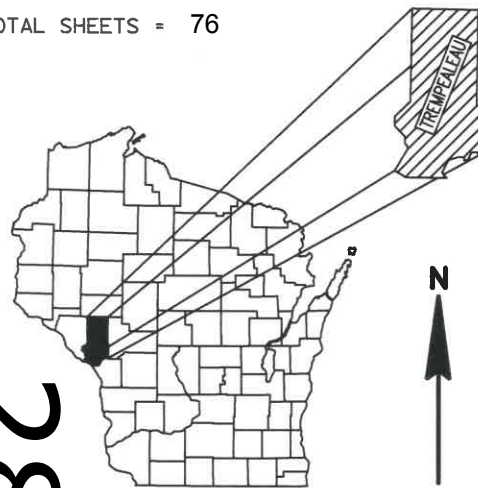


FEBRUARY 2018

ORDER OF SHEETS

Section No.	1	Title
Section No.	2	Typical Sections and Details
Section No.	3	Estimate of Quantities
Section No.	3	Miscellaneous Quantities
Section No.	4	Right of Way Plat
Section No.	5	Plan and Profile (Includes Erosion Control Plans)
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 = 76



DESIGN DESIGNATION

A.A.D.T.	2018	=	380
A.A.D.T.	2038	=	395
D.H.V.		=	30
D.D.		=	50/50
T.		=	6% (ASSUMED)
DESIGN SPEED		=	35 - 55 MPH
ESALS		=	44,000

CONVENTIONAL SYMBOLS

PLAN	
CORPORATE LIMITS	////
PROPERTY LINE	---
LOT LINE	---
LIMITED HIGHWAY EASEMENT	---
EXISTING RIGHT OF WAY	---
PROPOSED OR NEW R/W LINE	---
SLOPE INTERCEPT	300' 30"
REFERENCE LINE	---
EXISTING CULVERT	---
PROPOSED CULVERT (Box or Pipe)	---
COMBUSTIBLE FLUIDS	CAUTION
MARSH AREA	---
WOODED OR SHRUB AREA	---

PROFILE	
GRADE LINE	---
ORIGINAL GROUND	---
MARSH OR ROCK PROFILE (To be noted as such)	---
SPECIAL DITCH	---
GRADE ELEVATION	95.36
CULVERT (Profile View)	---
UTILITIES	---
ELECTRIC	---
FIBER OPTIC	---
GAS	---
SANITARY SEWER	---
STORM SEWER	---
TELEPHONE	---
WATER	---
UTILITY PEDESTAL	---
POWER POLE	---
TELEPHONE POLE	---

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PLAN OF PROPOSED IMPROVEMENT

CTH E - CTH 00

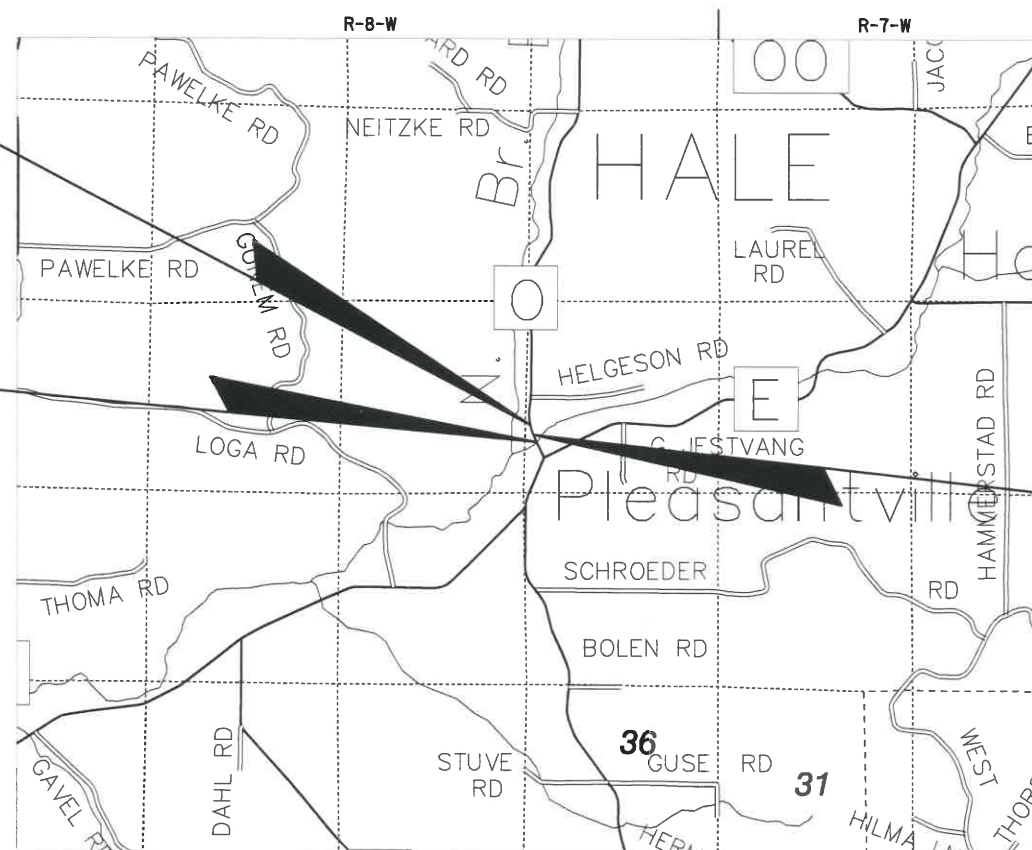
(ELK CREEK BRIDGE B610222)

CTH 0

TREMPLEALEAU COUNTY

STATE PROJECT NUMBER

7175-00-70

END PROJECT 7175-00-70
STA. 12+00.00BEGIN PROJECT 7175-00-70
STA. 8+25.00
Y = 471,448.059
X = 859,063.318STRUCTURE B-61-0222
STA 10+00LAYOUT
SCALE 0 1 MILE

TOTAL NET LENGTH OF CENTERLINE = 0.071 MI

COORDINATES ON THIS PLAN ARE REFERENCED TO THE WISCONSIN COUNTY
COORDINATE SYSTEM (WCCS), TREMPLEALEAU COUNTY

STATE PROJECT

7175-00-70

FEDERAL PROJECT

PROJECT

WISC 2018100

CONTRACT

1

ACCEPTED FOR

COUNTY of TREMPLEALEAU

Date: 2/12/17 Dave Supra
COUNTY HIGHWAY COMMISSIONER

ORIGINAL PLANS PREPARED BY

ISG

Architecture
Engineering
Environmental
Planning

www.is-grp.com

I+S GROUP

WISCONSIN
PROFESSIONAL ENGINEER
WILLIAM A. KRATT
E-40457
LA CROSSE WI
Date: 2/12/17 William A. Kratt (Signature)STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PREPARED BY

Surveyor I+S GROUP, INC.
Designer I+S GROUP, INC.
Management Consultant KNIGHT E/A, INC.

APPROVED FOR THE DEPARTMENT

DATE: 2/25/17 Ryan B. McKenney
(Management Consultant Signature)

E

GENERAL NOTES

NO TREES OR SHRUBS SHALL BE REMOVED UNLESS SUCH TREES OR SHRUBS HAVE BEEN DESIGNATED FOR REMOVAL BY THE ENGINEER.

DISTURBED AREAS WITHIN THE RIGHT-OF-WAY ARE TO BE TOPSOILED, FERTILIZED, SEEDED, AND MULCHED AS DIRECTED BY THE ENGINEER.

TOPSOIL IS TO BE PLACED AND SPREAD TO A UNIFORM DEPTH OF 4 INCHES AT A MINIMUM.

CONTRACTOR WILL BE RESPONSIBLE FOR RESHAPING AND SEEDING ANY PREVIOUSLY GRASSED AREAS WHICH ARE DISTURBED BY THEIR OPERATION OUTSIDE OF NORMAL CONSTRUCTION LIMITS.

LOCATION OF UNDERGROUND UTILITIES AS SHOWN ON THE PLAN ARE APPROXIMATE. THERE MAY BE OTHER UTILITY INSTALLATIONS WITHIN THE PROJECT AREA THAT ARE NOT SHOWN.

WHEN PORTIONS OF EXISTING ASPHALTIC SURFACES ARE TO BE REMOVED TO ACCOMMODATE NEW CONSTRUCTION, THE LINE OF SUCH REMOVAL SHALL BE NEATLY DELINEATED WITH A SAW CUT JOINT THROUGH THE ASPHALTIC SURFACE SO THAT REMOVAL OF THE ASPHALT SHALL BE ACCOMPLISHED WITHOUT DAMAGE TO REMAINING PORTIONS. THE LOCATION OF SAW JOINTS AND THE AMOUNT REMOVED AT SIDE ROADS WILL BE DETERMINED IN THE FIELD BY THE ENGINEER.

THE EXACT LOCATION OF PRIVATE AND FIELD ENTRANCES ARE TO BE DETERMINED IN THE FIELD BY THE ENGINEER.

THE CONTRACTOR SHALL MAINTAIN ACCESS TO ALL DRIVEWAYS AT ALL TIMES.

ELEVATIONS SHOWN ON THIS PLAN ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM (NAVD) 88 (2007).

UTILITIES

MIDWEST NATURAL GAS INC.
ATTN: RANDY RISEN
OFFICE: 608-781-1011
CELL: 715-577-1941
EMAIL: RANDYR@MIDWESTNATURALGAS.COM
3600 STATE HIGHWAY 157
P.O. BOX 429
LA CROSSE, WI, 54602

CHARTER COMMUNICATIONS
ATTN: SHANE YODER
TELEPHONE: 715-831-8940
EMAIL: SHANE.YODER@CHARTER.COM
1201 MCCANN DRIVE
ALTOONA, WI, 54720

TRI-COUNTY COMMUNICATIONS COOP
ATTN: BRIAN MELSNESS
OFFICE: 715-695-2801
CELL: 715-530-0081
EMAIL: BMELSNESS@TCCPRO.NET
417 5TH AVENUE NORTH
P.O. BOX 578
STRUM, WI, 54770



DESIGN CONTACT

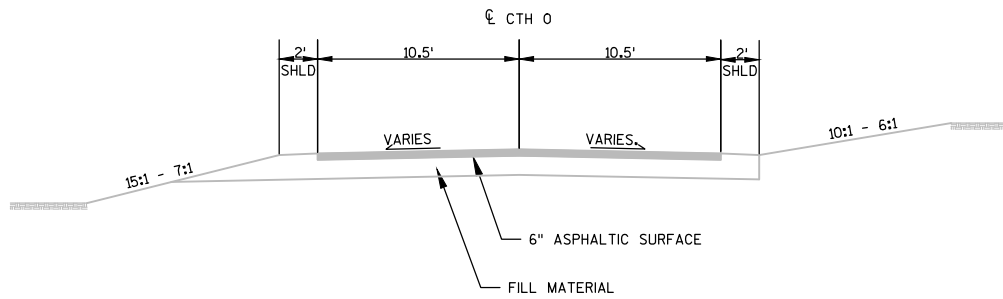
I+S GROUP, INC.
ATTN: WILL KRATT
TELEPHONE: 608-789-2034
EMAIL: WILL.KRATT@IS-GRP.COM
201 MAIN STREET
SUITE 710
LA CROSSE, WI 54601

TREMPEALEAU COUNTY, HIGHWAY COMMISSIONER
ATTN: DAVE LYGA
TELEPHONE: 715-538-4799
EMAIL: LYGAD@TRIWEST.NET
N36258 CTH QQ
P.O. BOX 97
WHITEHALL, WI 54773

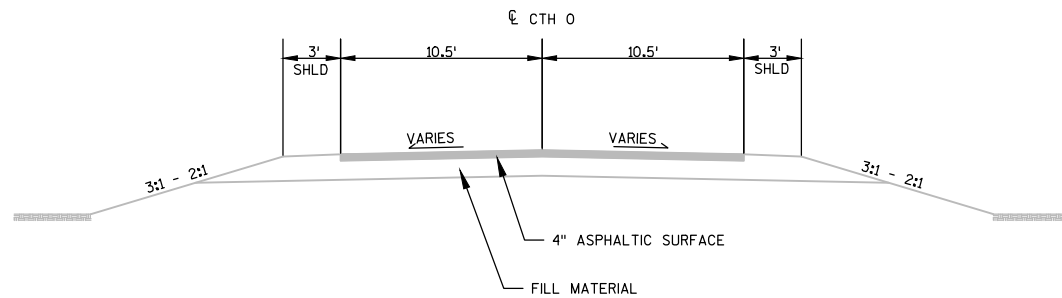
DNR LIAISON

DNR SERVICE CENTER
ATTN: KAREN KALVELAGE
TELEPHONE: 608-785-9115
EMAIL: KAREN.KALVELAGE@WISCONSIN.GOV
3550 MORMON COULEE ROAD
LA CROSSE, WI 54601

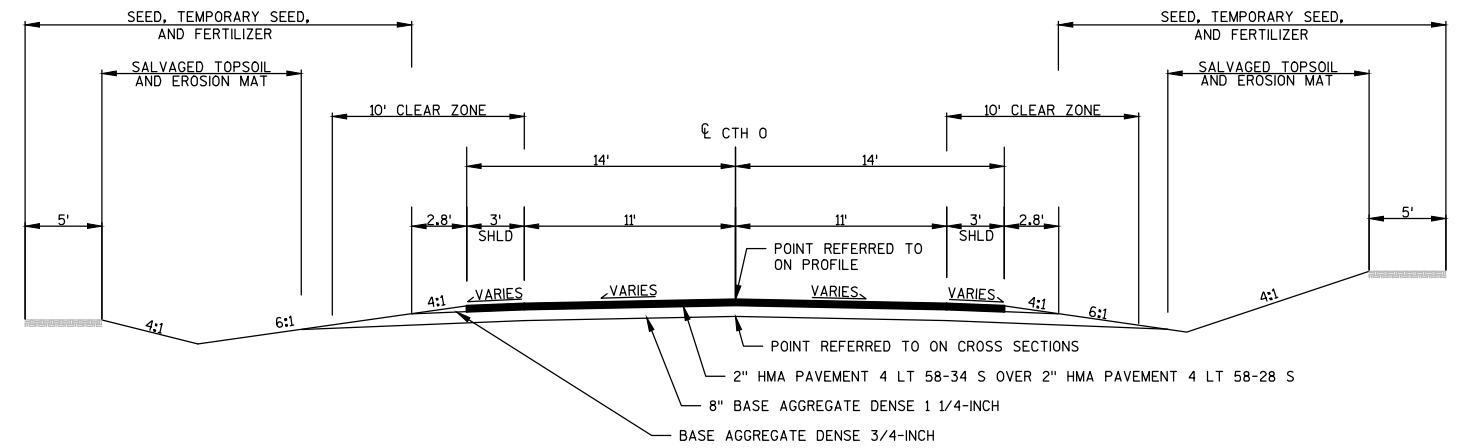
	HYDROLOGIC SOIL GROUP											
	A			B			C			D		
	SLOPE RANGE (PERCENT)			SLOPE RANGE (PERCENT)			SLOPE RANGE (PERCENT)			SLOPE RANGE (PERCENT)		
LAND USE:	0 - 2	2 - 6	6 & OVER	0 - 2	2 - 6	6 & OVER	0 - 2	2 - 6	6 & OVER	0 - 2	2 - 6	6 & OVER
ROW CROPS	.08	.16	.22	.12	.20	.27	.15	.24	.33	.19	.28	.38
	.22	.30	.38	.26	.34	.44	.30	.37	.50	.34	.41	.56
MEDIAN STRIP-TURF	.19	.20	.24	.19	.22	.26	.20	.23	.30	.20	.25	.30
	.24	.26	.30	.25	.28	.33	.26	.30	.37	.27	.32	.40
SIDE SLOPE-TURF			.25			.27			.28			.30
			.32			.34			.36			.38
PAVEMENT:												
ASPHALT						.70 - .95						
CONCRETE						.80 - .95						
BRICK						.70 - .80						
DRIVES, WALKS						.75 - .85						
ROOFS						.75 - .95						
GRAVEL ROADS, SHOULDERS						.40 - .60						
TOTAL PROJECT AREA = 6.06 ACRES												
TOTAL EXPECTED DISTURBED AREA = 0.63 ACRES												



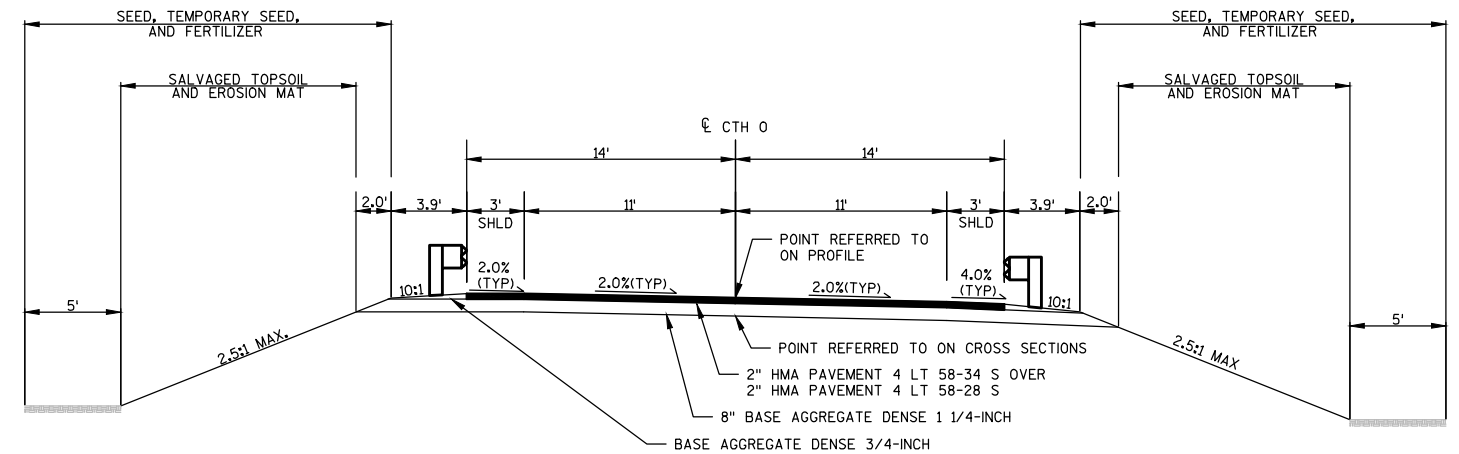
EXISTING TYPICAL SECTION
CTH 0
8+25.00 - 8+80.00



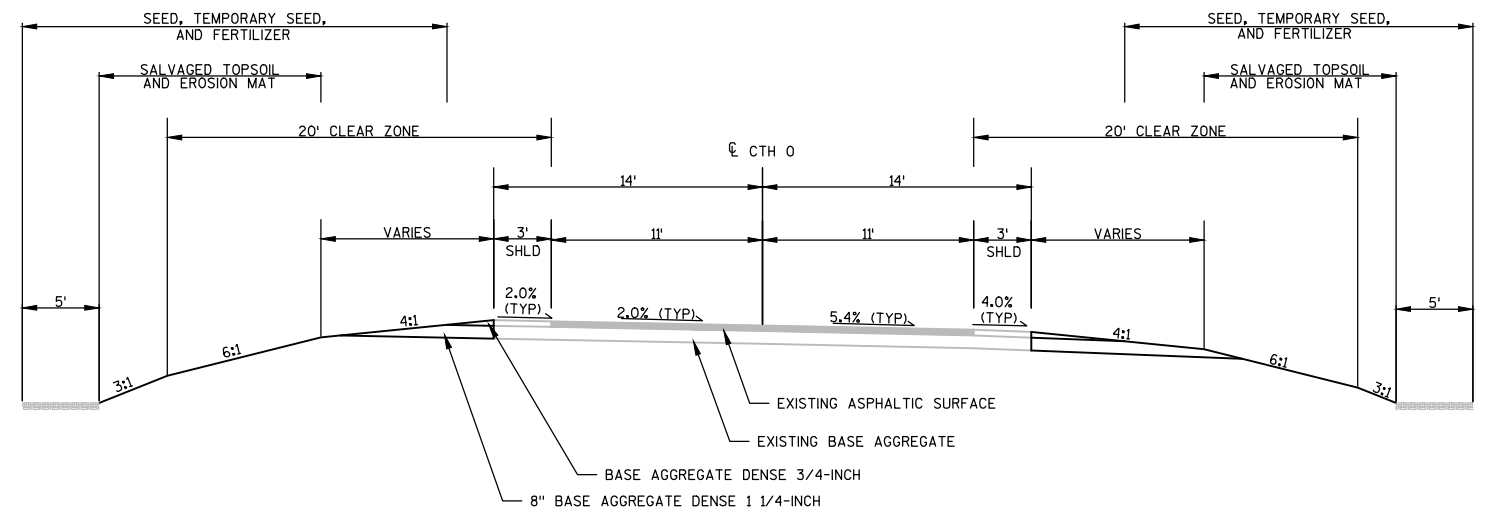
EXISTING TYPICAL SECTION
CTH 0
8+80.00 - 12+00.00



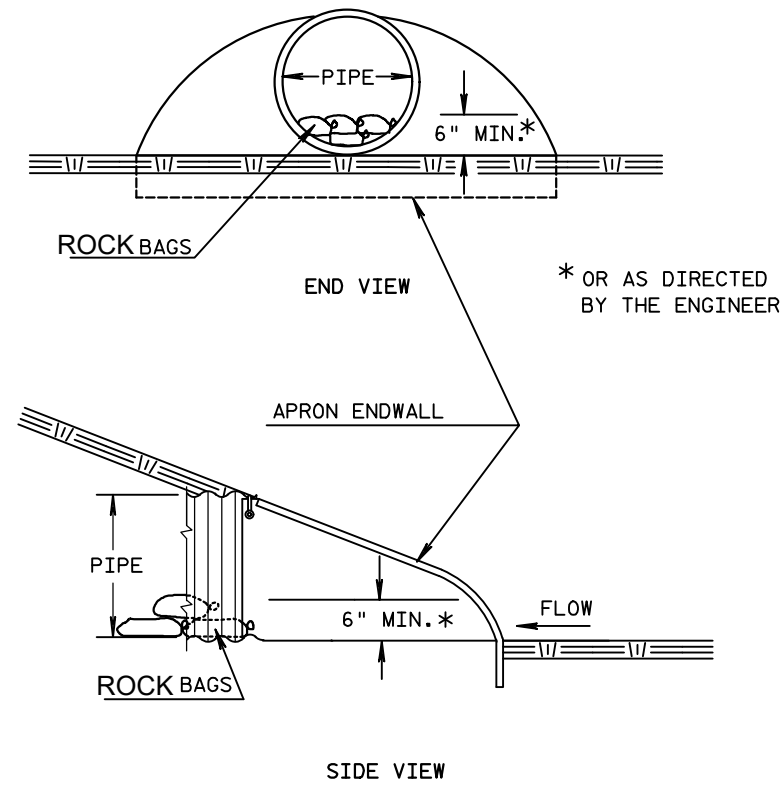
TYPICAL FINISHED SECTION
CTH 0
8+25.00 - 8+78.91



TYPICAL FINISHED SECTION
CTH 0
8+78.91 - 9+60.00
10+40.00 - 12+00.00



TYPICAL FINISHED SECTION
CTH 0
12+00.00 - 12+50.00



CULVERT PIPE DITCH CHECK

2

NOTES

THE EXACT NUMBER, LOCATION AND SPACING OF ALL SIGNS AND DEVICES SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE MUTCD. ADJUSTMENTS TO FIT FIELD CONDITIONS SHALL BE APPROVED BY THE ENGINEER.

ALL TRAFFIC CONTROL SIGNS ARE 48" X 48" UNLESS NOTED OTHERWISE IN THE PLANS.

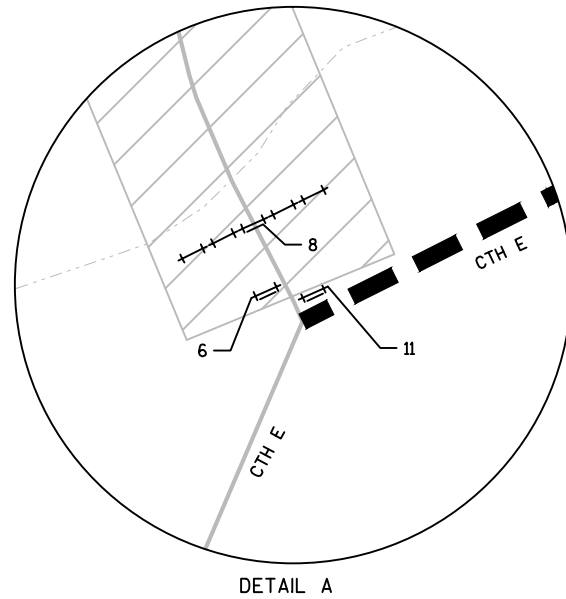
"WO" SIGNS ARE THE SAME AS "W" SIGNS AND "MO" SIGNS ARE THE SAME AS "M" SIGNS EXCEPT THE BACKGROUND IS ORANGE.

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





THE SPACING BETWEEN TRAFFIC CONTROL AND DETOUR SIGNS SHOULD BE ADJUSTED TO PROVIDE A DESIRABLE MINIMUM OF 200 FEET CLEARANCE TO EXISTING SIGNS THAT WILL REMAIN IN PLACE.

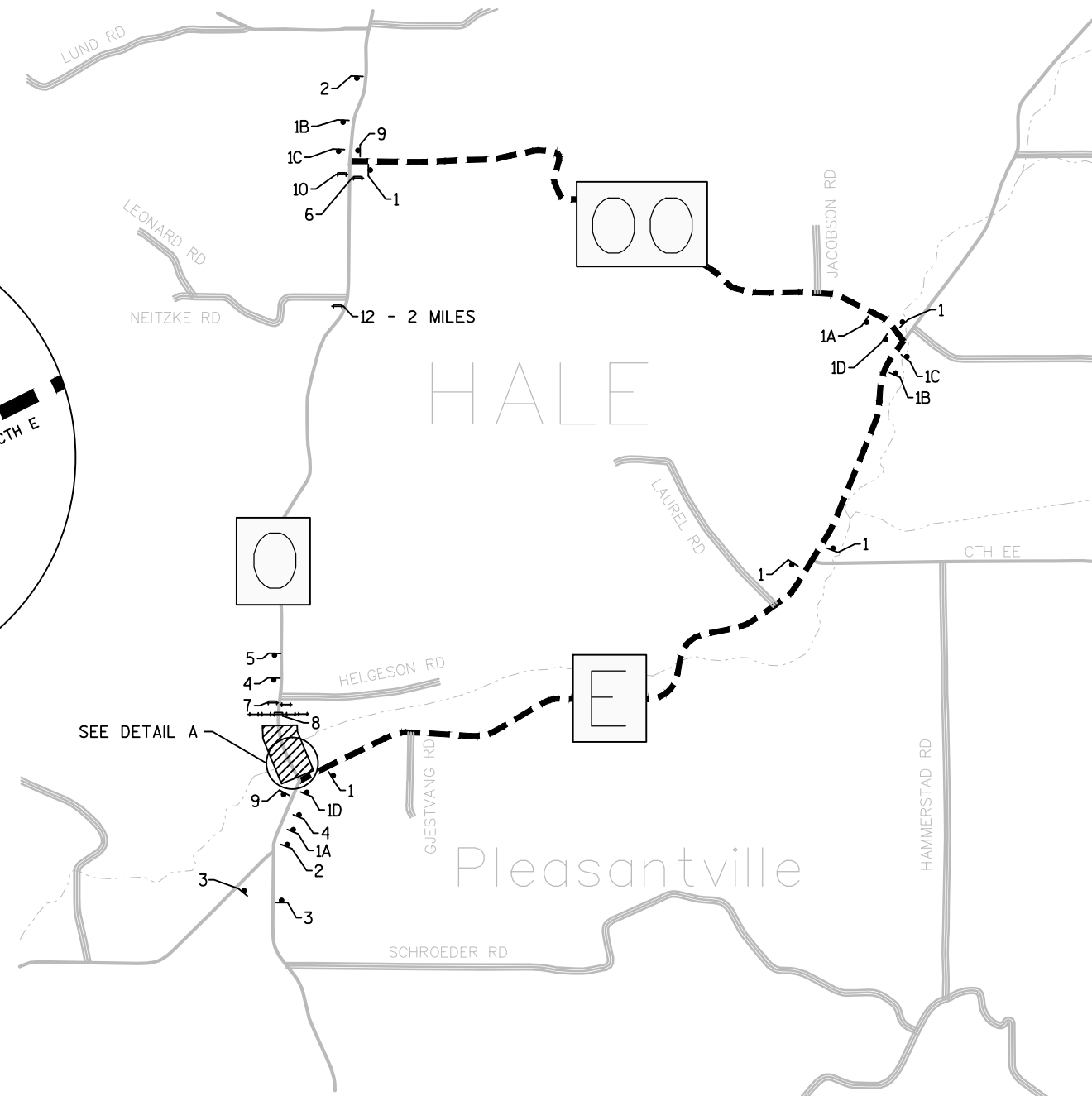
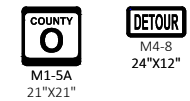
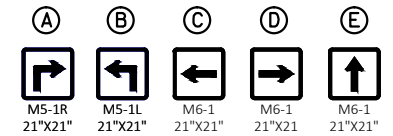
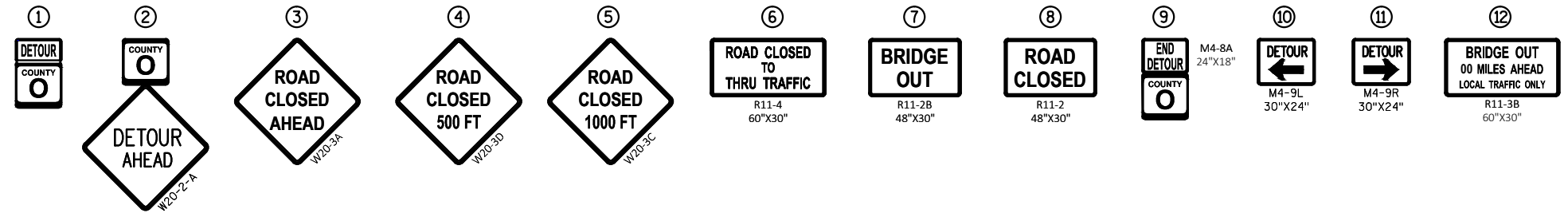
ANY STOP SIGNS WHICH ARE REMOVED FOR A CONSTRUCTION OPERATION SHALL BE IMMEDIATELY RE-ESTABLISHED.

REFER TO STANDARD DETAIL DRAWINGS FOR TRAFFIC CONTROL
DETAILS NO SHOWN ON THIS SHEET.



LEGEND

- | | |
|---|---|
|  | SIGN ON PERMANENT SUPPORT |
|  | TRAFFIC CONTROL BARRICADE TYPE
III WITH/WITHOUT ATTACHED SIGN
AND TYPE A WARNING LIGHTS |
|  | DETOUR ROUTE |
|  | WORK ZONE |



PROJECT NO: 7175-00-70

HWY: CTH 0

COUNTY: TREMPLEAU

DETOUR PLAN

SHEET

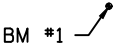
2

Alignment: CTH O - Proposed
Layer: P_ALI-Base



Tangent: N: 471,448.059 E: 859,063.318 Station: 8+25.00
Distance: 249.44 ft Bearing: N 27° 09' 15.9287" W

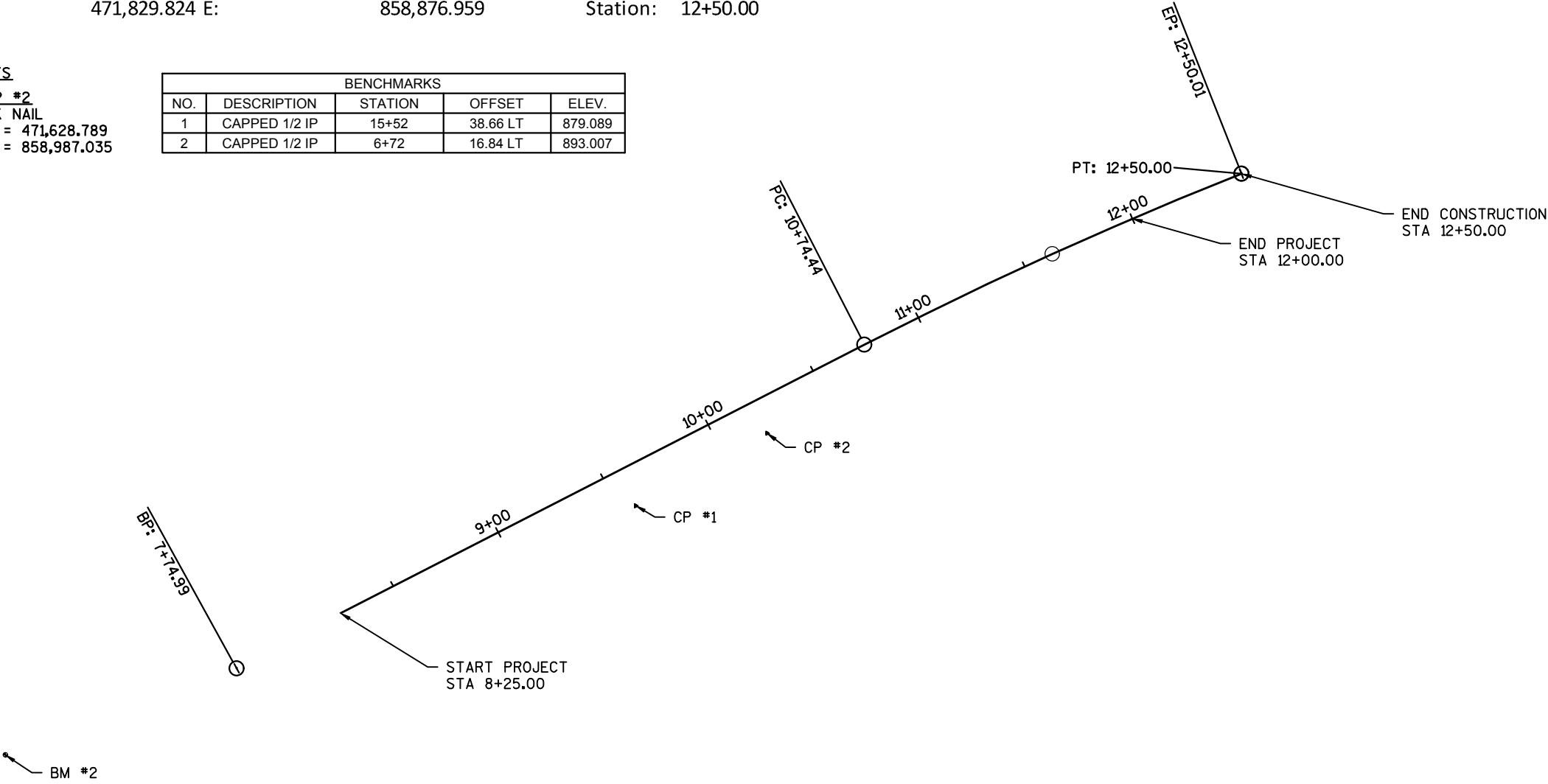
Arc: PC N: 471,670.007 E: 858,949.475 Station: 10+74.44
PI N: 471,748.171 E: 858,909.383 Station: 11+62.29
Delta: 05° 29' 47.4167"
Radius: 1830.00 ft
Length: 175.556 ft
Mid-Ord: 2.105 ft
Chord: 175.488 ft
Tangent: 87.845 ft
External: 2.107 ft
Course: N 24° 24' 22.2204" W
PT N: 471,829.824 E: 858,876.959 Station: 12+50.00



CONTROL POINTS

CP #1	CP #2
PK NAIL	PK NAIL
Y = 471,573.080	Y = 471,628.789
X = 859,017.795	X = 858,987.035

BENCHMARKS				
NO.	DESCRIPTION	STATION	OFFSET	ELEV.
1	CAPPED 1/2 IP	15+52	38.66 LT	879.089
2	CAPPED 1/2 IP	6+72	16.84 LT	893.007



Estimate Of Quantities

7175-00-70					
Line	Item	Item Description	Unit	Total	Qty
0002	201.0105	Clearing	STA	5.000	5.000
0004	201.0205	Grubbing	STA	5.000	5.000
0006	203.0600.S	Removing Old Structure Over Waterway With Minimal Debris (station) 01. 10+00	LS	1.000	1.000
0008	205.0100	Excavation Common	CY	347.000	347.000
0010	206.1000	Excavation for Structures Bridges (structure) 01. B-61-0222	LS	1.000	1.000
0012	208.0100	Borrow	CY	752.000	752.000
0014	210.1500	Backfill Structure Type A	TON	136.000	136.000
0016	213.0100	Finishing Roadway (project) 01. 7175-00-70	EACH	1.000	1.000
0018	305.0110	Base Aggregate Dense 3/4-Inch	TON	75.000	75.000
0020	305.0120	Base Aggregate Dense 1 1/4-Inch	TON	550.000	550.000
0022	455.0605	Tack Coat	GAL	55.000	55.000
0024	460.2000	Incentive Density HMA Pavement	DOL	150.000	150.000
0026	460.5244	HMA Pavement 4 LT 58-34 S	TON	220.000	220.000
0028	502.0100	Concrete Masonry Bridges	CY	274.000	274.000
0030	502.3200	Protective Surface Treatment	SY	339.000	339.000
0032	505.0400	Bar Steel Reinforcement HS Structures	LB	7,040.000	7,040.000
0034	505.0600	Bar Steel Reinforcement HS Coated Structures	LB	24,838.000	24,838.000
0036	513.4061	Railing Tubular Type M (structure) 01. B-61-0222	LF	210.000	210.000
0038	516.0500	Rubberized Membrane Waterproofing	SY	18.000	18.000
0040	550.2104	Piling CIP Concrete 10 3/4 X 0.25-Inch	LF	1,385.000	1,385.000
0042	606.0300	Riprap Heavy	CY	332.000	332.000
0044	612.0406	Pipe Underdrain Wrapped 6-Inch	LF	130.000	130.000
0046	614.0200	Steel Thrie Beam Structure Approach	LF	42.000	42.000
0048	614.0305	Steel Plate Beam Guard Class A	LF	75.000	75.000
0050	614.0345	Steel Plate Beam Guard Short Radius	LF	50.000	50.000
0052	614.0390	Steel Plate Beam Guard Short Radius Terminal	EACH	2.000	2.000
0054	614.2300	MGS Guardrail 3	LF	150.000	150.000
0056	614.2500	MGS Thrie Beam Transition	LF	78.000	78.000
0058	614.2610	MGS Guardrail Terminal EAT	EACH	2.000	2.000
0060	618.0100	Maintenance And Repair of Haul Roads (project) 01. 7175-00-70	EACH	1.000	1.000
0062	619.1000	Mobilization	EACH	1.000	1.000
0064	624.0100	Water	MGAL	15.000	15.000
0066	625.0500	Salvaged Topsoil	SY	1,381.000	1,381.000
0068	627.0200	Mulching	SY	100.000	100.000
0070	628.1504	Silt Fence	LF	660.000	660.000
0072	628.1520	Silt Fence Maintenance	LF	660.000	660.000
0074	628.1905	Mobilizations Erosion Control	EACH	3.000	3.000

Estimate Of Quantities

7175-00-70

Line	Item	Item Description	Unit	Total	Qty
0076	628.1910	Mobilizations Emergency Erosion Control	EACH	2.000	2.000
0078	628.2008	Erosion Mat Urban Class I Type B	SY	1,380.000	1,380.000
0080	628.6005	Turbidity Barriers	SY	25.000	25.000
0082	628.7555	Culvert Pipe Checks	EACH	9.000	9.000
0084	629.0210	Fertilizer Type B	CWT	1.280	1.280
0086	630.0120	Seeding Mixture No. 20	LB	38.000	38.000
0088	630.0200	Seeding Temporary	LB	19.000	19.000
0090	633.5100	Markers Row	EACH	8.000	8.000
0092	634.0616	Posts Wood 4x6-Inch X 16-FT	EACH	8.000	8.000
0094	637.2210	Signs Type II Reflective H	SF	25.000	25.000
0096	637.2230	Signs Type II Reflective F	SF	21.000	21.000
0098	638.2102	Moving Signs Type II	EACH	1.000	1.000
0100	638.2602	Removing Signs Type II	EACH	9.000	9.000
0102	638.3000	Removing Small Sign Supports	EACH	9.000	9.000
0104	642.5001	Field Office Type B	EACH	1.000	1.000
0106	643.0420	Traffic Control Barricades Type III	DAY	1,564.000	1,564.000
0108	643.0705	Traffic Control Warning Lights Type A	DAY	2,208.000	2,208.000
0110	643.0900	Traffic Control Signs	DAY	5,060.000	5,060.000
0112	643.5000	Traffic Control	EACH	1.000	1.000
0114	645.0111	Geotextile Type DF Schedule A	SY	92.000	92.000
0116	645.0120	Geotextile Type HR	SY	396.000	396.000
0118	646.1020	Marking Line Epoxy 4-Inch	LF	1,500.000	1,500.000
0120	650.4500	Construction Staking Subgrade	LF	295.000	295.000
0122	650.5000	Construction Staking Base 01. B-61-0222	LF	295.000	295.000
0124	650.6500	Construction Staking Structure Layout (structure) 01. B-61-0222	LS	1.000	1.000
0126	650.9910	Construction Staking Supplemental Control (project) 01. 7175-00-70	LS	1.000	1.000
0128	650.9920	Construction Staking Slope Stakes	LF	295.000	295.000
0130	690.0150	Sawing Asphalt	LF	48.000	48.000
0132	715.0502	Incentive Strength Concrete Structures	DOL	1,650.000	1,650.000
0134	ASP.1T0A	On-the-Job Training Apprentice at \$5.00/HR	HRS	1,200.000	1,200.000
0136	ASP.1T0G	On-the-Job Training Graduate at \$5.00/HR	HRS	300.000	300.000

CLEARING AND GRUBBING

STATION	TO	STATION	LOCATION	CLEARING 201.0105	GRUBBING 201.0205	REMARKS
				STA	STA	
8+00	-	13+00	LT & RT	5	5	
PROJECT TOTALS =				5	5	

CTH O EARTHWORK SUMMARY

STATION TO STATION	LOCATION	COMMON EXCAVATION (1)	UNEXPANDED FILL	EXPANDED FILL (2)	MASS ORDINATE +/- (3)	WASTE	BORROW (ITEM 208.0100)	COMMENT:
		CUT		FACTOR 1.30				
8+25 - 12+50	CTH O	347	1099	1429	-752		752	

- 1) COMMON EXCAVATION IS THE CUT. ITEM NUMBER 205.0100.
- 2) EXPANDED FILL FACTOR = 1.30; EXPANDED FILL = UNEXPANDED FILL * FILL FACTOR
- 3) THE MASS ORDINATE + OR - QTY CALCULATED FOR THE DIVISION. PLUS QUANTITY INDICATES AN EXCESS OF MATERIAL ON THE PROJECT.
- 4) ALL QUANTITIES SHOWN IN CY.

FINISHING ROADWAY 7175-00-70

LOCATION	213.0100	
	EACH	REMARKS
PROJECT 7175-00-70	1	MAINLINE
PROJECT TOTALS =	1	

BASE AGGREGATE

STATION	TO	STATION	LOCATION	BASE AGGREGATE DENSE 3/4-Inch 305.0110	BASE AGGREGATE DENSE 1 1/4-Inch 305.0120	REMARKS
				TON	TON	
8+25	-	9+60	BOP - BRIDGE	50	250	
10+40	-	12+00	BRIDGE - EOP	25	300	
PROJECT TOTALS =				75	550	

ASPHALT PAVEMENT

STATION	TO	STATION	LOCATION	TACK COAT 455.0605	HMA PAVEMENT 4 LT 58-34 S 460.5244
				GAL	TON
8+25	-	9+60	BOP - BRIDGE	25	100
10+40	-	12+00	BRIDGE - EOP	30	120
PROJECT TOTALS =				55	220

GUARDRAIL ITEMS

STATION	TO	STATION	LOCATION	STEEL THRIE BEAM STRUCTURE APPROACH 614.0200	STEEL PLATE BEAM GUARD CLASS A 614.0305	STEEL PLATE BEAM GUARD SHORT RADIUS 614.0345	STEEL PLATE BEAM GUARD SHORT RADIUS 614.0390	MGS GUARDRAIL 3 614.2300	MGS THRIE BEAM TRANSITION 614.2500	MGS GUARDRAIL TERMINAL EAT 614.2610	REMARKS
				LF	LF	LF	EACH	LF	LF	EACH	
8+83			LT & RT	-	-	-	2	-	-	-	8' RADIUS
8+83	-	8+92	LT & RT	-	-	50	-	-	-	-	
8+92	-	9+30	LT & RT	-	75	-	-	-	-	-	
9+30	-	9+50	LT & RT	42	-	-	-	-	-	-	
10+49	-	10+88	LT & RT	-	-	-	-	-	78	-	
10+88	-	11+58	LT & RT	-	-	-	-	150	-	-	
12+11			LT & RT	-	-	-	-	-	-	2	
PROJECT TOTALS =				42	75	50	2	150	78	2	

3

<div>MOBILIZATION</div> <div><div>619.1000</div><div>LOCATIONEACH</div><div>PROJECT 7175-00-701</div><div>PROJECT TOTALS =1</div></div>						<div>TOPSOIL, SEEDING, FERTILIZER, AND EROSION MAT</div> <div><div><div>STATION TO STATIONLOCATIONSY</div><div>8+26 - 8+61 LT44</div><div>8+26 - 8+61 RT48</div><div>8+70 - 9+35 RT84</div><div>10+65 - 12+48 LT547</div><div>10+65 - 12+48 RT508</div><div>UNDISTRIBUTED150</div><div>PROJECT TOTALS =1381</div></div><div><div><div>MULCHINGSY</div><div>-</div><div>-</div><div>-</div><div>-</div><div>-</div><div>100</div><div>100</div></div><div><div><div>EROSION MAT URBAN CLASS I TYPE BSY</div><div>44</div><div>48</div><div>84</div><div>547</div><div>508</div><div>150</div><div>1380</div></div><div><div><div>FERTILIZER TYPE BCWT</div><div>0.03</div><div>0.03</div><div>0.05</div><div>0.34</div><div>0.32</div><div>0.5</div><div>1.28</div></div><div><div><div>SEEDING MIXTURE NO. 20LB</div><div>1</div><div>1</div><div>2</div><div>15</div><div>14</div><div>5</div><div>38</div></div><div><div><div>SEEDING TEMPORARY 630.0200LB</div><div>0.5</div><div>0.5</div><div>1.0</div><div>7.5</div><div>7.0</div><div>2.5</div><div>19</div></div></div></div></div></div></div></div>													
<div>WATER</div> <div><div>624.0100</div><div>STATION TO STATIONLOCATIONMGALREMARKS</div><div>8+25 - 9+60BOP - BRIDGE6COMPACTION</div><div>10+40 - 12+00BRIDGE - EOP7COMPACTION</div><div>8+25 - 12+00PROJECT2DUST CONTROL</div><div>PROJECT TOTALS =15</div></div>																			
<div>EROSION CONTROL ITEMS</div> <div><div><div>STATION TO STATIONLOCATIONLF</div><div>8+25 - 9+60 LT85</div><div>8+50 RT-</div><div>8+58 LT-</div><div>9+65 LT & RT-</div><div>10+40 - 12+50 RT240</div><div>10+40 - 12+50 LT235</div><div>UNDISTRIBUTED100</div><div>PROJECT TOTALS =660</div></div><div><div><div>SILT FENCE 628.1504LFSILT FENCE MAINTENANCE 628.1520LFSILT FENCE BARRIERS 628.6005SYCULVERT PIPE CHECKS 628.7555EACH</div><div>85</div><div>-</div><div>-</div><div>-</div><div>20</div><div>-</div><div>-</div><div>5</div><div>3</div></div><div><div><div>REMARKS</div><div></div><div>3</div><div>3</div><div>-</div><div>-</div><div>-</div><div>3</div><div></div></div></div></div></div>										<div>EROSION CONTROL MOBILIZATION</div> <div><div><div>MOBILIZATIONS EROSION CONTROL 628.1905EACH</div><div>PROJECT 7175-00-703</div><div>PROJECT TOTALS =3</div></div><div><div><div>MOBILIZATIONS EMERGENCY EROSION 628.1910EACH</div><div>2</div><div>2</div></div></div></div>									
<div>MARKERS ROW</div> <div><div>633.5100</div><div>STATIONLOCATIONEACHREMARKS</div><div>7+75.00 35.44 LT1</div><div>7+75.00 40.00 LT1</div><div>9+90.00 40.00 LT1</div><div>9+90.00 50.00 LT1</div><div>11+79.01 52.23 LT1</div><div>8+80.03 45.00 RT1</div><div>7+75.01 45.00 RT1</div><div>7+75.01 30.60 RT1</div><div>PROJECT TOTALS =8</div></div>				<div>FIELD OFFICE TYPE B</div> <div><div>642.5001</div><div>LOCATIONEACH</div><div>PROJECT 7175-00-701</div><div>PROJECT TOTALS =1</div></div>				<div>TRAFFIC CONTROL</div> <div><div>643.5000</div><div>LOCATIONEACH</div><div>PROJECT 7175-00-701</div><div>PROJECT TOTALS =1</div></div>				<div>PAVEMENT MARKINGS</div> <div><div><div>MARKING LINE EPOXY 4-INCH 646.1020LF</div><div>STATION TO STATIONLOCATIONREMARKS</div><div>8+25 - 12+00DOUBLE YELLOW CL750</div><div>8+25 - 12+00WHITE EDGE LINES750</div><div>PROJECT TOTALS =1,500</div></div></div>							
PROJECT NO: 7175-00-70				HWY: CTH O				COUNTY: TREMPLEALEU				MISCELLANEOUS QUANTITIES				SHEET		E	

REMOVING SIGN ITEMS				
STATION	LOCATION	REMOVING	REMOVING SMALL	REMARKS
		SIGNS TYPE II 638.2602 EACH	SIGN SUPPORTS 638.3000 EACH	
8+96	RT	1	1	COUNTY O/15 TON BRIDGE AHEAD
9+38	RT	-	-	ADOPT A HIGHWAY SPONSOR
9+63	LT	1	1	BRIDGE HASH MARKS
9+64	RT	1	1	BRIDGE HASH MARKS
10+36	RT	1	1	BRIDGE HASH MARKS
10+36	LT	1	1	BRIDGE HASH MARKS
10+62	LT	1	1	30 MPH
10+63	RT	1	1	55 MPH
11+15	RT	1	1	SNOWMOBILE XING
-	LT	1	1	NARROW BRIDGE, 460' NORTH OF EOP
PROJECT TOTALS =		9	9	

PERMANENT SIGNING								
STATION	LOCATION	SIGN CODE	SIGN SIZE IN X IN	POSTS WOOD	SIGNS TYPE II	SIGNS TYPE II	MOVING SIGNS	REMARKS
				4x6-INCH X 16-FT 634.0616 EACH	REFLECTIVE H 637.2210 SF	REFLECTIVE F 637.2230 SF	TYPE II 638.2102 EACH	
8+96	RT	R12-55	48 X 18	1	6.00	-	-	15 TON BRIDGE, 4 MILES AHEAD
8+96	RT	M1-5A	24 X 24	-	4.00	-	-	COUNTY O
9+38	RT	I55-56	30 X 36	-	-	-	1	ADOPT A HIGHWAY SPONSOR
9+60	LT	W5-52	12 X 36	1	-	3.00	-	BRIDGE MARKER
9+60	RT	W5-52	12 X 36	1	-	3.00	-	BRIDGE MARKER
10+40	LT	W5-52	12 X 36	1	-	3.00	-	BRIDGE MARKER
10+40	RT	W5-52	12 X 36	1	-	3.00	-	BRIDGE MARKER
10+62	RT	R2-1	30 X 36	1	7.50	-	-	55 MPH
10+62	LT	R2-1	30 X 36	1	7.50	-	-	30 MPH
11+15	RT	W11-6	36 X 36	1	-	9.00	-	SNOWMOBILE XING
PROJECT TOTALS =				8	25.00	21.00	1	

TRAFFIC CONTROL SUMMARY

LOCATION	TRAFFIC CONTROL BARRICADES TYPE III 643.0420		TRAFFIC CONTROL WARNING LIGHTS 643.0705		TRAFFIC CONTROL SIGNS 643.0900		REMARKS
	EACH	DAY	EACH	DAY	EACH	DAY	
PROJECT LIMITS - NORTH END	7	644	10	920	4	368	2 DETOUR SIGNS, 2 BARRICADE SIGNS
PROJECT LIMITS - SOUTH END	7	644	10	920	3	276	BARRICADE SIGNS
NB - CTH O / CTH E SOUTH OF PROJECT	-	-	-	-	13	1196	DETOUR SIGNS
SB - CTH O / CTH E SOUTH OF PROJECT	-	-	-	-	2	184	DETOUR SIGNS
NB/SB - CTH E AT CTH EE	-	-	-	-	4	368	DETOUR SIGNS
NB - CTH E AT CTH OO	-	-	-	-	6	552	DETOUR SIGNS
EB - CTH OO AT CTH E	-	-	-	-	6	552	DETOUR SIGNS
WB - CTH OO AT CTH E	-	-	-	-	2	184	DETOUR SIGNS
EB/WB - CTH OO AT CTH O	-	-	-	-	4	368	DETOUR SIGNS
SB - CTH O AT CTH OO	2	184	2	184	10	920	8 DETOUR SIGNS, 2 BARRICADE SIGNS
SB - CTH O AT NEITZKE RD	1	92	2	184	1	92	BARRICADE SIGN
PROJECT TOTALS =		1564		2208		5060	

SAWING ASPHALT

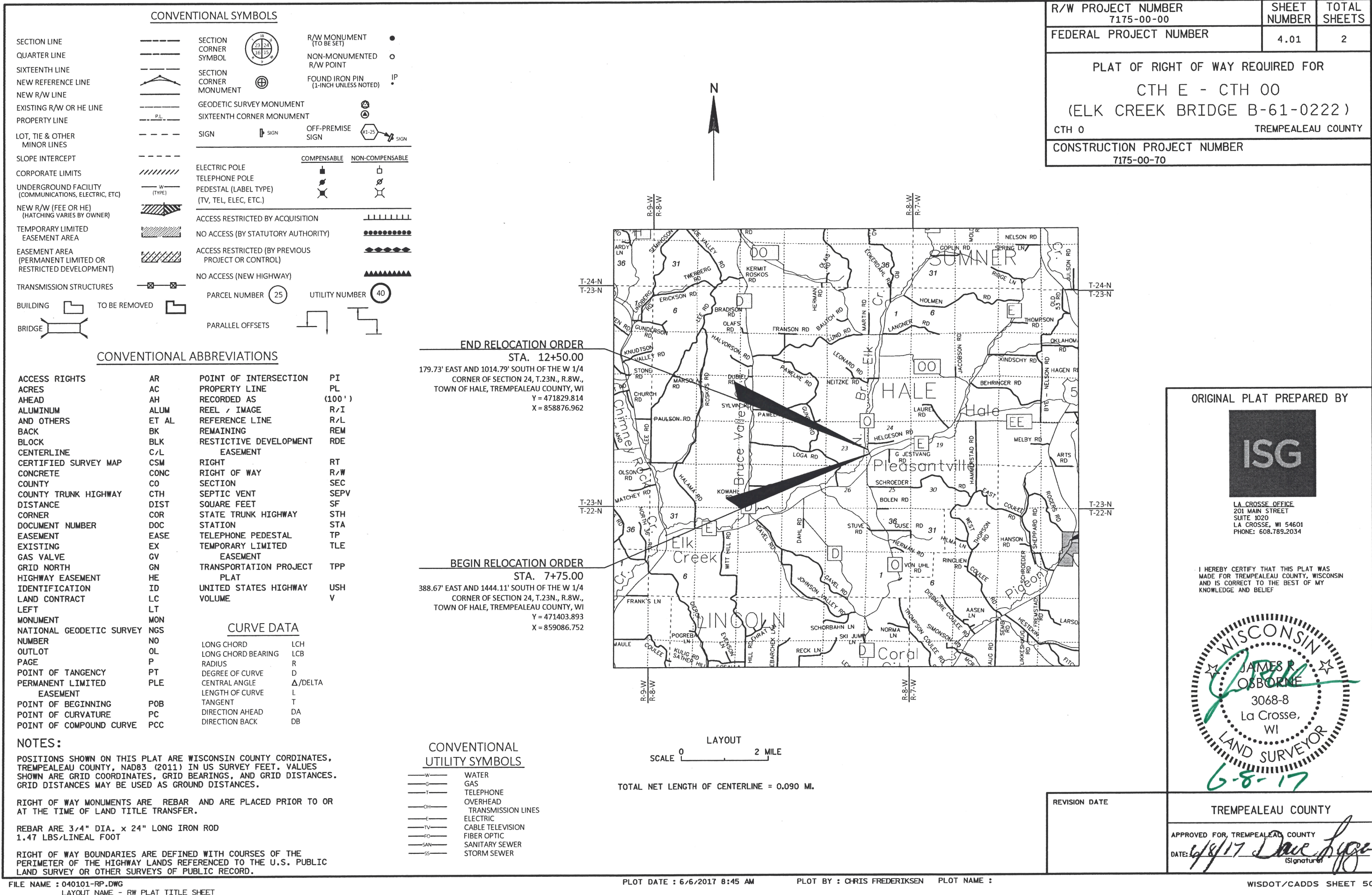
STATION	LOCATION	SAWING ASPHALT 690.0150		REMARKS
		LF		
8+25	MAINLINE	22		
12+00	MAINLINE	26		
PROJECT TOTALS =		48		

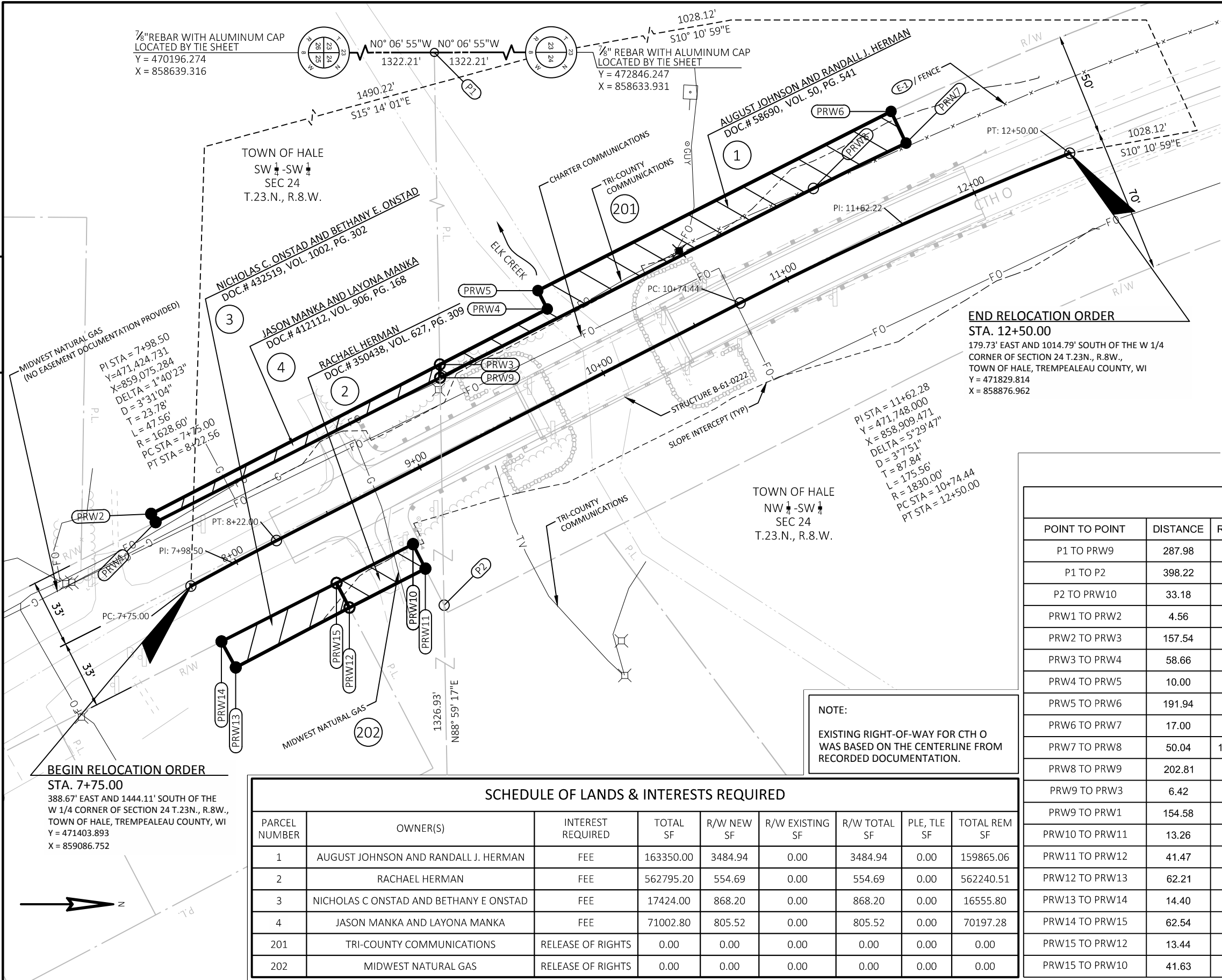
CONSTRUCTION STAKING

STATION	TO	STATION	LOCATION	CONSTRUCTION STAKING SUBGRADE 650.4500		CONSTRUCTION STAKING BASE 650.5000		CONSTRUCTION STAKING SLOPE STAKES 650.9920		REMARKS
				LF		LF		LF		
8+25	-	9+60	LT & RT	135		135		135		
10+40	-	12+00	LT & RT	160		160		160		
PROJECT TOTALS =				295		295		295		

CONSTRUCTION STAKING SUPPLEMENTAL CONTROL

LOCATION	650.9910		REMARKS
	LS		
PROJECT 7175-00-70	1		
PROJECT TOTALS =	1		





ENCROACHMENT TABLE			
NUMBER	OWNER	LOCATION	ENCROACHMENT TYPE
E-1	AUGUST JOHNSON AND RANDALL J. HERMAN	STA. 11+36.34 - 12+50.00, 34' LT.	FENCE

STATION & OFFSET TABLE				
POINT #	STATION	OFFSET	Y	X
PRW1	7+75.00	35.44 LT	471386.77	859055.72
PRW2	7+75.00	40.00 LT	471384.57	859051.73
PRW3	9+31.34	39.81 LT	471524.51	858979.36
PRW4	9+90.00	40.00 LT	471576.62	858952.42
PRW5	9+90.00	50.00 LT	471572.05	858943.52
PRW6	11+79.01	52.23 LT	471743.22	858856.67
PRW7	11+79.39	35.24 LT	471750.46	858872.06
PRW8	11+30.35	34.01 LT	471705.50	858894.03
PRW9	9+28.51	34.04 LT	471524.63	858985.79
PRW10	8+80.09	31.74 RT	471511.56	859066.42
PRW11	8+80.03	45.00 RT	471517.56	859078.24
PRW12	8+38.55	45.00 RT	471480.66	859097.17
PRW13	7+75.01	45.00 RT	471425.62	859126.16
PRW14	7+75.01	30.60 RT	471418.66	859113.55
PRW15	8+38.46	31.56 RT	471474.44	859085.25

RIGHT OF WAY LINE TABLE					
POINT TO POINT	DISTANCE	RADIUS	LINE/CHORD BEARING	CHORD DISTANCE	DELTA/CENTRAL AGGLE
P1 TO PRW9	287.98		N88° 59' 17"E		
P1 TO P2	398.22		N88° 59' 17"E		
P2 TO PRW10	33.18		S63° 06' 01"W		
PRW1 TO PRW2	4.56		S61° 07' 49"W		
PRW2 TO PRW3	157.54		N27° 20' 36"W		
PRW3 TO PRW4	58.66		N27° 20' 36"W		
PRW4 TO PRW5	10.00		S62° 50' 44"W		
PRW5 TO PRW6	191.94		N26° 54' 12"W		
PRW6 TO PRW7	17.00		N64° 48' 58"E		
PRW7 TO PRW8	50.04	1670.10	S26° 02' 32"E	50.04	001°43'00"
PRW8 TO PRW9	202.81		S26° 53' 59"E		
PRW9 TO PRW3	6.42		S88° 59' 17"W		
PRW9 TO PRW1	154.58		S26° 53' 59"E		
PRW10 TO PRW11	13.26		N63° 06' 01"E		
PRW11 TO PRW12	41.47		S27° 09' 16"E		
PRW12 TO PRW13	62.21		S27° 46' 32"E		
PRW13 TO PRW14	14.40		S61° 07' 29"W		
PRW14 TO PRW15	62.54		N26° 53' 59"W		
PRW15 TO PRW12	13.44		N62° 26' 27"E		
PRW15 TO PRW10	41.63		N26° 53' 59"W		

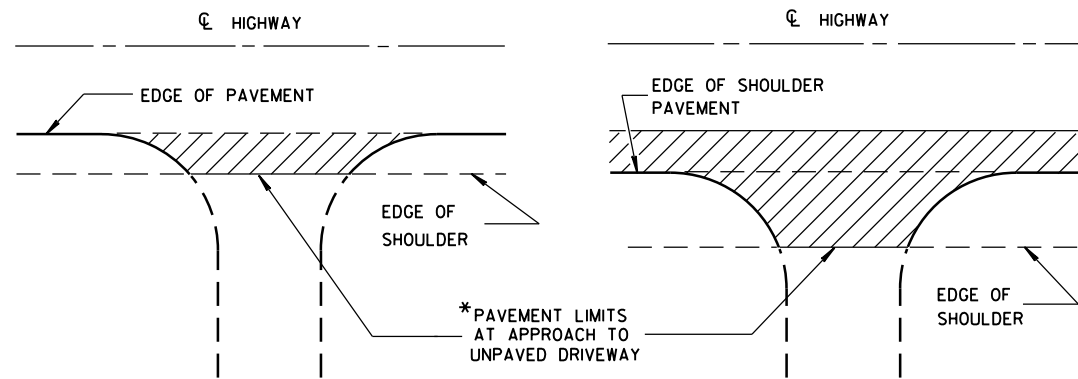
NOTE:
EXISTING RIGHT-OF-WAY FOR CTH O
WAS BASED ON THE CENTERLINE FROM
RECORDED DOCUMENTATION.

SCHEDULE OF LANDS & INTERESTS REQUIRED								
PARCEL NUMBER	OWNER(S)	INTEREST REQUIRED	TOTAL SF	R/W NEW SF	R/W EXISTING SF	R/W TOTAL SF	PLE, TLE SF	TOTAL REM SF
1	AUGUST JOHNSON AND RANDALL J. HERMAN	FEE	163350.00	3484.94	0.00	3484.94	0.00	159865.06
2	RACHAEL HERMAN	FEE	562795.20	554.69	0.00	554.69	0.00	562240.51
3	NICHOLAS C ONSTAD AND BETHANY E ONSTAD	FEE	17424.00	868.20	0.00	868.20	0.00	16555.80
4	JASON MANKA AND LAYONA MANKA	FEE	71002.80	805.52	0.00	805.52	0.00	70197.28
201	TRI-COUNTY COMMUNICATIONS	RELEASE OF RIGHTS	0.00	0.00	0.00	0.00	0.00	0.00
202	MIDWEST NATURAL GAS	RELEASE OF RIGHTS	0.00	0.00	0.00	0.00	0.00	0.00

REVISION DATE	DATE	<div>SCALE, FEET</div> <div><div><div></div><div></div><div></div></div><div>02550</div></div>	HWY: CTH O	STATE R/W PROJECT NUMBER7175-00-00	PLAT SHEET4.02	
	GRID FACTOR N/A		COUNTY: TREMPEALEU	CONSTRUCTION PROJECT NUMBER7175-00-70	PS&E SHEET	

Standard Detail Drawing List

08D21-01	DRIVEWAYS WITHOUT CURB & GUTTER
08E08-03	TYPICAL INSTALLATIONS OF EROSION BALES / TEMPORARY DITCH CHECKS
08E09-06	SILT FENCE
08E11-02	TURBIDITY BARRIER
12A03-10	NAME PLATE (STRUCTURES)
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
14B18-06A	STEEL PLATE BEAM GUARD, CLASS "A" (AT BRIDGES, OBSTACLES AND SIDEROADS/DRIVEWAYS)
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)
14B45-04H	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
15A01-13A	MARKER POST FOR RIGHT-OF-WAY
15C02-06A	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C02-06B	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C02-06C	DETOUR SIGNING FOR MAINLINE CLOSURES
15C03-03	BARRICADES AND SIGNS FOR SIDEROAD CLOSURES
15C06-08	SIGNING & MARKING FOR TWO LANE BRIDGES
15C08-17A	LONGITUDINAL MARKING (MAINLINE)
15D38-01B	ATTACHMENT OF SIGNS TO POSTS

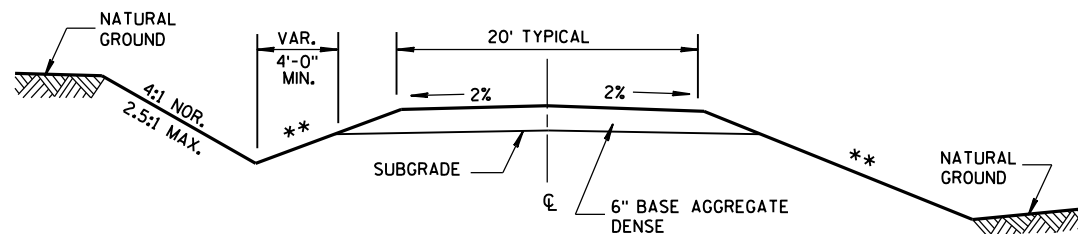


*WHERE DRIVEWAY IS PAVED, APPROACH PAVEMENT SHOULD BE EXTENDED TO MATCH DRIVEWAY PAVEMENT.

PLAN VIEW
(UNPAVED SHOULDER ON HIGHWAY)

PLAN VIEW
(PAVED SHOULDER ON HIGHWAY)

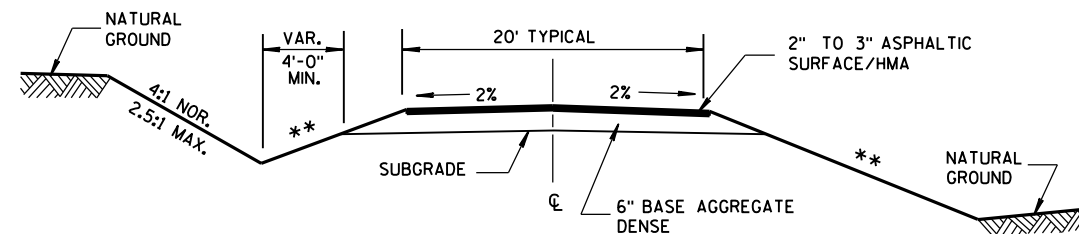
RURAL DRIVEWAY INTERSECTION DETAIL
(NO CURB & GUTTER OR SIDEWALK)



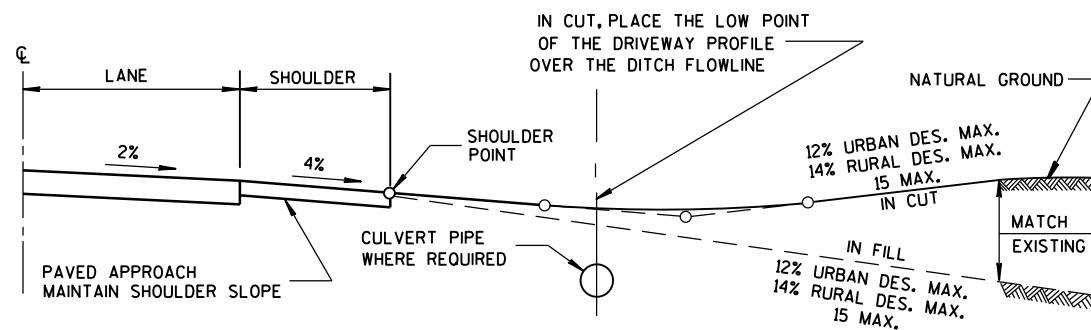
**TYPICAL CROSS SECTION FOR
PRIVATE DRIVE OR FIELD ENTRANCE
AGGREGATE SURFACE**

** SLOPE CAN VARY WITH SPEED. SEE 11-45-2.6.2.

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



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

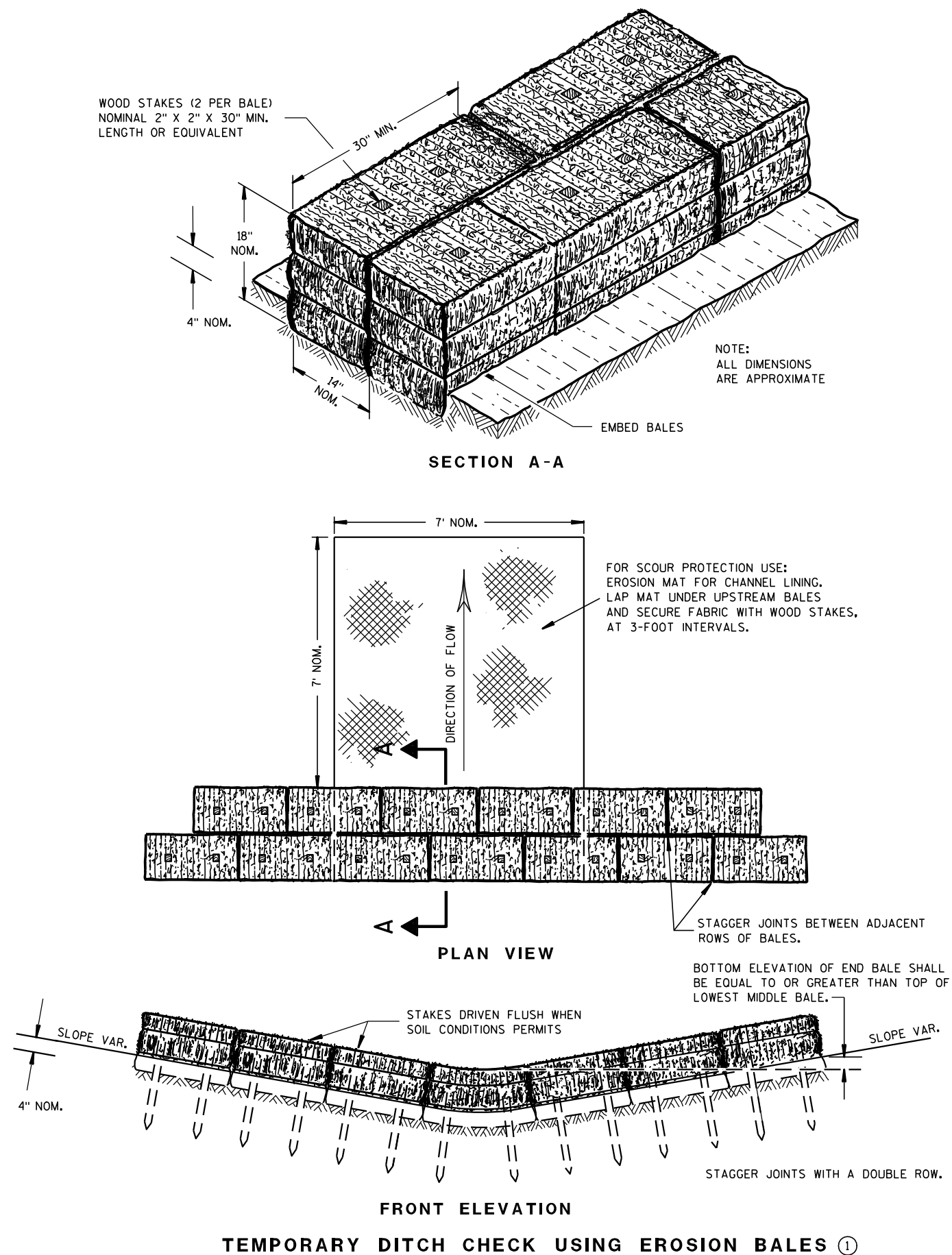


TYPICAL DRIVEWAY PROFILES

**DRIVEWAYS
WITHOUT CURB & GUTTER**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

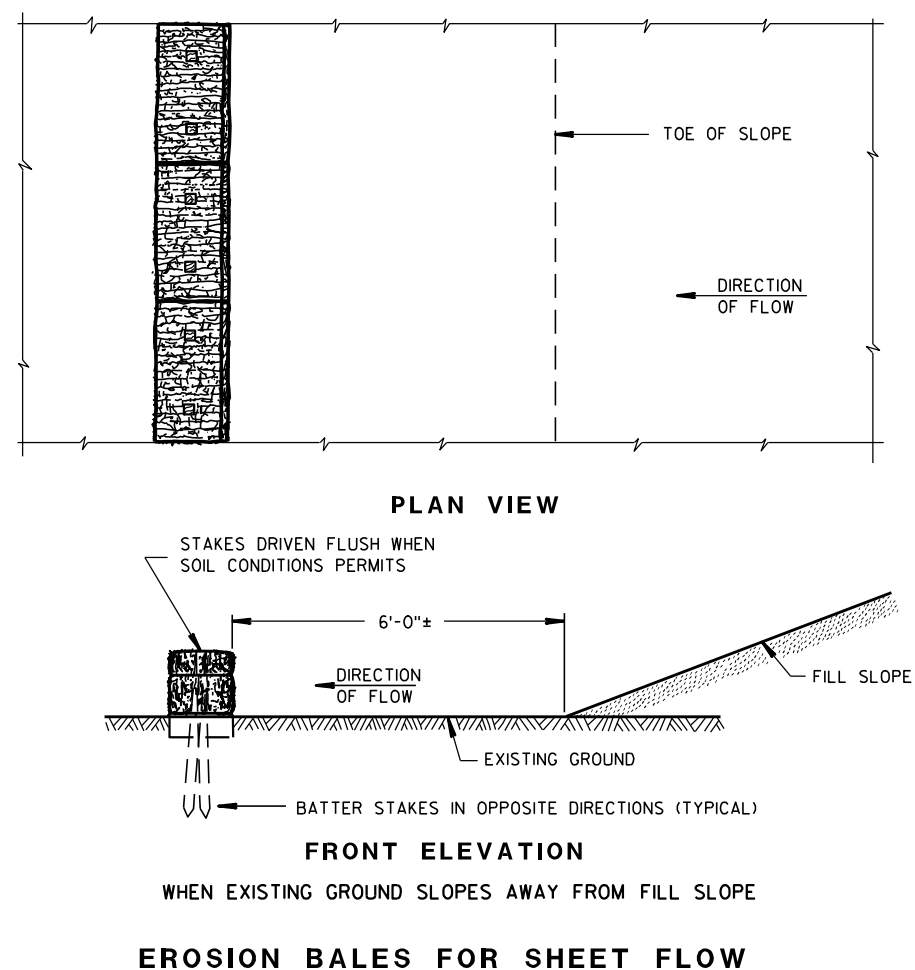
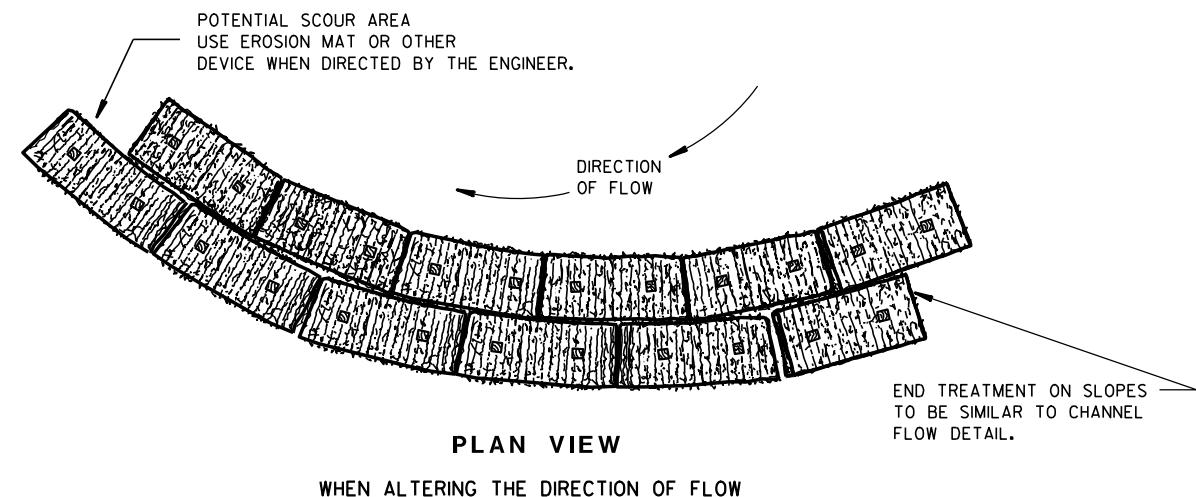
APPROVED
December, 2016 /S/ Rodney Taylor
DATE ROADWAY STANDARDS DEVELOPMENT
FHWA UNIT SUPERVISOR



GENERAL NOTES

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

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

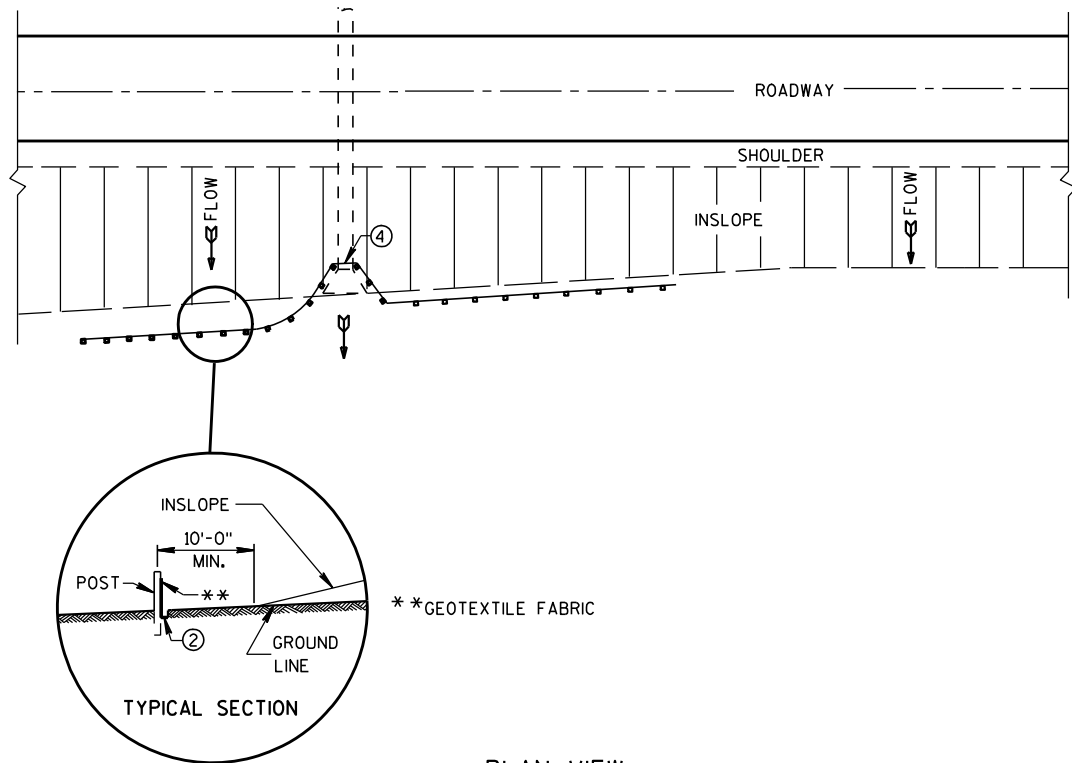
TYPICAL INSTALLATIONS OF
EROSION BALES / TEMPORARY
DITCH CHECKS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

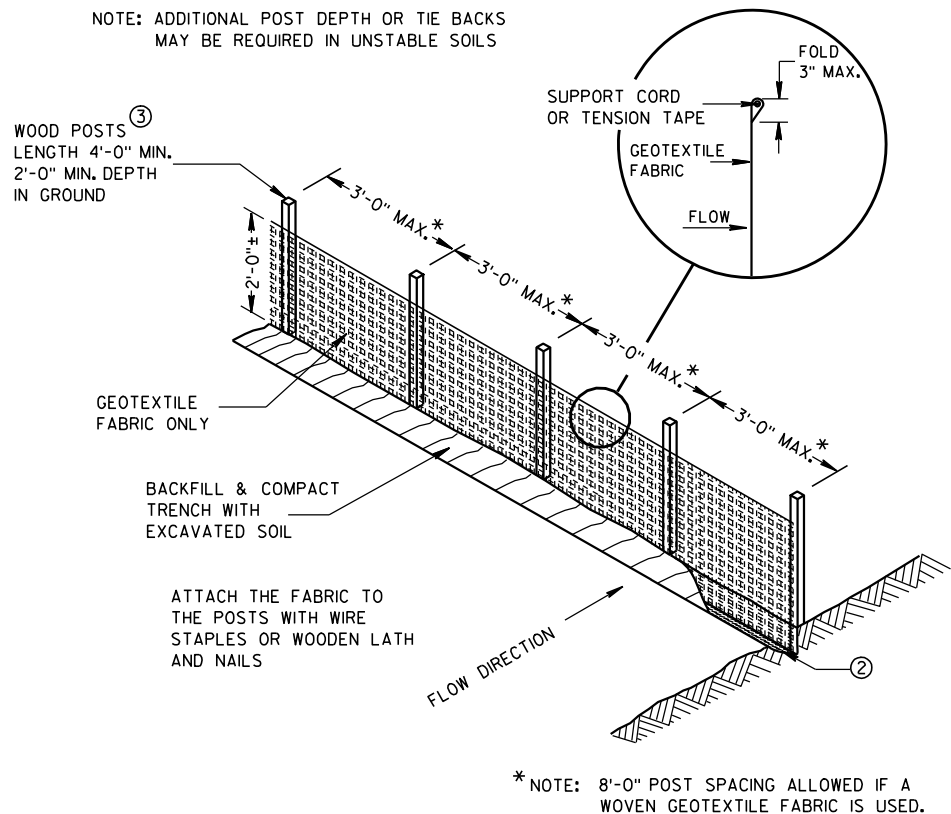
APPROVED

6/04/02
DATE/S/ Beth Canestra
CHIEF ROADWAY DEVELOPMENT ENGINEER

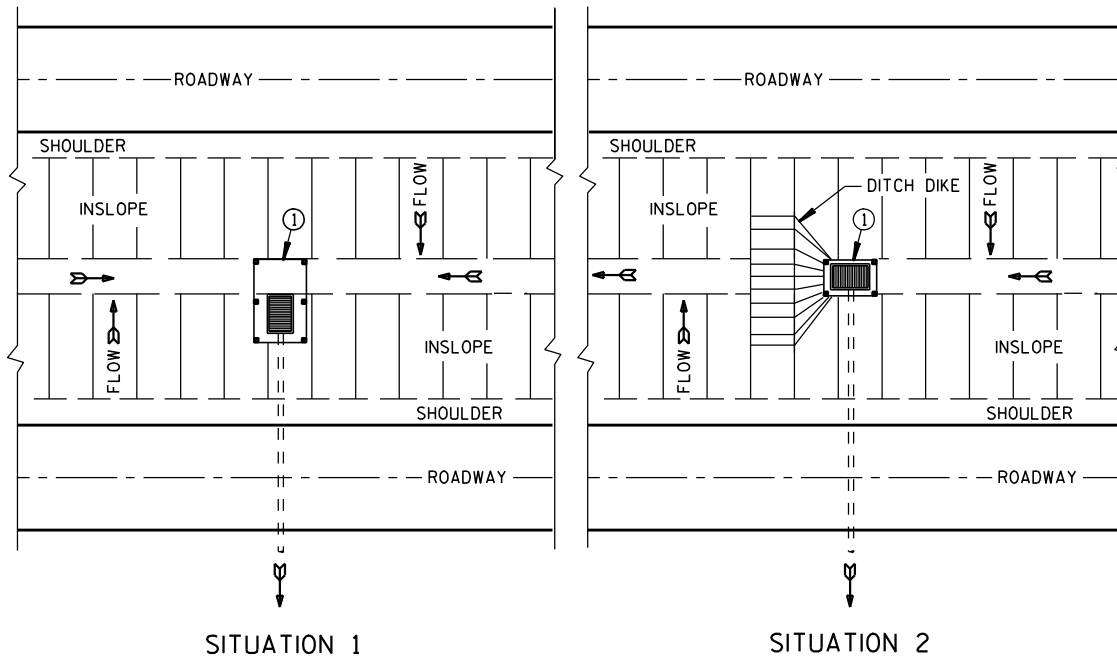
FHWA



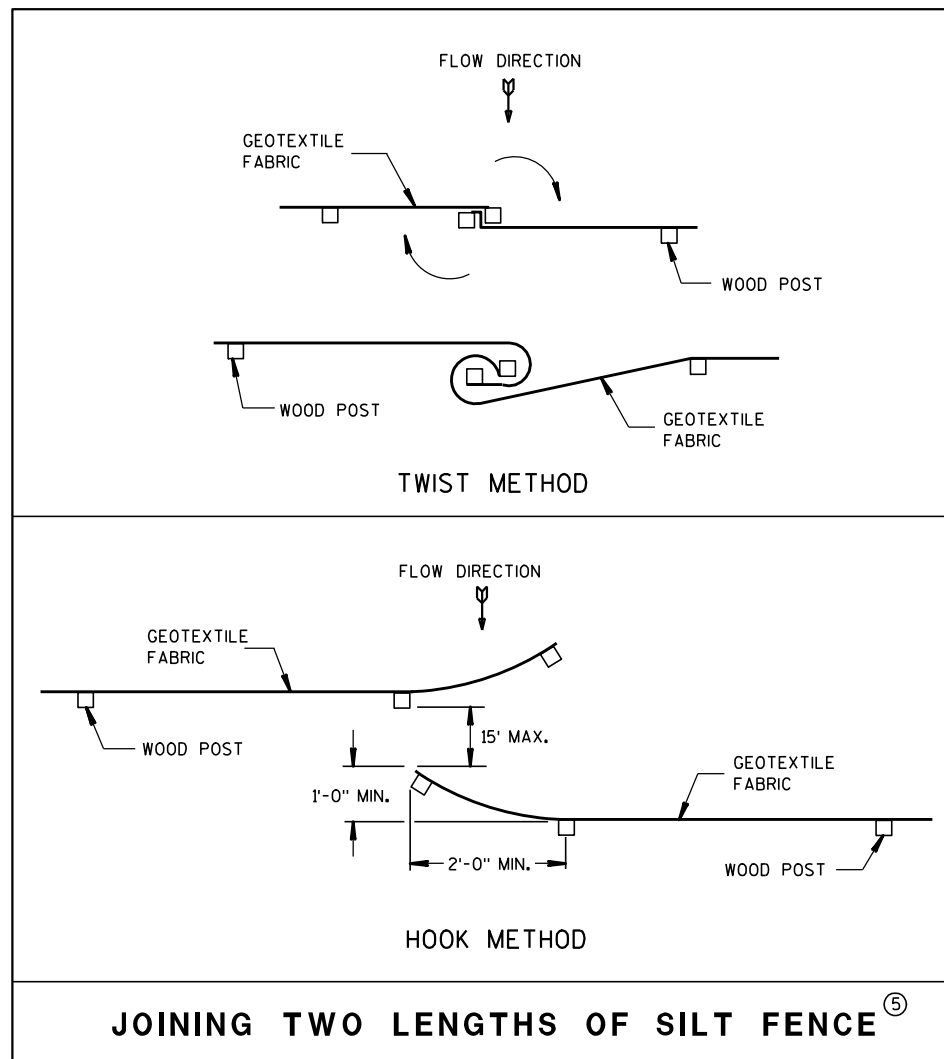
PLAN VIEW
TYPICAL APPLICATION OF SILT FENCE



SILT FENCE



PLAN VIEW
SILT FENCE AT MEDIAN SURFACE DRAINS

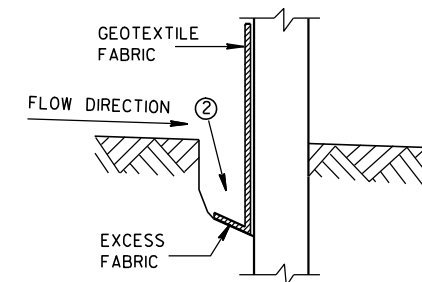


JOINING TWO LENGTHS OF SILT FENCE ⑤

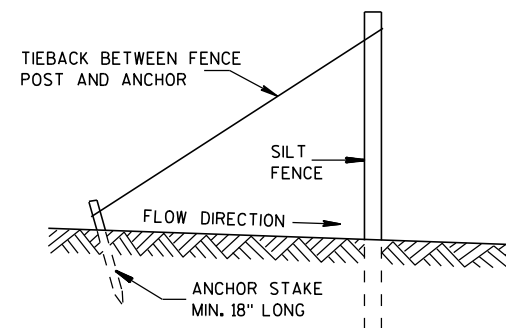
GENERAL NOTES

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

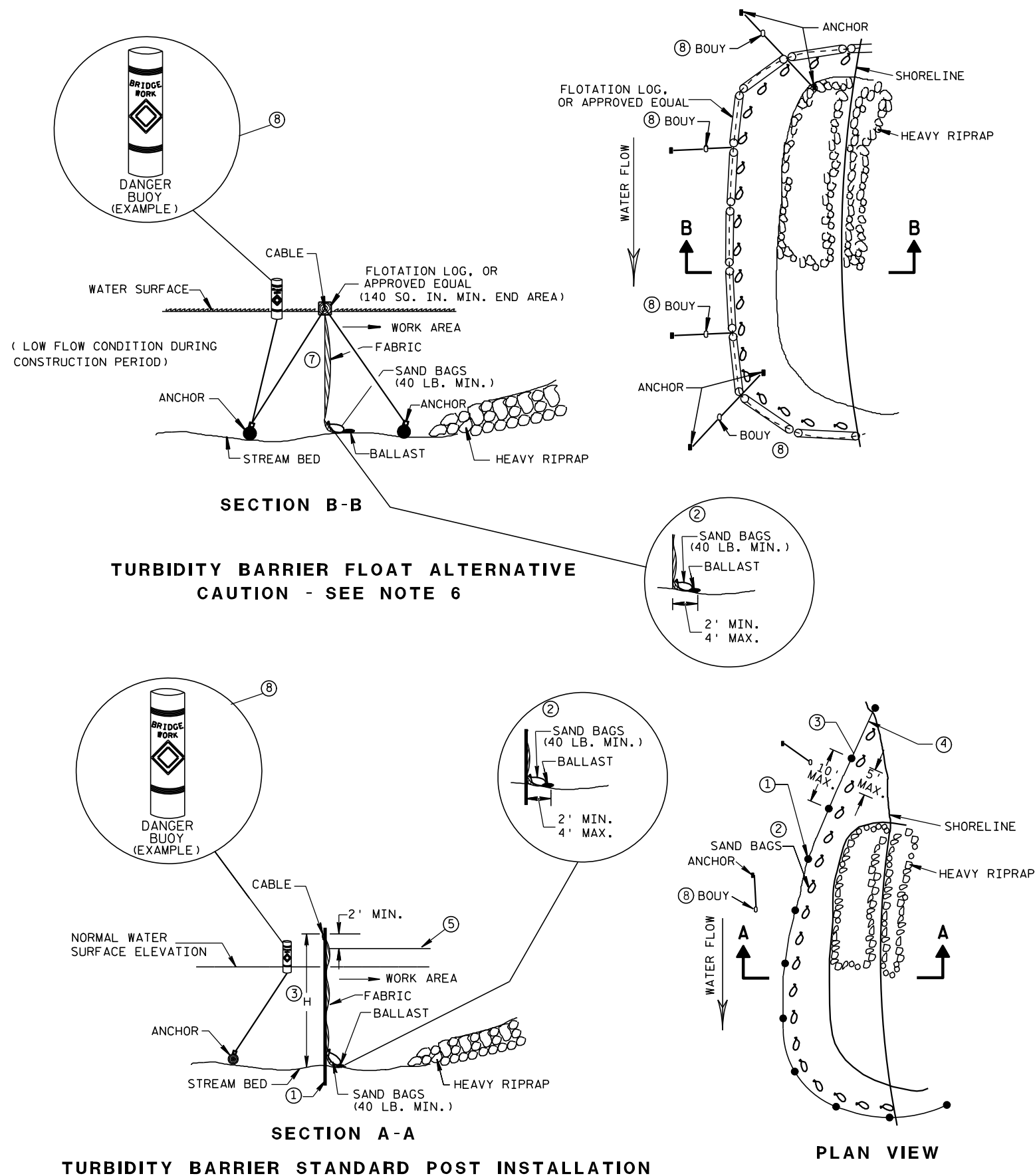


SILT FENCE TIE BACK
(WHEN REQUIRED BY THE ENGINEER)

SILT FENCE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
4-29-05 /S/ Beth Canestra
DATE CHIEF ROADWAY DEVELOPMENT ENGINEER
FHWA

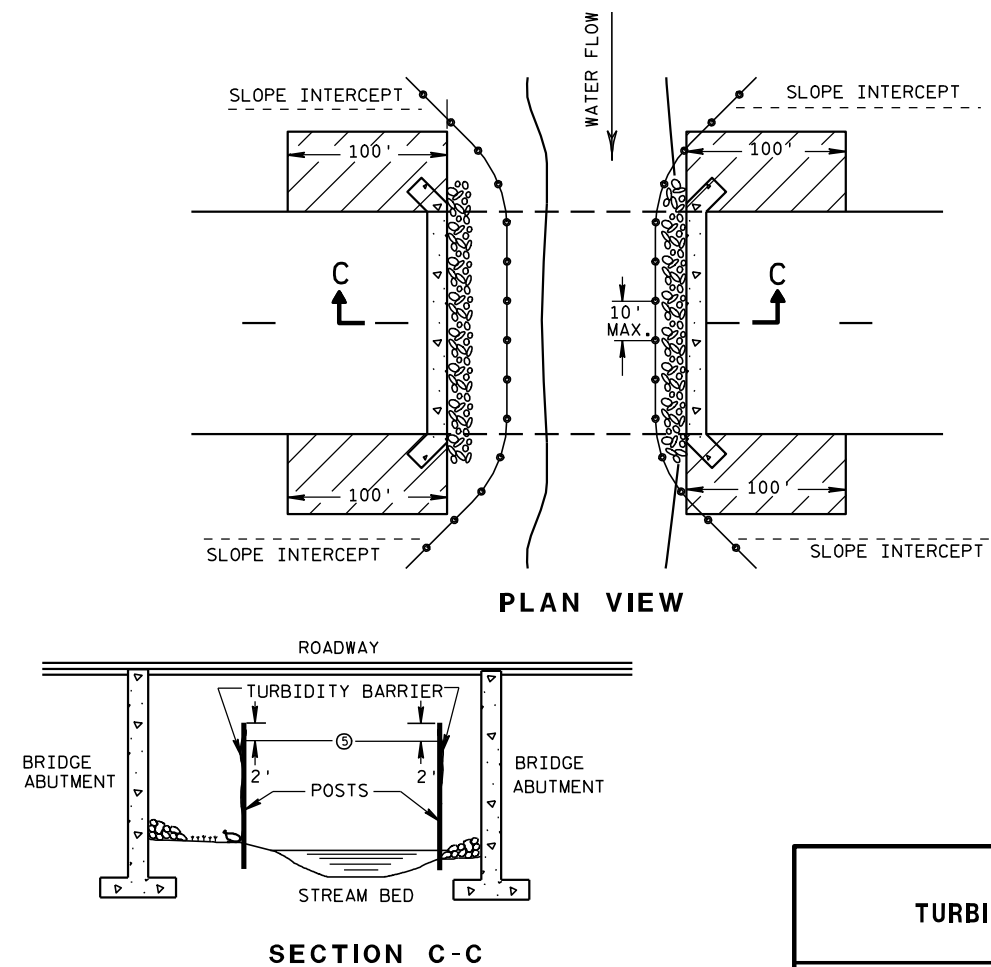


GENERAL NOTES

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

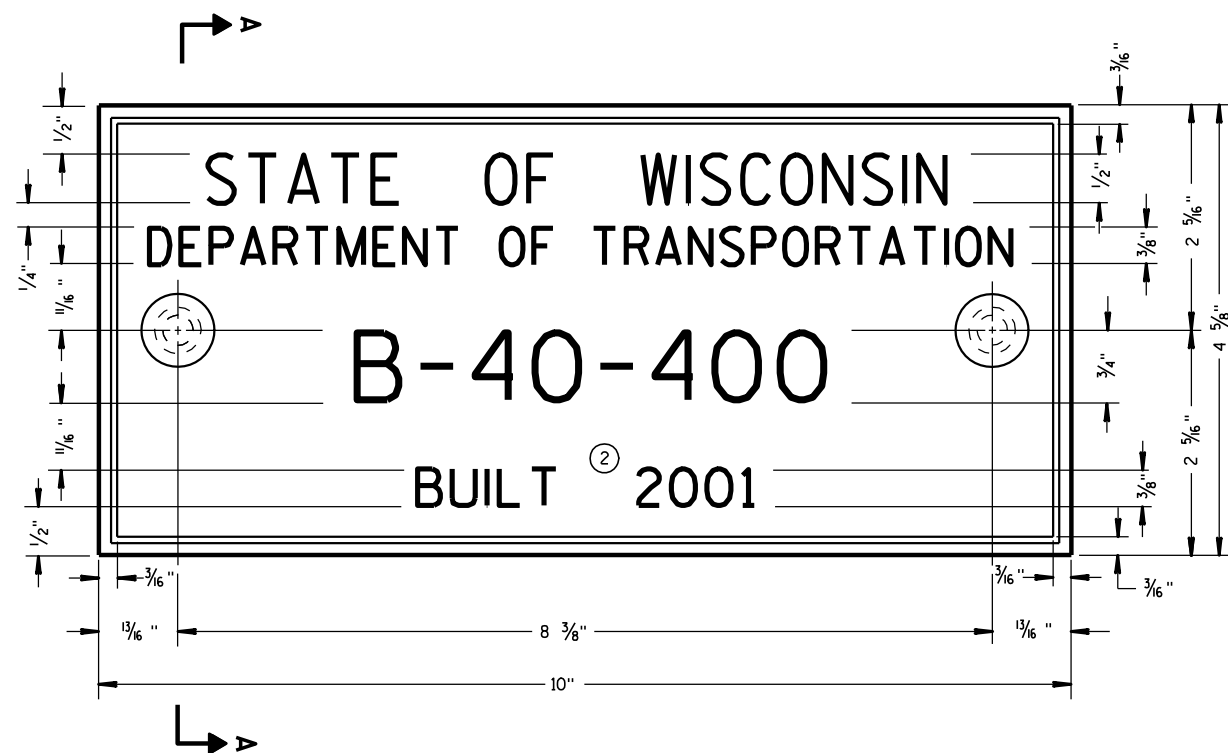
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

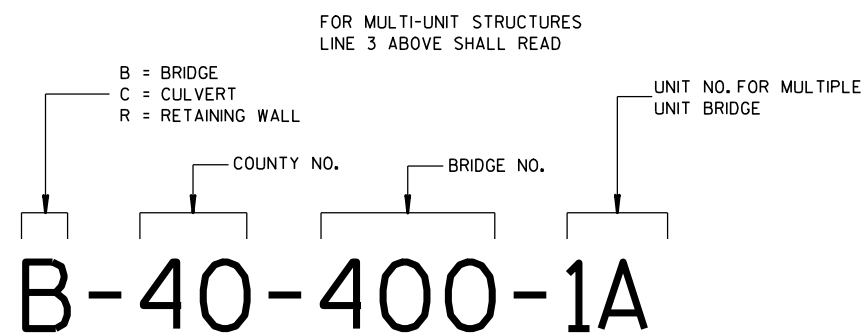
6/04/02
DATE

FHWA

/S/ Beth Connestra
CHIEF ROADWAY DEVELOPMENT ENGINEER



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



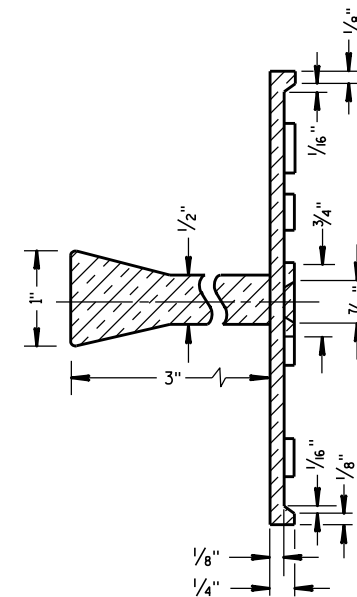
**NUMBERING DESIGNATION
MULTI-UNIT STRUCTURES**

GENERAL NOTES

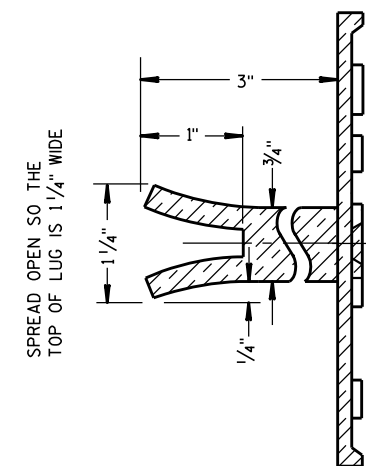
NAME PLATES TO BE INSTALLED ON BRIDGES, CULVERTS, AND RETAINING WALLS SHALL CONFORM TO THE REQUIREMENTS OF SECTION 502.3.11 OF THE STANDARD SPECIFICATIONS.

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

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

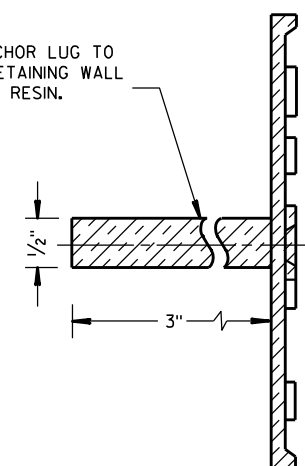


SECTION A-A



ALTERNATE LUG

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



ALTERNATE LUG
(FOR ATTACHMENT TO PRECAST STRUCTURES)

**NAME PLATE
(STRUCTURES)**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

3/26/10
DATE

FHWA

/S/ Scot Becker
CHIEF STRUCTURAL DEVELOPMENT ENGINEER

6

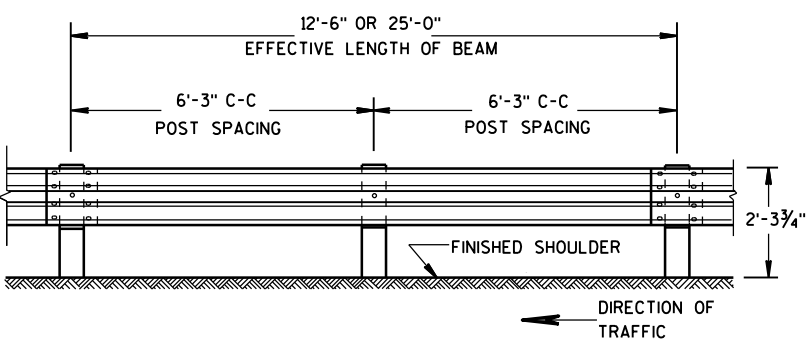
- S.D.D. 14 B 15-9a



TYPICAL INSTALLATION OF STEEL PLATE BEAM GUARD



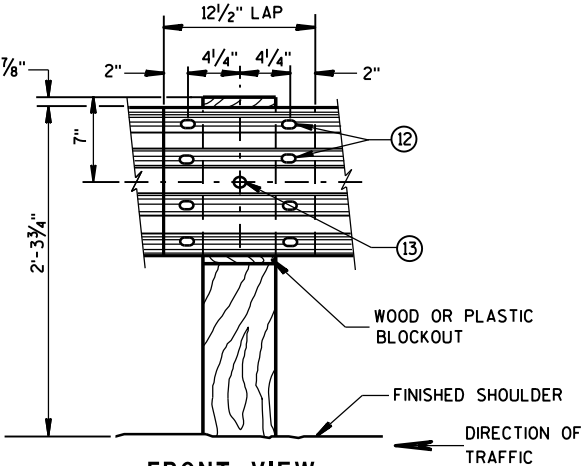
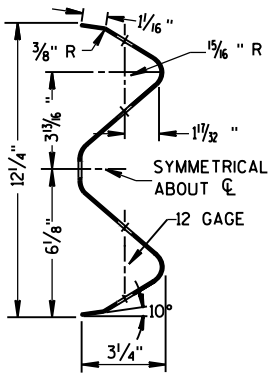
STATE OF WISCONSIN
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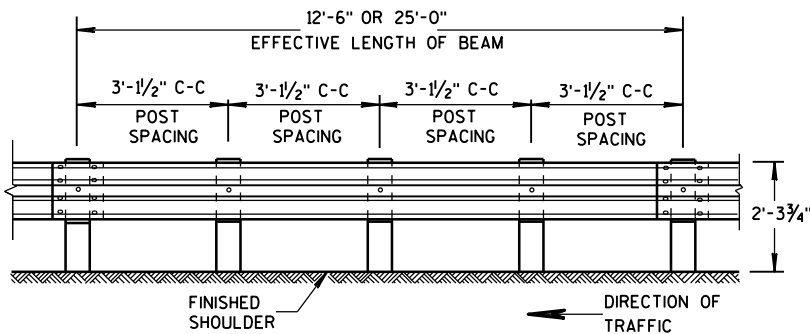
FRONT VIEW

POST SPACING STANDARD INSTALLATION

SECTION THRU W BEAM

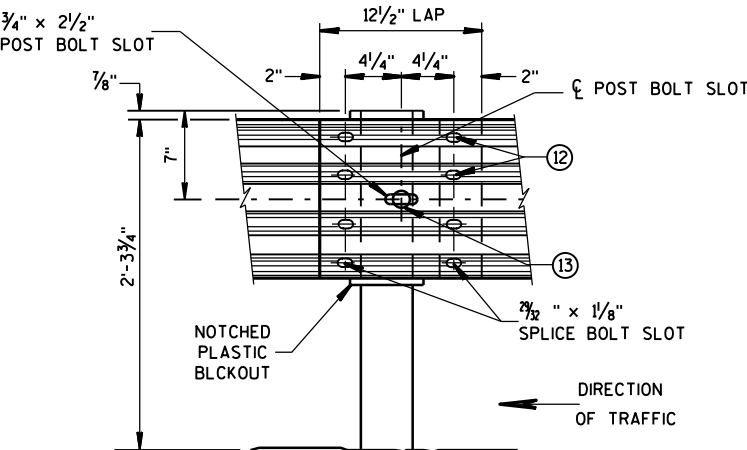


FRONT VIEW
BEAM SPLICE AT WOOD POST
AND POST MOUNTING DETAIL



FRONT VIEW

POST SPACING FOR LONGER POST
AT HALF POST SPACING W BEAM (LHW)

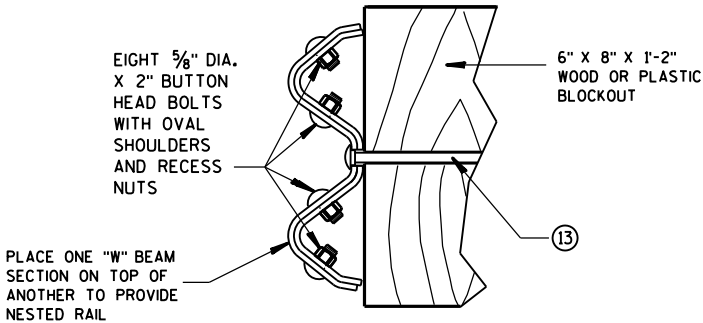


FRONT VIEW
BEAM SPLICE AT STEEL POST

TYPICAL SPLICING DETAILS
OF STEEL PLATE BEAM GUARD

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° ± 1° FOR TWO-SIDED REFLECTORS.
- ⑫ 8 - 5/8" ϕ X 2" BUTTON HEAD BOLTS WITH OVAL SHOULDERS & RECESS NUTS.
- ⑬ 5/8" DIA. BUTTON HEAD BOLT AND RECESS NUT WITH 5/8" DIA. F844 FLAT WASHER UNDER NUT.

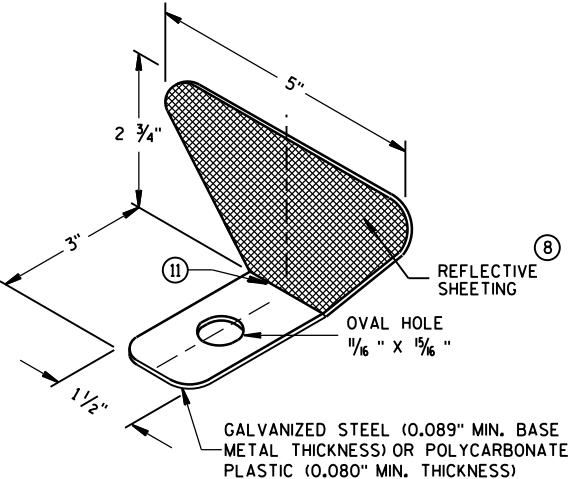
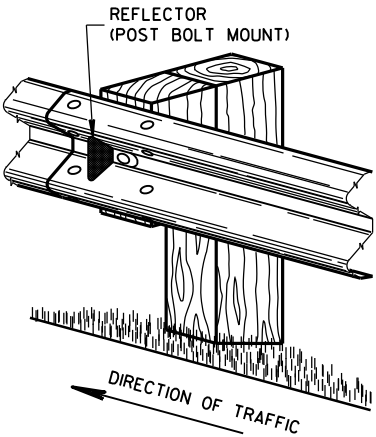


NESTED W BEAM (NW)

USE ALL OTHER STANDARD BEAM GUARD DETAILS FOR
CONSTRUCTING NESTED W BEAM (NW)

REFLECTOR SPACING ⑨

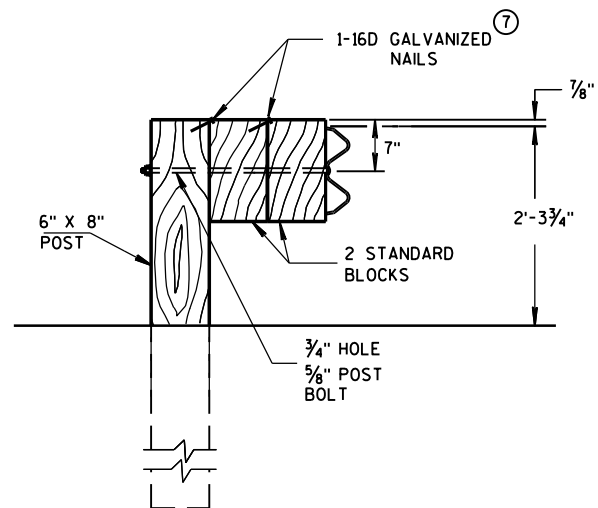
	BEAM GUARD LENGTH	REFLECTOR SPACING	NO. SURFACES REFLECTORIZED	MIN. NO. REFLECTORS
ONE WAY TRAFFIC	< 200'	50' C-C	1	3
	> 200'	100' C-C	1	
TWO WAY TRAFFIC	< 200'	25' C-C	1 ⑩	6
	> 200'	50' C-C	1	
TWO WAY TRAFFIC	< 200'	50' C-C	2 ⑪	3
	> 200'	100' C-C	2	



ONE SIDED REFLECTOR DETAIL AND TYPICAL INSTALLATION

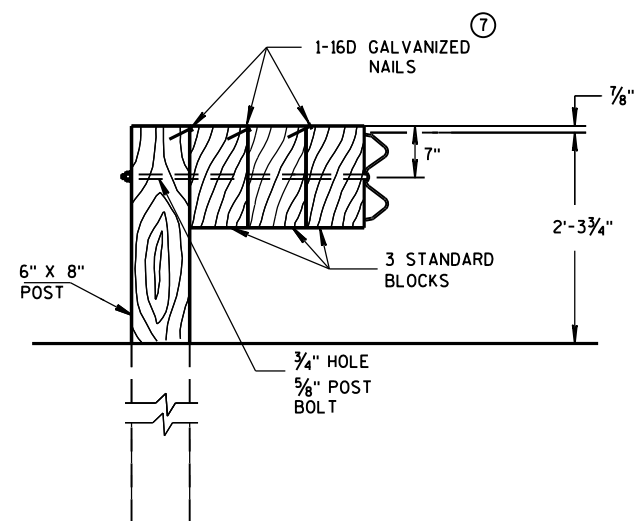
STEEL PLATE BEAM GUARD,
CLASS "A",
INSTALLATION & ELEMENTS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



DETAIL FOR DOUBLE BLOCKS

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

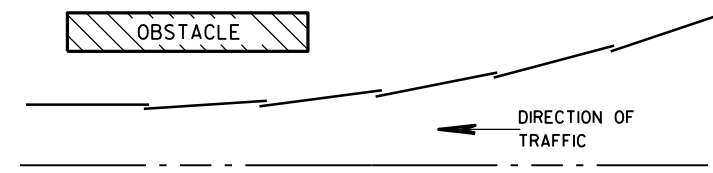


DETAIL FOR TRIPLE BLOCKS

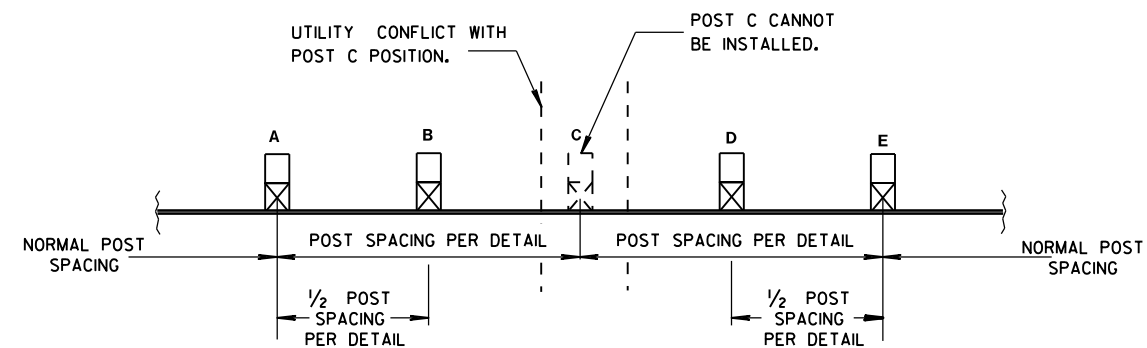
TRIPLE BLOCK DETAIL IS LIMITED TO ONE
LOCATION WITHIN A BEAM GUARD RUN.

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

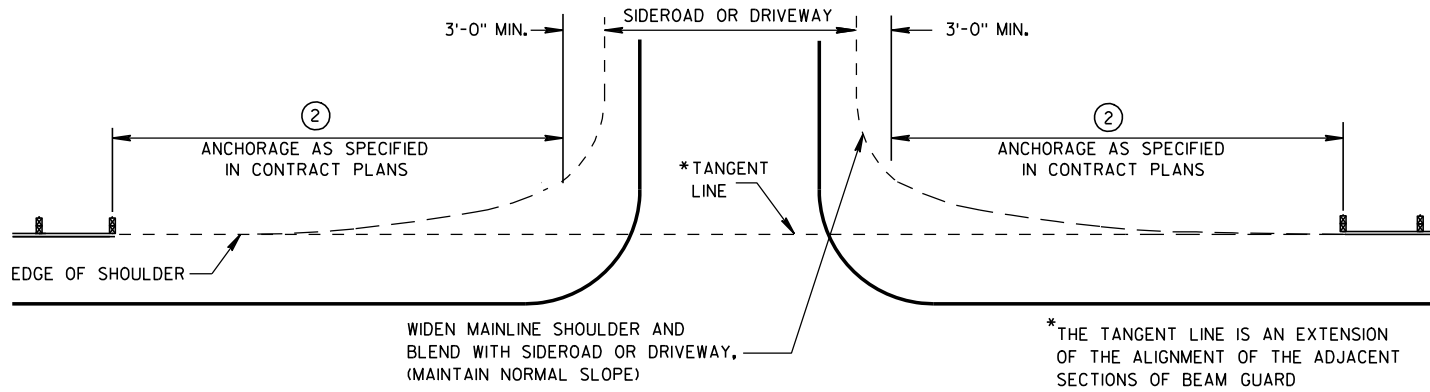
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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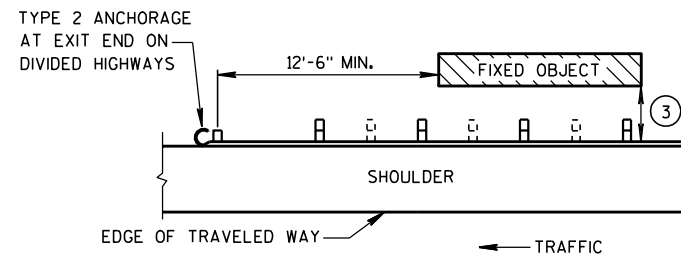
June 2016
DATE

FHWA

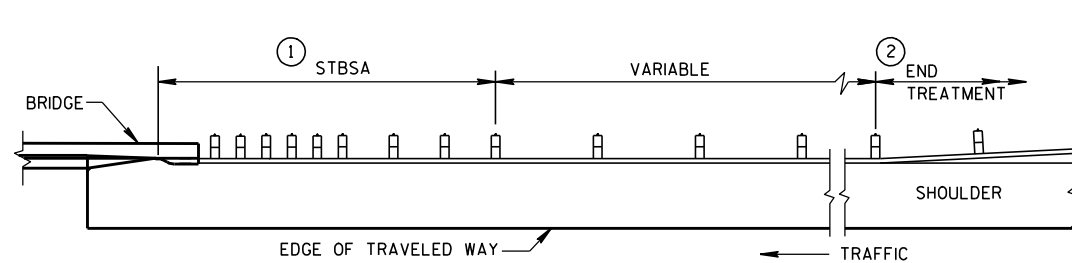
/S/ Jerry H. Zogg
ROADWAY STANDARDS DEVELOPMENT
ENGINEER



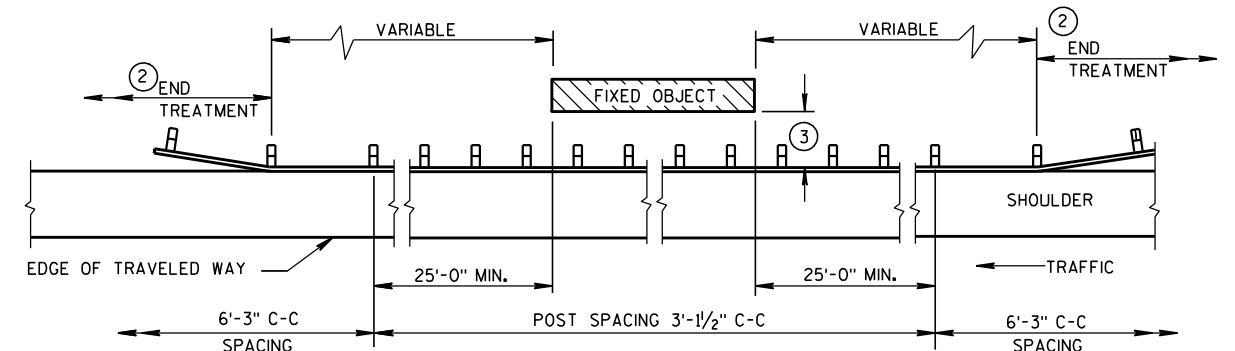
BEAM GUARD AT SIDEROADS OR DRIVEWAYS



BEAM GUARD AT OBSTACLES EXIT END - ONE WAY TRAFFIC



BEAM GUARD AT FULL WIDTH BRIDGES



BEAM GUARD AT OBSTACLES - TWO WAY TRAFFIC

(RAIL TO OBSTACLE CLEARANCE 3'-6" TO 4'-6")

TABLE 1
FLARE RATES FOR BEAM
GUARD AT NARROW BRIDGES

POSTED SPEED (MPH)	FLARE RATE
25	13:1
30	15:1
35	16:1
40	18:1
45	21:1
50	24:1
55	26:1
65	30:1

GENERAL NOTES

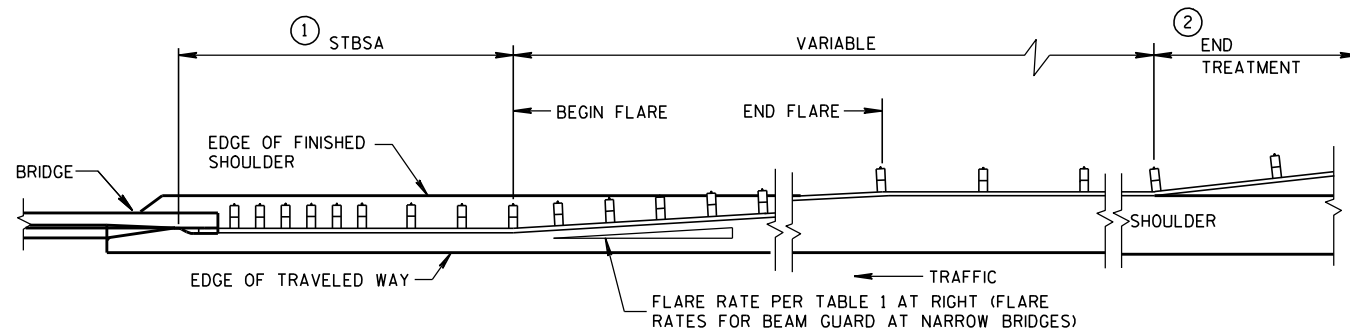
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP SHALL CONFORM TO THE PERTINENT STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

W6 X 9 OR W6 X 8.5 STEEL POSTS WITH NOTCHED PLASTIC BLOCKOUTS ARE ACCEPTABLE ALTERNATIVES FOR 6" X 8" WOOD POSTS WITH WOOD OR PLASTIC BLOCKOUTS. USE APPROVED NOTCHED PLASTIC BLOCKOUTS WITH STEEL POSTS.

THE LOCATIONS AND LENGTHS OF BEAM GUARD ARE SHOWN ELSEWHERE IN THE PLAN.

- STEEL THRIE BEAM STRUCTURAL APPROACH (STBSA) - SEE CURRENT SDD 14B20.
- USE AN APPROVED END TREATMENT FOR THE TRAFFIC APPROACH SIDE OF BRIDGE/OBSTACLES. USE TYPE 2 ANCHORAGE ONLY AT THE DOWNSTREAM ENDS OF BEAM GUARD LOCATED ALONG ROADWAYS WITH ONE WAY TRAFFIC.

MINIMUM LATERAL DISTANCE FROM FACE OF BEAM GUARD TO FIXED OBJECT	POST SPACING
3'-6"	3' - 1 1/2"
4'-6"	6' - 3"



BEAM GUARD AT NARROW BRIDGES (FLARED TO SHOULDER EDGE, THEN PARALLEL TO ROADWAY)

STEEL PLATE BEAM GUARD
CLASS "A"
AT BRIDGES, OBSTACLES
AND SIDEROADS/DRIVEWAYS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
8-21-07
DATE
/S/ Jerry H. Zogg
ROADWAY STANDARDS DEVELOPMENT
ENGINEER
FHWA

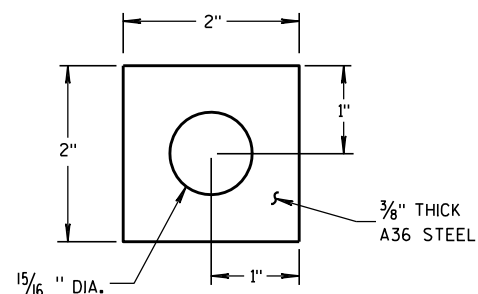
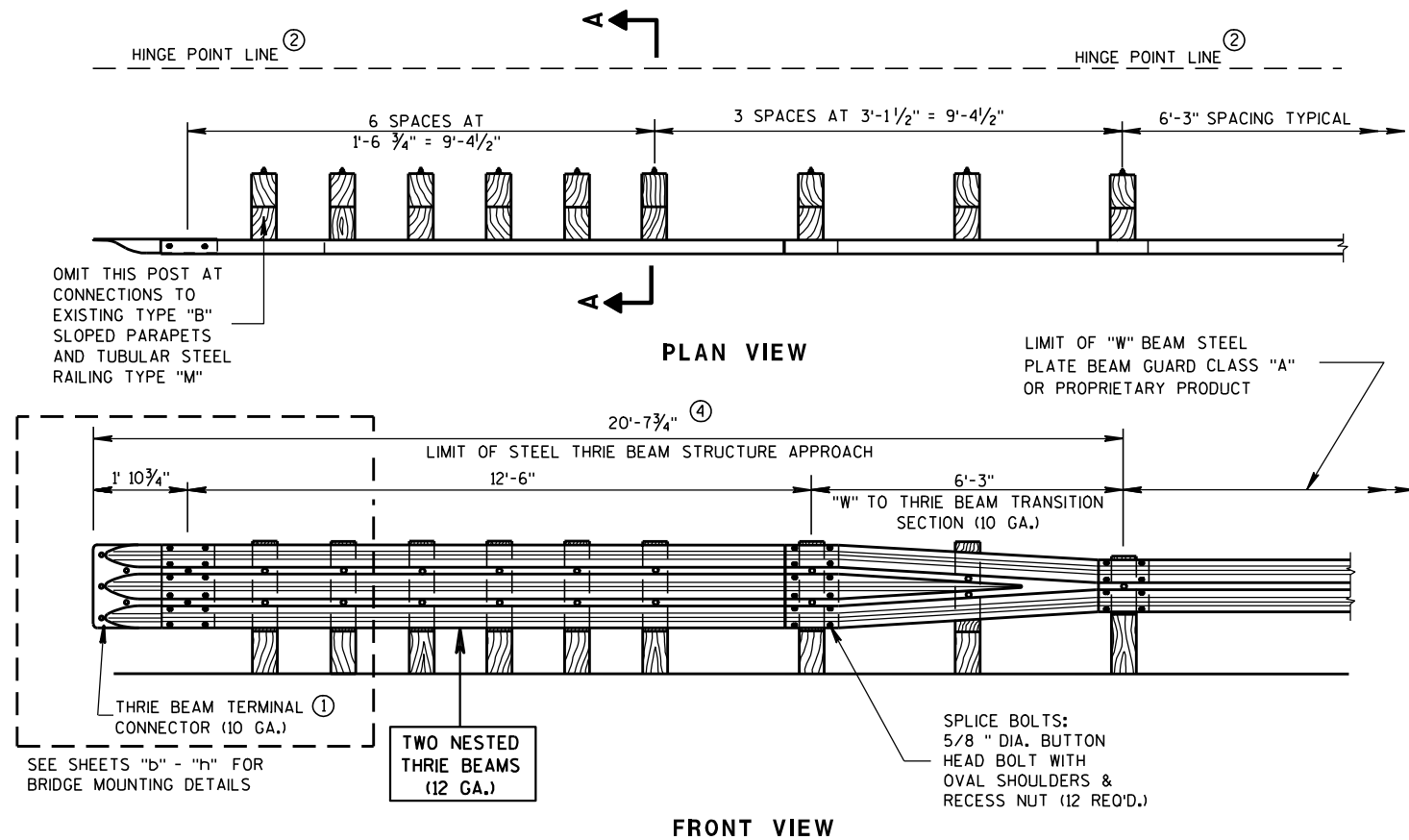


PLATE WASHER DETAIL

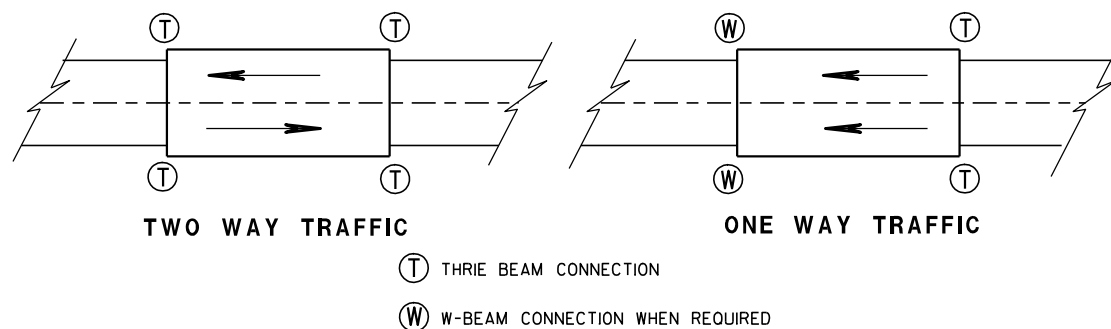
GENERAL NOTES

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".

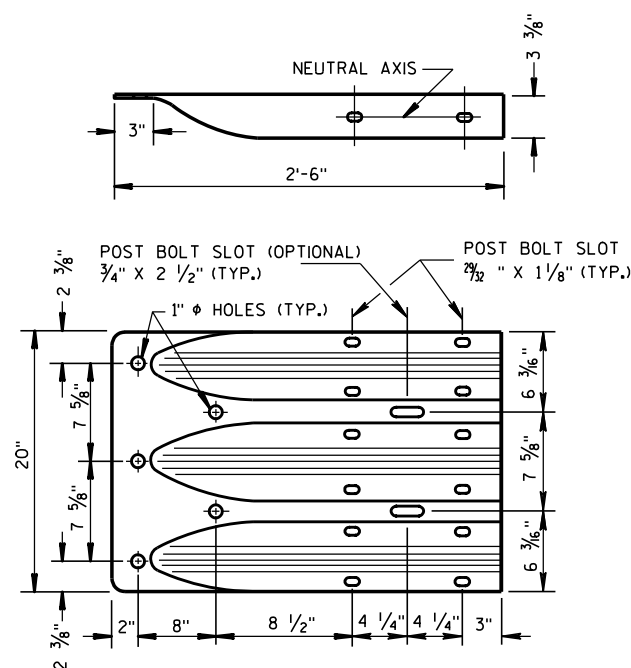
DO NOT USE STEEL POSTS AND NOTCHED PLASTIC BLOCKOUTS IN THE STEEL THRIE BEAM STRUCTURAL APPROACH AND THE TRANSITION SECTION OF STEEL PLATE BEAM GUARD, CLASS "A" INSTALLATIONS.

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.

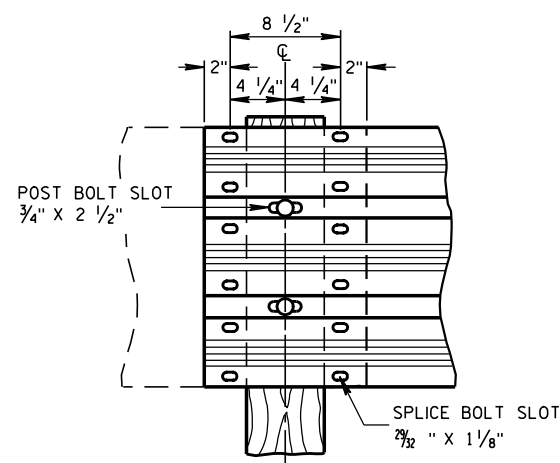
- ① BRIDGE RAILING TYPE "W" DOES NOT REQUIRE A TERMINAL CONNECTOR.
- ② MINIMUM EMBEDMENT SHALL BE 4'-0". WHERE EXISTING CONDITIONS DO NOT PERMIT THE APPROPRIATE EARTHWORK SHOWN ON THE PLAN TYPICAL SECTIONS OR DETAILS, THE ENGINEER MAY ALLOW THE REDUCTION OR ELIMINATION OF THE 2 FOOT DISTANCE TO THE HINGE 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.



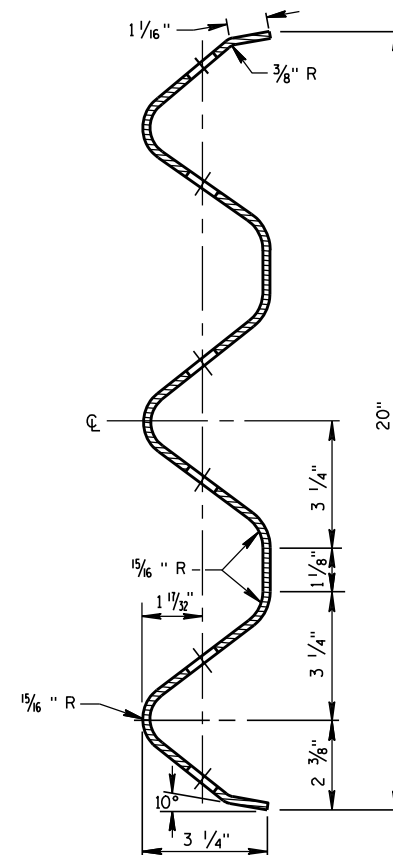
TYPICAL LOCATIONS OF THRIE BEAM AND W-BEAM CONNECTIONS TO BRIDGE



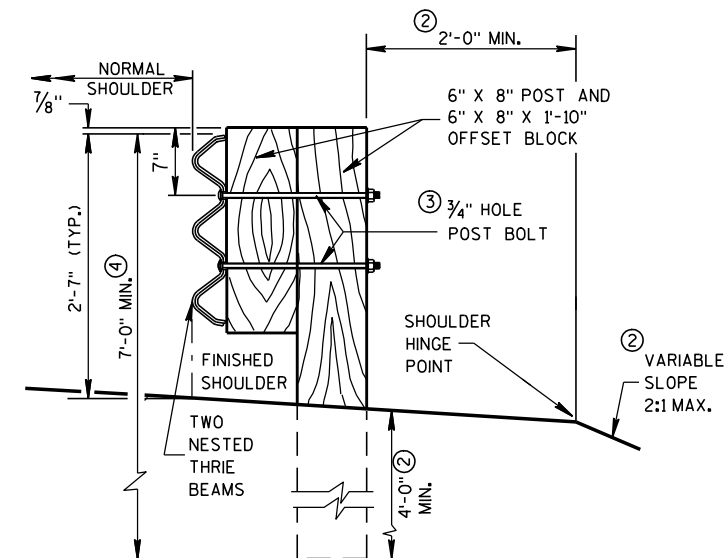
THRIE BEAM TERMINAL CONNECTOR



THRIE BEAM SPLICE



SECTION THRU THRIE BEAM RAIL ELEMENT



SECTION A-A

STEEL THRIE BEAM STRUCTURE APPROACH

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

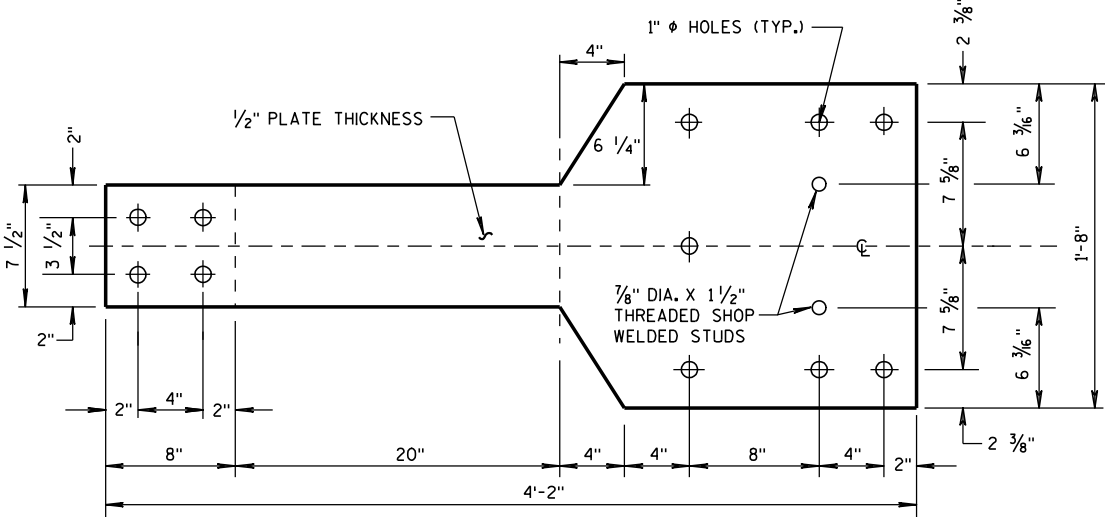
8/31/2012
DATE

FHWA

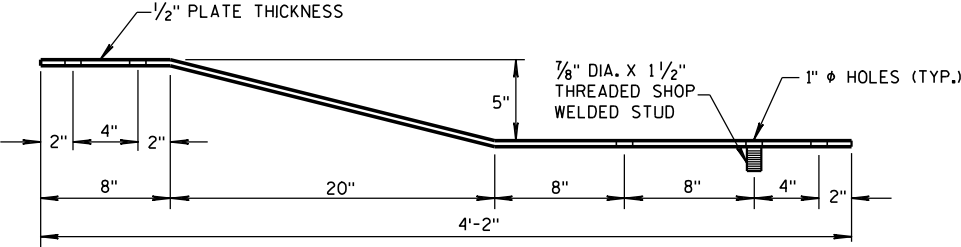
/s/ Jerry H. Zogg
ROADWAY STANDARDS DEVELOPMENT
ENGINEER

GENERAL NOTES

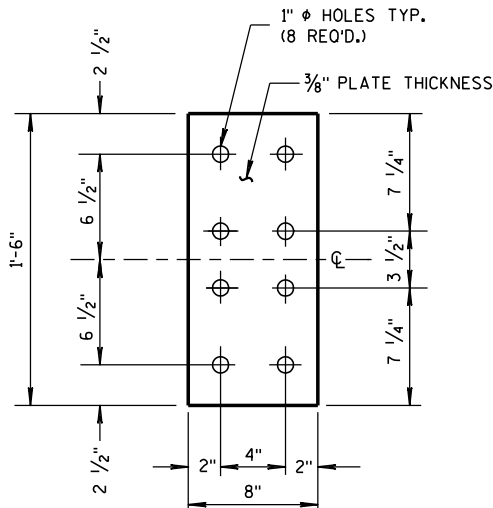
① VARY THIS DIMENSION DEPENDING ON ABUTMENT TYPE, WINGWALL DETAILS, AND ANGLE OF SKEW. PLACE THE FIRST WOOD POST OFF THE BRIDGE SHALL BE AS CLOSE AS FEASIBLE TO THE STEEL END POST.



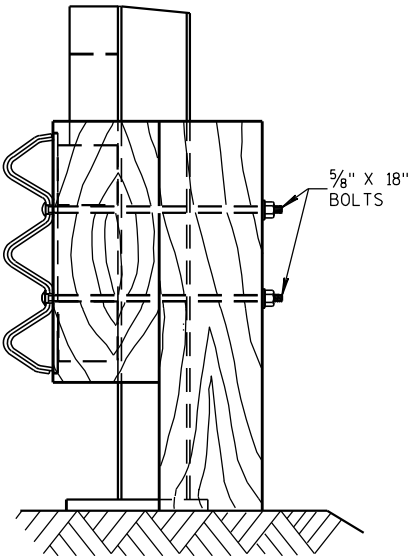
FRONT VIEW



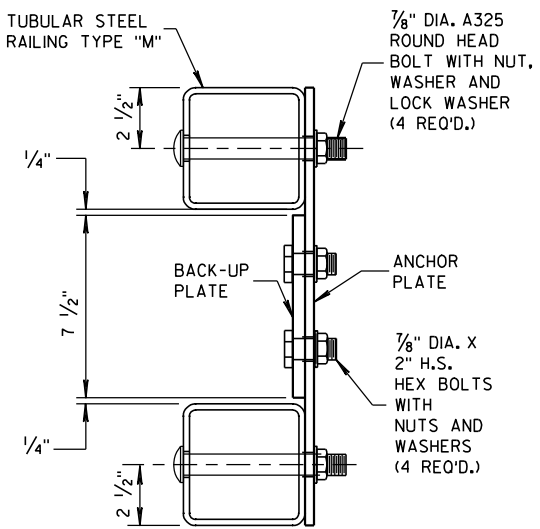
**PLAN VIEW
BACK-UP PLATE DETAIL, TYPE "M"**



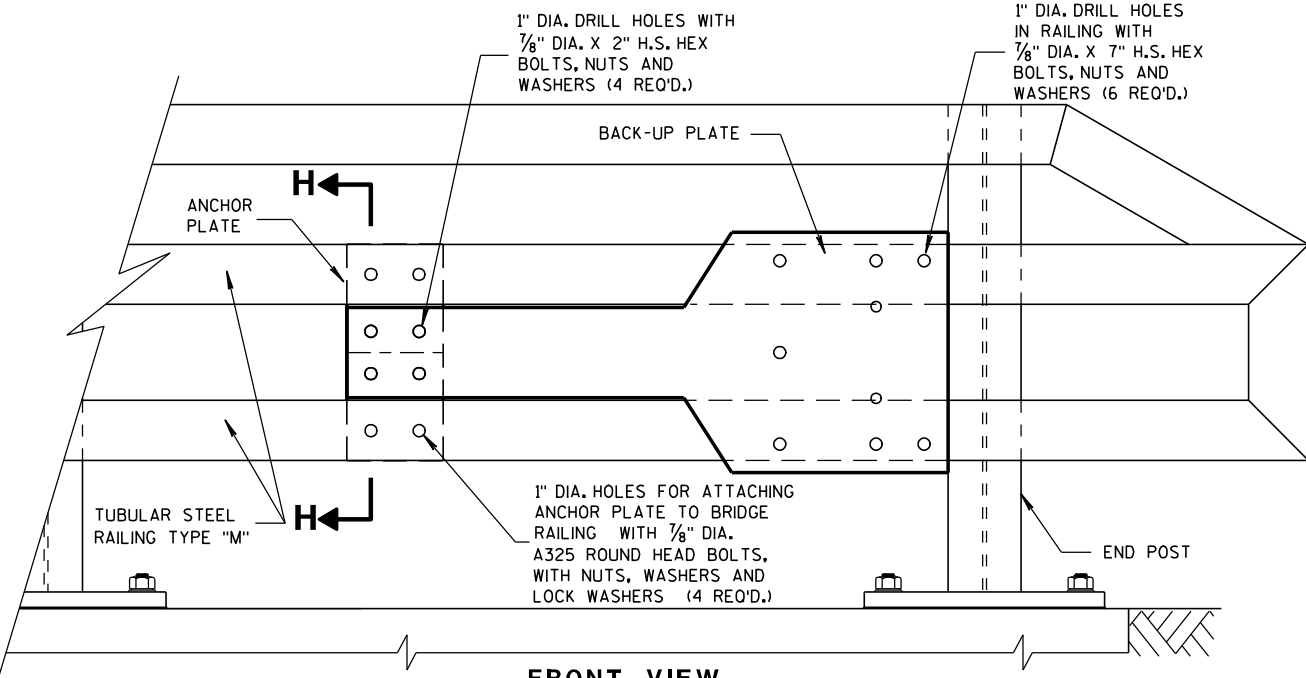
**FRONT VIEW
ANCHOR PLATE DETAIL,
TYPE "M"**



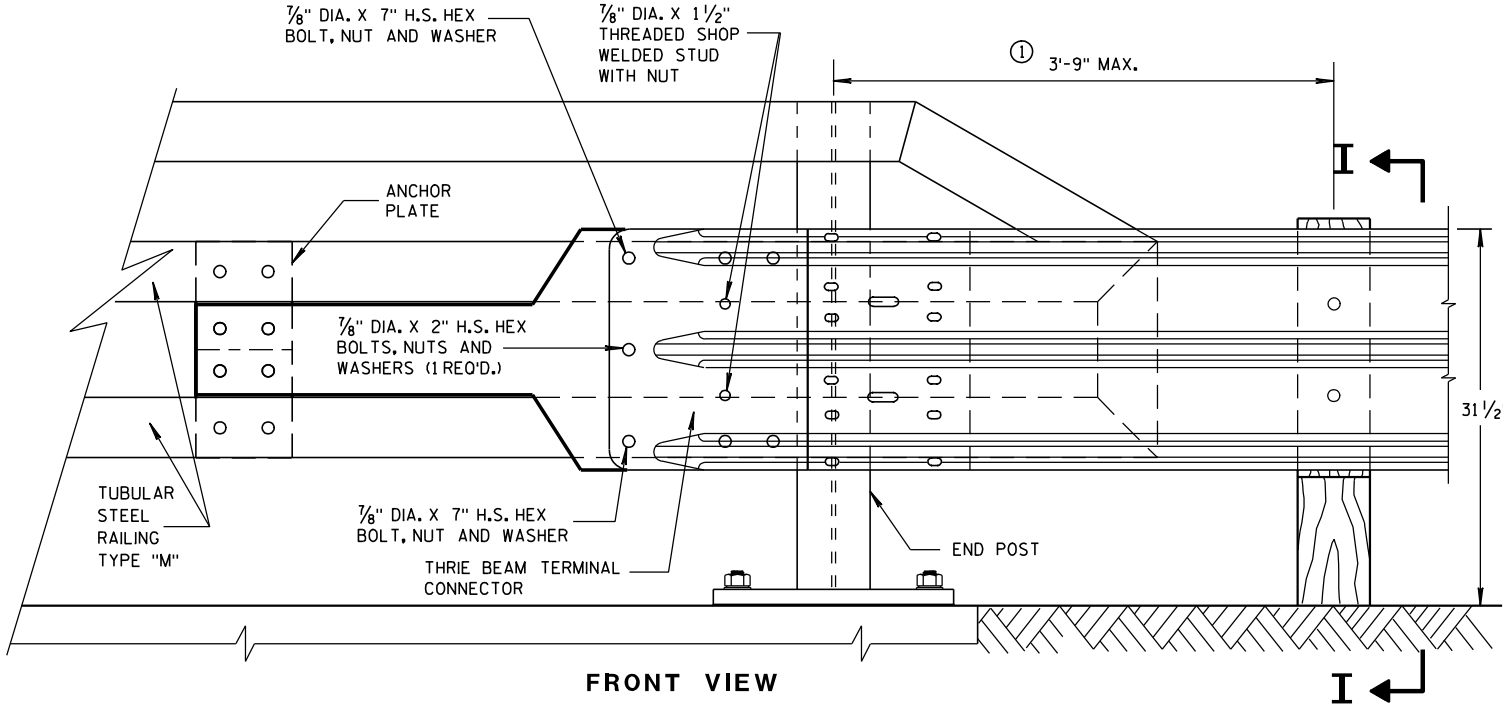
SECTION I-I



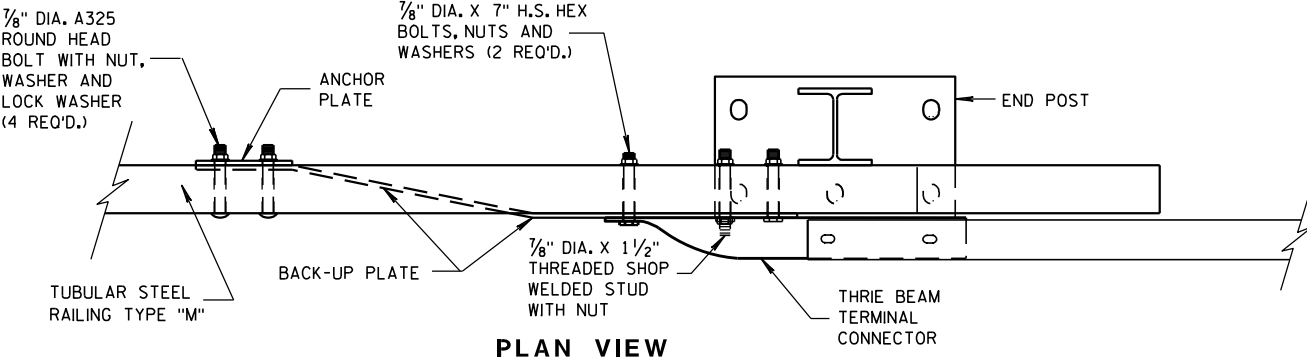
SECTION H-H



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



FRONT VIEW



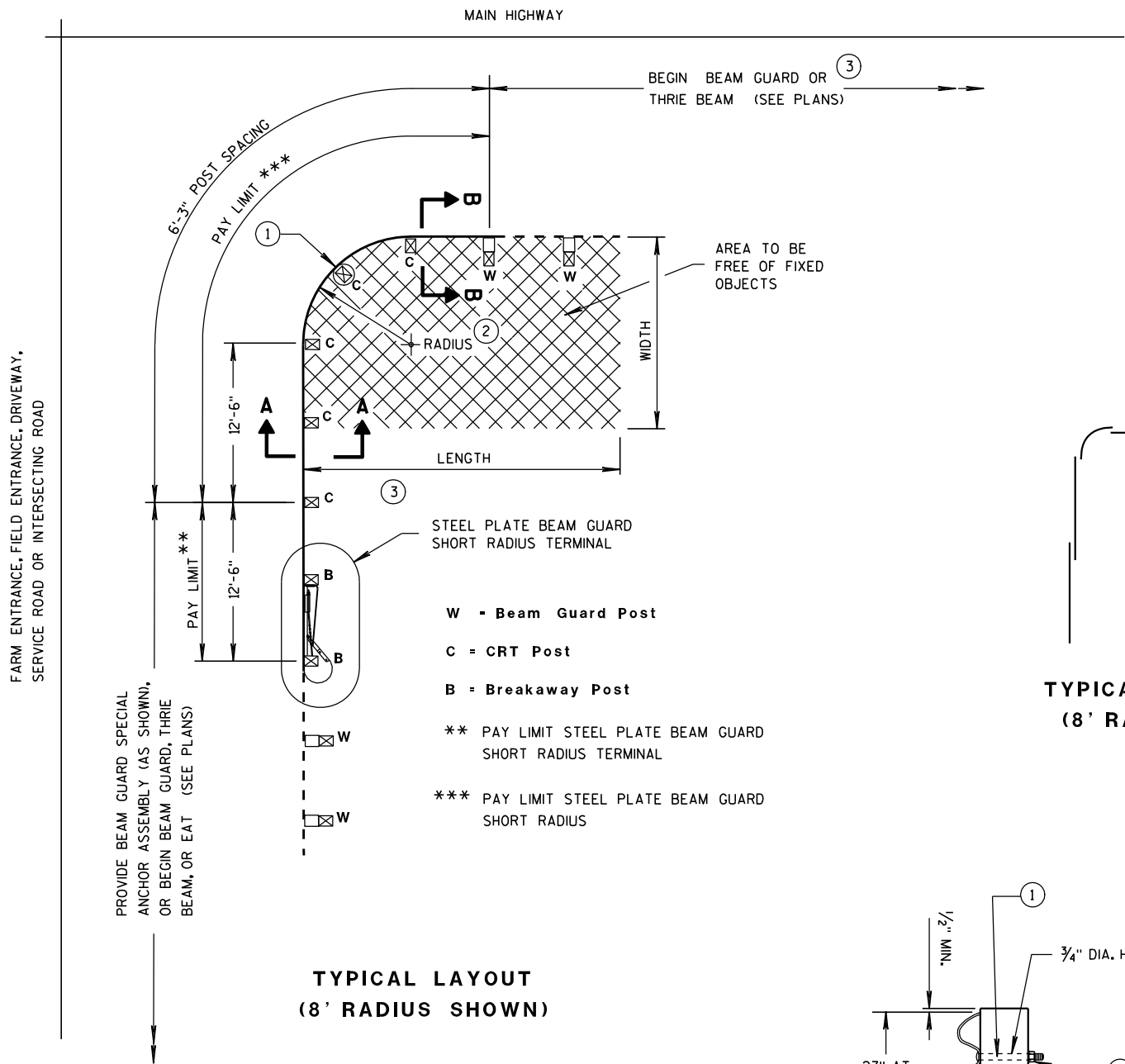
PLAN VIEW

THRIE BEAM CONNECTION TO TUBULAR RAILING, TYPE "M"

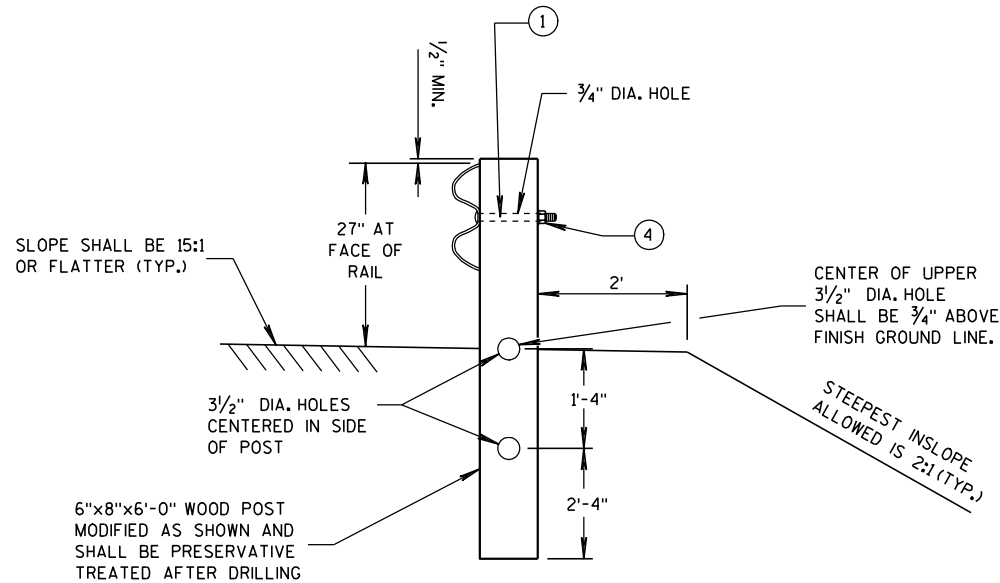
**STEEL THRIE BEAM STRUCTURE
APPROACH CONNECTION TO
BRIDGE RAILING TYPE "M"**

STATE OF WISCONSIN
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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)

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.

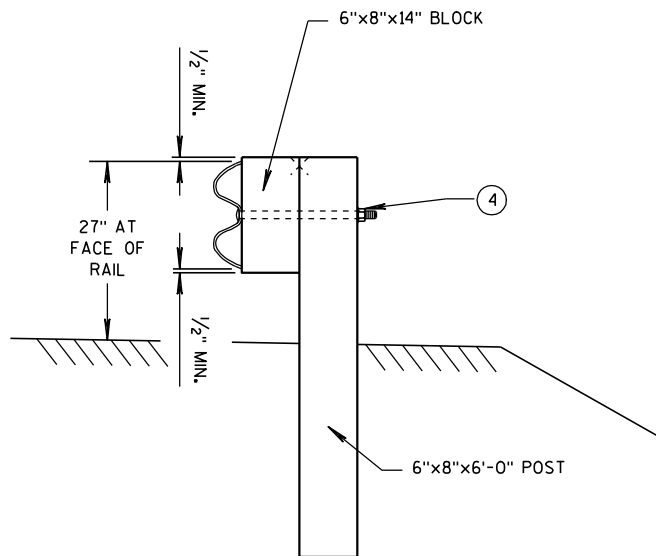
SHOP BEND CURVED RAIL SECTIONS.

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" ϕ 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'

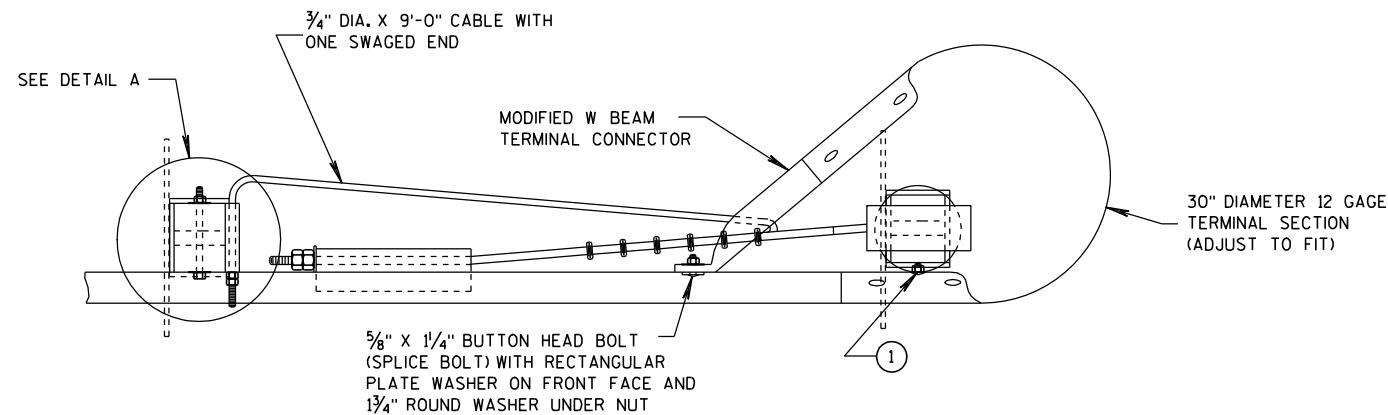
* THE NUMBER OF RAILS IS BASED ON A 90° INTERSECTION. SEE PLAN FOR NON 90° INSTALLATIONS.



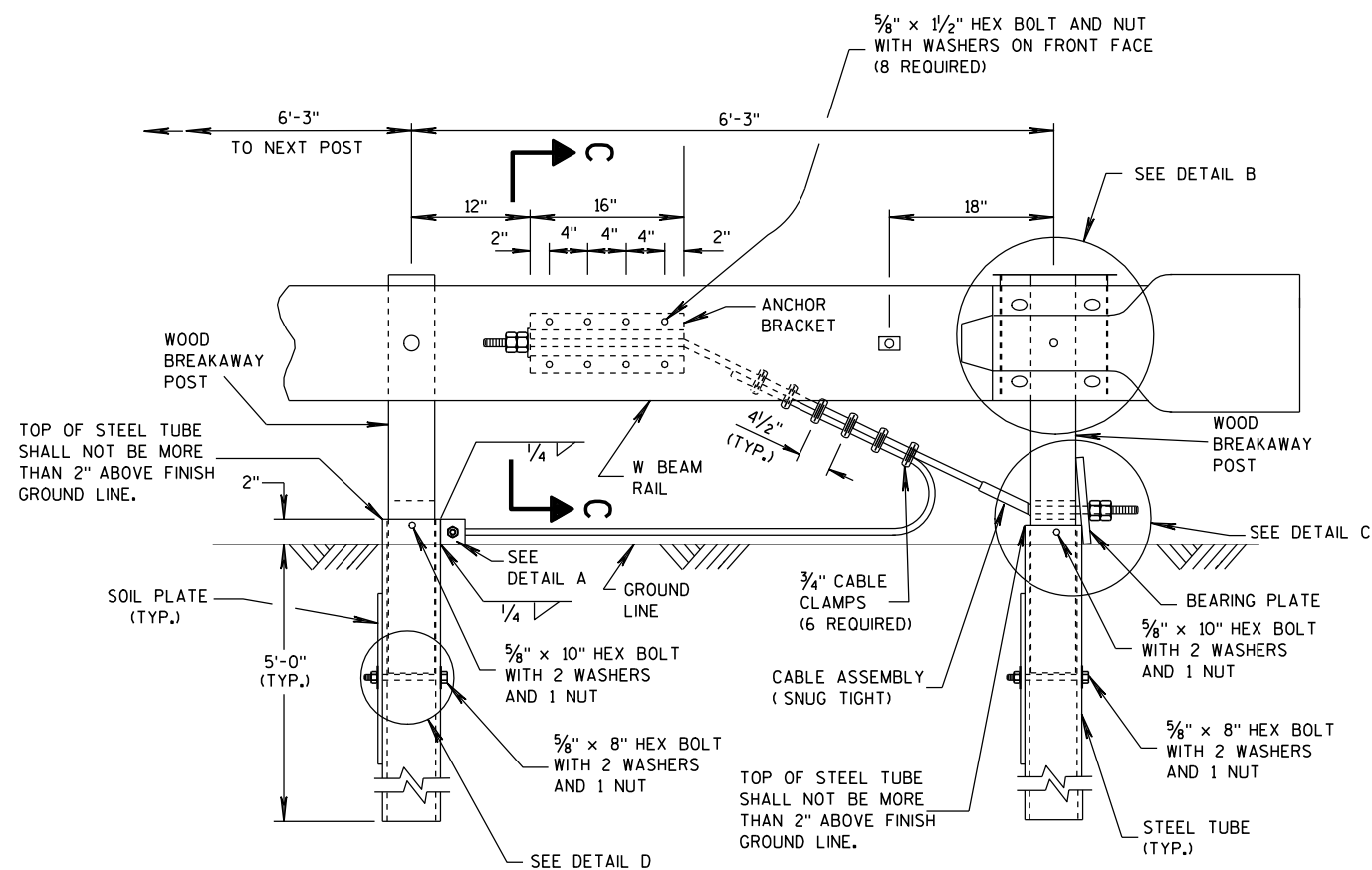
SECTION B-B
(BEAM GUARD POST)

STEEL PLATE BEAM GUARD
SHORT RADIUS TERMINAL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



PLAN VIEW

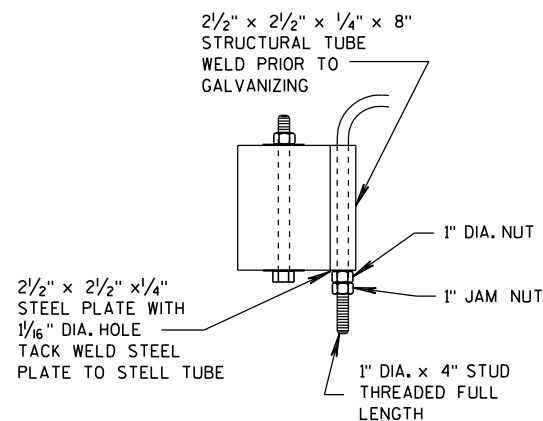


ELEVATION VIEW

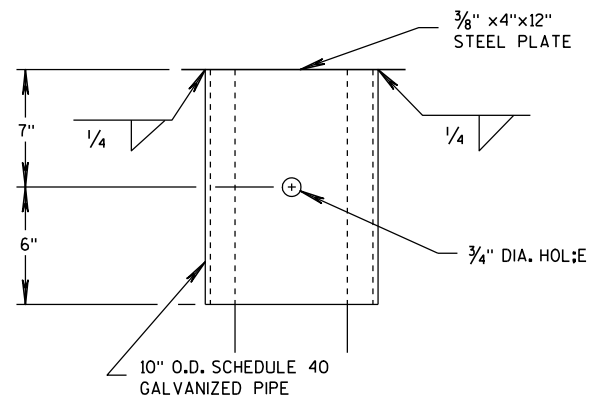
STEEL PLATE BEAM GUARD SHORT RADIUS TERMINAL

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

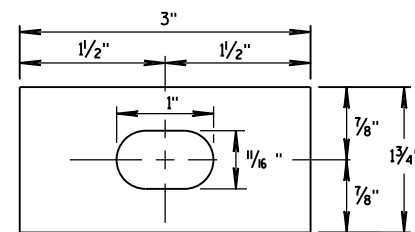


DETAIL B

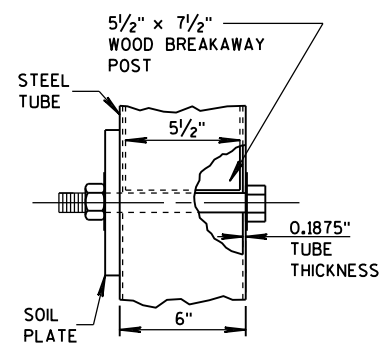
(BEAM GUARD AND TERMINAL SECTION NOT SHOWN)

STEEL PLATE BEAM GUARD
SHORT RADIUS TERMINAL

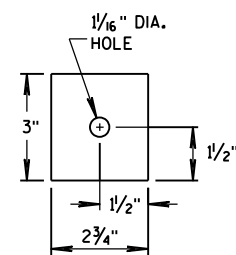
STATE OF WISCONSIN
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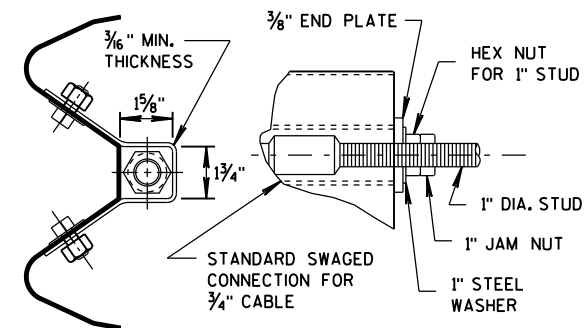
**RECTANGULAR
PLATE WASHER**



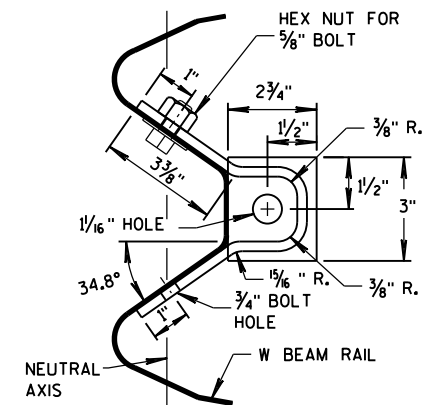
DETAIL D



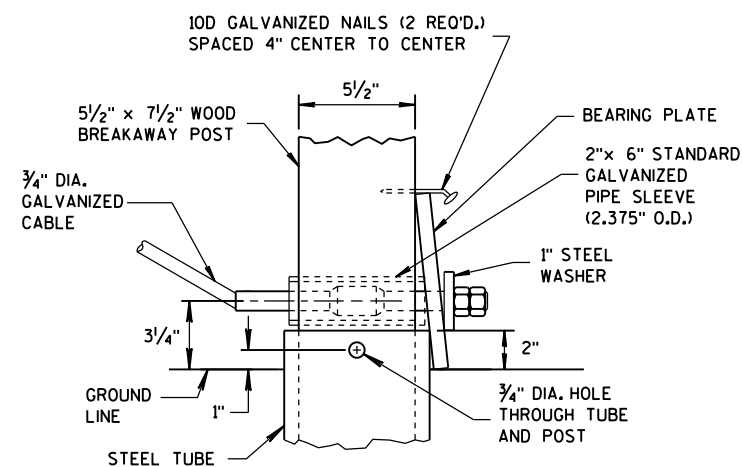
END PLATE



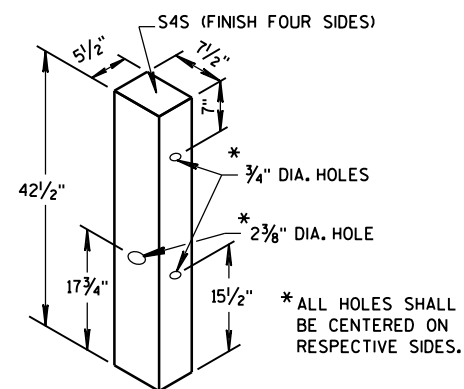
SECTION C-C
(END PLATE REMOVED)



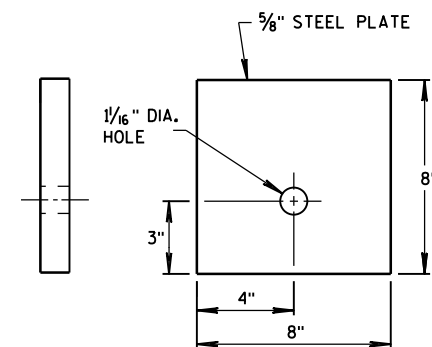
ANCHOR BRACKET



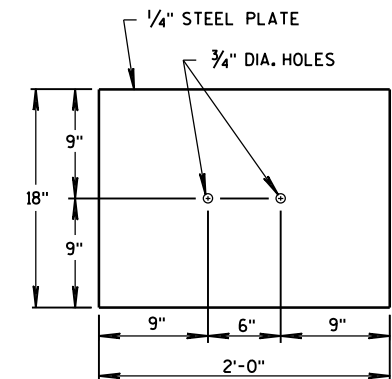
DETAIL C



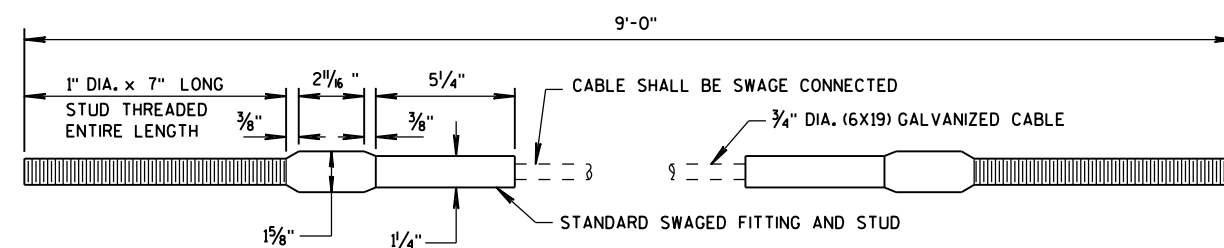
WOOD BREAKAWAY POST



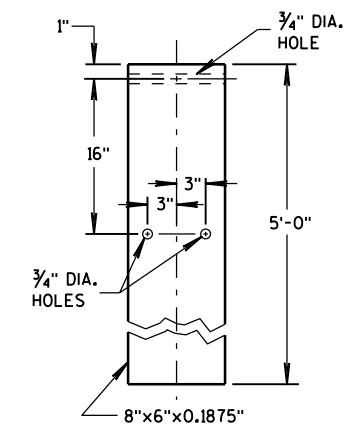
BEARING PLATE



SOIL PLATE



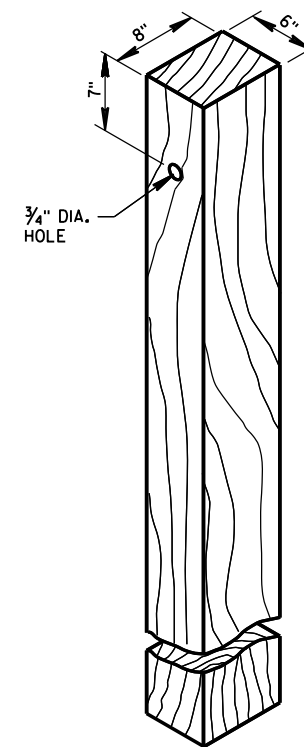
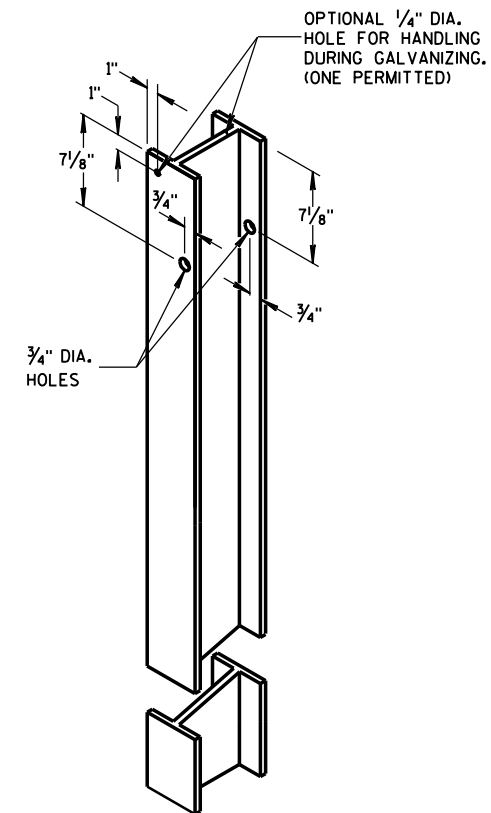
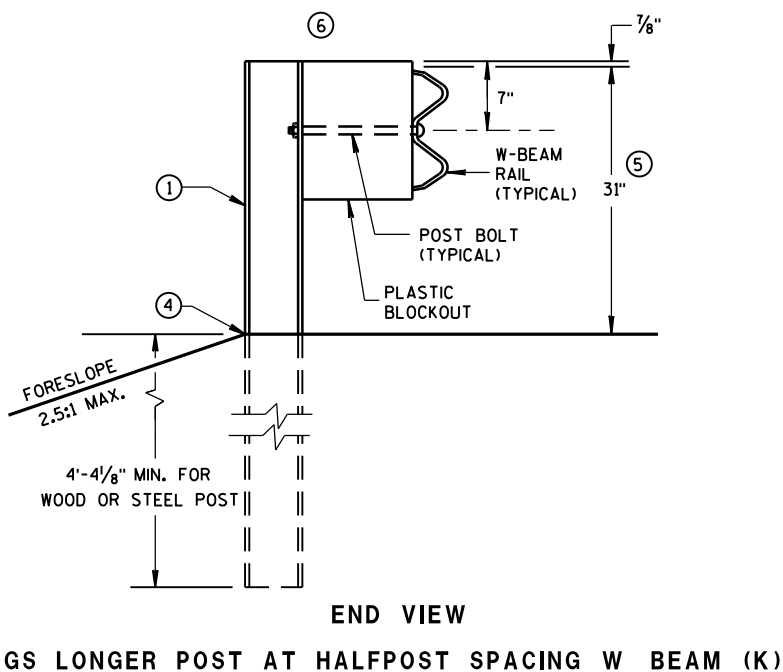
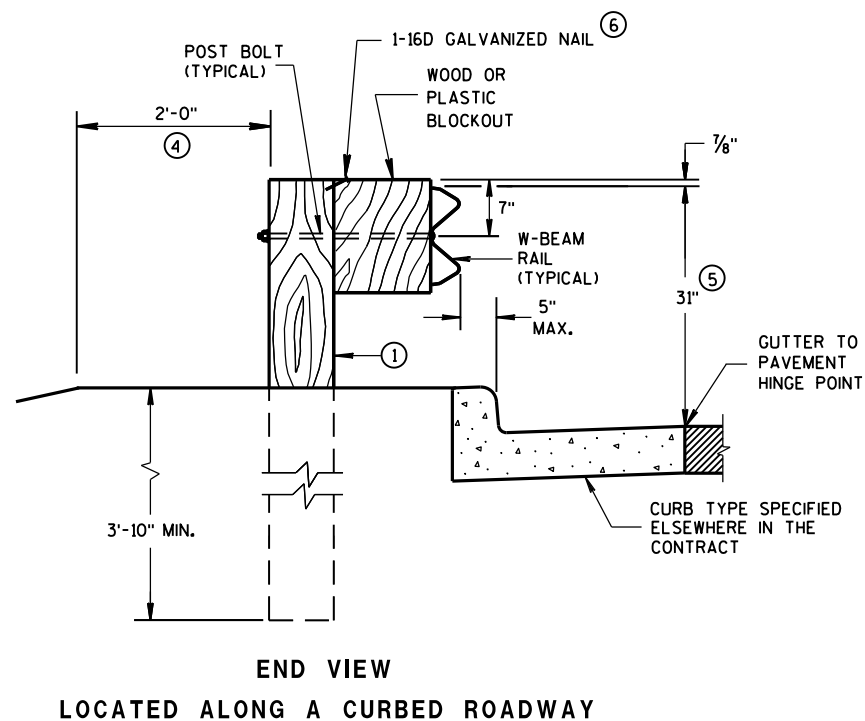
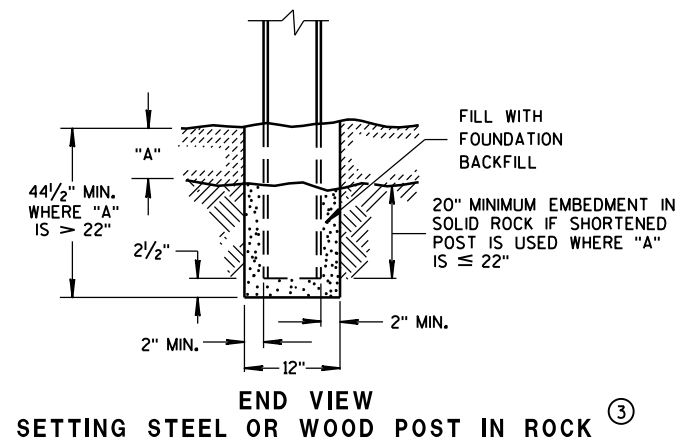
CABLE ASSEMBLY



STEEL TUBE

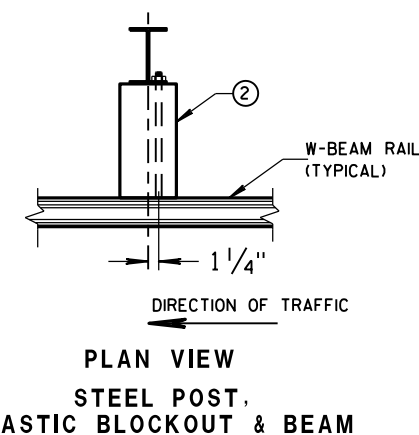
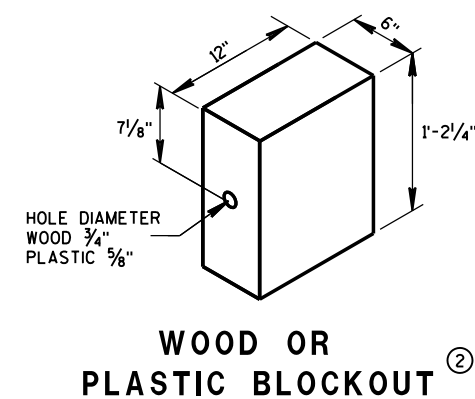
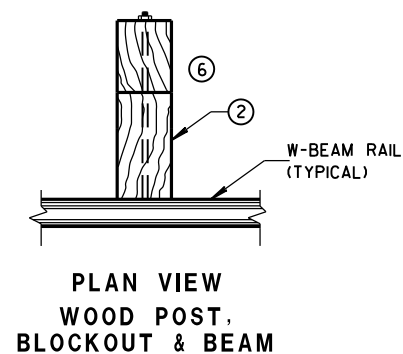
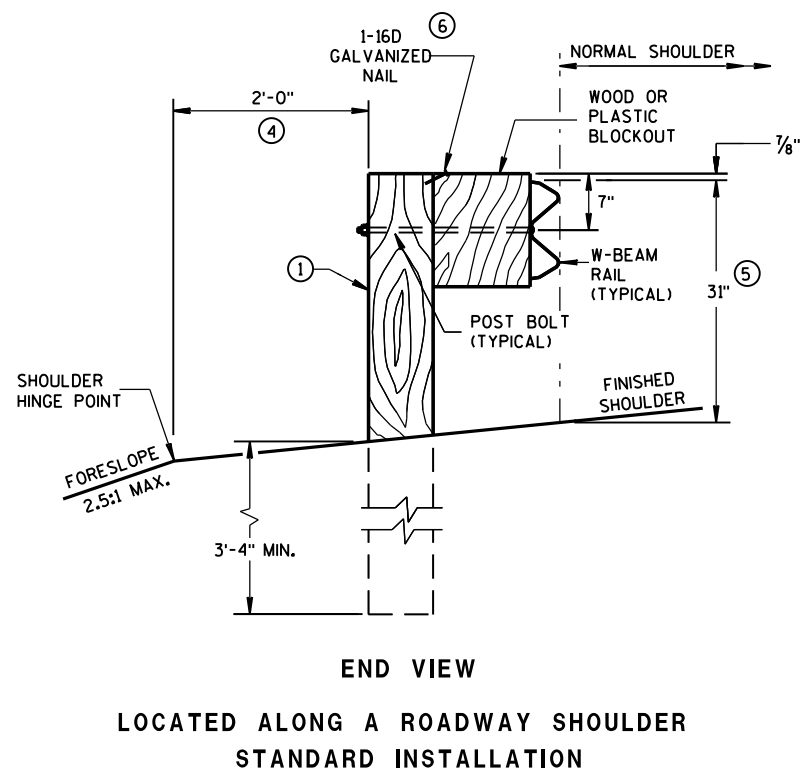
STEEL PLATE BEAM GUARD SHORT RADIUS TERMINAL	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 12/18/08 DATE	/S/ Jerry H. Zogg ROADWAY STANDARDS DEVELOPMENT ENGINEER
FHWA	

- 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 2 1/2 INCHES OF GRANULAR MATERIAL IN THE BOTTOM OF THE HOLE. CUT THE POSTS THE TO LENGTH AND INSTALL. BACKFILL WITH EXCAVATED MATERIAL AND COMPACT. BACKFILL IS TO BE FREE OF LARGE ROCKS.
- ④ WHEN THE DISTANCE FROM BACK OF POST TO SHOULDER HINGE POINT IS LESS THAN 2 FEET INSTALL LONGER POST AT HALF POST SPACING (K).
- ⑤ FOR NEW MGS INSTALLATION TOP OF W-BEAM RAIL TOLERANCE IS $\pm 1"$. FOR EXISTING MGS INSTALLATION TOP OF W-BEAM IS BETWEEN 27 3/4" TO 32".
- ⑥ WHEN USING STEEL POST AND WOOD BLOCKOUTS INSTALL FOUR 16D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.



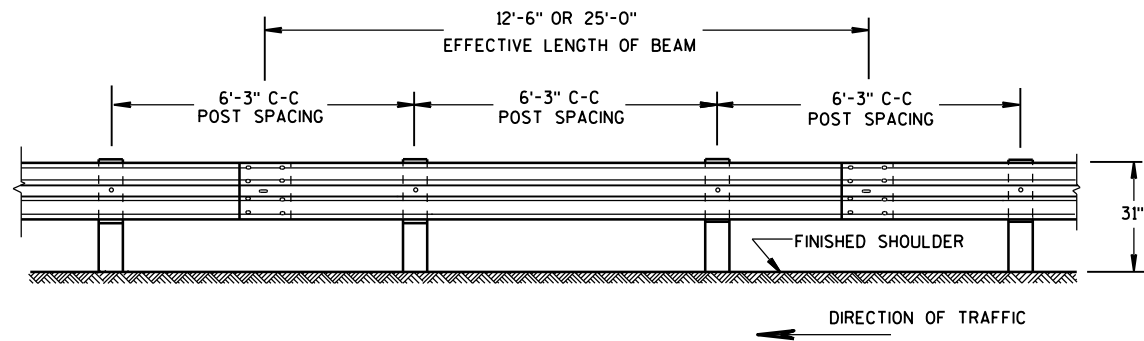
**STEEL POST &
HOLE PUNCHING DETAIL
(w6X9) ①**

**WOOD POST
(6" X 8") NOMINAL ①**



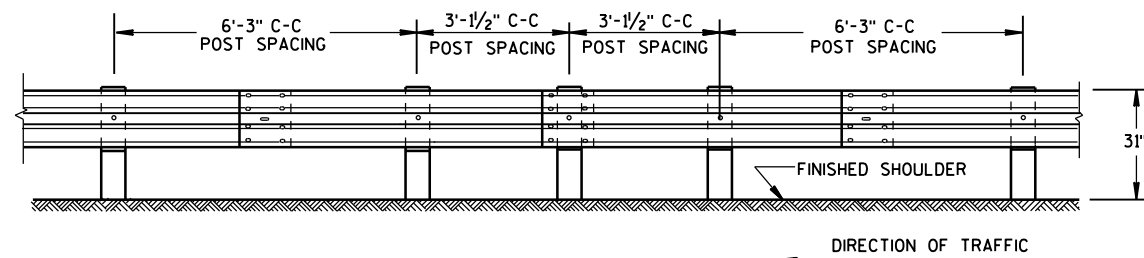
**MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL**

**STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION**



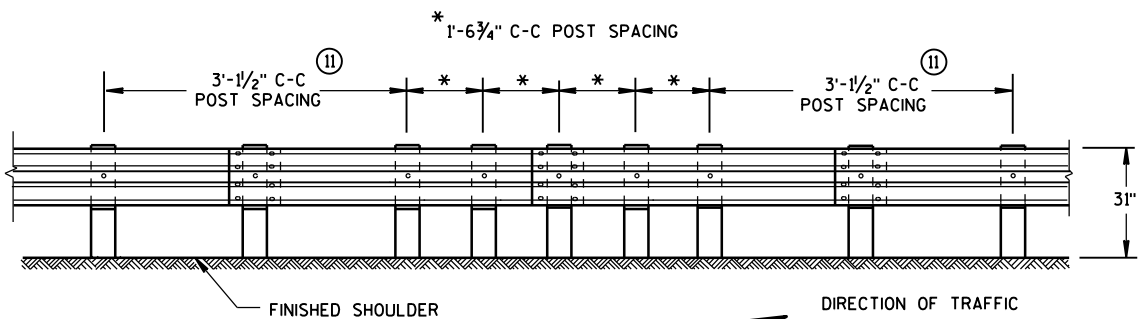
FRONT VIEW

POST SPACING STANDARD INSTALLATION



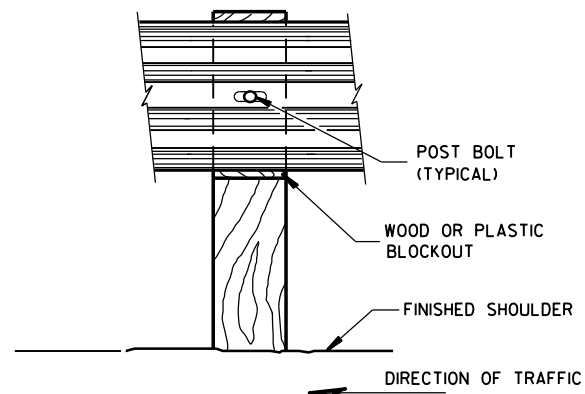
FRONT VIEW

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

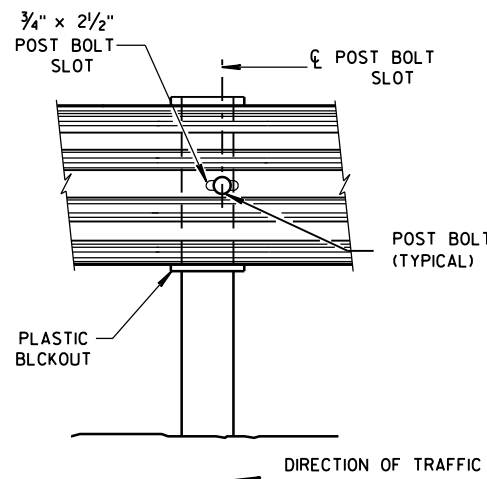


FRONT VIEW

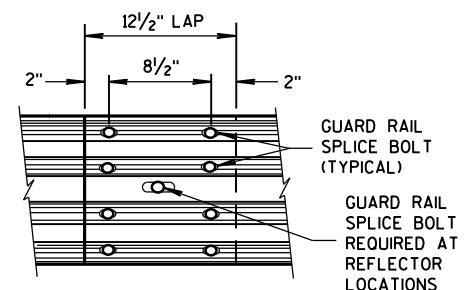
QUARTER POST SPACING (QS)



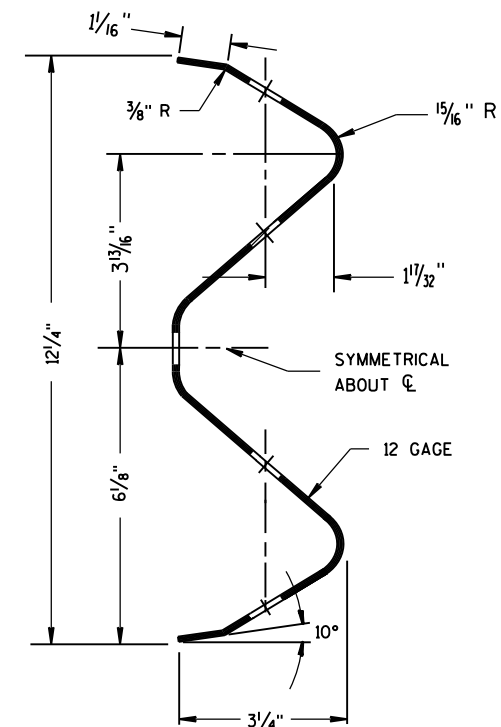
FRONT VIEW AT WOOD POST



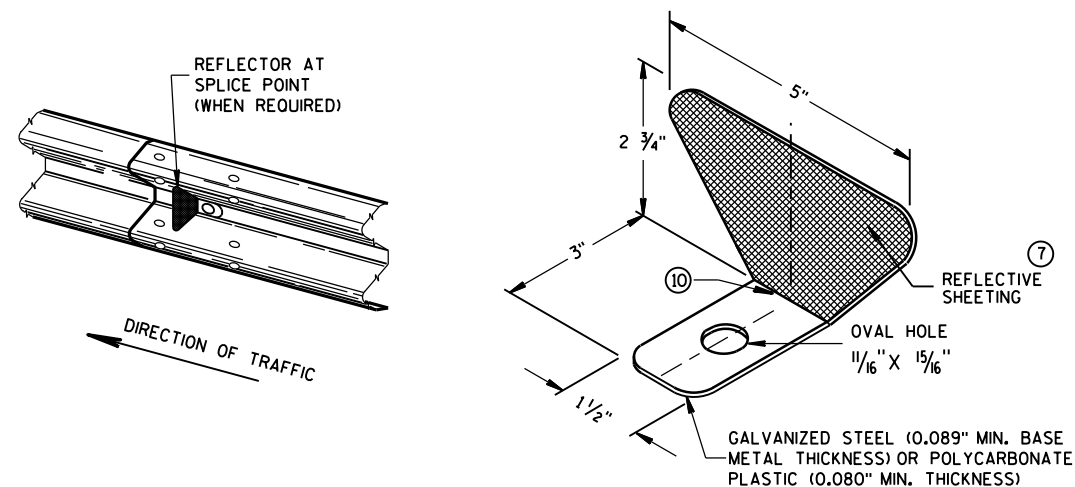
FRONT VIEW AT STEEL POST



FRONT VIEW
MID-SPAN BEAM SPLICE



SECTION THRU W-BEAM RAIL



ONE SIDED REFLECTOR DETAIL AND TYPICAL INSTALLATION

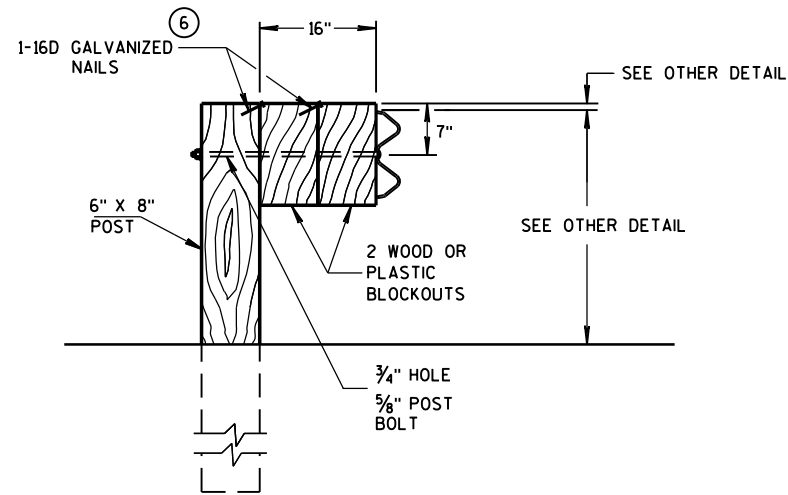
- ⑦ PROVIDE SILVER REFLECTIVE SHEETING ON ALL REFLECTORS EXCEPT THOSE LOCATED ALONG THE LEFT EDGE OF ONE-WAY ROADWAYS, WHICH SHALL BE PROVIDED WITH YELLOW REFLECTIVE SHEETING. SHEETING IS TYPE H. SEE STANDARD SPECIFICATION 637.
 - ⑧ DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF 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	

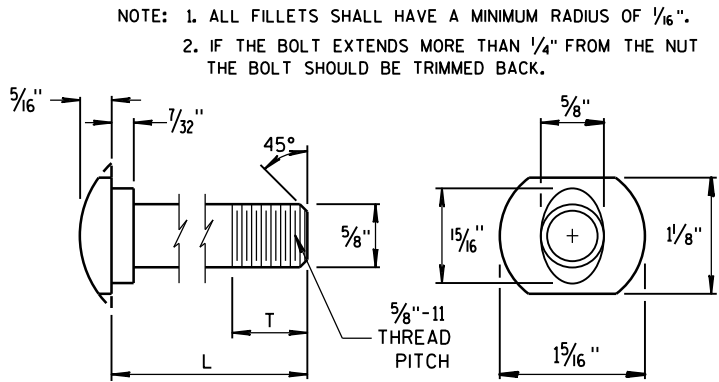
MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

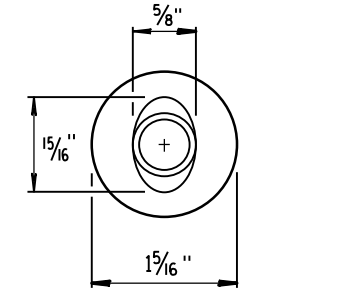


DETAIL FOR 16" BLOCKOUT DEPTH

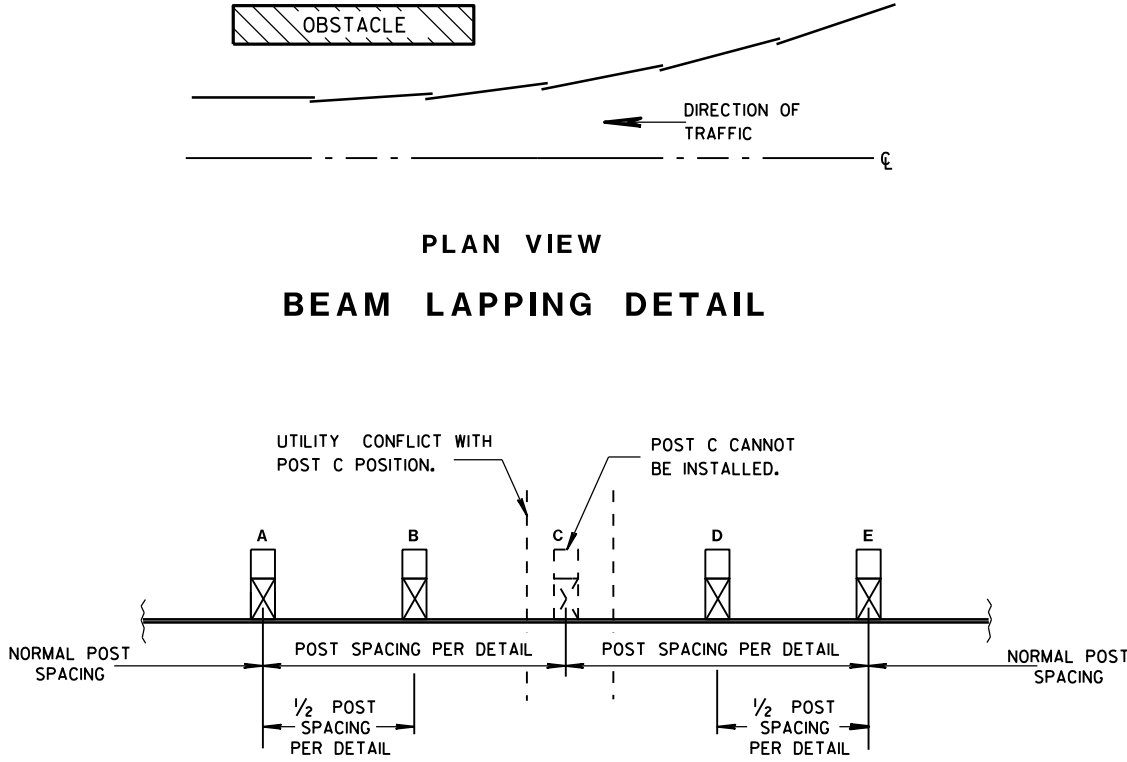
IT IS ACCEPTABLE TO USE BLOCKOUTS UP TO 16" DEEP TO INCREASE THE POST OFFSET TO AVOID UNDERGROUND OBSTACLES. THERE IS NO LIMIT TO THE NUMBER OF POSTS THAT CAN HAVE ADDITIONAL BLOCKOUTS UP TO 16" DEEP.



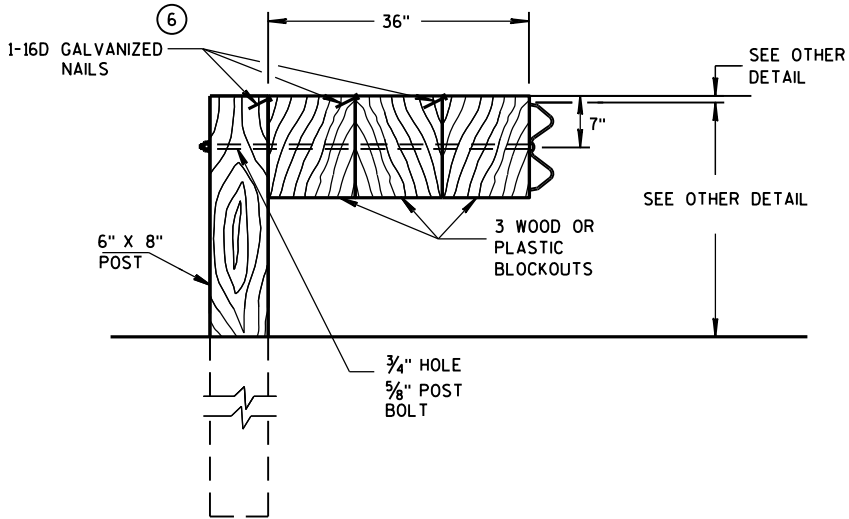
POST BOLT TABLE



ALTERNATE BOLT HEAD



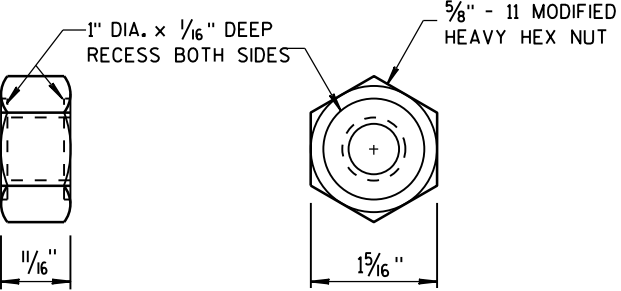
POST DRIVING FOR CONTINUOUS UNDERGROUND OBSTRUCTION



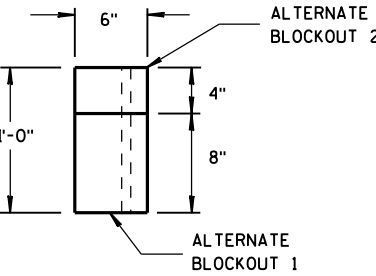
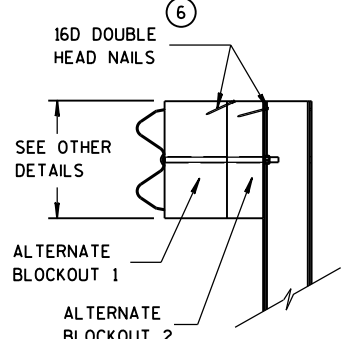
DETAIL FOR 36" BLOCKOUT DEPTH

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

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



POST BOLT, SPLICE BOLT AND RECESS NUT



ALTERNATE WOOD BLOCKOUT DETAIL

MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED June 2016 DATE	/S/ Jerry H. Zogg 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.

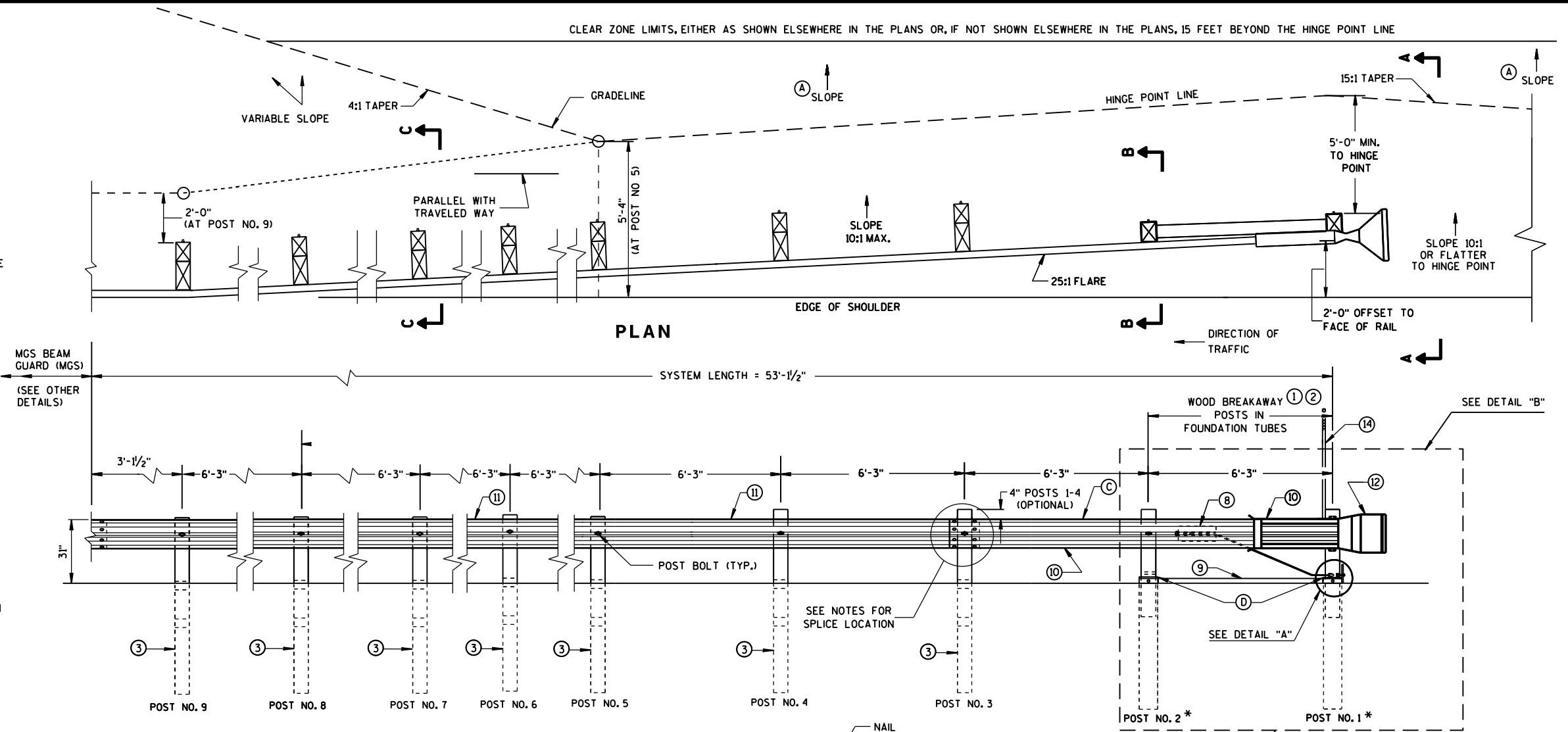
SEE SDD 14B42 FOR MORE INFORMATION.

* DO NOT ATTACH BLOCKOUTS TO POSTS 1 AND 2.

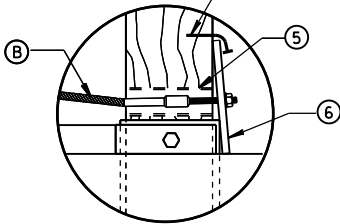
DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINAL.

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.

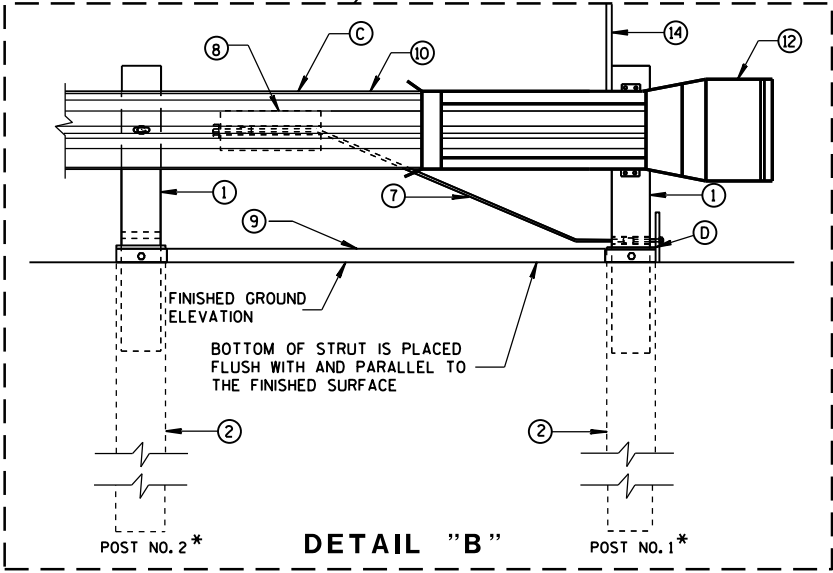
THE CENTER OF THE UPPER 3/2" DIAMETER HOLE ON POST NUMBER 3 THROUGH POST 9 IS TO BE FLUSH WITH THE GROUND LINE UP TO A MAXIMUM OF 2" ABOVE GROUND LINE.



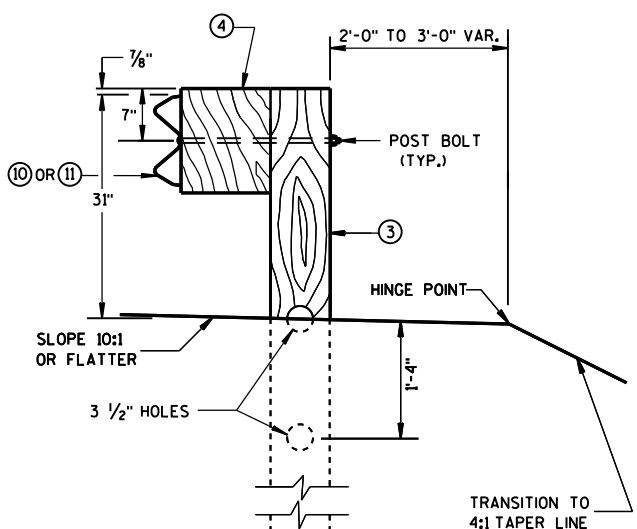
ELEVATION



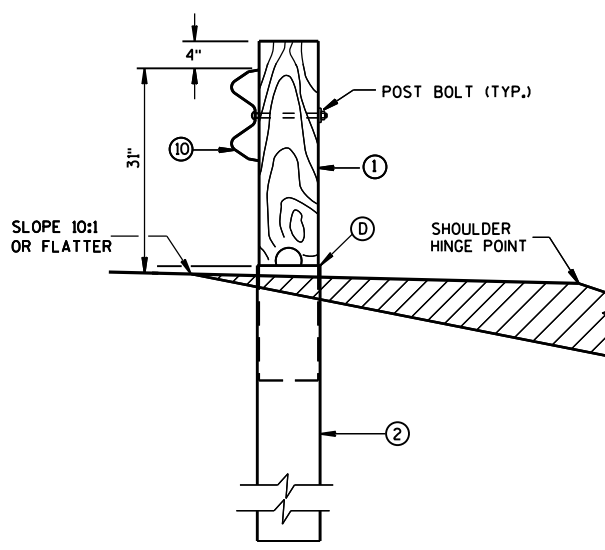
DETAIL "A"



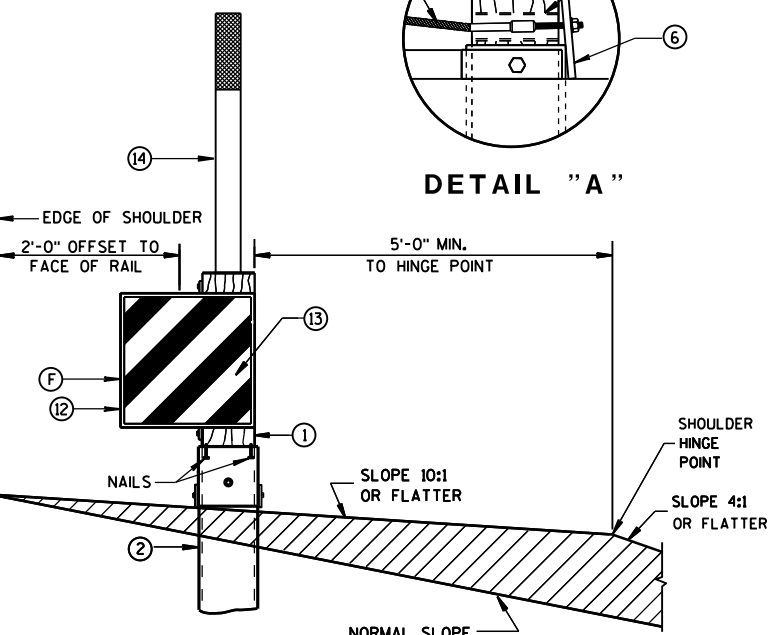
DETAIL "B"



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



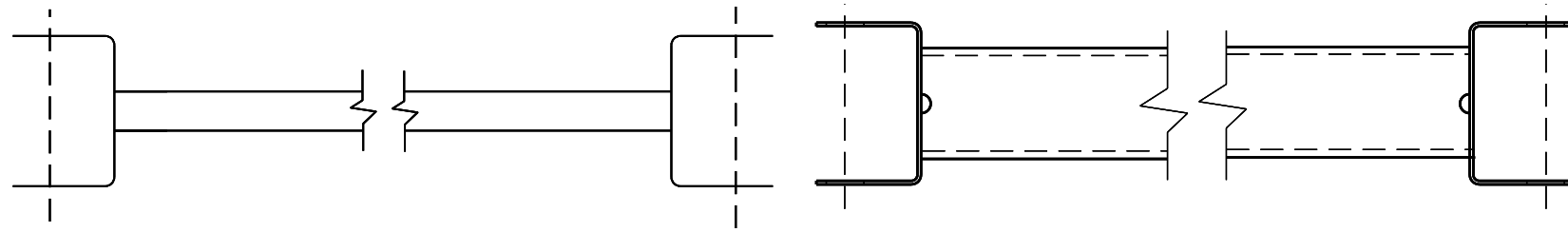
SECTION B-B
TYPICAL AT POST NO. 2*



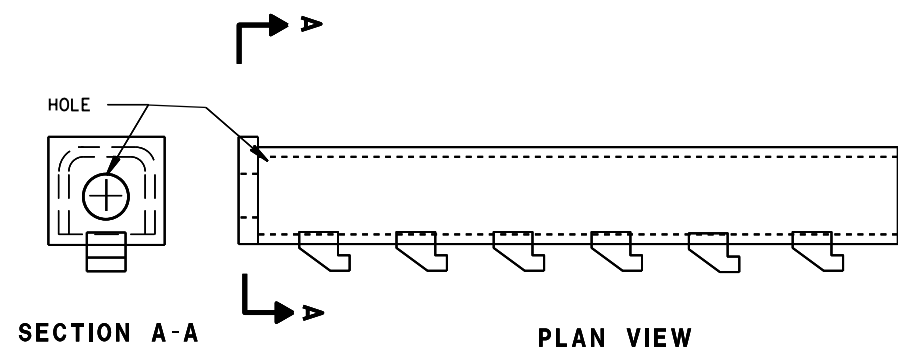
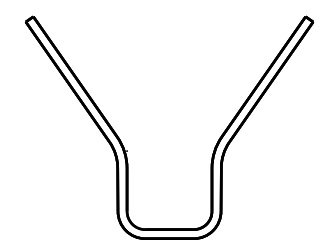
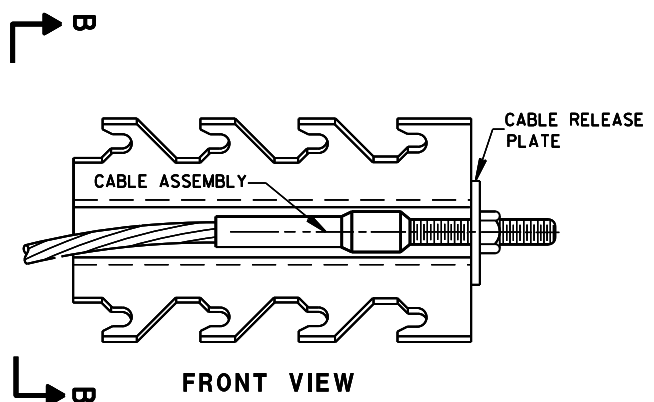
SECTION A-A
TYPICAL AT POST NO. 1*

MIDWEST GUARDRAIL SYSTEM
ENERGY ABSORBING TERMINAL
(MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



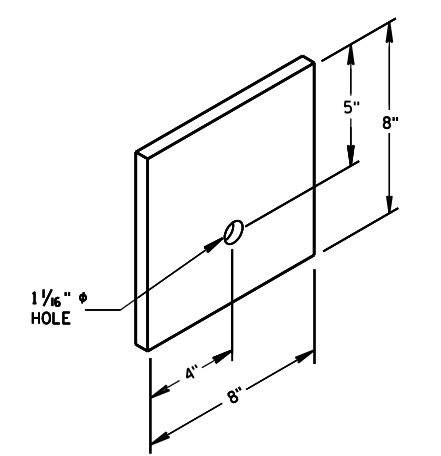
9 H
GENERIC GROUND STRUT



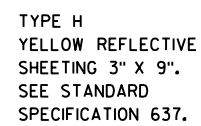
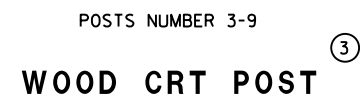
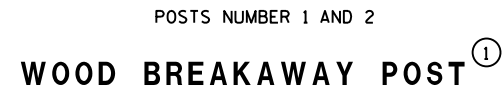
8 H
GENERIC ANCHOR CABLE BOX

BILL OF MATERIALS

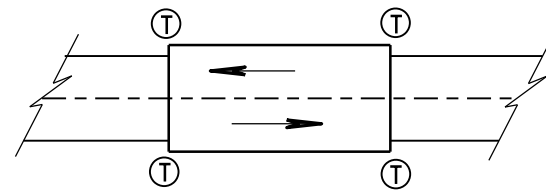
PART NO.	DESCRIPTION
MATERIALS PROVIDED BY MGS EAT MANUFACTURER. SEE MANUFACTURER'S DETAILS FOR MORE INFORMATION.	
①	WOOD BREAKAWAY POST
②	6" X 8" X 0.188", 6'-0" LONG FOUNDATION TUBE AT POSTS 1 AND 2
③	WOOD CRT
④	WOOD BLOCKOUT
⑤	PIPE SLEEVE
⑥	BEARING PLATE
⑦	BCT CABLE ASSEMBLY
⑧	ANCHOR CABLE BOX
⑨	GROUND 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

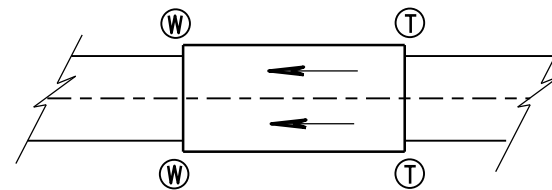


MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED June 2014	<i>/S/ Jerry H. Zogg</i>
DATE	ROADWAY STANDARDS DEVELOPMENT ENGINEER
FHWA	



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.

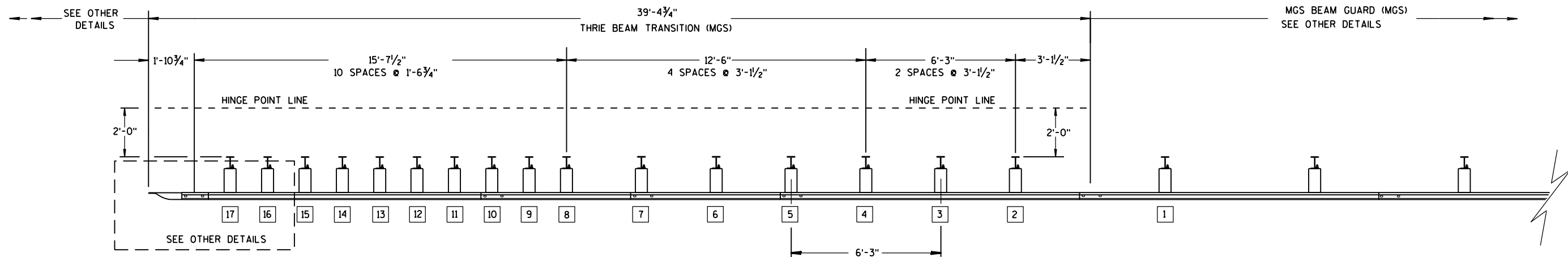
TRANSITION USES STEEL POSTS ONLY.

SEE STANDARD DETAIL DRAWING 14 B 42 FOR MORE INFORMATION.

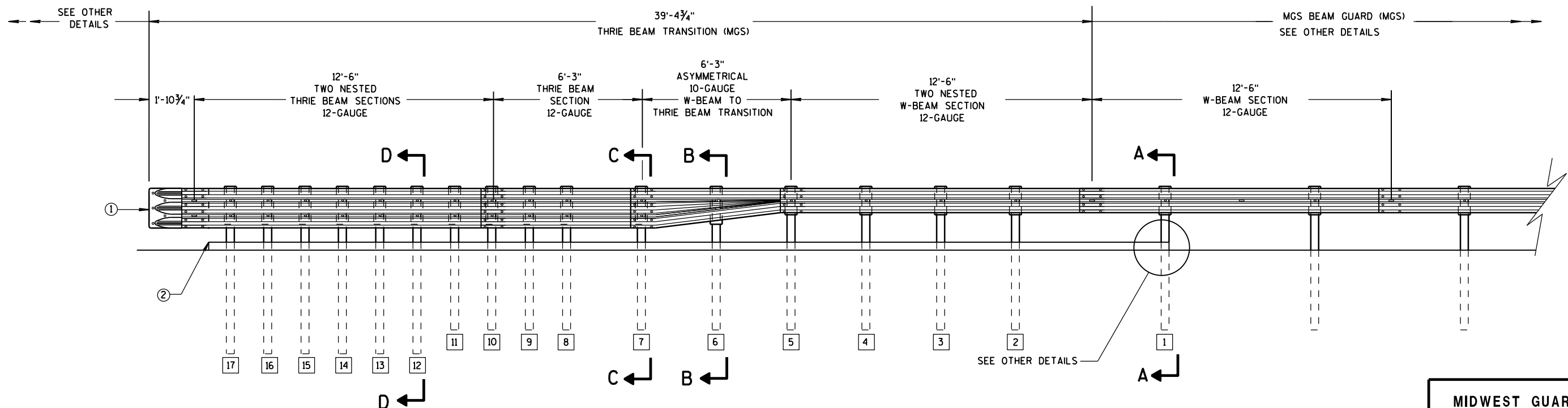
① BRIDGE RAILING TYPE "W" DOES NOT REQUIRE A TERMINAL CONNECTOR.

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)

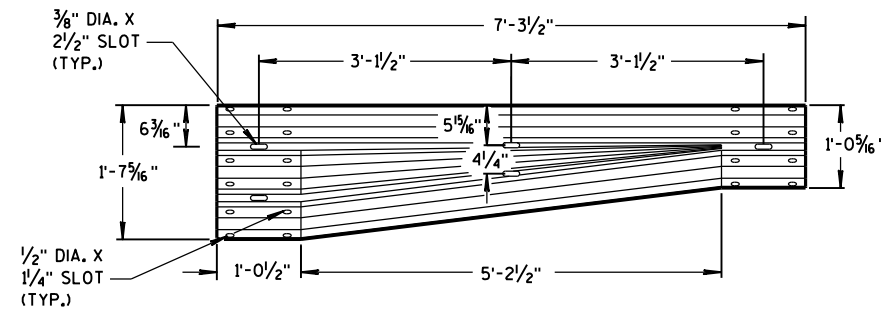
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6

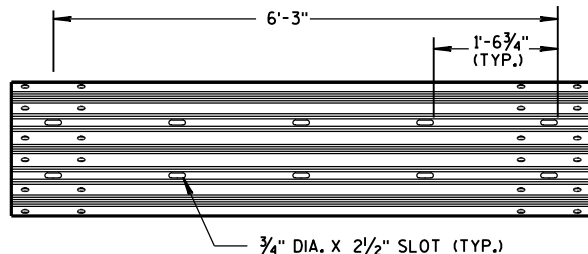
- S.D.D. 14 B 45-4b**



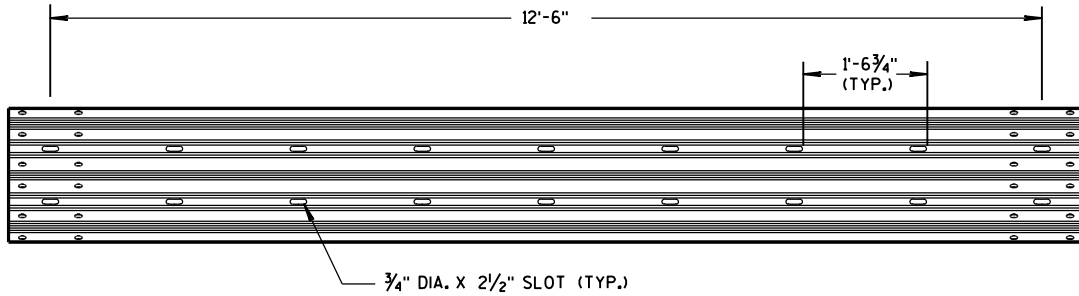
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



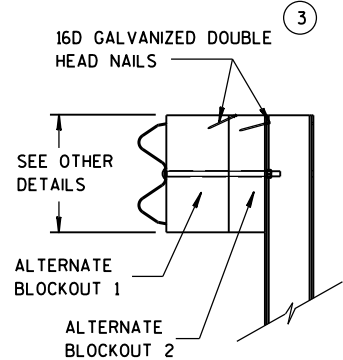
W-BEAM TO THRIE BEAM TRANSITION SECTION



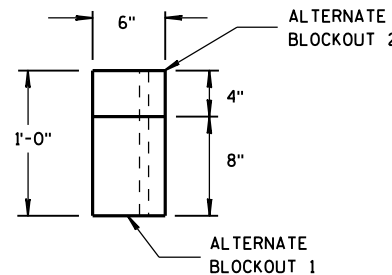
6'-3" THRIE BEAM SECTION



12'-6" THRIE BEAM SECTION

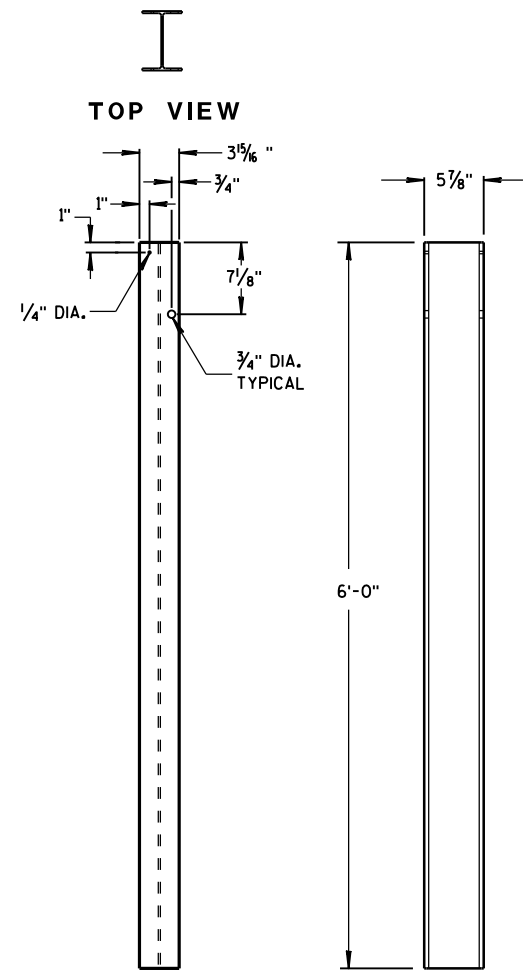


SIDE VIEW



TOP VIEW

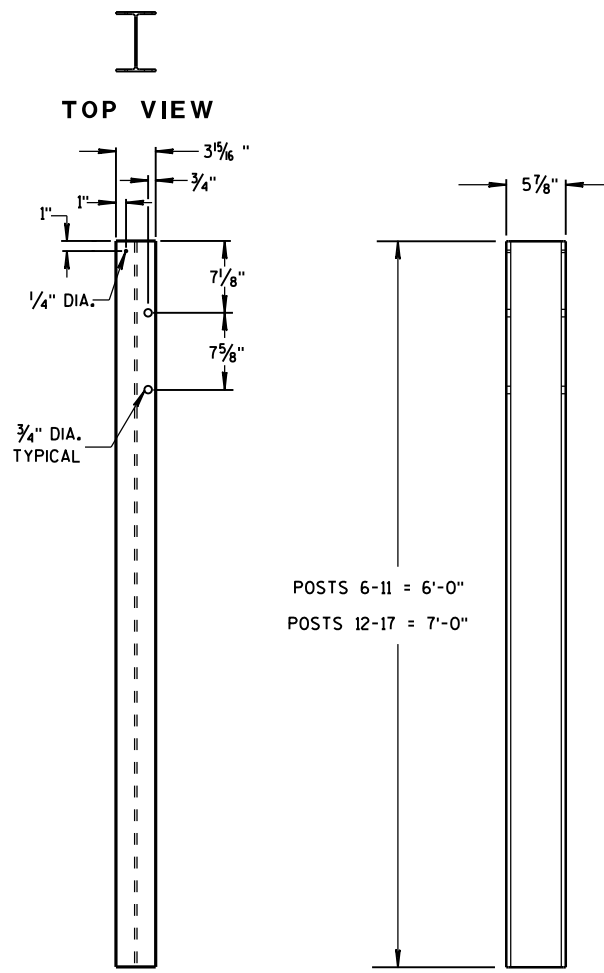
ALTERNATE WOOD BLOCKOUT DETAIL



FRONT VIEW

SIDE VIEW

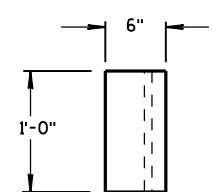
STEEL POSTS 1-5



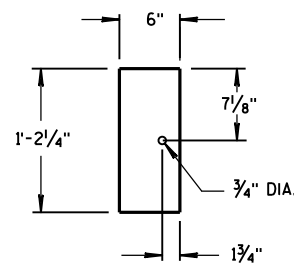
FRONT VIEW

SIDE VIEW

STEEL POSTS 6-17

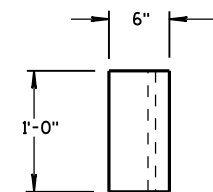


TOP VIEW

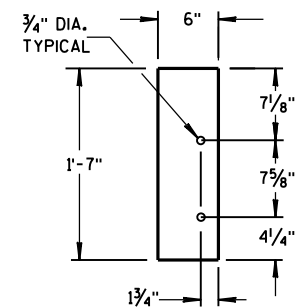


FRONT VIEW

BLOCKOUT POSTS 1-5



TOP VIEW



FRONT VIEW

BLOCKOUT POSTS 6-17

GENERAL NOTES

STEEL POSTS ARE W6X9 OR W6X8.5.

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

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

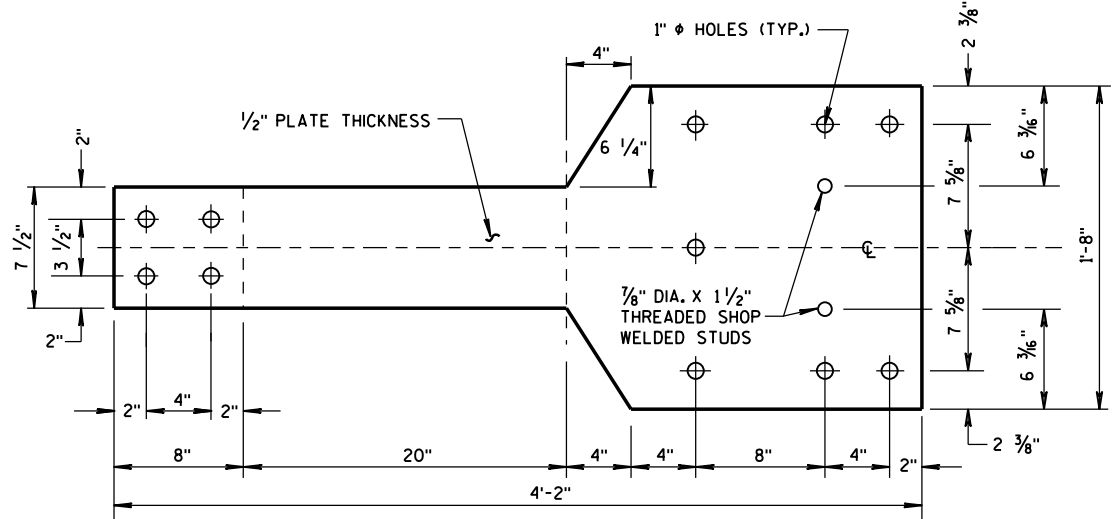
5 WOOD BLOCKS MAY BE CONSTRUCTED OUT OF 2 WOOD BLOCKS. SEE ALTERNATE WOOD BLOCK DETAIL.

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

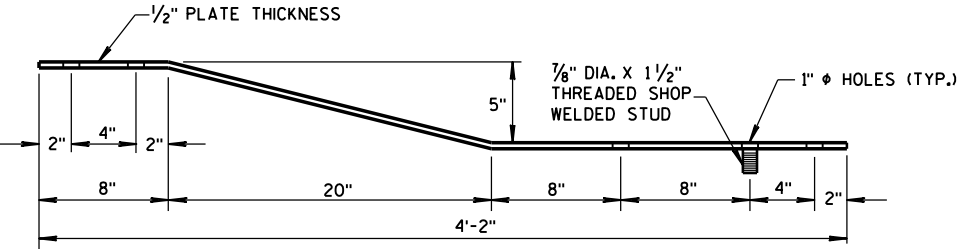
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

GENERAL NOTES

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

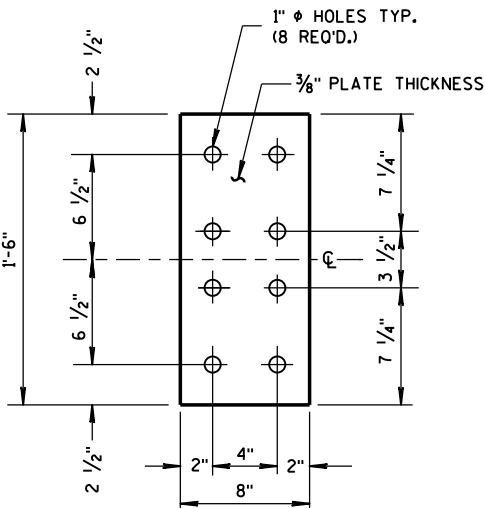


FRONT VIEW



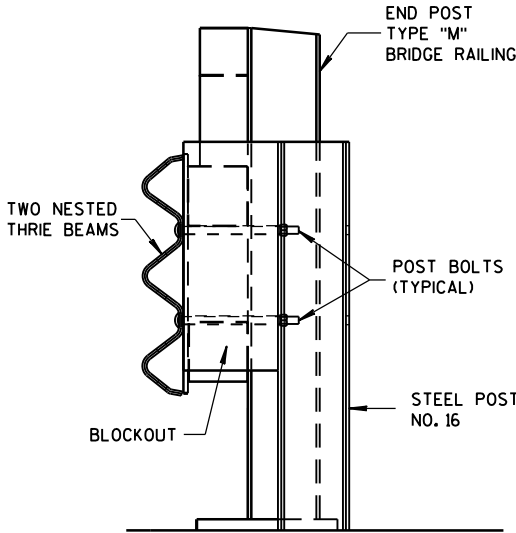
PLAN VIEW

BACK-UP PLATE DETAIL, TYPE "M"

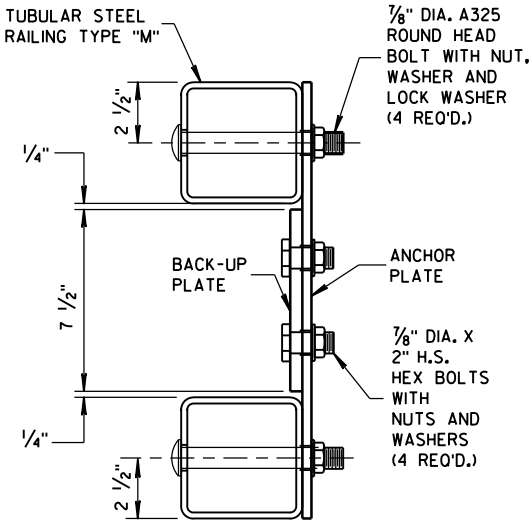


FRONT VIEW

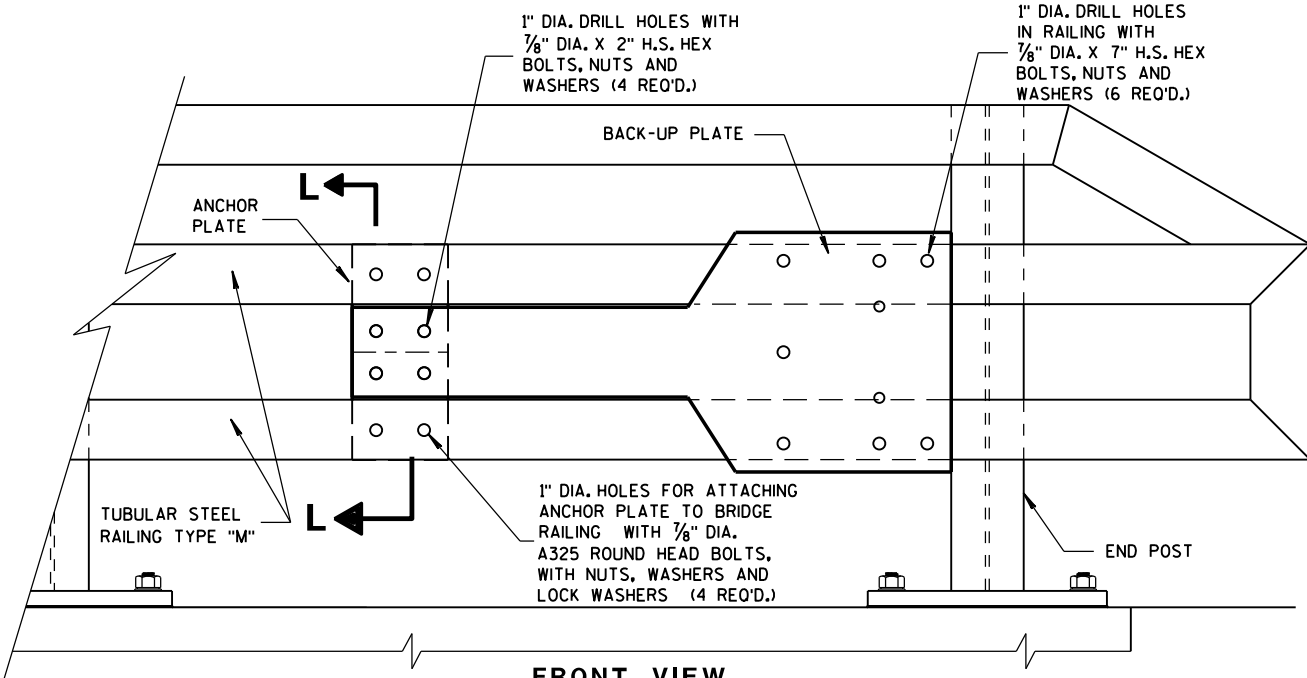
ANCHOR PLATE DETAIL, TYPE "M"



SECTION M-M

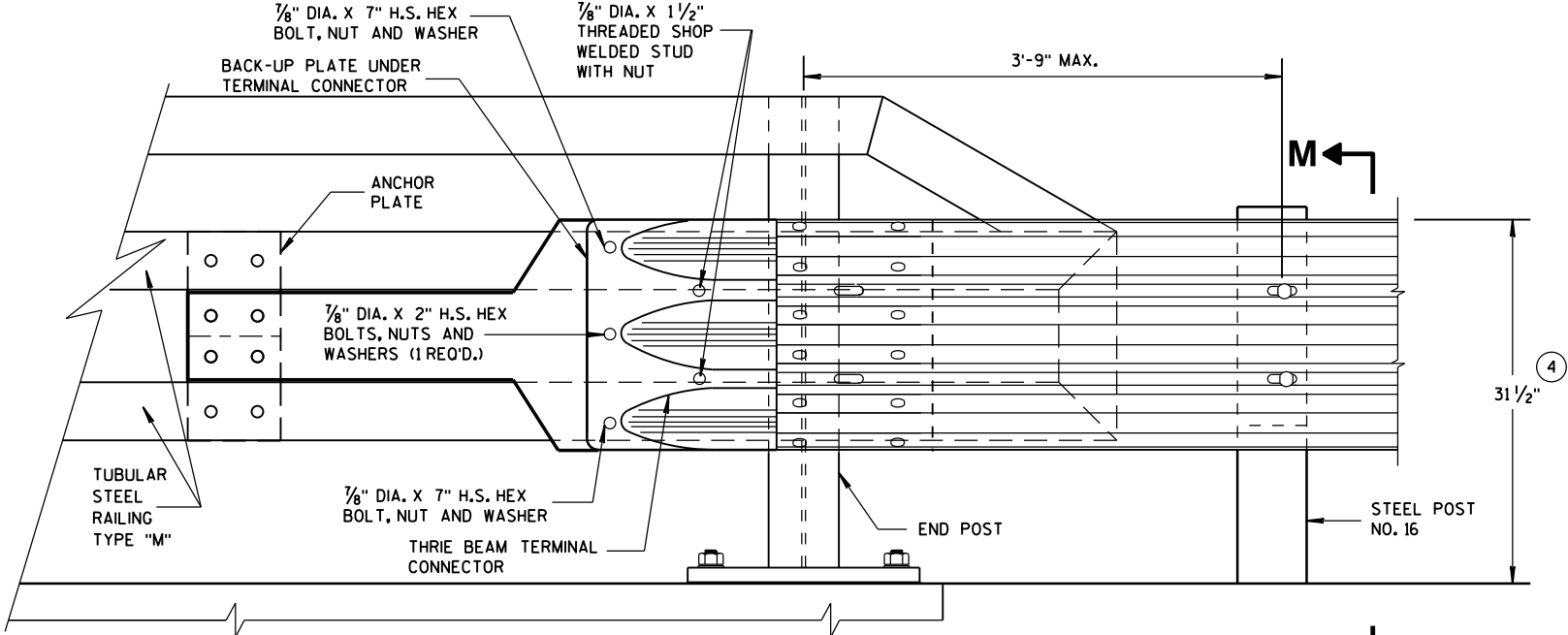


SECTION L-L

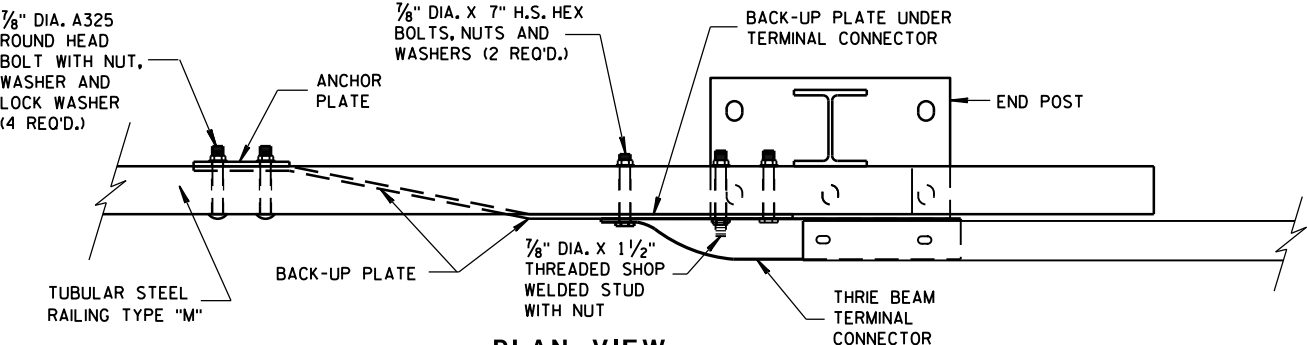


FRONT VIEW

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



FRONT VIEW



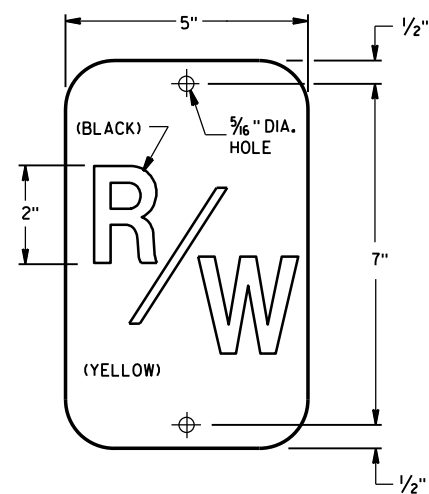
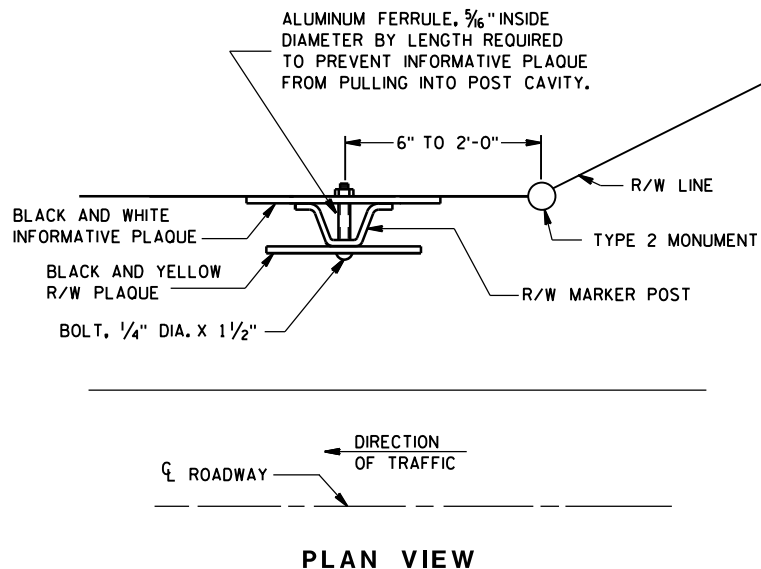
PLAN VIEW

THRIE BEAM CONNECTION TO TUBULAR RAILING, TYPE "M"

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

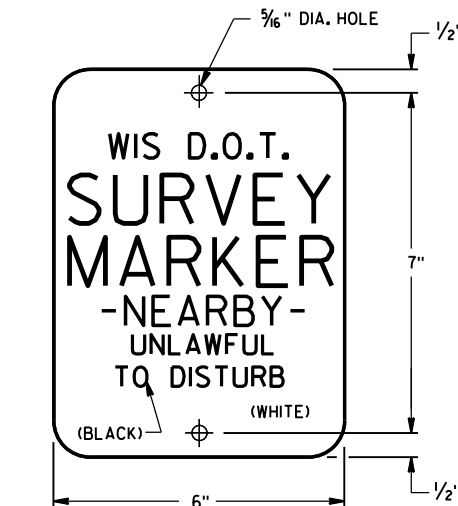
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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



R/W PLAQUE

THE RIGHT-OF-WAY PLAQUE AND INFORMATIVE PLAQUE WILL BE FURNISHED BY THE WISCONSIN DEPARTMENT OF TRANSPORTATION.



INFORMATIVE PLAQUE

GENERAL NOTES

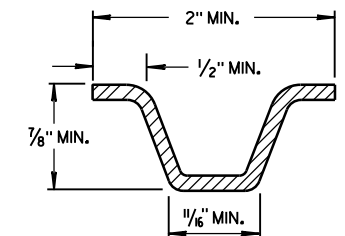
DETAILS OF CONSTRUCTION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

A STEEL MARKER POST FOR RIGHT-OF-WAY SHALL BE PLACED IN THE RIGHT-OF-WAY, WITH THE BACK OF THE POST ON THE LONGER RIGHT-OF-WAY TANGENT, 6 INCHES TO 24 INCHES FROM EACH TYPE 2 MONUMENT TO SERVE AS A GUARD POST, AND AT OTHER LOCATIONS AS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER.

THE 'R/W' PLAQUE SHALL FACE THE ROADWAY AND THE INFORMATIVE PLAQUE SHALL FACE AWAY FROM THE ROADWAY. R/W AND INFORMATIVE PLAQUES WILL BE FURNISHED BY THE DEPARTMENT OF TRANSPORTATION.

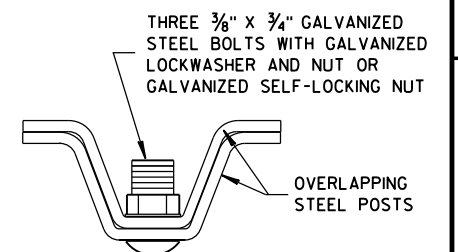
STEEL MARKER POSTS SHALL MEET THE MINIMUM MATERIAL REQUIREMENTS FOR STEEL DELINEATOR POSTS; EXCEPT POSTS PAINTED WITH FEDERAL YELLOW ENAMEL NEED NOT BE ZINC COATED.

- ① IN AREAS OF SOLID ROCK, DRILL A BORE HOLE 2" GREATER THAN THE WIDEST DIMENSION OF THE POST CROSS SECTION INTO THE ROCK TO A MINIMUM DEPTH OF 12 INCHES. CUT OR SPLICE THE POST SO THAT A MINIMUM LENGTH OF 3' 10" PROTRUDES ABOVE THE GROUND. BLOW OUT THE BORE HOLE IN THE ROCK USING COMPRESSED AIR. FILL THE BORE HOLE WITH CEMENT GROUT, OR EQUIVALENT, DEPENDING ON THE STABILITY OF THE ROCK.

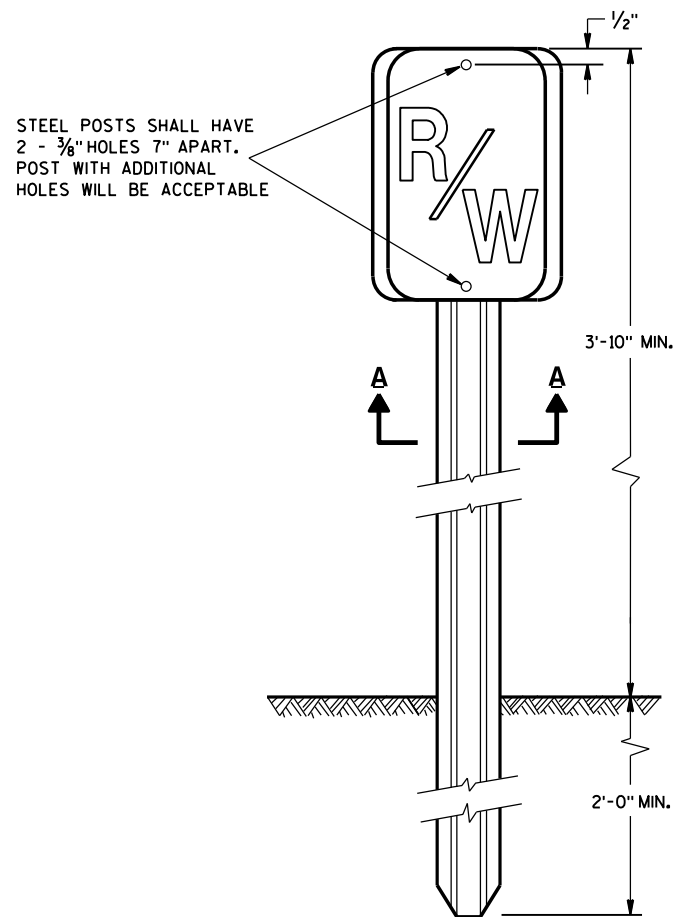


MIN. WEIGHT 1.12 LB./FT.

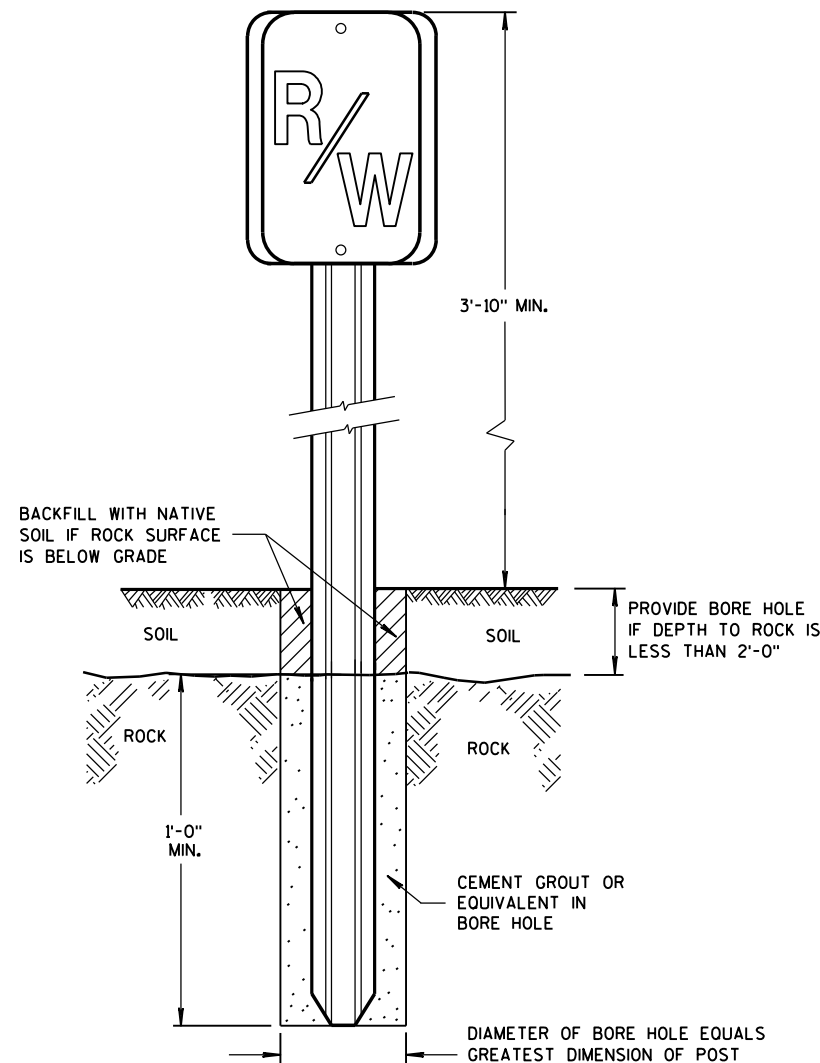
SECTION A-A



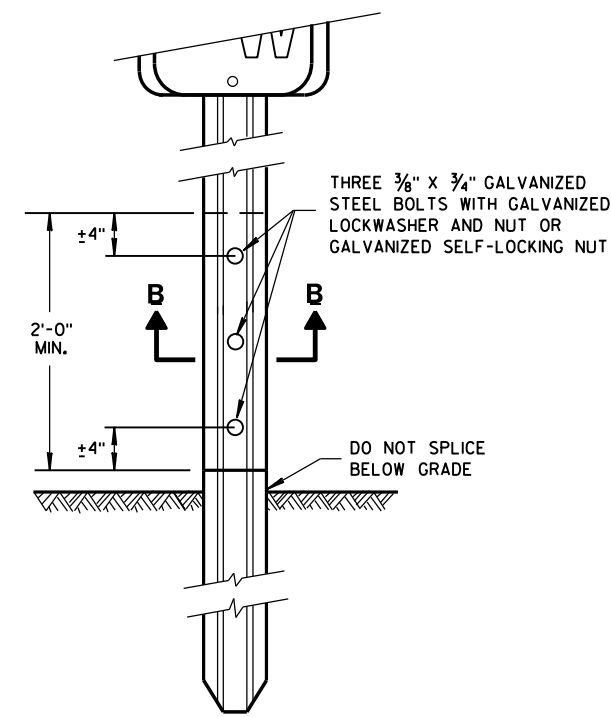
SECTION B-B



**FRONT VIEW
STEEL MARKER POST**



**FRONT VIEW
ROCK INSTALLATION** ①

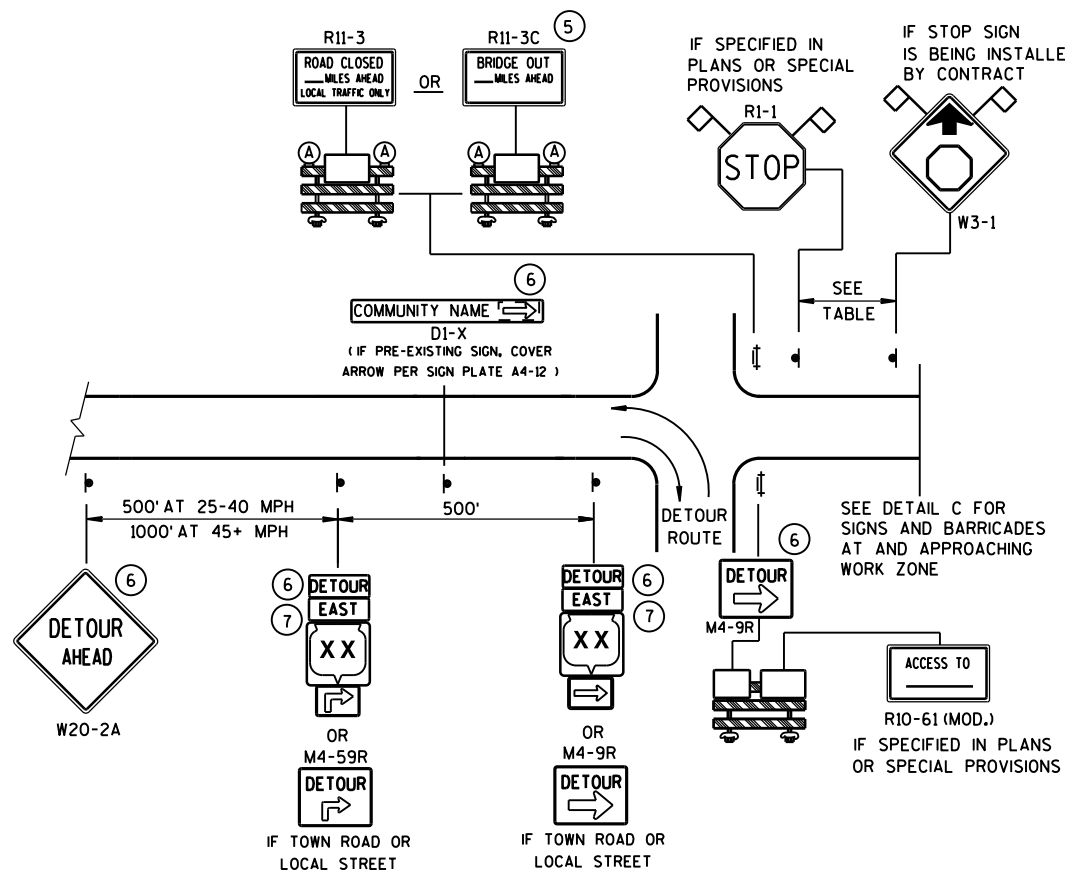


**FRONT VIEW
SPLICE DETAIL**

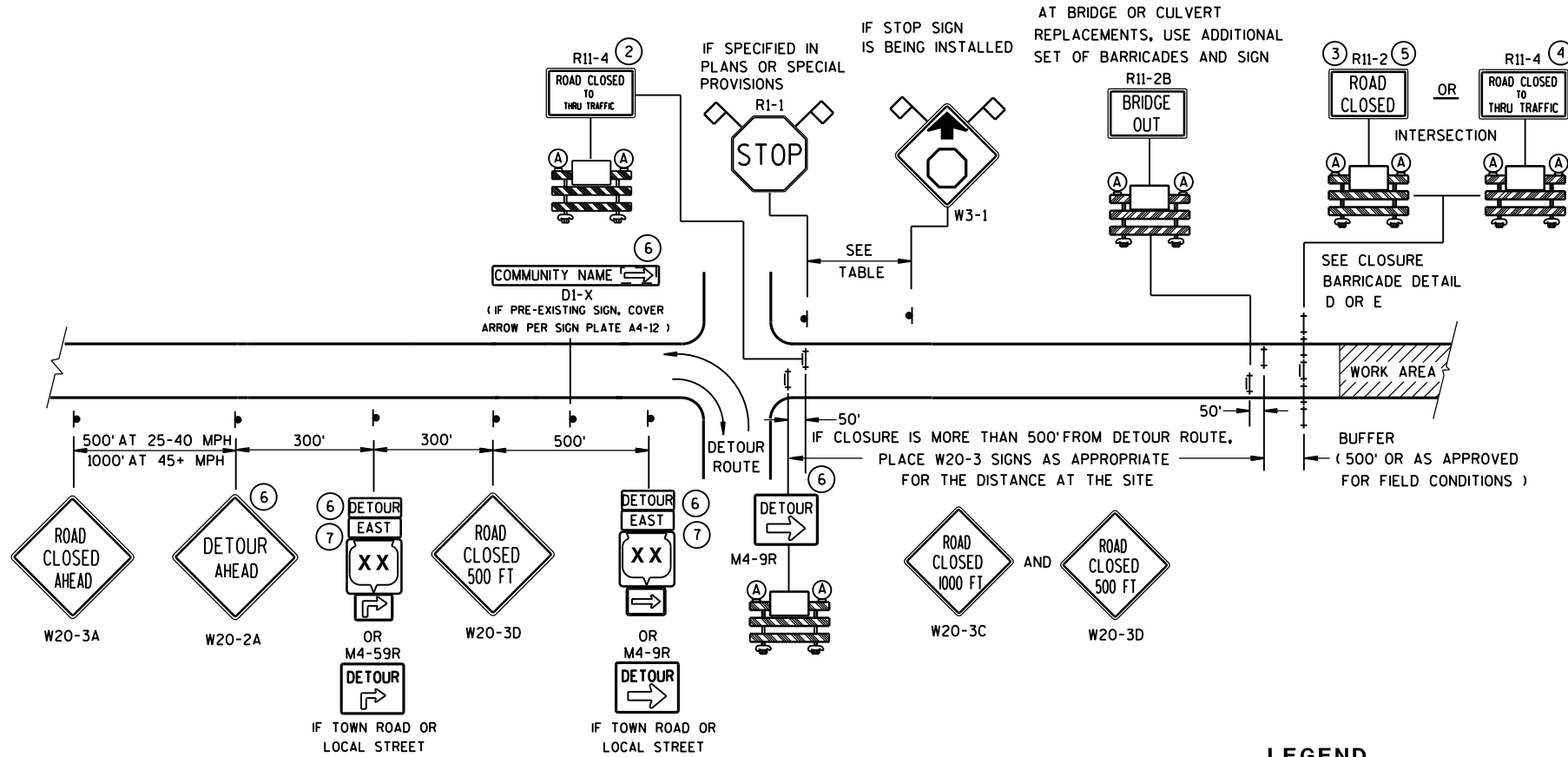
**MARKER POST
FOR RIGHT-OF-WAY**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

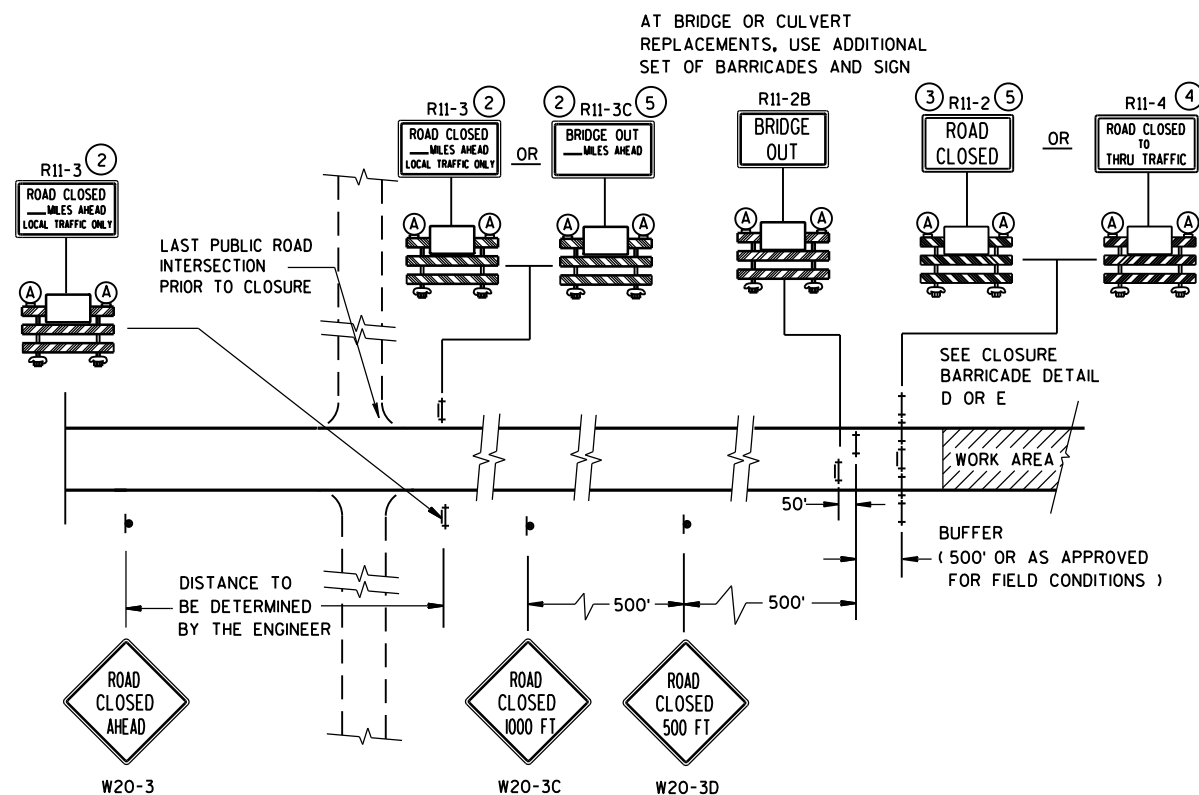
APPROVED
2/18/2016 /S/ Ray Kumapayi
DATE CHIEF SURVEYING AND MAPPING ENGINEER
FHWA



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)

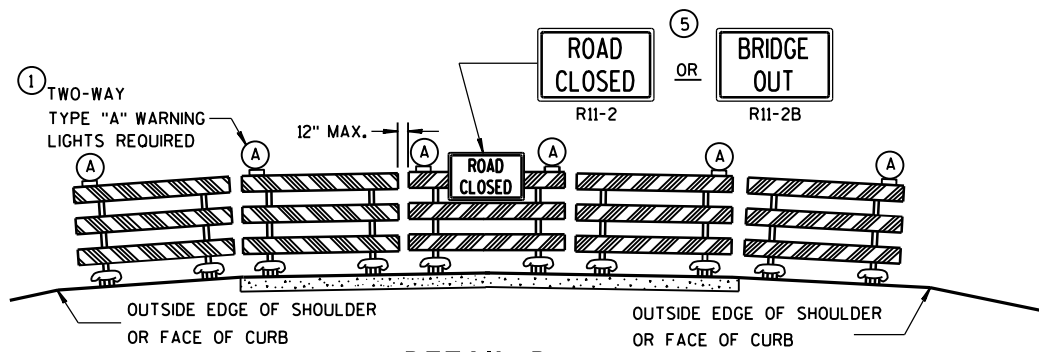


DETAIL C
MAINLINE CLOSURE, NO POSTED DETOUR

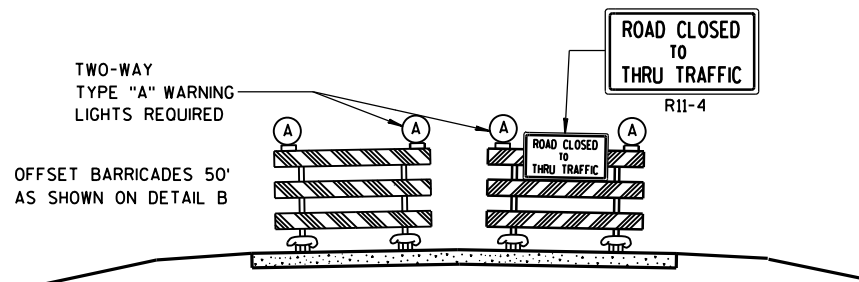
SPEED LIMIT (MPH)	"STOP AHEAD" ADVANCE WARNING DISTANCE (FT)
25	200
30	200
35	350
40	350
45	500
50	550
55	750

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:

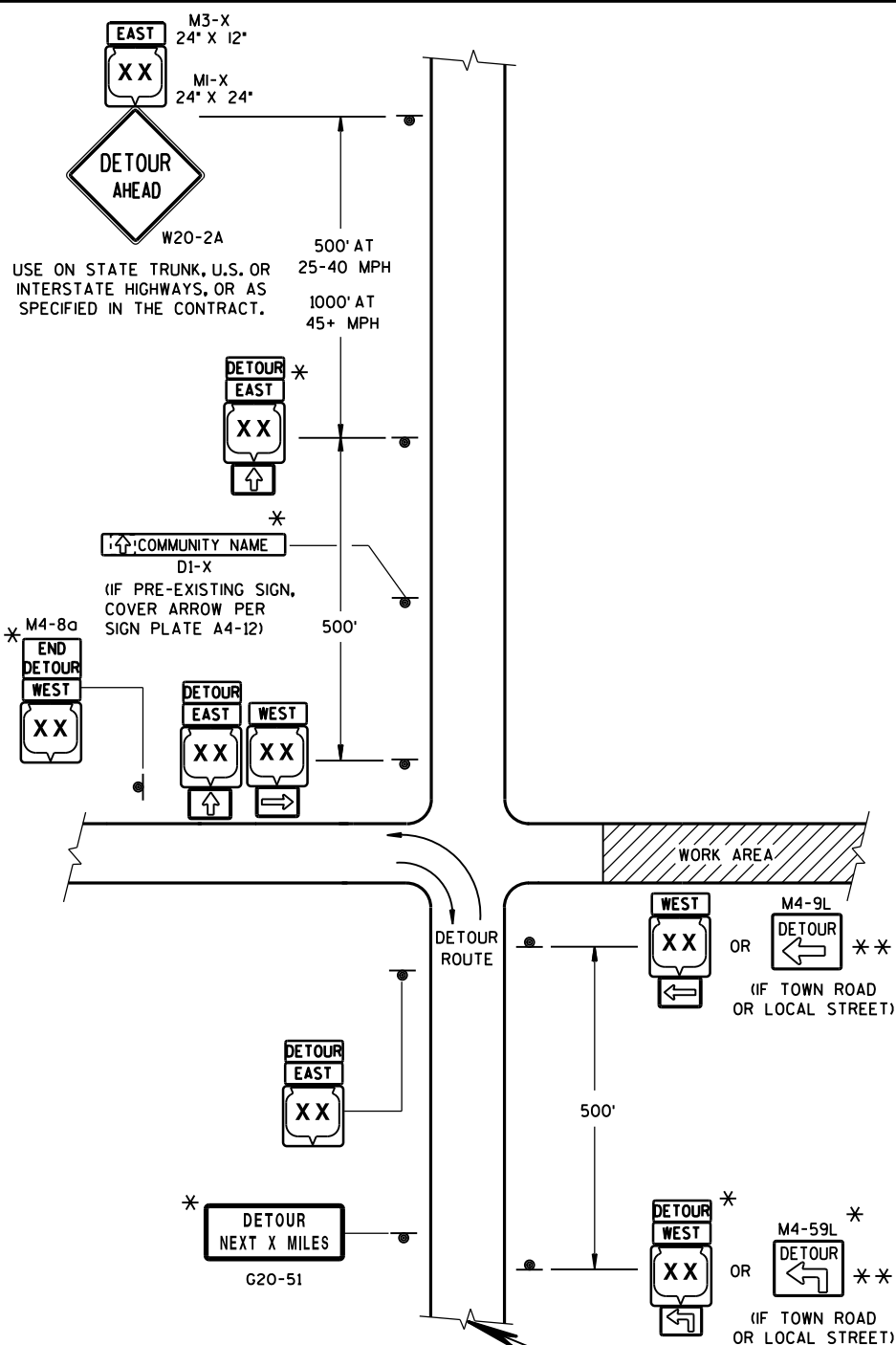
- R11-2 SHALL BE 48" X 30".
- R11-3, R11-4 AND R10-61 SHALL BE 60" X 30".
- M4-9 SHALL BE 30" X 24".
- M3-X SHALL BE 24" X 12". (36" X 18" IF NEEDED TO MATCH EXISTING SIGNS.)
- M4-8 SHALL BE 24" X 12". (30" X 15" IF NEEDED TO MATCH EXISTING SIGNS.)
- M1-4, M1-5A, AND M1-6 SHALL BE 24" X 24". (36" X 36" 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 /S/ Peter Amokobe Atepe
DATE STATEWIDE WORK ZONE TRAFFIC
FHWA SAFETY ENGINEER



LEGEND

SIGN ON PERMANENT SUPPORT

WORK AREA

M4-8
M3-X

OR OR
MI-4 MI-5A MI-6

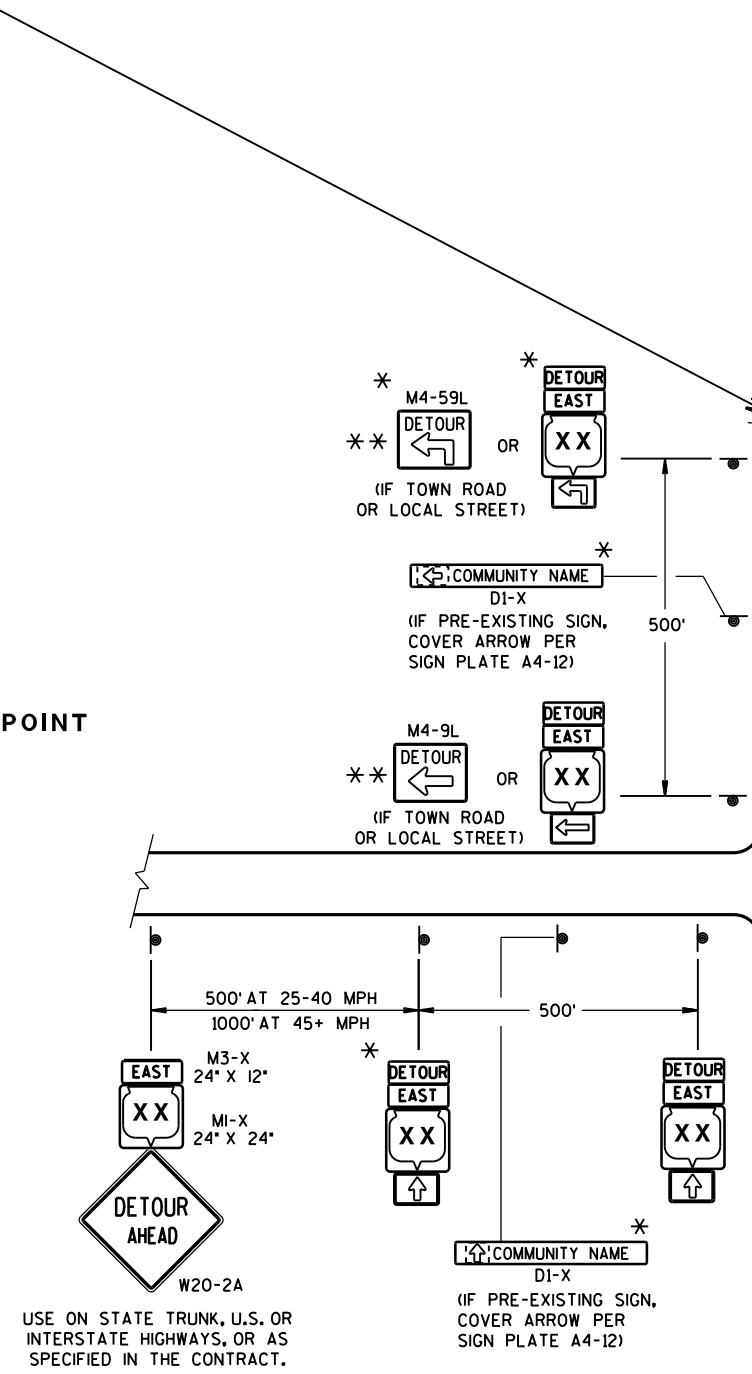
OR OR
M05-1 M06-1 M06-1

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.

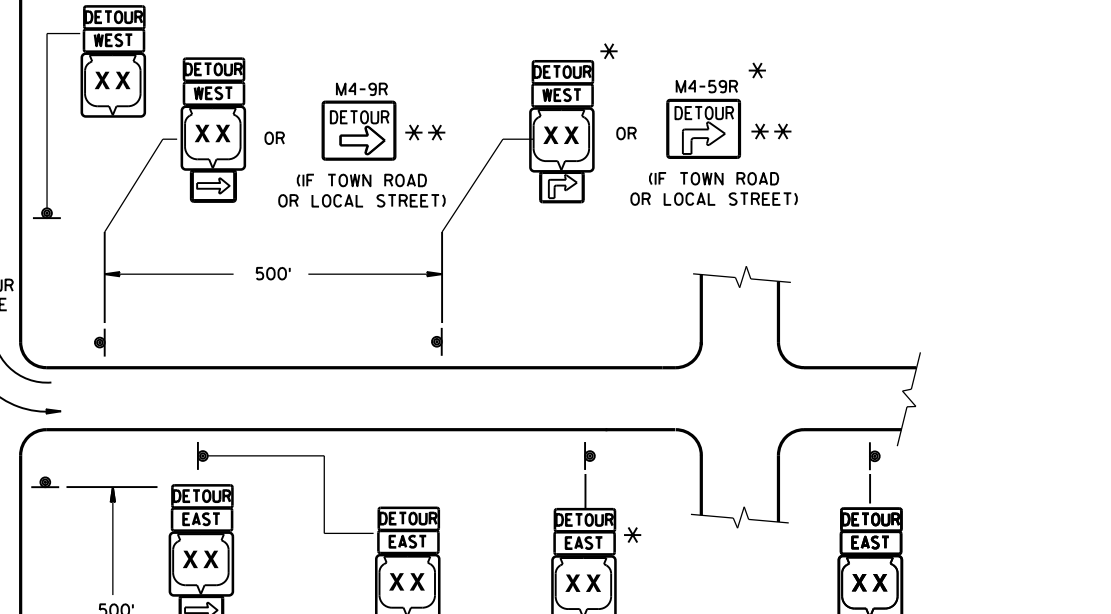
MATCH POINT

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.)
 - MI-4, MI-5A, AND MI-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.

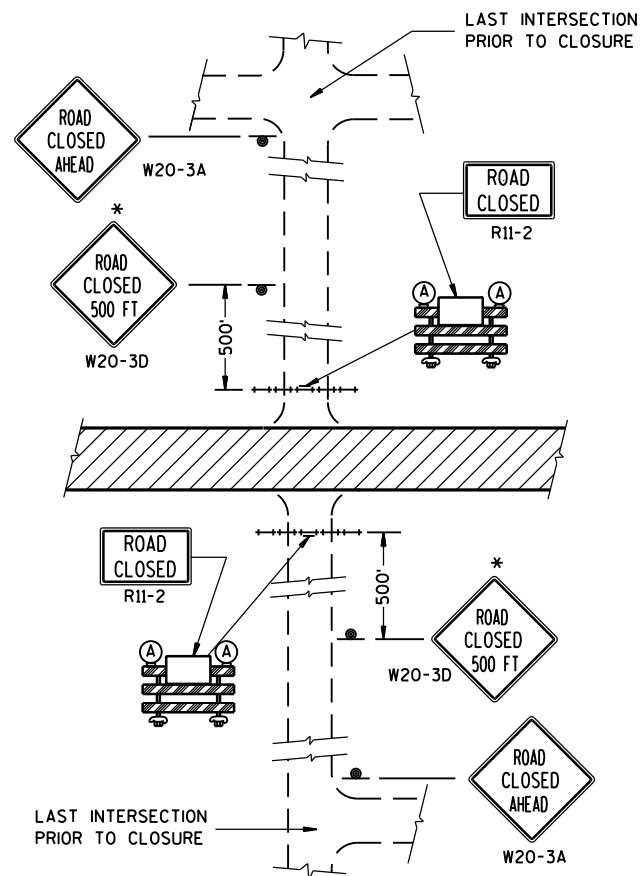


PLACE SIGNS BEYOND INTERSECTIONS WITH
STATE OR COUNTY TRUNK HIGHWAYS OR
AT 4 MILE MAXIMUM SPACING (4 BLOCKS IF
URBAN AREA.)

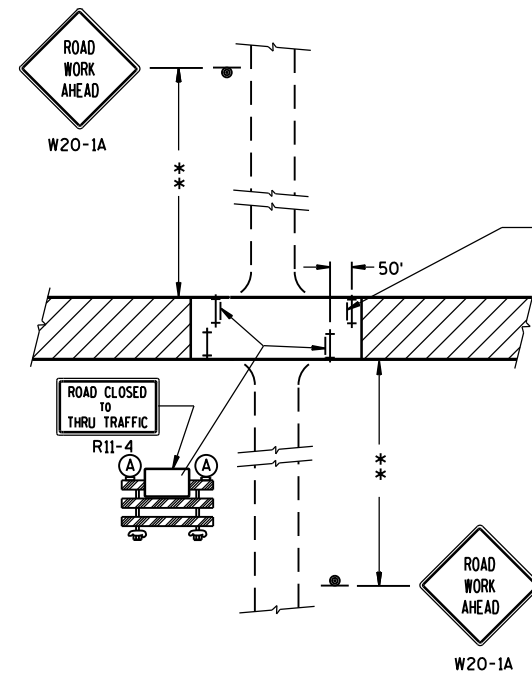
**DETOUR SIGNING FOR
MAINLINE CLOSURES**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

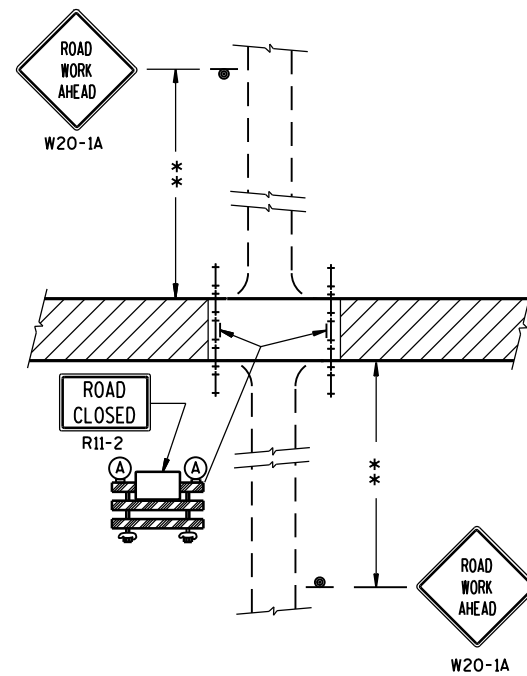
APPROVED
Sept. 2015 /S/ Peter Amakobe Atepe
DATE STATEWIDE WORK ZONE TRAFFIC
FHWA SAFETY ENGINEER



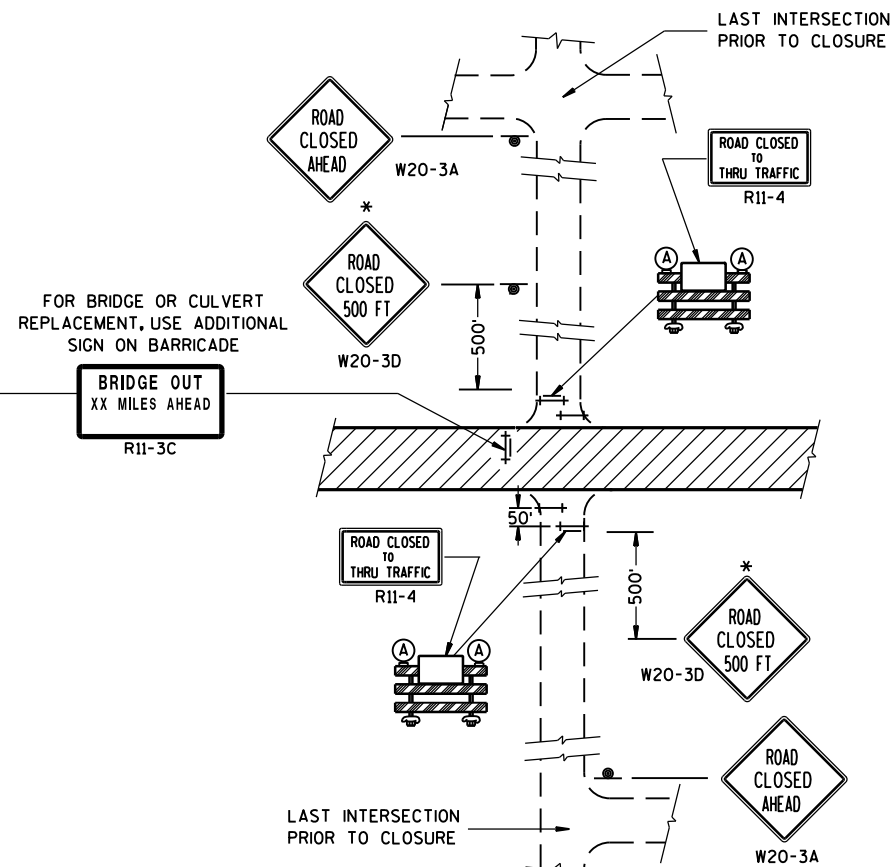
DETAIL 1
(NO ACCESS TO PROJECT)



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



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



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

GENERAL NOTES

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

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

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

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

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

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

R11-2 SHALL BE 48" X 30".

R11-4 AND R11-3 SHALL BE 60" X 30".

*OMIT THE "ROAD CLOSED 500 FT." SIGN IF THE LAST INTERSECTION IS 500 FT. OR LESS FROM THE WORK ZONE.

**500' MAX. OR AT LAST INTERSECTION WHICHEVER IS CLOSER.

LEGEND

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

BARRICADES AND SIGNS FOR SIDEROAD CLOSURES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

Sept. 2015

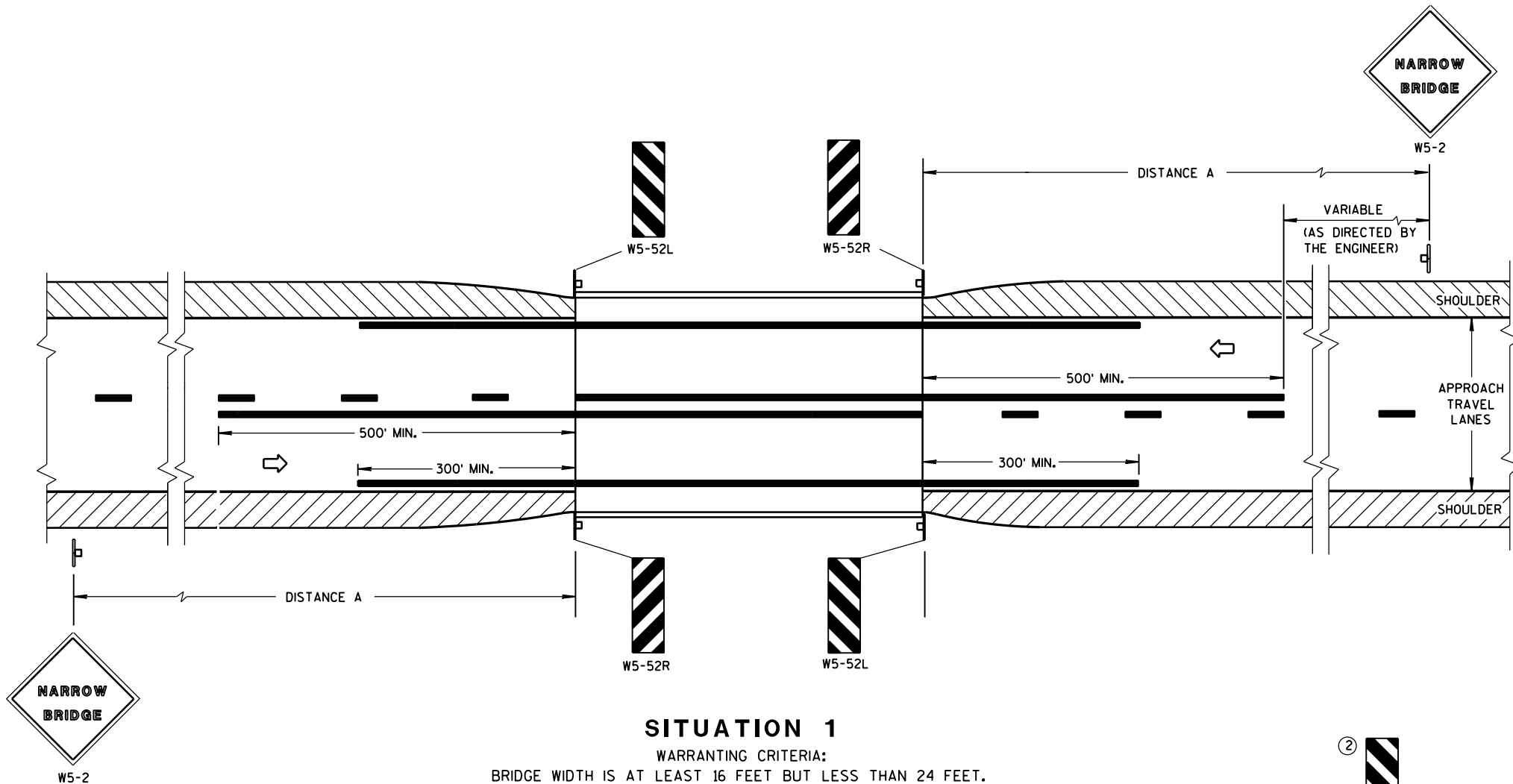
DATE

FHWA

/S/ Peter Amakobe Atepe

STATEWIDE WORK ZONE TRAFFIC

SAFETY ENGINEER



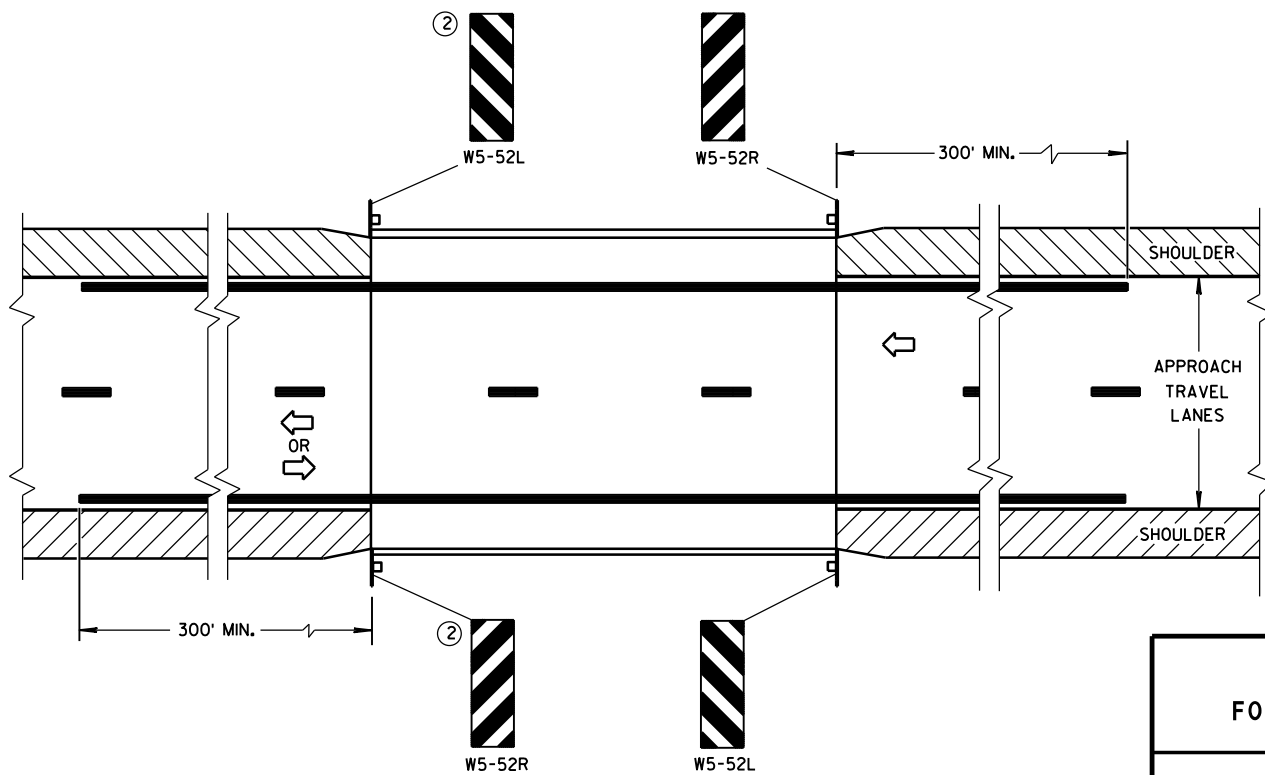
DISTANCE TABLE

POSTED OR 85th PERCENTILE SPEED	DISTANCE "A"
25	150'
30	200'
35	250'
40	300'
45	400'
50	550'
55	750'

GENERAL NOTES

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

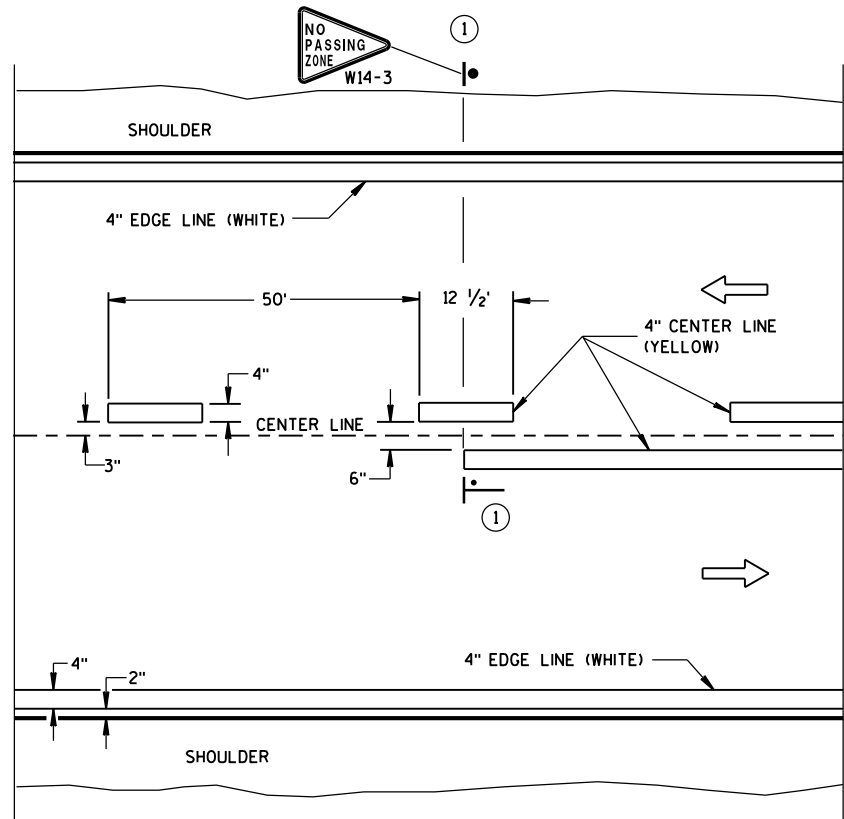
- ① LOCATE W5-52 SIGN POST(S) BEHIND GUARDRAIL WHEN PRESENT.
- ② OMIT ON ONE-WAY TRAVELLED WAYS.
- ③ EDGE OF W5-52 SIGN SHALL BE PLACED IN LINE WITH FACE OF CURB OR PARAPET.



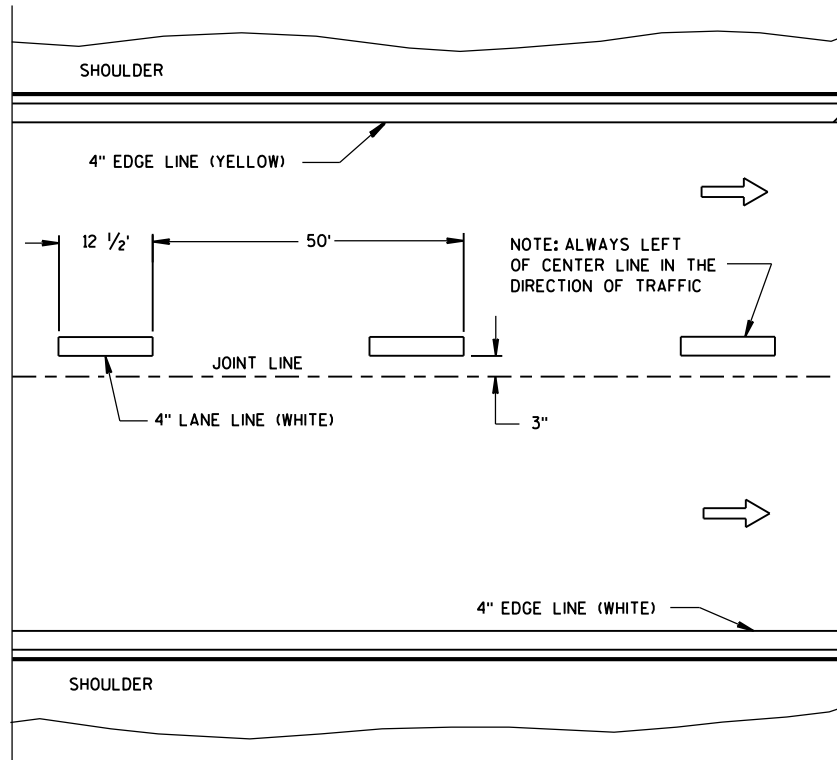
SIGNING & MARKING
FOR TWO LANE BRIDGES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
4-18-16 /S/ Matthew R. Rauch
DATE STATE SIGNING AND MARKING ENGINEER
FHWA

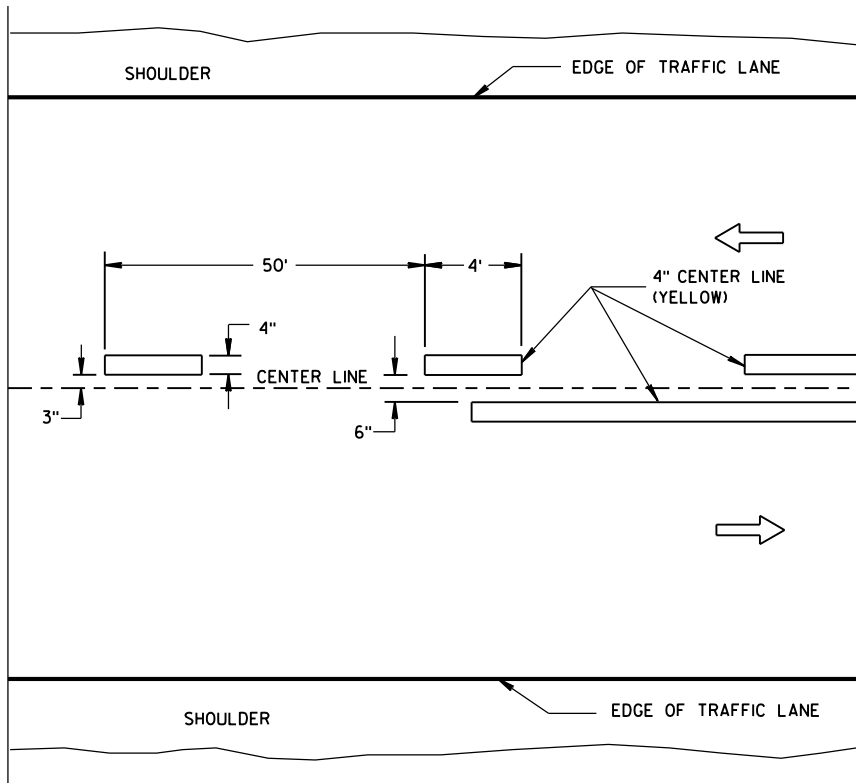


TWO WAY TRAFFIC

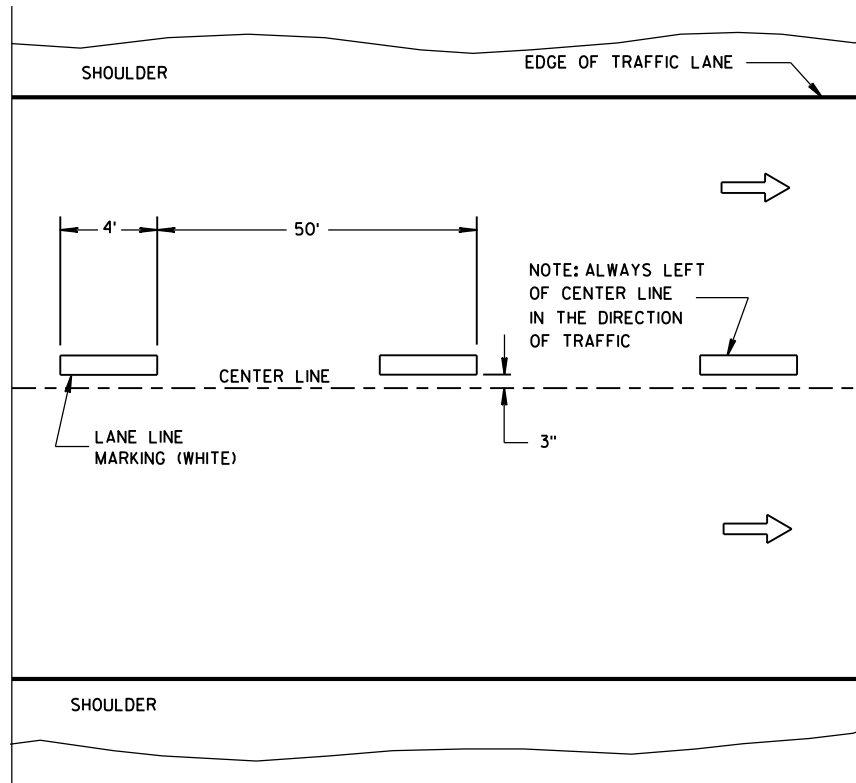


ONE WAY TRAFFIC

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

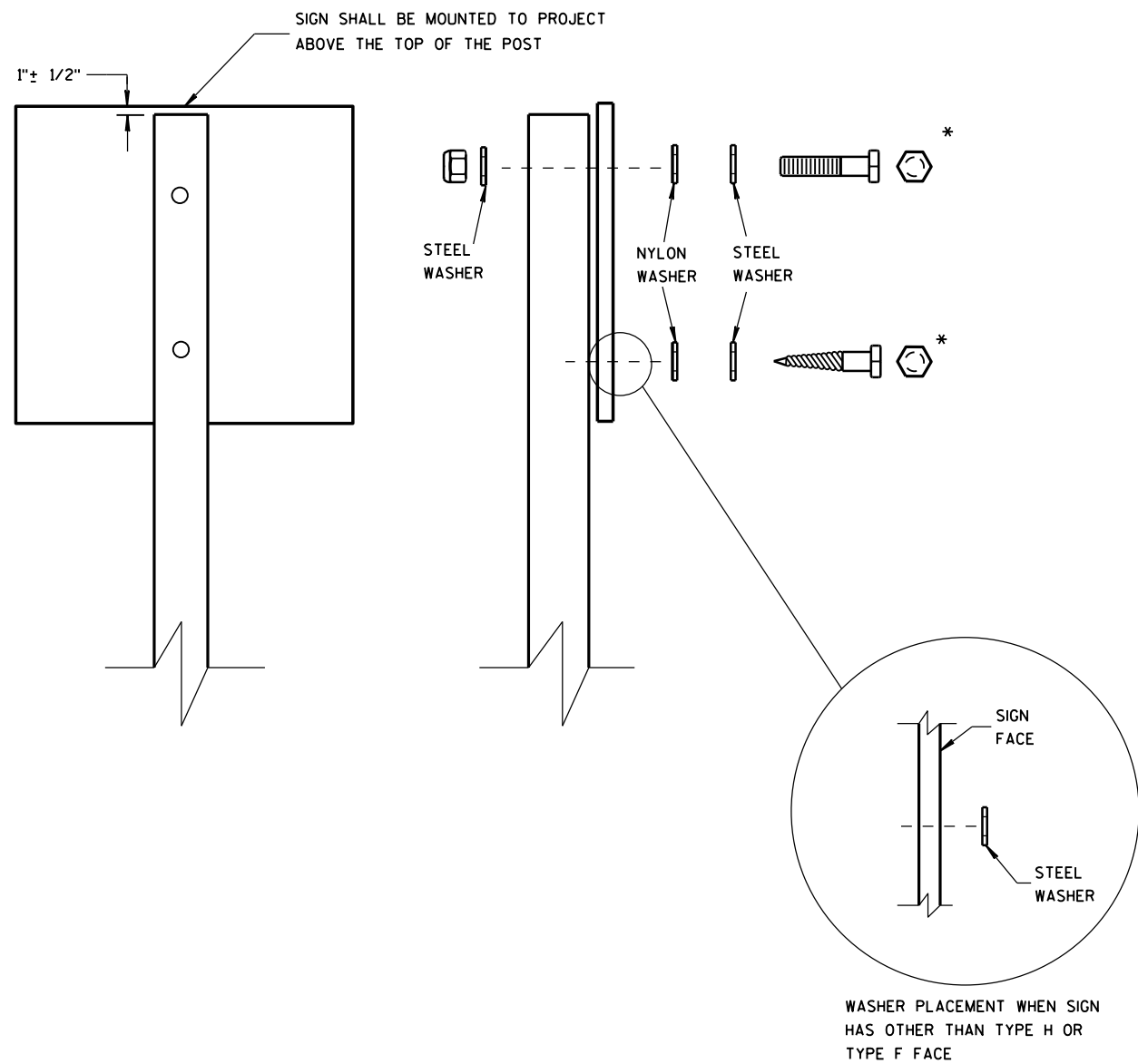
LEGEND

- "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



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.

- WOOD POSTS (4" x 4" or 4" x 6")
- LAG SCREWS - 3/8" x 3"
 - MACHINE BOLTS - 5/16" x 6-1/2" OR 7" LENGTH W/ NUTS

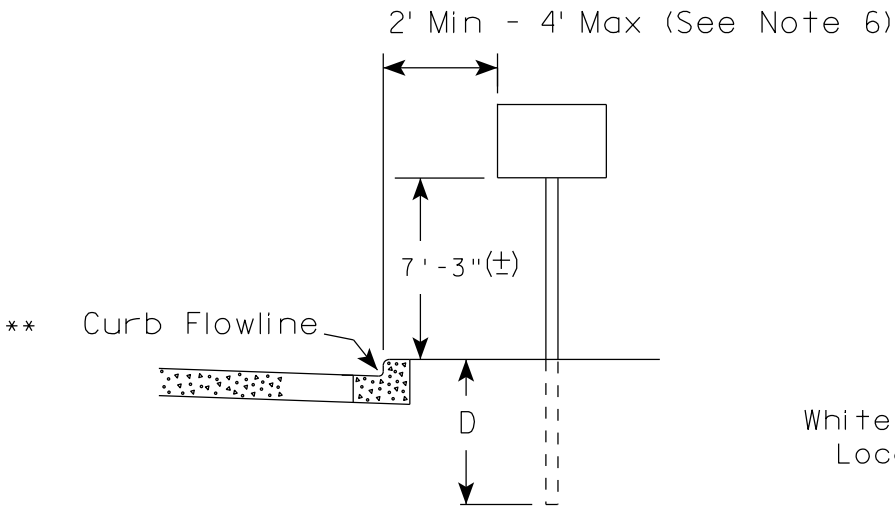
- SQUARE STEEL POSTS (2" x 2")
- MACHINE BOLTS - 3/8" x 3-1/4" LENGTH W/ NUTS
 - RIVETS - 9/32" (6605-9-6) BULB-TITE, TRI-FOLD, ALUMINUM BODY/MANDREL
O.D. FLANGE .720-.765 INCH, GRIP RANGE .042-.375 INCH

- 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 FOR ALL TYPE H SIGNS

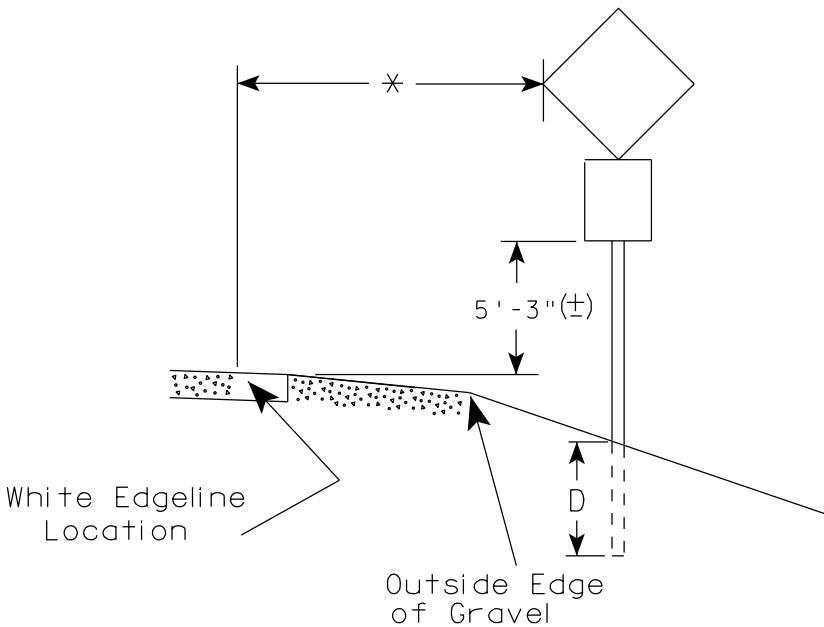
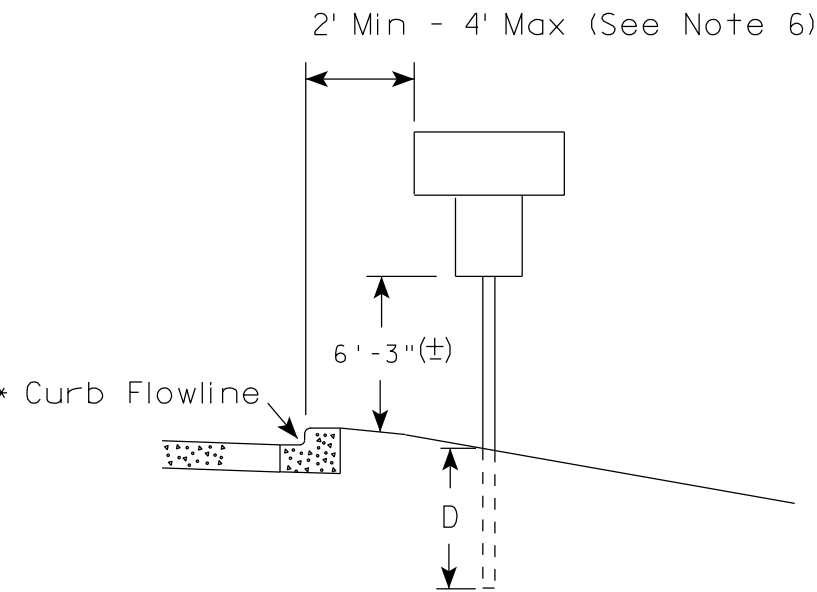
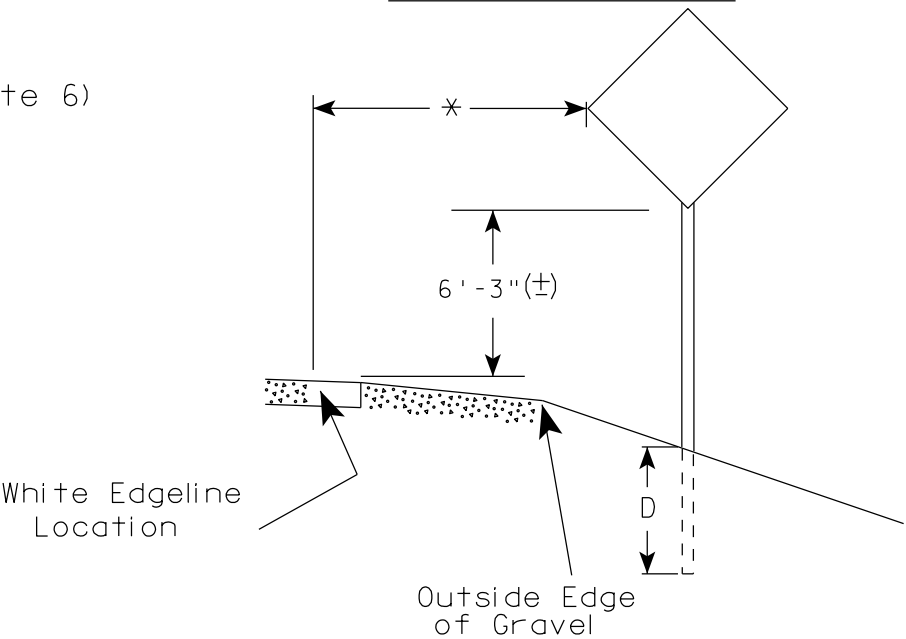
* TWO DIFFERENT FASTENING SYSTEMS ARE SHOWN FOR
ILLUSTRATION PURPOSES. ON ANY INDIVIDUAL SIGN, EITHER
ONE OR THE OTHER SYSTEM SHALL BE USED. ACTUAL NUMBER
OF FASTENERS PER SIGN VARIES WITH THE SIGN AREA.
FOR A SINGLE POST INSTALLATION, ALL SIGNS GREATER THAN
9 SQ. FT. REQUIRE THE USE OF 3 FASTENERS.

ATTACHMENT OF SIGNS TO POSTS		
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION		
APPROVED Feb. 2015	/S/ Travis Feltes	
DATE	STATE TRAFFIC ENGINEER OF DESIGN	
FHWA		

URBAN AREA



RURAL AREA (See Note 2)



GENERAL NOTES

1. Signs wider than 4 feet, 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.

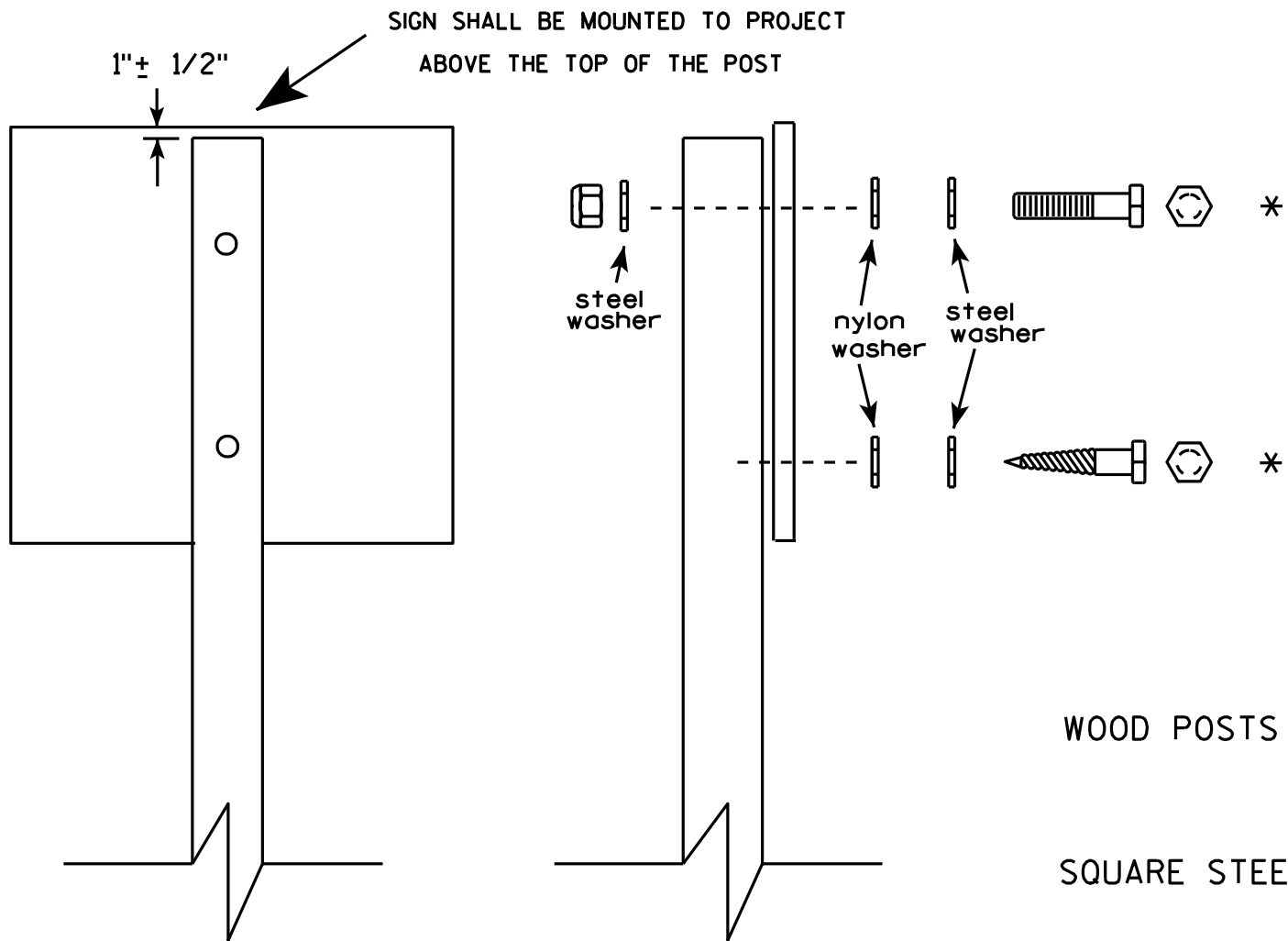
* 6 feet from edge of a paved shoulder or 12 feet from the edge of pavement (edge line location) or 2 feet from outside edge of gravel, whichever is greater unless directed by project engineer.

TYPICAL INSTALLATION
OF PERMANENT TYPE II
SIGNS ON SINGLE POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 11/12/14 PLATE NO. A4-3.19

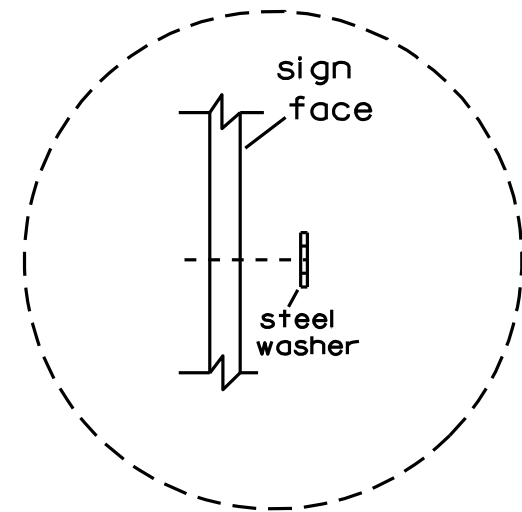


Nuts, bolts and lags used for mounting signs shall have hexagonal heads and shall be either :

- 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.

- WOOD POSTS (4" x 4" or 4" x 6")
LAG SCREWS - 3/8" X 3"
MACHINE BOLTS - 5/16" X 6-1/2" or 7" Length w/ nuts
- SQUARE STEEL POSTS (2" x 2")
MACHINE BOLTS - 3/8" X 3-1/4" Length w/ nuts
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 for all Type H signs.

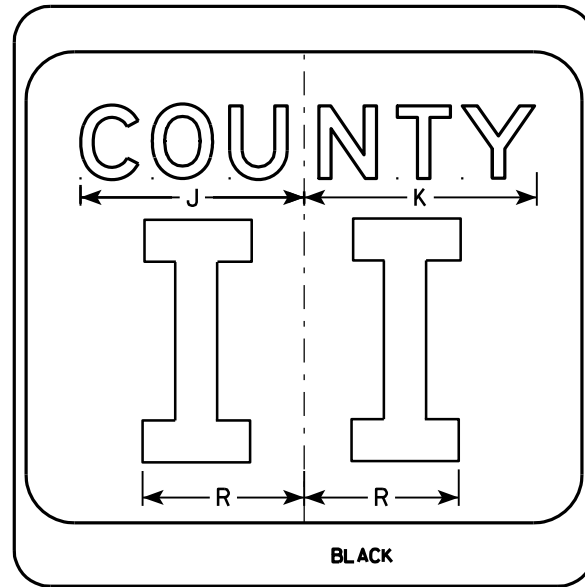
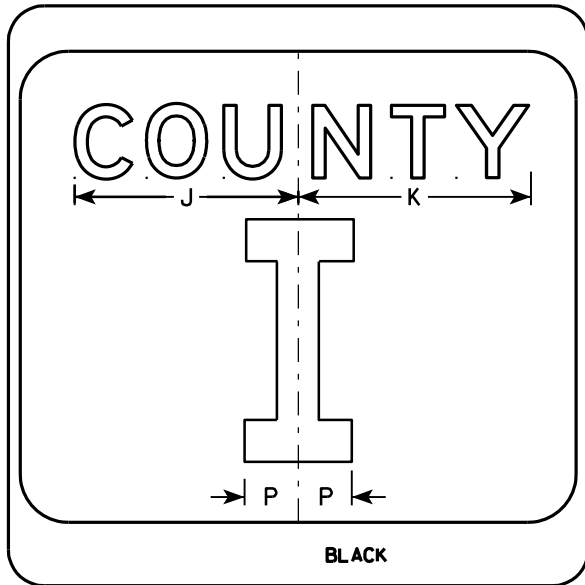
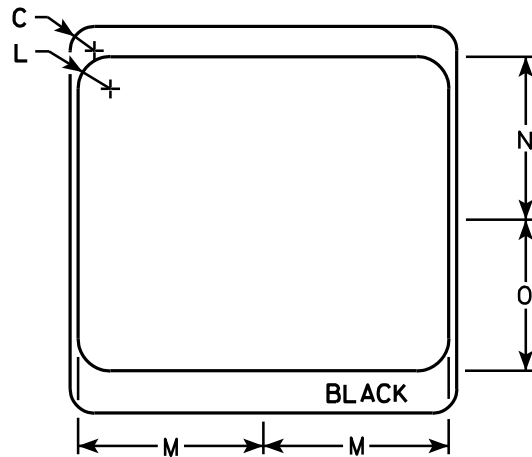
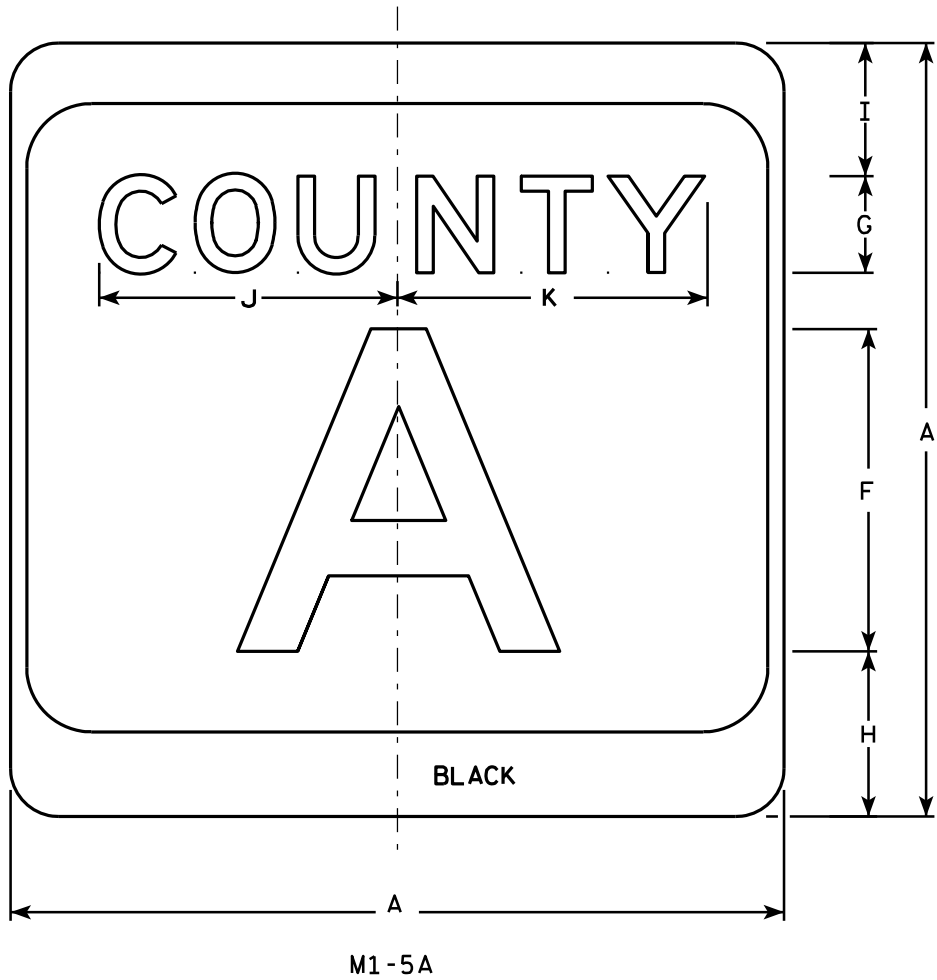


Washer Placement when Sign Has Other Than Type H or Type F Face

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

ATTACHMENT OF SIGNS TO POSTS	
WISCONSIN DEPT OF TRANSPORTATION	
APPROVED	<i>Matthew R. Rauch</i> For State Traffic Engineer
DATE 3/23/10	PLATE NO. A4-8.7

7



NOTES

1. Sign is Type II - see Note 7 - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
Background - White & Black - See Note 7
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. Message Series E for 1 letter.
Message Series D for 2 letters unless message is too big then Series C.
Message Series C for 3 letters unless message is too big then Series B.
6. Substitute appropriate letters & optically center to achieve proper balance.
7. Permanent Signs
Background - Type H Reflective
Detour or temporary Signs
Background - Reflective

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

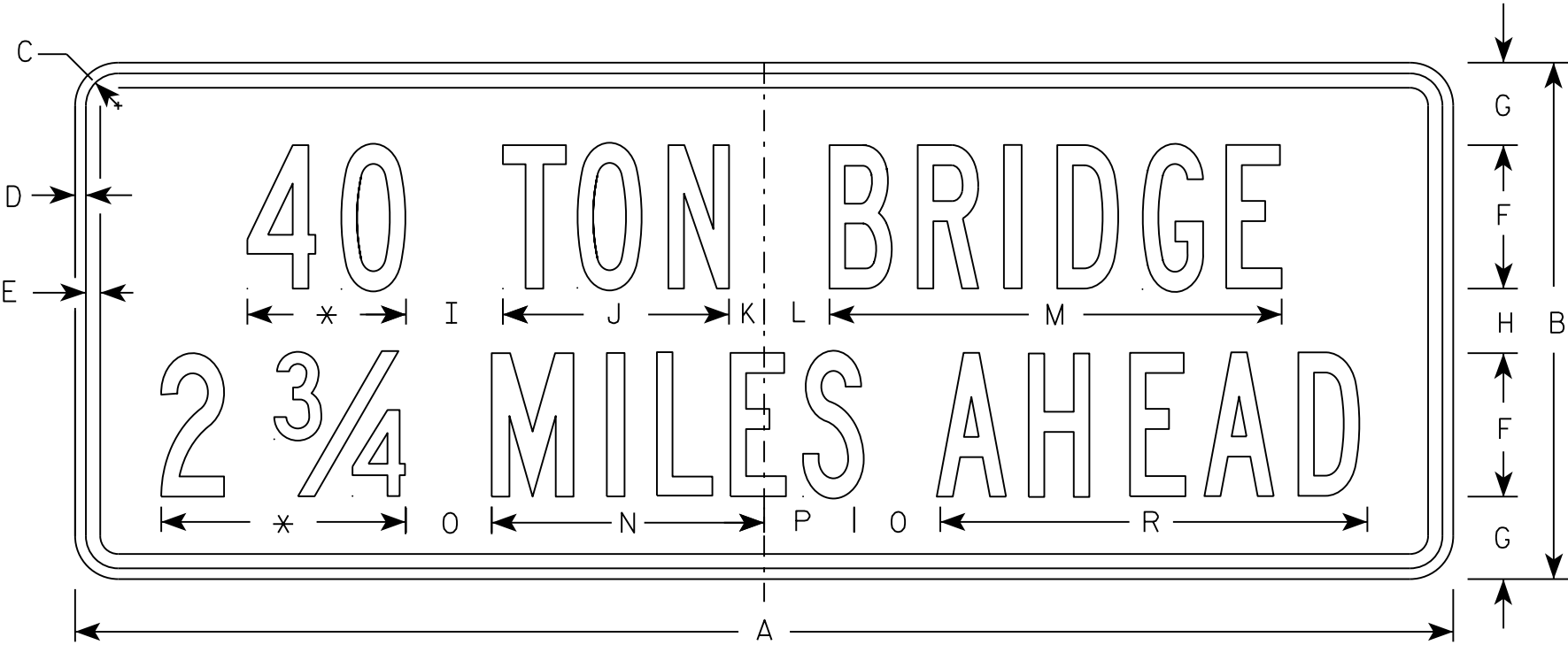
CTH MARKER	
M1-5A FOR ASSEMBLIES	
WISCONSIN DEPT OF TRANSPORTATION	
APPROVED	<i>Matthew R. Rauch</i> For State Traffic Engineer
DATE 9/27/11	PLATE NO. M1-5A.8

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

7

NOTES

- 1. Sign is Type II - Type H Reflective
- 2. Color:
Background - White
Message - Black
- 3. Message Series - B for Size 2, Series D for Sizes 3 & 4
- 4. Corners and border shall be rounded.
- 5. Substitute appropriate numerals to nearest quarter mile and optically adjust spacing to achieve proper balance.



* Varies

R12-55

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	48	18	1 1/8	3/8	1/2	5	2 7/8	2 1/4	3 3/8	7 7/8	1 1/4	2 1/4	15 3/4	9 1/2	3	3 1/8		14 7/8									6.0
2M	48	18	1 1/8	3/8	1/2	5	2 7/8	2 1/4	3 3/8	7 7/8	1 1/4	2 1/4	15 3/4	9 1/2	3	3 1/8		14 7/8									6.0
3	90	24	2 1/4	3/4	1	6	4	4	6	15 1/4	2 1/2	3 1/2	30 5/8	18 3/8	6	6 1/4		28 3/8									15.0
4	120	30	2 1/4	3/4	1	8	5 1/4	3 5/8	8	19 5/8	4	3	39 1/2	24 1/2	7	6 3/4		36 3/8									20.0
5	120	30	2 1/4	3/4	1	8	5 1/4	3 5/8	8	19 5/8	4	3	39 1/2	24 1/2	7	6 3/4		36 3/8									20.0

PROJECT NO:

HWY:

COUNTY:

SHEET NO:

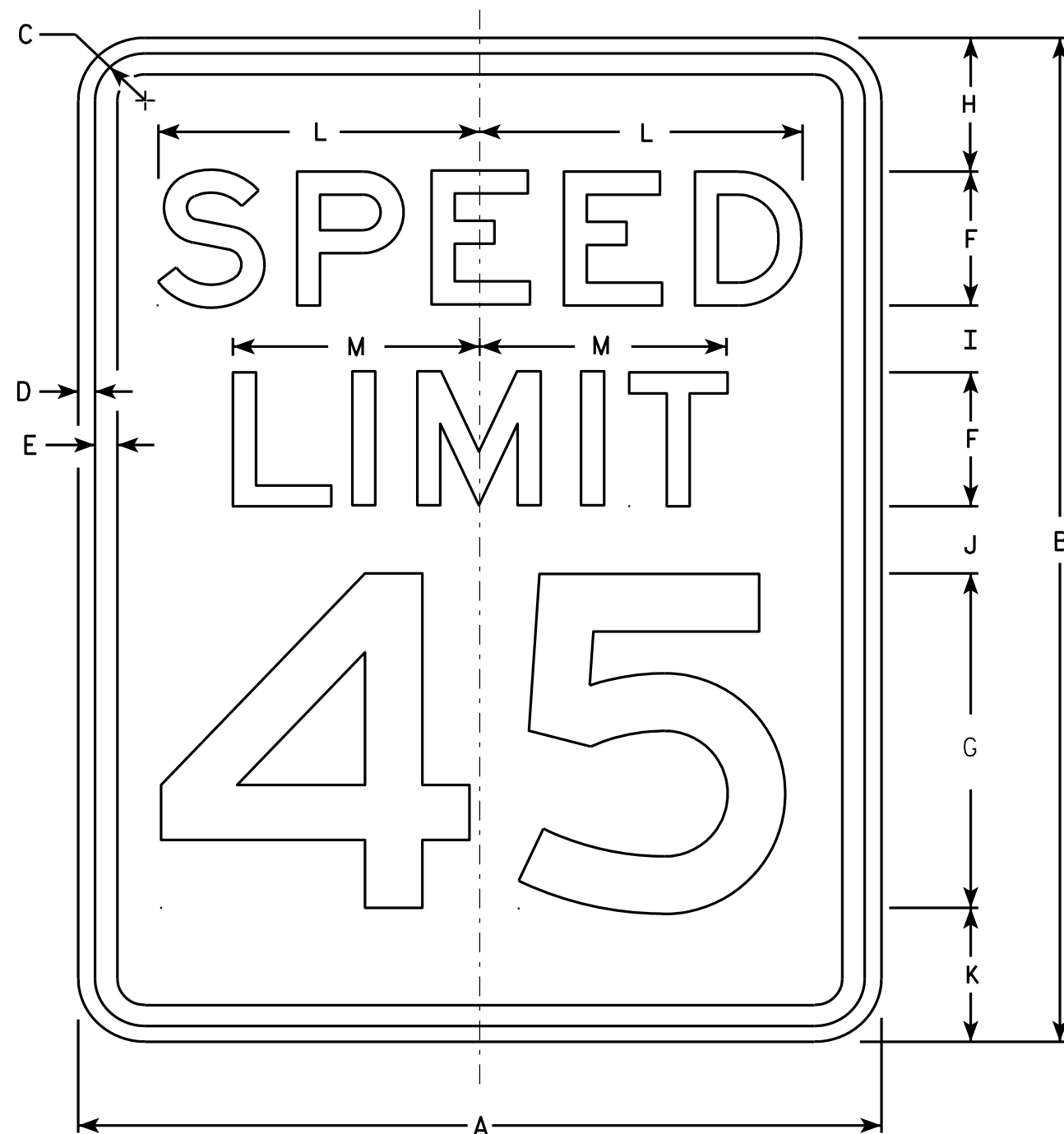
E

STANDARD SIGN
R12-55

WISCONSIN DEPT OF TRANSPORTATION

APPROVED
Matthew R. Rauch
for State Traffic Engineer

DATE 3/21/17 PLATE NO. R12-55.6



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.

R2-1

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

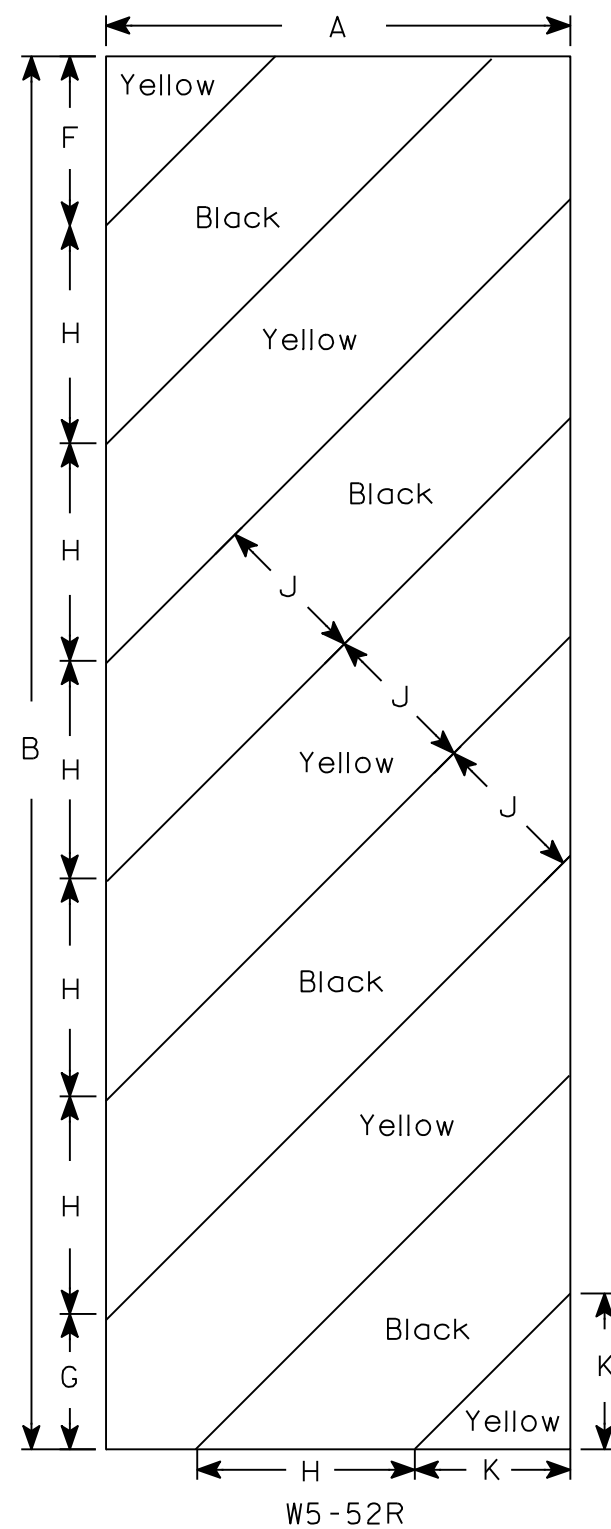
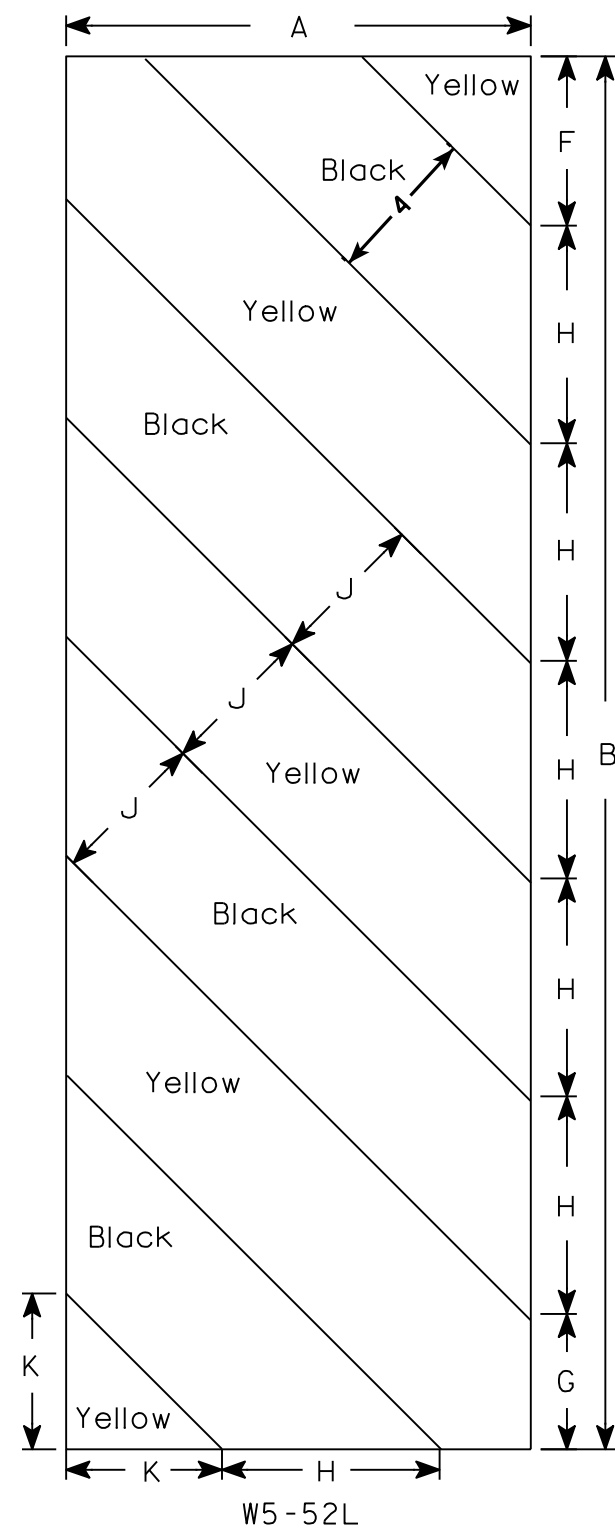
PROJECT NO:

HWY:

COUNTY:

SHEET NO:

E



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.

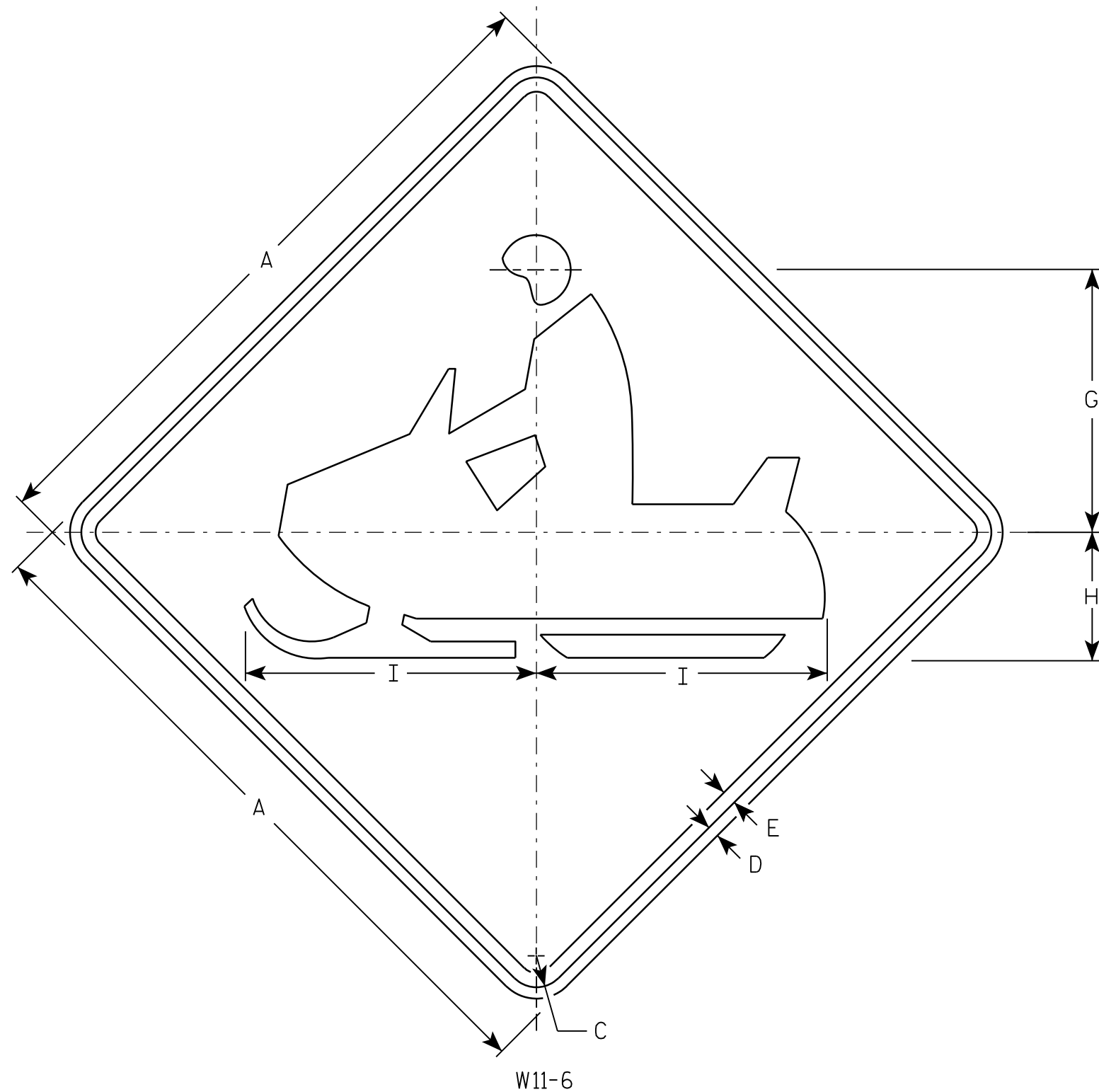
SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	12	36				4 3⁄8	3 1⁄2	5 5⁄8	45°	4	4																3.0
2M	12	36				4 3⁄8	3 1⁄2	5 5⁄8	45°	4	4																3.0
3	18	54				6	5 1⁄2	8 1⁄2	45°	6	6 9⁄16																6.75
4																											
5																											

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. 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.

W11-6

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

- * ANCHOR ASSEMBLY FOR THREE BEAM GUARD
- INDICATES WING NUMBER

PI STA = 11+62.22
Y = 471,748.000
X = 858,909.471
DELTA = 5°29'47"
D = 3°7'51"
T = 87.84'
L = 175.56'
R = 1830.00'
PC STA = 10+74.44
PT STA = 12+50.00
SE = 0.054'/1
RO = 53.00"

DESIGN DATA

LIVE LOAD:
DESIGN LOADING _____ HL-93
INVENTORY RATING FACTOR _____ 1.048
OPERATING RATING FACTOR _____ 1.359
WISCONSIN STANDARD PERMIT VEHICLE (WIS-SPY) _____ 250 Kips

STRUCTURE IS DESIGNED FOR A FUTURE WEARING SURFACE OF 20 LBS. PER SQUARE FOOT (DEAD LOAD).

MATERIAL PROPERTIES:

CONCRETE MASONRY, SLAB _____ f'_c = 4,000 P.S.I.
ALL OTHER _____ f'_c = 3,500 P.S.I.
BAR STEEL REINFORCEMENT _____ f_y = 60,000 P.S.I.
PILING STEEL C.I.P. _____ f_y = 35,000 P.S.I.

FOUNDATION DATA:

ABUTMENTS AND PIERS SHALL BE SUPPORTED ON 10 3/4" Ø X 0.25" C.I.P. PILES DRIVEN TO A REQUIRED DRIVING RESISTANCE OF 130 *TONS PER PILE AS DETERMINED BY THE MODIFIED GATES DYNAMIC FORMULA. ESTIMATED PILE LENGTHS ARE 55'-0" AT SOUTH ABUTMENT, 75'-0" AT PIER 1, 60'-0" AT PIER 2 AND 60'-0" AT NORTH ABUTMENT.

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

HYDRAULIC DATA:

100 YEAR FREQUENCY
Q₁₀₀ _____ 1,800.00 C.F.S.
VELOCITY _____ 5.74 FT./SEC.
HIGH WATER ELEVATION _____ 877.87
WATERWAY AREA _____ 314.00 SQ. FT.
DRAINAGE AREA _____ 17.6 SQ. MI.
SCOUR CRITICAL CODE _____ 5
OVER TOPPING FREQUENCY _____ N/A

2 YEAR FREQUENCY
Q₂ _____ 478 C.F.S.
HIGH WATER ELEVATION _____ 874.57

ROADWAY OVERFLOW DESIGN FREQUENCY
OVERTOPPING FREQUENCY _____ 100 YEARS

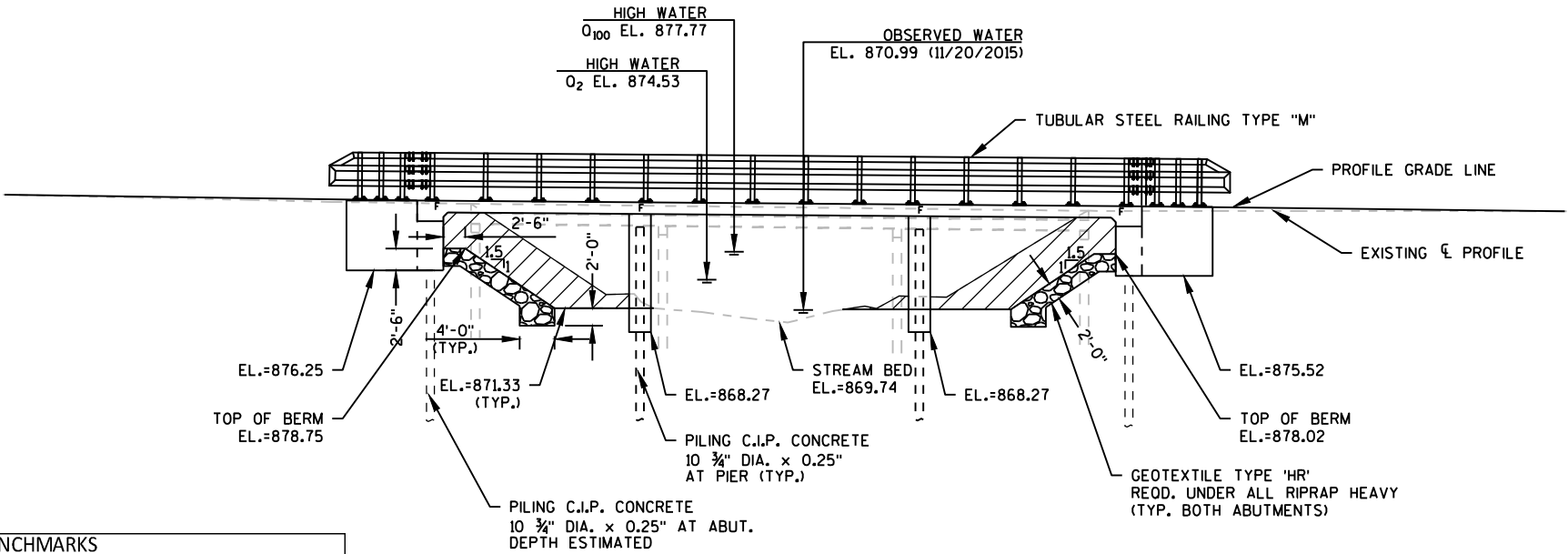
TRAFFIC DATA:

AADT (2018) = 380
AADT (2038) = 395
ROADWAY DESIGN SPEED = 40 MPH

LIST OF DRAWINGS:

GENERAL PLAN	1
CROSS SECTION, QUANTITIES, AND GENERAL NOTES	2
SUBSURFACE EXPLORATION	3
NORTH ABUTMENT	4
SOUTH ABUTMENT	5
ABUTMENT DETAILS	6
BACKFILL DETAILS	7
PIER 1	8
PIER 2	9
SUPERSTRUCTURE	10
SUPERSTRUCTURE SECTIONS & DETAILS	11
RAILING STEEL TYPE "M"	12

PLAN
(THREE SPAN FLAT CONCRETE SLAB STRUCTURE)



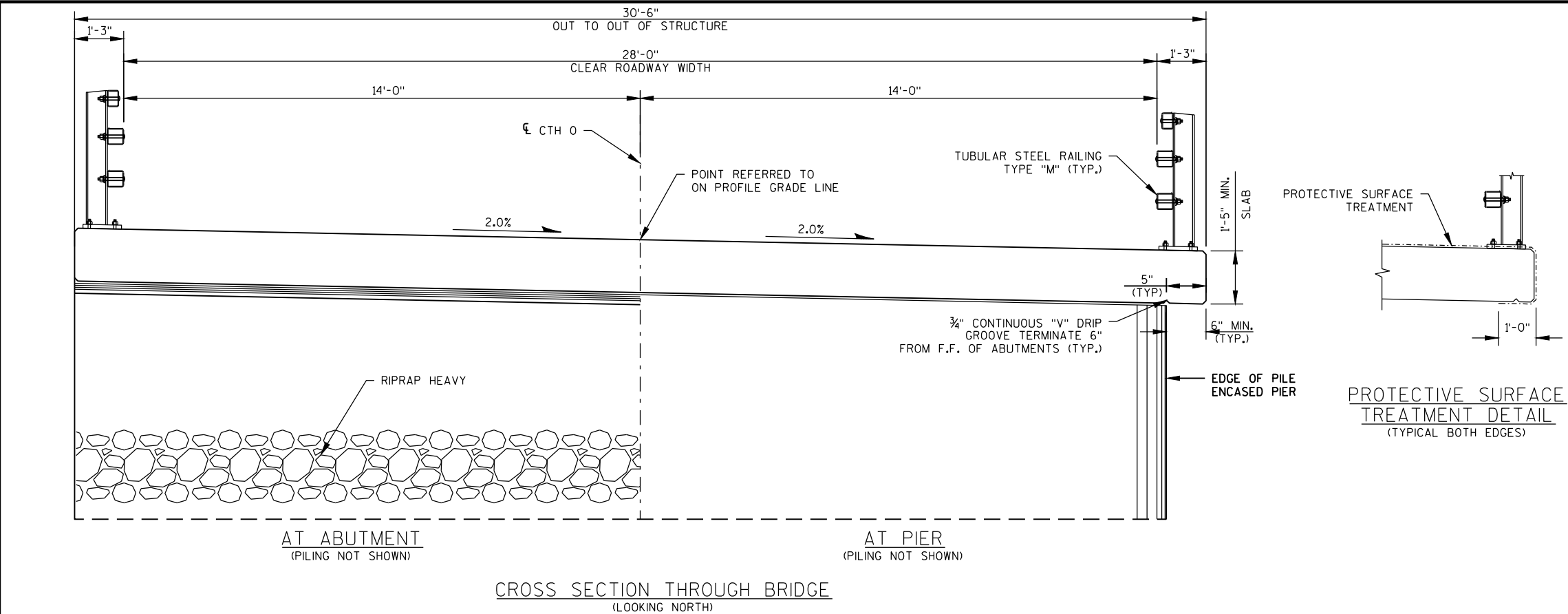
ELEVATION
(NORMAL TO ELK CREEK)

ESTIMATED EXCAVATION

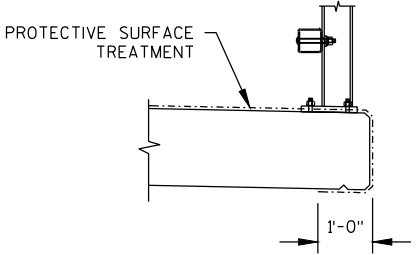


BRIDGE OFFICE CONTACT
WILLIAM DREHER
(608) 266-8489
CONSULTANT CONTACT
NICK ELLENBERGER, P.E.
(608) 789-2034

NO.	DATE	REVISION	BY
ORIGINAL PLANS PREPARED BY LA CROSSE OFFICE 201 MAIN STREET SUITE 1020 LA CROSSE, WI 54601			
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION ACCEPTED <i>William C. Dreher</i> SDR 08/09/17 CHIEF STRUCTURES DESIGN ENGINEER DATE			
STRUCTURE B-61-222			
CTH 0 OVER ELK CREEK			
COUNTY	TREMPEALEAU	TOWN	HALE
DESIGN SPEC.	AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS		
DESIGNED BY	DCM	DESIGN CK'D.	NJE
DRAWN BY	CLF	PLANS CK'D.	NJE
GENERAL PLAN			SHEET 1 OF 12



PROTECTIVE SURFACE TREATMENT DETAIL (TYPICAL BOTH EDGES)



STATE PROJECT NUMBER

7175-00-70

GENERAL NOTES:

DRAWINGS SHALL NOT BE SCALED.

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

THE SLOPE OF THE FILL IN FRONT OF THE ABUTMENTS SHALL BE COVERED WITH RIPRAP HEAVY AND GEOTEXTILE TYPE 'HR' TO THE LIMITS SHOWN ON SHEET 1 AND ON THE ABUTMENT SHEETS OR AS DIRECTED BY THE ENGINEER.

THE EXISTING GROUNDLINE OF THE APPROACHES SHALL BE THE UPPER LIMITS OF "EXCAVATION FOR STRUCTURES BRIDGES (B-61-222) FOR THE PIERS AND ABUTMENT SLOPES SHALL BE THE STREAMBED ELEVATION AND BOTTOM OF RIPRAP HEAVY AS SHOWN ON SHEET 1 AND SHEET 4.

SLAB FALSEWORK SHALL BE SUPPORTED ON PILES OR THE SUBSTRUCTURE, UNLESS AN ALTERNATE METHOD IS APPROVED BY THE ENGINEER.

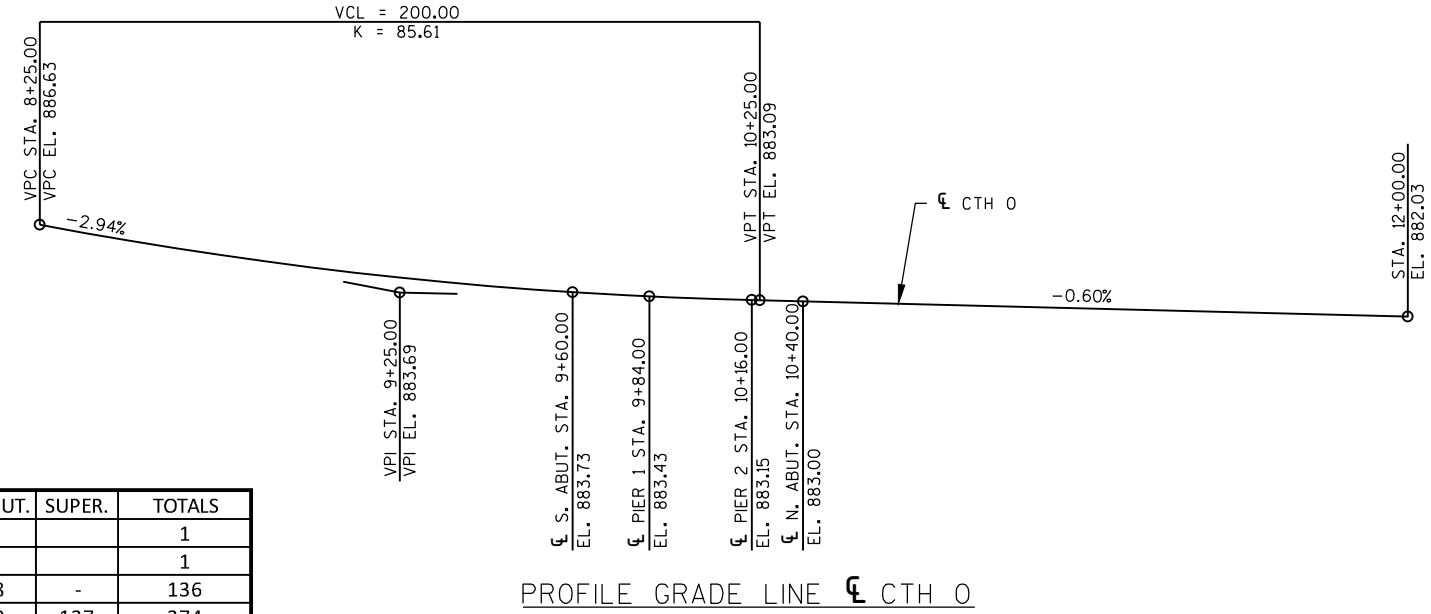
THIS STRUCTURE WILL REPLACE THE EXISTING BRIDGE, B-61-0001, A 70.7' LONG BY 22.0' CLEAR ROADWAY WIDTH THREE SPAN CONCRETE SLAB BRIDGE.

DO NOT PLACE FILL ABOVE 3'-0" FROM THE BOTTOM OF THE ABUTMENT UNTIL THE SUPERSTRUCTURE IS IN PLACE.

AT THE ABUTMENTS ALL EXCAVATED VOLUME NOT OCCUPIED BY THE NEW STRUCTURE SHALL BE BACKFILLED WITH BACKFILL STRUCTURE. THE BACKFILL STRUCTURE ESTIMATE QUANTITIES ASSUMED A 1:1 EXCAVATION SLOPE AT THE ABUTMENTS.

PROTECTIVE SURFACE TREATMENT SHALL BE APPLIED TO THE LIMITS SHOWN IN DETAIL ON THIS SHEET.

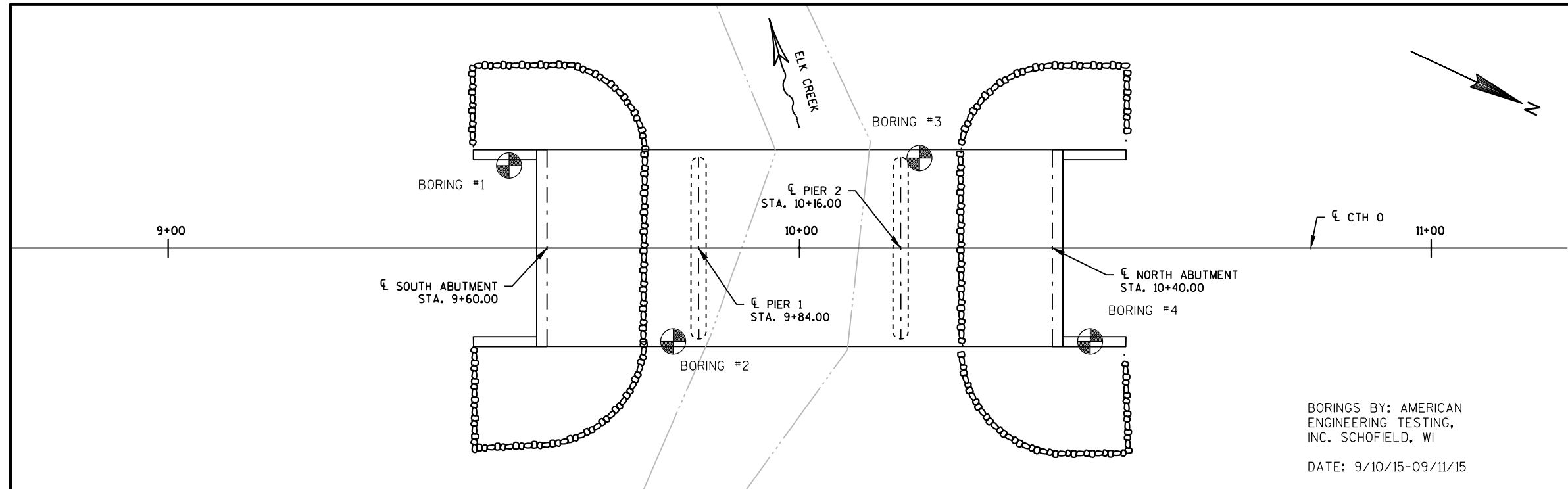
THE FIRST OR FIRST TWO DIGITS OF THE BAR MARK SIGNIFIES THE BAR SIZE.



TOTAL ESTIMATED QUANTITIES

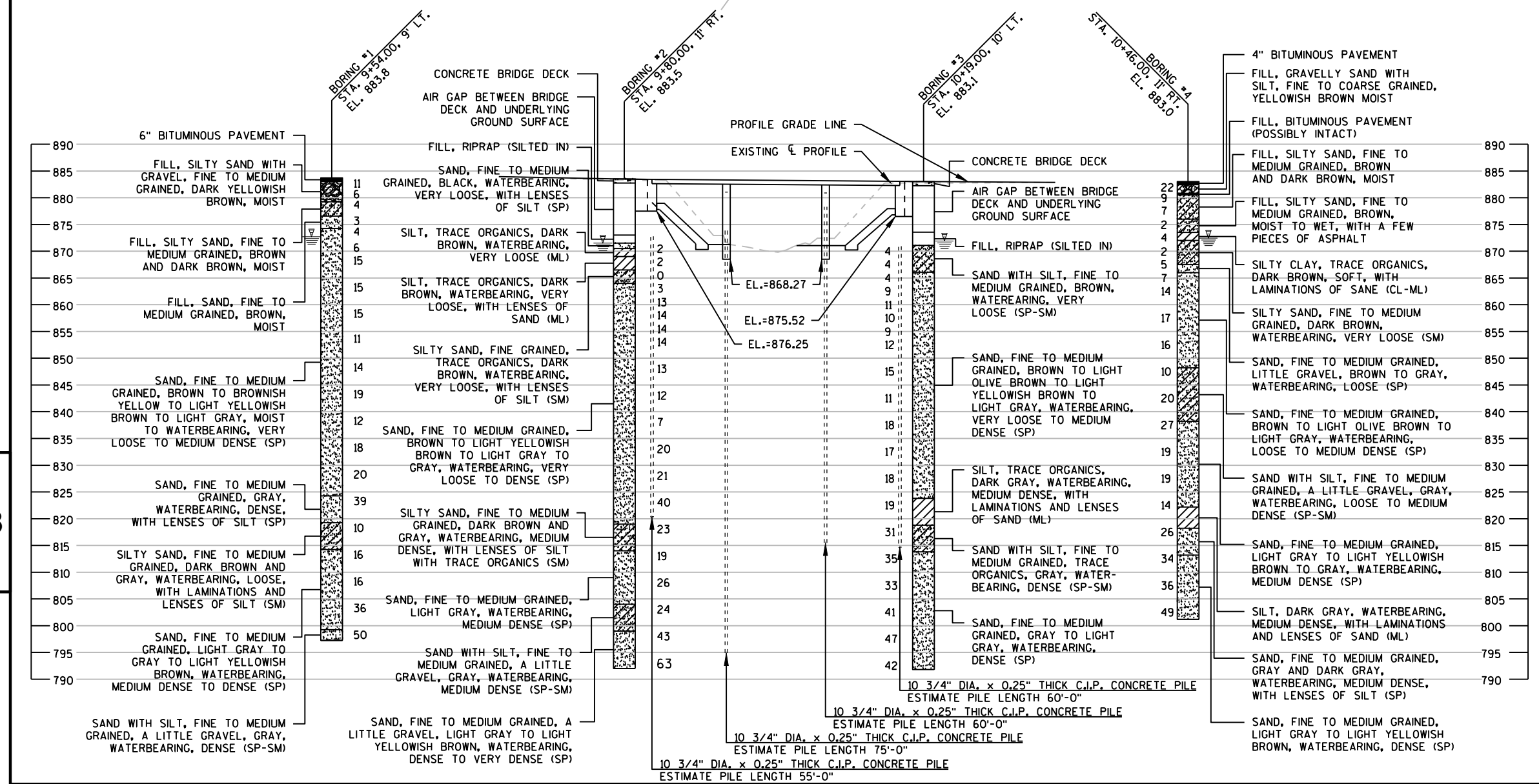
BID ITEM NO.	BID ITEMS	UNIT	S. ABUT.	PIER 1	PIER 2	N. ABUT.	SUPER.	TOTALS
203.0600.S	REMOVING OLD STRUCTURE OVER WATERWAY WITH MINIMAL DEBRIS STATION 10+00	LS						1
206.1000	EXCAVATION FOR STRUCTURES, BRIDGES B-61-222	LS						1
210.1500	BACKFILL STRUCTURE TYPE A	TON	68	-	-	68	-	136
502.0100	CONCRETE MASONRY BRIDGES	CY	30	39	38	30	137	274
502.3200	PROTECTIVE SURFACE TREATMENT	SY	8	-	-	8	323	339
505.0400	BAR STEEL REINFORCEMENT HS STRUCTURES	LB	1842	1678	1678	1842	-	7040
505.0600	BAR STEEL REINFORCEMENT HS COATED STRUCTURES	LB	1317	56	56	1317	22092	24838
513.4061	RAILING TUBULAR TYPE M B-61-222	LF	-	-	-	-	-	210
516.0500	RUBBERIZED MEMBRANE WATERPROOFING	SY	9	-	-	9	-	18
550.2104	PILING C.I.P. CONCRETE 10 3/4 x 0.25-INCH	LF	275	450	360	300	-	1385
606.0300	RIPRAP HEAVY	CY	166	-	-	166	-	332
612.0406	PIPE UNDERDRAIN WRAPPED 6-INCH	LF	65	-	-	65	-	130
645.0111	GEOTEXTILE TYPE DF SCHEDULE A	SY	46	-	-	46	-	92
645.0120	GEOTEXTILE TYPE HR	SY	198	-	-	198	-	396
650.6500	CONSTRUCTION STAKING STRUCTURE LAYOUT B-61-222	LS						1
NON BID ITEMS								
	FILLER	SIZE						1/2" & 3/4"

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE B-61-222			
CONST. SPEC.	DRAWN BY	CLF	PLANS NJE CK'D.
CROSS SECTION QUANTITIES & GENERAL NOTES			SHEET 2 OF 12



BORINGS BY: AMERICAN
ENGINEERING TESTING,
INC. SCHOFIELD, WI

DATE: 9/10/15-09/11/15



STATE PROJECT NUMBER

7175-00-70

ABBREVIATIONS

F — FINE M — MEDIUM C — COARSE
WS — WEATHERED SO — SOUND

MATERIAL SYMBOLS

TOPSOIL SILT CONCRETE
SAND PEAT ASPHALT
GRAVEL CLAY IGNEOUS ROCK

LEGEND OF PROBING

PROBING NO.
STA.
ELEVATION
7 AVERAGE BLOWS PER FOOT
REFUSAL 95/6

95/6=95 BLOWS FOR 6"
PENETRATION
PROBING TAKEN WITH
A 350* WT.
FALLING 18" ON A 2"
O.D. POINT.

LEGEND OF BORING

ELEV. BORING NO.
STA.

UNCONFINED STRENGTH 7.7
BLOWS PER FT. USING 140* WT. FALLING 30"

WASH SAMPLE

GROUND WATER ELEVATION

NO GROUND WATER OBSERVED ABOVE THIS ELEVATION

SANDY GRAVEL
F. BOULDERS OR COBBLES
SAND
SILTY SAND
SO. LIMESTONE

UNLESS OTHERWISE SPECIFIED, THE BLOWS PER FOOT AT THE LOCATIONS INDICATED ARE BASED ON DRIVING A 2" O.D. X 1.4" I.D. SPLIT SPOON SAMPLER WITH A 140* HAMMER HAVING A FREE FALL OF 30". THE BLOW COUNT IS TAKEN IN UNDISTURBED SOIL IMMEDIATELY BELOW A CAGED OR OPEN HOLE ELIMINATING SIDE FRICTION ON THE DRIVE PIPE.

SUBSURFACE EXPLORATION FOR FOUNDATION DESIGN AND BIDDERS INFORMATION

TO OBTAIN RELATIVE DATA CONCERNING THE CHARACTER OF MATERIAL IN AND UPON WHICH THE FOUNDATION MIGHT BE BUILT, BORINGS AND/OR SOUNDINGS WERE MADE AT POINTS APPROXIMATELY AS INDICATED ON THIS DRAWING. THE DATA PRESENTED HEREIN REPRESENTS THE FINDINGS OF THE SUBSURFACE EXPLORATIONS MADE. HOWEVER, BECAUSE THE DEPTHS INVESTIGATED ARE LIMITED AND THE AREA OF THE BORINGS AND/OR SOUNDINGS IS VERY SMALL IN RELATION TO THE ENTIRE AREA, THE WISCONSIN DEPARTMENT OF TRANSPORTATION DOES NOT WARRANT CONDITIONS BELOW THE DEPTHS INVESTIGATED OR THAT THE CLASSIFICATION OF MATERIAL ENCOUNTERED IN THESE INVESTIGATIONS IS NECESSARILY TYPICAL OF THE ENTIRE SITE.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE B-61-222			
CONST. SPEC.	DRAWN BY	CLF	PLANS NJE
SUBSURFACE EXPLORATION		SHEET 3 OF 12	

◆ WHEN THIS DIMENSION $\geq 4"$ THIS ADDITIONAL REINFORCEMENT SHALL BE ADDED. MAXIMUM SPACING OF HORIZONTAL #4 BARS = 1'-0".

MENT

AT TO TOP OF

LINE
PLACE
AREA OF
USED.

TECH TYPE
E FABRIC AT
SUITABLE
ENDS OF

AL
M SPACING OF

TYPE 'HR' (TYP.)
RIPRAP HEAVY

10 3/4" x 0.25" C.I.P. PILING,
NG, WITH A REQUIRED DRIVING
ANCE OF 130 TONS PER PILE.
FOR PILE SPLICE DETAILS
SEE SHEET 6 (TYP.)

1'-3" 1'-3"

11" 4"

CL. OF ABUT.

A507

◇ A414

3/4" BEVEL

2'-6" BERM
(TYP.)

A603

F.F.

BERM
EL. 878.02

A515 @ 9" ◇

VARIABLE 3% ROAD
@ CL. OF ROAD

7 1/2" @
OPPOSITE WING

1'-0" MIN. LAP

B.F. A504

2" A805
A606

CLR. A402

A401

2'-0"

4 EQUAL SPACES FRONT FACE

8 EQUAL SPACES BACK FACE

5'-0" MIN.

5'-7 3/4" MAX.

3" CL.

EXCAVATE TO THIS LINE
BEFORE DRIVING PILING

2'-6"

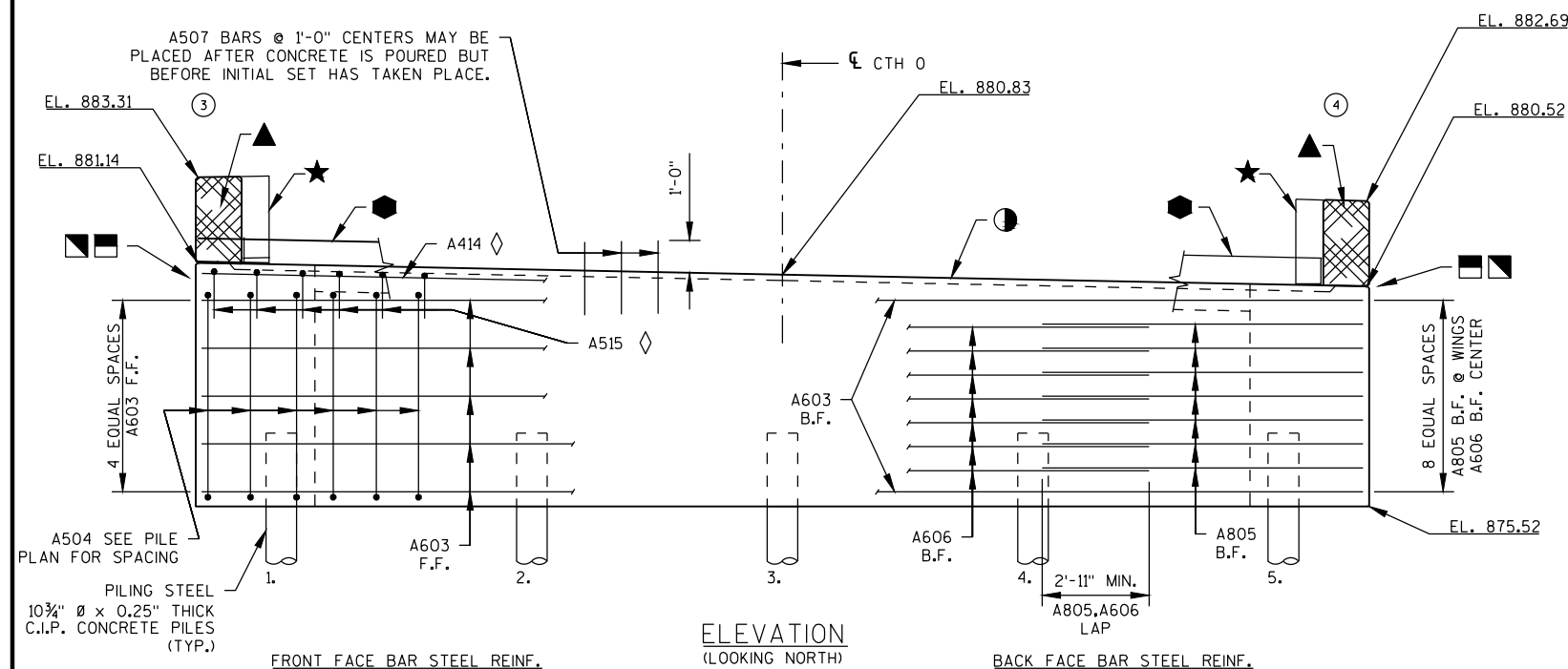
<u>BILL OF BARS</u> (COATED)	1,317 LBS.
(UNCOATED)	1,842 LBS.

MARK	NUMBER REQUIRED		LENGTH	BENT	LOCATION
	COATED	UNCOATED			
A401	-	5	28'-0"	X	AT BODY PILES - 1 PER PILE 5 SPIRAL WRAP
A402	-	10	2'-3"		" " " - 2 " " - VERT.
A603	-	11	30'-2"		BODY - F.F., TOP & BOTTOM - HORIZ.
A504	-	38	14'-1"	X	" - STIRRUPS- VERT.
A805	-	14	10'-0"		" - B.F. @ WINGS - HORIZ.
A606	-	7	16'-0"		" - B.F. @ CENTER - HORIZ.
A507	29	-	2'-0"		" - TOP - DOWELS - VERT.
A508	11	-	15'-7"	X	WINGS - BASE - STIRRUP - VERT.
A609	16	-	12'-2"		" " - B.F. & TOP - HORIZ.
A510	14	-	12'-2"		" " - F.F. - HORIZ.
A411	10	-	9'-8"		" - TOP - F.F. & B.F. - HORIZ.
A612	4	-	9'-8"		" " " " - HORIZ.
A613	22	-	8'-11"	X	" " - STIRRUP - VERT.
A414	-	3	14'-2"		BODY - TOP - HORIZ.
A515	-	19	5'-6"	X	" " - STIRRUPS - VERT.
A516	11	-	16'-9"	X	WINGS - BASE - STIRRUP - VERT.

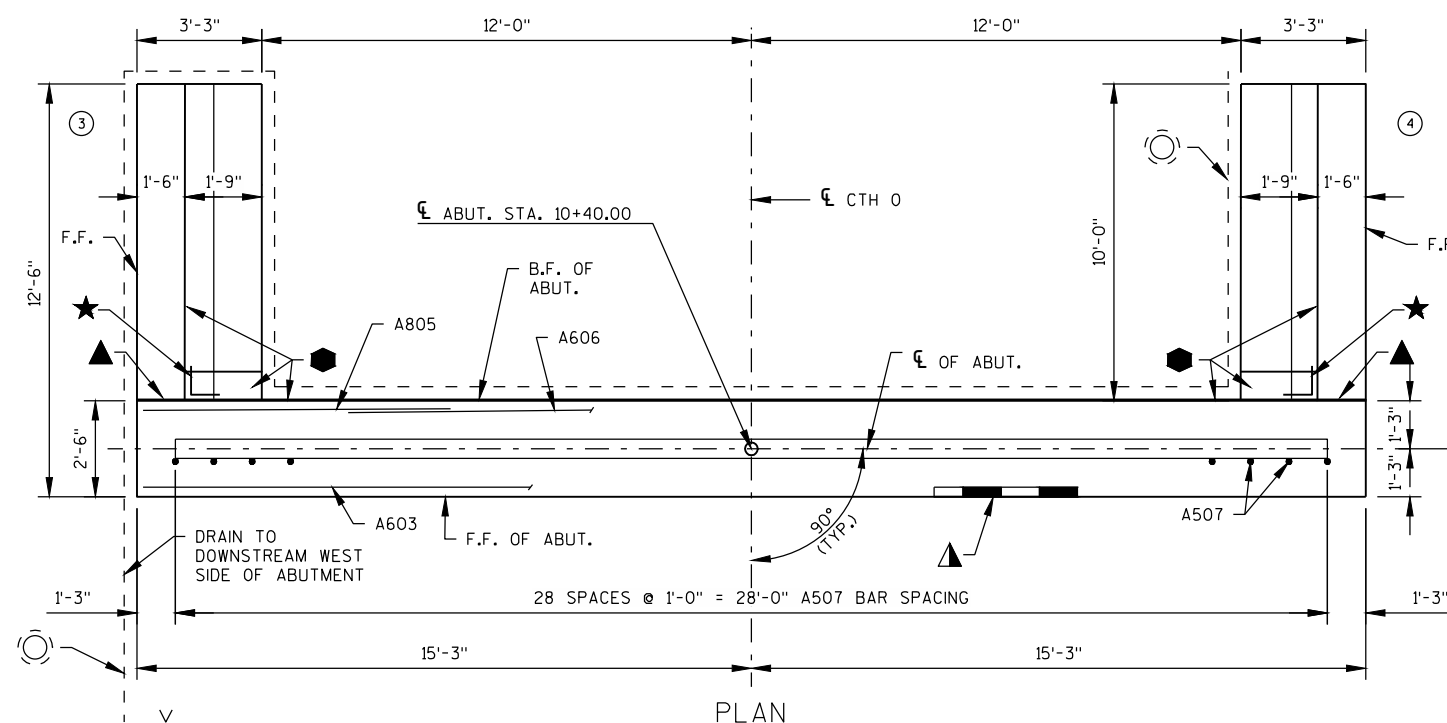
NO.	DATE	REVISION	B
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE B-61-222			
CONST. SPEC.	DRAWN BY CLF		PLANS CK'D. NJE
NORTH ABUTMENT			SHEET 4 OF

DATE: April 2015

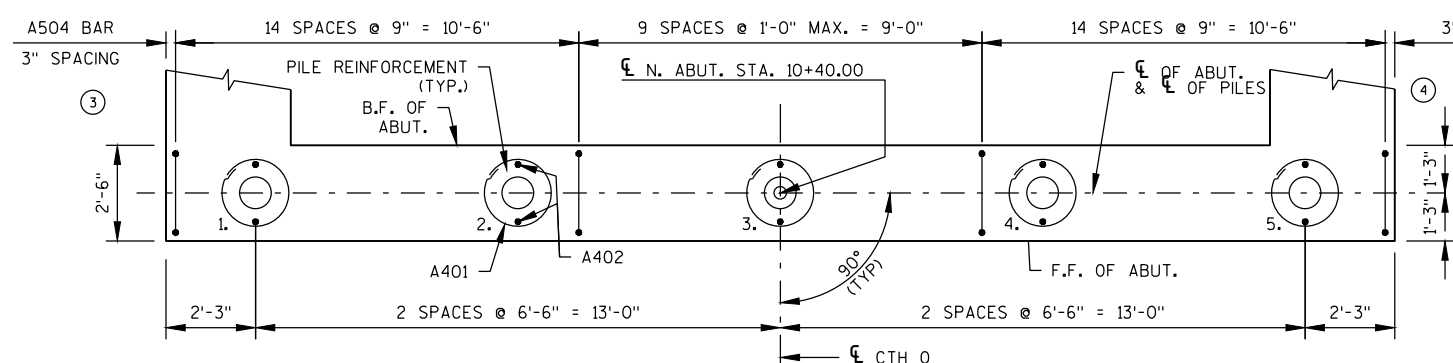
-
E
C
V



ELEVATION
(LOOKING NORTH)



PLAN

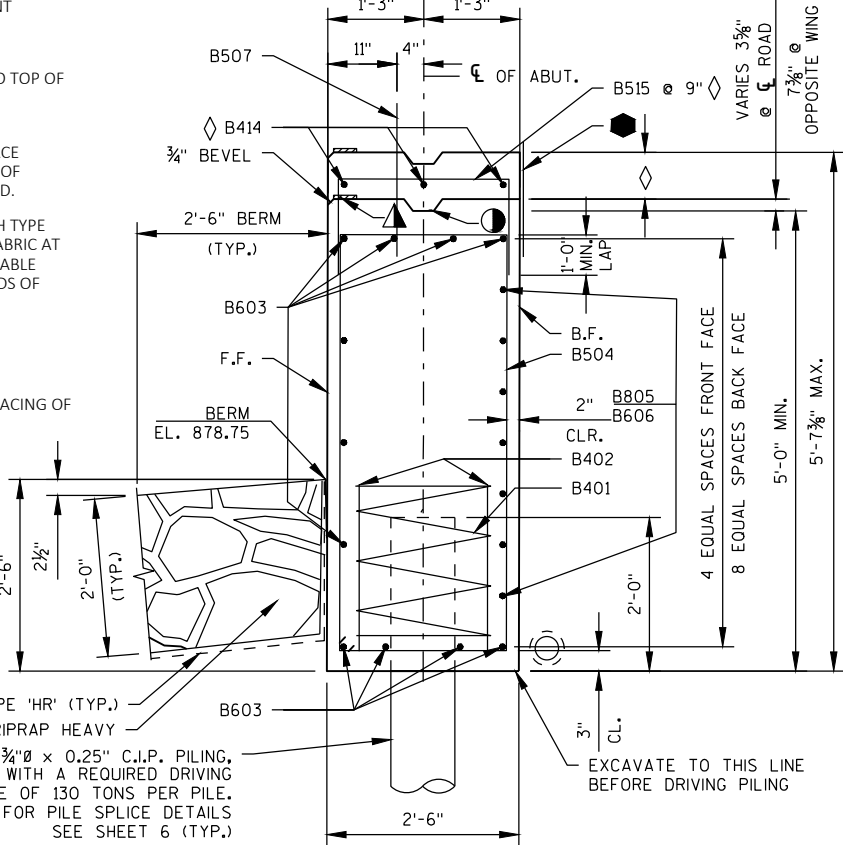


PILE PLAN

LEGEND

- OPTIONAL KEYED CONSTRUCTION JOINT ON WING FORMED BY BEVELED 2x6 IF JOINT IS USED PLACE ON B.F. OF WING.
- 3/4" "V" GROOVE ON FRONT FACE OF WING WALL, REQ'D. ONLY WHERE CONSTRUCTION JOINT IS USED.
- KEYED CONSTRUCTION JOINT FORMED BY BEVELED 2x6.
- 1/2" FILLER EXTEND AS SHOWN. SEAL ALL EXPOSED HORIZONTAL & VERTICAL SURFACES OF FILLER WITH NON-STAINING GRAY, NON-BITUMINOUS JOINT SEALER. (1" DEEP & HOLD 1/8" BELOW SURFACE OF CONCRETE).
- 4"x3 3/4" FILLER, EXTEND FULL LENGTH OF ABUTMENT BETWEEN EDGES OF SLAB.
- VERTICAL 18" WIDE RUBBERIZED MEMBRANE WATERPROOFING. EXTEND FROM BRIDGE SEAT TO TOP OF WINGS.
- HORIZONTAL 18" WIDE RUBBERIZED MEMBRANE WATERPROOFING. EXTEND BETWEEN WINGS. PLACE BOTTOM HALF HORIZONTAL AT HAUNCHED AREA OF WINGS IF OPTIONAL CONSTRUCTION JOINT IS USED.
- PIPE UNDERDRAIN 6-INCH, WRAPPED IN GEOTECH TYPE "DF" SCHEDULE "A". EXTEND THRU GEOTEXTILE FABRIC AT FACE OF RIPRAP HEAVY. SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. PROVIDE RODENT PROTECTION AT ENDS OF PIPE.
- INDICATES WING NUMBER.
- WHEN THIS DIMENSION ≥ 4" THIS ADDITIONAL REINFORCEMENT SHALL BE ADDED. MAXIMUM SPACING OF HORIZONTAL #4 BARS = 1'-0".

FOR WING DETAIL SEE SHEET 6.



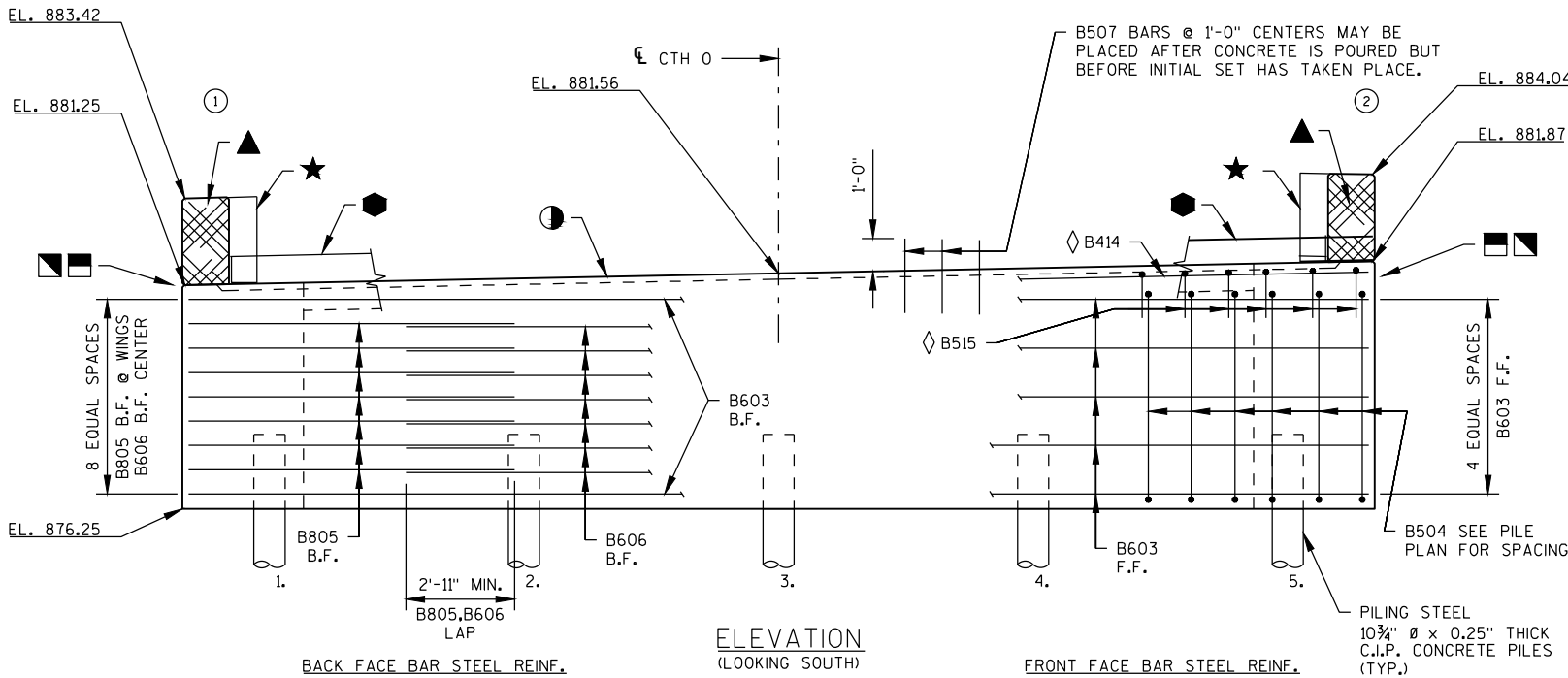
TYPICAL SECTION THRU ABUTMENT

BILL OF BARS(COATED) 1,317 LBS.
(UNCOATED) 1,842 LBS.

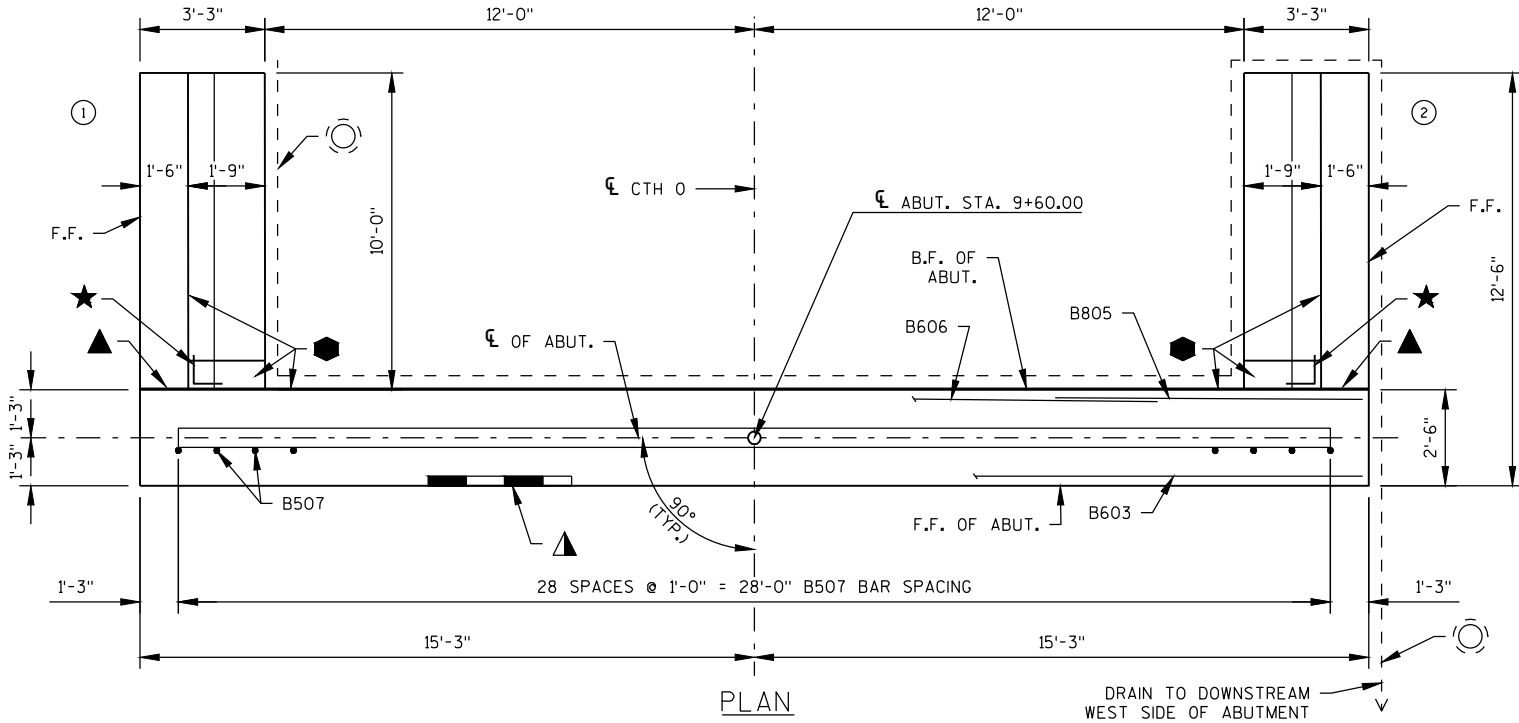
MARK	NUMBER REQUIRED		LENGTH	BENT	LOCATION
	COATED	UNCOATED			
B401	-	5	28'-0"	X	AT BODY PILES - 1 PER PILE 5 SPIRAL WRAPS
B402	-	10	2'-3"		" " " - 2 " " - VERT.
B603	-	11	30'-2"		BODY - F.F., TOP & BOTTOM - HORIZ.
B504	-	38	14'-1"	X	" - STIRRUPS - VERT.
B805	-	14	10'-0"		" - B.F. @ WINGS - HORIZ.
B606	-	7	16'-0"		" - B.F. @ CENTER - HORIZ.
B507	29	-	2'-0"		" - TOP - DOWELS - VERT.
B508	11	-	15'-7"	X	WINGS - BASE - STIRRUP - VERT.
B609	16	-	12'-2"		" " " - B.F. & TOP - HORIZ.
B510	14	-	12'-2"		" " " - F.F. - HORIZ.
B411	10	-	9'-8"		" - TOP - F.F. & B.F. - HORIZ.
B612	4	-	9'-8"		" " " " - HORIZ.
B613	22	-	8'-11"	X	" " " - STIRRUP - VERT.
B414	-	3	14'-2"		BODY - TOP - HORIZ.
B515	-	19	5'-6"	X	" " " - STIRRUPS - VERT.
B516	11	-	16'-9"	X	WINGS - BASE - STIRRUP - VERT.

- DIMENSIONS IN BENDING DETAILS ARE OUT TO OUT OF BAR.

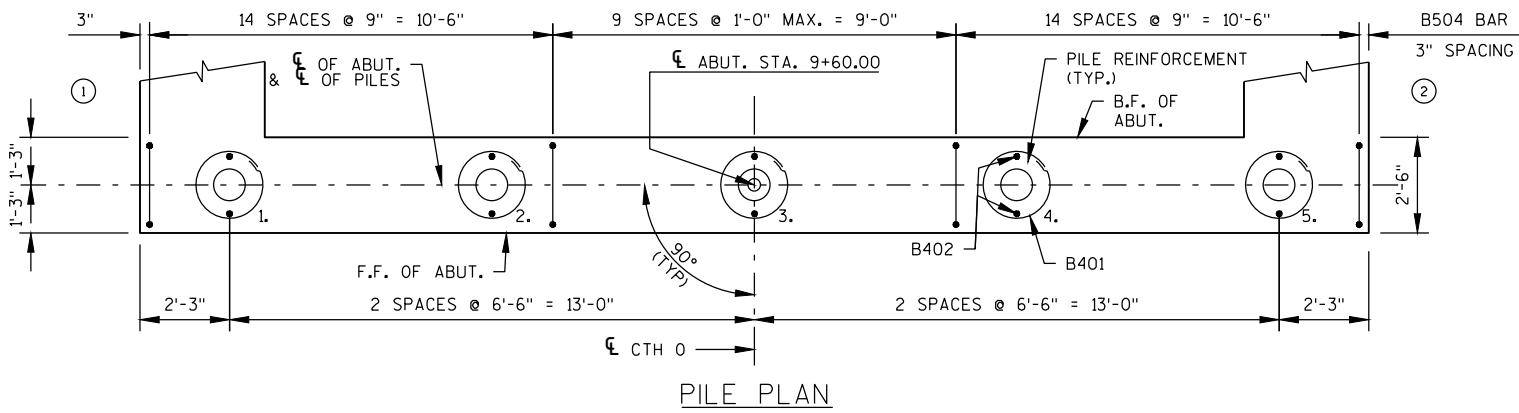
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE B-61-222			
CONST. SPEC.	DRAWN BY	CLF	PLANS NJE
SOUTH ABUTMENT			SHEET 5 OF 12



ELEVATION
(LOOKING SOUTH)



PLAN

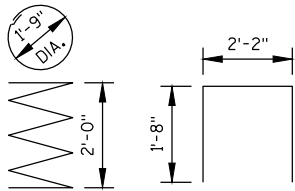


PILE PLAN

SEE SHEET 4 LEGEND FOR DESCRIPTION OF

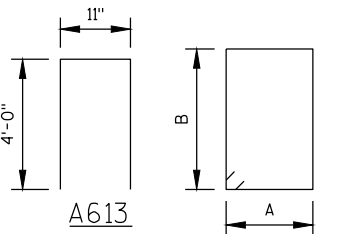
NOTE: ELEVATIONS ARE GIVEN AT THE B.F. OF WING

FOR RAIL POST ANCHOR DETAILS SEE SHEET 9.



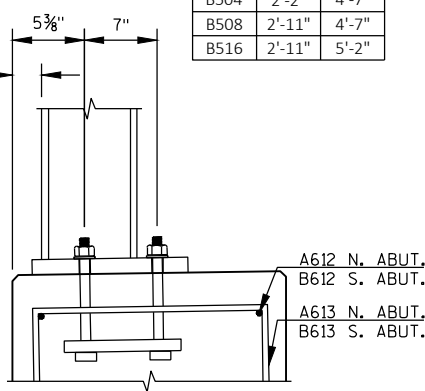
A401
B401

A515
B401

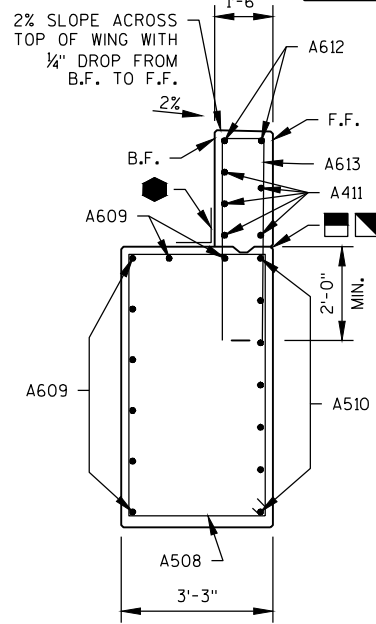


A613
B613

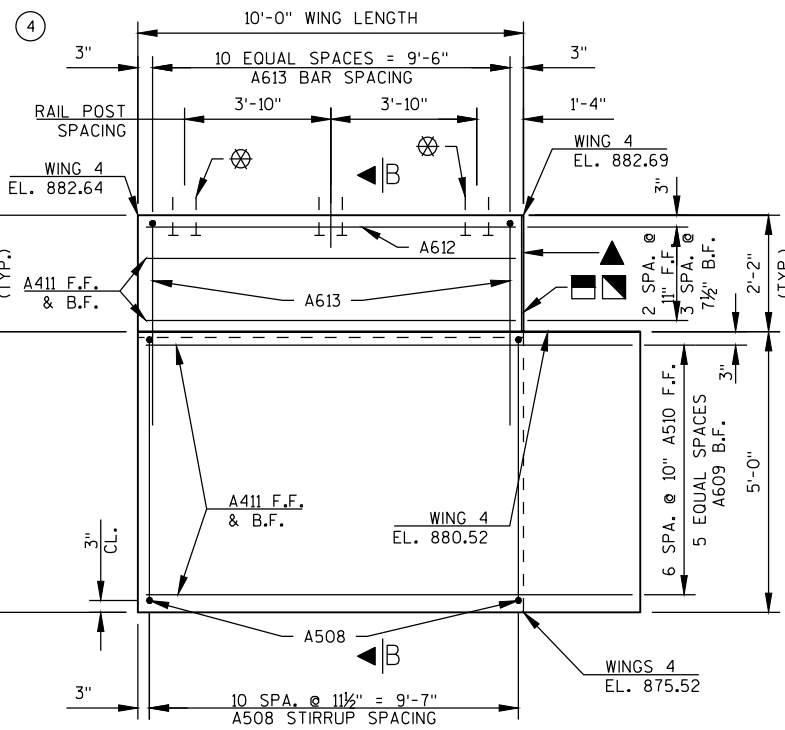
NORTH ABUTMENT		
MARK	A	B
A504	2'-2"	4'-7"
A508	2'-11"	4'-7"
A516	2'-11"	5'-2"
SOUTH ABUTMENT		
MARK	A	B
B504	2'-2"	4'-7"
B508	2'-11"	4'-7"
B516	2'-11"	5'-2"



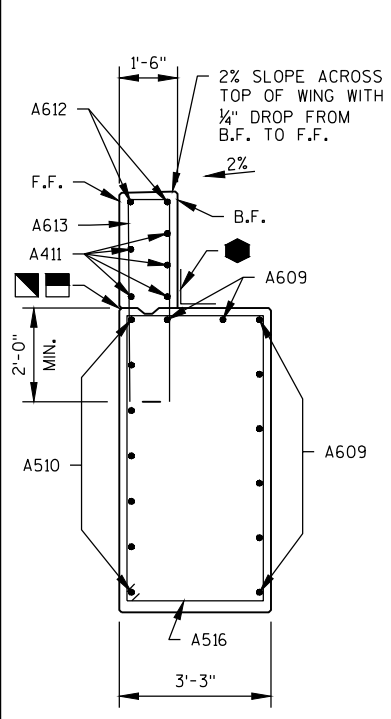
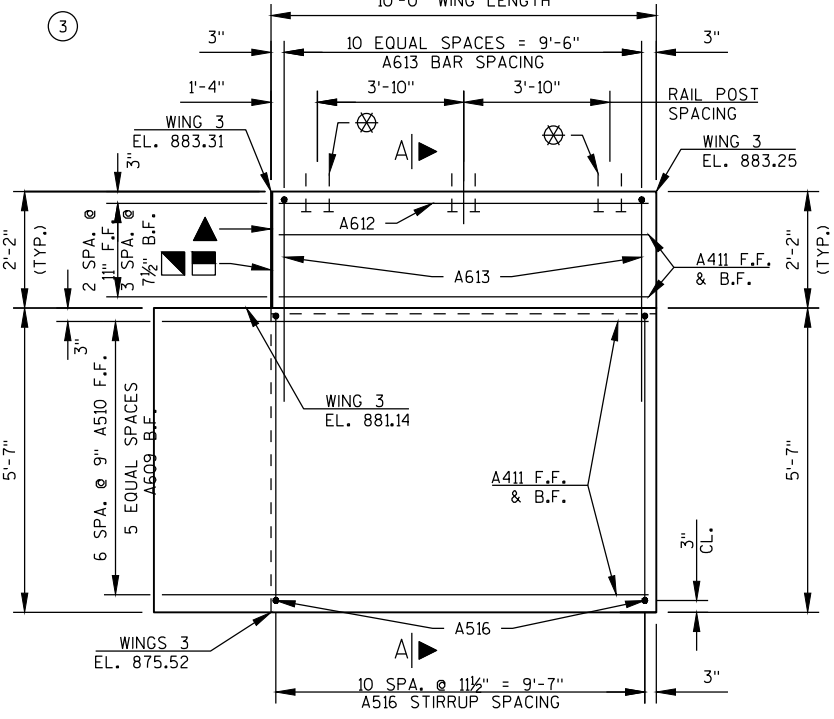
SECTION AT TOP OF WING



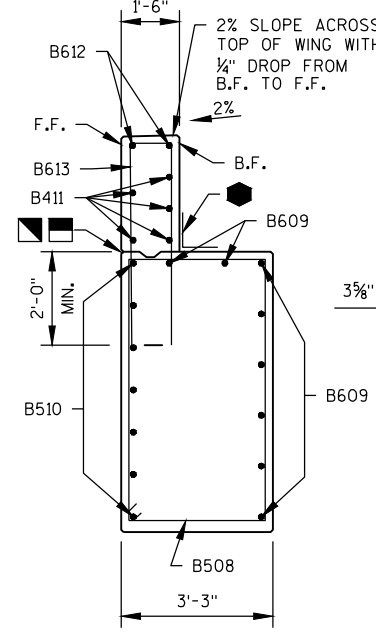
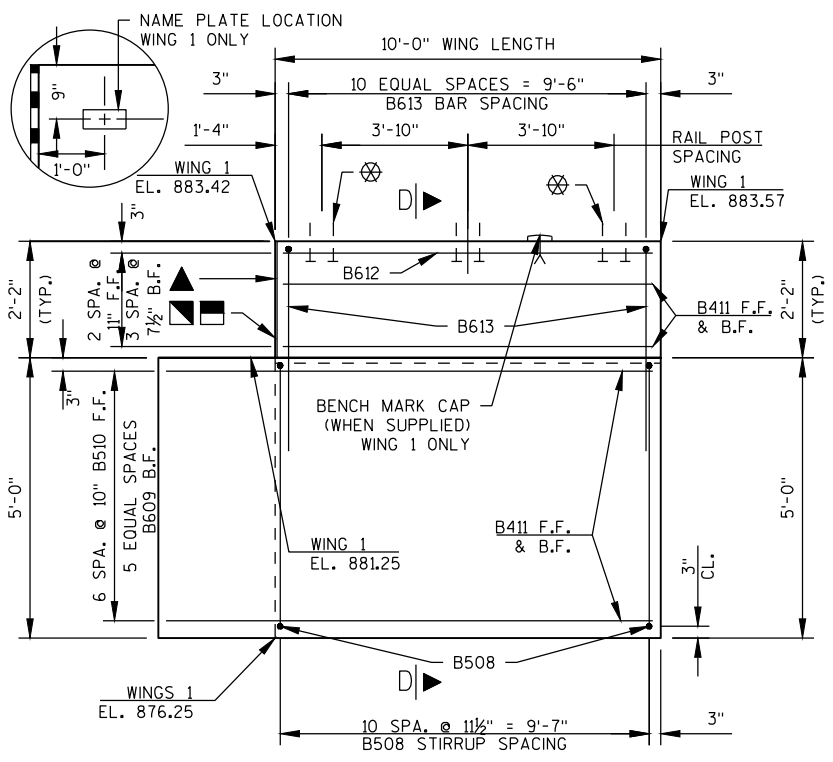
SECTION B-B



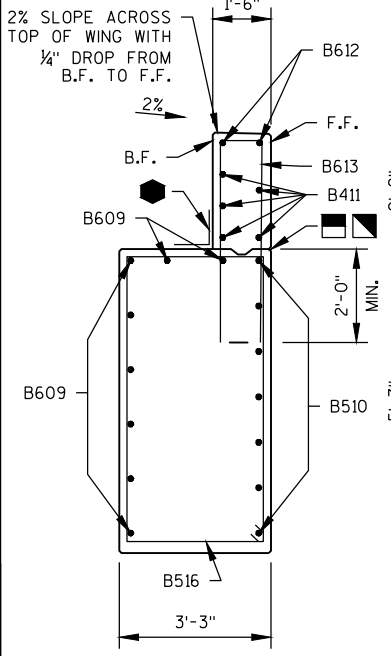
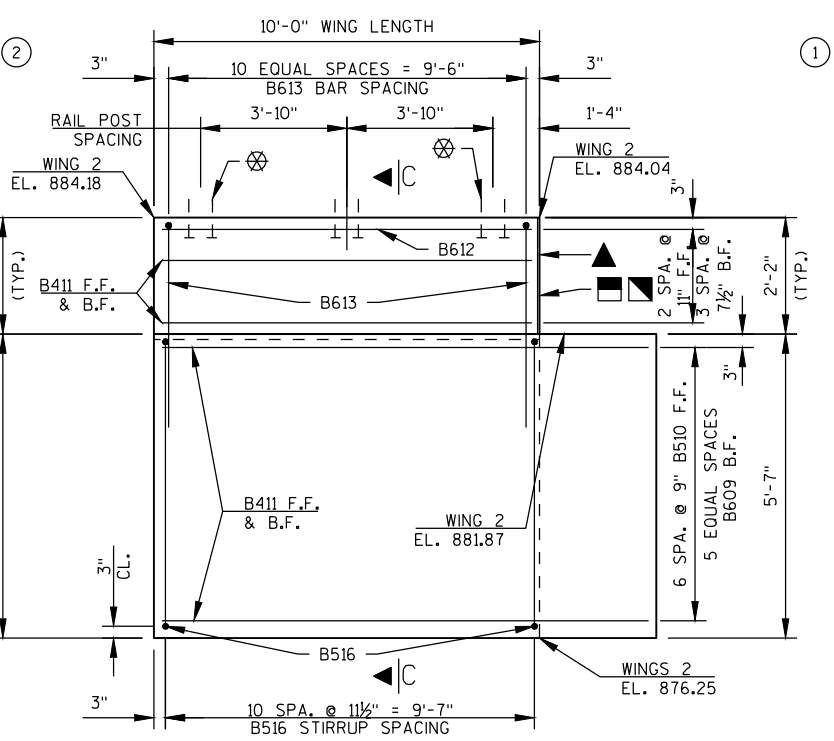
NORTH ABUTMENT WINGS



SECTION A-A

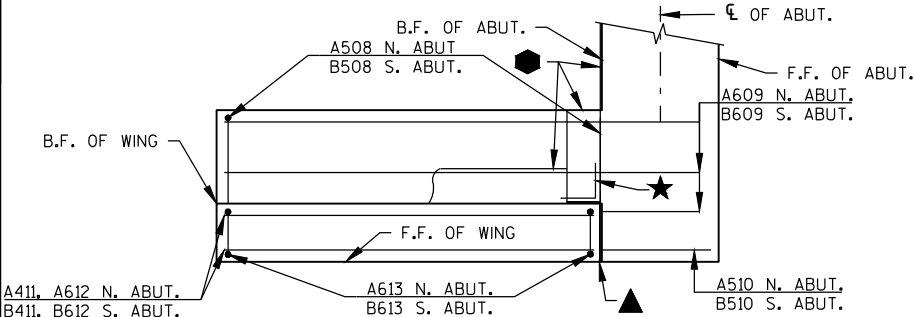


SECTION D-D

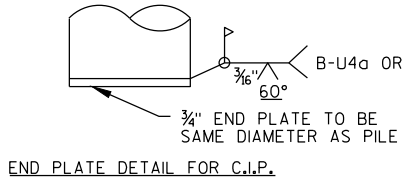


SECTION C-C

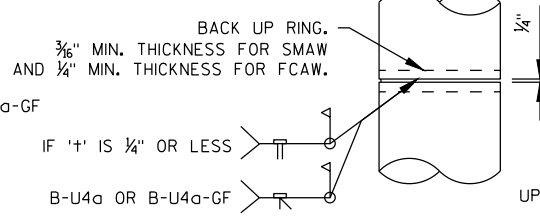
SOUTH ABUTMENT WINGS



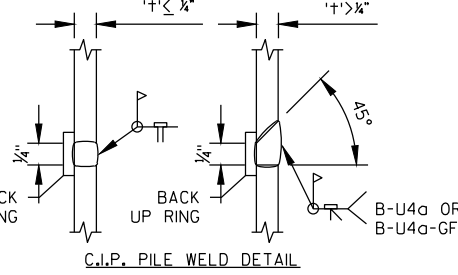
PLAN - WING



END PLATE DETAIL FOR C.I.P.



PILE SPLICE DETAILS



C.I.P. PILE WELD DETAIL

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE B-61-222			
CONST. SPEC.	DRAWN BY	CLF	PLANS NJE CKD.
ABUTMENT DETAILS		SHEET 6 OF 12	

NOTES

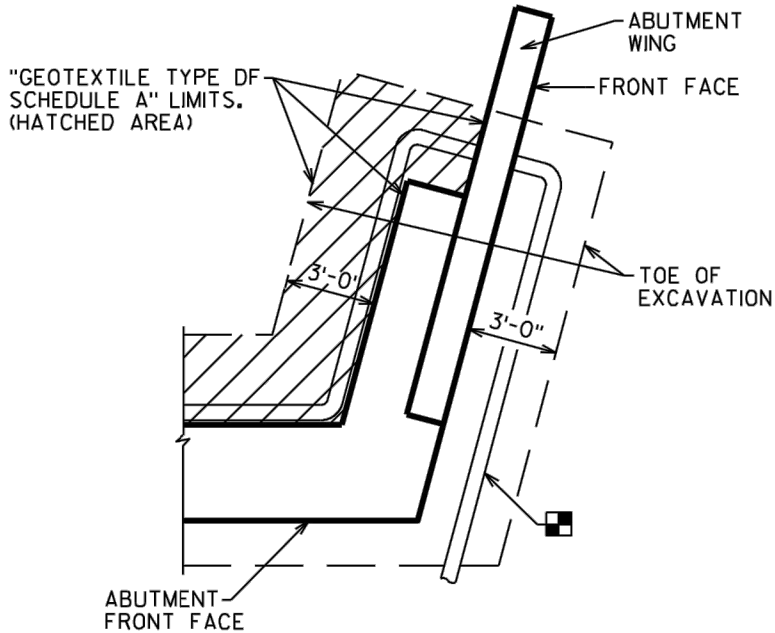
THE UPPER LIMITS OF EXCAVATION FOR STRUCTURES BRIDGES B-61-222 SHALL BE THE EXISTING GROUNDLINE.

▲ BACKFILL PAY LIMITS. BEYOND BACKFILL PAY LIMITS SHALL BE INCIDENTAL TO EXCAVATION FOR STRUCTURES. LIMITS OF EXCAVATION SHALL BE DETERMINED BY THE CONTRACTOR.

AT THE BACKFACE OF ABUTMENT ALL VOLUME WHICH CANNOT BE PLACED BEFORE ABUTMENT CONSTRUCTION AND IS NOT OCCUPIED BY THE NEW STRUCTURE SHALL BE BACKFILLED WITH STRUCTURE BACKFILL.

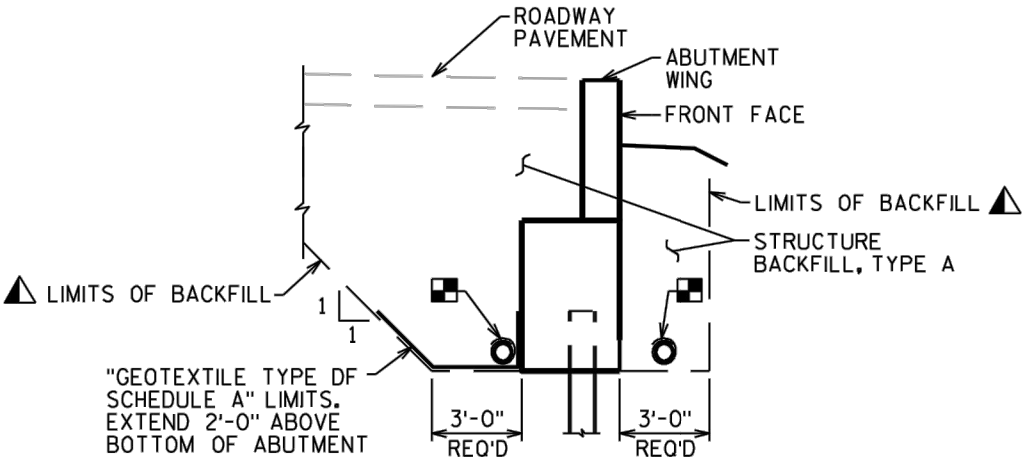
EXCAVATION BELOW THE ABUTMENT AND ABUTMENT BEDDING MATERIALS REQUIRES ENGINEER APPROVAL. GEOTEXTILE SHALL BE SET AT THE BOTTOM OF EXCAVATION AND EXTEND 2'-0" ABOVE BOTTOM OF ABUTMENT. (NOTE INTENDED FOR PILE SUPPORTED ABUTMENTS. SEE DESIGNER NOTES FOR MORE INFORMATION.)

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



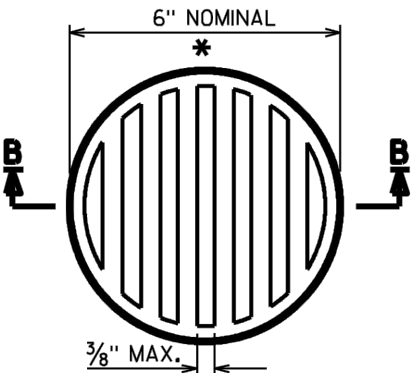
**ABUTMENT PLAN
WITH WING**

(A1 ABUTMENT WITHOUT STRUCTURAL APPROACH)

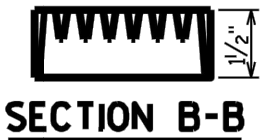


**TYPICAL SECTION
THRU WING**

(A1 ABUTMENT WITHOUT STRUCTURAL APPROACH)



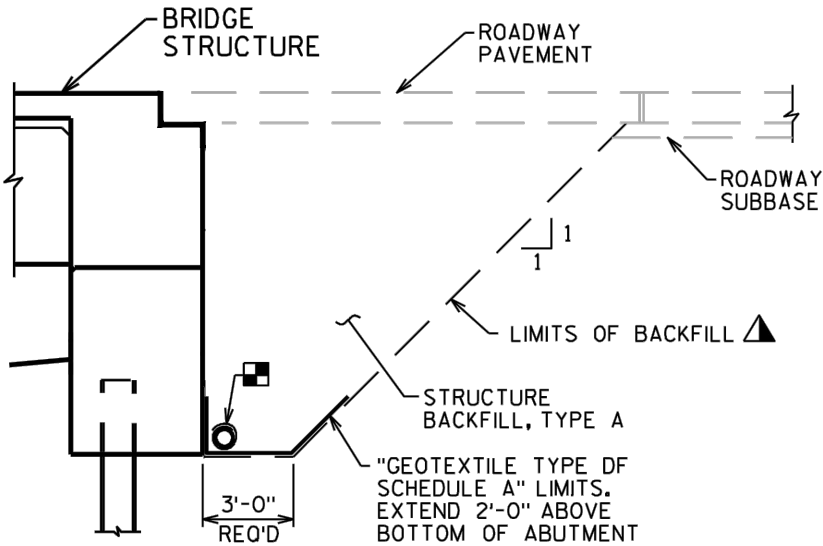
RODENT SHIELD DETAIL



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

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

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



**TYPICAL SECTION
THRU ABUTMENT**

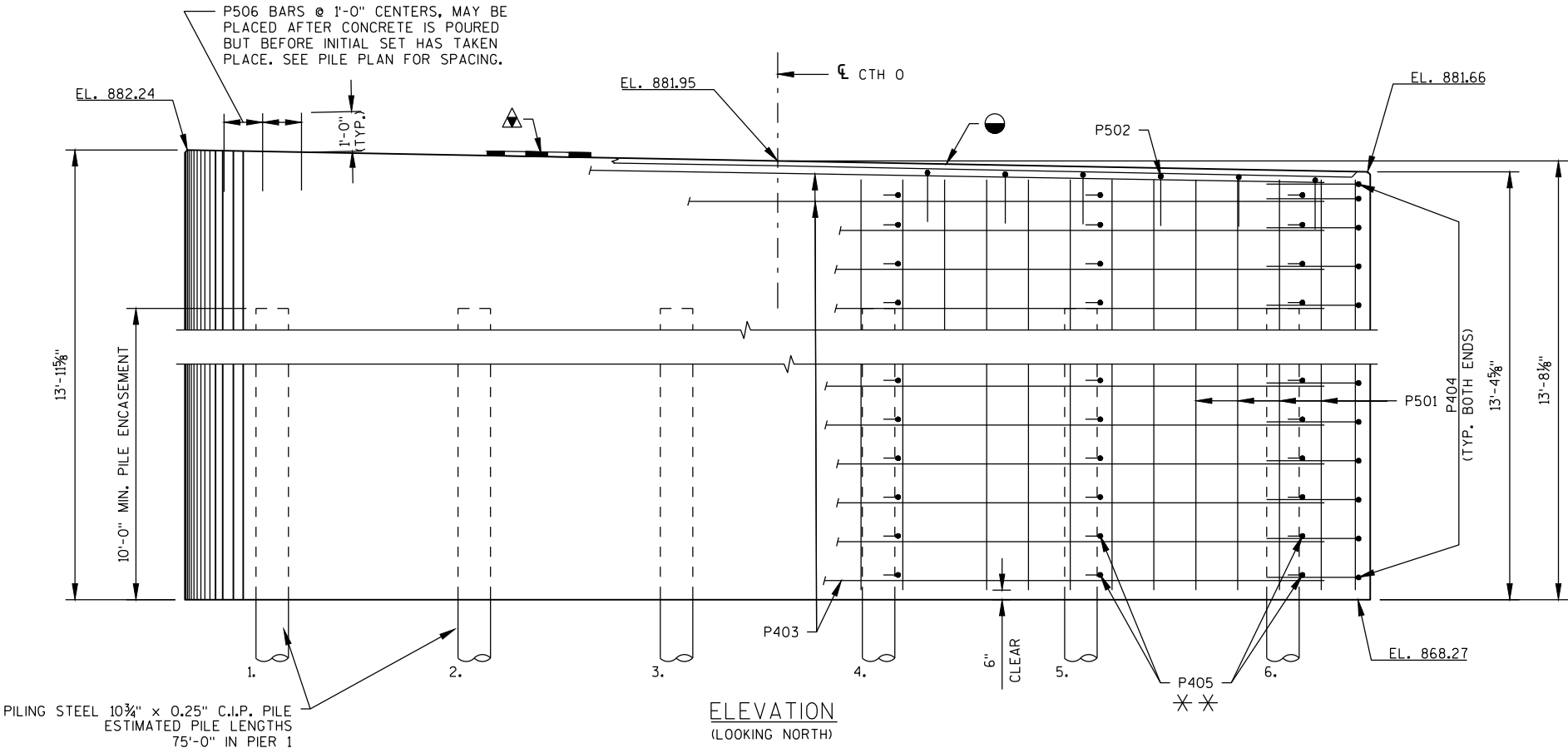
(A1 ABUTMENT WITHOUT STRUCTURAL APPROACH)

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE B-61-222			
CONST. SPEC.	DRAWN BY	CLF	PLANS NJE CK'D.
BACKFILL DETAILS			SHEET 7 OF 12

BILL OF BARS (COATED) 56 LBS.
(UNCOATED) 1,678 LBS.

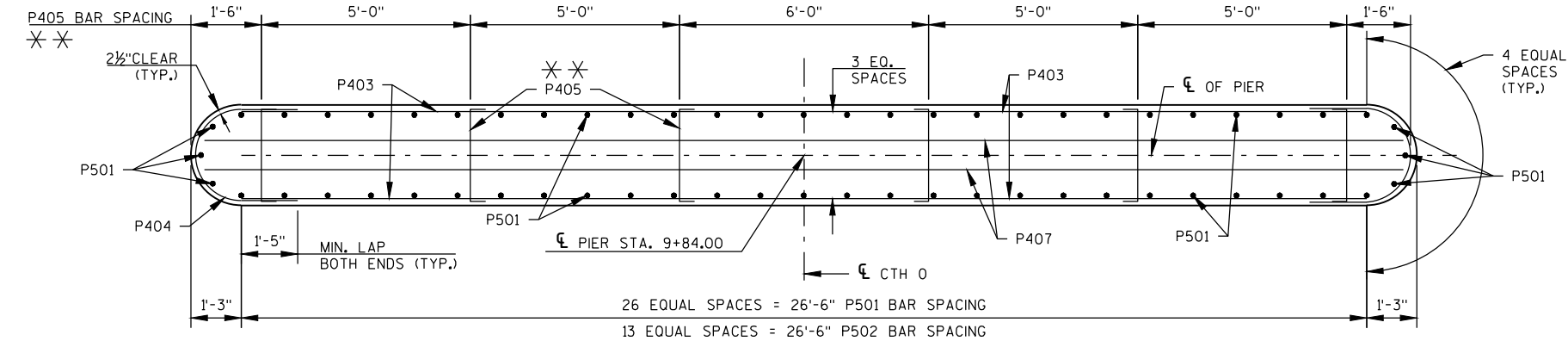
MARK	NUMBER REQUIRED		LENGTH	BENT	LOCATION
	COATED	UNCOATED			
P501	-	60	12'-5"		PIER SHAFT - VERT.
P502	-	14	4'-8"	X	" STIRRUPS TOP - VERT.
P403	-	30	26'-6"		" TOP & SIDES - HORIZ.
P404	-	28	6'-1"	X	" AT ENDS - HORIZ.
P405	-	84	2'-8"	X	" TIES - HORIZ.
P506	27	-	2'-0"		" DOWELS @ TOP - VERT.
P407	-	2	28'-4"		" SHAFT END - HORIZ.

- DIMENSIONS IN BENDING DETAILS ARE OUT TO OUT OF BAR.

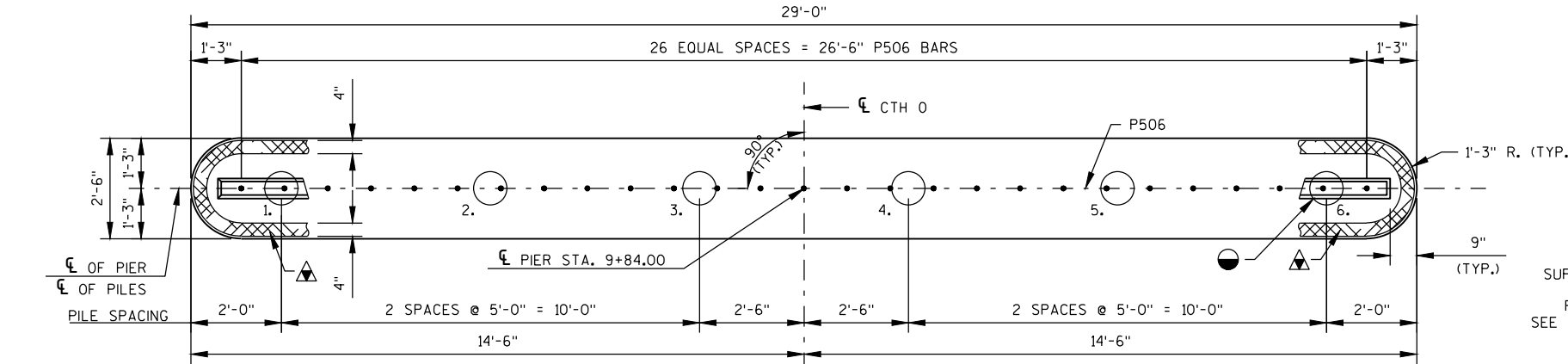


PIILING STEEL 10 3/4" x 0.25" C.I.P. PILE
ESTIMATED PILE LENGTHS
75'-0" IN PIER 1

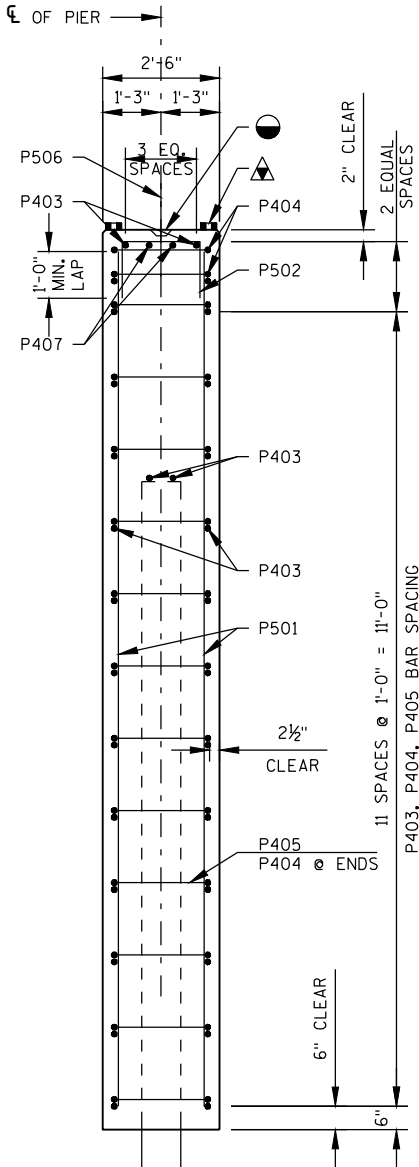
ELEVATION
(LOOKING NORTH)



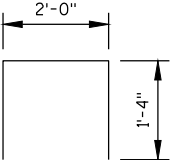
PLAN



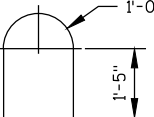
PILE PLAN



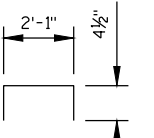
TYPICAL SECTION THRU PIER



P502



P404



P405

LEGEND

- 4"x 3/4" FILLER, TYPICAL ALL AROUND TOP EDGES OF PIER.
- 2"x6" BEVELED KEYWAY.
- ADJACENT TO EACH PILE ONE SIDE ONLY.

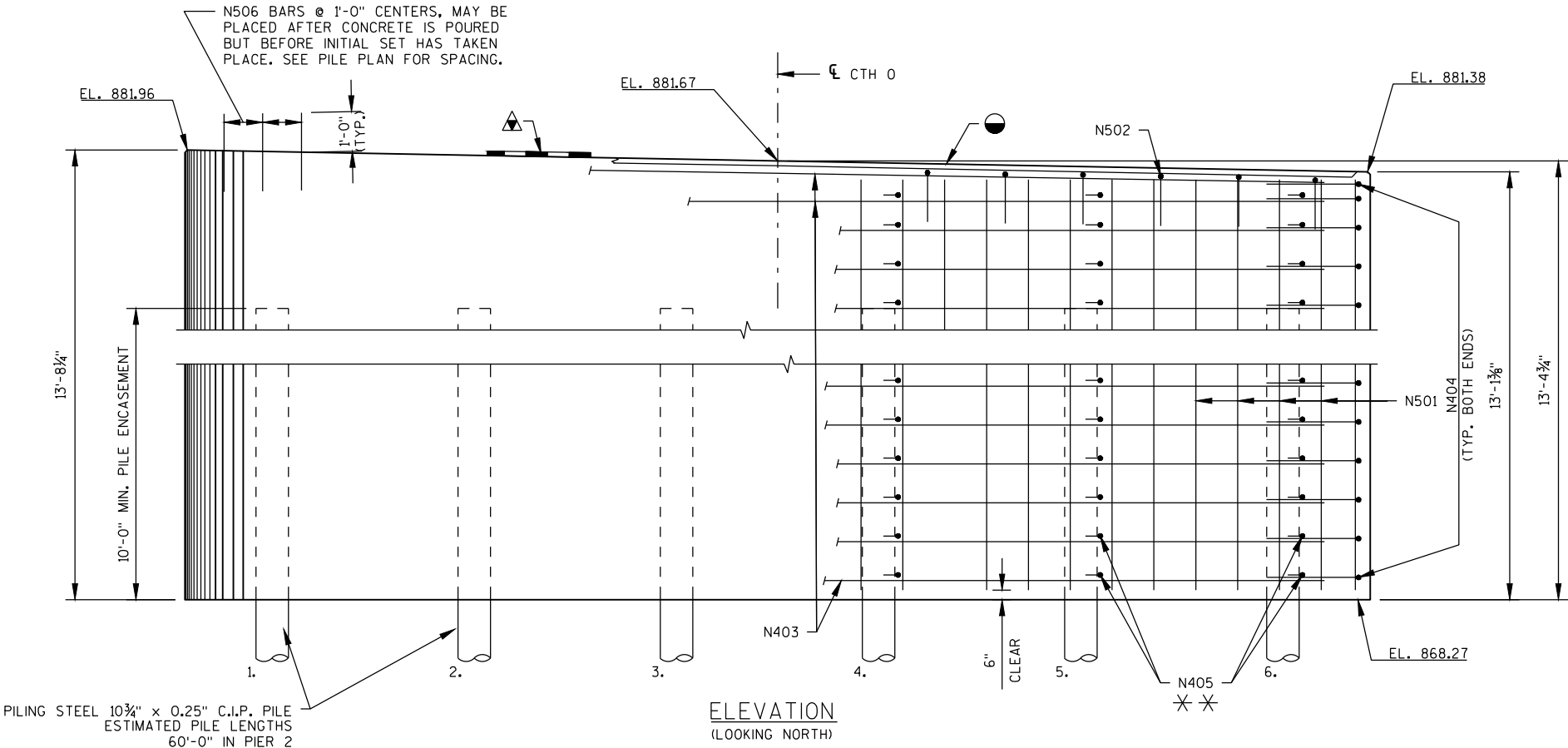
SUPPORT PIER ON 10 3/4" x 0.25" C.I.P. PILING, WITH A REQUIRED DRIVING RESISTANCE OF 130 TONS PER PILE. SEE SHEET 6 FOR PILE SPLICE DETAILS.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE B-61-222			
CONST. SPEC.	DRAWN BY	CLF	PLANS NJE CK'D.
PIER 1		SHEET 8 OF 12	

BILL OF BARS (COATED) 56 LBS.
(UNCOATED) 1,678 LBS.

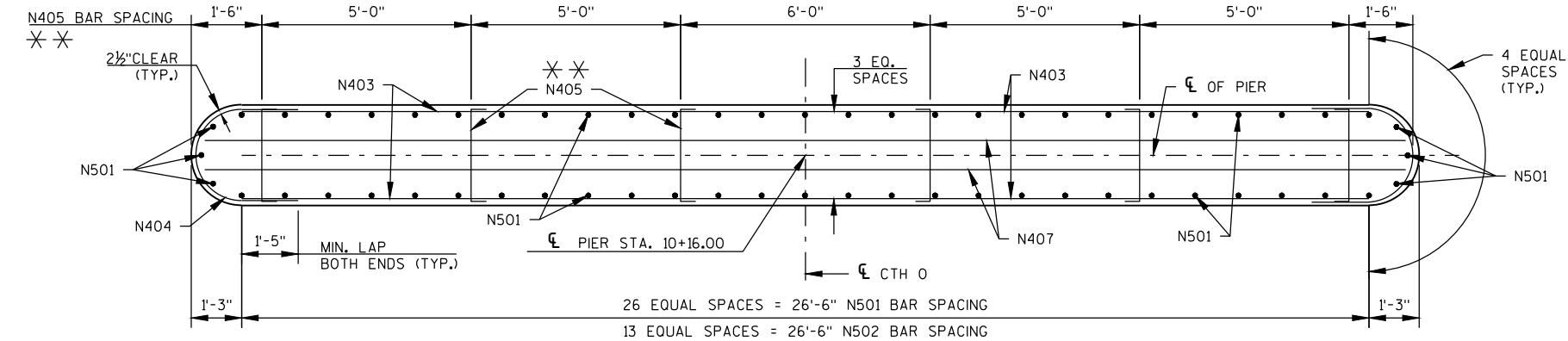
MARK	NUMBER REQUIRED		LENGTH	BENT	LOCATION
	COATED	UNCOATED			
N501	-	60	12'-5"		PIER SHAFT - VERT.
N502	-	14	4'-8"	X	" STIRRUPS TOP - VERT.
N403	-	30	26'-6"		" TOP & SIDES - HORIZ.
N404	-	28	6'-1"	X	" AT ENDS - HORIZ.
N405	-	84	2'-8"	X	" TIES - HORIZ.
N506	27	-	2'-0"		" DOWELS @ TOP - VERT.
N407	-	2	28'-4"		" SHAFT END - HORIZ.

- DIMENSIONS IN BENDING DETAILS ARE OUT TO OUT OF BAR.

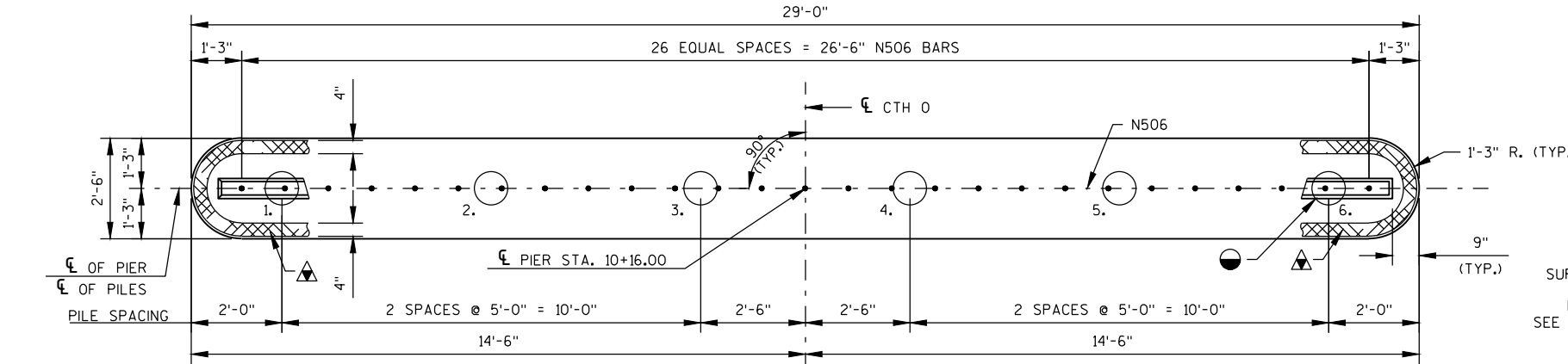


PIILING STEEL 10 3/4" x 0.25" C.I.P. PILE
ESTIMATED PILE LENGTHS
60'-0" IN PIER 2

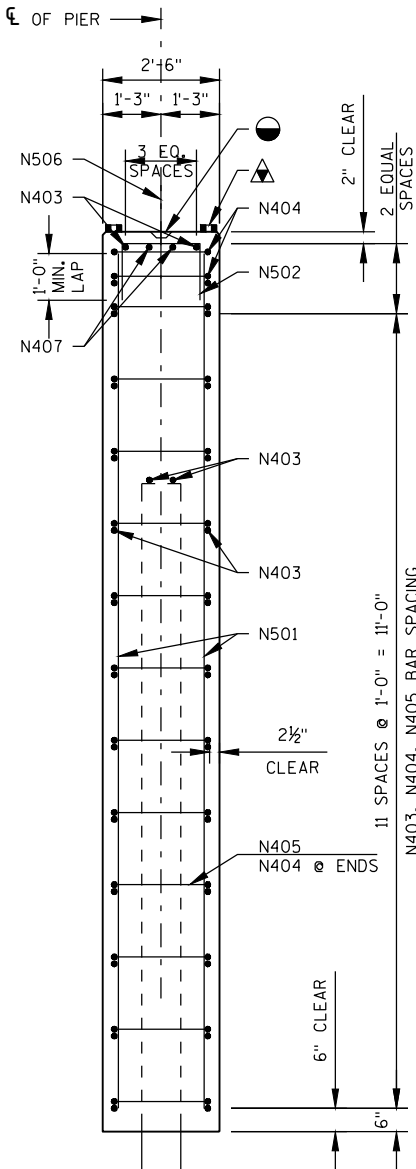
ELEVATION
(LOOKING NORTH)



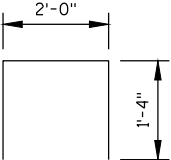
PLAN



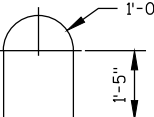
PILE PLAN



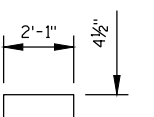
TYPICAL SECTION THRU PIER



N502



N404



N405

LEGEND

- 4"x 3/4" FILLER, TYPICAL ALL AROUND TOP EDGES OF PIER.
- 2"x6" BEVELED KEYWAY.
- ADJACENT TO EACH PILE ONE SIDE ONLY.

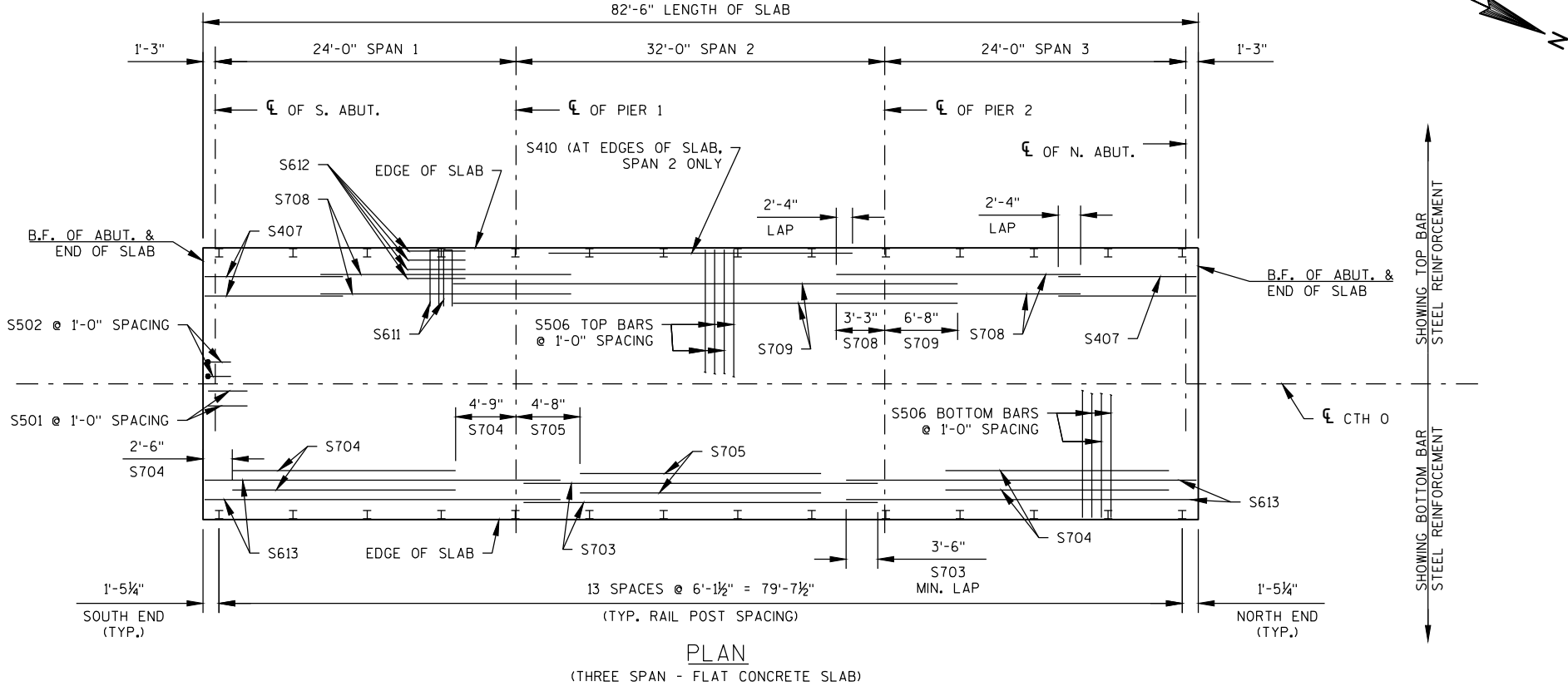
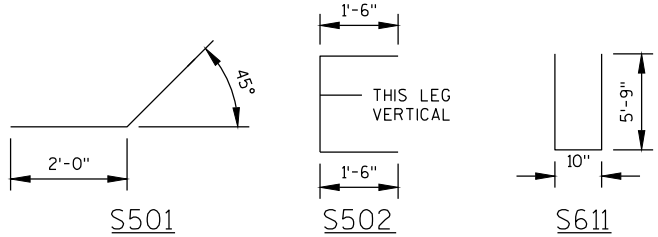
SUPPORT PIER ON 10 3/4" x 0.25" C.I.P. PILING, WITH A REQUIRED DRIVING RESISTANCE OF 130 TONS PER PILE. SEE SHEET 6 FOR PILE SPLICE DETAILS.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE B-61-222			
CONST. SPEC.	DRAWN BY	CLF	PLANS NJE CK'D.
PIER 2		SHEET 9 OF 12	

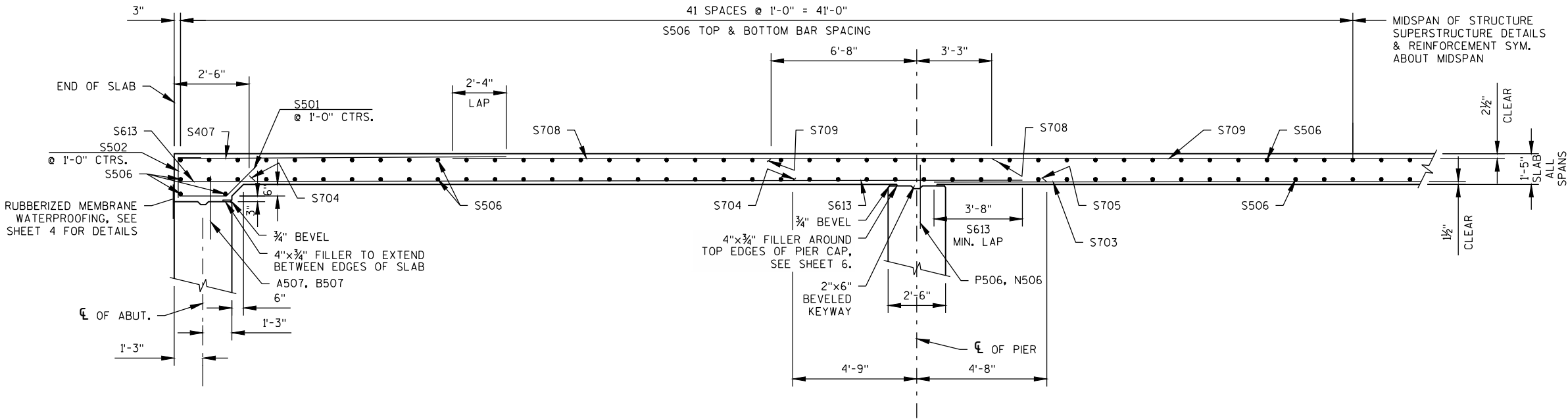
BILL OF BARS (COATED) 22,092 LBS.

MARK	NO. REQ'D.	LENGTH	BENT	LOCATION
S501	62	4'-2"	X	DIAPHRAGM @ ABUTS. - LONGIT.
S502	62	4'-9"	X	DIAPHRAGM @ ABUTS. - VERT.
S703	31	30'-8"		SLAB BOTTOM - SPAN 2 - LONGIT.
S704	60	18'-0"		SLAB BOTTOM - SPANS 1 & 3 - LONGIT.
A705	30	22'-8"		SLAB BOTTOM - SPAN 2 - TRANS.
S506	168	30'-0"		SLAB TOP & BOTTOM - TRANS.
S407	62	8'-5"		SLAB TOP - @ ABUT. - LONGIT.
S708	62	22'-3"		SLAB TOP - SPANS 1 & 3 & OVER PIERS - LONGIT.
S709	30	45'-4"		SLAB TOP - SPAN 2 & OVER PIERS - LONGIT.
S410	2	30'-2"		SLAB TOP - SPAN 2 @ EDGE OF SLAB - LONGIT.
S611	56	12'-4"	X	SLAB @ RAIL POST, TWO PER POST - LONGIT.
S612	112	6'-0"		SLAB @ RAIL POST, FOUR PER POST - LONGIT.
S613	62	29'-3"		SLAB BOTTOM - SPANS 1 & 3 - LONGIT.

- EPOXY COAT ALL SUPERSTRUCTURE BAR STEEL.
- DIMENSIONS IN BENDING DETAILS ARE OUT TO OUT OF BAR.



PLAN
(THREE SPAN - FLAT CONCRETE SLAB)



PART LONGITUDINAL SECTION

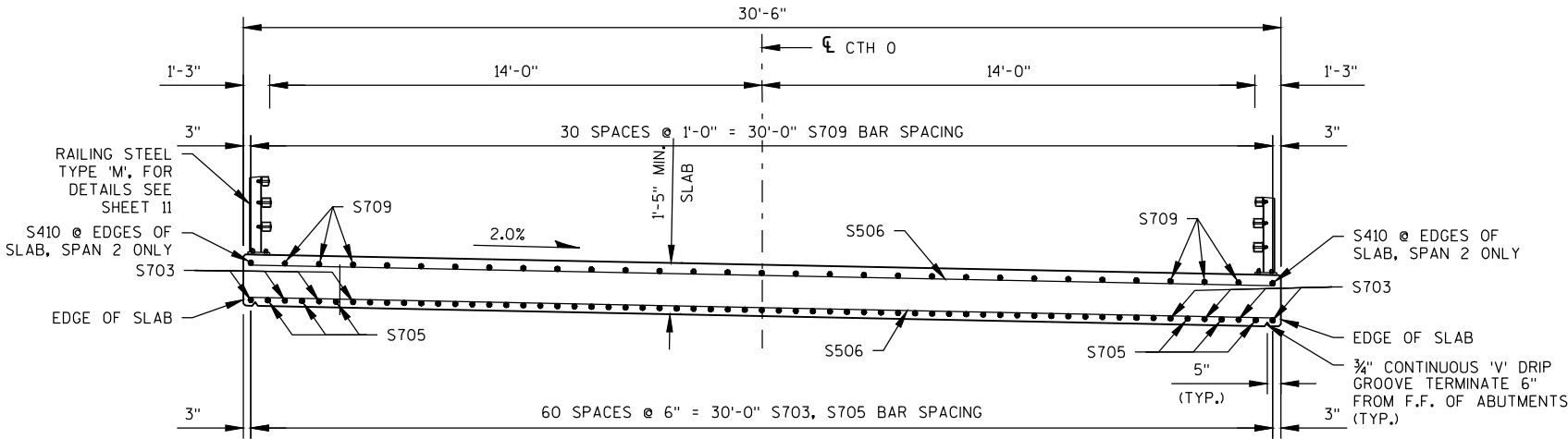
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE B-61-222			
CONST. SPEC.	DRAWN BY	CLF	PLANS CK'D. NJE
SUPERSTRUCTURE		SHEET 10 OF 12	

TOP OF SLAB ELEVATIONS AND CAMBER VALUES

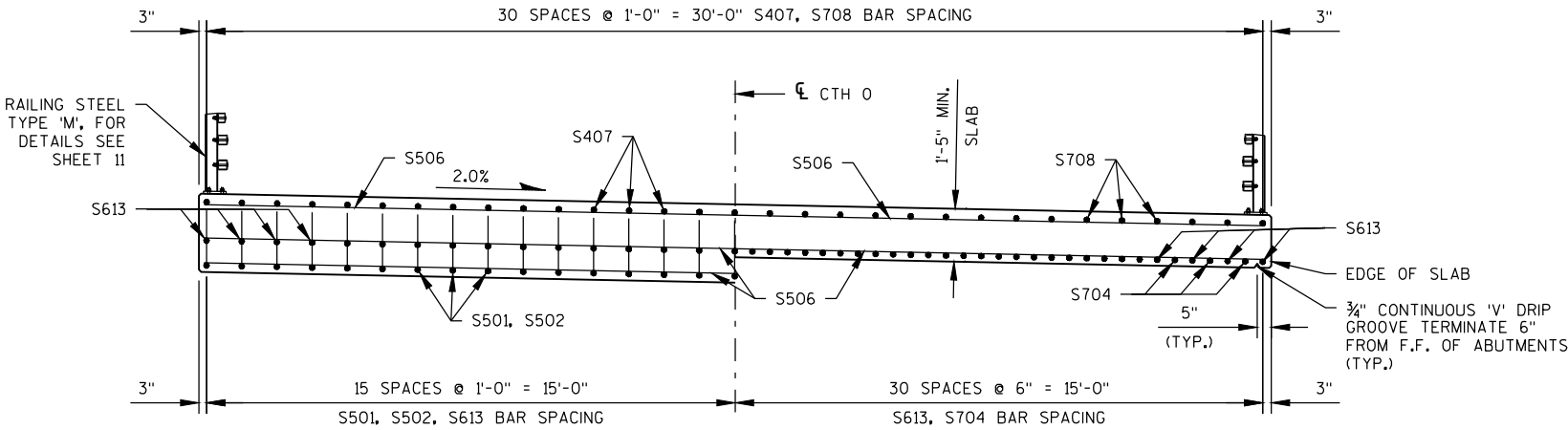
LOCATION	WEST EDGE OF SLAB ELEVATION	CENTERLINE ELEVATION	EAST EDGE OF SLAB ELEVATION	CAMBER VALUE (INCHES)
S. ABUT.	884.03	883.73	883.42	0
1/10	884.00	883.70	883.39	1/8
2/10	883.97	883.66	883.36	1/8
3/10	883.94	883.63	883.33	1/8
4/10	883.91	883.60	883.30	1/8
5/10	883.88	883.57	883.27	1/8
6/10	883.85	883.54	883.24	1/8
7/10	883.82	883.52	883.21	1/8
8/10	883.80	883.49	883.19	1/8
9/10	883.77	883.47	883.16	0
PIER 1	883.75	883.43	883.14	0
1/10	883.71	883.41	883.10	0
2/10	883.68	883.37	883.07	1/8
3/10	883.65	883.34	883.04	1/8
4/10	883.61	883.31	883.00	1/8
5/10	883.58	883.27	882.97	1/8
6/10	883.56	883.25	882.95	1/8
7/10	883.53	883.23	882.92	1/8
8/10	883.51	883.20	882.90	1/8
9/10	883.48	883.18	882.87	0
PIER 2	883.46	883.15	882.85	0
1/10	883.44	883.14	882.83	0
2/10	883.42	883.12	882.81	1/8
3/10	883.41	883.10	882.80	1/8
4/10	883.39	883.08	882.78	1/8
5/10	883.37	883.07	882.76	1/8
6/10	883.36	883.05	882.75	1/8
7/10	883.34	883.04	882.73	1/8
8/10	883.33	883.03	882.72	1/8
9/10	883.32	883.01	882.71	1/8
N. ABUT.	883.30	883.00	882.69	0

CAMBER SPANS AS SHOWN BELOW AND IN THE TABLE OF VALUES TO PROVIDE FOR DEAD LOAD DEFLECTION AND FUTURE CREEP. CAMBER DOES NOT INCLUDE ALLOWANCE FOR FORM SETTLEMENT. DEAD LOAD DEFLECTION APPROXIMATES 1/3 OF CAMBER VALUES SHOWN.

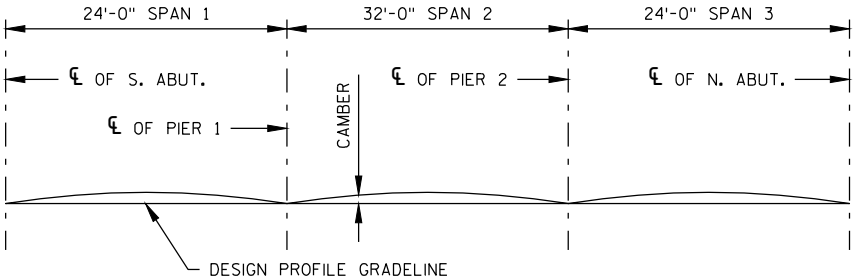
CROSS SECTION THRU BRIDGE - SPAN 2
(LOOKING NORTH)



CROSS SECTION THRU BRIDGE - SPAN 1 & 3
(LOOKING NORTH)



CAMBER DIAGRAM



GENERAL NOTES

ALL SLAB THICKNESS DIMENSIONS ARE MINIMUM. ANY TOLERANCES NECESSARY TO CORRECT CONSTRUCTION DISCREPANCIES ARE TO BE PLUS (+)

TOP TRANSVERSE BARS IN SLAB SHALL BE SUPPORTED BY INDIVIDUAL BAR CHAIRS AT APPROXIMATELY 3'-0" CENTERS EACH WAY. BOTTOM LONGITUDINAL BARS SHALL BE SUPPORTED BY CONTINUOUS BAR CHAIRS AT APPROXIMATELY 4'-0" CENTERS.

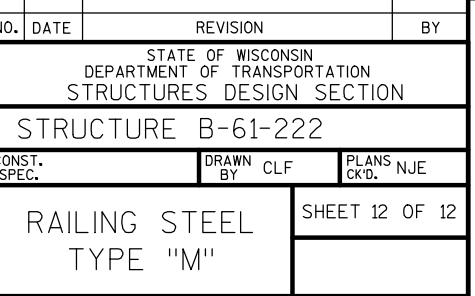
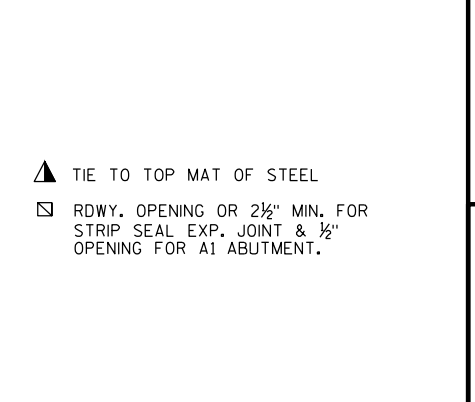
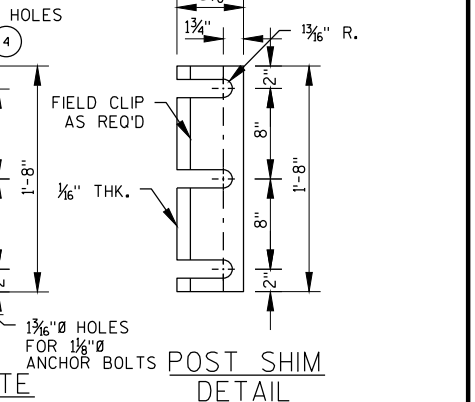
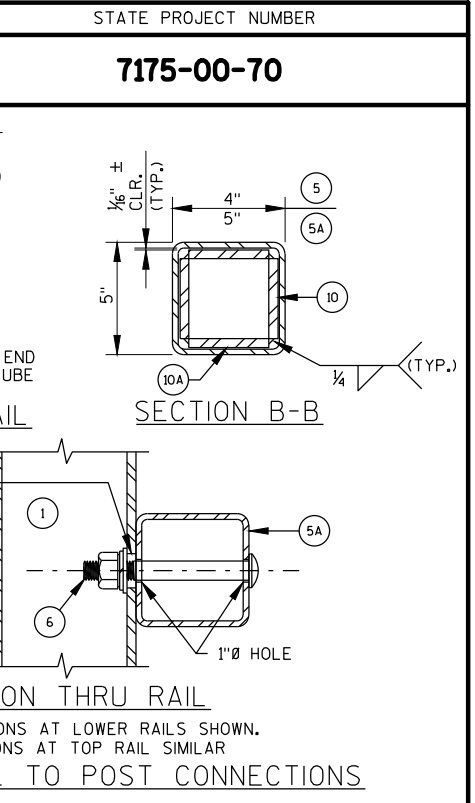
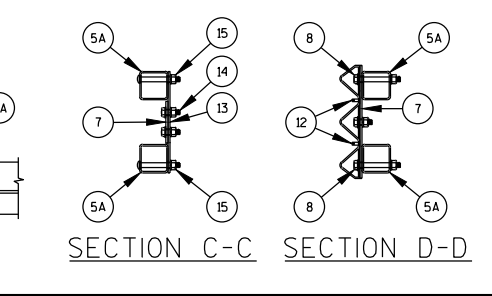
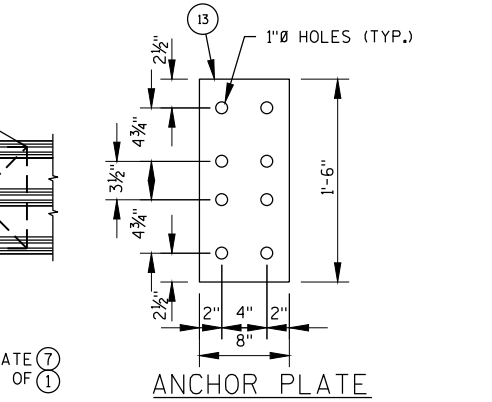
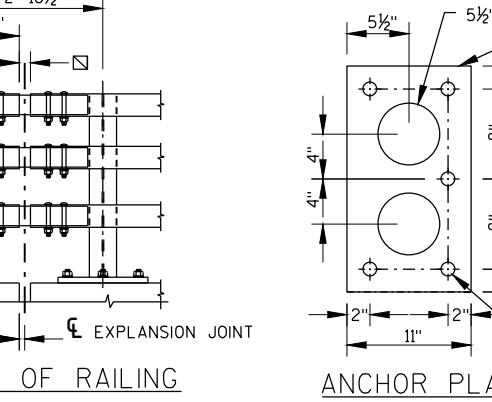
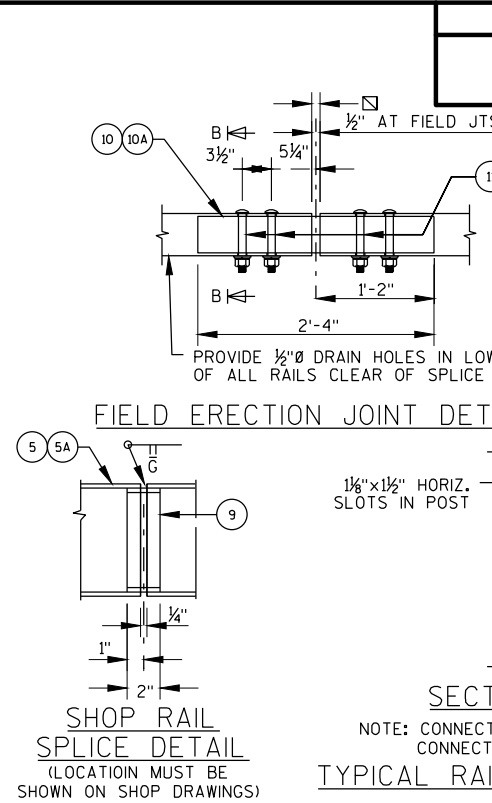
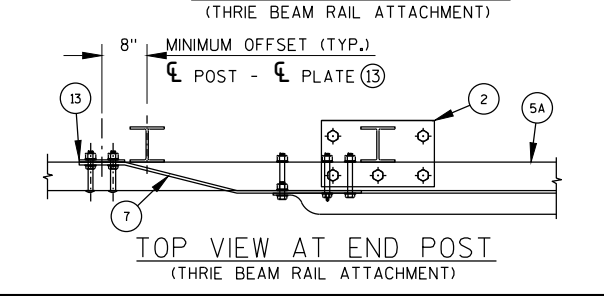
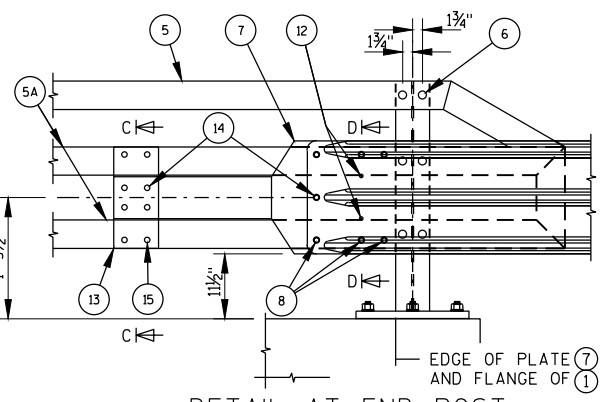
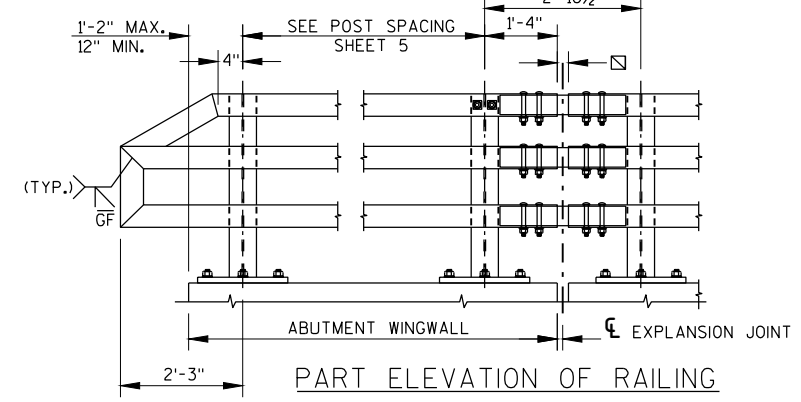
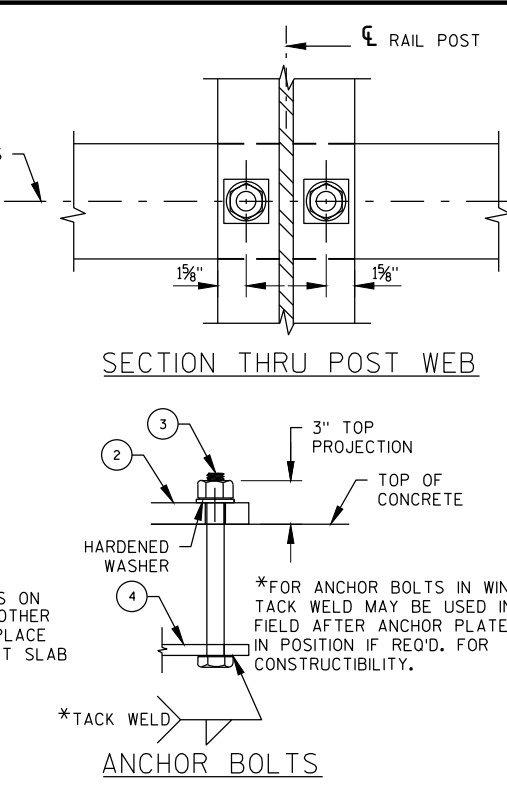
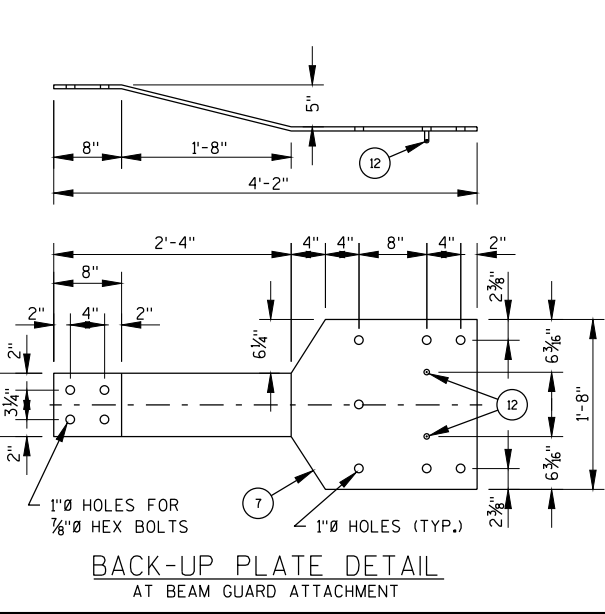
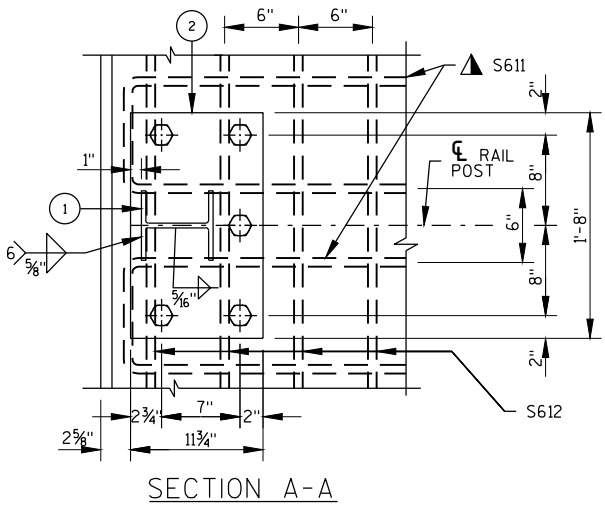
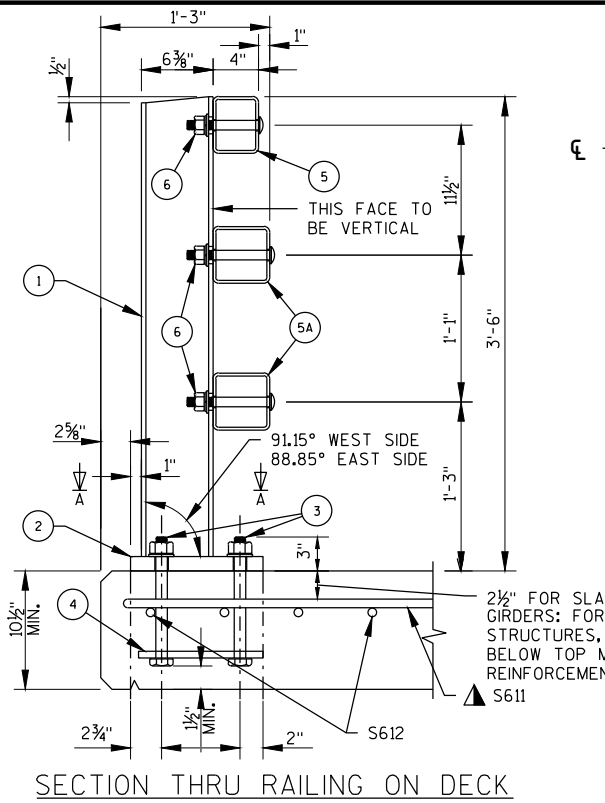
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE B-61-222			
CONST. SPEC.	DRAWN BY	CLF	PLANS NJE
SUPERSTRUCTURE SECTION & DETAILS			SHEET 11 OF 12

LEGEND

- 1 W6 x 25 WITH 1 1/8" x 1 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 1/4" x 1 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 1/2" 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. 1'-3" LONG.
- 4 5/8" x 11" x 1'-8" ANCHOR PLATE (GALVANIZED) WITH 1 3/8" 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 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 3/8" 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 3/8" x 2'-4" PLATE USED IN NO. 5A. 2 PER RAIL.
- 11 7/8" Ø 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 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 SUM. ABOUT TUBES NO. 5A.
- 14 7/8" DIA. x 2" LONG A325 HEX BOLT WITH NUT AND WASHER (5 REQ'D.).
- 15 1" Ø HOLES IN TUBES NO. 5A FOR 7/8" DIA. A325 ROUND HEAD BOLT WITH NUT, WASHER, AND LOCK WASHER (4 REQ'D.). 4 HOLES IN TUBES.

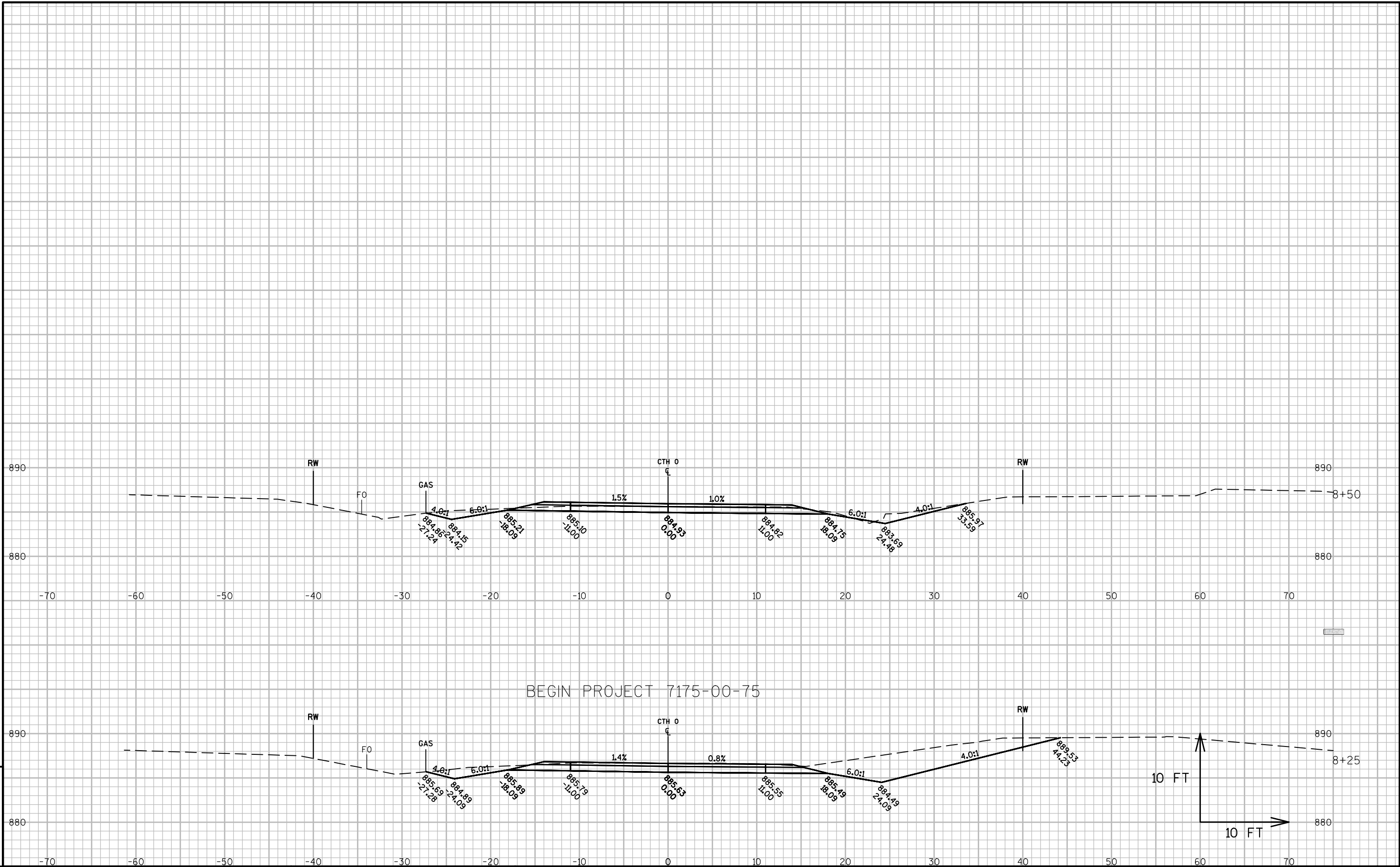
GENERAL NOTES

- 1. BID ITEM SHALL BE "RAILING TUBULAR TYPE 'M'" WHICH INCLUDES ALL ITEMS SHOWN.
- 2. RAIL POST AND BASE PLATES SHALL CONFORM TO THE REQUIREMENTS OF ASTM A709 GRADE 50. HOLLOW RAILING STRUCTURAL TUBING SHALL CONFORM TO THE REQUIREMENTS OF ASTM A500 GRADE B OR C WITH A CERTIFIED FY = 50 K.S.I. 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.
- 5. ENDS OF TUBE SECTIONS SHALL BE SAWED. GRIND SMOOTH EXPLOSED EDGES. ALL CUT ENDS SHALL BE TRUE AND SMOOTH.
- 6. WELD IS THE SAME ON BOTH FLANGES. FLANGE WELD DOES NOT REQUIRE MAGNETIC PARTICLE TESTING.
- 7. FILL BOLT SLOT OPENINGS IN POST SHIMS AND PLATE NO. 2 AND CAULK AROUND PERIMETER OF PLATE NO. 2 WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. STEEL POST SHIMS MAY BE USED UNDER POSTS WHERE REQ'D. FOR ALIGNMENT.
- 8. POST BASE PLATES SHALL BE FLAT WITH ALL SURFACES SMOOTH AND FREE FROM WARP AND ALL EDGES SMOOTH, STRAIGHT AND VERTICAL. ALL PLATE CUTS SHALL BE MACHINE OR MACHINE FLAME CUT.
- 9. ALL MATERIAL SHALL BE GALVANIZED AFTER FABRICATION. PRIOR TO GALVANIZING, ALL STEEL RAILING POSTS & STEEL TUBING SHALL BE GIVEN A NO. 6 BLAST CLEANING BY SSPC SPECIFICATIONS.
- 10. THIS RAILING MEETS NCHRP REPORT 350 EVALUATION CRITERIA FOR TEST LEVEL 4 (TL-4)

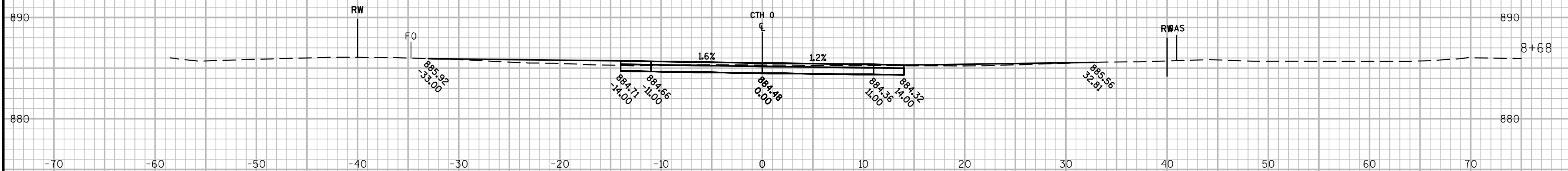


STATION	DISTANCE	AREA (SF)		INCREMENTAL VOL (CY) (UNADJUSTED)		CUMULATIVE VOL (CY)		MASS ORDINATE
		CUT	FILL	CUT	FILL	CUT 1.00 NOTE 1	EXPANDED FILL 1.3	
8+25	--	52.63	0	0	0	0	0	0
8+50	25.00	31.5	0.29	39	0	39	0	39
8+61	11.00	58.48	0	18	0	57	0	57
8+68	7.00	64.39	0	16	0	73	0	73
9+00	32.00	15	9.25	47	7	120	7	113
9+50	50.00	18.53	19.81	31	35	151	42	109
9+60	10.00	16.01	43.49	6	15	158	58	100
NEW BRIDGE	--	--	--	--	--	--	--	--
10+40	--	14.44	58.93	0	0	0	0	0
10+50	10.00	16.34	42.99	6	25	6	25	-19
10+75	25.00	21.92	64.04	18	64	23	89	-66
11+00	25.00	23.63	88.04	21	92	45	180	-136
11+50	50.00	25.61	134.53	46	266	90	447	-357
11+86	36.00	26.19	120.49	35	221	125	668	-543
12+00	14.00	32.35	137.97	15	87	140	755	-615
12+12	12.00	35.62	147.85	15	83	155	838	-683
12+25	13.00	35.45	128.34	17	86	172	924	-752
12+50	25.00	1.89	66.87	17	117	189	1041	-852
				347	1099			

NOTE 1 - CUT	CUT INCLUDES EXISTING ASPHALT PAVEMENT. ASSUMED TO BE REUSED AS FILL OUSIDE THE 1:1 ROAD CORE.
NOTE 2 - FILL	VOLUME NEEDED TO BE FILLED.
NOTE 3 - MASS ORDINATE	(CUT) - (FILL*1.30)



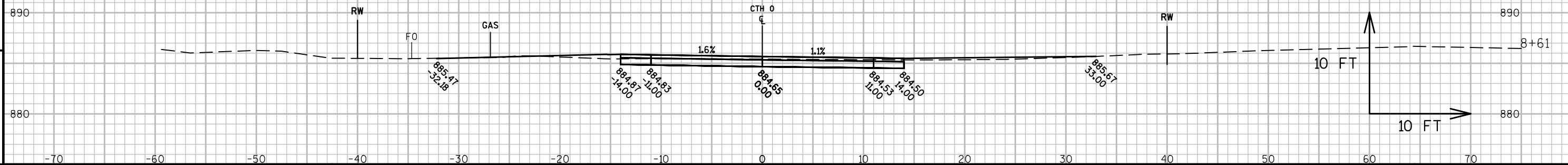
PE LT



8+68

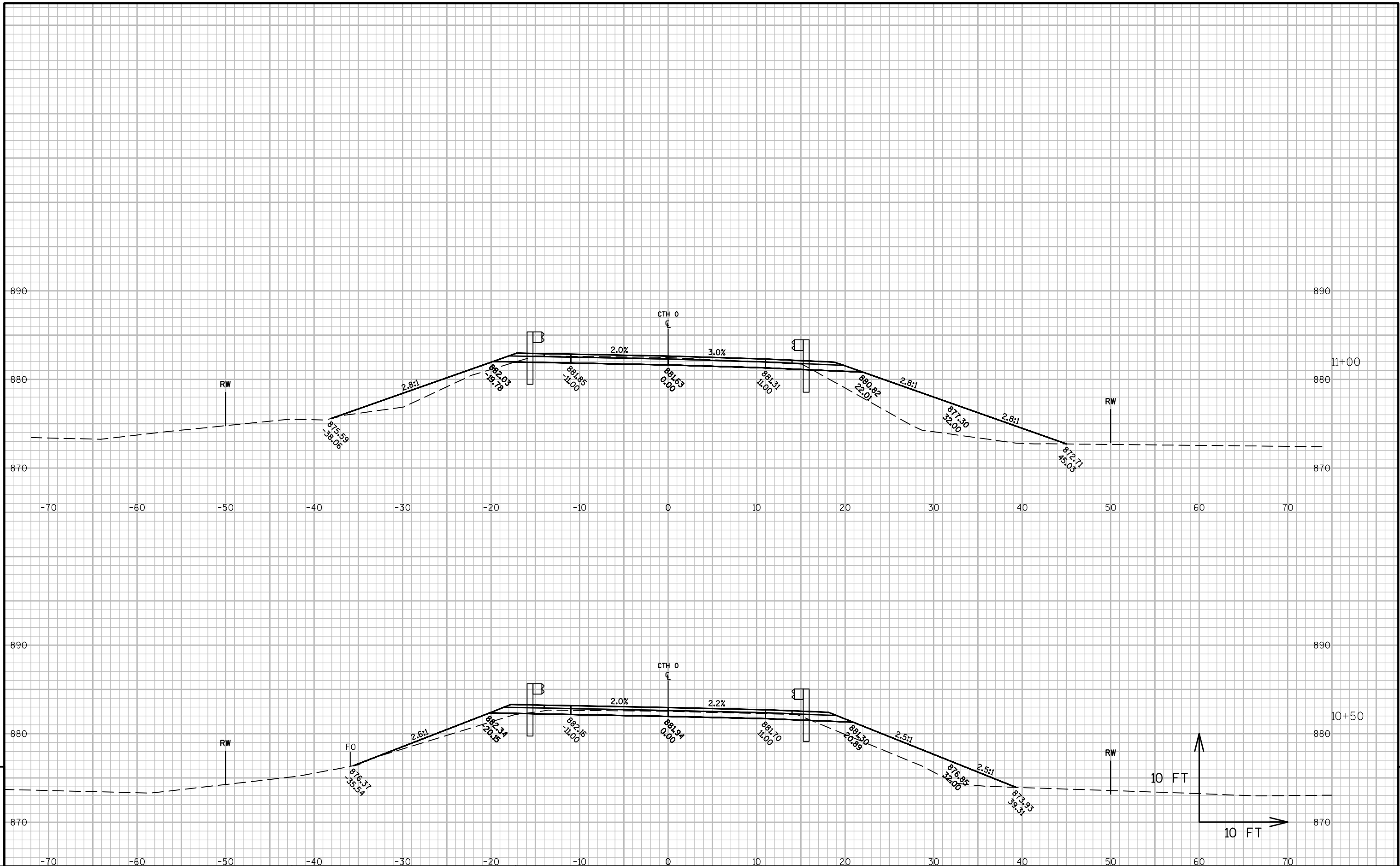
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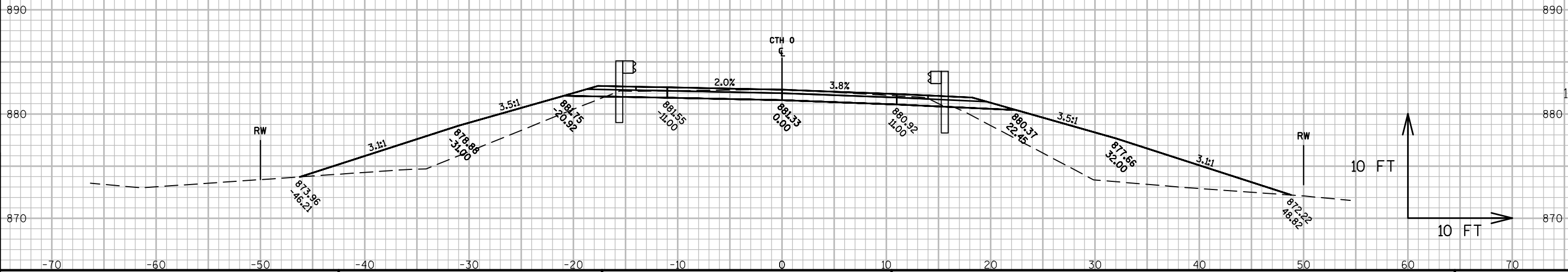
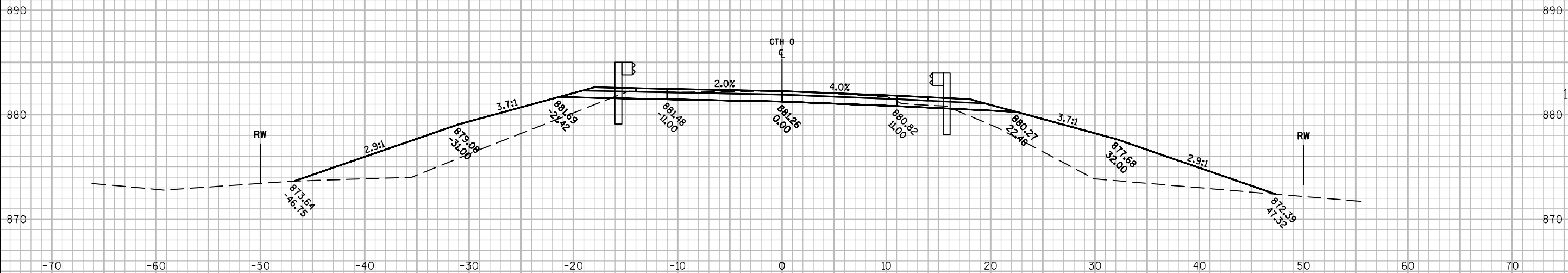
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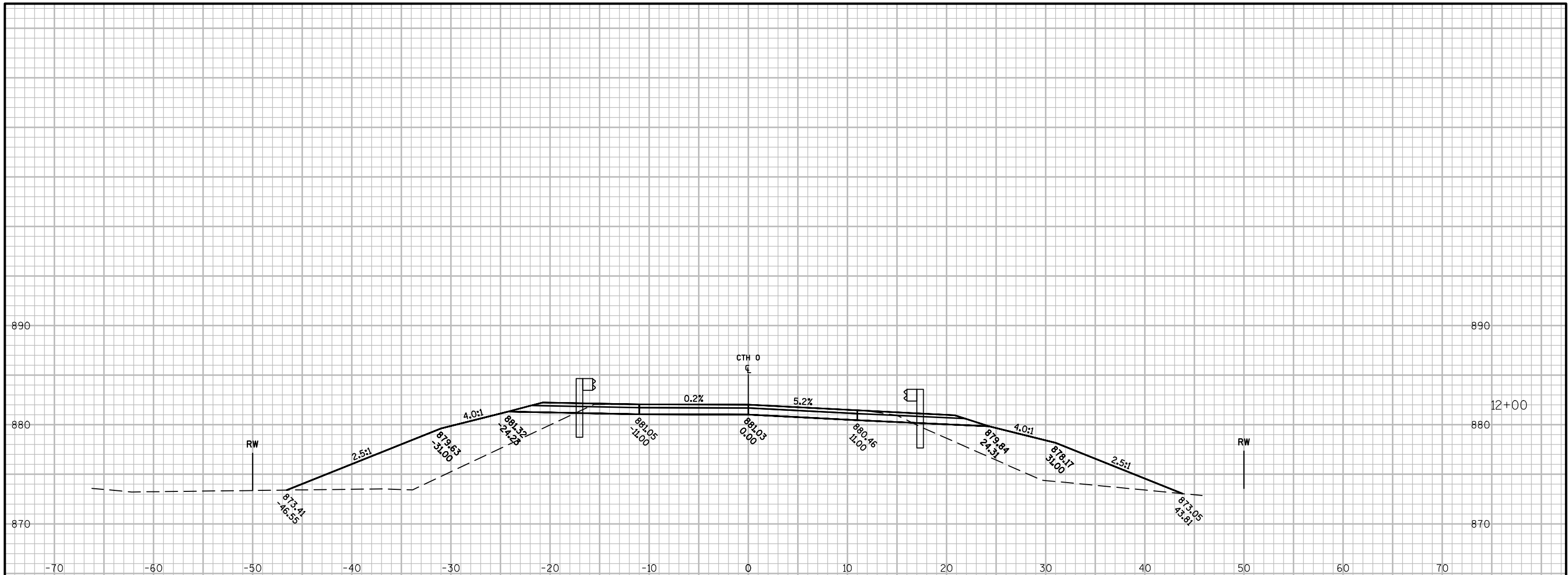
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EAT POST #9

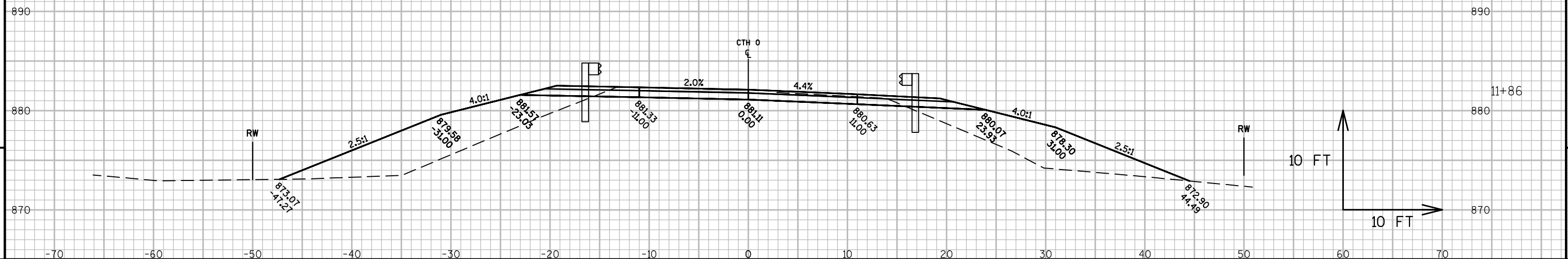
EAT POST #9

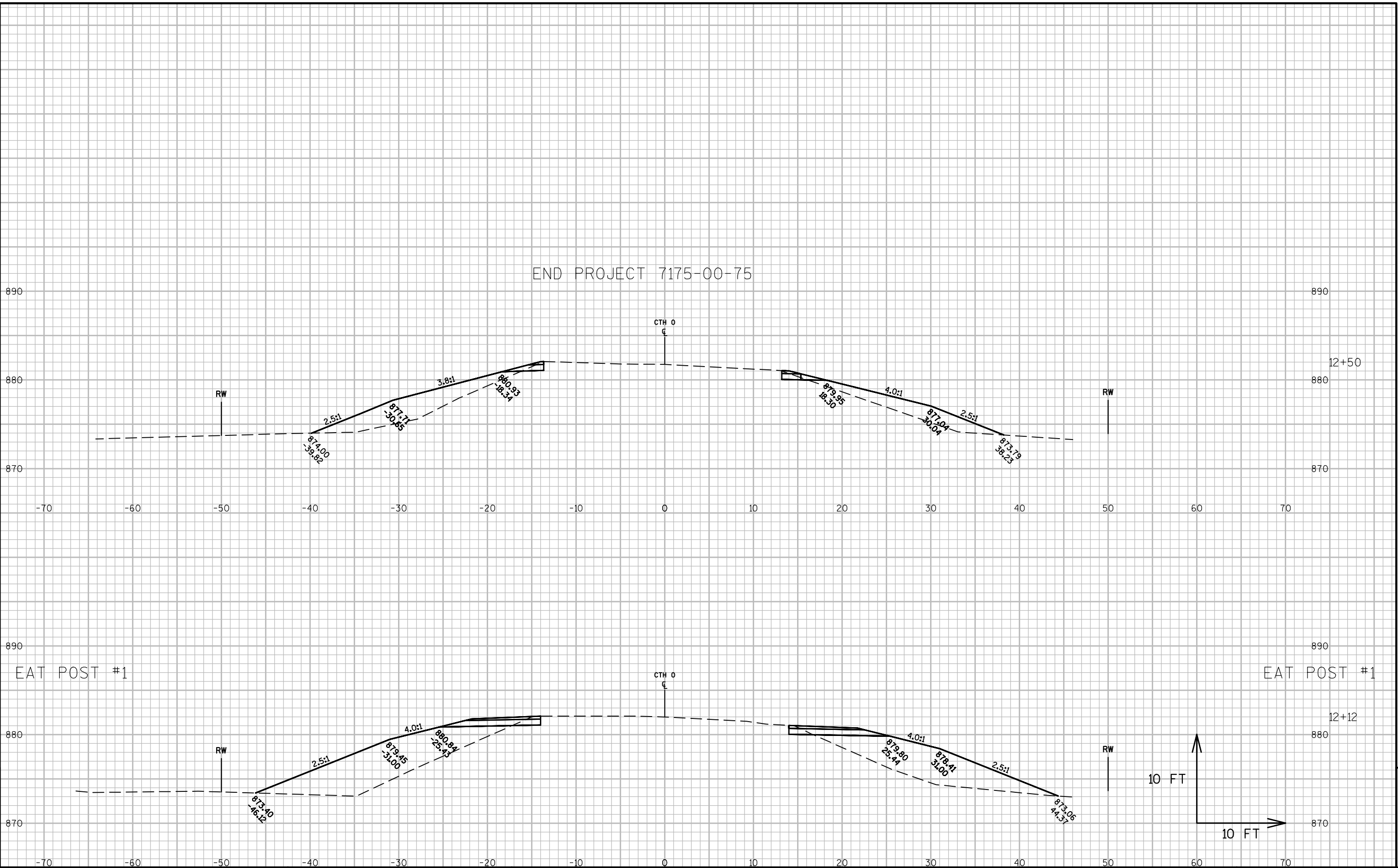




EAT POST #5

EAT POST #5







Wisconsin Department of Transportation

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