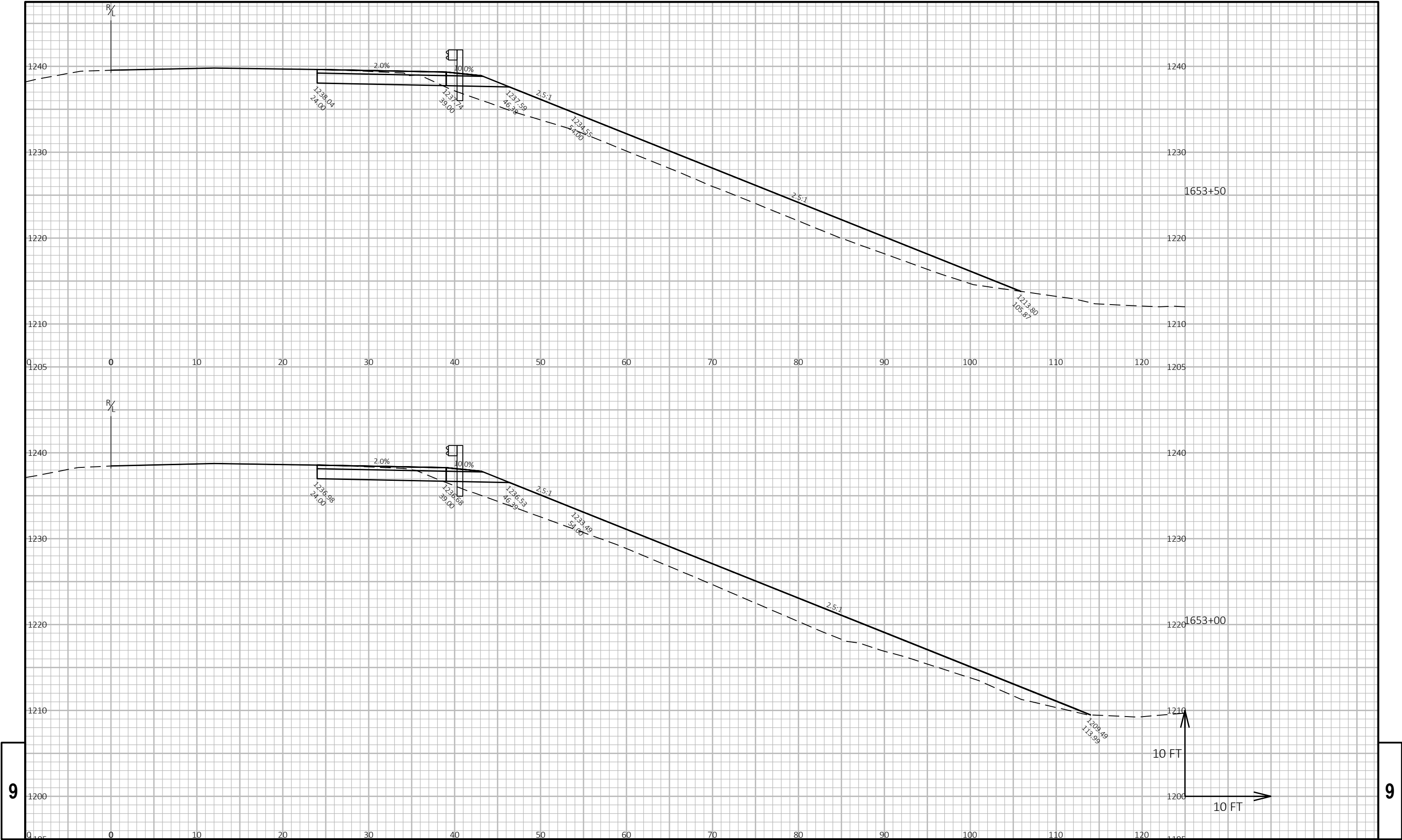


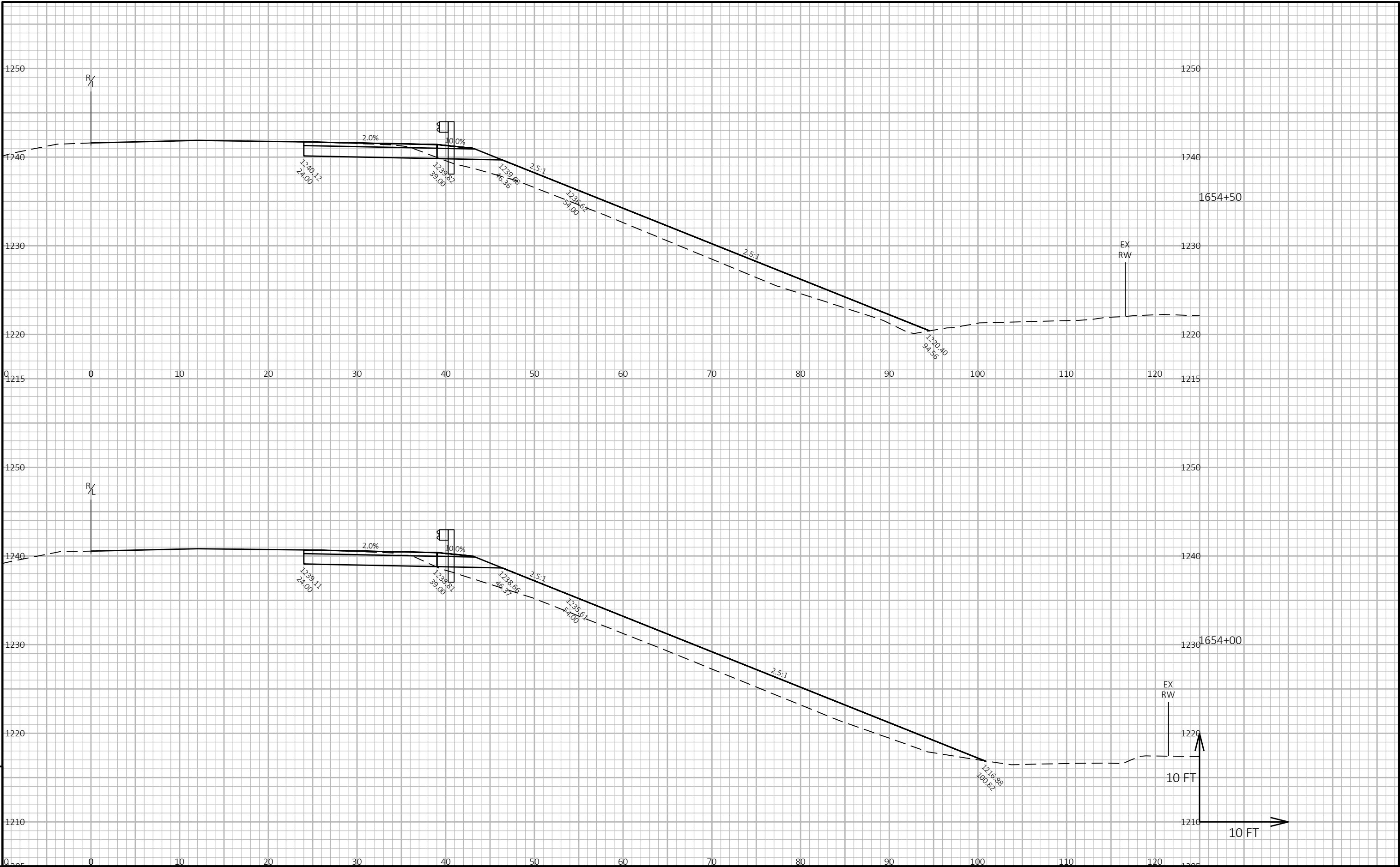




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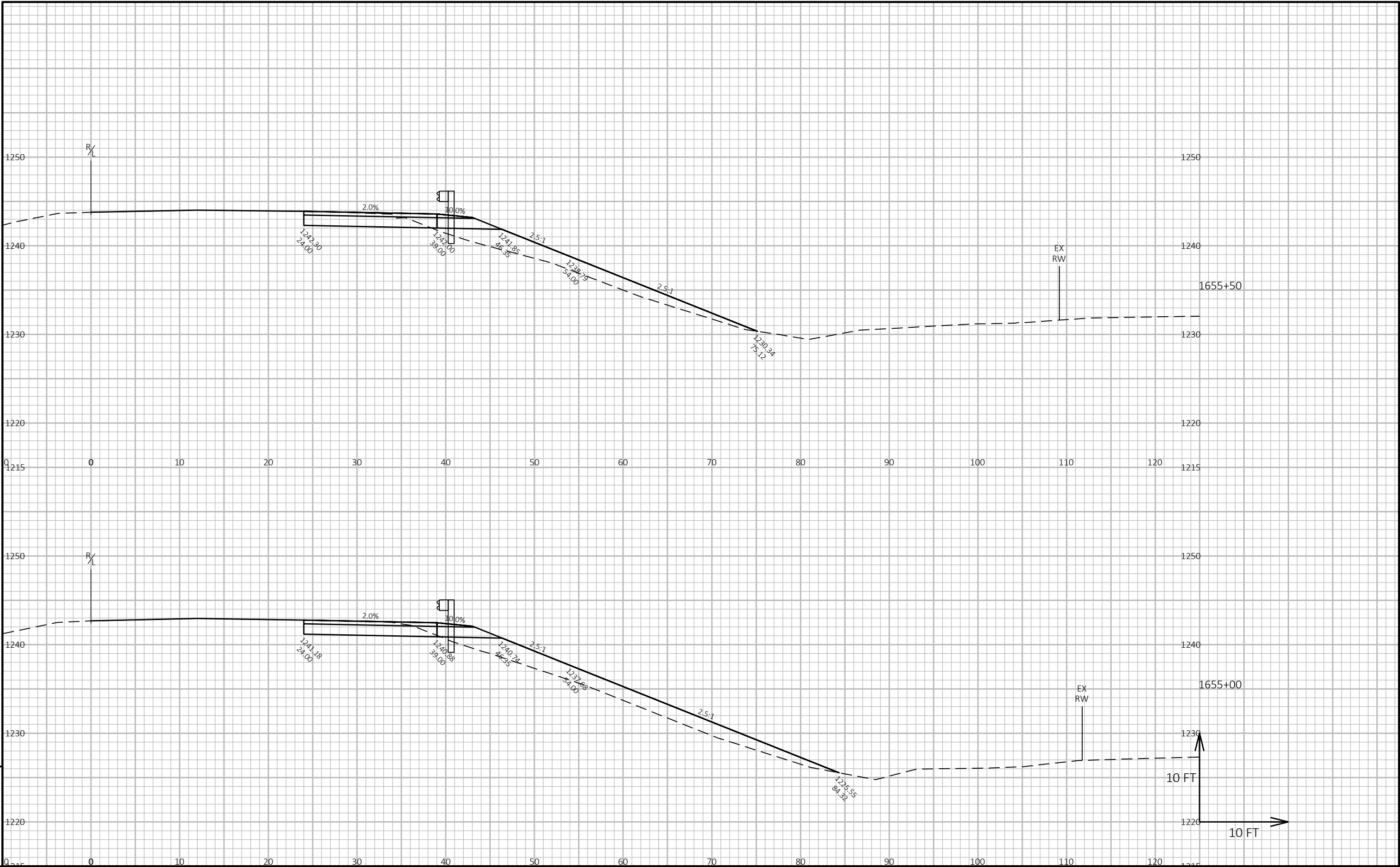
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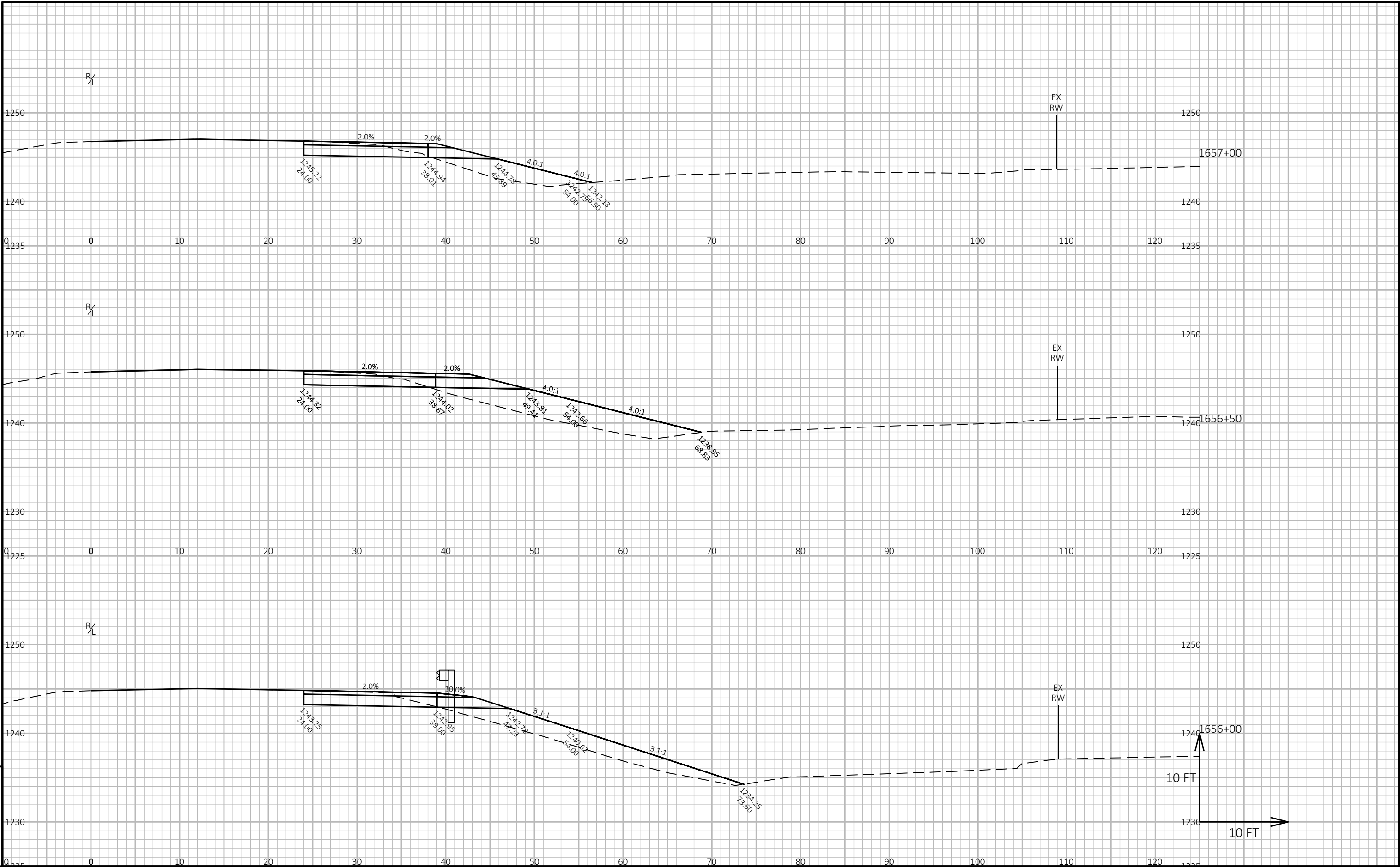


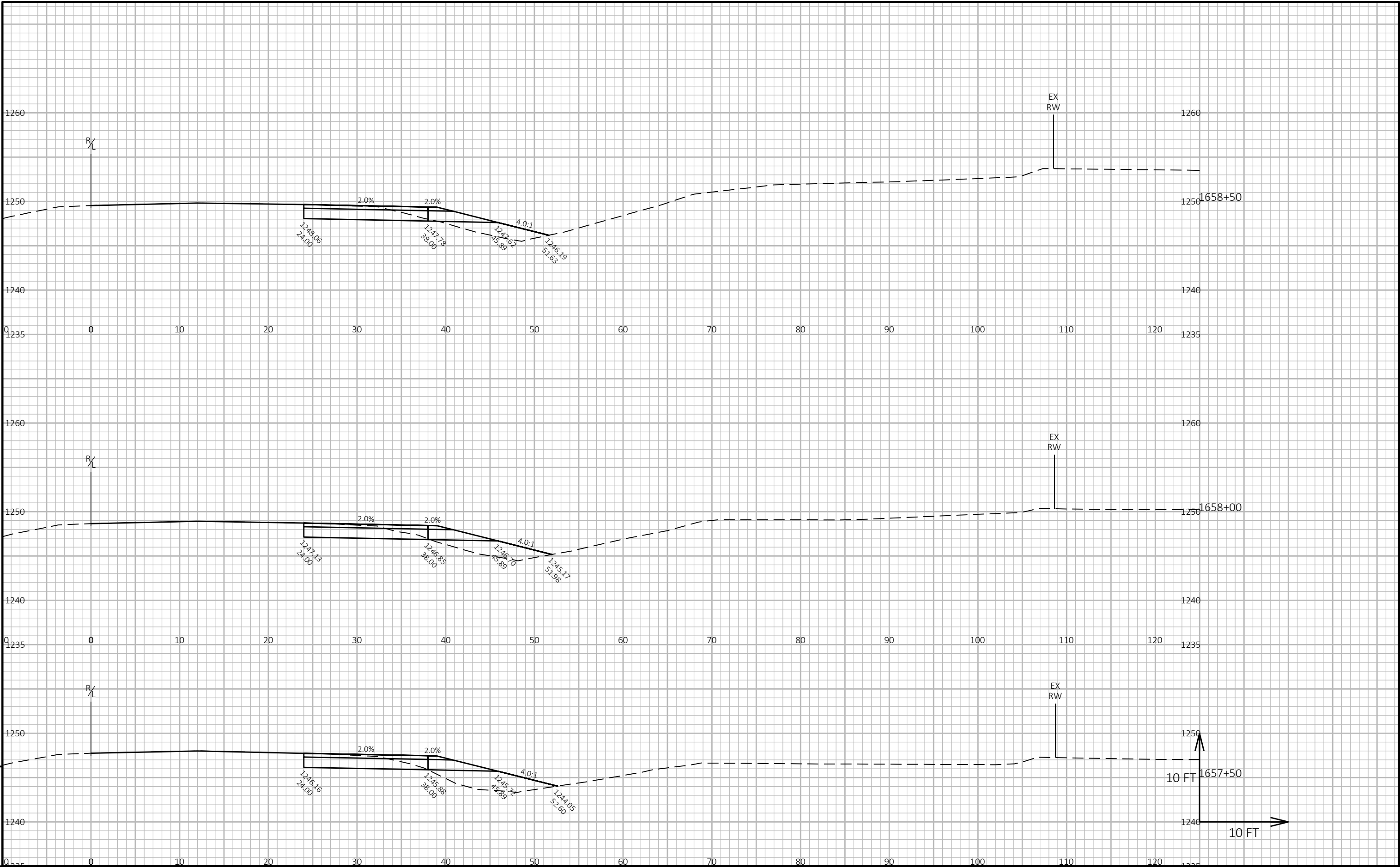


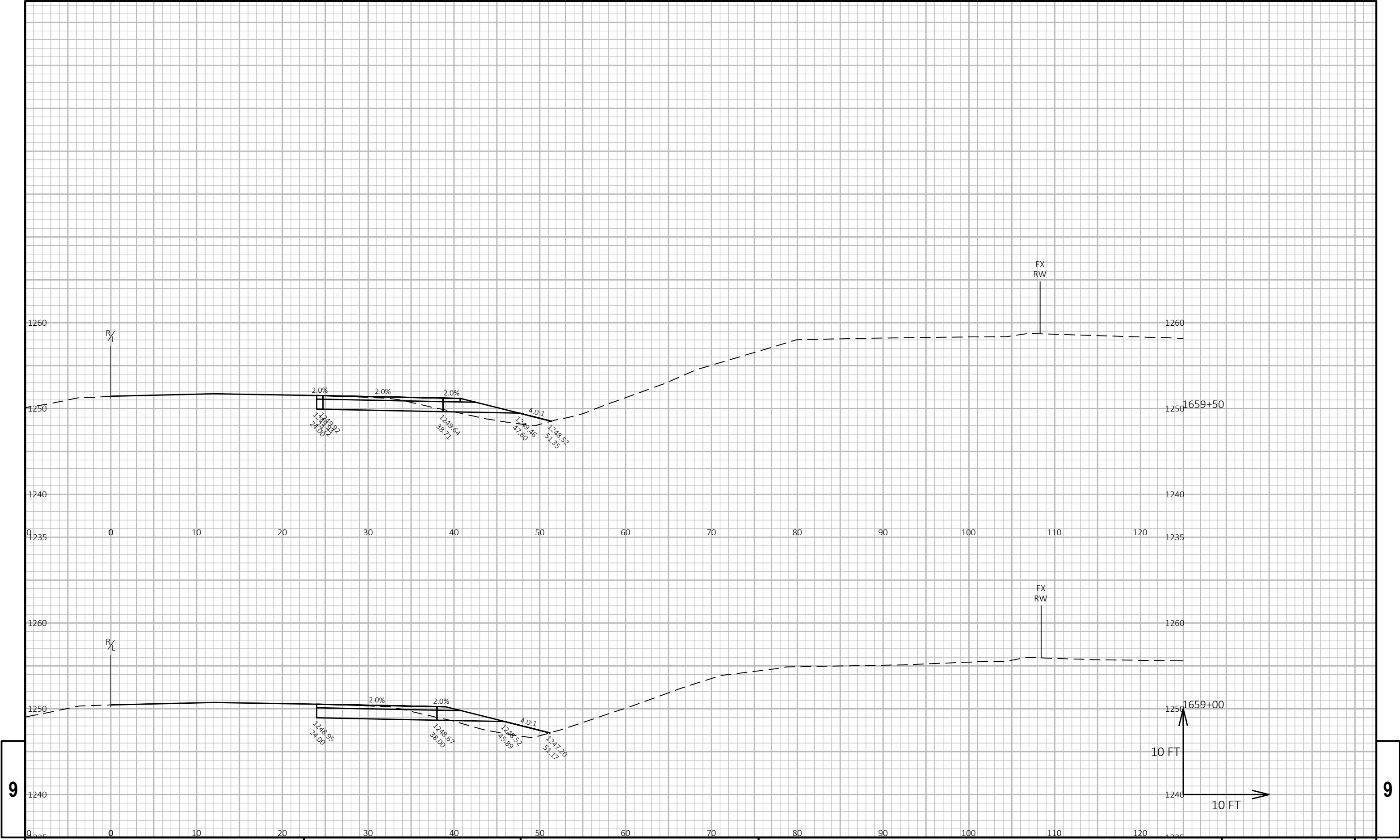
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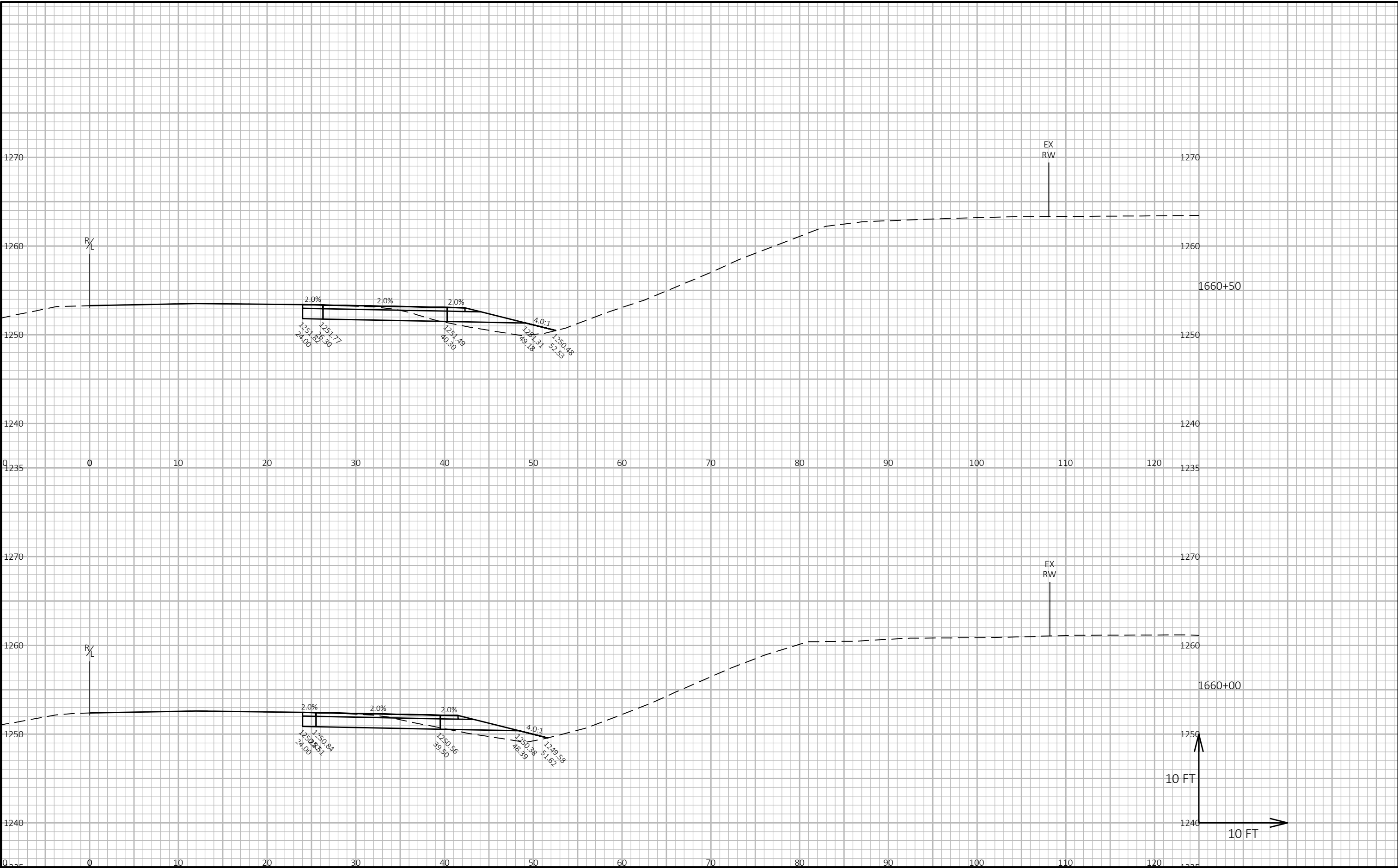
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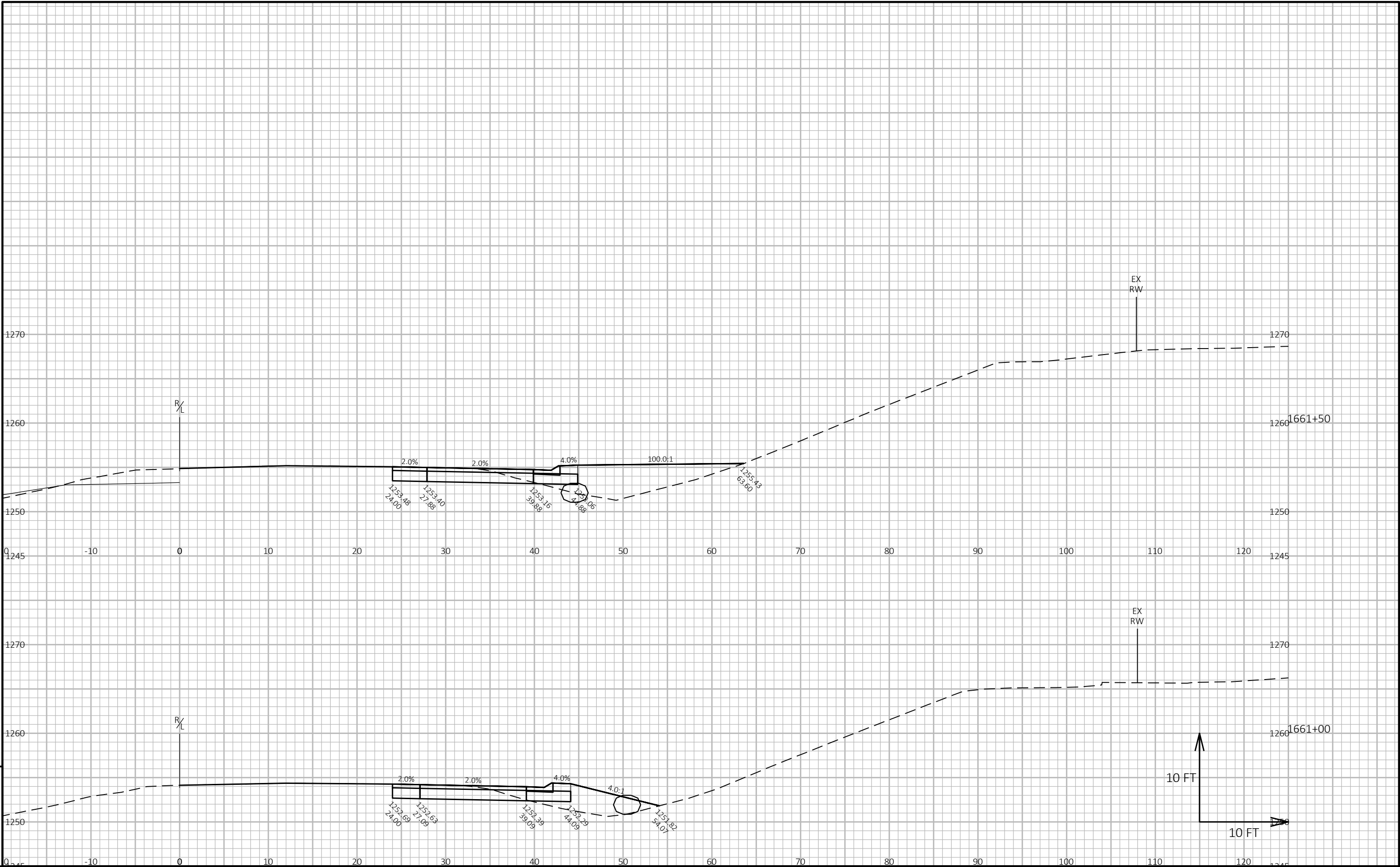


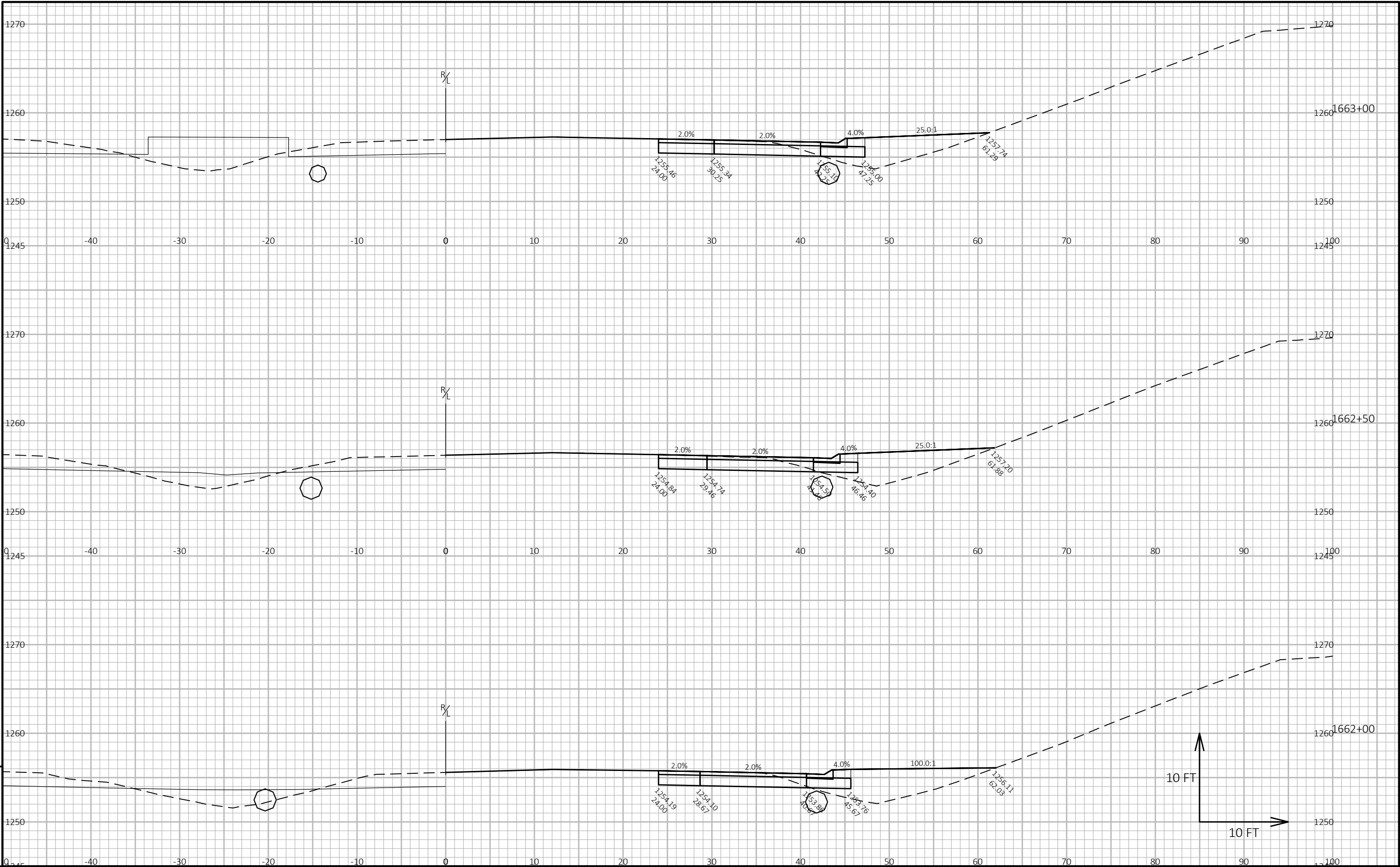


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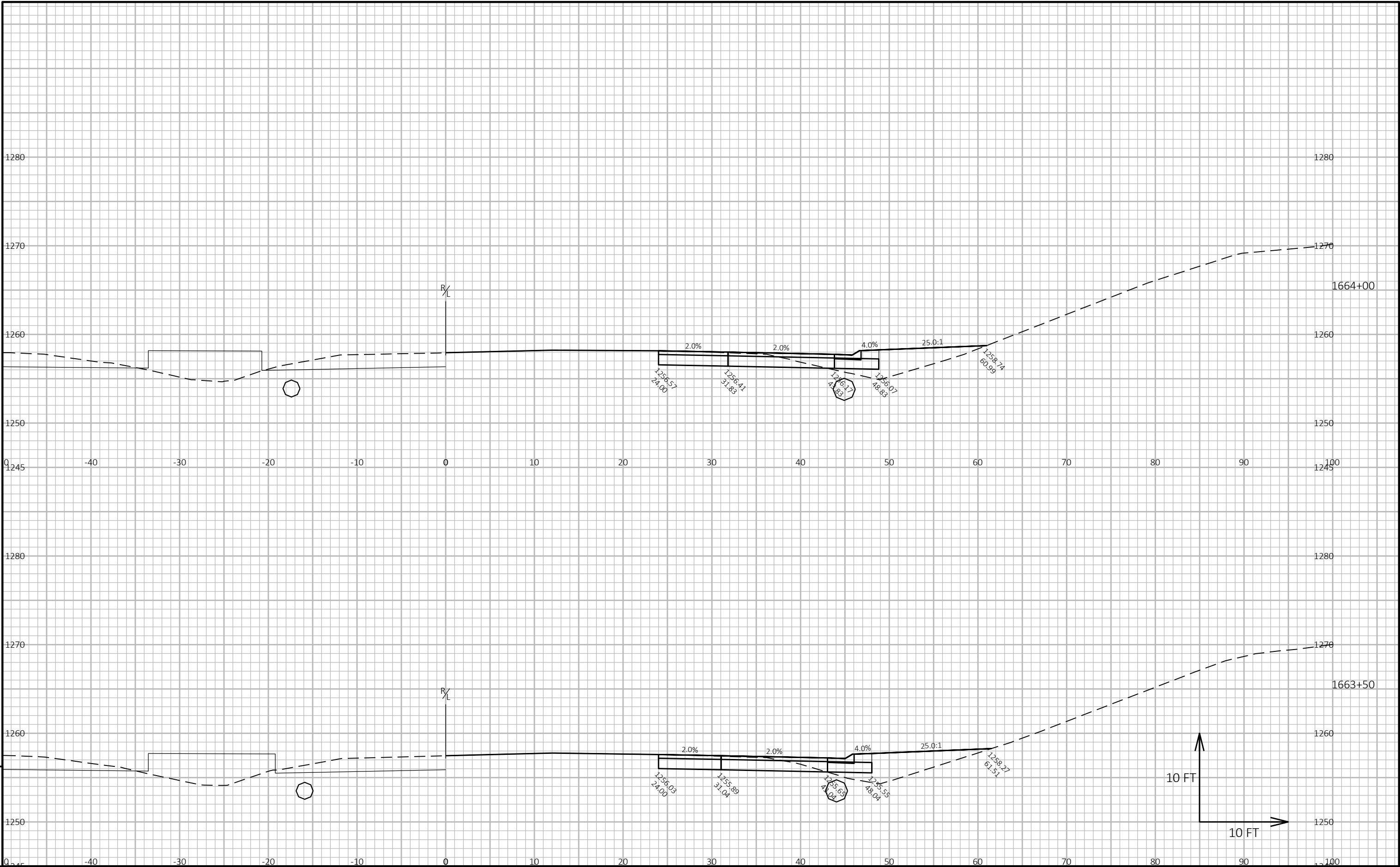
PROJECT NO:	1204-05-77	HWY:	USH 18/151	COUNTY:	DANE	CROSS SECTIONS:	US 18 EB OUTSIDE LANE	SHEET	217	E
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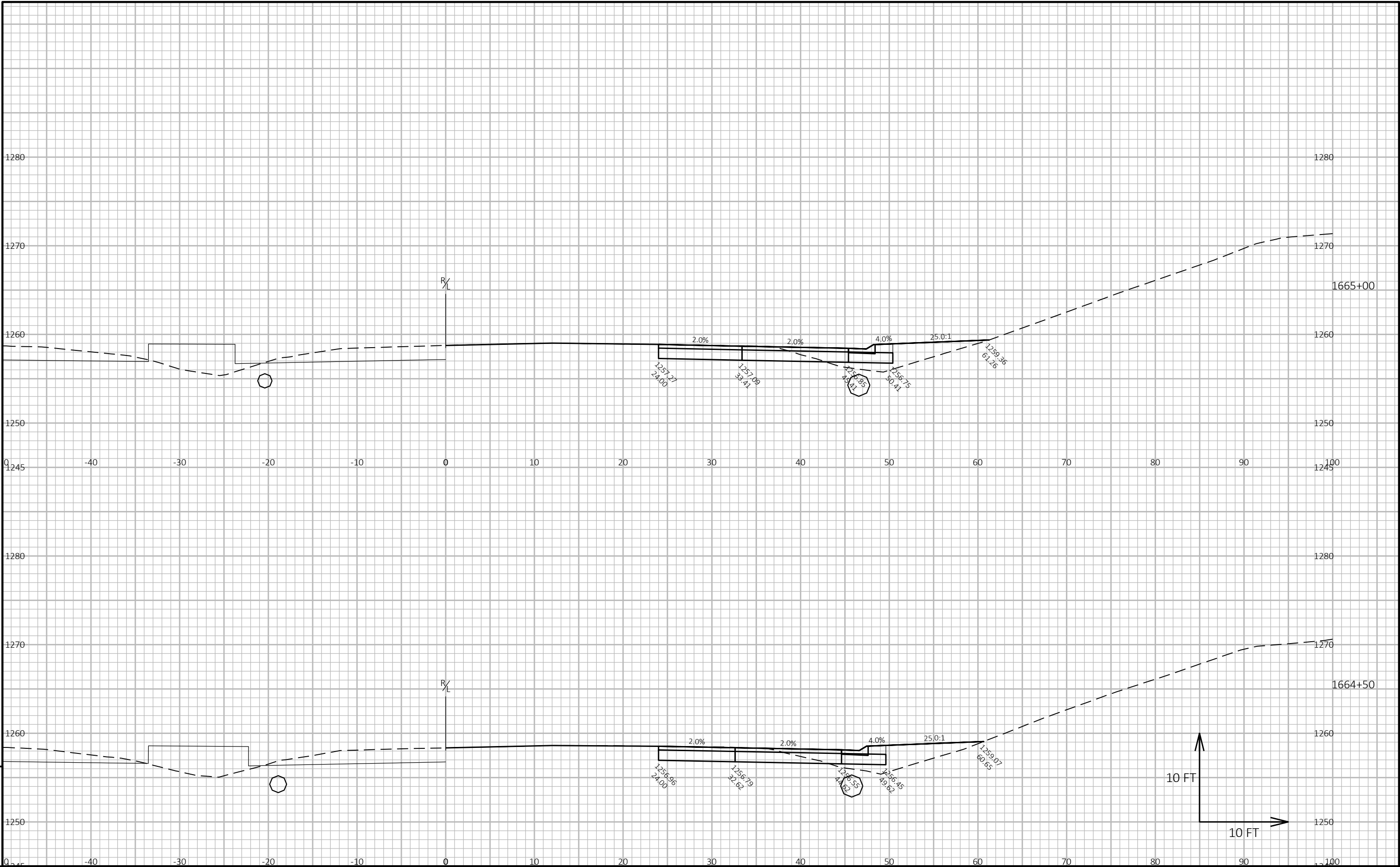


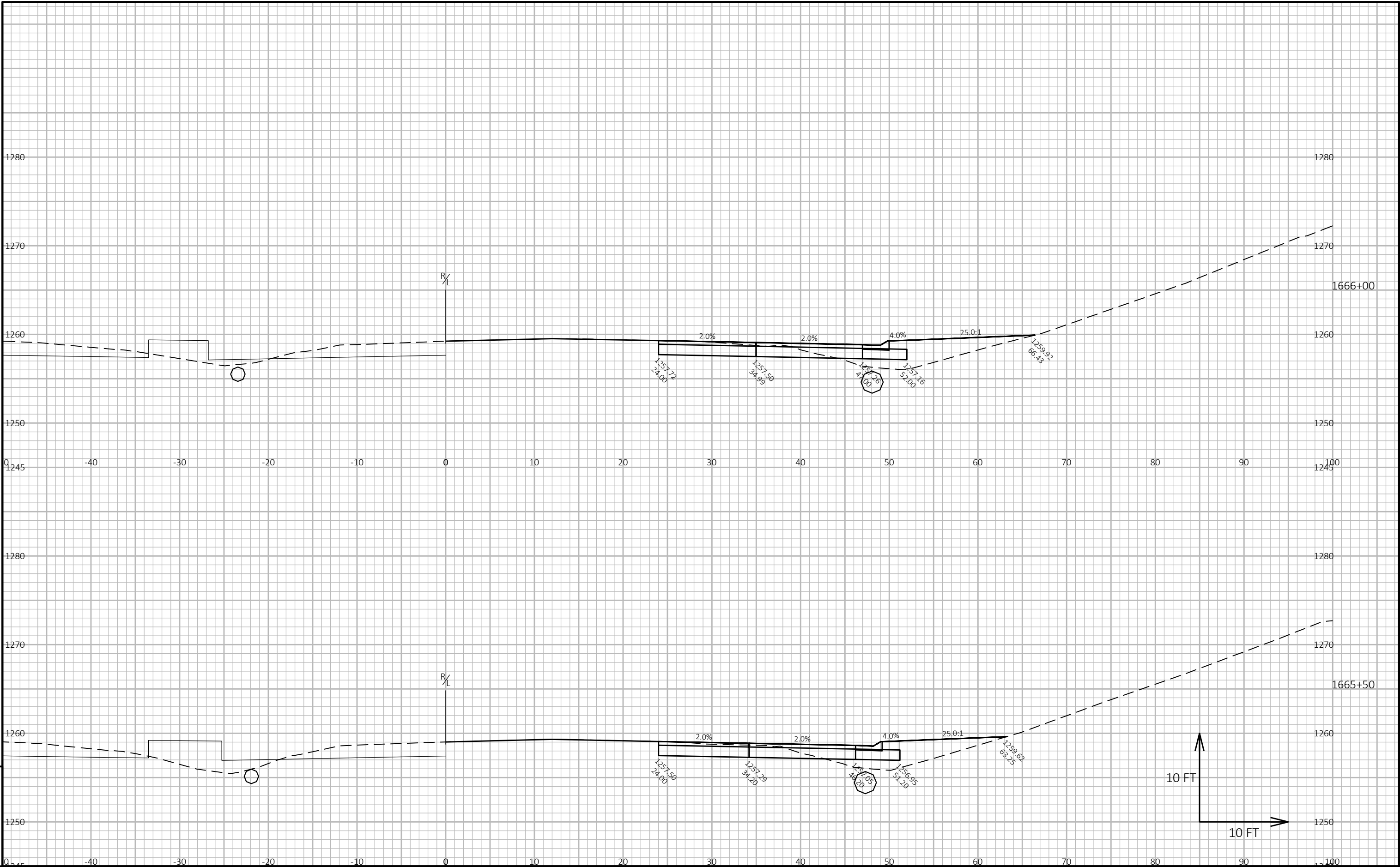


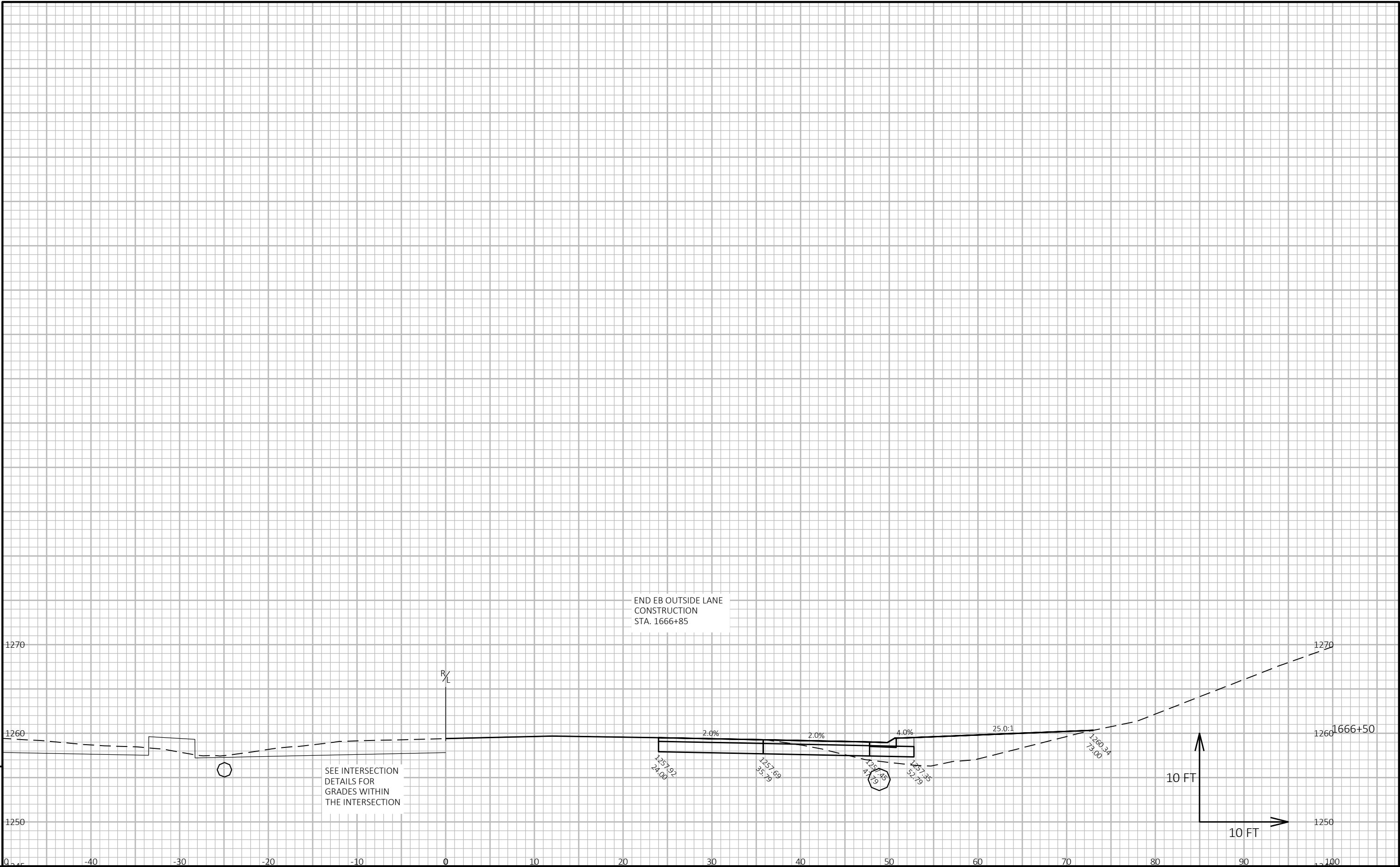
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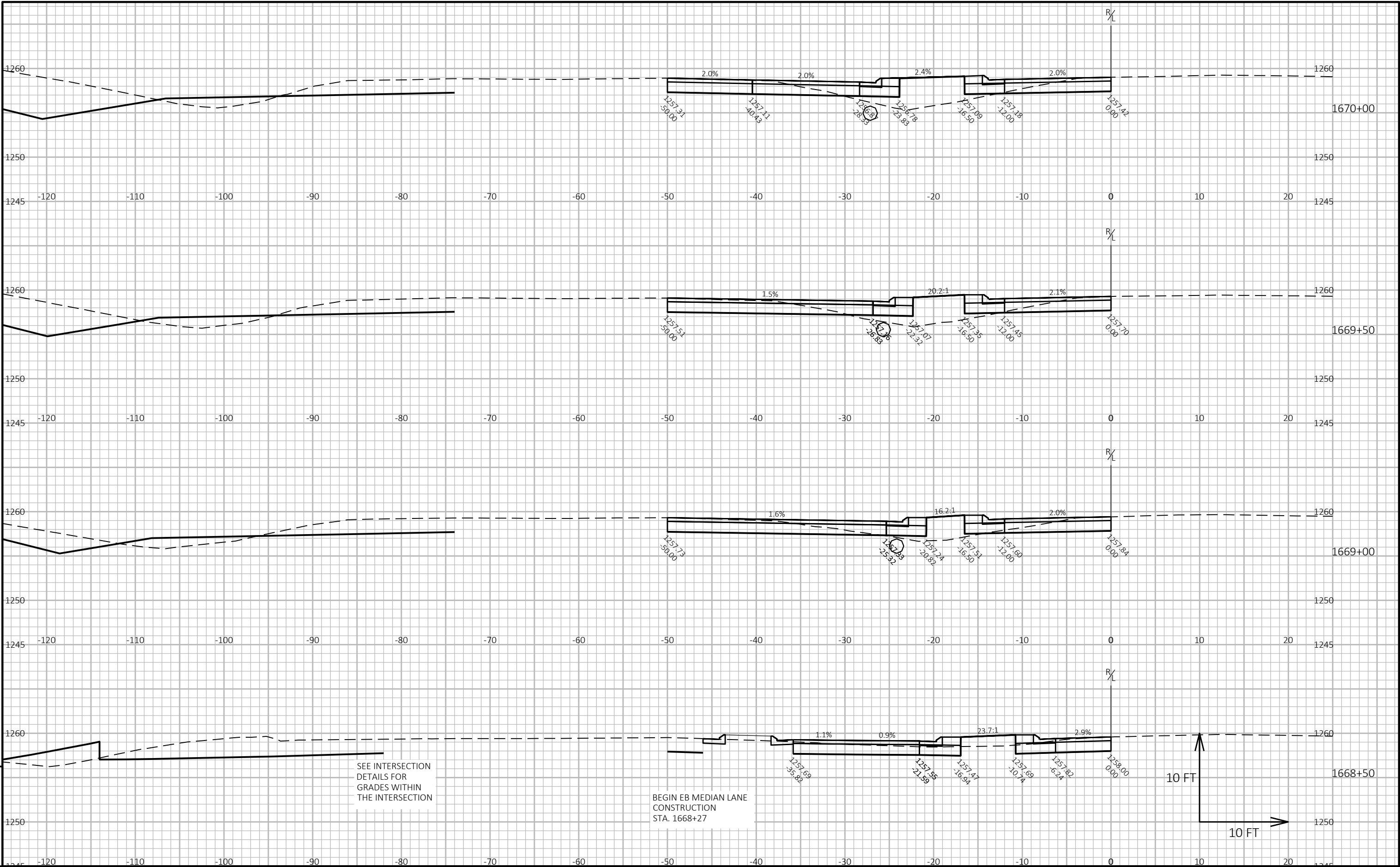
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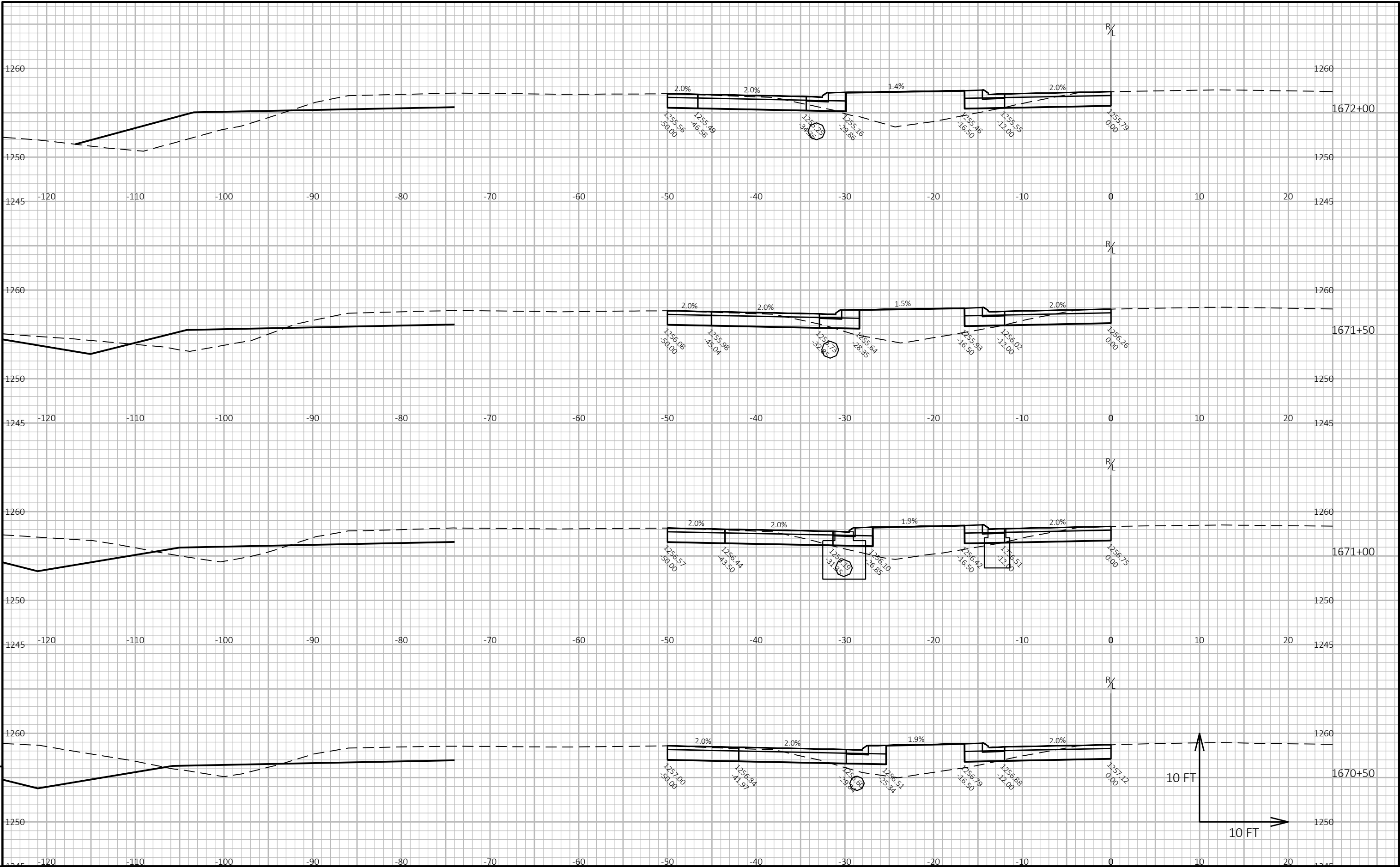


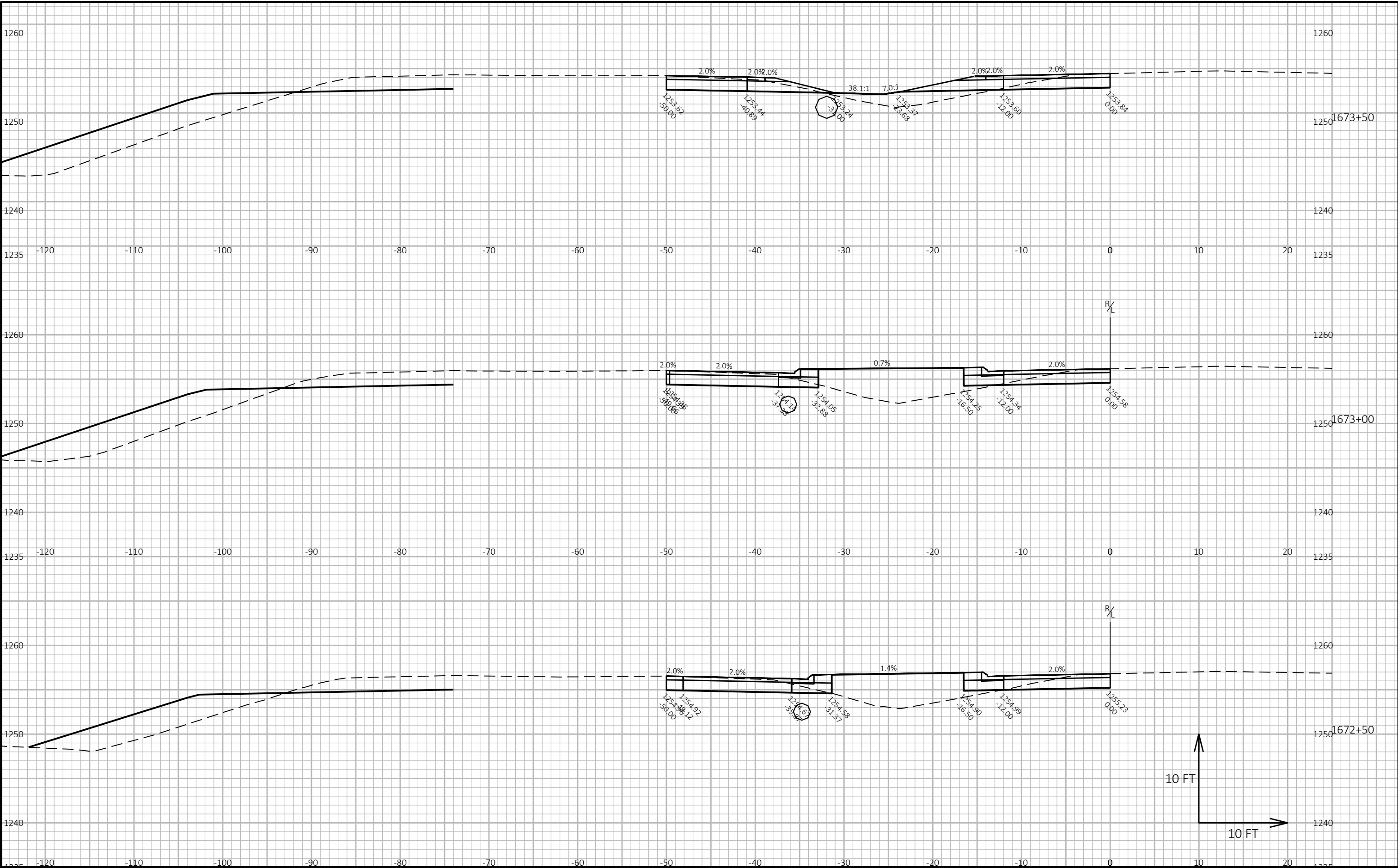






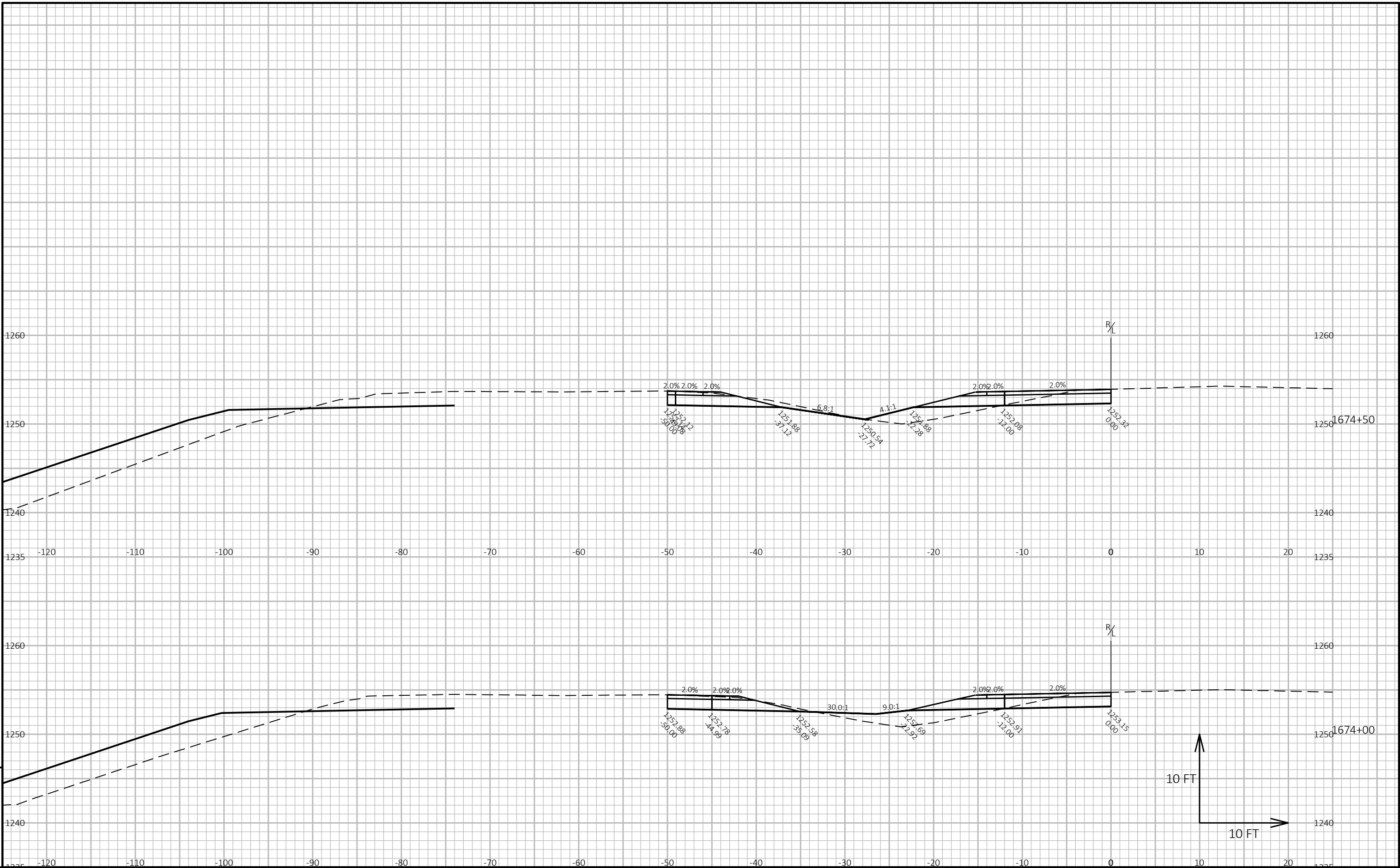


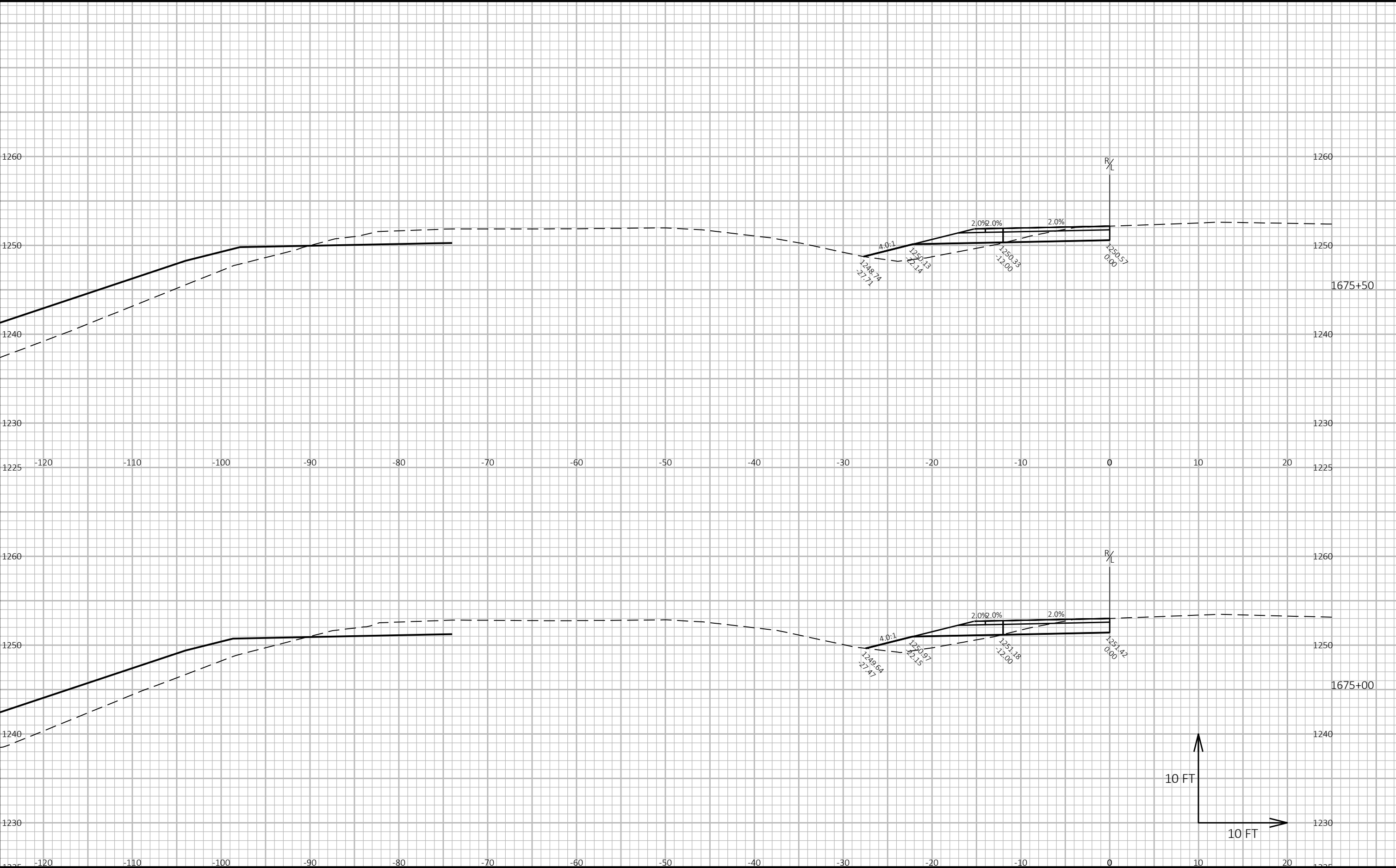




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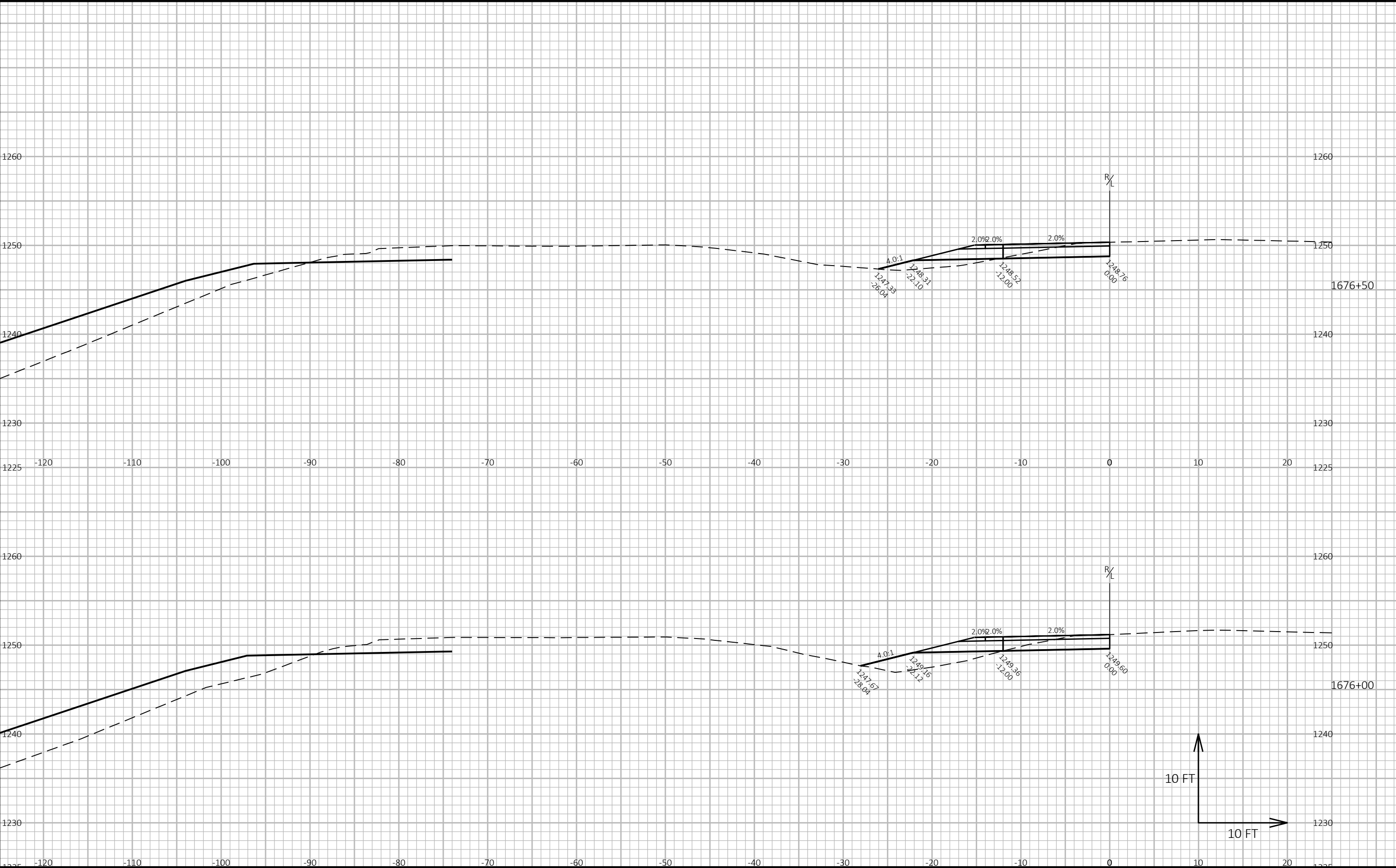


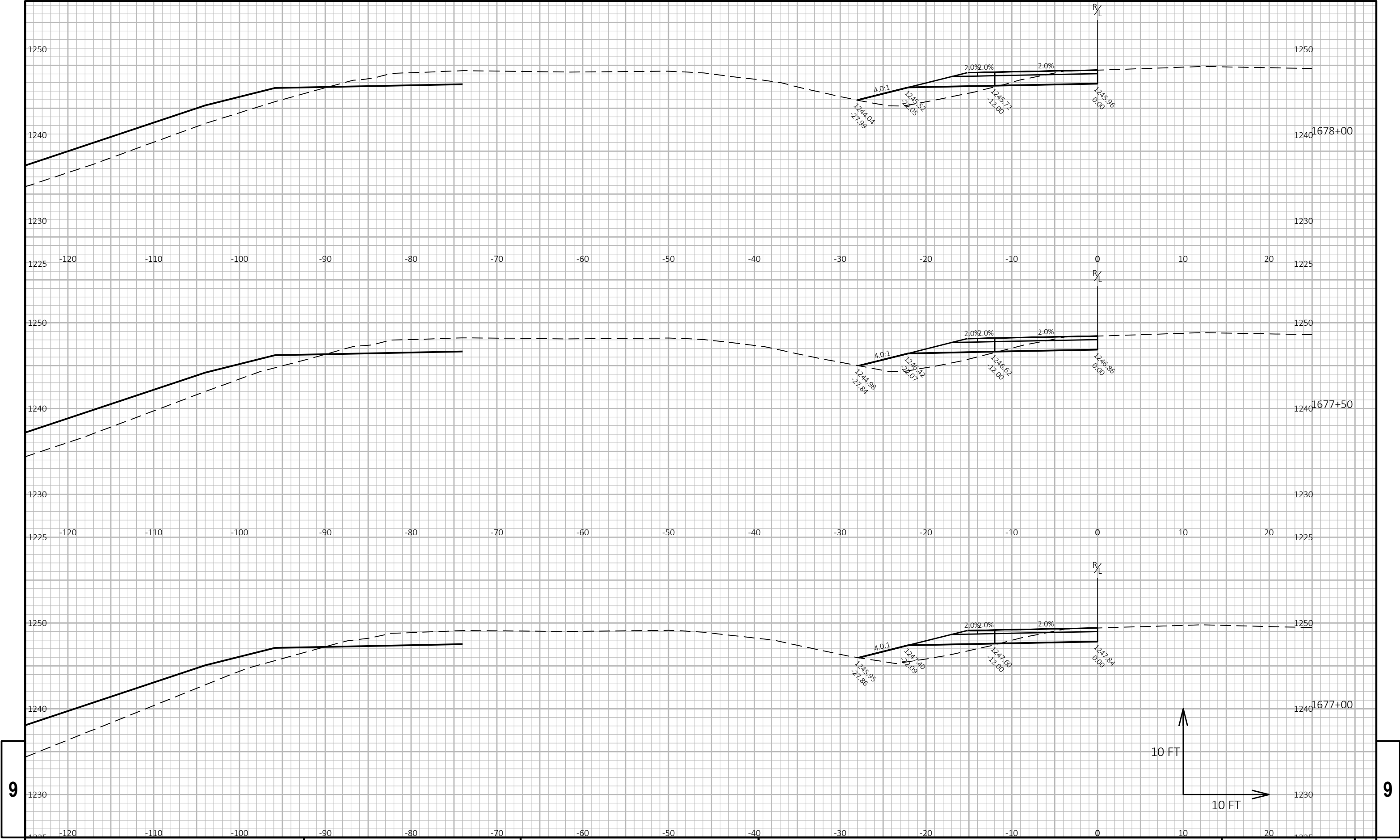


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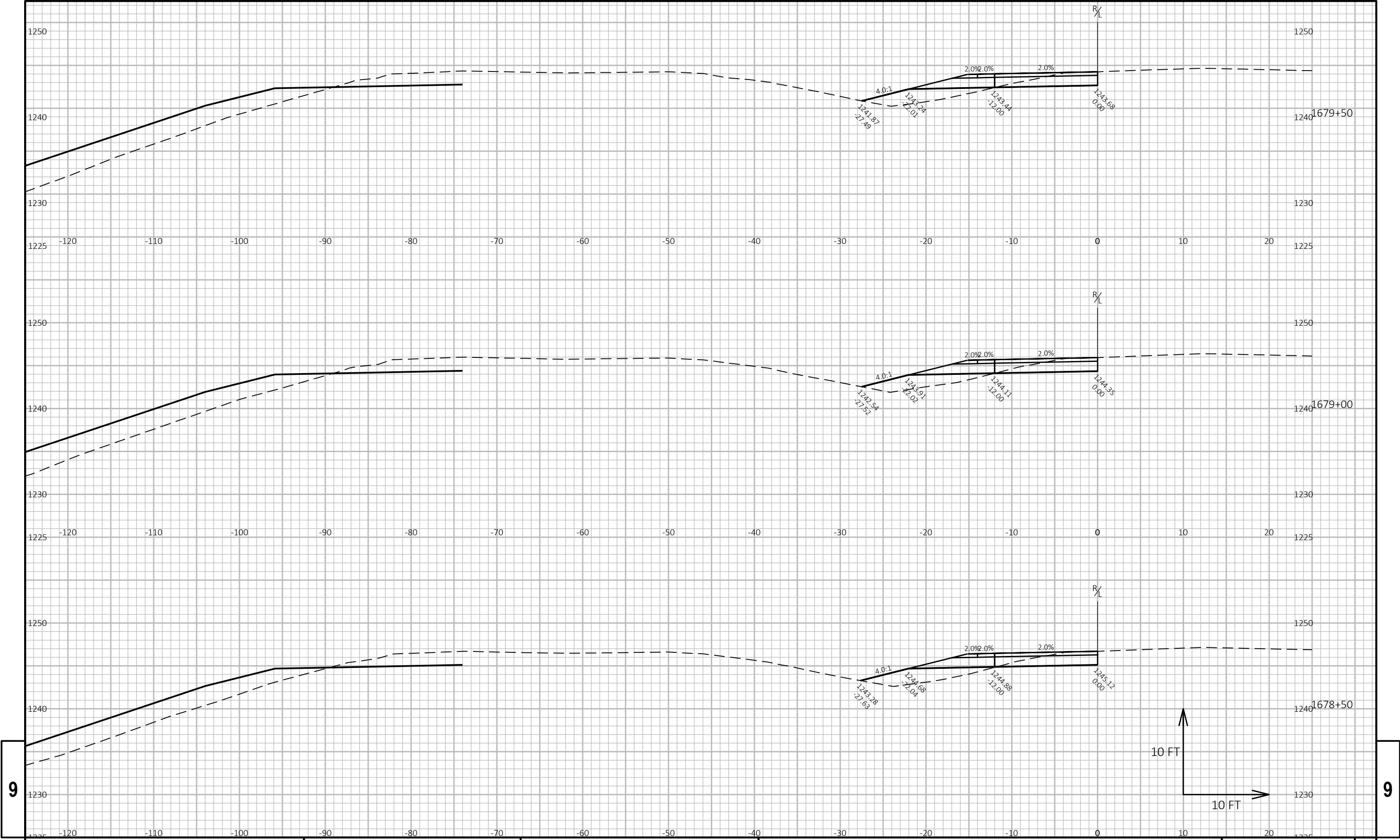
PROJECT NO:	1204-05-77	HWY:	USH 18/151	COUNTY:	DANE	CROSS SECTIONS:	US 18 EB MEDIAN LANE	SHEET	228	E
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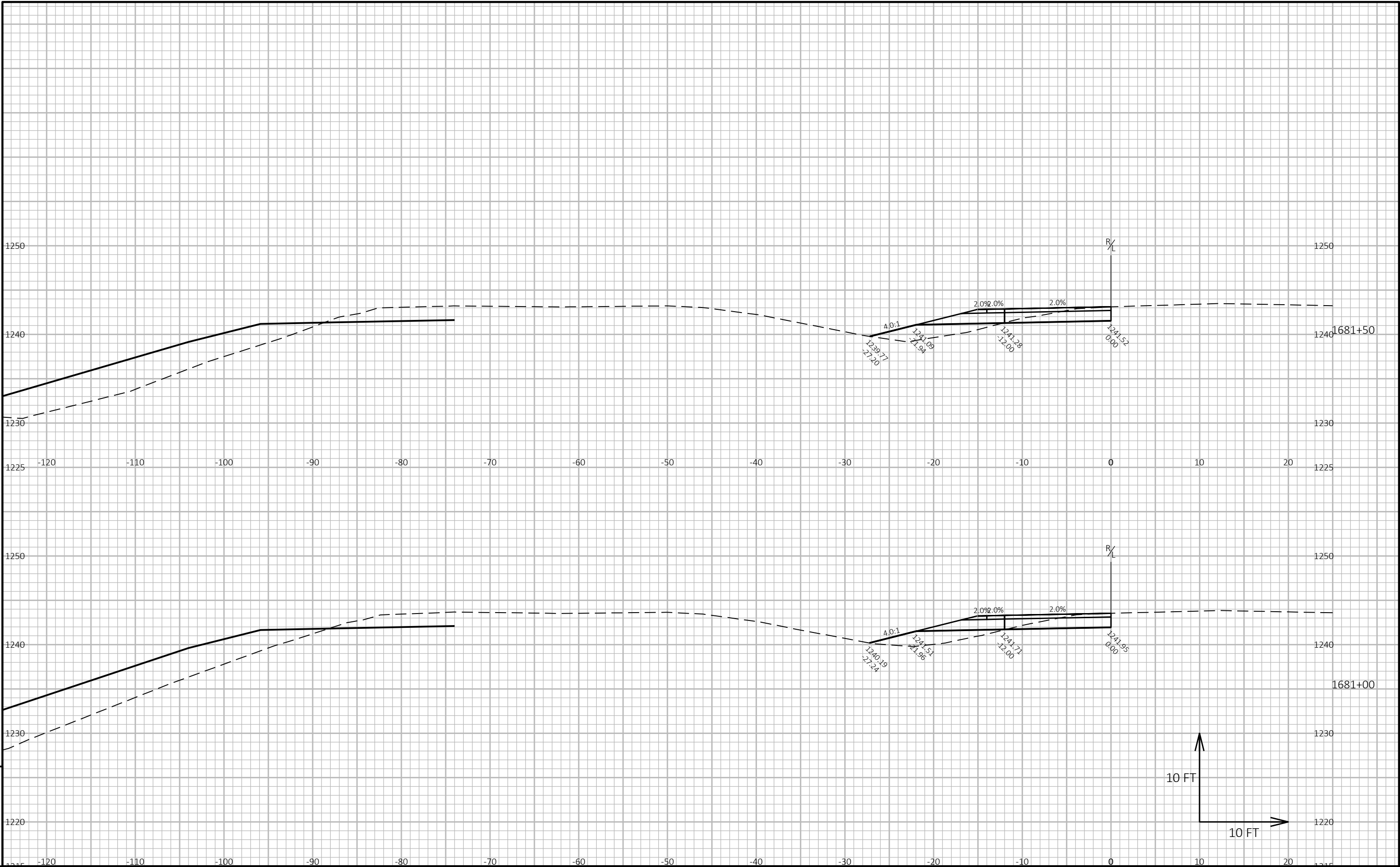
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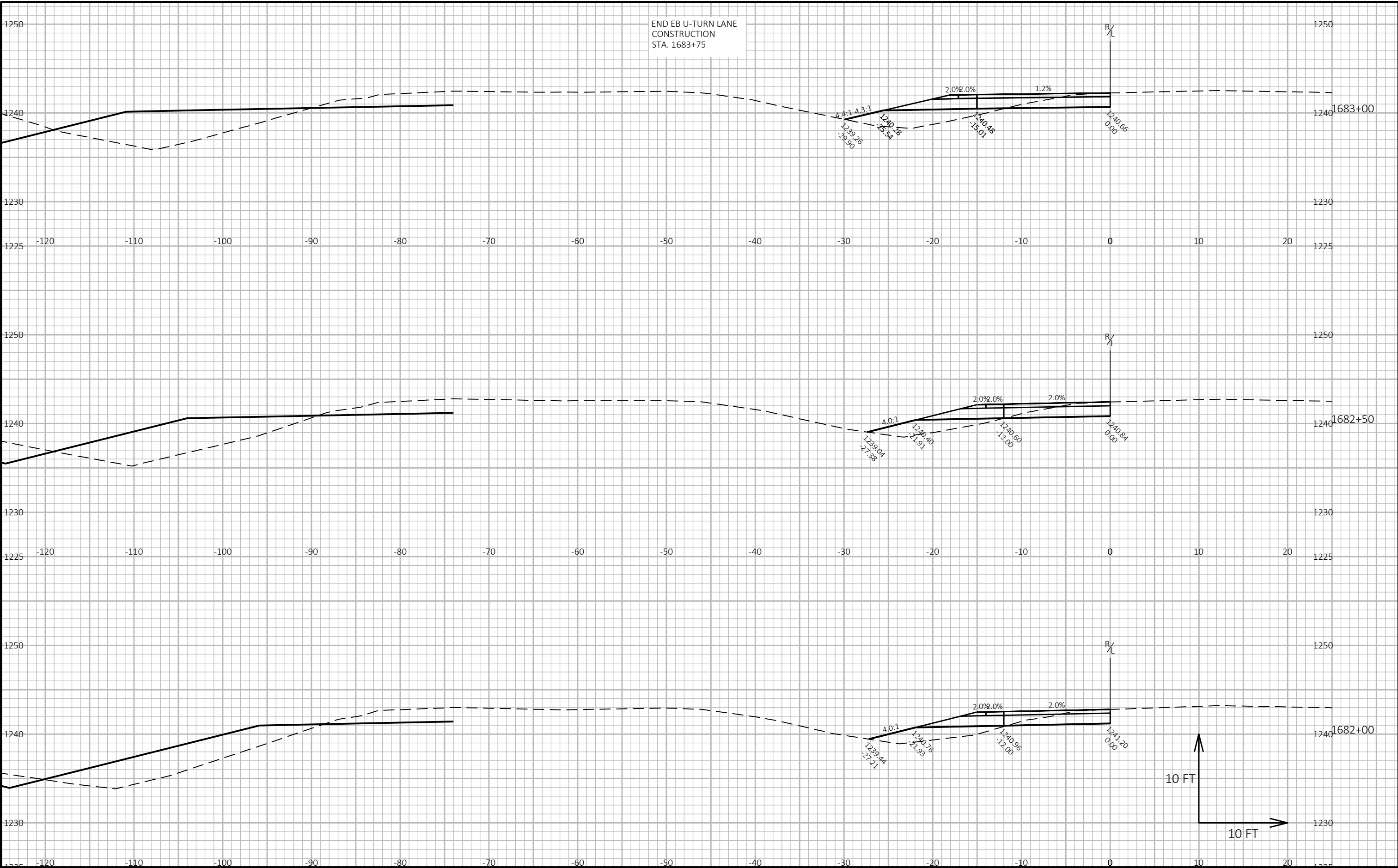
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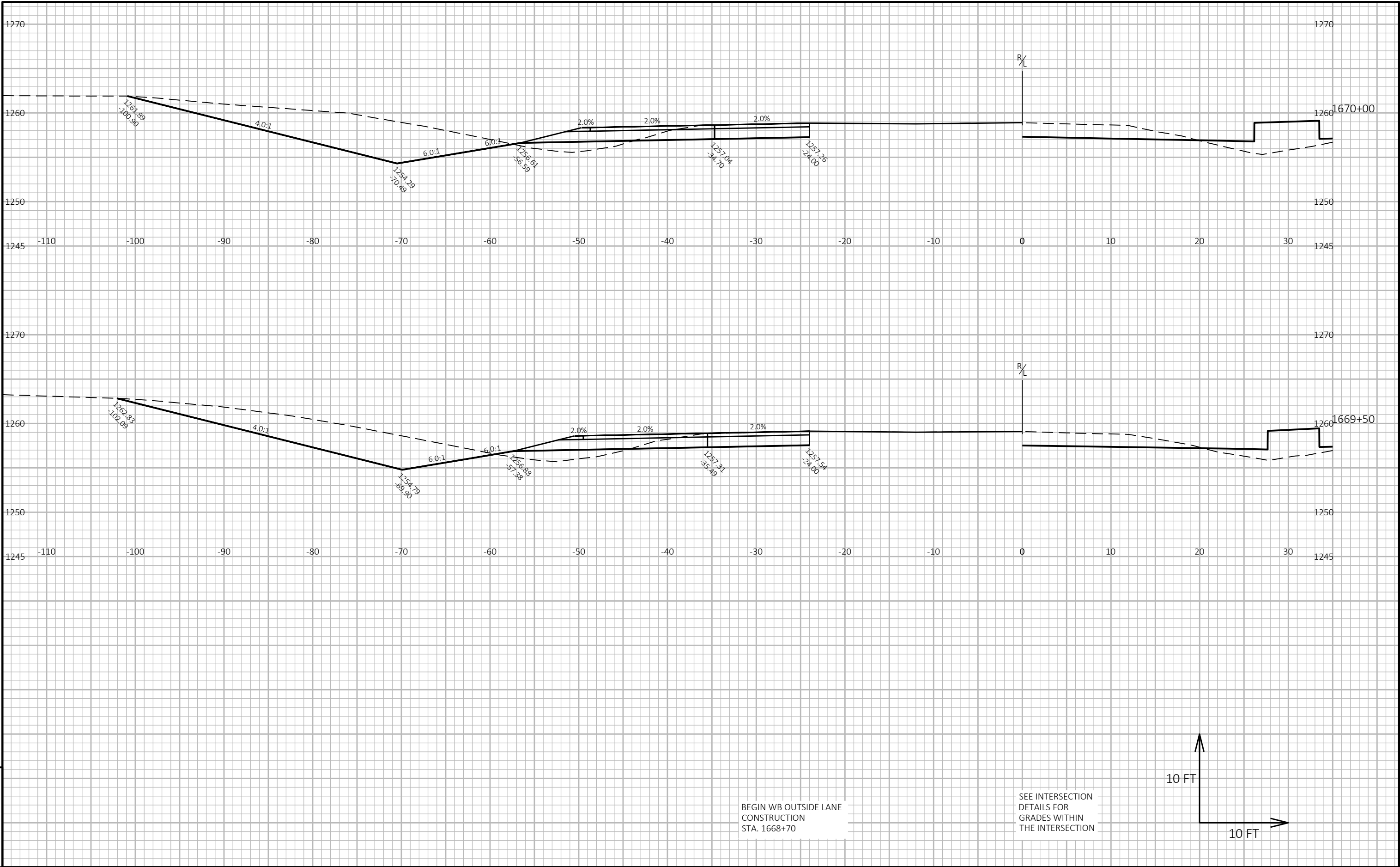
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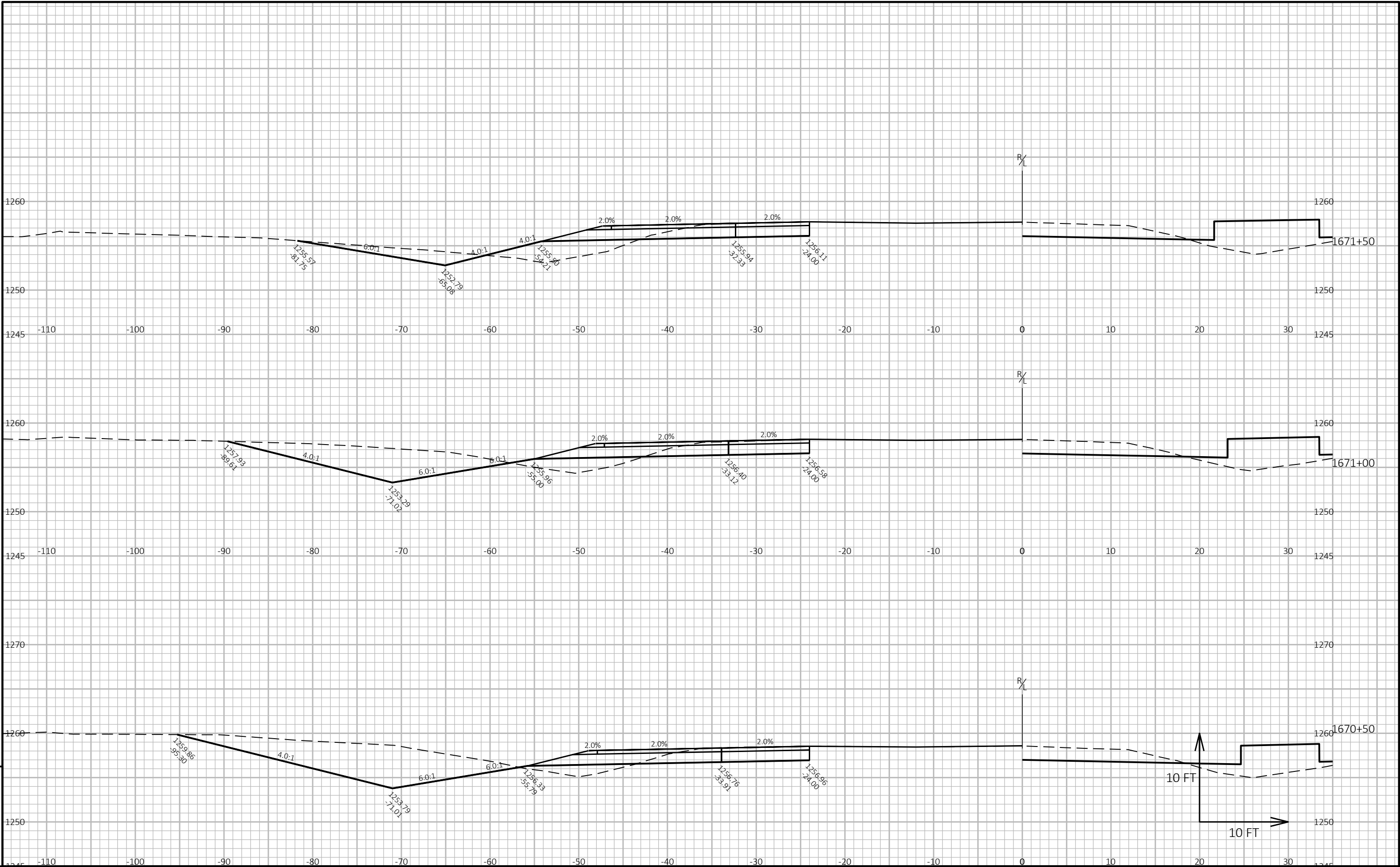


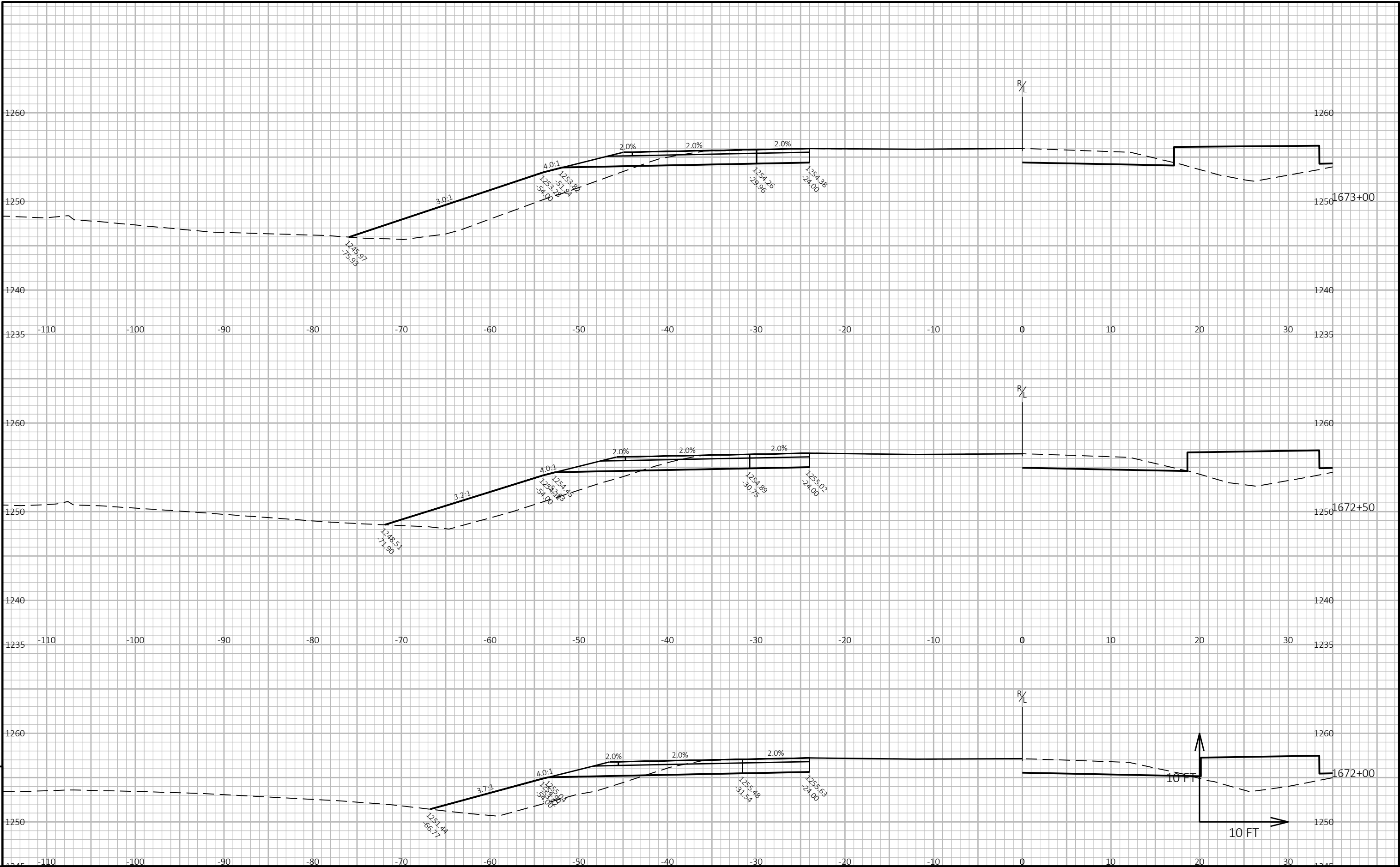
END EB U-TURN LANE
CONSTRUCTION
STA. 1683+75

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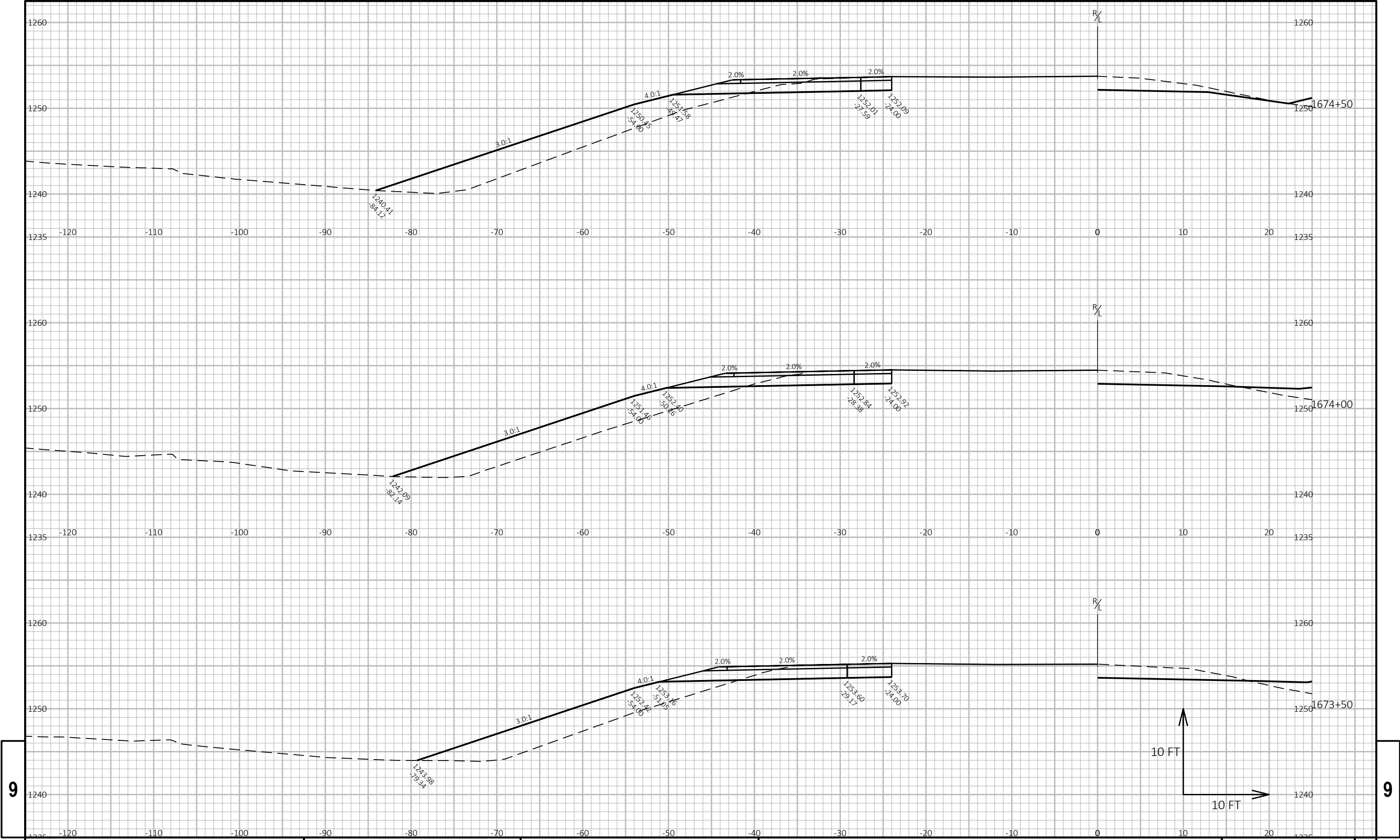






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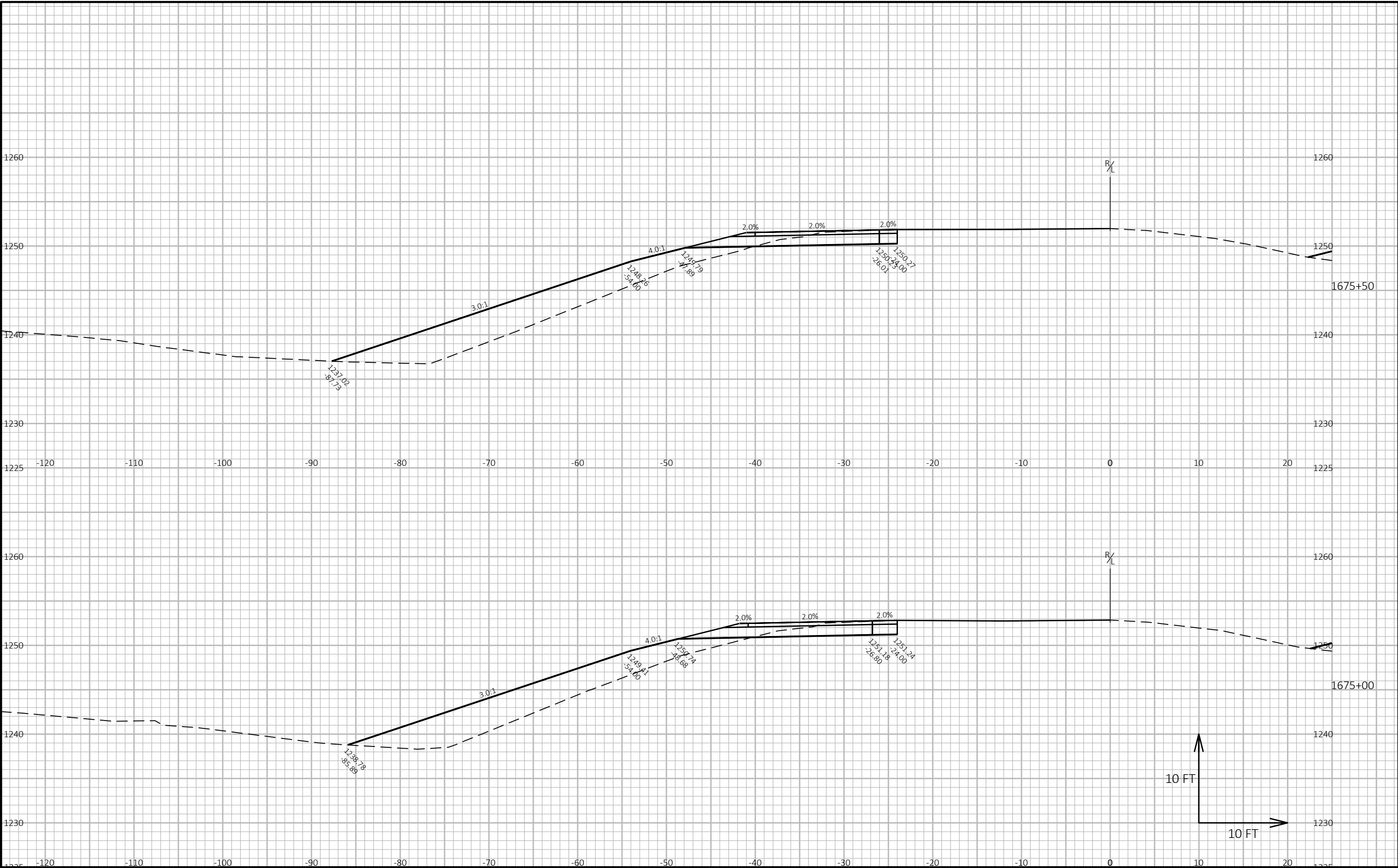
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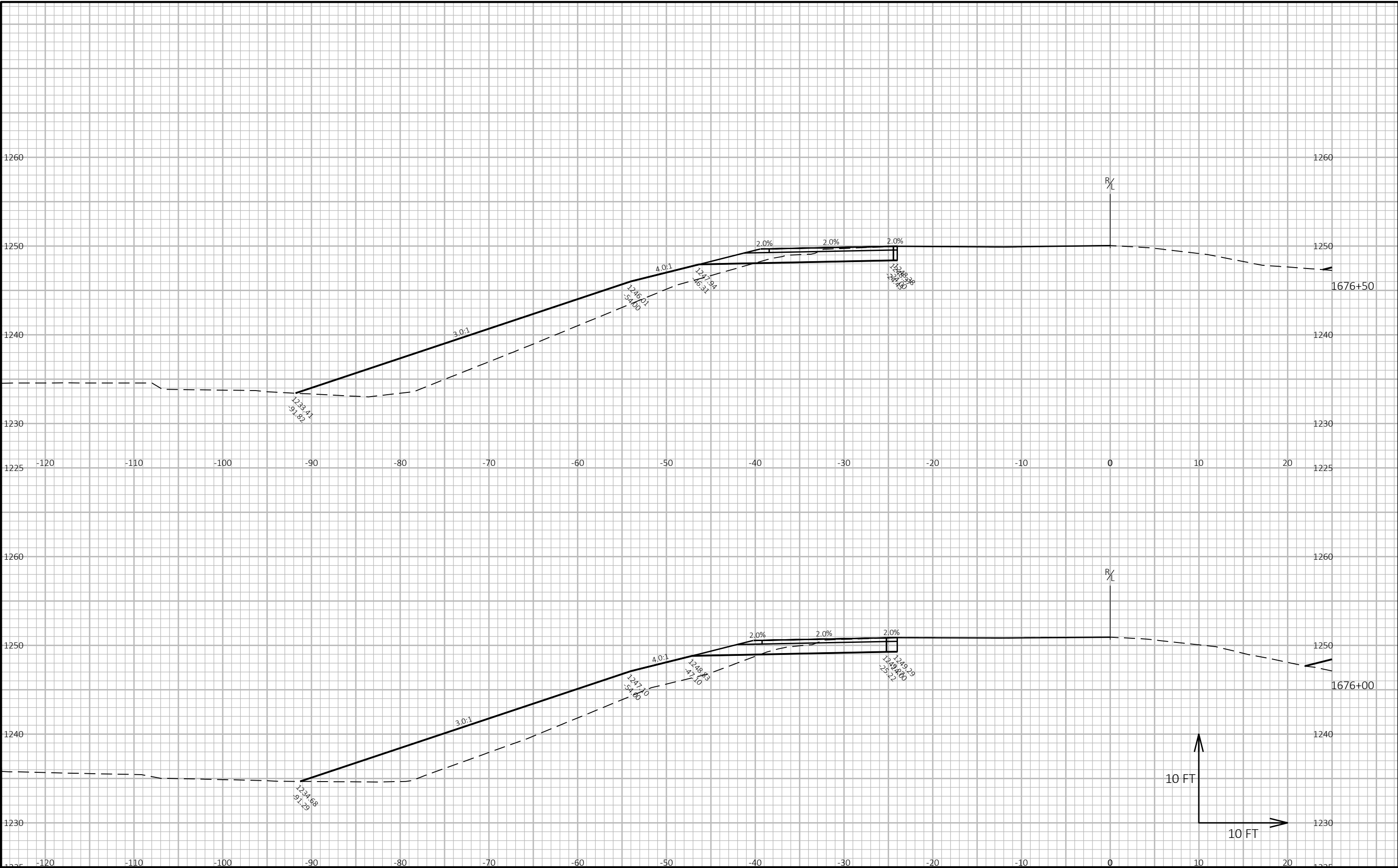
PROJECT NO: 1204-05-77	HWY: USH 18/151	COUNTY: DANE	CROSS SECTIONS: US 18 WB OUTSIDE LANE	SHEET 238	E
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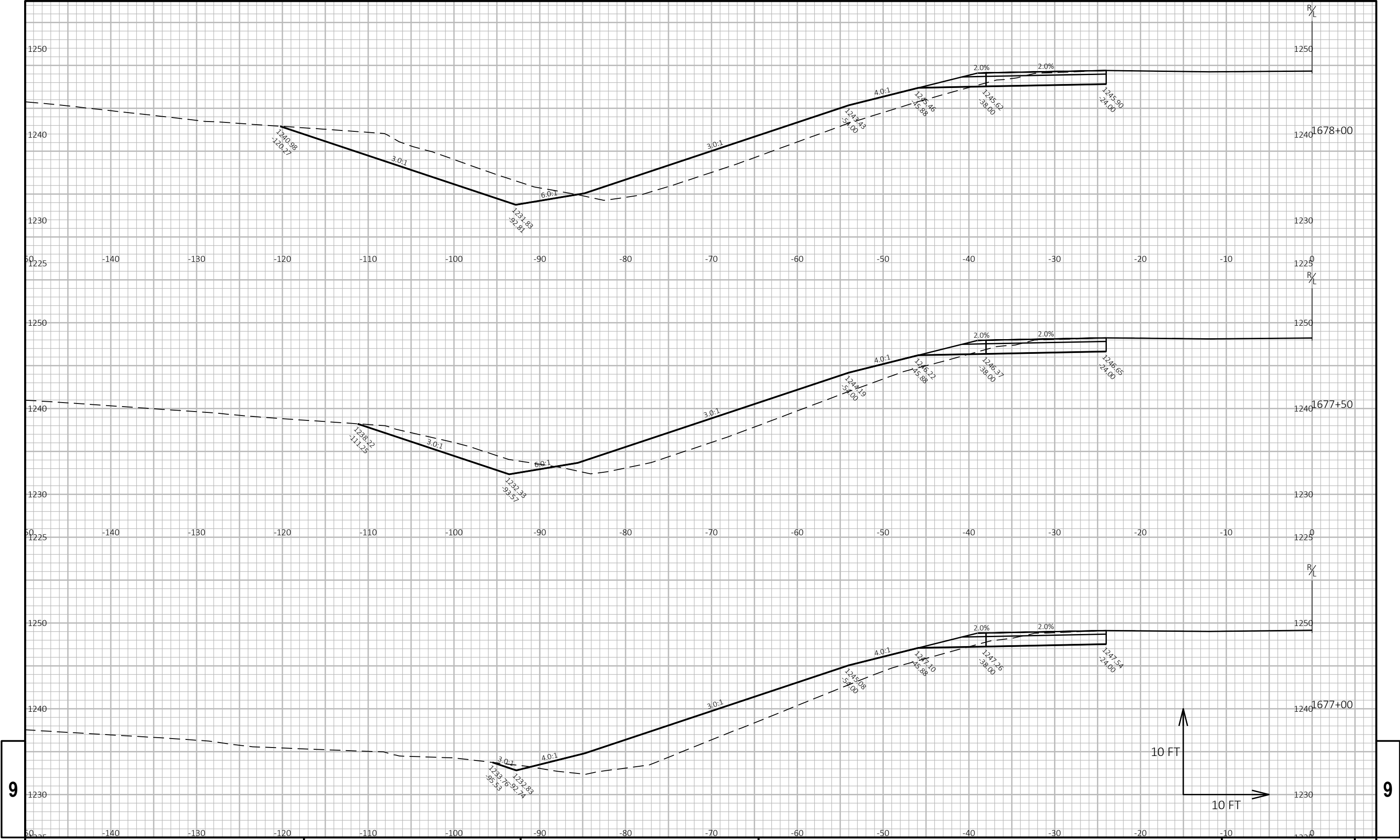


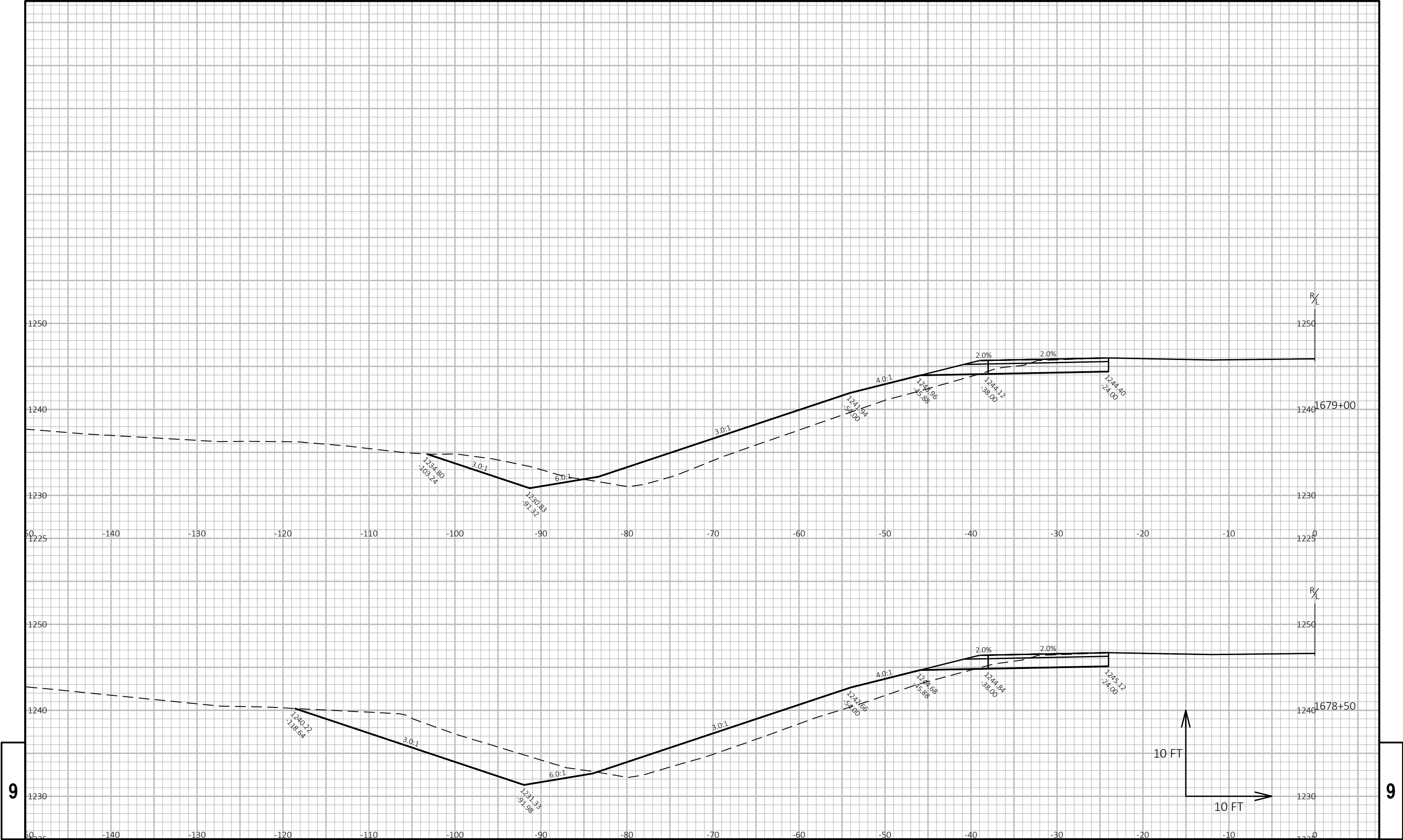
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PROJECT NO: 1204-05-77	HWY: USH 18/151	COUNTY: DANE	CROSS SECTIONS: US 18 WB OUTSIDE LANE	SHEET 239	E
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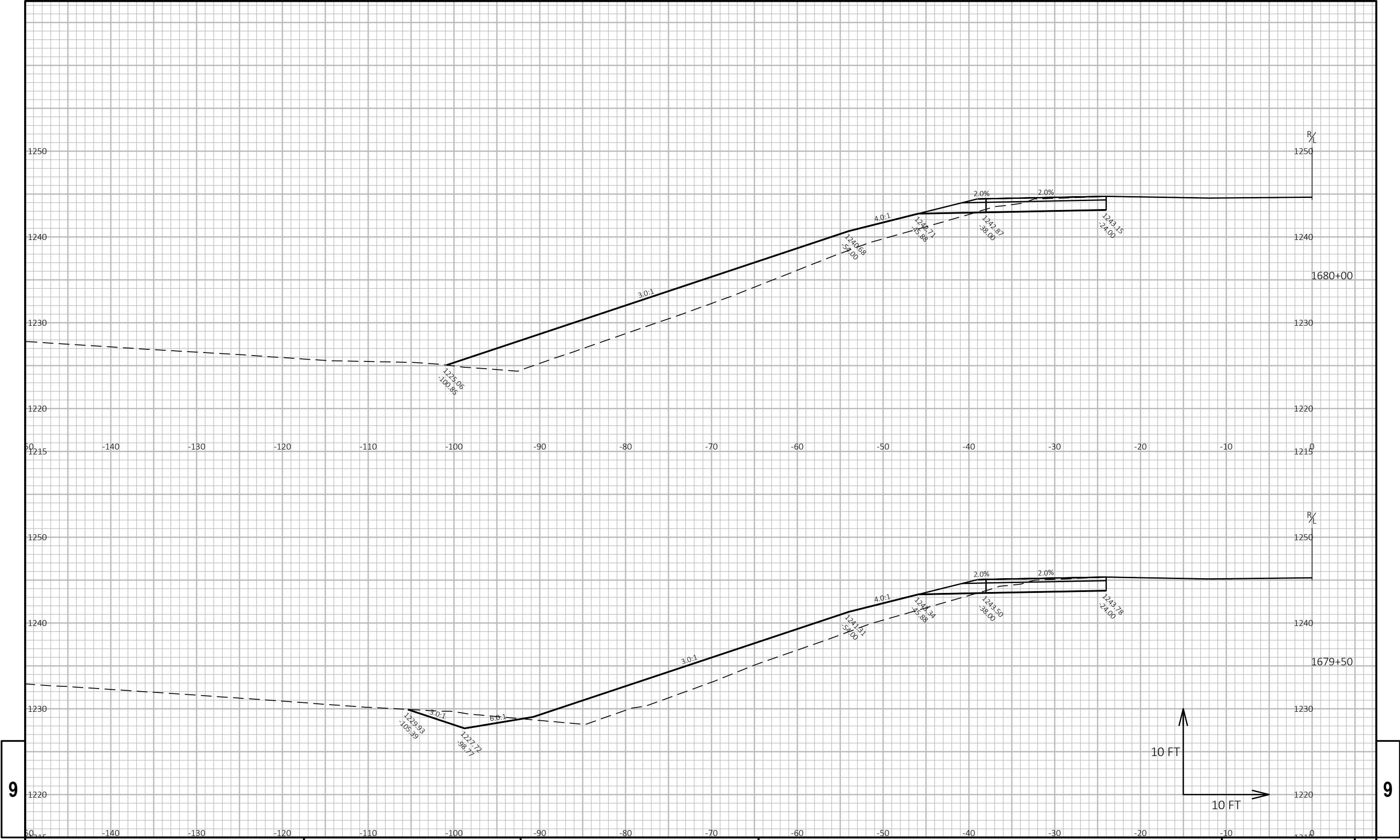






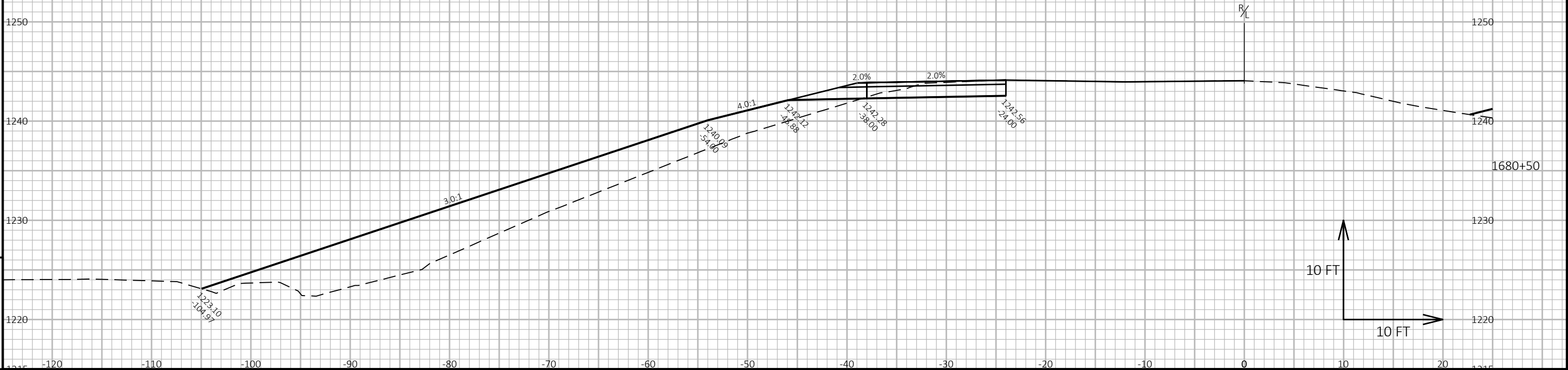
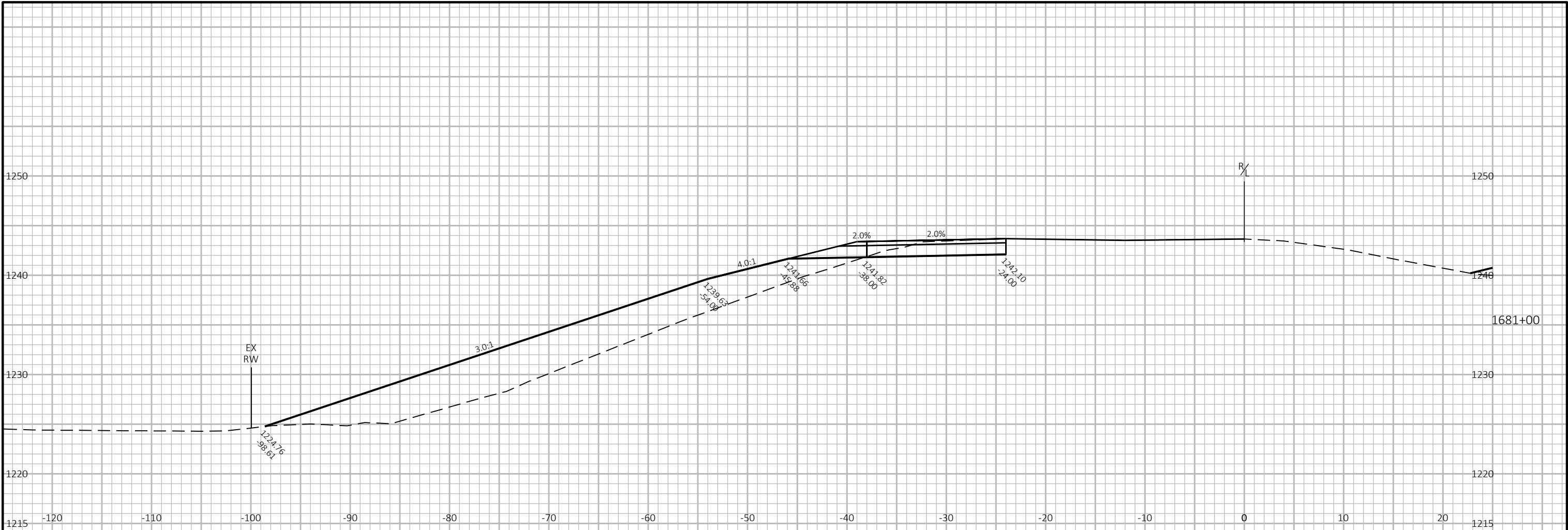
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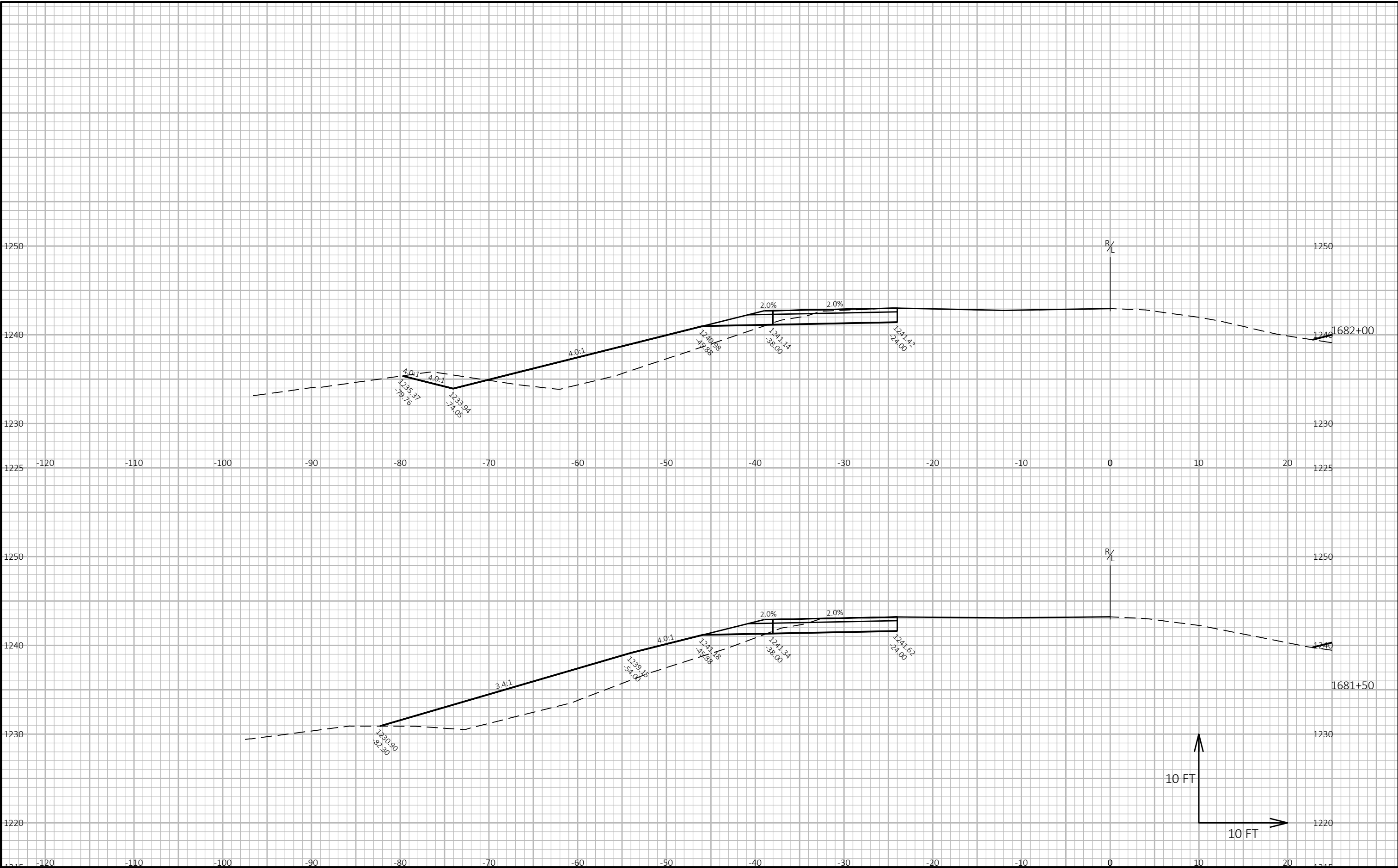
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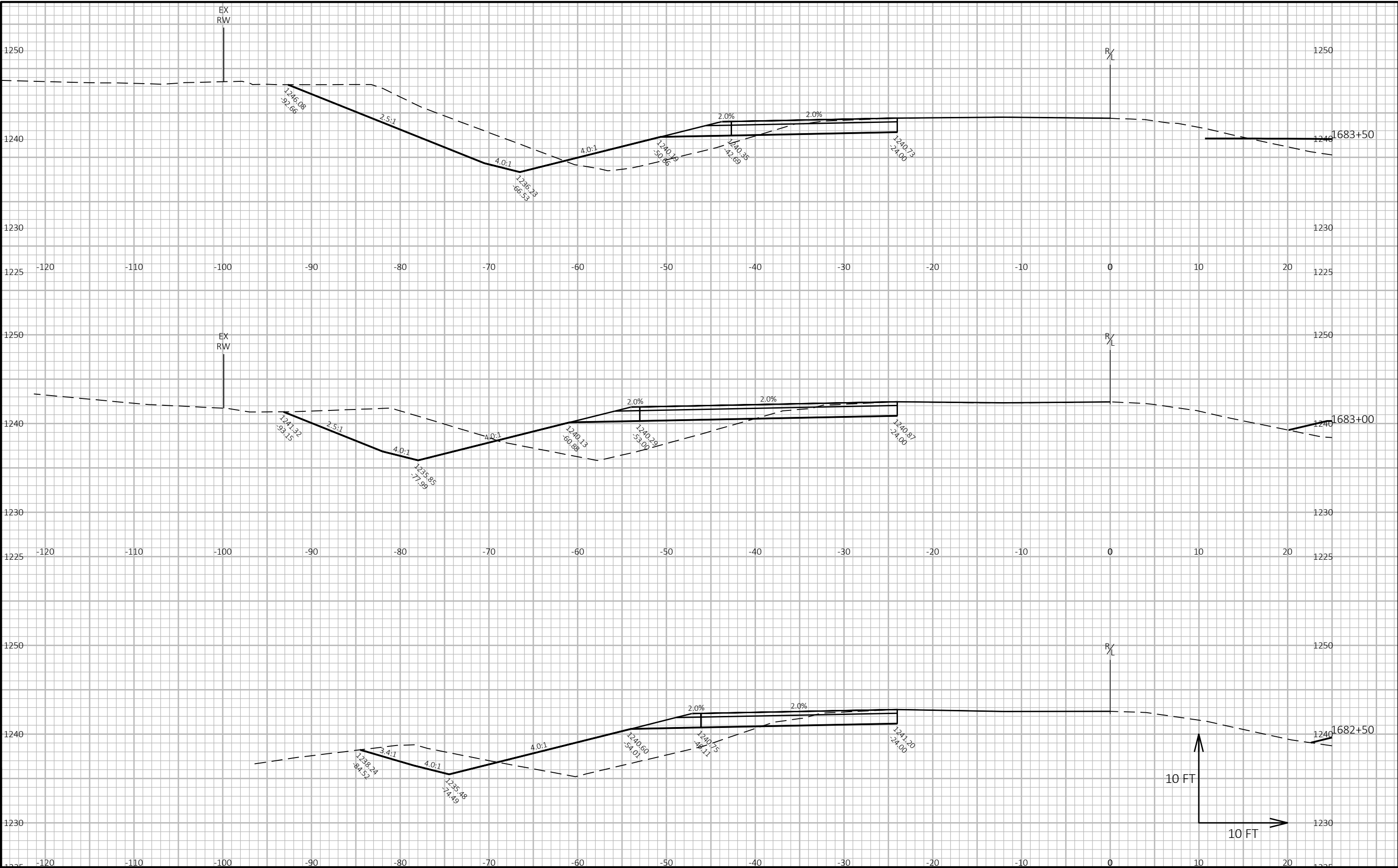
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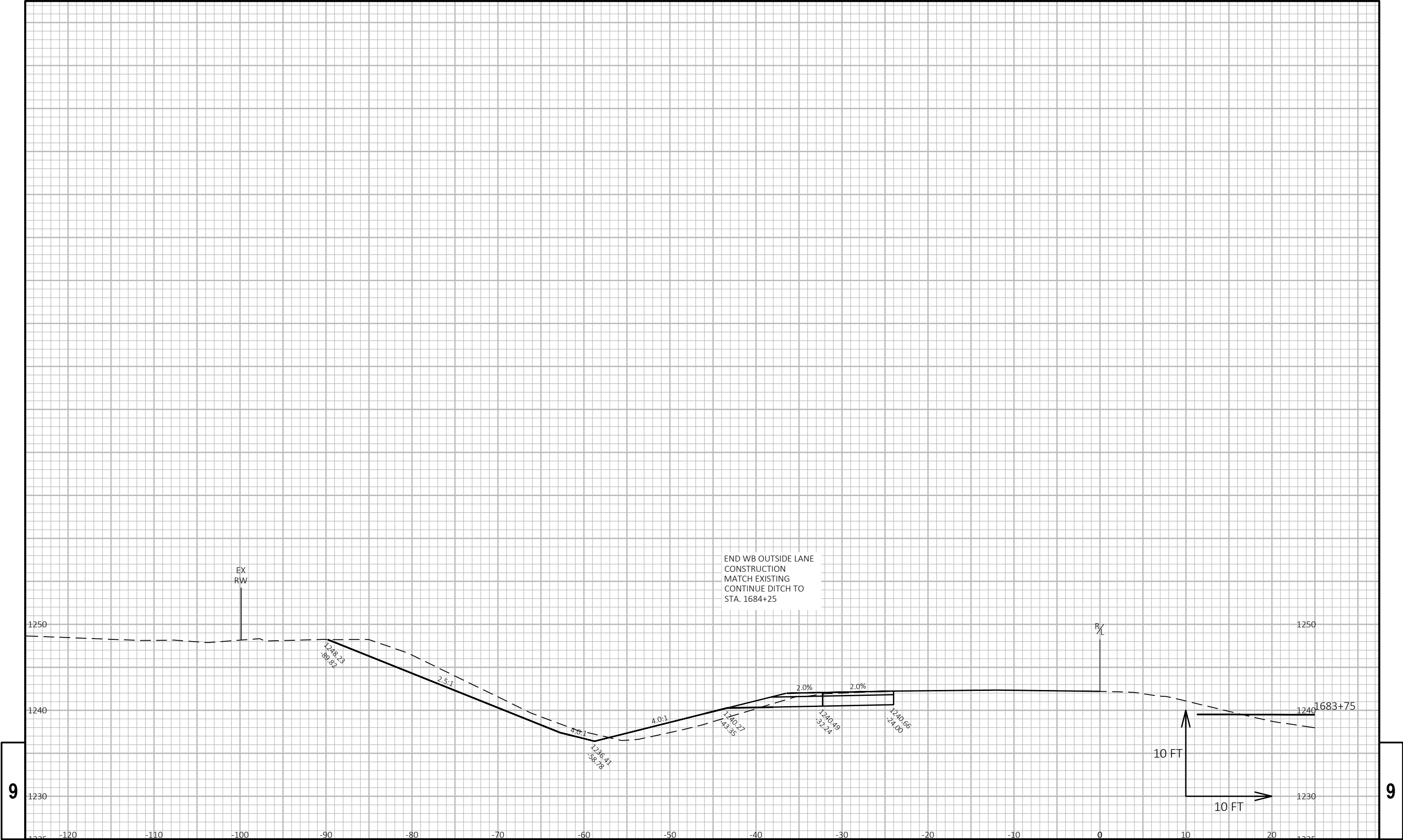
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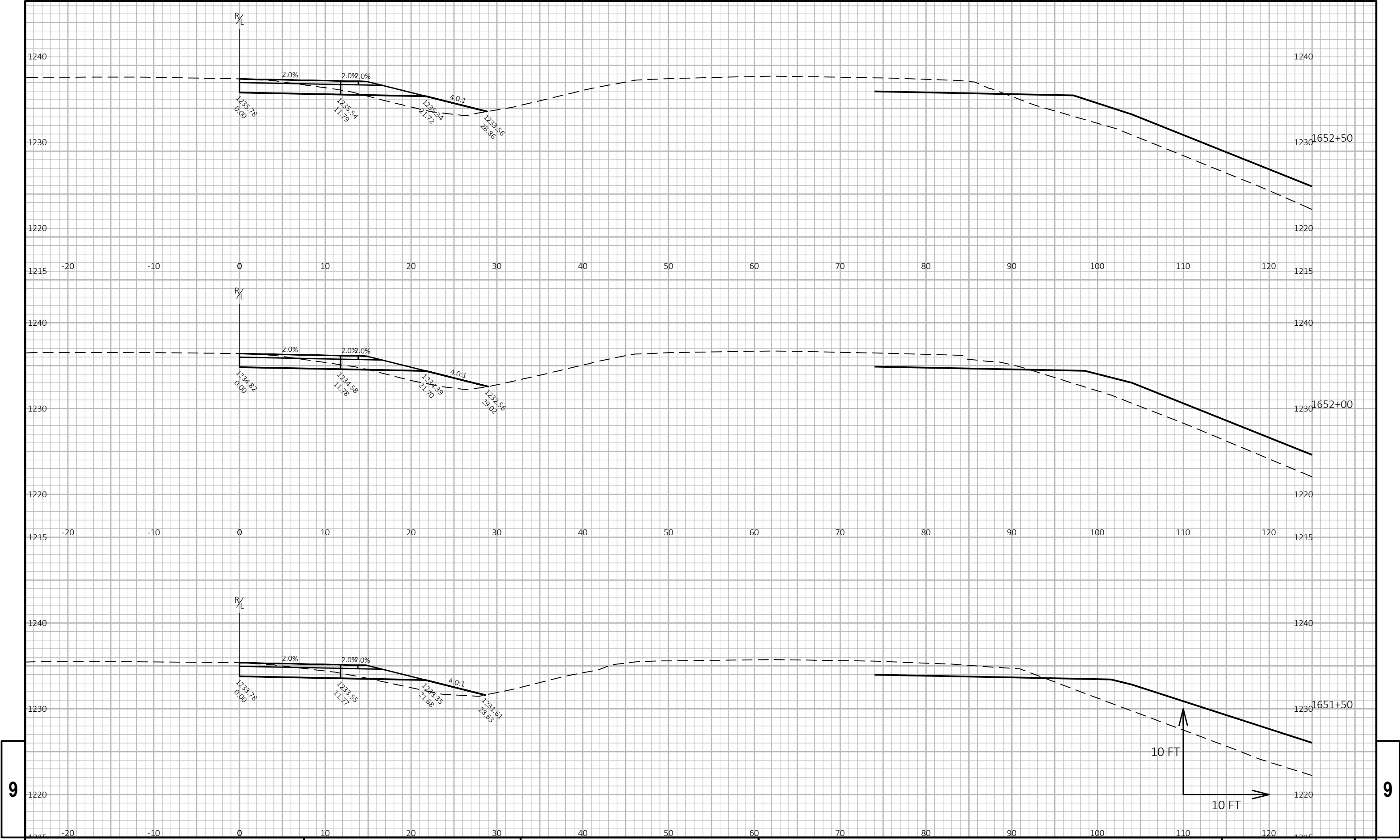
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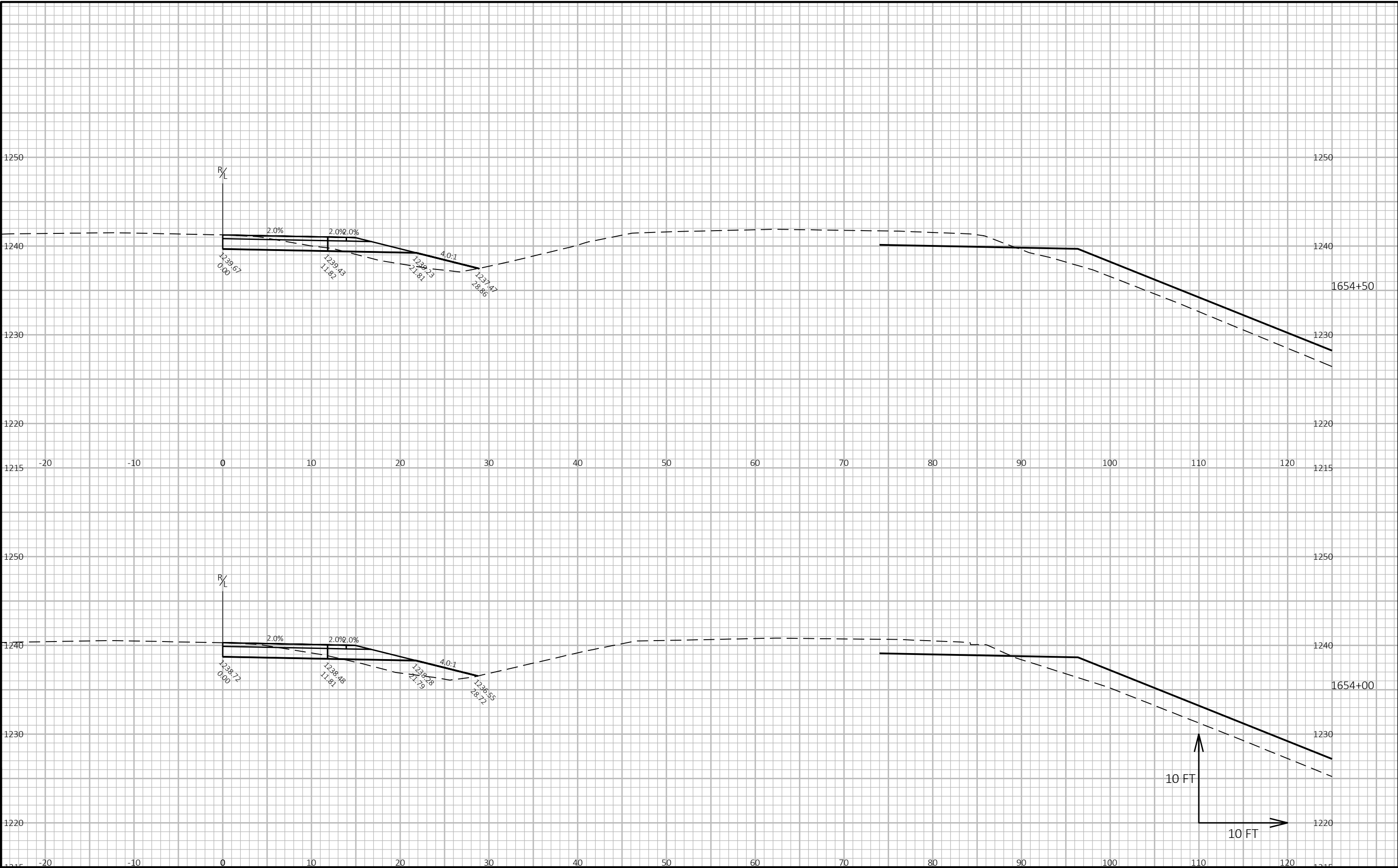
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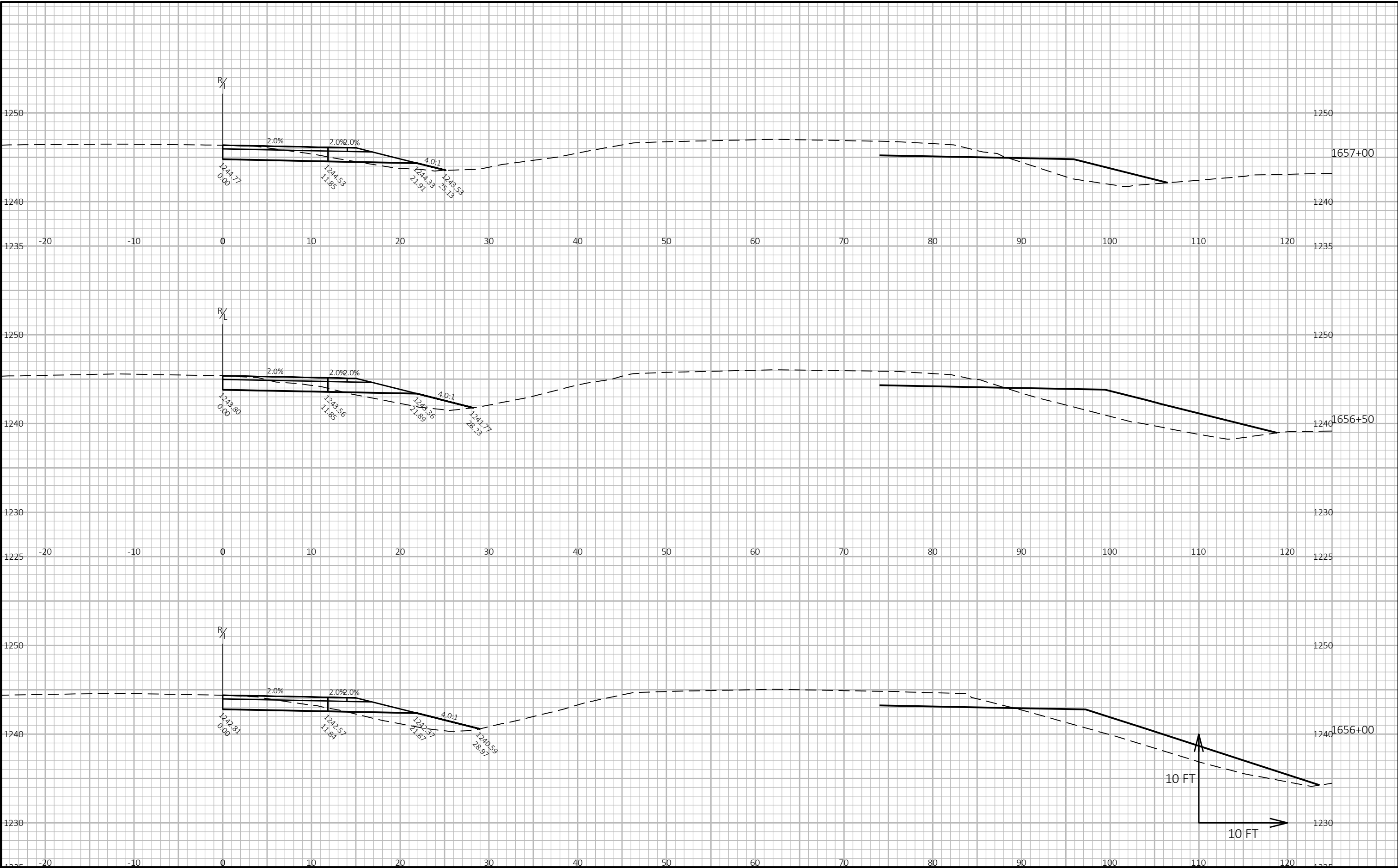
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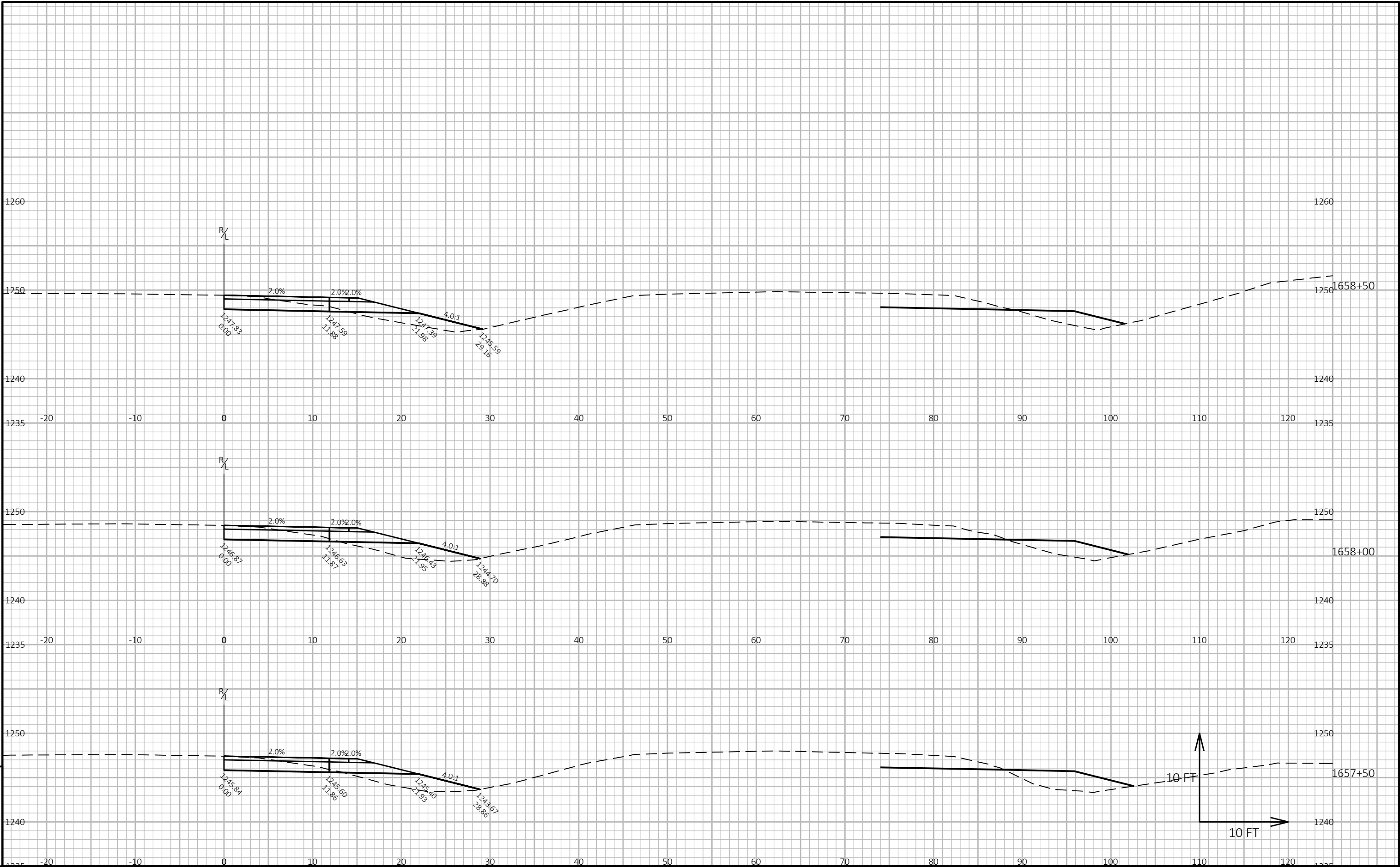
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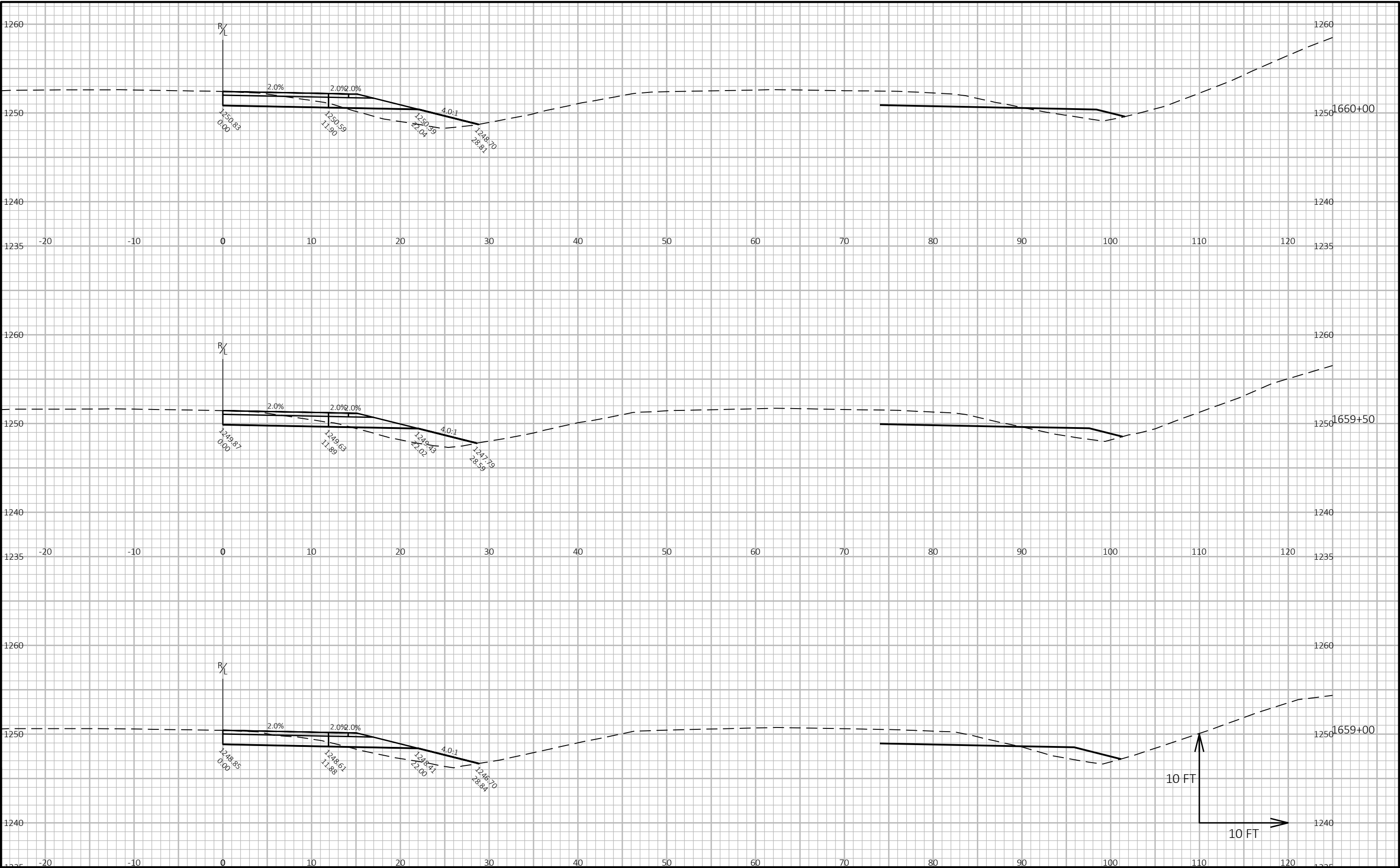




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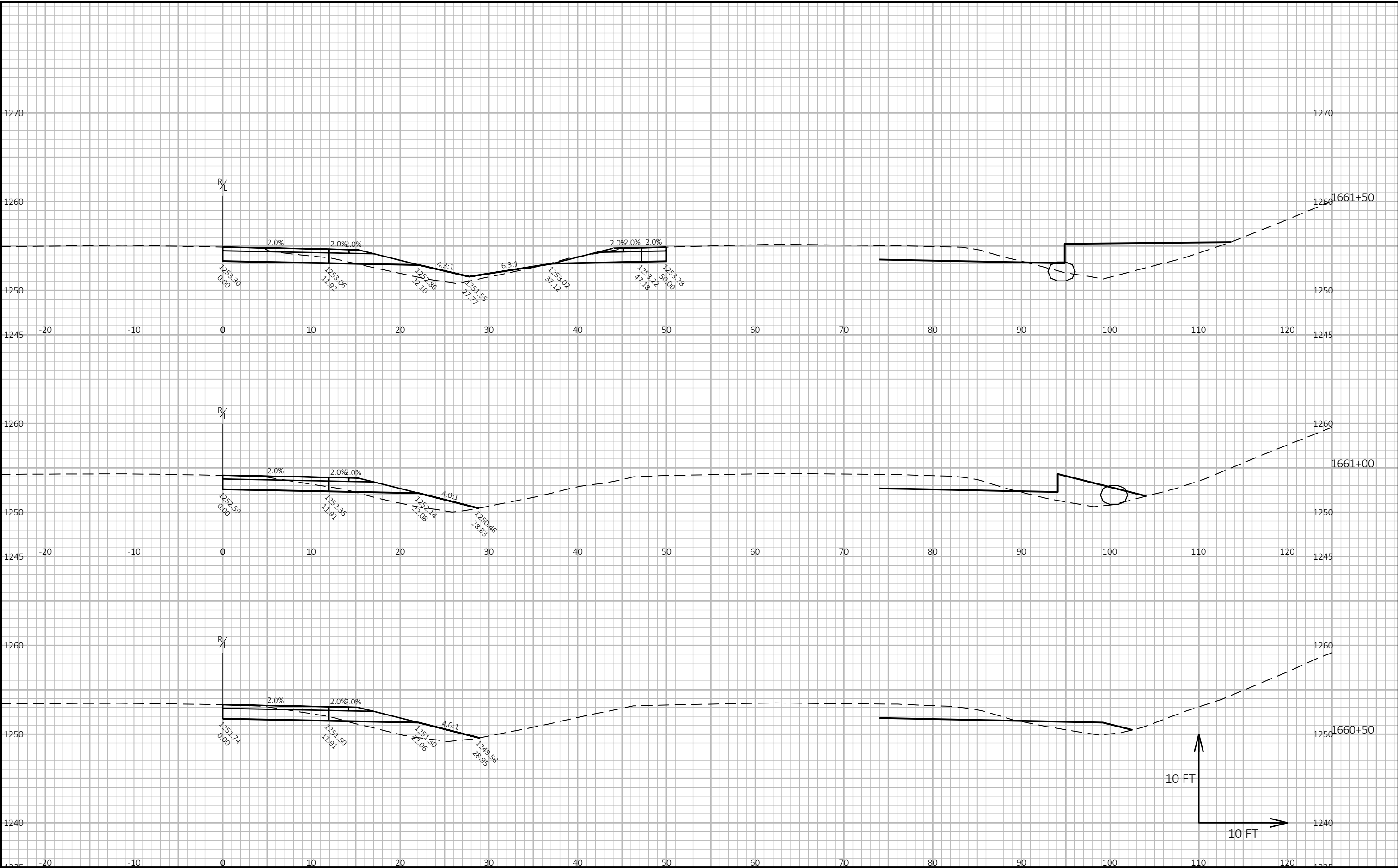
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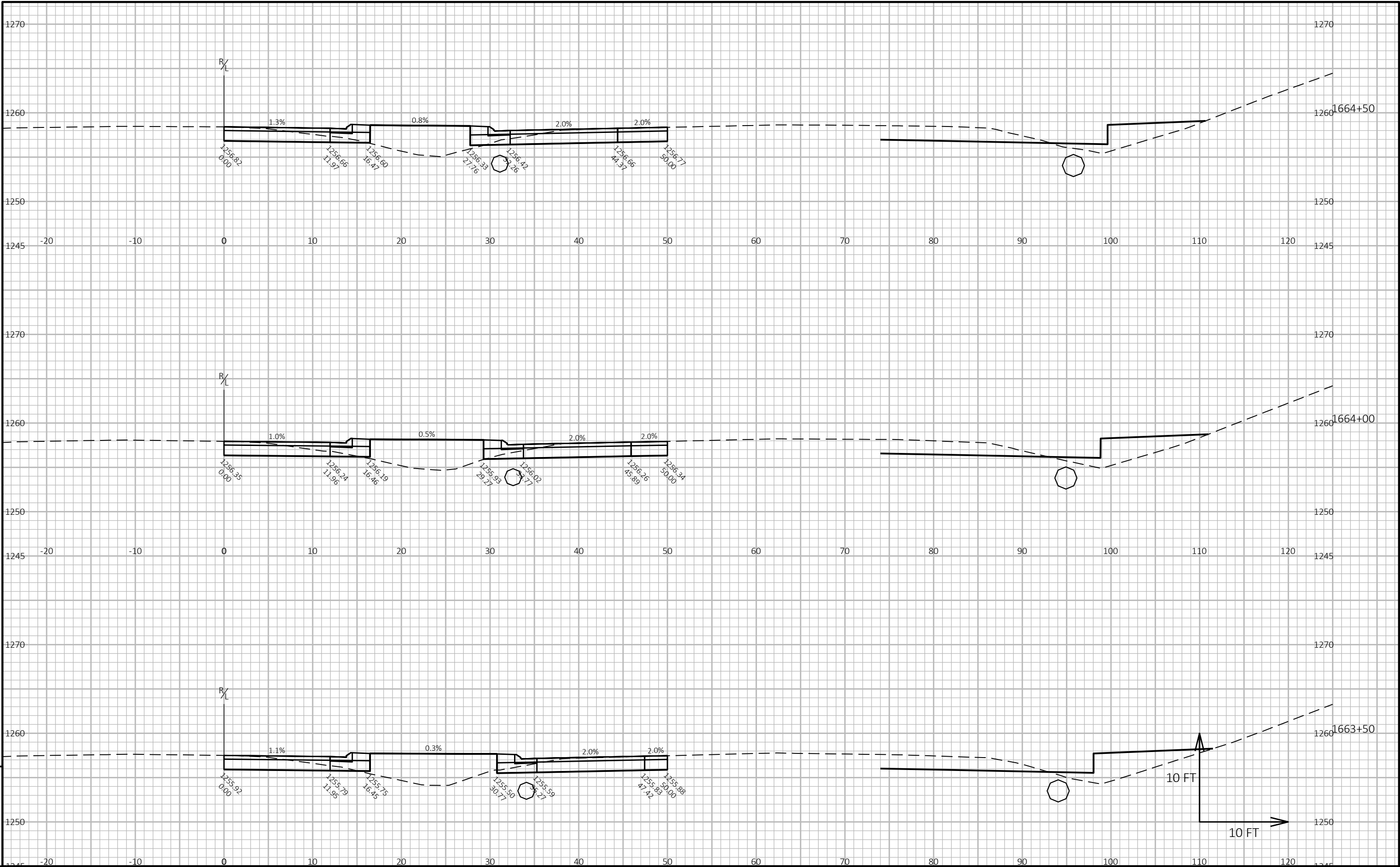
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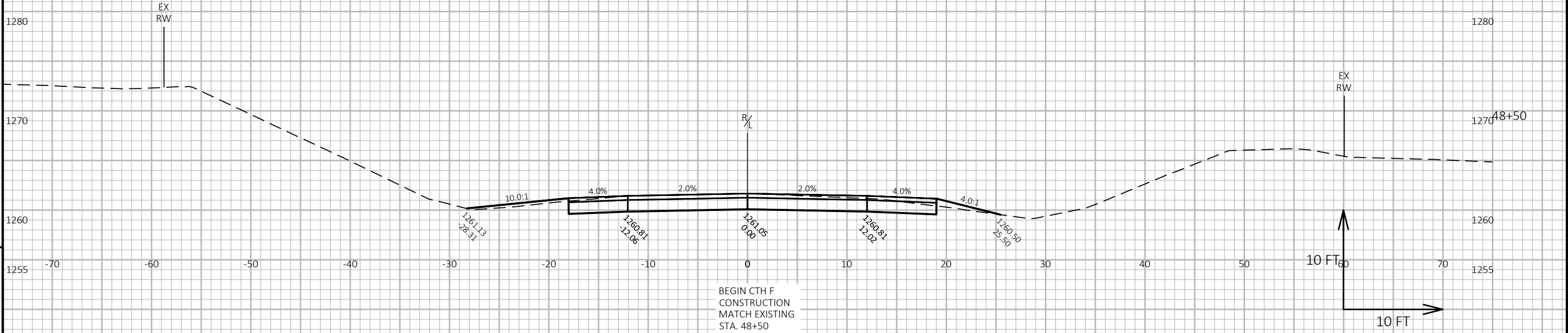
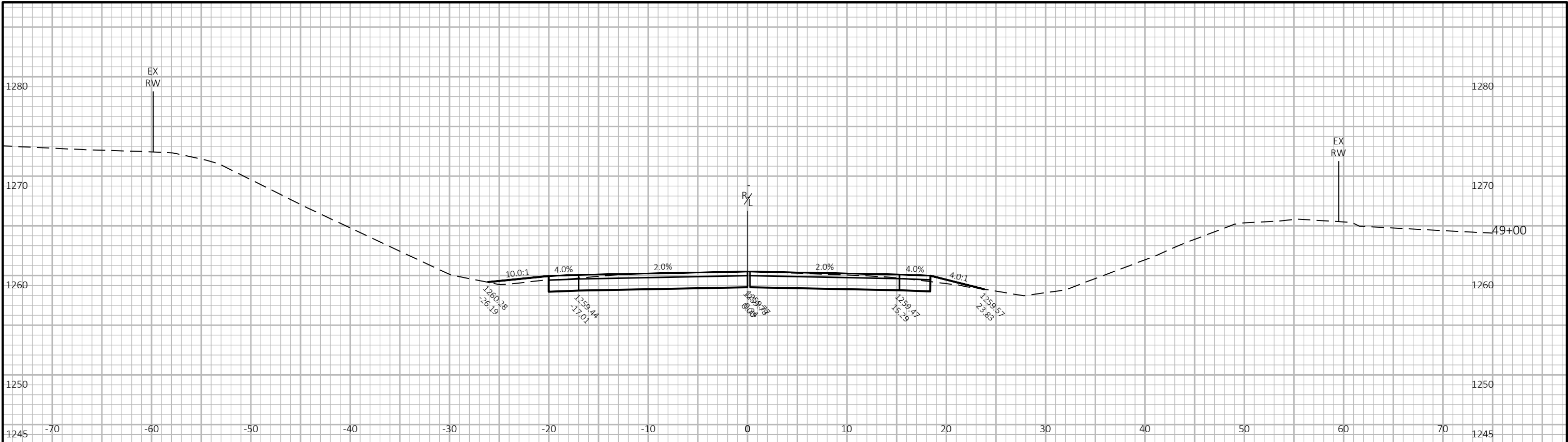


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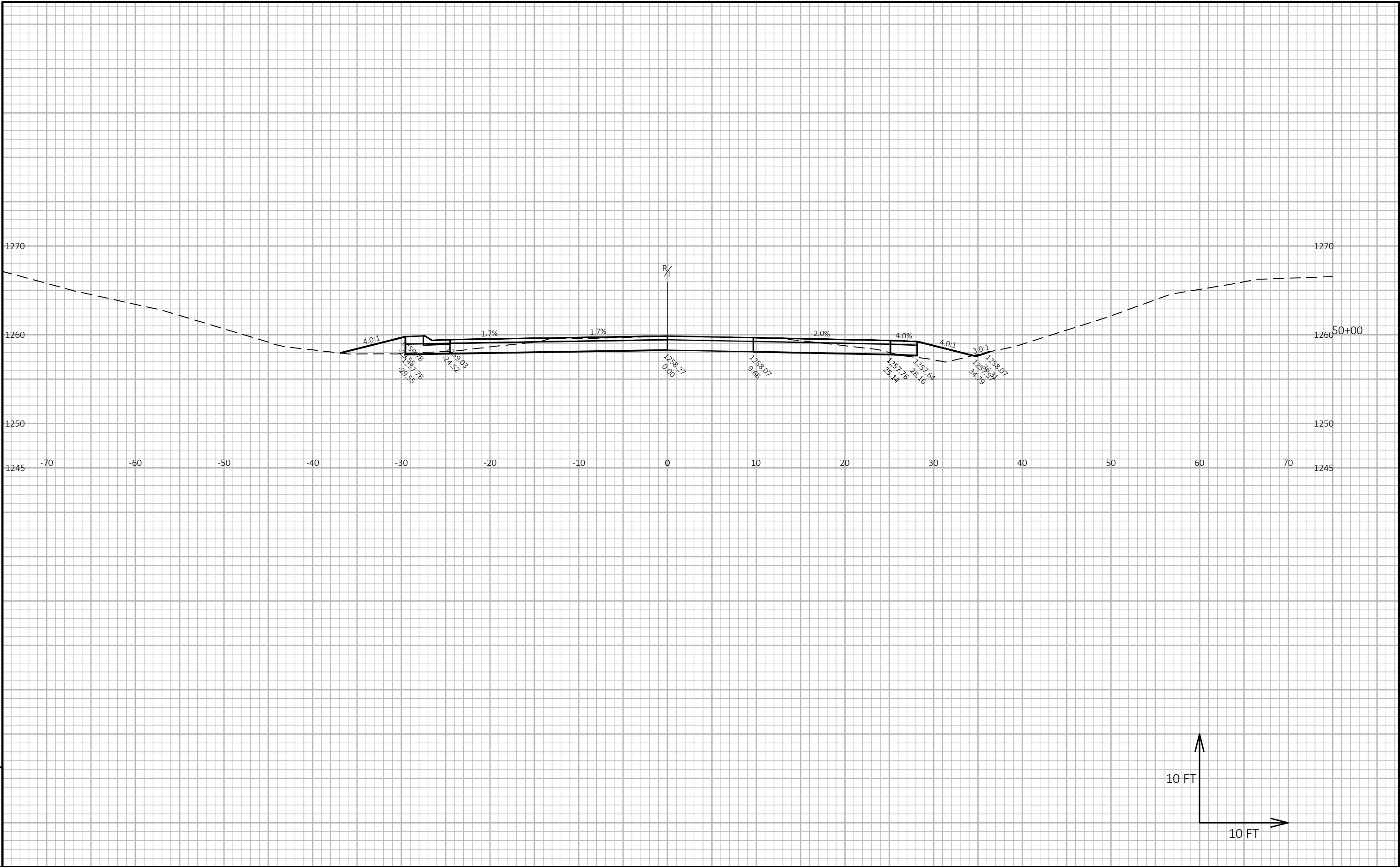


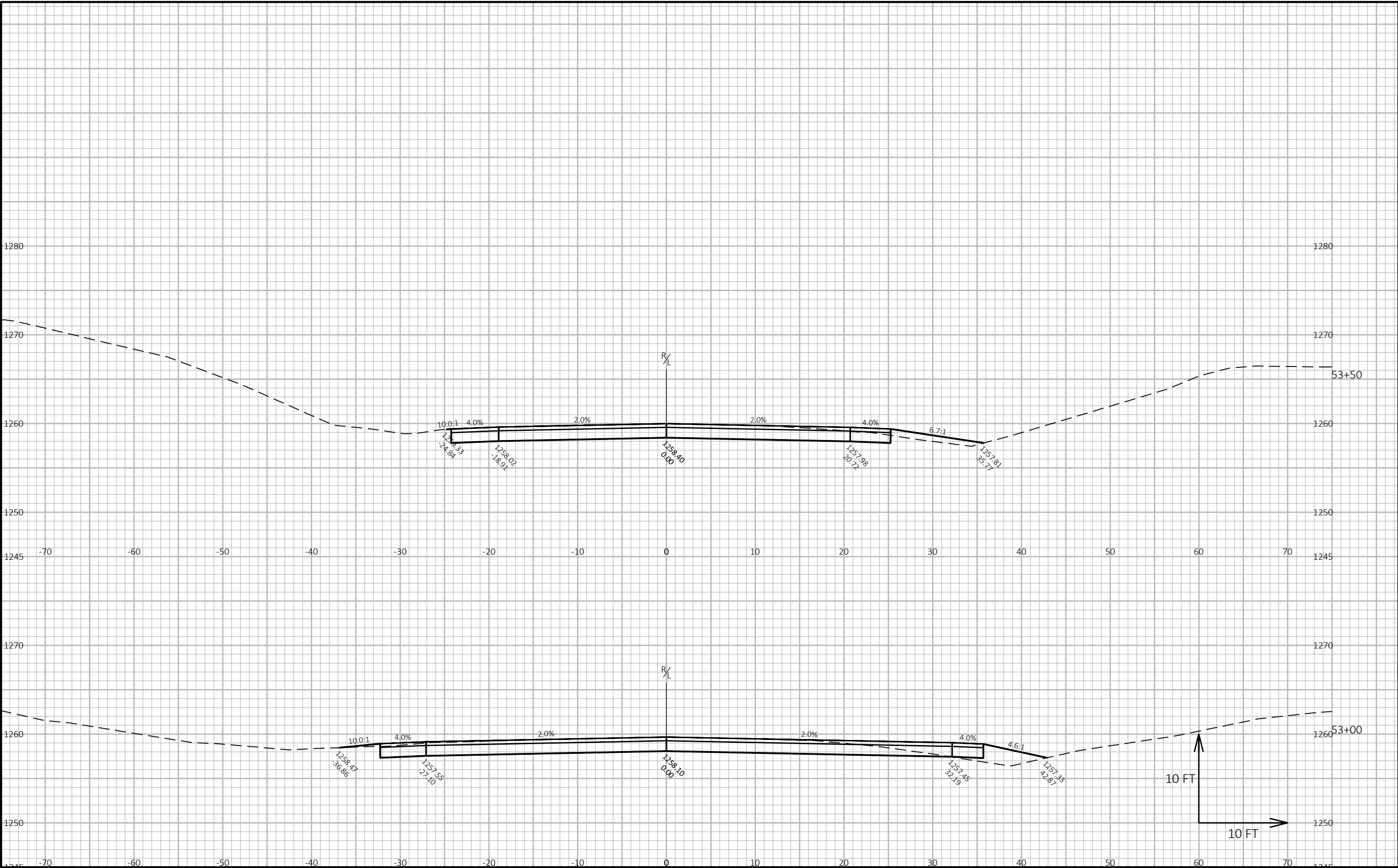


BEGIN CTH F
CONSTRUCTION
MATCH EXISTING
STA. 48+50

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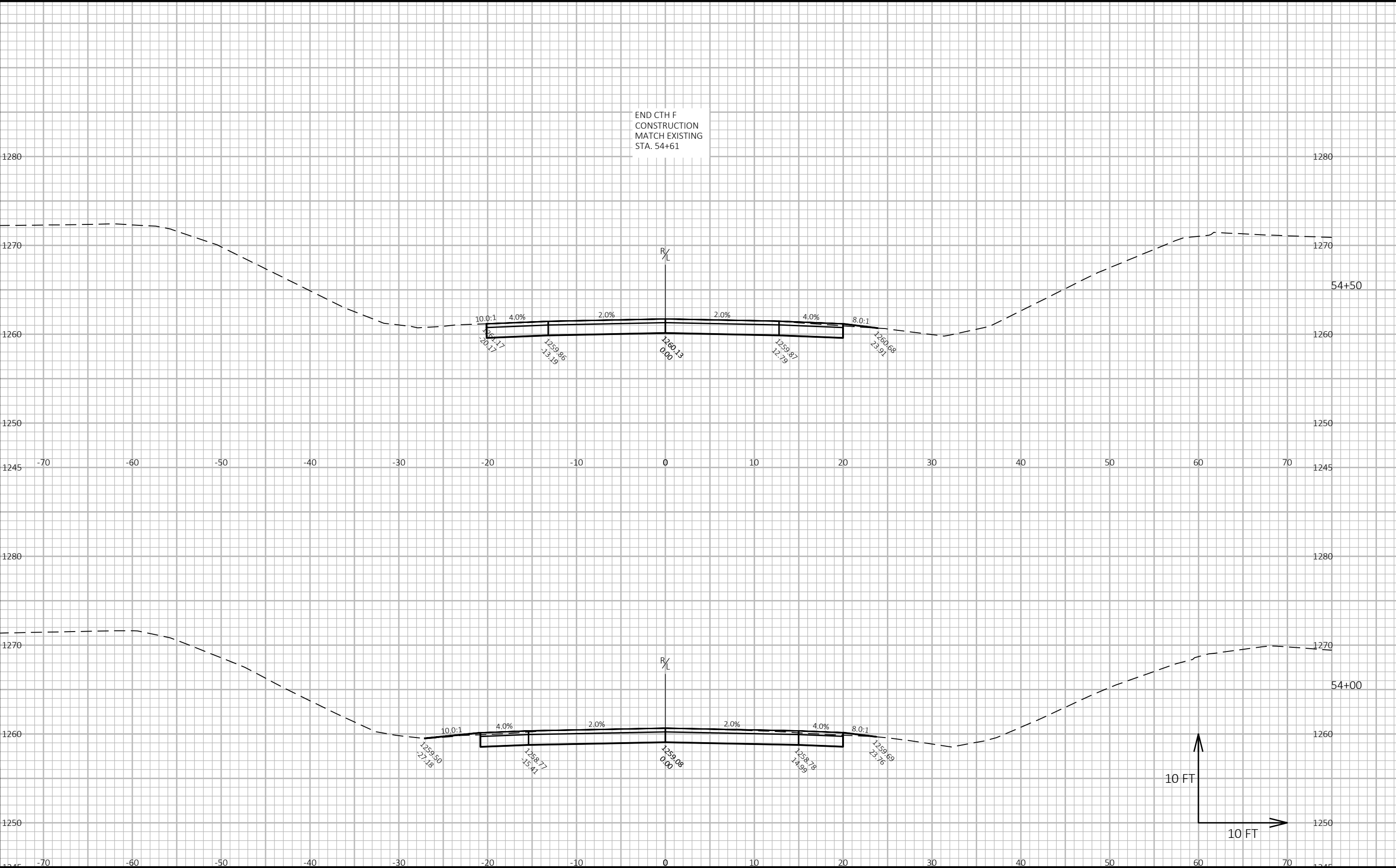
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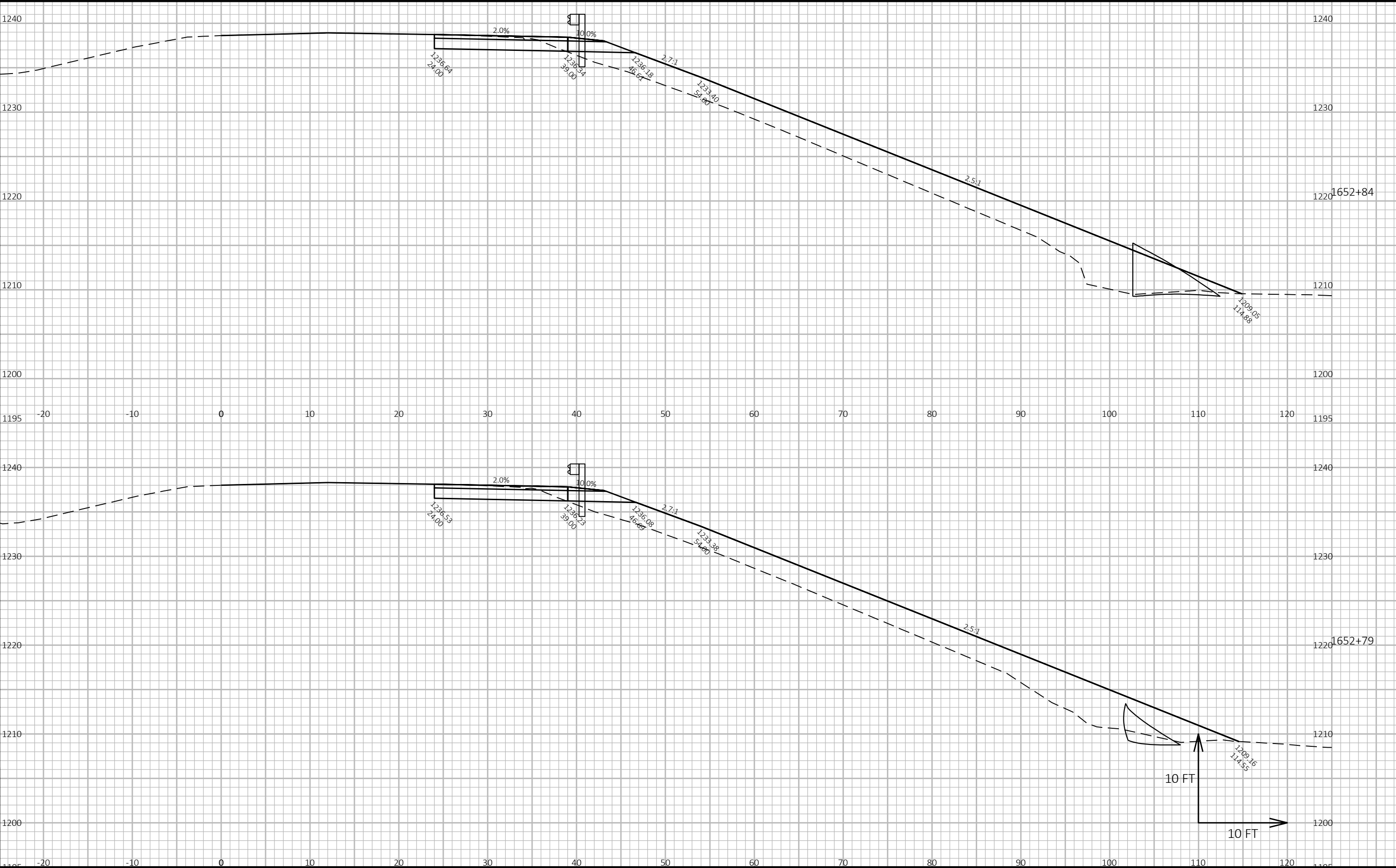
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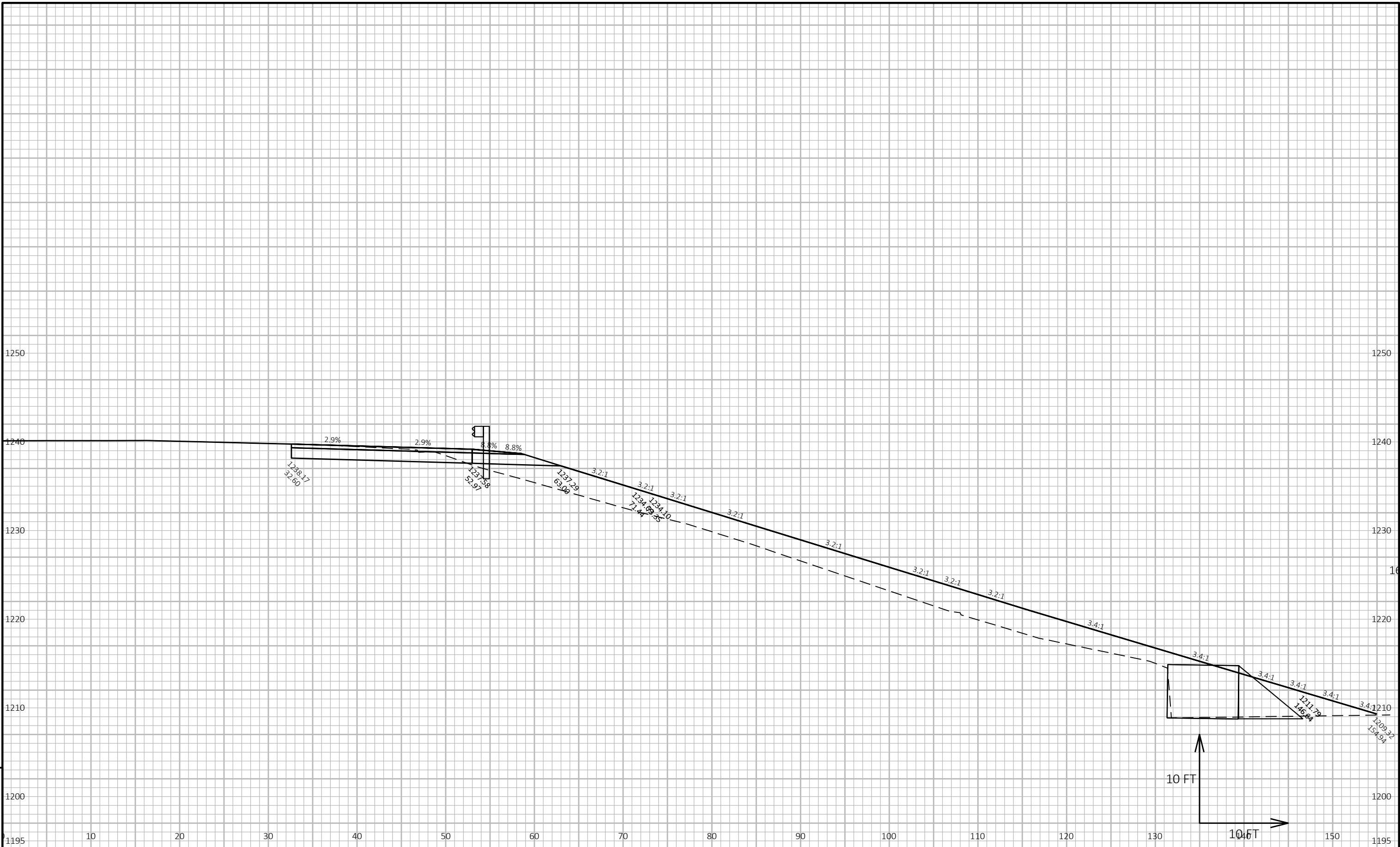
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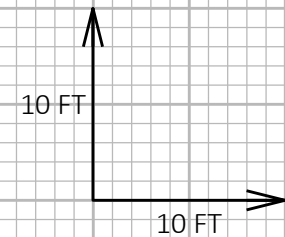
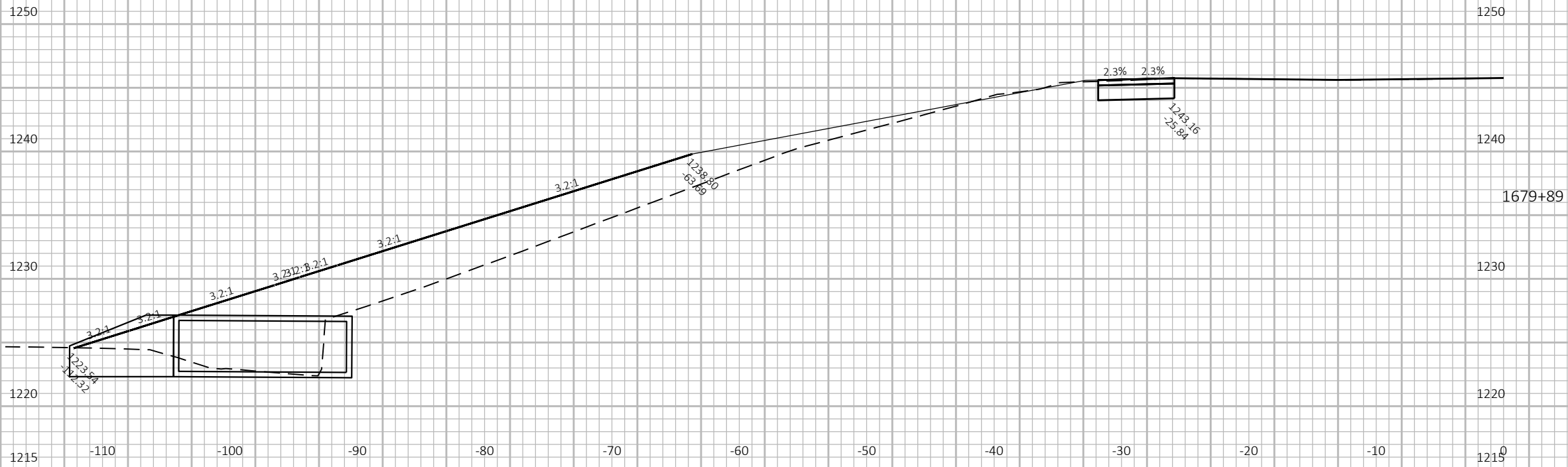
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PROJECT NO: 1204-05-77

HWY: USH 18/151

COUNTY: DANE

CROSS SECTIONS: CULVERT EXTENSIONS

SHEET 267

E

FILE NAME : N:\PDS\C3D\12040507\SHEETPLAN\090201-XS.DWG
LAYOUT NAME - 090261

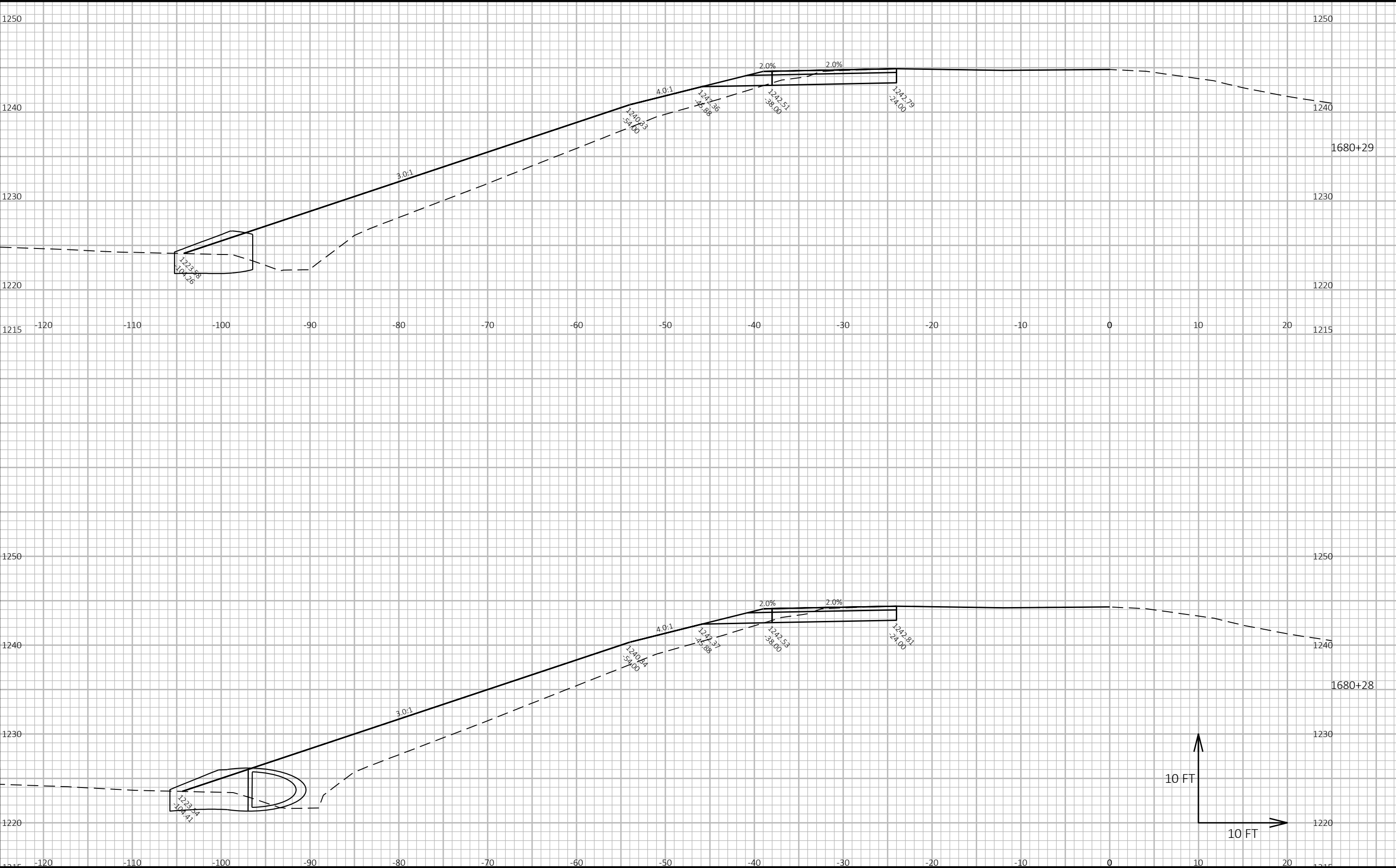
PLOT DATE : 10/20/2025 1:36 PM

PLOT BY : CAMPBELL, TIMOTHY J

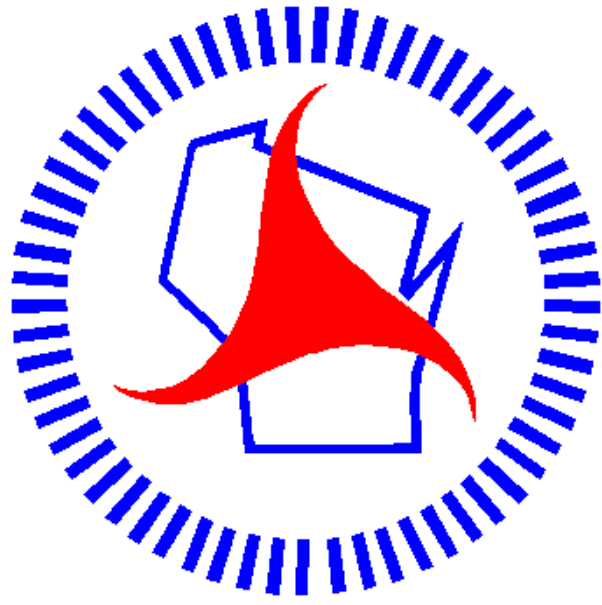
PLOT NAME :

PLOT SCALE : 1 IN:10 FT HORZ. / 1 IN:10 FT VERT.

WISDOT/CADDs SHEET 49



Notes



Wisconsin Department of Transportation

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