

RHI
PROJECT ID: 9480-00-70
WITH: NA
COUNTY: PRICE

FEBRUARY 2018
ORDER OF SHEETS

Section No. 1	Title
Section No. 2	Typical Sections and Details (Includes erosion control plan)
Section No. 3	Estimate of Quantities
Section No. 3	Miscellaneous Quantities
Section No. 4	Right of Way Plat
Section No. 5	Plan and Profile
Section No. 6	Standard Detail Drawings
Section No. 7	Sign Plates
Section No. 8	Structure Plans
Section No. 9	Computer Earthwork Data
Section No. 9	Cross Sections
TOTAL SHEETS = 98	

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
PLAN OF PROPOSED IMPROVEMENT

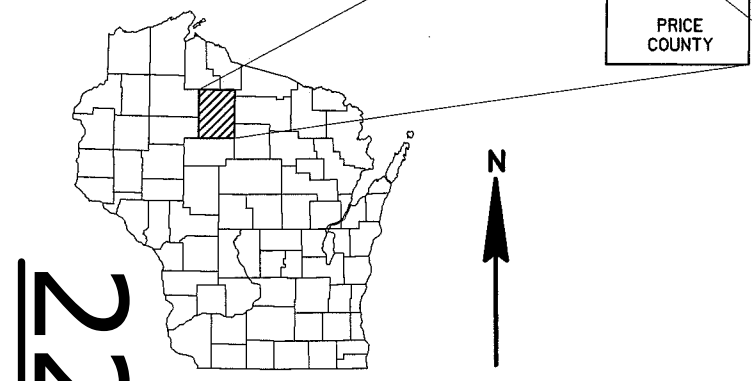
STH 13 - S AIRPORT ROAD

LAKE DUROY BRIDGE B-50-0028

CTH H
PRICE COUNTY

STATE PROJECT NUMBER
9480-00-70

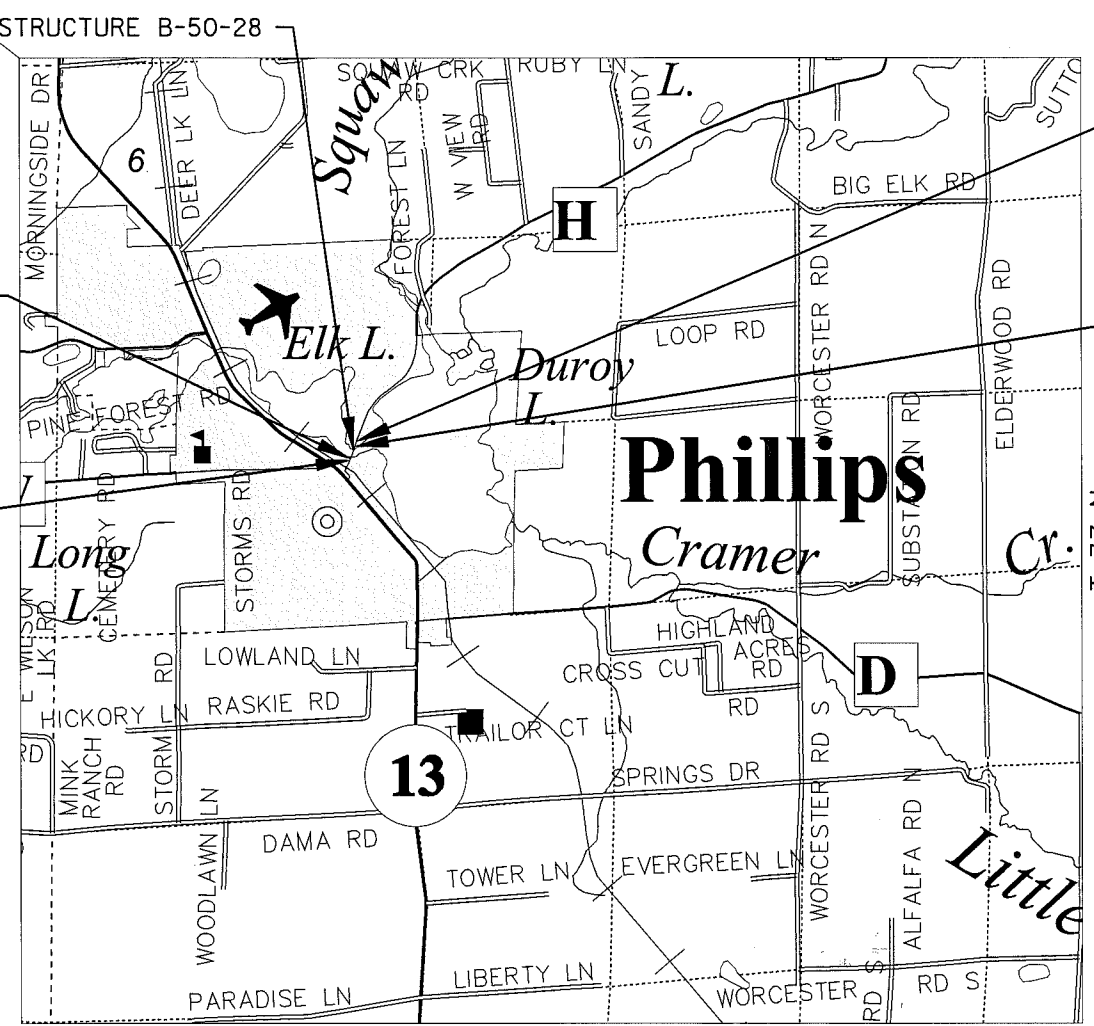
STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
9480-00-70	WISC 2018098	1



DESIGN DESIGNATION
A.A.D.T. (2017) = 1400
A.A.D.T. (2037) = 1600
D.H.V. = 216
D.D. = 0.5
T. = 6.2%
DESIGN SPEED = 30 MPH
ESALS = 190,000

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
MARSH AREA	UTILITY PEDESTAL
	POWER POLE
WOODED OR SHRUB AREA	TELEPHONE POLE



END CONSTRUCTION
STA. 95+20.82
Y = 415139.653
X = 771351.222

END PROJECT
STA. 94+75.00
Y = 415096.403
X = 771336.095

BEGIN PROJECT ID 9480-00-70
STA. 89+74.33
Y = 414623.906
X = 771170.519

BEGIN CONSTRUCTION
STA. 88+83.59
Y = 414541.044
X = 771133.646

R-1-E
LAYOUT
SCALE 0 1 MI
TOTAL NET LENGTH OF CENTERLINE = 0.095 MILES

HORIZONTAL POSITIONS SHOWN ON THIS PLAN ARE WISCONSIN COUNTY COORDINATES, PRICE COUNTY, NAD83 (2011), IN U.S. SURVEY FEET. VALUES ARE GRID COORDINATES, GRID BEARINGS, AND GRID DISTANCES. GRID DISTANCES MAY BE USED AS GROUND DISTANCES.

ACCEPTED FOR
COUNTY OF PRICE

Highway Commissioner
7-24-2017 *D. Guide*
(Date) (Signature & Title of Official)

ORIGINAL PLAN PREPARED BY
BECHER HOPPE 330 Fourth Street • PO Box 8000
Wausau, WI • 54402-8000
715.845.8000 • Fax 715.845.8008
becherhoppe.com

WISCONSIN
MICHAEL V. KOWAL
E-36685
WAUSAU, WI
PROFESSIONAL ENGINEER

7-20-2017 *REV. C*
(Date) (Signature)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PREPARED BY
Surveyor BECHER HOPPE
Designer BECHER HOPPE
Management Consultant CEDAR CORPORATION

APPROVED FOR THE DEPARTMENT
DATE: 7-31-2017 *[Signature]*
(Management Consultant Signature)

E

GENERAL NOTES

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

COORDINATES AND BEARINGS ON THIS PLAN ARE ORIENTED TO THE PRICE COUNTY COORDINATE SYSTEM. ELEVATIONS ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM (NAVD) 1988.

PURSUANT TO CHAPTER 59 OF THE WISCONSIN STATUTES. THE CONTRACTOR SHALL CAREFULLY MAKE A SEARCH FOR EVIDENCE OF A LANDMARK IN ALL AREAS WHERE SUCH A LANDMARK MAY EXIST.

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

SILT FENCE IS TO BE PLACED AS SHOWN ON THE PLAN, OR AS DIRECTED BY THE ENGINEER. SILT FENCE IS TO BE PLACED PRIOR TO CONSTRUCTION.

DISTURBED AREAS WITHIN THE RIGHT-OF-WAY, EXCEPT THE AREAS WITHIN THE FINISHED SHOULDER POINTS, SHALL BE FERTILIZED, SEEDED, AND COVERED WITH EROSION MAT.

WETLANDS EXIST IN THE PROJECT AREA AND THE CONTRACTOR SHALL NOT DISTURB OUTSIDE OF THE SLOPE INTERCEPTS IN THESE AREAS.

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

CROSS SECTIONS SHOWN INCLUDE THE THICKNESS OF TOPSOIL WHERE REQUIRED.

SECTION 2 ORDER

GENERAL NOTES
TYPICAL SECTIONS
CONSTRUCTION DETAILS
EROSION CONTROL PLAN
PERMANENT SIGNING
TRAFFIC CONTROL & DETOUR
ALIGNMENT TIES

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 = 0.84 ACRES
TOTAL AREA EXPECTED TO BE DISTURBED BY CONSTRUCTION ACTIVITIES = 0.58 ACRES

UTILITIES

CITY OF PHILLIPS
174 SOUTH EYDER AVENUE
PHILLIPS, WI 54555
PHONE: 715-339-3125

PRICE COUNTY TELEPHONE
COMMUNICATION
105 N AVON AVENUE
PO BOX 108
PHILLIPS, WI 54555
PHONE: 715-339-2151

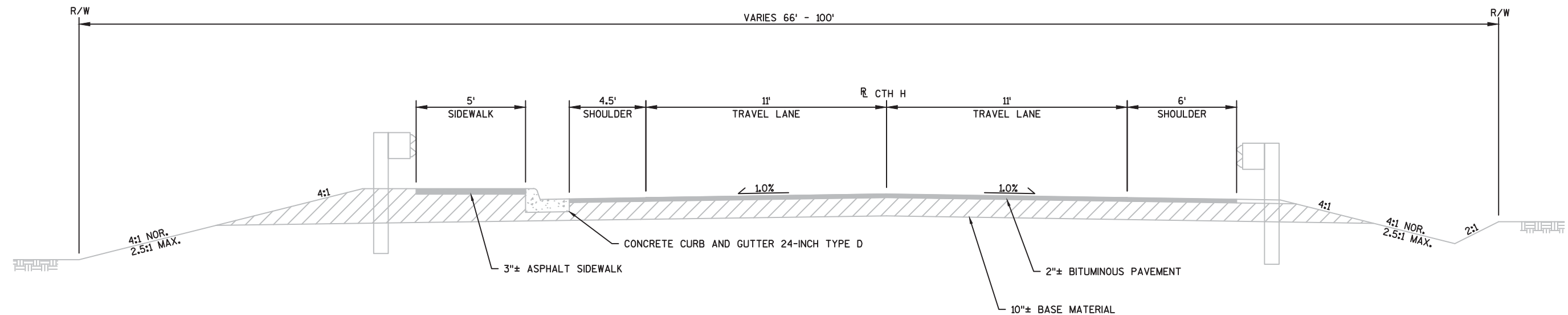
XCEL ENERGY
ELECTRICITY
1414 WEST HAMILTON AVENUE
PO BOX 8
EAU CLAIRE, WI 54701
PHONE: 715-839-2625

XCEL ENERGY
GAS
1414 WEST HAMILTON AVENUE
PO BOX 8
EAU CLAIRE, WI 54701
PHONE: 715-839-2625

DNR CONTACT

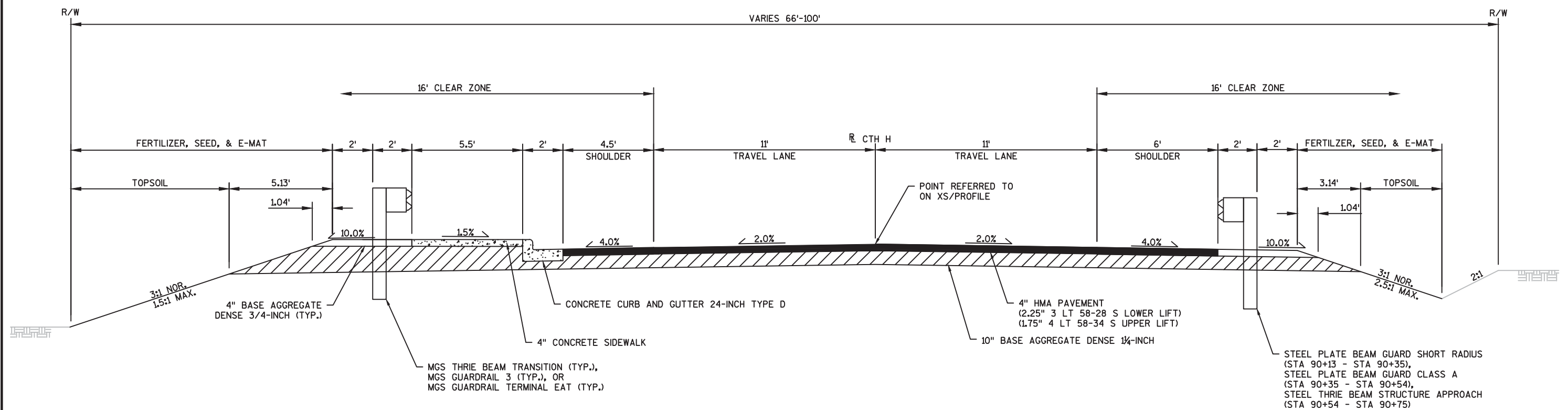
WISCONSIN DEPARTMENT OF NATURAL RESOURCES
SHAWN HASELEU
810 WEST MAPLE STREET
SPOONER, WI 54801
PHONE: (715) 635-4228
shawn.haseleu@wisconsin.gov





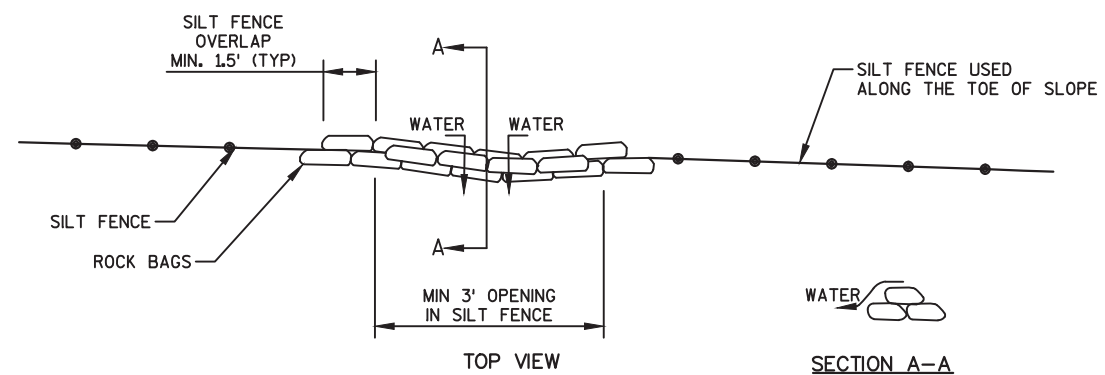
EXISTING TYPICAL SECTION

STATION 89+74.33 - STATION 90+81.11
STATION 92+81.78 - STATION 94+75.00

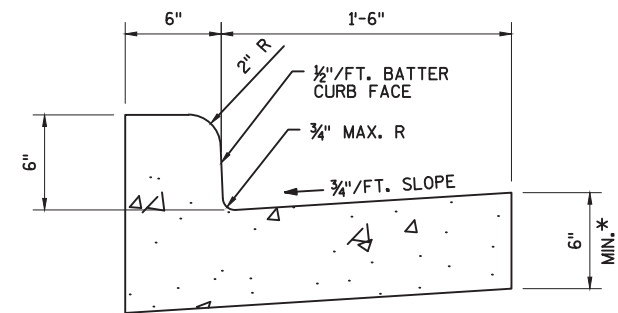


FINISHED TYPICAL SECTION

STATION 89+74.33 - STATION 90+81.11
STATION 92+81.78 - STATION 94+75.00

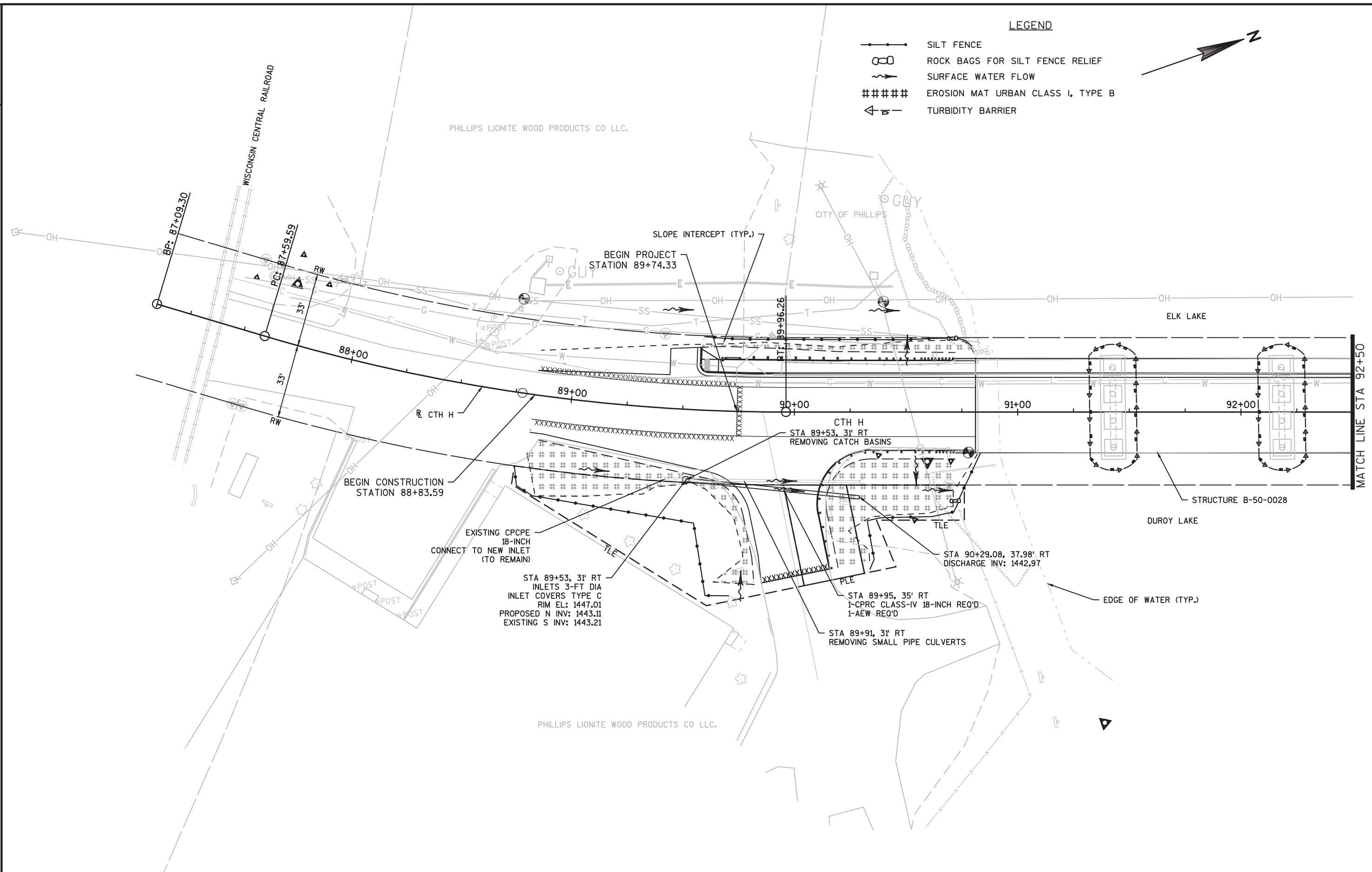


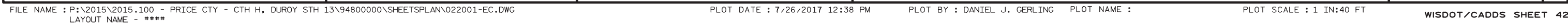
ROCK BAGS USED FOR SILT FENCE RELIEF

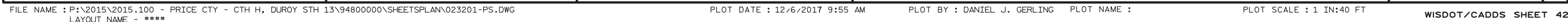
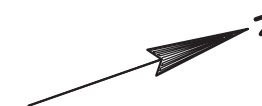


*NOTE: THE BOTTOM OF THE CURB AND GUTTER MAY BE CONSTRUCTED EITHER LEVEL OR PARALLEL TO THE SLOPE OF THE SUBGRADE OR BASE AGGREGATE PROVIDED A 6-INCH MINIMUM GUTTER THICKNESS IS MAINTAINED.

CONCRETE CURB & GUTTER 24-INCH TYPE D







PAVEMENT MARKINGS LEGEND

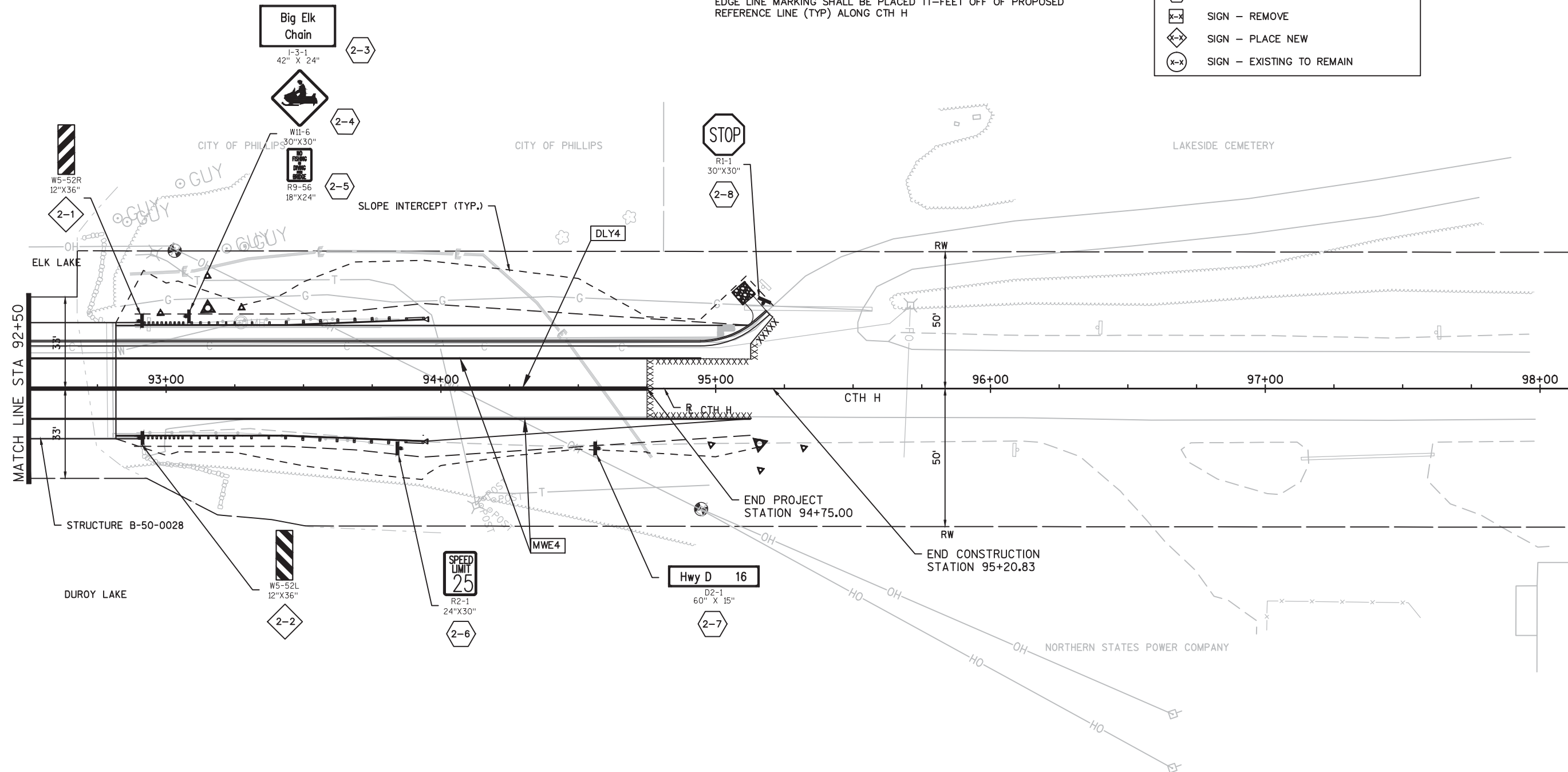
DLY4	MARKING LINE EPOXY 4-INCH (DOUBLE YELLOW, NO PASSING)
MWE4	MARKING LINE EPOXY 4-INCH (WHITE EDGE LINE)

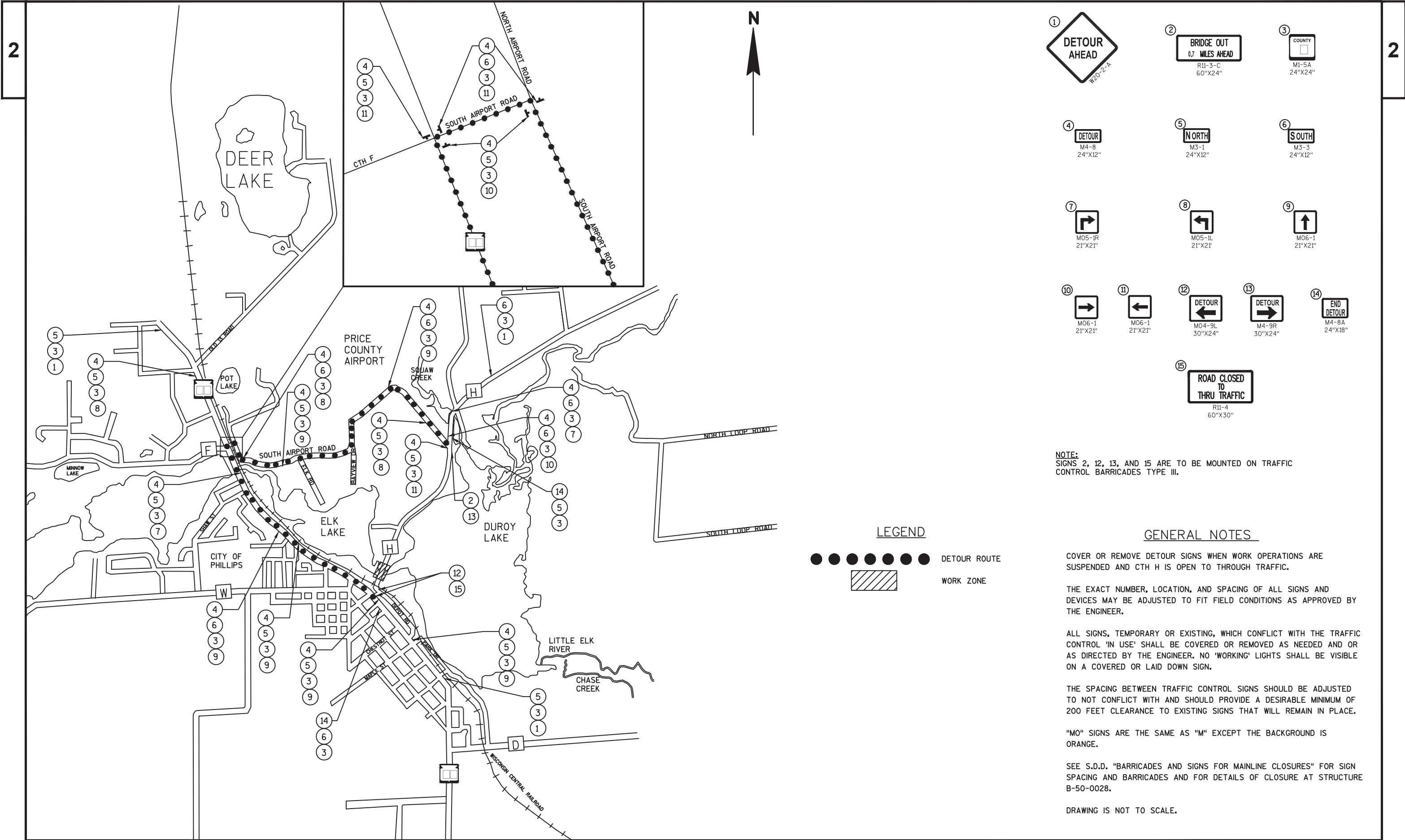
NOTES

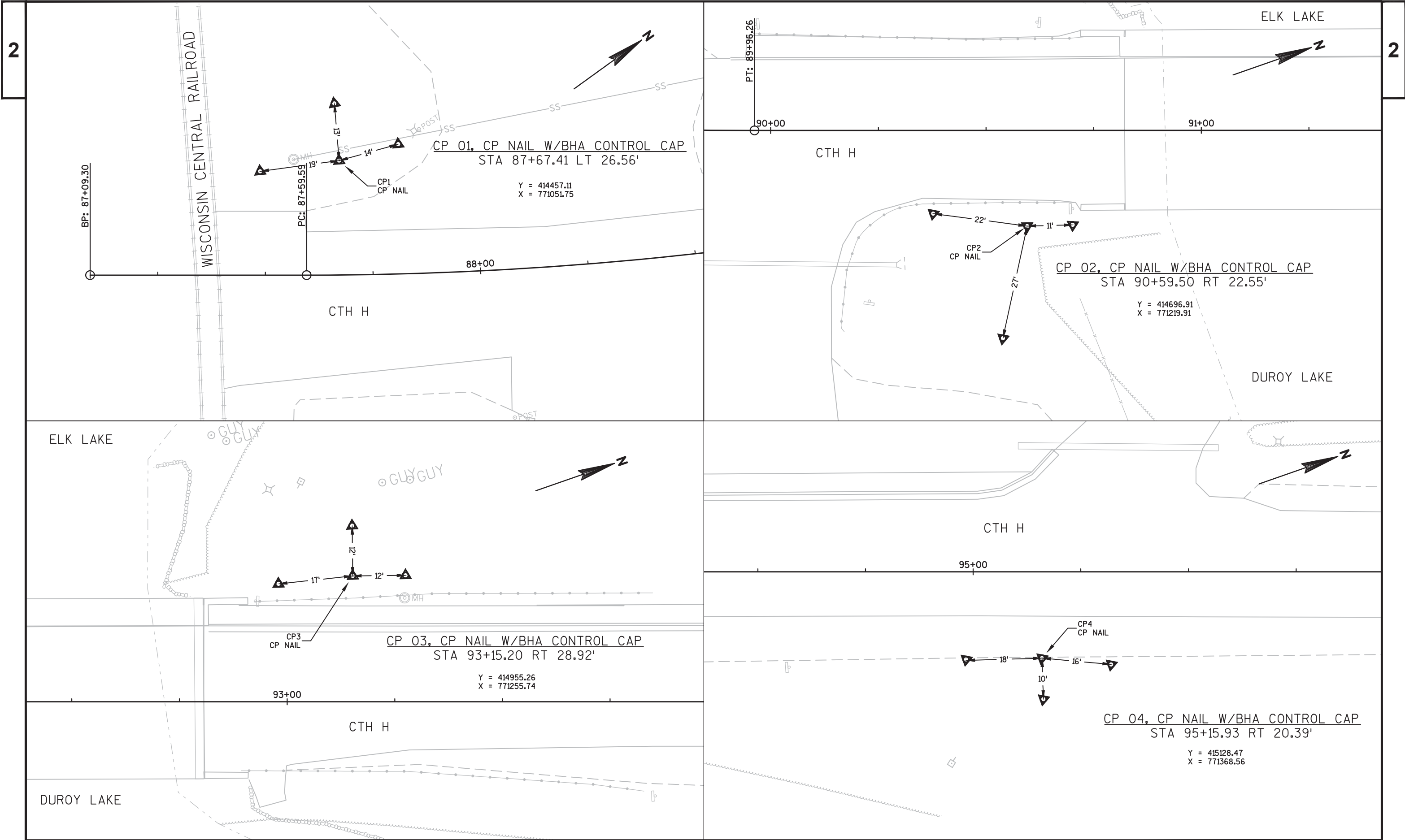
EDGE LINE MARKING SHALL BE PLACED 11- FEET OFF OF PROPOSED
REFERENCE LINE (TYP) ALONG CTH H

SIGNING LEGEND

	EXISTING SIGN MOUNTED ON POST(S)
	PROPOSED SIGN MOUNTED ON POST(S)
	SIGN - MOVE
	SIGN - REMOVE AND REPLACE
	SIGN - REMOVE
	SIGN - PLACE NEW
	SIGN - EXISTING TO REMAIN







Estimate Of Quantities

9480-00-70

Line	Item	Item Description	Unit	Total	Qty
0002	203.0100	Removing Small Pipe Culverts	EACH	1.000	1.000
0004	203.0600.S	Removing Old Structure Over Waterway With Minimal Debris (station) 01. 91+81.45	LS	1.000	1.000
0006	204.0150	Removing Curb & Gutter	LF	334.000	334.000
0008	204.0215	Removing Catch Basins	EACH	1.000	1.000
0010	205.0100	Excavation Common **P**	CY	554.000	554.000
0012	206.1000	Excavation for Structures Bridges (structure) 01. B-50-28	LS	1.000	1.000
0014	210.1500	Backfill Structure Type A	TON	120.000	120.000
0016	213.0100	Finishing Roadway (project) 01. 9480-00-70	EACH	1.000	1.000
0018	305.0110	Base Aggregate Dense 3/4-Inch	TON	126.000	126.000
0020	305.0120	Base Aggregate Dense 1 1/4-Inch	TON	1,565.000	1,565.000
0022	455.0605	Tack Coat	GAL	105.000	105.000
0024	460.2000	Incentive Density HMA Pavement	DOL	220.000	220.000
0026	460.5223	HMA Pavement 3 LT 58-28 S	TON	191.000	191.000
0028	460.5244	HMA Pavement 4 LT 58-34 S	TON	148.000	148.000
0030	465.0315	Asphaltic Flumes	SY	4.000	4.000
0032	502.0100	Concrete Masonry Bridges	CY	346.000	346.000
0034	502.3100	Expansion Device (structure) 01. B-50-28	LS	1.000	1.000
0036	502.3200	Protective Surface Treatment	SY	980.000	980.000
0038	502.3210	Pigmented Surface Sealer	SY	90.000	90.000
0040	502.4205	Adhesive Anchors No. 5 Bar	EACH	248.000	248.000
0042	505.0600	Bar Steel Reinforcement HS Coated Structures	LB	75,200.000	75,200.000
0044	509.1500	Concrete Surface Repair	SF	100.000	100.000
0046	513.4061	Railing Tubular Type M (structure) 01. B-50-28	LF	222.000	222.000
0048	513.7011	Railing Steel Type C2 (structure) 01. B-50-28	LF	218.000	218.000
0050	516.0500	Rubberized Membrane Waterproofing	SY	22.000	22.000
0052	517.0900.S	Preparation and Coating of Top Flanges (structure) 01. B-50-28	LS	1.000	1.000
0054	517.1800.S	Structure Repainting Recycled Abrasive (structure) 01. B-50-28	LS	1.000	1.000
0056	517.4500.S	Negative Pressure Containment and Collection of Waste Materials (structure) 01. B-50-28	LS	1.000	1.000
0058	517.6001.S	Portable Decontamination Facility	EACH	1.000	1.000
0060	522.0418	Culvert Pipe Reinforced Concrete Class IV 18-Inch	LF	78.000	78.000
0062	522.1018	Apron Endwalls for Culvert Pipe Reinforced Concrete 18-Inch	EACH	1.000	1.000
0064	602.0405	Concrete Sidewalk 4-Inch	SF	1,935.000	1,935.000
0066	602.0505	Curb Ramp Detectable Warning Field Yellow	SF	24.000	24.000
0068	606.0200	Riprap Medium	CY	1.500	1.500
0070	606.0300	Riprap Heavy	CY	70.000	70.000

Estimate Of Quantities

9480-00-70

Line	Item	Item Description	Unit	Total	Qty
0072	611.0612	Inlet Covers Type C	EACH	1.000	1.000
0074	611.3003	Inlets 3-FT Diameter	EACH	1.000	1.000
0076	614.0150	Anchor Assemblies for Steel Plate Beam Guard	EACH	2.000	2.000
0078	614.0200	Steel Thrie Beam Structure Approach	LF	21.000	21.000
0080	614.0305	Steel Plate Beam Guard Class A	LF	18.750	18.750
0082	614.0345	Steel Plate Beam Guard Short Radius	LF	55.000	55.000
0084	614.0390	Steel Plate Beam Guard Short Radius Terminal	EACH	1.000	1.000
0086	614.0920	Salvaged Rail	LF	341.000	341.000
0088	614.2300	MGS Guardrail 3	LF	37.500	37.500
0090	614.2500	MGS Thrie Beam Transition	LF	120.000	120.000
0092	614.2610	MGS Guardrail Terminal EAT	EACH	3.000	3.000
0094	618.0100	Maintenance And Repair of Haul Roads (project) 01. 9480-00-70	EACH	1.000	1.000
0096	619.1000	Mobilization	EACH	1.000	1.000
0098	624.0100	Water	MGAL	37.000	37.000
0100	625.0100	Topsoil **P**	SY	528.000	528.000
0102	628.1504	Silt Fence	LF	923.000	923.000
0104	628.1520	Silt Fence Maintenance	LF	2,308.000	2,308.000
0106	628.1905	Mobilizations Erosion Control	EACH	3.000	3.000
0108	628.1910	Mobilizations Emergency Erosion Control	EACH	2.000	2.000
0110	628.2008	Erosion Mat Urban Class I Type B **P**	SY	778.000	778.000
0112	628.6005	Turbidity Barriers	SY	400.000	400.000
0114	628.7570	Rock Bags	EACH	50.000	50.000
0116	629.0210	Fertilizer Type B **P**	CWT	0.500	0.500
0118	630.0140	Seeding Mixture No. 40 **P**	LB	18.000	18.000
0120	634.0816	Posts Tubular Steel 2x2-Inch X 16-FT	EACH	12.000	12.000
0122	637.2210	Signs Type II Reflective H	SF	47.610	47.610
0124	637.2230	Signs Type II Reflective F	SF	27.250	27.250
0126	638.2602	Removing Signs Type II	EACH	12.000	12.000
0128	638.3000	Removing Small Sign Supports	EACH	8.000	8.000
0130	642.5001	Field Office Type B	EACH	1.000	1.000
0132	643.0420	Traffic Control Barricades Type III	DAY	2,121.000	2,121.000
0134	643.0705	Traffic Control Warning Lights Type A	DAY	3,232.000	3,232.000
0136	643.0900	Traffic Control Signs	DAY	15,462.000	15,462.000
0138	643.1050	Traffic Control Signs PCMS	DAY	14.000	14.000
0140	643.5000	Traffic Control	EACH	1.000	1.000
0142	645.0130	Geotextile Type R	SY	7.000	7.000
0144	646.1020	Marking Line Epoxy 4-Inch	LF	2,243.000	2,243.000
0146	650.4500	Construction Staking Subgrade	LF	433.000	433.000
0148	650.5000	Construction Staking Base	LF	433.000	433.000

Estimate Of Quantities

9480-00-70

Line	Item	Item Description	Unit	Total	Qty
0150	650.5500	Construction Staking Curb Gutter and Curb & Gutter	LF	373.000	373.000
0152	650.6000	Construction Staking Pipe Culverts	EACH	1.000	1.000
0154	650.6500	Construction Staking Structure Layout (structure) 01. B-50-28	LS	1.000	1.000
0156	650.9000	Construction Staking Curb Ramps	EACH	2.000	2.000
0158	650.9910	Construction Staking Supplemental Control (project) 01. 9480-00-70	LS	1.000	1.000
0160	650.9920	Construction Staking Slope Stakes	LF	433.000	433.000
0162	690.0150	Sawing Asphalt	LF	352.000	352.000
0164	715.0502	Incentive Strength Concrete Structures	DOL	2,076.000	2,076.000
0166	ASP.1T0A	On-the-Job Training Apprentice at \$5.00/HR	HRS	300.000	300.000
0168	ASP.1T0G	On-the-Job Training Graduate at \$5.00/HR	HRS	600.000	600.000
0170	SPV.0090	Special 01. Concrete Curb & Gutter 24-Inch Type D	LF	373.000	373.000

204.0150 REMOVING CURB & GUTTER				
STATION	TO	STATION	LOCATION	LF
89+90	-	90+82	LT	92
92+80	-	95+19	LT	242
TOTAL				334

EARTHWORK SUMMARY											
205.0100 EXCAVATION COMMON (1) **P**				UNUSABLE PAVEMENT MATERIAL		AVAILABLE MATERIAL		UNEXPANDED	EXPANDED	MASS ORDINATE	WASTE
				CUT (2)	EBS (3)	(4)	(5)	FILL	FILL (6)	± (7)	
DIVISION	STATION	TO	STATION	CY	CY	CY	CY	CY	CY	CY	CY
1	88+84	-	90+81	277	0	30	247	36	45	202	SOUTH OF BRIDGE
	92+82	-	95+25	277	0	42	235	80	100	135	NORTH OF BRIDGE
TOTALS				554	0	72	482	116	145	337	337
TOTAL EXCAVATION COMMON				554							

- 1) EXCAVATION COMMON IS THE SUM OF THE CUT AND EBS EXCAVATION COLUMNS. ITEM NO. 205.0100.
- 2) UNUSABLE PAVEMENT MATERIAL IS INCLUDED IN CUT.
- 3) EBS EXCAVATION TO BE BACKFILLED WITH CUT MATERIAL.
- 4) UNUSABLE PAVEMENT MATERIAL.
- 5) AVAILABLE MATERIAL = CUT - UNUSABLE PAVEMENT MATERIAL.
- 6) EXPANDED FILL = UNEXPANDED FILL * EXPANDED FILL FACTOR. EXPANDED FILL FACTOR = 1.25.
- 7) MASS ORDINATE = (AVAILABLE MATERIAL) - (EXPANDED FILL). PLUS QUANTITY INDICATES AN EXCESS OF MATERIAL WITHIN THE DIVISION. MINUS INDICATES A SHORTAGE OF MATERIAL WITHIN THE DIVISION.

BASE AGGREGATE DENSE							
		305.0110	305.0120	624.0100			
		3/4 INCH	1 1/4 INCH	WATER			
STATION	TO	STATION	LOCATION	TON	TON	MGAL	COMMENT
88+84	-	89+43	LT	27	-	1	CE
88+87	-	90+81	CL	-	710	14	MAINLINE
88+88	-	89+86	RT	12	-	1	SHOULDER
89+57	-	90+71	LT	14	-	1	SHOULDER
90+15	-	90+71	RT	12	-	1	SHOULDER
92+81	-	95+21	CL	-	855	17	MAINLINE
92+91	-	95+12	RT	33	-	1	SHOULDER
92+91	-	95+11	LT	28	-	1	SHOULDER
TOTALS		126	1,565	37			

HMA PAVEMENT							
		455.0605	460.5223	460.5244	465.0315		
		TACK COAT	3 LT 58-28 S	4 LT 58-34 S	ASPHALTIC FLUMES		
STATION	TO	STATION	LOCATION	GAL	TON	TON	SY
88+87	-	90+81	CL	54	98	76	-
92+81	-	95+21	CL	51	93	72	-
95+10	-	95+18	LT	-	-	-	4
TOTALS		105	191	148	4		

CULVERT PIPE ITEMS									
		203.0100	204.0215	522.0418	522.1018	311.0612	611.3003		
		REMOVING SMALL CULVERT PIPES	REMOVING CATCH BASINS	CULVERT PIPE REINFORCED CONCRETE CLASS IV 18-INCH	APRON ENDWALLS FOR CULVERT PIPE REINFORCED CONCRETE 18-INCH	INLET COVERS TYPE C	INLETS 3-FT DIAMETER		
STATION	LOCATION	CULVERT PIPE THICKNESS	JOINT TIES	EACH	EACH	LF	EACH	EACH	COMMENT
89+53	RT	-	-	-	1	-	-	1	CE DRIVEWAY CULVERT
89+91	RT	-	-	1	-	-	-	-	18-INCH DIAMETER
89+95	RT	2.0	12	-	-	78	1	-	CE DRIVEWAY CULVERT
TOTALS		1	1	78	1	1	1		

ALL ITEMS AND QUANTITIES ON THIS SHEET ARE CATEGORY 0010 UNLESS OTHERWISE NOTED

**NOTE: NOT A BID ITEM. FOR INFORMATION ONLY. SEE S.D.D. "JOINT TIES FOR CONCRETE CULVERT PIPES" FOR MORE INFORMATION.

602.0405 CONCRETE SIDEWALK 4-INCH				
STATION	TO	STATION	LOCATION	SF
89+57	-	90+81	LT	700
92+81	-	95+12	LT	1,235
TOTAL				1,935

602.0505 CURB RAMP DETECTABLE WARNING FIELD YELLOW		
STATION	LOCATION	SF
89+60	LT	8
95+05	LT	16
TOTAL		24

606.0200 RIPRAP MEDIUM					
STATION	TO	STATION	LOCATION	CY	COMMENT
95+06	-	95+16	LT	1.5	ASPHALTIC FLUME
TOTAL				1.5	

614.0920 SALVAGED RAIL					
STATION	TO	STATION	LOCATION	LF	COMMENT
89+95	-	90+74	LT	79	MAINLINE
90+17	-	90+71	RT	75	MAINLINE
92+92	-	93+84	LT	93	MAINLINE
92+89	-	93+83	RT	94	MAINLINE
TOTAL				341	

BEAM GUARD AND GUARDRAIL														
614.0200			614.0305		614.0345		614.0390		614.2300		614.2500		614.2610	
STEEL THRIE			STEEL PLATE		STEEL PLATE		STEEL PLATE		MGS		MGS		MGS	
BEAM STRUCTURE			BEAM GUARD		BEAM GUARD		BEAM GUARD		GUARDRAIL 3		THRIE BEAM		GUARDRAIL	
APPROACH			CLASS A		SHORT RADIUS		SHORT RADIUS				TRANSITION		TERMINAL EAT	
							TERMINAL							
STATION	LOCATION	TO	STATION	LOCATION	LF	LF	LF	EACH	LF	LF	LF	EACH	COMMENT	
89+68	LT	-	90+22	LT	-	-	-	-	-	-	-	1	MAINLINE	
90+22	LT	-	90+35	LT	-	-	-	-	12.5	-	-	-	MAINLINE	
90+35	LT	-	90+74	LT	-	-	-	-	-	40	-	-	MAINLINE	
90+15	RT 70'	-	90+13	RT 58'	-	-	-	1	-	-	-	-	CE	
90+13	RT 58'	-	90+35	RT 17'	-	-	55	-	-	-	-	-	CE	
90+35	RT	-	90+54	RT	-	18.75	-	-	-	-	-	-	MAINLINE	
90+35	RT	-	90+75	RT	21	-	-	-	-	-	-	-	MAINLINE	
92+88	LT	-	93+28	LT	-	-	-	-	-	40	-	-	MAINLINE	
93+28	LT	-	93+40	LT	-	-	-	-	12.5	-	-	-	MAINLINE	
93+40	LT	-	93+94	LT	-	-	-	-	-	-	-	1	MAINLINE	
92+88	RT	-	93+28	RT	-	-	-	-	-	40	-	-	MAINLINE	
93+28	RT	-	93+40	RT	-	-	-	-	12.5	-	-	-	MAINLINE	
93+40	RT	-	93+94	RT	-	-	-	-	-	-	-	1	MAINLINE	
TOTALS					21	18.75	55	1	37.5	120		3		

618.0100 MAINTENANCE AND REPAIR OF HAUL
RAODS (PROJECT) 01. 9480-00-70

CATEGORY	ROADWAY	EACH
0030	CTH H	1

TOPSOIL, FERTILIZER, & SEED

			625.0100		629.0210		630.0140	
			TOPSOIL		FERTILIZER		SEEDING	
			P		TYPE B **P**		MIXTURE NO. 40 **P**	
STATION	TO	STATION	LOCATION	SY	CWT	LB		
88+84	-	89+83	RT	130	0.1	5		
89+57	-	90+79	LT	43	0.1	1		
90+19	-	90+71	RT	150	0.1	5		
92+91	-	95+12	RT	60	0.1	2		
92+91	-	95+18	LT	145	0.1	5		
TOTALS				528	0.5	18		

SILT FENCE & SILT FENCE MAINTENANCE

			628.1504		628.1520	
			SILT FENCE		SILT FENCE	
					MAINTENANCE	
STATION	TO	STATION	LOCATION	LF	LF	
88+80	-	89+72	RT	135	338	
89+58	-	90+80	LT	121	303	
90+31	-	90+83	RT	102	255	
92+80	-	95+24	LT	258	645	
92+81	-	95+37	RT	257	643	
UNDISTRIBUTED				50	125	
TOTALS				923	2,308	

ALL ITEMS AND QUANTITIES ON
THIS SHEET ARE CATEGORY 0010
UNLESS OTHERWISE NOTED

PROJECT NO: 9480-00-70

HWY: CTH H

COUNTY: PRICE

MISCELLANEOUS QUANTITIES

SHEET:

E

MOBILIZATIONS EROSION CONTROL & EMERGENCY EROSION CONTROL		
	628.1905	628.1910
	MOBILIZATIONS	MOBILIZATIONS EMERGENCY
	EROSION CONTROL	EROSION CONTROL
LOCATION	EACH	EACH
PROJECT 9480-00-70	3	2

628.2008 EROSION MAT URBAN CLASS I TYPE B **P**				
STATION	TO	STATION	LOCATION	SY
88+84	-	89+83	RT	170
89+57	-	90+79	LT	43
90+19	-	90+71	RT	180
92+91	-	95+12	RT	115
92+91	-	95+18	LT	270
TOTAL				778

628.6005 TURBIDITY BARRIERS					
STATION	TO	STATION	LOCATION	SY	COMMENT
91+30	-	91+53	CL	200	PIER 1
92+05	-	92+28	CL	200	PIER 2
TOTAL				400	

628.7570 ROCK BAGS			
STATION	LOCATION	EACH	COMMENT
90+72	RT	10	SILT FENCE RELIEF
90+72	LT	10	SILT FENCE RELIEF
93+72	LT	10	SILT FENCE RELIEF
93+96	RT	10	SILT FENCE RELIEF
UNDISTRIBUTED		10	
TOTAL		50	

TRAFFIC CONTROL									
	643.0420	643.0705	643.0900	643.1050	643.5000				
	BARRICADES	WARNING LIGHTS	TRAFFIC CONTROL	SIGNS	TRAFFIC				
	TYPE III	TYPE A	SIGNS	PCMS	CONTROL				
LOCATION	EACH	DAYS	EACH	DAYS	EACH	DAYS	EACH	DAYS	EACH
PROJECT ID 9480-00-70	21	2,121	32	3,232	20	2,020	2	14	1
DETOUR ROUTE	-	-	-	-	93	9,393	-	-	-
TOTALS		2,121		3,232		15,462		14	1

ASSUMED 101 CALENDAR DAYS. ASSUMED 7 CALENDAR DAYS FOR SIGNS PCMS.

ALL ITEMS AND QUANTITIES ON THIS SHEET ARE CATEGORY 0010 UNLESS OTHERWISE NOTED

645.0130 GEOTEXTILE TYPE R					
STATION	TO	STATION	LOCATION	SY	COMMENT
95+06	-	95+16	LT	7	ASPHALTIC FLUME
TOTAL				7	

646.1020 MARKING LINE EPOXY 4-INCH					
STATION	TO	STATION	LOCATION	DESCRIPTION	LF
88+84	-	95+13	RT	WHITE EDGE LINE	631
88+84	-	94+95	LT	WHITE EDGE LINE	610
89+74	-	94+75	CL	DOUBLE YELLOW	1,002
TOTAL					2,243

690.0150 SAWING ASPHALT					
STATION	TO	STATION	LOCATION	LF	COMMENT
88+84	-	89+74	CL	204	TERMINI
89+86	-	00+90	RT 68'	31	ASPHALT CE
94+75	-	95+20	CL	117	TERMINI
TOTAL				352	

SPV.0090.01 CONCRETE CURB & GUTTER 24-INCH TYPE D				
STATION	TO	STATION	LOCATION	LF
89+57	-	90+81	LT	133
92+82	-	95+18	LT	240
TOTAL				373

3

3

SIGNING SCHEDULE																			
										634.0816		637.2210		637.2230		638.2602		638.3000	
										POSTS TUBULAR		SIGNS		SIGNS		REMOVING		REMOVING	
										STEEL 2X2-INCH		TYPE II		TYPE II		SIGNS		SMALL SIGN	
										SIZE		X 16-FT		REFLECTIVE H		REFLECTIVE F		TYPE II	SUPPORTS
STATION	OFFSET	SIGN NO.	CODE NO.	DESCRIPTION	MESSAGE LINE 1	MESSAGE LINE 2	MESSAGE LINE 3	IN	X	IN	EACH	SF	SF	EACH	EACH				
89+97	LT	1-1	D11-6	Snowmobile Route with Symbol	-	-	-	24	X	18	1	3.00	-	1	1				
90+13	RT	1-2	R1-1	Stop	-	-	-	30	X	30	1	5.18	-	1	1				
90+62	LT	1-3	W8-6	Truck Crossing	-	-	-	36	X	36	1	-	9.00	1	1				
90+66	RT	1-4	I-3-1	Lake or River Name - Stencil Message	Elk River Chain	-	-	42	X	24	1	7.00	-	4	1				
90+66	RT	1-5	R9-56	No Fishing or Diving From Bridge	-	-	-	18	X	24	-	3.00	-	-	-				
90+66	RT	1-6	D11-6	Snowmobile Route with Symbol	-	-	-	24	X	18	-	3.00	-	-	-				
90+81	LT	1-7	W5-52L	Chevron	-	-	-	12	X	36	1	-	3.00	-	-				
90+81	RT	1-8	W5-52R	Chevron	-	-	-	12	X	36	1	-	3.00	-	-				
92+82	LT	2-1	W5-52R	Chevron	-	-	-	12	X	36	1	-	3.00	-	-				
92+82	RT	2-2	W5-52L	Chevron	-	-	-	12	X	36	1	-	3.00	-	-				
93+08	LT	2-3	I-3-1	Lake or River Name - Stencil Message	Elk River Chain	-	-	42	X	24	1	7.00	-	-	-				
93+08	LT	2-4	W11-6	Snowmobile Crossing	-	-	-	30	X	30	-	-	6.25	2	1				
93+08	LT	2-5	R9-56	No Fishing or Diving From Bridge	-	-	-	18	X	24	-	3.00	-	-	-				
93+86	RT	2-6	R2-1	Speed Limit __ MPH	25	-	-	24	X	30	1	5.00	-	1	1				
94+57	RT	2-7	D2-1	Destination/Distance (One) with Die Cut Letters	Hwy D 16	-	-	60	X	15	1	6.25	-	1	1				
95+17	LT	2-8	R1-1	Stop	-	-	-	30	X	30	1	5.18	-	1	1				
TOTALS											12	47.61	27.25	12	8				

CONSTRUCTION STAKING											
				650.4500	650.5000	650.5500	650.6000	650.6500	650.9000	650.9910	650.9920
				SUBGRADE	BASE	CURB GUTTER	PIPE	STRUCTURE	CURB RAMPS	SUPPLEMENTAL	SLOPE
						AND CURB & GUTTER	CULVERTS	LAYOUT 01. B-50-28		CONTROL	STAKES
CATEGORY	STATION	TO	STATION	LF	LF	LF	EACH	LS	EACH	LS	LF
0010	88+84	-	90+81	197	197	-	-	-	-	-	197
0010		89+60		-	-	-	-	-	1	-	-
0010	89+52	-	90+30	-	-	-	1	-	-	-	-
0010	89+66	-	90+81	-	-	133	-	-	-	-	-
0010	92+82	-	95+18	236	236	-	-	-	-	-	236
0010	92+82	-	95+18	-	-	240	-	-	-	-	-
0010		95+05		-	-	-	-	-	1	-	-
0010	PROJECT 9480-00-70			-	-	-	-	-	-	1	-
0020	B-50-28			-	-	-	-	1	-	-	-
TOTALS				433	433	373	1	1	2	1	433

ALL ITEMS AND QUANTITIES ON
THIS SHEET ARE CATEGORY 0010
UNLESS OTHERWISE NOTED

SCHEDULE OF LANDS & INTEREST REQUIRED			OWNER'S NAMES ARE SHOWN FOR REFERENCE PURPOSES ONLY AND ARE SUBJECT TO CHANGE PRIOR TO THE TRANSFER OF LAND INTERESTS TO THE DEPARTMENT.			
PARCEL NUMBER	OWNER(S)	INTEREST REQUIRED	PLE ACRES OR SF REQUIRED			TLE ACRES OR SF
			NEW	EXISTING	TOTAL	
1	PHILLIPS LIONITE WOOD PRODUCTS CO. LLC.	PLE & TLE	0.027 AC	-	0.027 AC	0.132 AC

PHILLIPS LIONITE WOOD PRODUCTS CO. LLC.

BEGIN RELOCATION ORDER
STATION: 88+25.00
N42°21'59"W, 2823.63' FROM
EAST 1/4 MEANDER CORNER
OF SECTION 18
N=414489.839
E=771105.773

STATION: 88+78.86
N=414536.846
E=771131.476

STATION: 89+96.26
N=414718.729
E=771206.618

STATION: 90+76.11
N=414718.729
E=771206.618

STATION: 91+00
N37°30'53"W, 2948.50' FROM
EAST 1/4 MEANDER CORNER
OF SECTION 18
N=414742.430
E=771212.287

STATION: 91+00
N37°30'53"W, 2948.50' FROM
EAST 1/4 MEANDER CORNER
OF SECTION 18
N=414742.430
E=771212.287

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N=414742.430
E=771212.287

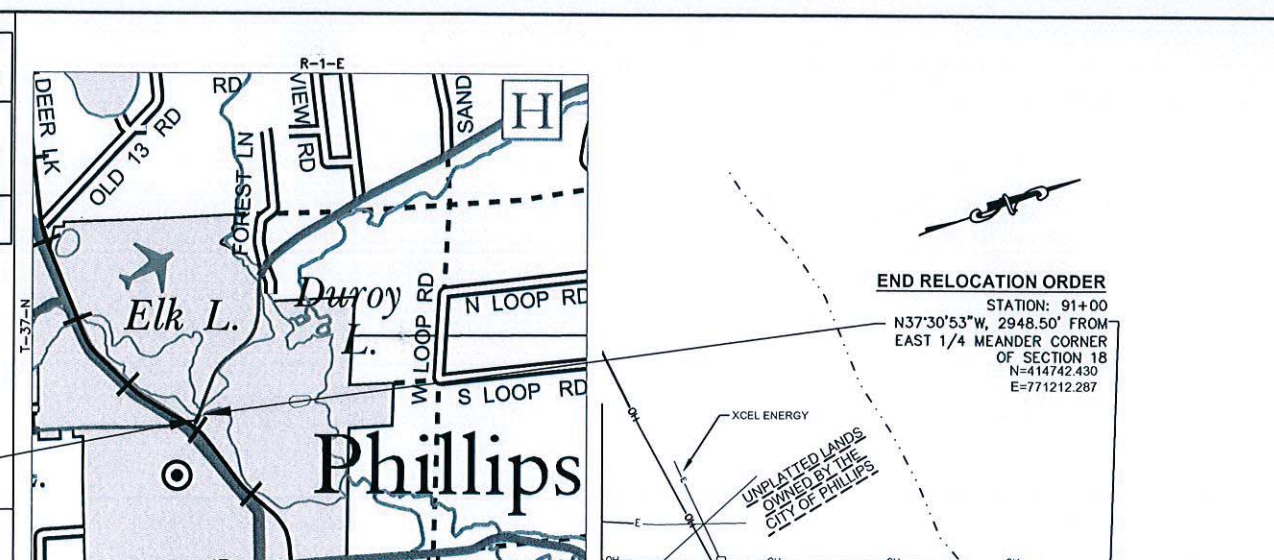
STATION: 91+00
N37°30'53"W, 2948.50' FROM
EAST 1/4 MEANDER CORNER
OF SECTION 18
N=414742.430
E=771212.287

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OF SECTION 18
N=414742.430
E=771212.287

R/W PROJECT NUMBER	SHEET NUMBER	TOTAL SHEETS
9480-00-00	4.01	1
FEDERAL PROJECT NUMBER		

PLAT OF RIGHT OF WAY REQUIRED FOR:		
STH 13-S. AIRPORT RD. LAKE DUROY BRIDGE B-50-0028 CTH H PRICE COUNTY		
CONSTRUCTION PROJECT NUMBER		
9480-00-70		
REVISIONS		

TLE Point Table			STATION & OFFSET POINT TABLE		
Point #	Northing	Easting	POINT	STATION	OFFSET
700	414521.689	771160.597	700	88+78.86	32.83
701	414517.845	771168.006	701	88+78.87	41.18
702	414582.249	771248.093	702	89+64.05	87.38
704	414688.113	771259.709	704	90+45.51	69.30
705	414666.771	771237.073	705	90+36.77	48.38
706	414703.900	771250.085	706	90+76.11	48.40
707	414709.095	771235.234	707	90+76.11	32.67

PLE Point Table			STATION & OFFSET POINT TABLE		
Point #	Northing	Easting	POINT	STATION	OFFSET
800	414632.664	771208.501	800	89+95.19	32.67
801	414626.499	771254.080	801	90+04.37	77.72
802	414653.810	771257.777	802	90+31.37	72.20
803	414659.219	771217.789	803	90+23.27	32.67

BASIS OF EXISTING RIGHT OF WAY		
ROAD NAME	PROJECT / SURVEY	YEAR
CTY HWY H	R/W PROJECT PLAT S-1380 (L374)	1959

EXISTING MONUMENTATION			
POINT	NORTHING	EASTING	DESCRIPTION
IP506	414632.68	771208.45	RAILROAD SPIKE
IP507	414702.63	771232.94	1-1/4" O.D. IRON PIPE
IP508	414603.59	771197.75	RAILROAD SPIKE

CONVENTIONAL ABBREVIATIONS AND SYMBOLS			
ACCESS POINT/ DRIVEWAY CONNECTION	AP	SECTION LINE	---
ACRES	AC.	QUARTER LINE	---
AND OTHERS	ET.AL.	SIXTEENTH LINE	---
CENTERLINE	C/L	EXISTING CENTERLINE	---
CERTIFIED SURVEY MAP	CSM	EXISTING R/W LINE	---
CORNER	COR.	PROPERTY LINE	---
DOCUMENT	DOC.	LOT & TIE LINES	---
EASEMENT	EASE.	CORPORATE LIMITS	---
HIGHWAY EASEMENT	H.E.	NO ACCESS (BY PREVIOUS ACQUISITION/CONTROL)	---
MONUMENT	MON.	NO ACCESS (BY ACQUISITION)	---
PAGE	P.	NO ACCESS (BY STATUTORY AUTHORITY)	---
PERMANENT LIMITED EASEMENT	PLE	PARALLEL OFFSET	---
PROPERTY LINE	PL	FOUND IRON PIPE/PIN (SEE TABLE FOR TYPE)	---
RECORDED AS	R/L	R/W MONUMENT (SET)	---
REFERENCE LINE	R/W	SECTION CORNER SYMBOL	---
RIGHT OF WAY	SEC.	PLE BOUNDARY POINT NUMBER	---
SECTION	STA.	EXISTING MONUMENT NUMBER	---
STATION	TLE	WATER VALVE	---
TEMPORARY LIMITED EASEMENT	V.	MANHOLE	---
VOLUME		POWER POLE	---
CURVE DATA			
LONG CHORD	CL	HYDRANT	---
LONG CHORD BEARING	CB	UTILITY PEDESTAL	---
RADIUS	R	PARCEL NUMBER	---
DEGREE OF CURVE	D	UTILITY NUMBER	---
CENTRAL ANGLE OR DELTA	Δ		
LENGTH OF CURVE	L		
TANGENT	T		

CONVENTIONAL UTILITY SYMBOLS			
ROUND STORM INLET	---	OVERHEAD LINES	---
LIGHT POLE	---	UNDERGROUND COM.	---
PLE (HATCH VARIES)	---	UNDERGROUND ELEC.	---
TLE (HATCH VARIES)	---	UNDERGROUND GAS	---
CONVENTIONAL UTILITY SYMBOLS			
UNDERGROUND WATER	---	UNDERGROUND SAN. SEWER	---
UNDERGROUND STORM SEWER	---		

NOTES:
POSITIONS SHOWN ON THIS PLAT ARE WISCONSIN COUNTY COORDINATES, PRICE COUNTY, NAD 83 (2011) IN U.S. SURVEY FEET. VALUES SHOWN ARE GRID COORDINATES, GRID BEARINGS, AND GRID DISTANCES. GRID DISTANCES MAY BE USED AS GROUND DISTANCES.

RIGHT OF WAY MONUMENTS ARE TYPE 2 (TYPICALLY 3/4" x 18" REBAR) AND WILL BE PLACED PRIOR TO PLAT RECORDING.

RIGHT OF WAY BOUNDARIES ARE DEFINED WITH COURSES OF THE PERIMETER OF THE HIGHWAY LANDS REFERENCED TO THE U.S. PUBLIC LAND SURVEY SYSTEM OR OTHER "SURVEYS OF PUBLIC RECORD".

PROPERTY LINES SHOWN ON THIS PLAT ARE DRAWN FROM DATA DERIVED FROM MAPS AND DOCUMENTS OF PUBLIC RECORD AND/OR EXISTING EXISTING OCCUPATIONAL LINES. THIS PLAT MAY NOT BE A TRUE REPRESENTATION OF EXISTING PROPERTY LINES, EXCLUDING RIGHT OF WAY LINES, AND SHOULD NOT BE USED AS A SUBSTITUTE FOR AN ACCURATE FIELD SURVEY.

R/W REFERENCE LINES ARE NOT NECESSARILY THE SAME AS CONSTRUCTION REFERENCE LINES. DIMENSIONING FOR THE RIGHT OF WAY IS MEASURED ALONG AND PERPENDICULAR TO THE REFERENCE LINE AND SECTION LINE.

A PERMANENT LIMITED EASEMENT (PLE) IS A RIGHT FOR CONSTRUCTING, OPERATING AND MAINTAINING A BEAM GUARD RAIL, INCLUDING THE RIGHT TO OPERATE NECESSARY EQUIPMENT THEREON AND THE RIGHT OF INGRESS AND EGRESS, AS LONG AS REQUIRED FOR SUCH PUBLIC PURPOSE. INCLUDING THE RIGHT TO PRESERVE, PROTECT, REMOVE OR PLANT THEREON ANY VEGETATION THAT THE HIGHWAY AUTHORITIES MAY DEEM NECESSARY OR DESIRABLE, BUT WITHOUT PREJUDICE TO THE OWNER'S RIGHT TO MAKE OR CONSTRUCT IMPROVEMENT ON SAID LANDS OR TO FLATTEN THE SLOPES, PROVIDING SAID ACTIVITIES WILL NOT IMPAIR OR OTHERWISE ADVERSELY AFFECT THE HIGHWAY FACILITIES.

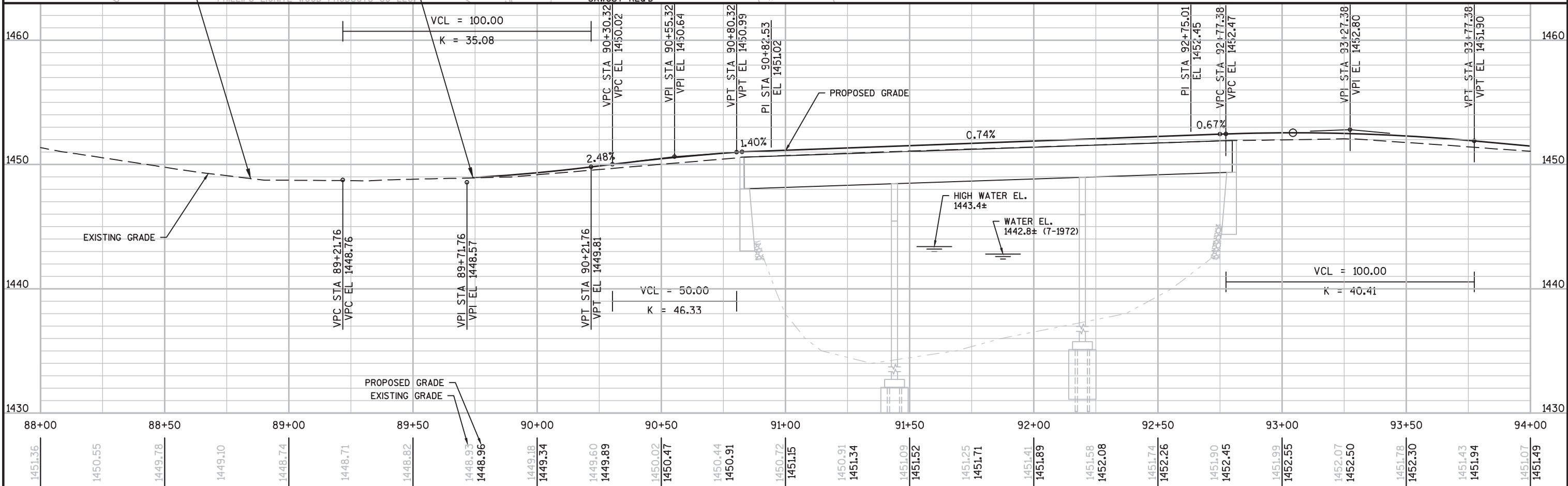
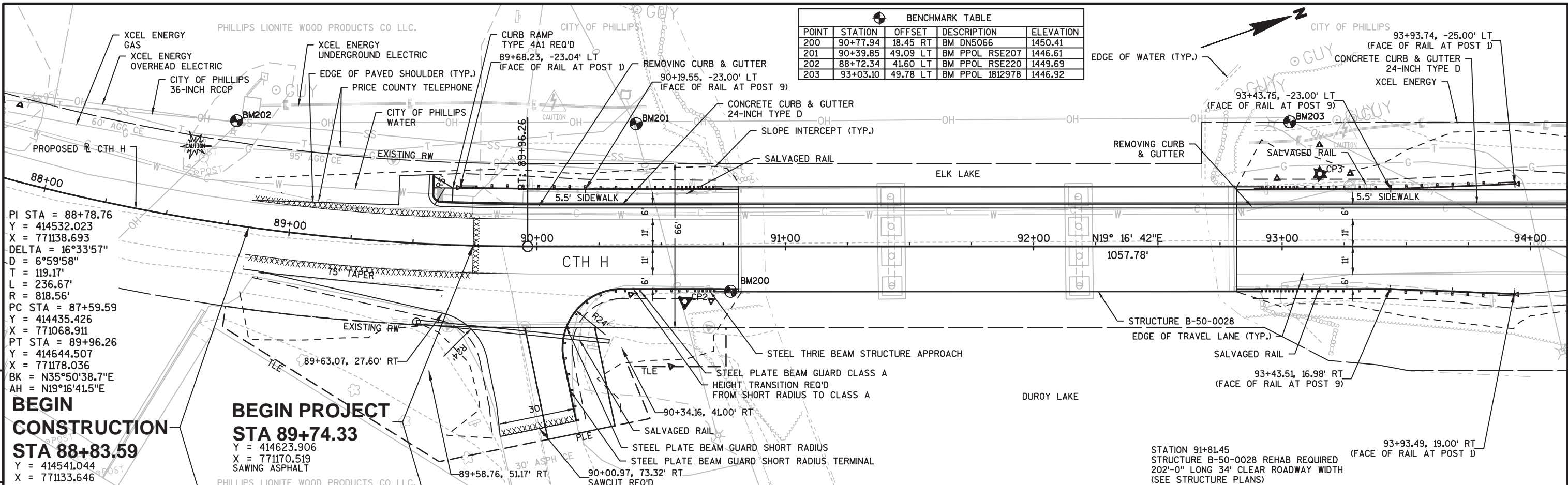
A TEMPORARY LIMITED EASEMENT (TLE) IS A RIGHT FOR CONSTRUCTION PURPOSES, AS DEFINED HEREON, INCLUDING THE RIGHT TO OPERATE NECESSARY EQUIPMENT THEREON AND THE RIGHT OF INGRESS AND EGRESS, AS LONG AS REQUIRED FOR SUCH PUBLIC PURPOSE. INCLUDING THE RIGHT TO PRESERVE, PROTECT, REMOVE OR PLANT THEREON ANY VEGETATION THAT THE HIGHWAY AUTHORITIES MAY DEEM NECESSARY OR DESIRABLE. ALL TLE'S EXPIRE AT THE COMPLETION OF THE CONSTRUCTION PROJECT FOR WHICH THIS INSTRUMENT IS GIVEN.

THIS PLAT IS APPROVED BY PRICE COUNTY
DATE July 25, 2017
(SIGNATURE) [Signature]
(TITLE OF OFFICIAL) Highway Commissioner

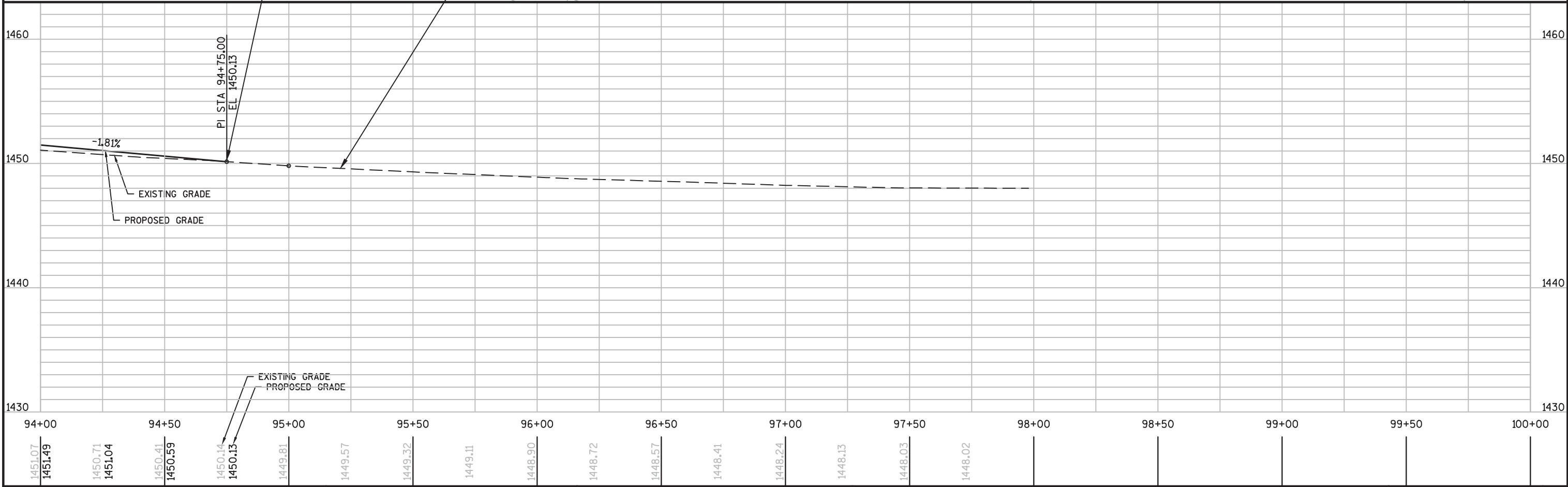
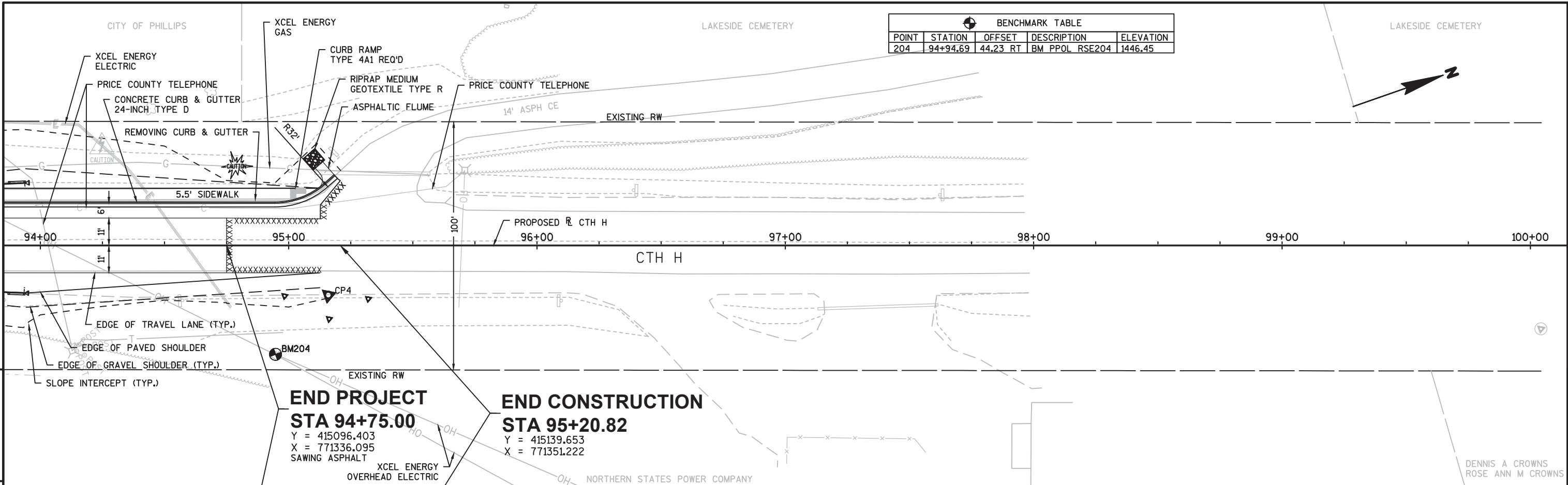
BECHER HOPPE 330 N. Fourth Street
Wausau, WI • 54403
715.845.8000
becherhoppe.com

WISCONSIN LAND SURVEYOR
LAWRENCE T. KEMPE
S-2783
MOSINEE, WI

DATE 07/21/2017
(SIGNATURE) [Signature]
(REGISTRATION NUMBER) S-2788



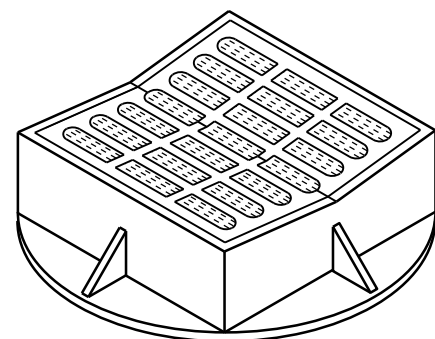
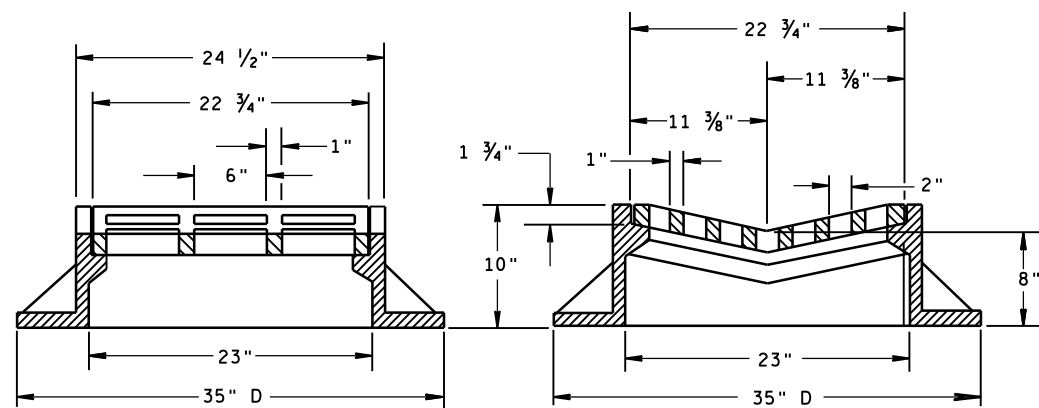
PROJECT NO: 9480-00-70	HWY: CTH H	COUNTY: PRICE	PLAN AND PROFILE: CTH H	SHEET	E
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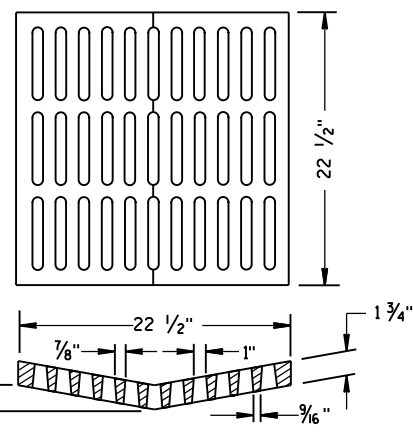
PROJECT NO: 9480-00-70	HWY: CTH H	COUNTY: PRICE	PLAN AND PROFILE: CTH H	SHEET	E
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Standard Detail Drawing List

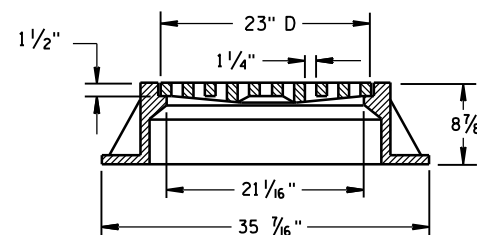
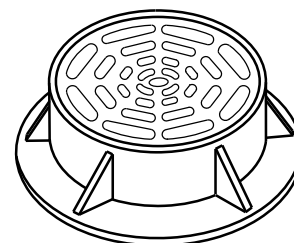
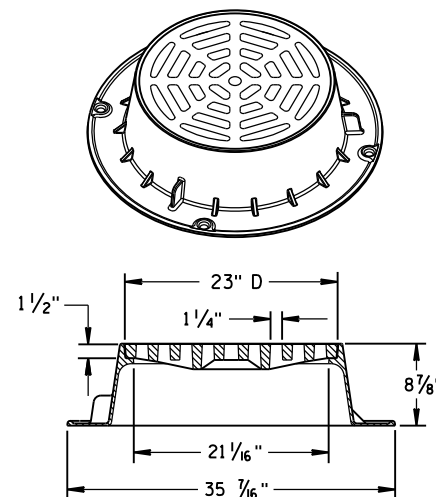
08A05-19B	INLET COVERS TYPE B, B-A, C, MS, MS-A, & WM
08C06-02	INLETS 3-FT AND 4-FT DIAMETER
08D01-19	CONCRETE CURB, CONCRETE CURB AND GUTTER AND TIES
08D04-05	CONCRETE SURFACE DRAINS & ASPHALTIC FLUMES
08D05-18C	CURB RAMPS TYPES 4A AND 4A1
08E09-06	SILT FENCE
08E11-02	TURBIDITY BARRIER
08F01-11	APRON ENDWALLS FOR CULVERT PIPE
08F04-07	JOINT TIES FOR CONCRETE PIPE AND CONCRETE COLLAR DETAIL
14B15-09A	STEEL PLATE BEAM GUARD, CLASS "A" INSTALLATION & ELEMENTS
14B15-09B	STEEL PLATE BEAM GUARD, CLASS "A" INSTALLATION & ELEMENTS
14B15-09C	STEEL PLATE BEAM GUARD, CLASS "A", INSTALLATION & ELEMENTS
14B20-11A	STEEL THRIE BEAM STRUCTURE APPROACH
14B20-11F	STEEL THRIE BEAM STRUCTURE APPROACH, CONNECTION TO BRIDGE RAILING TYPE "M"
14B27-01A	STEEL PLATE BEAM GUARD SHORT RADIUS TERMINAL
14B27-01B	STEEL PLATE BEAM GUARD SHORT RADIUS TERMINAL
14B27-01C	STEEL PLATE BEAM GUARD SHORT RADIUS TERMINAL
14B42-04A	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-04B	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-04C	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B44-02A	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B44-02B	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B44-02C	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B45-04A	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-04B	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-04C	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-04E	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-04H	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
15C02-06A	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C02-06B	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C02-06C	DETOUR SIGNING FOR MAINLINE CLOSURES
15C06-08	SIGNING & MARKING FOR TWO LANE BRIDGES
15C08-17A	LONGITUDINAL MARKING (MAINLINE)
15D30-03A	TRAFFIC CONTROL, PEDESTRIAN ACCOMMODATION



TYPE "B"

ALTERNATIVE GRATE FOR
TYPE "B" COVER

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



TYPE "C"

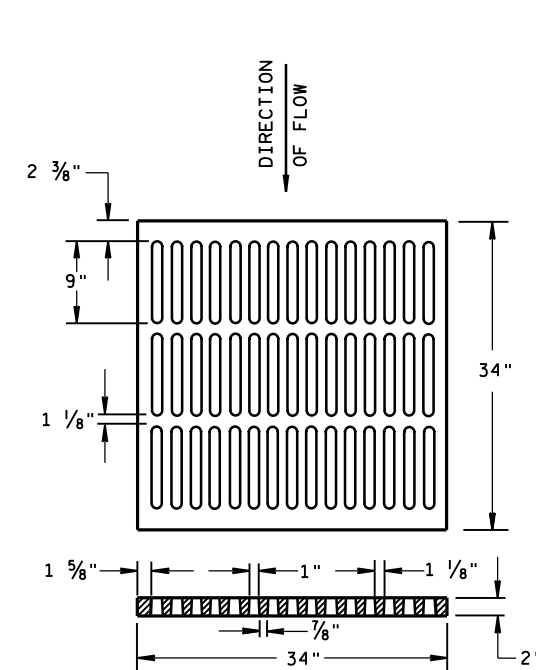
NOTE: EITHER CASTING IS ACCEPTABLE

GENERAL NOTES

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

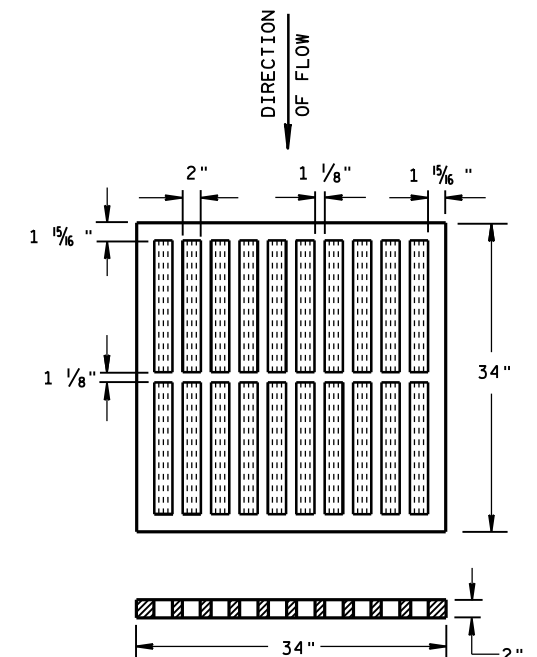
DETAIL DRAWINGS FOR PROPOSED ALTERNATE DESIGNS FOR CATCH BASIN, MANHOLE AND INLET COVERS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PROVIDING THAT SUCH ALTERNATE DESIGNS MAKE PROVISION FOR EQUIVALENT CAPACITY AND STRENGTH.

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



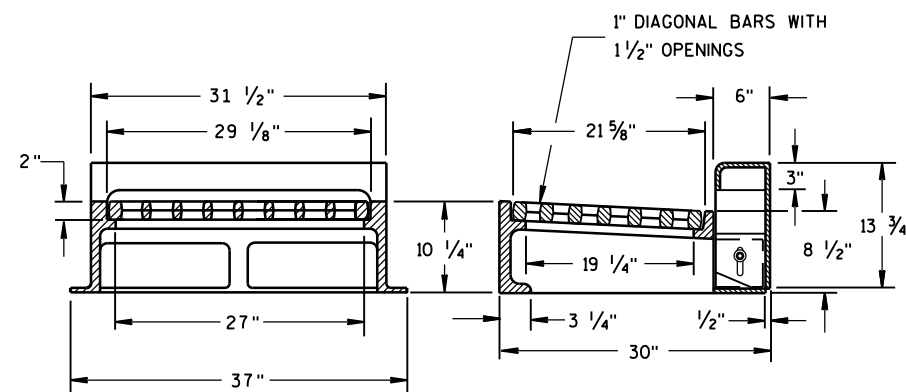
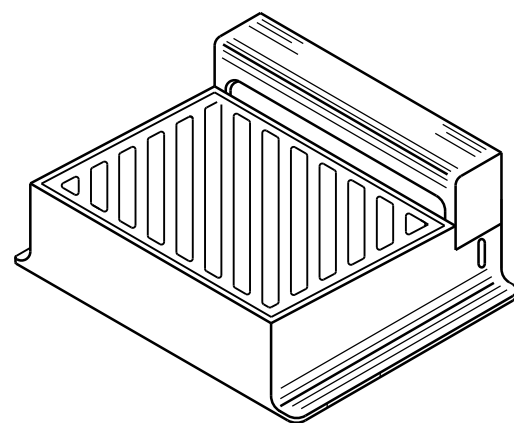
ALTERNATIVE TYPE "MS"

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



TYPE "MS"

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



NOTE: CURB BOX HEIGHT ADJUSTABLE 6" TO 9"

TYPE "WM"

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

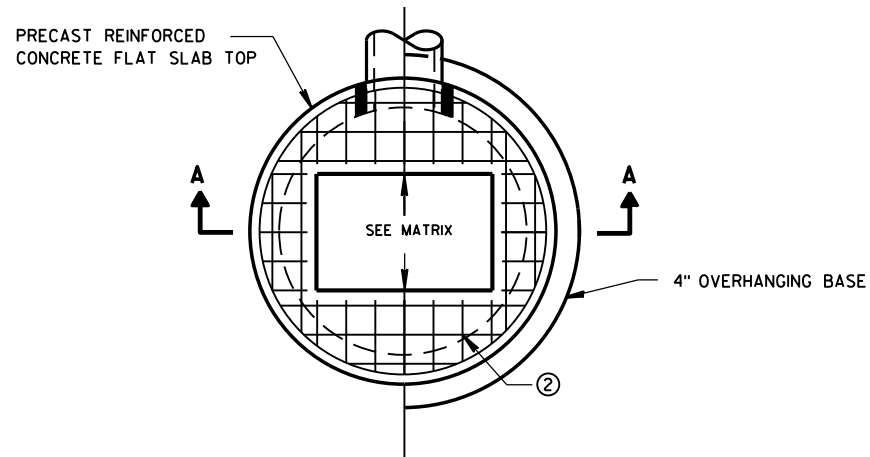
DIRECTION
OF FLOW

INLET COVERS
 TYPE B, B-A, C,
 MS, MS-A, & WM

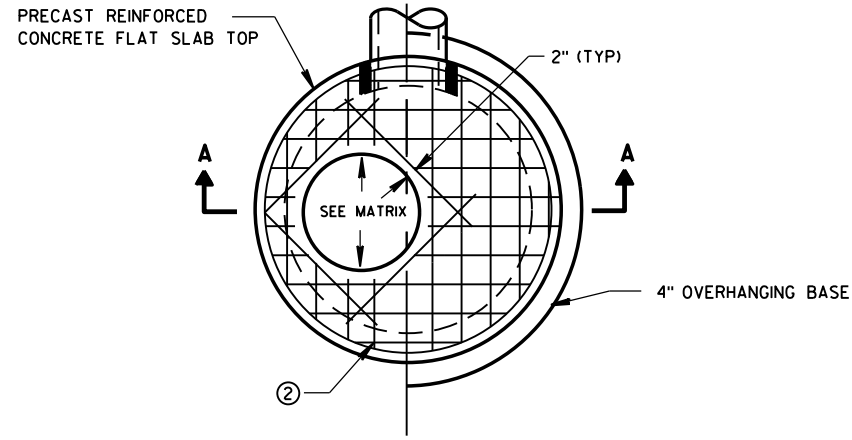
STATE OF WISCONSIN
 DEPARTMENT OF TRANSPORTATION

APPROVED
 11/27/2013
 DATE
 FHWA

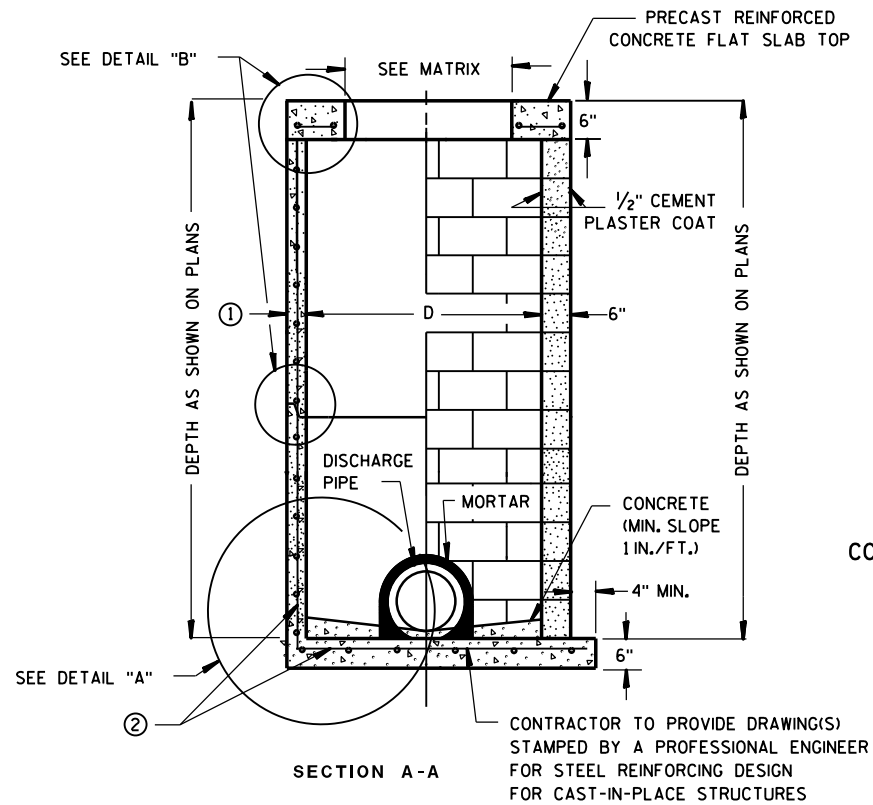
/S/ Jerry H. Zogg
 ROADWAY STANDARDS DEVELOPMENT
 ENGINEER



PLAN VIEW RECTANGULAR OPENING

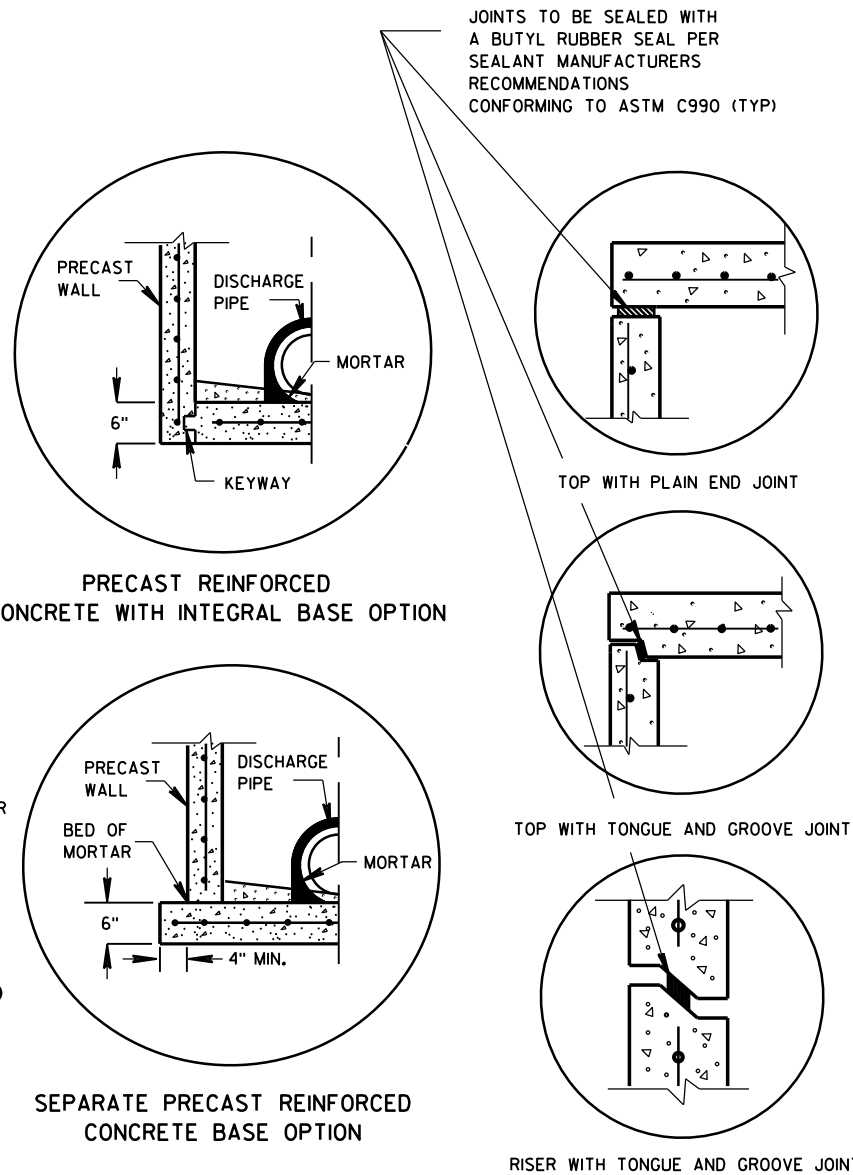


PLAN VIEW CIRCULAR OPENING



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

CIRCULAR INLETS W/ FLAT TOP



DETAIL "A"

DETAIL "B"

INLETS 3-FT AND 4-FT DIAMETER

GENERAL NOTES

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

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

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

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

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

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

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

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

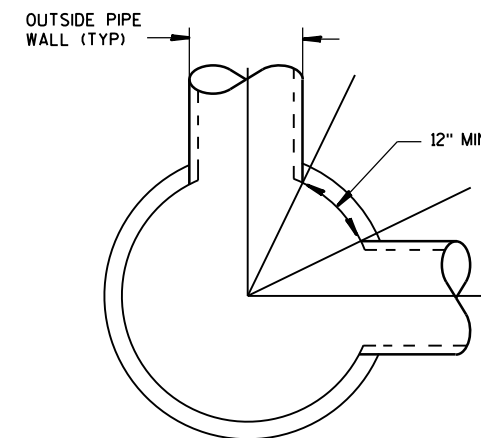
4" OVERHANGING BASES ARE REQUIRED FOR ALL CONCRETE BLOCK INSTALLATIONS. 4" OVERHANG IS REQUIRED WHEN SEPARATE PRECAST BASE IS PROVIDED. OVERHANG IS NOT REQUIRED ON PRECAST STRUCTURES WITH AN INTEGRAL OR MONOLITHIC BASE.

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

- ① MINIMUM WALL THICKNESS SHALL BE 4-IN FOR 3-FT DIAMETER AND 5-IN FOR 4-FT DIAMETER PRECAST INLETS.
- ② FOR PRECAST CATCH BASINS PROVIDE REINFORCING STEEL IN ACCORDANCE TO AASHTO M199.

INLET COVER OPENING MATRIX

	INLET COVER TYPE	ALL A'S	ALL B'S	BW	C	F	ALL H'S	S	T	V	WM	Z
INLET SIZE	OPENING SIZE (FT)											
3-FT	2 DIA.				X							X
	2X2	X	X					X		X		
4-FT	2 DIA.				X							X
	2X2	X	X					X		X		
	2X2.5			X				X	X	X	X	
	2X3						X					
	2.5X3					X						



DETAIL "C"

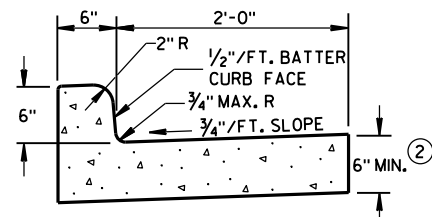
PIPE MATRIX

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

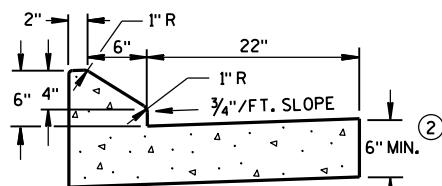
INLETS 3-FT AND 4-FT DIAMETER

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

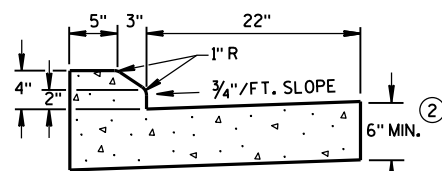
APPROVED
Sept., 2016 /S/ Rodney Taylor
DATE ROADWAY STANDARDS DEVELOPMENT
FHWA UNIT SUPERVISOR



TYPES A & D ①

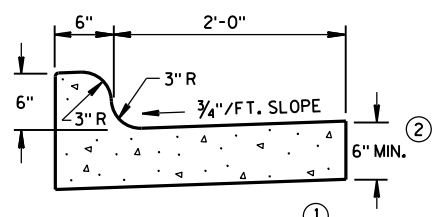


6" SLOPED CURB TYPES G & J ①



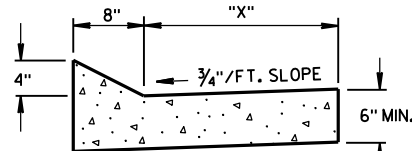
4" SLOPED CURB TYPES G & J ①

CONCRETE CURB & GUTTER 30"



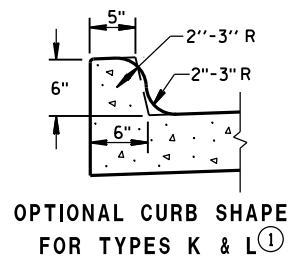
TYPES K & L ①

CONCRETE CURB & GUTTER 30"

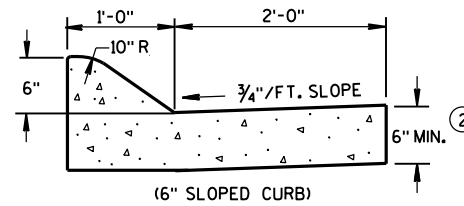


TYPES TBT & TBTT ①
CONCRETE CURB & GUTTER

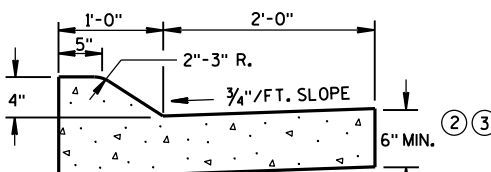
TBT & TBTT	"X"
30"	22"
36"	28"



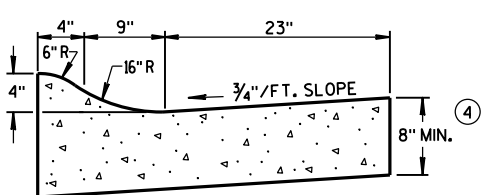
OPTIONAL CURB SHAPE
FOR TYPES K & L ①



(6" SLOPED CURB)



(4" SLOPED CURB)
TYPES A & D ①



4" SLOPED CURB TYPES R & T ① ⑤
CONCRETE CURB & GUTTER 36"

GENERAL NOTES

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

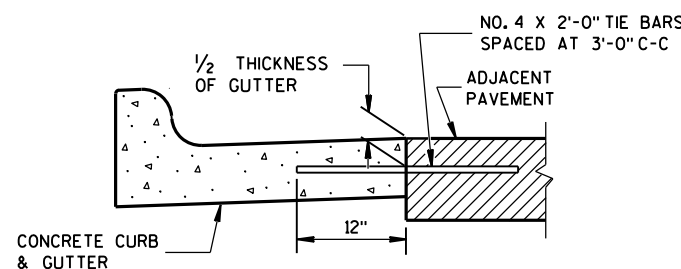
PAVEMENT TIES AND TIE BARS SHALL BE EPOXY COATED IN CONFORMANCE WITH SUBSECTION 505.2.6.2 OF THE STANDARD SPECIFICATIONS.

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

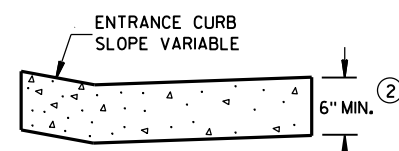
WHERE THE TRANSVERSE JOINTS IN THE PAVEMENT ARE REQUIRED TO BE SEALED, THE JOINTS IN THE INTEGRAL CURB AND GUTTER SHALL BE SEALED TO THE FACE OF CURB WITH THE SAME TYPE OF SEALANT. THE COST OF FURNISHING AND INSTALLING THIS SEALANT SHALL BE INCIDENTAL TO THE ITEM CONCRETE CURB AND GUTTER.

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

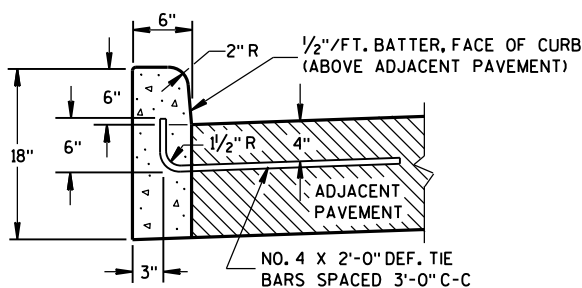
- TIE BARS ARE REQUIRED FOR CURB AND GUTTER TYPES A, G, K, R AND TBTT.
- THE BOTTOM OF CURB AND GUTTER MAY BE CONSTRUCTED EITHER LEVEL OR PARALLEL TO THE SLOPE OF THE SUBGRADE OR BASE AGGREGATE PROVIDED A 6" MINIMUM GUTTER THICKNESS IS MAINTAINED.
- USE 8" MINIMUM GUTTER THICKNESS WHEN USED WITH AN ADJACENT CONCRETE TRUCK APRON PLACED BEHIND BACK OF CURB.
- 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.
- THE FACE OF CURB IS 6" FROM THE BACK OF CURB.
- WHEN REVERSE SLOPE GUTTER IS REQUIRED, THE LOCATION(S) WILL BE SHOWN ELSEWHERE IN THE PLAN.



TYPICAL TIE BAR LOCATION ①

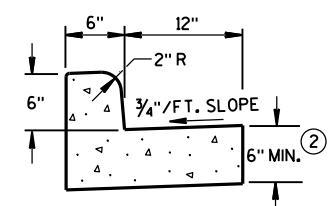


DRIVEWAY ENTRANCE CURB
(WHEN DIRECTED BY THE ENGINEER)

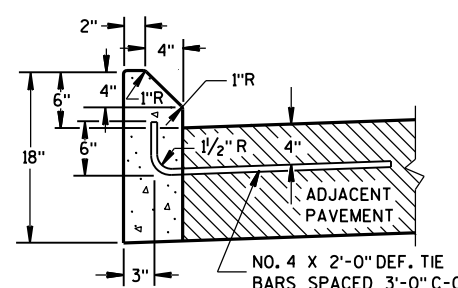


TYPES A & D ①

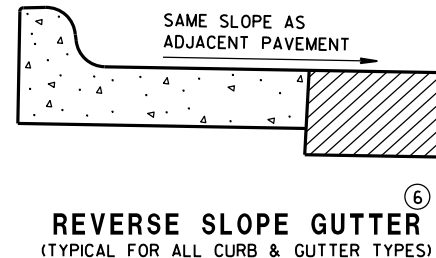
CONCRETE CURB



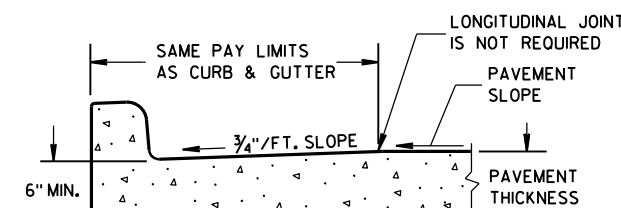
TYPES A & D
CONCRETE CURB & GUTTER 18"



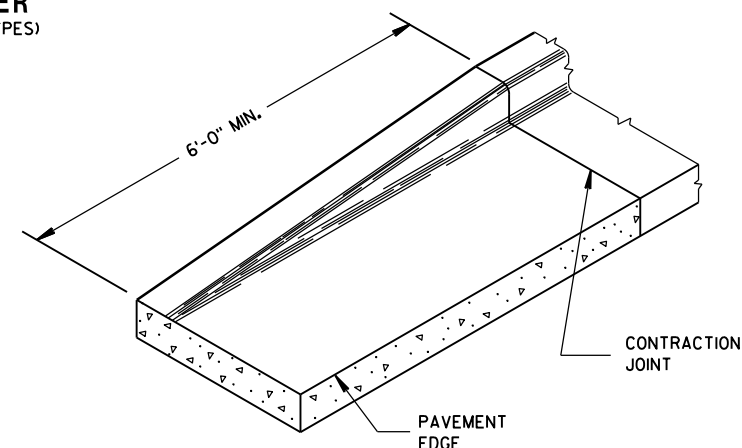
TYPES G & J ①



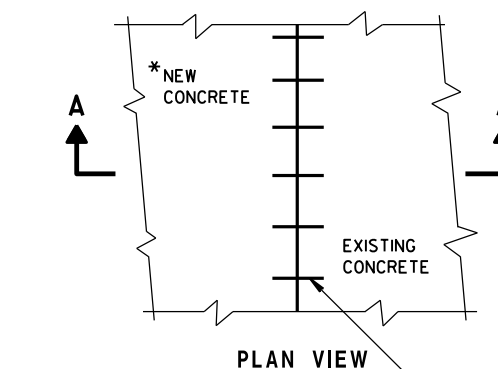
REVERSE SLOPE GUTTER
(TYPICAL FOR ALL CURB & GUTTER TYPES)



PARTIAL SECTION OF PAVEMENT
WITH INTEGRAL CURB & GUTTER



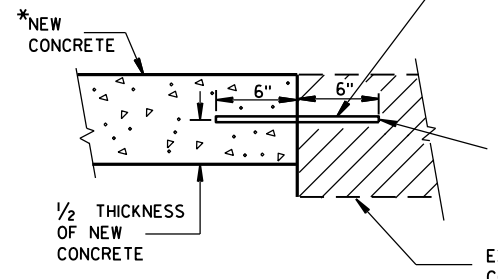
END SECTION CURB & GUTTER



PLAN VIEW

* NEW CURB & GUTTER,
SURFACE DRAINS,
CONCRETE PAVEMENT
OR OTHER NEW CONCRETE.

NO. 6 TIE BARS SPACED 2'-6" C-C,
INSTALLED PERPENDICULAR
TO THE LONGITUDINAL JOINT.



SECTION A-A
TIE BARS DRILLED
INTO EXISTING PAVEMENT

MAXIMUM DRILL HOLE
SIZE IS 1/8" GREATER
THAN TIE BAR DIAMETER

EXISTING CONCRETE

CONCRETE CURB, CONCRETE
CURB & GUTTER AND TIES

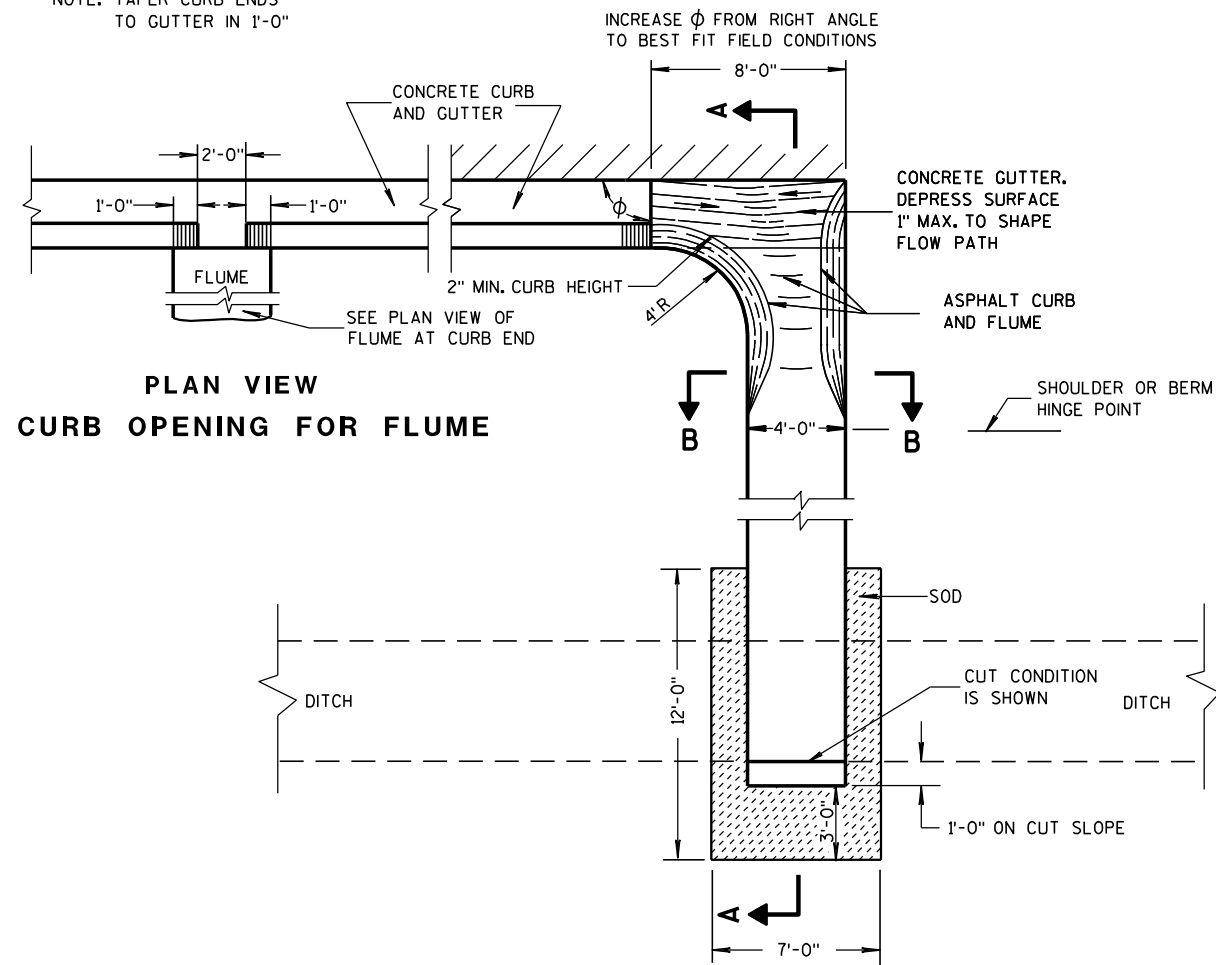
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June, 2016
DATE
FHWA

/S/ Jerry H. Zogg
ROADWAY STANDARDS DEVELOPMENT
ENGINEER

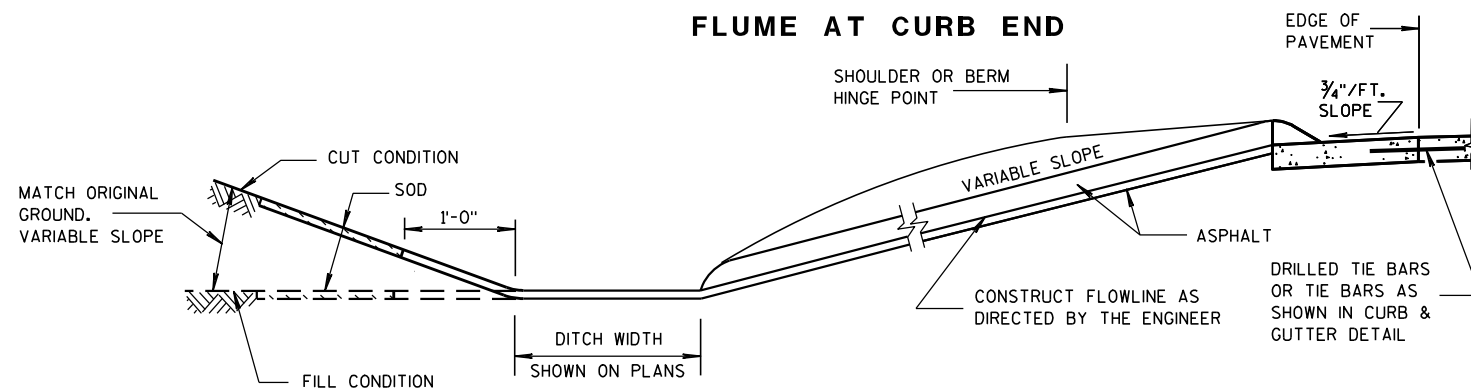
ASPHALTIC FLUME

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

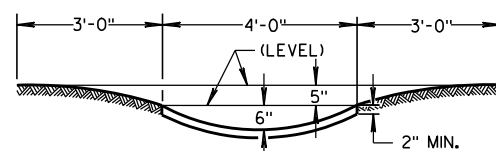


PLAN VIEW
CURB OPENING FOR FLUME

PLAN VIEW
FLUME AT CURB END



SECTION A-A



SECTION B-B

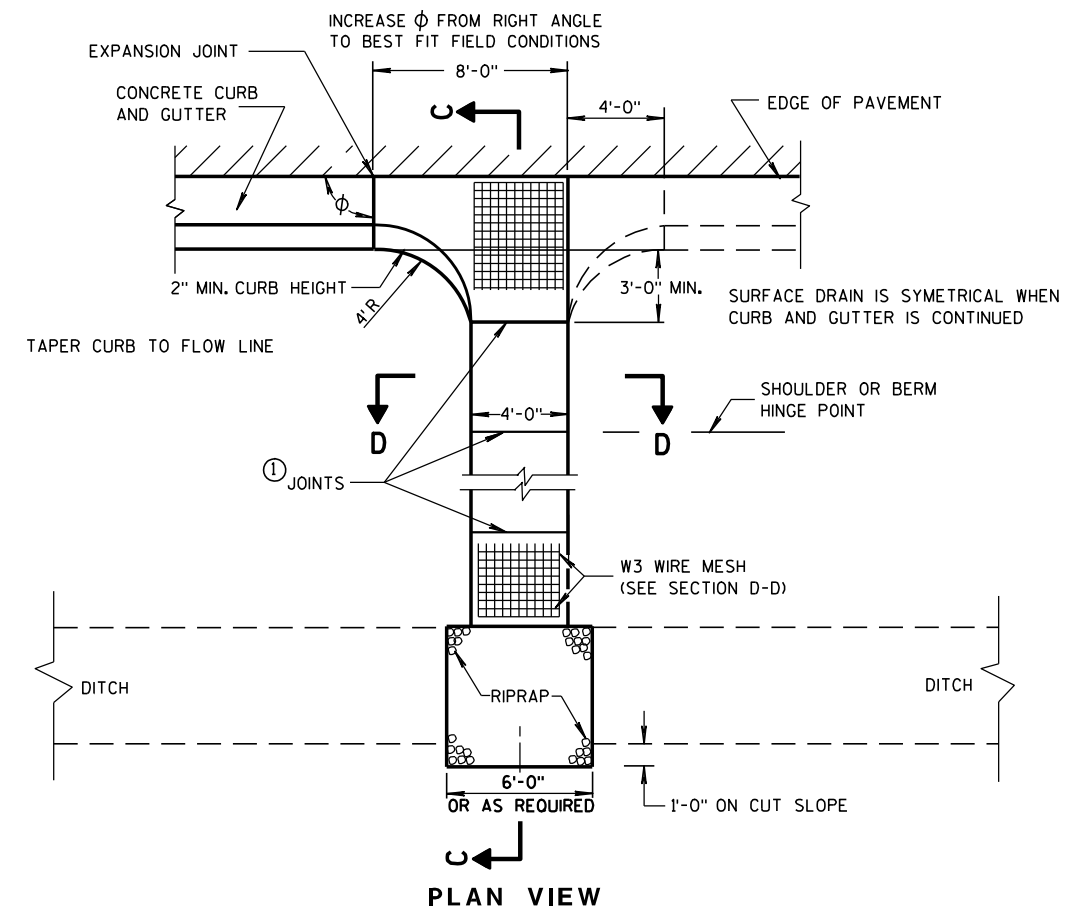
GENERAL NOTES

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

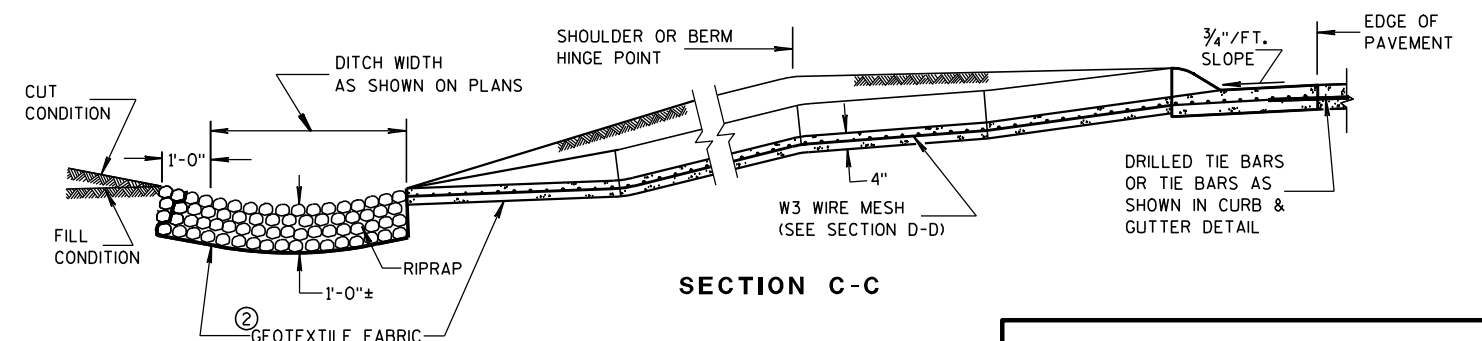
WELDED STEEL WIRE FABRIC SHALL BE IN ACCORDANCE WITH AASHTO SPECIFICATION M55.

- ① JOINTS SHALL BE $\frac{1}{8}$ TO $\frac{1}{4}$ INCH WIDE BY $1\frac{1}{2}$ INCHES DEEP AND SPACED AT UNIFORM INTERVALS OF APPROXIMATELY 4 FEET.
- ② GEOTEXTILE FABRIC 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

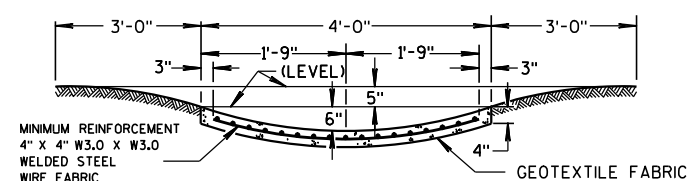
③ CONCRETE SURFACE DRAIN



PLAN VIEW



SECTION C-C



SECTION D-D

CONCRETE SURFACE DRAINS & ASPHALTIC FLUMES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

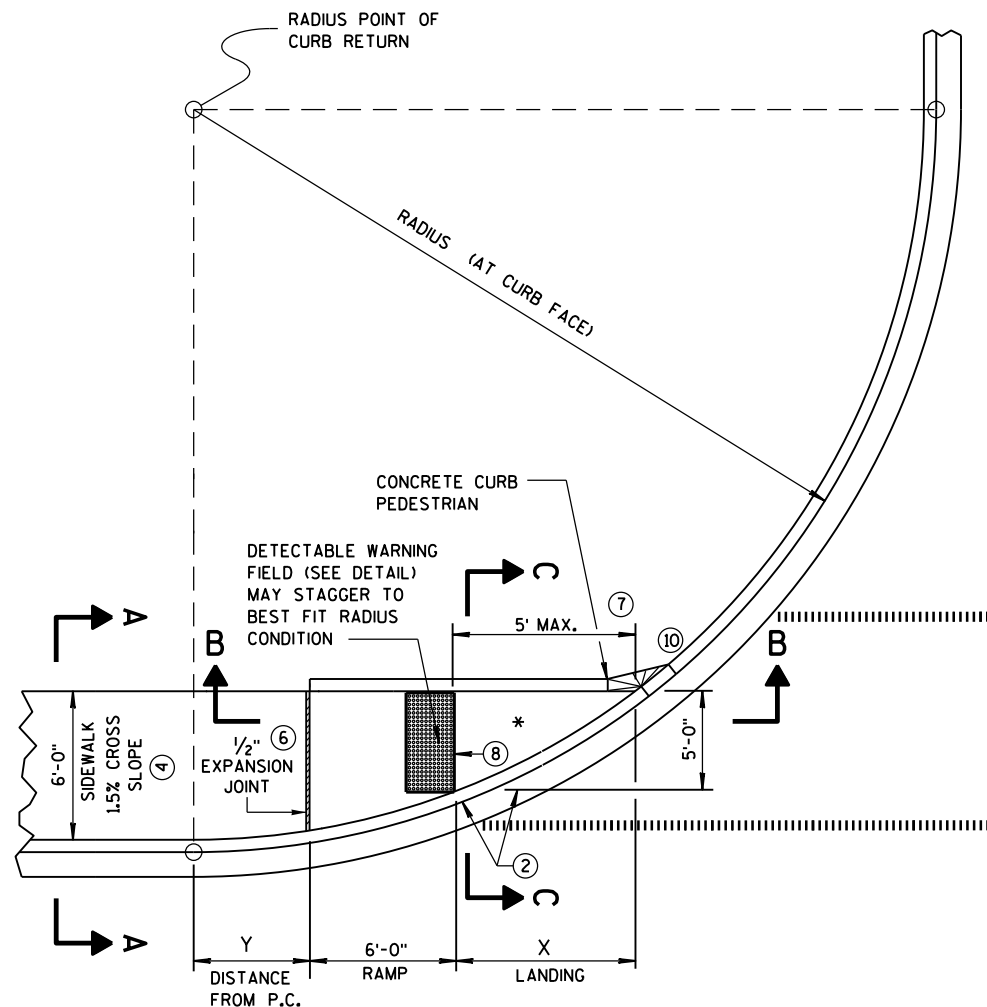
APPROVED

9-4-08

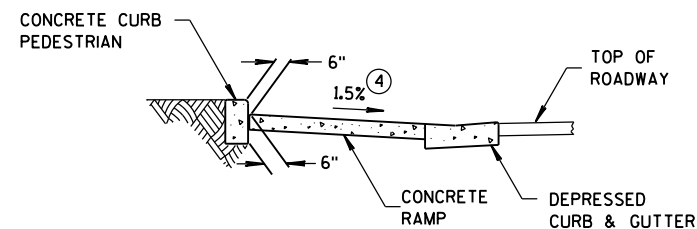
DATE

FHWA

/S/ Jerry H. Zogg
ROADWAY STANDARDS DEVELOPMENT
ENGINEER

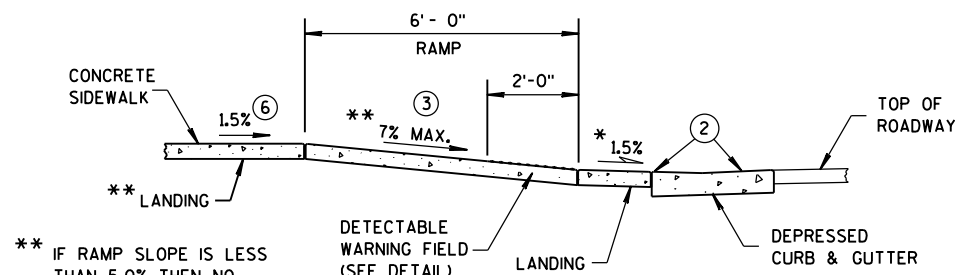


CURB RAMP TYPE 4A
PLAN VIEW



SECTION C-C FOR TYPE 4A

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

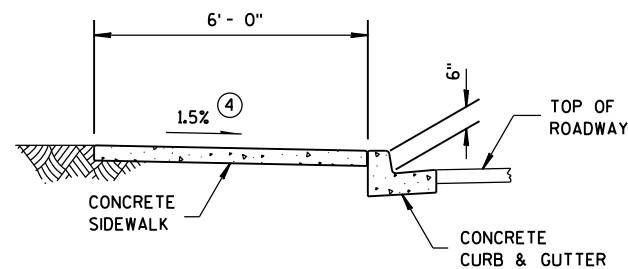


SECTION B-B FOR TYPE 4A

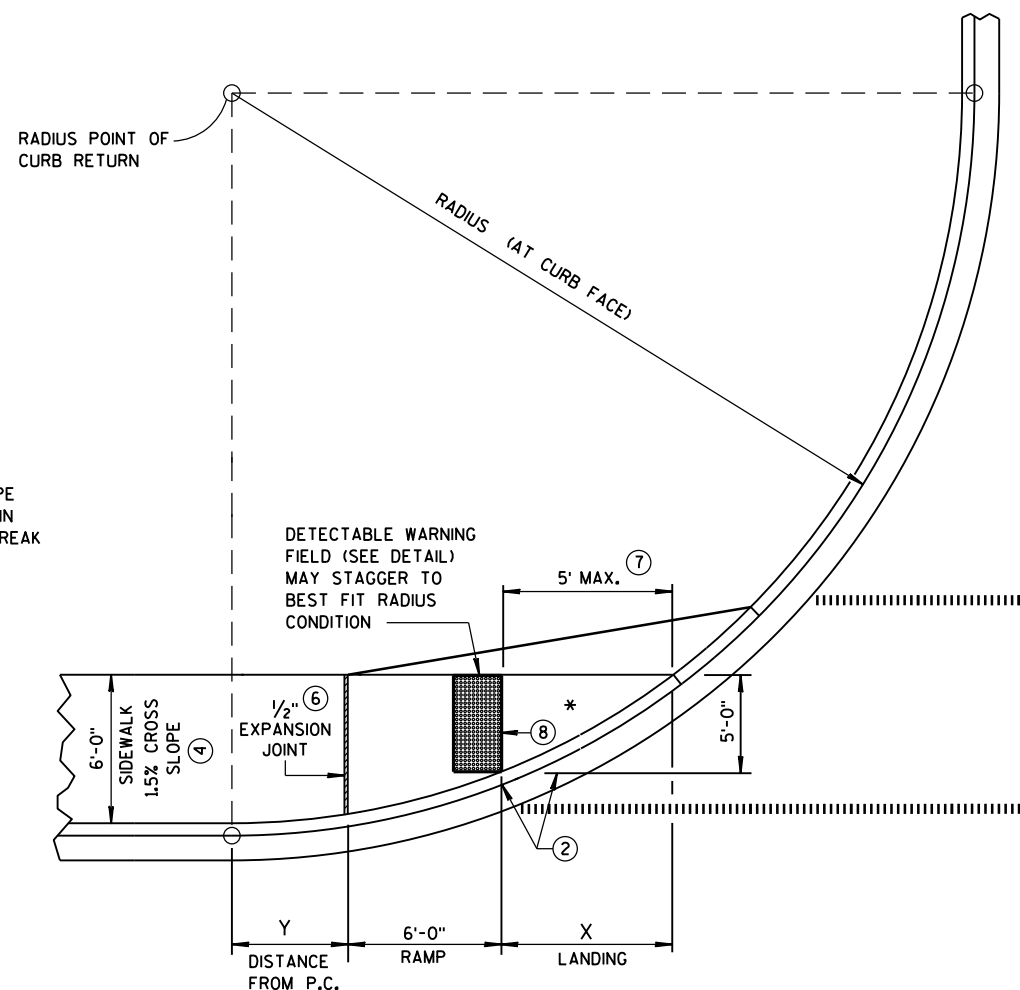
** IF RAMP SLOPE IS LESS
THAN 5.0%, THEN NO
ADJACENT UPHILL LANDING
IS REQUIRED

RADIUS (AT CURB FACE)	X	Y
20 FEET	7'-11"	0'-2"
30 FEET	10'-2 $\frac{3}{4}$ "	1'-7 $\frac{1}{2}$ "
40 FEET	12'-1 $\frac{1}{4}$ "	2'-10"
50 FEET	13'-8 $\frac{3}{4}$ "	3'-10 $\frac{3}{4}$ "
60 FEET	15'-2"	4'-10 $\frac{1}{4}$ "

INTERMEDIATE RADII CAN BE INTERPOLATED



SECTION A-A FOR TYPE 4A



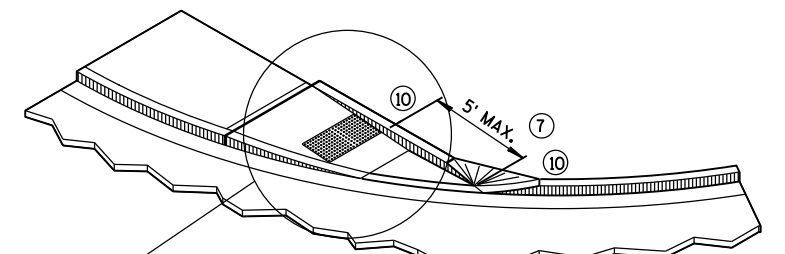
CURB RAMP TYPE 4A1
PLAN VIEW

GENERAL NOTES

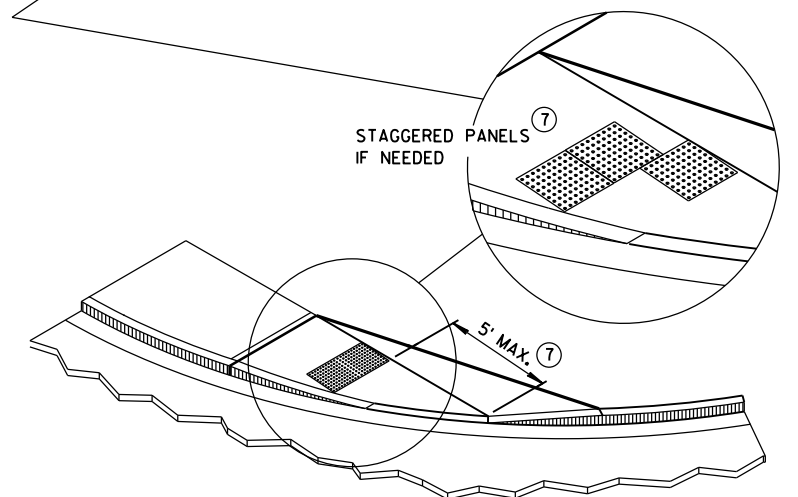
AVOID PLACING DRAINAGE STRUCTURES, JUNCTION BOXES OR OTHER OBSTRUCTIONS IN FRONT OF RAMP ACCESS AREAS.

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

- ② GRADE CHANGE BETWEEN GUTTER FLAG SLOPE AND THE CURB RAMP SLOPE SHALL NOT EXCEED 11%. MAXIMUM GUTTER FLAG SLOPE IS 4%. PROVIDE LONGITUDINAL DRAINAGE AROUND CURB AND AWAY FROM CURB RAMP. NO VERTICAL LIPS OR DISCONTINUITIES GREATER THAN 1/4-INCH ARE ALLOWED. SLOPE OF CURB HEAD OPENING SHALL NOT EXCEED 7%.
- ③ ABSOLUTE MAXIMUM 12H:1V (8.33%) CURB RAMP SLOPE IS ALLOWABLE WITH FLATTENED GUTTER FLAG SLOPE AND NOT TO EXCEED 11% GRADE CHANGE.
- ④ $\pm 0.5\%$ CONSTRUCTION TOLERANCE IN SIDEWALK CROSS SLOPE. THE SIDEWALK CROSS SLOPE SHALL NOT EXCEED 2% WITHOUT PRIOR APPROVAL FROM THE ENGINEER.
- ⑥ PROVIDE A LEVEL LANDING (MAXIMUM 2% SLOPE) IN ANY DIRECTION OF PEDESTRIAN TRAVEL. STANDARD LANDING SIZE IS 5 FEET X 5 FEET.
- ⑦ WHEN THIS DISTANCE EXCEEDS 5 FEET, STAGGER ADDITIONAL DETECTABLE WARNING PANEL FORWARD TO REDUCE THIS DISTANCE. PROVIDE MINIMUM 12-INCH ROW OVERLAP TO AVOID SIDESTEP OF DOME DETECTION. USE EQUAL-SIZE PANELS TO DEVELOP OVERLAPPING, STAGGERED ROWS. ALIGN DOMES BETWEEN OVERLAPPING ROWS AND IN DIRECTION OF PEDESTRIAN TRAVEL.
- ⑧ PROVIDE GRADE BREAK PERPENDICULAR TO DIRECTION OF WHEELCHAIR TRAVEL.
- ⑩ INSTALL TRANSITION NOSE. (INCIDENTAL TO OTHER PAY ITEMS). DO NOT MARK TRANSITION NOSE.



ISOMETRIC VIEW FOR TYPE 4A



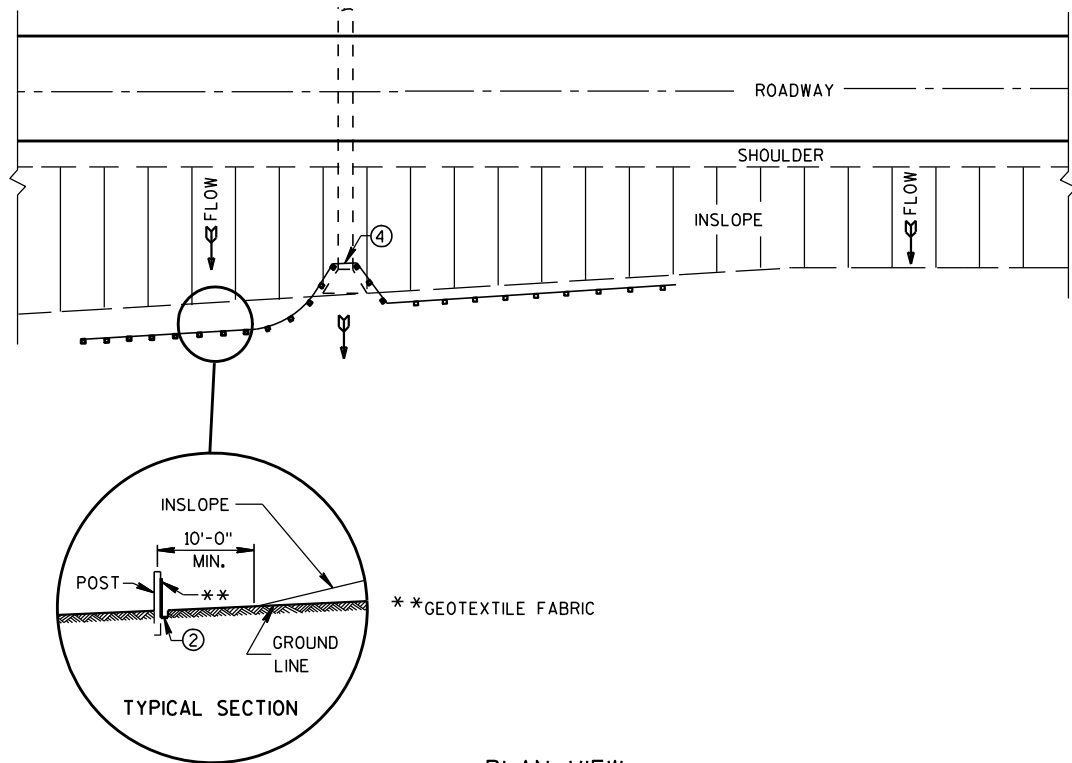
ISOMETRIC VIEW FOR TYPE 4A1

LEGEND

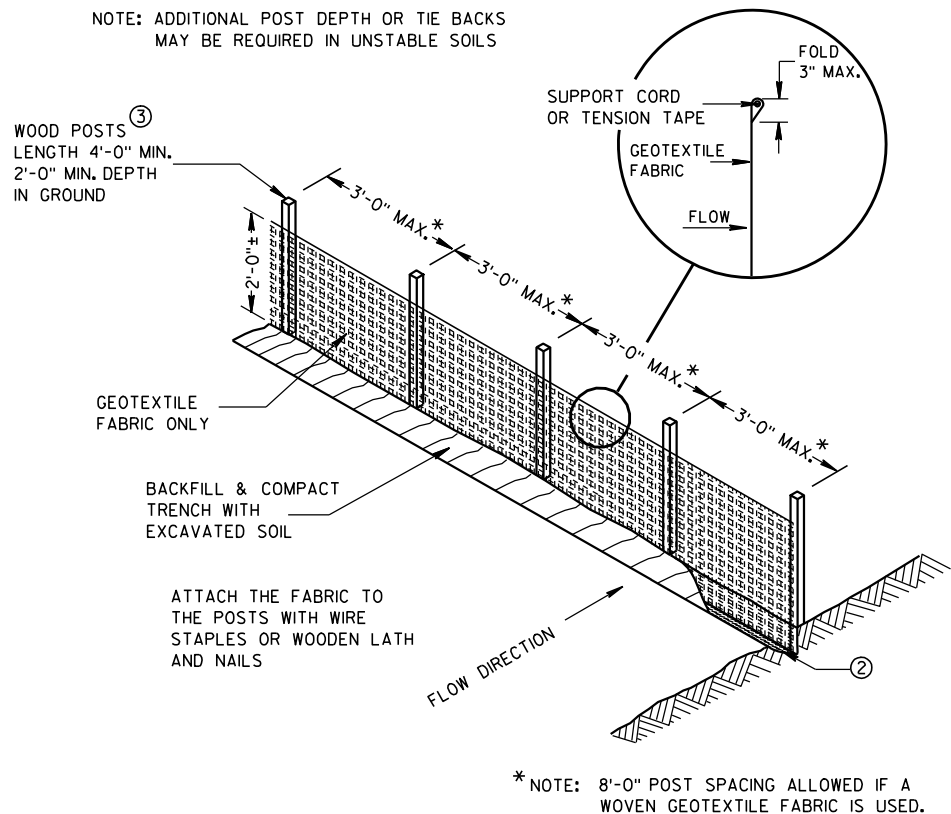
- 1/2" EXPANSION JOINT-SIDEWALK
- - - CONTRACTION JOINT FIELD LOCATED
- ||||| PAVEMENT MARKING CROSSWALK (WHITE)

CURB RAMPS
TYPES 4A AND 4A1

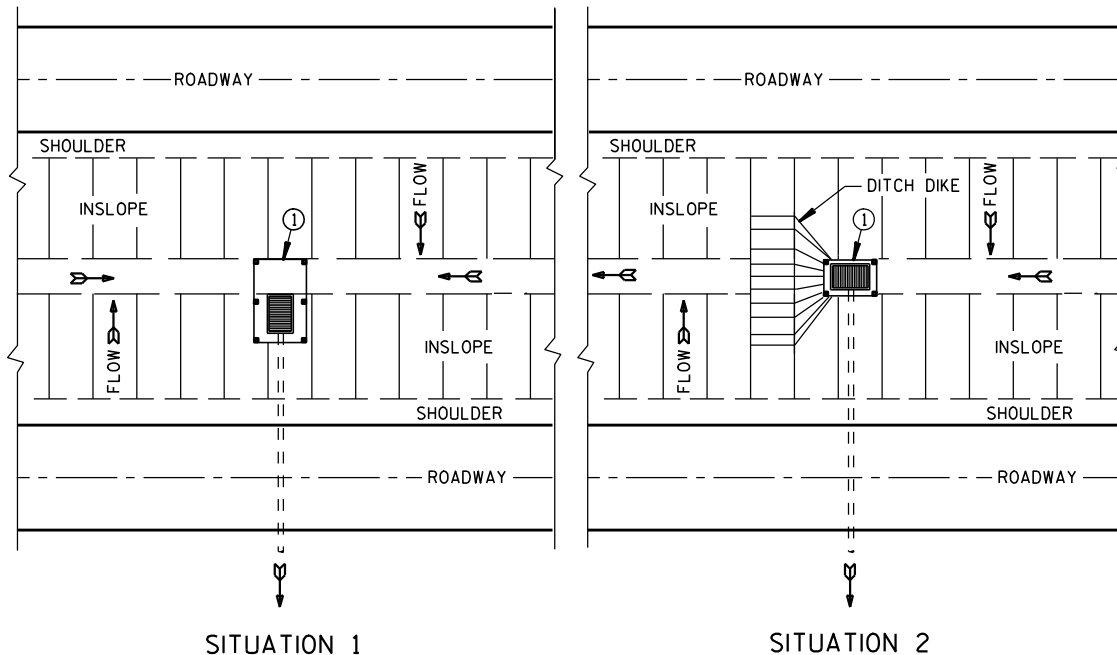
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



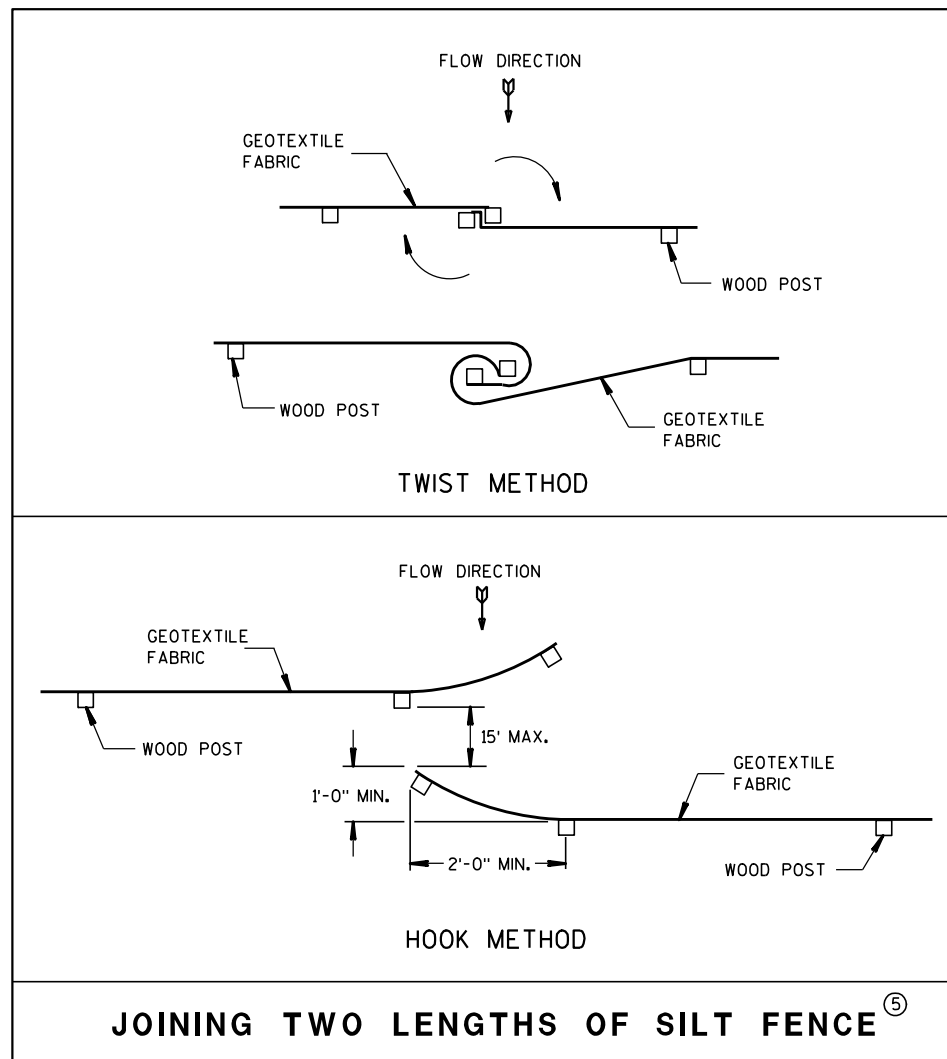
PLAN VIEW
TYPICAL APPLICATION OF SILT FENCE



SILT FENCE



PLAN VIEW
SILT FENCE AT MEDIAN SURFACE DRAINS

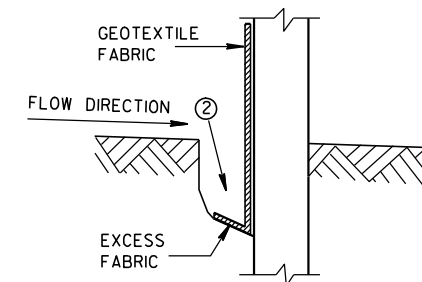


JOINING TWO LENGTHS OF SILT FENCE

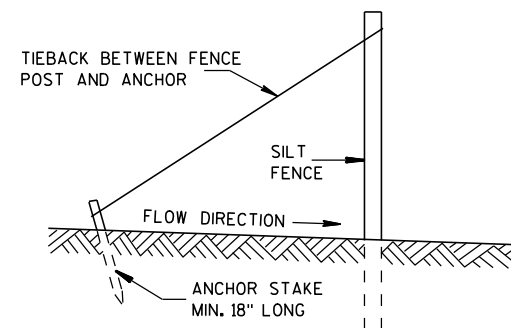
GENERAL NOTES

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

- 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 1 1/8" X 1 1/8" 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.

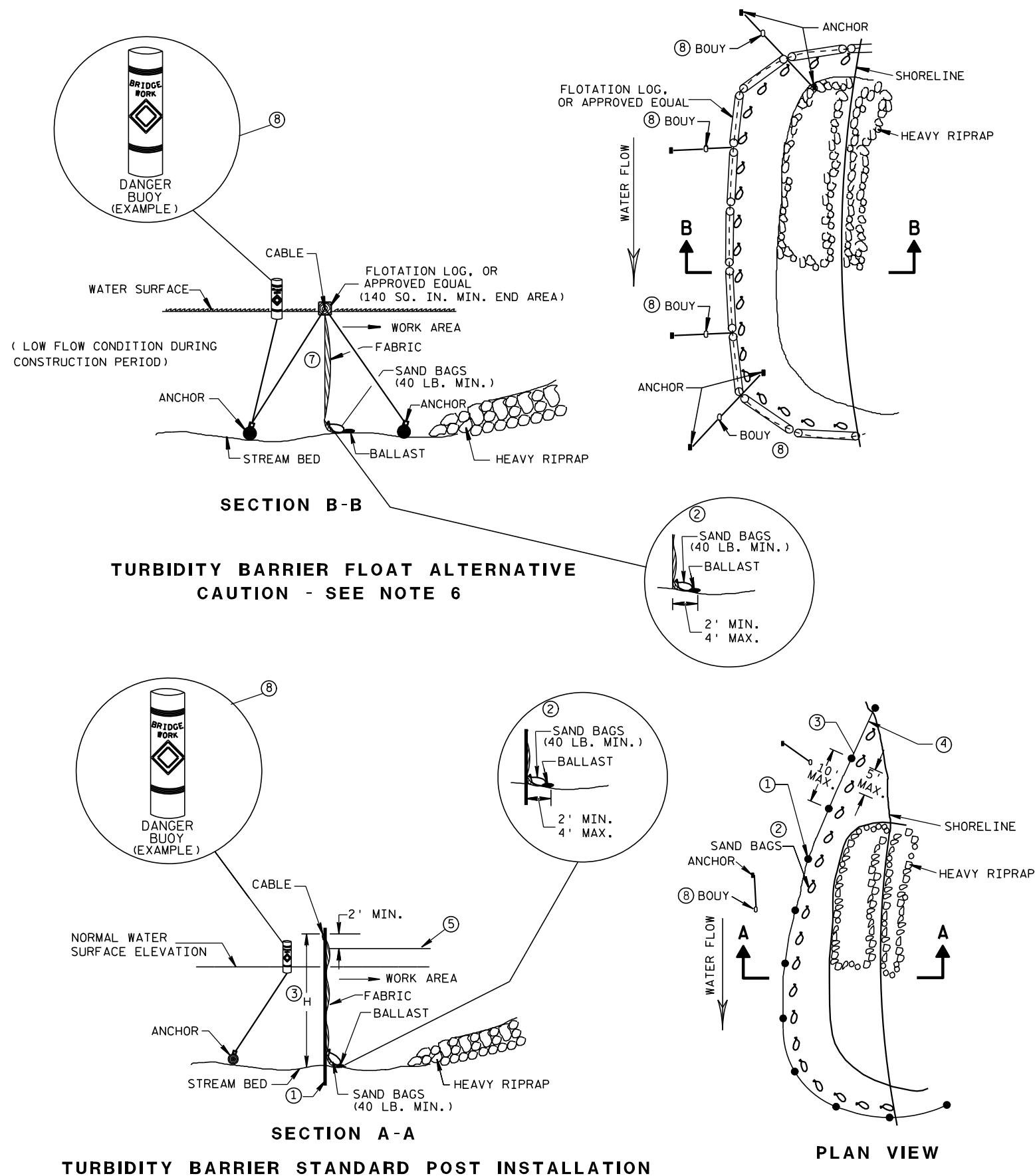


TRENCH DETAIL



SILT FENCE TIE BACK
(WHEN REQUIRED BY THE ENGINEER)

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

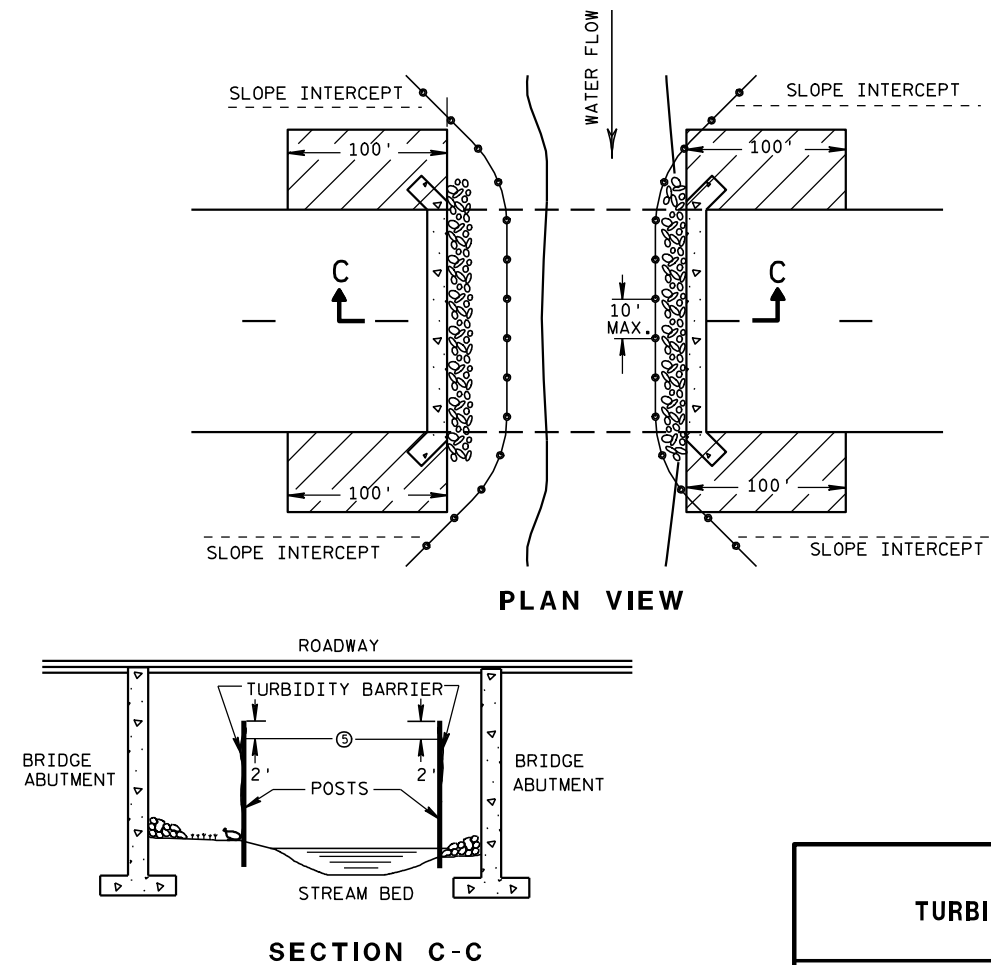


GENERAL NOTES

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.

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 SANDBAGS 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 FT., 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 02 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 BED ROCK 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.



TURBIDITY BARRIER DETAIL SHOWING TYPICAL PLACEMENT AT STRUCTURES

TURBIDITY BARRIER

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

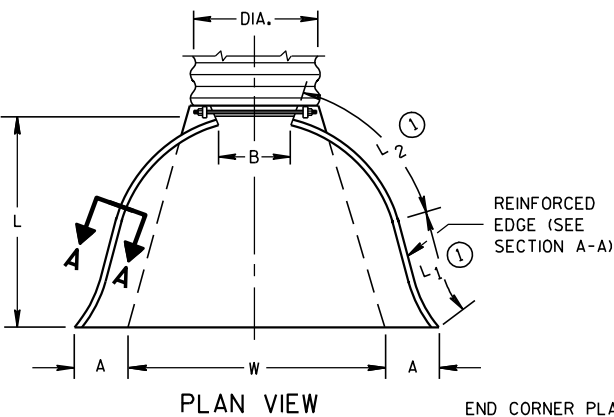
6/04/02
DATE

FHWA

/S/ Beth Canestra
CHIEF ROADWAY DEVELOPMENT ENGINEER

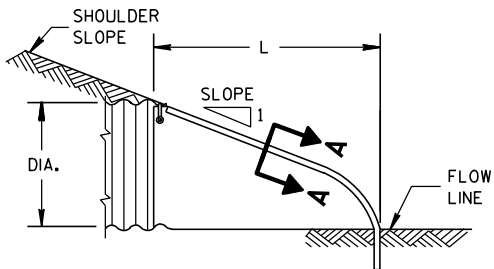
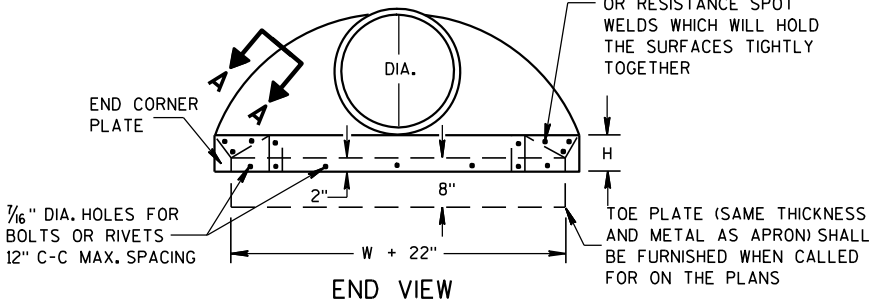
METAL APRON ENDWALLS												
PIPE DIA. (IN.)	MIN. THICK. (Inches)		DIMENSIONS (Inches)							APPROX. SLOPE	BODY	
	STEEL	ALUM.	A (±1")	B (MAX.)	H (±1")	L (±1 1/2")	L ₁ ①	L ₂ ①	W (±2")			
12	.064	.060	6	6	6	21	12	17 1/2	24	2 1/2 to 1	1 Pc.	
15	.064	.060	7	8	6	26	14	21 3/4	30	2 1/2 to 1	1 Pc.	
18	.064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

* EXCEPT CENTER PANEL
SEE GENERAL NOTES



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

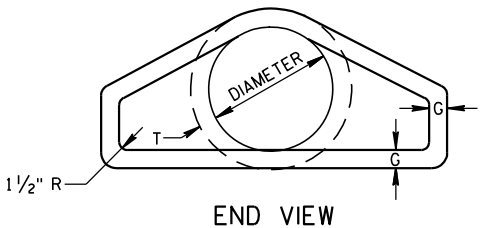
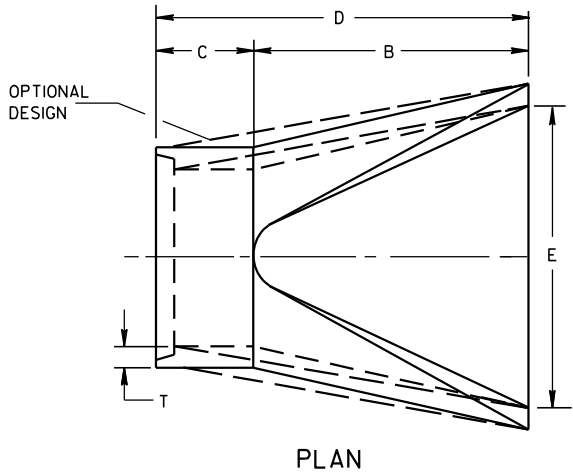
TOE PLATE (SAME THICKNESS AND METAL AS APRON) SHALL BE FURNISHED WHEN CALLED FOR ON THE PLANS



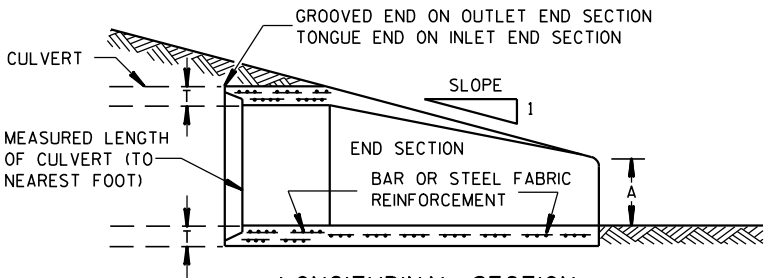
SIDE ELEVATION
METAL ENDWALLS

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

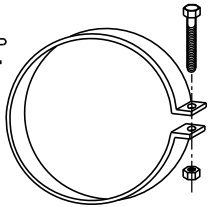
* MINIMUM
** MAXIMUM



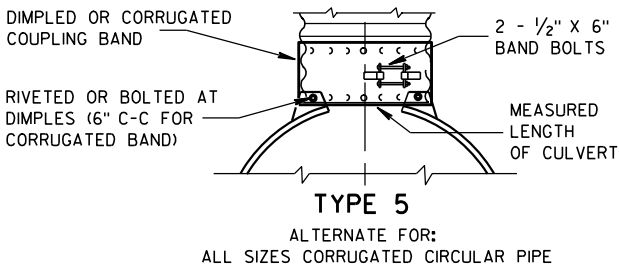
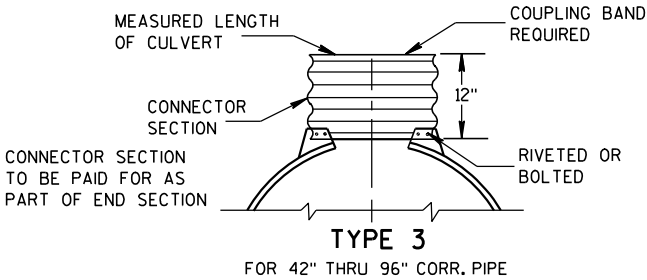
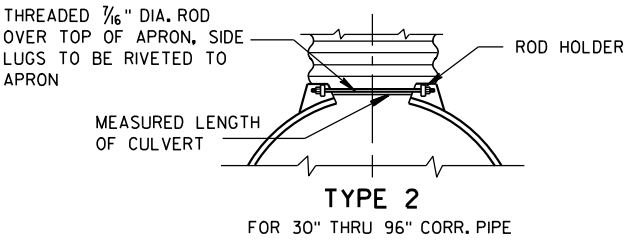
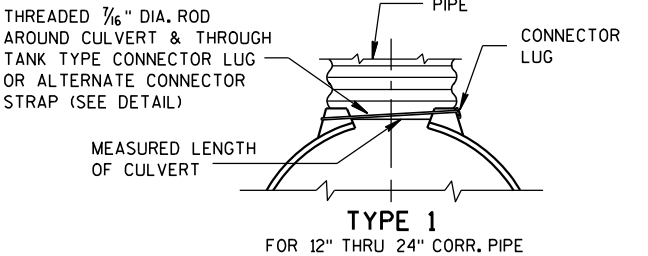
LONGITUDINAL SECTION
CONCRETE ENDWALLS



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



ALTERNATE FOR TYPE 1 CONNECTION
END SECTION CONNECTOR STRAP



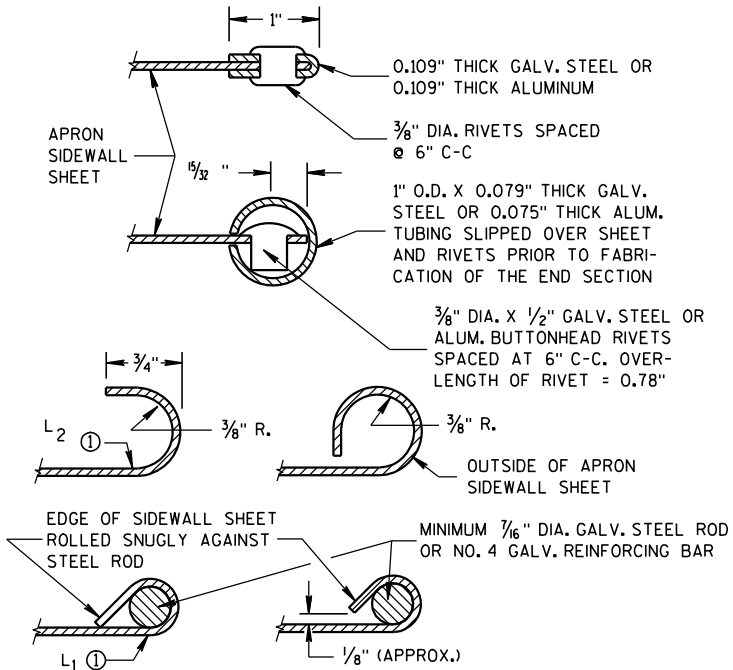
NOTE: DIMPLED BAND FITS OVER OUTSIDE OF ENDWALL, AND CORRUGATED BAND FITS INSIDE ENDWALL. DIMPLED BAND MAY BE USED WITH HELICALLY CORRUGATED PIPE.

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

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

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

CONNECTION DETAILS



SECTION A-A

GENERAL NOTES

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

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

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

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

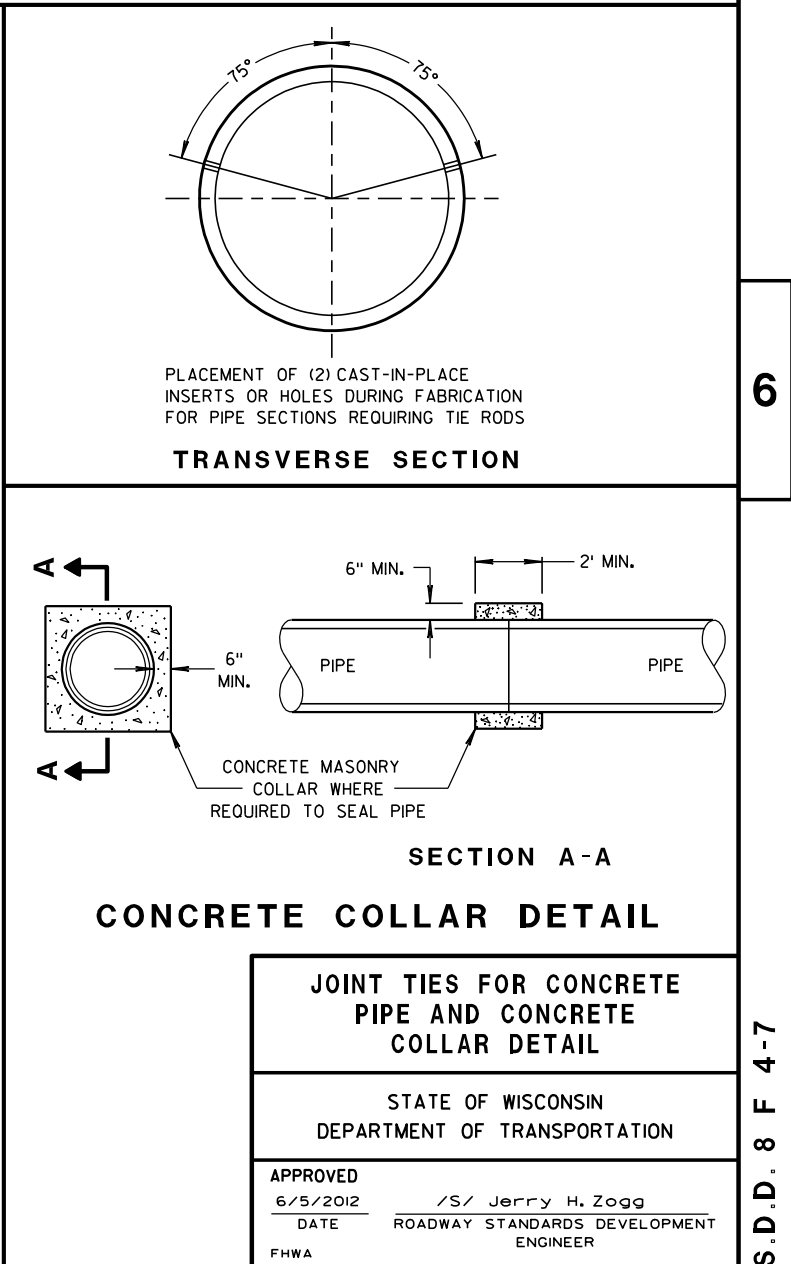
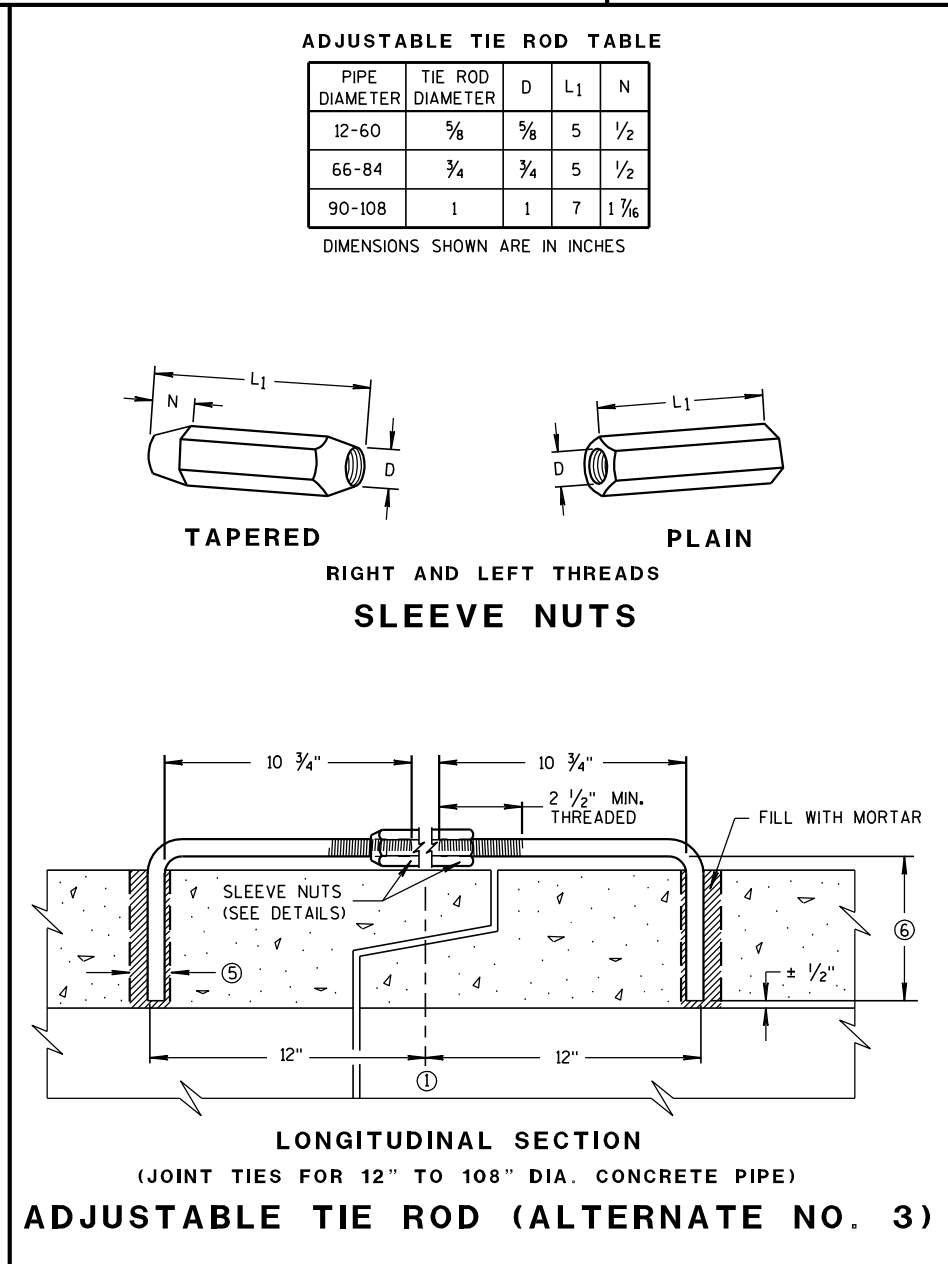
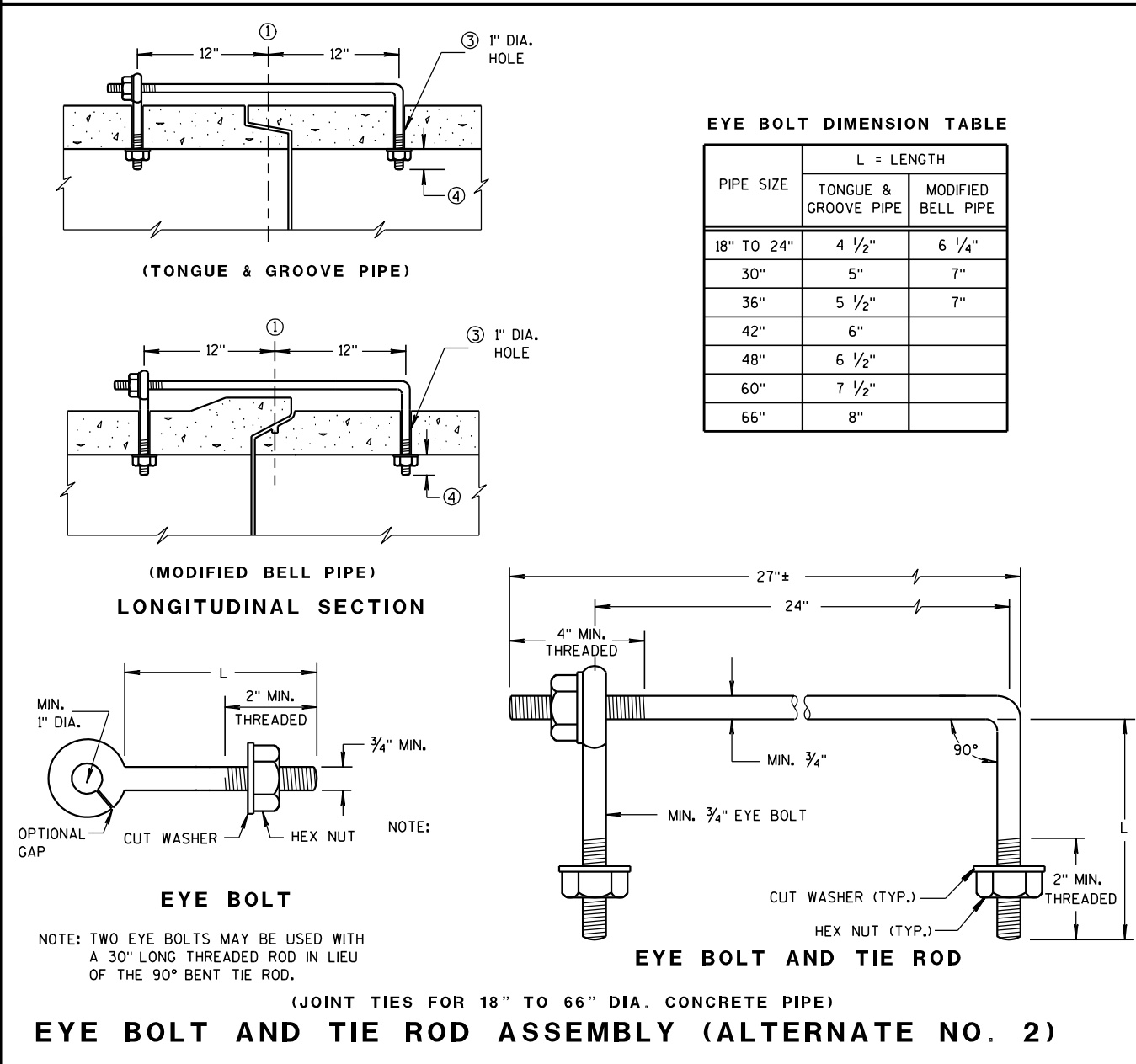
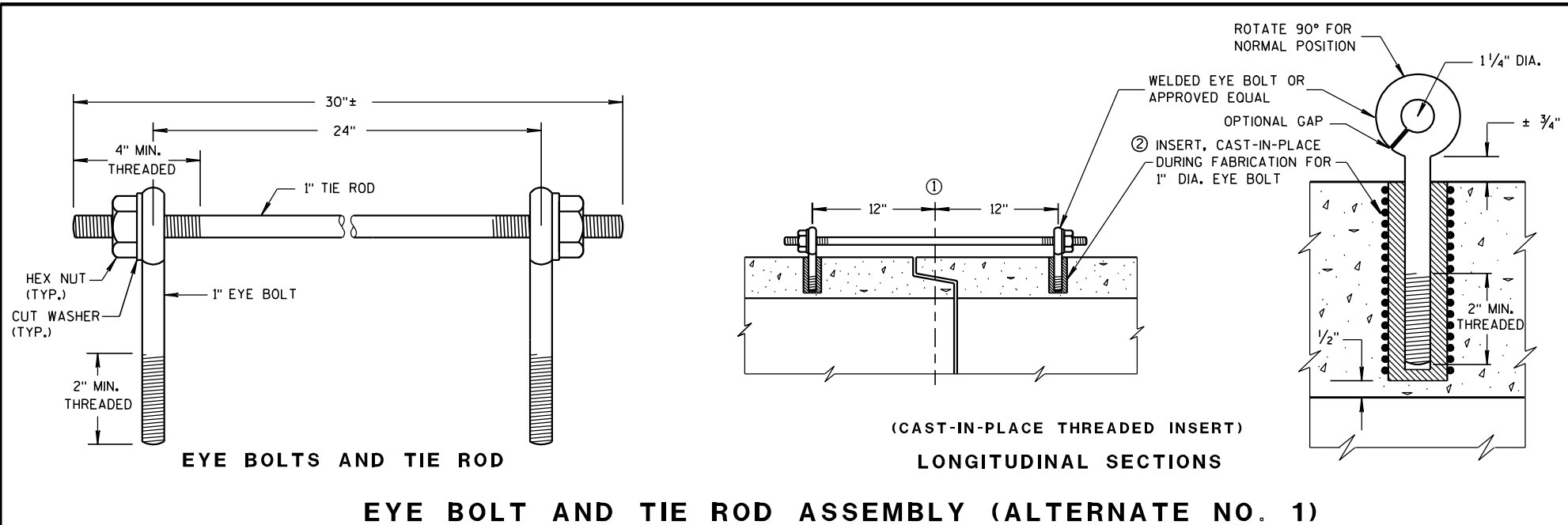
WHERE TWO OR MORE PIPES WITH APRON ENDWALLS ARE LAID ADJACENT TO EACH OTHER, THEY SHALL BE SEPARATED BY A DISTANCE SUFFICIENT TO PROVIDE A MINIMUM CLEARANCE OF 6 INCHES BETWEEN APRON ENDWALLS.

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

APRON ENDWALLS FOR
CULVERT PIPE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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



6

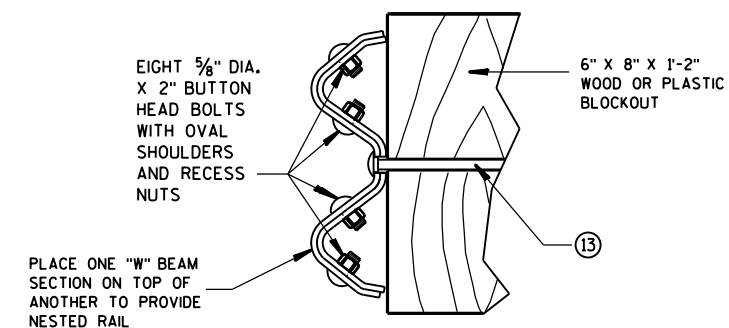
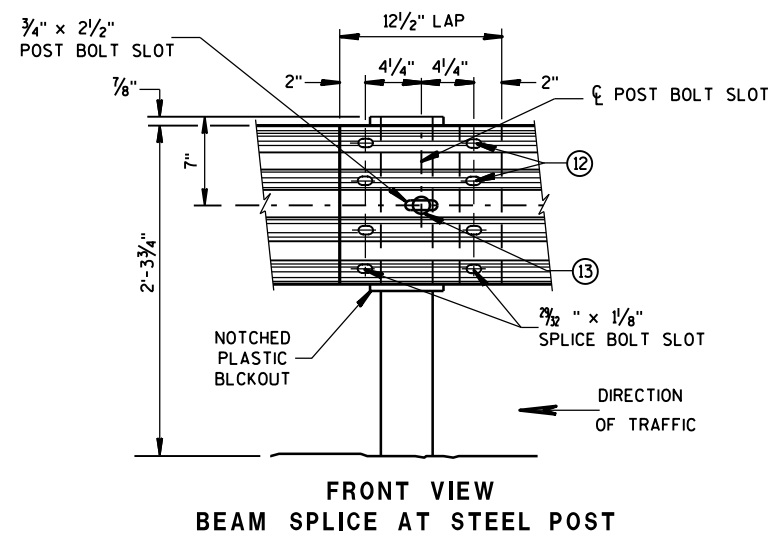
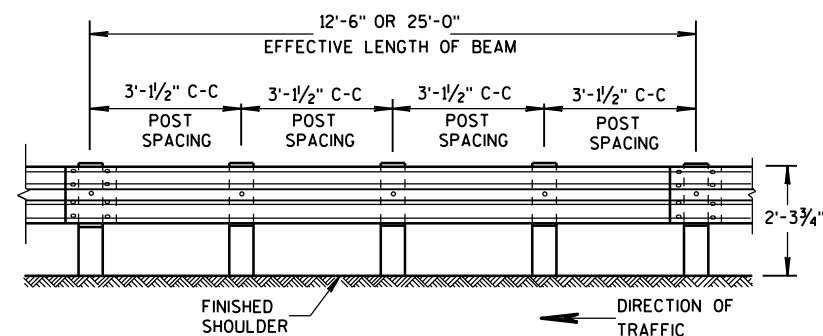
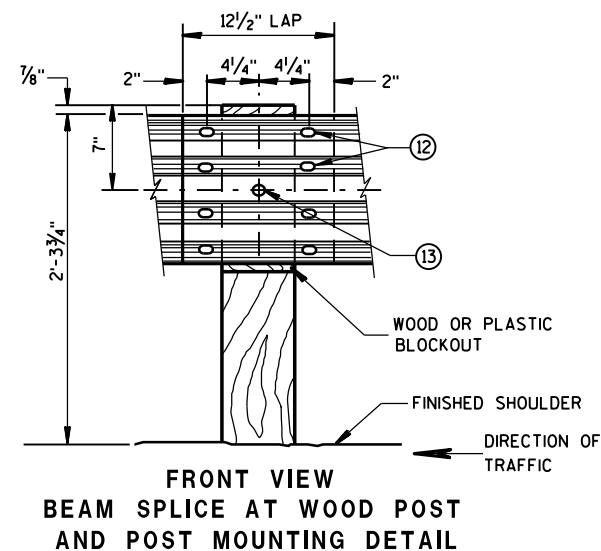
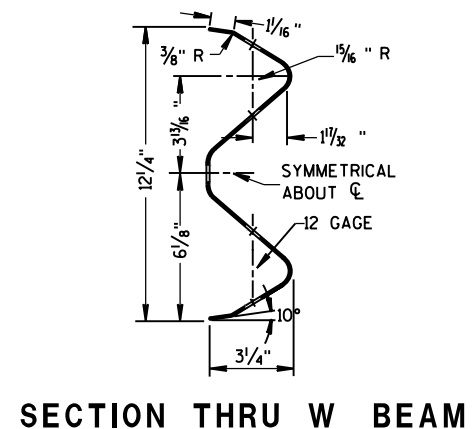
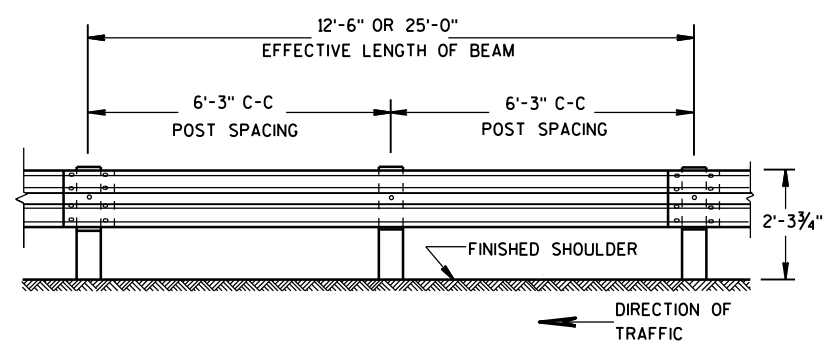
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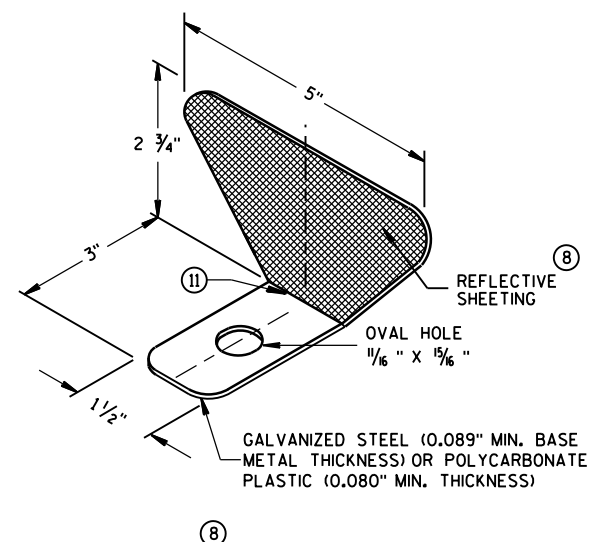
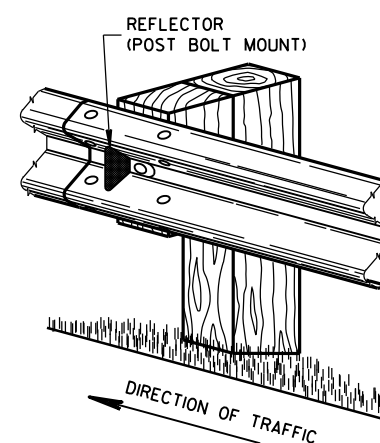
TYPICAL INSTALLATION OF STEEL PLATE BEAM GUARD



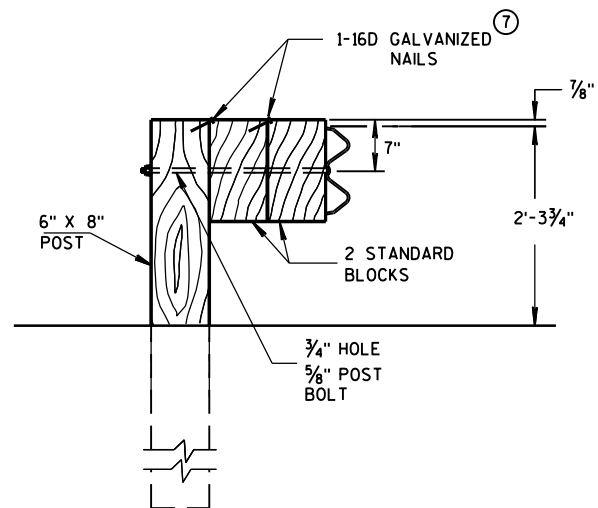
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



	BEAM GUARD LENGTH	REFLECTOR SPACING	NO. SURFACES REFLECTORIZED	MIN. NO. REFLECTORS
ONE WAY TRAFFIC	< 200' > 200'	50' C-C 100' C-C	1 1	3
TWO WAY TRAFFIC	< 200' > 200'	25' C-C 50' C-C	1 1 ⁽¹⁰⁾	6
TWO WAY TRAFFIC	< 200' > 200'	50' C-C 100' C-C	2 2 ⁽¹¹⁾	3

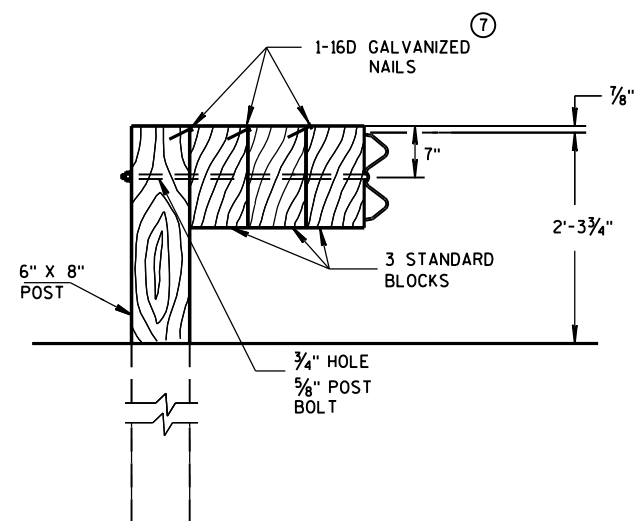


- ## GENERAL NOTES
- ⑧ PROVIDE SILVER REFLECTIVE SHEETING ON ALL REFLECTORS EXCEPT THOSE LOCATED ALONG THE LEFT EDGE OF ONE-WAY ROADWAYS, WHICH SHALL BE PROVIDED WITH YELLOW REFLECTIVE SHEETING. SHEETING IS TYPE H. SEE STANDARD SPECIFICATION 637.
 - ⑨ DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINAL.
 - ⑩ REVERSE EVERY OTHER REFLECTOR FOR 2-WAY VISIBILITY. THE CONTRACTOR MAY FURNISH TWO-SIDED REFLECTORS IN LIEU OF ONE-SIDED REFLECTORS.
 - ⑪ PROVIDE AN ANGLE OF BEND OF $90^{\circ} \pm 1^{\circ}$ FOR TWO-SIDED REFLECTORS.
 - ⑫ 8 - $\frac{5}{8}$ " ϕ X 2" BUTTON HEAD BOLTS WITH OVAL SHOULDERS & RECESS NUTS.
 - ⑬ $\frac{5}{8}$ " DIA. BUTTON HEAD BOLT AND RECESS NUT WITH $\frac{5}{8}$ " DIA. F844 FLAT WASHER UNDER NUT.



DETAIL FOR DOUBLE BLOCKS

THE NUMBER OF DOUBLE BLOCK POSTS
WITHIN A BARRIER RUN IS UNLIMITED

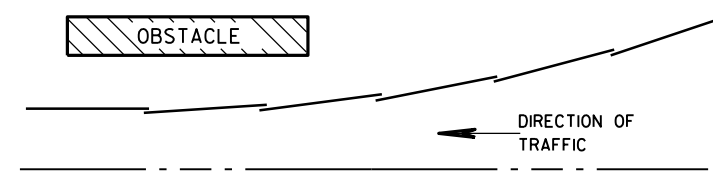


DETAIL FOR TRIPLE BLOCKS

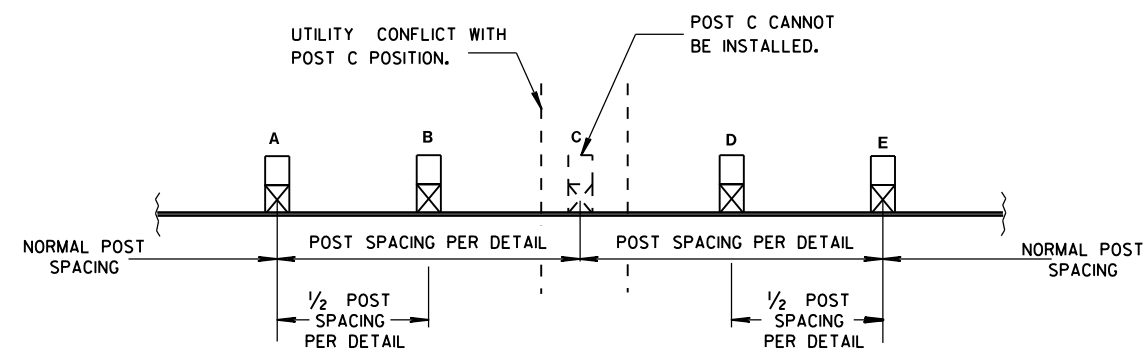
TRIPLE BLOCK DETAIL IS LIMITED TO ONE
LOCATION WITHIN A BEAM GUARD RUN.

NOTES: USE DOUBLE OR TRIPLE BLOCKS WHEN UNDERGROUND OBSTACLES
PREVENT THE POST FROM BEING INSTALLED.

DO NOT USE EXTRA 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.



PLAN VIEW BEAM LAPPING DETAIL



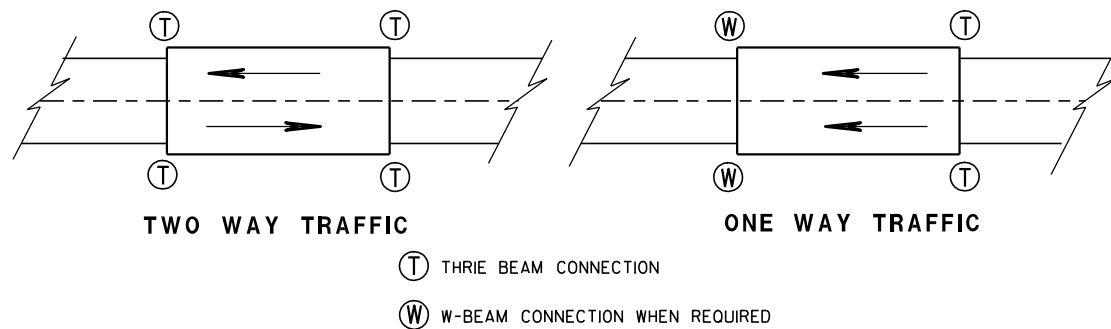
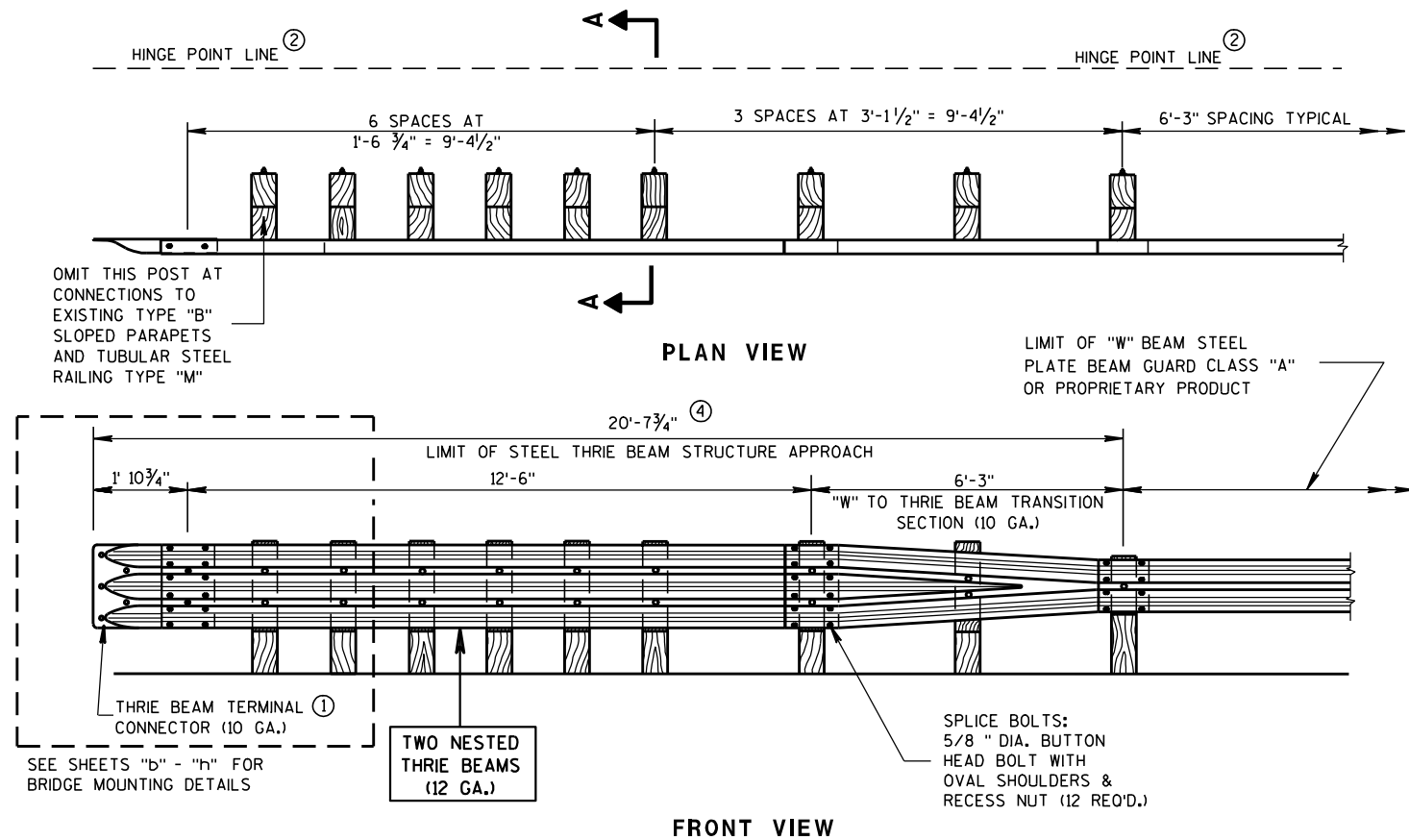
POST DRIVING FOR CONTINUOUS UNDERGROUND OBSTRUCTION

STEEL PLATE BEAM GUARD,
CLASS "A",
INSTALLATION & ELEMENTS

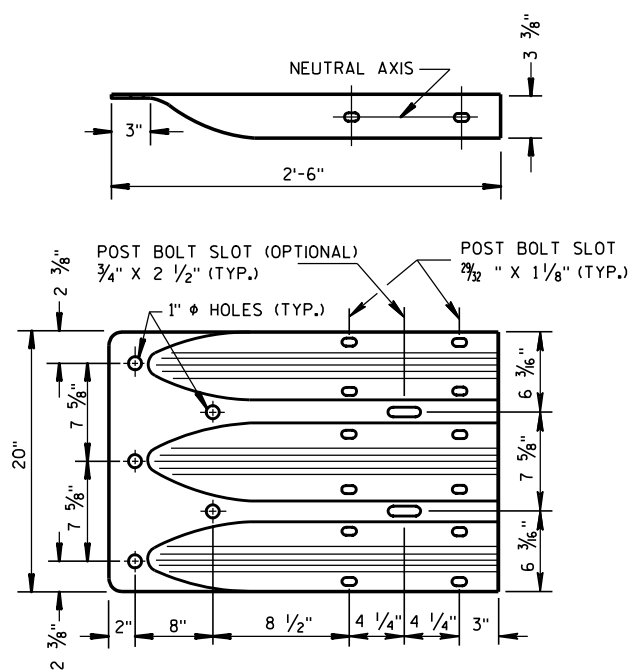
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June 2016
DATE
FHWA

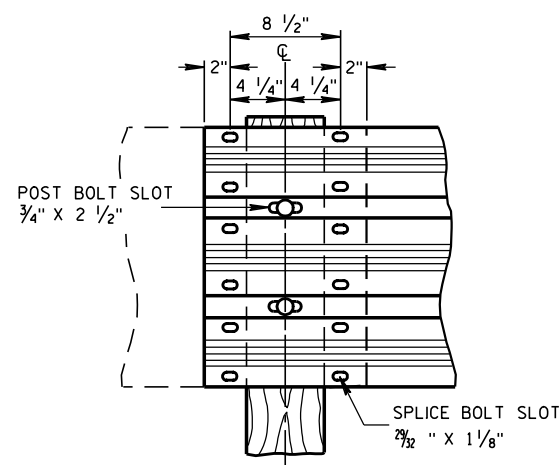
/S/ Jerry H. Zogg
ROADWAY STANDARDS DEVELOPMENT
ENGINEER



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



THRIE BEAM TERMINAL CONNECTOR



THRIE BEAM SPLICE

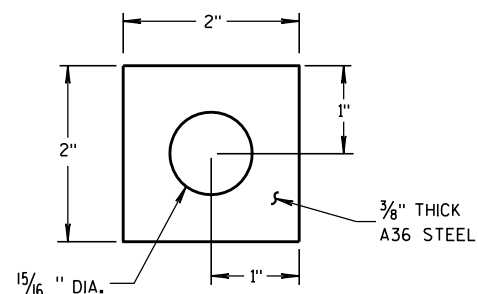
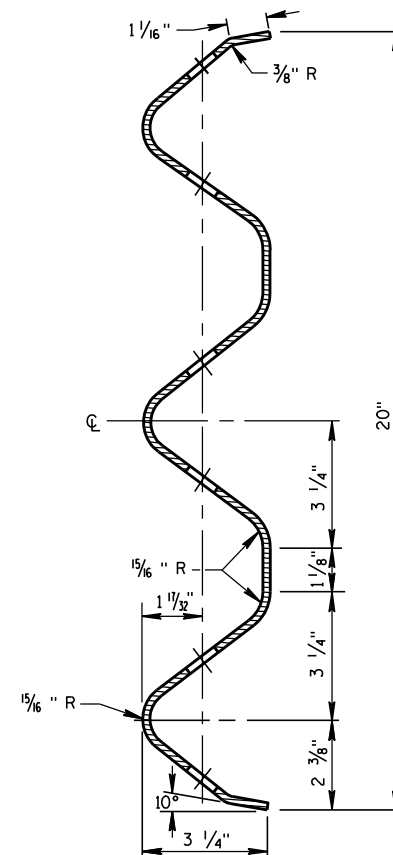


PLATE WASHER DETAIL



SECTION THRU THRIE BEAM RAIL ELEMENT

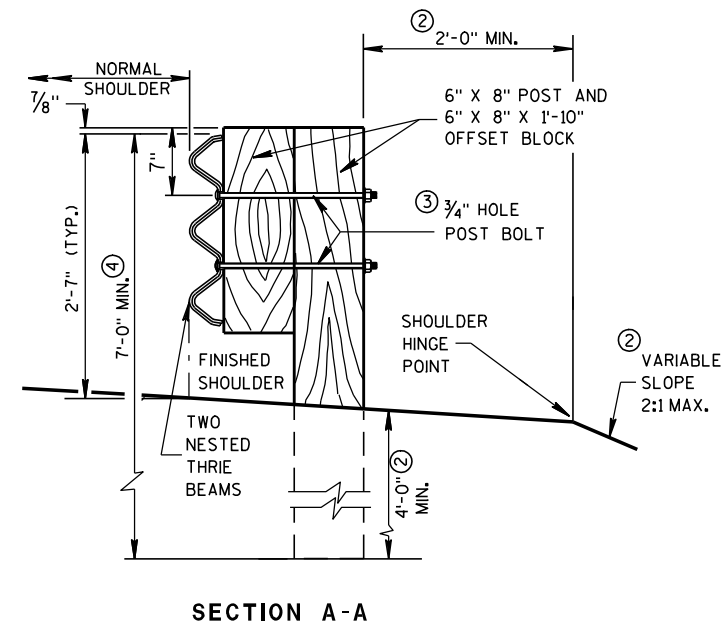
GENERAL NOTES

BOLT THE THRIE BEAM TO ALL POSTS AND BLOCKOUTS. DRILL OR PUNCH BOLT HOLES IN THE BEAM IF THE POST SPACING IS LESS THAN 6'-3".

DO NOT USE STEEL POSTS AND NOTCHED PLASTIC BLOCKOUTS IN THE STEEL THRIE BEAM STRUCTURAL APPROACH AND THE TRANSITION SECTION OF STEEL PLATE BEAM GUARD, CLASS "A" INSTALLATIONS.

IF ROCK IS ENCOUNTERED, REMOVE ROCK TO FULL DEPTH OF POST PLUS 2 1/2", AND 12" DIAMETER AROUND POST. SEE 14B15 FOR MORE DETAILS.

- ① BRIDGE RAILING TYPE "W" DOES NOT REQUIRE A TERMINAL CONNECTOR.
- ② MINIMUM EMBEDMENT SHALL BE 4'-0". WHERE EXISTING CONDITIONS DO NOT PERMIT THE APPROPRIATE EARTHWORK SHOWN ON THE PLAN TYPICAL SECTIONS OR DETAILS, THE ENGINEER MAY ALLOW THE REDUCTION OR ELIMINATION OF THE 2 FOOT DISTANCE TO THE HINGE POINT. OTHERWISE BUILD AS THE PLAN SHOWS OR AS THE ENGINEER DIRECTS. IF THE 2 FOOT DISTANCE TO THE HINGE POINT IS REDUCED OR ELIMINATED, INCREASE THE POST EMBEDMENT DEPTH TO 4'-6" OR MORE.
- ③ POST BOLTS ARE 5/8" DIAMETER ASTM A307 BUTTON HEAD BOLT. A POST BOLT REQUIRES A 5/8" DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX AND A 5/8" DIAMETER F844 FLAT WASHER. LENGTH OF POST BOLT MAY VARY.
- ④ ALL WOOD POSTS MUST BE 6" X 8" AND AT LEAST 7'-0" LONG.



STEEL THRIE BEAM STRUCTURE APPROACH

STATE OF WISCONSIN
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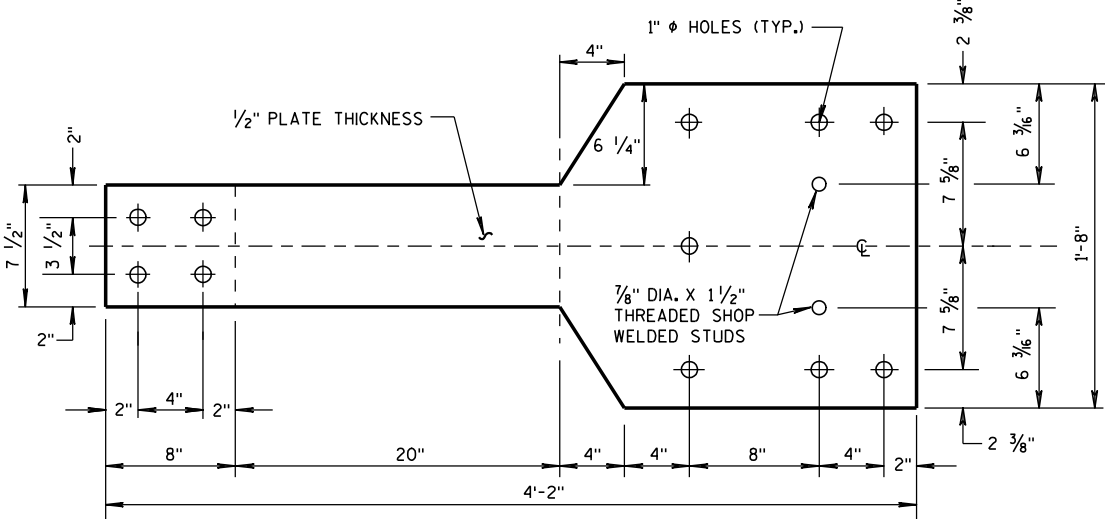
8/31/2012
DATE

FHWA

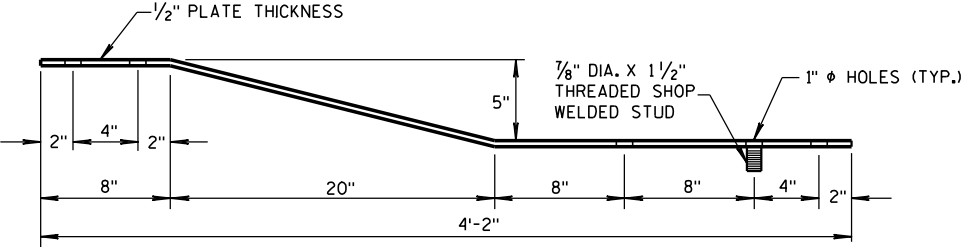
/s/ Jerry H. Zogg
ROADWAY STANDARDS DEVELOPMENT
ENGINEER

GENERAL NOTES

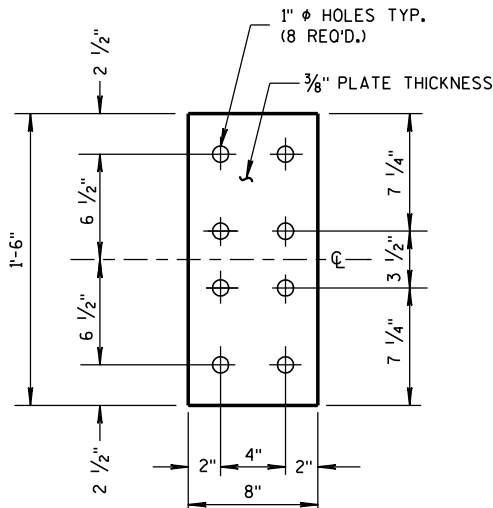
① VARY THIS DIMENSION DEPENDING ON ABUTMENT TYPE, WINGWALL DETAILS, AND ANGLE OF SKEW. PLACE THE FIRST WOOD POST OFF THE BRIDGE SHALL BE AS CLOSE AS FEASIBLE TO THE STEEL END POST.



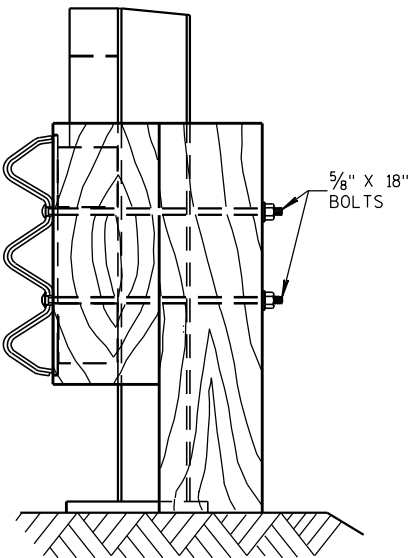
FRONT VIEW



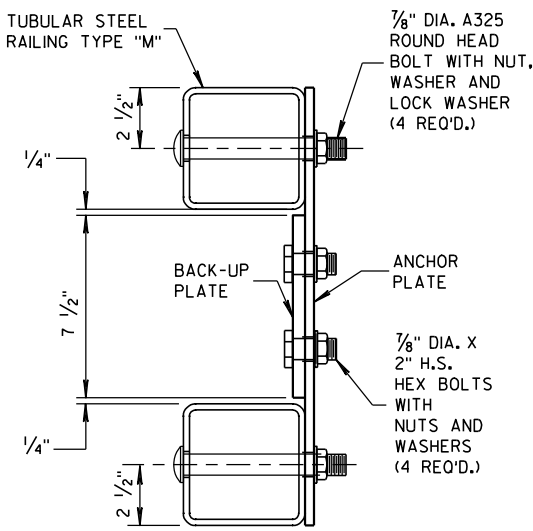
PLAN VIEW
BACK-UP PLATE DETAIL, TYPE "M"



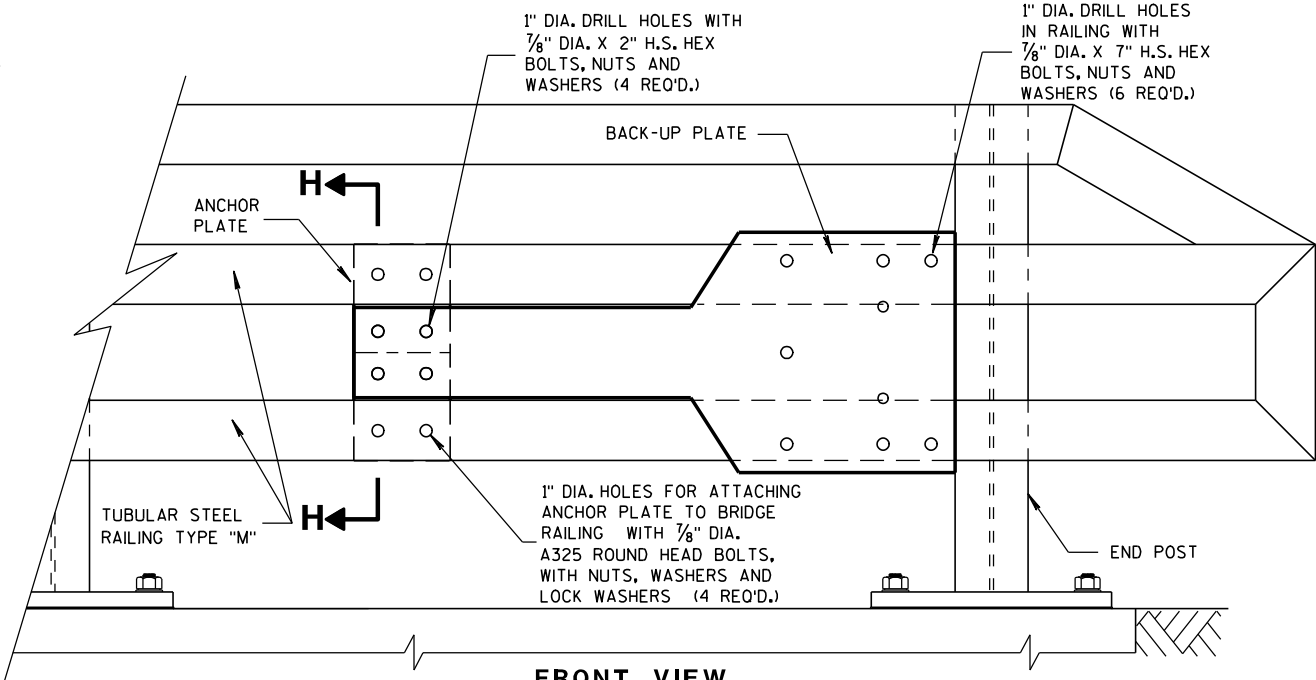
FRONT VIEW
ANCHOR PLATE DETAIL, TYPE "M"



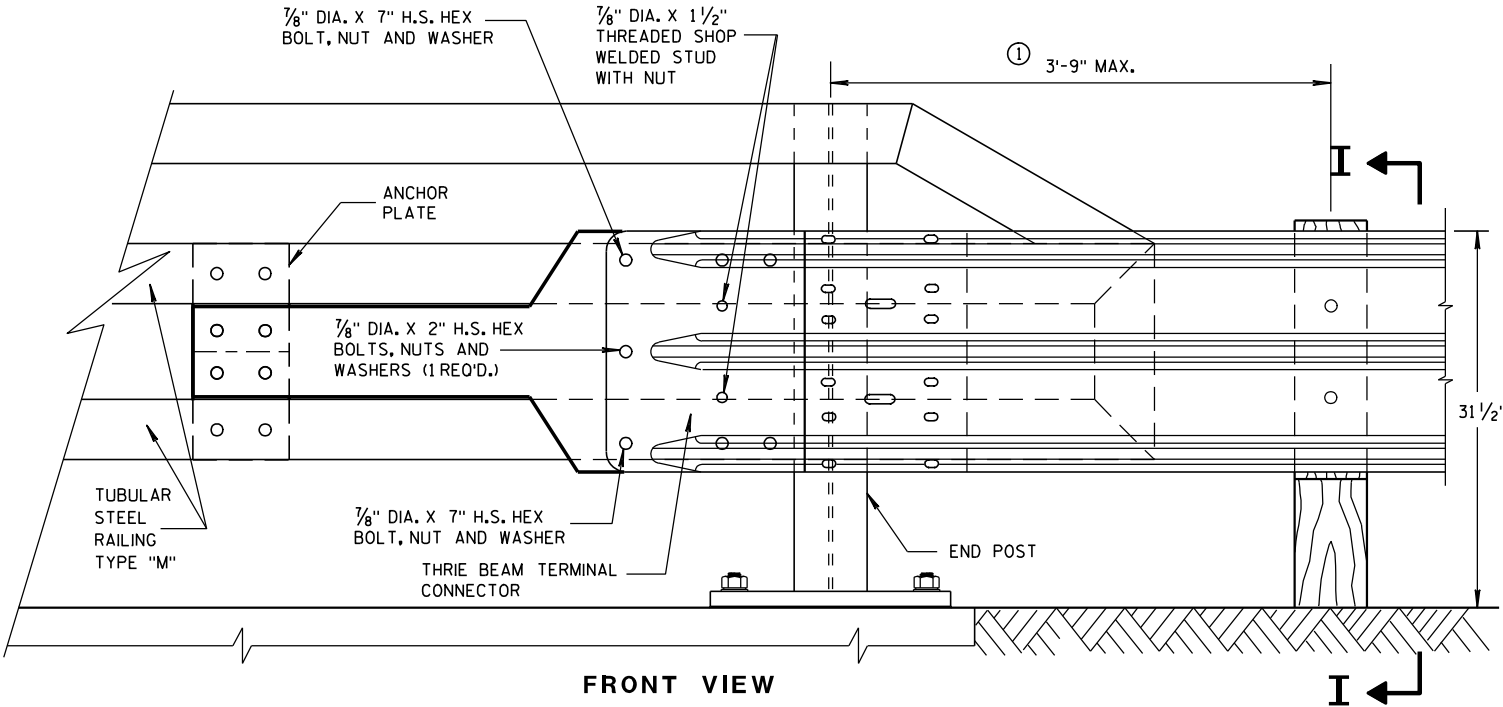
SECTION I-I



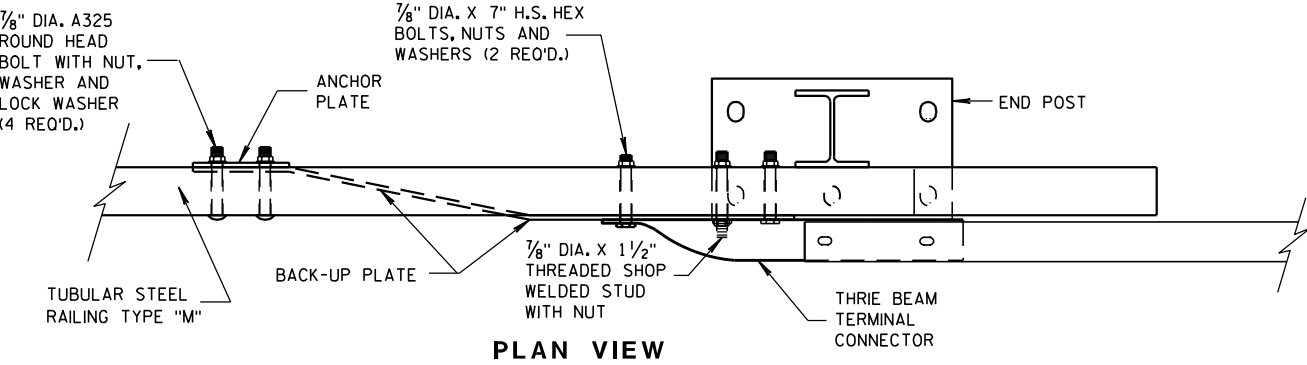
SECTION H-H



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



FRONT VIEW

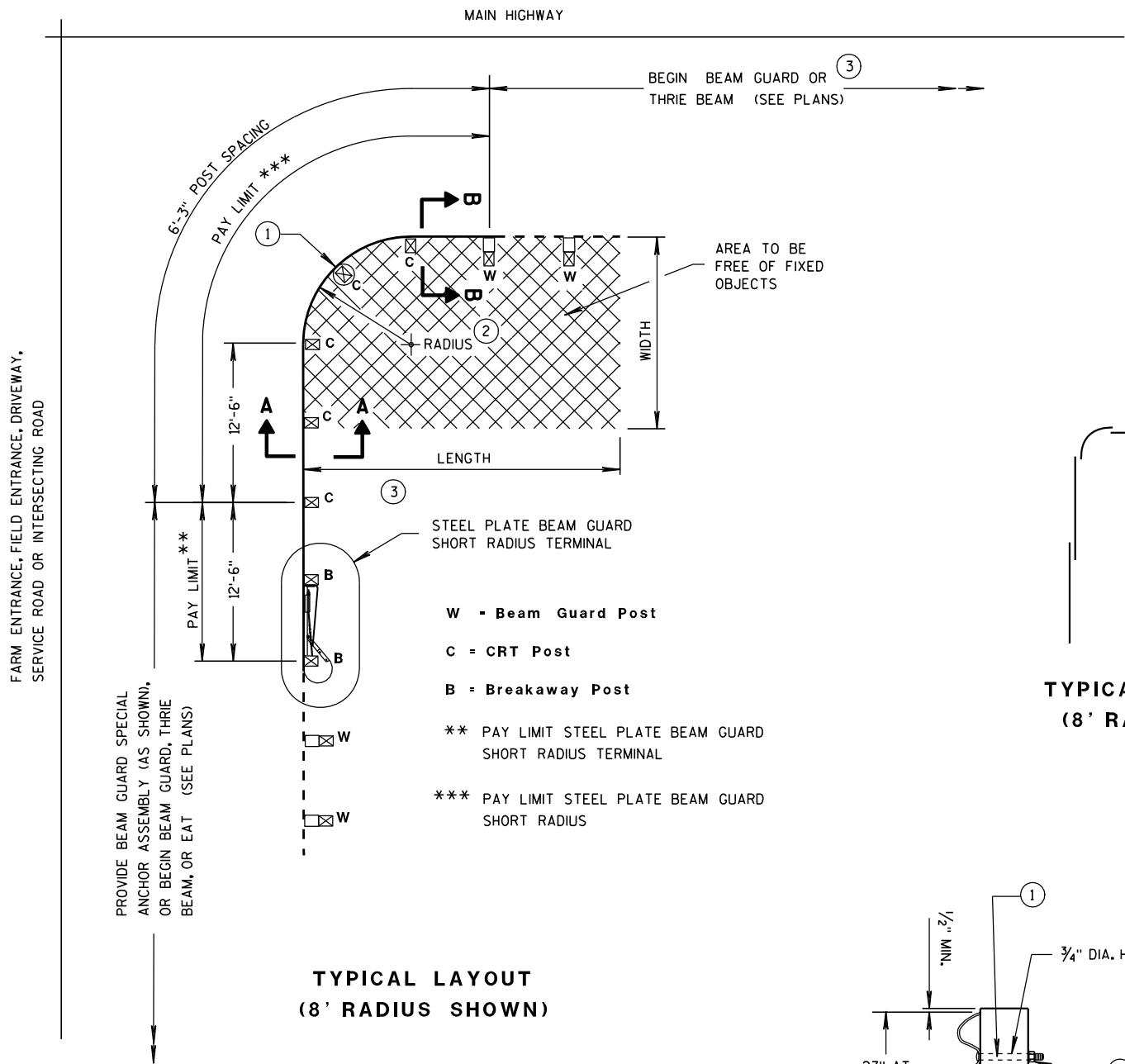


PLAN VIEW
THRIE BEAM CONNECTION TO TUBULAR RAILING, TYPE "M"

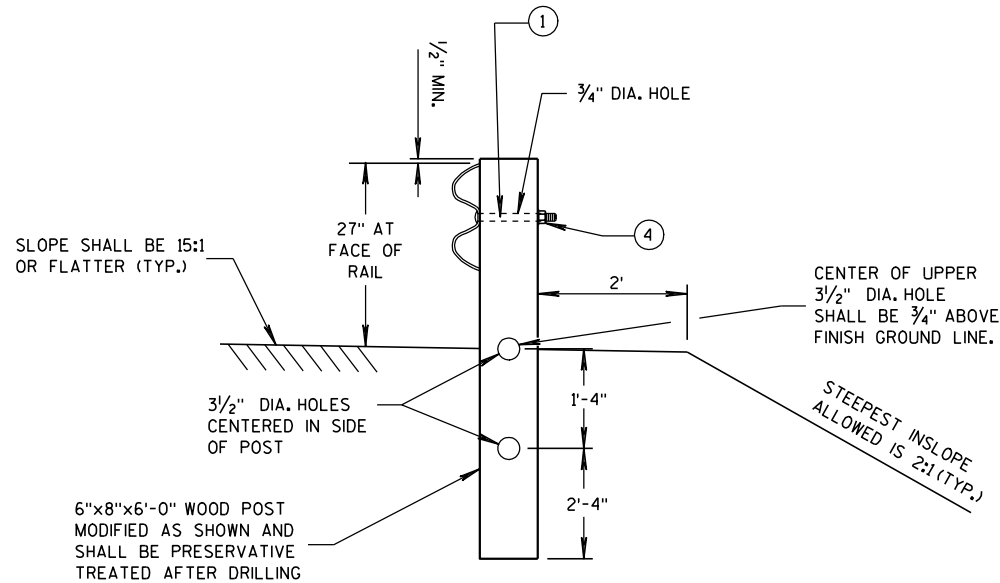
**STEEL THRIE BEAM STRUCTURE
APPROACH CONNECTION TO
BRIDGE RAILING TYPE "M"**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
8/31/2012 DATE /S/ Jerry H. Zogg
ROADWAY STANDARDS DEVELOPMENT
ENGINEER
FHWA

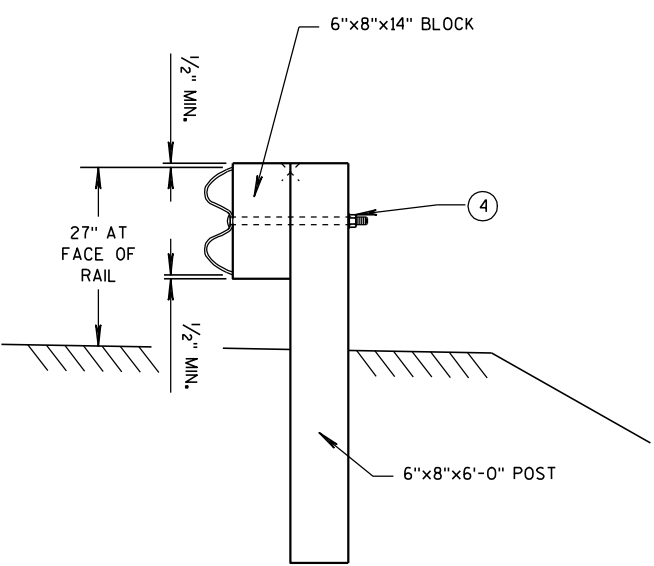


TYPICAL LAYOUT
(8' RADIUS SHOWN)



SECTION A-A
(CRT POST)

TYPICAL LAP SPLICES
(8' RADIUS SHOWN)



SECTION B-B
(BEAM GUARD POST)

GENERAL NOTES

ALL ANGLES, CHANNELS, AND PLATES SHALL CONFORM TO THE REQUIREMENTS OF ASTM A36 AND THE STRUCTURAL TUBING SHALL CONFORM TO ASTM A 500. WELDING SHALL MEET THE CURRENT REQUIREMENTS OF THE AMERICAN WELDING SOCIETY STRUCTURAL WELDING CODE ANSI/AWS D1.1. ALL STRUCTURAL STEEL SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A 123. PUNCHING, DRILLING, CUTTING, OR WELDING WILL NOT BE PERMITTED AFTER GALVANIZING. FURNISH AND INSTALL HARDWARE PER STANDARD SPECIFICATION 614.2, UNLESS NOTED OTHERWISE.

SHOP BEND CURVED RAIL SECTIONS.

SEE STANDARD DETAIL DRAWING 14 B 15 FOR OTHER DETAIL.

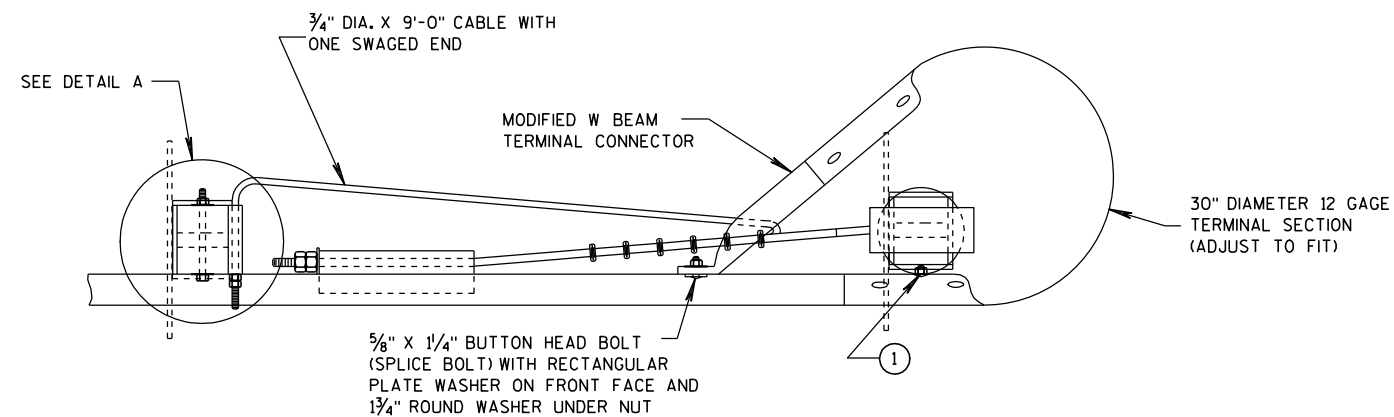
- ① ON THE 8 FOOT RADIUS INSTALLATION, DO NOT INSTALL BUTTON HEAD BOLT AT CENTER CRT POST.
- ② RADIUS FROM 8' - 36'. SEE PLAN.
- ③ HEIGHT TRANSITION MAY BE REQUIRED. SEE PLAN OR PROJECT ENGINEER.
- ④ 5/8" Ø X 1'-6" BUTTON HEAD BOLT AND RECESS NUT WITH ROUND WASHER UNDER NUT.

RADIUS	NUMBER OF CRT POSTS	*NUMBER AND LENGTH OF CURVED RAILS	REQUIRED AREA FREE OF FIXED OBJECTS (LENGTH x WIDTH)
8'	5	1 at 12.5'	25' x 15'
16'	7	1 at 25'	30' x 15'
24'	9	1 at 25' and 1 at 12.5'	40' x 20'
32'	11	2 at 25'	50' x 20'

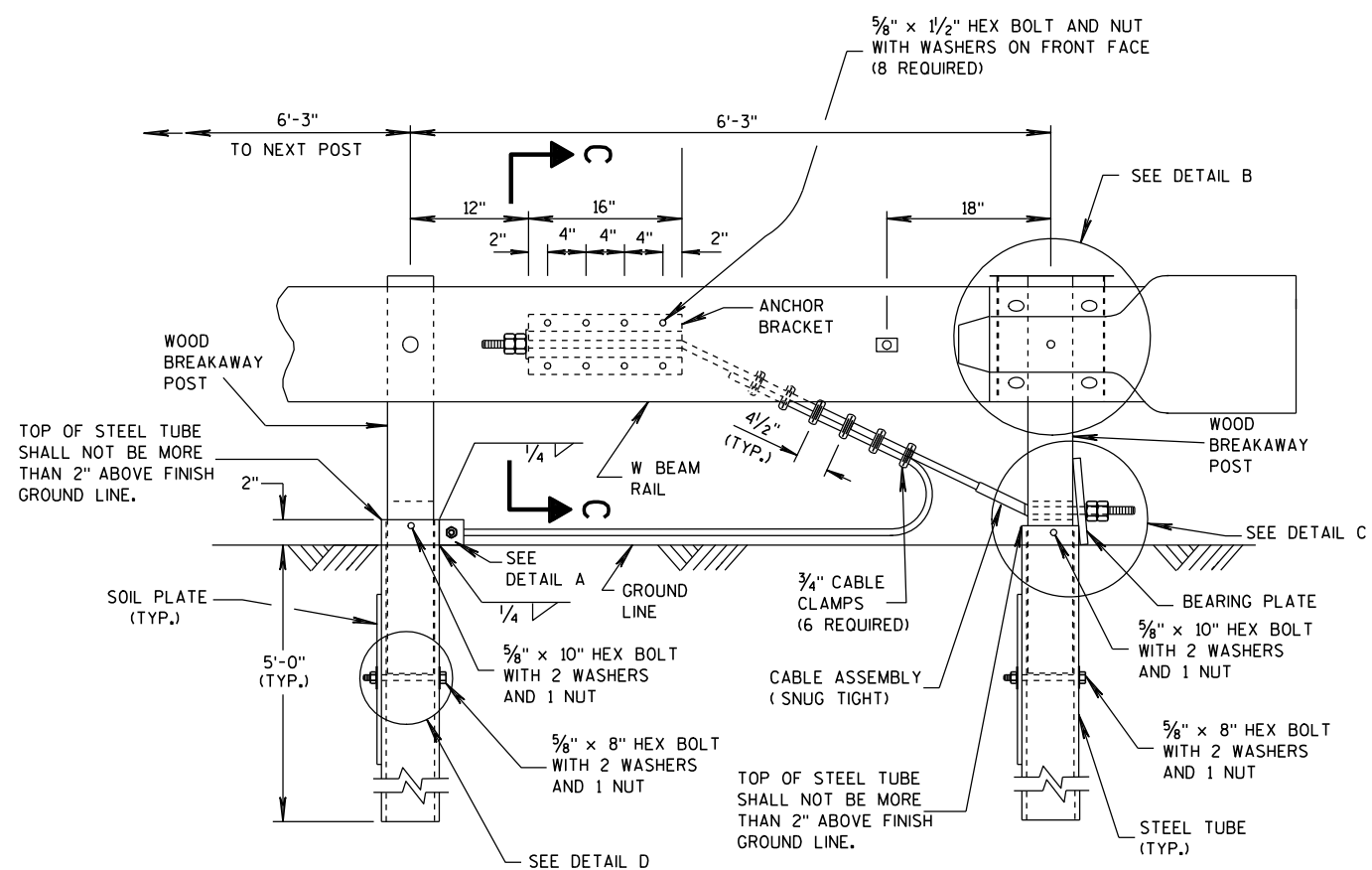
* THE NUMBER OF RAILS IS BASED ON A 90° INTERSECTION. SEE PLAN FOR NON 90° INSTALLATIONS.

STEEL PLATE BEAM GUARD
SHORT RADIUS TERMINAL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



PLAN VIEW

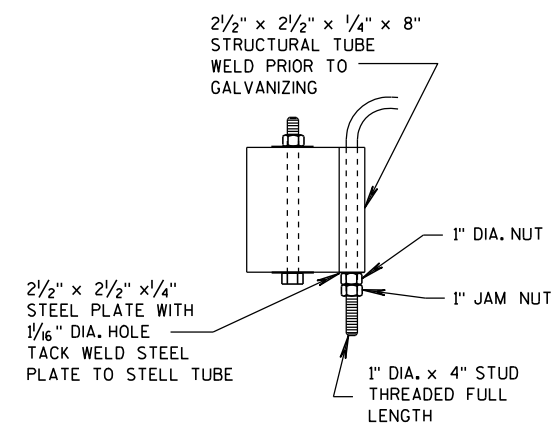


ELEVATION VIEW

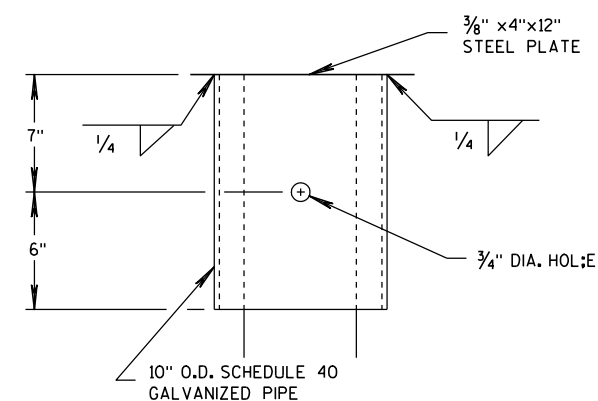
STEEL PLATE BEAM GUARD SHORT RADIUS TERMINAL

GENERAL NOTES

- 1 ATTACH W BEAM RAIL TO THE STEEL PIPE WITH A 5/8" X 2" BUTTON HEAD BOLT WITH NO WASHER. CONNECTION TO THE POST IS NOT REQUIRED.
- INSTALL GALVANIZED 3/4" (6X19) PREFORMED WIRE OR INDEPENDENT WIRE ROPE CORE CONFORMING TO AASHTO M 30. MANUFACTURE WIRE ROPE OUT OF IMPROVED PLOW STEEL WITH A MINIMUM BREAKING STRENGTH OF 42,800 PSI.



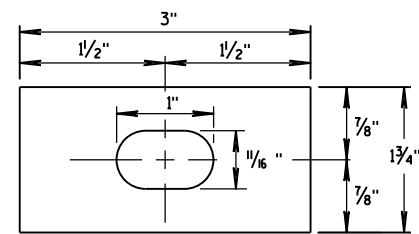
DETAIL A



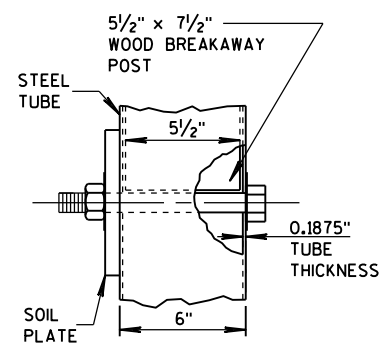
DETAIL B

(BEAM GUARD AND TERMINAL SECTION NOT SHOWN)

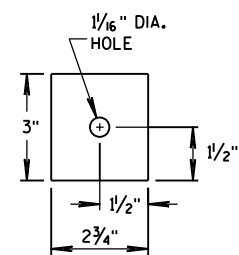
STEEL PLATE BEAM GUARD
SHORT RADIUS TERMINALSTATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



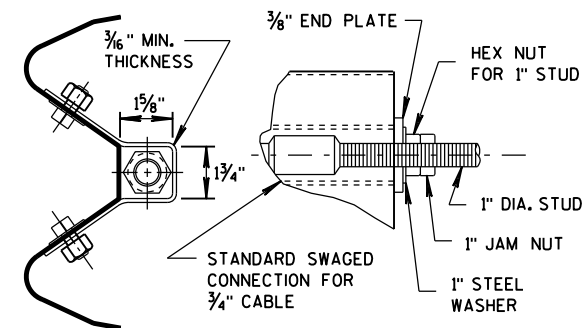
**RECTANGULAR
PLATE WASHER**



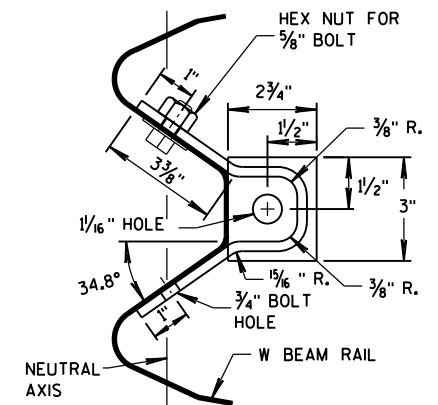
DETAIL D



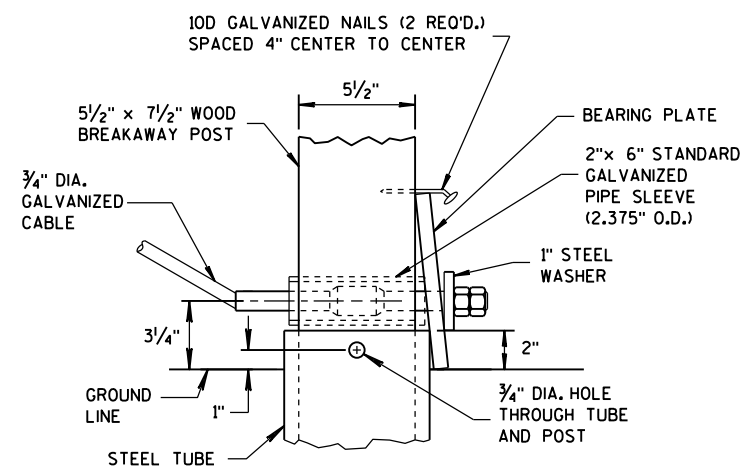
END PLATE



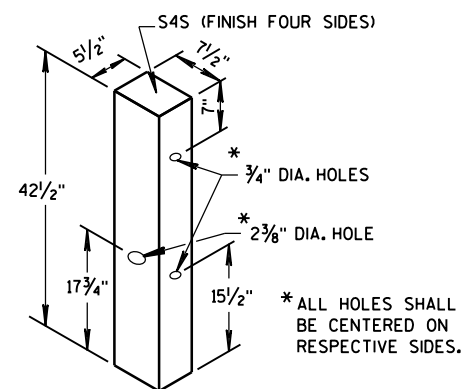
SECTION C-C
(END PLATE REMOVED)



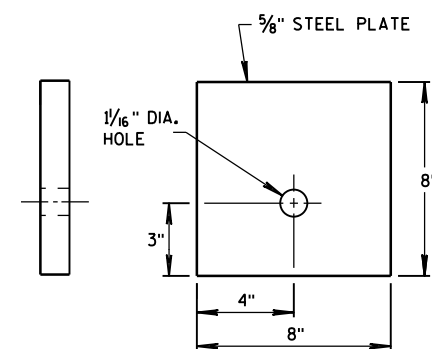
ANCHOR BRACKET



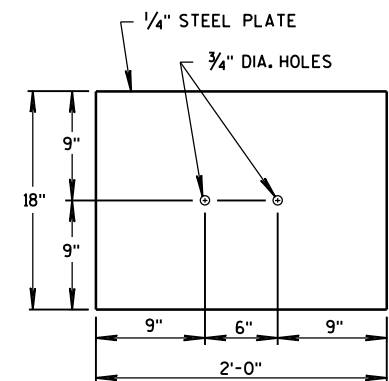
DETAIL C



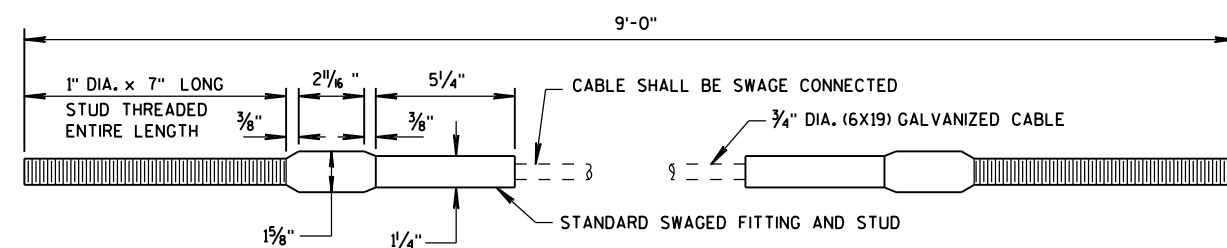
WOOD BREAKAWAY POST



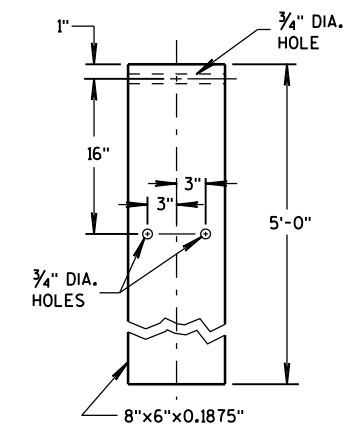
BEARING PLATE



SOIL PLATE



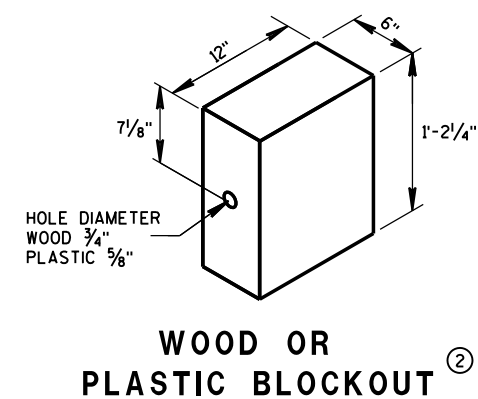
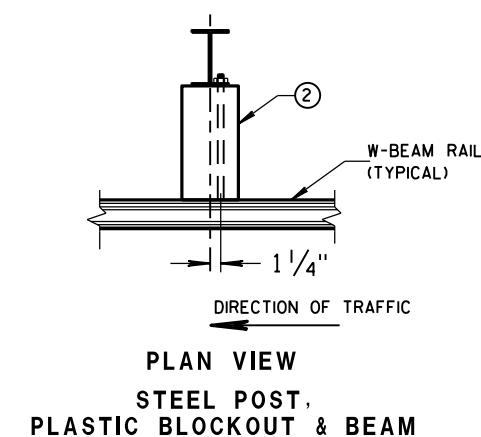
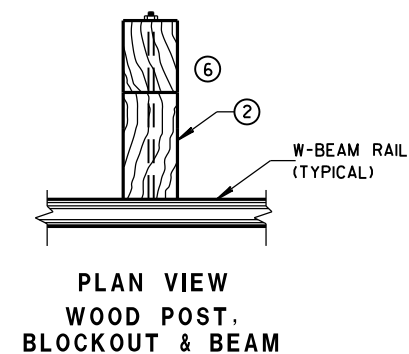
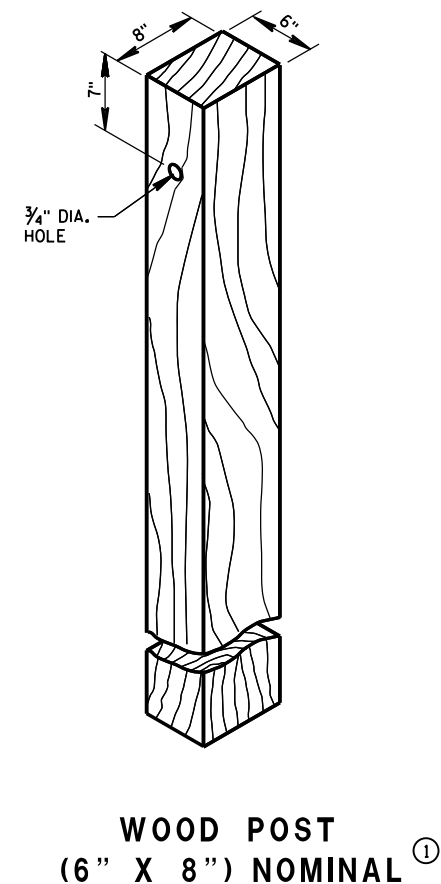
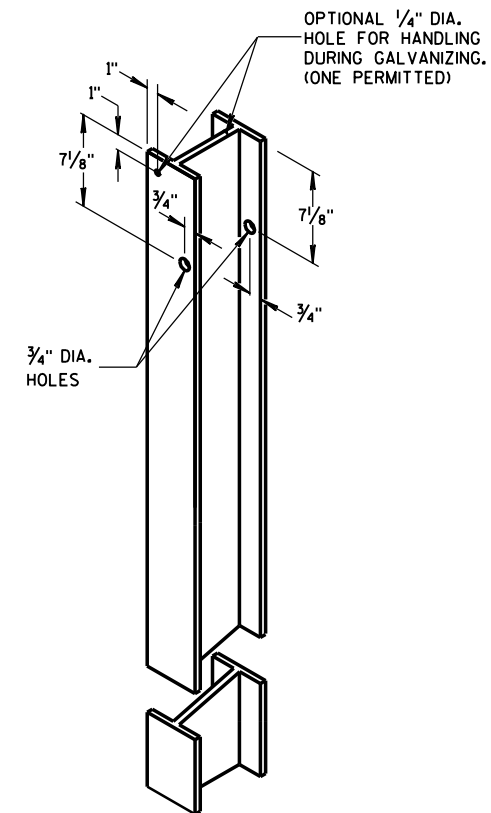
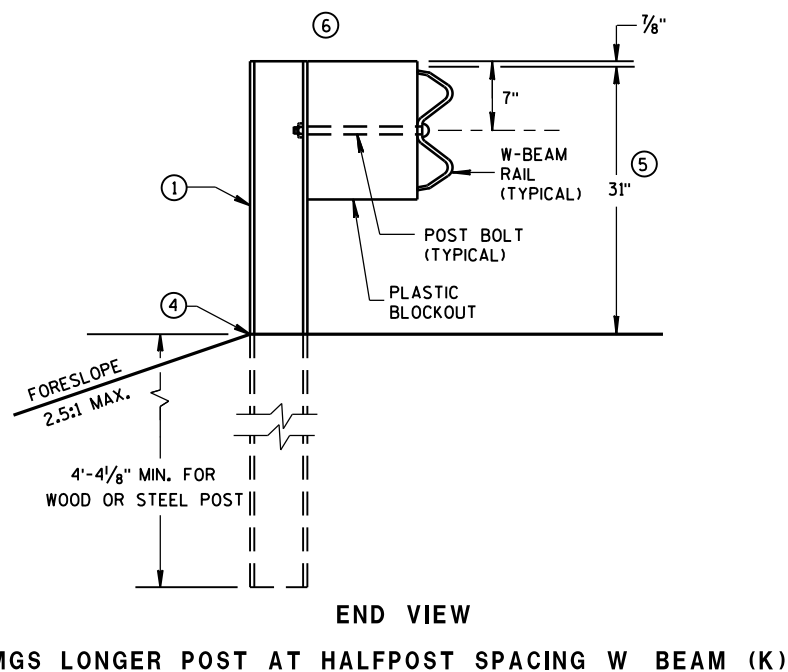
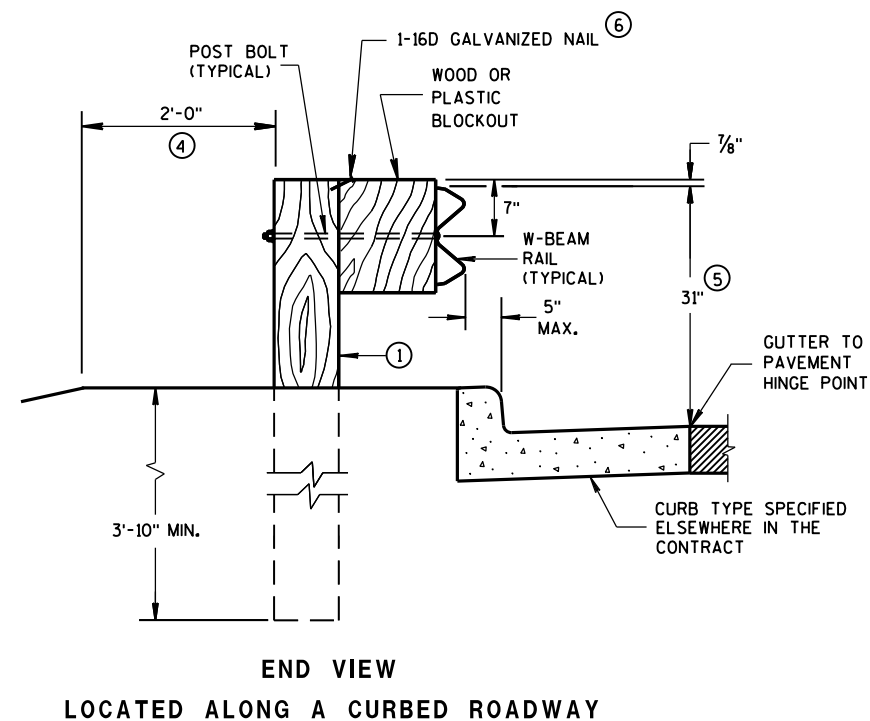
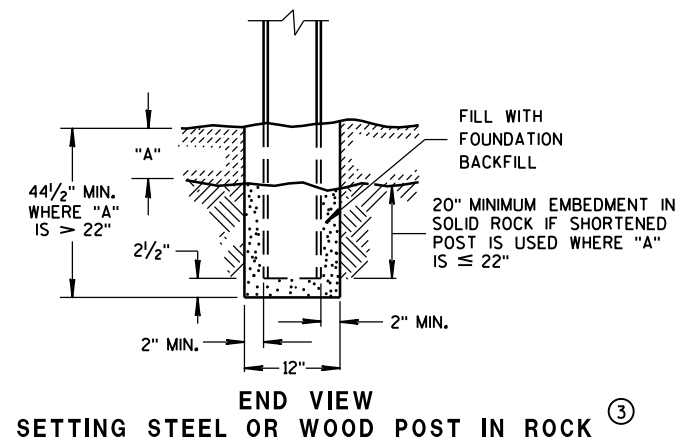
CABLE ASSEMBLY

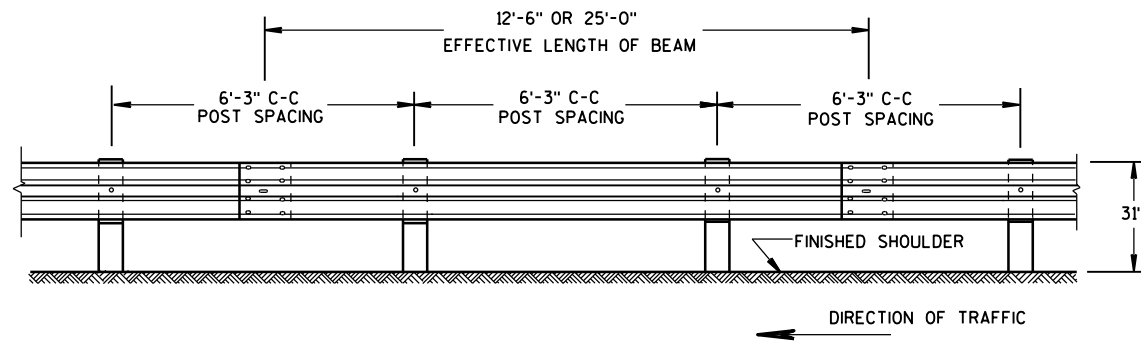


STEEL TUBE

STEEL PLATE BEAM GUARD SHORT RADIUS TERMINAL	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 12/18/08 DATE	/S/ Jerry H. Zogg ROADWAY STANDARDS DEVELOPMENT ENGINEER
FHWA	

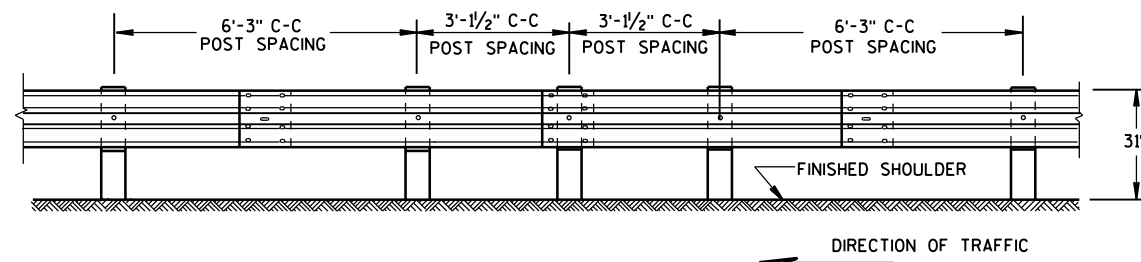
- ① WOOD OR STEEL POSTS (w6X9 OR w6X8.5) MAY BE USED. DO NOT INTERMIX WOOD AND STEEL POSTS. INSTALL STEEL POSTS WITH HOLES ON APPROACHING TRAFFIC SIDE.
- ② USE WOOD OR APPROVED PLASTIC BLOCKOUTS. WOOD BLOCKOUTS MAY BE CONSTRUCTED OUT OF TWO OR MORE WOOD BLOCKOUTS. SEE ALTERNATE WOOD BLOCKOUT DETAIL. 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 2½ INCHES OF GRANULAR MATERIAL IN THE BOTTOM OF THE HOLE. CUT THE POSTS TO THE 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 ± 1". FOR EXISTING MGS INSTALLATION TOP OF W-BEAM IS BETWEEN 27¾" 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.





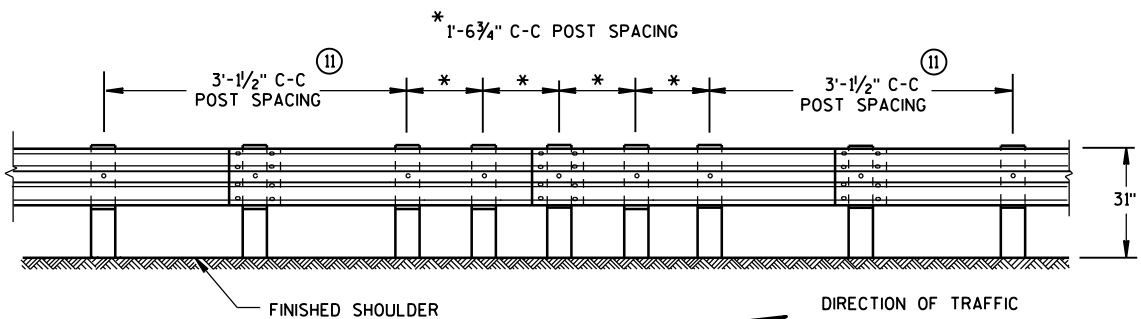
FRONT VIEW

POST SPACING STANDARD INSTALLATION



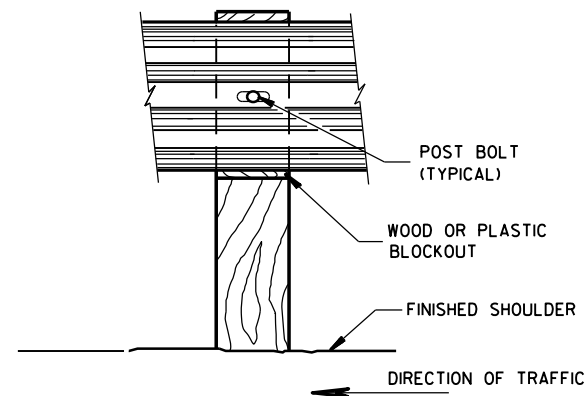
FRONT VIEW

HALF POST SPACING (HS) AND HALF POST SPACING WITH LONGER POSTS (K)

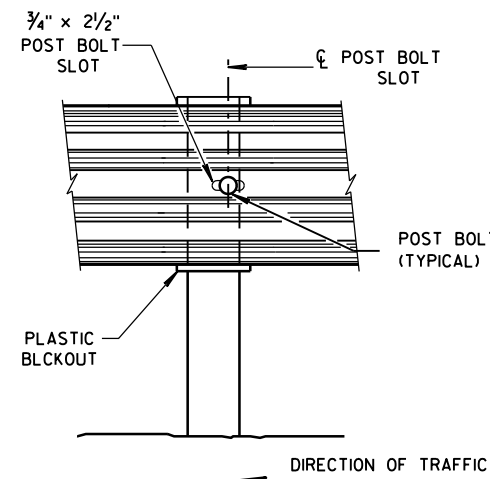


FRONT VIEW

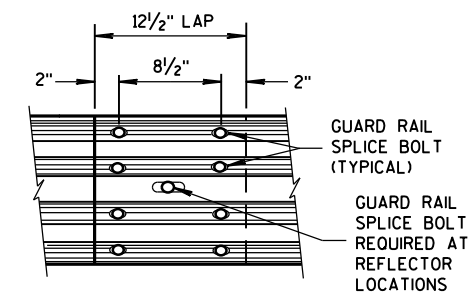
QUARTER POST SPACING (QS)



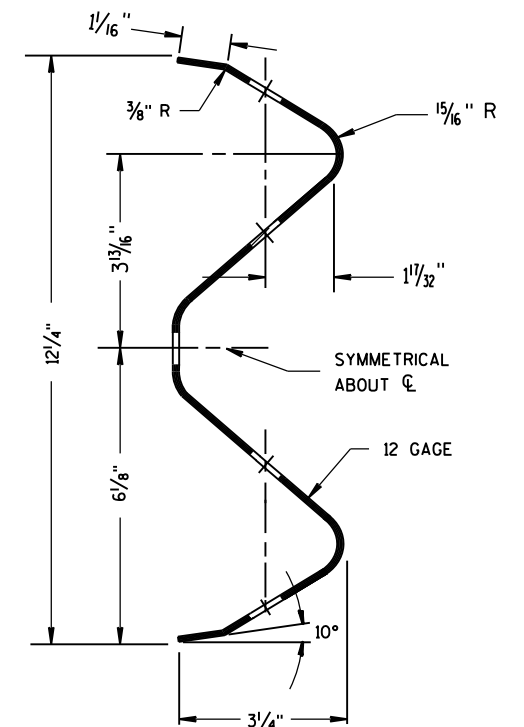
FRONT VIEW AT WOOD POST



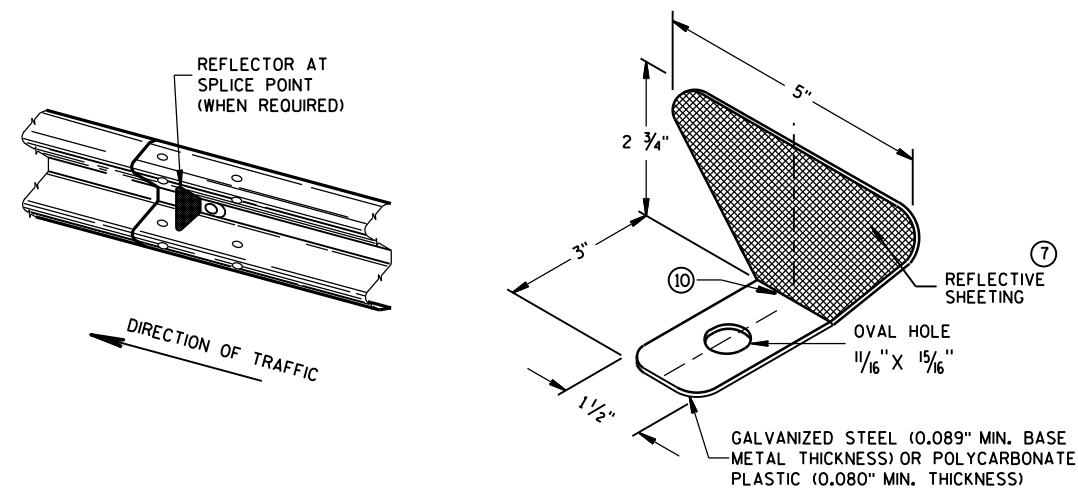
FRONT VIEW AT STEEL POST



FRONT VIEW
MID-SPAN BEAM SPLICE



SECTION THRU W-BEAM RAIL



ONE SIDED REFLECTOR DETAIL AND TYPICAL INSTALLATION

- ⑦ PROVIDE SILVER REFLECTIVE SHEETING ON ALL REFLECTORS EXCEPT THOSE LOCATED ALONG THE LEFT EDGE OF ONE-WAY ROADWAYS, WHICH SHALL BE PROVIDED WITH YELLOW REFLECTIVE SHEETING. SHEETING IS TYPE H. SEE STANDARD SPECIFICATION 637.
- ⑧ DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINAL. RAIL SPLICE LOCATIONS ARE THE ONLY ACCEPTABLE LOCATIONS FOR REFLECTORS.
- ⑨ REVERSE EVERY OTHER REFLECTOR FOR 2-WAY VISIBILITY. THE CONTRACTOR MAY FURNISH TWO-SIDED REFLECTORS IN LIEU OF ONE-SIDED REFLECTORS.
- ⑩ PROVIDE AN ANGLE OF BEND OF $90^\circ \pm 1^\circ$ FOR TWO-SIDED REFLECTORS.
- ⑪ 25 FEET OF HALF POST SPACING IS REQUIRED ON APPROACH AND DEPARTURE ENDS OF QUARTER POST SPACING.

POST BOLTS ARE A $\frac{5}{8}$ " DIAMETER ASTM A307 GUARDRAIL BOLT. A POST BOLT REQUIRES $\frac{5}{8}$ " DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX NUT AND $\frac{5}{8}$ " DIAMETER F844 FLAT WASHER. POST BOLTS MAY BE LONGER IF MULTIPLE BLOCKOUTS ARE BEING USED.

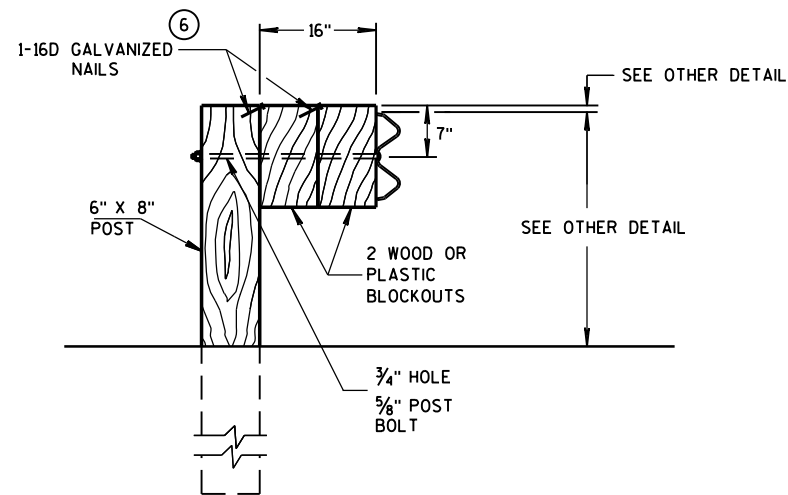
GUARD RAIL SPLICE BOLTS ARE A $\frac{5}{8}$ " DIAMETER ASTM A307 GUARDRAIL HEAD BOLT. A GUARDRAIL SPLICE BOLT REQUIRES $\frac{5}{8}$ " DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX NUT.

REFLECTOR SPACING

	BEAM GUARD LENGTH	REFLECTOR SPACING	NO. SURFACES REFLECTORIZED	MIN. NO. REFLECTORS
ONE WAY TRAFFIC	< 200'	50' C-C	1	3
	> 200'	100' C-C	1	
TWO WAY TRAFFIC	< 200'	25' C-C	1 ⑨	6
	> 200'	50' C-C	1	
TWO WAY TRAFFIC	< 200'	50' C-C	2 ⑩	3
	> 200'	100' C-C	2	

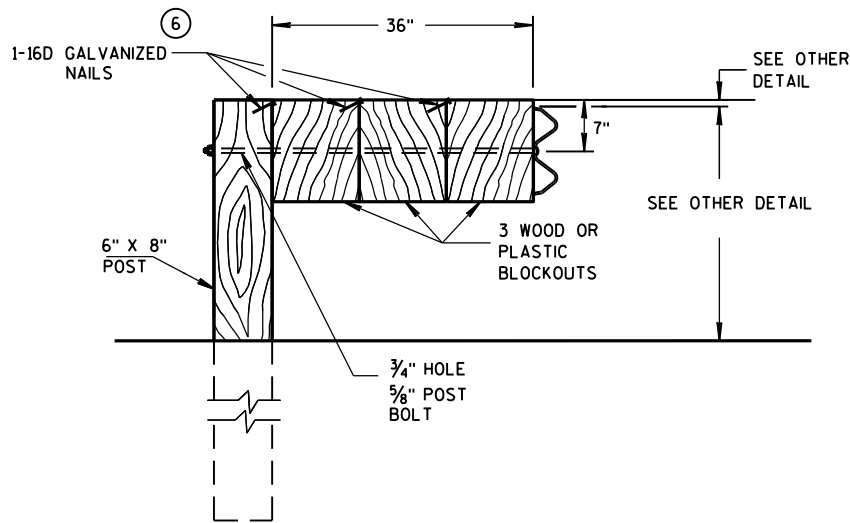
MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



DETAIL FOR 16" BLOCKOUT DEPTH

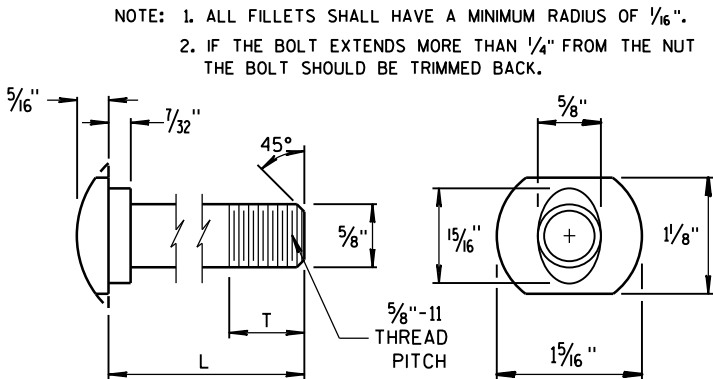
IT IS ACCEPTABLE TO USE BLOCKOUTS UP TO 16" DEEP TO INCREASE THE POST OFFSET TO AVOID UNDERGROUND OBSTACLES. THERE IS NO LIMIT TO THE NUMBER OF POSTS THAT CAN HAVE ADDITIONAL BLOCKOUTS UP TO 16" DEEP.



DETAIL FOR 36" BLOCKOUT DEPTH

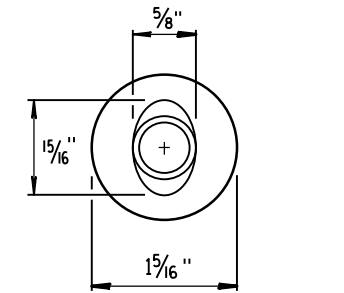
NOTES: UNDER SPECIAL CIRCUMSTANCES, SUCH AS AVOIDING OBSTACLES THAT ARE NOT RELOCATED, IT IS ACCEPTABLE TO INSTALL ADDITIONAL BLOCKOUTS TO OBTAIN UP TO 36" DEPTH FOR ONE OR TWO POSTS IN A SECTION OF GUARDRAIL.

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.

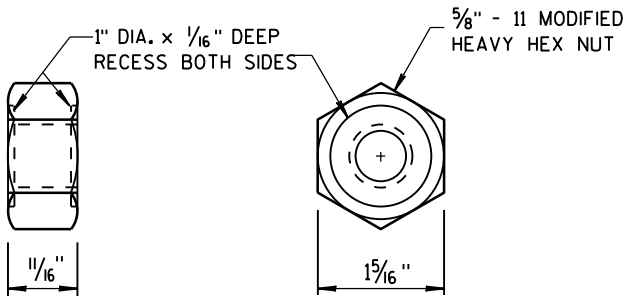


POST BOLT TABLE

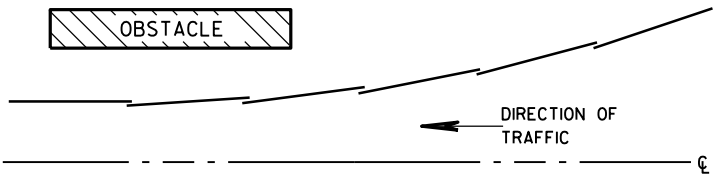
L	T (MIN.)
1 1/4"	1 1/8"
2"	1 3/4"
10"	4"
14"	4 1/16"
18"	4"
21"	4 1/16"
25"	4"



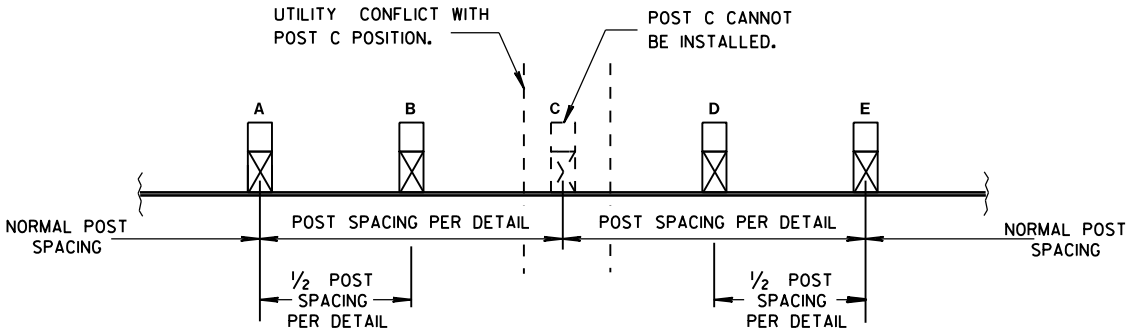
ALTERNATE BOLT HEAD



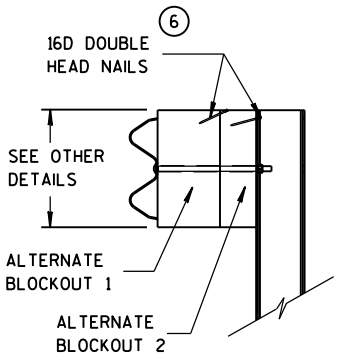
POST BOLT, SPLICE BOLT AND RECESS NUT



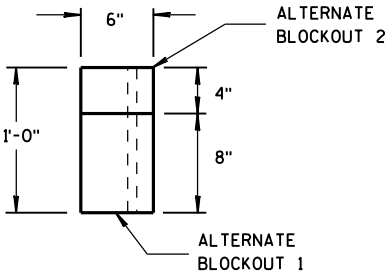
PLAN VIEW BEAM LAPPING DETAIL



POST DRIVING FOR CONTINUOUS UNDERGROUND OBSTRUCTION



SIDE VIEW



TOP VIEW

ALTERNATE WOOD BLOCKOUT DETAIL

MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June 2016 /S/ Jerry H. Zogg
DATE ROADWAY STANDARDS DEVELOPMENT
ENGINEER
FHWA

GENERAL NOTES

- (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 MANUFACTURES REQUIRE DIFFERENT PERFORATED W-BEAM RAIL END PANELS. SEE MANUFACTURES INFORMATION.
- (D) THE TOP OF THE STEEL TUBE ON POST 1 AND POST 2 SHALL NOT BE MORE THAN 3" ABOVE THE FINISH GROUND ELEVATION.
- (E) ATTACH ALUMINUM SHEET TO E.A.T. HEAD USING 4 STAINLESS STEEL SELF-TAPPING SCREWS, ONE SCREW PER CORNER.
- (G) 1/2" DIAMETER X 3" LONG LAG BOLT AND WASHER.
- (H) HARDWARE VARIES BETWEEN DIFFERENT MANUFACTURES. SEE MANUFACTURE'S DRAWING FOR INFORMATION.
- (I) DIMENSIONS MAY VARY. SEE MANUFACTURE'S INFORMATION.

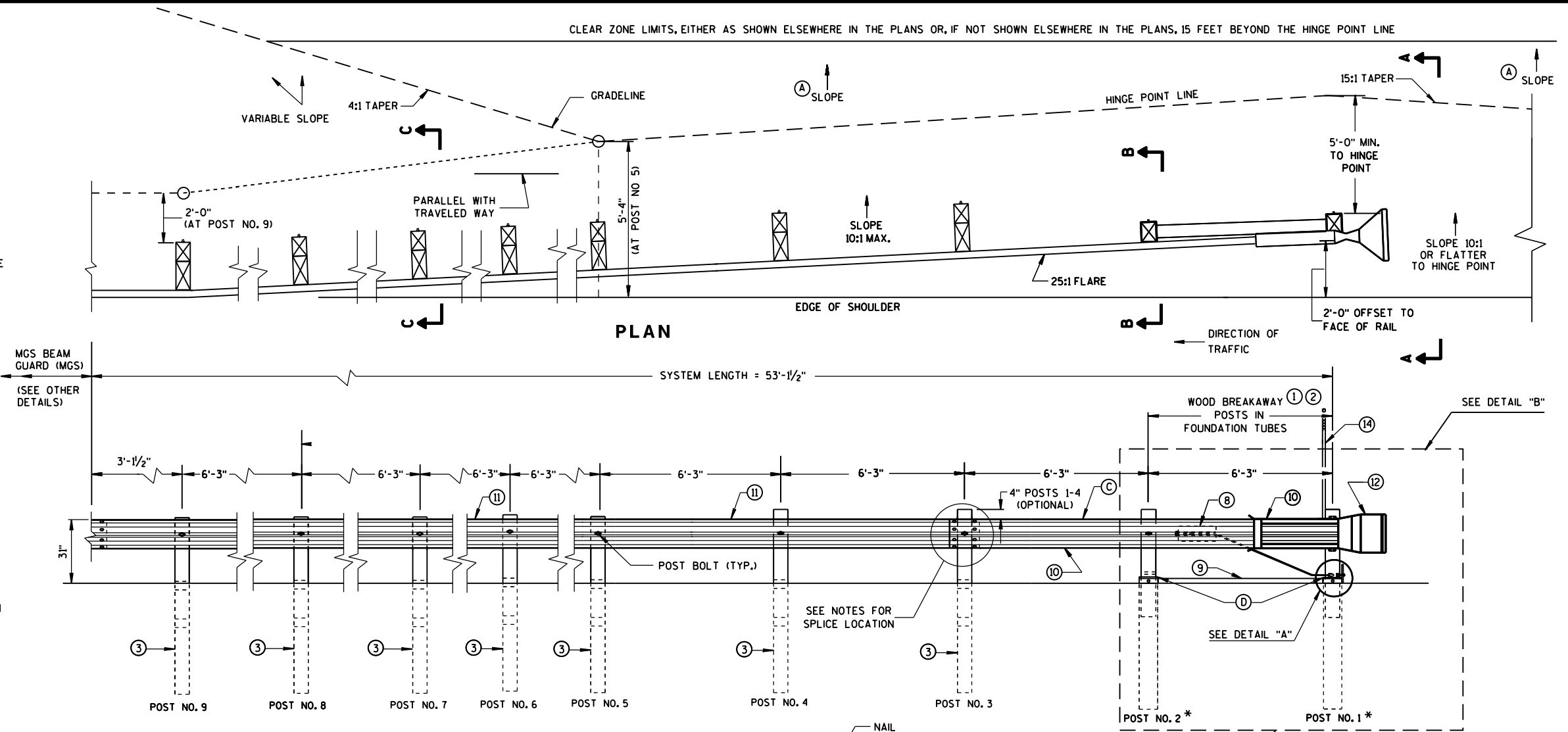
SEE SDD 14B42 FOR MORE INFORMATION.

* DO NOT ATTACH BLOCKOUTS TO POSTS 1 AND 2.

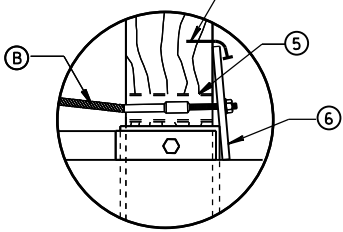
DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINAL.

W-BEAM RAIL SPLICES ARE LOCATED AT POST NUMBER 3, AND BETWEEN POST 5 AND 6, BETWEEN POSTS 7 AND 8, AND MIDDLE OF THE SPAN AFTER POST 9.

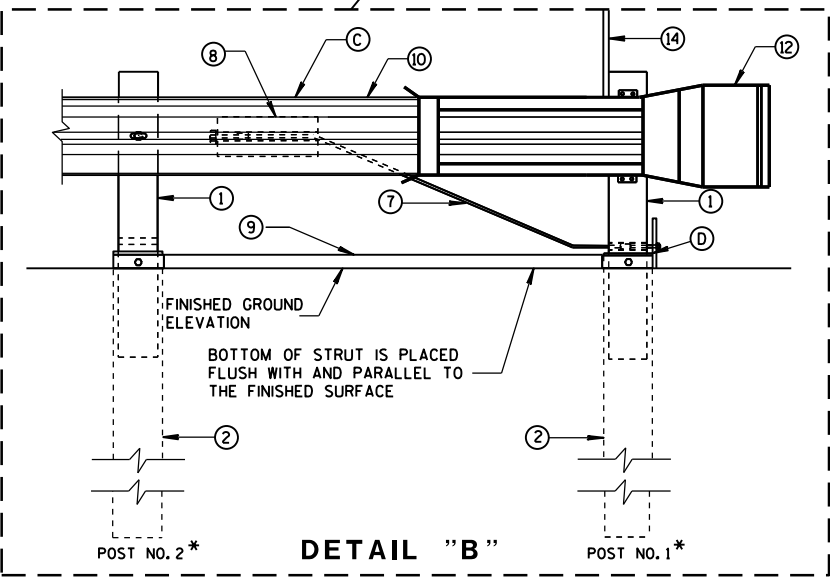
THE CENTER OF THE UPPER 3/2" DIAMETER HOLE ON POST NUMBER 3 THROUGH POST 9 IS TO BE FLUSH WITH THE GROUND LINE UP TO A MAXIMUM OF 2" ABOVE GROUND LINE.



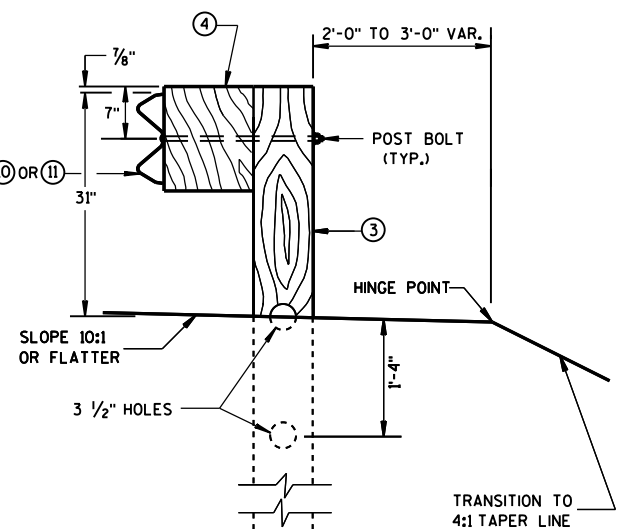
ELEVATION



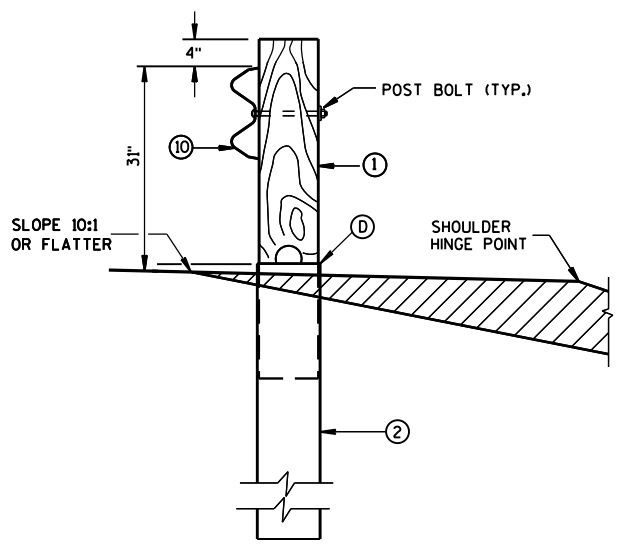
DETAIL "A"



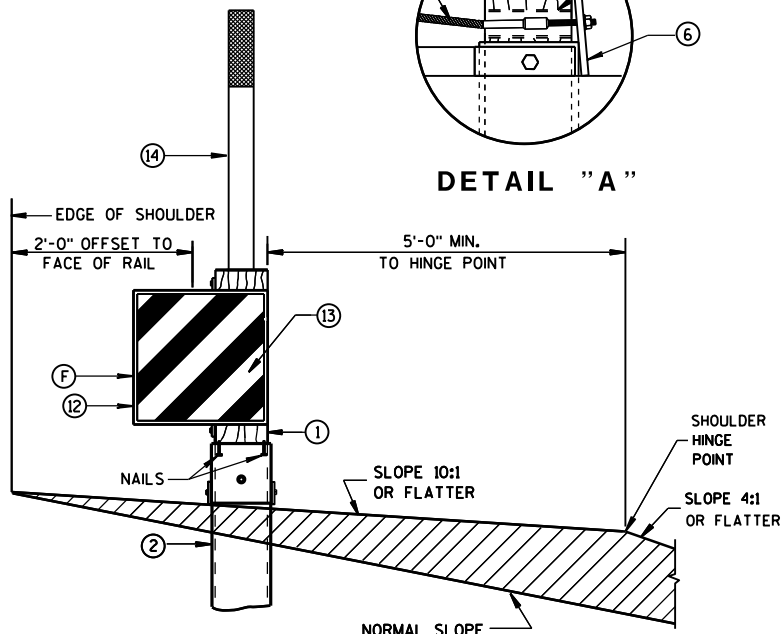
DETAIL "B"



SECTION C-C
TYPICAL AT POST NOS. 3-9



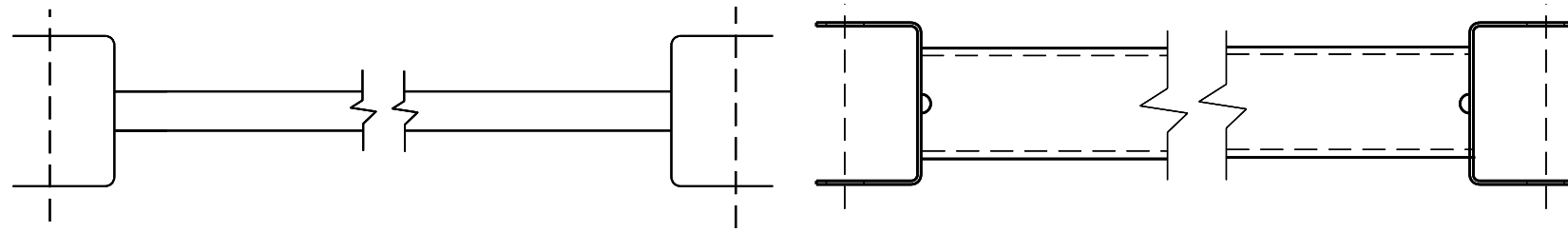
SECTION B-B
TYPICAL AT POST NO. 2*



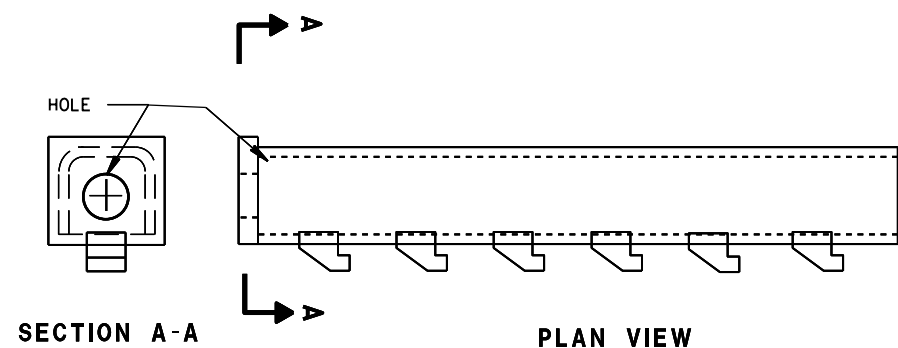
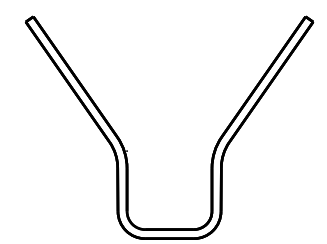
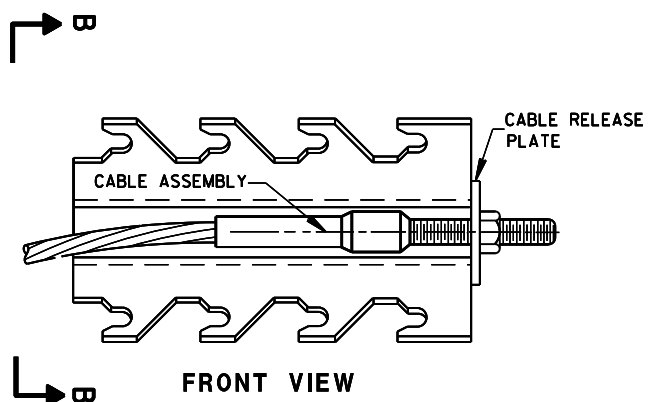
SECTION A-A
TYPICAL AT POST NO. 1*

MIDWEST GUARDRAIL SYSTEM
ENERGY ABSORBING TERMINAL
(MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



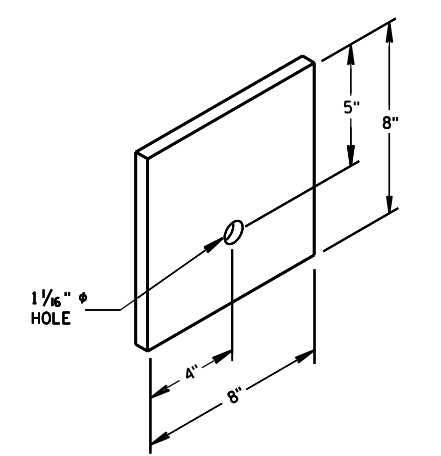
9 H
GENERIC GROUND STRUT



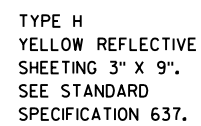
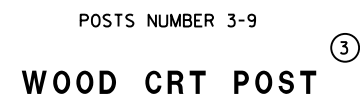
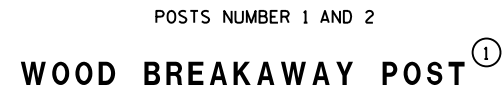
8 H
GENERIC ANCHOR CABLE BOX

BILL OF MATERIALS

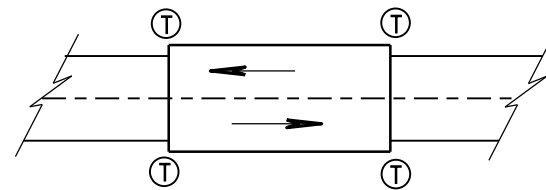
PART NO.	DESCRIPTION
MATERIALS PROVIDED BY MGS EAT MANUFACTURER. SEE MANUFACTURER'S DETAILS FOR MORE INFORMATION.	
①	WOOD BREAKAWAY POST
②	6" X 8" X 0.188", 6'-0" LONG FOUNDATION TUBE AT POSTS 1 AND 2
③	WOOD CRT
④	WOOD BLOCKOUT
⑤	PIPE SLEEVE
⑥	BEARING PLATE
⑦	BCT CABLE ASSEMBLY
⑧	ANCHOR CABLE BOX
⑨	GROUND STRUT
⑩	PERFORATED W-BEAM RAIL END PANEL, 12'-6" LONG.
⑪	STANDARD W-BEAM RAIL. MULTIPLE SECTIONS REQUIRED. SECTIONS VARY IN LENGTH.
⑫	END SECTION EAT
⑬	0.040" ALUMINUM SHEET WITH REFLECTIVE SHEETING TYPE F PER SECTION 637 OF THE STANDARD SPECIFICATIONS
⑭	EAT MARKER POST - YELLOW (SEE APPROVED PRODUCTS LIST)



⑥
BEARING PLATE

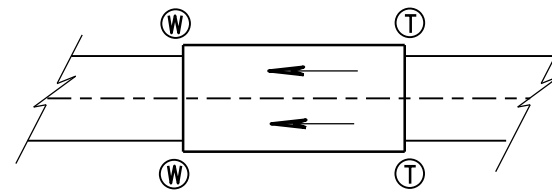


<p>MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)</p>	
<p>STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION</p>	
<p>APPROVED June 2014</p>	<p><i>/s/ Jerry H. Zogg</i></p>
<p>DATE</p>	<p>ROADWAY STANDARDS DEVELOPMENT ENGINEER</p>
<p>FHWA</p>	



TWO WAY TRAFFIC

Ⓣ THRIE BEAM CONNECTION



ONE WAY TRAFFIC

Ⓦ W-BEAM CONNECTION WHEN REQUIRED

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.

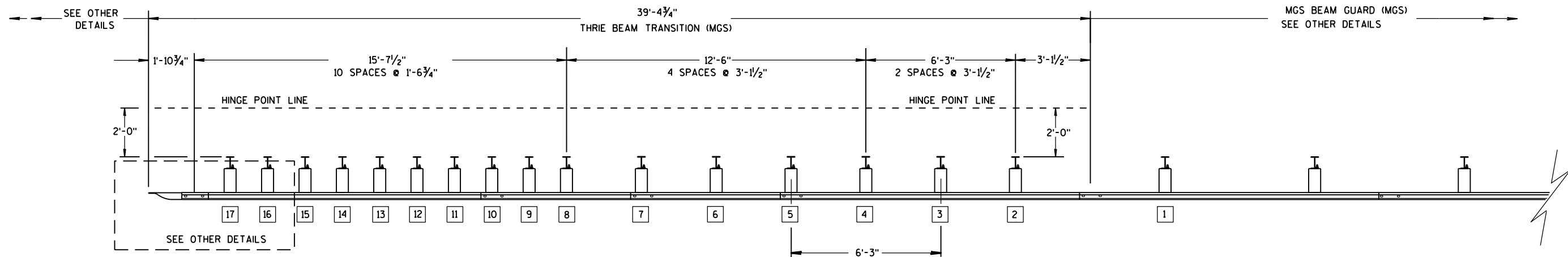
TRANSITION USES STEEL POSTS ONLY.

SEE STANDARD DETAIL DRAWING 14 B 42 FOR MORE INFORMATION.

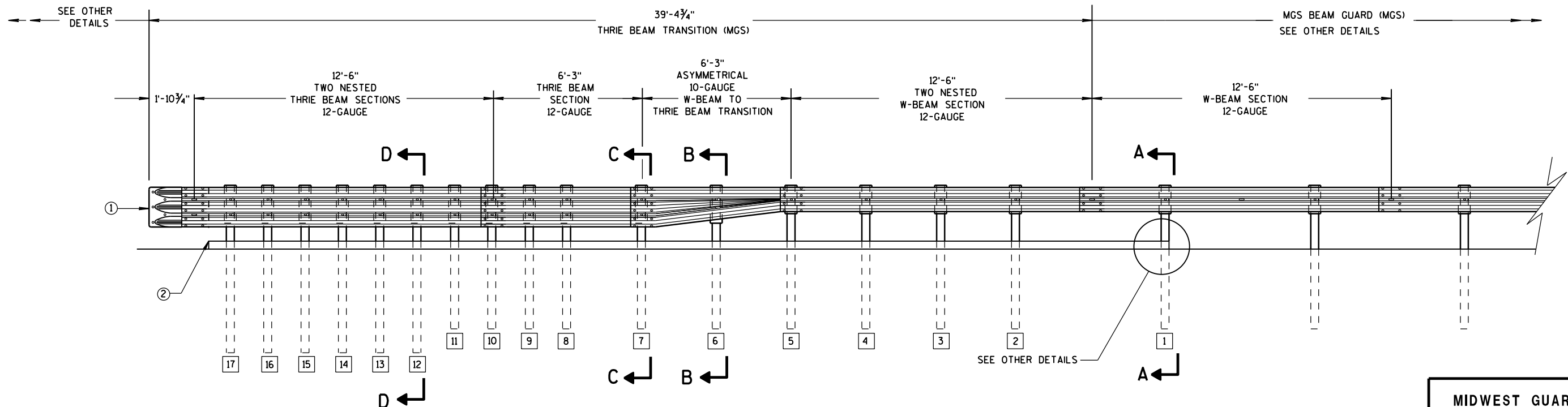
① BRIDGE RAILING TYPE "W" DOES NOT REQUIRE A TERMINAL CONNECTOR.

② OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.

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



PLAN VIEW



ELEVATION VIEW

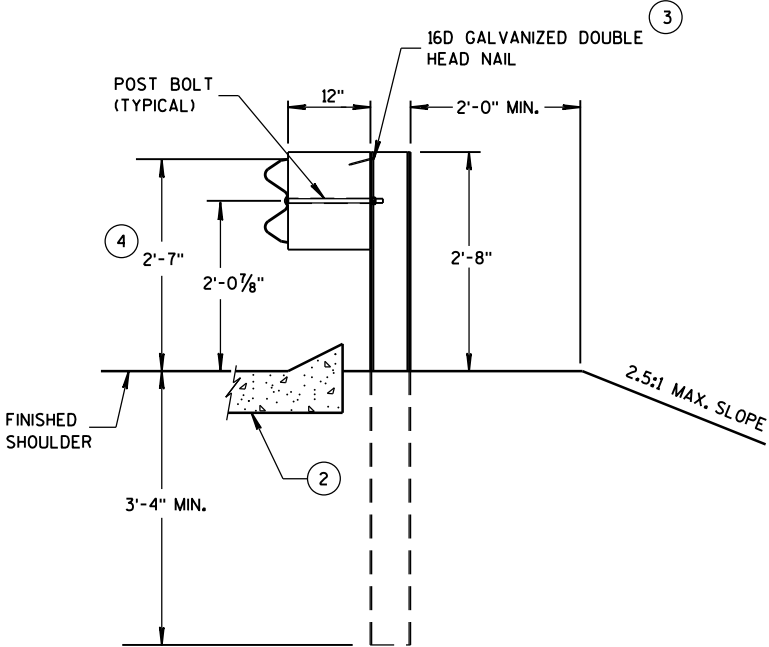
MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

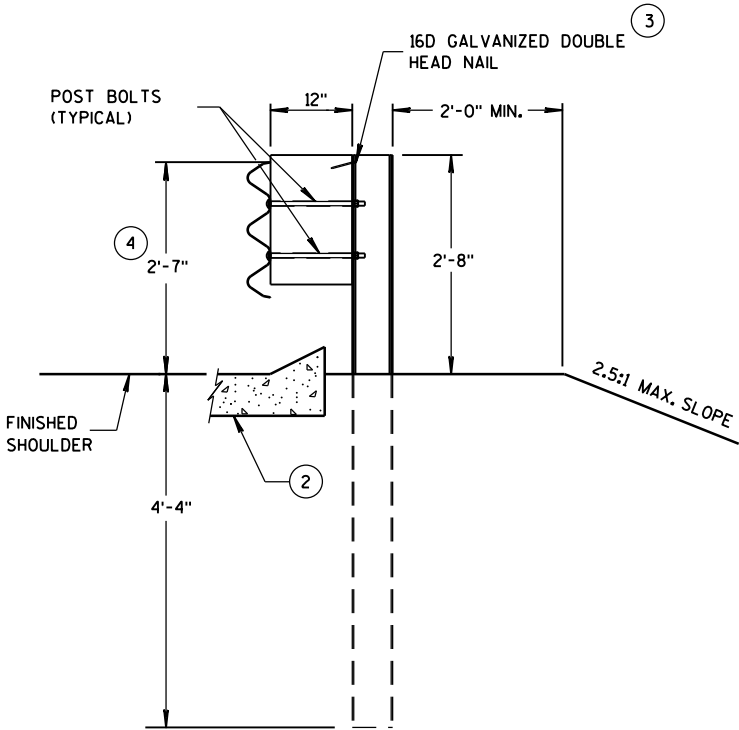
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

GENERAL NOTES

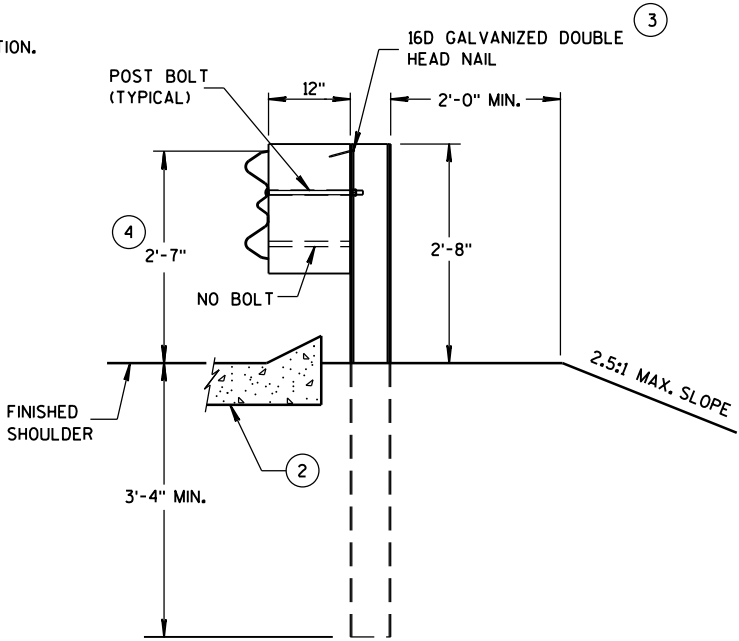
- 2 OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.
- 3 WHEN USING STEEL POSTS AND WOOD BLOCKOUTS INSTALL FOUR 10D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.
- 4 TOLERANCE FOR TOP OF W-BEAM RAIL IS $\pm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



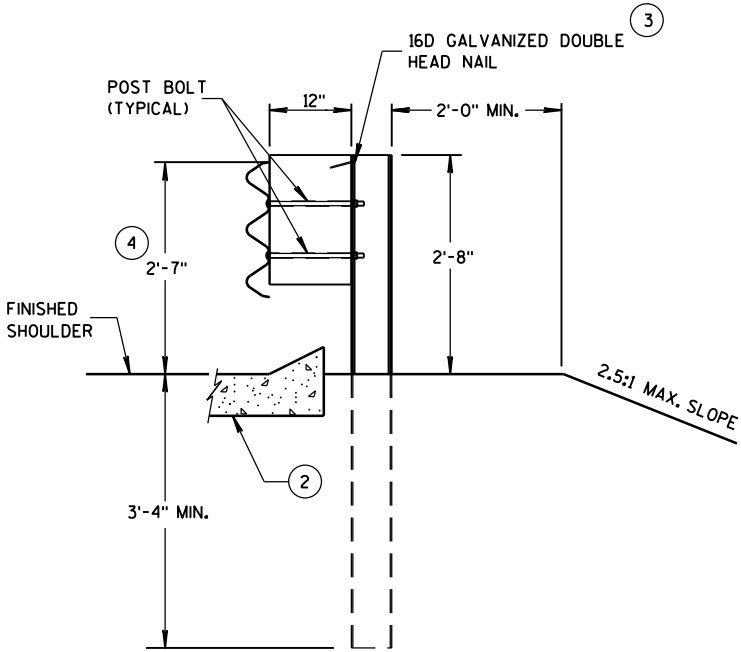
SECTION A-A
POSTS 1-5



SECTION D-D
POSTS 12-17



SECTION B-B
POST 6



SECTION C-C
POSTS 7-11

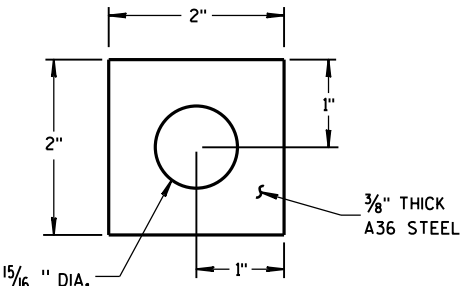
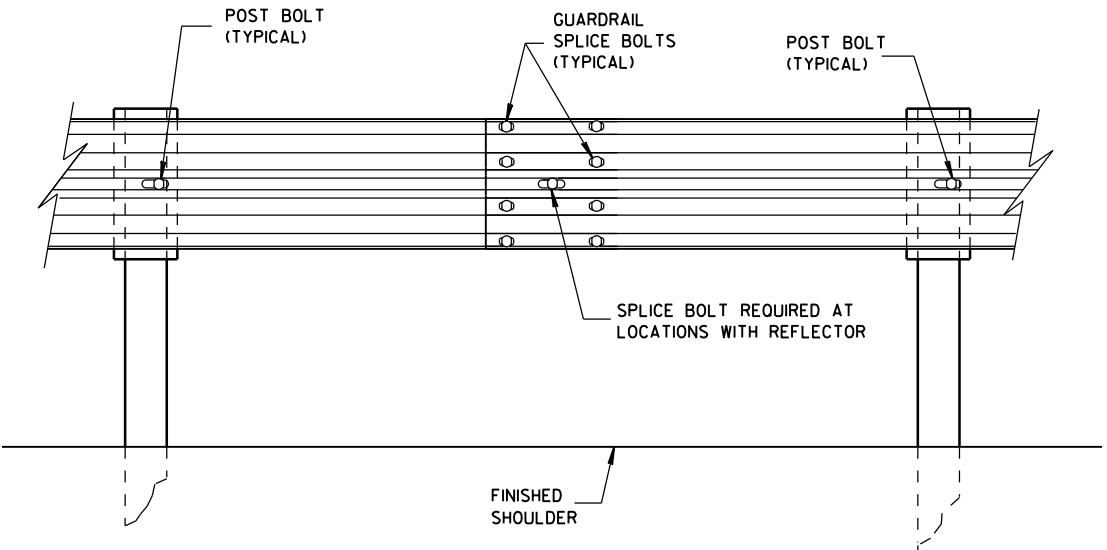
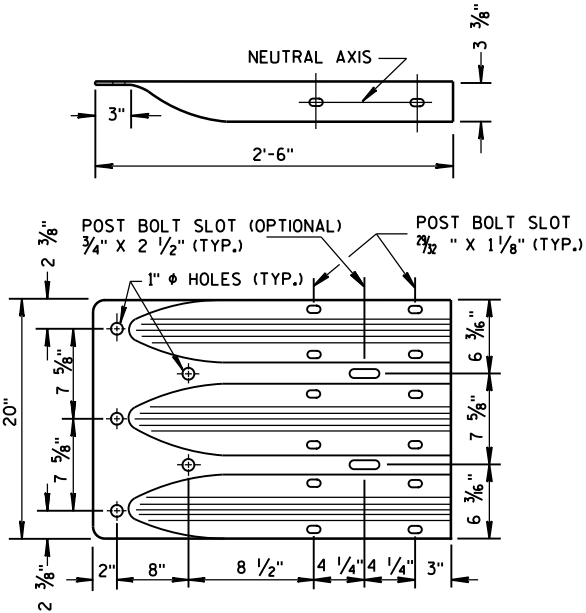


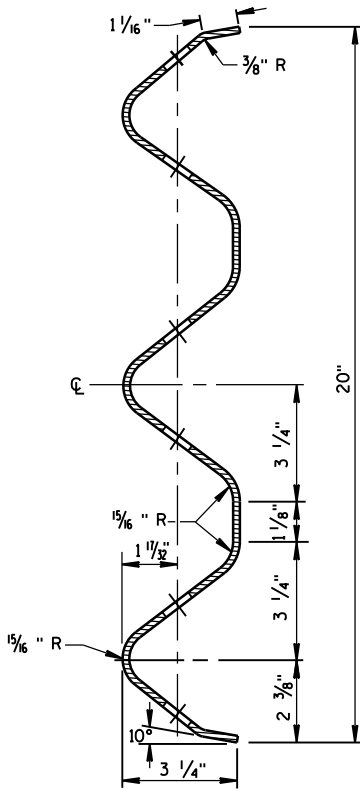
PLATE WASHER DETAIL



SPlice DETAIL



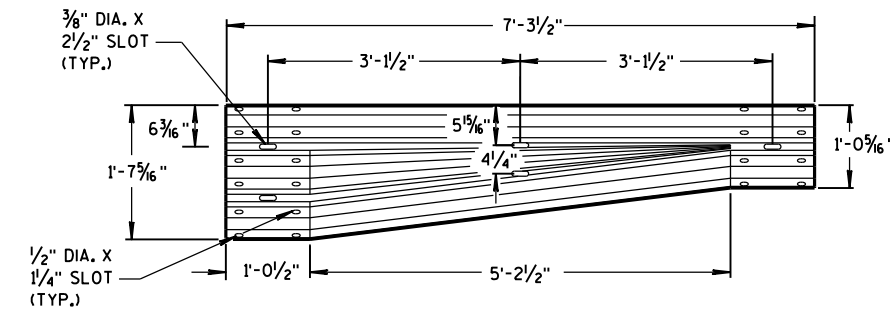
THRIE BEAM
TERMINAL CONNECTOR



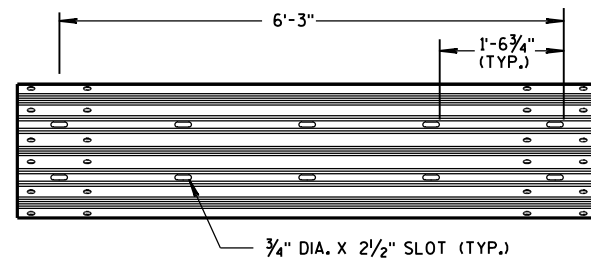
SECTION THRU THRIE
BEAM RAIL ELEMENT

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

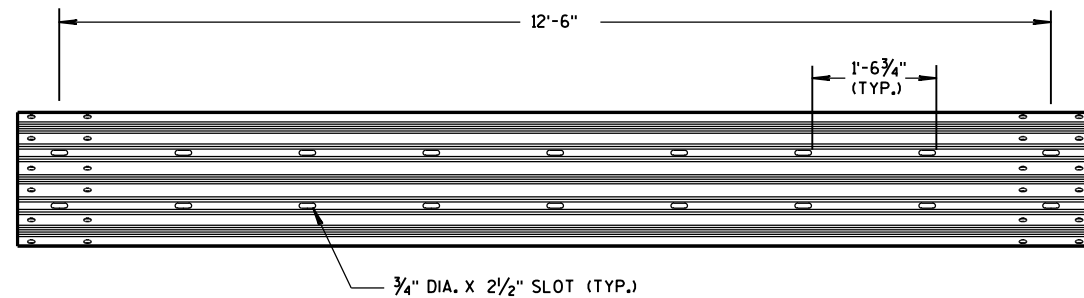
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



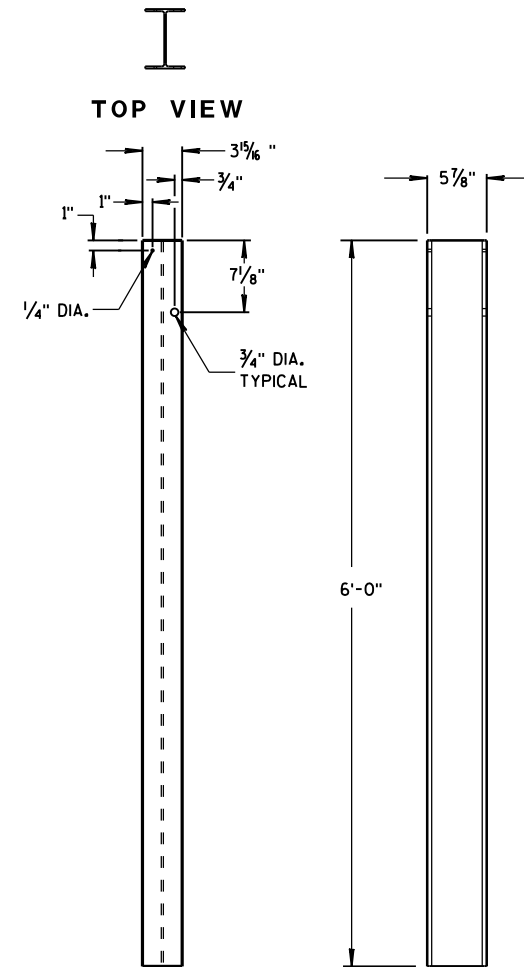
W-BEAM TO THRIE BEAM TRANSITION SECTION



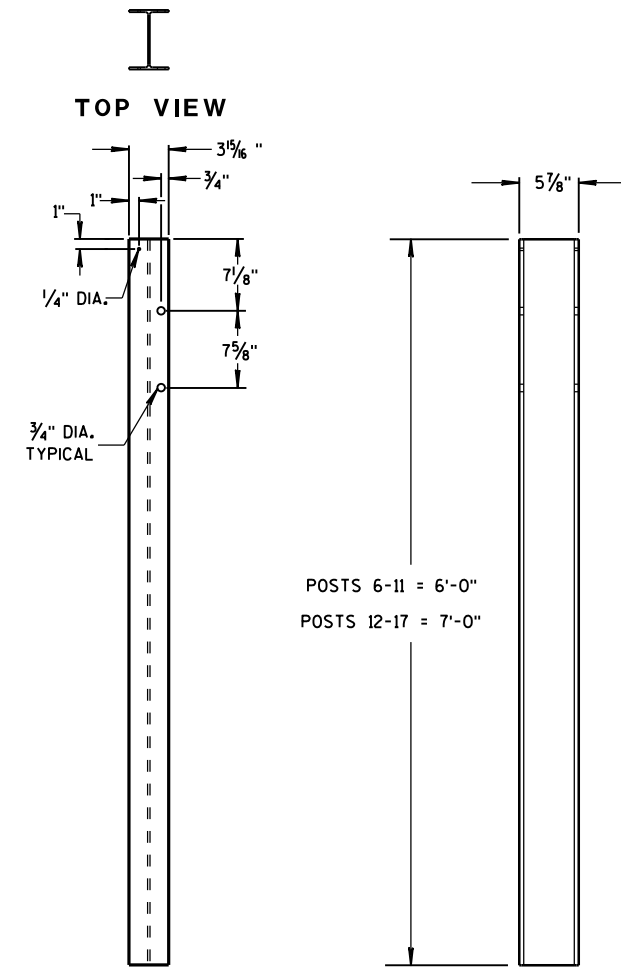
6'-3" THRIE BEAM SECTION



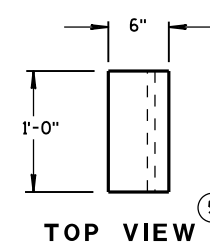
12'-6" THRIE BEAM SECTION



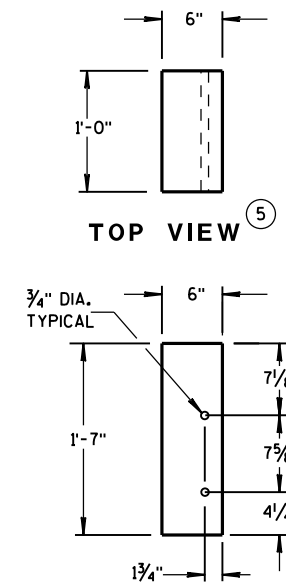
STEEL POSTS 1-5



STEEL POSTS 6-17



BLOCKOUT POSTS 1-5



BLOCKOUT POSTS 6-17

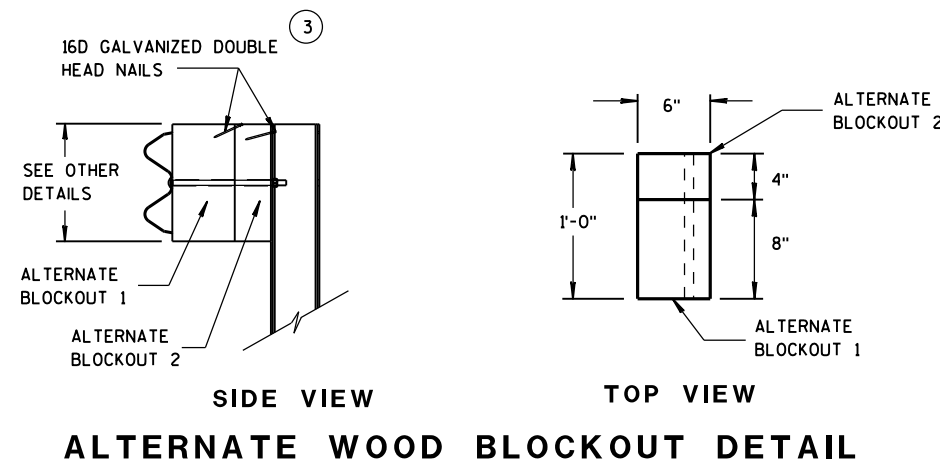
GENERAL NOTES

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.



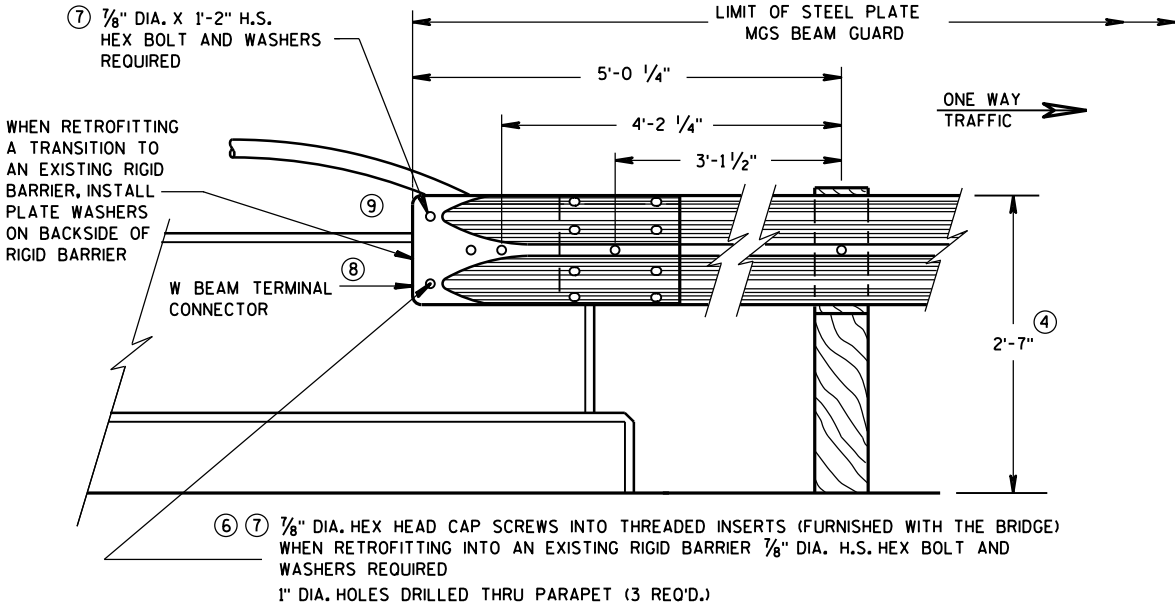
MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

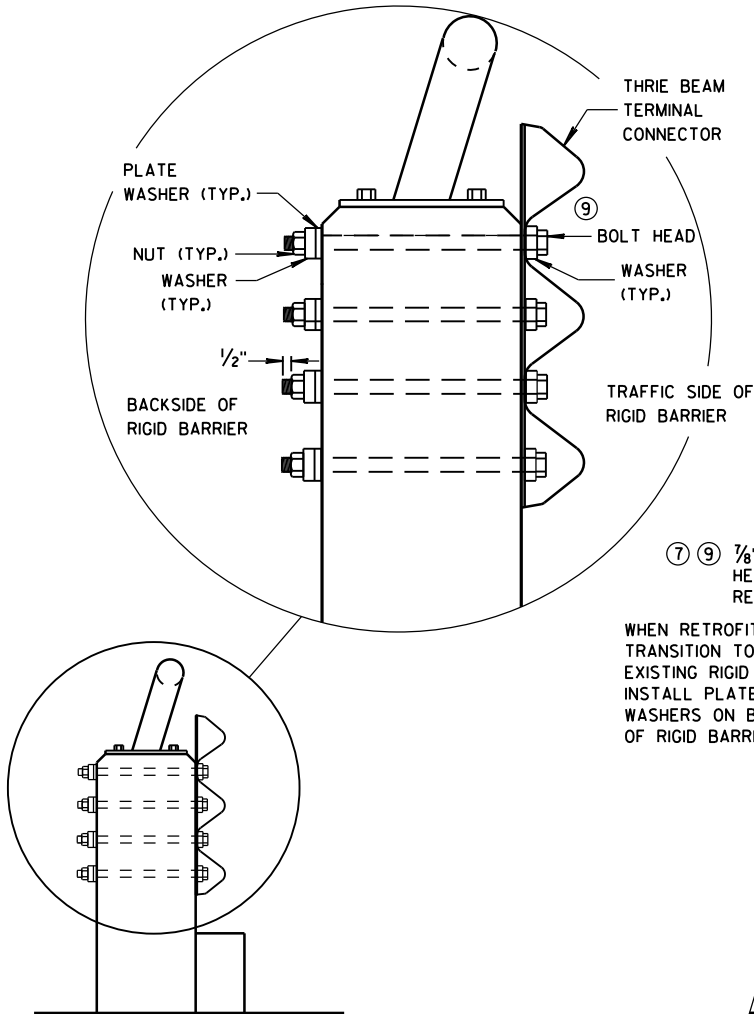
GENERAL NOTES

THESE ARE TYPICAL CONNECTION DETAILS. ADJUST THE POSTION OF CONNECTIONS TO EXISTING BRIDGES TO FIT THE ACTUAL BRIDGE AND SITE DIMENSIONS.

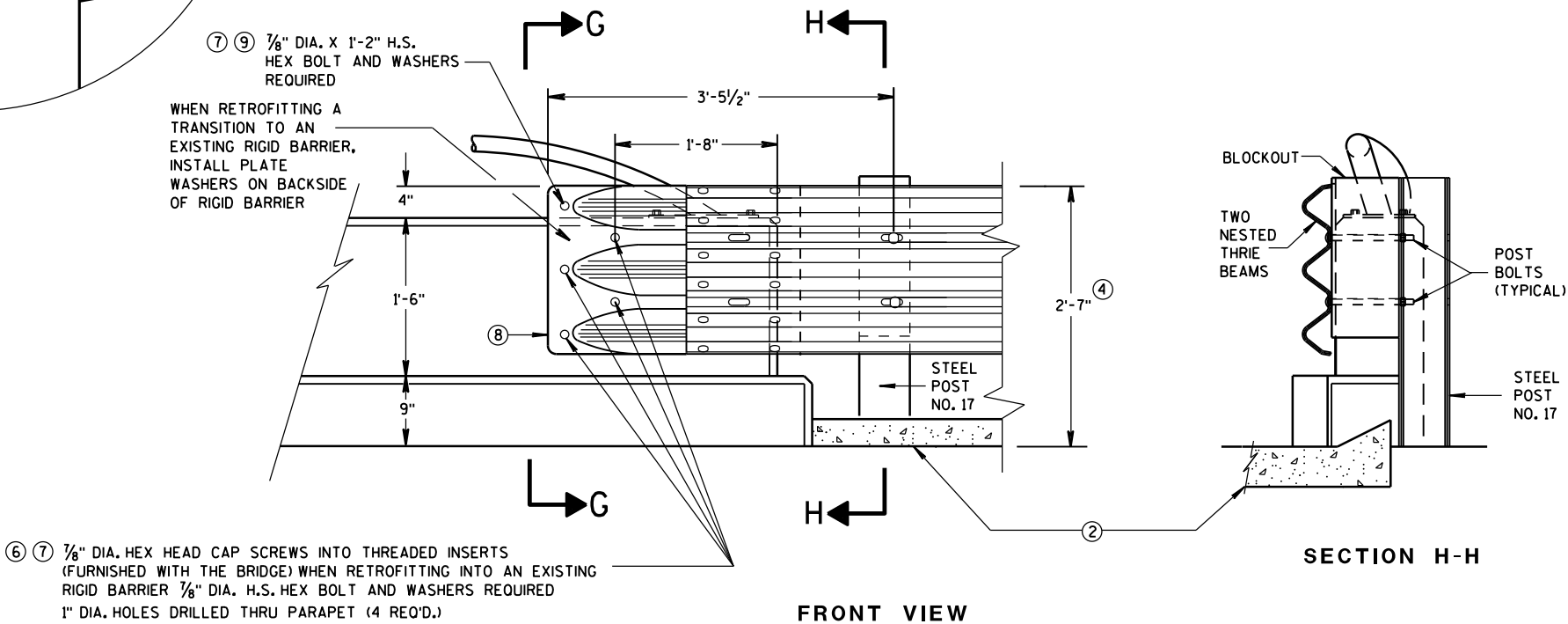
- ② OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.
- ④ TOLERANCE FOR TOP OF BEAM IS $\pm 1"$.
- ⑥ DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.
- ⑦ BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH 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 $\frac{5}{8}"$ 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 $\frac{1}{2}"$.
- ⑨ BOLT, NUT AND WASHERS NOT REQUIRED FOR THIS LOCATION WHEN RETROFITTING AN EXISTING PAPAPET AND THE HOLE IS EITHER ABOVE PARAPET OR WITHIN 4 INCHES OF THE EDGE OF PARAPET.



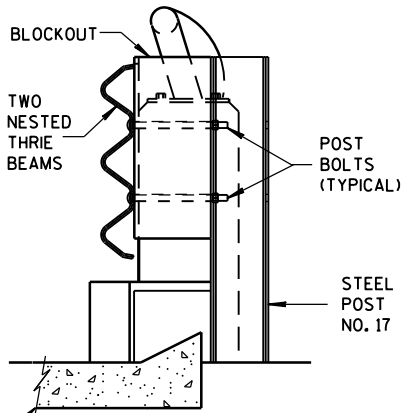
FRONT VIEW
W BEAM CONNECTION TO VERTICAL FACE PARAPET
(USE ONLY ON THE TRAFFIC EXIT END OF ONE WAY BRIDGES)



SECTION G-G



FRONT VIEW
THRIE BEAM CONNECTION TO VERTICAL FACED PARAPETS



SECTION H-H

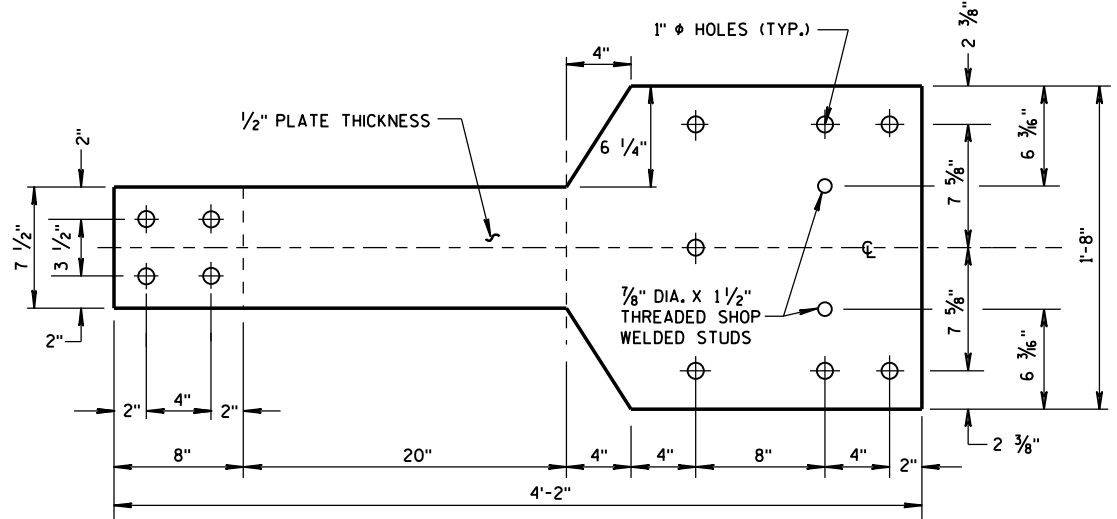
MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

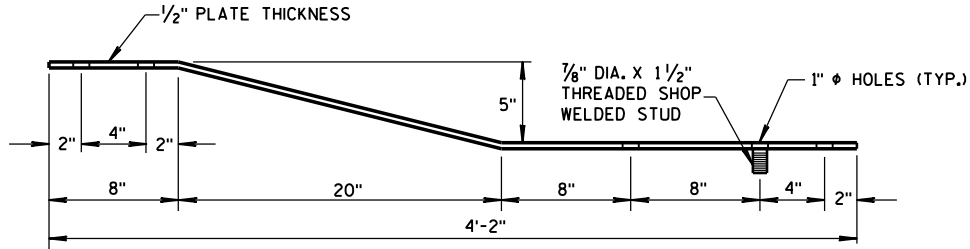
APPROVED
June, 2015
DATE
/S/ Jerry H. Zogg
ROADWAY STANDARDS DEVELOPMENT
ENGINEER
FHWA

GENERAL NOTES

④ TOLERANCE FOR TOP OF W-BEAM RAIL IS $\pm 1"$.

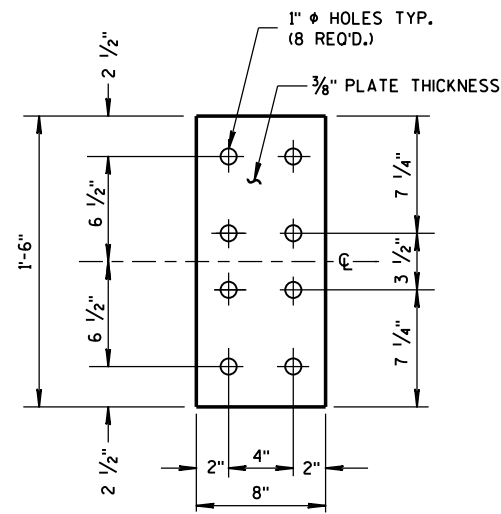


FRONT VIEW



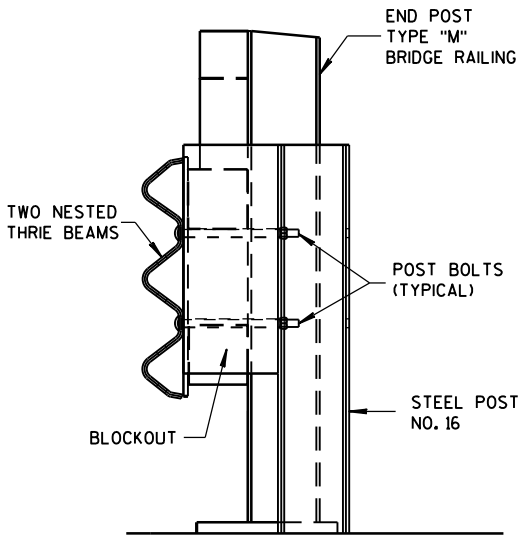
PLAN VIEW

BACK-UP PLATE DETAIL, TYPE "M"

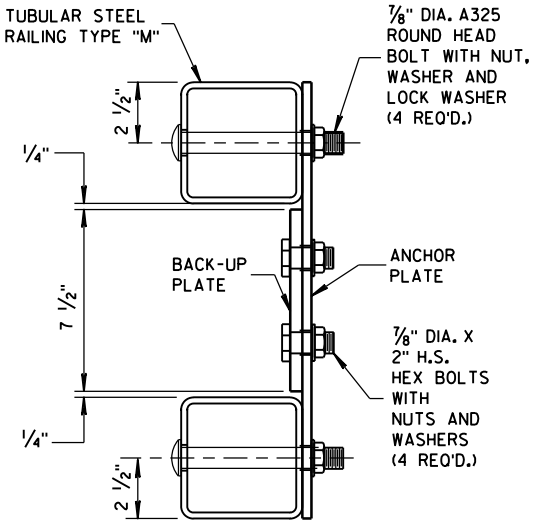


FRONT VIEW

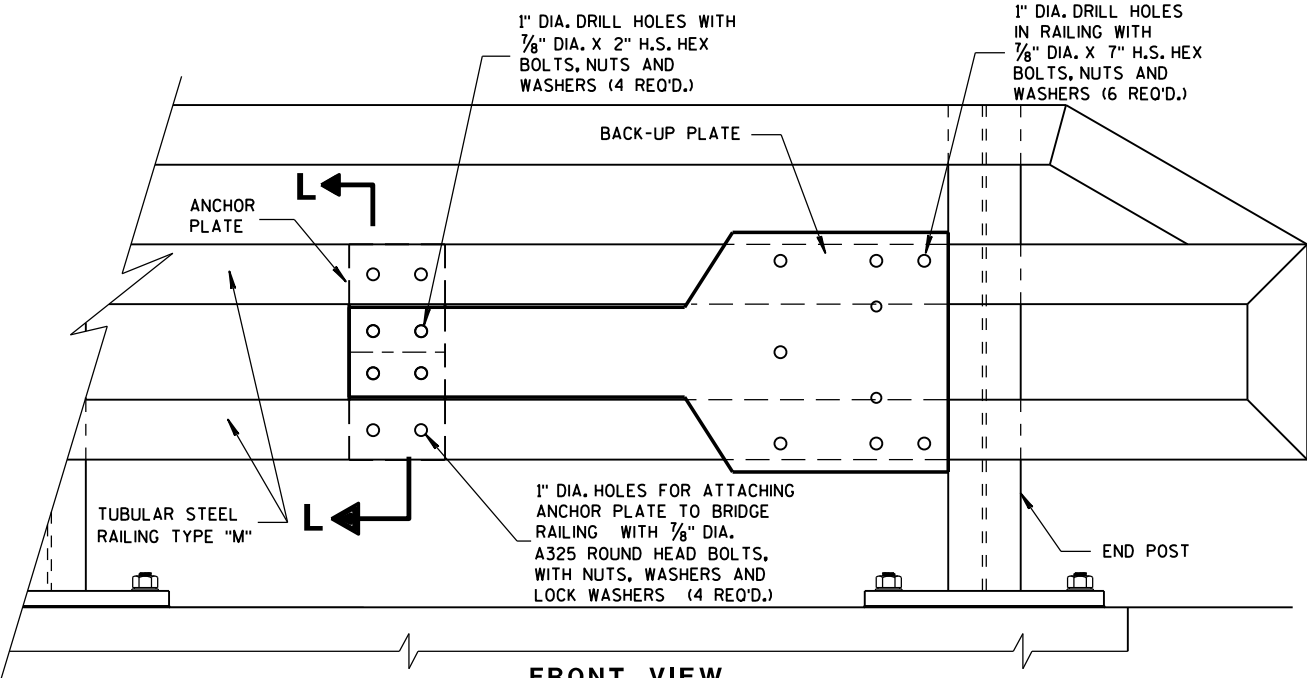
ANCHOR PLATE DETAIL, TYPE "M"



SECTION M-M

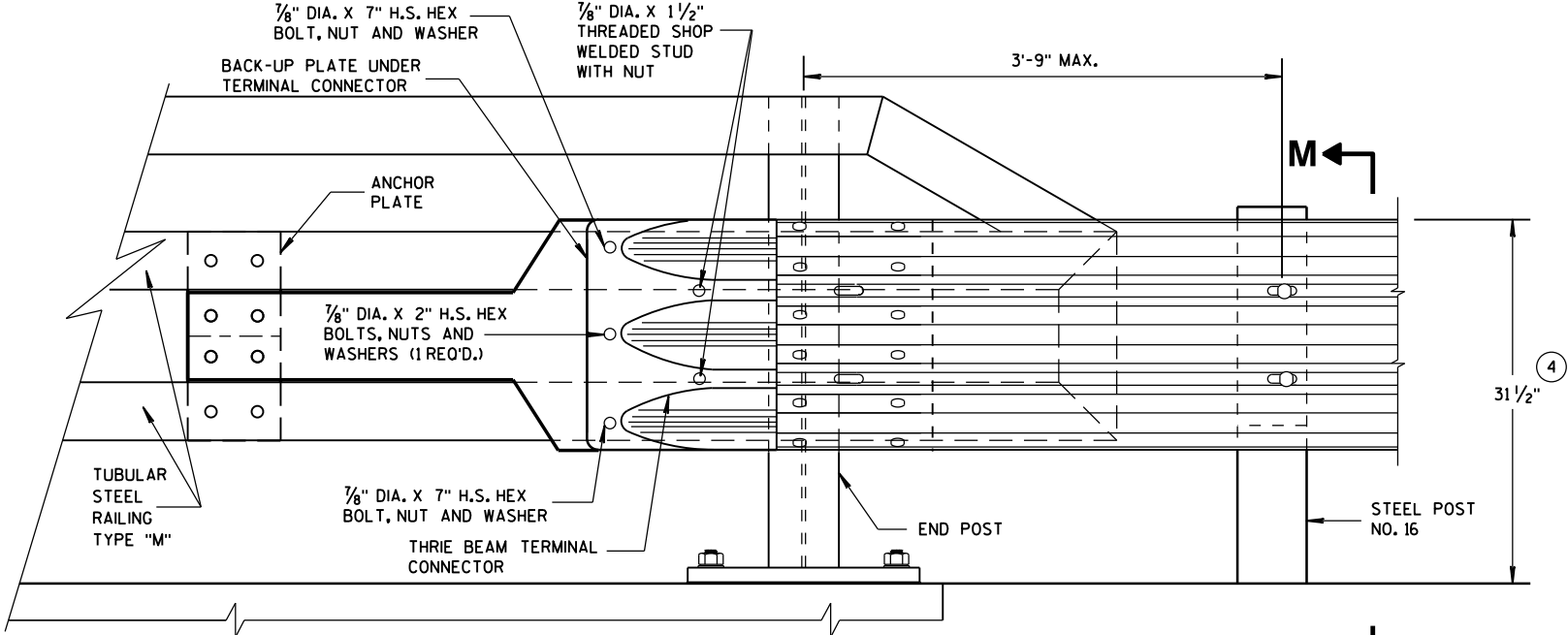


SECTION L-L

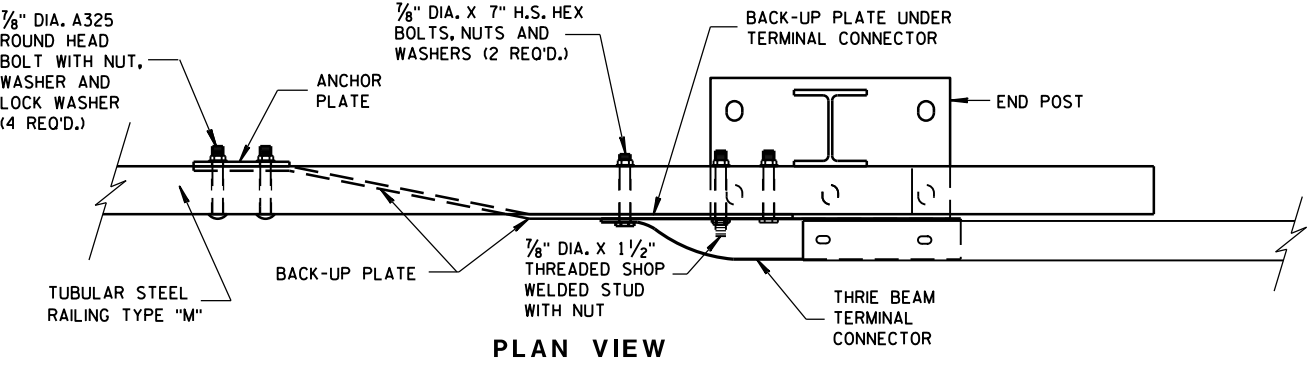


FRONT VIEW

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



FRONT VIEW



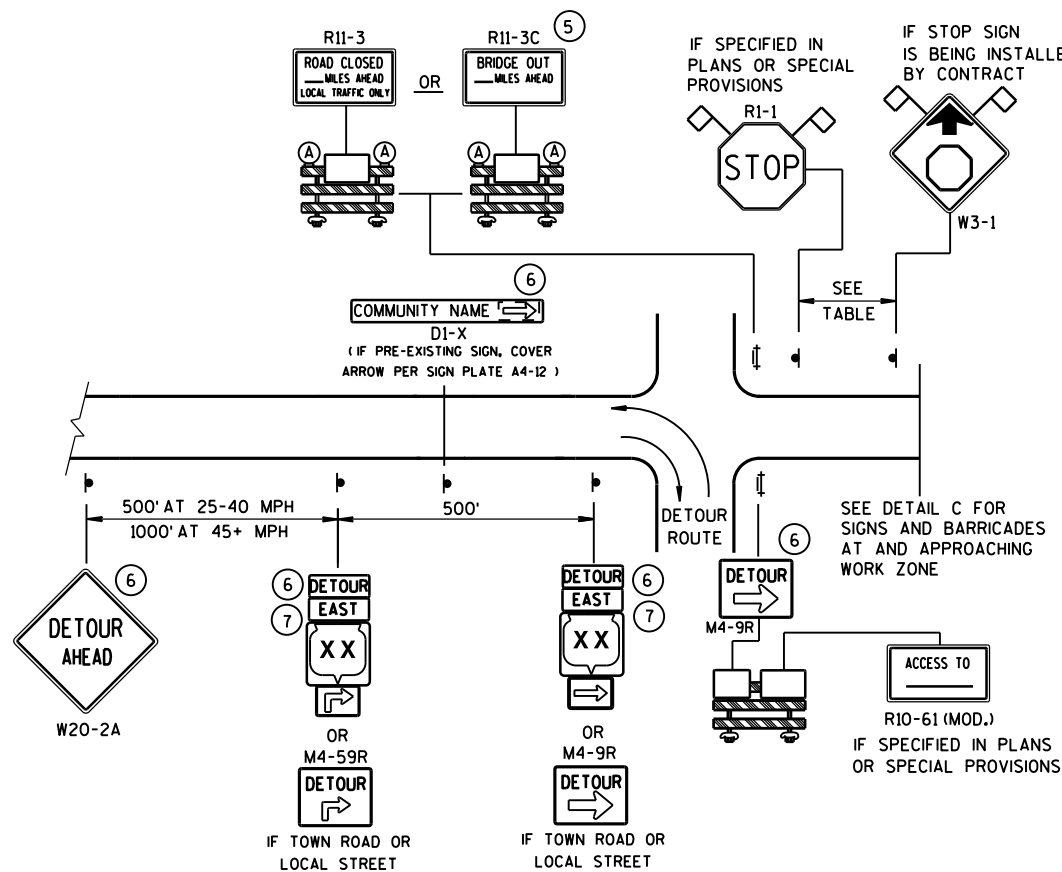
PLAN VIEW

THRIE BEAM CONNECTION TO TUBULAR RAILING, TYPE "M"

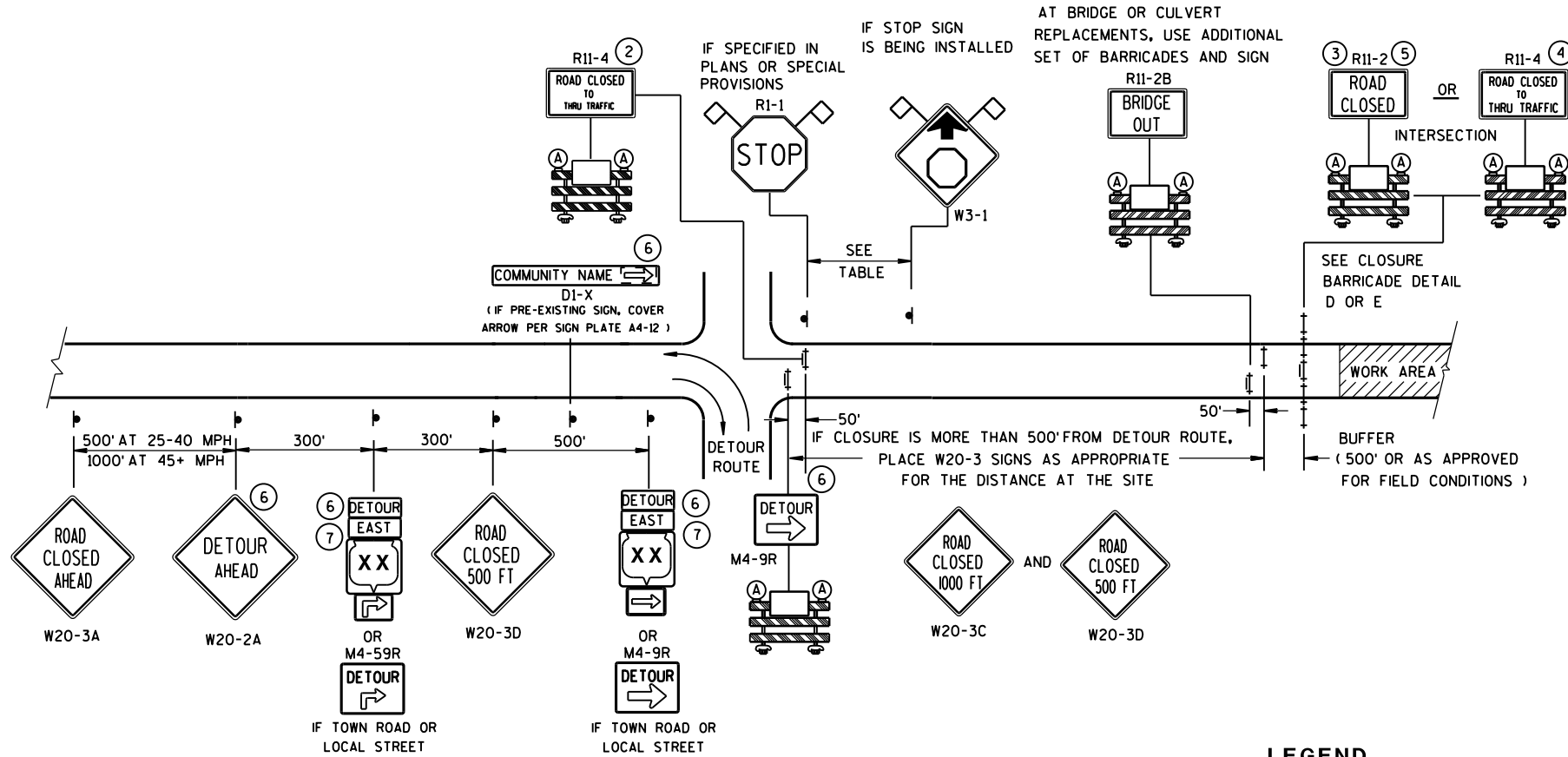
MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

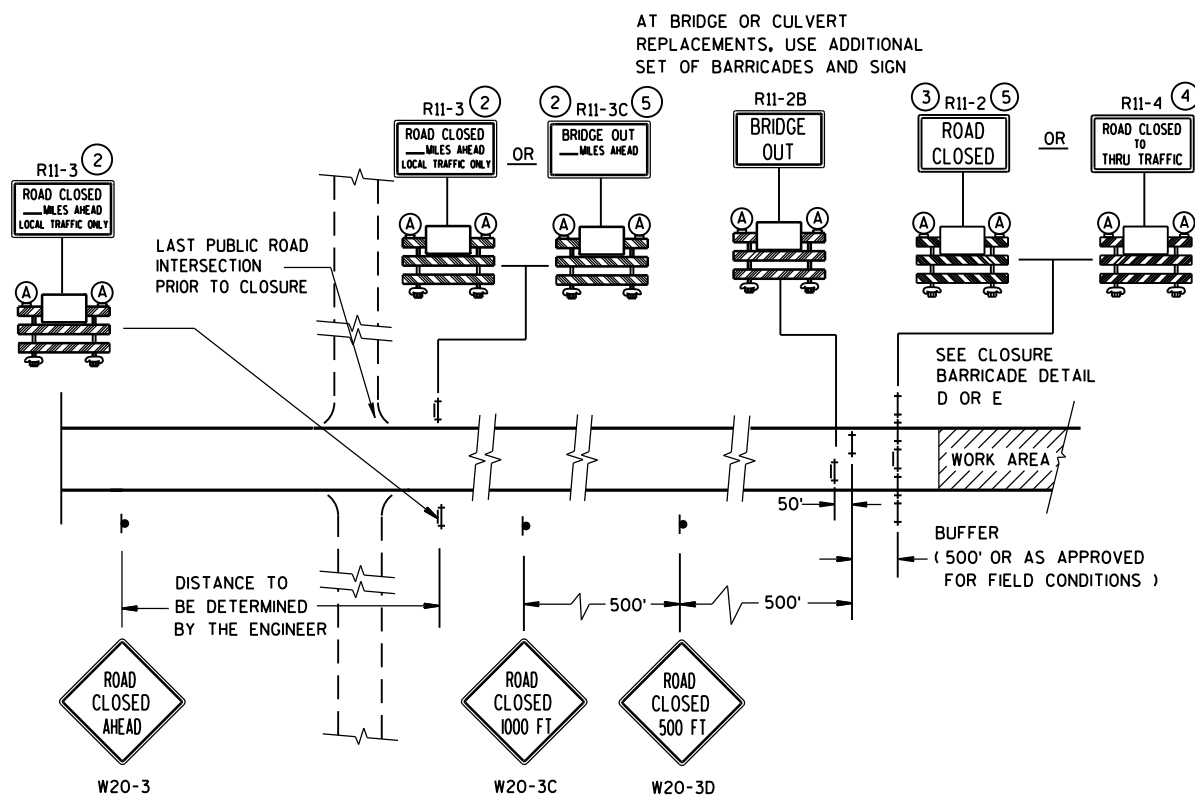
APPROVED
June, 2015
DATE
/S/ Jerry H. Zogg
ROADWAY STANDARDS DEVELOPMENT
ENGINEER
FHWA



DETAIL A
MAINLINE CLOSURE WITH POSTED DETOUR
WORK ZONE GREATER THAN 1/2 MILE FROM DETOUR ROUTE (1000 FEET IF URBAN)



DETAIL B
MAINLINE CLOSURE WITH POSTED DETOUR
WORK ZONE LESS THAN 1/2 MILE FROM DETOUR ROUTE (1000 FEET IF URBAN)

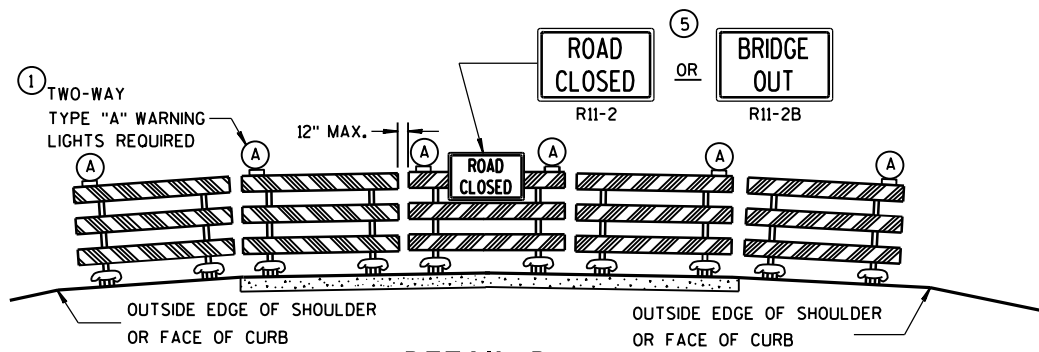


DETAIL C
MAINLINE CLOSURE, NO POSTED DETOUR

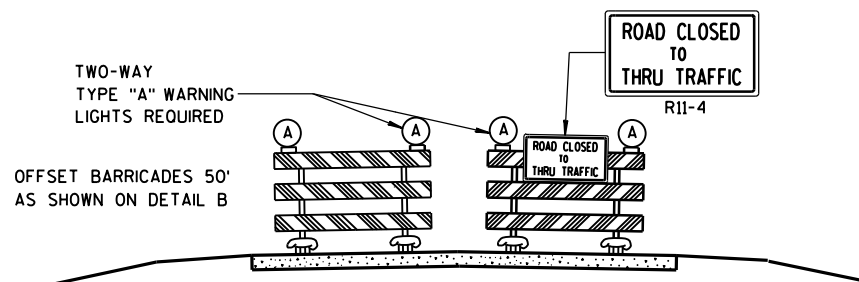
SPEED LIMIT (MPH)	"STOP AHEAD" ADVANCE WARNING DISTANCE (FT)
25	200
30	200
35	350
40	350
45	500
50	550
55	750

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

BARRICADES AND SIGNS FOR MAINLINE CLOSURES	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
Sept. 2015 DATE	/S/ Peter Amokobe Atepe STATEWIDE WORK ZONE TRAFFIC SAFETY ENGINEER



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 BARRICADES SHALL COVER NO MORE THAN THE TOP RAIL. THE SIGNS SHALL NOT COVER ANY PORTION OF THE MIDDLE OR BOTTOM RAILS.

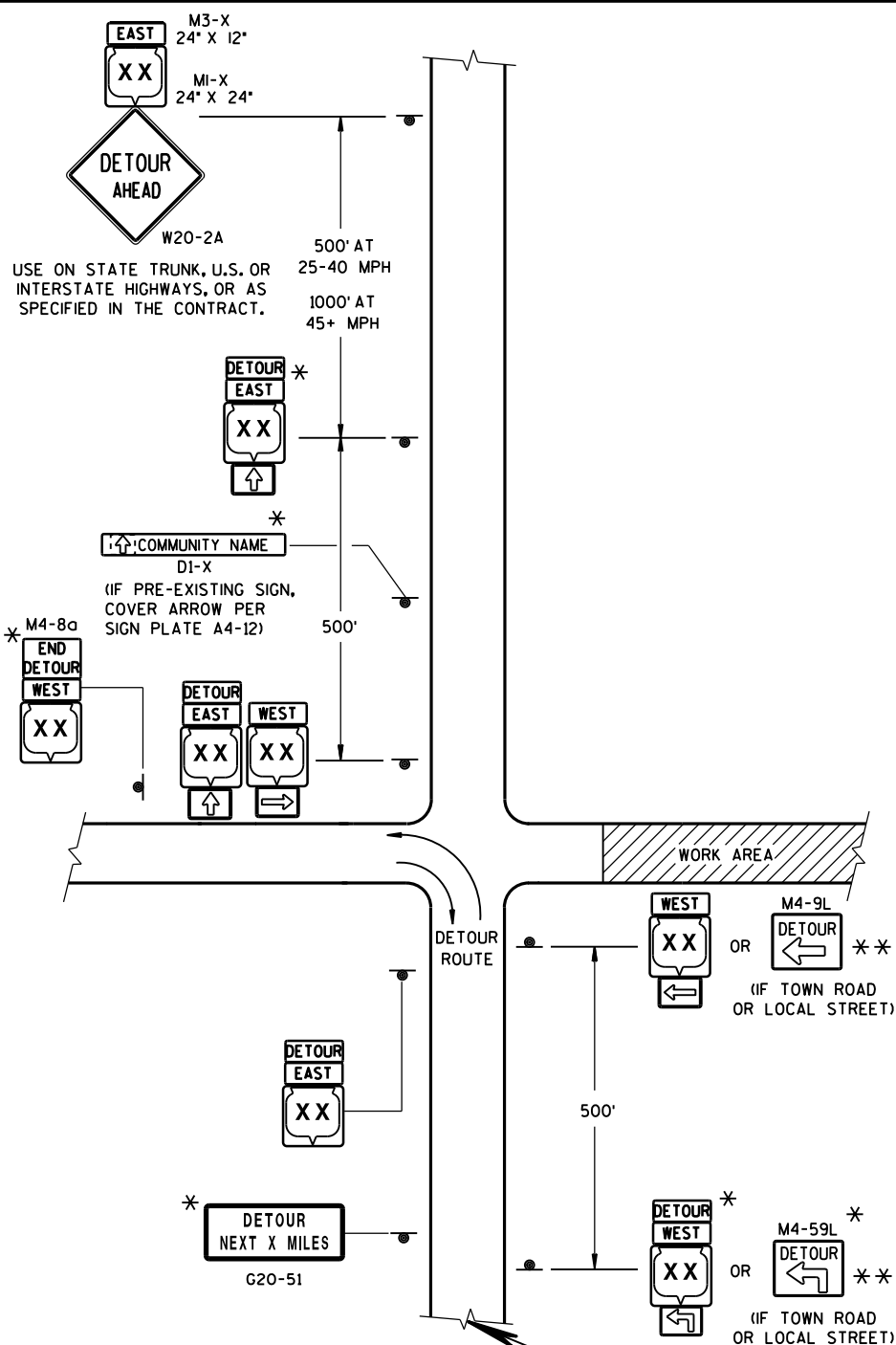
"WO AND "MO" SIGNS ARE THE SAME AS "W" AND "M" SIGNS EXCEPT THE BACKGROUND IS ORANGE.

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

- R11-2 SHALL BE 48" X 30".
- R11-3, 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". (30" X 15" 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.)
- 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 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 LANE 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 MAINLINE CLOSURES	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
Sept. 2015 DATE	/S/ Peter Amokobe Atepe STATEWIDE WORK ZONE TRAFFIC SAFETY ENGINEER
FHWA	



LEGEND

SIGN ON PERMANENT SUPPORT

WORK AREA

M4-8
 M3-X

OR OR
M1-4 M1-5A M1-6

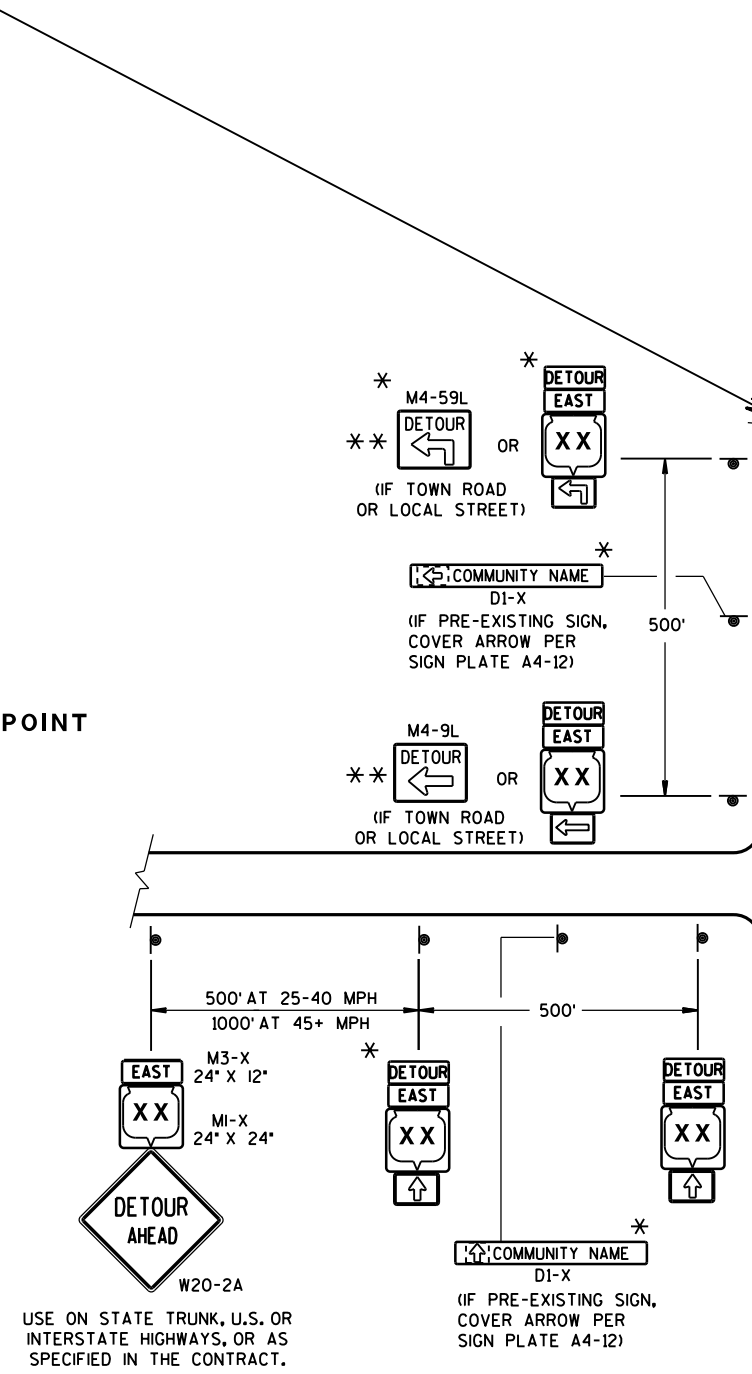
OR OR
M05-1 M06-1 M06-1

SEE SPECIFIC PROJECT DETOUR
SIGNING DETAIL SHEETS AND
DETAIL A OR B ON SDD 15C2-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.

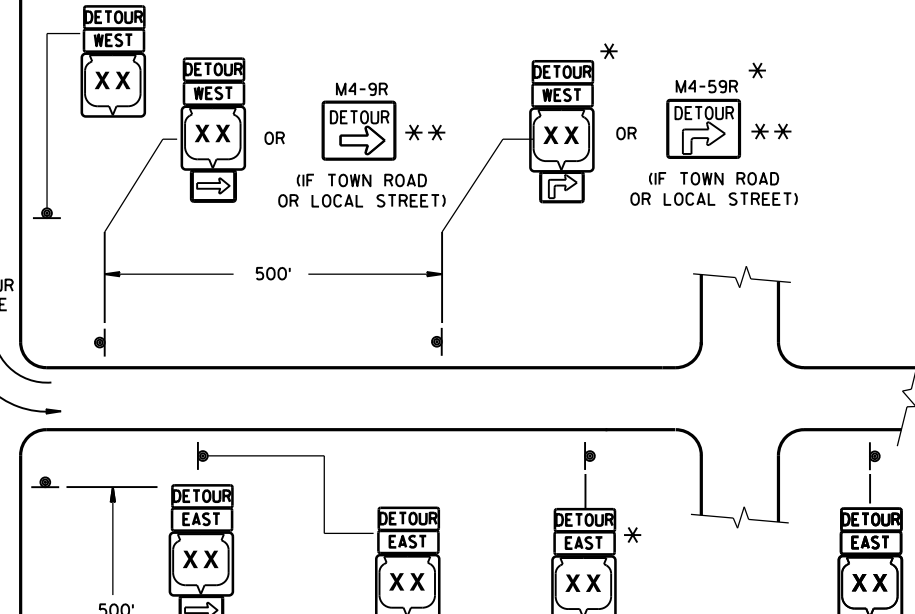
MATCH POINT

DETAIL F
DETOUR SIGNING



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". (30" X 15" 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 SHALL BE 30" X 24".
 - M4-8a SHALL BE 24" X 18".
 - G20-51 SHALL BE 60" X 24".
 - W20-2 SHALL BE 48" X 48".
 - D1-X SHALL BE AS SHOWN ON SPECIFIC PROJECT SIGNING DETAIL SHEETS.
- * OPTIONAL SIGNS. SEE SPECIFIC PROJECT DETOUR SIGNING DETAIL SHEETS.
- ** FOR A TOWN ROAD OR LOCAL STREET DETOURED ONTO A STATE TRUNK HIGHWAY, PLACE A ROAD NAME PLAQUE ABOVE THE M4-9 SIGN AS SPECIFIED IN THE CONTRACT.

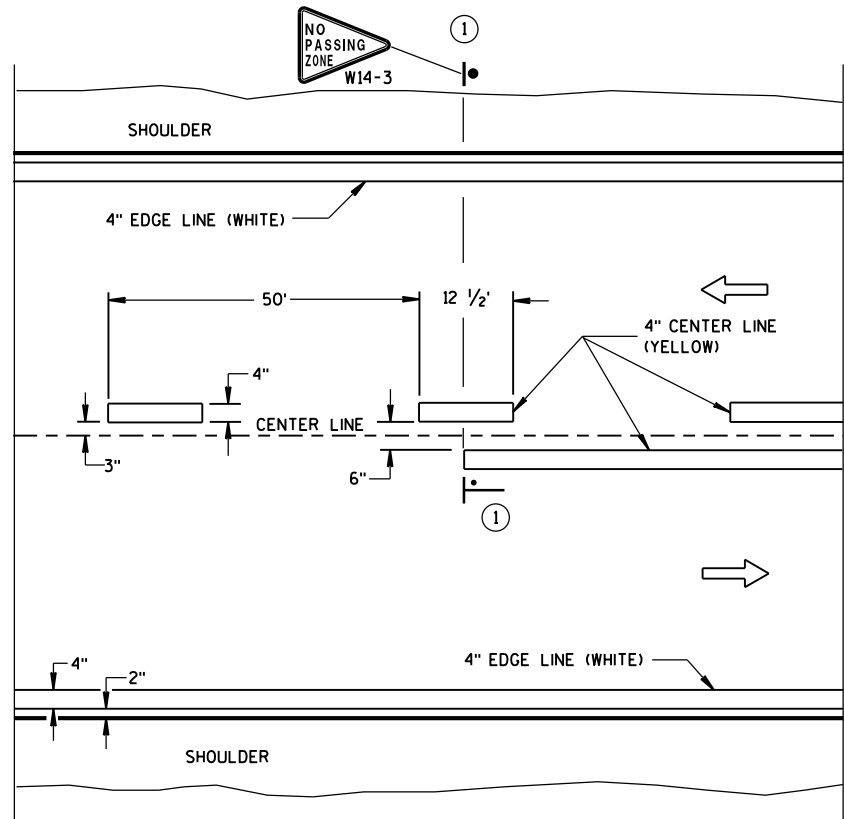


PLACE SIGNS BEYOND INTERSECTIONS WITH
STATE OR COUNTY TRUNK HIGHWAYS OR
AT 4 MILE MAXIMUM SPACING (4 BLOCKS IF
URBAN AREA.)

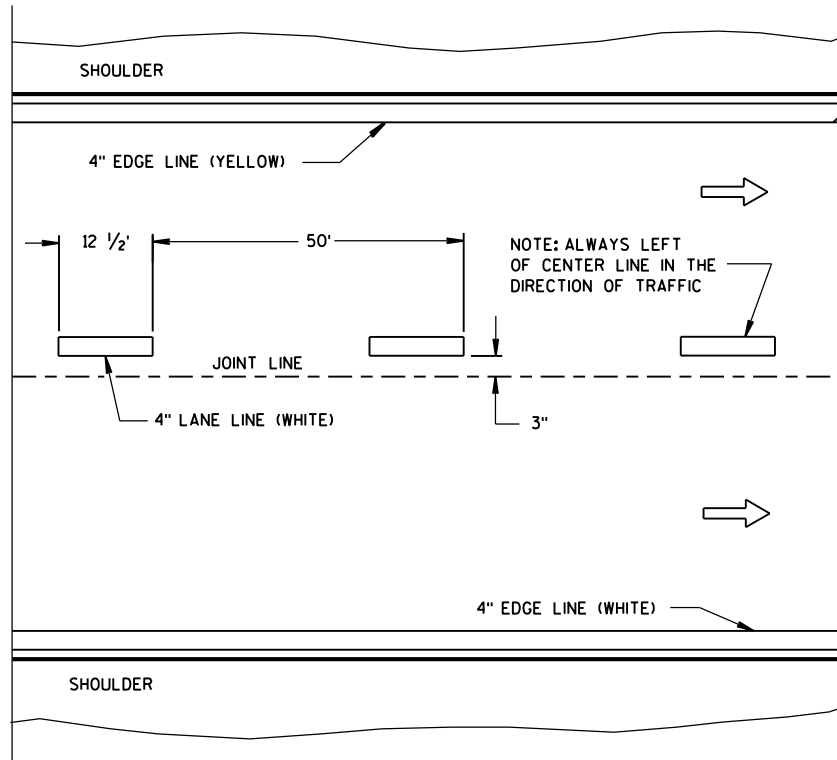
**DETOUR SIGNING FOR
MAINLINE CLOSURES**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
DATE Sept. 2015 /S/ Peter Amakobe Atepe
STATEWIDE WORK ZONE TRAFFIC
SAFETY ENGINEER
FHWA

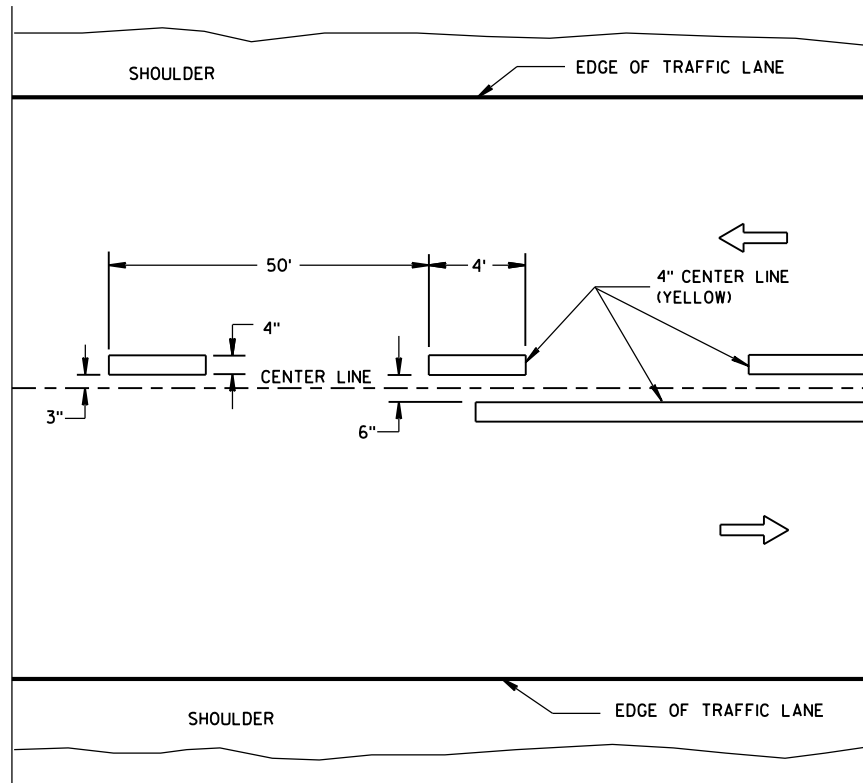


TWO WAY TRAFFIC

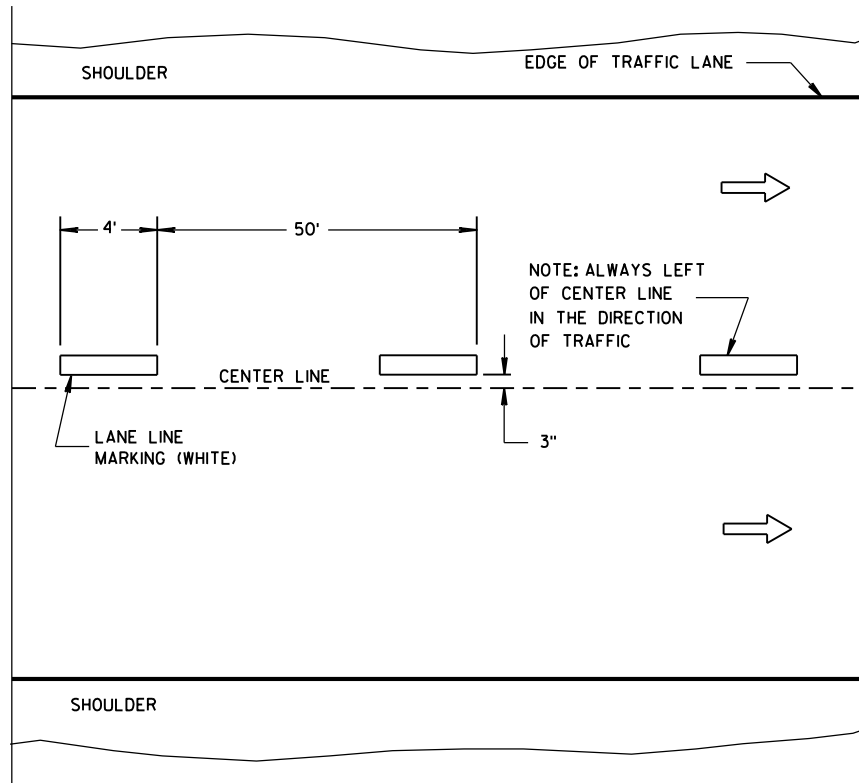


ONE WAY TRAFFIC

PERMANENT PAVEMENT MARKING



TWO WAY TRAFFIC



ONE WAY TRAFFIC

TEMPORARY PAVEMENT MARKING

GENERAL NOTES

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

① NO PASSING ZONE W14-3 SIGN SHALL BE LOCATED WITHIN 50 FEET OF THE "T" MARKING.

NOTE

ARROW SYMBOL (→) SHOWS DIRECTION OF TRAVEL

LEGEND

—●— "T" MARKING

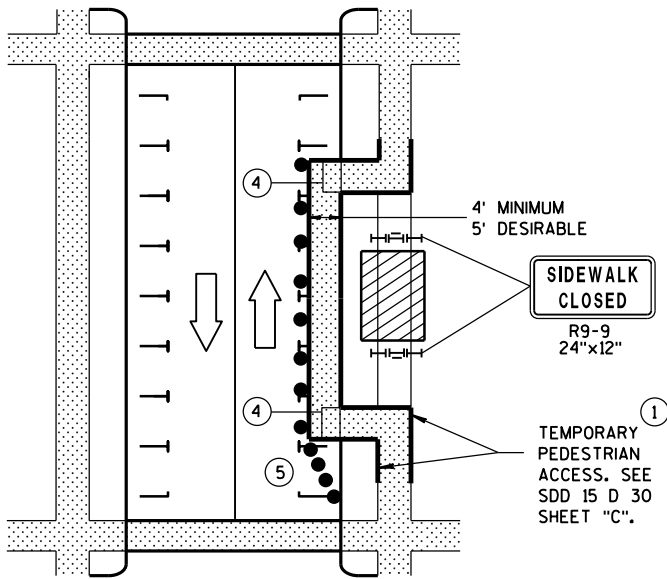
● POST MOUNTED SIGN

LONGITUDINAL MARKING
(MAINLINE)

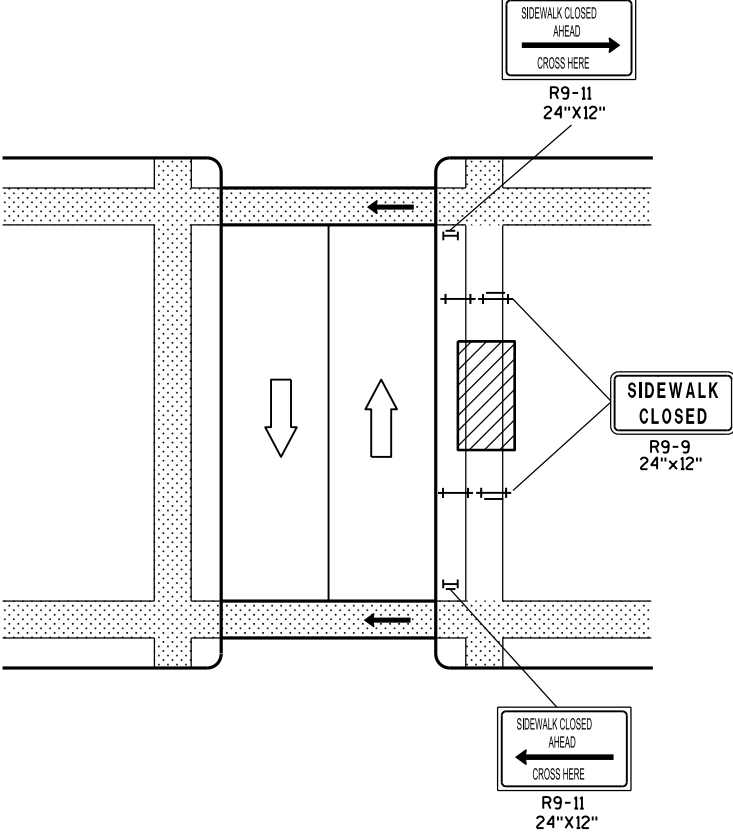
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
Sept., 2016 /S/ Matthew R. Rauch
DATE STATE SIGNING AND MARKING ENGINEER
FHWA

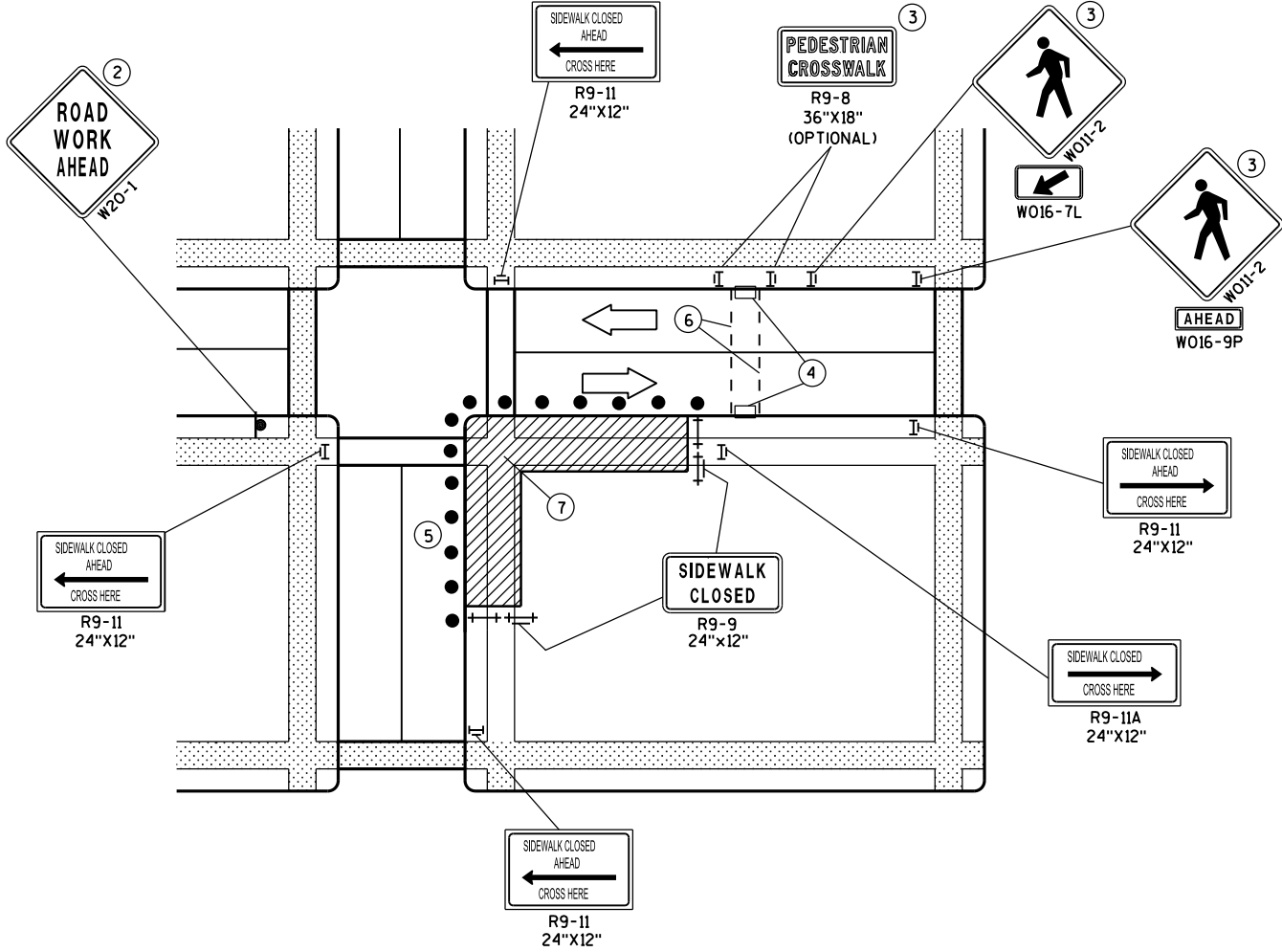
NOTE: MAY BE USED ON ROADWAY WITH POSTED SPEED OF LESS THAN 40 MPH.



MID-BLOCK SIDEWALK CLOSURE IN PARKING LANE

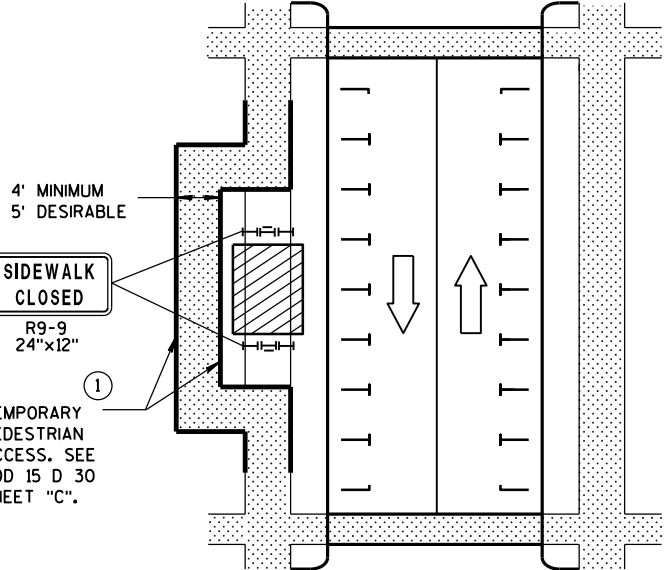


MID-BLOCK SIDEWALK CLOSURE



CORNER SIDEWALK CLOSURE WITH TEMPORARY CROSSWALK

NOTE: LAYOUT SAME AS ABOVE.



SIDEWALK DIVERSION

GENERAL NOTES

WHEN CLOSING OR RELOCATING CROSSWALKS OR SIDEWALKS, PROVIDE DETECABLE TEMPORARY FACILITIES AND INCLUDE ACCESSIBILITY FEATURES CONSISTENT WITH EXISTING PEDESTRIAN FACILITIES.

TEMPORARY TRAFFIC CONTROL DEVICES FOR PEDESTRIANS ARE SHOWN. OTHER DEVICES MAY BE NECESSARY TO CONTROL VEHICULAR TRAFFIC. STAGE WORK, AS NECESSARY, TO PROVIDE A TEMPORARY PEDESTRIAN ACCESS ROUTE AT ALL TIMES. FOR ROADWAYS WITH NO AVAILABLE DETOURS, MAINTAIN ONE OPEN SIDEWALK AT ALL TIMES.

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

FOR NIGHTTIME CLOSURE USE TYPE "A" FLASHING WARNING LIGHTS ON BARRICADES, SUPPORTING SIGNS AND CLOSING SIDEWALK. USE TYPE "C" STEADY BURN LIGHTS ON CHANNELIZING DEVICES SEPARATING THE WORK AREA FROM VEHICULAR TRAFFIC.

PEDESTRIAN TRAFFIC SIGNAL DISPLAY CONTROLLING CLOSED CROSSWALK SHALL BE COVERED OR DEACTIVATED.

POST MOUNTED SIGNS LOCATED ADJACENT TO A SIDEWALK SHALL HAVE A 7 FOOT MINIMUM CLEARANCE FROM THE BOTTOM OF THE SIGN TO THE SIDEWALK SURFACE.

ALTERNATE SIDEWALK WORK BETWEEN LEFT AND RIGHT SIDE OF ROADWAY TO MAINTAIN PEDESTRIAN ACCESS.

- ① IF SIDEWALK CLOSURE AFFECTS AN ACCESSIBLE AND DETECTABLE FACILITY, MAINTAIN ACCESSIBILITY AND DETECTABILITY ALONG THE ALTERNATE PEDESTRIAN ROUTE.
- ② "ROAD WORK AHEAD" SIGNS ARE NOT REQUIRED IF THE SIDEWALK CLOSURE OCCURS WITHIN A LARGER WORK ZONE WHERE ADVANCE WARNING SIGNS ARE ALREADY PRESENT, OR IF THE WORK AREA AND EQUIPMENT ARE MORE THAN 2 FEET BEHIND THE CURB.
- ③ IF TEMPORARY PEDESTRIAN CROSSWALK IS NOT PROVIDED, OMIT R9-8 AND W011-2 SIGN ASSEMBLIES. IF PROVIDED INCLUDE ON BOTH SIDES OF THE CROSSWALK.
- ④ TEMPORARY CURB RAMPS. SEE SDD 15 D 30 SHEET "B".
- ⑤ DRUMS OR BARRICADES AT 25 FOOT SPACING. STREET PARKING SHALL BE PROHIBITED FOR AT LEAST 50 FEET IN ADVANCE OF THE MID-BLOCK CROSSWALK.
- ⑥ TEMPORARY PAVEMENT MARKING FOR CROSSWALK LINES.
- ⑦ LIMIT WORK TO ONE QUADRANT AT A TIME TO MINIMIZE PEDESTRIAN DISRUPTION.

LEGEND

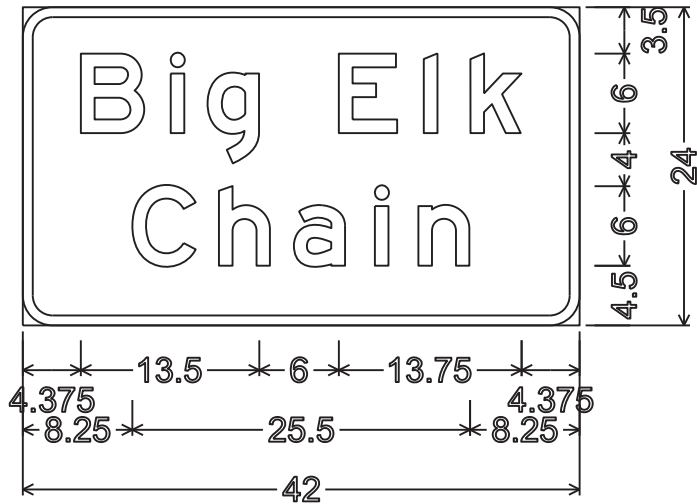
	SIGN ON PERMANENT SUPPORT		DIRECTION OF TRAFFIC
	UNDER PEDESTRIAN TRAFFIC		TRAFFIC CONTROL DRUM
	WORK AREA		
	PEDESTRIAN CHANNELIZATION DEVICE		
	TYPE II BARRICADE WITH/WITHOUT SIGN (ALL WITH ONE WARNING LIGHT, TYPE A, LOW-INTENSITY FLASHING)		
	TYPE III BARRICADE WITH/WITHOUT SIGN (ALL WITH ONE WARNING LIGHT, TYPE A, LOW-INTENSITY FLASHING)		

TRAFFIC CONTROL, PEDESTRIAN ACCOMMODATION

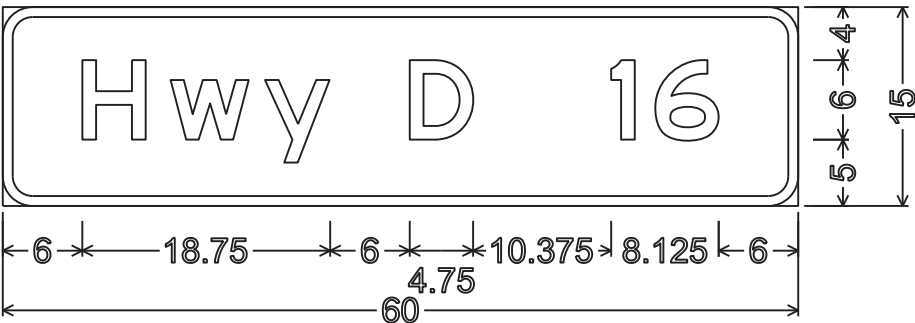
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION

NOTES

- 1. All Signs Type II - Type H Reflective
- 2. Color:
 - Background - Green
 - Message - White
- 3. Message Series - E

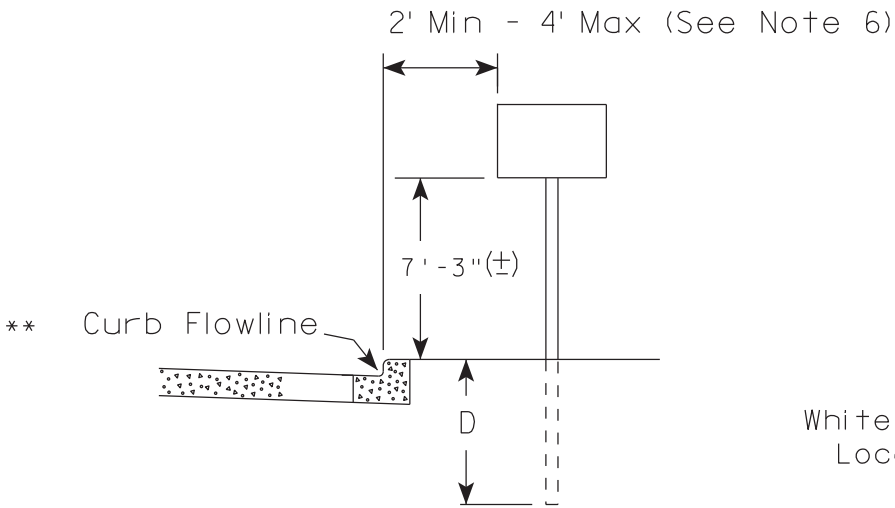


I3-1;
2.250" Radius, 0.750" Border

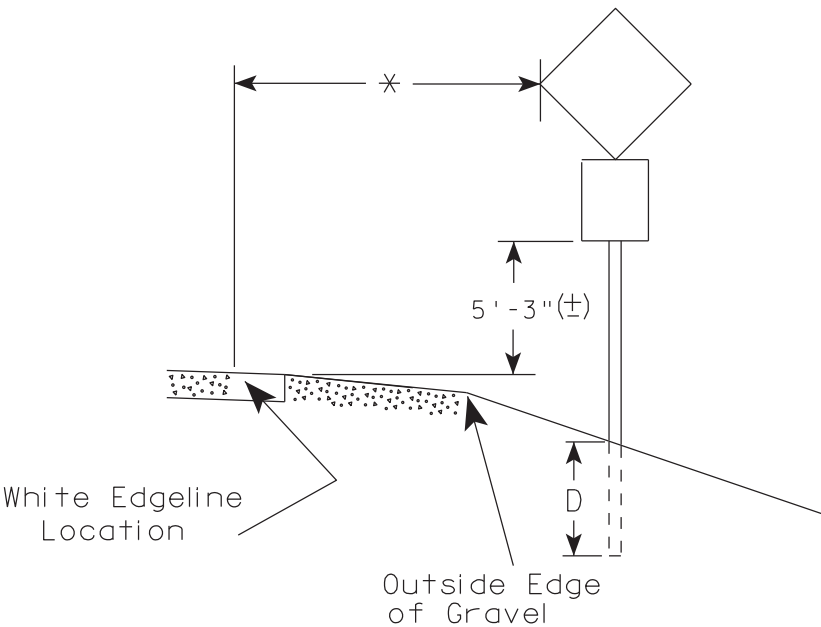
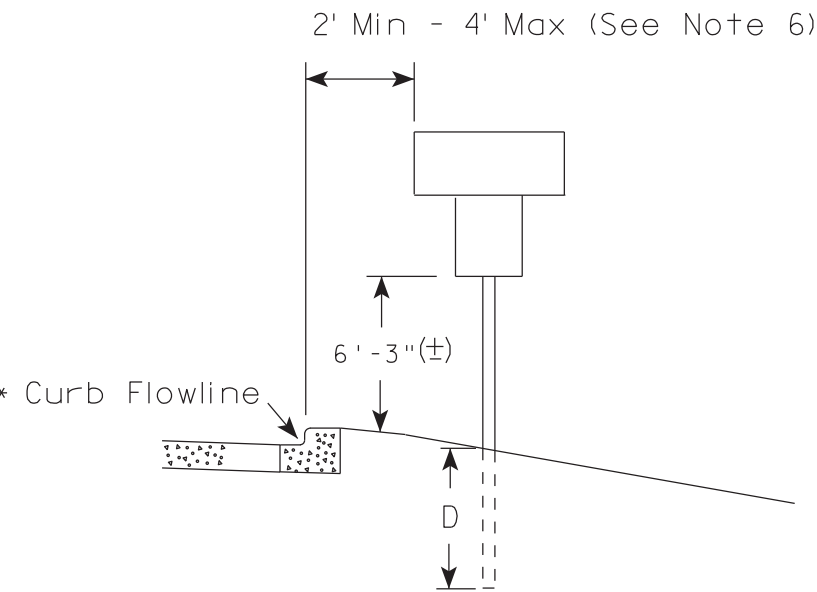
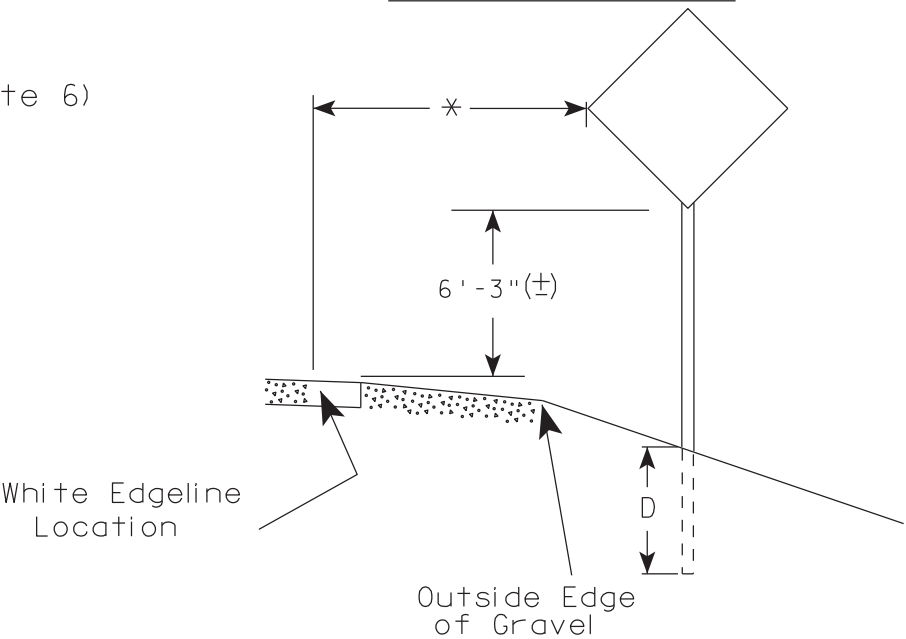


D2-1;
2.250" Radius, 0.750" Border

URBAN AREA



RURAL AREA (See Note 2)



GENERAL NOTES

1. Signs wider than 4 feet or 20 sq.ft or larger, shall be mounted on multiple posts. Refer to plate A4-4.
2. If signs are mounted on barrier wall, see A4-10 sign plate.
3. For expressways and freeways, mounting height is 7'- 3" (±) or 6'-3" (±) depending upon existence of a sub-sign.
4. Minimum mounting height for J assemblies (A2-1S) is 7'-3" (±) or 6'-3" (±) per urban or rural detail respectively.
5. Minimum mounting height for signs mounted on traffic signal poles is 5'- 3" (±).
6. Offset distance shall be consistent with existing signs or consistent throughout length of project.
7. The (±) tolerance for mounting height is 3 inches.
8. Folding signs shall be mounted at a height of 5'-3" (±) or as directed by the Engineer.
9. The Double Arrow sign (W12-1) shall be mounted at a height of 2'-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" (±).

POST EMBEDMENT DEPTH

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

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

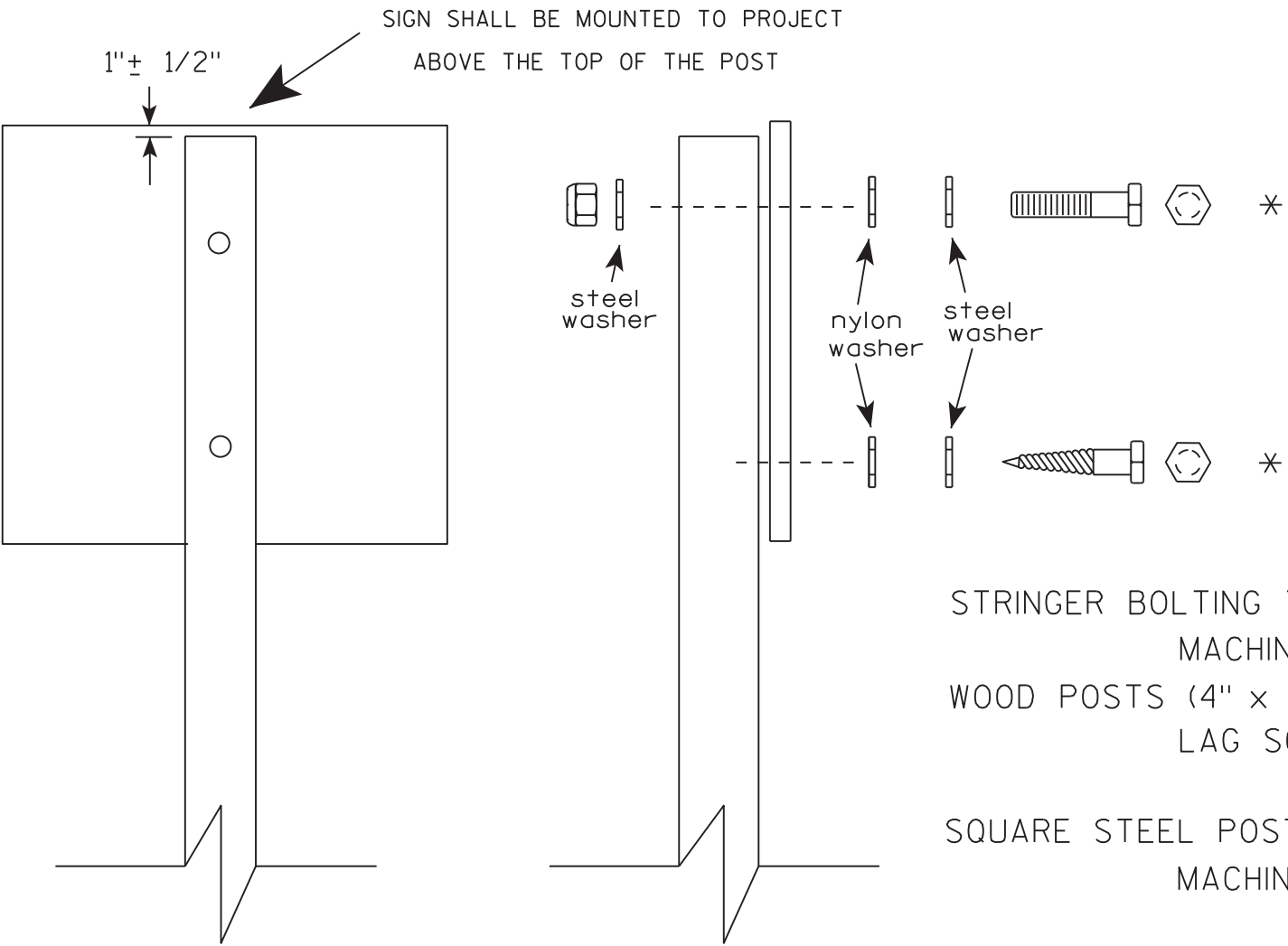
* 6 feet from edge of a paved shoulder or 12 feet from the edge of pavement (edge line location) or 2 feet from outside edge of gravel, whichever is greater unless directed by project engineer.

TYPICAL INSTALLATION
OF PERMANENT TYPE II
SIGNS ON SINGLE POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED
Matthew R. Rauch
for State Traffic Engineer

DATE 7/23/15 PLATE NO. A4-3.20



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 - 5/16" X 1-3/4" Length w/ lock nuts
- WOOD POSTS (4" x 4" or 4" x 6")
- LAG SCREWS - 3/8" X 3" (NO STRINGERS ON BACK OF SIGN)
 - 3/8" X 4" (STRINGERS ON BACK OF SIGN)
- SQUARE STEEL POSTS (2" x 2")
- MACHINE BOLTS - 3/8" X 3-1/4" Length w/ nuts (NO STRINGER ON BACK OF SIGN)
 - 3/8" X 5" Length w/ nuts (STRINGERS ON BACK OF SIGN)
- RIVETS - 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 3/8" I.D. X 1/16" STEEL
 - 1-1/4" O.D. X 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.

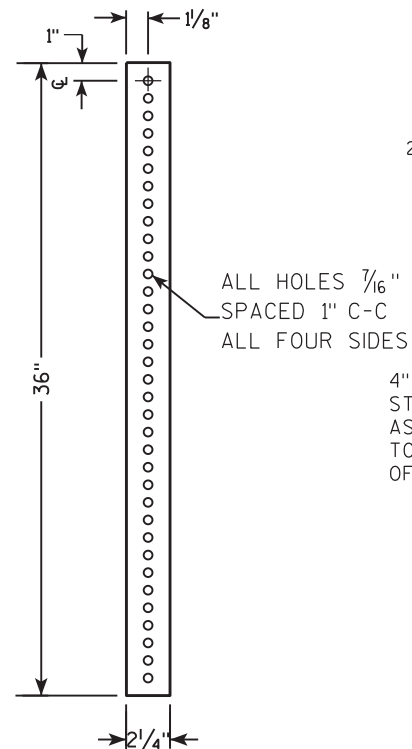
ATTACHMENT OF SIGNS
TO POSTS

WISCONSIN DEPT OF TRANSPORTATION

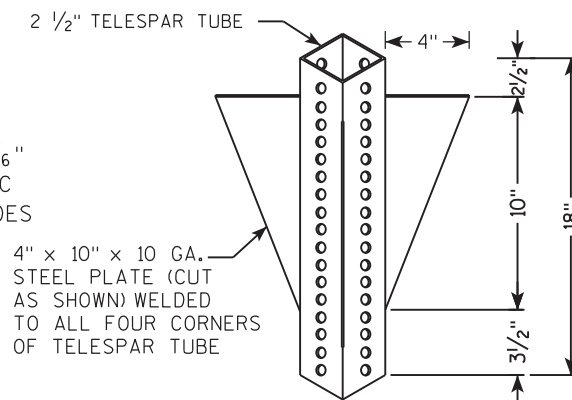
APPROVED *Matthew R. Rauch*
For State Traffic Engineer

DATE 8/11/16 PLATE NO. A4-8.8

2 1/4 " SQUARE
12 GAUGE
PERFORATED
GALVANIZED FINISH



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



LENGTH SHOWN ON MISC. QTY'S

SIGN

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

2" STEEL TUBULAR SQUARE UPPER SECTION

ALL HOLES $\frac{7}{16}$ " SPACED 1" C-C ALL FOUR SIDES

TELESCOPE PIECES FLUSH AT TOP

$\frac{3}{8}$ " ZINC PLATED CORNER ANCHOR BOLT AND NUT

2 1/2" GRAVEL OR DIRT

18" DIA SCHEDULE 40 PVC BOX-OUT

36"

18"

13"

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

2 1/4" SQUARE X 36"

$\frac{3}{8}$ " ZINC PLATED ANCHOR BOLT AND NUT

LENGTH SHOWN ON MISC. QTY'S

SIGN

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

2" STEEL TUBULAR SQUARE UPPER SECTION

ALL HOLES $\frac{7}{16}$ " SPACED 1" C-C ALL FOUR SIDES

$\frac{3}{8}$ " ZINC PLATED CORNER ANCHOR BOLT AND NUT

TELESCOPE PIECES FLUSH AT TOP

1"

$\frac{3}{8}$ " ZINC PLATED ANCHOR BOLT AND NUT

2 $\frac{1}{2}$ " SQUARE X 18" (SOIL STABILIZING SLEEVE)

2 $\frac{1}{4}$ " SQUARE X 36"

36"

18"

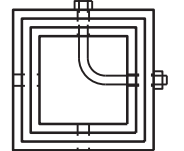
12"

A

B

C

3/8" ZINC PLATED CORNER
ANCHOR BOLT AND NUT



DIRECTION
OF TRAFFIC

SECTION A-A

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

TUBULAR STEEL
SIGN POST
A4-9

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthieu R. Rauch

for State Traffic Engineer

DATE 2/05/15 PLATE NO. A4-9.9

PROJECT NO:

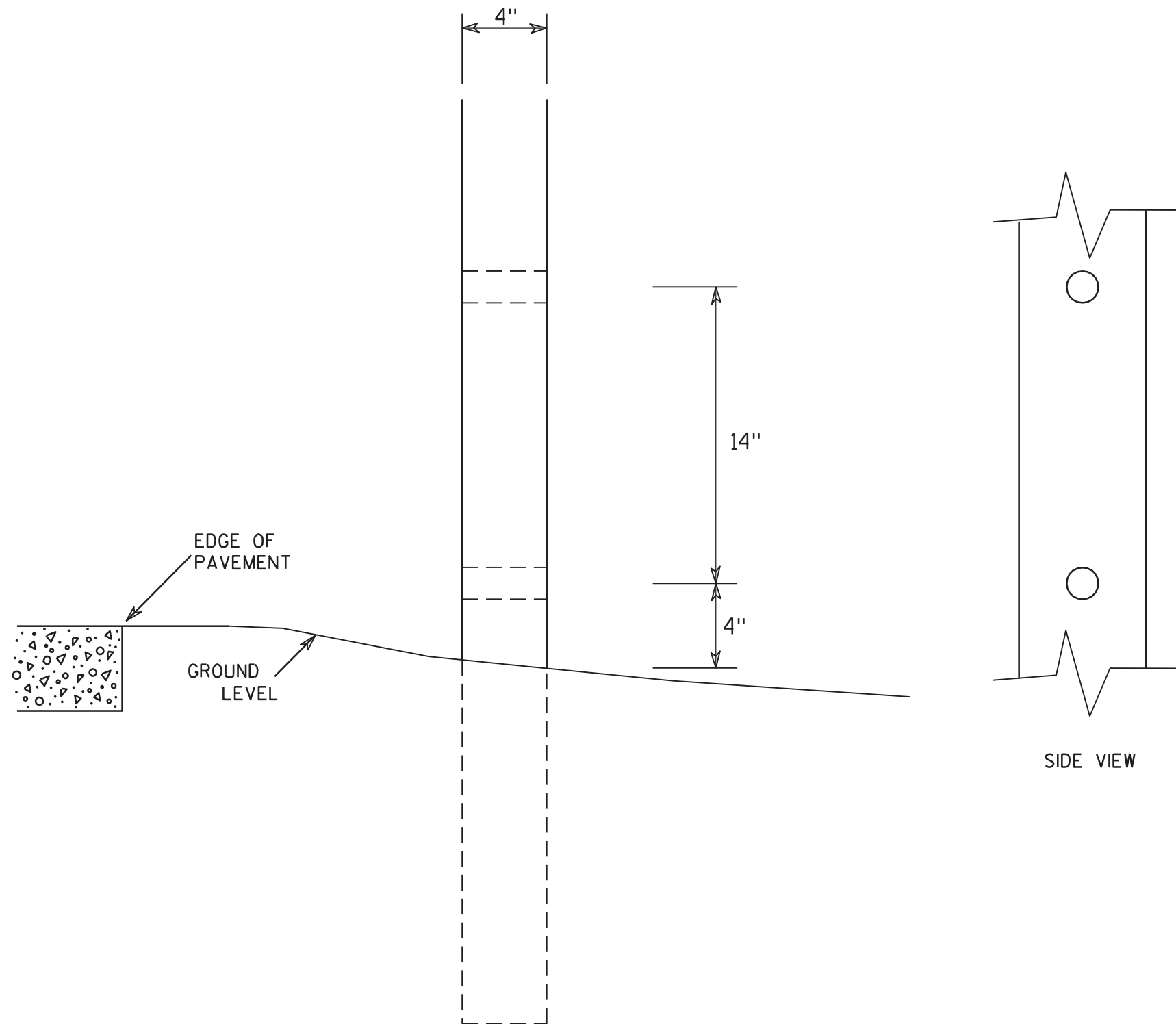
HWY:

COUNTY:

SHEET NO:

11

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

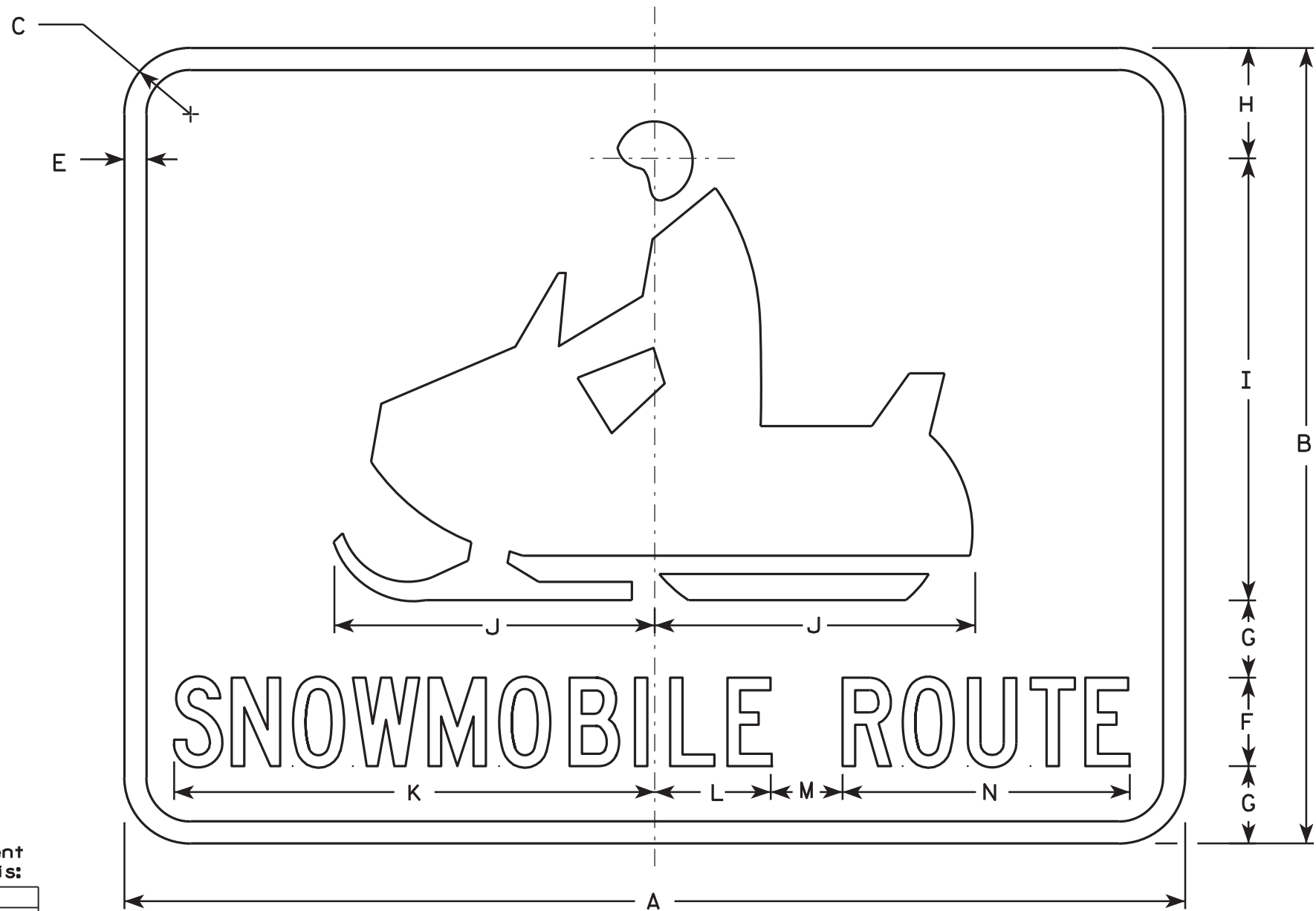
WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Chester J. Spang*
for State Traffic Engineer

DATE 3/27/97 PLATE NO. A4-11.2

PROJECT NO:	HWY:	COUNTY:	SHEET NO:	E
-------------	------	---------	-----------	---

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 - Green
 - Message - White - Type H Reflective
- 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.

Metric equivalent
for this sign is:

SIZE	
1	
2	600 mm X 450 mm
3	
4	
5	

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	O	R	S	T	U	V	W	X	Y	Z	Area sq. ft.	Area m ²
1																												
2	24	18	1½		½	2	1¾	2½	10	7¼	10⅞	2⅝	1⅝	6½													3.0	0.27
3																												
4																												
5																												

PROJECT NO:

STANDARD SIGN
D11-6

WISCONSIN DEPT OF TRANSPORTATION

APPROVED

Cheta J. Spay
State Traffic Engineer

DATE 1/16/02

PLATE NO. D11-6.6

SHEET NO:

E

7



Varies
I3-1

NOTES

1. Sign is Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
Background - Green
Message - White - Type H Reflective
3. Message Series - E except Size 1 is 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. Center shorter name over or under the longer name.

* Minimum dimension is normally height of upper case letter.



Varies
See note 5
Varies
I3-1

Metric equivalent
for this sign is:

Metric equivalent
for this sign is:

SIZE	I3-1	SIZE	I3-1A
1	Varies X 300 mm	1	Varies X 525 mm
2	Varies X 375 mm	2	Varies X 600 mm
3		3	
4	Varies X 525 mm	4	Varies X 900 mm
5	Varies X 525 mm	5	Varies X 900 mm

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.	Area m ²
1	Varies	12	1 1/4		5/8	3 3/4	5	4	3 1/8	3 3/4	4 1/8	12 7/8		3				21									Varies	Varies
2	Varies	15	2 1/4		3/4	4 1/2	6	5	3 1/2	4	4 1/2	14 1/2		4				24									Varies	Varies
3																												
4	Varies	21	3		1	6	8	7 1/8	6 1/4	6 1/4	7 1/2	21 3/4		5 7/8				36									Varies	Varies
5	Varies	21	3		1	6	8	7 1/8	6 1/4	6 1/4	7 1/2	21 3/4		5 7/8				36									Varies	Varies

STANDARD SIGN
I3-1

WISCONSIN DEPT OF TRANSPORTATION

APPROVED

Charles J. Spang
for State Traffic Engineer

DATE 1/25/02

PLATE NO. I3-1.5

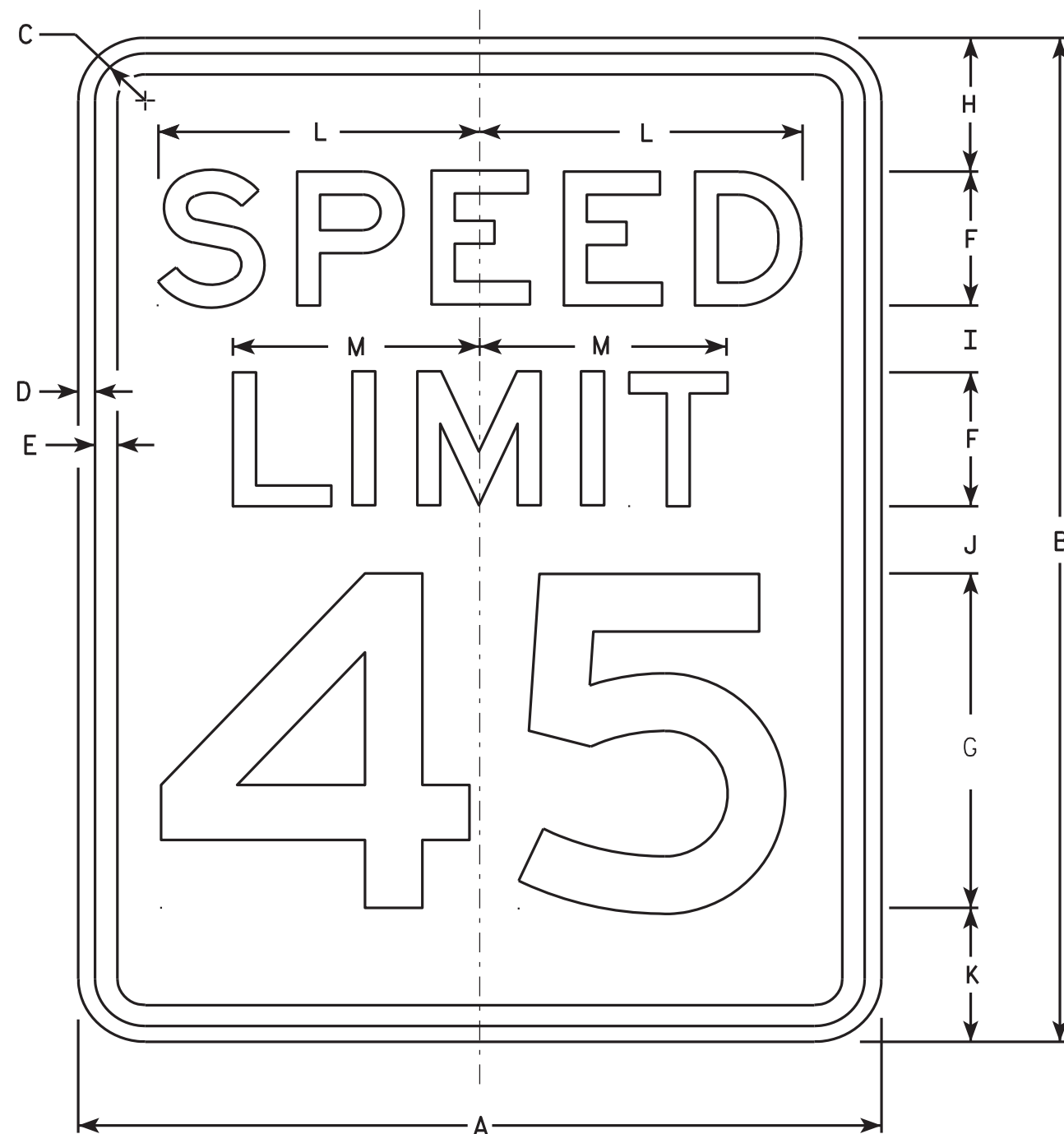
PROJECT NO:

HWY:

COUNTY:

SHEET NO:

E



R2-1

NOTES

1. Sign is Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
Background - White
Message - Black
3. Message Series - E
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 and optically adjust spacing to achieve proper balance.

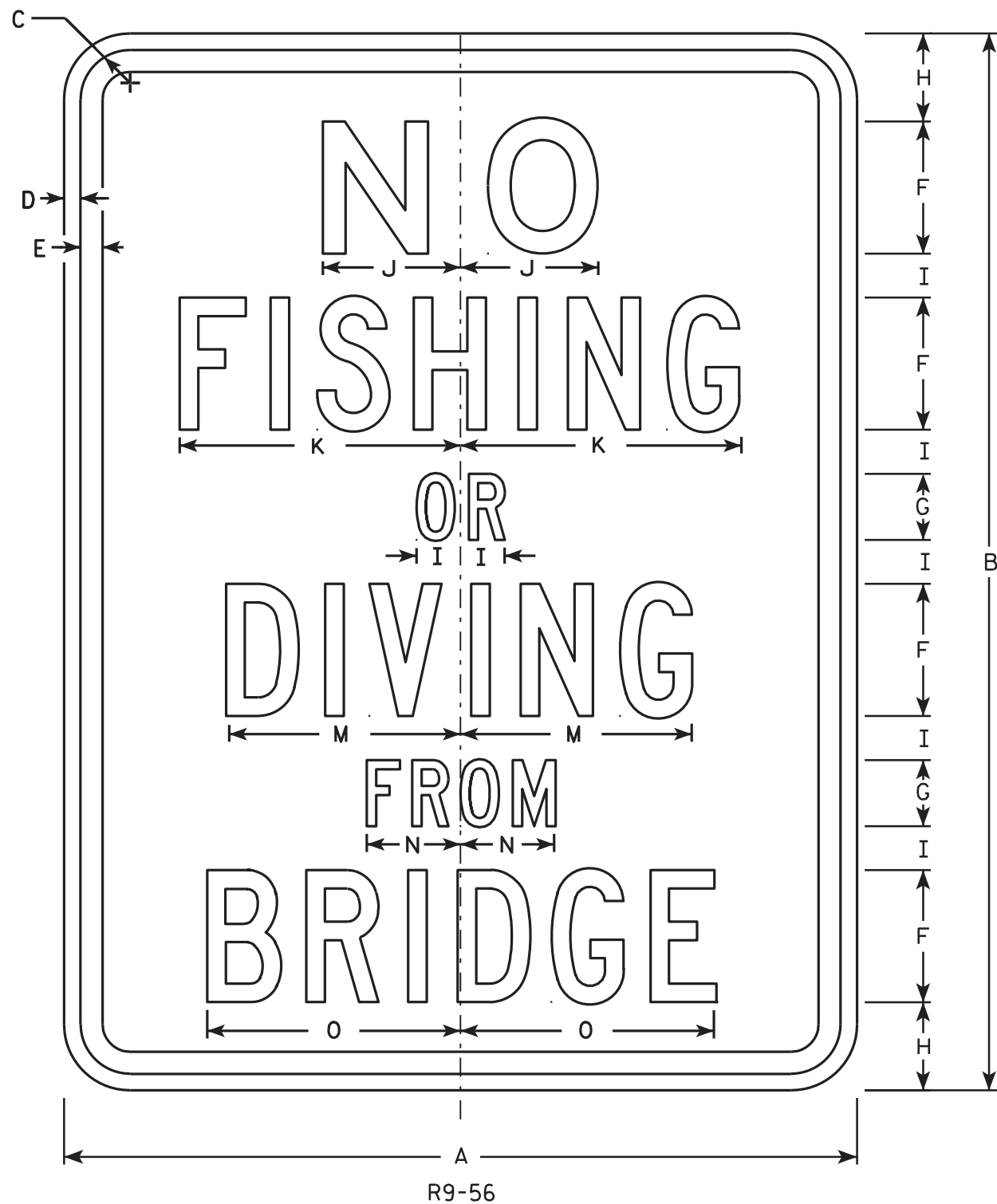
SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	18	24	1 1/8	3/8	1/2	3	8	3	2	2	3	7 1/4	5 1/2														3.0
2S	24	30	1 1/8	3/8	1/2	4	10	3	2 1/4	3 3/8	3 3/8	9 5/8	7 3/8														5.0
2M	30	36	1 3/8	1/2	5/8	5	12	5	2 1/2	2 1/2	4	12	9 1/4														7.5
3	36	48	1 3/8	1/2	5/8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

STANDARD SIGN R2-1

WISCONSIN DEPT OF TRANSPORTATION
APPROVED *Matthew R. Rauch*
For State Traffic Engineer
DATE 5/26/10 PLATE NO. R2-1.13

PROJECT NO: HWY: COUNTY: SHEET NO: E

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 - White
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. Line 1 is Series E.
Lines 2, 3, 4, 5 and 6 are Series C.

7

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	18	24	1 1/8	3/8	1/2	3	1 1/2	2	1	3 1/8	6 3/8		5 1/4	2 1/8	5 3/4												3.0
2M	18	24	1 1/8	3/8	1/2	3	1 1/2	2	1	3 1/8	6 3/8		5 1/4	2 1/8	5 3/4												3.0
3																											
4																											
5																											

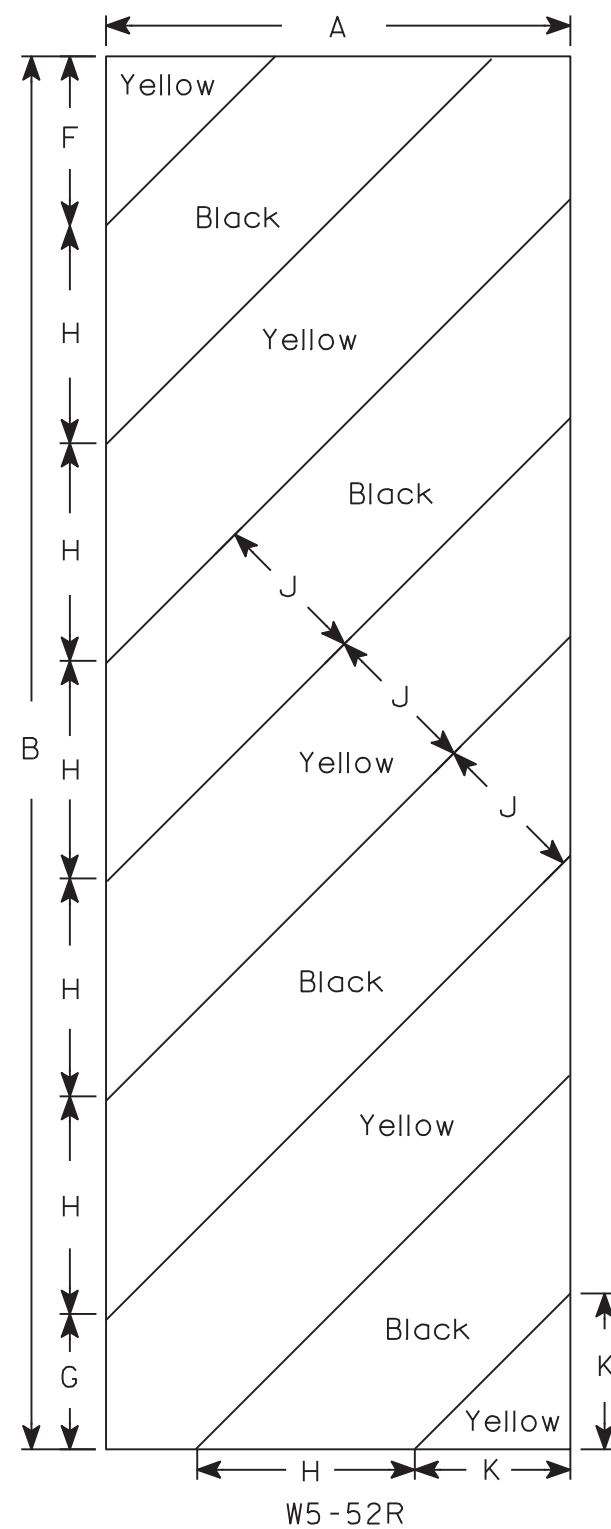
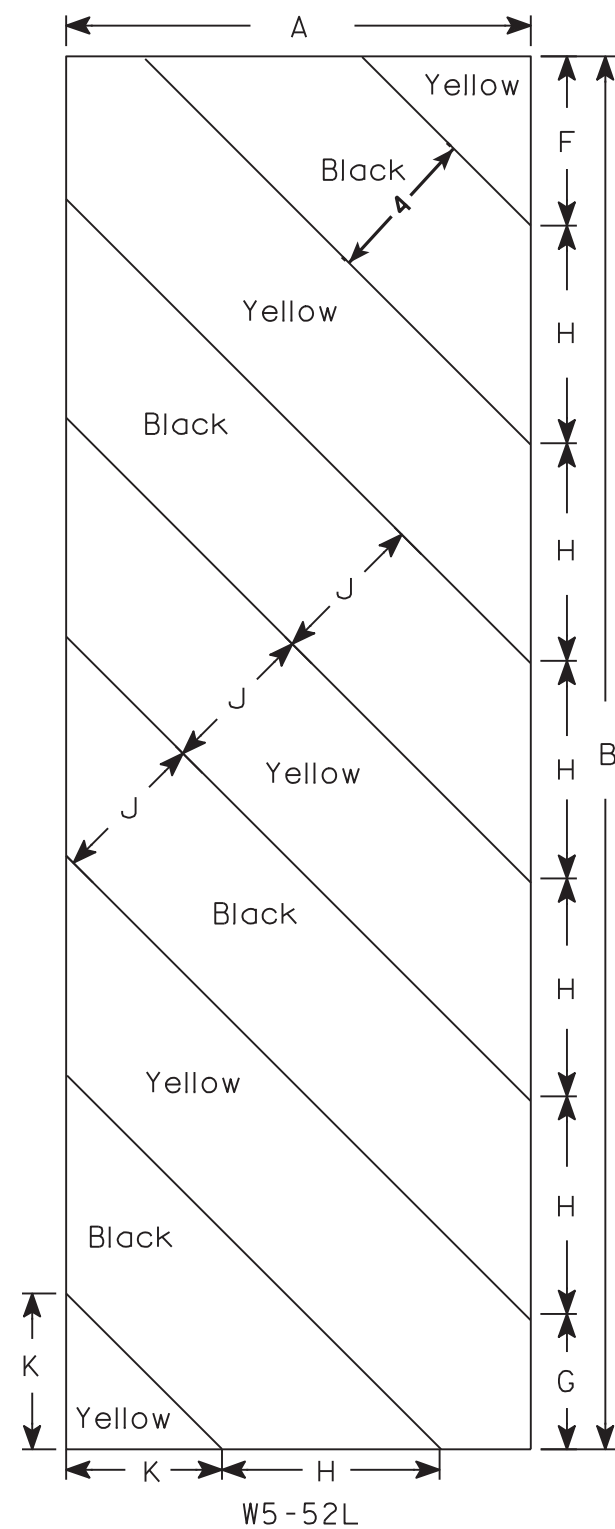
STANDARD SIGN
R9-56

WISCONSIN DEPT OF TRANSPORTATION

APPROVED
Matthew R. Rauch
for State Traffic Engineer

DATE 4/4/2011 PLATE NO. R9-56.5

PROJECT NO:	HWY:	COUNTY:	SHEET NO:	E
-------------	------	---------	-----------	---



NOTES

1. Sign is Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
Background - Yellow
Message - Black
3. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
4. Alternate colors of stripes as shown.

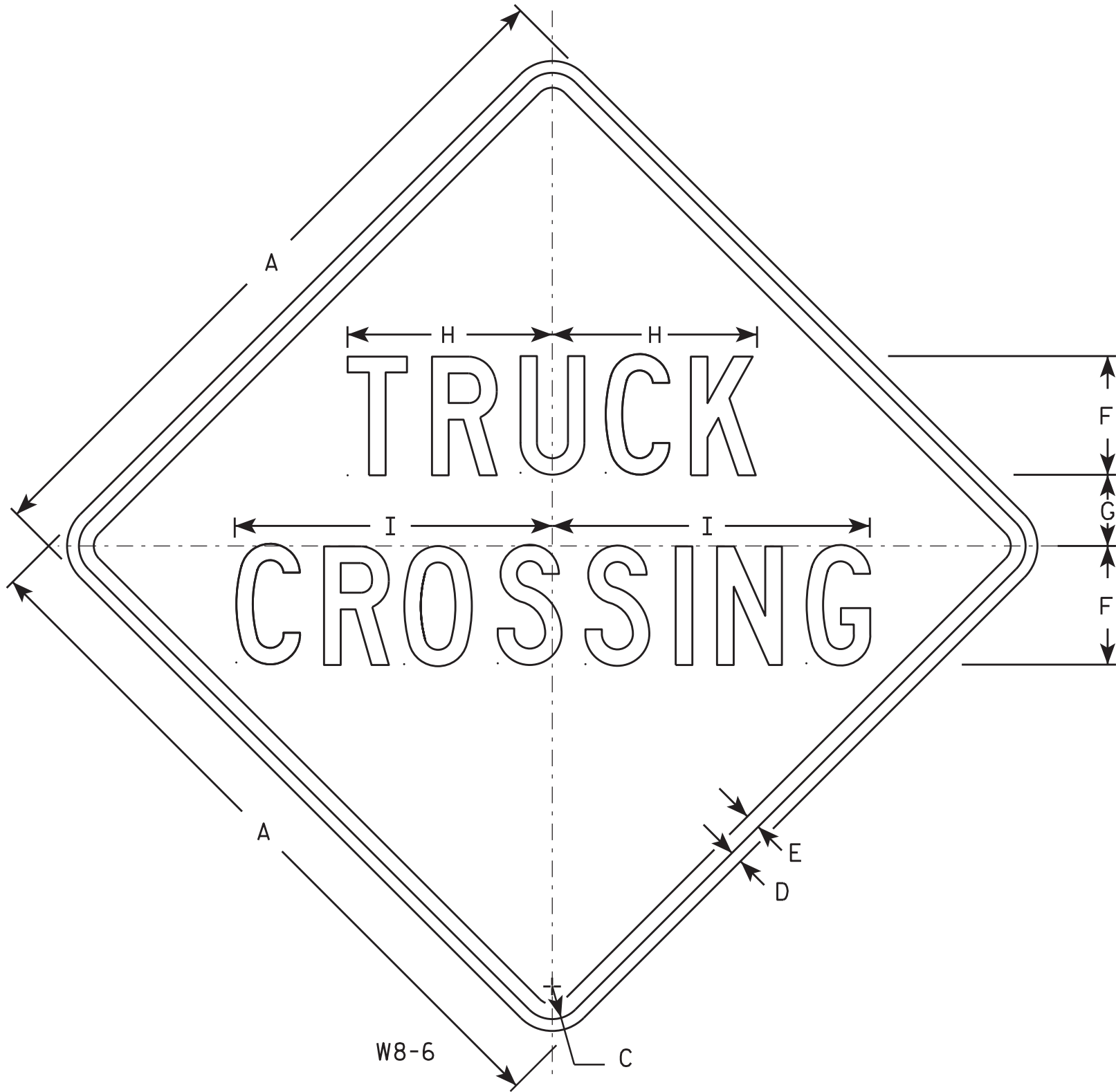
SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	12	36				4 3⁄8	3 1⁄2	5 5⁄8	45°	4	4																3.0
2M	12	36				4 3⁄8	3 1⁄2	5 5⁄8	45°	4	4																3.0
3	18	54				6	5 1⁄2	8 1⁄2	45°	6	6 9⁄16																6.75
4																											
5																											

STANDARD SIGN
W5-52L & W5-52R

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 5/29/12 PLATE NO. W5-52.9



NOTES

- 1. Sign is Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
- 2. Color:
Background - Yellow
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.

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 1/8	3/8	1/2	4	2 1/2	6 7/8	10 5/8																		4.0
2S	36		1 5/8	5/8	3/4	6	3 1/2	10 3/8	16																		9.0
2M	36		1 5/8	5/8	3/4	6	3 1/2	10 3/8	16																		9.0
3	36		1 5/8	5/8	3/4	6	3 1/2	10 3/8	16																		9.0
4	36		1 5/8	5/8	3/4	6	3 1/2	10 3/8	16																		9.0
5	48		2 1/4	3/4	1	8	5	13 3/4	21 1/4																		16.0

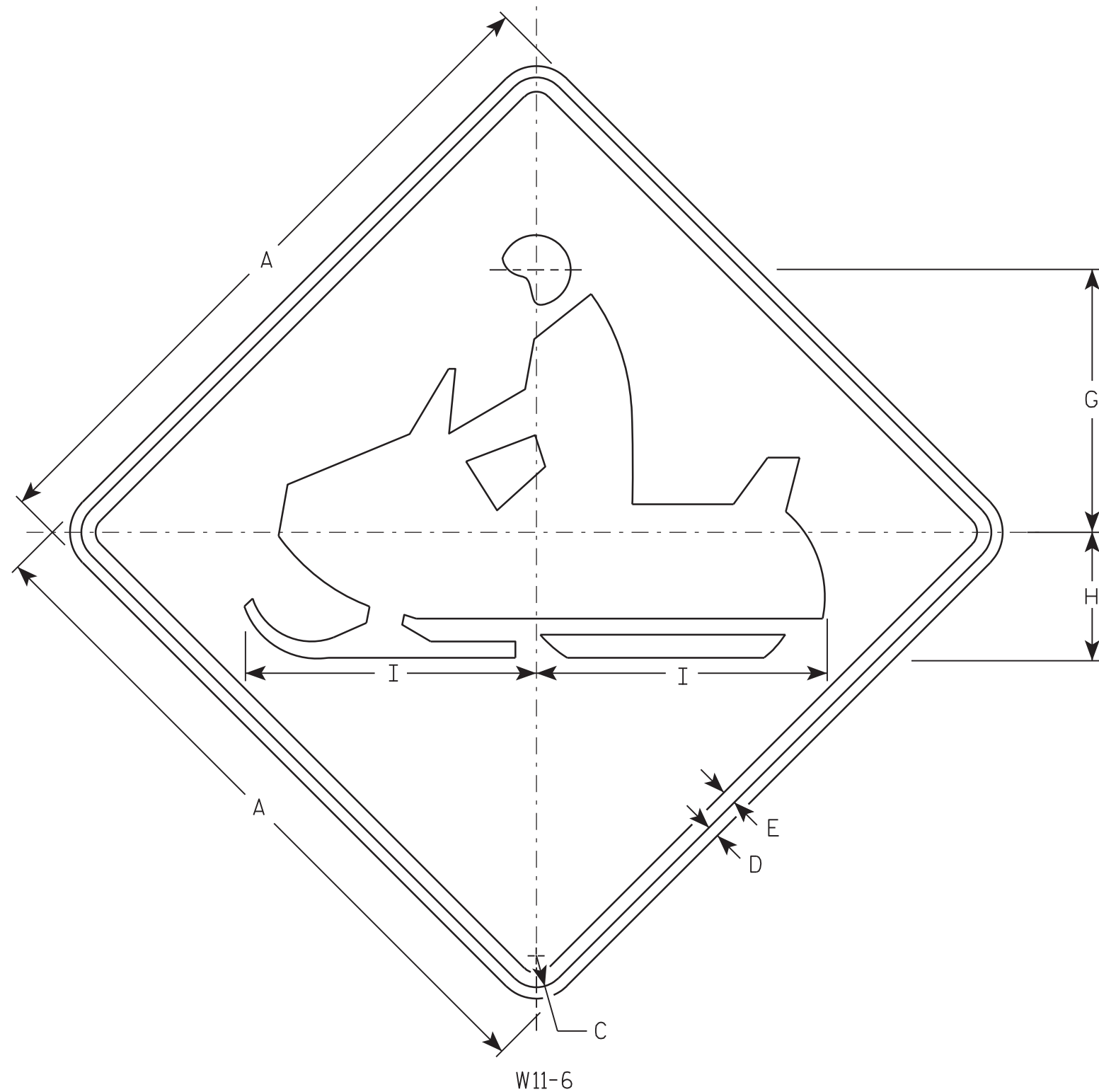
STANDARD SIGN

W8-6

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 11/25/13 PLATE NO. W8-6.8



W11-6

NOTES

1. Sign is Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
Background - Yellow
Message - Black
3. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	24		1 1/8	3/8	1/2		9 1/2	4 1/2	10 1/4																		4.0
2S	30		1 3/8	1/2	5/8		11 1/2	5 5/8	12 3/4																		6.25
2M	30		1 3/8	1/2	5/8		11 1/2	5 5/8	12 3/4																		6.25
3	36		1 5/8	5/8	3/4		14 1/8	6 3/4	15 1/4																		9.0
4	48		2 1/4	3/4	1		19	9	20 1/2																		16.0
5																											

STANDARD SIGN
W11-6

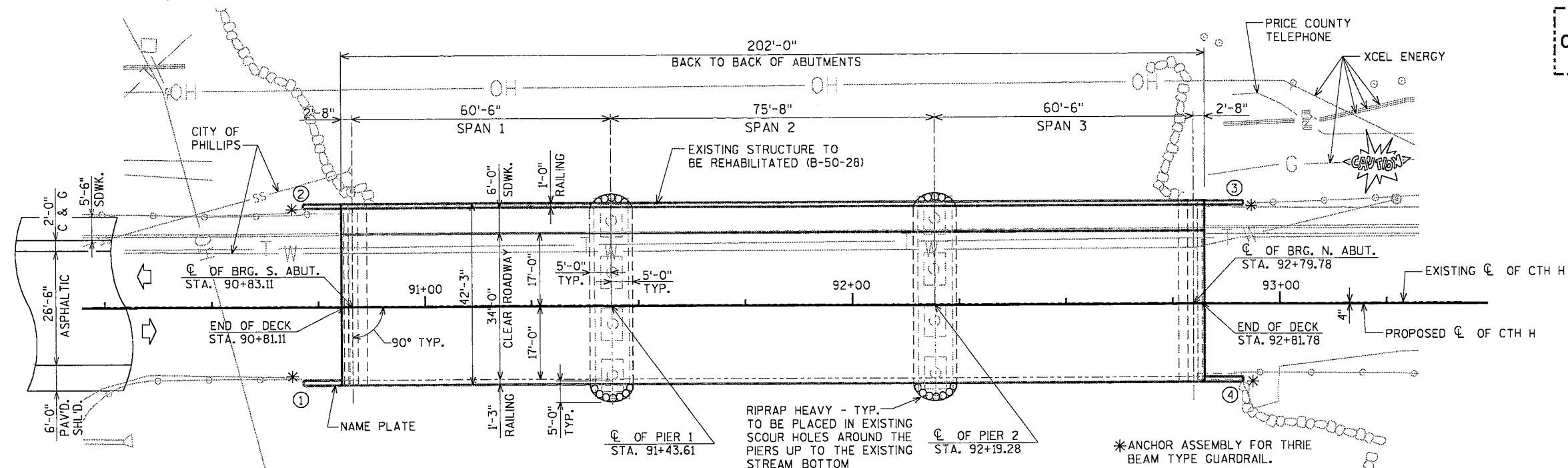
WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R. Rauch
for State Traffic Engineer

DATE 3/13/13 PLATE NO. W11-6.8

PROJECT NO: HWY: COUNTY: SHEET NO: **E**

FOR TYPICAL SECTION,
QUANTITIES, AND GENERAL NOTES
SEE SHEET 2



DESIGN DATA

LIVE LOAD:

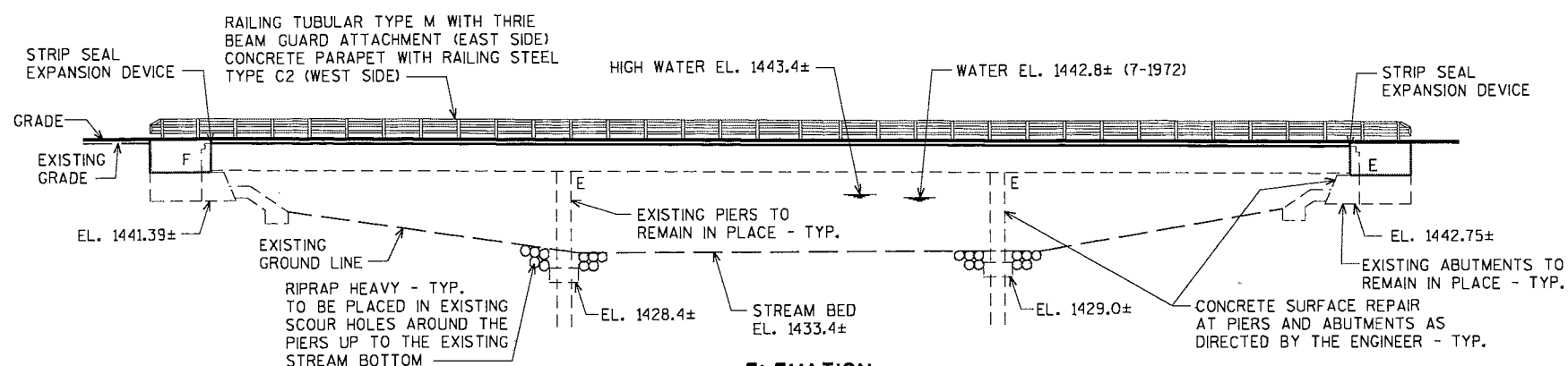
DESIGN LOADING: HS-20
INVENTORY RATING: HS-23
OPERATING RATING: HS-39
WISCONSIN STANDARD PERMIT VEHICLE (WIS-SPV) = 250 KIPS

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.

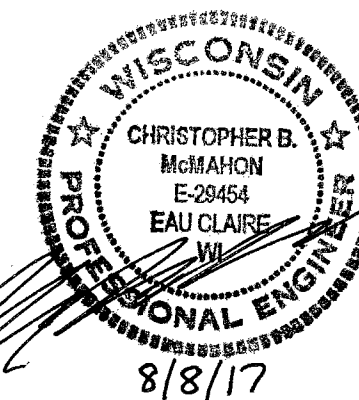
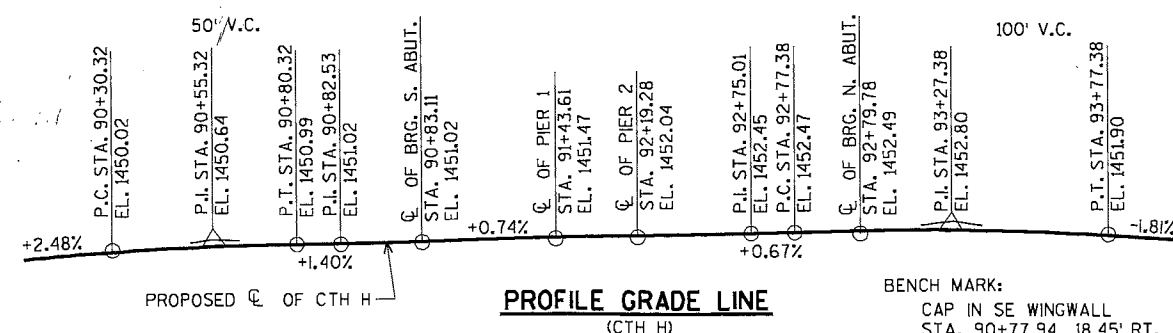
TRAFFIC DATA:

A.D.T. = 1,400 (2018)
A.D.T. = 1,600 (2038)
R.D.S. = 30 M.P.H.



LIST OF DRAWINGS

1. GENERAL PLAN
2. TYPICAL SECTION, QUANTITIES, AND NOTES
3. SOUTH ABUTMENT
4. SOUTH ABUTMENT WING 1 DETAILS
5. SOUTH ABUTMENT WING 2 DETAILS
6. SOUTH ABUTMENT DETAILS AND BILL OF BARS
7. NORTH ABUTMENT
8. NORTH ABUTMENT WING 3 DETAILS
9. NORTH ABUTMENT WING 4 DETAILS
10. NORTH ABUTMENT DETAILS AND BILL OF BARS
11. SUPERSTRUCTURE
12. SUPERSTRUCTURE PLAN
13. DECK ELEVATIONS
14. STRIP SEAL EXPANSION DEVICE
15. SIDEWALK COVER PLATE DETAILS
16. COMBINATION RAIL TYPE "C2"
17. COMBINATION RAIL TYPE "C2"
18. RAILING TUBULAR TYPE M



BRIDGE OFFICE CONTACT:
WILLIAM DREHER
(608)-266-8489

CONSULTANT CONTACT:
CHRIS MCMAHON
(715)-834-3161

NO.	DATE	REVISION	BY
ORIGINAL PLANS PREPARED BY AYRES ASSOCIATES 3433 Oakwood Hills Parkway Eau Claire, WI 54701 www.AyresAssociates.com			
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION ACCEPTED <i>William C. Dreher</i> SDR 08/10/17 CHIEF STRUCTURES DESIGN ENGINEER DATE			
STRUCTURE B-50-28			
CTH H OVER LAKE DUROY			
COUNTY	PRICE	TOWN/CITY/VILLAGE	PHILLIPS
DESIGN SPEC.	REHABILITATION	N/A	
DESIGNED BY AEB	DESIGN CK'D. CUM	DRAWN BY CLS	PLANS CK'D. CBM
GENERAL PLAN			SHEET 1 OF 18

\$PRNAME\$
U:\42-1047.00 - Price Co - CTH H Rehab\Structure\421047 gp.dgn

STATE PROJECT NUMBER

9480-00-70

TOTAL ESTIMATED QUANTITIES

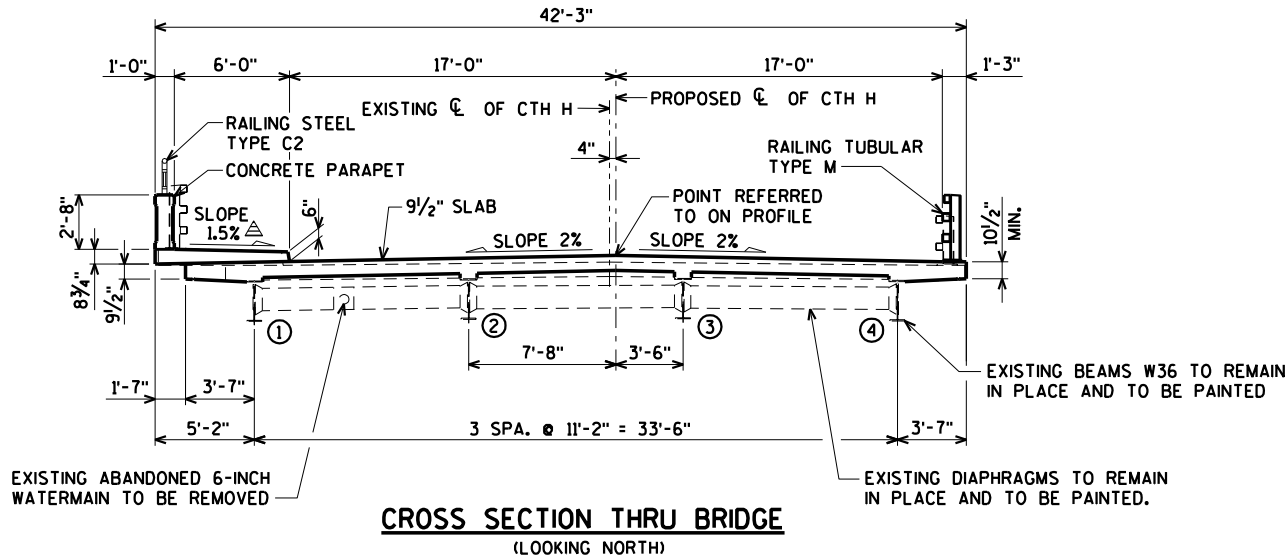
BID ITEM NUMBER	BID ITEMS	UNIT	S. ABUT.	N. ABUT.	SUPER.	TOTAL
203.0600.S	REMOVING OLD STRUCTURE OVER WATERWAY WITH MINIMAL DEBRIS STATION 91+81.45	LS	-----	-----	-----	1
206.1000	EXCAVATION FOR STRUCTURES BRIDGES B-50-28	LS	-----	-----	-----	1
210.1500	BACKFILL STRUCTURE TYPE A	TON	60	60	-----	120
502.0100	CONCRETE MASONRY BRIDGES	CY	16	17	313	346
502.3100	EXPANSION DEVICE B-50-28	LS	-----	-----	-----	1
502.3200	PROTECTIVE SURFACE TREATMENT	SY	-----	-----	980	980
502.3210	PIGMENTED SURFACE SEALER	SY	-----	-----	90	90
502.4205	ADHESIVE ANCHORS NO. 5 BARS	EACH	124	124	-----	248
505.0600	BAR STEEL REINFORCEMENT HS COATED STRUCTURES	LB	2,120	2,170	70,910	75,200
** 509.1500	CONCRETE SURFACE REPAIR	SF	-----	-----	-----	100
513.4061	RAILING TUBULAR TYPE M B-50-28	LF	10	10	202	222
513.7011	RAILING STEEL TYPE C2 B-50-28	LF	8	8	202	218
516.0500	RUBBERIZED MEMBRANE WATERPROOFING	SY	11	11	-----	22
517.0900.S	PREPARATION AND COATING OF TOP FLANGES B-50-28	LS	-----	-----	-----	1
▲ 517.1800.S	STRUCTURE REPAINTING RECYCLED ABRASIVE B-50-28	LS	-----	-----	-----	1
517.4500.S	NEGATIVE PRESSURE CONTAINMENT AND COLLECTION OF WASTE MATERIALS B-50-28	LS	-----	-----	-----	1
517.6001.S	PORTABLE DECONTAMINATION FACILITY	EACH	-----	-----	-----	1
■ 606.0300	RIPRAP HEAVY	CY	-----	-----	-----	70
614.0150	ANCHOR ASSEMBLIES FOR STEEL PLATE BEAM GUARD	EACH	1	1	-----	2
	NON-BID ITEMS					
	BRIDGE SEAT PROTECTION					

** UNDISTRIBUTED AS DIRECTED BY THE ENGINEER.

■ REQUIRED AT PIERS. TO BE PLACED IN EXISTING SCOUR HOLES AROUND THE PIERS UP TO THE EXISTING STREAM BOTTOM.

▲ EXISTING BEARINGS TO BE CLEANED AND PAINTED AT ABUTMENTS AND PIERS.

▲ EXISTING GIRDERS AND DIAPHRAGMS TO BE PAINTED.

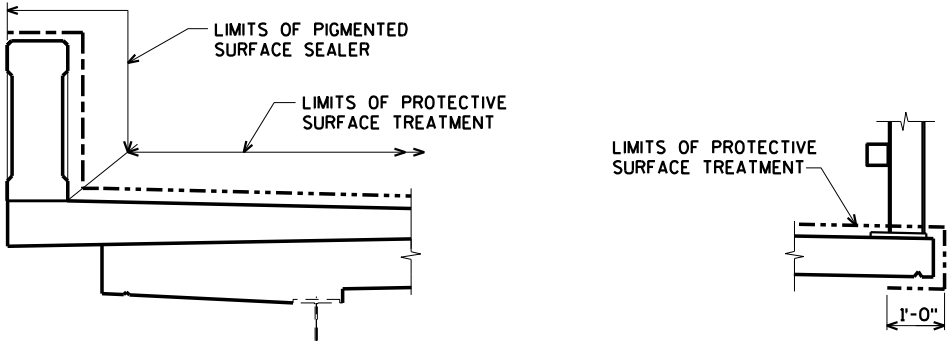


CROSS SECTION THRU BRIDGE
(LOOKING NORTH)

△ ±0.5% CONSTRUCTION TOLERANCE IN SIDEWALK CROSS SLOPE. THE SIDEWALK CROSS SLOPE SHALL NOT EXCEED 2% WITHOUT PRIOR APPROVAL FROM THE ENGINEER.

GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.
DIMENSIONS ARE BASED ON ORIGINAL STRUCTURE PLANS.
BAR STEEL SHALL BE EMBEDDED 2 INCHES 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.
ALL CONCRETE REMOVAL SHALL BE DEFINED BY A 1" DEEP SAW CUT UNLESS SHOWN OR NOTED OTHERWISE.
AT ABUTMENTS ALL SPACES EXCAVATED AND NOT OCCUPIED BY THE NEW STRUCTURE SHALL BE BACKFILLED WITH BACKFILL STRUCTURE TYPE A.
VARIATIONS TO THE NEW GRADE LINE OVER 1/4" MUST BE SUBMITTED BY THE FIELD ENGINEER TO THE STRUCTURES DESIGN SECTION FOR REVIEW.
THE CONTRACTOR SHALL SUPPLY A NEW NAME PLATE IN ACCORDANCE WITH SECTION 502.3.11 OF THE STANDARD SPECIFICATIONS AND THE STANDARD DETAIL DRAWINGS. NAME PLATE TO SHOW THE ORIGINAL CONSTRUCTION YEAR OF 1975.
UTILIZE EXISTING BAR STEEL REINFORCEMENT WHERE SHOWN AND EXTEND 24 BAR DIAMETERS INTO NEW WORK, UNLESS SPECIFIED OTHERWISE.
THE EXISTING GROUNDLINE SHALL BE THE UPPER LIMIT FOR EXCAVATION FOR STRUCTURES.
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 MINIMUM CONCRETE HAUNCH SHALL BE 2" FOR DESIGN CALCULATIONS AND THE HAUNCH CONCRETE QUANTITY IS BASED ON AN AVERAGE DEPTH OF 4", WHICH IS THE MAXIMUM HAUNCH QUANTITY FOR WHICH THE CONTRACTOR WILL BE PAID.
BEVEL EXPOSED EDGES OF CONCRETE 3/4" UNLESS NOTED OTHERWISE.
ALL EXISTING STRUCTURAL STEEL SHALL BE PAINTED. THE PAINT COLOR OF THE FINISH TOP COAT SHALL BE LIGHT GRAY (FEDERAL COLOR NO. 26293).
PROTECTIVE SURFACE TREATMENT AND PIGMENTED SURFACE SEALER ARE TO BE APPLIED AS SHOWN IN THE DETAILS ON THIS SHEET.
APPLY BRIDGE SEAT PROTECTION, AS PER SECTION 502.3.12 OF THE STANDARD SPECIFICATIONS, TO THE TOP SURFACES OF THE ABUTMENT BEAM SEATS BELOW EXPANSION DEVICES.



PROTECTIVE SURFACE TREATMENT AND
PIGMENTED SURFACE SEALER DETAILS

8

8

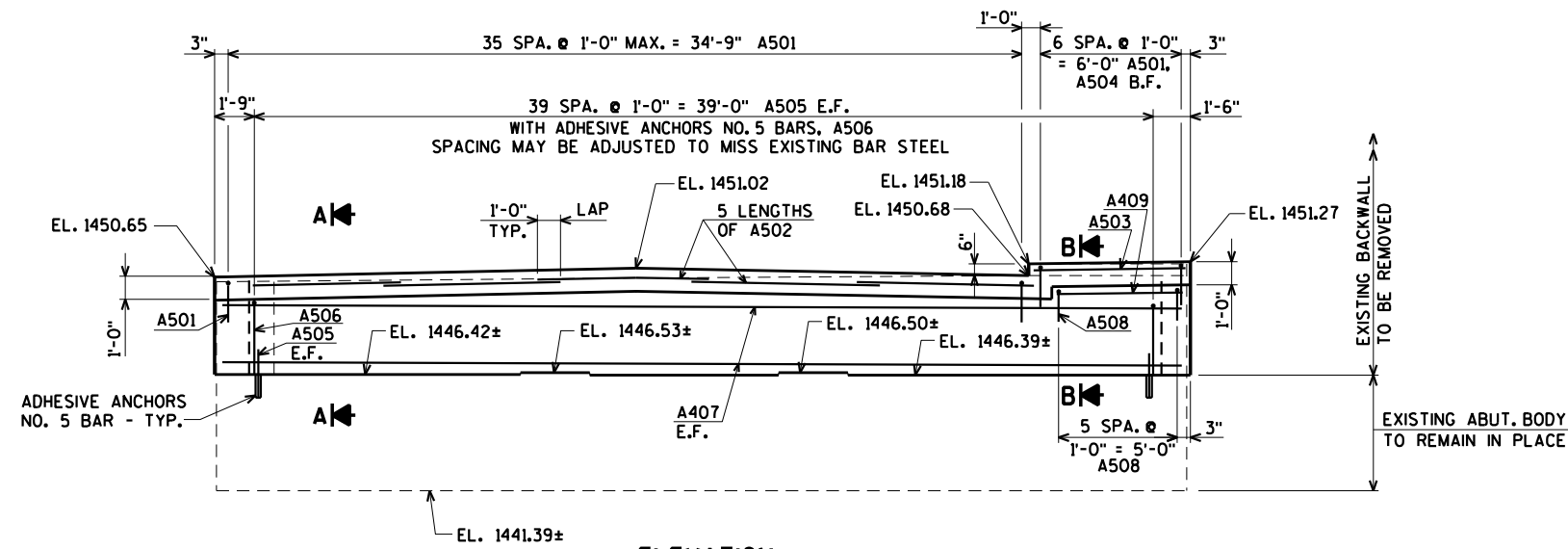
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-50-28			
DRAWN BY		CLS	PLANS CK'D. CBM
TYPICAL SECTION, QUANTITIES, AND NOTES			SHEET 2 OF 18

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

\$PRNAME\$
U:\42-1047.00 - Price Co - CTH H Rehab\Structure\421047 s abut.dgn

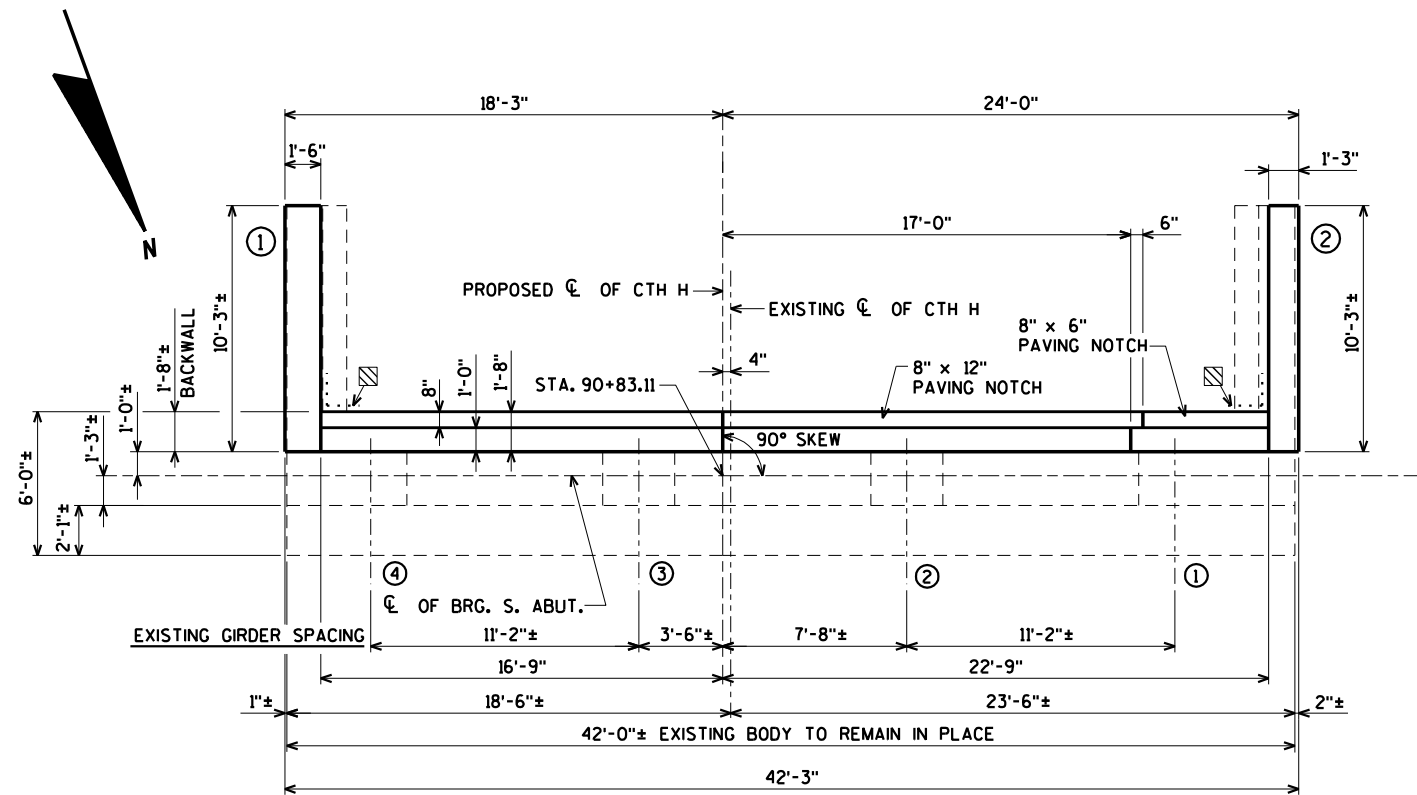
STATE PROJECT NUMBER

9480-00-70



ELEVATION
(LOOKING SOUTH)

FOR SECTIONS "A" & "B" SEE SHEET 6



PLAN

18" RUBBERIZED MEMBRANE WATERPROOFING
SEAL ALL HORIZONTAL AND VERTICAL JOINTS
ON BACK FACE OF ABUTMENT.

B.F. DENOTES BACK FACE

E.F. DENOTES EACH FACE

8

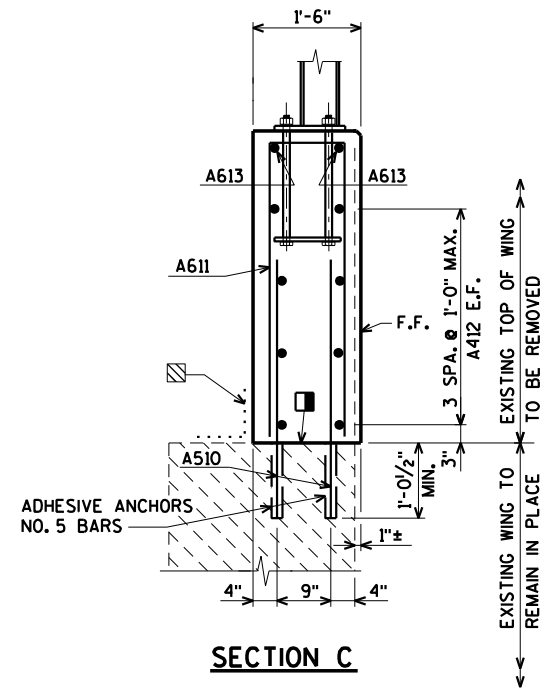
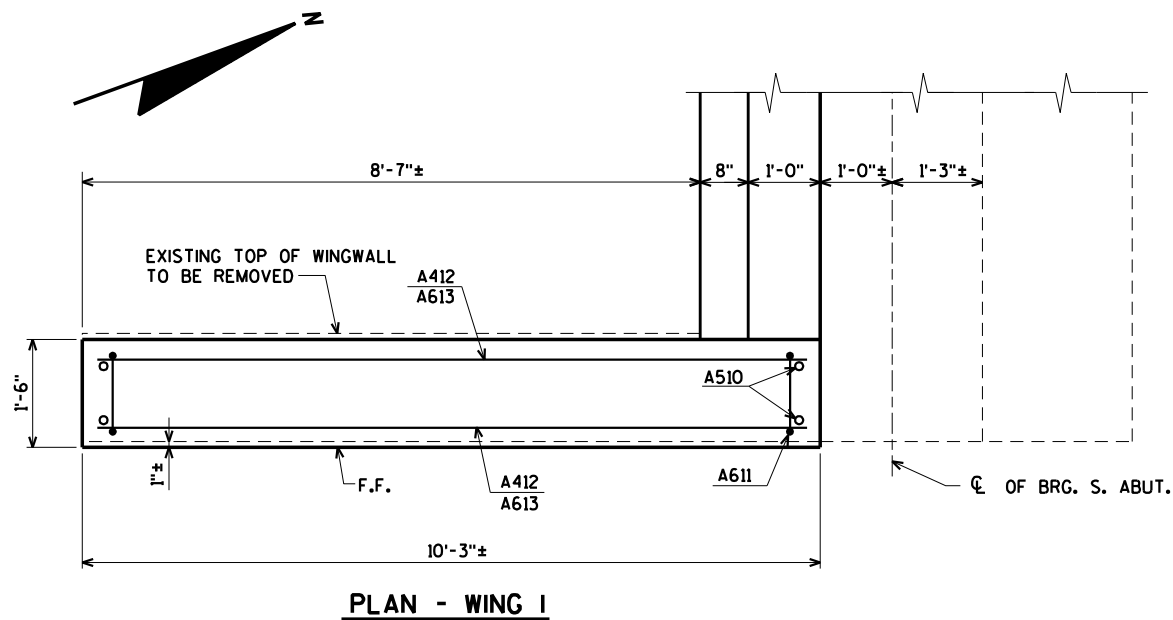
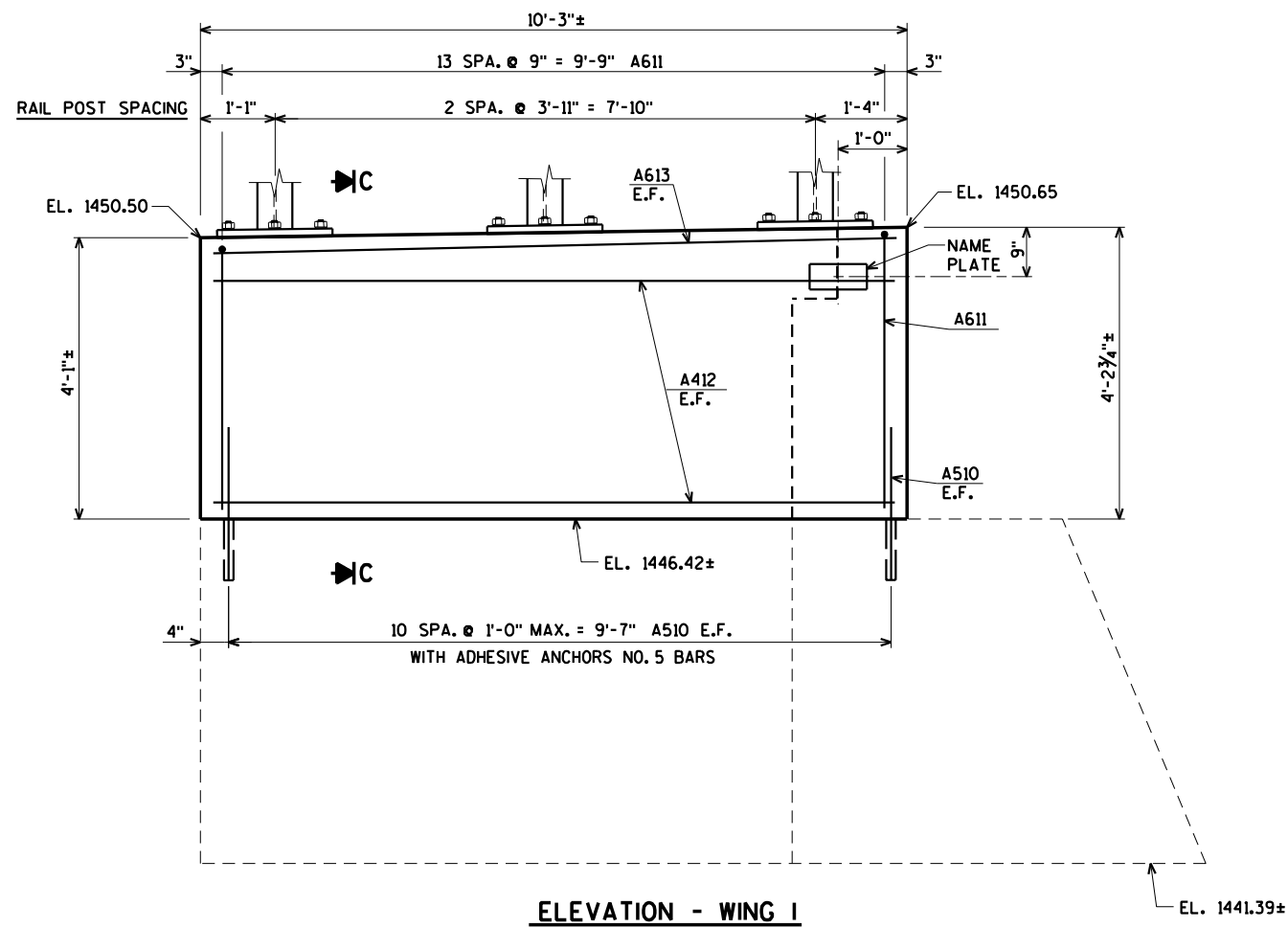
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NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-50-28			
DRAWN BY		CLS	PLANS CK'D. CBM
SOUTH ABUTMENT			SHEET 3 OF 18

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

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U:\42-1047.00 - Price Co - CTH H Rehab\Structure\421047 s abut.dgn

8



- EXISTING CONST. JOINT
- 18" RUBBERIZED MEMBRANE WATERPROOFING SEAL ALL HORIZONTAL AND VERTICAL JOINTS ON BACK FACE OF ABUTMENT.
- F.F. DENOTES FRONT FACE
- E.F. DENOTES EACH FACE

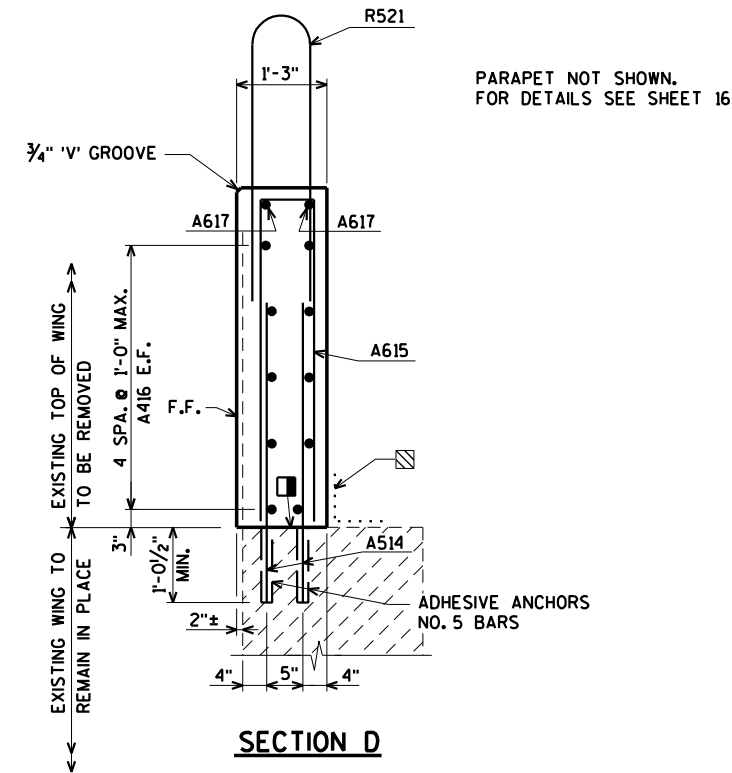
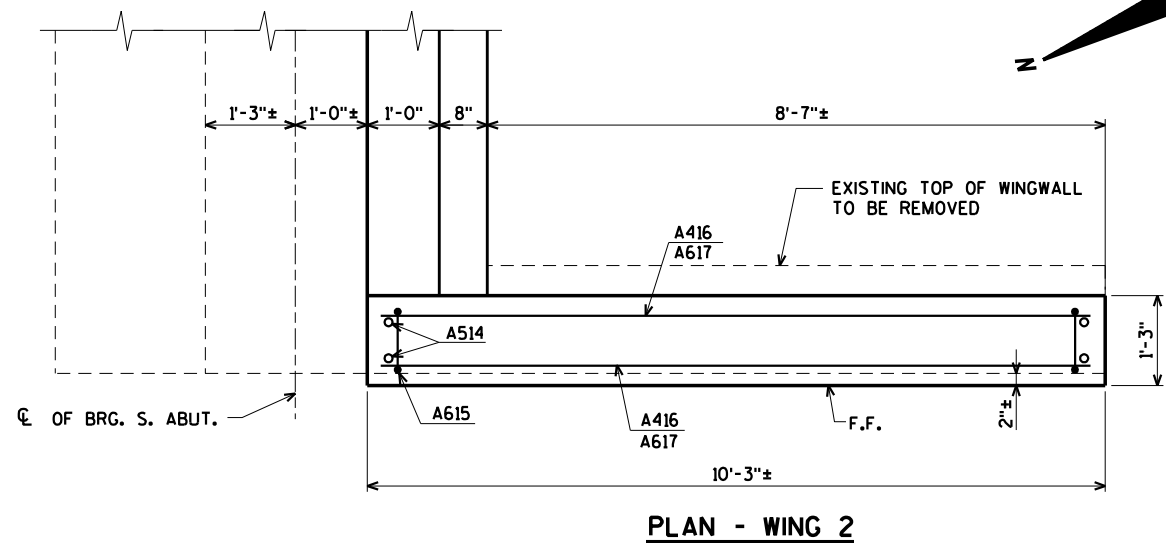
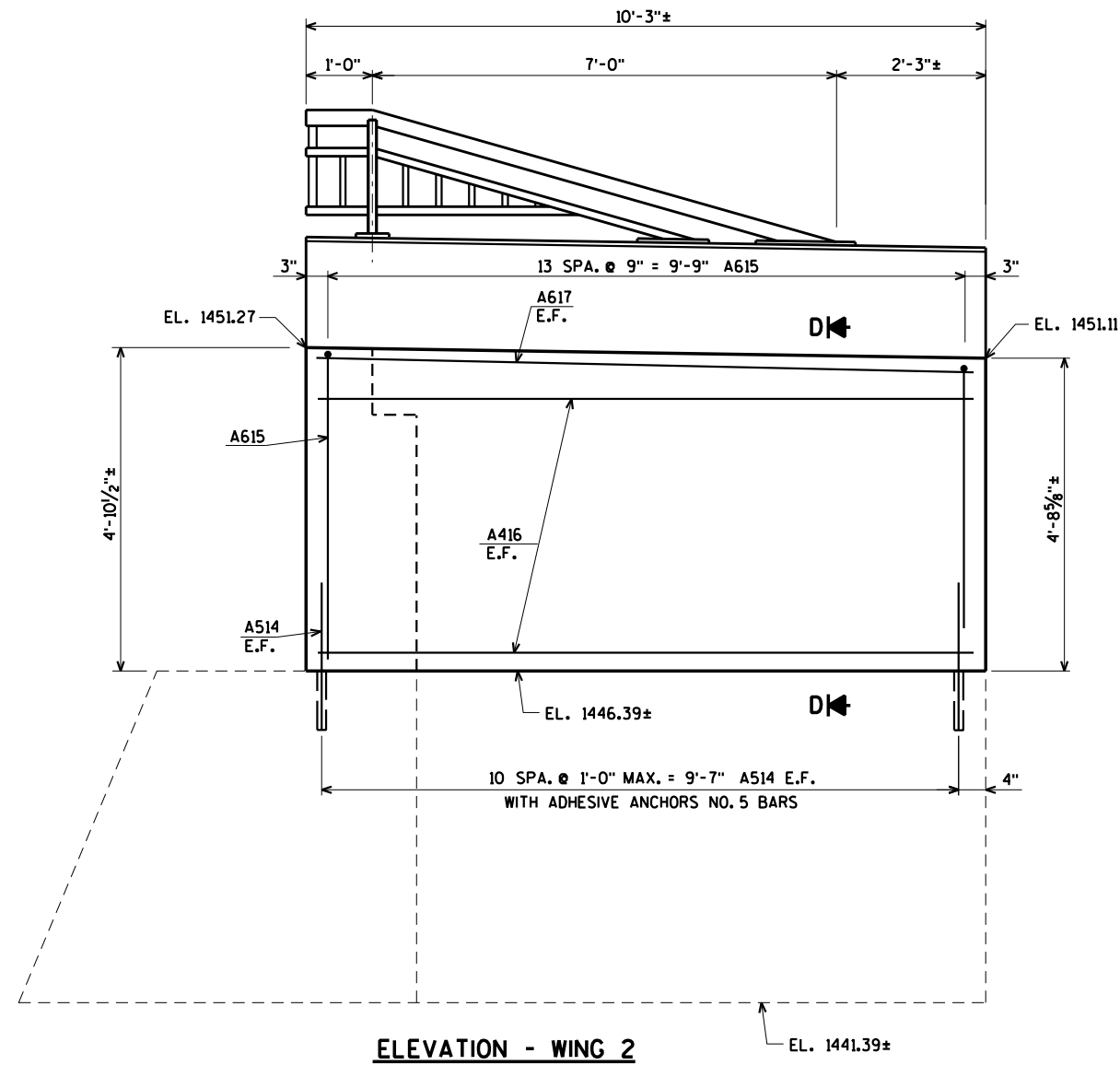
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-50-28			
DRAWN BY	CLS	PLANS CK'D.	CBM
SOUTH ABUTMENT WING 1 DETAILS			SHEET 4 OF 18

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

8

\$PRNAME\$
U:\42-1047.00 - Price Co - CTH H Rehab\Structure\421047 s abut.dgn

8



- EXISTING CONST. JOINT
- 18" RUBBERIZED MEMBRANE WATERPROOFING SEAL ALL HORIZONTAL AND VERTICAL JOINTS ON BACK FACE OF ABUTMENT.
- F.F. DENOTES FRONT FACE
- E.F. DENOTES EACH FACE

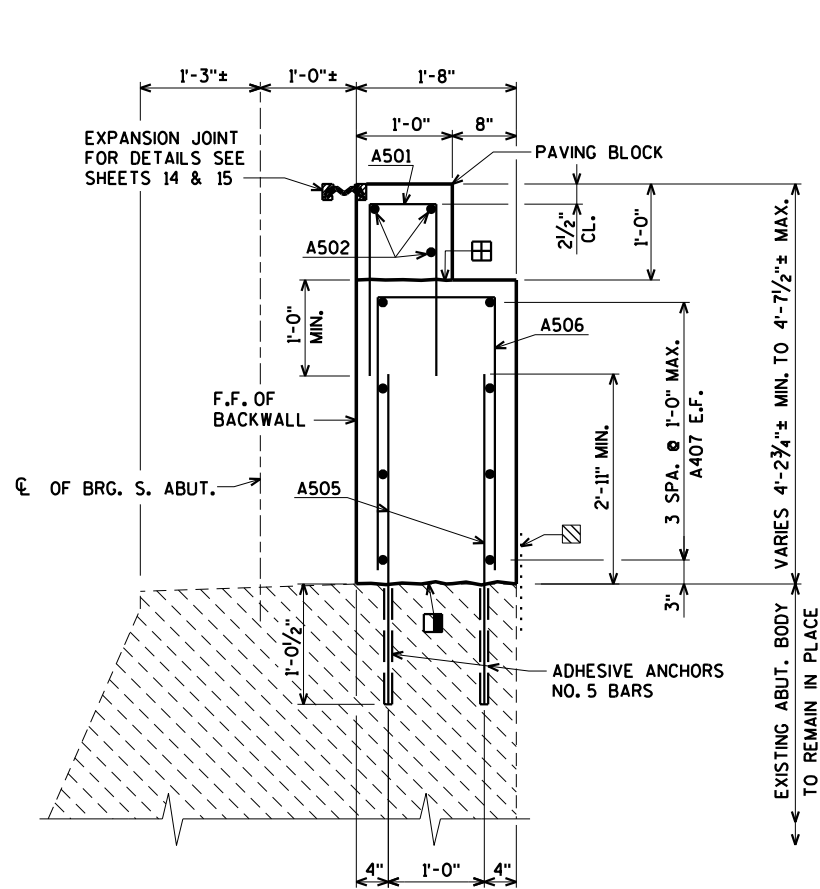
ORIGINAL PLANS PREPARED BY
AYRES ASSOCIATES
3433 Oakwood Hills Parkway
Eau Claire, WI 54701
www.AyresAssociates.com

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-50-28			
DRAWN BY		CLS	PLANS CK'D. CBM
SOUTH ABUTMENT WING 2 DETAILS			SHEET 5 OF 18

8

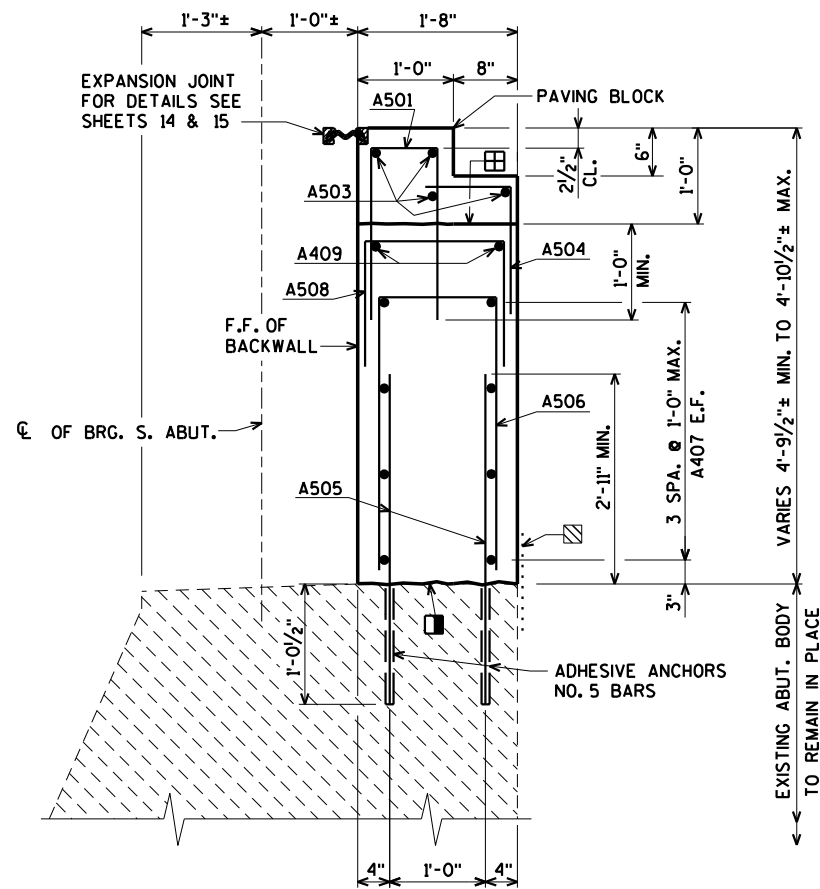
\$PRNAME\$
U:\42-1047.00 - Price Co - CTH H Rehab\Structure\421047 s abut.dgn

8



SECTION A

FOR LOCATION OF SECTIONS "A" & "B"
SEE SHEET 3



SECTION B

- EXISTING CONST. JOINT
- 18" RUBBERIZED MEMBRANE WATERPROOFING
SEAL ALL HORIZONTAL AND VERTICAL JOINTS
ON BACK FACE OF ABUTMENT AND WINGS.
- CONST. JOINT - POUR CONCRETE ABOVE THIS JOINT
AFTER SUBSTRUCTURE IS IN PLACE. STRIKE OFF AS
SHOWN AND LEAVE ROUGH.
- B.F. DENOTES BACK FACE
- F.F. DENOTES FRONT FACE
- E.F. DENOTES EACH FACE

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

STATE PROJECT NUMBER

9480-00-70

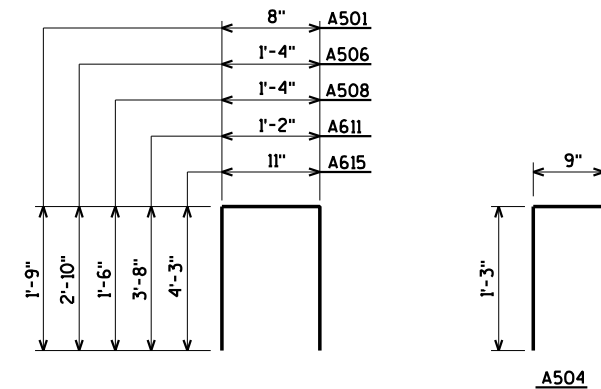
WEIGHT INCLUDES PARAPET STEEL
SHOWN ON SHEET 16

BILL OF BARS

BAR NO.	COATED BAR	NO. REQ'D.	LENGTH	BENT BAR	BUNDLED BAR SERIES	2,120# COATED
						LOCATION
A501	X	43	3-11	X		PAVING BLOCK VERT.
A502	X	15	8-0			PAVING BLOCK HORIZ.
A503	X	4	6-8			PAVING BLOCK HORIZ. @ SDWK
A504	X	7	1-11	X		PAVING BLOCK VERT. B.F. @ SDWK
A505	X	80	4-0			BACKWALL VERT. DOWELS E.F.
A506	X	40	6-9	X		BACKWALL VERT.
A407	X	8	41-11			BACKWALL HORIZ. E.F.
A508	X	6	4-2	X		BACKWALL VERT. @ SDWK
A409	X	2	6-2			BACKWALL HORIZ. E.F. @ SDWK
A510	X	22	4-0			WING 1 VERT. DOWELS E.F.
A611	X	14	8-2	X		WING 1 VERT.
A412	X	8	9-11			WING 1 HORIZ. E.F.
A613	X	2	9-11			WING 1 HORIZ. E.F. TOP
A514	X	22	4-0			WING 2 VERT. DOWELS E.F.
A615	X	14	9-1	X		WING 2 VERT.
A416	X	10	9-11			WING 2 HORIZ. E.F.
A617	X	2	9-11			WING 2 HORIZ. E.F. TOP

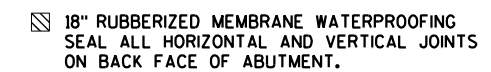
BENDING DIMENSIONS ARE OUT TO OUT OF BARS

ADHESIVE ANCHORS NO. 5 BAR



NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-50-28			
DRAWN BY		CLS	PLANS CK'D. CBM
SOUTH ABUTMENT DETAILS AND BILL OF BARS			SHEET 6 OF 18

8



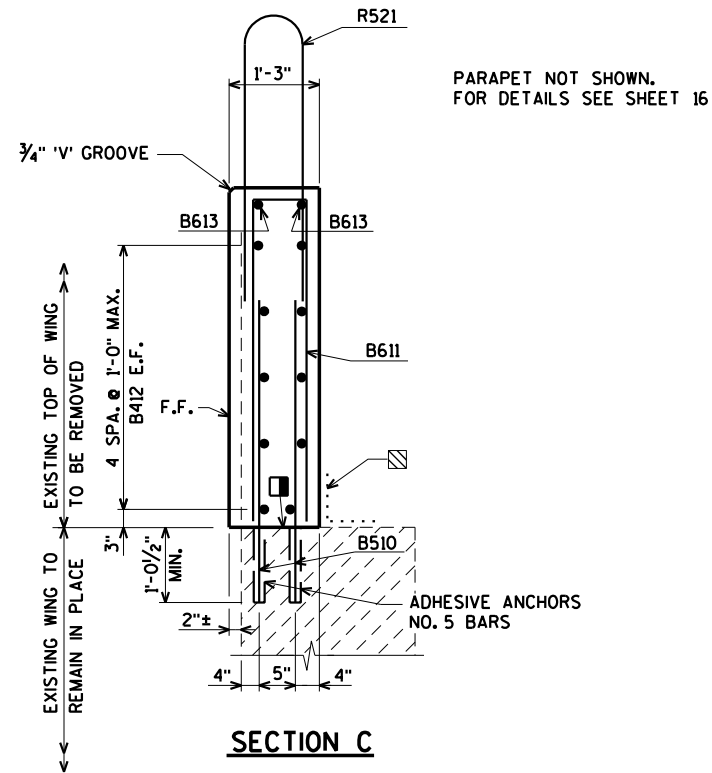
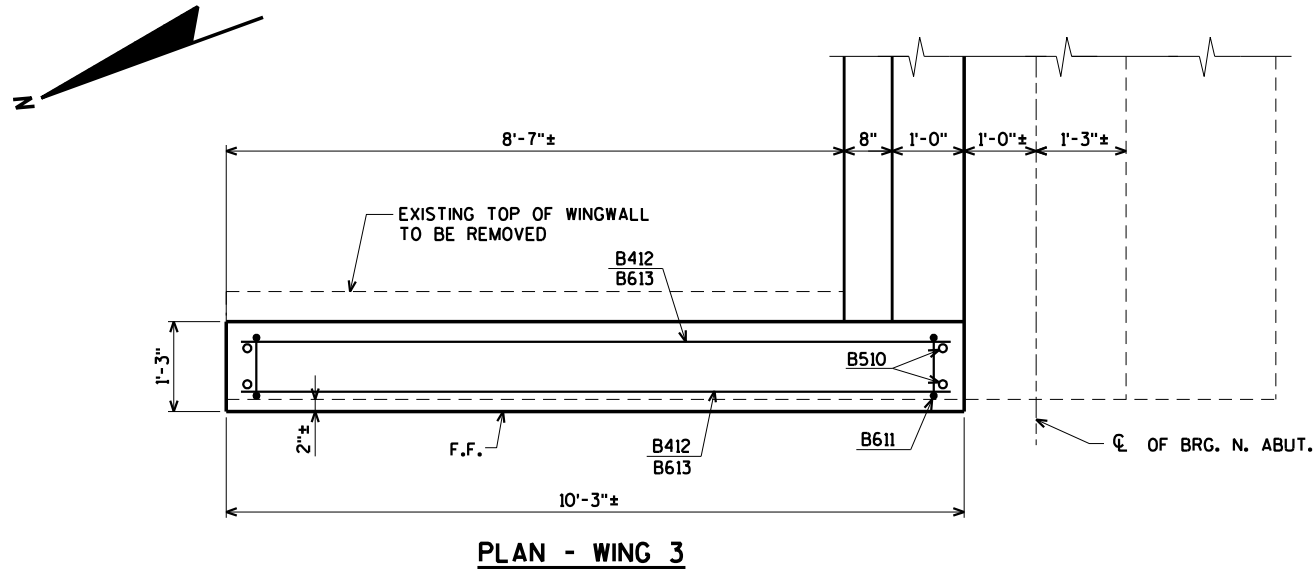
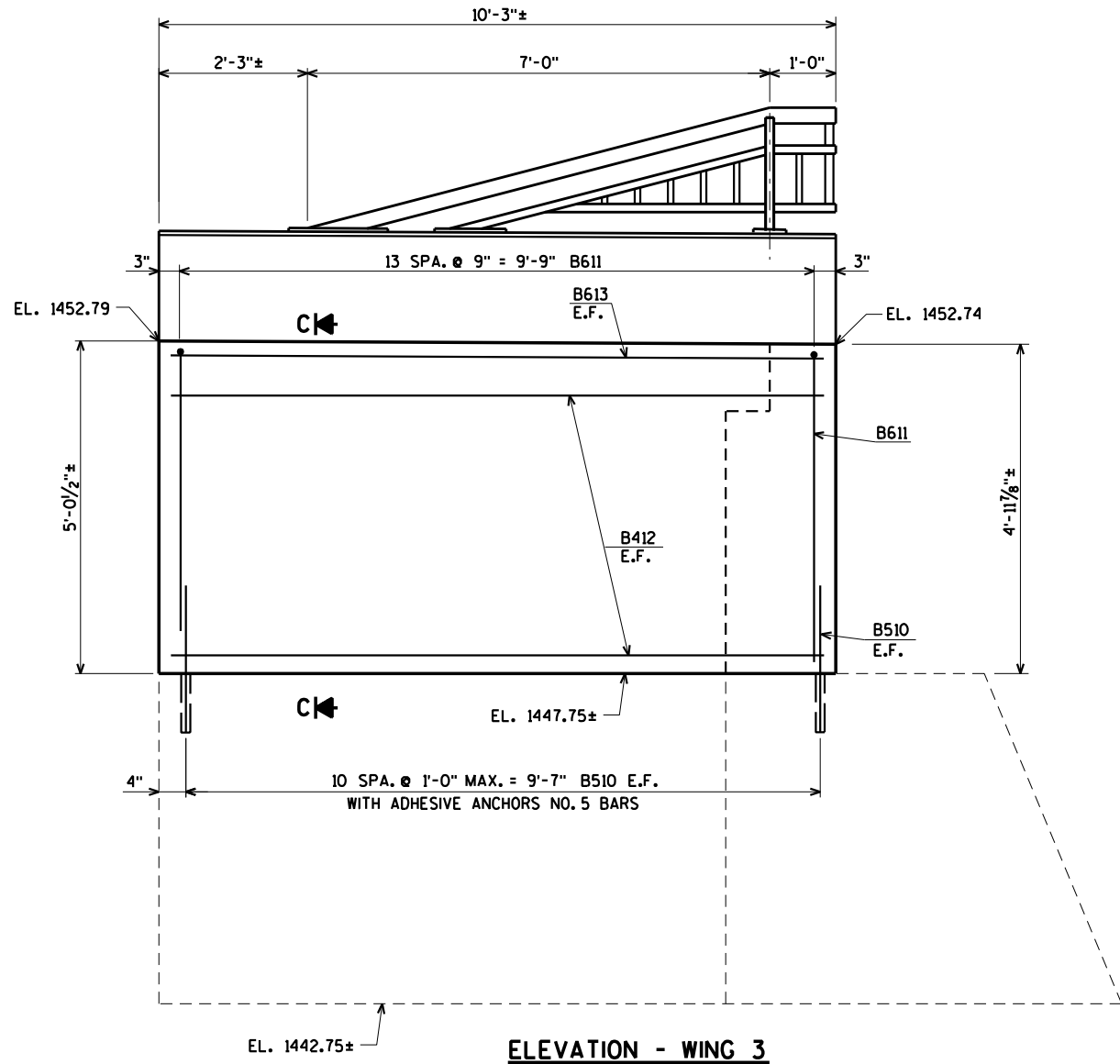
E.F. DENOTES EACH FACE

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-50-28			
DRAWN BY		CLS	PLANS CK'D. CBM
NORTH ABUTMENT		SHEET 7 OF 18	

\$PRNAME\$
U:\42-1047.00 - Price Co - CTH H Rehab\Structure\421047 n abut.dgn

STATE PROJECT NUMBER

9480-00-70



- EXISTING CONST. JOINT
- 18" RUBBERIZED MEMBRANE WATERPROOFING SEAL ALL HORIZONTAL AND VERTICAL JOINTS ON BACK FACE OF ABUTMENT.
- F.F. DENOTES FRONT FACE
- E.F. DENOTES EACH FACE

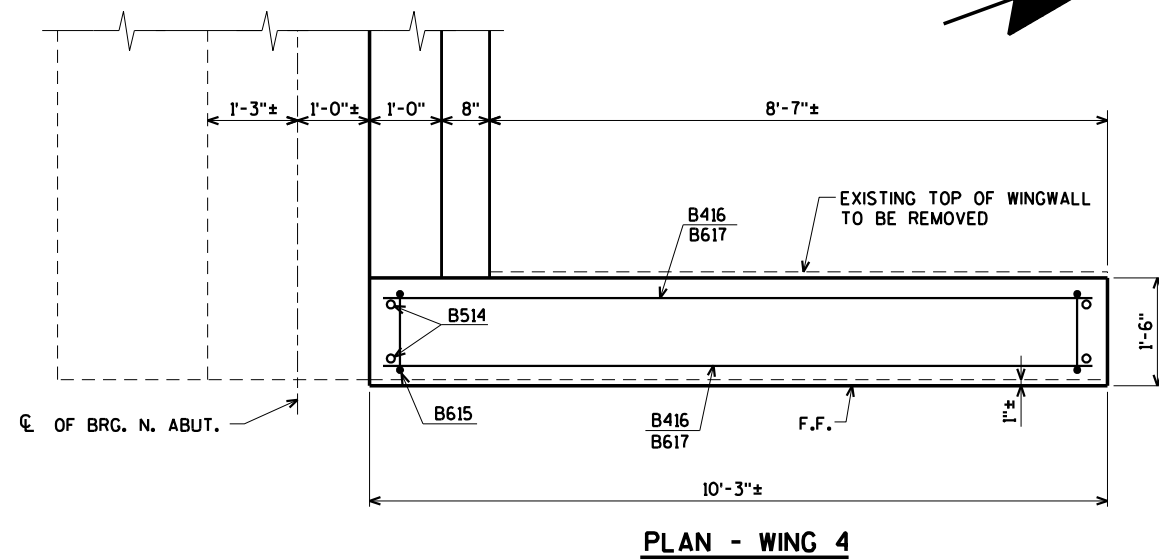
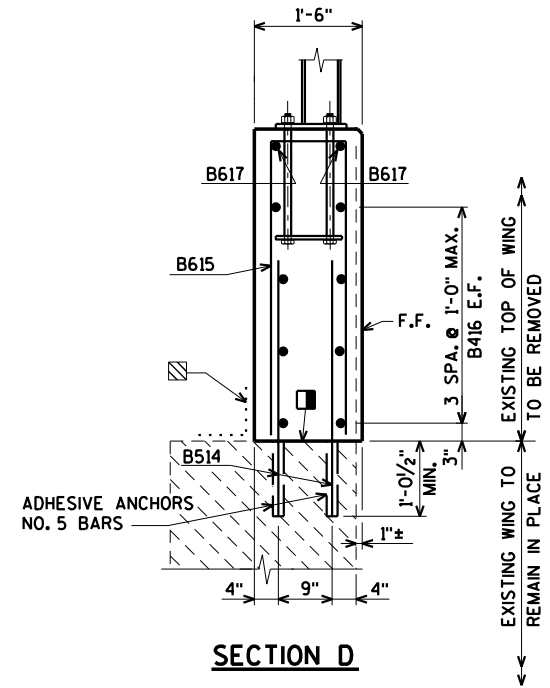
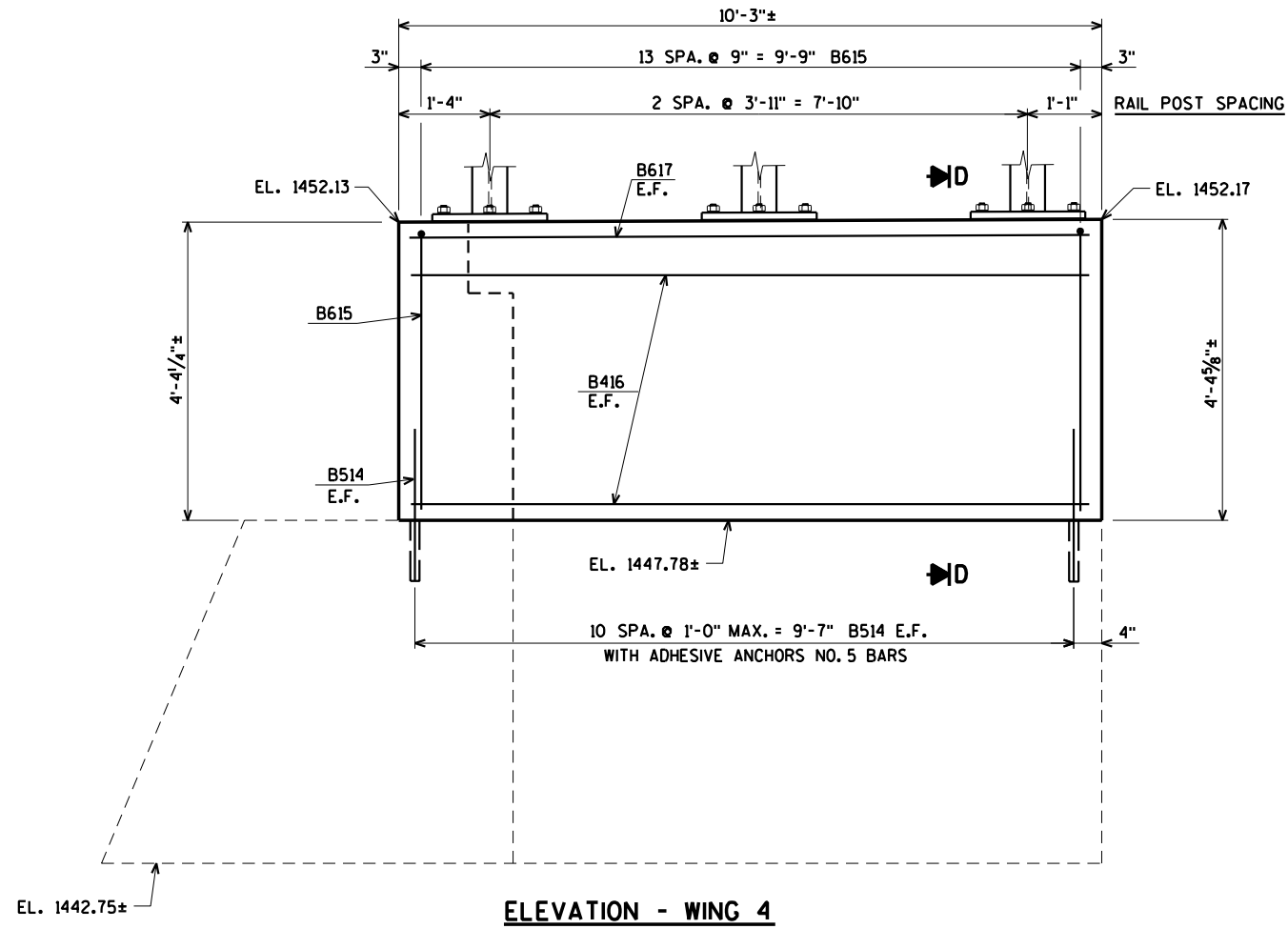
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-50-28			
DRAWN BY		CLS	PLANS CK'D. CBM
NORTH ABUTMENT WING 3 DETAILS			SHEET 8 OF 18

ORIGINAL PLANS PREPARED BY
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STATE PROJECT NUMBER

9480-00-70



■ EXISTING CONST. JOINT

▨ 18" RUBBERIZED MEMBRANE WATERPROOFING SEAL ALL HORIZONTAL AND VERTICAL JOINTS ON BACK FACE OF ABUTMENT.

F.F. DENOTES FRONT FACE

E.F. DENOTES EACH FACE

8

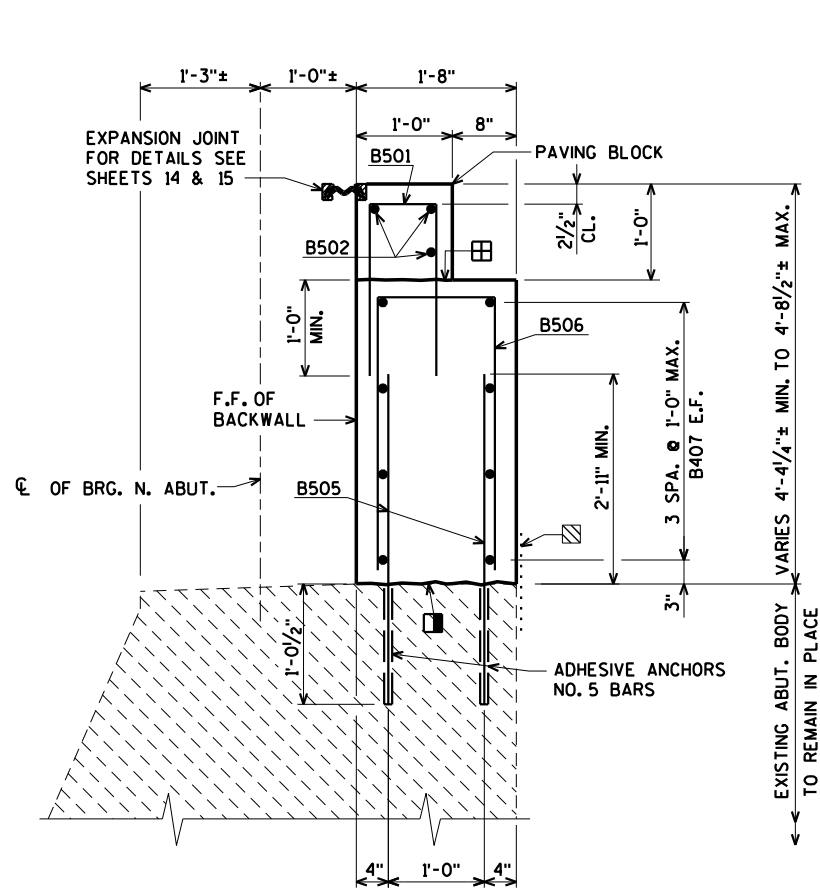
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NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-50-28			
DRAWN BY	CLS	PLANS CK'D.	CBM
NORTH ABUTMENT WING 4 DETAILS			SHEET 9 OF 18

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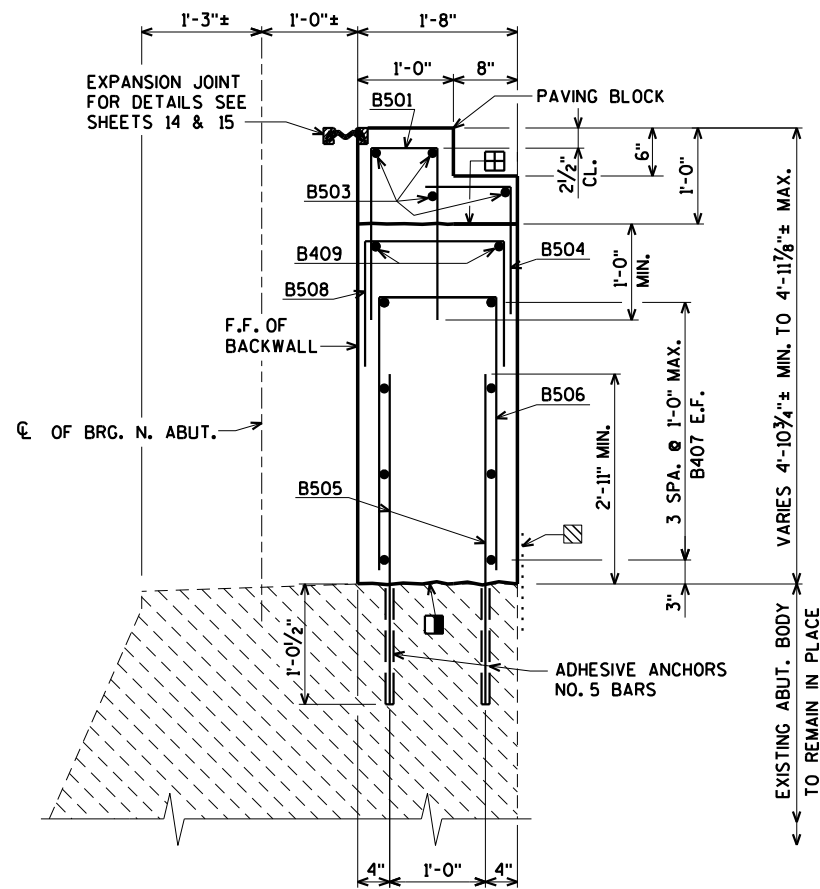
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8



SECTION A

FOR LOCATION OF SECTIONS "A" & "B"
SEE SHEET 7



SECTION B

- EXISTING CONST. JOINT
- ▨ 18" RUBBERIZED MEMBRANE WATERPROOFING
SEAL ALL HORIZONTAL AND VERTICAL JOINTS
ON BACK FACE OF ABUTMENT AND WINGS.
- ▣ CONST. JOINT - POUR CONCRETE ABOVE THIS JOINT
AFTER SUBSTRUCTURE IS IN PLACE. STRIKE OFF AS
SHOWN AND LEAVE ROUGH.
- B.F. DENOTES BACK FACE
- F.F. DENOTES FRONT FACE
- E.F. DENOTES EACH FACE

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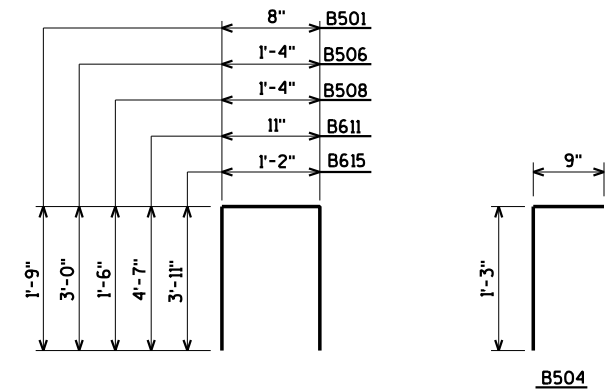
WEIGHT INCLUDES PARAPET STEEL
SHOWN ON SHEET 16

BILL OF BARS

BAR NO.	COATED BAR	NO. REQ'D.	LENGTH	BENT BAR	BUNDLE	BAR SERIES	2,170# COATED
							LOCATION
B501	X	43	3-11	X			PAVING BLOCK VERT.
B502	X	15	8-0				PAVING BLOCK HORIZ.
B503	X	4	6-8				PAVING BLOCK HORIZ. @ SDWK
B504	X	7	1-11	X			PAVING BLOCK VERT. B.F. @ SDWK
B505	X	80	4-0				BACKWALL VERT. DOWELS E.F.
B506	X	40	7-2	X			BACKWALL VERT.
B407	X	8	41-11				BACKWALL HORIZ. E.F.
B508	X	6	4-2	X			BACKWALL VERT. @ SDWK
B409	X	2	6-2				BACKWALL HORIZ. E.F. @ SDWK
B510	X	22	4-0				WING 3 VERT. DOWELS E.F.
B611	X	14	9-10	X			WING 3 VERT.
B412	X	10	9-11				WING 3 HORIZ. E.F.
B613	X	2	9-11				WING 3 HORIZ. E.F. TOP
B514	X	22	4-0				WING 4 VERT. DOWELS E.F.
B615	X	14	8-10	X			WING 4 VERT.
B416	X	8	9-11				WING 4 HORIZ. E.F.
B617	X	2	9-11				WING 4 HORIZ. E.F. TOP

BENDING DIMENSIONS ARE OUT TO OUT OF BARS

▲ ADHESIVE ANCHORS NO. 5 BAR



B504

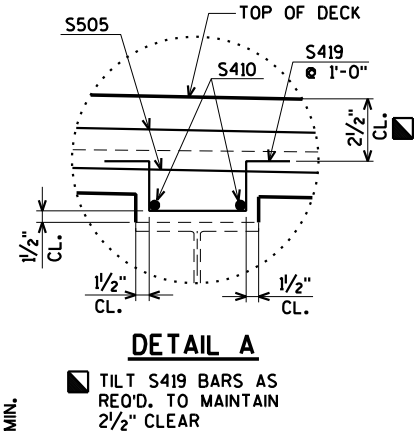
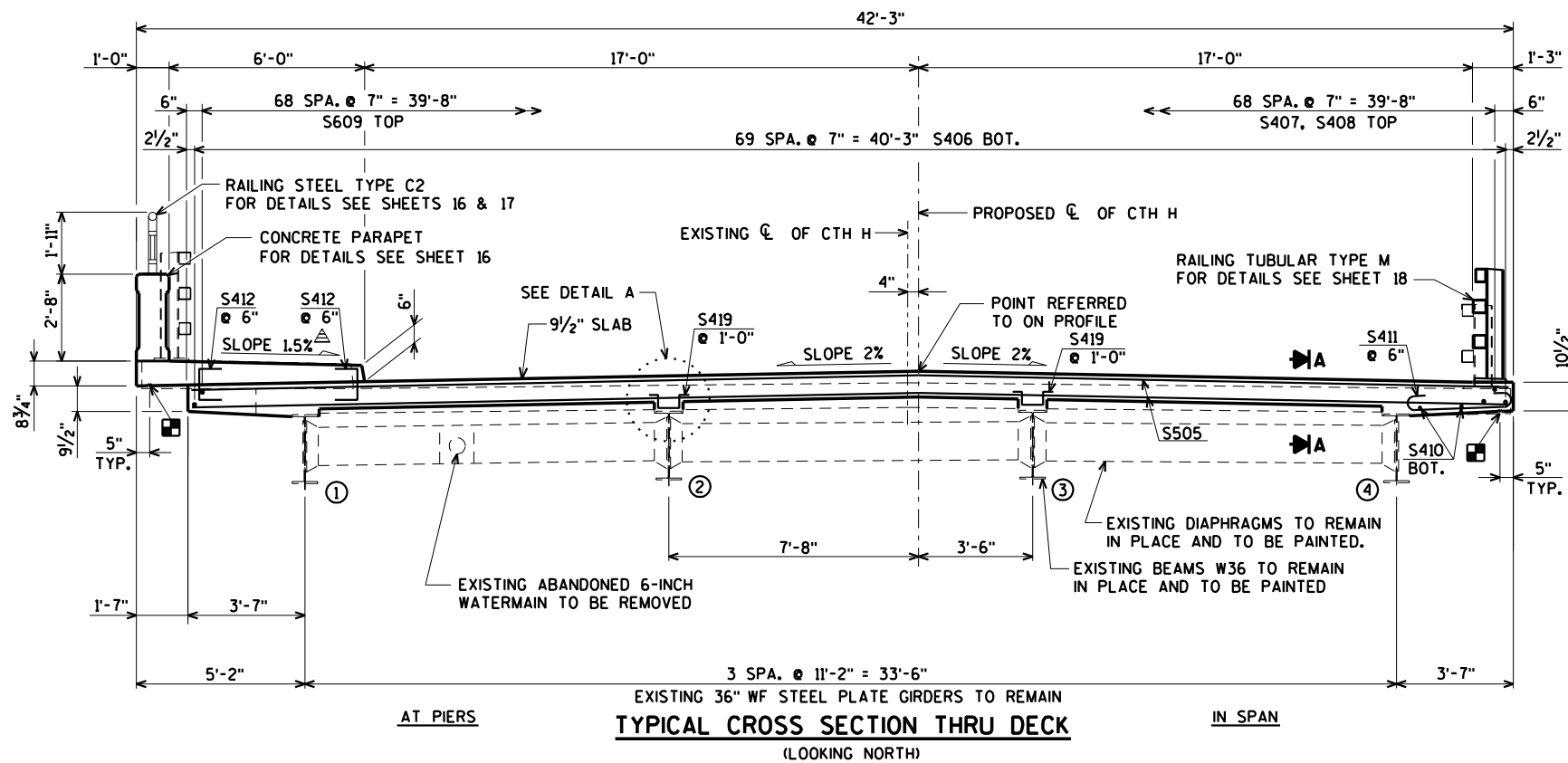
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NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-50-28			
DRAWN BY		CLS	PLANS CK'D. CBM
NORTH ABUTMENT DETAILS AND BILL OF BARS			SHEET 10 OF 18

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STATE PROJECT NUMBER

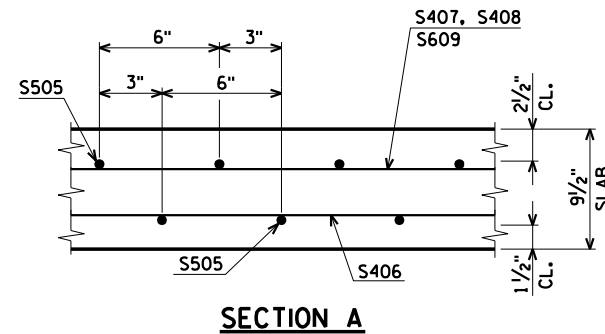
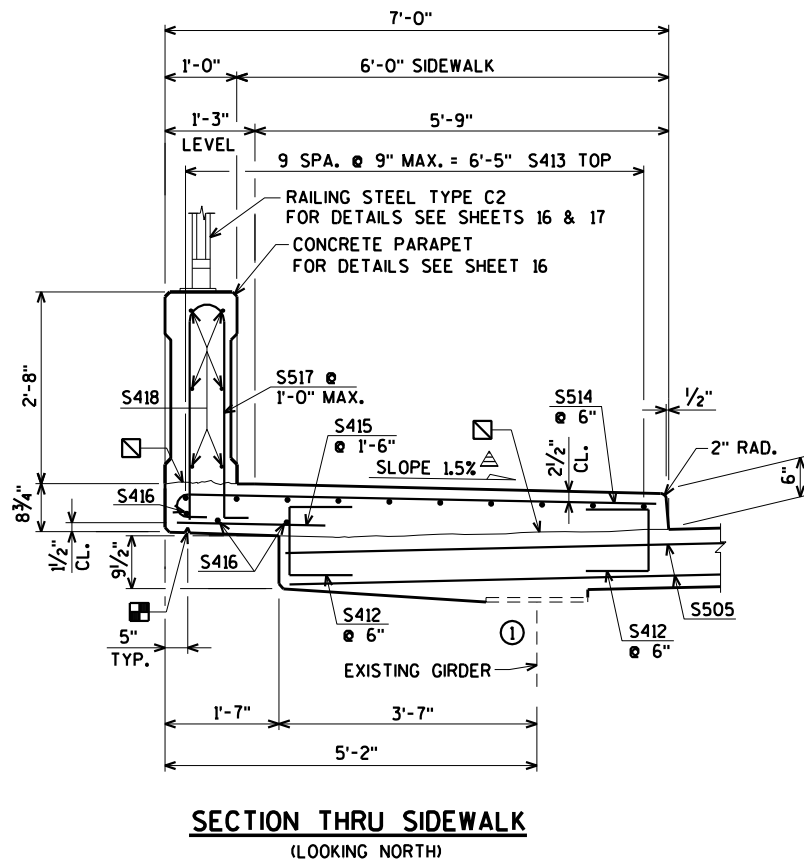
9480-00-70



BILL OF BARS

BAR NO.	COATED BAR	NO. REQ'D.	LENGTH	BENT BAR	BUNDLED	BAR SERIES	70.910# COATED
							LOCATION
S401	X	84	4-8	X			DIAPH. @ ABUT. VERT.
S602	X	30	9-10				DIAPH. @ ABUT. HORIZ. BOT.
S403	X	12	9-10				DIAPH. @ ABUT. HORIZ.
S404	X	12	9-10				DIAPH. @ ABUT. HORIZ. TOP
S505	X	793	40-4				SLAB TRANS. TOP & BOT.
S406	X	350	41-0				SLAB LONG. BOT.
S407	X	138	45-0				SLAB LONG. TOP SPANS 1 & 3
S408	X	69	43-0				SLAB LONG. TOP SPAN 2
S609	X	138	36-0				SLAB LONG. TOP @ PIERS
S410	X	30	41-0				SLAB LONG. BOT. @ OVERHANG
S411	X	397	3-10	X			SLAB TRANS. BOT @ OVERHANG
S412	X	792	2-8	X			SDWK. VERT. @ SLAB
S413	X	50	41-0				SDWK. LONG. TOP
S514	X	396	7-3	X			SDWK. TRANS. TOP
S415	X	133	2-5				SDWK. TRANS. BOT.
S416	X	15	41-0				SDWK. LONG. BOT.
S517	X	199	6-8	X			SDWK. VERT. @ PARAPET
S418	X	30	41-0				PARAPET HORIZ. @ SDWK.
S419	X	398	2-10	X			SLAB @ GIRDER HAUNCHES
S620	X	64	12-0	X			SLAB @ RAIL POSTS
S621	X	120	6-0				SLAB @ INT. RAIL POSTS
S622	X	8	6-0	X			SLAB @ END RAIL POSTS

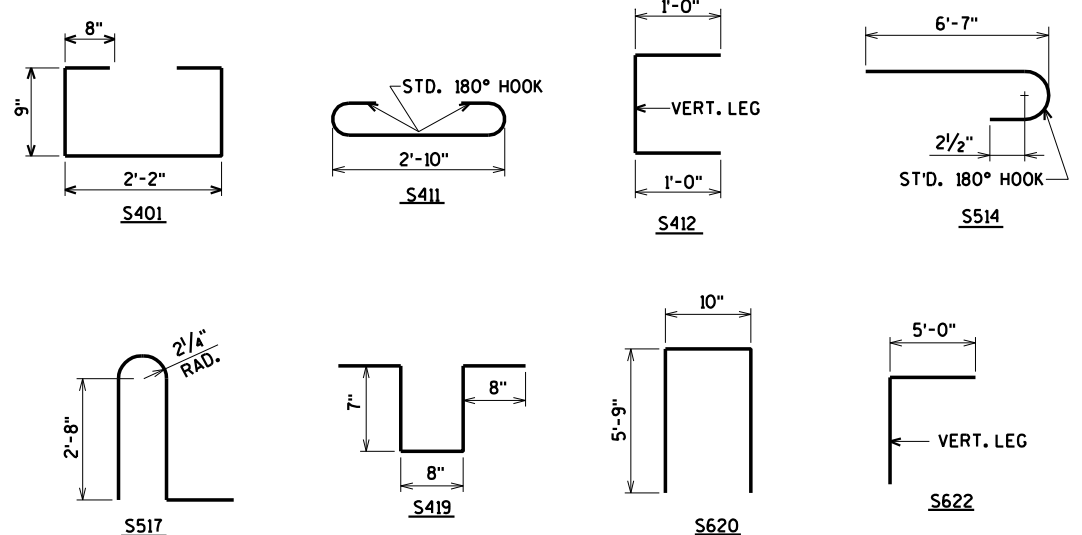
BENDING DIMENSIONS ARE OUT TO OUT OF BARS.



3/4" V - GROOVE.
TERMINATE 2'-0" FROM FRONT
FACE OF ABUTMENTS - TYP.

±0.5% CONSTRUCTION TOLERANCE IN SIDEWALK
CROSS SLOPE. THE SIDEWALK CROSS SLOPE
SHALL NOT EXCEED 2% WITHOUT PRIOR
APPROVAL FROM THE ENGINEER.

CONST. JOINT - STRIKE OFF AS SHOWN
AND LEAVE ROUGH. FOR DECK POUR,
MATCH BRIDGE X-SLOPE.



NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-50-28			
DRAWN BY		CLS	PLANS CK'D. CBM
SUPERSTRUCTURE			SHEET 11 OF 18

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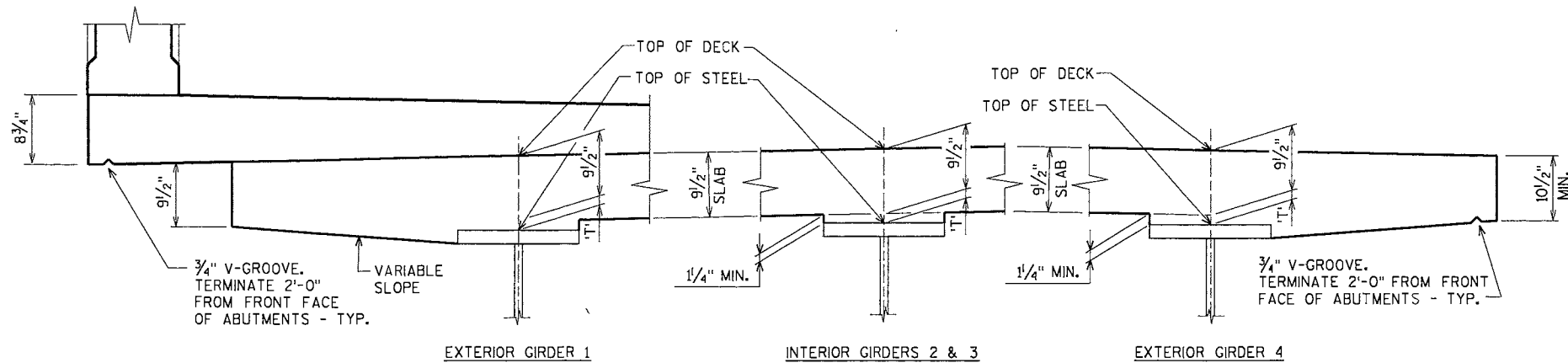
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SLAB HAUNCH DETAILS

TO DETERMINE 'T': AFTER ALL DECK IS REMOVED, ELEVATIONS OF THE TOP FLANGES OR TOP OF SPLICE PLATES, OR TOP OF COVER PLATES WHICHEVER APPLIES, SHALL BE TAKEN AT CENTERLINE OF BEARINGS AND AT TENTH POINTS OF EACH SPAN.

TOP OF DECK ELEVATION AT FINAL GRADE
- TOP OF STEEL ELEVATION AFTER DECK REMOVAL
+ DEAD LOAD DEFLECTION: DOWNWARD DEFLECTION IS ADDED, UPWARD DEFLECTION IS SUBTRACTED
- SLAB THICKNESS (9 1/2")

= HAUNCH THICKNESS 'T'

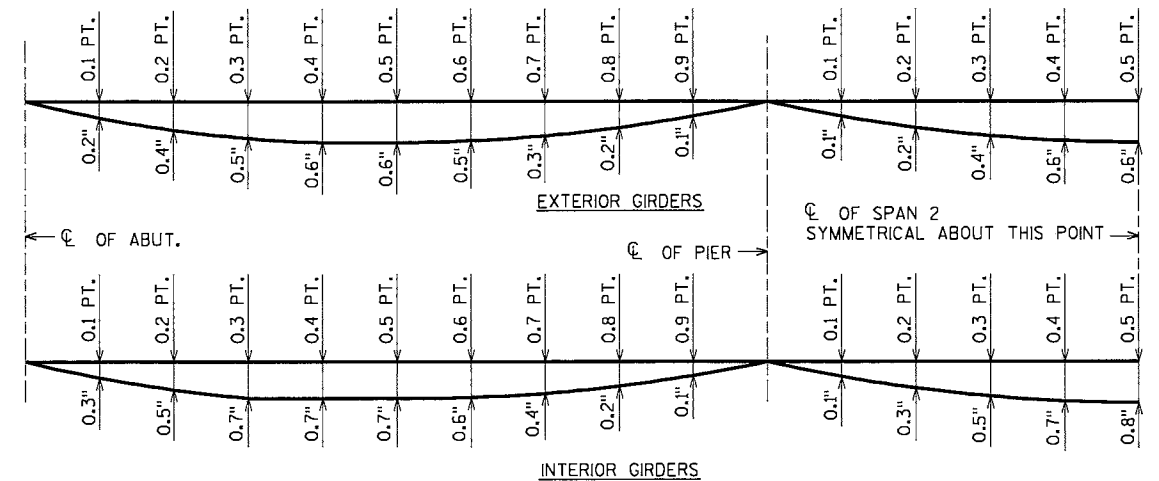
AVERAGE "T" USED FOR ESTIMATING QUANTITIES = 4"

TOP OF DECK ELEVATIONS

SPAN 1	CL BRG. OF SOUTH 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 PIER 1
EDGE OF DECK	1450.57	1450.62	1450.66	1450.71	1450.75	1450.80	1450.84	1450.89	1450.93	1450.98	1451.02
GIRDER 1	1450.64	1450.69	1450.73	1450.78	1450.82	1450.87	1450.91	1450.96	1451.00	1451.05	1451.09
GIRDER 2	1450.87	1450.91	1450.96	1451.00	1451.05	1451.09	1451.14	1451.18	1451.23	1451.27	1451.32
PROPOSED CL OF CTH H	1451.02	1451.07	1451.11	1451.16	1451.20	1451.25	1451.29	1451.34	1451.38	1451.43	1451.47
GIRDER 3	1450.95	1451.00	1451.04	1451.09	1451.13	1451.18	1451.22	1451.27	1451.31	1451.36	1451.40
GIRDER 4	1450.73	1450.77	1450.82	1450.86	1450.91	1450.95	1451.00	1451.04	1451.09	1451.13	1451.18
EDGE OF DECK	1450.65	1450.70	1450.74	1450.79	1450.83	1450.88	1450.92	1450.97	1451.01	1451.06	1451.10

SPAN 2	CL PIER 1	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 PIER 2
EDGE OF DECK	1451.02	1451.08	1451.14	1451.19	1451.25	1451.31	1451.36	1451.42	1451.48	1451.53	1451.59
GIRDER 1	1451.09	1451.15	1451.21	1451.26	1451.32	1451.38	1451.44	1451.49	1451.55	1451.61	1451.66
GIRDER 2	1451.32	1451.37	1451.43	1451.49	1451.54	1451.60	1451.66	1451.72	1451.77	1451.83	1451.89
PROPOSED CL OF CTH H	1451.47	1451.53	1451.58	1451.64	1451.70	1451.76	1451.81	1451.87	1451.93	1451.98	1452.04
GIRDER 3	1451.40	1451.46	1451.51	1451.57	1451.63	1451.69	1451.74	1451.80	1451.86	1451.91	1451.97
GIRDER 4	1451.18	1451.23	1451.29	1451.35	1451.40	1451.46	1451.52	1451.58	1451.63	1451.69	1451.75
EDGE OF DECK	1451.10	1451.16	1451.22	1451.28	1451.33	1451.39	1451.45	1451.50	1451.56	1451.62	1451.67

SPAN 3	CL PIER 2	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 BRG. OF NORTH ABUT.
EDGE OF DECK	1451.59	1451.64	1451.68	1451.73	1451.77	1451.82	1451.86	1451.91	1451.95	1452.00	1452.04
GIRDER 1	1451.66	1451.71	1451.75	1451.80	1451.84	1451.89	1451.93	1451.98	1452.02	1452.07	1452.11
GIRDER 2	1451.89	1451.93	1451.98	1452.02	1452.07	1452.11	1452.16	1452.20	1452.25	1452.29	1452.34
PROPOSED CL OF CTH H	1452.04	1452.09	1452.13	1452.18	1452.22	1452.27	1452.31	1452.36	1452.40	1452.45	1452.49
GIRDER 3	1451.97	1452.02	1452.06	1452.11	1452.15	1452.20	1452.24	1452.29	1452.33	1452.38	1452.42
GIRDER 4	1451.75	1451.79	1451.84	1451.88	1451.93	1451.97	1452.02	1452.06	1452.11	1452.15	1452.20
EDGE OF DECK	1451.67	1451.72	1451.76	1451.81	1451.85	1451.90	1451.94	1451.99	1452.03	1452.08	1452.12



DEAD LOAD DEFLECTIONS

NOTE: DEFLECTIONS ARE THEORETICAL AND MAY VARY IN THE FIELD.
DEAD LOAD DEFLECTION = CONCRETE DECK DEFLECTION.

8

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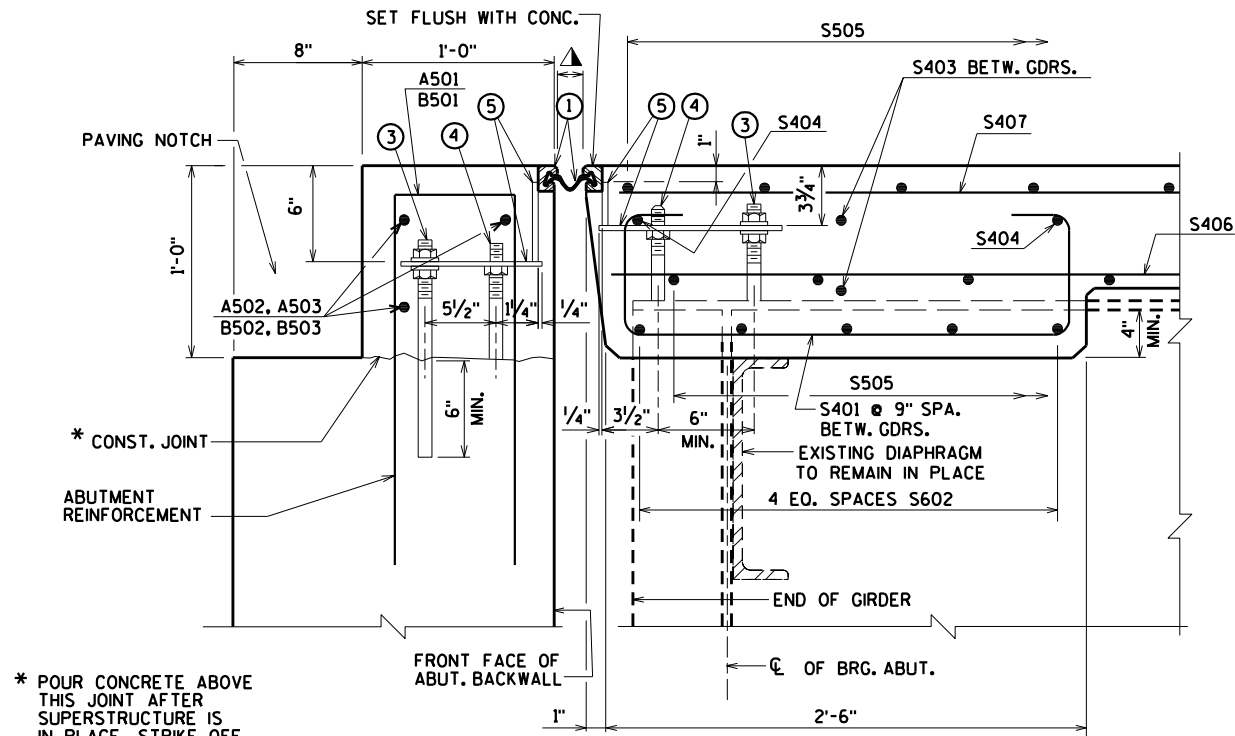
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-50-28			
DRAWN BY		CLS	PLANS CK'D. CBM
DECK ELEVATIONS			SHEET 13 OF 18

ORIGINAL PLANS PREPARED BY
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www.AyresAssociates.com

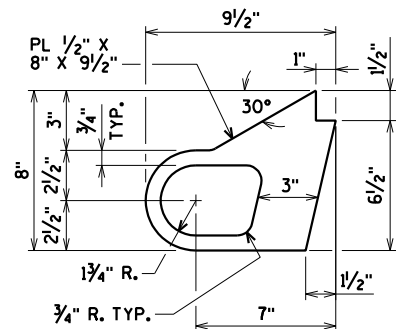
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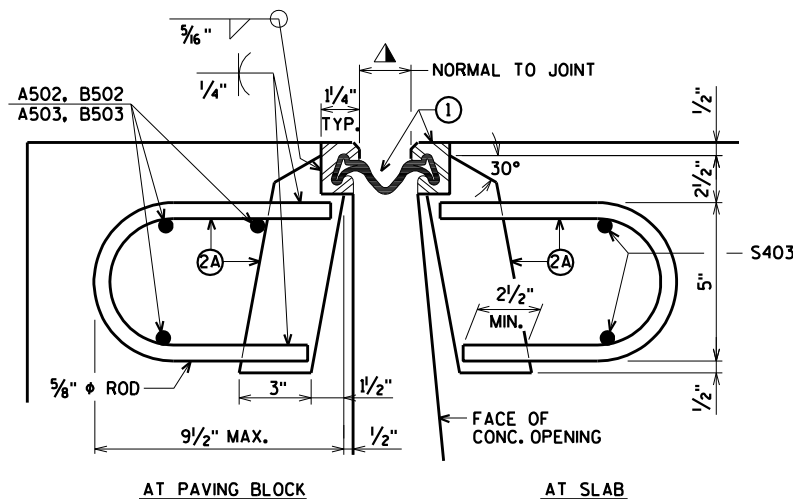
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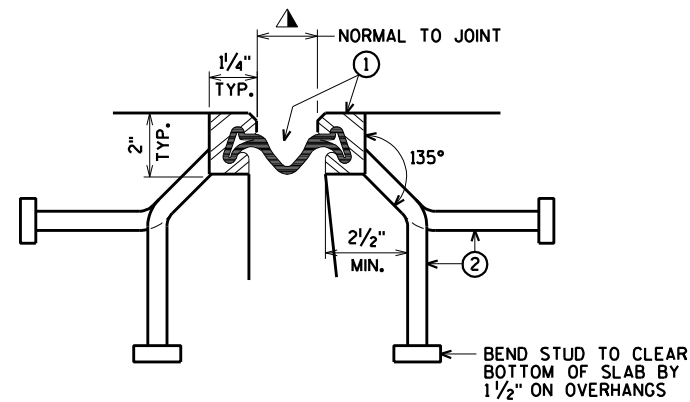
SECTION THRU JOINT AT ABUTMENT
NORMAL TO CL SUBSTRUCTURE



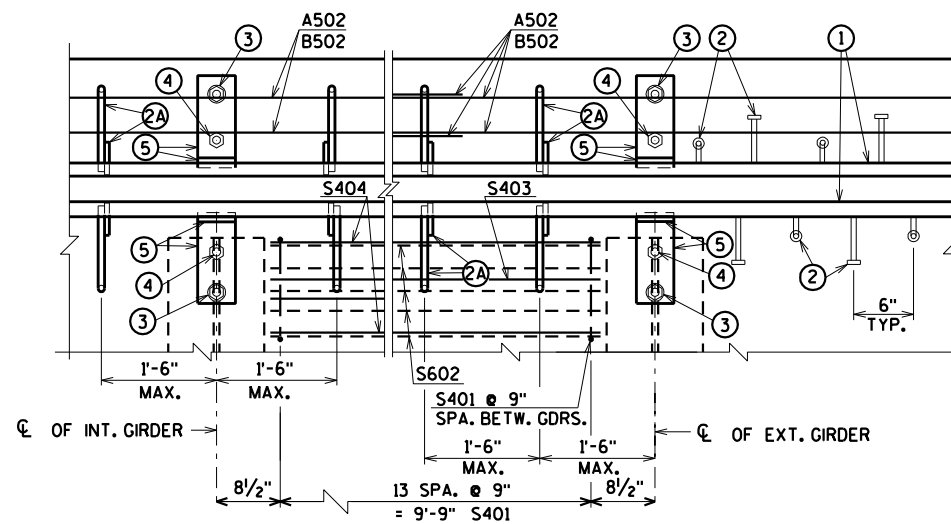
ALTERNATE STRIP SEAL ANCHOR



SECTION THRU JOINT
ROADWAY TRAFFIC AREA BETWEEN EXTERIOR GIRDERS



SECTION THRU JOINT
EXTERIOR GIRDER TO EDGE OF SLAB,
SIDEWALK, & AT PARAPET



PART PLAN

LEGEND

- ① NEOPRENE STRIP SEAL (4 - INCH) AND STEEL EXTRUSIONS. SET JOINT OPENING AT 1 3/4".
- ② STUDS 5/8" ϕ X 6 3/8" LONG AT 6" ALTERNATE CENTERS. WELD TO EXTRUSIONS AND BEND AS SHOWN AFTER WELDING.
- ②A 1/2" THICK ANCHOR PLATE WITH 5/8" ϕ ROD (OR ALTERNATE STRIP SEAL ANCHOR). WELD ROD TO ANCHOR PLATE, WELD ANCHOR PLATE TO NO. 1 AT 1'-6" CENTERS BETWEEN GIRDERS.
- ③ 3/4" ϕ THREADED ROD WITH 2 NUTS AND PLATE WASHERS. WELD THREADED ROD TO TOP FLANGE OR ATTACH BY BOLTING THRU FLANGE. ON ABUTMENT SIDE, GROUT THREADED ROD INTO FIELD DRILLED HOLES IN ABUTMENT BACKWALL AS SHOWN.
- ④ 3/4" ϕ THREADED ROD WITH NUT. TACK WELD NUT TO NO. 5.
- ⑤ FABRICATE SUPPORT FROM 3" X 1/2" BAR AS SHOWN OR EQUIVALENT, ONE PER GIRDER PER SIDE. SHOP OR FIELD WELD TO NO. 1. IF FIELD WELDED, COVER WELDED AREAS WITH EPOXY-COATING MATERIAL. PROVIDE 1 1/2" ϕ HOLE FOR NO. 3 AND 1" ϕ HOLE FOR NO. 4.
- ⑦ 3/4" ϕ X 1 1/2" STAINLESS STEEL SOCKET FLAT HEAD SCREWS WITH ANTI-SEIZE LUBRICANT. PLACE IN COUNTERSUNK HOLE. RECESS 1/16" BELOW PLATE SURFACE.
- ⑧ 3/4" ϕ X 4" GALVANIZED HEX HEAD BOLT. BEND 45°.
- ⑨ 3/4" ϕ X 2 1/4" GALVANIZED THREADED COUPLING.
- ⑩ SIDEWALK COVER PLATE 3/8" X 2'-0" X LIMITS SHOWN. BEND DOWN FACE OF SIDEWALK WITH HOLES FOR NO. 7. GALVANIZE PLATE AFTER SLIP-RESISTANT SURFACE IS APPLIED.
- ⑪ 1" X 5" SLOTTED COUNTERSUNK HOLE FOR NO. 7. PLACE SLOT PARALLEL TO DIRECTION OF MOVEMENT.

NOTES

ONE FIELD SPLICE PERMITTED IN STEEL EXTRUSIONS, UNLESS MORE ARE REQUIRED FOR STAGED CONSTRUCTION, HANDLING, OR GALVANIZING REQUIREMENTS. IF USED, DETAILS SHALL BE SUBMITTED FOR APPROVAL. NO SPLICING PERMITTED IN NEOPRENE STRIP SEAL.

AFTER FABRICATION, BUT BEFORE SHIPMENT, STRAIGHTEN STEEL EXTRUSIONS SUCH THAT THEY SHALL BE FREE FROM WARP, TWIST AND SWEEP.

FABRICATOR SHALL PROVIDE MEANS OF KEEPING GALVANIZED EXTRUSIONS CLEAN AND SMOOTH DURING SHIPMENT AND PRIOR TO APPLYING LUBRICANT ADHESIVE FOR NEOPRENE GLAND INSTALLATION.

SANDBLAST PLATES, SUPPORTS AND EXTRUSIONS AFTER FABRICATION IN ACCORDANCE WITH SSPC SP. #6 "COMMERCIAL BLAST CLEANING". AFTER BLAST CLEANING, PLATES, SUPPORTS AND EXTRUSIONS SHALL BE HOT DIPPED GALVANIZED. SLIP-RESISTANT SURFACE IS APPLIED TO SIDEWALK COVER PLATES BY THE MANUFACTURER AND THEN HOT DIPPED GALVANIZED TO THEIR RECOMMENDATIONS TO MAINTAIN THE INTEGRITY OF THIS SURFACE.

ANCHOR SYSTEM NO. 8 AND NO. 9 SHALL CONFORM TO ASTM A307 AND SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153 CLASS C AND D.

STRIP SEAL EXPANSION JOINT ASSEMBLY, INCLUDING ANCHOR STUDS AND HARDWARE WILL BE PAID FOR AT THE LUMP SUM PRICE BID FOR "EXPANSION DEVICE B-50-28".

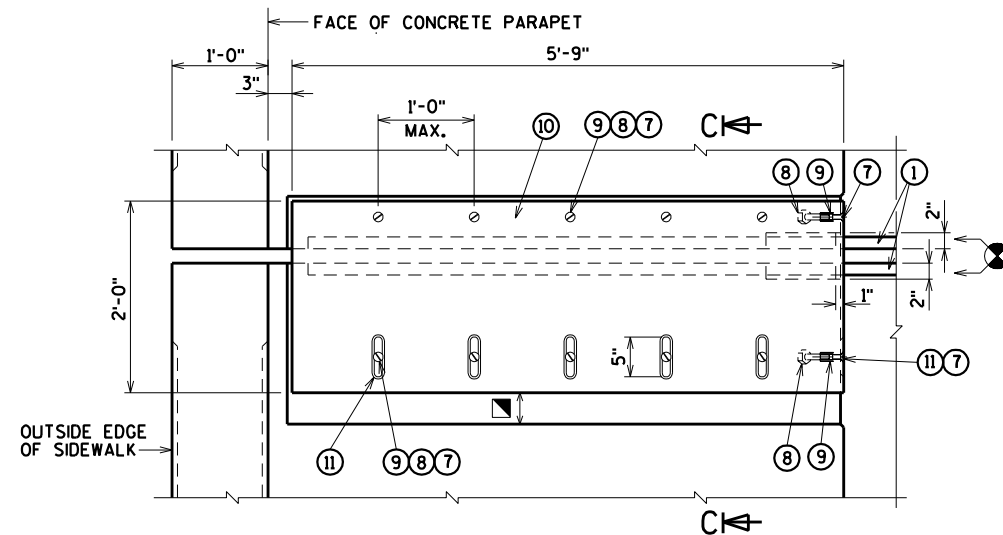
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-50-28			
DRAWN BY		CLS	PLANS CK'D. CBM
STRIP SEAL EXPANSION DEVICE			SHEET 14 OF 18

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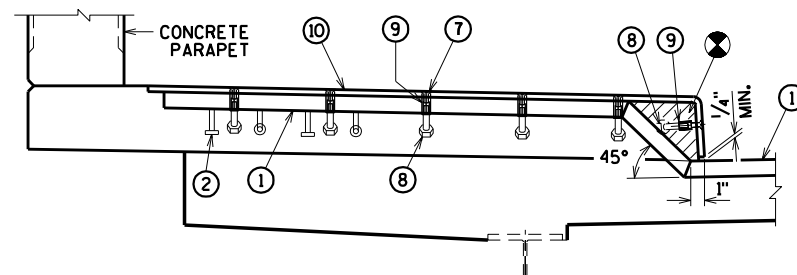
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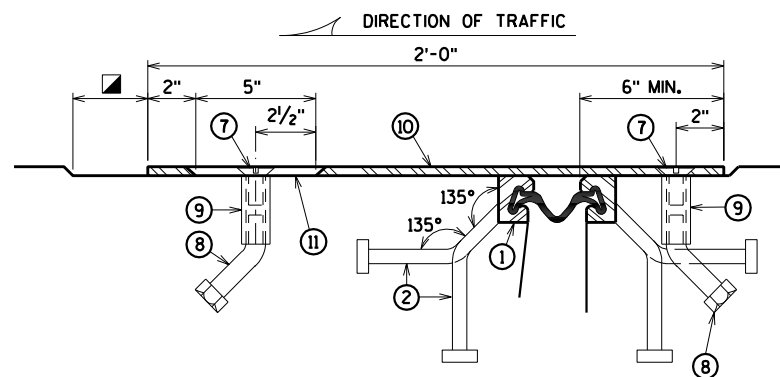
9480-00-70



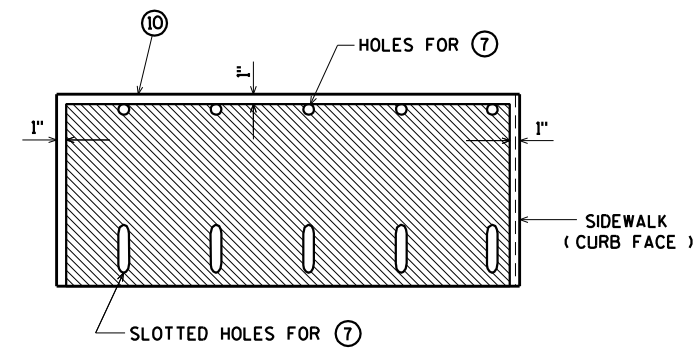
PLAN AT SIDEWALK



SECTION AT SIDEWALK
(LOOKING NORTH)



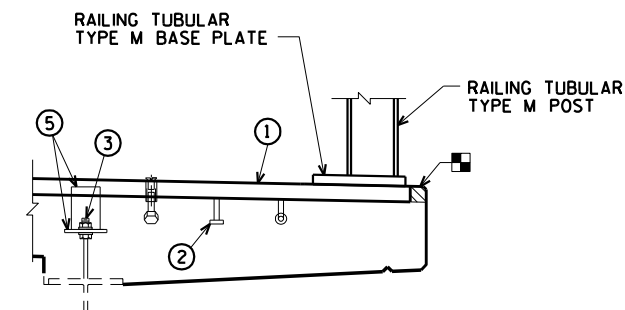
SECTION C-C



PLAN OF SIDEWALK COVER PLATE
WITH SLIP-RESISTANT SURFACE

PLACE SLIP-RESISTANT SURFACE ON TOP WALKING SURFACE
IN SHADED AREA ONLY. (NOT ON CURB FACE).

APPROVED SLIP-RESISTANT APPLIED SURFACES FOR STEEL PLATES		
PRODUCT	MANUFACTURER	CONTACT AT
SLIPNOT GRADE 2, STEEL	W. S. MOLNAR COMPANY	1-800-SLIPNOT
ALGRIP, STEEL	ROSS TECHNOLOGY CORP.	1-800-345-8170



SECTION AT EDGE OF DECK
NON-SIDEWALK SIDE

- ⊗ BLOCK OUT CONCRETE 2" EACH SIDE OF JOINT OPENING.
- ▣ JOINT OPENING DIMENSION PLUS 1/2".
- BLOCK OUT CONCRETE ABOVE AND AT END OF EXTRUSIONS.

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

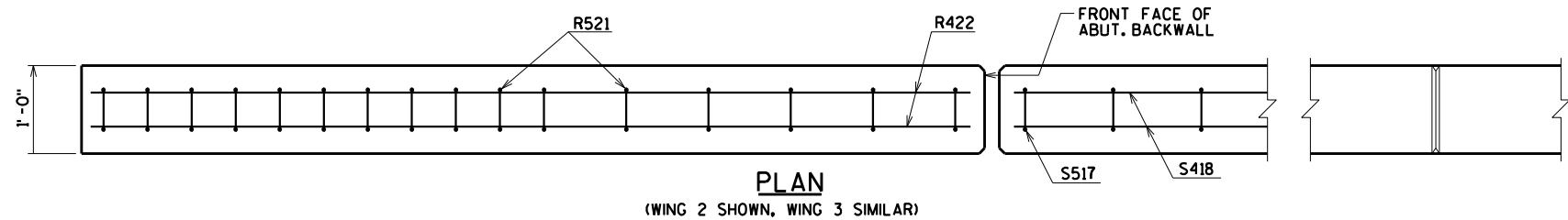
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-50-28			
DRAWN BY		CLS	PLANS CK'D. CBM
SIDEWALK COVER PLATE DETAILS			SHEET 15 OF 18

\$PRNAME\$
U:\42-1047.00 - Price Co - CTH H Rehab\Structure\421047 C2 rail.dgn

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STATE PROJECT NUMBER

9480-00-70



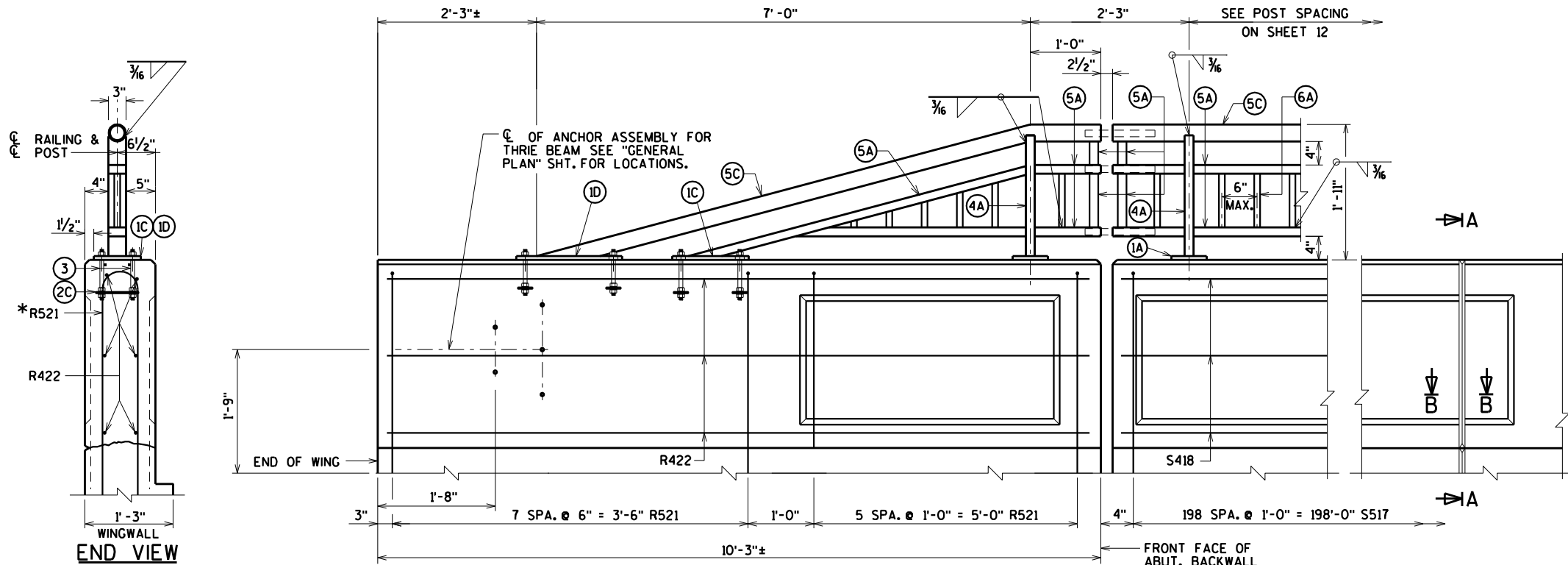
PLAN
(WING 2 SHOWN, WING 3 SIMILAR)

BILL OF BARS

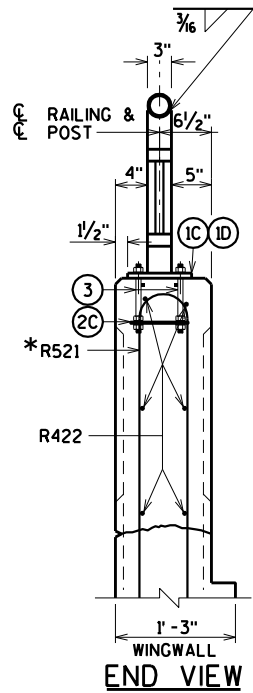
BAR MARK	COAT	SOUTH ABUT.	NORTH ABUT.	LENGTH	BENT	LOCATION
R521	X	14	14	9-5	X	PARAPET VERT. @ WINGS 2 & 3
R422	X	6	6	9-11		PARAPET HORIZ. @ WINGS 2 & 3

BENDING DIMENSIONS ARE OUT TO OUT OF BARS.

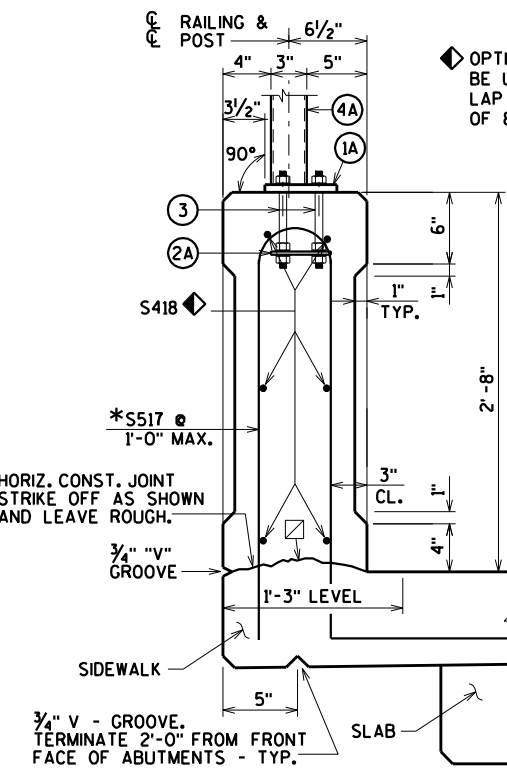
180° COATED (SOUTH ABUTMENT)
180° COATED (NORTH ABUTMENT)



INSIDE ELEVATION OF PARAPET
(WING 2 SHOWN, WING 3 SIMILAR)



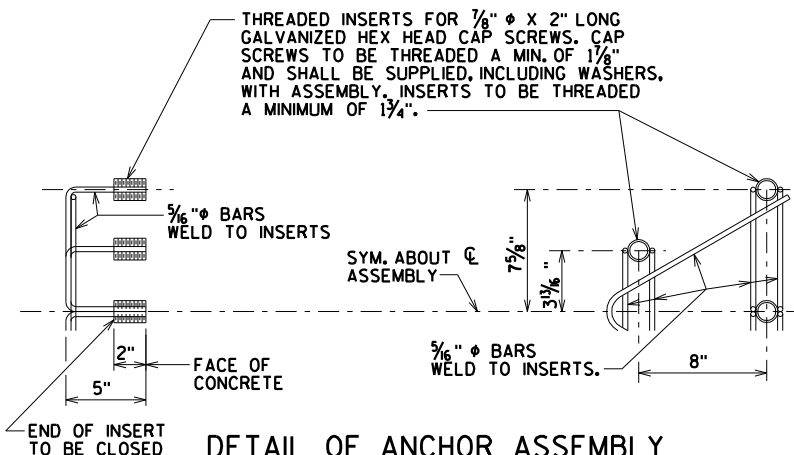
END VIEW



SECTION THRU PARAPET ON BRIDGE

*ADJUST LOCATIONS OF BARS TO ALLOW
PLACEMENT OF ANCHOR ASSEMBLY FOR RAILING

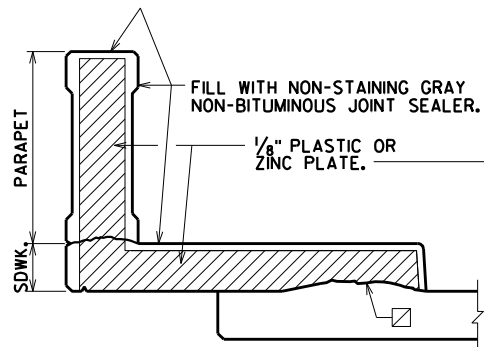
OPTIONAL CONSTRUCTION JOINTS IN THE PARAPETS MAY
BE USED. RUN BAR REINFORCEMENT THRU THE JOINT.
LAP LONGIT. BARS A MIN. OF 1'-8". MIN. JOINT SPACING
OF 80'-0". DEFINE CONST. JOINT WITH A 3/4" - "V" GROOVE.



DETAIL OF ANCHOR ASSEMBLY

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.

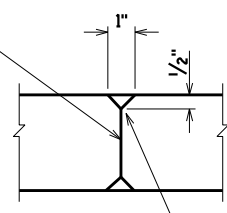


SECTION A-A

SHOWING DEFLECTION JOINT IN PARAPET
AND SIDEWALK.

WHEN PARAPETS ARE POURED CONTINUOUSLY
FROM END TO END, THEY SHALL BE SEPARATED
AT THE DEFLECTION JOINTS BY A PIECE OF 1/8"
ZINC OR PLASTIC PLATE CUT AS SHOWN IN
SECTION A-A BY SHADED AREA. IF CONSTRUCTION
JOINTS IN PARAPETS ARE USED AT THE DEFLECTION
JOINTS, ONE SIDE OF JOINT SHALL BE COATED WITH
AN APPROVED LIQUID BOND BREAKER AND PLATE
SEPARATORS MAY BE OMITTED.

☒ HORIZ. CONST. JOINT - STRIKE OFF AS SHOWN
AND LEAVE ROUGH.

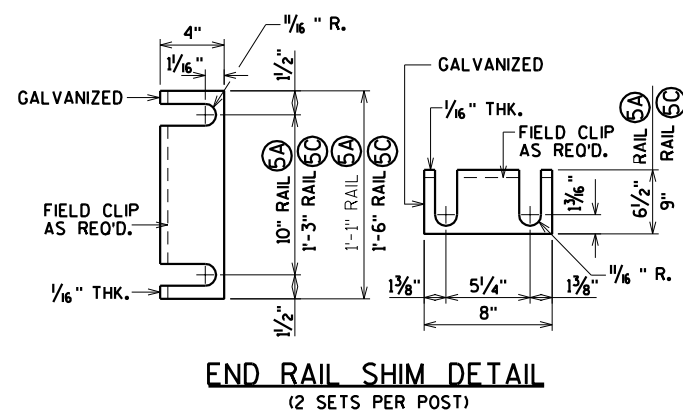
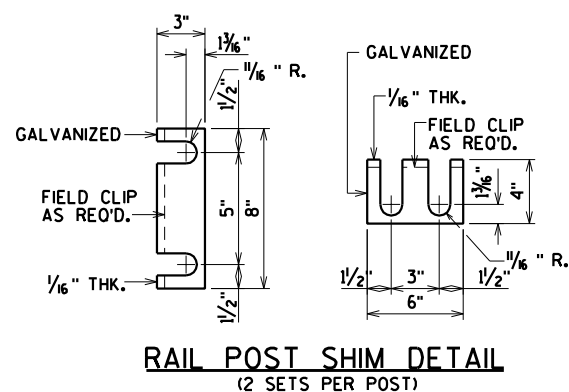
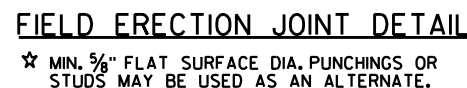
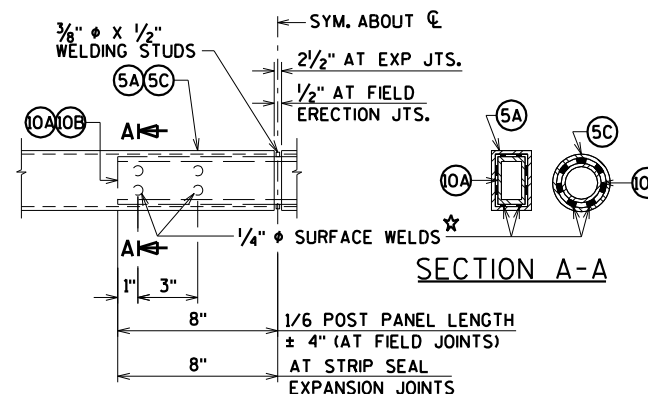
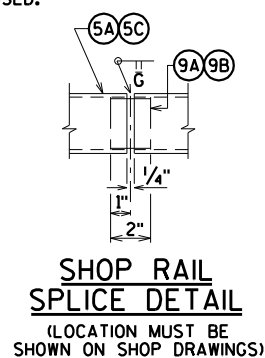
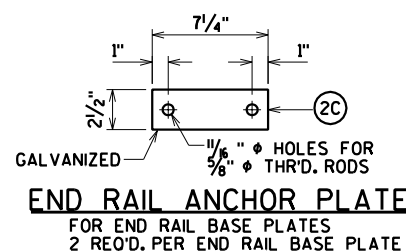
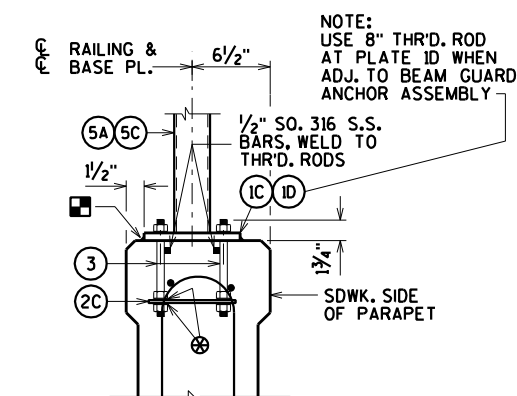
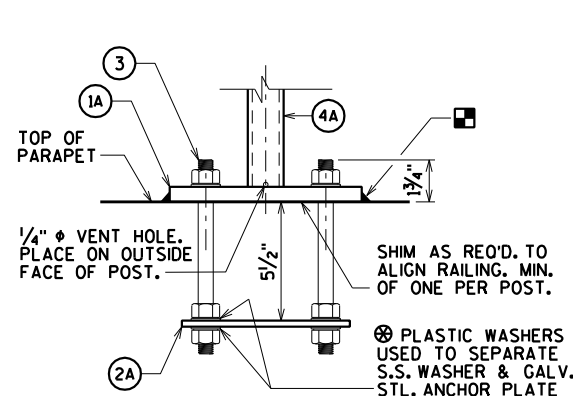
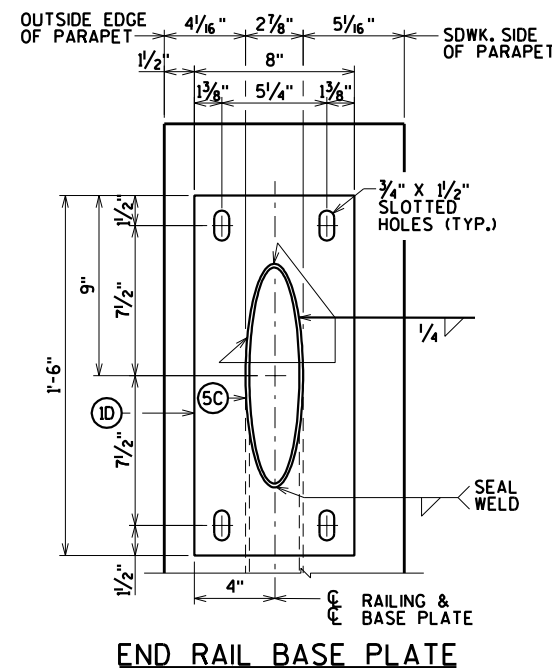
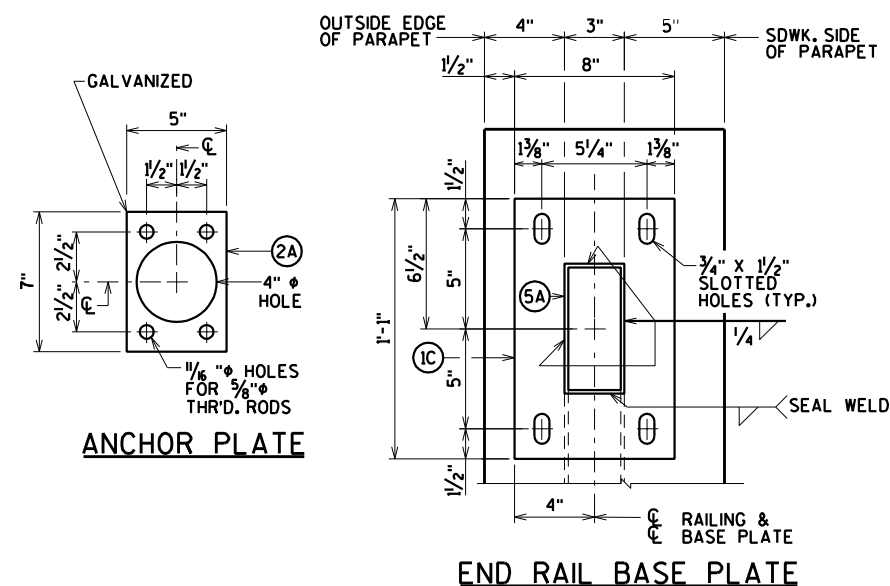
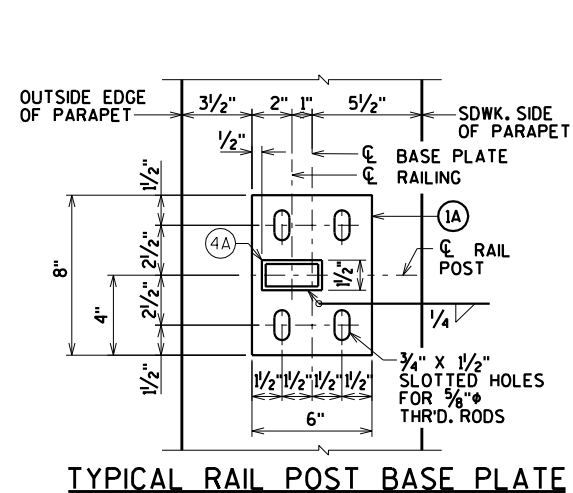


SECTION B-B

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-50-28			
DRAWN BY		CLS	PLANS CK'D. CBM
COMBINATION RAIL TYPE "C2"			SHEET 16 OF 18

ORIGINAL PLANS PREPARED BY
AYRES ASSOCIATES
3433 Oakwood Hills Parkway
Eau Claire, WI 54701
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8



- LEGEND**
- (1A) PLATE $\frac{5}{8}$ " X 6" X 8" WITH $\frac{3}{4}$ " X $\frac{1}{2}$ " SLOTTED HOLES.
 - (1C) PLATE $\frac{5}{8}$ " X 8" X 1'-1" WITH $\frac{3}{4}$ " X $\frac{1}{2}$ " SLOTTED HOLES.
 - (1D) PLATE $\frac{5}{8}$ " X 8" X 1'-6" WITH $\frac{3}{4}$ " X $\frac{1}{2}$ " SLOTTED HOLES.
 - (2A) $\frac{1}{4}$ " X 5" X 7" ANCHOR PLATE WITH $\frac{1}{8}$ " ϕ HOLES FOR THR'D. RODS NO. 3.
 - (2C) $\frac{1}{4}$ " X 2 $\frac{1}{2}$ " X 7 $\frac{1}{4}$ " ANCHOR PLATE WITH $\frac{1}{8}$ " ϕ HOLES FOR THR'D. RODS NO. 3.
 - (3) $\frac{5}{8}$ " DIA. X 9" LONG, TYPE 316 STAINLESS STEEL THREADED RODS (MIN. TENSILE STRENGTH = 70 KSI) WITH NUT AND WASHERS OF SAME ALLOY GROUP.
(ALTERNATE ANCHORAGE: CONCRETE ADHESIVE ANCHORS $\frac{5}{8}$ -INCH, EMBED 7" IN CONCRETE FOR RAIL POSTS. EMBED 5" IN CONCRETE FOR END RAILS.)
ADHESIVE ANCHORS SHALL CONFORM TO SECTION 502.2.12 OF THE STANDARD SPECIFICATIONS.
 - (4A) STRUCTURAL TUBING 3" X $\frac{1}{2}$ " X $\frac{3}{8}$ ". PLACE VERTICAL. WELD TO NO.1 & 5.
 - (5A) STRUCTURAL TUBING 3" X $\frac{1}{2}$ " X $\frac{3}{8}$ " RAILS. WELD TO NO.1 & NO.4. INSIDE OF TUBE TO BE PAINTED AT ALL FIELD ERECTION & EXPANSION JOINTS.
 - (5C) STRUCTURAL TUBING 2 $\frac{1}{2}$ " ϕ (STANDARD SIZE) (2.875" O.D.). WELD TO NO.1 & NO.4. INSIDE OF TUBE TO BE PAINTED AT ALL FIELD ERECTION & EXPANSION JOINTS.
 - (6A) BAR 1" X 1" PICKETS. WELD TO NO.5 (SPACE AT 6" MAX. ϕ TO ϕ SPACING). PLACE VERTICAL.
 - (9A) RECTANGULAR SLEEVE FABRICATED FROM $\frac{3}{8}$ " PLATES. PROVIDE "SLIDING FIT".
 - (9B) CIRCULAR SLEEVE FABRICATED FROM STRUCTURAL TUBING 2" ϕ (STANDARD SIZE) (2.375" O.D.)
 - (10A) RECTANGULAR SLEEVE FABRICATED FROM $\frac{3}{8}$ " PLATES. (1'-4" ϕ FIELD ERECTION JTS.) (1'-4" ϕ STRIP SEAL JTS.)
 - (10B) CIRCULAR SLEEVE FABRICATED FROM STRUCTURAL TUBING 2" ϕ (STANDARD SIZE) (2.375" O.D.) (1'-4" ϕ FIELD ERECTION JTS.) (1'-4" ϕ STRIP SEAL EXP. JTS.)

RAILING NOTES

BID ITEM SHALL BE "RAILING STEEL TYPE C2 B-50-28", WHICH SHALL INCLUDE ALL STEEL ITEMS SHOWN.

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 CUTS.

ALL PLATES, BARS, AND RECTANGULAR SLEEVES SHALL CONFORM TO ASTM A709 GRADE 36. ALL STRUCTURAL TUBING SHALL CONFORM TO ASTM A500 GRADE B.

ANCHORAGES SHALL BE ACCURATELY PLACED TO PROVIDE CORRECT ALIGNMENT OF RAILING, SET NORMAL TO GRADE.

CUT BOTTOM OF POST TO MAKE POST VERTICAL IN BOTH TRANSVERSE AND LONGITUDINAL DIRECTION.

STEEL SHIMS SHALL BE PROVIDED & USED UNDER BASE PLATES WHERE REQUIRED FOR ALIGNMENT, AND SHALL BE GALVANIZED.

- CAULK AROUND PERIMETER OF BASE PLATES, NO. 1, AND FILL BOLT SLOT OPENINGS IN SHIMS AND BASE PLATES WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER.

ALL JOINTS AND RECESSES IN CONCRETE PARAPET ARE TO BE VERTICAL.

ALL MATERIAL (EXCEPT NO. 3) SHALL BE GALVANIZED AFTER FABRICATION. PRIOR TO GALVANIZING, THE STEEL RAILING SHALL BE GIVEN A NO. 6 BLAST CLEANING PER SSPC SPECIFICATIONS. PAINT OVER GALVANIZING WITH AN APPROVED TIE COAT AND TOP COAT AS SPECIFIED IN THE CONTRACT DOCUMENTS. THE RAILING SHALL BE PAINTED BLACK FEDERAL COLOR NO. 27038.

VENT HOLES SHALL BE DRILLED IN POST AND RAIL MEMBERS AS REQUIRED TO FACILITATE GALVANIZING AND DRAINAGE.

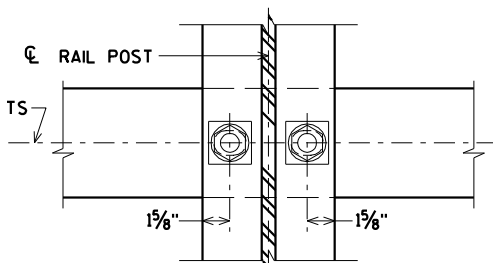
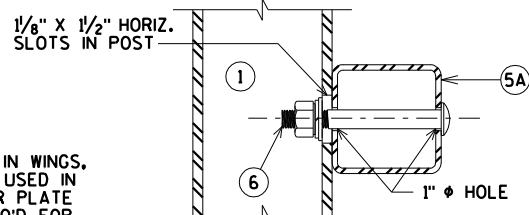
RAILING SHALL BE FABRICATED IN LENGTHS THAT INCLUDE 3 OR 4 POSTS.

TOUCH-UP PAINTING TO BE DONE AT COMPLETION OF STEEL RAILING INSTALLATION TO THE SATISFACTION OF THE ENGINEER AT NO EXTRA COST.

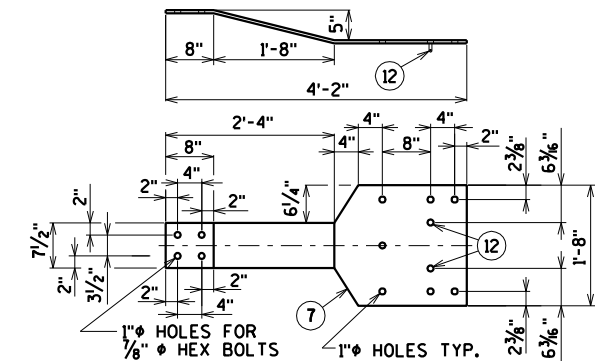
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-50-28			
		DRAWN BY	CLS
		PLANS CK'D.	CBM
COMBINATION RAIL TYPE "C2"		SHEET 17 OF 18	

LEGEND

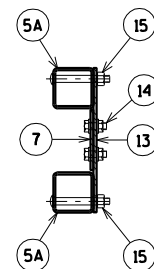
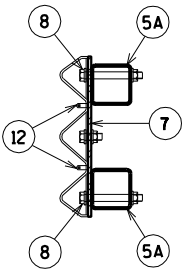
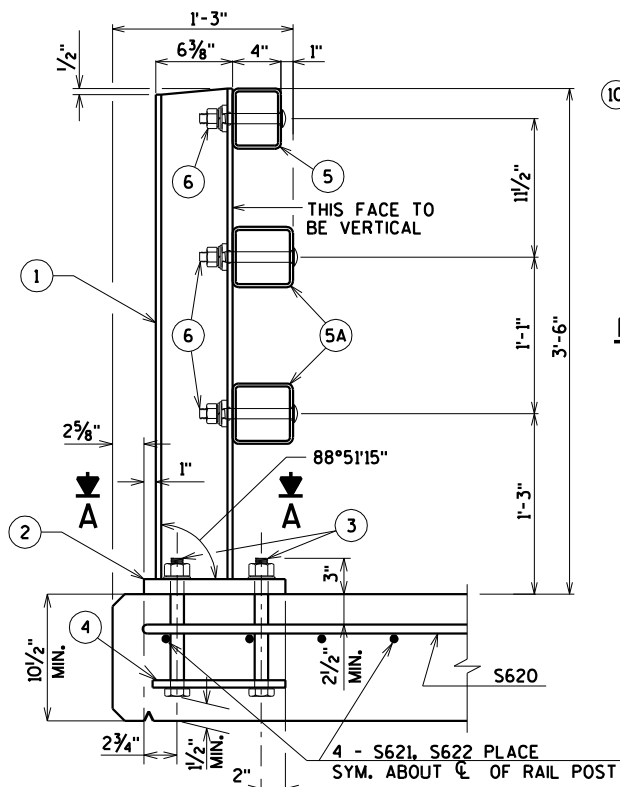
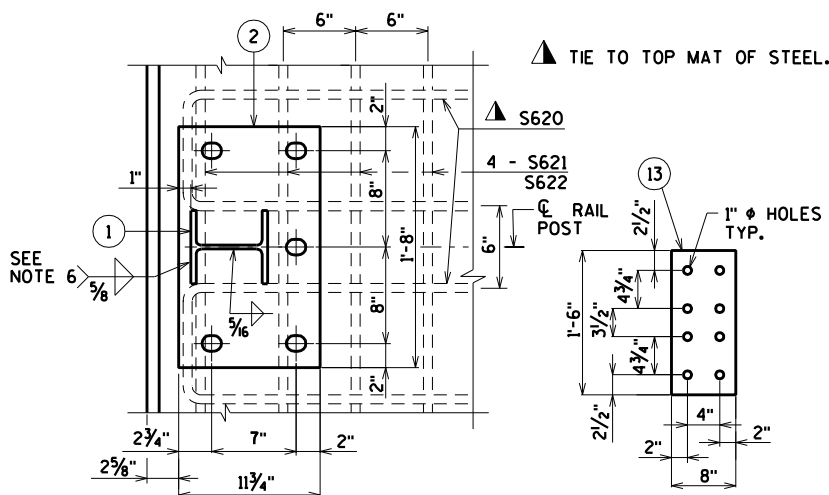
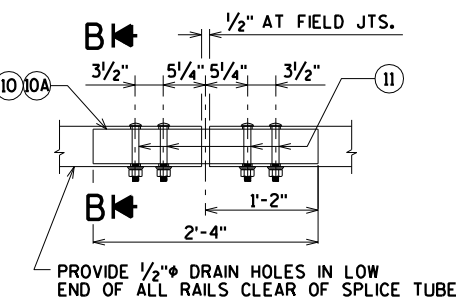
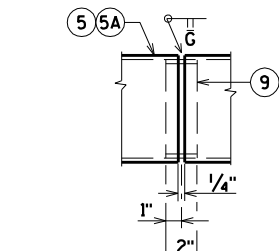
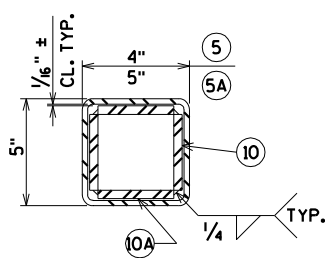
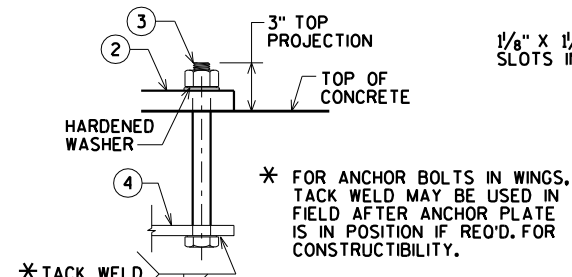
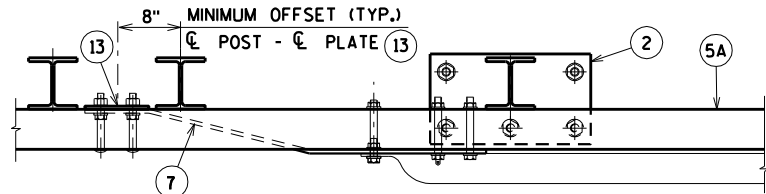
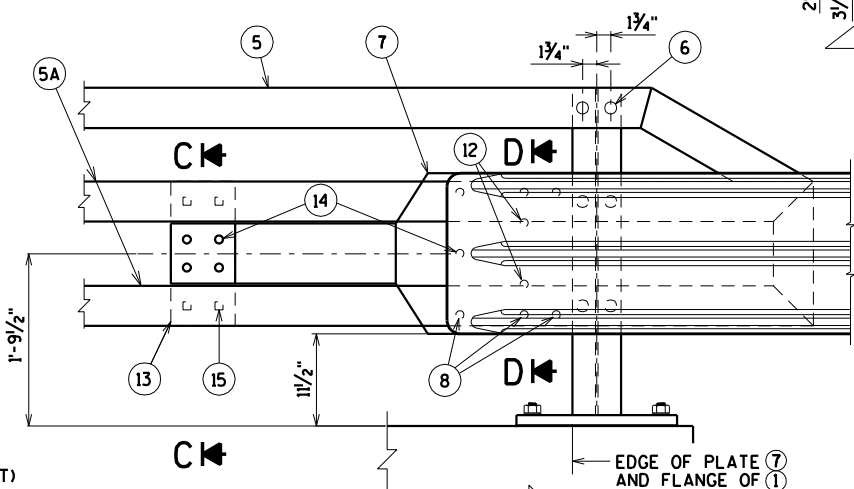
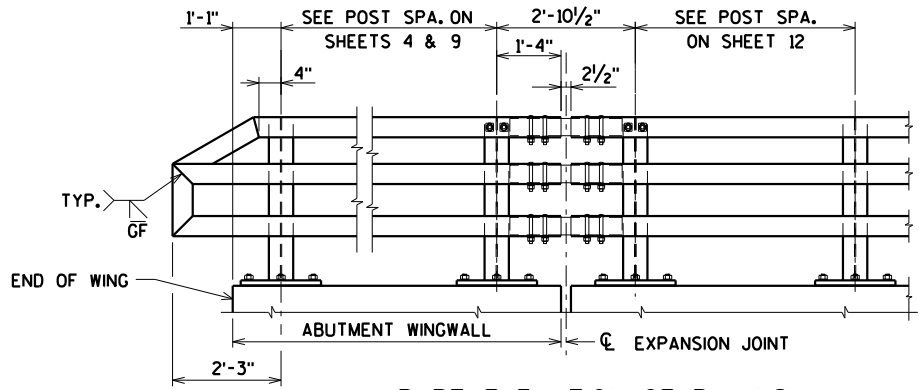
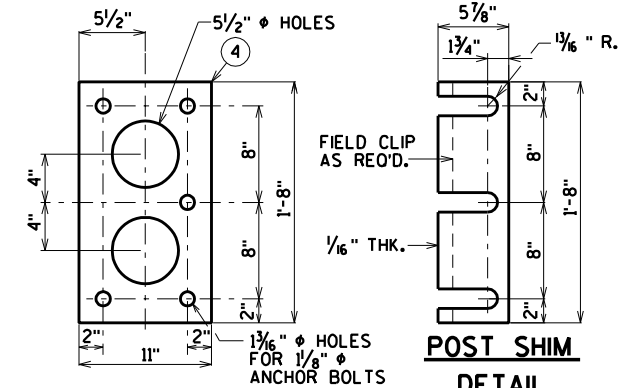
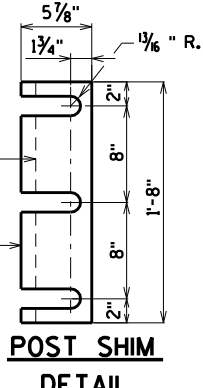
- ① W6 x 25 WITH 1/8" x 1/2" HORIZ. SLOTS ON EACH SIDE OF POST FOR BOLT NO. 6. CUT BOTTOM OF POST TO MATCH CROSS SLOPE OF ROADWAY. PLACE POST VERTICAL. PLACE POSTS NORMAL TO GRADE LINE.
- ② PLATE 1/4" x 11 3/4" x 1'-8" WITH 1 5/8" x 1 5/8" SLOTTED HOLES FOR ANCHOR BOLTS NO. 3. WELD TO NO. 1 AS SHOWN. SLOTS PARALLEL TO SHORT SIDE OF PLATE.
- ③ ASTM A449 - 1 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 CONSTRUCTIBILITY.)
- ④ 5/8" x 11" x 1'-8" ANCHOR PLATE (GALVANIZED) WITH 1 5/8" 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, 3/8" x 1 5/8" x 1 5/8" 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" A325 ROUND HEAD BOLT WITH NUT, WASHER, AND LOCK WASHER. USE 1 5/8" x 1 1/4" LONGIT. SLOTTED HOLES AT FIELD JOINTS AND 1 5/8" x 2 1/4" MIN. LONGIT. SLOTTED HOLES AT EXP. JOINTS IN PLATE NO. 10A.
- 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.

**SECTION THRU POST WEB****SECTION THRU RAIL**

NOTE: CONNECTIONS AT LOWER RAILS SHOWN. CONNECTIONS AT TOP RAIL SIMILAR.

TYPICAL RAIL TO POST CONNECTIONS**BACK-UP PLATE DETAIL
(AT BEAM GUARD ATTACHMENT)****GENERAL NOTES**

1. BID ITEM SHALL BE "RAILING TUBULAR TYPE M B-50-28" 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 S.S.P.C. SPECIFICATIONS.
10. WHEN PAINTING IS REQUIRED, ALL MATERIAL EXCEPT ANCHORAGE DETAIL (NO. 3 & 4) SHALL BE PAINTED OVER GALVANIZING WITH APPROVED TIE COAT AND TOP COAT.
11. THIS RAILING MEETS NCHRP REPORT 350 EVALUATION CRITERIA FOR TEST LEVEL 4 (TL-4).

**SECTION C****SECTION D****SECTION THRU RAILING ON DECK****SECTION A****FIELD ERECTION JOINT DETAIL****SHOP RAIL SPLICE DETAIL
(LOCATION MUST BE SHOWN
ON THE SHOP DRAWINGS)****SECTION B****ANCHOR BOLTS****TOP VIEW AT END POST
(THRIE BEAM RAIL ATTACHMENT)****DETAIL AT END POST
(THRIE BEAM RAIL ATTACHMENT)****PART ELEVATION OF RAILING****ANCHOR PLATE
(AT RAIL TO DECK CONNECTION)****POST SHIM
DETAIL**

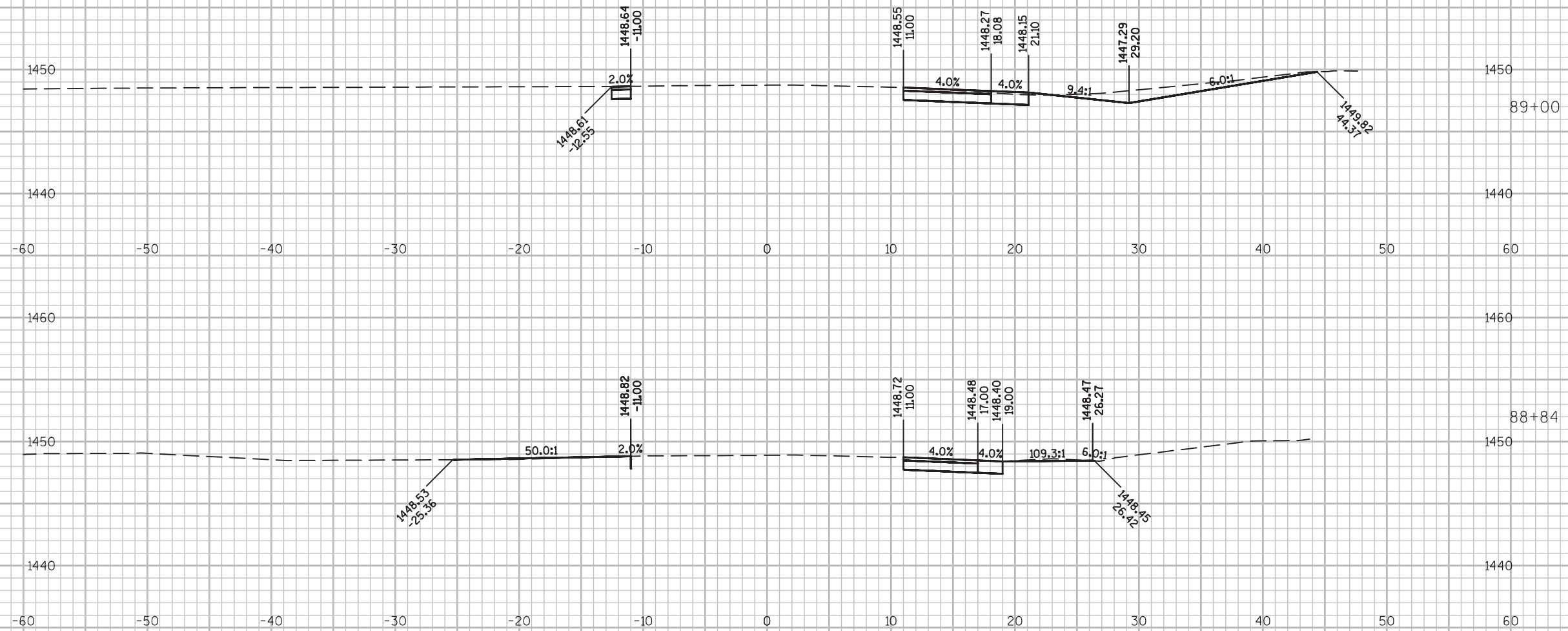
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-50-28			
DRAWN BY CLS		PLANS CK'D. CBM	
RAILING TUBULAR TYPE M			SHEET 18 OF 18

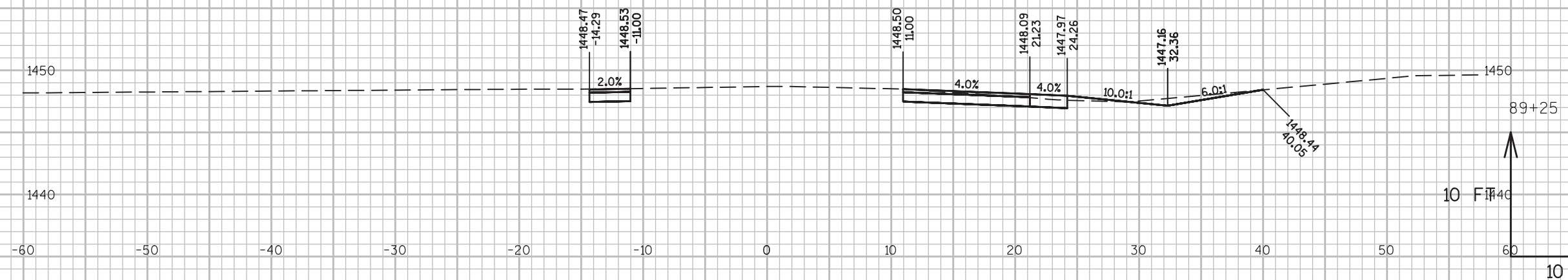
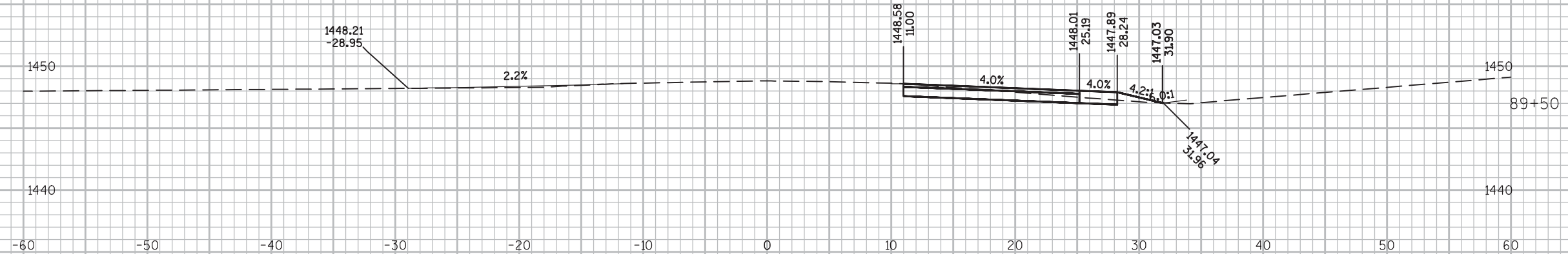
STATION	DISTANCE	AREA (SF)				INCREMENTAL VOL (CY) (UNADJUSTED)				CUMULATIVE VOL (CY)		MASS ORDINATE NOTE 5
		CUT	UNUSABLE PAVEMENT MATERIAL	FILL	EBS	CUT NOTE 1	UNUSABLE PAVEMENT MATERIAL NOTE 2	FILL NOTE 3	EBS	CUT 1.00 NOTE 1	EXPANDED FILL 1.25 NOTE 4	
88+84	---	9	2	0	0	---	---	---	---	---	---	---
89+00	16	20	2	0	0	9	1	0	0	9	0	8
89+25	25	18	2	1	0	18	2	1	0	26	1	23
89+50	25	27	2	1	0	21	2	1	0	47	2	41
89+69	19	32	2	1	0	20	1	1	0	68	3	59
89+94	26	93	2	0	0	59	2	1	0	127	4	116
90+19	25	68	2	2	0	75	2	1	0	202	5	188
90+50	31	34	10	12	0	58	7	8	0	260	15	229
90+75	25	1	15	28	0	16	11	19	0	276	39	210
90+81	6	4	15	12	0	1	3	5	0	277	45	202
				COLUMN TOTALS		277	30	36	0			

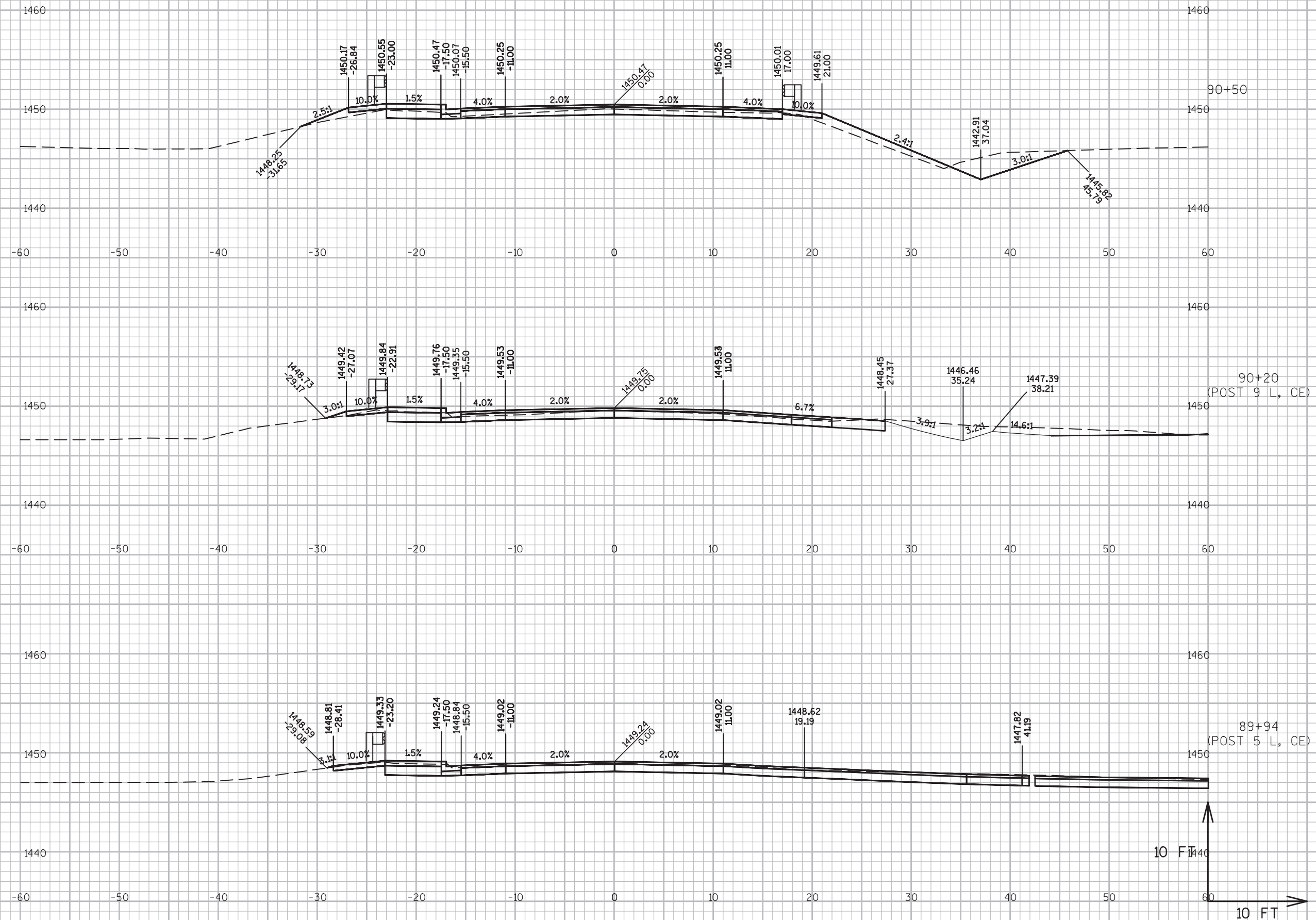
NOTES:
1) CUT INCLUDES UNUSABLE PAVEMENT MATERIAL
2) UNUSABLE PAVEMENT MATERIAL DOES NOT APPEAR IN THE CROSS SECTIONS
3) FILL DOES NOT INCLUDE UNUSABLE PAVEMENT MATERIAL EXCAVATION VOLUME
4) EXPANDED FILL = UNEXPANDED FILL * EXPANDED FILL FACTOR. EXPANDED FILL FACTOR = 1.25
5) MASS ORDINATE = (CUT - UNUSABLE PAVEMENT MATERIAL) - (FILL * FILL FACTOR)

STATION	DISTANCE	AREA (SF)				INCREMENTAL VOL (CY) (UNADJUSTED)				CUMULATIVE VOL (CY)		MASS ORDINATE NOTE 5
		CUT	UNUSABLE PAVEMENT MATERIAL	FILL	EBS	CUT NOTE 1	UNUSABLE PAVEMENT MATERIAL NOTE 2	FILL NOTE 3	EBS	CUT 1.00 NOTE 1	EXPANDED FILL 1.25 NOTE 4	
92+82	---	2	5	6	0	---	---	---	---	---	---	---
93+00	18	27	5	11	0	10	4	6	0	10	7	-1
93+25	25	30	5	1	0	26	5	5	0	36	14	14
93+44	19	27	5	4	0	20	4	2	0	56	16	28
93+69	25	28	5	19	0	26	5	11	0	82	30	35
93+93	25	33	5	25	0	28	5	20	0	110	55	32
94+25	32	39	5	14	0	42	6	23	0	152	84	40
94+50	25	45	5	7	0	39	5	10	0	191	95	62
94+75	25	46	5	0	0	42	5	3	0	233	99	95
95+00	25	24	1	0	0	32	3	0	0	265	99	124
95+25	25	0	1	0	0	11	1	0	0	277	99	135
				COLUMN TOTALS		277	42	80	0			

NOTES:
1) CUT INCLUDES UNUSABLE PAVEMENT MATERIAL
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5) MASS ORDINATE = (CUT - UNUSABLE PAVEMENT MATERIAL) - (FILL * FILL FACTOR)







PROJECT NO: 9480-00-70

HWY: CTH H

COUNTY: PRICE

CROSS SECTIONS: CTH H

SHEET

E

FILE NAME : P:\2015\2015.100 - PRICE CTY - CTH H, DUROY STH 13\94800000\SHEETSPLAN\090201-XS.DWG
LAYOUT NAME - 090204

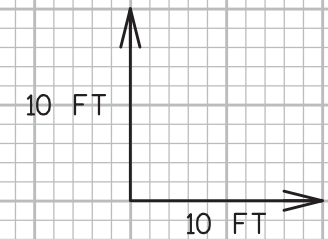
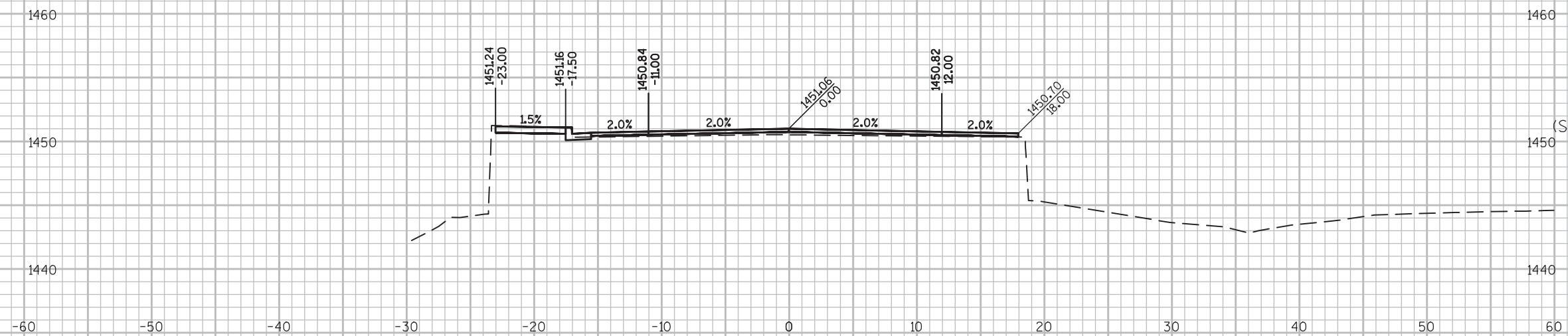
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PLOT BY : JED MATTMILLER

PLOT NAME :

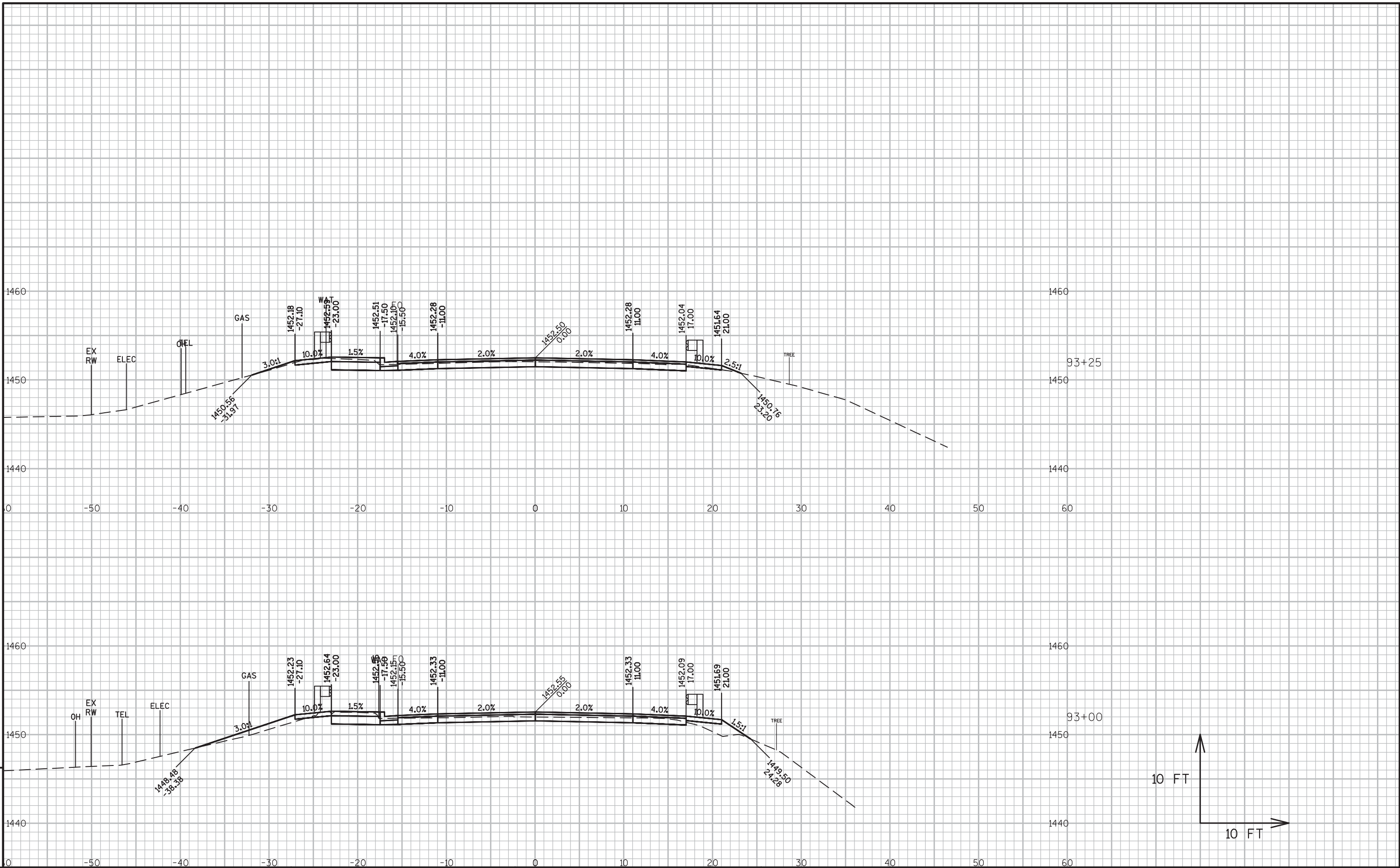
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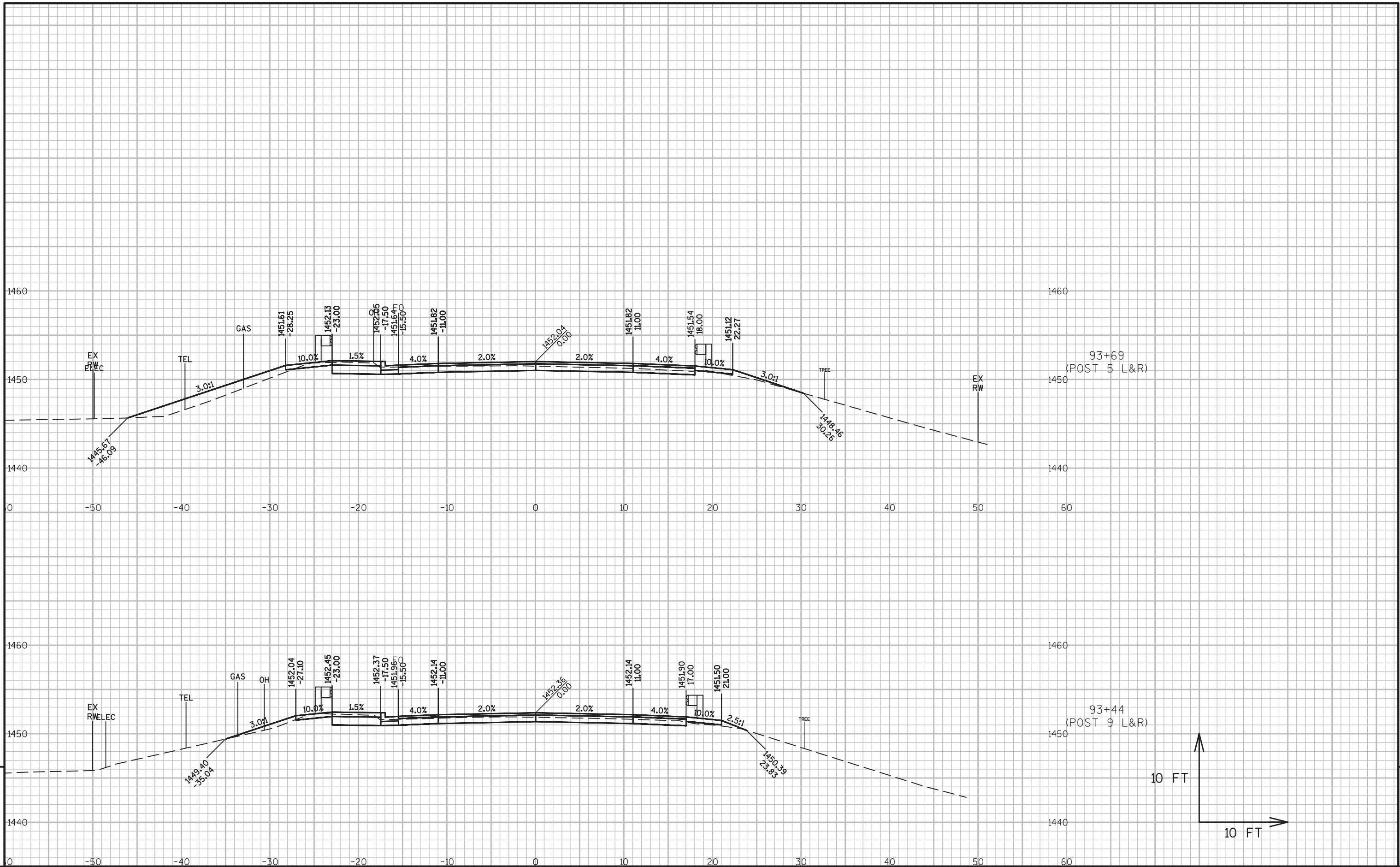
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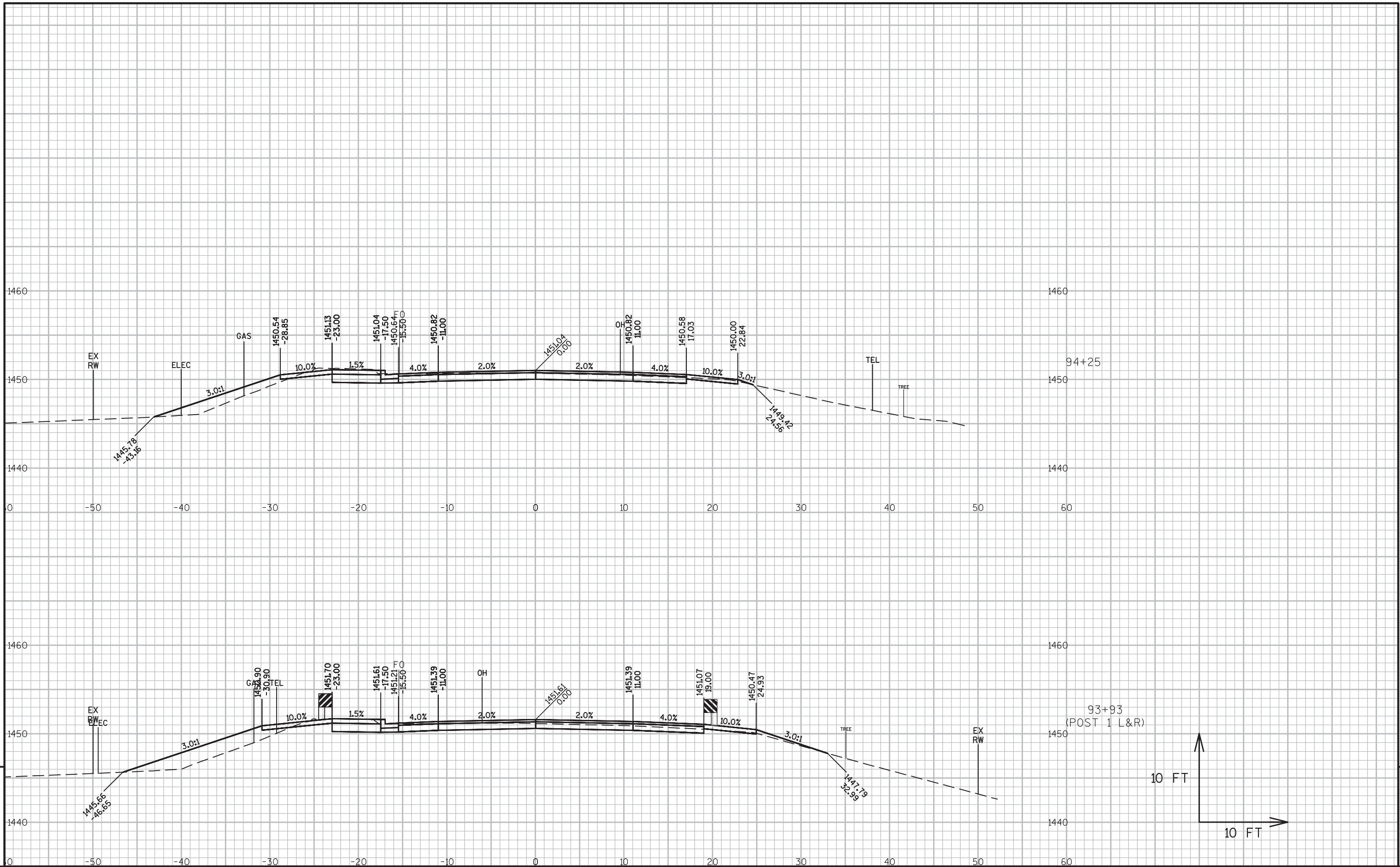


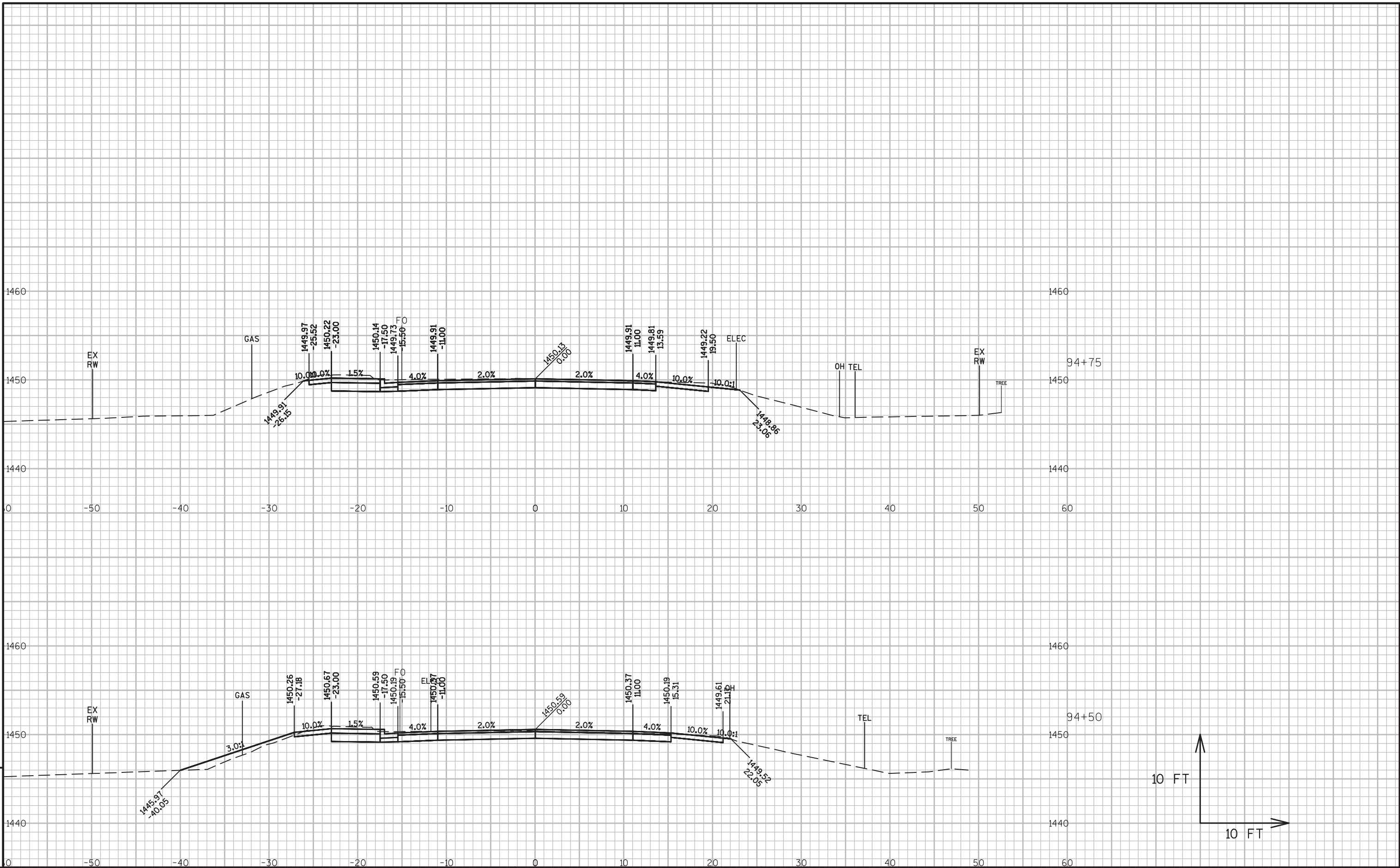
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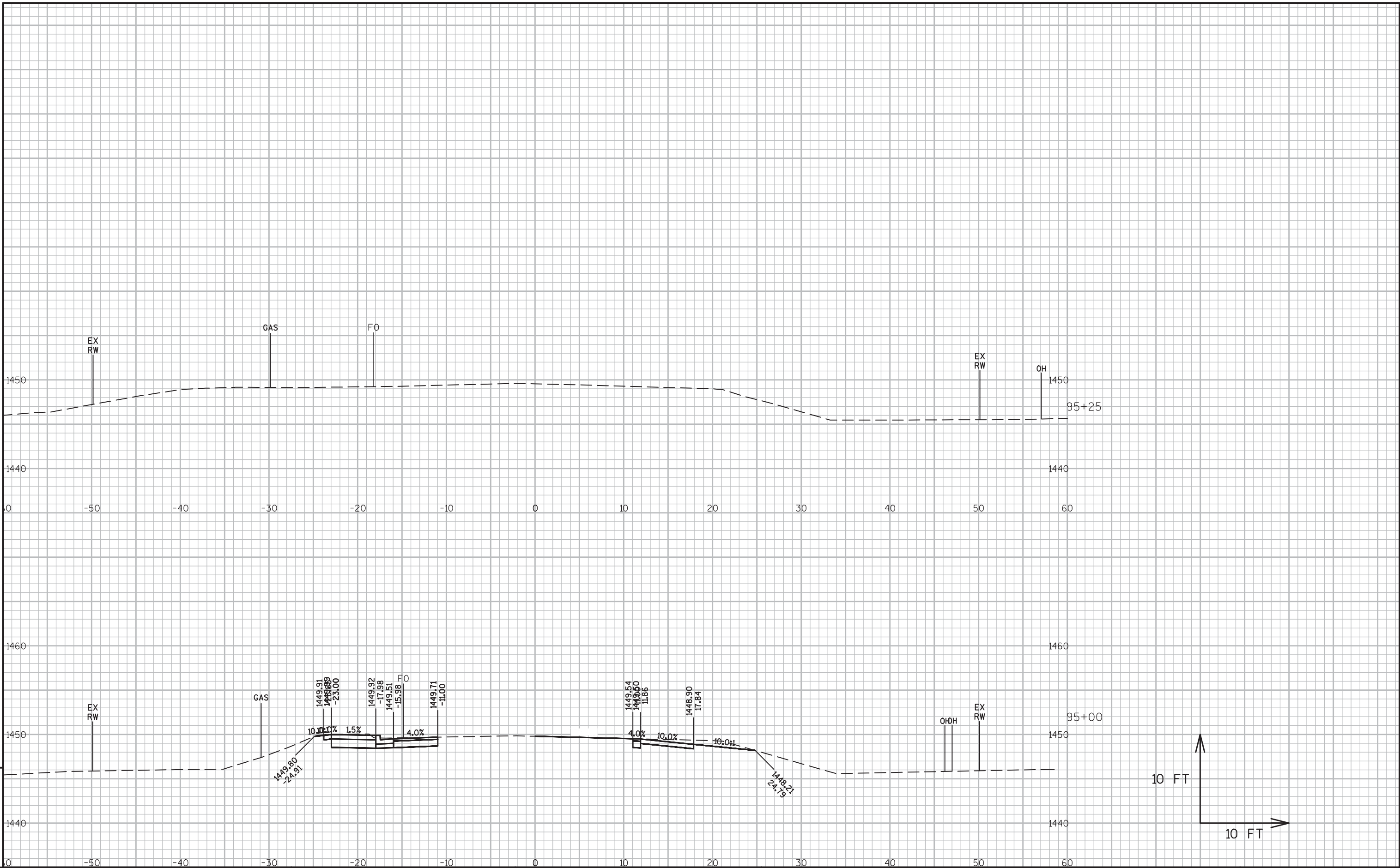
9











Notes



Wisconsin Department of Transportation

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