

RHI

PROJECT ID:
WITH: N/A

9330-01-70

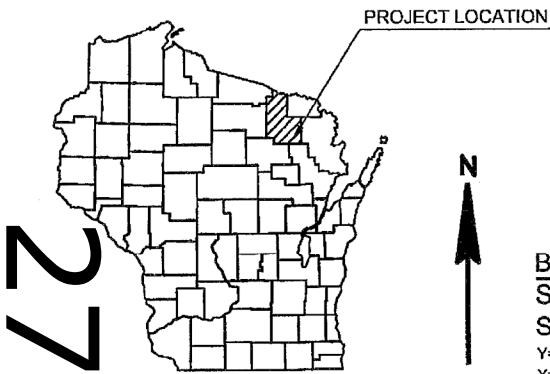
COUNTY:

FOREST

December 2024
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 Plot
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 = 168



DESIGN DESIGNATION	CTH C	SOPER ST.
A.A.D.T. (2024)	= 420	<100
A.A.D.T. (2044)	= 535	<100
D.H.V.	= -	-
D.D.	= 50/50	50/50
T.	= 7.2%	7.2%
DESIGN SPEED	= 35 MPH	15 MPH
ESALS	= 65,700	8,400

CONVENTIONAL SYMBOLS

PLAN	PROFILE
CORPORATE LIMITS	GRADE LINE
PROPERTY LINE	ORIGINAL GROUND
LOT LINE	MARSH OR ROCK PROFILE (To be noted as such)
LIMITED HIGHWAY EASEMENT	SPECIAL DITCH
EXISTING RIGHT OF WAY	GRADE ELEVATION
PROPOSED OR NEW R/W LINE	CULVERT (Profile View)
SLOPE INTERCEPT	UTILITIES
REFERENCE LINE	ELECTRIC
EXISTING CULVERT	FIBER OPTIC
PROPOSED CULVERT (Box or Pipe)	GAS
COMBUSTIBLE FLUIDS	SANITARY SEWER
	STORM SEWER
	TELEPHONE
	WATER
	UTILITY PEDESTAL
	POWER POLE
	TELEPHONE POLE
MARSH AREA	
WOODED OR SHRUB AREA	

STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION

PLAN OF PROPOSED IMPROVEMENT

T WABENO, SOPER STREET

N BR OF OCONTO RIVER BRIDGE B210033

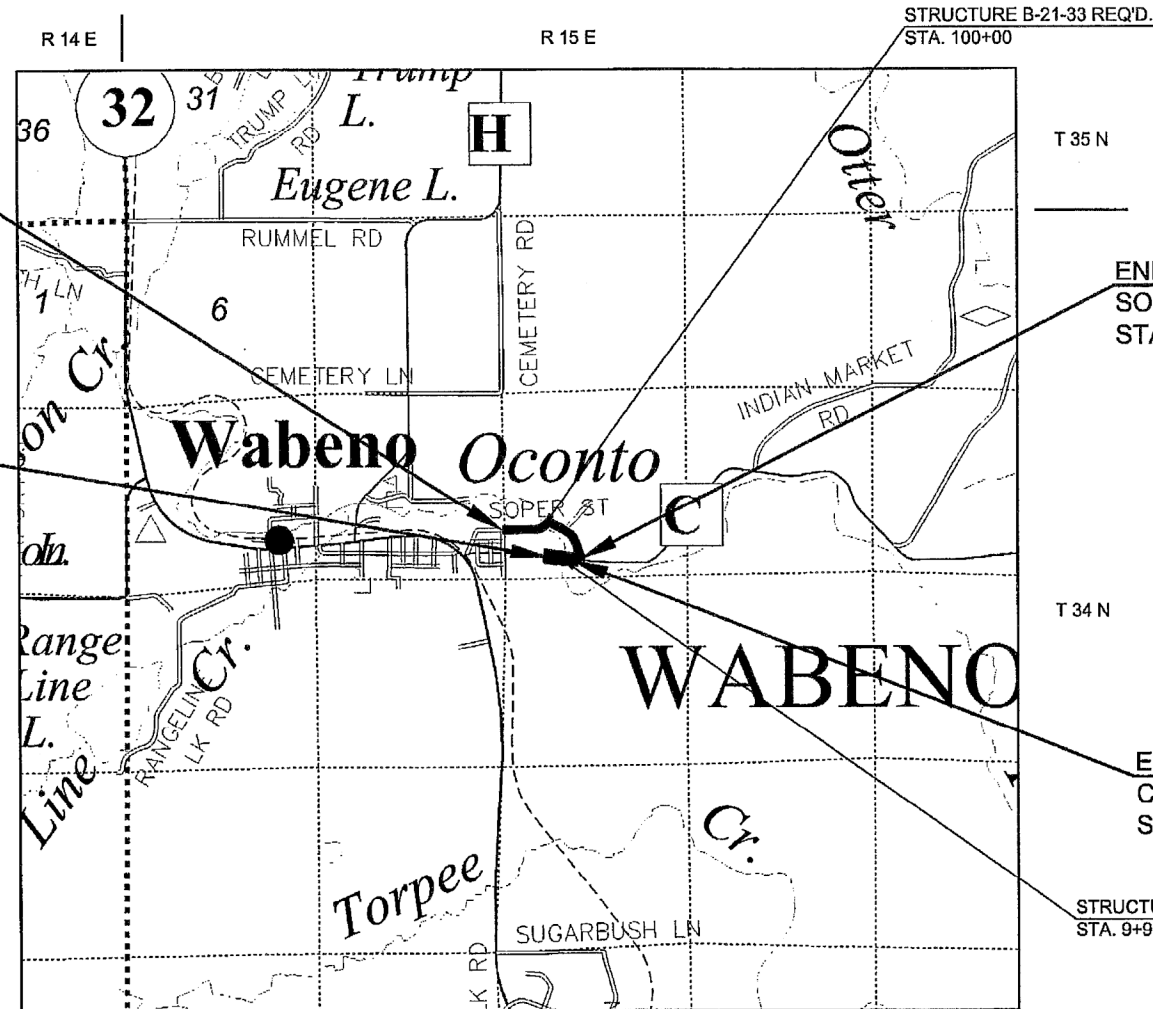
CTH C
FOREST COUNTY

STATE PROJECT NUMBER

9330-01-70

BEGIN CONSTRUCTION
SOPER STREET
STA. 88+24.5
Y=523031.830
X=904691.269

BEGIN PROJECT
CTH C
STA. 9+25
Y=522196.035
X=906292.447



STRUCTURE B-21-33 REQ'D.
STA. 100+00

END CONSTRUCTION
SOPER STREET
STA. 116+78.6

END PROJECT
CTH C
STA. 10+75

STRUCTURE B-21-34 REQ'D.
STA. 9+96

LAYOUT
SCALE 0 1 MI

TOTAL NET LENGTH OF CENTERLINE = 0.028 MI

HORIZONTAL POSITIONS SHOWN ON THIS PLAN ARE WISCONSIN
COORDINATE REFERENCE SYSTEM (WISCRS), FOREST 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 12A

STATE PROJECT

9330-01-70

FEDERAL PROJECT

PROJECT

WISC 2025119

CONTRACT

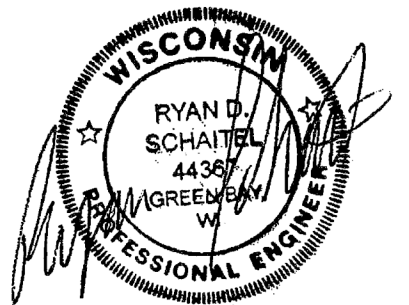
1

ACCEPTED FOR
FOREST COUNTY

7-10-2024
DATE
HIGHWAY COMMISSIONER

ORIGINAL PLANS PREPARED BY

AYRES



7-9-2024
(Date)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PREPARED BY

Surveyor AYRES
Designer AYRES
Project Manager MICHAEL GRAGE
Regional Supervisor DAN ERVA

APPROVED FOR THE DEPARTMENT

DATE: 7/22/2024
(Signature)

E

GENERAL NOTES

THE LOCATION OF EXISTING UTILITY FACILITIES AS SHOWN ON THE PLANS ARE APPROXIMATE. THERE MAY BE OTHER UTILITY FACILITIES WITHIN THE PROJECT AREA THAT ARE NOT SHOWN.

PROPERTY LINES AS SHOWN ARE APPROXIMATE.

NO TREES OR SHRUBS ARE TO BE REMOVED WITHOUT APPROVAL OF THE ENGINEER.

BEARINGS SHOWN ON THIS PLAN ARE TRUE BEARINGS TO THE NEAREST SECOND.

ALL TIES ON THIS PLAN ARE HORIZONTAL UNLESS DESCRIBED OTHERWISE.

EROSION CONTROL LOCATIONS AS SHOWN ON THE EROSION CONTROL PLAN ARE APPROXIMATE. THE EXACT LOCATIONS WILL BE DETERMINED BY THE ENGINEER IN THE FIELD.

DISTURBED AREAS WITHIN THE RIGHT OF WAY, EXCEPT THE AREAS WITHIN THE FINISHED SUBGRADE SHOULDER POINTS ARE TO BE TOPSOIL, FERTILIZED, SEEDED AND EROSION MAT AS DIRECTED BY THE ENGINEER.

STAGE 1: CONSTRUCT SOPER STREET AND B-21-0033 WITH CTH C OPEN TO THROUGH TRAFFIC.

STAGE 2: CONSTRUCT B-21-0034 USING SOPER STREET AS A DETOUR.

UTILITIES

* SPECTRUM
105 KENT STREET
IRON MOUNTAIN, MI 49801
ATTENTION: ANDY HEIGL
E-MAIL: andy.heigl@astreaconnect.com

TELEPHONE 906-776-2609
CELL 906-221-7536

* LUMEN
20 S WILSON AVE
RICE LAKE, WI 54868
ATTENTION: KYLE SCHLAMPP
E-MAIL: kyle.schlampp@lumen.com

TELEPHONE 715-475-2029
CELL 715-292-0082

* WABENO SANITARY DISTRICT
1735 3RD STREET
WABENO, WI 54566
ATTENTION: MIKE BRANDNER
E-MAIL: operatorwsd328@gmail.com

TELEPHONE 715-473-2905
CELL 715-850-0367

* WISCONSIN PUBLIC SERVICES - ELECTRIC
677 BAETEN ROAD
ASHWAUBENON, WI 54304
ATTENTION: BRANDON TAYLOR
E-MAIL: brandon.taylor@wisconsinpublicservice.com

CELL 715-775-0222

*-MEMBER OF DIGGERS HOTLINE



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 .22	.16 .30	.22 .38	.12 .26	.20 .34	.27 .44	.15 .30	.24 .37	.33 .50	.19 .34	.28 .41	.38 .56
MEDIAN STRIP- TURF	.19 .24	.20 .26	.24 .30	.19 .25	.22 .28	.26 .33	.20 .26	.23 .30	.30 .37	.20 .27	.25 .32	.30 .40
SIDE SLOPE- TURF			.25 .32			.27 .34			.28 .36			.30 .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= 5.90 ACRES
TOTAL AREA EXPECTED TO BE DISTURBED BY CONSTRUCTION ACTIVITIES = 3.13 ACRES
SOIL GROUP B/D

DESIGN CONTACT

AYRES

700 PILGRIM WAY, SUITE 180
GREEN BAY, WI 54304
ATTENTION: RYAN SCHAITEL
E-MAIL: schaitelr@ayresassociates.com

TELEPHONE 920-327-7840

DEPARTMENT OF NATURAL RESOURCES

WDNR-NORTHERN REGION

107 SUTLIFF
RHINELANDER, WI 54501
ATTENTION: JON SIMONSEN
E-MAIL: jonathan.simonsen@wisconsin.com

TELEPHONE 715-367-1936

FOREST COUNTY

HIGHWAY COMMISSIONER

5350 COUNTY HWY W
CRANDON, WI 54520
ATTENTION: MARK CHRISMAN
E-MAIL: mchrisman@co.forest.wi.us

TELEPHONE 715-478-3516

TOWN OF WABENO

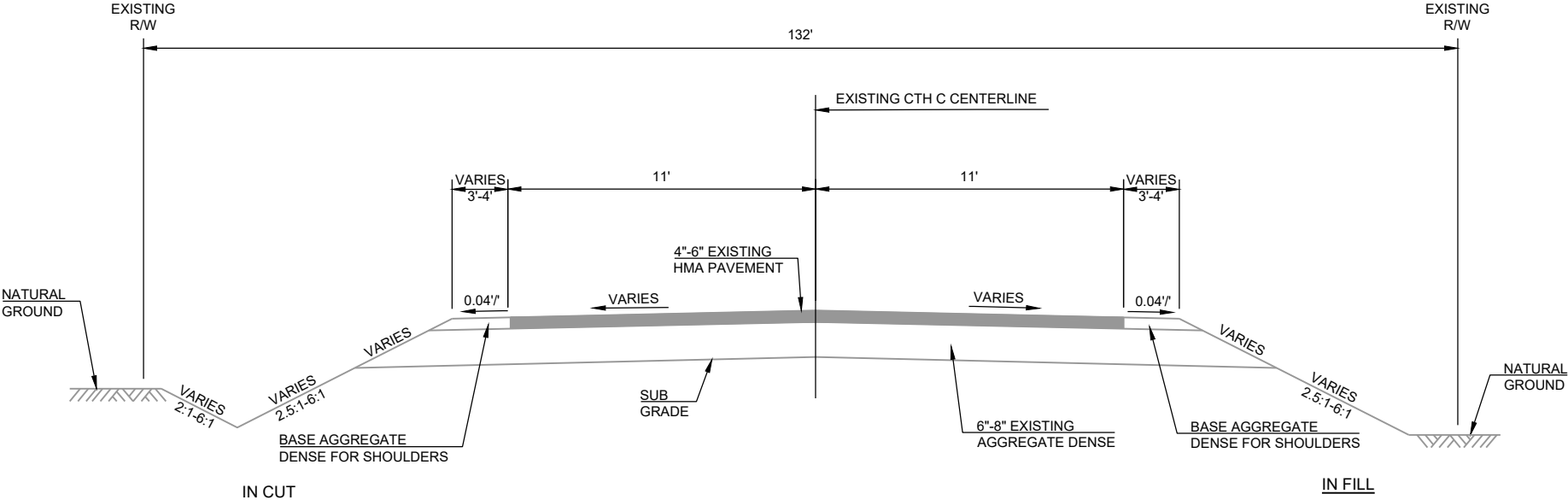
TOWN CHAIRMAN

1796 3RD STREET
WABENO, WI 54566
ATTENTION: DAN MORAVEC
E-MAIL: roads@wabeno.org

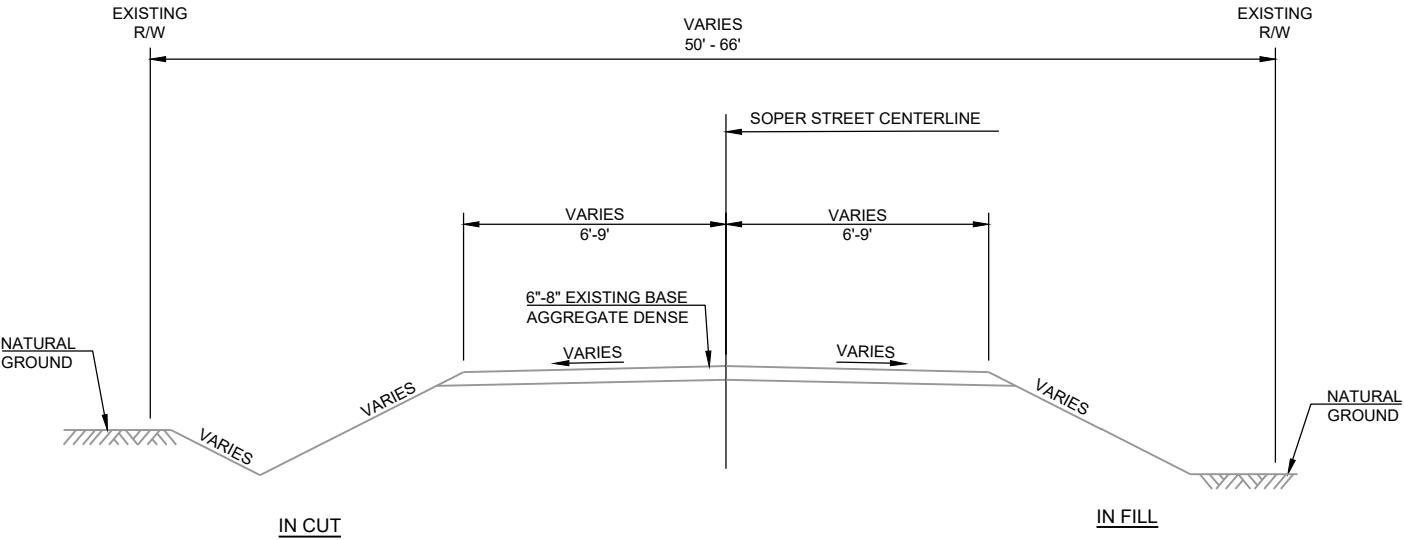
TELEPHONE 715-850-1684

STANDARD ABBREVIATIONS

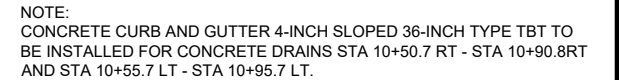
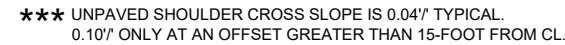
ADT	AVERAGE DAILY TRAFFIC	NC	NORMAL CROWN
AC	ASPHALT CEMENT	PT	POINT OF TANGENCY
AGG	AGGREGATE	PC	POINT OF CURVATURE
ASPH	ASPHALT	PI	POINT OF INTERSECTION
BM	BENCH MARK	PE	PRIVATE ENTRANCE
C/L	CENTERLINE	R	RADIUS
CONC	CONCRETE	REM	REMOVE
CMP	CORRUGATED METAL PIPE	R/L OR RL	REFERENCE LINE
CR.	CREEK	RCCP	REINFORCED CONCRETE CULVERT PIPE
D	DEGREE OF CURVE	RCPPS	REINFORCED CONCRETE PIPE STORM SEWER
DHV	DESIGN HOUR VOLUME	R.O.	RUNOUT
ESALS	EQUIVALENT SINGLE AXIS LOADS	R/W	RIGHT-OF-WAY
EXIST	EXISTING	STA	STATION
FE	FIELD ENTRANCE	SE	SUPER ELEVATION
HYD	HYDRANT	SS	STORM SEWER
IP	IRON PIPE OR PIN	T	TANGENT
L	LENGTH OF CURVE	TEL	TELEPHONE
LC	LONG CHORD OF CURVE	TLE	TEMPORARY LIMITED EASEMENT
LR	LENGTH OF RUNOFF	T	TRUCKS
MH	MANHOLE	VC	VERTICAL CURVE
		W	WELL

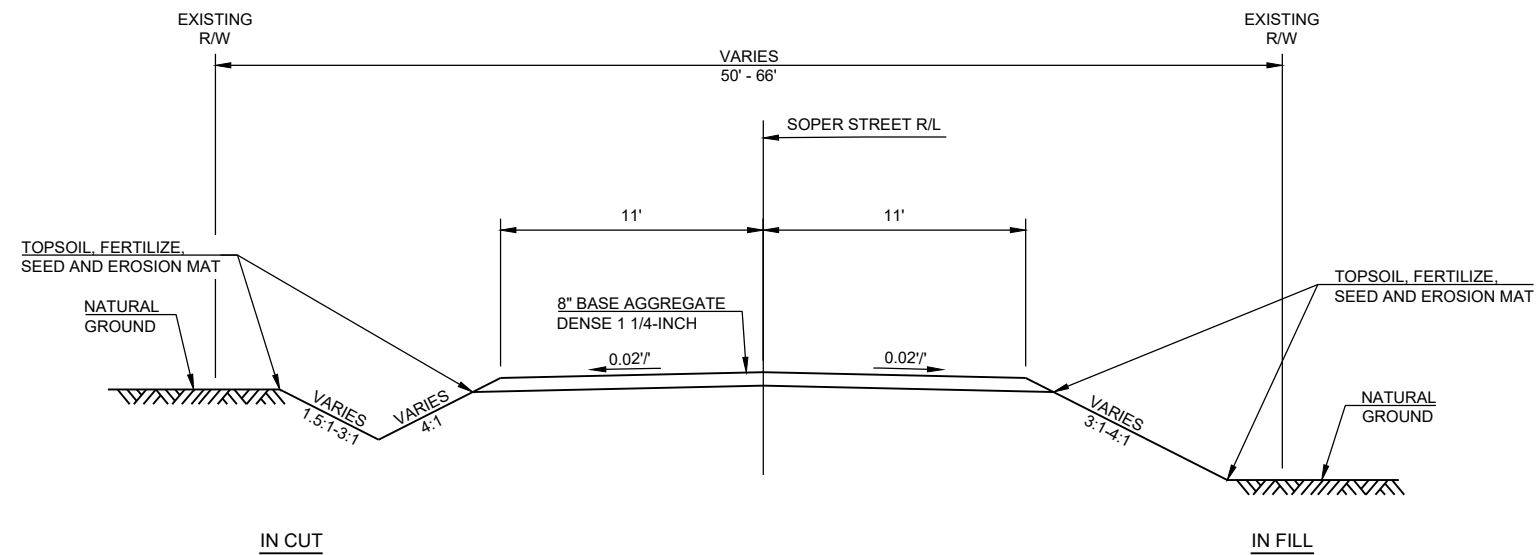


EXISTING TYPICAL SECTION FOR CTH C
STA. 9+25 - STA. 10+75



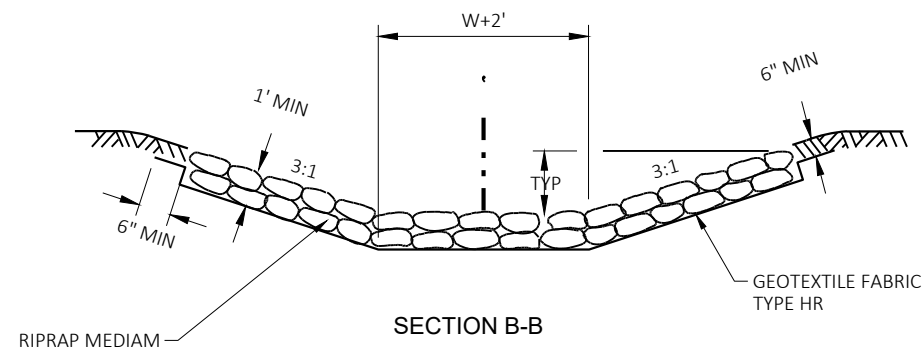
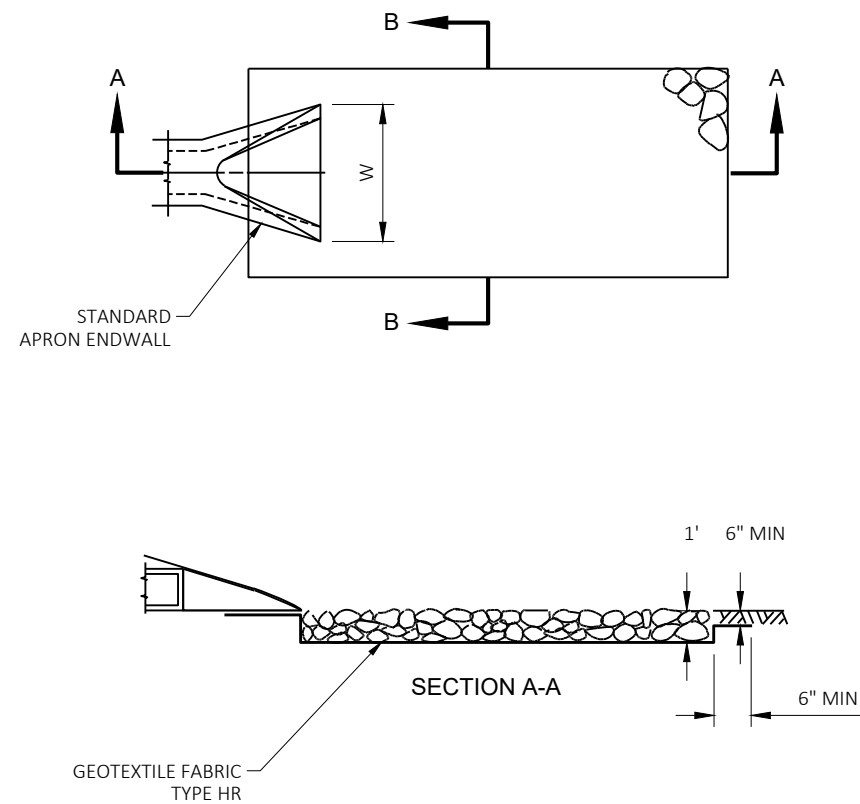
EXISTING TYPICAL SECTION FOR SOPER STREET
STA. 88+24.5 - STA. 116+78.6



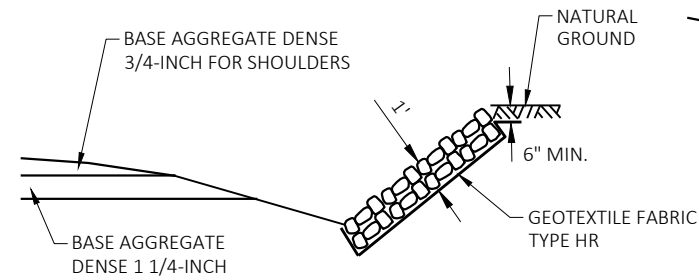


FINISHED TYPICAL SECTION FOR SOPER STREET
STA. 88+24.5 - STA. 116+78.6

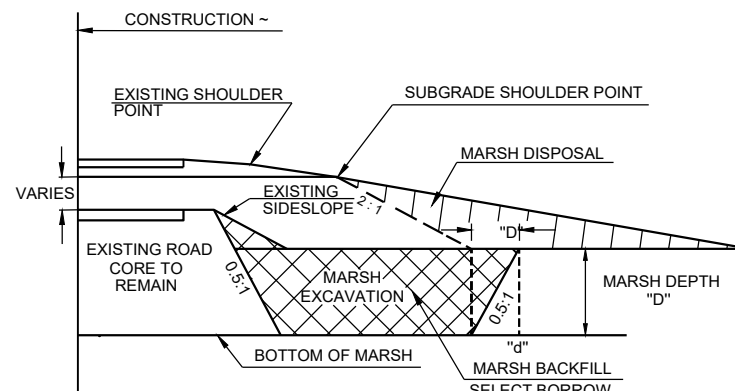
NOTE:
4" ASPHALTIC SURFACE OVER 8" BASE AGGREGATE DENSE 1 1/4-INCH
TO BE PLACED FOR BRIDGE APPROACHES
STA 99+66.8 - STA 99+76.8 AND STA 100+23.3 - STA 100+33.3



RIP RAP AND GEOTEXTILE

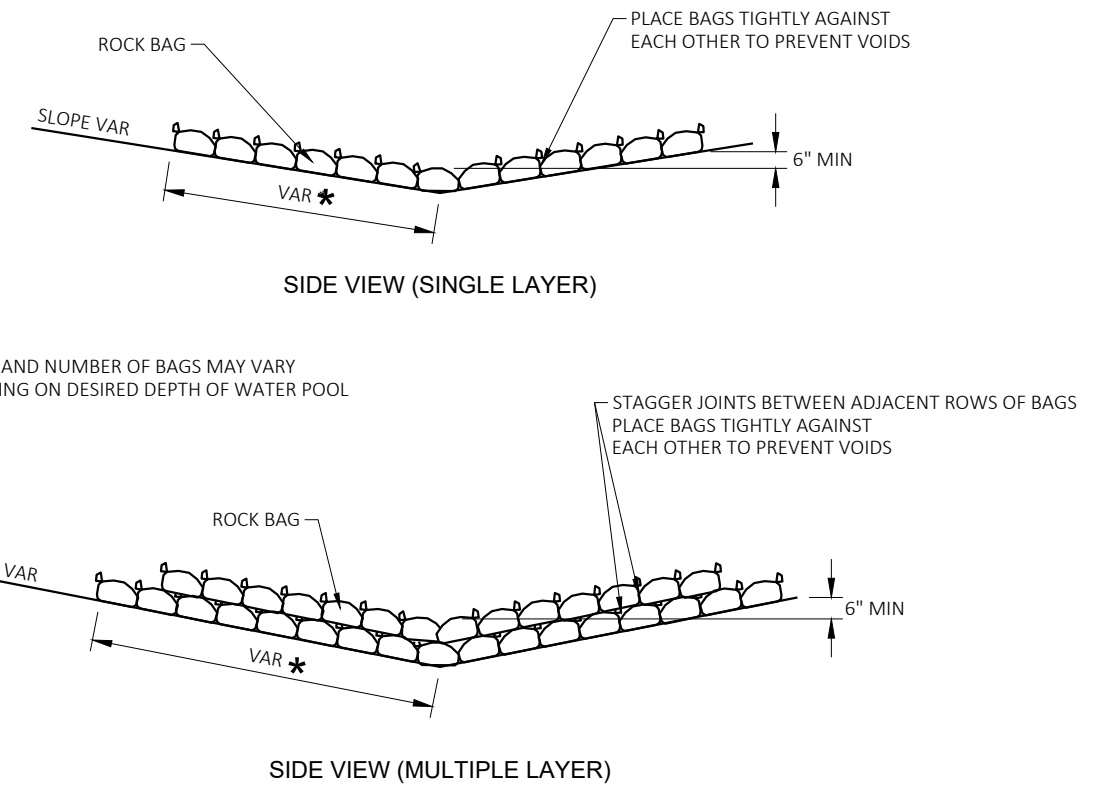


RIP RAP AND GEOTEXTILE FOR SLOPE PROTECTION
(SEE MISCELLANEOUS QUANTITIES FOR LOCATIONS)

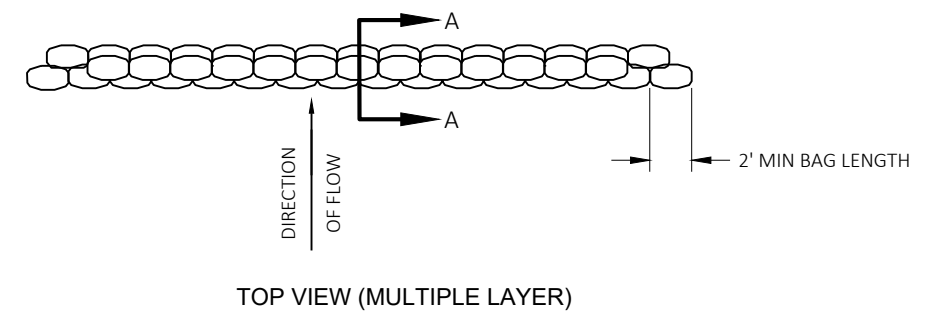


NOTE: BACKFILL QUANTITIES COMPUTED FROM POINT "d" TO COMPENSATE FOR PROBABLE DISPLACED MARSH AREA.

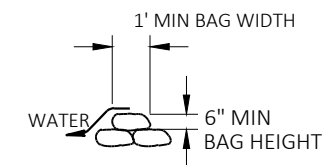
TYPICAL SECTION-MARSH EXCAVATION



* LENGTH AND NUMBER OF BAGS MAY VARY DEPENDING ON DESIRED DEPTH OF WATER POOL

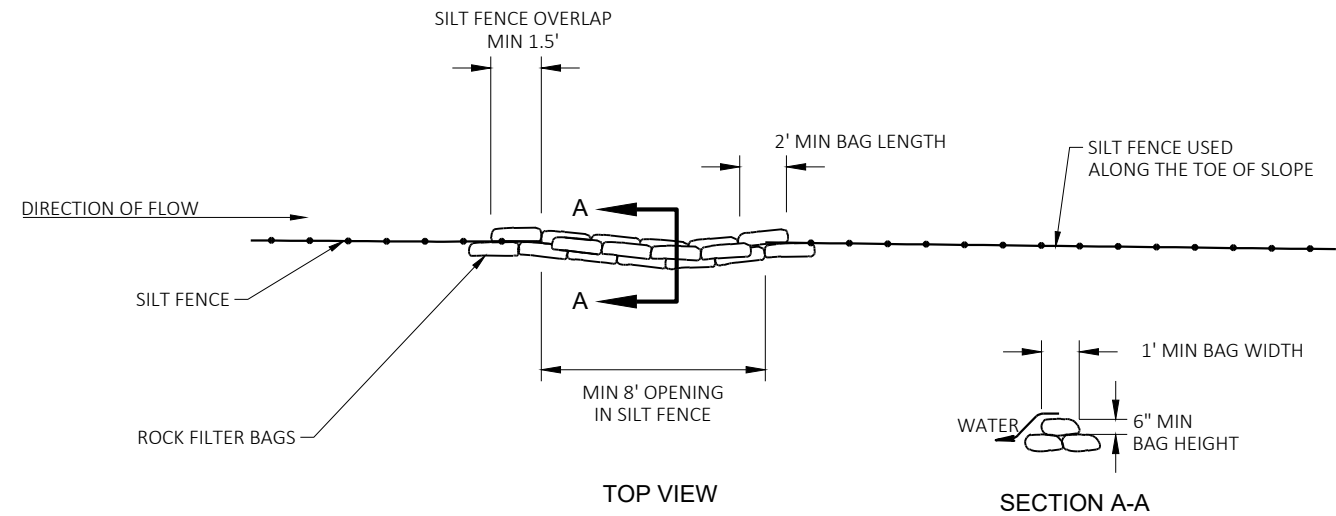


TOP VIEW (MULTIPLE LAYER)

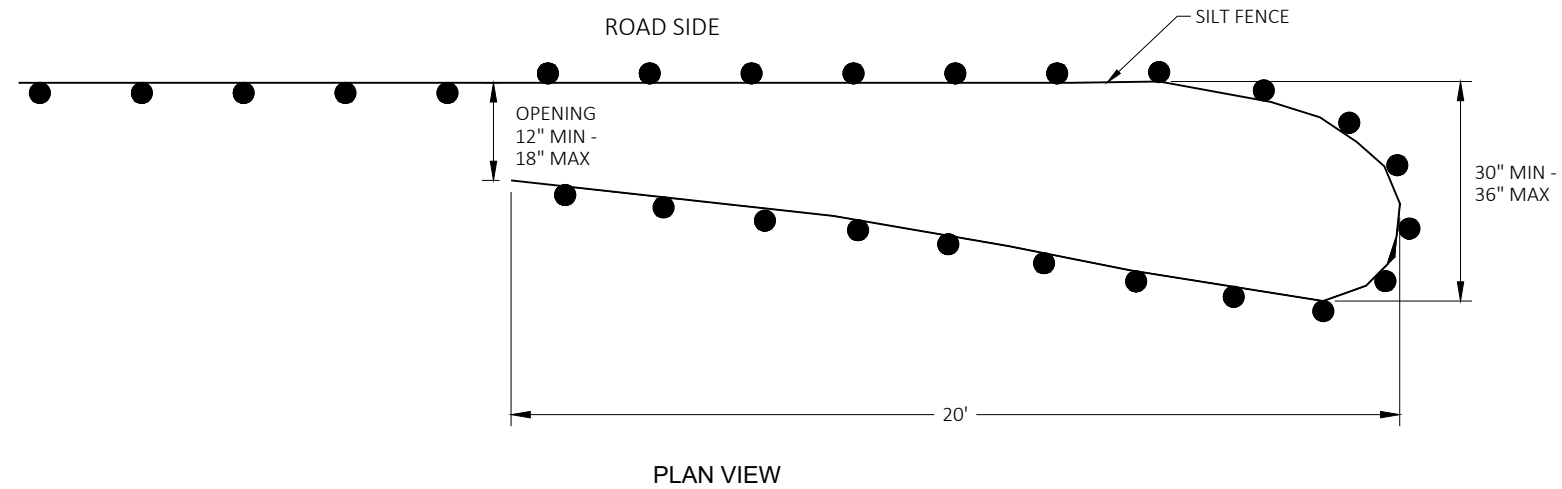


SECTION A-A

ROCK BAGS USED FOR DITCH CHECKS

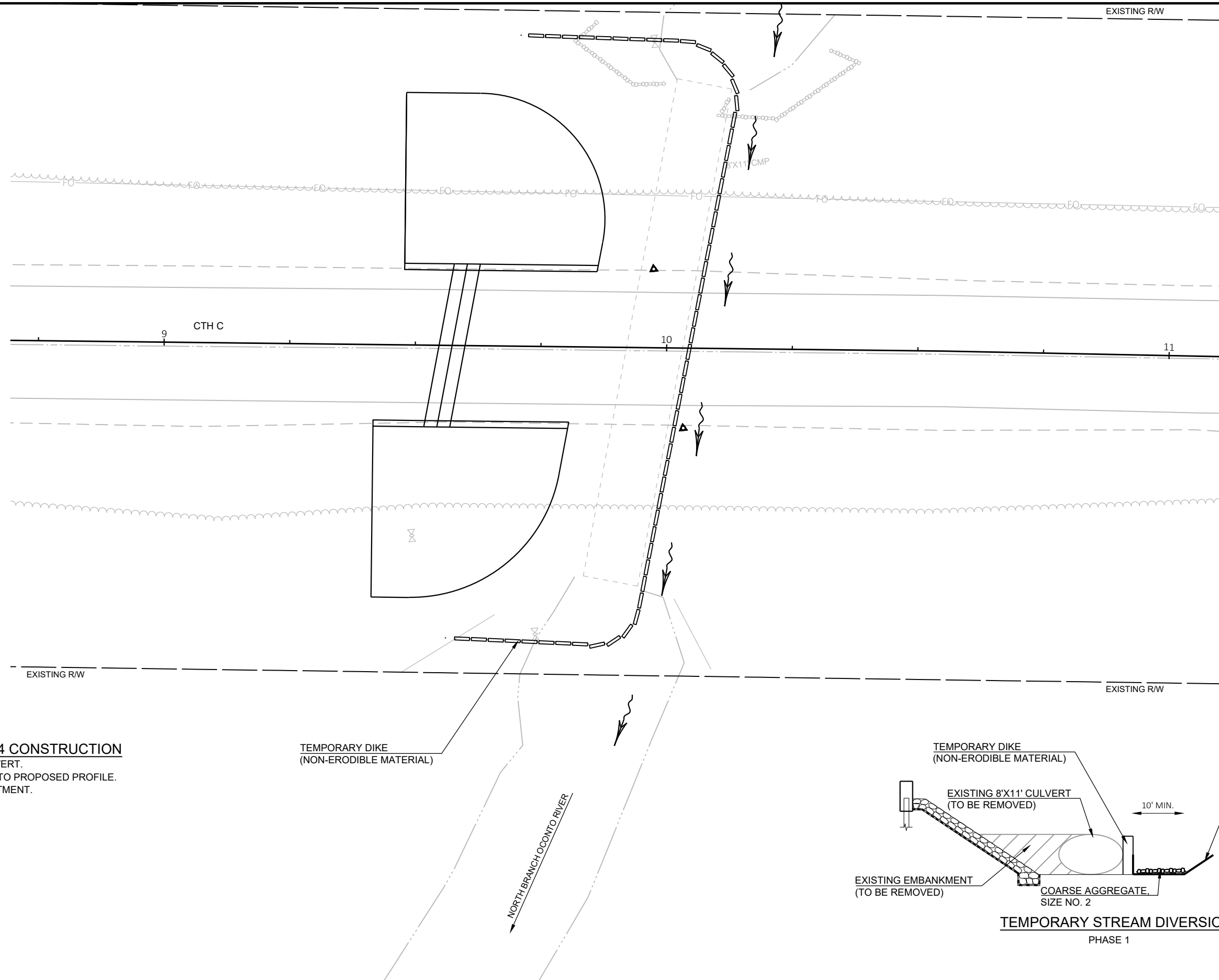


ROCK BAGS USED FOR SILT FENCE RELIEF



TEMPORARY SMALL ANIMAL TURN-AROUND

GENERAL NOTES:
SILT FENCE POSTS FOR THE TURN-AROUND SHOULD BE ON THE OUTSIDE OF THE TURN-AROUND. AND TRENCHED IN ACCORDING TO SILT FENCE REQUIREMENTS.

**PHASE 1 B-21-0034 CONSTRUCTION**

- REMOVE EXISTING CULVERT.
- RESTORE STREAM BED TO PROPOSED PROFILE.
- CONSTRUCT WEST ABUTMENT.
- Q2 ELEVATION = 1495.72

PROJECT NO: 9330-01-70

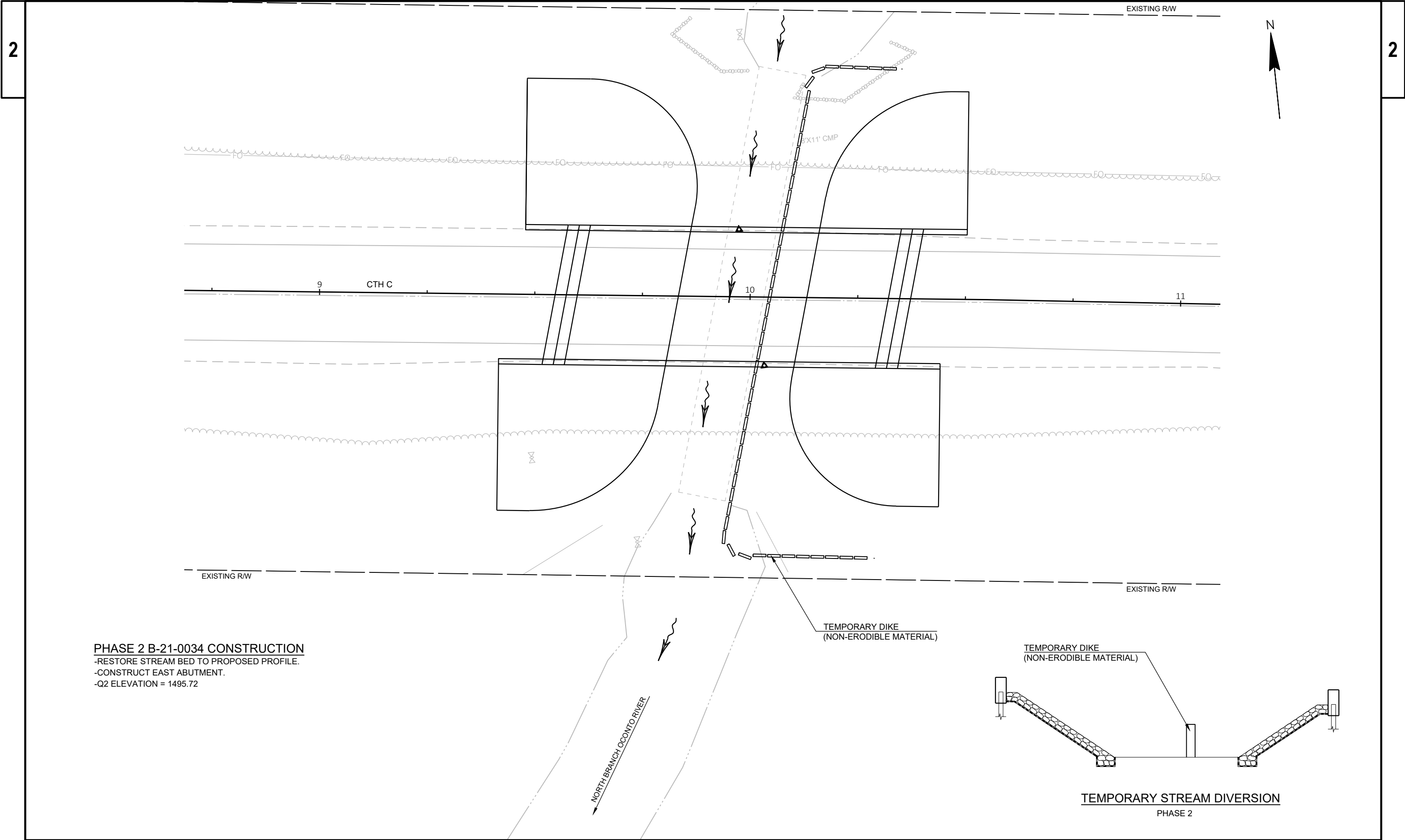
HWY: CTH C

COUNTY: FOREST

CONSTRUCTION DETAILS

SHEET

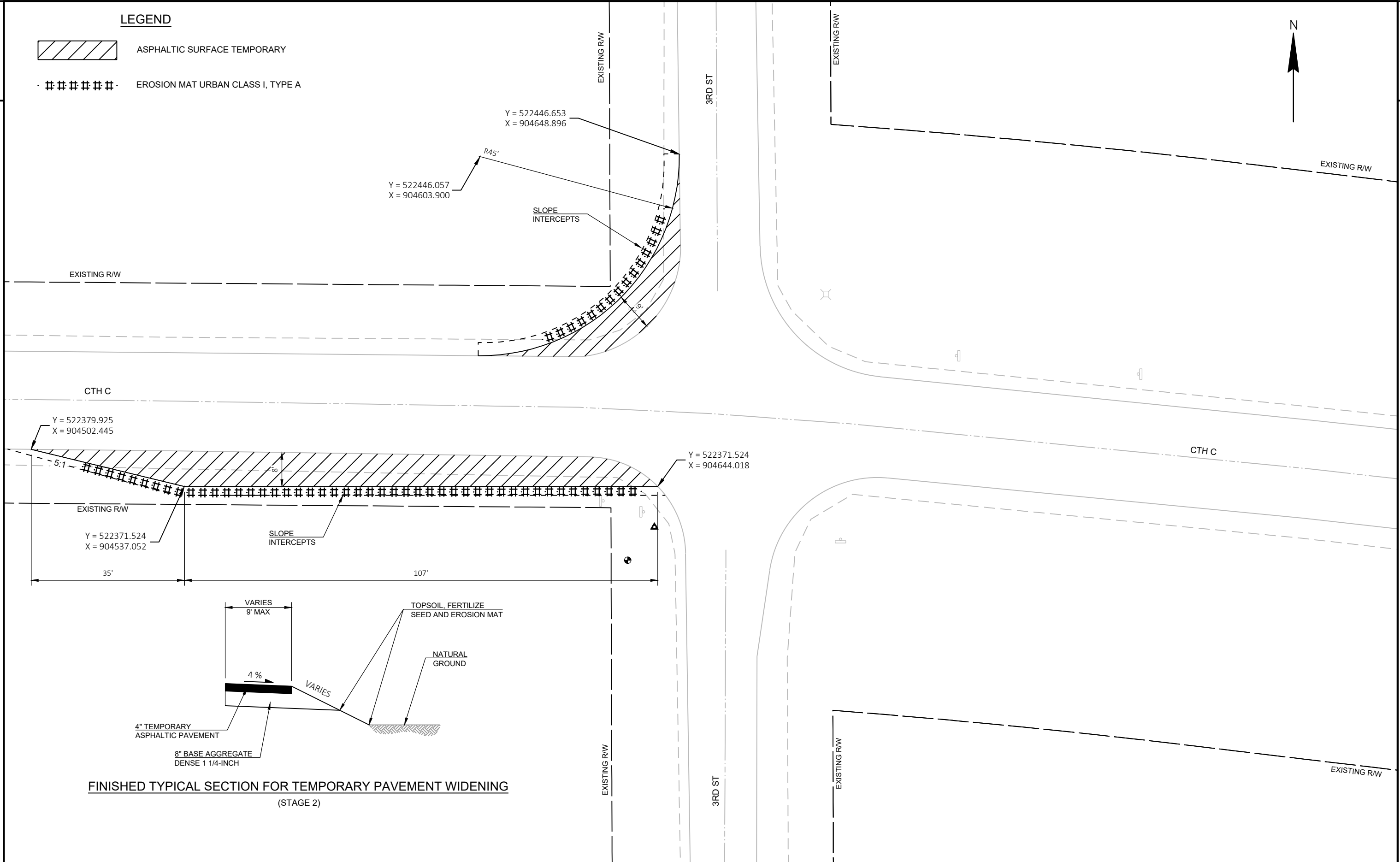
E



PHASE 2 B-21-0034 CONSTRUCTION
-RESTORE STREAM BED TO PROPOSED PROFILE.
-CONSTRUCT EAST ABUTMENT.
-Q2 ELEVATION = 1495.72

##.##.##.##.##.##.

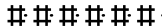
EROSION MAT URBAN CLASS I, TYPE A



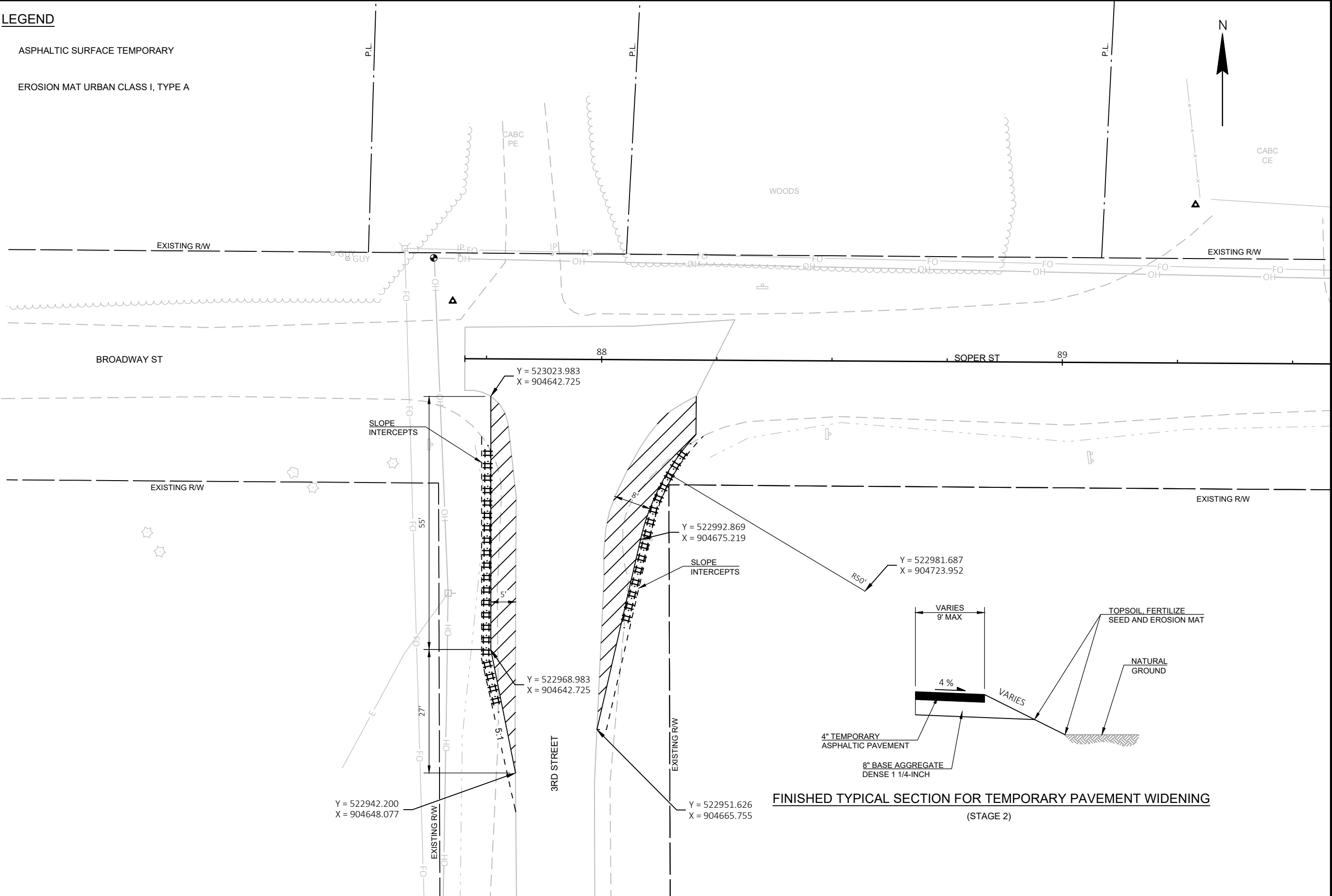
LEGEND



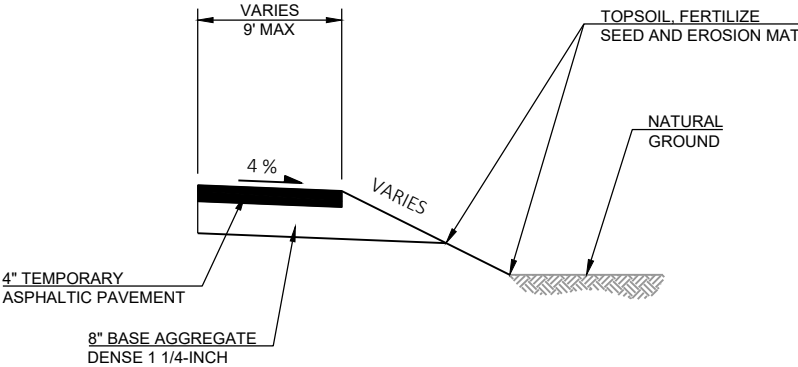
ASPHALTIC SURFACE TEMPORARY

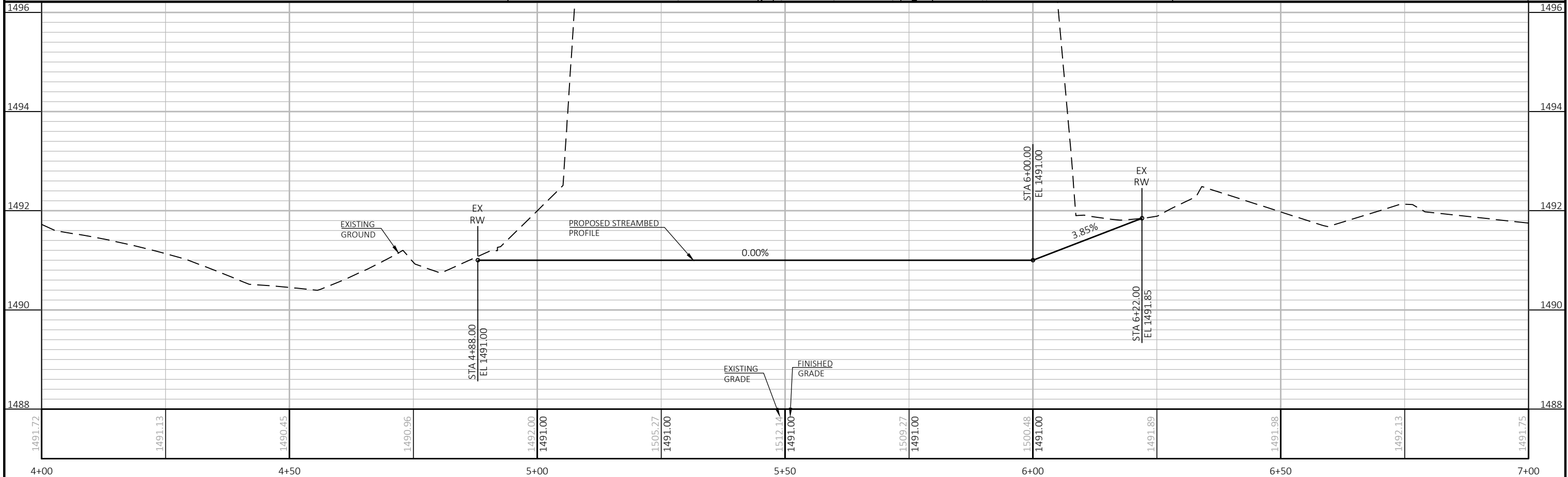
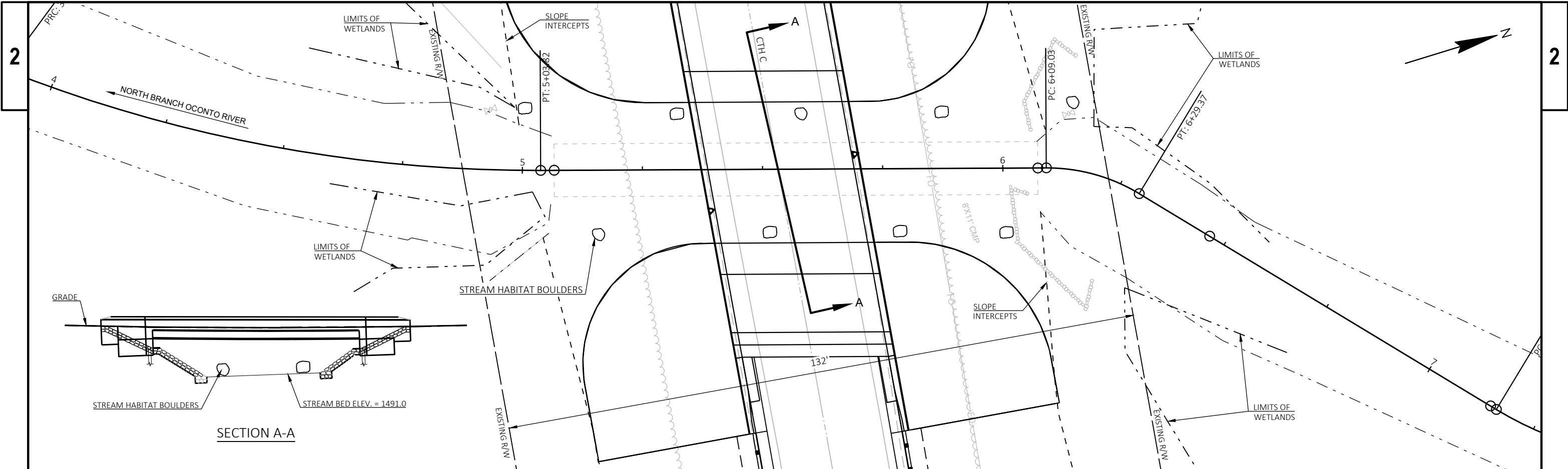


EROSION MAT URBAN CLASS I, TYPE A



FINISHED TYPICAL SECTION FOR TEMPORARY PAVEMENT WIDENING
(STAGE 2)



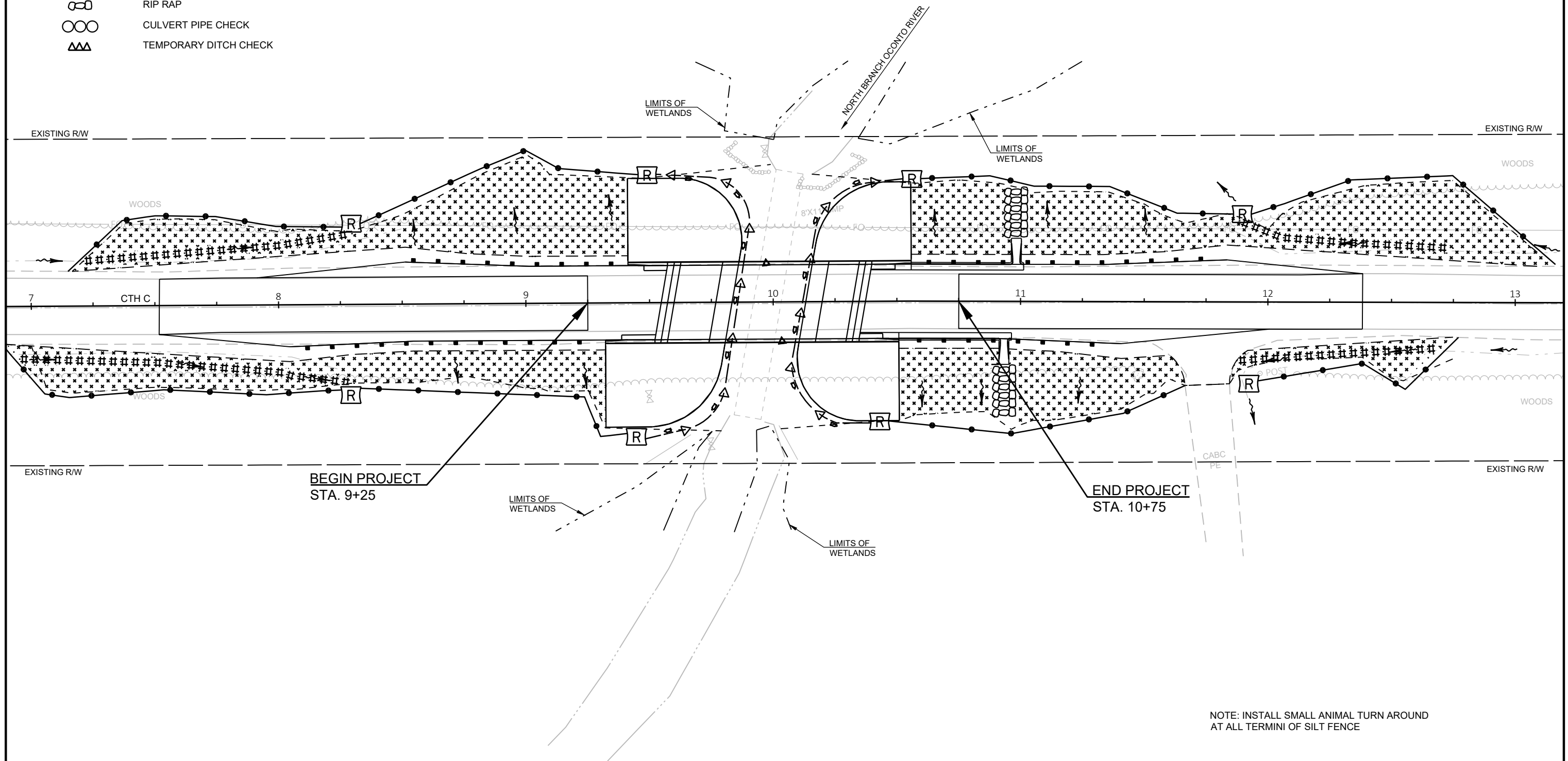


PROJECT NO: 9330-01-70	HWY: CTH C	COUNTY: FOREST	CONSTRUCTION DETAILS - STREAMBED RESTORATION	SHEET E
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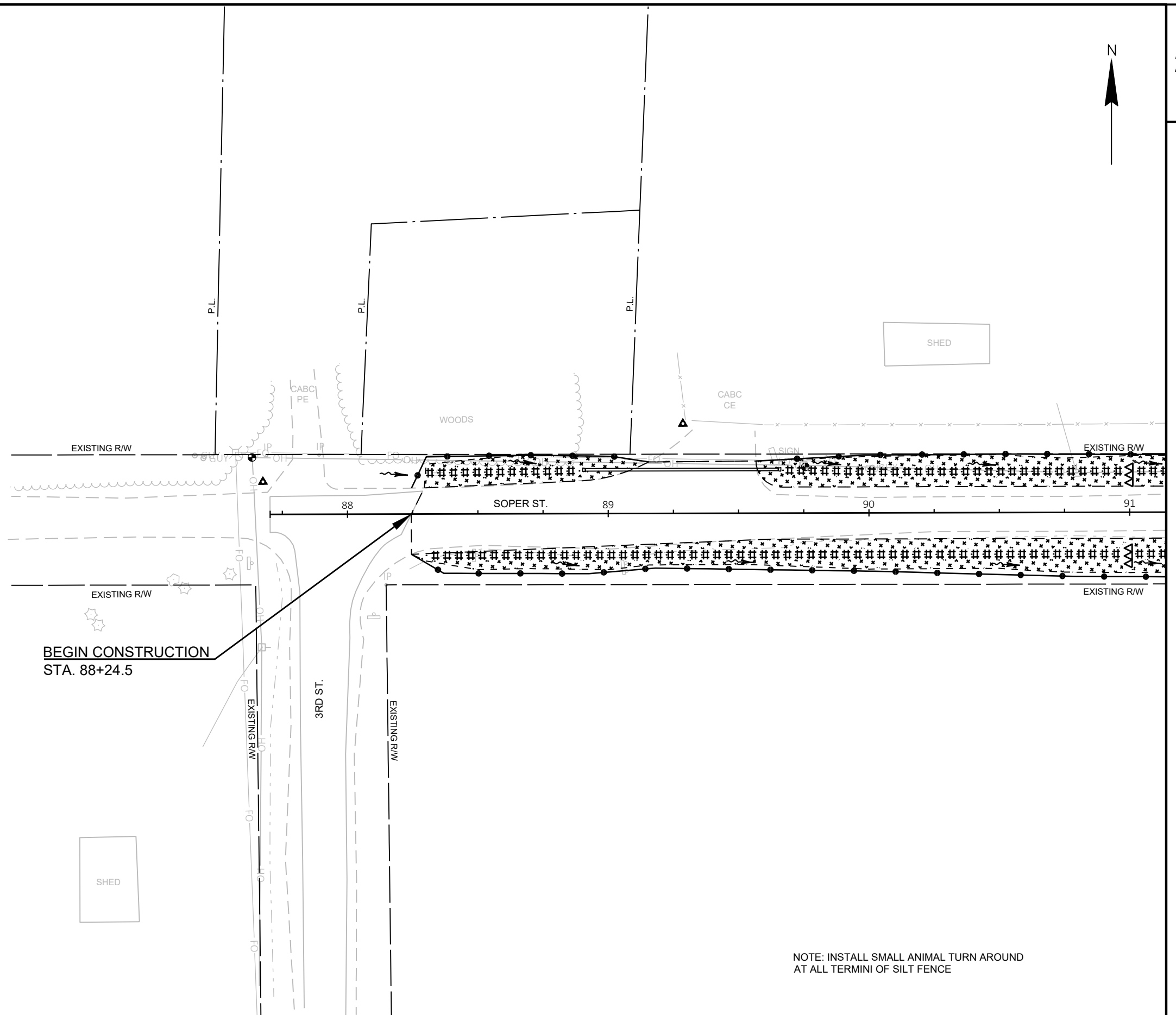
LEGEND

- ***** EROSION MAT URBAN CLASS I, TYPE B
- ##### EROSION MAT CLASS II, TYPE C
- SILT FENCE
- ◄— TURBIDITY BARRIER
- - - SLOPE INTERCEPT
- ~> SURFACE WATER FLOW
- [R] ROCK BAGS
- ◌ RIP RAP
- ○ ○ CULVERT PIPE CHECK
- △ △ △ TEMPORARY DITCH CHECK

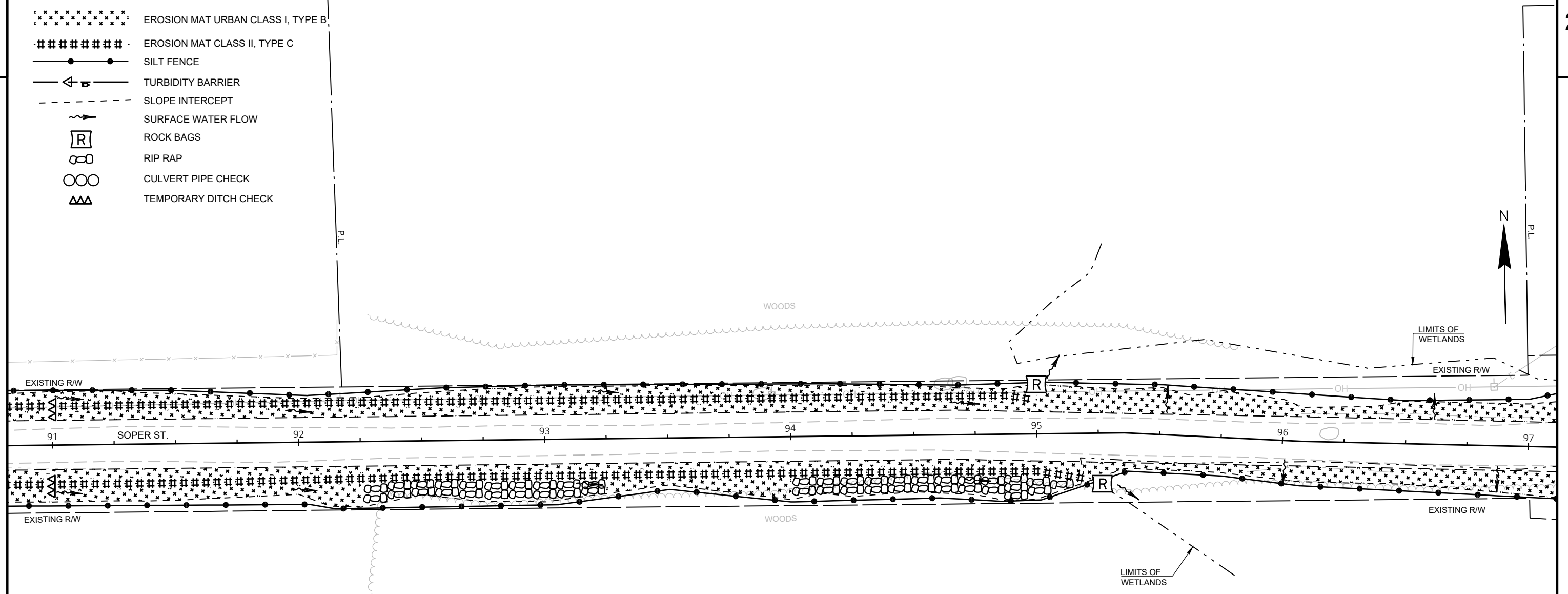


NOTE: INSTALL SMALL ANIMAL TURN AROUND
AT ALL TERMINI OF SILT FENCE

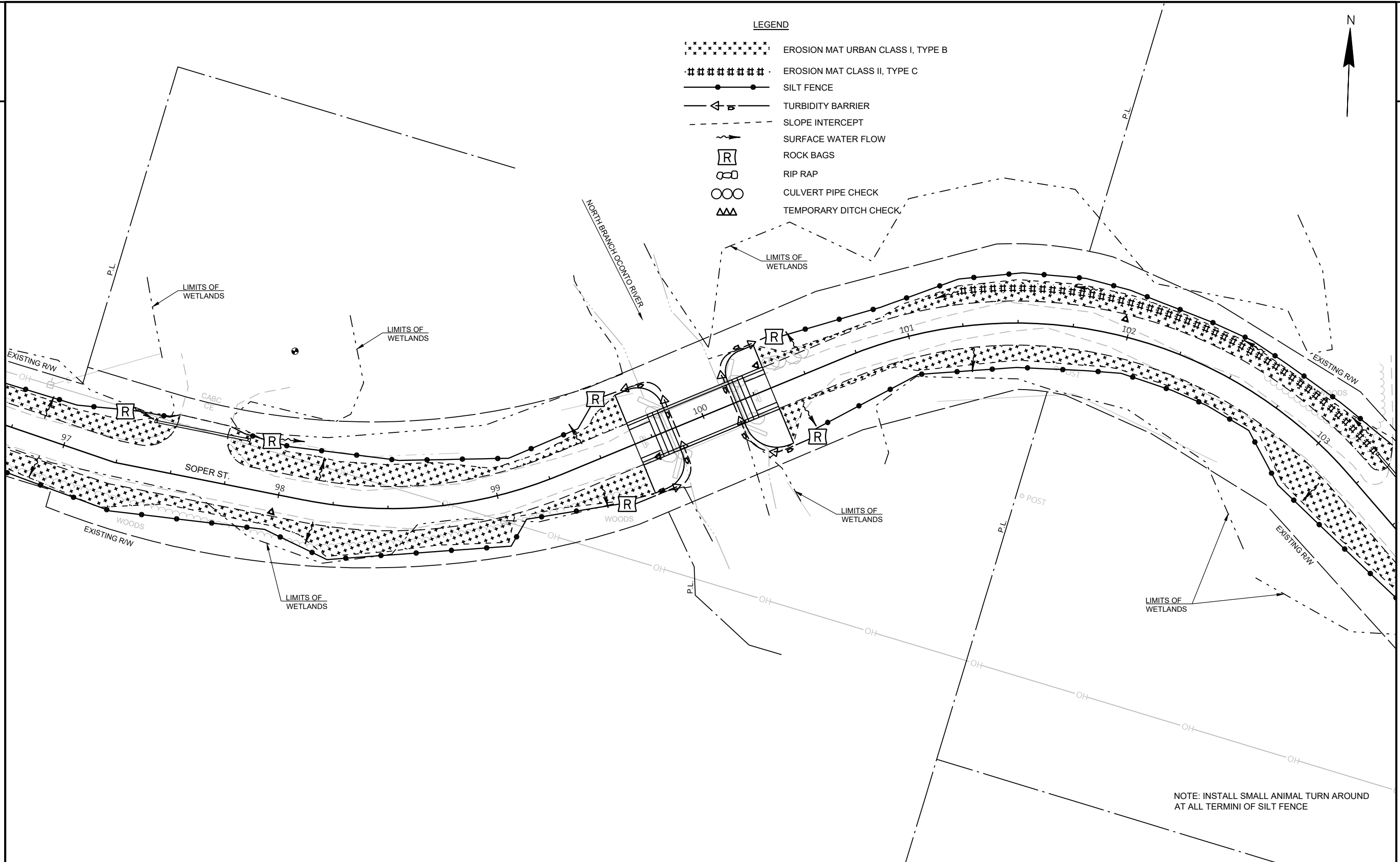
	EROSION MAT URBAN CLASS I, TYPE B
	EROSION MAT CLASS II, TYPE C
	SILT FENCE
	TURBIDITY BARRIER
	SLOPE INTERCEPT
	SURFACE WATER FLOW
	ROCK BAGS
	RIP RAP
	CULVERT PIPE CHECK
	TEMPORARY DITCH CHECK



	EROSION MAT URBAN CLASS I, TYPE B
	EROSION MAT CLASS II, TYPE C
	SILT FENCE
	TURBIDITY BARRIER
	SLOPE INTERCEPT
	SURFACE WATER FLOW
	ROCK BAGS
	RIP RAP
	CULVERT PIPE CHECK
	TEMPORARY DITCH CHECK

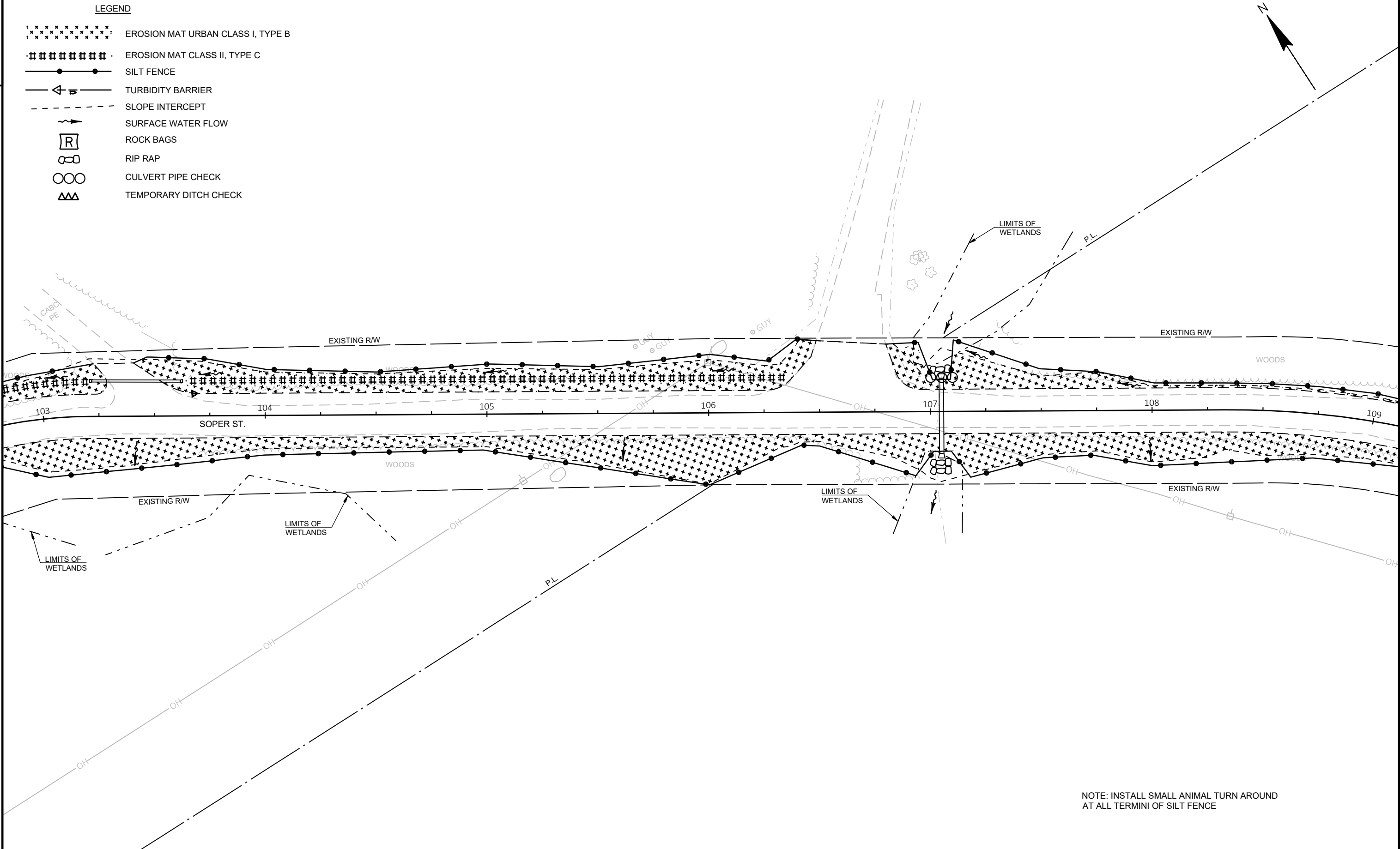


NOTE: INSTALL SMALL ANIMAL TURN AROUND
AT ALL TERMINI OF SILT FENCE



LEGEND

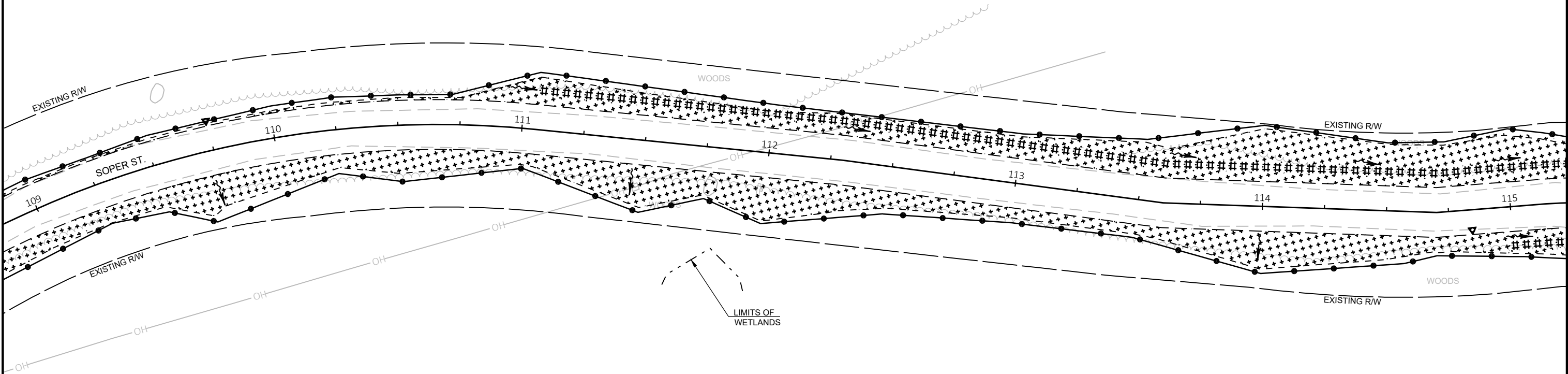
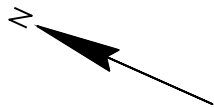
- ***** EROSION MAT URBAN CLASS I, TYPE B
- ##### EROSION MAT CLASS II, TYPE C
- SILT FENCE
- ← S TURBIDITY BARRIER
- SLOPE INTERCEPT
- SURFACE WATER FLOW
- [R] ROCK BAGS
- RIP RAP
- CULVERT PIPE CHECK
- ▲▲▲ TEMPORARY DITCH CHECK



PROJECT NO: 9330-01-70	HWY: CTH C	COUNTY: FOREST	EROSION CONTROL	SHEET	E
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LEGEND

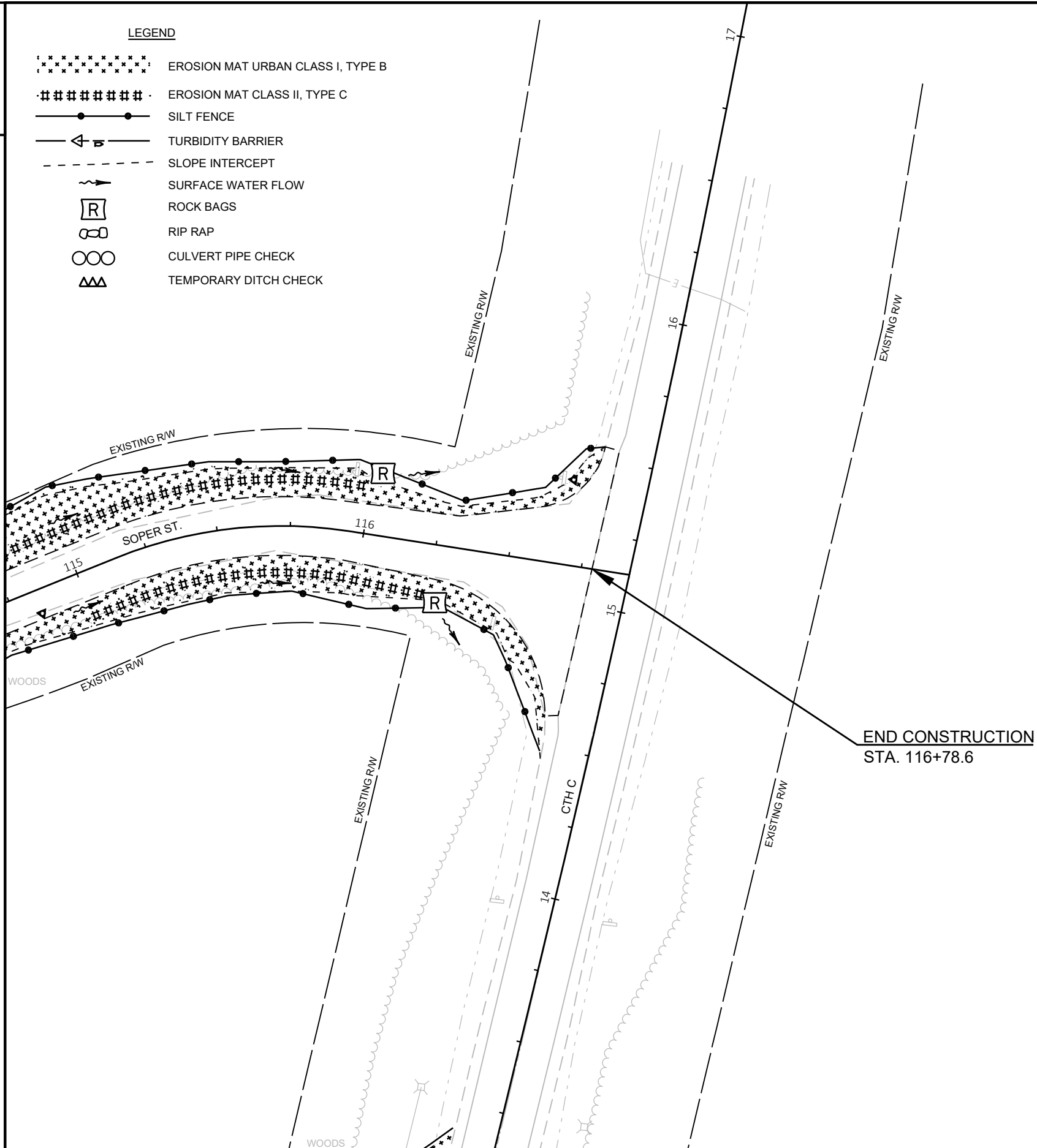
- ***** EROSION MAT URBAN CLASS I, TYPE B
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- ~> SURFACE WATER FLOW
- [R] ROCK BAGS
- ⌘ RIP RAP
- CULVERT PIPE CHECK
- △△△ TEMPORARY DITCH CHECK



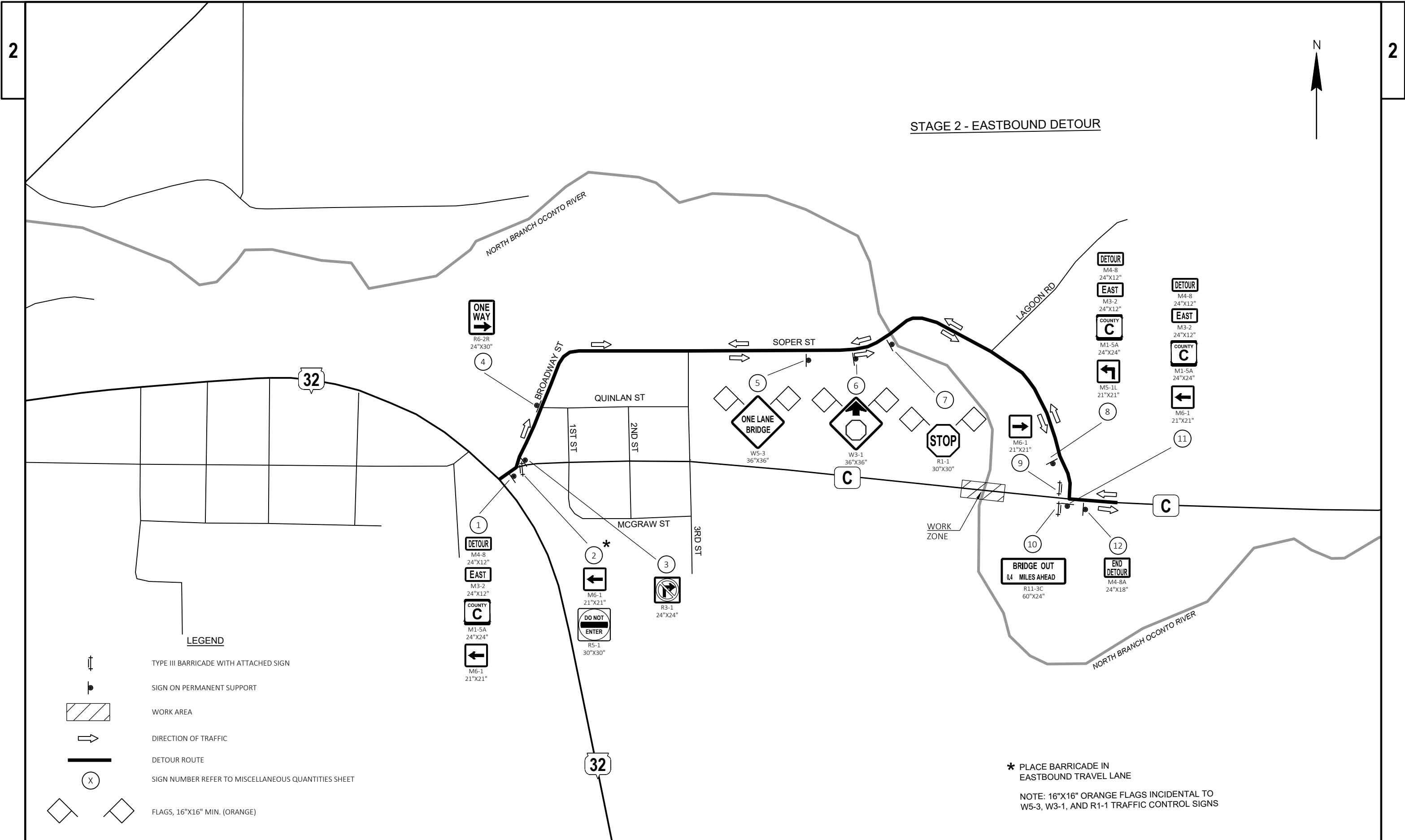
NOTE: INSTALL SMALL ANIMAL TURN AROUND
AT ALL TERMINI OF SILT FENCE

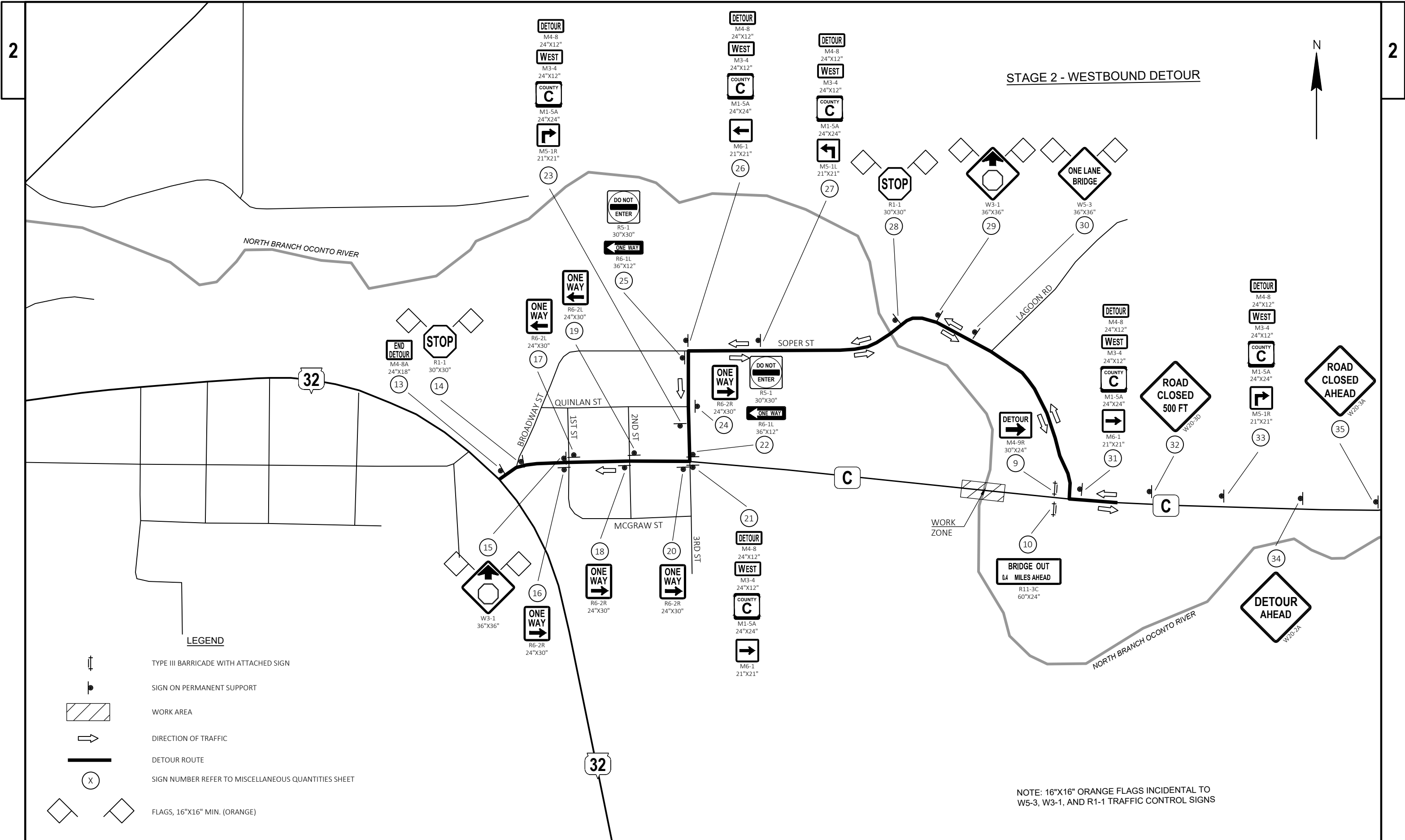
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- ***** EROSION MAT URBAN CLASS I, TYPE B
- ##### EROSION MAT CLASS II, TYPE C
- SILT FENCE
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- [R] ROCK BAGS
- RIP RAP
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- ▲▲▲ TEMPORARY DITCH CHECK



NOTE: INSTALL SMALL ANIMAL TURN AROUND
AT ALL TERMINI OF SILT FENCE





Estimate Of Quantities

9330-01-70

Line	Item	Item Description	Unit	Total	Qty
0002	201.0105	Clearing	STA	35.000	35.000
0004	201.0205	Grubbing	STA	35.000	35.000
0006	203.0100	Removing Small Pipe Culverts	EACH	1.000	1.000
0008	203.0220	Removing Structure (structure) 01. 12'x100' Pipe Arch	EACH	1.000	1.000
0010	203.0250	Removing Structure Over Waterway Remove Debris (structure) 01. P-21-907	EACH	1.000	1.000
0012	204.0110	Removing Asphaltic Surface	SY	820.000	820.000
0014	204.9060.S	Removing (item description) 01. Metal Gate and Posts	EACH	2.000	2.000
0016	205.0100	Excavation Common	CY	2,170.000	2,170.000
0018	205.0400	Excavation Marsh	CY	343.000	343.000
0020	206.1001	Excavation for Structures Bridges (structure) 01. B-21-34	EACH	1.000	1.000
0022	206.1001	Excavation for Structures Bridges (structure) 02. B-21-33	EACH	1.000	1.000
0024	208.1100	Select Borrow	CY	515.000	515.000
0026	210.1500	Backfill Structure Type A	TON	550.000	550.000
0028	213.0100	Finishing Roadway (project) 01. 9330-01-70	EACH	1.000	1.000
0030	305.0110	Base Aggregate Dense 3/4-Inch	TON	140.000	140.000
0032	305.0120	Base Aggregate Dense 1 1/4-Inch	TON	3,850.000	3,850.000
0034	312.0115	Select Crushed Material	CY	280.000	280.000
0036	415.0060	Concrete Pavement 6-Inch	SY	8.000	8.000
0038	455.0605	Tack Coat	GAL	92.000	92.000
0040	465.0105	Asphaltic Surface	TON	305.000	305.000
0042	465.0125	Asphaltic Surface Temporary	TON	56.000	56.000
0044	502.0100	Concrete Masonry Bridges	CY	346.500	346.500
0046	502.3200	Protective Surface Treatment	SY	430.000	430.000
0048	502.3210	Pigmented Surface Sealer	SY	120.000	120.000
0050	503.0137	Prestressed Girder Type I 36W-Inch	LF	324.000	324.000
0052	505.0400	Bar Steel Reinforcement HS Structures	LB	7,220.000	7,220.000
0054	505.0600	Bar Steel Reinforcement HS Coated Structures	LB	44,250.000	44,250.000
0056	506.0105	Structural Steel Carbon	LB	344.000	344.000
0058	506.2605	Bearing Pads Elastomeric Non-Laminated	EACH	8.000	8.000
0060	506.4000	Steel Diaphragms (structure) 01. B-21-34	EACH	6.000	6.000
0062	513.4061	Railing Tubular Type M	LF	138.000	138.000
0064	516.0500	Rubberized Membrane Waterproofing	SY	36.000	36.000
0066	520.1012	Apron Endwalls for Culvert Pipe 12-Inch	EACH	6.000	6.000
0068	520.3312	Culvert Pipe Class III-A 12-Inch	LF	122.000	122.000
0070	520.4124	Culvert Pipe Class IV 24-Inch	LF	34.000	34.000
0072	522.1024	Apron Endwalls for Culvert Pipe Reinforced Concrete 24-Inch	EACH	2.000	2.000
0074	550.0020	Pre-Boring Rock or Consolidated Materials	LF	400.000	400.000
0076	550.0500	Pile Points	EACH	22.000	22.000
0078	550.1100	Piling Steel HP 10-Inch X 42 Lb	LF	675.000	675.000
0080	601.0588	Concrete Curb & Gutter 4-Inch Sloped 36-Inch Type TBT	LF	80.000	80.000
0082	602.3010	Concrete Surface Drains	CY	2.000	2.000
0084	606.0200	Riprap Medium	CY	103.000	103.000
0086	606.0300	Riprap Heavy	CY	720.000	720.000
0088	612.0406	Pipe Underdrain Wrapped 6-Inch	LF	290.000	290.000
0090	614.0150	Anchor Assemblies for Steel Plate Beam Guard	EACH	4.000	4.000
0092	614.2300	MGS Guardrail 3	LF	75.000	75.000
0094	614.2500	MGS Thrie Beam Transition	LF	157.600	157.600
0096	614.2610	MGS Guardrail Terminal EAT	EACH	4.000	4.000
0098	618.0100	Maintenance and Repair of Haul Roads (project) 01. 9330-01-70	EACH	1.000	1.000

Estimate Of Quantities

9330-01-70

Line	Item	Item Description	Unit	Total	Qty
0100	619.1000	Mobilization	EACH	1.000	1.000
0102	623.0200	Dust Control Surface Treatment	SY	58,000.000	58,000.000
0104	624.0100	Water	MGAL	510.000	510.000
0106	625.0100	Topsoil	SY	8,870.000	8,870.000
0108	627.0200	Mulching	SY	1,230.000	1,230.000
0110	628.1504	Silt Fence	LF	14,240.000	14,240.000
0112	628.1520	Silt Fence Maintenance	LF	28,480.000	28,480.000
0114	628.1905	Mobilizations Erosion Control	EACH	12.000	12.000
0116	628.1910	Mobilizations Emergency Erosion Control	EACH	6.000	6.000
0118	628.2006	Erosion Mat Urban Class I Type A	SY	400.000	400.000
0120	628.2008	Erosion Mat Urban Class I Type B	SY	4,960.000	4,960.000
0122	628.2027	Erosion Mat Class II Type C	SY	3,590.000	3,590.000
0124	628.6005	Turbidity Barriers	SY	97.000	97.000
0126	628.7504	Temporary Ditch Checks	LF	430.000	430.000
0128	628.7555	Culvert Pipe Checks	EACH	3.000	3.000
0130	628.7570	Rock Bags	EACH	320.000	320.000
0132	629.0210	Fertilizer Type B	CWT	7.000	7.000
0134	630.0120	Seeding Mixture No. 20	LB	460.000	460.000
0136	630.0200	Seeding Temporary	LB	275.000	275.000
0138	630.0500	Seed Water	MGAL	990.000	990.000
0140	634.0612	Posts Wood 4x6-Inch X 12-FT	EACH	8.000	8.000
0142	634.0614	Posts Wood 4x6-Inch X 14-FT	EACH	2.000	2.000
0144	637.2230	Signs Type II Reflective F	SF	42.000	42.000
0146	638.2102	Moving Signs Type II	EACH	4.000	4.000
0148	638.2602	Removing Signs Type II	EACH	10.000	10.000
0150	638.3000	Removing Small Sign Supports	EACH	14.000	14.000
0152	642.5001	Field Office Type B	EACH	1.000	1.000
0154	643.0300	Traffic Control Drums	DAY	1,600.000	1,600.000
0156	643.0420	Traffic Control Barricades Type III	DAY	2,474.000	2,474.000
0158	643.0705	Traffic Control Warning Lights Type A	DAY	4,044.000	4,044.000
0160	643.0900	Traffic Control Signs	DAY	5,935.000	5,935.000
0162	643.5000	Traffic Control	EACH	1.000	1.000
0164	645.0111	Geotextile Type DF Schedule A	SY	120.000	120.000
0166	645.0120	Geotextile Type HR	SY	1,472.000	1,472.000
0168	646.1020	Marking Line Epoxy 4-Inch	LF	1,944.000	1,944.000
0170	650.4500	Construction Staking Subgrade	LF	3,325.000	3,325.000
0172	650.5000	Construction Staking Base	LF	3,325.000	3,325.000
0174	650.5500	Construction Staking Curb Gutter and Curb & Gutter	LF	80.000	80.000
0176	650.6000	Construction Staking Pipe Culverts	EACH	1.000	1.000
0178	650.6501	Construction Staking Structure Layout (structure) 01. B-21-33	EACH	1.000	1.000
0180	650.6501	Construction Staking Structure Layout (structure) 02. B-21-34	EACH	1.000	1.000
0182	650.9911	Construction Staking Supplemental Control (project) 01. 9330-01-70	EACH	1.000	1.000
0184	650.9920	Construction Staking Slope Stakes	LF	3,325.000	3,325.000
0186	690.0150	Sawing Asphalt	LF	46.000	46.000
0188	715.0502	Incentive Strength Concrete Structures	DOL	2,079.000	2,079.000
0190	999.2000.S	Installing and Maintaining Bird Deterrent System (station) 01. 100+00	EACH	1.000	1.000
0192	ASP.1T0A	On-the-Job Training Apprentice at \$5.00/HR	HRS	1,200.000	1,200.000
0194	ASP.1T0G	On-the-Job Training Graduate at \$5.00/HR	HRS	600.000	600.000
0196	SPV.0060	Special 01. Stream Habitat Boulders	EACH	9.000	9.000

Estimate Of Quantities

9330-01-70

Line	Item	Item Description	Unit	Total	Qty
0198	SPV.0060	Special 02. Temporary Water Diversion	EACH	1.000	1.000
0200	SPV.0060	Special 03. Maintaining Detour Route	EACH	1.000	1.000

CLEARING & GRUBBING						REMOVING SMALL PIPE CULVERTS				REMOVING ASPHALTIC SURFACE				REMOVING METAL GATE AND POSTS			
STATION	TO	STATION	LOCATION	201.0105 CLEARING STA	201.0205 GRUBBING STA	203.0100 REMOVING SMALL PIPE CULVERTS EACH	REMARKS	STATION	TO	STATION	LOCATION	204.0110 REMOVING ASPHALTIC SURFACE SY	STATION	LOCATION	204.9060.S.01 REMOVING METAL GATE AND POSTS EACH		
7+00	-	13+00	CTH C	6	6												
88+00	-	117+00	SOPER STREET	29	29												
TOTALS				35	35	107+05	SOPER STREET TOTAL	1 1	24" CMCP, 30'	7+52	-	9+25	CTH C	420	99+80	SOPER STREET	1
										10+75	-	12+38	CTH C	400	100+18	SOPER STREET	1
												TOTAL	820		TOTAL	2	

EARTHWORK SUMMARY

Division	From/To Station	Location	Common (Item #205.0100)	Unusable Pavement (4)	Available Material (5)	Excavation Marsh (6)	Expanded Marsh Backfill (10) (Item #208.1100)	Unexpanded Fill	Expanded Fill (13)	Mass Ordinate +/- (14)	Waste
			CUT (2)			(Item #205.0400)	Factor 1.50		Factor 1.30		
1	6+89.73-9+25.04	CTH C (SW SHOULDER)	105	0	105	0	0	27	35	70	70
	7+16.60-9+25.04	CTH C (NW SHOULDER)	101	0	101	0	0	108	140	-39	-39
	9+25.04-10+75.00	CTH C (MAINLINE)	90	23	67	0	0	108	140	-73	-73
	10+75.00-12+74.80	CTH C (SE SHOULDER)	53	0	53	0	0	92	120	-67	-67
	10+75.00-13+08.80	CTH C (NE SHOULDER)	135	0	135	0	0	123	160	-25	-25
	88+28.90-116+50.00	SOPER ST (MAINLINE)	1,626	0	1,626	343	515	298	387	1,239	1,239
		SOPER STREET & 3RD STREET INT.	25	0	25	0	0	0	0	25	25
CTH C & 3RD STREET INT.			35	0	35	0	0	0	0	35	35
Division 1 Totals			2,170	23	2,147	343	515	756	983	1,164	1,164

Notes:

2) Unusable Pavement Material is included in Cut

4) Unusable Pavement Material = Existing Asphaltic Pavement. Backfill any areas below subgrade with borrow .

5) Available Material = Cut - Unusable Pavement Material

6) Marsh Excavation. To be backfilled with Select Borrow Material as shown in cross sections.

10) Expanded Marsh Backfill - This is to be filled with Select Borrow material. Marsh Backfill Factor = 1.5. Item Number 208.1100

13) Expanded Fill. Factor = 1.3 Expanded Fill = Unexpanded Fill * Fill Factor

14) The Mass Ordinate + or - Qty calculated for the Division. Plus quantity indicates an excess of material within the Division. Minus indicates a shortage of material within the Division.

ALL ITEMS ARE CATEGORY 0010 UNLESS OTHERWISE STATED

PROJECT NO: 9330-01-70	HWY: CTH C	COUNTY: FOREST	MISCELLANEOUS QUANTITIES	SHEET:	E
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BASE AGGREGATE DENSE & WATER

				305.0110	305.0120	623.0200	624.0100		
				BASE	BASE	DUST CONTROL			
				AGGREGATE	AGGREGATE	SURFACE			
				DENSE 3/4-INCH	DENSE 1 1/4-INCH	TREATMENT	WATER		
STATION	TO	STATION	LOCATION	TON	TON	SY	MGAL	REMARKS	
6+89	-	9+57	CTH C	65	374	-	101		
10+35	-	13+09	CTH C	64	379	-	100		
7+52	-	9+25	CTH C	-	47	-	5	FINE GRADING FOR PAVEMENT REMOVAL AREA	
10+75	-	12+38	CTH C	-	44	-	4	FINE GRADING FOR PAVEMENT REMOVAL AREA	
88+25	-	99+67	SOPER STREET	-	1,163	23,555	116		
100+33	-	116+79	SOPER STREET	-	1,700	34,445	170		
			SOPER STREET	11	-	-	-	DRIVEWAYS	
			SOPER STREET & 3RD STREET INT.	-	63	-	6	TEMP. WIDENING	
			CTH C & 3RD STREET INT.	-	80	-	8	TEMP. WIDENING	
TOTAL				140	3,850	58,000	510		

NOTE: SOPER STREET TO BE TREATED WITH DUST CONTROL SURFACE TREATEMENT BI-WEEKLY

CULVERT ITEMS

CONCRETE CURB & GUTTER AND CONCRETE PAVEMENT

						520.1012	520.3312	520.4124	522.1024					
						APRON	CULVERT PIPE	CULVERT PIPE	APRON	ENDWALLS FOR	THICKNESS			
						ENDWALLS FOR	CLASS III-A 12-	CLASS IV 24-	ENDWALLS FOR	CULVERT PIPE	STEEL			
						CULVERT PIPE 12-	INCH	INCH	CULVERT PIPE	REINFORCED				
						INCH	LF	LF	CONCRETE 24-	CONCRETE				
STATION	TO	STATION	LOCATION	SY	LF	STATION	LOCATION	STATION/OFFSET	STATION/OFFSET	ELEVATION		INLET	OUTLET	
10+35	-	10+91	CTH C, RT	4	40	107+05	SOPER STREET	107+05, 16.0' LT	107+05, 18.0' RT	1507.5	1506.5			
10+39	-	10+96	CTH C, LT	4	40	89+28	SOPER STREET, LT							
TOTALS				8	80	97+60	SOPER STREET, LT							
						103+42	SOPER STREET, LT							
						TOTALS								

ASPHALTIC SURFACE

NOTES:
-OFFSET DISTANCE TO END OF PIPE AT ENDWALL.
-ELEVATION IS FIGURED TO PIPE INVERT AT ENDWALL.

				455.0605	465.0105	465.0125		
				TACK COAT	ASPHALTIC	ASPHALTIC		
					SURFACE	SURFACE		
STATION	TO	STATION	LOCATION	GAL	TON	TEMPORARY	REMARKS	
7+52	-	9+57	CTH C	46	152	-		
10+35	-	12+38	CTH C	44	143	-		
99+67	-	99+76	SOPER STREET	1	5	-		
100+23	-	100+33	SOPER STREET	1	5	-		
			SOPER STREET & 3RD STREET INT.	-	-	25	TEMP. WIDENING	
			CTH C & 3RD STREET INT.	-	-	31	TEMP. WIDENING	
TOTALS				92	305	56		

CONCRETE SURFACE DRAINS

		602.3010
		CONCRETE SURFACE
		DRAINS
STATION	LOCATION	CY
10+93	CTH C, RT	1
10+98	CTH C, LT	1
TOTAL		2

NOTE: FINAL PLACEMENT OF FLUME MUST MAINTAIN THE MIN. POST SEPARATION DISTANCES

ALL ITEMS ARE CATEGORY 0010 UNLESS OTHERWISE STATED

PROJECT NO: 9330-01-70	HWY: CTH C	COUNTY: FOREST	MISCELLANEOUS QUANTITIES	SHEET:	E
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RIPRAP MEDIUM & GEOTEXTILE

				* GEOTEXTILE TYPE		
STATION	TO	STATION	LOCATION	606.0200 RIPRAP MEDIUM CY	645.0120 HR SY	REMARKS
	10+93		CTH C, RT	4	7	CONC. SURFACE DRAIN
	10+98		CTH C, LT	4	7	CONC. SURFACE DRAIN
92+25	-	93+25	SOPER STREET, RT	43	85	BACKSLOPE
94+00	-	95+25	SOPER STREET, RT	47	94	BACKSLOPE
	107+05		SOPER STREET, LT & RT	5	9	CROSS PIPE ENDWALLS
TOTALS				103	202	

*ADDITIONAL QUANTITIES SHOWN ELSEWHERE

MGS GUARDRAIL

				614.2300	614.2500	614.2610
				MGS GUARDRAIL	MGS THRIE	
				3	BEAM	MGS GUARDRAIL
STATION	TO	STATION	LOCATION	LF	TRANSITION	TERMINAL EAT
					LF	EACH
8+04.5	-	9+32.1	CTH C, RT	37.5	39.4	1
8+51.3	-	9+41.3	CTH CE, LT	-	39.4	1
10+50.6	-	11+40.7	CTH CE, RT	-	39.4	1
10+55.7	-	11+83.5	CTH CE, LT	37.5	39.4	1
TOTALS				75	157.6	4

EROSION MAT

STATION	TO	STATION	LOCATION	628.2006	628.2008	628.2027	REMARKS
				EROSION MAT	EROSION MAT	EROSION	
				URBAN CLASS I	URBAN CLASS I	MAT CLASS II	
				TYPE A	TYPE B	TYPE C	
				SY	SY	SY	
6+88	-	9+32	CTH C, RT	-	107	188	
7+16	-	9+40	CTH C, LT	-	313	101	
10+51	-	12+75	CTH C, RT	-	263	73	
10+55	-	13+08	CTH C, LT	-	266	293	
88+25	-	99+67	SOPER STREET, LT	-	559	526	
88+25	-	99+67	SOPER STREET, RT	-	440	615	
100+33	-	116+79	SOPER STREET, LT	-	583	935	
100+33	-	116+79	SOPER STREET, RT	-	1,431	138	
			SOPER STREET & 3RD STREET INT.	150	-	-	DURING TEMP. WIDENEING AND FOR RESTORATION
			CTH C & 3RD STREET INT.	175	-	-	DURING TEMP. WIDENEING AND FOR RESTORATION
			UNDISTRIBUTED	75	998	721	
			TOTALS	400	4,960	3,590	

ALL ITEMS ARE CATEGORY 0010 UNLESS OTHERWISE STATED

SILT FENCE

				628.1504	628.1520
				SILT FENCE	SILT FENCE
				LF	MAINTENANCE
				LF	LF
STATION	TO	STATION	LOCATION		
6+88	-	9+50	CTH C, RT	266	532
7+16	-	9+50	CTH C, LT	241	482
10+40	-	12+75	CTH C, RT	216	432
10+50	-	13+08	CTH C, LT	264	528
88+25	-	99+67	SOPER STREET, LT	4,792	9,584
88+25	-	99+67	SOPER STREET, RT	1,151	2,302
100+33	-	116+79	SOPER STREET, LT	1,671	3,342
100+33	-	116+79	SOPER STREET, RT	2,791	5,582
				UNDISTRIBUTED	2,848
					5,696
TOTALS				14,240	28,480

CULVERT PIPE CHECKS

		628.7555
		CULVERT PIPE
		CHECKS
		EACH
STATION	LOCATION	
107+05	SOPER STREET, LT	3
TOTAL		3

ROCK BAGS

		628.7570
		ROCK BAGS
		EACH
STATION	LOCATION	
8+40	CTH CE. LT & RT	30
9+45	CTH CE. LT & RT	30
10+55	CTH CE. LT & RT	30
11+90	CTH CE. LT & RT	30
95+00	SOPER STREET, LT	15
95+25	SOPER STREET, RT	15
97+25	SOPER STREET, LT	15
98+00	SOPER STREET, LT	15
99+55	SOPER STREET, LT & RT	30
100+45	SOPER STREET, LT & RT	30
116+10	SOPER STREET, LT	15
116+25	SOPER STREET, RT	15
UNDISTRIBUTED		50
TOTAL		320

MOBILIZATIONS EROSION CONTROL

		628.1905	628.1910
		MOBILIZATIONS	MOBILIZATIONS
		EROSION	EMERGENCY
		CONTROL	EROSION
		EACH	CONTROL
		EACH	EACH
PROJECT		12	6
TOTALS		12	6

TURBIDITY BARRIER

				628.6005
				TURBIDITY
				BARRIERS
				SY
STATION	TO	STATION	LOCATION	
9+53	-	9+86	CTH C, LT & RT	23
10+12	-	10+58	CTH C, LT & RT	22
99+56	-	99+87	SOPER STREET, LT & RT	27
100+14	-	100+40	SOPER STREET, LT & RT	25
TOTAL				97

SIGNS AND POSTS WOOD

		634.0612	634.0614	637.2230			
		POSTS WOOD	POSTS WOOD	SIGNS TYPE II REFLECTIVE F			
		4X6-INCH X 12- FT	4X6-INCH X 14- FT	W5-52L	W5-52R	W5-2	
STATION	LOCATION	EACH	EACH	SF	SF	SF	REMARKS
SW QUADRANT	CTH C	1	-	-	3	-	NARROW BRIDGE
NW QUADRANT	CTH C	1	-	3	-	-	
SE QUADRANT	CTH C	1	-	3	-	-	
NE QUADRANT	CTH C	1	-	-	3	-	
98+00	SOPER STREET, RT	-	1	-	-	9	
SW QUADRANT	SOPER STREET	1	-	-	3	-	NARROW BRIDGE
NW QUADRANT	SOPER STREET	1	-	3	-	-	
SE QUADRANT	SOPER STREET	1	-	3	-	-	
NE QUADRANT	SOPER STREET	1	-	-	3	-	
102+00	SOPER STREET, LT	-	1	-	-	9	
SUBTOTALS		8	2	12	12	18	
TOTALS		8	2	42			

TEMPORARY DITCH CHECKS

		628.7504
		TEMPORARY
		DITCH CHECKS
		LF
STATION	LOCATION	
91+00	SOPER STREET, LT & RT	30
	UNDISTRIBUTED	400
TOTAL		430
		FOR INTERIM STREAM DIVERSION STAGES

ALL ITEMS ARE CATEGORY 0010 UNLESS OTHERWISE STATED

PROJECT NO: 9330-01-70

HWY: CTH C

COUNTY: FOREST

MISCELLANEOUS QUANTITIES

SHEET:

E

MOVING AND REMOVING SIGNS AND SMALL SIGN SUPPORTS

STATION	LOCATION	638.2102	638.2602	638.3000	REMARKS
		MOVING SIGNS TYPE II EACH	REMOVING SIGNS TYPE II EACH	REMOVING SMALL SIGN SUPPORTS EACH	
88+48	SOPER STREET, RT	-	1	1	DEAD END
89+05	SOPER STREET, RT	-	1	2	ROAD CLOSED TO THRU TRAFFIC
99+71	SOPER STREET	-	1	2	ROAD CLOSED
99+82	SOPER STREET, LT & RT	-	2	2	BRIDGE
100+17	SOPER STREET, LT & RT	-	2	2	BRIDGE
100+26	SOPER STREET	-	1	2	ROAD CLOSED
112+00	SOPER STREET, RT	-	1	1	STOP AHEAD
115+94	SOPER STREET, LT	-	1	2	ROAD CLOSED TO THRU TRAFFIC
116+50	SOPER STREET, RT	2	-	-	STOP
	CTH C & 3RD STREET	2	-	-	STOP (FOR TEMP. WIDENING, NW QUAD)
TOTALS		4	10	14	

MARKING

STATION	TO	STATION	LOCATION	646.1020	REMARKS
				MARKING LINE EPOXY 4-INCH LF	
7+52	-	12+38	CTH C, LT & RT	972	WHITE EDGELINES
7+52	-	12+38	CTH C	972	DOUBLE YELLOW CENTERLINE
TOTAL				1,944	

TRAFFIC CONTROL

LOCATION	APPROX. SERVICE PERIOD	643.0300		643.0420		643.0705		643.0900		REMARKS
		TRAFFIC CONTROL DRUMS		TRAFFIC CONTROL BARRICADES TYPE III		TRAFFIC CONTROL WARNING LIGHTS TYPE A		TRAFFIC CONTROL SIGNS		
		NO. IN SERVICE	DAY	NO. IN SERVICE	DAY	NO. IN SERVICE	DAY	NO. IN SERVICE	DAY	
<u>TREE CLEARING PRIOR TO APRIL 1ST</u>										
SOPER STREET / 3RD STREET	5	-	-	4	20	8	40	4	20	SEE BARRICADES AND SIGNS FOR MAINLINE CLOSURES DETAIL C
SOPER STREET (WEST CLEARING LIMITS)	5	-	-	2	10	4	20	1	5	SEE BARRICADES AND SIGNS FOR MAINLINE CLOSURES DETAIL E
SOPER STREET (EAST CLEARING LIMITS)	5	-	-	2	10	4	20	1	5	SEE BARRICADES AND SIGNS FOR MAINLINE CLOSURES DETAIL E
SOPER STREET / CTH C	5	-	-	4	20	8	40	4	20	SEE BARRICADES AND SIGNS FOR MAINLINE CLOSURES DETAIL C
CTH C	5	20	100	-	-	-	-	5	25	SHOULDER CLOSURE
<u>SOPER STREET CONSTRUCTION</u>										
SOPER STREET / 3RD STREET	76	-	-	4	304	8	608	4	304	SEE BARRICADES AND SIGNS FOR MAINLINE CLOSURES DETAIL C
WEST BRIDGE OR PROJECT LIMITS	76	-	-	3	228	4	304	1	76	SEE BARRICADES AND SIGNS FOR MAINLINE CLOSURES DETAIL D
EAST BRIDGE OR PROJECT LIMITS	76	-	-	3	228	4	304	1	76	SEE BARRICADES AND SIGNS FOR MAINLINE CLOSURES DETAIL D
SOPER STREET / CTH C	76	-	-	4	304	8	608	4	304	SEE BARRICADES AND SIGNS FOR MAINLINE CLOSURES DETAIL C
<u>CTH C CONSRUCTION</u>										
BROADWAY ST / CTH C	75	-	-	1	75	2	150	1	75	SEE BARRICADES AND SIGNS FOR MAINLINE CLOSURES DETAIL A
CTH C / 3RD STREET	75	-	-	5	375	6	450	1	75	SEE BARRICADES AND SIGNS FOR MAINLINE CLOSURES DETAIL D
EAST BRIDGE LIMITS	75	-	-	5	375	6	450	1	75	SEE BARRICADES AND SIGNS FOR MAINLINE CLOSURES DETAIL D
CTH C / SOPER STREET	75	-	-	2	150	4	300	2	150	SEE BARRICADES AND SIGNS FOR MAINLINE CLOSURES DETAIL B
UNDISTRIBUTED	150	10	1,500	-	-	-	-	-	-	
TOTALS			1,600		2,099		3,294		1,210	

*ADDITIONAL QUANTITIES SHOWN ELSEWHERE

ALL ITEMS ARE CATEGORY 0010 UNLESS OTHERWISE STATED

PROJECT NO: 9330-01-70	HWY: CTH C	COUNTY: FOREST	MISCELLANEOUS QUANTITIES	SHEET:	E
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TRAFFIC CONTROL DETOUR SIGN SUMMARY

SIGN NO.	LOCATION	SIGN CODE	SIZE	APPROX. SERVICE PERIOD 75 DAYS	NUMBER IN SERVICE	* 643.0420 TRAFFIC CONTROL BARRICADES TYPE III DAYS	NUMBER IN SERVICE	* 643.0705 TRAFFIC CONTROL WARNING LIGHTS TYPE A	NUMBER IN SERVICE	* 643.0900 TRAFFIC CONTROL SIGNS	REMARKS
1	100' E. OF CTH C/STH 32 (RT)	M4-8	24"x12"	75					1	75	
	"	M3-2	24"x12"	75					1	75	EAST
	"	M1-5A	24"x24"	75					1	75	C
	"	M6-1L	21"x21"	75					1	75	
2	50' E. CTH C/BROADWAY ST (EB LANE)	M4-9L	30"x24"	75	1	75	2	150	1	75	
	"	R5-1	30"x30"	75					1	75	
3	50' E. CTH C/BROADWAY ST (LT)	R3-1	24"x24"	75					1	75	
4	50' W. BROADWAY ST/QUINLAN ST	R6-2R	24"x30"	75					1	75	
5	700' E. SOPER ST/3RD ST (RT)	W5-3	36"x36"	75					1	75	
6	950' E. SOPER ST/3RD ST (RT)	W3-1	36"x36"	75					1	75	
7	1200' E. SOPER ST/3RD ST (RT)	R1-1	30"x30"	75					1	75	
8	250' N. CTH C/SOPER ST (RT)	M4-8	24"x12"	75					1	75	
	"	M3-2	24"x12"	75					1	75	EAST
	"	M1-5A	24"x24"	75					1	75	C
	"	M5-1L	21"x21"	75					1	75	
9	50' W. CTH C/SOPER ST (RT)	M4-9R	30"x24"	75	2	150	4	300	1	75	
10	50' W. CTH C/SOPER ST (LT)	R11-3C	60"x24"	75	2	150	4	300	1	75	0.4
11	50' S. CTH C/SOPER ST	M4-8	24"x12"	75					1	75	
	"	M3-2	24"x12"	75					1	75	EAST
	"	M1-5A	24"x24"	75					1	75	C
	"	M6-1L	21"x21"	75					1	75	
12	50' E. CTH C/BROADWAY ST (WB RT)	R1-1	30"x30"	75					1	75	
13	50' W. CTH C/1ST ST (RT)	W3-1	36"x36"	75					1	75	
14	50' S. CTH C/1ST ST (RT)	R6-2R	24"x30"	75					1	75	
15	50' N. CTH C/1ST ST (RT)	R6-2L	24"x30"	75					1	75	
16	50' S. CTH C/2ND ST (RT)	R6-2R	24"x30"	75					1	75	
17	50' N. CTH C/2ND ST (RT)	R6-2R	24"x30"	75					1	75	
18	50' S. CTH C/3RD ST (RT)	R6-2R	24"x30"	75					1	75	
19	50' S. CTH C/3RD ST (LT)	M4-8	24"x12"	75					1	75	
	"	M3-4	24"x12"	75					1	75	WEST
	"	M1-5A	24"x24"	75					1	75	C
	"	M6-1R	21"x21"	75					1	75	
21	50' N. CTH C/3RD ST (RT)	R5-1	30"x30"	75					1	75	
	"	R6-1L	36"x12"	75					1	75	
	PAGE SUBTOTALS					375		750		2550	

ALL ITEMS ARE CATEGORY 0010 UNLESS OTHERWISE STATED

TRAFFIC CONTROL DETOUR SIGN SUMMARY CONTINUED

SIGN NO.	LOCATION	SIGN CODE	SIZE	APPROX. SERVICE PERIOD 75 DAYS	NUMBER IN SERVICE	* 643.0420 TRAFFIC CONTROL BARRICADES TYPE III DAYS	NUMBER IN SERVICE	* 643.0705 TRAFFIC CONTROL WARNING LIGHTS TYPE A	NUMBER IN SERVICE	* 643.0900 TRAFFIC CONTROL SIGNS	REMARKS
22	100' S. QUINLAN ST/3RD ST (RT)	M4-8	24"x12"	75					1	75	
	"	M3-4	24"x12"	75					1	75	WEST
	"	M1-5A	24"x24"	75					1	75	C
	"	M5-1R	21"x21"	75					1	75	
23	50' E. QUINLAN ST/3RD ST	R6-2R	24"x30"	75					1	75	
24	50' W. SOPER ST/3RD ST (LT)	R5-1	30"x30"	75					1	75	
	"	R6-1L	36"x12"	75					1	75	
25	50' W. SOPER ST/3RD ST (RT)	M4-8	24"x12"	75					1	75	
	"	M3-4	24"x12"	75					1	75	WEST
	"	M1-5A	24"x24"	75					1	75	C
	"	M6-1L	21"x21"	75					1	75	
26	400' E. SOPER ST/3RD ST (RT)	M4-8	24"x12"	75					1	75	
	"	M3-4	24"x12"	75					1	75	WEST
	"	M1-5A	24"x24"	75					1	75	C
	"	M5-1L	21"x21"	75					1	75	
27	1600' N. CTH C/SOPER ST (RT)	R1-1	30"x30"	75					1	75	
28	1350' N. CTH C/SOPER ST (RT)	W3-1	36"x36"	75					1	75	
29	1100' N. CTH C/SOPER ST (RT)	W5-3	36"x36"	75					1	75	
30	50' E. CTH C/SOPER ST (RT)	M4-8	24"x12"	75					1	75	
	"	M3-4	24"x12"	75					1	75	WEST
	"	M1-5A	24"x24"	75					1	75	C
	"	M6-1R	21"x21"	75					1	75	
31	450' E. CTH C/SOPER ST (RT)	W20-3D	48"x48"	75					1	75	
32	900' E. CTH C/SOPER ST (RT)	M4-8	24"x12"	75					1	75	
	"	M3-4	24"x12"	75					1	75	WEST
	"	M1-5A	24"x24"	75					1	75	C
	"	M5-1R	21"x21"	75					1	75	
33	1350' E. CTH C/SOPER ST (RT)	W20-2A	48"x48"	75					1	75	
34	1800' E. CTH C/SOPER ST (RT)	W20-3A	48"x48"	75					1	75	
	PAGE SUBTOTALS					0		0		2175	

TOTALS

375

750

4,725

NOTES:
* ADDITIONAL QUANTITIES SHOWN ELSEWHERE

ALL ITEMS ARE CATEGORY 0010 UNLESS OTHERWISE STATED

CONSTRUCTION STAKING												
CATEGORY	STATION	TO	STATION	LOCATION	650.4500	650.5000	650.5500	650.6000	650.6501.01	650.6501.02	650.9911.01	650.9920
					CONSTRUCTION		CONSTRUCTION	CONSTRUCTION	CONSTRUCTION	CONSTRUCTION	CONSTRUCTION	CONSTRUCTION
					STAKING	CONSTRUCTION	STAKING CURB	STAKING PIPE	STAKING	STAKING	STAKING	CONSTRUCTION
					SUBGRADE	STAKING BASE	GUTTER AND	CULVERTS	STRUCTURE	STRUCTURE	SUPPLEMENTAL	CONSTRUCTION
					LF	LF	CURB & GUTTER	EACH	LAYOUT	LAYOUT	CONTROL	STAKING SLOPE
									(B-21-33)	(B-21-34)	(9330-01-70)	STAKES
					LF	LF			EACH	EACH	EACH	LF
0010	6+89	-	9+55	CTH C, LT & RT	266	266	-	-	-	-	-	266
0010	10+37	-	13+08	CTH C, LT & RT	271	271	80	-	-	-	-	271
0010	88+25	-	99+67	SOPER ST, LT & RT	1,142	1,142	-	-	-	-	-	1,142
0010	100+33	-	116+79	SOPER ST, LT & RT	1,646	1,646	-	-	-	-	-	1,646
0010		107+05		SOPER ST, LT & RT	-	-	-	1	-	-	-	-
				PROJECT	-	-	-	-	-	-	1	-
TOTALS 0010					3,325	3,325	80	1	0	0	1	3,325
0020		9+96		B-21-34	-	-	-	-	-	1	-	-
TOTALS 0020					0	0	0	0	0	1	0	0
0030		100+00		B-21-33	-	-	-	-	1	-	-	-
TOTALS 0030					0	0	0	0	1	0	0	0
PROJECT TOTALS					3,325	3,325	80	1	1	1	1	3,325

SAWING		
STATION	LOCATION	690.0150
		SAWING
		ASPHALT
7+52	CTH C	23
12+38	CTH C	23
TOTAL		46

BIRD DETERRENT

		999.2000.S.01
		INSTALLING AND MAINTAINING BIRD DETERRENT SYSTEM (100+00)
STATION	LOCATION	EACH
100+00	SOPER STREET	1
TOTAL		1

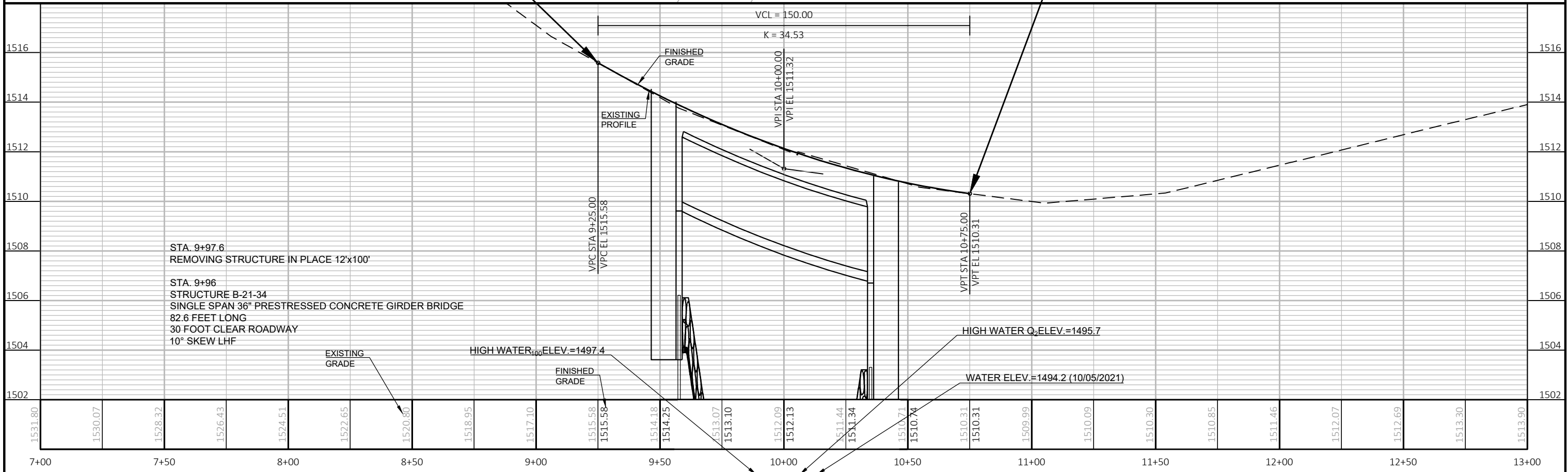
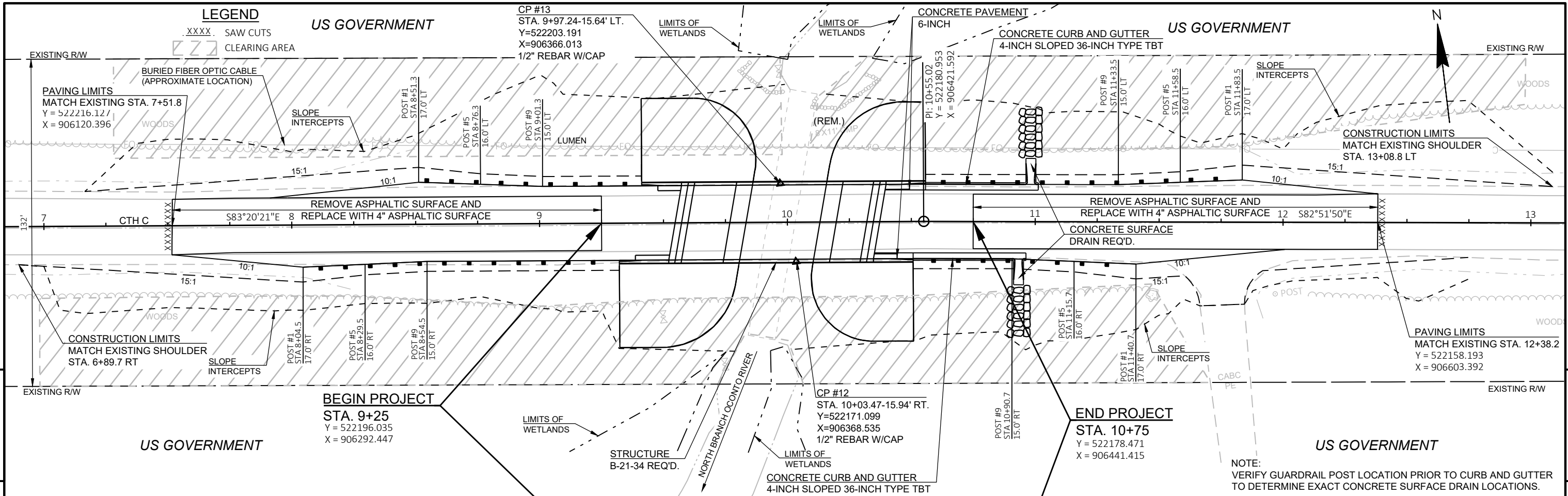
STREAM HABITAT BOULDERS			
		SPV.0060.01	
		STREAM HABITAT BOULDERS	
CATEGORY	LOCATION	EACH	REMARKS
0020	CTH CE	9	NORTH BRANCH OCONTO RIVER - SEE CONST. DETAIL
	TOTAL	9	

TEMPORARY WATER DIVERSION				
CATEGORY	STATION	LOCATION	SPV.0060.02	REMARKS
			TEMPORARY	
			WATER	
			DIVERSION	
			EACH	
0020	10+00	CTH C	1	NORTH BRANCH OCONTO RIVER
TOTAL			1	

MAINTAINING DETOUR ROUTE

				SPV.0060.03
				MAINTAINING
				DETOUR ROUTE
STATION	TO	STATION	LOCATION	EACH
88+24	-	116+78	SOPER STREET	1
TOTAL				1

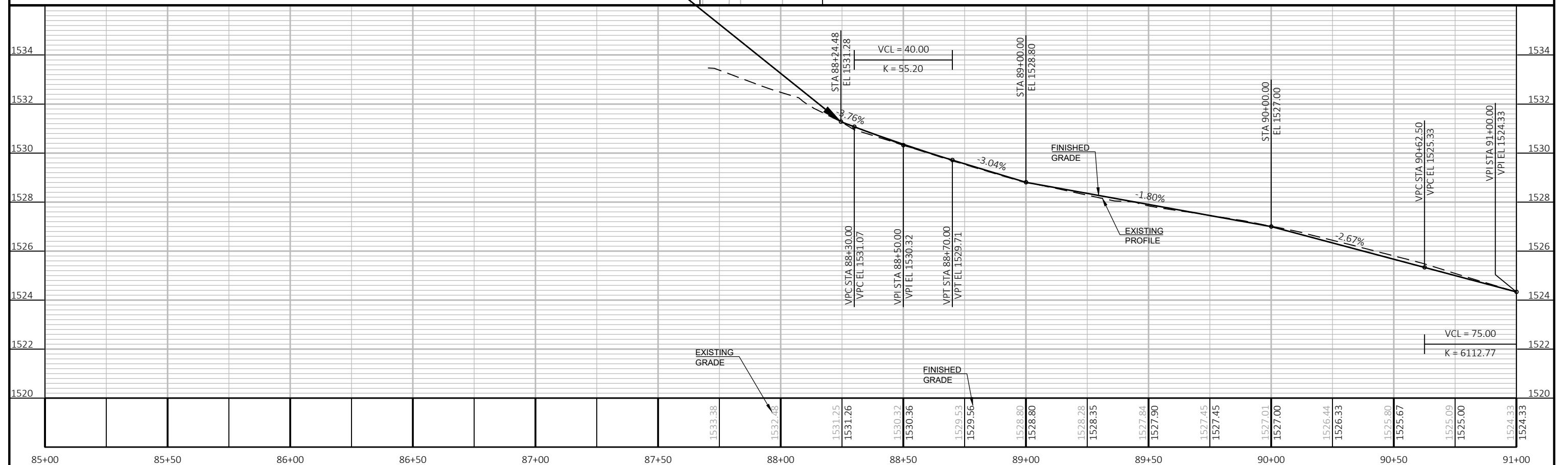
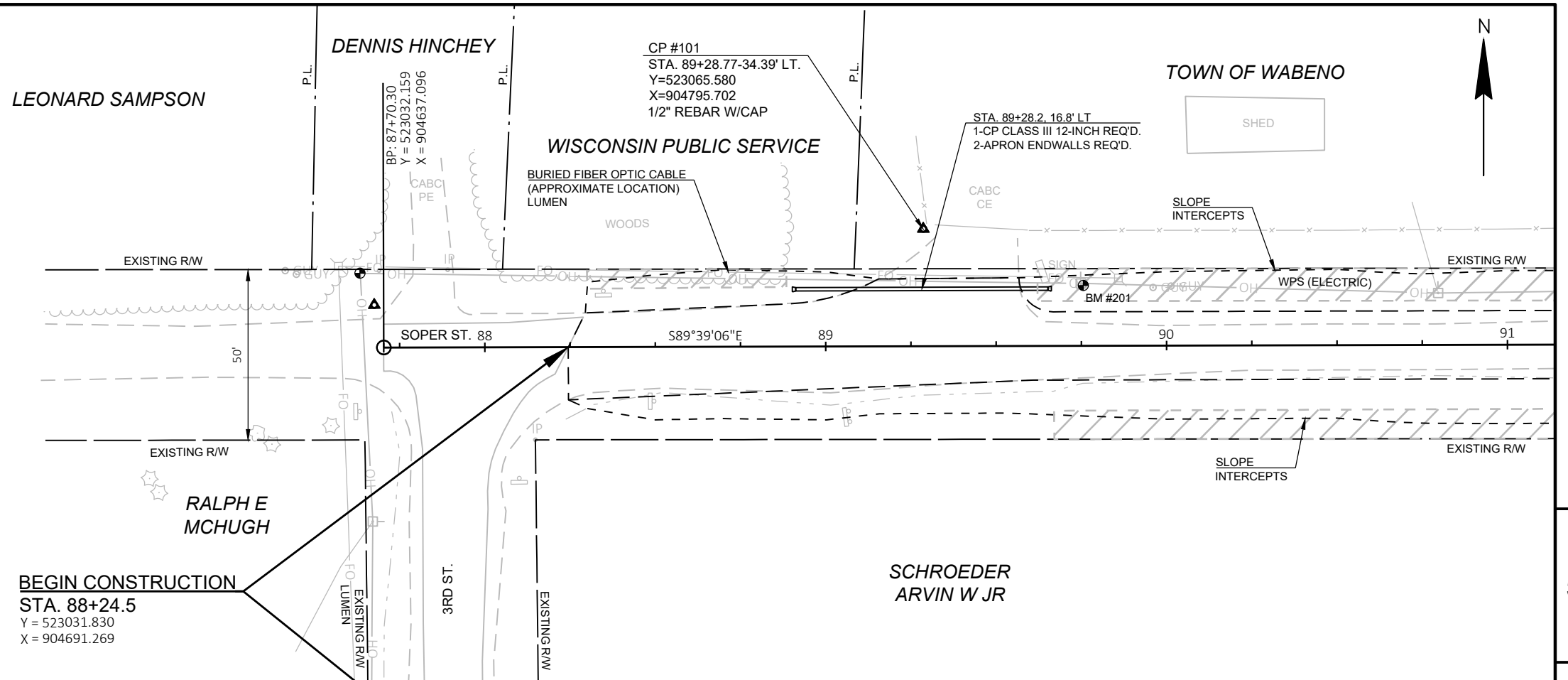
ALL ITEMS ARE CATEGORY 0010 UNLESS OTHERWISE STATED



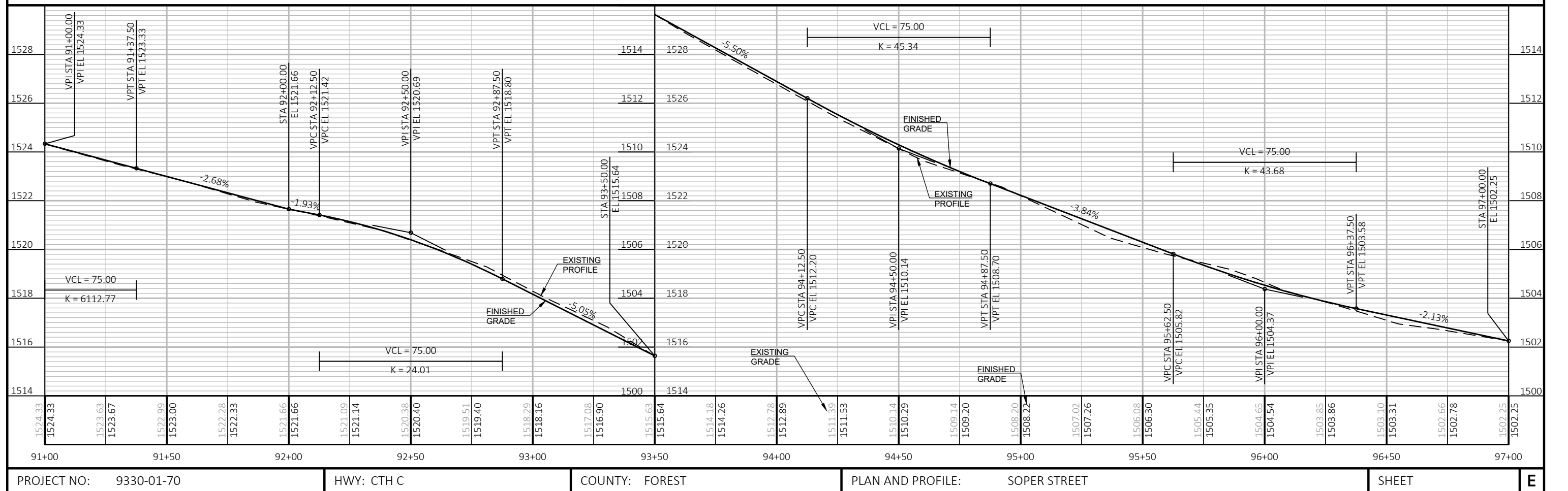
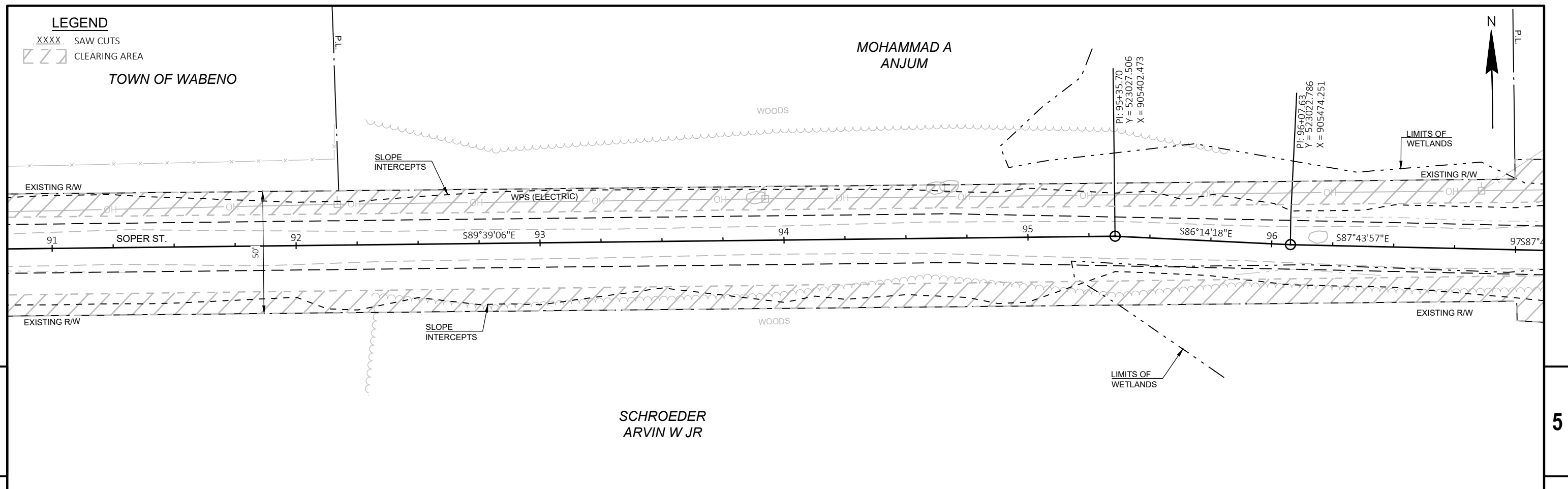
PROJECT NO: 9330-01-70	HWY: CTH C	COUNTY: FOREST	PLAN AND PROFILE: CTH C	SHEET E
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.XXXX. SAW CUTS
CLEARING AREA

BENCH MARKS			
NO.	STATION	DESCRIPTION	ELEV.
201	89+76	NAIL IN PPOL #3415 9L18 - 18' LT	1529.16

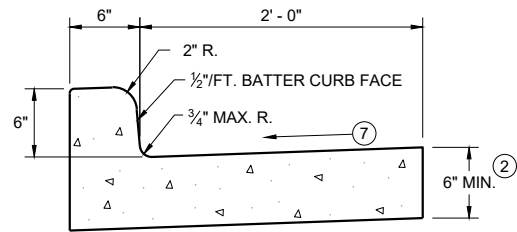


3

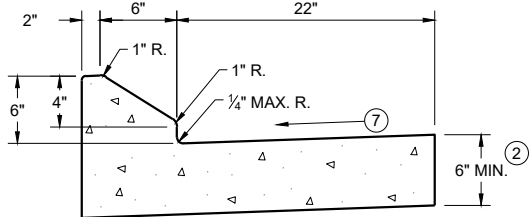


Standard Detail Drawing List

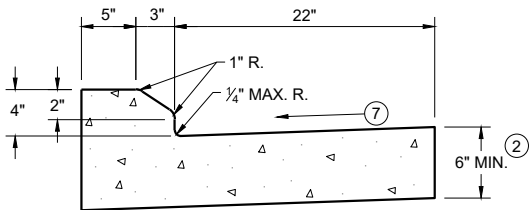
08D01-23A	CONCRETE CURB & GUTTER
08D01-23B	CONCRETE CURB, TIES AND CURB AND GUTTER APPLICATIONS
08D02-08A	CONCRETE SURFACE DRAINS FLUME TYPE AT STRUCTURES
08D02-08B	CONCRETE SURFACE DRAINS FLUME TYPE AT STRUCTURES
08D02-08C	CONCRETE SURFACE DRAINS FLUME TYPE AT STRUCTURES
08D04-07	CONCRETE SURFACE DRAINS & ASPHALTIC FLUMES
08D21-01	DRIVEWAYS WITHOUT CURB & GUTTER
08E08-03	TYPICAL INSTALLATIONS OF EROSION BALES / TEMPORARY DITCH CHECKS
08E09-06	SILT FENCE
08E11-02	TURBIDITY BARRIER
08E15-01	CULVERT PIPE CHECK
08F01-11	APRON ENDWALLS FOR CULVERT PIPE
08F04-08	JOINT TIES FOR CONCRETE PIPE AND CONCRETE COLLAR DETAIL
12A03-10	NAME PLATE (STRUCTURES)
13C19-03	HMA LONGITUDINAL JOINTS
14B42-07A	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-07B	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-07C	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-07D	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B44-04A	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B44-04B	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B44-04C	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B45-05A	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05B	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05C	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05D	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05H	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
15C02-09A	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C02-09B	BARRICADES AND SIGNS FOR VARIOUS CLOSURES
15C02-09C	DETOUR SIGNING FOR MAINLINE CLOSURES
15C06-12	SIGNING & MARKING FOR TWO LANE BRIDGES
15C08-23A	PERMANENT LONGITUDINAL PAVEMENT MARKINGS
15C11-10B	CHANNELIZING DEVICES DRUMS, CONES, BARRICADES AND VERTICAL PANELS



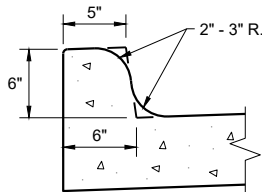
TYPES A^① & D



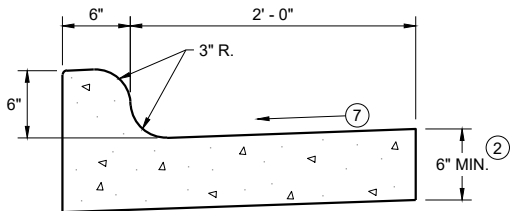
6" SLOPED CURB TYPES G^① & J



4" SLOPED CURB TYPES G^① & J

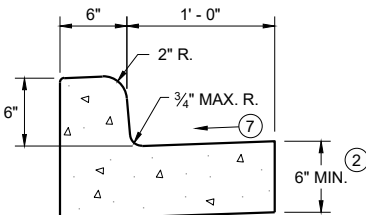


TYPES K^① & L
(OPTIONAL CURB SHAPE)



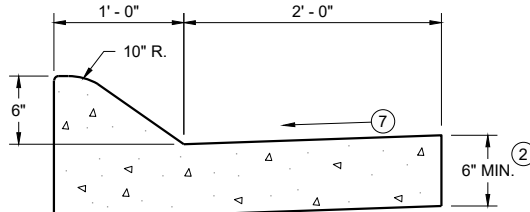
TYPES K^① & L

CONCRETE CURB AND GUTTER 30"

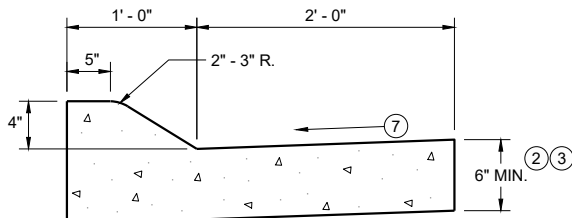


TYPES A^① & D

CONCRETE CURB AND GUTTER 18"

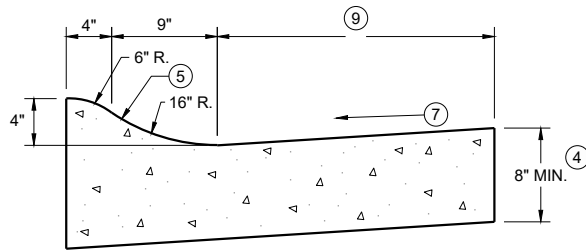


6" SLOPED CURB TYPES A^① & D



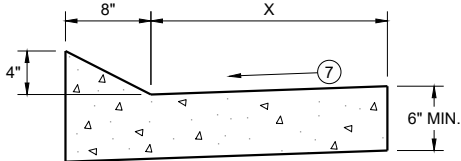
4" SLOPED CURB TYPES A^① & D

CONCRETE CURB AND GUTTER 36"



4" SLOPED CURB TYPES R^① & T

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

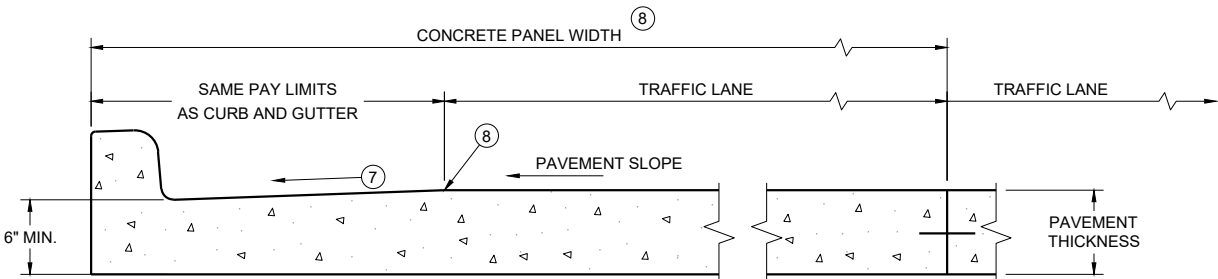


TYPES TBT & TBTT^①

CONCRETE CURB AND GUTTER

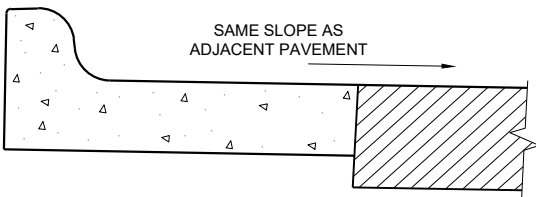
PAVEMENT THICKNESS
AND MAXIMUM CONCRETE
PANEL WIDTH TABLE

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)

CONCRETE CURB AND GUTTER

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

GENERAL NOTES

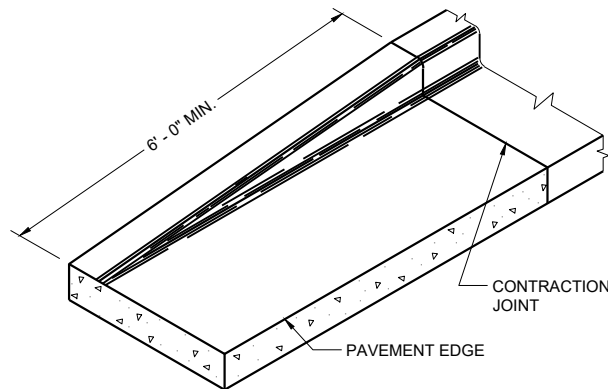
DETAILS OF CONSTRUCTION AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE CONTRACT.

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

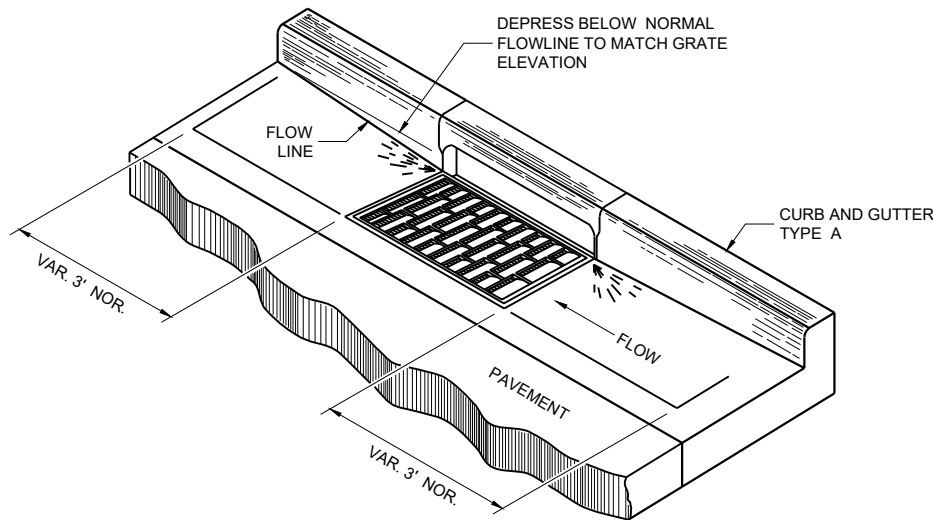
INTEGRAL CURB AND GUTTER SHALL CONFORM TO THE DETAILS SHOWN FOR CONCRETE CURB AND GUTTER INCLUDING THE TRANSVERSE GUTTER SLOPE.

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

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

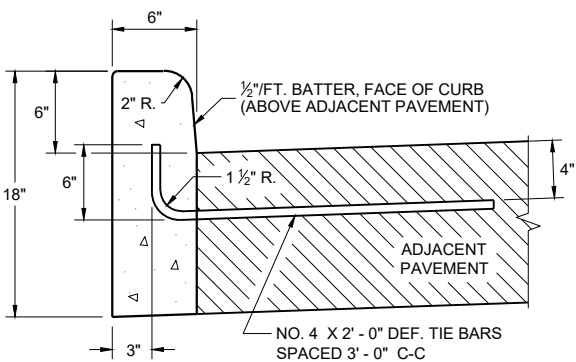


END SECTION CURB AND GUTTER

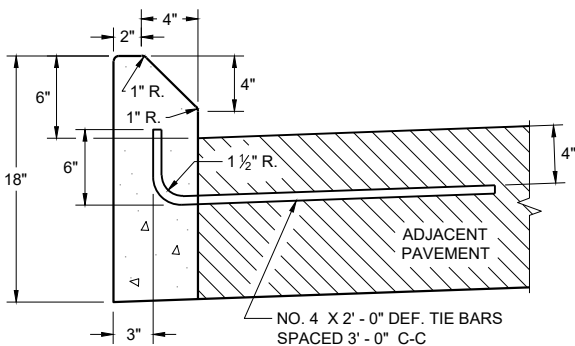


DETAIL OF CURB AND GUTTER AT INLETS

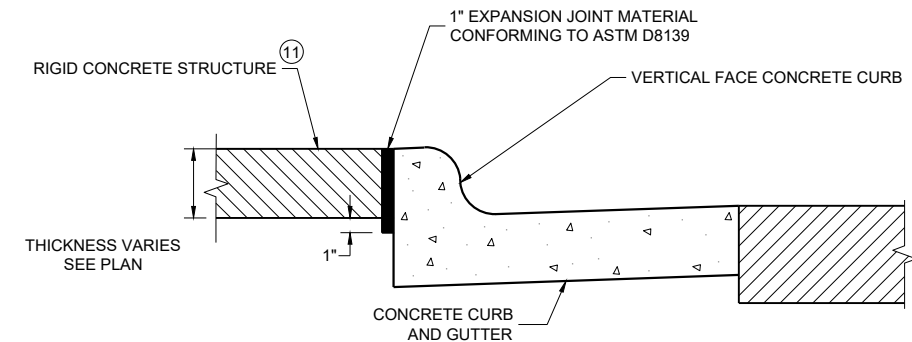
(TYPICAL H INLET COVER SHOWN)



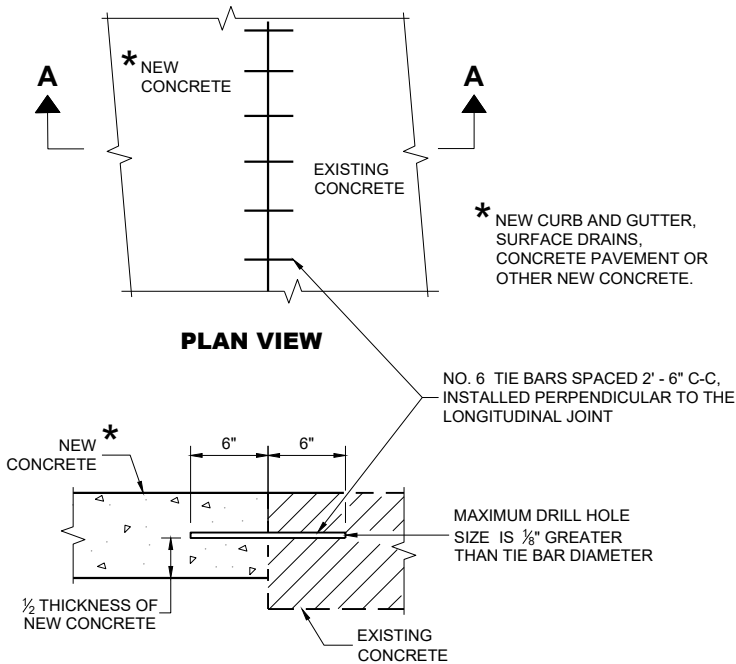
TYPES A^① & D



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

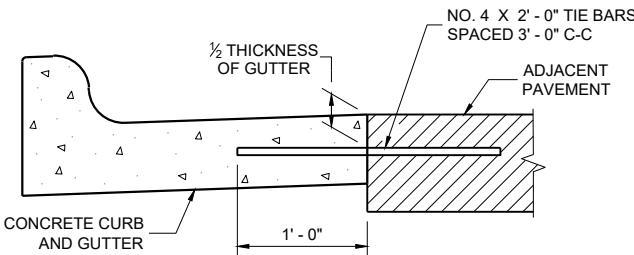
GENERAL NOTES

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

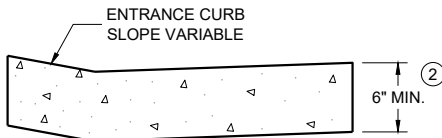
PAVEMENT TIES AND TIE BARS SHALL BE EPOXY COATED IN CONFORMANCE WITH SUBSECTION 505.2.6.2 OF THE STANDARD SPECIFICATIONS.

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

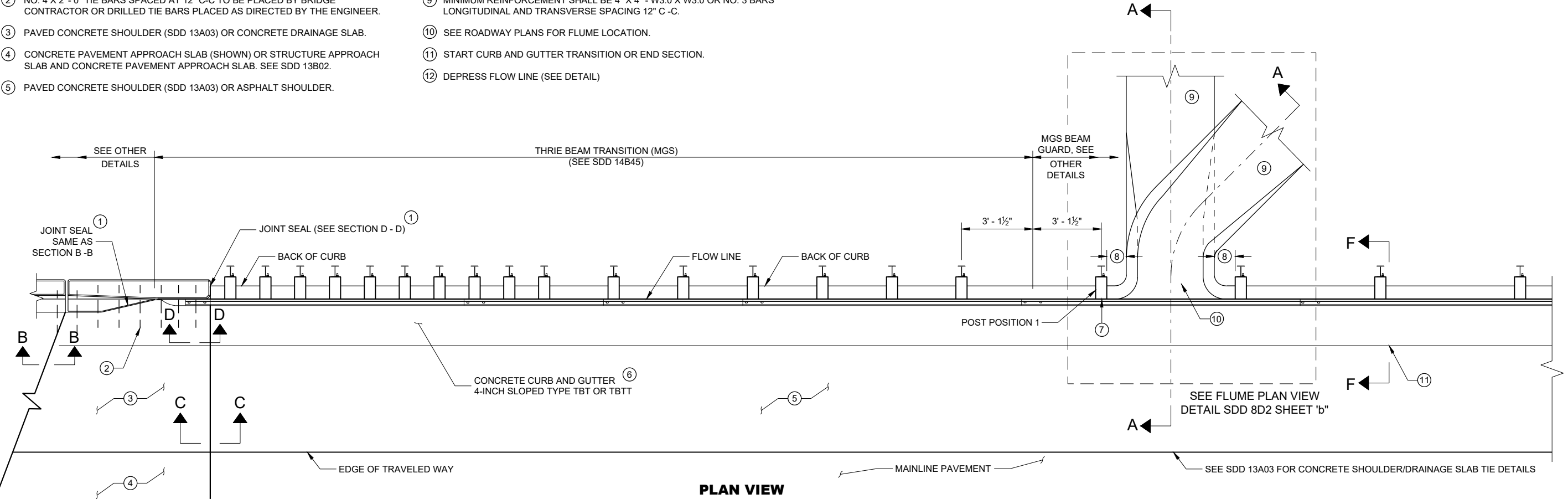
GENERAL NOTES

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.

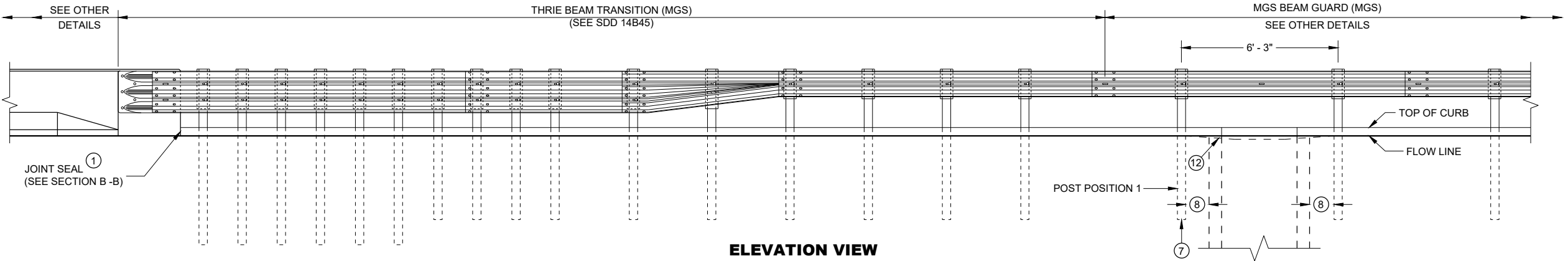
ALL STEEL REINFORCEMENT SHALL BE EMBEDDED 2 INCHES CLEAR UNLESS OTHERWISE SHOWN OR NOTED.

- 1 USE A JOINT SEALANT CONFORMING TO STANDARD SPECIFICATION 415.2.6.
- 2 NO. 4 X 2' - 0" TIE BARS SPACED AT 12" C-C TO BE PLACED BY BRIDGE CONTRACTOR OR DRILLED TIE BARS PLACED AS DIRECTED BY THE ENGINEER.
- 3 PAVED CONCRETE SHOULDER (SDD 13A03) OR CONCRETE DRAINAGE SLAB.
- 4 CONCRETE PAVEMENT APPROACH SLAB (SHOWN) OR STRUCTURE APPROACH SLAB AND CONCRETE PAVEMENT APPROACH SLAB. SEE SDD 13B02.
- 5 PAVED CONCRETE SHOULDER (SDD 13A03) OR ASPHALT SHOULDER.

- 6 CONCRETE CURB AND GUTTER 4-INCH SLOPED 36-INCH TYPE TBT OR TBTT. USE TYPE TBTT CURB WITH NO. 4 X 2' - 0" TIE BARS SPACED AT 3' - 0" C-C ONLY WHEN ADJACENT TO CONCRETE PAVEMENTS.
- 7 PLACE FLUME BEFORE MSG THRIE BEAM TRANSITION POST 1 (SEE SDD 14B45)
- 8 CENTER FLUME BETWEEN POSTS. 6-INCH MINIMUM SEPARATION FROM OUTSIDE EDGE OF FLUME TO POSTS.
- 9 MINIMUM REINFORCEMENT SHALL BE 4" X 4" - W3.0 X W3.0 OR NO. 3 BARS LONGITUDINAL AND TRANSVERSE SPACING 12" C-C.
- 10 SEE ROADWAY PLANS FOR FLUME LOCATION.
- 11 START CURB AND GUTTER TRANSITION OR END SECTION.
- 12 DEPRESS FLOW LINE (SEE DETAIL)



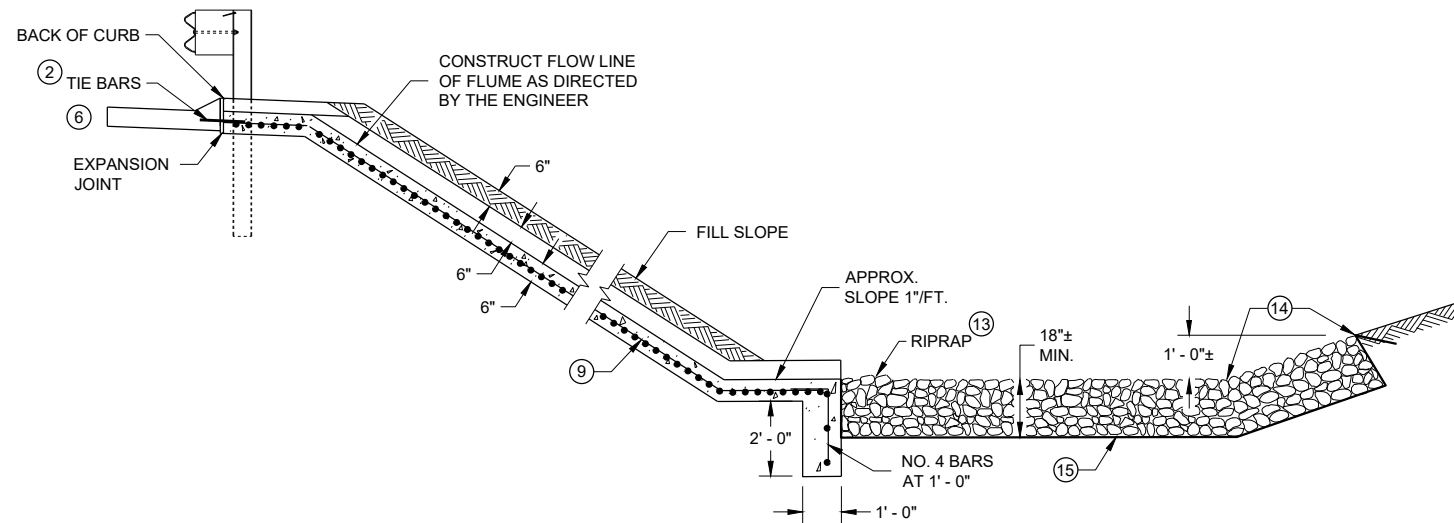
PLAN VIEW



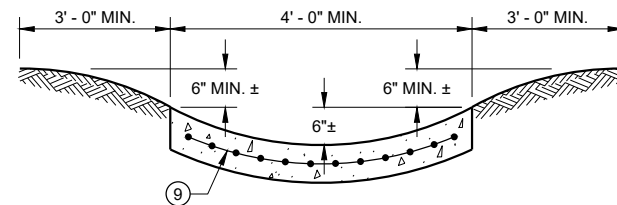
ELEVATION VIEW

CONCRETE SURFACE
DRAINS FLUME TYPE
AT STRUCTURES

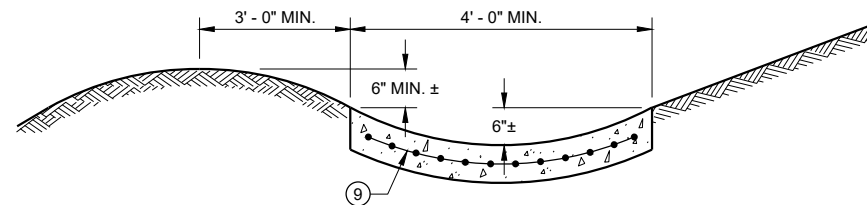
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



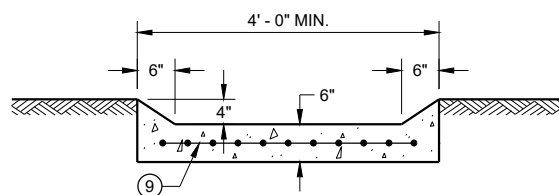
SECTION A - A



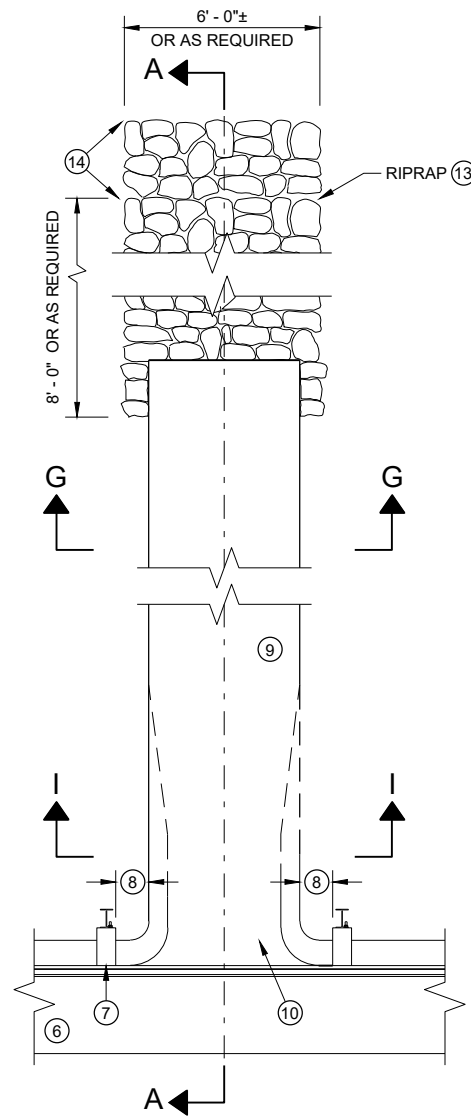
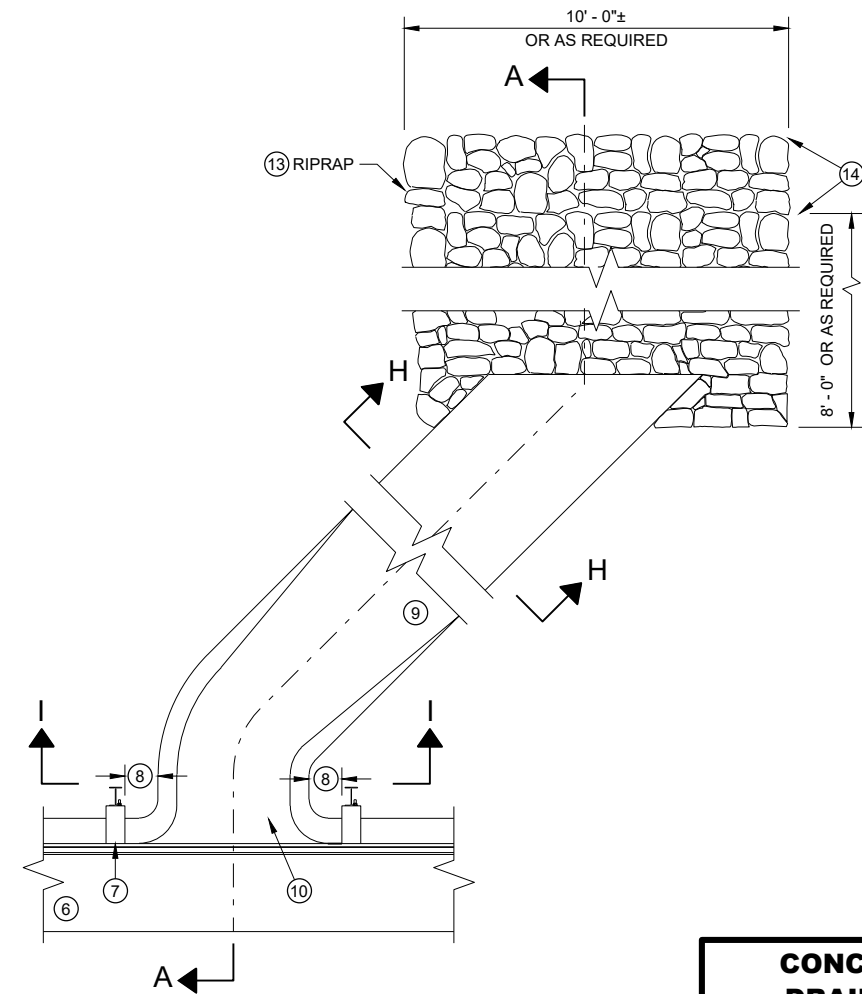
SECTION G - G



SECTION H - H



SECTION I - I

PLAN VIEW
PERPENDICULAR FLUMEPLAN VIEW
SKEWED FLUME**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.

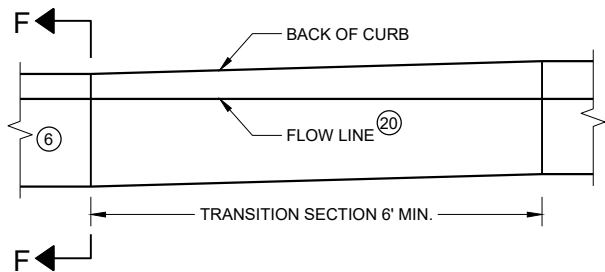
ALL STEEL REINFORCEMENT SHALL BE EMBEDDED 2 INCHES CLEAR UNLESS OTHERWISE SHOWN OR NOTED.

- ① USE A JOINT SEALANT CONFORMING TO STANDARD SPECIFICATION 415.2.6.
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- ⑤ PAVED CONCRETE SHOULDER (SDD 13A03) OR ASPHALT SHOULDER.
- ⑥ CONCRETE CURB AND GUTTER 4-INCH SLOPED 36-INCH TYPE TBT OR TBT. USE TYPE TBT CURB WITH NO. 4 X 2' - 0" TIE BARS SPACED AT 3' - 0" C-C ONLY WHEN ADJACENT TO CONCRETE PAVEMENTS.

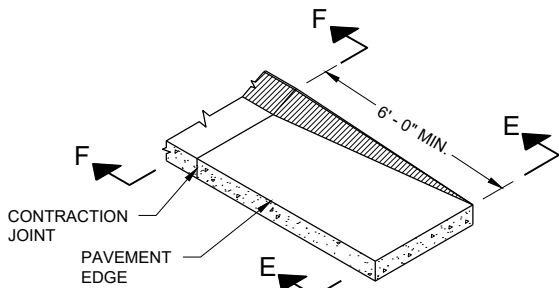
- ⑦ PLACE FLUME BEFORE MSG THRIE BEAM TRANSITION POST 1 (SEE SDD 14B45)
- ⑧ CENTER FLUME BETWEEN POSTS. 6-INCH MINIMUM SEPARATION FROM OUTSIDE EDGE OF FLUME TO POSTS.
- ⑨ MINIMUM REINFORCEMENT SHALL BE 4" X 4" - W3.0 X W3.0 OR NO. 3 BARS LONGITUDINAL AND TRANSVERSE SPACING 12" C - C.
- ⑩ SEE ROADWAY PLANS FOR FLUME LOCATION.
- ⑪ START CURB AND GUTTER TRANSITION OR END SECTION.
- ⑫ DEPRESS FLOW LINE (SEE DETAIL)
- ⑬ MEDIUM RIPRAP UNLESS OTHERWISE SPECIFIED.
- ⑭ LIMITS OF ADDITIONAL RIPRAP WHEN SPECIAL DITCH AS REQUIRED.
- ⑮ GEOTEXTILE TYPE HR.

**CONCRETE SURFACE
DRAINS FLUME TYPE
AT STRUCTURES**

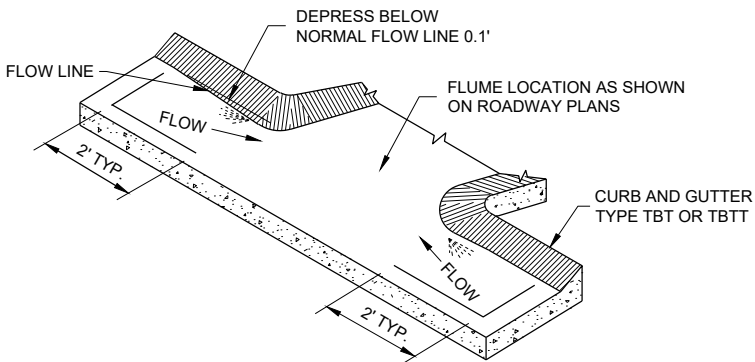
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



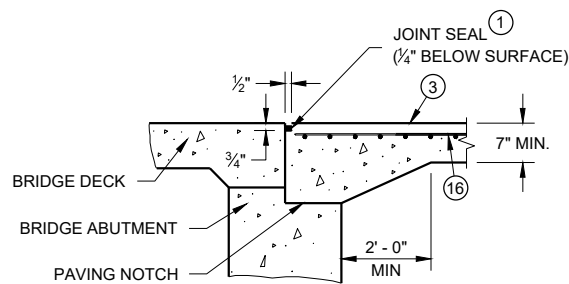
**CURB AND GUTTER TRANSITION SECTION
CONCRETE CURB AND GUTTER 4-INCH SLOPED
36 INCH TYPE TBT OR TBTT**



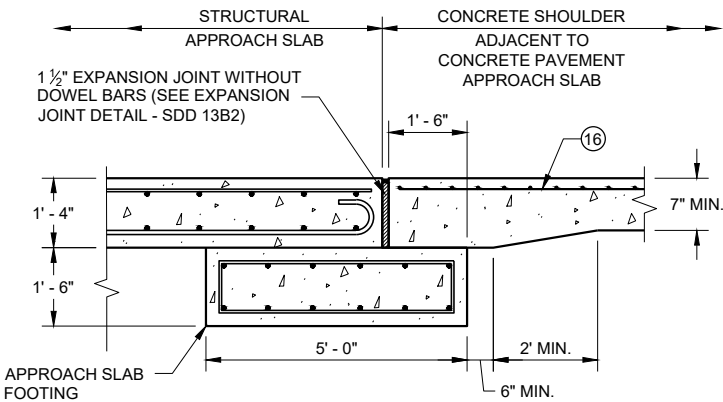
**CURB AND GUTTER END SECTION
CONCRETE CURB AND GUTTER 4-INCH SLOPED
36 INCH TYPE TBT OR TBTT**



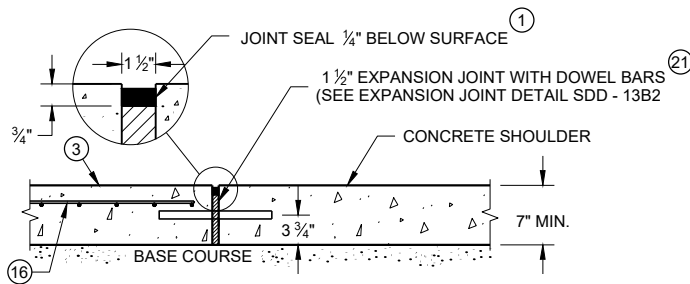
**CURB AND GUTTER FLOW LINE DEPRESSION
AT FLUMES CONCRETE CURB AND GUTTER
4-INCH SLOPED 36 INCH TYPE TBT OR TBTT**



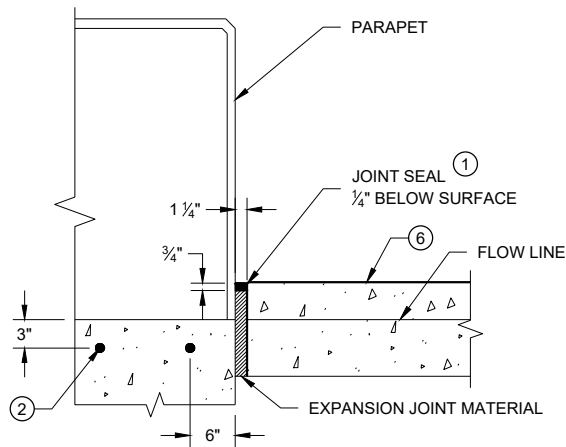
SECTION B-B



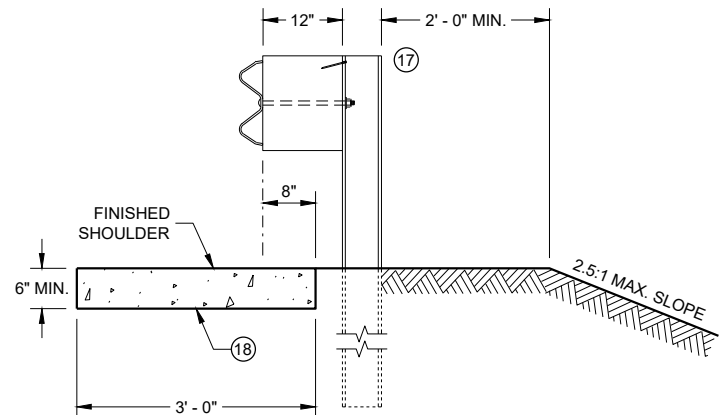
**SECTION C - C
JOINT DETAIL FOR BRIDGE WITH STRUCTURAL
APPROACH SLAB AND CONCRETE APPROACH SLAB**



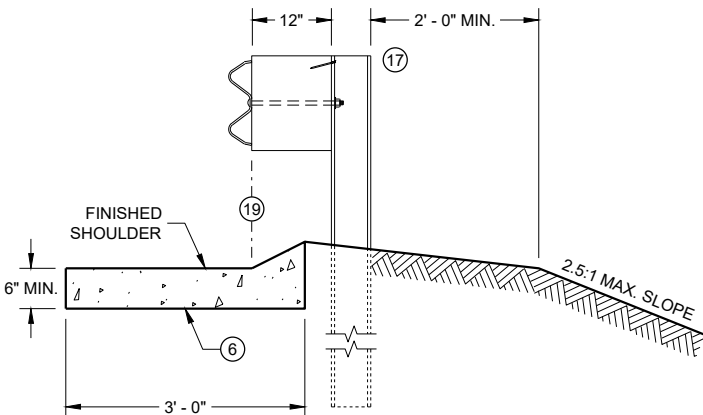
**SECTION C - C
JOINT DETAIL FOR BRIDGE APPROACH
WITH CONCRETE SHOULDERS**



SECTION D - D



SECTION E - E



SECTION F - F

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.

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

- USE A JOINT SEALANT CONFORMING TO STANDARD SPECIFICATION 415.2.6.
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- CONCRETE PAVEMENT APPROACH SLAB (SHOWN) OR STRUCTURE APPROACH SLAB AND CONCRETE PAVEMENT APPROACH SLAB. SEE SDD 13B02 AND STRUCTURE PLANS.
- PAVED CONCRETE SHOULDER (SDD 13A03) OR ASPHALT SHOULDER.
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- PLACE FLUME BEFORE MSG THRIE BEAM TRANSITION POST 1 (SEE SDD 14B45)
- CENTER FLUME BETWEEN POSTS. 6-INCH MINIMUM SEPARATION FROM OUTSIDE EDGE OF FLUME TO POSTS.
- MINIMUM REINFORCEMENT SHALL BE 4" X 4" - W3.0 X W3.0 OR NO. 3 BARS LONGITUDINAL AND TRANSVERSE SPACING 12" C - C.
- SEE ROADWAY PLANS FOR FLUME LOCATION.
- START CURB AND GUTTER TRANSITION OR END SECTION.
- DEPRESS FLOW LINE (SEE DETAIL)
- MEDIUM RIPRAP UNLESS OTHERWISE SPECIFIED.
- LIMITS OF ADDITIONAL RIPRAP WHEN SPECIAL DITCH IS REQUIRED.
- GEOTEXTILE TYPE HR.
- MINIMUM REINFORCEMENT SHALL BE 6" X 6" - W4.0 X W4.0 OR NO. 3 BARS LONGITUDINAL AND TRANSVERSE SPACING 12" C - C.
- MSG THRIE BEAM TRANSITION POST 1. SEE SDD 14B45 FOR ADDITIONAL CONSTRUCTION DETAILS AND ACCEPTABLE MATERIALS.
- MAINTAIN WIDTH, THICKNESS AND CROSS SLOPE OF ADJACENT TYPE TBT OR TBTT CURB. SEE NOTE 6 FOR TIE BAR SPACING.
- ALIGN FACE OF POST BLOCK WITH FLOW LINE.
- MAINTAIN FLOW LINE AT EDGE OF PAVEMENT/FACE OF BEAM GUARD AS APPLICABLE.
- DO NOT CONSTRUCT AN EXPANSION JOINT OR INSTALL DOWEL BARS WHEN ABUTTING HMA PAVEMENTS.

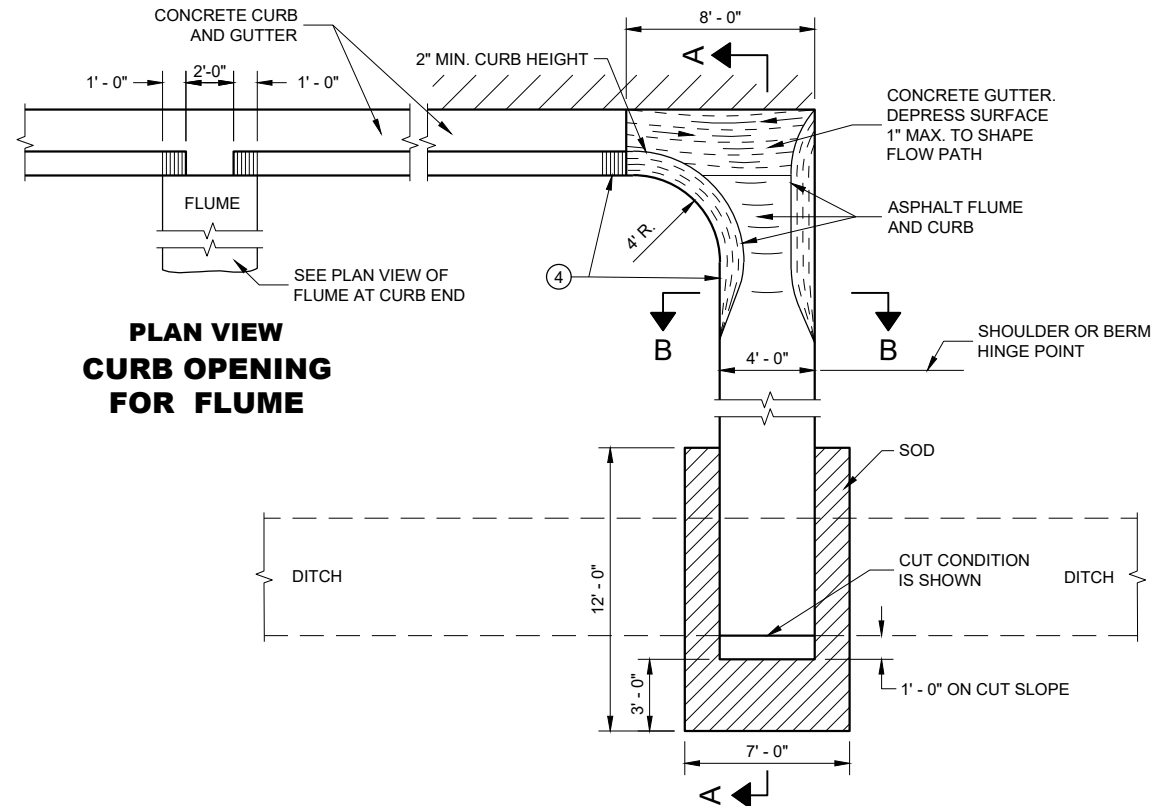
CONCRETE SURFACE DRAINS FLUME TYPE AT STRUCTURES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

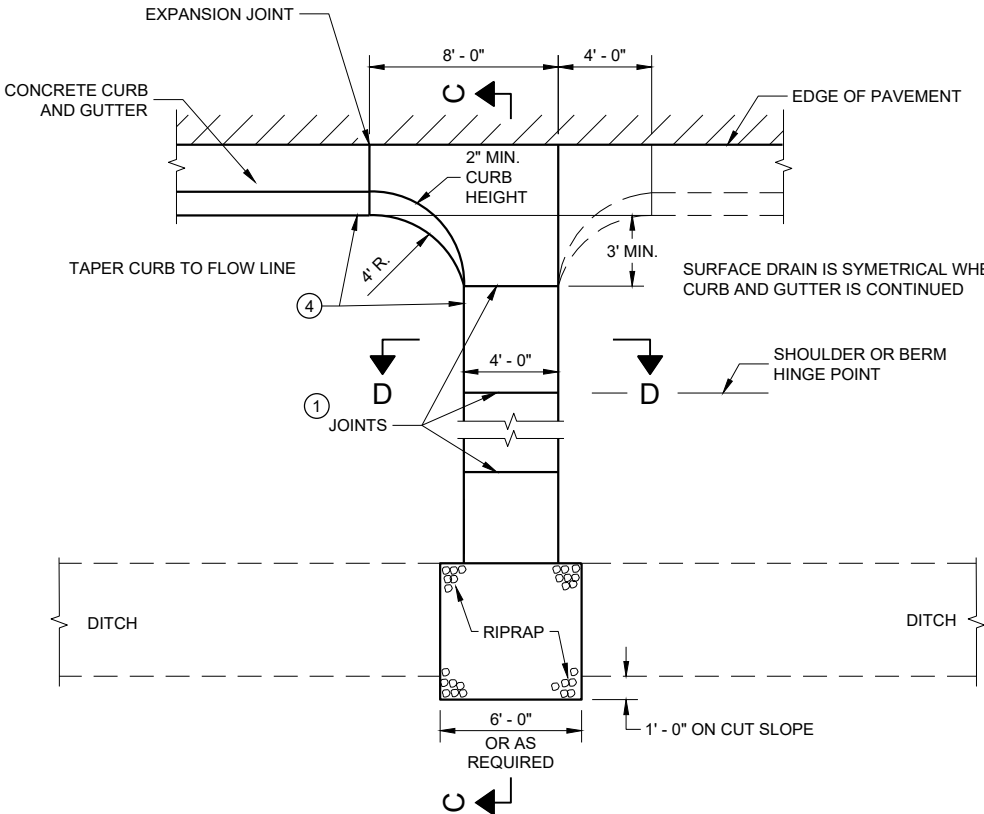
NOTE: TAPER CURB ENDS TO GUTTER IN 1' - 0"

ASPHALTIC FLUME



PLAN VIEW
CURB OPENING
FOR FLUME

PLAN VIEW
FLUME AT CURB END



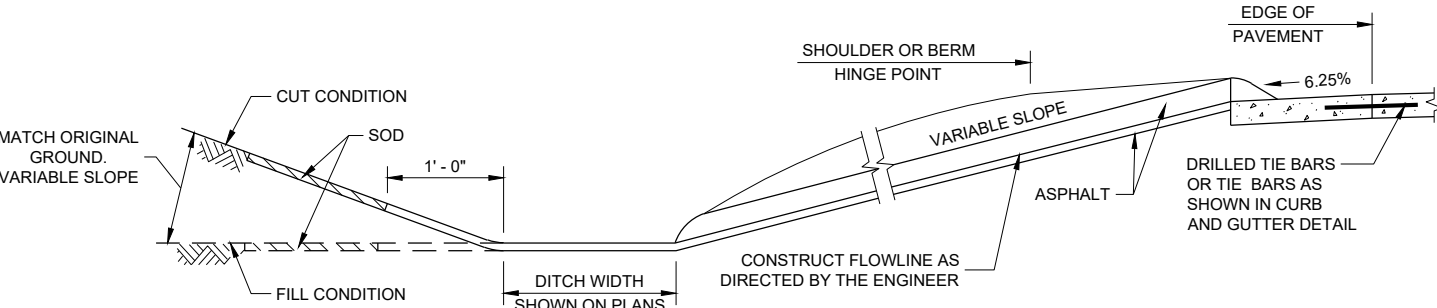
PLAN VIEW
CONCRETE SURFACE DRAIN

GENERAL NOTES

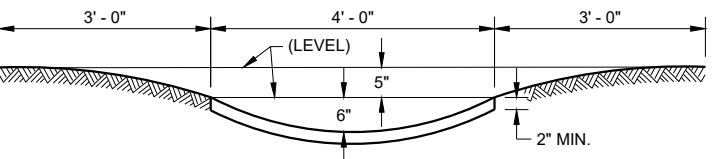
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.

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

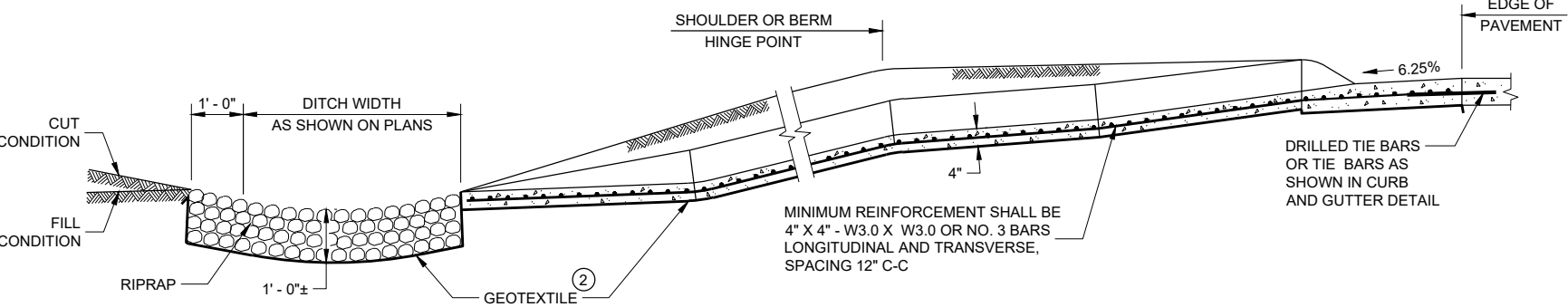
- ① JOINTS SHALL BE 1/8" TO 1/4" WIDE BY 1 1/2" DEEP AND SPACED AT UNIFORM INTERVALS OF APPROXIMATELY 4 FEET.
- ② GEOTEXTILE TYPE "R" SHALL UNDERLAY THE FULL LENGTH AND WIDTH OF THE CONCRETE SURFACE DRAIN AND RIPRAP.
- ③ CONCRETE SURFACE DRAIN WITHOUT CURB AND GUTTER MAY BE USED ON BACKSLOPES WHEN SPECIFIED.
- 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.



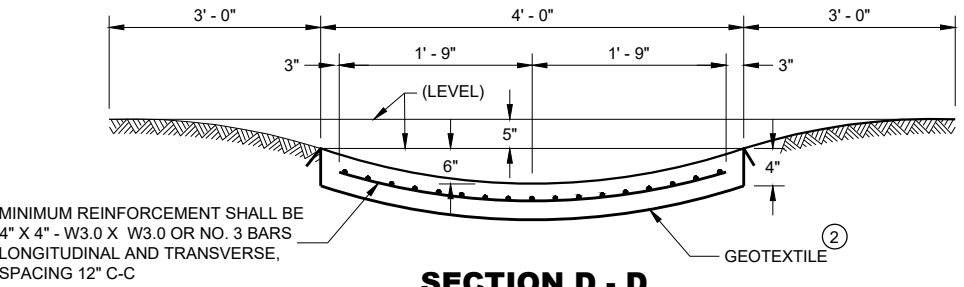
SECTION A - A



SECTION B - B



SECTION C - C

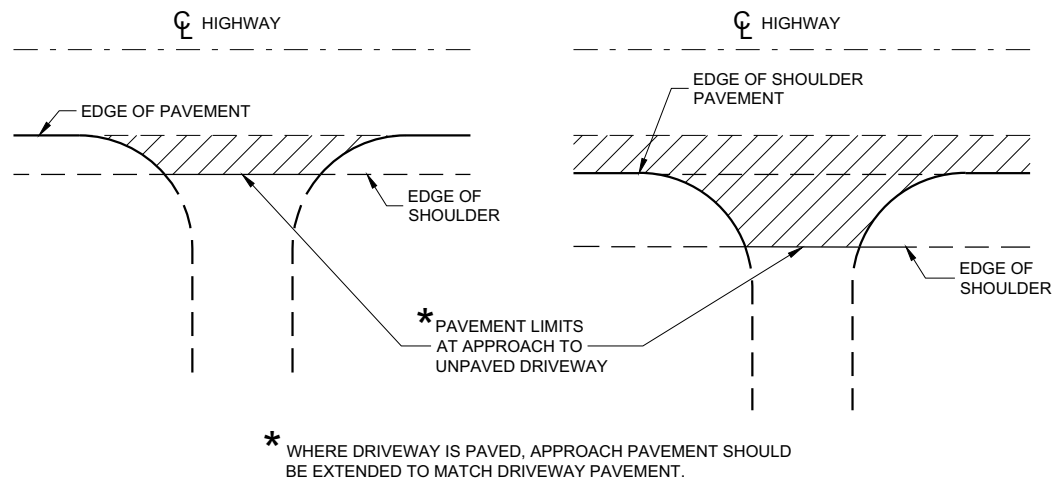


SECTION D - D

CONCRETE SURFACE
DRAINS AND
ASPHALTIC FLUMES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

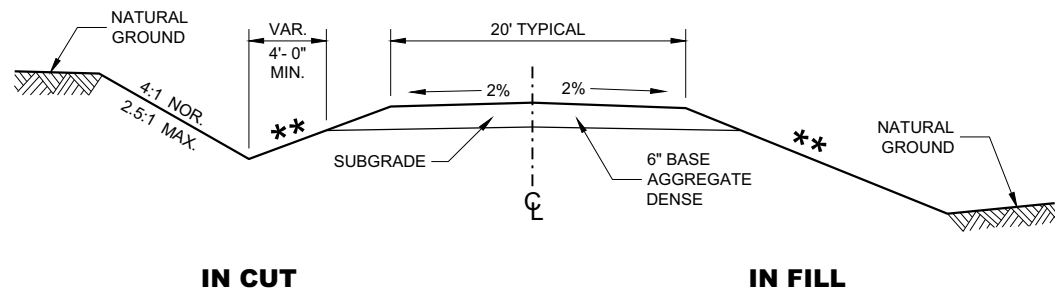
APPROVED
May 2023
DATE
/S/ Rodney Taylor
ROADWAY STANDARDS DEVELOPMENT
ENGINEER
FHWA



PLAN VIEW
(UNPAVED SHOULDER ON HIGHWAY)

PLAN VIEW
(PAVED SHOULDER ON HIGHWAY)

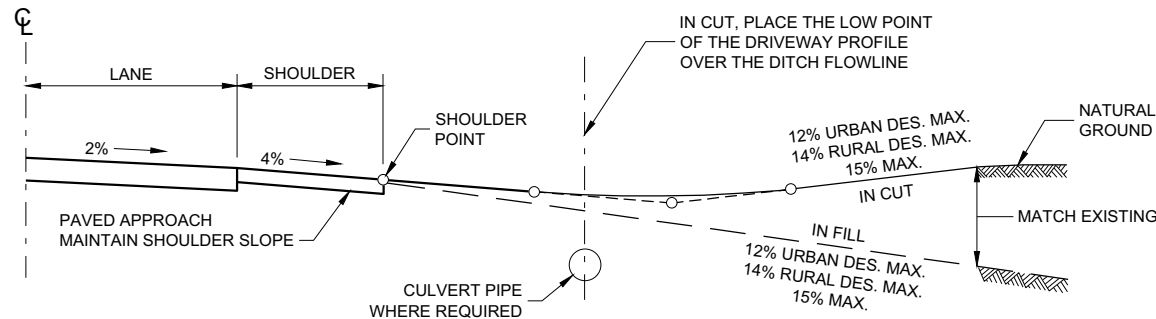
**RURAL DRIVEWAY INTERSECTION DETAIL
(NO CURB AND GUTTER OR SIDEWALK)**



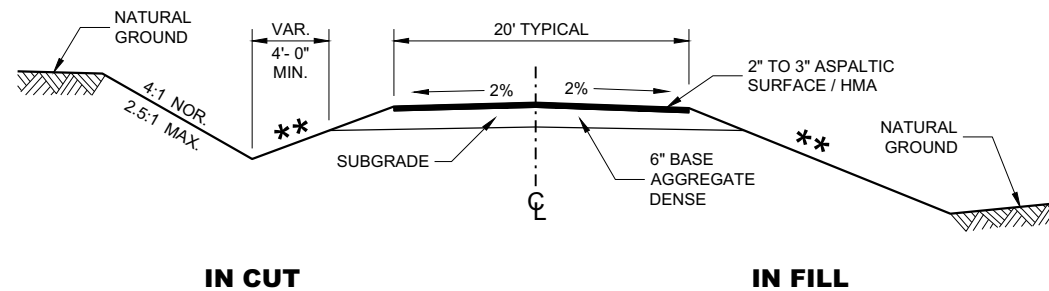
**TYPICAL CROSS SECTION FOR
PRIVATE DRIVE OR FIELD ENTRANCE
AGGREGATE SURFACE**

****** 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



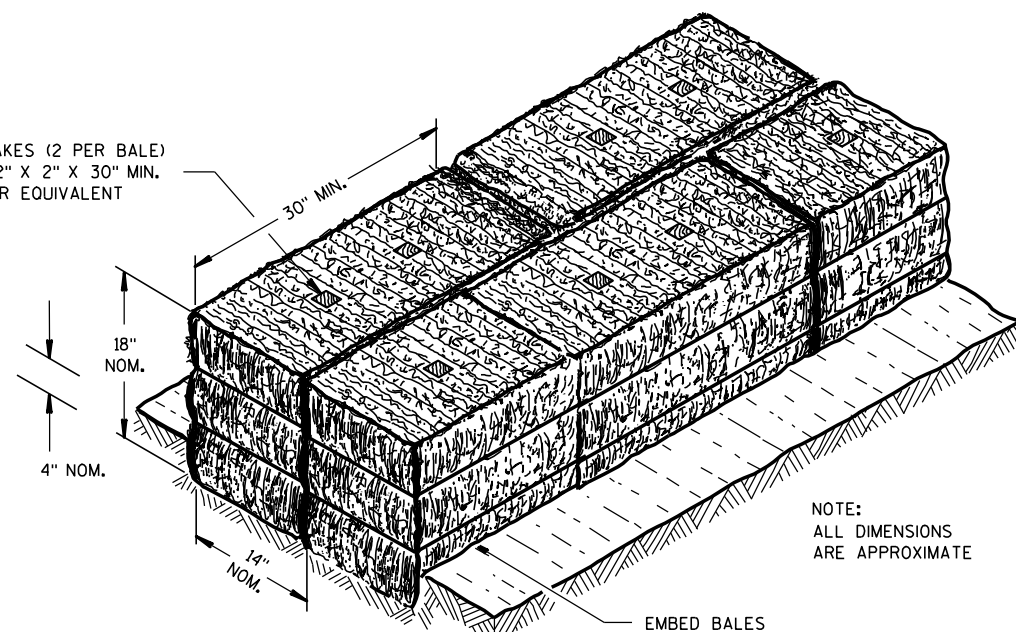
**TYPICAL CROSS SECTION FOR
PRIVATE DRIVE OR FIELD ENTRANCE
ASPHALTIC SURFACE**

**DRIVEWAYS WITHOUT
CURB AND GUTTER**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

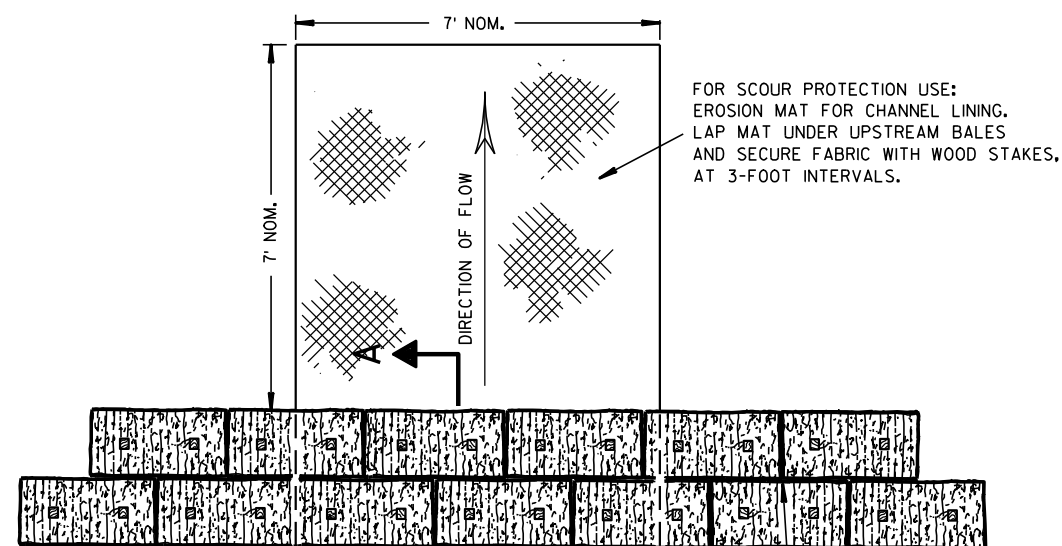
APPROVED
December 2017
DATE /S/ Rodney Taylor
ROADWAY STANDARDS DEVELOPMENT
UNIT SUPERVISOR
FHWA

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



NOTE:
ALL DIMENSIONS
ARE APPROXIMATE

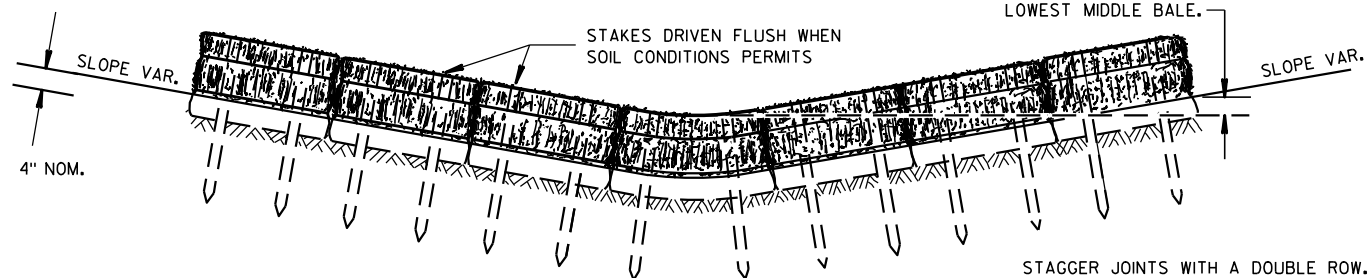
SECTION A-A



PLAN VIEW

STAGGER JOINTS BETWEEN ADJACENT
ROWS OF BALES.

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



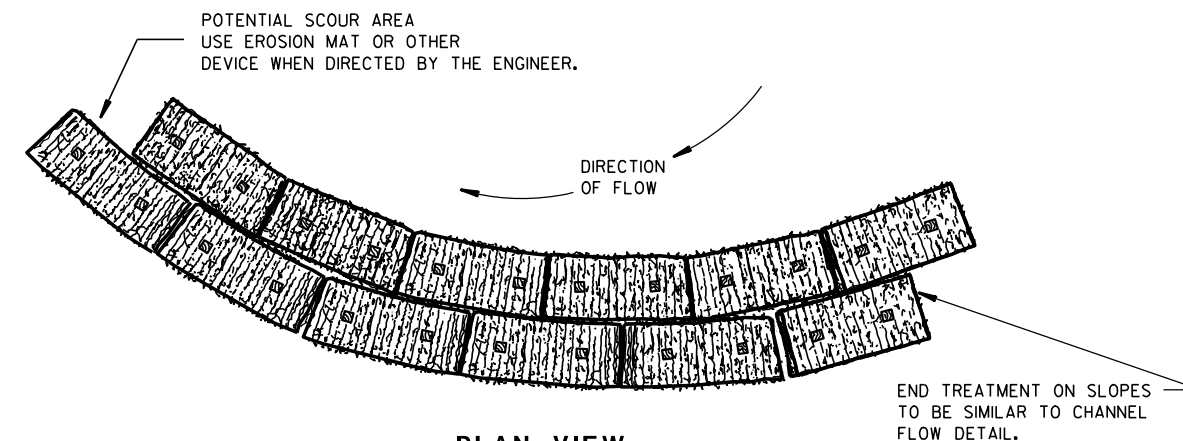
FRONT ELEVATION

TEMPORARY DITCH CHECK USING EROSION BALES ①

GENERAL NOTES

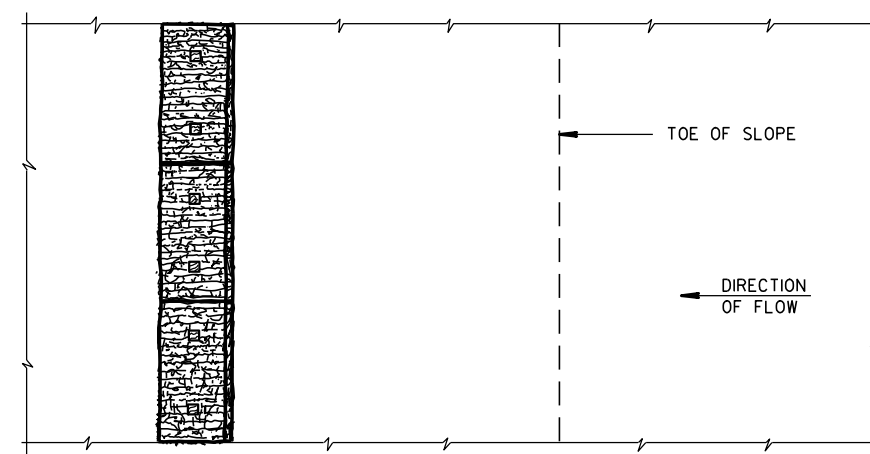
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

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

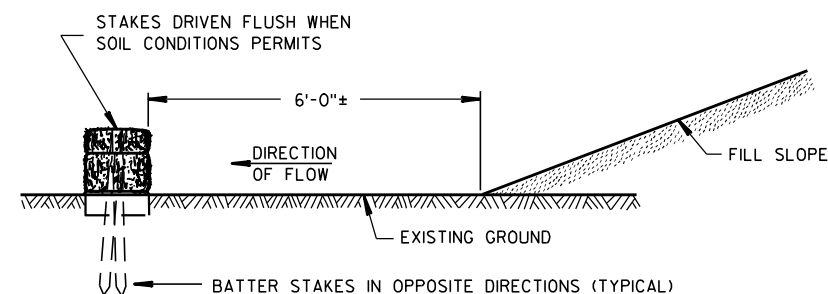


PLAN VIEW

WHEN ALTERING THE DIRECTION OF FLOW



PLAN VIEW



FRONT ELEVATION

WHEN EXISTING GROUND SLOPES AWAY FROM FILL SLOPE

EROSION BALES FOR SHEET FLOW

TYPICAL INSTALLATIONS OF
EROSION BALES / TEMPORARY
DITCH CHECKS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

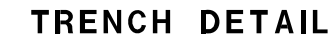
6/04/02
DATE

/S/ Beth Canestra
CHIEF ROADWAY DEVELOPMENT ENGINEER

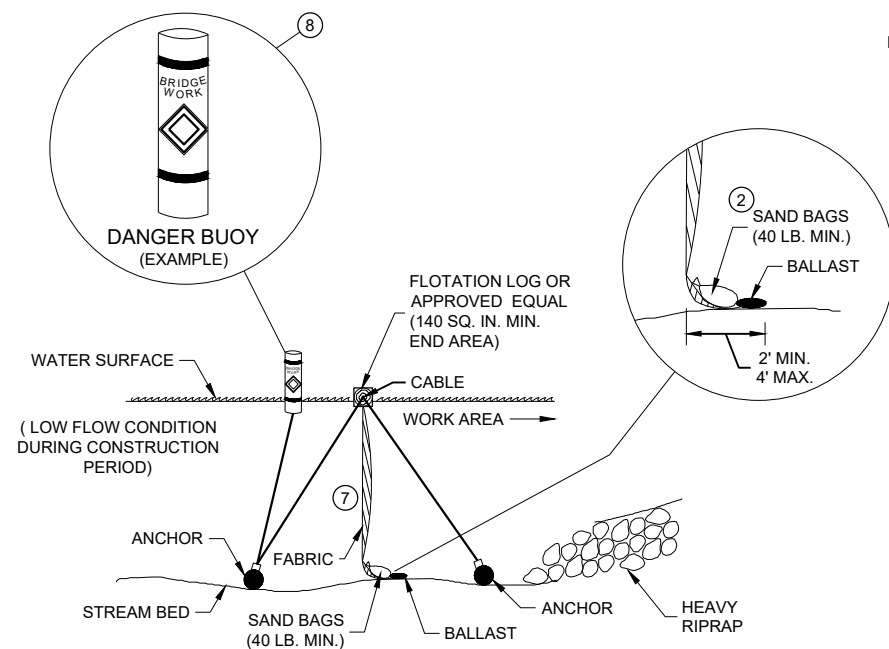
FHWA



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

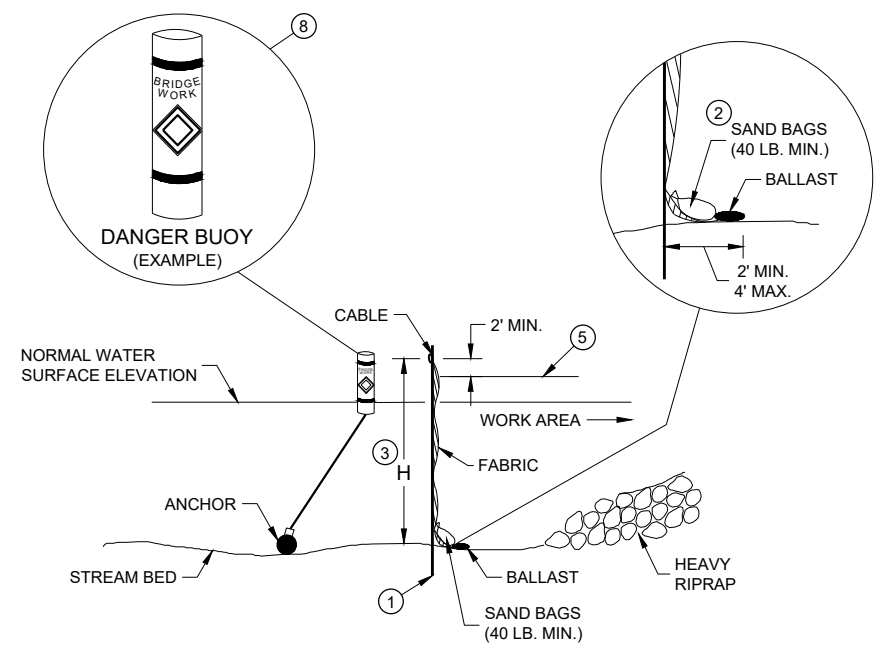


SILT FENCE	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED <u>4-29-05</u> <u>DATE</u>	<u>/S/ Beth Canestra</u> CHIEF ROADWAY DEVELOPMENT ENGINEER



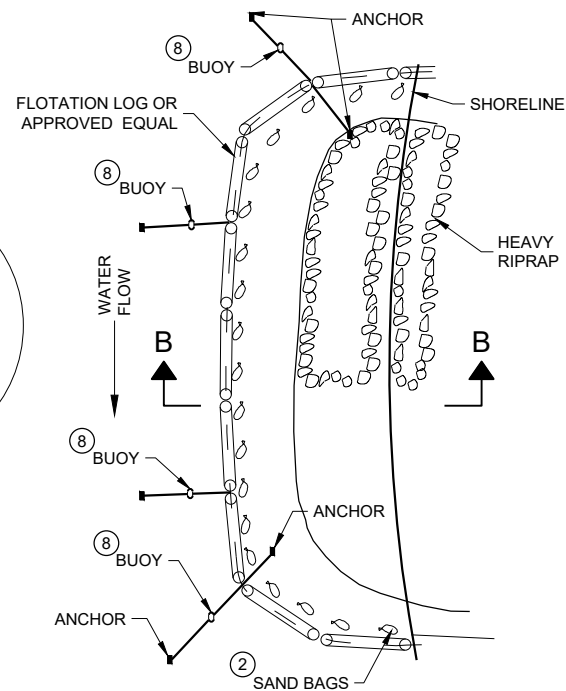
SECTION B - B

TURBIDITY BARRIER - FLOAT ALTERNATIVE CAUTION - SEE NOTE 6

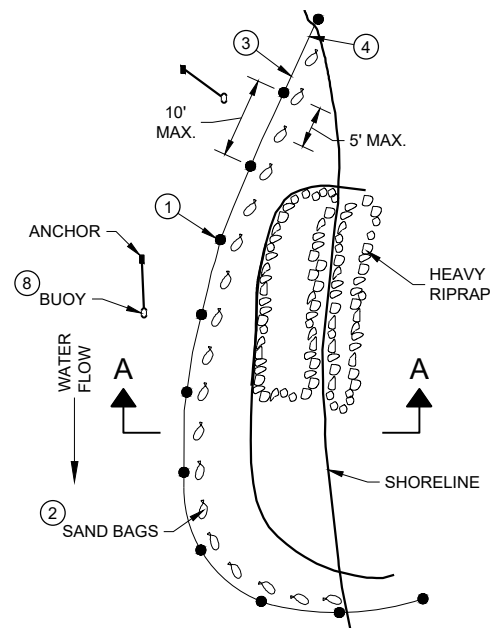


SECTION A - A

TURBIDITY BARRIER - STANDARD POST INSTALLATION



PLAN VIEW



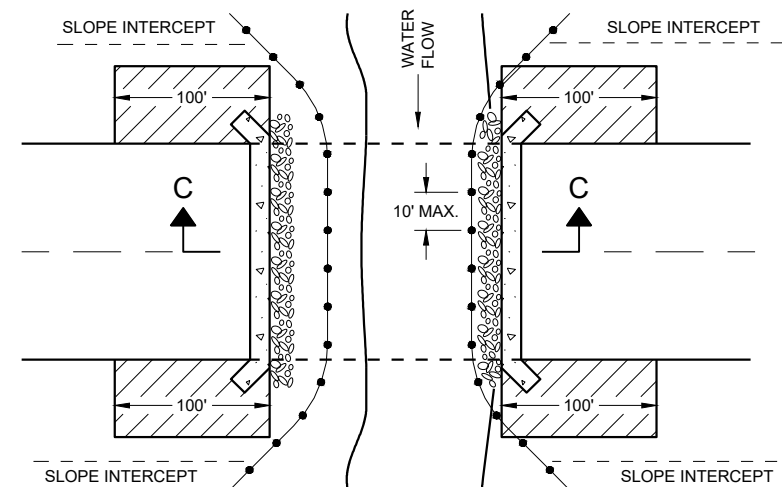
PLAN VIEW

GENERAL NOTES

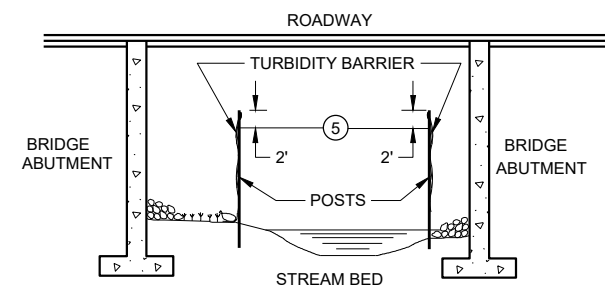
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

TURBIDITY BARRIER MAY BE REMOVED AT THE ENGINEERS DISCRETION, WHEN PERMANENT EROSION CONTROL MEASURES HAVE BEEN ESTABLISHED.

- ① DRIVEN STEEL POSTS, PIPES, OR CHANNELS. LENGTH SHALL BE SUFFICIENT TO SECURELY SUPPORT BARRIER AT HIGH WATER ELEVATIONS.
- ② SAND BAGS TO BE USED AS ADDITIONAL BALLAST WHEN ORDERED BY THE ENGINEER TO MEET ADVERSE FIELD CONDITIONS. SPACE AS APPROPRIATE FOR SITE CONDITIONS.
- ③ WHEN BARRIER HEIGHT "H" EXCEEDS 8 FEET, POST SPACING MAY NEED TO BE DECREASED.
- ④ IN WATERWAYS SUBJECT TO FLUCTUATING WATER ELEVATIONS, PROVISIONS SHOULD BE MADE TO ALLOW THE WATER TO EQUALIZE ON EACH SIDE OF THE BARRIER. THIS MAY BE ACCOMPLISHED BY LEAVING A PORTION OF THE BARRIER OPEN ON THE UPSTREAM END.
- ⑤ ESTIMATED HIGH WATER ELEVATION DURING CONSTRUCTION PERIOD. MINIMUM BARRIER HEIGHT SHALL BE 2' GREATER THAN EITHER THE Q2 ELEVATION OR THE ESTIMATED HIGH WATER ELEVATION DURING CONSTRUCTION, WHICHEVER IS GREATER.
- ⑥ FLOAT ALTERNATIVE WILL ONLY BE ALLOWED WITH WRITTEN APPROVAL OF THE ENGINEER, AND IS MEANT FOR LOCATIONS WHERE BEDROCK PREVENTS THE INSTALLATION OF POSTS.
- ⑦ ALLOW SUFFICIENT SLACK VERTICALLY AND HORIZONTALLY SO THAT SEDIMENT BUILD UP WILL NOT SEPARATE OR LOWER THE TURBIDITY BARRIER.
- ⑧ USE AS DIRECTED BY COAST GUARD OR DNR PERMIT WHEN WORKING IN NAVIGABLE WATERWAYS.



PLAN VIEW



SECTION C - C

TURBIDITY BARRIER DETAIL SHOWING TYPICAL PLACEMENT AT STRUCTURES

TURBIDITY BARRIER

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

6/4/02

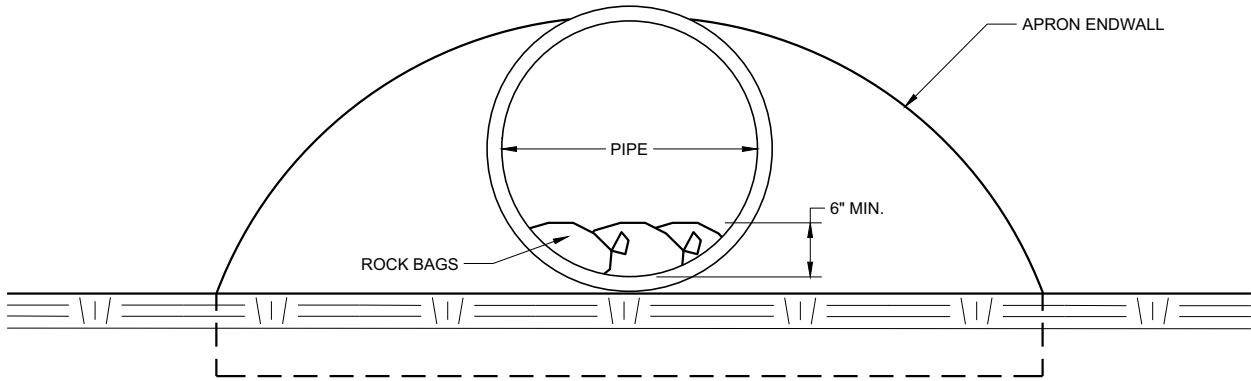
DATE

FHWA

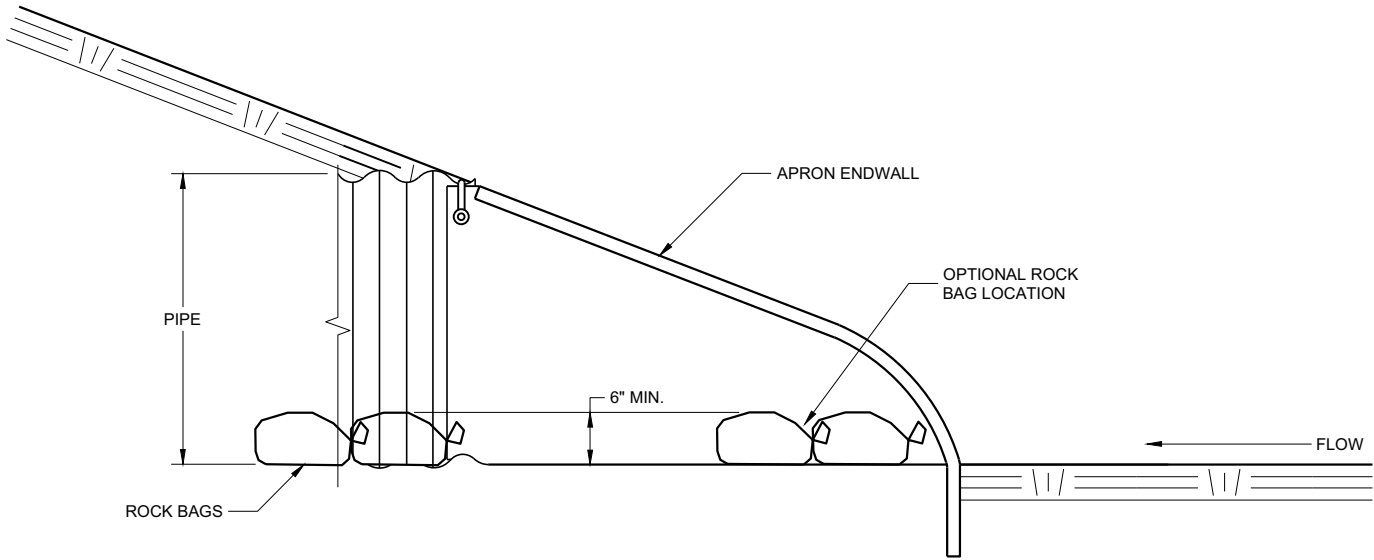
/S/ Beth Cannestra

CHIEF ROADWAY DEVELOPMENT

ENGINEER



END VIEW



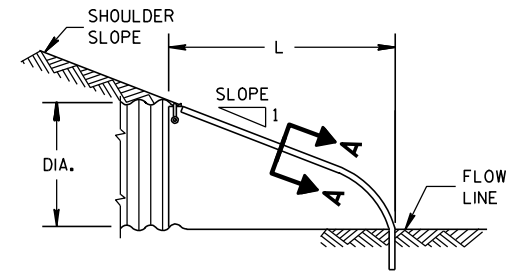
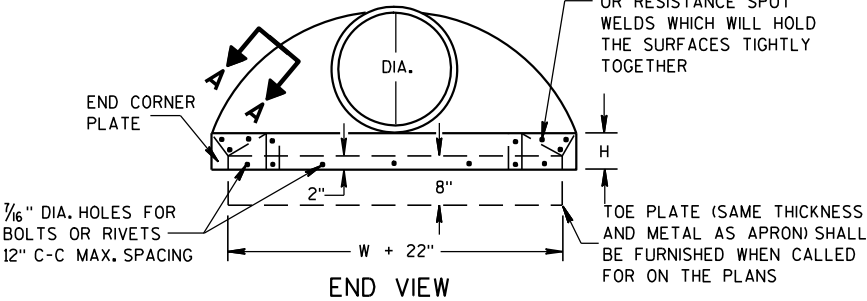
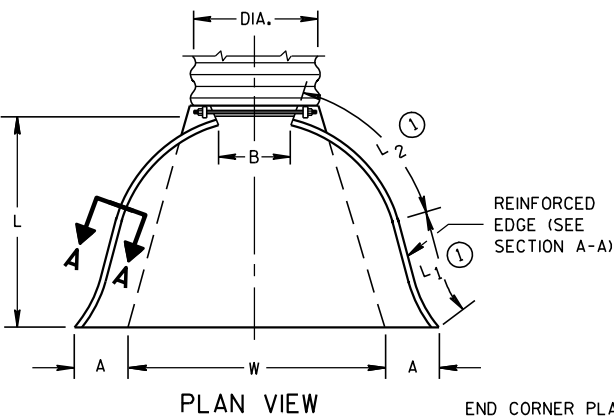
SIDE VIEW

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 ENGINEER
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	1 Pc.
15	.064	.060	7	8	6	26	14	21 3/4	30	2 1/2 to 1	1	1 Pc.
18	.064	.060	8	10	6	31	15	28 1/4	36	2 1/2 to 1	1	1 Pc.
21	.064	.060	9	12	6	36	18	29 5/8	42	2 1/2 to 1	1	1 Pc.
24	.064	.075	10	13	6	41	18	37 1/4	48	2 1/2 to 1	1	1 Pc.
30	.079	.075	12	16	8	51	18	52 1/4	60	2 1/2 to 1	1	1 Pc.
36	.079	.105	14	19	9	60	24	59 3/4	72	2 1/2 to 1	2	Pc.
42	.109	.105	16	22	11	69	24	75 5/8	84	2 1/2 to 1	2	Pc.
48	.109	.105	18	27	12	78	24	81	90	2 1/4 to 1	3	Pc.
54	.109	.105	18	30	12	84	30	85 1/2	102	2 1/4 to 1	3	Pc.
60	.109x	.105x	18	33	12	87	—	—	114	2 to 1	3	Pc.
66	.109x	.105x	18	36	12	87	—	—	120	2 to 1	3	Pc.
72	.109x	.105x	18	39	12	87	—	—	126	2 to 1	3	Pc.
78	.109x	.105x	18	42	12	87	—	—	132	1 1/2 to 1	3	Pc.
84	.109x	.105x	18	45	12	87	—	—	138	1 1/2 to 1	3	Pc.
90	.109x	.105x	18	37	12	87	—	—	144	1 1/2 to 1	3	Pc.
96	.109x	.105x	18	35	12	87	—	—	150	1 1/2 to 1	3	Pc.

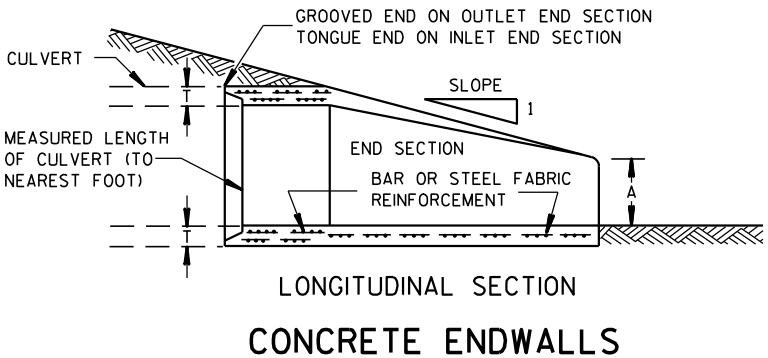
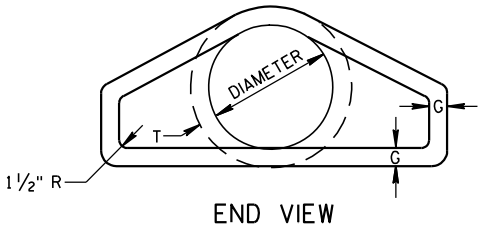
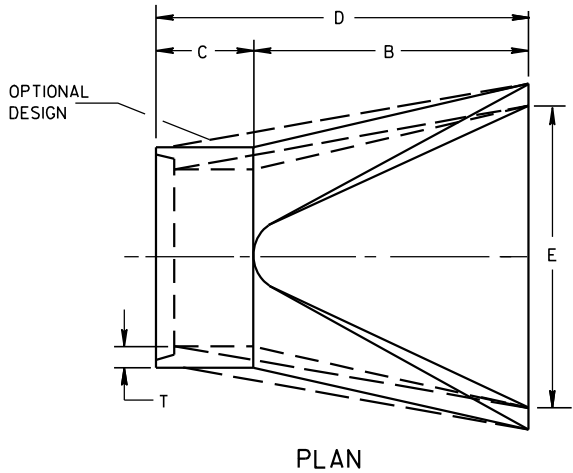
* EXCEPT CENTER PANEL
SEE GENERAL NOTES



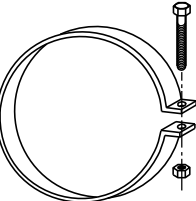
METAL ENDWALLS

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

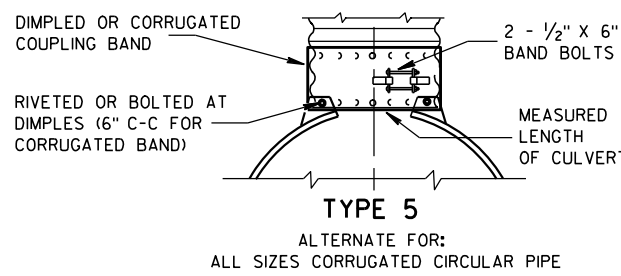
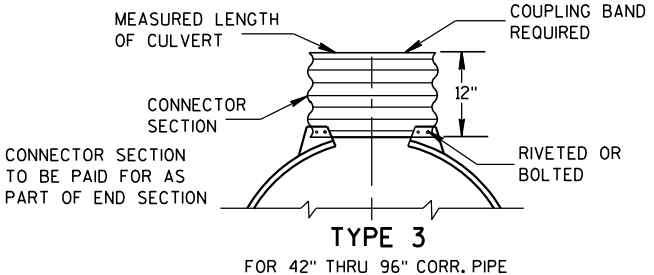
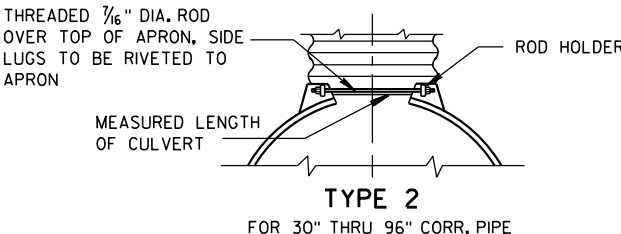
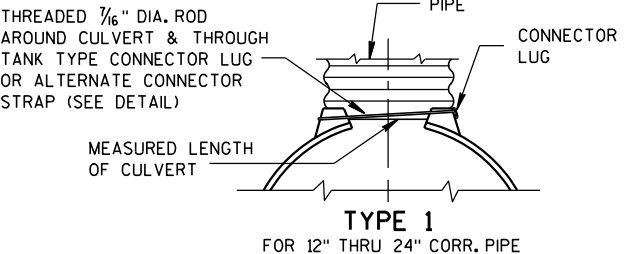
* MINIMUM
** MAXIMUM



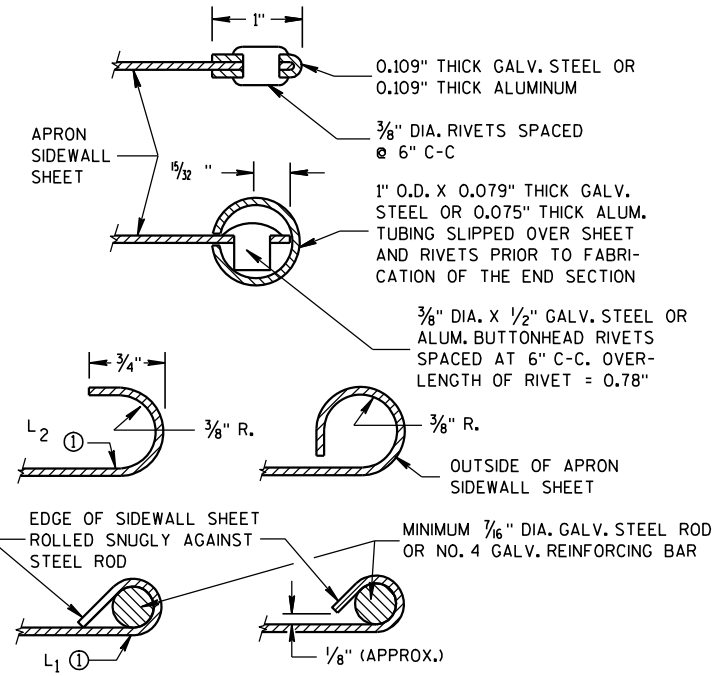
1" WIDE, 12 GA. (0.109" THICK) GALVANIZED STRAP WITH STANDARD 6" X 1/2" BAND BOLT AND NUT



ALTERNATE FOR TYPE 1 CONNECTION
END SECTION CONNECTOR STRAP



CONNECTION DETAILS



GENERAL NOTES

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

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

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

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

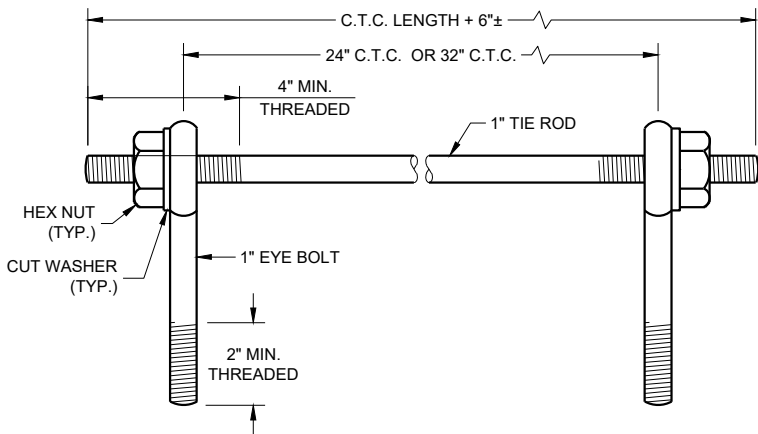
WHERE TWO OR MORE PIPES WITH APRON ENDWALLS ARE LAID ADJACENT TO EACH OTHER, THEY SHALL BE SEPARATED BY A DISTANCE SUFFICIENT TO PROVIDE A MINIMUM CLEARANCE OF 6 INCHES BETWEEN APRON ENDWALLS.

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

APRON ENDWALLS FOR
CULVERT PIPE

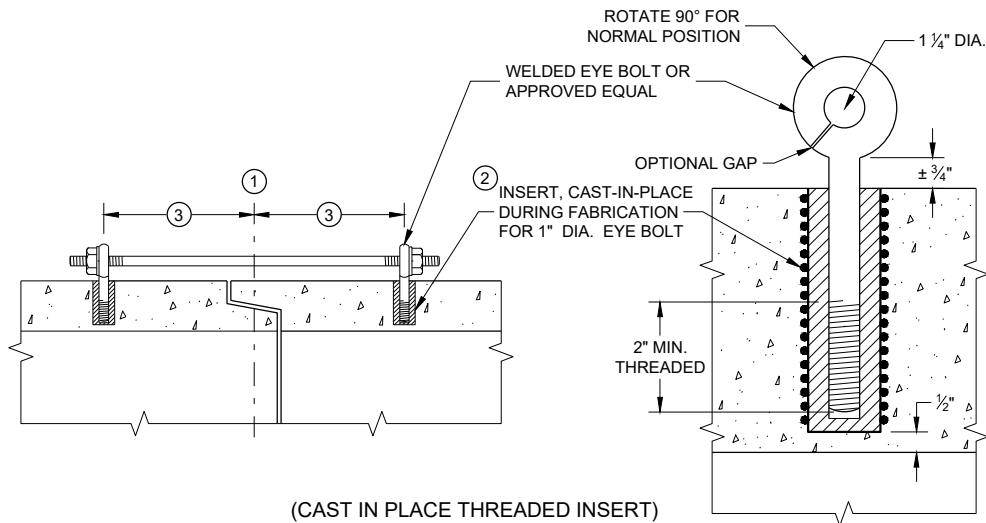
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
11/30/94
DATE
/S/ Rory L. Rhinesmith
CHIEF ROADWAY DEVELOPMENT ENGINEER
FHWA



EYE BOLTS AND TIE ROD

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



(CAST IN PLACE THREADED INSERT)
LONGITUDINAL SECTIONS

GENERAL NOTES

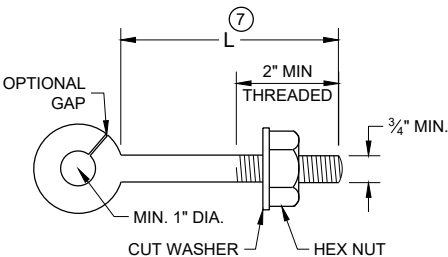
DETAILS OF CONSTRUCTION, MATERIALS, AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.

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

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

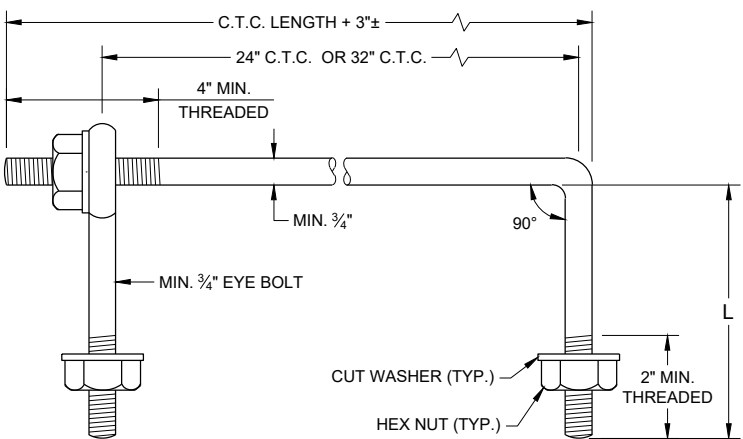
JOINT TIES TO BE HOT-DIP GALVANIZED PER ASTM A 153.

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



EYE BOLT 7

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

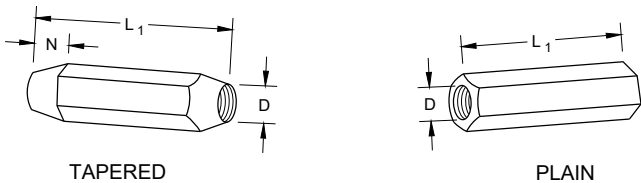


EYE BOLT AND TIE ROD

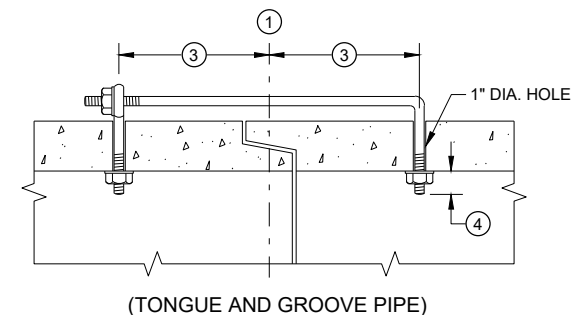
ADJUSTABLE TIE ROD TABLE

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

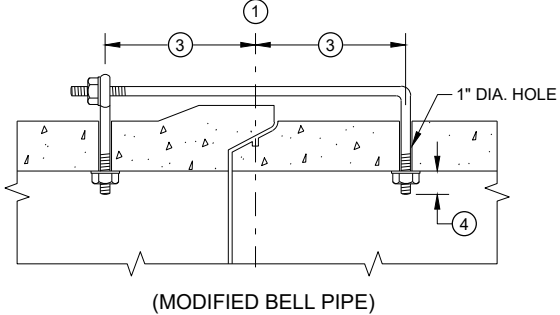
DIMENSIONS SHOWN ARE IN INCHES



RIGHT AND LEFT THREADS
SLEEVE NUTS



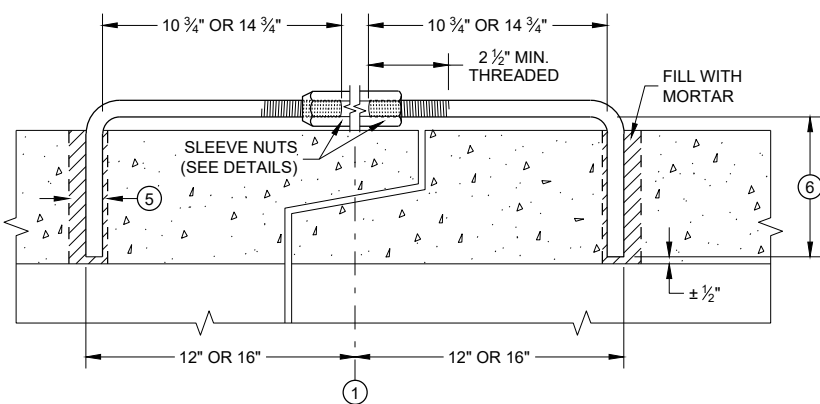
(TONGUE AND GROOVE PIPE)



(MODIFIED BELL PIPE)

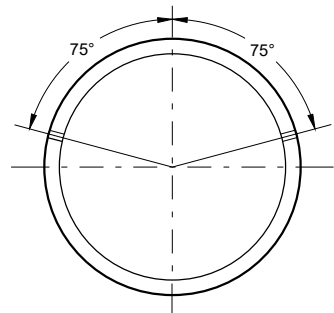
LONGITUDINAL SECTION
(JOINT TIES FOR 18" TO 66" DIA. CONCRETE PIPE)

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



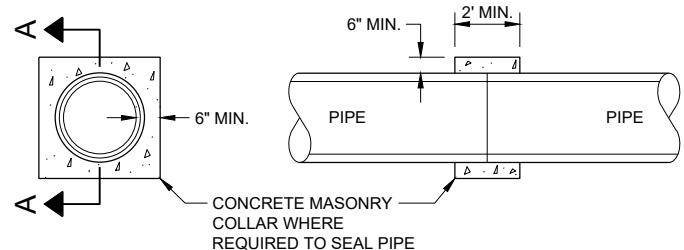
LONGITUDINAL SECTION

ADJUSTABLE TIE ROD (ALTERNATE NO. 3)



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

TRANSVERSE SECTION

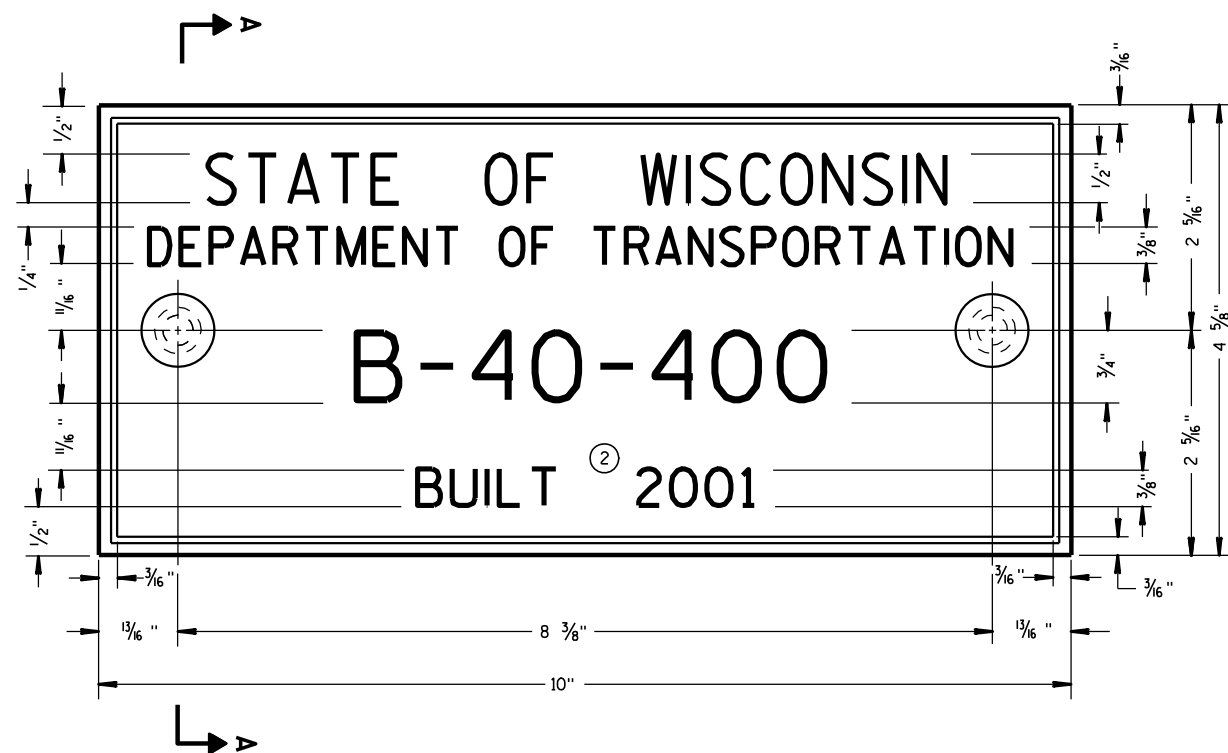


SECTION A - A
CONCRETE COLLAR DETAIL

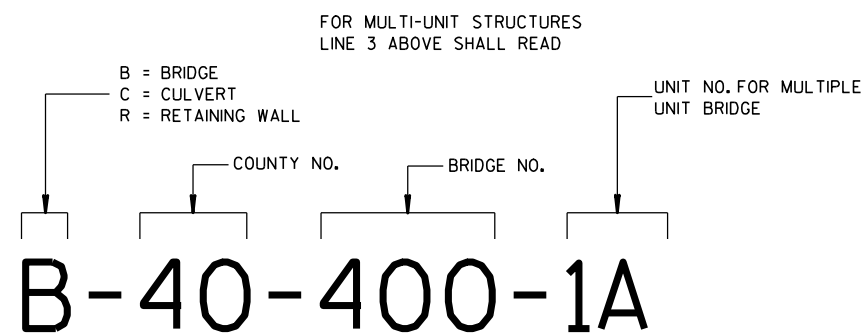
JOINT TIES FOR CONCRETE PIPE AND CONCRETE COLLAR DETAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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



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



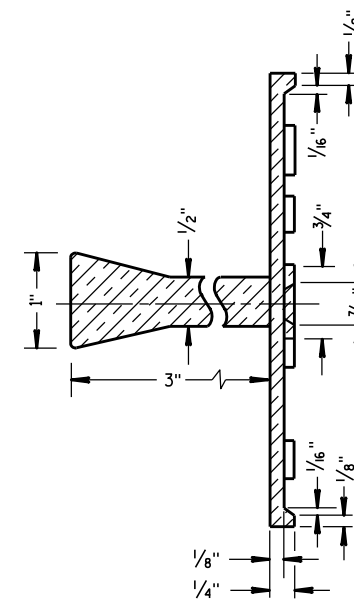
**NUMBERING DESIGNATION
MULTI-UNIT STRUCTURES**

GENERAL NOTES

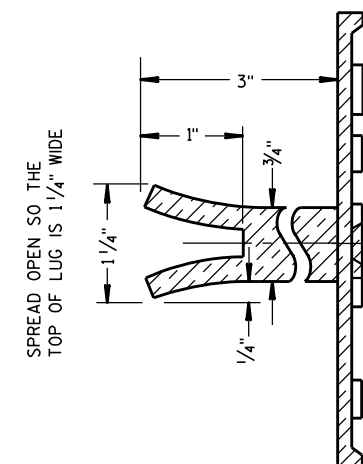
NAME PLATES TO BE INSTALLED ON BRIDGES, CULVERTS, AND RETAINING WALLS SHALL CONFORM TO THE REQUIREMENTS OF SECTION 502.3.11 OF THE STANDARD SPECIFICATIONS.

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.

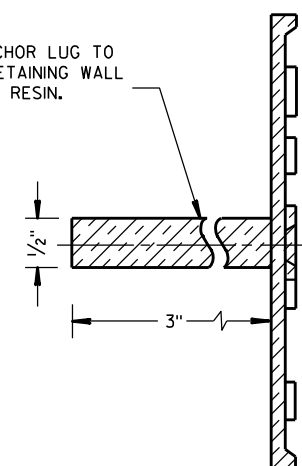


SECTION A-A



ALTERNATE LUG

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



ALTERNATE LUG
(FOR ATTACHMENT TO PRECAST STRUCTURES)

**NAME PLATE
(STRUCTURES)**

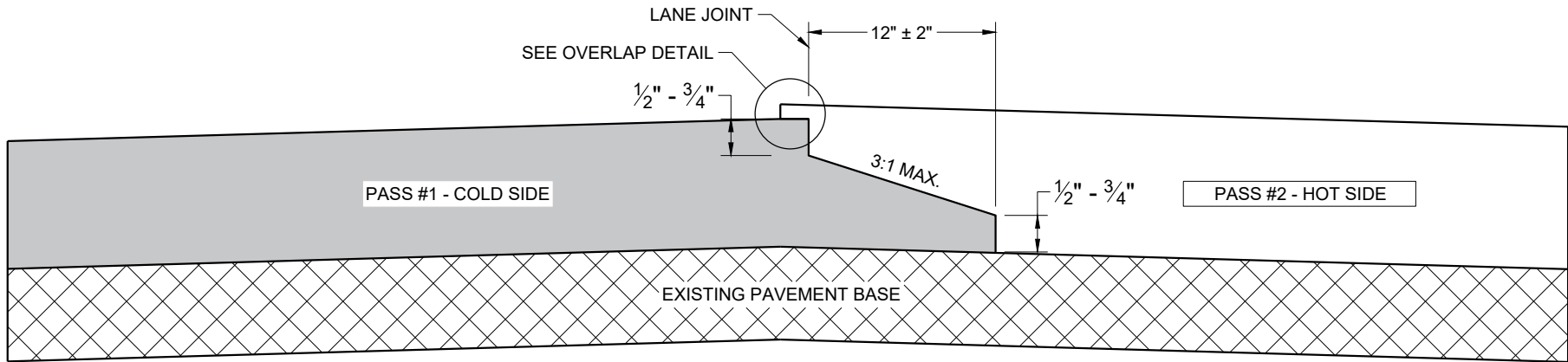
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

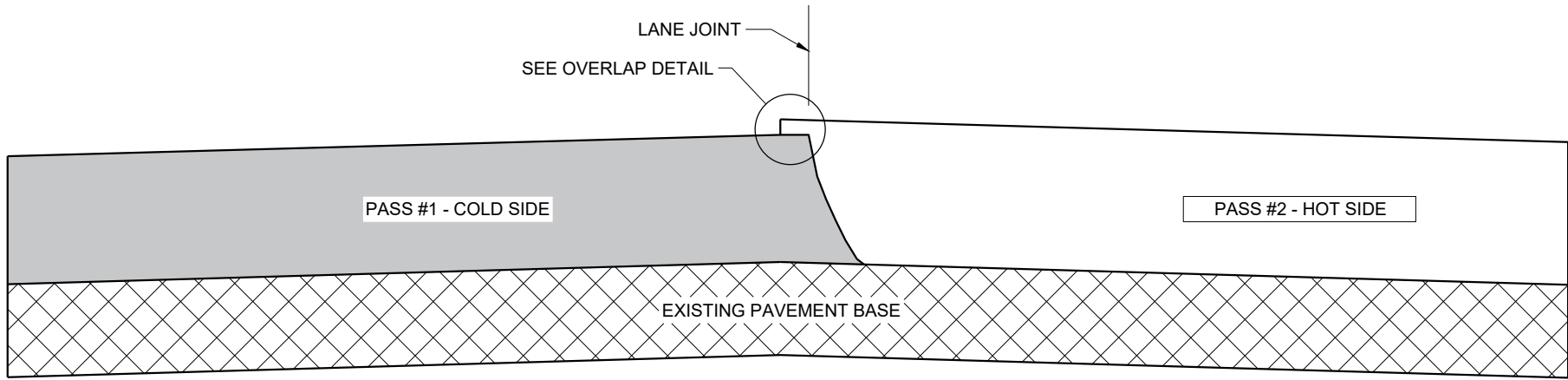
3/26/10
DATE

FHWA

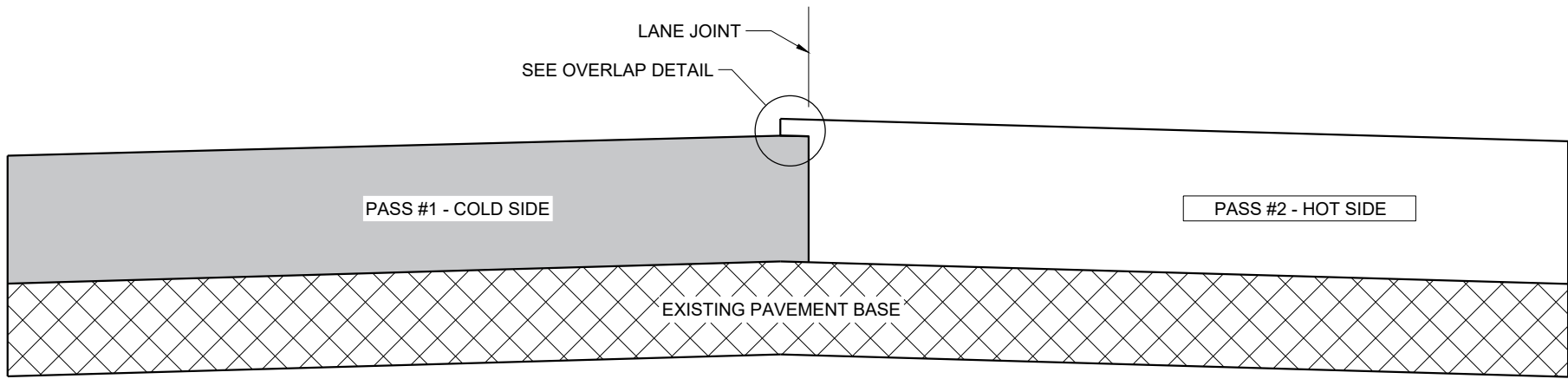
/S/ Scot Becker
CHIEF STRUCTURAL DEVELOPMENT ENGINEER



TYPICAL PAVEMENT CROSS SECTION
NOTCHED WEDGE JOINT



TYPICAL PAVEMENT CROSS SECTION
VERTICAL JOINT



TYPICAL PAVEMENT CROSS SECTION
VERTICAL JOINT (MILLED)

GENERAL NOTES

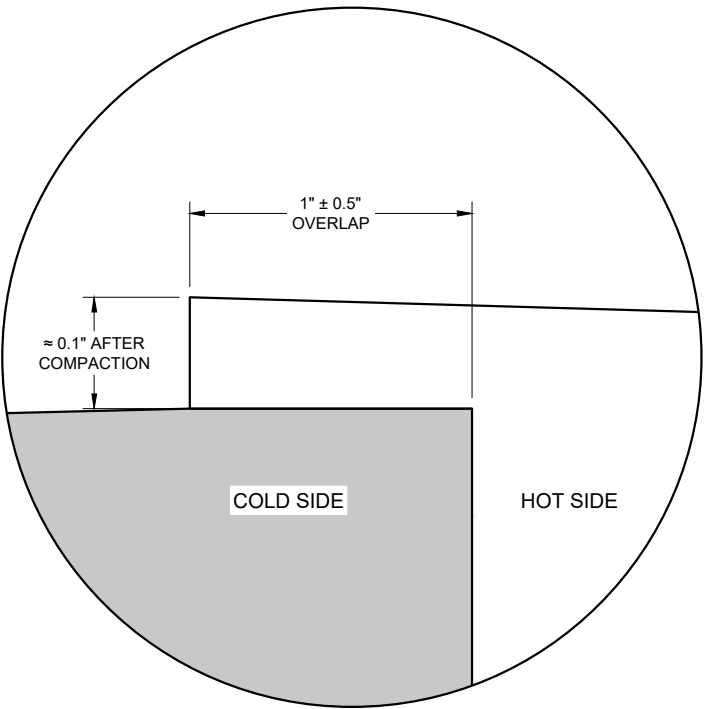
IN ADDITION TO THE DETAILS PROVIDED IN THIS DRAWING, CONFORM TO STANDARD SPECIFICATION 450.3.2.8 FOR WHEN A NOTCHED WEDGE JOINT IS REQUIRED AND FOR GENERAL JOINT CONSTRUCTION REQUIREMENTS.

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

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

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

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



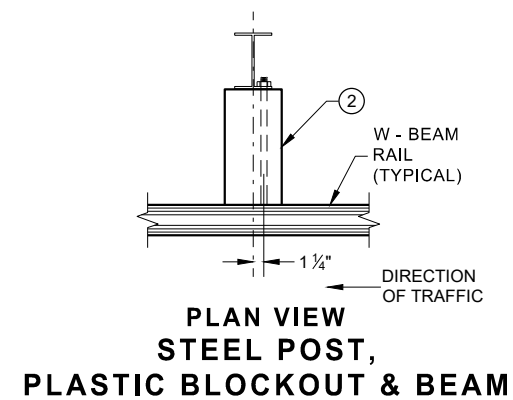
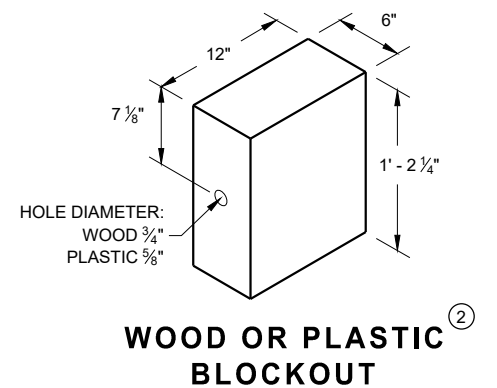
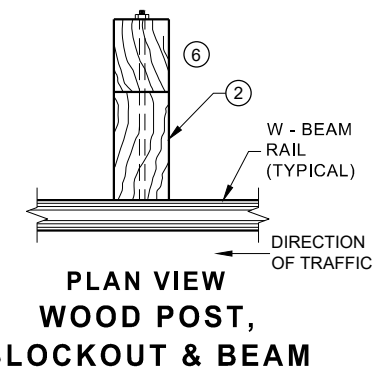
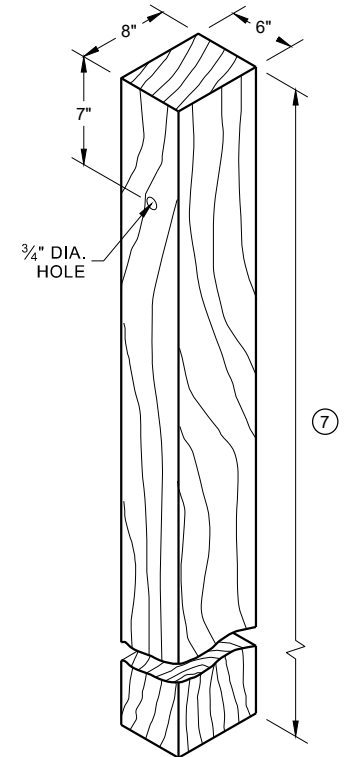
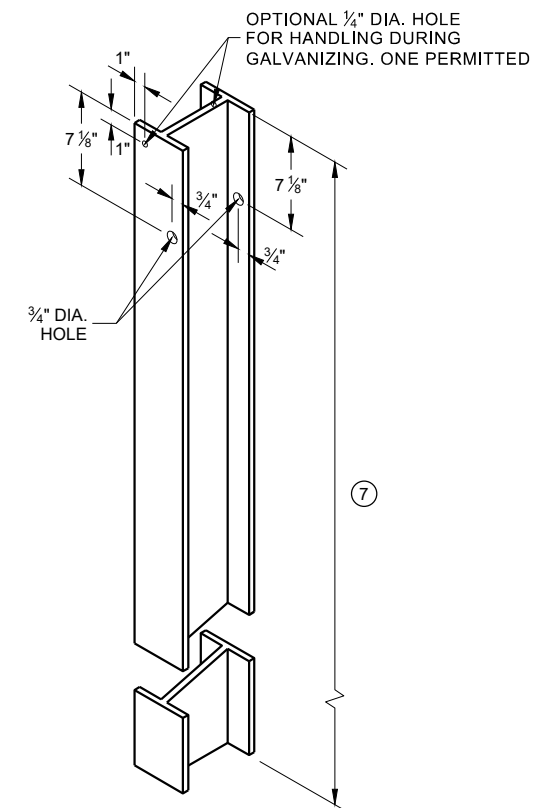
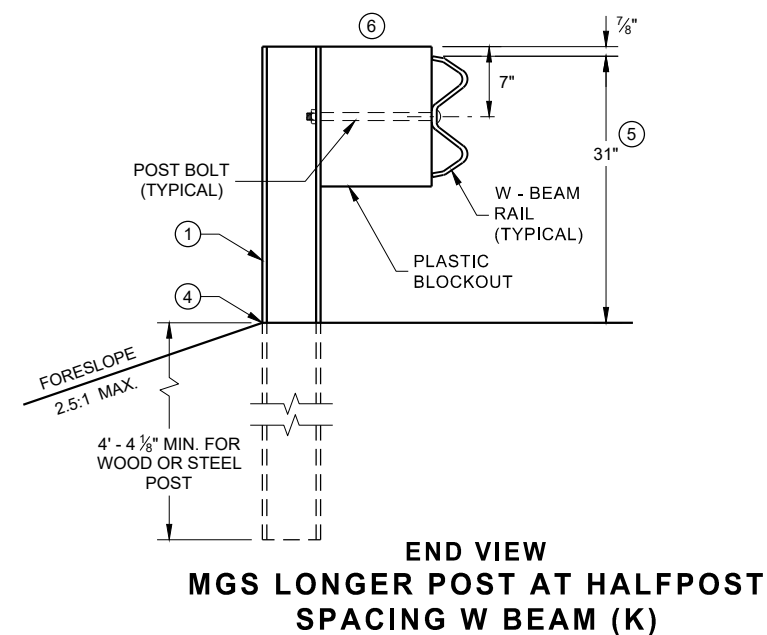
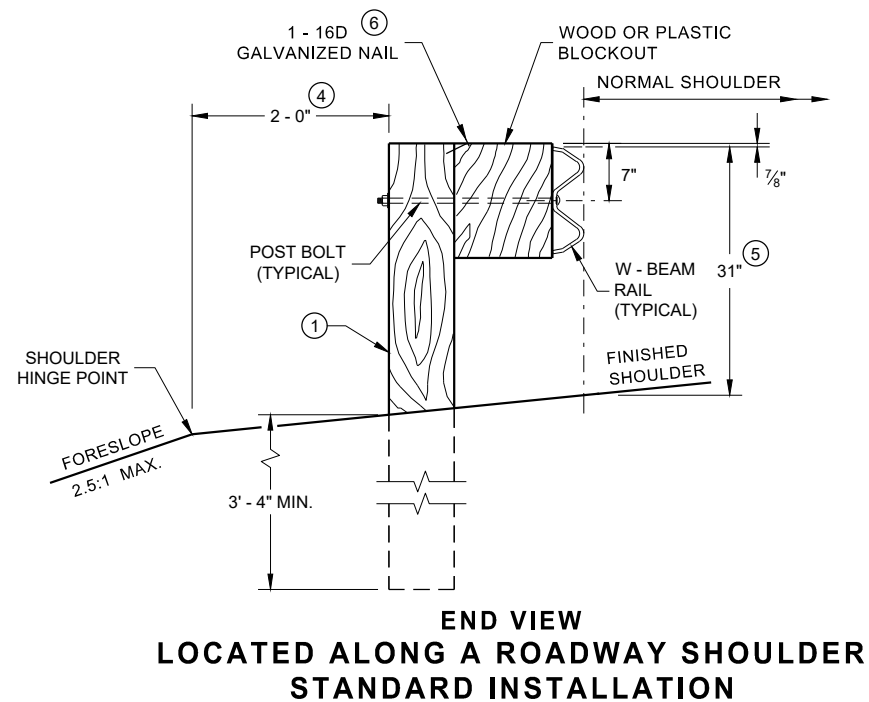
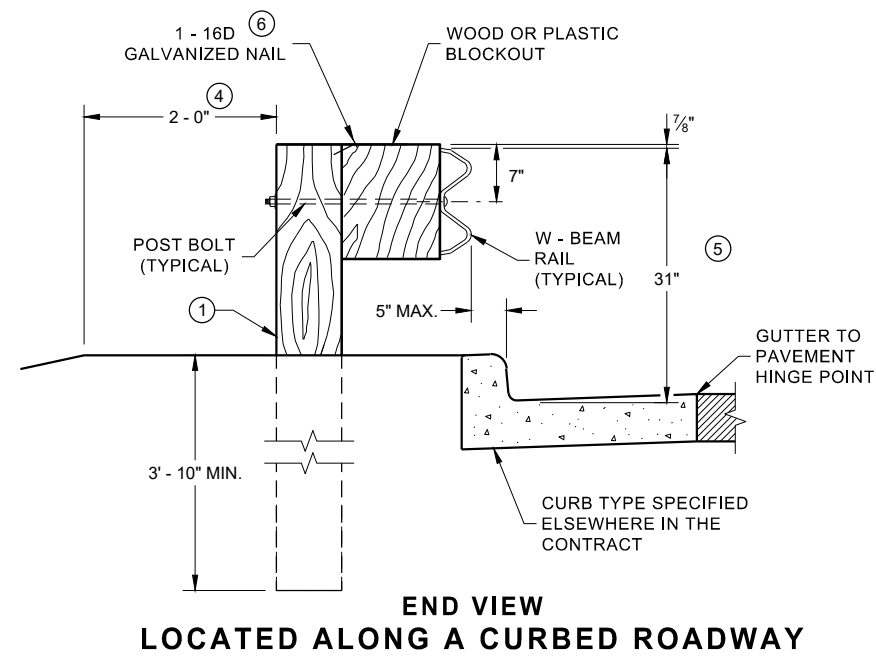
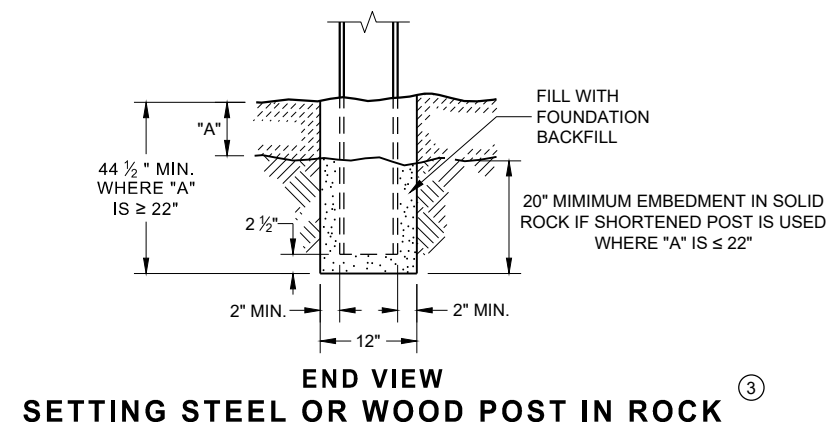
OVERLAP DETAIL (TYPICAL)

HMA LONGITUDINAL JOINTS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

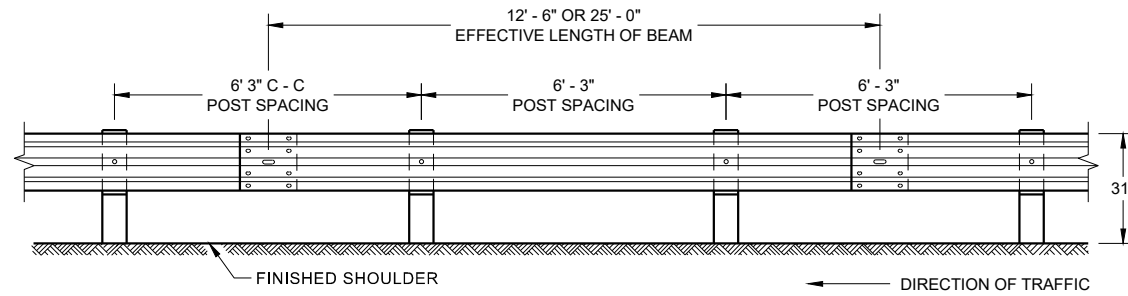
APPROVED
November 2020 /S/ Steven Hefel
DATE HMA PAVEMENT ENGINEER
FHWA

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

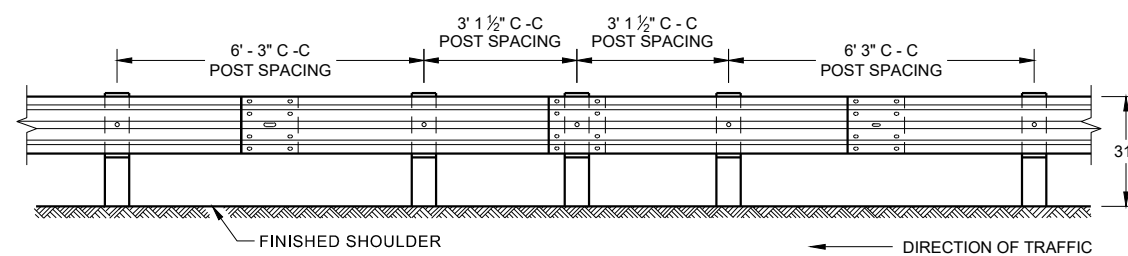


**MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL**

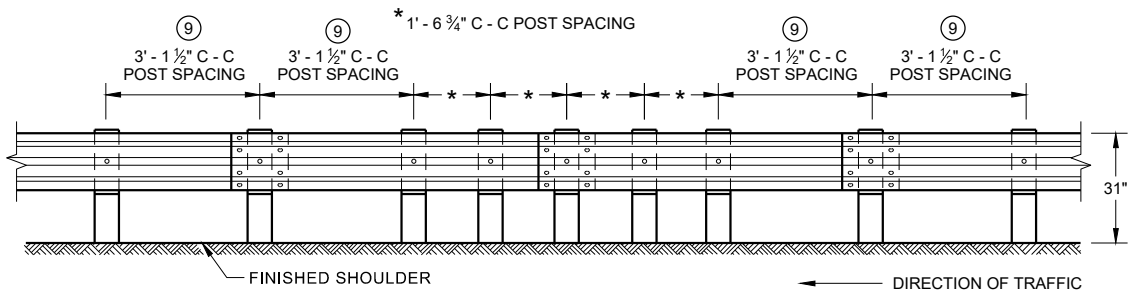
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



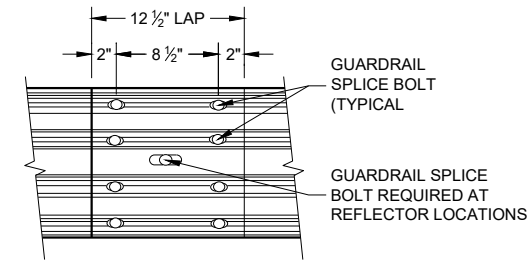
**FRONT VIEW
POST SPACING STANDARD INSTALLATION**



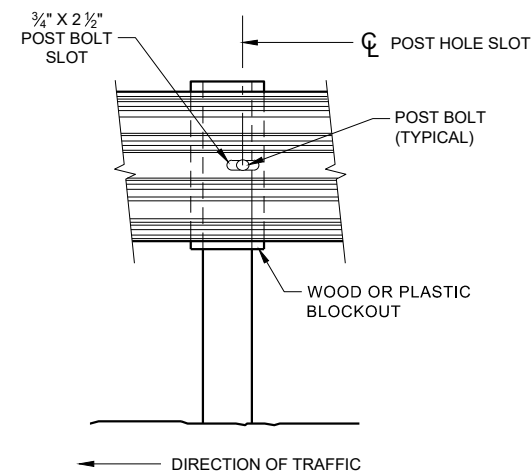
**FRONT VIEW
HALF POST SPACING (HS) AND
HALF POST SPACING WITH LONGER POSTS (K)**



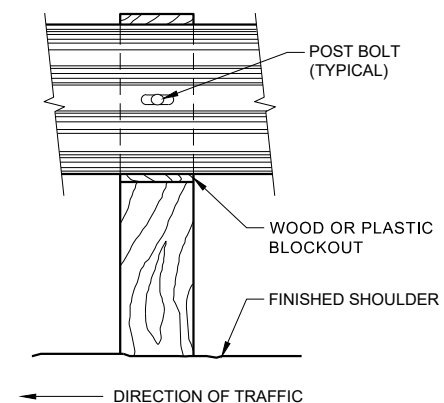
**FRONT VIEW
QUARTER POST SPACING (QS)**



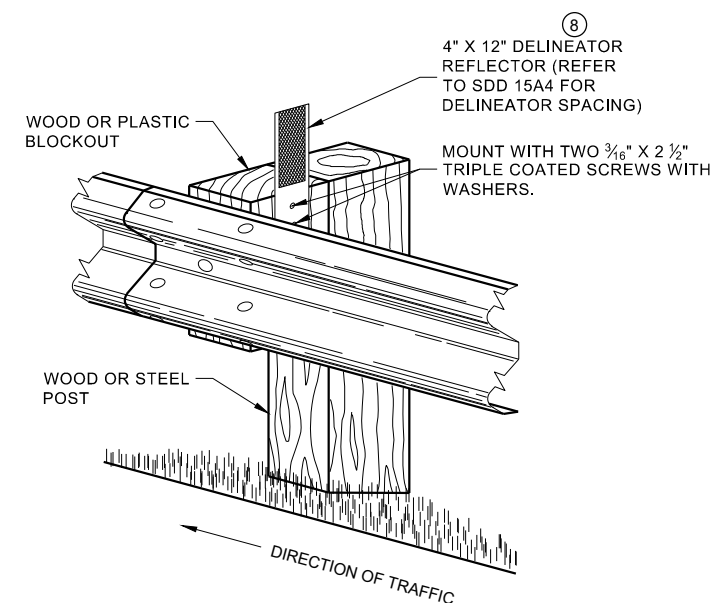
**FRONT VIEW
MID-SPAN BEAM SPLICE**



FRONT VIEW AT STEEL POST



FRONT VIEW AT WOOD POST



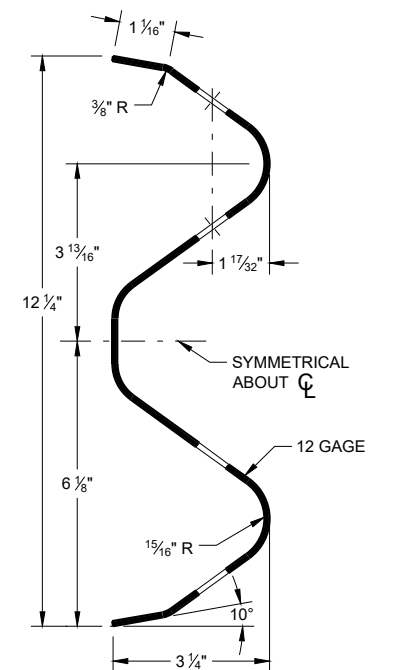
**ONE SIDED REFLECTOR DETAIL
AND TYPICAL INSTALLATION**

GENERAL NOTES

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

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

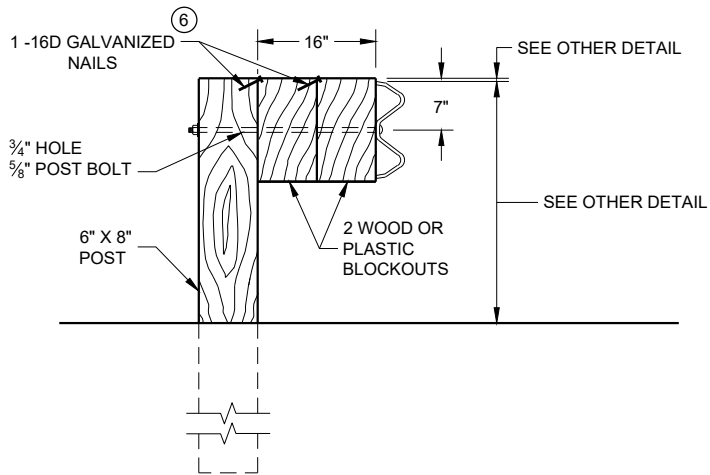
GUARD RAIL SPLICE BOLTS ARE A $\frac{3}{8}$ " DIAMETER ASTM A307 GUARDRAIL HEAD BOLT. A GUARDRAIL SPLICE BOLT REQUIRES $\frac{3}{8}$ " DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX NUT.



SECTION THRU W-BEAM RAIL

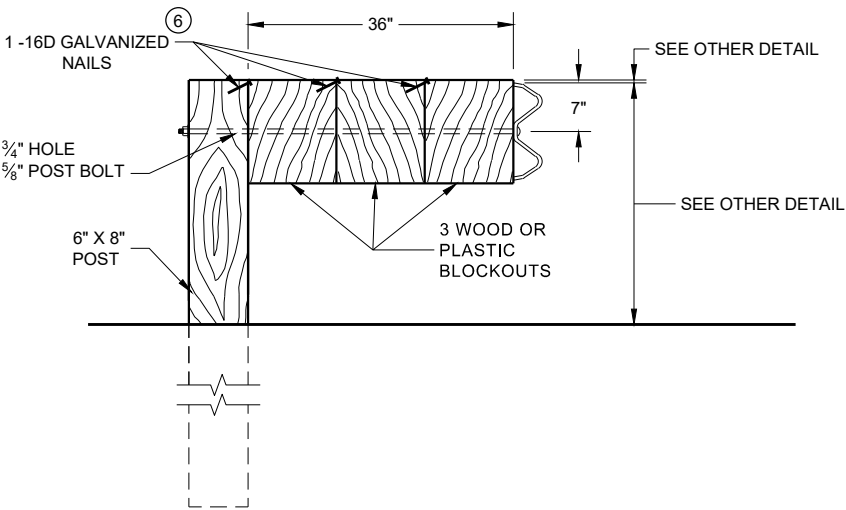
**MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



DETAIL FOR 16" BLOCKOUT DEPTH

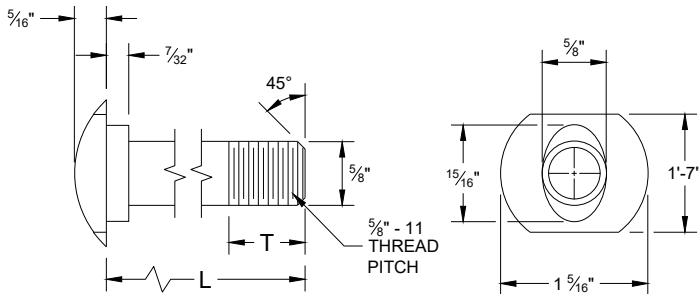
IT IS ACCEPTABLE TO USE BLOCKOUTS UP TO 16" DEEP TO INCREASE THE POST OFFSET TO AVOID UNDERGROUND OBSTACLES. THERE IS NO LIMIT TO THE NUMBER OF POSTS THAT CAN HAVE ADDITIONAL BLOCKOUTS UP TO 16" DEEP.



DETAIL FOR 36" BLOCKOUT DEPTH

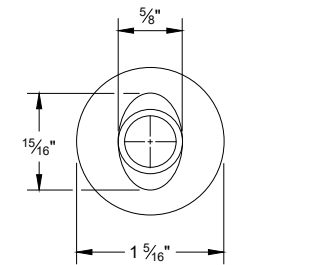
NOTES: UNDER SPECIAL CIRCUMSTANCES, SUCH AS AVOIDING OBSTACLES THAT ARE NOT RELOCATED, IT IS ACCEPTABLE TO INSTALL ADDITIONAL BLOCKOUTS TO OBTAIN UP TO 36" DEPTH FOR ONE OR TWO POSTS IN A SECTION OF GUARDRAIL.
DO NOT USE 16" OR 36" BLOCKOUTS IF IT CAUSES THE POST TO BE DRIVEN BEYOND SHOULDER HINGE POINT OR CAUSES A FIXED OBJECT TO BE WITHIN THE DEFLECTION DISTANCE OF THE BARRIER.

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

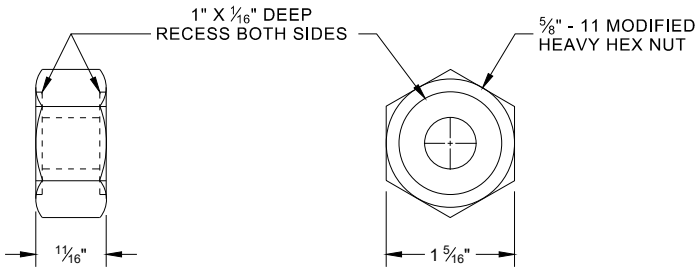


POST BOLT TABLE

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

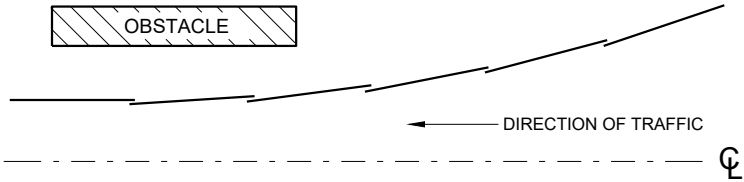


ALTERNATE BOLT HEAD

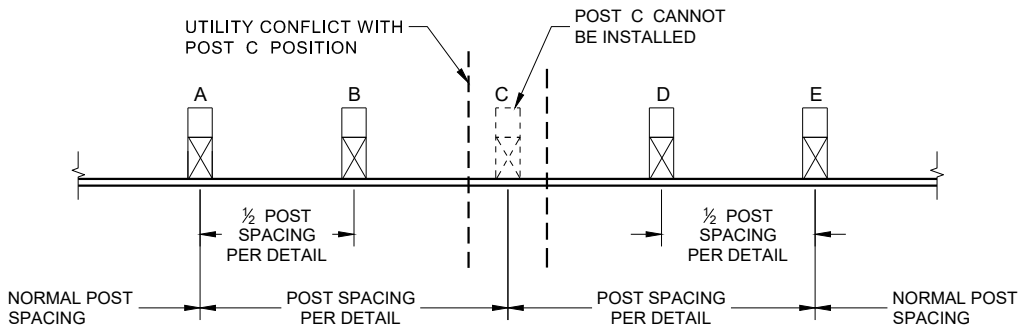


POST BOLT, SPLICE BOLT AND RECESS NUT

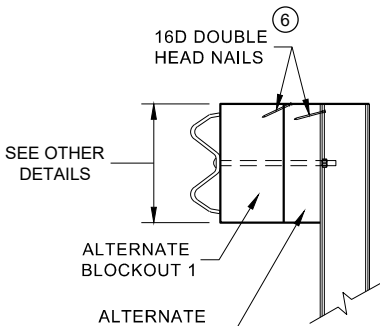
- 6 WHEN USING STEEL POST AD WOOD BLOCKOUTS, INSTALL FOUR 16D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.



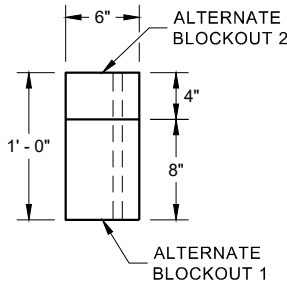
PLAN VIEW
BEAM LAPPING DETAIL



POST DRIVING FOR CONTINUOUS
UNDERGROUND OBSTRUCTION



SIDE VIEW

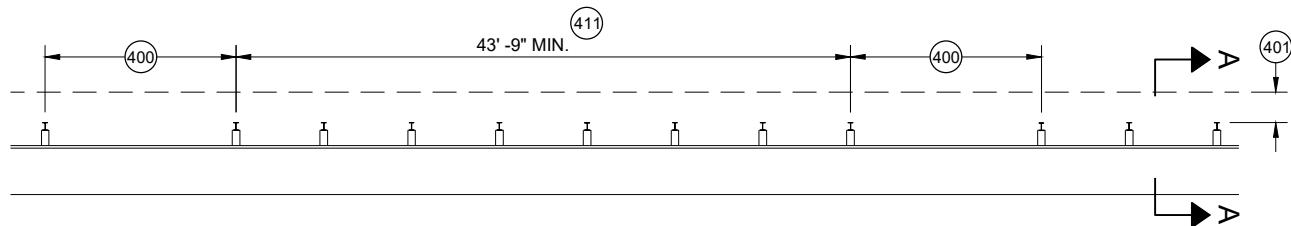


PLAN VIEW

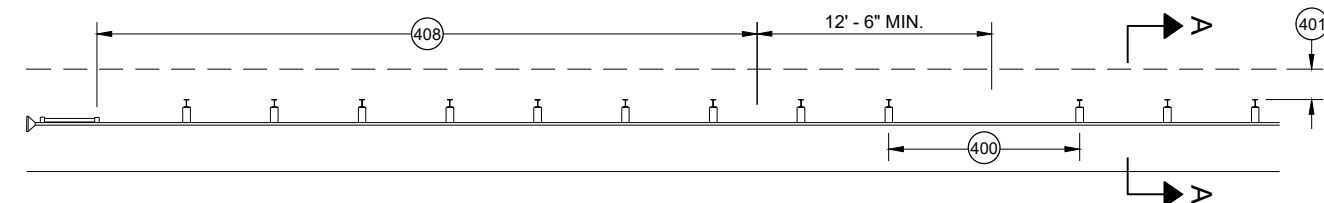
ALTERNATE WOOD
BLOCKOUT DETAIL

MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL

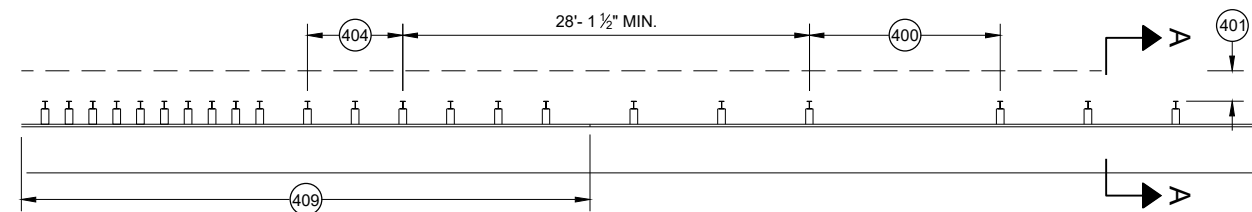
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



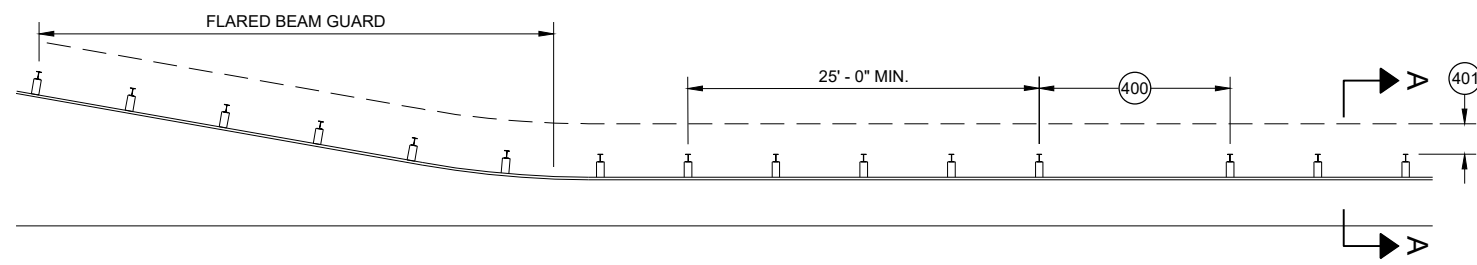
MISSING POST IN MGS GUARDRAIL



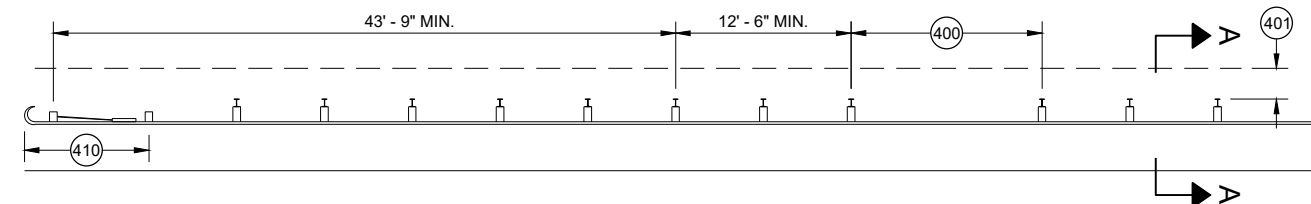
MISSING POST IN MGS GUARDRAIL NEAR EAT



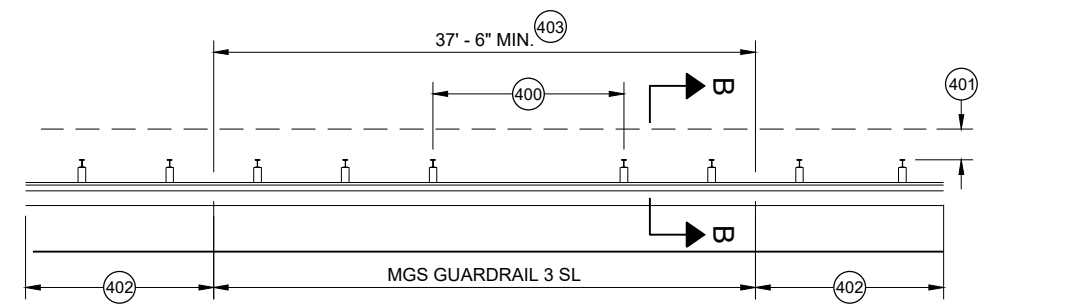
MISSING POST IN MGS GUARDRAIL NEAR AN APPROACH TRANSITION



MISSING POST IN MGS GUARDRAIL NEAR FLARED BEAM GUARD

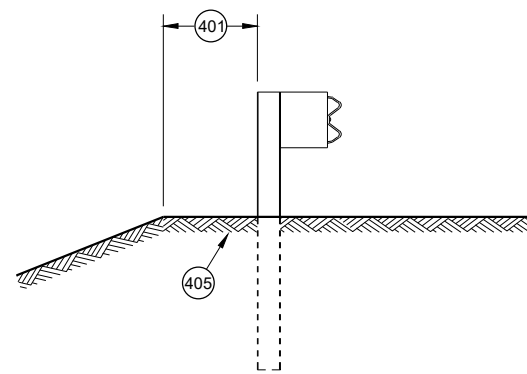


MISSING POST IN MGS GUARDRAIL NEAR A TYPE 2 END TERMINAL

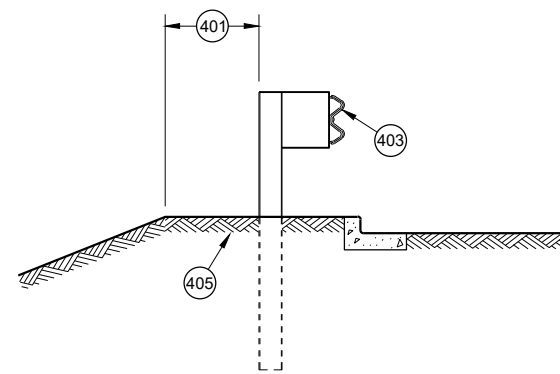


MISSING POST IN SHORT SPAN MGS GUARDRAIL NEAR CURB (SL)

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



SECTION A - A



SECTION B - B

**MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

FHWA

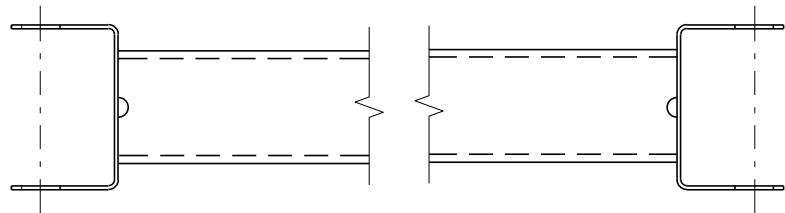
- (A) THE SLOPE IN THE AREA BOUNDED BY THE GRADELINE, THE HINGE POINT LINE (HPL) AND THE CLEAR ZONE LIMITS (CZL) SHALL BE 4:1 OR FLATTER.
- (B) AFTER FINAL ASSEMBLY, RECHECK CABLE TO BE SURE IT IS TAUT AND HAS NOT RELAXED
- (C) DIFFERENT MANUFACTURERS REQUIRE DIFFERENT PERFORATED W - BEAM RAIL END PANELS.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

DIMENSIONS MAY VARY, MANUFACTURER'S INFORMATION.

THE CENTER OF THE UPPER 3½" DIAMETER HOLE ON POST NUMBER 3 THROUGH POST 9 IS TO BE FLUSH WITH THE GROUND LINE UP TO A MAXIMUM OF 2" ABOVE GROUND LINE. WOOD BLOCKS ON POSTS NUMBERED 3 THROUGH 9 MAY BE ADJUSTED UP TO 3" ABOVE THE TOP OF POST.

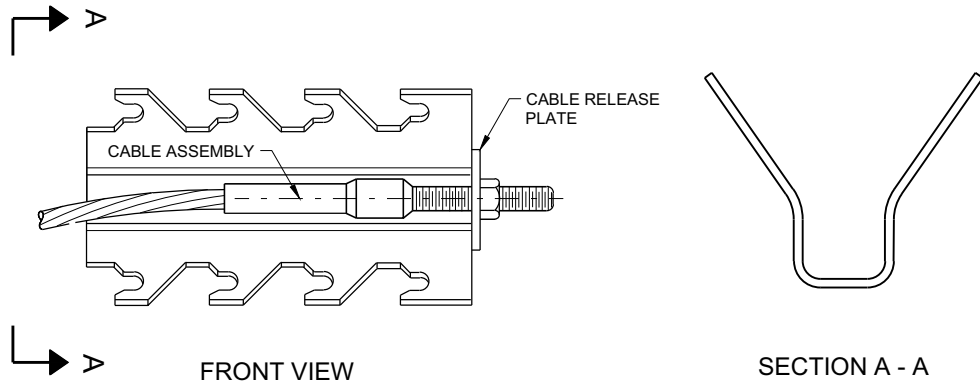


STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

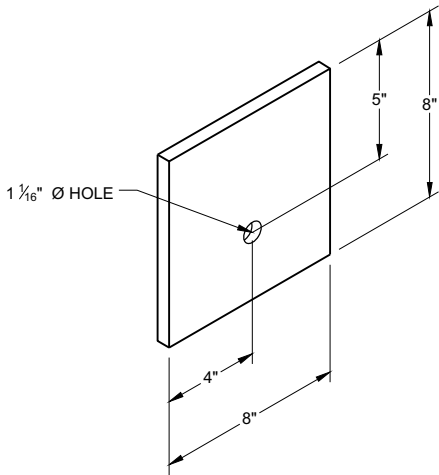


GENERIC GROUND STRUT ⁹ ^E

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



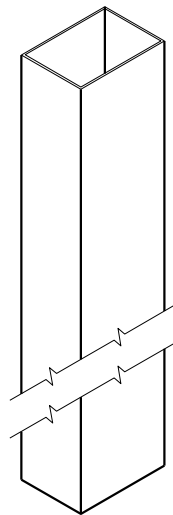
GENERIC ANCHOR CABLE BOX ⁹ ^E



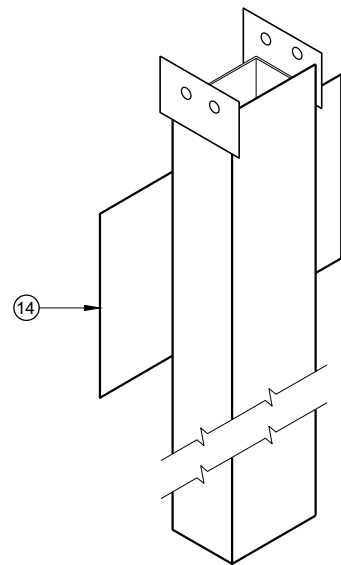
BEARING PLATE ⁶ ^E

MIDWEST GUARDRAIL SYSTEM
ENERGY ABSORBING TERMINAL
(MGS)

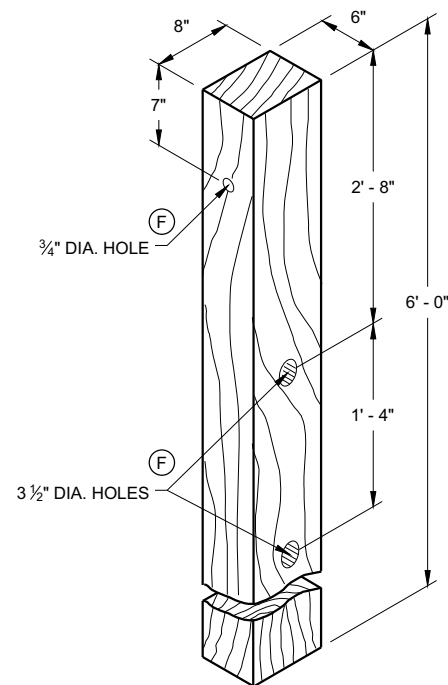
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



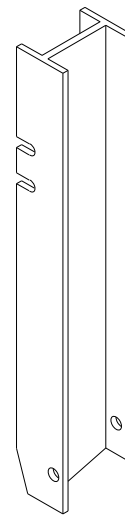
UPPER POST NO. 1 ⁽¹⁾ (E)



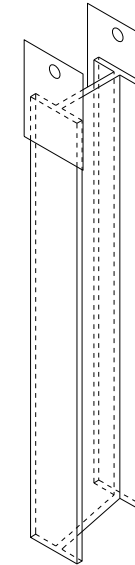
LOWER POST NO. 1 ⁽²⁾ (E)



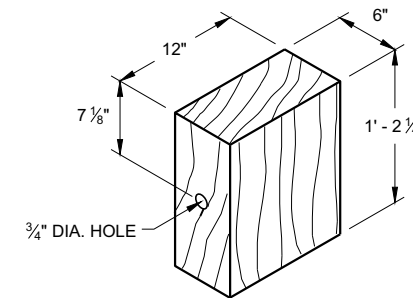
WOOD CRT POST ⁽³⁾ (E)
POSTS NUMBER 3-9



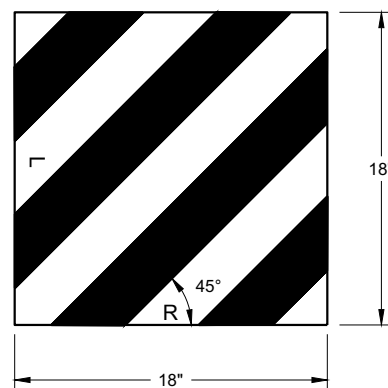
UPPER POST NO. 2 ⁽¹⁵⁾ (E)



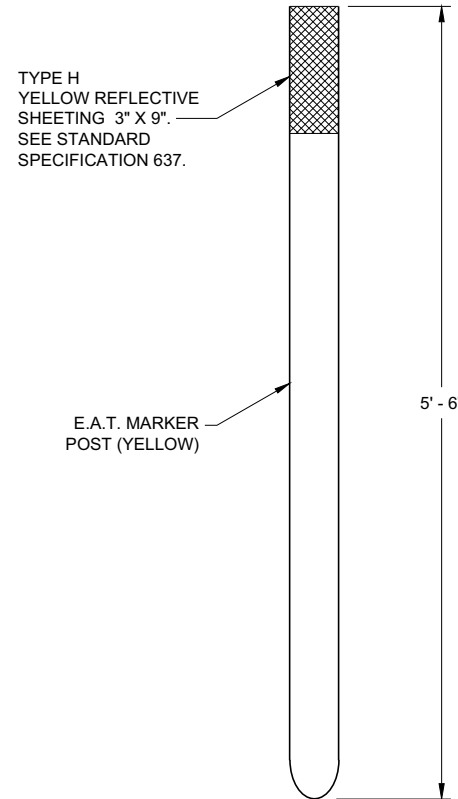
LOWER POST NO. 2 ⁽¹⁶⁾ (E)



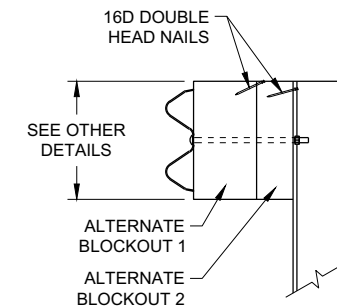
WOOD BLOCKOUT ⁽⁴⁾
REQ'D. AT ALL POSTS EXCEPT POST NO'S 1 & 2



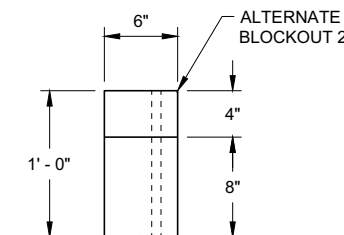
REFLECTIVE SHEETING DETAIL ^(E)



E.A.T. MARKER POST ⁽¹³⁾



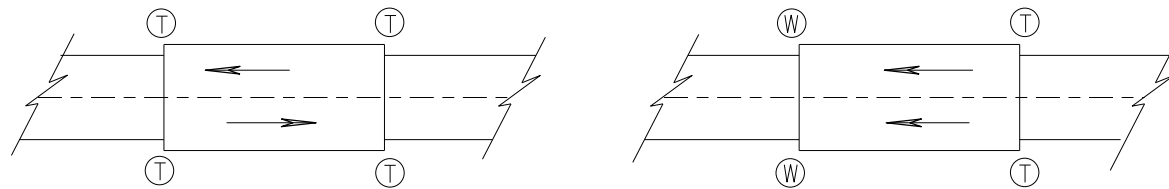
SIDE VIEW



TOP VIEW

ALTERNATE WOOD
BLOCKOUT DETAIL

MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 7/2018 DATE	/S/ Rodney Taylor ROADWAY STANDARDS DEVELOPMENT UNIT SUPERVISOR
FHWA	



TWO WAY TRAFFIC

ONE WAY TRAFFIC

Ⓣ THRIE BEAM CONNECTION

Ⓦ W-BEAM CONNECTION WHEN REQUIRED

TYPICAL LOCATIONS OF THRIE BEAM AND W-BEAM CONNECTIONS TO BRIDGE

GENERAL NOTES

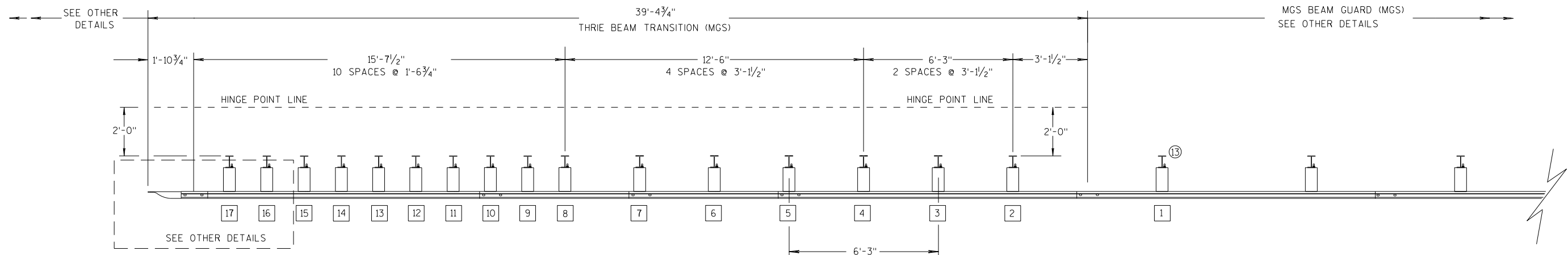
IF ROCK IS ENCOUNTERED, REMOVE ROCK TO FULL DEPTH OF POST PLUS 2½", AND 12" DIAMETER AROUND POST. SEE 14B42 FOR MORE DETAILS.

TRANSITION USES STEEL POSTS ONLY.

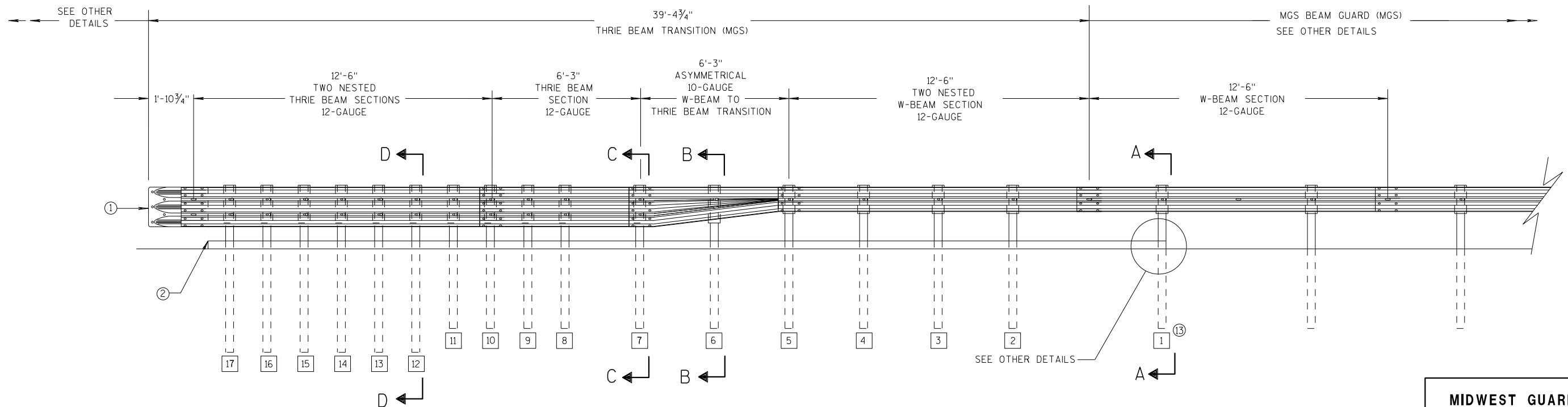
SEE STANDARD DETAIL DRAWING 14 B 42 FOR MORE INFORMATION.

POST 2 THROUGH 17 USES STEEL POST ONLY

- ① BRIDGE RAILING TYPE "W" DOES NOT REQUIRE A TERMINAL CONNECTOR.
- ② OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.
- ⑬ STEEL OR WOOD POST IS ACCEPTABLE AT POST 1. SEE SDD14B42



PLAN VIEW



ELEVATION VIEW

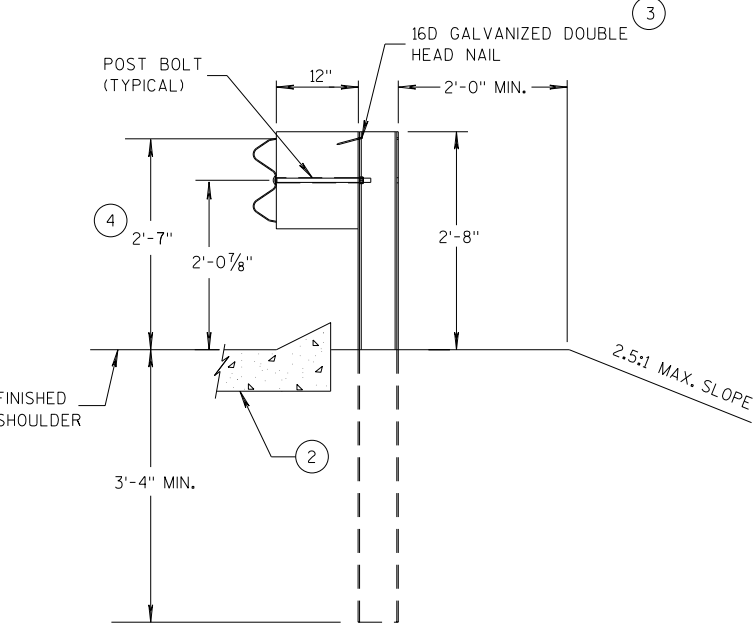
MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION

**MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)**

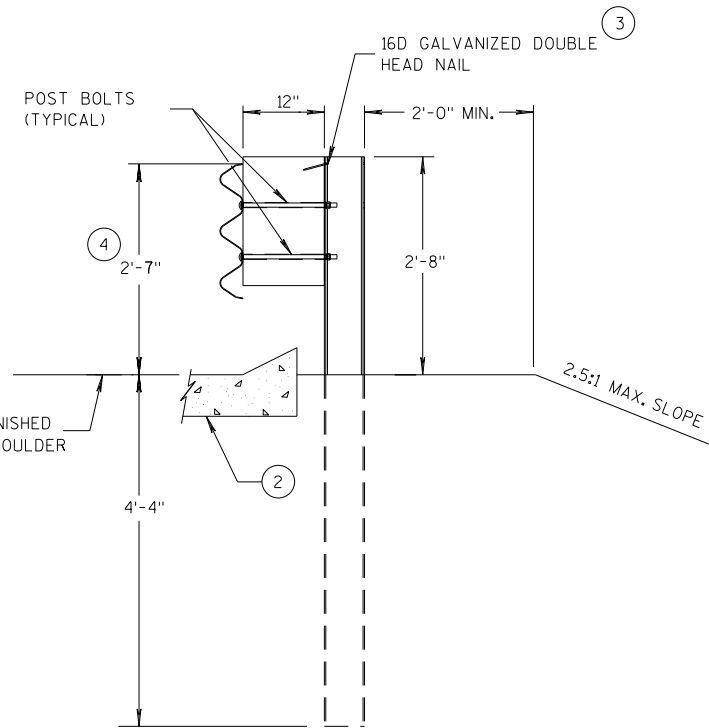
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

GENERAL NOTES

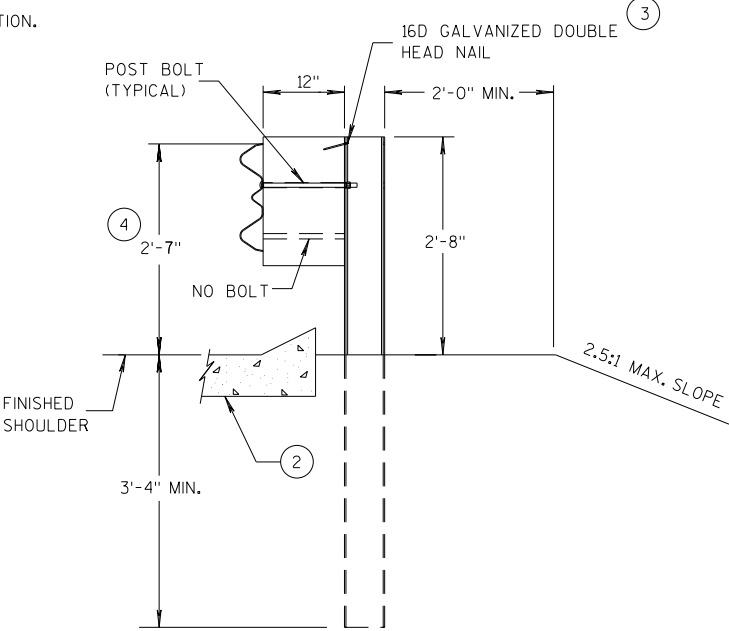
- 2 OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.
- 3 WHEN USING STEEL POSTS AND WOOD BLOCKOUTS INSTALL FOUR 10D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.
- 4 TOLERANCE FOR TOP OF W-BEAM RAIL IS $\pm 1"$.
- 13 STEEL OR WOOD POST IS ACCEPTABLE AT POST 1. SEE SDD 14B42



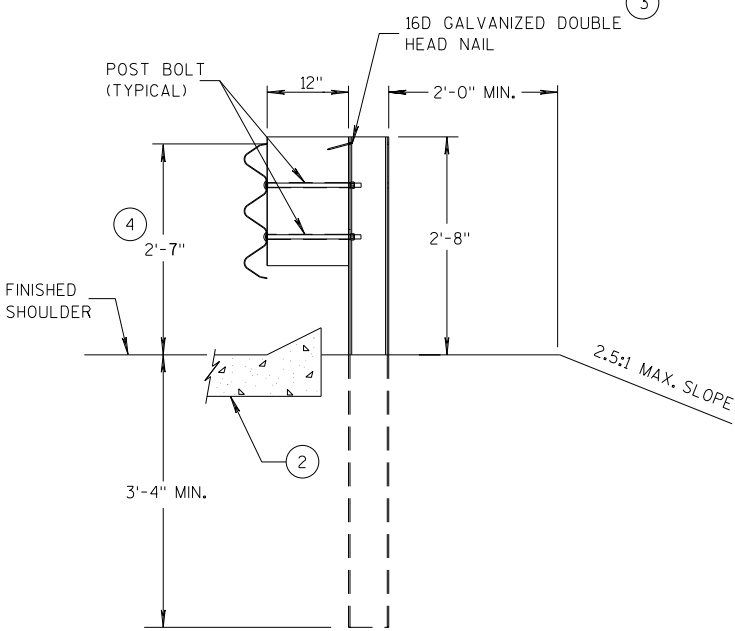
SECTION A-A
POSTS 1-5



SECTION D-D
POSTS 12-17



SECTION B-B
POST 6



SECTION C-C
POSTS 7-11

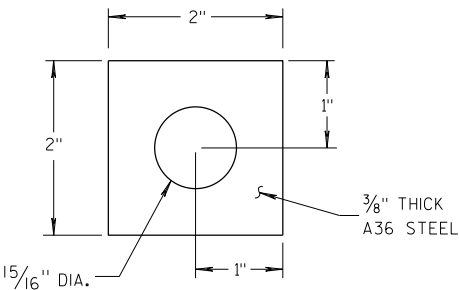
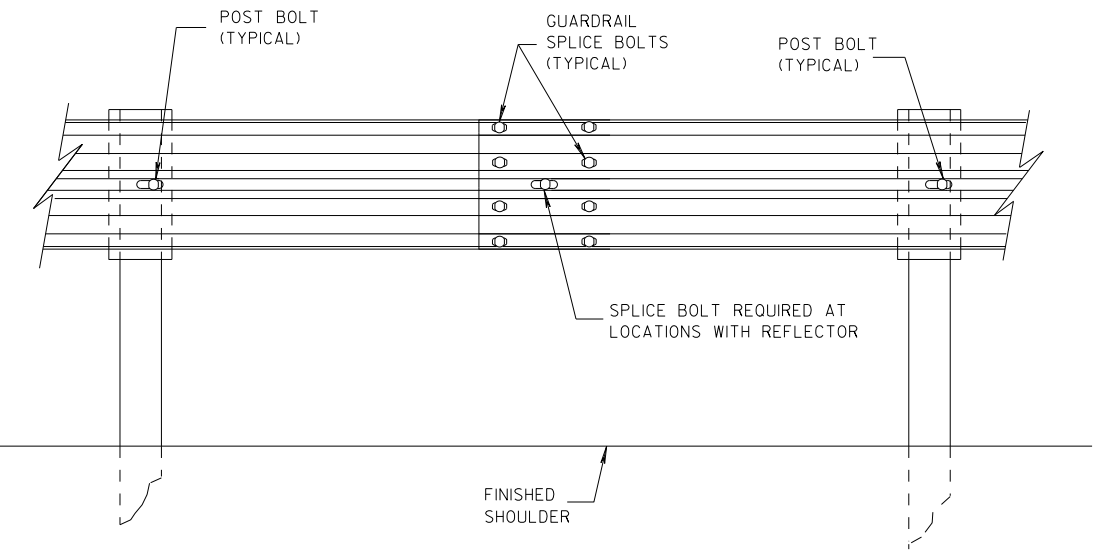
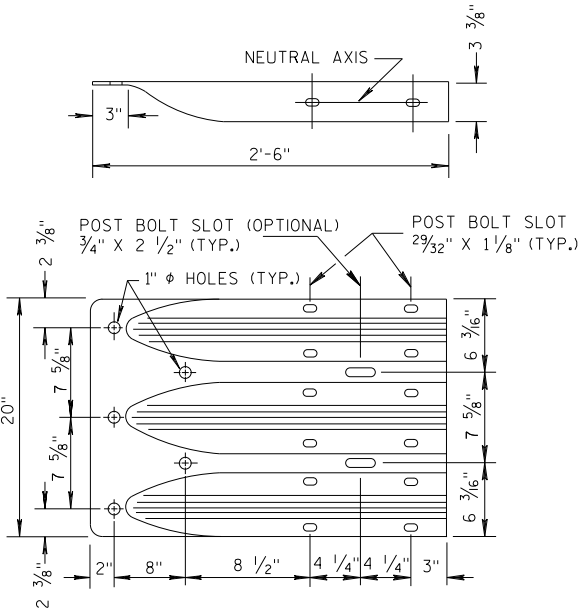


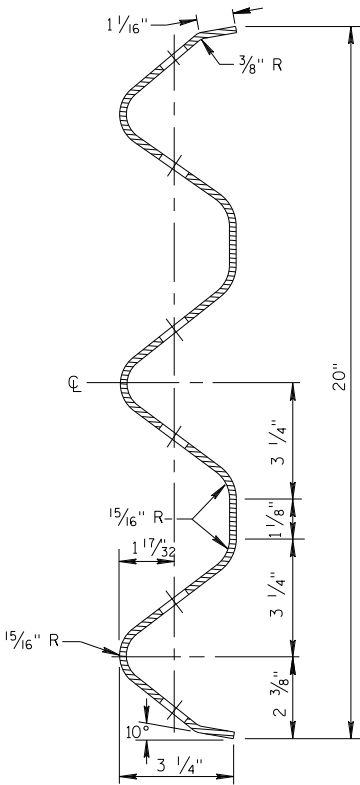
PLATE WASHER DETAIL



SPLICE DETAIL



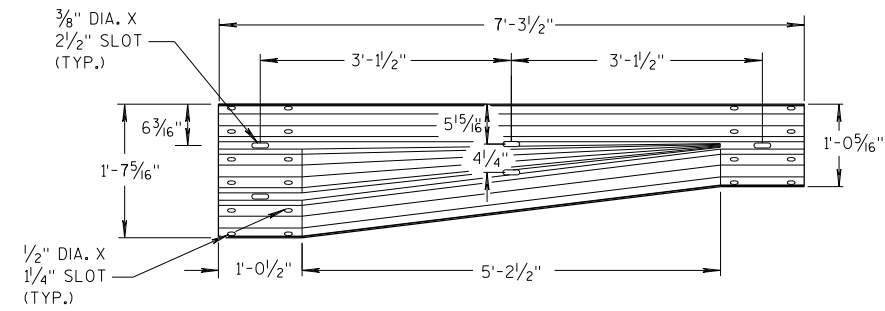
THRIE BEAM
TERMINAL CONNECTOR



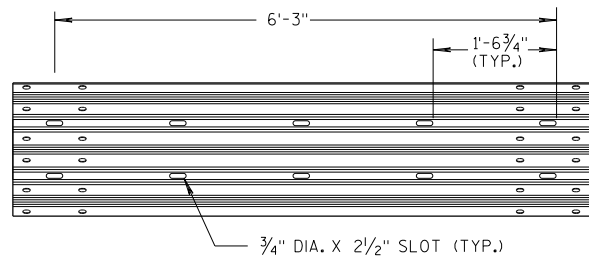
SECTION THRU THRIE
BEAM RAIL ELEMENT

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

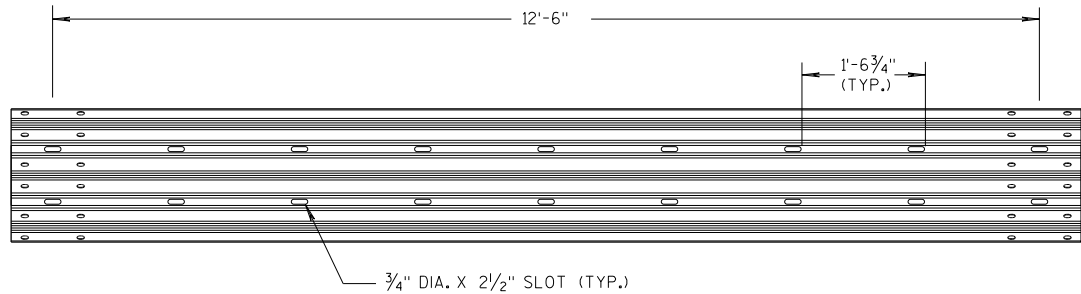
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



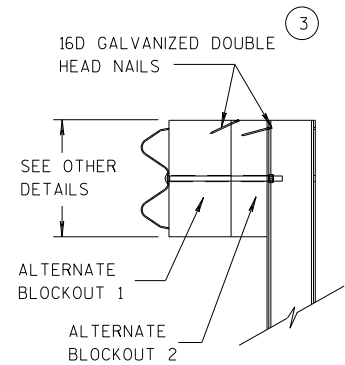
W-BEAM TO THRIE BEAM TRANSITION SECTION



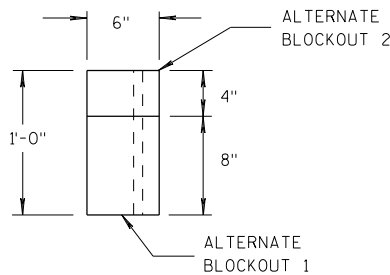
6'-3" THRIE BEAM SECTION



12'-6" THRIE BEAM SECTION

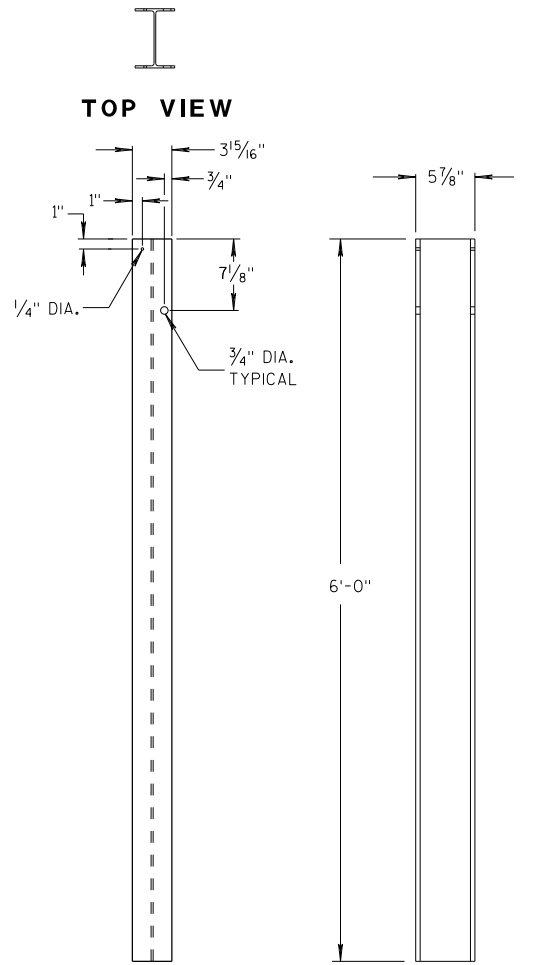


SIDE VIEW



TOP VIEW

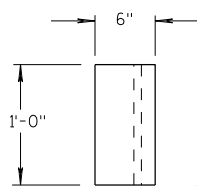
ALTERNATE WOOD BLOCKOUT DETAIL



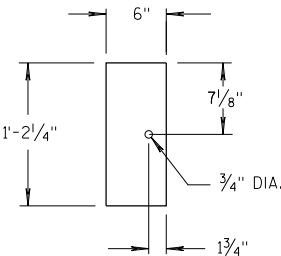
FRONT VIEW

SIDE VIEW

STEEL POSTS 1-5

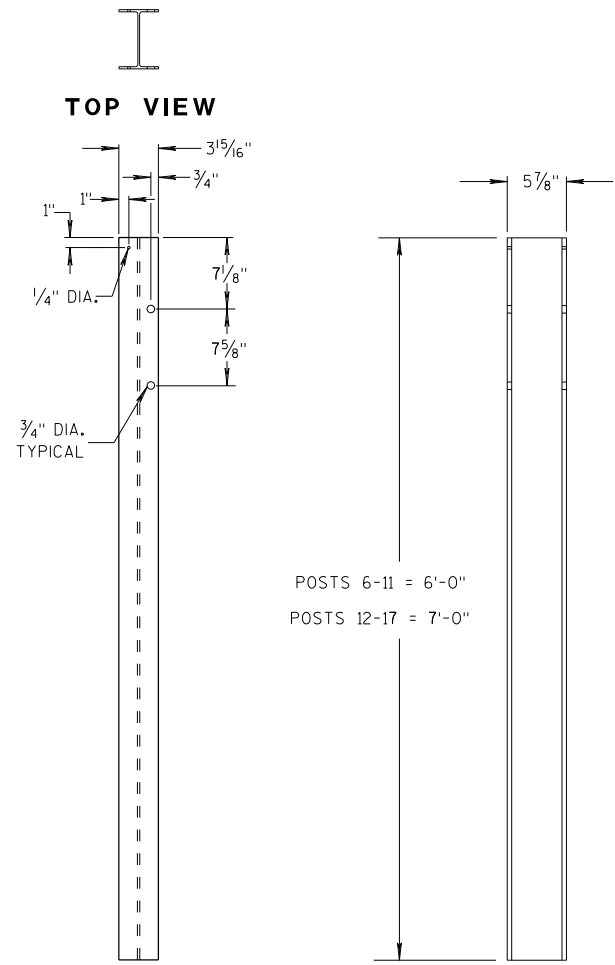


TOP VIEW



FRONT VIEW

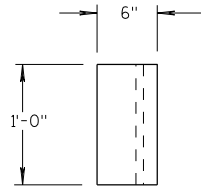
BLOCKOUT
POSTS 1-5



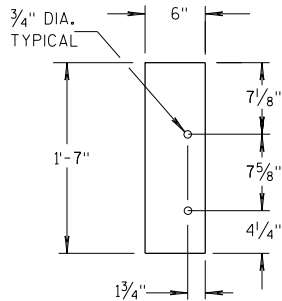
FRONT VIEW

SIDE VIEW

STEEL POSTS 6-17



TOP VIEW



FRONT VIEW

BLOCKOUT
POSTS 6-17

GENERAL NOTES

STEEL POSTS ARE W6X9 OR W6X8.5.

BOLT HOLES FOR POST ARE ON FRONT AND OF SIDE OF POST.

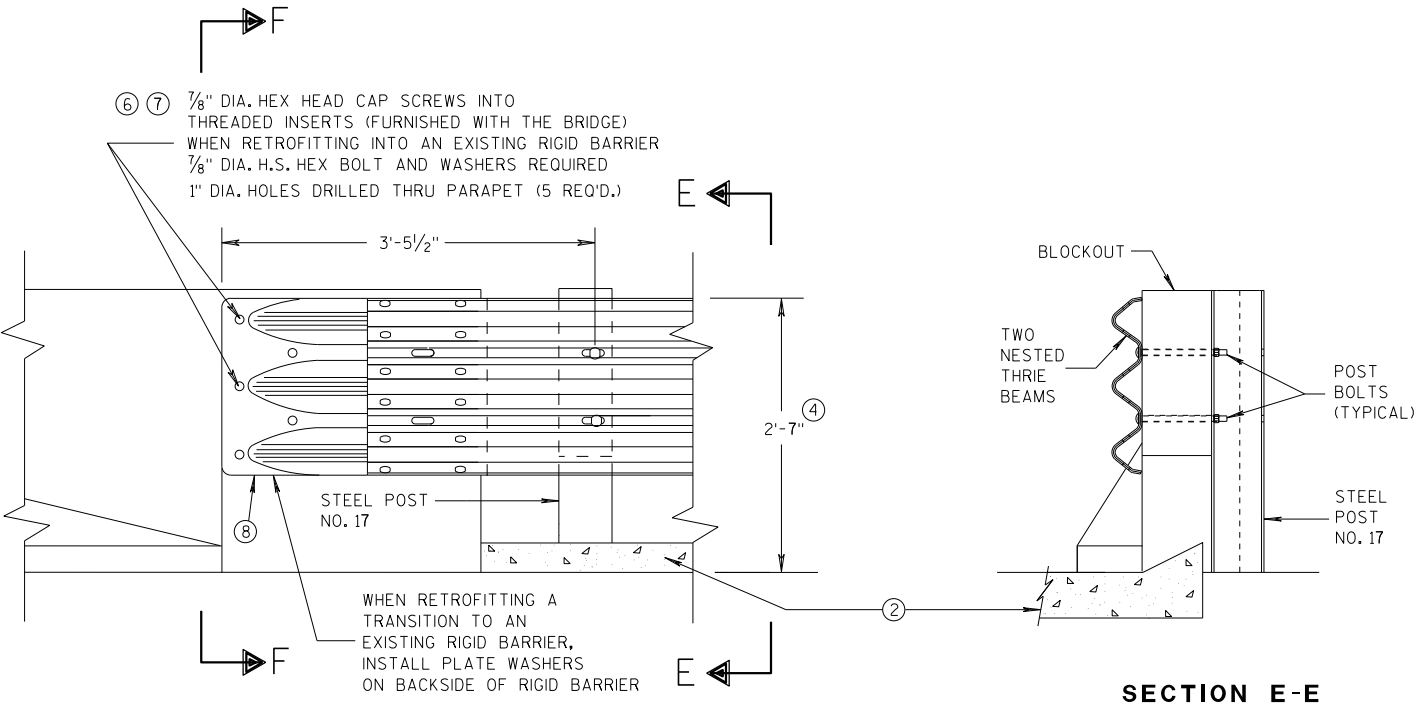
③ WHEN USING STEEL POSTS AND WOOD BLOCKOUTS INSTALL FOUR 16D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.

⑤ WOOD BLOCKS MAY BE CONSTRUCTED OUT OF 2 WOOD BLOCKS. SEE ALTERNATE WOOD BLOCK DETAIL.

⑬ STEEL OR WOOD POST IS ACCEPTABLE AT POST 1. SEE SDD 14B42.

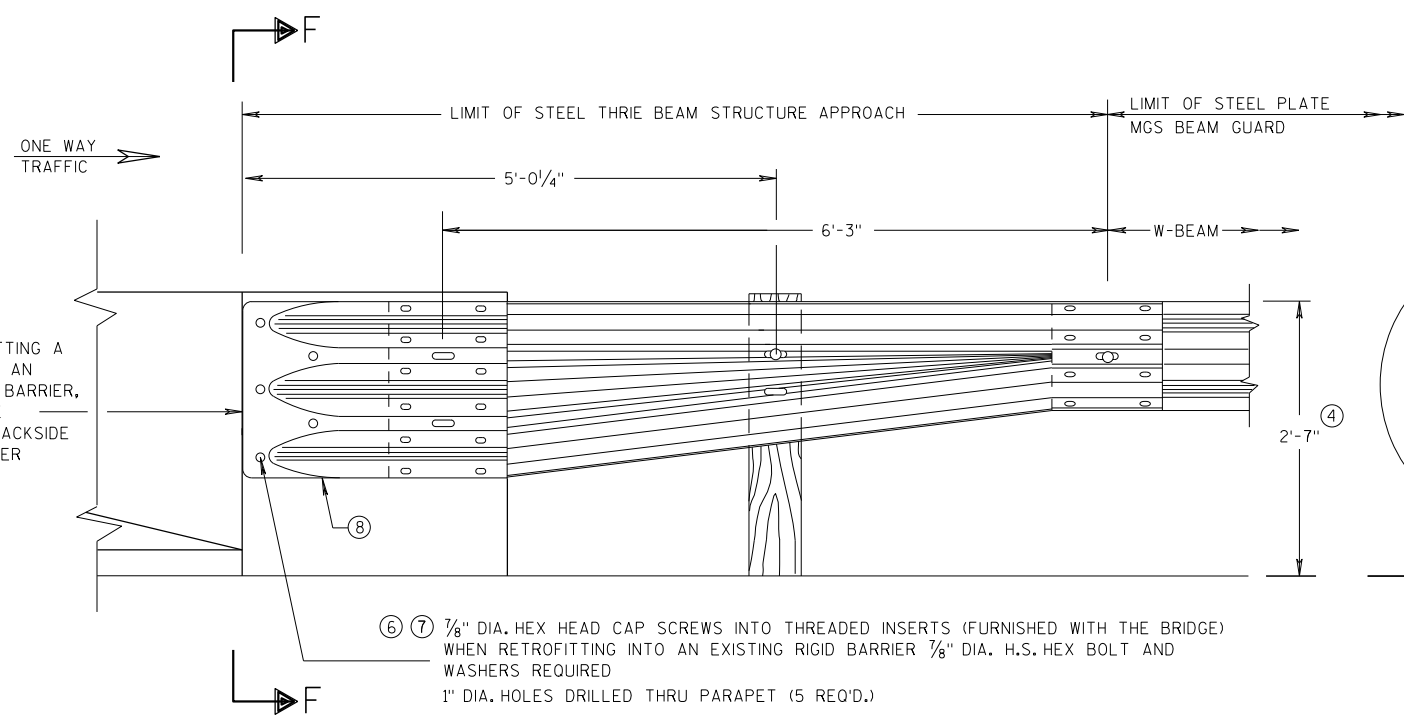
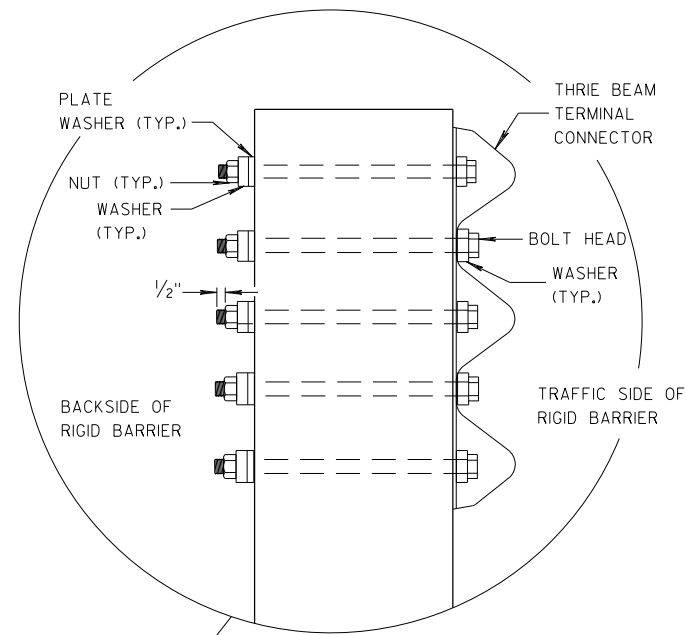
MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

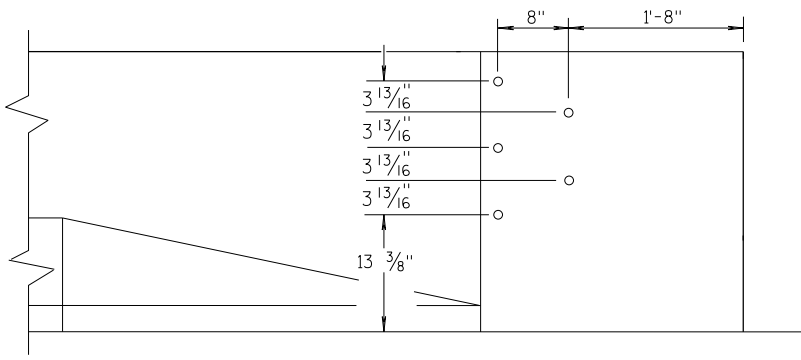


GENERAL NOTES

- THESE ARE TYPICAL CONNECTION DETAILS. ADJUST THE POSTION OF CONNECTIONS TO EXISTING BRIDGES TO FIT THE ACTUAL BRIDGE AND SITE DIMENSIONS.
- ② OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.
- ④ TOLERANCE FOR TOP OF BEAM IS $\pm 1"$.
- ⑥ DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.
- ⑦ BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM CONNECTOR PLATE. BOLTS THAT EXTEND THROUGH THE PARAPET AND OUT THE BACK FACE REQUIRE A HARDENED ROUND STEEL WASHER THAT IS 2" O.D. X 5/32" THICK AND ONE PLATE WASHER. REPAIR ANY DAMAGED CONCRETE FROM BOLT INSTALLATION.
- ⑧ THE RECESS FOR A W-BEAM CONNECTION, WHICH EXISTS ON SOME PARAPETS OF THIS TYPE, SHALL BE FILLED WITH A TREATED TIMBER BLOCKOUT. BLOCKOUT SIZE IS 1'-6" X 2'-0" X 3 1/2".



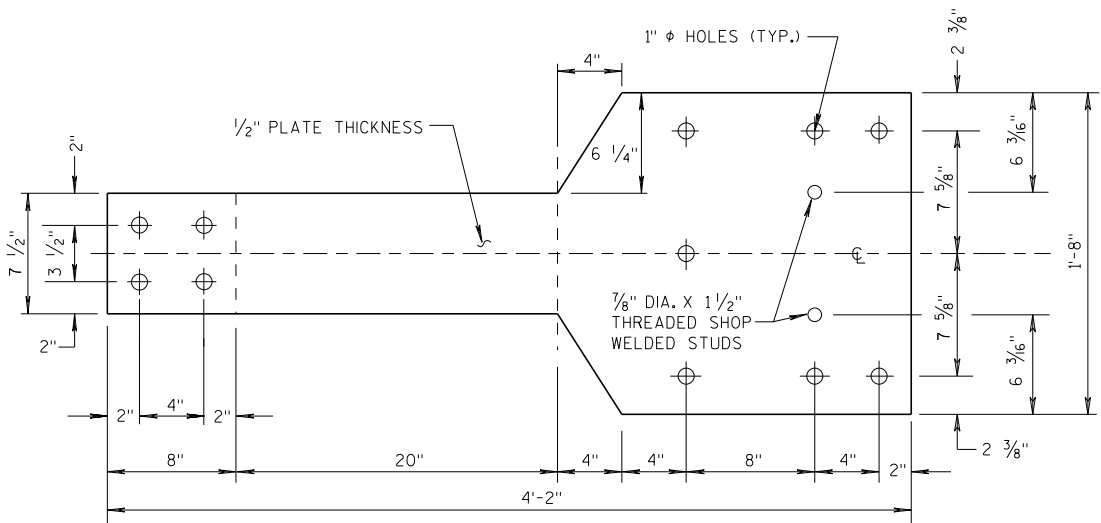
SECTION F-F



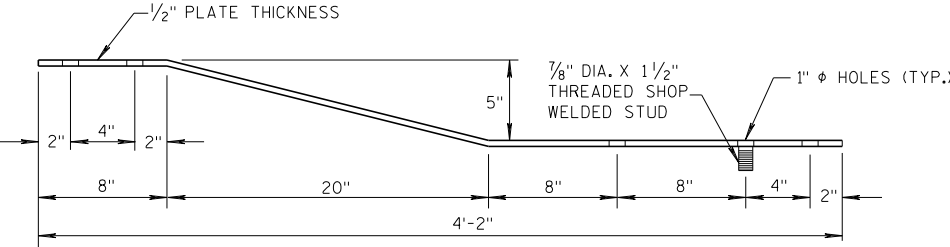
MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 07/2018 DATE	/S/ Rodney Taylor ROADWAY STANDARDS DEVELOPMENT UNIT SUPERVISOR
FHWA	

GENERAL NOTES

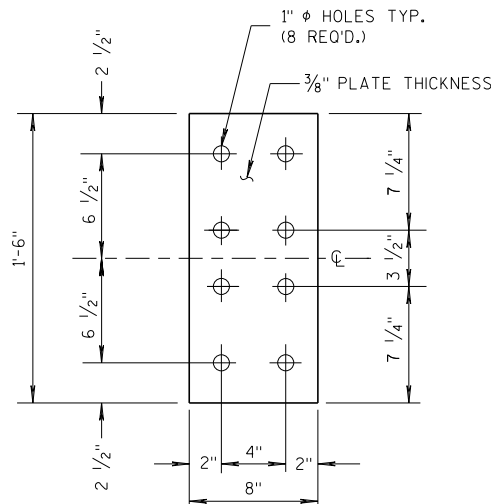
④ TOLERANCE FOR TOP OF W-BEAM RAIL IS ± 1".



FRONT VIEW

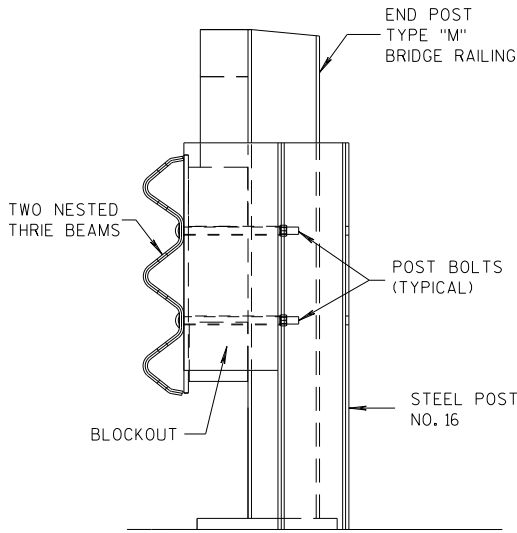


PLAN VIEW
BACK-UP PLATE DETAIL, TYPE "M"

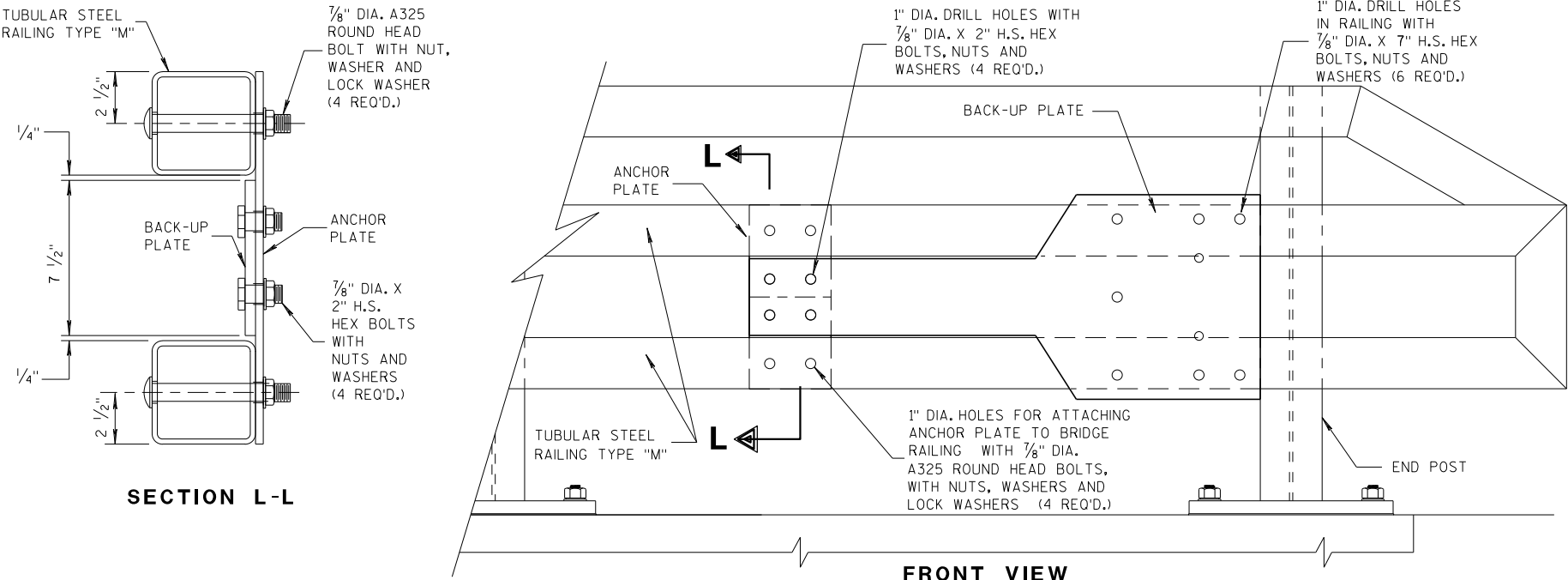


FRONT VIEW

ANCHOR
PLATE DETAIL,
TYPE "M"



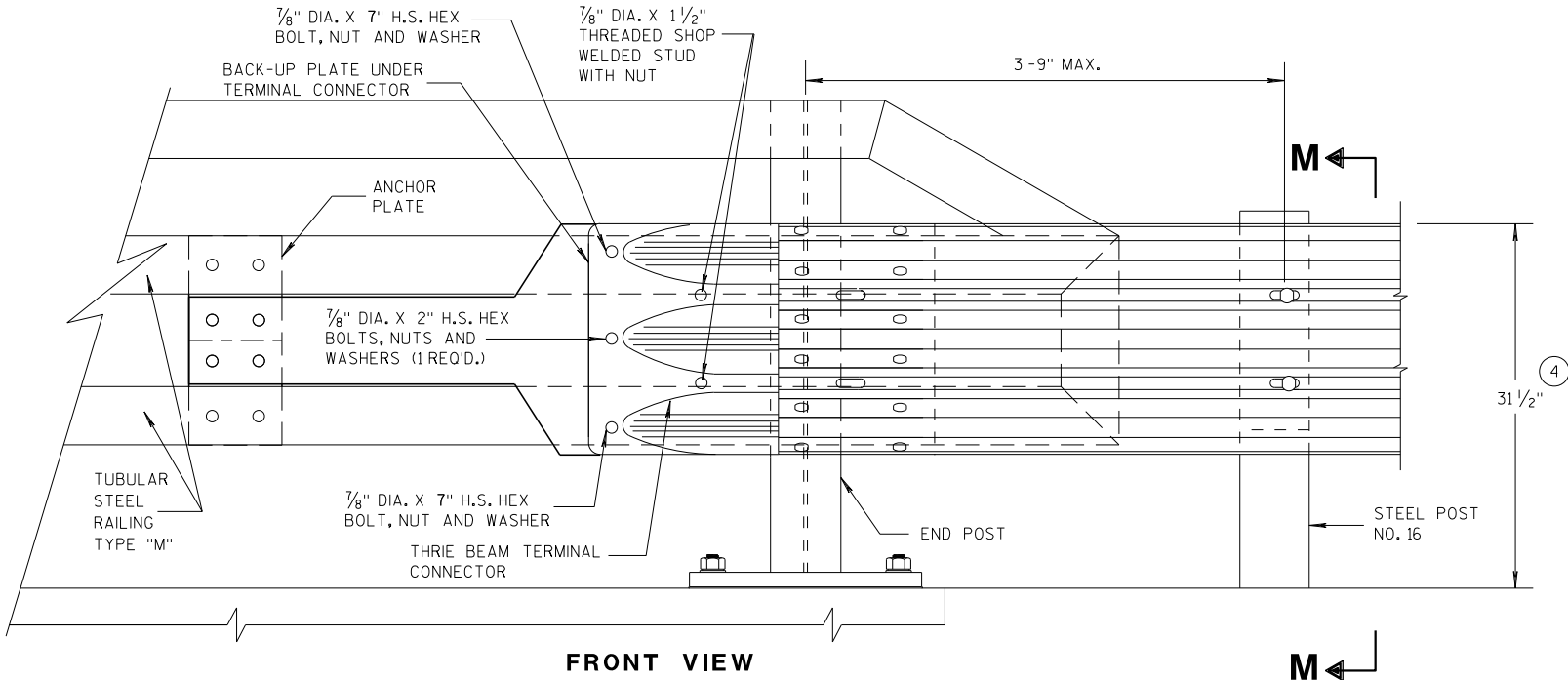
SECTION M-M



SECTION L-L

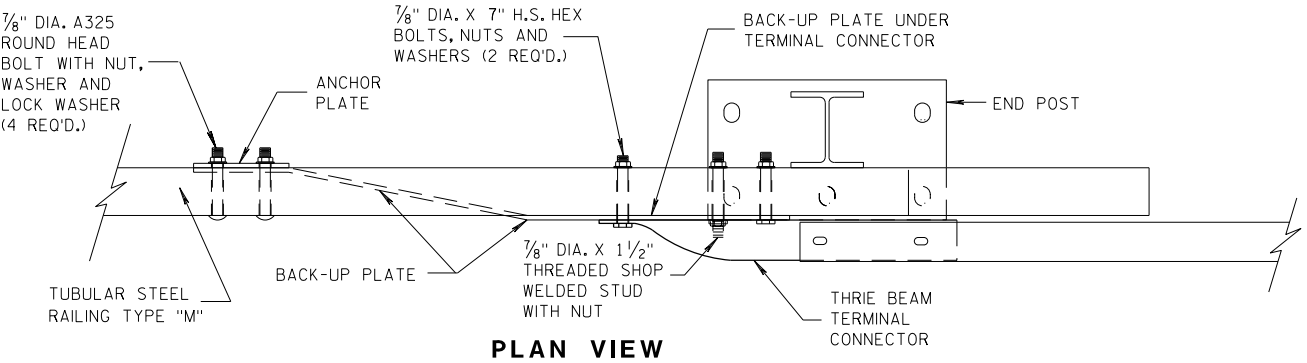
FRONT VIEW

ANCHOR AND BACK-UP PLATE MOUNTING TO BRIDGE RAILING, TYPE "M"



FRONT VIEW

M



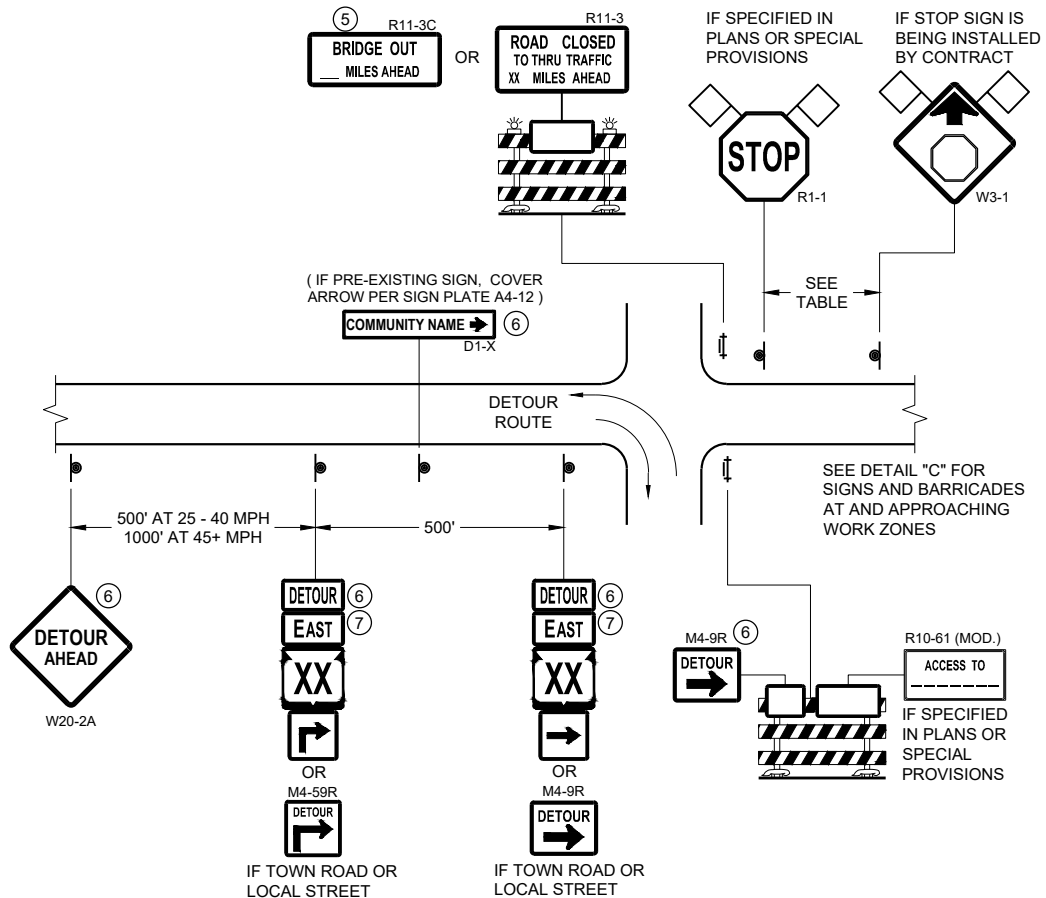
PLAN VIEW

THRIE BEAM CONNECTION TO TUBULAR RAILING, TYPE "M"

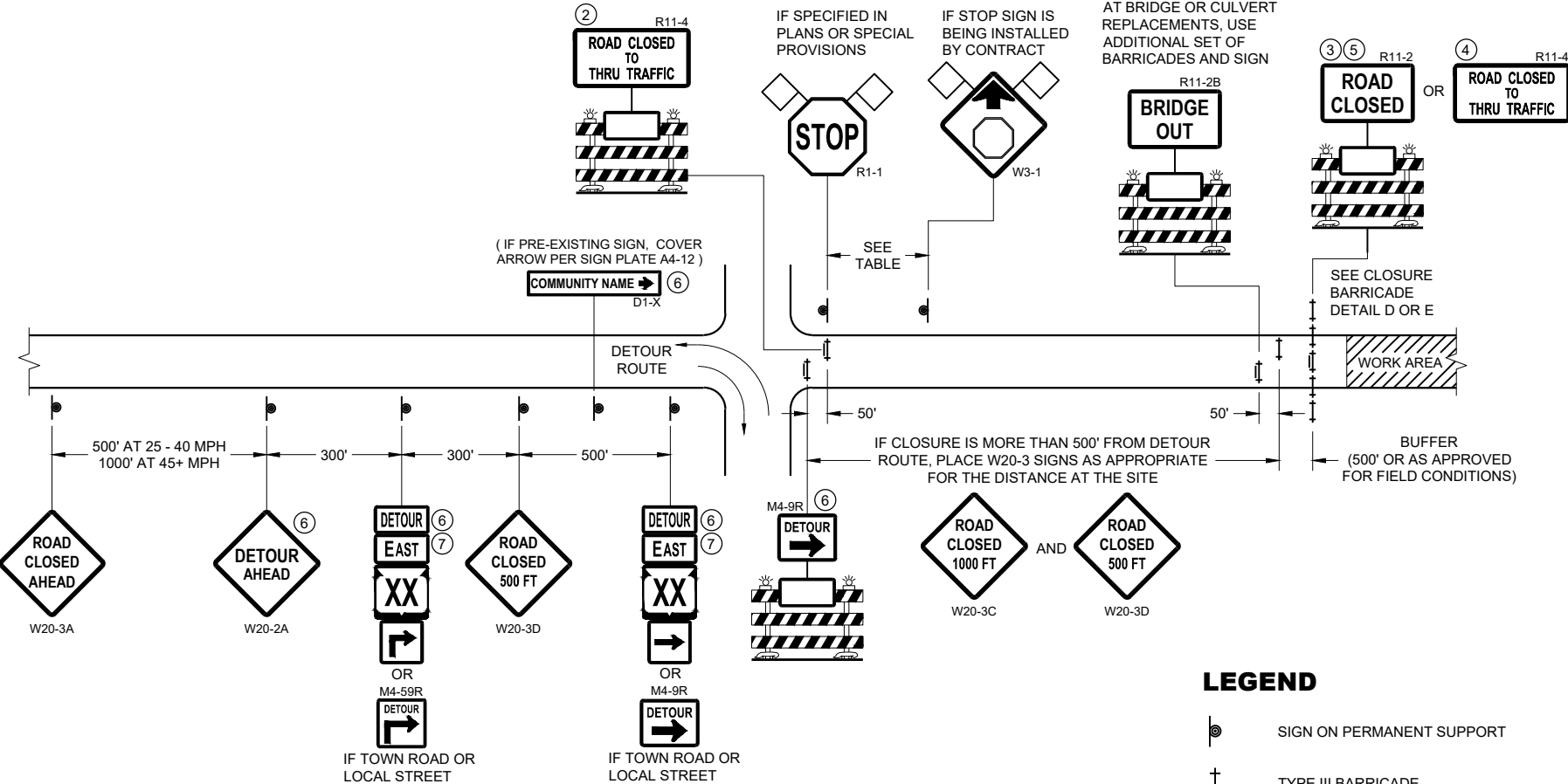
MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
07/2018
DATE /S/ Rodney Taylor
ROADWAY STANDARDS DEVELOPMENT
UNIT SUPERVISOR
FHWA



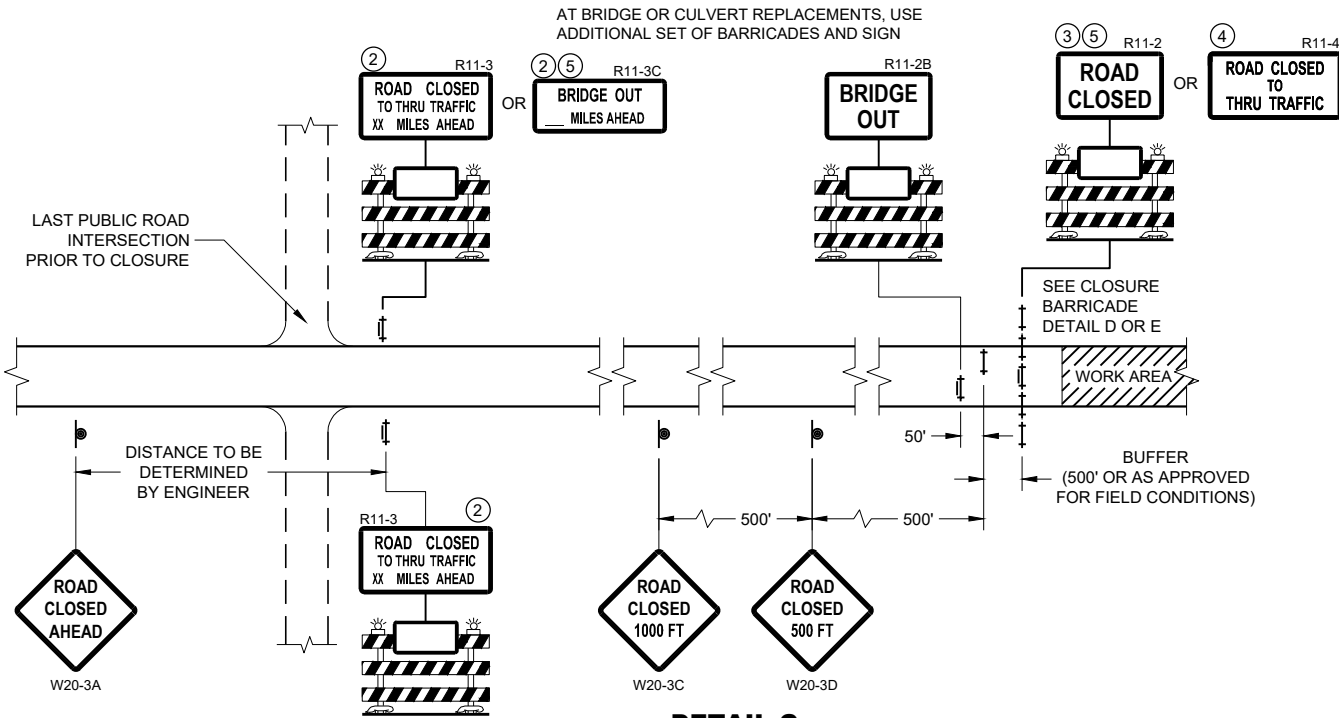
DETAIL A
MAINLINE CLOSURE WITH POSTED DETOUR
WORK ZONE GREATER THAN OR EQUAL TO ½ MILE FROM
DETOUR ROUTE (1000 FEET IF URBAN)



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

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



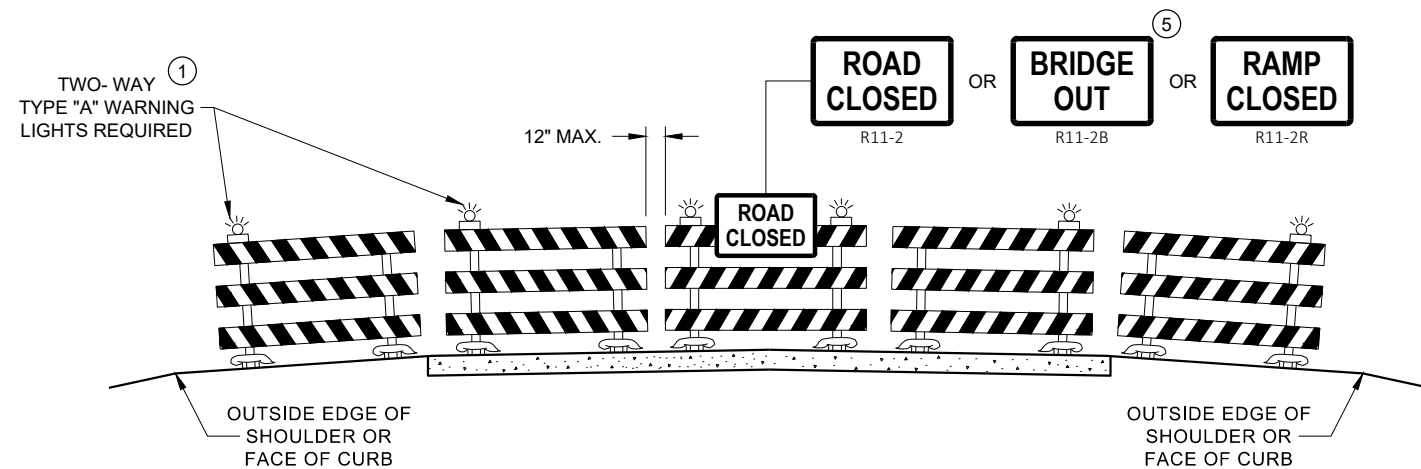
DETAIL C
MAINLINE CLOSURE, NO POSTED DETOUR

**BARRICADES AND SIGNS
FOR MAINLINE CLOSURES**

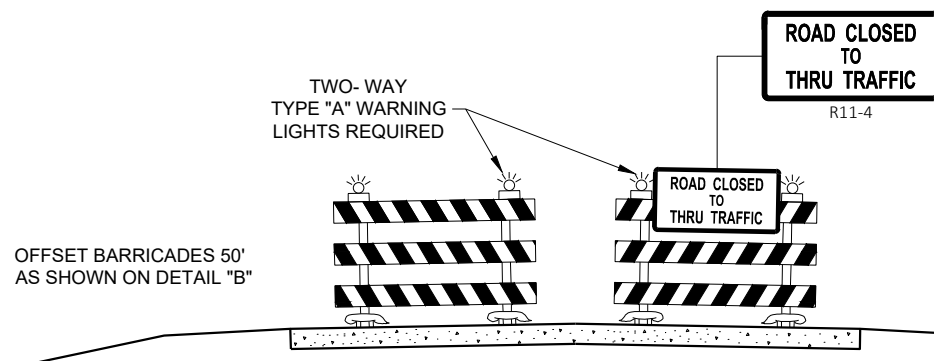
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

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"

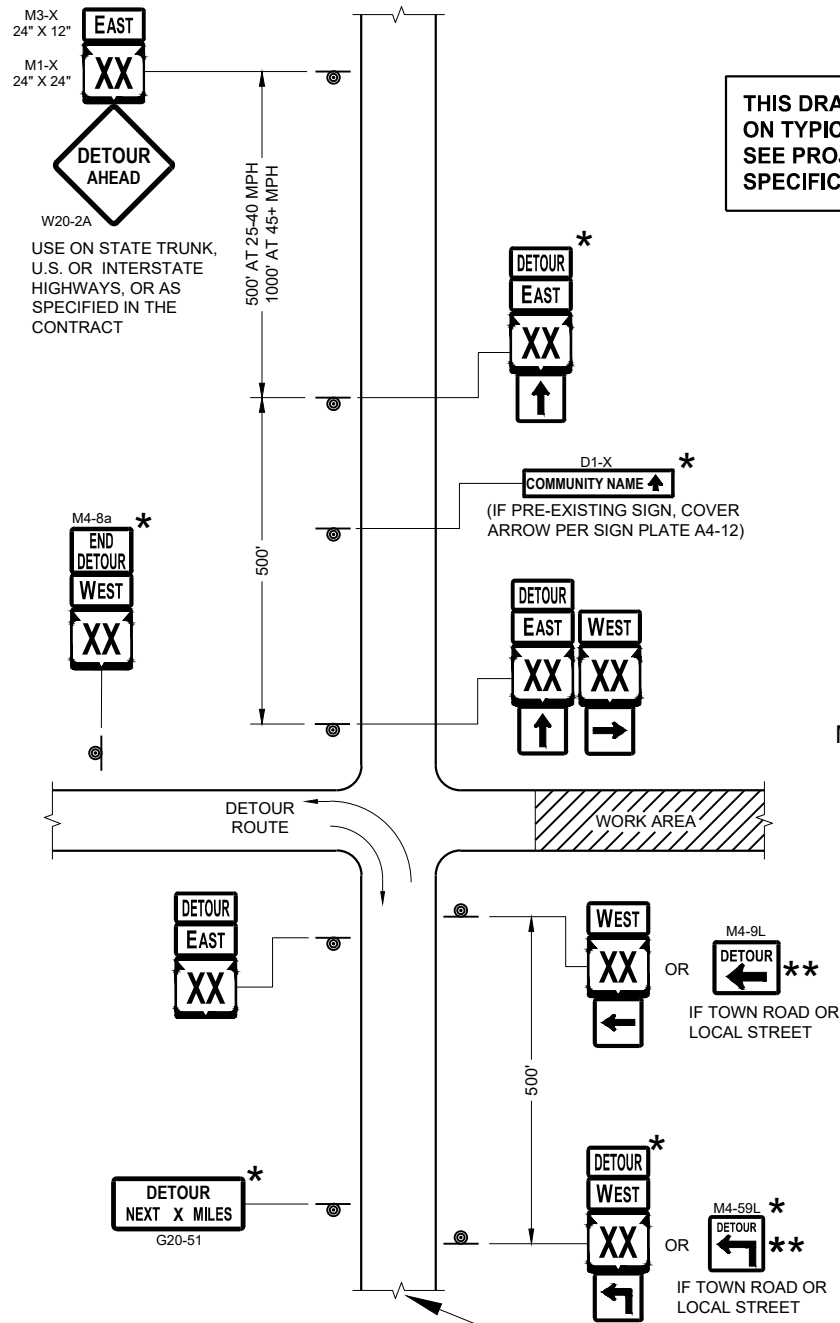
- 1 TWO WARNING LIGHTS SHALL BE PROVIDED ON THE CENTER BARRICADE AND A MINIMUM OF ONE WARNING LIGHT SHALL BE PROVIDED ON EACH OF THE OTHER BARRICADES WITHIN THE ROADWAY LIMITS. SPACING OF THE WARNING LIGHTS SHALL BE UNIFORM TO THE EDGE OF ROADWAY AS SHOWN (APPROX. 8 FOOT LIGHT SPACING).
- 2 THESE SIGNS 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
DEPARTMENT OF TRANSPORTATION

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

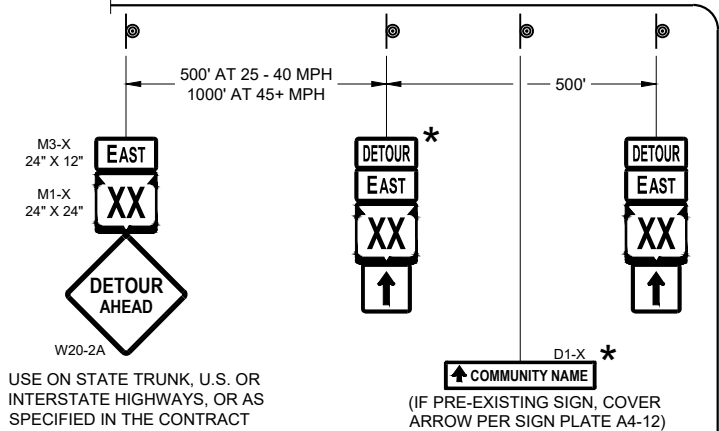
FHWA



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.

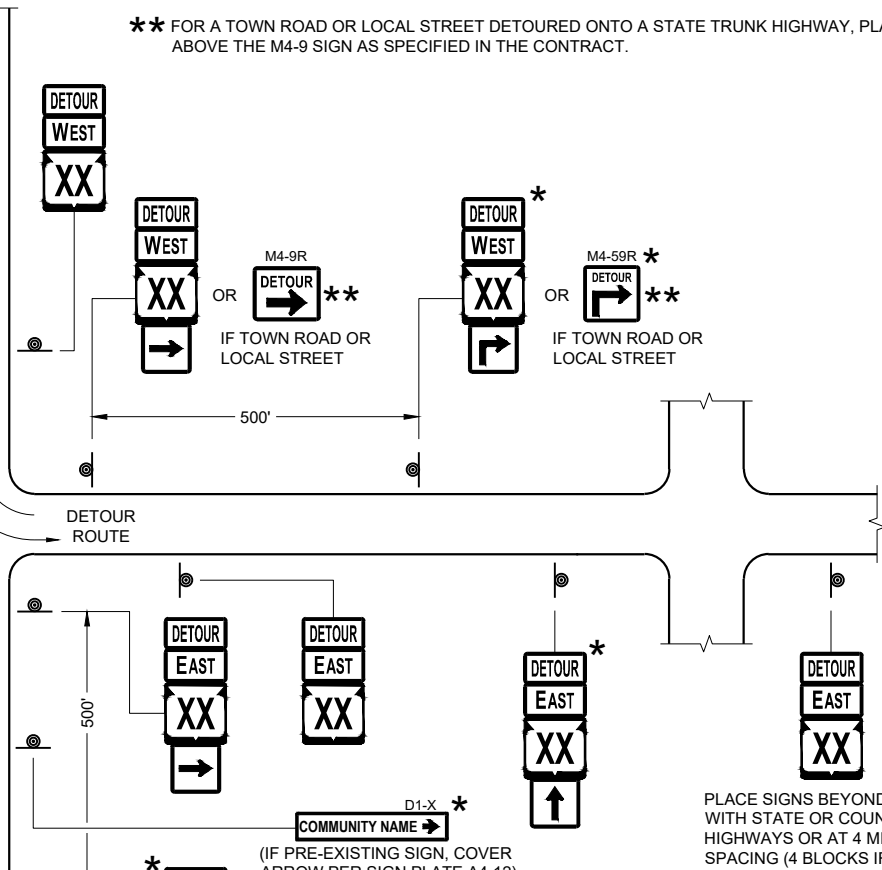
SIGNS THAT WILL BE IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS MAY BE MOUNTED ON PORTABLE SUPPORTS.

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

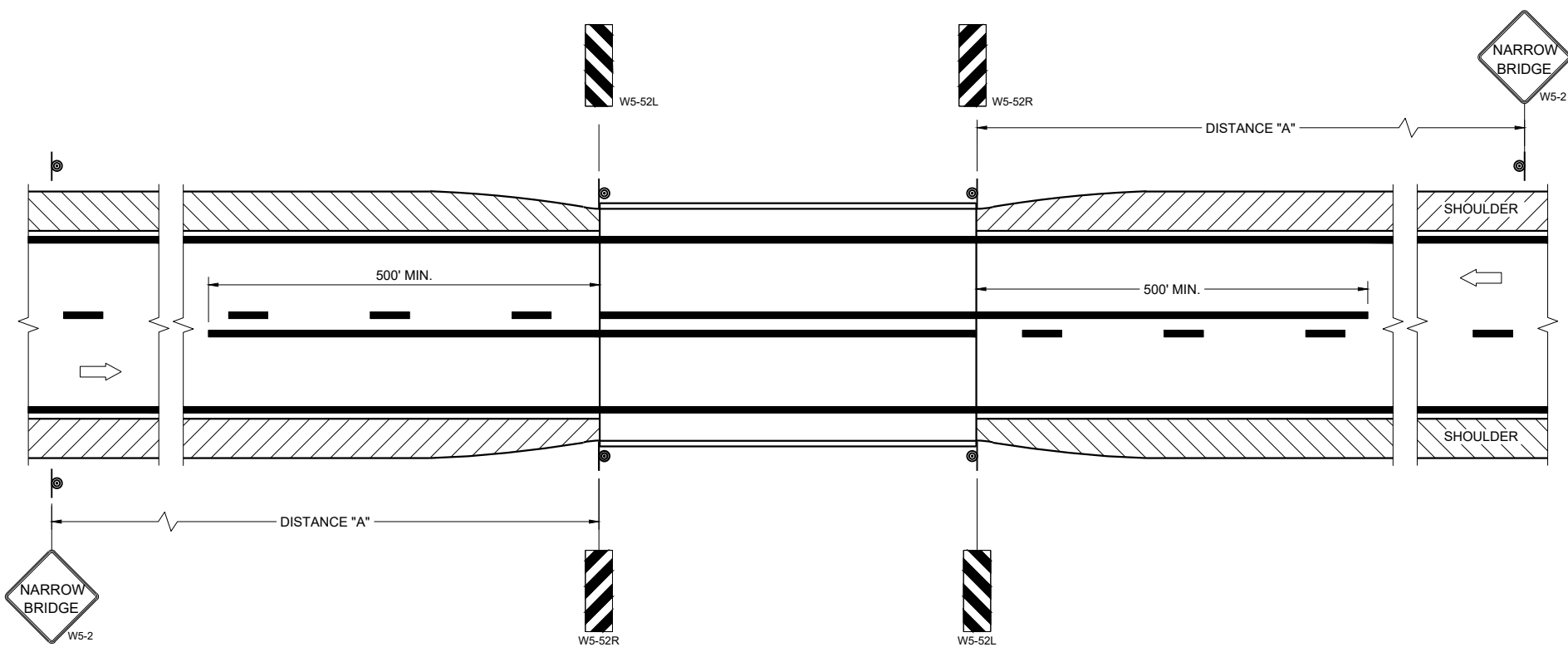
SIGN SIZES SHALL BE AS FOLLOWS:

- 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 M4-59 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.

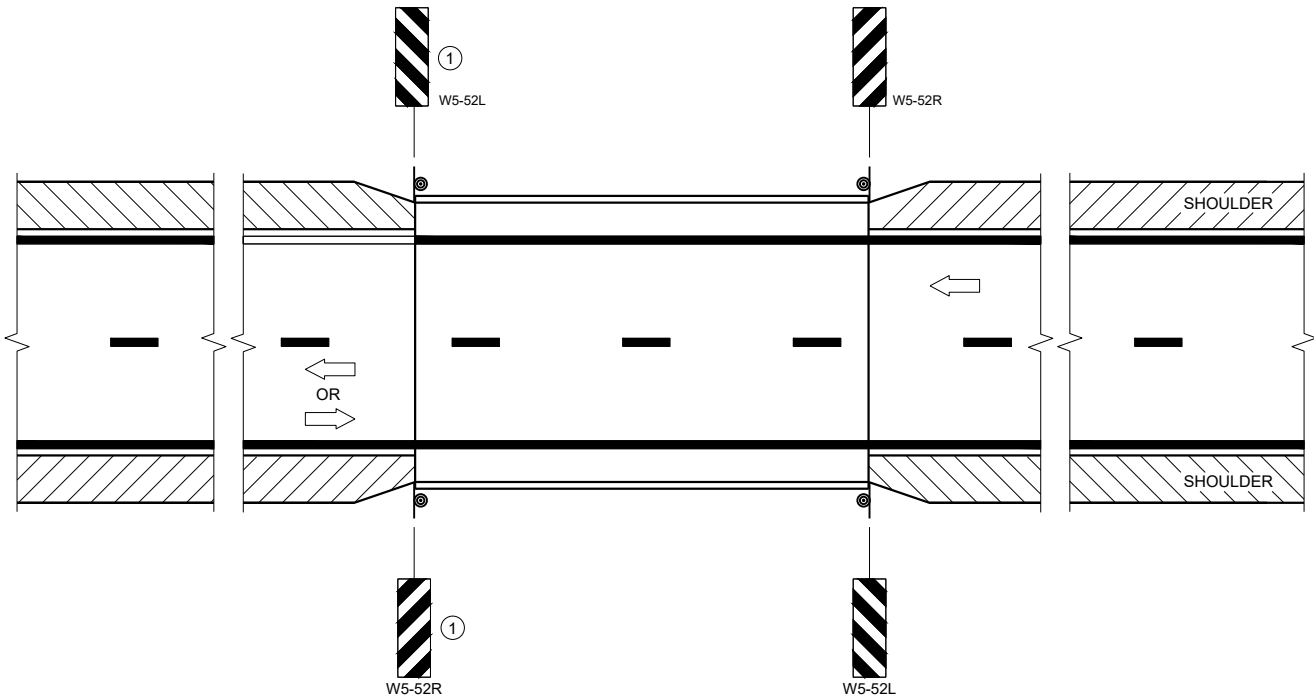
- * OPTIONAL SIGNS. SEE SPECIFIC PROJECT DETOUR SIGNING DETAIL SHEETS.
- ** FOR A TOWN ROAD OR LOCAL STREET DETOURED ONTO A STATE TRUNK HIGHWAY, PLACE A ROAD NAME PLAQUE ABOVE THE M4-9 SIGN AS SPECIFIED IN THE CONTRACT.



DETOUR SIGNING FOR MAINLINE CLOSURES	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED May 2023 DATE	/S/ Andrew Heidtke WORK ZONE ENGINEER
FHWA	



SITUATION 1
WARRANTING CRITERIA:
BRIDGE WIDTH IS AT LEAST 16 FEET BUT LESS THAN 24 FEET.



SITUATION 2
WARRANTING CRITERIA:
1. BRIDGE WIDTH IS AT LEAST 24 FEET AND
2. BRIDGE SHOULDER WIDTH IS LESS THAN 6 FEET

GENERAL NOTES

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

LOCATE W5-52 SIGN POST(S) BEHIND GUARDRAIL WHEN PRESENT.

PLACE THE EDGE OF THE W5-52 SIGN IN LINE WITH FACE OF CURB OR PARAPET.

ON BRIDGE ONLY PROJECTS, PLACE 300 FEET OF EDGELINE.

OMIT EDGELINES ON ROADWAYS WITHOUT EXISTING EDGELINES.

① OMIT ON ONE-WAY TRAVELED WAYS.

LEGEND

⊙ SIGN ON PERMANENT SUPPORT

➡ DIRECTION OF TRAFFIC

DISTANCE TABLE

POSTED OR 85TH PERCENTILE SPEED	DISTANCE "A"
25	150'
30	200'
35	250'
40	300'
45	400'
50	550'
55	700'

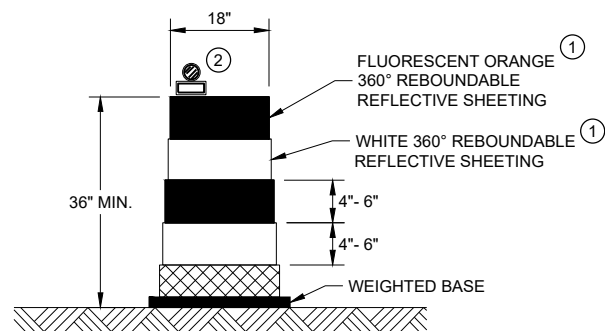
**SIGNING AND MARKING
FOR TWO LANE BRIDGES**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
May 2023 /S/ Jeannie Silver
DATE Statewide Pavement Marking Engineer
FHWA

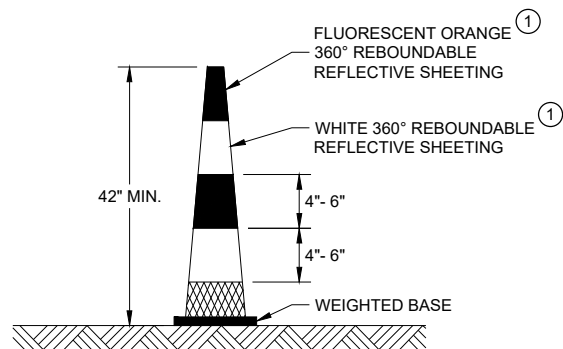


 "T" MARKING
 SIGN ON PERMANENT SUPPORT
 DIRECTION OF TRAFFIC



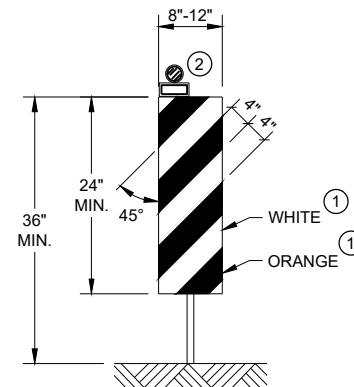
DRUM

BALLAST WIDTHS
RANGE FROM 24"-36"



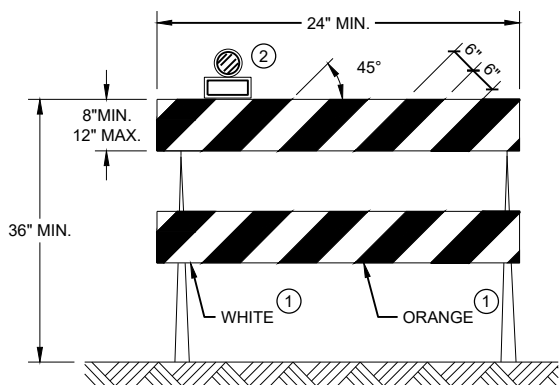
42" CONE

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



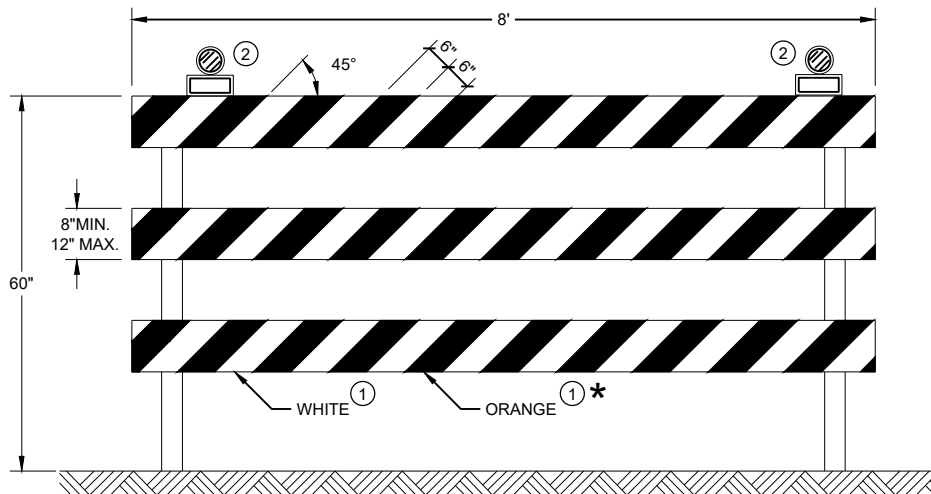
VERTICAL PANEL

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.

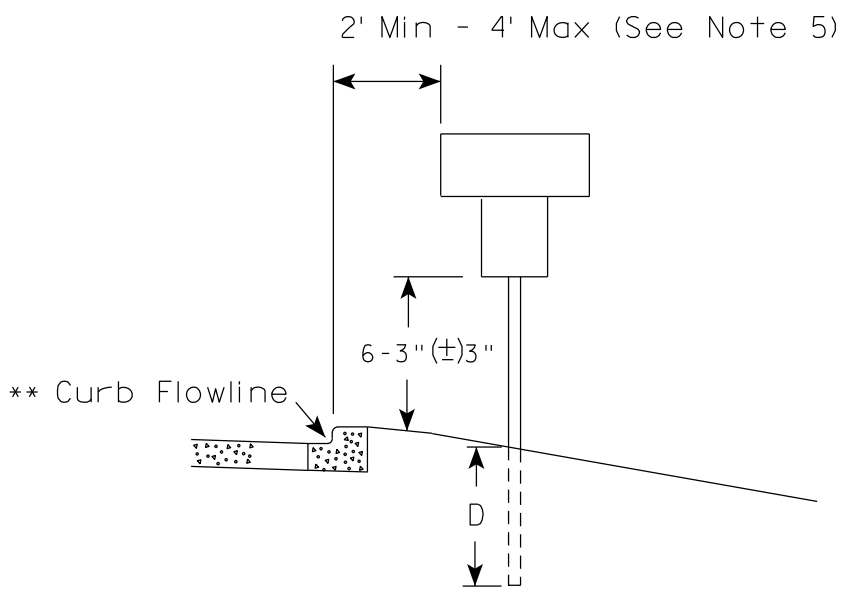
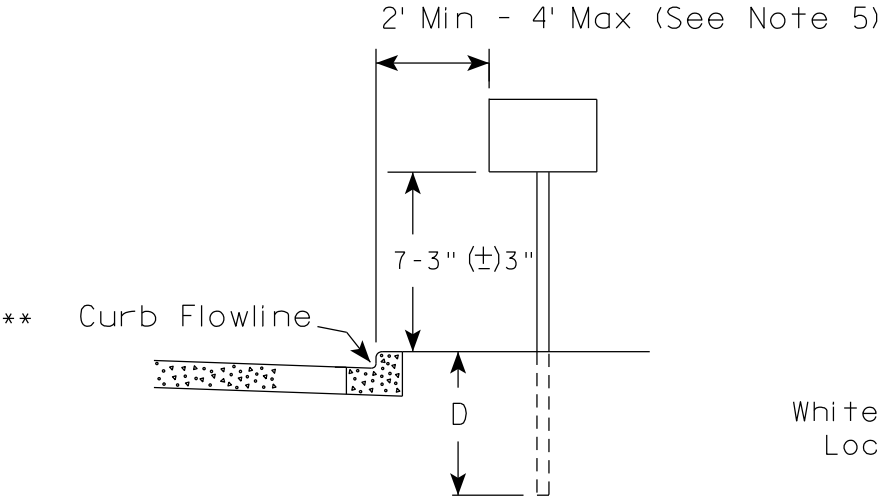
**CHANNELIZING DEVICES
DRUMS, CONES, BARRICADES
AND VERTICAL PANELS**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

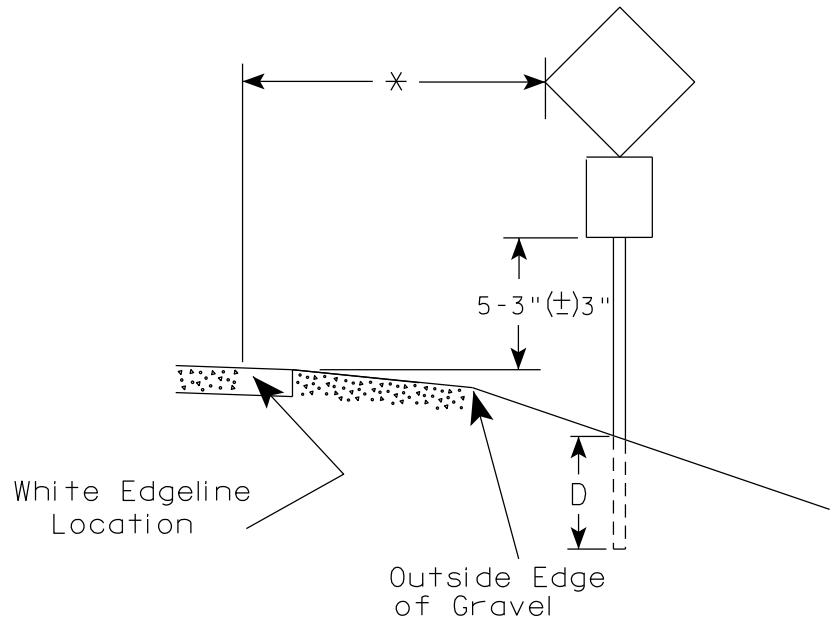
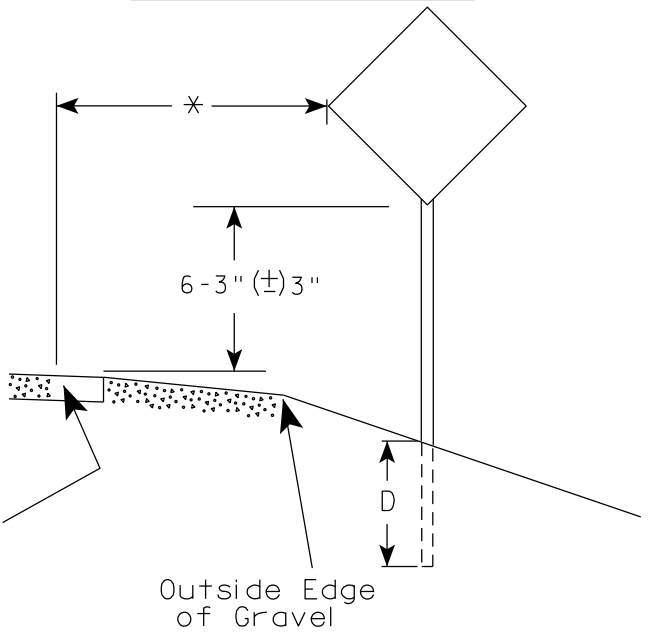
APPROVED
November 2022 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER

FHWA

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.

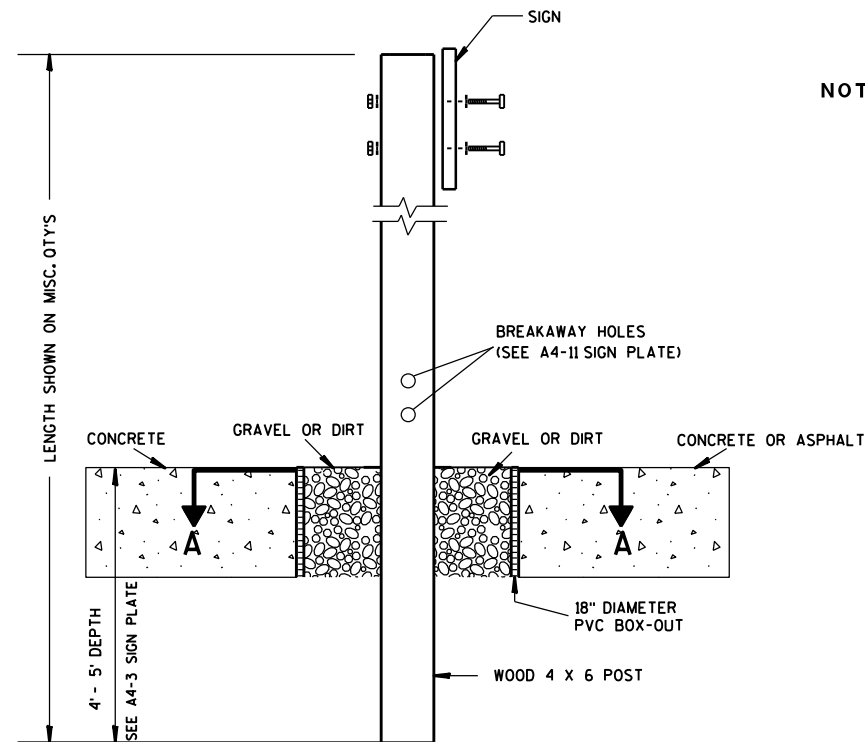
* 6 feet from edge of a paved shoulder or 12 feet from the edge of pavement (edge line location) or 2 feet from outside edge of gravel, whichever is greater unless directed by project engineer.

TYPICAL INSTALLATION
OF PERMANENT TYPE II
SIGNS ON SINGLE POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

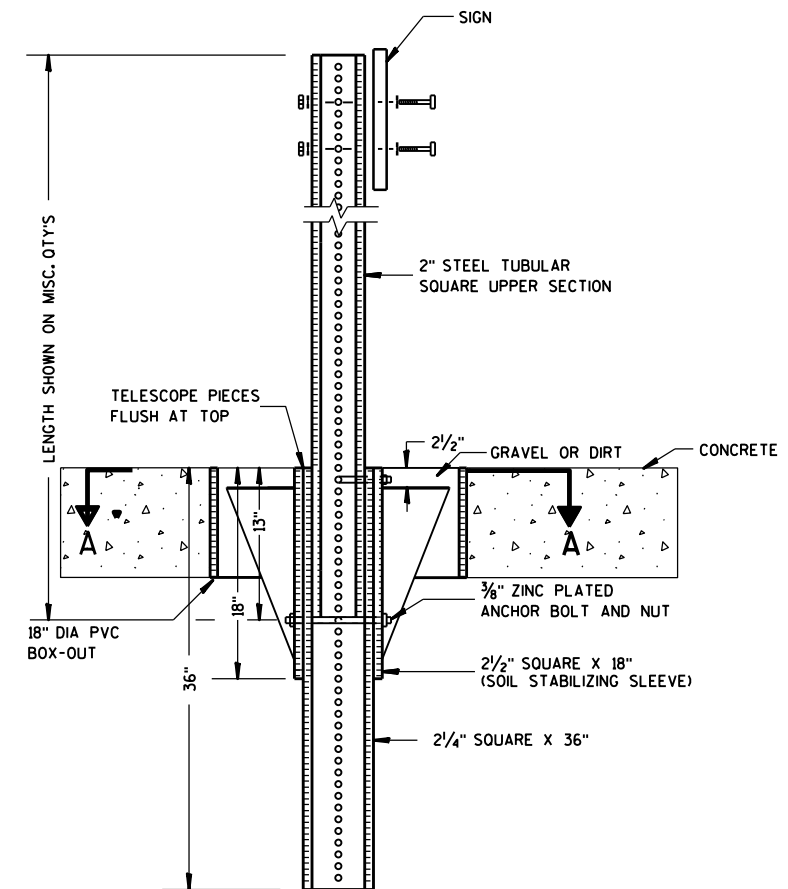
DATE 12/6/23 PLATE NO. A4-3.23



ELEVATION VIEW

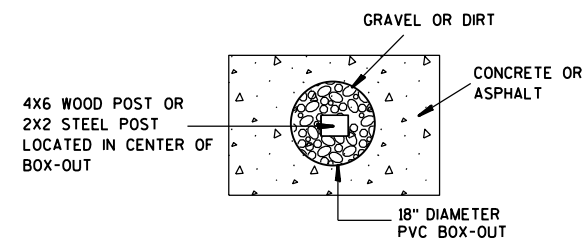
DETAIL OF WOOD 4 X 6 SIGN POST IN BOX-OUT

- 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 PLATE NO. A4-3B.1

PROJECT NO:

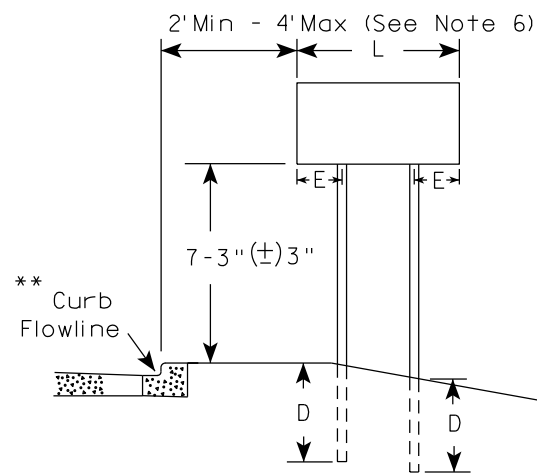
HWY:

COUNTY:

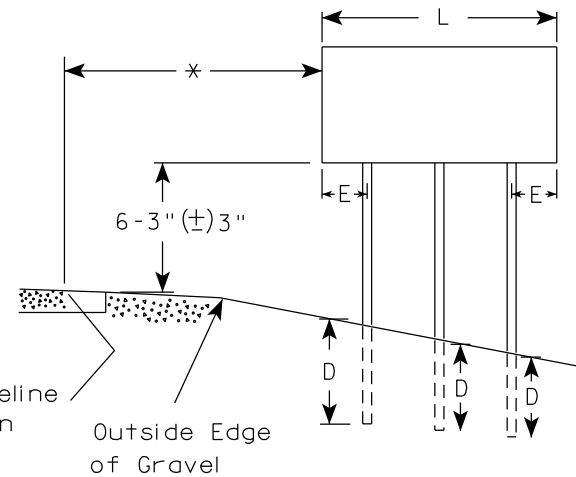
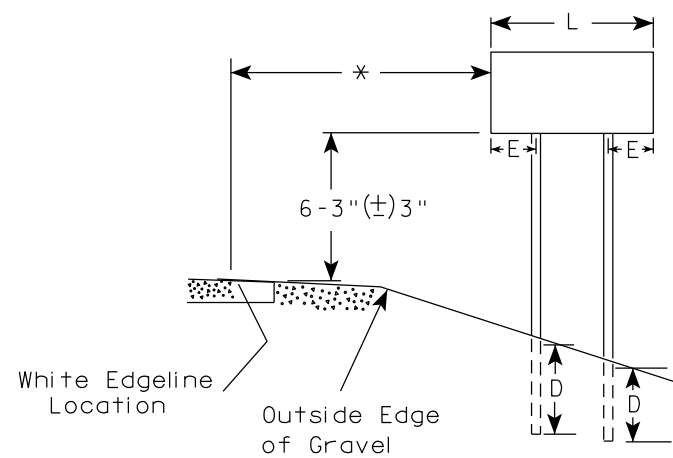
SHEET NO:

E

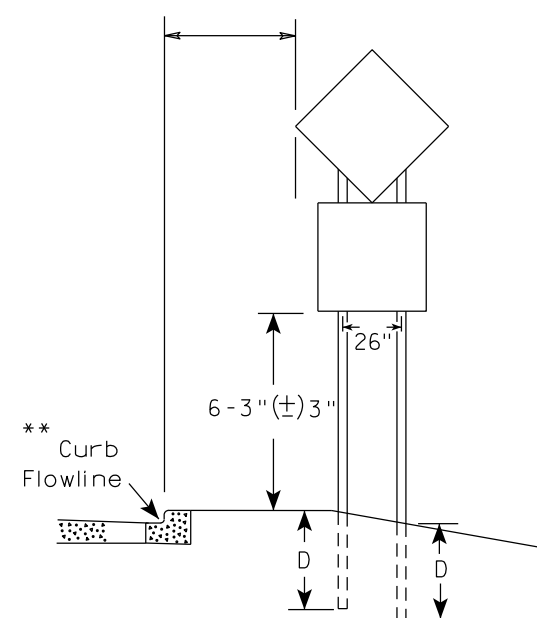
URBAN AREA



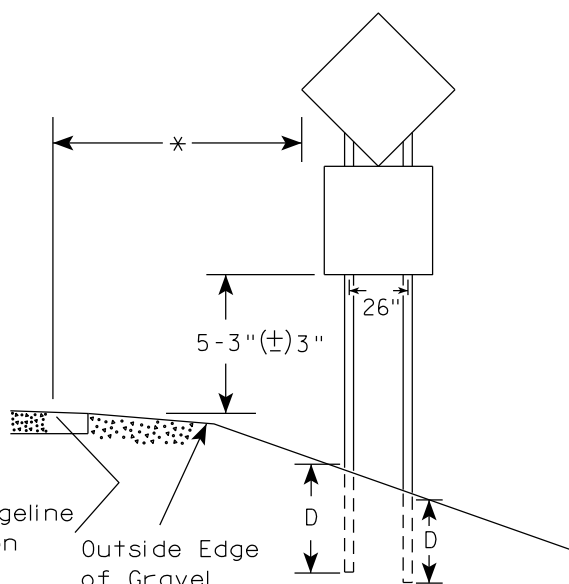
RURAL AREA (See Note 3)



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



48" DIAMOND WARNING SIGN



48" DIAMOND WARNING SIGN

GENERAL NOTES

1. For 3 or 4 post installations, individual post spacing shall be greater than 3'-6".
2. See tables below for required number of posts.
3. For expressways and freeways, mounting height is 7'-3" (±) 3" or 6'-3" (±) 3" depending upon existence of sub-sign.
4. The (±) tolerance for mounting height is 3 inches.
5. J-Assemblies are considered to be one sign for mounting height.
6. Offset distance shall be consistent with existing signs or consistent throughout length of project.
7. Folding signs shall be mounted at a height of 5'-3" (±) 3" or as directed by the engineer.
8. 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.

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

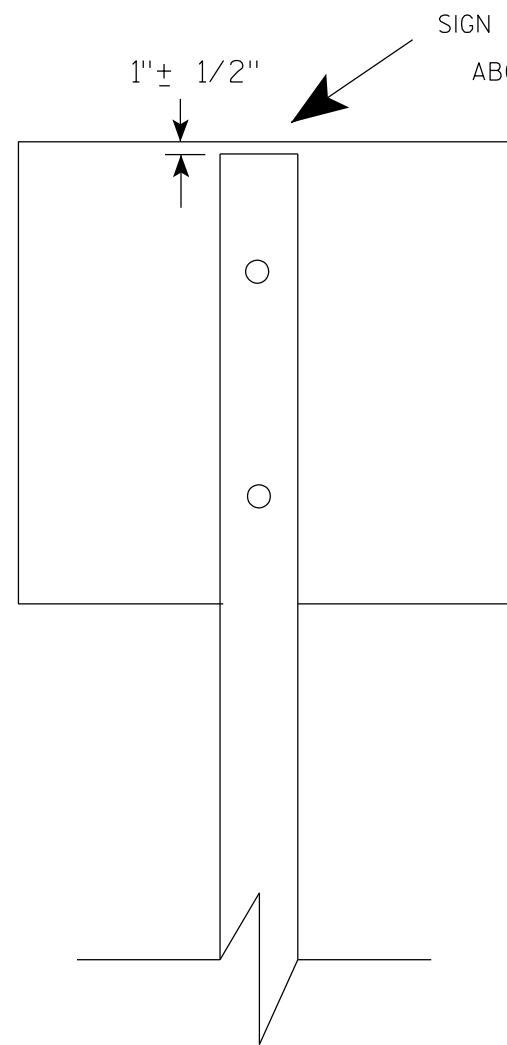
SIGN SHAPE OTHER THAN DIAMOND (THREE POSTS REQUIRED)	
L	E
Greater than 108" to 144"	12"

POST EMBEDMENT DEPTH

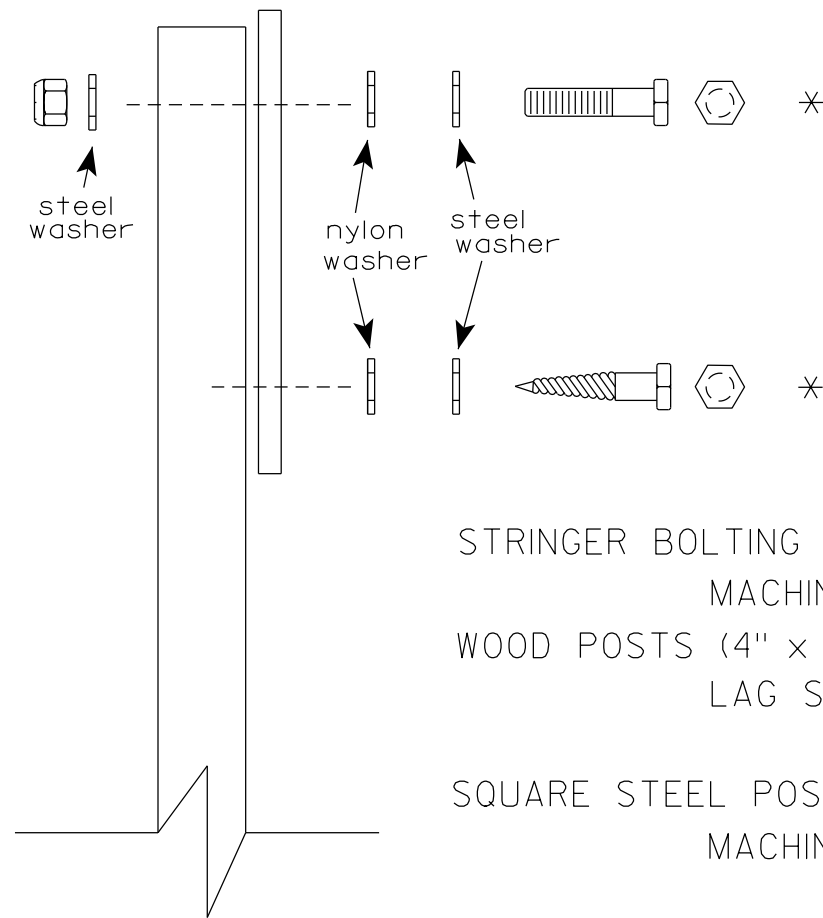
Area of Sign Installation (Sq.Ft.)	D (Min)
20 or Less	4'
Greater than 20	5'

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



SIGN SHALL BE MOUNTED TO PROJECT
ABOVE THE TOP OF THE POST



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.

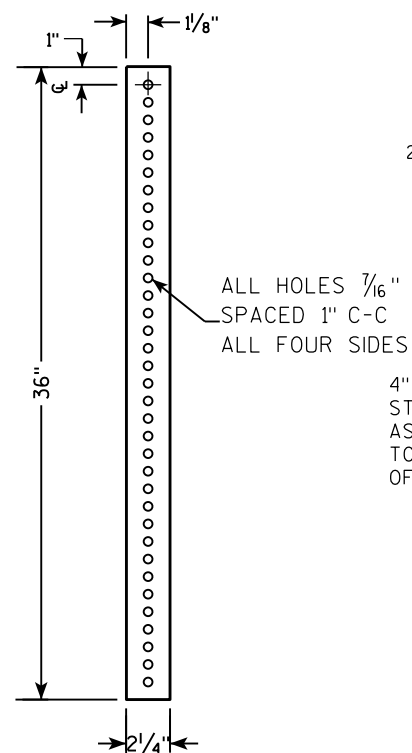
ATTACHMENT OF SIGNS TO POSTS

WISCONSIN DEPT OF TRANSPORTATION

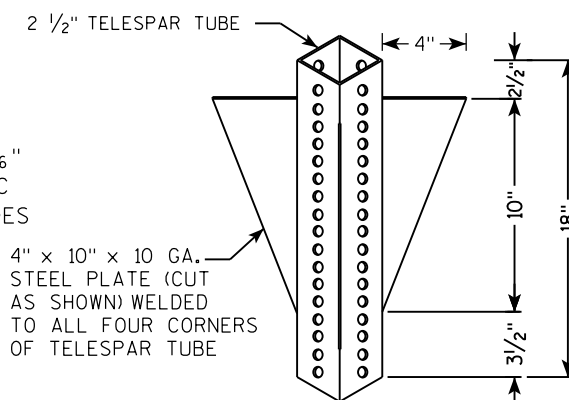
APPROVED Matthew R. Rauch
For State Traffic Engineer

DATE 4/1/2020 PLATE NO. A4-8.9

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



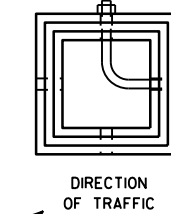
**2 1/2" SQUARE
12 GAUGE
OMNI-DIRECTIONAL
PERFORATED
SOIL STABILIZING SLEEVE
GALVANIZED FINISH**

[illegible]

TECHNICAL DRAWING OF A SIGNPOST ASSEMBLY:

- TELESCOPE PIECES FLUSH AT TOP**: Indicated by a dimension line on the left.
- 2" STEEL TUBULAR SQUARE UPPER SECTION**: The main vertical support.
- ALL HOLES $\frac{7}{16}$ " SPACED 1" C-C ALL FOUR SIDES**: Specification for the perforations in the upper section.
- SIGN**: Attached to the top of the upper section.
- SEE SIGN PLATE A4-8 FOR BOLT WASHER, & NUT MATERIAL**: Reference to a separate drawing for hardware.
- 3/8" ZINC PLATED CORNER ANCHOR BOLT AND NUT**: Hardware used to secure the post to the base.
- 1"**: Dimension for the offset of the anchor bolt from the post face.
- 3/8" ZINC PLATED ANCHOR BOLT AND NUT**: Hardware used to secure the post to the base.
- 2 1/2" SQUARE X 18" (SOIL STABILIZING SLEEVE)**: The base section of the post.
- 2 1/4" SQUARE X 36"**: The base plate or foundation.
- 36"**: Total height of the base plate.
- 18"**: Height of the upper section of the base plate.
- 12"**: Height of the lower section of the base plate.
- A**: Downward arrows indicating load or weight.

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 PLATE NO. A4-9.9

PROJECT NO:

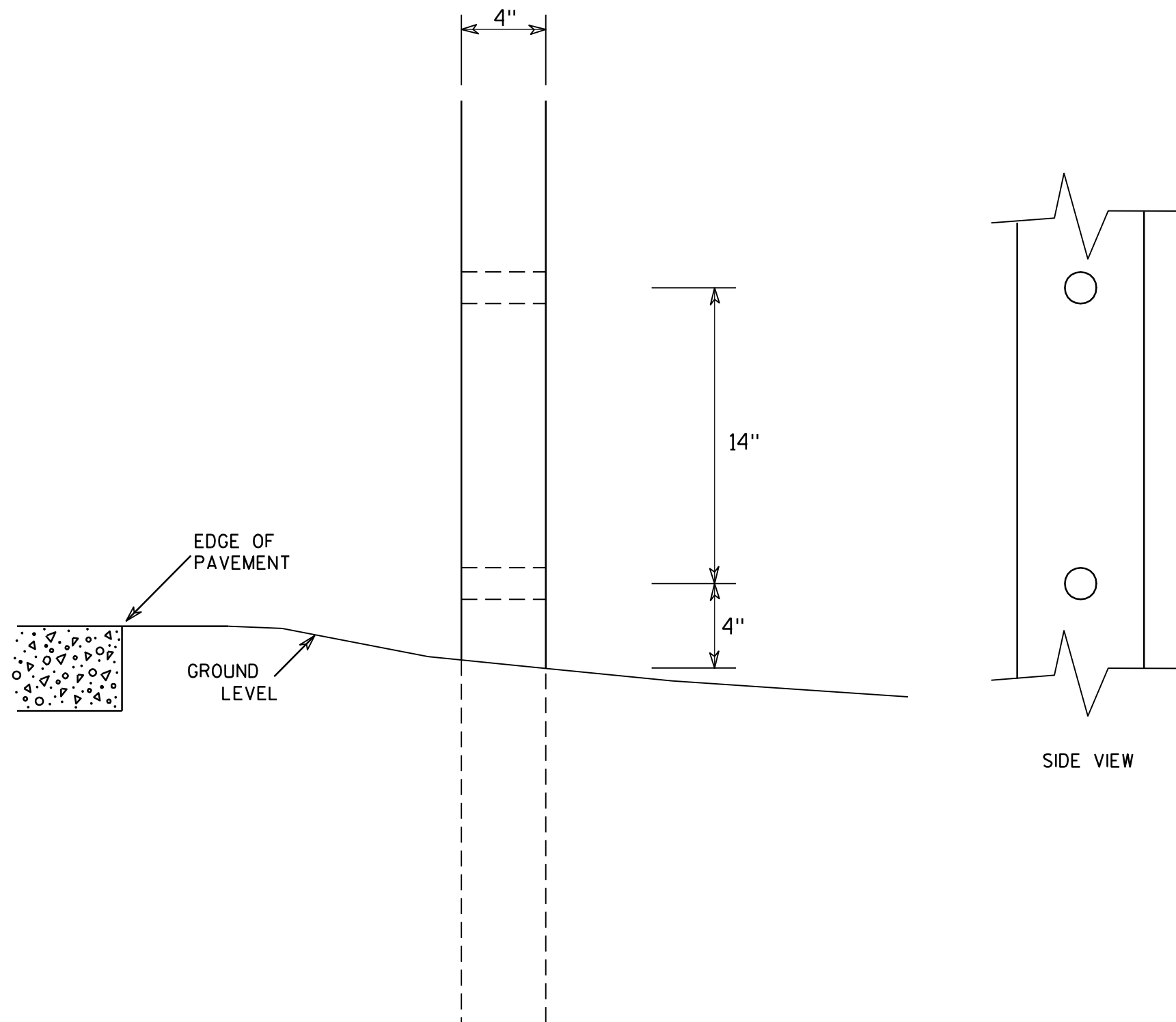
HWY:

COUNTY:

SHEET NO:

1

7

GENERAL NOTES

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

7

**4 X 6 WOOD POST
MODIFICATIONS**

WISCONSIN DEPT OF TRANSPORTATION

APPROVED

Chester J. Spang
for State Traffic Engineer

DATE 3/27/97

PLATE NO. A4-11.2

PROJECT NO:

HWY:

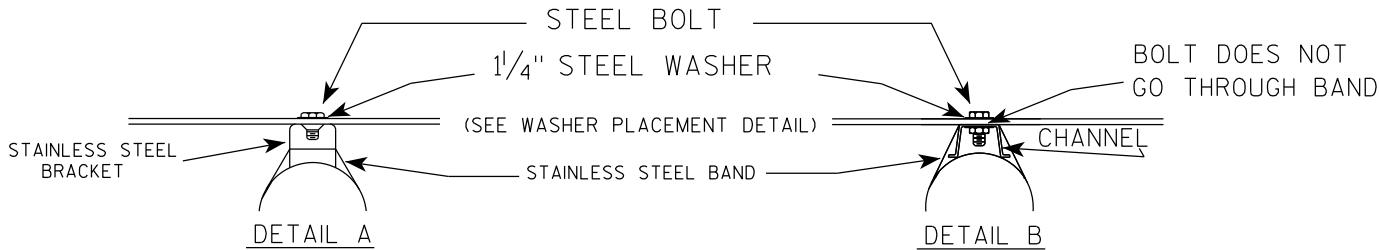
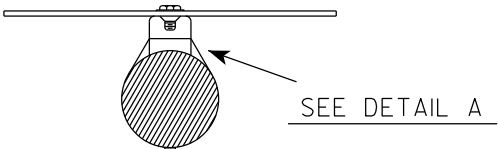
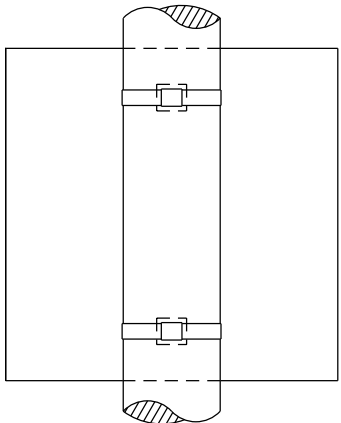
COUNTY:

SHEET NO:

E

BANDING

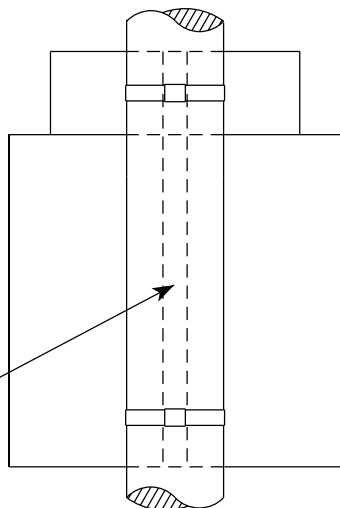
SINGLE SIGN



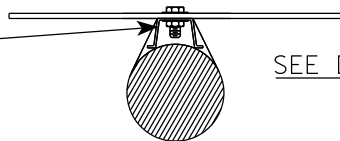
GENERAL NOTES

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

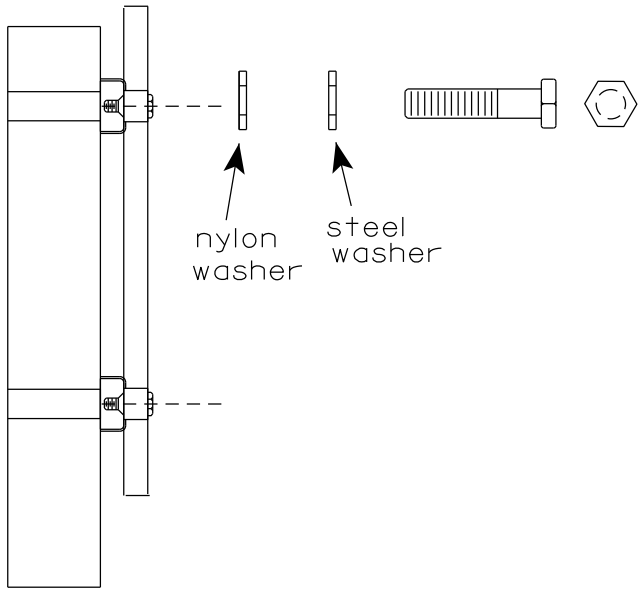
"J" ASSEMBLY



CHANNEL
SEE TYPICAL PANEL
INSTALLATION SHEET



WASHER PLACEMENT

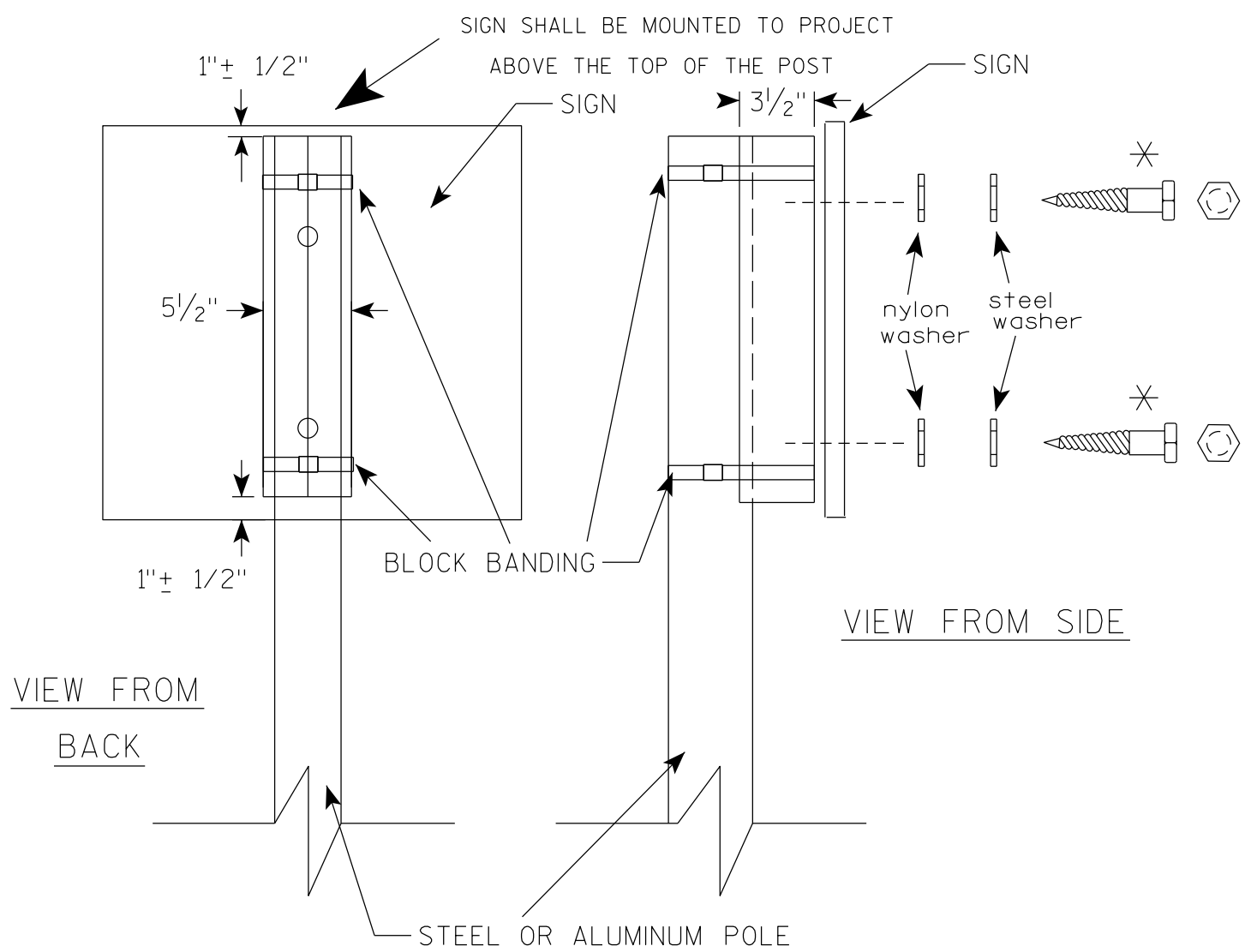


WASHERS (ALL POSTS) -
1-1/4" O.D. X $\frac{3}{8}$ " I.D. X $\frac{1}{16}$ " STEEL
1-1/4" O.D. X $\frac{3}{8}$ " I.D. X .080 NYLON
FOR ALL TYPE H SIGNS

STANDARD SIGN
SIGN BANDING DETAILS

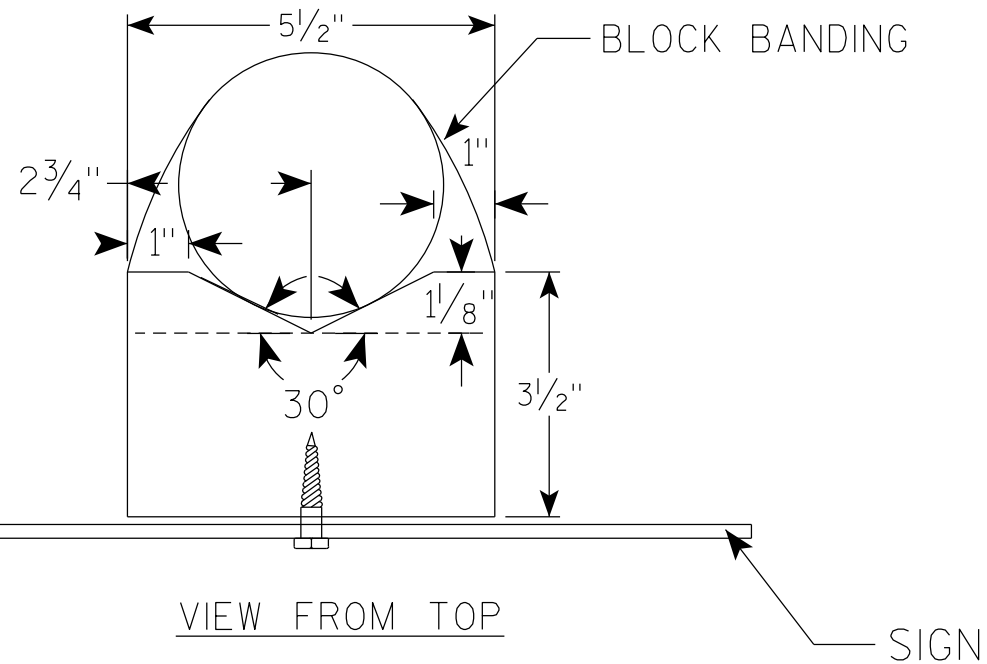
WISCONSIN DEPT OF TRANSPORTATION

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



VIEW FROM
BACK

VIEW FROM SIDE



VIEW FROM TOP

GENERAL NOTES

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

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

BLOCK BANDING DETAIL
(V-BLOCK OPTION)

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

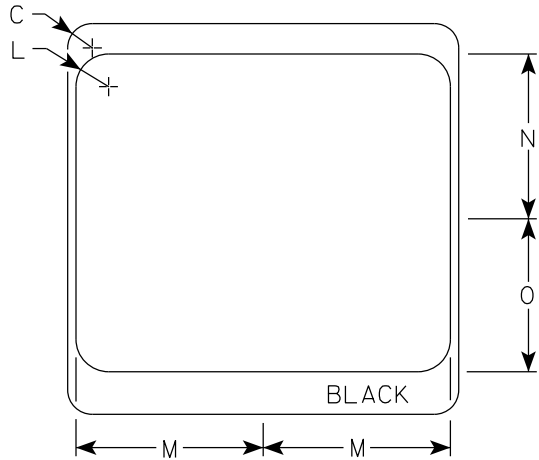
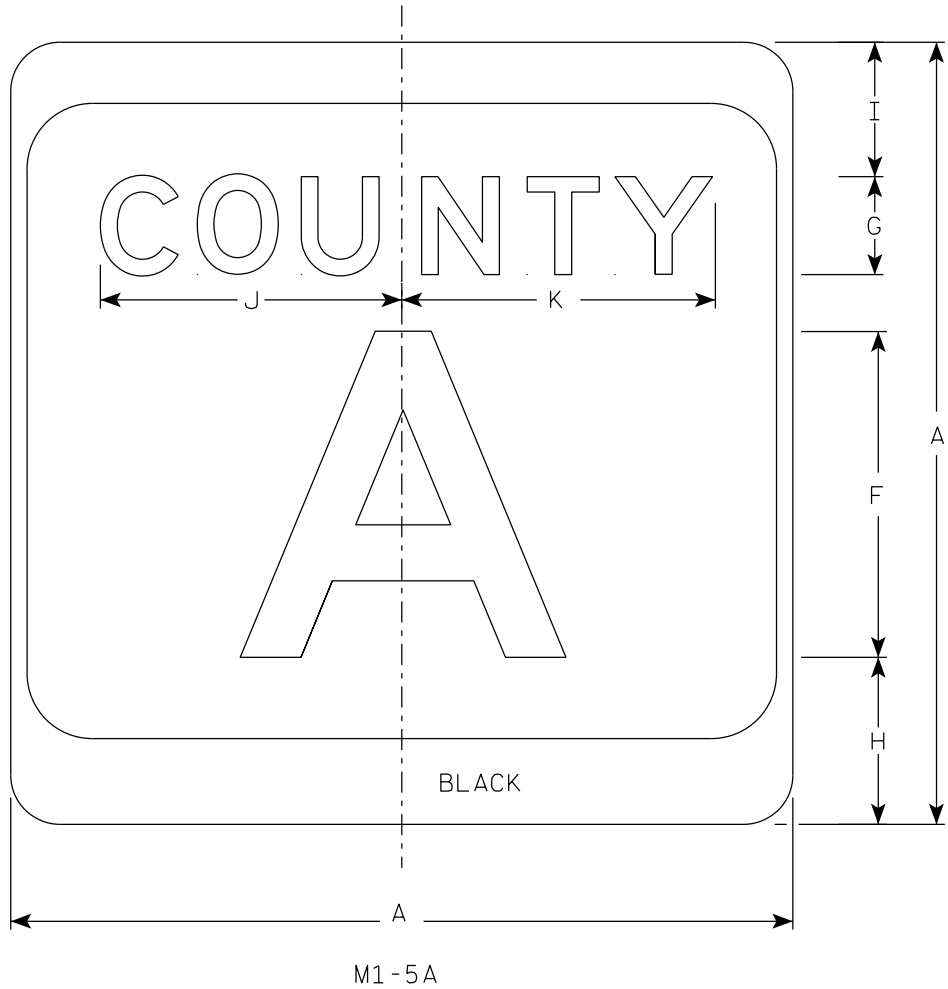
DATE 4/19/2022 PLATE NO. A5-10.3

PROJECT NO:

SHEET NO:

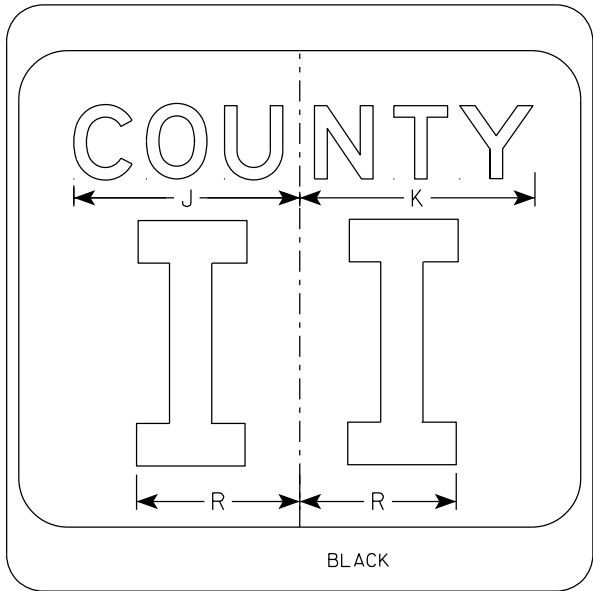
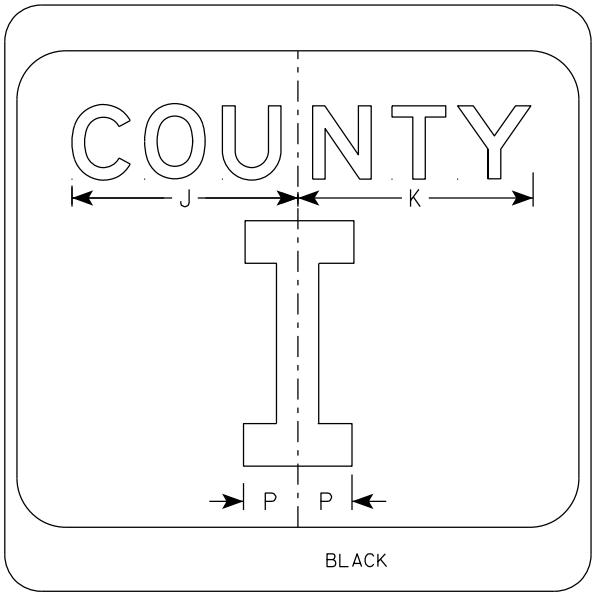
E

7



NOTES

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



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

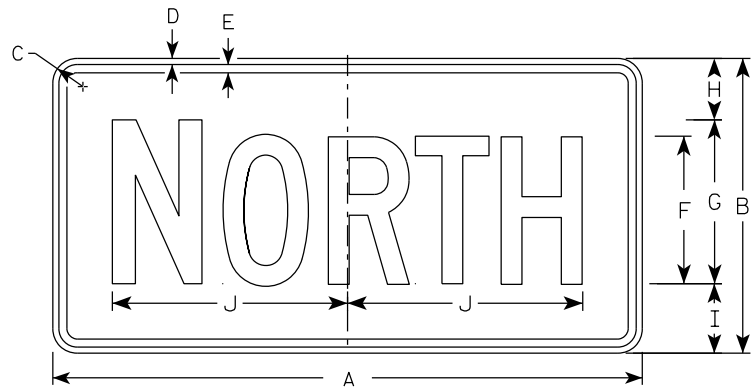
CTH MARKER
M1-5A FOR ASSEMBLIES

WISCONSIN DEPT OF TRANSPORTATION

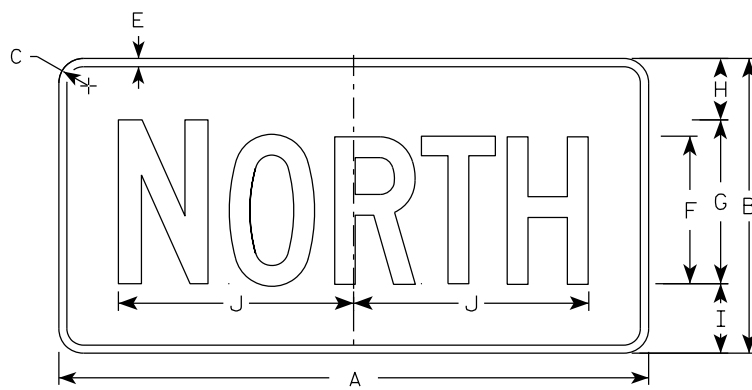
APPROVED *Matthew R. Rauch*
for State Traffic Engineer

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

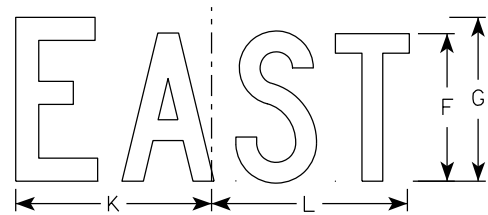
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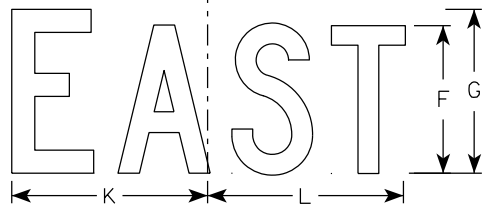
M3-1
MM3-1
MP3-1



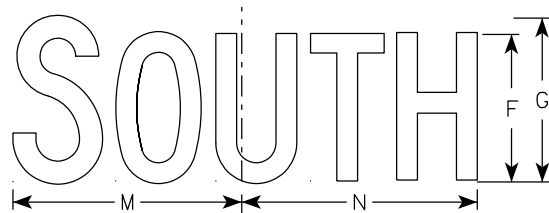
MB3-1
MK3-1
MN3-1



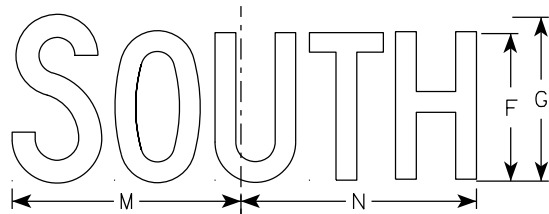
M3-2
MM3-2
MP3-2



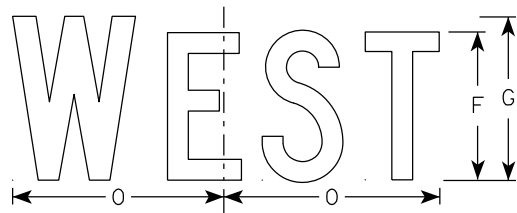
MB3-2
MK3-2
MN3-2



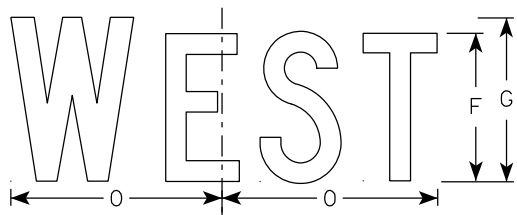
M3-3
MM3-3
MP3-3



MB3-3
MK3-3
MN3-3



M3-4
MM3-4
MP3-4



MB3-4
MK3-4
MN3-4

NOTES

- All Signs Type II - Type H Reflective
- Color:
 - Background - See note 5
 - Message - See note 5
- Message Series - C
- Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
- M3-1 thru M3-4 Background - White
Message - Black
MB3-1 thru MB3-4 Background - Blue
Message - White
MK3-1 thru MK3-4 Background - Green
Message - White
MM3-1 thru MM3-4 Background - White
Message - Green
MN3-1 thru MN3-4 Background - Brown
Message - White
MP3-1 thru MP3-4 Background - White
Message - Blue
- Note the first letter of each direction is larger than the remainder of the message.

7

7

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	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

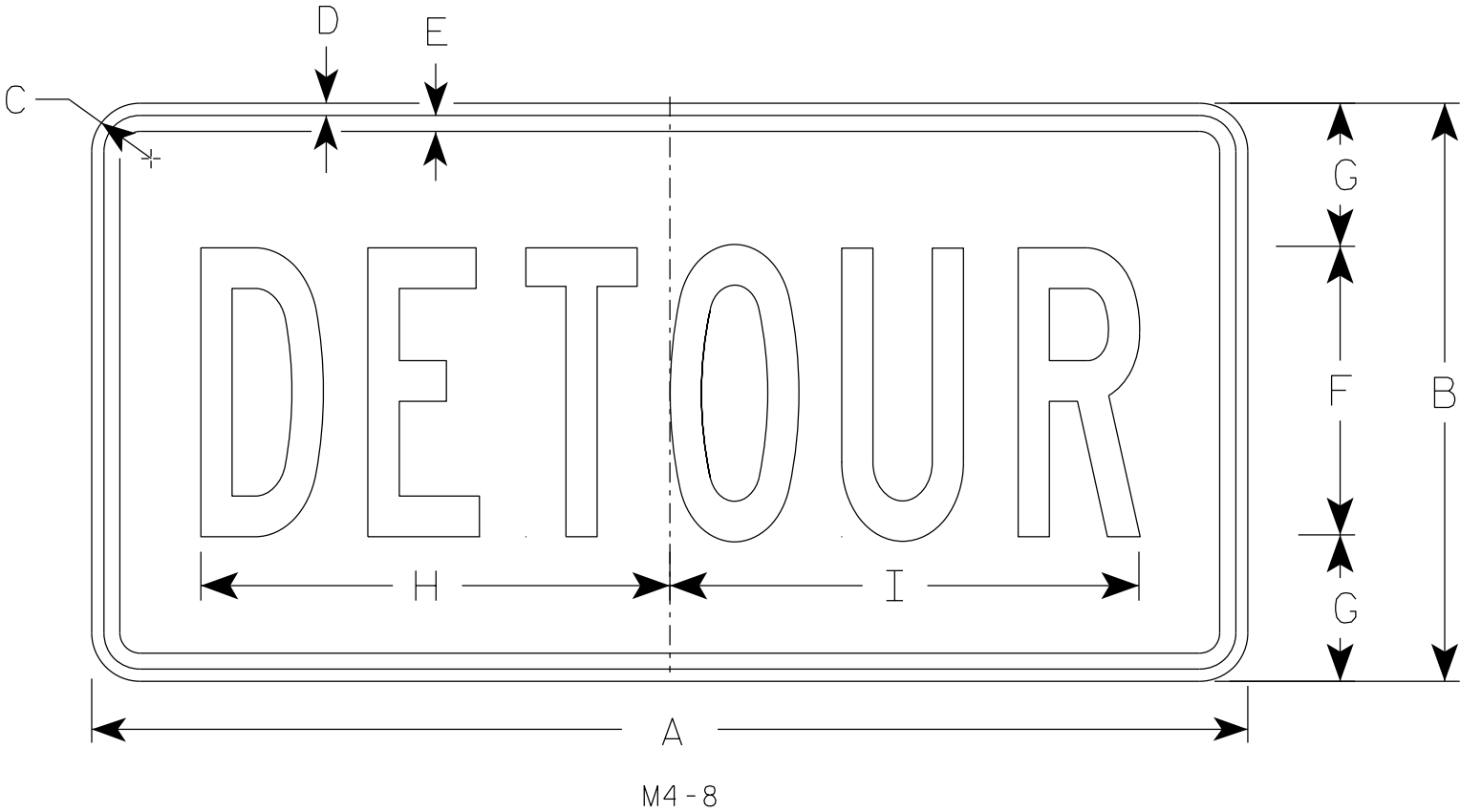
PROJECT NO:	HWY:	COUNTY:	SHEET NO:	E
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7

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

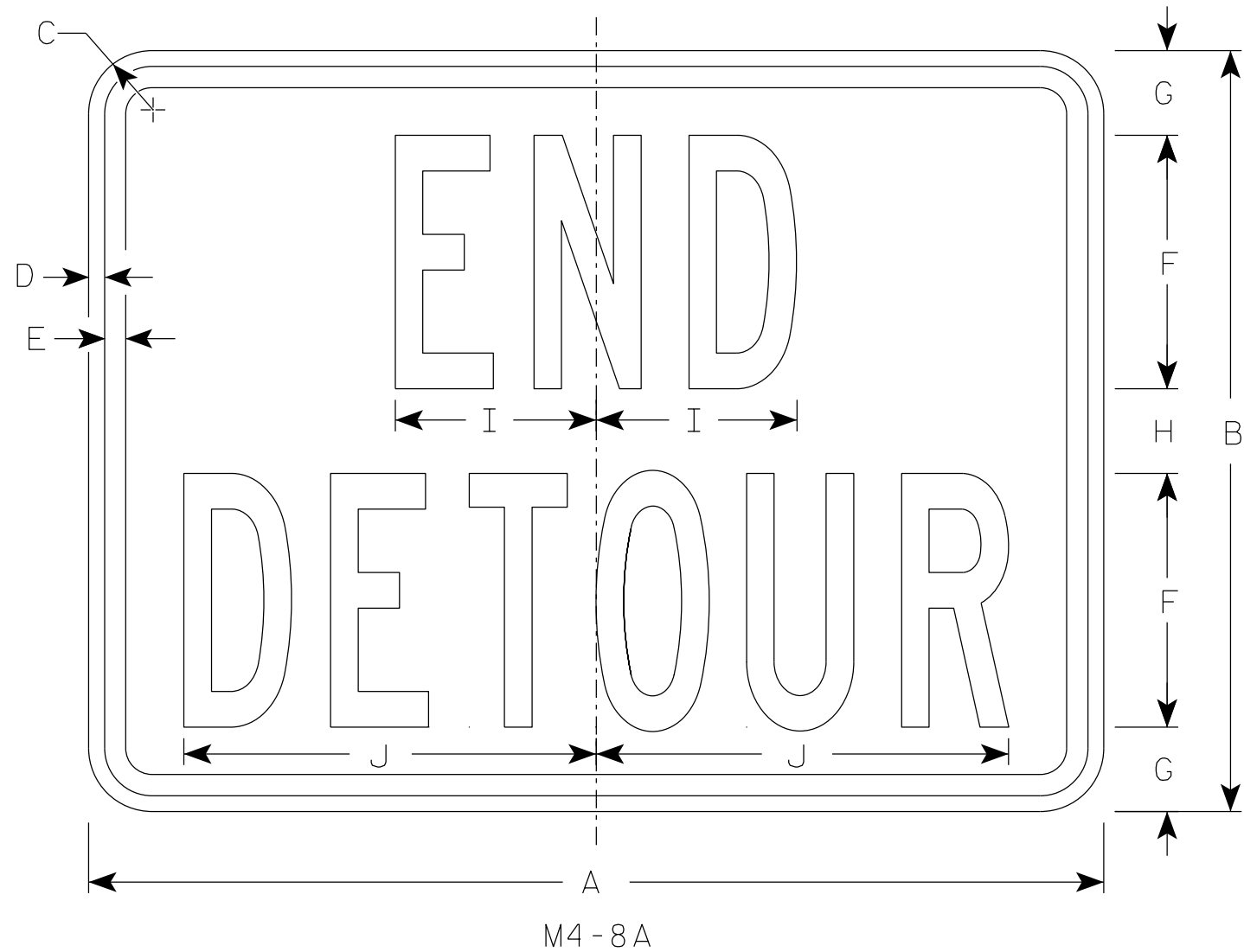
M4-8

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

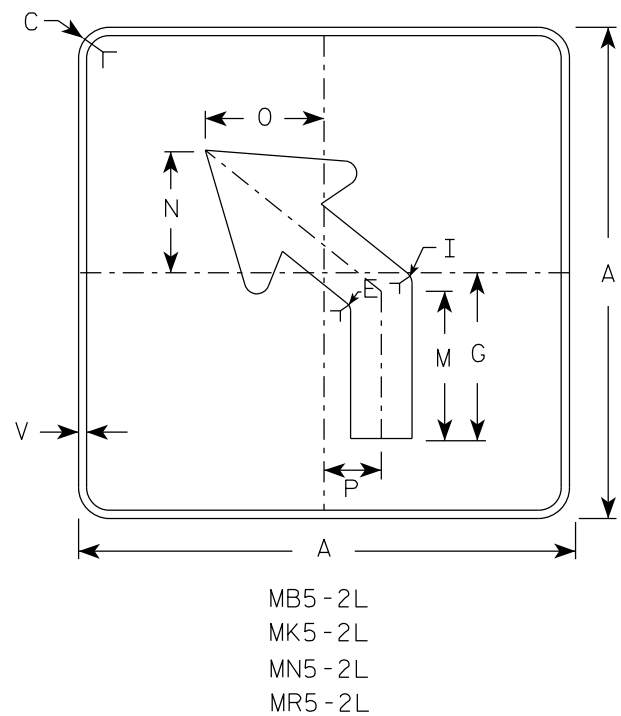
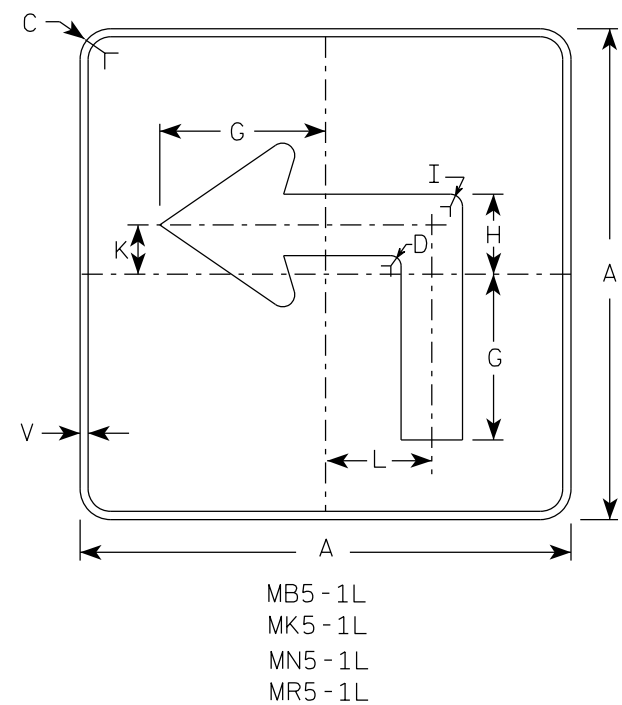
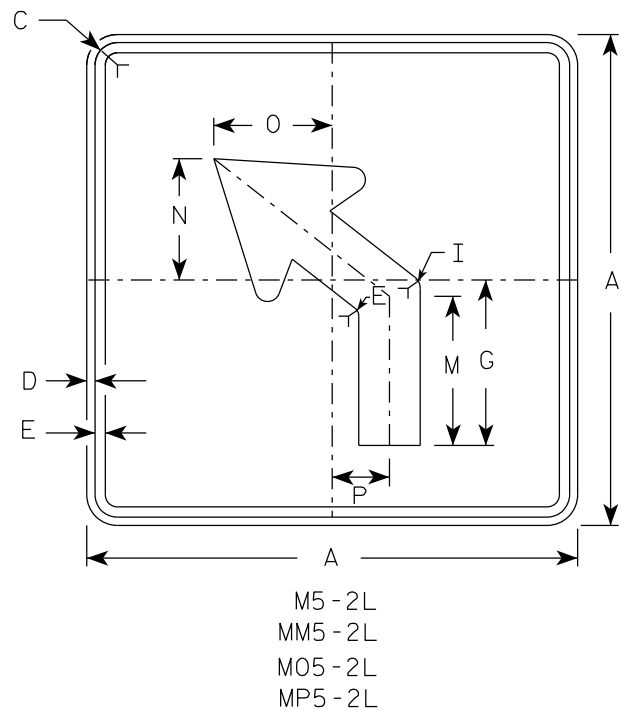
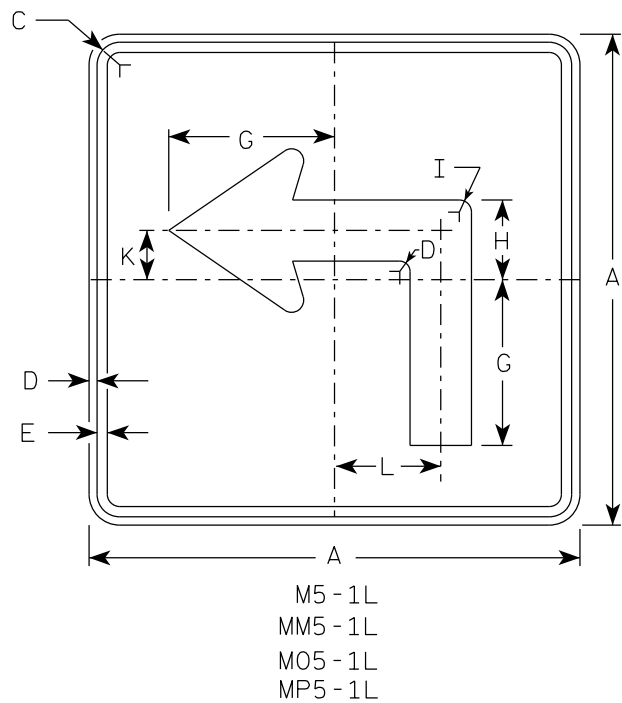
STANDARD SIGN

M4-8A

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
For State Traffic Engineer

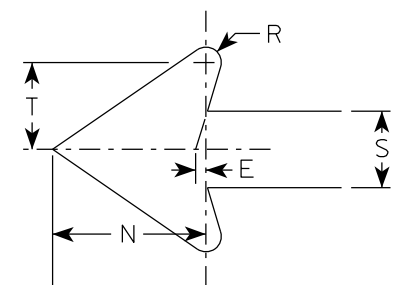
DATE 2/9/2023 PLATE NO. M4-8A.4



NOTES

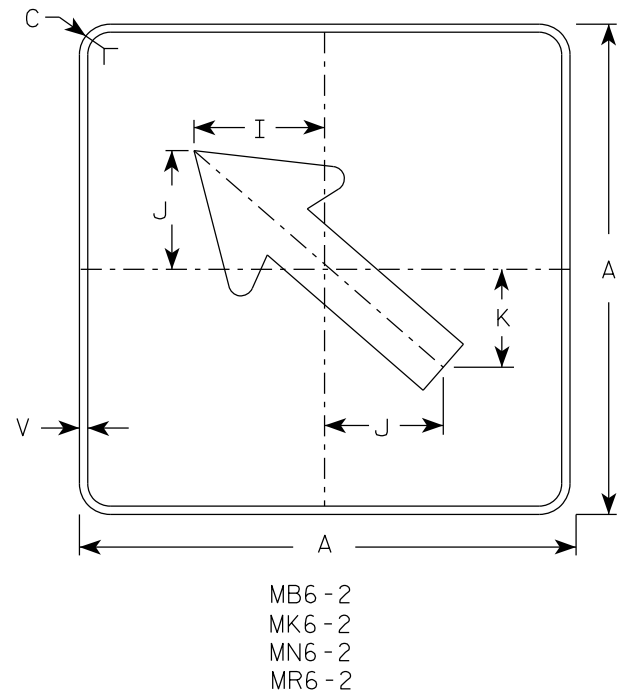
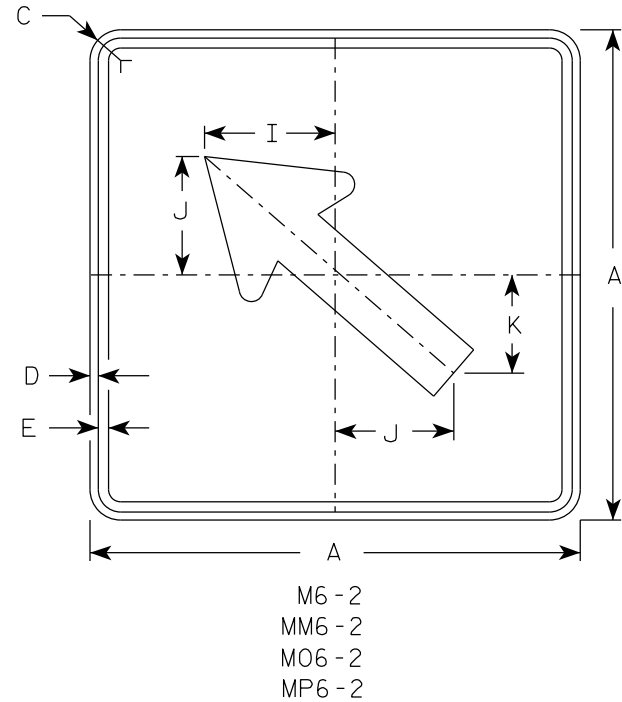
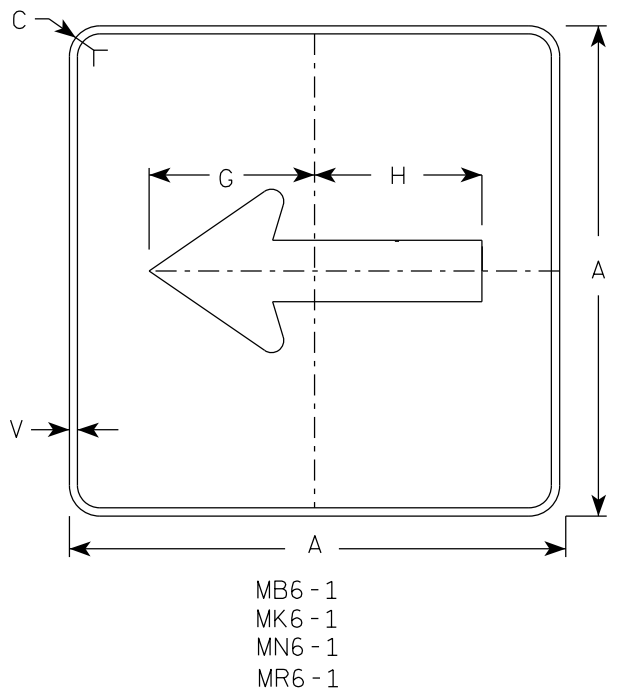
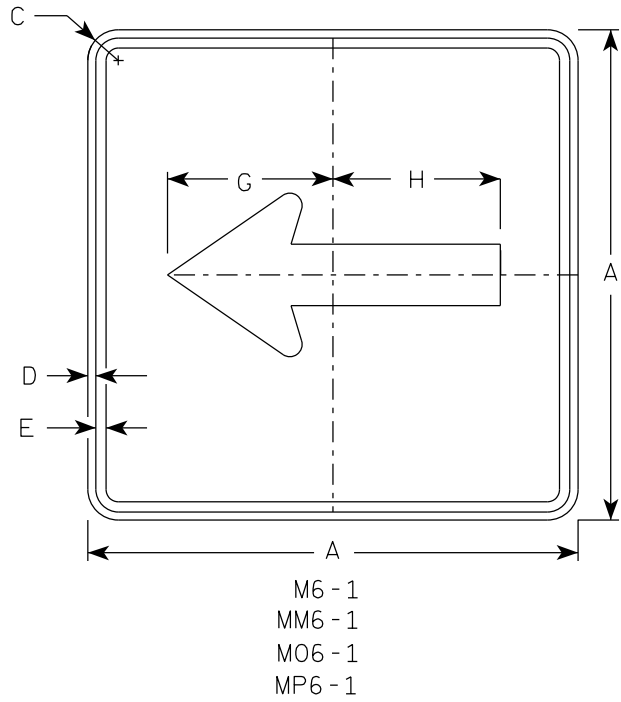
- Signs are Type II - Type H reflective except as shown
- Color:
Background - See note 4
Message - See note 4
- Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
- | | | |
|-----------|-------|---|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

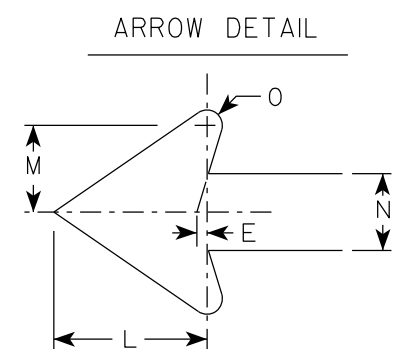


SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	21		1 1/2	3/8	3/8		7	3 3/8	5/8		2 1/8	4 1/2	6 3/8	5 1/4	5	2 1/2		1/2	2 5/8	3		1/2					3.06
2M	21		1 1/2	3/8	3/8		7	3 3/8	5/8		2 1/8	4 1/2	6 3/8	5 1/4	5	2 1/2		1/2	2 5/8	3		1/2					3.06
3	30		1 7/8	1/2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

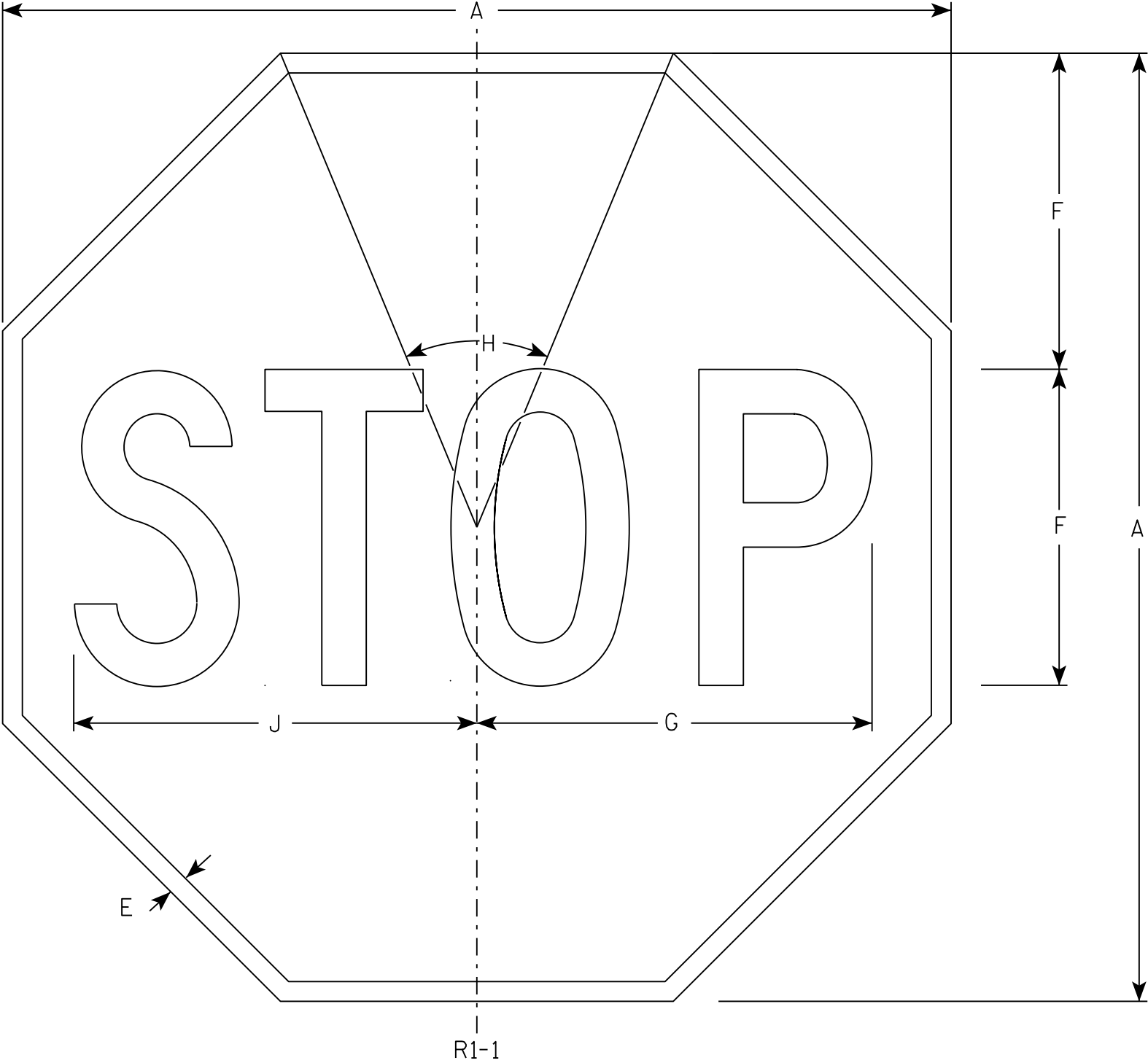
STANDARD SIGN
M6 - 1 & M6 - 2
SERIES

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

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

7



NOTES

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

7

R1-1

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	30				5/8	10	12 1/2	45°		12 3/4																	5.18
2S	30				5/8	10	12 1/2	45°		12 3/4																	5.18
2M	36				3/4	12	15	45°		15 3/8																	7.46
3	36				3/4	12	15	45°		15 3/8																	7.46
4	48				1	16	20	45°		20 1/2																	13.25
5	48				1	16	20	45°		20 1/2																	13.25
6	18				3/8	6	7 3/4	45°		7 3/4																	1.86
7	12				1/4	4	5	45°		5 1/8																	0.78

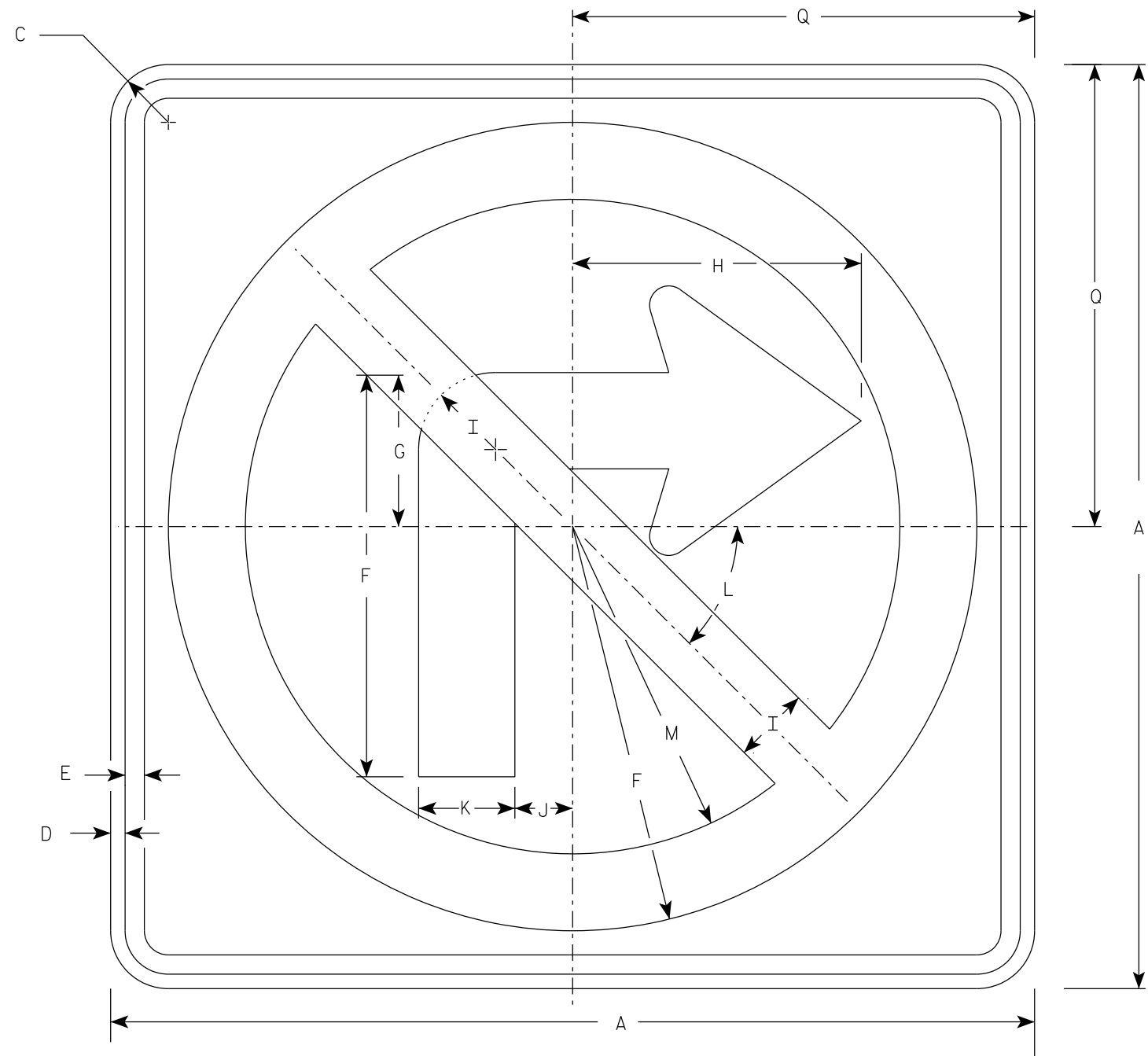
STANDARD SIGN
R1 - 1

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

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

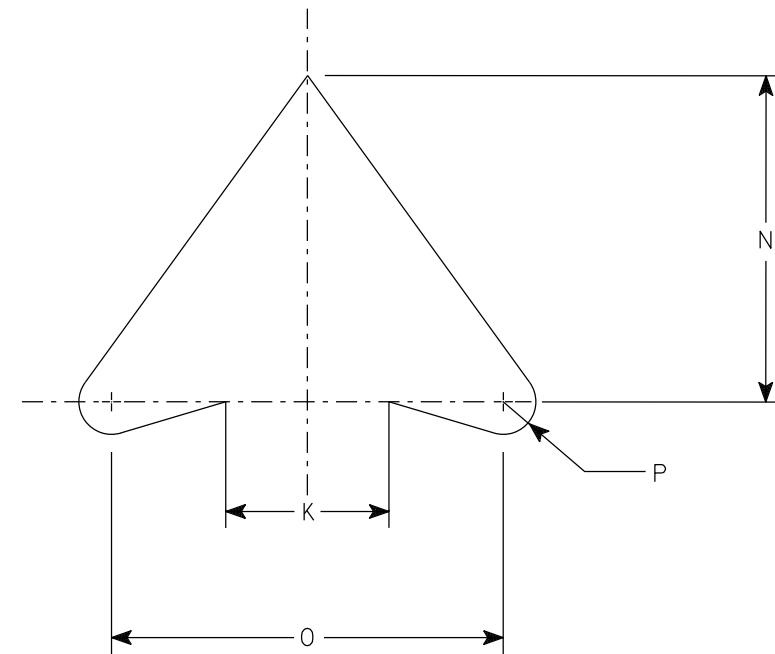
7



R3-1

NOTES

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



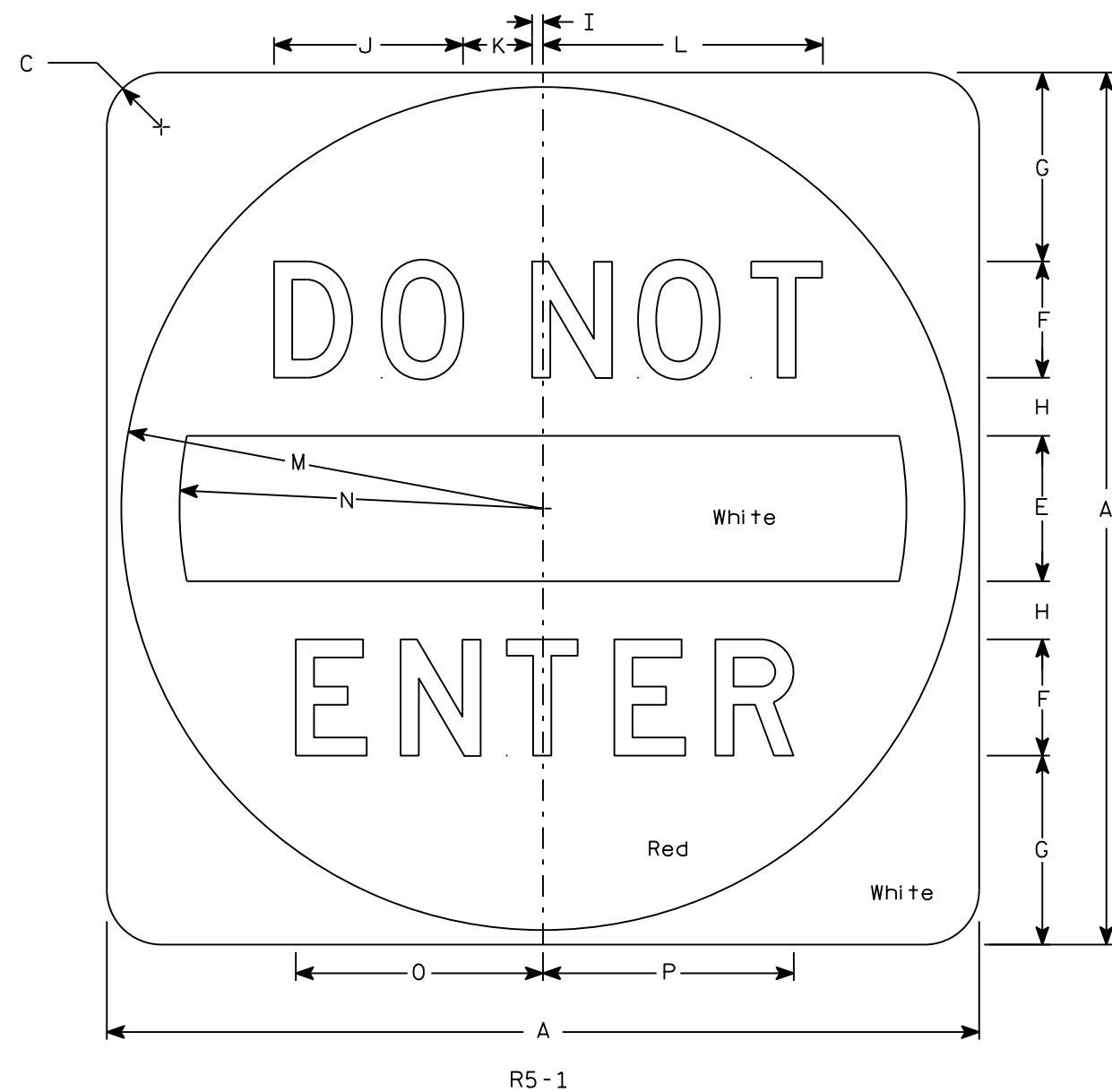
ARROW DETAIL

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	24		1 1/2	3/8	1/2	10 1/2	4	7 1/2	2	1 1/2	2 1/2	45	8 1/2	5	6	1/2	12										4.0
2S	24		1 1/2	3/8	1/2	10 1/2	4	7 1/2	2	1 1/2	2 1/2	45°	8 1/2	5	6	1/2	12										4.0
2M	36		2 1/4	5/8	3/4	15 3/4	6	11 1/4	3	2 1/4	3 3/4	45	12 3/4	7 1/2	9	3/4	18										9.0
3	36		2 1/4	5/8	3/4	15 3/4	6	11 1/4	3	2 1/4	3 3/4	45	12 3/4	7 1/2	9	3/4	18										9.0
4	36		2 1/4	5/8	3/4	15 3/4	6	11 1/4	3	2 1/4	3 3/4	45°	12 3/4	7 1/2	9	3/4	18										9.0
5	48		2 1/4	3/4	1	21	8	15	4	3	5	45°	17	10	12	1	24										16.0

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

7



NOTES

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

7

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	30		1 7⁄8		5	4	6 1⁄2	2	3⁄8	6 1⁄2	2 3⁄8	9 5⁄8	14 1⁄2	12 1⁄2	8 1⁄2	8 5⁄8											6.25
2M	36		2 1⁄4		6	5	7 1⁄2	2 1⁄2	1⁄2	8 1⁄8	3	12 1⁄8	17 1⁄2	15	10 5⁄8	10 3⁄4											9.0
3	36		2 1⁄4		6	5	7 1⁄2	2 1⁄2	1⁄2	8 1⁄8	3	12 1⁄8	17 1⁄2	15	10 5⁄8	10 3⁄4											9.0
4	36		2 1⁄4		6	5	7 1⁄2	2 1⁄2	1⁄2	8 1⁄8	3	12 1⁄8	17 1⁄2	15	10 5⁄8	10 3⁄4											9.0
5	48		3		8	6	11	3	5⁄8	9 3⁄4	3 5⁄8	14 1⁄2	23 1⁄2	20	12 3⁄4	12 7⁄8											16.0

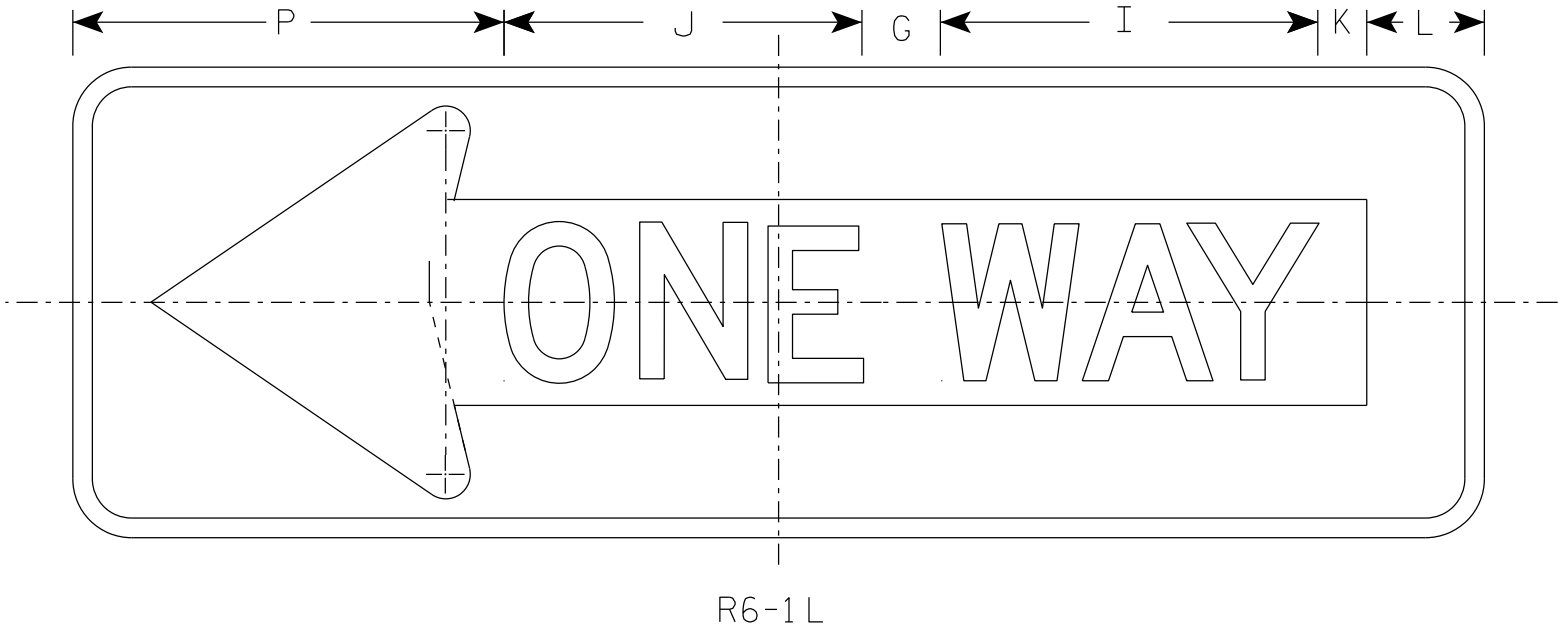
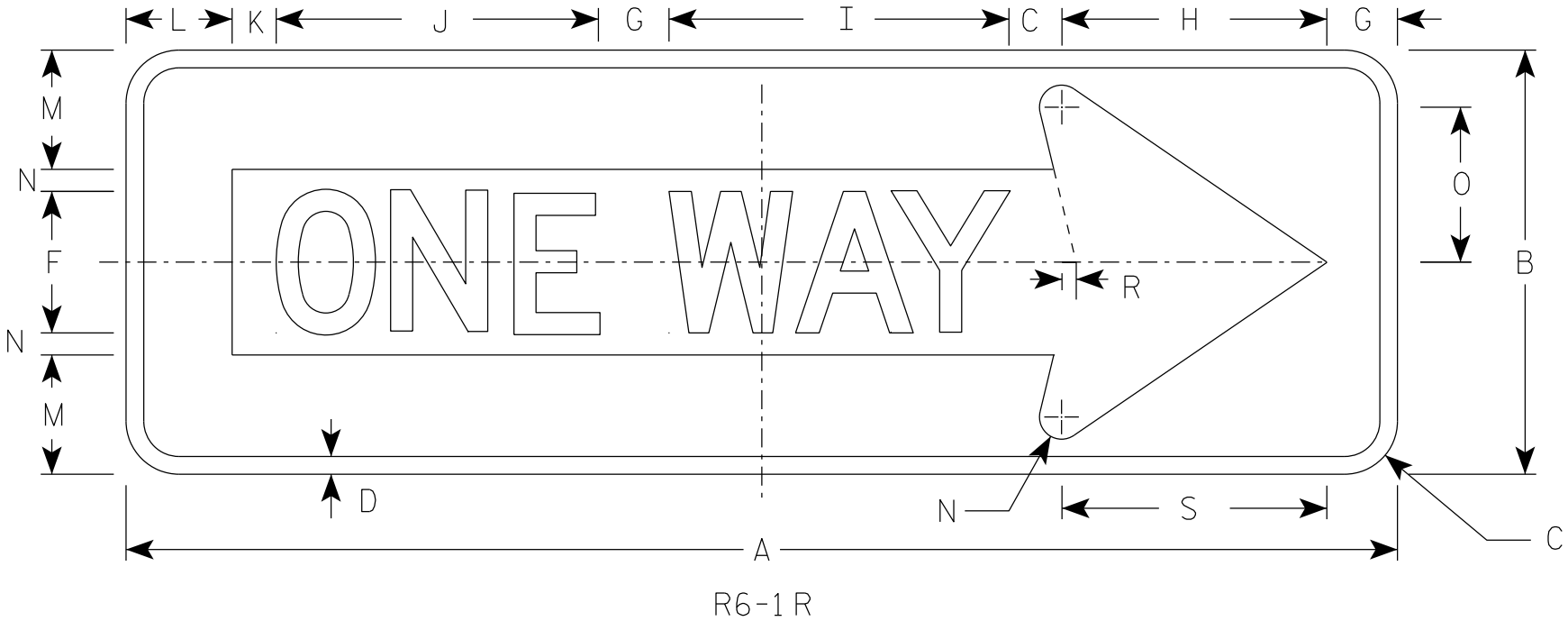
STANDARD SIGN R5-1	
WISCONSIN DEPT OF TRANSPORTATION	
APPROVED	<i>Matthew R. Rauch</i> for State Traffic Engineer
DATE 3/15/18	PLATE NO. R5-1.16

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

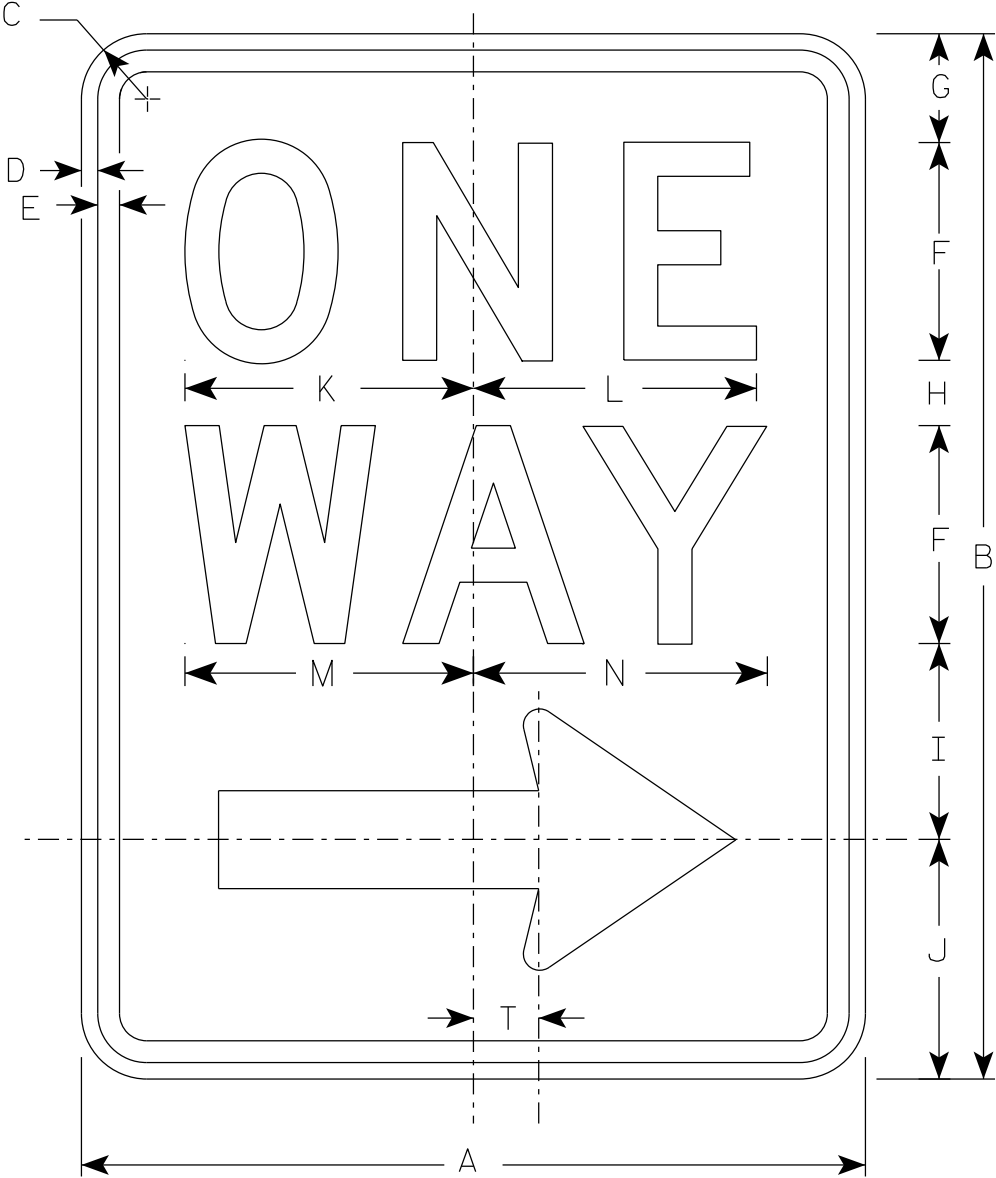
PLATE NO. R6-1.4

PROJECT NO:

SHEET NO:

E

7

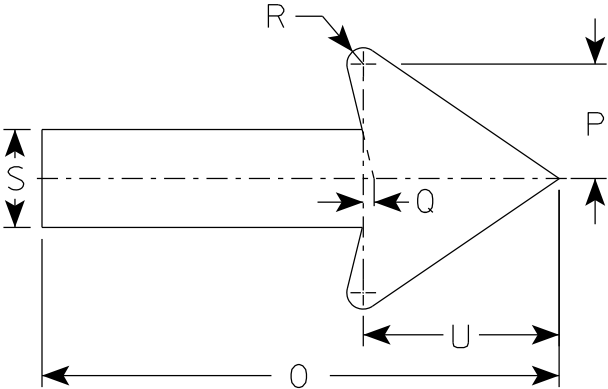


R6 - 2R

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:

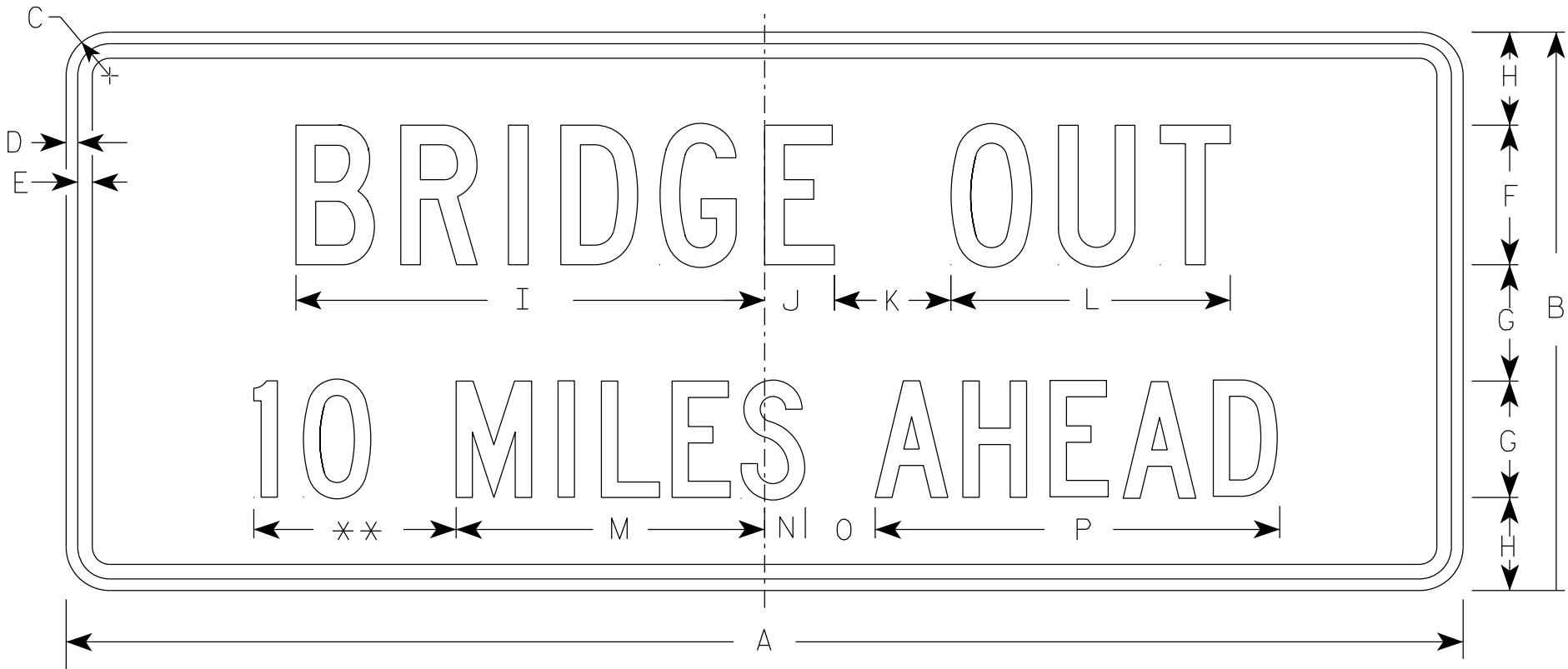
COUNTY:

SHEET NO:

E

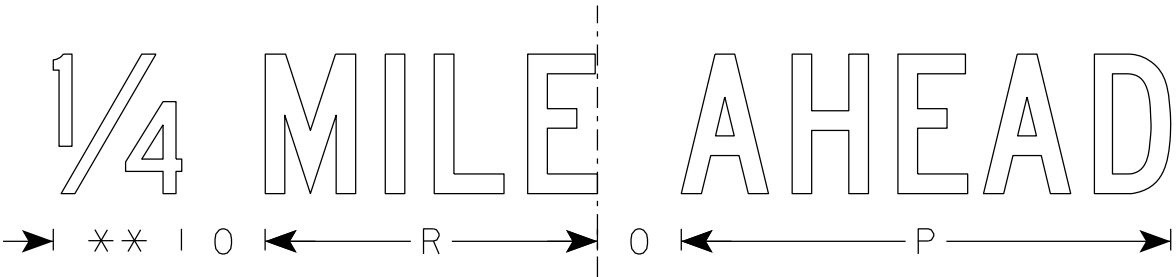
NOTES

- 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.



R11-3C

** See Note 5



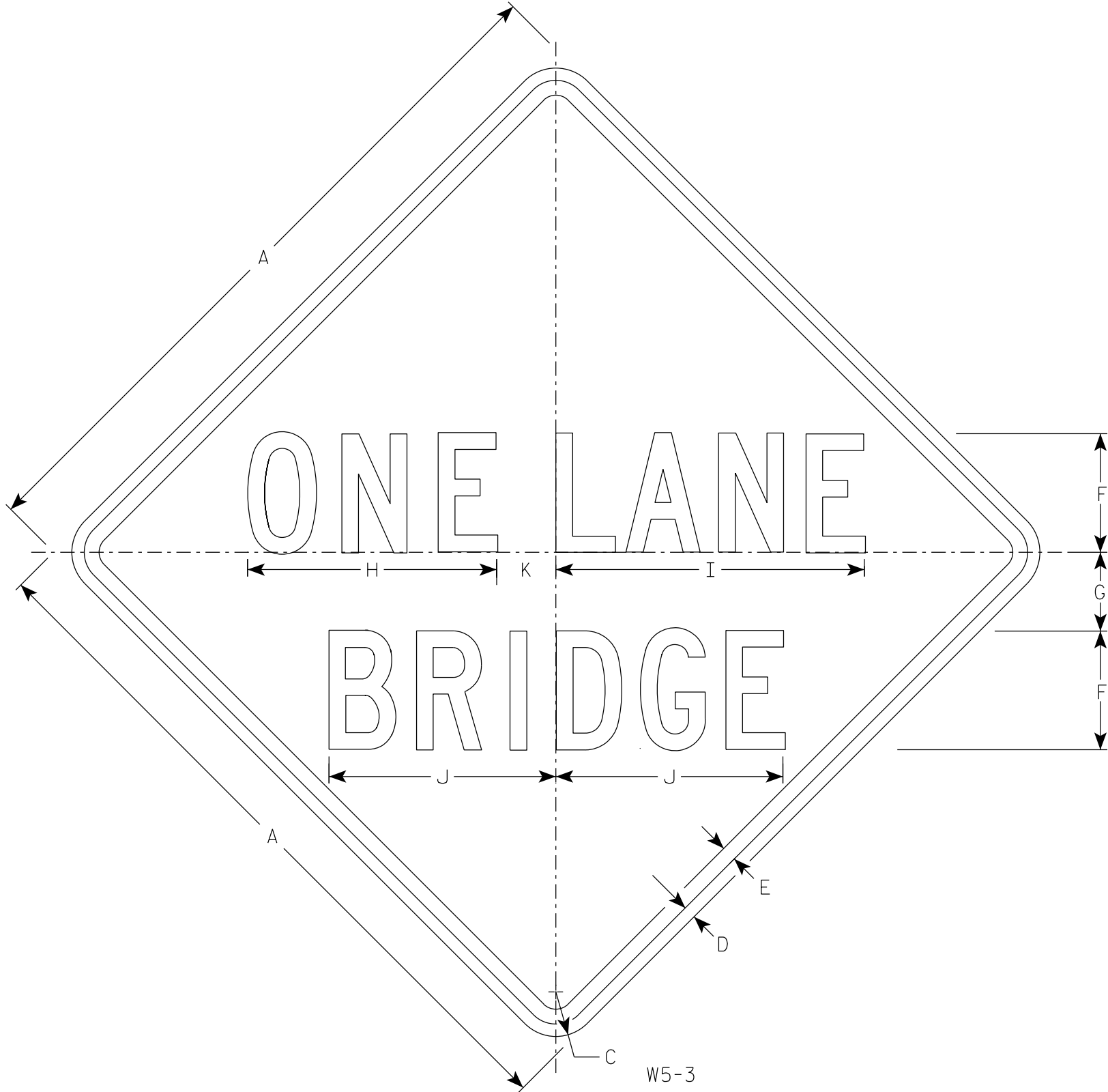
SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	36	15	1 1/2	1/2	5/8	4	3	2 1/2	13 1/4	2 1/4	3	8	8	1 1/2	2	10 3/4		7 1/8									3.75
2S	60	24	1 7/8	1/2	5/8	6	5	4	20 1/8	3	5	12	13 1/4	1 3/4	3	17 3/8		11 7/8									10.0
2M	60	24	1 7/8	1/2	5/8	6	5	4	20 1/8	3	5	12	13 1/4	1 3/4	3	17 3/8		11 7/8									10.0
3																											
4																											
5																											

STANDARD SIGN
R11-3C

WISCONSIN DEPT OF TRANSPORTATION

APPROVED
Matthew R. Rauch
for State Traffic Engineer

DATE 2/5/24 PLATE NO. R11-3C.4



NOTES

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

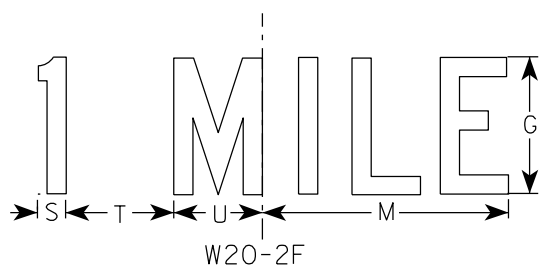
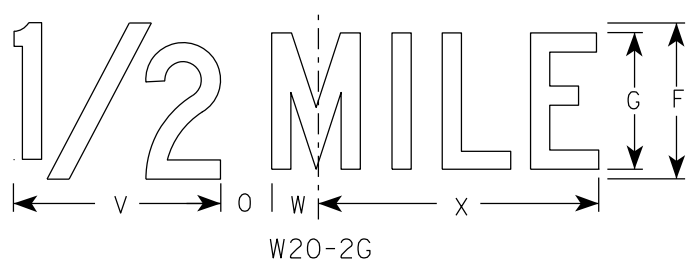
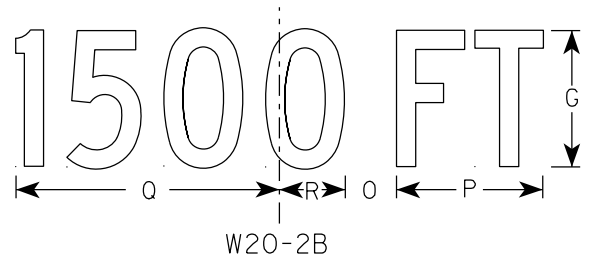
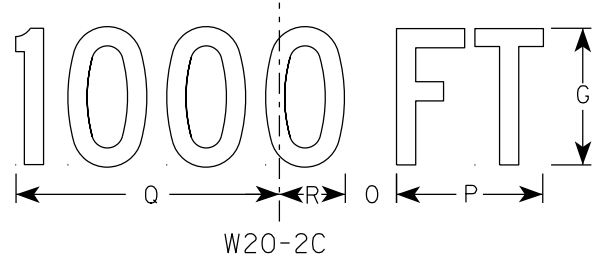
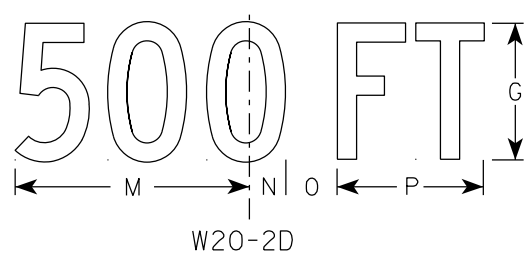
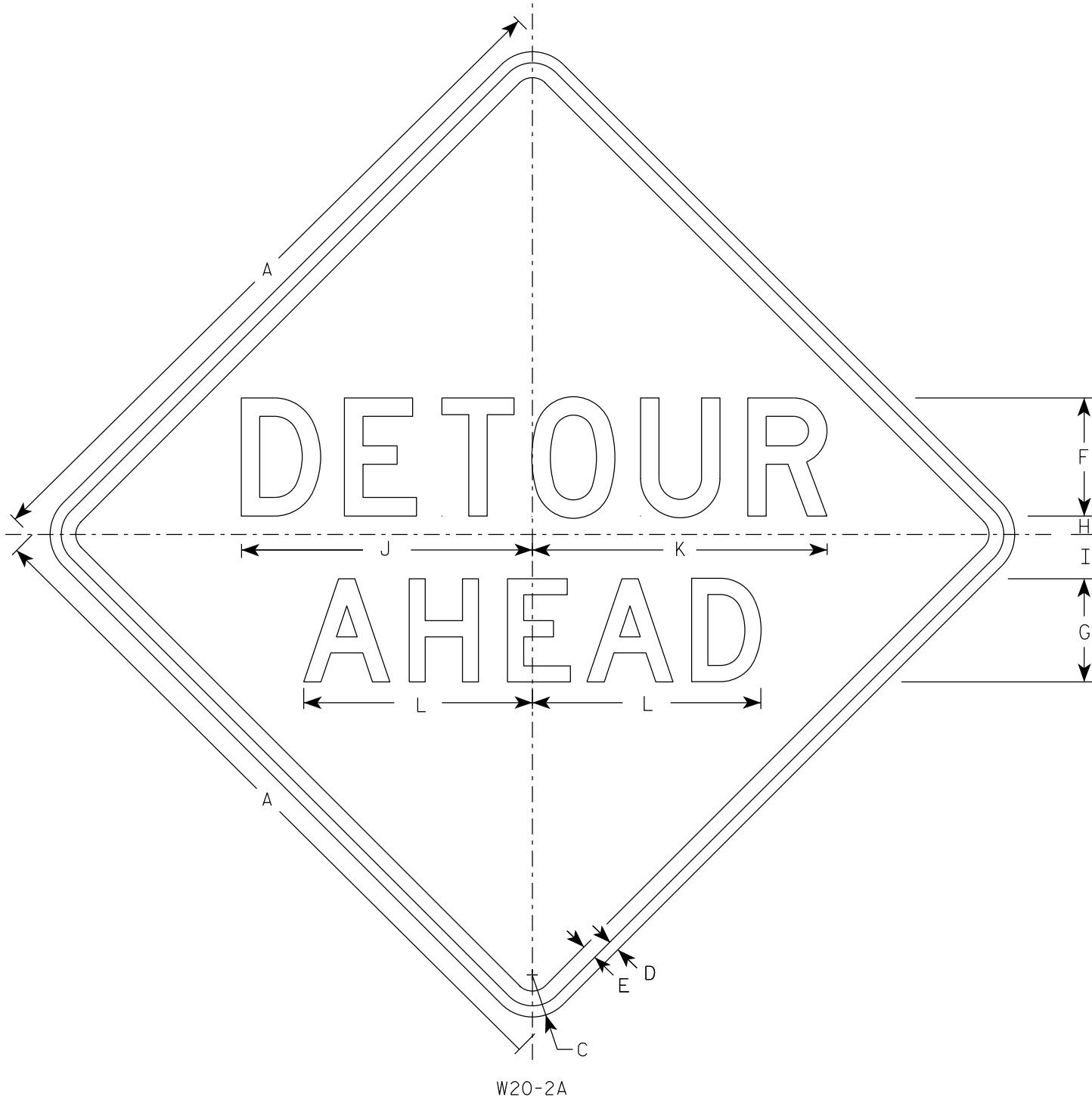
SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	30		1 7⁄8	1⁄2	5⁄8	5	3 1⁄4	10 1⁄2	13 1⁄8	9 5⁄8	3																6.25
2S	36		2 1⁄4	5⁄8	3⁄4	6	4	12 5⁄8	15 5⁄8	11 1⁄2	4																9.00
2M	36		2 1⁄4	5⁄8	3⁄4	6	4	12 5⁄8	15 5⁄8	11 1⁄2	4																9.00
3	36		2 1⁄4	5⁄8	3⁄4	6	4	12 5⁄8	15 5⁄8	11 1⁄2	4																9.00
4	48		3	3⁄4	1	8	5	16 5⁄8	20 3⁄4	15 3⁄8	5																16.00
5																											

STANDARD SIGN
W5-3

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 9/6/2023 PLATE NO. W5-3.12



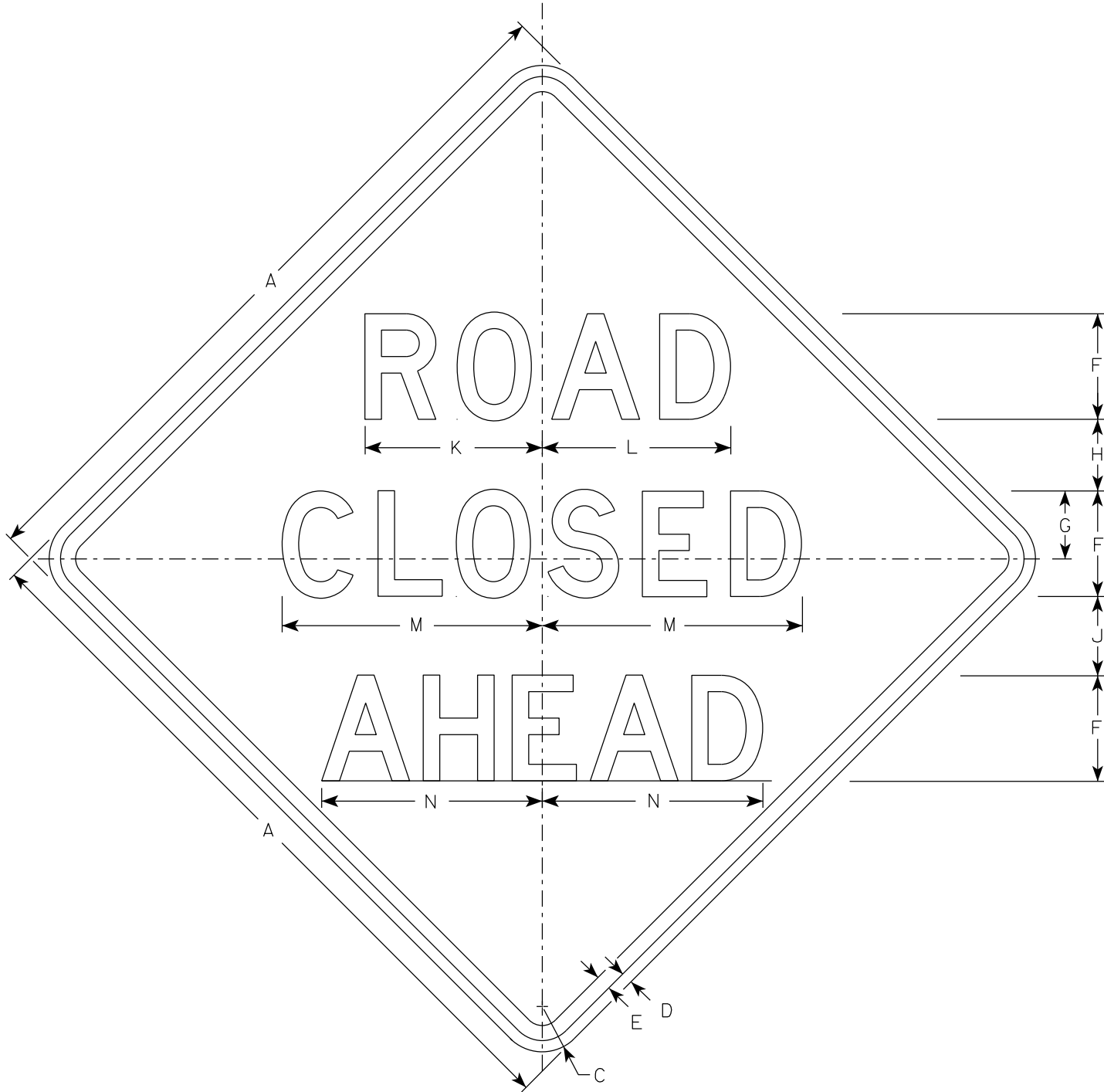
NOTES

- 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.

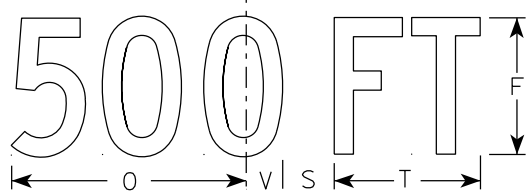
SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	v	w	X	Y	Z	Area sq. ft.
1	36		2 1/4	5/8	3/4	6	5	1	2 1/4	14 3/4	15	11 5/8	9	1 3/8	1 7/8	5 5/8	10 1/8	2 1/2	1 1/8	4 1/2	3 1/2	8	1 3/4	10 3/4			9.0
2S	48		3	3/4	1	8	7	1 1/4	3	19 3/4	20	15 1/2	12	1 7/8	2 5/8	7 1/2	13 1/2	3 3/8	1 1/2	6	4 5/8	10 5/8	2 3/8	14 3/8			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

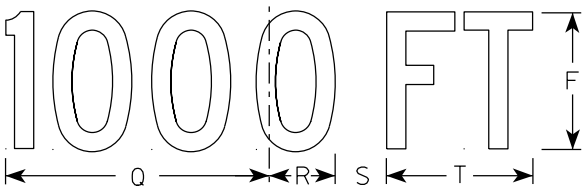
PROJECT NO:	HWY:	COUNTY:	SHEET NO:	E
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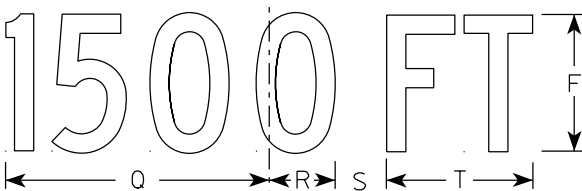
W20-3A



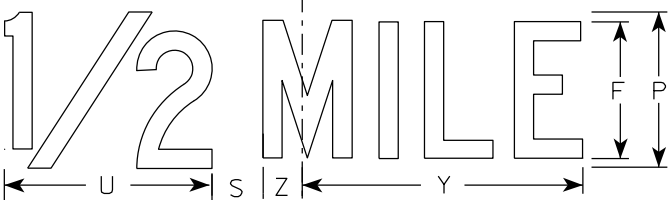
W20-3D



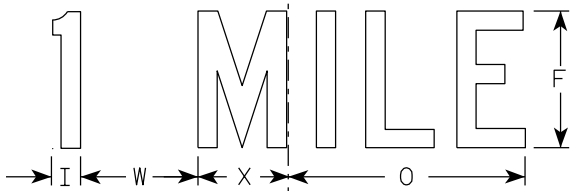
W20-3C



W20-3B



W20-3G



W20-3F

NOTES

1. Sign is Type II - Type F Reflective
2. Color:
Background - Orange
Message - Black
3. Message Series - see note 5
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. Lines 1 and 2 are Series D.
Line 3 is Series D for AHEAD and Series C for all other distances.

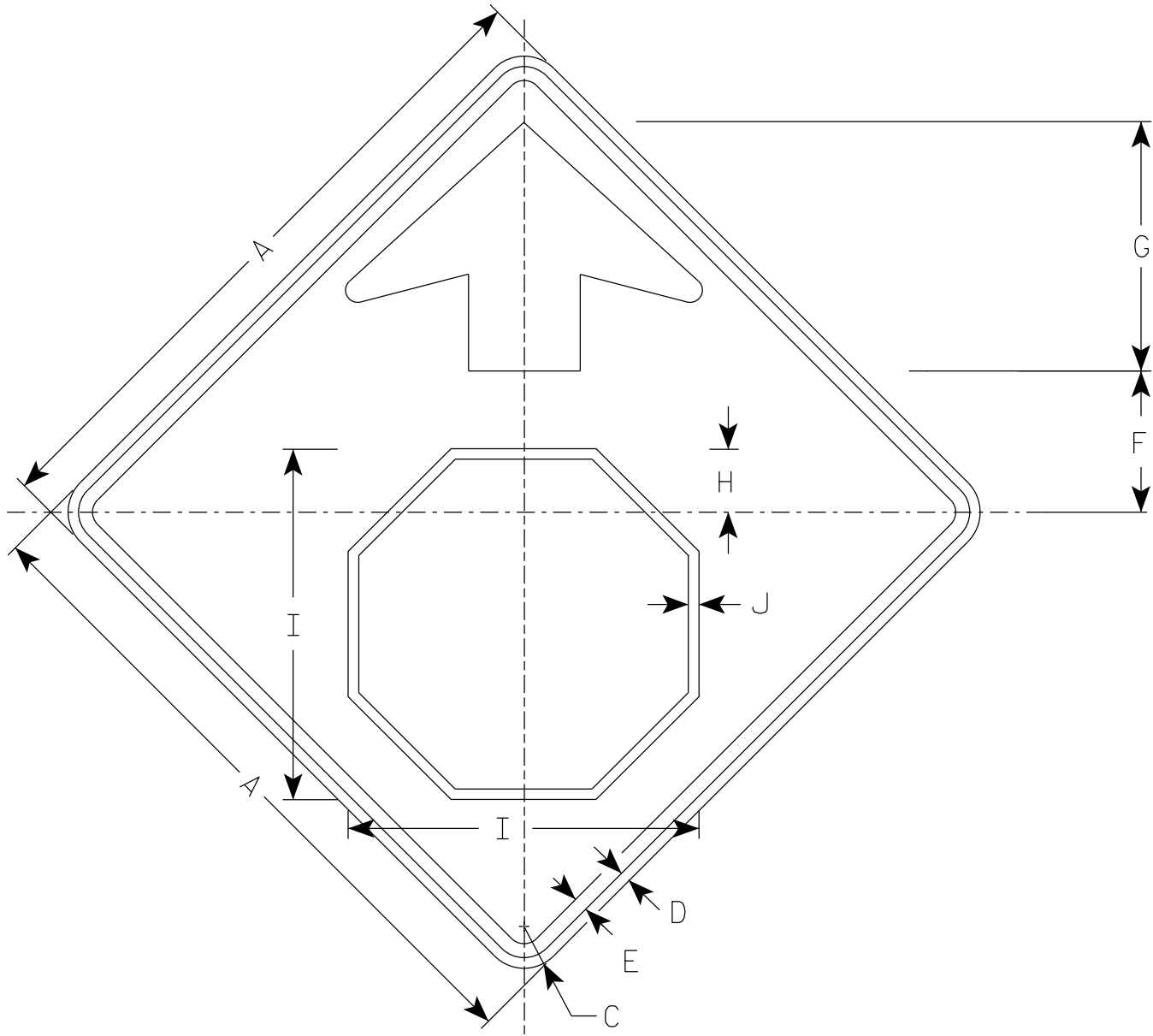
SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	v	W	X	Y	Z	Area sq. ft.
1	36		2 1/4	5/8	3/4	5	3 3/8	3 1/2	1 1/8	4	8 3/8	8 7/8	12 1/2	11	9	6	10 1/8	2 1/2	1 7/8	5 5/8	8	1 3/8	4 1/2	3 1/2	10 3/4	1 3/4	9.0
2S	48		3	3/4	1	7	4 1/2	4 3/4	1 1/2	5 1/4	11 3/4	12 1/2	17 1/4	14 5/8	12	8	13 1/2	3 3/8	2 5/8	7 1/2	10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

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

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

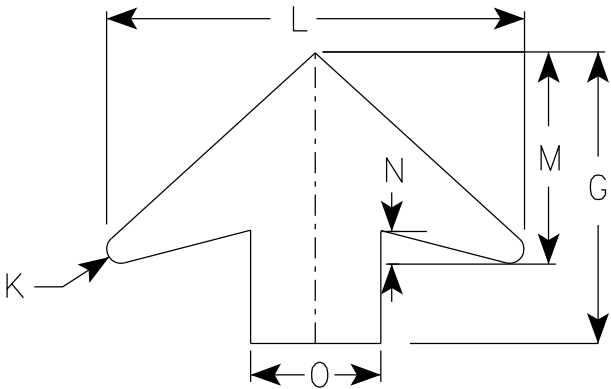
DATE 1/10/2024 PLATE NO. W20-3.8



W03-1

NOTES

- 1. All Signs Type II - Type F Reflective
- 2. Color:
 - Background - ORANGE
 - Arrow & Border - BLACK
 - Stop Symbol - WHITE BORDER ON RED BACKGROUND



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	36		2 1/4	5/8	3/4	7 1/2	13 1/2	3 1/2	19	5/8	5/8	19 1/4	9 3/4	1 5/8	6												9.0
2S	48		3	3/4	1	10	17 7/8	4 1/2	25 1/8	3/4	7/8	25 5/8	13	2	8												16.0
2M	48		3	3/4	1	10	17 7/8	4 1/2	25 1/8	3/4	7/8	25 5/8	13	2	8												16.0
3	48		3	3/4	1	10	17 7/8	4 1/2	25 1/8	3/4	7/8	25 5/8	13	2	8												16.0
4	48		3	3/4	1	10	17 7/8	4 1/2	25 1/8	3/4	7/8	25 5/8	13	2	8												16.0
5	48		3	3/4	1	10	17 7/8	4 1/2	25 1/8	3/4	7/8	25 5/8	13	2	8												16.0

STANDARD SIGN

W03-1

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 1/24/2024 PLATE NO. W03-1.2



LIVE LOAD:

DESIGN LOADING: HL-93
INVENTORY RATING FACTOR: 1.23
OPERATING RATING FACTOR: 1.59
WISCONSIN STANDARD PERMIT VEHICLE (WIS-SPV) = 250 KIPS

STRUCTURE IS DESIGNED FOR A FUTURE WEARING
SURFACE OF 20 "S.F.

MATERIAL PROPERTIES:

CONCRETE MASONRY { SUPERSTRUCTURE _____ f'c = 4,000 p.s.i.
ALL OTHER _____ f'c = 3,500 p.s.i.
HIGH STRENGTH BAR STEEL REINFORCEMENT (GRADE 60) _____ fy = 60,000 p.s.i.

HYDRAULIC DATA:

100 YEAR FREQUENCY

O₁₀₀ = 520 c.f.s.
 VEL. = 3.4 f.p.s.
 HW₁₀₀ = EL. 1498.67
 WATERWAY AREA = 154 sq. ft.
 DRAINAGE AREA = 31.2 sq. mi.
 SCOUR CRITICAL CODE = 5
 DATUM = NAVD88 (2012)

2 YEAR FREQUENCY

O_2 = 200 c.f.s.
 VEL. = 2.1 f.p.s.
 HW₂ = EL. 1497.13

FOUNDATION DATA:

ABUTMENTS TO BE SUPPORTED ON HP 10 x 42 STEEL PILING (WITH PILE POINTS) DRIVEN TO A REQUIRED DRIVING RESISTANCE OF 180 TONS ± PER PILE AS DETERMINED BY THE MODIFIED GATES DYNAMIC FORMULA. ESTIMATED LENGTH 35'-0" FOR WEST ABUT. AND 30'-0" FOR E. ABUT.

*THE FACTORED AXIAL RESISTANCE OF PILES IN COMPRESSION USED FOR DESIGN IS THE REQUIRED DRIVING RESISTANCE MULTIPLIED BY A RESISTANCE FACTOR OF 0.5 USING MODIFIED GATES TO DETERMINE DRIVEN PILE CAPACITY.

TRAFFIC DATA:

A.A.D.T. = <100 (2023)
A.A.D.T. = <100 (2043)
R.D.S. = 25 M.P.H.

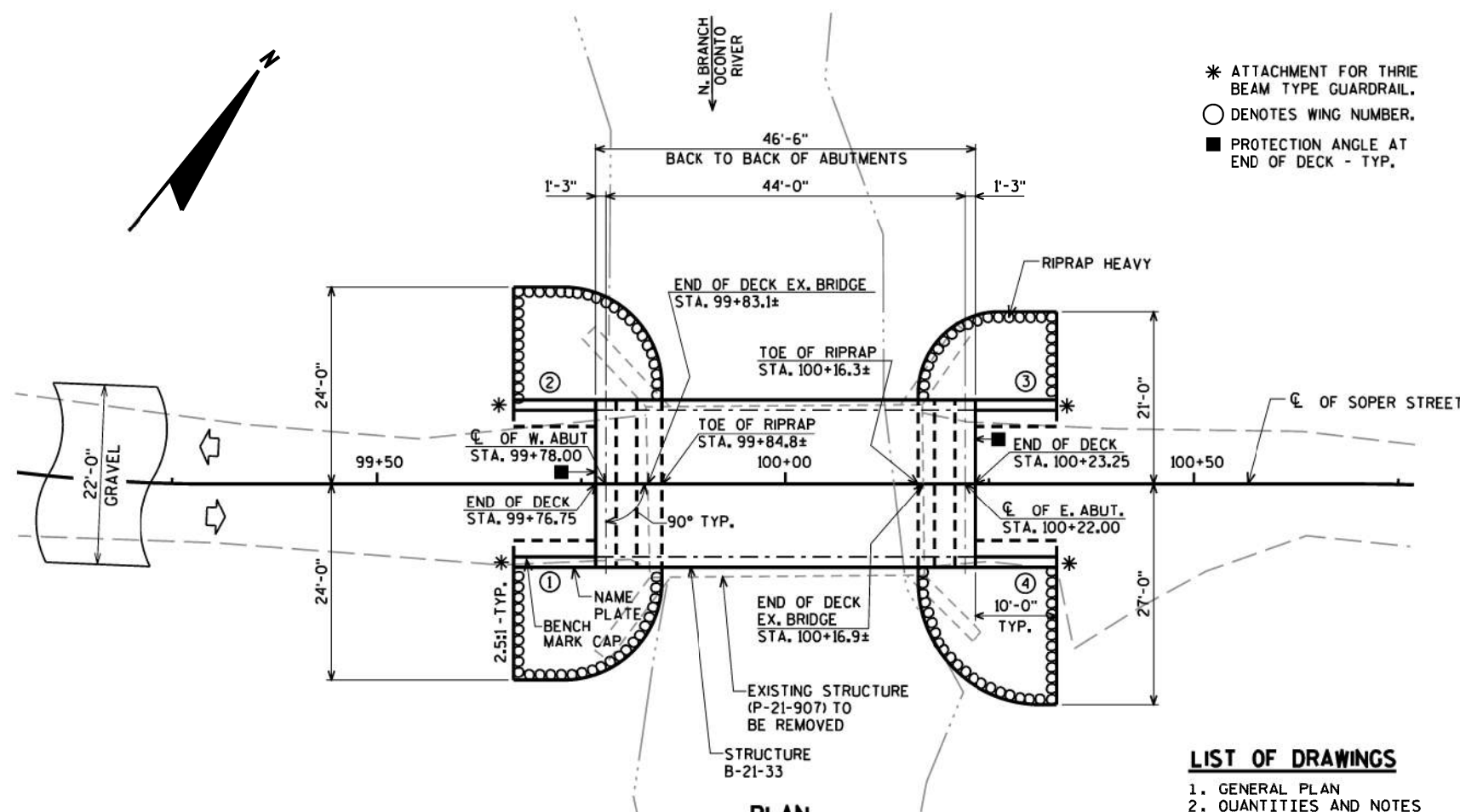
NO.	DATE	REVISION	BY
ORIGINAL PLANS PREPARED BY AYRES 3433 Oakwood Hills Parkway Eau Claire, WI 54701 www.AyresAssociates.com			
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
ACCEPTED			SDR 08/21/2012 DATE
CHIEF STRUCTURES DESIGN ENGINEER			
STRUCTURE B-21-33			
SOPER STREET OVER N. BRANCH OCONTO RIVER			
COUNTY	FOREST		TOWN/CITY/VILLAGE
			WABEN
DESIGN SPEC.			
AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS			
DESIGNED BY	JLB	DESIGN CK'D.	DRS
DRAWN BY	ZSS	PLANS CK'D.	AE
GENERAL PLAN			SHEET 1 OF 1



08/01/2023

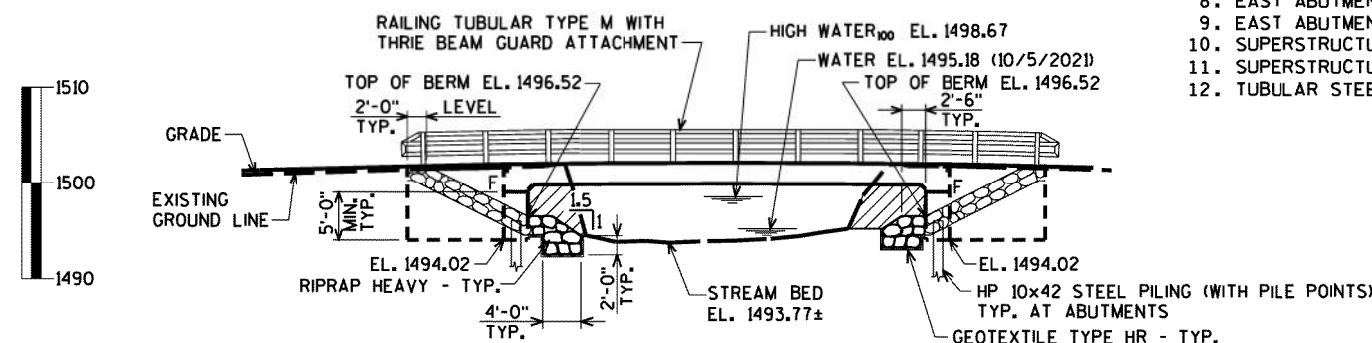
BRIDGE OFFICE CONTACT:
AARON BONK
(608)-261-0261

CONSULTANT CONTACT:
ARLEN BEAUDETTE
(715)-834-3161



LIST OF DRAWINGS

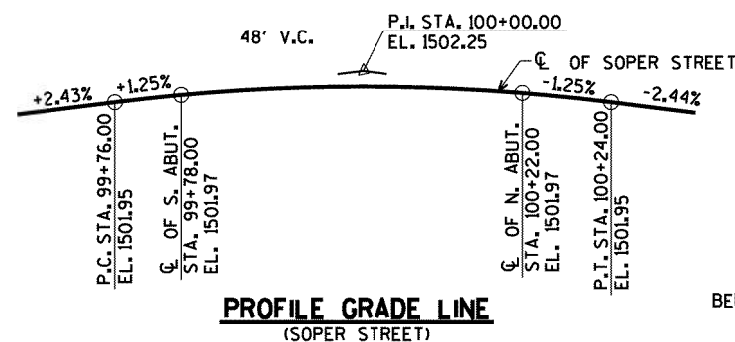
1. GENERAL PLAN
2. QUANTITIES AND NOTES
3. SUBSURFACE EXPLORATION
4. WEST ABUTMENT
5. WEST ABUTMENT WING DETAILS
6. WEST ABUTMENT PILE LAYOUT & BILL OF BARS
7. EAST ABUTMENT
8. EAST ABUTMENT WING DETAILS
9. EAST ABUTMENT PILE LAYOUT & BILL OF BARS
10. SUPERSTRUCTURE
11. SUPERSTRUCTURE DETAILS
12. TUBULAR STEEL RAILING TYPE 'M'



ELEVATION

 COST OF EXCAVATION OR FILL IN THE HATCHED AREAS SHALL BE INCLUDED IN THE CONTRACT LUMP SUM PRICE FOR "EXCAVATION FOR STRUCTURES BRIDGES B-21-33".

REMOVE EXISTING SUBSTRUCTURE AS NEEDED. COST
CONSIDERED INCIDENTAL TO "REMOVING STRUCTURE"
ITEM. TYPICAL AT ALL SUBSTRUCTURES.

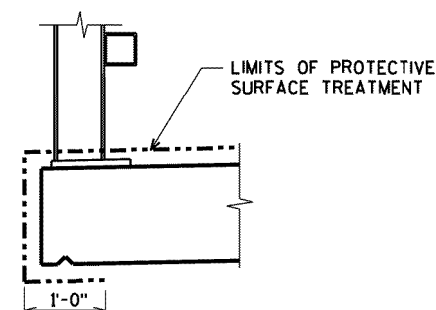
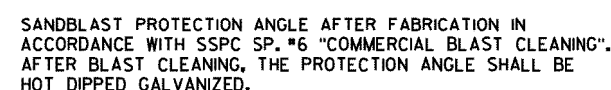


BENCH MARK:

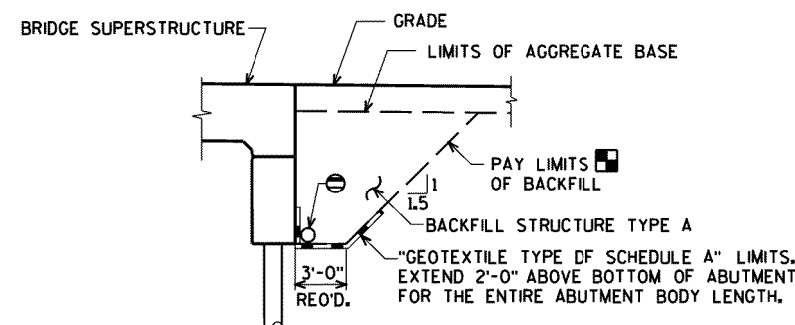
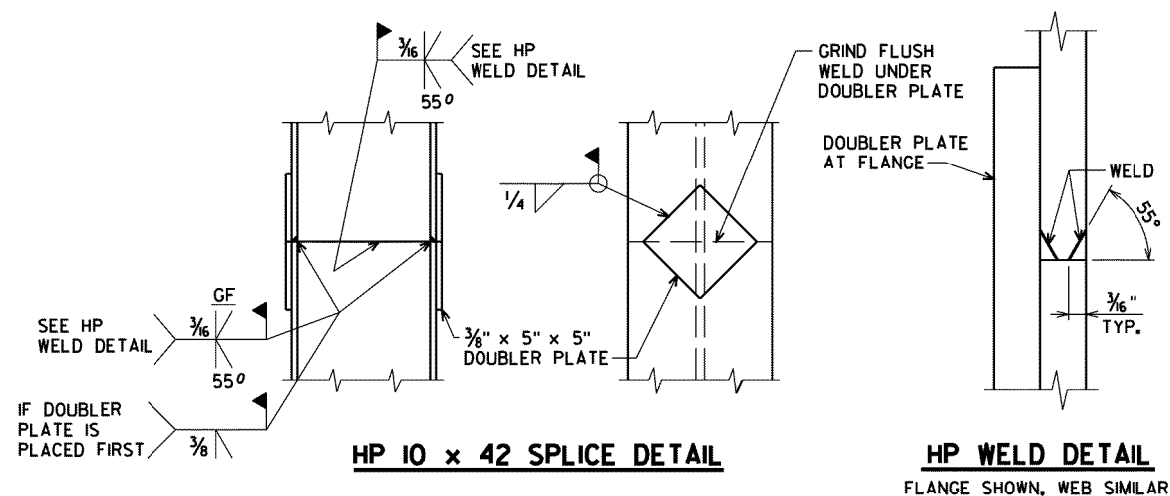
BM *200, SW CORNER OF CONCRETE SLAB WITH
A GENERATOR ON IT AT THE PUMP STATION
STA. 99+85.5±, 12.4± RT.
EL. 1502.69

BID ITEM NUMBER	BID ITEMS	UNIT	W. ABUT.	E. ABUT.	SUPER.	TOTAL
203.0250	REMOVING STRUCTURE OVER WATERWAY REMOVE DEBRIS	EACH	-----	-----	-----	1
206.1001	EXCAVATION FOR STRUCTURES BRIDGES B-21-33	EACH	-----	-----	-----	1
210.1500	BACKFILL STRUCTURE TYPE A	TON	45	45	-----	90
312.0115	SELECT CRUSHED MATERIAL	TON	20	20	-----	40
502.0100	CONCRETE MASONRY BRIDGES	CY	24.7	24.7	73.6	123
502.3200	PROTECTIVE SURFACE TREATMENT	SY	9	9	137	155
505.0400	BAR STEEL REINFORCEMENT HS STRUCTURES	LB	1,300	1,300	-----	2,600
505.0600	BAR STEEL REINFORCEMENT HS COATED STRUCTURES	LB	1,390	1,390	12,940	15,720
506.0105	STRUCTURAL STEEL CARBON	LB	-----	-----	344	344
513.4061	RAILING TUBULAR TYPE M	LF	22.5	22.5	93	138
516.0500	RUBBERIZED MEMBRANE WATERPROOFING	SY	8	8	-----	16
550.0500	PILE POINTS	EACH	3	3	-----	6
550.1100	PILING STEEL HP 10-INCH x 42 LB	LF	105	90	-----	195
606.0300	RIPRAP HEAVY	CY	50	50	-----	100
612.0406	PIPE UNDERDRAIN WRAPPED 6-INCH	LF	65	65	-----	130
645.0111	GEOTEXTILE TYPE DF SCHEDULE A	SY	35	35	-----	70
645.0120	GEOTEXTILE TYPE HR	SY	110	110	-----	220
	NON-BID ITEMS					
	FILLER	SIZE	-----	-----	-----	1/2" & 3/4"

AT ABUTMENTS, CONCRETE POURED UNDER WATER WILL BE ALLOWED AND SHALL BE DONE IN ACCORDANCE WITH SECTION 502.3.5.3 OF THE STANDARD SPECIFICATIONS.

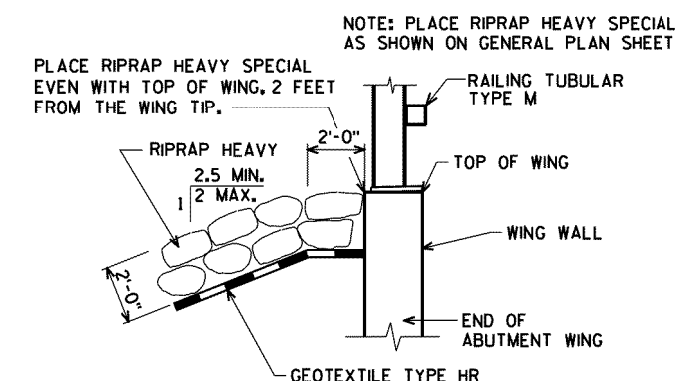


PROTECTIVE SURFACE TREATMENT DETAIL



BACKFILL STRUCTURE LIMITS THRU ABUTMENT

- ☐ BACKFILL PAY LIMITS. BACKFILL BEYOND BACKFILL PAY LIMITS SHALL BE INCIDENTAL TO EXCAVATION FOR STRUCTURES. LIMITS OF EXCAVATION SHALL BE DETERMINED BY THE CONTRACTOR.
- ☉ PIPE UNDERDRAIN WRAPPED 6-INCH. SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. ATTACH RODENT SHIELD AT ENDS OF PIPE UNDERDRAIN AS DETAILED ON SHEET 6.



TYPICAL FILL SECTION AT WING TIPS

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-21-33			
DRAWN BY		ZSS	PLANS CK'D. DRS
QUANTITIES AND NOTES		SHEET 2 OF 12	

3/2/2023
PENTABLE:BRocu_shd_util.tbl

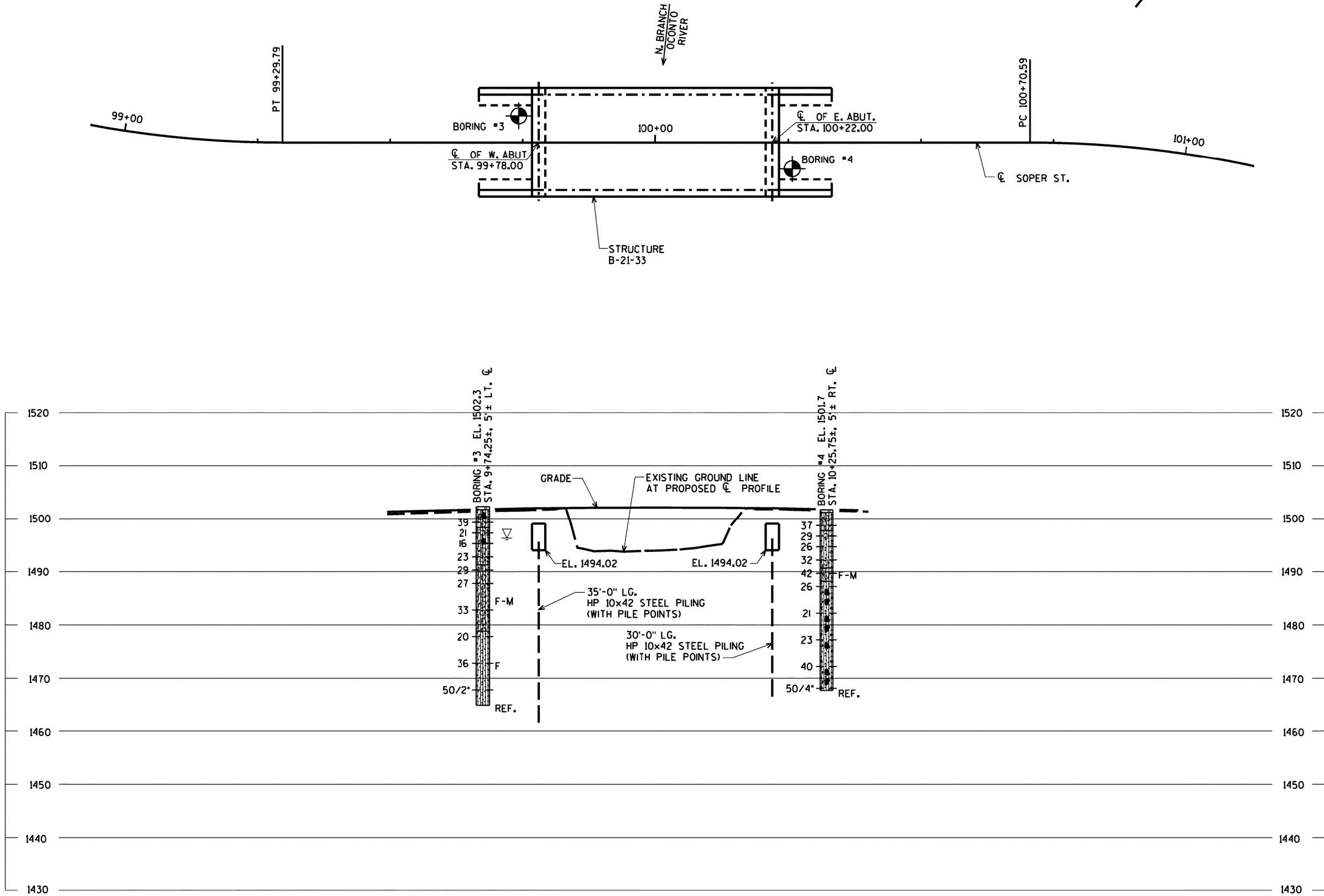
8

BORING #	DATE COMPLETED	NORTHING (Y)	EASTING (X)
3	MARCH 10, 2022	523101.6726	905817.1777
4	MARCH 10, 2022	523126.2716	905863.5449

BORINGS COMPLETED BY: ECS MIDWEST, LLC

REPORT COMPLETED BY: ECS MIDWEST, LLC

ALL COORDINATES REFERENCED TO WCCS NAD 83(9D) FOREST COUNTY



I:\45\450540 Forest CTH C\Structures\CADD\Structure\Final\Soper Street\B-21-33 soils.dgn

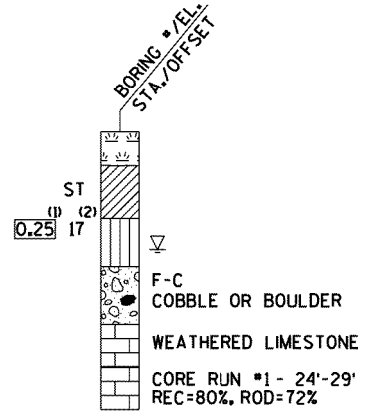
STATE PROJECT NUMBER

9330-01-70

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

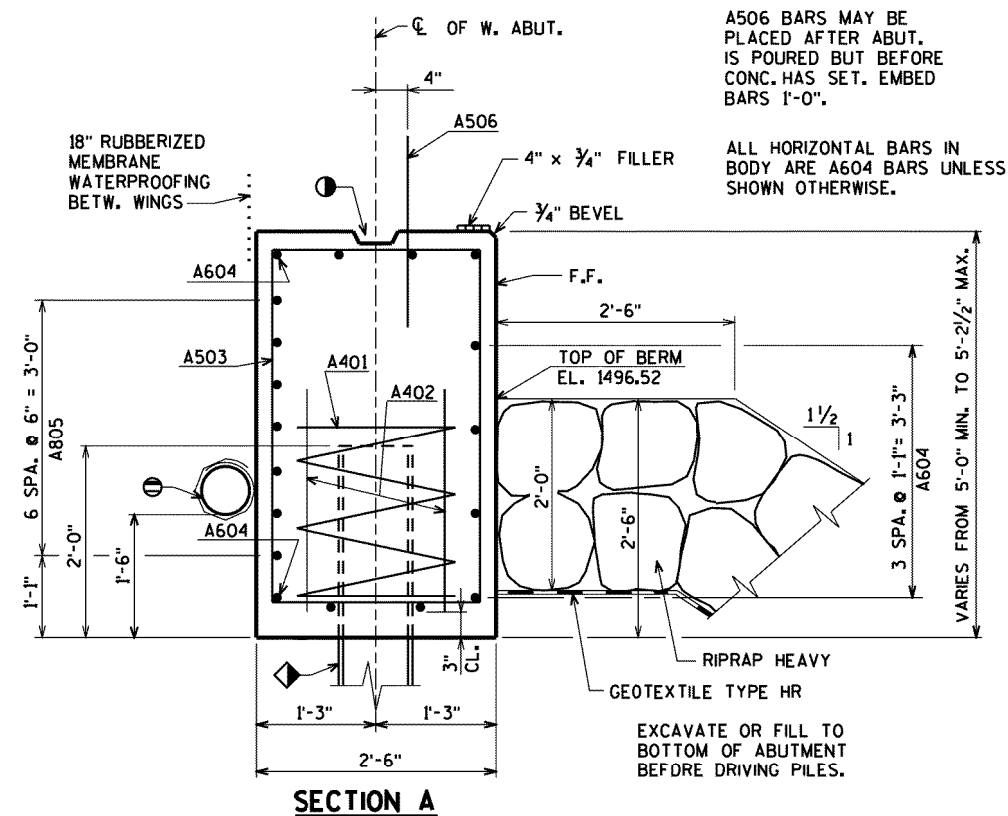
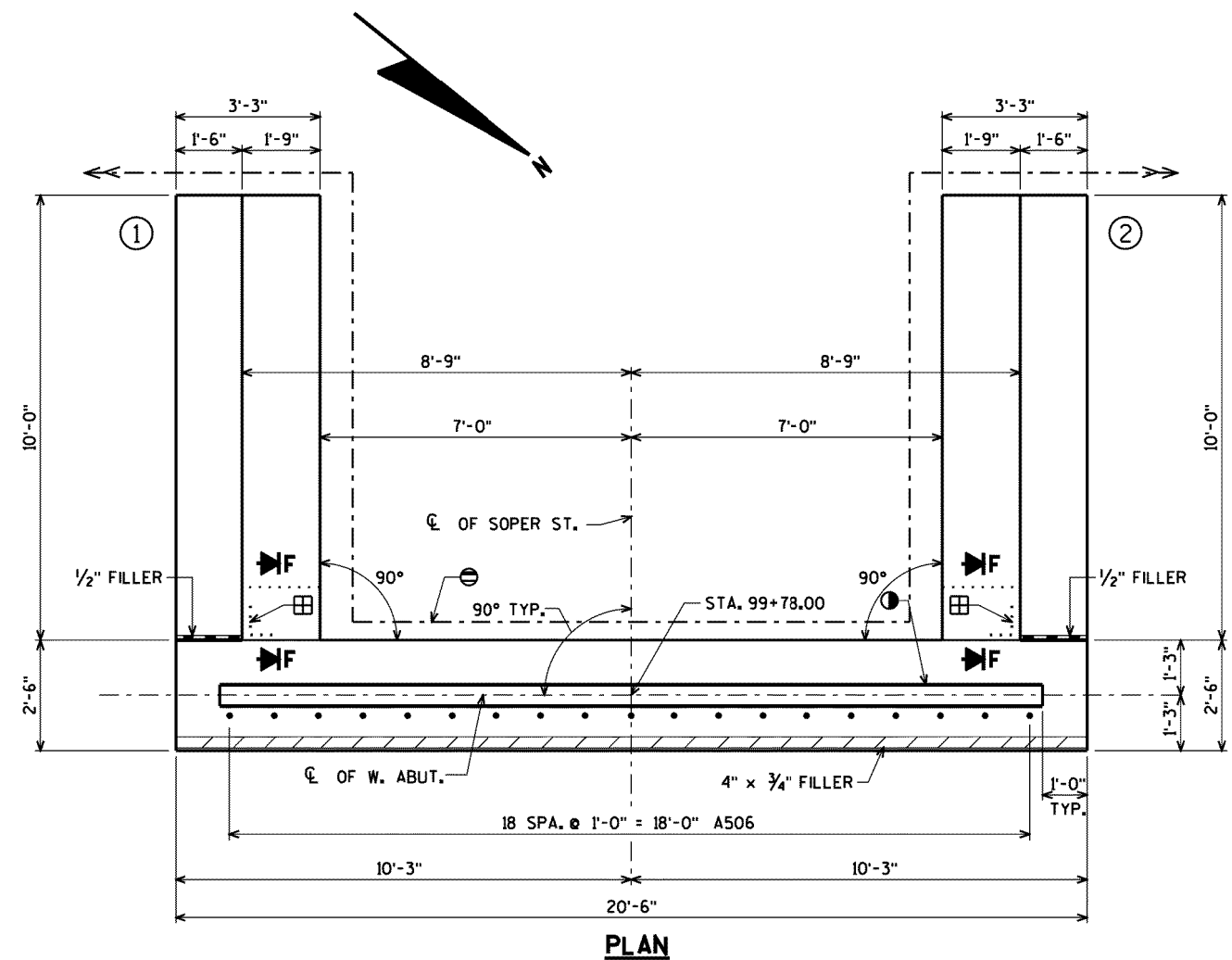
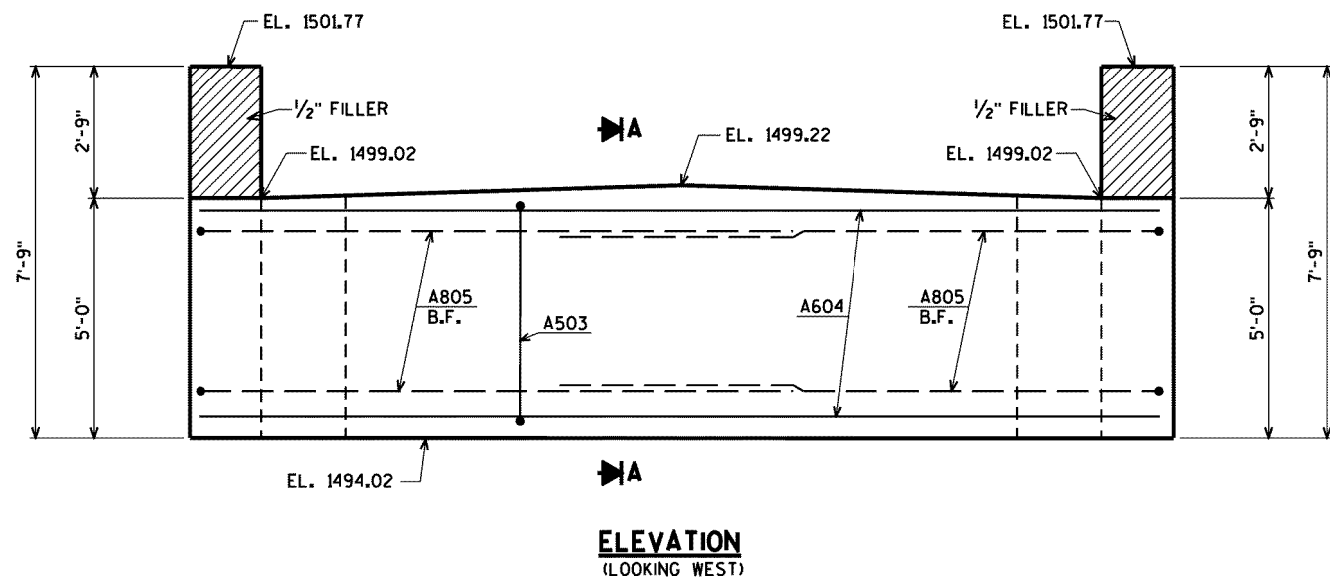
SUBSURFACE EXPLORATION FOR FOUNDATION DESIGN AND BIDDERS INFORMATION

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.

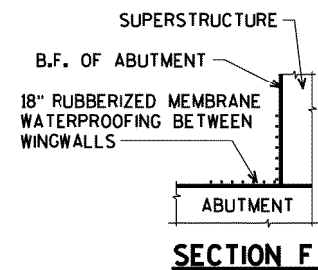
8

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-21-33			
DRAWN BY		ZSS	PLANS CK'D. DRS
SUBSURFACE EXPLORATION		SHEET 3 OF 12	

NOTE:
SEAL ALL EXPOSED HORIZONTAL AND VERTICAL SURFACES OF
 $\frac{1}{2}$ " FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT
SEALER, (1" DEEP AND HOLD $\frac{1}{8}$ " BELOW SURFACE OF CONCRETE).



ABUTMENT TO BE SUPPORTED
ON HP 10 x 42 STEEL PILING
(WITH PILE POINTS)
DRIVEN TO A REQUIRED DRIVING
RESISTANCE OF 180 TONS PER PILE.
ESTIMATED LENGTH 35'-0".



PIPE UNDERDRAIN WRAPPED 6-INCH. SLOPE 0.5%
MIN. TO SUITABLE DRAINAGE. ATTACH RODENT
SHIELD AT ENDS OF PIPE UNDERDRAIN AS DETAILED
ON SHEET 6. RODENT SHIELD TO BE INCIDENTAL TO
BID PRICE OF "PIPE UNDERDRAIN WRAPPED 6-INCH".

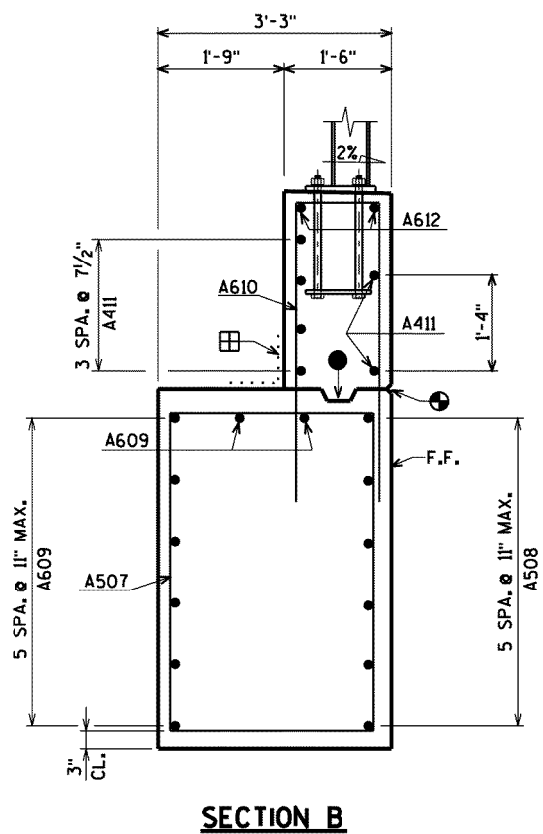
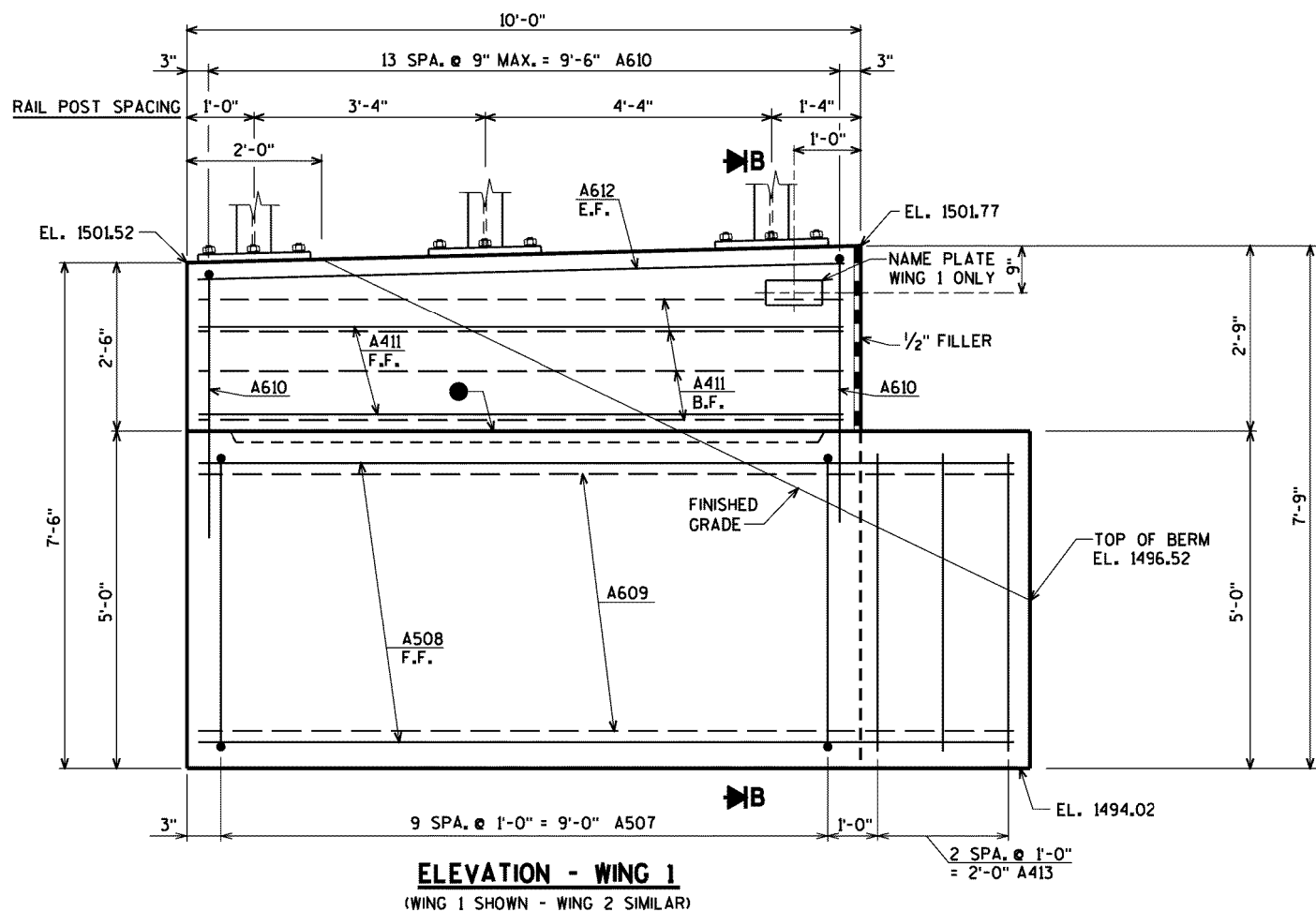
KEYED CONST. JOINT - FORMED
BY A BEVELED 2" x 6".

VERTICAL 18" RUBBERIZED MEMBRANE
WATERPROOFING TO EXTEND FROM
BRIDGE SEAT TO TOP OF WINGWALL.

FOR PILE SPLICE DETAIL SEE SHEET 2.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-21-33			
DRAWN BY		CLP	PLANS CK'D. DRS
WEST ABUTMENT		SHEET 4 OF 12	

ORIGINAL PLANS PREPARED BY
AYRES 3433 Oakwood Hills Parkway
Eau Claire, WI 54701
www.AyresAssociates.com



④ 3/4" "V" GROOVE ON FRONT FACE OF WINGWALL. ONLY REQUIRED IF OPTIONAL CONSTRUCTION JOINT IS USED.

● OPT. CONST. JOINT FORMED BY A BEVELED 2" x 6" KEYWAY WITH MEMBRANE ON BACKFACE.

⊞ 18" RUBBERIZED MEMBRANE WATERPROOFING. SEAL ALL HORIZONTAL AND VERTICAL JOINTS ON BACKFACE.

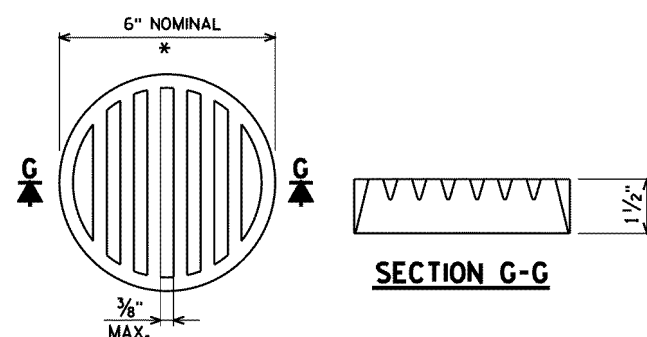
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-21-33			
DRAWN BY		CLP	PLANS CK'D. DRS
WEST ABUTMENT WING DETAILS			SHEET 5 OF 12

ORIGINAL PLANS PREPARED BY
AYRES
3433 Oakwood Hills Parkway
Eau Claire, WI 54701
www.AyresAssociates.com

BAR NO.	COATED BAR	NO. REQ'D.	LENGTH	BENT BAR	BUNDLED	BAR SERIES	1,390* COATED 1,300* UNCOATED
							LOCATION
A401		3	28-0	X			BODY @ PILES
A402		6	2-3				BODY @ PILES
A503		26	14-0	X			BODY VERT.
A604		11	20-2				BODY HORIZ.
A805		14	13-10				BODY HORIZ. @ WING B.F.
A506	X	19	2-0				BODY DOWELS
A507	X	20	15-8	X			WINGS 1 & 2 VERT.
A508	X	12	12-2				WINGS 1 & 2 HORIZ. F.F.
A609	X	16	12-2				WINGS 1 & 2 HORIZ. B.F. & TOP
A610	X	28	10-0	X			WINGS 1 & 2 VERT.
A411	X	12	9-8				WINGS 1 & 2 HORIZ. E.F.
A612	X	4	9-8				WINGS 1 & 2 HORIZ. E.F.
A413	X	6	4-7				BODY VERT. END @ WINGS 1 & 2

The image contains four technical drawings of pipe fittings, each with its part number and dimensions:

- A401:** A vertical fitting with a circular top flange. The flange has a diameter of 1'-9". The main body has a height of 2'-0" and a thickness of 6".
- A805:** An L-shaped fitting. The vertical leg has a height of 1'-4".
- A50:** A rectangular flange. The outer dimensions are 2'-2" wide and 4'-6" high. The inner dimensions are 2'-11" wide and 4'-7" high. The thickness of the flange is 5 1/2".
- A610:** A rectangular fitting. The top flange has a width of 1'-2" and a height of 4'-7".



RODENT SHIELD DETAIL

NO.	DATE	REVISION	B
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-21-33			
		DRAWN BY	CLP
		PLANS CKD.	DR
WEST ABUTMENT PILE LAYOUT & BILL OF BARS		SHEET 6 OF	

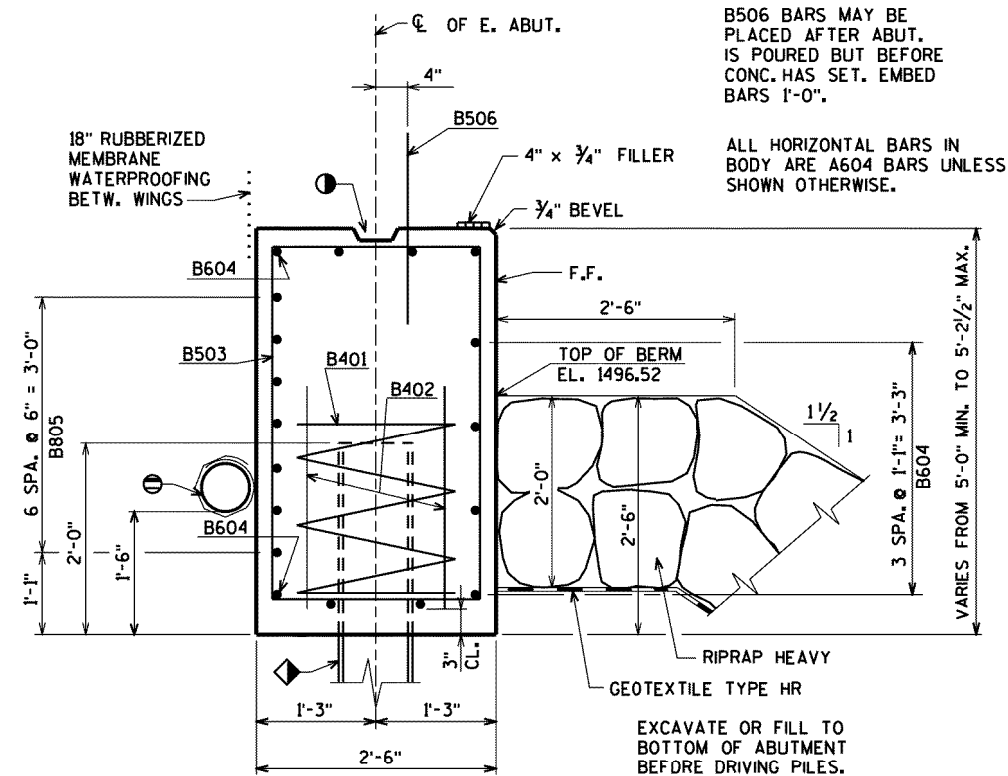
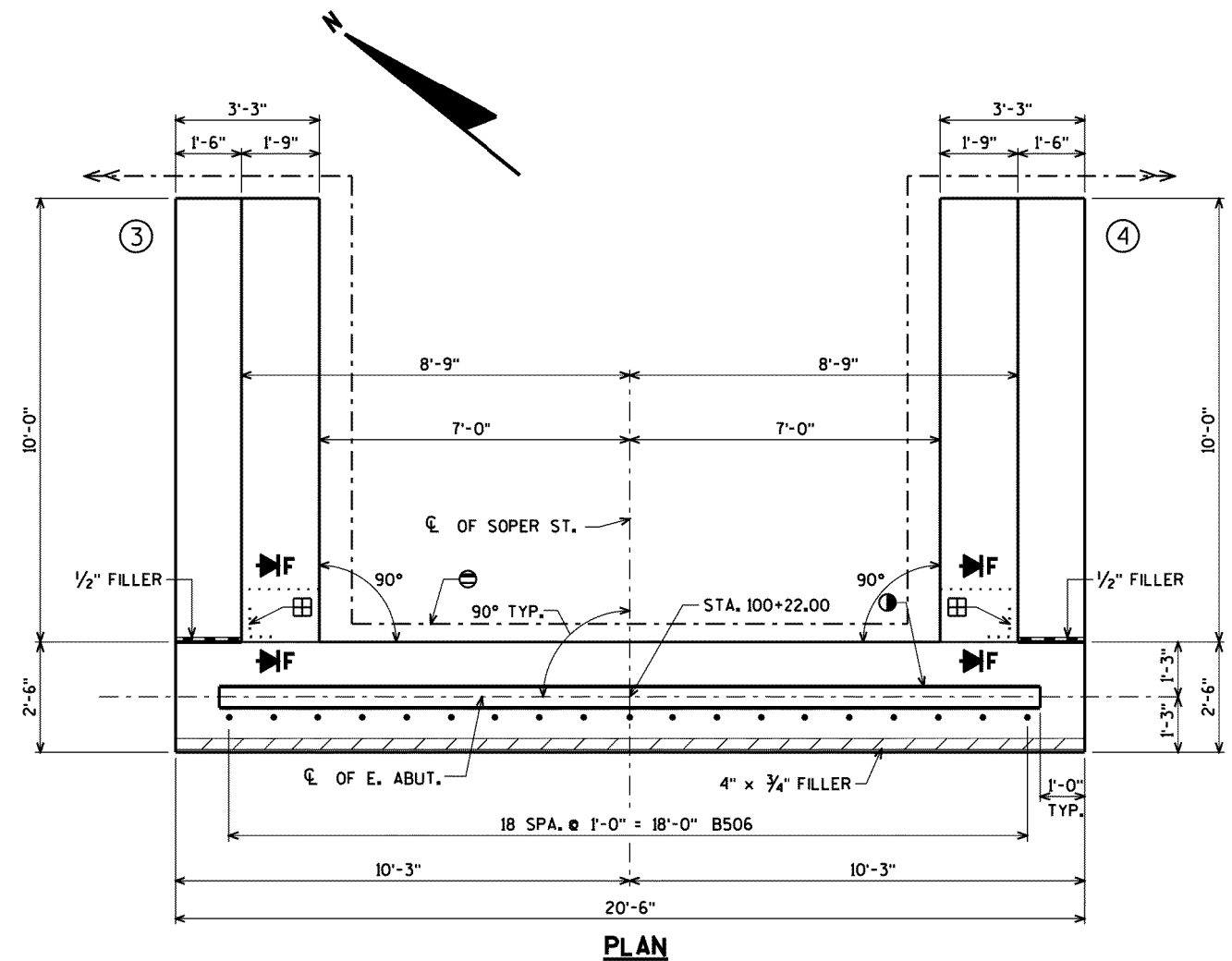
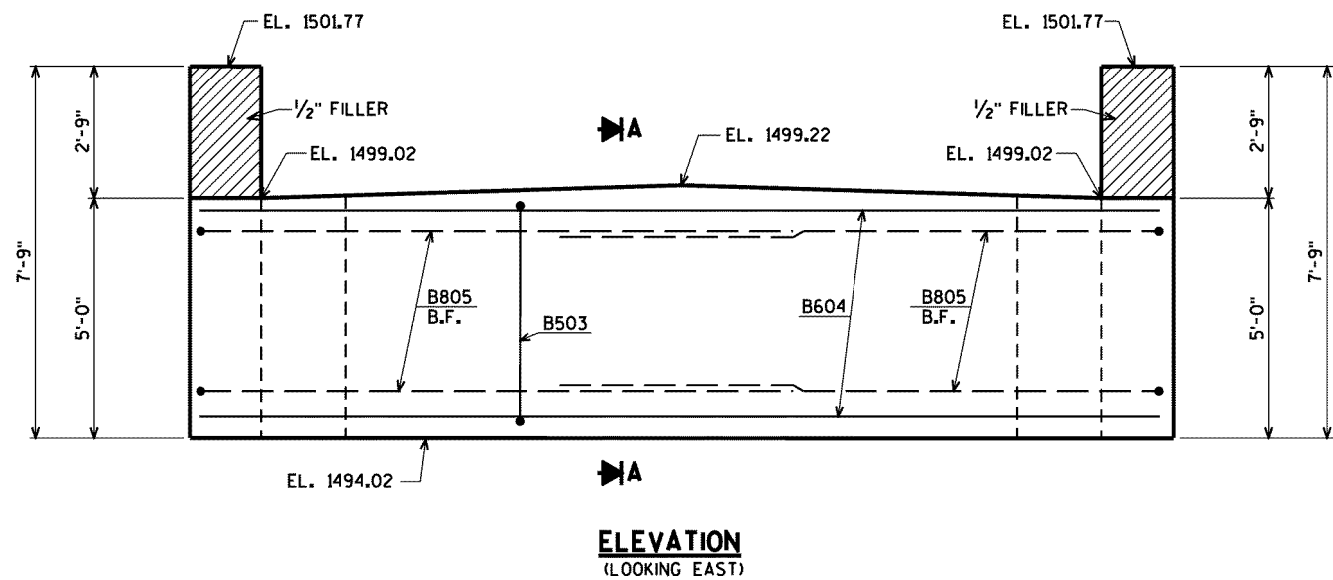
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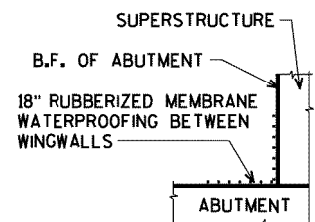
WEST ABUTMENT
PILE LAYOUT &
BILL OF BARS

SHEET 6 OF 12

NOTE:
SEAL ALL EXPOSED HORIZONTAL AND VERTICAL SURFACES OF
1/2" FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT
SEALER, (1" DEEP AND HOLD 1/8" BELOW SURFACE OF CONCRETE).



ABUTMENT TO BE SUPPORTED
ON HP 10 x 42 STEEL PILING
(WITH PILE POINTS)
DRIVEN TO A REQUIRED DRIVING
RESISTANCE OF 180 TONS PER PILE.
ESTIMATED LENGTH 30'-0".



PIPE UNDERDRAIN WRAPPED 6-INCH. SLOPE 0.5%
MIN. TO SUITABLE DRAINAGE. ATTACH RODENT
SHIELD AT ENDS OF PIPE UNDERDRAIN AS DETAILED
ON SHEET 6. RODENT SHIELD TO BE INCIDENTAL TO
BID PRICE OF "PIPE UNDERDRAIN WRAPPED 6-INCH".

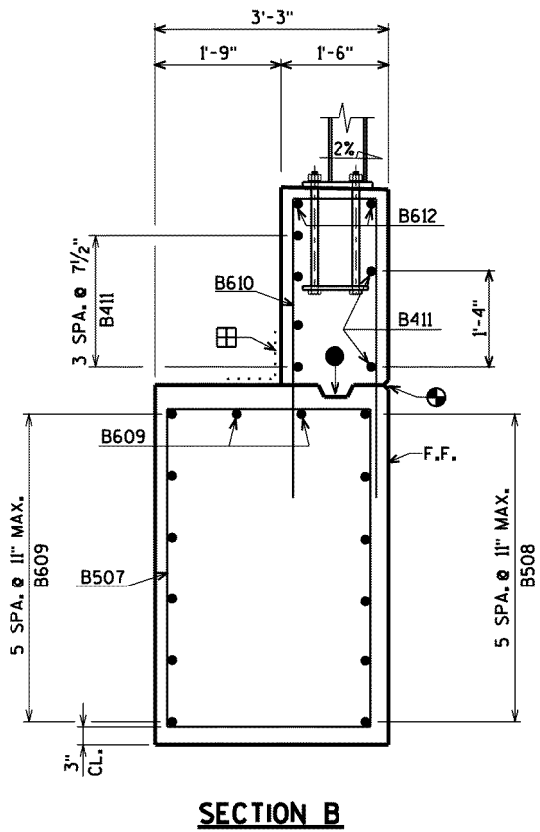
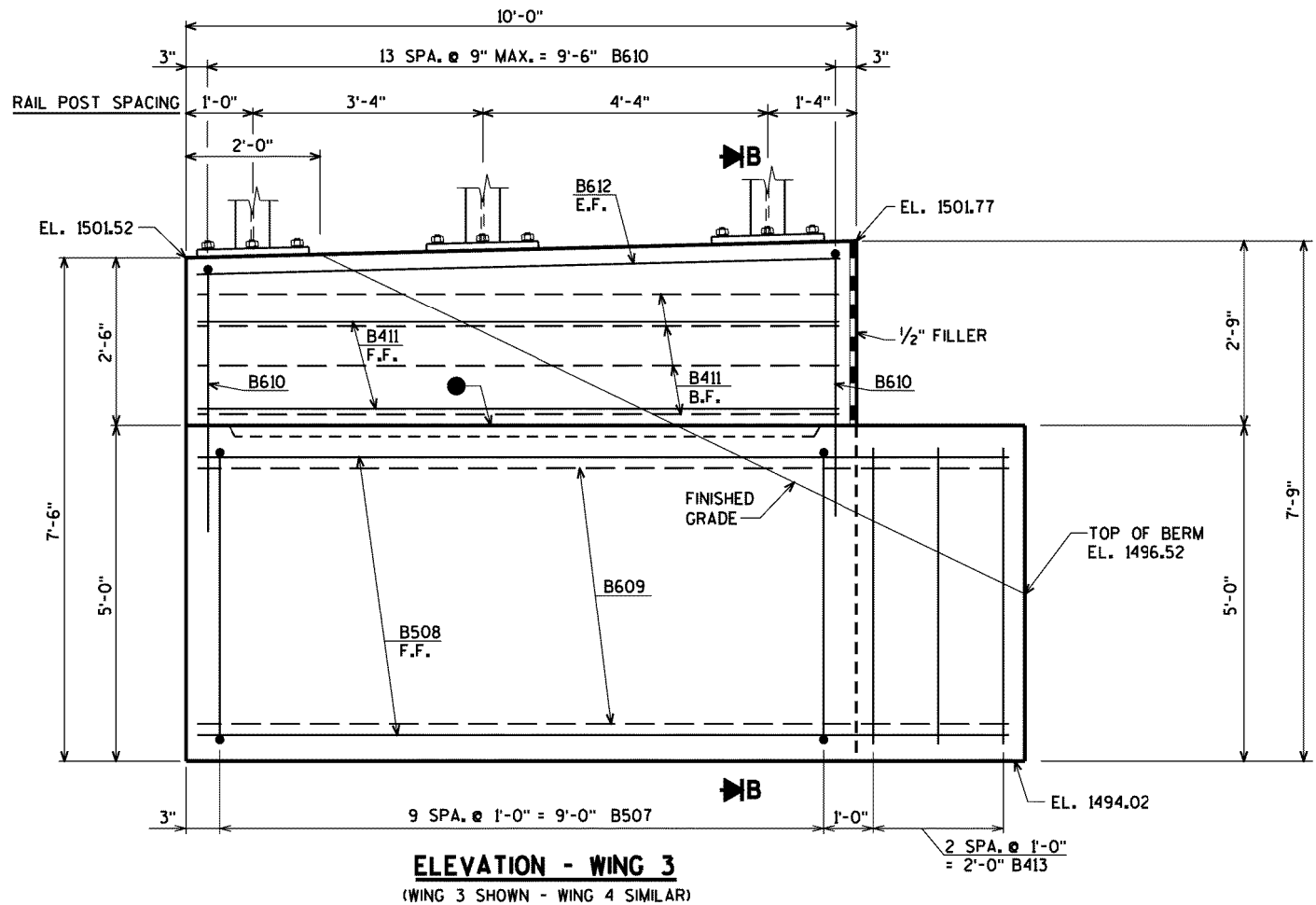
KEYED CONST. JOINT - FORMED
BY A BEVELED 2" x 6".

VERTICAL 18" RUBBERIZED MEMBRANE
WATERPROOFING TO EXTEND FROM
BRIDGE SEAT TO TOP OF WINGWALL.

FOR PILE SPLICE DETAIL SEE SHEET 2.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-21-33			
DRAWN BY		CLP	PLANS CK'D. DRS
EAST ABUTMENT		SHEET 7 OF 12	

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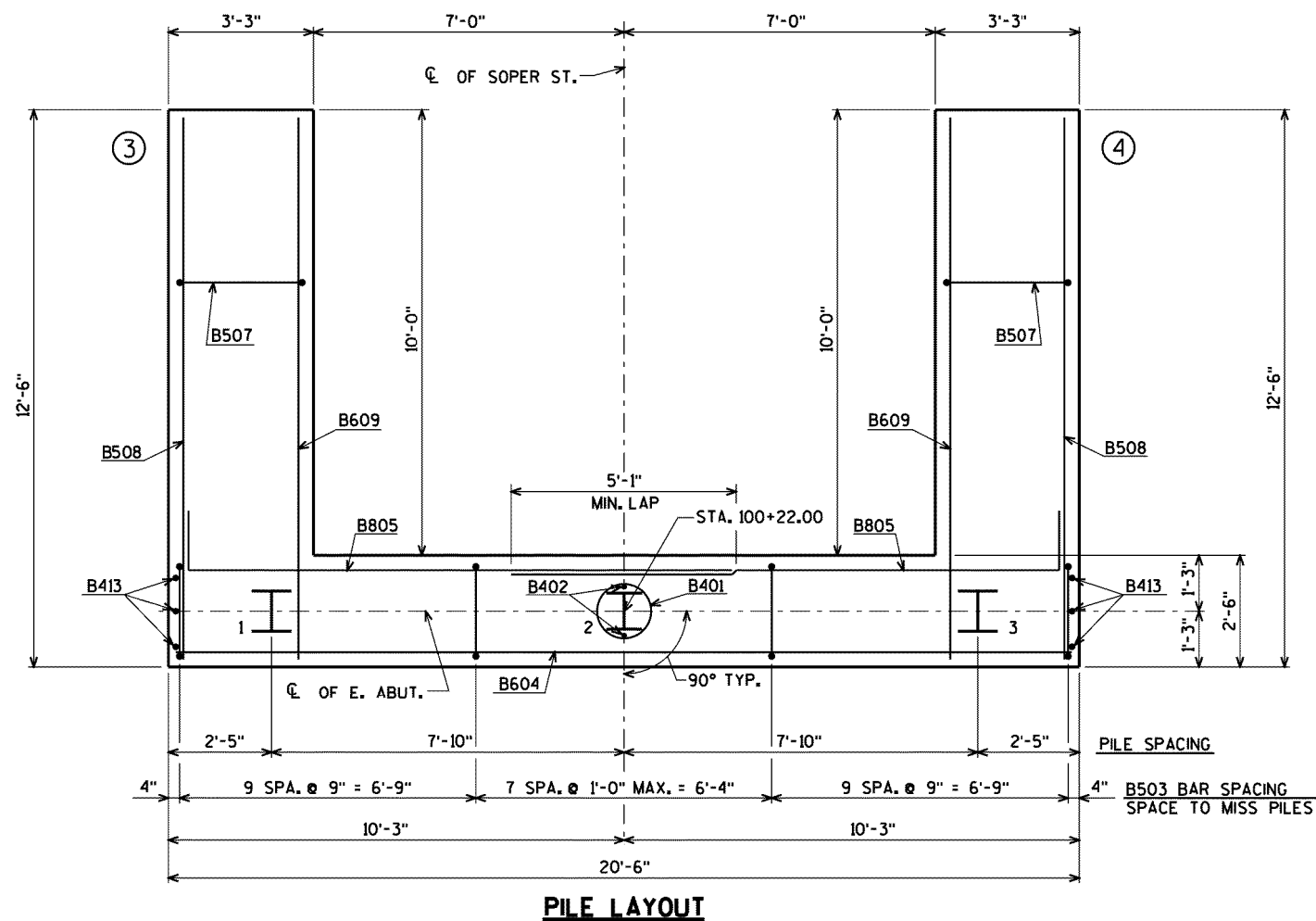
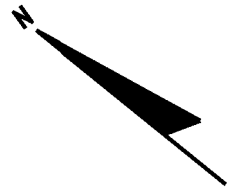


- 3/4" "V" GROOVE ON FRONT FACE OF WINGWALL. ONLY REQUIRED IF OPTIONAL CONSTRUCTION JOINT IS USED.
- OPT. CONST. JOINT FORMED BY A BEVELED 2" x 6" KEYWAY WITH MEMBRANE ON BACKFACE.
- 18" RUBBERIZED MEMBRANE WATERPROOFING. SEAL ALL HORIZONTAL AND VERTICAL JOINTS ON BACKFACE.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-21-33			
DRAWN BY	CLP	PLANS CK'D.	DRS
EAST ABUTMENT WING DETAILS			SHEET 8 OF 12

3/2/2023
PENTABLE:BReou_shd_util.tbl

8



PILE LAYOUT

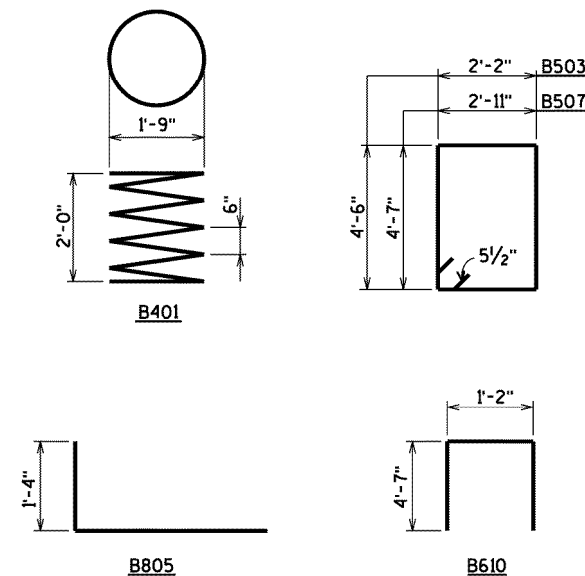
STATE PROJECT NUMBER

9330-01-70

BILL OF BARS

BAR NO.	COATED BAR	NO. REQ'D.	LENGTH	BENT BAR	BUNDLED	BAR SERIES	1,390# COATED 1,300# UNCOATED
							LOCATION
B401		3	28-0	X			BODY @ PILES
B402		6	2-3				BODY @ PILES
B503		26	14-0	X			BODY VERT.
B604		11	20-2				BODY HORIZ.
B805		14	13-10				BODY HORIZ. @ WING B.F.
B506	X	19	2-0				BODY DOWELS
B507	X	20	15-8	X			WINGS 3 & 4 VERT.
B508	X	12	12-2				WINGS 3 & 4 HORIZ. F.F.
B609	X	16	12-2				WINGS 3 & 4 HORIZ. B.F. & TOP
B610	X	28	10-0	X			WINGS 3 & 4 VERT.
B411	X	12	9-8				WINGS 3 & 4 HORIZ. E.F.
B612	X	4	9-8				WINGS 3 & 4 HORIZ. E.F.
B413	X	6	4-7				BODY VERT. END @ WINGS 3 & 4

BENDING DIMENSIONS ARE OUT TO OUT OF BARS.



FOR PILE SPLICE DETAIL SEE SHEET 2.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-21-33			
DRAWN BY	CLP	PLANS CK'D.	DRS
EAST ABUTMENT PILE LAYOUT & BILL OF BARS			SHEET 9 OF 12

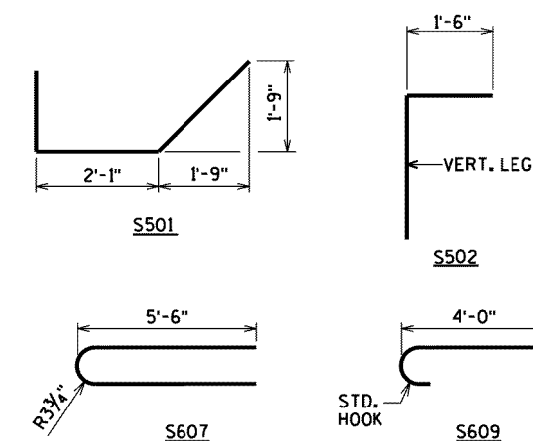
ORIGINAL PLANS PREPARED BY

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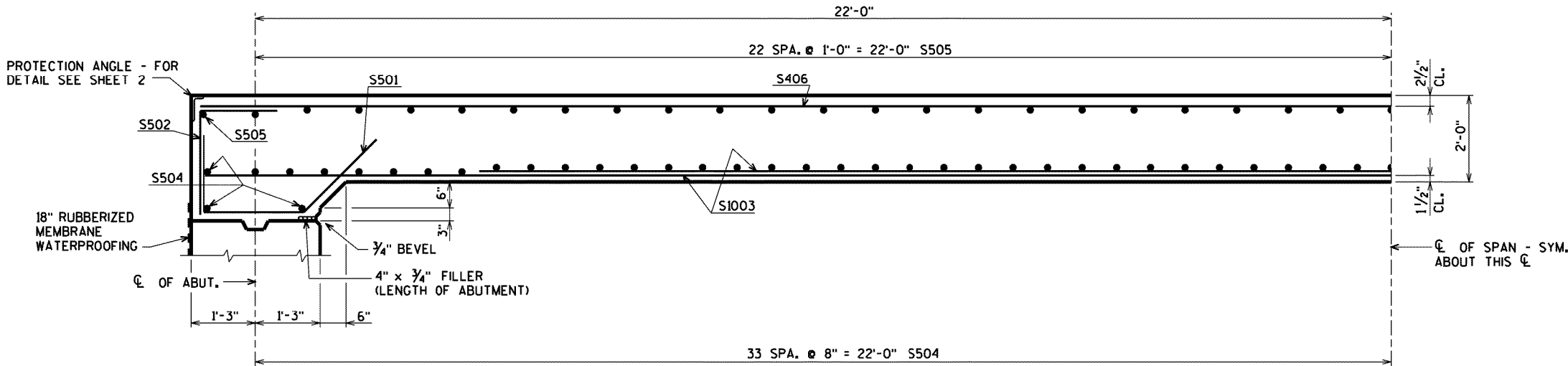
3433 Oakwood Hills Parkway
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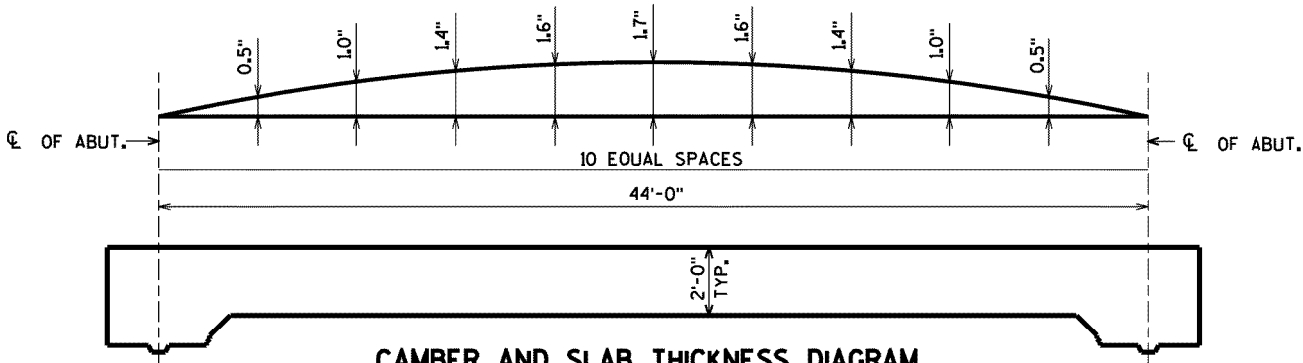
BENDING DIMENSIONS ARE OUT TO OUT OF BARS.



NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-21-33			
DRAWN BY		CLP	PLANS CK'D. DR
SUPERSTRUCTURE		SHEET 10 OF 10	



PART LONGITUDINAL SECTION



CAMBER AND SLAB THICKNESS DIAGRAM

CAMBER SHOWN IS BASED ON 3 TIMES DEAD LOAD DEFLECTION.
CAMBER SPANS AS SHOWN TO PROVIDE FOR DEAD LOAD DEFLECTION AND FUTURE CREEP. CAMBER DOES NOT INCLUDE ALLOWANCE FOR FORM SETTLEMENT.

TOP OF DECK ELEVATIONS

LOCATION	℄ OF W. ABUT.	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	℄ OF E. ABUT.
N. EDGE OF SLAB	1501.77	1501.81	1501.85	1501.87	1501.89	1501.90	1501.89	1501.87	1501.85	1501.81	1501.77
℄ OF STRUCTURE	1501.97	1502.02	1502.05	1502.08	1502.09	1502.10	1502.09	1502.08	1502.05	1502.02	1501.97
S. EDGE OF SLAB	1501.77	1501.81	1501.85	1501.87	1501.89	1501.90	1501.89	1501.87	1501.85	1501.81	1501.77

ELEVATIONS SHOWN ARE FINISHED DECK AND DO NOT INCLUDE ALLOWANCES OF DEAD LOAD DEFLECTION AND FUTURE CREEP.

TO DETERMINE FALSEWORK ELEVATION AT EDGE OF SLAB, CROWN OR REFERENCE LINE, FOLLOW THIS PROCEDURE:

TOP OF SLAB ELEVATION AT FINAL GRADE
MINUS..... SLAB THICKNESS
PLUS..... CAMBER
PLUS..... FORM SETTLEMENT/DEFLECTION DUE TO PLACEMENT OF SLAB CONCRETE (TO BE COMPUTED BY THE CONTRACTOR)
EQUALS = TOP OF SLAB FALSEWORK ELEVATION

SURVEY TOP OF SLAB ELEVATIONS

LOCATION	℄ OF W. ABUT.	5/10 PTS.	℄ OF E. ABUT.
N. EDGE OF SLAB			
℄ OF STRUCTURE			
S. EDGE OF SLAB			

PRIOR TO RELEASING SLAB FALSEWORK, TAKE TOP OF DECK ELEVATIONS AT THE ℄ OF ABUTMENTS AND AT 5/10 PTS. TO VERIFY CAMBER. TAKE ELEVATIONS ALONG EDGE OF SLAB AND CROWN OR ℄. RECORD THE ELEVATIONS IN THE ABOVE TABLE FOR THE "AS BUILT" PLANS.

NO.	DATE	REVISION	BY
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STRUCTURE B-21-33			
DRAWN BY	CLP	PLANS CK'D.	DRS
SUPERSTRUCTURE DETAILS			SHEET 11 OF 12

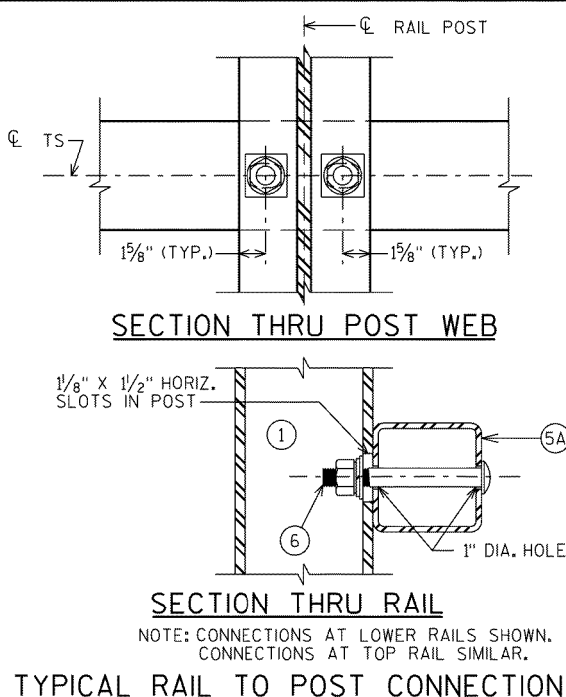
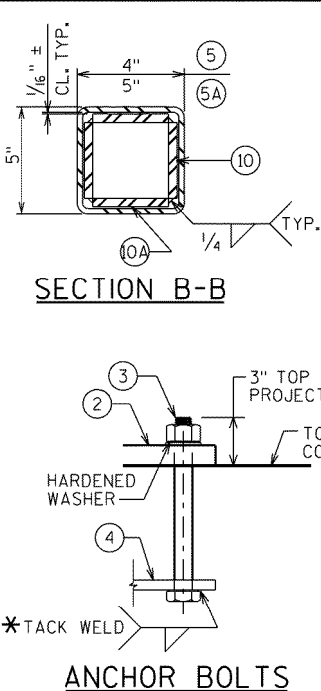
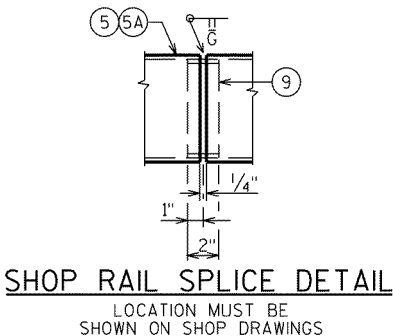
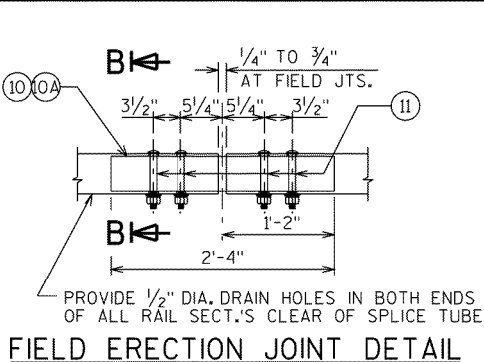
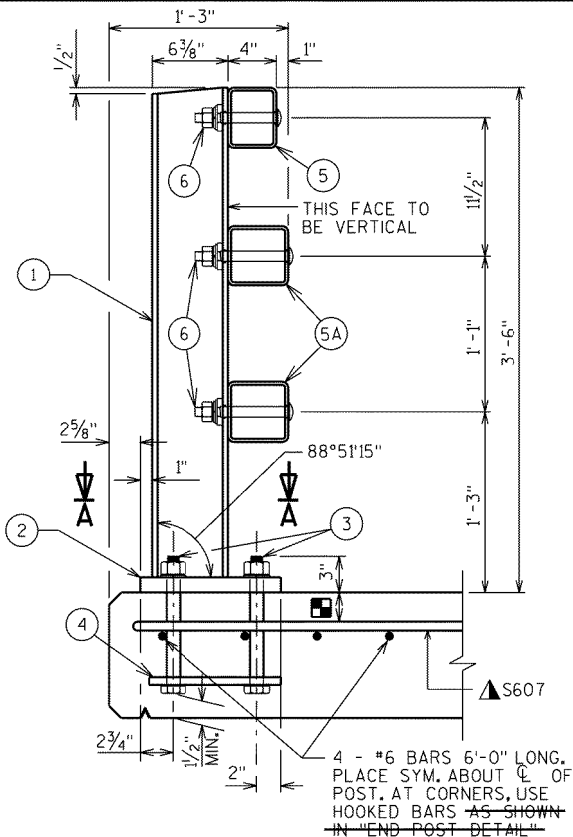
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LEGEND

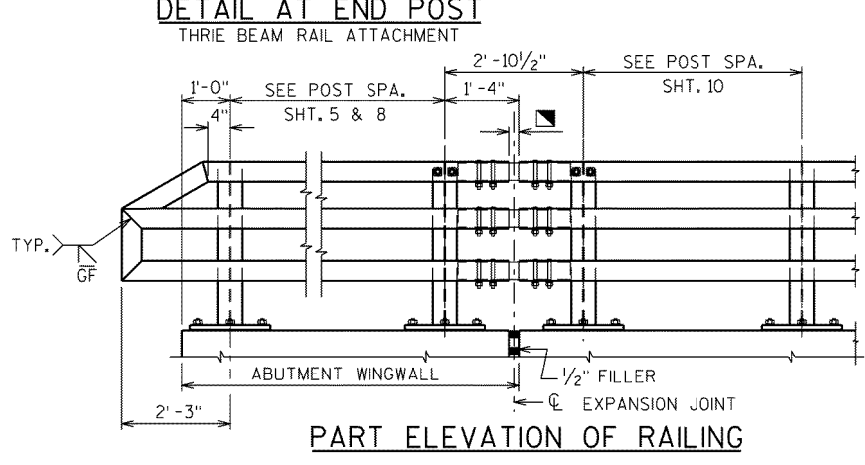
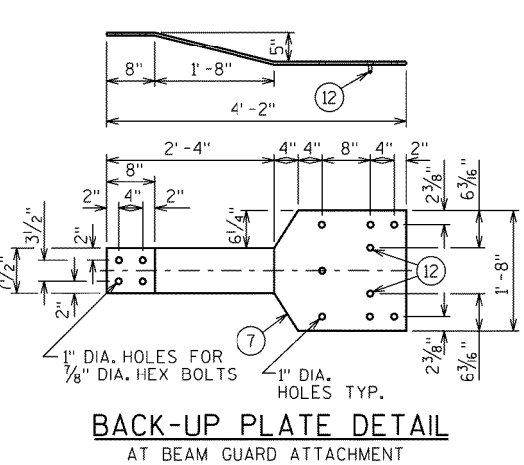
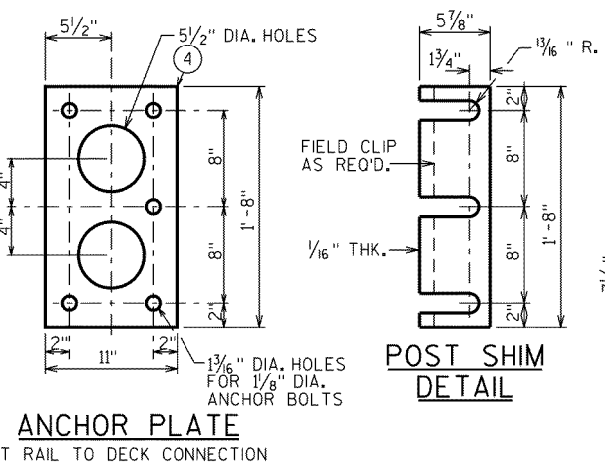
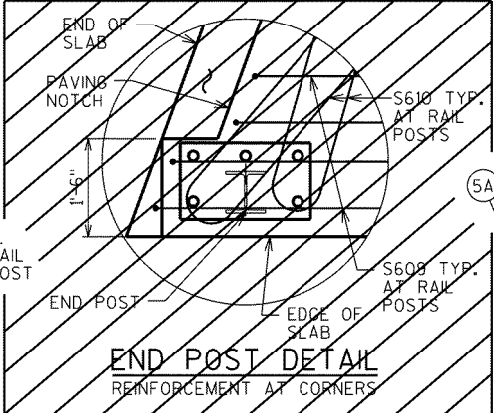
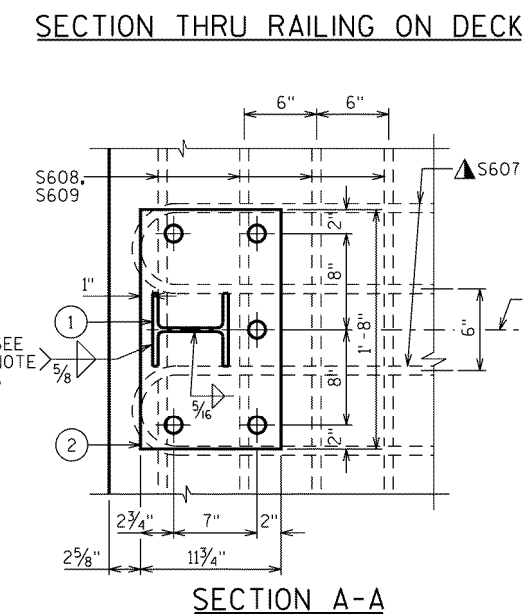
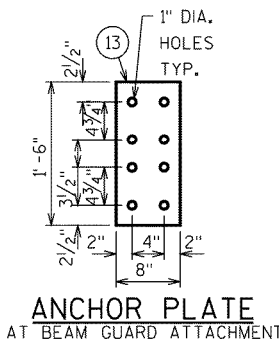
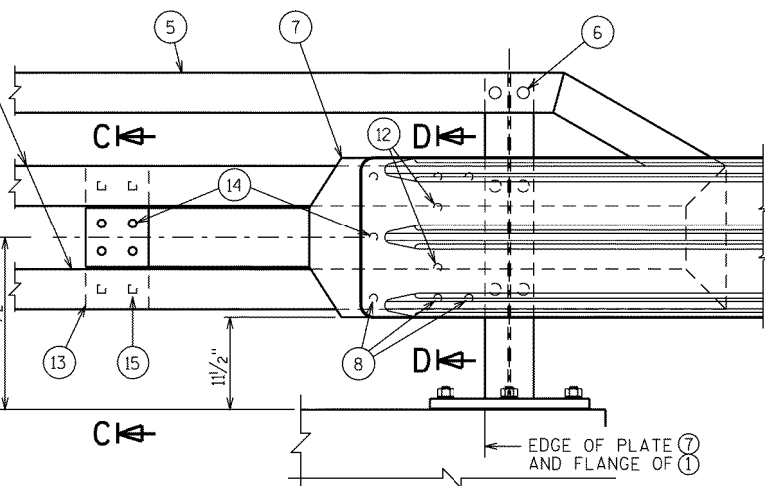
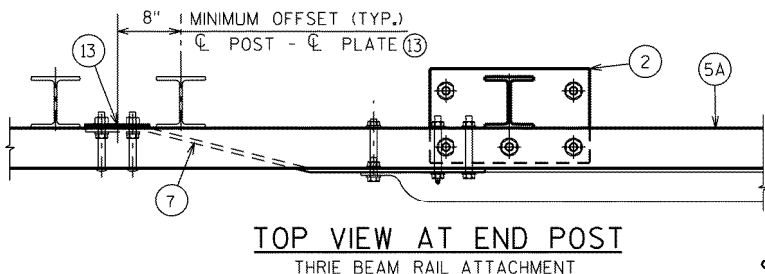
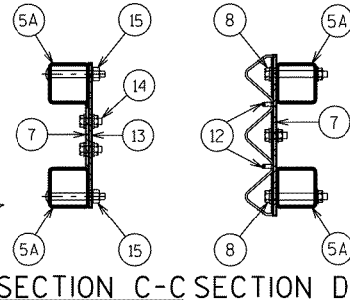
- ① W6 x 25 with 1/8" x 1/2" HORIZ. SLOTS ON EACH SIDE OF POST FOR BOLT NO. 6. CUT BOTTOM OF POST TO MATCH CROSS SLOPE OF ROADWAY. PLACE POST VERTICAL. PLACE POSTS NORMAL TO GRADE LINE.
- ② PLATE 1/4" x 11 3/4" x 1'-8" WITH 1 1/8" DIA. OVERSIZED HOLES FOR ANCHOR BOLTS NO. 3. WELD TO NO. 1 AS SHOWN.
- ③ ASTM A449 - 1/8" DIA. ANCHOR BOLTS WITH NUT AND HARDENED WASHER (ALL GALVANIZED), 5 REQ'D. PER POST. THREAD 3" AND PLACE NORMAL TO PLATE NO. 2. CHAMFER TOP OF BOLTS BEFORE THREADING. USE 1'-9" LONG IN ABUTMENT WINGS. AT POSTS ON CONCRETE SLAB SUPERSTRUCTURES WHERE THE SLAB THICKNESS IS > 16" USE 1'-3" LONG. ~~USE 10 3/4" LONG AT ALL OTHER LOCATIONS.~~ (AN EQUIVALENT THREADED ROD WITH NUTS AND HARDENED WASHERS MAY BE SUBSTITUTED FOR ANCHOR BOLTS IN WINGS IF REQ'D. FOR CONSTRUCTABILITY.)
- ④ 5/8" x 11" x 1'-8" ANCHOR PLATE (GALVANIZED) WITH 1 1/8" DIA. HOLES FOR ANCHOR BOLTS NO. 3
- ⑤ TS 5 x 4 x 0.25 STRUCTURAL TUBING. ATTACH TO NO. 1 WITH NO. 6.
- ⑤A TS 5 x 5 x 0.25 STRUCTURAL TUBING. ATTACH TO NO. 1 WITH NO. 6.
- ⑥ 7/8" DIA. A325 SLOTTED ROUND HEAD BOLT WITH NUT, 3/16" x 1 5/8" x 1 5/8" MIN. WASHER, AND LOCK WASHER (2 REQ'D. AT EACH RAIL TO POST LOCATION.)
- ⑦ 1/2" THK. BACK-UP PLATE WITH 2 - 7/8" x 1/2" THREADED SHOP WELDED STUDS (NO. 12). BOLT TO RAIL AS SHOWN IN DETAIL. REQUIRED AT THRIE BEAM GUARD RAIL ATTACHMENTS ONLY. PLACE SYMMETRICALLY ABOUT TUBES NO. 5A.
- ⑧ 1" DIA. HOLES IN PLATE NO. 7 & TUBES NO. 5A FOR 7/8" DIA. A325 BOLTS WITH HEX NUTS AND WASHERS. 6 HOLES IN TUBES AND PLATE NO. 7.
- ⑨ SPLICE SLEEVE FABRICATED FROM 1/4" PLATE. PROVIDE "SLIDING FIT".
- ⑩ 3/8" x 3 5/8" x 2'-4" PLATE. 2 PER RAIL. USED IN NO. 5 & 5A.
- ⑩A 3/8" x 2 5/8" x 2'-4" PLATE USED IN NO. 5. 3/8" x 3 5/8" x 2'-4" PLATE USED IN NO. 5A. 2 PER RAIL.
- ⑪ 7/8" DIA. A325 ROUND HEAD BOLT WITH NUT, WASHER, AND LOCK WASHER. USE 1 1/2" x 1 1/4" LONGIT. SLOTTED HOLES AT FIELD JOINTS AND 1 1/2" x 2 1/4" MIN. LONGIT. SLOTTED HOLES AT EXP. JOINTS IN PLATE NO. 10A. PROVIDE 1/8" DIA. ROUND HOLES IN TUBES NO. 5 AND NO. 5A.
- ⑫ 7/8" DIA. x 1 1/2" LONG THREADED SHOP WELDED STUDS (2 REQ'D.).
- ⑬ 3/8" x 8" x 1'-6" PLATE. BOLT TO RAIL AS SHOWN IN DETAIL. REQ'D. AT THRIE BEAM GUARD RAIL ATTACHMENTS ONLY. PLACE SYM. ABOUT TUBES NO. 5A.
- ⑭ 7/8" DIA. x 2" LONG A325 HEX BOLT WITH NUT AND WASHER (5 REQ'D.).
- ⑮ 1" DIA. HOLES IN TUBES NO. 5A FOR 7/8" DIA. A325 ROUND HEAD BOLT WITH NUT, WASHER AND LOCK WASHER (4 REQ'D.). 4 HOLES IN TUBES.

GENERAL NOTES

1. BID ITEM SHALL BE "RAILING TUBULAR TYPE M" WHICH INCLUDES ALL ITEMS SHOWN.
2. RAIL POST AND BASE PLATES SHALL CONFORM TO THE REQUIREMENTS OF ASTM A709 GRADE 50. HOLLOW RAILING STRUCTURAL TUBING SHALL CONFORM TO THE REQUIREMENTS OF ASTM A500 GRADE B OR C WITH A CERTIFIED FY = 50 KSI. ANCHOR PLATES, AND SPLICE TUBE PLATES SHALL CONFORM TO THE REQUIREMENTS OF ASTM A709 GRADE 36.
3. THE NUT SECURING THE POST BASE PLATE TO THE CONCRETE SHALL BE TIGHTENED TO A SNUG FIT AND GIVEN AN ADDITIONAL 1/8" TURN.
4. RAILS SHALL BE CONTINUOUS OVER A MINIMUM OF THREE (3) POSTS WITHOUT SPLICES WHERE POSSIBLE. RAILS SHALL BE SPLICED IN A PANEL OVER EXPANSION JOINTS.
5. ENDS OF TUBE SECTIONS SHALL BE SAWED. GRIND SMOOTH EXPOSED EDGES. ALL CUT ENDS SHALL BE TRUE AND SMOOTH.
6. WELD IS THE SAME ON BOTH FLANGES. FLANGE WELD DOES NOT REQUIRE MAGNETIC PARTICLE TESTING.
7. FILL BOLT SLOT OPENINGS IN POST SHIMS AND PLATE NO. 2 AND CAULK AROUND PERIMETER OF PLATE NO. 2 WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. STEEL POST SHIMS MAY BE USED UNDER POSTS WHERE REQ'D. FOR ALIGNMENT.
8. POST BASE PLATES SHALL BE FLAT WITH ALL SURFACES SMOOTH AND FREE FROM WARP AND ALL EDGES SMOOTH, STRAIGHT AND VERTICAL. ALL PLATE CUTS SHALL BE MACHINE OR MACHINE FLAME CUT.
9. ALL MATERIAL SHALL BE GALVANIZED AFTER FABRICATION. PRIOR TO GALVANIZING, ALL STEEL RAILING POSTS & STEEL TUBING SHALL BE GIVEN A NO. 6 BLAST CLEANING BY SSPC SPECIFICATIONS.



TYPICAL RAIL TO POST CONNECTIONS



- ▲ TIE TO TOP MAT OF STEEL.
- * ANCHOR BOLT ASSEMBLY MAY BE TACK WELDED, EITHER IN THE SHOP, OR IN THE FIELD AFTER THE ANCHOR PLATE IS PLACED.
- 1/4" TO 3/4" OPENING AT A1 ABUTMENTS.

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NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-21-33			
DRAWN BY		CLP	PLANS CK'D. DRS
TUBULAR STEEL RAILING TYPE 'M'			SHEET 12 OF 12

DESIGN DATA

LIVE LOAD:

DESIGN LOADING: HL-93
INVENTORY RATING FACTOR: 1.19
OPERATING RATING FACTOR: 1.76
WISCONSIN STANDARD PERMIT VEHICLE (WIS-SPV) = 250 KIPS

STRUCTURE IS DESIGNED FOR A FUTURE WEARING
SURFACE OF 20" S.F.

MATERIAL PROPERTIES:

CONCRETE MASONRY (SUPERSTRUCTURE) f'_c = 4,000 p.s.i.
(ALL OTHER) f'_c = 3,500 p.s.i.
HIGH STRENGTH BAR STEEL REINFORCEMENT (GRADE 60) f_y = 60,000 p.s.i.

36W" PRESTRESSED GIRDER
CONCRETE MASONRY f'_c = 8,000 p.s.i.
STRANDS - 0.6" DIA. WITH ULTIMATE TENSILE STRENGTH OF = 270,000 p.s.i.

HYDRAULIC DATA:

100 YEAR FREQUENCY

Q_{100} = 520 c.f.s.
VEL. = 3.9 f.p.s.
HW₁₀₀ = EL. 1497.16
WATERWAY AREA = 133 sq. ft.
DRAINAGE AREA = 31.3 sq. mi.
SCOUR CRITICAL CODE = 5
DATUM = NAVD88 (2012)

2 YEAR FREQUENCY

Q_2 = 200 c.f.s.
VEL. = 2.9 f.p.s.
HW₂ = EL. 1495.72

FOUNDATION DATA:

ABUTMENTS TO BE SUPPORTED ON HP 10 x 42 STEEL PILING (WITH PILE POINTS)
DRIVEN TO A REQUIRED DRIVING RESISTANCE OF 180 TONS # PER PILE AS DETERMINED
BY THE MODIFIED GATES DYNAMIC FORMULA, ESTIMATED LENGTH 30'-0".
PRE-BORE PILES A MINIMUM OF 25' BELOW ABUTMENT ELEVATION, OR AS
DIRECTED BY THE ENGINEER. CASING EXPECTED TO BE REQUIRED.

*THE FACTORED AXIAL RESISTANCE OF PILES IN COMPRESSION USED FOR DESIGN IS
THE REQUIRED DRIVING RESISTANCE MULTIPLIED BY A RESISTANCE FACTOR OF 0.5
USING MODIFIED GATES TO DETERMINE DRIVEN PILE CAPACITY.

TRAFFIC DATA:

A.A.D.T. = 420 (2024)
A.A.D.T. = 535 (2044)
R.D.S. = 35 M.P.H.

LIST OF DRAWINGS

1. GENERAL PLAN
2. PROFILE, QUANTITIES AND NOTES
3. STRUCTURE DETAILS
4. SUBSURFACE EXPLORATION
5. WEST ABUTMENT
6. WEST ABUTMENT WING 1 DETAILS
7. WEST ABUTMENT WING 2 DETAILS
8. WEST ABUTMENT PILE LAYOUT & BILL OF BARS
9. EAST ABUTMENT
10. EAST ABUTMENT WING 3 DETAILS
11. EAST ABUTMENT WING 4 DETAILS
12. EAST ABUTMENT PILE LAYOUT & BILL OF BARS
13. STEEL DIAPHRAGM
14. 36W" PRESTRESSED GIRDER DETAILS
15. 36W" PRESTRESSED GIRDER DETAILS
16. SUPERSTRUCTURE
17. SUPERSTRUCTURE PLAN
18. SUPERSTRUCTURE DETAILS
19. SINGLE SLOPE PARAPET 42SS

COST OF EXCAVATION AND FILL IN THE HATCHED
AREAS SHALL BE INCLUDED IN THE CONTRACT LUMP
SUM PRICE FOR "EXCAVATION FOR STRUCTURES
BRIDGES B-21-34".

PLAN

SINGLE SPAN 36W" PRESTRESSED CONCRETE GIRDER BRIDGE

ELEVATION

(NORMAL TO C OF NORTH BRANCH OCONTO RIVER)

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STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

ACCEPTED *[Signature]* SDR 08/21/23
CHIEF STRUCTURES DESIGN ENGINEER DATE

STRUCTURE B-21-34

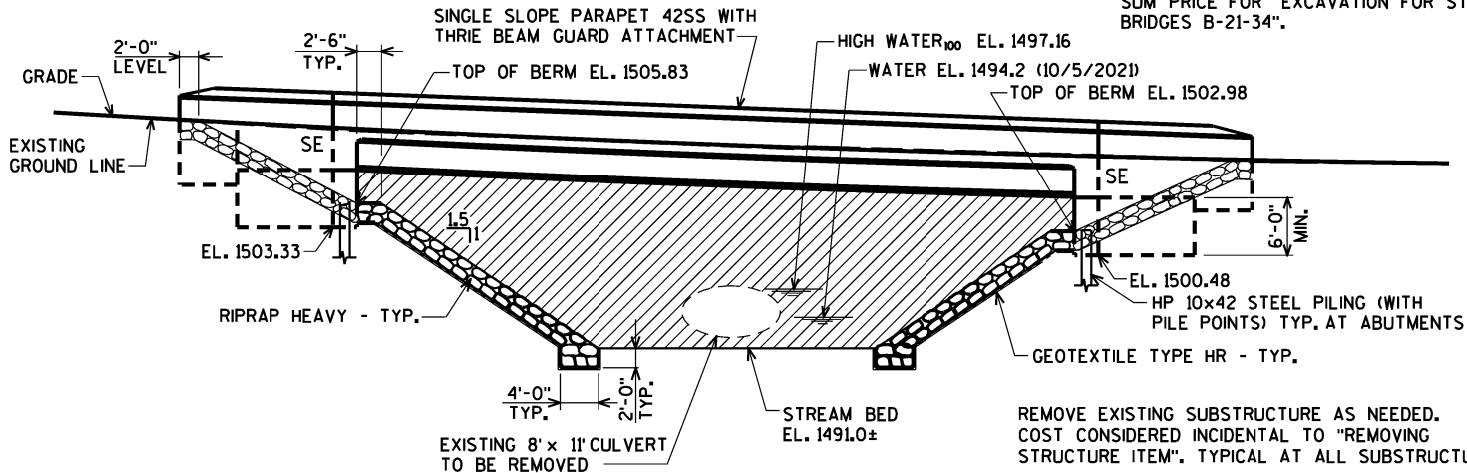
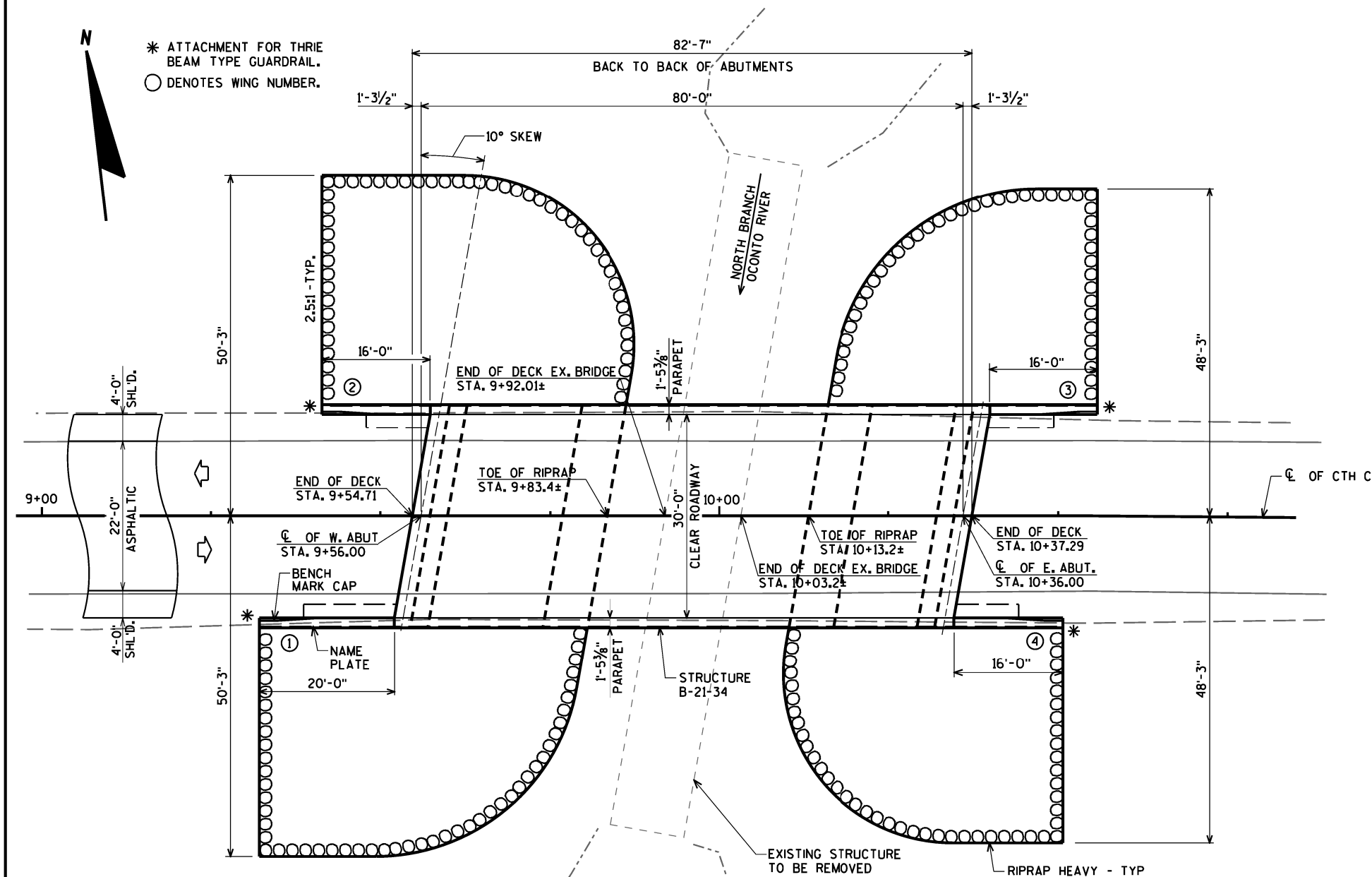
CTH C OVER NORTH BRANCH OCONTO RIVER

COUNTY FOREST TOWN/CITY/VILLAGE WABENO

DESIGN SPEC.
AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS
DESIGNED BY ZSS DESIGN CKD. DRS DRAWN BY ZSS PLANS CKD. AEB

GENERAL
PLAN

SHEET 1 OF 19



05/31/2023

BRIDGE OFFICE CONTACT:
AARON BONK
(608)-261-0261

CONSULTANT CONTACT:
ARLEN BEAUDETTE
(715)-834-3161

5/31/2023
PENTABLE:BReou_shd_uHil.tbi

TOTAL ESTIMATED QUANTITIES

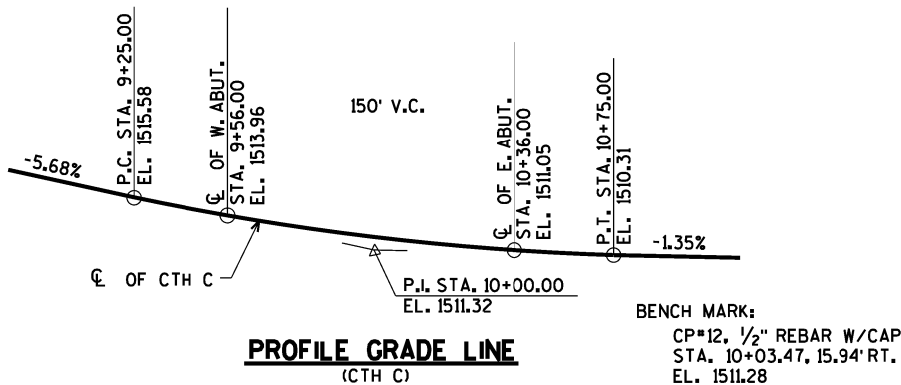
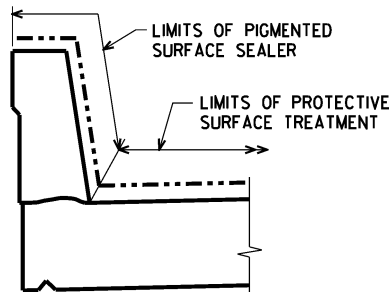
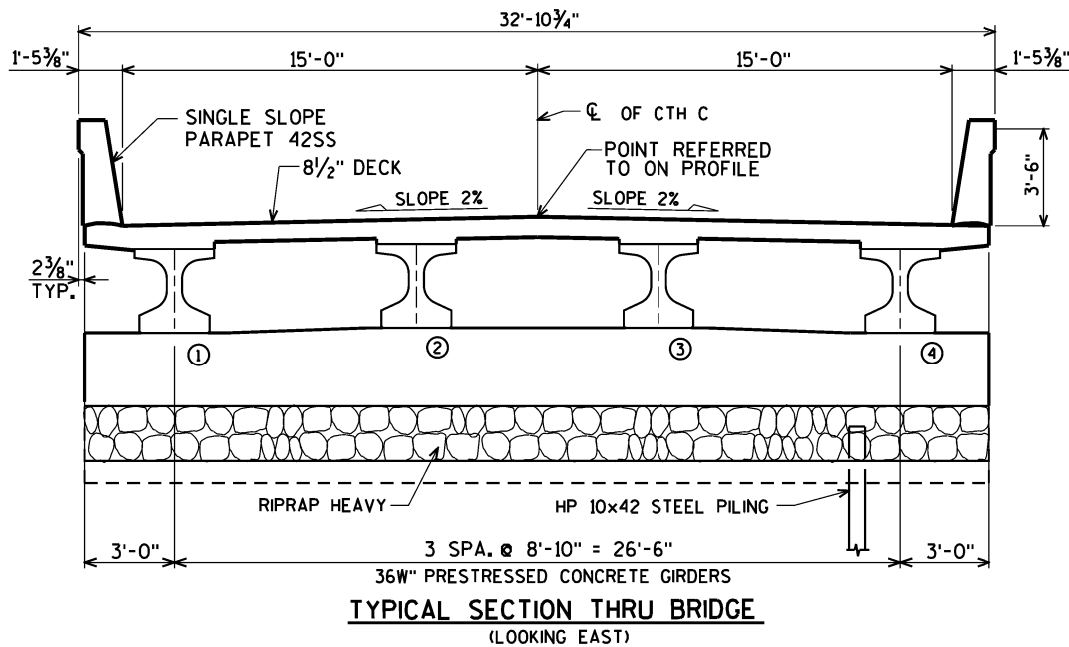
BID ITEM NUMBER	BID ITEMS	UNIT	W. ABUT.	E. ABUT.	SUPER.	TOTAL
203.0220	REMOVING STRUCTURE IN PLACE 12' x 100' PIPE ARCH	EACH	-----	-----	-----	1
206.1001	EXCAVATION FOR STRUCTURES BRIDGES B-21-34	EACH	-----	-----	-----	1
210.1500	BACKFILL STRUCTURE TYPE A	TON	230	230	-----	460
312.0115	SELECT CRUSHED MATERIAL	TON	130	110	-----	240
502.0100	CONCRETE MASONRY BRIDGES	CY	49.3	44.2	130.0	223.5
502.3200	PROTECTIVE SURFACE TREATMENT	SY	-----	-----	275	275
502.3210	PIGMENTED SURFACE SEALER	SY	-----	-----	120	120
503.0137	PRESTRESSED GIRDER TYPE I 36W-INCH	LF	-----	-----	324	324
505.0400	BAR STEEL REINFORCEMENT HS STRUCTURES	LB	2,470	2,150	-----	4,620
505.0600	BAR STEEL REINFORCEMENT HS COATED STRUCTURES	LB	3,900	3,160	21,470	28,530
506.2605	BEARING PADS ELASTOMERIC NON-LAMINATED	EACH	-----	-----	8	8
506.4000	STEEL DIAPHRAGMS B-21-34	EACH	-----	-----	6	6
516.0500	RUBBERIZED MEMBRANE WATERPROOFING	SY	10	10	-----	20
550.0020	PRE-BORING CONSOLIDATED MATERIALS	LF	200	200	-----	400
550.0500	PILE POINTS	EACH	8	8	-----	16
550.1100	PILING STEEL HP 10-INCH X 42 LB	LF	240	240	-----	480
606.0300	RIPRAP HEAVY	CY	340	280	-----	620
612.0406	PIPE UNDERDRAIN WRAPPED 6-INCH	LF	80	80	-----	160
614.0150	ANCHOR ASSEMBLY FOR STEEL PLATE BEAM GUARD	EACH	2	2	-----	4
645.0111	GEOTEXTILE TYPE DF SCHEDULE A	SY	25	25	-----	50
645.0120	GEOTEXTILE TYPE HR	SY	570	480	-----	1,050
	NON-BID ITEMS					
	FILLER	SIZE	-----	-----	-----	1/2" & 3/4"

STATE PROJECT NUMBER

9330-01-70

GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.
BAR STEEL REINFORCEMENT SHALL BE EMBEDDED 2" CLEAR UNLESS SHOWN OR NOTED OTHERWISE.
THE FIRST DIGIT OF A THREE DIGIT BAR NO. AND THE FIRST TWO DIGITS OF A FOUR DIGIT BAR NO. SIGNIFIES THE BAR SIZE. JOINT FILLER SHALL CONFORM TO THE REQUIREMENTS OF A.A.S.H.T.O. DESIGNATION M 153, TYPE I, II OR III OR A.A.S.H.T.O. DESIGNATION M 213.
THE SLOPE OF THE FILL IN FRONT OF THE ABUTMENTS SHALL BE COVERED WITH RIPRAP HEAVY AND GEOTEXTILE TYPE HR TO THE EXTENT SHOWN ON THE GENERAL PLAN SHEET AND IN THE ABUTMENT DETAILS. VOIDS IN RIPRAP TO BE FILLED WITH SELECT CRUSHED MATERIAL.
SLAB FALSEWORK SHALL BE SUPPORTED ON PILES OR THE SUBSTRUCTURE UNLESS AN ALTERNATE METHOD IS APPROVED BY THE ENGINEER.
THE UPPER LIMITS OF "EXCAVATION FOR STRUCTURES BRIDGES B-21-34" SHALL BE THE EXISTING GROUNDLINE.
THE EXISTING STRUCTURE, TO BE REMOVED, IS A SINGLE-CELL METAL CULVERT APPROX. 11-FEET WIDE BY 8-FEET TALL. THE STRUCTURE IS APPROX. 110-FEET LONG WITH A 22-FOOT CLEAR ROADWAY WIDTH.
THE BACKFILL QUANTITIES ARE BASED ON THE PAY LIMITS SHOWN ON THE PLANS AND MAY NOT REFLECT ACTUAL PLACED QUANTITIES. "BACKFILL STRUCTURE TYPE A" REQUIRED DIRECTLY BEHIND ABUTMENTS AND ABUTMENTS WINGS FOR 3 FEET. BACKFILL PLACED BEYOND PAY LIMITS OR EXCEEDING PLAN QUANTITIES SHALL BE INCIDENTAL TO EXCAVATION FOR STRUCTURES.
PROTECTIVE SURFACE TREATMENT IS TO BE APPLIED AS SHOWN IN DETAIL ON THIS SHEET.
BEVEL EXPOSED EDGES OF CONCRETE 3/4" UNLESS NOTED OTHERWISE.
EXCAVATION BELOW THE ABUTMENT AND ABUTMENT BEDDING MATERIALS REQUIRES ENGINEER APPROVAL. GEOTEXTILE SHALL BE SET AT THE BOTTOM OF EXCAVATION AND EXTEND 2'-0" ABOVE BOTTOM OF ABUTMENT.
EXTENT OF BELOW GRADE SUBSTRUCTURES ARE NOT KNOWN. REMOVE EXISTING SUBSTRUCTURES AS NEEDED TO BUILD NEW SUBSTRUCTURES. COST OF SUBSTRUCTURE REMOVAL IS CONSIDERED INCIDENTAL TO "REMOVING STRUCTURE" BID ITEM.



NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-21-34			
DRAWN BY		ZSS	PLANS CK'D. AEB
PROFILE, QUANTITIES AND NOTES		SHEET 2 OF 19	

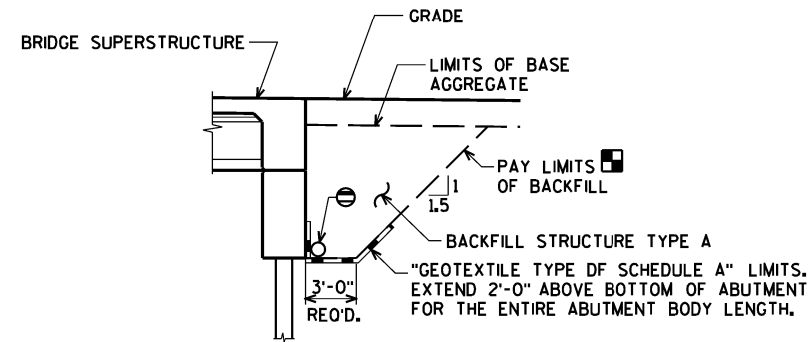
ORIGINAL PLANS PREPARED BY
AYRES 3433 Oakwood Hills Parkway
Eau Claire, WI 54701
www.AyresAssociates.com

\$PRNAME\$
I:\45450540 Forest CTH C\Structures\CADD\Structure\Final\CTH C-B-21-34 gp1000.dgn

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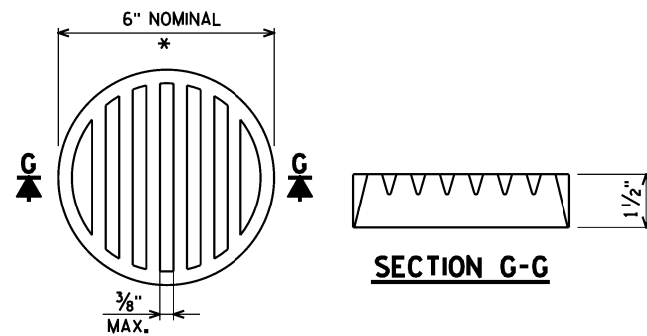
STATE PROJECT NUMBER

9330-01-70



BACKFILL STRUCTURE LIMITS

- BACKFILL PAY LIMITS. BACKFILL BEYOND BACKFILL PAY LIMITS SHALL BE INCIDENTAL TO EXCAVATION FOR STRUCTURES. LIMITS OF EXCAVATION SHALL BE DETERMINED BY THE CONTRACTOR.
- PIPE UNDERDRAIN WRAPPED 6-INCH. SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. ATTACH RODENT SHIELD AT ENDS OF PIPE UNDERDRAIN AS DETAILED ON THIS SHEET.

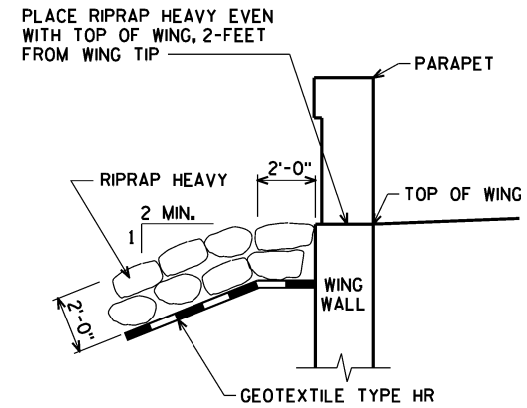


* DIMENSIONS ARE APPROXIMATE. THE GRATE IS SIZED TO FIT INTO A PIPE COUPLING. ORIENT SO SLOTS ARE VERTICAL.

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

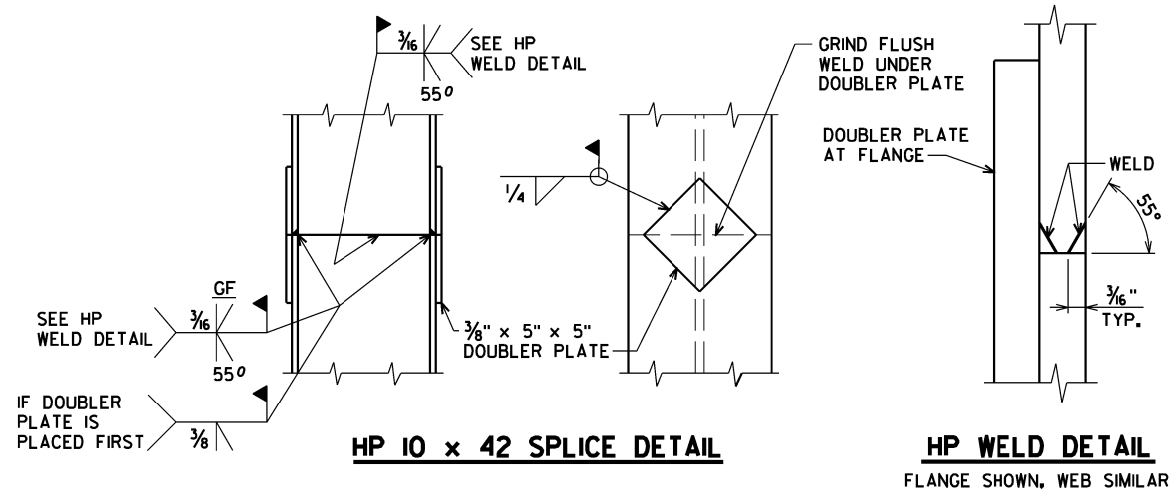
THE RODENT SHIELD SHALL BE PVC GRATE SIMILAR TO THIS DETAIL. THE GRATE IS COMMERCIALY AVAILABLE AS A FLOOR STRAINER. A PIPE COUPLING IS REQUIRED FOR THE ATTACHMENT OF THIS SHIELD TO THE EXPOSED END OF THE PIPE UNDERDRAIN. THE SHIELD SHALL BE FASTENED TO THE PIPE COUPLING WITH TWO OR MORE NO. 10 x 1-INCH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

RODENT SHIELD DETAIL



TYPICAL FILL SECTION AT WING TIPS

NOTE: PLACE RIPRAP HEAVY AS SHOWN ON GENERAL PLAN SHEET



HP 10 x 42 SPLICE DETAIL

HP WELD DETAIL

FLANGE SHOWN, WEB SIMILAR

8

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-21-34			
DRAWN BY		CLP	PLANS CK'D. AEB
STRUCTURE DETAILS			SHEET 3 OF 19

ORIGINAL PLANS PREPARED BY
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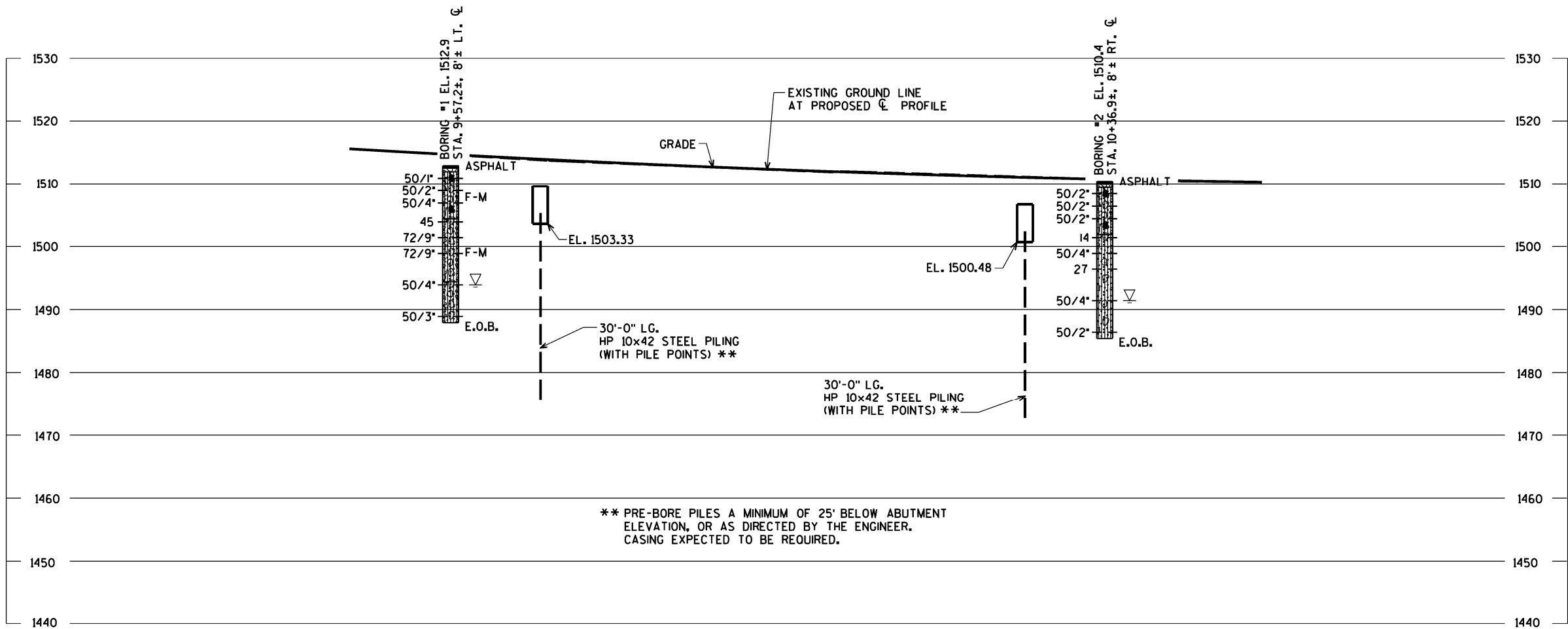
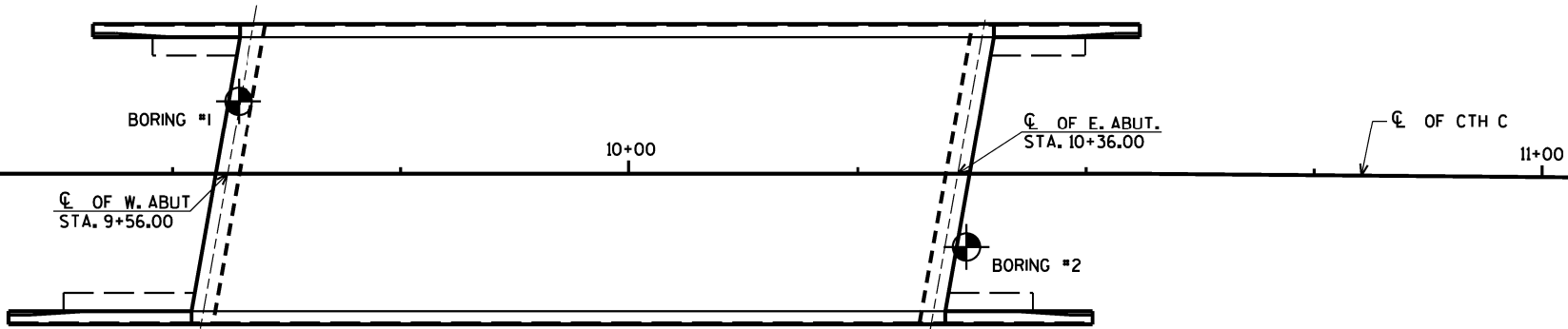
BORING #	DATE COMPLETED	NORTHING (Y)	EASTING (X)
1	MARCH 10, 2022	522200.2410	906325.3968
2	MARCH 10, 2022	522175.1030	906402.7157

BORINGS COMPLETED BY: ECS MIDWEST, LLC

REPORT COMPLETED BY: ECS MIDWEST, LLC

ALL COORDINATES REFERENCED TO WCCS NAD 83(9D) FOREST COUNTY

NORTH BRANCH
OCONTO RIVER



** PRE-BORE PILES A MINIMUM OF 25' BELOW ABUTMENT
ELEVATION, OR AS DIRECTED BY THE ENGINEER.
CASING EXPECTED TO BE REQUIRED.

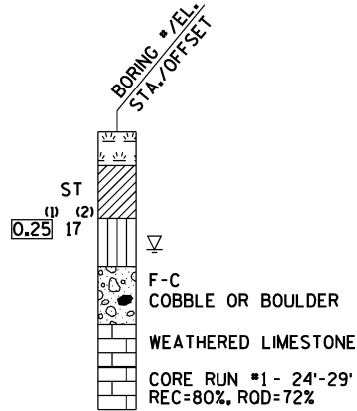
STATE PROJECT NUMBER

9330-01-70

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.

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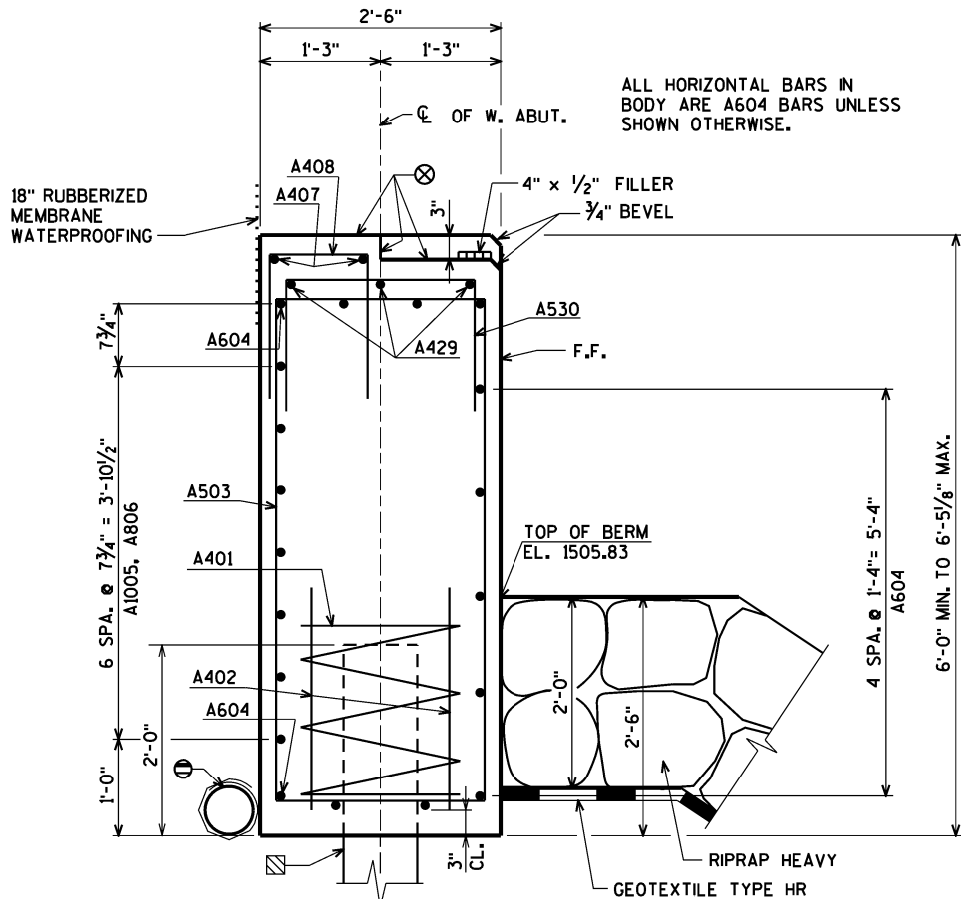
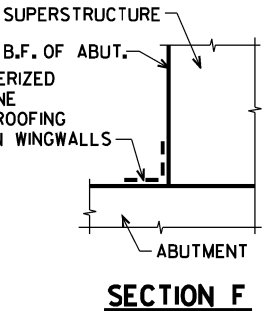
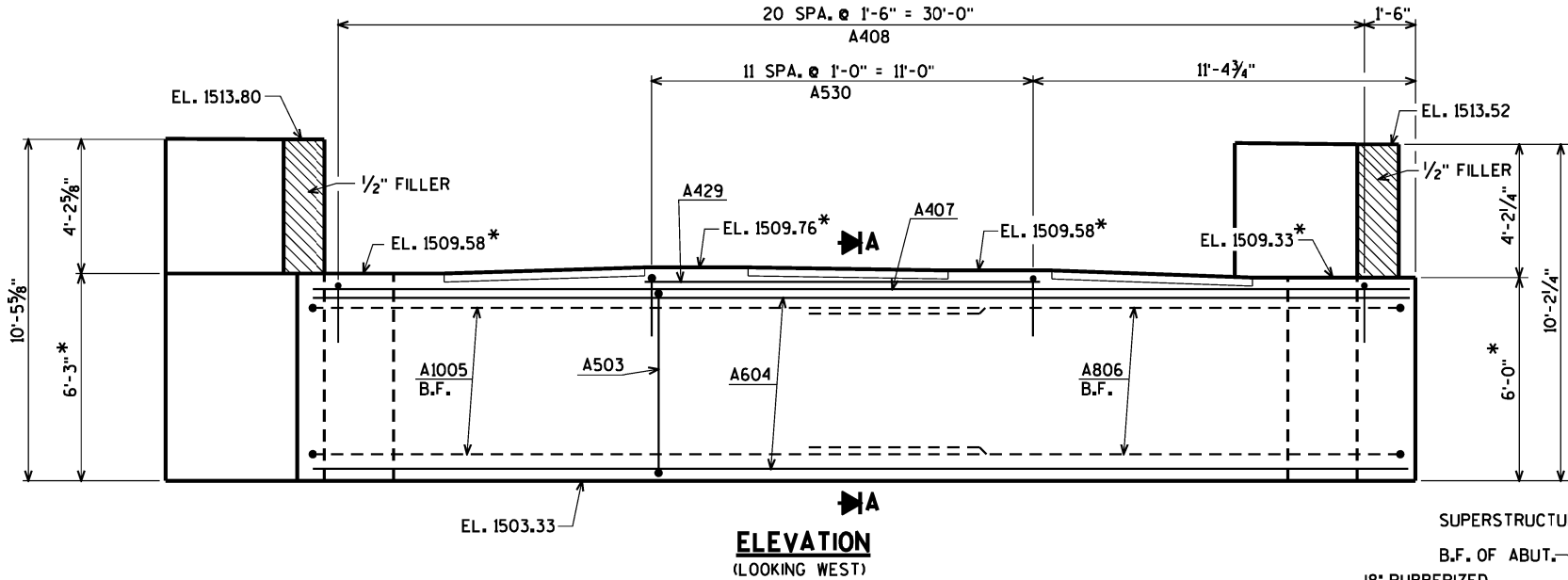
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-21-34			
DRAWN BY		ZSS	PLANS CK'D. AEB
SUBSURFACE EXPLORATION		SHEET 4 OF 19	

NOTE: SEAL ALL EXPOSED HORIZONTAL AND VERTICAL SURFACES OF
1/2" FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT
SEALER. (1" DEEP AND HOLD 1/8" BELOW SURFACE OF CONCRETE.)

* ELEVATIONS AND DIMENSIONS TAKEN
AT C OF W. ABUT.

STATE PROJECT NUMBER

9330-01-70



ABUTMENT TO BE SUPPORTED ON
HP 10 x 42 STEEL PILING
(WITH PILE POINTS) DRIVEN TO
A REQUIRED DRIVING RESISTANCE
OF 180 TONS PER PILE.
ESTIMATED LENGTH 30'-0".
PRE-BORE PILES A MINIMUM OF 25' BELOW
ABUTMENT ELEVATION, OR AS DIRECTED BY THE
ENGINEER. CASING EXPECTED TO BE REQUIRED.

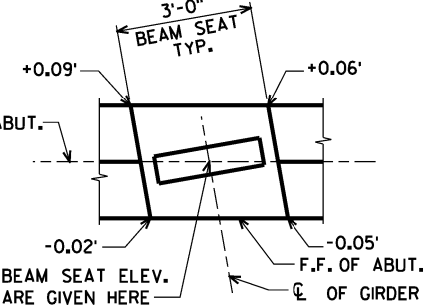
STEEL TROWEL TOP SURFACE OF ABUTMENT.
PLACE MULTIPLE LAYERS OF POLYETHYLENE
SHEETS OVER ENTIRE ABUTMENT TOP BEFORE
PLACING SUPERSTRUCTURE. TOTAL THICKNESS
OF SHEETS SHALL BE AT LEAST 0.03".

18" RUBBERIZED MEMBRANE WATERPROOFING
FROM BRIDGE SEAT TO TOP OF WING.

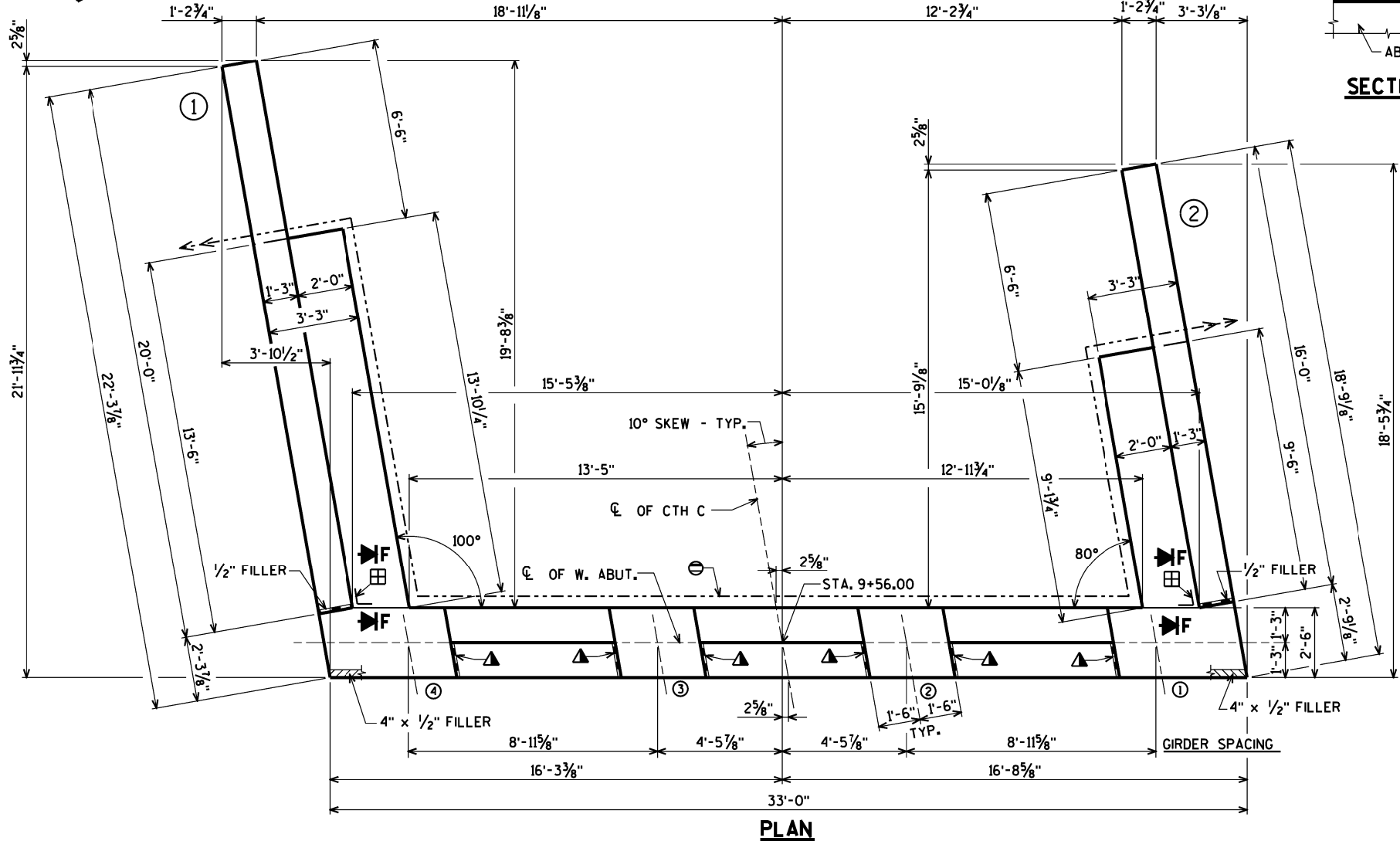
3/4" CORK FILLER ON VERTICAL BEAM SEAT
FACES THAT RUN PARALLEL WITH GIRDER.

PIPE UNDERDRAIN WRAPPED 6-INCH, SLOPE 0.5%
MIN. TO SUITABLE DRAINAGE. ATTACH RODENT
SHIELD AT ENDS OF PIPE UNDERDRAIN AS DETAILED
ON SHEET 3. RODENT SHIELD TO BE INCIDENTAL TO
BID PRICE OF "PIPE UNDERDRAIN WRAPPED 6-INCH".

EXCAVATE OR FILL TO
BOTTOM OF ABUTMENT
BEFORE DRIVING PILES.



SLOPED BEAM SEAT DETAIL



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www.AyresAssociates.com

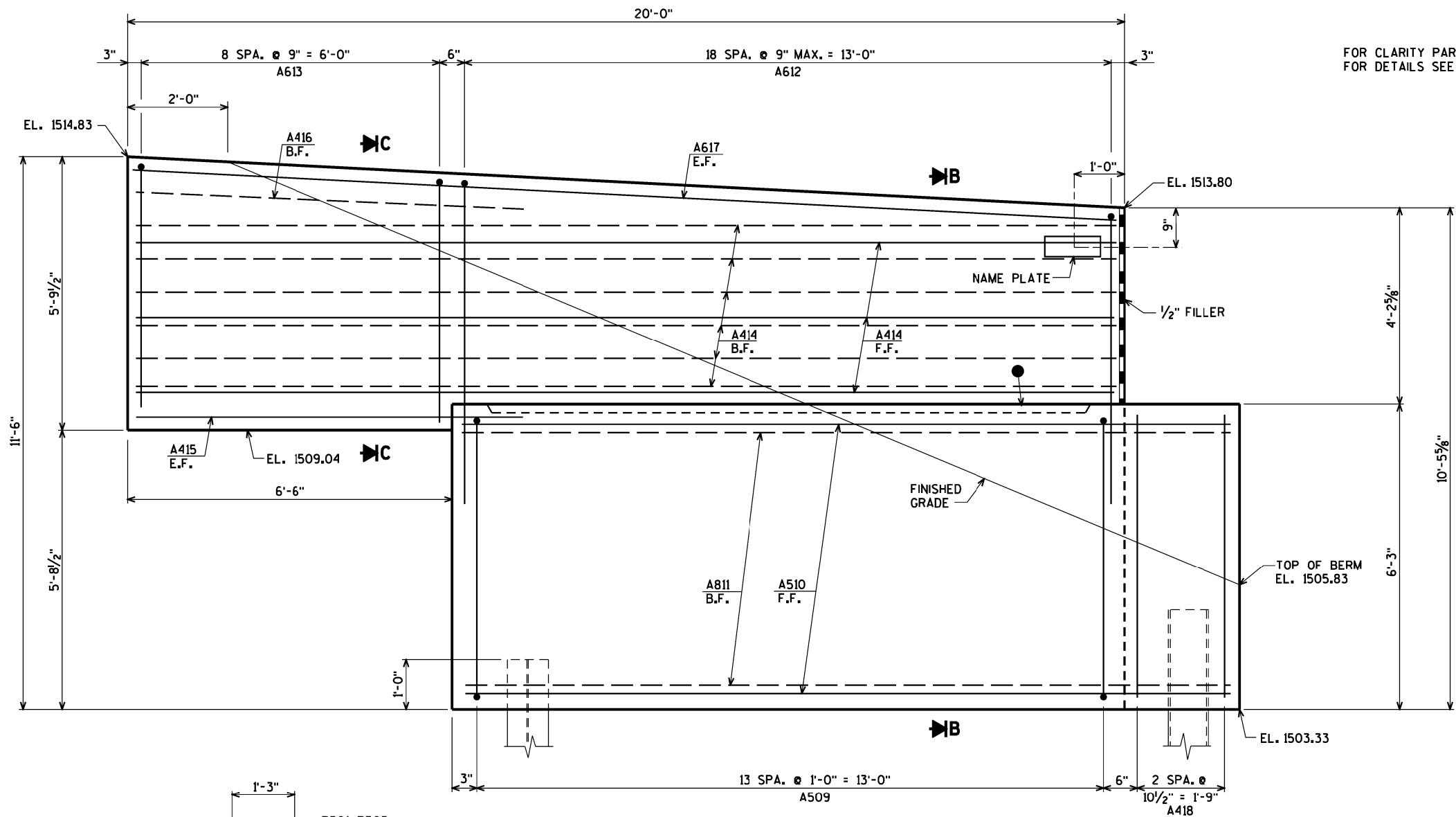
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-21-34			
DRAWN BY		CLP	PLANS CK'D. AEB
WEST ABUTMENT		SHEET 5 OF 19	

5/24/2023
PENTABLE:Breou_shd_util.tbl

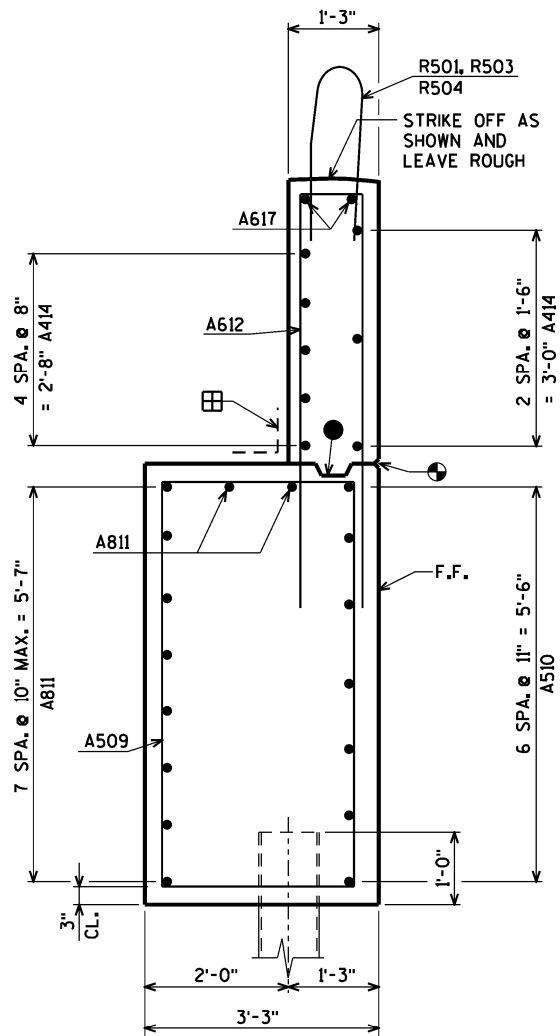
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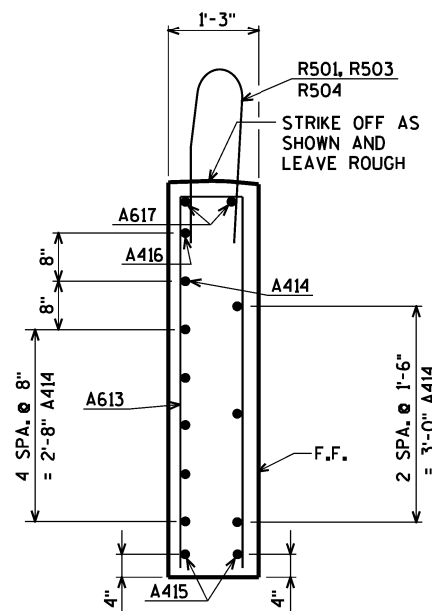
FOR CLARITY PARAPET NOT SHOWN.
FOR DETAILS SEE SHEET 19.



ELEVATION - WING 1



SECTION B



SECTION C

● 3/4" "V" GROOVE ON FRONT FACE OF WINGWALL. ONLY REQUIRED IF OPTIONAL CONSTRUCTION JOINT IS USED.

● OPTIONAL CONST. JOINT FORMED BY BEVELED 2" x 6" KEYWAY WITH MEMBRANE ON BACKFACE.

▣ 18" RUBBERIZED MEMBRANE WATERPROOFING. SEAL ALL HORIZONTAL AND VERTICAL JOINTS ON BACKFACE.

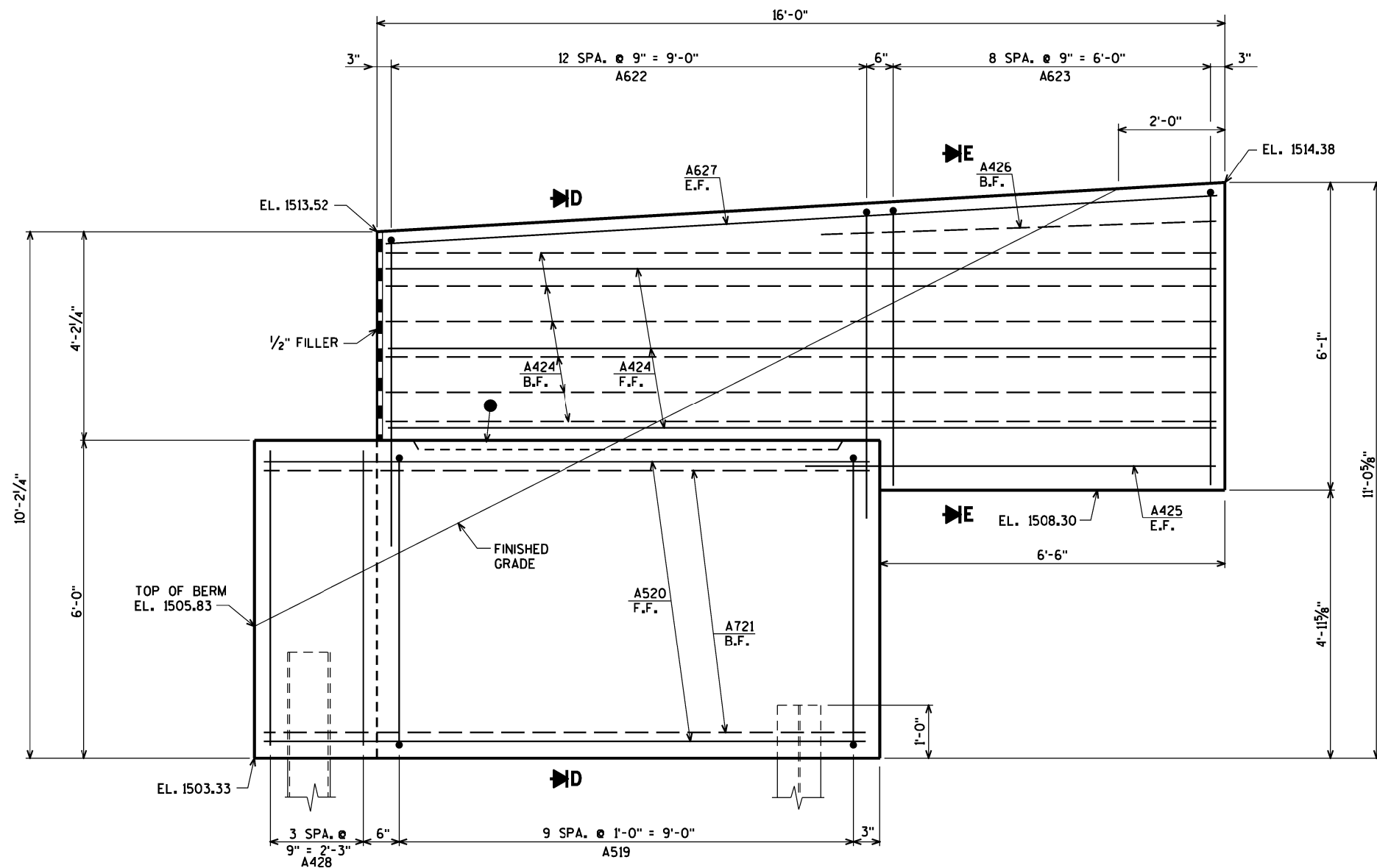
FOR PILE SPLICE DETAIL SEE SHEET 3.

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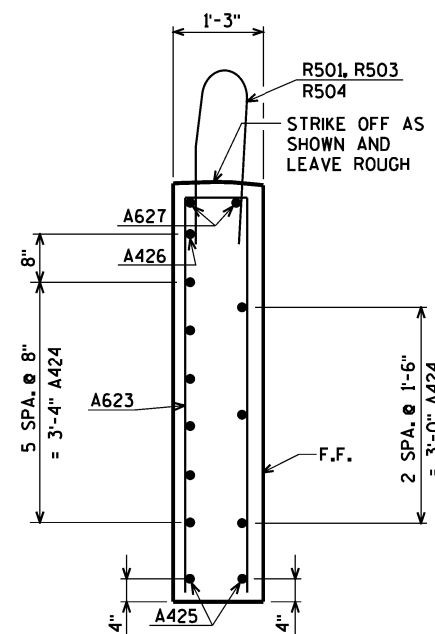
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-21-34			
DRAWN BY		CLP	PLANS CK'D. AEB
WEST ABUTMENT WING 1 DETAILS			SHEET 6 OF 19

5/30/2023
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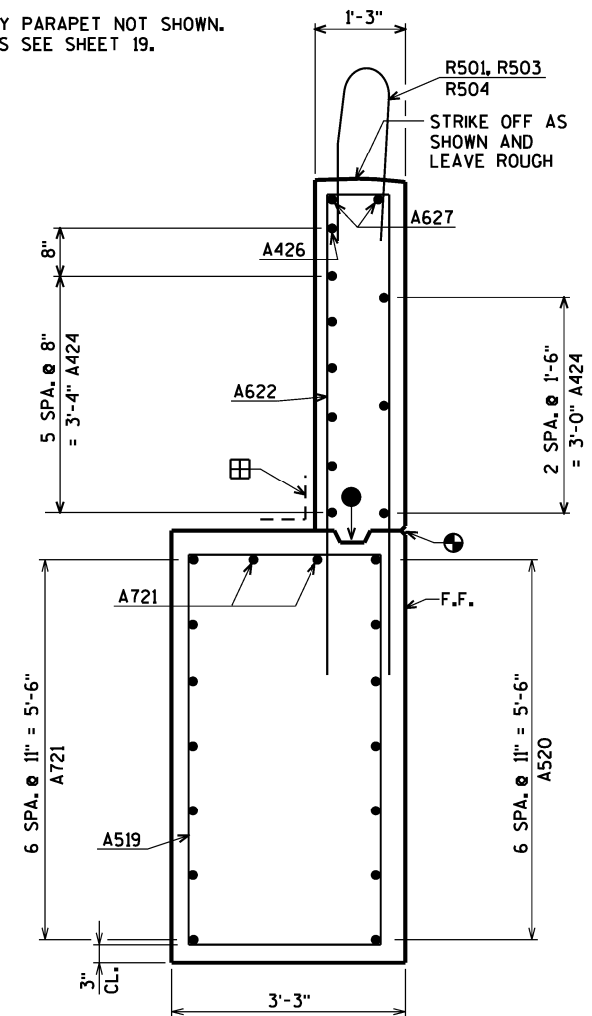


ELEVATION - WING 2



SECTION E

FOR CLARITY PARAPET NOT SHOWN.
FOR DETAILS SEE SHEET 19.



SECTION D

- 3/4" "V" GROOVE ON FRONT FACE OF WINGWALL. ONLY REQUIRED IF OPTIONAL CONSTRUCTION JOINT IS USED.
- OPTIONAL CONST. JOINT FORMED BY BEVELED 2" x 6" KEYWAY WITH MEMBRANE ON BACKFACE.
- 18" RUBBERIZED MEMBRANE WATERPROOFING. SEAL ALL HORIZONTAL AND VERTICAL JOINTS ON BACKFACE.

FOR PILE SPLICE DETAIL SEE SHEET 3.

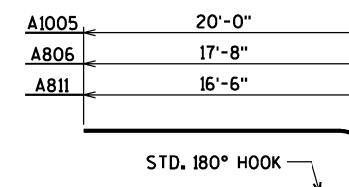
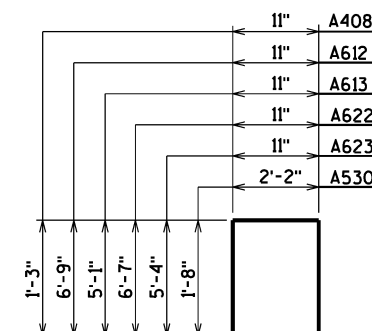
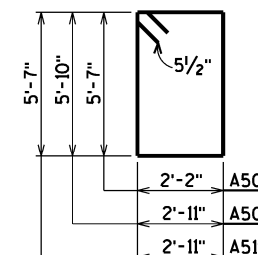
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-21-34			
DRAWN BY		CLP	PLANS CK'D. AEB
WEST ABUTMENT WING 2 DETAILS			SHEET 7 OF 19

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BAR NO.	COATED BAR	NO. REQ'D.	LENGTH	BENT BAR	BUNDLED	BAR SERIES	3,900" COATED 2,470" UNCOATED
							LOCATION
A401		6	28-0	X			BODY @ PILES
A402		12	2-3				BODY @ PILES
A503		40	16-0	X			BODY VERT.
A604		12	32-8				BODY HORIZ.
A1005		7	21-5	X			BODY HORIZ. B.F. @ WING 1
A806		7	18-8	X			BODY HORIZ. B.F. @ WING 2
A407		2	32-8				BODY HORIZ. TOP
A408		21	3-3	X			BODY VERT. TOP
A509	X	14	18-2	X			WING 1 VERT.
A510	X	7	15-6				WING 1 HORIZ. F.F.
A811	X	10	17-5	X			WING 1 HORIZ.
A612	X	19	14-3	X			WING 1 VERT.
A613	X	9	10-11	X			WING 1 VERT.
A414	X	8	19-8				WING 1 HORIZ. E.F.
A415	X	2	7-9				WING 1 HORIZ. E.F.
A416	X	1	8-0				WING 1 HORIZ. B.F.
A617	X	2	19-8				WING 1 HORIZ. TOP E.F.
A418	X	3	5-8				BODY VERT. END @ WING 1
A519	X	10	17-6	X			WING 2 VERT.
A520	X	7	11-10				WING 2 HORIZ. F.F.
A721	X	9	11-1				WING 2 HORIZ.
A622	X	13	13-11	X			WING 2 VERT.
A623	X	9	11-4	X			WING 2 VERT.
A424	X	9	15-8				WING 2 HORIZ. E.F.
A425	X	2	7-9				WING 2 HORIZ. E.F.
A426	X	1	7-6				WING 2 HORIZ. B.F.
A627	X	2	15-8				WING 2 HORIZ. TOP E.F.
A428	X	4	5-7				BODY VERT. END @ WING 2
A429		3	11-0				BODY HORIZ.
A530		12	5-3	X			BODY VERT.

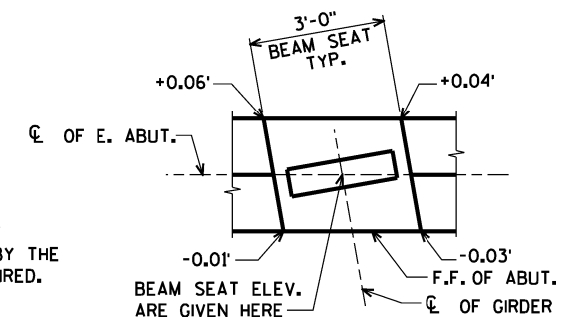
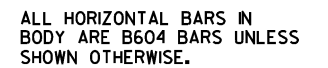
[illegible]

Diagram of a vertical spring-mass system. The mass has a diameter of 1'-9". The spring has a height of 2'-0" and a thickness of 6". The material is labeled A401.



NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-21-34			
DRAWN BY		CLP	PLANS CK'D. AEA
WEST ABUTMENT PILE LAYOUT & BILL OF BARS		SHEET 8 OF	

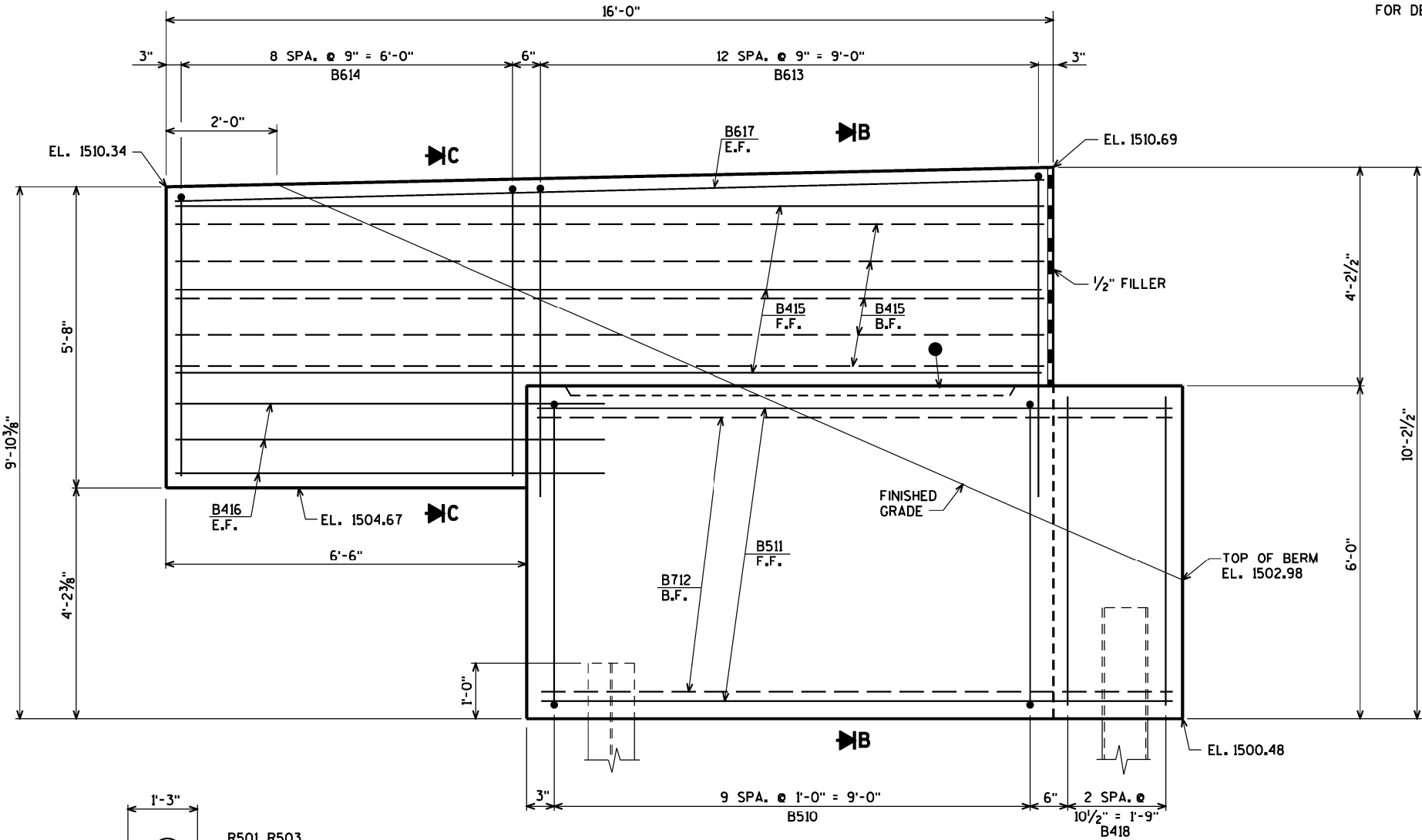
* ELEVATIONS AND DIMENSIONS TAKEN
AT C OF S. ABUT.



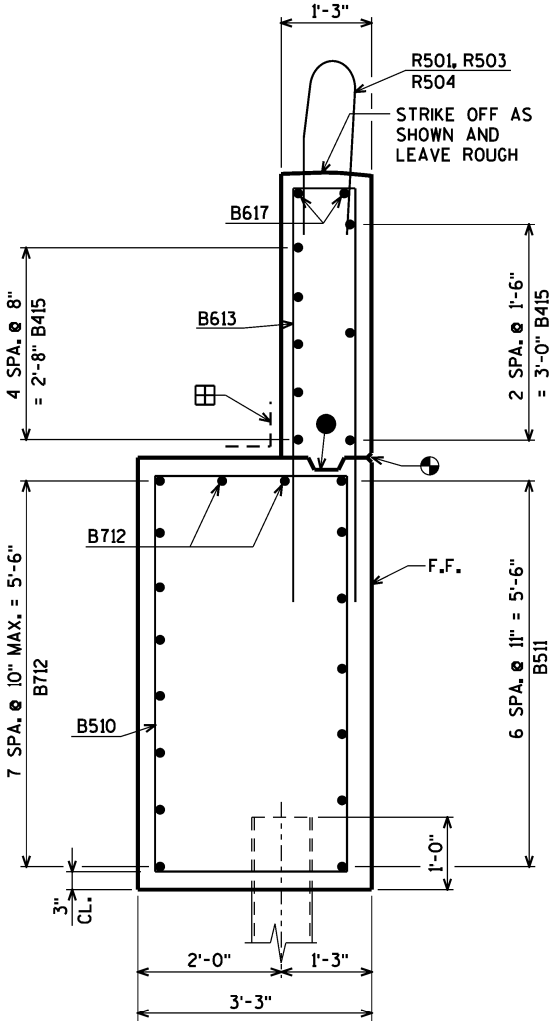
SLOPED BEAM SEAT DETAIL

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-21-34			
DRAWN BY		CLP	PLANS CK'D. AEB
EAST ABUTMENT		SHEET 9 OF 19	

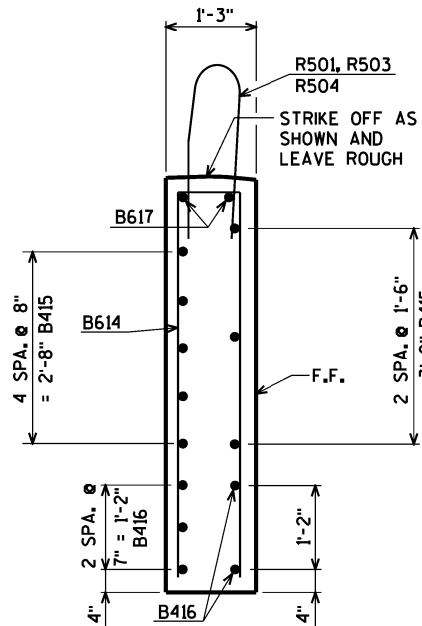
FOR CLARITY PARAPET NOT SHOWN.
FOR DETAILS SEE SHEET 19.



ELEVATION - WING 3



SECTION B



SECTION C

- 3/4" "V" GROOVE ON FRONT FACE OF WINGWALL. ONLY REQUIRED IF OPTIONAL CONSTRUCTION JOINT IS USED.
- OPTIONAL CONST. JOINT FORMED BY BEVELED 2" x 6" KEYWAY WITH MEMBRANE ON BACKFACE.
- 18" RUBBERIZED MEMBRANE WATERPROOFING. SEAL ALL HORIZONTAL AND VERTICAL JOINTS ON BACKFACE.

FOR PILE SPLICE DETAIL SEE SHEET 3.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-21-34			
DRAWN BY		CLP	PLANS CK'D. AEB
EAST ABUTMENT WING 3 DETAILS		SHEET 10 OF 19	

ORIGINAL PLANS PREPARED BY
AYRES 3433 Oakwood Hills Parkway
Eau Claire, WI 54701
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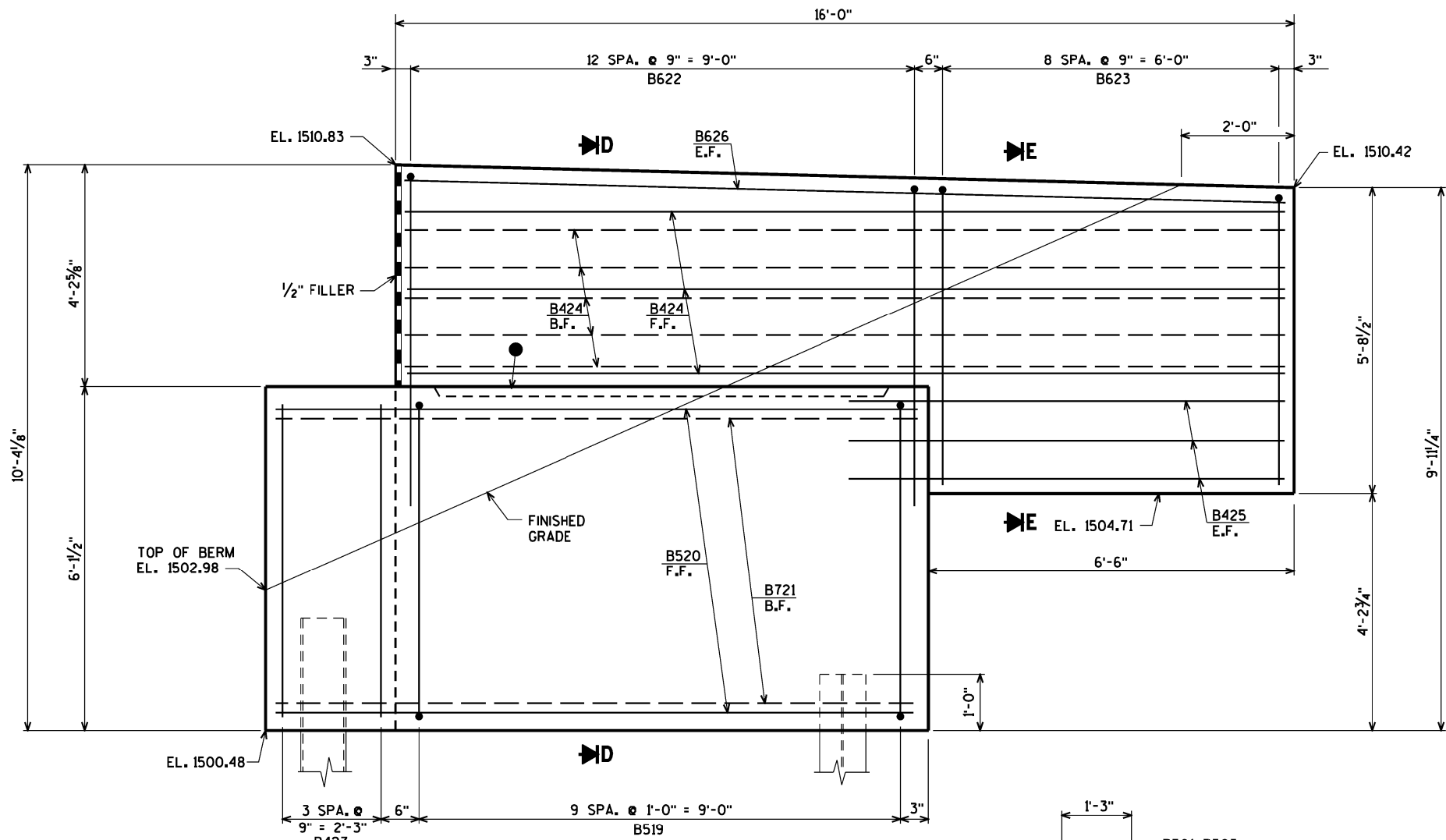
5/30/2023
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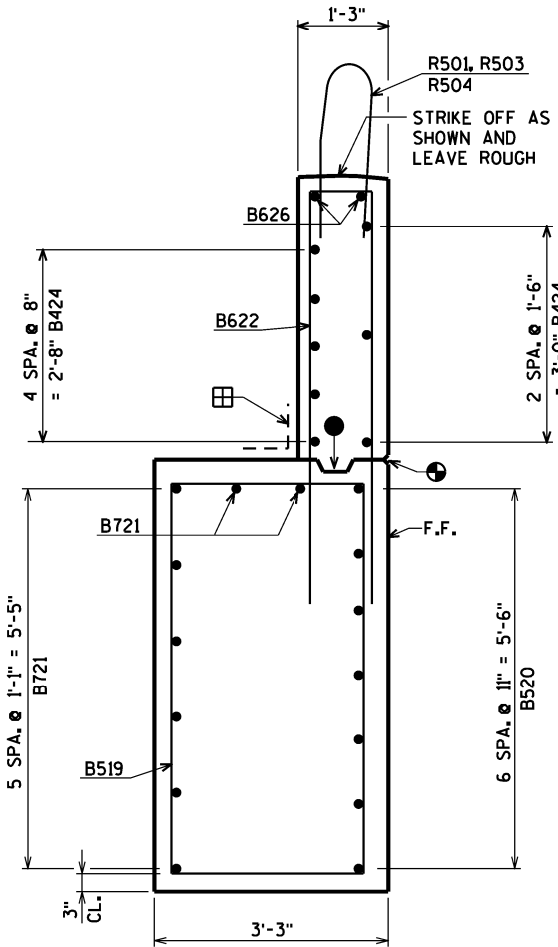
STATE PROJECT NUMBER

9330-01-70

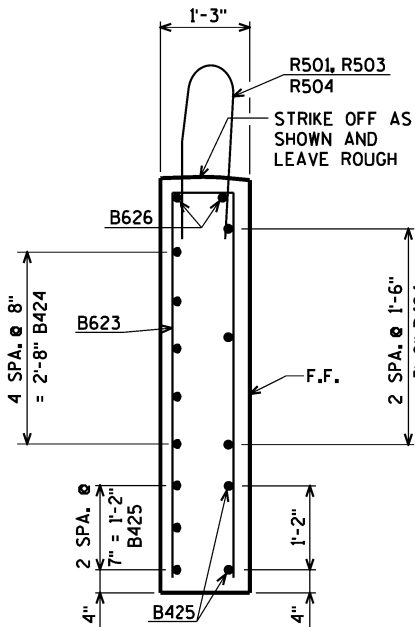
FOR CLARITY PARAPET NOT SHOWN.
FOR DETAILS SEE SHEET 19.



ELEVATION - WING 4



SECTION D



SECTION E

- 3/4" "V" GROOVE ON FRONT FACE
OF WINGWALL. ONLY REQUIRED IF
OPTIONAL CONSTRUCTION JOINT IS USED.
- OPTIONAL CONST. JOINT FORMED
BY BEVELED 2" x 6" KEYWAY WITH
MEMBRANE ON BACKFACE.
- 18" RUBBERIZED MEMBRANE WATERPROOFING.
SEAL ALL HORIZONTAL AND VERTICAL JOINTS
ON BACKFACE.

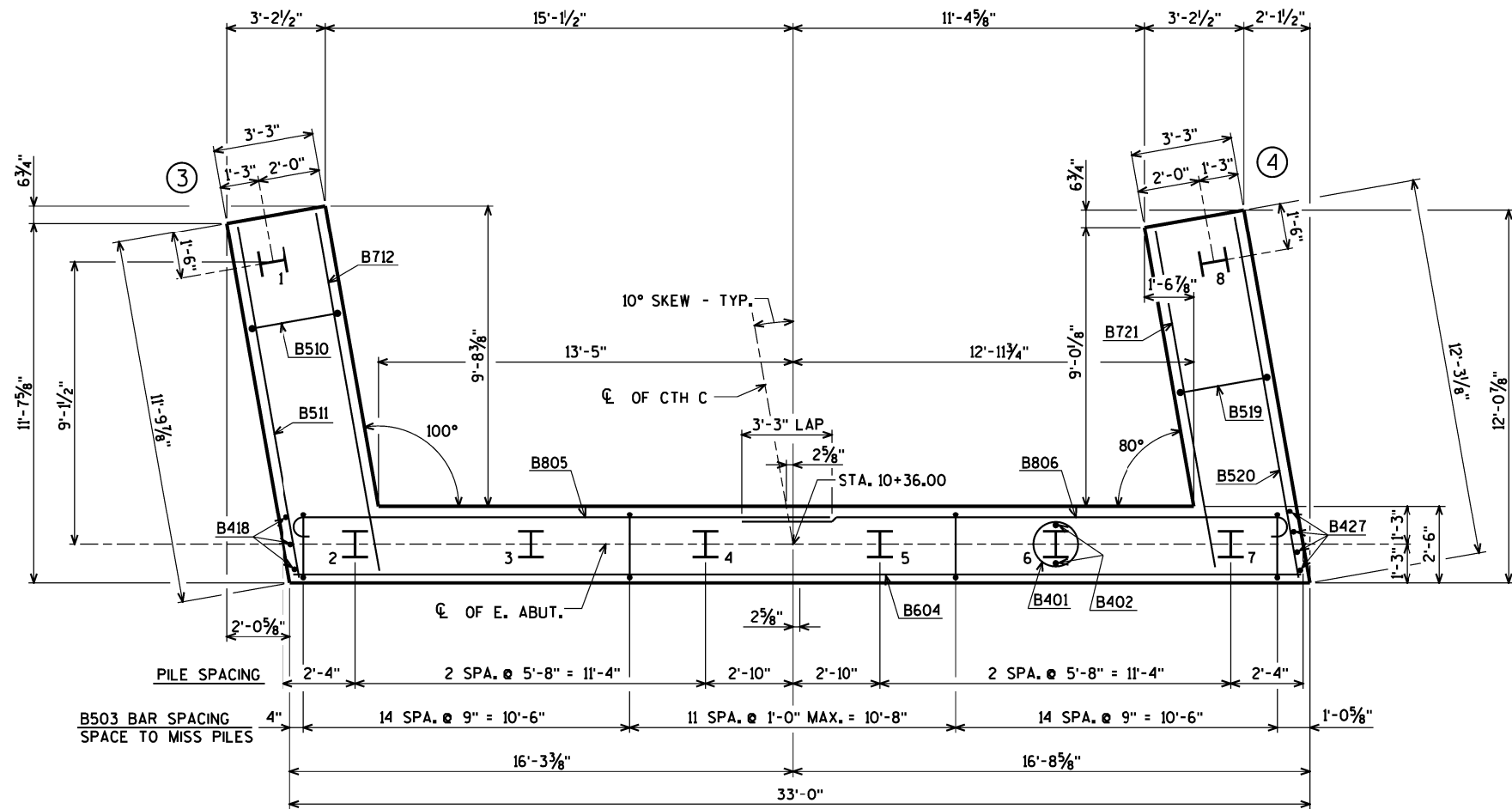
FOR PILE SPLICE DETAIL SEE SHEET 3.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-21-34			
DRAWN BY	CLP	PLANS CK'D.	AEB
EAST ABUTMENT WING 4 DETAILS			SHEET 11 OF 19

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PENTABLE:BReou_shd_util.tbl

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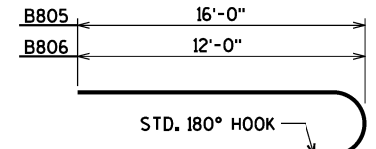
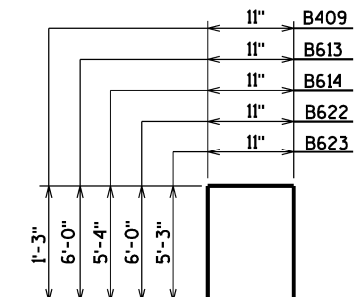
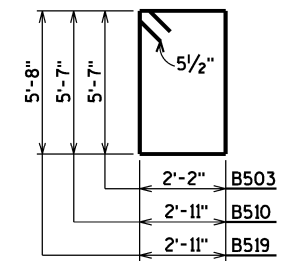
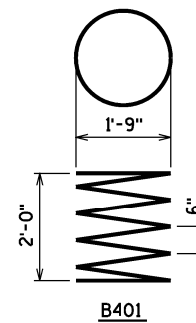
PILE LAYOUT

FOR PILE SPLICE DETAIL SEE SHEET 3.

BILL OF BARS

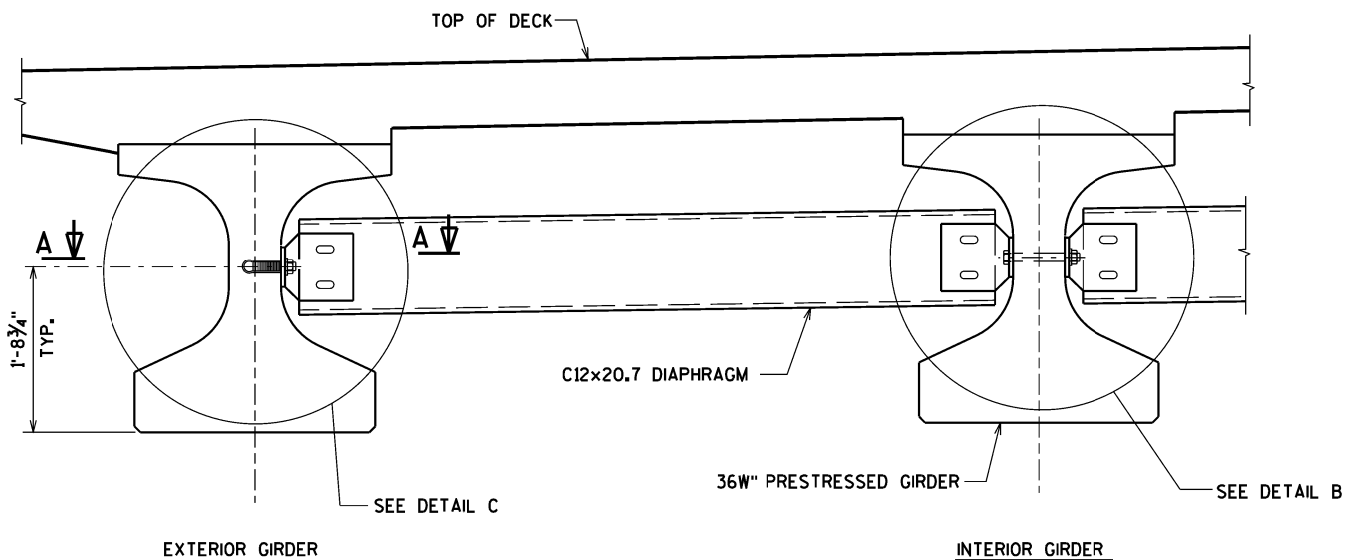
BAR NO.	COATED BAR	NO. REQ'D.	LENGTH	BENT BAR	BUNDLED	BAR SERIES	3,160* COATED 2,150* UNCOATED
							LOCATION
B401		6	28-0	X			BODY @ PILES
B402		12	2-3				BODY @ PILES
B503		40	16-0	X			BODY VERT.
B604		12	32-8				BODY HORIZ.
B805		7	18-0	X			BODY HORIZ. B.F. @ WING 3
B806		7	18-0	X			BODY HORIZ. B.F. @ WING 4
OMIT							
B408		2	32-8				BODY HORIZ. TOP
B409		21	3-3	X			BODY VERT. TOP
B510	X	10	17-4	X			WING 3 VERT.
B511	X	7	11-6				WING 3 HORIZ. F.F.
B712	X	10	11-9				WING 3 HORIZ.
B613	X	13	12-11	X			WING 3 VERT.
B614	X	9	11-1	X			WING 3 VERT.
B415	X	8	15-8				WING 3 HORIZ. E.F.
B416	X	5	7-9				WING 3 HORIZ. E.F.
B617	X	2	15-8				WING 3 HORIZ. TOP E.F.
B418	X	3	5-7				BODY VERT. END @ WING 3
B519	X	10	17-8	X			WING 4 VERT.
B520	X	7	11-10				WING 4 HORIZ. F.F.
B721	X	8	11-1				WING 4 HORIZ.
B622	X	13	12-11	X			WING 4 VERT.
B623	X	9	11-1	X			WING 4 VERT.
B424	X	8	15-8				WING 4 HORIZ. E.F.
B425	X	5	7-9				WING 4 HORIZ. E.F.
B626	X	2	15-8				WING 4 HORIZ. TOP E.F.
B427	X	4	5-8				BODY VERT. END @ WING 4

BENDING DIMENSIONS ARE OUT TO OUT OF BARS.

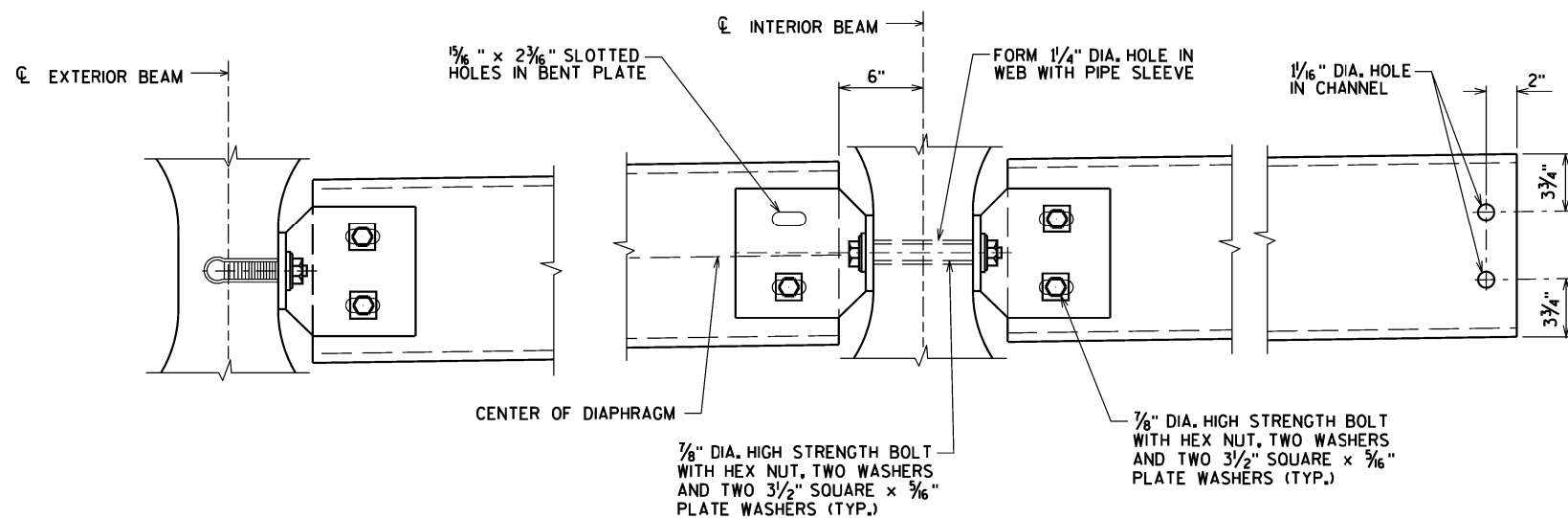


NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-21-34			
DRAWN BY	CLP	PLANS CK'D.	AEB
EAST ABUTMENT PILE LAYOUT & BILL OF BARS			SHEET 12 OF 19

ORIGINAL PLANS PREPARED BY
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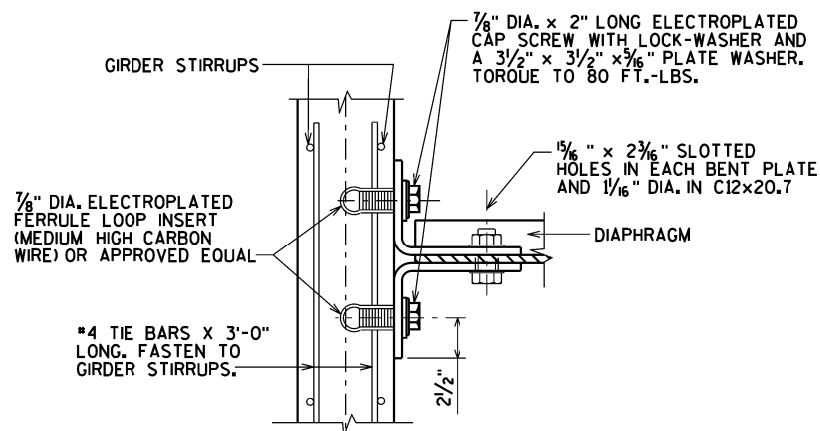
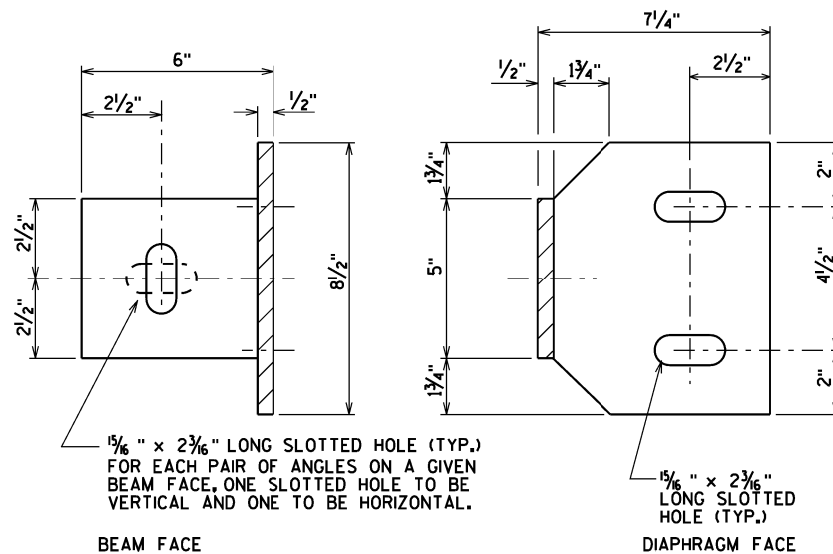


PART TRANSVERSE SECTION AT DIAPHRAGM



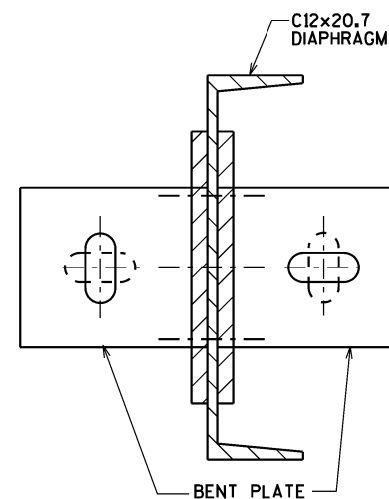
DETAIL C

DETAIL B

SECTION A-A
(FOR EXTERIOR ATTACHMENT)

BEAM FACE

DIAPHRAGM FACE



ATTACHMENT TO CHANNEL

NOTES

ALL DIAPHRAGM MATERIAL NOT EMBEDDED IN THE CONCRETE GIRDER SHALL BE PAID FOR AT THE UNIT PRICE BID FOR "STEEL DIAPHRAGMS B-21-34", EACH.

EACH DIAPHRAGM BETWEEN GIRDERS SHALL CONSTITUTE ONE UNIT.

ALL DIAPHRAGM STRUCTURAL STEEL SHALL BE ASTM A709 GRADE 36.

ALL DIAPHRAGM MATERIAL INCLUDING BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED AFTER FABRICATION.

STEEL DIAPHRAGM TO CONCRETE WEB CONNECTION SHALL BE SNUG-TIGHT PLUS 1/4 TURN, UNLESS NOTED OTHERWISE. HIGH STRENGTH BOLTS FOR WEB CONNECTION SHALL MEET THE REQUIREMENTS FOR ASTM A325 OR ASTM A449.

FOR DIAPHRAGM SPACING SEE SHEET 17.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-21-34			
DRAWN BY		CLP	PLANS CK'D. AEB
STEEL DIAPHRAGM			SHEET 13 OF 19

NOTES

TOP OF GIRDER TO BE ROUGH FLOATED AND BROOMED TRANSVERSELY, EXCEPT THE OUTSIDE 8" OF GIRDER, WHICH SHALL RECEIVE A SMOOTH FINISH. AN APPROVED CONCRETE SEALER SHALL BE APPLIED TO ALL SMOOTH SURFACES INCLUDING THE OUTSIDE 8" OF THE TOP FLANGE.

DO NOT APPLY CONCRETE SEALER OR EPOXY TO SURFACES RECEIVING APPLICATION OF CONCRETE STAINING.

THE GIRDERS SHALL BE PROVIDED WITH A SUITABLE LIFTING DEVICE FOR HANDLING AND ERECTING THE GIRDERS. SEE SECT. 503.3.4 OF STANDARD SPECIFICATIONS FOR GUIDANCE.

STRANDS SHALL BE FLUSH WITH END OF GIRDER. FOR GIRDER ENDS EMBEDDED COMPLETELY IN CONCRETE, END OF STRANDS SHALL BE COATED WITH NON-BITUMINOUS JOINT SEALER. FOR GIRDER ENDS THAT ARE FINALLY EXPOSED, COAT THE GIRDER ENDS, EXPOSED STRAND ENDS AND ALL NON BONDING SURFACES WITHIN 2 FEET OF THE GIRDER ENDS WITH A NON PIGMENTED EPOXY CONFORMING TO AASHTO M 235 TYPE III, GRADE 2, CLASS B OR C. THE EPOXY SHALL BE APPLIED AT LEAST 3 DAYS AFTER MOIST CURING HAS CEASED AND PRIOR TO THE APPLICATION OF THE SEALER.

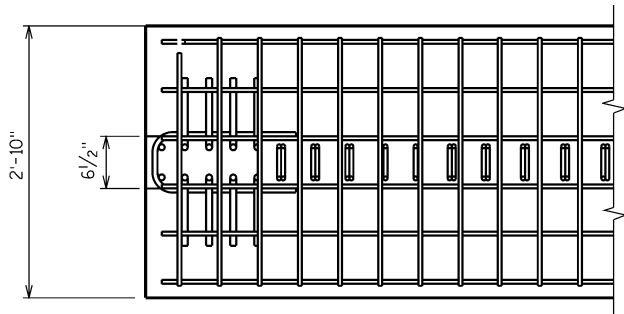
ALL GIRDERS SHALL BE CAST FULL LENGTH AS SHOWN.

SPACING SHOWN FOR #4 STIRRUPS IS FOR GRADE 60 REINFORCEMENT.

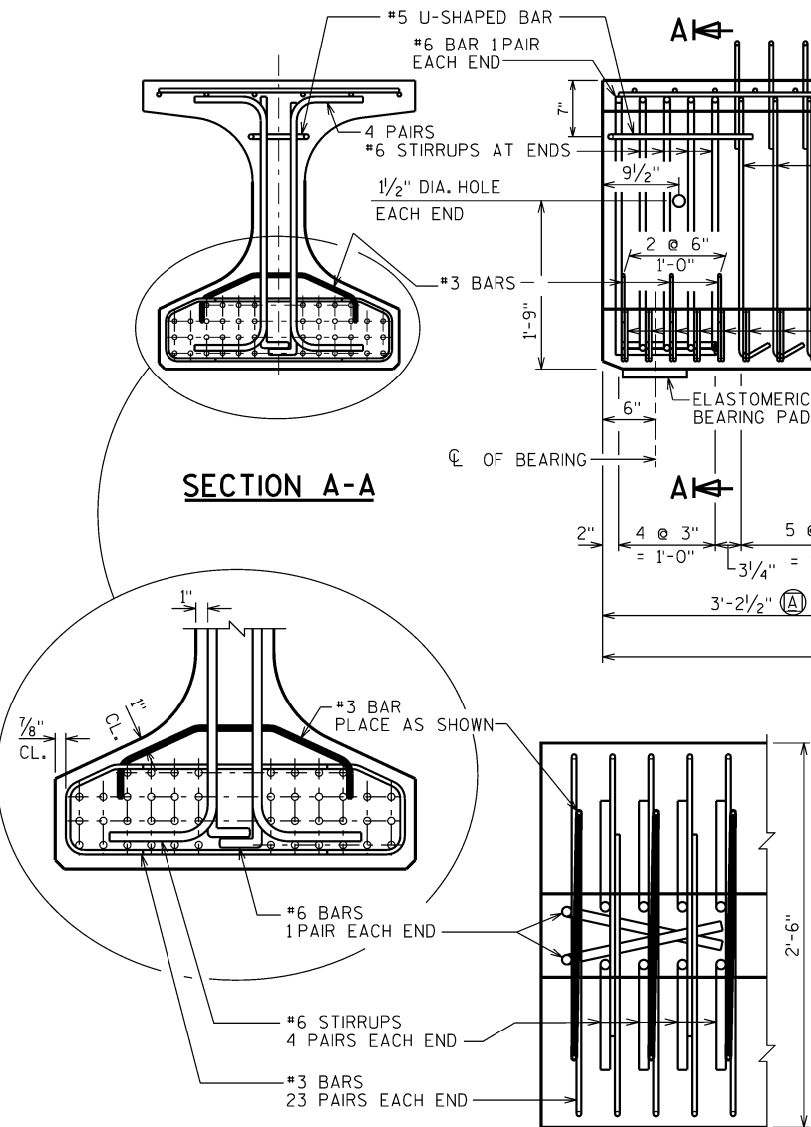
AN EQUIVALENT OF WELDED WIRE FABRIC (WWF) ASTM A1064 MAY BE SUBSTITUTED FOR THE STIRRUP REINFORCEMENT SHOWN, UPON APPROVAL OF THE STRUCTURES MAINTENANCE SECTION. IF USED, WWF SUBSTITUTION DETAILS SHALL BE SUBMITTED ELECTRONICALLY TO THE WISDOT FABRICATION LIBRARY AND ACCEPTED PRIOR TO SHOP DRAWING SUBMITTAL.

PRESTRESSING STRANDS SHALL BE (0.6" DIA.)-7 WIRE LOW-RELAXATION STRANDS WITH AN ULTIMATE STRENGTH OF 270,000 PSI.

FOR DIAPHRAGM INSERT & CONNECTION DETAILS SEE "STEEL DIAPHRAGM" SHEET.

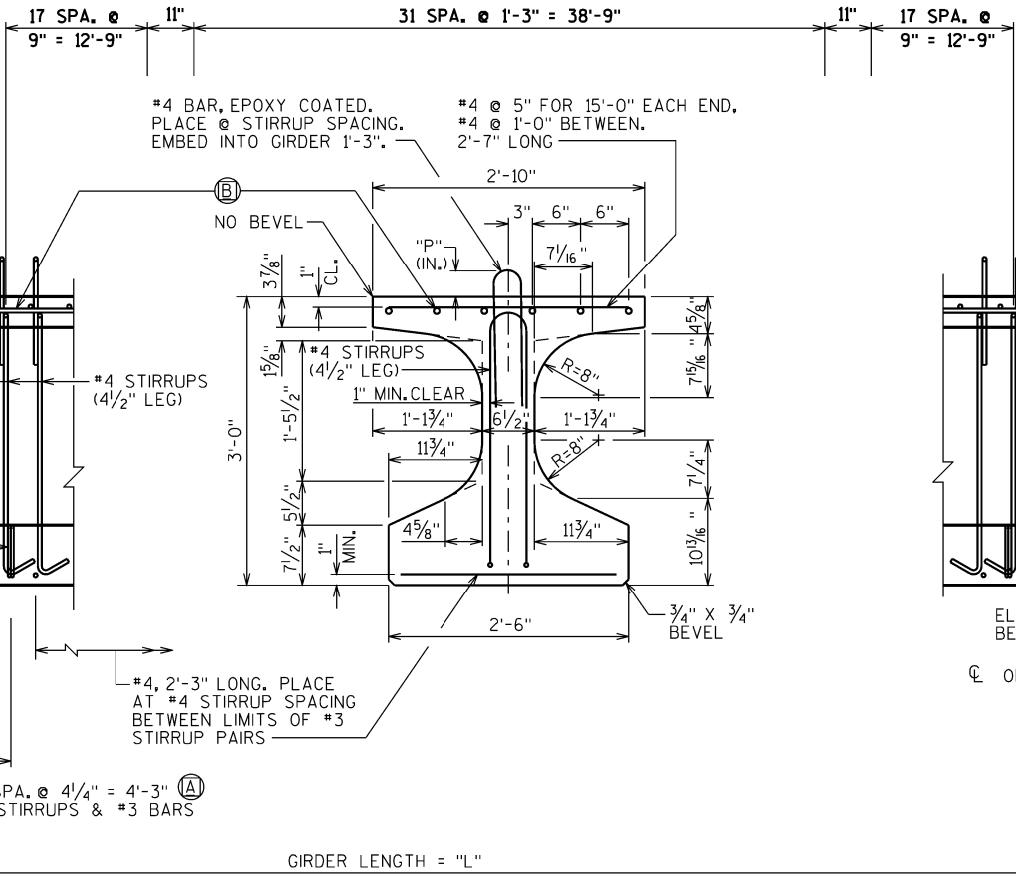


TOP FLANGE



SECTION A-A

BOTTOM FLANGE

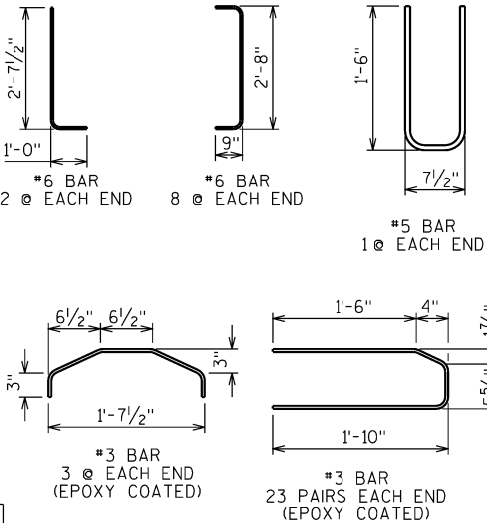


SIDE VIEW & TYPICAL SECTION IN SPAN

- (A) DETAIL TYP. AT EACH END
- (B) 6 #4 BARS, FULL LENGTH, MIN. LAP = 2'-4"

* MINIMUM CYLINDER STRENGTH OF CONCRETE @ TIME OF TRANSFER OF PRESTRESS FORCE.

GIRDER DATA																									
SPAN	GIRDER	GIRDER LENGTH "L" (FEET)	DEAD LOAD DEFL. (IN.)									CONC. STRGTH. f'c (P.S.I.)	"P" (IN.)			DIA. OF STRAND (IN.)	DRAPED PATTERN							UNDRAPED PATTERN	
			1/10	2/10	3/10	4/10	5/10	6/10	7/10	8/10	9/10		1ST 1/3 OF GIRDER	MID 1/3 OF GIRDER	END 1/3 OF GIRDER		TOTAL NO. OF STRANDS	f'ci (P.S.I.) *	(IN.)				TOTAL NO. OF STRANDS	f'ci (P.S.I.) *	
																			"A"	"B" MIN.	"B" MAX.	"C"			
1	1 & 4	81'-0"	0.5	0.9	1.3	1.5	1.6	1.5	1.3	0.9	0.5	8,000	10	7	10	0.6	32	6,400	32	11	14	4			
1	2 & 3	81'-0"	0.5	1.0	1.3	1.6	1.7	1.6	1.3	1.0	0.5	8,000	10	7	10	0.6	32	6,400	32	11	14	4			



AYRES

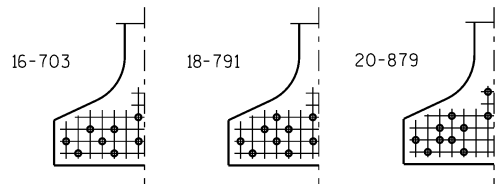
3433 Oakwood Hills Parkway
Eau Claire, WI 54701
www.AyresAssociates.com

STRUCTURE B-21-34

DRAWN BY CLP PLANS CK'D. AEB

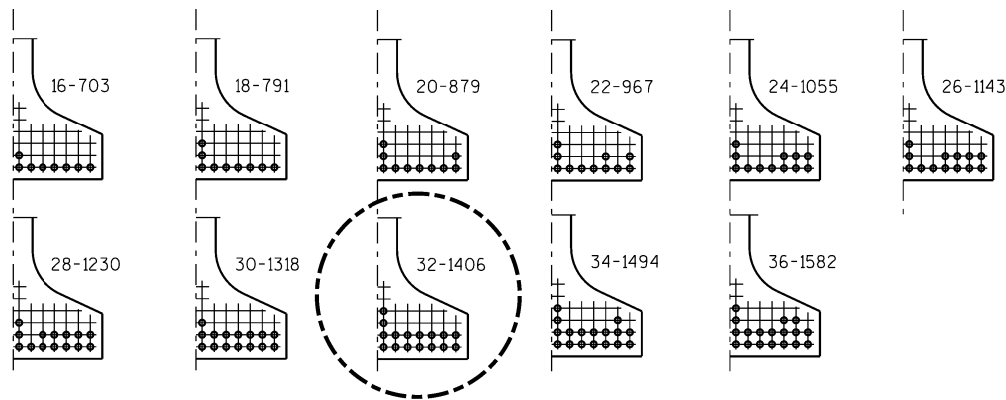
36W" PRESTRESSED GIRDER DETAILS

SHEET 14 OF 19



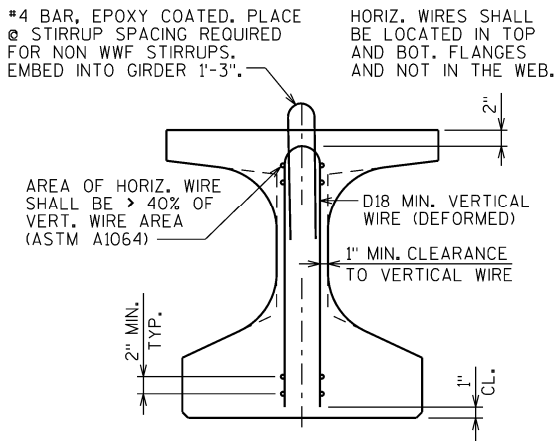
**STANDARD ARRANGEMENTS TO RAISE CENTER OF GRAVITY
TO AVOID DRAPING OF STRANDS**

0.6" DIA. STRANDS



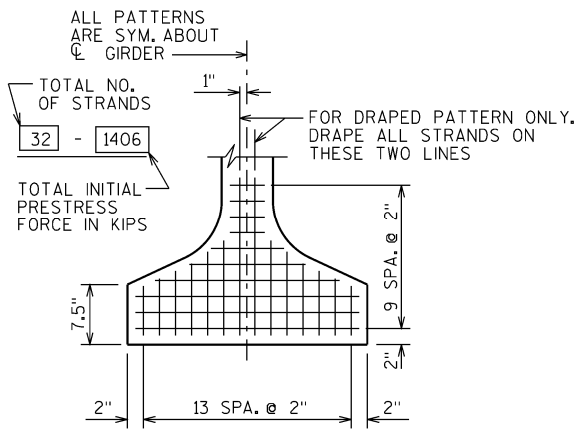
ARRANGEMENT AT $\frac{1}{4}$ SPAN - FOR GIRDERS WITH DRAPED STRANDS

0.6" DIA. STRANDS

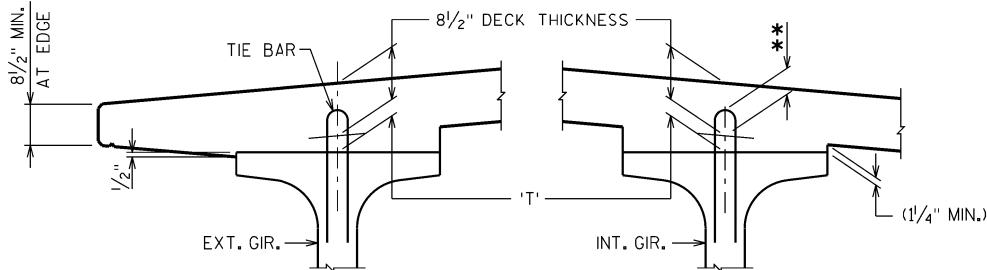


SECTION THRU GIRDER

SHOWING WELDED WIRE FABRIC (WWF) STIRRUPS
ASTM A1064 (FY = 70 KSI)



TYP. STRAND PATTERN



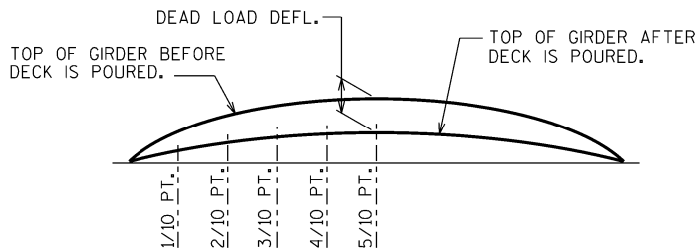
DECK HAUNCH DETAIL

IF 1/4" MINIMUM HAUNCH HEIGHT AT EDGE OF GIRDER CANNOT BE MAINTAINED, THE GRADE LINE MAY BE REVISED BY THE ENGINEER AT THE OPTION OF THE CONTRACTOR. THE PLAN DECK THICKNESS SHALL BE HELD. NOTIFY THE STRUCTURES SECTION IF THE GRADE LINE IS RAISED FROM THE PLAN PROFILE BY MORE THAN 1/2" OR, ** IF 3" MINIMUM DECK EMBEDMENT OF TIE BAR CANNOT BE OBTAINED.

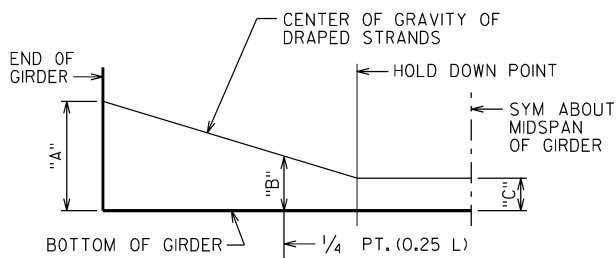
TO DETERMINE 'T', ELEV. OF TOP OF GIR'S. AT $\frac{1}{4}$ OF SUBSTRUCTURE UNITS & AT 1/10 POINTS OF EACH SPAN SHALL BE TAKEN. THEN FOLLOW THIS PROCESS:

- TOP OF DECK ELEV. AT FINAL GRADE
- TOP OF GIRDER ELEVATION
- + DEAD LOAD DEFLECTION
- DECK THICKNESS
- = HAUNCH HEIGHT 'T'

NOTE: AN AVERAGE HAUNCH ('T') OF 5 3/8" WAS USED IN THE QUANTITY "CONCRETE MASONRY BRIDGES".



DEAD LOAD DEFLECTION DIAGRAM

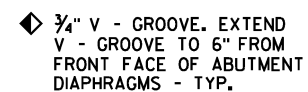


DRAPED STRAND PROFILE

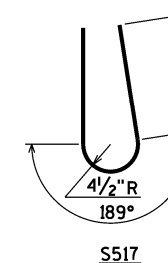
*THE THEORETICAL INITIAL CAMBER VALUE AT THE TIME OF STRAND RELEASE AT MIDSPAN MULTIPLIED BY A FACTOR OF 1.4 TO ACCOUNT FOR CAMBER GROWTH FROM THE TIME OF STRAND RELEASE TO JOBSITE PLACEMENT.

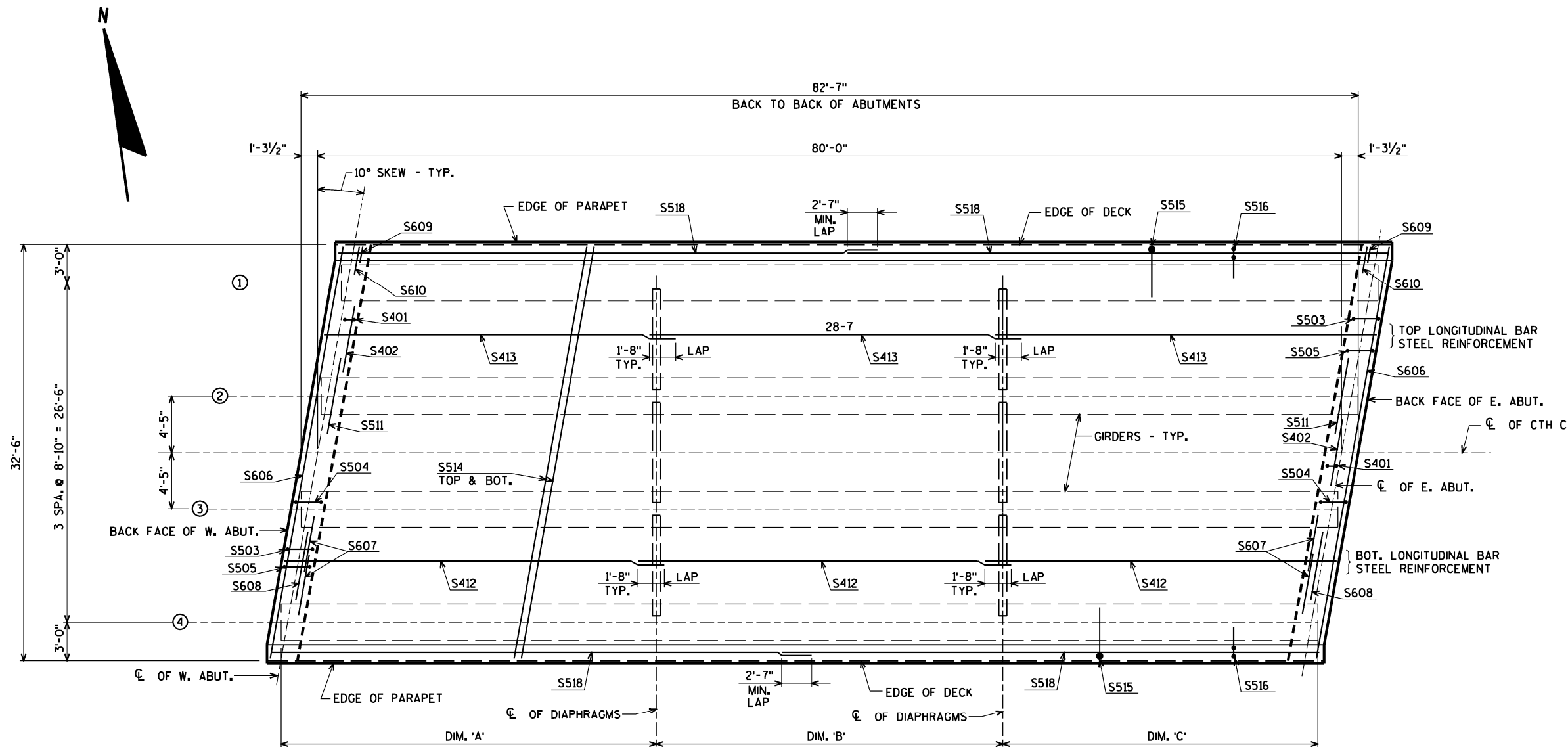
SPAN	CAMBER (IN.) *
1	3.4
2	3.4

THESE VALUES ARE NOT TO BE USED IN DETERMINING 'T'.
USE ACTUAL GIRDER SHOTS.
THESE VALUES ARE FOR INFORMATIONAL PURPOSES ONLY.



BENDING DIMENSIONS ARE OUT TO OUT OF BARS.





PLAN

TOP OF DECK ELEVATIONS

LOCATION	CL OF W. ABUT.	0.1 PT.	0.2 PT.	0.3 PT.	0.4 PT.	0.5 PT.	0.6 PT.	0.7 PT.	0.8 PT.	0.9 PT.	CL OF E. ABUT.
NORTH EDGE OF DECK	1513.52	1513.16	1512.81	1512.48	1512.17	1511.87	1511.60	1511.34	1511.10	1510.89	1510.69
FACE OF PARAPET	1513.53	1513.17	1512.82	1512.49	1512.17	1511.88	1511.61	1511.35	1511.11	1510.89	1510.69
GIRDER 1	1513.58	1513.21	1512.86	1512.53	1512.22	1511.93	1511.65	1511.39	1511.15	1510.93	1510.73
GIRDER 2	1513.83	1513.46	1513.11	1512.77	1512.46	1512.16	1511.88	1511.62	1511.38	1511.15	1510.95
CL OF CTH C	1513.96	1513.58	1513.23	1512.89	1512.57	1512.28	1511.99	1511.73	1511.49	1511.26	1511.05
GIRDER 3	1514.01	1513.63	1513.27	1512.92	1512.60	1512.29	1512.00	1511.74	1511.48	1511.25	1511.04
GIRDER 4	1513.83	1513.45	1513.09	1512.75	1512.42	1512.12	1511.83	1511.56	1511.31	1511.08	1510.86
FACE OF PARAPET	1513.79	1513.41	1513.04	1512.70	1512.38	1512.07	1511.79	1511.52	1511.27	1511.03	1510.82
SOUTH EDGE OF DECK	1513.80	1513.42	1513.05	1512.71	1512.39	1512.08	1511.79	1511.52	1511.27	1511.04	1510.83

ELEVATIONS SHOWN ARE FINISHED DECK AND DO NOT INCLUDE ALLOWANCES FOR DEAD LOAD DEFLECTION.

TABLE OF DIAPHRAGM DIMENSIONS

GIRDER	DIM. 'A'	DIM. 'B'	DIM. 'C'
1	24'-8"	27'-0"	29'-4"
2	26'-2 1/8"	27'-0"	27'-9 3/8"
3	27'-9 3/8"	27'-0"	26'-2 5/8"
4	29'-4"	27'-0"	24'-8"

NO.	DATE	REVISION	BY
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STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-21-34

DRAWN BY	CLP	PLANS CK'D.	AEB
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SUPERSTRUCTURE
PLAN

SHEET 17 OF 19

ORIGINAL PLANS PREPARED BY

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- | | | | |
|--|------|----------------|-----------------|
| NO. | DATE | REVISION | BY |
| STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION | | | |
| STRUCTURE B-21-34 | | | |
| DRAWN BY | | CLP | PLANS CK'D. AEB |
| SUPERSTRUCTURE DETAILS | | SHEET 18 OF 19 | |

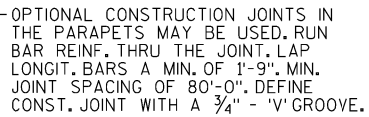
NOTE: REINFORCEMENT WEIGHT INCLUDED IN ABUTMENT QUANTITIES.

▲ LENGTH SHOWN FOR BAR IS AN AVERAGE LENGTH AND SHOULD ONLY BE USED FOR BAR WEIGHT CALCULATIONS. SEE BAR SERIES TABLE FOR ACTUAL LENGTHS.

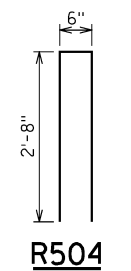
BUNDLE AND TAG EACH SERIES SEPARATELY.



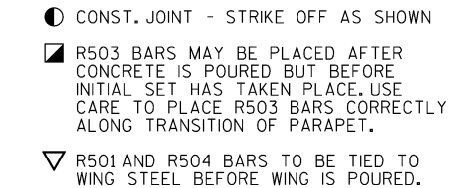
SECTION THRU PARAPET ON BRIDGE



 BENCH MARK CAP (WHEN SUPPLIED). AVOID PLACING A BENCH MARK CAP BELOW A RAIL OR FENCE SYSTEM THAT IS ATTACHED TO THE TOP OF THE PARAPET.

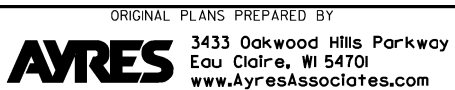


R510, R513



NOTE: HEX HEAD CAP SCREWS & WASHERS TO BE GALVANIZED
IN ACCORDANCE WITH AASHTO M232 CLASS C.

ASSEMBLY SHALL BE BID ITEM "ANCHOR ASSEMBLIES FOR STEEL PLATE BEAM GUARD", EACH.



SINGLE SLOPE
PARAPET 42SS

SHEET 19 OF 19

EARTHWORK-CTH C-SW SHOULDER

STATION	AREA (SF)				INCREMENTAL VOL (CY) (UNADJUSTED)				CUMULATIVE VOL (CY)			
	CUT	UNUSABLE PAVEMENT MATERIAL	FILL	MARSH EXC	CUT	UNUSABLE PAVEMENT MATERIAL	FILL	MARSH EXC	CUT 1.00	EXPANDED FILL 1.30	EXPANDED MARSH BACKFILL 1.50	MASS ORDINATE
					NOTE 1	NOTE 2	NOTE 3		NOTE 1		NOTE 4	NOTE 8
6+89.73	7.04	0.00	0.00	0.00	0	0	0	0	0	0	0	0
7+00	13.06	0.00	0.00	0.00	4	0	0	0	4	0	0	4
7+50	16.52	0.00	0.38	0.00	27	0	0	0	31	0	0	31
8+00	15.49	0.00	1.06	0.00	30	0	1	0	61	1	0	60
8+04.5	21.48	0.00	1.13	0.00	3	0	0	0	64	1	0	63
8+29.5	6.53	0.00	7.58	0.00	13	0	4	0	77	7	0	71
8+50	6.54	0.00	7.43	0.00	5	0	6	0	82	14	0	68
8+51.3	6.55	0.00	7.41	0.00	0	0	0	0	82	14	0	68
8+54.5	6.55	0.00	7.40	0.00	1	0	1	0	83	16	0	67
8+76.3	6.60	0.00	2.77	0.00	5	0	4	0	88	21	0	67
9+00	6.50	0.00	5.24	0.00	6	0	4	0	94	26	0	68
9+01.3	6.48	0.00	5.32	0.00	0	0	0	0	94	26	0	68
9+25	18.42	0.00	10.32	0.00	11	0	7	0	105	35	0	70
					105	0	27	0				

EARTHWORK-CTH C-NW SHOULDER

STATION	AREA (SF)				INCREMENTAL VOL (CY) (UNADJUSTED)				CUMULATIVE VOL (CY)			
	CUT	UNUSABLE PAVEMENT MATERIAL	FILL	MARSH EXC	CUT	UNUSABLE PAVEMENT MATERIAL	FILL	MARSH EXC	CUT 1.00	EXPANDED FILL 1.30	EXPANDED MARSH BACKFILL 1.50	MASS ORDINATE
					NOTE 1	NOTE 2	NOTE 3		NOTE 1		NOTE 4	NOTE 8
7+16.6	4.83	0.00	0.03	0.00	0	0	0	0	0	0	0	0
7+50	35.92	0.00	0.00	0.00	25	0	0	0	25	0	0	25
8+00	10.16	0.00	1.09	0.00	43	0	1	0	68	1	0	67
8+04.5	10.19	0.00	1.86	0.00	2	0	0	0	70	1	0	69
8+29.5	5.48	0.00	11.88	0.00	7	0	6	0	77	9	0	68
8+50	5.45	0.00	24.65	0.00	4	0	14	0	81	27	0	54
8+51.3	5.44	0.00	26.13	0.00	0	0	1	0	81	29	0	52
8+54.5	5.43	0.00	28.91	0.00	1	0	3	0	82	33	0	50
8+76.3	5.40	0.00	40.09	0.00	4	0	28	0	86	69	0	17
9+00	5.36	0.00	37.99	0.00	5	0	34	0	91	113	0	-22
9+01.3	5.34	0.00	35.50	0.00	0	0	2	0	91	116	0	-25
9+25	18.28	0.00	8.32	0.00	10	0	19	0	101	140	0	-39
					101	0	108	0				

Notes:		
1 - CUT	CUT INCLUDES UNUSABLE PAVEMENT MATERIAL	THIS DOES NOT INCLUDE UNUSABLE PAVEMENT EXC VOLUME WILL BE BACKFILLD WITH SELECT BORROW
2 - UNSUABLE PAVEMENT MATERIAL	THIS DOES NOT SHOW UP IN CROSS SECTIONS	
3 - FILL	THIS DOES NOT INCLUDE UNUSABLE PAVEMENT EXC VOLUME	
4 - EXPANDED MARSH BACKFILL	WILL BE BACKFILLD WITH SELECT BORROW	
8 - MASS ORDINATE	CUT - UNUSABLE PAVEMENT - (FILL * FILL FACTOR)	
8 - MASS ORDINATE	MASS ORDINATE DOES NOT INCLUDE MARSH EXCAVATION	

EARTHWORK-CTH C-MAINLINE

STATION	AREA (SF)				INCREMENTAL VOL (CY) (UNADJUSTED)				CUMULATIVE VOL (CY)			
	CUT	UNUSABLE PAVEMENT MATERIAL	FILL	MARSH EXC	CUT	UNUSABLE PAVEMENT MATERIAL	FILL	MARSH EXC	CUT 1.00	EXPANDED FILL 1.30	EXPANDED MARSH BACKFILL 1.50	MASS ORDINATE
					NOTE 1	NOTE 2	NOTE 3		NOTE 1		NOTE 4	NOTE 8
9+25	36.70	9.17	18.63	0.00	0	0	0	0	0	0	0	0
9+32.1	36.52	9.17	19.61	0.00	10	2	5	0	10	7	0	2
9+54.71	36.52	9.17	19.61	0.00	31	8	16	0	41	27	0	4
B-22-34												
10+37.29	35.68	9.17	59.35	0.00	0	0	0	0	41	27	0	4
10+55.7	35.68	9.17	59.35	0.00	24	6	41	0	65	81	0	-32
10+75	35.72	9.17	68.87	0.00	25	7	46	0	90	140	0	-73
					90	23	108	0				

EARTHWORK-CTH C-SE SHOULDER

STATION	AREA (SF)				INCREMENTAL VOL (CY) (UNADJUSTED)				CUMULATIVE VOL (CY)			
	CUT	UNUSABLE PAVEMENT MATERIAL	FILL	MARSH EXC	CUT	UNUSABLE PAVEMENT MATERIAL	FILL	MARSH EXC	CUT 1.00	EXPANDED FILL 1.30	EXPANDED MARSH BACKFILL 1.50	MASS ORDINATE
					NOTE 1	NOTE 2	NOTE 3		NOTE 1		NOTE 4	NOTE 8
10+75	18.54	0.00	29.00	0.00	0	0	0	0	0	0	0	0
10+90.7	5.37	0.00	28.91	0.00	7	0	17	0	7	22	0	-15
11+00	5.31	0.00	29.57	0.00	2	0	10	0	9	35	0	-26
11+15.7	5.24	0.00	37.64	0.00	3	0	20	0	12	61	0	-49
11+33.5	5.48	0.00	30.45	0.00	4	0	22	0	16	90	0	-74
11+40.7	5.58	0.00	27.30	0.00	1	0	8	0	17	100	0	-83
11+50	5.75	0.00	16.85	0.00	2	0	8	0	19	111	0	-92
11+58.5	8.47	0.00	6.13	0.00	2	0	4	0	21	116	0	-95
11+83.5	8.34	0.00	0.00	0.00	8	0	3	0	29	120	0	-91
12+00	6.89	0.00	0.04	0.00	5	0	0	0	34	120	0	-86
12+50	7.67	0.00	0.10	0.00	13	0	0	0	47	120	0	-73
12+74.8	5.76	0.00	0.45	0.00	6	0	0	0	53	120	0	-67
					53	0	92	0				

Notes:		
1 - CUT		CUT INCLUDES UNUSABLE PAVEMENT MATERIAL
2 - UNSUABLE PAVEMENT MATERIAL		THIS DOES NOT SHOW UP IN CROSS SECTIONS
3 - FILL		THIS DOES NOT INCLUDE UNUSABLE PAVEMENT EXC VOLUME
4 - EXPANDED MARSH BACKFILL		WILL BE BACKFILLD WITH SELECT BORROW
8 - MASS ORDINATE		CUT - UNUSABLE PAVEMENT - (FILL * FILL FACTOR)
8 - MASS ORDINATE		MASS ORDINATE DOES NOT INCLUDE MARSH EXCAVATION

EARTHWORK-CTH C-NE SHOULDER

STATION	AREA (SF)				INCREMENTAL VOL (CY) (UNADJUSTED)				CUMULATIVE VOL (CY)			
	CUT	UNUSABLE PAVEMENT MATERIAL	FILL	MARSH EXC	CUT	UNUSABLE PAVEMENT MATERIAL	FILL	MARSH EXC	CUT	EXPANDED FILL	EXPANDED MARSH BACKFILL	MASS ORDINATE
									1.00	1.30	1.50	
					NOTE 1	NOTE 2	NOTE 3		NOTE 1		NOTE 4	NOTE 8
10+75	17.18	0.00	39.87	0.00	0	0	0	0	0	0	0	0
10+90.7	4.53	0.00	44.80	0.00	6	0	25	0	6	33	0	-27
11+00	4.57	0.00	35.32	0.00	2	0	14	0	8	51	0	-43
11+15.7	4.61	0.00	38.05	0.00	3	0	21	0	11	78	0	-67
11+33.5	4.76	0.00	36.38	0.00	3	0	25	0	14	111	0	-97
11+40.7	4.83	0.00	28.25	0.00	1	0	9	0	15	122	0	-107
11+50	4.92	0.00	15.65	0.00	2	0	8	0	17	133	0	-116
11+58.5	6.01	0.00	6.92	0.00	2	0	4	0	19	138	0	-119
11+83.5	6.17	0.00	13.21	0.00	6	0	9	0	25	150	0	-125
12+00	7.61	0.00	3.04	0.00	4	0	5	0	29	156	0	-127
12+50	49.25	0.00	0.00	0.00	53	0	3	0	82	160	0	-78
13+00	6.17	0.00	0.00	0.00	51	0	0	0	133	160	0	-27
13+08.8	6.07	0.00	0.00	0.00	2	0	0	0	135	160	0	-25
					135	0	123	0				

Notes:		
1 - CUT		CUT INCLUDES UNUSABLE PAVEMENT MATERIAL
2 - UNSUABLE PAVEMENT MATERIAL		THIS DOES NOT SHOW UP IN CROSS SECTIONS
3 - FILL		THIS DOES NOT INCLUDE UNUSABLE PAVEMENT EXC VOLUME
4 - EXPANDED MARSH BACKFILL		WILL BE BACKFILLD WITH SELECT BORROW
8 - MASS ORDINATE		CUT - UNUSABLE PAVEMENT - (FILL * FILL FACTOR)
8 - MASS ORDINATE		MASS ORDINATE DOES NOT INCLUDE MARSH EXCAVATION

EARTHWORK-SOPER ST-MAINLINE

STATION	AREA (SF)				INCREMENTAL VOL (CY) (UNADJUSTED)				CUMULATIVE VOL (CY)			
	CUT	UNUSABLE PAVEMENT MATERIAL	FILL	MARSH EXC	CUT	UNUSABLE PAVEMENT MATERIAL	FILL	MARSH EXC	CUT 1.00	EXPANDED FILL 1.30	EXPANDED MARSH BACKFILL 1.50	MASS ORDINATE
					NOTE 1	NOTE 2	NOTE 3		NOTE 1		NOTE 4	NOTE 8
88+28.9	5.23	0.00	0.00	0.00	0	0	0	0	0	0	0	0
88+50	22.46	0.00	0.00	0.00	11	0	0	0	11	0	0	11
89+00	19.62	0.00	0.00	0.00	39	0	0	0	50	0	0	50
89+50	17.42	0.00	0.00	0.00	34	0	0	0	84	0	0	84
90+00	28.49	0.00	0.02	0.00	43	0	0	0	127	0	0	127
90+50	42.92	0.00	0.01	0.00	66	0	0	0	193	0	0	193
91+00	44.06	0.00	0.02	0.00	81	0	0	0	274	0	0	274
91+50	34.89	0.00	0.07	0.00	73	0	0	0	347	0	0	347
92+00	20.02	0.00	0.01	0.00	51	0	0	0	398	0	0	398
92+50	21.99	0.00	0.01	0.00	39	0	0	0	437	0	0	437
93+00	40.54	0.00	0.06	0.00	58	0	0	0	495	0	0	495
93+50	32.33	0.00	1.20	0.00	67	0	1	0	562	1	0	561
94+00	26.17	0.00	2.19	0.00	54	0	3	0	616	5	0	611
94+50	32.98	0.00	2.27	0.00	55	0	4	0	671	10	0	661
95+00	24.56	0.00	0.68	0.00	53	0	3	0	724	14	0	710
95+50	1.53	0.00	2.17	22.21	24	0	3	21	748	18	32	730
96+00	6.73	0.00	1.28	27.15	8	0	3	46	756	22	101	734
96+50	0.84	0.00	4.37	23.74	7	0	5	47	763	29	171	734
97+00	6.91	0.00	0.02	20.98	7	0	4	41	770	34	233	736
97+50	21.00	0.00	0.08	32.69	26	0	0	50	796	34	308	762
98+00	8.65	0.00	0.13	0.00	27	0	0	30	823	34	353	789
98+50	13.08	0.00	0.00	28.58	20	0	0	26	843	34	392	809
99+00	10.54	0.00	0.00	30.18	22	0	0	54	865	34	473	831
99+50	5.45	0.00	2.90	0.00	15	0	3	28	880	38	515	842
99+66.75	7.41	0.00	18.38	0.00	4	0	7	0	884	47	515	837
99+76.75	7.41	0.00	18.38	0.00	3	0	7	0	884	56	515	831
B-21-33												
10+23.25	11.09	0.00	1.56	0.00	0	0	0	0	884	56	515	831
100+33.25	11.09	0.00	1.56	0.00	4	0	1	0	888	57	515	834
100+50	10.94	0.00	0.37	0.00	7	0	1	0	895	59	515	840
101+00	4.06	0.00	1.15	0.00	14	0	1	0	909	60	515	852
101+50	9.60	0.00	3.11	0.00	13	0	4	0	922	65	515	860
102+00	9.65	0.00	0.58	0.00	18	0	3	0	940	69	515	874
102+50	4.61	0.00	0.72	0.00	13	0	1	0	953	70	515	886
103+00	18.99	0.00	0.00	0.00	22	0	1	0	975	72	515	907

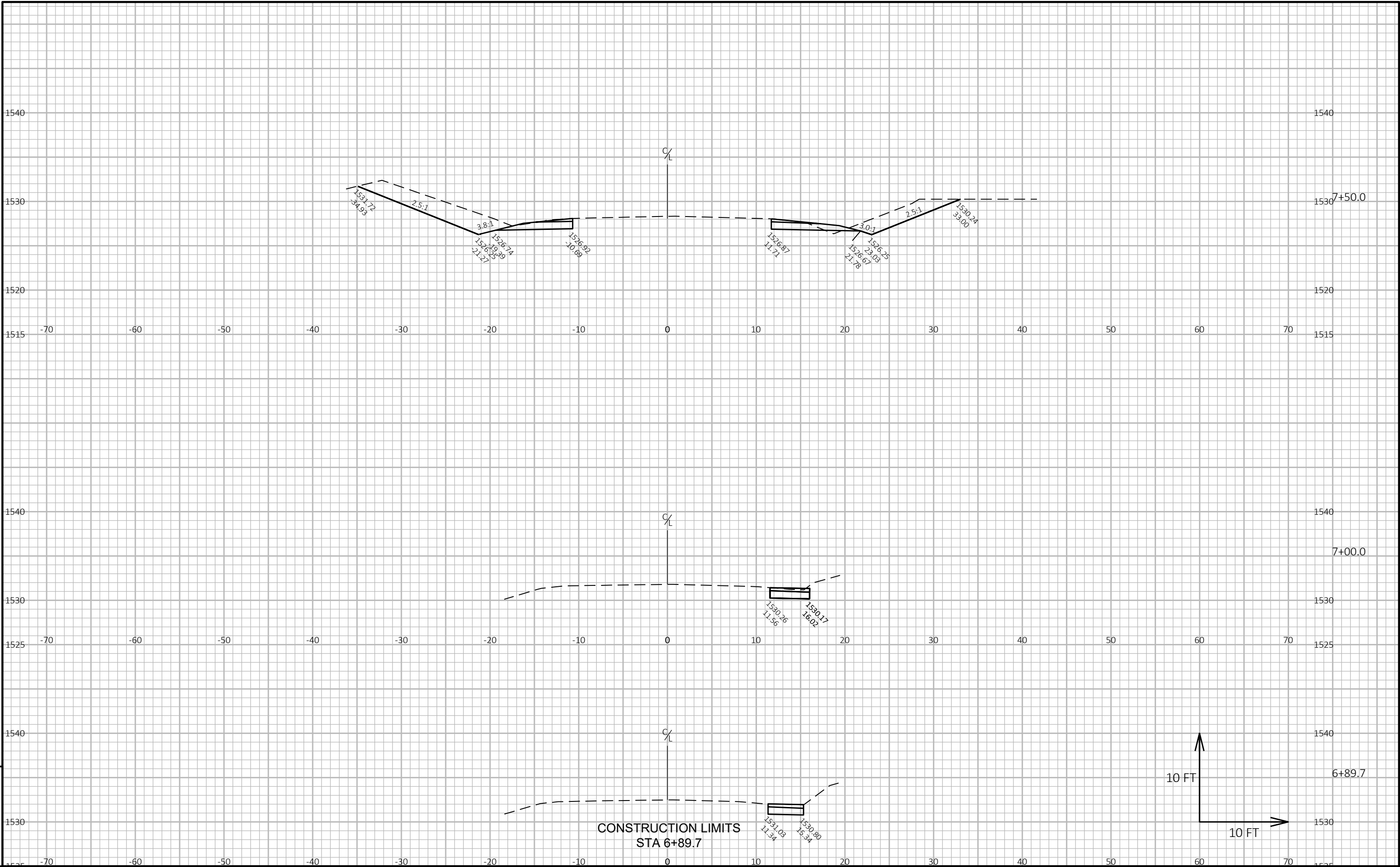
Notes:		
1 - CUT		CUT INCLUDES UNUSABLE PAVEMENT MATERIAL THIS DOES NOT SHOW UP IN CROSS SECTIONS THIS DOES NOT INCLUDE UNUSABLE PAVEMENT EXC VOLUME WILL BE BACKFILLD WITH SELECT BORROW CUT - UNUSABLE PAVEMENT - (FILL * FILL FACTOR) MASS ORDINATE DOES NOT INCLUDE MARSH EXCAVATION
2 - UNSUABLE PAVEMENT MATERIAL		
3 - FILL		
4 - EXPANDED MARSH BACKFILL		
8 - MASS ORDINATE		
8 - MASS ORDINATE		

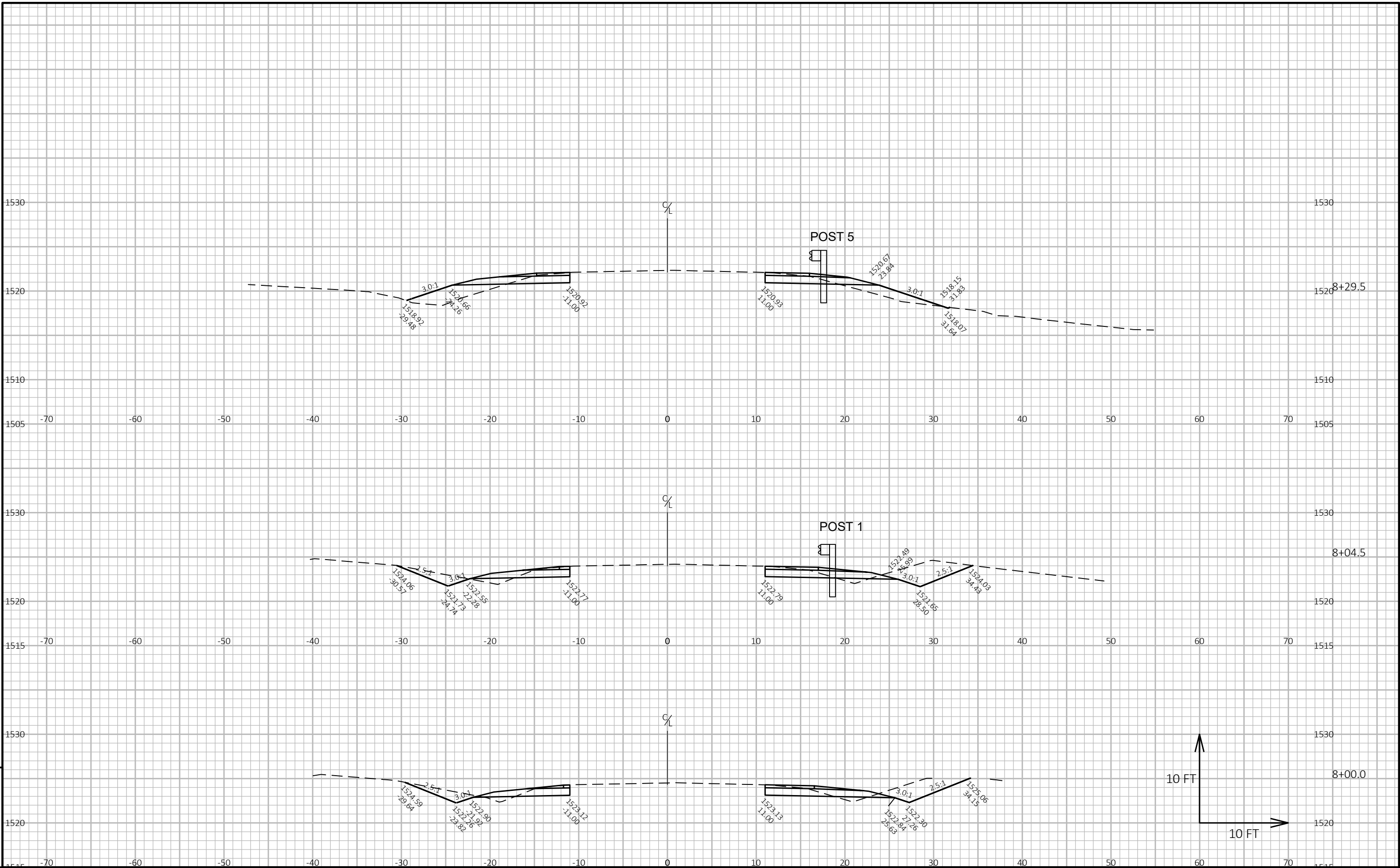
EARTHWORK-SOPER ST-MAINLINE CONTINUED

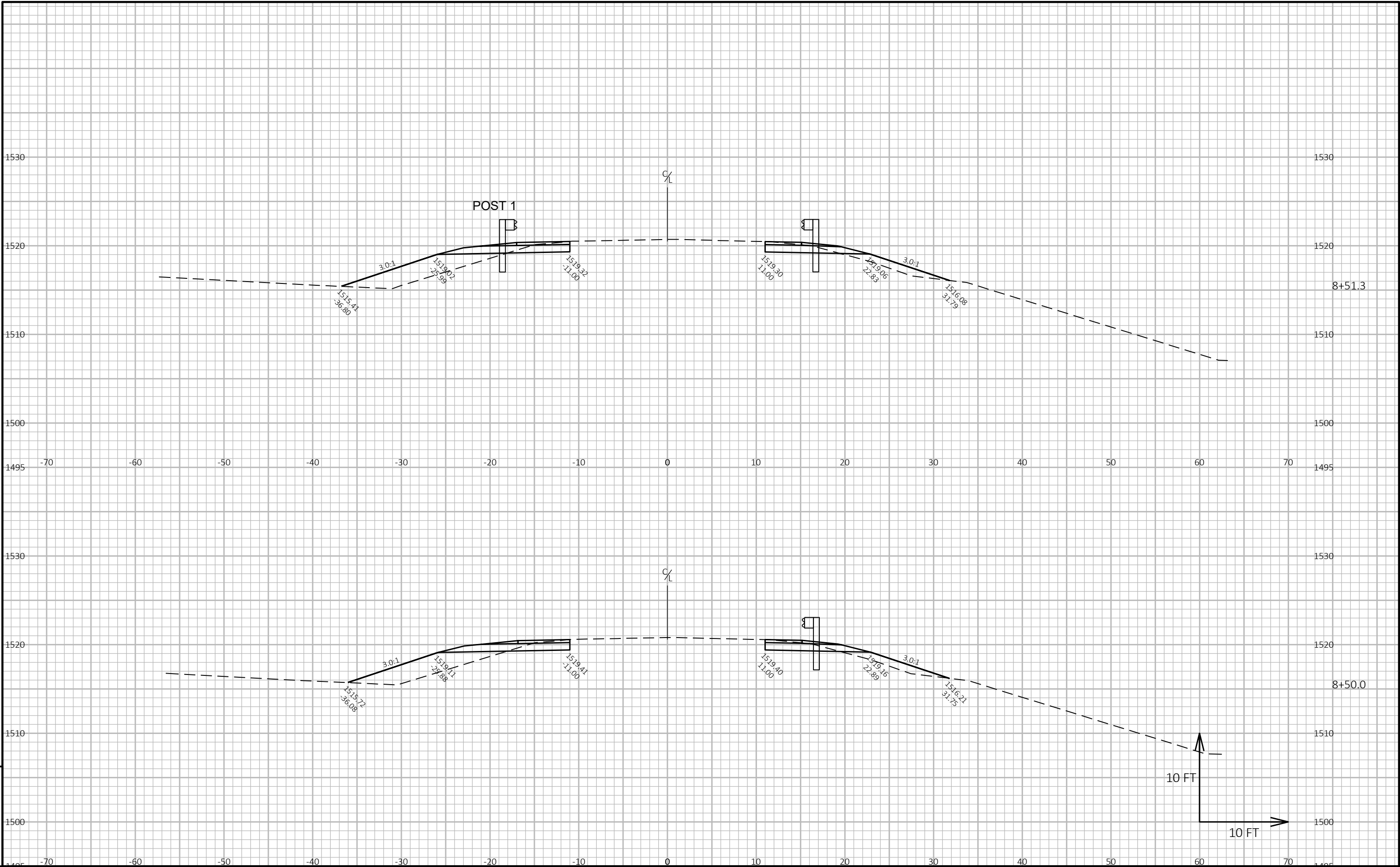
STATION	AREA (SF)				INCREMENTAL VOL (CY) (UNADJUSTED)				CUMULATIVE VOL (CY)			
	CUT	UNUSABLE PAVEMENT MATERIAL	FILL	MARSH EXC	CUT	UNUSABLE PAVEMENT MATERIAL	FILL	MARSH EXC	CUT 1.00	EXPANDED FILL 1.30	EXPANDED MARSH BACKFILL 1.50	MASS ORDINATE
					NOTE 1	NOTE 2	NOTE 3		NOTE 1		NOTE 4	NOTE 8
103+35	39.62	0.00	0.06	0.00	38	0	0	0	1,013	72	515	945
103+50	33.71	0.00	0.00	0.00	20	0	0	0	1,033	72	515	965
104+00	14.30	0.00	0.00	0.00	44	0	0	0	1,077	72	515	1,009
104+50	4.15	0.00	3.16	0.00	17	0	3	0	1,094	75	515	1,022
105+00	5.08	0.00	6.45	0.00	9	0	9	0	1,103	87	515	1,019
105+50	7.21	0.00	4.16	0.00	11	0	10	0	1,114	100	515	1,017
106+00	24.59	0.00	0.00	0.00	29	0	4	0	1,143	105	515	1,041
106+50	33.44	0.00	0.00	0.00	54	0	0	0	1,197	105	515	1,095
107+00	9.43	0.00	39.73	0.00	59	0	37	0	1,256	153	515	1,106
107+05	7.85	0.00	54.69	0.00	2	0	9	0	1,258	165	515	1,096
107+50	0.17	0.00	9.12	0.00	7	0	53	0	1,265	234	515	1,034
108+00	2.27	0.00	7.15	0.00	2	0	15	0	1,267	254	515	1,017
108+50	6.76	0.00	2.38	0.00	8	0	9	0	1,275	265	515	1,013
109+00	10.06	0.00	0.00	0.00	16	0	2	0	1,291	268	515	1,026
109+50	7.94	0.00	3.26	0.00	17	0	3	0	1,308	272	515	1,039
110+00	8.86	0.00	0.00	0.00	16	0	3	0	1,324	276	515	1,051
110+50	12.43	0.00	0.00	0.00	20	0	0	0	1,344	276	515	1,071
111+00	6.44	0.00	0.36	0.00	17	0	0	0	1,361	276	515	1,088
111+50	3.05	0.00	14.23	0.00	9	0	14	0	1,370	294	515	1,079
112+00	0.23	0.00	24.29	0.00	3	0	36	0	1,373	341	515	1,035
112+50	0.77	0.00	7.15	0.00	1	0	29	0	1,374	378	515	999
113+00	4.46	0.00	0.40	0.00	5	0	7	0	1,379	387	515	995
113+50	15.75	0.00	0.01	0.00	19	0	0	0	1,398	387	515	1,014
114+00	28.08	0.00	0.00	0.00	41	0	0	0	1,439	387	515	1,055
114+50	25.20	0.00	0.00	0.00	49	0	0	0	1,488	387	515	1,104
115+00	25.89	0.00	0.00	0.00	47	0	0	0	1,535	387	515	1,151
115+50	17.95	0.00	0.00	0.00	41	0	0	0	1,576	387	515	1,192
116+00	9.19	0.00	0.00	0.00	25	0	0	0	1,601	387	515	1,217
116+50	14.42	0.00	0.01	0.00	22	0	0	0	1,623	387	515	1,239

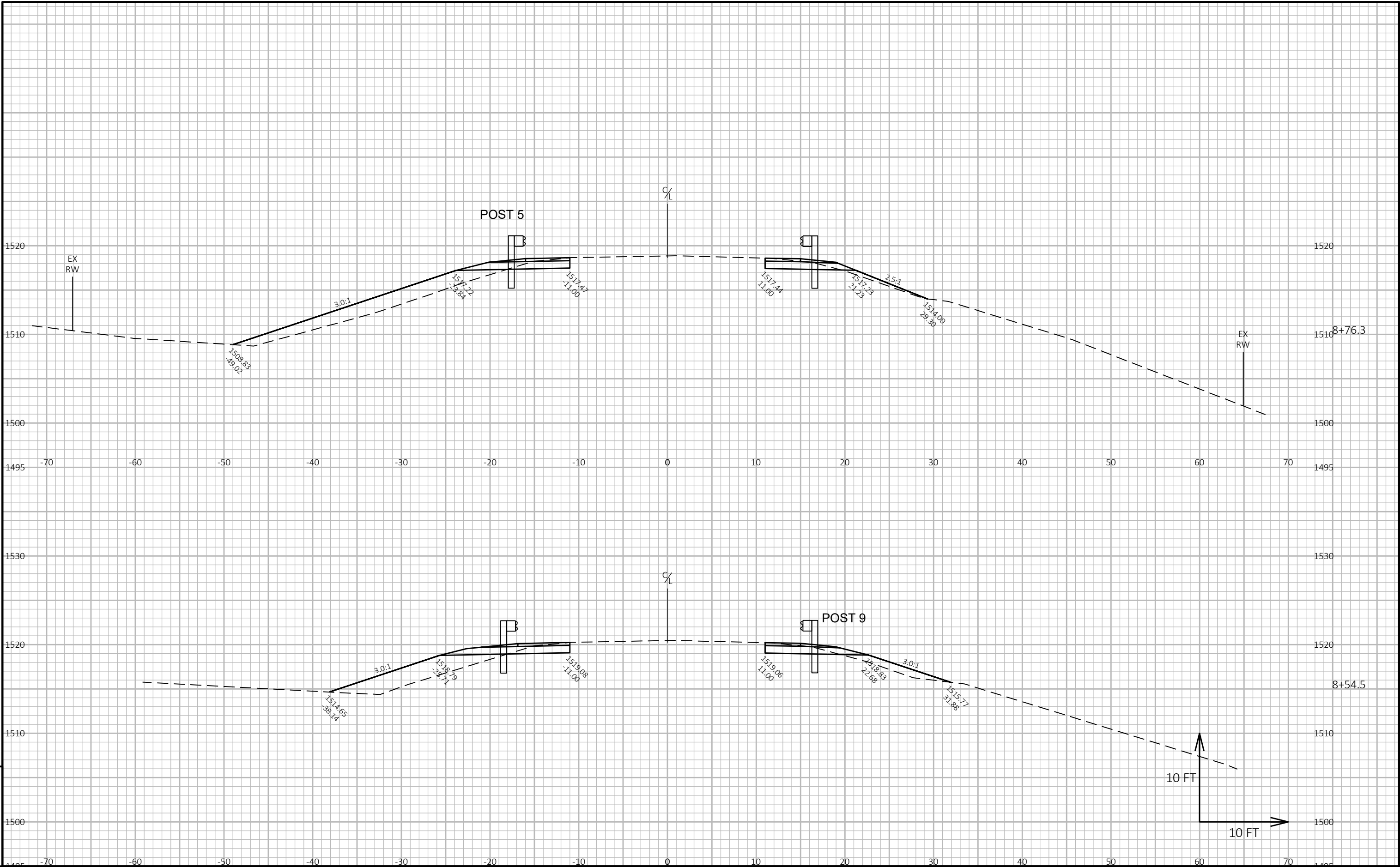
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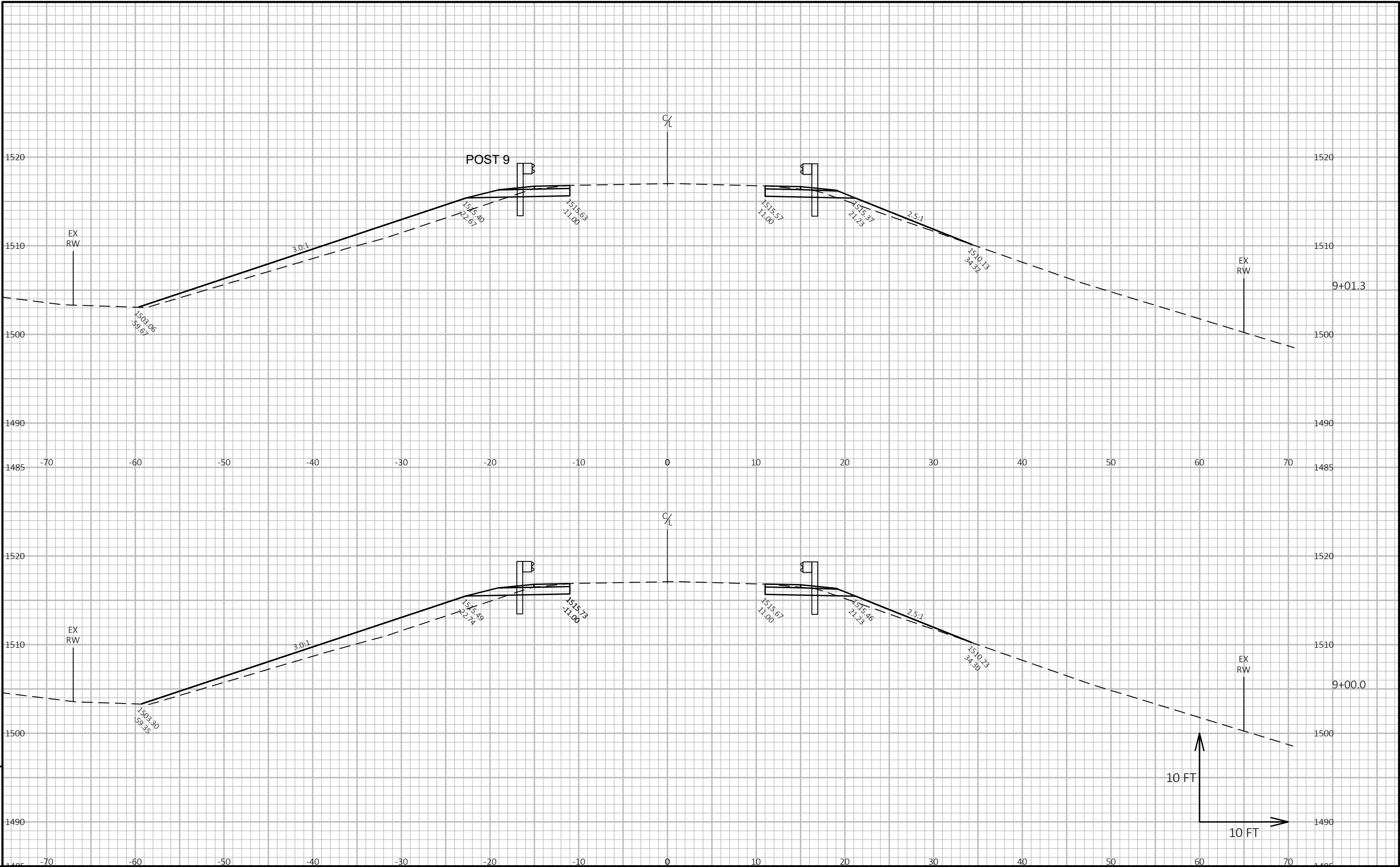
Notes:	
1 - CUT	CUT INCLUDES UNUSABLE PAVEMENT MATERIAL
2 - UNSUABLE PAVEMENT MATERIAL	THIS DOES NOT SHOW UP IN CROSS SECTIONS
3 - FILL	THIS DOES NOT INCLUDE UNUSABLE PAVEMENT EXC VOLUME
4 - EXPANDED MARSH BACKFILL	WILL BE BACKFILLD WITH SELECT BORROW
8 - MASS ORDINATE	CUT - UNUSABLE PAVEMENT - (FILL * FILL FACTOR)
8 - MASS ORDINATE	MASS ORDINATE DOES NOT INCLUDE MARSH EXCAVATION

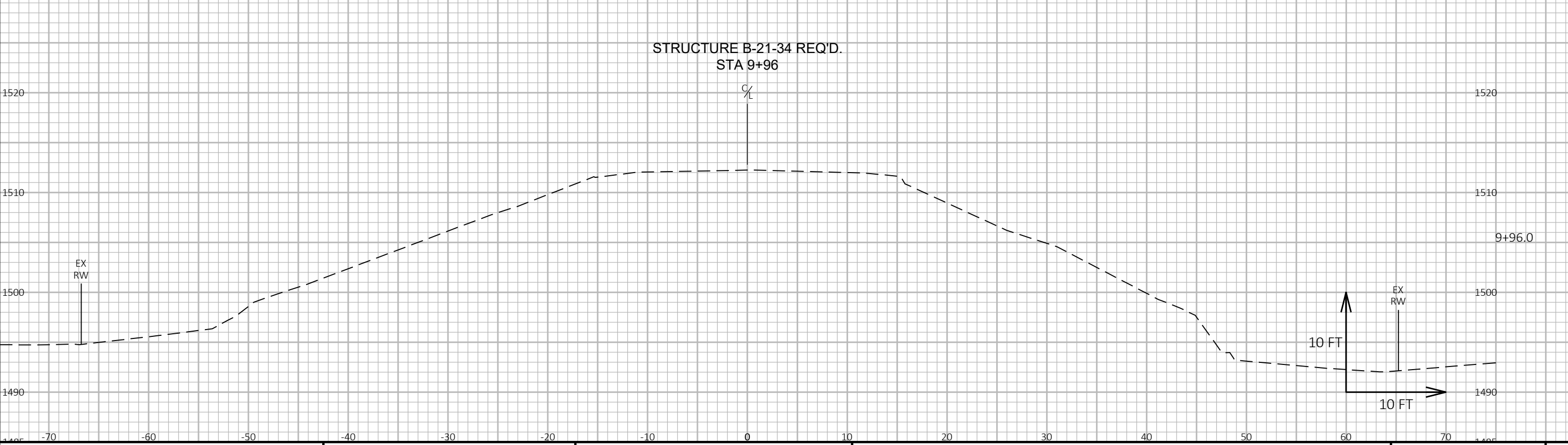
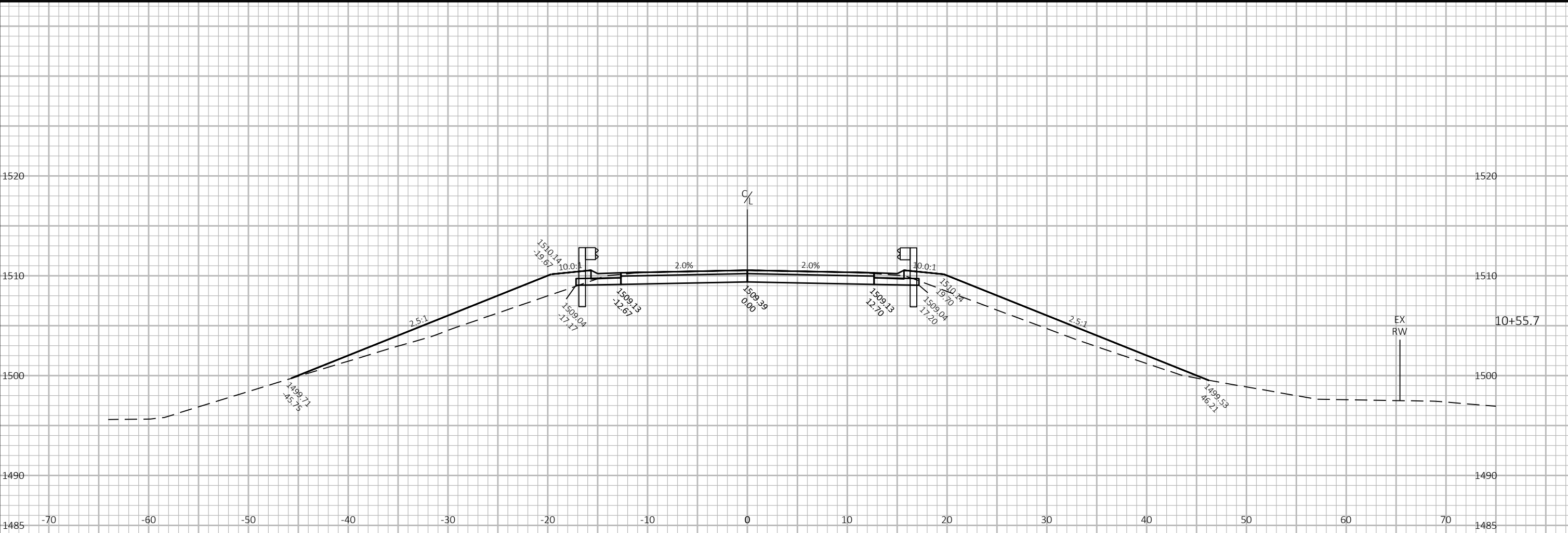




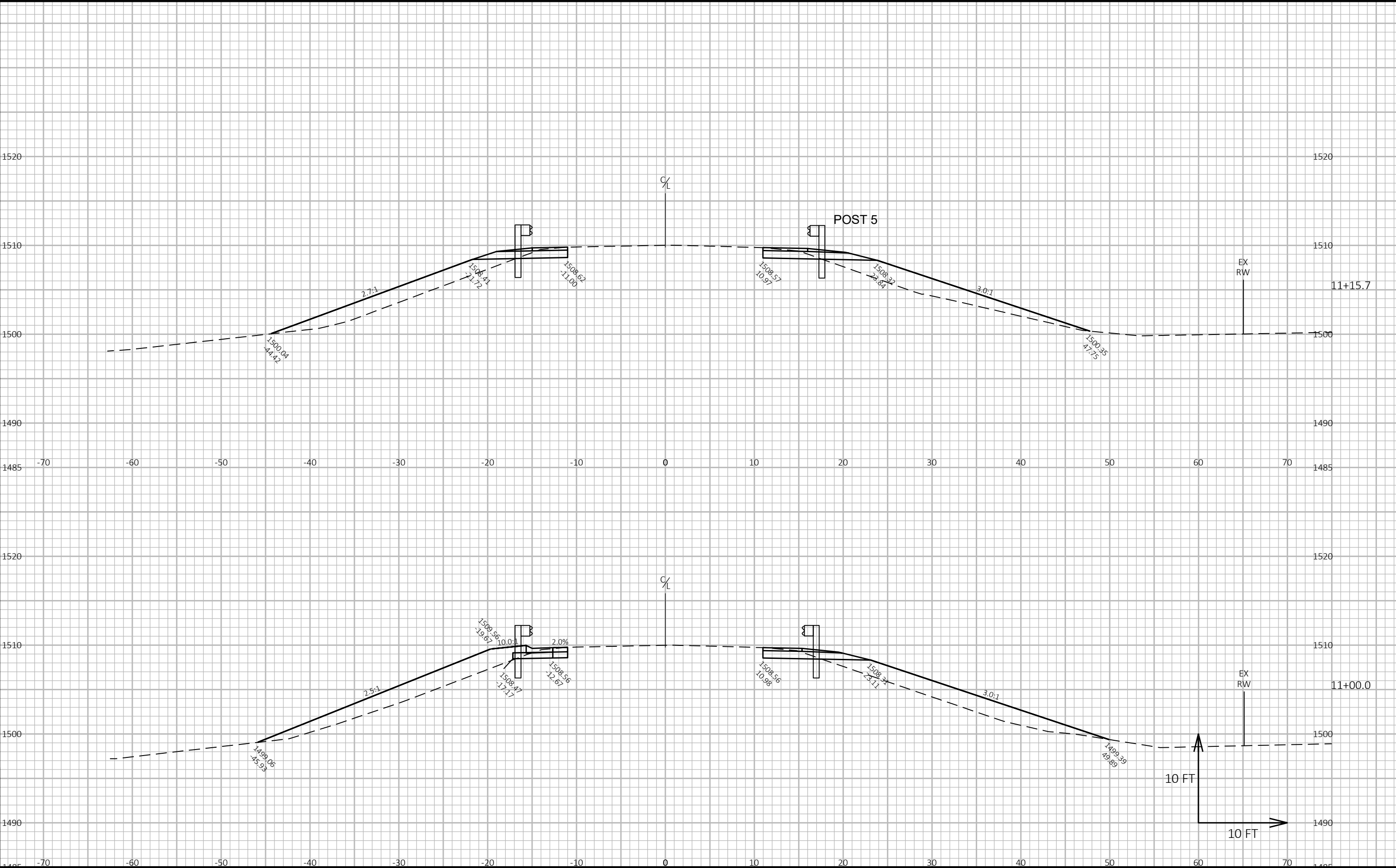


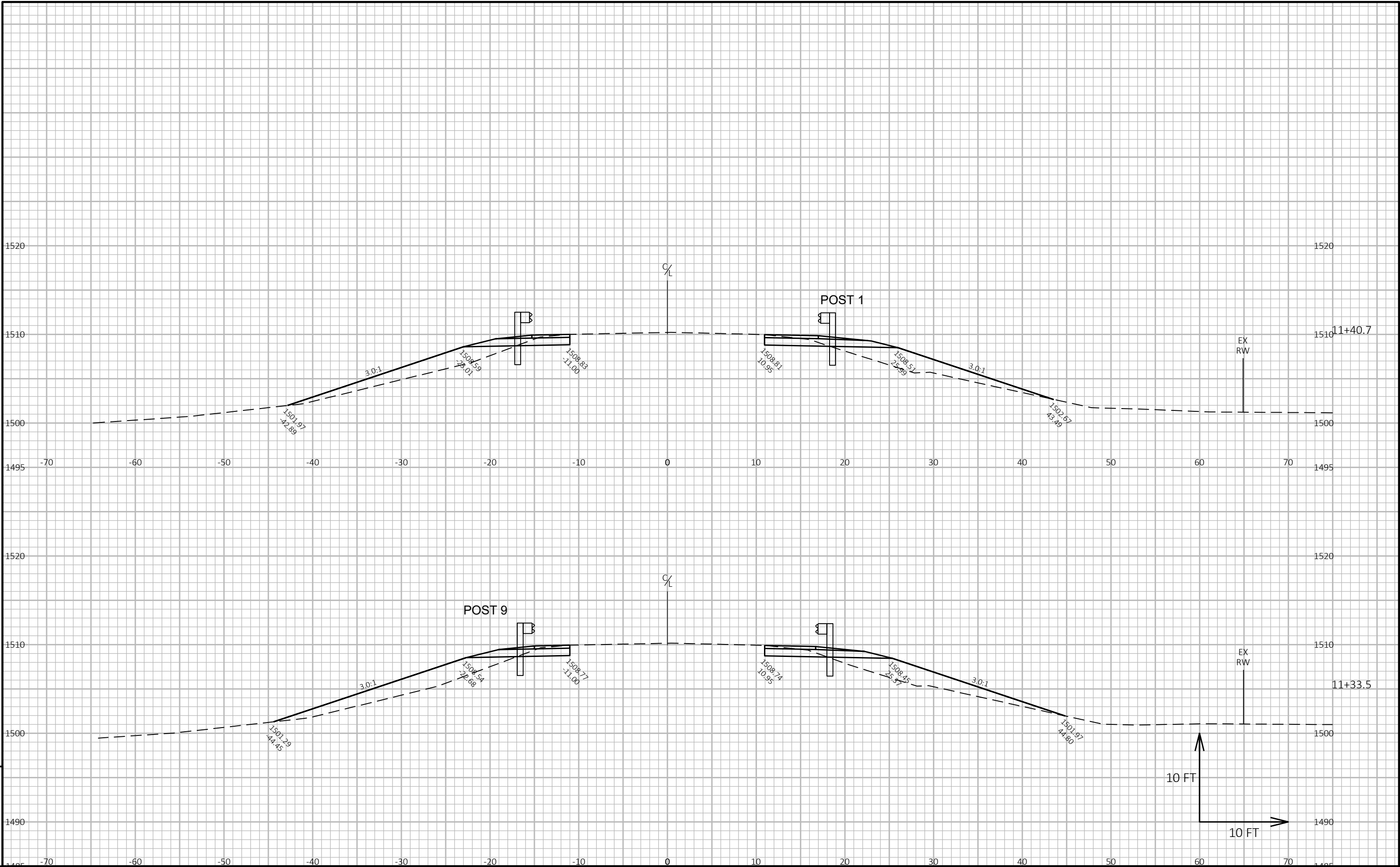


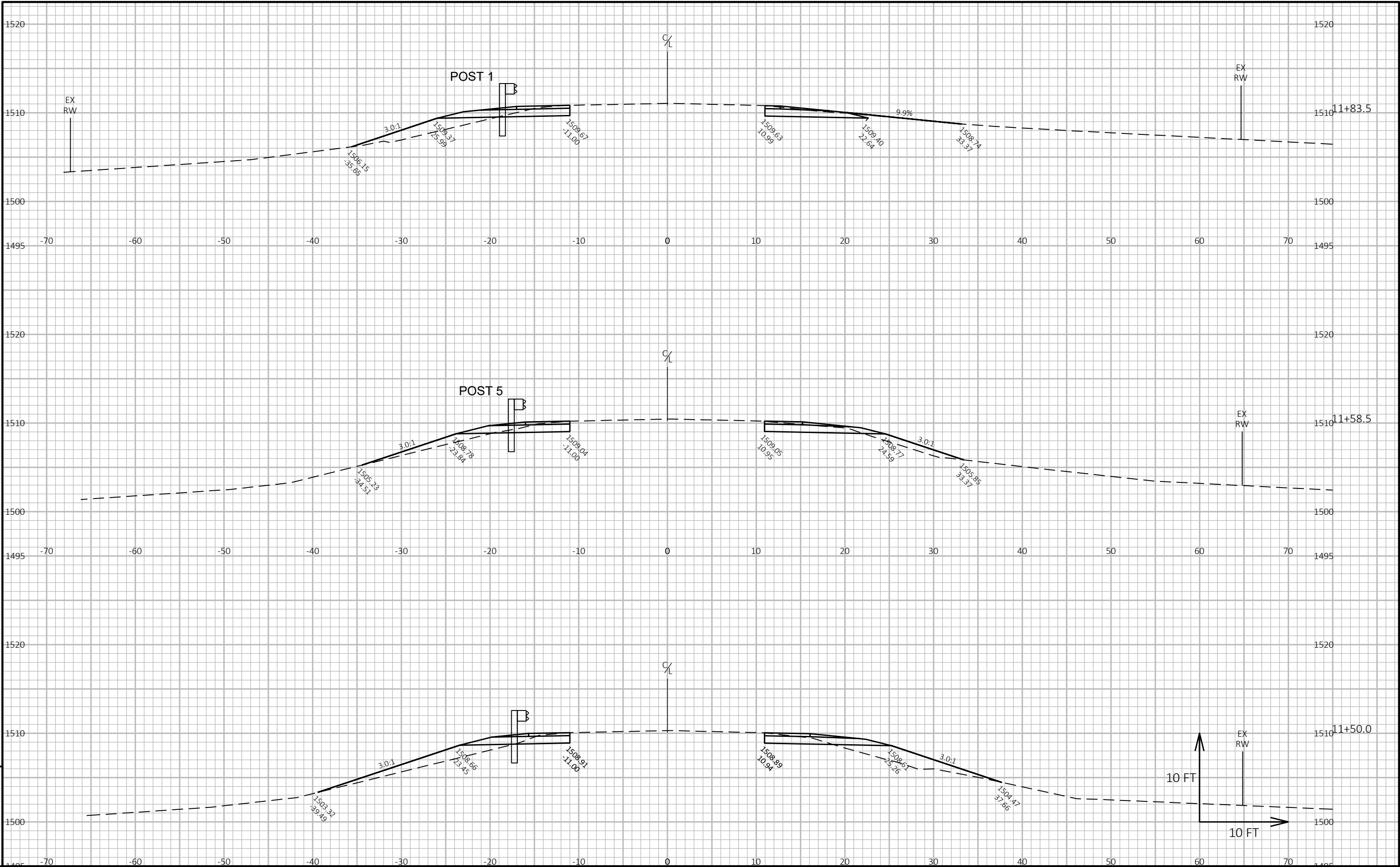


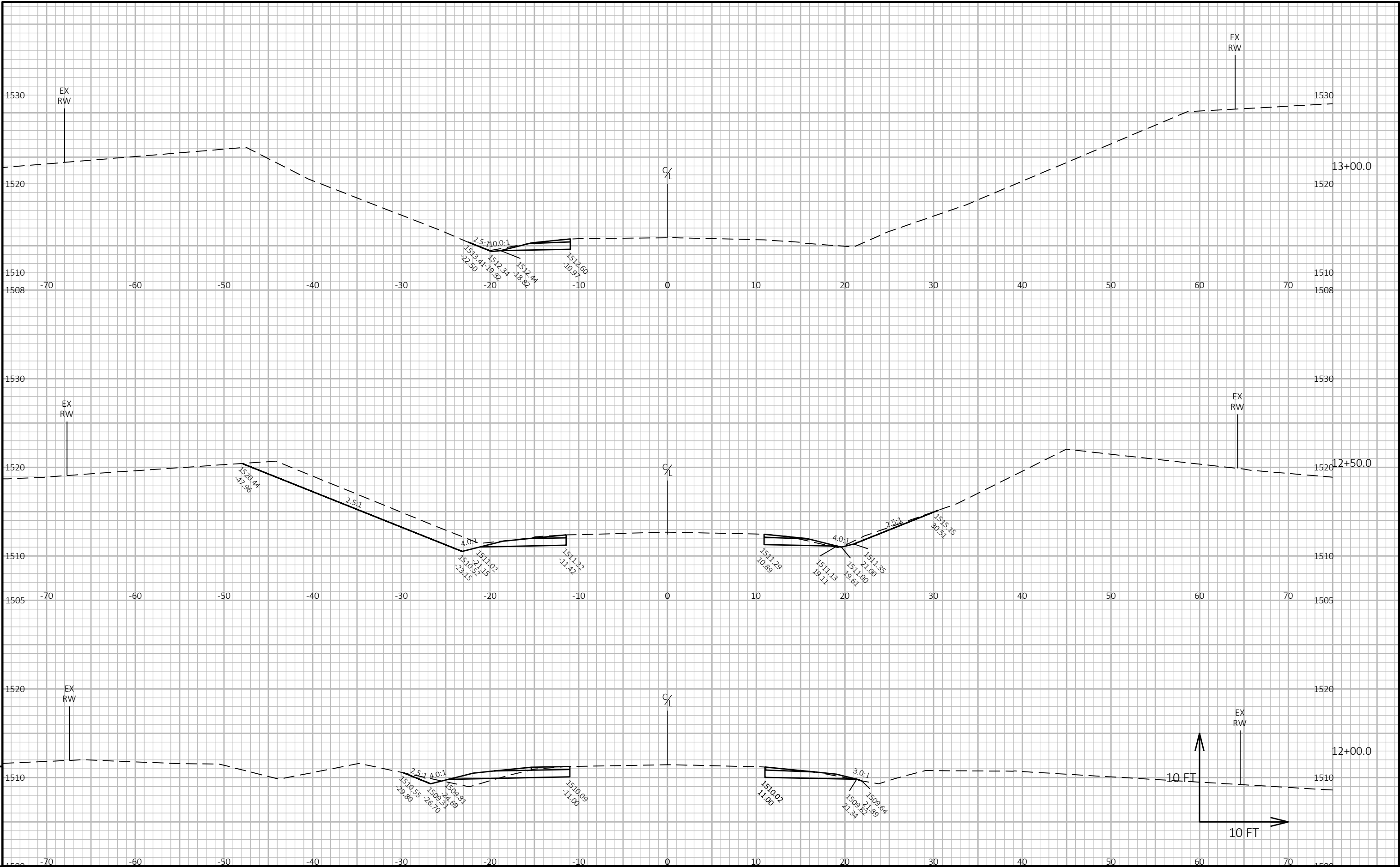


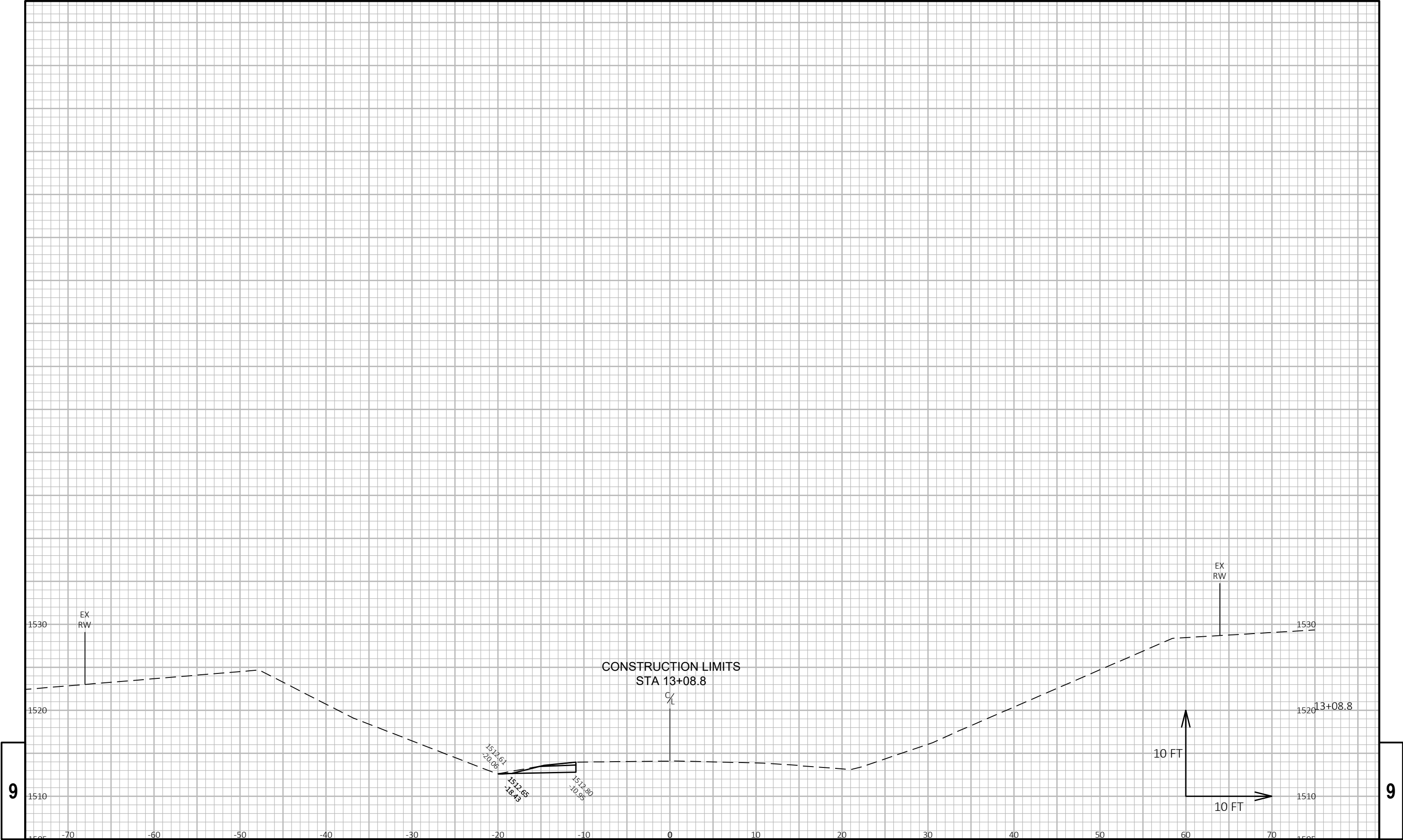
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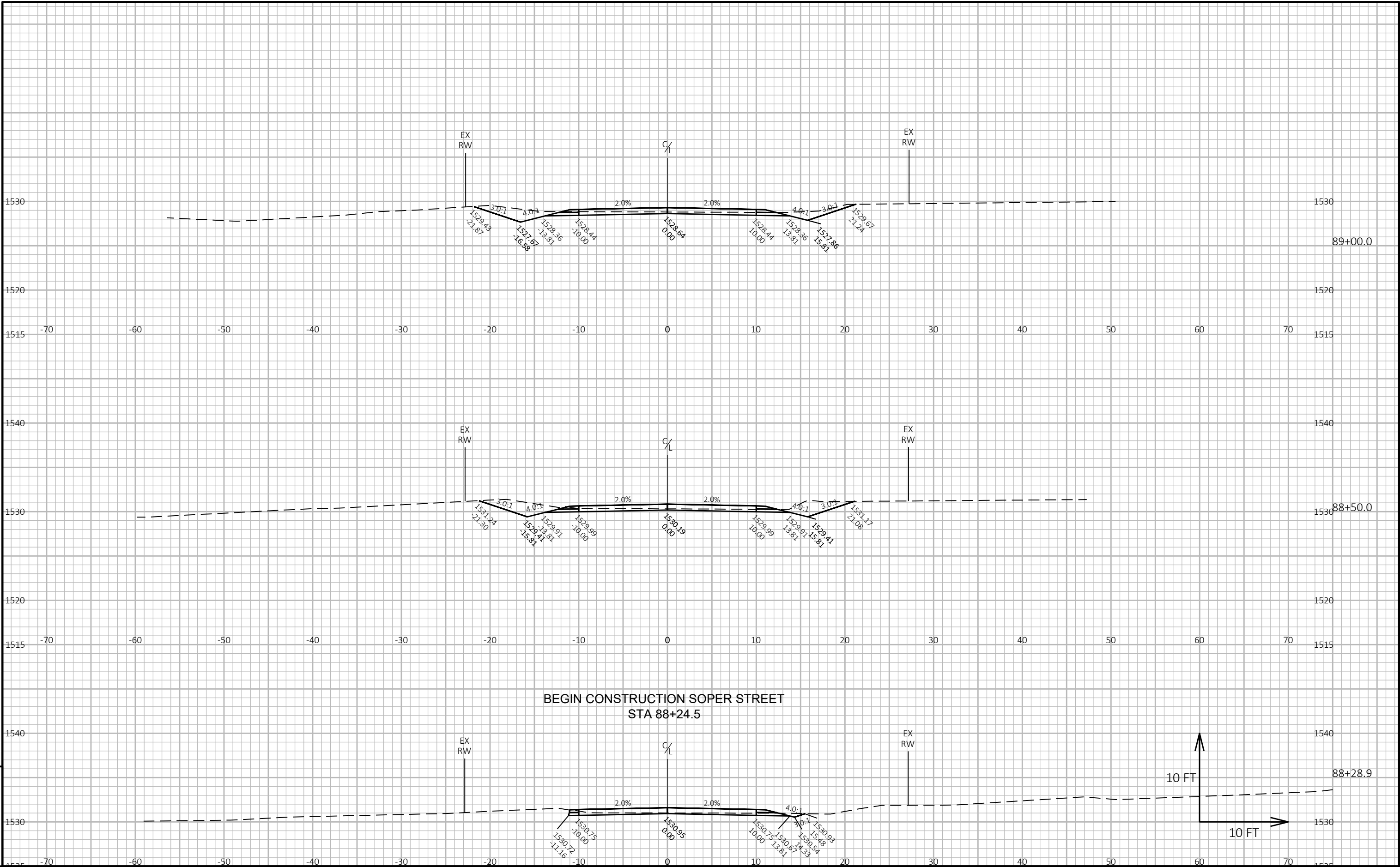












BEGIN CONSTRUCTION SOPER STREET
STA 88+24.5

PROJECT NO: 9330-01-70

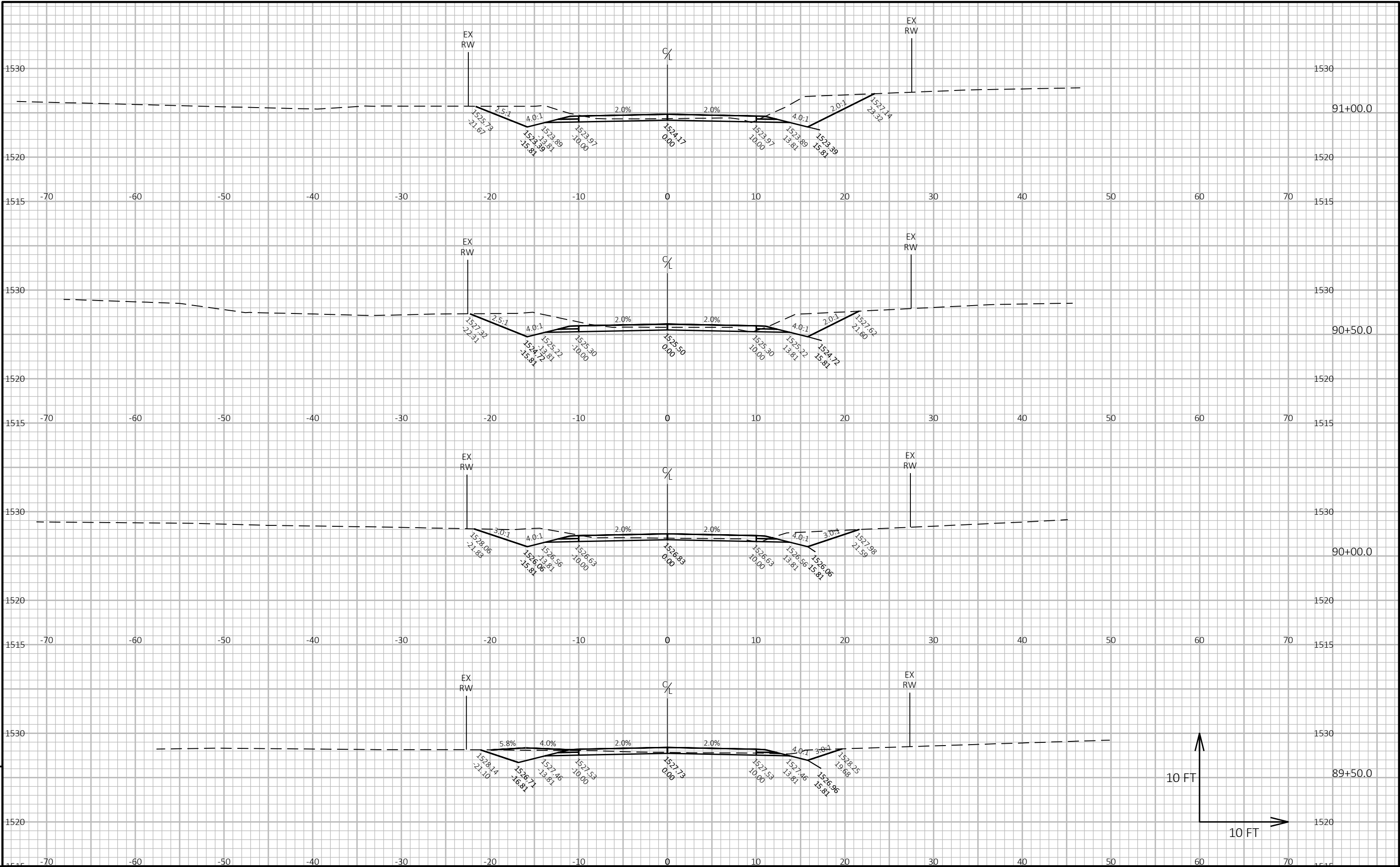
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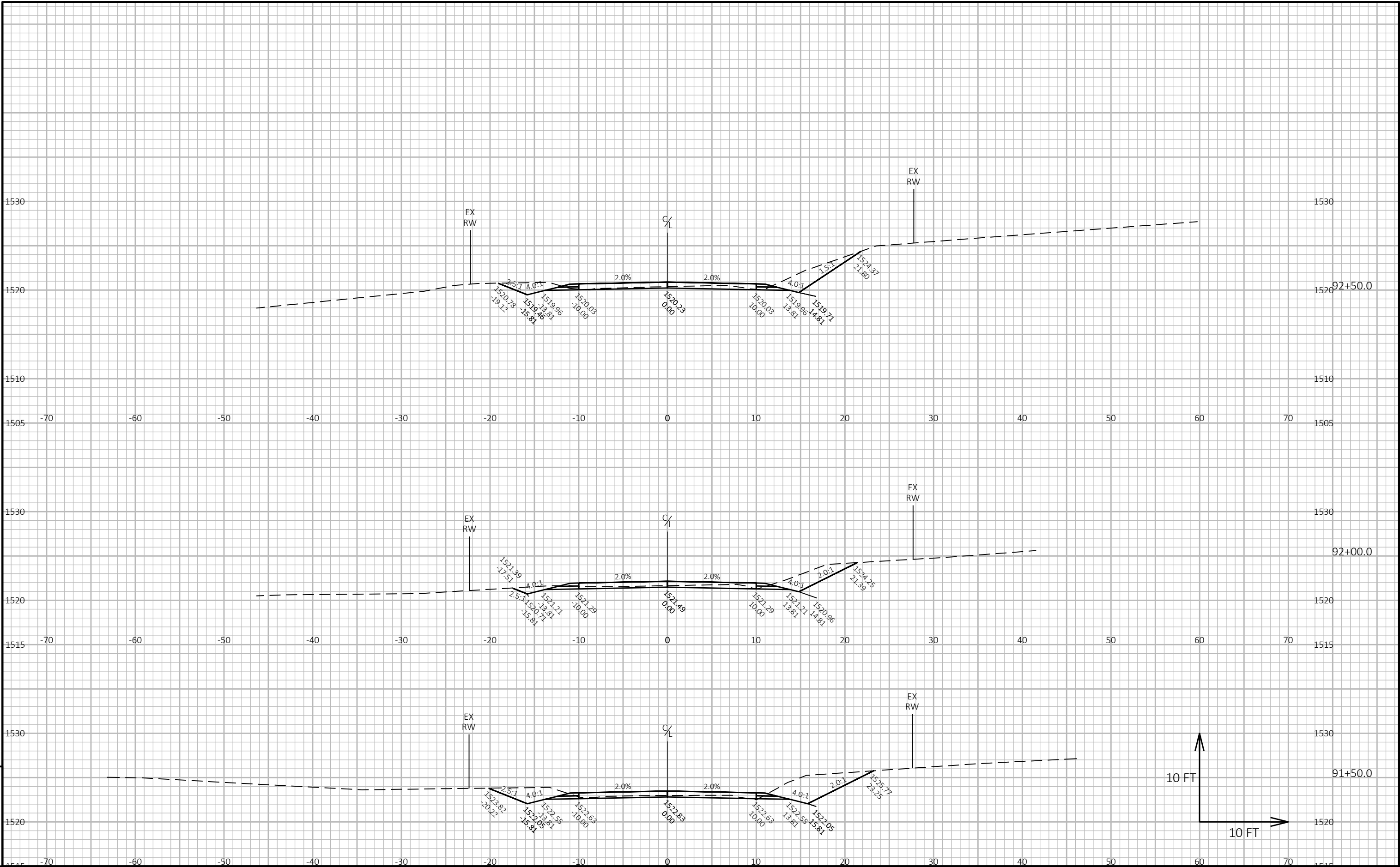
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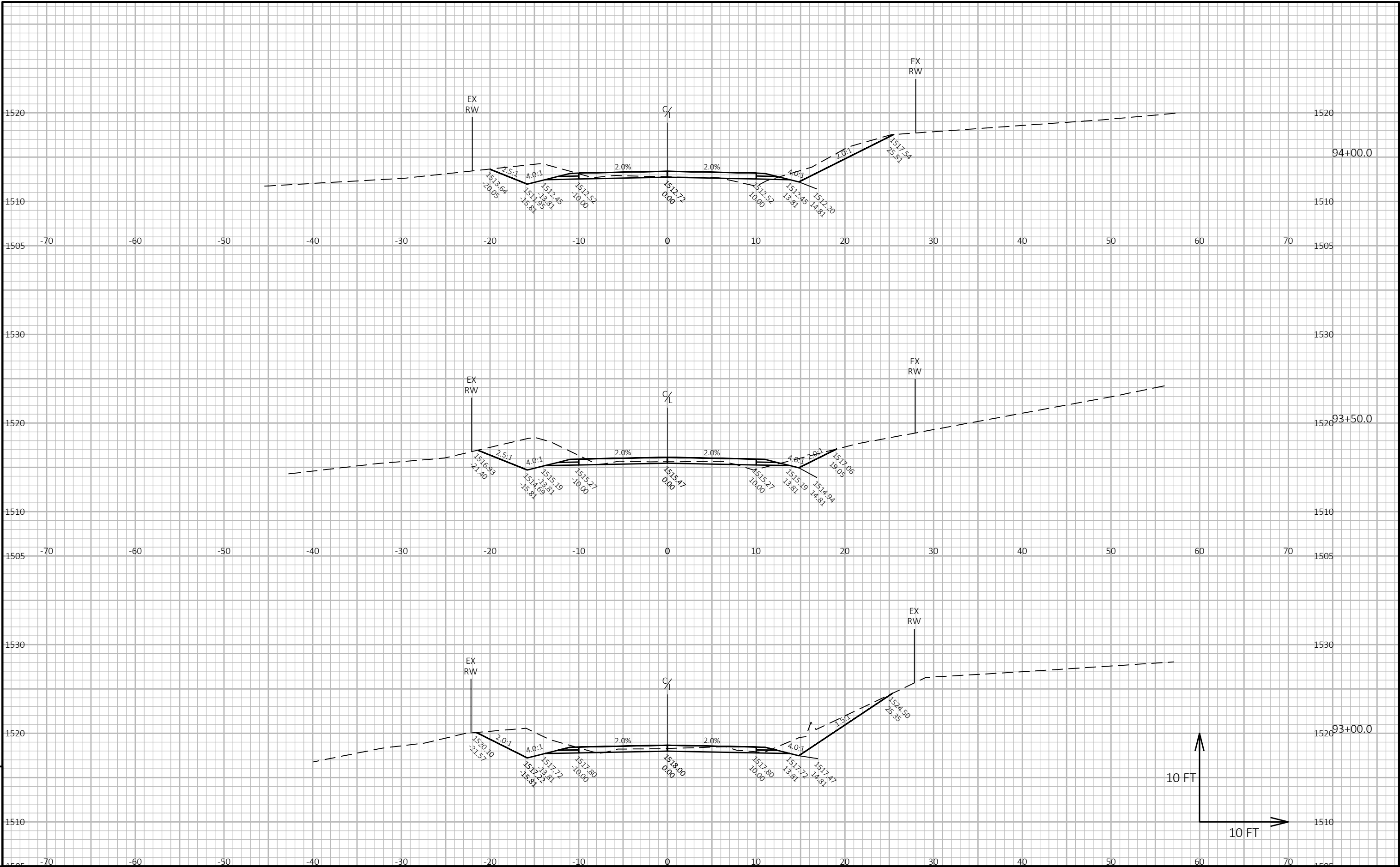
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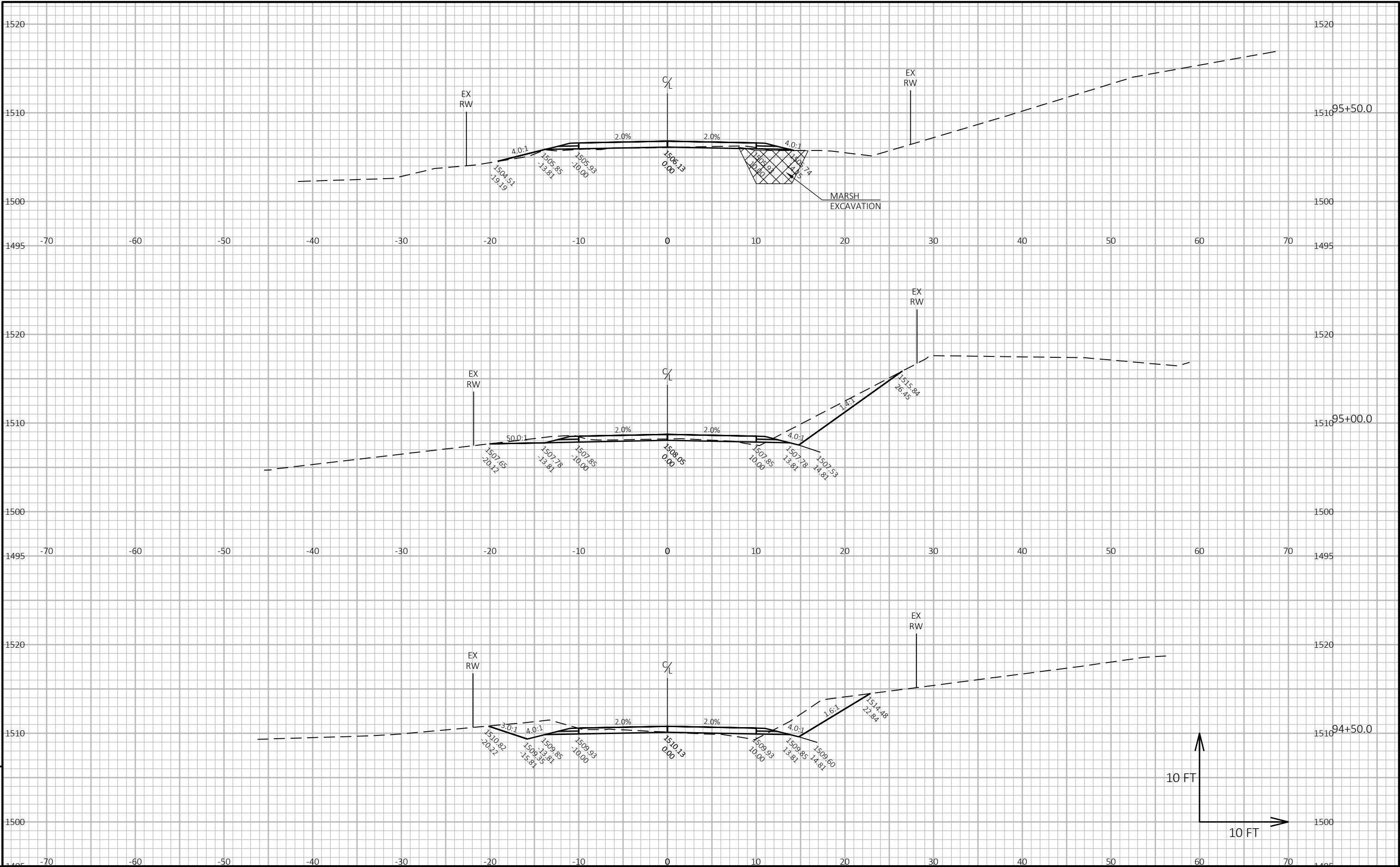
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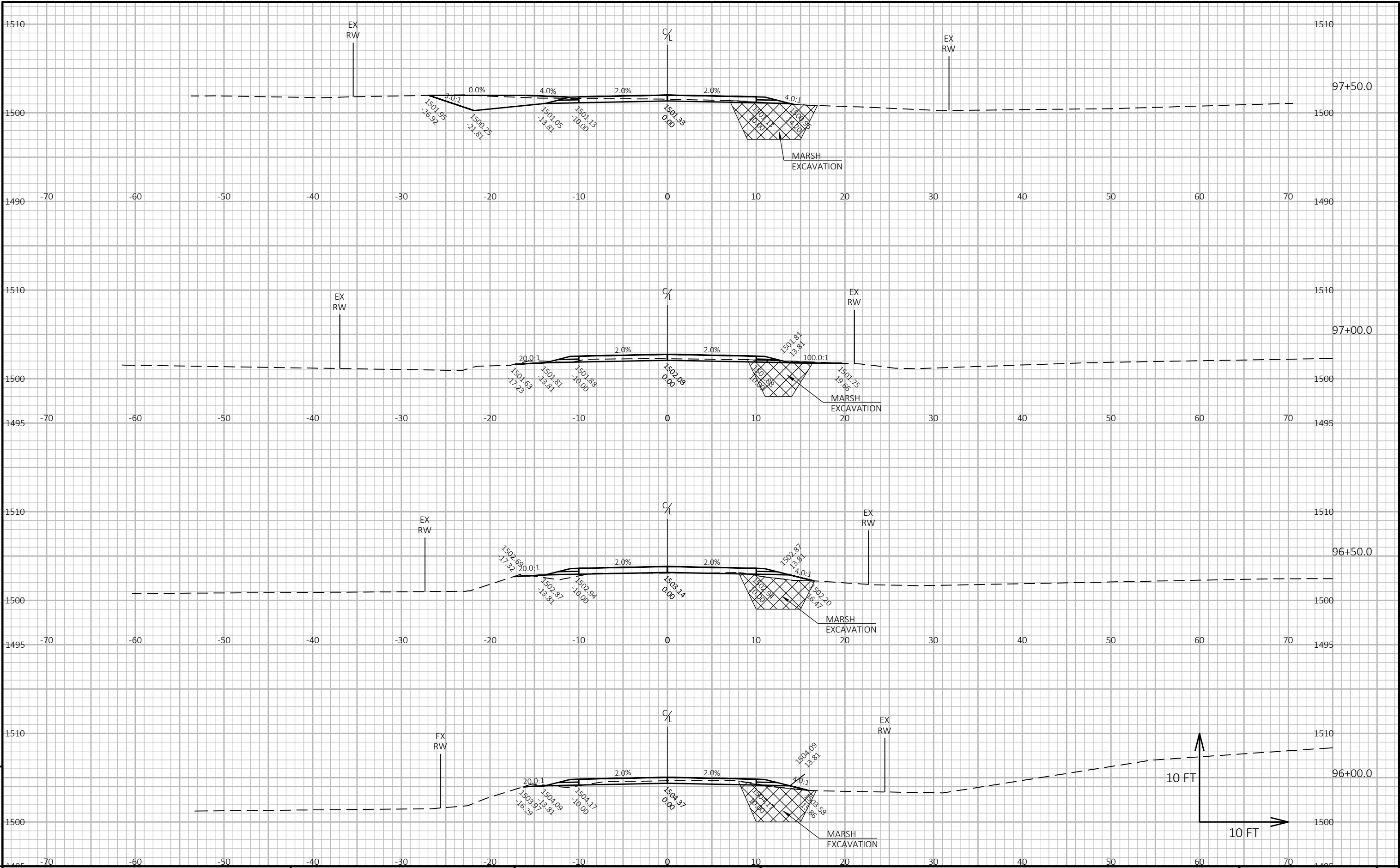
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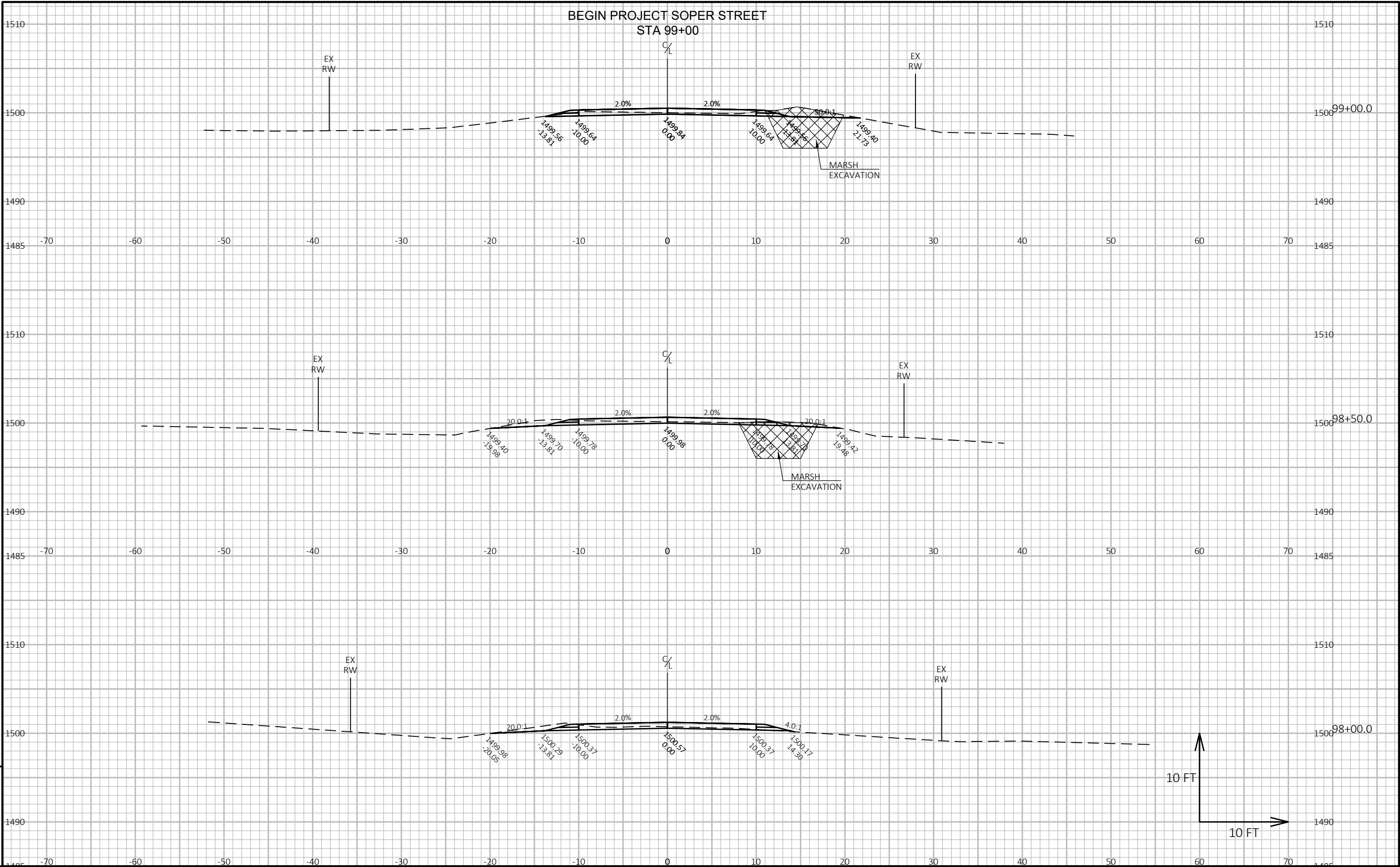


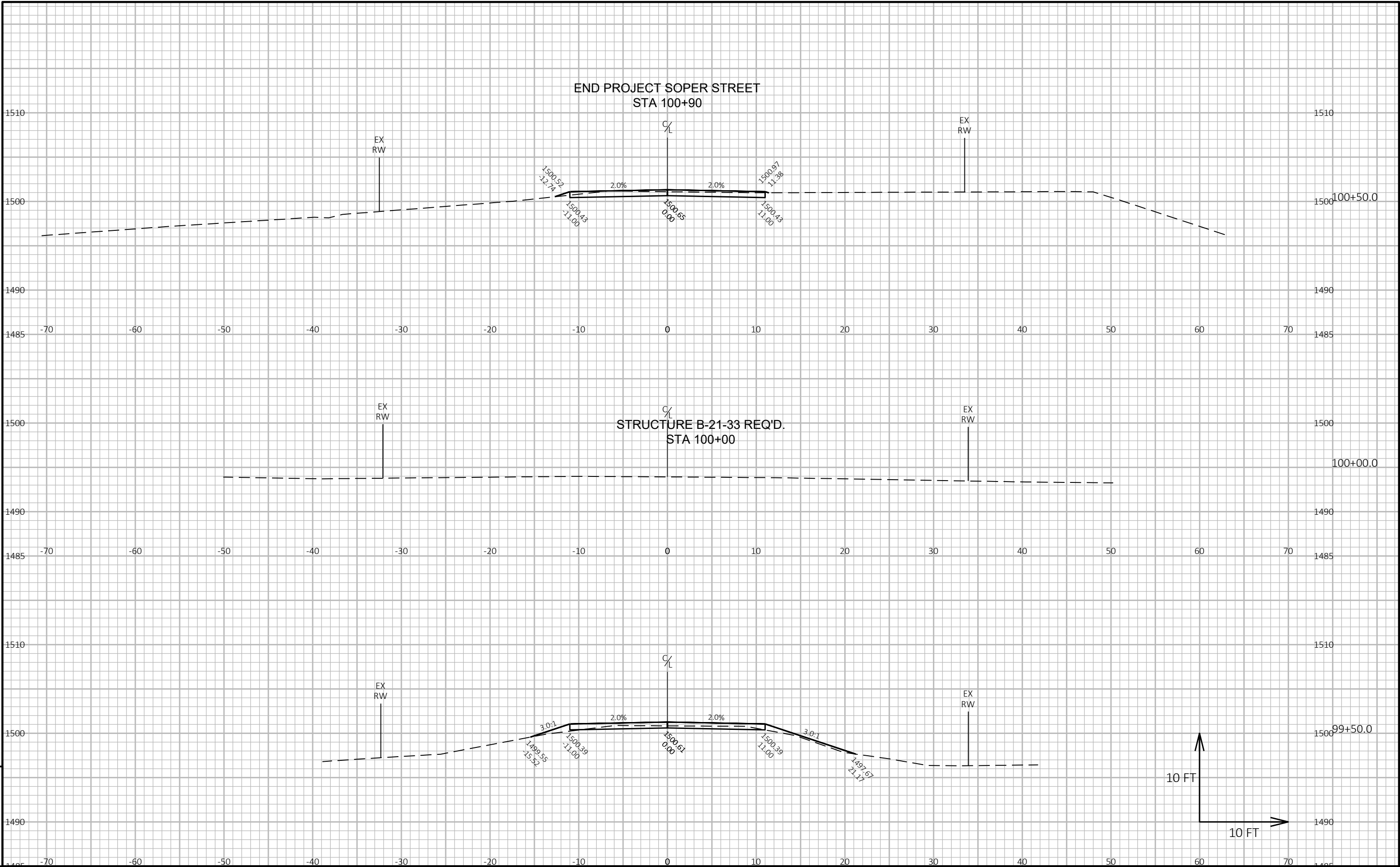








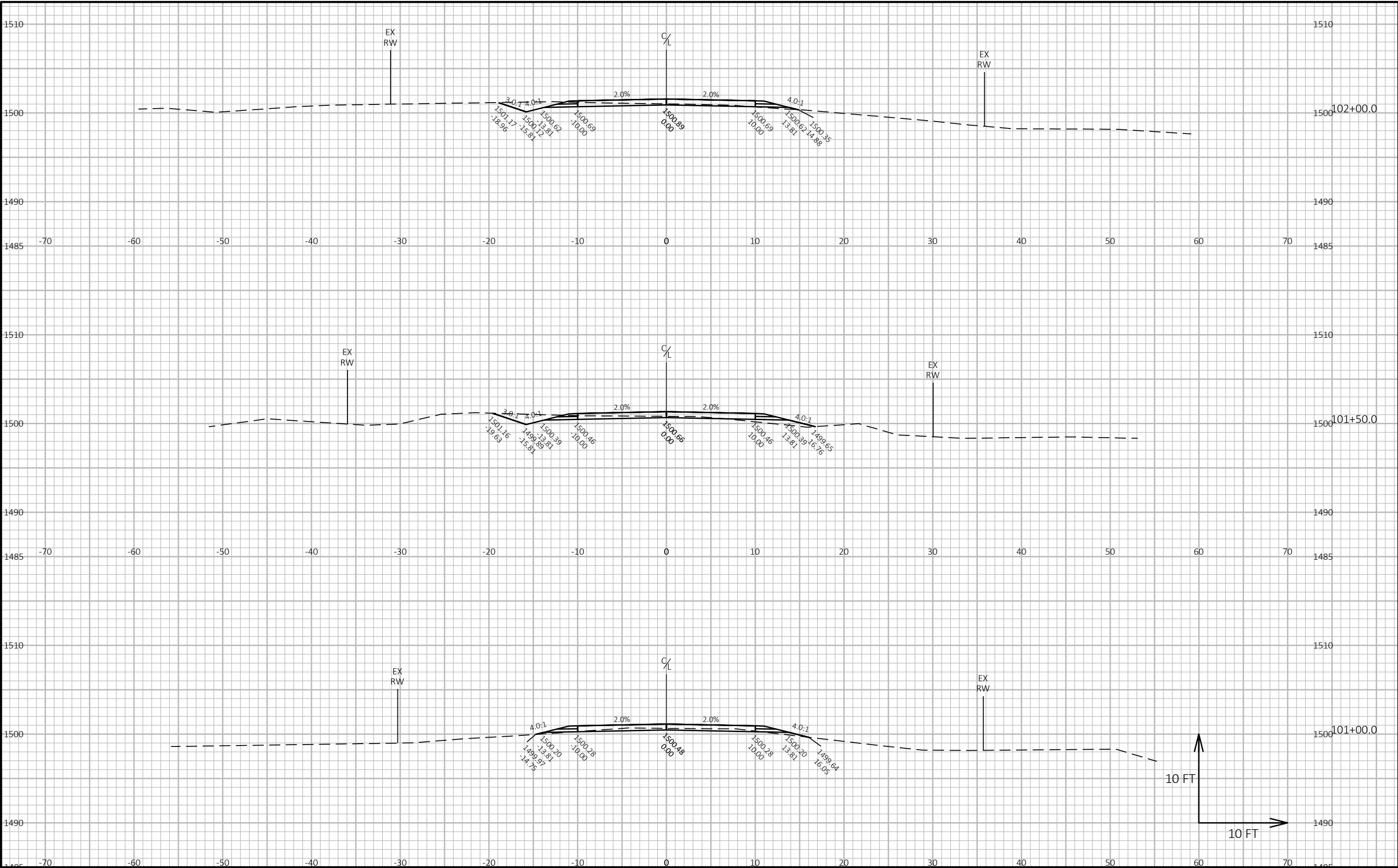


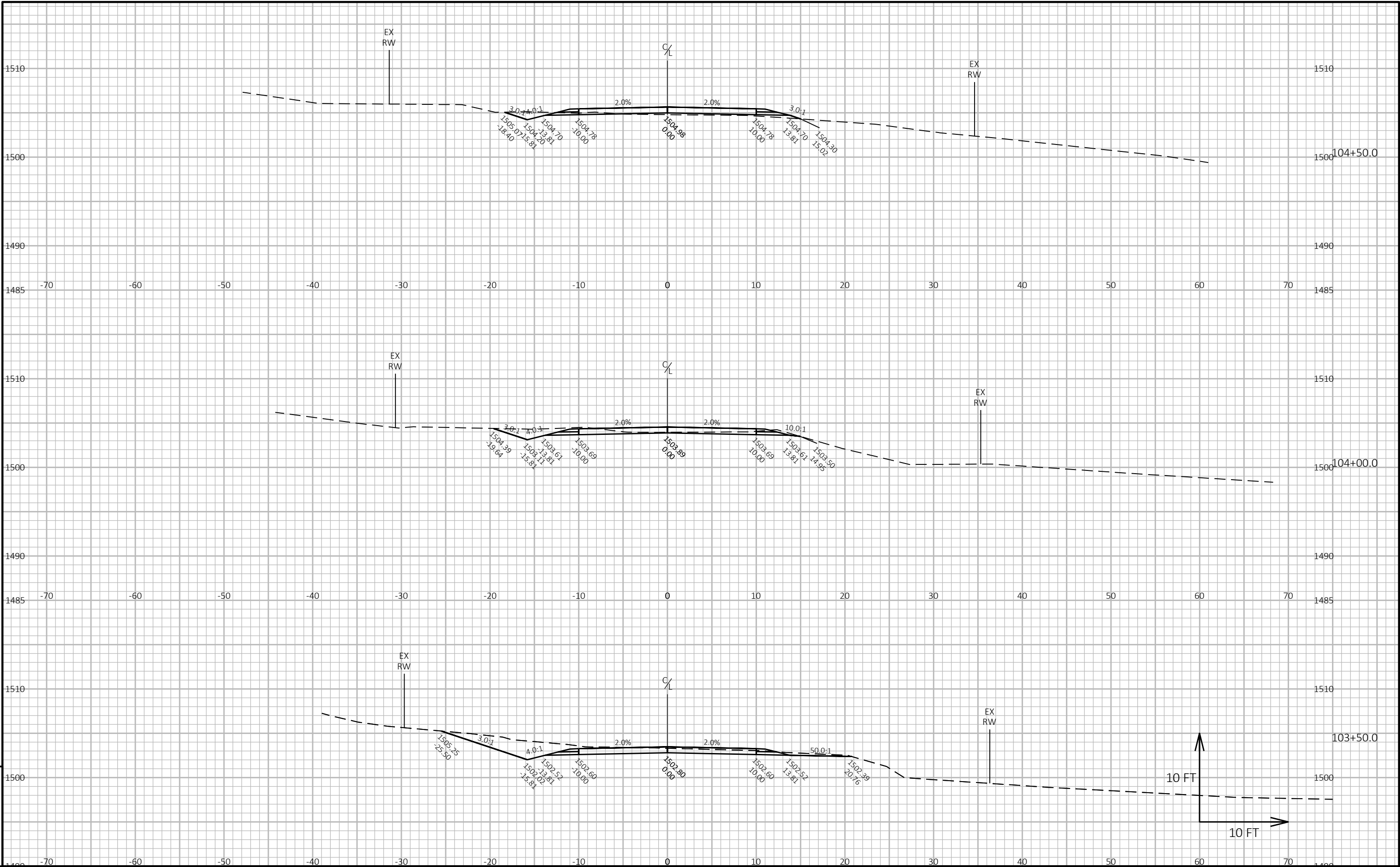


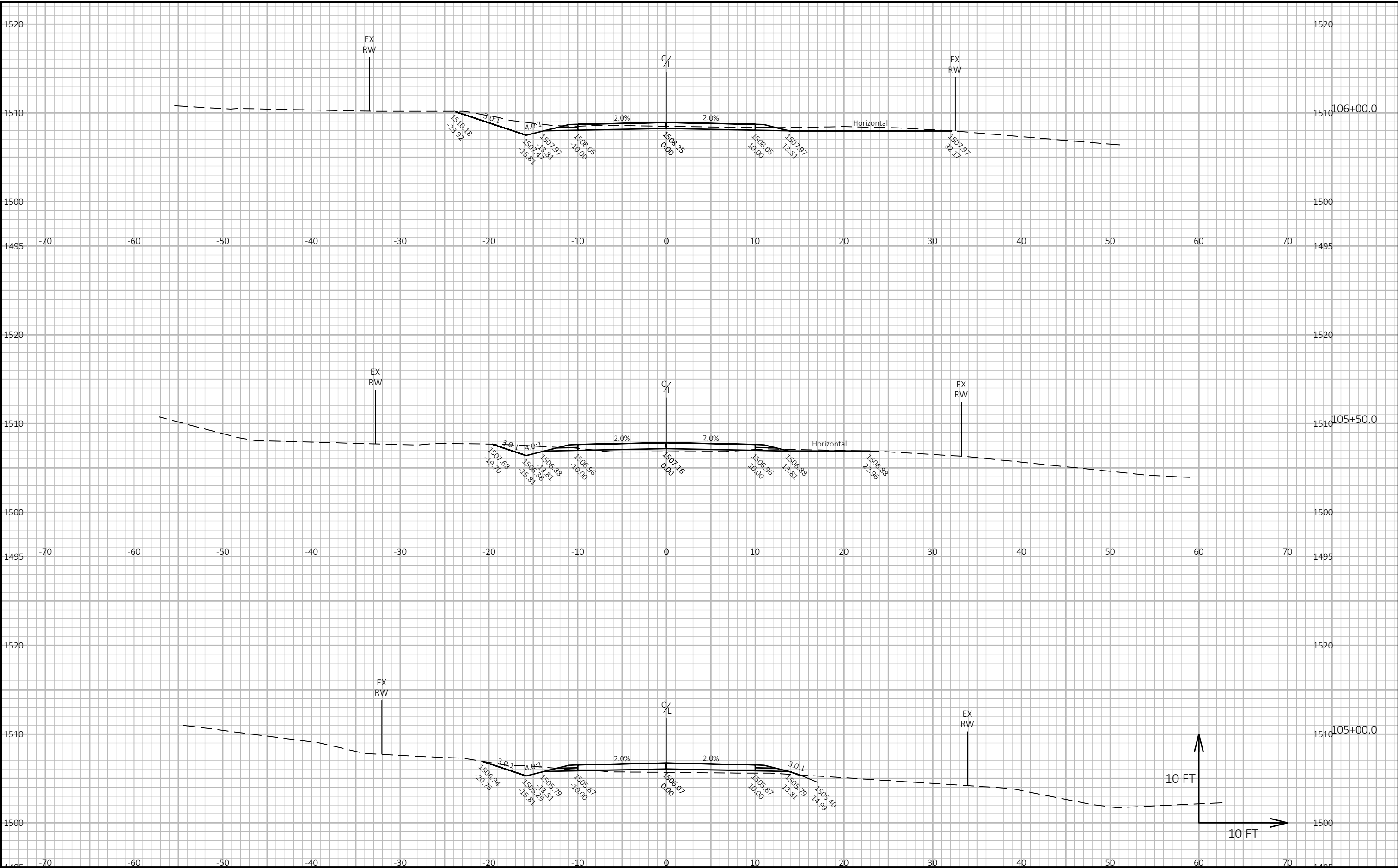
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PROJECT NO: 9330-01-70	HWY: CTH C	COUNTY: FOREST	CROSS SECTIONS: SOPER STREET	SHEET	E
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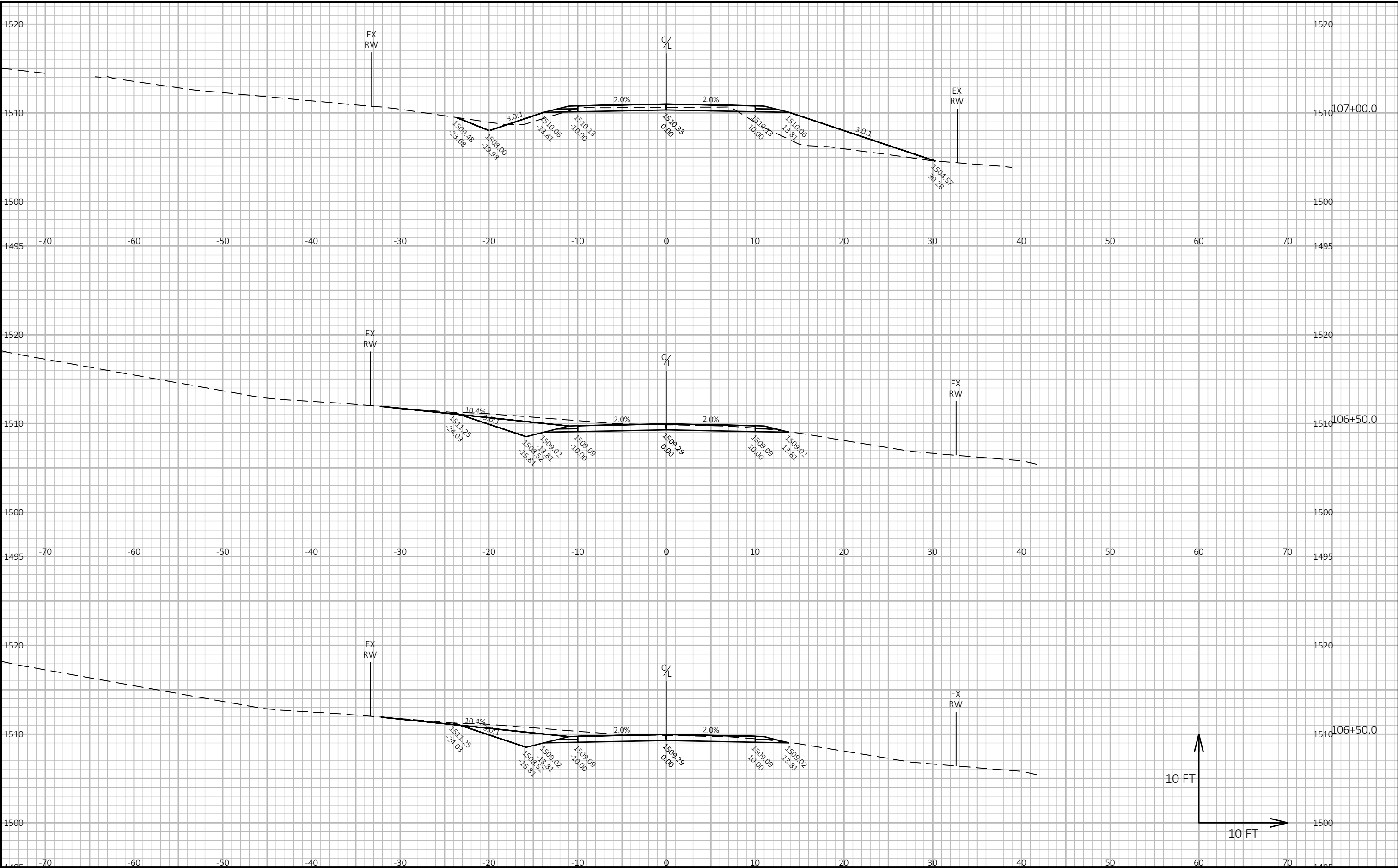




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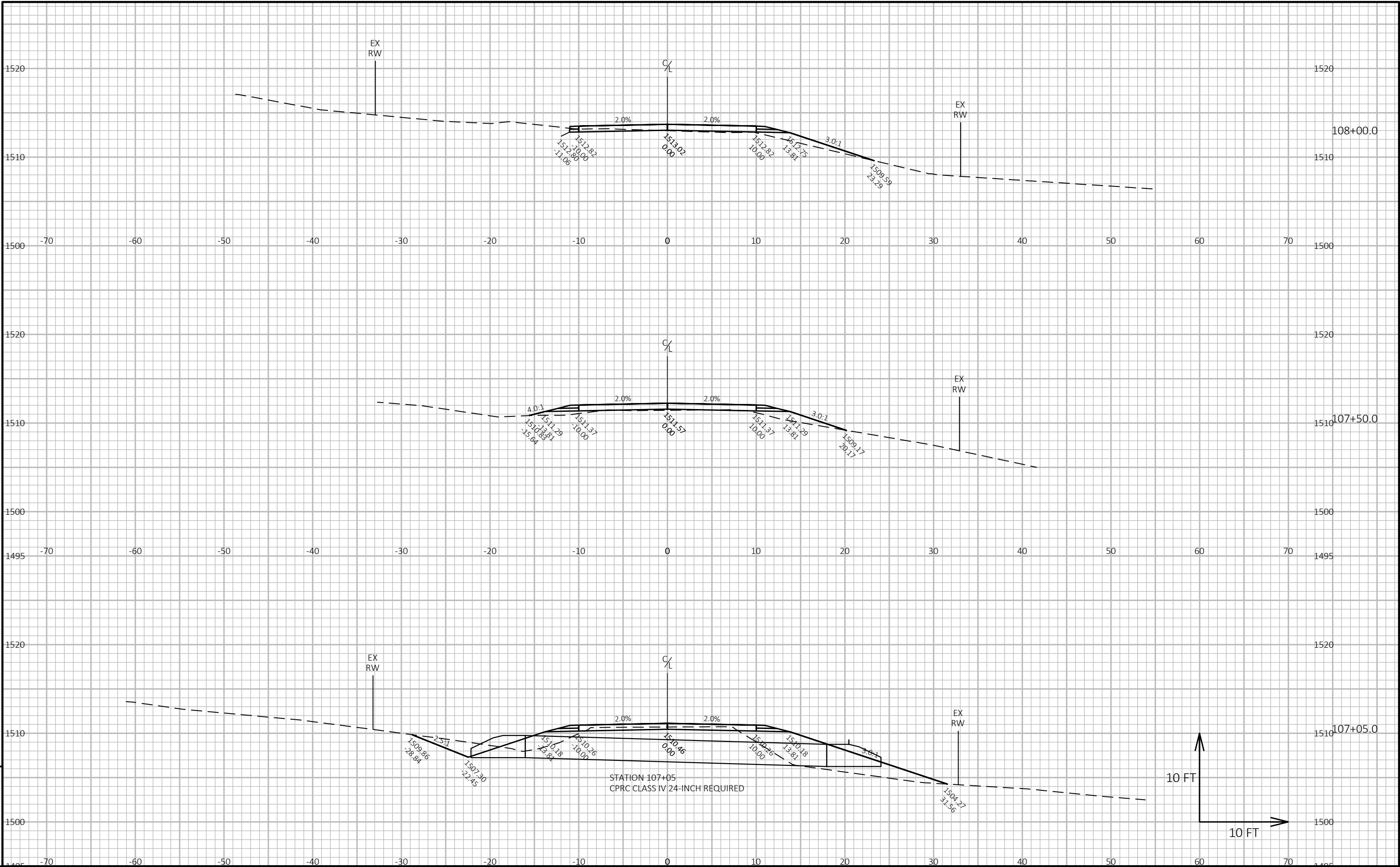
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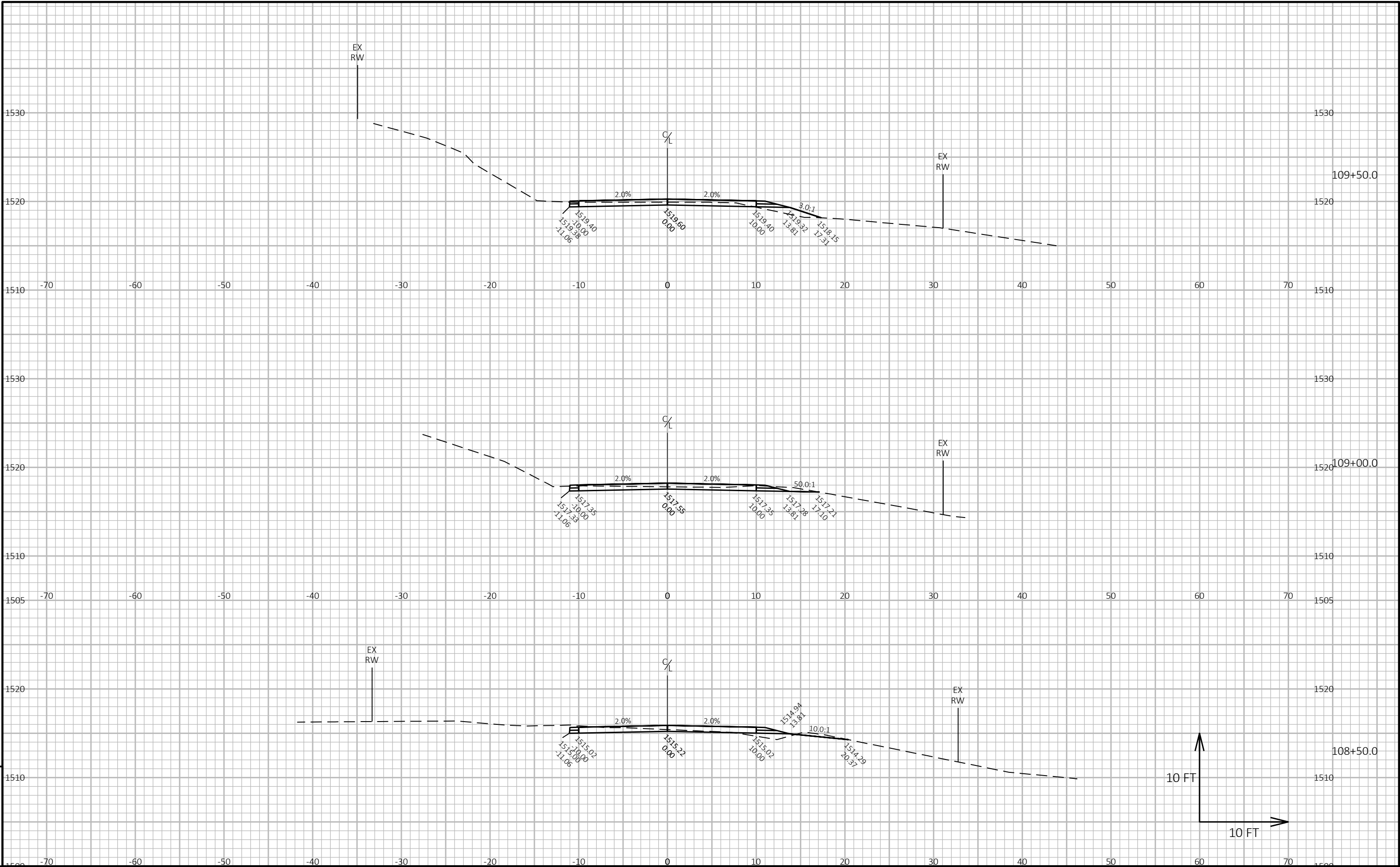


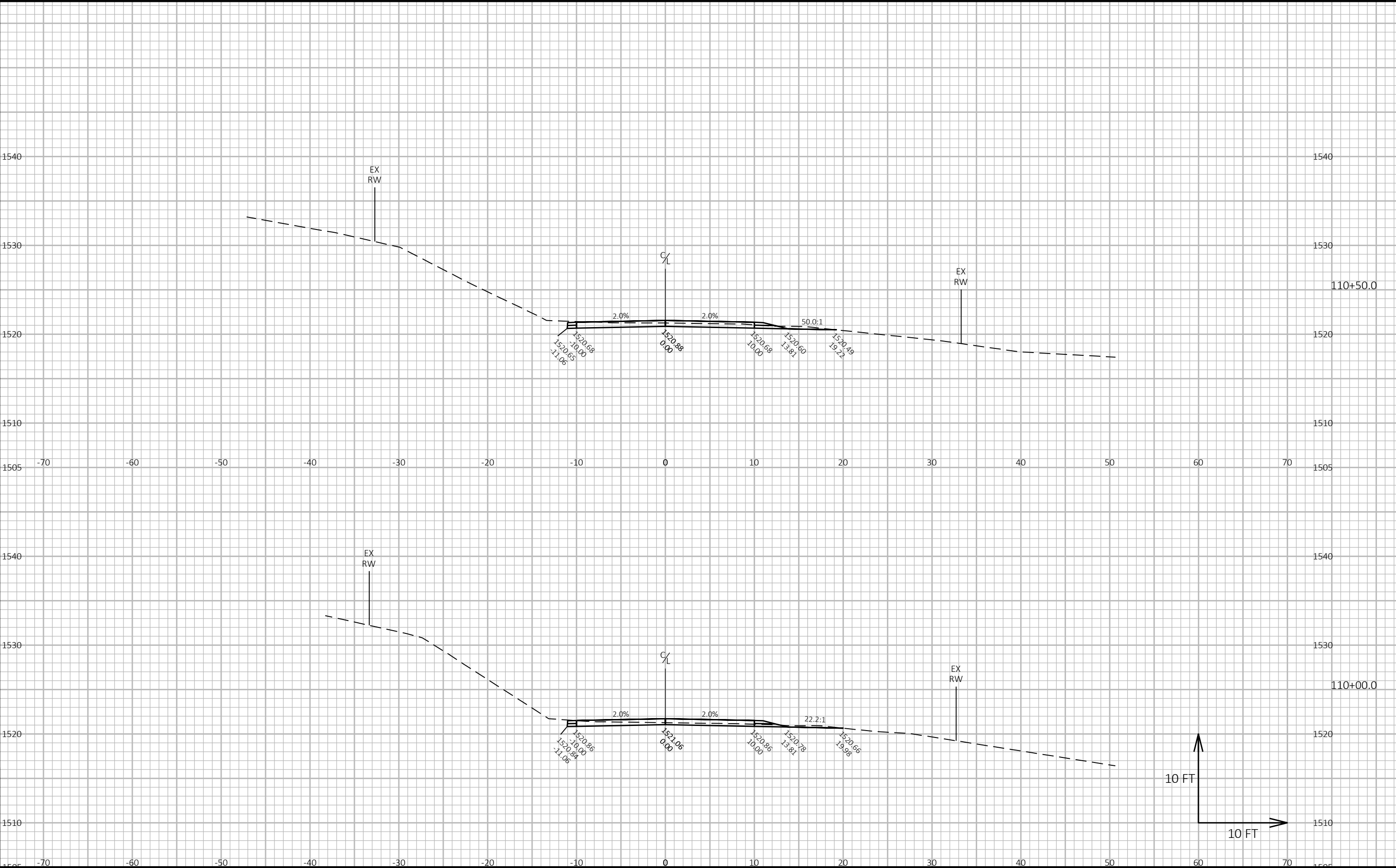
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PROJECT NO: 9330-01-70	HWY: CTH C	COUNTY: FOREST	CROSS SECTIONS: SOPER STREET	SHEET E
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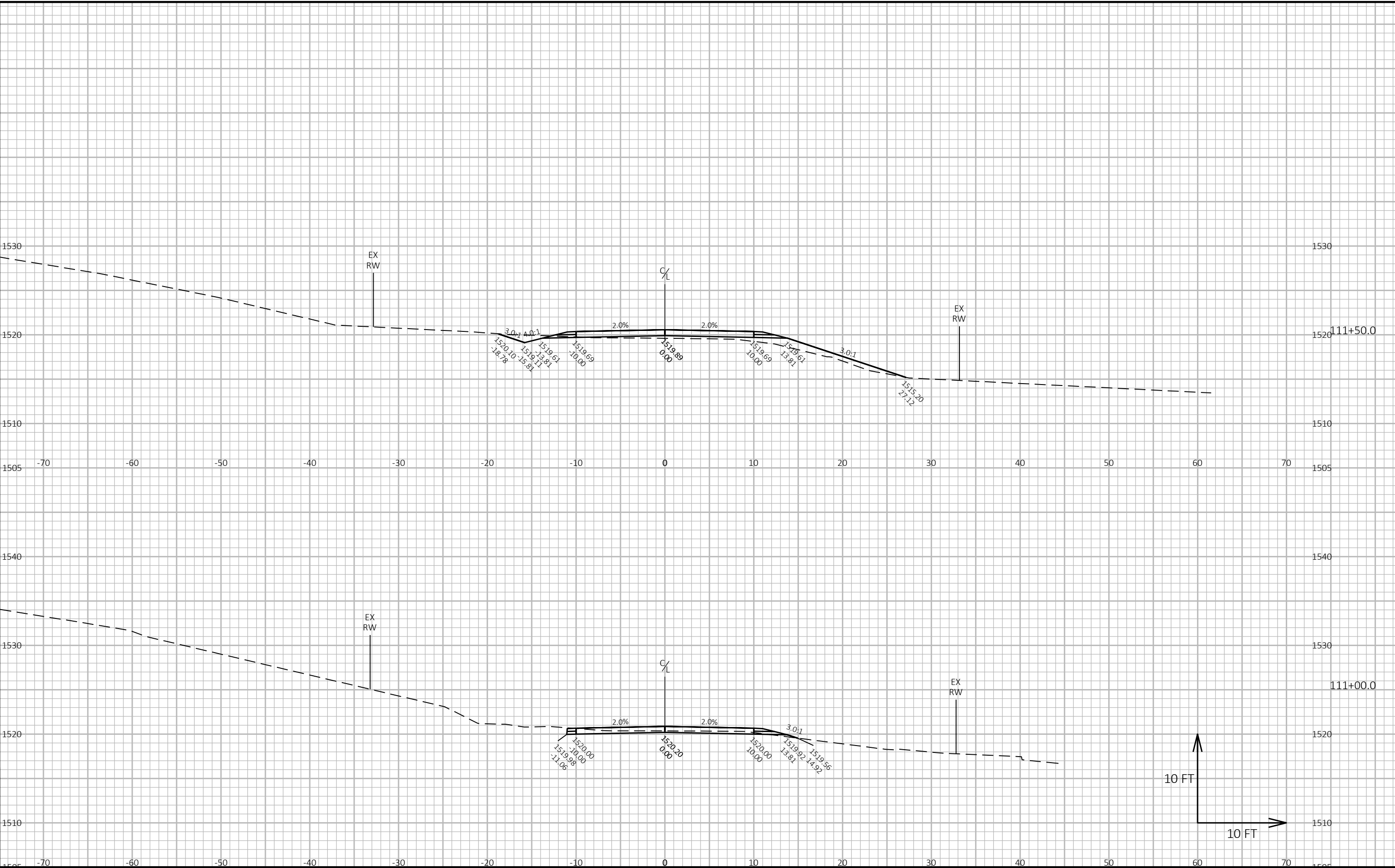


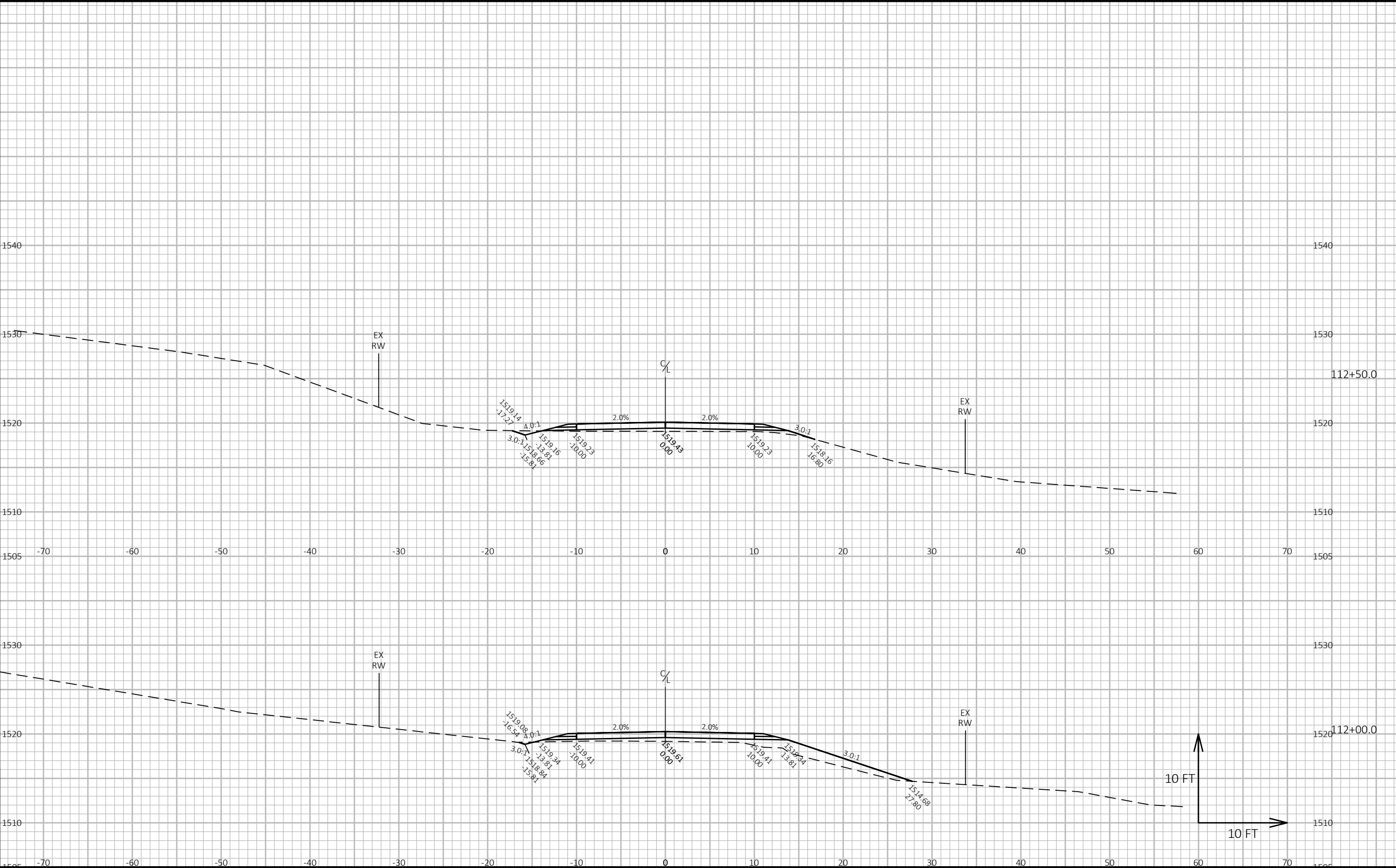


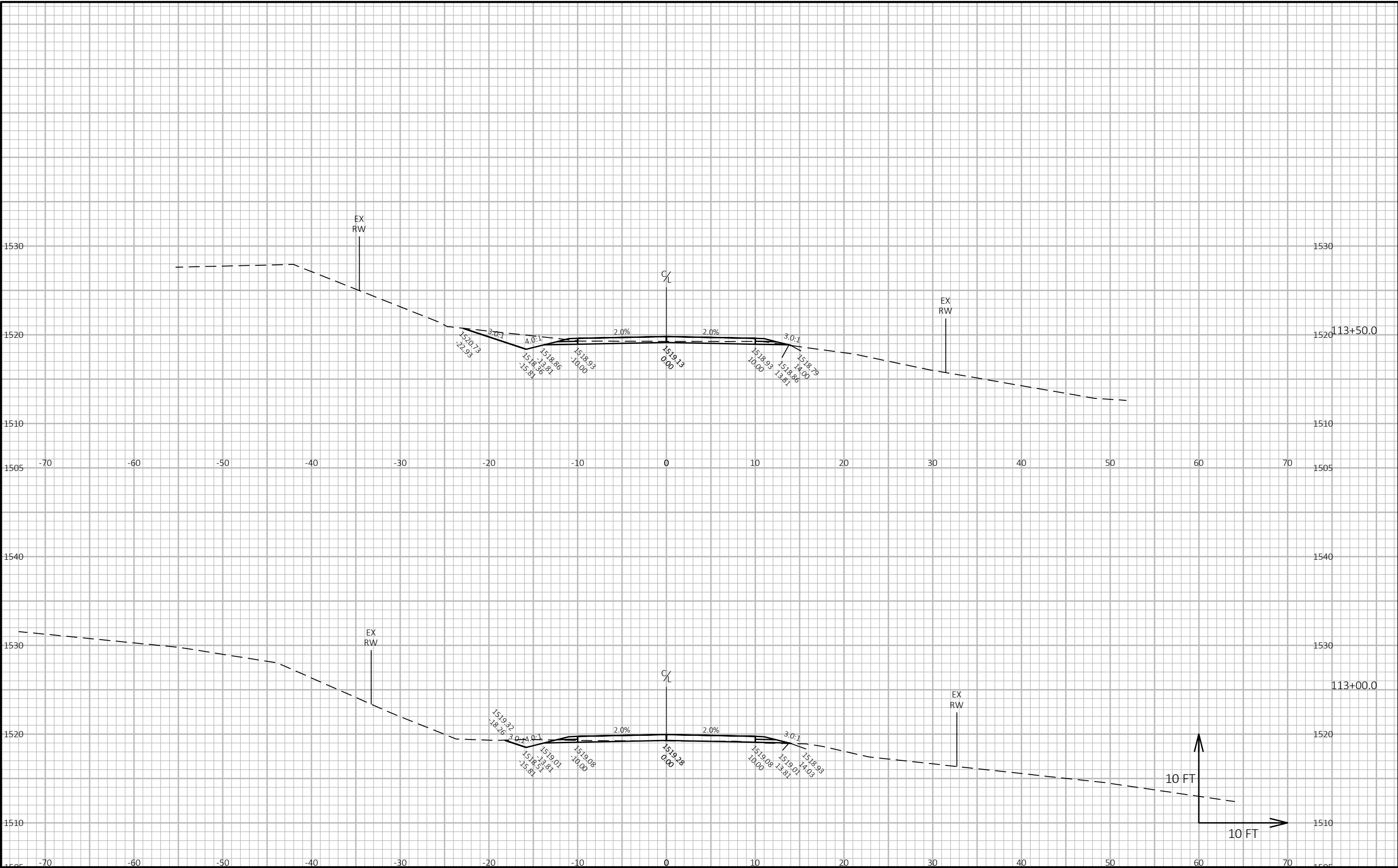


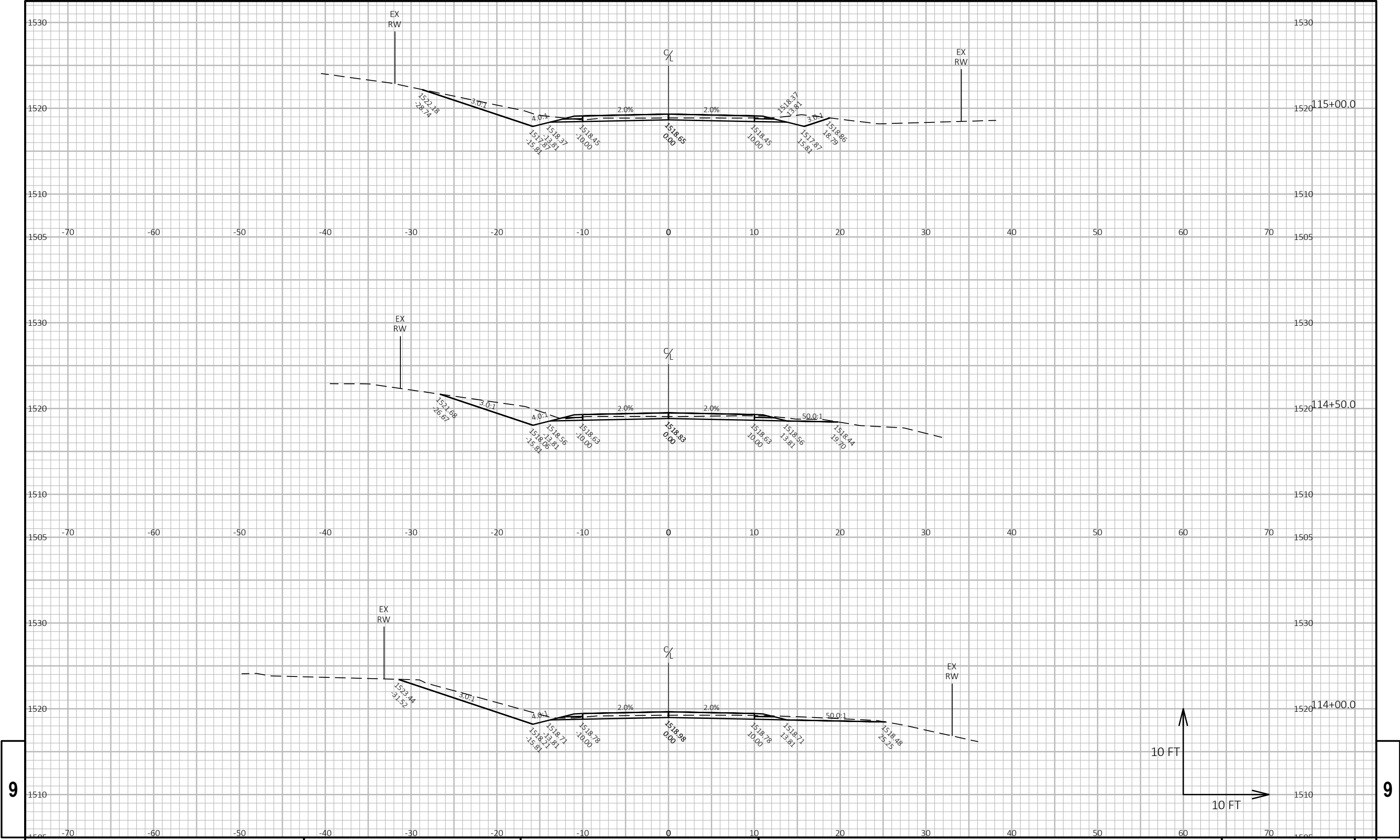
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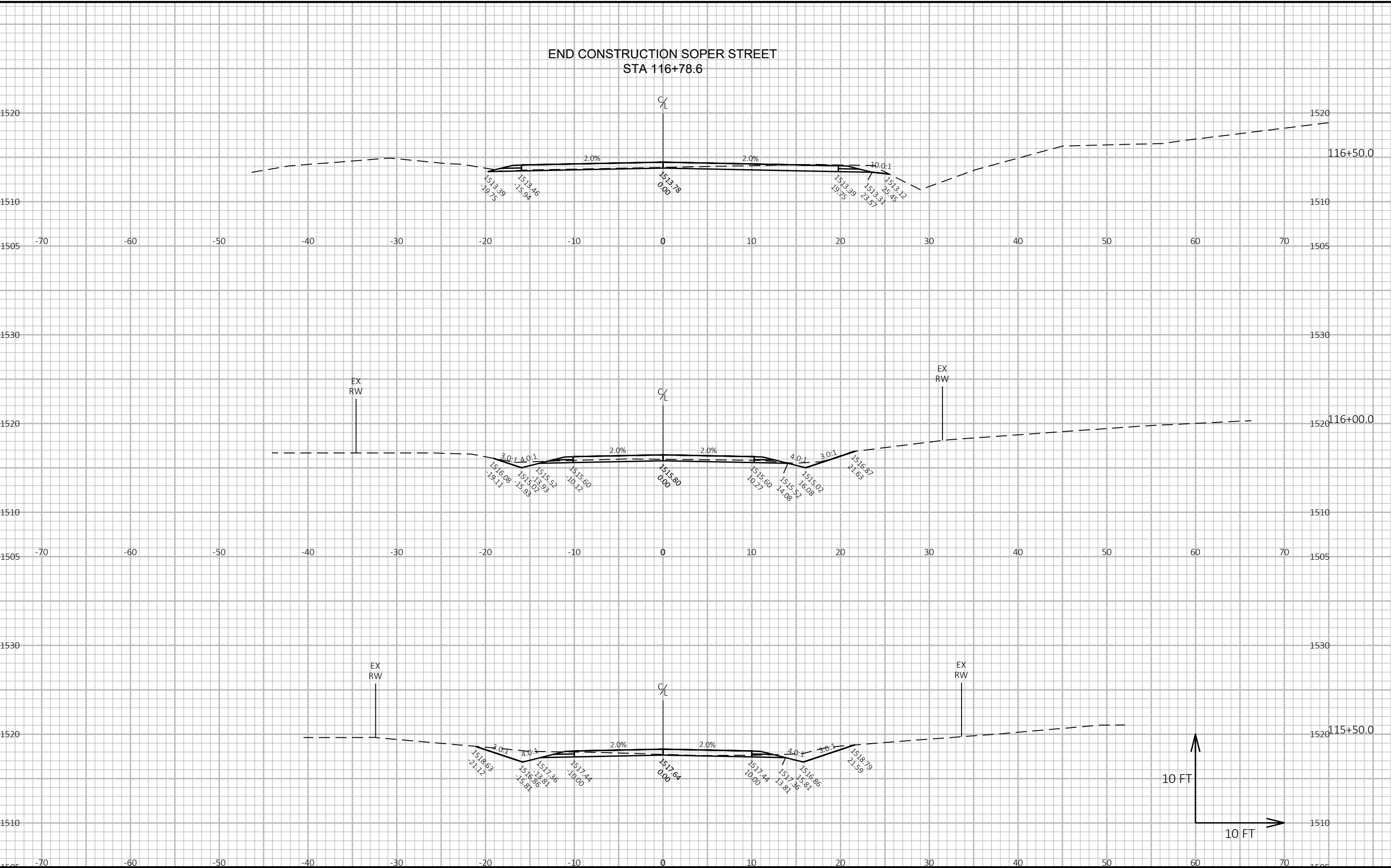






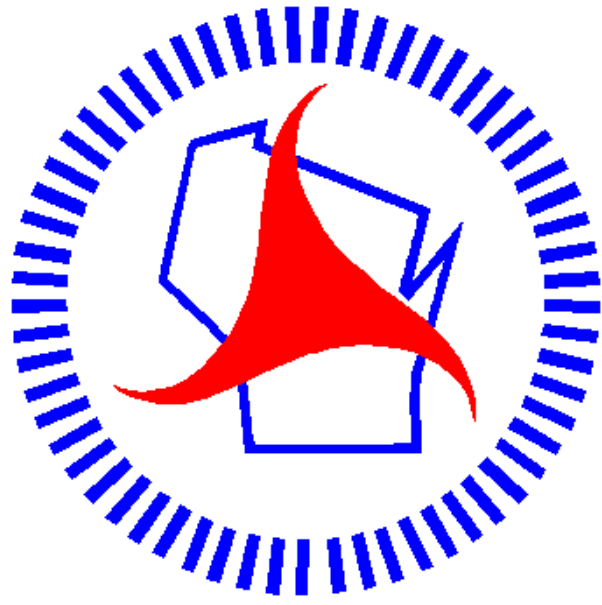
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