

GRE
WITH:

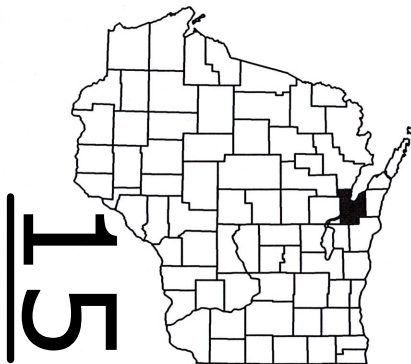
PROJECT ID:
9277-01-71

COUNTY:
BROWN

APRIL 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 = 206



DESIGN DESIGNATION

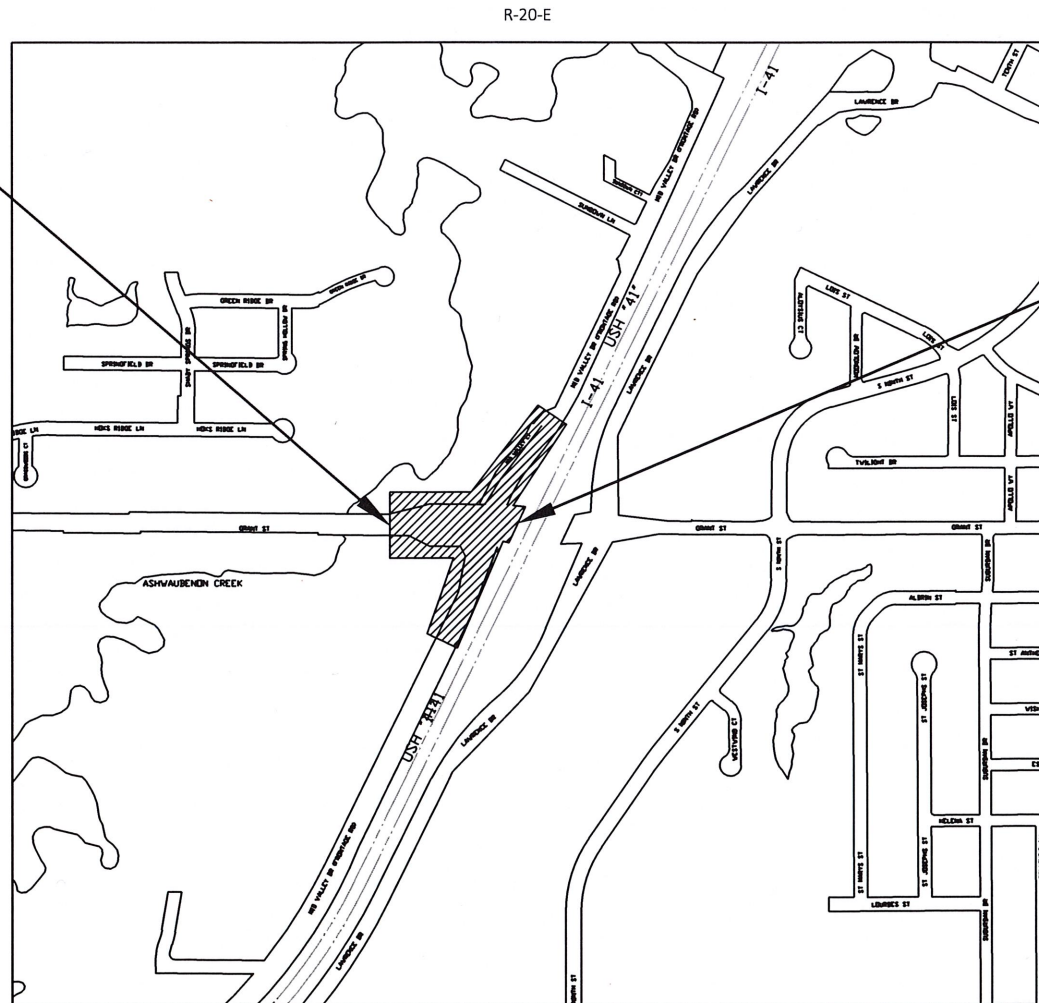
A.A.D.T.	(2025)	=	8,300
A.A.D.T.	(2045)	=	9,000
D.H.V.		=	930
D.D.		=	50/50
T.		=	9.9%
DESIGN SPEED		=	40 MPH
ESALS		=	1,400,000

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	

BEGIN PROJECT
STA 103+00
Y = 541895.661
X = 78298.698



LAYOUT
SCALE 0 1000 FT

TOTAL NET LENGTH OF CENTERLINE = 0.109 MI

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

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

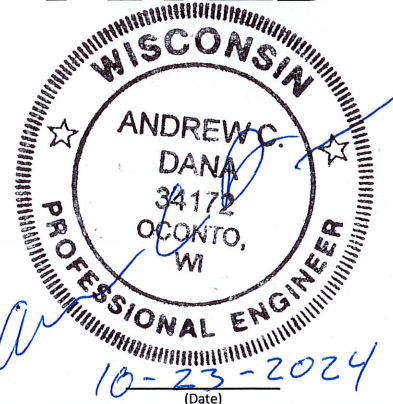
STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
9277-01-71	WISC 2025422	1

APPROVED FOR BY
BROWN COUNTY

10/29/2024
DATE
HIGHWAY COMMISSIONER

ORIGINAL PLANS PREPARED BY

AYRES



STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PREPARED BY

Surveyor	AYRES
Designer	AYRES
Project Manager	JODI JAROSINSKI
Regional Supervisor	KIMBERLY SLEZAK

APPROVED FOR THE DEPARTMENT

DATE: 10/29/2024
Jodi Jarosinski
(Signature)

E

GENERAL NOTES

THE LOCATIONS OF EXISTING UTILITIES ARE APPROXIMATE. THERE MAY BE OTHER INSTALLATIONS WITHIN THE PROJECT AREA THAT ARE NOT SHOWN.

THE CONTRACTOR SHALL NOTIFY DIGGERS HOTLINE AND AFFECTED UTILITIES PRIOR TO THE START OF WORK.

A VERTICAL SAW JOINT IS REQUIRED WHERE NEW HMA PAVEMENT MEETS EXISTING HMA PAVEMENT.

ALL TIES ON THIS PLAN ARE HORIZONTAL UNLESS DESCRIBED OTHERWISE.

CURVE DATA IS BASED ON ARC DEFINITION.

BEARINGS SHOWN ON THE PLAN ARE TRUE BEARINGS.

PROPERTY LINES SHOWN ARE APPROXIMATE.

REMOVAL OF ANY MESH OR REINFORCEMENT FOUND IN CONCRETE PAVEMENT SHALL BE INCIDENTAL TO THE REMOVING PAVEMENT ITEM.

TEMPORARY STORAGE OF ANY EXCAVATED MATERIAL WILL NOT BE PERMITTED IN WETLANDS, FLOODWAY OR FLOODPLAIN OF ANY WETLANDS.

STATIONING, DISTANCES, AND OFFSETS FOR SIGNS AND TRAFFIC CONTROL DEVICES SHOWN IN THE PLANS ARE APPROXIMATE. EXACT LOCATIONS ARE DETERMINED BY THE ENGINEER.

ORDER OF SECTION 2 SHEETS

- GENERAL NOTES
- TYPICAL SECTIONS
- CONSTRUCTION DETAILS
- PLAN DETAILS
- PLAN GRADES
- PLAN OFFSETS
- CURB RAMP DETAILS
- EROSION CONTROL
- STORM SEWER
- PLANTING
- PERMANENT SIGNING
- LIGHTING PLAN
- PAVEMENT MARKING
- DETOURS
- ALIGNMENTS

UTILITY CONTACTS

AT&T

KYLE WEBER
221 W WASHINGTON ST 4TH FLOOR
APPLETON, WI 54911
PHONE: 920-221-5969
EMAIL: kw715w@att.com

CENTRAL BROWN COUNTY WATER AUTHORITY

ZACH PETHAN
1520 DEWEY STREET
MANITOWOC, WI 54220
PHONE: 920-686-4244
EMAIL: zpethan@mpu.org

NET LEC

RICK VINCENT
470 SECURITY BLVD
GREEN BAY, WI 54313
PHONE: 920-617-7316
EMAIL: rick.vincent@nsight.com

NEW WATER

ROB REINHART
2231 NORTH QUINCY STREET
GREEN BAY, WI 54302
PHONE: 920-438-1035
EMAIL: rreinhardt@newwater.us

SPECTRUM

SEAN SHOEMAKER
3545 E PLANK RD
APPLETON, WI 54915
PHONE: 920-455-9327
EMAIL: sean.shoemaker@charter.com

TOWN OF LAWRENCE

KURT MINTEN
2400 SHADY COURT
DE PERE, WI 54115
PHONE: 920-336-9131
EMAIL: kurtm@lawrencewi.gov

WISCONSIN INDEPENDENT NETWORK

KEN WHITING
4955 BULLIS FARM ROAD
EAU CLAIRE, WI 54701
PHONE: 866-206-2027
EMAIL: ken.whiting@wintechnology.com

WISCONSIN PUBLIC SERVICE (ELECTRIC)

STUART SENECAL
2850 S ASHLAND AVE P.O. BOX 19001
GREEN BAY, WI 54307-9001
PHONE: 920-617-5070
EMAIL: stuart.senecal@wisconsinpublicservice.com

WISCONSIN PUBLIC SERVICE (GAS)

ADAM VENDENHOUTEN
2850 S ASHLAND AVE P.O. BOX 19001
GREEN BAY, WI 54307-9001
PHONE: 920-617-5231
EMAIL: adam.vandenhouten@wisconsinpublicservice.com

PROJECT CONTACTS

WISCONSIN DEPARTMENT OF NATURAL RESOURCES

NORTHEAST REGION HEADQUARTERS
ATTN: JIM DOPERALSKI
2984 SHAWANO AVENUE
GREEN BAY, WI 54313-6727
PHONE: 920-412-0165
EMAIL: james.doperalski@wisconsin.gov

DESIGN PROJECT MANAGER

AYRES
ATTN: ANDY DANA
700 PILGRIM WAY, SUITE 180
GREEN BAY, WI 54304
PHONE: 920-327-7826
EMAIL: danaa@ayresassociates.com

WORK BY OTHERS

WISCONSIN DOT - ITS ENGINEER
DEAN BEEKMAN
944 VANDERPERREN WAY
GREEN BAY, WI 54304
PHONE: 414-750-1811
EMAIL: dean.beekman@dot.wi.gov



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

RUNOFF COEFFICIENT TABLE

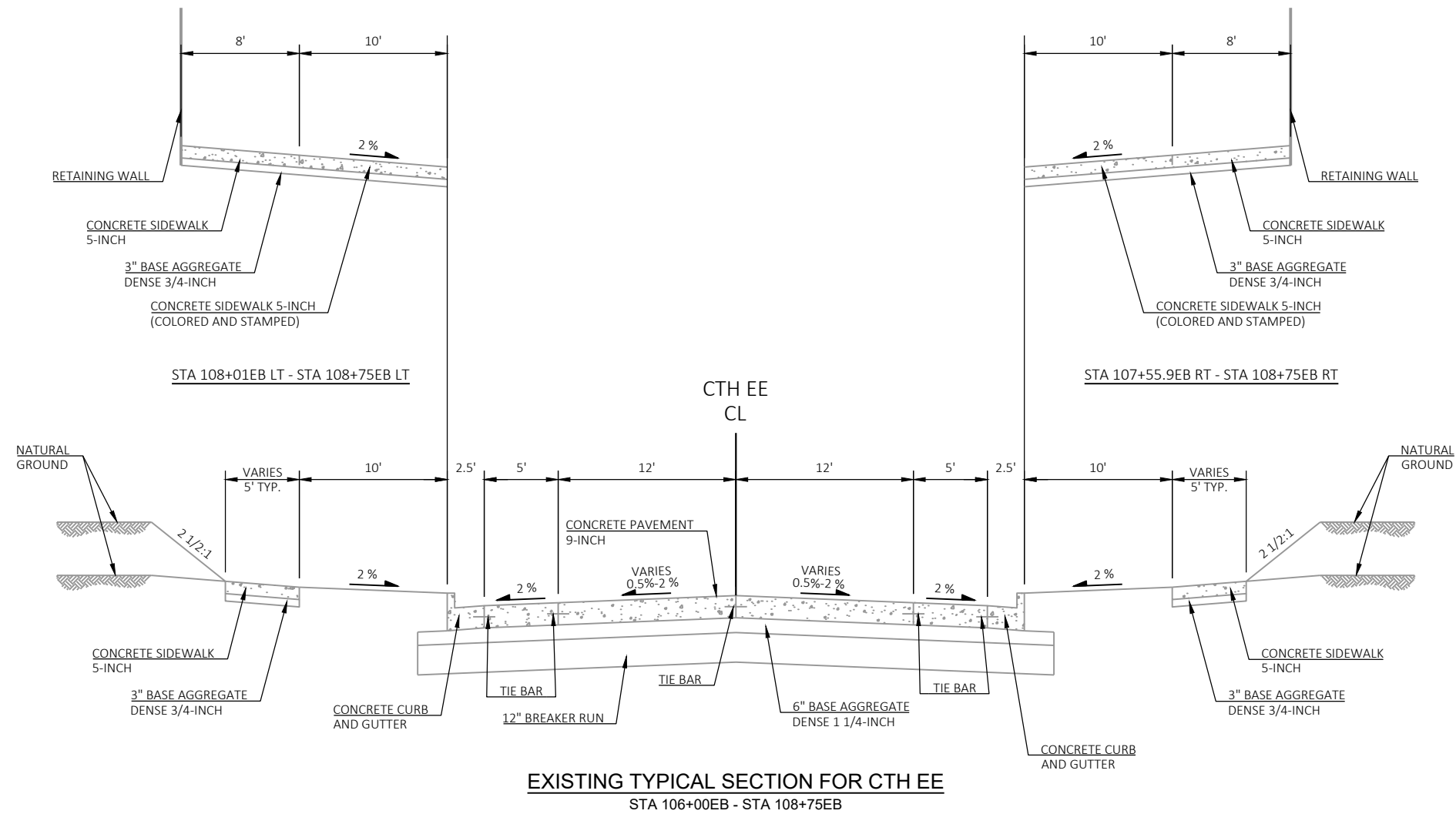
	HYDROLOGIC SOIL GROUP											
	A			B			C			D		
	SLOPE RANGE (PERCENT)			SLOPE RANGE (PERCENT)			SLOPE RANGE (PERCENT)			SLOPE RANGE (PERCENT)		
LAND USE:	0-2	2-6	6 & OVER	0-2	2-6	6 & OVER	0-2	2-6	6 & OVER	0-2	2-6	6 & OVER
ROW CROPS:	.08	.16	.22	.12	.20	.27	.15	.24	.33	.19	.28	.38
	.22	.30	.38	.26	.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											

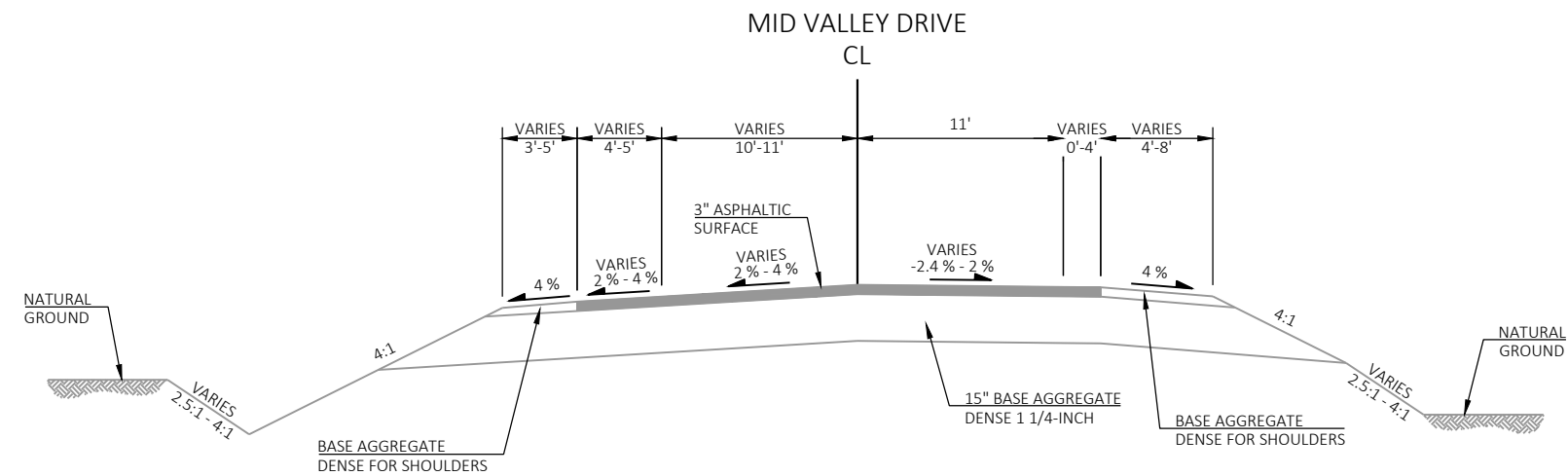
TOTAL PROJECT AREA = 2.512 ACRES
TOTAL AREA EXPECTED TO BE DISTURBED BY CONSTRUCTION ACTIVITIES = 1.398 ACRES
SOIL GROUP C

2

** ASPHALTIC SHOULDER FROM
STA 103+00EB RT - STA 103+51.3EB RT

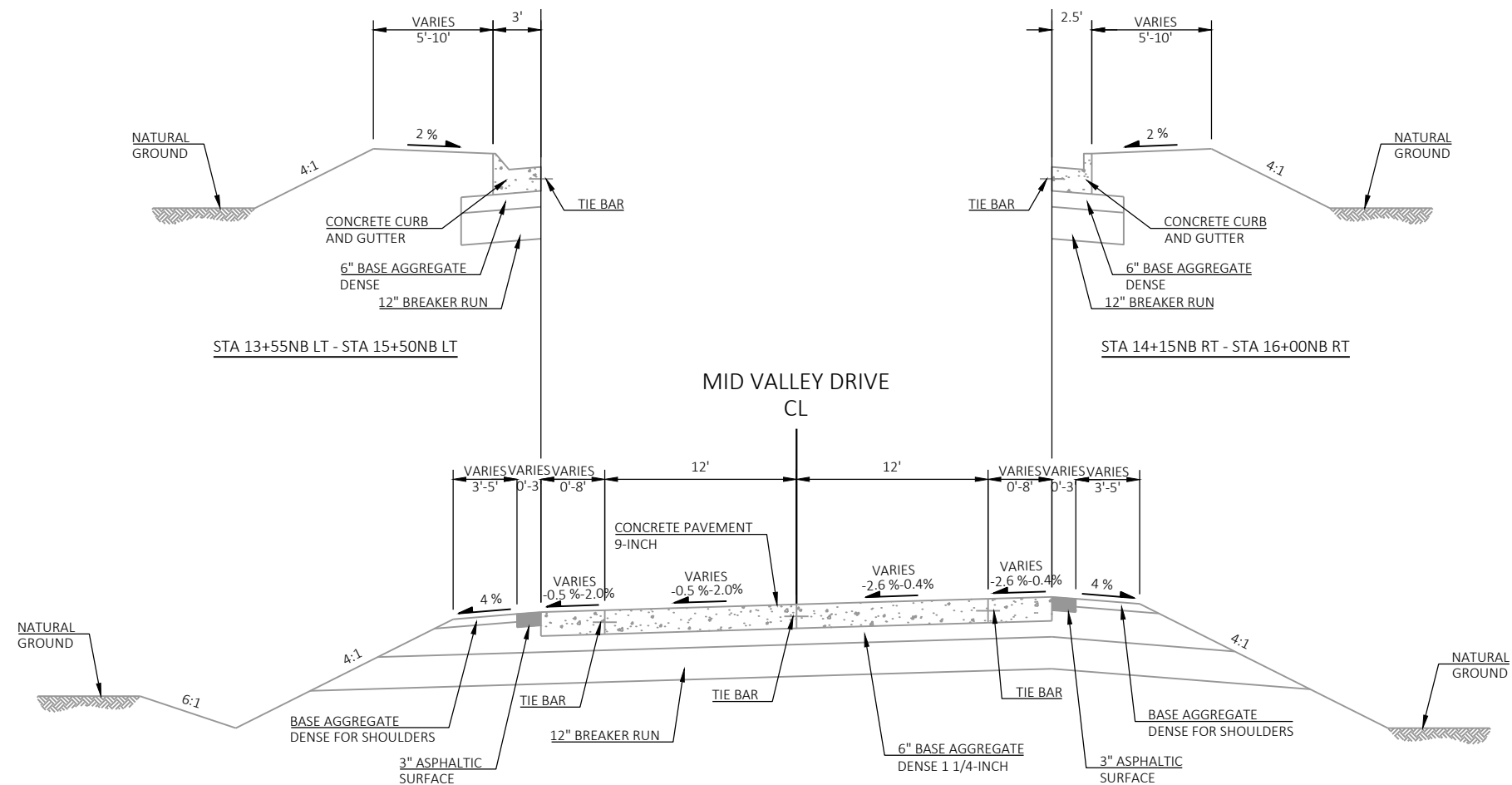






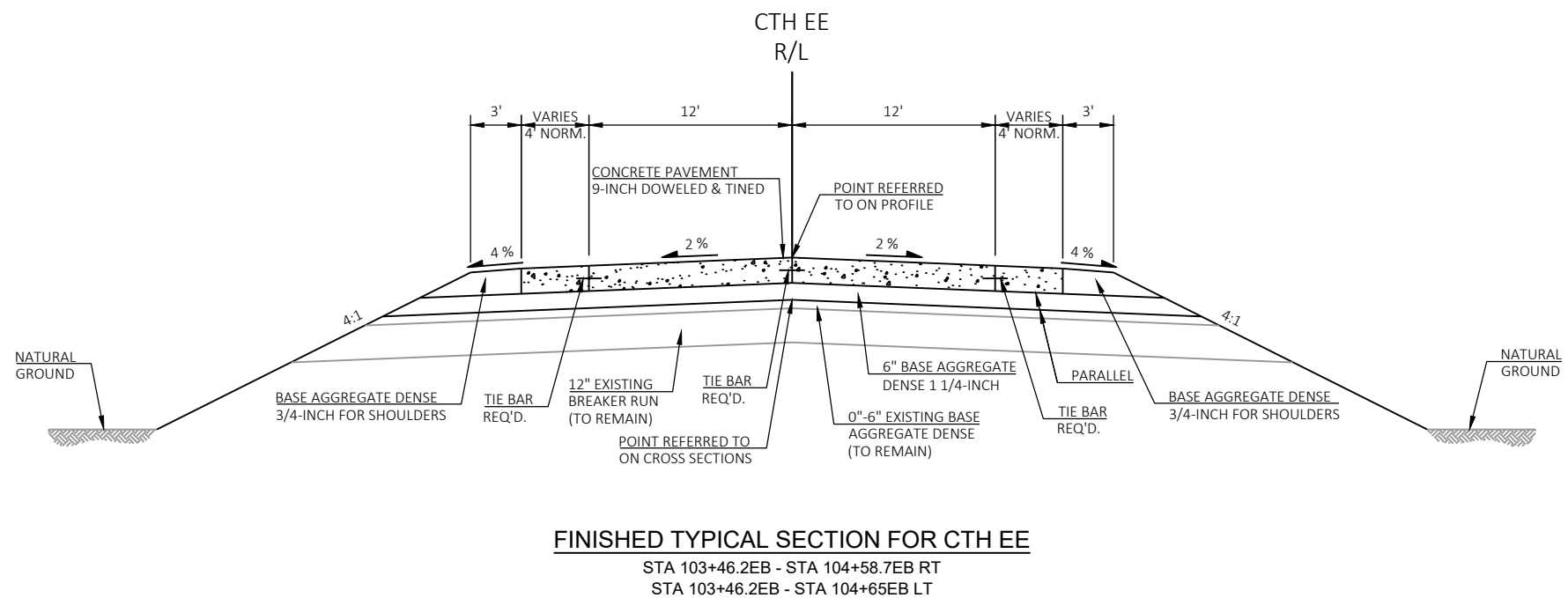
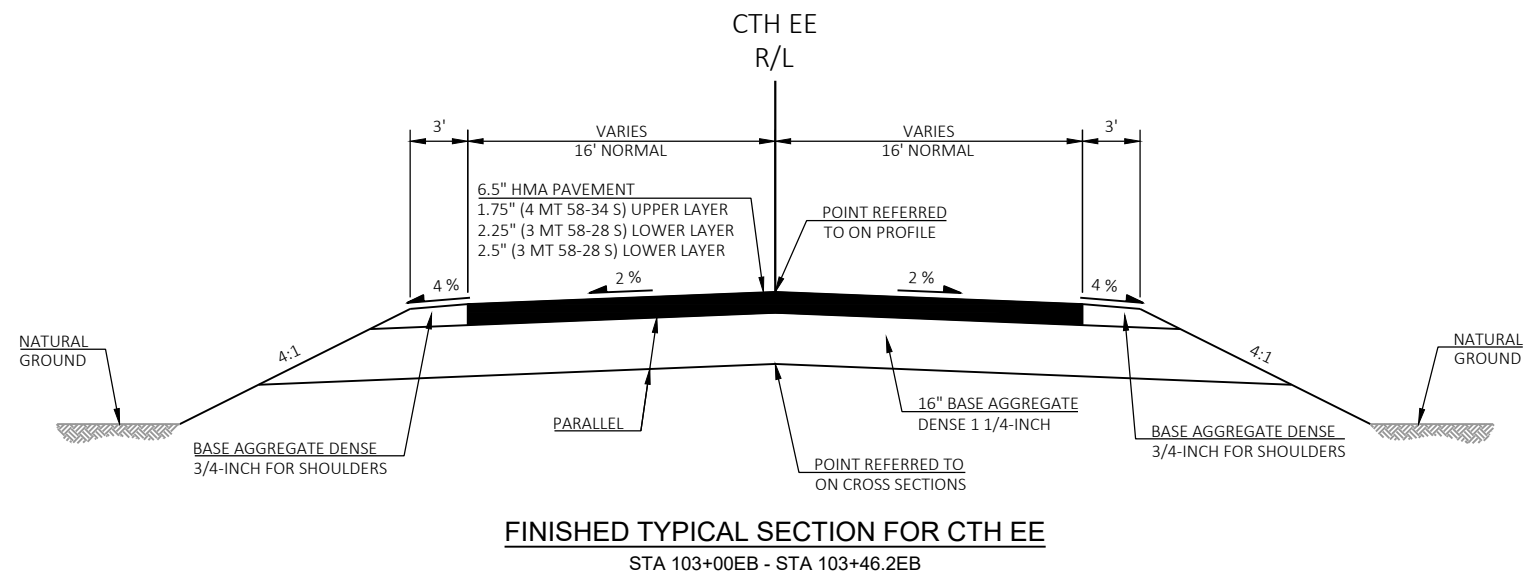
EXISTING TYPICAL SECTION FOR MID VALLEY DRIVE

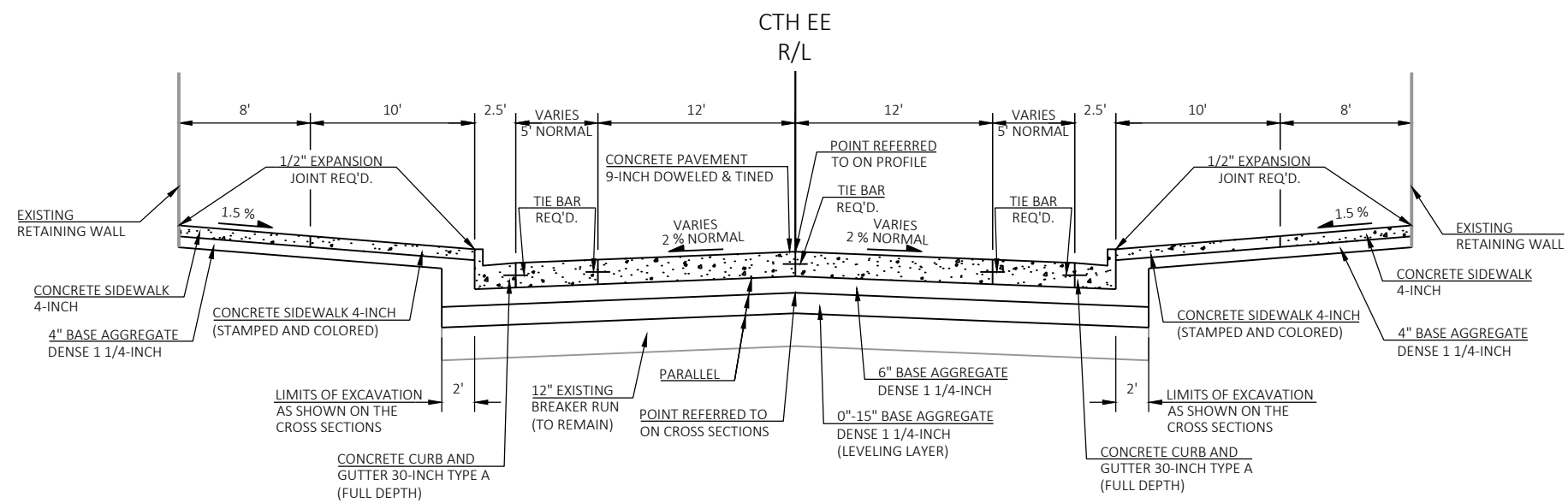
STA 9+15NB - STA 12+51.2NB
STA 17+24.2NB - STA 21+30NB



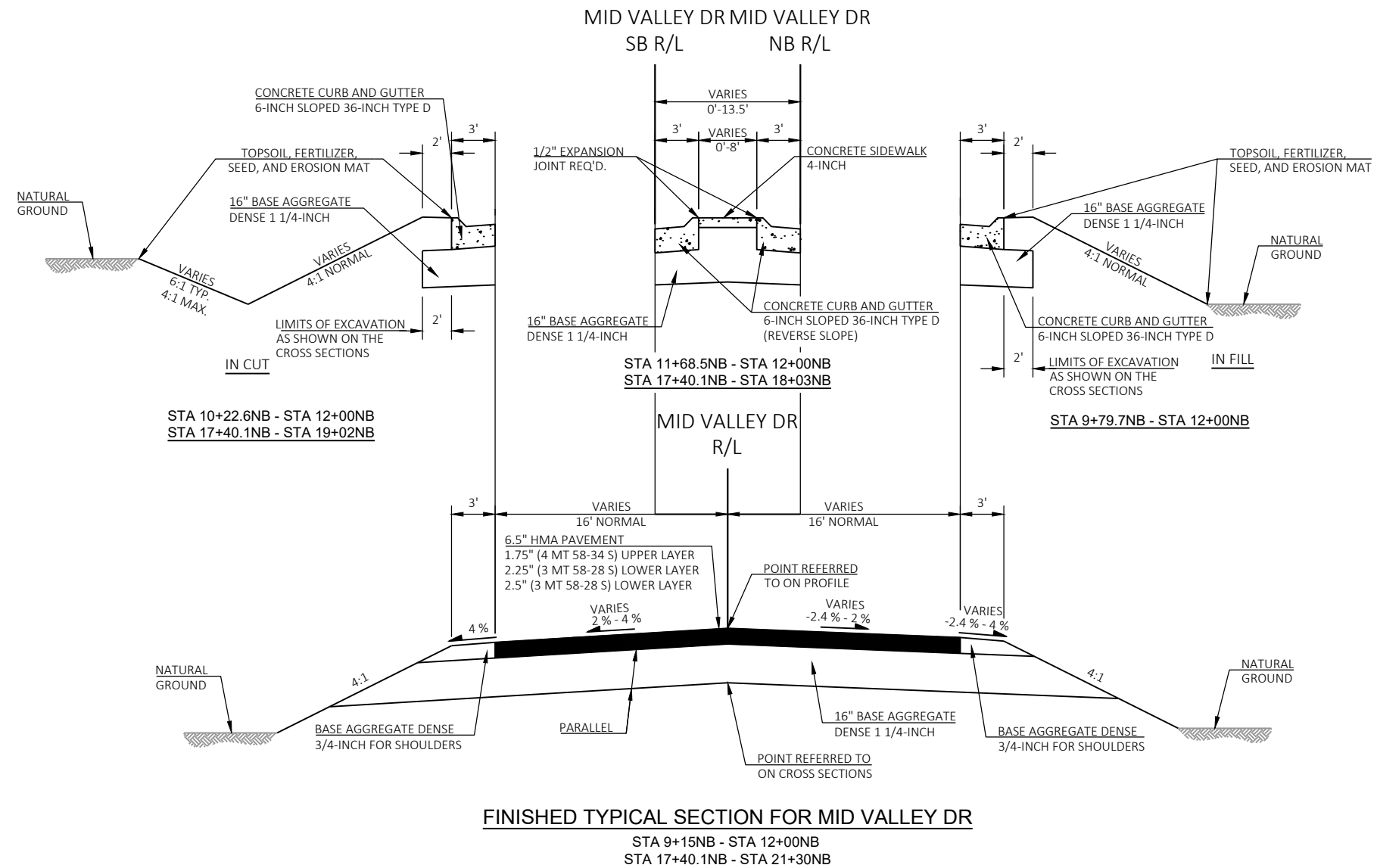
EXISTING TYPICAL SECTION FOR MID VALLEY DRIVE

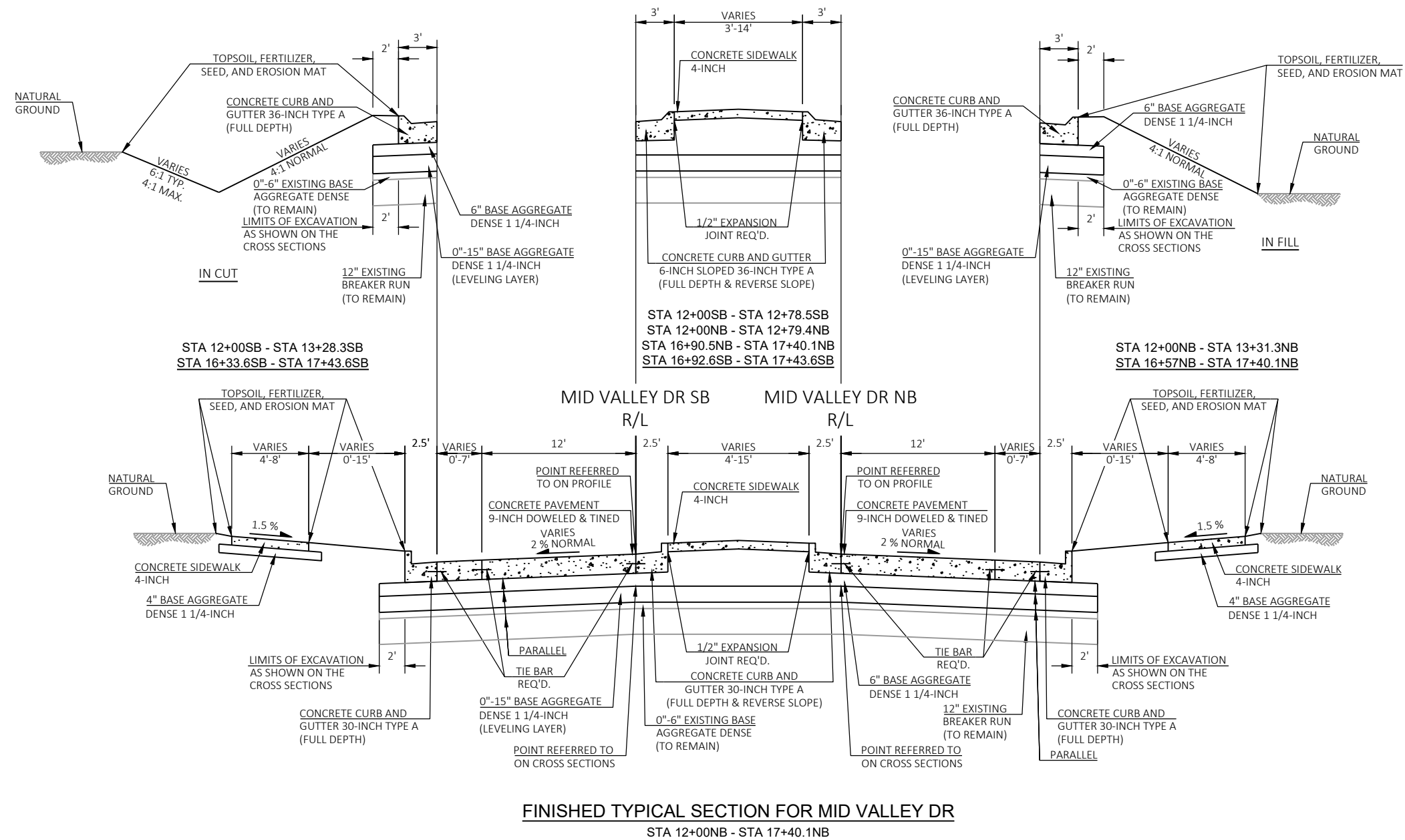
STA 12+51.2NB - STA 17+24.2NB

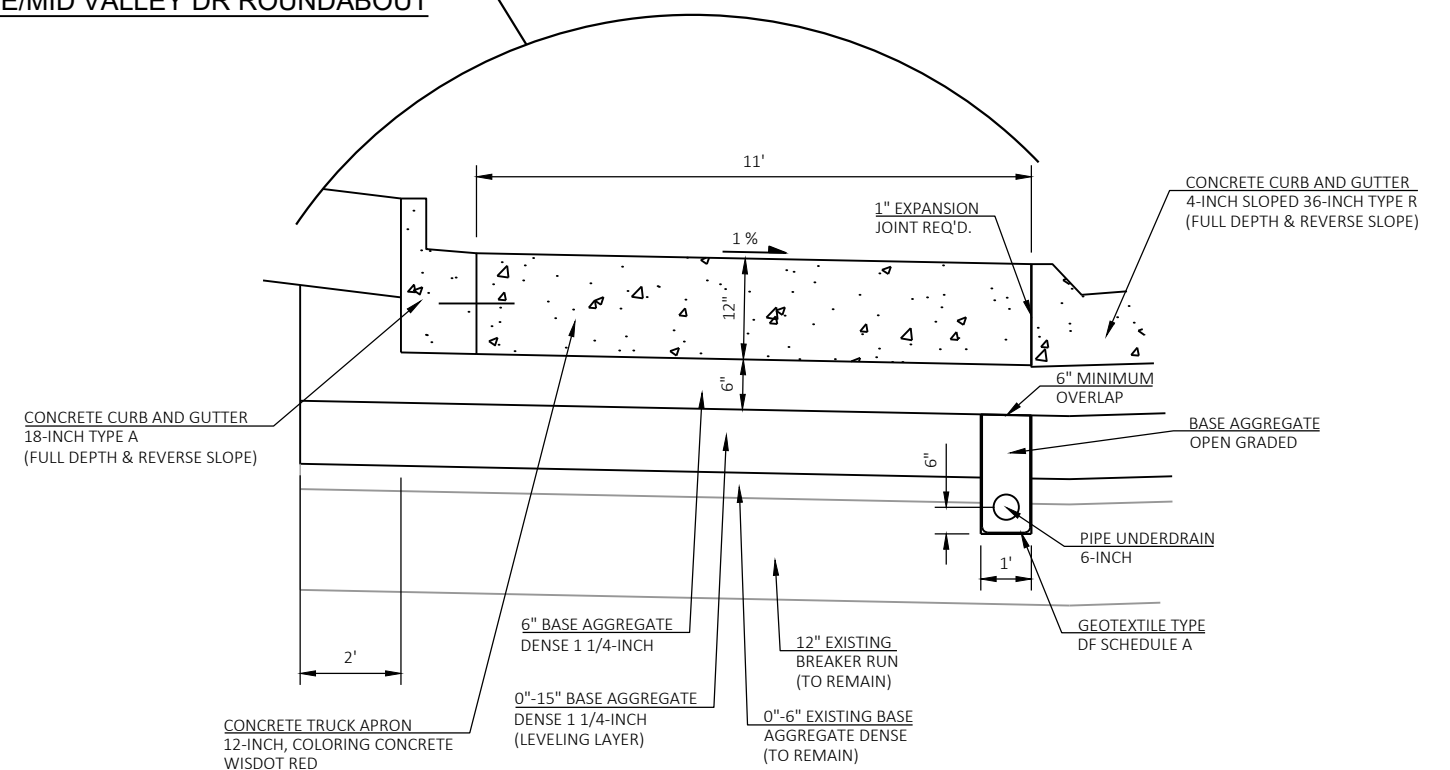
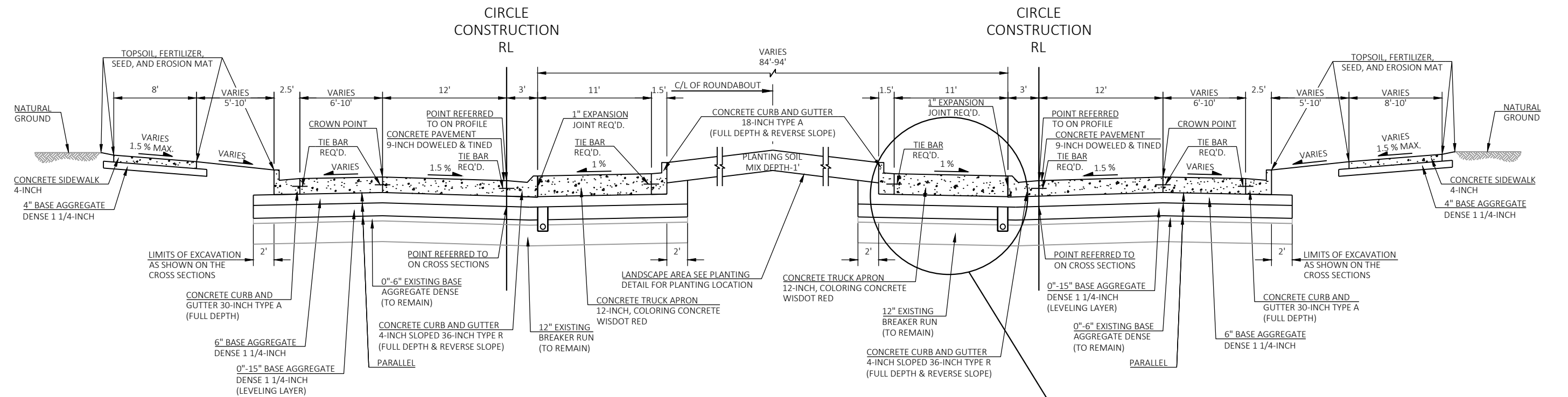


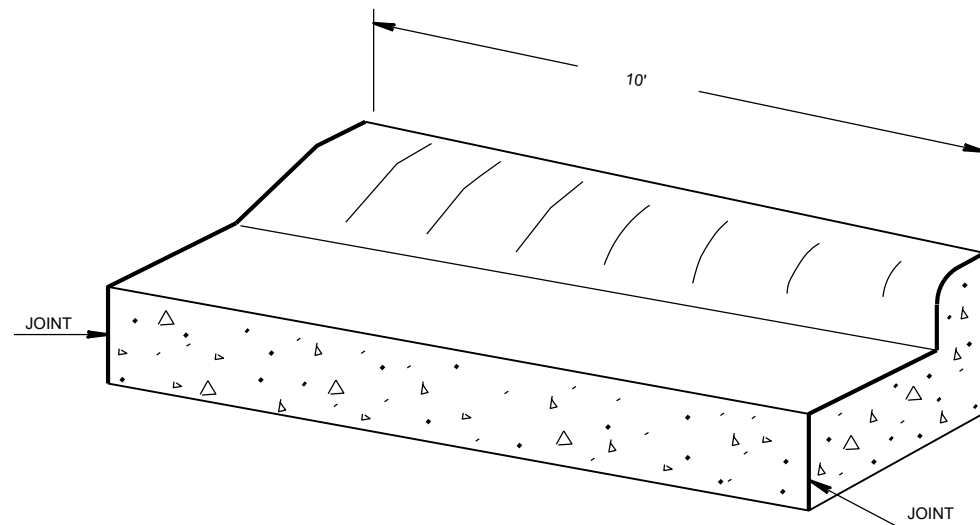
**FINISHED TYPICAL SECTION FOR CTH EE**

STA 107+55.4EB - STA 108+75EB





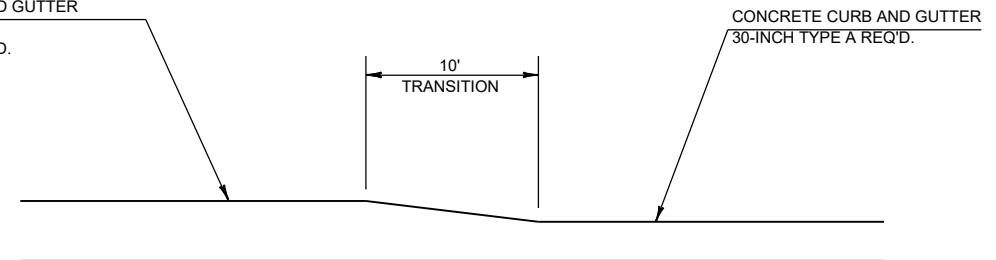




CONCRETE CURB AND GUTTER TRANSITION DETAIL

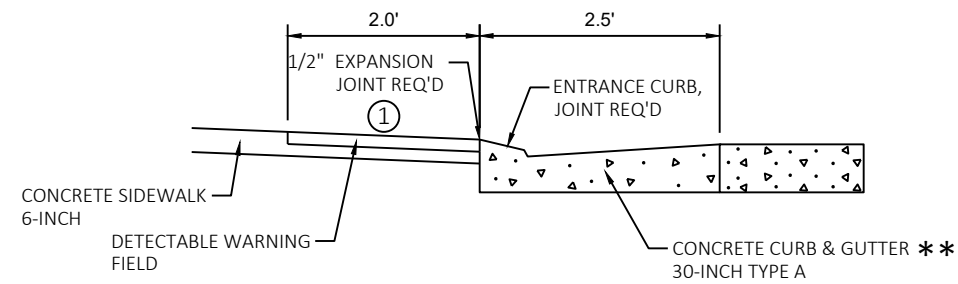
CONCRETE CURB AND GUTTER 6-INCH SLOPED 36-INCH TYPE A TO CONCRETE
CURB AND GUTTER 30-INCH TYPE A
(TO BE MEASURED AND PAID FOR AS CONCRETE CURB AND GUTTER 6-INCH SLOPED 36-INCH TYPE A)

CONCRETE CURB AND GUTTER
6-INCH SLOPED
36-INCH TYPE A REQ'D.

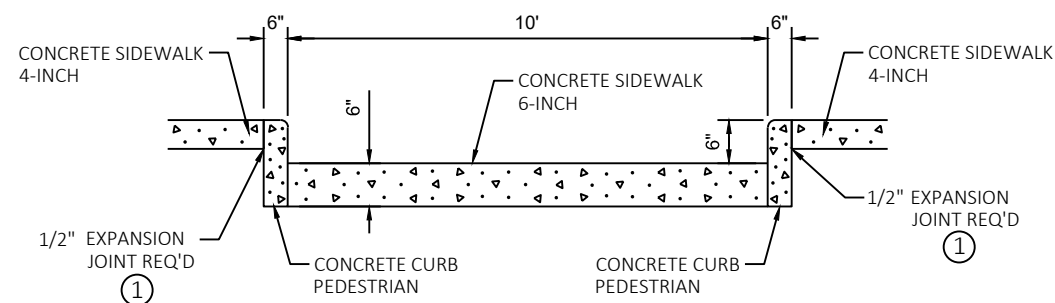


CONCRETE CURB AND GUTTER TRANSITION DETAIL

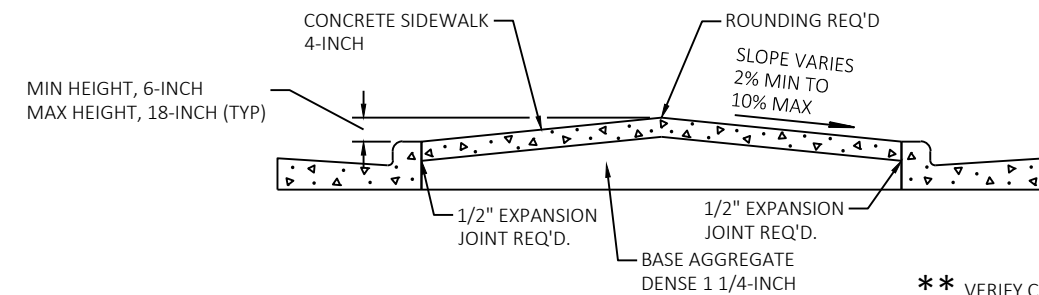
SEE PLAN DETAIL SHEETS FOR LOCATION



SECTION A-A



SECTION B-B

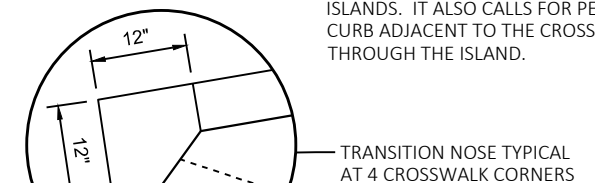


SECTION C-C

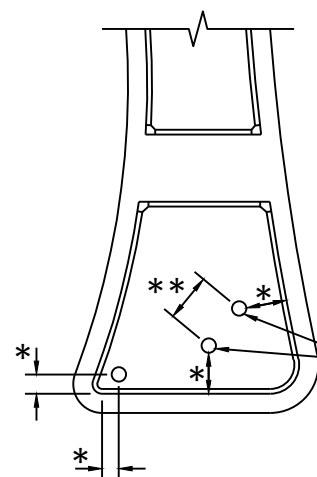
** VERIFY CURB AND GUTTER TYPE AND UPDATE AS NEEDED

THIS UPDATED DETAIL PROVIDES ADDITIONAL INFORMATION FOR THE SIGNING BOXOUTS AND CURB NOSES AT THE CROSSWALKS THROUGH THE ISLANDS. IT ALSO CALLS FOR PEDESTRIAN CURB ADJACENT TO THE CROSSWALK THROUGH THE ISLAND.

① EXPANSION MATERIAL TO BE 1" LONGER THAN ABUTTING MEDIAN CONCRETE THICKNESS. (i.e. 5" IN HEIGHT WHEN ADJACENT TO CONCRETE SIDEWALK 4-INCH)



TRANSITION NOSE TYPICAL AT 4 CROSSWALK CORNERS



ISLAND SIGN LOCATION DETAIL (TYP)

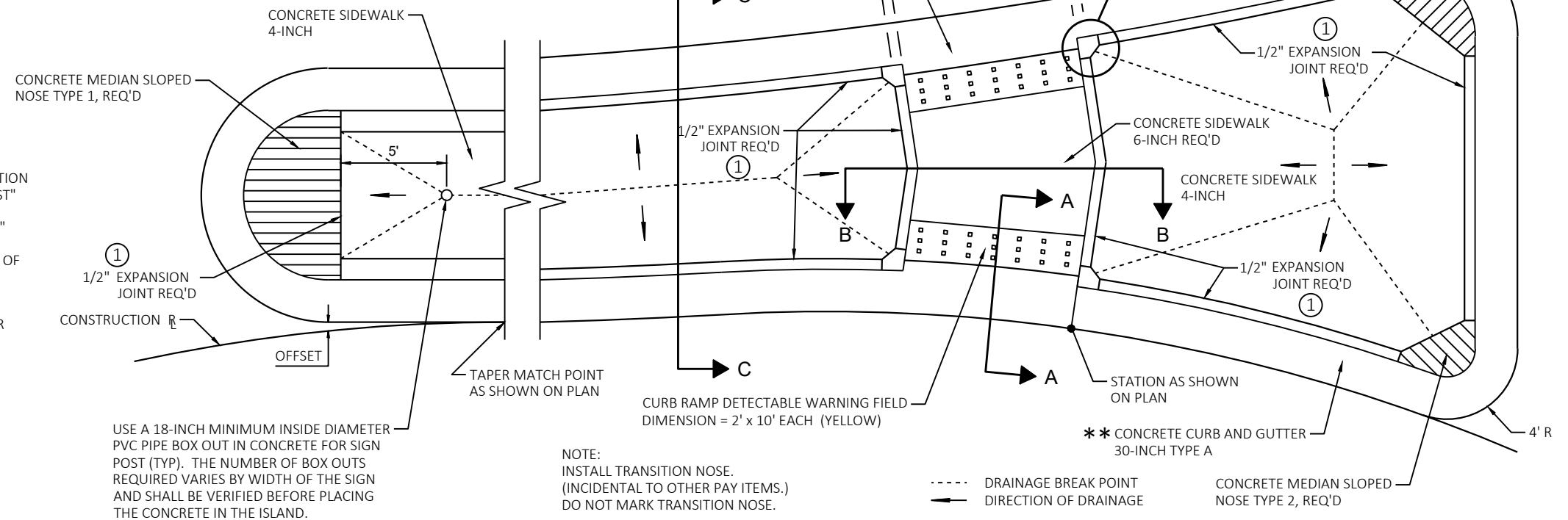
* DISTANCE TO LAID OUT IN THE FIELD BASED ON SIGN SIZE. TWO FOOT MINIMUM CLEARANCE BETWEEN THE EDGE OF SIGN AND THE FACE OF CURB.

SEE A4-3 SIGN PLATE FOR "TYPICAL INSTALLATION OF PERMANENT TYPE II SIGNS ON SINGLE POST"

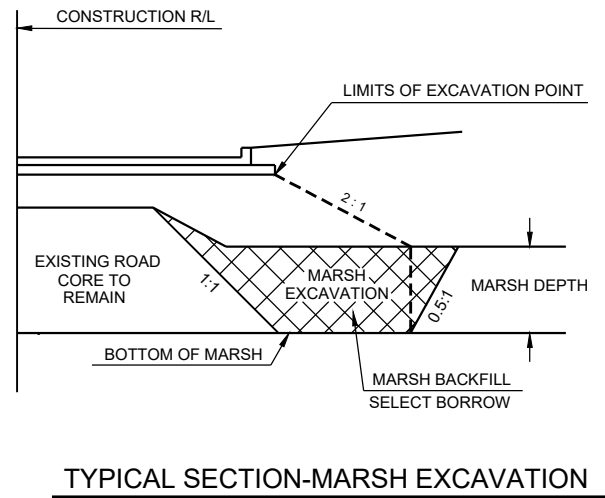
SEE A4-3B SIGN PLATE "SIGN POST BOX-OUTS"

** SEE A4-4 SIGN PLATE "TYPICAL INSTALLATION OF TYPE II SIGNS ON MULTIPLE SUPPORTS"

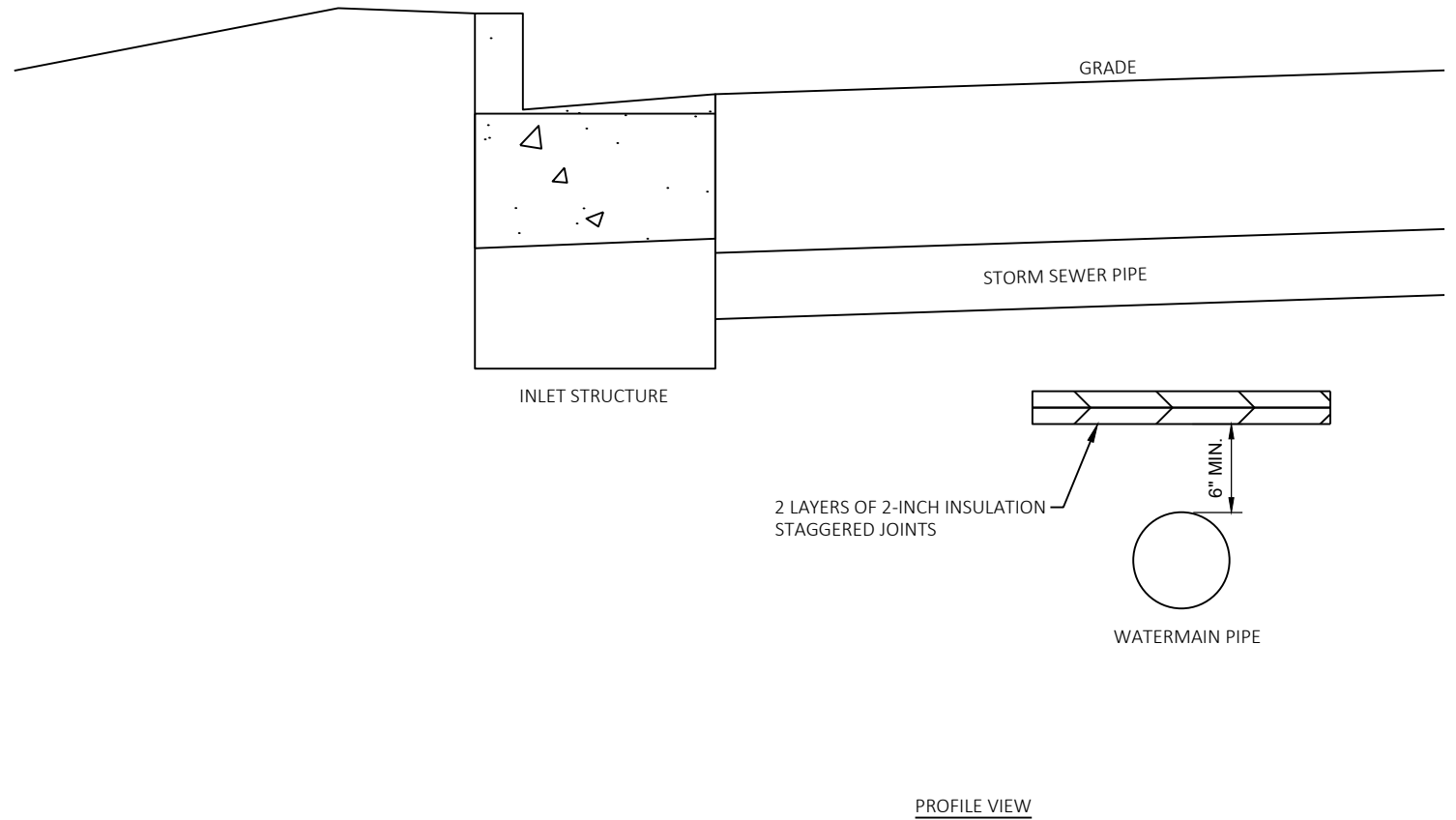
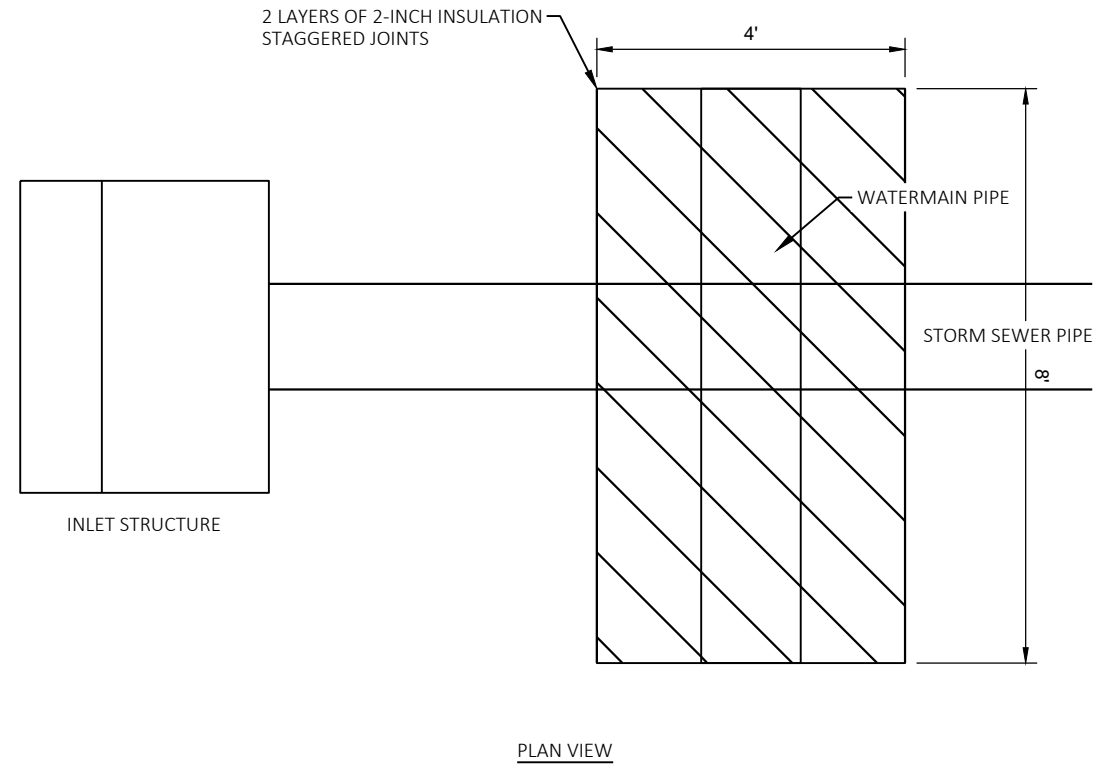
USE A 18-INCH MINIMUM INSIDE DIAMETER PVC PIPE BOX OUT IN CONCRETE FOR SIGN POST (TYP). THE NUMBER OF BOX OUTS REQUIRED VARIES BY WIDTH OF THE SIGN AND SHALL BE VERIFIED BEFORE PLACING THE CONCRETE IN THE ISLAND.



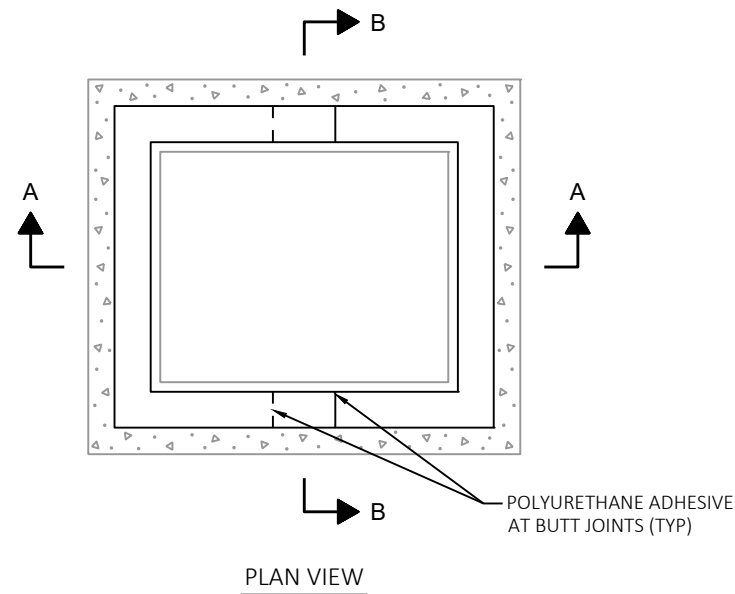
CONCRETE SPLITTER ISLAND DETAIL WITH CROSSWALK



TYPICAL SECTION-MARSH EXCAVATION

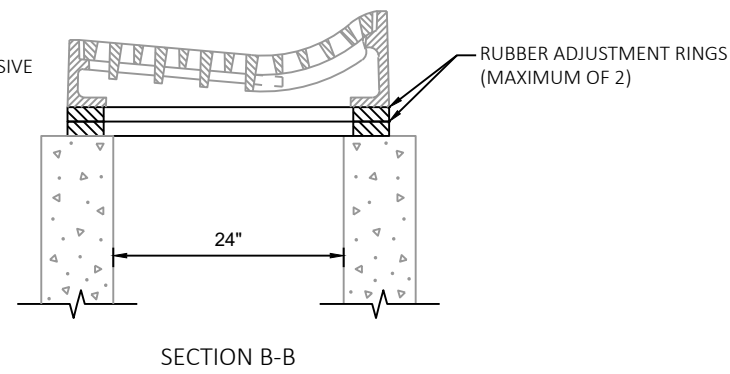
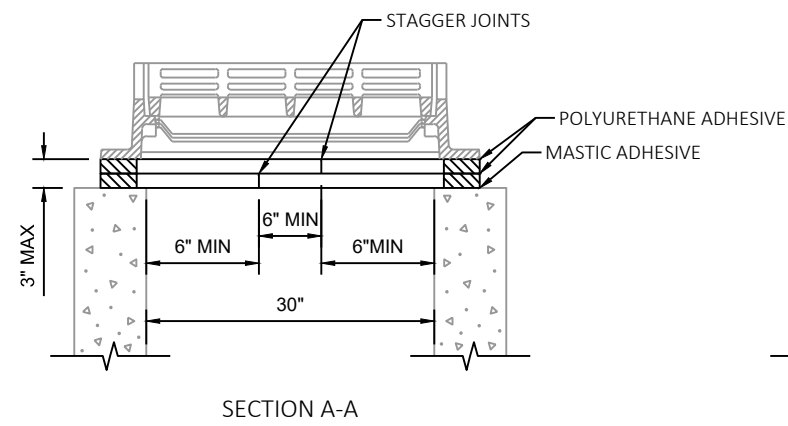


UTILITY TRENCH INSULATION

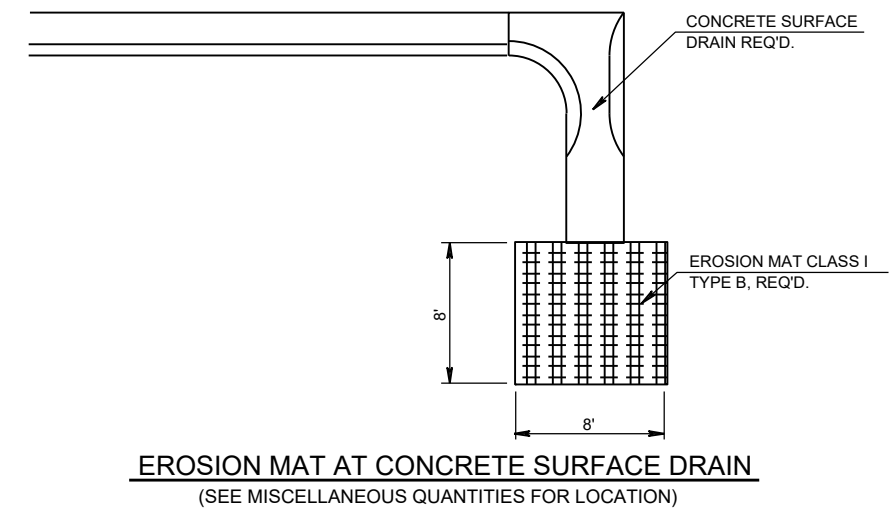
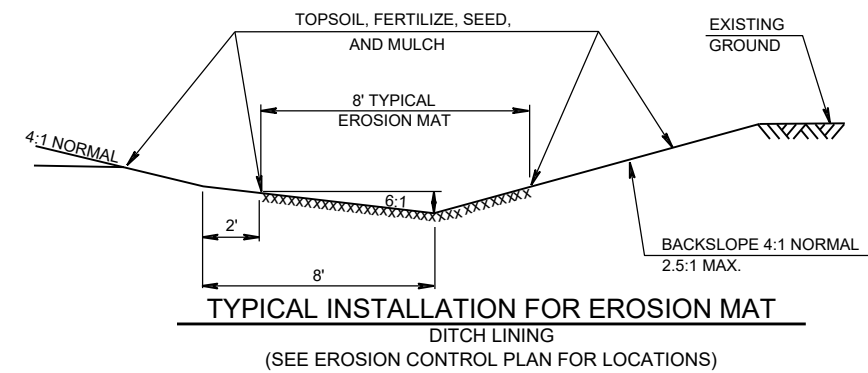


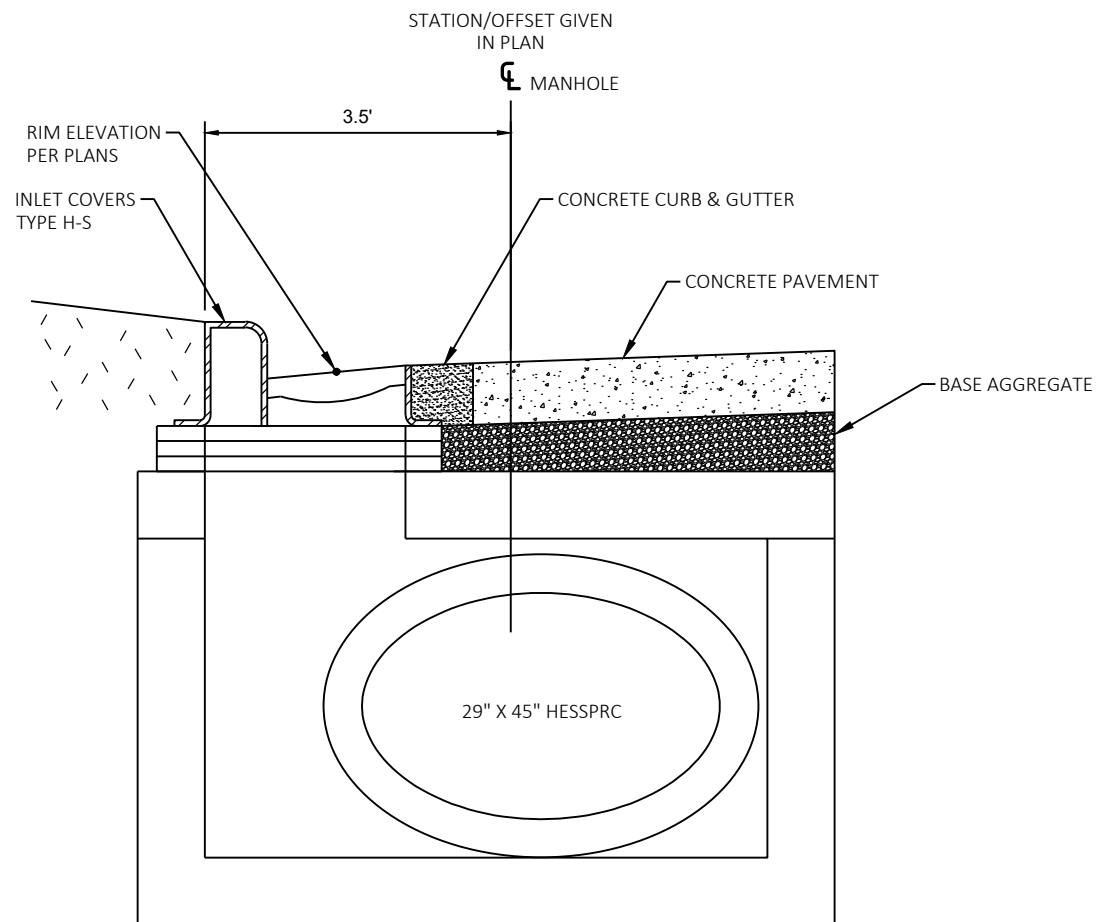
TO BE USED WITH INLETS IN THE CIRCULATING
ROADWAY OF ROUNDABOUTS AND OTHER
LOCATIONS WHERE IT IS LIKELY VEHICLES WILL
RUN OVER THE GRATES. INCLUDE
CORRESPONDING SPV

NOTE:
ALL CUTS MADE TO RUBBER ADJUSTMENT
RINGS WILL BE PERPENDICULAR AND PROVIDE
A TIGHT JOINT.

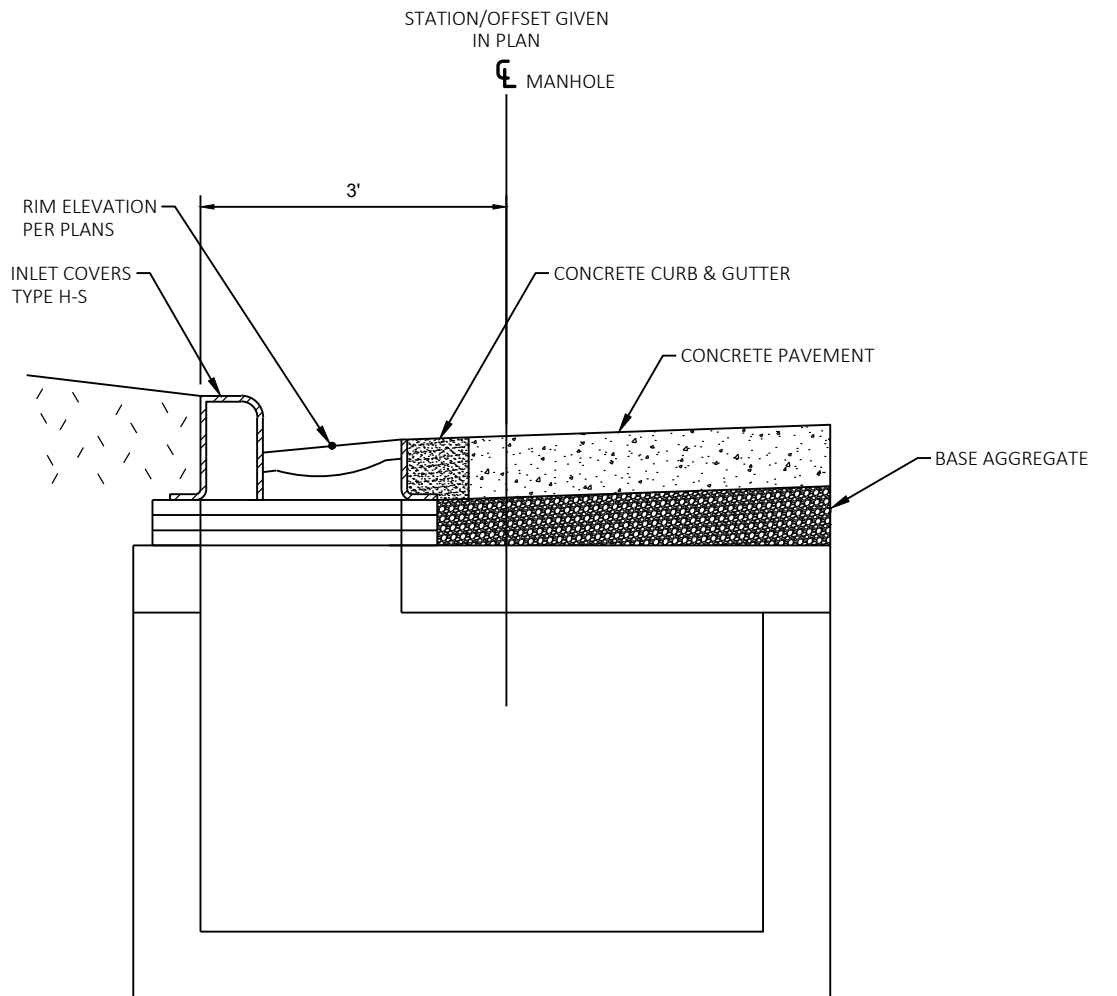


RUBBER RING CUTTING DETAIL FOR INLET TYPE 2, SPECIAL

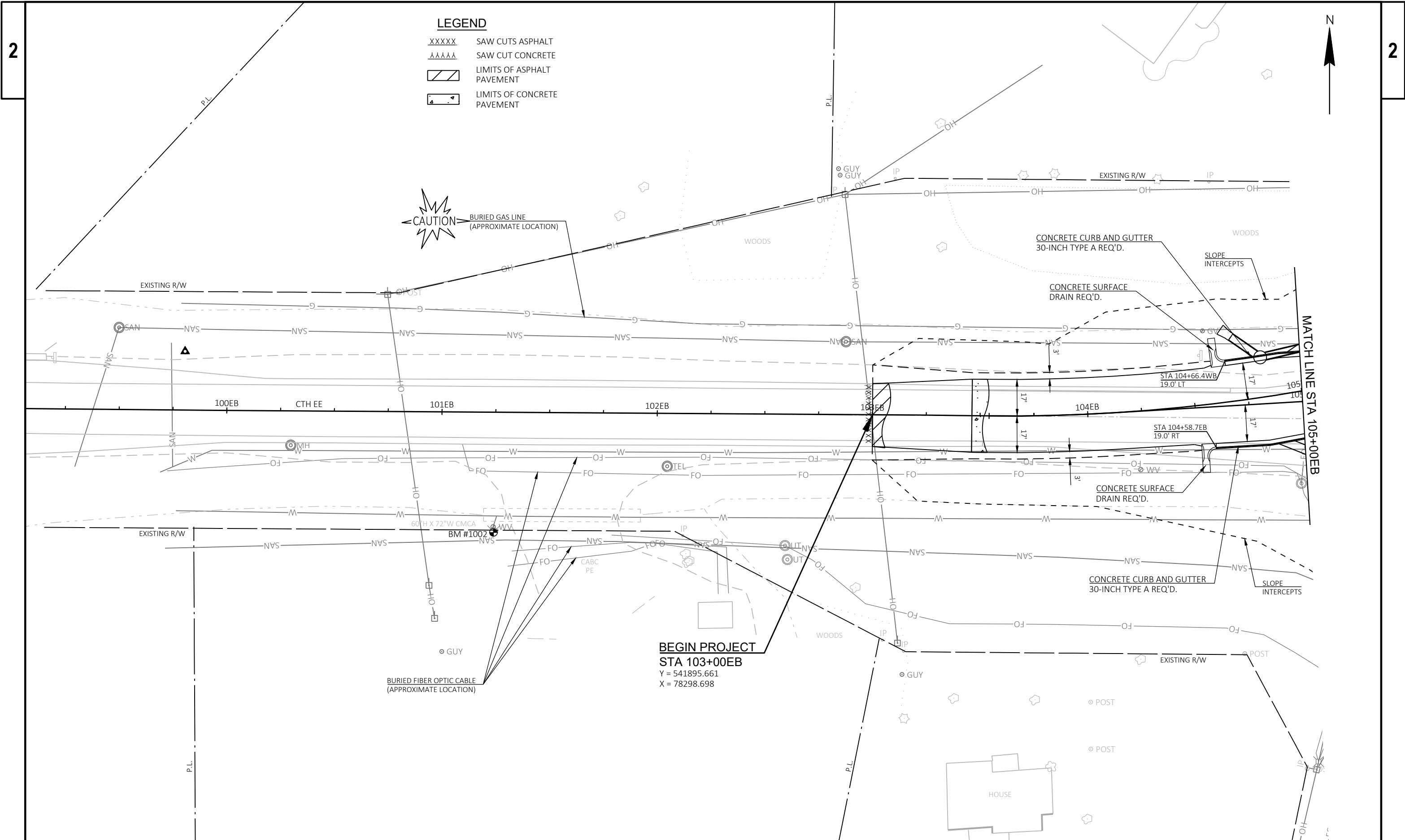




STRUCTURE 12
INLET COVER OFFSET FROM CENTER OF STRUCTURE
MANHOLE 8-FT DIAMETER WITH H-S INLET COVER



STRUCTURE 4C
INLET COVER OFFSET FROM CENTER OF STRUCTURE
MANHOLE 7-FT DIAMETER WITH H-S INLET COVER



LEGEND

- XXXXX SAW CUTS ASPHALT
- AAAAA SAW CUT CONCRETE
- [Hatched Box] LIMITS OF ASPHALT PAVEMENT
- [Box with Dashed Line] LIMITS OF CONCRETE PAVEMENT

CAUTION BURIED GAS LINE (APPROXIMATE LOCATION)

BEGIN PROJECT
STA 103+00EB
Y = 541895.661
X = 78298.698

PROJECT NO: 9277-01-71

HWY: CTH EE

COUNTY: BROWN

PLAN DETAILS

SHEET

17

E

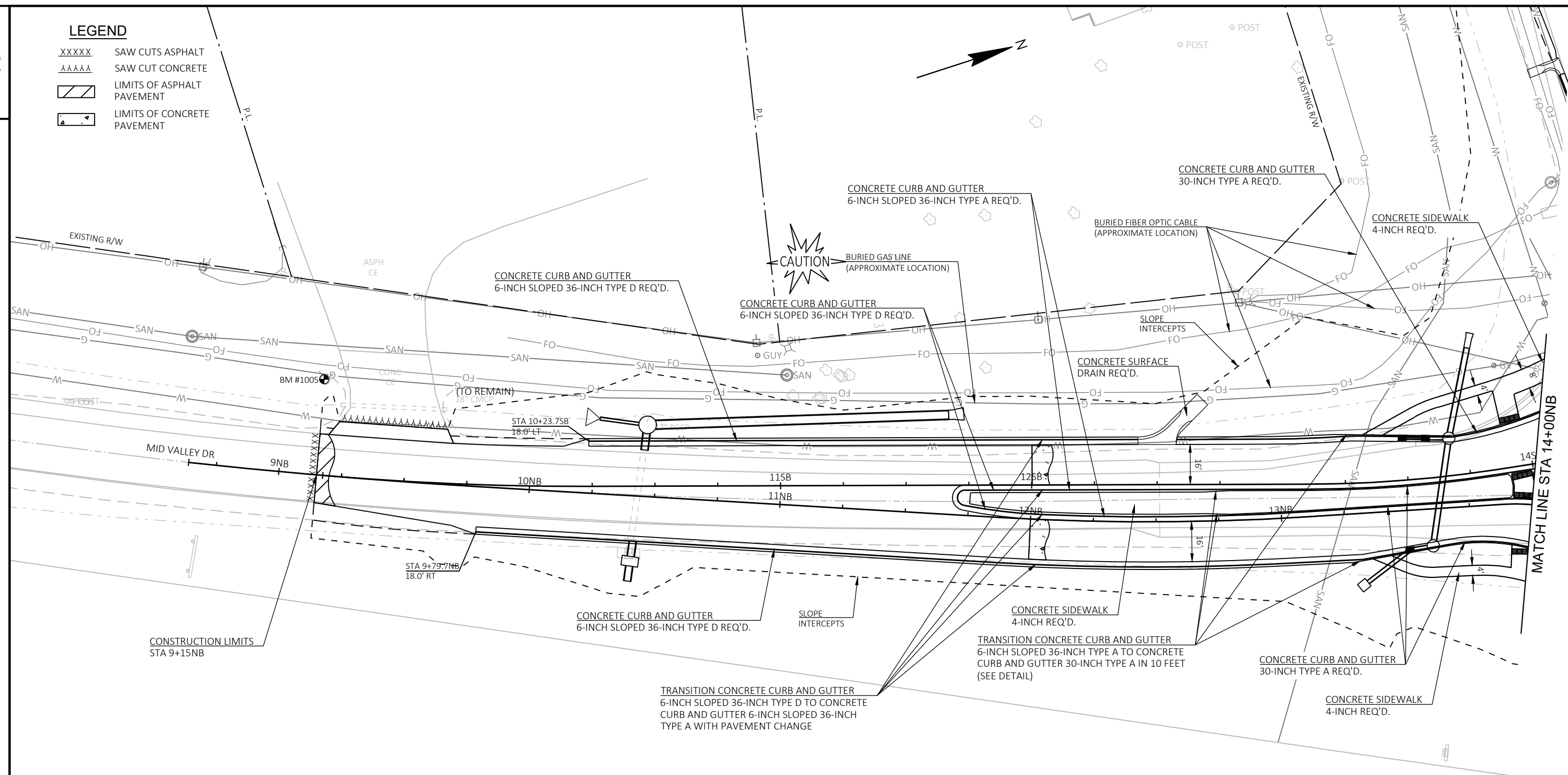
<u>XXXXX</u>	SAW CUTS ASPHALT
<u>AAAAA</u>	SAW CUT CONCRETE
	LIMITS OF ASPHALT PAVEMENT
	LIMITS OF CONCRETE PAVEMENT

2

2

LEGEND

	SAW CUTS ASPHALT
	SAW CUT CONCRETE
	LIMITS OF ASPHALT PAVEMENT
	LIMITS OF CONCRETE PAVEMENT



PROJECT NO:	9277-01-71
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HWY: CTH EE

COUNTY: BROWN

PLAN DETAILS

SHEET

19

E

FILE NAME : I:\45\450630 BROWN CTH EE\C3D\SHEETSPLAN\021201-PD.DWG
LAYOUT NAME - 021203-pd

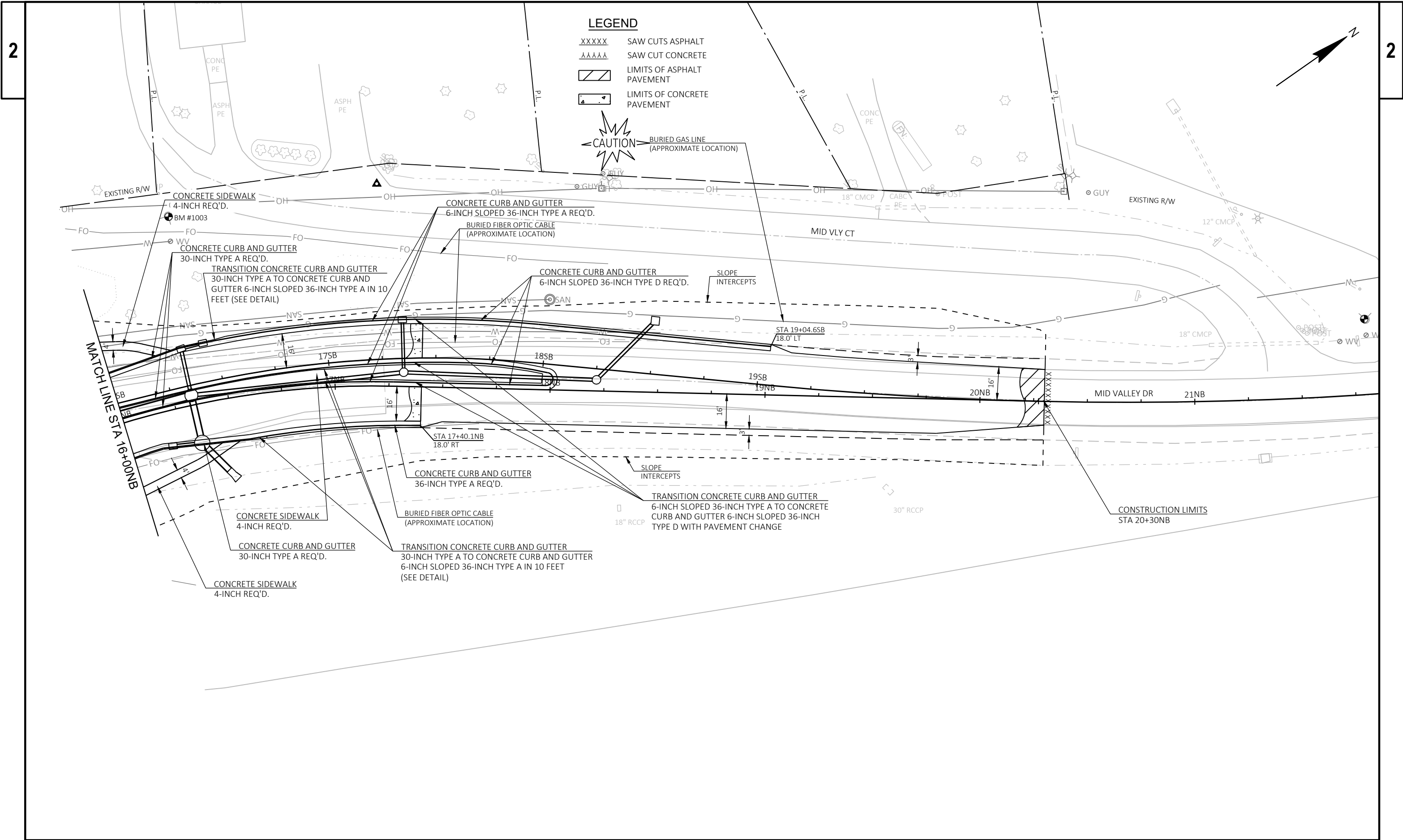
PLOT DATE : 10/29/2024 12:56 PM

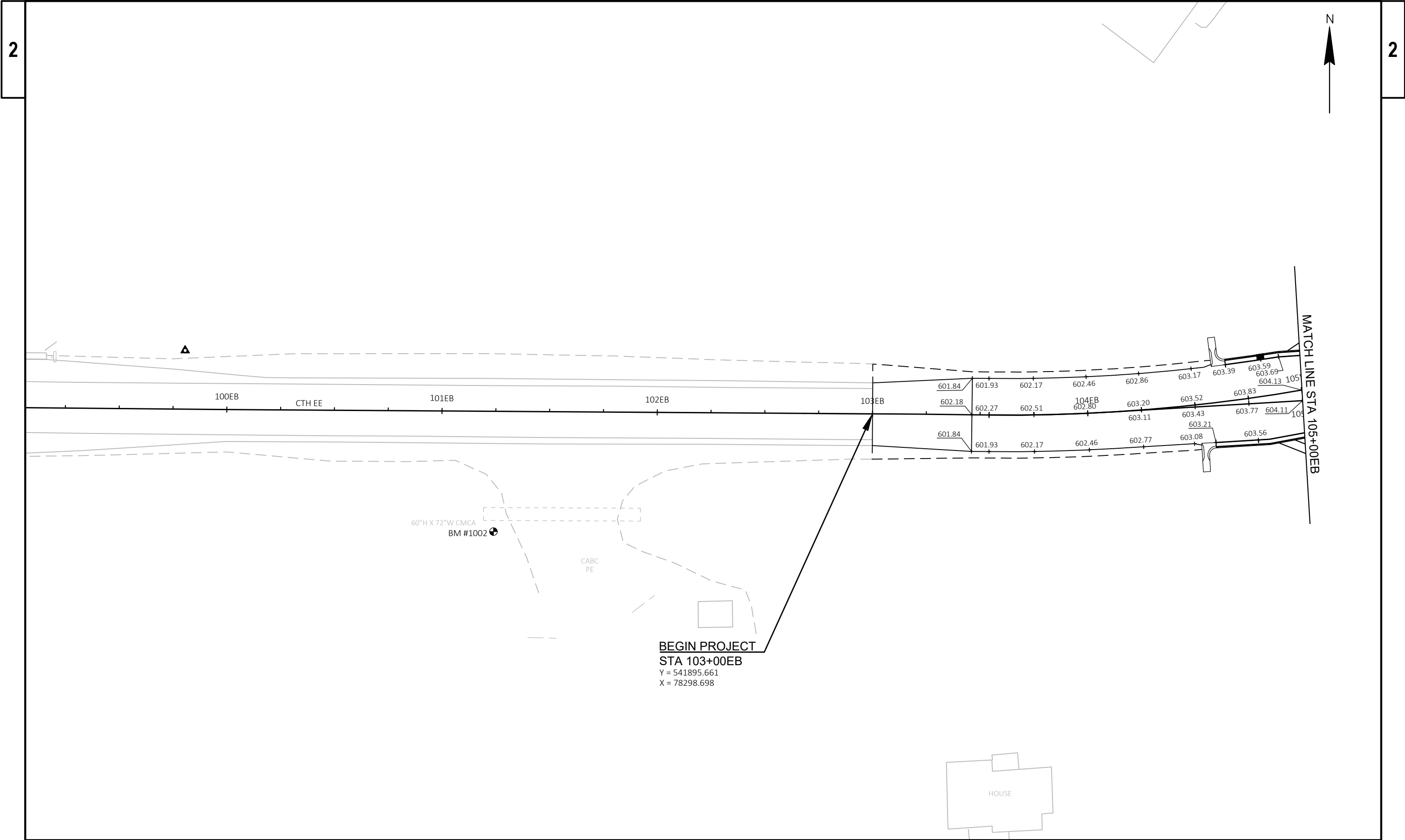
PLOT BY : GARNICA, BRANDON

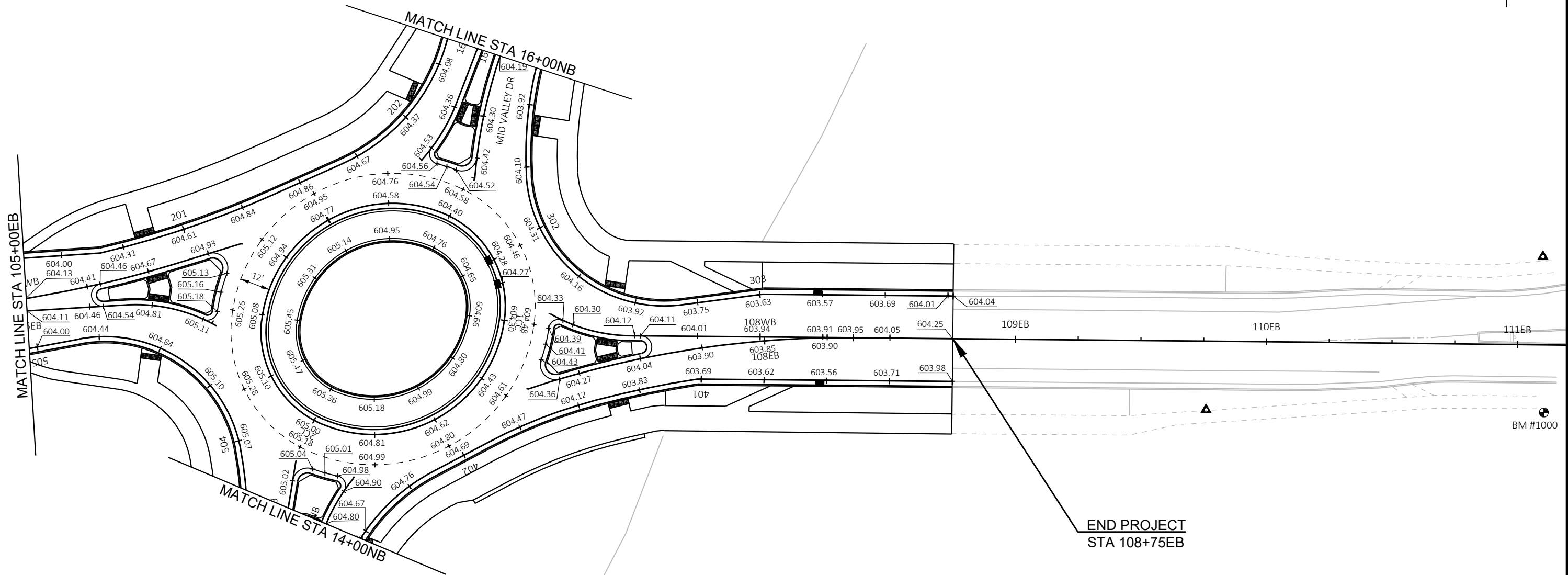
PLOT NAME :

PLOT SCALE : 1 IN:40 FT

WISDOT/CADDS SHEET 42

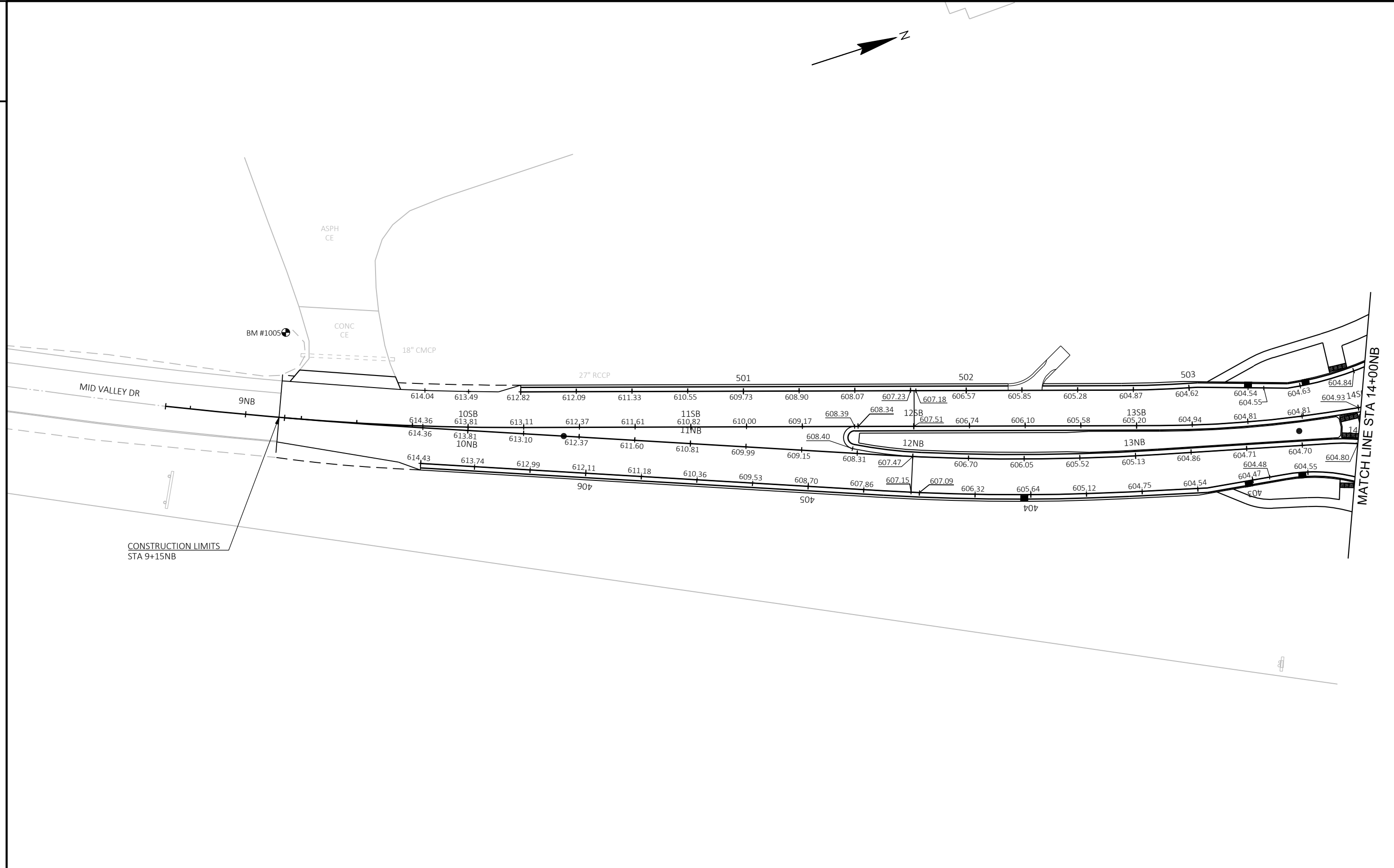






2

2



PROJECT NO:	9277-01-71
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HWY: CTH EE

COUNTY: BROWN

PLAN GRADES	
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SHEET	23	E
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FILE NAME : I:\45\450630 BROWN CTH EE\C3D\SHEETSP\021205-GR.DWG
LAYOUT NAME - 021207-gr

PLOT DATE : 10/29/2024 12:56 PM

PLOT BY : GARNICA, BRANDON

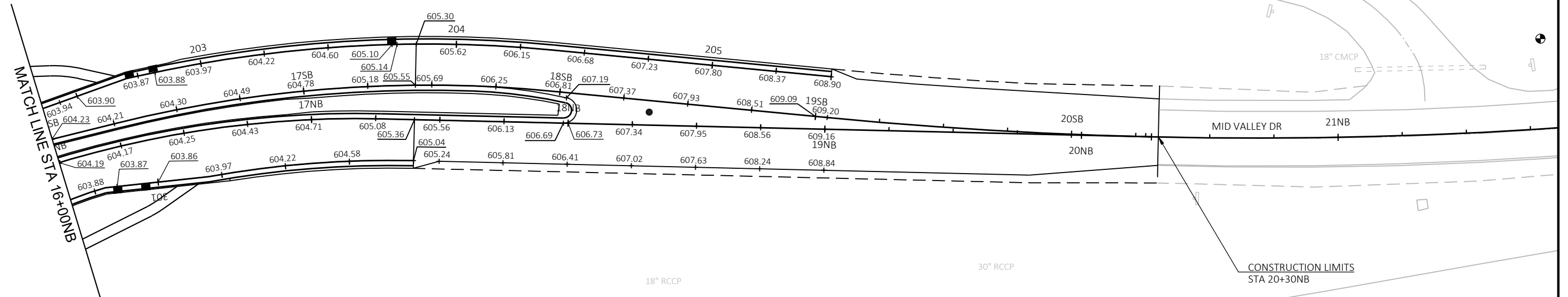
PLOT NAME :
PLOT SCALE :

PLOT SCALE : 1 IN:40 FT

WISDOT/CADDS SHEET 42

2

2 |



PROJECT NO:	9277-01-71
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HWY: CTH EE

COUNTY: BROWN

PLAN GRADES

SHEET

24

11

FILE NAME : I:\45\450630 BROWN CTH EE\C3D\SHEETSPLAN\021205-GR.DWG
LAYOUT NAME - 021208-gr

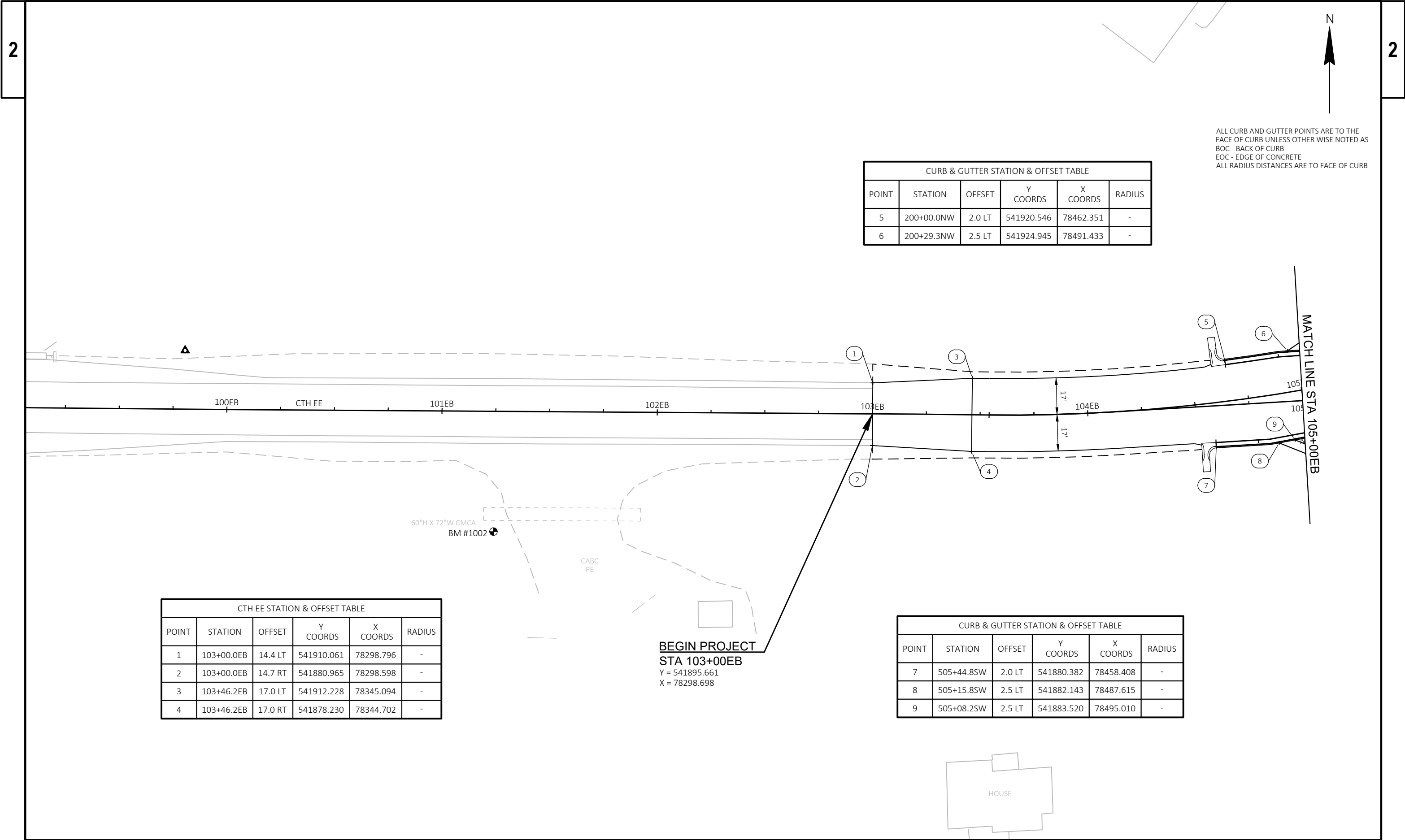
PLOT DATE : 10/29/2024 12:56 PM

PLOT BY : GARNICA, BRANDON

PLOT NAME :

PLOT SCALE : 1 IN:40 FT

WISDOT/CADDS SHEET 42



ALL CURB AND GUTTER POINTS ARE TO THE
FACE OF CURB UNLESS OTHER WISE NOTED AS
BOC - BACK OF CURB
EOC - EDGE OF CONCRETE
ALL RADIUS DISTANCES ARE TO FACE OF CURB

CURB & GUTTER STATION & OFFSET TABLE					
POINT	STATION	OFFSET	Y COORDS	X COORDS	RADIUS
5	200+00.0NW	2.0 LT	541920.546	78462.351	-
6	200+29.3NW	2.5 LT	541924.945	78491.433	-

CTH EE STATION & OFFSET TABLE					
POINT	STATION	OFFSET	Y COORDS	X COORDS	RADIUS
1	103+00.0EB	14.4 LT	541910.061	78298.796	-
2	103+00.0EB	14.7 RT	541880.965	78298.598	-
3	103+46.2EB	17.0 LT	541912.228	78345.094	-
4	103+46.2EB	17.0 RT	541878.230	78344.702	-

CURB & GUTTER STATION & OFFSET TABLE					
POINT	STATION	OFFSET	Y COORDS	X COORDS	RADIUS
7	505+44.8SW	2.0 LT	541880.382	78458.408	-
8	505+15.8SW	2.5 LT	541882.143	78487.615	-
9	505+08.2SW	2.5 LT	541883.520	78495.010	-

BEGIN PROJECT
STA 103+00EB
Y = 541895.661
X = 78298.698

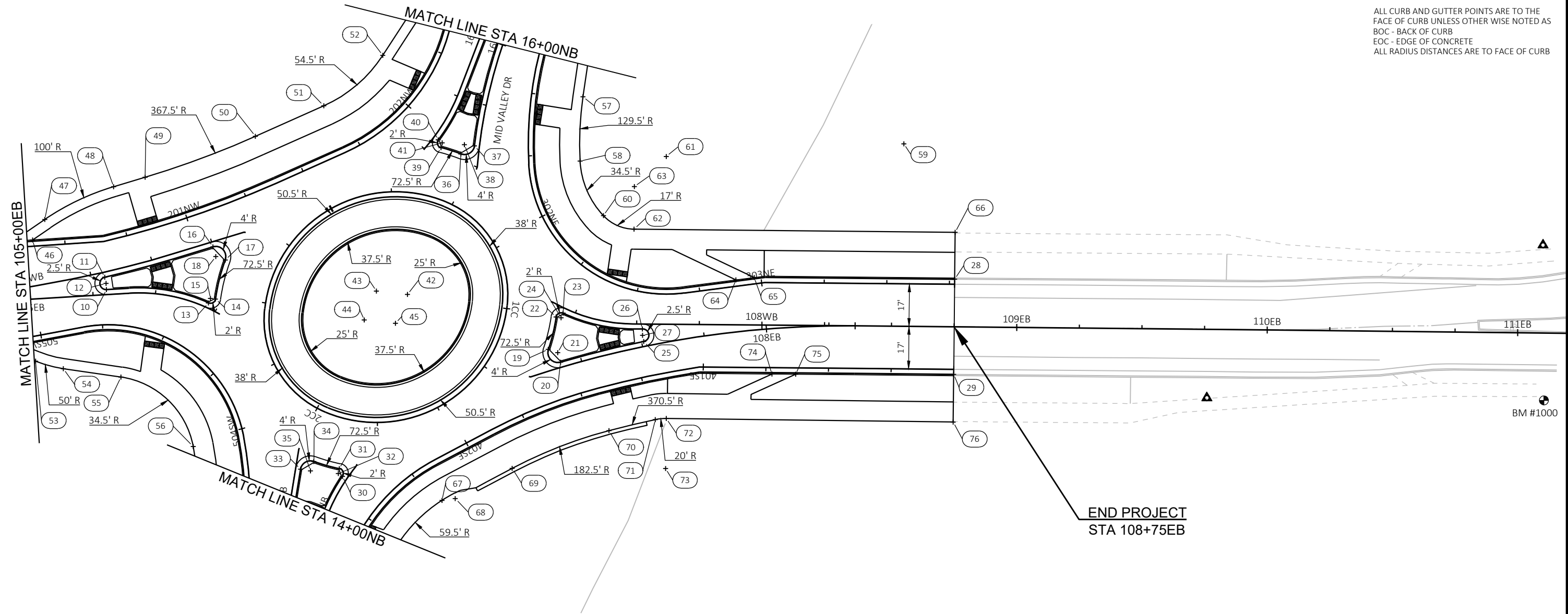
60"H X 72"W CMCA
BM #1002

CABC
PE

HOUSE



ALL CURB AND GUTTER POINTS ARE TO THE
FACE OF CURB UNLESS OTHER WISE NOTED AS
BOC - BACK OF CURB
EOC - EDGE OF CONCRETE
ALL RADIUS DISTANCES ARE TO FACE OF CURB



CTH EE STATION & OFFSET TABLE					
POINT	STATION	OFFSET	Y COORDS	X COORDS	RADIUS
10	105+30.5EB	2.0 LT	541905.634	78528.835	-
12	105+30.5EB	4.5 LT	541908.129	78528.686	2.5'
13	105+71.1EB	2.0 LT	541900.313	78569.545	-
14	105+72.9EB	4.6 LT	541901.867	78572.353	-
15	105+71.1EB	4.0 LT	541902.135	78570.371	2.0'
19	107+13.6EB	8.3 LT	541881.749	78705.237	-
20	107+16.8EB	2.0 LT	541876.627	78710.160	-
21	107+16.8EB	6.0 LT	541880.462	78709.024	4.0'
25	107+50.9EB	2.0 LT	541884.939	78743.368	-
27	107+50.9EB	4.5 LT	541887.390	78742.862	2.5'
28	108+75.0EB	19.0 LT	541909.762	78867.468	-
29	108+75.0EB	19.0 RT	541871.764	78867.093	-

CURB & GUTTER STATION & OFFSET TABLE					
POINT	STATION	OFFSET	Y COORDS	X COORDS	RADIUS
46	200+37.2NW	2.5 LT	541925.470	78499.321	-
47	200+42.6NW	10.3 LT	541933.641	78504.227	-
48	200+74.8NW	20.3 LT	541946.712	78531.680	-
49	200+88.7NW	20.5 LT	541950.490	78544.260	-
50	201+38.3NW	20.5 LT	541966.855	78588.306	-
51	201+68.2NW	20.5 LT	541979.042	78615.619	-
52	202+11.4NW	20.5 LT	541999.164	78639.140	-

CTH EE STATION & OFFSET TABLE					
POINT	STATION	OFFSET	Y COORDS	X COORDS	RADIUS
11	105+30.2WB	2.0 RT	541910.567	78528.129	-
16	105+75.0WB	2.0 RT	541922.681	78571.345	-
17	105+78.1WB	8.4 RT	541917.459	78576.261	-
18	105+75.0WB	6.0 RT	541918.855	78572.512	4.0'
22	107+18.8WB	4.6 RT	541894.684	78708.344	-
23	107+20.6WB	2.0 RT	541896.210	78711.169	-
24	107+20.6WB	4.0 RT	541894.398	78710.323	2.0'
26	107+52.3WB	2.0 RT	541889.891	78742.793	-

CURB & GUTTER STATION & OFFSET TABLE					
POINT	STATION	OFFSET	Y COORDS	X COORDS	RADIUS
53	505+04.0SW	9.9 LT	541877.034	78500.535	-
54	504+93.6SW	14.8 LT	541874.063	78511.646	-
55	504+64.7SW	20.5 LT	541870.688	78534.597	-
56	503+96.7SW	20.5 LT	541842.994	78563.471	-

ROUNDBABOUT STATION & OFFSET TABLE					
POINT	STATION	OFFSET	Y COORDS	X COORDS	RADIUS
42	0+47.4CC	40.0 RT	541903.681	78649.014	25.0',38.0
43	2+96.4CC	37.5 RT	541905.075	78636.592	37.5',50.5
44	2+47.7CC	40.0 RT	541893.540	78631.776	25.0',38.0
45	1+47.5CC	37.5 RT	541892.146	78644.198	37.5',50.5

MID VALLEY DIRVE STATION & OFFSET TABLE					
POINT	STATION	OFFSET	Y COORDS	X COORDS	RADIUS
30	14+14.7NB	2.0 LT	541831.021	78623.051	-
31	14+16.4NB	4.8 LT	541834.099	78621.802	-
32	14+14.7NB	4.0 LT	541832.142	78621.394	2.0'
36	15+54.5NB	7.0 LT	541959.775	78670.324	-
37	15+58.3NB	2.0 LT	541963.022	78675.736	-
38	15+58.3NB	6.0 LT	541963.507	78671.766	3.5'

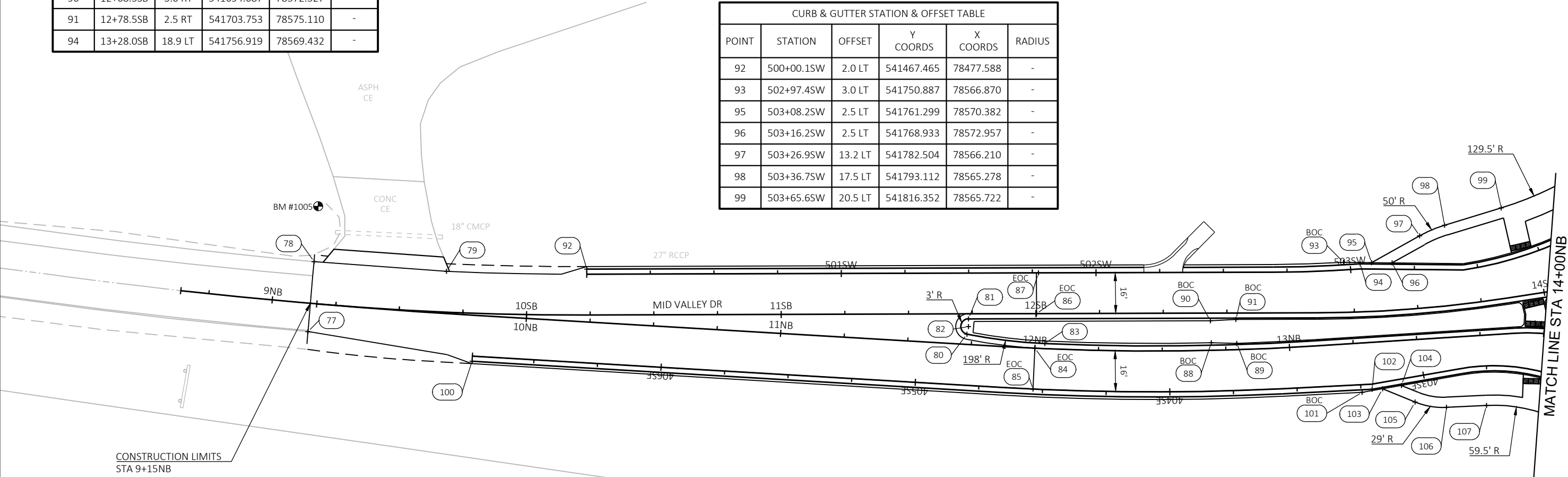
CURB & GUTTER STATION & OFFSET TABLE					
POINT	STATION	OFFSET	Y COORDS	X COORDS	RADIUS
57	301+48.4NE	20.5 LT	541982.640	78719.107	-
58	301+78.2NE	20.5 LT	541956.968	78717.925	-
59	303+56.3NE	55.9 LT	541963.877	78847.240	129.5',148'
60	302+16.8NE	20.5 LT	541935.148	78727.267	-
61	302+68.8NE	55.0 LT	541958.808	78752.376	34.5',53.0'
62	302+38.6NE	23.3 LT	541929.808	78739.470	-
63	302+16.8NE	37.5 LT	541946.807	78739.639	17.0'
64	302+90.0NE	2.5 LT	541909.493	78780.172	-
65	302+97.3NE	2.5 LT	541910.446	78787.466	-
66	301+15.8NE	182.7 LT	541928.528	78867.653	-

MID VALLEY DIRVE STATION & OFFSET TABLE					
POINT	STATION	OFFSET	Y COORDS	X COORDS	RADIUS
33	14+12.2SB	2.0 RT	541833.887	78606.323	-
34	14+16.1SB	6.8 RT	541837.001	78611.647	-
35	14+12.2SB	6.0 RT	541833.245	78610.271	4.0'
39	15+54.5SB	4.8 RT	541962.326	78662.394	-
40	15+56.2SB	2.0 RT	541965.461	78661.295	-
41	15+56.2SB	4.0 RT	541964.262	78662.896	2.0'

CURB & GUTTER STATION & OFFSET TABLE					
POINT	STATION	OFFSET	Y COORDS	X COORDS	RADIUS
67	402+20.6SE	15.5 LT	541821.424	78662.836	-
68	402+14.3SE	17.5 LT	541822.182	78668.092	-
69	401+88.6SE	17.5 LT	541834.215	78690.830	-
70	401+43.1SE	17.6 LT	541849.340	78729.512	-
71	401+23.1SE	17.5 LT	541853.723	78747.974	-
72	401+18.5SE	18.0 LT	541854.151	78752.333	-
73	401+23.1SE	37.5 LT	541834.152	78752.094	20.0'
74	400+72.6SE	2.5 LT	541871.940	78794.529	-
75	400+63.1SE	2.5 LT	541871.858	78803.994	-
76	400+00.0SE	21.1 LT	541852.714	78866.904	-

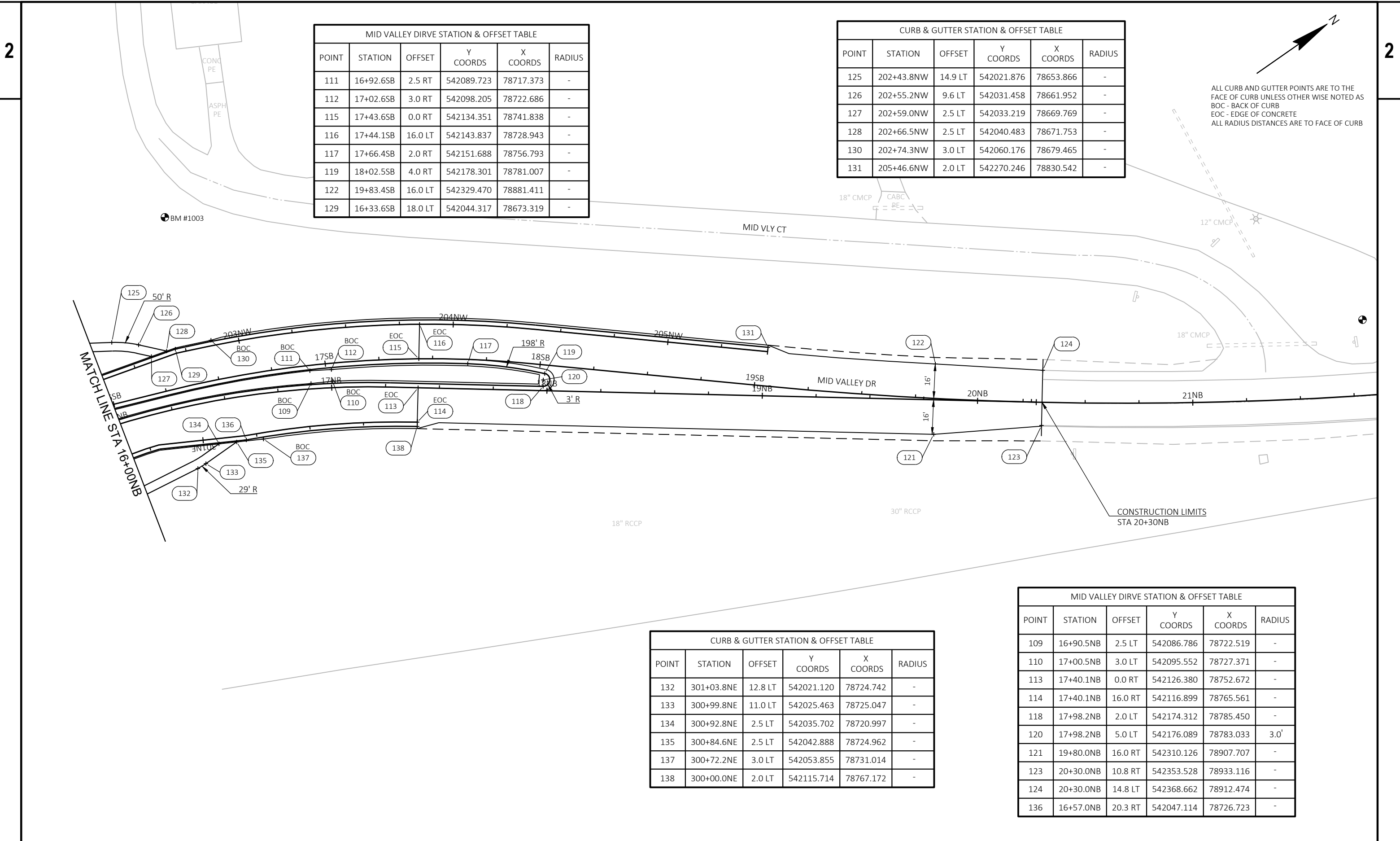
MID VALLEY DIRVE STATION & OFFSET TABLE					
POINT	STATION	OFFSET	Y COORDS	X COORDS	RADIUS
79	9+67.8SB	16.0 LT	541414.832	78461.417	-
81	11+73.5SB	2.0 RT	541603.974	78542.497	-
86	12+00.2SB	0.0 RT	541630.024	78548.773	-
87	12+01.0SB	16.0 LT	541635.682	78533.786	-
90	12+68.5SB	3.0 RT	541694.087	78572.527	-
91	12+78.5SB	2.5 RT	541703.753	78575.110	-
94	13+28.0SB	18.9 LT	541756.919	78569.432	-

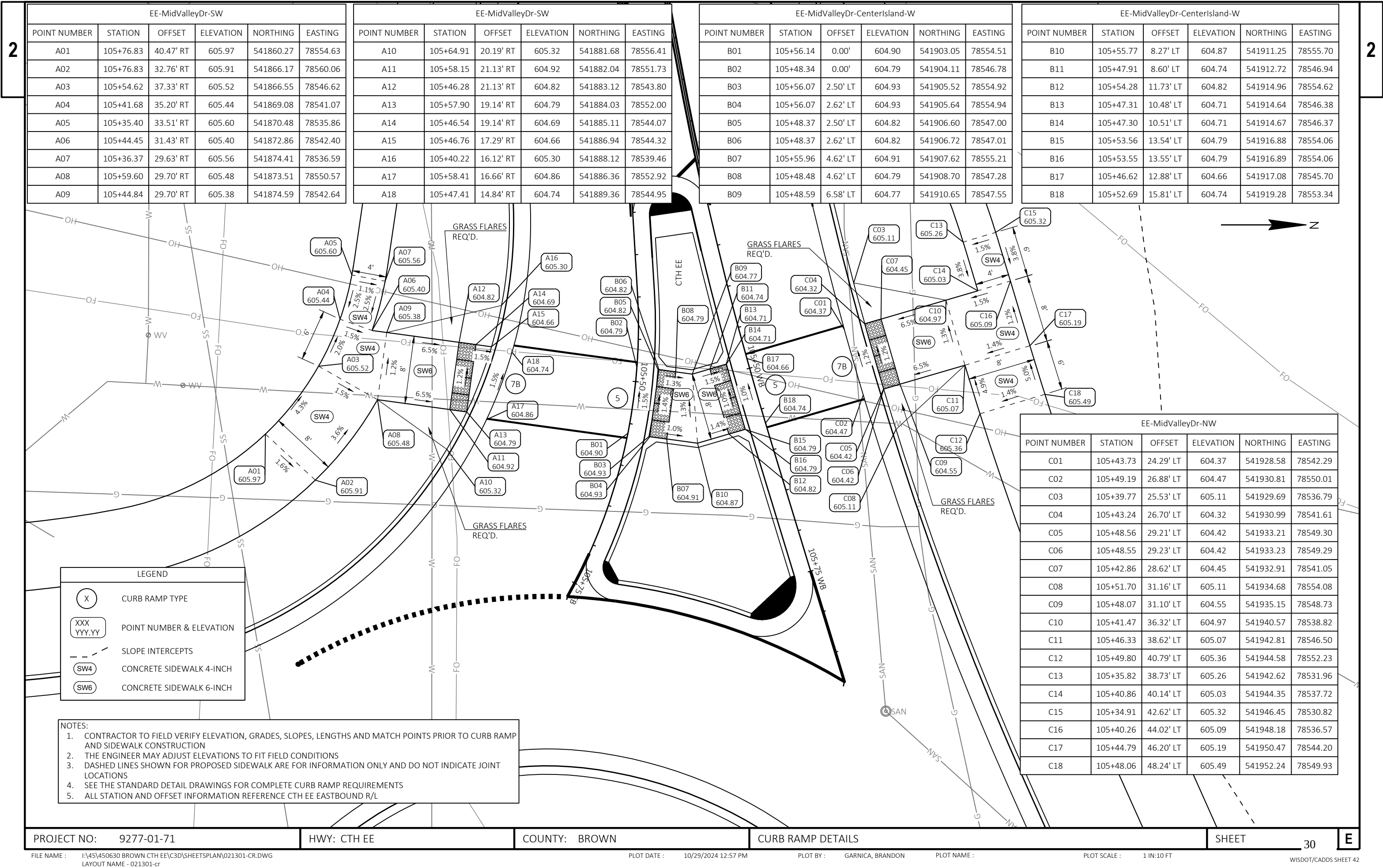
CURB & GUTTER STATION & OFFSET TABLE					
POINT	STATION	OFFSET	Y COORDS	X COORDS	RADIUS
92	500+00.1SW	2.0 LT	541467.465	78477.588	-
93	502+97.4SW	3.0 LT	541750.887	78566.870	-
95	503+08.2SW	2.5 LT	541761.299	78570.382	-
96	503+16.2SW	2.5 LT	541768.933	78572.957	-
97	503+26.9SW	13.2 LT	541782.504	78566.210	-
98	503+36.7SW	17.5 LT	541793.112	78565.278	-
99	503+65.6SW	20.5 LT	541816.352	78565.722	-



MID VALLEY DIRVE STATION & OFFSET TABLE					
POINT	STATION	OFFSET	Y COORDS	X COORDS	RADIUS
77	9+15.0NB	11.2 RT	541355.789	78467.108	-
78	9+15.0NB	16.4 LT	541366.562	78441.676	-
80	11+73.1NB	4.0 LT	541601.584	78547.967	-
82	11+73.5NB	7.0 LT	541603.055	78545.353	3.0'
83	12+03.8NB	2.0 LT	541629.494	78560.936	-
84	12+00.0NB	0.0 RT	541625.219	78561.499	-
85	12+00.0NB	16.0 RT	541619.568	78576.467	-
88	12+69.3NB	3.0 LT	541691.745	78580.818	-
89	12+79.4NB	2.5 LT	541701.217	78584.131	-
102	13+31.3NB	18.4 RT	541746.160	78617.703	-

CURB & GUTTER STATION & OFFSET TABLE					
POINT	STATION	OFFSET	Y COORDS	X COORDS	RADIUS
100	406+74.2SE	2.0 LT	541413.517	78498.000	-
101	403+24.6SE	3.0 LT	541742.068	78617.630	-
103	403+16.8SE	2.5 LT	541750.156	78618.772	-
104	403+09.2SE	2.5 LT	541757.604	78619.825	-
105	403+05.1SE	9.8 LT	541760.636	78627.619	-
106	402+93.3SE	14.0 LT	541771.754	78633.448	-
107	402+75.8SE	15.5 LT	541786.929	78637.562	-
108	402+14.3SE	75.0 LT	541771.360	78694.989	59.5'





LEGEND

X

CURB RAMP TYPE

XXX
YYY.YY

POINT NUMBER & ELEVATION

- - -

SLOPE INTERCEPTS

SW4

CONCRETE SIDEWALK 4-INCH

SW6

CONCRETE SIDEWALK 6-INCH

- NOTES:
1.

CONTRACTOR TO FIELD VERIFY ELEVATION, GRADES, SLOPES, LENGTHS AND MATCH POINTS PRIOR TO CURB RAMP AND SIDEWALK CONSTRUCTION
2.

THE ENGINEER MAY ADJUST ELEVATIONS TO FIT FIELD CONDITIONS
3.

DASHED LINES SHOWN FOR PROPOSED SIDEWALK ARE FOR INFORMATION ONLY AND DO NOT INDICATE JOINT LOCATIONS
4.

SEE THE STANDARD DETAIL DRAWINGS FOR COMPLETE CURB RAMP REQUIREMENTS
5.

ALL STATION AND OFFSET INFORMATION REFERENCE CTH EE EASTBOUND R/L

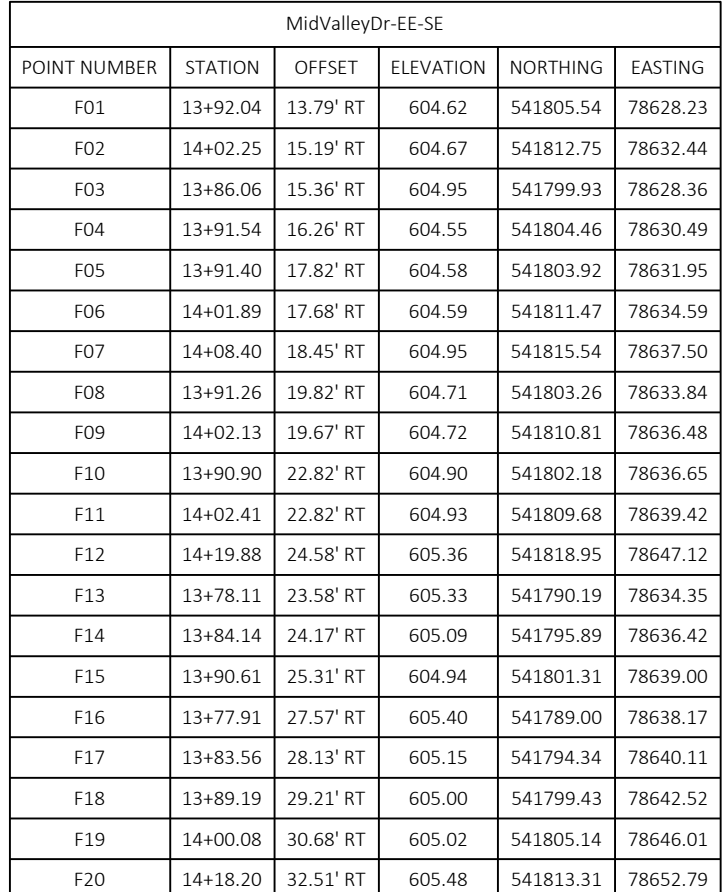
EE-MidValleyDr-SE					
POINT NUMBER	STATION	OFFSET	ELEVATION	NORTHING	EASTING
G01	107+20.25	29.58' RT	604.93	541847.22	78722.14
G02	107+33.20	29.50' RT	604.40	541850.42	78733.71
G03	107+41.61	29.50' RT	604.32	541852.25	78741.28
G04	107+48.09	29.50' RT	604.59	541853.55	78747.14
G05	107+20.02	19.58' RT	604.78	541856.78	78719.18
G06	107+33.20	19.50' RT	604.25	541860.12	78731.27
G07	107+41.61	19.50' RT	604.16	541861.99	78739.04
G08	107+47.92	19.45' RT	604.44	541863.34	78744.89
G09	107+33.24	16.50' RT	604.06	541863.04	78730.56
G10	107+41.58	16.50' RT	603.97	541864.91	78738.34
G11	107+28.07	14.50' RT	604.30	541863.73	78725.25
G12	107+33.26	14.50' RT	603.93	541864.98	78730.09
G13	107+41.56	14.50' RT	603.84	541866.86	78737.87
G14	107+46.75	14.50' RT	604.38	541867.95	78742.75
G15	107+33.27	12.00' RT	603.97	541867.41	78729.49
G16	107+41.56	12.00' RT	603.89	541869.29	78737.31

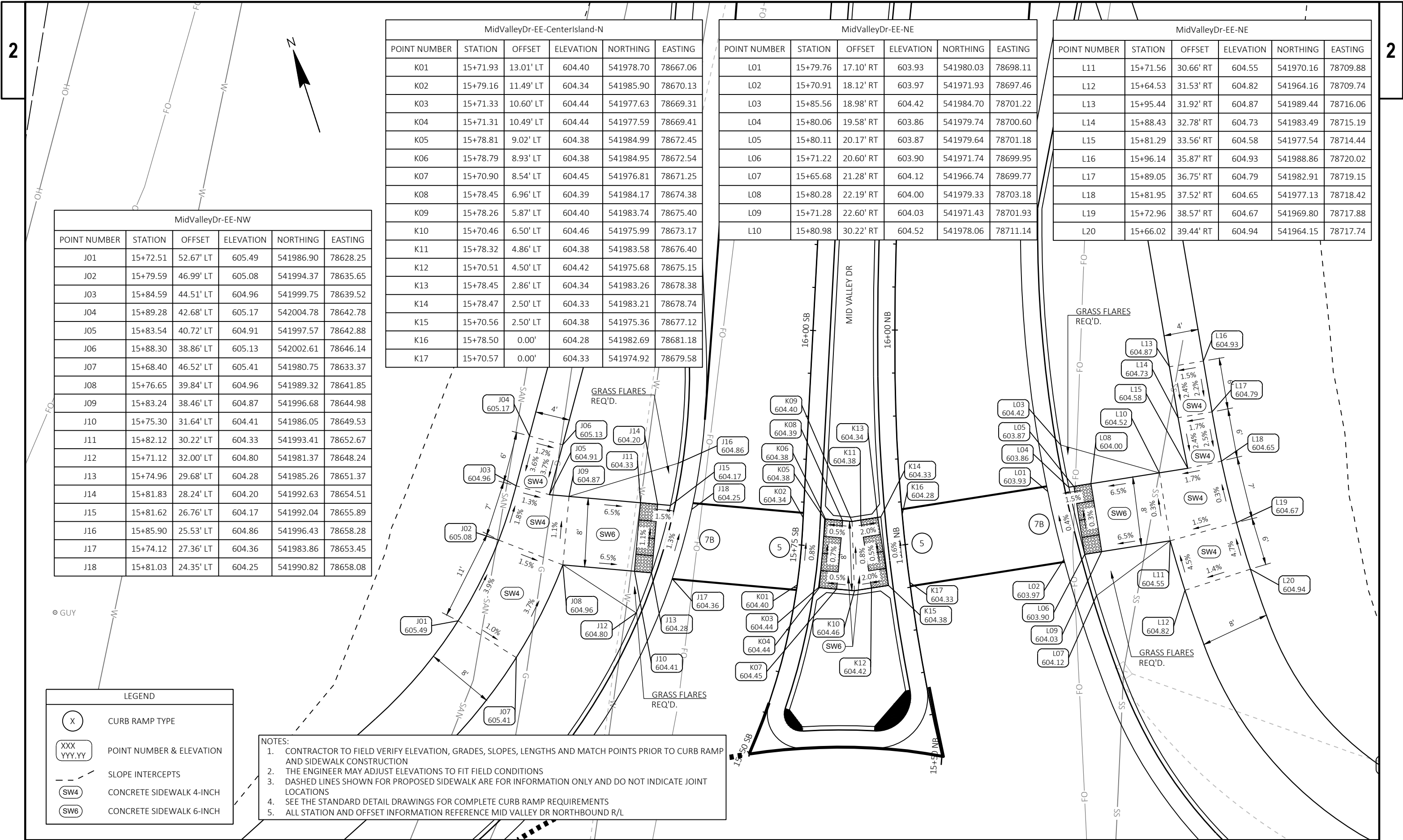
EE-MidValleyDr-CenterIsland-E					
POINT NUMBER	STATION	OFFSET	ELEVATION	NORTHING	EASTING
H01	107+33.43	0.00'	604.19	541879.09	78726.72
H02	107+41.39	0.00'	604.11	541880.95	78734.46
H03	107+33.44	2.50' LT	604.23	541881.51	78726.12
H04	107+33.44	2.52' LT	604.23	541881.53	78726.11
H05	107+41.39	2.50' LT	604.16	541883.39	78733.89
H06	107+41.39	2.52' LT	604.16	541883.41	78733.89
H07	107+33.46	4.52' LT	604.25	541883.47	78725.64
H08	107+41.37	4.52' LT	604.18	541885.35	78733.42
H09	107+33.49	7.25' LT	604.28	541886.13	78725.00

EE-MidValleyDr-CenterIsland-E					
POINT NUMBER	STATION	OFFSET	ELEVATION	NORTHING	EASTING
H10	107+41.36	5.70' LT	604.19	541886.49	78733.14
H11	107+41.75	6.72' LT	604.18	541887.58	78733.30
H12	107+34.48	9.70' LT	604.25	541888.75	78725.39
H13	107+42.47	8.58' LT	604.16	541889.56	78733.60
H14	107+42.51	8.70' LT	604.16	541889.68	78733.61
H15	107+35.22	11.55' LT	604.23	541890.73	78725.68
H16	107+35.26	11.66' LT	604.22	541890.85	78725.70
H17	107+43.28	11.07' LT	604.11	541892.17	78733.86
H18	107+36.28	13.93' LT	604.18	541893.30	78726.18

EE-MidValleyDr-NE					
POINT NUMBER	STATION	OFFSET	ELEVATION	NORTHING	EASTING
I01	107+47.97	24.54' LT	604.04	541906.38	78735.76
I02	107+33.27	16.25' LT	604.11	541909.58	78727.84
I03	107+50.61	15.59' LT	604.65	541907.50	78741.27
I04	107+44.84	16.77' LT	603.97	541908.79	78736.44
I05	107+45.07	18.72' LT	604.00	541910.72	78736.73
I06	107+33.82	18.72' LT	604.04	541911.89	78728.81
I07	107+27.18	19.80' LT	604.65	541914.24	78724.64
I08	107+45.32	20.71' LT	604.13	541912.70	78737.02
I09	107+33.56	20.71' LT	604.17	541913.87	78729.10

EE-MidValleyDr-NE					
POINT NUMBER	STATION	OFFSET	ELEVATION	NORTHING	EASTING
I10	107+53.91	29.88' LT	604.96	541921.75	78744.70
I11	107+46.87	29.90' LT	604.73	541921.84	78738.37
I12	107+31.91	30.42' LT	604.81	541923.52	78730.53
I13	107+14.86	31.89' LT	605.08	541928.36	78722.76
I14	107+53.92	37.88' LT	605.08	541929.75	78744.78
I15	107+47.22	37.90' LT	604.85	541929.83	78738.78
I16	107+34.05	38.36' LT	604.93	541930.97	78733.45
I17	107+19.11	39.63' LT	605.20	541934.18	78728.26





2

2

MidValleyDr-EE-NW					
POINT NUMBER	STATION	OFFSET	ELEVATION	NORTHING	EASTING
J01	15+72.51	52.67' LT	605.49	541986.90	78628.25
J02	15+79.59	46.99' LT	605.08	541994.37	78635.65
J03	15+84.59	44.51' LT	604.96	541999.75	78639.52
J04	15+89.28	42.68' LT	605.17	542004.78	78642.78
J05	15+83.54	40.72' LT	604.91	541997.57	78642.88
J06	15+88.30	38.86' LT	605.13	542002.61	78646.14
J07	15+68.40	46.52' LT	605.41	541980.75	78633.37
J08	15+76.65	39.84' LT	604.96	541989.32	78641.85
J09	15+83.24	38.46' LT	604.87	541996.68	78644.98
J10	15+75.30	31.64' LT	604.41	541986.05	78649.53
J11	15+82.12	30.22' LT	604.33	541993.41	78652.67
J12	15+71.12	32.00' LT	604.80	541981.37	78648.24
J13	15+74.96	29.68' LT	604.28	541985.26	78651.37
J14	15+81.83	28.24' LT	604.20	541992.63	78654.51
J15	15+81.62	26.76' LT	604.17	541992.04	78655.89
J16	15+85.90	25.53' LT	604.86	541996.43	78658.28
J17	15+74.12	27.36' LT	604.36	541983.86	78653.45
J18	15+81.03	24.35' LT	604.25	541990.82	78658.08

MidValleyDr-EE-CenterIsland-N					
POINT NUMBER	STATION	OFFSET	ELEVATION	NORTHING	EASTING
K01	15+71.93	13.01' LT	604.40	541978.70	78667.06
K02	15+79.16	11.49' LT	604.34	541985.90	78670.13
K03	15+71.33	10.60' LT	604.44	541977.63	78669.31
K04	15+71.31	10.49' LT	604.44	541977.59	78669.41
K05	15+78.81	9.02' LT	604.38	541984.99	78672.45
K06	15+78.79	8.93' LT	604.38	541984.95	78672.54
K07	15+70.90	8.54' LT	604.45	541976.81	78671.25
K08	15+78.45	6.96' LT	604.39	541984.17	78674.38
K09	15+78.26	5.87' LT	604.40	541983.74	78675.40
K10	15+70.46	6.50' LT	604.46	541975.99	78673.17
K11	15+78.32	4.86' LT	604.38	541983.58	78676.40
K12	15+70.51	4.50' LT	604.42	541975.68	78675.15
K13	15+78.45	2.86' LT	604.34	541983.26	78678.38
K14	15+78.47	2.50' LT	604.33	541983.21	78678.74
K15	15+70.56	2.50' LT	604.38	541975.36	78677.12
K16	15+78.50	0.00'	604.28	541982.69	78681.18
K17	15+70.57	0.00'	604.33	541974.92	78679.58

MidValleyDr-EE-NE					
POINT NUMBER	STATION	OFFSET	ELEVATION	NORTHING	EASTING
L01	15+79.76	17.10' RT	603.93	541980.03	78698.11
L02	15+70.91	18.12' RT	603.97	541971.93	78697.46
L03	15+85.56	18.98' RT	604.42	541984.70	78701.22
L04	15+80.06	19.58' RT	603.86	541979.74	78700.60
L05	15+80.11	20.17' RT	603.87	541979.64	78701.18
L06	15+71.22	20.60' RT	603.90	541971.74	78699.95
L07	15+65.68	21.28' RT	604.12	541966.74	78699.77
L08	15+80.28	22.19' RT	604.00	541979.33	78703.18
L09	15+71.28	22.60' RT	604.03	541971.43	78701.93
L10	15+80.98	30.22' RT	604.52	541978.06	78711.14

MidValleyDr-EE-NE					
POINT NUMBER	STATION	OFFSET	ELEVATION	NORTHING	EASTING
L11	15+71.56	30.66' RT	604.55	541970.16	78709.88
L12	15+64.53	31.53' RT	604.82	541964.16	78709.74
L13	15+95.44	31.92' RT	604.87	541989.44	78716.06
L14	15+88.43	32.78' RT	604.73	541983.49	78715.19
L15	15+81.29	33.56' RT	604.58	541977.54	78714.44
L16	15+96.14	35.87' RT	604.93	541988.86	78720.02
L17	15+89.05	36.75' RT	604.79	541982.91	78719.15
L18	15+81.95	37.52' RT	604.65	541977.13	78718.42
L19	15+72.96	38.57' RT	604.67	541969.80	78717.88
L20	15+66.02	39.44' RT	604.94	541964.15	78717.74

LEGEND

X

CURB RAMP TYPE

XXX
YYY.YY

POINT NUMBER & ELEVATION

SLOPE INTERCEPTS

SW4

CONCRETE SIDEWALK 4-INCH

SW6

CONCRETE SIDEWALK 6-INCH

- NOTES:
1.

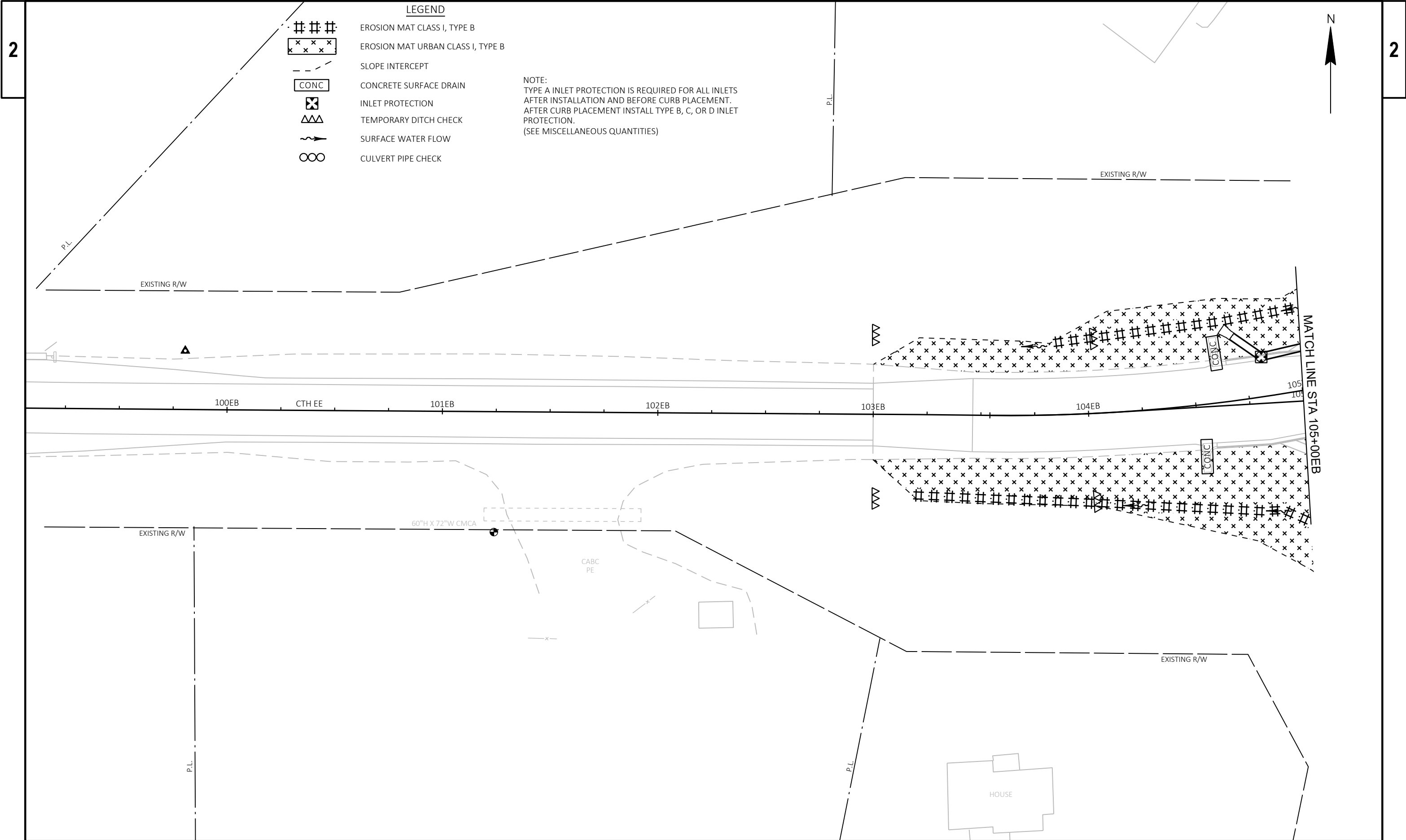
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SEE THE STANDARD DETAIL DRAWINGS FOR COMPLETE CURB RAMP REQUIREMENTS
5.

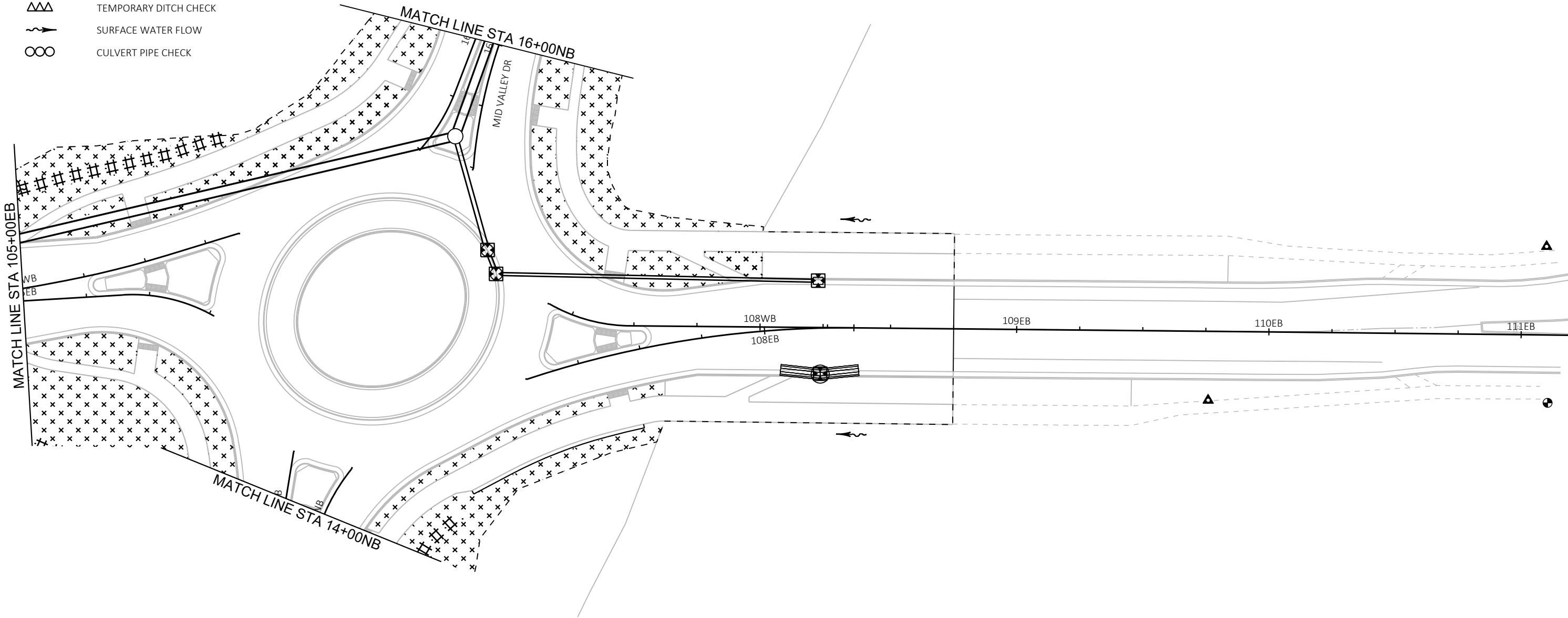
ALL STATION AND OFFSET INFORMATION REFERENCE MID VALLEY DR NORTHBOUND R/L

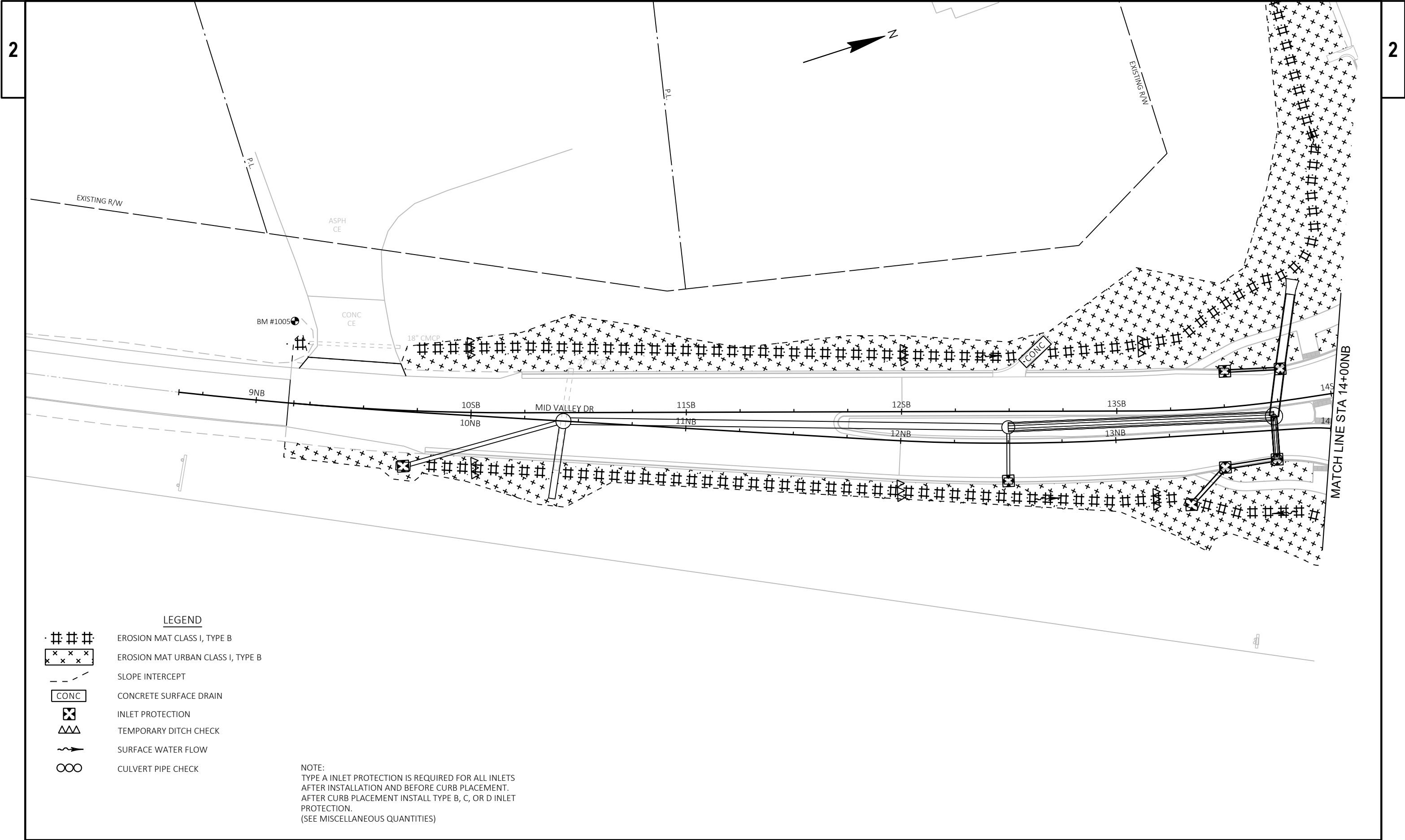


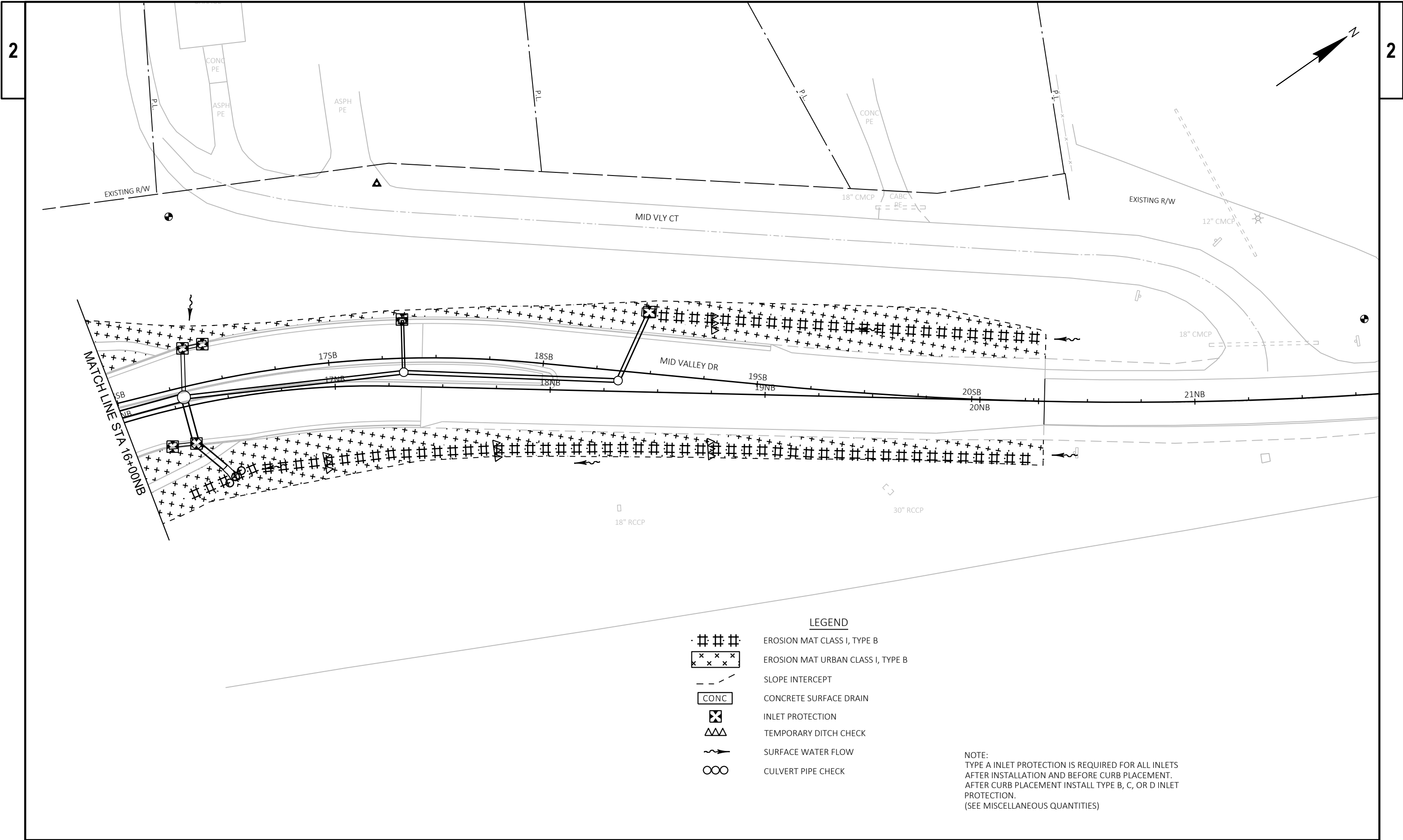
LEGEND

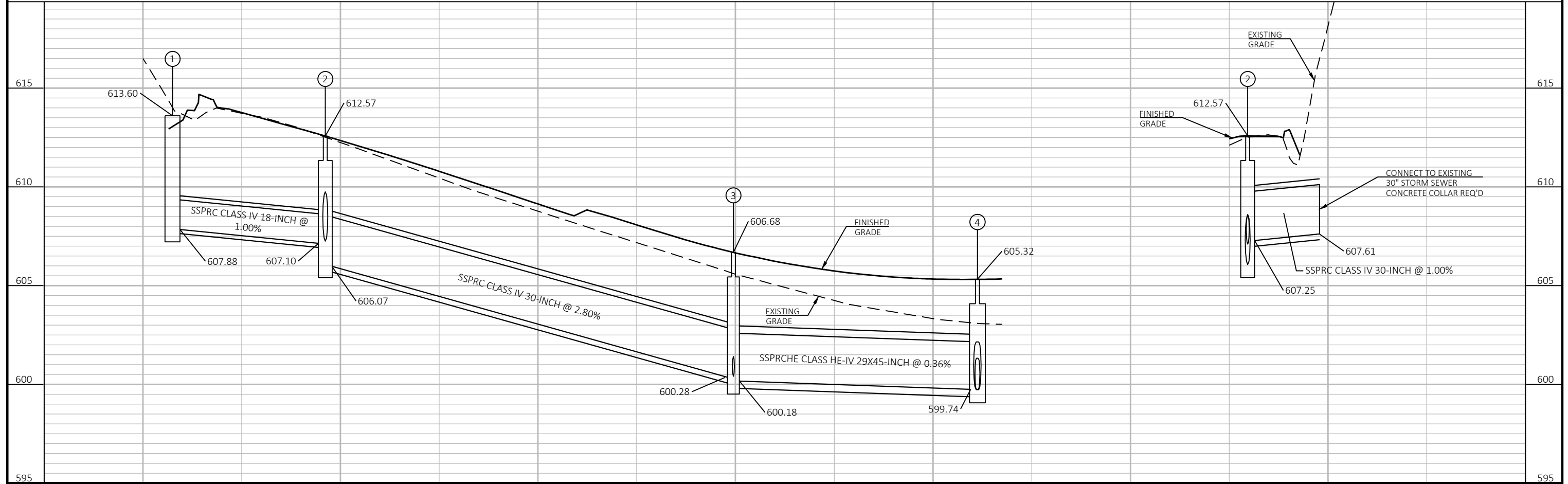
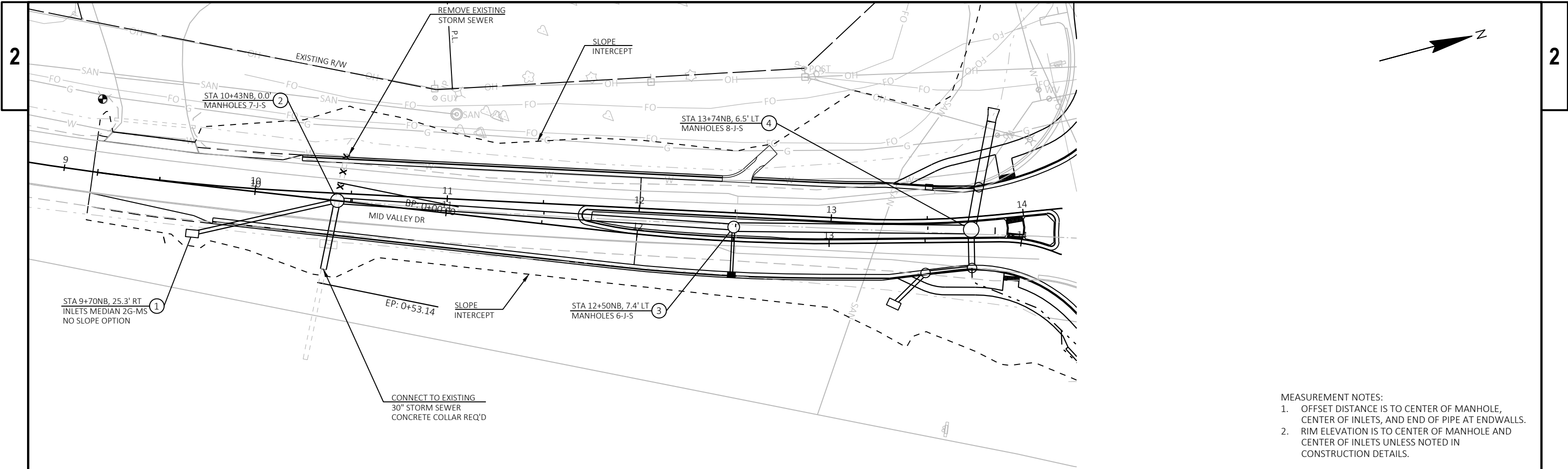
- EROSION MAT CLASS I, TYPE B
- EROSION MAT URBAN CLASS I, TYPE B
- SLOPE INTERCEPT
- CONC CONCRETE SURFACE DRAIN
- INLET PROTECTION
- TEMPORARY DITCH CHECK
- SURFACE WATER FLOW
- CULVERT PIPE CHECK

NOTE:
TYPE A INLET PROTECTION IS REQUIRED FOR ALL INLETS
AFTER INSTALLATION AND BEFORE CURB PLACEMENT.
AFTER CURB PLACEMENT INSTALL TYPE B, C, OR D INLET
PROTECTION.
(SEE MISCELLANEOUS QUANTITIES)



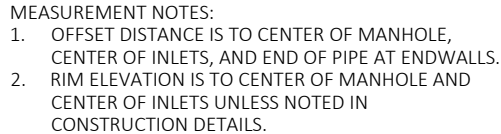


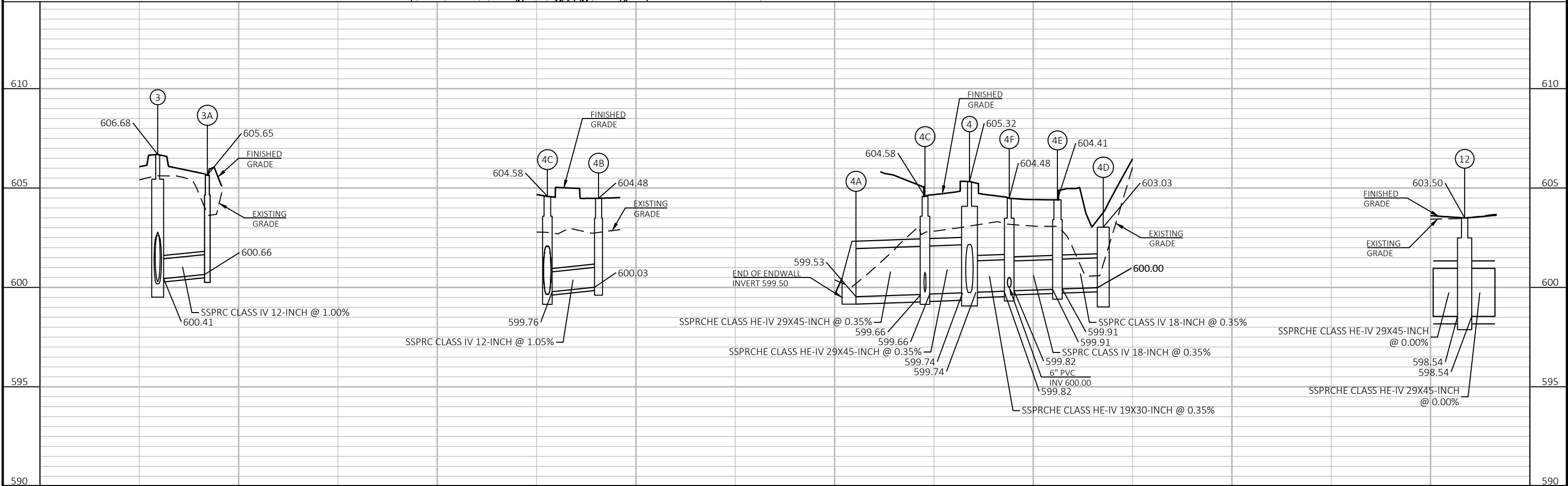
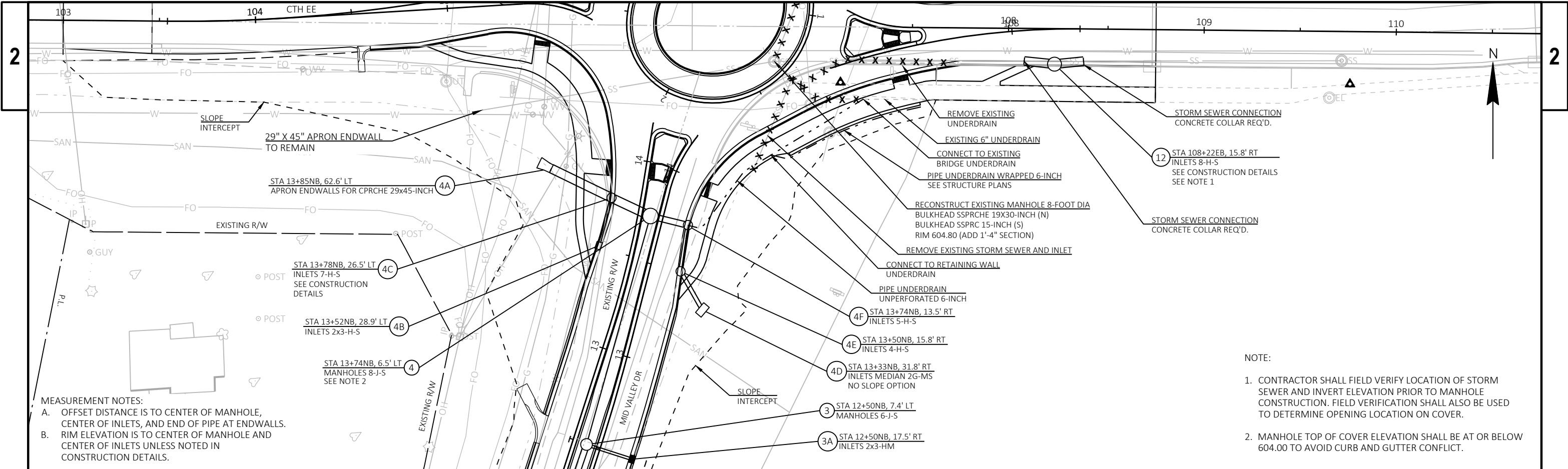




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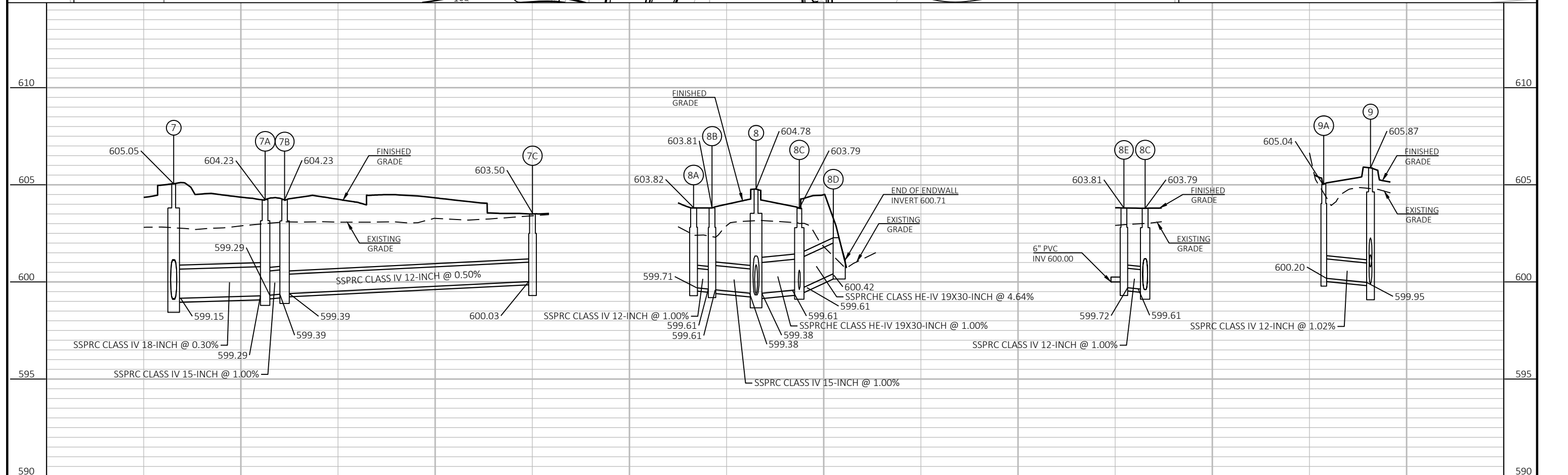
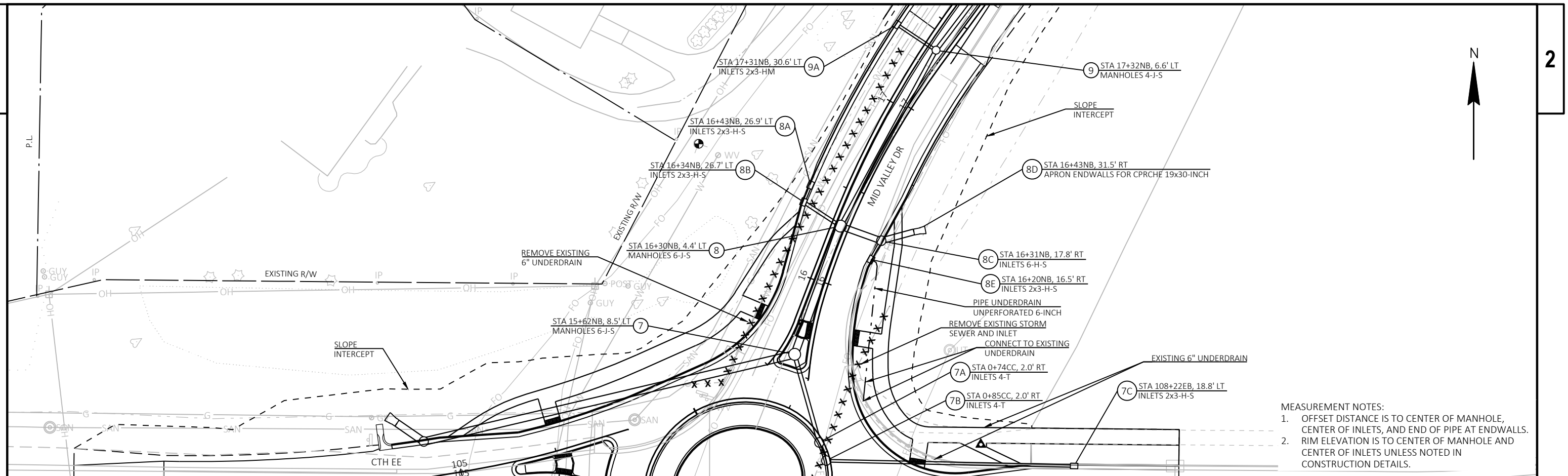
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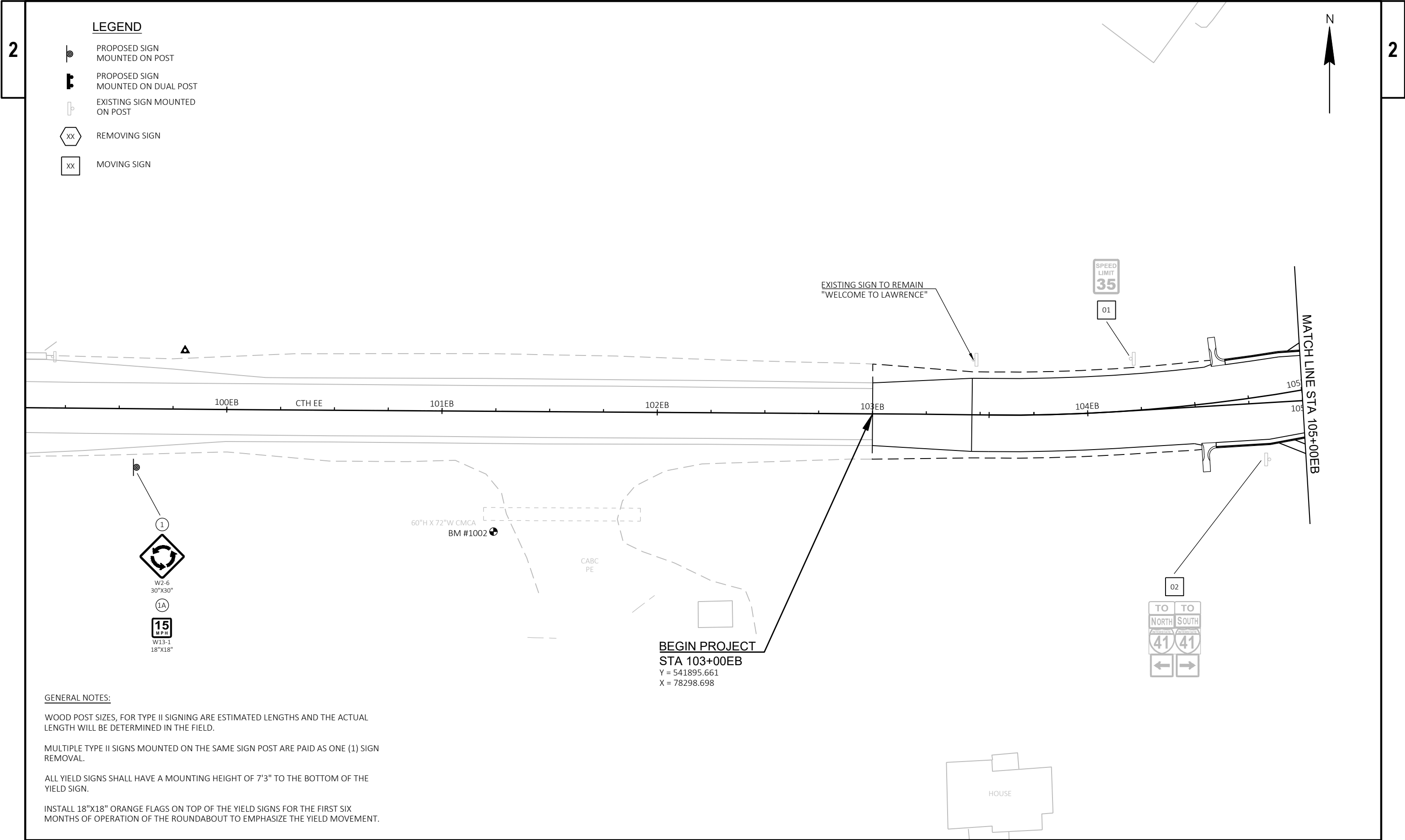


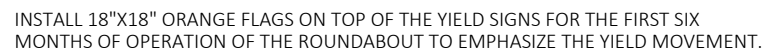


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2 |

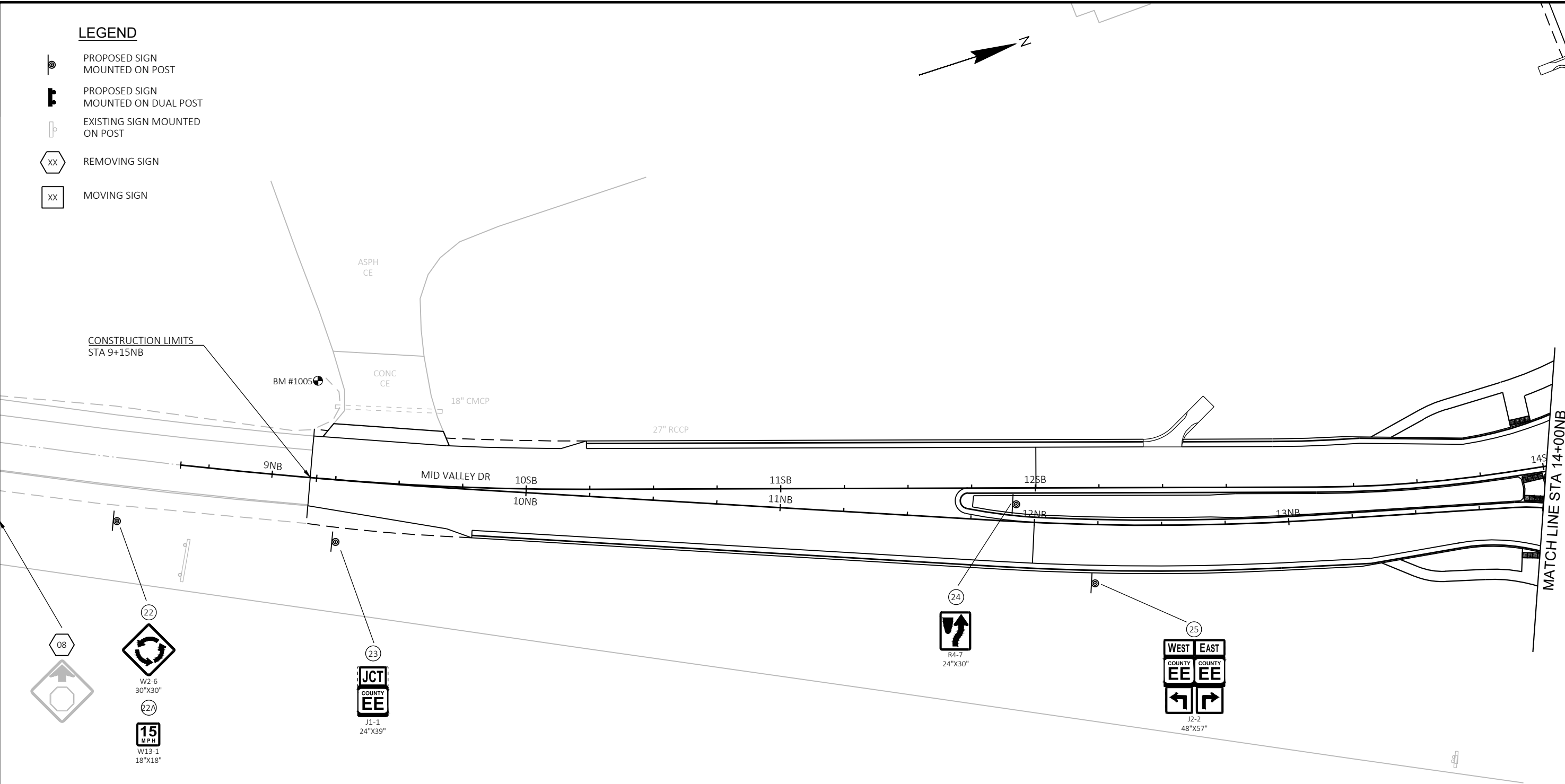






LEGEND

- PROPOSED SIGN MOUNTED ON POST
- PROPOSED SIGN MOUNTED ON DUAL POST
- EXISTING SIGN MOUNTED ON POST
- REMOVING SIGN
- MOVING SIGN



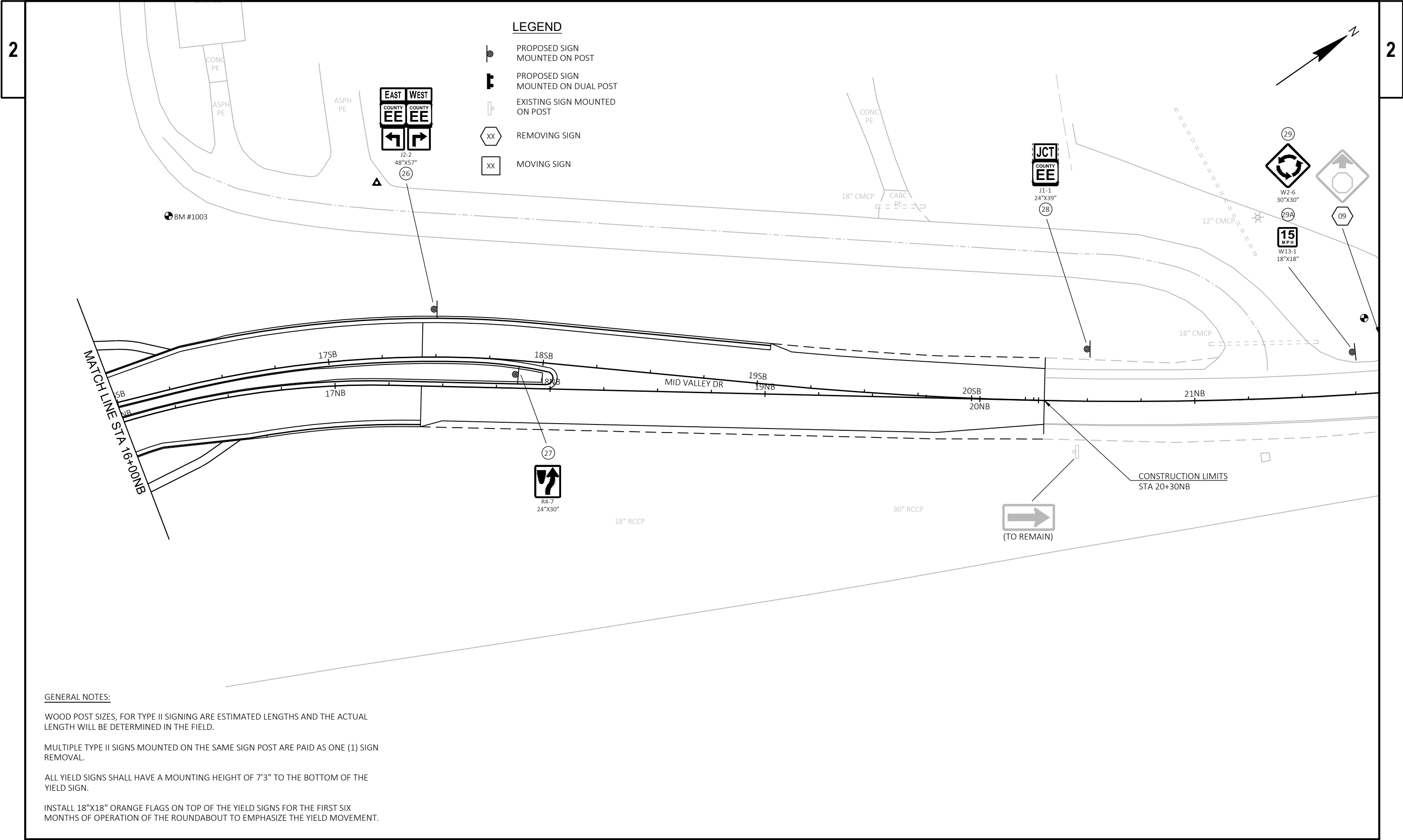
GENERAL NOTES:

WOOD POST SIZES, FOR TYPE II SIGNING ARE ESTIMATED LENGTHS AND THE ACTUAL LENGTH WILL BE DETERMINED IN THE FIELD.

MULTIPLE TYPE II SIGNS MOUNTED ON THE SAME SIGN POST ARE PAID AS ONE (1) SIGN REMOVAL.

ALL YIELD SIGNS SHALL HAVE A MOUNTING HEIGHT OF 7'3" TO THE BOTTOM OF THE YIELD SIGN.

INSTALL 18"X18" ORANGE FLAGS ON TOP OF THE YIELD SIGNS FOR THE FIRST SIX MONTHS OF OPERATION OF THE ROUNDABOUT TO EMPHASIZE THE YIELD MOVEMENT.



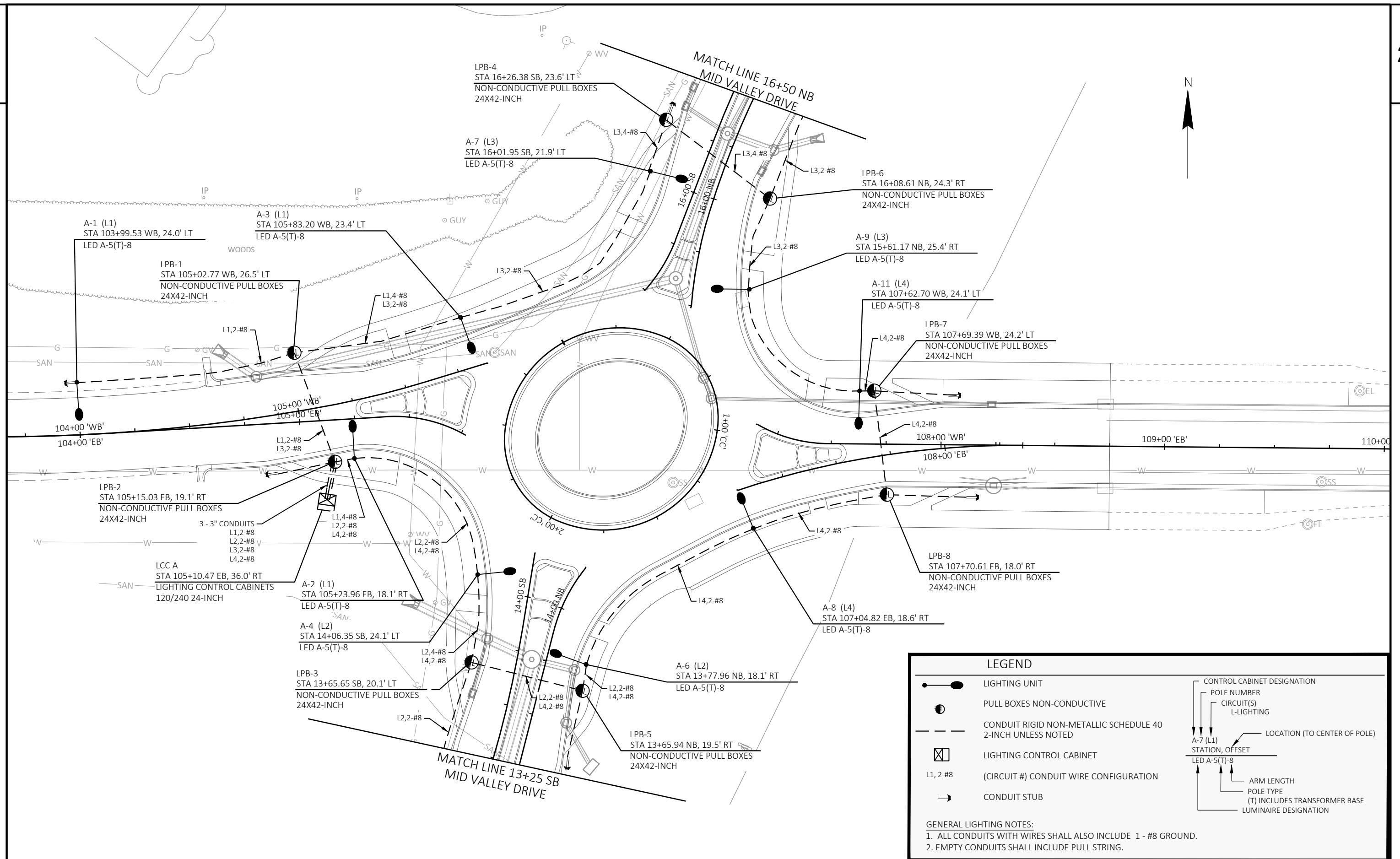
GENERAL NOTES:

WOOD POST SIZES, FOR TYPE II SIGNING ARE ESTIMATED LENGTHS AND THE ACTUAL LENGTH WILL BE DETERMINED IN THE FIELD.

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INSTALL 18"X18" ORANGE FLAGS ON TOP OF THE YIELD SIGNS FOR THE FIRST SIX MONTHS OF OPERATION OF THE ROUNDABOUT TO EMPHASIZE THE YIELD MOVEMENT.



PROJECT NO: 9277-01-71

HWY: CTH EE

COUNTY: BROWN

LIGHTING PLAN

SHEET

46

E

FILE NAME : I:\45\450630 BROWN CTH EE\C3D\SHEETS\PLAN\023601-LP-CTH EE.DWG
023601-lp

PLOT DATE : 2/12/2025 10:05 AM

PLOT BY : AVES

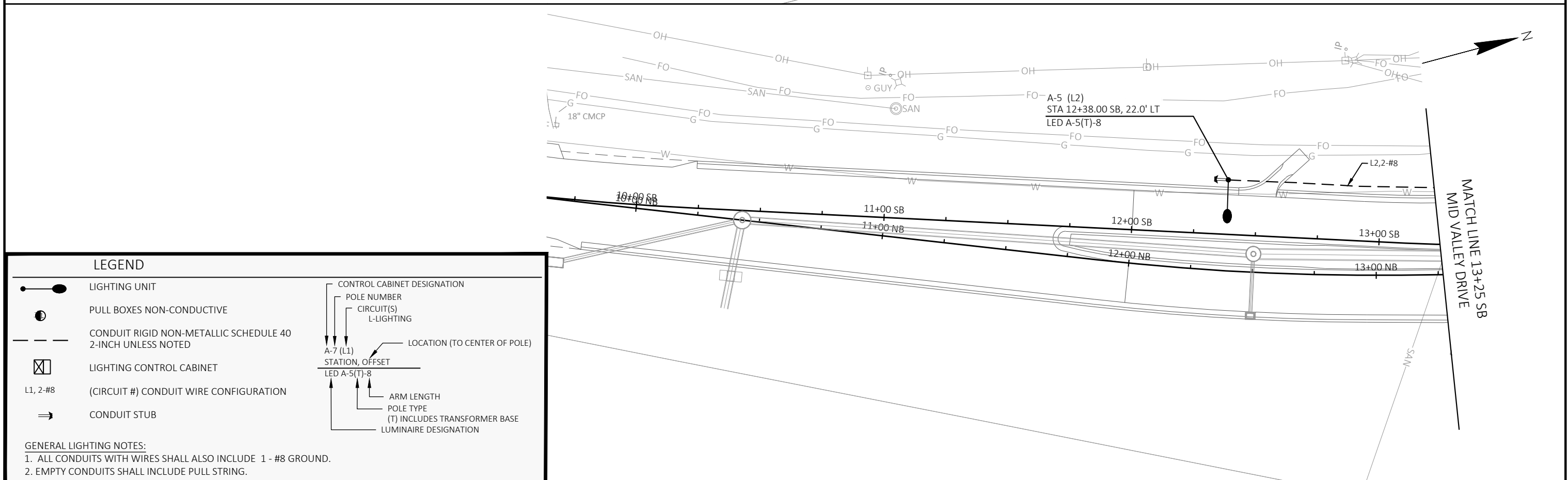
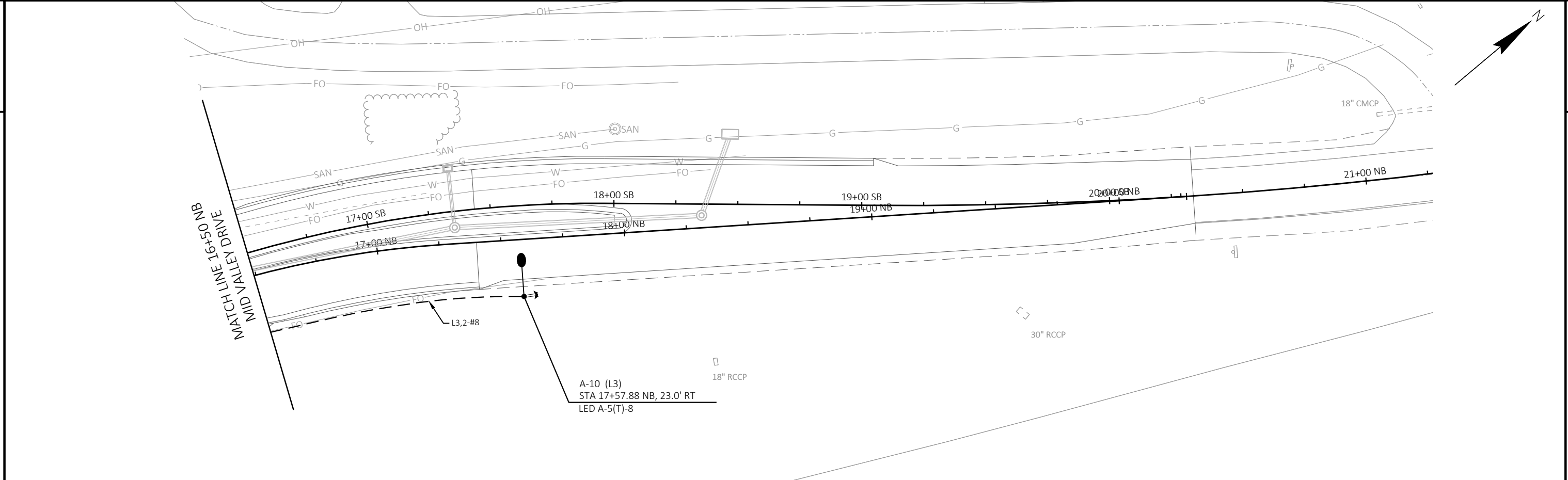
PLOT NAME :

PLOT SCALE : #####

WISDOT/CADDs SHEET 42

2

2



LEGEND	
	LIGHTING UNIT
	PULL BOXES NON-CONDUCTIVE
	CONDUIT RIGID NON-METALLIC SCHEDULE 40 2-INCH UNLESS NOTED
	LIGHTING CONTROL CABINET
L1, 2-#8	(CIRCUIT #) CONDUIT WIRE CONFIGURATION
	CONDUIT STUB

GENERAL LIGHTING NOTES:

- ALL CONDUITS WITH WIRES SHALL ALSO INCLUDE 1 - #8 GROUND.
- EMPTY CONDUITS SHALL INCLUDE PULL STRING.

● LIGHTING UNIT

CONTROL CABINET DESIGNATION

POLE NUMBER

 PULL BOXES NON-CONDUCTIVE

— — — CONDUIT RIGID NON-METALLIC SCHEDULE 40
2-INCH UNLESS NOTED

↓ ↓ ↓ LOCATION (TO CENTER OF POLE)


 LIGHTING CONTROL CABINET

 STATION, OFFSET
 LED A-5(T)-8

L1, 2-#8 (CIRCUIT #) CONDUIT WIRE CONFIGURATION

⇒ CONDUIT STUB

GENERAL LIGHTING NOTES:

1. ALL CONDUITS WITH WIRES SHALL ALSO INCLUDE 1 - #8 GROUND.
2. EMPTY CONDUITS SHALL INCLUDE PULL STRING.

PROJECT NO: 9277-01-71	HWY: CTH EE	COUNTY: BROWN	LIGHTING PLAN	SHEET 47	E
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PROJECT NO: 9277-01-71	HWY: CTH EE	COUNTY: BROWN	LIGHTING PLAN	SHEET 47	E
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PROJECT NO: 9277-01-71	HWY: CTH EE	COUNTY: BROWN	LIGHTING PLAN	SHEET 47	E
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PROJECT NO: 9277-01-71	HWY: CTH EE	COUNTY: BROWN	LIGHTING PLAN	SHEET 47	E
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PROJECT NO: 9277-01-71	HWY: CTH EE	COUNTY: BROWN	LIGHTING PLAN	SHEET 47	E
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PROJECT NO: 9277-01-71	HWY: CTH EE	COUNTY: BROWN	LIGHTING PLAN	SHEET 47	E
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PROJECT NO: 9277-01-71	HWY: CTH EE	COUNTY: BROWN	LIGHTING PLAN	SHEET 47	E
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FILE NAME : I:\45\450630 BROWN CTH EE\C3D\SHEETS\PLAN\023601-LP-CTH EE.DWG
023602-lp

PLOT DATE : 2/11/2025 3:10 PM

PLOT BY : **AVRES**

PLOT NAME :

PLOT SCALE : #####

WISDOT/CADDs SHEET 42

FILE NAME : I:\45\450630 BROWN CTH EE\C3D\SHEETS\PLAN\023601-LP-CTH EE.DWG
023602-lp

PLOT DATE : 2/11/2025 3:10 PM

PLOT BY : **AVRES**

PLOT NAME :

PLOT SCALE : #####

WISDOT/CADDs SHEET 42

FILE NAME : I:\45\450630 BROWN CTH EE\C3D\SHEETS\PLAN\023601-LP-CTH EE.DWG
023602-lp

PLOT DATE : 2/11/2025 3:10 PM

PLOT BY : **AVRES**

PLOT NAME :

PLOT SCALE : #####

WISDOT/CADDs SHEET 42

FILE NAME : I:\45\450630 BROWN CTH EE\C3D\SHEETS\PLAN\023601-LP-CTH EE.DWG
023602-lp

PLOT DATE : 2/11/2025 3:10 PM

PLOT BY : **AVRES**

PLOT NAME :

PLOT SCALE : #####

WISDOT/CADDs SHEET 42

FILE NAME : I:\45\450630 BROWN CTH EE\C3D\SHEETS\PLAN\023601-LP-CTH EE.DWG
023602-lp

PLOT DATE : 2/11/2025 3:10 PM

PLOT BY : **AVRES**

PLOT NAME :

PLOT SCALE : #####

WISDOT/CADDs SHEET 42

FILE NAME : I:\45\450630 BROWN CTH EE\C3D\SHEETS\PLAN\023601-LP-CTH EE.DWG
023602-lp

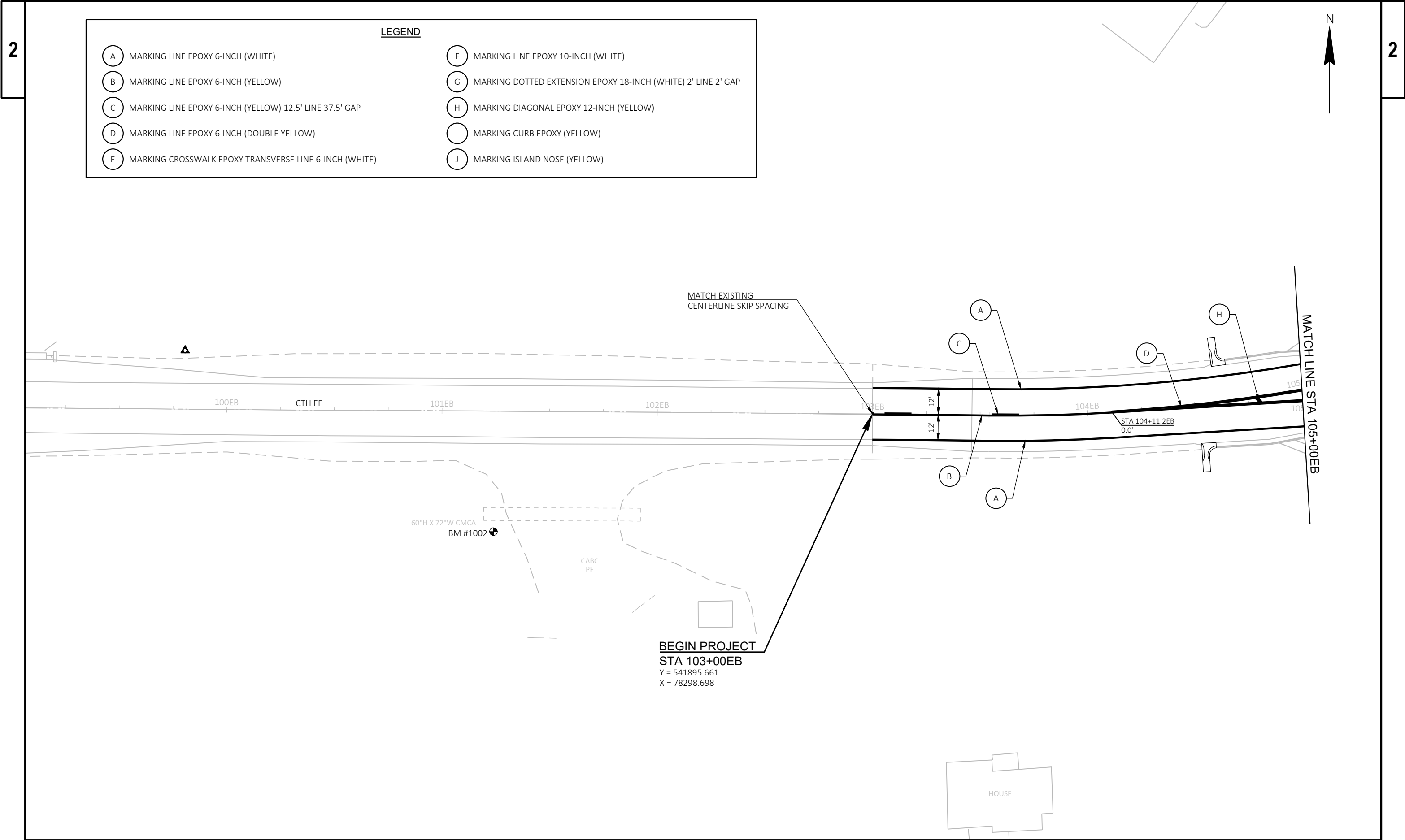
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PLOT BY : **AVRES**

PLOT NAME :

PLOT SCALE : #####

WISDOT/CADDs SHEET 42

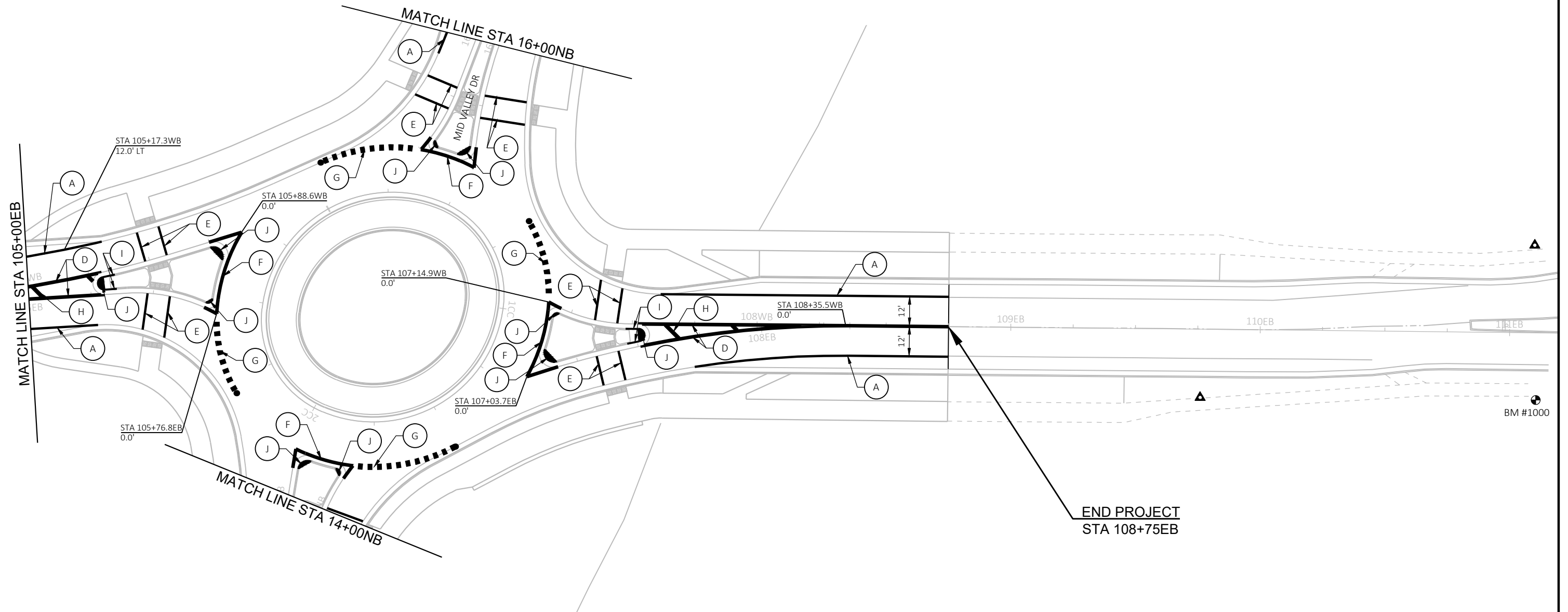


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2

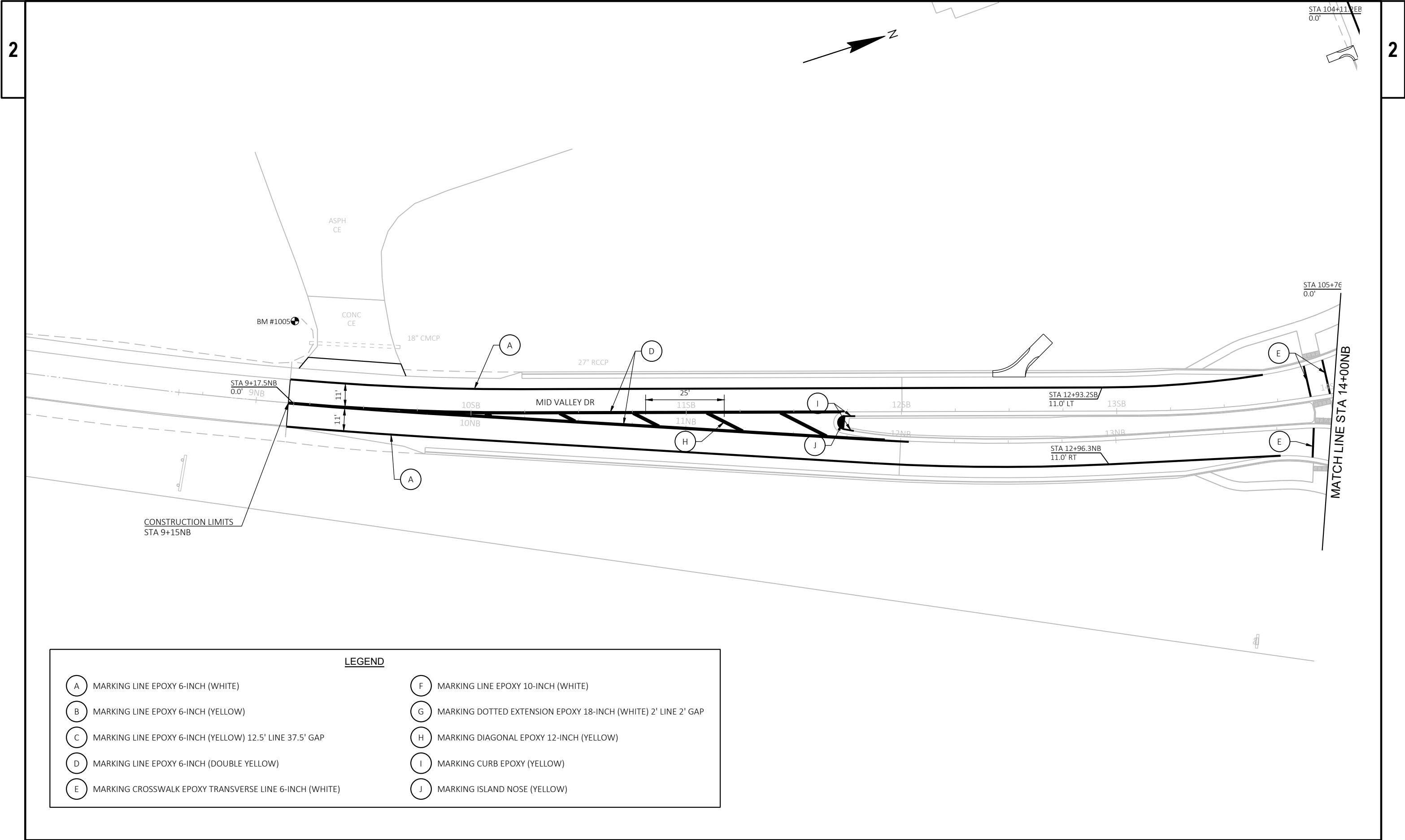
LEGEND

- | | |
|---|---|
| (A) MARKING LINE EPOXY 6-INCH (WHITE) | (F) MARKING LINE EPOXY 10-INCH (WHITE) |
| (B) MARKING LINE EPOXY 6-INCH (YELLOW) | (G) MARKING DOTTED EXTENSION EPOXY 18-INCH (WHITE) 2' LINE 2' GAP |
| (C) MARKING LINE EPOXY 6-INCH (YELLOW) 12.5' LINE 37.5' GAP | (H) MARKING DIAGONAL EPOXY 12-INCH (YELLOW) |
| (D) MARKING LINE EPOXY 6-INCH (DOUBLE YELLOW) | (I) MARKING CURB EPOXY (YELLOW) |
| (E) MARKING CROSSWALK EPOXY TRANSVERSE LINE 6-INCH (WHITE) | (J) MARKING ISLAND NOSE (YELLOW) |



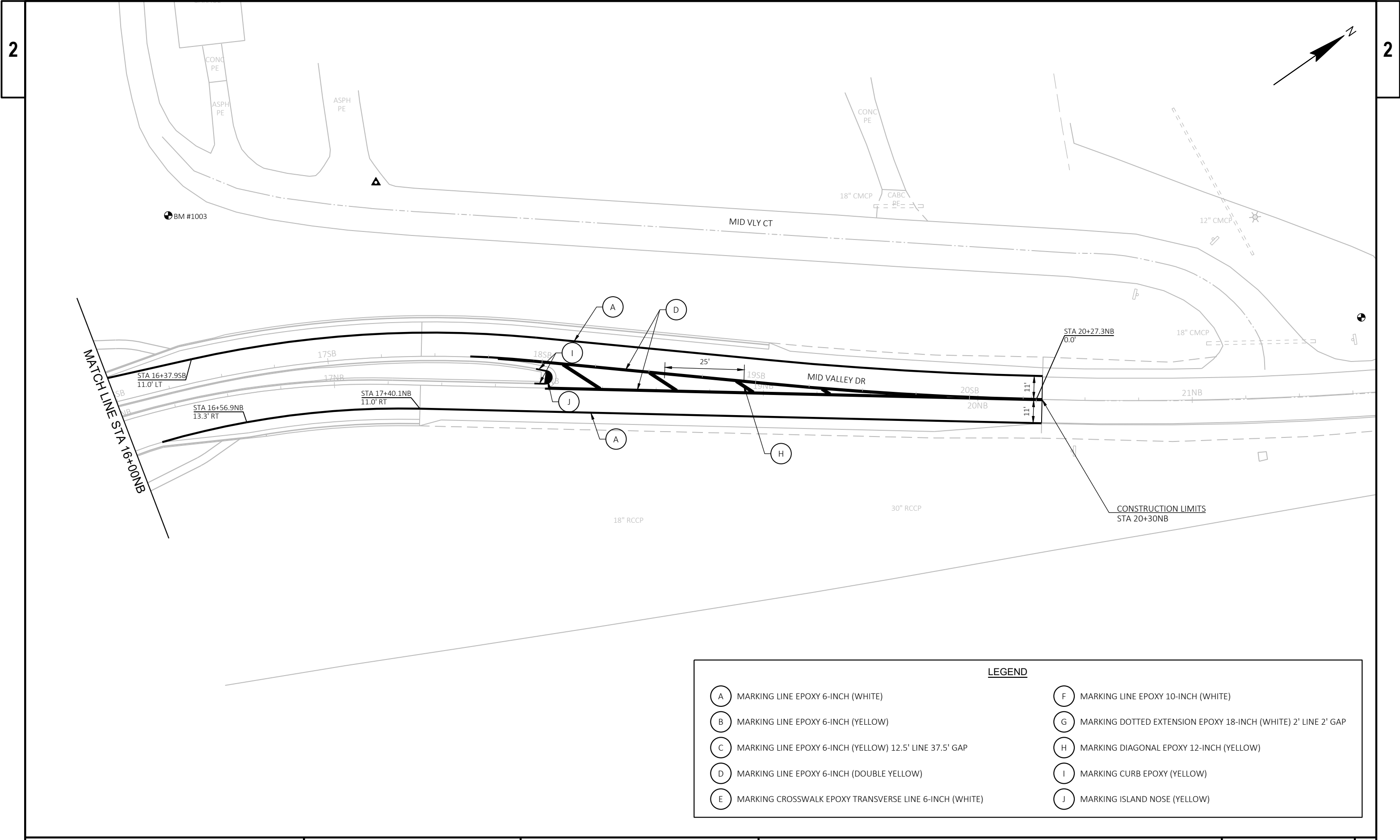
LEGEND

- | | |
|---|---|
| (A) MARKING LINE EPOXY 6-INCH (WHITE) | (F) MARKING LINE EPOXY 10-INCH (WHITE) |
| (B) MARKING LINE EPOXY 6-INCH (YELLOW) | (G) MARKING DOTTED EXTENSION EPOXY 18-INCH (WHITE) 2' LINE 2' GAP |
| (C) MARKING LINE EPOXY 6-INCH (YELLOW) 12.5' LINE 37.5' GAP | (H) MARKING DIAGONAL EPOXY 12-INCH (YELLOW) |
| (D) MARKING LINE EPOXY 6-INCH (DOUBLE YELLOW) | (I) MARKING CURB EPOXY (YELLOW) |
| (E) MARKING CROSSWALK EPOXY TRANSVERSE LINE 6-INCH (WHITE) | (J) MARKING ISLAND NOSE (YELLOW) |



LEGEND

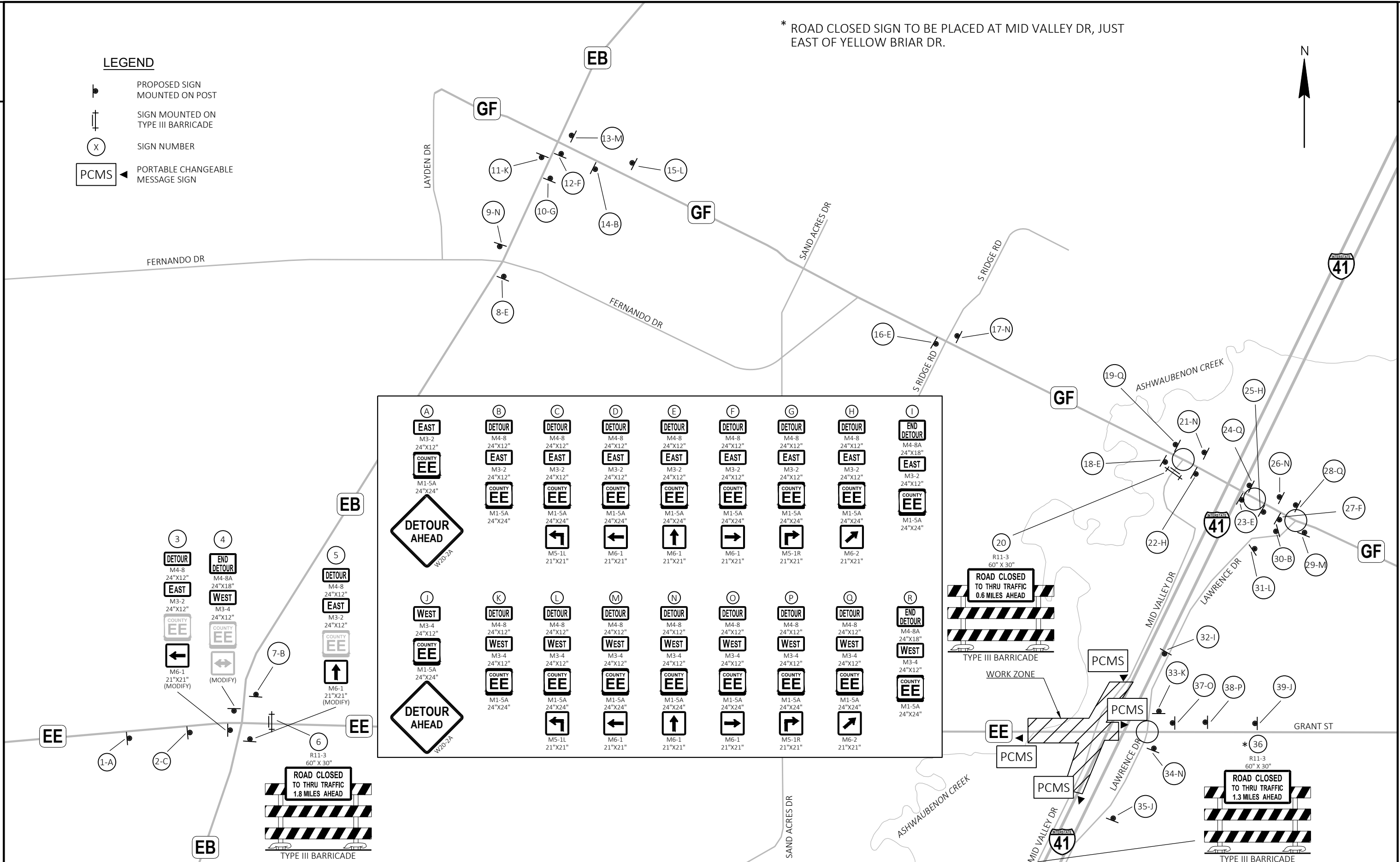
A	MARKING LINE EPOXY 6-INCH (WHITE)	F	MARKING LINE EPOXY 10-INCH (WHITE)
B	MARKING LINE EPOXY 6-INCH (YELLOW)	G	MARKING DOTTED EXTENSION EPOXY 18-INCH (WHITE) 2' LINE 2' GAP
C	MARKING LINE EPOXY 6-INCH (YELLOW) 12.5' LINE 37.5' GAP	H	MARKING DIAGONAL EPOXY 12-INCH (YELLOW)
D	MARKING LINE EPOXY 6-INCH (DOUBLE YELLOW)	I	MARKING CURB EPOXY (YELLOW)
E	MARKING CROSSWALK EPOXY TRANSVERSE LINE 6-INCH (WHITE)	J	MARKING ISLAND NOSE (YELLOW)



LEGEND

- PROPOSED SIGN MOUNTED ON POST
- SIGN MOUNTED ON TYPE III BARRICADE
- SIGN NUMBER
- PCMS PORTABLE CHANGEABLE MESSAGE SIGN

* ROAD CLOSED SIGN TO BE PLACED AT MID VALLEY DR, JUST EAST OF YELLOW BRIAR DR.



PROJECT NO: 9277-01-71

HWY: CTH EE

COUNTY: BROWN

DETOURS

SHEET

CTH EE WESTBOUND CURVE DATA

③

PI STA = 104+36.0WB
Y = 541894.194
X = 78434.695
DELTA = 11°40'51" LT
D = 7°09'43"
T = 81.8'
L = 163.1'
R = 800.0'
PC STA = 103+54.2WB
Y = 541895.137
X = 78352.868
PT STA = 105+17.3WB
Y = 541909.836
X = 78515.018
DB = S89°20'22"E
DA = N78°58'47"E

④

PI STA = 105+23.7WB
Y = 541911.074
X = 78521.372
DELTA = 1°51'16" LT
D = 14°19'26"
T = 6.5'
L = 12.9'
R = 400.0'
PC STA = 105+17.3WB
Y = 541909.836
X = 78515.018
PT STA = 105+30.2WB
Y = 541912.516
X = 78527.683
DB = N78°58'47"E
DA = N77°07'31"E

⑤

PI STA = 105+44.5WB
Y = 541915.703
X = 78541.625
DELTA = 4°05'43" LT
D = 14°19'26"
T = 14.3'
L = 28.6'
R = 400.0'
PC STA = 105+30.2WB
Y = 541912.516
X = 78527.683
PT STA = 105+58.8WB
Y = 541919.877
X = 78555.304
DB = N77°07'31"E
DA = N73°01'48"E

CTH EE WESTBOUND CURVE DATA

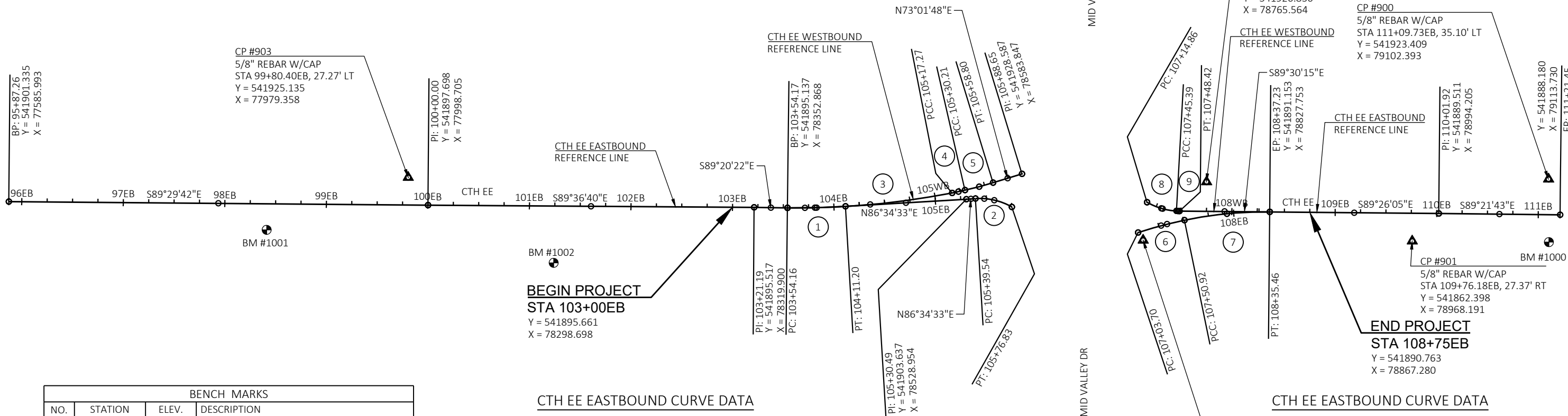
⑧

PI STA = 107+30.4WB
Y = 541892.877
X = 78720.395
DELTA = 26°54'51" LT
D = 88°08'50"
T = 15.6'
L = 30.5'
R = 65.0'
PC STA = 107+14.9WB
Y = 541900.672
X = 78706.936
PT STA = 107+45.4WB
Y = 541892.019
X = 78735.925
DB = S59°55'20"E
DA = S86°50'11"E

⑨

PI STA = 107+46.9WB
Y = 541891.935
X = 78737.436
DELTA = 2°40'04" LT
D = 88°08'50"
T = 1.5'
L = 3.0'
R = 65.0'
PC STA = 107+45.4WB
Y = 541892.019
X = 78735.925
PT STA = 107+48.4WB
Y = 541891.922
X = 78738.950
DB = S86°50'11"E
DA = S89°30'15"E

N



BENCH MARKS

NO.	STATION	ELEV.	DESCRIPTION
1001	98+41EB	604.08	BROWN COUNTY SRVY MON SW ABUTMENT - 25' RT
1002	101+24EB	603.01	BURY BOLT - 56' RT
1000	111+11EB	611.12	NW TOP ANCHOR BOLT LPOL 92BB5 - 27' RT

CTH EE EASTBOUND CURVE DATA

①

PI STA = 103+82.7EB
Y = 541894.808
X = 78381.397
DELTA = 4°05'06" LT
D = 7°09'43"
T = 28.5'
L = 57.0'
R = 800.0'
PC STA = 103+54.2EB
Y = 541895.137
X = 78352.868
PT STA = 104+11.2EB
Y = 541896.512
X = 78409.876
DB = S89°20'22"E
DA = N86°34'33"E

②

PI STA = 105+58.7EB
Y = 541905.323
X = 78557.129
DELTA = 32°51'59" RT
D = 88°08'50"
T = 19.2'
L = 37.3'
R = 65.0'
PC STA = 105+39.5EB
Y = 541904.178
X = 78537.992
PT STA = 105+76.8EB
Y = 541895.900
X = 78573.824
DB = N86°34'33"E
DA = S60°33'28"E

CTH EE EASTBOUND CURVE DATA

⑥

PI STA = 107+27.3EB
Y = 541878.221
X = 78720.615
DELTA = 6°45'51" RT
D = 14°19'26"
T = 23.6'
L = 47.2'
R = 400.0'
PC STA = 107+03.7EB
Y = 541870.769
X = 78698.182
PT STA = 107+50.9EB
Y = 541882.980
X = 78743.770
DB = N71°37'22"E
DA = N78°23'13"E

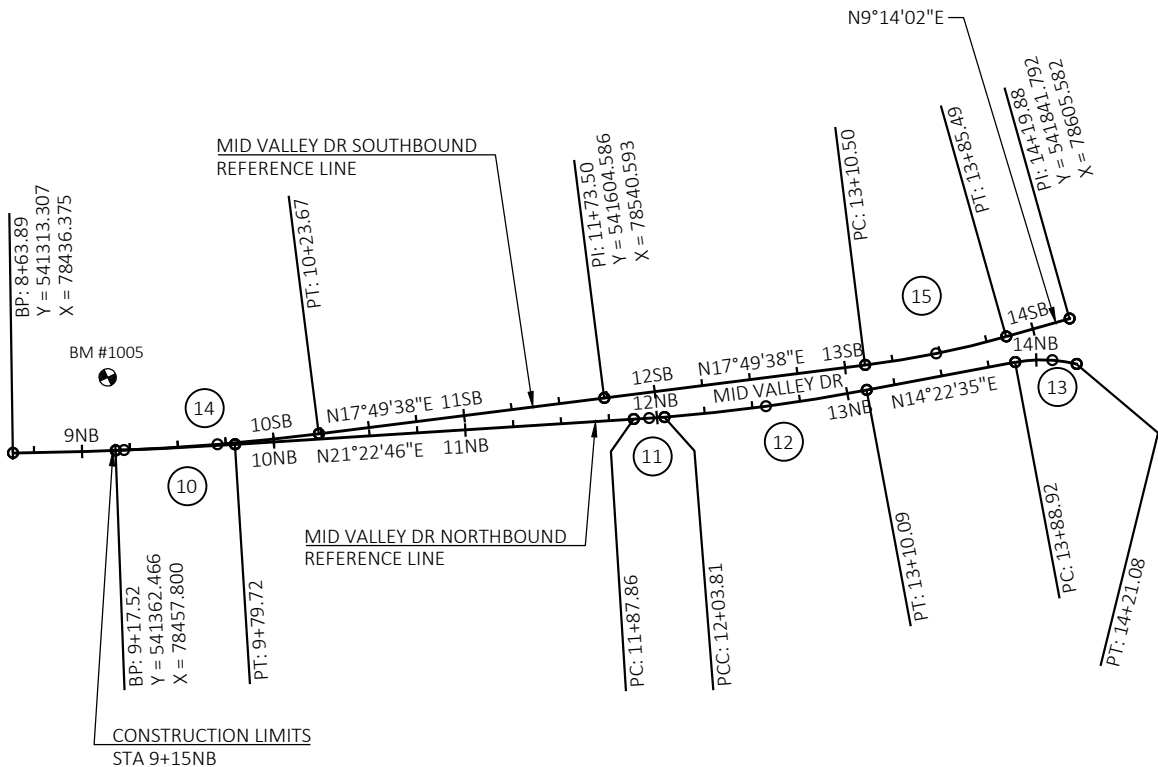
⑦

PI STA = 107+93.4EB
Y = 541891.521
X = 78785.328
DELTA = 12°06'32" RT
D = 14°19'26"
T = 42.4'
L = 84.5'
R = 400.0'
PC STA = 107+50.9EB
Y = 541882.980
X = 78743.770
PT STA = 108+35.5EB
Y = 541891.153
X = 78827.753
DB = N78°23'13"E
DA = S89°30'15"E

MID VALLEY DRIVE SOUTHBOUND CURVE DATA

14	15
PI STA = 9+70.6SB Y = 541411.393 X = 78478.464 DELTA = 5°04'06" LT D = 4°46'29" T = 53.1' L = 106.2' R = 1200.0' PC STA = 9+17.5SB Y = 541362.466 X = 78457.800 PT STA = 10+23.7SB Y = 541461.954 X = 78494.724 DB = N22°53'45"E DA = N17°49'38"E	PI STA = 13+48.1SB Y = 541770.767 X = 78594.035 DELTA = 8°35'36" LT D = 11°27'33" T = 37.6' L = 75.0' R = 500.0' PC STA = 13+10.5SB Y = 541735.004 X = 78582.534 PT STA = 13+85.5SB Y = 541807.846 X = 78600.063 DB = N17°49'38"E DA = N09°14'02"E

BENCH MARKS			
NO.	STATION	ELEV.	DESCRIPTION
1005	9+15NB	617.84	BURY BOLT - 38' LT
1003	16+39NB	619.46	BURY BOLT - 88' LT
1004	21+81NB	615.92	BURY BOLT - 35' LT

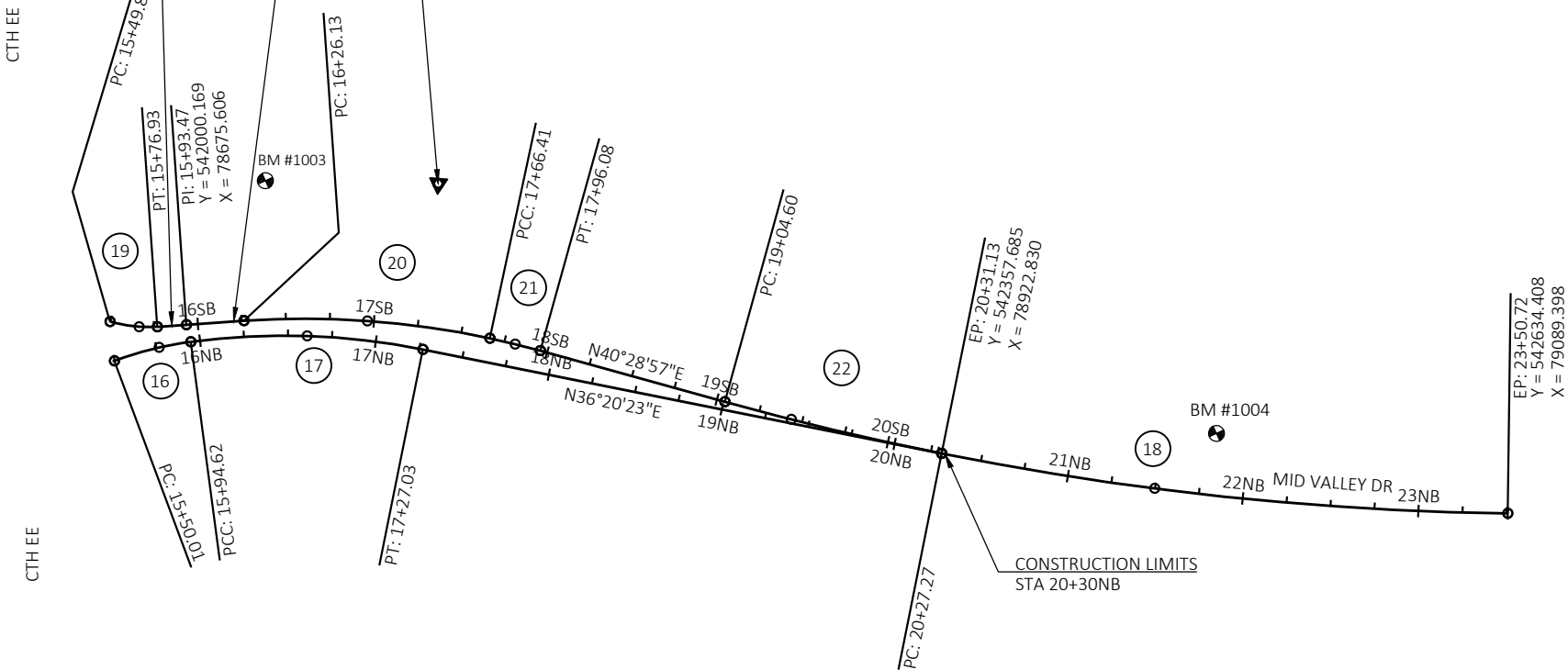


MID VALLEY DRIVE NORTHBOUND CURVE DATA

10	11	12	13
PI STA = 9+21.8NB Y = 541366.140 X = 78460.122 DELTA = 2°49'26" LT D = 2°26'17" T = 57.9' L = 115.8' R = 2350.1' PC STA = 8+63.9NB Y = 541313.307 X = 78436.375 PT STA = 9+79.7NB Y = 541420.078 X = 78481.238 DB = N24°12'12"E DA = N21°22'46"E	PI STA = 11+95.8NB Y = 541621.325 X = 78560.022 DELTA = 0°54'49" LT D = 5°43'46" T = 8.0' L = 15.9' R = 1000.0' PC STA = 11+87.9NB Y = 541613.901 X = 78557.116 PT STA = 12+03.8NB Y = 541628.795 X = 78562.810 DB = N21°22'46"E DA = N20°27'57"E	PI STA = 12+57.0NB Y = 541678.627 X = 78581.407 DELTA = 6°05'21" LT D = 5°43'46" T = 53.2' L = 106.3' R = 1000.0' PC STA = 12+03.8NB Y = 541628.795 X = 78562.810 PT STA = 13+10.1NB Y = 541730.150 X = 78594.614 DB = N20°27'57"E DA = N14°22'35"E	PI STA = 14+05.3NB Y = 541822.337 X = 78618.243 DELTA = 24°34'18" RT D = 76°23'40" T = 16.3' L = 32.2' R = 75.0' PC STA = 13+88.9NB Y = 541806.515 X = 78614.188 PT STA = 14+21.1NB Y = 541835.040 X = 78628.510 DB = N14°22'35"E DA = N38°56'53"E

MID VALLEY DRIVE SOUTHBOUND CURVE DATA

19	20	21	22
PI STA = 15+63.5SB Y = 541971.938 X = 78664.764 DELTA = 20°42'16" LT D = 76°23'40" T = 13.7' L = 27.1' R = 75.0' PC STA = 15+49.8SB Y = 541961.710 X = 78655.648 PT STA = 15+76.9SB Y = 541984.728 X = 78669.676 DB = N41°42'44"E DA = N21°00'28"E	PI STA = 16+96.7SB Y = 542096.567 X = 78712.624 DELTA = 16°04'32" RT D = 11°27'33" T = 70.6' L = 140.3' R = 500.0' PC STA = 16+26.1SB Y = 542030.654 X = 78687.312 PT STA = 17+66.4SB Y = 542152.894 X = 78755.198 DB = N21°00'28"E DA = N37°04'59"E	PI STA = 17+81.2SB Y = 542164.730 X = 78764.144 DELTA = 3°23'58" RT D = 11°27'33" T = 14.8' L = 29.7' R = 500.0' PC STA = 17+66.4SB Y = 542152.894 X = 78755.198 PT STA = 17+96.1SB Y = 542176.015 X = 78773.777 DB = N37°04'59"E DA = N40°28'57"E	PI STA = 19+67.9SB Y = 542306.701 X = 78885.324 DELTA = 4°08'34" LT D = 3°16'27" T = 63.3' L = 126.5' R = 1750.0' PC STA = 19+04.6SB Y = 542258.560 X = 78844.233 PT STA = 20+31.1SB Y = 542357.685 X = 78922.830 DB = N40°28'57"E DA = N36°20'23"E



MID VALLEY DRIVE NORTHBOUND CURVE DATA

16	17	18
PI STA = 15+72.4NB Y = 541976.872 X = 78678.682 DELTA = 12°46'50" RT D = 28°38'52" T = 22.4' L = 44.6' R = 200.0' PC STA = 15+50.0NB Y = 541954.545 X = 78676.888 PT STA = 15+94.6NB Y = 541998.249 X = 78685.371 DB = N04°35'37"E DA = N17°22'27"E	PI STA = 16+61.4NB Y = 542062.014 X = 78705.322 DELTA = 18°57'56" RT D = 14°19'26" T = 66.8' L = 132.4' R = 400.0' PC STA = 15+94.6NB Y = 541998.249 X = 78685.371 PT STA = 17+27.0NB Y = 542115.834 X = 78744.914 DB = N17°22'27"E DA = N36°20'23"E	PI STA = 21+89.5NB Y = 542488.332 X = 79018.931 DELTA = 10°35'04" LT D = 3°16'21" T = 162.2' L = 323.4' R = 1750.9' PC STA = 20+27.3NB Y = 542357.685 X = 78922.830 PT STA = 23+50.7NB Y = 542634.408 X = 79089.398 DB = N36°20'14"E DA = N25°45'10"E



NORTHWEST CURVE DATA

NORTHEAST CURVE DATA

27

PI STA = 200+12.5NW
Y = 541920.167
X = 78475.006
DELTA = 1°49'46" LT
D = 7°19'03"
T = 12.5'
L = 25.0'
R = 783.0'
PC STA = 200+00.0NW
Y = 541918.563
X = 78462.608
PT STA = 200+25.0NW
Y = 541922.167
X = 78487.347
DB = N82°37'28"E
DA = N80°47'42"E

28

PI STA = 201+02.0NW
Y = 541933.255
X = 78563.313
DELTA = 10°45'10" LT
D = 14°46'01"
T = 36.5'
L = 72.8'
R = 388.0'
PC STA = 200+65.5NW
Y = 541924.858
X = 78527.776
PT STA = 201+38.3NW
Y = 541948.134
X = 78596.660
DB = N76°42'21"E
DA = N65°57'11"E

29

PI STA = 202+03.8NW
Y = 541974.793
X = 78656.404
DELTA = 50°40'40" LT
D = 76°23'40"
T = 35.5'
L = 66.3'
R = 75.0'
PC STA = 201+68.2NW
Y = 541960.321
X = 78623.972
PT STA = 202+34.6NW
Y = 542009.053
X = 78665.761
DB = N65°57'11"E
DA = N15°16'31"E

30

PI STA = 203+57.1NW
Y = 542123.817
X = 78708.187
DELTA = 18°07'15" RT
D = 11°06'14"
T = 82.3'
L = 163.2'
R = 516.0'
PC STA = 202+74.8NW
Y = 542047.721
X = 78676.882
PT STA = 204+38.0NW
Y = 542186.403
X = 78761.607
DB = N22°21'42"E
DA = N40°28'57"E

35

PI STA = 300+40.2NE
Y = 542084.525
X = 78741.745
DELTA = 11°37'11" LT
D = 14°30'19"
T = 40.2'
L = 80.1'
R = 395.0'
PC STA = 300+00.0NE
Y = 542116.899
X = 78765.561
PT STA = 300+80.1NE
Y = 542048.017
X = 78724.937
DB = S36°20'23"W
DA = S24°43'13"W

36

PI STA = 301+49.8NE
Y = 541984.954
X = 78695.900
DELTA = 21°58'26" LT
D = 38°11'50"
T = 29.1'
L = 57.5'
R = 150.0'
PC STA = 301+20.7NE
Y = 542012.503
X = 78705.341
PT STA = 301+78.2NE
Y = 541955.874
X = 78697.454
DB = S18°54'56"W
DA = S03°03'30"E

37

PI STA = 302+37.6NE
Y = 541896.581
X = 78700.622
DELTA = 94°23'01" LT
D = 104°10'27"
T = 59.4'
L = 90.6'
R = 55.0'
PC STA = 301+78.2NE
Y = 541955.874
X = 78697.454
PT STA = 302+68.8NE
Y = 541904.272
X = 78759.499
DB = S03°03'30"E
DA = N82°33'29"E

SOUTHWEST CURVE DATA

23

PI STA = 502+86.7SW
Y = 541739.751
X = 78567.254
DELTA = 3°57'30" LT
D = 11°34'30"
T = 17.1'
L = 34.2'
R = 495.0'
PC STA = 502+69.6SW
Y = 541723.467
X = 78562.017
PT STA = 503+03.8SW
Y = 541756.359
X = 78571.354
DB = N17°49'38"E
DA = N13°52'08"E

24

PI STA = 503+51.2SW
Y = 541801.548
X = 78585.407
DELTA = 5°15'42" LT
D = 38°11'50"
T = 6.9'
L = 13.8'
R = 150.0'
PC STA = 503+44.3SW
Y = 541794.746
X = 78584.300
PT STA = 503+58.1SW
Y = 541808.424
X = 78585.885
DB = N09°14'16"E
DA = N03°58'34"E

25

PI STA = 503+77.5SW
Y = 541827.769
X = 78587.229
DELTA = 14°43'56" LT
D = 38°11'50"
T = 19.4'
L = 38.6'
R = 150.0'
PC STA = 503+58.1SW
Y = 541808.424
X = 78585.885
PT STA = 503+96.7SW
Y = 541846.819
X = 78583.610
DB = N03°58'34"E
DA = N10°45'22"W

26

PI STA = 504+51.5SW
Y = 541900.658
X = 78573.383
DELTA = 89°47'35" LT
D = 104°10'27"
T = 54.8'
L = 86.2'
R = 55.0'
PC STA = 503+96.7SW
Y = 541846.819
X = 78583.610
PT STA = 504+82.9SW
Y = 541890.625
X = 78519.507
DB = N10°45'22"W
DA = S79°27'03"W

SOUTHEAST CURVE DATA

31

PI STA = 401+22.3SE
Y = 541871.555
X = 78745.052
DELTA = 6°06'34" LT
D = 14°46'01"
T = 20.7'
L = 41.4'
R = 388.0'
PC STA = 401+01.6SE
Y = 541874.691
X = 78765.520
PT STA = 401+43.0SE
Y = 541866.258
X = 78725.035
DB = S81°17'16"W
DA = S75°10'41"W

32

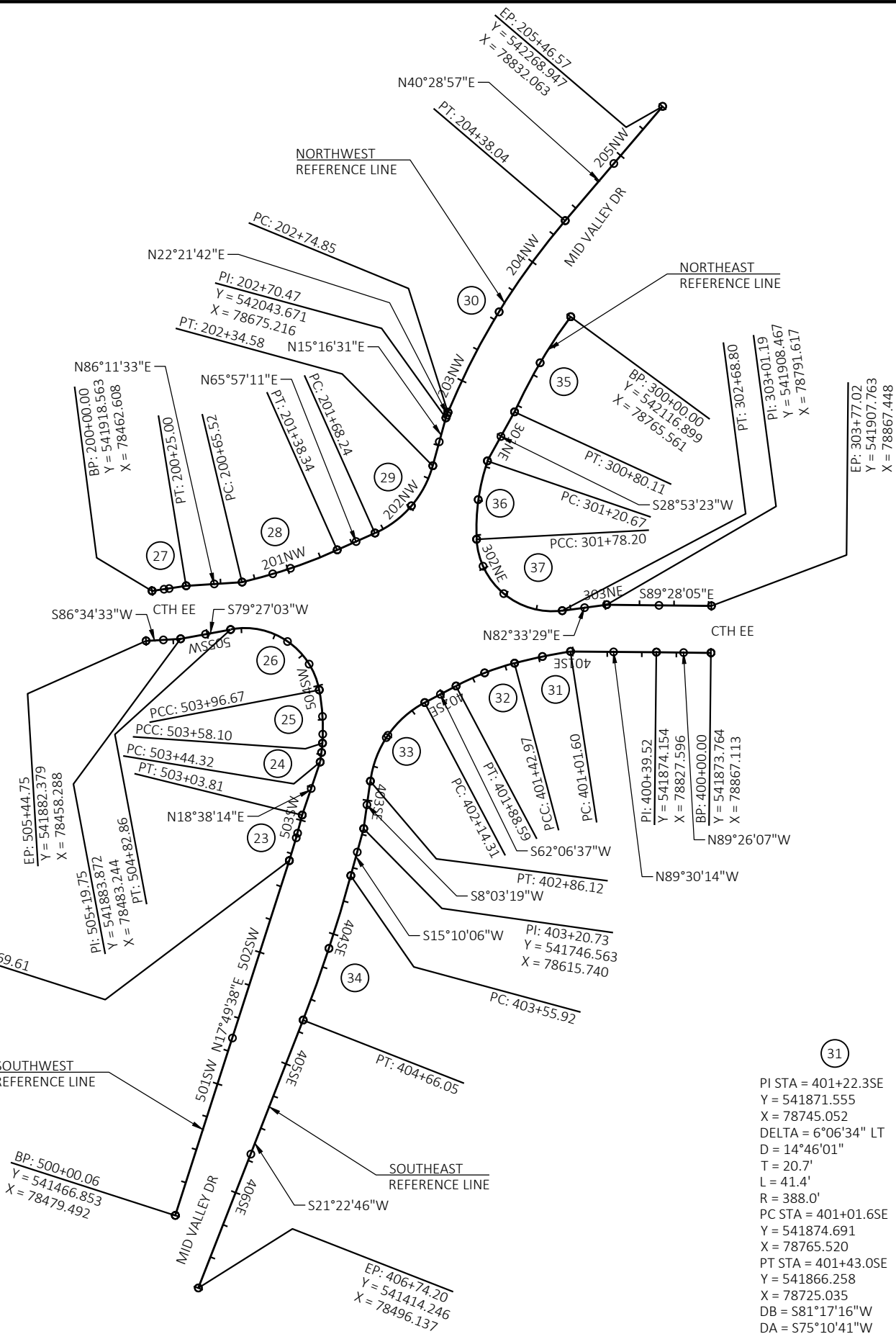
PI STA = 401+65.9SE
Y = 541860.398
X = 78702.890
DELTA = 13°04'05" LT
D = 28°38'52"
T = 22.9'
L = 45.6'
R = 200.0'
PC STA = 401+43.0SE
Y = 541866.258
X = 78725.035
PT STA = 401+88.6SE
Y = 541849.683
X = 78682.643
DB = S75°10'41"W
DA = S62°06'37"W

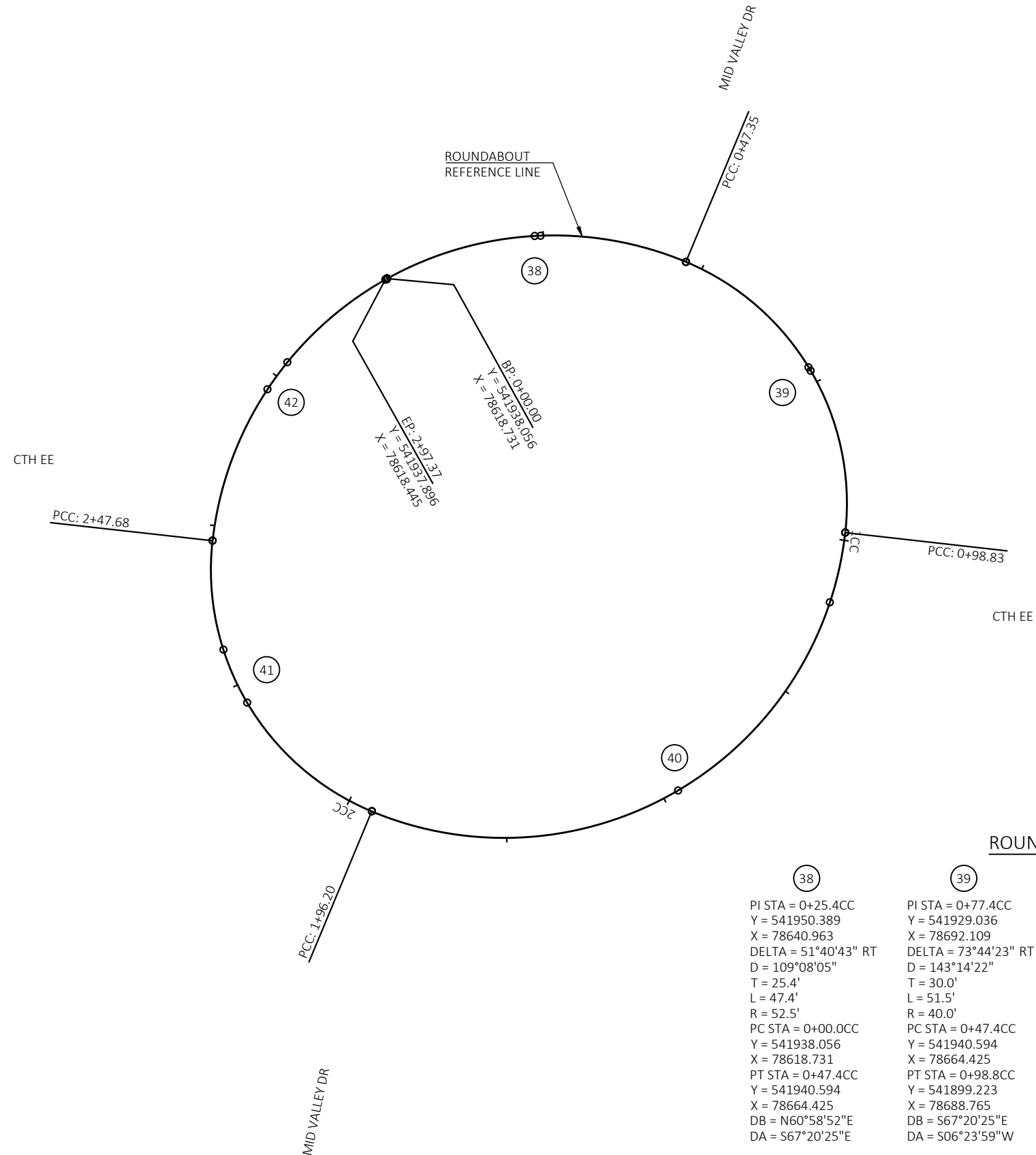
33

PI STA = 402+53.2SE
Y = 541819.441
X = 78625.502
DELTA = 54°51'31" LT
D = 76°23'40"
T = 38.9'
L = 71.8'
R = 75.0'
PC STA = 402+14.3SE
Y = 541837.649
X = 78659.906
PT STA = 402+86.1SE
Y = 541780.827
X = 78620.589
DB = S62°06'37"W
DA = S07°15'05"W

34

PI STA = 404+11.0SE
Y = 541659.398
X = 78592.109
DELTA = 6°12'40" RT
D = 5°38'22"
T = 55.1'
L = 110.1'
R = 1016.0'
PC STA = 403+55.9SE
Y = 541712.599
X = 78606.532
PT STA = 404+66.1SE
Y = 541608.068
X = 78572.015
DB = S15°10'06"W
DA = S21°22'46"W





(38)	(39)	(40)	(41)	(42)
PI STA = 0+25.4CC Y = 541950.389 X = 78640.963 DELTA = 51°40'43" RT D = 109°08'05" T = 25.4' L = 47.4' R = 52.5' PC STA = 0+00.0CC Y = 541938.056 X = 78618.731 PT STA = 0+47.4CC Y = 541940.594 X = 78664.425 DB = N60°58'52"E DA = S67°20'25"E	PI STA = 0+77.4CC Y = 541929.036 X = 78692.109 DELTA = 73°44'23" RT D = 143°14'22" T = 30.0' L = 51.5' R = 40.0' PC STA = 0+47.4CC Y = 541940.594 X = 78664.425 PT STA = 0+98.8CC Y = 541899.223 X = 78688.765 DB = S67°20'25"E DA = S66°23'59"W	PI STA = 1+68.8CC Y = 541829.659 X = 78680.962 DELTA = 106°15'37" RT D = 109°08'05" T = 70.0' L = 97.4' R = 52.5' PC STA = 0+98.8CC Y = 541899.223 X = 78688.765 PT STA = 1+96.2CC Y = 541856.627 X = 78616.366 DB = S06°23'59"W DA = N67°20'25"W	PI STA = 2+26.2CC Y = 541868.185 X = 78588.682 DELTA = 73°44'23" RT D = 143°14'22" T = 30.0' L = 51.5' R = 40.0' PC STA = 1+96.2CC Y = 541856.627 X = 78616.366 PT STA = 2+47.7CC Y = 541897.998 X = 78592.026 DB = N67°20'25"W DA = N60°37'27"E	PI STA = 2+74.6CC Y = 541924.710 X = 78595.022 DELTA = 54°13'28" RT D = 109°08'05" T = 26.9' L = 49.7' R = 52.5' PC STA = 2+47.7CC Y = 541897.998 X = 78592.026 PT STA = 2+97.4CC Y = 541937.896 X = 78618.445 DB = N06°23'59"E DA = N60°37'27"E

Estimate Of Quantities

9277-01-71

Line	Item	Item Description	Unit	Total	Qty
0002	201.0205	Grubbing	STA	2.000	2.000
0004	204.0100	Removing Concrete Pavement	SY	4,630.000	4,630.000
0006	204.0155	Removing Concrete Sidewalk	SY	490.000	490.000
0008	204.0220	Removing Inlets	EACH	3.000	3.000
0010	204.0245	Removing Storm Sewer (size) 01. 15-Inch	LF	53.000	53.000
0012	204.0245	Removing Storm Sewer (size) 02. 18-Inch	LF	125.000	125.000
0014	204.0245	Removing Storm Sewer (size) 03. 30-Inch	LF	62.000	62.000
0016	205.0100	Excavation Common	CY	2,260.000	2,260.000
0018	205.0400	Excavation Marsh	CY	340.000	340.000
0020	208.0100	Borrow	CY	3,730.000	3,730.000
0022	208.1100	Select Borrow	CY	510.000	510.000
0024	213.0100	Finishing Roadway (project) 01. 9277-01-71	EACH	1.000	1.000
0026	305.0110	Base Aggregate Dense 3/4-Inch	TON	150.000	150.000
0028	305.0120	Base Aggregate Dense 1 1/4-Inch	TON	6,000.000	6,000.000
0030	310.0115	Base Aggregate Open-Graded	CY	20.000	20.000
0032	311.0110	Breaker Run	TON	210.000	210.000
0034	405.0100	Coloring Concrete WisDOT Red	CY	100.000	100.000
0036	415.0090	Concrete Pavement 9-Inch	SY	3,740.000	3,740.000
0038	415.2010	Concrete Truck Apron 12-inch	SY	300.000	300.000
0040	415.4100	Concrete Pavement Joint Filling	SY	4,280.000	4,280.000
0042	455.0605	Tack Coat	GAL	340.000	340.000
0044	460.2000	Incentive Density HMA Pavement	DOL	580.000	580.000
0046	460.6223	HMA Pavement 3 MT 58-28 S	TON	660.000	660.000
0048	460.6244	HMA Pavement 4 MT 58-34 S	TON	244.000	244.000
0050	465.0120	Asphaltic Surface Driveways and Field Entrances	TON	10.000	10.000
0052	511.1200	Temporary Shoring (structure) 01. R-05-0116	SF	575.000	575.000
0054	520.8000	Concrete Collars for Pipe	EACH	3.000	3.000
0056	522.2619	Apron Endwalls for Culvert Pipe Reinforced Concrete Horizontal Elliptical 19x30-Inch	EACH	1.000	1.000
0058	522.2624	Apron Endwalls for Culvert Pipe Reinforced Concrete Horizontal Elliptical 24x38-Inch	EACH	1.000	1.000
0060	522.2629	Apron Endwalls for Culvert Pipe Reinforced Concrete Horizontal Elliptical 29x45-Inch	EACH	1.000	1.000
0062	601.0405	Concrete Curb & Gutter 18-Inch Type A	LF	210.000	210.000
0064	601.0409	Concrete Curb & Gutter 30-Inch Type A	LF	1,848.000	1,848.000
0066	601.0555	Concrete Curb & Gutter 6-Inch Sloped 36-Inch Type A	LF	697.000	697.000
0068	601.0557	Concrete Curb & Gutter 6-Inch Sloped 36-Inch Type D	LF	726.000	726.000
0070	601.0580	Concrete Curb & Gutter 4-Inch Sloped 36-Inch Type R	LF	298.000	298.000
0072	601.0600	Concrete Curb Pedestrian	LF	74.000	74.000
0074	602.0405	Concrete Sidewalk 4-Inch	SF	10,740.000	10,740.000
0076	602.0415	Concrete Sidewalk 6-Inch	SF	1,290.000	1,290.000
0078	602.0505	Curb Ramp Detectable Warning Field Yellow	SF	256.000	256.000
0080	602.3010	Concrete Surface Drains	CY	8.000	8.000
0082	608.0412	Storm Sewer Pipe Reinforced Concrete Class IV 12-Inch	LF	224.000	224.000
0084	608.0415	Storm Sewer Pipe Reinforced Concrete Class IV 15-Inch	LF	33.000	33.000
0086	608.0418	Storm Sewer Pipe Reinforced Concrete Class IV 18-Inch	LF	409.000	409.000
0088	608.0430	Storm Sewer Pipe Reinforced Concrete Class IV 30-Inch	LF	244.000	244.000
0090	608.2419	Storm Sewer Pipe Reinforced Concrete Horizontal Elliptical Class HE-IV 19x30-Inch	LF	59.000	59.000
0092	608.2424	Storm Sewer Pipe Reinforced Concrete Horizontal Elliptical Class HE-IV 24x38-Inch	LF	283.000	283.000
0094	608.2429	Storm Sewer Pipe Reinforced Concrete Horizontal Elliptical Class HE-IV 29x45-Inch	LF	197.000	197.000
0096	611.0420	Reconstructing Manholes	EACH	1.000	1.000
0098	611.0535	Manhole Covers Type J-Special	EACH	7.000	7.000

Estimate Of Quantities

9277-01-71

Line	Item	Item Description	Unit	Total	Qty
0100	611.0624	Inlet Covers Type H	EACH	2.000	2.000
0102	611.0627	Inlet Covers Type HM	EACH	1.000	1.000
0104	611.0639	Inlet Covers Type H-S	EACH	10.000	10.000
0106	611.0642	Inlet Covers Type MS	EACH	3.000	3.000
0108	611.0652	Inlet Covers Type T	EACH	2.000	2.000
0110	611.2004	Manholes 4-FT Diameter	EACH	2.000	2.000
0112	611.2006	Manholes 6-FT Diameter	EACH	3.000	3.000
0114	611.2007	Manholes 7-FT Diameter	EACH	1.000	1.000
0116	611.2008	Manholes 8-FT Diameter	EACH	1.000	1.000
0118	611.3004	Inlets 4-FT Diameter	EACH	3.000	3.000
0120	611.3230	Inlets 2x3-FT	EACH	7.000	7.000
0122	611.3902	Inlets Median 2 Grate	EACH	3.000	3.000
0124	612.0106	Pipe Underdrain 6-Inch	LF	270.000	270.000
0126	612.0206	Pipe Underdrain Unperforated 6-Inch	LF	192.000	192.000
0128	612.0406	Pipe Underdrain Wrapped 6-Inch	LF	90.000	90.000
0130	619.1000	Mobilization	EACH	1.000	1.000
0132	620.0300	Concrete Median Sloped Nose	SF	456.000	456.000
0134	624.0100	Water	MGAL	140.000	140.000
0136	625.0100	Topsoil	SY	6,930.000	6,930.000
0138	625.0105	Topsoil	CY	60.000	60.000
0140	628.1905	Mobilizations Erosion Control	EACH	5.000	5.000
0142	628.1910	Mobilizations Emergency Erosion Control	EACH	3.000	3.000
0144	628.2004	Erosion Mat Class I Type B	SY	2,150.000	2,150.000
0146	628.2008	Erosion Mat Urban Class I Type B	SY	4,780.000	4,780.000
0148	628.7005	Inlet Protection Type A	EACH	23.000	23.000
0150	628.7010	Inlet Protection Type B	EACH	4.000	4.000
0152	628.7015	Inlet Protection Type C	EACH	19.000	19.000
0154	628.7504	Temporary Ditch Checks	LF	195.000	195.000
0156	628.7555	Culvert Pipe Checks	EACH	7.000	7.000
0158	629.0210	Fertilizer Type B	CWT	6.000	6.000
0160	630.0140	Seeding Mixture No. 40	LB	320.000	320.000
0162	630.0500	Seed Water	MGAL	160.000	160.000
0164	634.0614	Posts Wood 4x6-Inch X 14-FT	EACH	27.000	27.000
0166	634.0616	Posts Wood 4x6-Inch X 16-FT	EACH	2.000	2.000
0168	637.2210	Signs Type II Reflective H	SF	209.040	209.040
0170	637.2230	Signs Type II Reflective F	SF	42.500	42.500
0172	638.2102	Moving Signs Type II	EACH	2.000	2.000
0174	638.2602	Removing Signs Type II	EACH	7.000	7.000
0176	638.3000	Removing Small Sign Supports	EACH	7.000	7.000
0178	638.4000	Moving Small Sign Supports	EACH	3.000	3.000
0180	642.5001	Field Office Type B	EACH	1.000	1.000
0182	643.0410	Traffic Control Barricades Type II	DAY	164.000	164.000
0184	643.0420	Traffic Control Barricades Type III	DAY	2,296.000	2,296.000
0186	643.0705	Traffic Control Warning Lights Type A	DAY	3,608.000	3,608.000
0188	643.0900	Traffic Control Signs	DAY	11,562.000	11,562.000
0190	643.1050	Traffic Control Signs PCMS	DAY	28.000	28.000
0192	645.0111	Geotextile Type DF Schedule A	SY	195.000	195.000
0194	646.2020	Marking Line Epoxy 6-Inch	LF	5,346.000	5,346.000
0196	646.4020	Marking Line Epoxy 10-Inch	LF	182.000	182.000

Estimate Of Quantities

9277-01-71

Line	Item	Item Description	Unit	Total	Qty
0198	646.6320	Marking Dotted Extension Epoxy 18-Inch	LF	153.000	153.000
0200	646.7120	Marking Diagonal Epoxy 12-Inch	LF	144.000	144.000
0202	646.7420	Marking Crosswalk Epoxy Transverse Line 6-Inch	LF	234.000	234.000
0204	646.8120	Marking Curb Epoxy	LF	40.000	40.000
0206	646.8220	Marking Island Nose Epoxy	EACH	12.000	12.000
0208	650.4000	Construction Staking Storm Sewer	EACH	29.000	29.000
0210	650.4500	Construction Staking Subgrade	LF	1,685.000	1,685.000
0212	650.5000	Construction Staking Base	LF	622.000	622.000
0214	650.5500	Construction Staking Curb Gutter and Curb & Gutter	LF	762.000	762.000
0216	650.6501	Construction Staking Structure Layout (structure) 01. R-05-0116	EACH	1.000	1.000
0218	650.8501	Construction Staking Electrical Installations (project) 01. 9277-01-71	EACH	1.000	1.000
0220	650.9000	Construction Staking Curb Ramps	EACH	16.000	16.000
0222	650.9500	Construction Staking Sidewalk (project) 01. 9277-01-71	EACH	1.000	1.000
0224	650.9911	Construction Staking Supplemental Control (project) 01. 9277-01-71	EACH	1.000	1.000
0226	650.9920	Construction Staking Slope Stakes	LF	1,388.000	1,388.000
0228	652.0225	Conduit Rigid Nonmetallic Schedule 40 2-Inch	LF	1,346.000	1,346.000
0230	652.0235	Conduit Rigid Nonmetallic Schedule 40 3-Inch	LF	48.000	48.000
0232	653.0164	Pull Boxes Non-Conductive 24x42-Inch	EACH	8.000	8.000
0234	654.0105	Concrete Bases Type 5	EACH	11.000	11.000
0236	654.0224	Concrete Control Cabinet Bases Type L24	EACH	1.000	1.000
0238	655.0610	Electrical Wire Lighting 12 AWG	LF	1,122.000	1,122.000
0240	655.0620	Electrical Wire Lighting 8 AWG	LF	5,447.000	5,447.000
0242	656.0201	Electrical Service Meter Breaker Pedestal (location) 01. LCC A	EACH	1.000	1.000
0244	657.0255	Transformer Bases Breakaway 11 1/2-Inch Bolt Circle	EACH	11.000	11.000
0246	657.0322	Poles Type 5-Aluminum	EACH	11.000	11.000
0248	657.0615	Luminaire Arms Single Member 4 1/2-Inch Clamp 8-FT	EACH	11.000	11.000
0250	659.1115	Luminaires Utility LED A	EACH	11.000	11.000
0252	659.2124	Lighting Control Cabinets 120/240 24-Inch	EACH	1.000	1.000
0254	690.0150	Sawing Asphalt	LF	84.000	84.000
0256	690.0250	Sawing Concrete	LF	100.000	100.000
0258	715.0720	Incentive Compressive Strength Concrete Pavement	DOL	1,122.000	1,122.000
0260	ASP.1T0A	On-the-Job Training Apprentice at \$5.00/HR	HRS	1,200.000	1,200.000
0262	ASP.1T0G	On-the-Job Training Graduate at \$5.00/HR	HRS	1,200.000	1,200.000
0264	SPV.0060	Special 01. Inlets 5-FT Diameter	EACH	1.000	1.000
0266	SPV.0060	Special 02. Inlets 6-FT Diameter	EACH	2.000	2.000
0268	SPV.0060	Special 03. Inlets 7-FT Diameter	EACH	1.000	1.000
0270	SPV.0060	Special 04. Inlets 8-FT Diameter	EACH	1.000	1.000
0272	SPV.0165	Special 01. Weed Barrier	SF	3,170.000	3,170.000
0274	SPV.0165	Special 02. Colored and Stamped Concrete Sidewalk 4-Inch	SF	210.000	210.000
0276	SPV.0165	Special 03. Insulation Board 2-Inch	SF	384.000	384.000
0278	SPV.0165	Special 04. Wall Modular Block Mechanically Stabilized Earth R-05-0116	SF	445.000	445.000
0280	SPV.0180	Special 01. Double Shredded Hardwood Mulch	SY	360.000	360.000

GRUBBING

				201.0205
STATION	TO	STATION	LOCATION	STA
15+00	-	17+00	MID VALLEY DR NB	2
TOTAL 0010				2

REMOVING STORM SEWER

				204.0220	204.0245.01	204.0245.02	204.0245.03
				REMOVING	REMOVING STORM	REMOVING STORM	REMOVING STORM
				INLETS	SEWER 15-INCH	SEWER 18-INCH	SEWER 30-INCH
STATION	TO	STATION	LOCATION	EACH	LF	LF	LF
105+00	-	108+75	CTH EE EB	2	53	125	-
10+43			MID VALLEY DR NB	1	-	-	62
TOTAL 0010				3	53	125	62

REMOVING CONCRETE PAVEMENT

				204.0100	
STATION	TO	STATION	LOCATION	SY	REMARKS
103+00	-	108+75	CTH EE EB	2,156	
9+18	-	9+68	MID VALLEY DR NB	28	DRIVEWAY
12+51	-	14+61	MID VALLEY DR NB	1,208	SOUTH LEG
15+04	-	17+24	MID VALLEY DR NB	1,238	NORTH LEG
TOTAL 0010				4,630	

REMOVING CONCRETE SIDEWALK

				204.0155
STATION	TO	STATION	LOCATION	SY
106+74	-	108+75	CTH EE EB, RT	290
107+37	-	108+75	CTH EE EB, LT	200
TOTAL 0010				490

DIVISION	FROM/TO STATION	LOCATION	COMMON EXCAVATION (1)	SALVAGED/UNUSABLE PAVEMENT MATERIAL (4)	AVAILABLE MATERIAL (5)	205.0400 MARSH EXCAVATION (6)	EXPANDED MARSH BACKFILL (10)	UNEXPANDED FILL	EXPANDED FILL (13)	MASS ORDINATE +/- (14)	WASTE	208.0100 BORROW	COMMENT
			CUT (2)				FACTOR 1.50		FACTOR 1.43				
1	103+00 - 108+75	CTH EE EB	565	325	240	0	0	505	722	-482	325	482	
	105+25 - 107+75	CTH EE WB	14	25	0	18	27	325	439	-437	43	437	
	11+75 - 19+50	MID VALLEY DR NB	1,586	598	988	312	468	1,121	1,157	54	910	0	
	13+75 - 16+00	MID VALLEY DR SB	10	28	0	0	0	174	249	-267	28	267	
	0+00 - 2+97	RAB	85	445	0	10	15	1,580	2,245	-2,598	455	2,544	
GRAND TOTAL			2,260	1,421	1,228	340	510	3,705	4,812	-3,730	1,761	3,730	
TOTAL COMMON EXC			2,260										

NOTES:

- (1) COMMON EXCAVATION IS THE SUM OF THE CUT COLUMN. ITEM NUMBER 205.0100
- (2) SALVAGED/UNSUABLE PAVEMENT MATERIAL IS INCLUDED IN CUT.
- (4) SALVAGED/UNUSABLE PAVEMENT MATERIAL
- 5) AVAILABLE MATERIAL = CUT - SALVAGED/UNUSUABLE PAVEMENT MATERIAL
- (10) EXPANDED MARSH BACKFILL - THIS IS TO BE FILLED WITH SELECT BORROW MATERIAL. MARSH BACKFILL FACTOR = 1.50. ITEM NUMBER 208.1100
- (13) EXPANDED FILL = UNEXPANDED FILL * FILL FACTOR. EXPANDED FILL FACTOR = 1.43
- (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.

ALL ITEMS ARE CATEGORY 0010 UNLESS OTHERWISE STATED

BASE AGGREGATE DENSE

				305.0110	305.0120	311.0110	624.0100		
				BASE AGGREGATE	BASE AGGREGATE	BREAKER RUN	WATER		
				DENSE 3/4-INCH	DENSE 1 1/4-INCH		MGAL		
STATION	TO	STATION	LOCATION	TON	TON	TON		REMARKS	
103+00	-	103+46	CTH EE EB	10	196	-	4	WEST LEG	
103+46	-	105+76	CTH EE EB	18	548	-	12	WEST LEG	
104+75	-	105+75	CTH EE EB	-	80	100	4	WEST LEG LEVELING LAYER	
107+03	-	108+75	CTH EE EB	-	510	-	12	EAST LEG	
9+15	-	12+00	MID VALLEY DR NB	36	1,364	-	28	SOUTH LEG	
12+00	-	14+20	MID VALLEY DR NB	-	490	-	10	SOUTH LEG	
13+50	-	14+00	MID VALLEY DR NB	-	130	-	4	SOUTH LEG LEVELING LAYER	
15+49	-	17+40	MID VALLEY DR NB	-	408	-	10	NORTH LEG	
15+65	-	16+25	MID VALLEY DR NB	-	64	-	4	NORTH LEG LEVELING LAYER	
17+40	-	20+30	MID VALLEY DR NB	86	1,408	-	30	NORTH LEG	
0+00	-	2+97	RAB CIRCLE	-	410	-	10	ROUNDAABOUT	
0+00	-	2+97	RAB CIRCLE	-	392	110	12	ROUNDAABOUT LEVELING LAYER	
TOTAL 0010				150	6,000	210	140		

CONCRETE PAVEMENT 9-INCH

				415.0090	415.4100		
				CONCRETE	CONCRETE		
				PAVEMENT	PAVEMENT		
				9-INCH	JOINT FILLING		
STATION	TO	STATION	LOCATION	SY	SY	REMARKS	
103+46	-	105+76	CTH EE EB	903	985	WEST LEG	
107+03	-	108+75	CTH EE EB	616	725	EAST LEG	
12+00	-	14+20	MID VALLEY DR NB	800	920	SOUTH LEG	
15+49	-	17+40	MID VALLEY DR NB	712	840	NORTH LEG	
0+00	-	2+97	RAB CIRCLE	709	810	ROUNDAABOUT	
TOTAL 0010				3,740	4,280		

ASPHALTIC SURFACE DRIVEWAYS AND FIELD ENTRANCES

				465.0120		
				TON		
STATION	TO	STATION	LOCATION		REMARKS	
9+18	-	9+70	MID VALLEY DR NB, LT	10	C.E.	
TOTAL 0010				10		

CONCRETE TRUCK APRON

				405.0100	415.2010		
				COLORING	CONCRETE		
				CONCRETE	TRUCK APRON		
				WISDOT RED	12-INCH		
STATION	TO	STATION	LOCATION	CY	SY	REMARKS	
0+00	-	2+97	RAB CIRCLE	100	300	ROUNDAABOUT	
TOTAL 0010				100	300		

HMA PAVEMENT

				455.0605	460.6223	460.6244		
				TACK COAT	HMA PAVEMENT	HMA PAVEMENT		
					3 MT 58-28 S	4 MT 58-34 S		
STATION	TO	STATION	LOCATION	GAL	TON	TON	REMARKS	
103+00	-	103+46	CTH EE EB	24	45	17	WEST LEG	
9+15	-	12+00	MID VALLEY DR NB	159	309	114	SOUTH LEG	
17+40	-	20+30	MID VALLEY DR NB	157	306	113	NORTH LEG	
TOTAL 0010				340	660	244		

CONCRETE COLLARS FOR PIPE

				520.8000		
				EACH		
STATION	LOCATION					
108+10	CTH EE EB, RT			1		
108+34	CTH EE EB, RT			1		
10+42	MID VALLEY DR NB, RT			1		
TOTAL 0010				3		

ALL ITEMS ARE CATEGORY 0010 UNLESS OTHERWISE STATED

<u>APRON ENDWALLS</u>						
STRUCTURE	STATION	LOCATION	522.2619	522.2624	522.2629	
			APRON ENDWALLS FOR	APRON ENDWALLS FOR	APRON ENDWALLS FOR	
			CULVERT PIPE REINFORCED	CULVERT PIPE REINFORCED	CULVERT PIPE REINFORCED	
			CONCRETE HORIZONTAL	CONCRETE HORIZONTAL	CONCRETE HORIZONTAL	
			ELLIPTICAL 19X30-INCH	ELLIPTICAL 24X38-INCH	ELLIPTICAL 29X45-INCH	
			EACH	EACH	EACH	
5	104+68	CTH EE EB, LT	-	1	-	
4A	13+85	MID VALLEY DR NB, LT	-	-	1	
8D	16+43	MID VALLEY DR NB, RT	1	-	-	
TOTAL 0010			1	1	1	

CONCRETE SIDEWALK							
STATION	TO	STATION	LOCATION	602.0405	602.0415	602.0505	REMARKS
				CONCRETE	CONCRETE	CURB RAMP DETECTABLE	
				SIDEWALK 4-INCH	SIDEWALK 6-INCH	WARNING FIELD YELLOW	
				SF	SF	SF	
104+87	-	106+03	CTH EE EB	962	286	32	SW QUADRANT
104+94	-	106+42	CTH EE EB	1,350	276	32	NW QUADRANT
105+30	-	105+72	CTH EE EB	400	80	32	WEST MEDIAN
106+44	-	108+75	CTH EE EB	2,492	145	32	SE QUADRANT
106+87	-	108+75	CTH EE EB	1,912	296	32	NE QUADRANT
107+13	-	107+47	CTH EE EB	282	64	32	EAST MEDIAN
13+76	-	14+15	MID VALLEY DR NB	1,930	84	32	SOUTH MEDIAN
15+54	-	15+90	MID VALLEY DR NB	1,412	59	32	NORTH MEDIAN
TOTAL 0010				10,740	1,290	256	

CONCRETE CURB & GUTTER											
STATION	TO	STATION	LOCATION	601.0405	601.0409	601.0555	601.0557	601.0580	601.0600	620.0300	REMARKS
				CONCRETE CURB & GUTTER 18-INCH	CONCRETE CURB & GUTTER 30-INCH	CONCRETE CURB & GUTTER 6-INCH	CONCRETE CURB & GUTTER 6-INCH	CONCRETE CURB & GUTTER 4-INCH	CONCRETE CURB	CONCRETE MEDIAN	
				TYPE A	TYPE A	SLOPED 36-INCH	SLOPED 36-INCH	SLOPED 36-INCH	PEDESTRIAN	SLOPED NOSE	
				LF	LF	LF	LF	LF	LF	SF	
				LF	LF	LF	LF	LF	LF	SF	
104+58	-	106+07	CTH EE EB	-	241	128	177	-	-	-	SW QUADRANT
104+65	-	106+51	CTH EE EB	-	290	95	164	-	-	-	NW QUADRANT
105+26	-	105+76	CTH EE EB	-	90	-	-	-	20	113	WEST MEDIAN
106+41	-	108+75	CTH EE EB	-	321	133	221	-	-	-	SE QUADRANT
106+80	-	108+75	CTH EE EB	-	297	81	-	-	-	-	NE QUADRANT
107+10	-	107+55	CTH EE EB	-	65	-	-	-	17	122	EAST MEDIAN
11+68	-	14+17	MID VALLEY DR NB	-	273	159	50	-	22	110	SOUTH MEDIAN
15+52	-	18+03	MID VALLEY DR NB	-	271	101	114	-	15	111	NORTH MEDIAN
0+00	-	2+97	RAB CIRCLE	210	-	-	-	298	-	-	ROUNDAABOUT
TOTAL 0010				210	1,848	697	726	298	74	456	

CONCRETE SURFACE DRAINS			
STATION	LOCATION	602.3010	REMARKS
		CY	
104+55	CTH EE EB, RT	2	WEST LEG
104+60	CTH EE EB, LT	2	WEST LEG
12+55	MID VALLEY DR NB, LT	4	SOUTH LEG
TOTAL 0010		8	

ALL ITEMS ARE CATEGORY 0010 UNLESS OTHERWISE STATED

STORM SEWER PIPE									
		608.0412	608.0415	608.0418	608.0430	608.2419	608.2424	608.2429	
		STORM SEWER PIPE	STORM SEWER PIPE	STORM SEWER PIPE	STORM SEWER PIPE	STORM SEWER PIPE	STORM SEWER PIPE	STORM SEWER PIPE	
		REINFORCED	REINFORCED	REINFORCED	REINFORCED	REINFORCED CONCRETE	REINFORCED CONCRETE	REINFORCED CONCRETE	
		CONCRETE CLASS IV	CONCRETE CLASS IV	CONCRETE CLASS IV	CONCRETE CLASS IV	HORIZONTAL ELLIPTICAL	HORIZONTAL ELLIPTICAL	HORIZONTAL ELLIPTICAL	
		12-INCH	15-INCH	18-INCH	30-INCH	CLASS HE-IV 19X30-INCH	CLASS HE-IV 24X38-INCH	CLASS HE-IV 29X45-INCH	
STRUCTURE	TO STRUCTURE	LOCATION	LF	LF	LF	LF	LF	LF	
1	- 2	CTH EE AND MID VALLEY DR INTERSECTION	-	-	77	-	-	-	
2	- 3	CTH EE AND MID VALLEY DR INTERSECTION	-	-	-	207	-	-	
2	- EXISTING	CTH EE AND MID VALLEY DR INTERSECTION	-	-	-	37	-	-	
3	- 4	CTH EE AND MID VALLEY DR INTERSECTION	-	-	-	-	-	-	124
3	- 3A	CTH EE AND MID VALLEY DR INTERSECTION	25	-	-	-	-	-	-
4	- 4C	CTH EE AND MID VALLEY DR INTERSECTION	-	-	-	-	-	-	22
4	- 4F	CTH EE AND MID VALLEY DR INTERSECTION	-	-	-	-	20	-	-
4C	- 4A	CTH EE AND MID VALLEY DR INTERSECTION	-	-	-	-	-	-	35
4C	- 4B	CTH EE AND MID VALLEY DR INTERSECTION	26	-	-	-	-	-	-
4F	- 4E	CTH EE AND MID VALLEY DR INTERSECTION	-	-	23	-	-	-	-
4E	- 4D	CTH EE AND MID VALLEY DR INTERSECTION	-	-	24	-	-	-	-
5	- 6	CTH EE AND MID VALLEY DR INTERSECTION	-	-	-	-	-	17	-
6	- 7	CTH EE AND MID VALLEY DR INTERSECTION	-	-	-	-	-	196	-
7	- 8	CTH EE AND MID VALLEY DR INTERSECTION	-	-	-	-	-	70	-
7	- 7A	CTH EE AND MID VALLEY DR INTERSECTION	-	-	47	-	-	-	-
7A	- 7B	CTH EE AND MID VALLEY DR INTERSECTION	-	10	-	-	-	-	-
7B	- 7C	CTH EE AND MID VALLEY DR INTERSECTION	128	-	-	-	-	-	-
8	- 9	CTH EE AND MID VALLEY DR INTERSECTION	-	-	103	-	-	-	-
8	- 8B	CTH EE AND MID VALLEY DR INTERSECTION	-	23	-	-	-	-	-
8	- 8C	CTH EE AND MID VALLEY DR INTERSECTION	-	-	-	-	22	-	-
8B	- 8A	CTH EE AND MID VALLEY DR INTERSECTION	9	-	-	-	-	-	-
8C	- 8D	CTH EE AND MID VALLEY DR INTERSECTION	-	-	-	-	17	-	-
8C	- 8E	CTH EE AND MID VALLEY DR INTERSECTION	11	-	-	-	-	-	-
9	- 10	CTH EE AND MID VALLEY DR INTERSECTION	-	-	100	-	-	-	-
9	- 9A	CTH EE AND MID VALLEY DR INTERSECTION	25	-	-	-	-	-	-
10	- 11	CTH EE AND MID VALLEY DR INTERSECTION	-	-	35	-	-	-	-
12	- EXISTING	CTH EE AND MID VALLEY DR INTERSECTION	-	-	-	-	-	-	8
12	- EXISTING	CTH EE AND MID VALLEY DR INTERSECTION	-	-	-	-	-	-	8
TOTAL 0010			224	33	409	244	59	283	197

PIPE UNDERDRAIN ITEMS									
		310.0115	612.0106	612.0206	645.0111				
		BASE	PIPE	PIPE					
		AGGREGATE	UNDERDRAIN	UNDERDRAIN	GEOTEXTILE TYPE				
		OPEN-GRADED	6-INCH	UNPERFORATED	DF SCHEDULE A				
CATEGORY	STATION TO STATION	LOCATION	CY	LF	LF	SY	REMARKS		
0010	13+74 - 14+72	MID VALLEY DR NB, RT	-	-	117	-			
0010	15+50 - 16+20	MID VALLEY DR NB, RT	-	-	75	-			
0010	0+84	RAB CIRCLE	20	270	-	195	2C - 2B		
TOTAL 0010			20	270	192	195			

ALL ITEMS ARE CATEGORY 0010 UNLESS OTHERWISE STATED

STORM SEWER STRUCTURES AND COVERS

STRUCTURE	STATION	LOCATION	611.0535	611.0624	611.0627	611.0639	611.0642	611.0652	611.2004	611.2006	611.2007	611.2008	611.3004	611.3230	611.3902	SPV.0060.01	SPV.0060.02	SPV.0060.03	SPV.0060.04
			MANHOLE	INLET	INLET	INLET	INLET	INLET	MANHOLES	MANHOLES	MANHOLES	MANHOLES	INLETS 4-FT	INLETS 2X3-FT	INLETS				
			COVERS TYPE J-SPECIAL	COVERS TYPE H	COVERS TYPE HM	COVERS TYPE H-S	COVERS TYPE MS	COVERS TYPE T	4-FT DIAMETER	6-FT DIAMETER	7-FT DIAMETER	8-FT DIAMETER	DIAMETER	DIAMETER	MEDIAN 2 GRATE	INLETS 5-FT DIAMETER	INLETS 6-FT DIAMETER	INLETS 7-FT DIAMETER	INLETS 8-FT DIAMETER
6	104+82	CTH EE EB, LT	-	1	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-
7C	108+22	CTH EE EB, LT	-	-	-	1	-	-	-	-	-	-	-	1	-	-	-	-	-
12	108+22	CTH EE EB, LT	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	1
1	9+70	MID VALLEY DR, RT	-	-	-	-	1	-	-	-	-	-	-	-	1	-	-	-	-
2	10+43	MID VALLEY DR	1	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-
3	12+50	MID VALLEY DR, LT	1	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-
3A	12+50	MID VALLEY DR, RT	-	-	1	-	-	-	-	-	-	-	-	1	-	-	-	-	-
4D	13+33	MID VALLEY DR, RT	-	-	-	-	1	-	-	-	-	-	-	-	1	-	-	-	-
4E	13+50	MID VALLEY DR, RT	-	-	-	1	-	-	-	-	-	-	1	-	-	-	-	-	-
4B	13+52	MID VALLEY DR, LT	-	-	-	1	-	-	-	-	-	-	-	1	-	-	-	-	-
4	13+74	MID VALLEY DR, LT	1	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-
4F	13+74	MID VALLEY DR, RT	-	-	-	1	-	-	-	-	-	-	-	-	-	1	-	-	-
4C	13+78	MID VALLEY DR, LT	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	1	-
7	15+62	MID VALLEY DR, LT	1	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-
8E	16+20	MID VALLEY DR, RT	-	-	-	1	-	-	-	-	-	-	-	1	-	-	-	-	-
8	16+30	MID VALLEY DR, LT	1	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-
8C	16+31	MID VALLEY DR, RT	-	-	-	1	-	-	-	-	-	-	-	-	-	-	1	-	-
8B	16+34	MID VALLEY DR, LT	-	-	-	1	-	-	-	-	-	-	-	1	-	-	-	-	-
8A	16+43	MID VALLEY DR, LT	-	-	-	1	-	-	-	-	-	-	-	1	-	-	-	-	-
9A	17+30	MID VALLEY DR, LT	-	1	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-
9	17+32	MID VALLEY DR, LT	1	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-
10	18+31	MID VALLEY DR, LT	1	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-
11	18+45	MID VALLEY DR, LT	-	-	-	-	1	-	-	-	-	-	-	-	1	-	-	-	-
7A	0+74	RAB CIRCLE	-	-	-	-	-	1	-	-	-	-	1	-	-	-	-	-	-
7B	0+85	RAB CIRCLE	-	-	-	-	-	1	-	-	-	-	1	-	-	-	-	-	-
TOTAL 0010			7	2	1	10	3	2	2	3	1	1	3	7	3	1	2	1	1

RECONSTRUCTING MANHOLES

CATEGORY	STRUCTURE	STATION	LOCATION	611.0420 RECONSTRUCTING MANHOLES	REMARKS
0010	EXISTING	1+33	RAB CIRCLE	1	8-INCH
TOTAL				1	

ROUNDAABOUT LANDSCAPING

LOCATION	625.0105 TOPSOIL CY	SPV.0165.01 WEED BARRIER SF	SPV.0180.01 DOUBLE SHREDDED HARDWOOD MULCH SY
RAB CIRCLE	60	3,170	360
TOTAL 0010	60	3,170	360

MOBILIZATIONS EROSION CONTROL

LOCATION	628.1905 MOBILIZATIONS EROSION CONTROL EACH	628.1910 MOBILIZATIONS EMERGENCY EROSION CONTROL EACH
PROJECT	5	3
TOTAL 0010	5	3

ALL ITEMS ARE CATEGORY 0010 UNLESS OTHERWISE STATED

INLET PROTECTION

STRUCTURE	STATION	LOCATION	628.7005	628.7010	628.7015
			INLET PROTECTION	INLET PROTECTION	INLET PROTECTION
			TYPE A EACH	TYPE B EACH	TYPE C EACH
6	104+82	CTH EE EB, LT	1	-	1
7C	108+22	CTH EE EB, LT	1	-	1
12	108+22	CTH EE EB, LT	1	-	1
1	9+70	MID VALLEY DR, RT	1	1	-
3A	12+50	MID VALLEY DR, RT	1	-	1
4D	13+33	MID VALLEY DR, RT	1	1	-
4E	13+50	MID VALLEY DR, RT	1	-	1
4B	13+52	MID VALLEY DR, LT	1	-	1
4F	13+74	MID VALLEY DR, RT	1	-	1
4C	13+78	MID VALLEY DR, LT	1	-	1
8E	16+20	MID VALLEY DR, RT	1	-	1
8C	16+31	MID VALLEY DR, RT	1	-	1
8B	16+34	MID VALLEY DR, LT	1	-	1
8A	16+43	MID VALLEY DR, LT	1	-	1
9A	17+30	MID VALLEY DR, LT	1	-	1
11	18+45	MID VALLEY DR, LT	1	1	-
7A	0+74	RAB CIRCLE	1	-	1
7B	0+85	RAB CIRCLE	1	-	1
		UNDISTRIBUTED	5	1	4
TOTAL 0010			23	4	19

TEMPORARY DITCH CHECKS

STATION	LOCATION	628.7504
		LF
103+00	CTH EE EB, RT	15
103+00	CTH EE EB, LT	15
104+00	CTH EE EB, RT	15
104+00	CTH EE EB, LT	15
10+00	MID VALLEY DR NB, LT	5
10+00	MID VALLEY DR NB, RT	5
12+00	MID VALLEY DR NB, LT	5
12+00	MID VALLEY DR NB, RT	5
13+10	MID VALLEY DR NB, LT	15
13+16	MID VALLEY DR NB, RT	15
16+92	MID VALLEY DR NB, RT	15
17+77	MID VALLEY DR NB, RT	15
18+75	MID VALLEY DR NB, LT	10
18+75	MID VALLEY DR NB, RT	10
20+25	MID VALLEY DR NB, LT	10
20+25	MID VALLEY DR NB, RT	10
	UNDISTRIBUTED	45
TOTAL 0010		195

CULVERT PIPE CHECKS

STRUCTURE	STATION	LOCATION	628.7555
			CULVERT PIPE CHECKS EACH
8D	16+43	MID VALLEY DR NB, RT	5
		UNDISTRIBUTED	2
TOTAL 0010			7

LANDSCAPING ITEMS

STATION	TO	STATION	LOCATION	625.0100	628.2004	628.2008	629.0210	630.0140	630.0500	REMARKS
				TOPSOIL	EROSION MAT	EROSION MAT	FERTILIZER TYPE	SEEDING	SEED WATER	
				SY	CLASS I TYPE B SY	URBAN CLASS I TYPE B SY	B CWT	MIXTURE NO. 40 LB	MGAL	
103+00	-	105+75	CTH EE EB	2,160	580	1,582	2	100	50	SOUTHWEST QUADRANT
103+00	-	105+75	CTH EE EB	1,450	364	1,086	1	66	34	NORTHWEST QUADRANT
106+75	-	108+00	CTH EE EB	960	416	542	1	44	22	SOUTHEAST QUADRANT
106+75	-	108+00	CTH EE EB	975	360	614	1	44	22	NORTHEAST QUADRANT
			UNDISTRIBUTED	1,385	430	956	1	66	32	
TOTAL 0010				6,930	2,150	4,780	6	320	160	

ALL ITEMS ARE CATEGORY 0010 UNLESS OTHERWISE STATED

ERECTION AND REMOVAL OF TYPE II SIGNS AND SUPPORTS

SIGN NO.	LOCATION	STATION	SIGN CODE	W X H	637.2210 SIGNS TYPE II REFLECTIVE H S.F.	637.2230 SIGNS TYPE II REFLECTIVE F S.F.	634.0614 POSTS WOOD 4x6x14 EACH	634.0616 POSTS WOOD 4x6x16 EACH	638.2102 MOVING SIGNS TYPE II EACH	638.2602 REMOVING SIGNS TYPE II EACH	638.3000 REMOVING SMALL SIGN SUPPORTS EACH	638.4000 MOVING SMALL SIGN SUPPORTS EACH	REMARKS
1	CTH EE	99+60	W2-6	30" X 30"	---	6.25	1	---	---	---	---	---	
1A	CTH EE	99+60	W13-1	18" X 18"	---	2.25	---	---	---	---	---	---	15 MPH
2	CTH EE	105+30	R4-7	24" X 30"	5.00	---	1	---	---	---	---	---	
3	CTH EE	105+70	R1-2	36" X 31"	3.88	---	1	---	---	---	---	---	YIELD
3A	CTH EE	105+70	R6-2R	24" X 30"	5.00	---	---	---	---	---	---	---	
4	CTH EE	105+66	---	36" X 30"	7.5	---	1	---	---	---	---	---	CTH EE/Grant St
5	CTH EE	105+70	R1-2	36" X 31"	3.88	---	1	---	---	---	---	---	YIELD
5A	CTH EE	105+70	R1-54	24" X 15"	2.50	---	---	---	---	---	---	---	
6	MID VALLEY DR	14+10	---	48" X 15"	5	---	1	---	---	---	---	---	MID VALLEY DR
7	MID VALLEY DR	14+15	R1-2	36" X 31"	3.88	---	1	---	---	---	---	---	YIELD
7A	MID VALLEY DR	14+15	R6-2R	24" X 30"	5.00	---	---	---	---	---	---	---	
8	MID VALLEY DR	14+15	R1-2	36" X 31"	3.88	---	1	---	---	---	---	---	YIELD
8A	MID VALLEY DR	14+15	R1-54	24" X 15"	2.50	---	---	---	---	---	---	---	
9	CTH EE	107+16	---	36" X 30"	7.5	---	1	---	---	---	---	---	CTH EE/Grant St
10	CTH EE	107+15	R1-2	36" X 31"	3.88	---	1	---	---	---	---	---	YIELD
10A	CTH EE	107+15	R6-2R	24" X 30"	5.00	---	---	---	---	---	---	---	
11	CTH EE	107+50	R4-7	24" X 30"	5.00	---	1	---	---	---	---	---	
12	CTH EE	107+15	R1-2	36" X 31"	3.88	---	1	---	---	---	---	---	YIELD
12A	CTH EE	107+15	R1-54	24" X 15"	2.50	---	---	---	---	---	---	---	
13	MID VALLEY DR	15+57	---	48" X 15"	5	---	1	---	---	---	---	---	MID VALLEY DR
14	MID VALLEY DR	15+58	R1-2	36" X 31"	3.88	---	1	---	---	---	---	---	YIELD
14A	MID VALLEY DR	15+58	R6-2R	24" X 30"	5.00	---	---	---	---	---	---	---	
15	MID VALLEY DR	15+58	R1-2	36" X 31"	3.88	---	1	---	---	---	---	---	YIELD
15A	MID VALLEY DR	15+58	R1-54	24" X 15"	2.50	---	---	---	---	---	---	---	
16	MID VALLEY DR	15+08	R6-1R	36" X 12"	3.00	---	1	---	---	---	---	---	
16A	MID VALLEY DR	15+08	R6-4B	60" X 24"	10.00	---	---	---	---	---	---	---	
17	CTH EE	106+15	R6-1R	36" X 12"	3.00	---	1	---	---	---	---	---	
17A	CTH EE	106+15	R6-4B	60" X 24"	10.00	---	---	---	---	---	---	---	
18	MID VALLEY DR	14+58	R6-1R	36" X 12"	3.00	---	1	---	---	---	---	---	
18A	MID VALLEY DR	14+58	R6-4B	60" X 24"	10.00	---	---	---	---	---	---	---	
19	CTH EE	106+65	R6-1R	36" X 12"	3.00	---	1	---	---	---	---	---	
19A	CTH EE	106+65	R6-4B	60" X 24"	10.00	---	---	---	---	---	---	---	
20	CTH EE	108+18	W2-6	30" X 30"	---	6.25	1	---	---	---	---	---	
20A	CTH EE	108+18	W13-1	18" X 18"	---	2.25	---	---	---	---	---	---	15 MPH
21	CTH EE	110+40	W2-6	30" X 30"	---	6.25	1	---	---	---	---	---	
21A	CTH EE	110+40	W13-1	18" X 18"	---	2.25	---	---	---	---	---	---	15 MPH
22	MID VALLEY DR	8+45	W2-6	30" X 30"	---	6.25	1	---	---	---	---	---	
22A	MID VALLEY DR	8+45	W13-1	18" X 18"	---	2.25	---	---	---	---	---	---	15 MPH
23	MID VALLEY DR	9+25	J1-1	24" X 39"	6.50	---	1	---	---	---	---	---	JCT CTH EE
24	MID VALLEY DR	11+92	R4-7	24" X 30"	5.00	---	1	---	---	---	---	---	
25	MID VALLEY DR	12+25	J2-2	48" X 57"	19.00	---	---	1	---	---	---	---	
26	MID VALLEY DR	17+25	J2-2	48" X 57"	19.00	---	---	1	---	---	---	---	
27	MID VALLEY DR	17+85	R4-7	24" X 30"	5.00	---	1	---	---	---	---	---	
28	MID VALLEY DR	20+50	J1-1	24" X 39"	6.50	---	1	---	---	---	---	---	JCT CTH EE
29	MID VALLEY DR	21+77	W2-6	30" X 30"	---	6.25	1	---	---	---	---	---	
29A	MID VALLEY DR	21+77	W13-1	18" X 18"	---	2.25	---	---	---	---	---	---	15 MPH

PAGE SUBTOTALS209.0442.5027200000

ITEMS CONTINUED ON THE NEXT PAGE

ALL ITEMS ARE CATEGORY 0010 UNLESS OTHERWISE STATED

ERECTION AND REMOVAL OF TYPE II SIGNS AND SUPPORTS

SIGN NO.	LOCATION	STATION	SIGN CODE	W X H	637.2210 SIGNS TYPE II REFLECTIVE H S.F.	637.2230 SIGNS TYPE II REFLECTIVE F S.F.	634.0614 POSTS WOOD 4x6x14 EACH	634.0616 POSTS WOOD 4x6x16 EACH	638.2102 MOVING SIGNS TYPE II EACH	638.2602 REMOVING SIGNS TYPE II EACH	638.3000 REMOVING SMALL SIGN SUPPORTS EACH	638.4000 MOVING SMALL SIGN SUPPORTS EACH	REMARKS
01	CTH EE	104+25	----	X	----	----	----	----	1	----	----	1	
02	CTH EE	104+75	----	X	----	----	----	----	1	----	----	2	
03	CTH EE	106+13	----	X	----	----	----	----	----	1	1	----	
04	CTH EE	106+13	----	X	----	----	----	----	----	1	1	----	
05	CTH EE	106+68	----	X	----	----	----	----	----	1	1	----	
06	CTH EE	106+68	----	X	----	----	----	----	----	1	1	----	
07	CTH EE	107+35	----	X	----	----	----	----	----	1	1	----	
08	MID VALLEY DR	1+85	----	X	----	----	----	----	----	1	1	----	
09	MID VALLEY DR	21+80	----	X	----	----	----	----	----	1	1	----	
PAGE SUBTOTALS					0	0	0	0	2	7	7	3	
PROJECT TOTALS					209.04	42.50	27	2	2	7	7	3	

TRAFFIC CONTROL SUMMARY

		643.0410		643.0420		643.0705		643.0900		643.1050		REMARKS
		TRAFFIC CONTROL BARRICADES TYPE II		TRAFFIC CONTROL BARRICADES TYPE III		TRAFFIC CONTROL WARNING LIGHTS TYPE A		TRAFFIC CONTROL SIGNS		TRAFFIC CONTROL SIGNS PCMS		
LOCATION	APPROXIMATE SERVICE DAYS	IN SERVICE	DAY	IN SERVICE	DAY	IN SERVICE	DAY	IN SERVICE	DAY	IN SERVICE	DAY	
DETOUR	82	-	-	-	-	-	-	131	10,742	4	28	SEE DETOUR PLAN
SIDEWALK	82	2	164	-	-	4	328	2	164	-	-	SIDEWALK CLOSURE WEST OF LAWRENCE DR
ROAD CLOSURE	82	-	-	28	2,296	40	3,280	8	656	-	-	SEE SDD " BARRICADES AND SIGNS FOR MAINLINE CLOSURES DETAIL B"
TOTAL 0010		164		2,296		3,608		11,562		28		

PAVEMENT MARKING

				646.2020		646.4020	646.6320	646.7120	646.7420	646.8120	646.8220	REMARKS
				MARKING LINE EPOXY 6-INCH YELLOW	MARKING LINE EPOXY 6-INCH WHITE	MARKING LINE EPOXY 10-INCH	MARKING DOTTED EXTENSION EPOXY 18-INCH	MARKING DIAGONAL EPOXY 12-INCH	MARKING CROSSWALK EPOXY TRANSVERSE LINE 6-INCH	MARKING CURB EPOXY	MARKING ISLAND NOSE EPOXY	
STATION	TO	STATION	LOCATION	LF	LF	LF	LF	LF	LF	LF	EACH	
103+46	-	105+76	CTH EE EB	641	459	54	34	13	56	10	3	WEST LEG
107+03	-	108+75	CTH EE EB	377	218	51	34	11	55	10	3	EAST LEG
9+15	-	14+20	MID VALLEY DR NB	979	916	39	43	68	60	10	3	SOUTH LEG
15+49	-	20+30	MID VALLEY DR NB	896	860	38	42	52	63	10	3	NORTH LEG
TOTAL 0010				5,346		182	153	144	234	40	12	

ALL ITEMS ARE CATEGORY 0010 UNLESS OTHERWISE STATED

CONSTRUCTION STAKING														
CATEGORY	STATION	TO	STATION	LOCATION	650.4000	650.4500	650.5000	650.5500	650.6501.01	650.9000	650.9500.01	650.9911.01	650.9920	REMARKS
					CONSTRUCTION STAKING SEWER EACH	CONSTRUCTION STAKING SUBGRADE LF	CONSTRUCTION STAKING BASE LF	CONSTRUCTION STAKING CURB AND CURB & GUTTER LF	CONSTRUCTION STAKING STRUCTURE LAYOUT R-05-0116 EACH	CONSTRUCTION STAKING CURB RAMP EACH	CONSTRUCTION STAKING SIDEWALK 9277-01-71 EACH	CONSTRUCTION STAKING SUPPLEMENTAL CONTROL 9277-01-71 EACH	CONSTRUCTION STAKING SLOPE STAKES LF	
0010	103+46	-	105+76	CTH EE EB	-	230	47	-	-	4	-	-	230	WEST LEG
0010	107+03	-	108+75	CTH EE EB	-	172	-	-	-	4	-	-	172	EAST LEG
0010	9+15	-	14+20	MID VALLEY DR NB	-	505	285	-	-	4	-	-	505	SOUTH LEG
0010	15+49	-	20+30	MID VALLEY DR NB	-	481	290	-	-	4	-	-	481	NORTH LEG
0010	0+00	-	2+97	RAB CIRCLE	-	297	-	-	-	-	-	-	-	ROUNABOUT
PROJECT					29	-	-	762	-	-	1	1	-	
TOTAL 0010					29	1,685	622	762	0	16	1	1	1,388	
0020	CTH EE				-	-	-	-	1	-	-	-	-	R-05-0116
TOTAL 0020					0	0	0	0	1	0	0	0	0	
TOTAL					29	1,685	622	762	1	16	1	1	1,388	

SAWING				
STATION	LOCATION	690.0150	690.0250	REMARKS
		SAWING ASPHALT LF	SAWING CONCRETE LF	
103+00	CTH EE EB	30	-	WEST LEG
108+75	CTH EE EB	-	55	EAST LEG
9+15	MID VALLEY DR NB	28	-	SOUTH LEG
9+45	MID VALLEY DR NB, LT	-	45	C.E.
20+30	MID VALLEY DR NB	26	-	NORTH LEG
TOTAL 0010		84	100	

COLORED AND STAMPED CONCRETE SIDEWALK 4-INCH					
STATION	TO	STATION	LOCATION	SPV.0165.02	REMARKS
				SF	
107+80	-	108+75	CTH EE EB, LT	90	NE SIDEWALK
107+91	-	108+75	CTH EE EB, RT	120	SE SIDEWALK
TOTAL 0010				210	

INSULATION BOARD 2-INCH			
STRUCTURE	STATION	LOCATION	SPV.0165.03
			SF
4B	13+52	MID VALLEY DR NB	64
4C	13+78	MID VALLEY DR NB	64
8B	16+34	MID VALLEY DR NB	64
8A	16+43	MID VALLEY DR NB	64
9A	17+31	MID VALLEY DR NB	64
11	18+45	MID VALLEY DR NB	64
TOTAL 0010			384

ALL ITEMS ARE CATEGORY 0010 UNLESS OTHERWISE STATED

3

CONSTRUCTION STAKING ELECTRICAL INSTALLATIONS

LOCATION	650.8501
PROJECT (9277-01-71)	EACH 1
TOTAL	1

CONDUIT RIGID NONMETALLIC SCHEDULE 40 AND ELECTRICAL WIRE LIGHTING

		652.0235	652.0225	655.0620
		3-INCH	2-INCH	8 AWG
FROM	TO	LF	LF	LF
LCC A	LPB-2	48	-	234
LPB-2	STUB	-	27	-
LPB-2	LPB-1	-	47	285
LPB-1	A-1	-	100	330
LPB-1	A-3	-	75	595
A-3	A-7	-	116	378
A-7	LBP-4	-	25	175
LBP-2	A-2	-	6	144
A-2	A-4	-	88	490
A-4	LBP-3	-	41	357
LPB-3	A-5	-	116	378
LPB-3	LPB-5	-	45	275
LPB-5	STUB	-	31	-
LPB-5	A-6	-	13	115
A-6	A-8	-	102	336
A-8	LPB-8	-	63	219
LPB-8	STUB	-	25	-
LPB-8	LPB-7	-	43	159
LPB-7	STUB	-	28	-
LPB-7	A-11	-	5	45
A-11	A-9	-	82	-
A-9	LPB-6	-	44	162
LPB-6	LPB-4	-	54	320
LPB-6	A-10	-	140	450
CONDUIT STUBS			30	-
TOTALS		48	1346	5447

PULL BOXES NON-CONDUCTIVE 24X42-INCH

			653.0164
DESCRIPTION	STATION	OFFSET	EACH
LPB-1	105+02.77 WB	26.5' LT	1
LPB-2	105+15.03 EB	19.1' RT	1
LPB-3	13+65.65 SB	20.1' LT	1
LPB-4	16+26.38 SB	23.6' LT	1
LPB-5	13+65.94 NB	19.5' RT	1
LPB-6	16+08.61 NB	24.3' RT	1
LPB-7	107+69.39 WB	24.2' LT	1
LPB-8	107+70.61 EB	18.0' RT	1
TOTAL			8

LIGHTING CONTROL CABINET AND BASES

		CONCRETE CONTROL CABINET BASES TYPE L24 654.0224	ELECTRICAL SERVICE METER BREAKER PEDESTAL (LCC A) 656.0201	LIGHTING CONTROL CABINETS 120/240 24-INCH 659.2124
DESCRIPTION	STATION	OFFSET	EACH	EACH
LCC A	105+10.47 EB	36.0' RT	1	1
TOTALS			1	1

3

ALL ITEMS ARE CATEGORY 0010 UNLESS OTHERWISE STATED

3

CONCRETE BASES TYPE 5

LOCATION	STATION	OFFSET	654.0105 EACH
A-1	103+99.53 WB	24.0' LT	1
A-2	105+23.96 EB	18.1' RT	1
A-3	105+83.20 WB	23.4' LT	1
A-4	14+06.35 SB	24.1' LT	1
A-5	12+38.00 SB	22.0' LT	1
A-6	13+77.96 NB	18.1' RT	1
A-7	16+01.95 SB	21.9' LT	1
A-8	107+04.82 EB	18.6' RT	1
A-9	15+61.17 NB	25.4' RT	1
A-10	17+57.88 NB	23.0' RT	1
A-11	107+62.70 WB	24.1' LT	1
TOTAL			11

LIGHTING UNITS AND ELECTRICAL WIRE LIGHTING

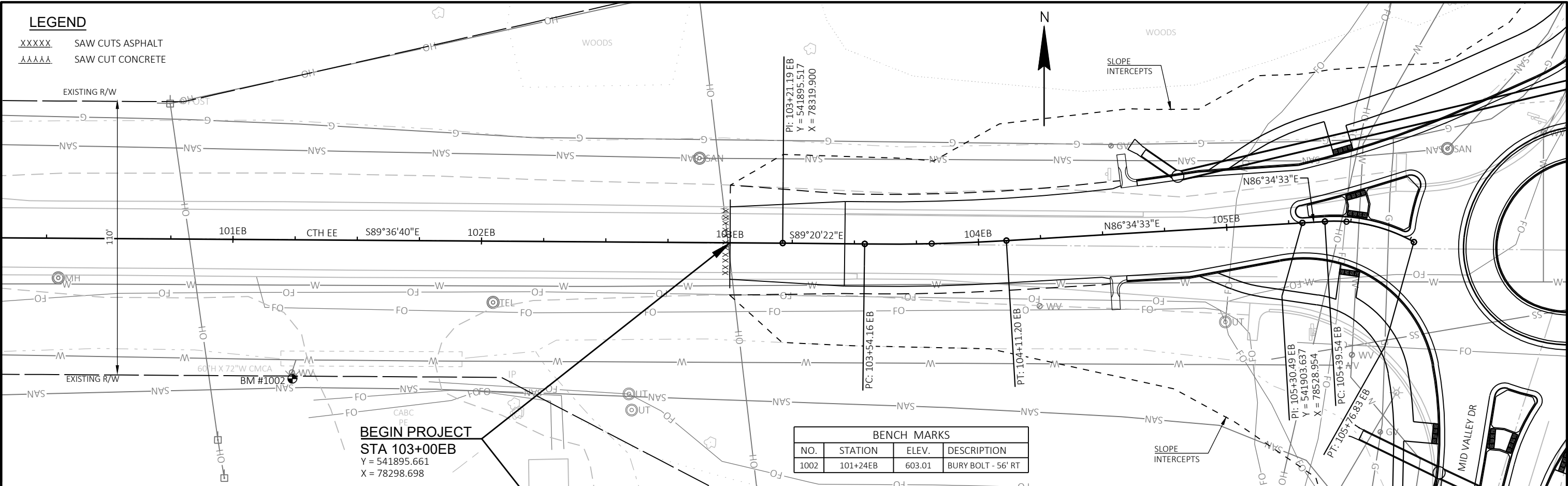
			TRANSFORMER BASES BREAKAWAY 11 1/2-INCH BOLT CIRCLE 657.0255	POLES TYPE 5- ALUMINUM 657.0322	LUMINAIRE ARMS SINGLE MEMBER 4 1/2-INCH CLAMP 8-FT 657.0615	LUMINAIRES UTILITY LED A 659.1115	ELECTRICAL WIRE 12 AWG 655.0610
LOCATION	STATION	OFFSET	EACH	EACH	EACH	EACH	LF
A-1	103+99.53 WB	24.0' LT	1	1	1	1	102
A-2	105+23.96 EB	18.1' RT	1	1	1	1	102
A-3	105+83.20 WB	23.4' LT	1	1	1	1	102
A-4	14+06.35 SB	24.1' LT	1	1	1	1	102
A-5	12+38.00 SB	22.0' LT	1	1	1	1	102
A-6	13+77.96 NB	18.1' RT	1	1	1	1	102
A-7	16+01.95 SB	21.9' LT	1	1	1	1	102
A-8	107+04.82 EB	18.6' RT	1	1	1	1	102
A-9	15+61.17 NB	25.4' RT	1	1	1	1	102
A-10	17+57.88 NB	23.0' RT	1	1	1	1	102
A-11	107+62.70 WB	24.1' LT	1	1	1	1	102
TOTALS			11	11	11	11	1,122

3

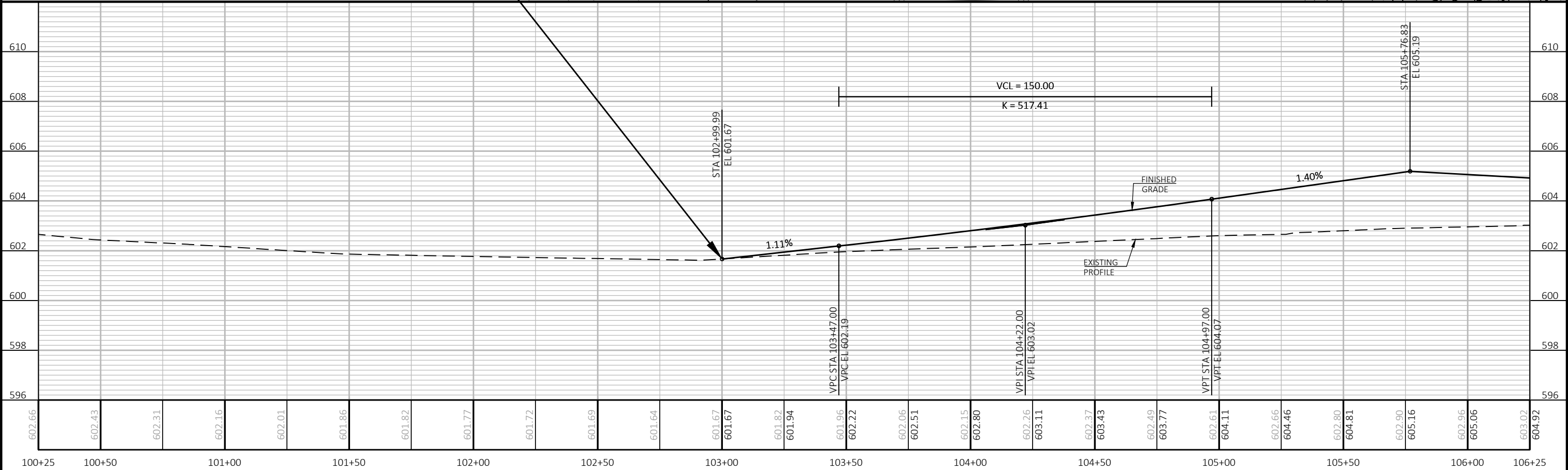
ALL ITEMS ARE CATEGORY 0010 UNLESS OTHERWISE STATED

LEGEND

- XXXXX SAW CUTS ASPHALT
- AAAAA SAW CUT CONCRETE



BENCH MARKS			
NO.	STATION	ELEV.	DESCRIPTION
1002	101+24EB	603.01	BURY BOLT - 56' RT



PROJECT NO: 9277-01-71

HWY: CTH EE

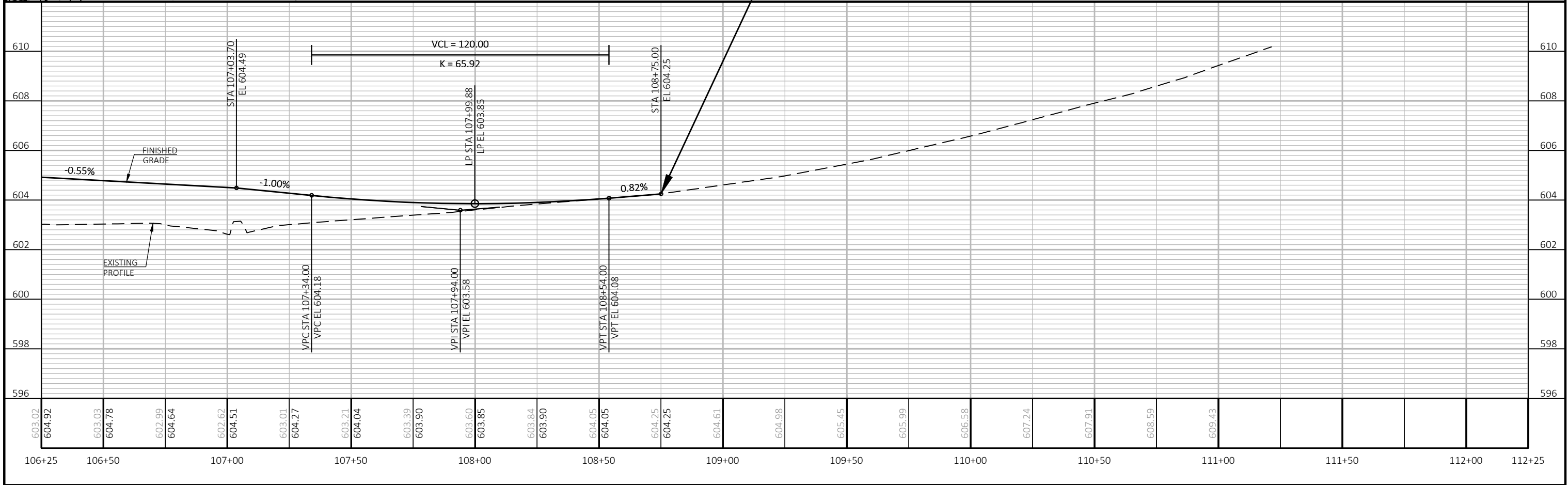
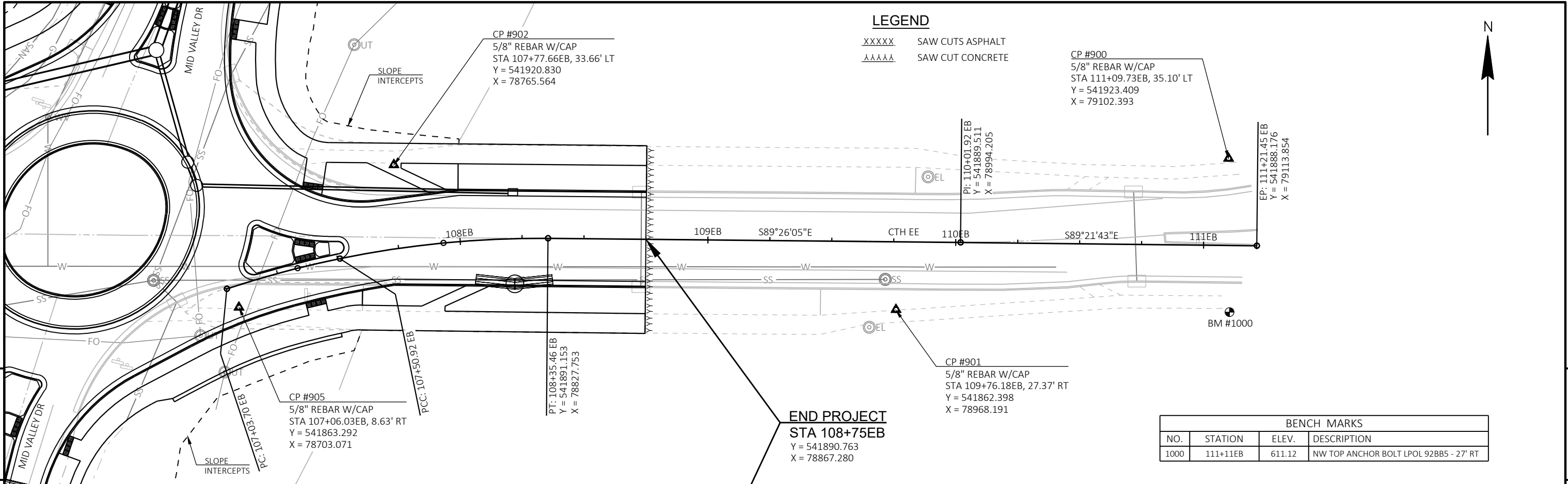
COUNTY: BROWN

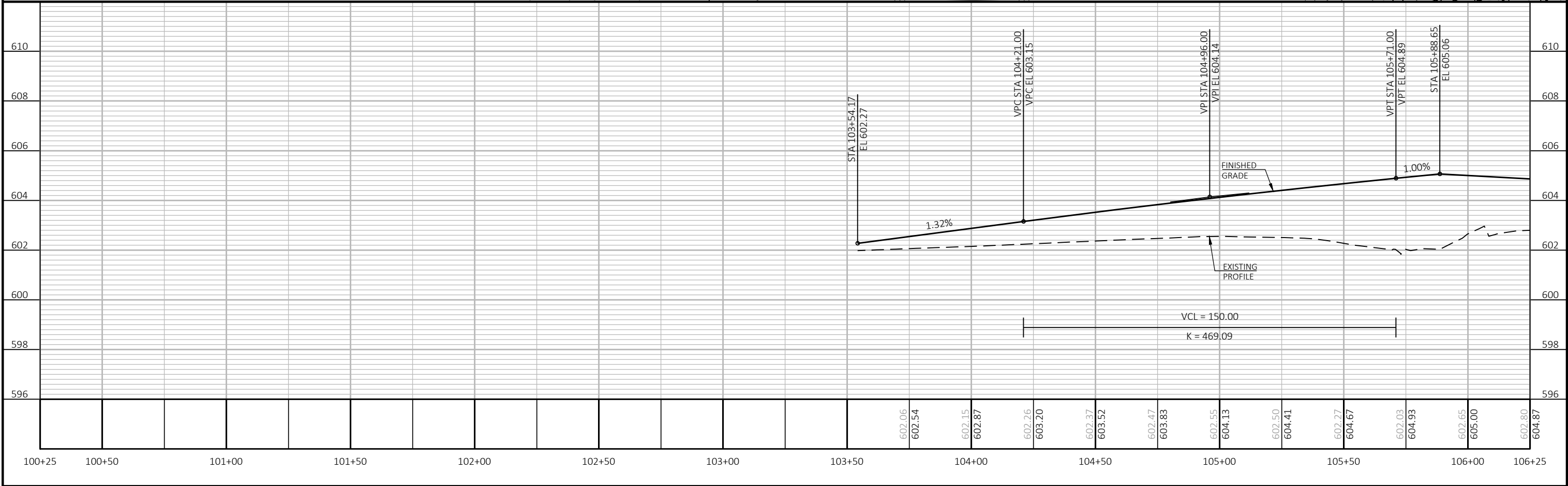
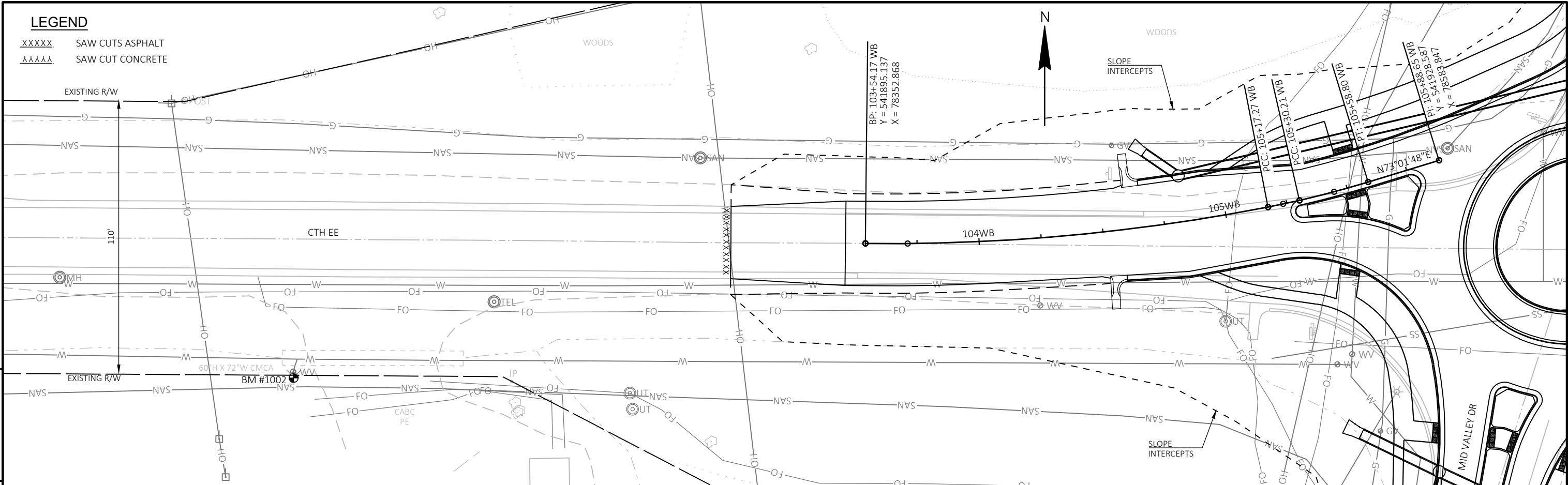
CTH EE EASTBOUND

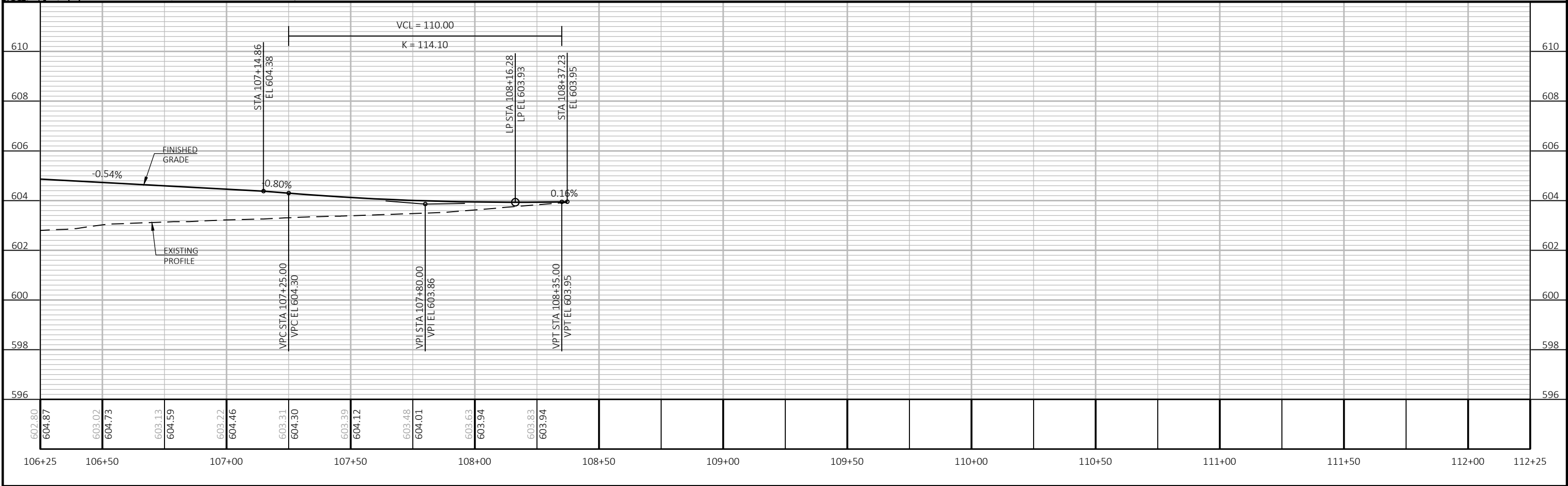
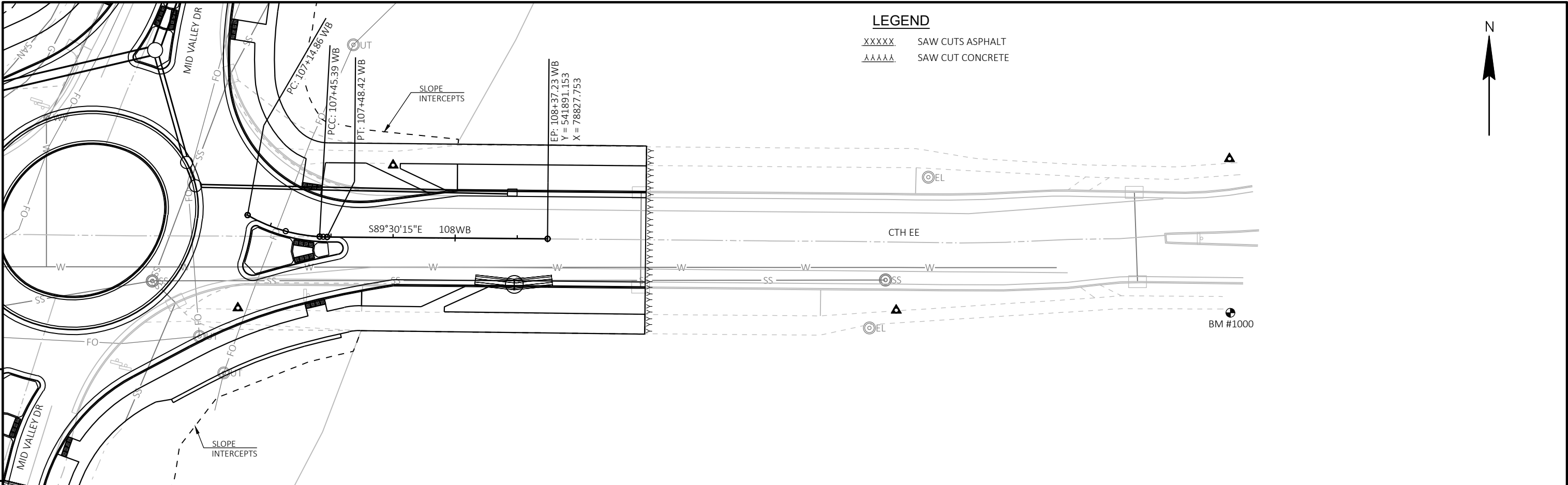
SHEET

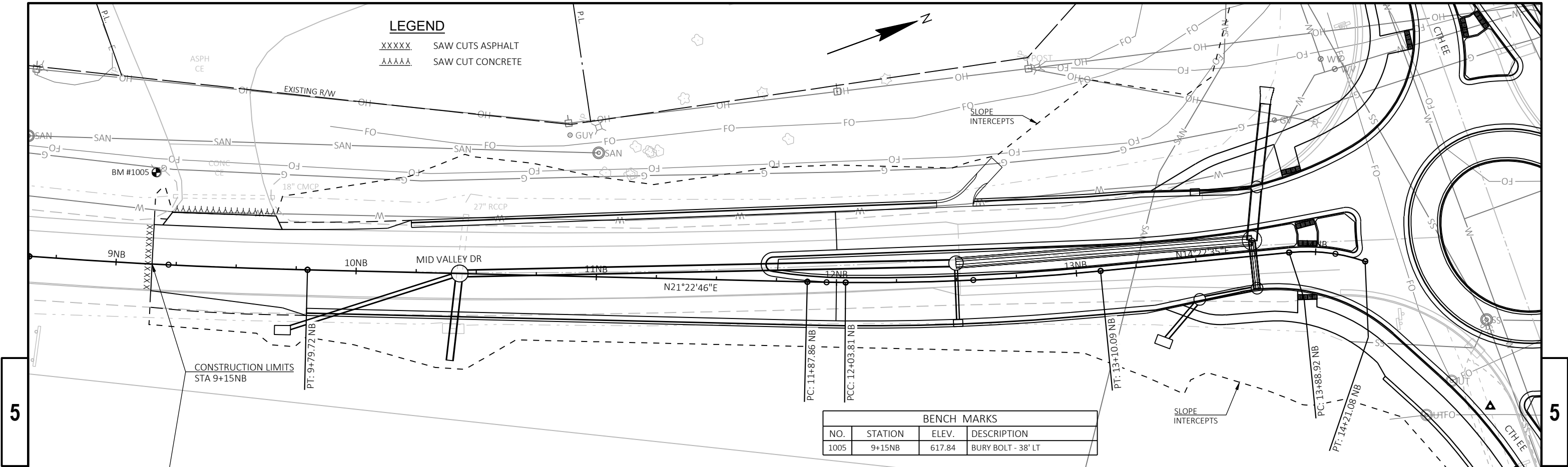
71

E

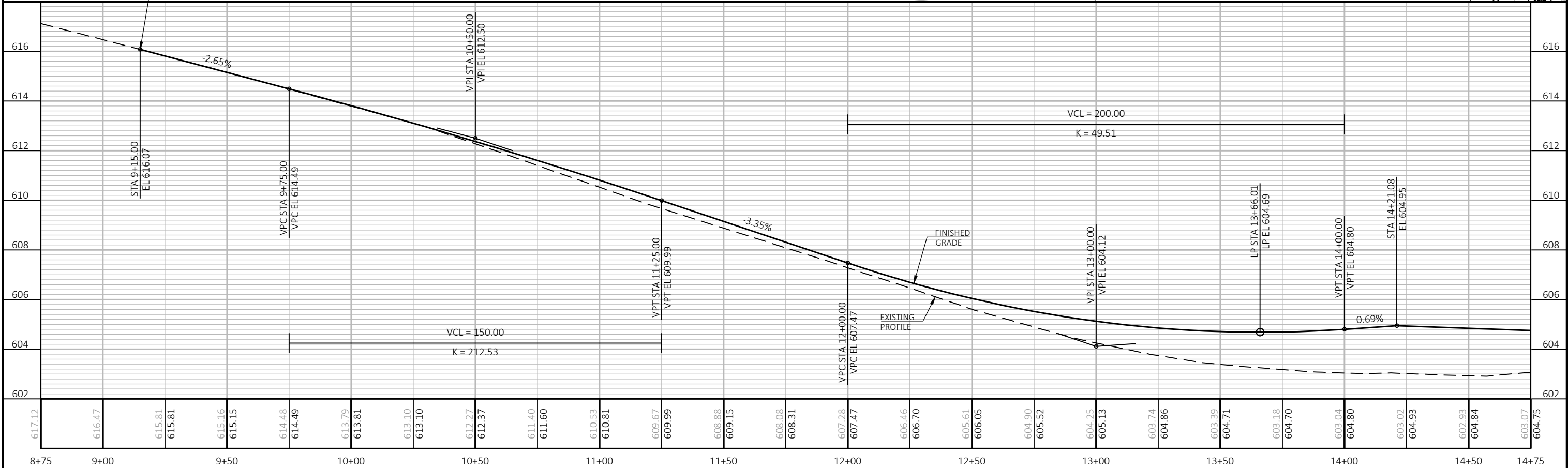


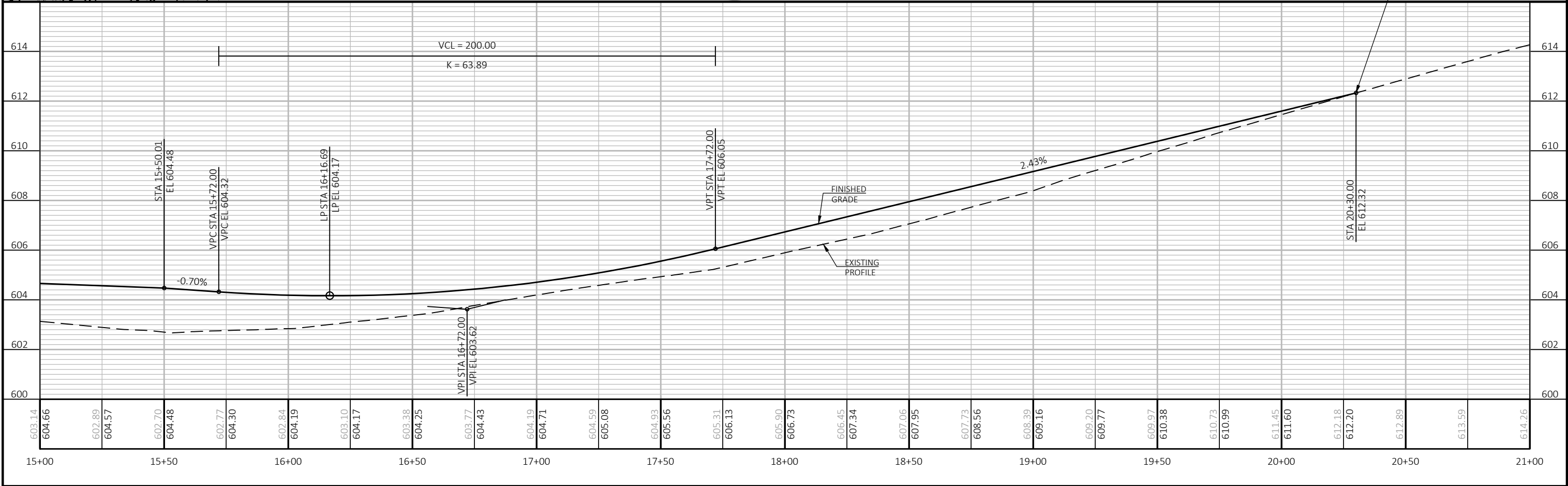
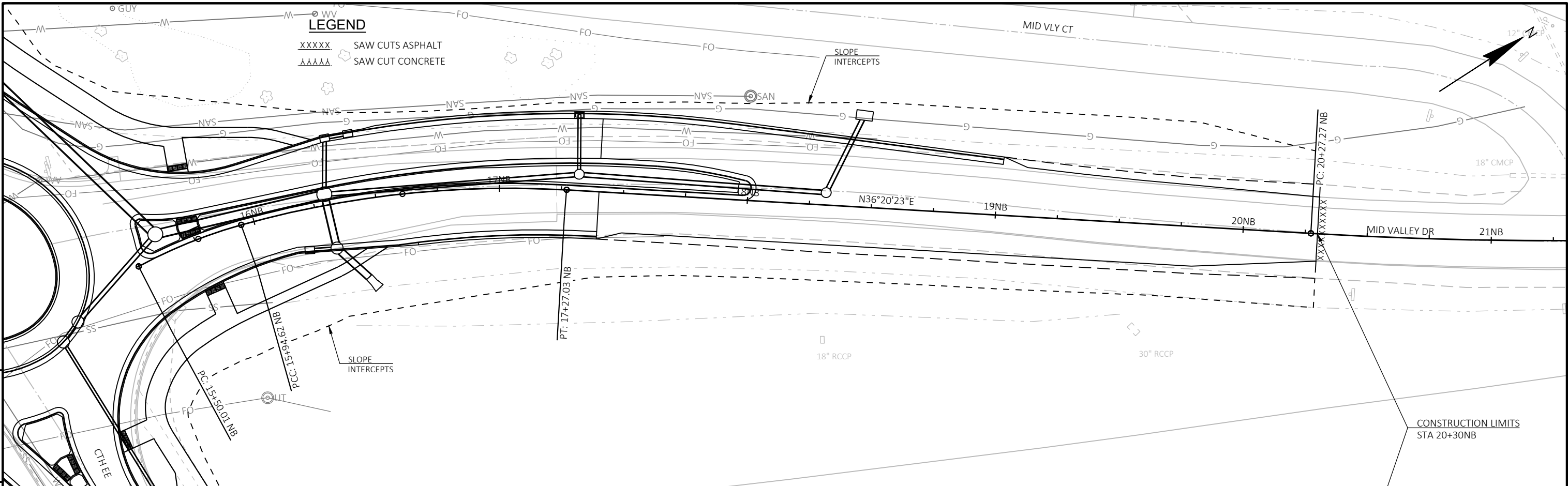


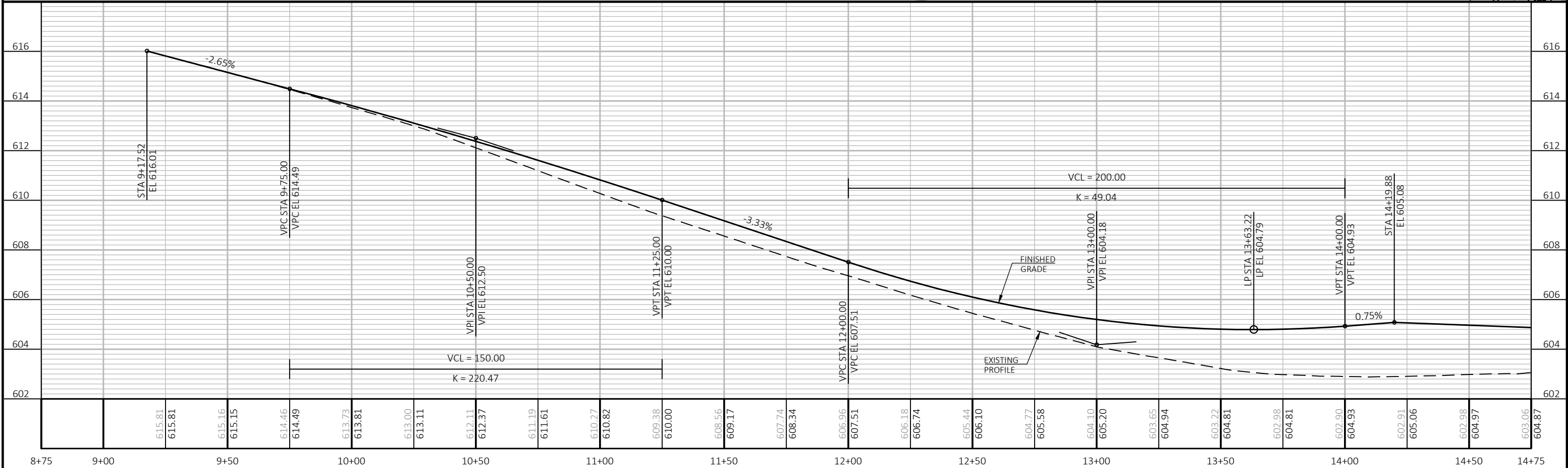
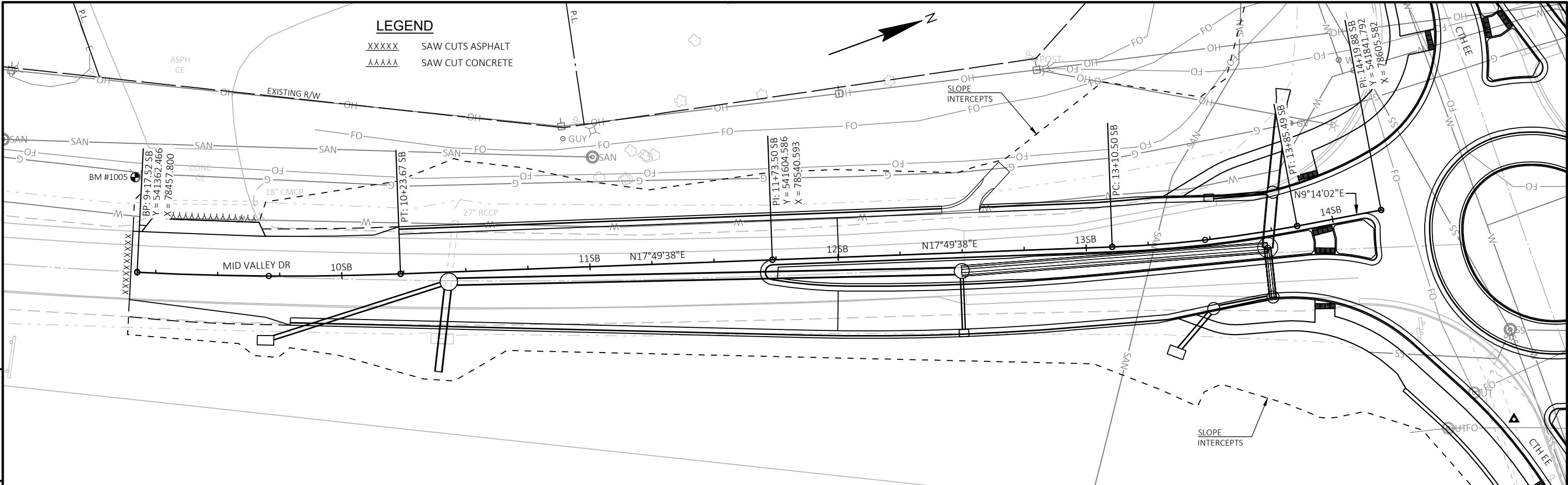


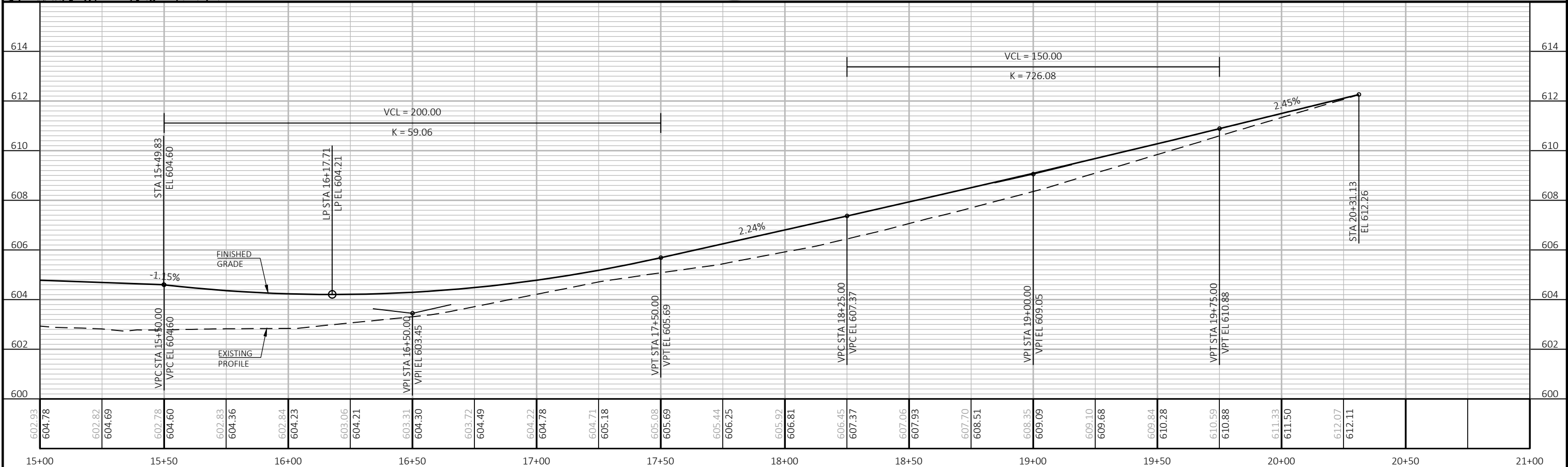
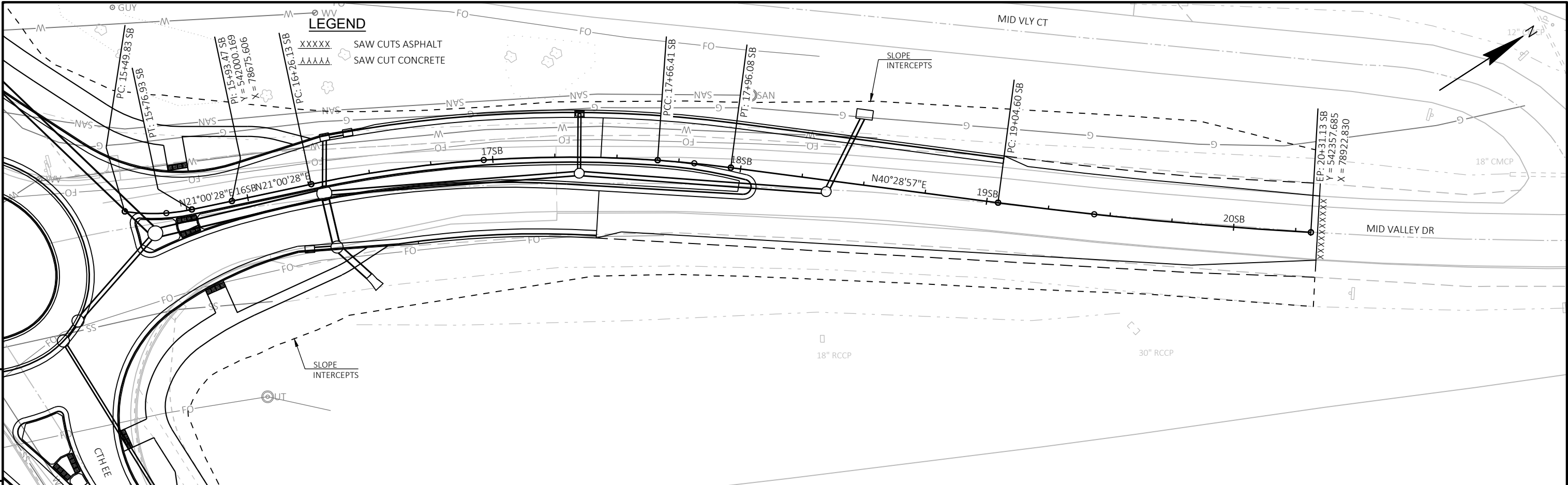


BENCH MARKS			
NO.	STATION	ELEV.	DESCRIPTION
1005	9+15NB	617.84	BURY BOLT - 38' LT

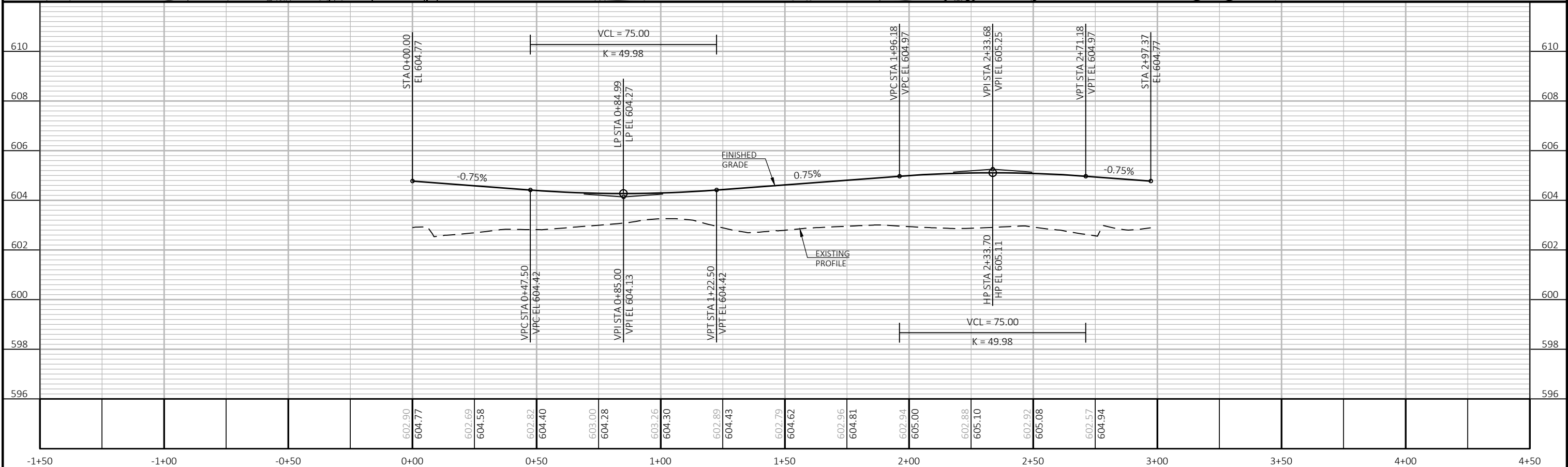
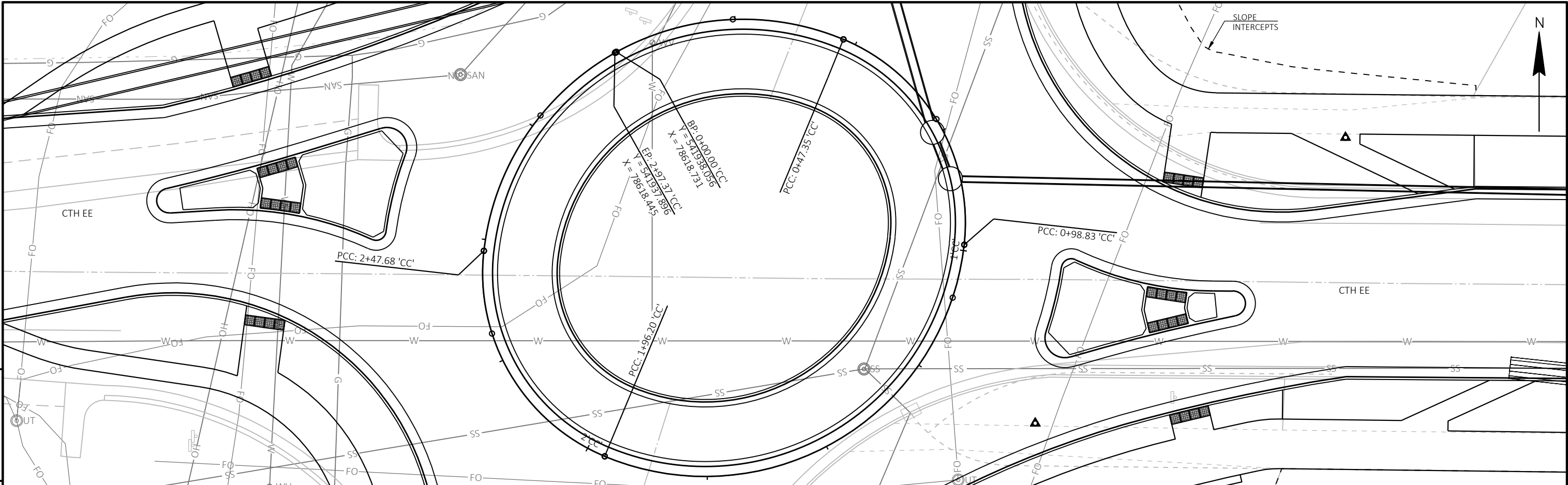








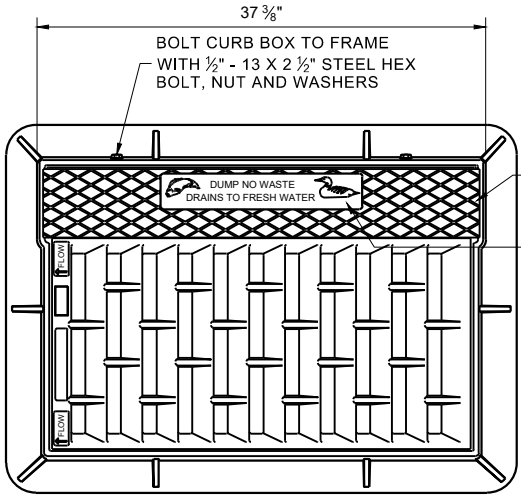
PROJECT NO: 9277-01-71	HWY: CTH EE	COUNTY: BROWN	MID VALLEY DR SOUTHBOUND	SHEET 78	E
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PROJECT NO:	9277-01-71	HWY:	CTH EE	COUNTY:	BROWN	ROUNDABOUT	SHEET	79	E
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Standard Detail Drawing List

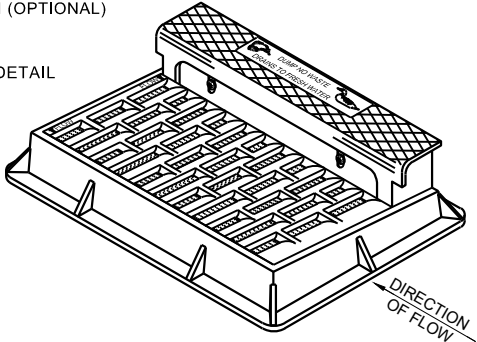
08A05-21A	INLET COVERS TYPE A, H, A-S, H-S & Z
08A05-21B	INLET COVERS TYPE B, B-A, C, MS, MS-A, & WM
08A05-21C	INLET COVERS TYPE F, HM, HM-S, S, T, HM-GJ & HM-GJ-S
08A05-21E	INLET COVER TYPE BW, MANHOLE COVERS, TYPE K, J, J-S, L & M
08B09-04	MANHOLES 3-FT, 4-FT, 5-FT, 6-FT, 7-FT, 8-FT, 9-FT, 10-FT DIAMETER
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
08D01-23A	CONCRETE CURB & GUTTER
08D01-23B	CONCRETE CURB, TIES AND CURB AND GUTTER APPLICATIONS
08D04-07	CONCRETE SURFACE DRAINS & ASPHALTIC FLUMES
08D05-21A	CURB RAMPS TYPES 1 AND 1-A
08D05-21B	CURB RAMPS TYPES 2 AND 3
08D05-21C	CURB RAMPS TYPES 4A AND 4A1
08D05-21D	CURB RAMPS TYPE 4B AND 4B1
08D05-21E	CURB RAMPS TYPES 5, 6, 7A, 7B & 8
08D05-21F	CURB RAMPS RADIAL DETECTABLE WARNING FIELD APPLICATIONS
08D05-21G	CURB RAMPS RECTANGULAR AND RADIAL DETECTABLE WARNING PLATES
08D16-11	CONCRETE GUTTER, CURB AND GUTTER AND PAVEMENT TIES
08D17-06	MANHOLES, MANHOLE & INLET COVERS
08D21-01	DRIVEWAYS WITHOUT CURB & GUTTER
08E08-03	TYPICAL INSTALLATIONS OF EROSION BALES / TEMPORARY DITCH CHECKS
08E10-02	INLET PROTECTION TYPE A, B, C AND D
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
09B02-10	CONDUIT
09B16-02	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
09E02-05	FREEWAY LIGHTING UNIT POLE WIRING
11B02-02	CONCRETE MEDIAN NOSE
12A03-10	NAME PLATE (STRUCTURES)
13A03-07	CONCRETE PAVEMENT SHOULDERS
13C01-19	CONCRETE PAVEMENT LONGITUDINAL JOINTS AND TIES
13C13-11	URBAN DOWELED CONCRETE PAVEMENT
13C18-08A	CONCRETE PAVEMENT JOINTING
13C18-08B	CONCRETE PAVEMENT STEEL REINFORCEMENT
13C18-08C	CONCRETE PAVEMENT JOINT TYPES
13C18-08D	CONCRETE PAVEMENT JOINTING AT UTILITY FIXTURES
13C18-08E	CONCRETE PAVEMENT JOINTING AND STEEL REINFORCEMENT IN ROUNDABOUTS
13C19-03	HMA LONGITUDINAL JOINTS
15C02-09A	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C02-09B	BARRICADES AND SIGNS FOR VARIOUS CLOSURES
15C02-09C	DETOUR SIGNING FOR MAINLINE CLOSURES
15C08-23A	PERMANENT LONGITUDINAL PAVEMENT MARKINGS
15C11-10B	CHANNELIZING DEVICES DRUMS, CONES, BARRICADES AND VERTICAL PANELS
15C18-09A	MEDIAN ISLAND MARKINGS
15C18-09B	PAVEMENT MARKINGS, MEDIAN ISLAND NOSE
15C22-01	DOTTED EXTENSION FOR ROUNDABOUT
15C33-05	STOP LINE AND CROSSWALK PAVEMENT MARKING



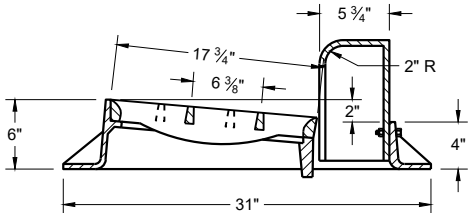
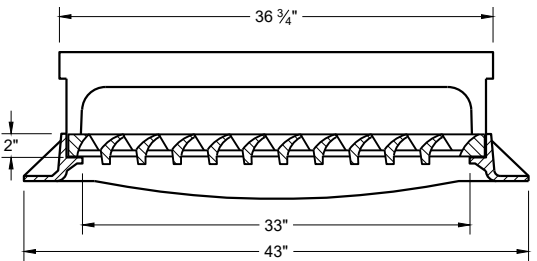
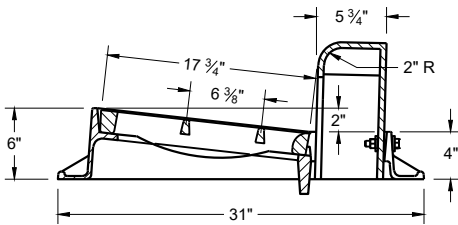
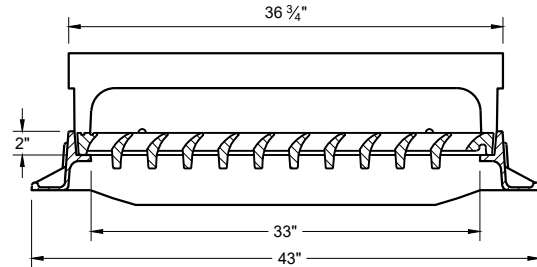
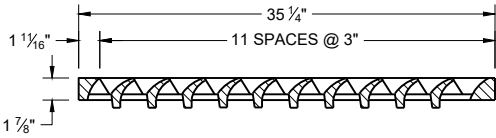
NOTE: EITHER CASTING IS ACCEPTABLE

TYPE "C" CHECKERED TOP DESIGN (OPTIONAL)

SEE LOGO DETAIL



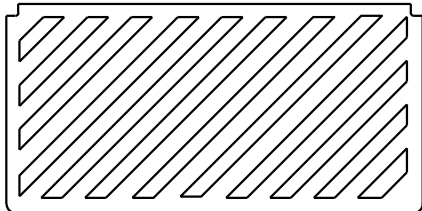
NOTE: CURB BOX HEIGHT ADJUSTABLE 6" - 9"



TYPE "H"

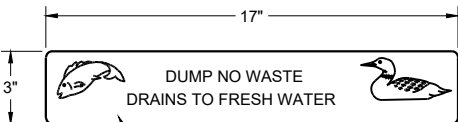
NOTE: EITHER CASTING IS ACCEPTABLE

1 1/8" DIAGONAL BARS WITH 1 5/8" OPENINGS



SPECIAL GRATE FOR TYPE "H" COVER

(MEASURES 35" X 17 3/4" X 2")
(NOTED AS TYPE H-S ON DRAINAGE TABLE)



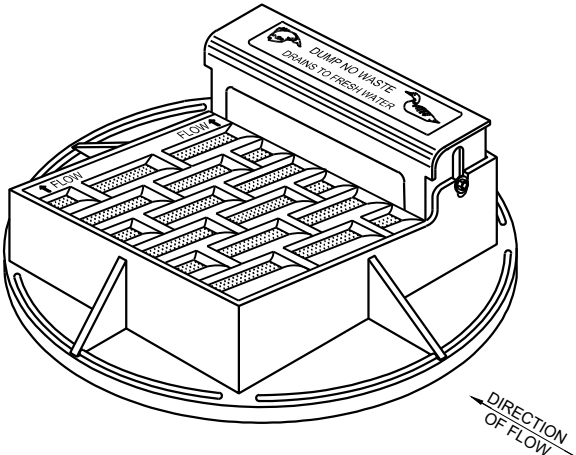
LOGO DETAIL

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.

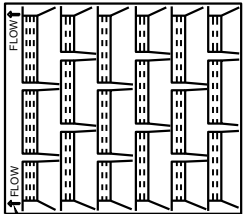
DETAIL DRAWINGS FOR PROPOSED ALTERNATE DESIGNS FOR CATCH BASIN, MANHOLE AND INLET COVERS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PROVIDING THAT SUCH ALTERNATE DESIGNS MAKE PROVISION FOR EQUIVALENT CAPACITY AND STRENGTH.

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

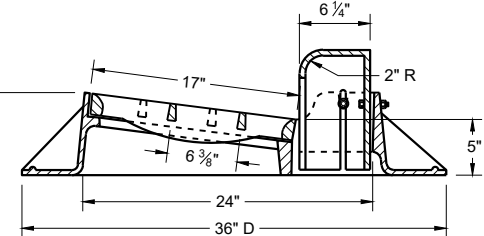
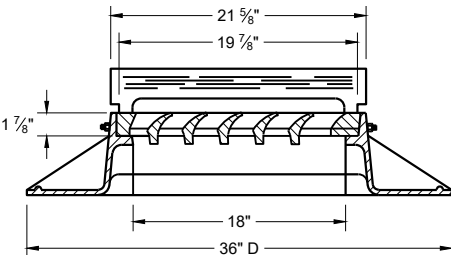
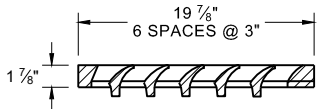


NOTE: CURB BOX HEIGHT ADJUSTABLE 6" - 9"

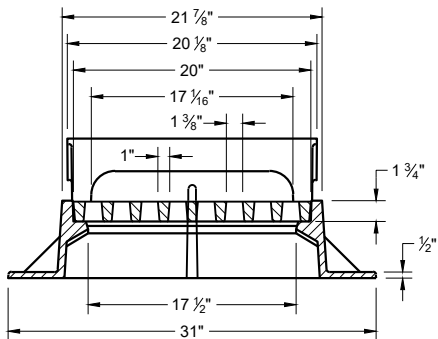
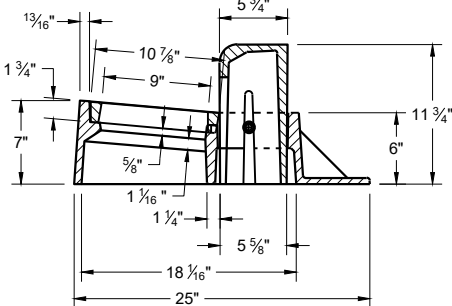
NOTE: EITHER CASTING IS ACCEPTABLE



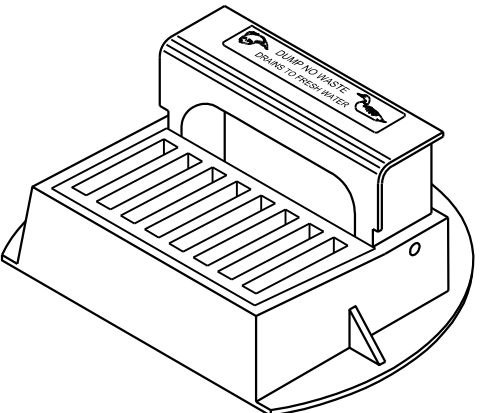
DIRECTION OF FLOW ARROWS



TYPE "A"



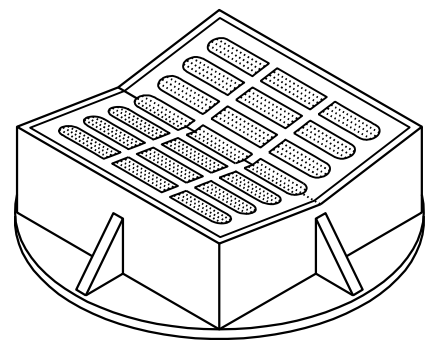
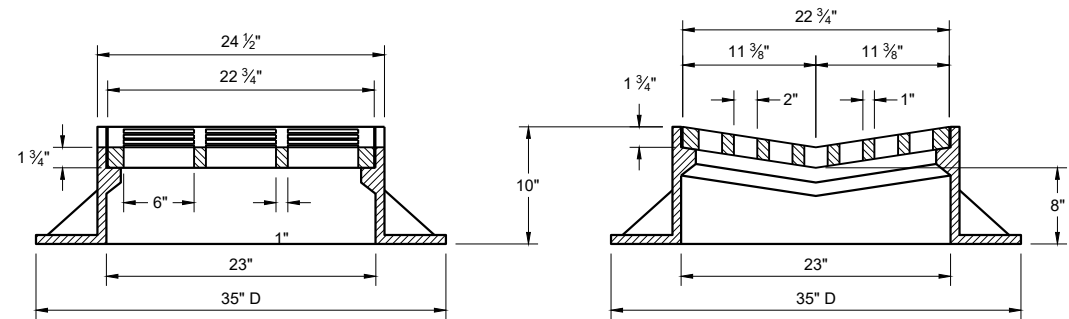
TYPE "Z"



**INLET COVERS
TYPES A, H, A-S, H-S AND Z**

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DEPARTMENT OF TRANSPORTATION

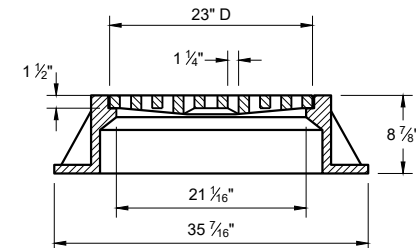
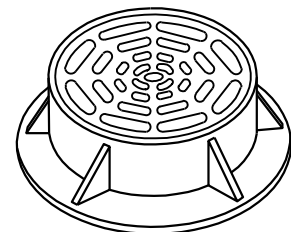
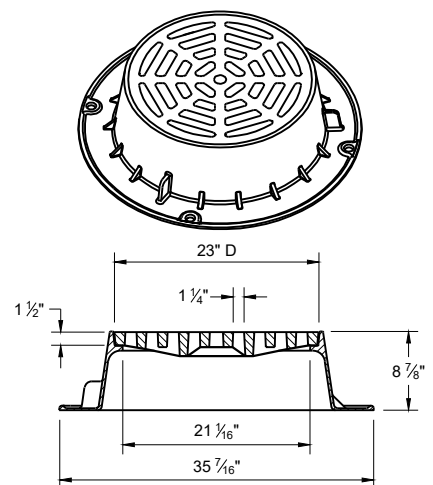
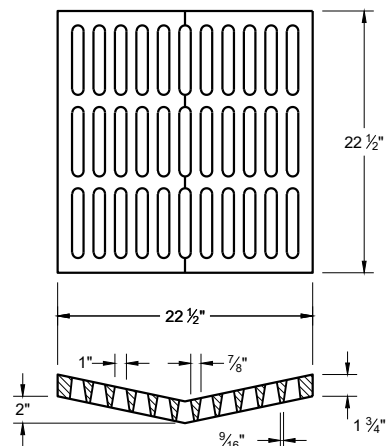
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DATE ROADWAY STANDARDS DEVELOPMENT
FHWA UNIT SUPERVISOR



TYPE "B"

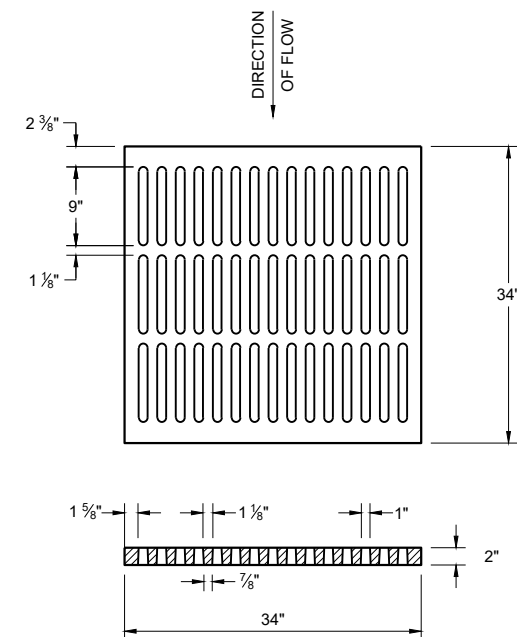
**ALTERNATIVE GRATE FOR
TYPE "B" COVER**

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



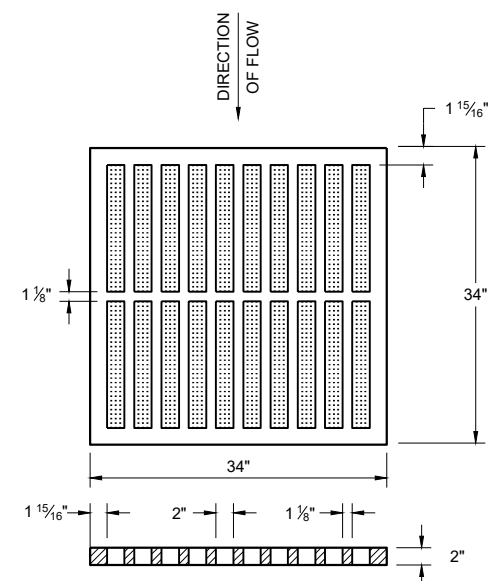
TYPE "C"

NOTE: EITHER CASTING IS ACCEPTABLE



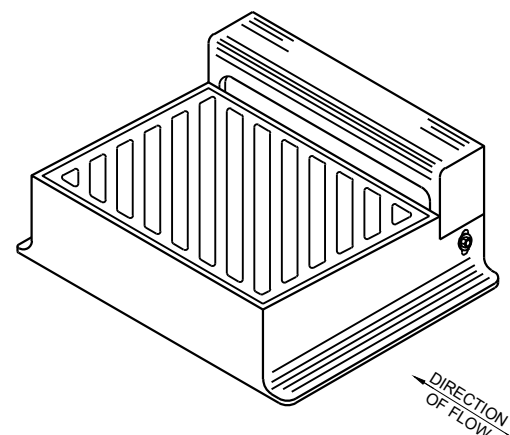
ALTERNATIVE TYPE "MS"

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

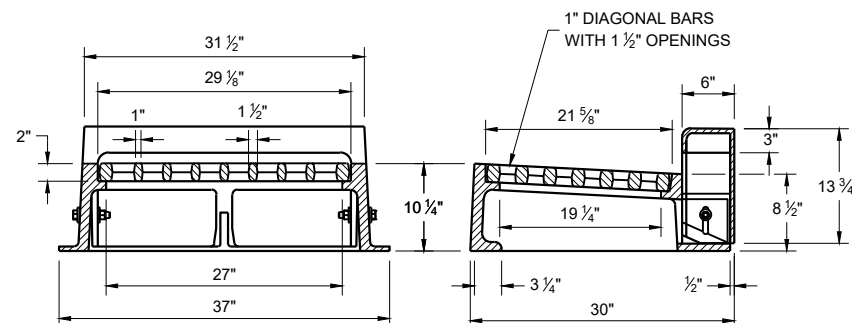


TYPE "MS"

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



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"

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

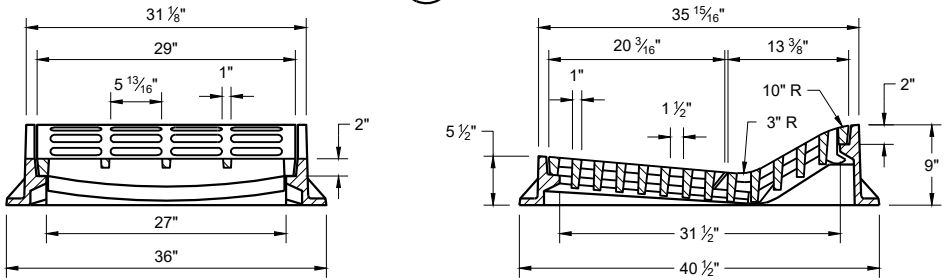
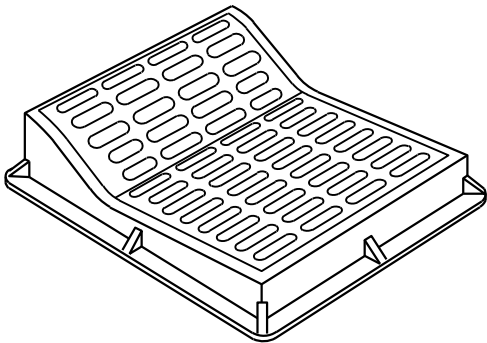
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GENERAL NOTES

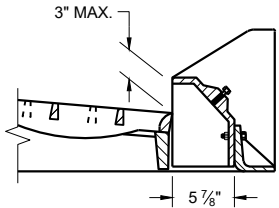
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

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"

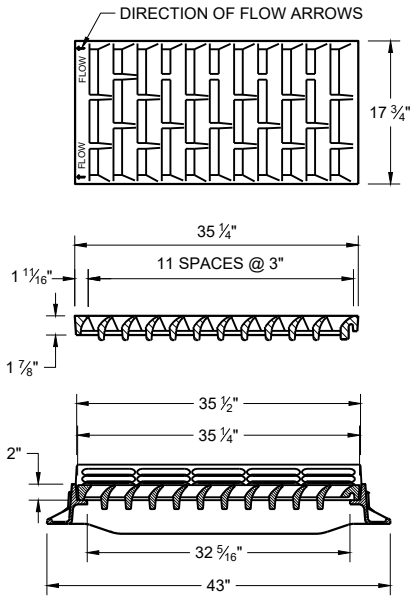


ALTERNATIVE CURB BOX
FOR TYPE "HM" COVER

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

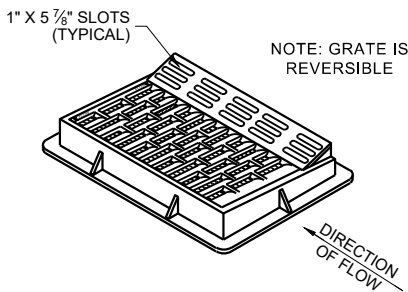
NOTE:
SPECIAL GRATE FOR THE TYPE "H" COVER MAY ALSO BE USED FOR THE TYPE "HM-GJ" COVER.

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

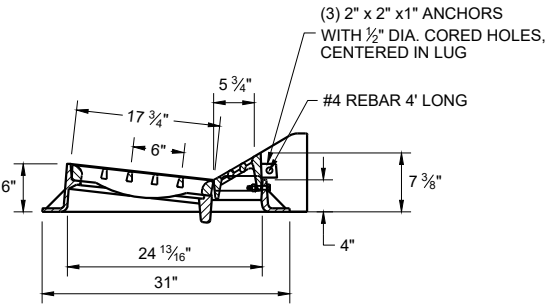


TYPE "HM"

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

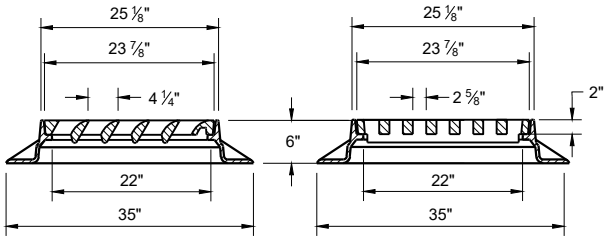
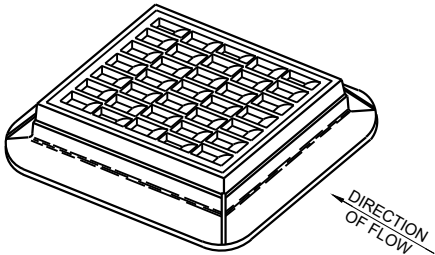


NOTE: GRATE IS REVERSIBLE

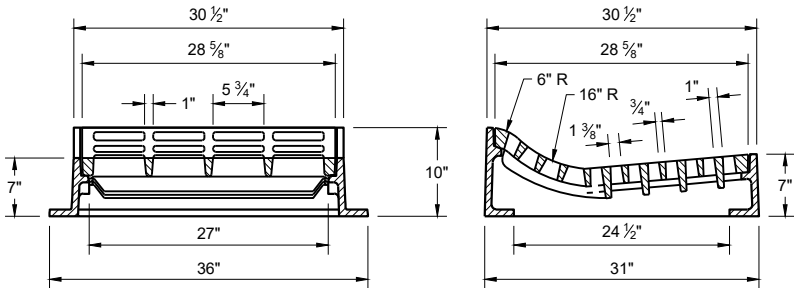
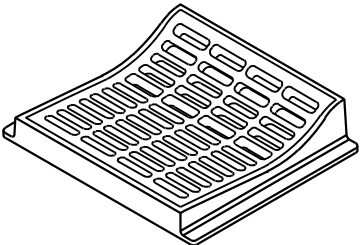


NOTE:
SPECIAL GRATE FOR THE TYPE "H" COVER MAY ALSO BE USED FOR THE TYPE "HM-GJ" COVER.

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

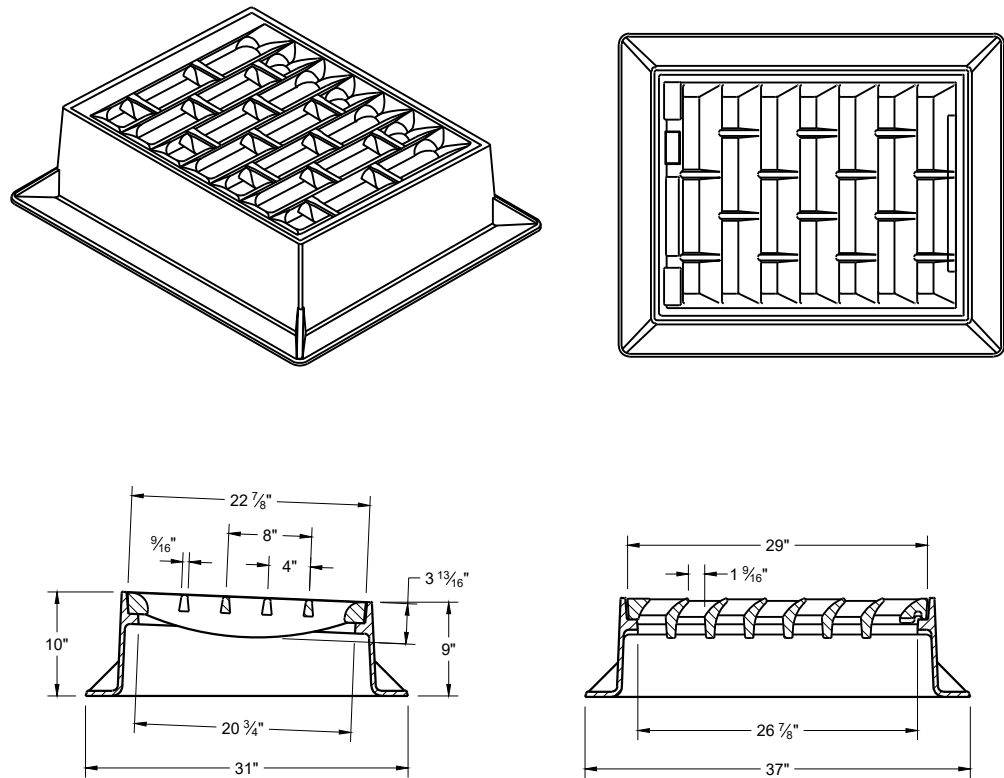
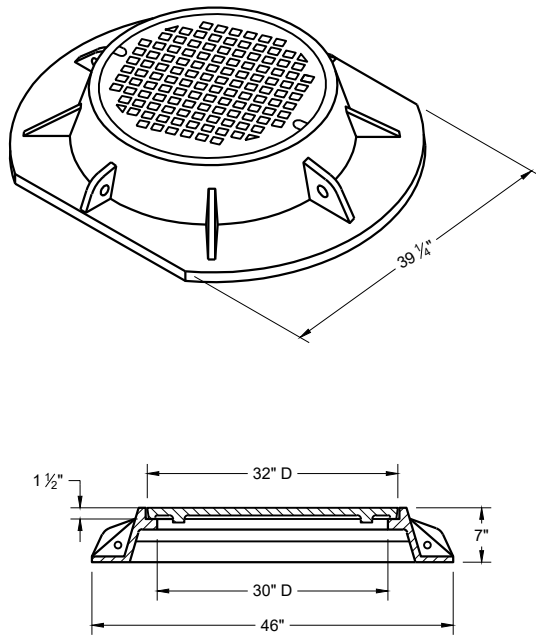
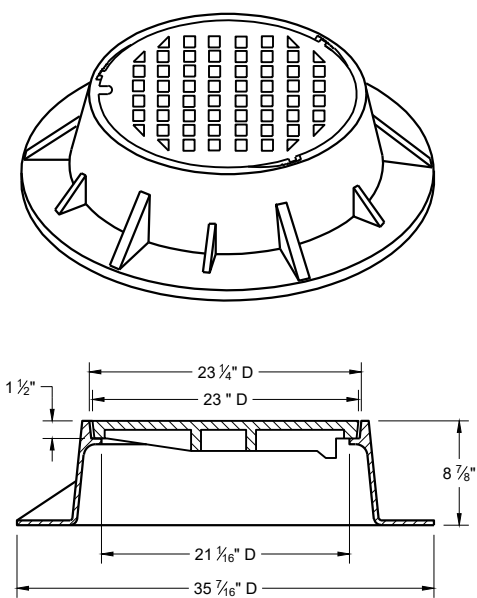
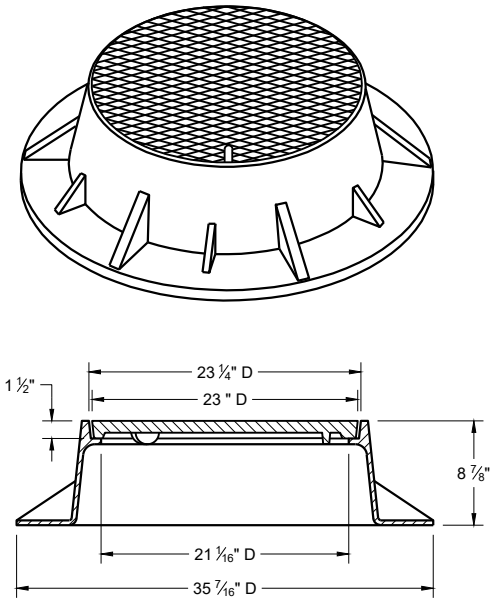
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December 2023 /S/ Rodney Taylor
DATE ROADWAY STANDARDS DEVELOPMENT
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GENERAL NOTES

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.

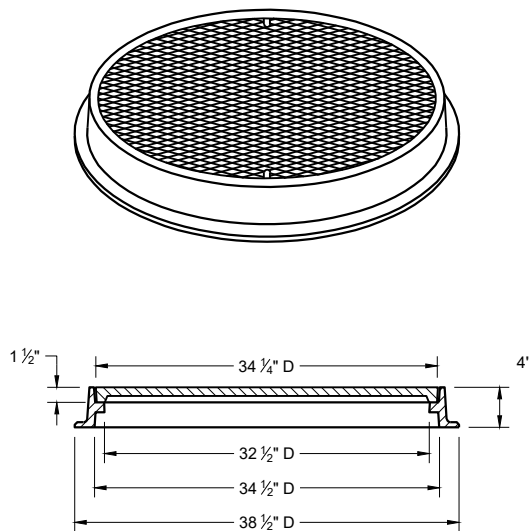
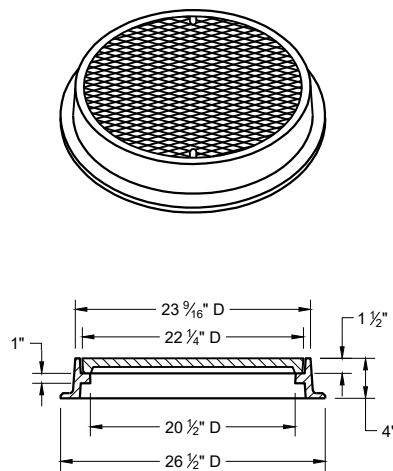
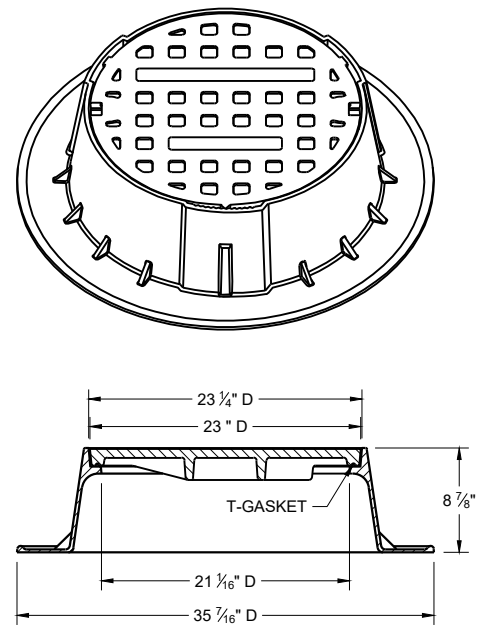
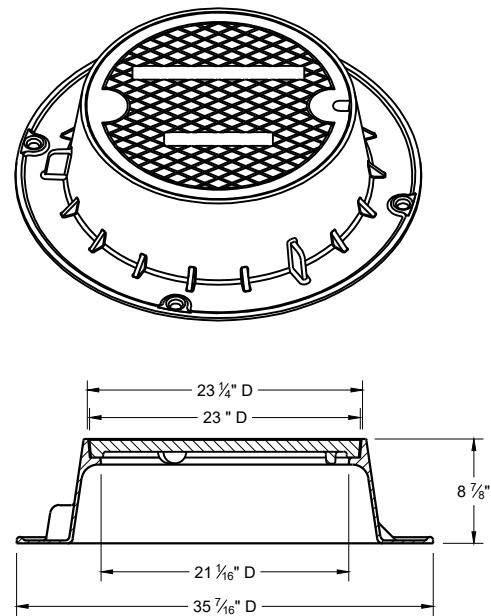
DETAIL DRAWINGS FOR PROPOSED ALTERNATE DESIGNS FOR MANHOLE COVERS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PROVIDING THAT SUCH ALTERNATE DESIGNS MAKE PROVISION FOR EQUIVALENT CAPACITY AND STRENGTH.

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



TYPE "K"

INLET COVER TYPE "BW"



TYPE "J"

NOTE: EITHER CASTING IS ACCEPTABLE

TYPE "J" SPECIAL

TYPE "B" NON-ROCKING SELF-SEAL LID
(NOTED AS TYPE J-S ON THE DRAINAGE TABLE)

NOTE: EITHER CASTING IS ACCEPTABLE

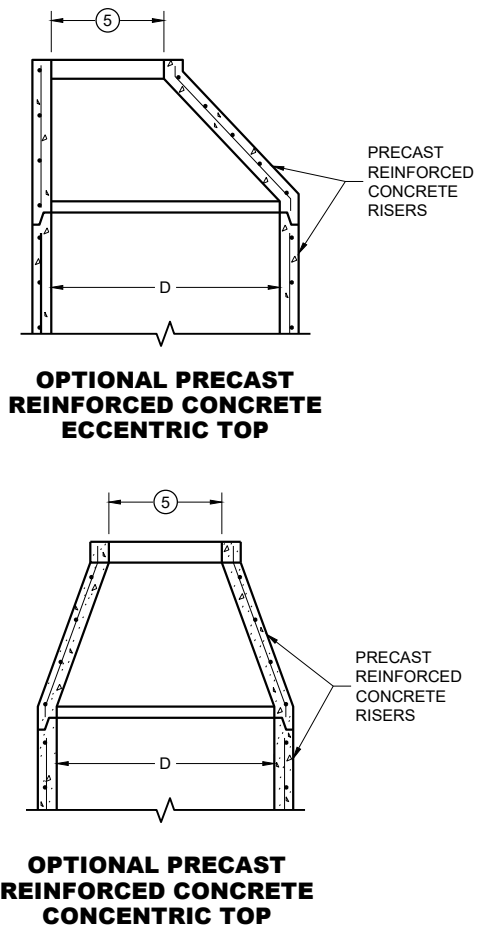
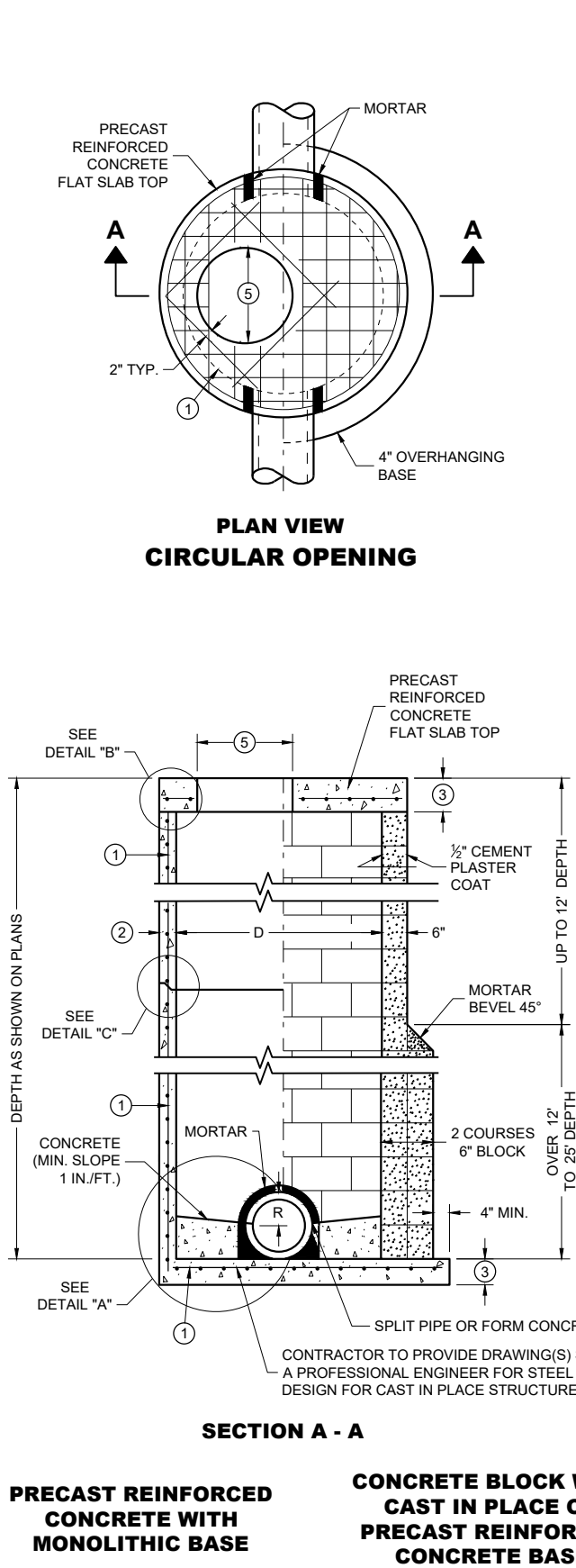
TYPE "L"

TYPE "M"

INLET COVERS TYPES BW
MANHOLE COVERS TYPES K,
J, J-S, L, AND M

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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December 2023 /S/ Rodney Taylor
DATE ROADWAY STANDARDS DEVELOPMENT
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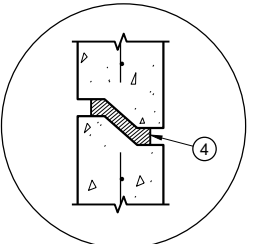
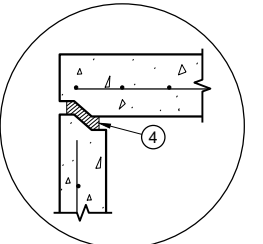
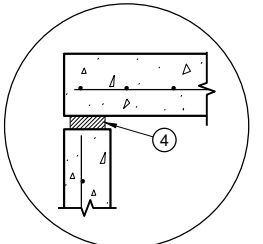
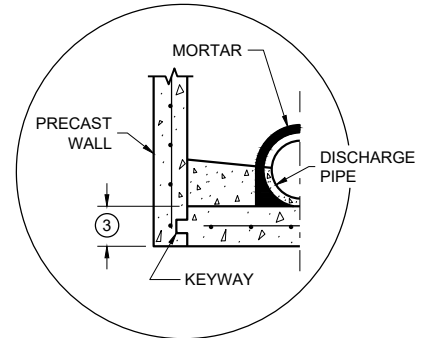
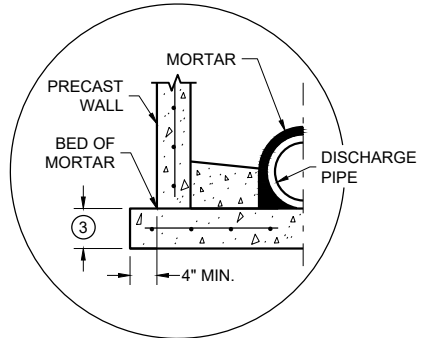
MANHOLE COVER OPENING MATRIX

MANHOLE COVER TYPE OPENING SIZE (FT.)	C	ALL JS	K	L	M
2 DIA.	X	X		X	
3 DIA.			X		X

PIPE MATRIX

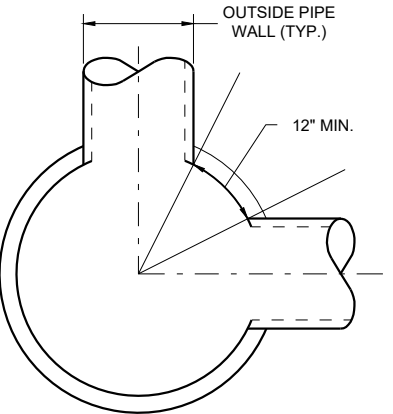
MANHOLE SIZE (DIA.)	MAXIMUM INSIDE PIPE DIAMETER FOR TWO PIPES		MINIMUM WALL THICKNESS (IN)	MINIMUM PRECAST FLAT SLAB TOP AND BASE THICKNESS
	180° SEPARATION (IN)	90° SEPARATION (IN)		
3-FT	15	12	4	6
4-FT	24	18	4	6
5-FT	36	24	5	8
6-FT	42	36	6	8
7-FT	48	36/42 *	7	8
8-FT	60	42	8	8
9-FT	66	54	9	10
10-FT	72	60	10	10

*A 36" PIPE AND A 42" PIPE CAN BE PLACED WITHIN 90 DEGREES. SEE MINIMUM HORIZONTAL PIPE SEPARATION DETAIL.



DETAIL "B"

DETAIL "C"



DETAIL "D"

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 MANHOLE 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 USED 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 IMENSION 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 MANHOLE 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".

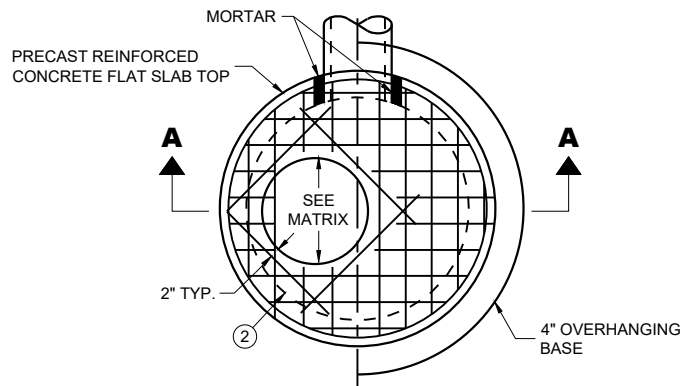
- 1 FOR PRECAST MANHOLES AND REINFORCED CONCRETE BASES PROVIDE REINFORCING STEEL IN ACCORDANCE TO AASHTO M199.
- 2 SEE PIPE MATRIX TABLE FOR MINIMUM WALL THICKNESS FOR PRECAST MANHOLES
- 3 SEE PIPE MATRIX TABLE FOR MINIMUM THICKNESS OF PRECAST FLAT SLAB TOPS AND BASES.
- 4 JOINTS TO BE SEALED WITH A BUTYL RUBBER SEAL PER SEALANT MANUFACTURERS RECOMMENDATIONS CONFORMING TO ASTM C 990 OR RUBBER GASKETS CONFORMING TO ASTM C443.
- 5 SEE MANHOLE COVER OPENING MATRIX.

**MANHOLES, 3-FT, 4-FT
5-FT, 6-FT, 7-FT, 8-FT, 9-FT
AND 10-FT DIAMETER**

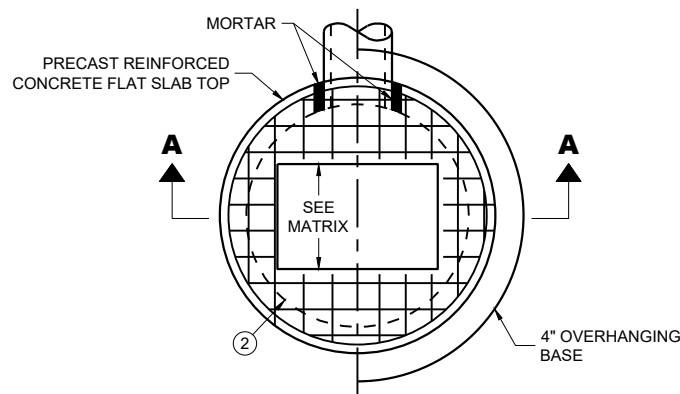
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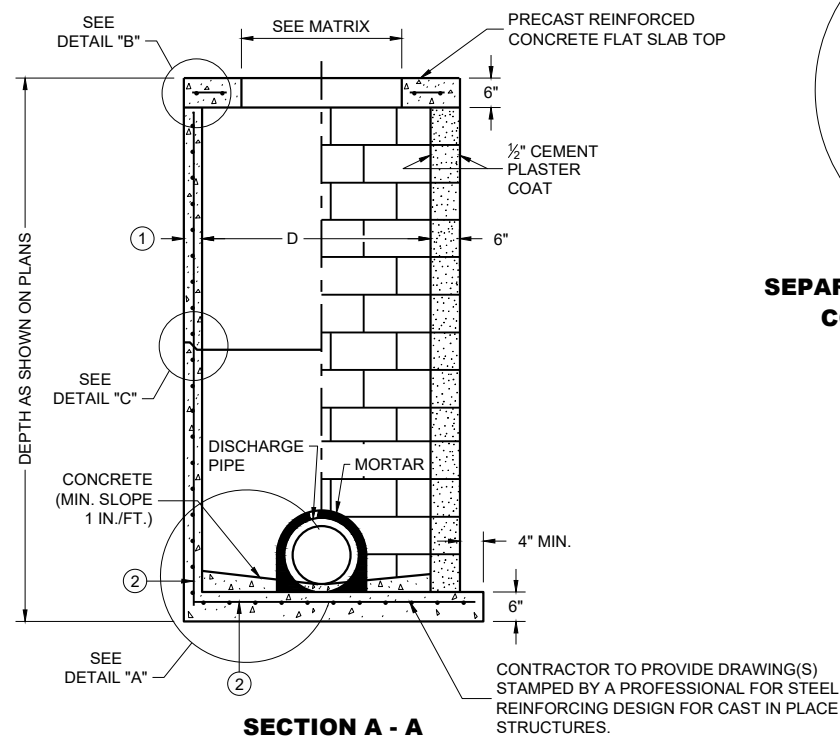
85



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

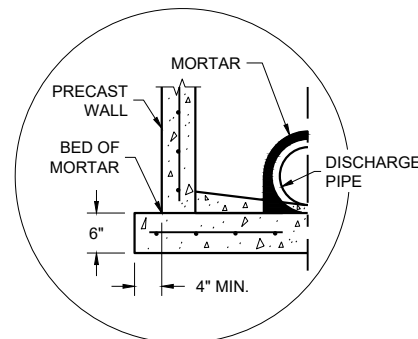
CIRCULAR INLETS WITH FLAT TOP

CATCH BASIN COVER OPENING MATRIX

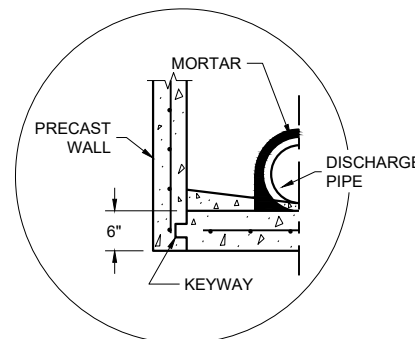
INLET SIZE	INLET COVER TYPE	ALL A'S	ALL B'S	BW	C	F	ALL H'S	S	T	V	WM	Z
	OPENING SIZE (FT.)											
3-FT	2 DIA.				X							X
	2 X 2	X	X					X		X		
4-FT	2 DIA.				X							X
	2 X 2	X	X					X		X		
	2 X 2.5			X				X	X	X	X	
	2 X 3						X					
	2.5 X 3					X						

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

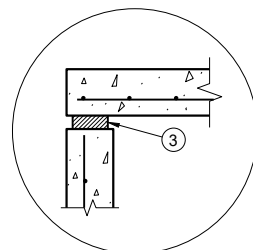


SEPARATE PRECAST REINFORCED
CONCRETE BASE OPTION

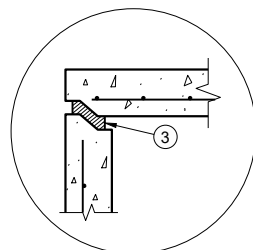


PRECAST REINFORCED CONCRETE
WITH INTEGRAL BASE OPTION

DETAIL "A"

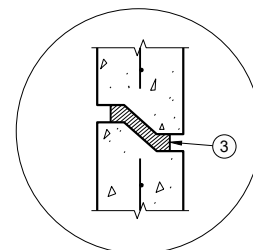


TOP WITH PLAIN
END JOINT



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.

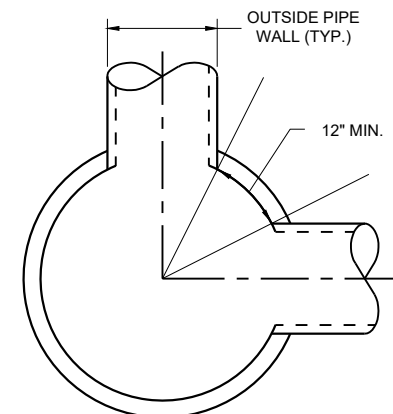
ALL PRECAST INLET UNITS SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF AASHTO DESIGNATION M199.

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".

- MINIMUM WALL THICKNESS SHALL BE 4 INCHES FOR 3-FT DIAMETER AND 5 INCHES FOR 4-FT DIAMETER PRECAST INLETS.
- FOR PRECAST INLETS AND REINFORCED CONCRETE BASES PROVIDE REINFORCING STEEL IN ACCORDANCE TO AASHTO M199.
- 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.

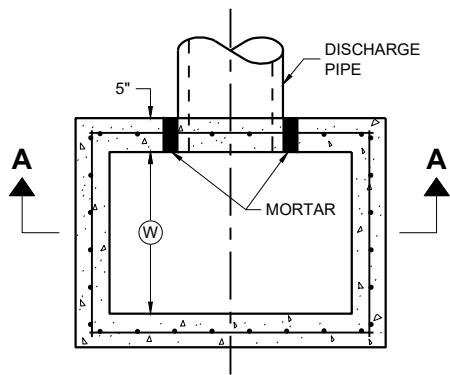


MINIMUM HORIZONTAL PIPE
SEPARATION
DETAIL "D"

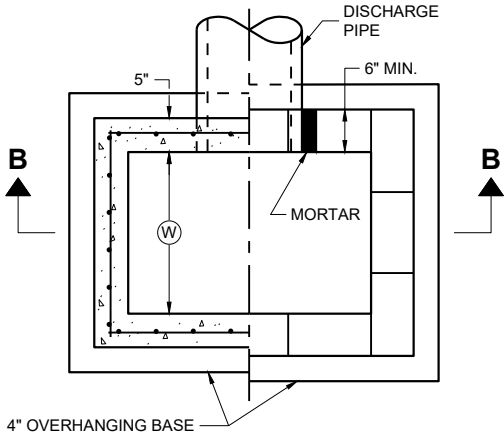
INLETS 3-FT
AND 4-FT DIAMETER

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

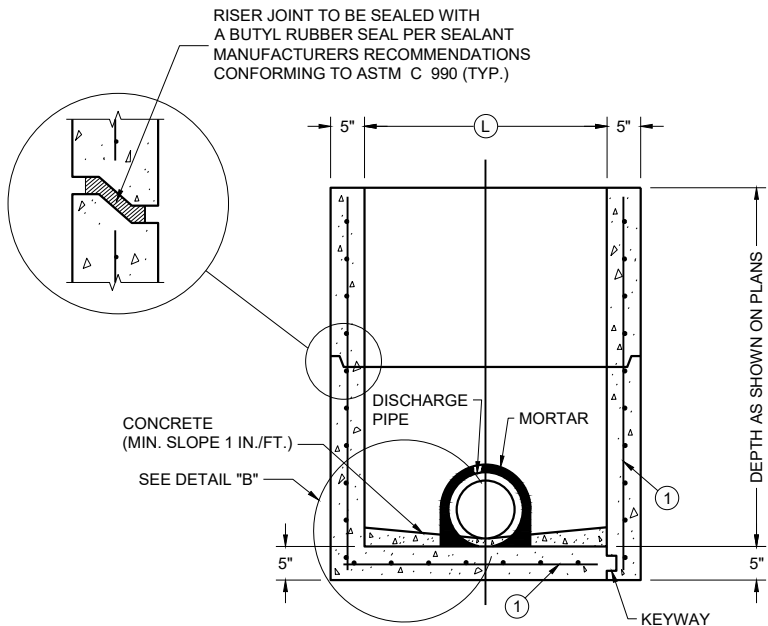
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PLAN VIEW



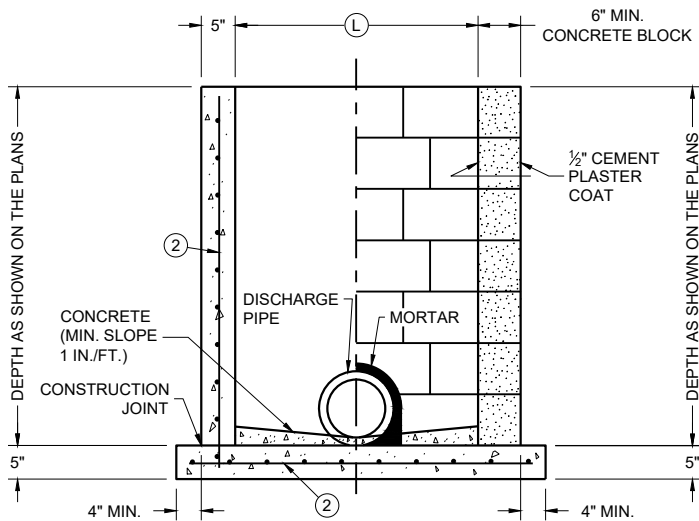
PLAN VIEW



PRECAST REINFORCED
CONCRETE WITH
MONOLITHIC BASE

PRECAST REINFORCED
CONCRETE WITH
INTEGRAL BASE

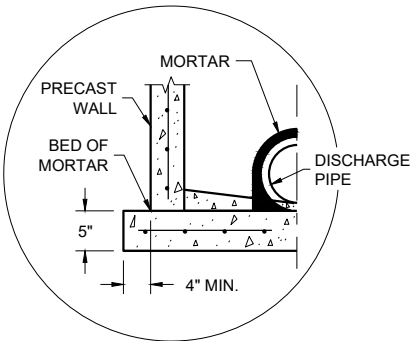
SECTION A - A



CAST IN PLACE
REINFORCED
CONCRETE

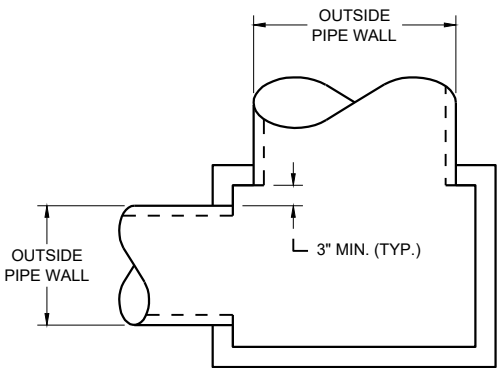
CONCRETE BLOCK WITH
CAST IN PLACE OR
PRECAST REINFORCED
CONCRETE BASE ①

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	

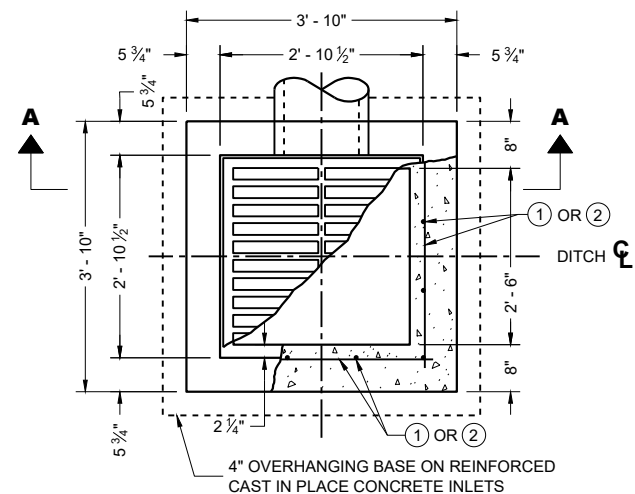
PIPE MATRIX

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

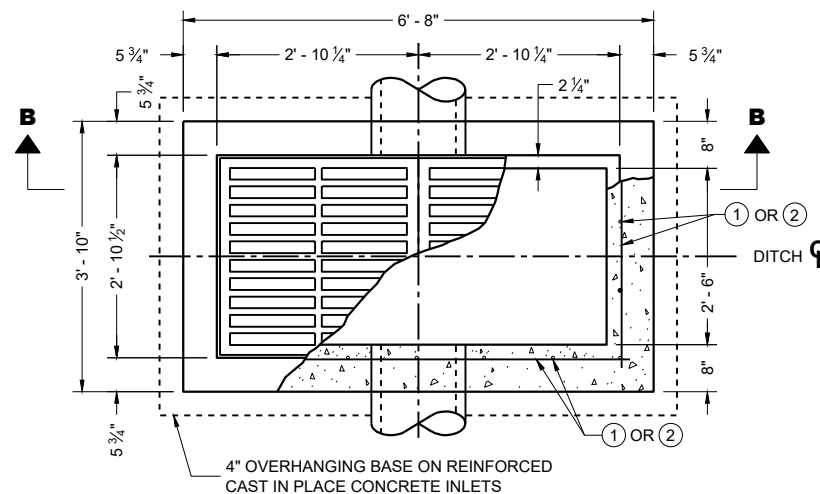
INLETS 2 X 2-FT, 2 X 2.5-FT,
2 X 3-FT, 2.5 X 3-FT
AND 2 X 3.5-FT

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

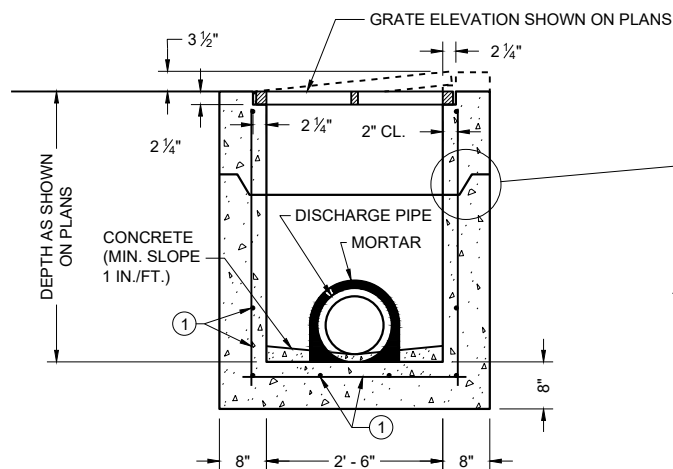
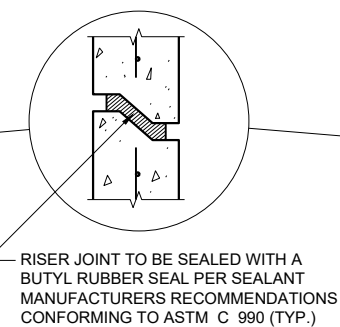
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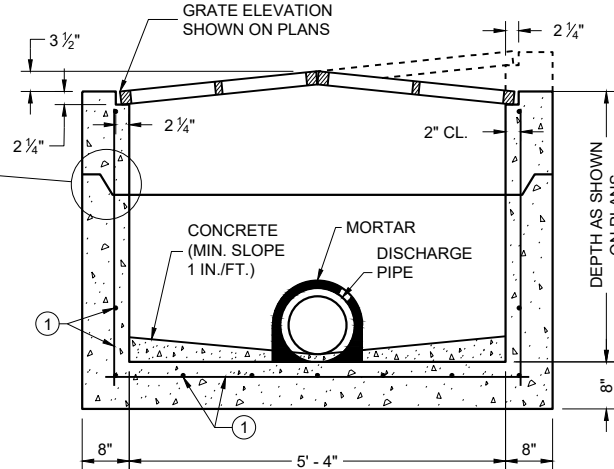
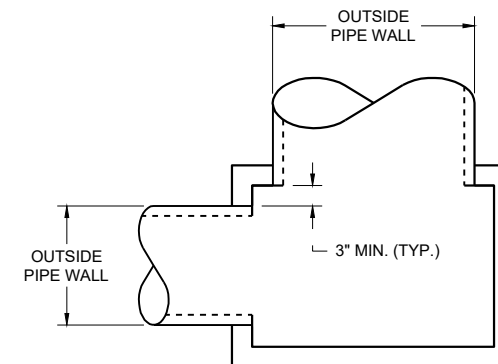
PLAN VIEW



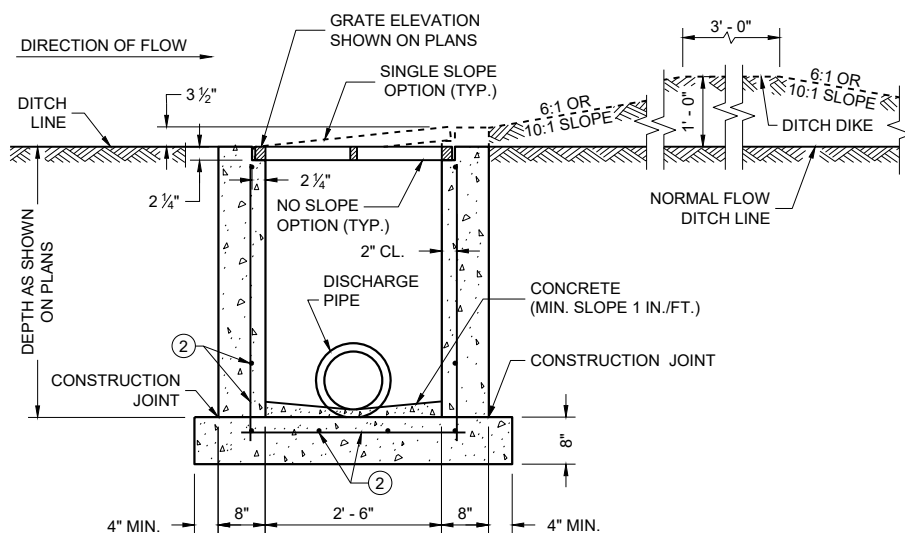
PLAN VIEW

PRECAST REINFORCED CONCRETE
SECTION A - A

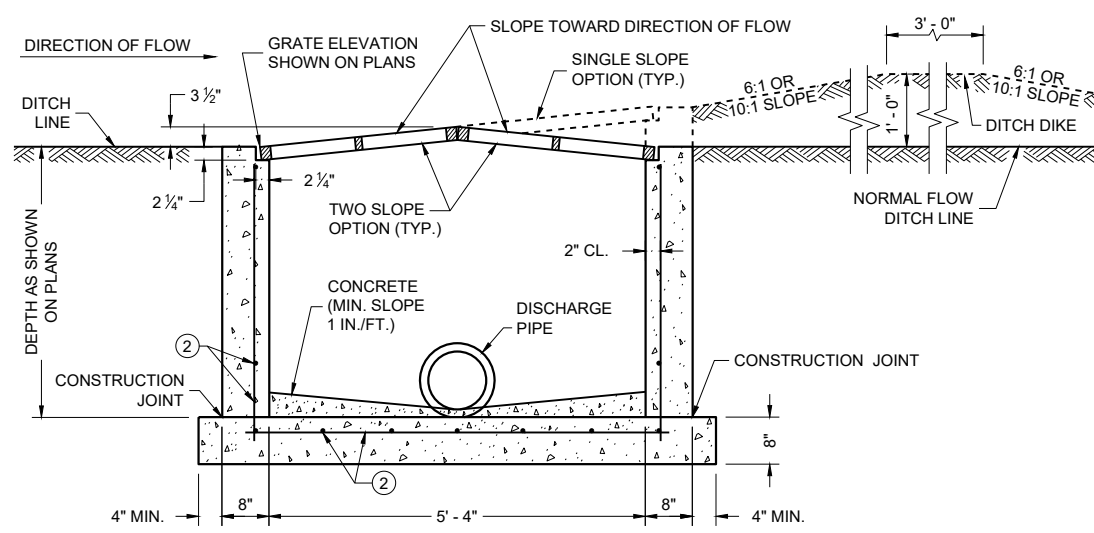
RISER JOINT TO BE SEALED WITH A BUTYL RUBBER SEAL PER SEALANT MANUFACTURERS RECOMMENDATIONS CONFORMING TO ASTM C 990 (TYP.)

PRECAST 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

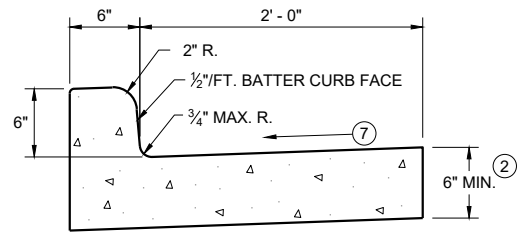
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

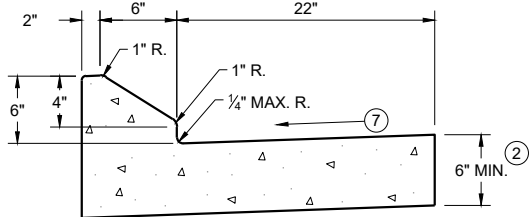
December 2023
DATE

/S/ Rodney Taylor
ROADWAY STANDARDS DEVELOPMENT
UNIT SUPERVISOR

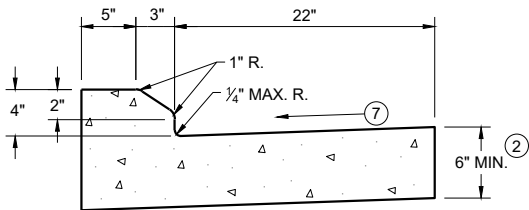
FHWA



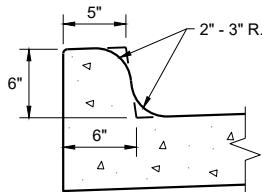
TYPES A^① & D



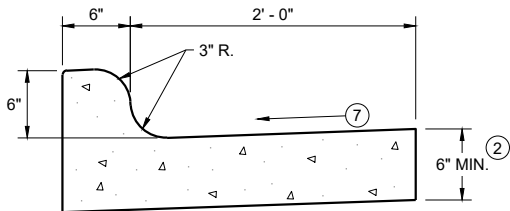
6" SLOPED CURB TYPES G^① & J



4" SLOPED CURB TYPES G^① & J

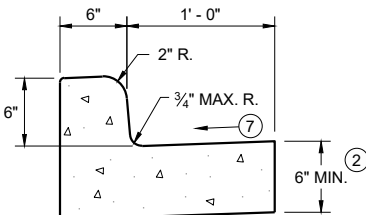


TYPES K^① & L
(OPTIONAL CURB SHAPE)



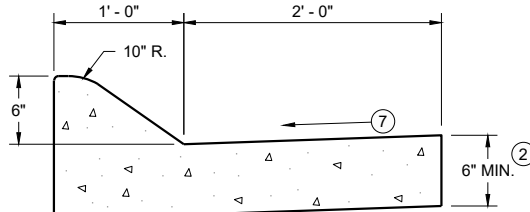
TYPES K^① & L

CONCRETE CURB AND GUTTER 30"

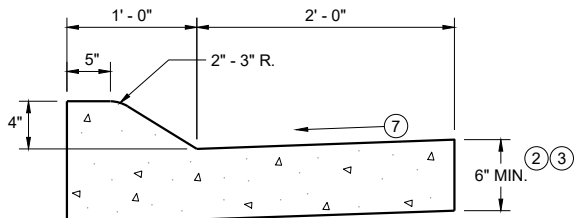


TYPES A^① & D

CONCRETE CURB AND GUTTER 18"

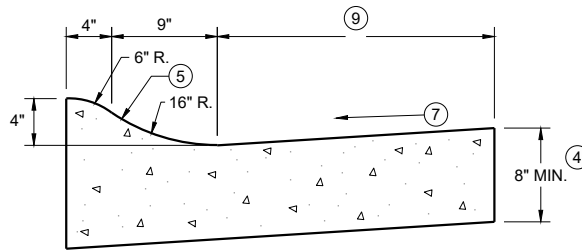


6" SLOPED CURB TYPES A^① & D



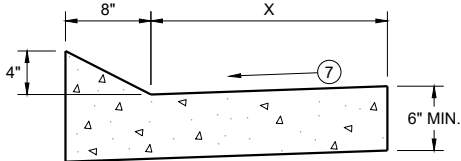
4" SLOPED CURB TYPES A^① & D

CONCRETE CURB AND GUTTER 36"



4" SLOPED CURB TYPES R^① & T

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

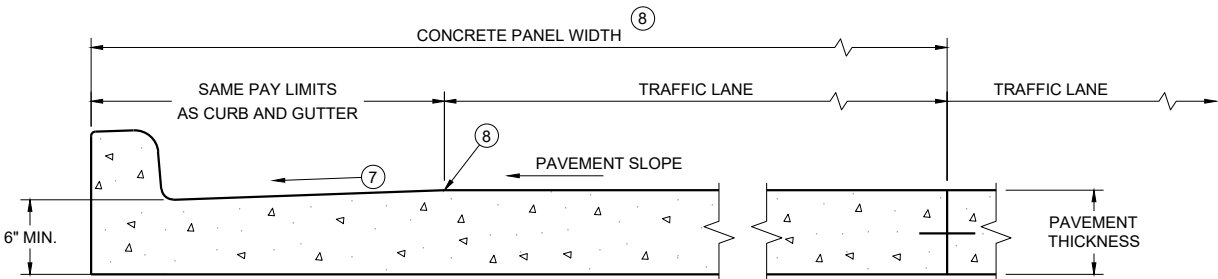


TYPES TBT & TBTT^①

CONCRETE CURB AND GUTTER

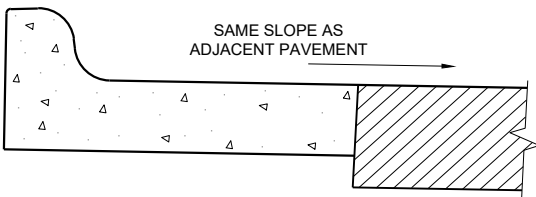
PAVEMENT THICKNESS
AND MAXIMUM CONCRETE
PANEL WIDTH TABLE

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)

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.

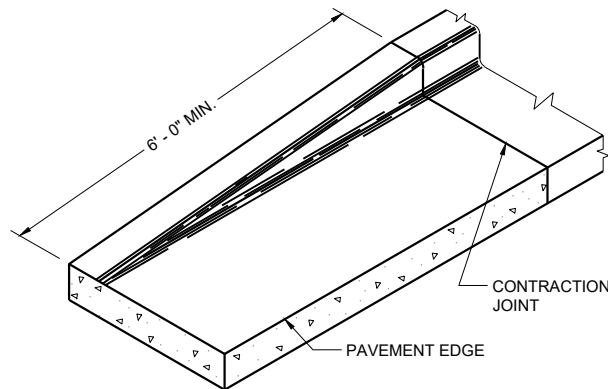
INTEGRAL CURB AND GUTTER SHALL CONFORM TO THE DETAILS SHOWN FOR CONCRETE CURB AND GUTTER INCLUDING THE TRANSVERSE GUTTER SLOPE.

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

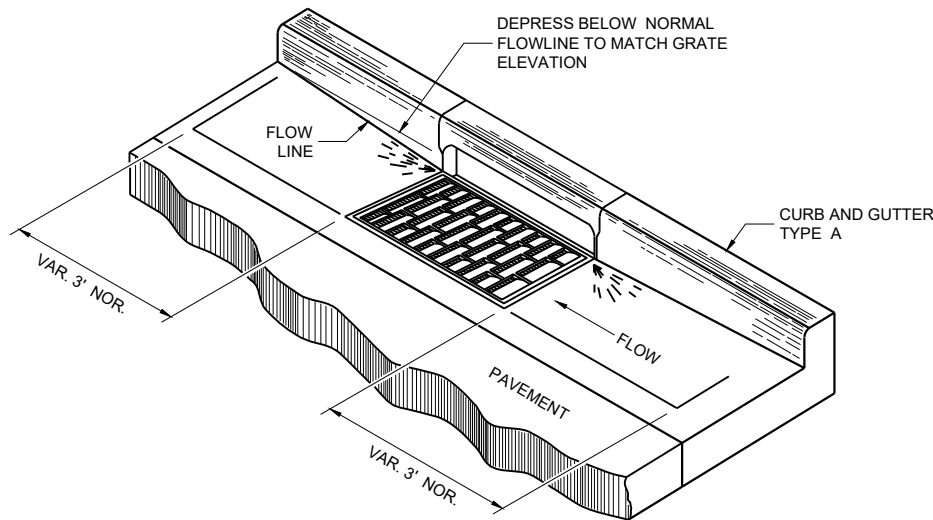
- ① TIE BARS ARE REQUIRED FOR CURB AND GUTTERS TYPES A, G, K, R, AND TBTT.
- ② THE BOTTOM OF CURB AND GUTTER MAY BE CONSTRUCTED EITHER LEVEL OR PARALLEL TO THE SLOPE OF THE SUBGRADE OR BASE AGGREGATE PROVIDED A 6" MINIMUM GUTTER THICKNESS IS MAINTAINED.
- ③ USE 8" MINIMUM GUTTER THICKNESS WHEN USED WITH 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 CONCRETE CURB AND GUTTER 4-INCH SLOPED 30-INCH TYPE "R" AND "T" = 17 INCHES
CONCRETE CURB AND GUTTER 4-INCH SLOPED 36-INCH TYPE "R" AND "T" = 23 INCHES

CONCRETE CURB AND GUTTER

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

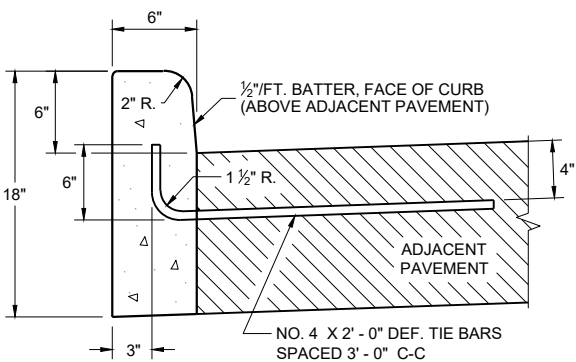


END SECTION CURB AND GUTTER

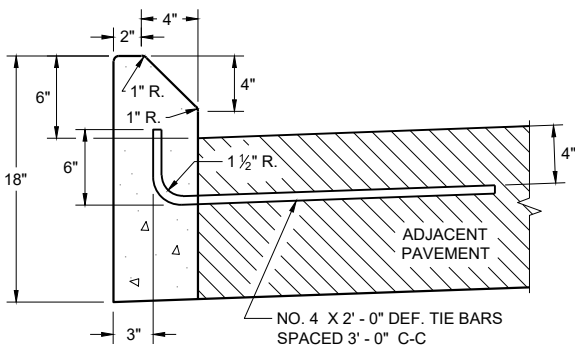


DETAIL OF CURB AND GUTTER AT INLETS

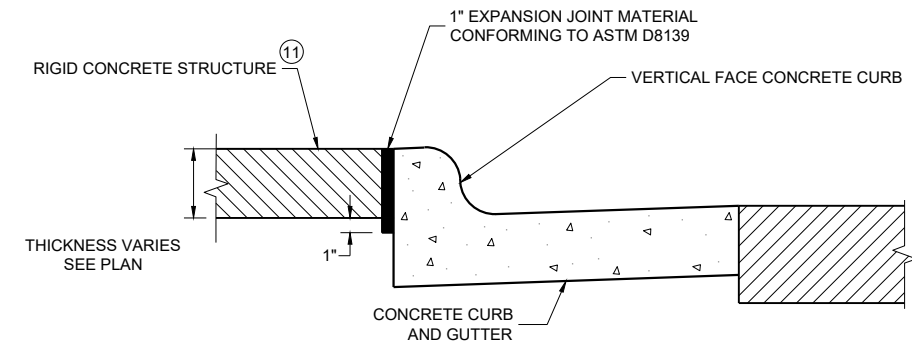
(TYPICAL H INLET COVER SHOWN)



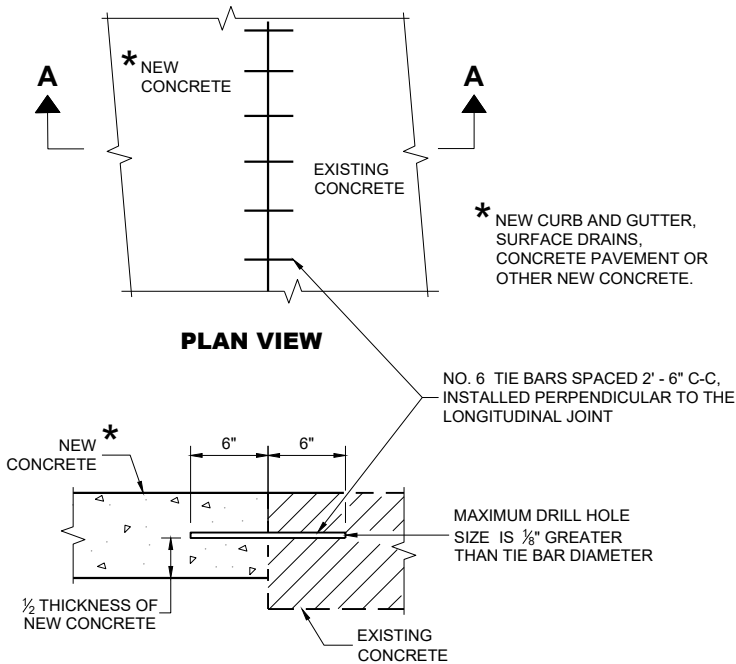
TYPES A^① & D



TYPES G^① & J
CONCRETE CURB



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



SECTION A - A
TIE BARS DRILLED INTO EXISTING PAVEMENT

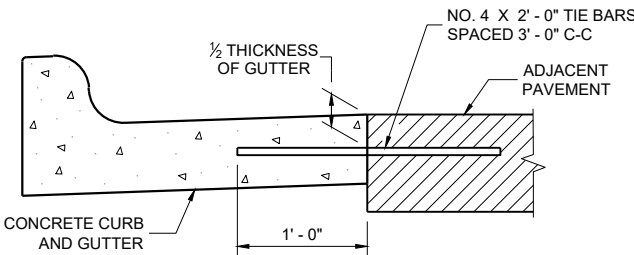
GENERAL NOTES

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

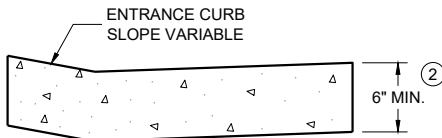
PAVEMENT TIES AND TIE BARS SHALL BE EPOXY COATED IN CONFORMANCE WITH SUBSECTION 505.2.6.2 OF THE STANDARD SPECIFICATIONS.

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

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



TYPICAL TIE BAR LOCATION^①



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

CONCRETE CURB, TIES
AND CURB AND GUTTER
APPLICATIONS

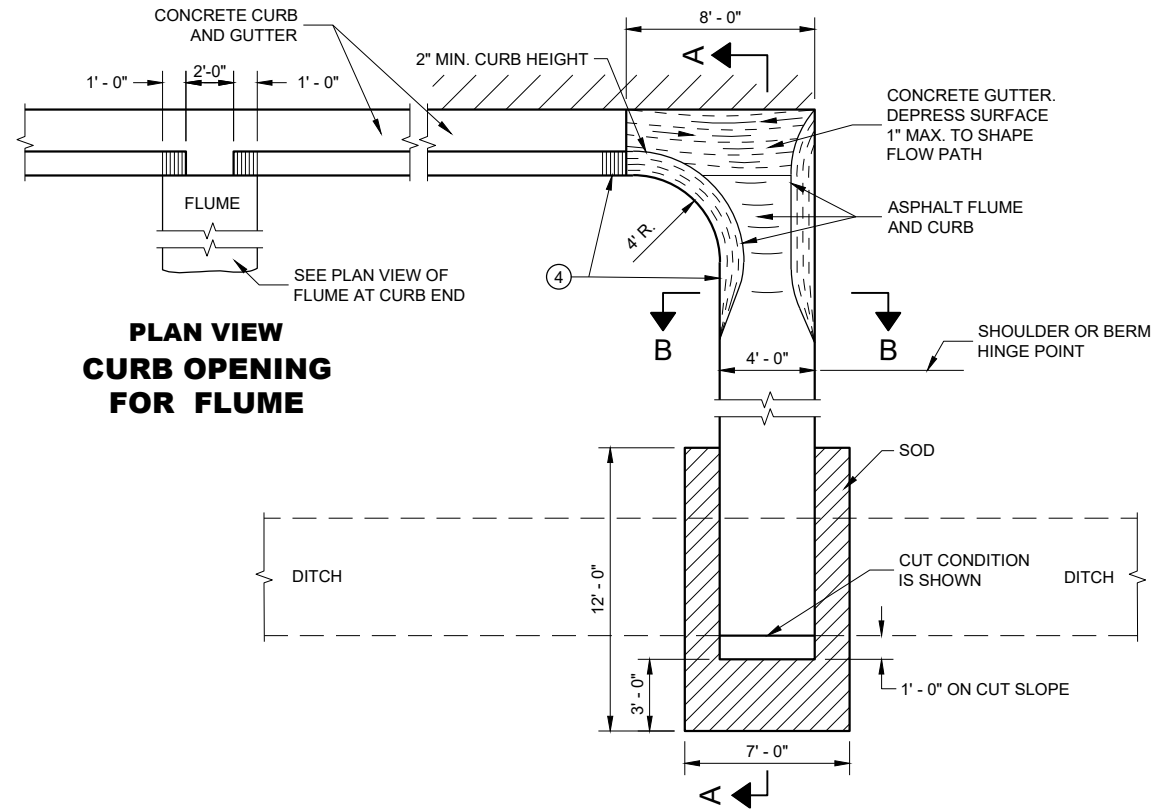
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

FHWA

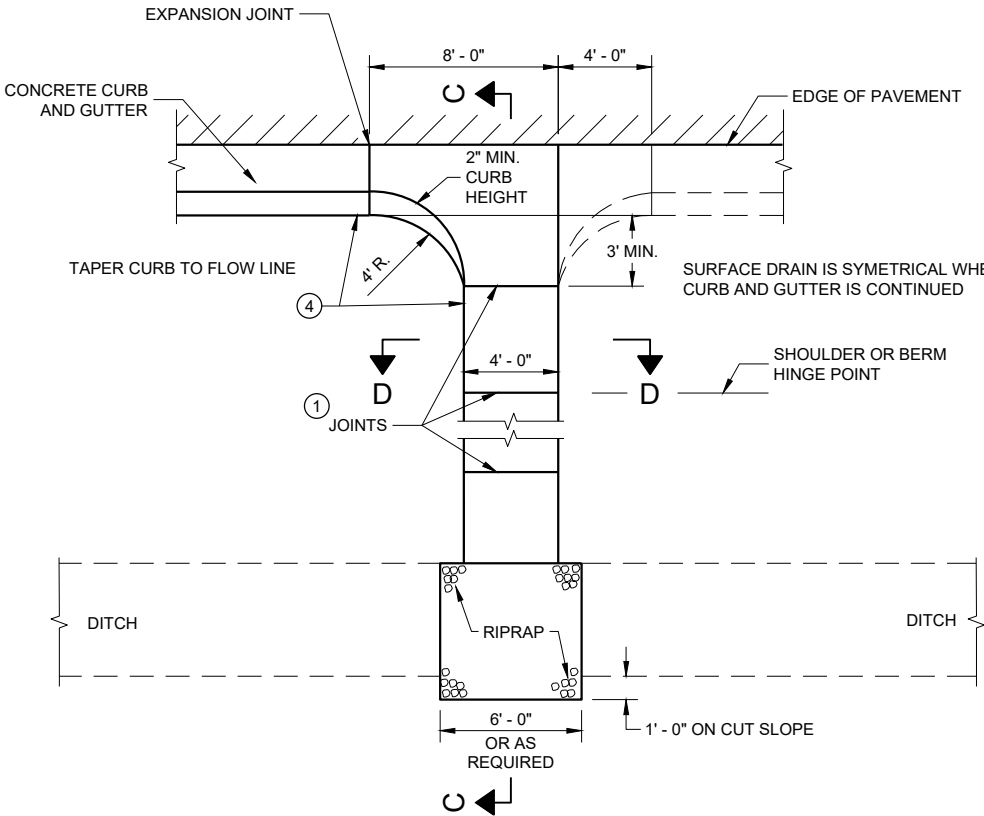
NOTE: TAPER CURB ENDS TO GUTTER IN 1' - 0"

ASPHALTIC FLUME



PLAN VIEW
CURB OPENING
FOR FLUME

PLAN VIEW
FLUME AT CURB END



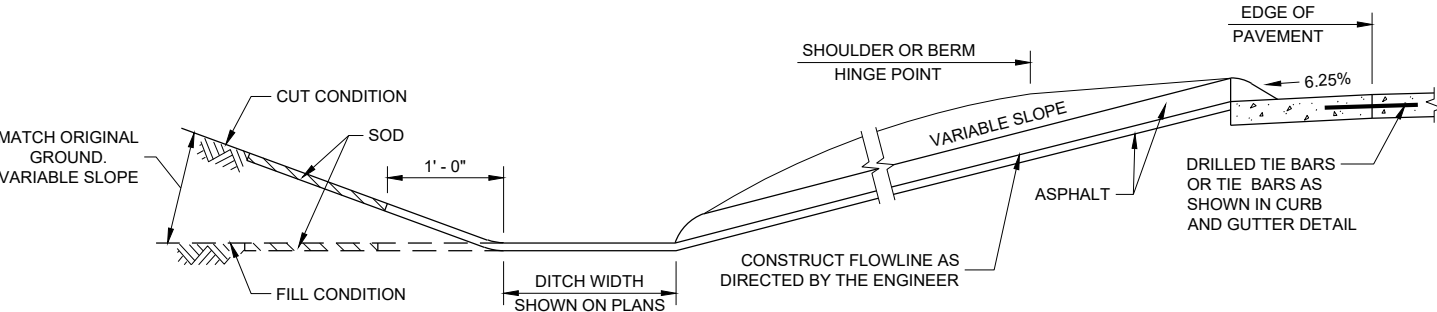
PLAN VIEW
CONCRETE SURFACE DRAIN

GENERAL NOTES

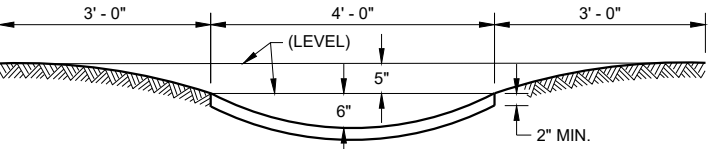
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.

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

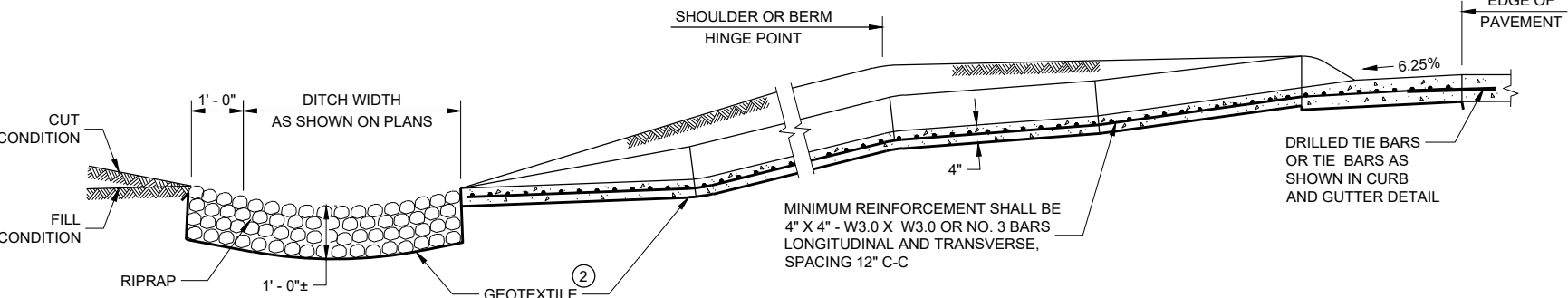
- ① JOINTS SHALL BE 1/8" TO 1/4" WIDE BY 1 1/2" DEEP AND SPACED AT UNIFORM INTERVALS OF APPROXIMATELY 4 FEET.
- ② GEOTEXTILE TYPE "R" SHALL UNDERLAY THE FULL LENGTH AND WIDTH OF THE CONCRETE SURFACE DRAIN AND RIPRAP.
- ③ CONCRETE SURFACE DRAIN WITHOUT CURB AND GUTTER MAY BE USED ON BACKSLOPES WHEN SPECIFIED.
- ④ ANGLE OF FLUME IN RELATION TO BACK OF CURB TO BE CONSTRUCTED PER THE PLAN DETAILS OR AS DIRECTED BY THE ENGINEER. ANGLE OF FLUME MAY BE OTHER THAN 90 DEGREES AS SHOWN.



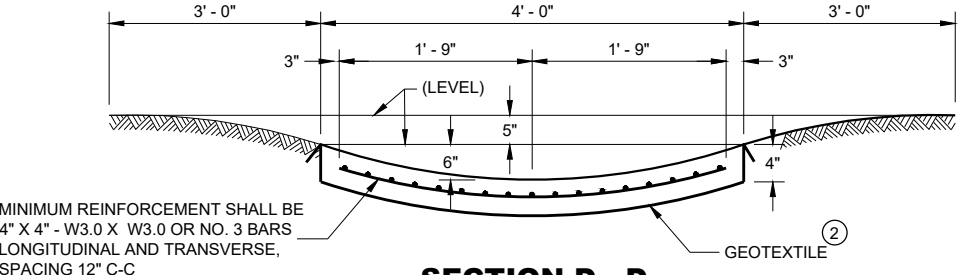
SECTION A - A



SECTION B - B



SECTION C - C

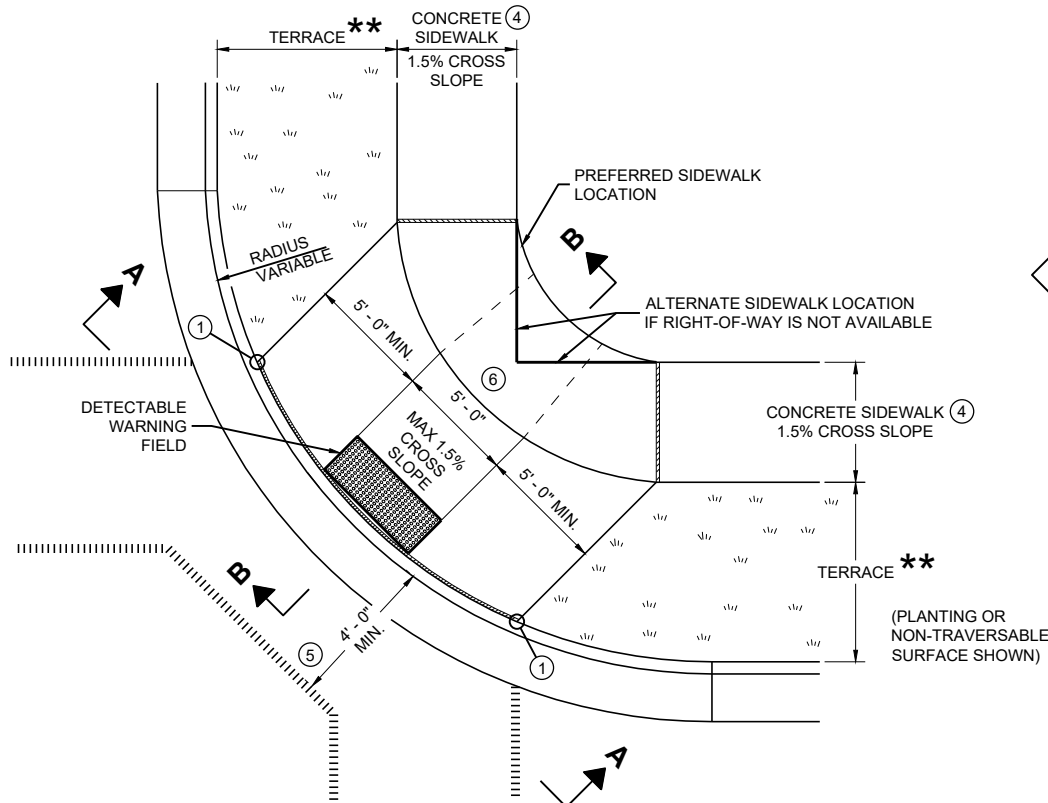


SECTION D - D

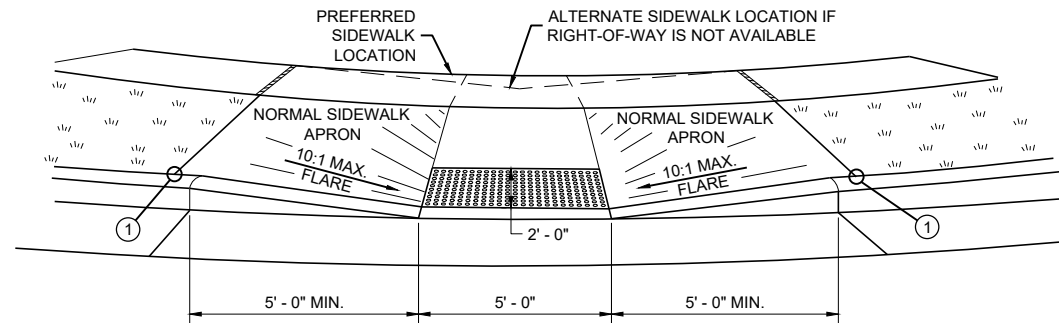
CONCRETE SURFACE
DRAINS AND
ASPHALTIC FLUMES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

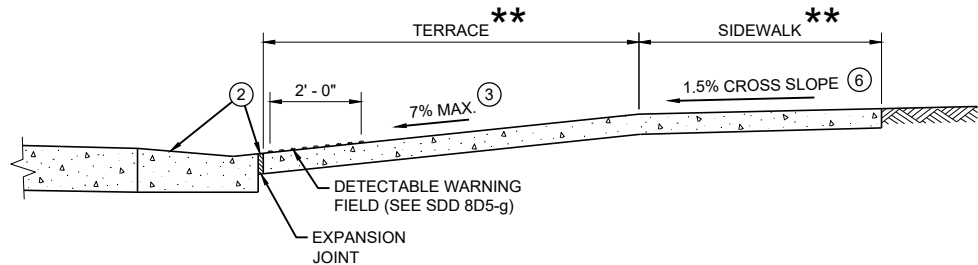


PLAN VIEW
CURB RAMP TYPE 1
(CENTER OF CORNER RADIUS)

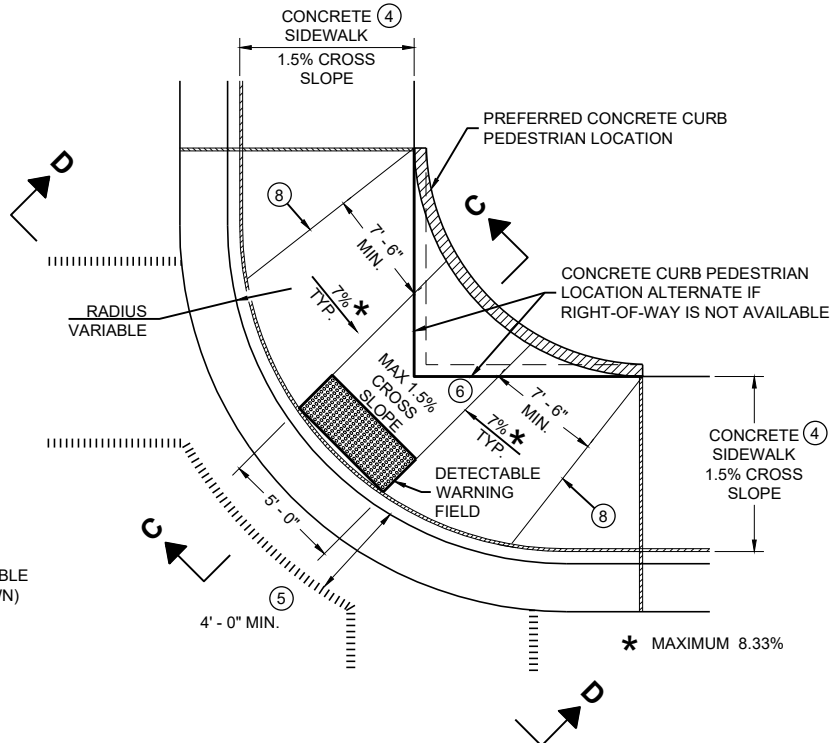


VIEW A - A FOR TYPE 1

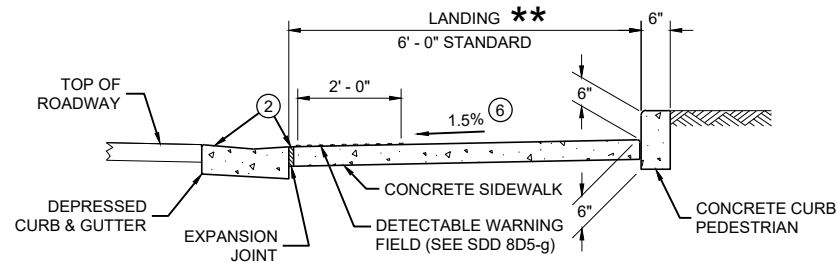
** WIDTH SHOWN ELSEWHERE
IN THE PLANS



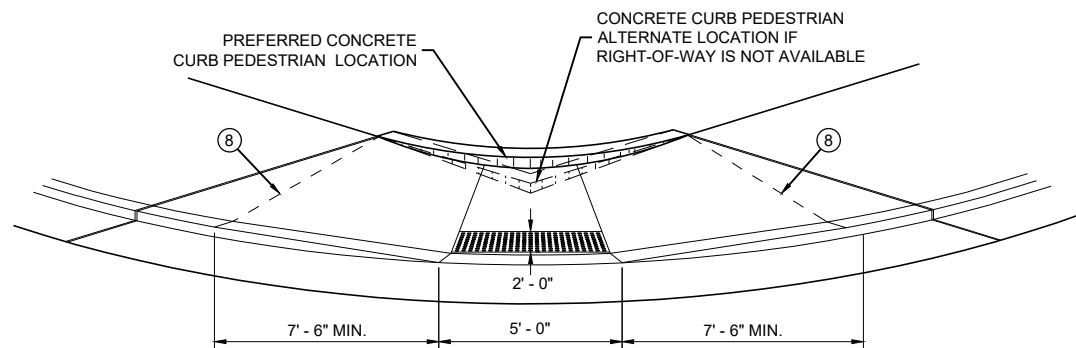
SECTION B - B FOR TYPE 1



PLAN VIEW
CURB RAMP TYPE 1 - A
(NO TERRACE)



SECTION C - C FOR TYPE 1 - A



VIEW D - D FOR TYPE 1 - A

GENERAL NOTES

AVOID PLACING DRAINAGE STRUCTURES, JUNCTION BOXES OR OTHER OBSTRUCTIONS IN FRONT OF RAMP ACCESS AREAS.

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.

WHEN NECESSARY, THE SIDEWALK ELEVATION MAY BE LOWERED TO MEET THE HIGH POINT ON THE RAMP.

TYPE 1 CURB RAMPS SHALL HAVE A NORMAL SIDEWALK APRON AND CURB ON BOTH SIDES OF RAMP.

DETECTABLE WARNING FIELD SHALL BE MEASURED AND PAID BY THE SQUARE FOOT AS "CURB RAMP DETECTABLE WARNING FIELD". THE CONCRETE PEDESTRIAN CURB, IF NEEDED, SHALL BE MEASURED AND PAID BY THE LINEAR FOOT AS "CONCRETE CURB PEDESTRIAN". CONCRETE SIDEWALK IN THE CURB RAMP AREA SHALL BE MEASURED AND PAID BY THE SQUARE FOOT AS CONCRETE SIDEWALK, INCLUDING THE AREA UNDER THE DETECTABLE WARNING FIELD.

SELECT CURB RAMP DETECTABLE WARNING FIELD MATERIALS AND DEVICES FROM THE DEPARTMENT'S APPROVED MATERIALS LIST. THE COLOR OF THE DETECTABLE WARNING FIELD IS SPECIFIED ELSEWHERE AND IS INCIDENTAL TO THE BID ITEM OF "CURB RAMP DETECTABLE WARNING FIELD"

DETECTABLE WARNING FIELDS THAT ARE INSTALLED AS A GROUP OR SIDE BY SIDE, SHALL BE FROM THE SAME MANUFACTURER.

SURFACE TEXTURE OF THE RAMP SHALL BE OBTAINED BY COARSE BROOMING TRANSVERSE TO THE SLOPE OF THE RAMP.

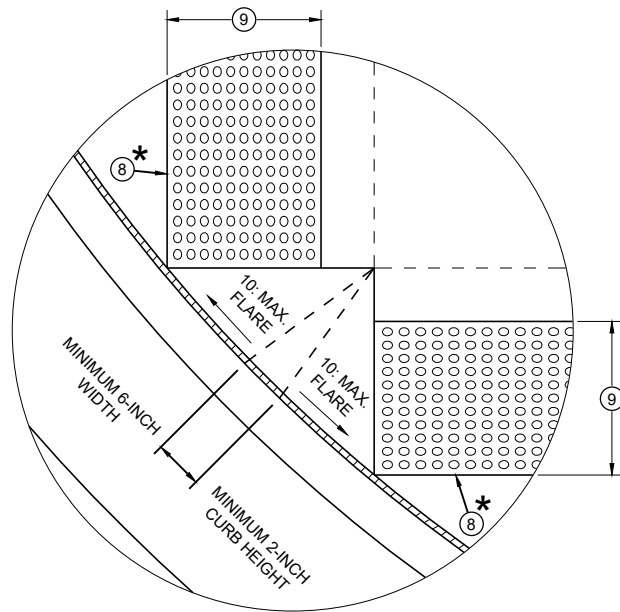
- ① THIS POINT IS AN EXTENSION OF OUTSIDE EDGE OF APPROACHING SIDEWALK WHERE IT MEETS THE BACK OF CONCRETE CURB. POINT LOCATION MAY BE ADJUSTED TO ALIGN WITH BEGINNING OF FULL-HEIGHT CURB IF THIS DISTANCE IS SHORT.
- ② GRADE CHANGE BETWEEN GUTTER FLAG SLOPE AND THE CURB RAMP SLOPE SHALL NOT EXCEED 11%. MAXIMUM GUTTER FLAG SLOPE IS 4%. PROVIDE LONGITUDINAL DRAINAGE AROUND CURB AND AWAY FROM CURB RAMP. NO VERTICAL LIPS OR DISCONTINUITIES GREATER THAN 1/4 - INCH ARE ALLOWED. SLOPE OF CURB HEAD OPENING SHALL MATCH THE RAMP SLOPE, MINIMALLY 1.5% AND NOT TO EXCEED 7%. WHEN ADJACENT TO 1.5% LANDING, CONSTRUCT CURB HEAD OPENING AT 1.5% IN THE DIRECTION OF PEDESTRIAN TRAVEL.
- ③ MAXIMUM 8.33% CURB RAMP SLOPE IS ALLOWABLE WITH FLATTENED GUTTER FLAG SLOPE AND NOT TO EXCEED 11% GRADE CHANGE.
- ④ ±0.5% CONSTRUCTION TOLERANCE IN SIDEWALK CROSS SLOPE. THE SIDEWALK CROSS SLOPE SHALL NOT EXCEED 2% WITHOUT PRIOR APPROVAL FROM THE ENGINEER.
- ⑤ PROVIDE A LEVEL LANDING IN THE STREET AND GUTTER AREA (2% MAXIMUM SLOPE IN ANY DIRECTION). WHEN THE GUTTER SLOPE EXCEEDS 2%, CONSTRUCT THE LEVEL LANDING IN THE STREET AREA. 4 FOOT WIDTH IS MEASURED FROM THE FLANGE LINE
- ⑥ PROVIDE A LEVEL LANDING (MAXIMUM 2% SLOPE) IN ANY DIRECTION OF PEDESTRIAN TRAVEL. STANDARD LEVEL LANDING SIZE IS 5 FEET BY 5 FEET.
- ⑧ PROVIDE GRADE BREAK PERPENDICULAR TO DIRECTION OF WHEELCHAIR TRAVEL.

LEGEND

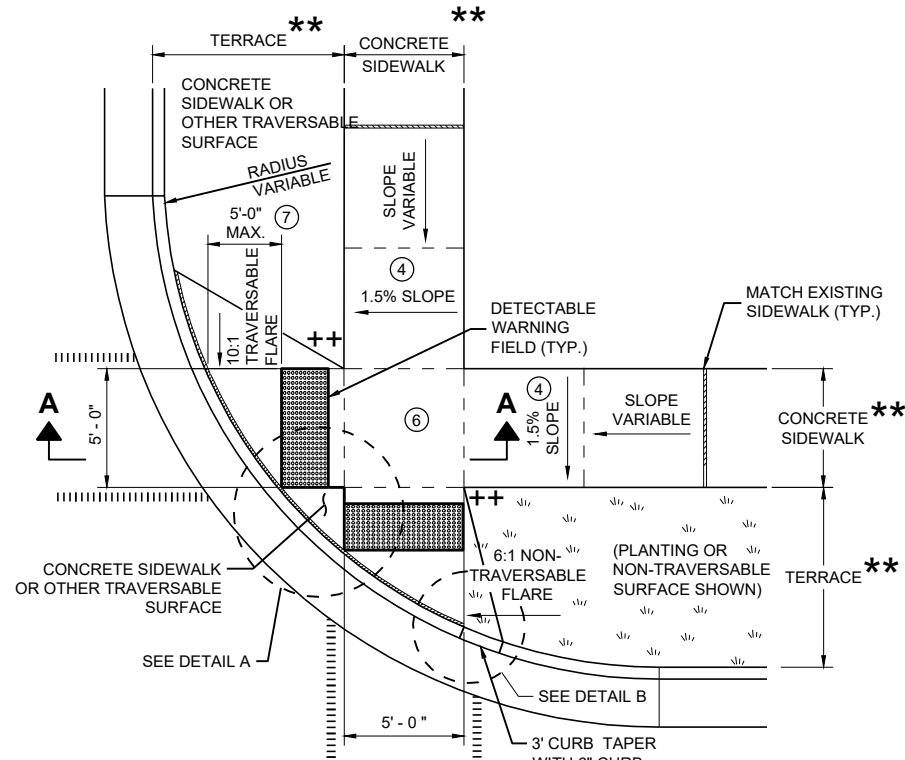
- 1/2" EXPANSION JOINT SIDEWALK
- CONTRACTION JOINT FIELD LOCATED
- PAVEMENT MARKING CROSSWALK (WHITE)

CURB RAMPS
TYPE 1 AND 1-A

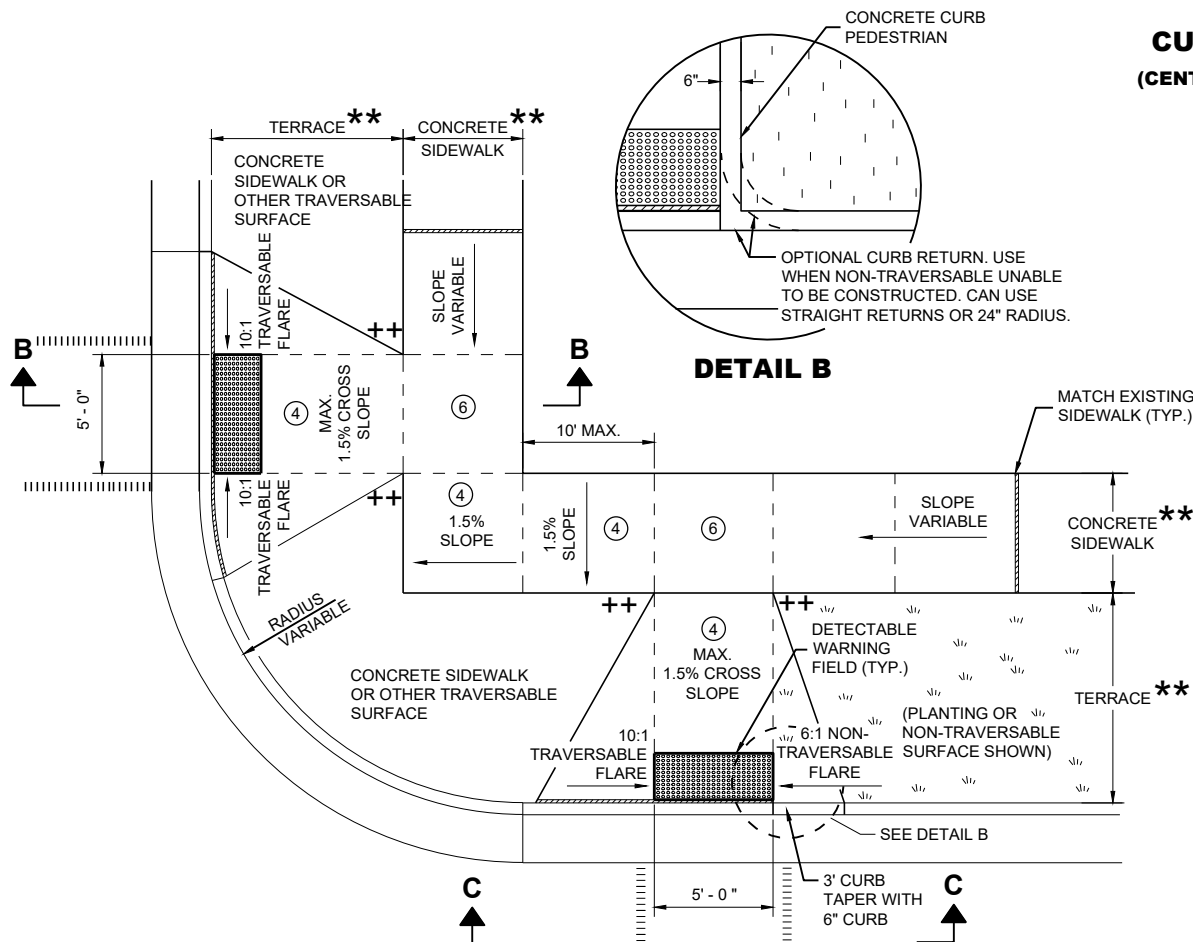
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



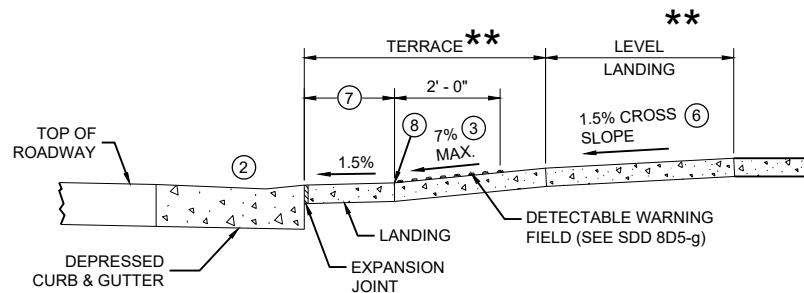
DETAIL A



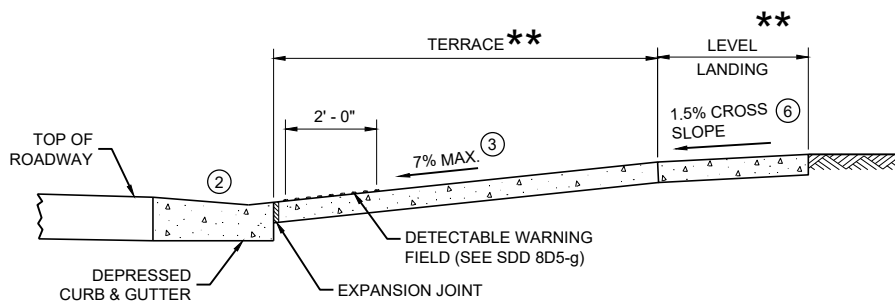
PLAN VIEW
CURB RAMP TYPE 2
(CENTER OF CORNER RADIUS)



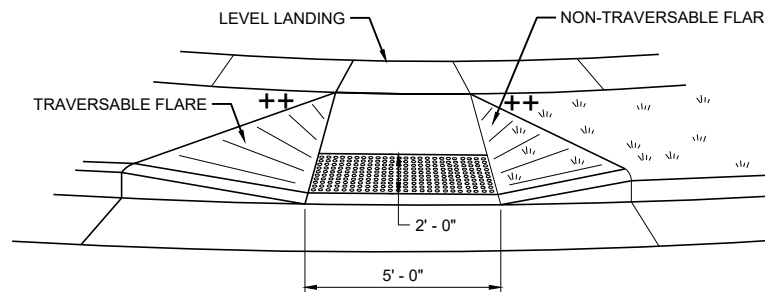
PLAN VIEW
CURB RAMP TYPE 3
(OUTSIDE OF CROSSWALK AREA)



SECTION A - A FOR TYPE 2



SECTION B - B FOR TYPE 3



VIEW C - C FOR TYPE 3

GENERAL NOTES

- AVOID PLACING DRAINAGE STRUCTURES, JUNCTION BOXES OR OTHER OBSTRUCTIONS IN FRONT OF RAMP ACCESS AREAS.
- 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.
- DETECTABLE WARNING FIELDS THAT ARE INSTALLED AS A GROUP OR SIDE BY SIDE SHALL BE FROM THE SAME MANUFACTURER.
- GRADE CHANGE BETWEEN GUTTER FLAG SLOPE AND THE CURB RAMP SLOPE SHALL NOT EXCEED 11%. MAXIMUM GUTTER FLAG SLOPE IS 4%. PROVIDE LONGITUDINAL DRAINAGE AROUND CURB AND AWAY FROM CURB RAMP. NO VERTICAL LIPS OR DISCONTINUITIES GREATER THAN 1/4 - INCH ARE ALLOWED. SLOPE OF CURB HEAD OPENING SHALL MATCH THE RAMP SLOPE, MINIMALLY 1.5% AND NOT TO EXCEED 7%. WHEN ADJACENT TO 1.5% LANDING, CONSTRUCT CURB HEAD OPENING AT 1.5% IN THE DIRECTION OF PEDESTRIAN TRAVEL.
 - AN 8.33% CURB RAMP SLOPE IS ALLOWABLE WITH FLATTENED GUTTER FLAG SLOPE (2.67% OR LESS) AND NOT TO EXCEED 11% GRADE CHANGE.
 - ±0.5% CONSTRUCTION TOLERANCE IN SIDEWALK CROSS SLOPE. THE SIDEWALK CROSS SLOPE SHALL NOT EXCEED 2% WITHOUT PRIOR APPROVAL FROM THE ENGINEER.
 - PROVIDE A LEVEL LANDING (MAXIMUM 2% SLOPE) IN ANY DIRECTION OF PEDESTRIAN TRAVEL. STANDARD LEVEL LANDING SIZE IS 5 FEET X 5 FEET.
 - WHEN GRADE BREAK DISTANCE EXCEEDS 5 FEET, USE RADIAL DETECTABLE WARNING FIELD PER SDD 8D5-f.
 - PROVIDE GRADE BREAK PERPENDICULAR TO DIRECTION OF WHEELCHAIR TRAVEL.
 - WHEN DISTANCE IS LESS THAN 6' - 0", IT MAY BE DIFFICULT TO ACHIEVE A 7% SLOPE OR FLATTER ALONG THE RAMP. REDUCE CURB HEIGHT IN TRIANGLE AREA TO ACHIEVE 7% SLOPE OR FLATTER ON RAMP. CONSTRUCT 2-INCH MINIMUM CURB HEIGHT BETWEEN 10:1 FLARES.

* MAXIMUM 2.0% SLOPE
IN ALL DIRECTIONS IN
FRONT OF GRADE BREAK

** WIDTH SHOWN ELSEWHERE
IN THE PLANS

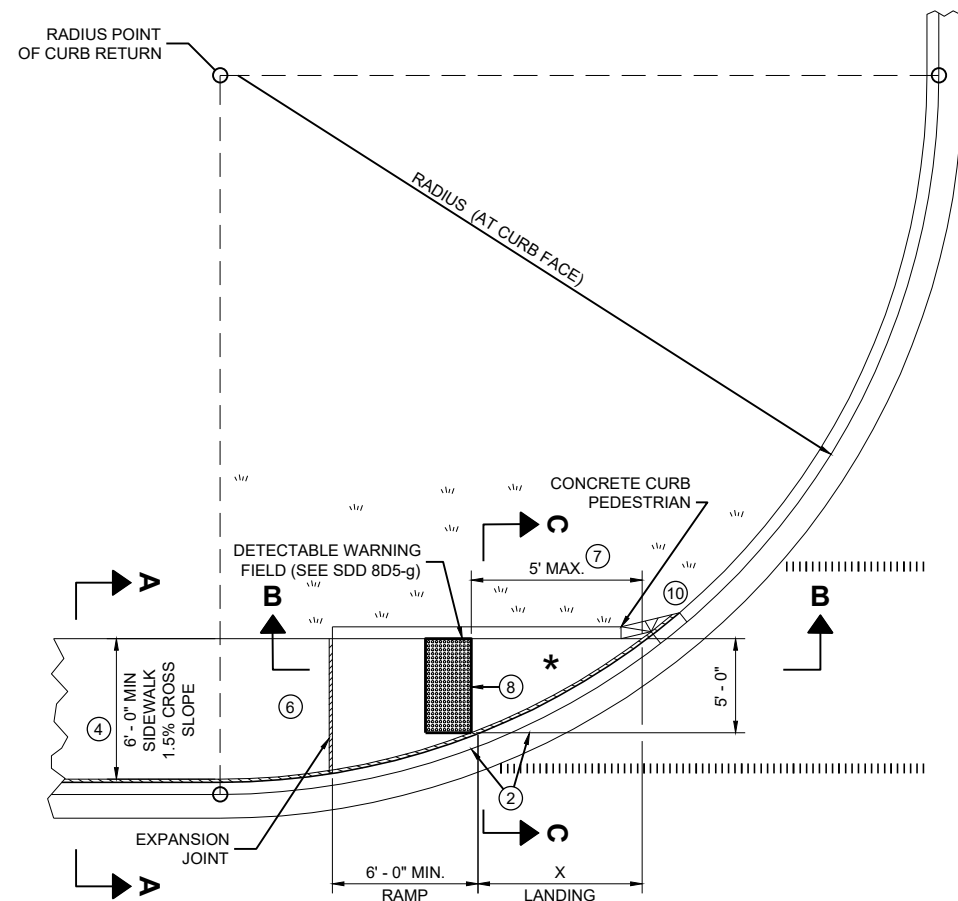
++ CONSTRUCT 6" WEDGE TO
AVOID CONCRETE BREAKAGE

LEGEND

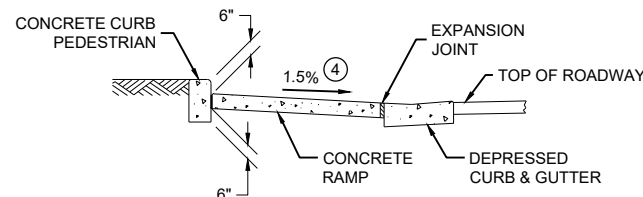
- 1/2" EXPANSION JOINT SIDEWALK
- CONTRACTION JOINT SIDEWALK
- PAVEMENT MARKING CROSSWALK (WHITE)

CURB RAMPS TYPE 2 AND 3

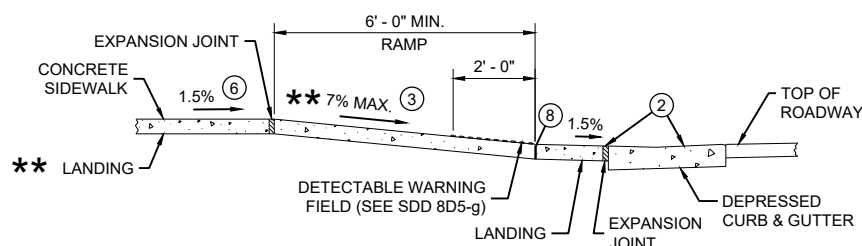
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



**PLAN VIEW
CURB RAMP TYPE 4A**



SECTION C - C FOR TYPE 4A



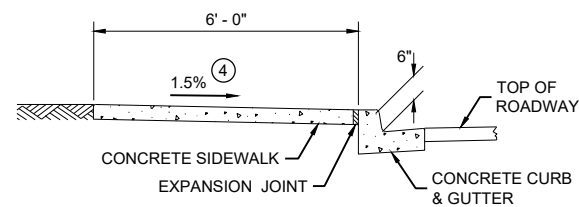
**SECTION B - B FOR
TYPE 4A AND TYPE 4A1**

**** IF RAMP SLOPE IS LESS THAN 5.0%, THEN NO ADJACENT UPHILL LANDING IS REQUIRED**

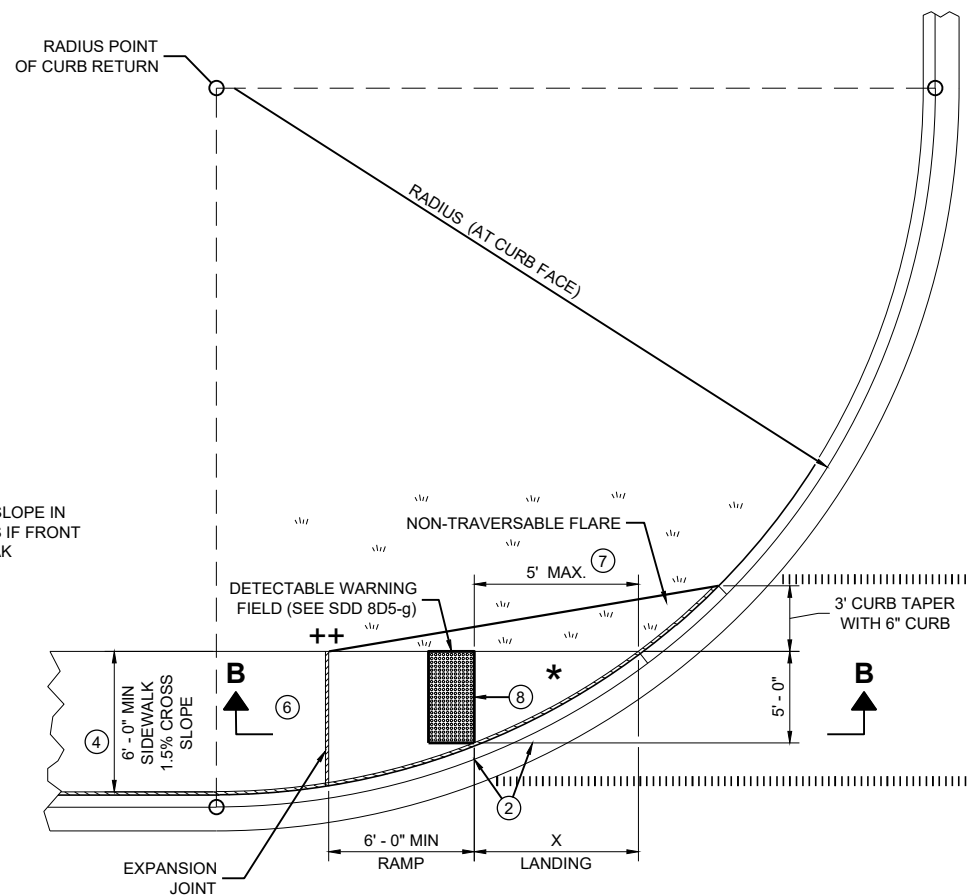
*** MAXIMUM 2.0% SLOPE IN ALL DIRECTIONS IF FRONT OF GRADE BREAK**

RADIUS (AT CURB FACE)	X
10 FEET	4' - 7"

INTERMEDIATE RADII CAN BE INTERPOLATED



SECTION A - A FOR TYPE 4A



**PLAN VIEW
CURB RAMP TYPE 4A1**

++ CONSTRUCT 6" WEDGE TO AVOID CONCRETE BREAKAGE

GENERAL NOTES

AVOID PLACING DRAINAGE STRUCTURES, JUNCTION BOXES OR OTHER OBSTRUCTIONS IN FRONT OF RAMP ACCESS AREAS.

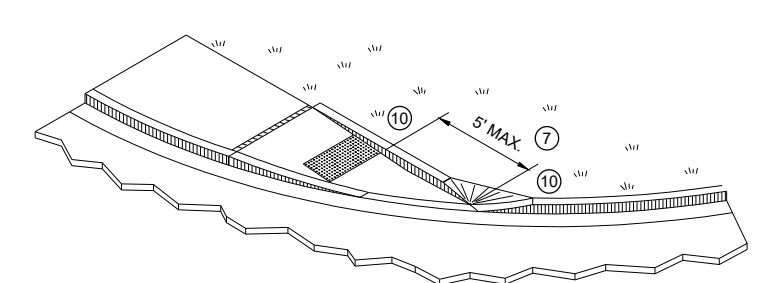
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

DETECTABLE WARNING FIELDS THAT ARE INSTALLED AS A GROUP OR SIDE BY SIDE, SHALL BE FROM THE SAME MANUFACTURER.

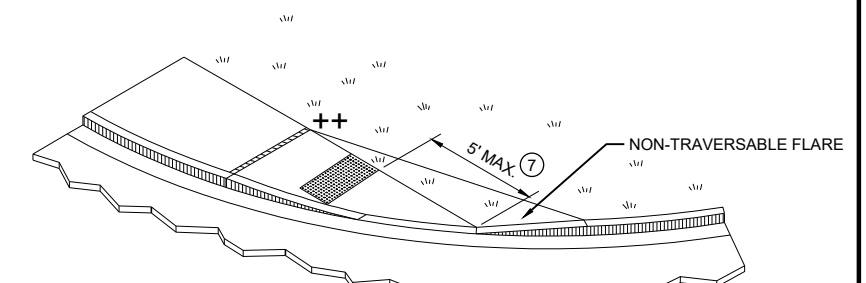
- ② GRADE CHANGE BETWEEN GUTTER FLAG SLOPE AND THE CURB RAMP SLOPE SHALL NOT EXCEED 11%. MAXIMUM GUTTER FLAG SLOPE IS 4%. PROVIDE LONGITUDINAL DRAINAGE AROUND CURB AND AWAY FROM CURB RAMP. NO VERTICAL LIPS OR DISCONTINUITIES GREATER THAN $\frac{1}{4}$ - INCH ARE ALLOWED. SLOPE OF CURB HEAD OPENING SHALL MATCH THE RAMP SLOPE, MINIMALLY 1.5% AND NOT TO EXCEED 7%. WHEN ADJACENT TO 1.5% LANDING, CONSTRUCT CURB HEAD OPENING AT 1.5% IN THE DIRECTION OF PEDESTRIAN TRAVEL.
- ③ AN 8.33% CURB RAMP SLOPE IS ALLOWABLE WITH FLATTENED GUTTER FLAG SLOPE AND NOT TO EXCEED 11% GRADE CHANGE.
- ④ $\pm 0.5\%$ CONSTRUCTION TOLERANCE IN SIDEWALK CROSS SLOPE. THE SIDEWALK CROSS SLOPE SHALL NOT EXCEED 2% WITHOUT PRIOR APPROVAL FROM THE ENGINEER.
- ⑥ PROVIDE A LEVEL LANDING (MAXIMUM 2% SLOPE) IN ANY DIRECTION OF PEDESTRIAN TRAVEL. STANDARD LEVEL LANDING SIZE IS 5 FEET BY 5 FEET.
- ⑦ WHEN THIS GRADE BREAK DISTANCE EXCEEDS 5 FEET, USE RADIAL DETECTABLE WARNING FIELD PER SDD 8D5-f.
- ⑧ PROVIDE GRADE BREAK PERPENDICULAR TO DIRECTION OF WHEELCHAIR TRAVEL.
- ⑩ INSTALL TRANSITION NOSE (INCIDENTAL TO OTHER PAY ITEMS). DO NOT MARK TRANSITION NOSE.

LEGEND

- 1/2" EXPANSION JOINT SIDEWALK
- CONTRACTION JOINT SIDEWALK
- PAVEMENT MARKING CROSSWALK (WHITE)



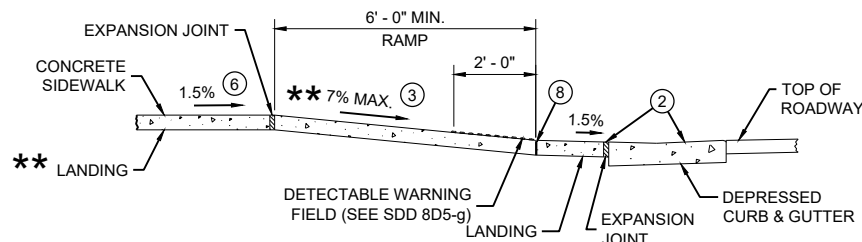
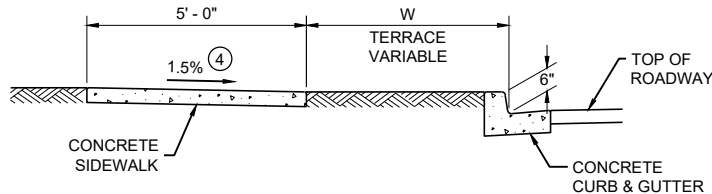
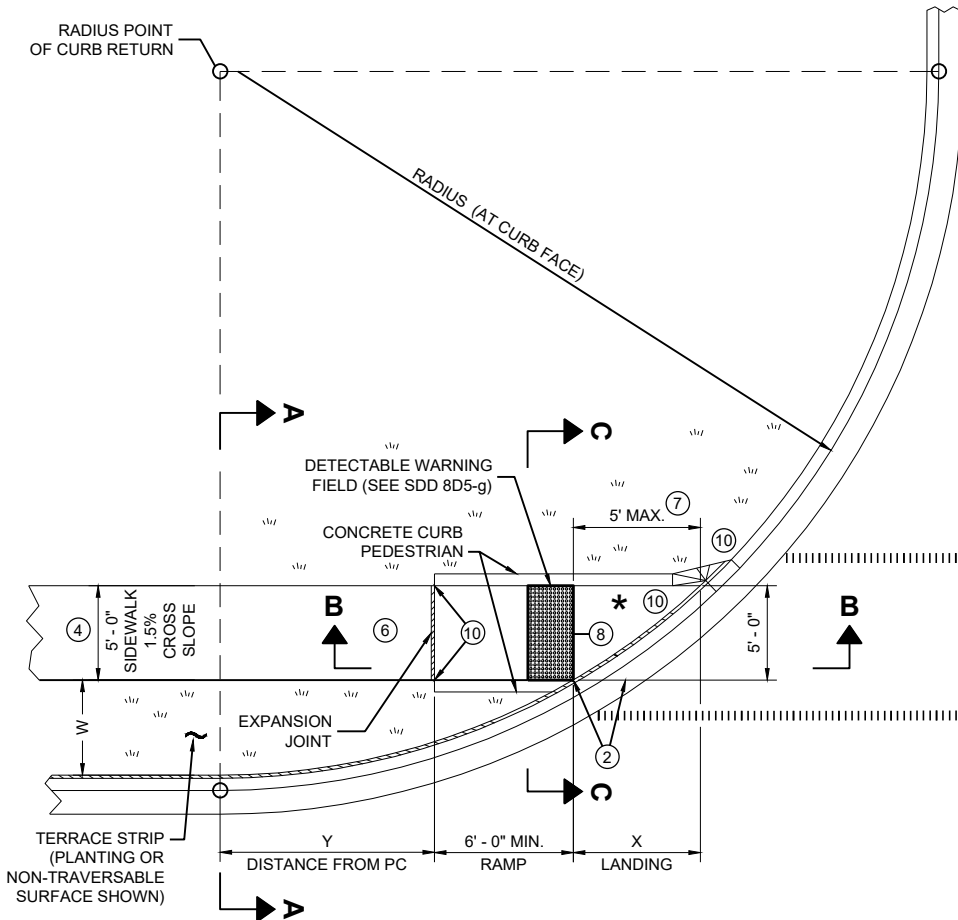
ISOMETRIC VIEW FOR TYPE 4A



ISOMETRIC VIEW FOR TYPE 4A1

CURB RAMPS TYPE 4A AND 4A1

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

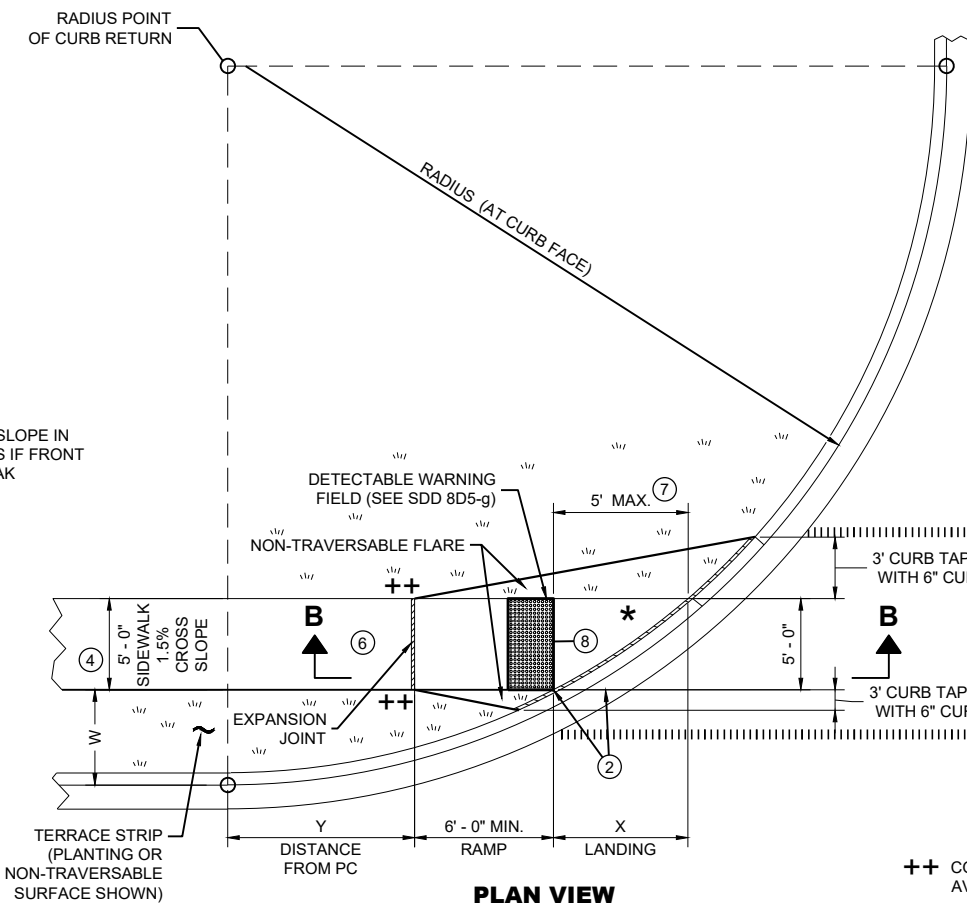
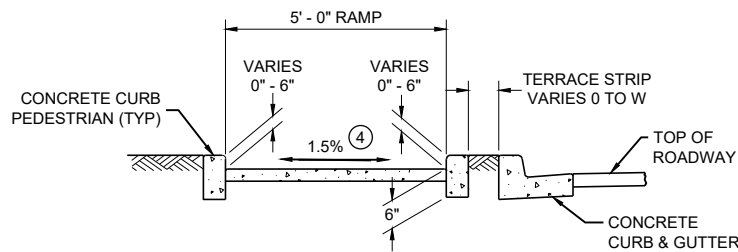


** IF RAMP SLOPE IS LESS THAN 5.0%, THEN NO ADJACENT UPHILL LANDING IS REQUIRED

* MAXIMUM 2.0% SLOPE IN ALL DIRECTIONS IF FRONT OF GRADE BREAK

RADIUS (AT CURB FACE)	W = 3' - 0"		W = 4' - 0"		W = 5' - 0"		W = 6' - 0"		W = 7' - 0"		W = 8' - 0"		W = 9' - 0"		W = 10' - 0"	
	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y
10 FEET	2' - 10 1/4"	0' - 5"	2' - 1"	1' - 4 1/2"	1' - 5"	2' - 1"	0' - 10"	2' - 7 1/2"	0' - 3 1/4"	3' - 0 1/4"						
15 FEET	4' - 6 3/4"	2' - 1 3/4"	3' - 9"	3' - 5 3/4"	3' - 1 1/4"	4' - 6"	2' - 6 3/4"	5' - 4 1/2"	2' - 1"	6' - 1"	1' - 8"	6' - 8 1/2"	1' - 3 1/4"	7' - 2 1/2"	0' - 10 3/4"	7' - 7 1/4"
20 FEET			4' - 11 1/2"	5' - 1 3/4"	4' - 3 1/4"	6' - 5 1/2"	3' - 8 3/4"	7' - 7"	3' - 3"	8' - 6 1/2"	2' - 10"	9' - 4 1/2"	2' - 5 1/2"	10' - 1 1/4"	2' - 1 1/4"	10' - 9"
30 FEET									4' - 10 3/4"	12' - 5 3/4"	4' - 5 1/2"	13' - 7 3/4"	4' - 0 3/4"	14' - 8 1/2"	3' - 8 1/2"	15' - 8 1/4"
40 FEET															4' - 10 3/4"	19' - 8 1/4"

INTERMEDIATE RADII CAN BE INTERPOLATED
DIMENSION "Y" IS CALCULATED BASED ON 6'-0" RAMP LENGTH
DIMENSION "X" IS CALCULATED BASED ON 5'-0" SIDEWALK WIDTH



++ CONSTRUCT 6" WEDGE TO AVOID CONCRETE BREAKAGE

LEGEND

- 1/2" EXPANSION JOINT SIDEWALK
- CONTRACTION JOINT SIDEWALK
- PAVEMENT MARKING CROSSWALK (WHITE)

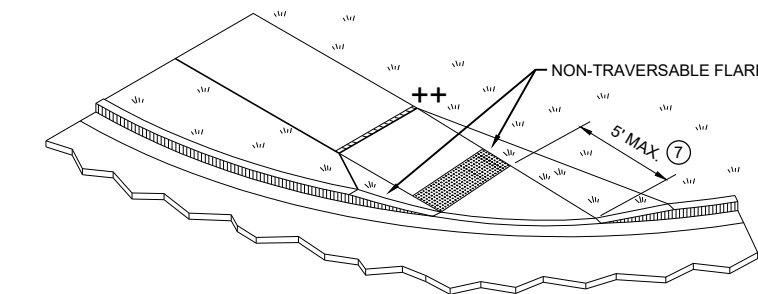
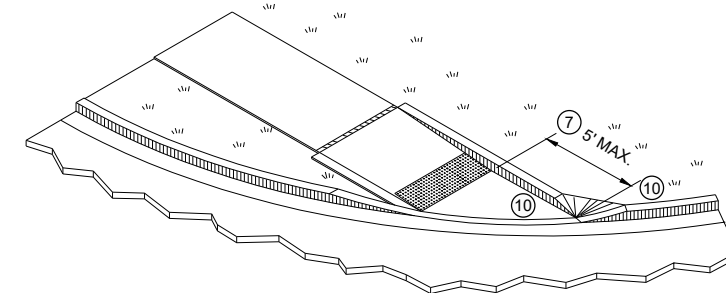
GENERAL NOTES

AVOID PLACING DRAINAGE STRUCTURES, JUNCTION BOXES OR OTHER OBSTRUCTIONS IN FRONT OF RAMP ACCESS AREAS.

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.

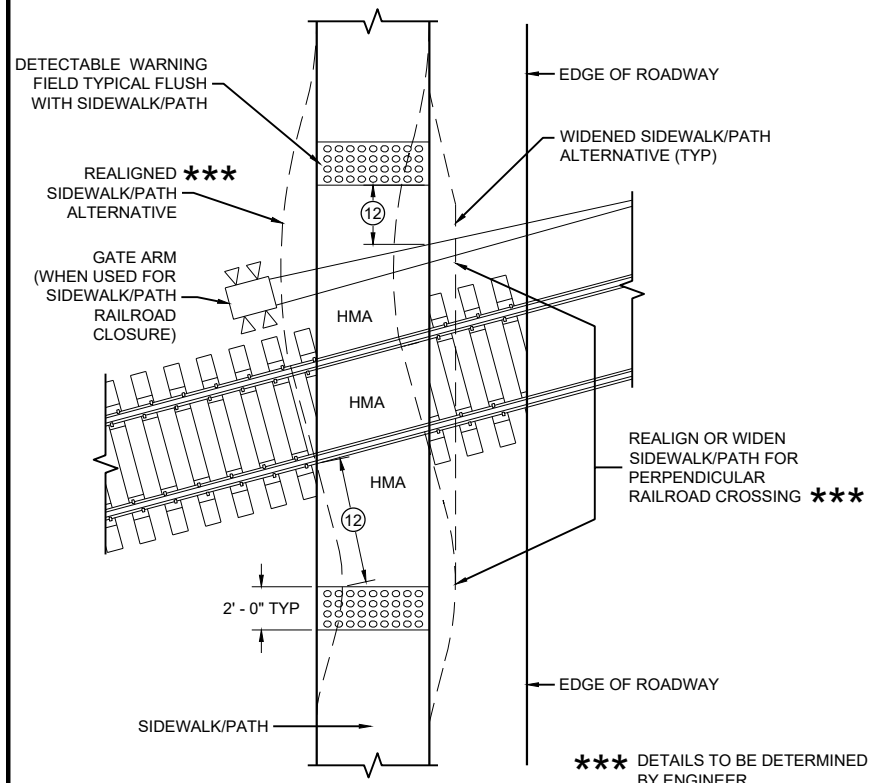
DETECTABLE WARNING FIELDS THAT ARE INSTALLED AS A GROUP OR SIDE BY SIDE, SHALL BE FROM THE SAME MANUFACTURER.

- GRADE CHANGE BETWEEN GUTTER FLAG SLOPE AND THE CURB RAMP SLOPE SHALL NOT EXCEED 11%. MAXIMUM GUTTER FLAG SLOPE IS 4%. PROVIDE LONGITUDINAL DRAINAGE AROUND CURB AND AWAY FROM CURB RAMP. NO VERTICAL LIPS OR DISCONTINUITIES GREATER THAN 1/4" INCH ARE ALLOWED. SLOPE OF CURB HEAD OPENING SHALL MATCH THE RAMP SLOPE, MINIMALLY 1.5% AND NOT TO EXCEED 7%. WHEN ADJACENT TO 1.5% LANDING, CONSTRUCT CURB HEAD OPENING AT 1.5% IN THE DIRECTION OF PEDESTRIAN TRAVEL.
- AN 8.33% CURB RAMP SLOPE IS ALLOWABLE WITH FLATTENED GUTTER FLAG SLOPE AND NOT TO EXCEED 11% GRADE CHANGE.
- ±0.5% CONSTRUCTION TOLERANCE IN SIDEWALK CROSS SLOPE. THE SIDEWALK CROSS SLOPE SHALL NOT EXCEED 2% WITHOUT PRIOR APPROVAL FROM THE ENGINEER.
- PROVIDE A LEVEL LANDING (MAXIMUM 2% SLOPE) IN ANY DIRECTION OF PEDESTRIAN TRAVEL. STANDARD LEVEL LANDING SIZE IS 5 FEET BY 5 FEET.
- WHEN THIS GRADE BREAK DISTANCE EXCEEDS 5 FEET, USE RADIAL DETECTABLE WARNING FIELD PER SDD 8D5-f.
- PROVIDE GRADE BREAK PERPENDICULAR TO DIRECTION OF WHEELCHAIR TRAVEL.
- INSTALL TRANSITION NOSE (INCIDENTAL TO OTHER PAY ITEMS). DO NOT MARK TRANSITION NOSE.



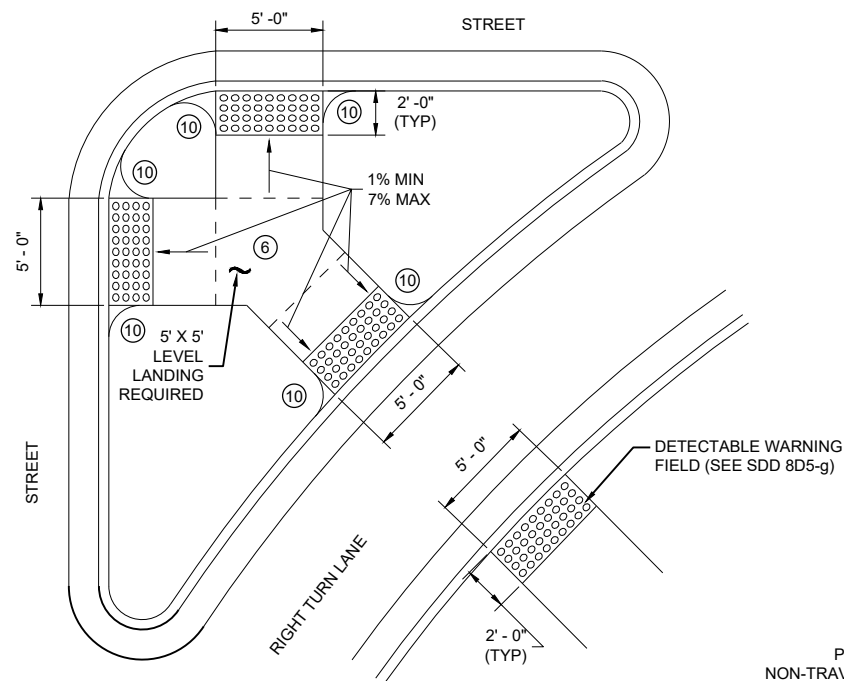
CURB RAMPS TYPE 4B AND 4B1

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



CURB RAMP TYPE 8

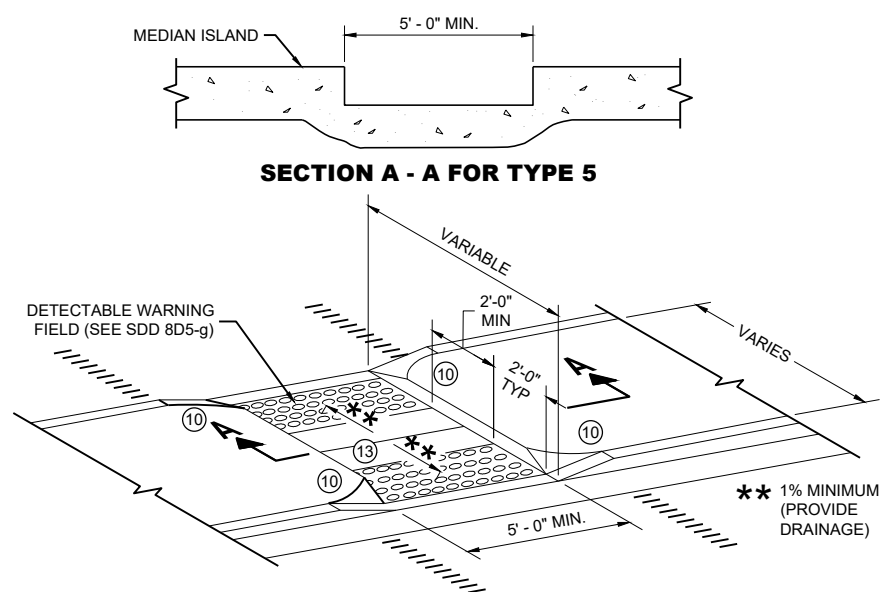
DETECTABLE WARNINGS FOR SIDEWALKS OR SHARED USE PATHS AT RAILROAD CROSSINGS



CURB RAMP TYPE 6

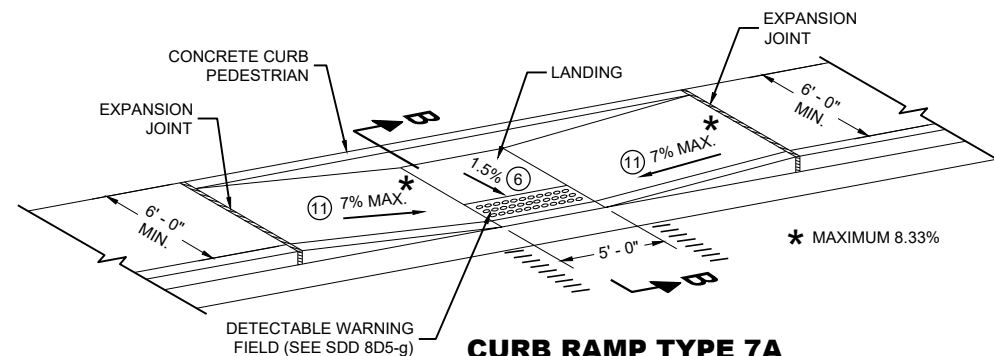
DETECTABLE WARNING AT ISLANDS

REFER TO GENERAL NOTES ② AND ③
FOR ALL ISLAND CURB RAMPS

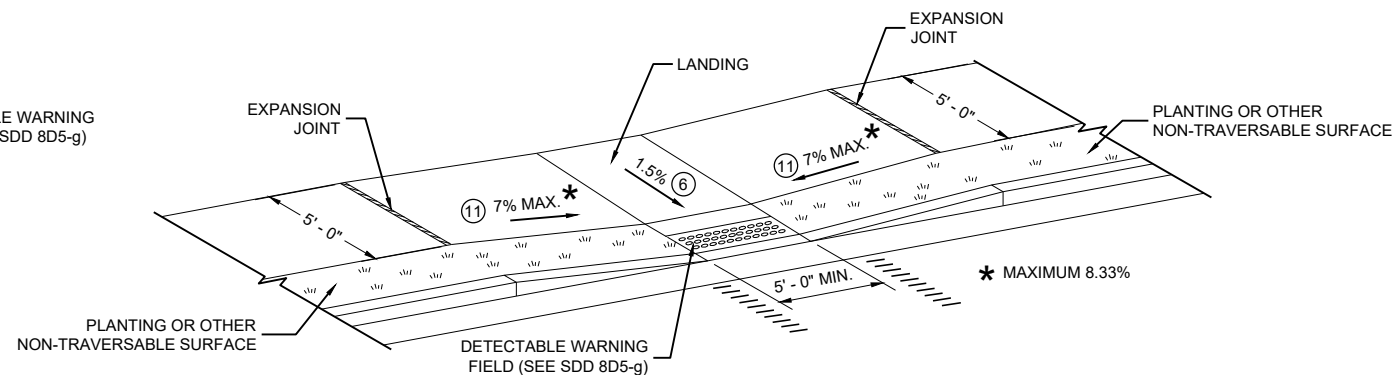


CURB RAMP TYPE 5

MEDIAN ISLAND NON-ELEVATED PEDESTRIAN CROSSING



CURB RAMP TYPE 7A FOR INTERSECTIONS AND MID BLOCK CROSSINGS



CURB RAMP TYPE 7B FOR INTERSECTIONS AND MID BLOCK CROSSINGS

GENERAL NOTES

AVOID PLACING DRAINAGE STRUCTURES, JUNCTION BOXES OR OTHER OBSTRUCTIONS IN FRONT OF RAMP ACCESS AREAS.

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.

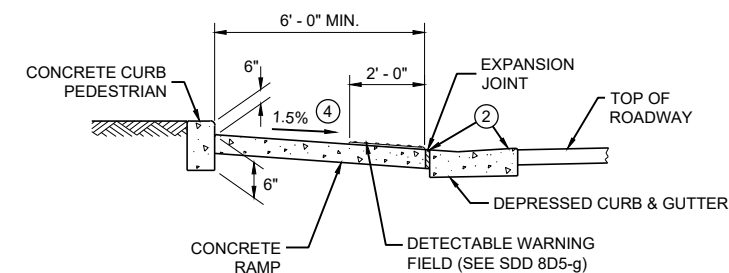
SIDEWALK CROSS SLOPE SHALL NOT EXCEED 2%.

DETECTABLE WARNING FIELDS THAT ARE INSTALLED AS A GROUP OR SIDE BY SIDE, SHALL BE FROM THE SAME MANUFACTURER.

- ② GRADE CHANGE BETWEEN GUTTER FLAG SLOPE AND THE CURB RAMP SLOPE SHALL NOT EXCEED 11%. MAXIMUM GUTTER FLAG SLOPE IS 4%. PROVIDE LONGITUDINAL DRAINAGE AROUND CURB AND AWAY FROM CURB RAMP. NO VERTICAL LIPS OR DISCONTINUITIES GREATER THAN 1/8 INCH ARE ALLOWED. SLOPE OF CURB HEAD OPENING SHALL MATCH THE RAMP SLOPE, MINIMALLY 1.5% AND NOT TO EXCEED 7%. WHEN ADJACENT TO 1.5% LANDING, CONSTRUCT CURB HEAD OPENING AT 1.5% IN THE DIRECTION OF PEDESTRIAN TRAVEL.
- ③ AN 8.33% CURB RAMP SLOPE IS ALLOWABLE WITH FLATTENED GUTTER FLAG SLOPE AND NOT TO EXCEED 11% GRADE CHANGE.
- ④ $\pm 0.5\%$ CONSTRUCTION TOLERANCE IN SIDEWALK CROSS SLOPE. THE SIDEWALK CROSS SLOPE SHALL NOT EXCEED 2% WITHOUT PRIOR APPROVAL FROM THE ENGINEER.
- ⑥ PROVIDE A LEVEL LANDING (MAXIMUM 2% SLOPE) IN ANY DIRECTION OF PEDESTRIAN TRAVEL. STANDARD LEVEL LANDING SIZE IS 5 FEET BY 5 FEET.
- ⑩ INSTALL TRANSITION NOSE (INCIDENTAL TO OTHER PAY ITEMS). DO NOT MARK TRANSITION NOSE.
- ⑪ SLOPE SIDEWALK TOWARD LANDING AS SHOWN WHERE THERE IS NO TERRACE OR WHERE THE TERRACE WIDTH IS LESS THAN 6 FEET WIDE.
- ⑫ THE EDGE OF THE DETECTABLE WARNING FIELD NEAREST TO A RAILROAD CROSSING SHALL BE 1.5 FEET $\pm 0.1'$ FROM THE FACE OF THE GATE ARM IF THE GATE ARM EXTENDS ACROSS THE SIDEWALK/PATH. WHERE THERE IS NO PEDESTRIAN GATE, THE EDGE OF THE DETECTABLE WARNING FIELD NEAREST TO THE RAILROAD TRACK IS 15 FEET MAXIMUM AND 12 FEET MINIMUM, 15 FEET TYPICAL FROM THE NEAREST RAIL.
- ⑬ DO NOT INSTALL DETECTABLE WARNING FIELDS AT THE EDGES OF STREET-LEVEL PEDESTRIAN REFUGE ISLANDS IF A MINIMUM 2 FOOT CONCRETE SURFACE WITHOUT DETECTABLE WARNINGS (MEASURED IN THE DIRECTION OF PEDESTRIAN TRAVEL) CANNOT BE ACHIEVED.

LEGEND

- ===== 1/2" EXPANSION JOINT SIDEWALK
- - - - - CONTRACTION JOINT FIELD LOCATED
- ||||||| PAVEMENT MARKING CROSSWALK (WHITE)

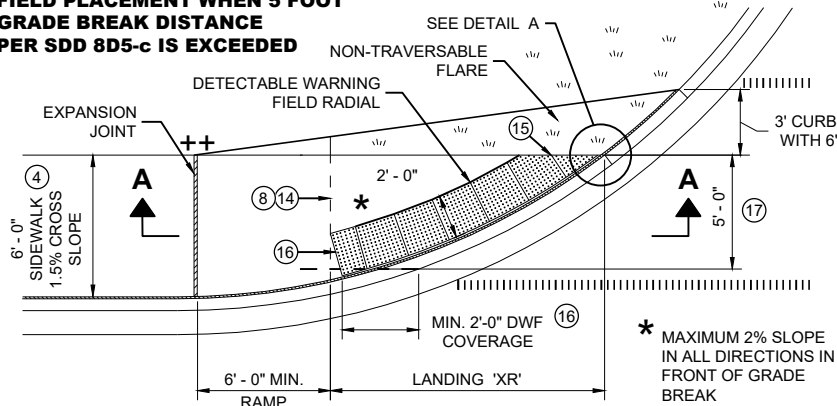


SECTION B - B FOR TYPE 7A

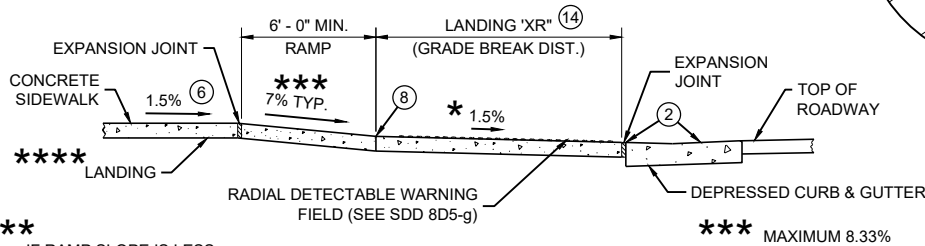
CURB RAMPS TYPE 5, 6, 7A, 7B & 8

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

**RADIAL DETECTABLE WARNING
FIELD PLACEMENT WHEN 5 FOOT
GRADE BREAK DISTANCE
PER SDD 8D5-c IS EXCEEDED**

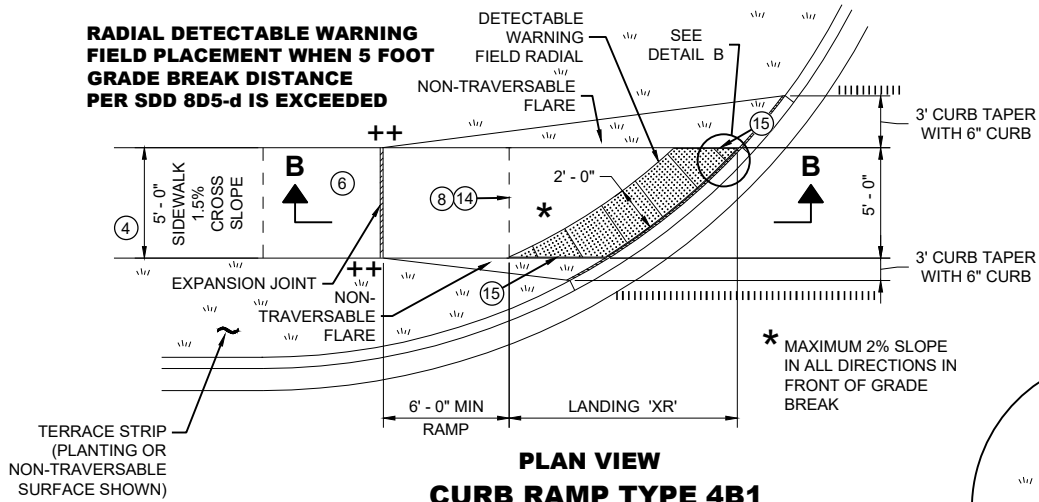


**PLAN VIEW
CURB RAMP TYPE 4A1
(GRADE BREAK DISTANCE GREATER THAN 5 FEET)**

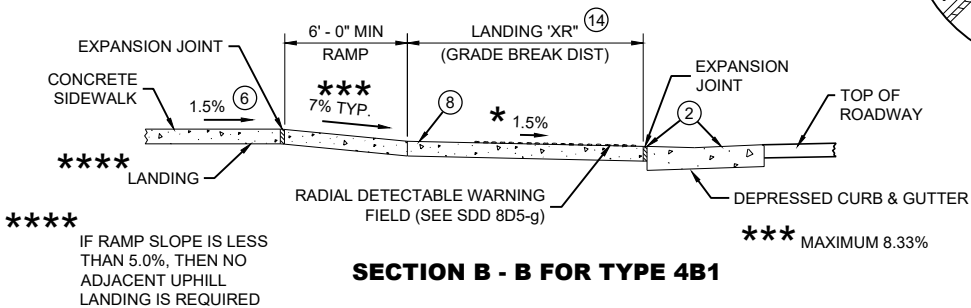


SECTION A - A FOR TYPE 4A1

**RADIAL DETECTABLE WARNING
FIELD PLACEMENT WHEN 5 FOOT
GRADE BREAK DISTANCE
PER SDD 8D5-d IS EXCEEDED**



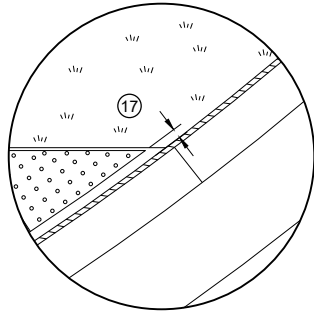
**PLAN VIEW
CURB RAMP TYPE 4B1
(GRADE BREAK DISTANCE GREATER THAN 5 FEET)**



SECTION B - B FOR TYPE 4B1

LEGEND

- 1/2" EXPANSION JOINT SIDEWALK
- CONTRACTION JOINT SIDEWALK
- PAVEMENT MARKING CROSSWALK (WHITE)



DETAIL A

GENERAL NOTES

AVOID PLACING DRAINAGE STRUCTURES, JUNCTION BOXES OR OTHER OBSTRUCTIONS IN FRONT OF RAMP ACCESS AREAS.

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.

DETECTABLE WARNING FIELDS THAT ARE INSTALLED AS A GROUP OR SIDE BY SIDE, SHALL BE FROM THE SAME MANUFACTURER.

APPLY RADIAL DETECTABLE WARNING PLACEMENT SIMILARLY FOR TYPE 4A AND 4A1 CURB RAMPS AND SIMILARLY FOR TYPE 4B AND 4B1 CURB RAMPS. TYPE 4A AND 4B CURB RAMPS ARE NOT SHOWN.

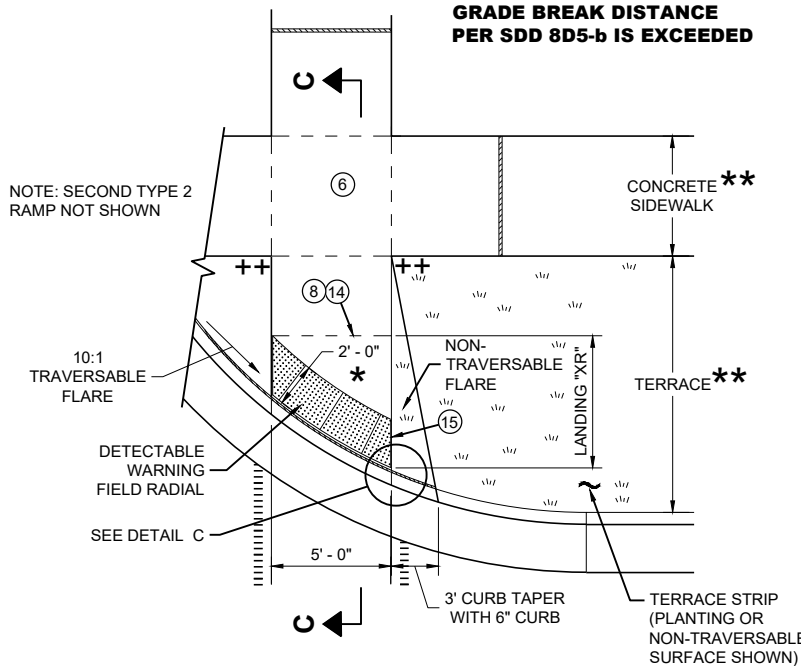
REFER TO SDD 8D5-g FOR ADDITIONAL RADIAL PLATE REQUIREMENTS.

FIELD CUTS AT INTERMEDIATE JOINTS WITHIN THE RADIAL DETECTABLE WARNING FIELD ARE PROHIBITED.

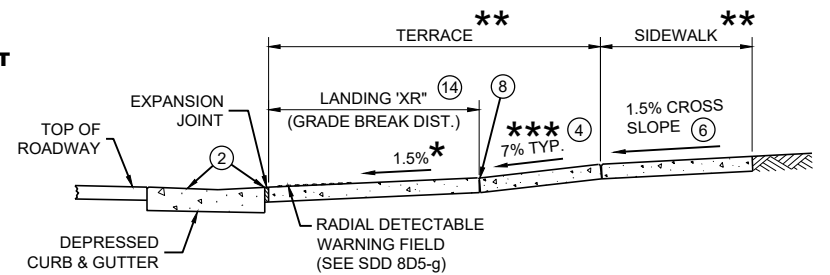
DETERMINE FINAL RADIAL WARNING FIELD CONFIGURATION AND ITS INDIVIDUAL PLATE LOCATIONS. PERFORM PRE-LAYOUT PRIOR TO PLACEMENT IN PLASTIC CONCRETE. FOLLOW MANUFACTURER'S PRODUCT LIST AND INSTALLATION RECOMMENDATIONS.

- 2 GRADE CHANGE BETWEEN GUTTER FLAG SLOPE AND THE CURB RAMP SLOPE SHALL NOT EXCEED 11%. MAXIMUM GUTTER FLAG SLOPE IS 4%. PROVIDE LONGITUDINAL DRAINAGE AROUND CURB AND AWAY FROM CURB RAMP. NO VERTICAL LIPS OR DISCONTINUITIES GREATER THAN 1/4" INCH ARE ALLOWED. SLOPE OF CURB HEAD OPENING SHALL MATCH THE RAMP SLOPE, MINIMALLY 1.5% AND NOT TO EXCEED 7%. WHEN ADJACENT TO 1.5% LANDING, CONSTRUCT CURB HEAD OPENING AT 1.5% IN THE DIRECTION OF PEDESTRIAN TRAVEL.
- 3 AN 8.33% CURB RAMP SLOPE IS ALLOWABLE WITH FLATTENED GUTTER FLAG SLOPE AND NOT TO EXCEED 11% GRADE CHANGE.
- 4 ±0.5% CONSTRUCTION TOLERANCE IN SIDEWALK CROSS SLOPE. THE SIDEWALK CROSS SLOPE SHALL NOT EXCEED 2% WITHOUT PRIOR APPROVAL FROM THE ENGINEER.
- 6 PROVIDE A LEVEL LANDING (MAXIMUM 2% SLOPE) IN ANY DIRECTION OF PEDESTRIAN TRAVEL. STANDARD LANDING SIZE IS 5 FEET BY 5 FEET.
- 8 PROVIDE GRADE BREAK PERPENDICULAR TO DIRECTION OF WHEELCHAIR TRAVEL.
- 14 CONSULT ENGINEER IF GRADE BREAK LOCATION (END OF LANDING DIMENSION "XR") REQUIRES FIELD ADJUSTMENT WHEN ESTABLISHING FINAL RADIAL DETECTABLE WARNING FIELD LOCATION.
- 15 FIELD SAW CUTS ALONG RADIAL DETECTABLE WARNING PLATES WILL BE NECESSARY TO MATCH EACH CURB RAMP EDGE. AVOID CUTTING THROUGH DOMES WHENEVER POSSIBLE. MAKE FIELD CUTS TRUE TO LINE AND WITHIN 1/2" DEVIATION. SMOOTH EDGES OF FIELD CUT PLATES.
- 16 USE 1' X 2" RECTANGULAR END PLATE AT END OF TYPE 4A1 RAMP AND PROVIDE MINIMUM 2' - 0" DETECTABLE WARNING FIELD COVERAGE (IN DIRECTION OF PEDESTRIAN TRAVEL) ALONG THE ENTIRE CURB RAMP WIDTH.
- 17 A MAXIMUM 3 INCH CONCRETE BORDER WIDTH IS ALLOWABLE IN FRONT OF RADIAL DETECTABLE WARNING FIELD FOR CONSTRUCTABILITY PURPOSES. CONCRETE BORDER WIDTH MAY VARY UP TO 1 INCH.

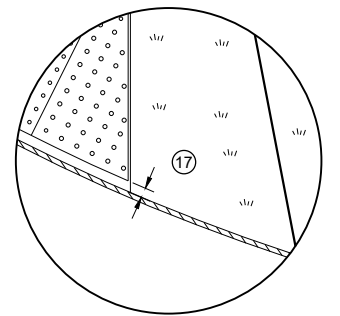
**RADIAL DETECTABLE WARNING
FIELD PLACEMENT WHEN 5 FOOT
GRADE BREAK DISTANCE
PER SDD 8D5-b IS EXCEEDED**



**PLAN VIEW
CURB RAMP TYPE 2
(GRADE BREAK DISTANCE GREATER THAN 5 FEET)
(ON LINE WITH SIDEWALK)**



SECTION C - C FOR TYPE 2



DETAIL C

*** MAXIMUM 2% SLOPE
IN ALL DIRECTIONS IN
FRONT OF GRADE
BREAK

** WIDTH SHOWN ELSEWHERE
IN THE PLANS

*** MAXIMUM 8.33%

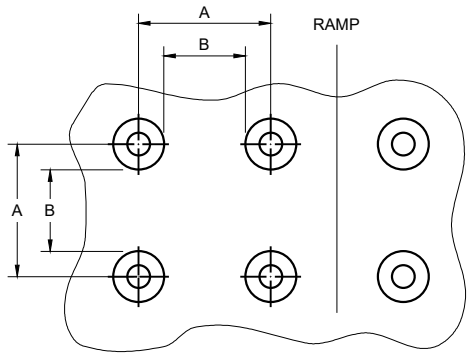
++ CONSTRUCT 6" WEDGE TO
AVOID CONCRETE BREAKAGE

**CURB RAMPS
RADIAL DETECTABLE WARNING**

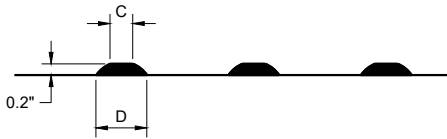
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

	MIN.	MAX.
A	1.6"	2.4"
B	0.65"	1.5"
C	*	*
D	0.9"	1.4"

* THE C DIMENSION IS 50% TO 65% OF THE D DIMENSION.

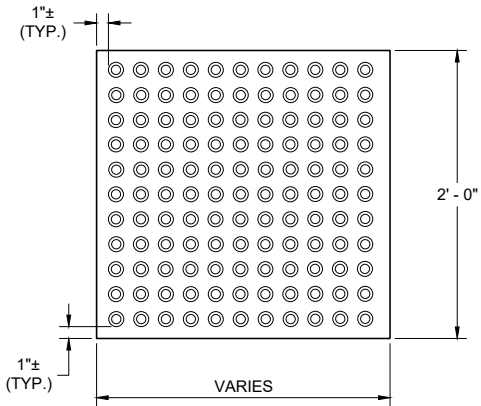


PLAN VIEW

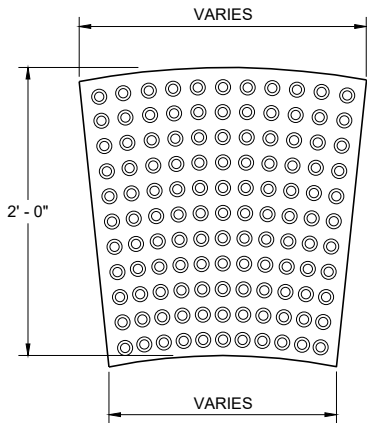


ELEVATION VIEW

TRUNCATED DOMES
DETECTABLE WARNING PATTERN DETAIL

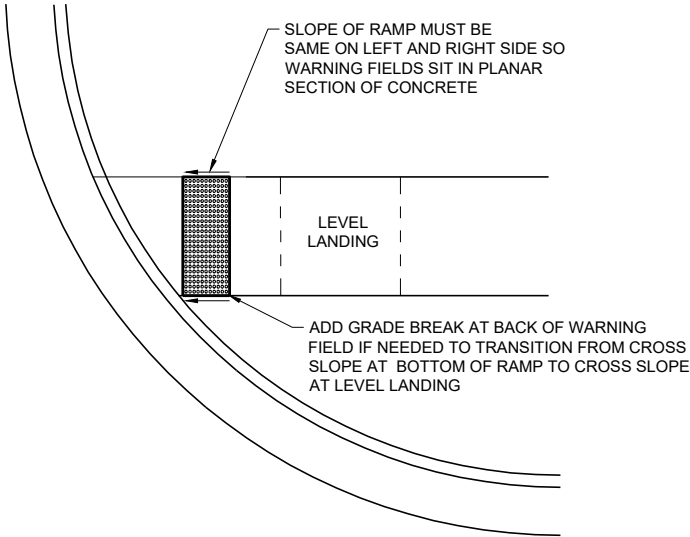


RECTANGULAR
PLATES

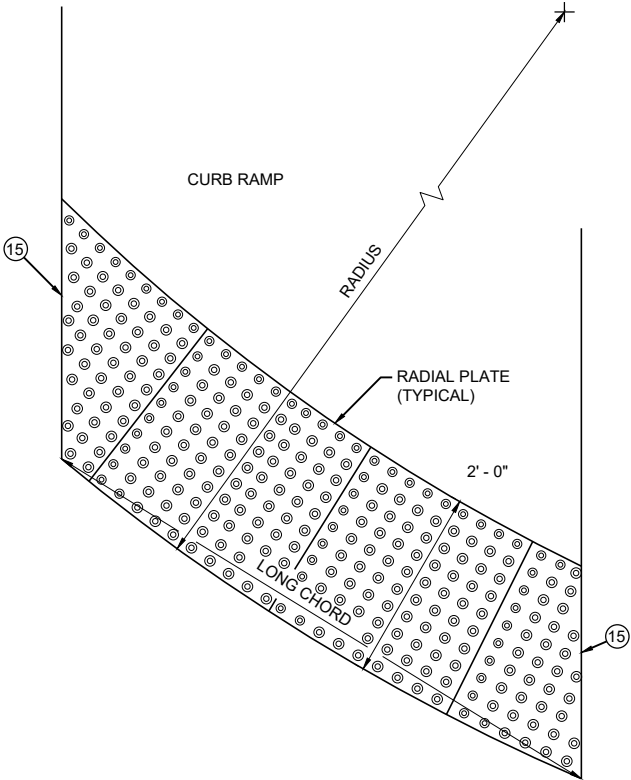


RADIAL
PLATES

PLAN VIEW
DETECTABLE WARNING FIELDS (TYPICAL)



DETECTABLE WARNING FIELD
PLANAR INSTALLATION



PLAN VIEW
RADIAL DETECTABLE
WARNING FIELD ATTRIBUTES

GENERAL NOTES

DETECTABLE WARNING FIELDS THAT ARE INSTALLED AT A CURB RAMP SHALL BE FROM THE SAME MANUFACTURER.

PLACE ALL DETECTABLE WARNING FIELD SYSTEMS IN ACCORDANCE TO THE MANUFACTURER'S RECOMMENDATION.

FIELD CUTS AT INTERMEDIATE JOINTS WITHIN THE RADIAL DETECTABLE WARNING FILED ARE PROHIBITED.

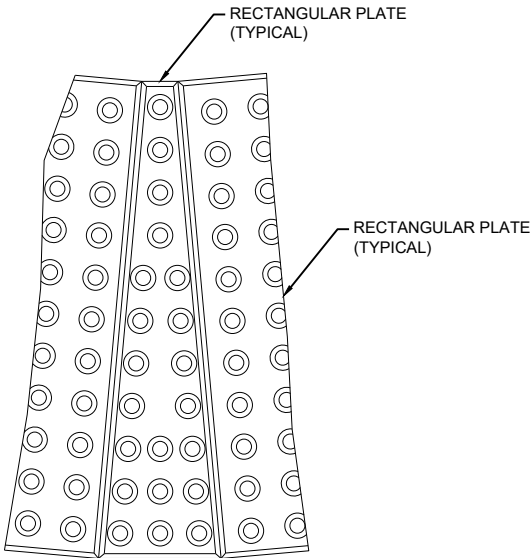
DETERMINE FINAL RADIAL WARNING FIELD CONFIGURATION AND ITS INDIVIDUAL PLATE LOCATIONS. PERFORM PRE-LAYOUT PRIOR TO PLACEMENT IN PLASTIC CONCRETE. FOLLOW MANUFACTURER'S PRODUCT LIST AND INSTALLATION RECOMMENDATIONS.

FOR RADIAL DETECTABLE WARNING FIELD APPLICATIONS WHERE STANDARD RADIAL PLATES ARE NOT AVAILABLE AT AN INTERSECTION CURB RADIUS, A COMBINATION OF SQUARE OR RECTANGULAR PLATES AND RADIAL PLATES MAY BE USED TO FORM RADIAL CONFIGURATION. RADIAL WEDGE PLATES IN COMBINATION WITH SQUARE PLATES ARE ALSO ACCEPTABLE. FOLLOW MANUFACTURER'S RECOMMENDATIONS.

REFER TO CONTRACT AND STANDARD SPECIFICATIONS FOR FIELD CUTTING REQUIREMENTS.

DO NOT EMBED IN CONCRETE ANY FIELD-CUT PLATES WITH CUT EDGES SHORTER THAN 6 INCHES. CONSULT WITH MANUFACTURER FOR RE-DRILLING AND ANCHORING REQUIREMENTS OF FIELD-CUT PLATES.

15 FIELD SAW CUTS ALONG RADIAL DETECTABLE WARNING PLATES WILL BE NECESSARY TO MATCH EACH CURB RAMP EDGE. AVOID CUTTING THROUGH DOMES WHENEVER POSSIBLE. MAKE FIELD CUTS TRUE TO LINE AND WITHIN 1/8" DEVIATION. SMOOTH EDGES OF FIELD CUT PLATES.

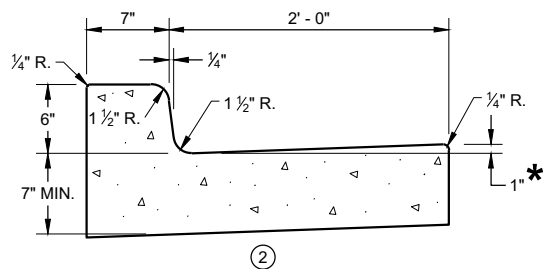


PLAN VIEW
RADIAL WEDGE PLATE
CONNECTION DETAIL

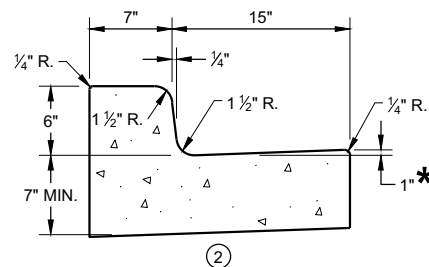
CURB RAMPS
RECTANGULAR AND RADIAL
DETECTABLE WARNING PLATES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

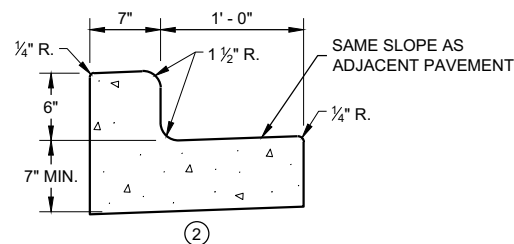
APPROVED
July 2023 /S/ Rodney Taylor
DATE ROADWAY STANDARDS DEVELOPMENT
FHWA UNIT SUPERVISOR



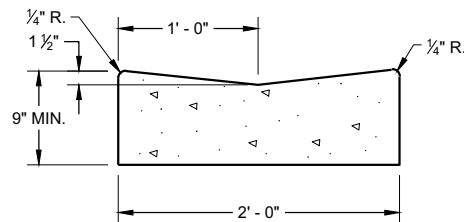
CONCRETE CURB AND GUTTER 31" ①



CONCRETE CURB AND GUTTER 22" ①

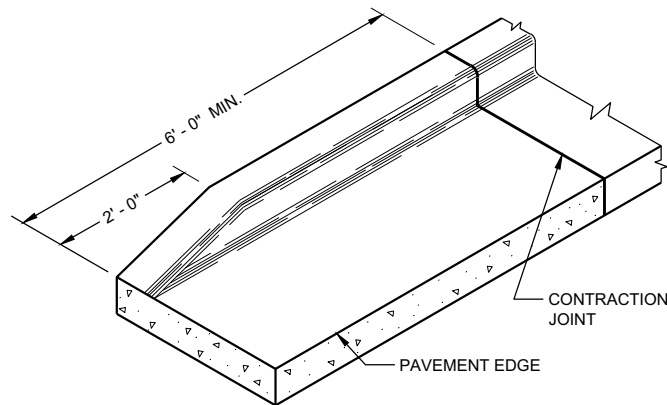


CONCRETE CURB AND GUTTER 19" ①

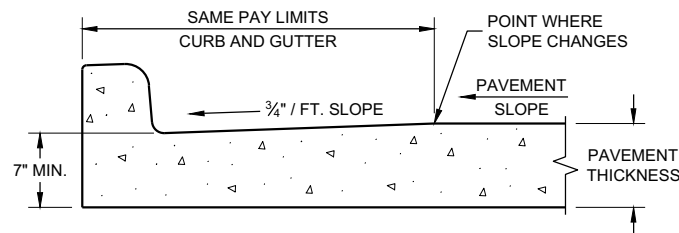


CONCRETE GUTTER 24" ①

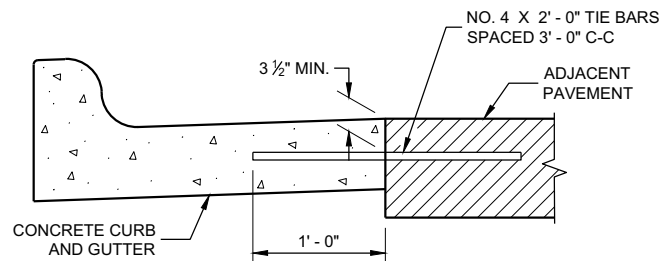
* TO BE MEASURED TO A MAXIMUM OF 3" WHERE DRAINAGE PROBLEMS EXIST.



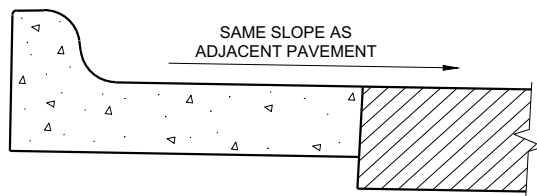
END SECTION CURB AND GUTTER



PARTIAL SECTION OF PAVEMENT WITH INTEGRAL CURB AND GUTTER



TYPICAL TIE BAR LOCATION ①



HIGH SIDE SECTION ③
(TYPICAL FOR ALL CURB & GUTTER TYPES)

GENERAL NOTES

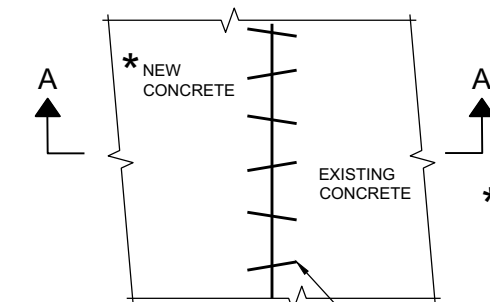
DETAILS OF CONSTRUCTION AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE CONTRACT.

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

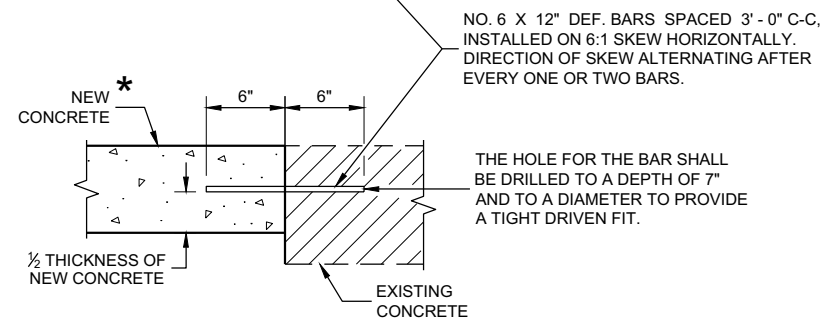
INTEGRAL CURB AND GUTTER SHALL CONFORM TO THE DETAILS SHOWN FOR CONCRETE CURB AND GUTTER INCLUDING THE TRANSVERSE GUTTER SLOPE. A LONGITUDINAL CONSTRUCTION JOINT IS NOT REQUIRED WITH INTEGRAL CURB AND GUTTER.

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

- ① WHEN PLACED ADJACENT TO NEW CONCRETE, TIE BARS ARE REQUIRED FOR CURB AND GUTTER 31", 22", 19" AND CONCRETE GUTTER 24".
- ② THE BOTTOM OF CURB AND GUTTER MAY BE CONSTRUCTED EITHER LEVEL OR PARALLEL TO THE SLOPE OF THE SUBGRADE OR BASE COURSE PROVIDED A 7" MINIMUM GUTTER THICKNESS IS MAINTAINED.
- ③ WHEN HIGH SIDE CURB SECTION IS REQUIRED, THE LOCATION(S) WILL BE NOTED ON THE PLANS



PLAN VIEW

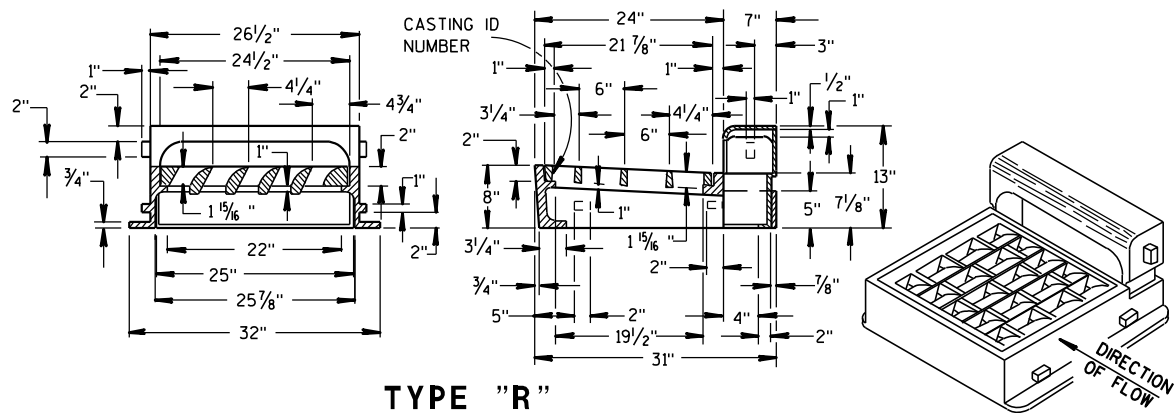


SECTION A - A

PAVEMENT TIES

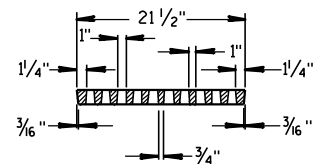
CONCRETE GUTTER, CURB AND GUTTER AND PAVEMENT TIES (For Optional use in Milwaukee Co. Only)	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED February 2020 DATE	/S/ Rodney Taylor ROADWAY STANDARDS DEVELOPMENT ENGINEER
FHWA	

INLET COVERS



TYPE "R"

SHOWING SPECIAL GRATE NO. 1
(TO BE NOTED AS R-1 IN DRAINAGE TABLE)



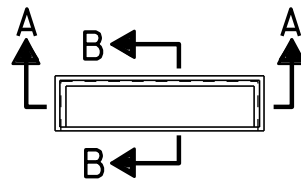
GRATE FOR TYPE "R" INLET COVER

(GRATE..... 150 LBS.)

(TO BE USED UNLESS OTHERWISE NOTED IN DRAINAGE TABLE)

(APPROX. WEIGHT - 510 LBS.)
FRAME..... 245 LBS.
CURB..... 120 LBS.
GRATE..... 145 LBS.

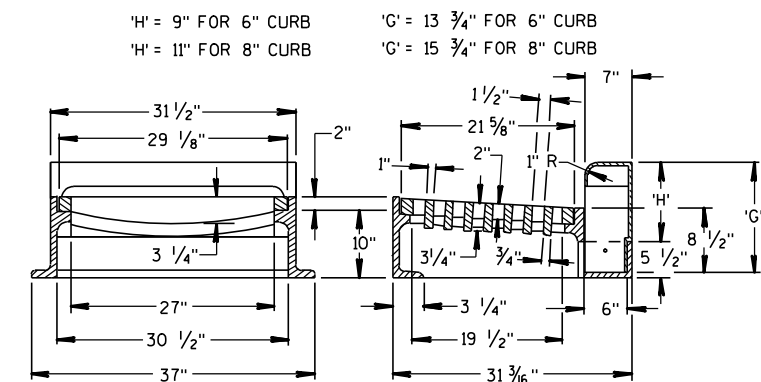
NOTE:
CURB PLUG USED IN PLACE
OF CURB BOX IN ABSENCE
OF CONC. CURB. FILL TO
TOP WITH CONCRETE.



SECTION B-B SECTION A-A
SPECIAL CURB PLUG "P"

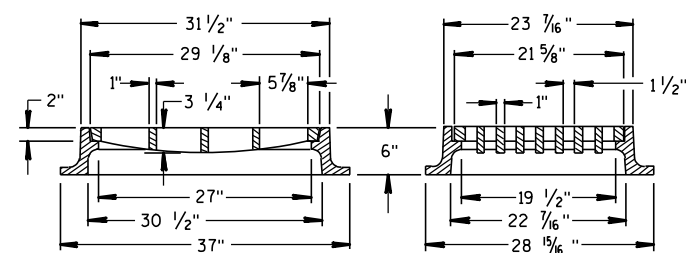
(CURB PLUG..... 85 LBS.)

(TO BE NOTED AS R-P IN DRAINAGE TABLE)



TYPE "W"

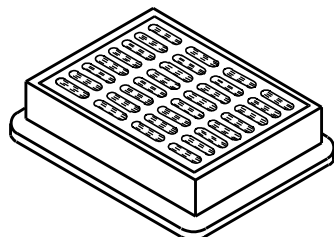
(APPROX. WEIGHT - 670 LBS.)
FRAME..... 350 LBS.
CURB BOX..... 135 LBS.
GRATE..... 185 LBS.



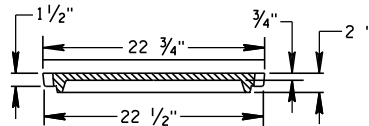
TYPE "X"

(APPROX. WEIGHT - 470 LBS.)

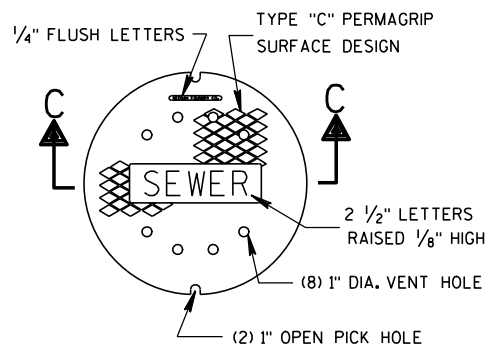
ALTERNATE GRATE
(FOR EXPRESSWAY RAMPS)
TYPES "W" & "X"



MANHOLE COVER



SECTION C-C



TYPE "Q"

(APPROX. WEIGHT - 290 LBS.)

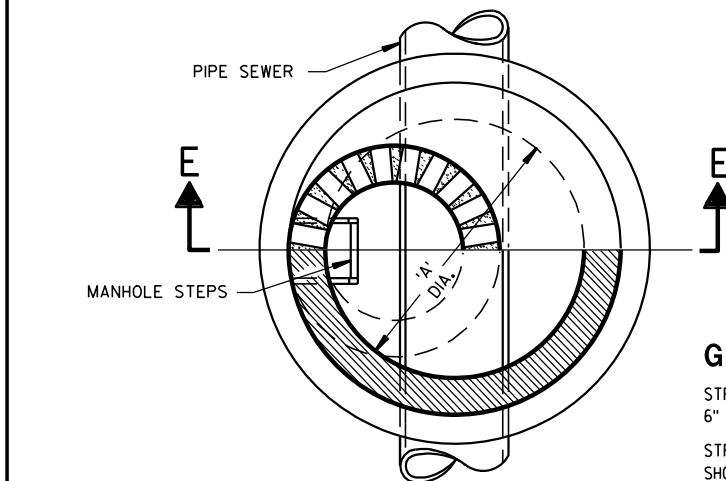
TABLE OF DIMENSIONS

TYPE	'A'	'B'	'C'
11	3'-6"	2'-8"	12" - 36"*
12	4'-0"	3'-8"	12" - 42"*
13	5'-0"	5'-8"	42" - 48"
14	6'-0"	7'-8"	54" - 60"

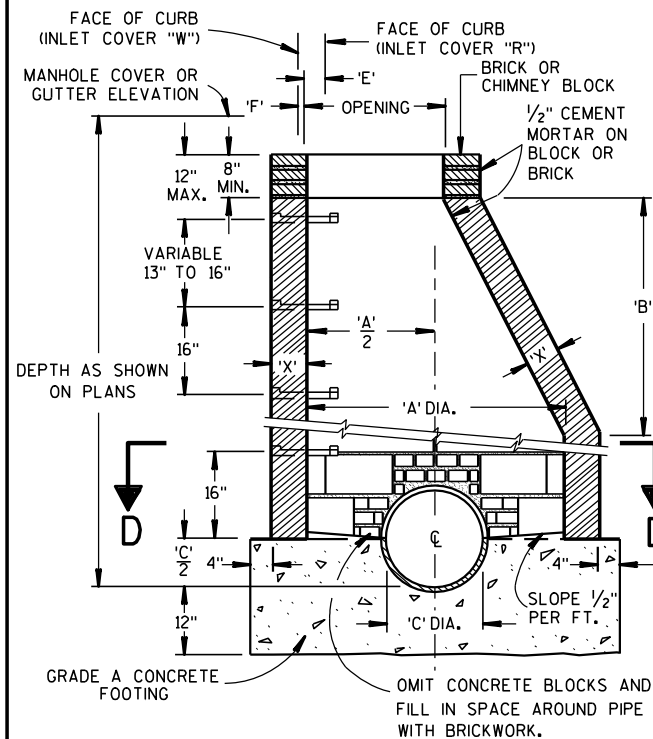
* 12" - 21" FOR PRECAST MANHOLES
** 12" - 24" FOR PRECAST MANHOLES

THE FIRST STEP SHALL BE PLACED
16" ABOVE THE BENCH.

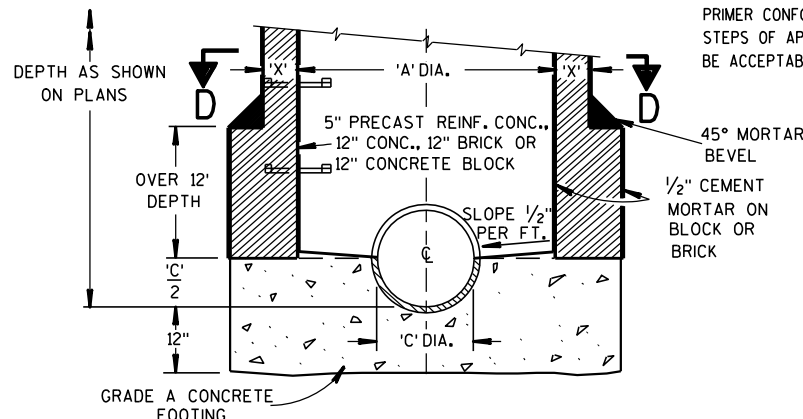
MANHOLE



HALF SECTION D-D



SECTION E-E



SECTION E-E

TYPES 11, 12, 13 & 14

TABLE OF OPENING DIMENSIONS

COVER	TYPE	DESCRIPTION	OPENING	'E'	'F'
"O"	ROUND	2'-2" DIA.	—	—	—
"W"	CURB BOX	1'-8" X 2'-6"	—	1"	—
"X"	INLET	1'-10" X 2'-6"	—	—	—
"R"	CURB BOX	2'-0" X 2'-1"	4"	—	—

GENERAL NOTES

STRUCTURE WALL THICKNESS 'X' TO BE 8" BRICK, 6" CONCRETE BLOCK, 6" GRADE A CONCRETE OR 5" PRECAST REINFORCED CONCRETE.

STRUCTURE FOOTINGS ARE TO BE GRADE A CONCRETE OF THE THICKNESS SHOWN IN THE DETAIL OR 5" PRECAST REINFORCED CONCRETE.

REINFORCEMENT FOR 5" PRECAST REINFORCED CONCRETE SHALL BE 6" X 6" W16 X W16 WELDED STEEL WIRE FABRIC AND SHALL BE EMBEDDED 2" CLEAR.

PRECAST INLET UNITS AND BASES SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF AASHTO DESIGNATION M 199.

PRECAST CONCRETE FLAT SLAB TOPS MAY BE USED ON THE STRUCTURES. THE TOPS SHALL BE INSTALLED ON A BED OF MORTAR.

PRECAST REINFORCED BASES SHALL BE PLACED ON A BED OF MATERIAL AT LEAST 6" IN DEPTH, WHICH MEETS THE REQUIREMENTS FOR GRANULAR BACK-FILL. THIS BEDDING SHALL BE COMPACTED AND PROVIDE UNIFORM SUPPORT FOR THE ENTIRE AREA OF THE BASE.

SET FRAME ELEVATION 0.03 FT. LOWER THAN ELEVATION INDICATED ON THE PLANS.

THE CONTRACTOR MAY FORM AND POUR MONOLITHIC CONCRETE INVERT PROVIDED THE PIPE ENDS ARE EXTENDED INTO THE M.H. AND NOT TERMINATED WITHIN THE M.H. WALLS.

MANHOLE STEPS

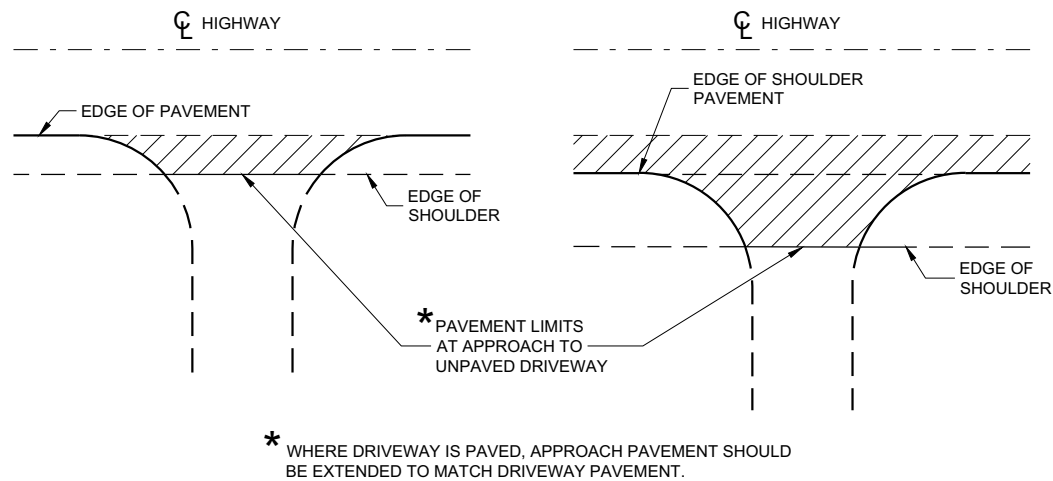
STEPS MEETING THE FOLLOWING REQUIREMENTS SHALL BE INSTALLED IN ALL STRUCTURES OVER 5 FEET IN DEPTH; 16 INCH C-C MAX. SPACING; PROJECT A MINIMUM CLEAR DISTANCE OF 4 INCHES FROM THE WALL AT THE POINT OF EMBEDMENT; MINIMUM WALL EMBEDMENT OF 3 INCHES IN PRECAST MANHOLE AND 6 INCHES IN 8 INCH BRICK OR 6 INCH BLOCK MANHOLE; TREAD OF STEP SHALL HAVE A NON-SKID SURFACE AND BE FLANKED BY CLEATS, WITH A MINIMUM OF 10 INCHES CLEAR BETWEEN CLEATS, TO PREVENT FOOT SLIPPING OFF THE EDGE CLEATS SHALL BE A MINIMUM OF 3/4 INCH HIGH BY 3/4 INCH WIDE HAVING A MINIMUM THICKNESS OF 3/8 INCH. STEPS SHALL BE CAPABLE OF SUPPORTING A CONCENTRATED LOAD OF 300 LBS. FERROUS METAL STEPS NOT PAINTED OR TREATED TO RESIST CORROSION SHALL HAVE A MINIMUM CROSS SECTIONAL DIMENSION OF 1 INCH.

SOLID ALUMINUM STEPS SHALL HAVE A MINIMUM CROSS SECTIONAL DIMENSION OF 0.75 INCH. ALUMINUM SURFACES TO BE EMBEDDED IN CONCRETE SHALL BE GIVEN ONE COAT OF SUITABLE QUALITY PAINT, SUCH AS ZINC CHROMATE PRIMER CONFORMING TO FEDERAL SPECIFICATION TT-P-645 OR EQUIVALENT. STEPS OF APPROVED POLYPROPYLENE PLASTIC COATED REINFORCING BAR WILL BE ACCEPTABLE.

MANHOLES,
MANHOLE & INLET COVERS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

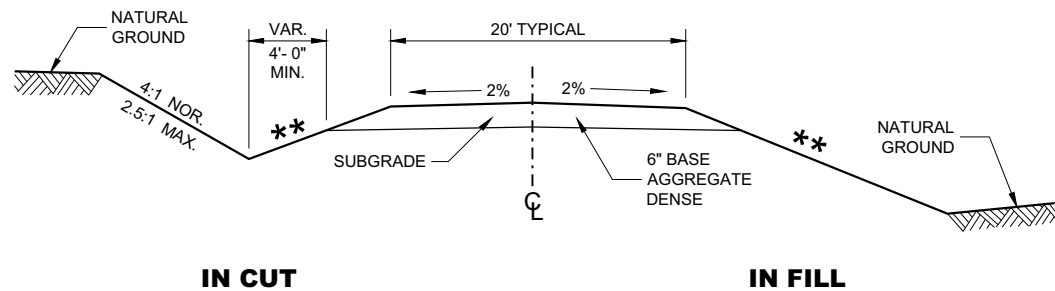
APPROVED
4/12/2011 /S/ Jerry H. Zoon
DATE ROADSIDE STANDARDS 100
FHWA ENGINEER



PLAN VIEW
(UNPAVED SHOULDER ON HIGHWAY)

PLAN VIEW
(PAVED SHOULDER ON HIGHWAY)

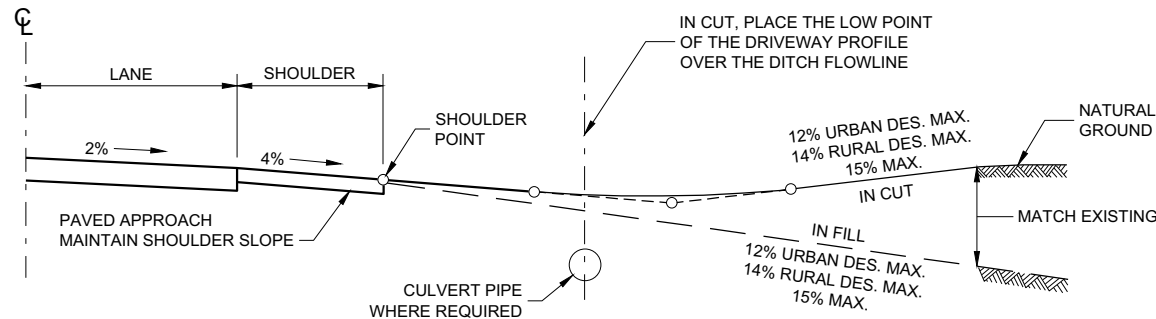
**RURAL DRIVEWAY INTERSECTION DETAIL
(NO CURB AND GUTTER OR SIDEWALK)**



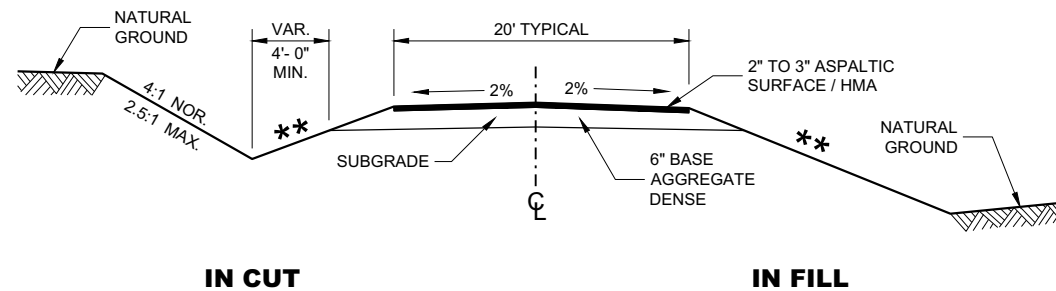
**TYPICAL CROSS SECTION FOR
PRIVATE DRIVE OR FIELD ENTRANCE
AGGREGATE SURFACE**

** SLOPE CAN VARY WITH SPEED. SEE 11-45-30.6.2

POSTED SPEED MPH	MAX. SLOPE
<35	4:1
≥ 35 TO < 60	6:1
≥60	10:1



TYPICAL DRIVEWAY PROFILES

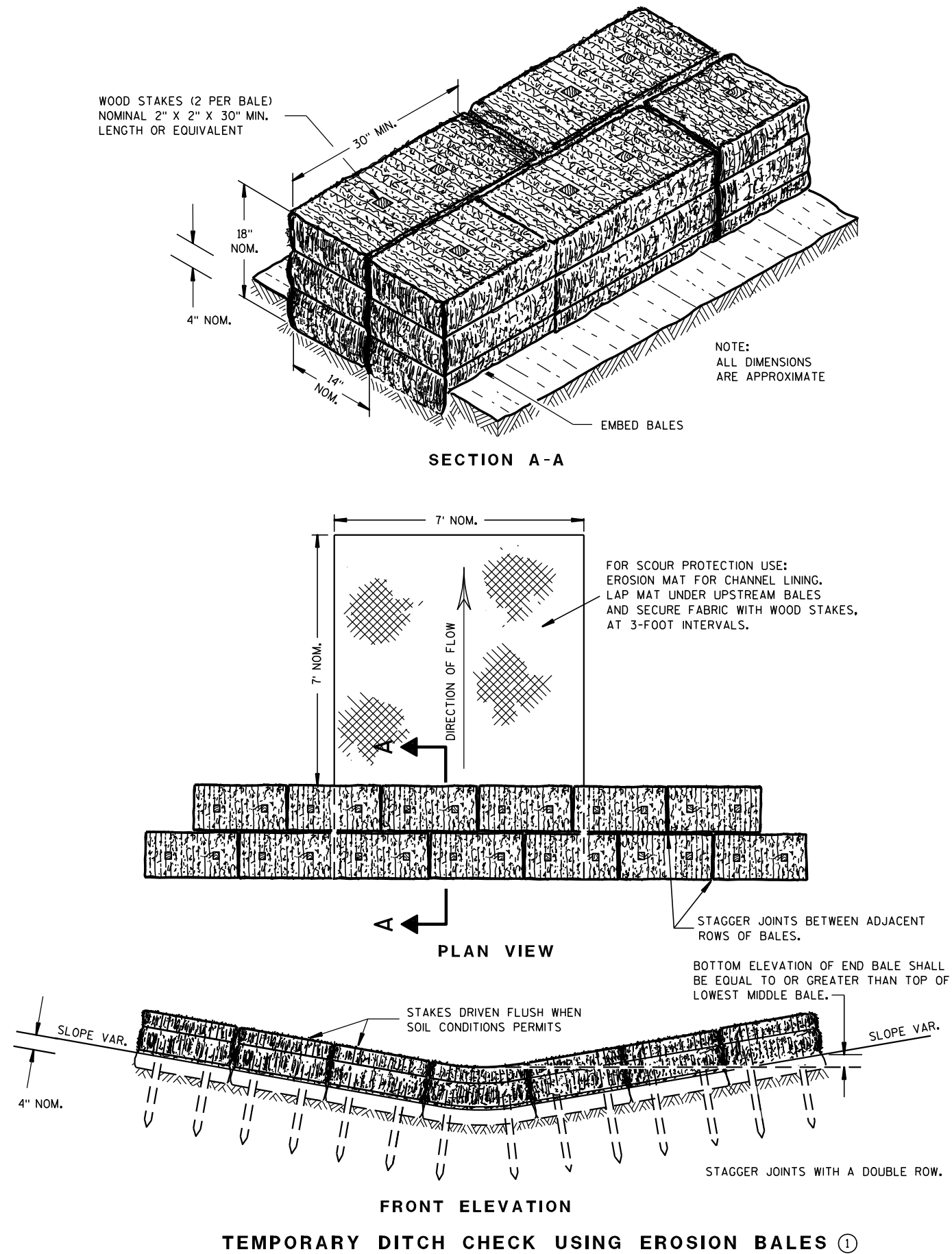


**TYPICAL CROSS SECTION FOR
PRIVATE DRIVE OR FIELD ENTRANCE
ASPHALTIC SURFACE**

**DRIVEWAYS WITHOUT
CURB AND GUTTER**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

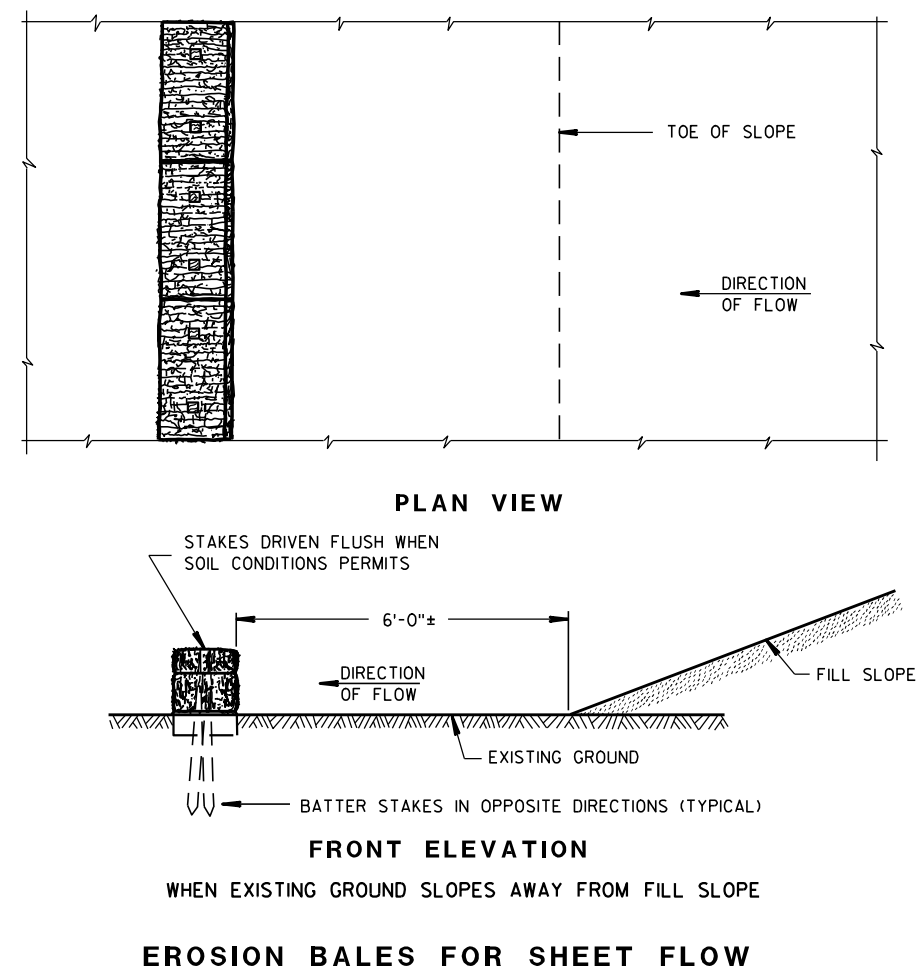
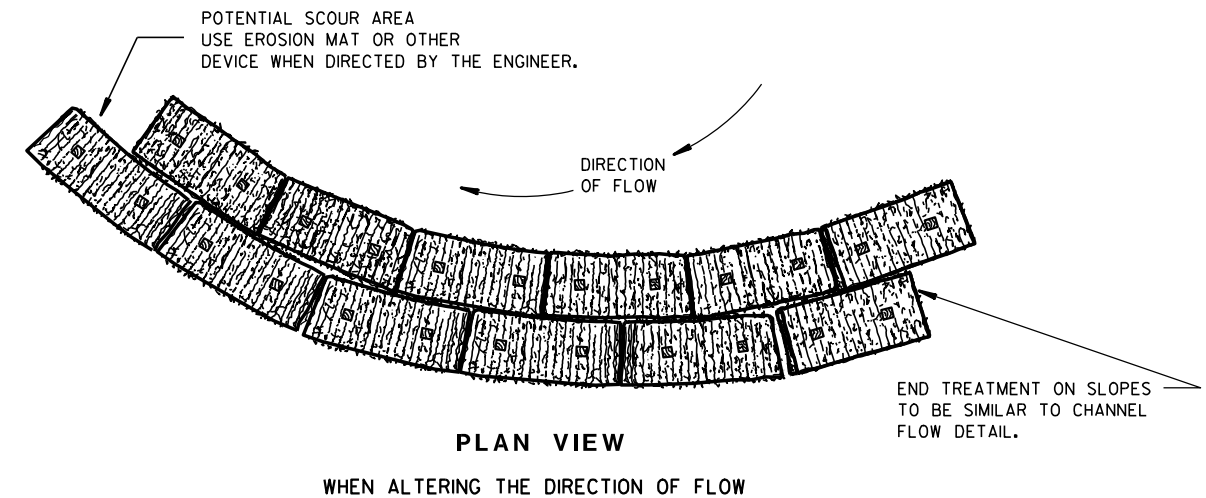
APPROVED
December 2017 /S/ Rodney Taylor
DATE ROADWAY STANDARDS DEVELOPMENT UNIT SUPERVISOR
FHWA



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.

- 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

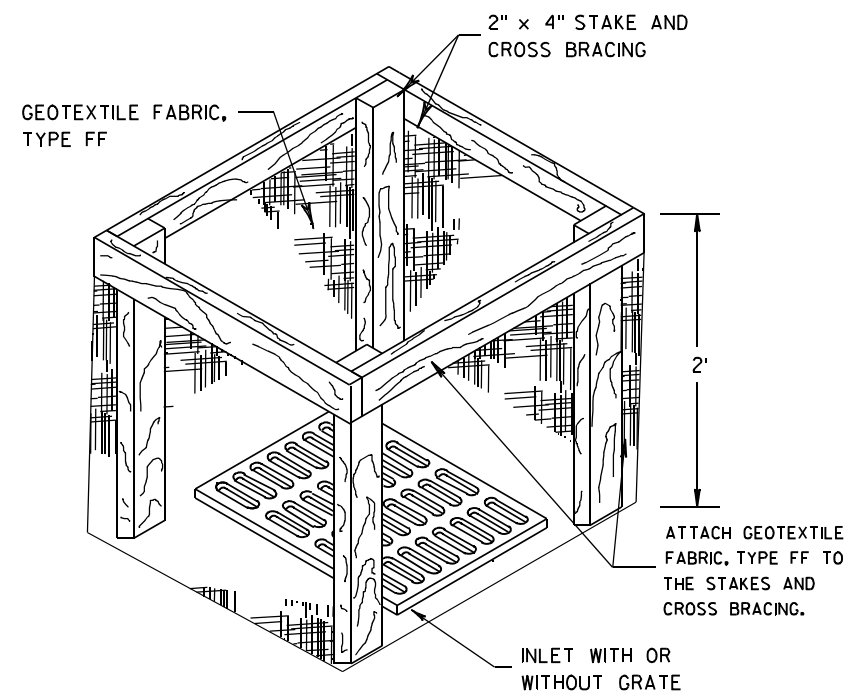
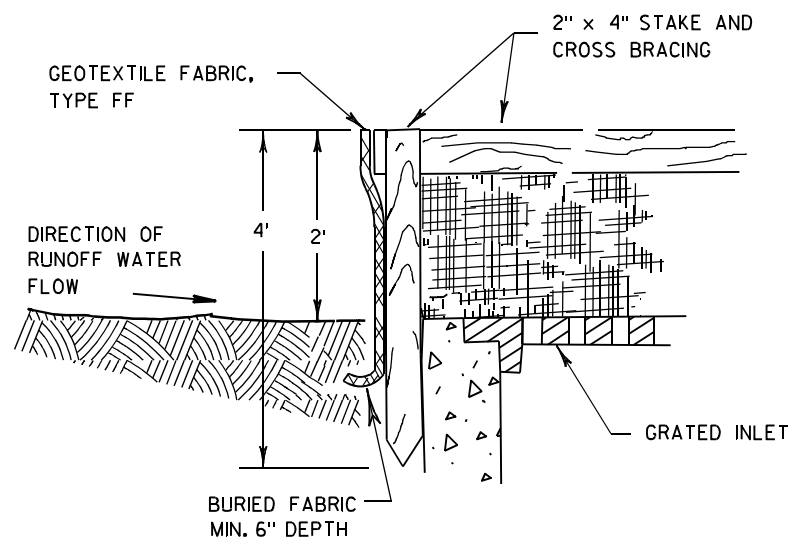
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

6/04/02
DATE

/S/ Beth Conn-----
CHIEF ROADWAY DEVELOPER 102 ENGINEER

FHWA



INLET PROTECTION, TYPE A

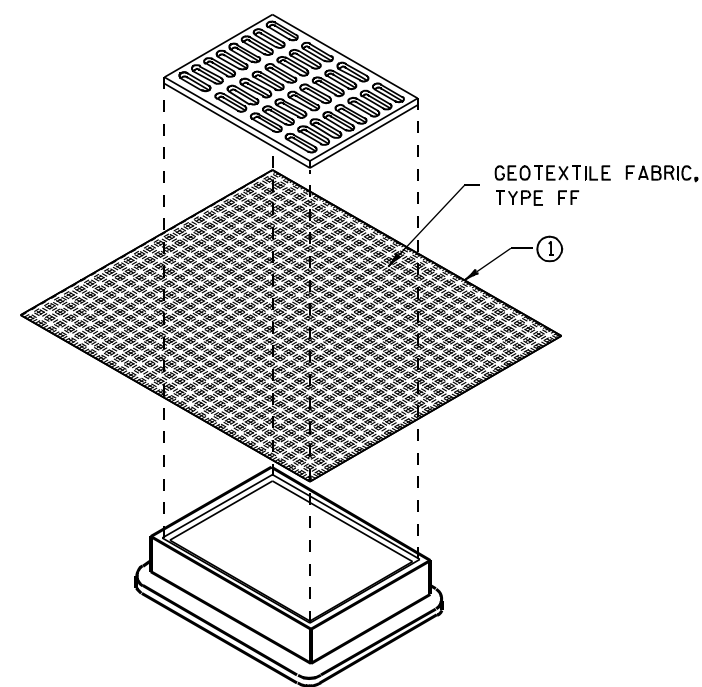
GENERAL NOTES

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

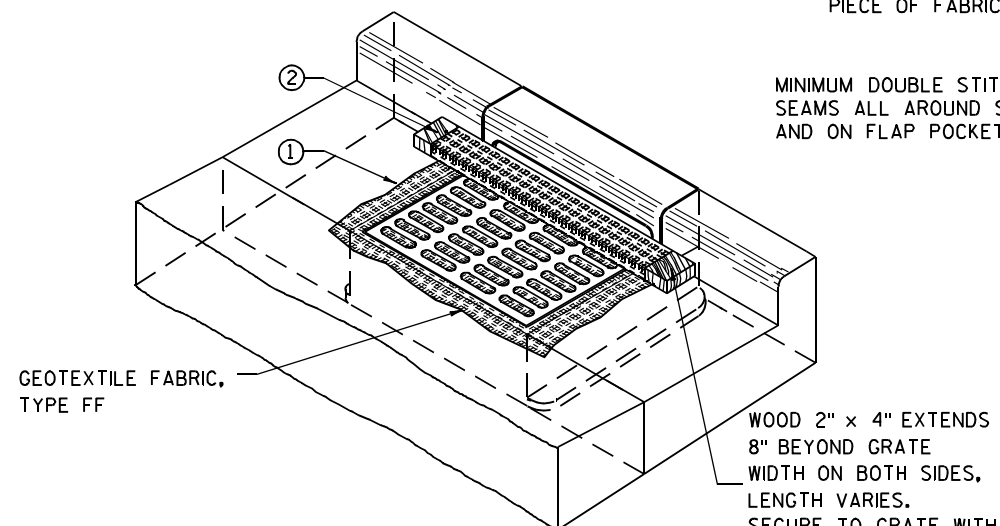
MANUFACTURED ALTERNATIVES APPROVED AND LISTED ON THE DEPARTMENT'S EROSION CONTROL PRODUCT ACCEPTABILITY LIST MAY BE SUBSTITUTED.

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

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



**INLET PROTECTION, TYPE B
(WITHOUT CURB BOX)**
(CAN BE INSTALLED IN ANY INLET WITHOUT A CURB BOX)



INLET PROTECTION, TYPE C (WITH CURB BOX)

INSTALLATION NOTES

TYPE B & C

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

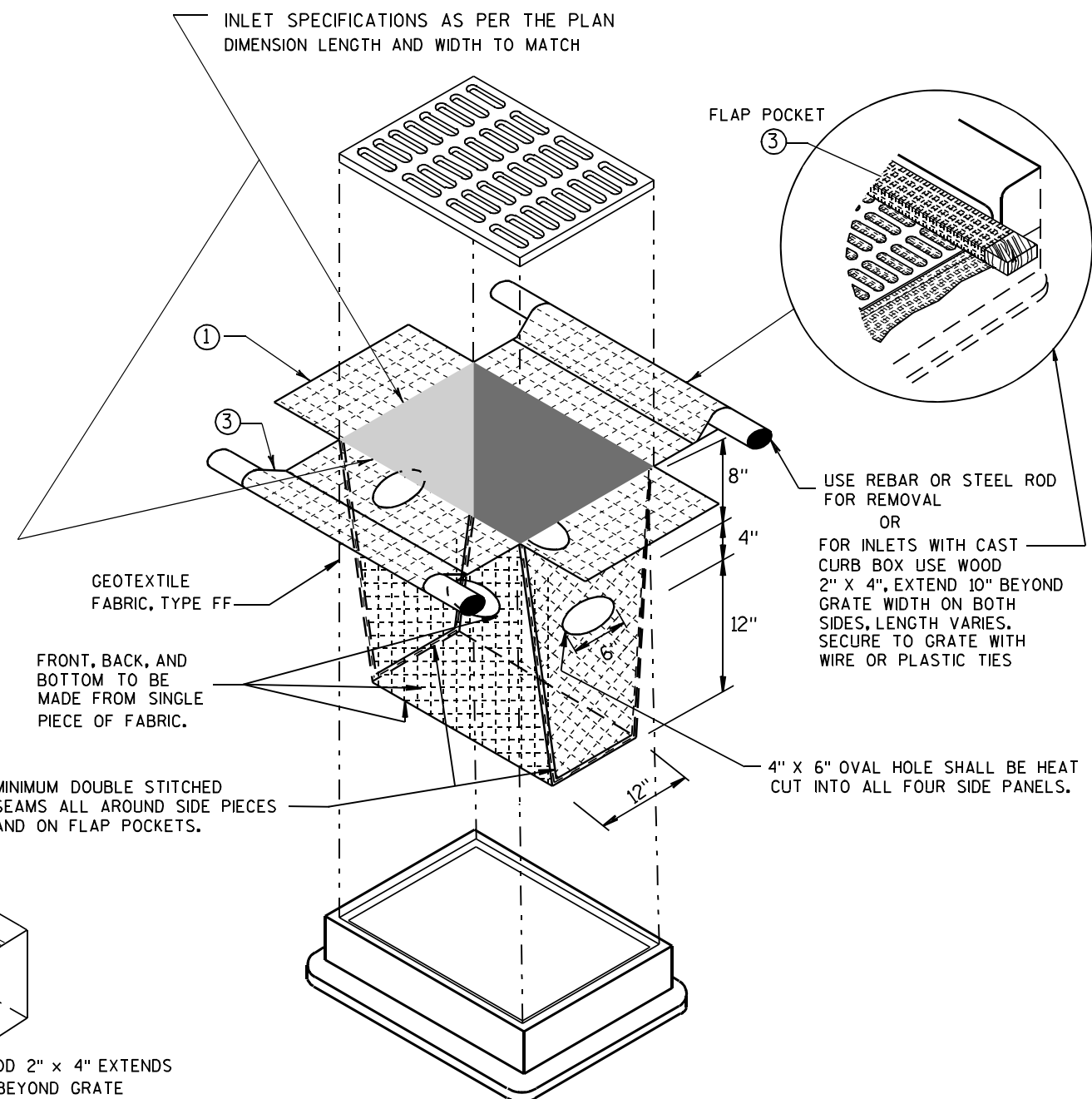
THE CONTRACTOR SHALL DEMONSTRATE A METHOD OF MAINTENANCE, USING A SEWN FLAP, HAND HOLDS OR OTHER METHOD TO PREVENT ACCUMULATED SEDIMENT FROM ENTERING THE INLET.

TYPE D

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

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

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



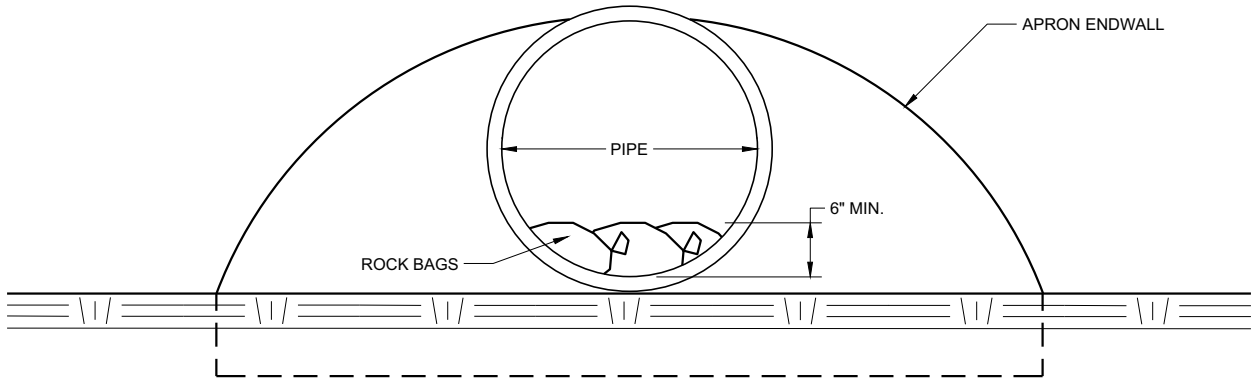
INLET PROTECTION, TYPE D

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

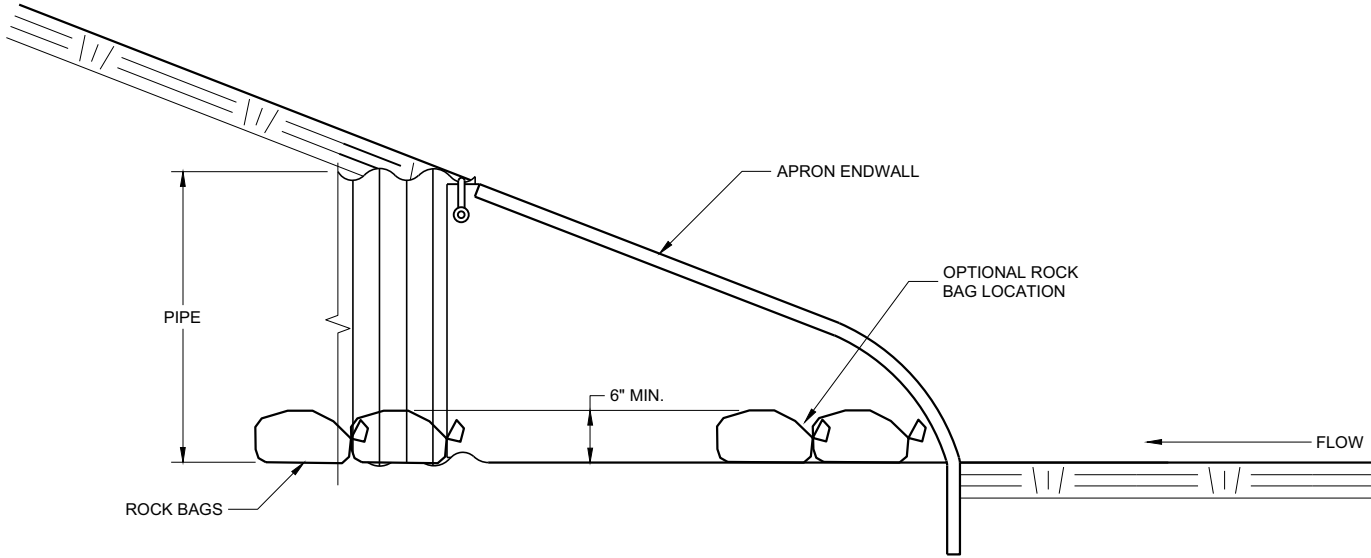
**INLET PROTECTION
TYPE A, B, C, AND D**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
10/16/02 /S/ Beth Connolly
DATE 103
FHWA CHIEF ROADWAY DEVELOPMENT ENGINEER



END VIEW



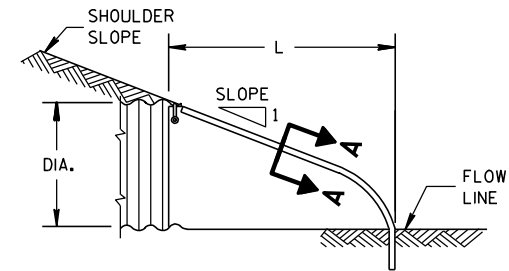
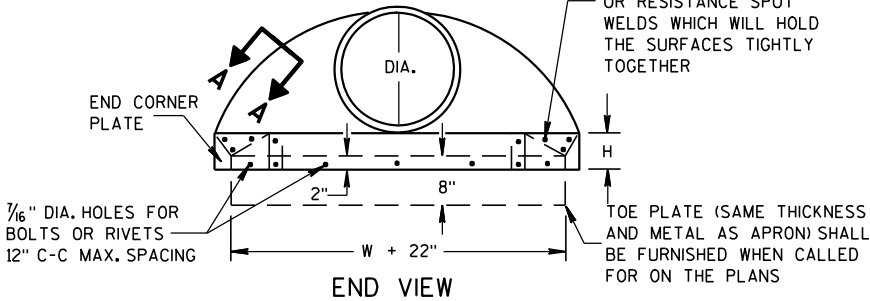
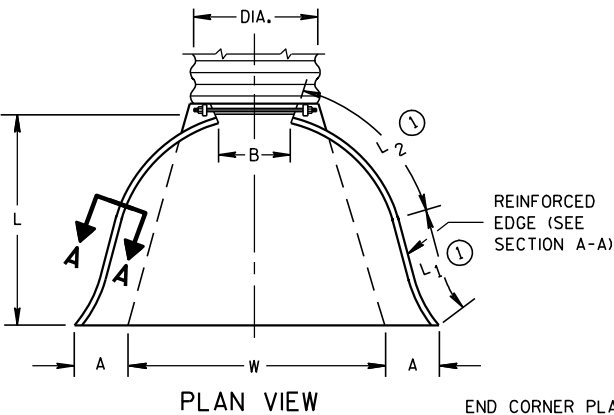
SIDE VIEW

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 104
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.

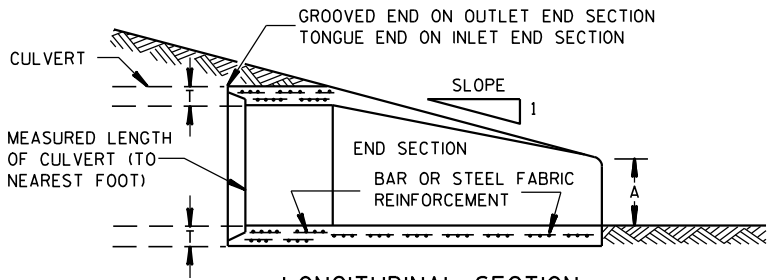
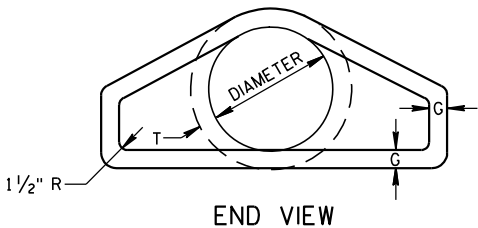
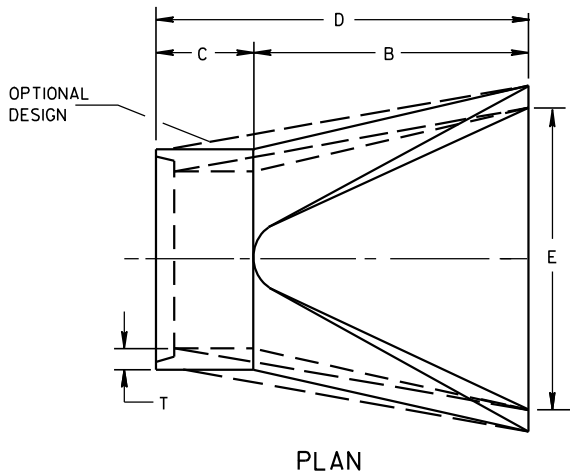
* EXCEPT CENTER PANEL
SEE GENERAL NOTES



METAL ENDWALLS

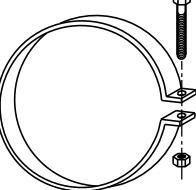
REINFORCED CONCRETE APRON ENDWALLS												
PIPE DIA. (IN.)	DIMENSIONS (Inches)							APPROX. SLOPE				
	T	A	B	C	D	E	G					
12	2	4	24	48 1/8	72 1/8	24	2	3 to 1				
15	2 1/4	6	27	46	73	30	2 1/4	3 to 1				
18	2 1/2	9	27	46	73	36	2 1/2	3 to 1				
21	2 3/4	9	36	37 1/2	73 1/2	42	2 3/4	3 to 1				
24	3	9 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

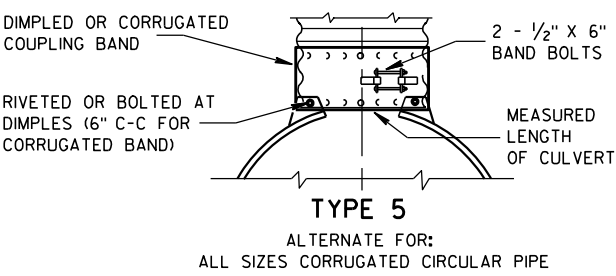
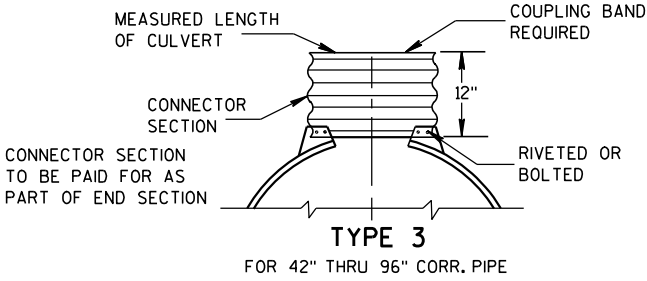
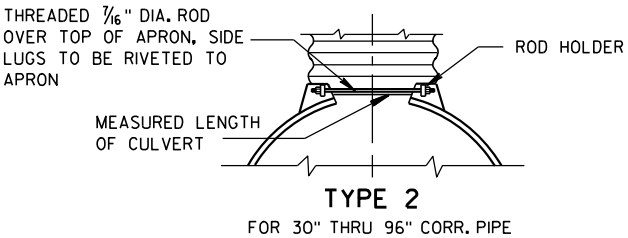
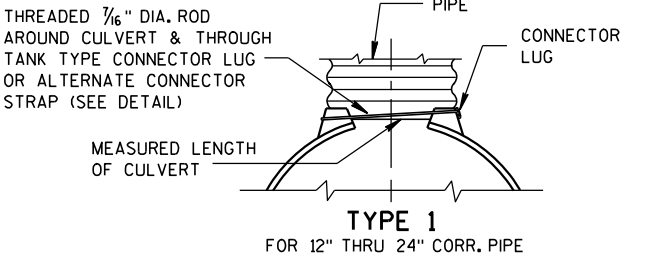


CONCRETE ENDWALLS

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



ALTERNATE FOR TYPE 1 CONNECTION
END SECTION CONNECTOR STRAP



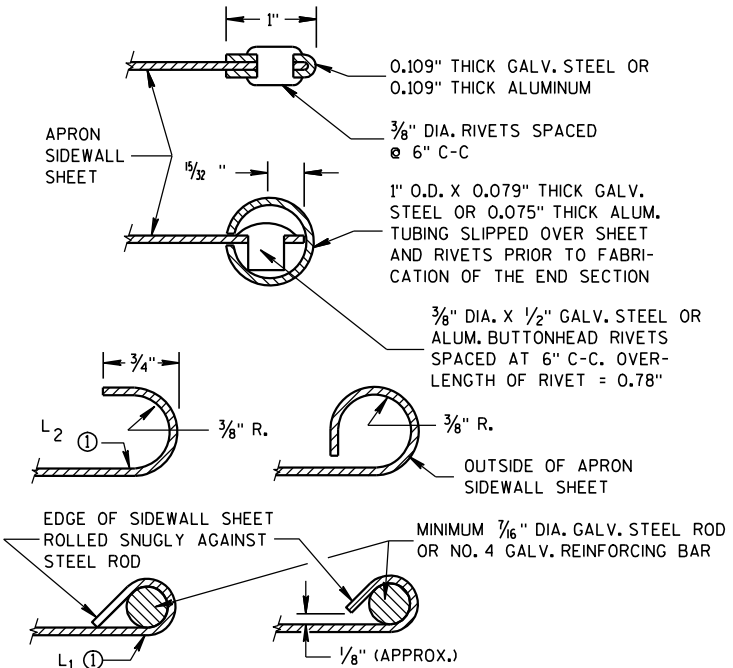
NOTE: DIMPLED BAND FITS OVER OUTSIDE OF ENDWALL, AND CORRUGATED BAND FITS INSIDE ENDWALL. DIMPLED BAND MAY BE USED WITH HELICALLY CORRUGATED PIPE.

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

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

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

CONNECTION DETAILS



SECTION A-A

GENERAL NOTES

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

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

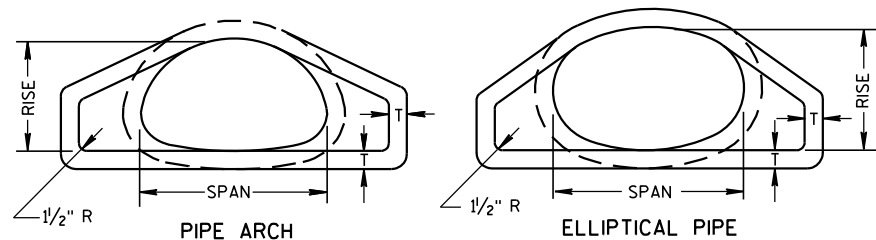
ALL THREE PIECE STEEL APRON ENDWALLS FOR 60" DIAMETER PIPE AND LARGER SHALL HAVE 0.109" SIDES AND 0.138" CENTER PANELS. ALL THREE PIECE ALUMINUM APRON ENDWALLS FOR 60" DIAMETER PIPE AND LARGER SHALL HAVE 0.105" SIDES AND 0.134" CENTER PANELS. THE WIDTH OF CENTER PANELS SHALL BE GREATER THAN 20 PERCENT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

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

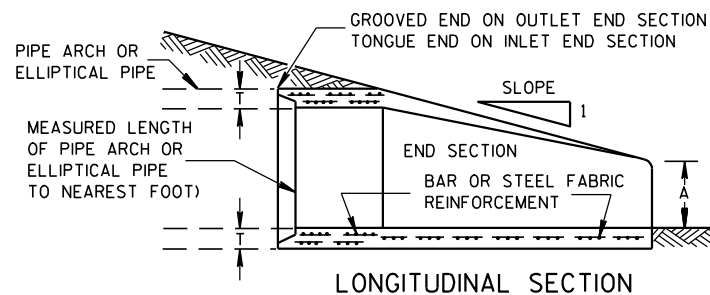
WHERE TWO OR MORE PIPES WITH APRON ENDWALLS ARE LAID ADJACENT TO EACH OTHER, THEY SHALL BE SEPARATED BY A DISTANCE SUFFICIENT TO PROVIDE A MINIMUM CLEARANCE OF 6 INCHES BETWEEN APRON ENDWALLS.

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

APRON ENDWALLS FOR CULVERT PIPE			
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
APPROVED 11/30/94 DATE	/S/ Rory L. Rhinehart CHIEF ROADWAY DEVELOP	105	NEER
FHWA			

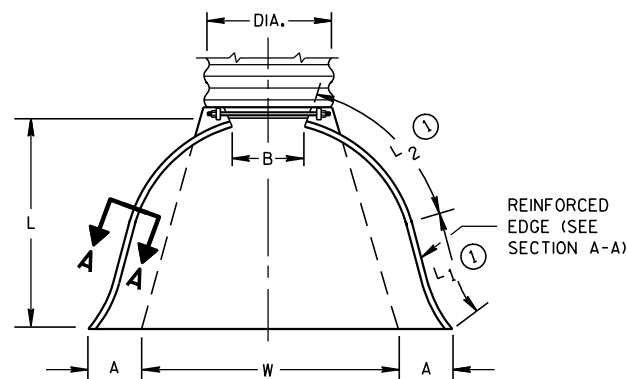


END VIEW



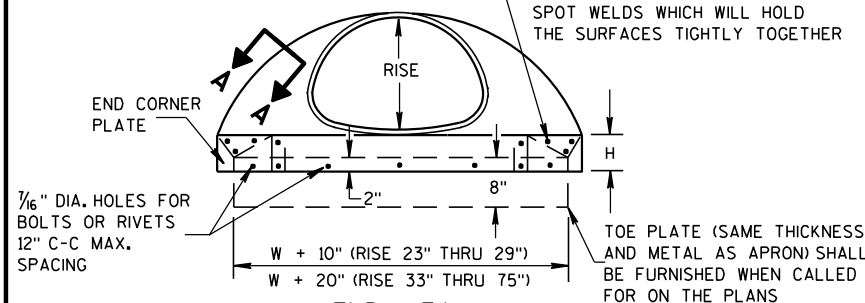
LONGITUDINAL SECTION

CONCRETE ENDWALLS

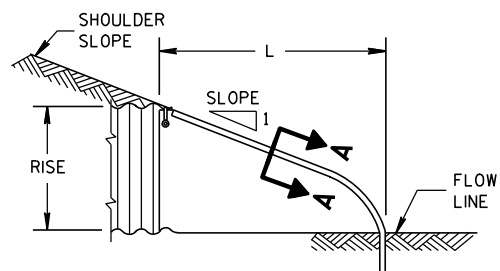
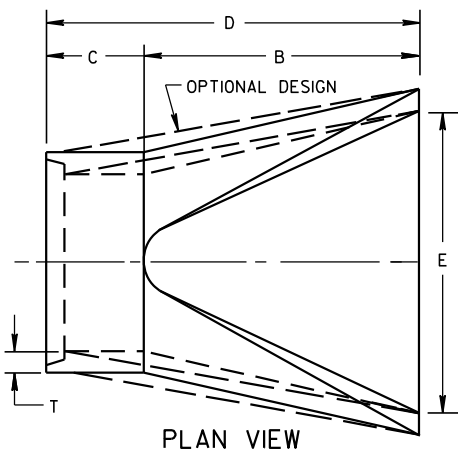


PLAN VIEW

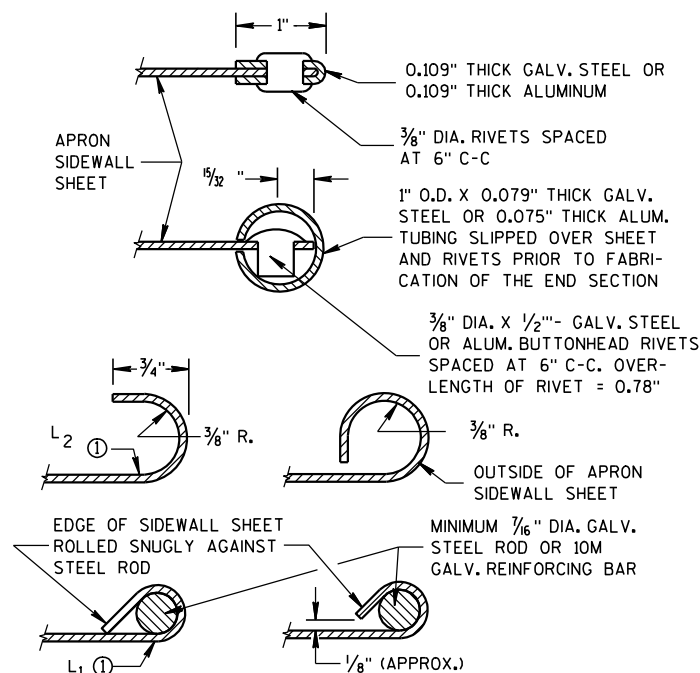
END CORNER PLATES MAY BE FASTENED TO APRON PROPER BY BOLTS, RIVETS, OR RESISTANCE SPOT WELDS WHICH WILL HOLD THE SURFACES TIGHTLY TOGETHER



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.

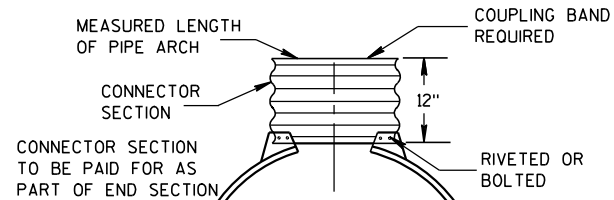
3" X 1" CORRUGATIONS													
EQUIV. DIA. (Inches)	(Inches)		MIN. THICK. (Inches)		DIMENSIONS (Inches)							APPROX. SLOPE	BODY
	SPAN	RISE	STEEL	ALUM.	A (±1")	B (MAX.)	H (±1")	L (±1 1/2")	L1 ①	L2 ①	W (±2")		
48	53	41	.109	.105	18	26	12	63	24	72 3/4	90	2 1/2 to 1	2 Pc.
54	60	46	.109	.105	18	30	12	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

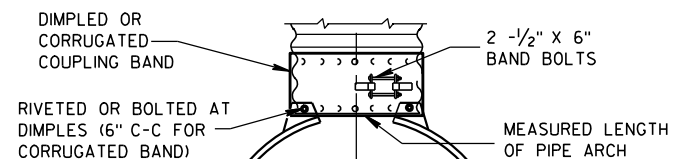
TYPE 2

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 ARCHES

NOTE: 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 1/16	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

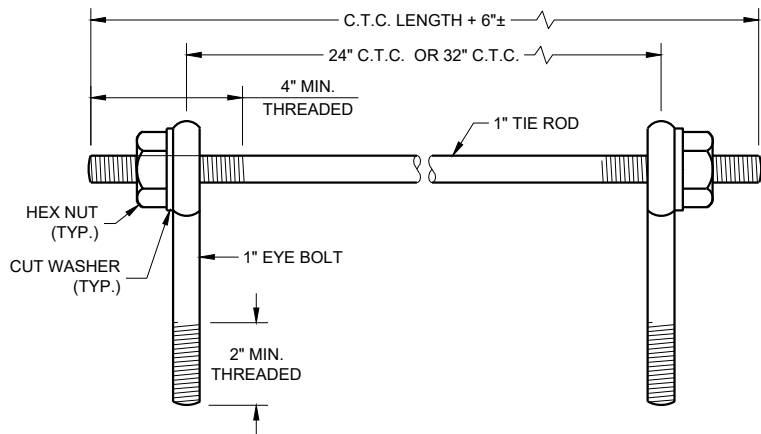
11/30/94

DATE

FHWA

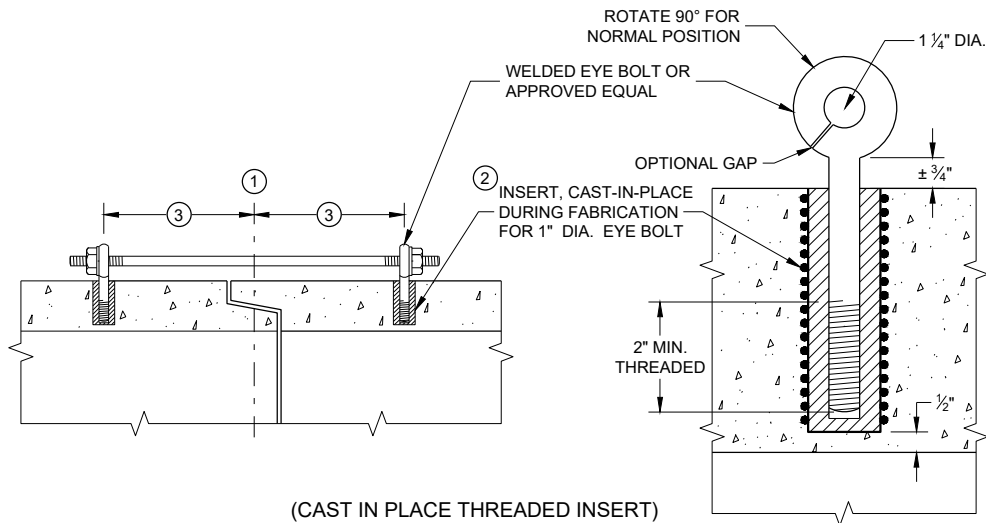
/S/ Rory L. Rhinehart
CHIEF ROADWAY DEVELOPER

ENGINEER



EYE BOLTS AND TIE ROD

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



(CAST IN PLACE THREADED INSERT)

LONGITUDINAL SECTIONS

GENERAL NOTES

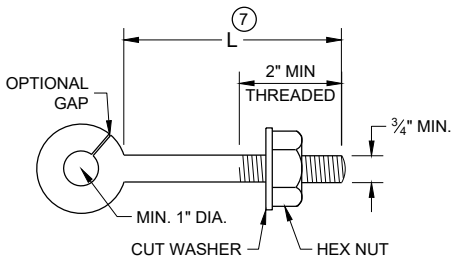
DETAILS OF CONSTRUCTION, MATERIALS, AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.

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.

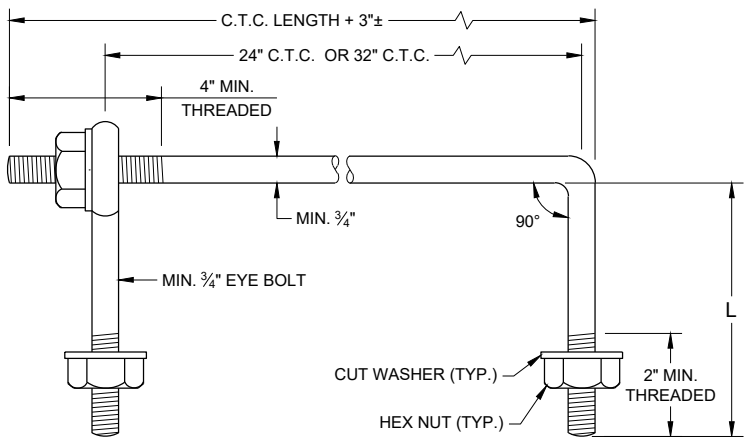
JOINT TIES TO BE HOT-DIP GALVANIZED PER ASTM A 153.

- 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.

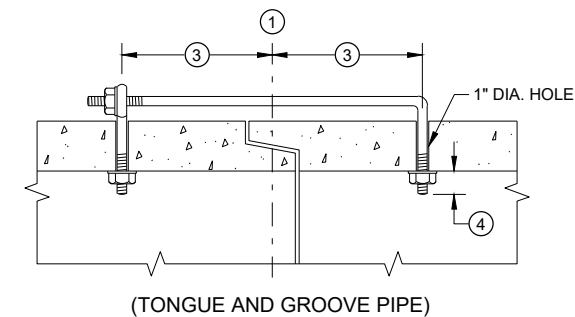


EYE BOLT 7

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

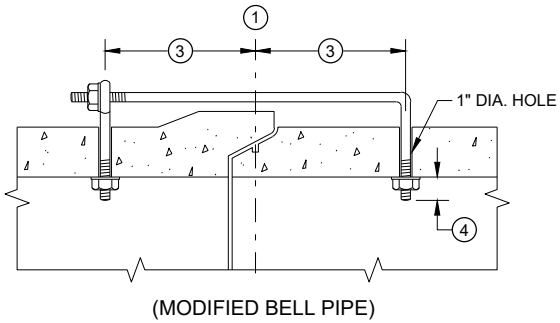


(TONGUE AND GROOVE PIPE)

LONGITUDINAL SECTION

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

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

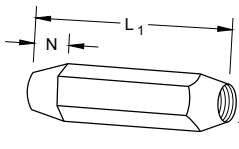


(MODIFIED BELL PIPE)

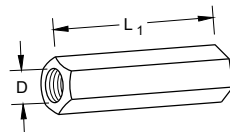
ADJUSTABLE TIE ROD TABLE

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

DIMENSIONS SHOWN ARE IN INCHES

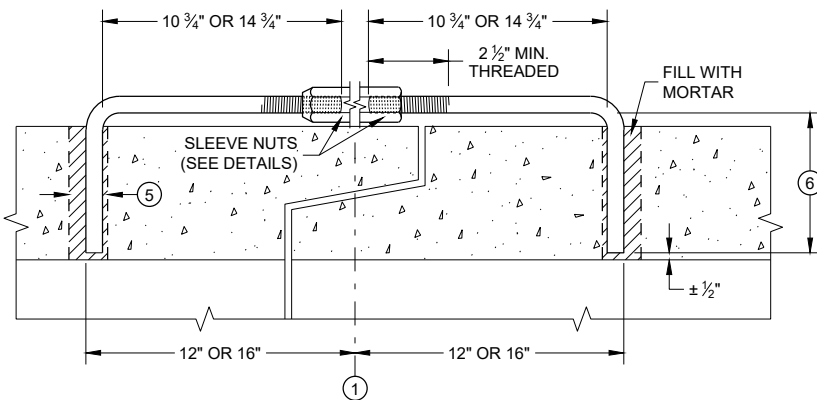


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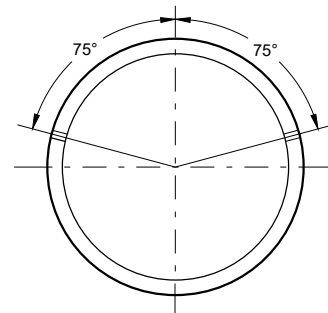
PLAIN

RIGHT AND LEFT THREADS
SLEEVE NUTS



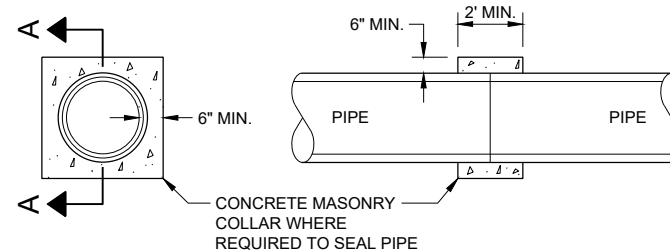
LONGITUDINAL SECTION

ADJUSTABLE TIE ROD (ALTERNATE NO. 3)



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

TRANSVERSE SECTION



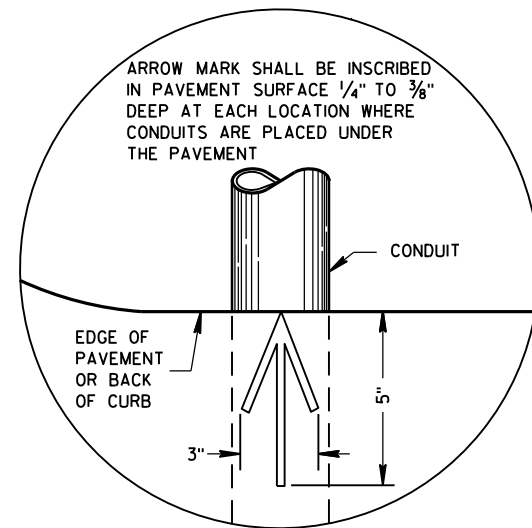
SECTION A - A

CONCRETE COLLAR DETAIL

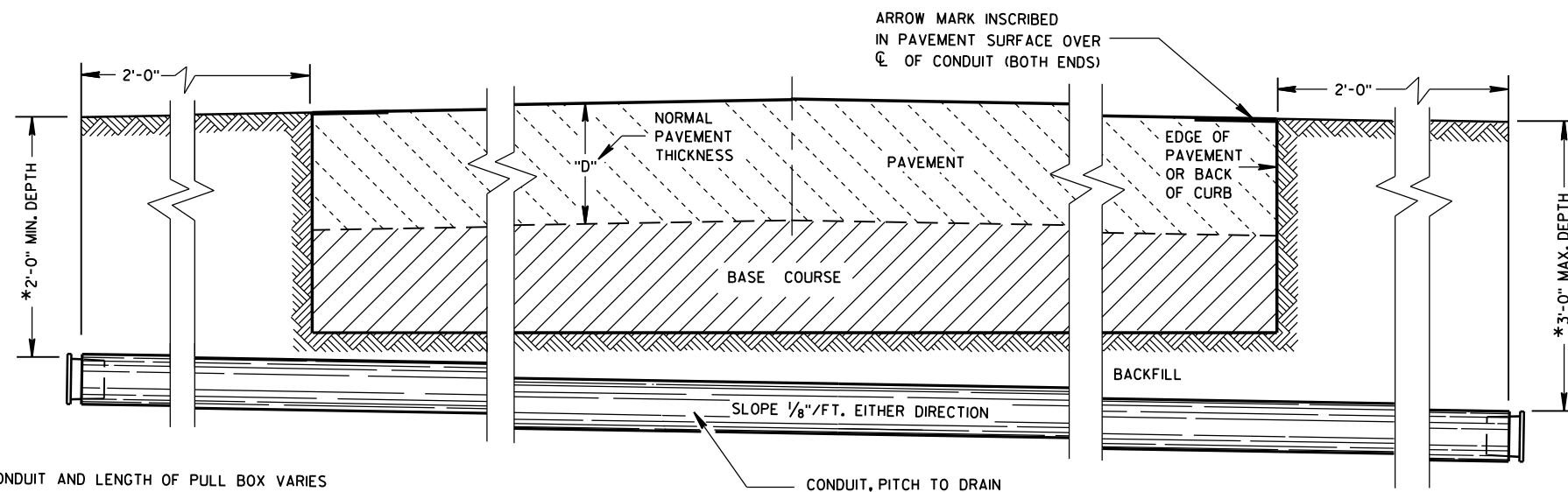
JOINT TIES FOR CONCRETE PIPE AND CONCRETE COLLAR DETAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
November 2021 /S/ Rodney Taylor
DATE ROADWAY STANDARDS DEVELOPMENT ENGINEER 107
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 108
FHWA

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

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



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

PROVIDE AN OPENING FOR TOOL ASSISTED COVER REMOVAL NOT LARGE ENOUGH TO PERMIT PASSAGE OF A SPHERE MORE THAN 1/2" DIAMETER

ENSURE COVER SURFACE IS SKID RESISTANT WITH A COEFFICIENT OF FRICTION OF AT LEAST 0.5 AND VERTICAL SURFACE DISCONTINUITIES LESS THAN 1/4".

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.

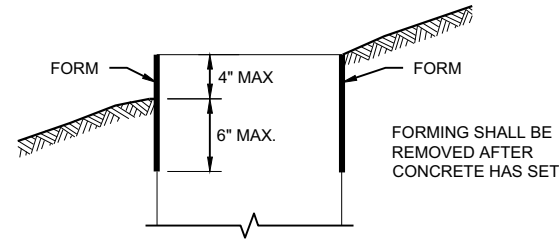


STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
May 2022
DATE

/S/ Ahmet Demirbilek
STATE ELECTRICAL ENGI 109

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.

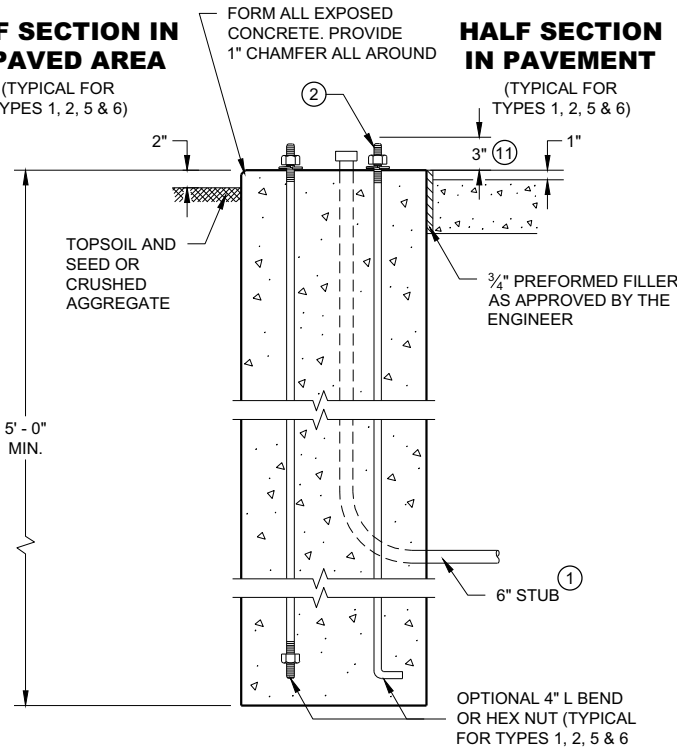
ANCHOR RODS SHALL BE INSTALLED WITH MISALIGNMENTS OF LESS THAN 1:40 FROM VERTICAL.

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).

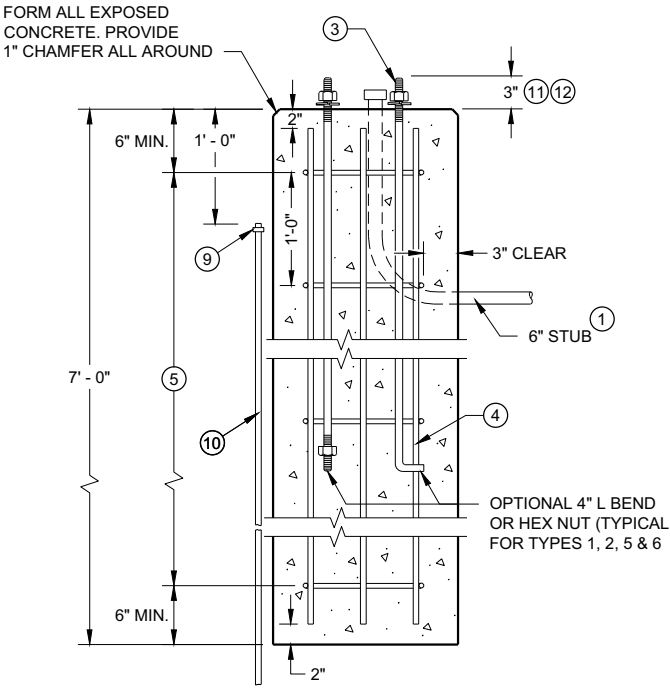
- 1 THE MINIMUM DEPTH OF CONDUIT EXITING THE CONCRETE BASE AND INSTALLED BELOW THE TRAVELED WAY SHALL BE 24 INCHES. THE MINIMUM DEPTH OF CONDUIT EXITING THE CONCRETE BASE THAT IS NOT INSTALLED BELOW THE TRAVELED WAY SHALL BE 18 INCHES. THE MAXIMUM DEPTH OF ALL CONDUIT SHALL BE 36 INCHES EXCEPT WITH WRITTEN 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



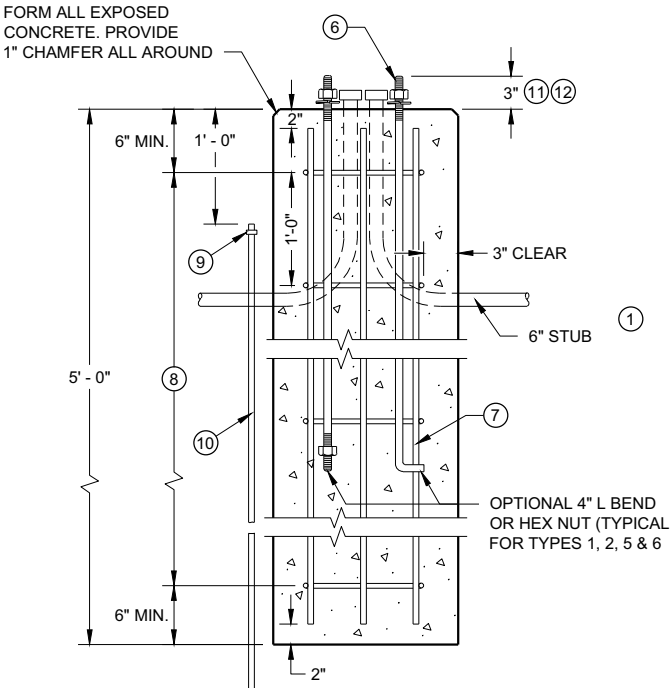
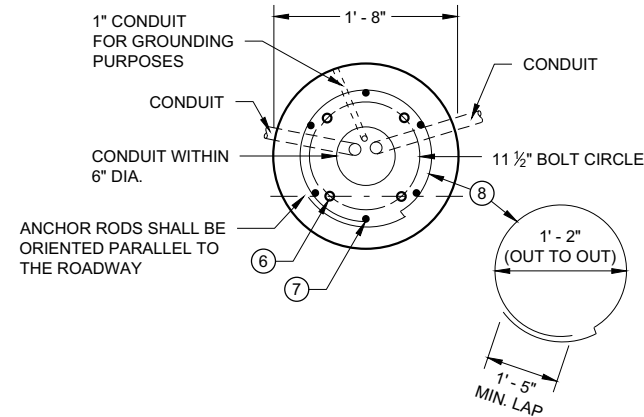
TYPE 1

HALF SECTION IN PAVEMENT



TYPE 2

CONCRETE BASES

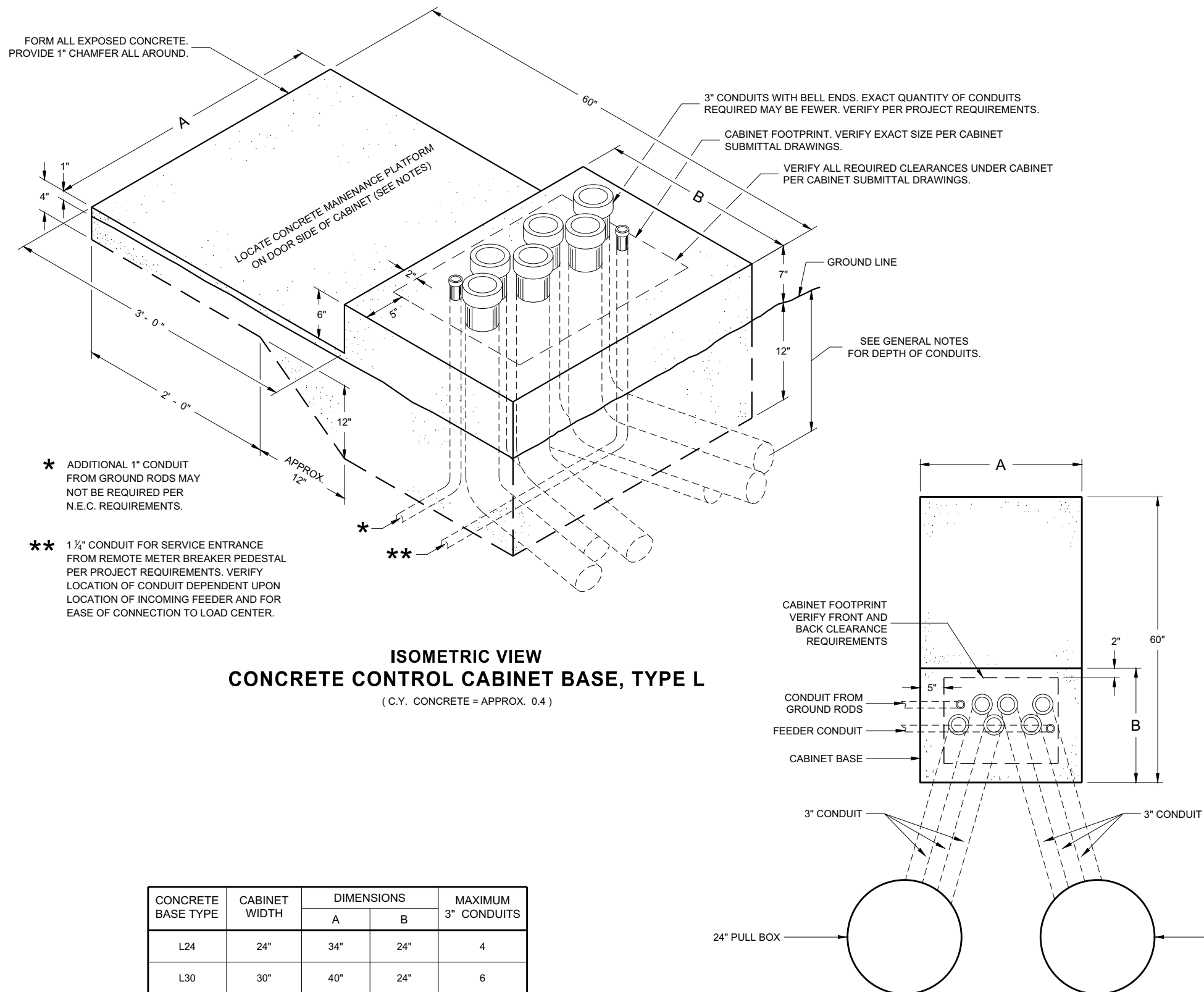


TYPE 5 & 6

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.

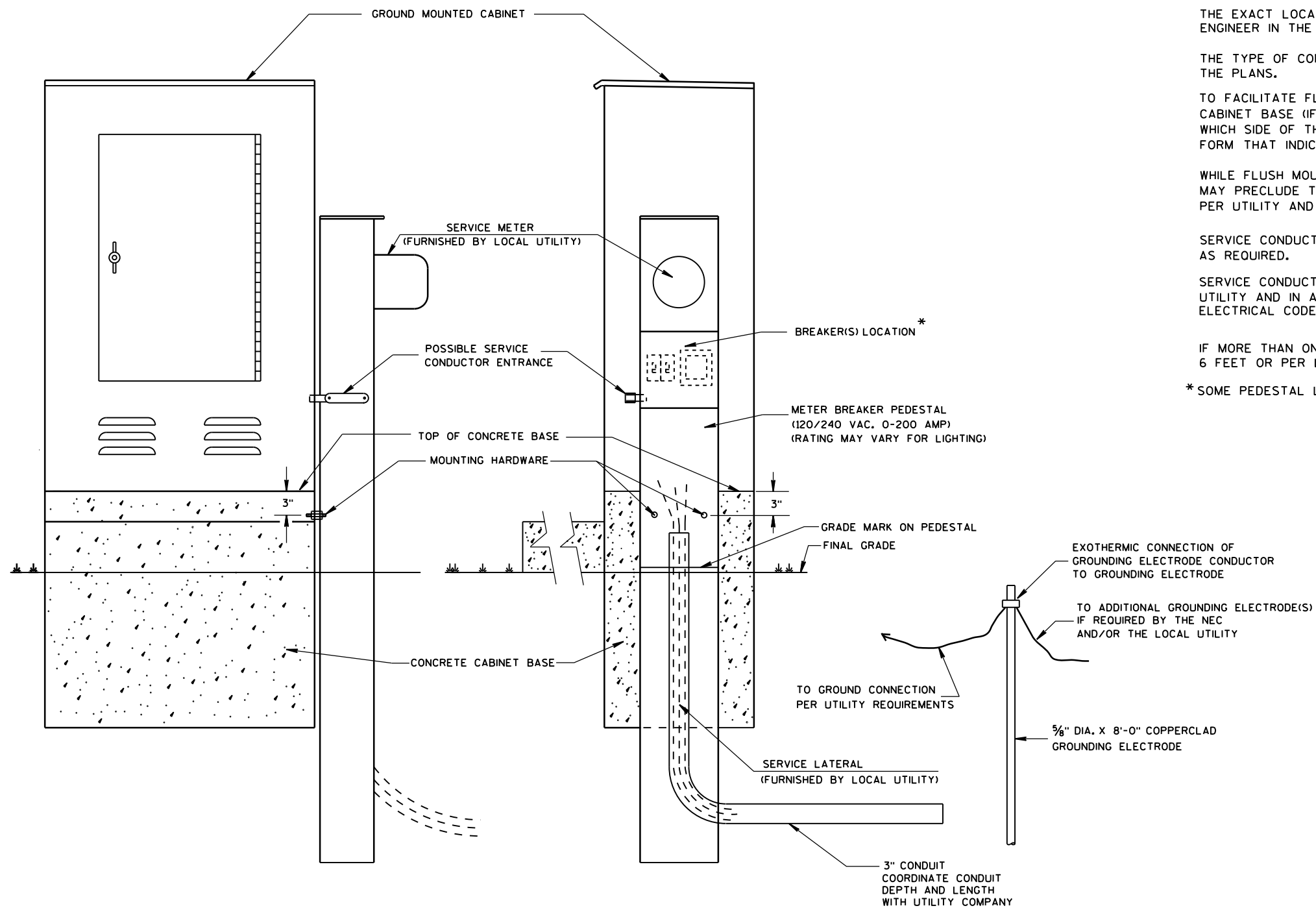
CONCRETE FORM DEPTH BELOW FINISHED GRADE SHALL BE 6 INCH MAXIMUM. CONCRETE FORMS SHALL BE REMOVED AFTER CONCRETE HAS SET.

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 112
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

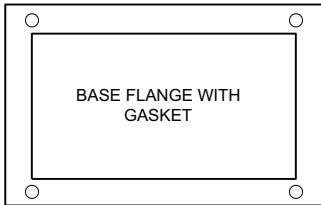
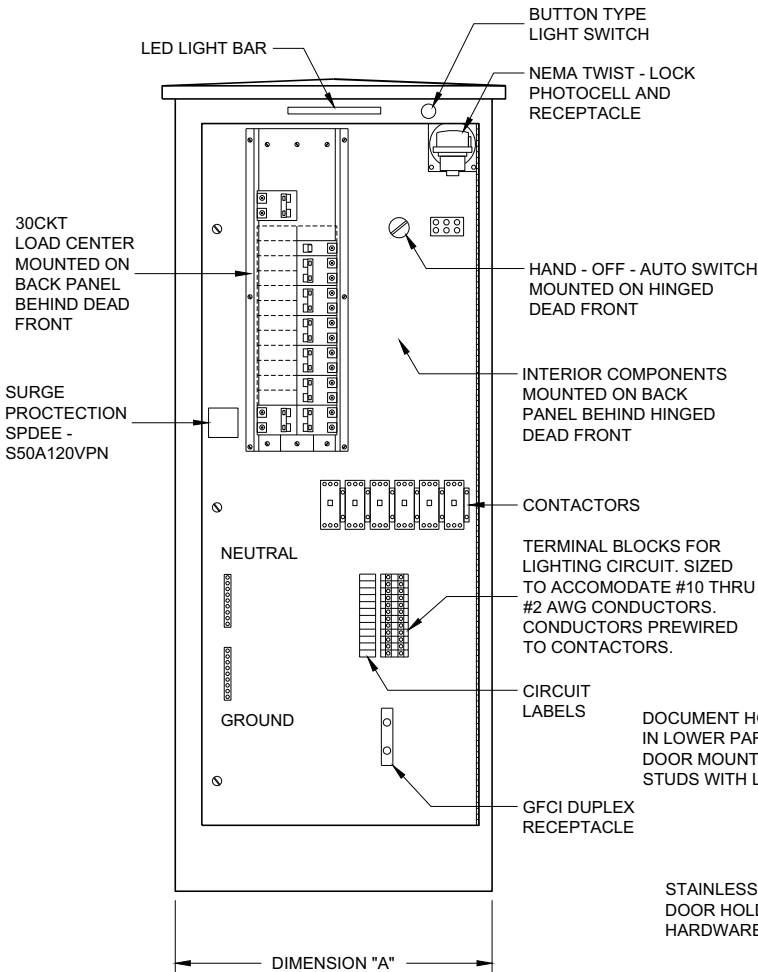
DATE

FHWA

/S/ Ahmet Demirbilek

STATE ELECTRICAL 113

FRONT INTERIOR
ELEVATION



LIGHTING CONTROL CABINET

SIDE VIEW

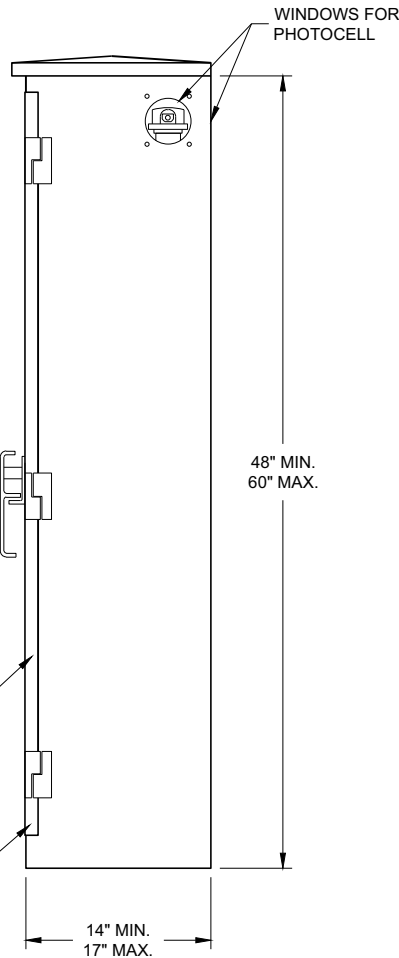
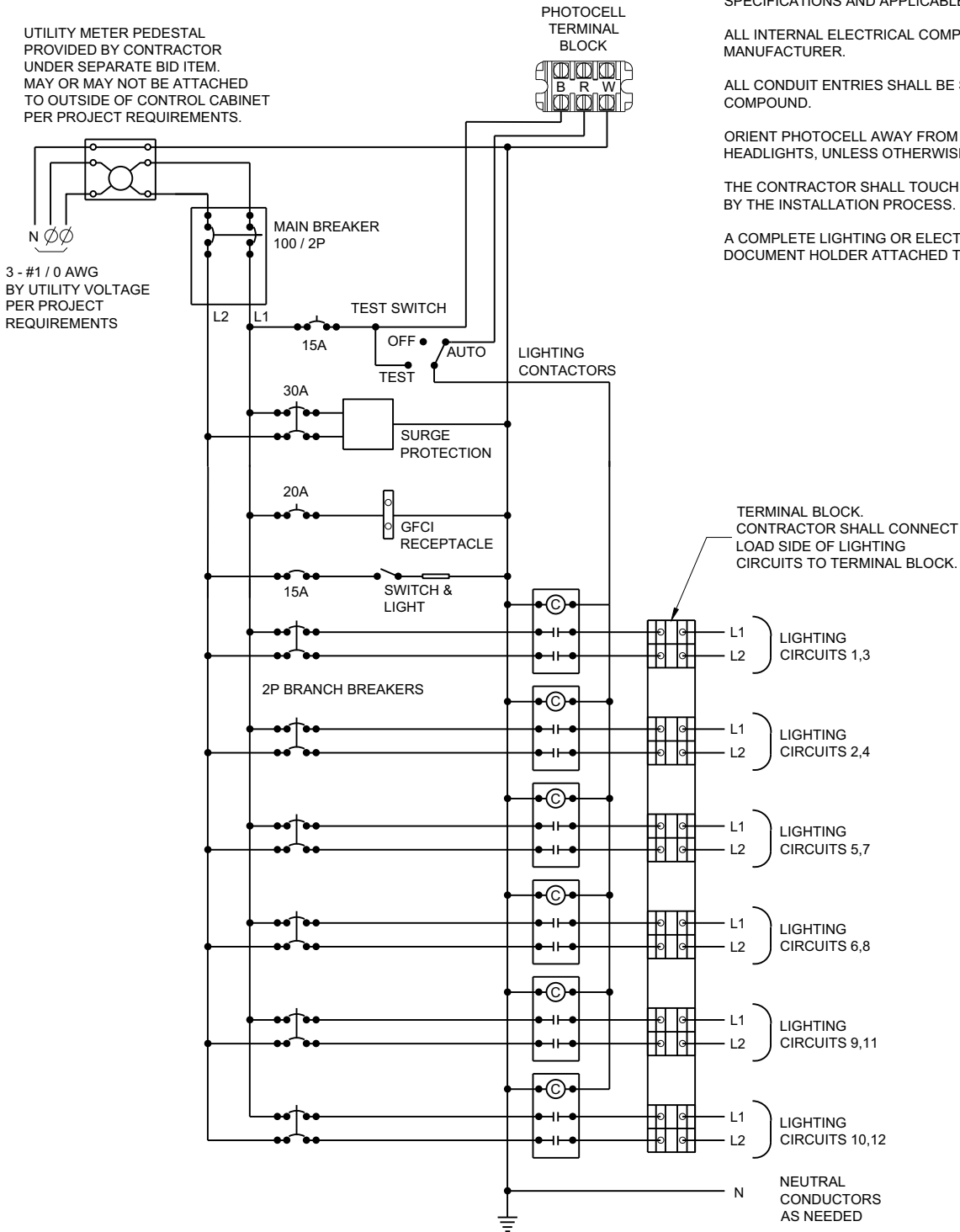


TABLE OF DIMENSIONS (INCHES)		
CONCRETE BASE TYPE	CABINET WIDTH	DIMENSION "A"
L24	24"	24"
L30	30"	30"

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

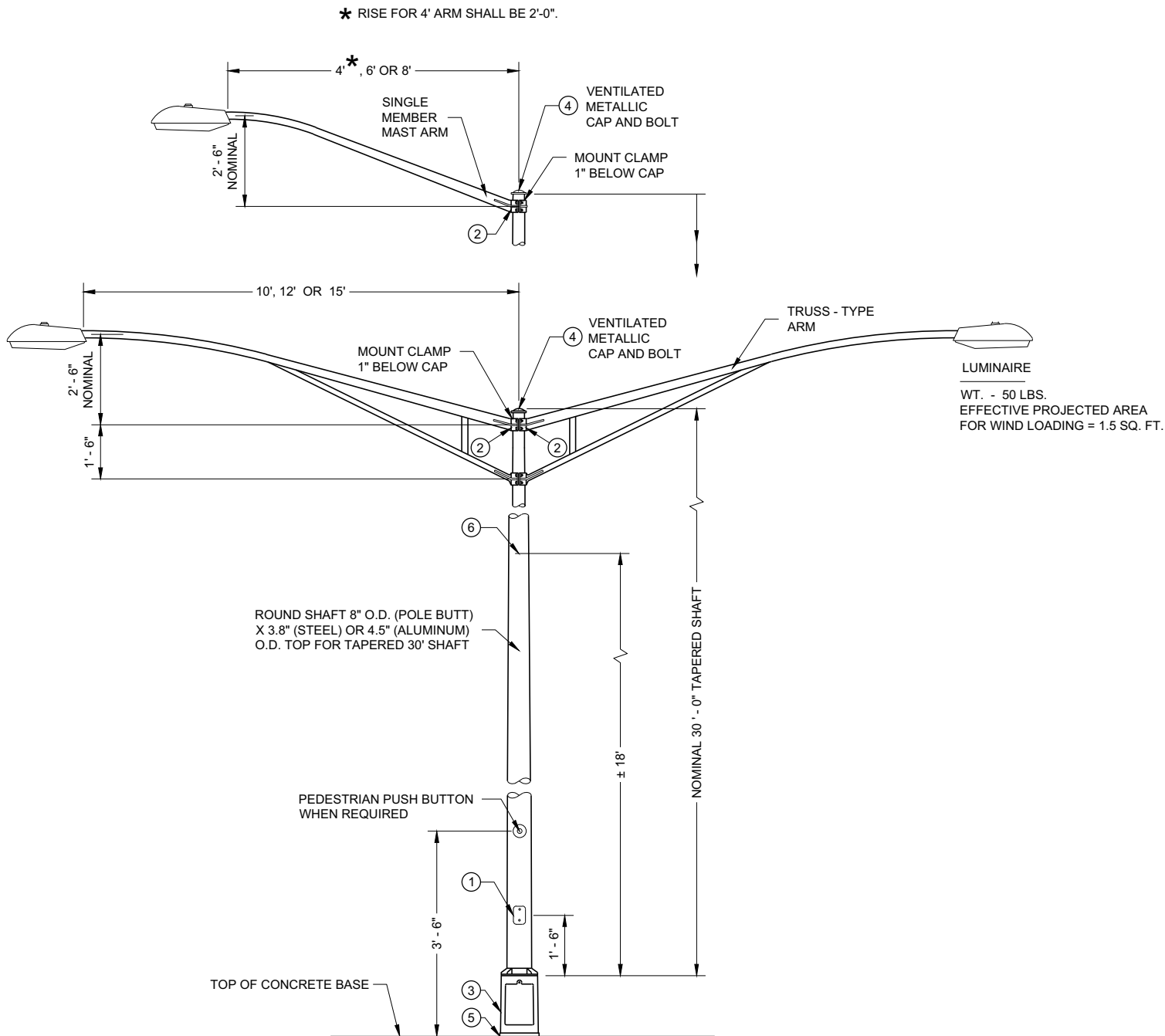
GENERAL NOTES

- 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

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

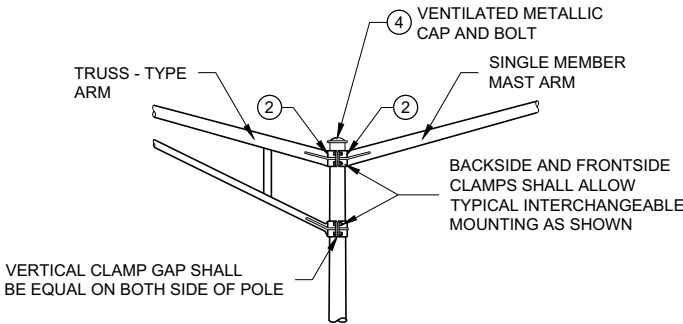
TYPE 5 ALUMINUM POLES SHALL HAVE A MINIMUM WALL THICKNESS OF 0.1888".

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.

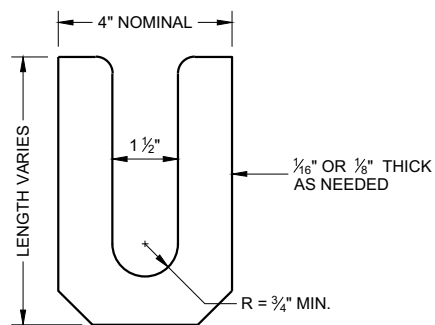
- ① 4" X 6" REINFORCED HANDHOLE AND COVER ASSEMBLY WITH TWO (2) 3/4" X 3/4" - 20 TPI , STAINLESS STEEL, HEX HEAD BOLTS.
- ② GROMMETS. 1" CHASE NIPPLES OR 1" CLOSE CONDUIT NIPPLES WITH BUSHINGS SHALL BE PROVIDED FOR 1 3/8" HOLE IN POLE SHAFT FOR WIRING.
- ③ CAST ALUMINUM TRANSFORMER BASE, WHEN REQUIRED.
- 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.



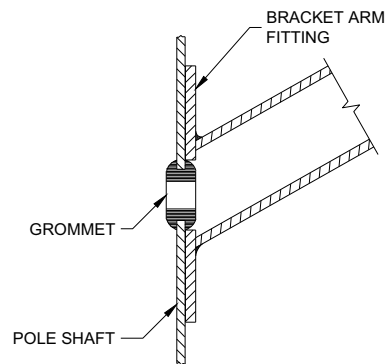
INTERCHANGEABLE MOUNTING DETAIL

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

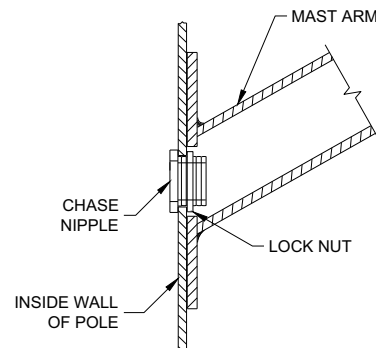
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LEVELING SHIM
SHALL BE ALUMINUM



TYPICAL APPLICATION OF GROMMET IN POLE SHAFT



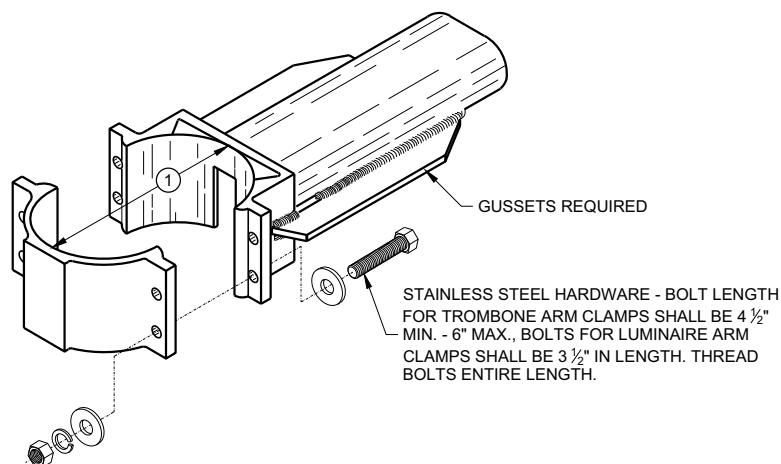
TYPICAL APPLICATION OF CHASE NIPPLE IN POLE SHAFT

GENERAL NOTES

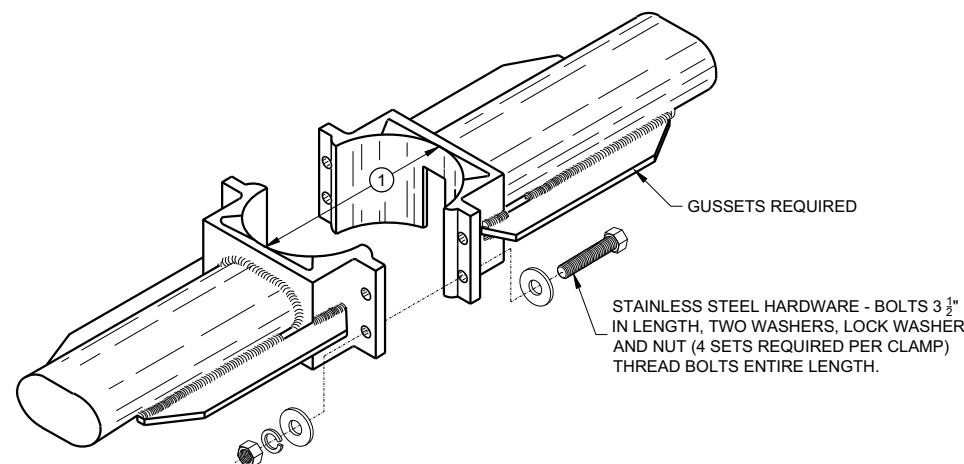
CLAMP BOLT-NUT TIGHTENING TORQUE SHALL BE INDICATED BY INDENT STAMPING (1/2 INCH NUMERALS AND LETTERS) OR WEATHERPROOF PRINTING ON THE INSIDE OF THE CLAMP THAT IS WELDED TO THE ARM MEMBER.

- 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.

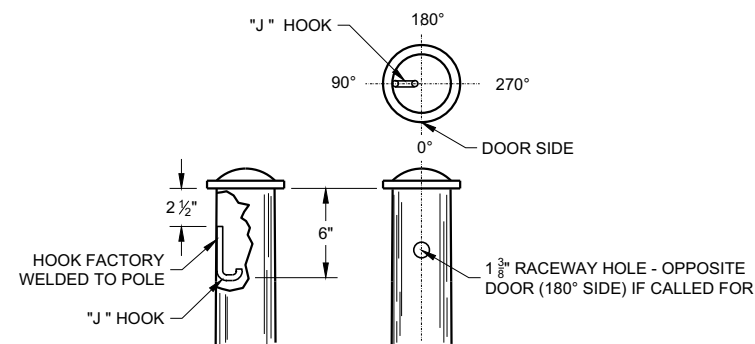
SHIMS SHALL BE LONG ENOUGH AND WIDE ENOUGH TO COMPLETELY COVER THE AREA UNDER THE LENGTH AND WIDTH OF THE BASE MOUNTING FLANGE.



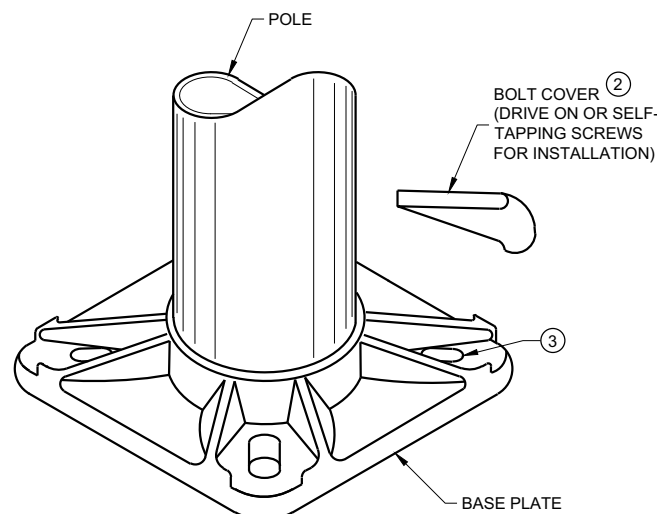
TYPICAL TROMBONE MAST ARM AND SINGLE LUMINAIRE MAST ARM MOUNTING CLAMP



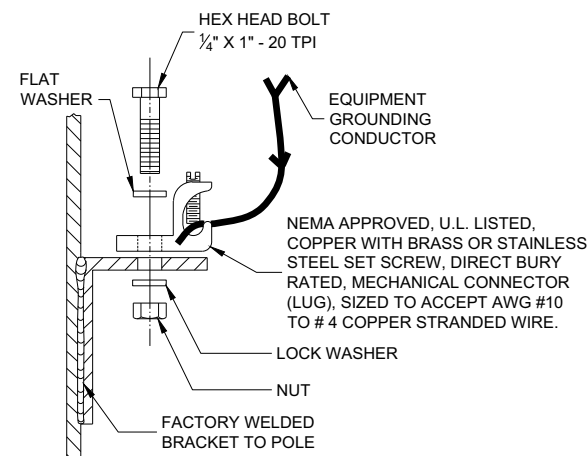
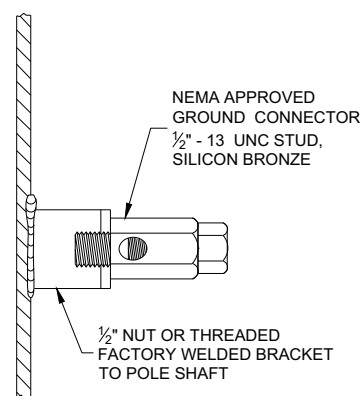
TYPICAL LUMINAIRE MAST ARM (DOUBLE) MOUNTING BRACKETS



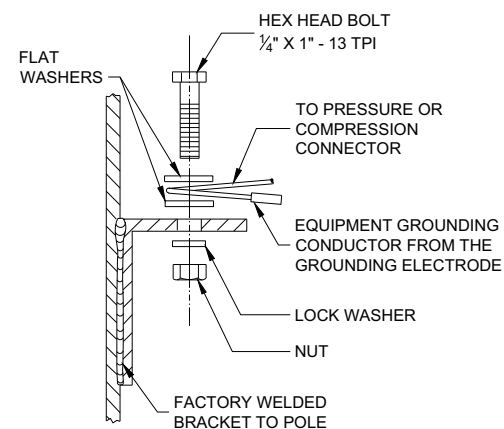
TYPICAL "J" HOOK LOCATION



BASE PLATE



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



HARDWARE DETAILS FOR POLE MOUNTING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

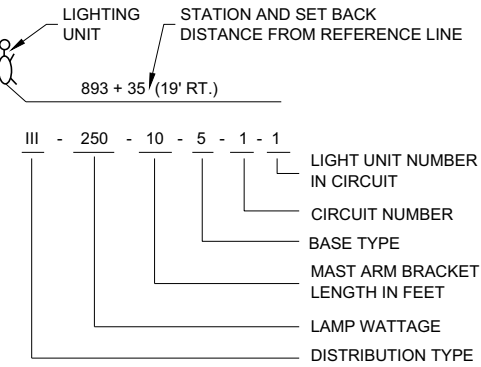
APPROVED
November 2018 /S/ Ahmet Demirbilek
DATE STATE ELECTRICAL ENGI 116
FHWA

GENERAL NOTES

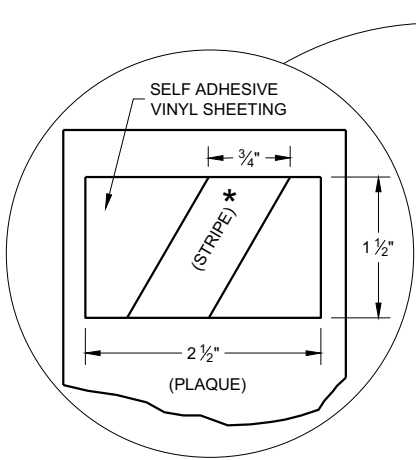
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE CONTRACT.

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.



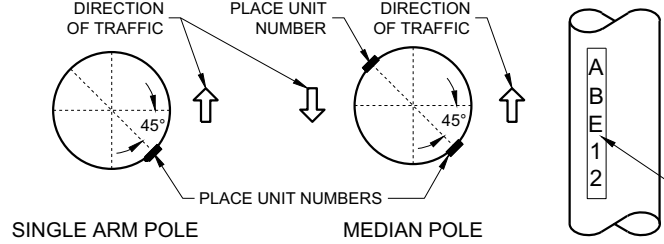
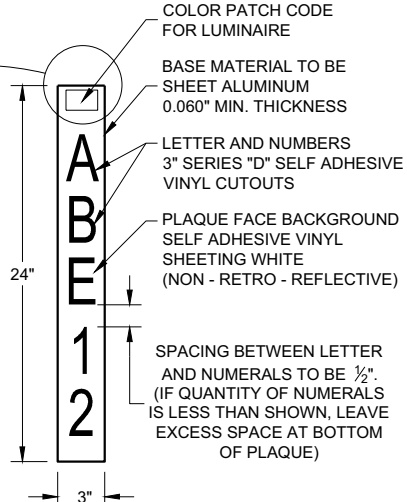
LIGHTING UNIT CODE (TYPICAL)



COLOR PATCH CODE FOR LUMINAIRES

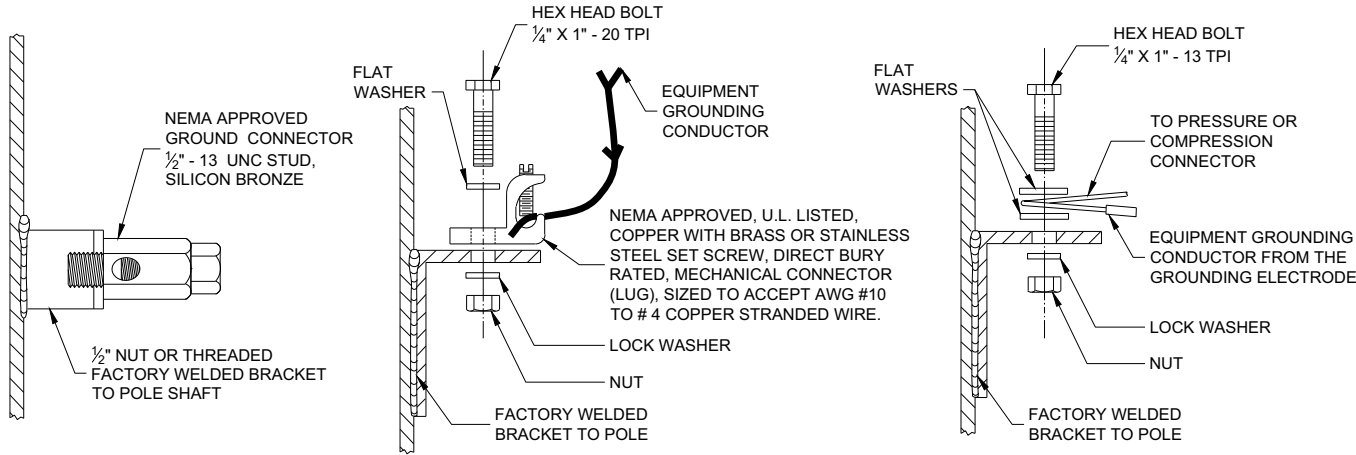
(HIGH PRESSURE SODIUM)	(MERCURY VAPOR)
1000 WATT - NO PATCH	400 WATT - NO PATCH
400 WATT - ORANGE	250 WATT - YELLOW
310 WATT - BLUE	
250 WATT - ORANGE W / WHITE STRIPE *	
200 WATT - RED	
150 WATT - GREEN	
100 WATT - BROWN	

IDENTIFICATION PLAQUE



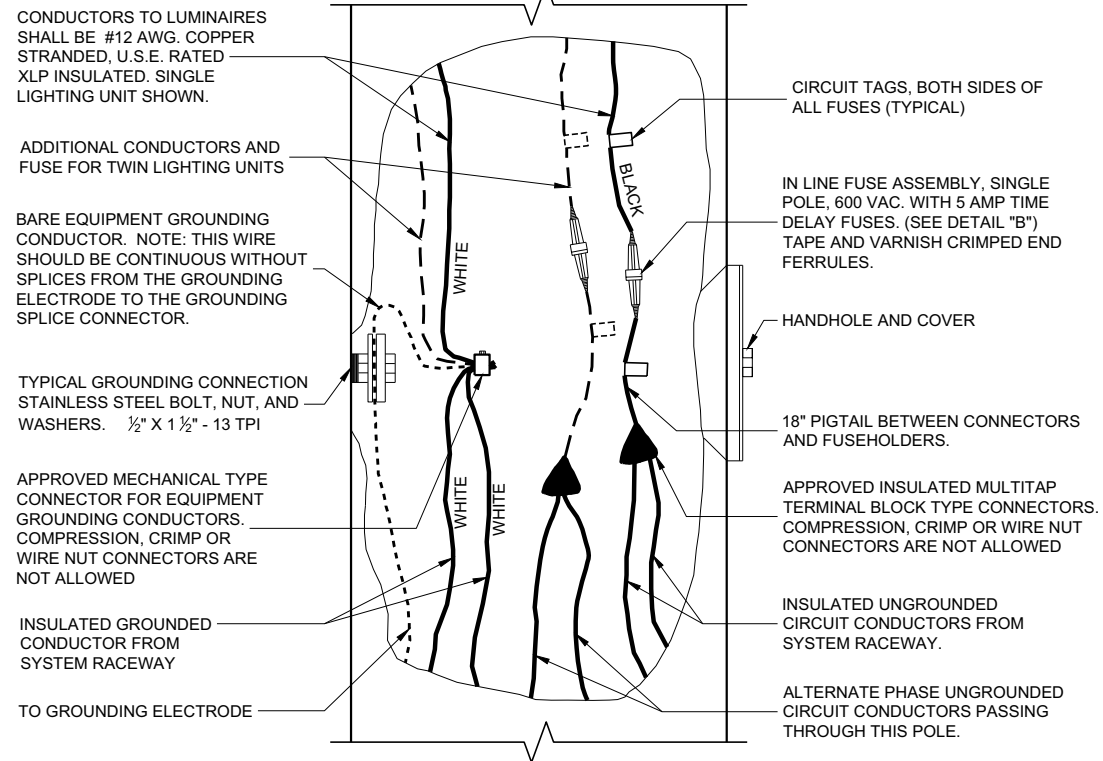
LIGHTING UNIT IDENTIFICATION PLAQUE REQUIREMENTS AND PLACEMENT (TYPICAL, ALL LIGHTING UNITS)

FURNISH PLAQUE WHEN CALLED FOR BY SPECIAL PROVISIONS

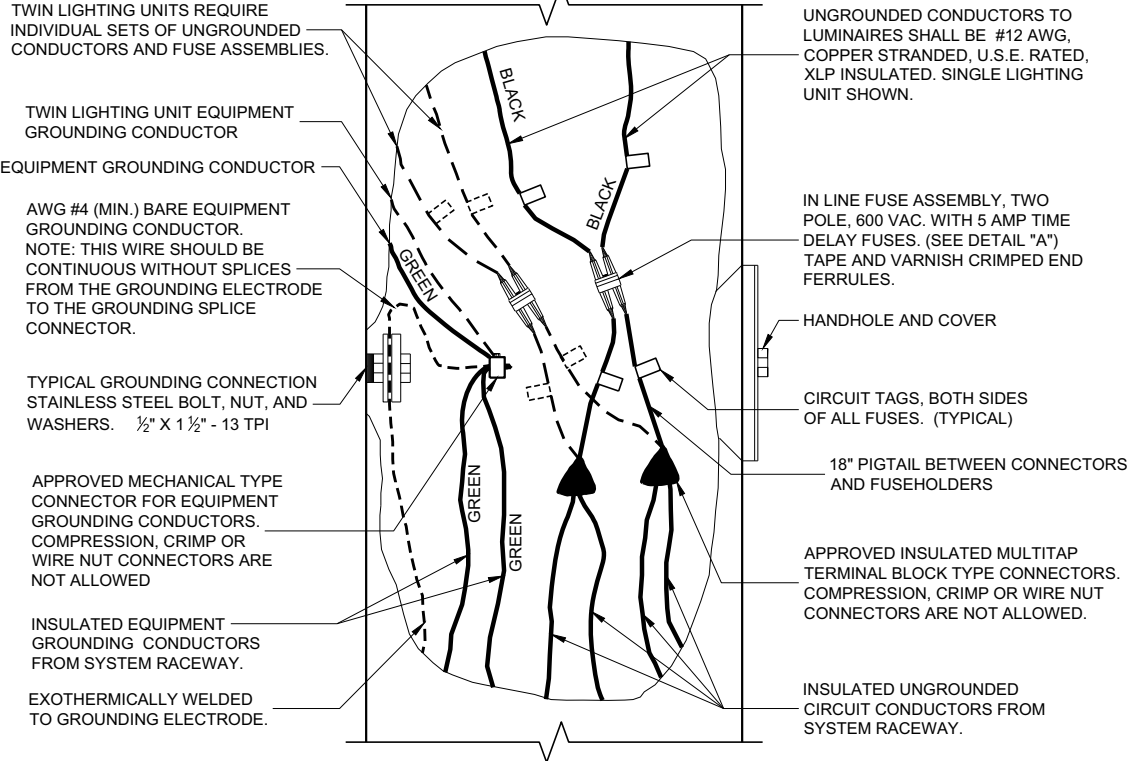


TYPICAL GROUNDING CONNECTIONS
NUT, BOLT AND WASHERS SHALL BE STAINLESS STEEL

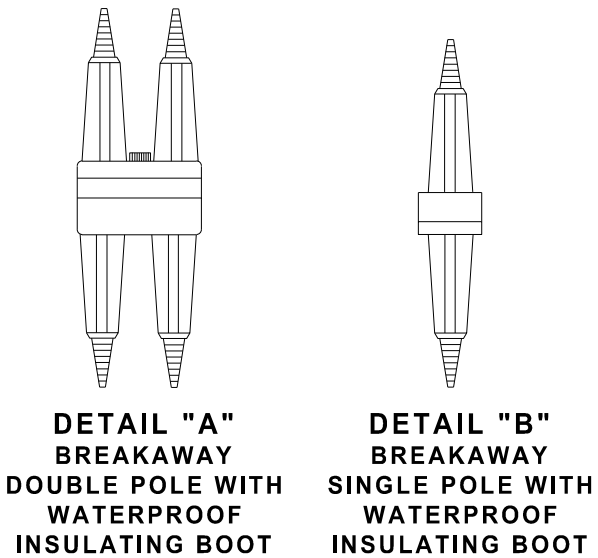
OLD EXISTING FREEWAY WIRING (SOME AREAS)



2 WIRE - 120, 240, OR 480 VAC TO GROUND



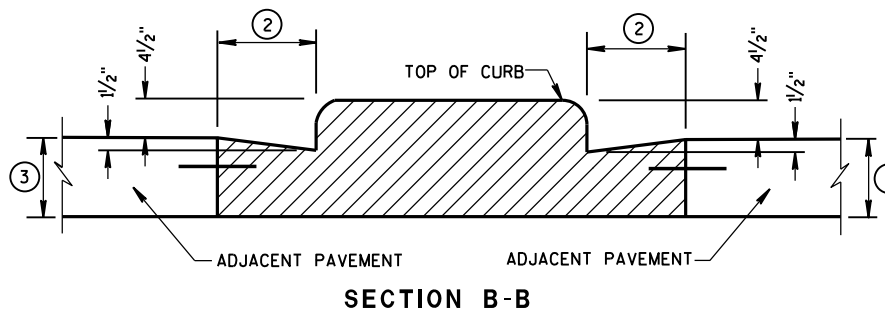
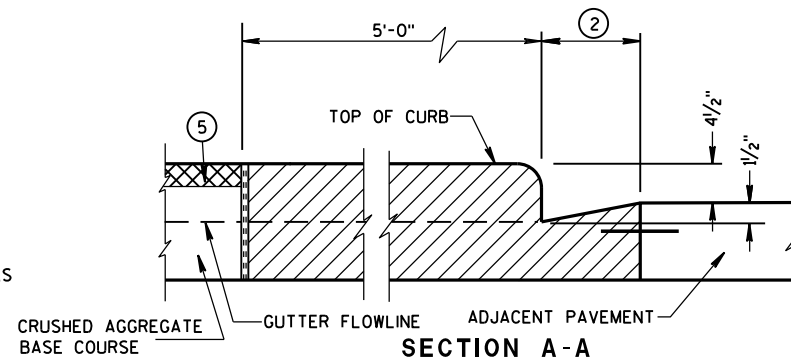
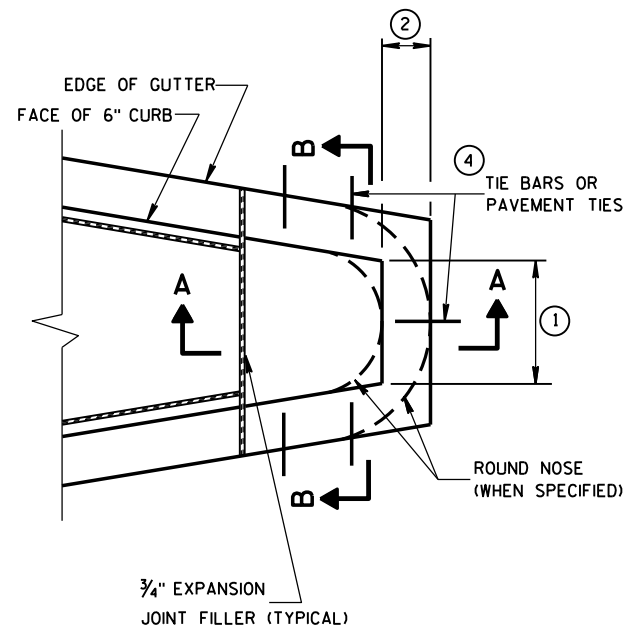
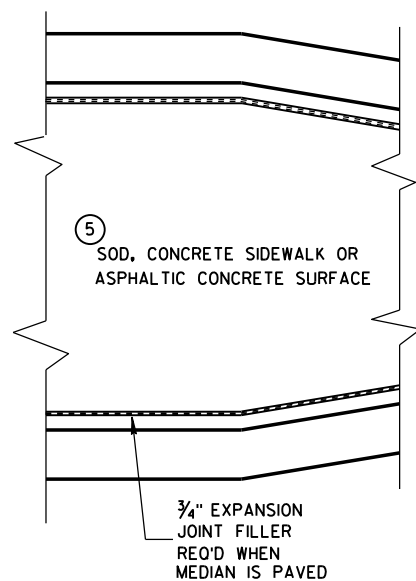
2 WIRE - 240 OR 480 VAC (UNGROUND CONDUCTORS)
WITH EQUIPMENT GROUNDING CONDUCTOR



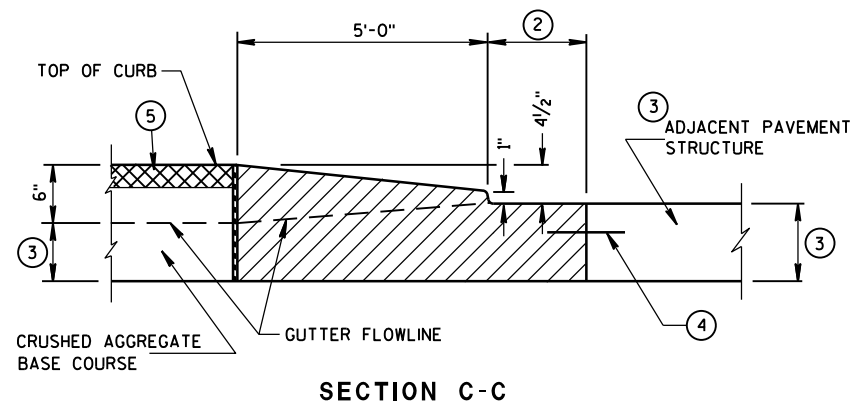
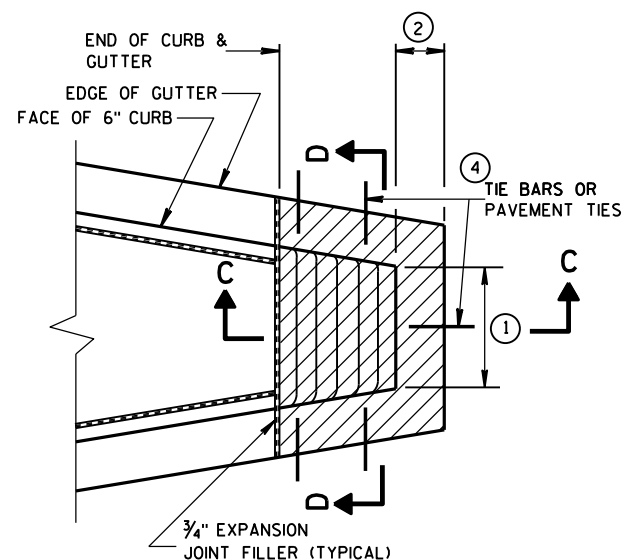
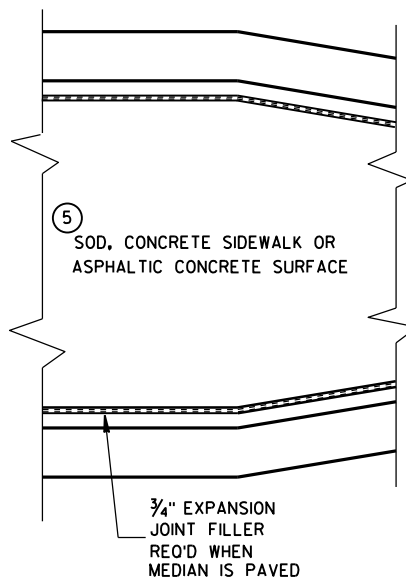
FREEWAY LIGHTING UNIT
POLE WIRING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

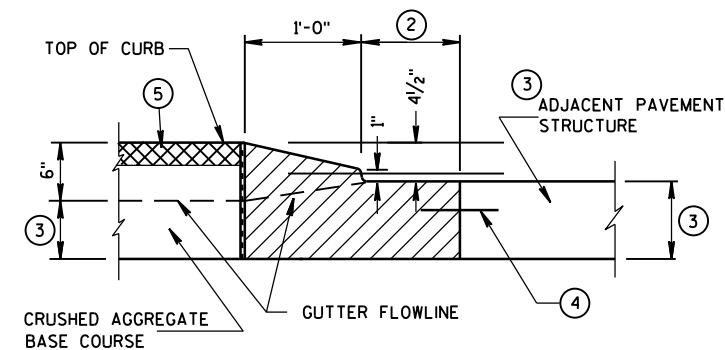
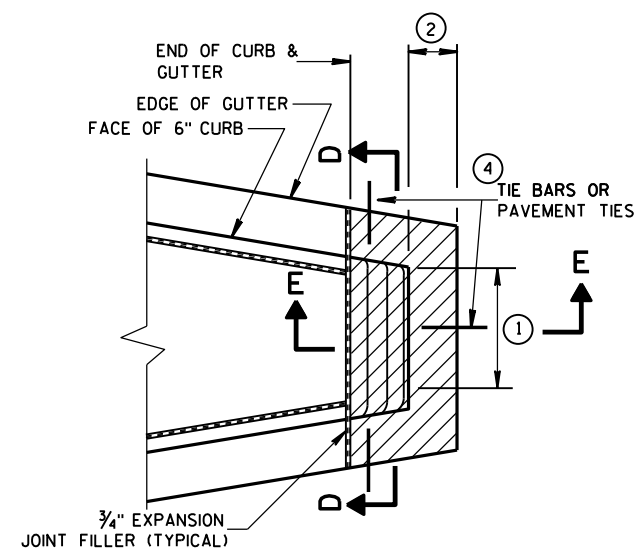
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FHWA



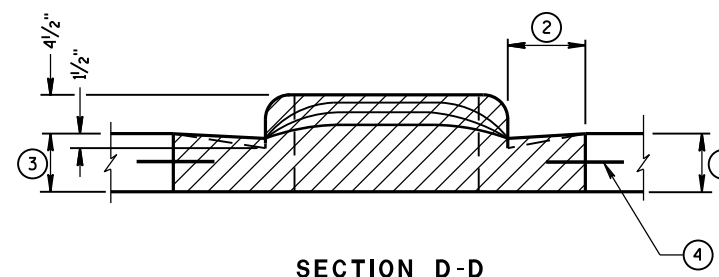
CONCRETE MEDIAN BLUNT NOSE DETAIL



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

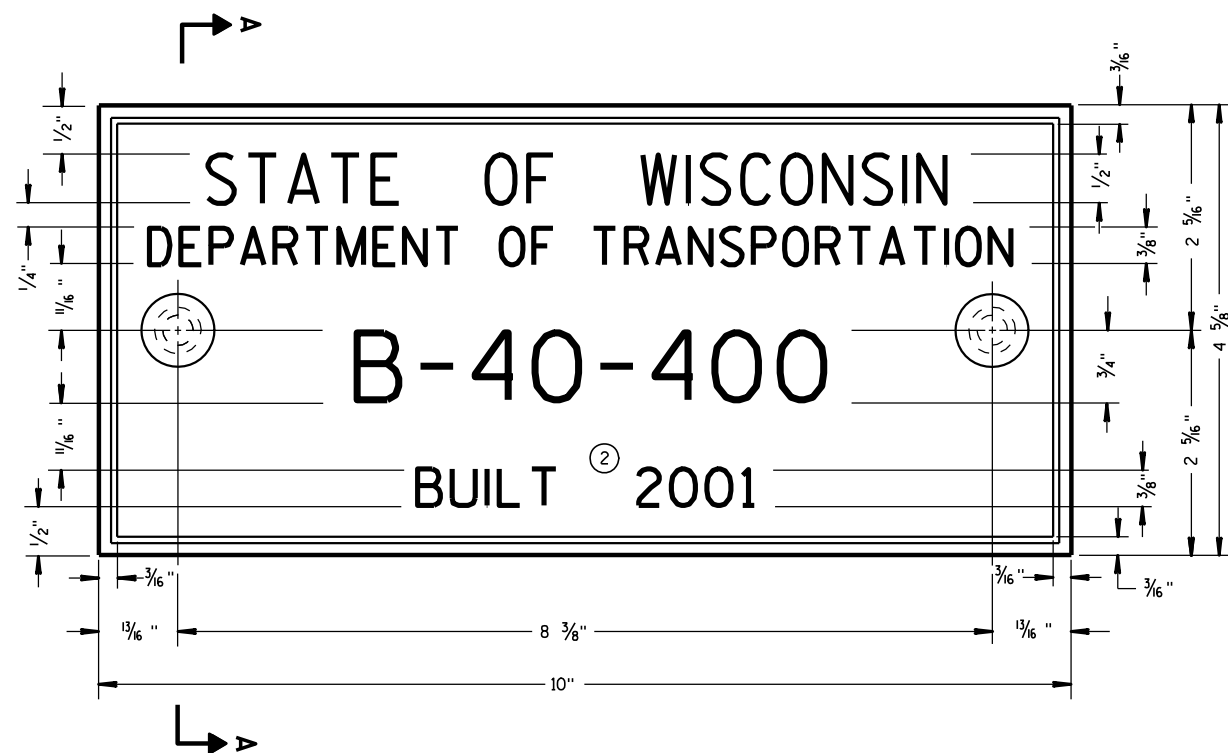
6/8/2006

DATE

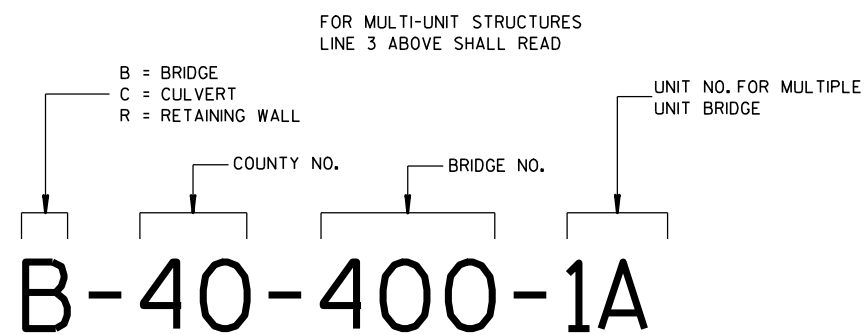
FHWA

/S/ Jerry H. Zogg
ROADWAY STANDARDS D 118
ENGINEER

4T



TYPICAL NAME PLATE
(BRIDGES, CULVERTS, AND RETAINING WALLS)



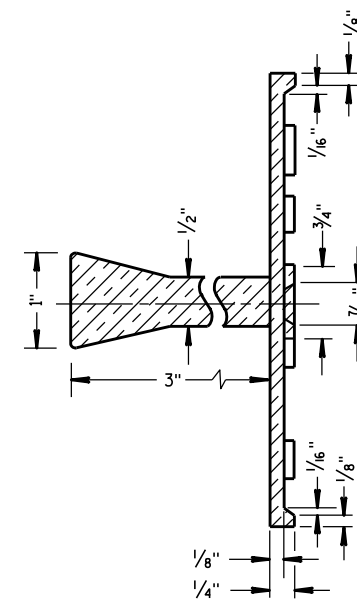
**NUMBERING DESIGNATION
MULTI-UNIT STRUCTURES**

GENERAL NOTES

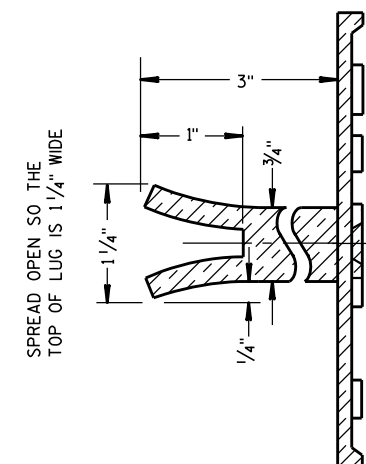
NAME PLATES TO BE INSTALLED ON BRIDGES, CULVERTS, AND RETAINING WALLS SHALL CONFORM TO THE REQUIREMENTS OF SECTION 502.3.11 OF THE STANDARD SPECIFICATIONS.

THE BRIDGE NUMBER AND YEAR BUILT SHOWN ON THIS DRAWING ARE EXAMPLES ONLY. SEE CONSTRUCTION PLANS FOR INDIVIDUAL NUMBERING AND YEAR BUILT.

- ① EPOXY RESIN SHALL BE FROM AN APPROVED MANUFACTURER AND USED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
- ② REHABILITATION OF AN EXISTING STRUCTURE SHOULD USE THE DATE OF ORIGINAL STRUCTURE CONSTRUCTION.

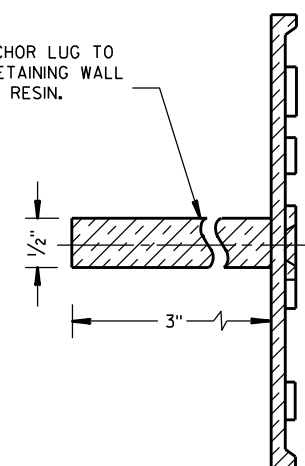


SECTION A-A



ALTERNATE LUG

- ① ADHERE ANCHOR LUG TO PRECAST RETAINING WALL WITH EPOXY RESIN.



ALTERNATE LUG
(FOR ATTACHMENT TO PRECAST STRUCTURES)

**NAME PLATE
(STRUCTURES)**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

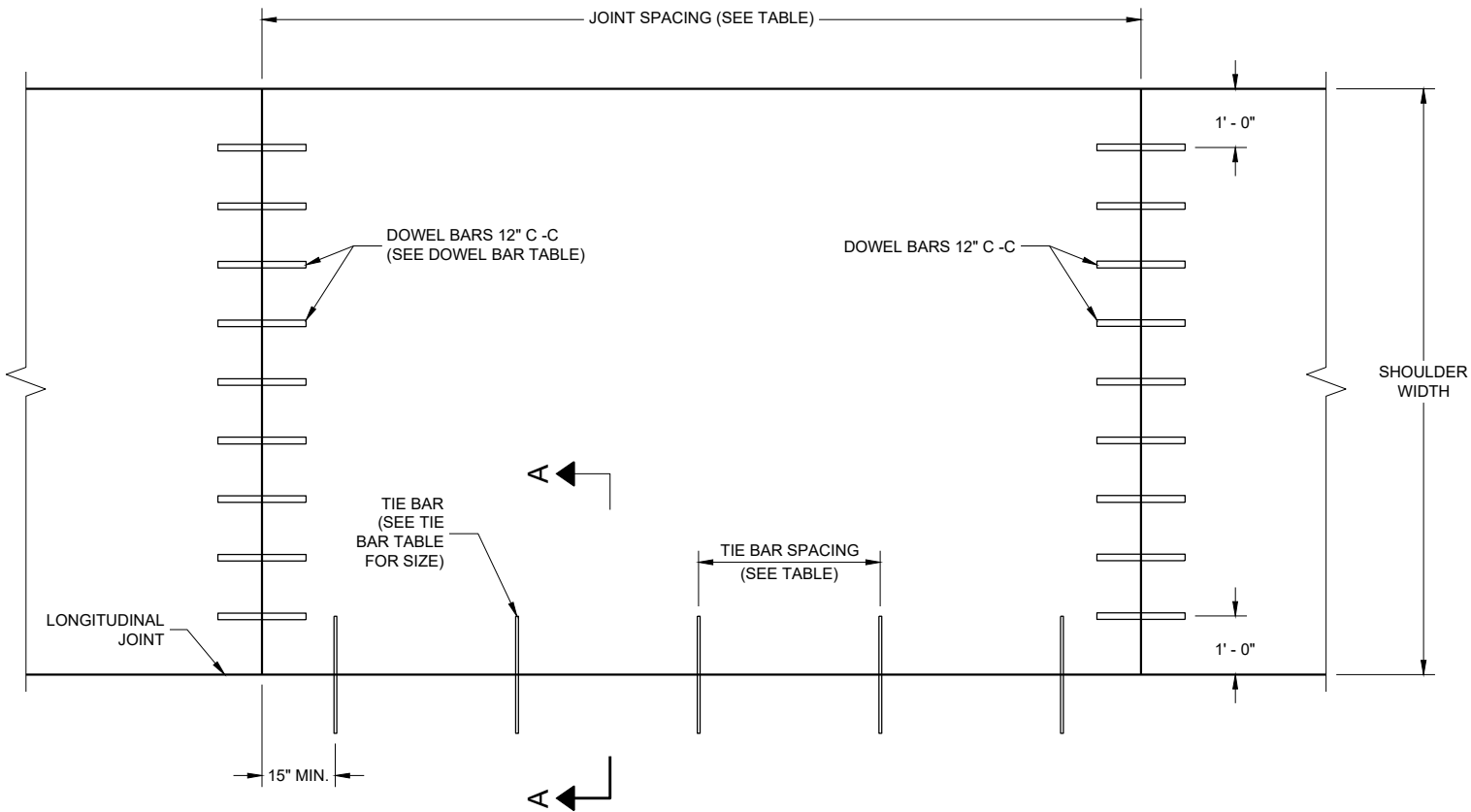
APPROVED

3/26/10
DATE

FHWA

/S/ Scot Beck
CHIEF STRUCTURAL DEVELOPER 119

JEER



PLAN VIEW
CONCRETE PAVEMENT SHOULDER

TIE BAR TABLE

PAVEMENT DEPTH (D)	TIE BAR SIZE	TIE BAR LENGTH (L)	MAX. TIE BAR SPACING
<10 1/2"	NO. 4	30"	36"
>10 1/2"	NO. 5	36"	36"
	NO. 4 *	30"	24" **

* SUBSTITUTE BENT BATS AT LONGITUDINAL JOINTS WHEN EQUIPMENT LIMITATIONS DURING CONSTRUCTION WARRANT (e.g. AUXILIARY LANES OR TURN LANES).

** CONFORM TO 15" MINIMUM SPACING FROM TRANSVERSE JOINTS; SPACING BETWEEN TIE BARS WILL BE 30" AT TRANSVERSE JOINTS.

PAVEMENT DEPTH, DOWEL BAR SIZE
AND JOINT SPACING TABLE

PAVEMENT DEPTH (D)	DOWEL BAR DIAMETER ***	CONTRACTION JOINT SPACING
6", 6 1/2"	NONE	12"
7", 7 1/2"	1"	14"
8" & ABOVE	1 1/4"	15"

*** FOR DOWELED CONCRETE SHOULDERS WITH TRAPEZOIDAL CROSS SECTIONS, CHOSE THE APPROPRIATE DOWEL BAR DIAMETER BASED ON THE SMALLER PAVEMENT DEPTH (LIKELY THE OUTSIDE EDGE OF THE SHOULDER). IF USING BASKETS, USE BASKETS FRO THE AVERAGE THICKNESS OF THE CROSS SECTION.

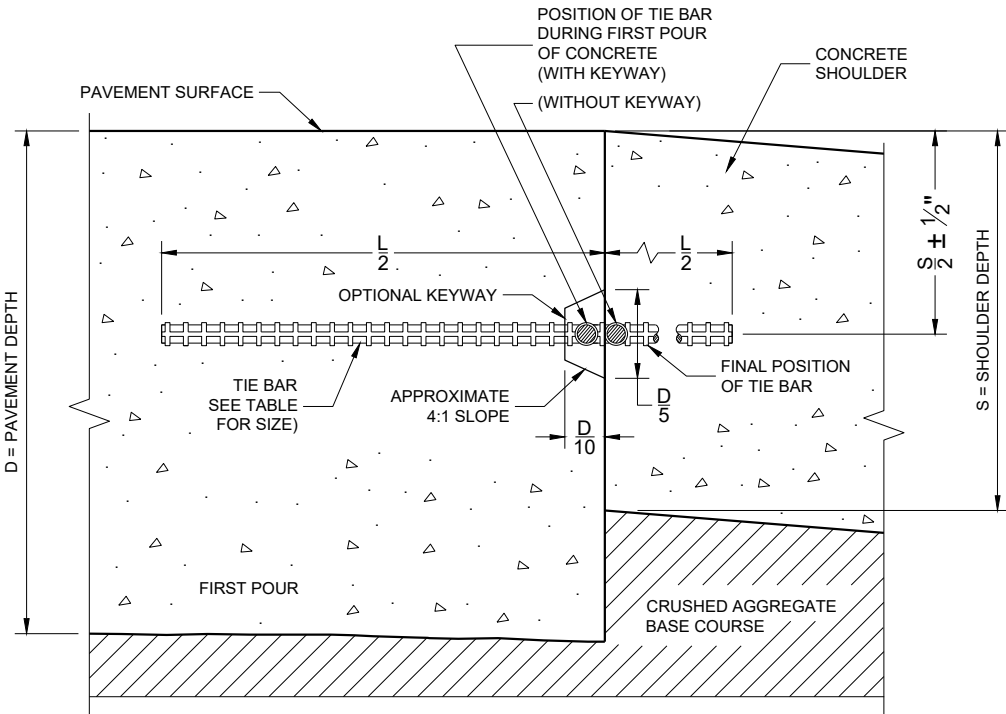
GENERAL NOTES

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

TRANSVERSE JOINT DETAILS ARE SHOWN ELSEWHERE IN THE PLAN.

FINISH THE SHOULDER PAVEMENT CONFORMING TO SUBSECTION 415.3.8 OF THE STANDARD SPECIFICATIONS.

TIE BARS SHALL CONFORM TO SUBSECTION 505.2.4 OF THE STANDARD SPECIFICATIONS.

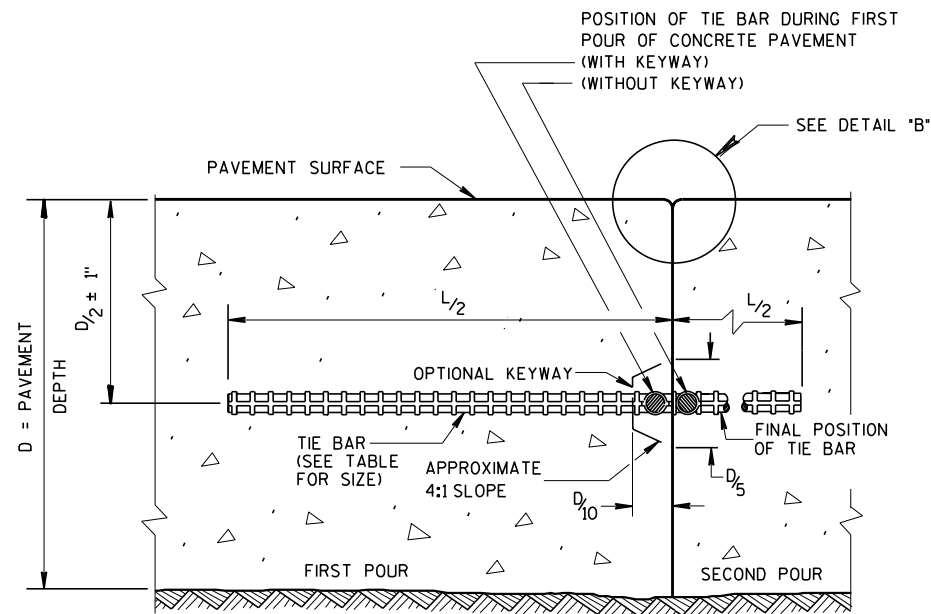


SECTION A - A
LONGITUDINAL CONSTRUCTION JOINT

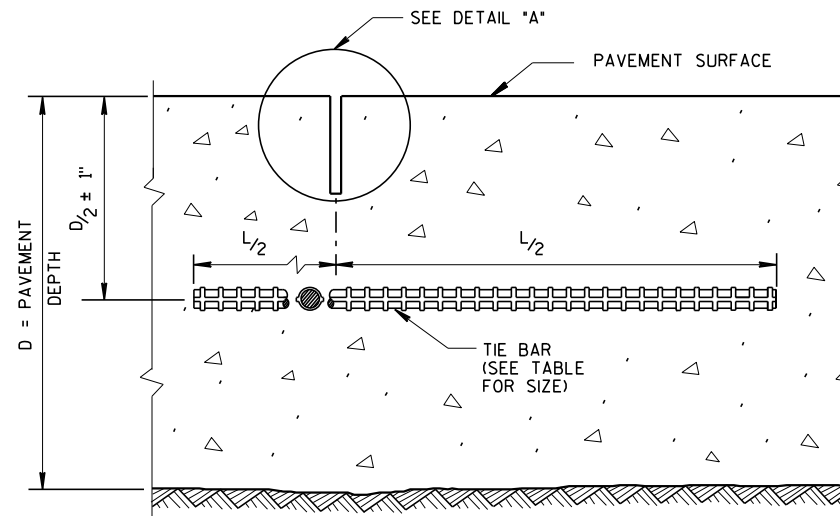
CONCRETE PAVEMENT
SHOULDERS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
November 2022 /S/ Peter Kemp
DATE PAVEMENT SUPERVISOR 120
FHWA



CONSTRUCTION JOINT



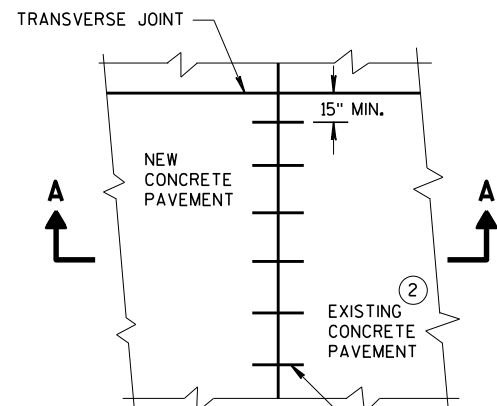
SAWED JOINT

GENERAL NOTES

CREATE A LONGITUDINAL JOINT FOR PAVEMENT WIDTHS GREATER THAN 15 FEET.

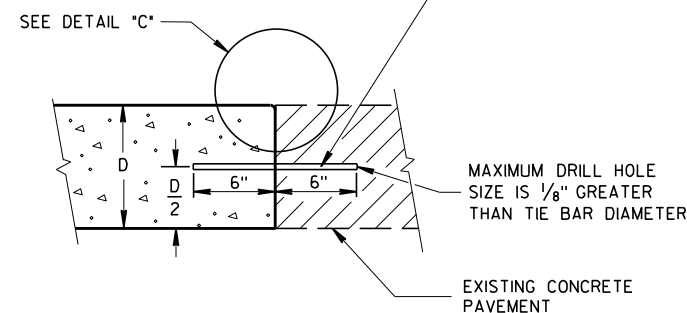
CORRELATE LONGITUDINAL JOINTS WITH LANE LINES WHEN POSSIBLE.

- ① ANCHOR TIE BARS INTO DRILLED HOLES WITH AN EPOXY.
- ② PAVEMENT THAT WAS IN PLACE PRIOR TO THE CONTRACT.

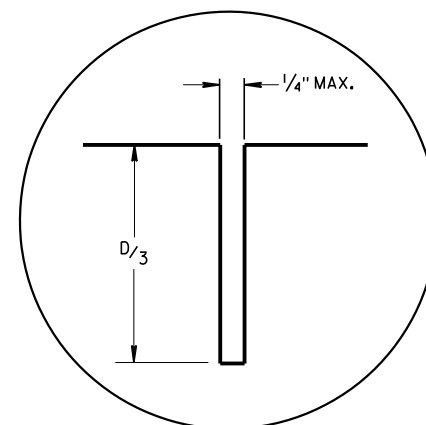


PLAN VIEW

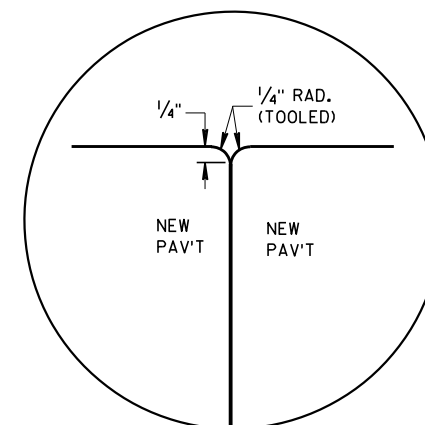
NO. 6 TIE BARS SPACED 30" C-C, INSTALLED PERPENDICULAR TO THE LONGITUDINAL JOINT. ①



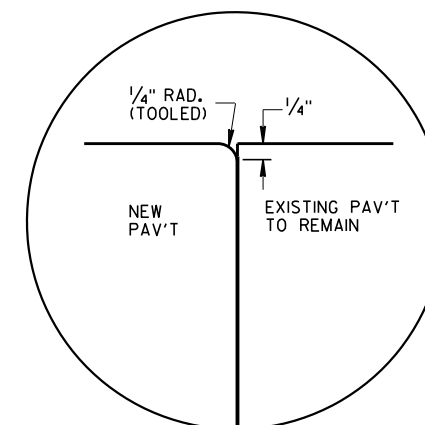
SECTION A-A
LONGITUDINAL CONSTRUCTION JOINT
TIE BARS ANCHORED
INTO EXISTING PAVEMENT



DETAIL "A"



DETAIL "B"



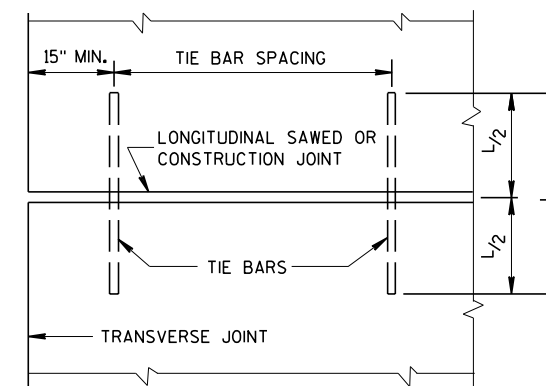
DETAIL "C"

TIE BAR TABLE

PAVEMENT DEPTH (D)	TIE BAR SIZE	TIE BAR LENGTH (L)	MAX. TIE BAR SPACING
< 10 1/2"	NO. 4	30"	36"
≥ 10 1/2"	NO. 5	36"	36"
	NO. 4 *	30"	24" **

* SUBSTITUTE BENT BARS AT LONGITUDINAL JOINTS WHEN EQUIPMENT LIMITATIONS DURING CONSTRUCTION WARRANT (e.g. AUXILIARY LANES OR TURN LANES)

** CONFORM TO 15" MINIMUM SPACING FROM TRANSVERSE JOINTS; SPACING BETWEEN TIE BARS WILL BE 30" AT TRANSVERSE JOINTS.

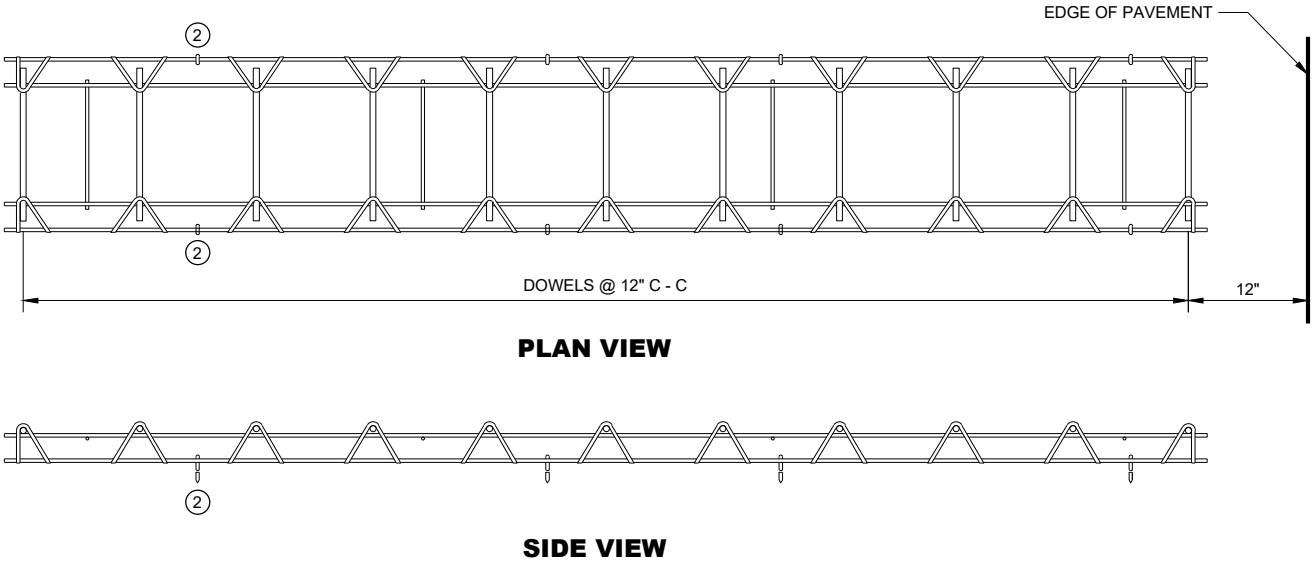


PLAN VIEW
SHOWING LOCATION OF TIE BARS

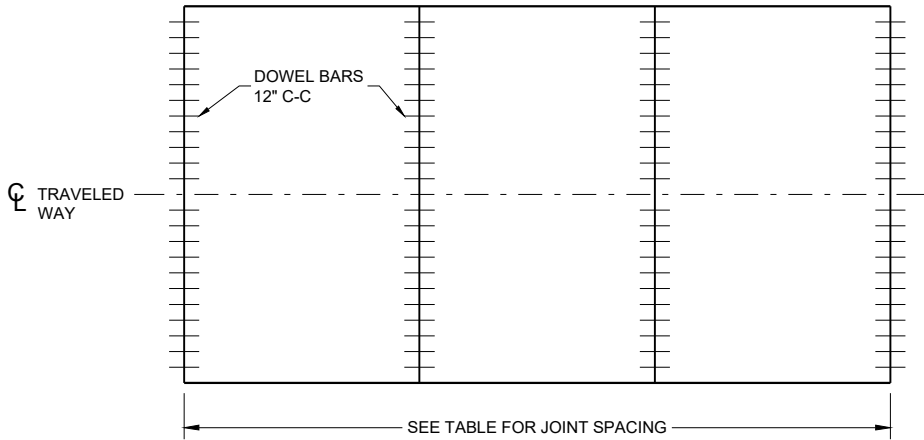
CONCRETE PAVEMENT
LONGITUDINAL JOINTS AND TIES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

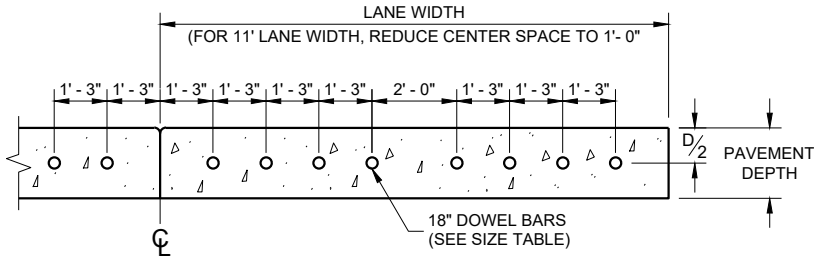
APPROVED
March 2018 /S/ Peter Kern
DATE PAVEMENT SUPE 121
FHWA



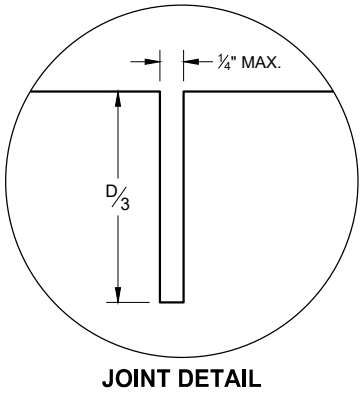
CONTRACTION JOINT DOWEL ASSEMBLY ①



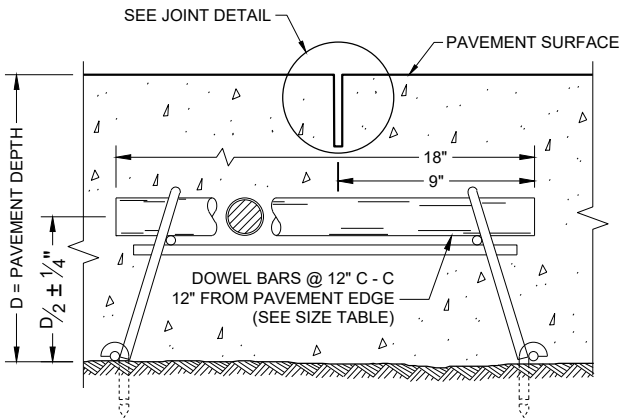
CONTRACTION JOINT LOCATIONS



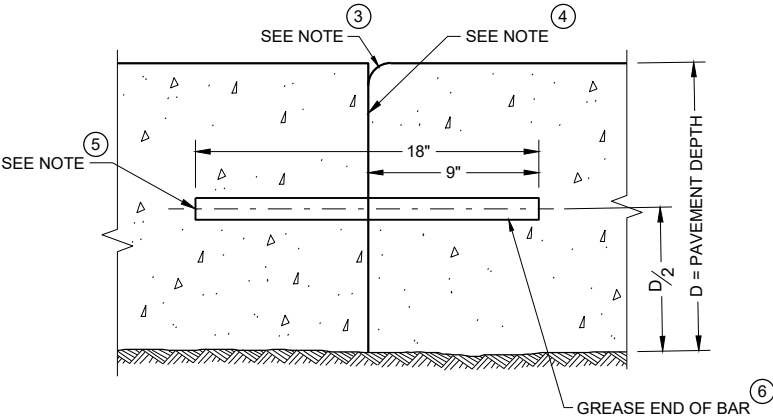
DRILLED DOWEL BAR CONSTRUCTION JOINT ⑦



JOINT DETAIL



DOWELED CONTRACTION JOINT



TRANSVERSE CONSTRUCTION JOINT

GENERAL NOTES

CONTRACTION JOINTS

CONSTRUCT TRANSVERSE CONTRACTION JOINTS NORMAL TO THE CENTERLINE. SHOW THE LOCATION OF CONTRACTION JOINTS THROUGH INTERSECTIONS ON THE PLANS OR AS DIRECTED BY THE ENGINEER.

INSTALL DOWEL BARS PARALLEL TO THE PAVEMENT CENTERLINE AND PAVEMENT SURFACE.

FOR PAVEMENT SLABS OF VARYING WIDTHS, LOCATE THE OUTER MOST DOWEL BAR SO THAT THE CENTER OF THE BAR IS A MINIMUM OF 6 INCHES FROM AND A MAXIMUM OF 18 INCHES FROM THE FREE EDGE OF PAVEMENT.

CONSTRUCTION JOINTS

LOCATE CONSTRUCTION JOINTS A MINIMUM OF 6 FEET FROM THE NEAREST CONTRACTION JOINT AND ALIGN PARALLEL TO THE CONTRACTION JOINTS.

- ① OBTAIN THE ENGINEER'S APPROVAL FOR THE USE OF ALTERNATIVE DESIGNS OF THE DOWEL ASSEMBLY. USE MECHANICAL DOWEL BAR INSERTERS OR DOWEL ASSEMBLIES WHEN CONSTRUCTION CONTRACTION JOINTS.
- ② SECURE BASKETS WITH ANCHORS TO HOLD DOWEL BARS IN THE CORRECT POSITION AND ALIGNMENT. TYPE, LOCATION, NUMBER AND LENGTH OF ANCHORS ARE DEPENDENT UPON FIELD CONDITIONS.
- ③ FORM OR SAW CONSTRUCTION JOINTS. PROVIDE A 1/4" RADIUS AT FORMED JOINTS.
- ④ PROVIDE A SMOOTH VERTICAL FACE FOR THE ENTIRE DEPTH OF THE PAVEMENT WHEN FORMING CONSTRUCTION JOINTS.
- ⑤ INSTALL DOWEL BARS AT CONSTRUCTION JOINTS BY FORMING OR DRILLING. INSTALL FORMED DOWEL BARS 12 INCHES C - C AND 12 INCHES FROM PAVEMENT EDGE. REMOVE EXCESS CONCRETE FROM THE FREE END OF THE DOWEL BAR IF DOWEL BARS ARE FORMED THROUGH A HEADER BOARD. INSTALL DRILLED DOWEL BARS ACCORDING TO THE "DRILLED DOWEL BAR CONSTRUCTION JOINT" DETAIL.
- ⑥ APPLY A THIN UNIFORM COATING OF SURFACE TREATMENT TO THE FREE END OF DOWEL BARS TO PREVENT BONDING.
- ⑦ ANCHOR DOWEL BARS AND TIE BARS INTO DRILLED HOLES WITH AN EPOXY. MAXIMUM DRILLED HOLE SIZE IS 1/8" GREATER THAN DOWEL BAR DIAMETER, 9 INCHES IN LENGTH.

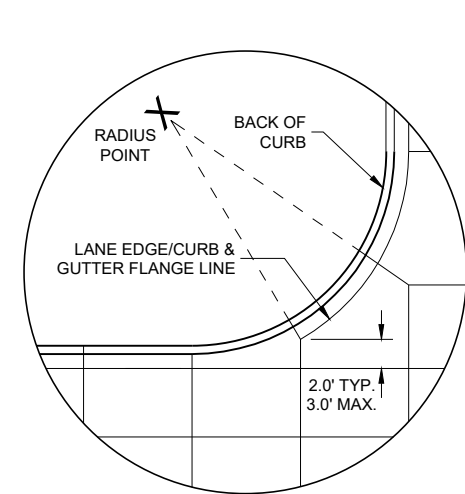
PAVEMENT DEPTH, DOWEL BAR SIZE AND JOINT SPACING TABLE

PAVEMENT DEPTH (D)	DOWEL BAR DIAMETER	CONTRACTION JOINT SPACING
6", 6 1/2"	NONE	12'
7", 7 1/2"	1"	14'
8" & ABOVE	1 1/4"	15'

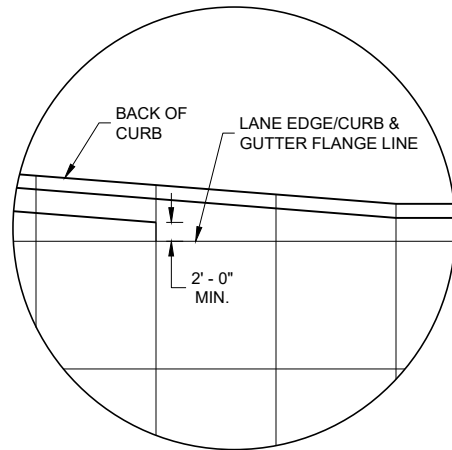
URBAN DOWELED CONCRETE PAVEMENT

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

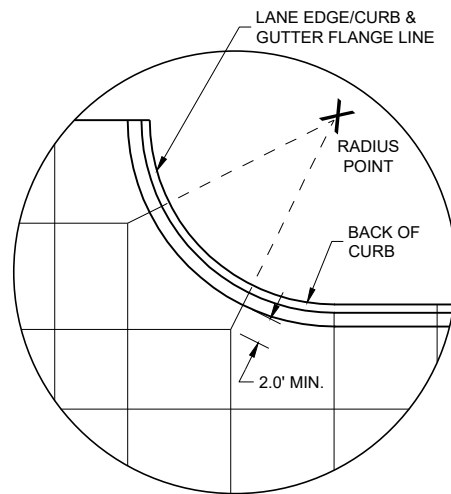
APPROVED
November 2022 /S/ Peter Kemp P.E.
DATE PAVEMENT SUPERVISOR 122
FHWA



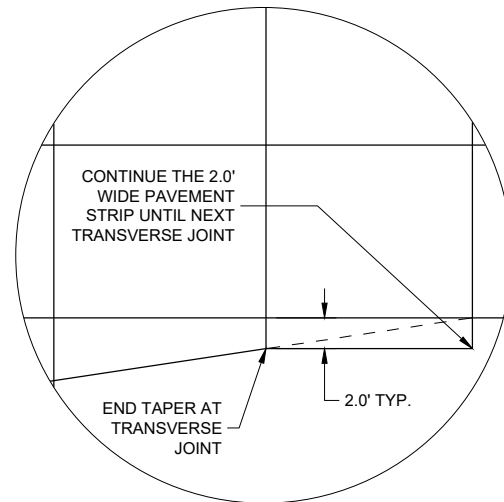
DETAIL "A"



DETAIL "B"



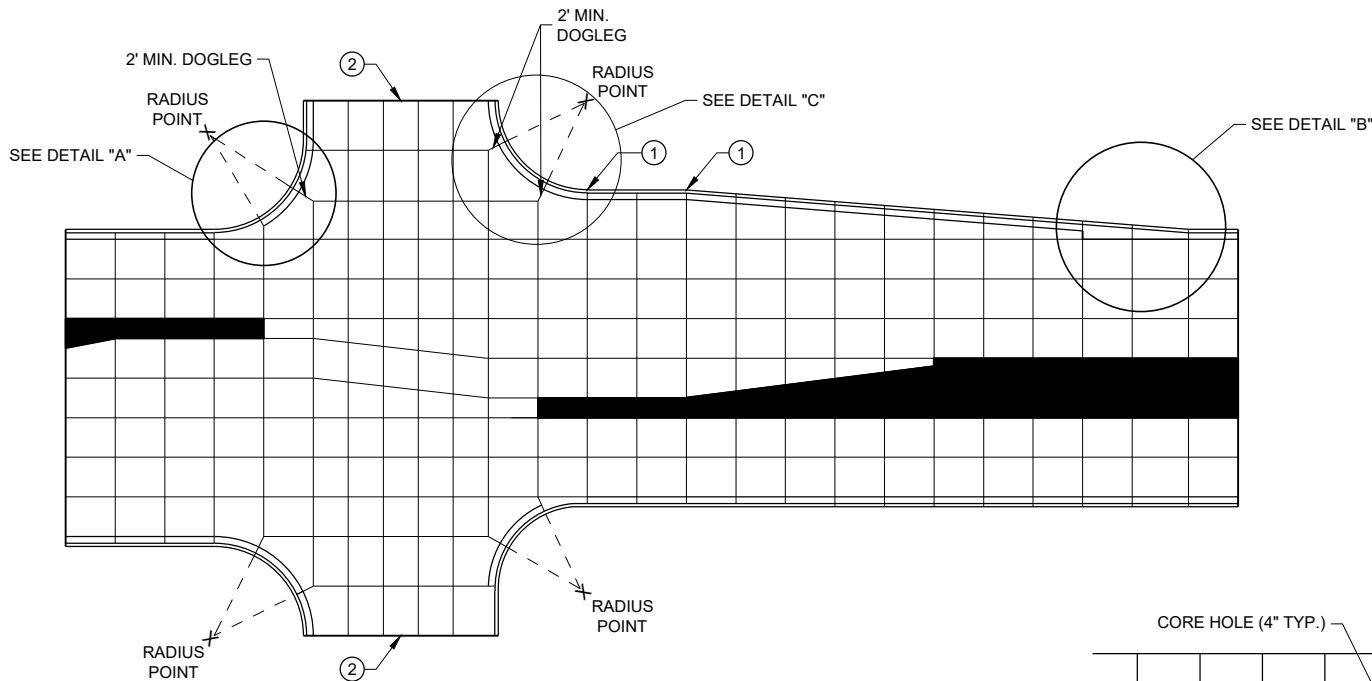
DETAIL "C"



DETAIL "D"

GENERAL NOTES

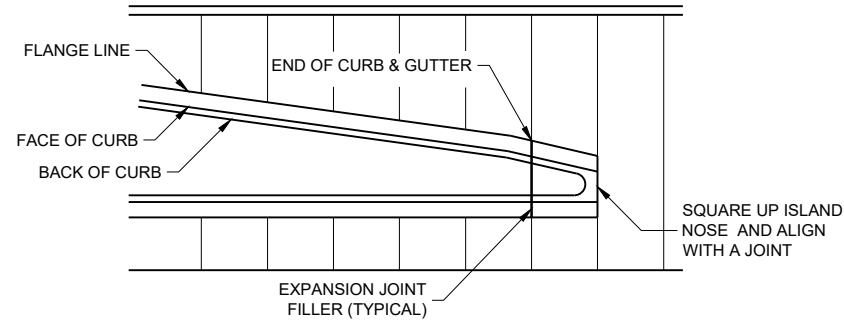
- THE PRIMARY ROADWAY CONTROLS THE TRANSVERSE JOINT PATTERN.
- ALIGN NEW JOINTS WITH EXISTING JOINTS OR CRACKS.
- CONSTRUCT TRANSVERSE JOINTS PERPENDICULAR TO THE ROADWAY.
- ADJUST TRANSVERSE JOINTS TO ALIGN WITH UTILITY FIXTURES (E.G MANHOLES AND INLETS) IN THE PAVEMENT STRUCTURE WHEN POSSIBLE. WATER VALVES DO NOT REQUIRE JOINT ADJUSTMENT.
- AVOID SLABS LESS THAN 2 FEET WIDE OR GREATER THAN 15 FEET WIDE.
- SEE TABLE FOR TRANSVERSE JOINT SPACING. JOINT SPACING SPECIFIED IS MAXIMUM AND ACTUAL SPACING CAN BE ADJUSTED TO ACCOMMODATE INTERSECTIONS.
- AVOID ANGLES LESS THAN 60° BY DOGLEGGING JOINTS THROUGH CURVE RADIUS POINTS. USE 90° ANGLES WHEN POSSIBLE.
- CORRELATE LONGITUDINAL JOINTS WITH LANE LINES WHEN POSSIBLE.
- 1 PROVIDE TRANSVERSE JOINTS AT ALL PAVEMENT WIDTH CHANGES.
 - 2 CONSTRUCT DOWELED EXPANSION JOINT ON THE SIDE ROAD OF AN INTERSECTION IF THE SIDE ROAD IS CONCRETE PAVEMENT AND GREATER THAN 300 FEET IN LENGTH. ALIGN EXPANSION JOINT WITH EDGE OF RADIUS.
 - 3 THE ENGINEER MAY APPROVE SLIGHT VARIATIONS FROM THESE JOINTING DETAILS.



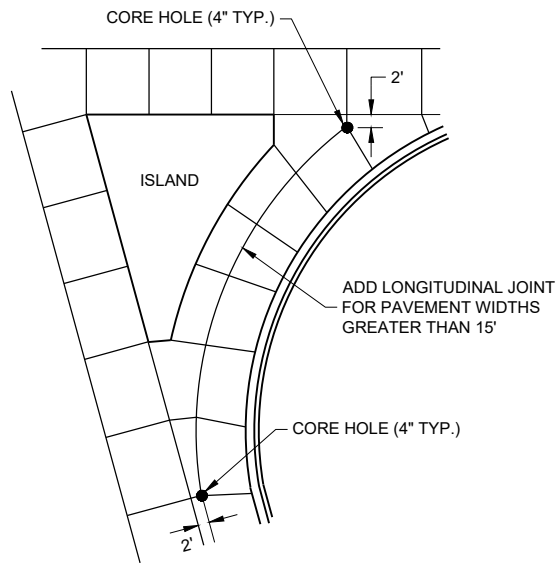
STANDARD INTERSECTION

PAVEMENT DEPTH AND JOINT SPACING TABLE

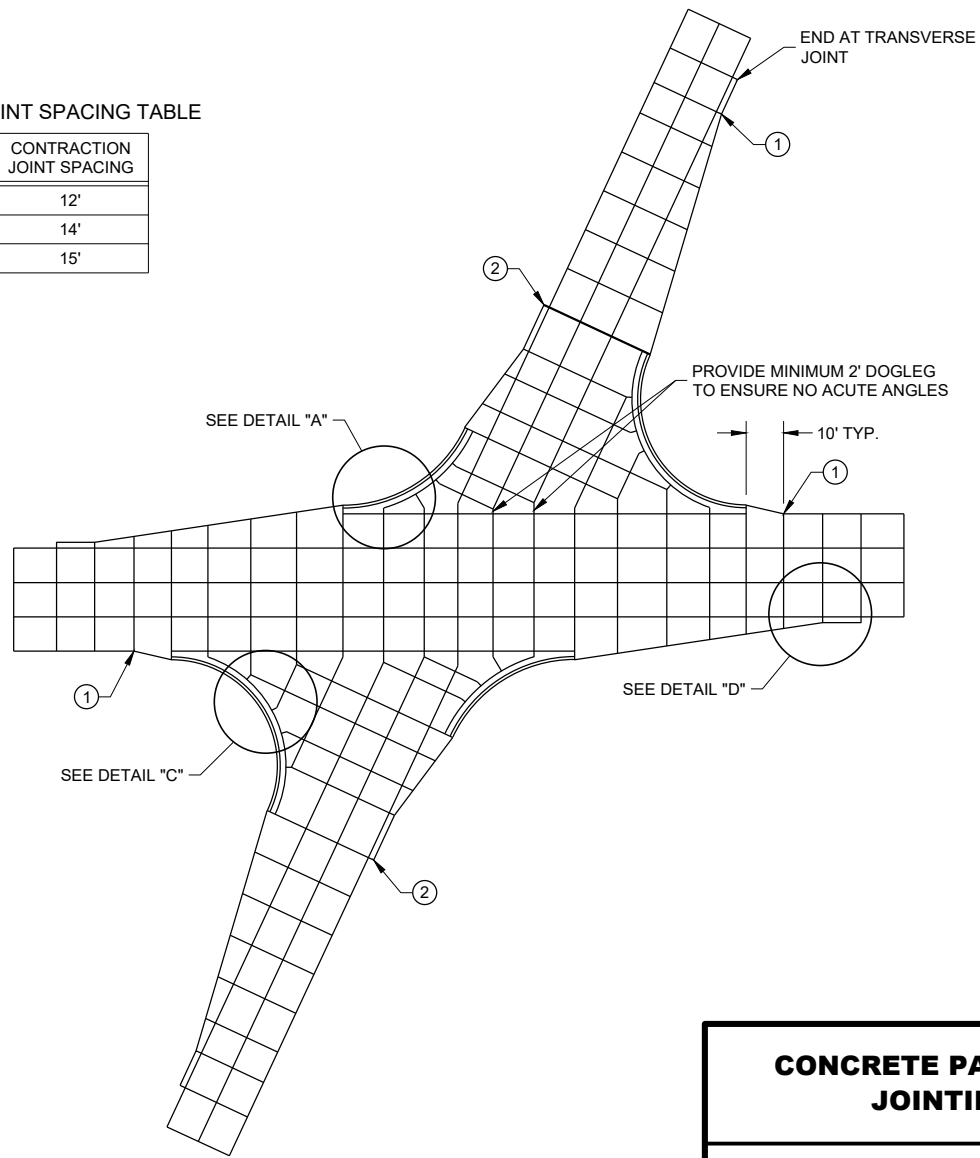
PAVEMENT DEPTH (D)	CONTRACTION JOINT SPACING
6", 6 1/2"	12'
7", 7 1/2"	14'
8" & ABOVE	15'



APPROACH TO MEDIAN



LARGE RIGHT TURN



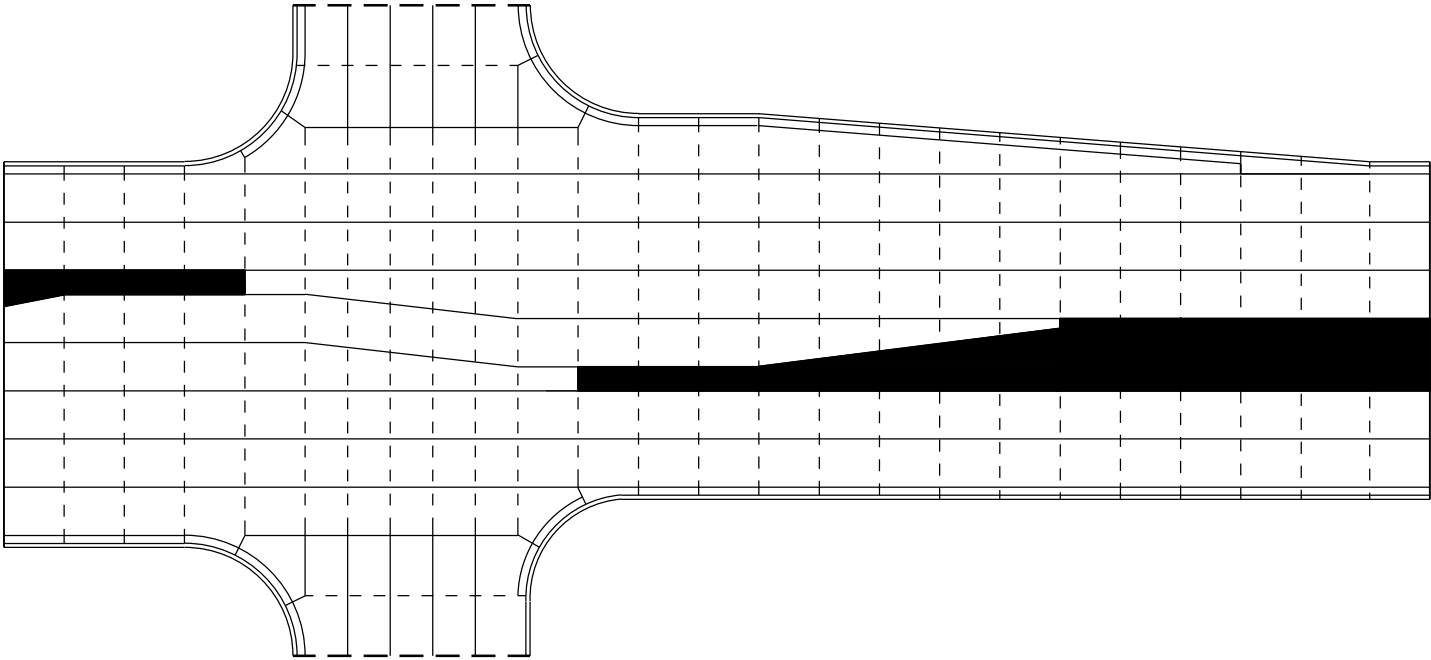
SKewed INTERSECTION

CONCRETE PAVEMENT JOINTING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

LEGEND

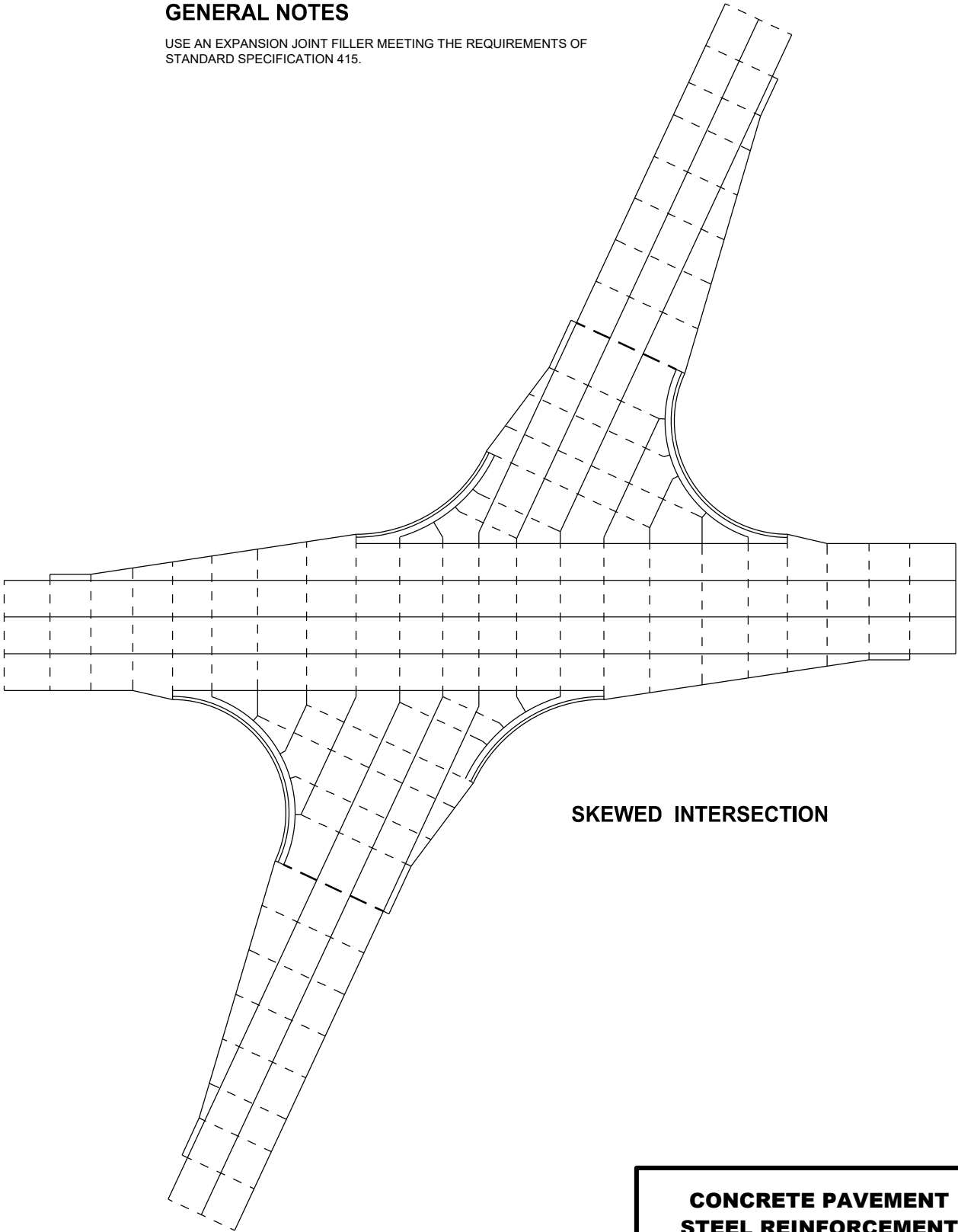
- POTENTIAL DOWELED EXPANSION JOINT
- DOWELED JOINT
- TIED JOINT



STANDARD INTERSECTION

GENERAL NOTES

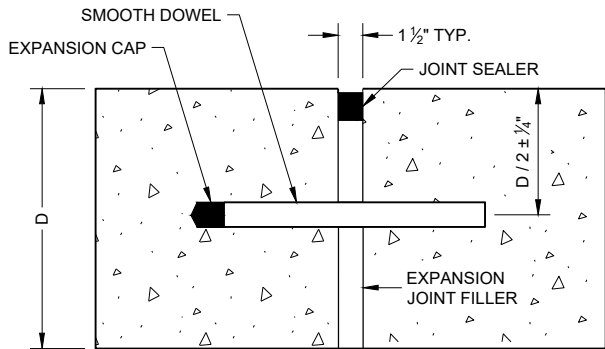
USE AN EXPANSION JOINT FILLER MEETING THE REQUIREMENTS OF STANDARD SPECIFICATION 415.



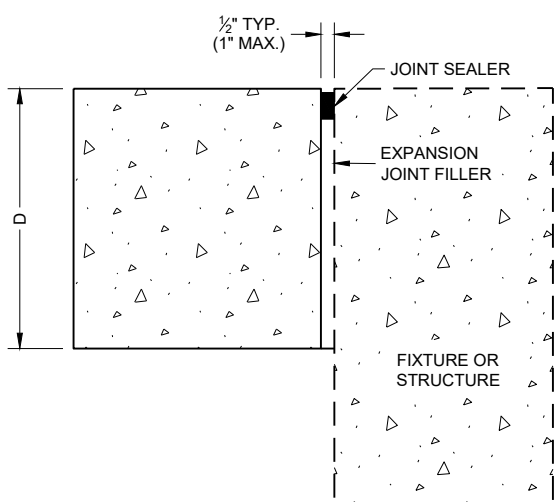
SKEWED INTERSECTION

CONCRETE PAVEMENT
STEEL REINFORCEMENT

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION 124

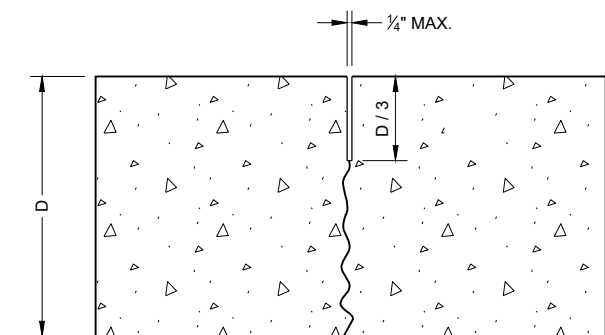


DOWELED TRANSVERSE ①

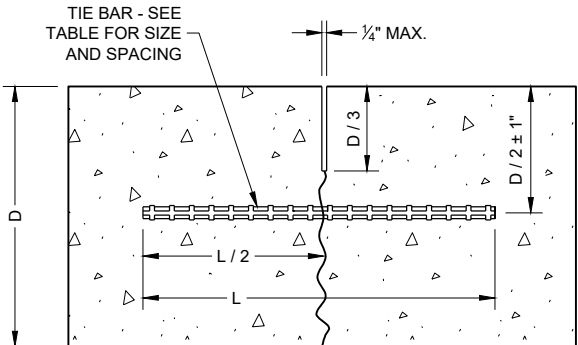


UNTIED - LONGITUDINAL

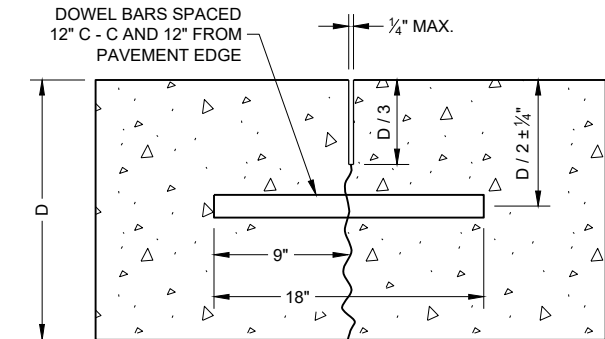
EXPANSION JOINTS



UNDOWELED TRANSVERSE



TIED LONGITUDINAL



DOWELED TRANSVERSE

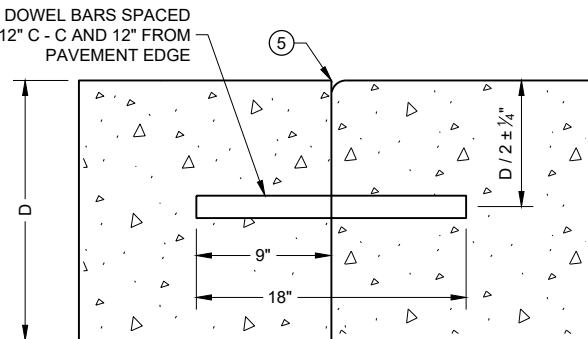
CONTRACTION JOINTS ②

TIE BAR TABLE

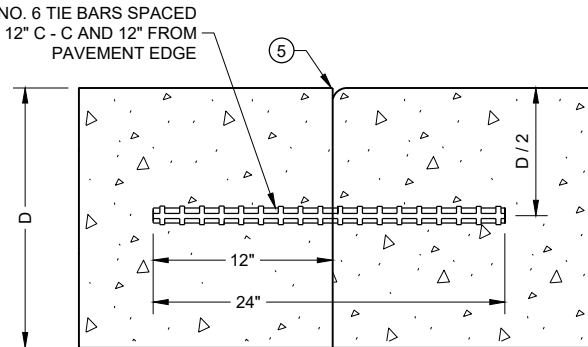
PAVEMENT DEPTH (D)	TIE BAR SIZE	TIE BAR LENGTH (L)	MAX. TIE BAR SPACING
< 10 1/2"	NO. 4	30"	36"
≥ 10 1/2"	NO. 5	36"	36"
	NO. 4 *	30"	24" **

* SUBSTITUTE BENT BARS AT LONGITUDINAL JOINTS WHEN EQUIPMENT LIMITATIONS DURING CONSTRUCTION WARRANT (e.g. AUXILIARY LANES OR TURN LANES)

** CONFORM TO 15" MINIMUM SPACING FROM TRANSVERSE JOINTS; SPACING BETWEEN TIE BARS WILL BE 30" AT TRANSVERSE JOINTS.



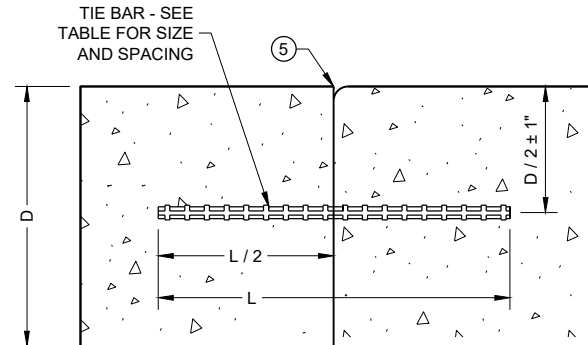
DOWELED TRANSVERSE ③



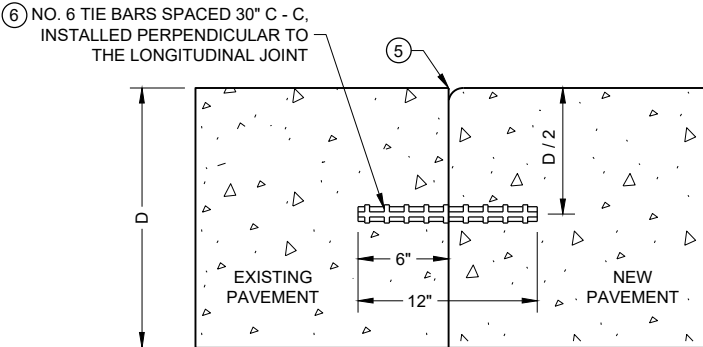
TIED TRANSVERSE ③
(FOR USE ON NON-DOWELED PAVEMENTS ONLY)

GENERAL NOTES

- ① USE DOWELED EXPANSION JOINTS ON SIDE ROADS AT INTERSECTIONS (TO ISOLATE THE SIDE ROAD FROM THE THROUGH STREET) IF THE SIDE ROAD IS CONCRETE PAVEMENT AND GREATER THAN 300 FEET IN LENGTH.
- ② SPACE CONTRACTION JOINTS IN ACCORDANCE WITH SDD 13C4, 13C11 OR 13C13.
- ③ LOCATE CONSTRUCTION JOINTS A MINIMUM OF 6 FEET FROM THE NEAREST CONTRACTION JOINT AND ALIGN PARALLEL TO CONTRACTION JOINTS.
- ④ CONSTRUCTION JOINTS CAN BE FORMED OR SAWED.
- ⑤ IF JOINT IS FORMED, PROVIDE A 1/4" RADIUS.
- ⑥ ANCHOR TIE BARS INTO DRILLED HOLES WITH AN EPOXY.



TIED LONGITUDINAL

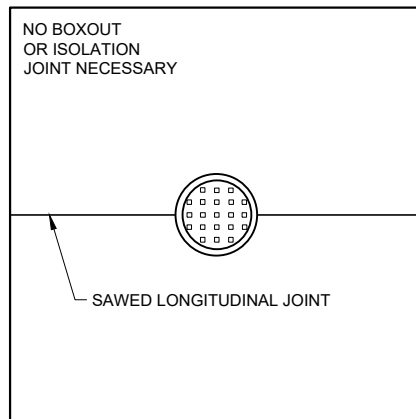


TIED LONGITUDINAL TO EXISTING

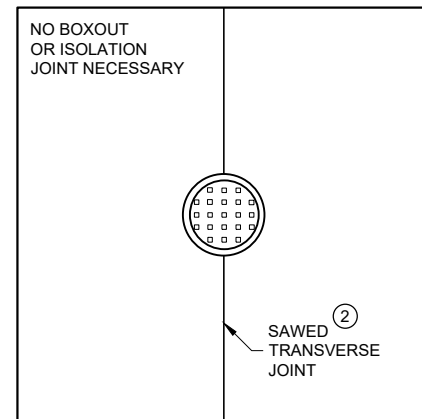
CONSTRUCTION JOINTS ④

CONCRETE PAVEMENT
JOINT TYPES

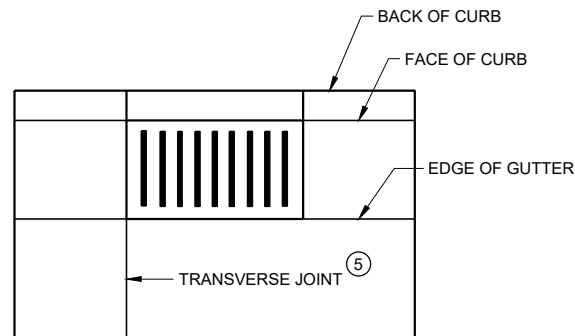
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION 125



**MANHOLE WITH
LONGITUDINAL JOINT**



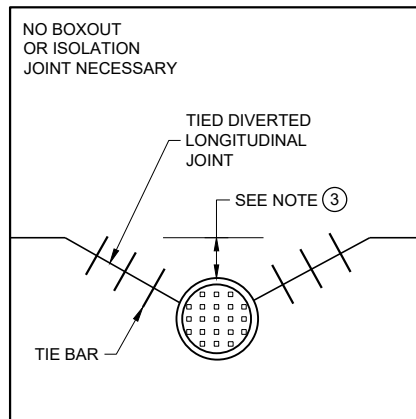
**MANHOLE WITH
TRANSVERSE JOINT**



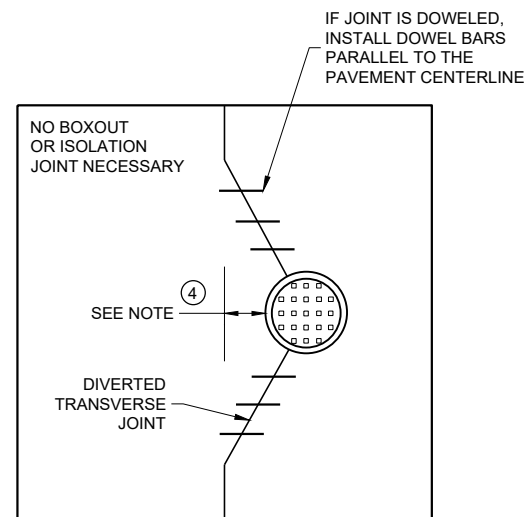
**INLET WITH
TRANSVERSE JOINT**

GENERAL NOTES

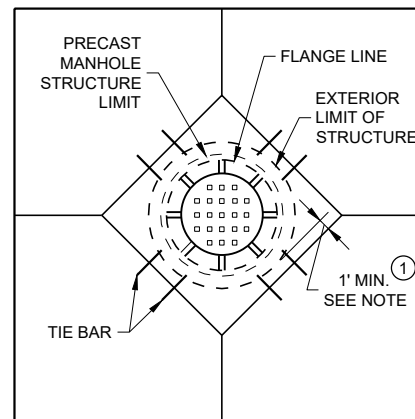
- ① USE BOXOUTS WHEN UTILITY STRUCTURE IS IN THE PATH OF CONSTRUCTION JOINTS. PROVIDE A 1 FOOT MINIMUM CLEARANCE BETWEEN THE EXTERIOR LIMIT OF THE STRUCTURE TO THE DIAMOND BOXOUT.
- ② ADJUST TRANSVERSE JOINT TO INTERSECT MANHOLE IF POSSIBLE.
- ③ IF DISTANCE BETWEEN THE LONGITUDINAL JOINT AND THE EDGE OF MANHOLE IS 2 FEET OR LESS, DIVERT THE LONGITUDINAL JOINT AT A 2:1 TAPER RATE TO THE CENTER OF THE MANHOLE. IF THE DISTANCE IS GREATER THAN 2 FEET, DO NOT DIVERT THE JOINT AND SAW AS NORMAL. PLACE REINFORCEMENT REBAR AROUND THE MANHOLE.
- ④ IF THE DISTANCE FROM THE EDGE OF THE MANHOLE TO THE NEAREST TRANSVERSE JOINT IS LESS 4 FEET OR LESS, REDIRECT JOINT TO INTERSECT THE CENTER OF THE MANHOLE. IF DISTANCE IS GREATER THAN 4 FEET, DO NOT DIVERT THE JOINT AND SAW AS NORMAL. PLACE REINFORCEMENT REBAR AROUND THE MANHOLE.
- ⑤ ALIGN TRANSVERSE JOINT WITH ONE EDGE OF INLET WHEN PRACTICAL.



**MANHOLE WITH DIVERTED
LONGITUDINAL CONTRACTION JOINT**



**MANHOLE WITH DIVERTED
TRANSVERSE CONTRACTION JOINT**



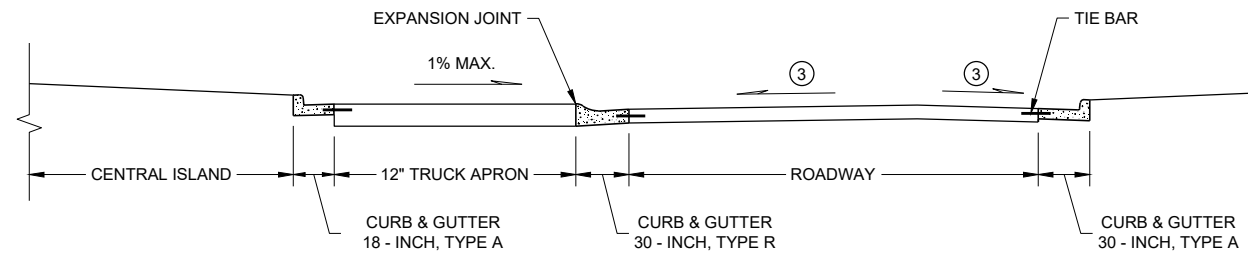
**DIAGONAL MANHOLE BOXOUT
FOR CONSTRUCTION JOINTS**

**CONCRETE PAVEMENT
JOINTING AT UTILITY
FIXTURES**

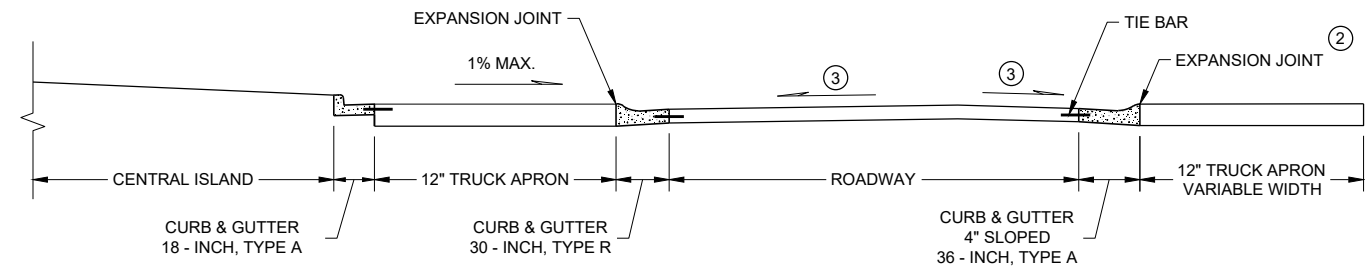
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
May 2023 /S/ Peter Kemp P.E.
DATE PAVEMENT SUPERVISOR 126

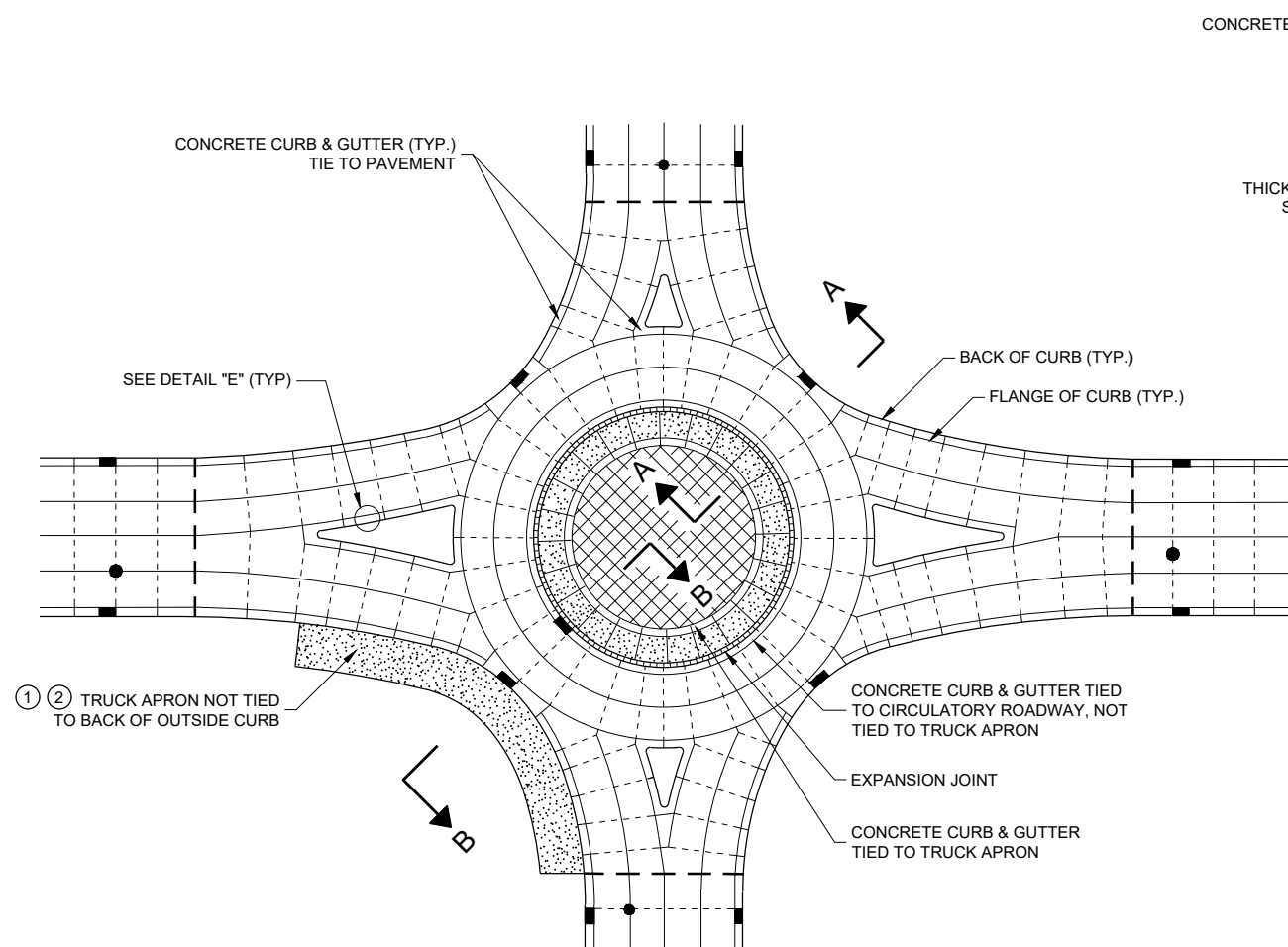
FHWA



SECTION A - A



SECTION B - B

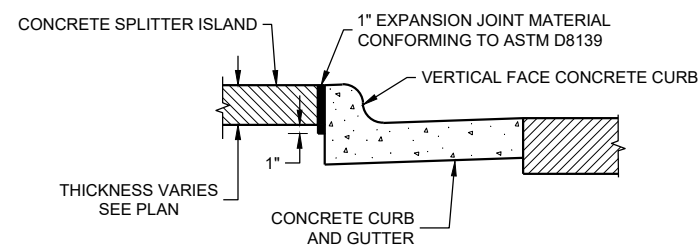


ISOLATED CIRCLE JOINT LAYOUT FOR ROUNDABOUTS

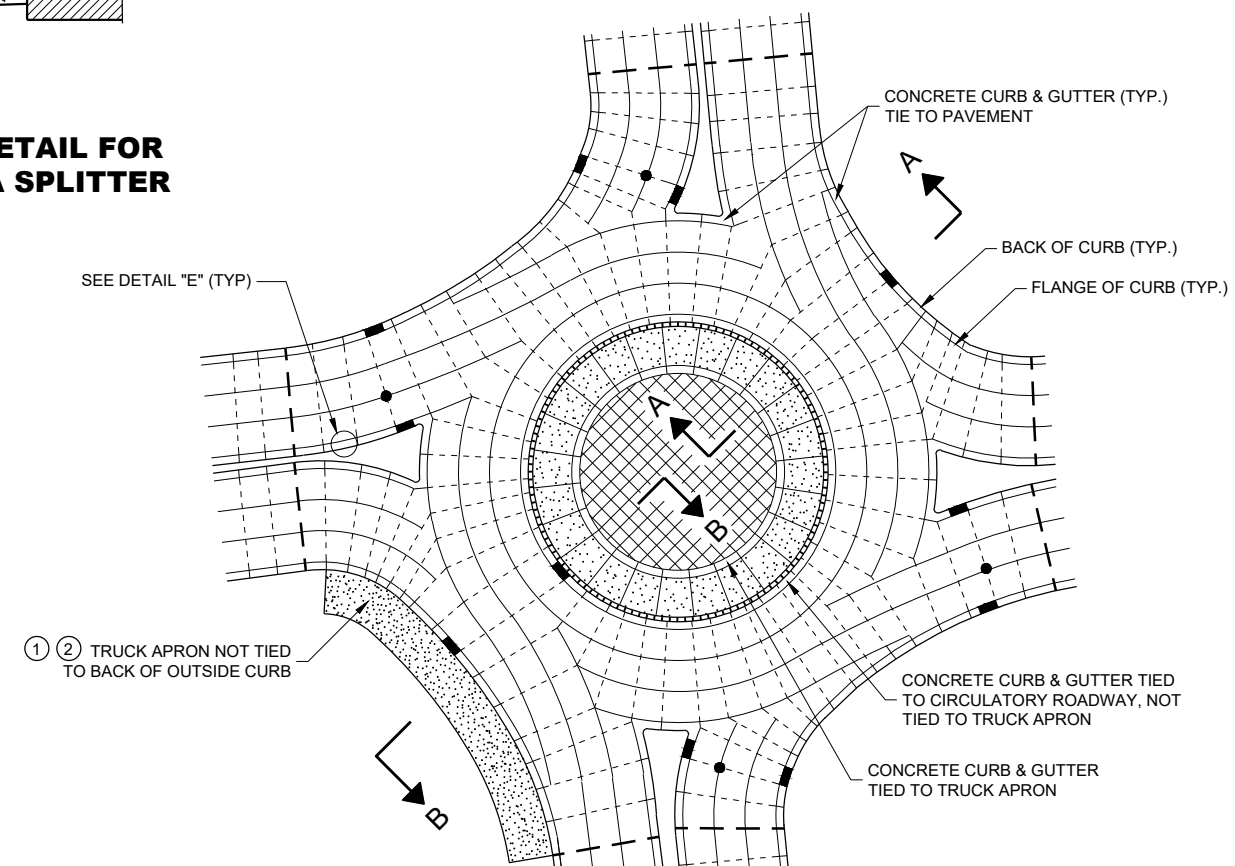
GENERAL NOTES

MAXIMUM JOINT SPACING IS IN ACCORDANCE WITH THE TABLE SHOWN ON SDD 13C18 - SHEET "a"
 USE EXPANSION JOINT FILLER MEETING THE REQUIREMENTS OF STANDARD SPECIFICATION 415.
 DO NOT DOWEL OR TIE THE TRUCK APRON TRANSVERSE JOINTS.

- ① DESIGNER DETERMINES SIZE AND LOCATION(S) OF TRUCK APRON TO ACCOMMODATE TRACKING OF OVERSIZE / OVERWEIGHT VEHICLES.
- ② TIE THE OUTSIDE TRUCK APRON TO THE BACK SIDE OF CURB ONLY WHEN ENTIRE TRUCK APRON IS LESS THAN 3 FEET.
- ③ CONFORM TO PLAN CONSTRUCTION DETAILS FOR CIRCULATORY ROADWAY CROSS SLOPE.



**DETAIL 'E'
EXPANSION JOINT DETAIL FOR
VERTICAL CURB AT A SPLITTER
ISLAND**



PINWHEEL JOINT LAYOUT FOR ROUNDABOUTS

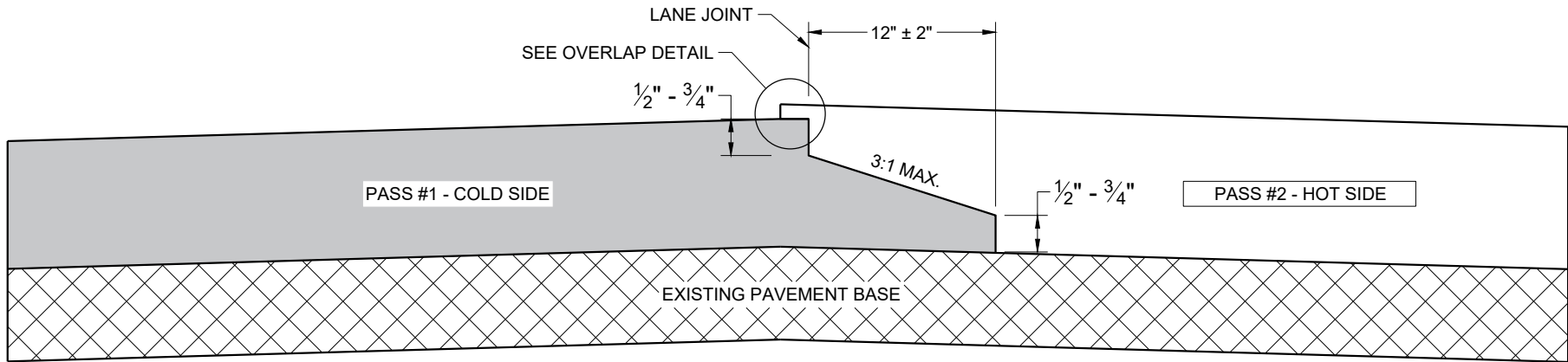
LEGEND

- DOWELED JOINT
- TIED JOINT
- ===== EXPANSION JOINT
- — — — — POTENTIAL DOWELED EXPANSION JOINT
- [Pattern] TRUCK APRON
- [Pattern] CENTRAL ISLAND
- ● UTILITY STRUCTURES

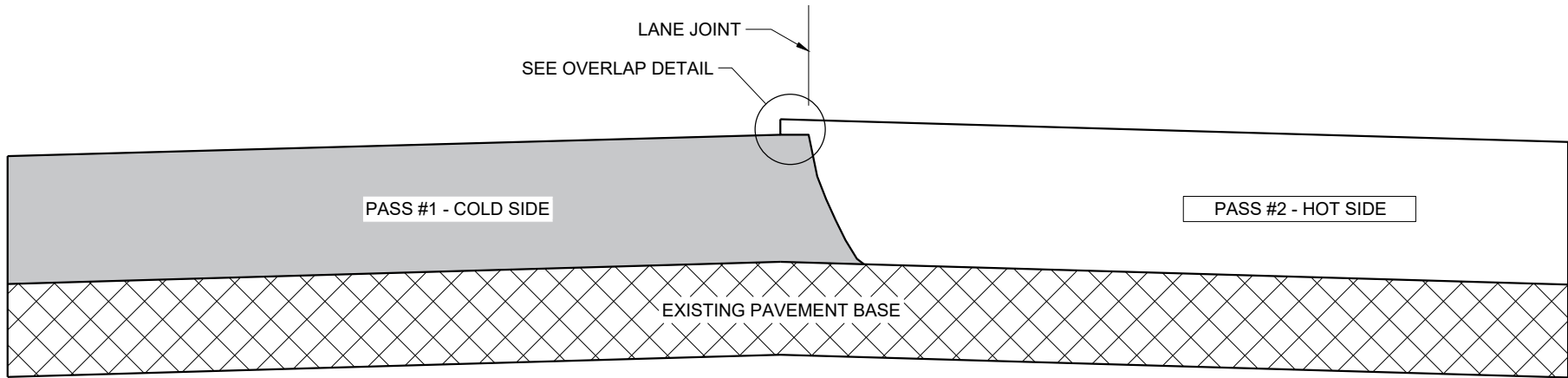
**CONCRETE PAVEMENT JOINTING
AND STEEL REINFORCEMENT
IN ROUNDABOUTS**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

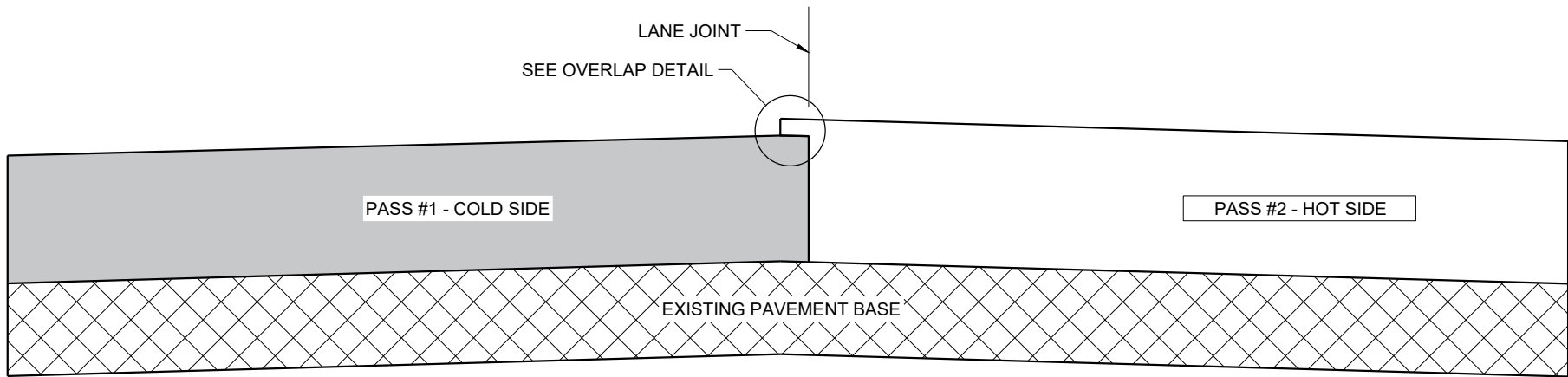
APPROVED
May 2023 /S/ Peter Kemp P.E.
DATE DATE PAVEMENT SUPERVISOR 127
FHWA



TYPICAL PAVEMENT CROSS SECTION
NOTCHED WEDGE JOINT



TYPICAL PAVEMENT CROSS SECTION
VERTICAL JOINT



TYPICAL PAVEMENT CROSS SECTION
VERTICAL JOINT (MILLED)

GENERAL NOTES

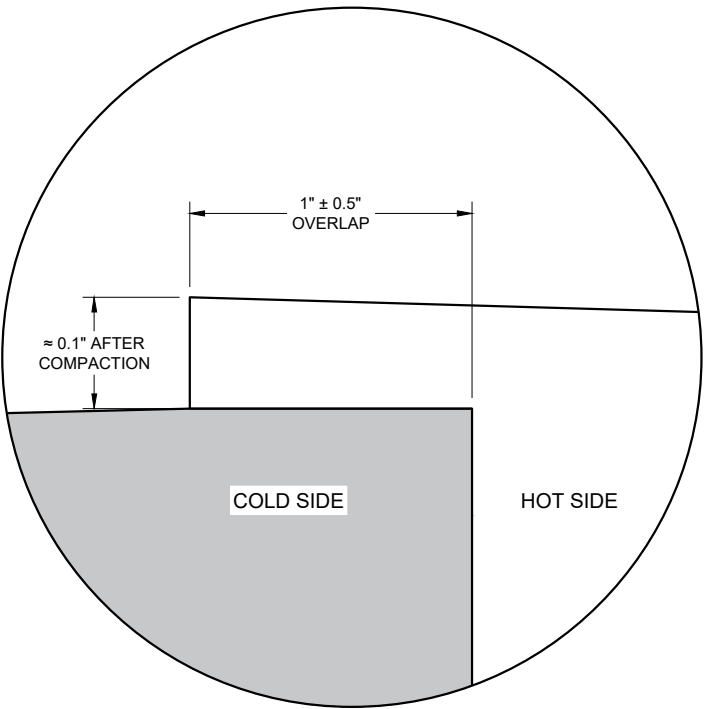
IN ADDITION TO THE DETAILS PROVIDED IN THIS DRAWING, CONFORM TO STANDARD SPECIFICATION 450.3.2.8 FOR WHEN A NOTCHED WEDGE JOINT IS REQUIRED AND FOR GENERAL JOINT CONSTRUCTION REQUIREMENTS.

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.

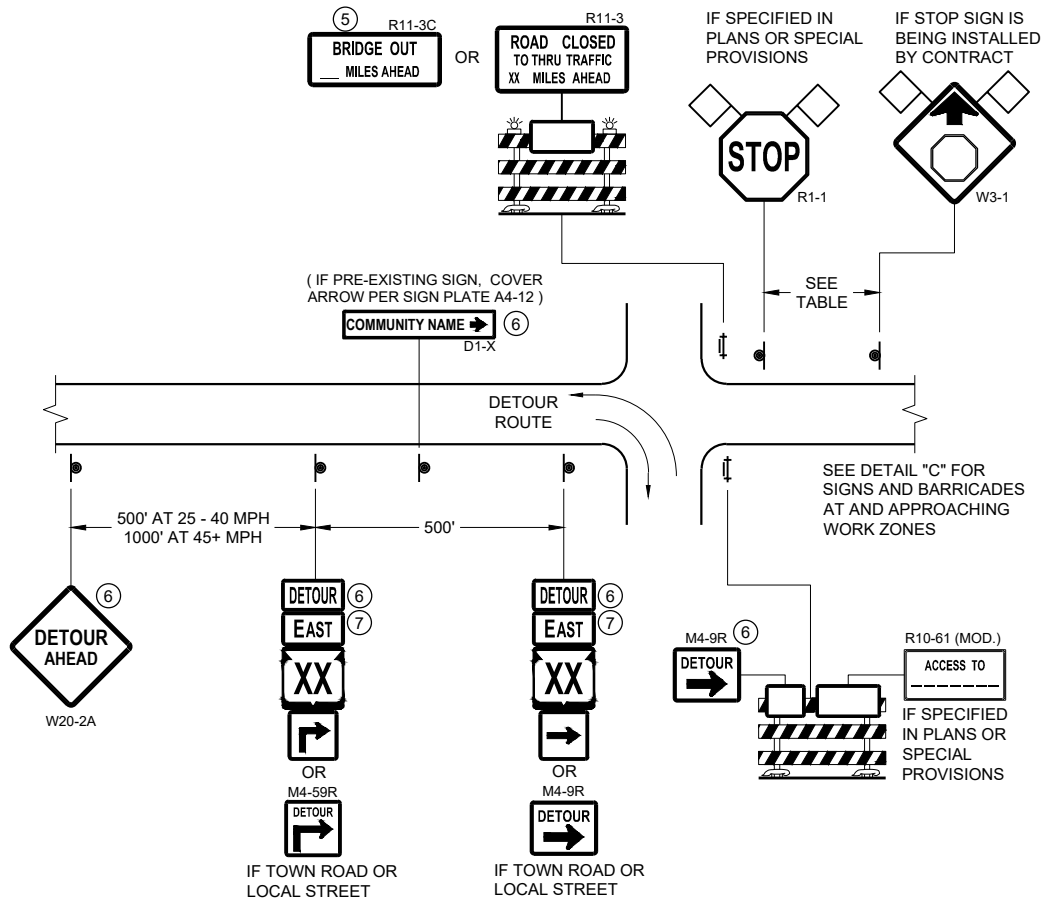


OVERLAP DETAIL (TYPICAL)

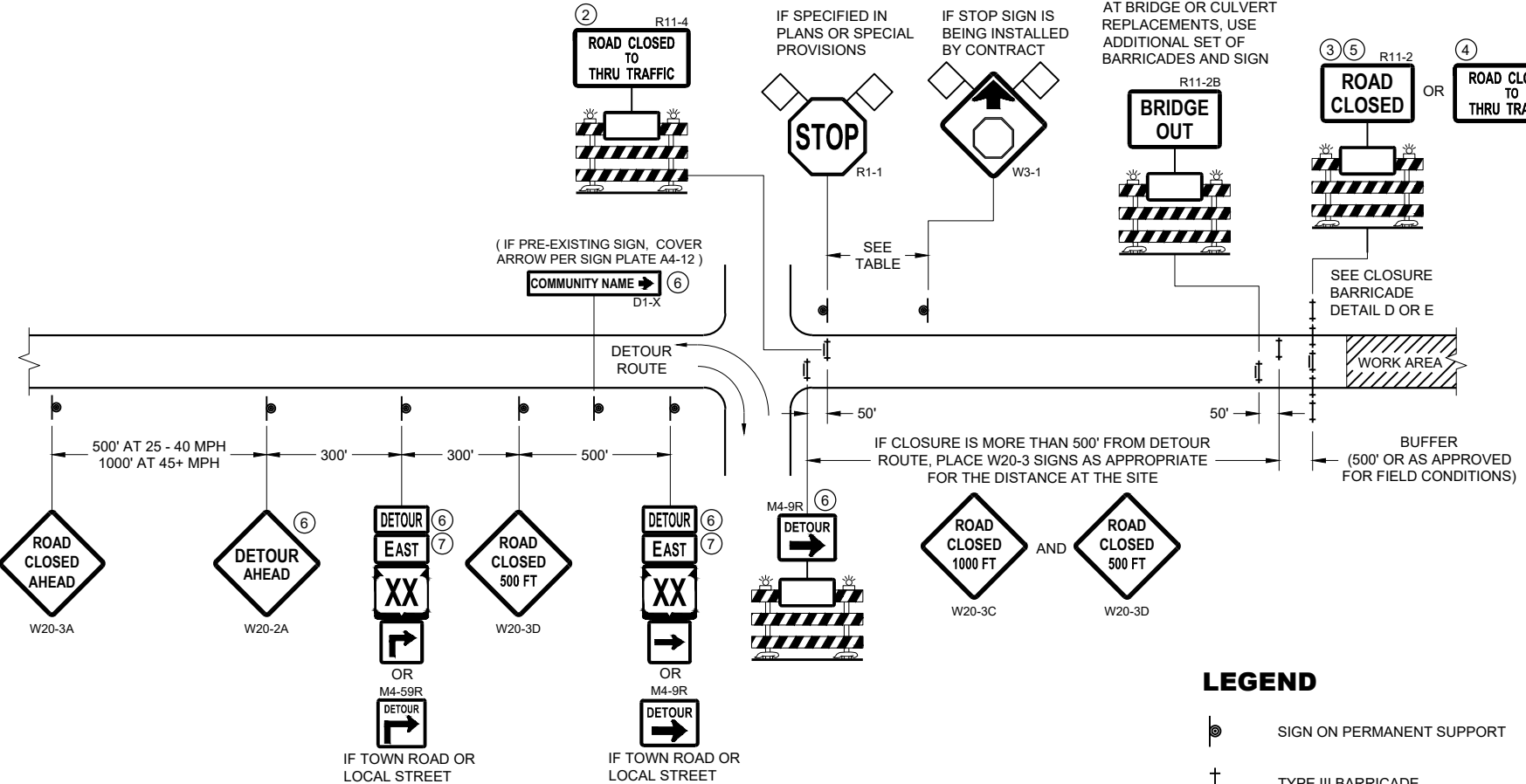
HMA LONGITUDINAL JOINTS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
November 2020 /S/ Steven Hefel
DATE HMA PAVEMENT ENGIN 128
FHWA



DETAIL A
MAINLINE CLOSURE WITH POSTED DETOUR
WORK ZONE GREATER THAN OR EQUAL TO ½ MILE FROM
DETOUR ROUTE (1000 FEET IF URBAN)



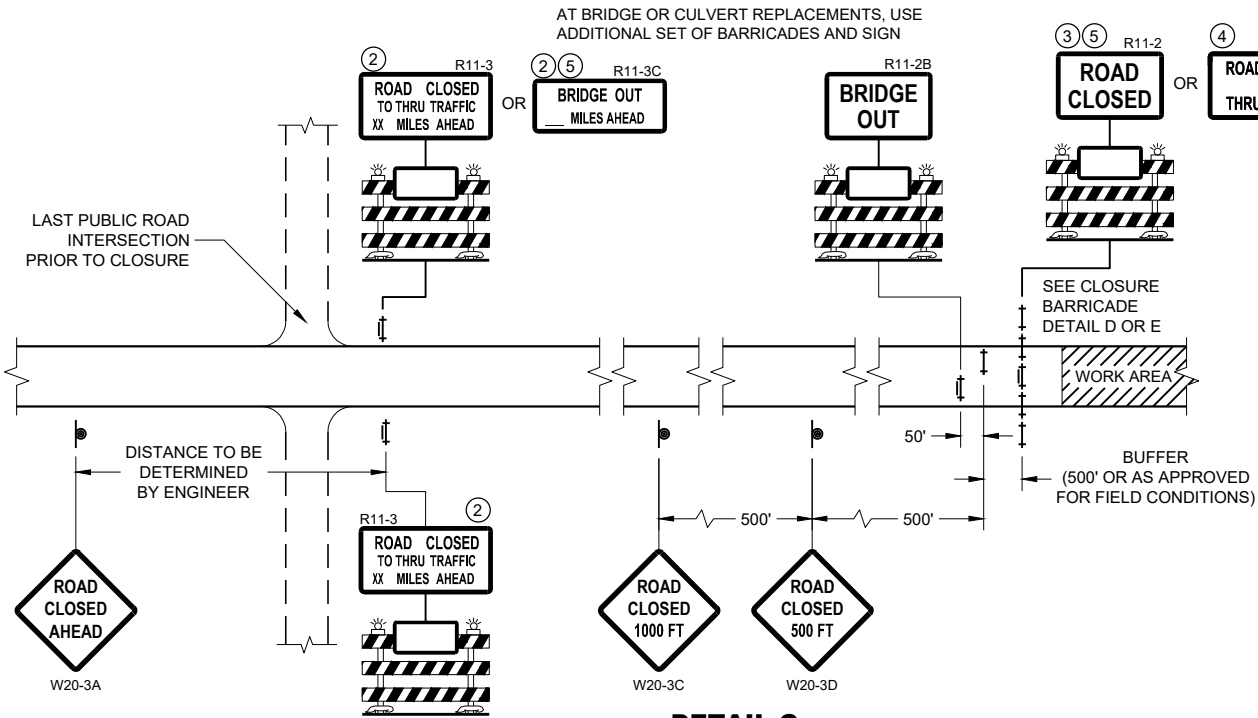
DETAIL B
MAINLINE CLOSURE WITH POSTED DETOUR
WORK ZONE LESS THAN ½ MILE FROM
DETOUR ROUTE (1000 FEET IF URBAN)

- LEGEND**
- SIGN ON PERMANENT SUPPORT
 - TYPE III BARRICADE
 - TYPE III BARRICADE WITH ATTACHED SIGN
 - TYPE "A" WARNING LIGHT (FLASHING)
 - WORK AREA
 - FLAGS, 16" X 16" MIN. (ORANGE)

- DETOUR M4 - 8
- EAST M3 - X
- XX M1 - 4 OR XX M1 - 6 OR COUNTY M1 - 5A
- OR M05 - 1 OR M06 - 1

SPEED LIMIT (MPH)	"STOP AHEAD" ADVANCE WARNING DISTANCE (FT)
25	200
30	200
35	350
40	350
45	500
50	550
55	750

SEE SDD 15C2-SHEET "b"
FOR GENERAL NOTES
AND FOOTNOTES ① THROUGH ⑦



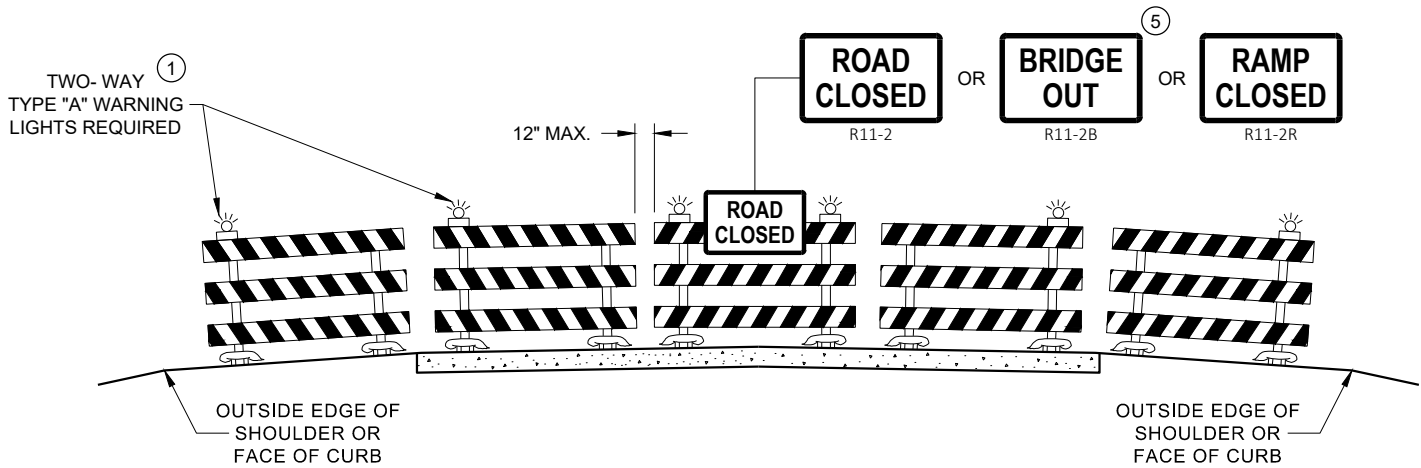
DETAIL C
MAINLINE CLOSURE, NO POSTED DETOUR

**BARRICADES AND SIGNS
FOR MAINLINE CLOSURES**

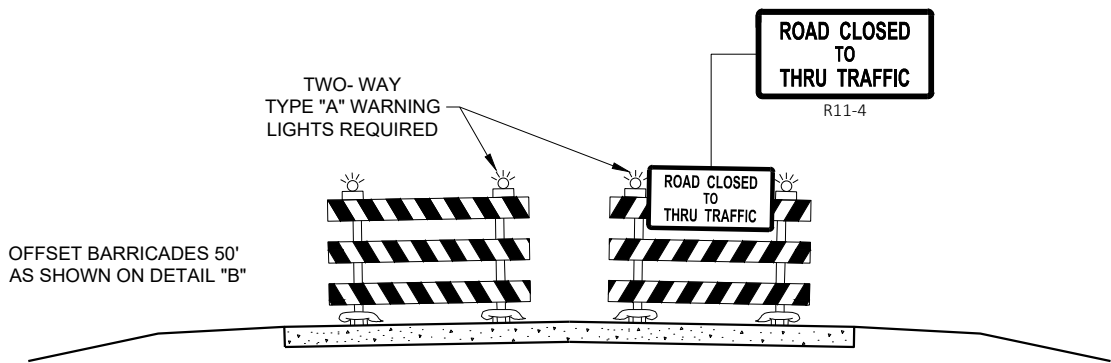
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APPROVED
May 2023 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER 129

FHWA



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"

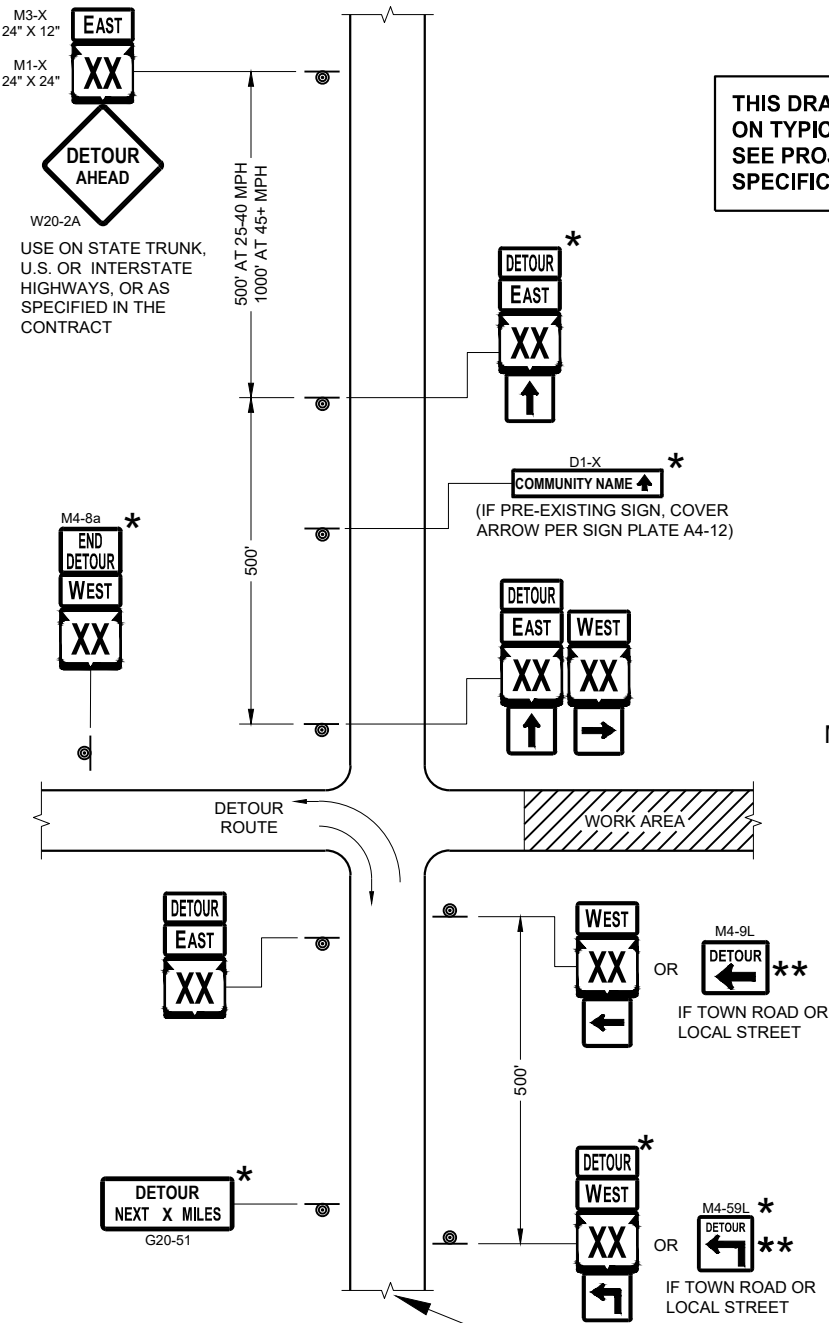
- 1 TWO WARNING LIGHTS SHALL BE PROVIDED ON THE CENTER BARRICADE AND A MINIMUM OF ONE WARNING LIGHT SHALL BE PROVIDED ON EACH OF THE OTHER BARRICADES WITHIN THE ROADWAY LIMITS. SPACING OF THE WARNING LIGHTS SHALL BE UNIFORM TO THE EDGE OF ROADWAY AS SHOWN (APPROX. 8 FOOT LIGHT SPACING).
- 2 THESE SIGNS 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
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APPROVED
May 2023 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER 130

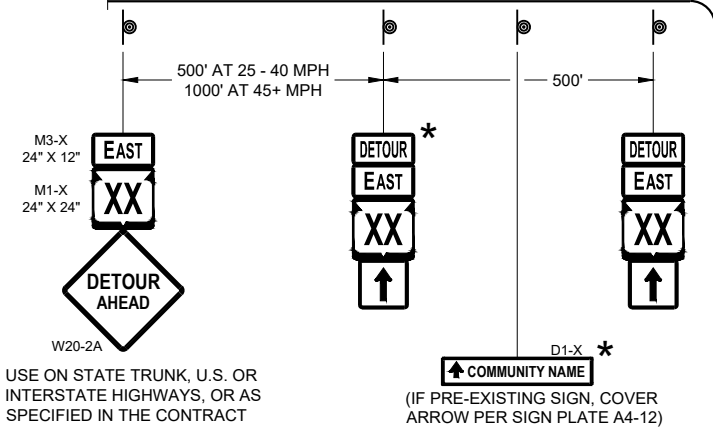
FHWA



SEE SPECIFIC PROJECT DETOUR
SIGNING DETAIL SHEETS AND
DETAIL A OR B ON SDD SHEET 15C02 - SHEET "a"

THIS DRAWING PROVIDES GENERAL GUIDANCE
ON TYPICAL DETOUR SIGN LAYOUT AND SPACING.
SEE PROJECT DETOUR SIGNING SHEETS FOR
SPECIFIC DETAILS FOR EACH PROJECT.

MATCH POINT



DETAIL F
DETOUR SIGNING

LEGEND

- SIGN ON PERMANENT SUPPORT
- WORK AREA
- DETOUR EAST M4 - 8
- DETOUR WEST M3 - X
- DETOUR AHEAD M1 - 4 OR M1 - 6 OR M1 - 5A
- DETOUR NEXT X MILES M05 - 1 OR M06 - 1 OR M06 - 1

GENERAL NOTES

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

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. SEE SPECIFIC PROJECT DETOUR SIGNING DETAIL SHEETS. MODIFY EXISTING SIGNS WHERE POSSIBLE.

THE SPACING BETWEEN TRAFFIC CONTROL AND DETOUR 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.

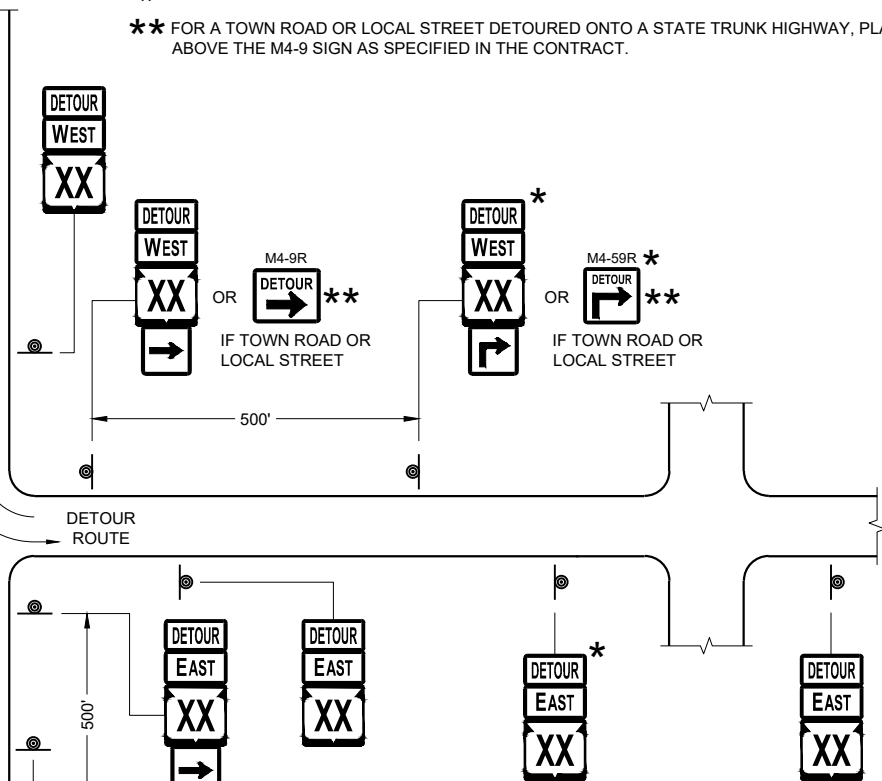
SIGNS THAT WILL BE IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS MAY BE MOUNTED ON PORTABLE SUPPORTS.

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

SIGN SIZES SHALL BE AS FOLLOWS:

- 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)
- M05-1 AND M06-1 SHALL BE 21" X 21" (30" X 30" IF NEEDED TO MATCH EXISTING SIGNS)
- M4-9 AND M4-9R SHALL BE 30" X 24"
- M4-8a SHALL BE 24" X 18"
- G20-51 SHALL BE 60" X 24"
- W20-2A SHALL BE 48" X 48"
- D1-X SHALL BE AS SHOWN ON SPECIFIC PROJECT SIGNING DETAIL SHEETS.

- * OPTIONAL SIGNS. SEE SPECIFIC PROJECT DETOUR SIGNING DETAIL SHEETS.
- ** FOR A TOWN ROAD OR LOCAL STREET DETOURED ONTO A STATE TRUNK HIGHWAY, PLACE A ROAD NAME PLAQUE ABOVE THE M4-9 SIGN AS SPECIFIED IN THE CONTRACT.



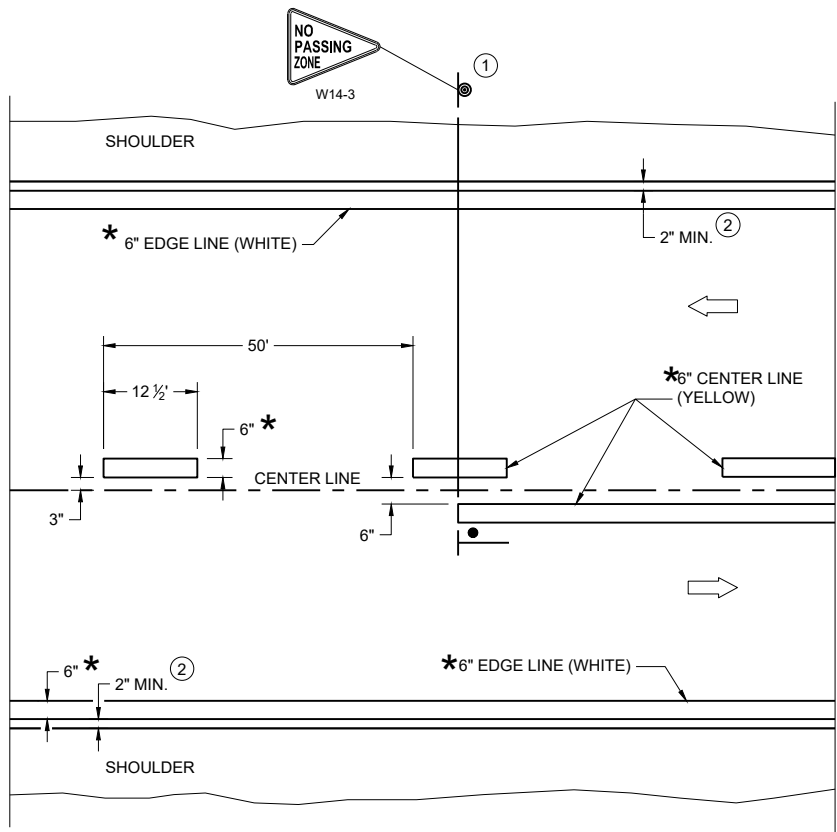
PLACE SIGNS BEYOND INTERSECTIONS
WITH STATE OR COUNTY TRUNK
HIGHWAYS OR AT 4 MILE MAXIMUM
SPACING (4 BLOCKS IF URBAN AREA)

DETOUR SIGNING
FOR MAINLINE CLOSURES

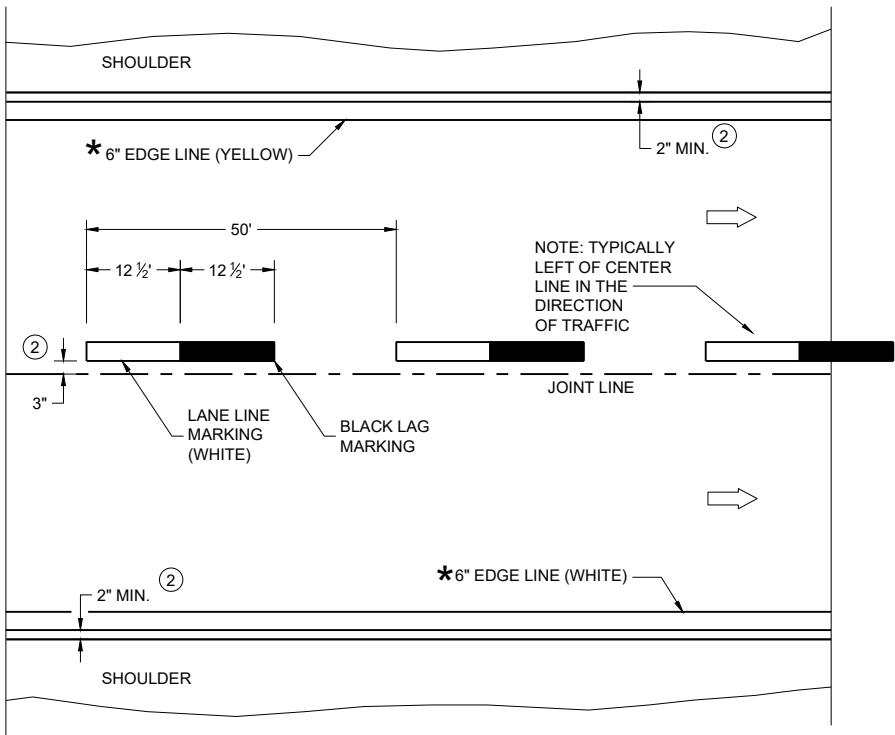
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
May 2023 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER 131

FHWA



TWO WAY TRAFFIC



ONE WAY TRAFFIC

PERMANENT PAVEMENT MARKING

*CONFIRM MARKING LINE WIDTH WITH THE MISCELLANEOUS QUANTITIES

GENERAL NOTES

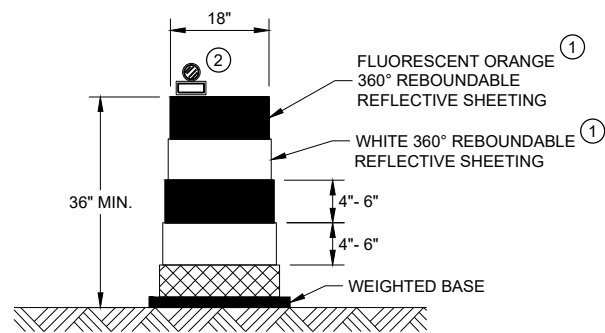
DETAILS OF CONSTRUCTION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO STANDARD SPECIFICATIONS AND SPECIAL PROVISIONS.

- 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

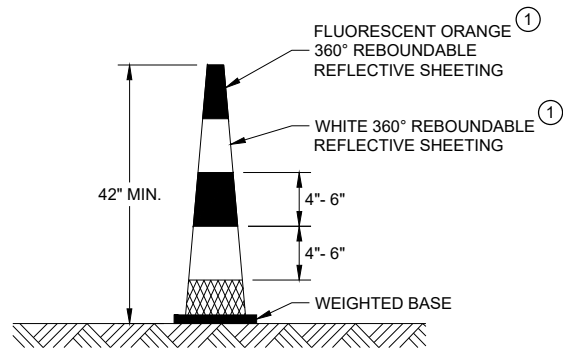
- "T" MARKING
- SIGN ON PERMANENT SUPPORT
- DIRECTION OF TRAFFIC

PERMANENT LONGITUDINAL PAVEMENT MARKINGS	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED May 2023 DATE	/S/ Jeannie Silver Statewide Pavement Marking Engineer
FHWA	



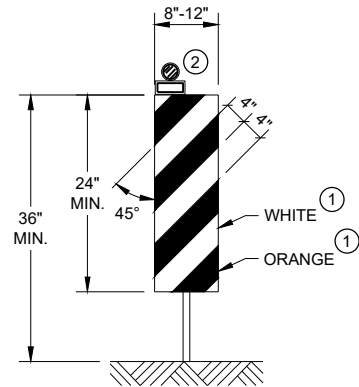
DRUM

BALLAST WIDTHS
RANGE FROM 24"-36"



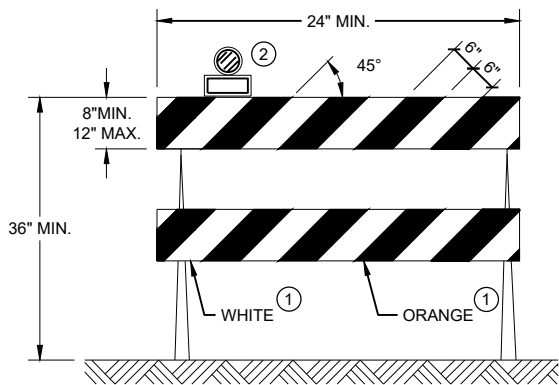
42" CONE

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



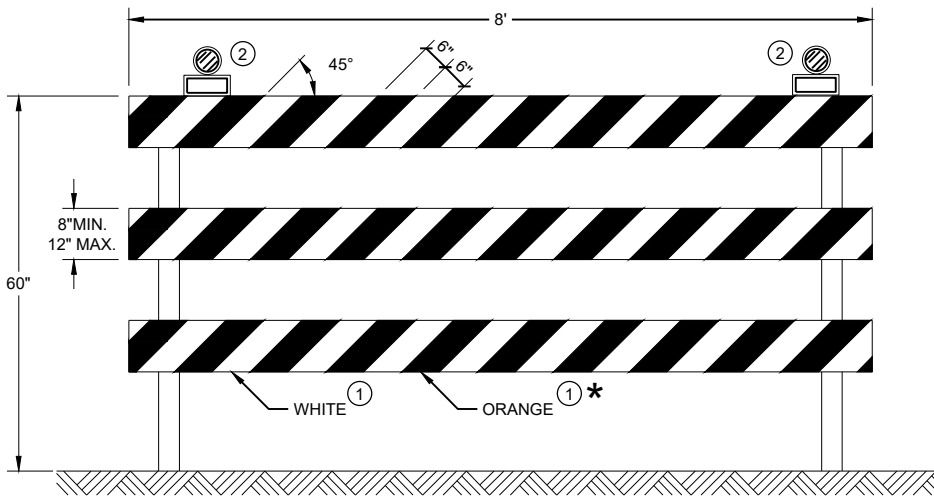
VERTICAL PANEL

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.

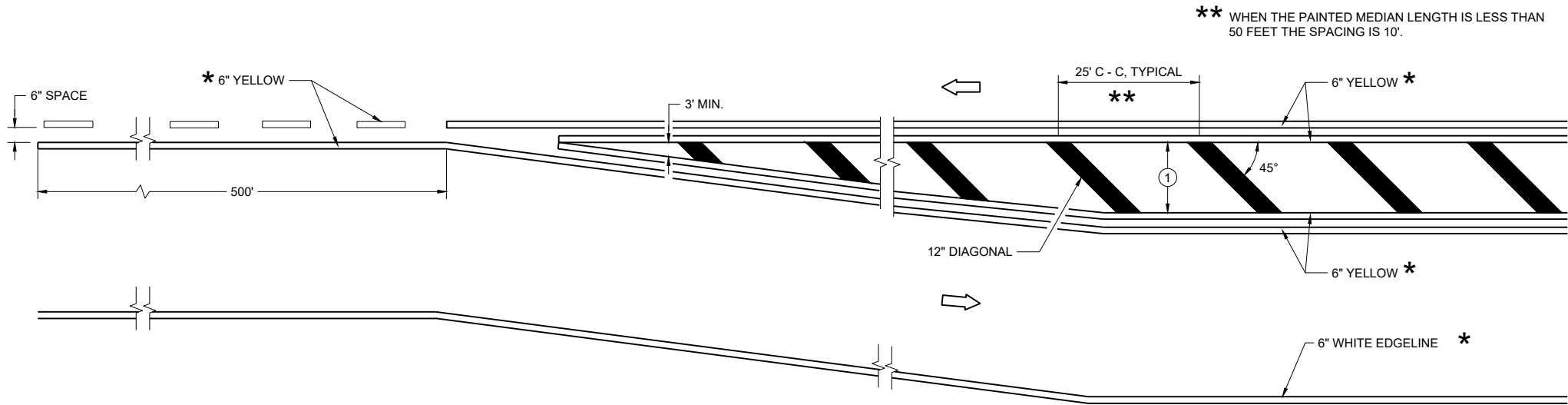
GENERAL NOTES

- 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.

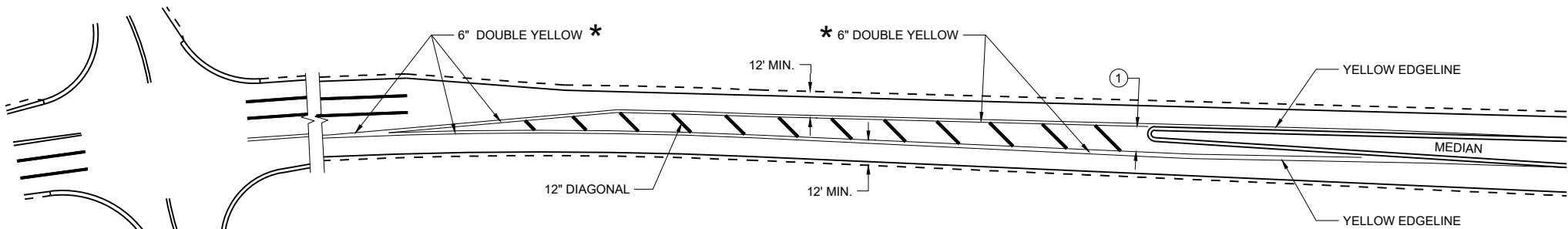
**CHANNELIZING DEVICES
DRUMS, CONES, BARRICADES
AND VERTICAL PANELS**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

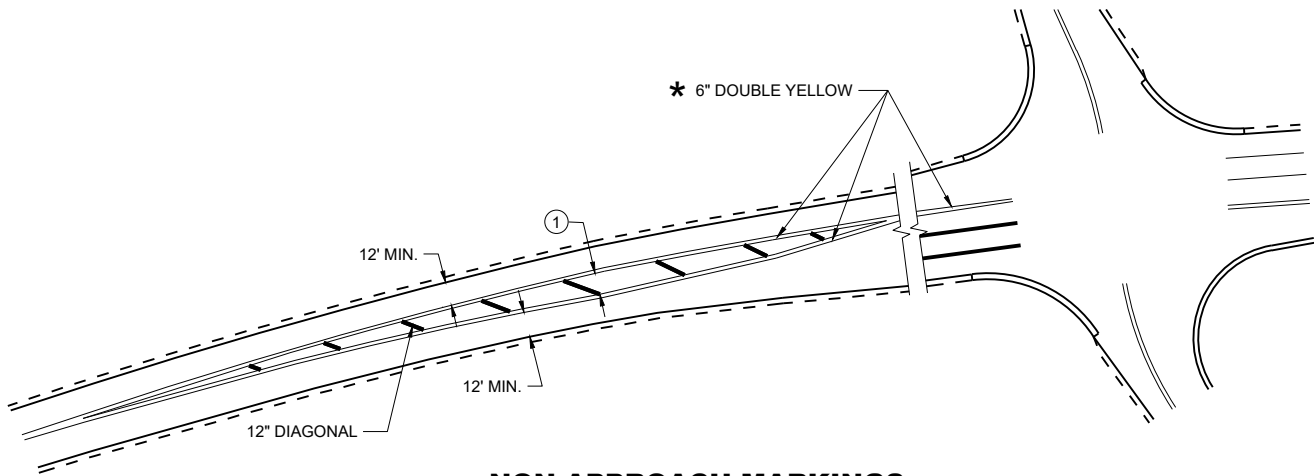
APPROVED
November 2022 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER 133
FHWA



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.

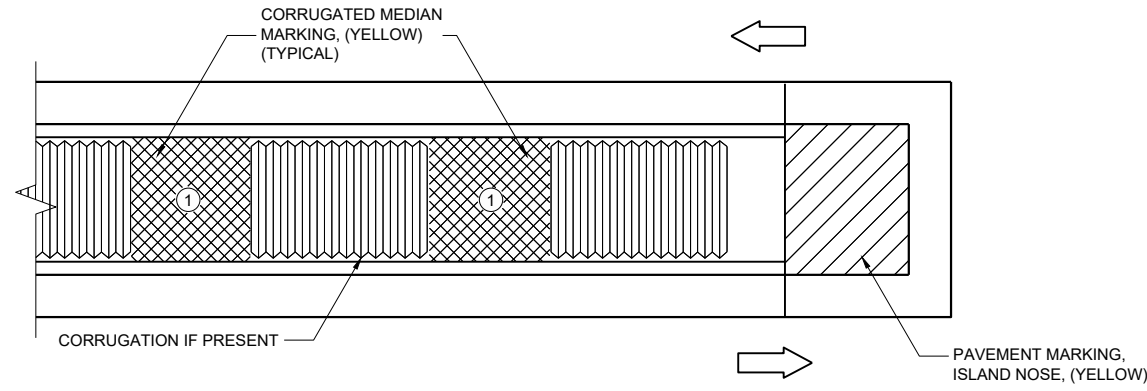
➡ DIRECTION OF TRAVEL

* CONFIRM MARKING LINE WIDTH WITH THE MISCELLANEOUS QUANTITIES

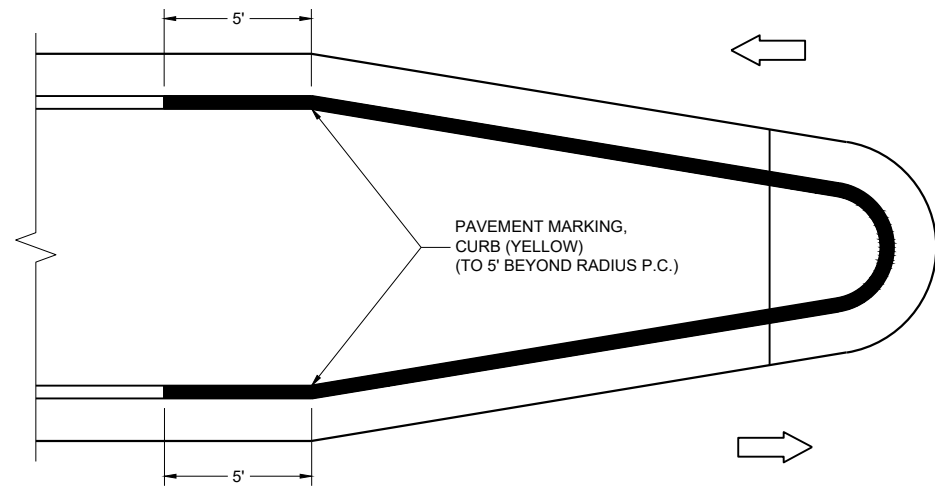
**MEDIAN ISLAND
PAVEMENT MARKINGS**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

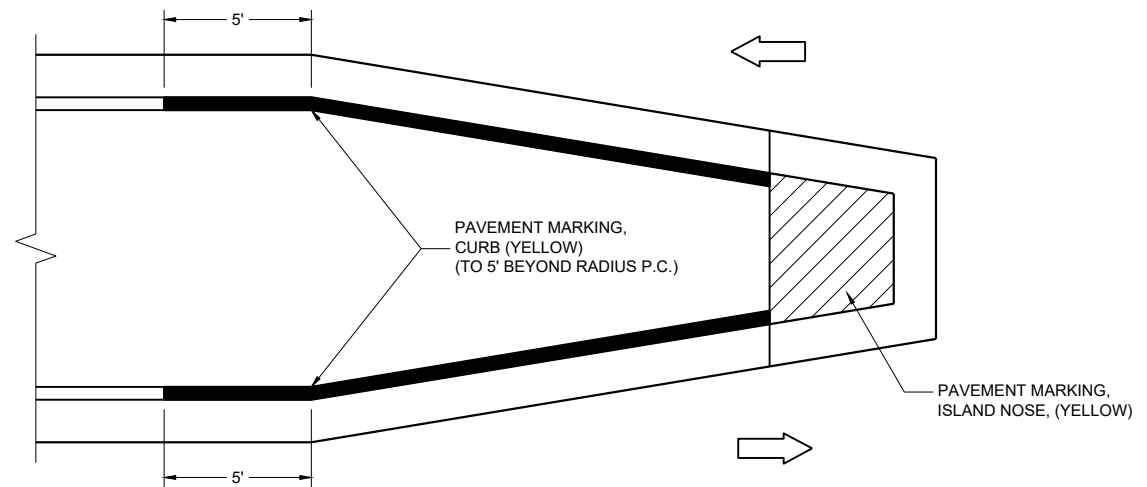
APPROVED
August 2024 /S/ Jeannie Silver
DATE Statewide Pavement Marking Engineer



MEDIAN ISLAND WITH SQUARE BLUNT NOSE



MEDIAN ISLAND WITH ROUND BLUNT NOSE



MEDIAN ISLAND WITH SLOPED NOSE

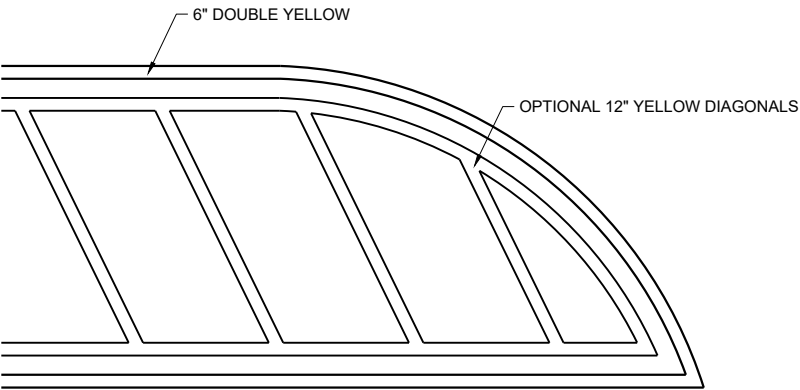
TYPICAL PLACEMENT OF
PAVEMENT MARKING ON MEDIAN ISLANDS

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

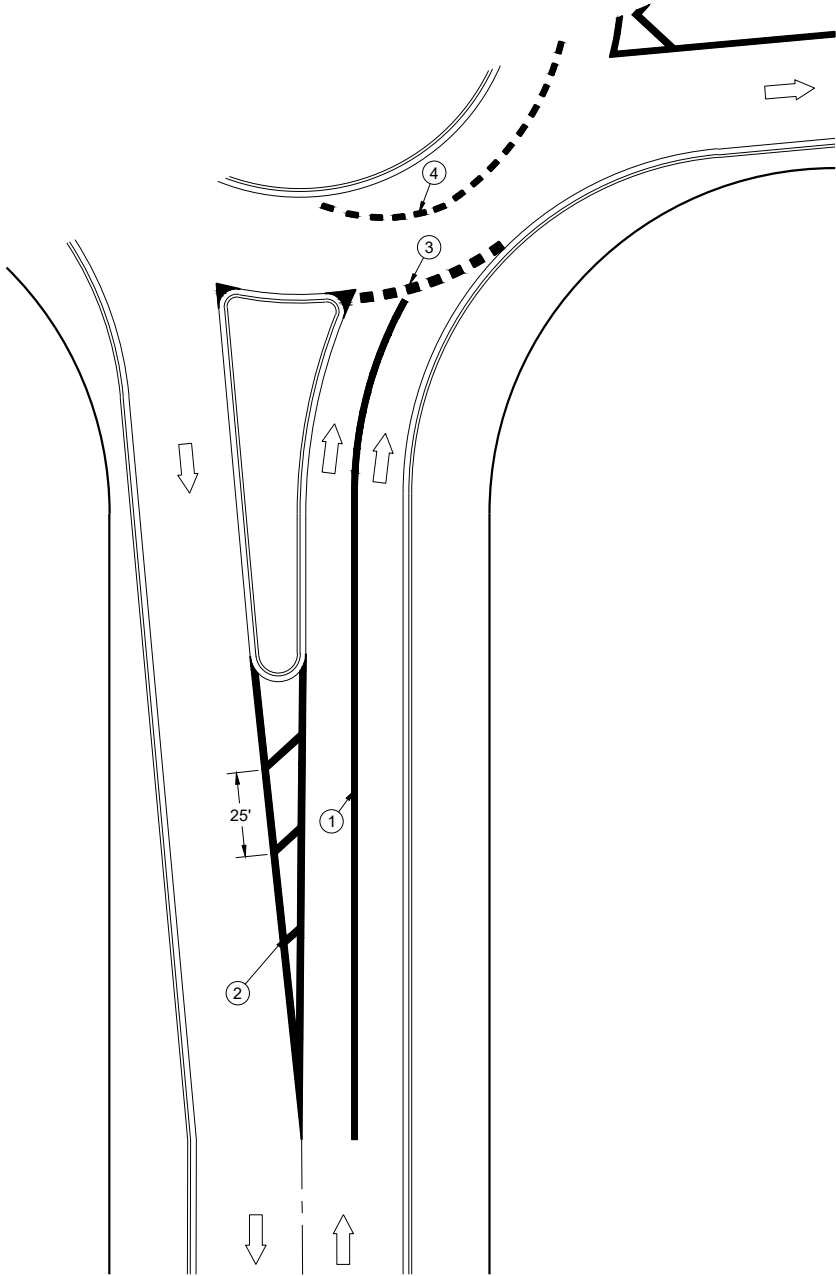
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

FHWA 135

LEGEND

- ① 10" WHITE
- ② 12" DIAGONALS AT 25' SPACING.
(CAN BE OMITTED IF LESS THAN 6')
- ③ 18" WHITE, 2' LINE, 2" GAP
- ④ 6" LINE (6 FT LINE, 3'GAP)
- DIRECTION OF TRAFFIC
- CURB AND GUTTER
- RIGHT OF WAY

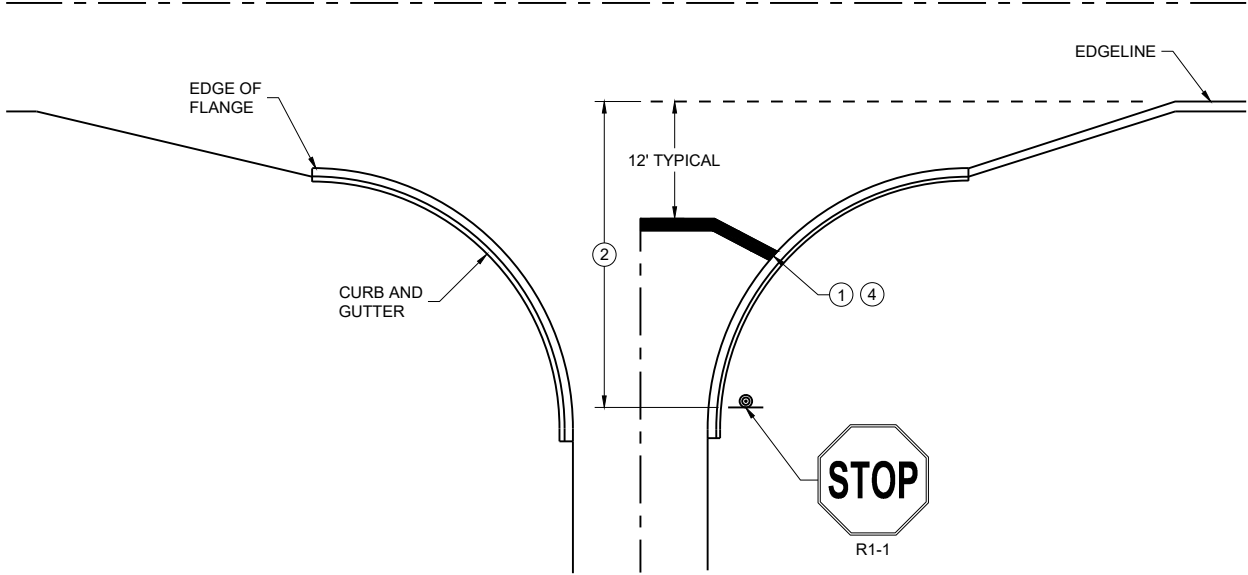


DOTTED EXTENSION FOR
ROUNDAABOUT

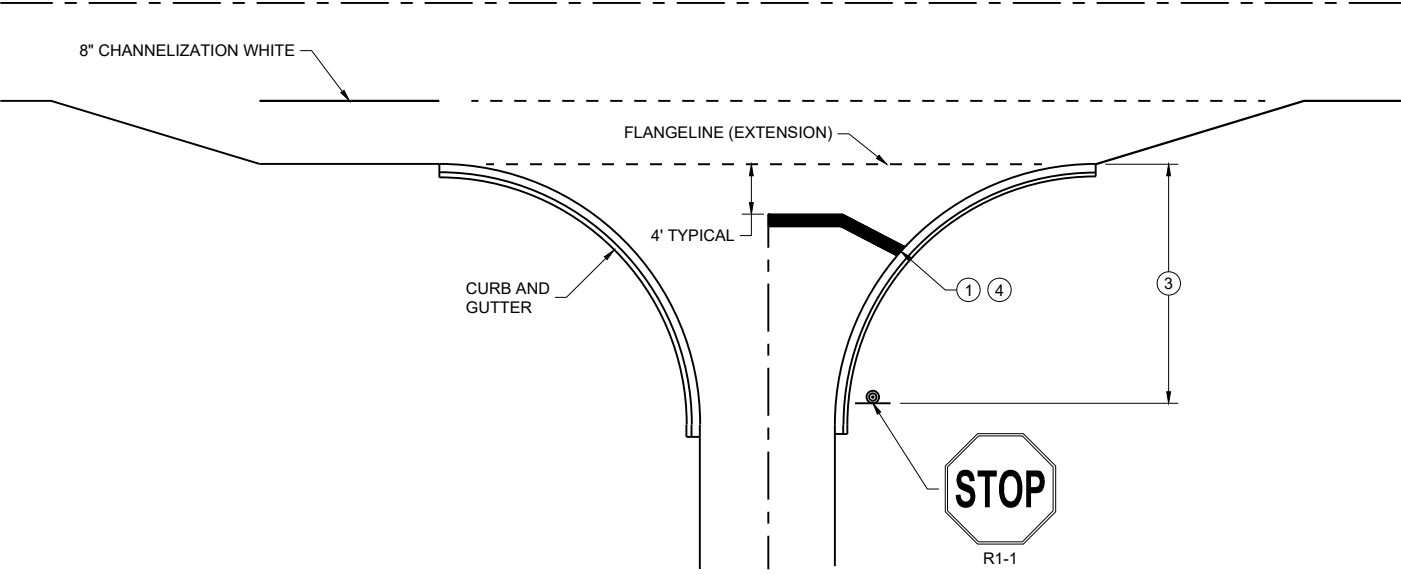
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
August 2024 /S/ Matthew Rauch
DATE ROADWAY STANDARDS DEVELOPMENT
UNIT SUPERVISOR

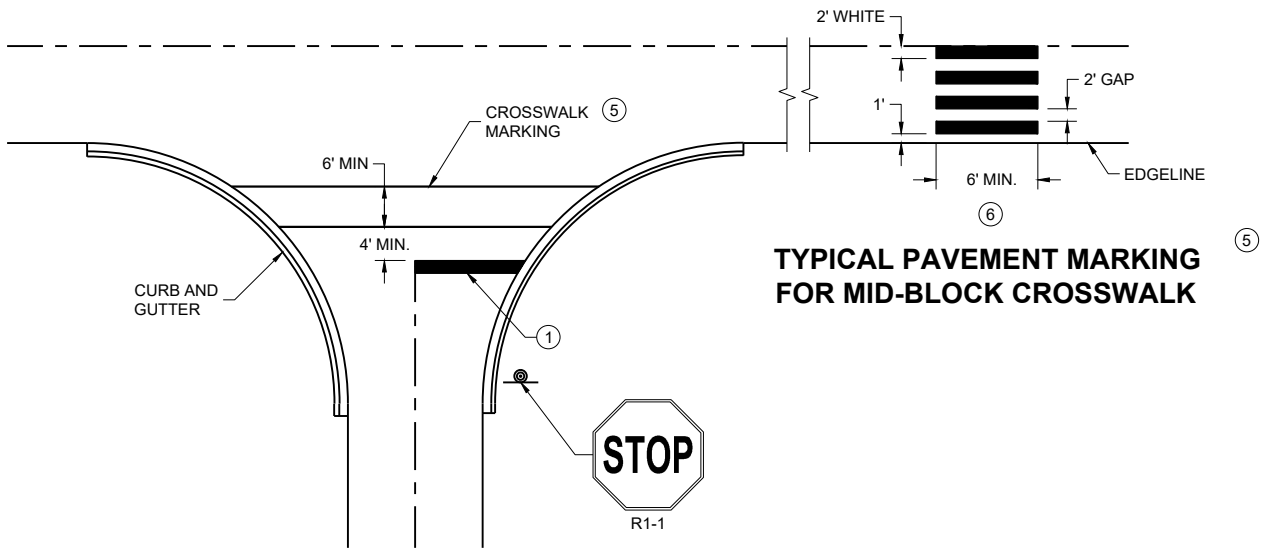
FHWA



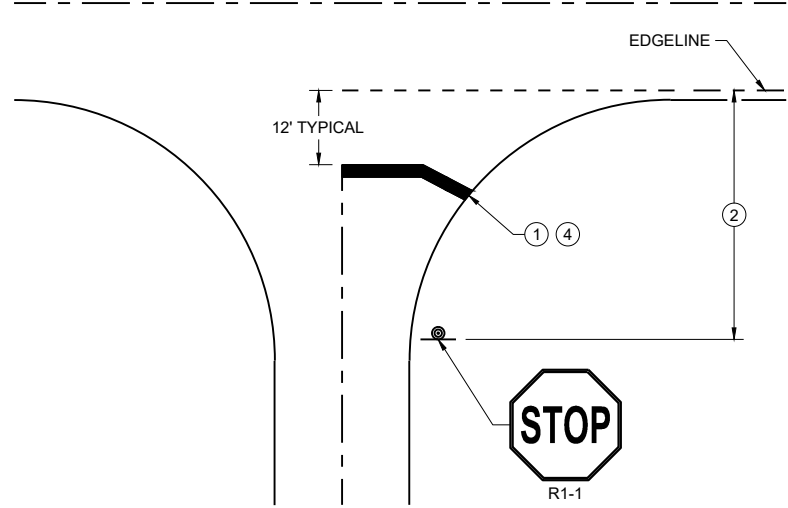
TYPICAL STOP LINE PAVEMENT MARKING WITH CURB AND GUTTER



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



TYPICAL STOP LINE PAVEMENT MARKING FOR SIDE ROADS WITH CROSSWALK MARKING



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.

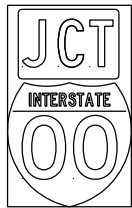
- 1 18-INCH STOP LINES MAY BE DELETED OR ADDED BY THE REGION MARKING ENGINEER BASED ON VISIBILITY AND SIGHT LINES.
- 2 NO STOP LINE IS REQUIRED IF STOP SIGN IS LESS THAN OR EQUAL TO 40 FEET FROM THE EDGELINE.
- 3 NO STOP LINE IS REQUIRED IF STOP SIGN IS LESS THAN OR EQUAL TO 30 FEET FROM THE FLANGE LINE 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

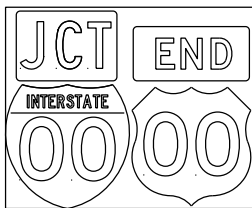
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

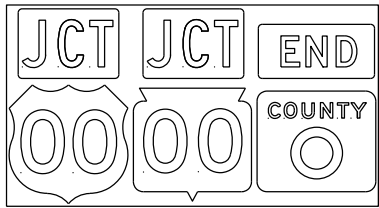
TYPICAL ASSEMBLIES



J1-1



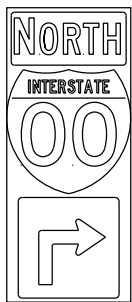
J1-2



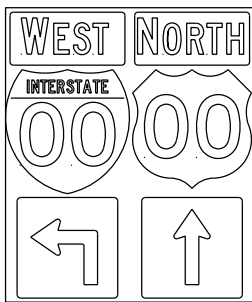
J1-3



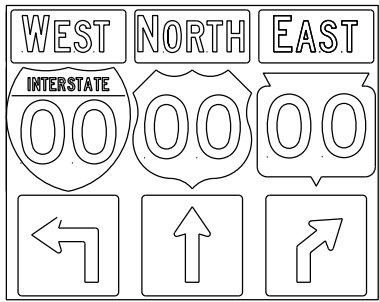
JR1-1



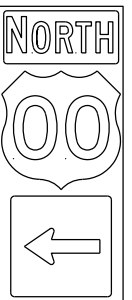
J2-1



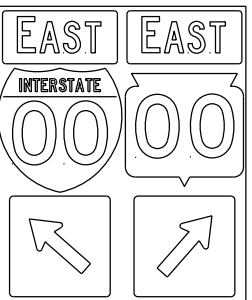
J2-2



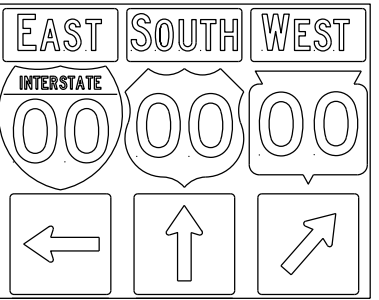
J2-3



J3-1



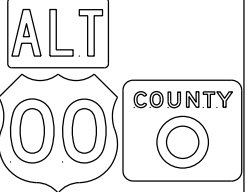
J3-2



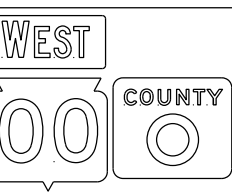
J3-3



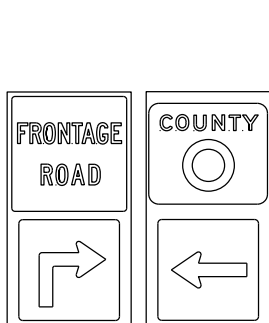
J4-1



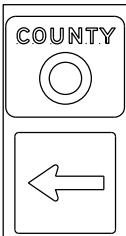
J4-2



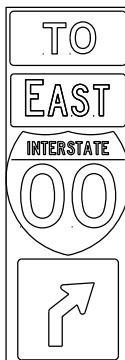
J4-2



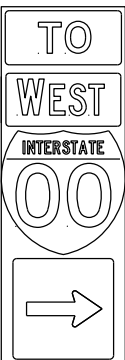
J12-1



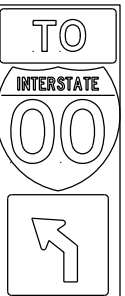
J13-1



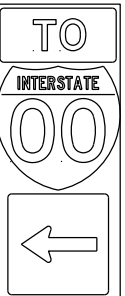
J32-1



J33-1



J22-1



J23-1



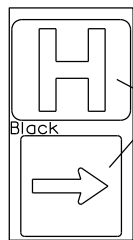
JR13-1



JR23-1



JR99-1

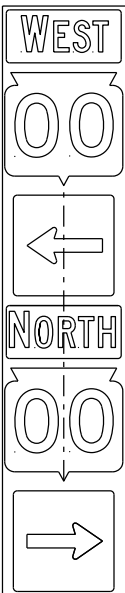
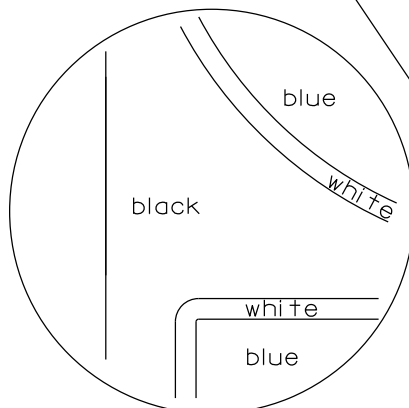


JH-1

Blue Background

Black

blue background with interstate

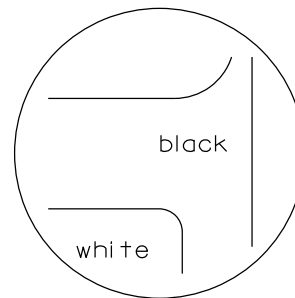
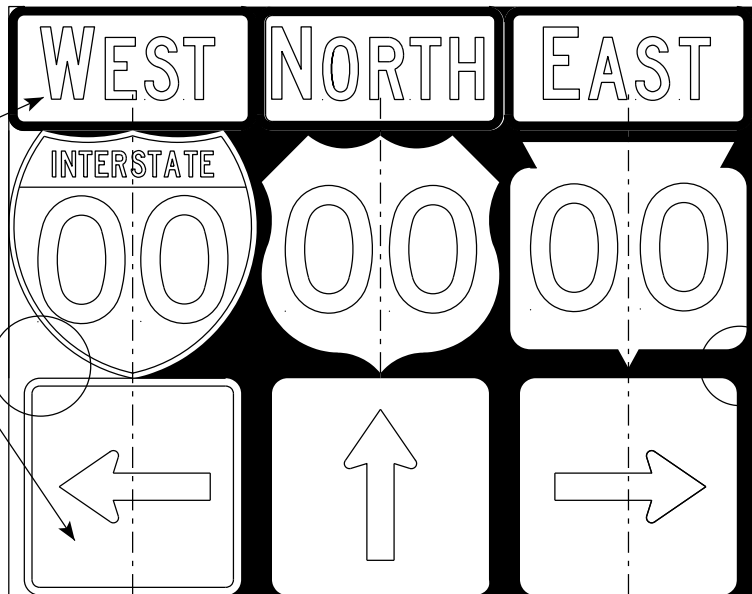


JV

(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

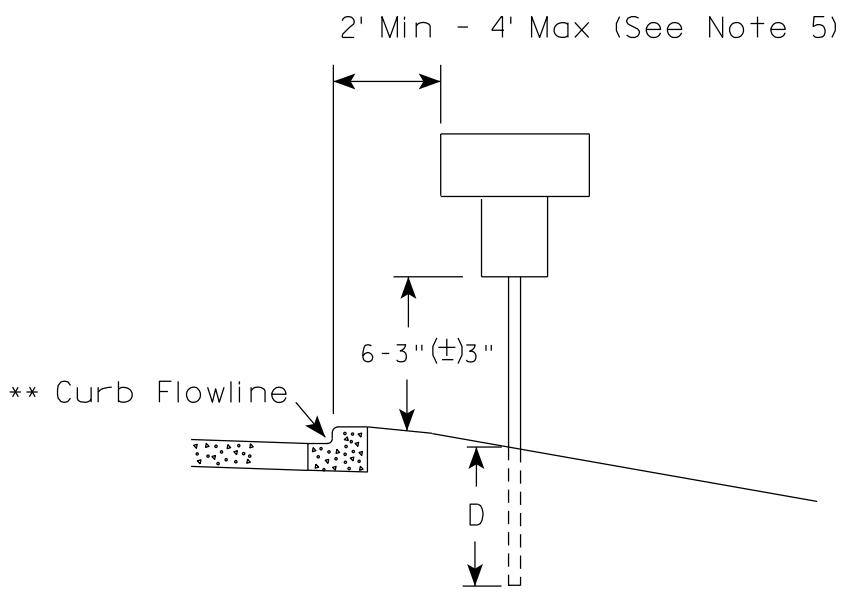
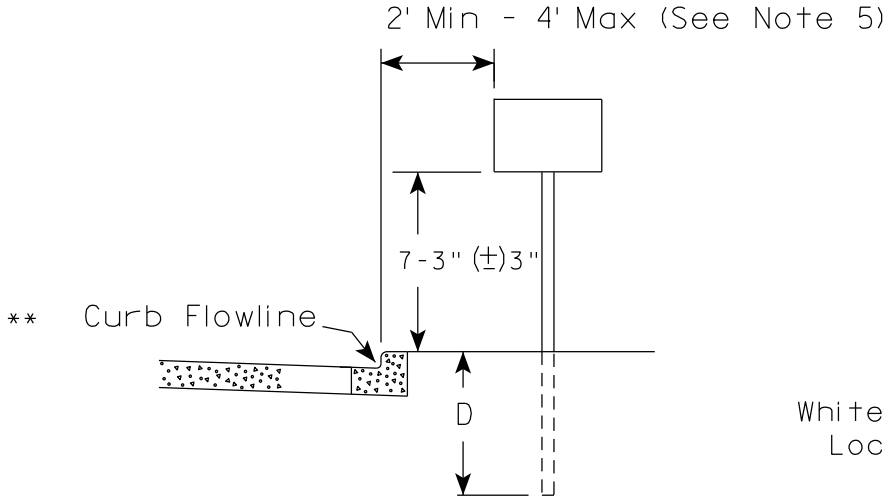
DATE 6/7/23 PLATE NO. A2-1S.10

PROJECT NO:

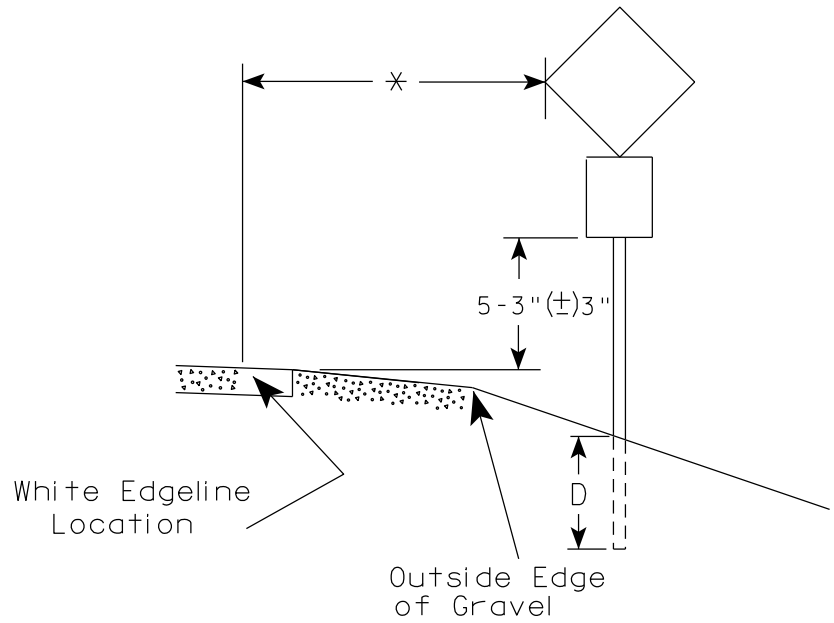
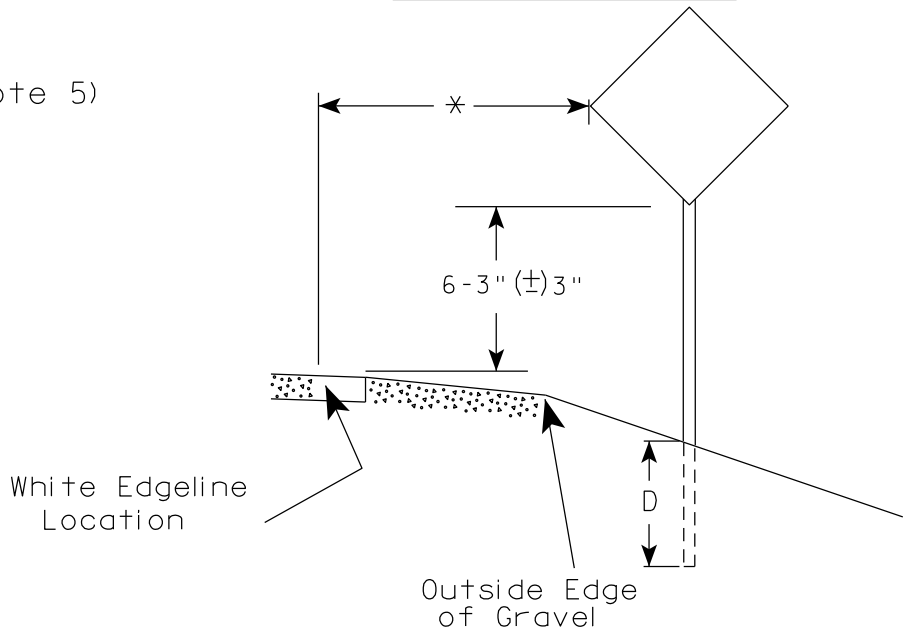
SHEET NO: 138

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.

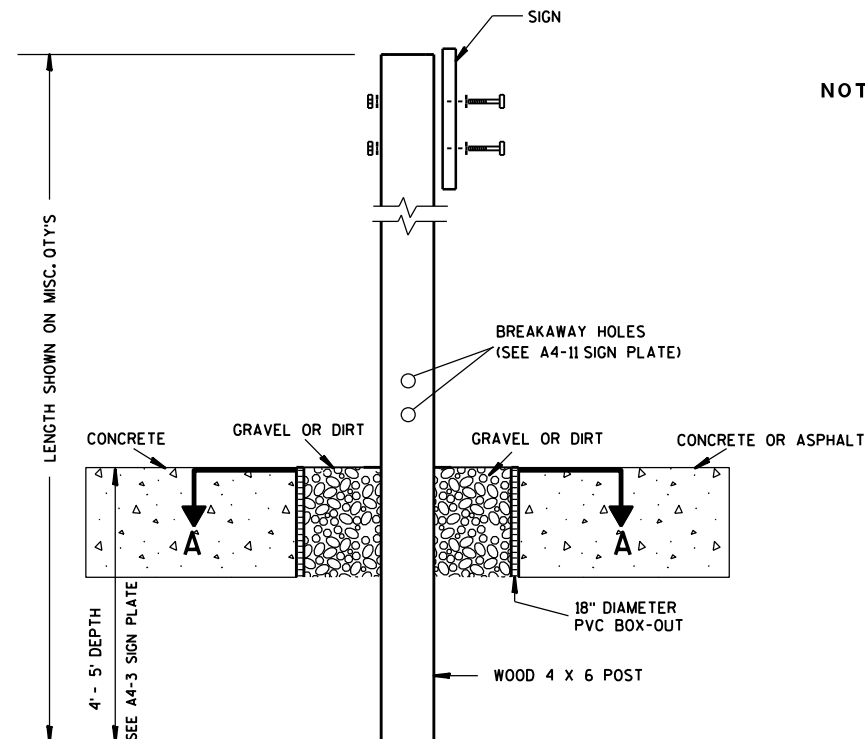
* 6 feet from edge of a paved shoulder or 12 feet from the edge of pavement (edge line location) or 2 feet from outside edge of gravel, whichever is greater unless directed by project engineer.

TYPICAL INSTALLATION
OF PERMANENT TYPE II
SIGNS ON SINGLE POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R. Rauch
for State Traffic Engineer

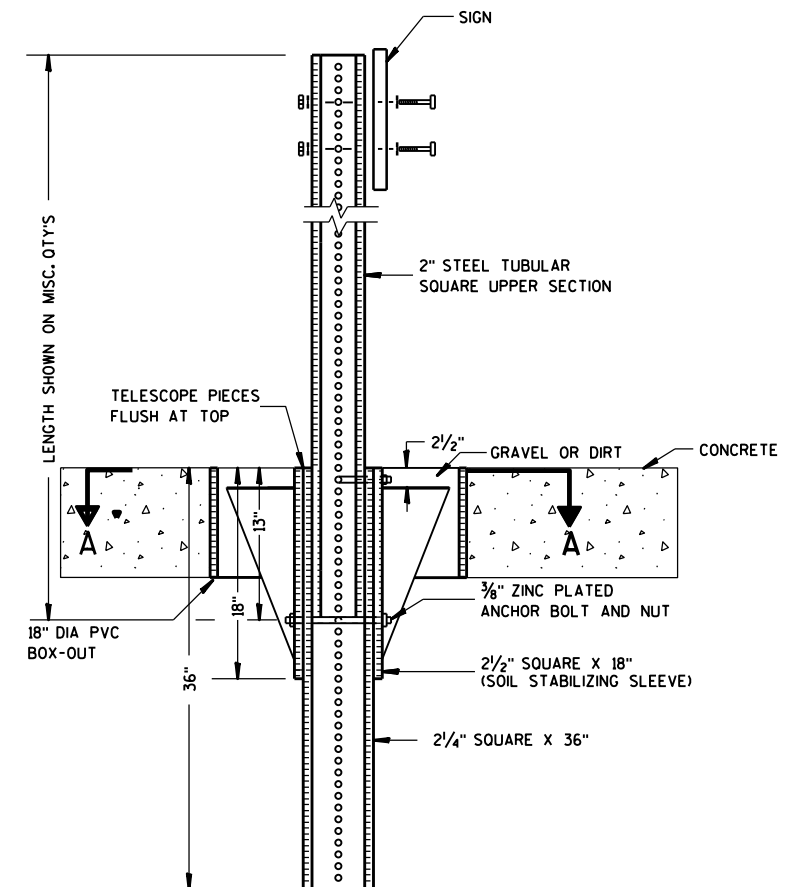
DATE 12/6/23 PLATE NO. A4-3.23



ELEVATION VIEW

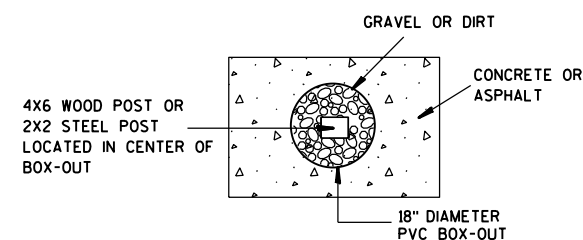
DETAIL OF WOOD 4 X 6 SIGN POST IN BOX-OUT

- 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 140 A4-3B.1

PROJECT NO:

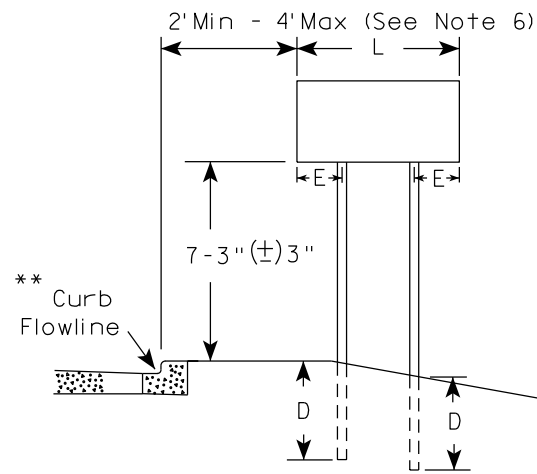
HWY:

COUNTY:

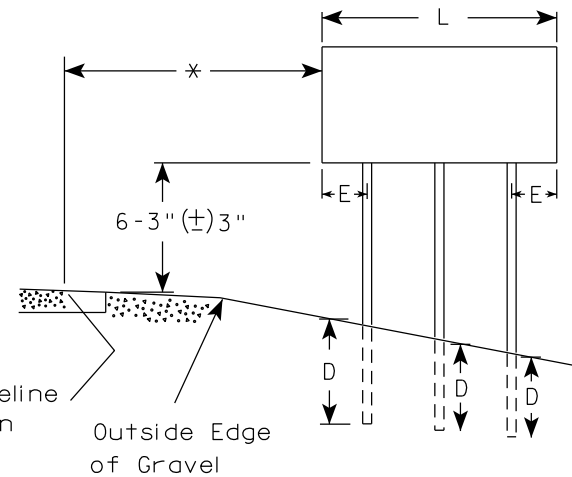
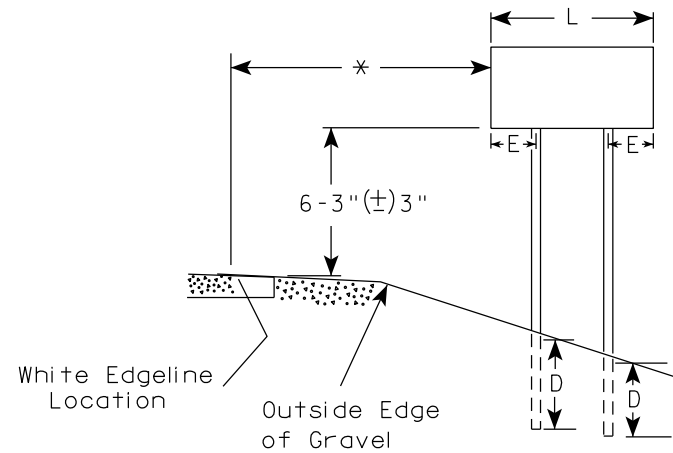
SHEET NO:

E

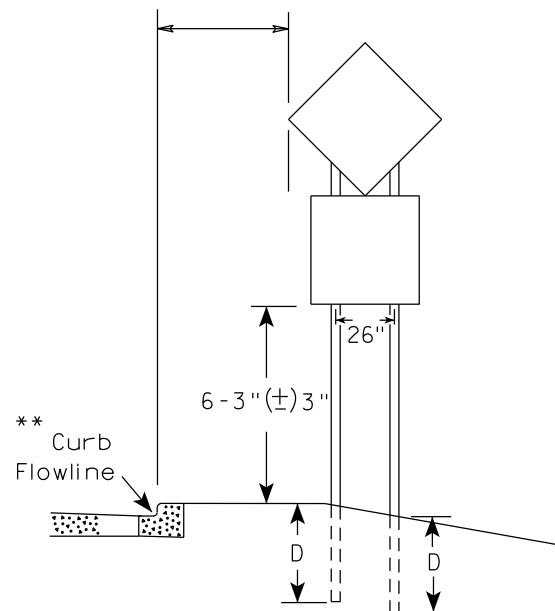
URBAN AREA



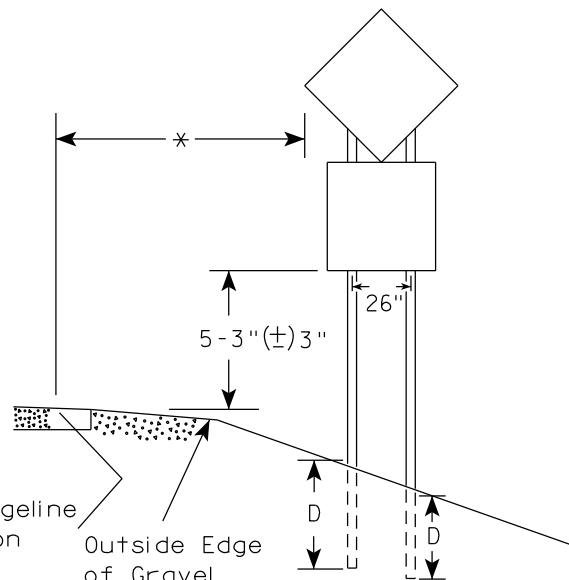
RURAL AREA (See Note 3)



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

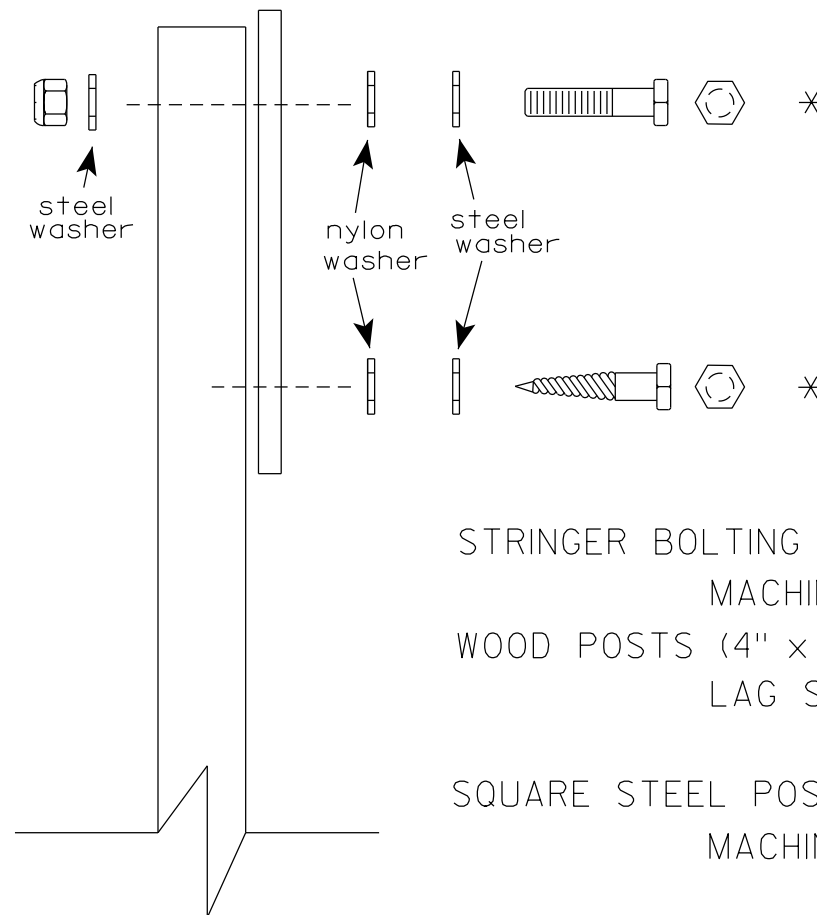
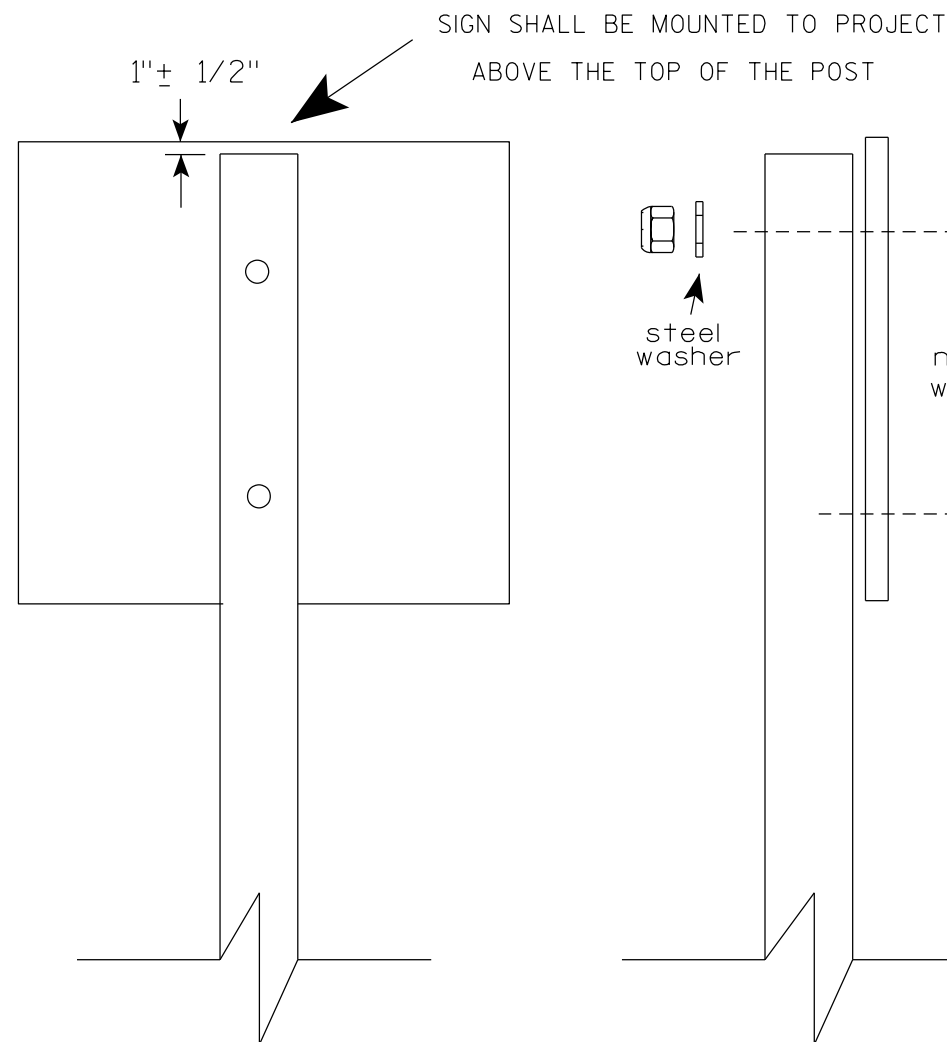
GENERAL NOTES

- 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.

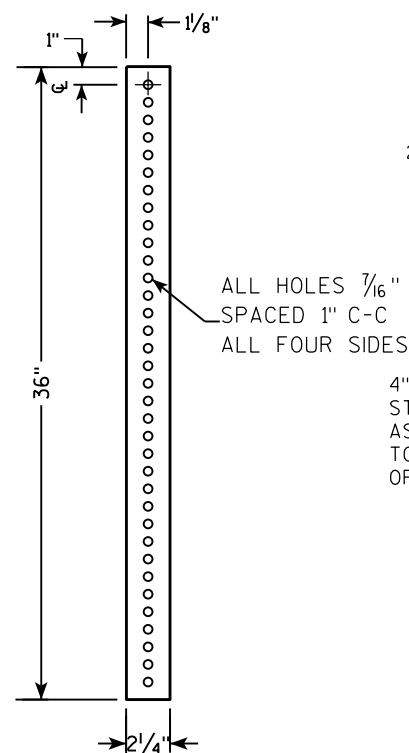
Threads on bolts and nuts shall be manufactured with sufficient allowance for the cadmium plate or galvanized coating to permit the nuts to run freely on the bolts.

- 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

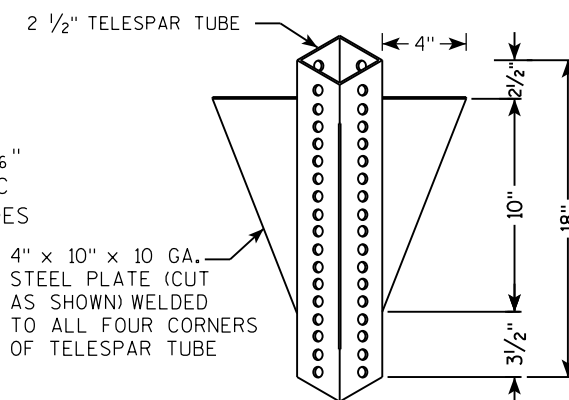
* Two different fastening systems are shown for illustration purposes. On any individual sign, either one or the other system shall be used. Actual number of fasteners per sign varies with the sign area, but normally there are two. For a single post installation, all signs greater than 9 sq. ft. require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



TELESCOPE PIECES
FLUSH AT TOP

18" DIA SCHEDULE
40 PVC
BOX-OUT

36"

13"

18"

2 1/2" GRAVEL OR DIRT

3/8" ZINC PLATED CORNER
ANCHOR BOLT AND NUT

2 1/2" SQUARE X 18"
(SOIL STABILIZING SLEEVE)

2 1/4" SQUARE X 36"

2" STEEL TUBULAR
SQUARE UPPER SECTION

ALL HOLES 7/16"
SPACED 1" C-C
ALL FOUR SIDES

SEE SIGN PLATE
A4-8 FOR BOLT
WASHER, & NUT
MATERIAL

SIGN

TECHNICAL DRAWING OF A SIGNPOST ASSEMBLY.

Side View Dimensions:

- Overall height: LENGTH SHOWN ON MISC. QTYS
- Section A-A: 36" (Total height of the main post section)
- Section B-B: 18" (Height of the upper section)
- Section C-C: 12" (Height of the lower section)

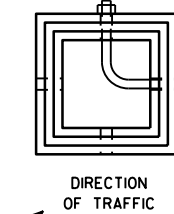
End View Details:

- SIGN:** Indicated at the top.
- SEE SIGN PLATE A4-8 FOR BOLT WASHER, & NUT MATERIAL**
- 2" STEEL TUBULAR SQUARE UPPER SECTION**
- ALL HOLES $\frac{7}{16}$ " SPACED 1" C-C ALL FOUR SIDES**
- $\frac{3}{8}$ " ZINC PLATED CORNER ANCHOR BOLT AND NUT** (1" spacing)
- $\frac{3}{8}$ " ZINC PLATED ANCHOR BOLT AND NUT**
- 2 1/2" SQUARE X 18" (SOIL STABILIZING SLEEVE)**
- 2 1/4" SQUARE X 36"**

Assembly Notes:

- TELESCOPE PIECES FLUSH AT TOP
- Section A-A shows the post embedded in a base.
- Section B-B shows the post embedded in a base.
- Section C-C shows the post embedded in a base.

3/8" ZINC PLATED CORNER
ANCHOR BOLT AND NUT



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

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

TUBULAR STEEL
SIGN POST
A4-9

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R. Rauch

for State Traffic Engineer

DATE 2/05/15 PLATI 143 14-9.9

SHEET NO:

PROJECT NO:

HWY:

COUNTY:

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

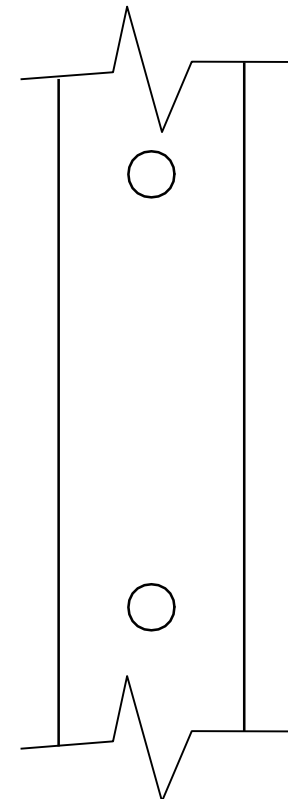
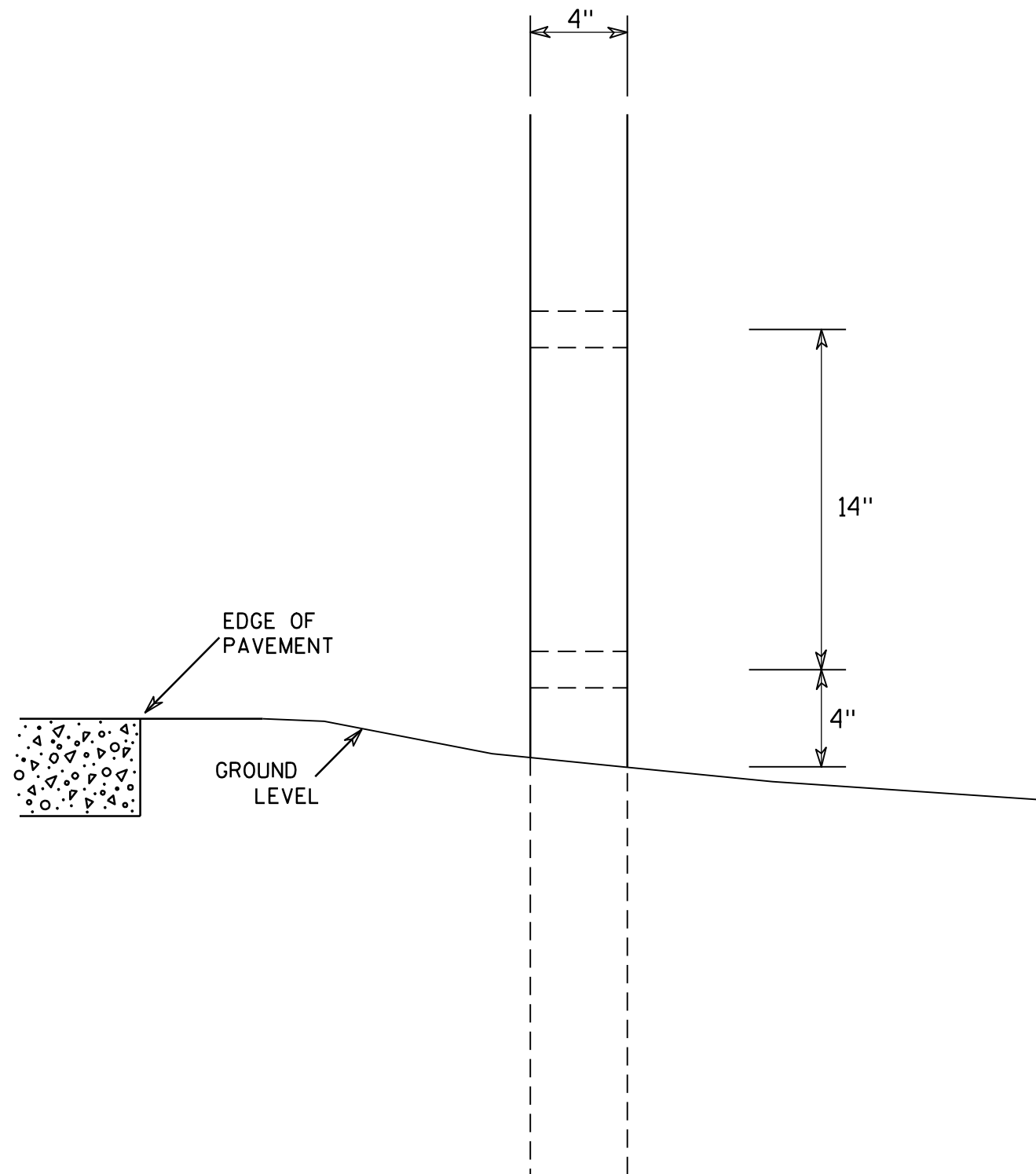
PLOT DATE : 05-FEB-2015 17:09

PLOT BY : mscs_ja

PLOT NAME :

PLOT SCALE : 13.659812:1.000000

WISDOT/CADDS SHEET 42



SIDE VIEW

GENERAL NOTES

1. All 4 x 6 Wood Posts shall be modified by having two 1 1/2" diameter holes drilled perpendicular to the roadway centerline.

4 X 6 WOOD POST MODIFICATIONS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED

Chester J. Spang
for State Traffic Engineer

DATE 3/27/97

PLATE NO. A4-11.2

PROJECT NO:

HWY:

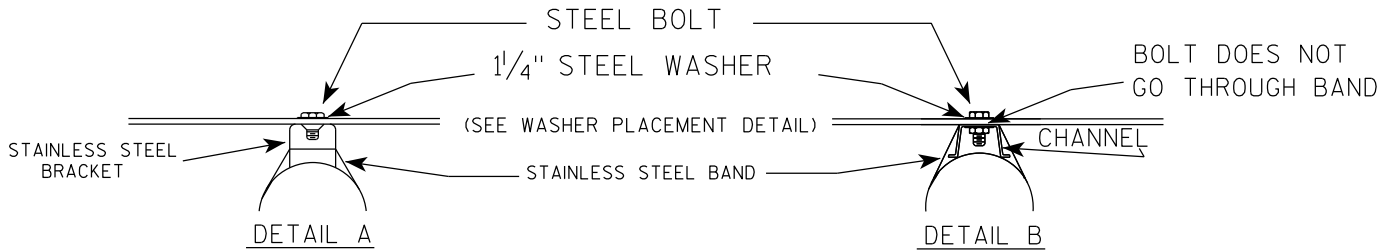
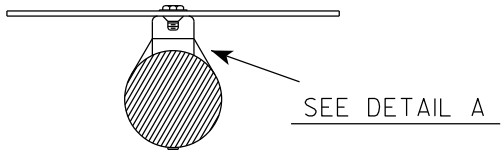
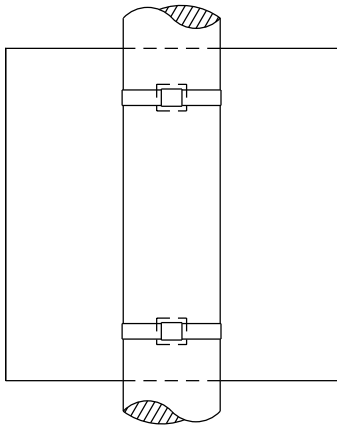
COUNTY:

SHEET NO: 144

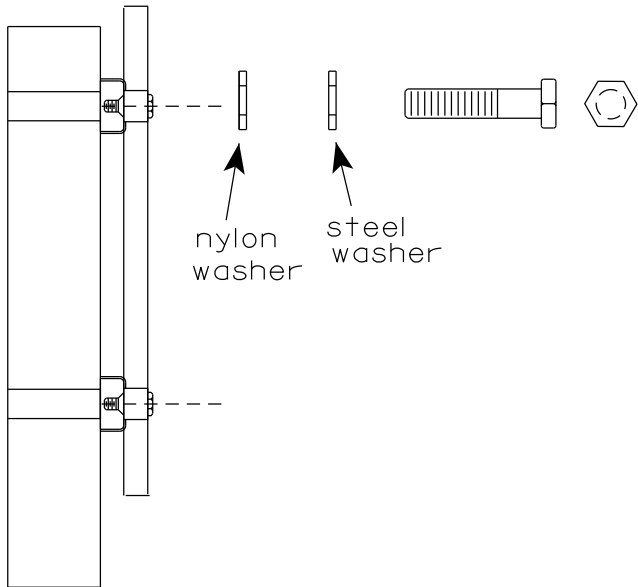
E

BANDING

SINGLE SIGN



WASHER PLACEMENT

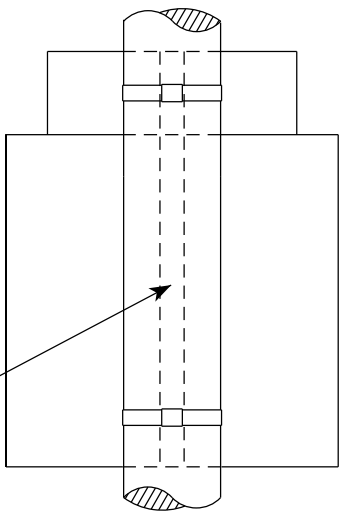


WASHERS (ALL POSTS) -
1-1/4" O.D. X 3/8" I.D. X 1/16" STEEL
1-1/4" O.D. X 3/8" I.D. X .080 NYLON
FOR ALL TYPE H SIGNS

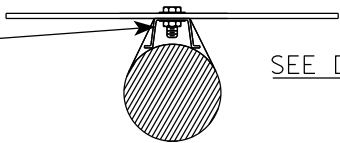
GENERAL NOTES

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 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



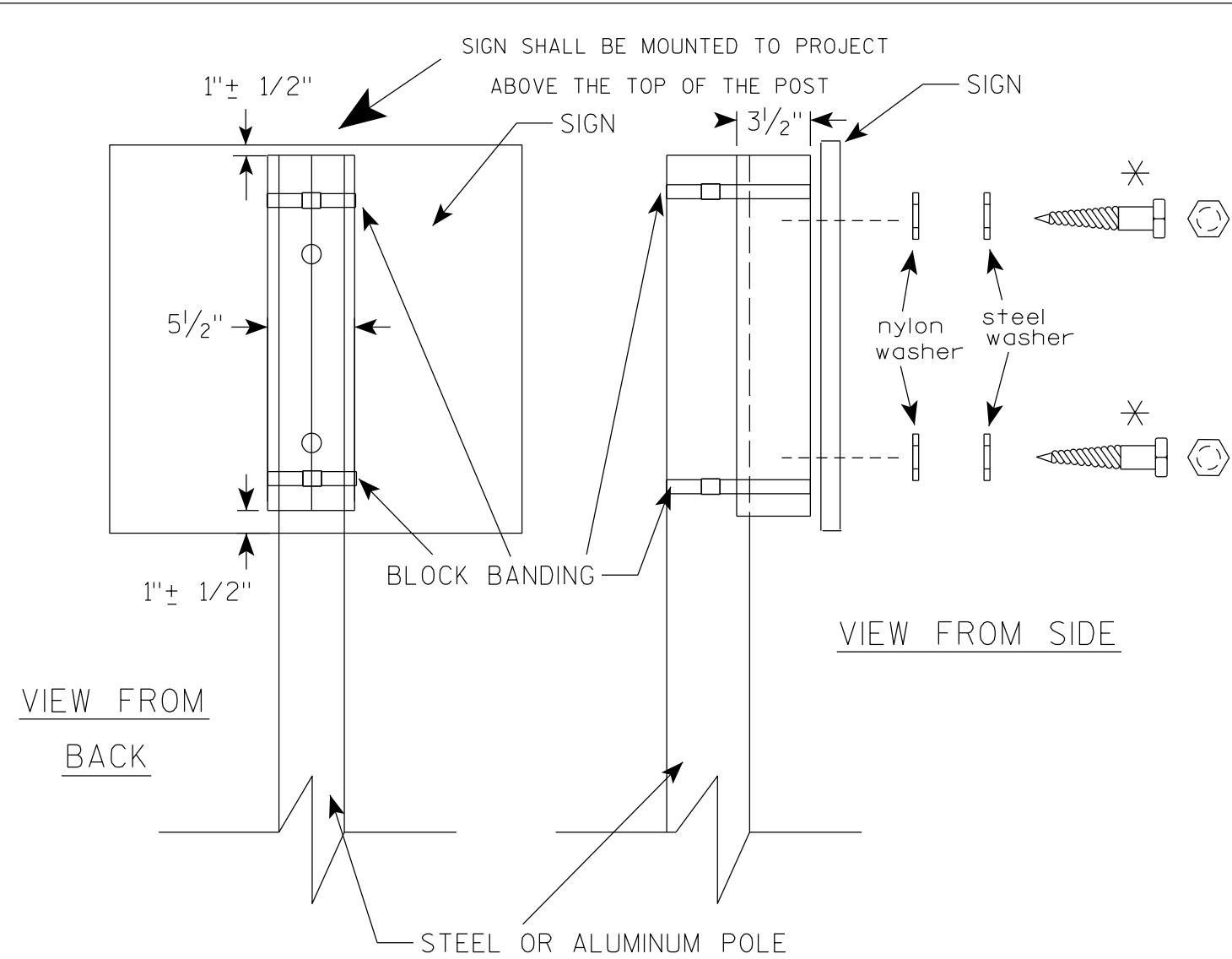
CHANNEL
SEE TYPICAL PANEL
INSTALLATION SHEET



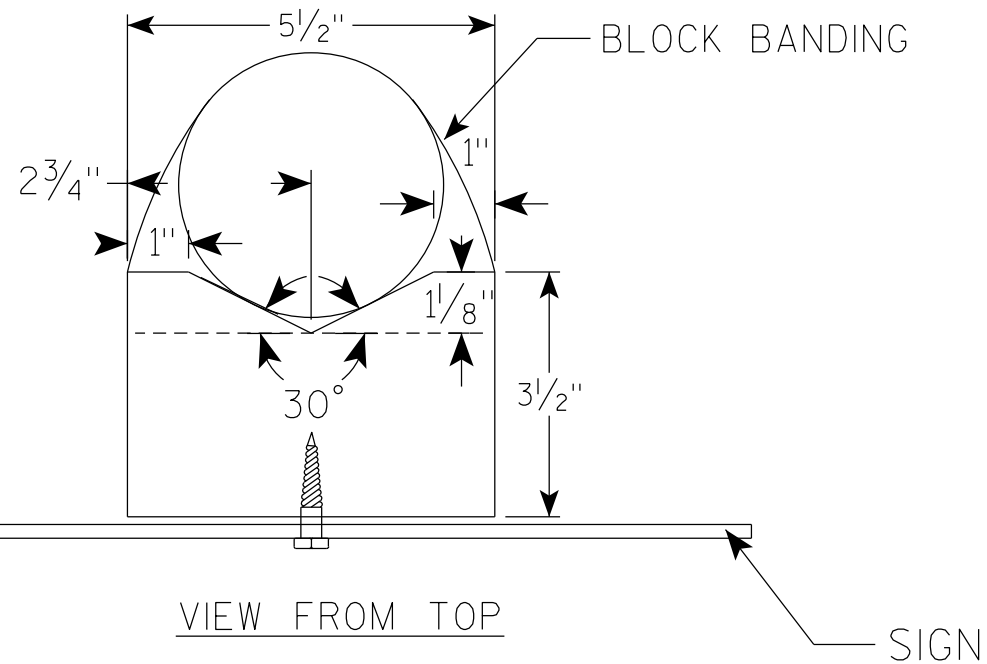
STANDARD SIGN
SIGN BANDING DETAILS

WISCONSIN DEPT OF TRANSPORTATION

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



VIEW FROM
BACK



GENERAL NOTES

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

✱ LAG BOLTS SHALL BE 3/8" X 2 1/2"

BLOCK BANDING DETAIL
(V-BLOCK OPTION)

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

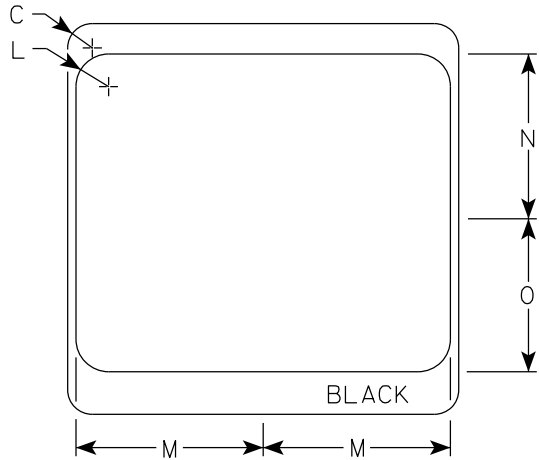
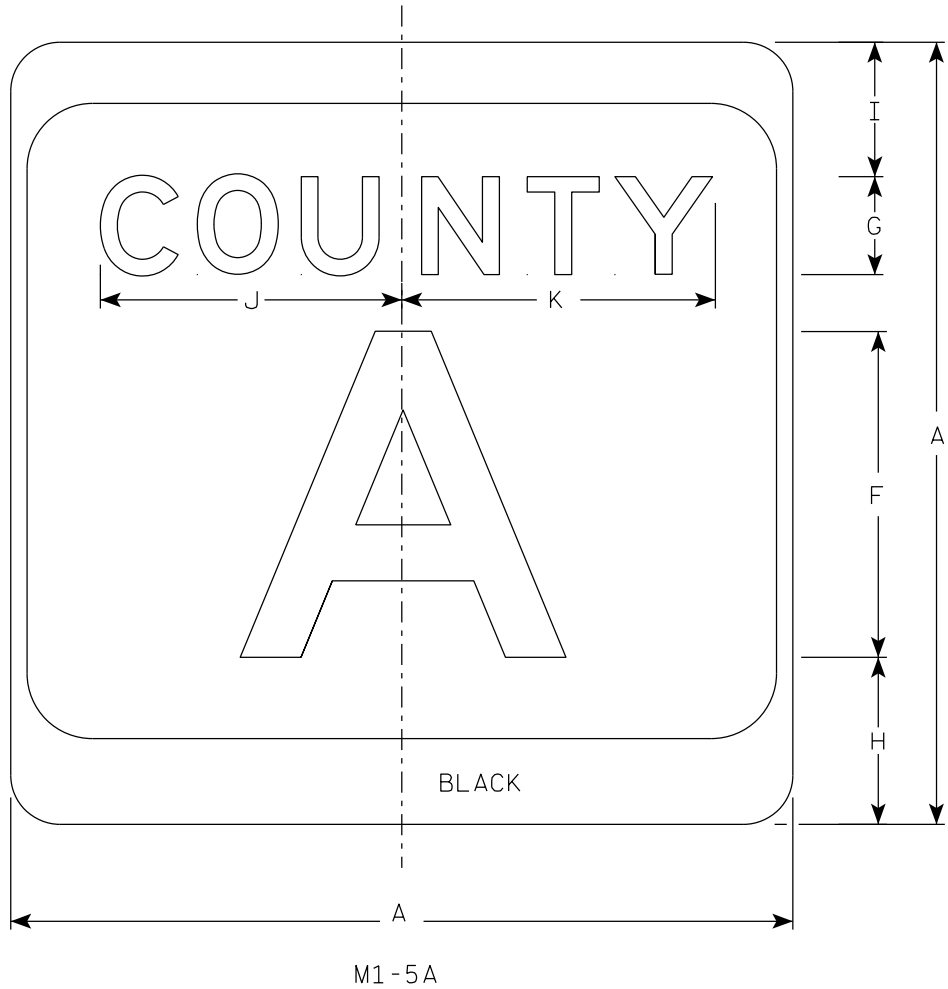
DATE 4/19/2022 PLATE NO. A5-10.3

PROJECT NO:

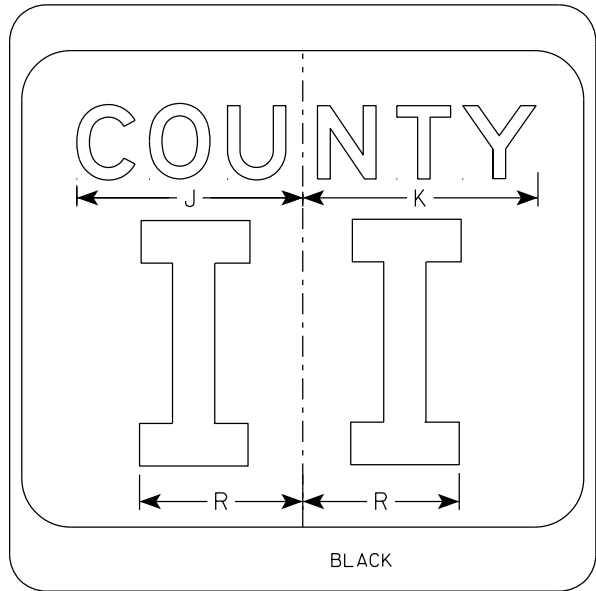
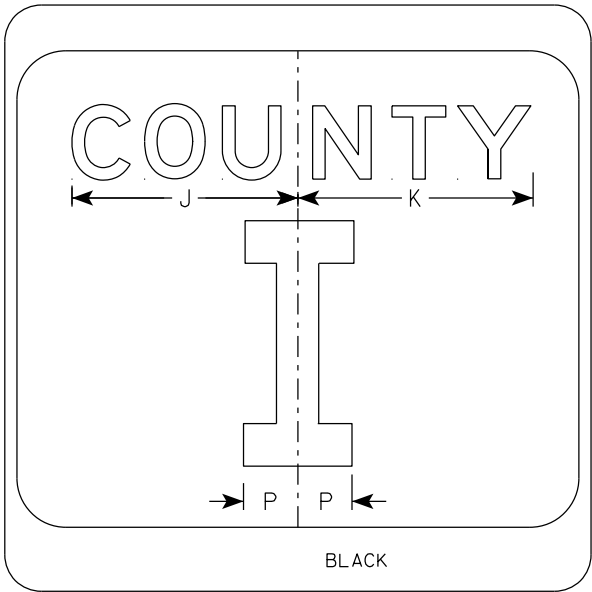
SHEET NO: 146

E

7



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



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

CTH MARKER

M1-5A FOR ASSEMBLIES

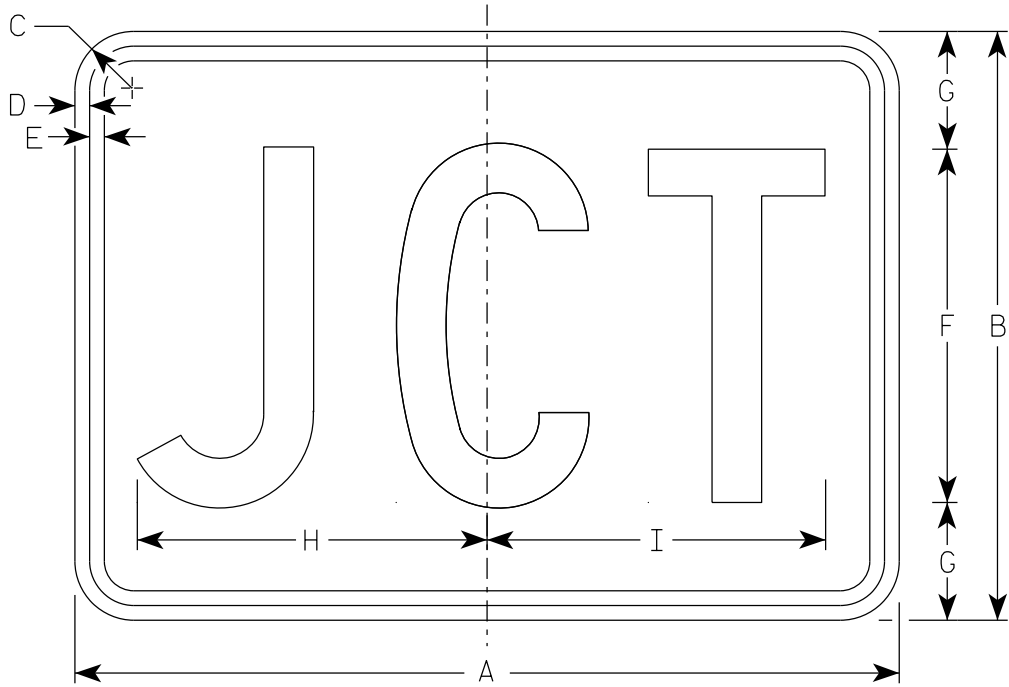
WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

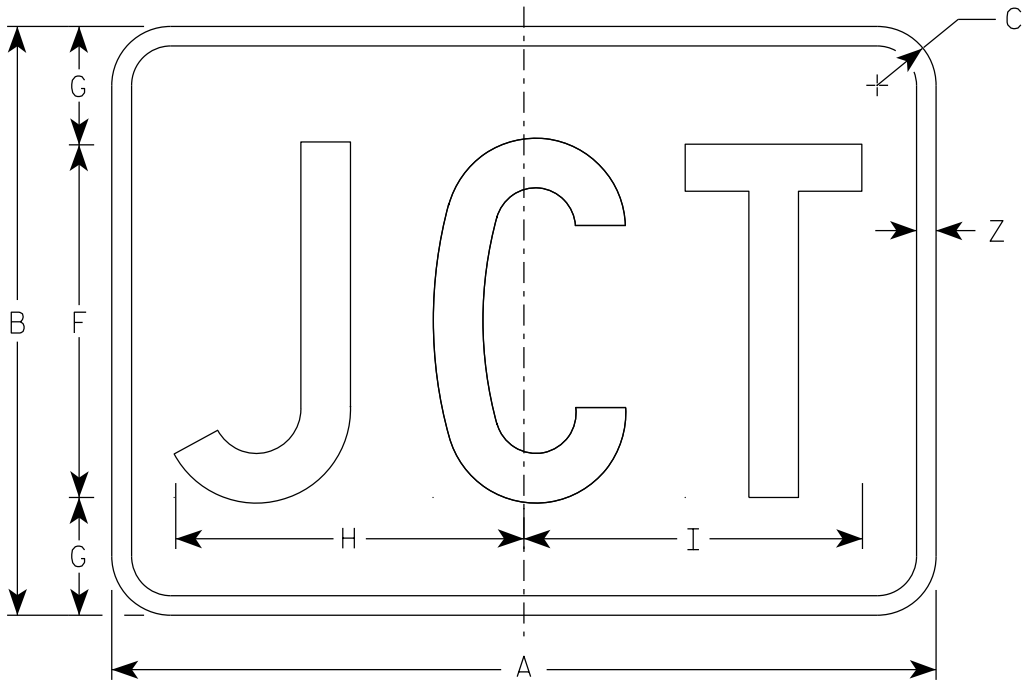
DATE 11/8/2022 PLATE NO. M1-5A.9

7

7



M2-1
MM2-1
MP2-1



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

NOTES

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

7

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

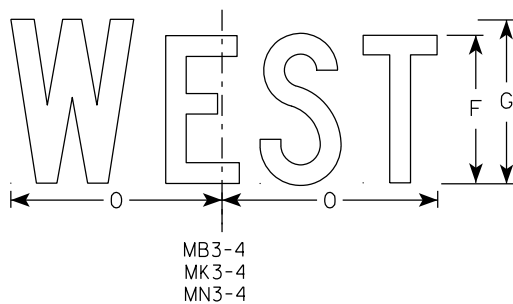
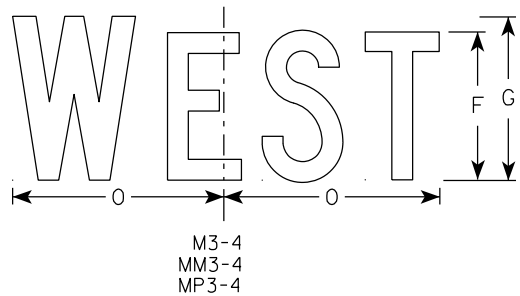
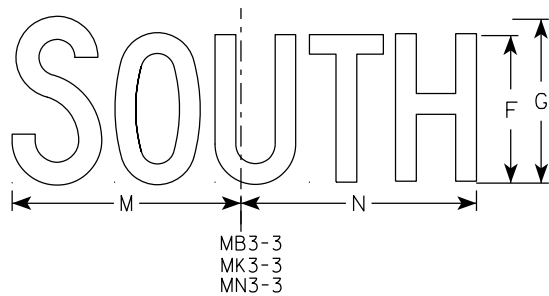
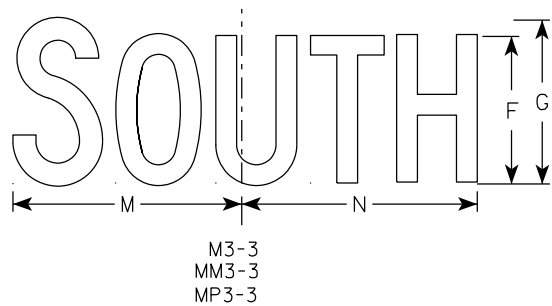
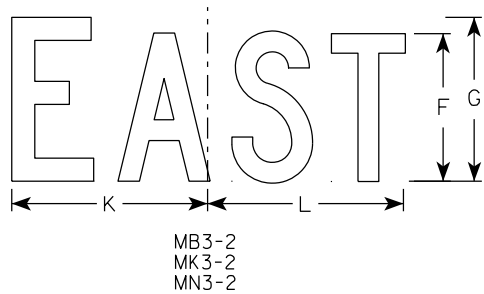
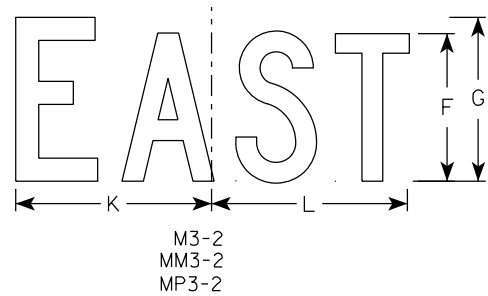
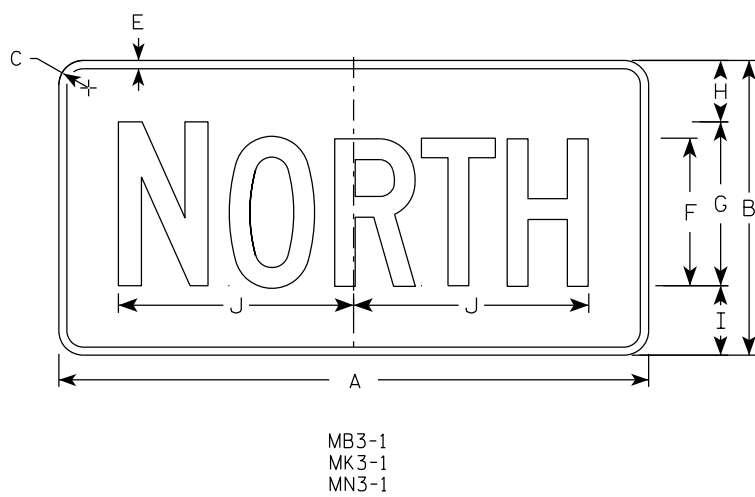
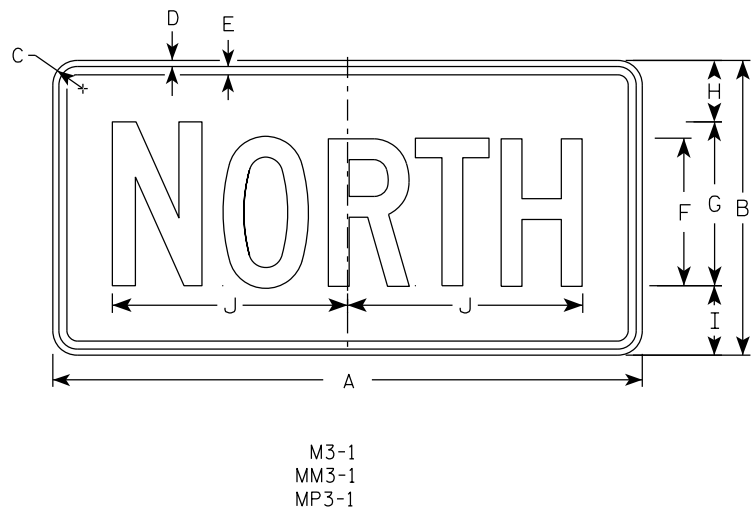
PROJECT NO:

HWY:

COUNTY:

SHEET NO: 148

E



NOTES

1. All Signs Type II - Type H Reflective
2. Color:
Background - See note 5
Message - See note 5
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.
5. 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
6. 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

PROJECT NO:	HWY:	COUNTY:	SHEET NO: 149	E
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STANDARD SIGNS
M3-1 THRU M3-4
SERIES

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

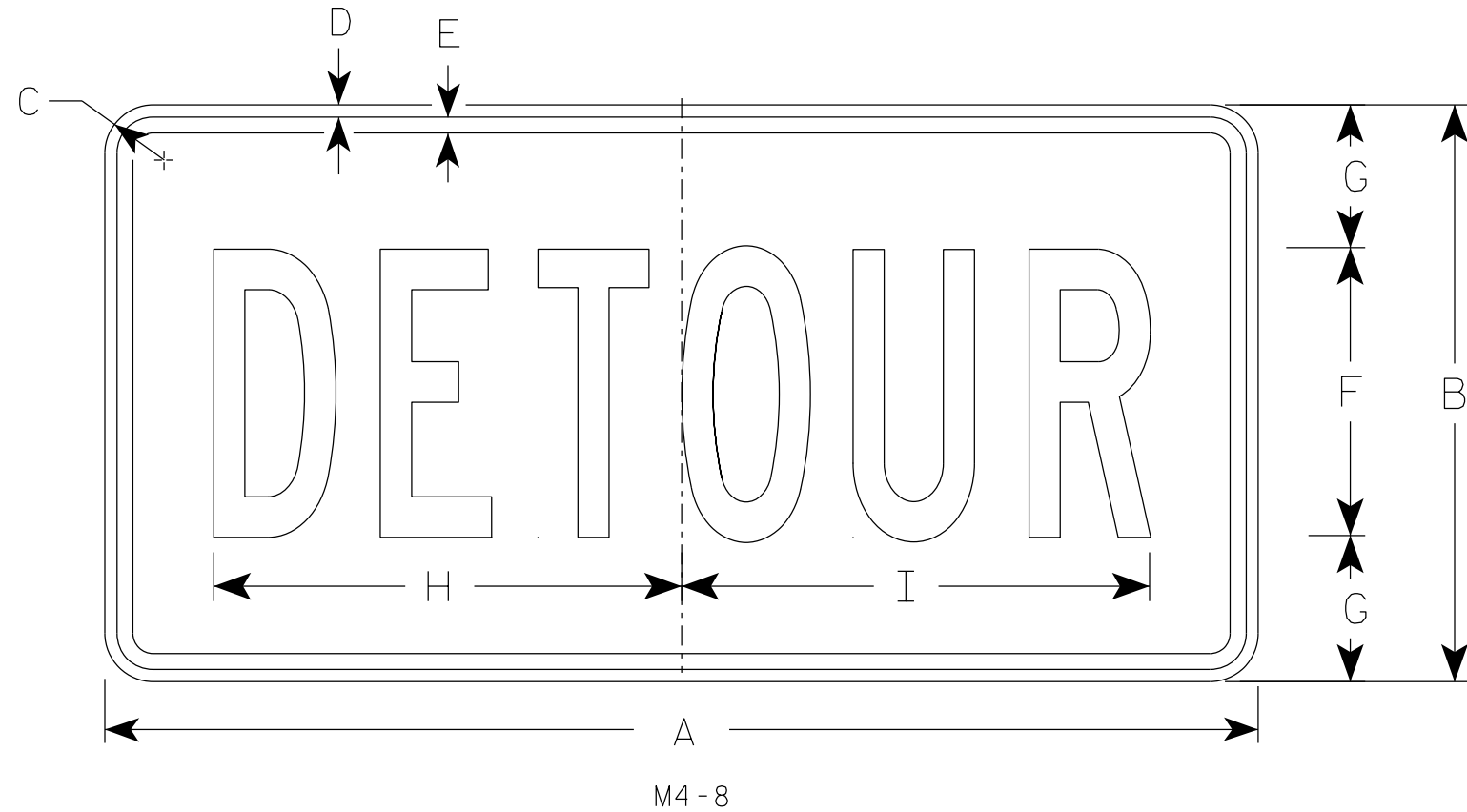
DATE 2/8/2023 PLATE NO. M3-1.15

7

7

NOTES

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



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	12	1 1/2	3/8	3/8	6	3	10	10 1/4																		2.0
2M	24	12	1 1/2	3/8	3/8	6	3	10	10 1/4																		2.0
3	36	18	1 1/2	3/8	1/2	9	4 1/2	14 5/8	14 1/2																		4.5
4	36	18	1 1/2	3/8	1/2	9	4 1/2	14 5/8	14 1/2																		4.5
5	36	18	1 1/2	3/8	1/2	9	4 1/2	14 5/8	14 1/2																		4.5

STANDARD SIGN

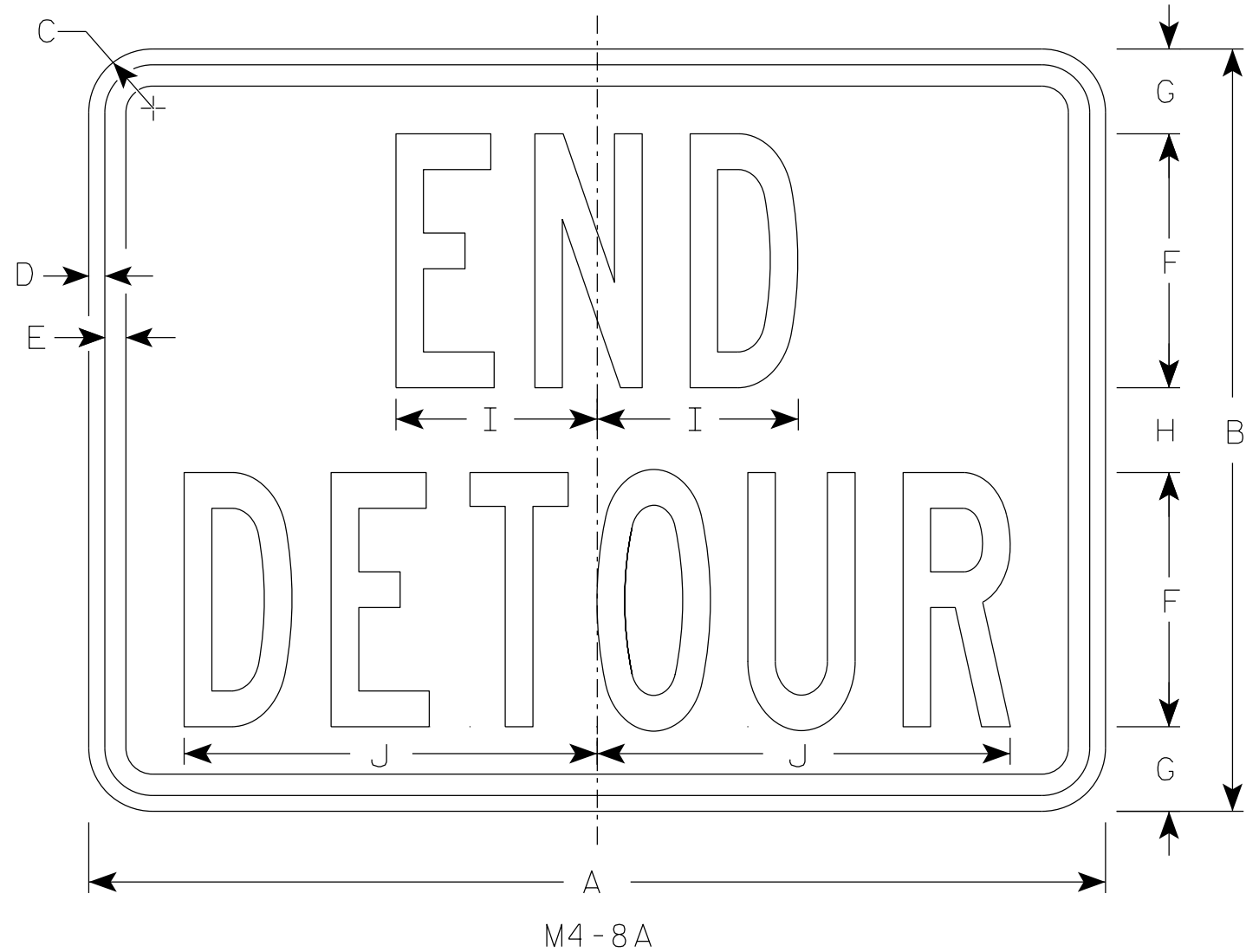
M4-8

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 2/9/2023 PLATE NO. M4-8.4

7



NOTES

- 1. Sign is Type II - Type F Reflective
- 2. Color:
 - Background - Orange
 - Message - Black
- 3. Message Series - B
- 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																											
2	24	18	1 1/2	3/8	1/2	6	2	2	4 3/4	9 3/4																	3.0
2M	24	18	1 1/2	3/8	1/2	6	2	2	4 3/4	9 3/4																	3.0
3	30	24	1 1/2	3/8	1/2	8	2 1/2	3	6 3/4	13																	5.0
4	30	24	1 1/2	3/8	1/2	8	2 1/2	3	6 3/4	13																	5.0
5	30	24	1 1/2	3/8	1/2	8	2 1/2	3	6 3/4	13																	5.0

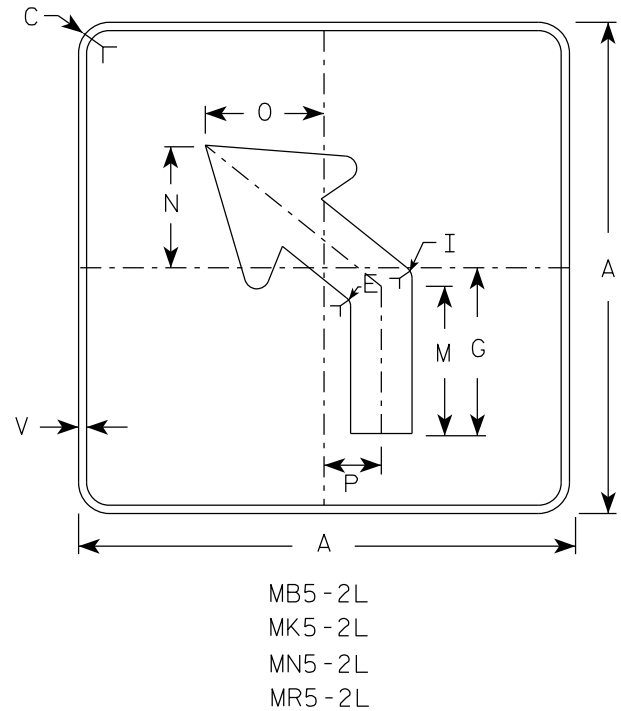
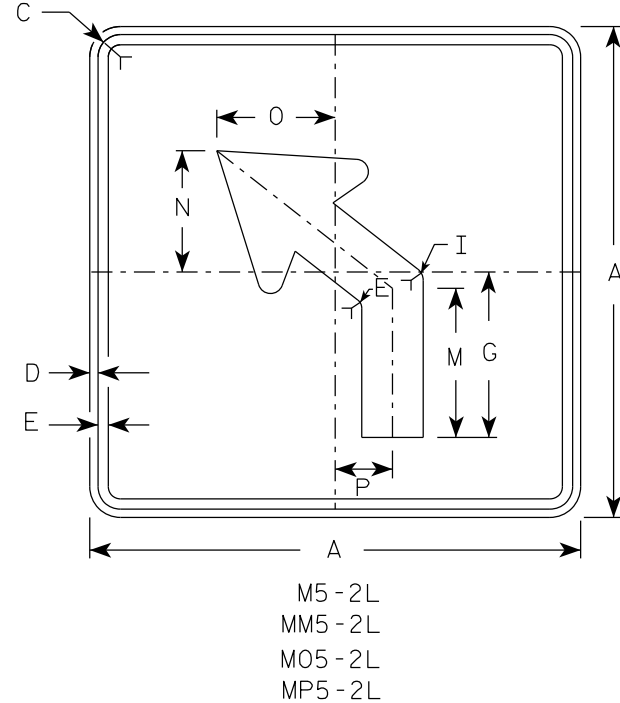
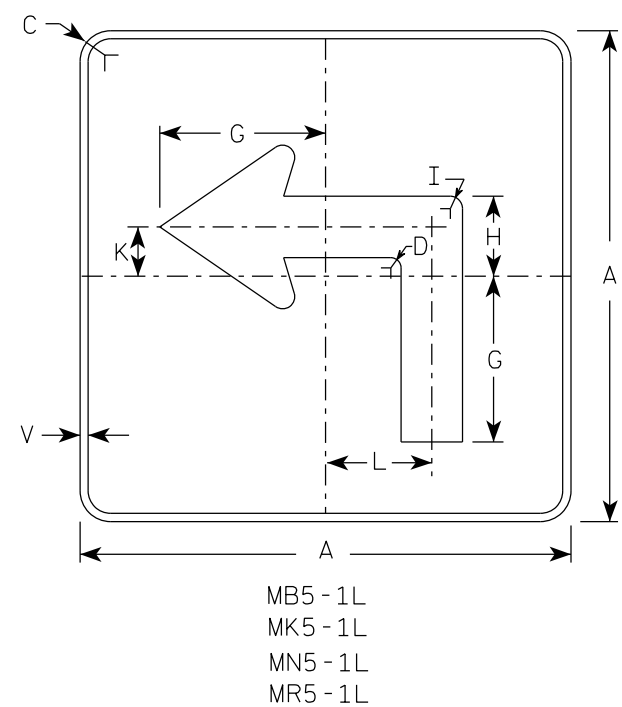
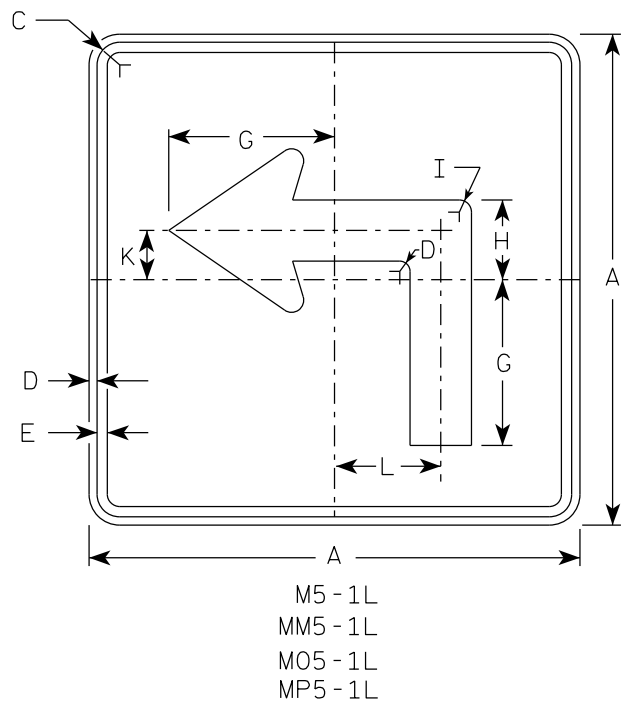
STANDARD SIGN

M4-8A

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
For State Traffic Engineer

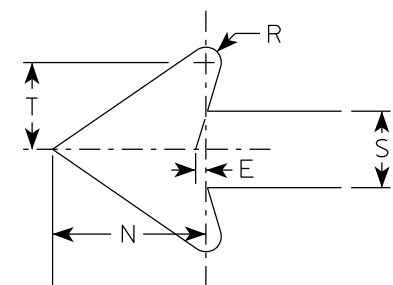
DATE 2/9/2023 PLATE NO. M4-8A.4



NOTES

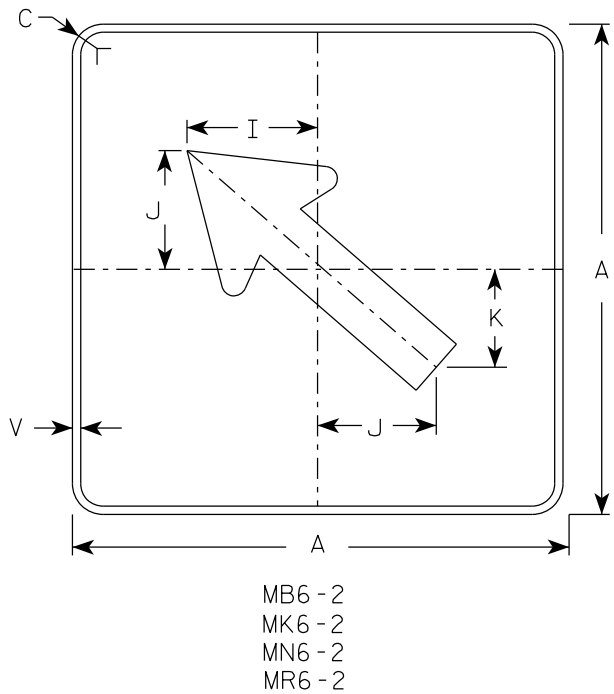
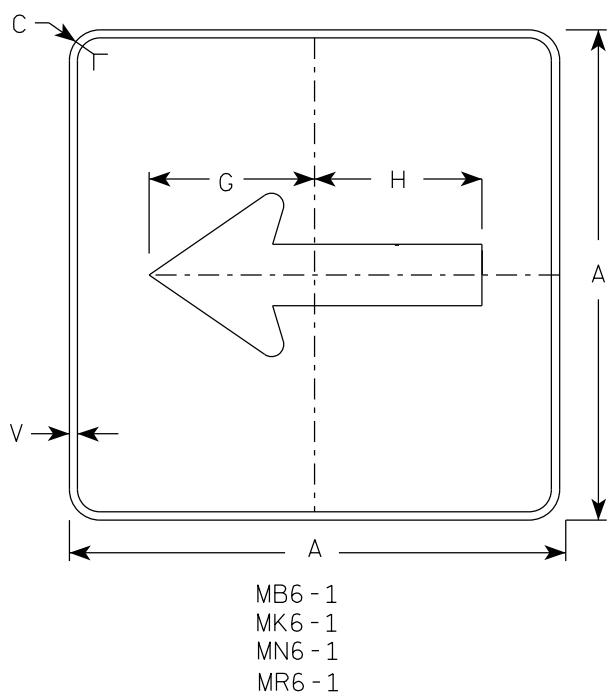
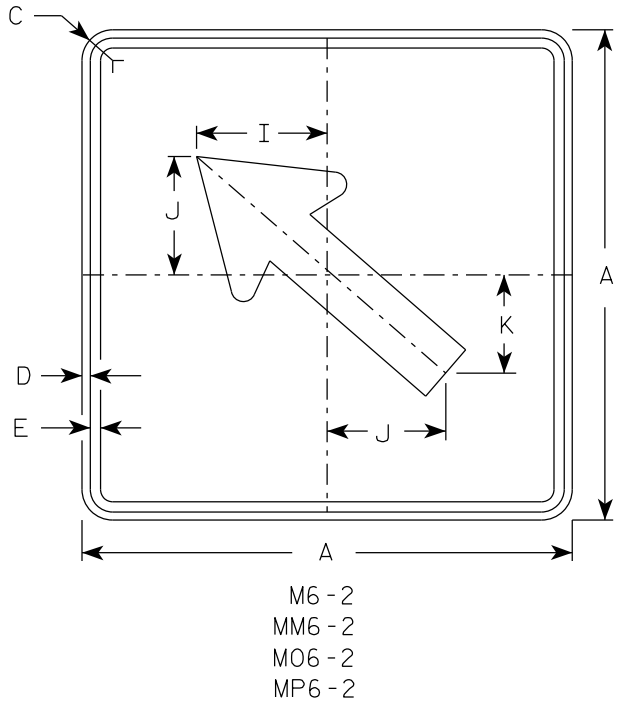
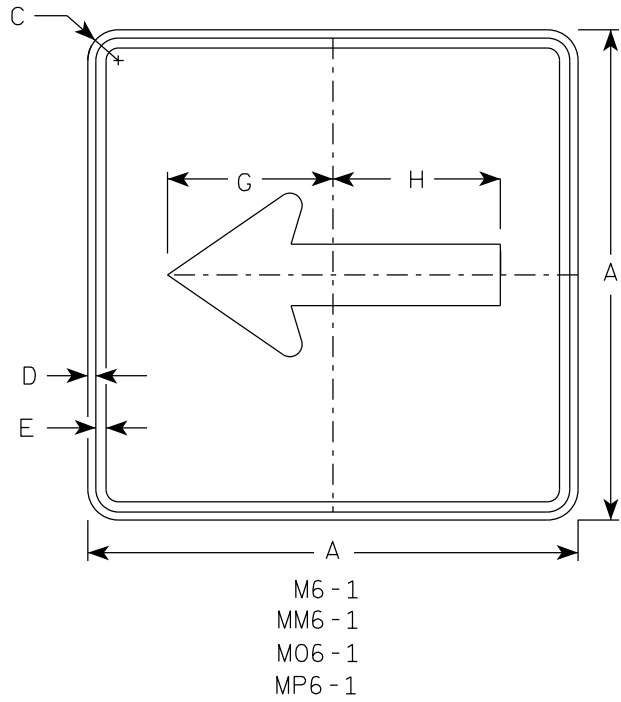
- Signs are Type II - Type H reflective except as shown
- Color:
Background - See note 4
Message - See note 4
- Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
- | | | |
|-----------|-------|---|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

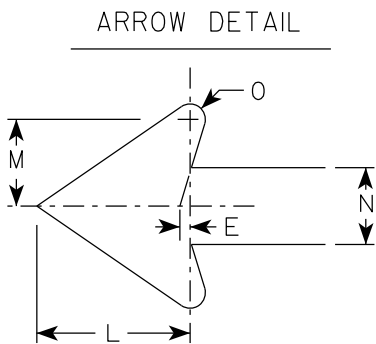


SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	21		1 1/2	3/8	3/8		7	3 3/8	5/8		2 1/8	4 1/2	6 3/8	5 1/4	5	2 1/2		1/2	2 5/8	3		1/2					3.06
2M	21		1 1/2	3/8	3/8		7	3 3/8	5/8		2 1/8	4 1/2	6 3/8	5 1/4	5	2 1/2		1/2	2 5/8	3		1/2					3.06
3	30		1 7/8	1/2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

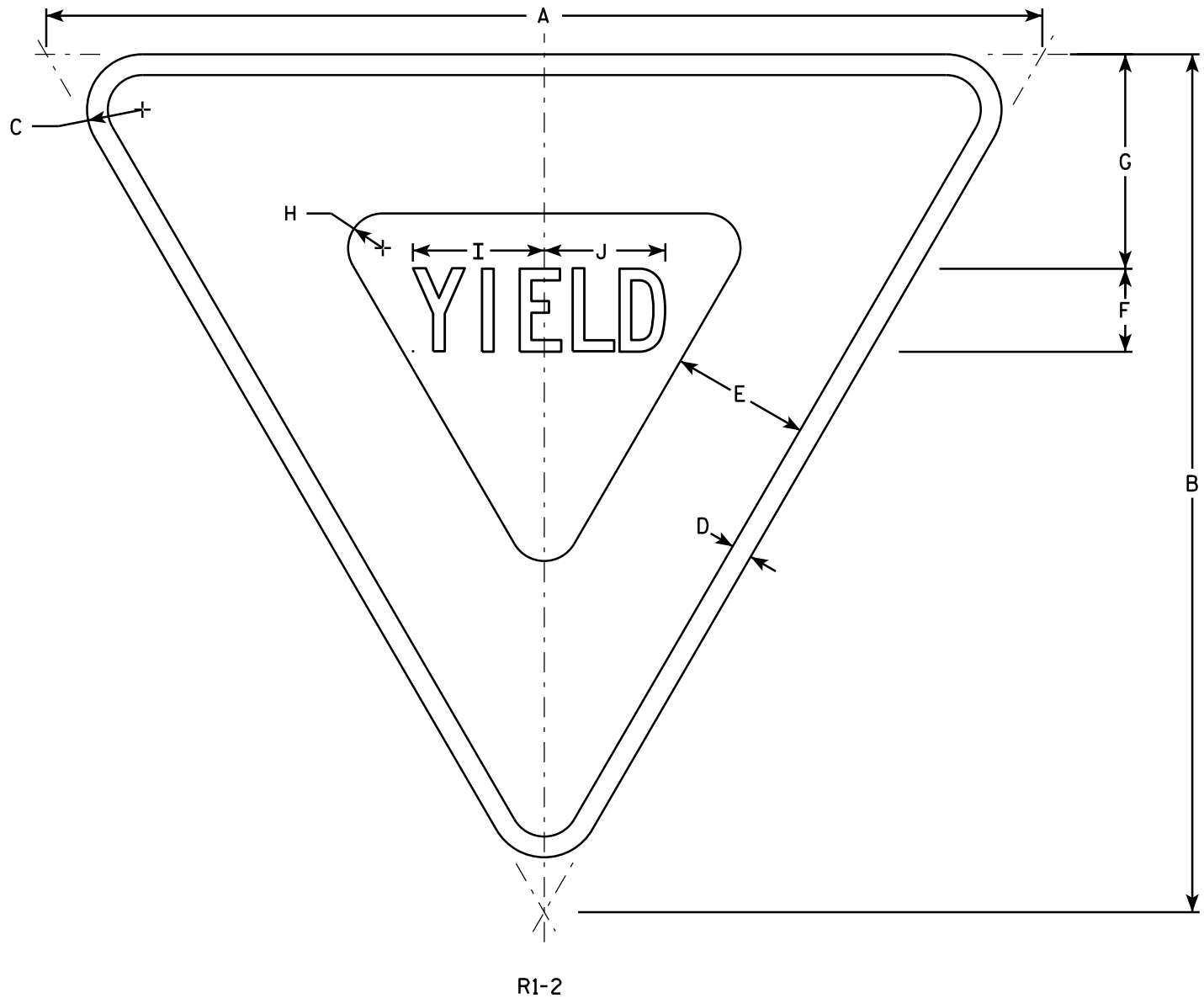
PROJECT NO:	HWY:	COUNTY:	SHEET NO: 152	E
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- NOTES
- Signs are Type II - Type H Reflective except as Shown
 - Color:
Background - See note 4
Message - See note 4
 - Corners may be square or rounded when base material is plywood but borders shall be rounded 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



NOTES

- 1. Sign is Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
- 2. Color:
Background - White
Message - See note 5
- 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.
- 5. The border strip and word message are reflectorized red.

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	1 1/2	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

STANDARD SIGN

R1-2

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 10/13/14 PLATE 154 P1-2.12

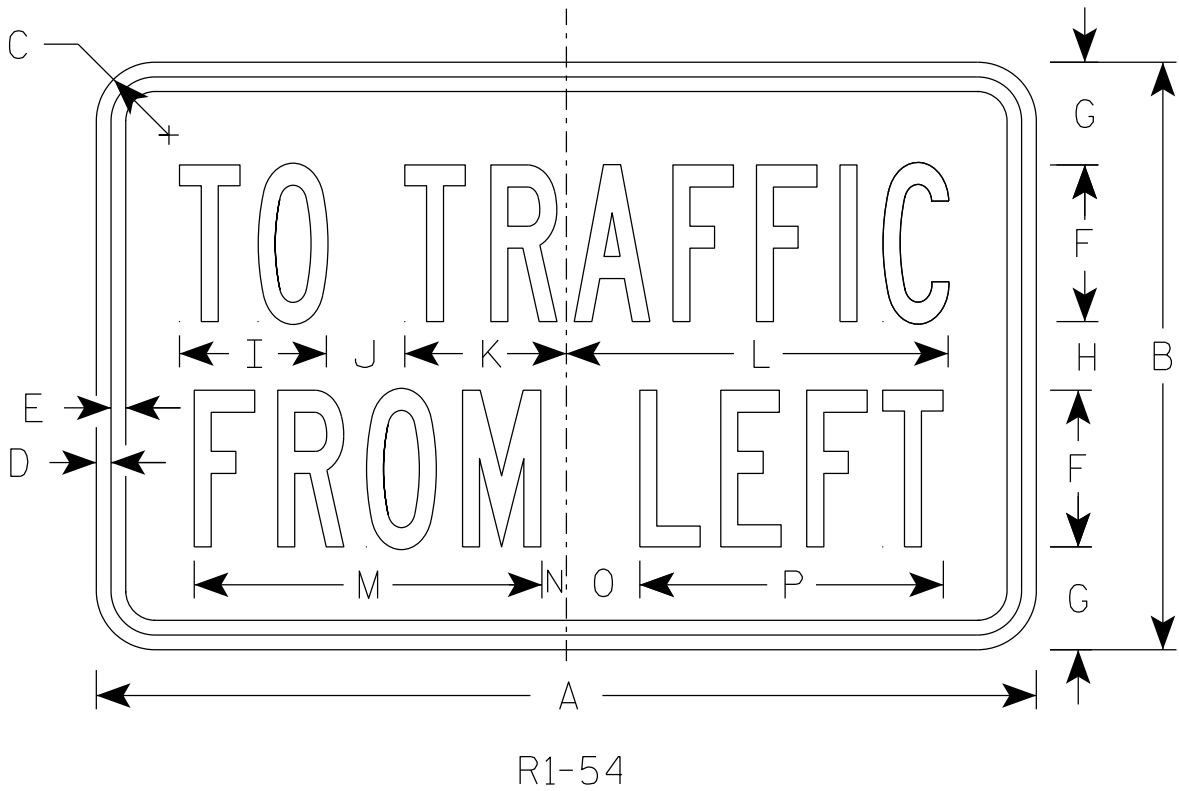
SHEET NO: E

7

7

NOTES

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



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	15	1 1/2	3/8	3/8	4	2 5/8	1 3/4	3 3/4	2	4 1/8	9 3/4	8 7/8	5/8	1 7/8	7 3/4											2.5
2M	24	15	1 1/2	3/8	3/8	4	2 5/8	1 3/4	3 3/4	2	4 1/8	9 3/4	8 7/8	5/8	1 7/8	7 3/4											2.5
3																											
4																											
5																											

PROJECT NO:

HWY:

COUNTY:

SHEET NO: 155

E

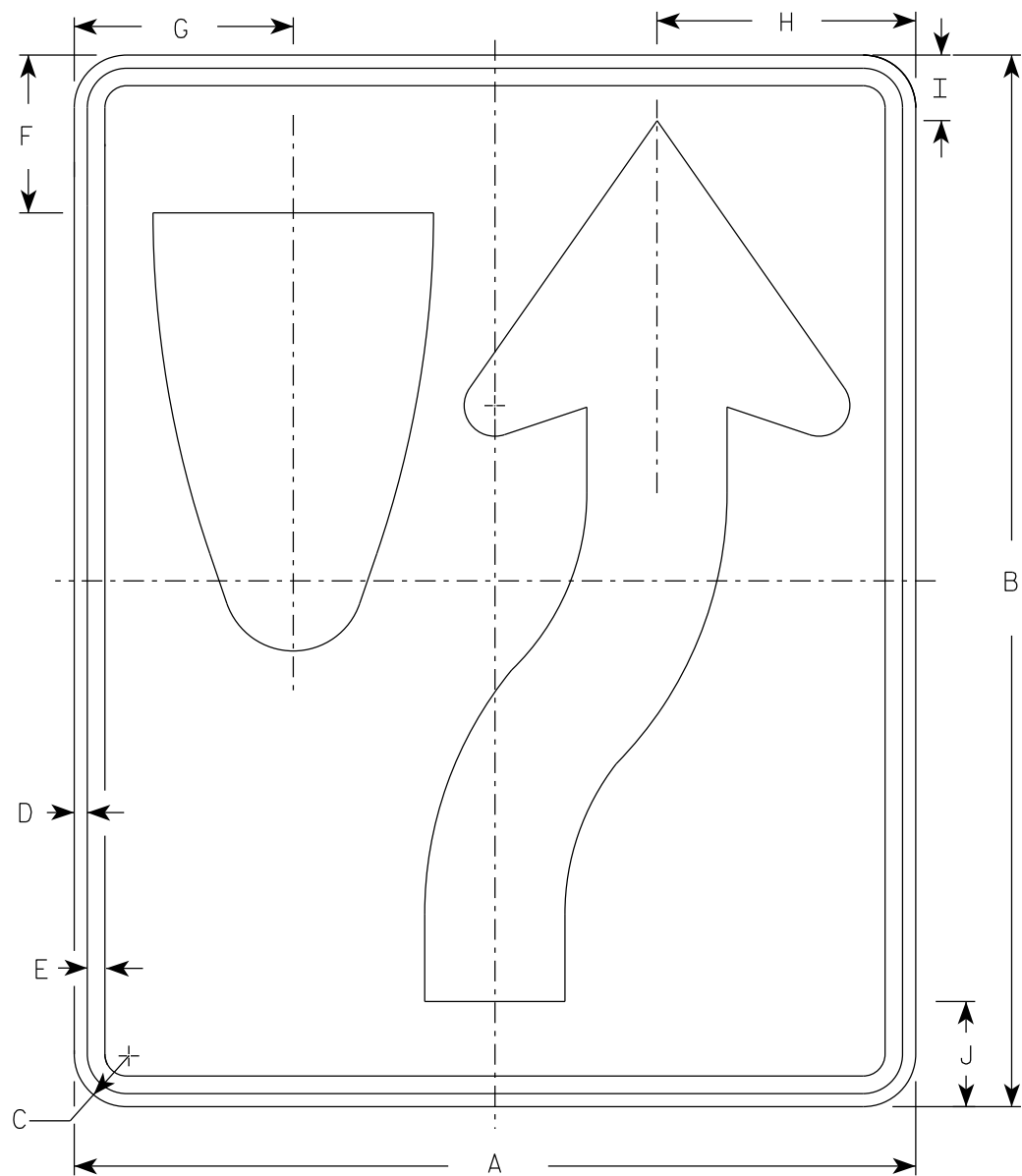
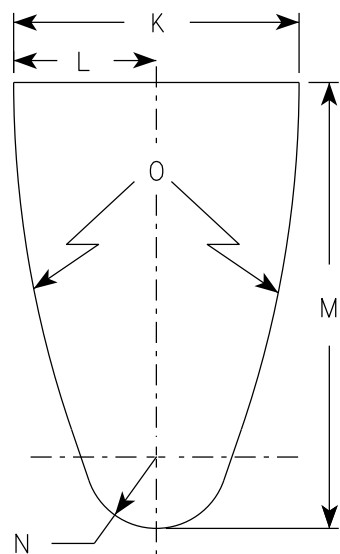
STANDARD SIGN
R1-54

WISCONSIN DEPT OF TRANSPORTATION

APPROVED
Matthew R. Rauch
for State Traffic Engineer

DATE 3/26/24 PLATE NO. R1-54.3

DIVIDER DETAIL

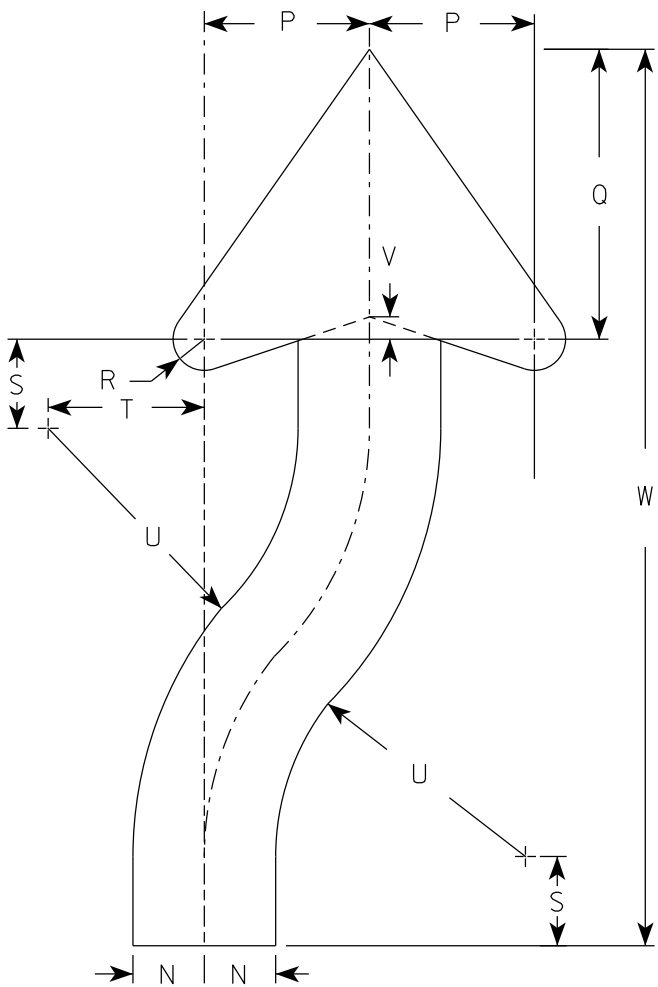


R4-7

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: 156

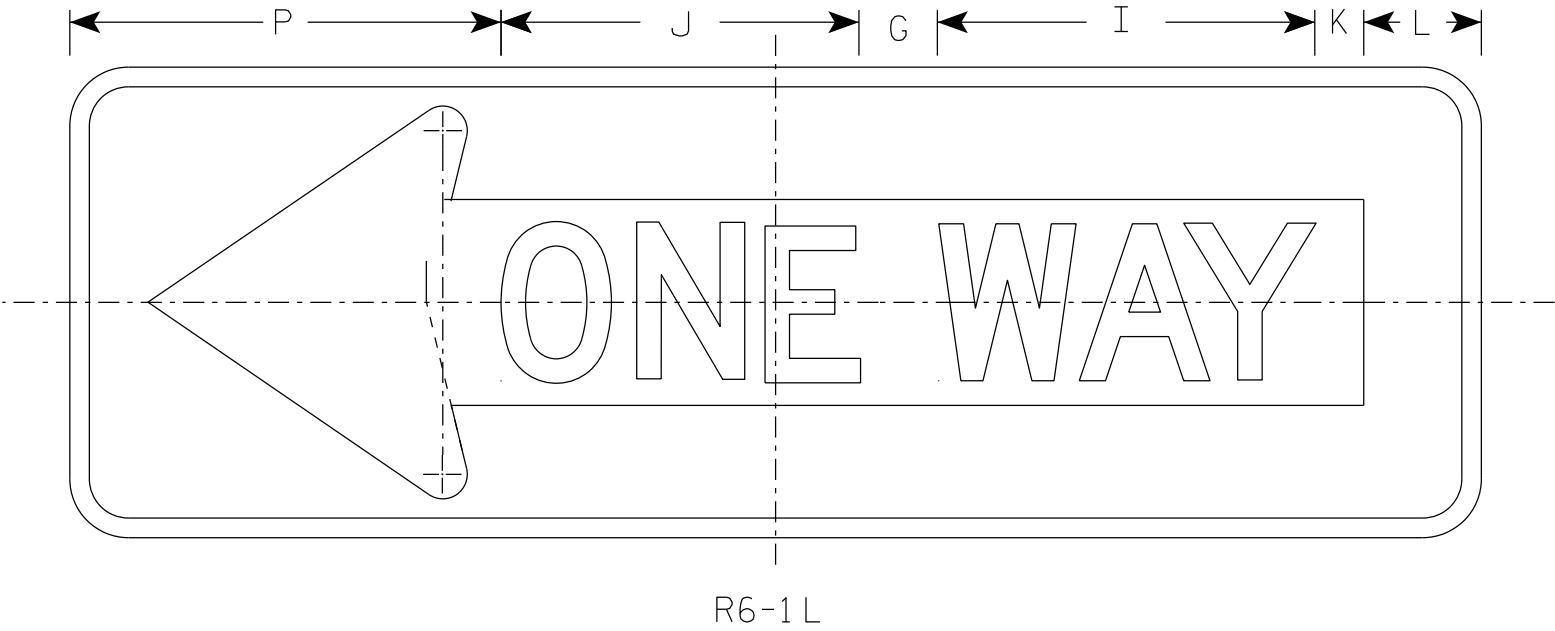
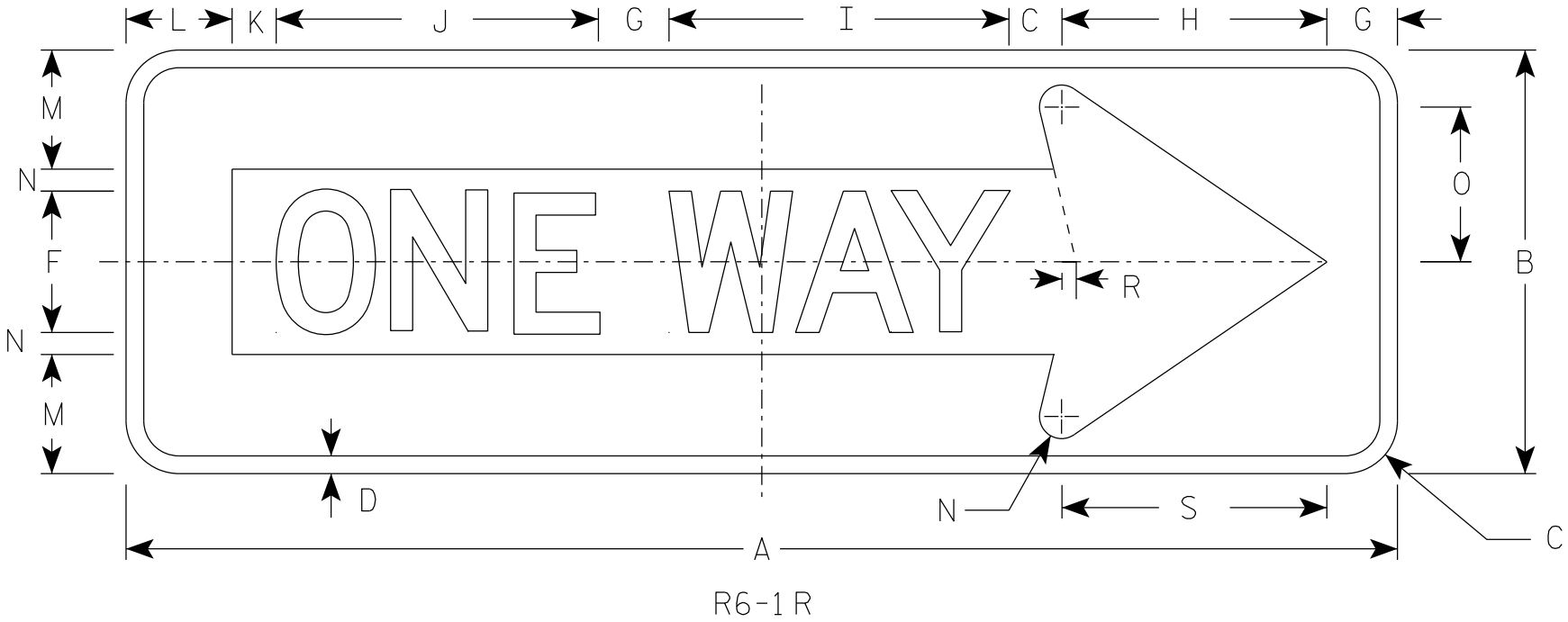
E

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								3.0
2M	54	18	1 1/2	3/4		6	3	11 1/4	13 5/8	14 1/2	1 7/8	4 1/2	5	1	6 1/2	16 1/2		5/8	11 1/4								6.75
3	54	18	1 1/2	3/4		6	3	11 1/4	13 5/8	14 1/2	1 7/8	4 1/2	5	1	6 1/2	16 1/2		5/8	11 1/4								6.75
4	54	18	1 1/2	3/4		6	3	11 1/4	13 5/8	14 1/2	1 7/8	4 1/2	5	1	6 1/2	16 1/2		5/8	11 1/4								6.75
5																											

STANDARD SIGN

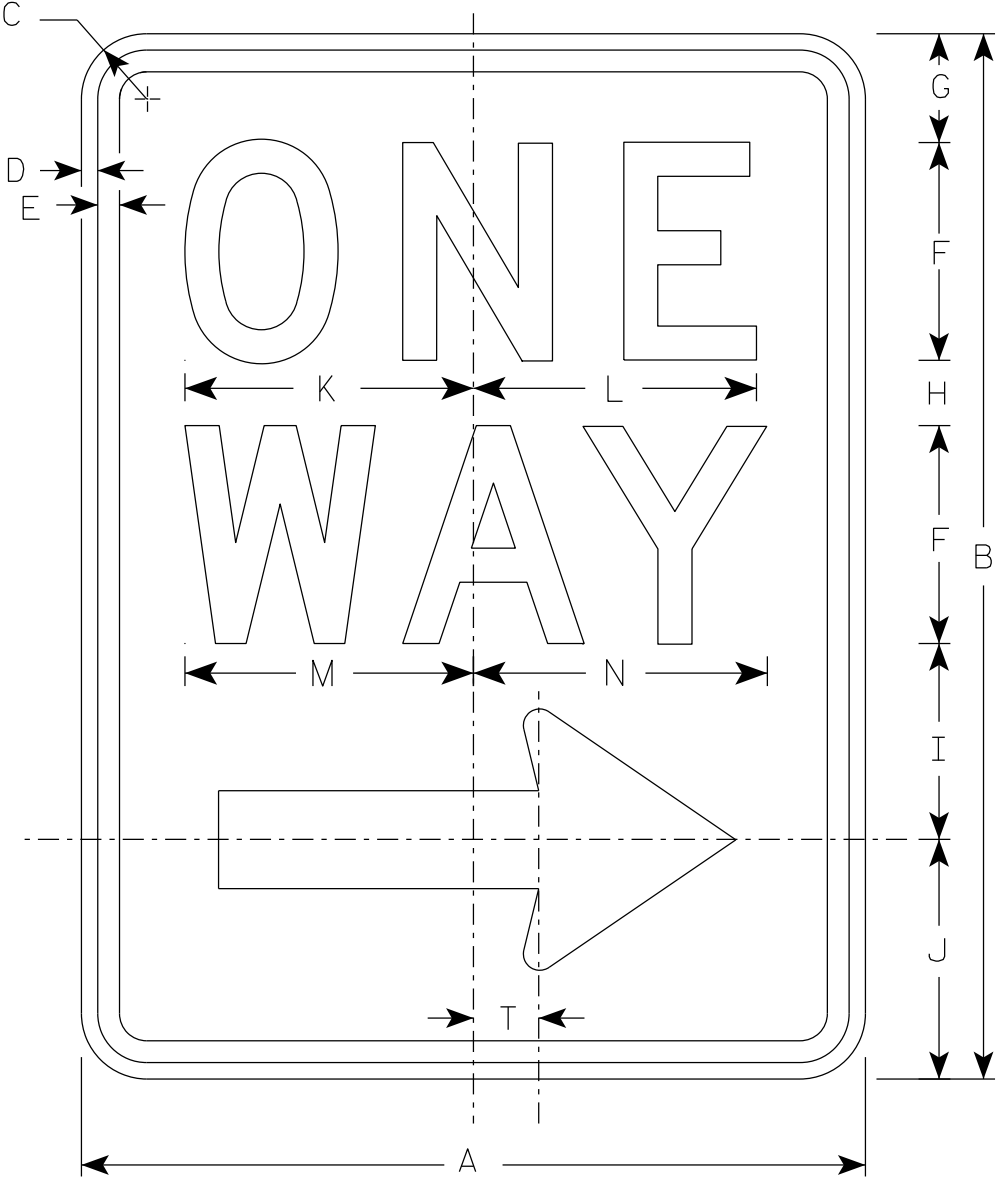
R6-1 L&R

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
For State Traffic Engineer

DATE 8/30/23 PLATE NO. R6-1.4

7

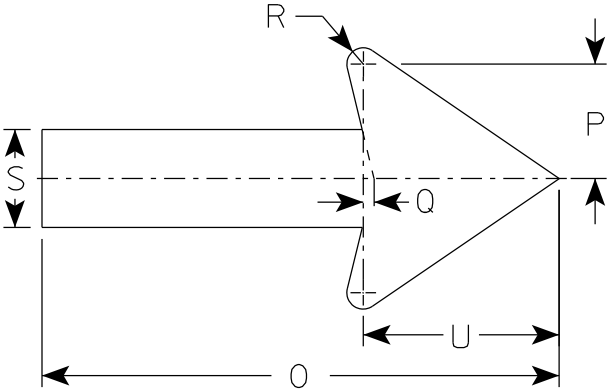


R6 - 2R

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: 158

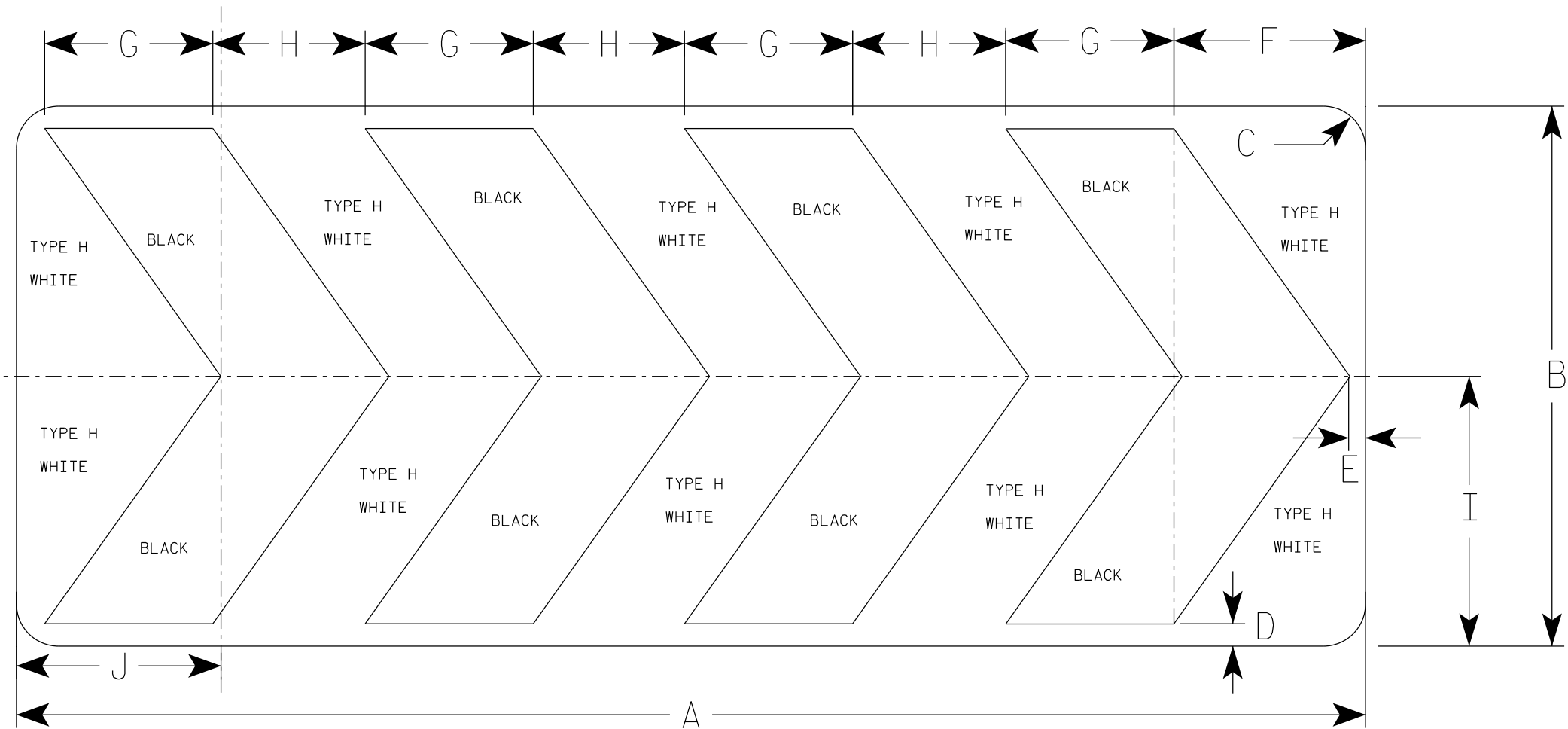
E

NOTES

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

Background - WHITE

Message - BLACK



R6-4B

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	24	1 7/8	1	3/4	8 1/2	7 1/2	6 3/4	12	9 1/8																	10.0
2M	60	24	1 7/8	1	3/4	8 1/2	7 1/2	6 3/4	12	9 1/8																	10.0
3																											
4																											
5																											

STANDARD SIGN

R6 - 4B

WISCONSIN DEPT OF TRANSPORTATION

APPROVED

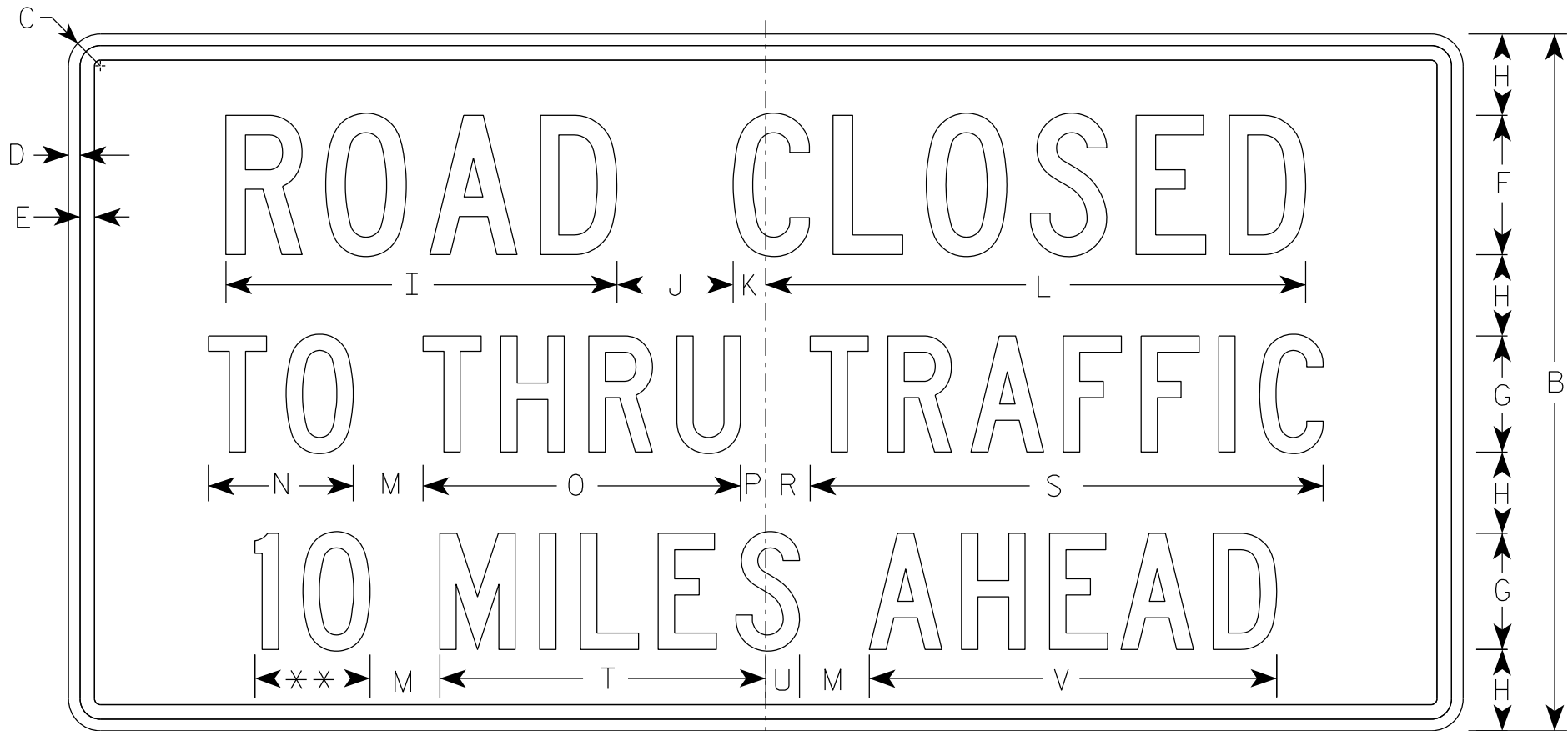
Matthew R. Rauch

for State Traffic Engineer

DATE 10/26/23PLATE NO. R6-4.4

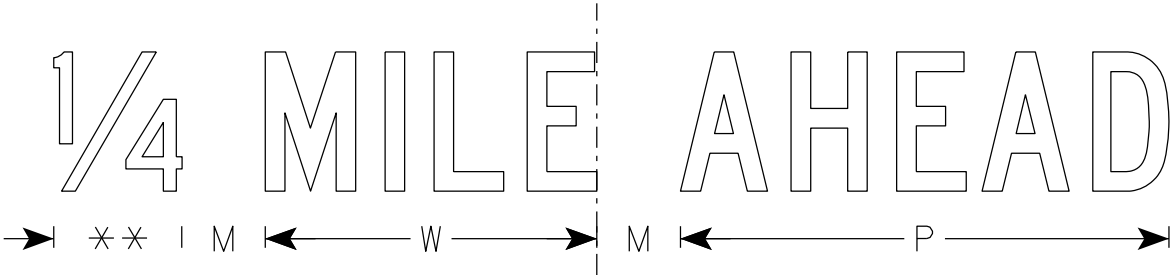
NOTES

- 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.
- 5. Substitute appropriate numerals to nearest quarter mile and optically adjust spacing to achieve proper balance.



R11-3

** See Note 5



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	3/8	4	3	2	11 1/4	3	1 1/8	15 3/8	2	3 3/4	8 1/4	5/8		1 3/8	13 1/4	8 3/8	7/8	10 1/2	7 1/8				4.5
2S	60	30	1 7/8	1/2	5/8	6	5	3 1/2	16 7/8	5	1 3/8	23 1/4	3	6 1/4	13 5/8	1 1/8		1 7/8	22 1/8	14	1 1/2	17 1/2	11 7/8				12.5
2M	60	30	1 7/8	1/2	5/8	6	5	3 1/2	16 7/8	5	1 3/8	23 1/4	3	6 1/4	13 5/8	1 1/8		1 7/8	22 1/8	14	1 1/2	17 1/2	11 7/8				12.5
3																											
4																											
5																											

STANDARD SIGN
R11-3

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 2/5/24 PLATE NO. R11-3.10

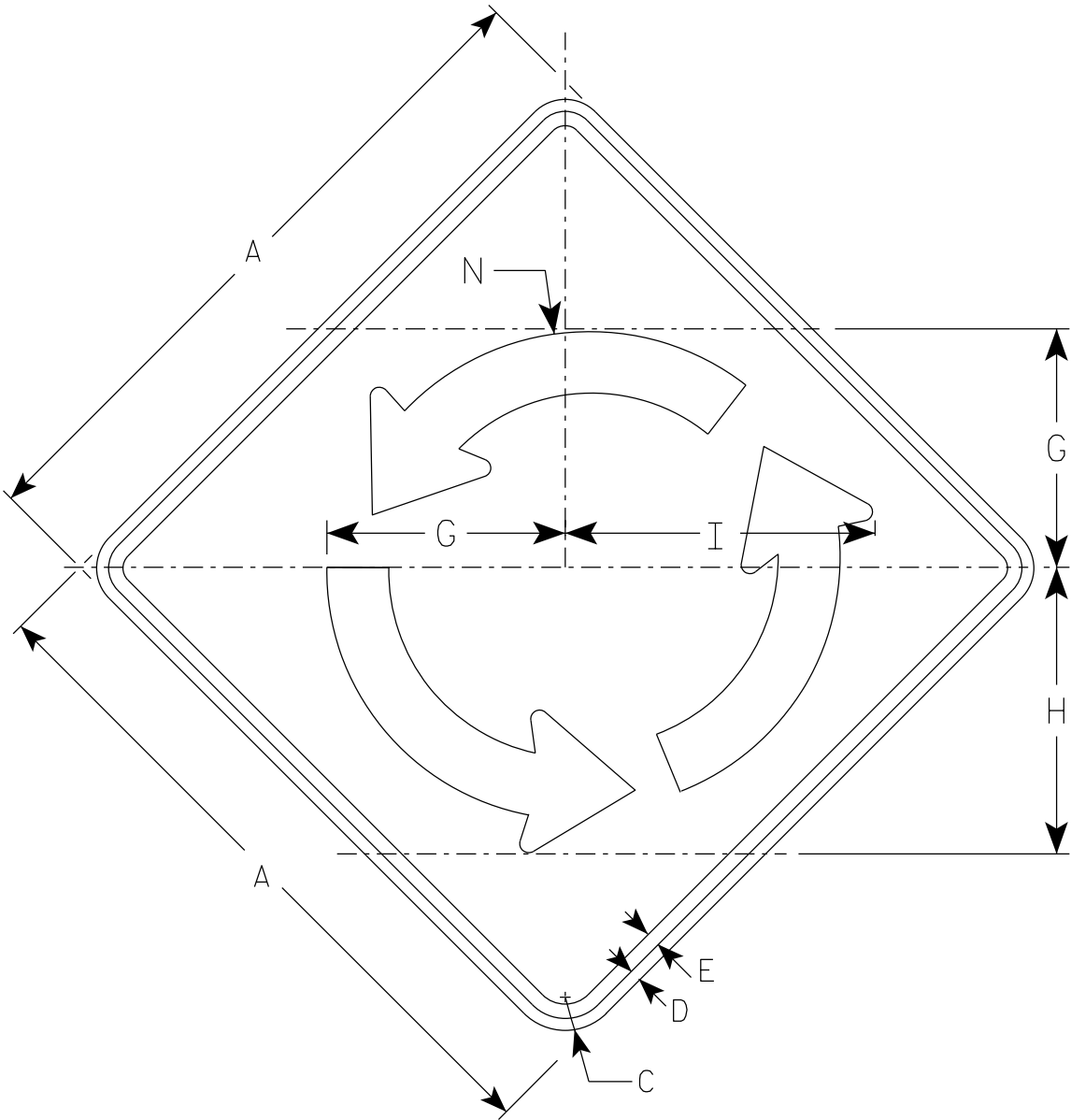
PROJECT NO:

HWY:

COUNTY:

SHEET NO: 160

E

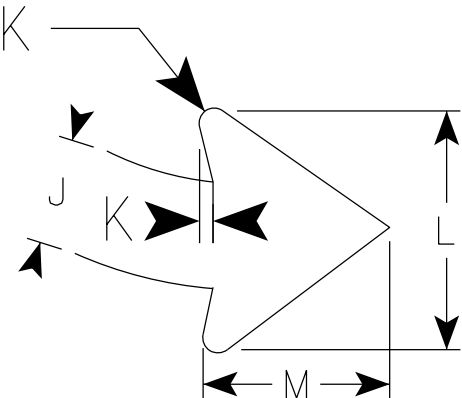


W2-6

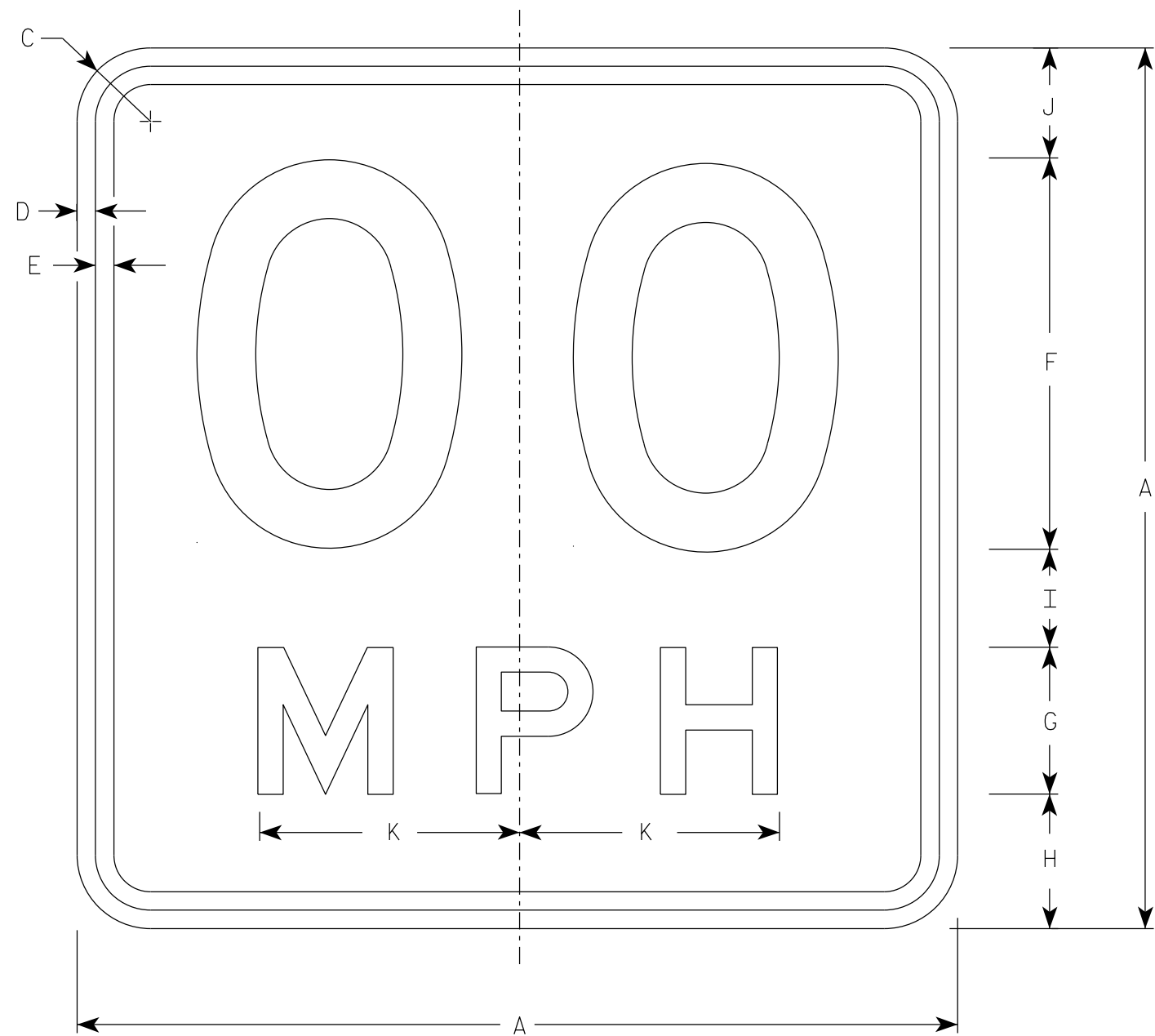
NOTES

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

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	Area sq. ft.
1																									
2S	30		1 7/8	1/2	5/8		10 3/8	12 1/2	13 1/2	2 3/4	3/8	6	4 3/4	11 1/8											6.25
2M	30		1 7/8	1/2	5/8		10 3/8	12 1/2	13 1/2	2 3/4	3/8	6	4 3/4	11 1/8											6.25
3	36		2 1/4	5/8	3/4		12 1/2	15	16 1/4	3 1/4	1/2	7 3/8	5 3/4	13 3/8											9.00
4	48		3	3/4	1		16 5/8	20	16 1/4	4 3/8	5/8	9 3/4	7 5/8	17 7/8											16.0
5																									



NOTES

1. Sign is Type II - Type F Reflective
2. Color:
Background - Yellow
Message - Black
3. Message Series - See Note 5
4. Substitute appropriate numerals and optically space about centerline to achieve proper balance.
5. Line 1 is Series D
Line 2 is Series E

W13-1

* For 30" x 30" Warning Signs, use 18" x 18" W13-1 signs.
For 36" x 36" Warning Signs, use 24" x 24" W13-1 signs.

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		1 1/2	3/8	3/8	8	3	2 3/4	2	2 1/4	5 3/8															2.25
	2S	18		1 1/2	3/8	3/8	8	3	2 3/4	2	2 1/4	5 3/8															2.25
	2M	18		1 1/2	3/8	3/8	8	3	2 3/4	2	2 1/4	5 3/8															2.25
	3	24		1 1/2	3/8	1/2	10	4	4	2 3/4	3 1/4	6 5/8															4.00
	4	36		2 1/4	5/8	3/4	16	6	5 1/2	4	4 1/2	10 5/8															9.00
	5	36		2 1/4	5/8	3/4	16	6	5 1/2	4	4 1/2	10 5/8															9.00

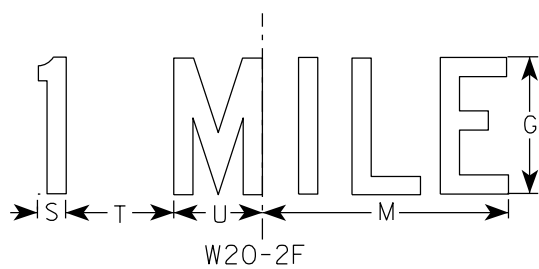
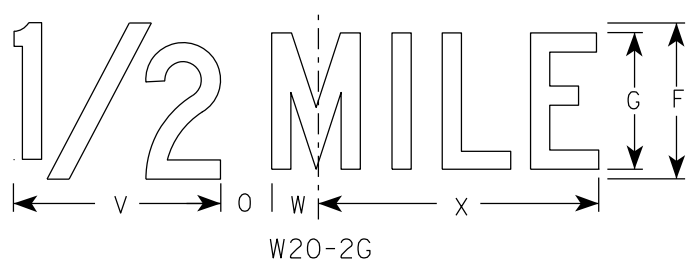
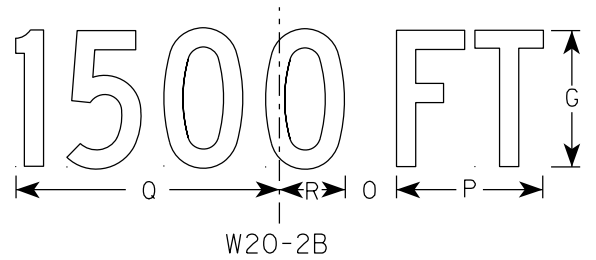
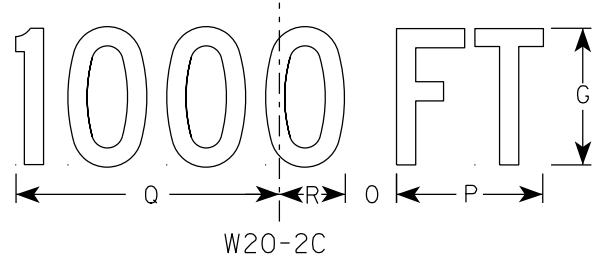
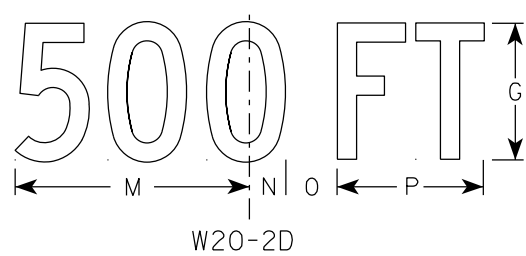
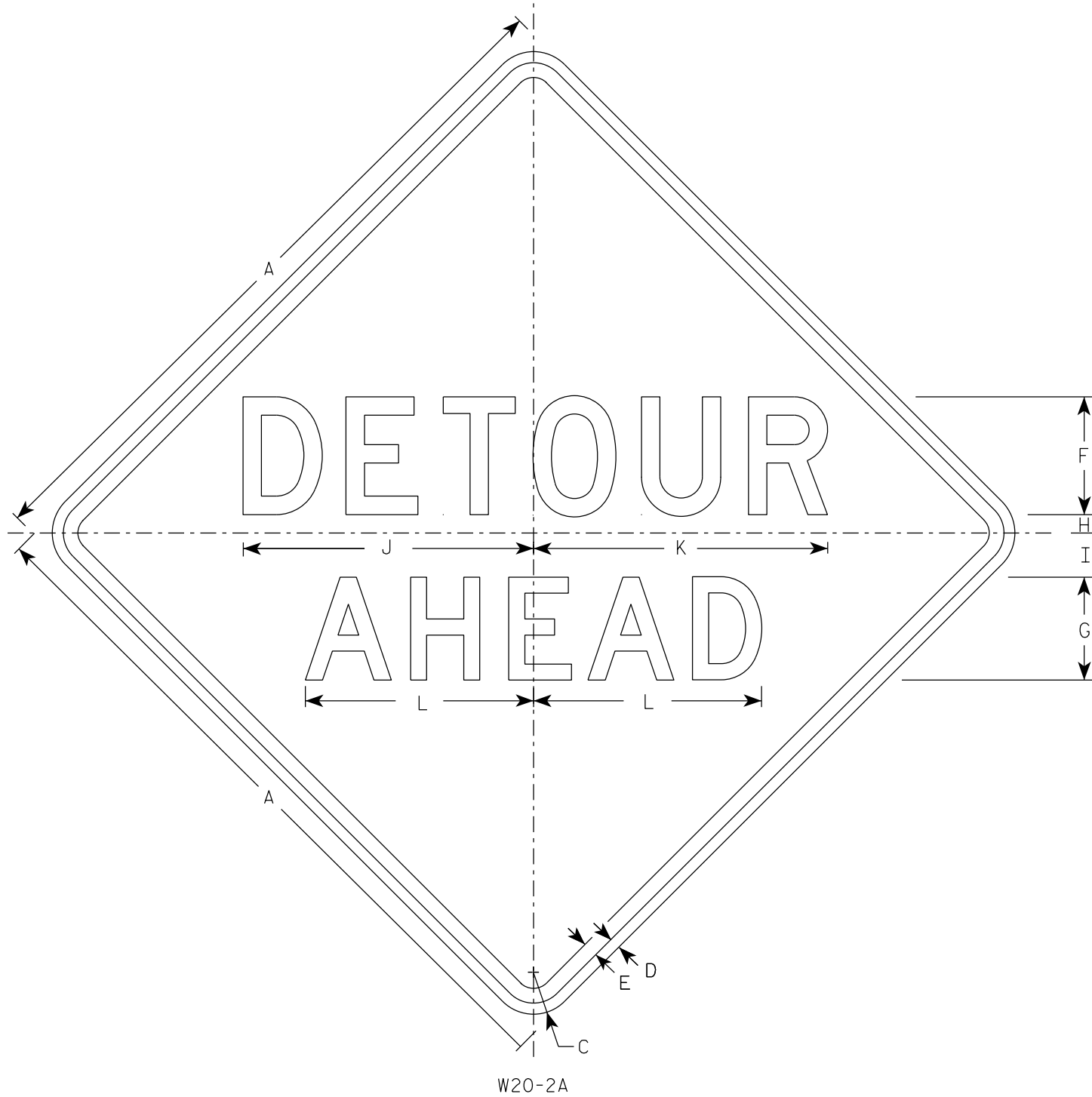
STANDARD SIGN
W13-1

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R. Rauch
For State Traffic Engineer

DATE 1/8/2024 PLATE NO. W13-1.17

PROJECT NO: HWY: COUNTY: SHEET NO: 162 E

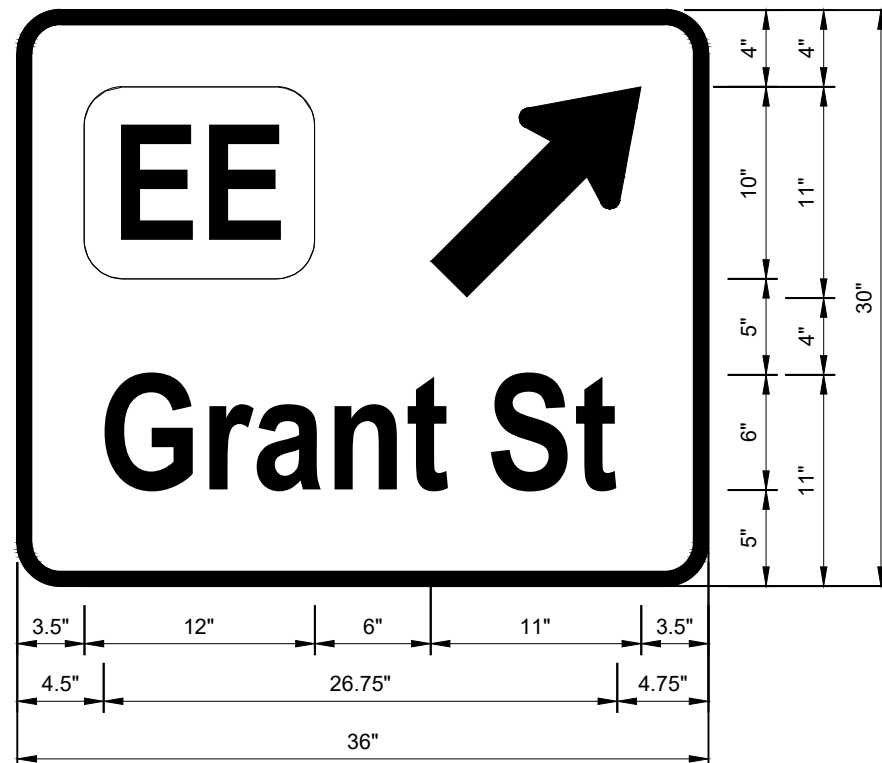


NOTES

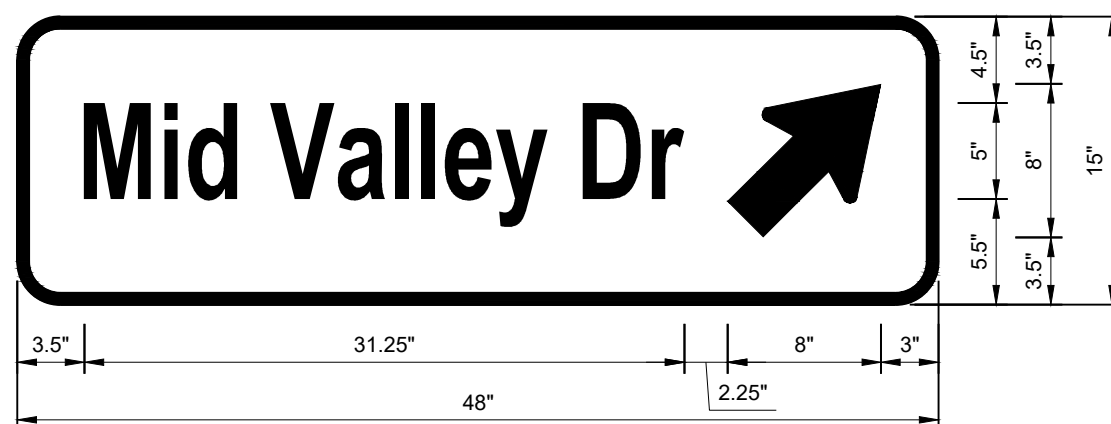
- Sign is Type II - Type F Reflective
- Color:
Background - Orange
Message - Black
- Message Series - See note 5
- Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
- Line 1 is Series D.
Line 2 is Series D for AHEAD and Series C for all other distances.

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	6	5	1	2 1/4	14 3/4	15	11 5/8	9	1 3/8	1 7/8	5 5/8	10 1/8	2 1/2	1 1/8	4 1/2	3 1/2	8	1 3/4	10 3/4			9.0
2S	48		3	3/4	1	8	7	1 1/4	3	19 3/4	20	15 1/2	12	1 7/8	2 5/8	7 1/2	13 1/2	3 3/8	1 1/2	6	4 5/8	10 5/8	2 3/8	14 3/8			16.0
2M	48		3	3/4	1	8	7	1 1/4	3	19 3/4	20	15 1/2	12	1 7/8	2 5/8	7 1/2	13 1/2	3 3/8	1 1/2	6	4 5/8	10 5/8	2 3/8	14 3/8			16.0
3	48		3	3/4	1	8	7	1 1/4	3	19 3/4	20	15 1/2	12	1 7/8	2 5/8	7 1/2	13 1/2	3 3/8	1 1/2	6	4 5/8	10 5/8	2 3/8	14 3/8			16.0
4	48		3	3/4	1	8	7	1 1/4	3	19 3/4	20	15 1/2	12	1 7/8	2 5/8	7 1/2	13 1/2	3 3/8	1 1/2	6	4 5/8	10 5/8	2 3/8	14 3/8			16.0
5	48		3	3/4	1	8	7	1 1/4	3	19 3/4	20	15 1/2	12	1 7/8	2 5/8	7 1/2	13 1/2	3 3/8	1 1/2	6	4 5/8	10 5/8	2 3/8	14 3/8			16.0

STANDARD SIGN W20-2A,B,C,D,F & G	
WISCONSIN DEPT OF TRANSPORTATION	
APPROVED	<i>Matthew R. Rauch</i> For State Traffic Engineer
DATE 1/10/2024	PLATE NO. W20-2.7



2.25" Radius, 0.75" Boarder, Arrow per Standard Sign M6-2



1.25" Radius, 0.625" Boarder, "Mid Valley Dr" C,
Arrow per Standard Sign D52-54

NOTES:

1. ALL SIGNS TYPE II - TYPE H REFLECTIVE
2. COLOR:
BACKGROUND - GREEN
MESSAGE - WHITE
3. MESSAGE SERIES - D EXCEPT AS NOTED
4. ARROW AS NOTED

DESIGN DATA

THE CONTRACTOR SHALL PROVIDE COMPLETE DESIGN, PLANS, DETAILS, SPECIFICATIONS, AND SHOP DRAWINGS FOR THE RETAINING WALLS IN ACCORDANCE WITH THE SPECIAL PROVISIONS. THE RETAINING WALL MANUFACTURER SHALL PROVIDE TECHNICAL ASSISTANCE TO THE CONTRACTOR DURING CONSTRUCTION. THE COST OF FURNISHING THESE ITEMS SHALL BE INCLUDED IN THE BID ITEM "WALL MODULAR BLOCK MECHANICALLY STABILIZED EARTH"

PLANS, ELEVATIONS, AND DETAILS SHOWN ON THESE DRAWINGS ARE INTENDED TO INDICATE WALL LOCATIONS, LENGTHS, HEIGHTS, AND DETAILS COMMON TO THE WALL SYSTEM SELECTED. THE CONTRACTOR SHALL VERIFY THAT THE WALL SYSTEM SELECTED WILL CONFORM TO THE REQUIRED ALIGNMENTS AND DETAILS.

THE RETAINING WALL IS TO BE DESIGNED USING THE ELEVATIONS GIVEN ON THIS SHEET.

DESIGN FOR RETAINING WALL TO PROVIDE FOR FINISHED GRADE SLOPED BEHIND WALL AS SHOWN.

SEE SPECIAL PROVISIONS FOR AESTHETIC TREATMENT TO WALL

DESIGN RETAINING WALL FOR A LIVE LOAD SURCHARGE OF 100 PSF BEHIND THE WALL AND 240 PSF AT THE TOP OF THE SLOPE.

THE MAXIMUM VALUE OF THE ANGLE OF INTERNAL FRICTION OF THE WALL BACKFILL MATERIAL IN THE REINFORCED ZONE SHALL BE ASSUMED TO BE 30° WITHOUT CERTIFIED TEST VALUES.

MATERIAL PROPERTIES:

CONCRETE MASONRY $f'_c = 3,500$ P.S.I.
PRECAST CONCRETE WALL PANELS $f'_c = 5,000$ P.S.I.
BAR STEEL REINFORCEMENT, GRADE 60 $f_y = 60,000$ P.S.I.

ALLOWABLE WALL SYSTEMS

WALL MODULAR BLOCK MECHANICALLY STABILIZED EARTH

GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.

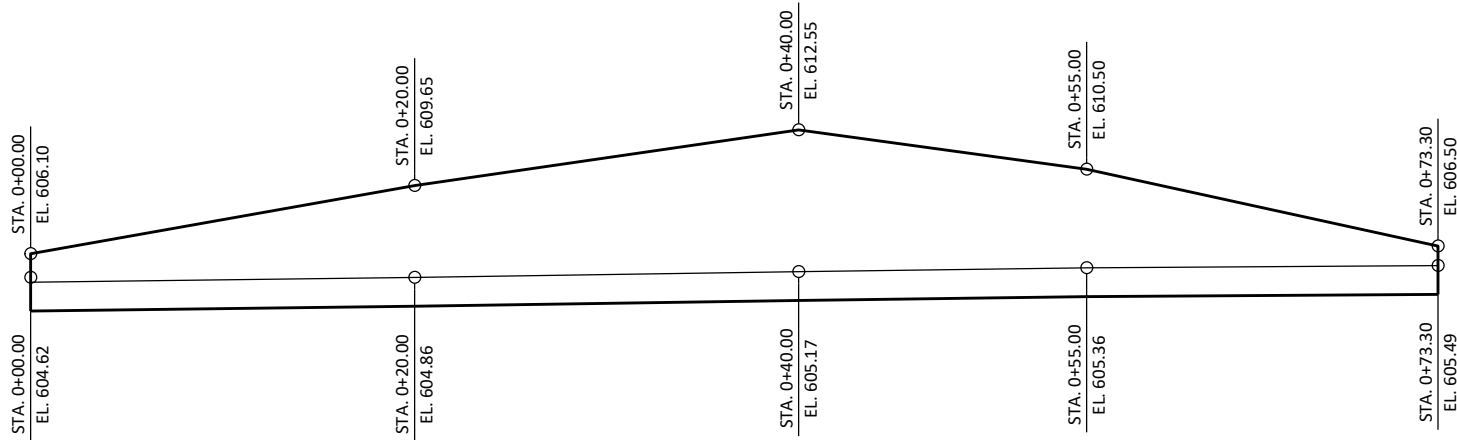
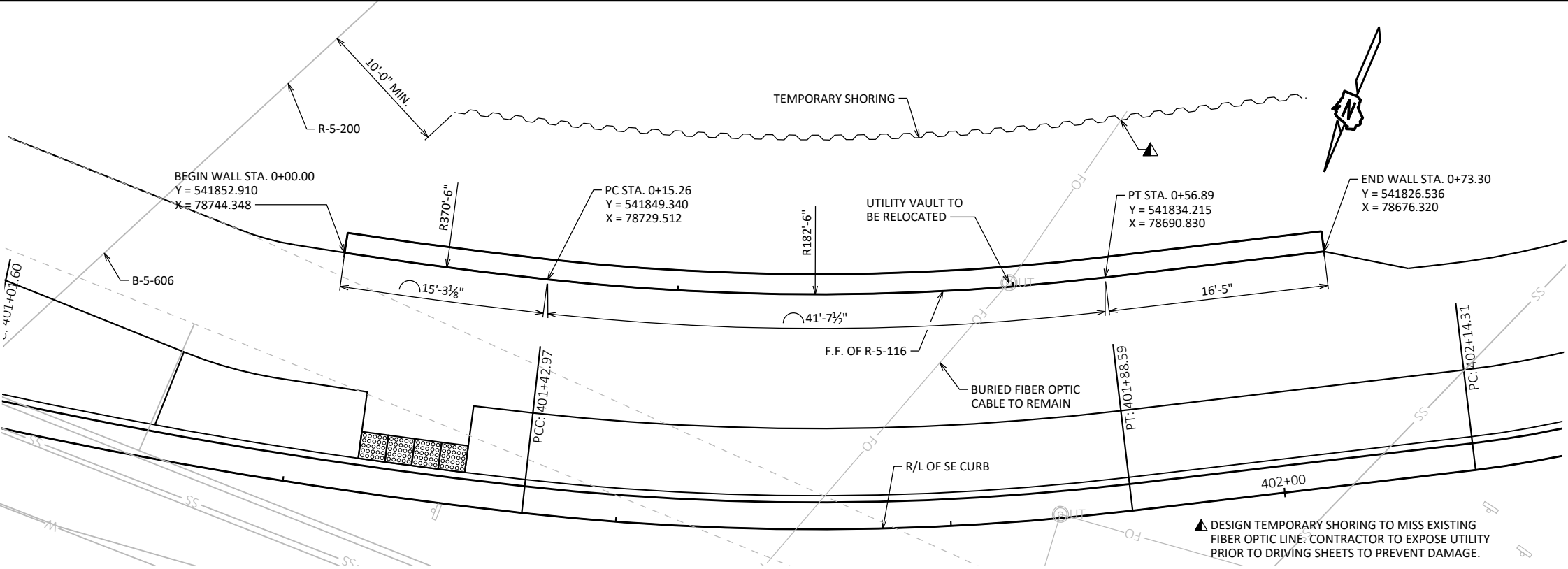
ALL WALL STATIONING AND OFFSETS ARE GIVEN TO THE FRONT FACE OF WALL R-5-116.

THE PLAN QUANTITY FOR THE ITEM "WALL MODULAR BLOCK MECHANICALLY STABILIZED EARTH" IS BASED ON A WALL HEIGHT MEASURED FROM THE TOP OF WALL TO A CONSTANT DEPTH OF 1'-6" BELOW FINISHED GRADE.

THE WALL MODULAR BLOCK COLOR SHALL BE TAN.

LIST OF DRAWINGS:

- GENERAL PLAN
- QUANTITIES & WALL DETAILS
- SUBSURFACE EXPLORATION



GEOMETRY TABLE

WALL STATION	ROADWAY STATION	OFFSET TO F.F. WALL	TOP OF WALL EL.	FINISHED GRADE EL.	EXISTING GRADE EL.
0+00.00	401+26.99	17.50' LT	606.10	604.62	603.12
0+20.00	401+48.16	17.50' LT	609.65	604.86	603.36
0+40.00	401+70.08	17.50' LT	612.55	605.17	603.67
0+55.00	401+86.52	17.50' LT	610.50	605.36	603.86
0+73.30	402+05.01	17.50' LT	606.50	605.49	603.99



STRUCTURE DESIGN CONTACTS:
KRISTOFER OLSON 920-498-1200
AARON BONK 608-261-0261

NO.	DATE	REVISION	BY
ORIGINAL PLANS PREPARED BY			
AYRES 700 Pilgrim Way, Suite 180 Green Bay, WI 54304 www.AyresAssociates.com			
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
ACCEPTED	<i>[Signature]</i> SDR	02/14/25	DATE
CHIEF STRUCTURES DESIGN ENGINEER			
STRUCTURE R-5-116			
MSE RETAINING WALL			
COUNTY	BROWN	TOWN	LAWRENCE
DESIGN SPEC. AASHTO LRFD BRIDGE DESIGN SPECIFICATION			
DESIGNED BY	ZSS	DESIGN CK'D	KRO
DRAWN BY	ZSS	PLANS CK'D	KRO
GENERAL PLAN			SHEET 1 OF 3 165

TOTAL ESTIMATED QUANTITIES

BID ITEM NUMBER	BID ITEMS	UNIT	TOTALS
511.1200	TEMPORARY SHORING R-5-116	SF	575
612.0406	PIPE UNDERDRAIN WRAPPED 6-INCH	LF	90
SPV.0165.04	WALL MODULAR BLOCK MECHANICALLY STABILIZED EARTH R-5-116	SF	445
	NON-BID ITEMS		
	FILLER	SIZE	½", ¾"

WALL EXTERNAL & OVERALL STABILITY EVALUATION

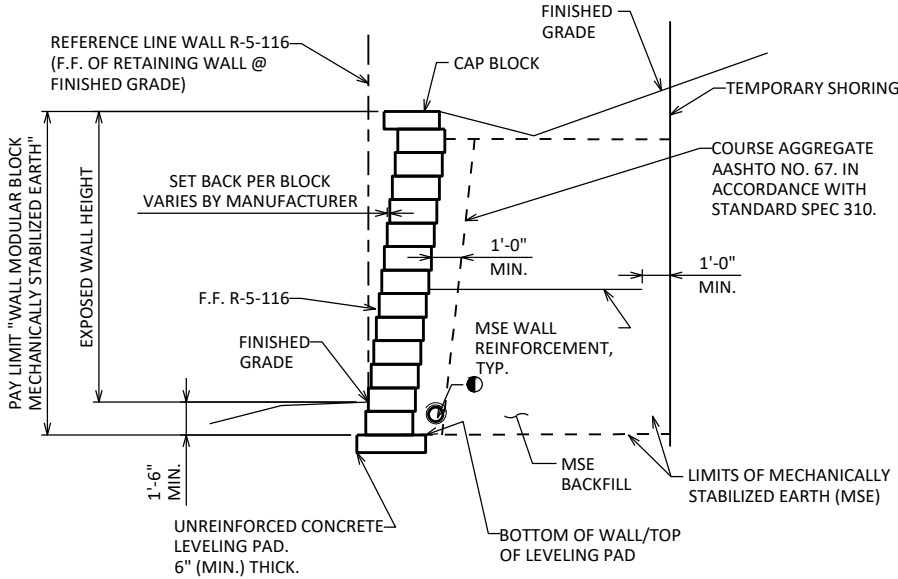
DIMENSIONS	EVALUATED LOCATIONS				
WALL HEIGHT (FEET)	8.9				
EXPOSED WALL HEIGHT (FEET)	7.4				
MINIMUM LENGTH OF REINFORCEMENT (FEET)	9.0				
LENGTH OF REINFORCEMENT TO HEIGHT RATIO	1.01				
BORING LOCATION USED	B-05				
WALL STATION	0+00.00 - 0+73.30				
BACK SLOPE ABOVE WALL	2:1				
CAPACITY TO DEMAND RATIO (CDR)					
SLIDING (CDR > 1.0)	1.1				
ECCENTRICITY (CDR > 1.0)	3.4				
OVERALL STABILITY (CDR > 1.0)	2.2				
BEARING RESISTANCE (CDR > 1.0)	5.4				
FACTORED BEARING RESISTANCE (PSF)	3,000				
NOTES: 1. 2. 3.					

SOIL PARAMETERS

SOIL DESCRIPTION	FRICTION ANGLE (DEGREES)	COHESION (PSF)	UNIT WEIGHT (PCF)
GRANULAR BACKFILL BEHIND THE WALL IN THE REINFORCING ZONE	30	0	120
RETAINED SOIL BEHIND THE REINFORCING ZONE	26	125	125
B-05 STA. 402+00, 4.2' RT.			
FILL, LEAN CLAY EL. 598.7 TO EL. 597.4	26	125	125
LEAN CLAY EL. 597.4 TO EL. 591.4	28	225	125
LEAN CLAY WITH FAT CLAY VARVES EL. 591.4 TO EL. 579.4	24	100	125

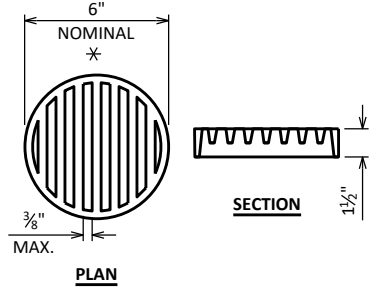
STATE PROJECT NUMBER

9277-01-71



TYPICAL SECTION THRU MSE RETAINING WALL

- PIPE UNDERDRAIN WRAPPED (6-INCH). SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. ATTACH RODENT SHIELD AT ENDS OF PIPE UNDERDRAIN.



RODENT SHIELD DETAIL

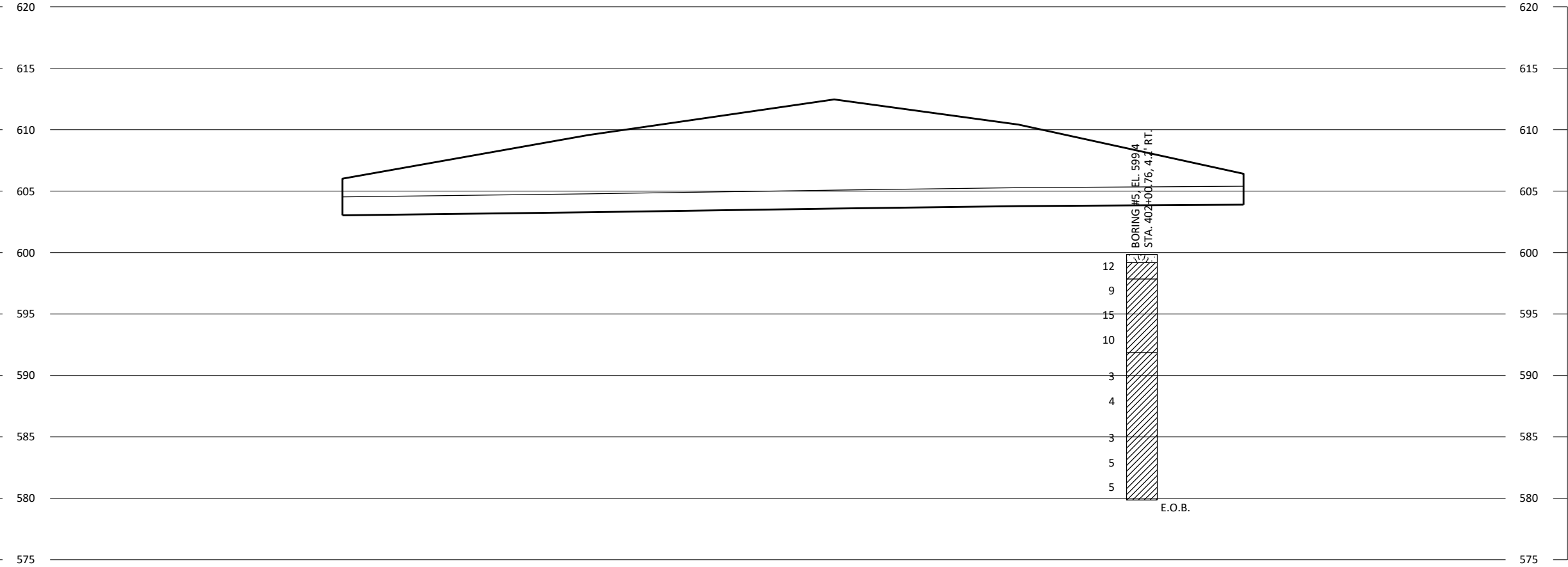
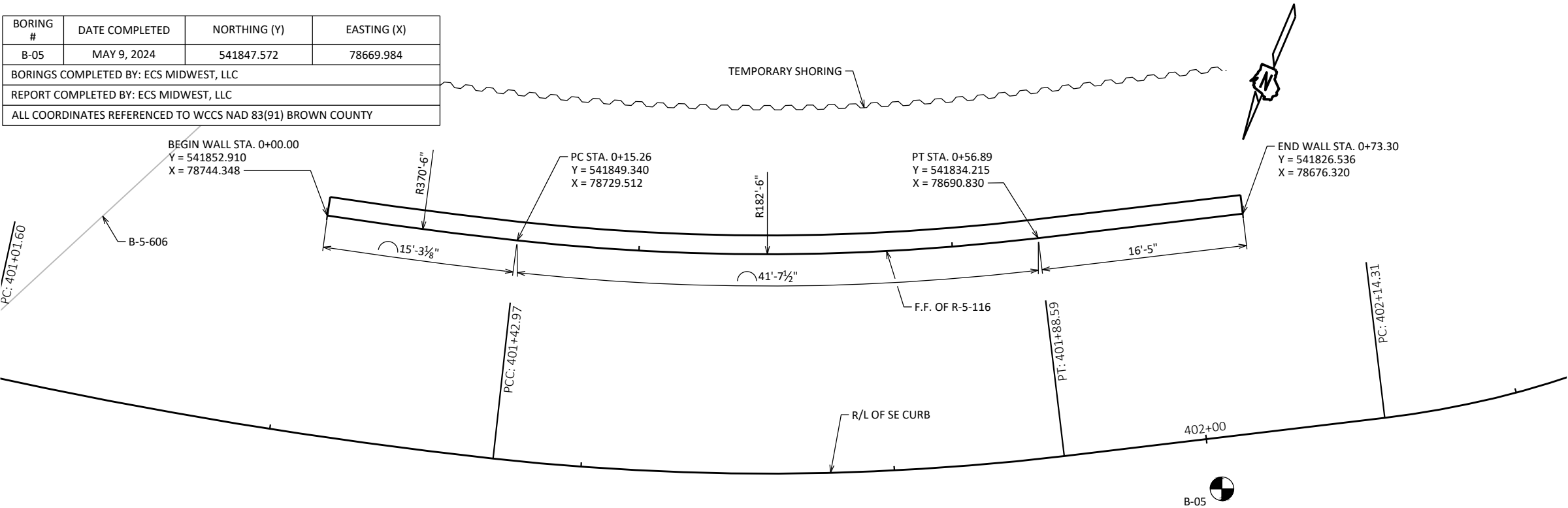
- DIMENSIONS ARE APPROXIMATE. THE GRATE IS SIZED TO FIT INTO A PIPE COUPLING. ORIENT SO SLOTS ARE VERTICAL.

THE RODENT SHIELD, PIPE COUPLING AND SCREWS SHALL BE CONSIDERED INCIDENTAL TO THE BID ITEM "PIPE UNDERDRAIN WRAPPED 6-INCH".

THE RODENT SHIELD SHALL BE A PVC GRATE SIMILAR TO THIS DETAIL. THE GRATE IS COMMERCIALY AVAILABLE AS A FLOOR STRAINER. A PIPE COUPLING IS REQUIRED FOR THE ATTACHMENT OF THIS SHIELD TO THE EXPOSED END OF THE PIPE UNDERDRAIN. THE SHIELD SHALL BE FASTENED TO THE PIPE COUPLING WITH TWO OR MORE NO. 10 X 1-INCH STAINLESS STEEL SHEET METAL SCREWS.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE R-5-116			
DRAWN BY ZSS		PLANS CK'D KRO	
QUANTITIES & WALL DETAILS		SHEET 2 OF 3	
		166	

BORING #	DATE COMPLETED	NORTHING (Y)	EASTING (X)
B-05	MAY 9, 2024	541847.572	78669.984
BORINGS COMPLETED BY: ECS MIDWEST, LLC			
REPORT COMPLETED BY: ECS MIDWEST, LLC			
ALL COORDINATES REFERENCED TO WCCS NAD 83(91) BROWN COUNTY			



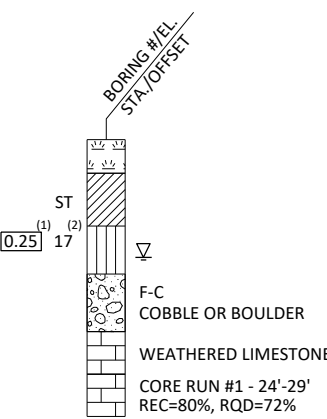
STATE PROJECT NUMBER

9277-01-71

MATERIAL SYMBOLS

ASPHALT	TOPSOIL	PEAT
CONCRETE	FILL	GRAVEL
SAND	CLAY	SILT
BOULDERS OR COBBLES	LIMESTONE	BEDROCK (UNKNOWN)
SHALE	SANDSTONE	IGNEOUS/META

LEGEND OF BORING



(1) UNCONFINED STRENGTH, AS DETERMINED BY A POCKET PENETROMETER (TSF)

(2) UNLESS OTHERWISE, SPECIFIED THE SPT 'N' VALUE IS BASED ON AASHTO T-206, STANDARD PENETRATION TEST. THE SPT 'N' VALUE PRESENTED HAS NOT BEEN CORRECTED FOR OVERBURDEN PRESSURE OR HAMMER EFFICIENCY.

GROUND WATER ELEVATION

▽	AT TIME OF DRILLING
▼	END OF DRILLING
▼	AFTER DRILLING

ABBREVIATIONS

F-FINE M-MEDIUM C-COARSE ST-SHELBY TUBE

SUBSURFACE EXPLORATION FOR FOUNDATION DESIGN AND BIDDERS INFORMATION

BORINGS WERE COMPLETED AT POINTS APPROXIMATELY AS INDICATED ON THIS DRAWING TO OBTAIN INFORMATION CONCERNING THE CHARACTER OF SUBSURFACE MATERIALS FOUND AT THE SITE. BECAUSE THE INVESTIGATED DEPTHS ARE LIMITED AND THE AREA OF THE BORINGS IS VERY SMALL IN RELATION TO THE ENTIRE SITE, THE WISCONSIN DEPARTMENT OF TRANSPORTATION DOES NOT WARRANT SIMILAR SUBSURFACE CONDITIONS BELOW, BETWEEN, OR BEYOND THESE BORINGS. VARIATIONS IN SOIL CONDITIONS SHOULD BE EXPECTED AND FLUCTUATIONS IN GROUNDWATER LEVELS MAY OCCUR.

NO.	DATE	REVISION	BY
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STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE R-5-116

DRAWN BY	ZSS	PLANS CK'D	KRO
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SUBSURFACE
EXPLORATION

SHEET 3 of 3
167

DIVISION - CTH EE EB												
STATION	AREA (SF)				INCREMENTAL VOL (CY) (UNADJUSTED)				CUMULATIVE VOL (CY)			
	CUT	SALVAGED/UNUSABLE PAVEMENT MATERIAL	FILL	MARSH EXC	CUT	SALVAGED/UNUSABLE PAVEMENT MATERIAL	FILL	MARSH EXC	CUT	EXPANDED FILL	EXPANDED MARSH BACKFILL	MASS ORDINATE
									1.00	1.43	1.50	
					NOTE 1	NOTE 2	NOTE 3		NOTE 1		NOTE 4	NOTE 8
103+00.00	111	16	0	0	0	0	0	0	0	0	0	0
103+25.00	105	16	0	0	100	15	0	0	100	0	0	85
103+50.00	64	22	0	0	78	17	0	0	178	0	0	146
103+75.00	51	21	0	0	53	20	0	0	231	0	0	179
104+00.00	41	23	10	0	42	20	5	0	273	7	0	194
104+25.00	32	24	29	0	34	22	18	0	307	33	0	180
104+50.00	26	25	47	0	27	23	35	0	334	83	0	134
104+75.00	12	26	88	0	18	24	62	0	352	172	0	39
105+00.00	14	29	153	0	12	25	111	0	364	330	0	-132
105+20.00	10	29	111	0	9	21	98	0	373	470	0	-284
105+50.00	3	34	130	0	7	35	134	0	380	662	0	-504
107+25.00	18	5	13	0	0	0	0	0	380	662	0	-504
107+50.00	11	9	13	0	13	7	12	0	393	679	0	-515
107+75.00	14	9	10	0	12	8	11	0	405	695	0	-527
108+00.00	44	26	9	0	27	16	9	0	432	708	0	-529
108+25.00	59	26	4	0	48	24	6	0	480	716	0	-513
108+50.00	63	26	3	0	56	24	3	0	536	721	0	-486
108+75.00	0	26	0	0	29	24	1	0	565	722	0	-482

5653255050

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
4 - EXPANDED MARSH BACKFILL	WILL BE BACKFILLED WITH GRANULAR BACKFILL (OR CUT, OR BORROW)
8 - MASS ORDINATE	CUT - SALVAGED PAVT - (FILL * FILL FACTOR)

DIVISION - CTH EE WB

STATION	AREA (SF)				INCREMENTAL VOL (CY) (UNADJUSTED)				CUMULATIVE VOL (CY)			
	CUT	SALVAGED/UNUSABLE PAVEMENT MATERIAL	FILL	MARSH EXC	CUT	SALVAGED/UNUSABLE PAVEMENT MATERIAL	FILL	MARSH EXC	CUT	EXPANDED FILL	EXPANDED MARSH BACKFILL	MASS ORDINATE
									1.00	1.43	1.50	
									NOTE 1		NOTE 4	NOTE 8
105+25.00	0	5	143	6	0	0	0	0	0	0	0	0
105+50.00	0	2	152	10	0	3	136	7	0	184	11	-187
105+75.00	0	0	136	14	0	1	133	11	0	359	27	-363
107+40.00	9	20	60	0	0	0	0	0	0	359	27	-363
107+50.00	10	17	52	0	4	7	21	0	4	389	27	-396
107+75.00	13	12	24	0	10	14	35	0	14	439	27	-450

142532518

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
4 - EXPANDED MARSH BACKFILL	WILL BE BACKFILLED WITH GRANULAR BACKFILL (OR CUT, OR BORROW)
8 - MASS ORDINATE	CUT - SALVAGED PAVT - (FILL * FILL FACTOR)

DIVISION - MID VALLEY DR NB												
STATION	AREA (SF)				INCREMENTAL VOL (CY) (UNADJUSTED)				CUMULATIVE VOL (CY)			
	CUT	SALVAGED/UNUSABLE PAVEMENT MATERIAL	FILL	MARSH EXC	CUT	SALVAGED/UNUSABLE PAVEMENT MATERIAL	FILL	MARSH EXC	CUT	EXPANDED FILL	EXPANDED MARSH BACKFILL	MASS ORDINATE
	NOTE 1	NOTE 2	NOTE 3		NOTE 1	NOTE 2	NOTE 3		NOTE 1	1.43	1.50 NOTE 4	NOTE 8
9+15.00	76	15	1	0	0	0	0	0	0	0	0	0
9+25.00	67	15	0	0	27	6	0	0	27	0	0	21
9+50.00	71	15	1	0	64	14	1	0	91	1	0	70
9+75.00	84	15	0	0	72	14	0	0	163	1	0	128
10+00.00	74	15	7	9	73	14	3	4	236	0	6	188
10+25.00	72	15	21	8	68	14	13	8	304	7	18	235
10+50.00	69	15	49	10	65	14	32	8	369	41	30	252
10+75.00	68	15	35	9	64	14	38	9	433	83	44	260
11+00.00	66	15	24	10	62	14	27	9	495	109	57	282
11+25.00	64	15	18	11	60	14	20	10	555	123	72	314
11+50.00	65	15	16	12	59	14	16	11	614	130	89	352
11+75.00	67	15	14	13	61	14	14	12	675	133	107	396
12+00.00	70	15	14	15	63	14	13	13	738	133	126	445
12+25.00	34	15	17	14	48	14	15	13	786	136	146	476
12+50.00	28	15	21	14	29	14	18	13	815	143	165	484
12+75.00	22	23	44	13	23	17	31	13	838	169	185	464
13+00.00	12	23	61	11	16	21	49	11	854	223	201	405
13+25.00	3	26	97	11	7	23	73	10	861	313	216	299
13+50.00	11	29	152	0	7	25	115	5	868	470	224	124
13+75.00	0	14	122	0	5	20	126	0	873	651	224	-72
13+95.00	0	17	140	0	0	11	96	0	873	788	224	-220
15+65.00	0	18	69	0	0	0	0	0	873	788	224	-220
15+75.00	1	17	70	0	0	6	26	0	873	825	224	-263
16+00.00	1	14	105	0	1	14	81	0	874	941	224	-392
16+25.00	9	28	102	11	5	19	96	5	879	1071	231	-536
16+50.00	17	26	38	17	12	25	65	13	891	1145	251	-623
16+75.00	27	23	24	17	20	23	29	16	911	1164	275	-645
17+00.00	34	23	20	18	28	22	20	16	939	1170	299	-645
17+25.00	35	15	24	19	32	18	20	17	971	1174	324	-635
17+50.00	63	15	3	17	46	14	13	17	1017	1168	350	-597
17+75.00	51	15	9	15	53	14	6	15	1070	1155	372	-545
18+00.00	46	15	11	17	45	14	9	15	1115	1147	395	-506
18+25.00	43	15	13	17	41	14	11	16	1156	1140	419	-472
18+50.00	42	15	9	12	39	14	10	13	1195	1135	438	-442
18+75.00	45	15	11	9	40	14	9	10	1235	1134	453	-415
19+00.00	47	15	11	7	43	14	10	7	1278	1138	464	-390
19+25.00	54	15	3	0	47	14	6	3	1325	1143	468	-362
19+50.00	60	14	5	0	52	13	4	0	1377	1148	468	-328
19+75.00	66	14	4	0	58	13	4	0	1435	1154	468	-289
20+00.00	74	14	0	0	65	13	2	0	1500	1157	468	-240
20+30.00	84	14	0	0	86	15	0	0	1586	1157	468	-169

1,586 598 1,121 312

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
4 - EXPANDED MARSH BACKFILL	WILL BE BACKFILLED WITH GRANULAR BACKFILL (OR CUT, OR BORROW)
8 - MASS ORDINATE	CUT - SALVAGED PAVT - (FILL * FILL FACTOR)

DIVISION - MID VALLEY DR SB

STATION	AREA (SF)				INCREMENTAL VOL (CY) (UNADJUSTED)				CUMULATIVE VOL (CY)			
	CUT	SALVAGED/UNUSABLE PAVEMENT MATERIAL	FILL	MARSH EXC	CUT	SALVAGED/UNUSABLE PAVEMENT MATERIAL	FILL	MARSH EXC	CUT	EXPANDED FILL	EXPANDED MARSH BACKFILL	MASS ORDINATE
NOTE 1	NOTE 2	NOTE 3	NOTE 1	1.43	NOTE 4	NOTE 8						
13+75.00	16	15	114	0	0	0	0	0	0	0	0	
14+00.00	5	21	116	0	10	17	106	0	10	152	0	-159
15+75.00	0	15	92	0	0	0	0	0	10	152	0	-159
16+00.00	0	9	56	0	0	11	68	0	10	249	0	-267

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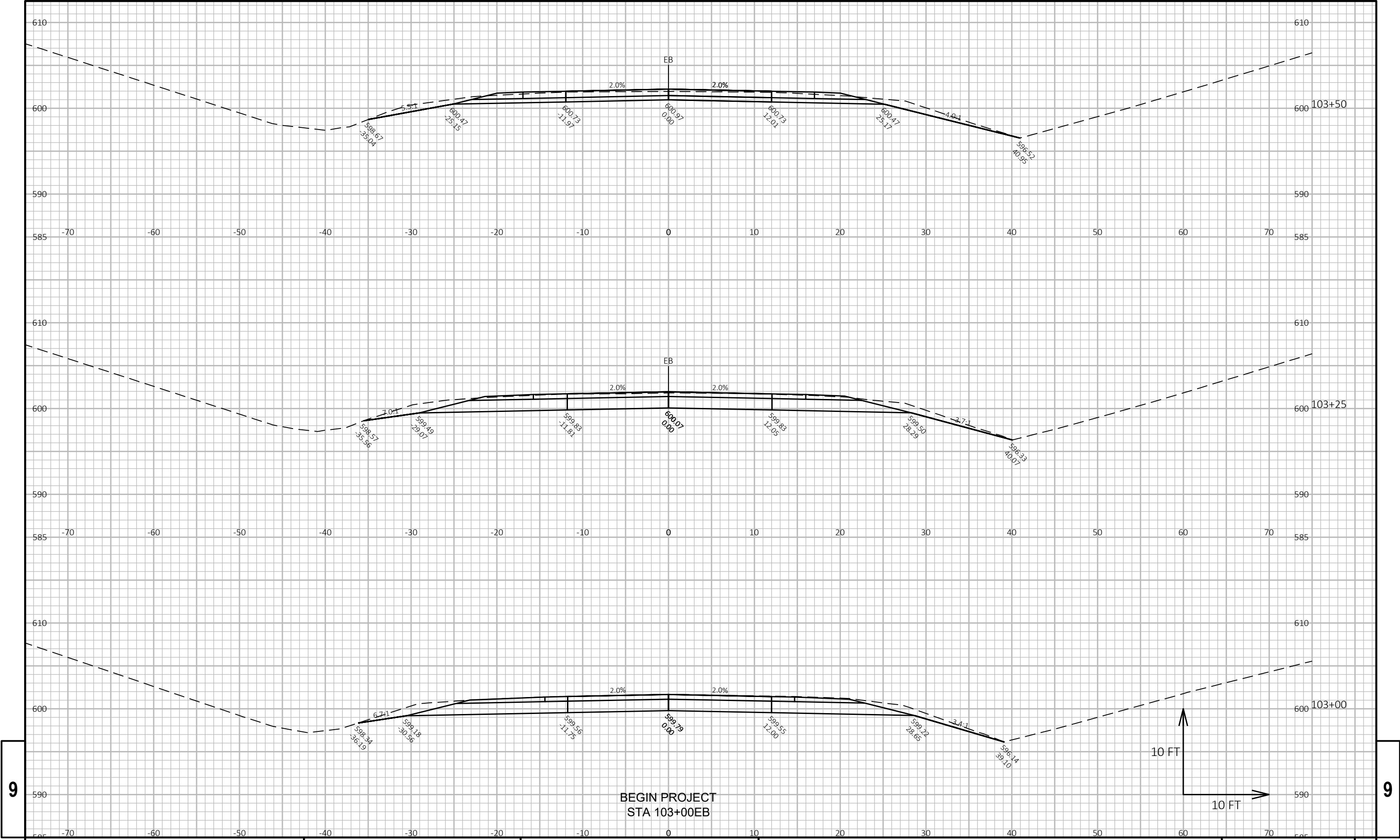
NOTES:	
1 - CUT	CUT INCLUDES SALVAGED/UNUSABLE PAVEMENT MATERIAL
2 - SALVAGED/UNUSABLE PAVEMENT MATERIAL	THIS DOES NOT SHOW UP IN CROSS SECTIONS
3 - FILL	DOES NOT INCLUDE UNUSABLE PAVEMENT EXC VOLUME
4 - EXPANDED MARSH BACKFILL	WILL BE BACKFILLED WITH GRANULAR BACKFILL (OR CUT, OR BORROW)
8 - MASS ORDINATE	CUT - SALVAGED PAVT - (FILL * FILL FACTOR)

DIVISION - ROUNDABOUT

STATION	AREA (SF)				INCREMENTAL VOL (CY) (UNADJUSTED)				CUMULATIVE VOL (CY)			
	CUT	SALVAGED/UNUSABLE PAVEMENT MATERIAL	FILL	MARSH EXC	CUT	SALVAGED/UNUSABLE PAVEMENT MATERIAL	FILL	MARSH EXC	CUT	EXPANDED FILL	EXPANDED MARSH	MASS ORDINATE
											BACKFILL	
											1.00	
NOTE 1	NOTE 2	NOTE 3	NOTE 1	NOTE 4	NOTE 8							
0+25.00	6	45	136	0	0	0	0	0	0	0	0	0
0+50.00	10	46	142	0	7	42	129	0	7	184	0	-219
0+75.00	14	53	195	0	11	46	156	0	18	408	0	-478
1+00.00	19	47	136	0	15	46	153	0	33	626	0	-727
1+25.00	12	38	115	0	14	39	116	0	47	792	0	-918
1+40.00	39	32	103	0	14	19	61	0	61	879	0	-1010
1+50.00	6	33	146	0	11	15	58	0	72	962	0	-1097
1+75.00	4	45	135	0	4	33	117	0	76	1130	0	-1294
2+00.00	2	45	142	0	3	42	128	0	79	1313	0	-1516
2+20.00	3	62	251	0	2	40	145	0	81	1520	0	-1761
2+50.00	1	53	166	0	2	64	232	0	83	1852	0	-2155
2+75.00	0	30	145	0	1	38	144	0	84	2058	0	-2398
2+95.00	1	27	236	27	1	21	141	10	85	2245	15	-2605

854451,58010

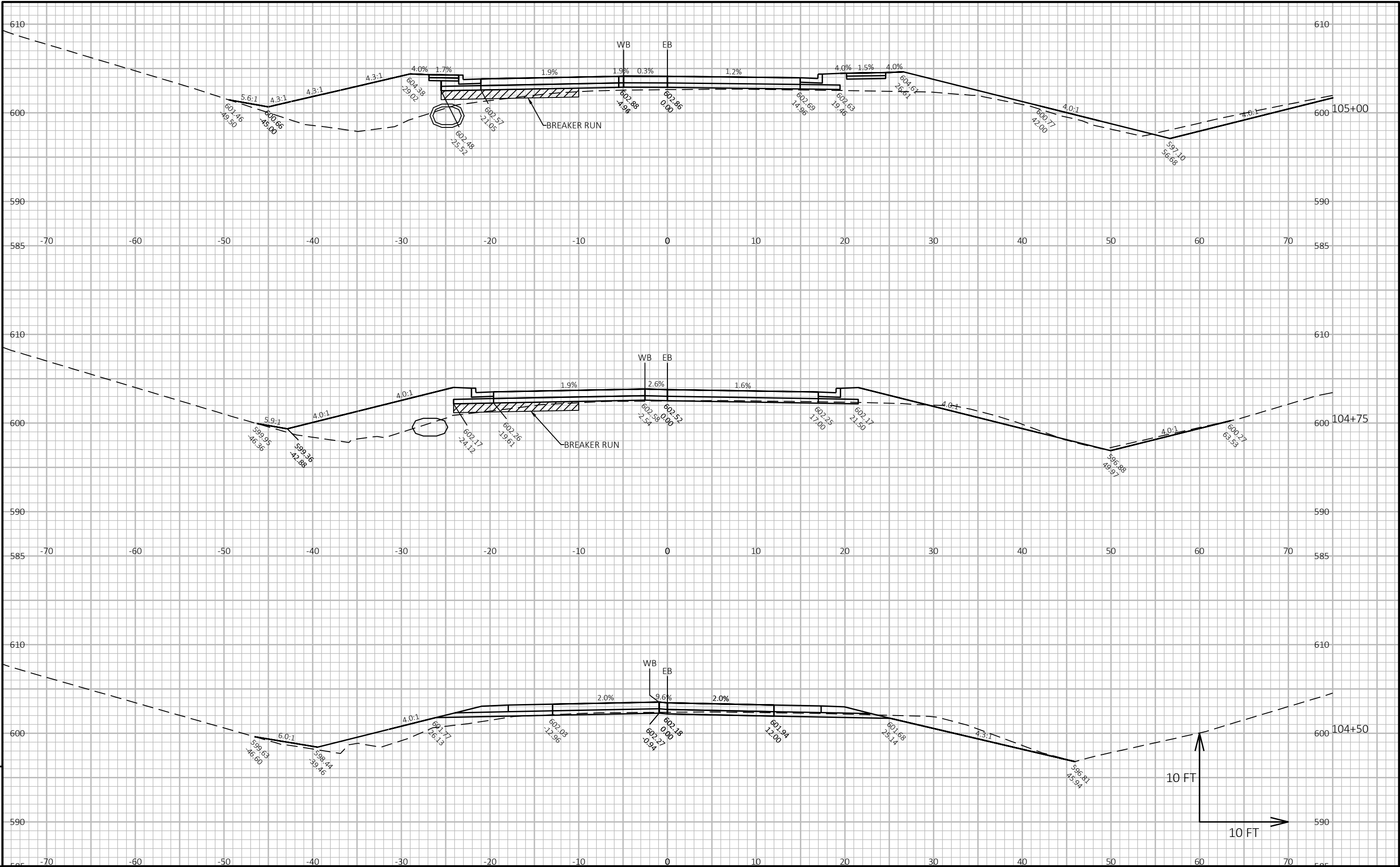
NOTES:	
1 - CUT	CUT INCLUDES SALVAGED/UNUSABLE PAVEMENT MATERIAL
2 - SALVAGED/UNUSABLE PAVEMENT MATERIAL	THIS DOES NOT SHOW UP IN CROSS SECTIONS
3 - FILL	DOES NOT INCLUDE UNUSABLE PAVEMENT EXC VOLUME
4 - EXPANDED MARSH BACKFILL	WILL BE BACKFILLED WITH GRANULAR BACKFILL (OR CUT, OR BORROW)
8 - MASS ORDINATE	CUT - SALVAGED PAVT - (FILL * FILL FACTOR)

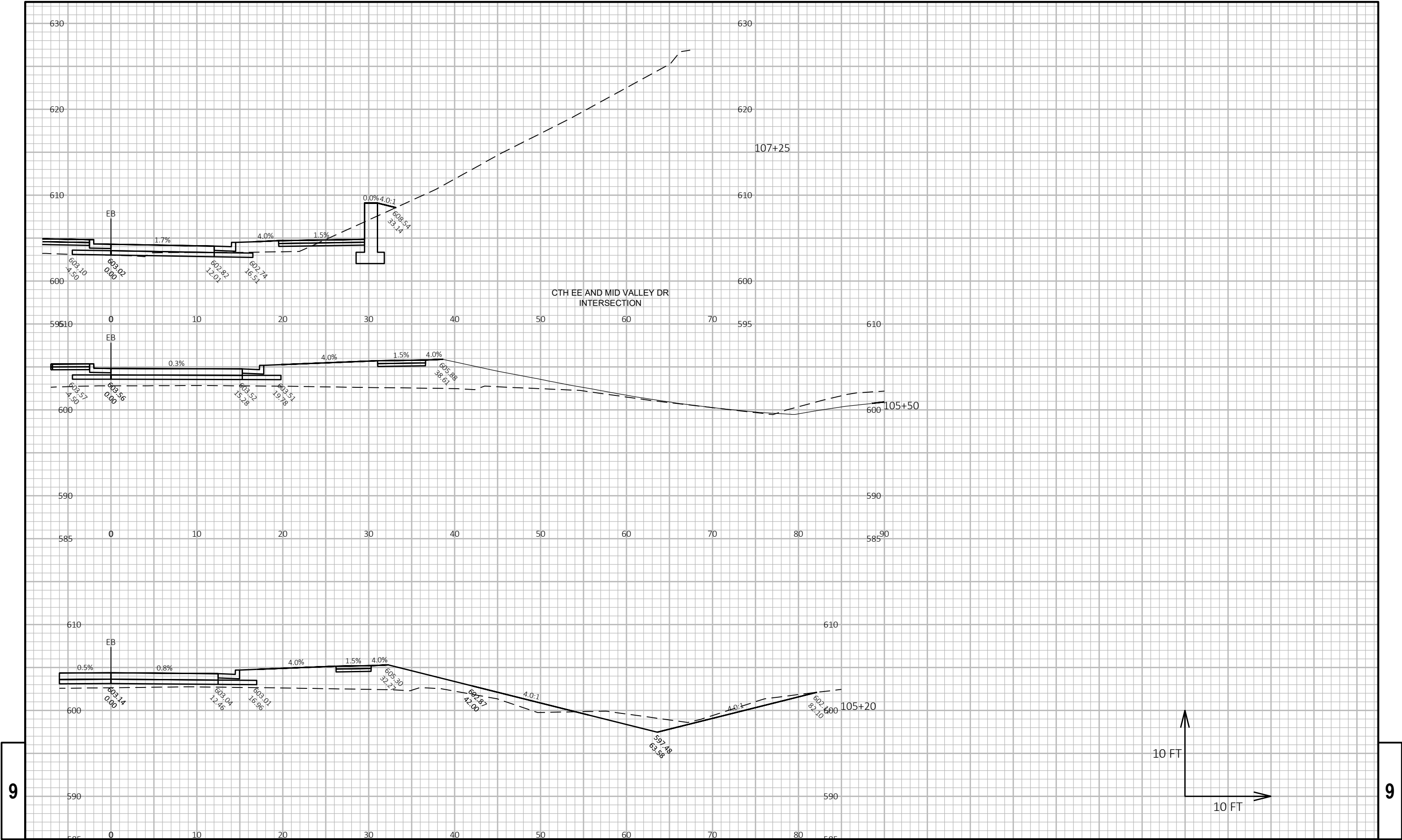


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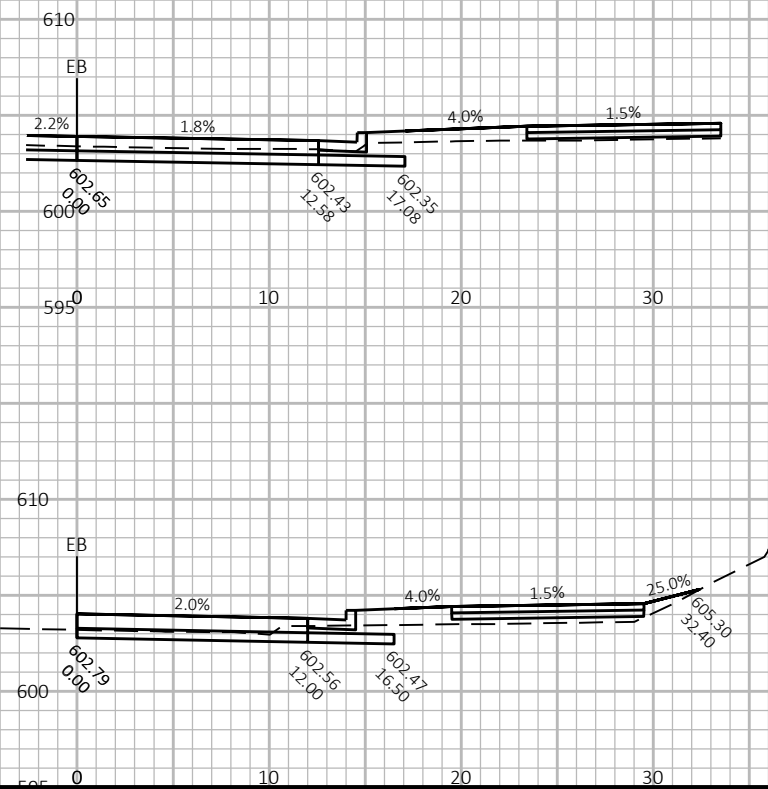
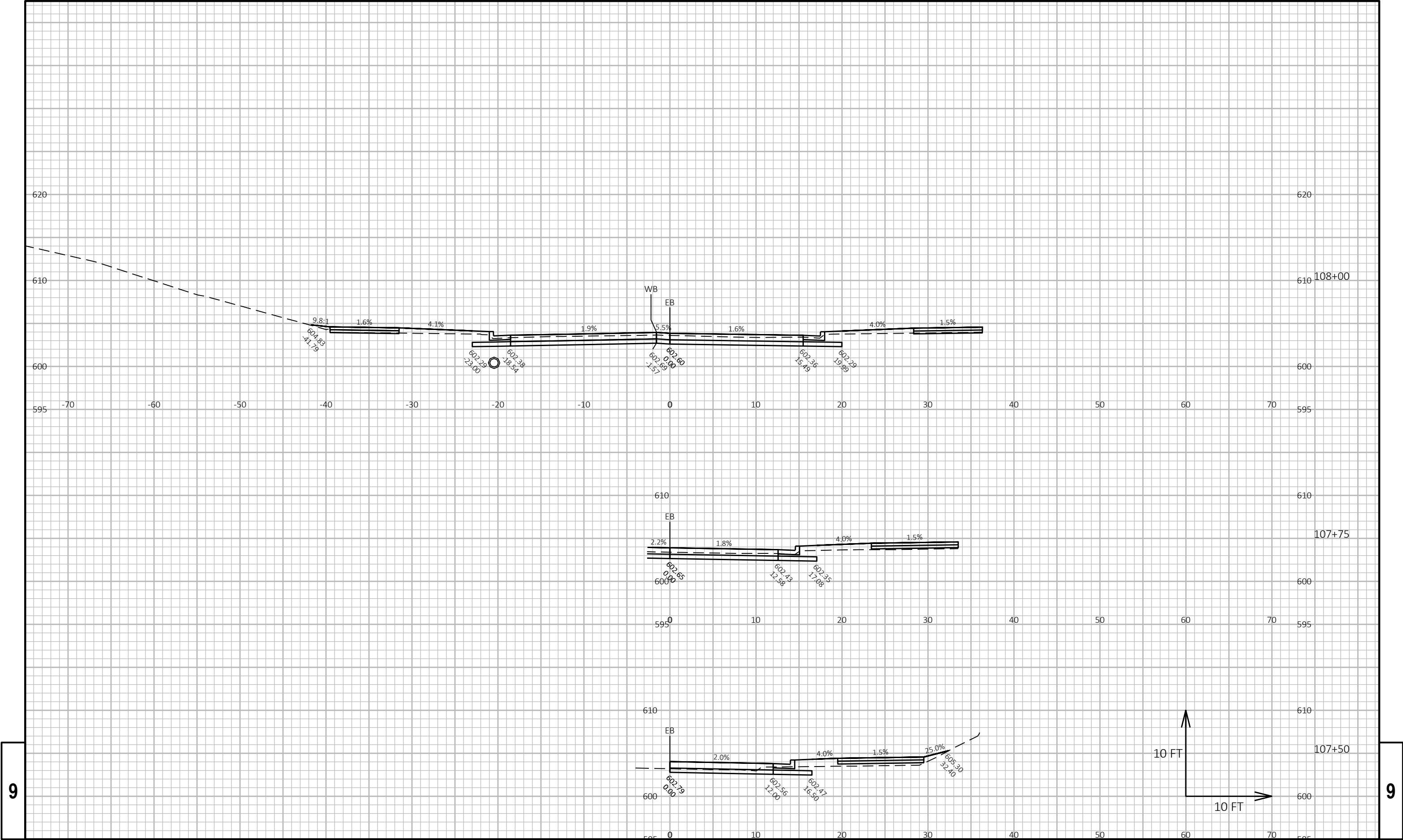
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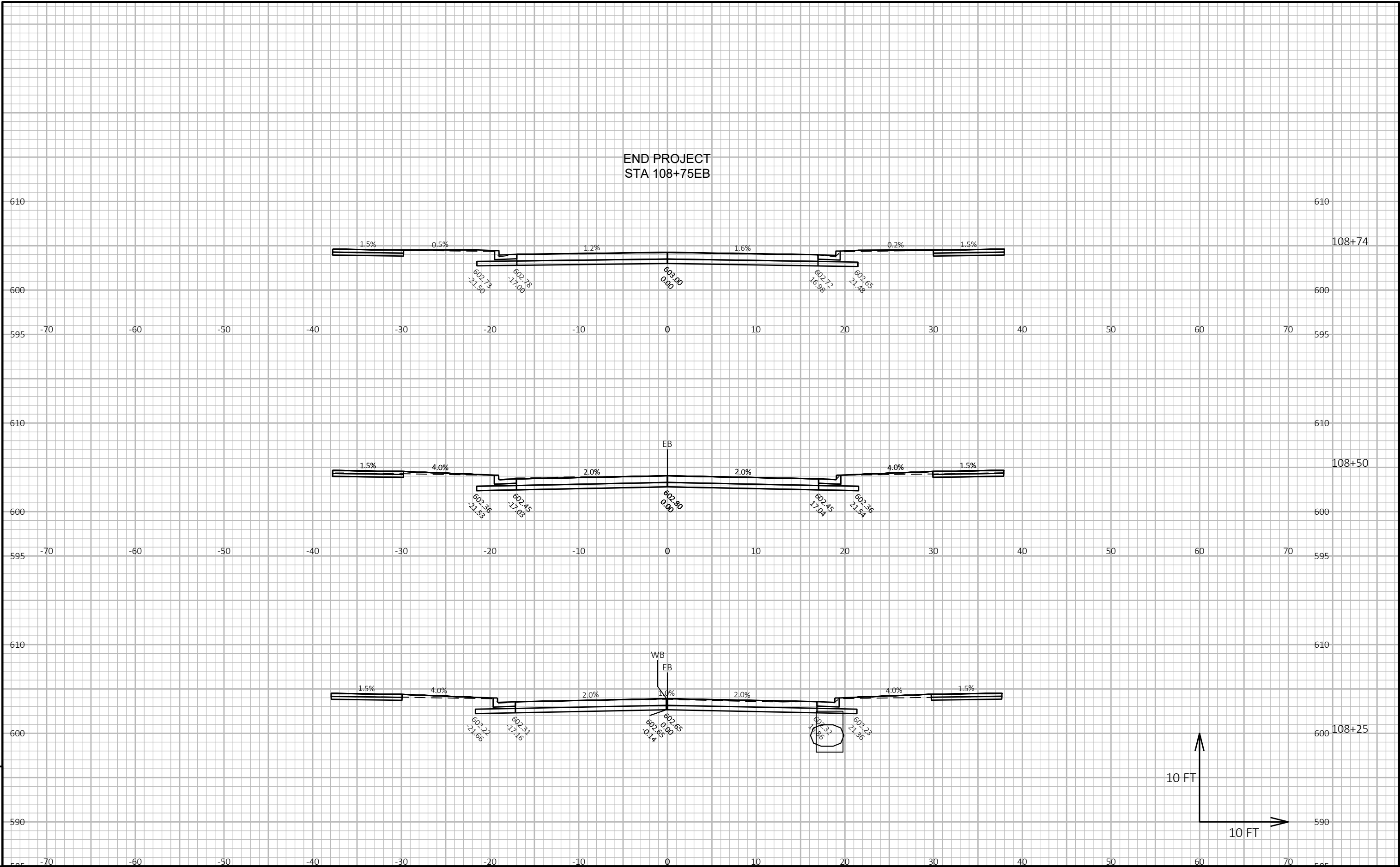
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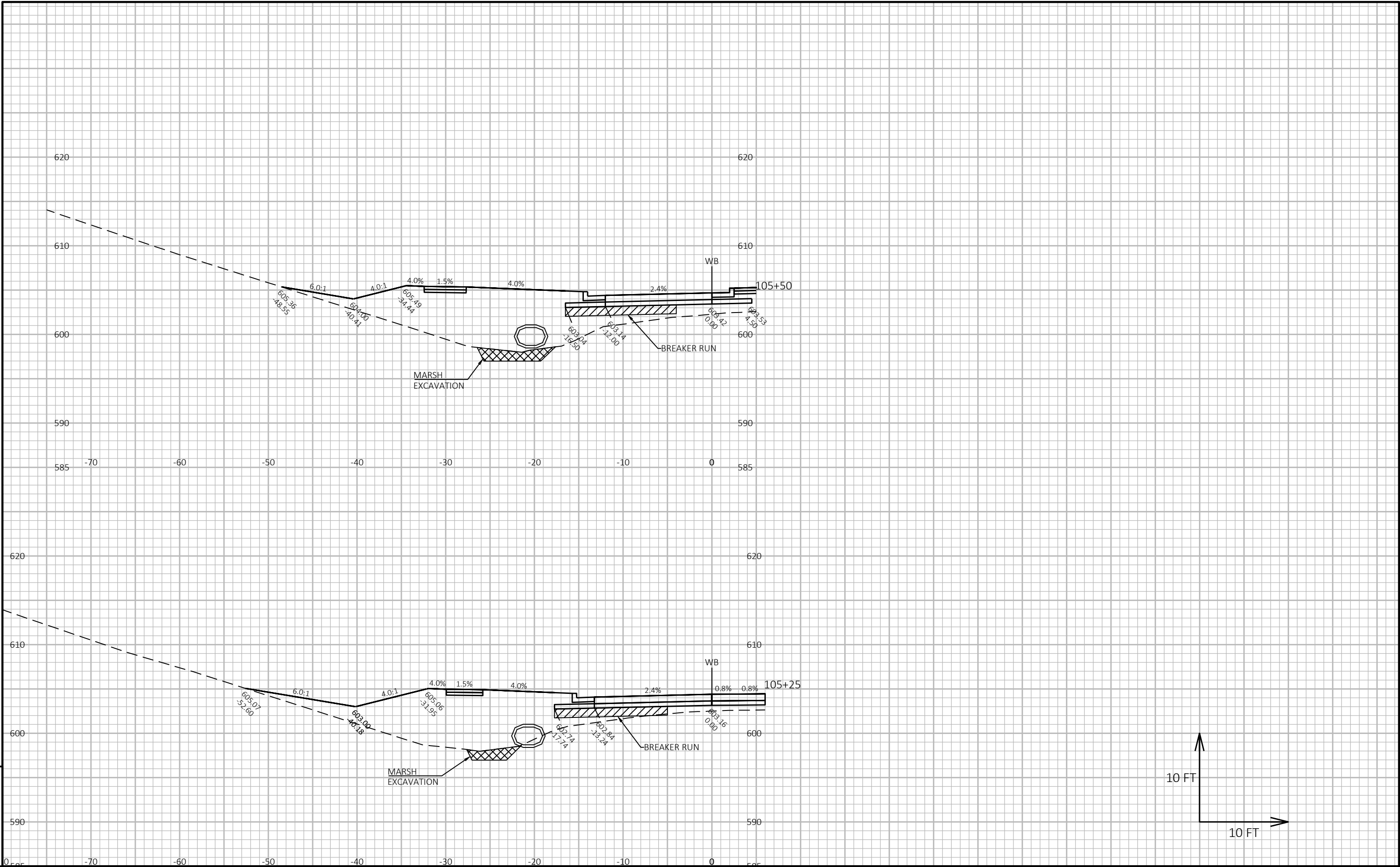
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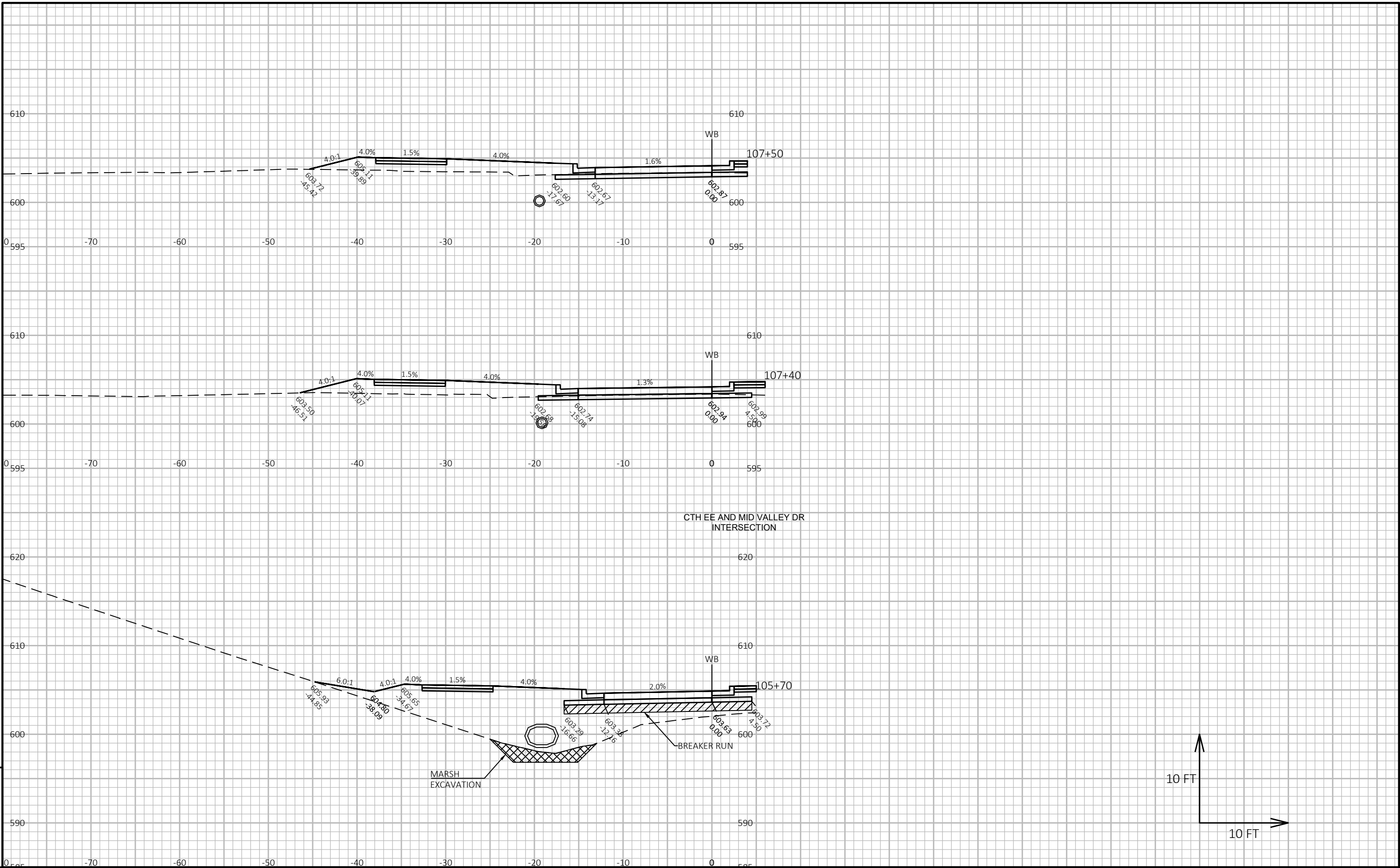


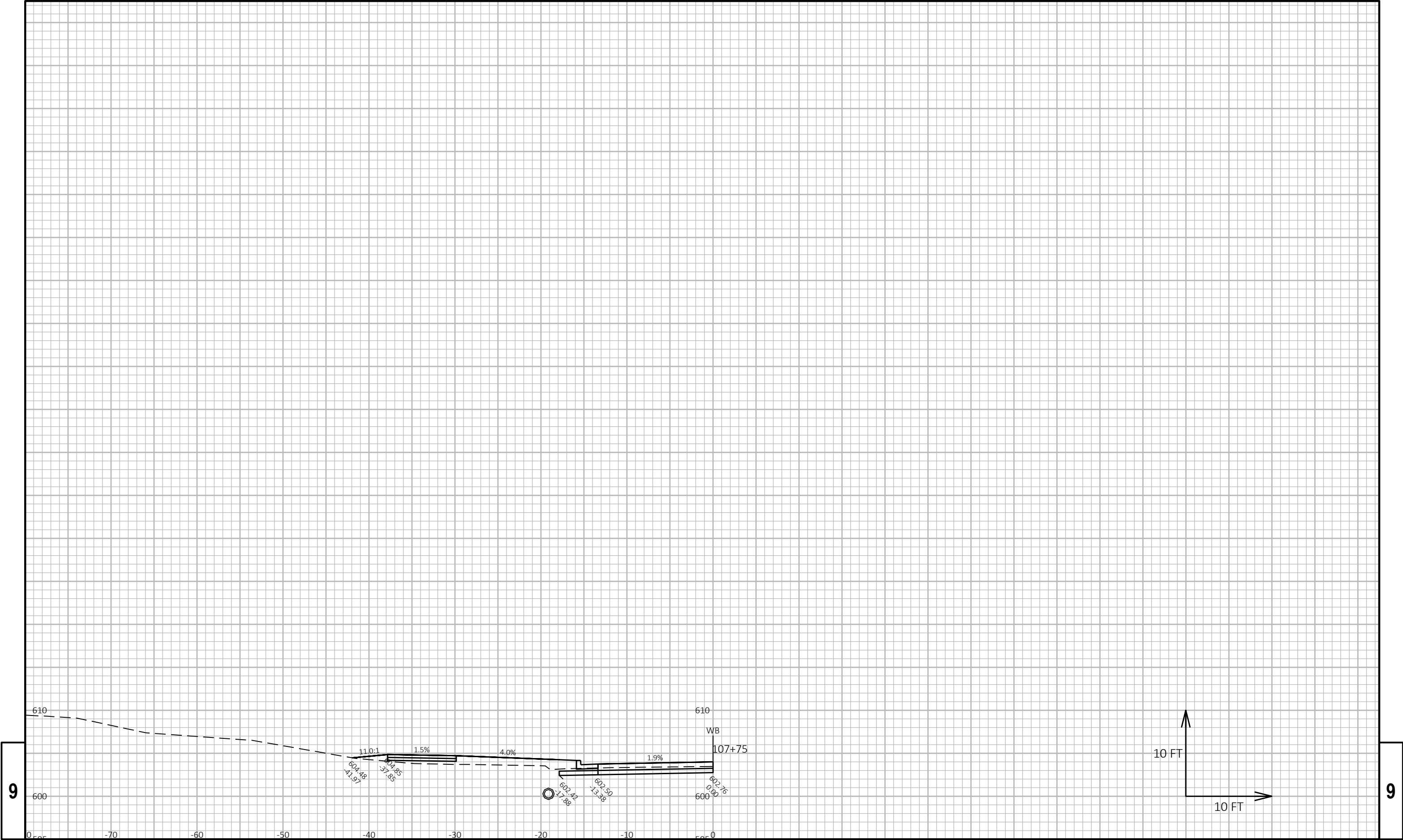


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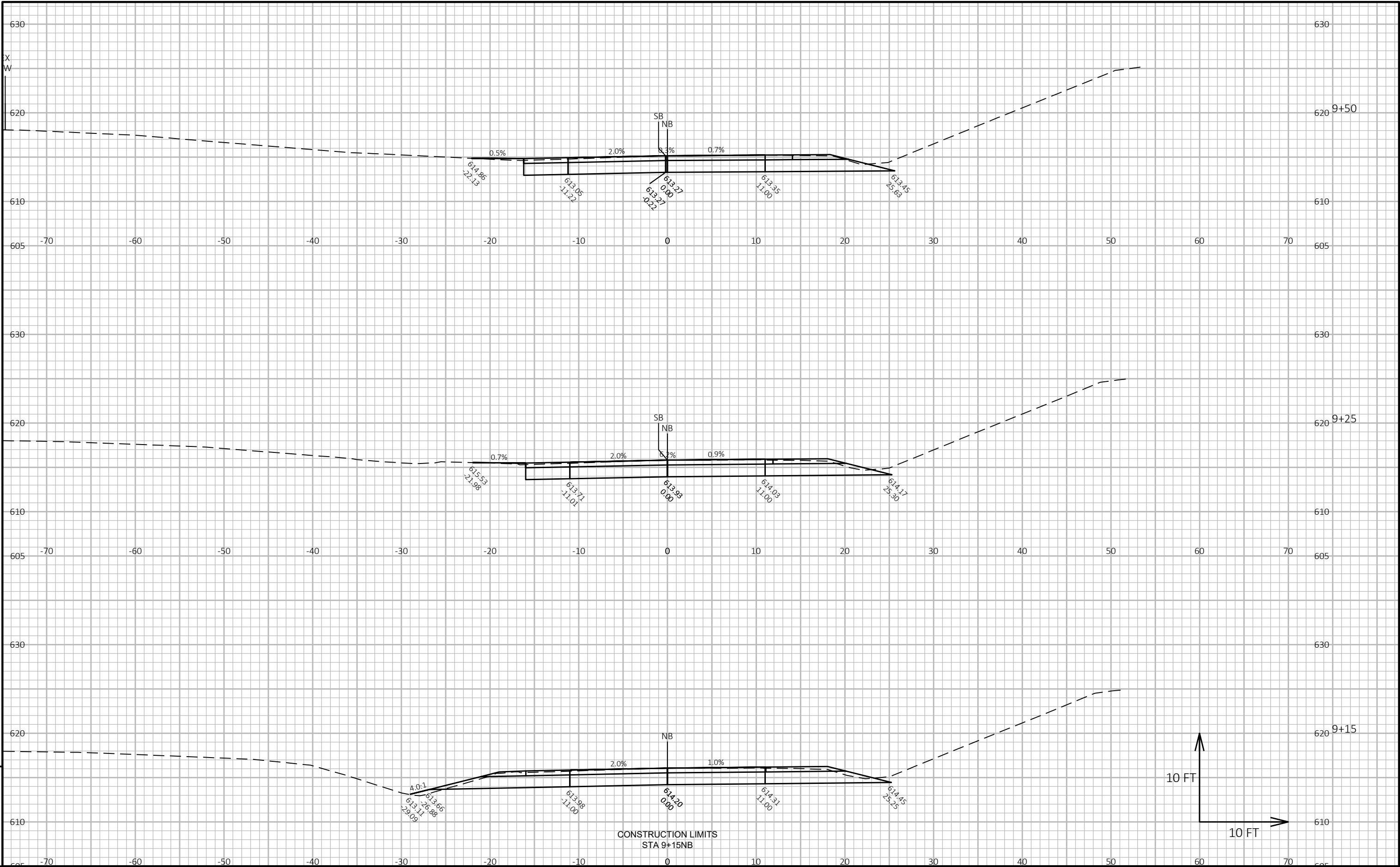
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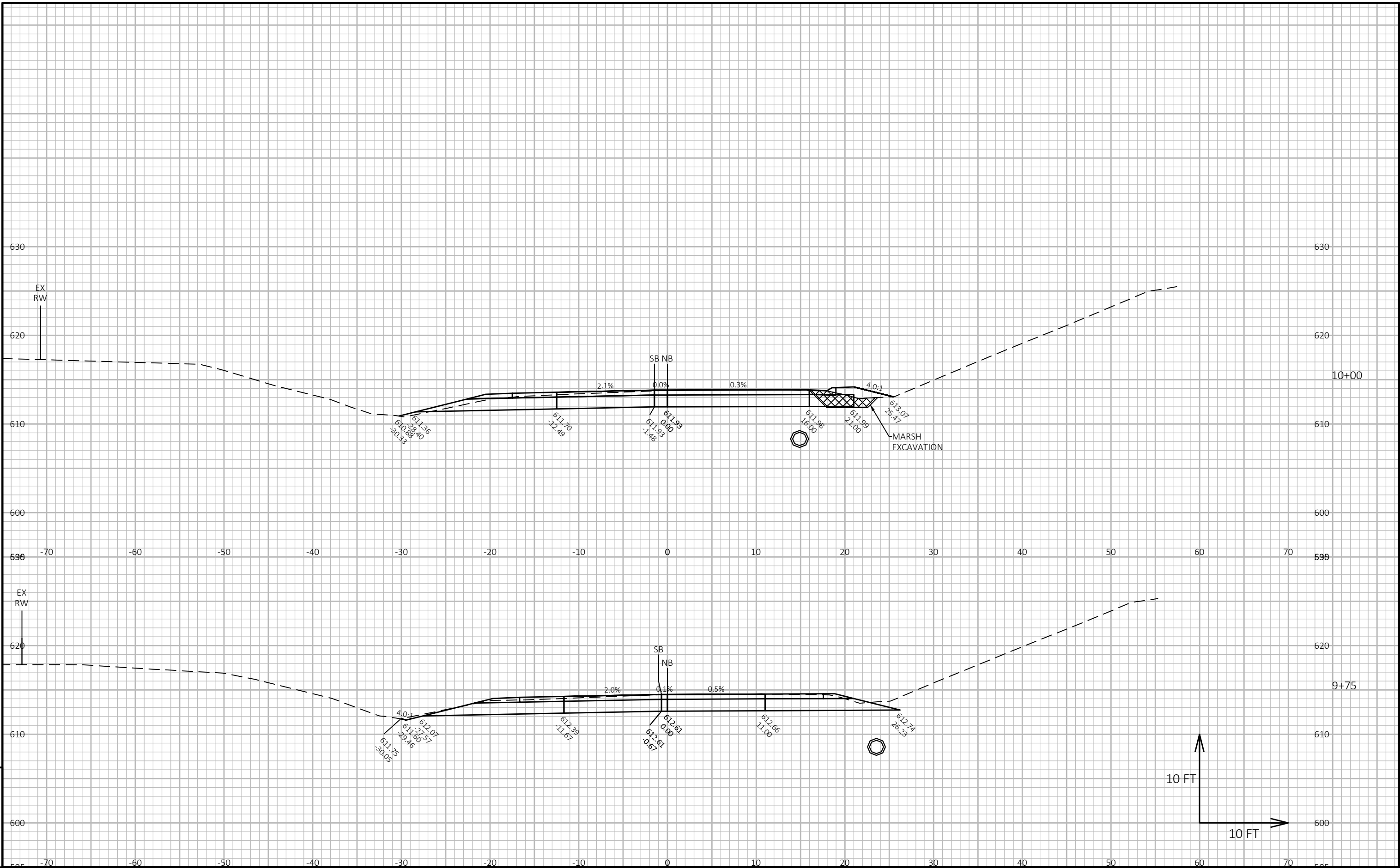
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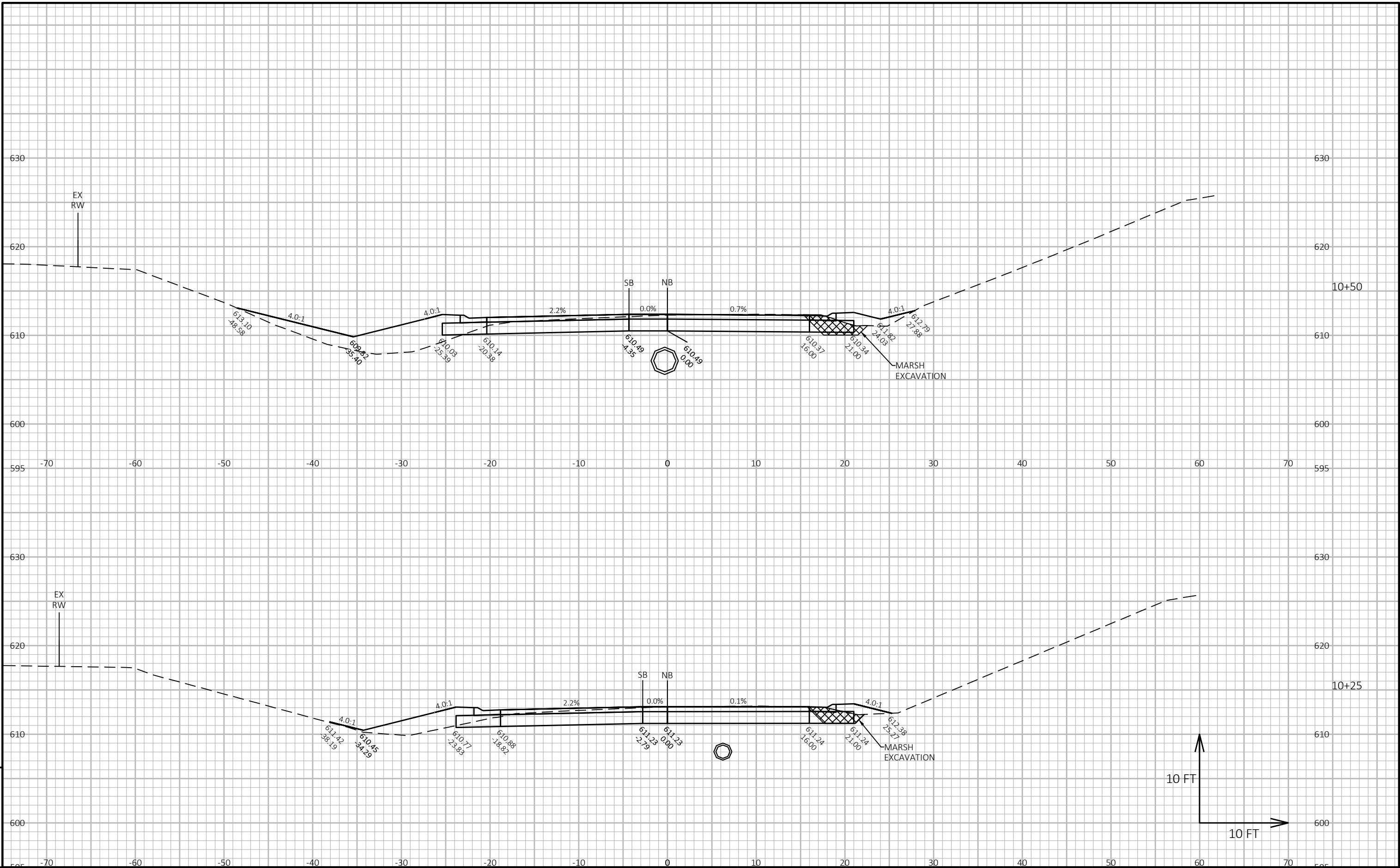


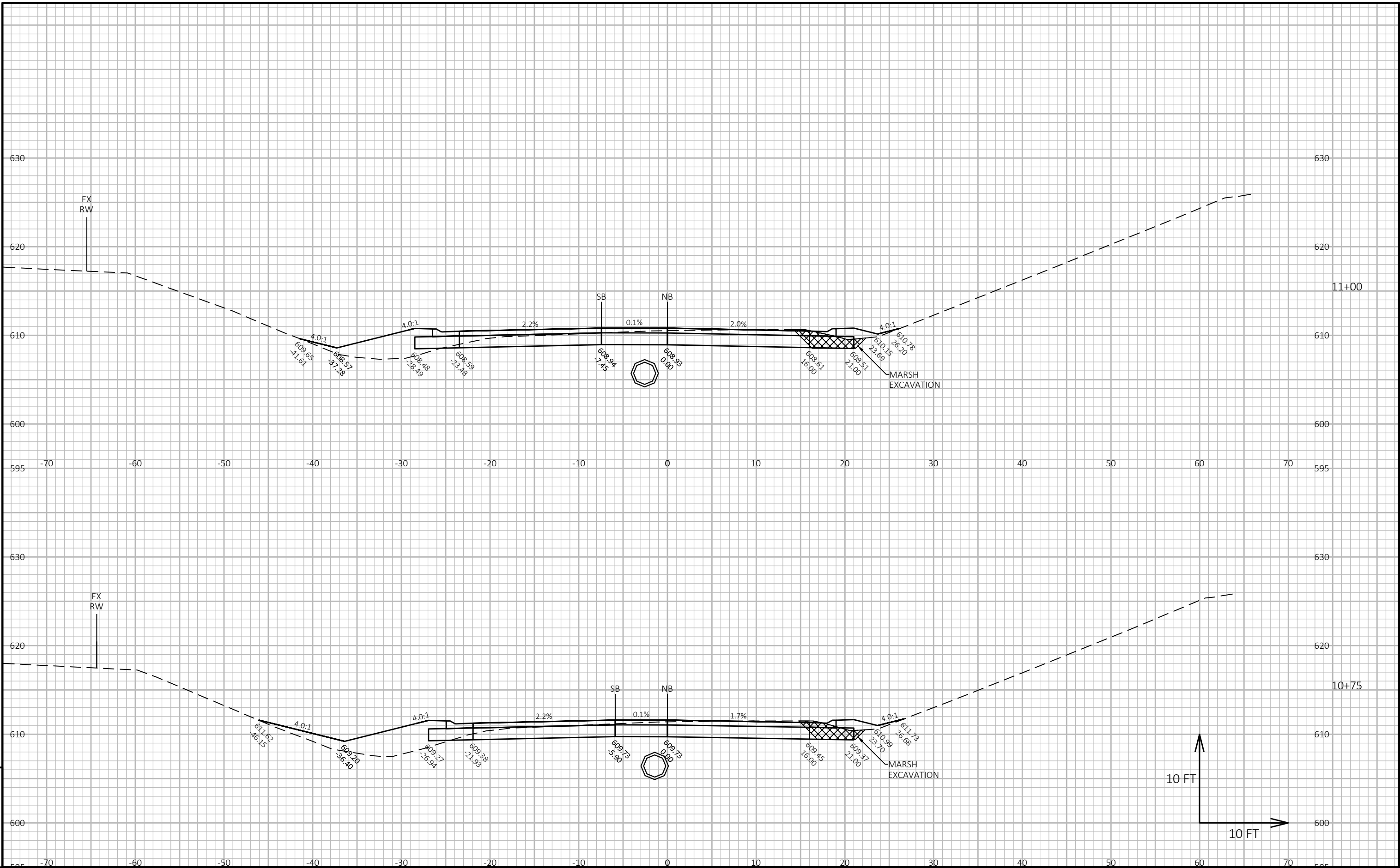


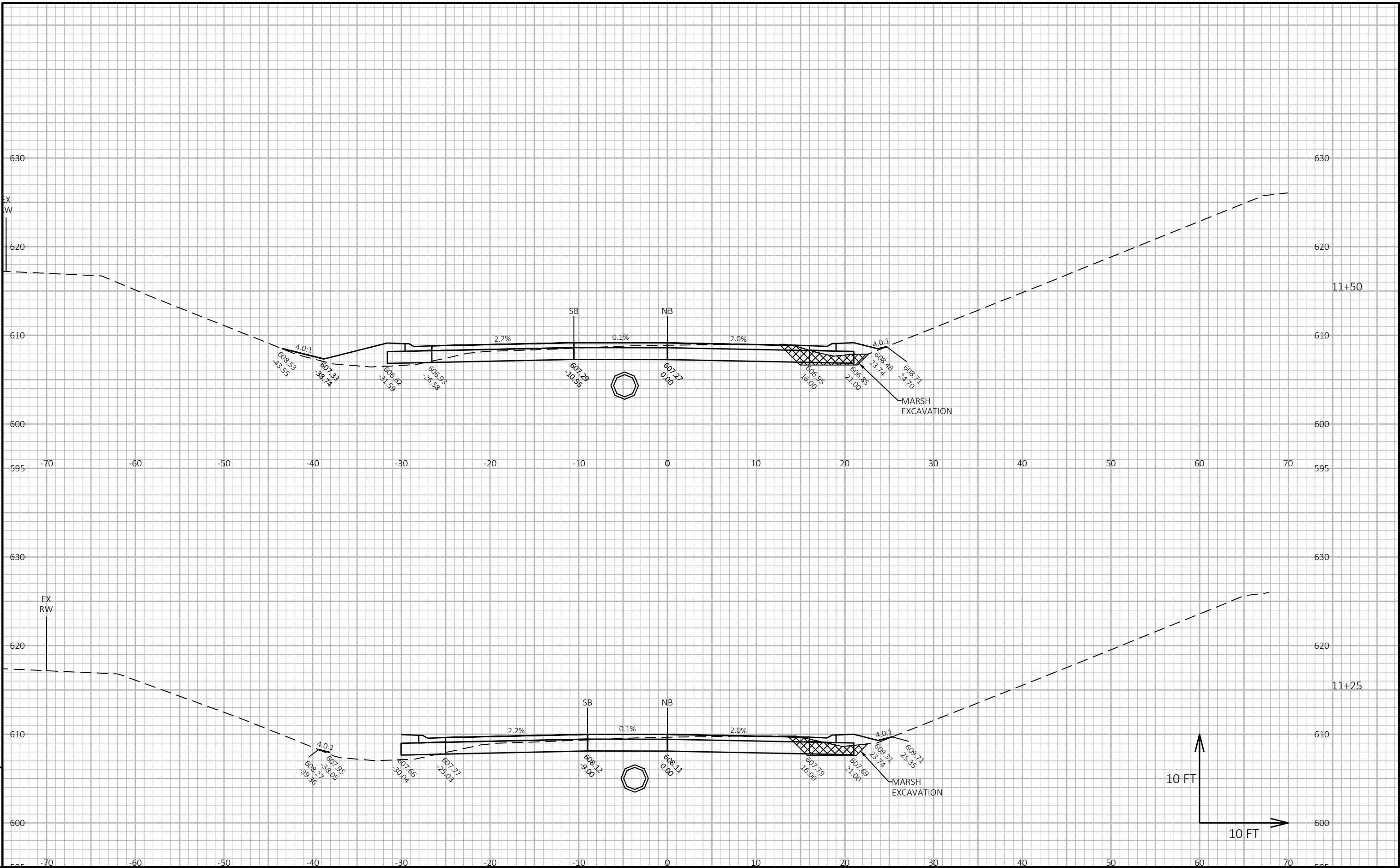
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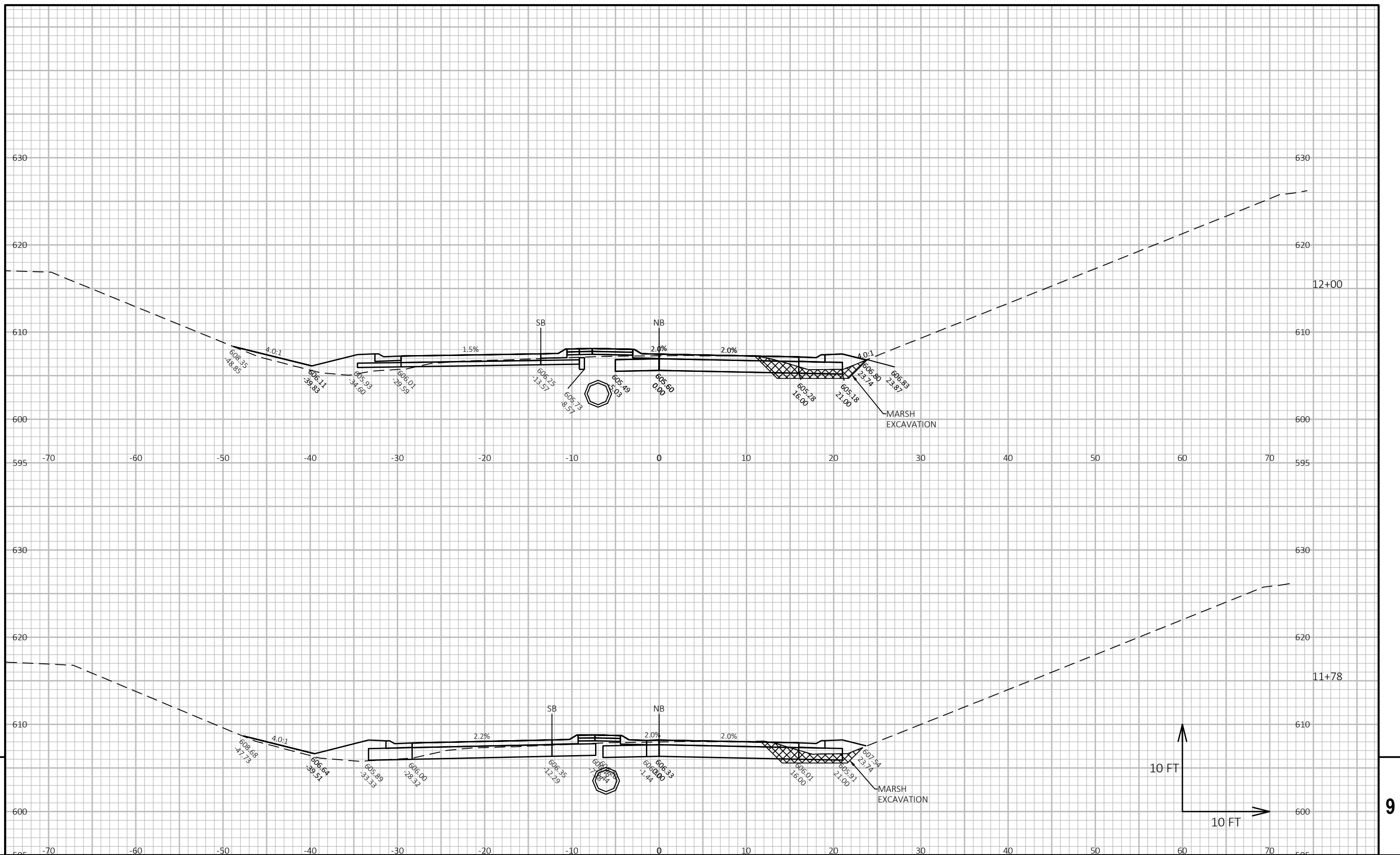
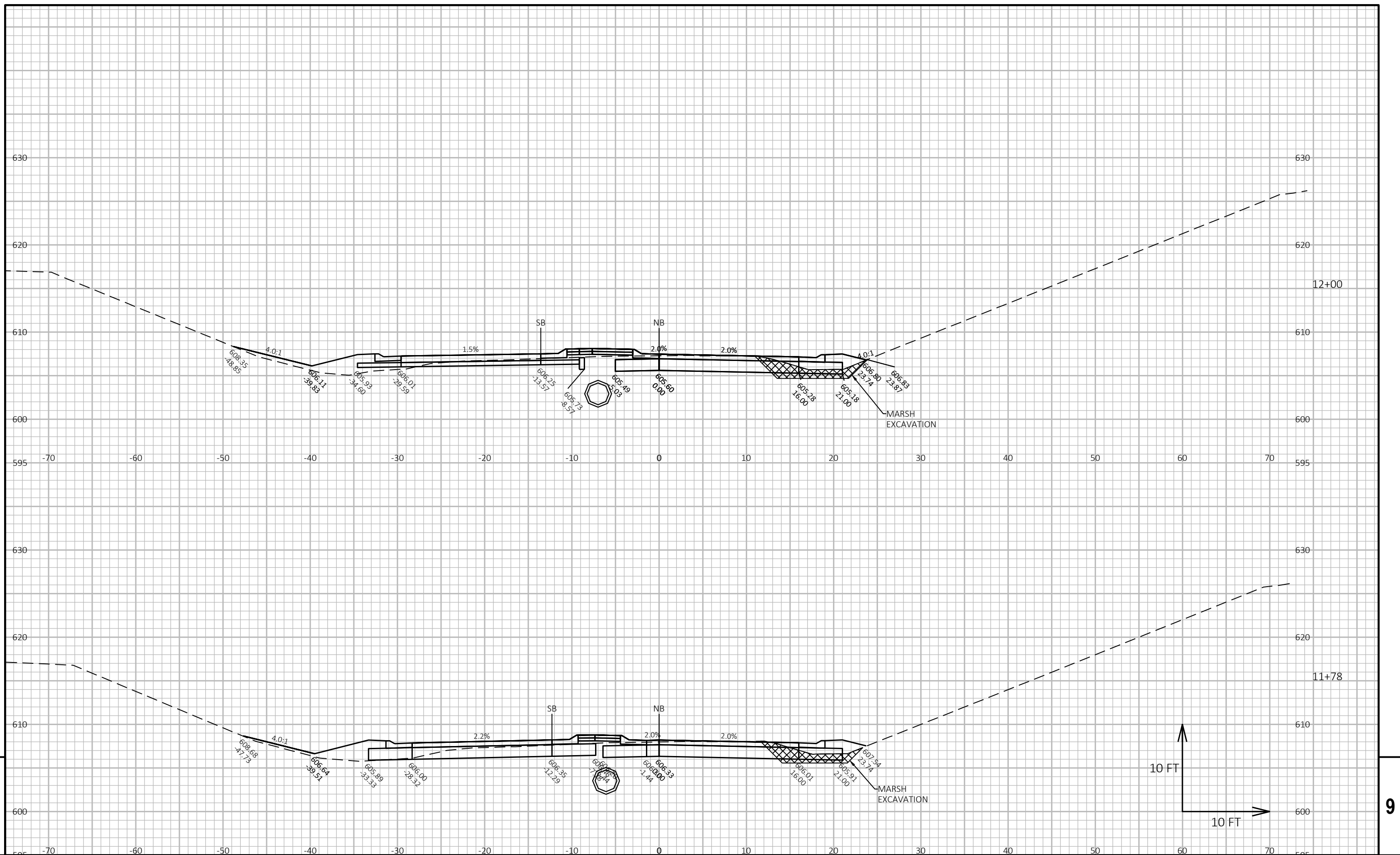












PROJECT NO: 9277-01-71	HWY: CTH EE	COUNTY: BROWN	CROSS SECTIONS: MID VALLEY DR NB	SHEET 187	E
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PROJECT NO: 9277-01-71	HWY: CTH EE	COUNTY: BROWN	CROSS SECTIONS: MID VALLEY DR NB	SHEET 187	E
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PROJECT NO: 9277-01-71	HWY: CTH EE	COUNTY: BROWN	CROSS SECTIONS: MID VALLEY DR NB	SHEET 187	E
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PROJECT NO: 9277-01-71	HWY: CTH EE	COUNTY: BROWN	CROSS SECTIONS: MID VALLEY DR NB	SHEET 187	E
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PROJECT NO: 9277-01-71	HWY: CTH EE	COUNTY: BROWN	CROSS SECTIONS: MID VALLEY DR NB	SHEET 187	E
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PROJECT NO: 9277-01-71	HWY: CTH EE	COUNTY: BROWN	CROSS SECTIONS: MID VALLEY DR NB	SHEET 187	E
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[illegible]

FILE NAME :	I:\45\450630 BROWN CTH EE\C3D\SHEETSPLAN\090201-XS.DWG	PLOT DATE :	10/29/2024 1:04 PM	PLOT BY :	GARNICA, BRANDON	PLOT NAME :		PLOT SCALE :	1 IN=10 FT HORZ. / 1 IN=10 FT VERT.	WISDOT/CADDS SHEET 49
LAYOUT NAME -	090215-xs									

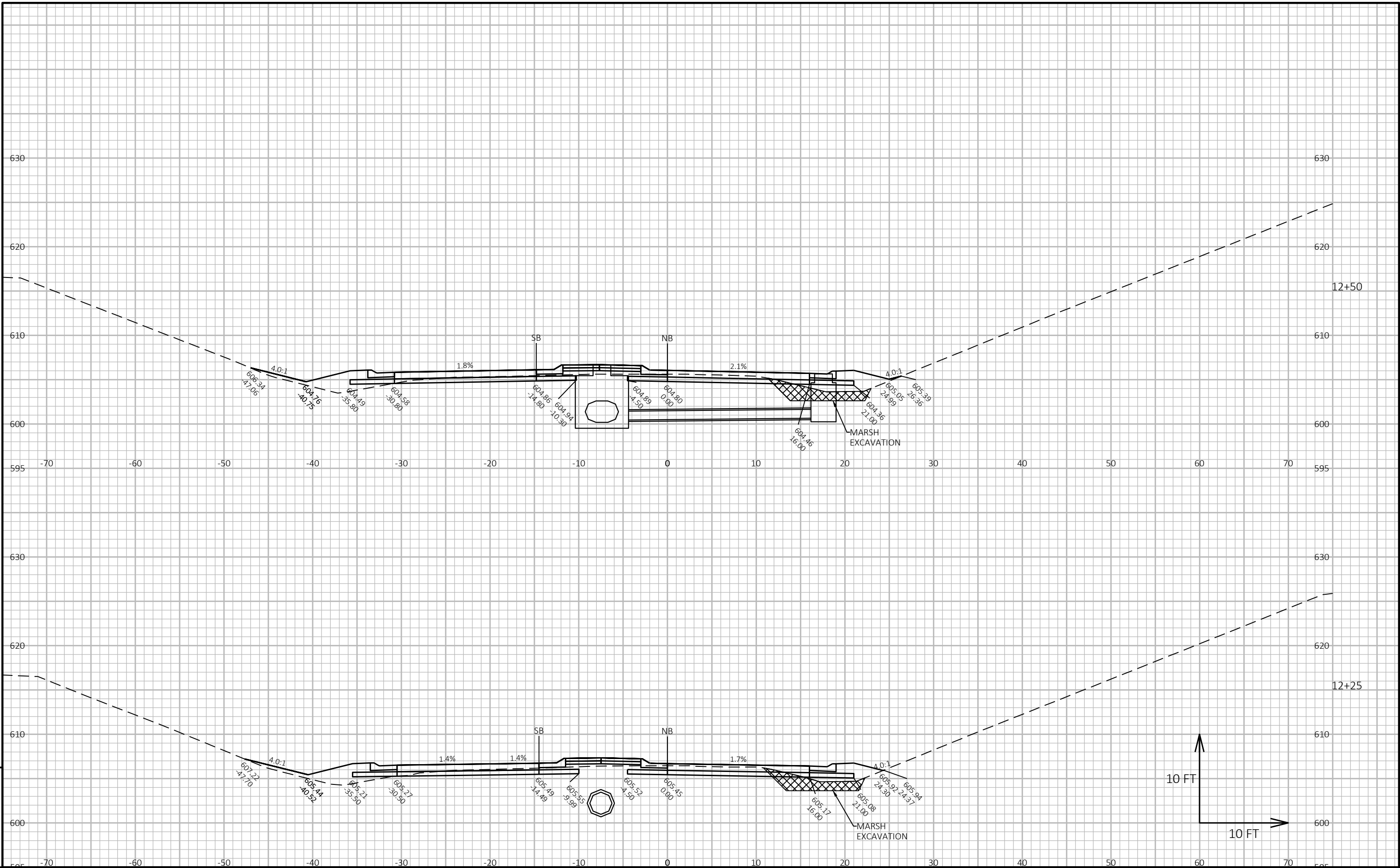
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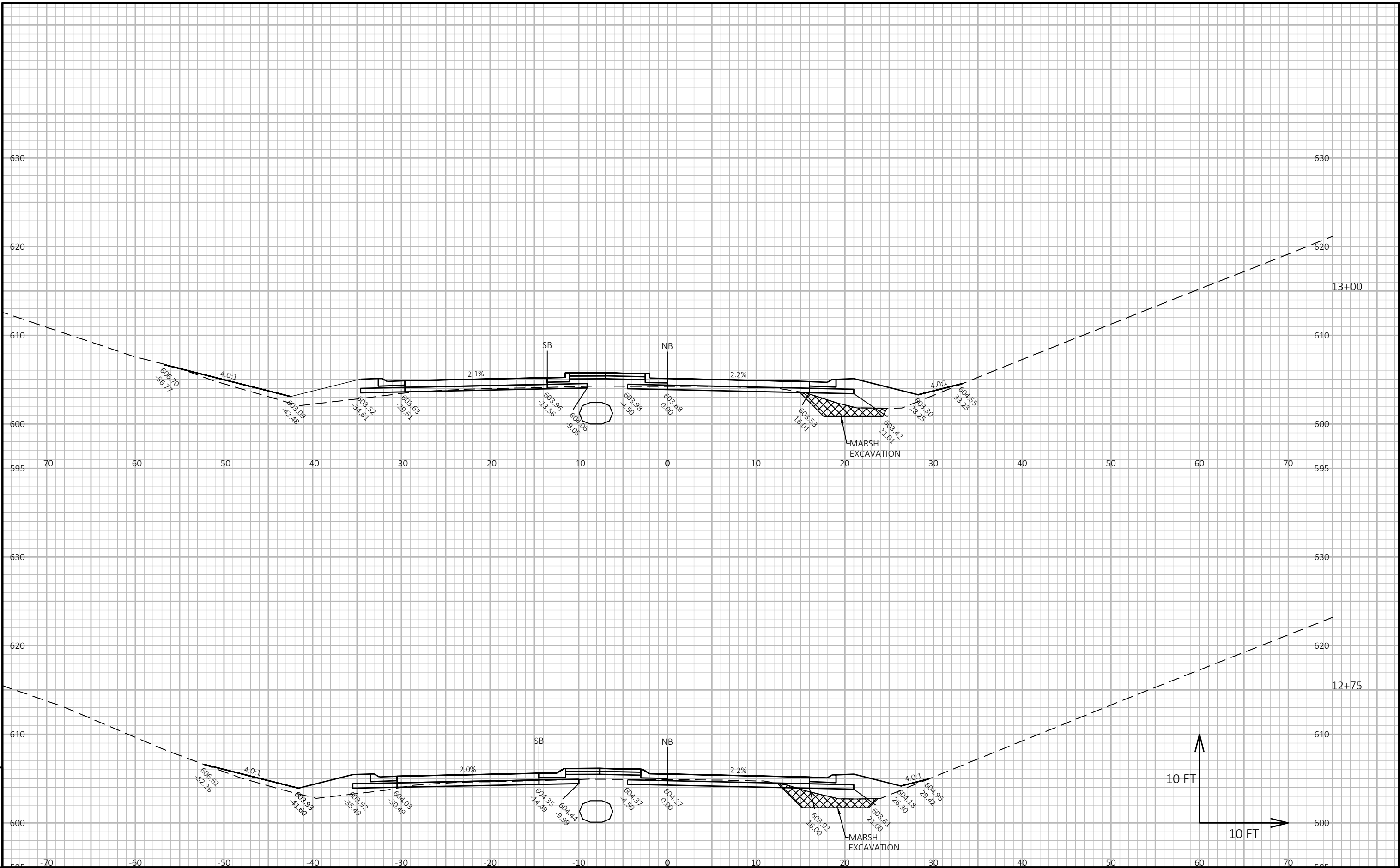
FILE NAME : I:\45\450630 BROWN CTH EE\C3D\SHEETSPLAN\090201-XS.DWG	PLOT DATE :	10/29/2024 1:04 PM	PLOT BY :	GARNICA, BRANDON	PLOT NAME :		PLOT SCALE :	1 IN=10 FT HORZ. / 1 IN=10 FT VERT.	
LAYOUT NAME - 090215-xs									WISDOT/CADDS SHEET 49

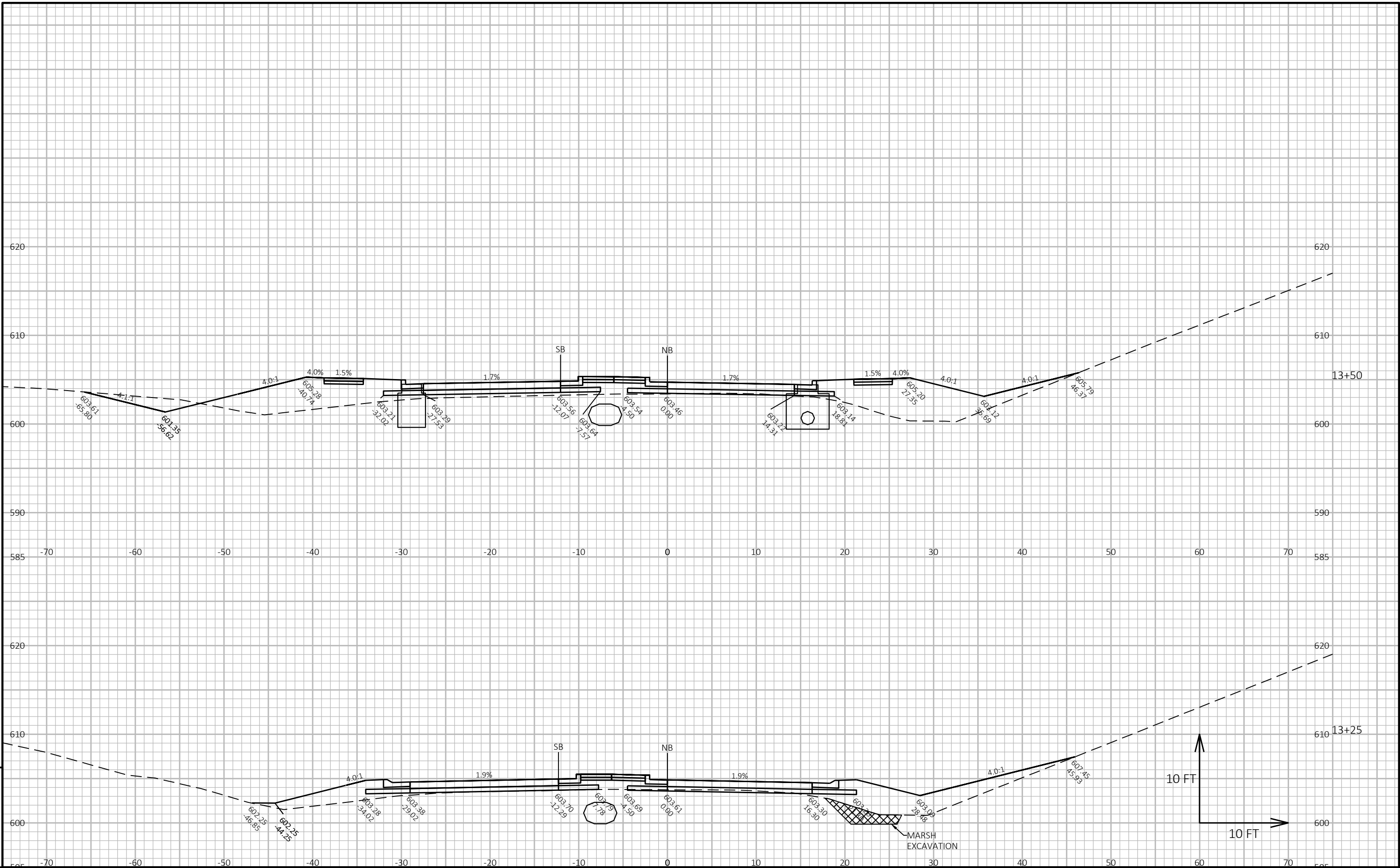
FILE NAME :	I:\45\450630 BROWN CTH EE\C3D\SHEETSPLAN\090201-XS.DWG	PLOT DATE :	10/29/2024 1:04 PM	PLOT BY :	GARNICA, BRANDON	PLOT NAME :		PLOT SCALE :	1 IN=10 FT HORZ. / 1 IN=10 FT VERT.	WISDOT/CADDS SHEET 49
LAYOUT NAME -	090215-xs									

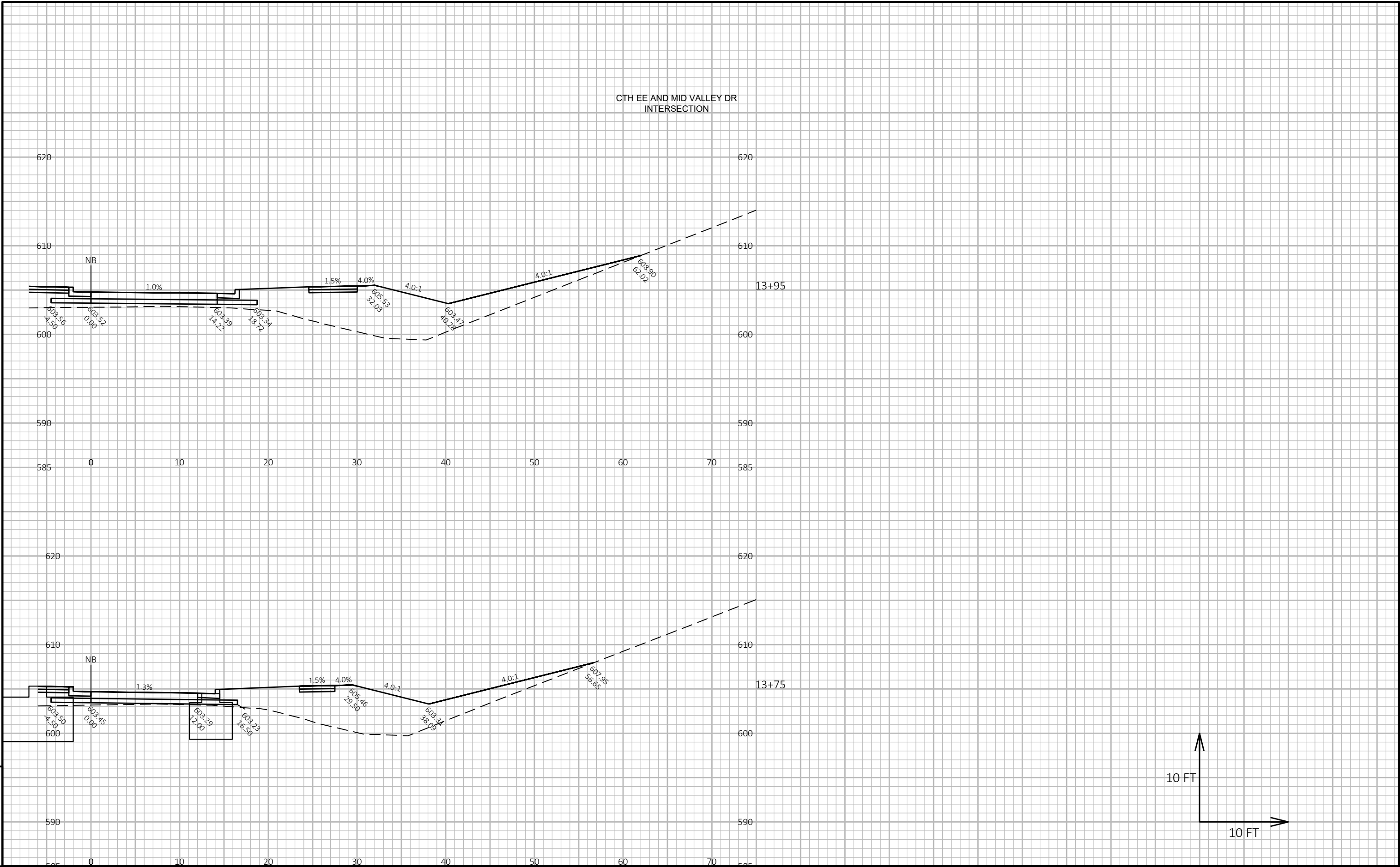
FILE NAME :	I:\45\450630 BROWN CTH EE\C3D\SHEETSPLAN\090201-XS.DWG	PLOT DATE :	10/29/2024 1:04 PM	PLOT BY :	GARNICA, BRANDON	PLOT NAME :		PLOT SCALE :	1 IN=10 FT HORZ. / 1 IN=10 FT VERT.	WISDOT/CADDS SHEET 49
LAYOUT NAME -	090215-xs									

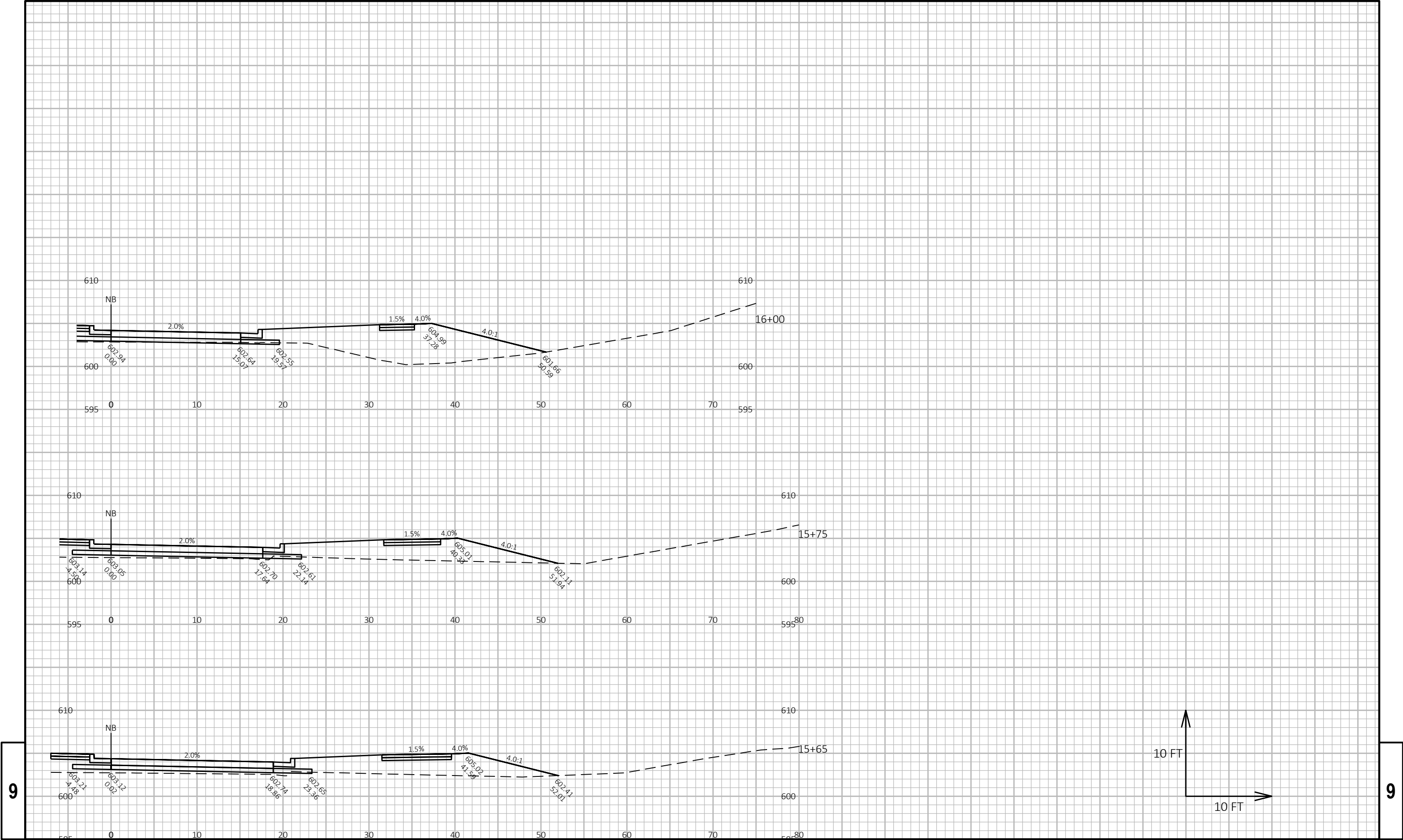
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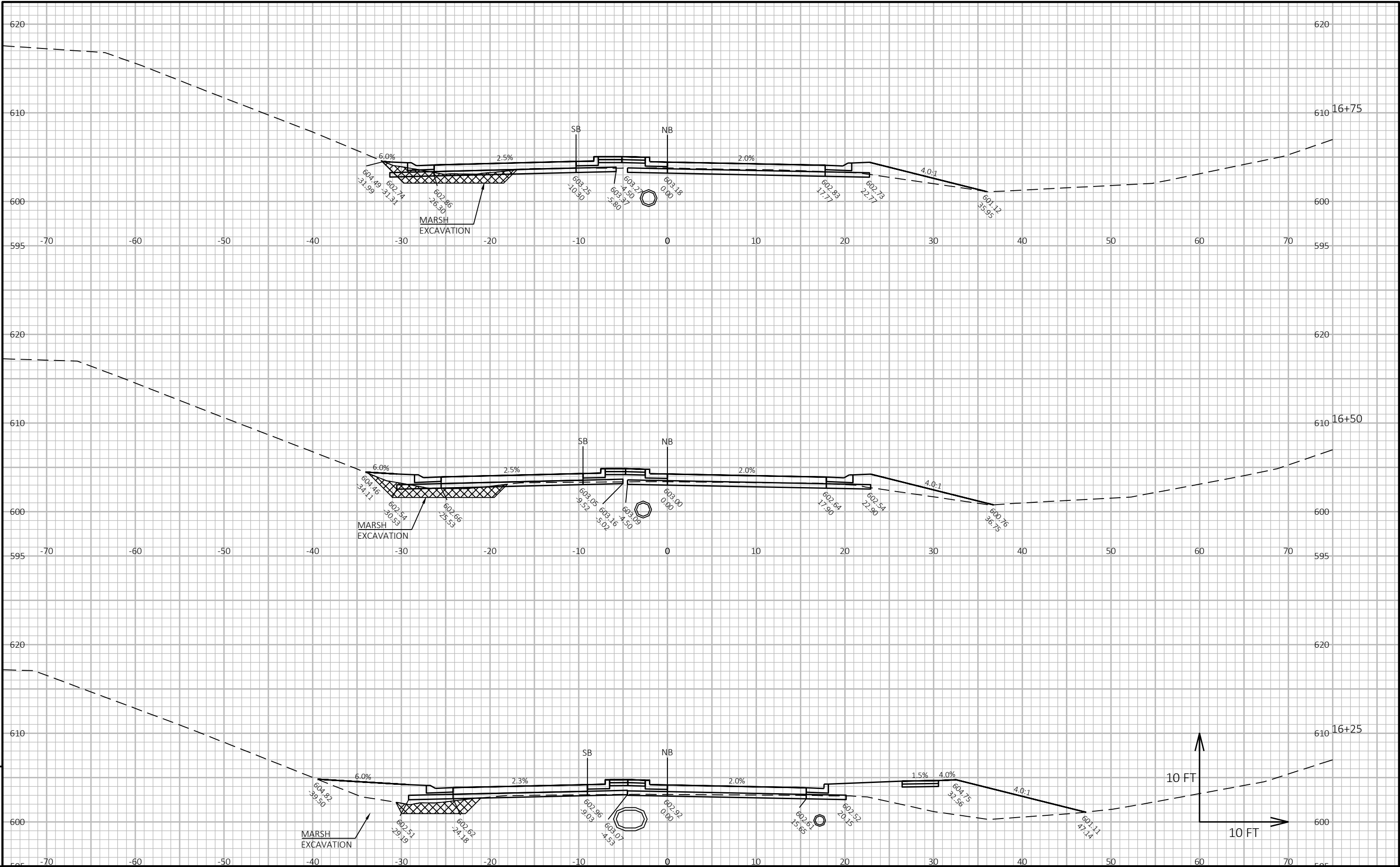


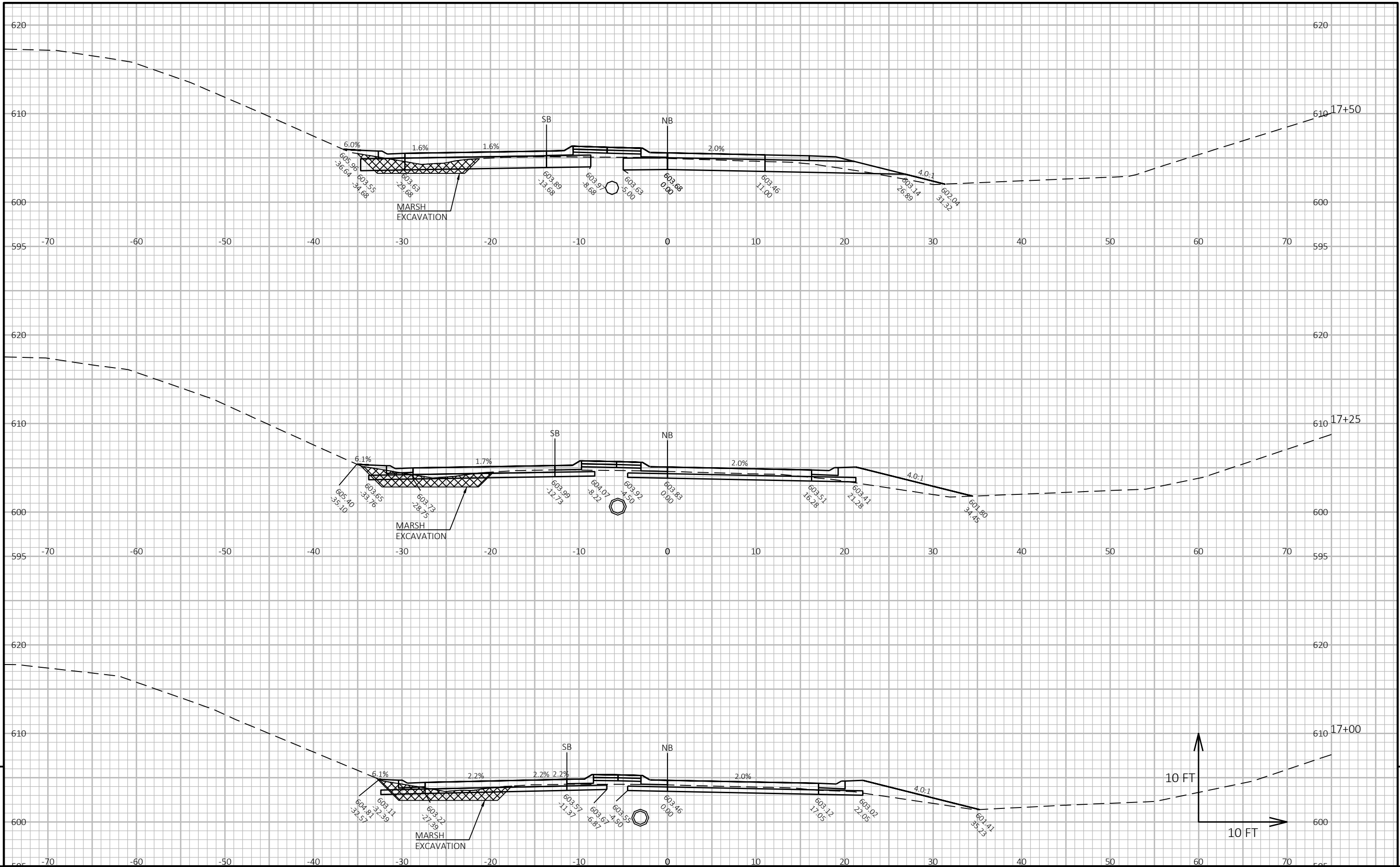


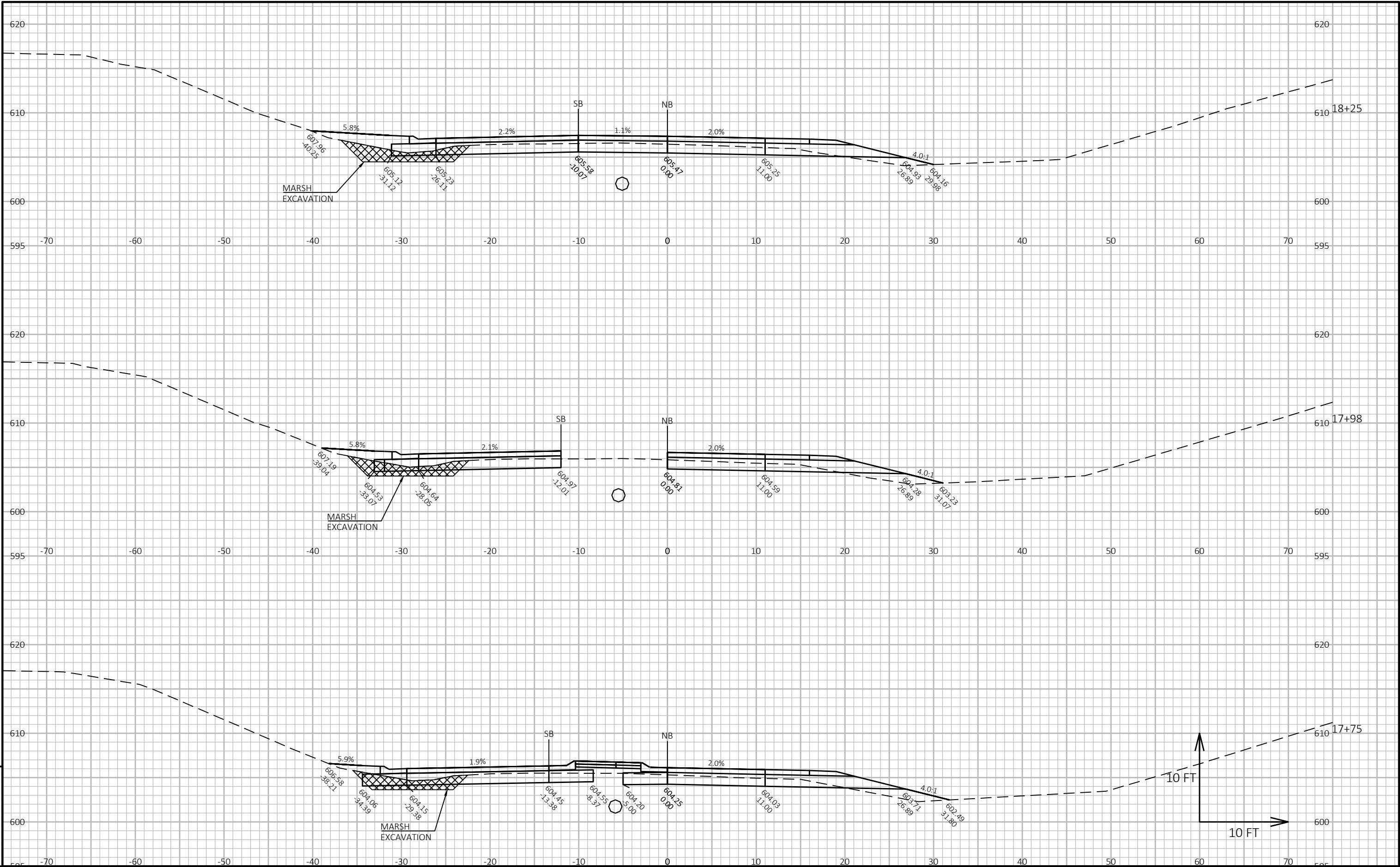


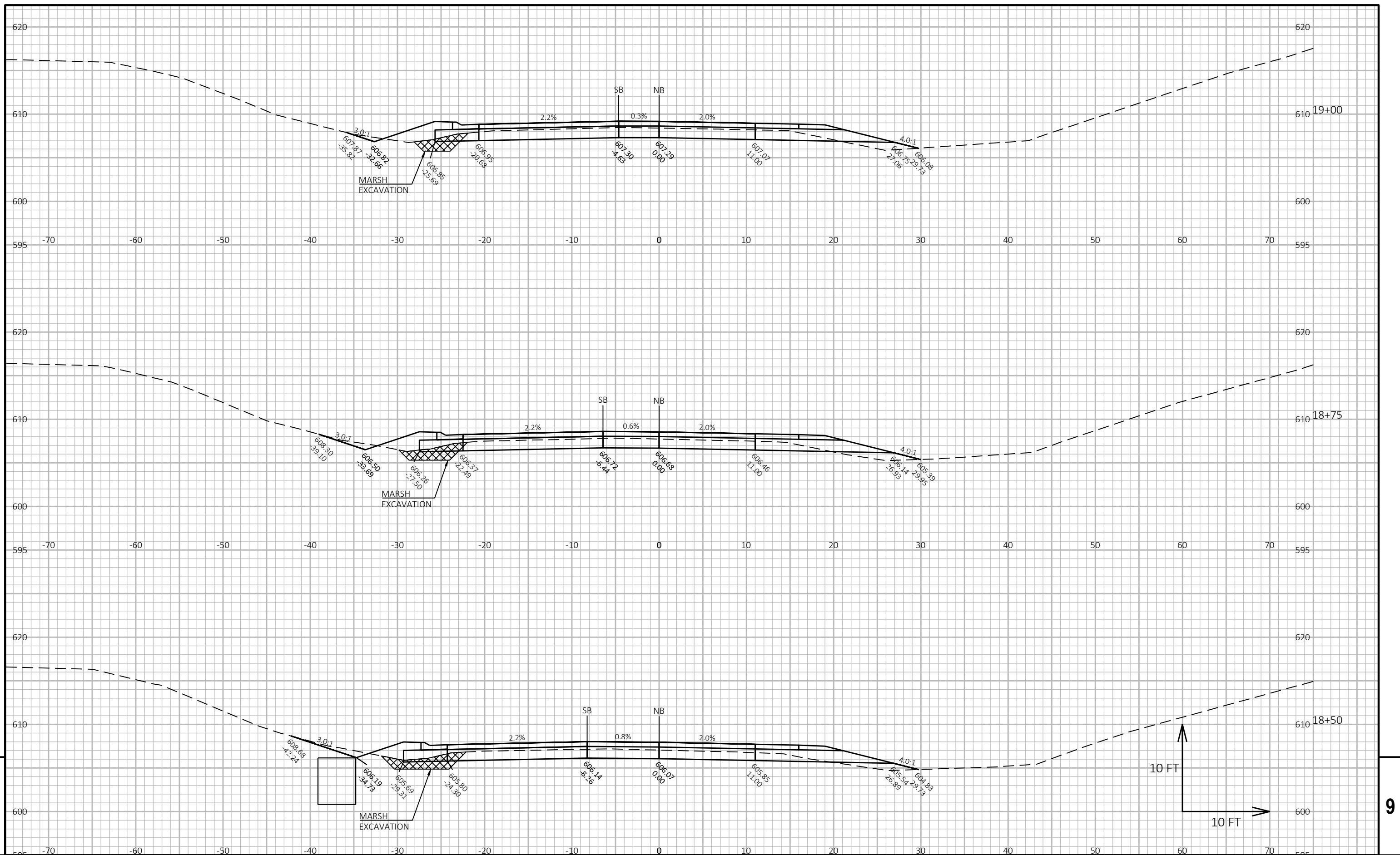


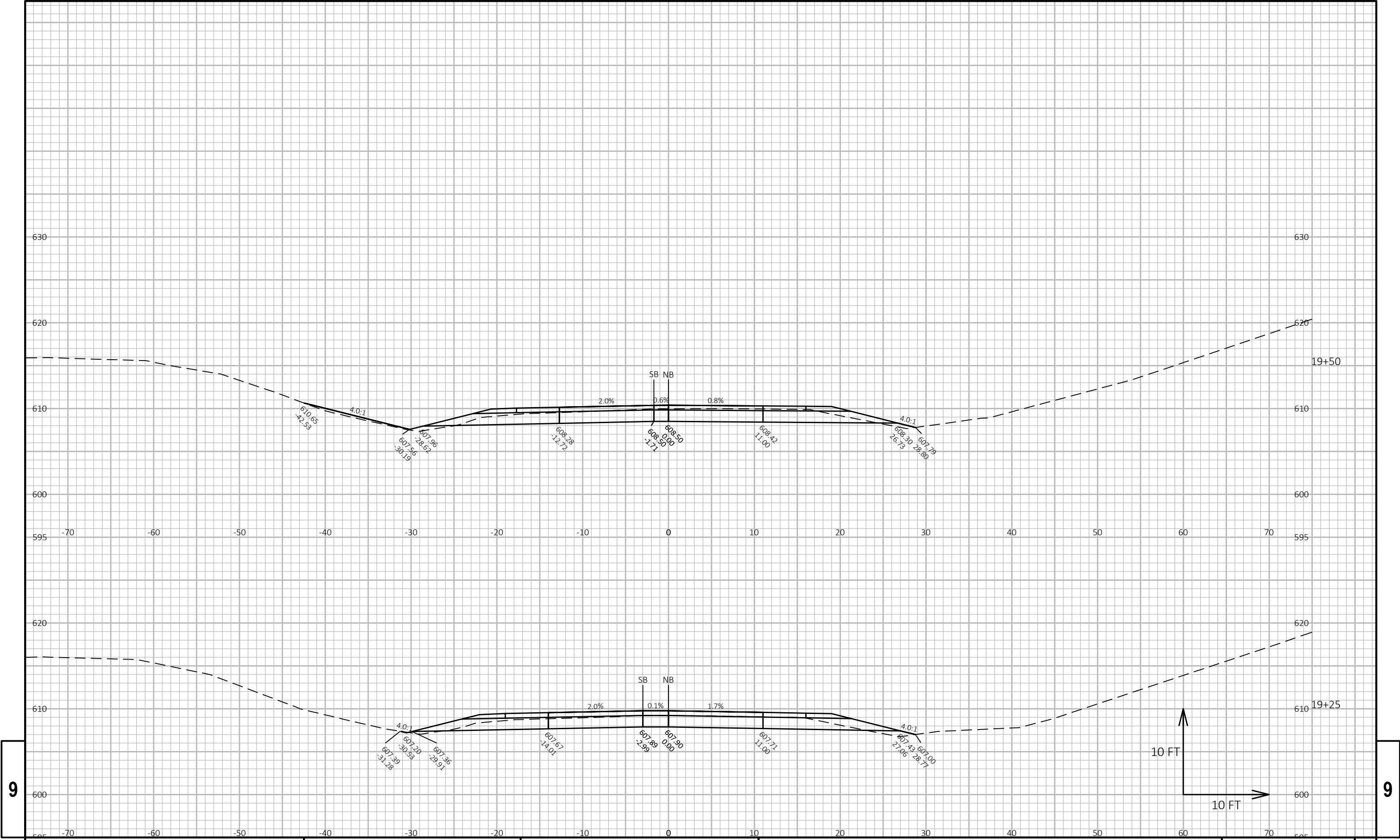






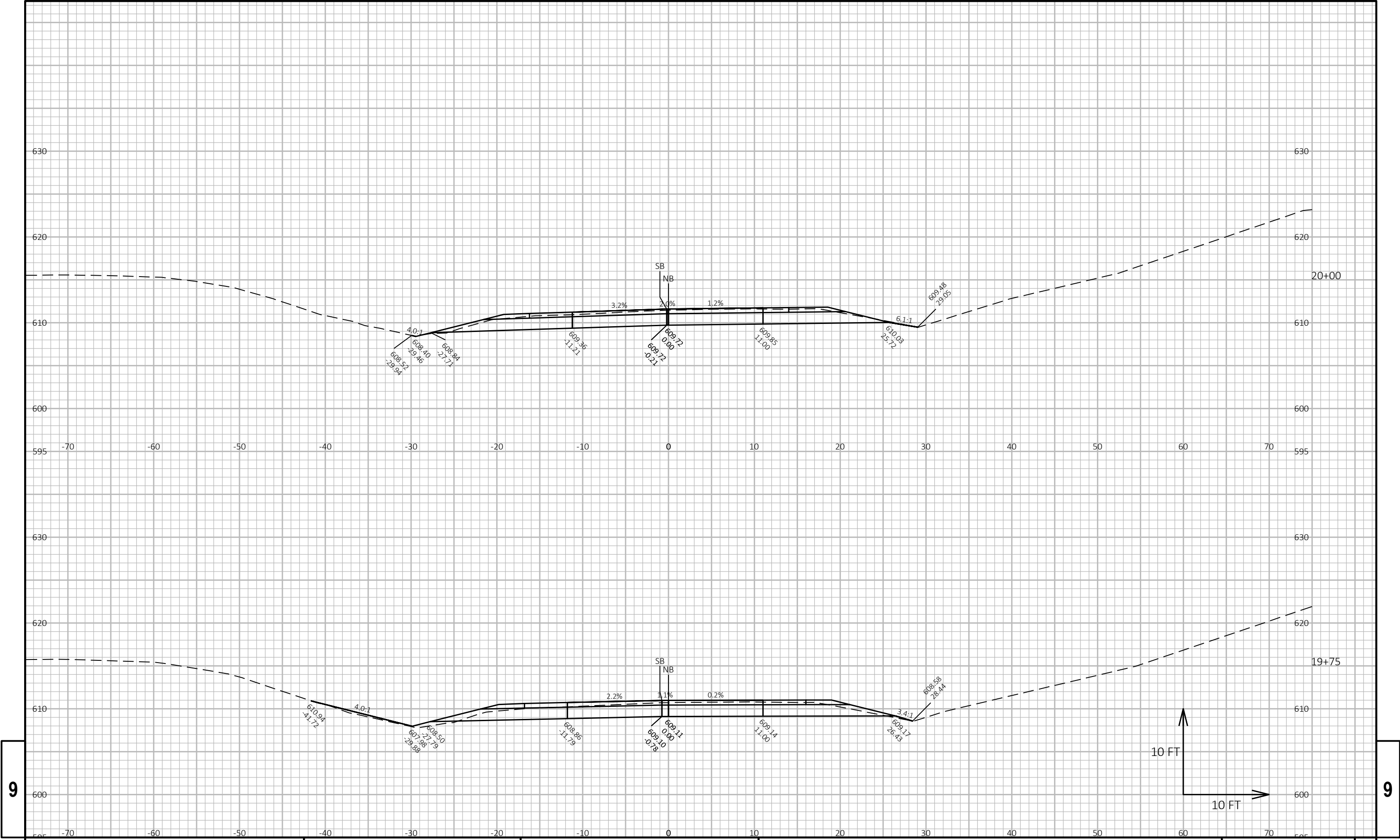






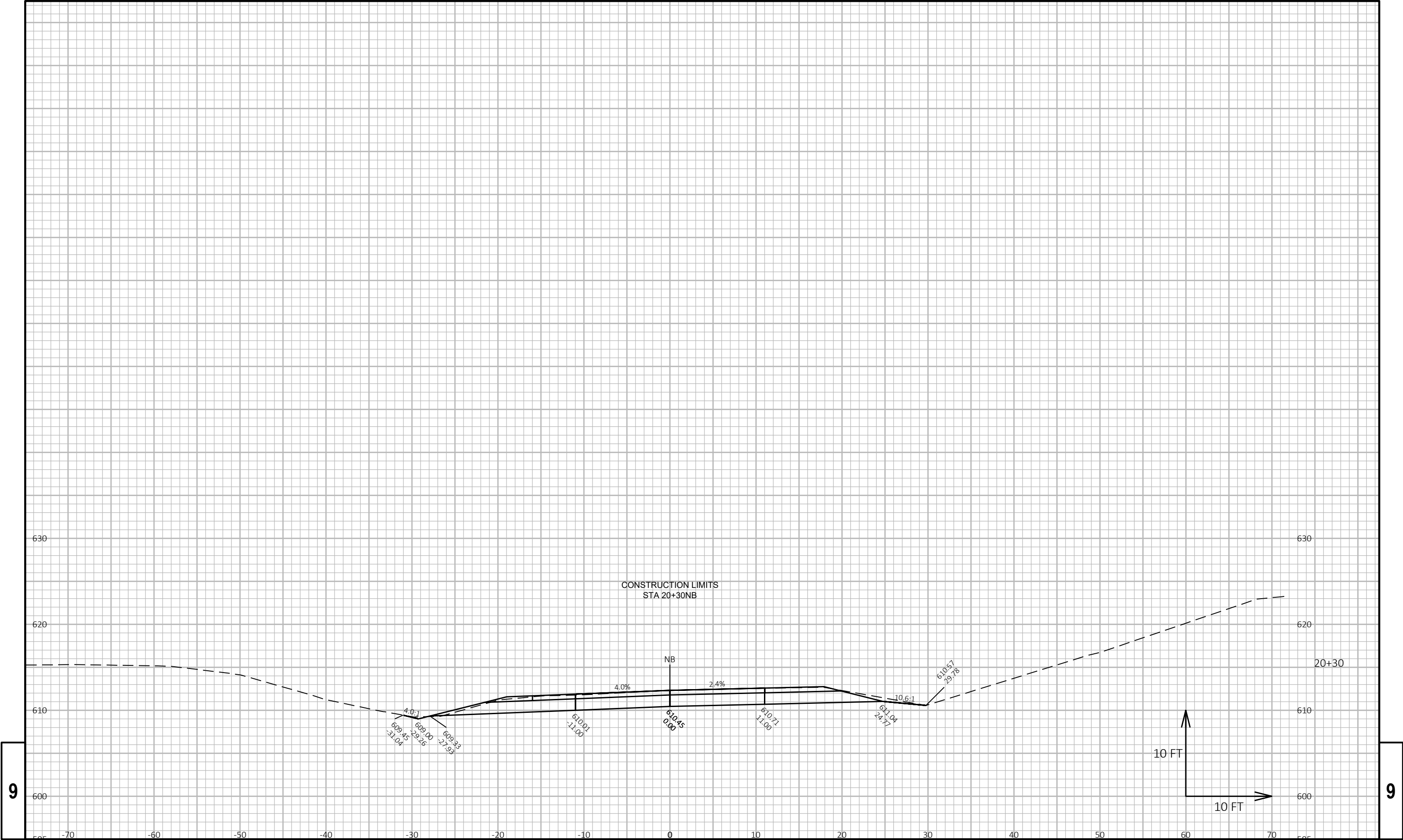
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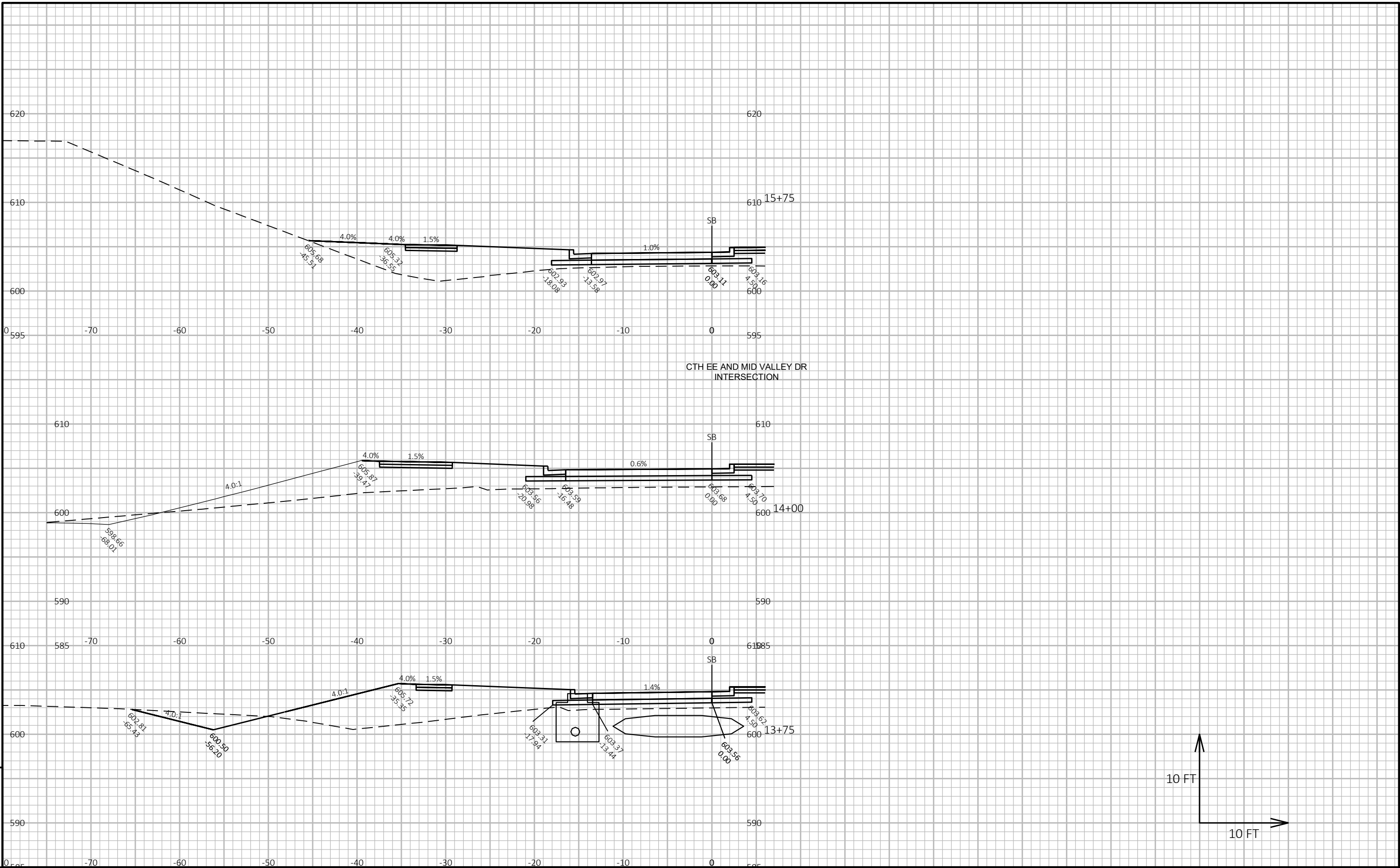
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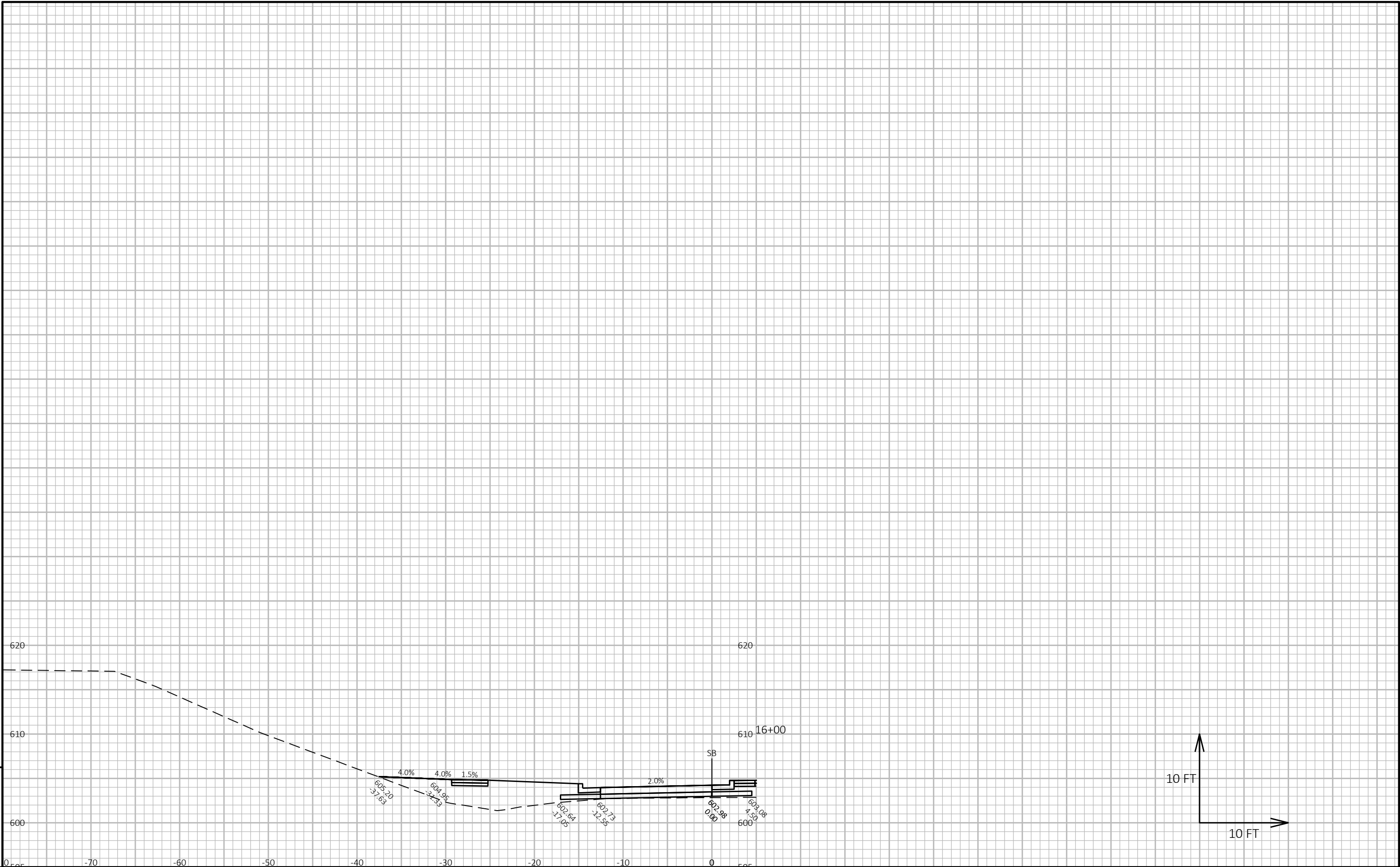


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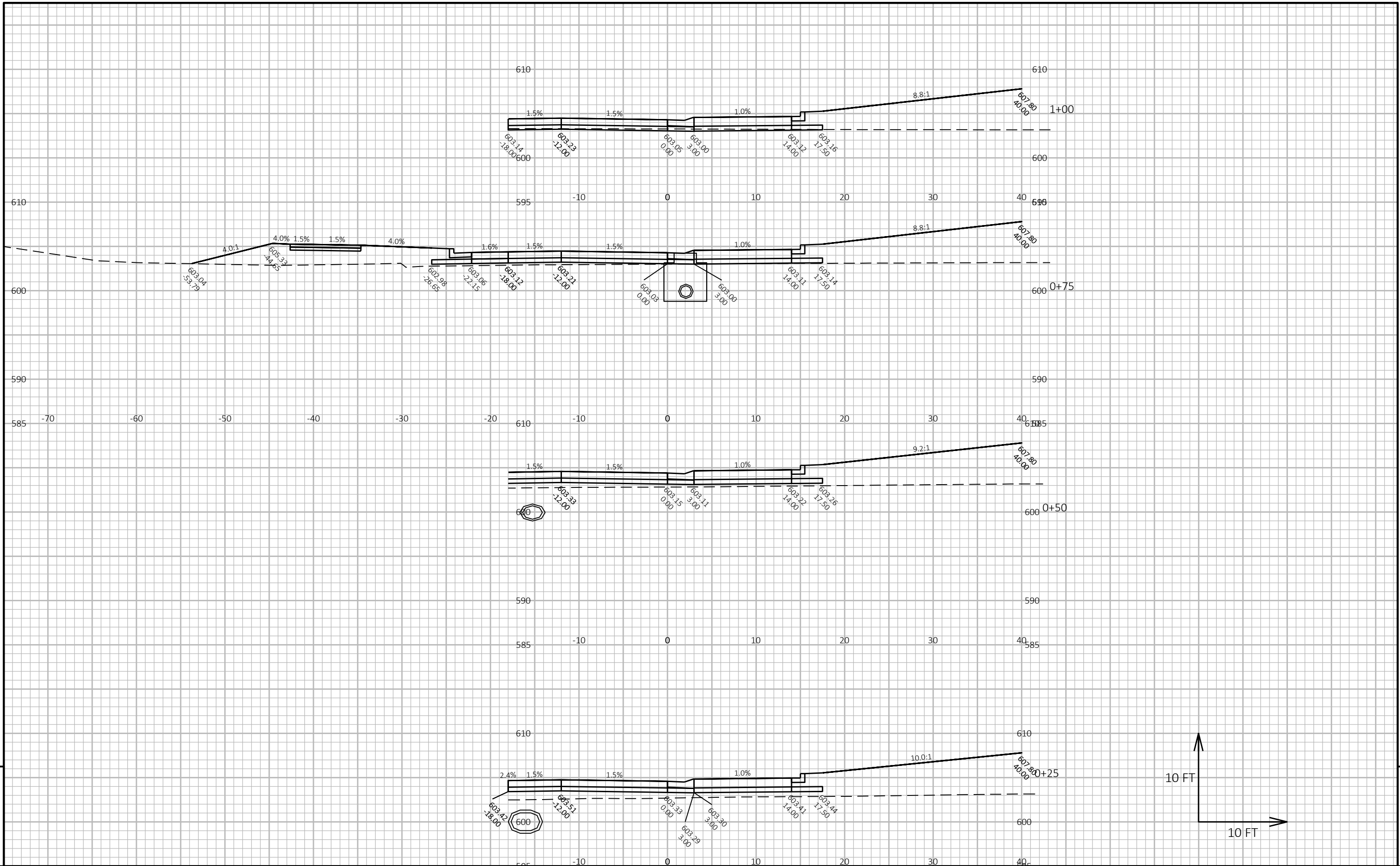
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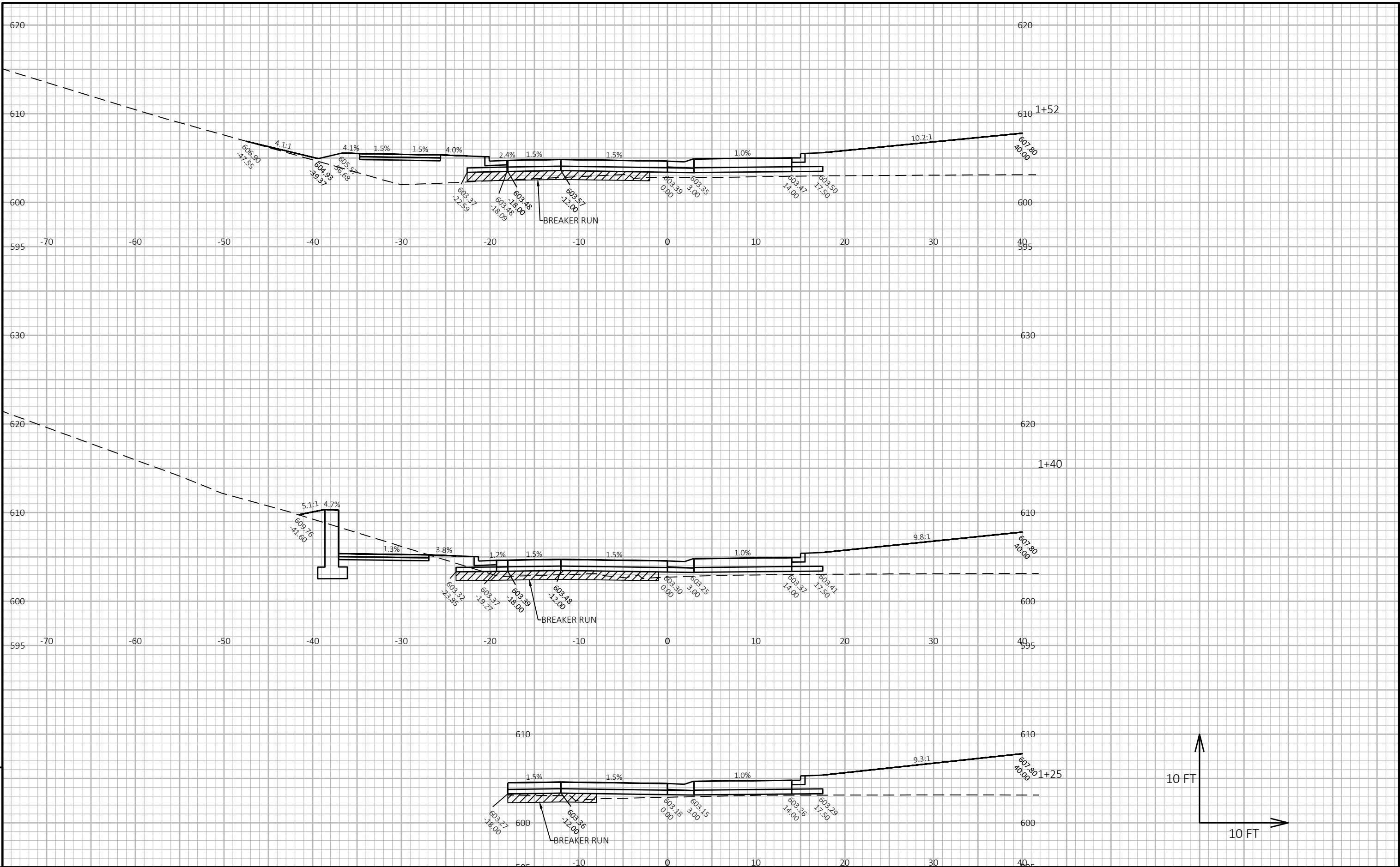


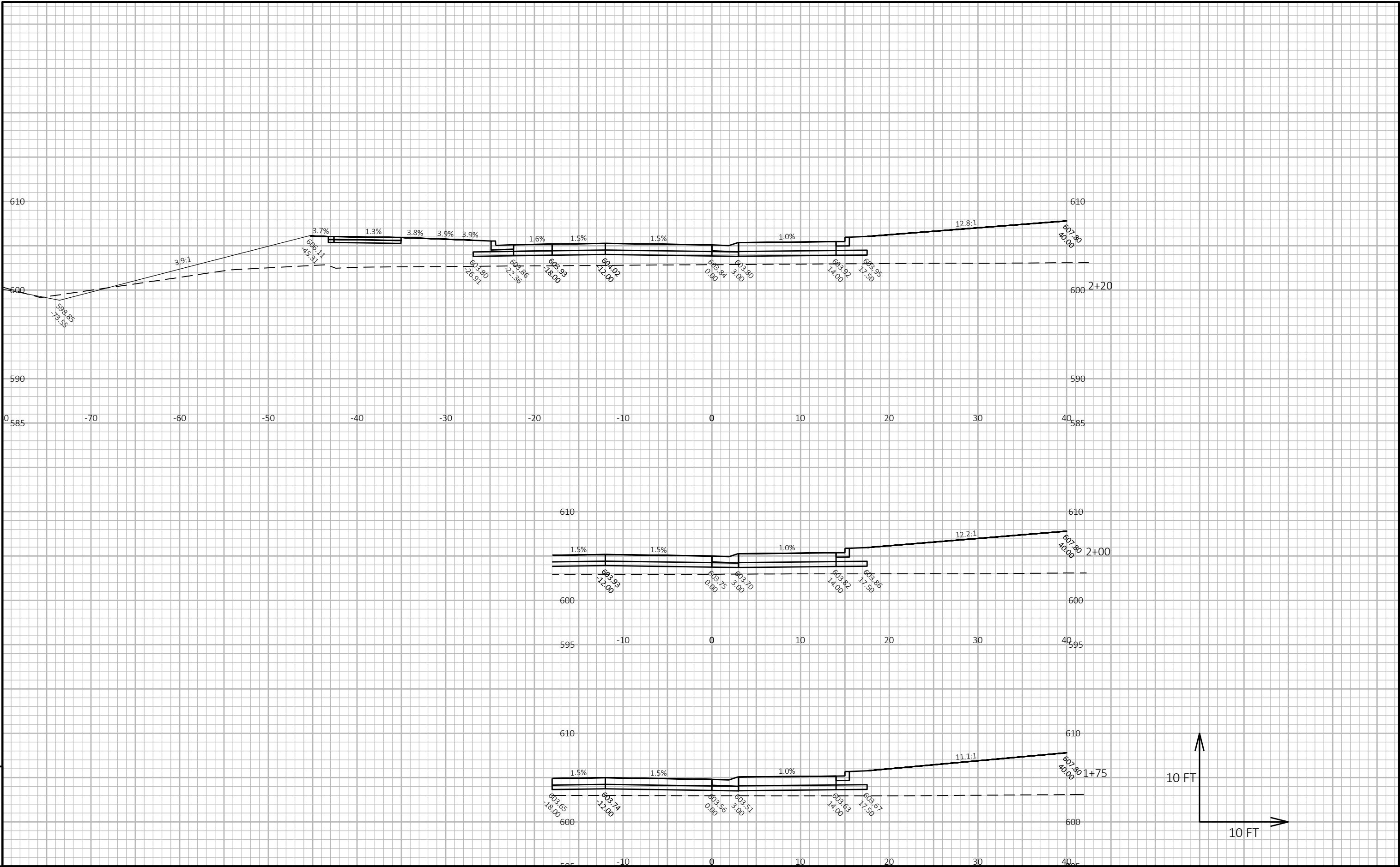
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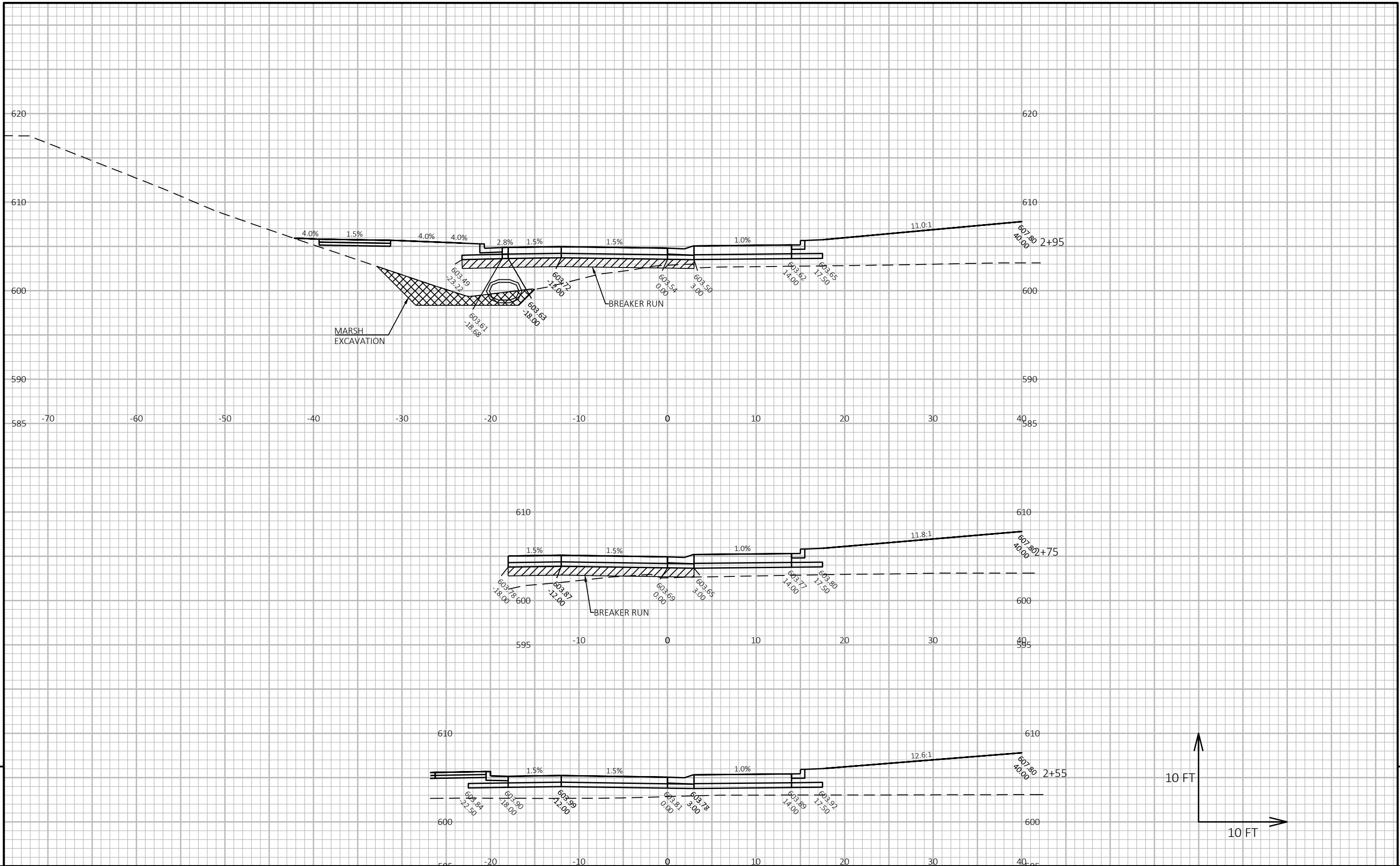


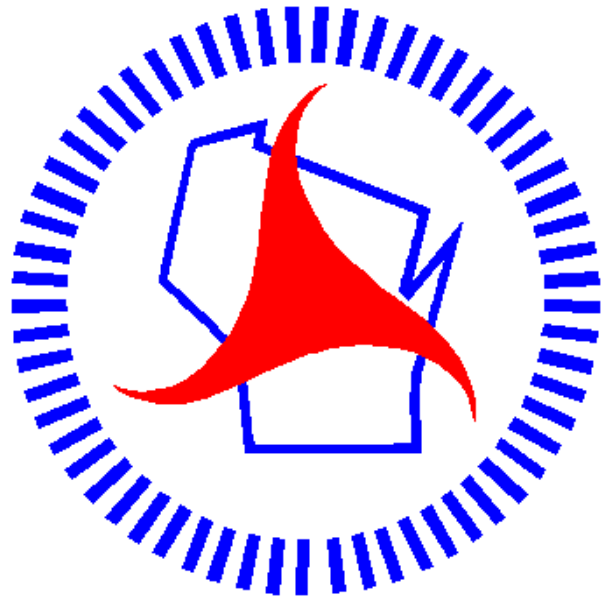
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Wisconsin Department of Transportation

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