

RHI  
PROJECT ID: 6678-01-70  
WITH: N/A

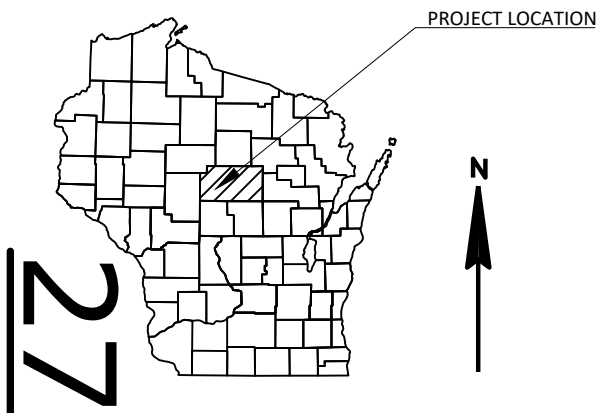
COUNTY: MARATHON

JANUARY 2023

ORDER OF SHEETS

Section No.	1	Title
Section No.	2	Typical Sections and Details
Section No.	3	Estimate of Quantities
Section No.	3	Miscellaneous Quantities
Section No.	4	Right of Way Plat
Section No.	5	Plan and Profile
Section No.	6	Standard Detail Drawings
Section No.	7	Sign Plates
Section No.	8	Structure Plans
Section No.	9	Computer Earthwork Data
Section No.	9	Cross Sections

TOTAL SHEETS = 66



DESIGN DESIGNATION

A.A.D.T. (2023)	=	185
A.A.D.T. (2043)	=	198
D.H.V.	=	N/A
D.D.	=	50/50
T.	=	5%
DESIGN SPEED	=	45 MPH
ESALS	=	N/A

CONVENTIONAL SYMBOLS

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

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

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION  
PLAN OF PROPOSED IMPROVEMENT

T EAU PLEINE, EQUITY STREET

NOISY CREEK BRIDGE B-37-0462

LOC STR

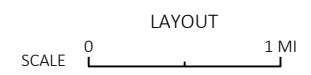
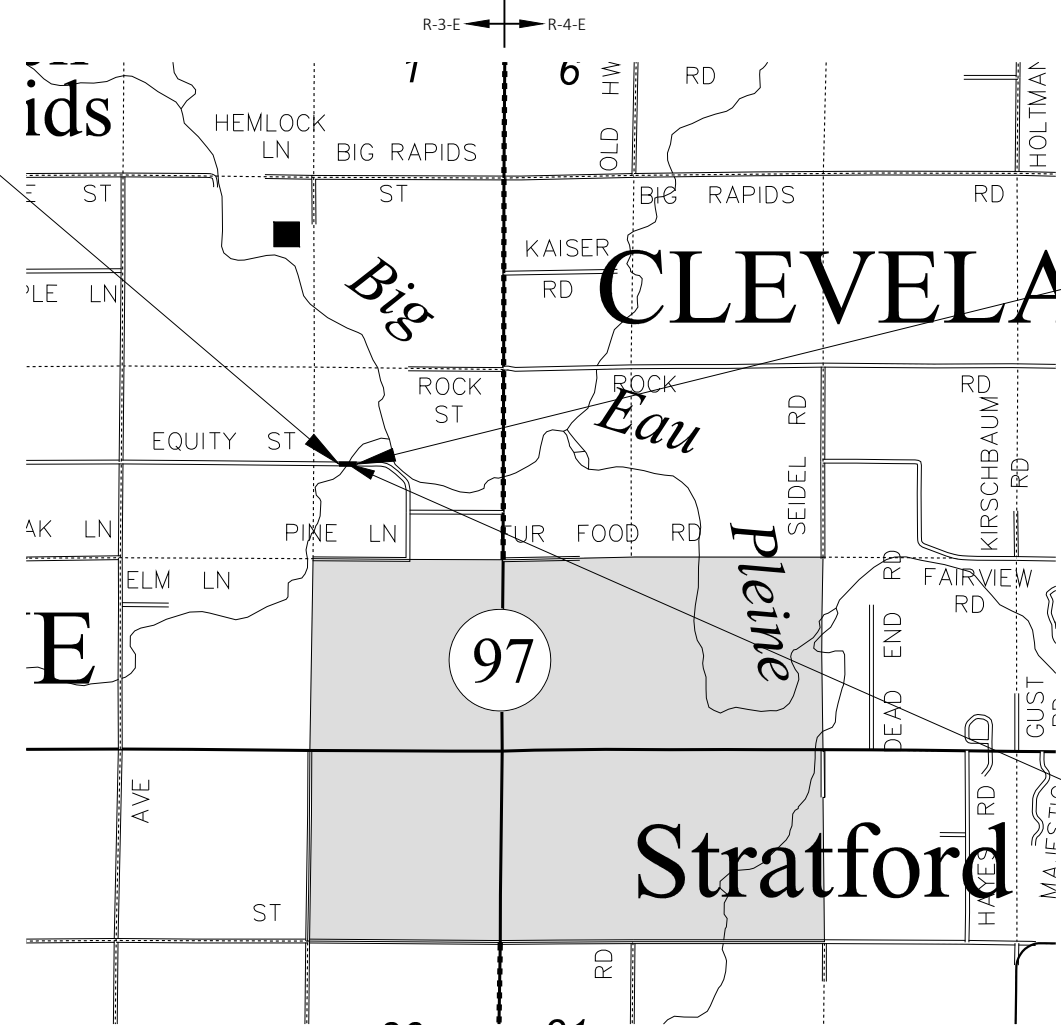
MARATHON COUNTY

STATE PROJECT NUMBER  
6678-01-70

BEGIN PROJECT  
STA 9+03.54  
Y= 152162.533  
X= 160424.151

END PROJECT  
STA 10+90.30

STRUCTURE B-37-462  
STA 9+73.62 - STA 10+26.38



TOTAL NET LENGTH OF CENTERLINE = 0.035 MI

HORIZONTAL POSITIONS SHOWN ON THIS PLAN ARE WISCONSIN COUNTY COORDINATE SYSTEM (WCCS), MARATHON COUNTY, NAD83 (2011), IN U.S. SURVEY FEET. POSITIONS SHOWN ARE GRID COORDINATES, GRID BEARINGS, AND GRID DISTANCES. GRID DISTANCES ARE THE SAME AS GROUND DISTANCES. ELEVATIONS ARE REFERENCED TO NAVD 88 (2012). GPS DERIVED ELEVATIONS ARE BASED ON GEOID 18.

STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
6678-01-70	WISC 2023163	1

ACCEPTED FOR TOWN OF EAU PLEINE  
BY MARATHON COUNTY  
DATE: 7/26/22  
*James M. Griesback*  
(Signature)  
Highway Commissioner  
(Title of Official)

ORIGINAL PLANS PREPARED BY  
**CORRE ENGINEERING**  
MADISON | EAU CLAIRE | APPLETON | WAUKESHA | TOMAH | WITTENBERG  
ERIC T. PRICE  
E-39027  
MADISON WI  
PROFESSIONAL ENGINEER  
DATE: 7/28/2022

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION  
PREPARED BY  
Surveyor: CORRE, INC  
Designer: CORRE, INC  
Project Manager: MICHAEL GRAGE  
Regional Examiner: N/A  
Regional Supervisor: DAN ERVA

APPROVED FOR THE DEPARTMENT  
DATE: 7/28/2022  
*Michael Grage*  
(Signature)

E

**GENERAL NOTES**

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

D.O.T. BRIDGE BENCHMARK MONUMENT TO BE FURNISHED BY THE STATE AND PLACED BY THE CONTRACTOR AS DIRECTED BY THE ENGINEER.

RIGHT OF WAY LINES SHOWN ON THE CROSS SECTIONS ARE APPROXIMATE.

THE CONTRACTOR'S PAVING OPERATIONS SHALL BE CONSISTENT WITH THE PLAN TYPICAL SECTIONS AND CONSTRUCTED TO PREVENT HMA LONGITUDINAL JOINTS FROM BEING LOCATED WITHIN A DRIVING, TURNING, BIKE OR PARKING LANE.

HMA PAVEMENT WEIGHT CALCULATIONS ARE BASED ON 112 LB/SY/IN.

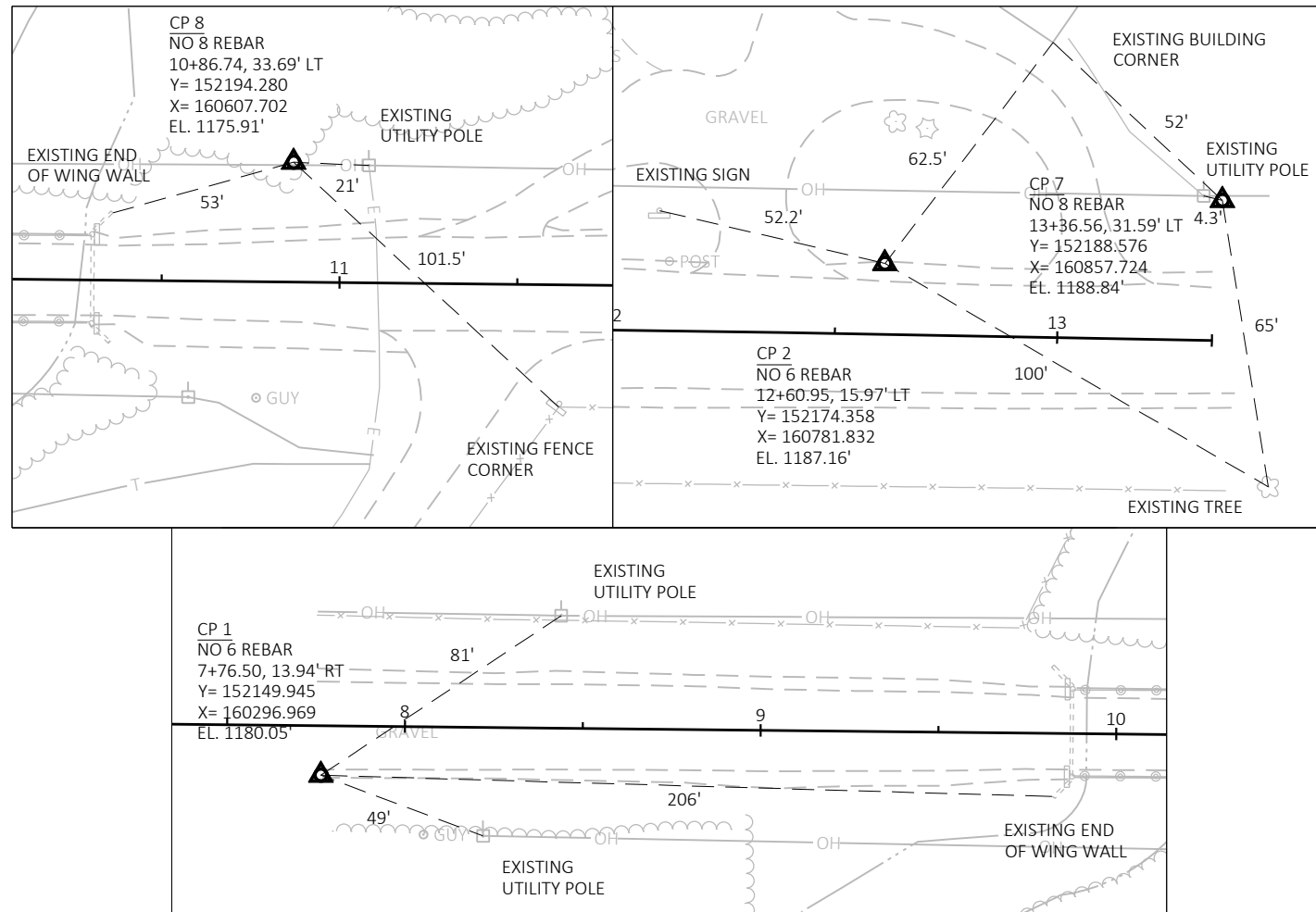
3.5-INCH ASPHALTIC SURFACE, SHALL BE CONSTRUCTED WITH 1.75-INCH UPPER LAYER AND 1.75-INCH LOWER LAYER.

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

THE QUANTITY OF THE ITEMS FOR EROSION PROTECTION INCLUDES AN UNDISTRIBUTED AMOUNT FOR PROTECTION, CONTROL AND ABATEMENT OF WATER POLLUTION RESULTING FROM SOIL EROSION. THE DISTRIBUTION AND LOCATION OF THESE MATERIALS ARE TO BE DETERMINED BY THE ENGINEER.

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

**CONTROL POINT TIES**



**RUNOFF COEFFICIENT TABLE**

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

TOTAL PROJECT AREA = 0.51 ACRES  
TOTAL AREA EXPECTED TO BE DISTURBED BY CONSTRUCTION ACTIVITIES = 0.18 ACRES

**DNR CONTACT**

DEPARTMENT OF NATURAL RESOURCES  
DNR WISCONSIN RAPIDS SERVICE CENTER  
473 GRIFFITH DRIVE  
WISCONSIN RAPIDS, WI 54494

ATTN: CASEY JONES  
TELEPHONE: (715) 213-6571  
E-MAIL: CASEY.JONES@WISCONSIN.GOV

**COUNTY CONTACT**

MARATHON COUNTY HIGHWAY COMMISSIONER  
1430 WEST STREET  
WAUSAU, WI 54401

ATTN: JAMES GRIESBACH  
TELEPHONE: (715) 261-1800  
E-MAIL: JAMES.GRIESBACH@CO.MARATHON.WI.US

**CONSULTANT CONTACT**

CORRE, INC.  
6510 GRAND TETON PLAZA, SUITE 314  
MADISON, WI 53719

ATTN: ERIC PRICE, P.E.  
TELEPHONE: (608) 826-6146  
E-MAIL: EPRICE@CORREINC.COM

**UTILITY CONTACTS**

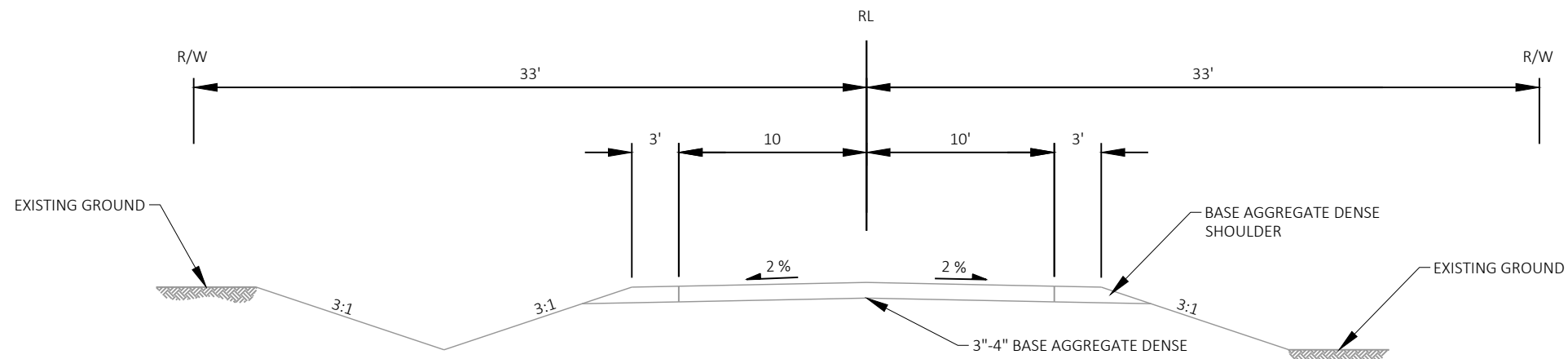
FRONTIER COMMUNICATIONS  
1851 N 14TH AVE  
WAUSAU, WI 54401

ATTN: JEREMY ZEHR  
TELEPHONE: (715) 243-9293  
E-MAIL: JEREMY.ZEHR@FTR.COM

WISCONSIN PUBLIC SERVICE CORP (ELECTRIC)  
PO BOX 1166  
WAUSAU, WI 54402

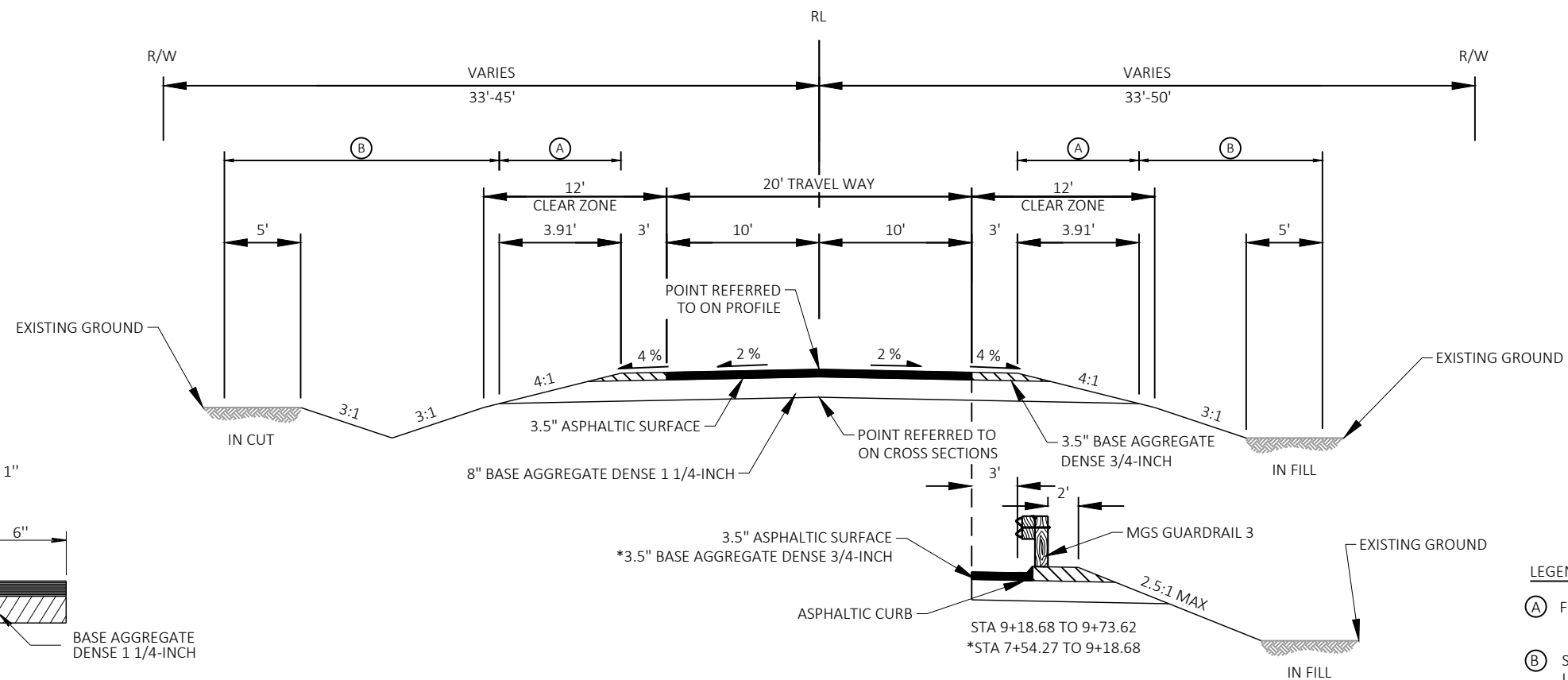
ATTN: JESSE PATTEN  
TELEPHONE: (715) 573-0349  
E-MAIL: JESSE.PATTEN@WISCONSINPUBLICSERVICE.COM

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



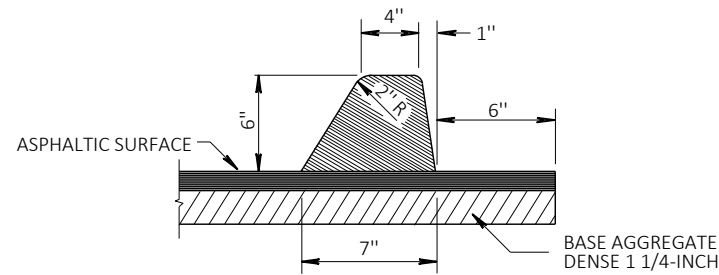
**EXISTING TYPICAL SECTION**

STA 9+03.54 - 9+87.1±  
STA 10+30.9± - 10+90.30



**FINISHED TYPICAL SECTION**

STA 9+03.54 - 9+73.62  
STA 10+26.38 - 10+90.30



**ASPHALTIC CURB DETAIL**

**LEGEND**

- (A) FERTILIZER TYPE B; SEEDING NO. 20
- (B) SALVAGED TOPSOIL; MULCHING; EROSION MAT URBAN CLASS I TYPE B; FERTILIZER TYPE B; SEEDING MIXTURE NO.20

Estimate Of Quantities

6678-01-70

Line	Item	Item Description	Unit	Total	Qty
0002	201.0105	Clearing	STA	2.000	2.000
0004	201.0205	Grubbing	STA	2.000	2.000
0006	203.0260	Removing Structure Over Waterway Minimal Debris (structure) 01. P-37-301	EACH	1.000	1.000
0008	205.0100	Excavation Common	CY	116.000	116.000
0010	206.1001	Excavation for Structures Bridges (structure) 01. B-37-462	EACH	1.000	1.000
0012	208.0100	Borrow	CY	325.000	325.000
0014	210.1500	Backfill Structure Type A	TON	630.000	630.000
0016	213.0100	Finishing Roadway (project) 01. 6678-01-70	EACH	1.000	1.000
0018	305.0110	Base Aggregate Dense 3/4-Inch	TON	40.000	40.000
0020	305.0120	Base Aggregate Dense 1 1/4-Inch	TON	250.000	250.000
0022	415.0060	Concrete Pavement 6-Inch	SY	26.000	26.000
0024	415.0410	Concrete Pavement Approach Slab	SY	88.000	88.000
0026	416.1010	Concrete Surface Drains	CY	1.000	1.000
0028	455.0605	Tack Coat	GAL	18.000	18.000
0030	465.0105	Asphaltic Surface	TON	50.000	50.000
0032	465.0310	Asphaltic Curb	LF	33.000	33.000
0034	465.0315	Asphaltic Flumes	SY	9.000	9.000
0036	502.0100	Concrete Masonry Bridges	CY	259.000	259.000
0038	502.3200	Protective Surface Treatment	SY	158.000	158.000
0040	502.3210	Pigmented Surface Sealer	SY	72.000	72.000
0042	505.0400	Bar Steel Reinforcement HS Structures	LB	6,100.000	6,100.000
0044	505.0600	Bar Steel Reinforcement HS Coated Structures	LB	33,440.000	33,440.000
0046	516.0500	Rubberized Membrane Waterproofing	SY	18.000	18.000
0048	550.0020	Pre-Boring Rock or Consolidated Materials	LF	138.000	138.000
0050	550.1100	Piling Steel HP 10-Inch X 42 Lb	LF	190.000	190.000
0052	606.0200	Riprap Medium	CY	3.000	3.000
0054	606.0300	Riprap Heavy	CY	295.000	295.000
0056	612.0406	Pipe Underdrain Wrapped 6-Inch	LF	170.000	170.000
0058	614.0150	Anchor Assemblies for Steel Plate Beam Guard	EACH	1.000	1.000
0060	614.2500	MGS Thrie Beam Transition	LF	39.400	39.400
0062	614.2610	MGS Guardrail Terminal EAT	EACH	1.000	1.000
0064	619.1000	Mobilization	EACH	1.000	1.000
0066	624.0100	Water	MGAL	2.000	2.000
0068	625.0500	Salvaged Topsoil	SY	1,090.000	1,090.000
0070	627.0200	Mulching	SY	890.000	890.000
0072	628.1504	Silt Fence	LF	417.000	417.000
0074	628.1520	Silt Fence Maintenance	LF	417.000	417.000
0076	628.1905	Mobilizations Erosion Control	EACH	5.000	5.000
0078	628.1910	Mobilizations Emergency Erosion Control	EACH	2.000	2.000
0080	628.2008	Erosion Mat Urban Class I Type B	SY	200.000	200.000
0082	628.6005	Turbidity Barriers	SY	315.000	315.000
0084	629.0210	Fertilizer Type B	CWT	0.750	0.750
0086	630.0120	Seeding Mixture No. 20	LB	34.000	34.000
0088	630.0200	Seeding Temporary	LB	34.000	34.000
0090	630.0500	Seed Water	MGAL	26.000	26.000
0092	634.0614	Posts Wood 4x6-Inch X 14-FT	EACH	4.000	4.000
0094	637.2230	Signs Type II Reflective F	SF	12.000	12.000
0096	638.2602	Removing Signs Type II	EACH	4.000	4.000
0098	638.3000	Removing Small Sign Supports	EACH	4.000	4.000

Estimate Of Quantities

6678-01-70

Line	Item	Item Description	Unit	Total	Qty
0100	642.5001	Field Office Type B	EACH	1.000	1.000
0102	643.0420	Traffic Control Barricades Type III	DAY	1,440.000	1,440.000
0104	643.0705	Traffic Control Warning Lights Type A	DAY	2,240.000	2,240.000
0106	643.0900	Traffic Control Signs	DAY	1,120.000	1,120.000
0108	643.5000	Traffic Control	EACH	1.000	1.000
0110	645.0111	Geotextile Type DF Schedule A	SY	90.000	90.000
0112	645.0120	Geotextile Type HR	SY	401.000	401.000
0114	650.4500	Construction Staking Subgrade	LF	96.000	96.000
0116	650.5000	Construction Staking Base	LF	96.000	96.000
0118	650.6501	Construction Staking Structure Layout (structure) 01. B-37-462	EACH	1.000	1.000
0120	650.9911	Construction Staking Supplemental Control (project) 01. 6678-01-70	EACH	1.000	1.000
0122	650.9920	Construction Staking Slope Stakes	LF	245.000	245.000
0124	715.0502	Incentive Strength Concrete Structures	DOL	1,290.000	1,290.000
0126	715.0720	Incentive Compressive Strength Concrete Pavement	DOL	500.000	500.000
0128	999.2000.S	Installing and Maintaining Bird Deterrent System (station) 01. 10+09	EACH	1.000	1.000
0130	ASP.1T0A	On-the-Job Training Apprentice at \$5.00/HR	HRS	300.000	300.000
0132	ASP.1T0G	On-the-Job Training Graduate at \$5.00/HR	HRS	600.000	600.000

**CLEARING AND GRUBBING**

STATION	TO	STATION	LOCATION	201.0105 CLEARING STA	201.0205 GRUBBING STA
8+00	-	9+00	WEST APPROACH	1	1
10+00	-	11+00	EAST APPROACH	1	1
TOTAL 0010				2	2

**BASE AGGREGATE ITEMS**

STATION	TO	STATION	LOCATION	305.0110 BASE AGGREGATE DENSE 3/4-INCH TON	305.0120 BASE AGGREGATE DENSE 1 1/4- INCH TON	624.0100 WATER MGAL
7+54	-	9+04	MGS EAT RT	20	40	--
9+04	-	9+54	WEST APPROACH	10	110	1
10+46	-	10+91	EAST APPROACH	10	100	1
TOTAL 0010				40	250	2

**CONCRETE PAVEMENT ITEMS**

STATION	TO	STATION	LOCATION	415.0060 CONCRETE PAVEMENT 6- INCH SY	415.0410 CONCRETE PAVEMENT APPROACH SLAB SY	416.1010 CONCRETE SURFACE DRAINS CY
9+04	-	9+54	WEST APPROACH	13	44	1
10+46	-	10+91	EAST APPROACH	13	44	--
TOTAL 0010				26	88	1

**ASPHALT ITEMS**

STATION	TO	STATION	LOCATION	455.0605 TACK COAT GAL	465.0105 ASPHALTIC SURFACE TON	465.0310 ASPHALTIC CURB LF
9+04	-	9+54	WEST APPROACH	10	27	33
10+46	-	10+91	EAST APPROACH	8	23	--
TOTAL 0010				18	50	33

DIVISION	FROM/TO STATION	LOCATION	205.0100 COMMON EXCAVATION (1)		SALVAGED/UNUSABLE PAVEMENT MATERIAL (3)	AVAILABLE MATERIAL (4)	UNEXPANDED FILL	EXPANDED FILL FACTOR (5) 1.25	MASS ORDINATE +/- (6)	208.0100 BORROW
			CUT (2)	EBS EXCAVATION						
DIVISION 1 - EQUITY ST	7+77 TO 10+91	EQUITY ST	116		0	116	353	441	-325	
DIVISION 1 SUBTOTAL			116	0	0	116	353	441	-325	325
GRAND TOTAL			116	0	0	116	353	441	-325	325
TOTAL COMMON EXC			116							

**NOTES:**

- (1) COMMON EXCAVATION IS THE SUM OF THE CUT AND EBS EXCAVATION COLUMNS. ITEM NUMBER 205.0100
- (2) SALVAGED/UNUSABLE PAVEMENT MATERIAL IS INCLUDED IN CUT.
- (3) SALVAGED/UNUSABLE PAVEMENT MATERIAL
- (4) AVAILABLE MATERIAL = CUT - SALVAGED/UNUSABLE PAVEMENT MATERIAL
- (5) EXPANDED FILL FACTOR = 1.25
- (6) THE MASS ORDINATE + OR - QTY CALCULATED FOR THE DIVISION. PLUS QUANTITY INDICATES AN EXCESS OF MATERIAL WITHIN THE DIVISION. MINUS INDICATES A SHORTAGE OF MATERIAL WITHIN THE DIVISION.
- (7) FACTORS USED TO COMPUTE ANTICIPATED WASTE AND THE COMPUTED WASTE VOLUME IDENTIFIED ARE FOR GENERAL INFORMATION ONLY.

**ASPHALTIC FLUME ITEMS**

STATION	LOCATION	465.0315 ASPHALTIC FLUMES SY	606.0200 RIPRAP MEDIUM CY	645.0120 GEOTEXTILE TYPE HR SY
9+07 RT	WEST APPROACH	9	3	6
TOTAL 0010		9	3	6

**MGS GUARDRAIL ITEMS**

STATION	TO	STATION	LOCATION	614.2500 MGS THRIE BEAM TRANSITION LF	614.2610 MGS GUARDRAIL TERMINAL EAT EACH
8+54	-	9+54	SW BRIDGE QUADRANT	39.4	1
TOTAL 0010				39.4	1

**EROSION CONTROL ITEMS**

STATION	TO	STATION	LOCATION	628.1504 SILT FENCE LF	628.1520 SILT FENCE MAINTENANCE LF	628.6005 TURBIDITY BARRIERS SY
7+73	-	9+44	WEST APPROACH RT	180	180	--
9+03	-	9+86	WEST APPROACH LT	92	92	--
		9+91	WEST ABUTMENT	--	--	170
		10+06	EAST ABUTMENT	--	--	145
10+11	-	10+91	EAST APPROACH RT	85	85	--
10+40	-	10+91	EAST APPROACH LT	60	60	--
TOTAL 0010				417	417	315

**LANDSCAPING ITEMS**

STATION	TO	STATION	LOCATION	625.0500 SALVAGED TOPSOIL SY	627.0200 MULCHING SY	628.2008 EROSION MAT URBAN CLASS I TYPE B SY	629.0210 FERTILIZER TYPE B CWT	630.0120 SEEDING MIXTURE NO. 20 LB	630.0200 SEEDING TEMPORARY LB	630.0500 SEED WATER MGAL
7+54	-	8+78	WEST APPROACH RT	340	340	--	0.23	10	10	8
8+78	-	9+44	WEST APPROACH RT	160	--	160	0.11	5	5	4
9+09	-	9+64	WEST APPROACH LT	100	100	--	0.07	3	3	2
10+19	-	10+91	EAST APPROACH RT	120	120	--	0.08	4	4	3
10+34	-	10+91	EAST APPROACH LT	150	150	--	0.11	5	5	4
			UNDISTRIBUTED (25%)	220	180	40	0.15	7	7	5
TOTAL 0010				1,090	890	200	0.75	34	34	26

**EROSION CONTROL ITEMS (CONT'D)**

LOCATION	628.1905 MOBILIZATIONS EROSION CONTROL EACH	628.1910 MOBILIZATIONS EMERGENCY EROSION CONTROL EACH
PROJECT	5	2
TOTAL 0010	5	2

**SIGNING ITEMS**

LOCATION	634.0614 POSTS WOOD 4X6-INCH X 14- FT EACH	637.2230 SIGNS TYPE II REFLECTIVE F SF	REMARKS
PROPOSED STRUCTURE B-37-462	4	12	PROPOSED BRIDGE HASH MARKS; W5-52L & W5-52R
TOTAL 0010	4	12	

LOCATION	642.5001 FIELD OFFICE TYPE B EACH
PROJECT	1
TOTAL 0010	1

**TRAFFIC CONTROL ITEMS**

LOCATION	DURATION	643.0420 TRAFFIC CONTROL BARRICADES TYPE III DAY	643.0705 TRAFFIC CONTROL WARNING LIGHTS TYPE A DAY	643.0900 TRAFFIC CONTROL SIGNS DAY	643.5000 TRAFFIC CONTROL EACH
PROJECT	80 DAYS	1,440	2,240	1,120	1
TOTAL 0010		1,440	2,240	1,120	1

**CONSTRUCTION STAKING ITEMS**

STATION	TO	STATION	LOCATION	650.4500 CONSTRUCTION STAKING SUBGRADE LF	650.5000 CONSTRUCTION STAKING BASE LF	650.9911.01 CONSTRUCTION STAKING SUPPLEMENTAL CONTROL (PROJECT) (01. 6678-01-70) EACH	650.9920 CONSTRUCTION STAKING SLOPE STAKES LF
7+54	-	9+03	MGS EAT	--	--	--	149
9+03	-	9+54	WEST APPROACH	51	51	--	51
10+46	-	10+91	EAST APPROACH	45	45	--	45
PROJECT				--	--	1	--
TOTAL 0010				96	96	1	245

LOCATION	999.2000.S INSTALLING AND MAINTAINING BIRD DETERRENT SYSTEM (STATION 10+09) EACH
PROJECT	1
TOTAL 0020	1

**REMOVING SIGN ITEMS**

LOCATION	638.2602 REMOVING SIGNS TYPE II EACH	638.3000 REMOVING SMALL SIGN SUPPORTS EACH	REMARKS
EXISTING STRUCTURE P-37-301	4	4	EXISTING BRIDGE HASH MARKS
TOTAL 0010	4	4	

NOTE: PLACE BRIDGE HASH MARK SIGNS PER SDD "SIGNING AND MARKING FOR TWO LANE BRIDGES"

PROJECT NO: 6678-01-70

HWY: LOC STR

COUNTY: MARATHON

MISCELLANEOUS QUANTITIES

SHEET

E

THIS PLAT IS A GRAPHIC REPRESENTATION AND IS FOR REFERENCE PURPOSES ONLY. DEEDS MUST BE CHECKED TO DETERMINE PROPERTY BOUNDARIES AND ACCESS RIGHTS.

R/W PROJECT NUMBER 6678-01-00	SHEET NUMBER 4.01	TOTAL SHEETS 2
FEDERAL PROJECT NUMBER N/A		
PLAT OF RIGHT OF WAY REQUIRED FOR <b>T EAU PLEINE, EQUITY STREET</b> NOISY CREEK BRIDGE B-37-0462		
LOCAL STREET	MARATHON COUNTY	
CONSTRUCTION PROJECT NUMBER 6678-01-70		

### CONVENTIONAL SYMBOLS

SECTION LINE		SECTION CORNER SYMBOL		R/W MONUMENT (TO BE SET)	
QUARTER LINE		SECTION CORNER MONUMENT		NON-MONUMENTED R/W POINT	
SIXTEENTH LINE		GEODETIC SURVEY MONUMENT		FOUND IRON PIN (1-INCH UNLESS NOTED)	
NEW REFERENCE LINE		SIXTEENTH CORNER MONUMENT			
NEW R/W LINE		SIGN		OFF-PREMISE SIGN	
EXISTING R/W OR HE LINE					
PROPERTY LINE					
LOT, TIE & OTHER MINOR LINES					
SLOPE INTERCEPT		COMPENSABLE		NON-COMPENSABLE	
CORPORATE LIMITS		ELECTRIC POLE		TELEPHONE POLE	
UNDERGROUND FACILITY (COMMUNICATIONS, ELECTRIC, ETC.)		PEDESTAL (LABEL TYPE) (TV, TEL, ELEC, ETC.)			
NEW R/W (FEE OR HE) (HATCHING VARIES BY OWNER)		ACCESS RESTRICTED BY ACQUISITION			
TEMPORARY LIMITED EASEMENT AREA		NO ACCESS (BY STATUTORY AUTHORITY)			
EASEMENT AREA (PERMANENT LIMITED OR RESTRICTED DEVELOPMENT)		ACCESS RESTRICTED (BY PREVIOUS PROJECT OR CONTROL)			
TRANSMISSION STRUCTURES		NO ACCESS (NEW HIGHWAY)			
BUILDING TO BE REMOVED		PARCEL NUMBER (25)		UTILITY NUMBER (40)	
BRIDGE		PARALLEL OFFSETS			
CULVERT					

### CONVENTIONAL ABBREVIATIONS

ACCESS RIGHTS	AR	POINT OF COMPOUND CURVE	PCC
ACRES	AC	POINT OF INTERSECTION	PI
AHEAD	AH	PROPERTY LINE	PL
ALUMINUM	ALUM	RECORDED AS (100')	(100')
AND OTHERS	ET AL	REEL / IMAGE	R/I
BACK	BK	REFERENCE LINE	R/L
BLOCK	BLK	REMAINING	REM
CENTERLINE	C/L	RESTRICTIVE DEVELOPMENT EASEMENT	RDE
CERTIFIED SURVEY MAP	CSM		
CONCRETE	CONC	RIGHT	RT
COUNTY	CO	RIGHT OF WAY	R/W
COUNTY TRUNK HIGHWAY	CTH	SECTION	SEC
DISTANCE	DIST	SEPTIC VENT	SEPV
CORNER	COR	SQUARE FEET	SF
DOCUMENT NUMBER	DOC	STATE TRUNK HIGHWAY	STH
EASEMENT	EASE	STATION	STA
EXISTING	EX	TELEPHONE PEDESTAL	TP
GAS VALVE	GV	TEMPORARY LIMITED EASEMENT	TLE
GRID NORTH	GN		
HIGHWAY EASEMENT	HE	TRANSPORTATION PROJECT PLAT	TPP
IDENTIFICATION	ID	UNITED STATES HIGHWAY	USH
LAND CONTRACT	LC	VOLUME	V
LEFT	LT		
MONUMENT	MON		
NATIONAL GEODETIC SURVEY NUMBER	NGS		
OUTLOT	NO		
PAGE	OL		
POINT OF TANGENCY	P		
PERMANENT LIMITED EASEMENT	PT		
POINT OF BEGINNING	PLE		
POINT OF CURVATURE	POB		
	PC		

### CURVE DATA ABBREVIATIONS

LONG CHORD	LCH
LONG CHORD BEARING	LCB
RADIUS	R
DEGREE OF CURVE	D
CENTRAL ANGLE	Δ / DELTA
LENGTH OF CURVE	L
TANGENT	T
DIRECTION AHEAD	DA
DIRECTION BACK	DB

### CONVENTIONAL UTILITY SYMBOLS

WATER	
GAS	
TELEPHONE	
OVERHEAD TRANSMISSION LINES	
ELECTRIC	
CABLE TELEVISION	
FIBER OPTIC	
SANITARY SEWER	
STORM SEWER	
ELECTRIC TOWER	

**NOTES:**

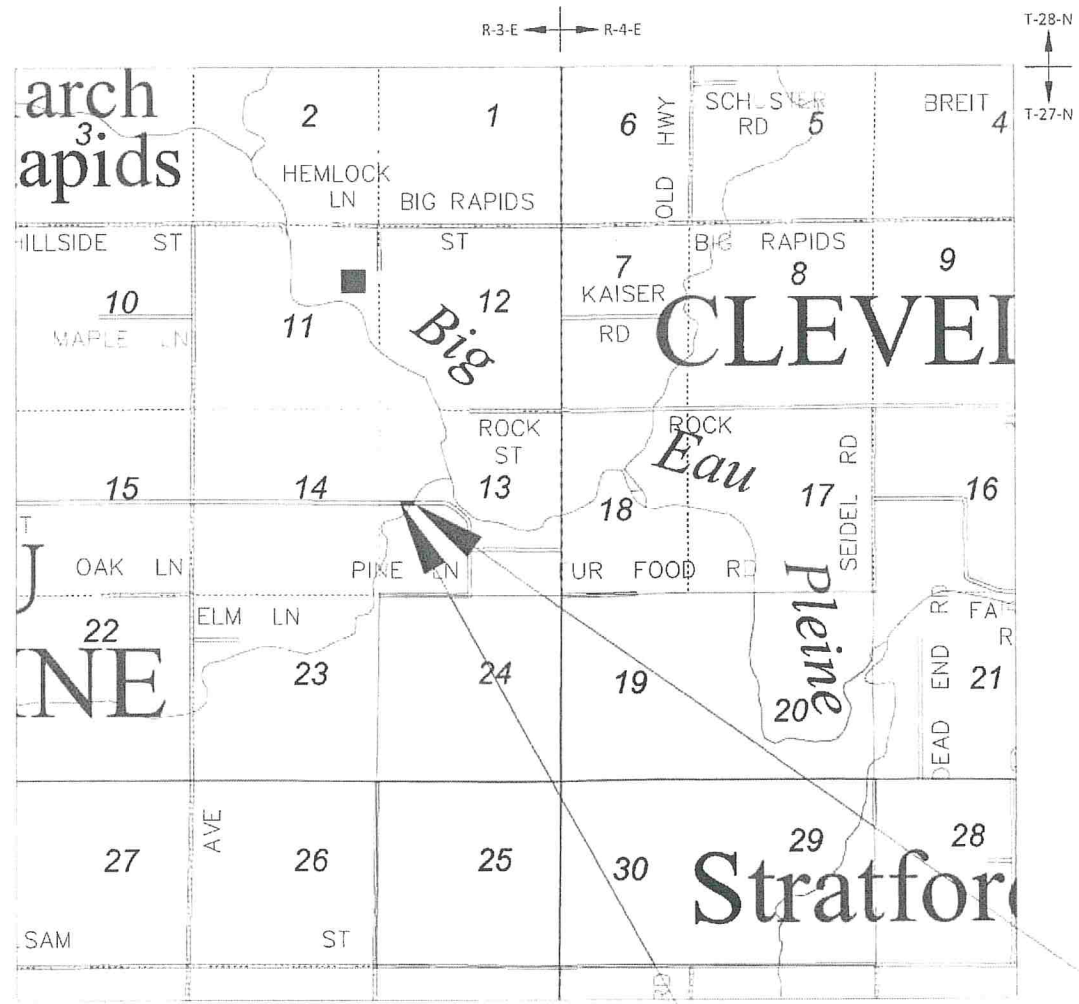
POSITIONS SHOWN ON THIS PLAT ARE WISCONSIN COUNTY COORDINATE SYSTEM COORDINATES (WCCS), MARATHON COUNTY, NAD83 (2011) IN US SURVEY FEET. VALUES SHOWN ARE GRID COORDINATES, GRID BEARINGS, AND GRID DISTANCES. GRID DISTANCES MAY BE USED AS GROUND DISTANCES.

ALL NEW RIGHT-OF-WAY MONUMENTS WILL BE TYPE 2 (TYPICALLY 3/4" X 24" IRON REBARS), UNLESS OTHERWISE NOTED, AND WILL BE PLACED PRIOR TO THE COMPLETION OF THE PROJECT.

DIMENSIONING FOR THE NEW RIGHT-OF-WAY IS MEASURED ALONG AND PERPENDICULAR TO THE NEW REFERENCE LINES.

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

PARCEL AND UTILITY IDENTIFICATION NUMBERS MAY NOT POINT TO ALL AREAS OF ACQUISITION, AS NOTED ON THE DETAIL PAGES.



**BEGIN RELOCATION ORDER**  
STA 7+50  
727.79' EAST AND 5.64' SOUTH  
OF THE WEST QUARTER CORNER OF  
SEC 13, T-27-N, R-3-E

**END RELOCATION ORDER**  
STA 11+00  
1,077.77' EAST AND 9.35' SOUTH  
OF THE WEST QUARTER CORNER OF  
SEC 13, T-27-N, R-3-E

LAYOUT  
SCALE 0 1.0 MI.  
TOTAL NET LENGTH OF CENTERLINE = 0.066 MI.

**CORRE**  
ENGINEERING  
MADISON | EAU CLAIRE | WAUKESHA | APPLETON  
TOMAH | WITTENBERG

WISCONSIN  
BRYON  
J.  
MOTZKO  
S-2846  
MENOMONIE  
WI  
LAND SURVEYOR

I, BRYON J. MOTZKO, PROFESSIONAL LAND SURVEYOR, S-2846, HEREBY CERTIFY THAT I HAVE SURVEYED THE LAND DESCRIBED HEREON AND THAT THE MAP HEREON IS A CORRECT REPRESENTATION OF THAT SURVEY TO THE BEST OF MY KNOWLEDGE AND BELIEF.  
DATE: 5/3/22 *Bryon Motzko* (Signature)

TOWN OF EAU PLEINE  
APPROVED BY MARATHON COUNTY ON BEHALF OF THE TOWN  
DATE: 5-5-22 *Jane K. Huber* (Signature)



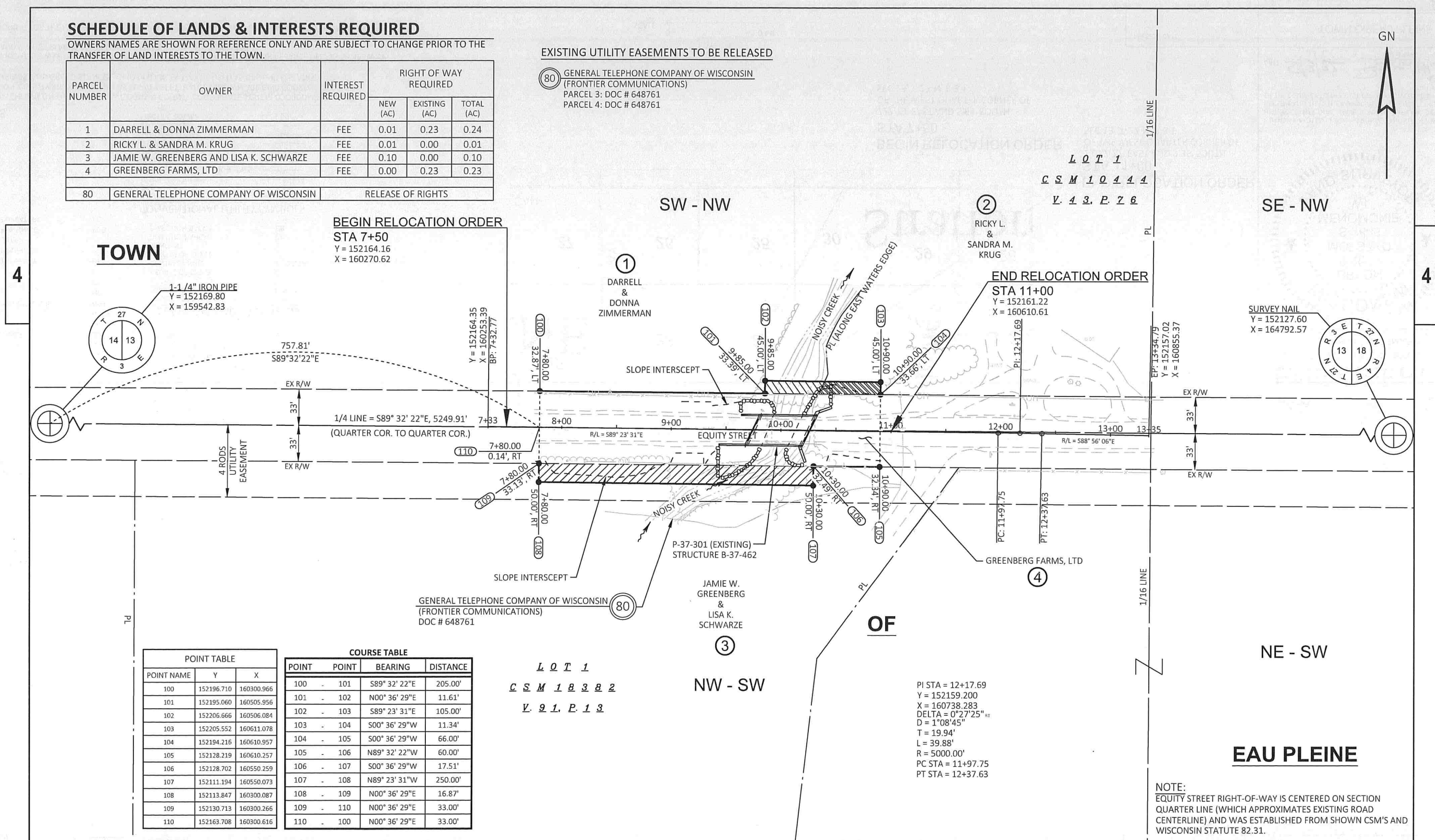
**SCHEDULE OF LANDS & INTERESTS REQUIRED**

OWNERS NAMES ARE SHOWN FOR REFERENCE ONLY AND ARE SUBJECT TO CHANGE PRIOR TO THE TRANSFER OF LAND INTERESTS TO THE TOWN.

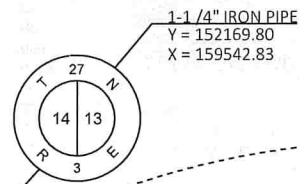
PARCEL NUMBER	OWNER	INTEREST REQUIRED	RIGHT OF WAY REQUIRED		
			NEW (AC)	EXISTING (AC)	TOTAL (AC)
1	DARRELL & DONNA ZIMMERMAN	FEE	0.01	0.23	0.24
2	RICKY L. & SANDRA M. KRUG	FEE	0.01	0.00	0.01
3	JAMIE W. GREENBERG AND LISA K. SCHWARZE	FEE	0.10	0.00	0.10
4	GREENBERG FARMS, LTD	FEE	0.00	0.23	0.23
80	GENERAL TELEPHONE COMPANY OF WISCONSIN	RELEASE OF RIGHTS			

**EXISTING UTILITY EASEMENTS TO BE RELEASED**

- 80 GENERAL TELEPHONE COMPANY OF WISCONSIN (FRONTIER COMMUNICATIONS)  
PARCEL 3: DOC # 648761  
PARCEL 4: DOC # 648761



**TOWN**



**BEGIN RELOCATION ORDER**

STA 7+50  
Y = 152164.16  
X = 160270.62

**END RELOCATION ORDER**

STA 11+00  
Y = 152161.22  
X = 160610.61

**POINT TABLE**

POINT NAME	Y	X
100	152196.710	160300.966
101	152195.060	160505.956
102	152206.666	160506.084
103	152205.552	160611.078
104	152194.216	160610.957
105	152128.219	160610.257
106	152128.702	160550.259
107	152111.194	160550.073
108	152113.847	160300.087
109	152130.713	160300.266
110	152163.708	160300.616

**COURSE TABLE**

POINT	POINT	BEARING	DISTANCE	
100	-	101	S89° 32' 22"E	205.00'
101	-	102	N00° 36' 29"E	11.61'
102	-	103	S89° 23' 31"E	105.00'
103	-	104	S00° 36' 29"W	11.34'
104	-	105	S00° 36' 29"W	66.00'
105	-	106	N89° 32' 22"W	60.00'
106	-	107	S00° 36' 29"W	17.51'
107	-	108	N89° 23' 31"W	250.00'
108	-	109	N00° 36' 29"E	16.87'
109	-	110	N00° 36' 29"E	33.00'
110	-	100	N00° 36' 29"E	33.00'

PI STA = 12+17.69  
Y = 152159.200  
X = 160738.283  
DELTA = 0°27'25"<sub>RT</sub>  
D = 1°08'45"  
T = 19.94'  
L = 39.88'  
R = 5000.00'  
PC STA = 11+97.75  
PT STA = 12+37.63

**NOTE:**  
EQUITY STREET RIGHT-OF-WAY IS CENTERED ON SECTION QUARTER LINE (WHICH APPROXIMATES EXISTING ROAD CENTERLINE) AND WAS ESTABLISHED FROM SHOWN CSM'S AND WISCONSIN STATUTE 82.31.

REVISION DATE	DATE 05/03/2022	SCALE, FEET	HWY: LOC STR	STATE R/W PROJECT NUMBER: 6678-01-00	PLAT SHEET 4.02
	GRID FACTOR	0 40 80	COUNTY: MARATHON	CONSTRUCTION PROJECT NUMBER: 6678-01-70	PS&E SHEET

BENCHMARKS				
NO.	STATION	OFFSET	DESCRIPTION	ELEVATION
BM 5	8+43.57	31.08 LT	6" NAIL IN POWER POLE	1178.14
BM 6	13+32.79	31.95 LT	6" NAIL IN POWER POLE	1189.80

DARRELL & DONNA ZIMMERMAN

\*(PS) = CONCRETE PAVEMENT 6-INCH  
\*(RS) = CONCRETE APPROACH SLAB

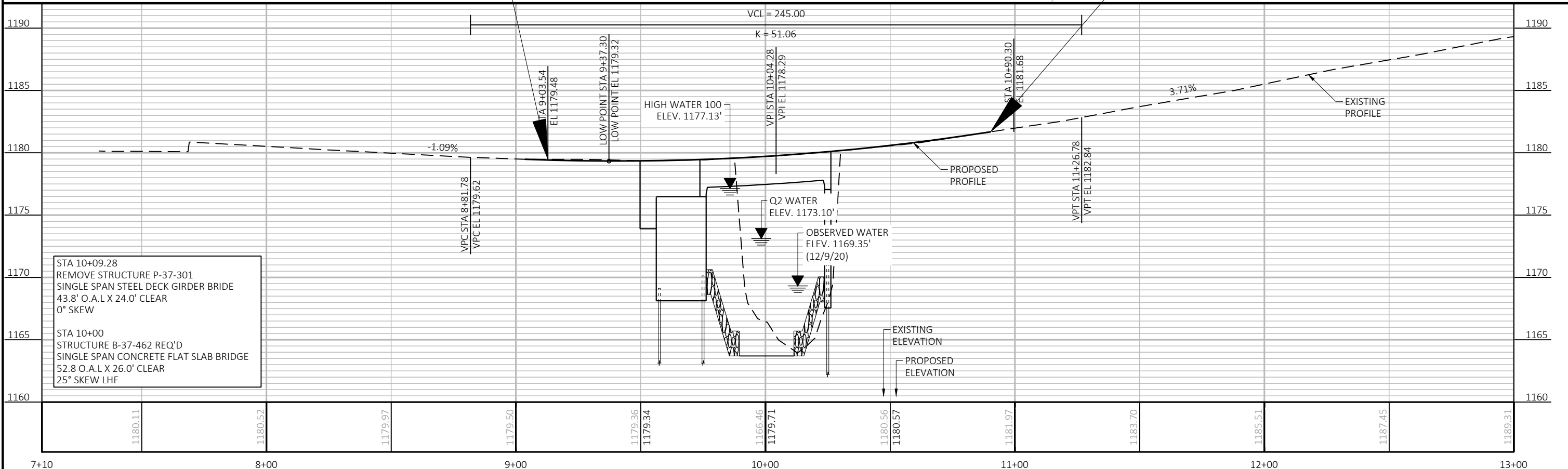
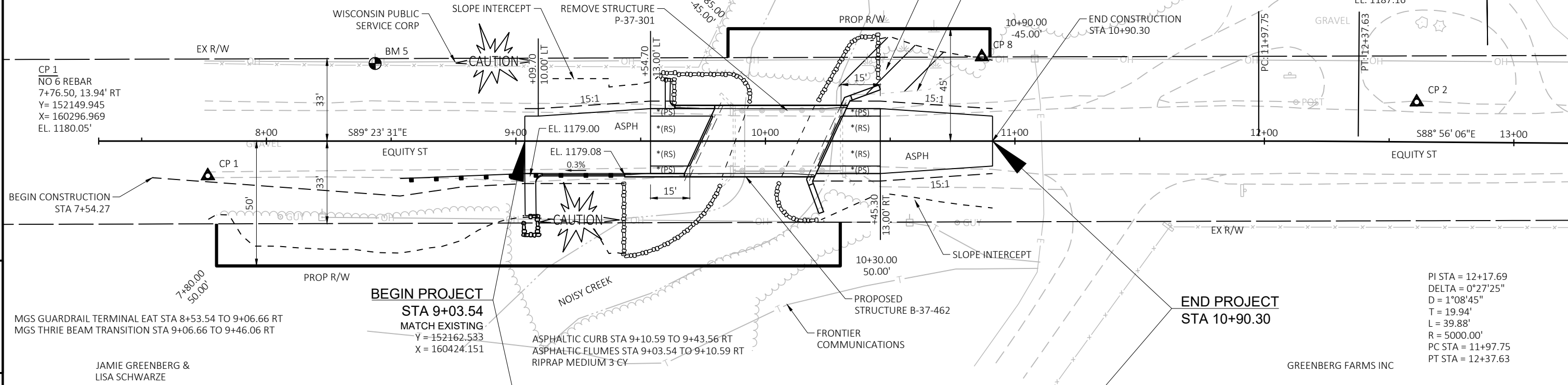
CONCRETE SURFACE DRAIN  
STA 9+60.96 LT

WETLAND IMPACT  
TYPE SS  
0.018 ACRES

CP 8  
NO 8 REBAR  
10+86.74, 33.69' LT  
Y= 152194.280  
X= 160607.702  
EL. 1175.91'

RICKY & SANDRA KRUG

CP 2  
NO 6 REBAR  
12+60.95, 15.97' LT  
Y= 152174.358  
X= 160781.832  
EL. 1187.16'



PROJECT NO: 6678-01-70      HWY: LOC STR      COUNTY: MARATHON      PLAN AND PROFILE: EQUITY ST      SCALE, FEET: 1"=40'      SHEET: E

## Standard Detail Drawing List

08D02-07A	CONCRETE SURFACE DRAINS FLUME TYPE AT STRUCTURES
08D02-07B	CONCRETE SURFACE DRAINS FLUME TYPE AT STRUCTURES
08D02-07C	CONCRETE SURFACE DRAINS FLUME TYPE AT STRUCTURES
08D04-06	CONCRETE SURFACE DRAINS & ASPHALTIC FLUMES
08E09-06	SILT FENCE
08E11-02	TURBIDITY BARRIER
12A03-10	NAME PLATE (STRUCTURES)
13A03-06	CONCRETE PAVEMENT SHOULDERS
13B02-09A	CONCRETE PAVEMENT APPROACH SLAB
14B42-07A	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-07B	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-07C	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-07D	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B44-04A	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B44-04B	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B44-04C	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B45-05A	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05B	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05C	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05D	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05E	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05F	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05G	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05H	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05I	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05J	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05K	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05L	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
15C02-08A	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C02-08B	BARRICADES AND SIGNS FOR VARIOUS CLOSURES
15C06-10	SIGNING & MARKING FOR TWO LANE BRIDGES
15C11-09B	CHANNELIZING DEVICES DRUMS, CONES, BARRICADES AND VERTICAL PANELS

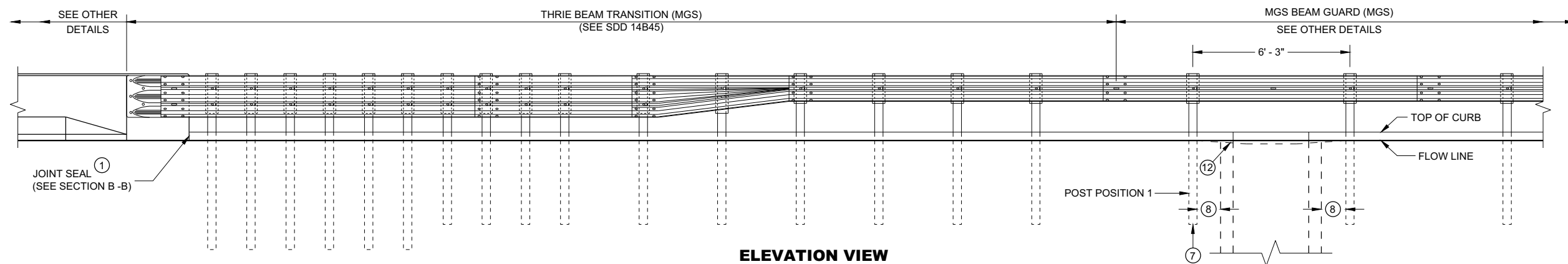
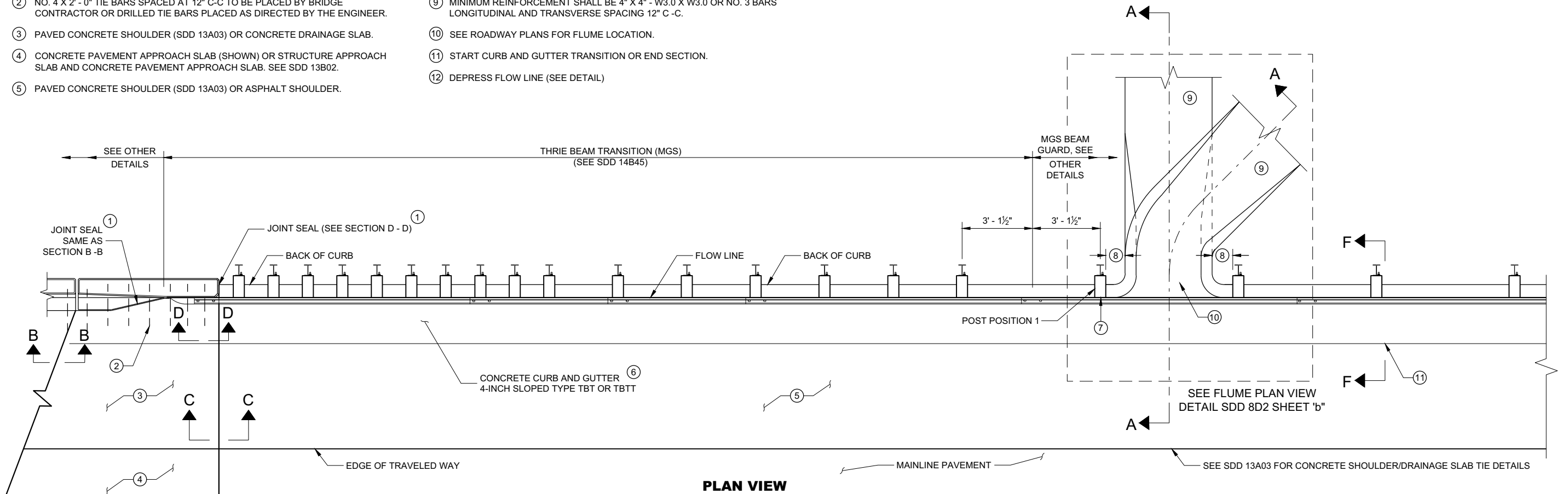
**GENERAL NOTES**

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

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

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

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

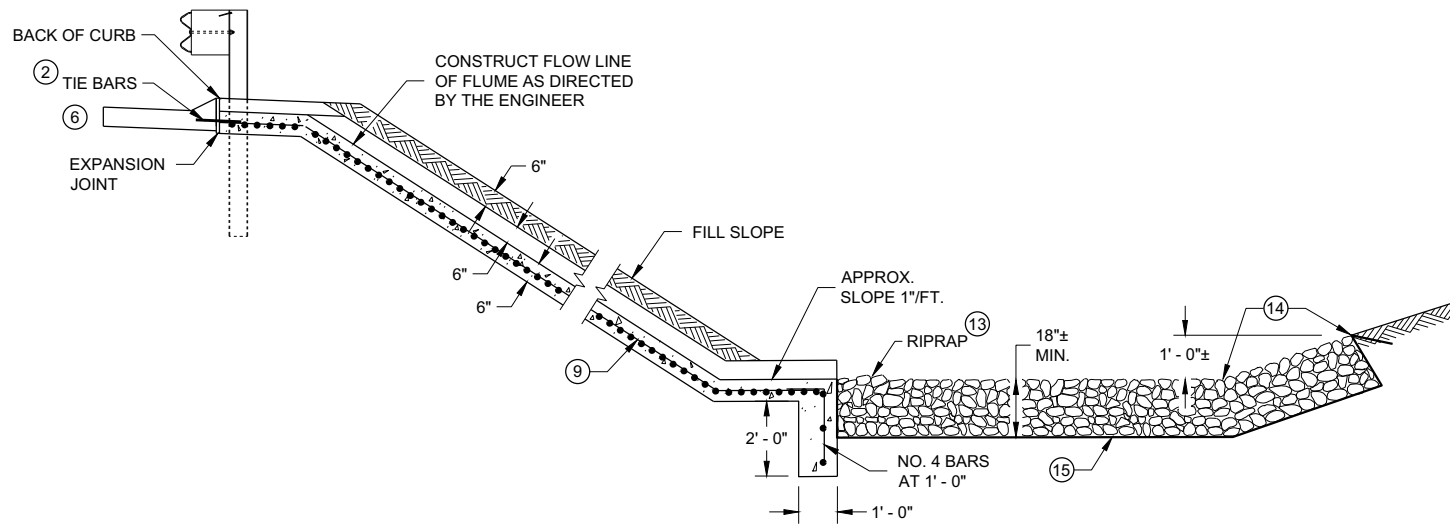


**CONCRETE SURFACE  
DRAINS FLUME TYPE  
AT STRUCTURES**

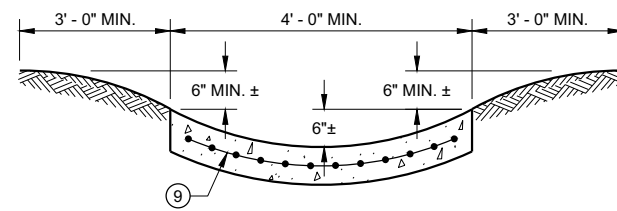
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

SDD 08D02 - 07a

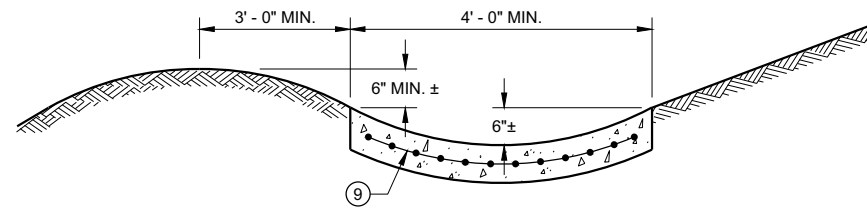
SDD 08D02 - 07a



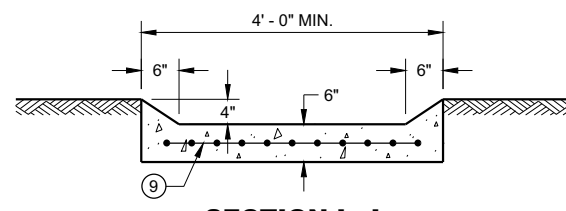
**SECTION A - A**



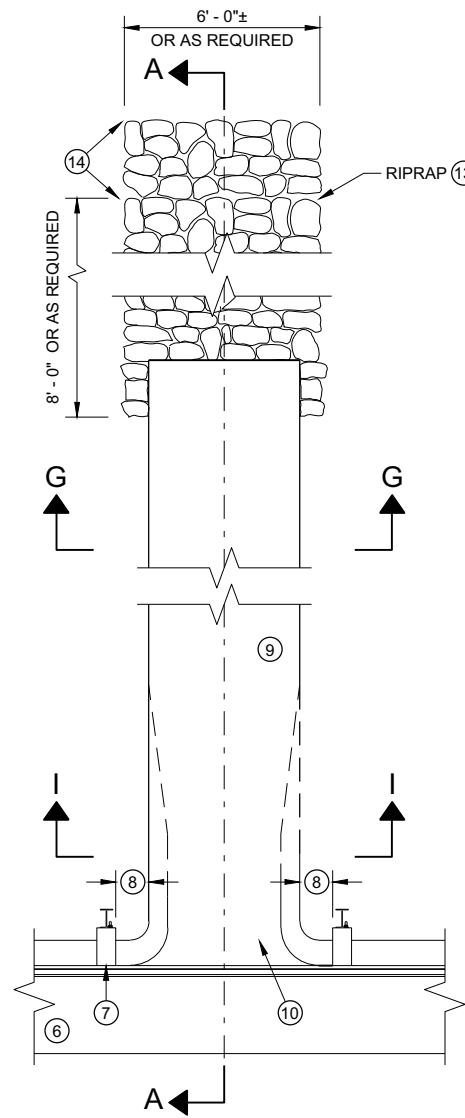
**SECTION G - G**



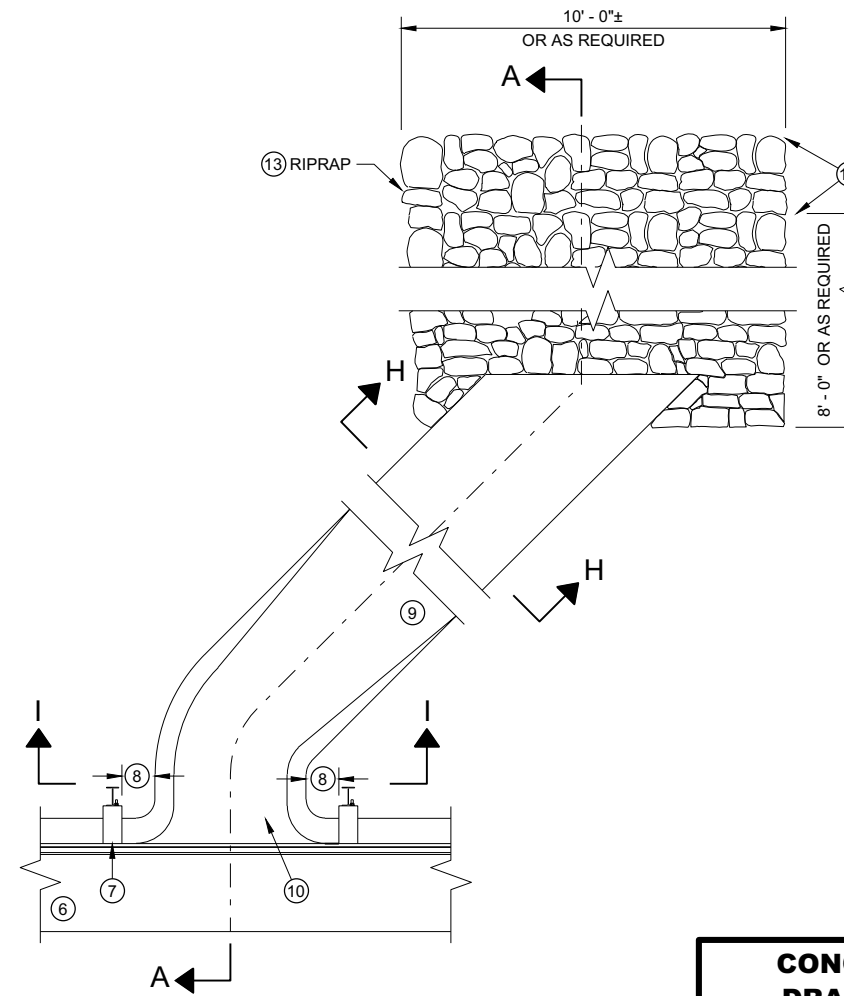
**SECTION H - H**



**SECTION I - I**



**PLAN VIEW PERPENDICULAR FLUME**



**PLAN VIEW SKEWED FLUME**

**GENERAL NOTES**

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

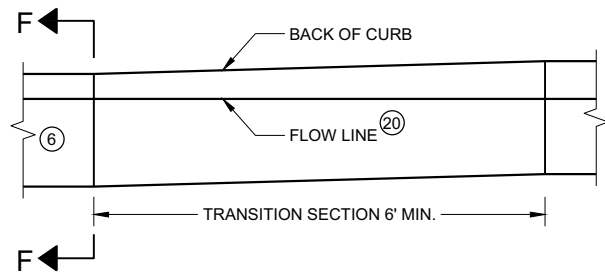
ALL STEEL REINFORCEMENT SHALL BE EMBEDDED 2 INCHES CLEAR UNLESS OTHERWISE SHOWN OR NOTED.

- ① USE A JOINT SEALANT CONFORMING TO STANDARD SPECIFICATION 415.2.6.
- ② NO. 4 X 2'-0" TIE BARS SPACED AT 12" C-C TO BE PLACED BY BRIDGE CONTRACTOR OR DRILLED TIE BARS PLACED AS DIRECTED BY THE ENGINEER.
- ③ PAVED CONCRETE SHOULDER (SDD 13A03) OR CONCRETE DRAINAGE SLAB.
- ④ CONCRETE PAVEMENT APPROACH SLAB (SHOWN) OR STRUCTURE APPROACH SLAB AND CONCRETE PAVEMENT APPROACH SLAB. SEE SDD 13B02 AND STRUCTURE PLANS.
- ⑤ PAVED CONCRETE SHOULDER (SDD 13A03) OR ASPHALT SHOULDER.
- ⑥ CONCRETE CURB AND GUTTER 4-INCH SLOPED 36-INCH TYPE TBT OR TBTT. USE TYPE TBTT CURB WITH NO. 4 X 2'-0" TIE BARS SPACED AT 3'-0" C-C ONLY WHEN ADJACENT TO CONCRETE PAVEMENTS.

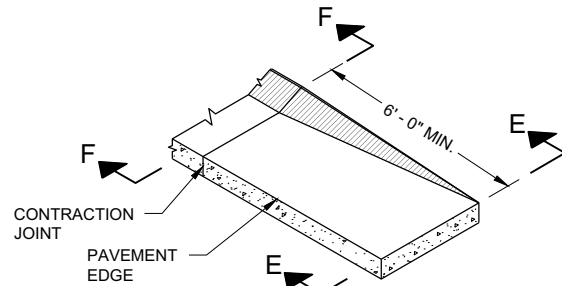
- ⑦ PLACE FLUME BEFORE MSG THRIE BEAM TRANSITION POST 1 (SEE SDD 14B45)
- ⑧ CENTER FLUME BETWEEN POSTS. 6-INCH MINIMUM SEPARATION FROM OUTSIDE EDGE OF FLUME TO POSTS.
- ⑨ MINIMUM REINFORCEMENT SHALL BE 4" X 4" - W3.0 X W3.0 OR NO. 3 BARS LONGITUDINAL AND TRANSVERSE SPACING 12" C -C.
- ⑩ SEE ROADWAY PLANS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

**CONCRETE SURFACE  
DRAINS FLUME TYPE  
AT STRUCTURES**

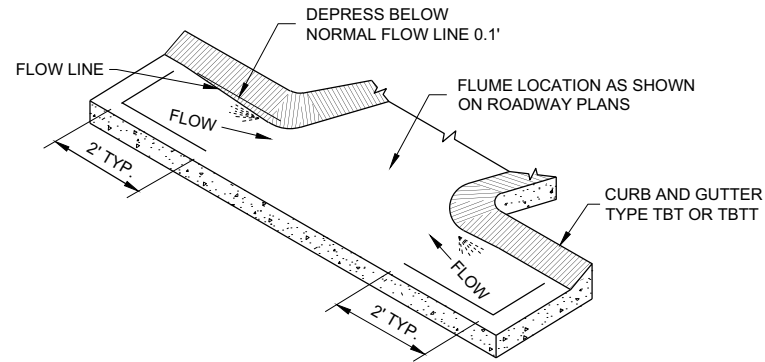
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



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



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



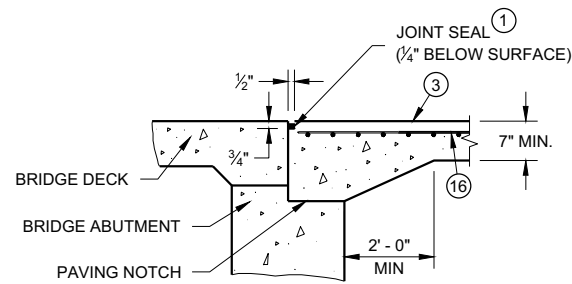
**CURB AND GUTTER FLOW LINE DEPRESSION  
AT FLUMES CONCRETE CURB AND GUTTER  
4-INCH SLOPED 36 INCH TYPE TBT OR TBTT**

**GENERAL NOTES**

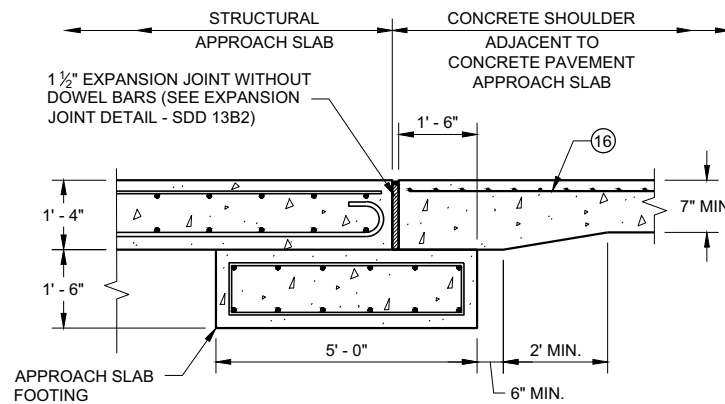
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

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

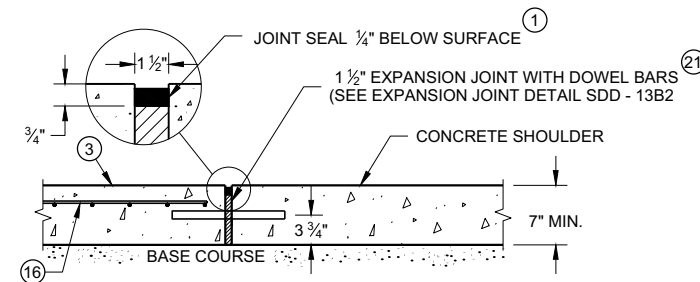
- ① USE A JOINT SEALANT CONFORMING TO STANDARD SPECIFICATION 415.2.6.
- ② NO. 4 X 2' - 0" TIE BARS SPACED AT 12" C-C TO BE PLACED BY BRIDGE CONTRACTOR OR DRILLED TIE BARS PLACED AS DIRECTED BY THE ENGINEER.
- ③ PAVED CONCRETE SHOULDER (SDD 13A03) OR CONCRETE DRAINAGE SLAB.
- ④ CONCRETE PAVEMENT APPROACH SLAB (SHOWN) OR STRUCTURE APPROACH SLAB AND CONCRETE PAVEMENT APPROACH SLAB. SEE SDD 13B02 AND STRUCTURE PLANS.
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- ⑥ CONCRETE CURB AND GUTTER 4-INCH SLOPED 36-INCH TYPE TBT OR TBTT. USE TYPE TBTT CURB WITH NO. 4 X 2' - 0" TIE BARS SPACED AT 3' - 0" C-C ONLY WHEN ADJACENT TO CONCRETE PAVEMENTS.
- ⑦ PLACE FLUME BEFORE MSG THRIE BEAM TRANSITION POST 1 (SEE SDD 14B45)
- ⑧ CENTER FLUME BETWEEN POSTS. 6-INCH MINIMUM SEPARATION FROM OUTSIDE EDGE OF FLUME TO POSTS.
- ⑨ MINIMUM REINFORCEMENT SHALL BE 4" X 4" - W3.0 X W3.0 OR NO. 3 BARS LONGITUDINAL AND TRANSVERSE SPACING 12" C-C.
- ⑩ SEE ROADWAY PLANS FOR FLUME LOCATION.
- ⑪ START CURB AND GUTTER TRANSITION OR END SECTION.
- ⑫ DEPRESS FLOW LINE (SEE DETAIL)
- ⑬ MEDIUM RIPRAP UNLESS OTHERWISE SPECIFIED.
- ⑭ LIMITS OF ADDITIONAL RIPRAP WHEN SPECIAL DITCH IS REQUIRED.
- ⑮ GEOTEXTILE FABRIC TYPE HR.
- ⑯ MINIMUM REINFORCEMENT SHALL BE 6" X 6" - W4.0 X W4.0 OR NO. 3 BARS LONGITUDINAL AND TRANSVERSE SPACING 12" C-C.
- ⑰ MSG THRIE BEAM TRANSITION POST 1. SEE SDD 14B45 FOR ADDITIONAL CONSTRUCTION DETAILS AND ACCEPTABLE MATERIALS.
- ⑱ MAINTAIN WIDTH, THICKNESS AND CROSS SLOPE OF ADJACENT TYPE TBT OR TBTT CURB. SEE NOTE 6 FOR TIE BAR SPACING.
- ⑲ ALIGN FACE OF POST BLOCK WITH FLOW LINE.
- ⑳ MAINTAIN FLOW LINE AT EDGE OF PAVEMENT/FACE OF BEAM GUARD AS APPLICABLE.
- ㉑ DO NOT CONSTRUCT AN EXPANSION JOINT OR INSTALL DOWEL BARS WHEN ABUTTING HMA PAVEMENTS.



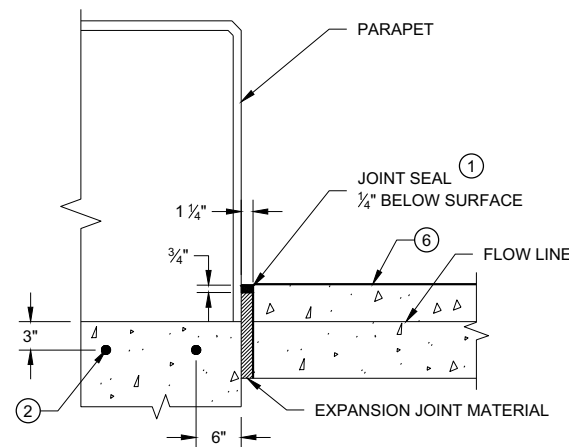
**SECTION B-B**



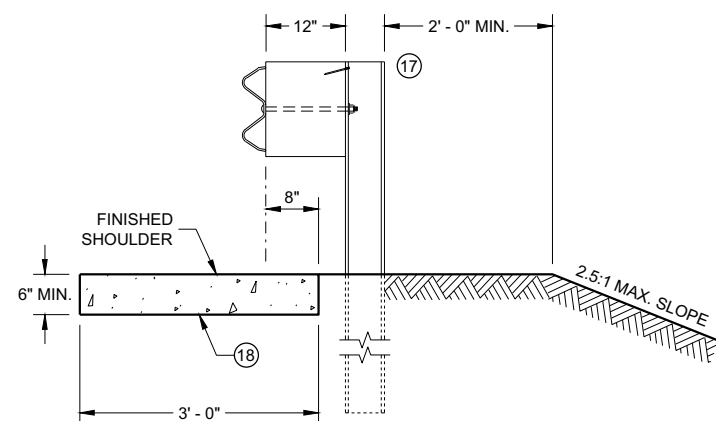
**SECTION C - C  
JOINT DETAIL FOR BRIDGE WITH STRUCTURAL  
APPROACH SLAB AND CONCRETE APPROACH SLAB**



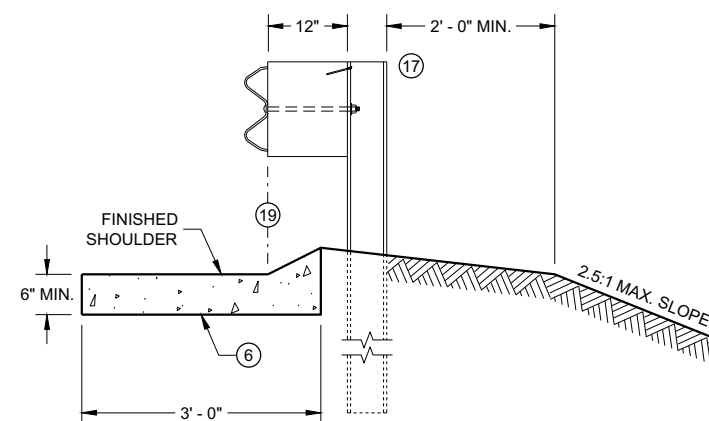
**SECTION C - C  
JOINT DETAIL FOR BRIDGE APPROACH  
WITH CONCRETE SHOULDERS**



**SECTION D - D**



**SECTION E - E**



**SECTION F - F**

6

6

SDD08D02 - 07C

SDD08D02 - 07C

**CONCRETE SURFACE  
DRAINS FLUME TYPE  
AT STRUCTURES**

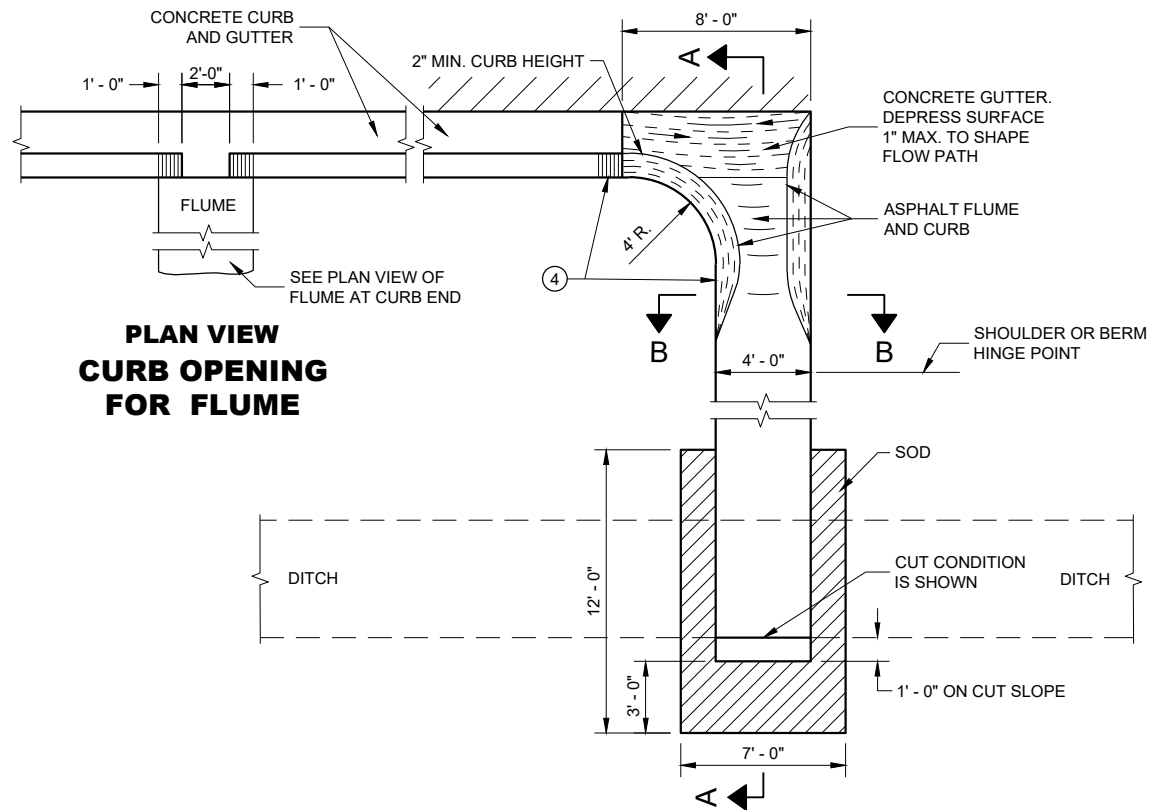
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
February 2020 /S/ Rodney Taylor  
DATE ROADWAY STANDARDS DEVELOPMENT  
ENGINEER

FHWA

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

### ASPHALTIC FLUME



**PLAN VIEW  
CURB OPENING  
FOR FLUME**

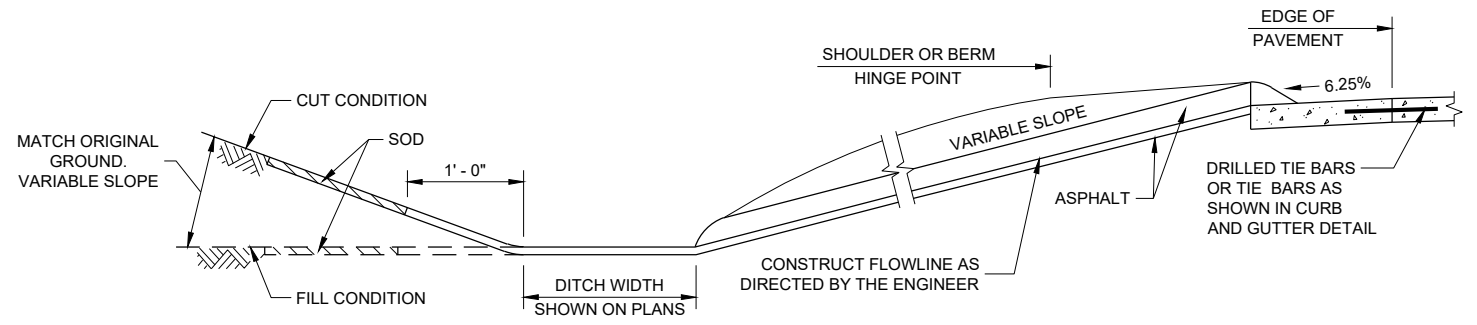
**PLAN VIEW  
FLUME AT CURB END**

### GENERAL NOTES

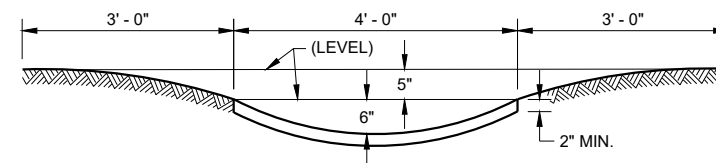
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.

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

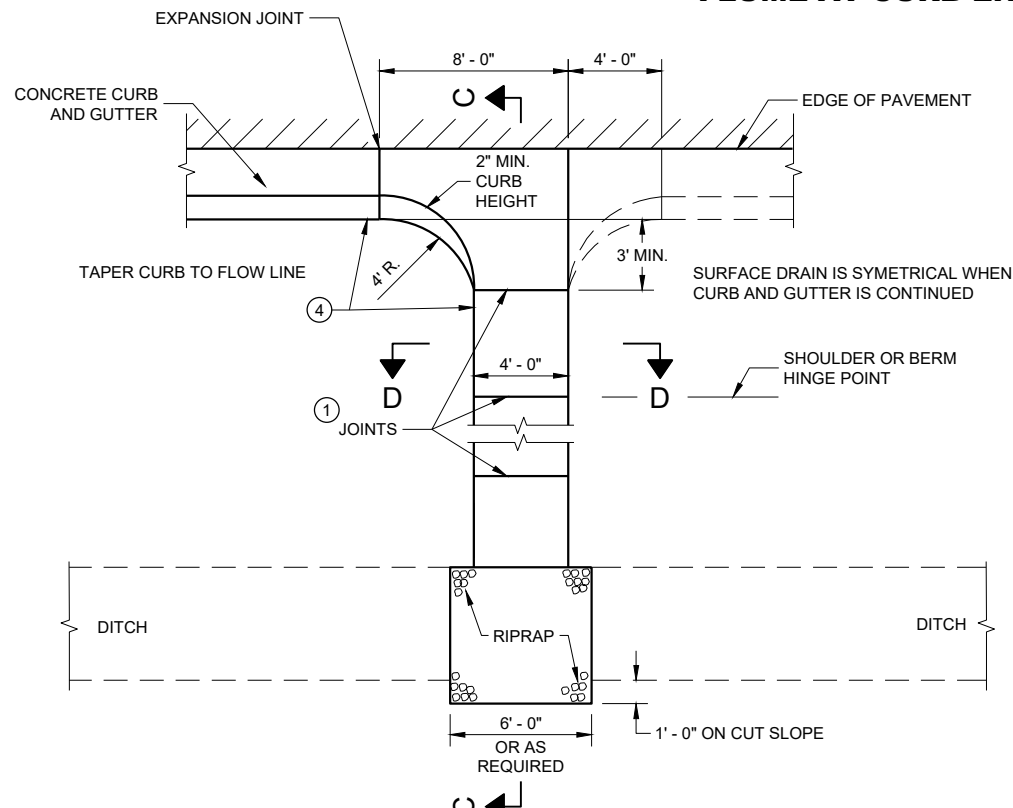
- ① JOINTS SHALL BE 1/8" TO 1/4" WIDE BY 1 1/2" DEEP AND SPACED AT UNIFORM INTERVALS OF APPROXIMATELY 4 FEET.
- ② GEOTEXTILE TYPE "R" SHALL UNDERLAY THE FULL LENGTH AND WIDTH OF THE CONCRETE SURFACE DRAIN AND RIPRAP.
- ③ CONCRETE SURFACE DRAIN WITHOUT CURB AND GUTTER MAY BE USED ON BACKSLOPES WHEN SPECIFIED.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



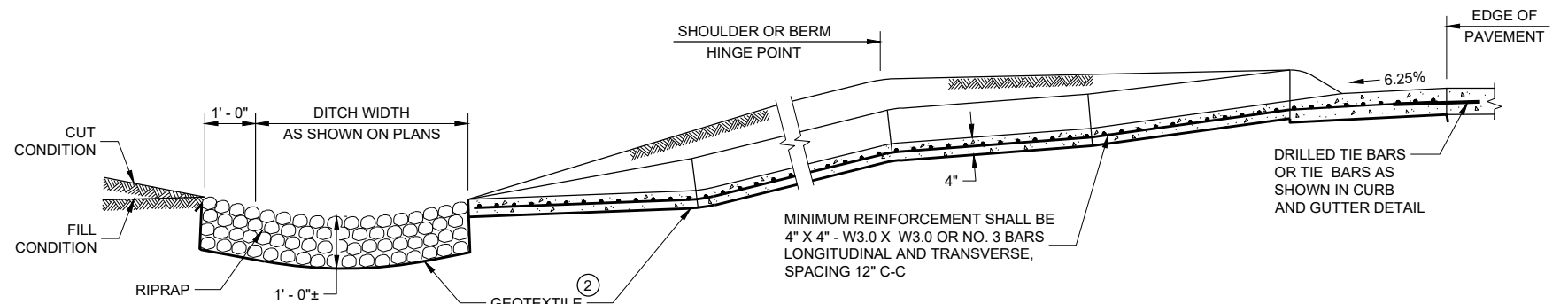
**SECTION A - A**



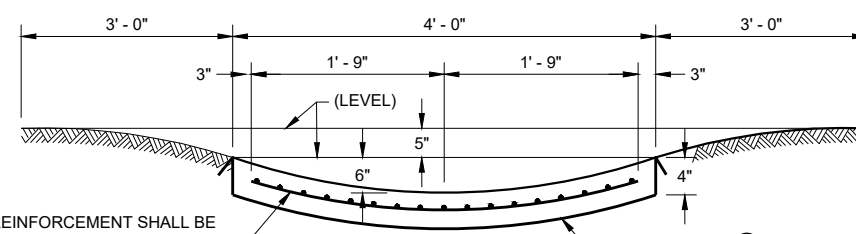
**SECTION B - B**



**PLAN VIEW  
CONCRETE SURFACE DRAIN**



**SECTION C - C**



**SECTION D - D**

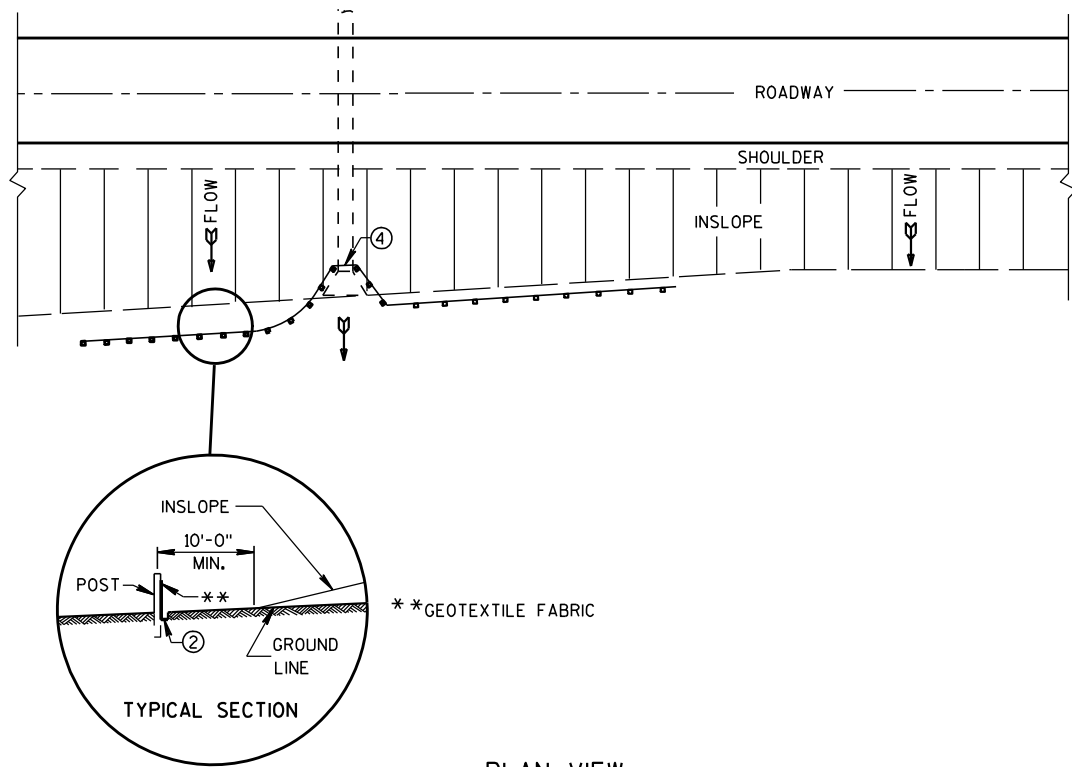
MINIMUM REINFORCEMENT SHALL BE 4" X 4" - W3.0 X W3.0 OR NO. 3 BARS LONGITUDINAL AND TRANSVERSE, SPACING 12" C-C

### CONCRETE SURFACE DRAINS AND ASPHALTIC FLUMES

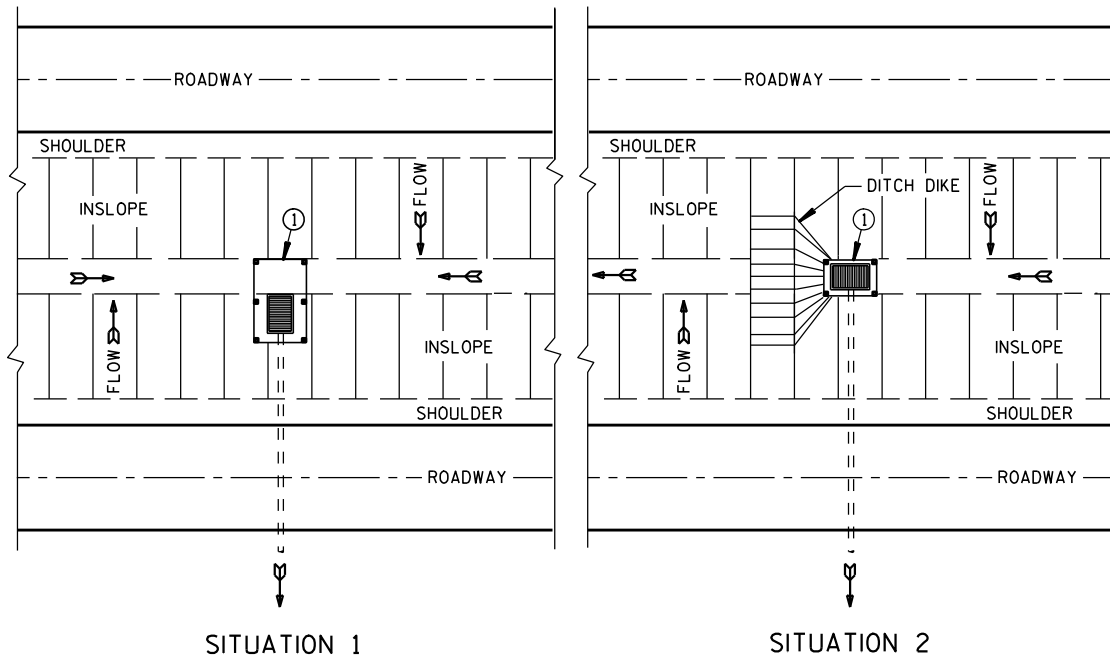
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

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

FHWA



PLAN VIEW  
TYPICAL APPLICATION OF SILT FENCE

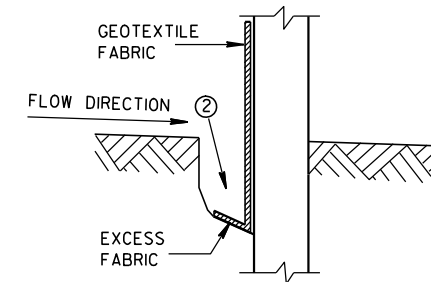


SITUATION 1 SITUATION 2  
PLAN VIEW  
SILT FENCE AT MEDIAN SURFACE DRAINS

**GENERAL NOTES**

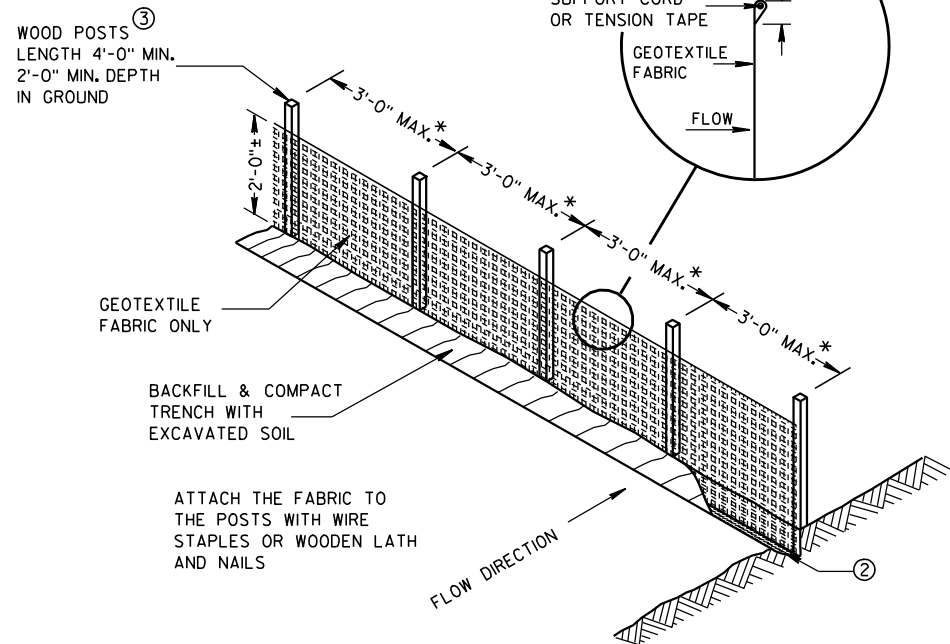
DETAILS OF CONSTRUCTION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.

- 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.



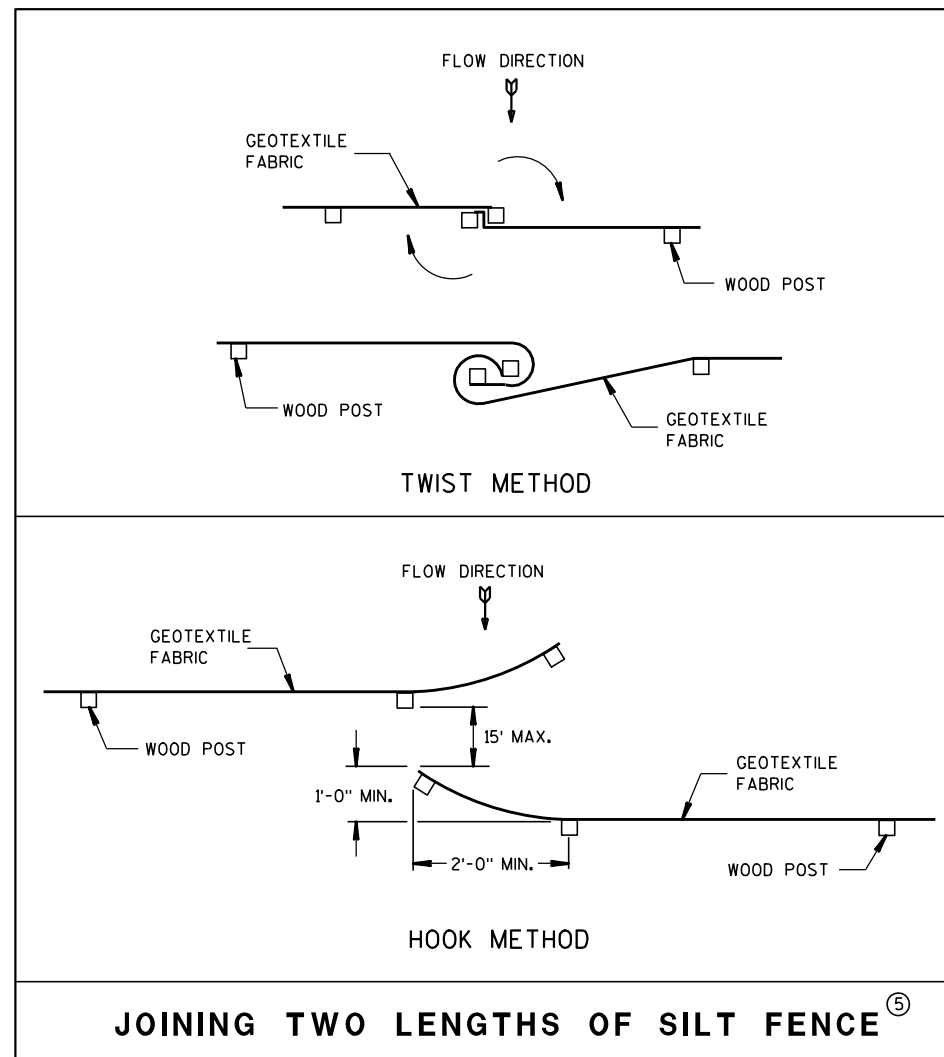
TRENCH DETAIL

NOTE: ADDITIONAL POST DEPTH OR TIE BACKS MAY BE REQUIRED IN UNSTABLE SOILS

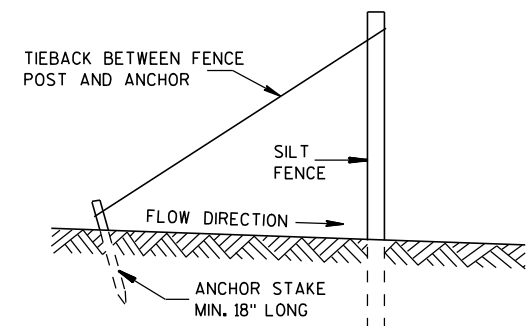


SILT FENCE

\* NOTE: 8'-0" POST SPACING ALLOWED IF A WOVEN GEOTEXTILE FABRIC IS USED.



JOINING TWO LENGTHS OF SILT FENCE ⑤



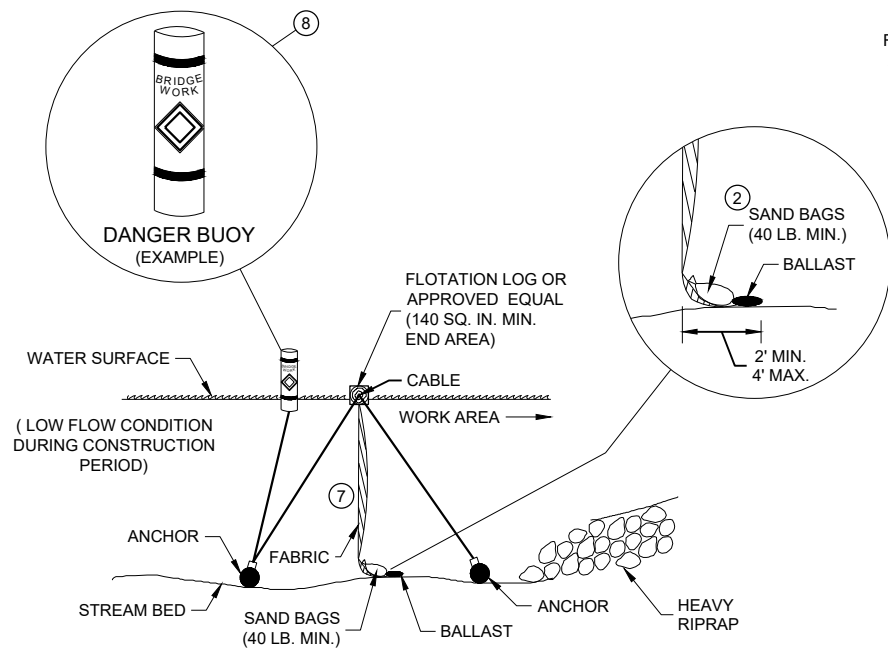
SILT FENCE TIE BACK  
(WHEN REQUIRED BY THE ENGINEER)

**SILT FENCE**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

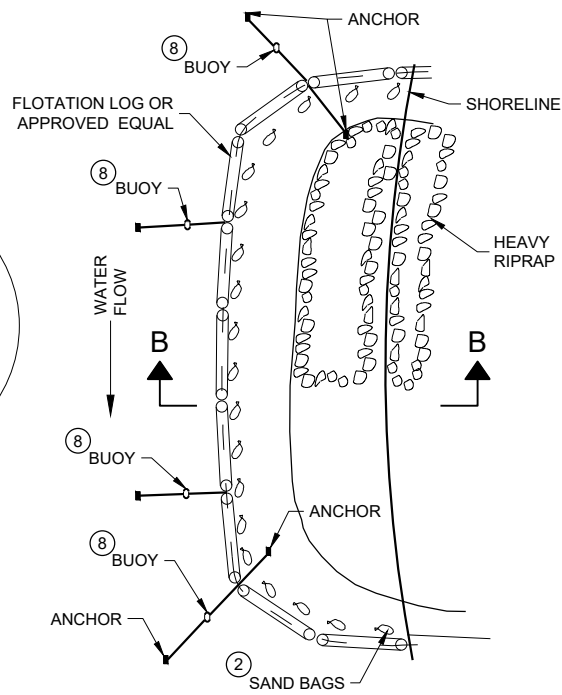
APPROVED  
4-29-05 /S/ Beth Cannestra  
DATE CHIEF ROADWAY DEVELOPMENT ENGINEER  
FHWA



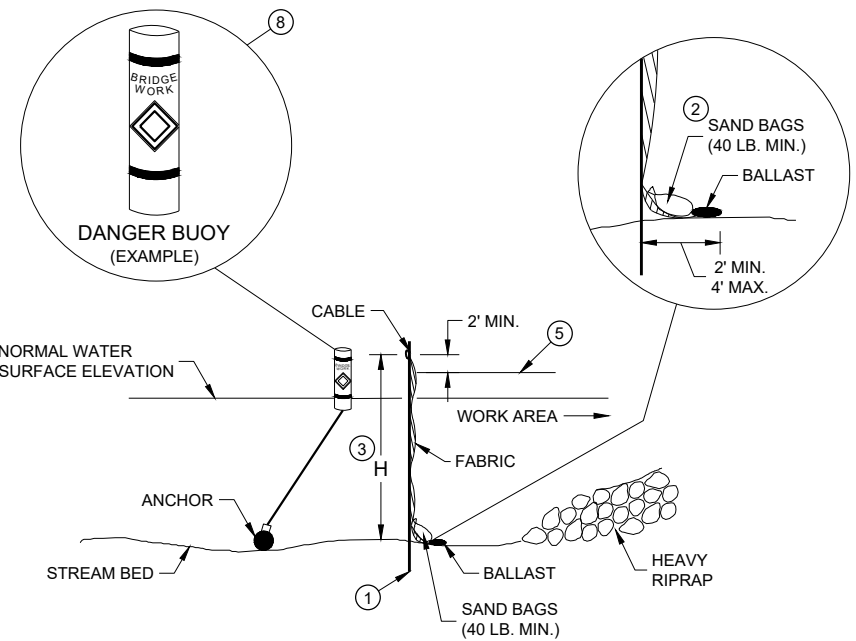


**SECTION B - B**

**TURBIDITY BARRIER - FLOAT ALTERNATIVE  
CAUTION - SEE NOTE 6**

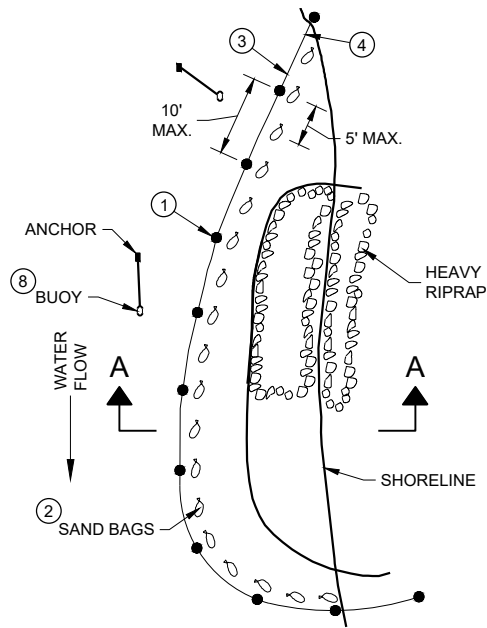


**PLAN VIEW**



**SECTION A - A**

**TURBIDITY BARRIER - STANDARD POST INSTALLATION**



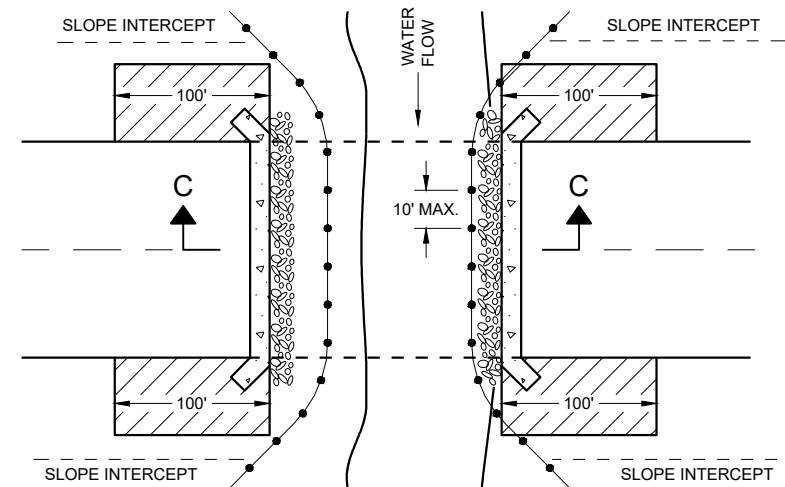
**PLAN VIEW**

**GENERAL NOTES**

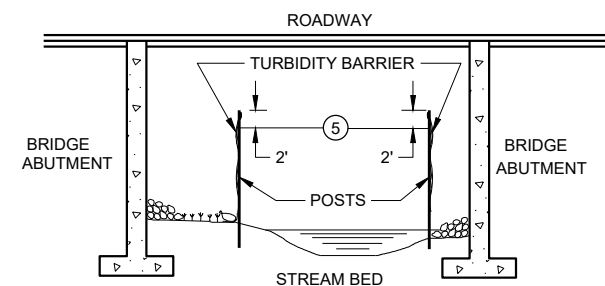
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

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

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



**PLAN VIEW**



**SECTION C - C**

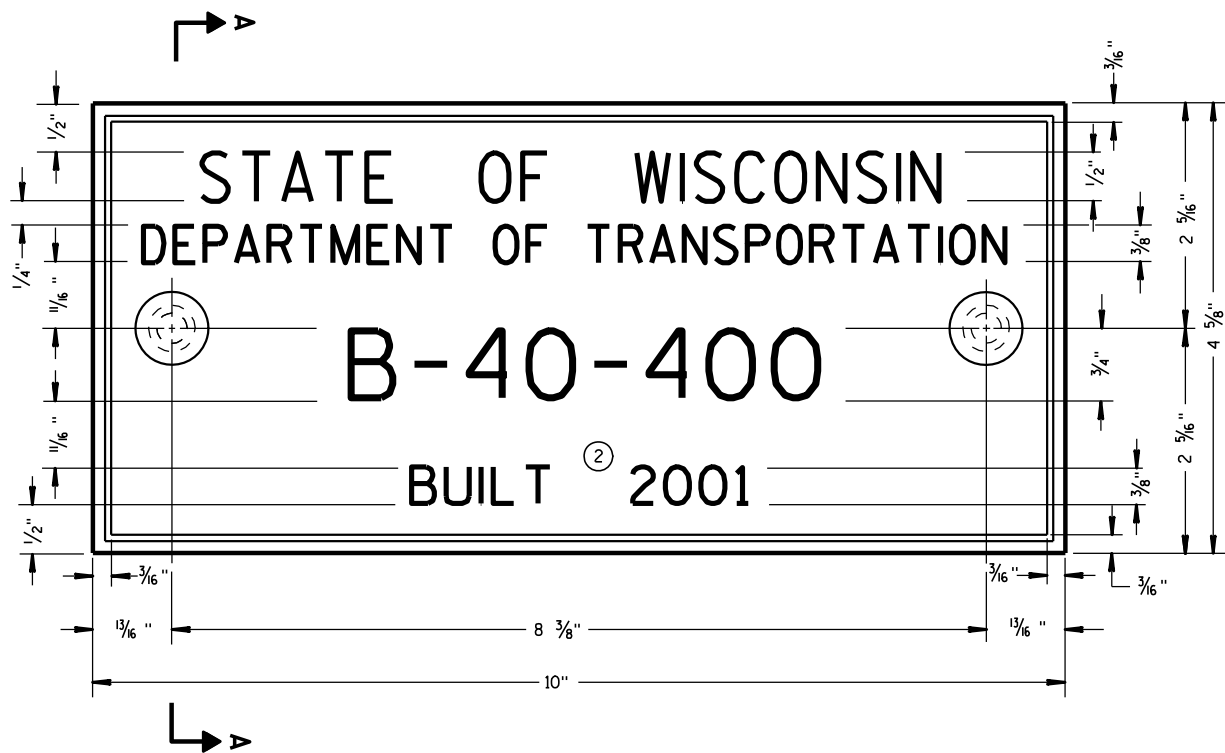
**TURBIDITY BARRIER DETAIL SHOWING  
TYPICAL PLACEMENT AT STRUCTURES**

**TURBIDITY BARRIER**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
6/4/02 DATE /S/ Beth Cannestra  
DATE CHIEF ROADWAY DEVELOPMENT  
ENGINEER

FHWA



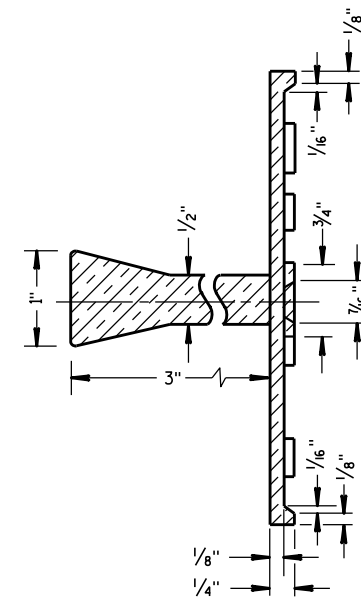
**TYPICAL NAME PLATE**  
(BRIDGES, CULVERTS, AND RETAINING WALLS)

**GENERAL NOTES**

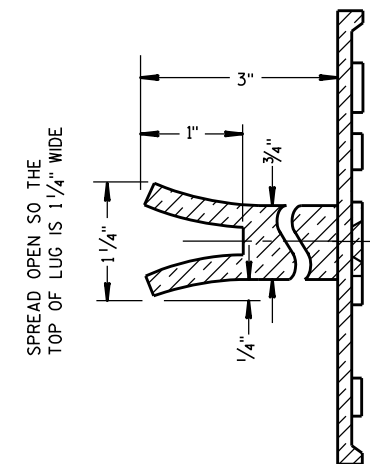
NAME PLATES TO BE INSTALLED ON BRIDGES, CULVERTS, AND RETAINING WALLS SHALL CONFORM TO THE REQUIREMENTS OF SECTION 502.3.11 OF THE STANDARD SPECIFICATIONS.

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

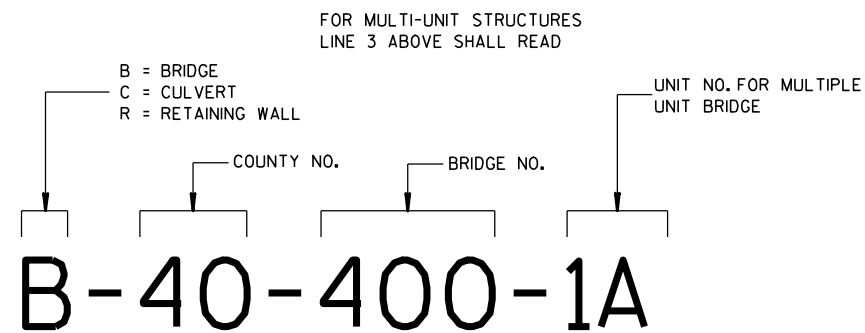
- ① EPOXY RESIN SHALL BE FROM AN APPROVED MANUFACTURER AND USED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
- ② REHABILITATION OF AN EXISTING STRUCTURE SHOULD USE THE DATE OF ORIGINAL STRUCTURE CONSTRUCTION.



**SECTION A-A**

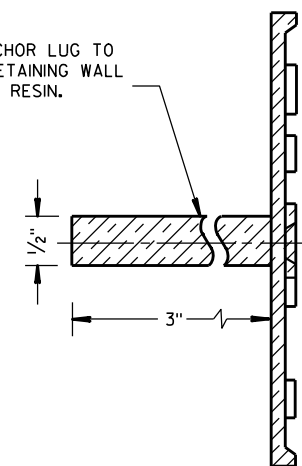


**ALTERNATE LUG**



**NUMBERING DESIGNATION  
MULTI-UNIT STRUCTURES**

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

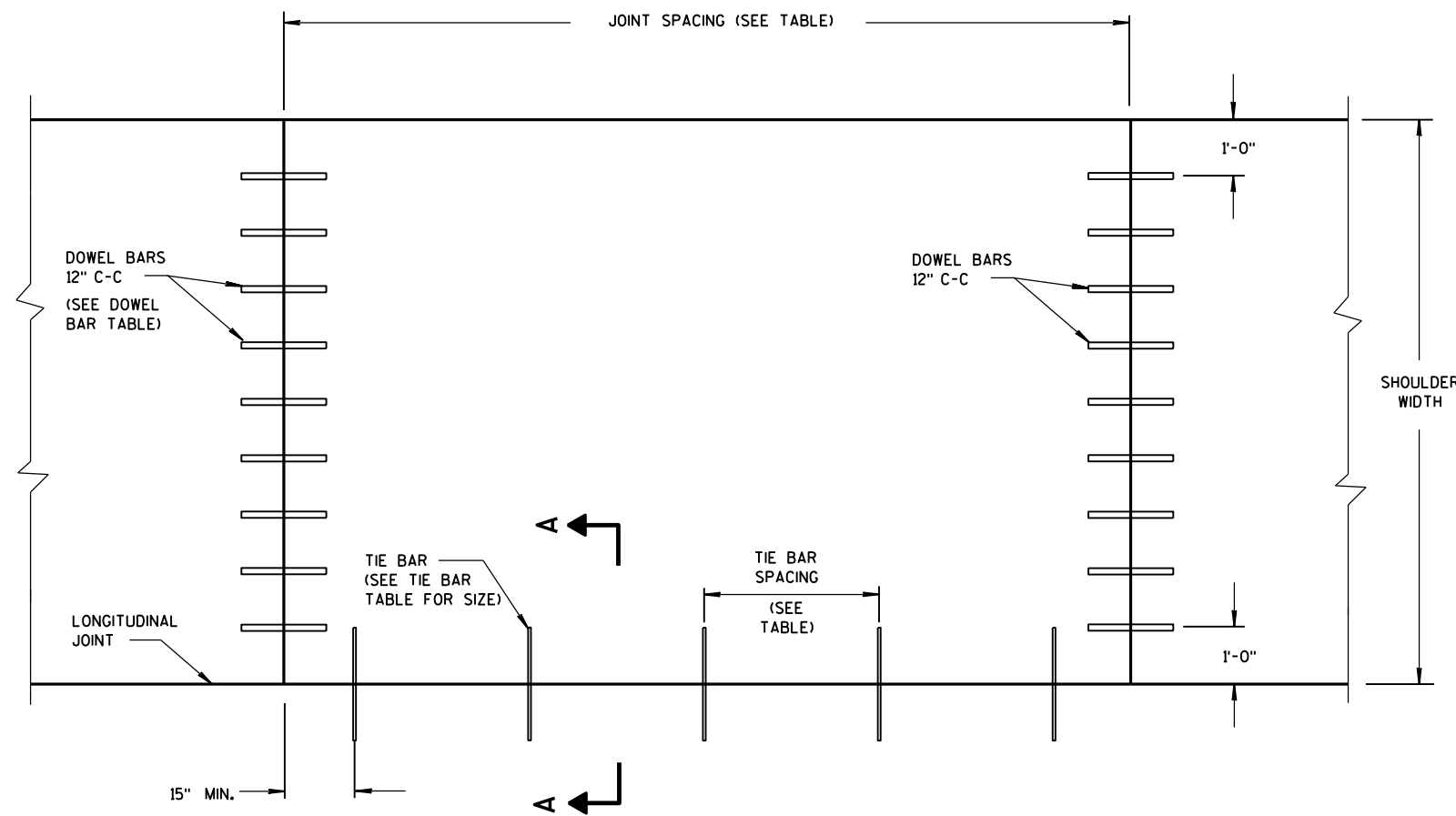


**ALTERNATE LUG**  
(FOR ATTACHMENT TO PRECAST STRUCTURES)

**NAME PLATE  
(STRUCTURES)**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
DATE 3/26/10 /S/ Scot Becker  
CHIEF STRUCTURAL DEVELOPMENT ENGINEER  
FHWA



PLAN VIEW  
CONCRETE PAVEMENT SHOULDER

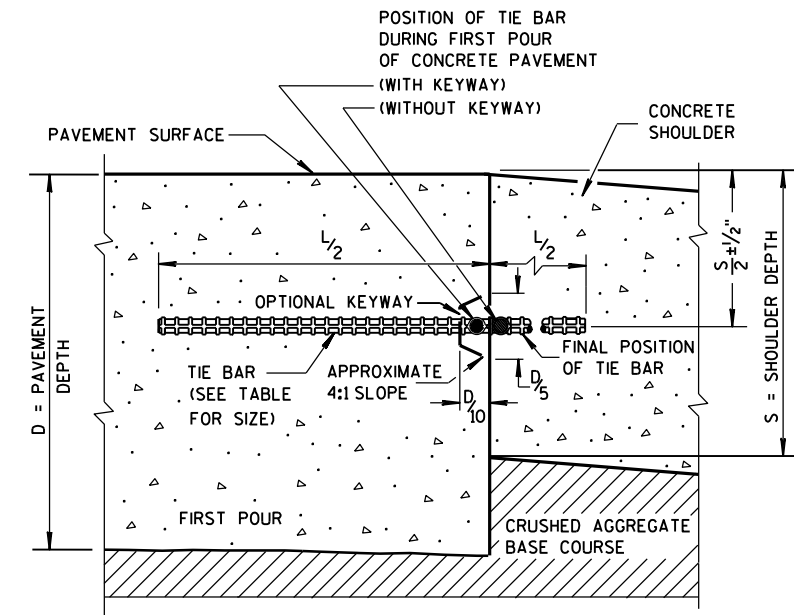
**GENERAL NOTES**

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.

TRANSVERSE JOINT DETAILS ARE SHOWN ELSEWHERE IN THE PLAN.

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

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



SECTION A-A  
LONGITUDINAL CONSTRUCTION JOINT

**TIE BAR TABLE**

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

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

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

**PAVEMENT DEPTH, DOWEL BAR SIZE AND JOINT SPACING TABLE**

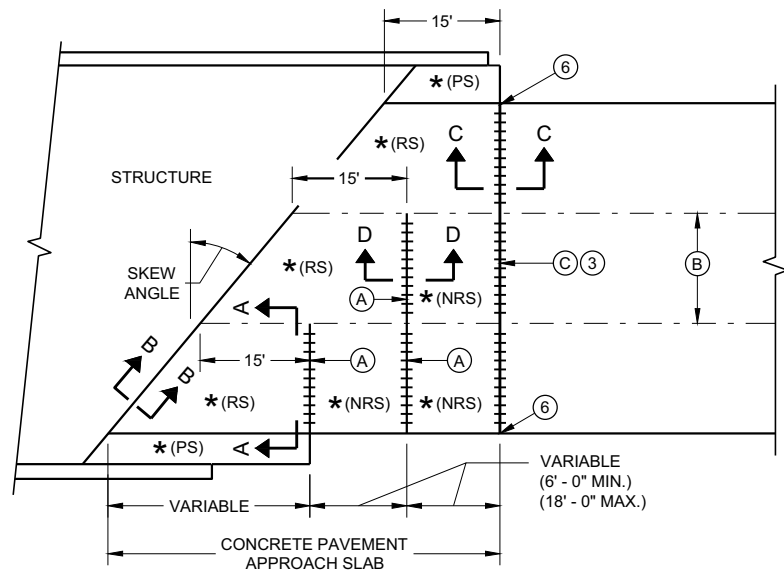
PAVEMENT DEPTH (D)	DOWEL BAR DIAMETER***	CONTRACTION JOINT SPACING
5 1/2", 6", 6 1/2"	NONE	12'
7", 7 1/2"	1"	14'
8", 8 1/2"	1 1/4"	15'
9", 9 1/2"	1 1/4"	15'
10" & ABOVE	1 1/2"	15'

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

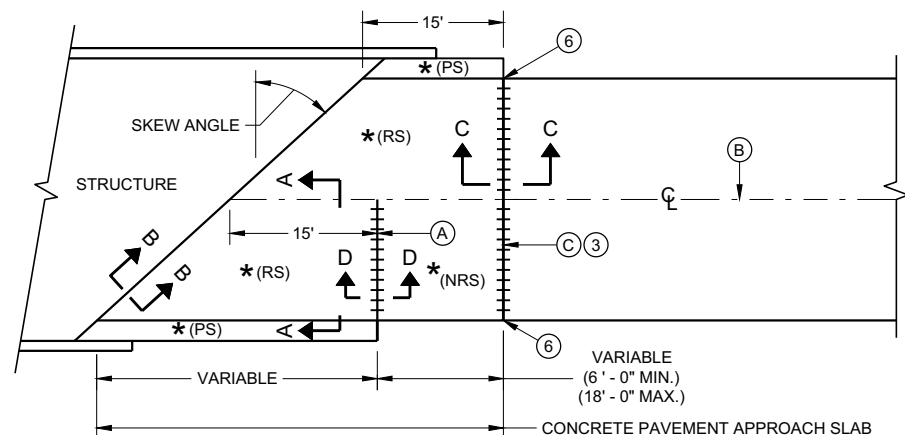
**CONCRETE PAVEMENT SHOULDERS**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

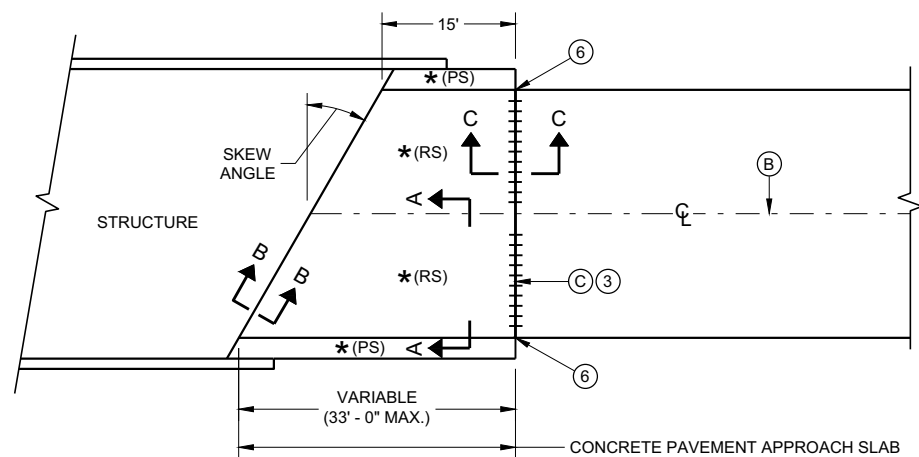
APPROVED  
June, 2015 /S/ Peter Kemp, P.E.  
DATE PAVEMENT SUPERVISOR  
FHWA



**SKewed APPROACH  
(PAVEMENT MORE THAN TWO LANES)**

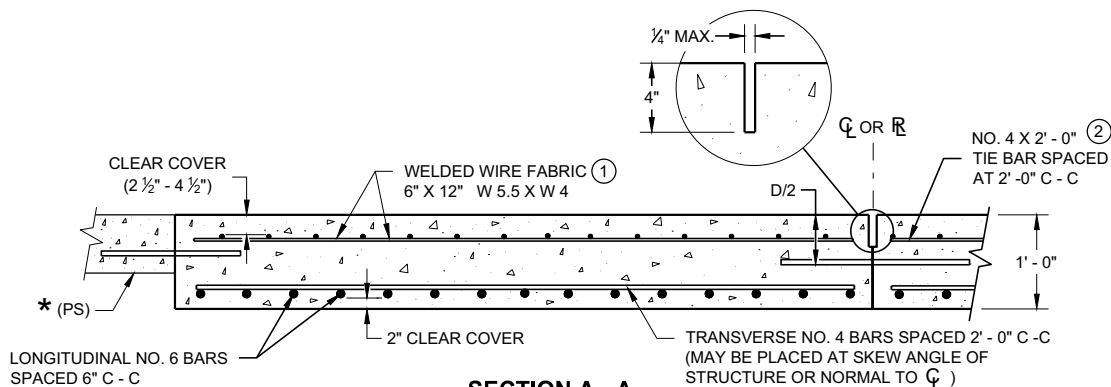


**SKews > 20°  
(PAVEMENT WIDTH ≤ 30')**

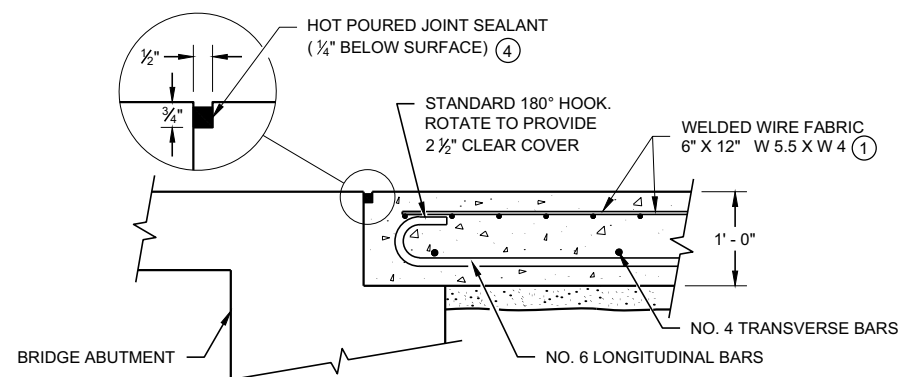


**SKews ≤ 20°  
(PAVEMENT WIDTH ≤ 30')**  
**APPROACH SLAB AND ADJACENT PAVEMENT**

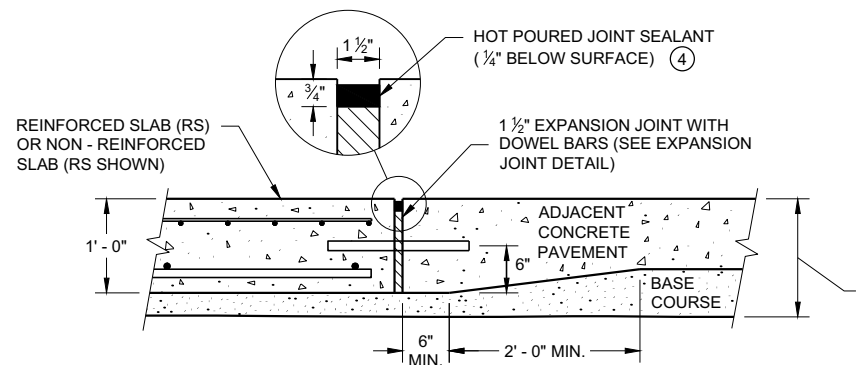
- \* (RS) = REINFORCED CONCRETE SLAB
- \* (PS) = PAVED CONCRETE SHOULDER OR CONCRETE DRAINAGE SLAB
- \* (NRS) = NON - REINFORCED CONCRETE SLAB
- \*\*\* STANDARD DOWEL BAR DIAMETER (SEE SDD 13C11 AND SDD 13C13)



**SECTION A - A  
REINFORCEMENT POSITIONING DETAIL**



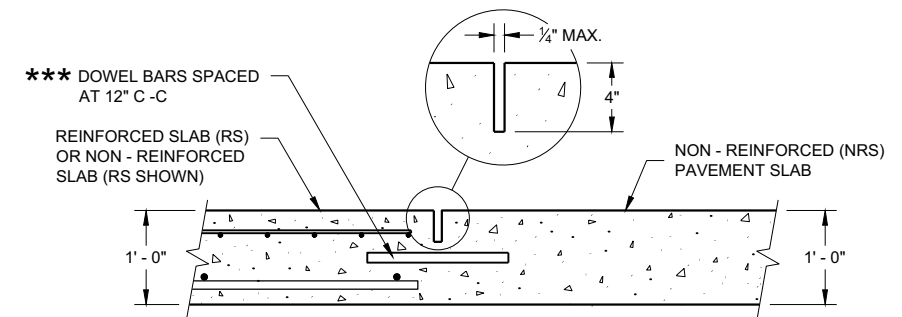
**SECTION B - B  
BEND DETAIL  
BOTTOM REINFORCEMENT**



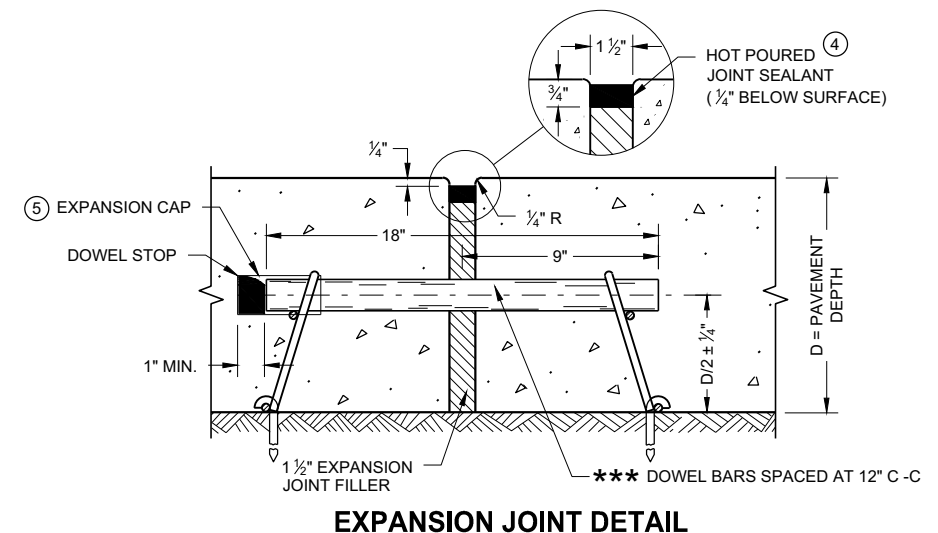
**SECTION C - C  
TRANSITION DETAIL  
APPROACH SLAB TO ADJACENT PAVEMENT**

**GENERAL NOTES**

- THE CONTRACTOR MAY SPLICE NO. 6 BARS IN THE APPROACH SLAB FOR SKEWED STRUCTURES ONLY. STAGGER SPLICES WITH A MAXIMUM OF ONE SPLICE PER BAR. THE LENGTH OF LAP IS 20 INCHES.
- TACK WELD DOWEL BARS TO THE BASKETS ON ALTERNATE ENDS.
- ① THE CONTRACTOR MAY USE NO. 4 BARS SPACED AT 2' - 0" C - C IN BOTH THE LONGITUDINAL AND TRANSVERSE DIRECTIONS FOR TOP REINFORCEMENT AS AN ALTERNATIVE TO THE WELDED WIRE FABRIC.
  - ② THE CONTRACTOR MAY OMIT THE BARS BETWEEN REINFORCED SLABS WHERE SLAB REINFORCEMENT BARS EXTEND ACROSS THE CENTERLINE OR REFERENCE LINE.
  - ③ DO NOT CONSTRUCT AN EXPANSION JOINT OR INSTALL DOWEL BARS WHEN ABUTTING AN HMA PAVEMENT.
  - ④ USE A JOINT SEALANT CONFORMING TO STANDARD SPECIFICATION 415.2.6.
  - ⑤ PLACE EXPANSION CAP ON THE END OF THE DOWEL THAT IS NOT TACK WELDED TO THE BASKET. DO NOT FORCE DOWEL BAR PAST THE DOWEL STOP.
  - ⑥ EXTEND EXPANSION JOINT THROUGH ANY ADJACENT TIED CONCRETE.
  - (A) STANDARD CONTRACTION JOINT NORMAL TO  $\mathcal{C}$  OR  $\mathcal{R}$ .
  - (B) STANDARD LONGITUDINAL JOINT WITH TIE BARS.
  - (C) 1 1/2" EXPANSION JOINT WITH DOWEL BARS NORMAL TO  $\mathcal{C}$  OR  $\mathcal{R}$ .



**SECTION D - D  
CONTRACTION JOINT**



**EXPANSION JOINT DETAIL**

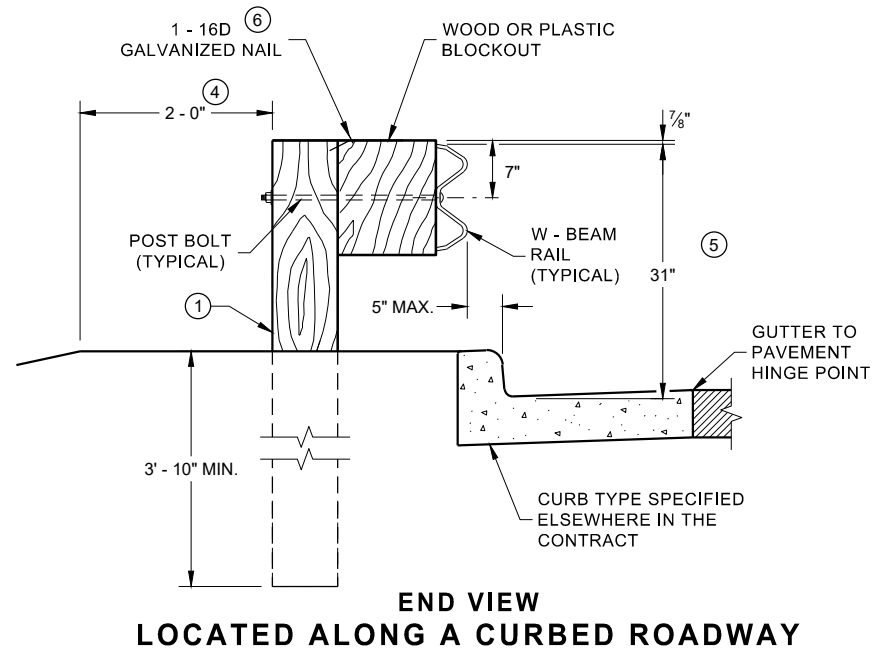
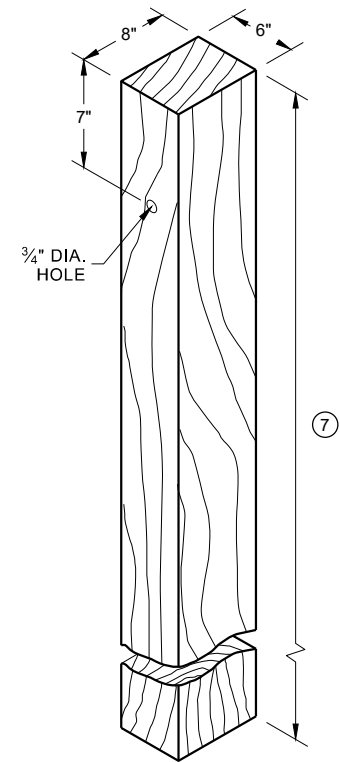
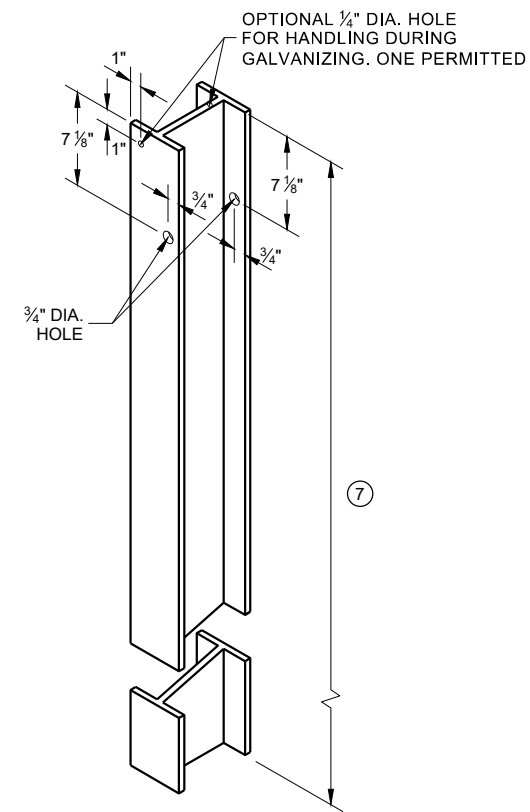
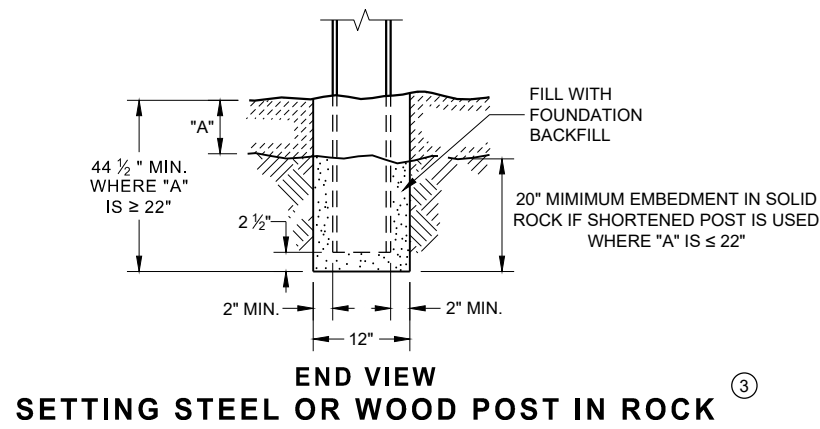
**CONCRETE PAVEMENT  
APPROACH SLAB**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
November 2018 /S/ Peter Kemp, P.E.  
DATE DATE PAVEMENT SUPERVISOR

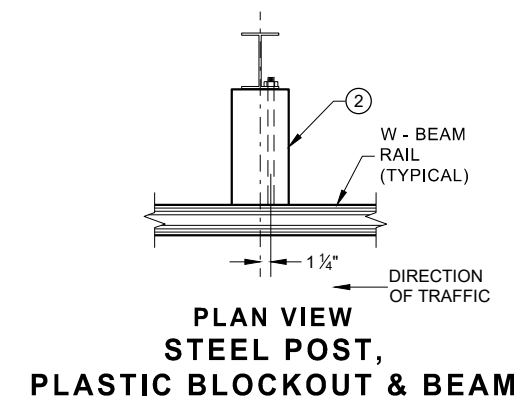
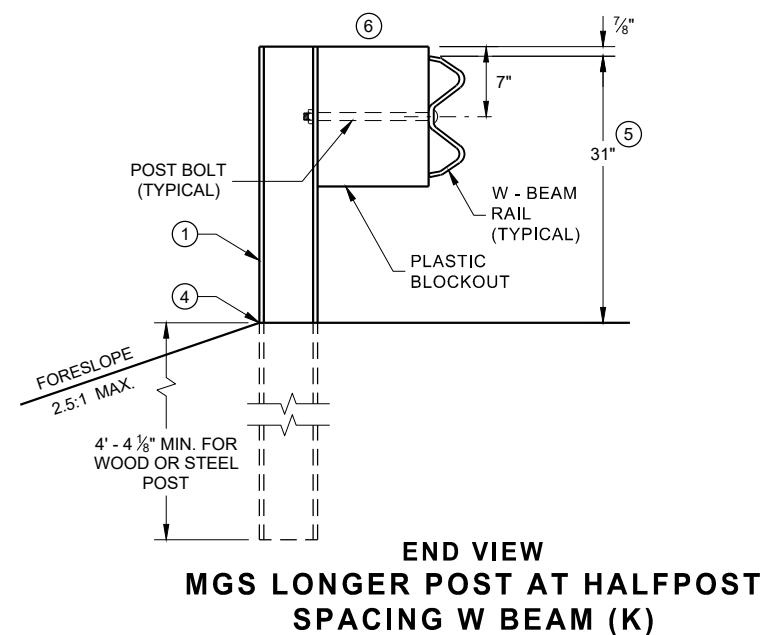
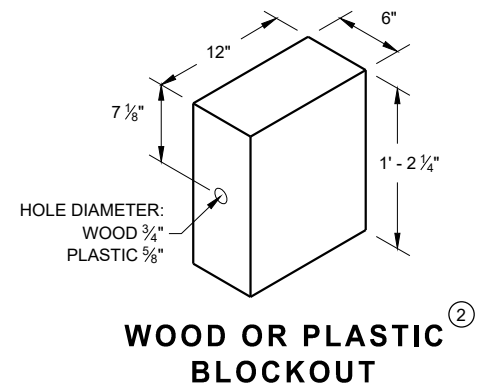
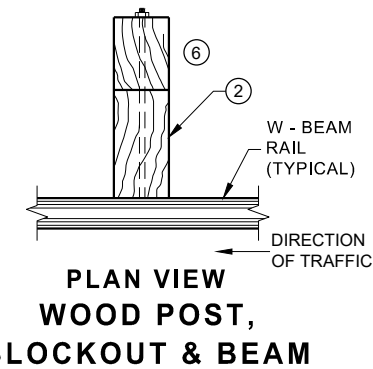
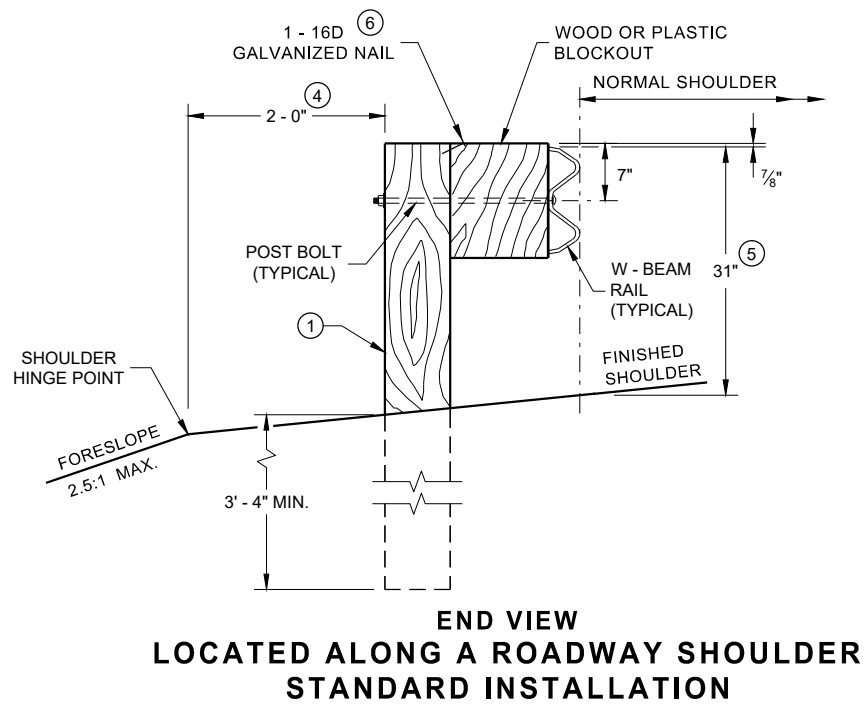
FHWA

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



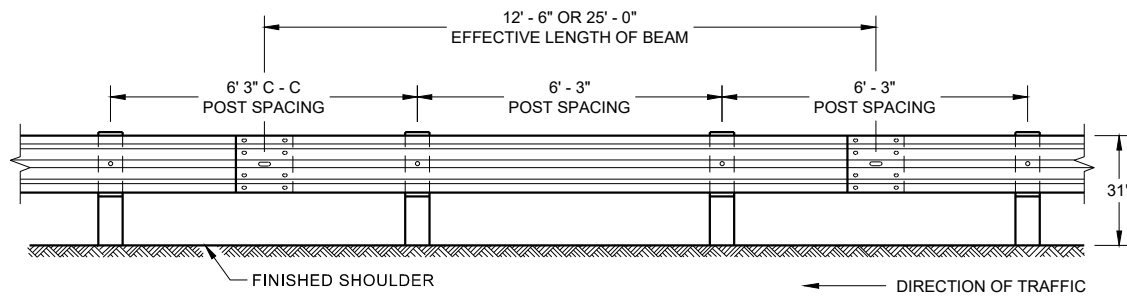
**STEEL POST & HOLE PUNCHING DETAIL  
(W 6 X 9)** ①

**WOOD POST  
(6" X 8") NOMINAL** ①

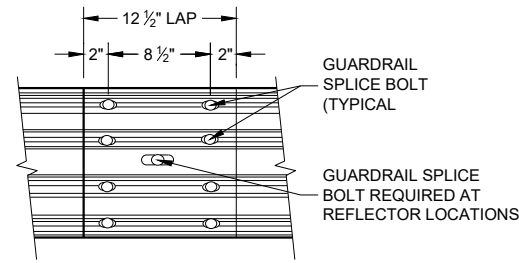


**MIDWEST GUARDRAIL SYSTEM  
(MGS) GUARDRAIL**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



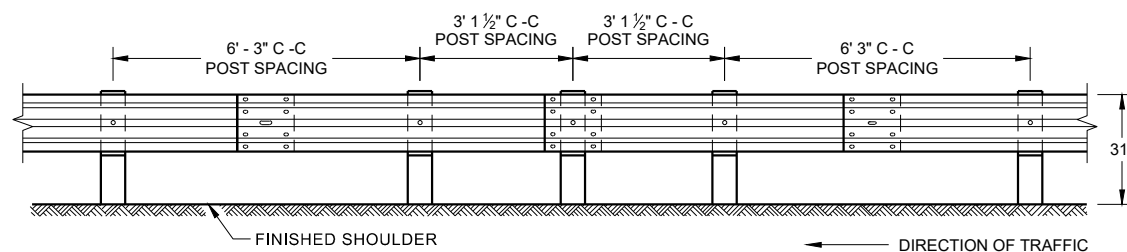
**FRONT VIEW  
POST SPACING STANDARD INSTALLATION**



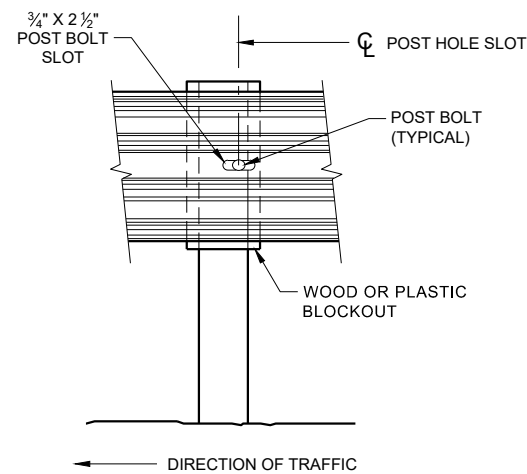
**FRONT VIEW  
MID-SPAN BEAM SPLICE**

**GENERAL NOTES**

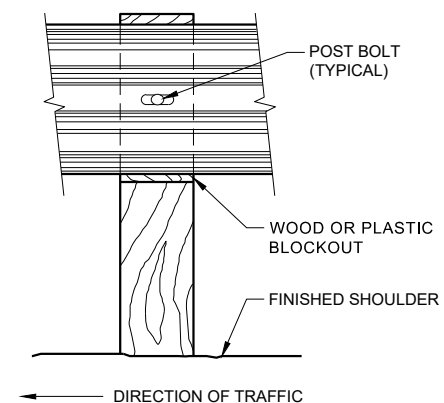
- ⑧ DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINAL.
  - ⑨ 25 FEET OF HALF POST SPACING IS REQUIRED ON APPROACH AND DEPARTURE ENDS OF QUARTER POST SPACING.
- POST BOLTS ARE A 5/8" DIAMETER ASTM A307 GUARDRAIL BOLT. A POST BOLT REQUIRES 3/4" DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX NUT AND 5/8" DIAMETER F844 FLAT WASHER. POST BOLTS MAY BE LONGER IF MULTIPLE BLOCKOUTS ARE BEING USED.
- GUARD RAIL SPLICE BOLTS ARE A 5/8" DIAMETER ASTM A307 GUARDRAIL HEAD BOLT. A GUARDRAIL SPLICE BOLT REQUIRES 3/4" DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX NUT.



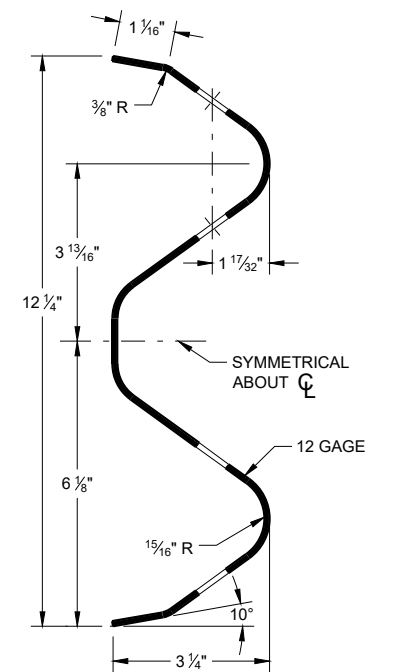
**FRONT VIEW  
HALF POST SPACING (HS) AND  
HALF POST SPACING WITH LONGER POSTS (K)**



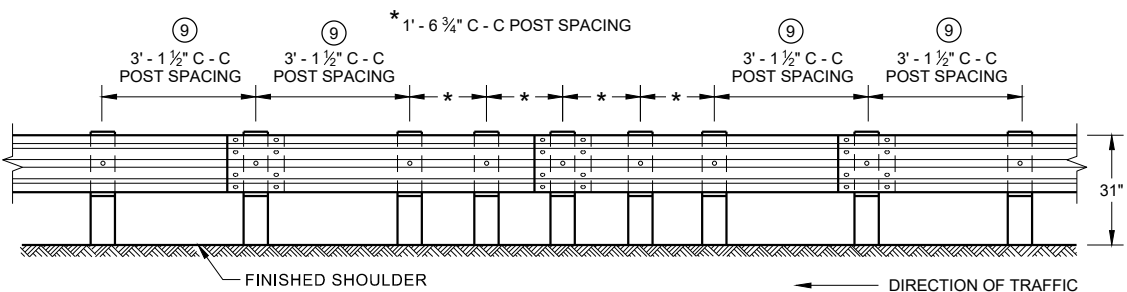
**FRONT VIEW AT STEEL POST**



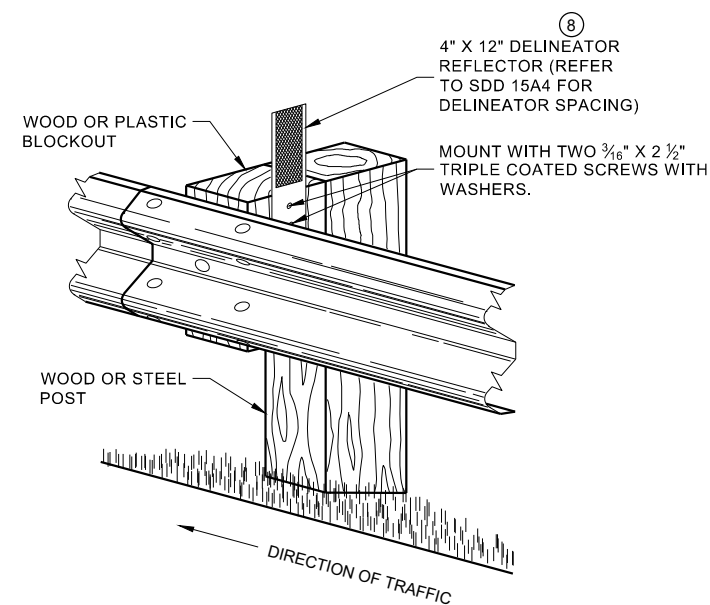
**FRONT VIEW AT WOOD POST**



**SECTION THRU W-BEAM RAIL**



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



**ONE SIDED REFLECTOR DETAIL  
AND TYPICAL INSTALLATION**

**MIDWEST GUARDRAIL SYSTEM  
(MGS) GUARDRAIL**

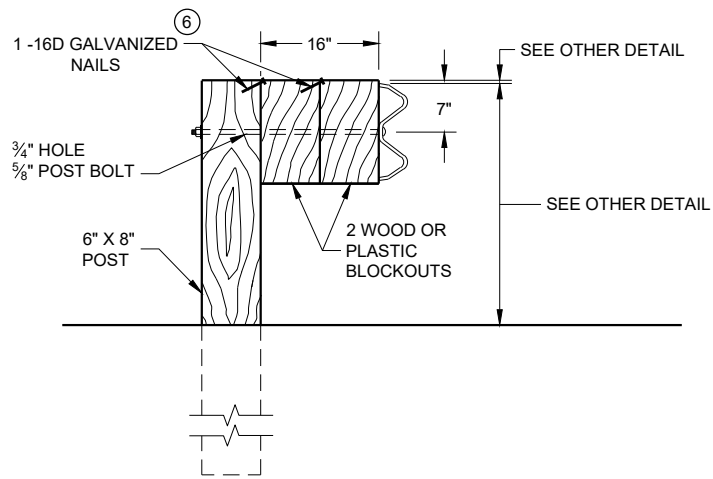
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

6

6

SDD 14B42 - 07b

SDD 14B42 - 07b

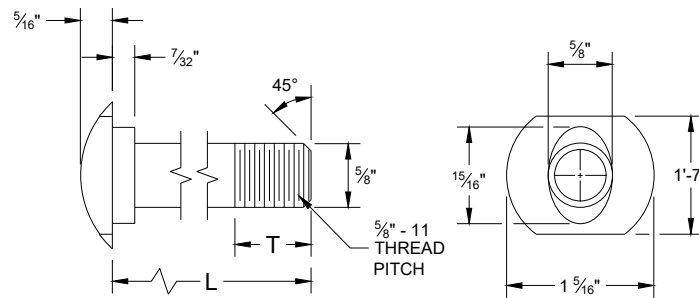


**DETAIL FOR 16" BLOCKOUT DEPTH**

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

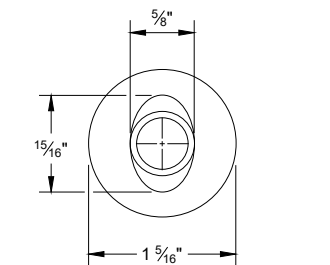
**NOTE:**

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

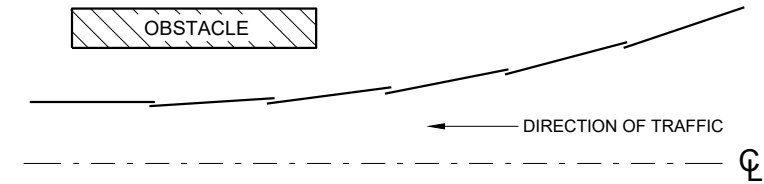


**POST BOLT TABLE**

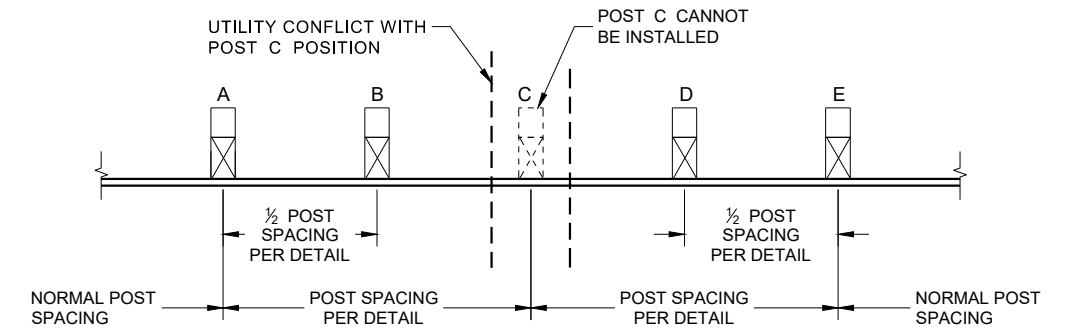
L	T (MIN.)
1 1/4"	1 1/8"
2"	1 3/4"
10"	4"
14"	4 1/16"
18"	4"
21"	4 1/16"
25"	4"



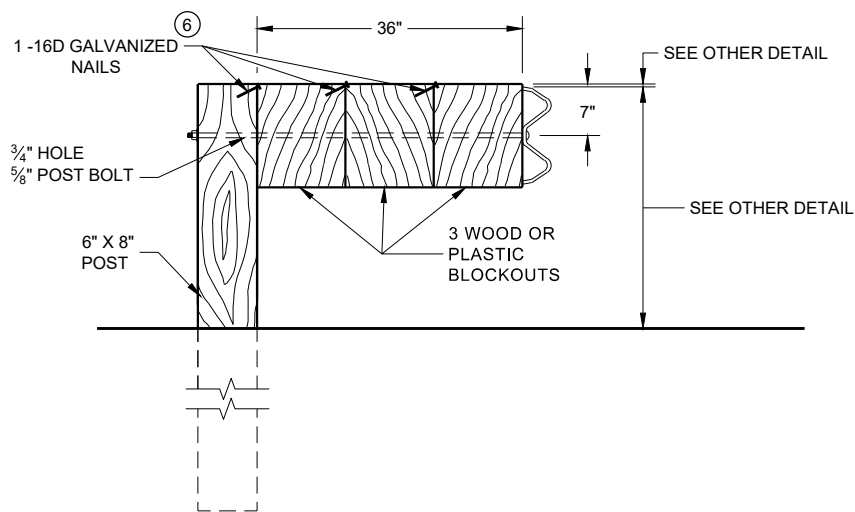
**ALTERNATE BOLT HEAD**



**PLAN VIEW  
BEAM LAPPING DETAIL**

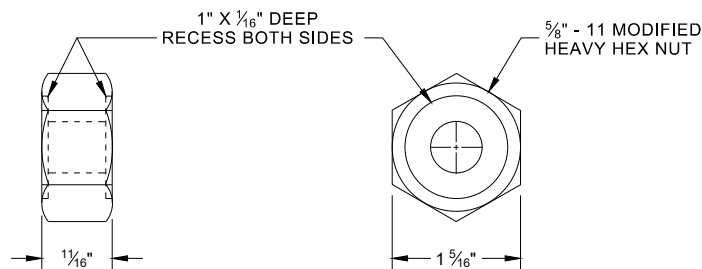


**POST DRIVING FOR CONTINUOUS  
UNDERGROUND OBSTRUCTION**

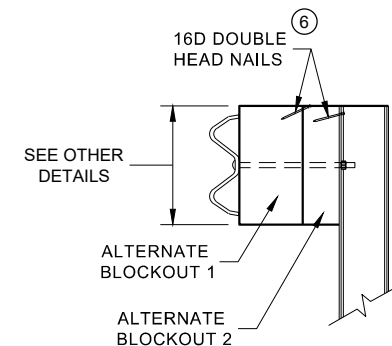


**DETAIL FOR 36" BLOCKOUT DEPTH**

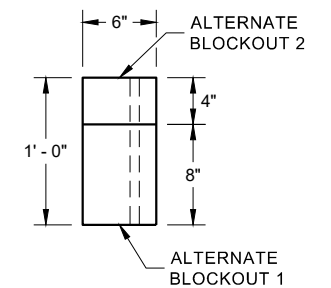
NOTES: UNDER SPECIAL CIRCUMSTANCES, SUCH AS AVOIDING OBSTACLES THAT ARE NOT RELOCATED, IT IS ACCEPTABLE TO INSTALL ADDITIONAL BLOCKOUTS TO OBTAIN UP TO 36" DEPTH FOR ONE OR TWO POSTS IN A SECTION OF GUARDRAIL.  
DO NOT USE 16" OR 36" BLOCKOUTS IF IT CAUSES THE POST TO BE DRIVEN BEYOND SHOULDER HINGE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



**POST BOLT, SPLICE BOLT  
AND RECESS NUT**



**SIDE VIEW**



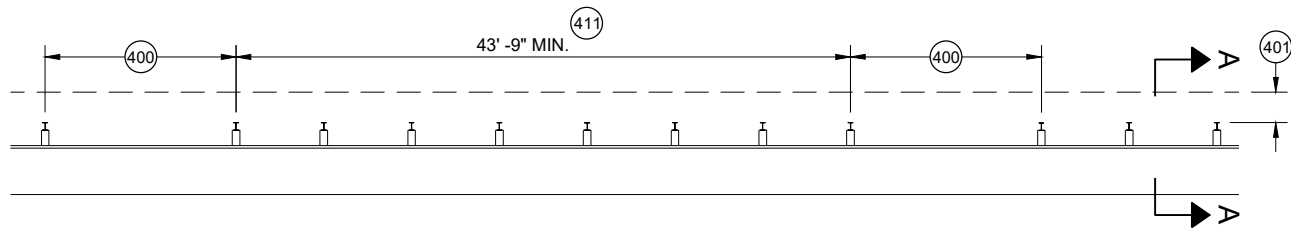
**PLAN VIEW**

**ALTERNATE WOOD  
BLOCKOUT DETAIL**

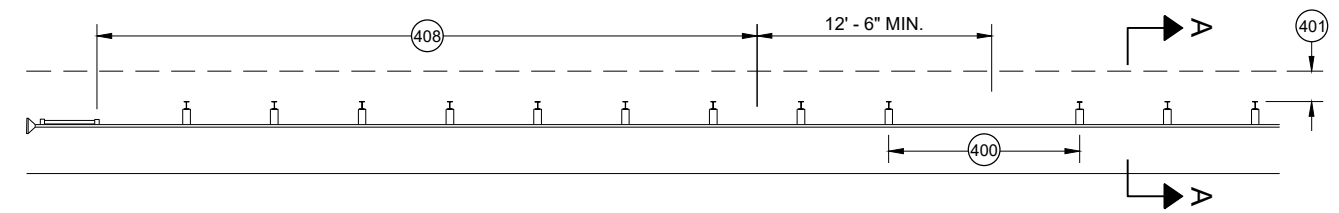
6 WHEN USING STEEL POST AND WOOD BLOCKOUTS, INSTALL FOUR 16D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.

**MIDWEST GUARDRAIL SYSTEM  
(MGS) GUARDRAIL**

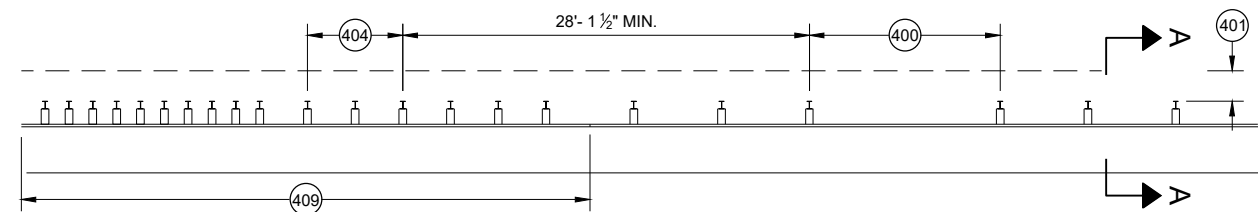
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



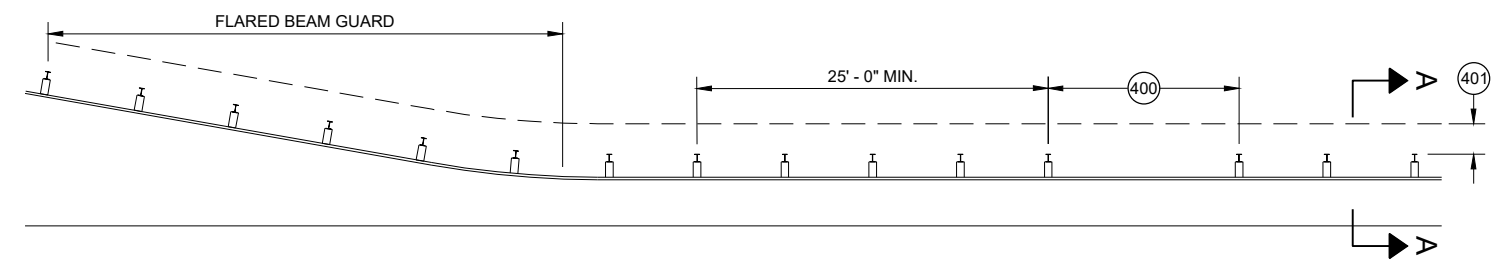
**MISSING POST IN MGS GUARDRAIL**



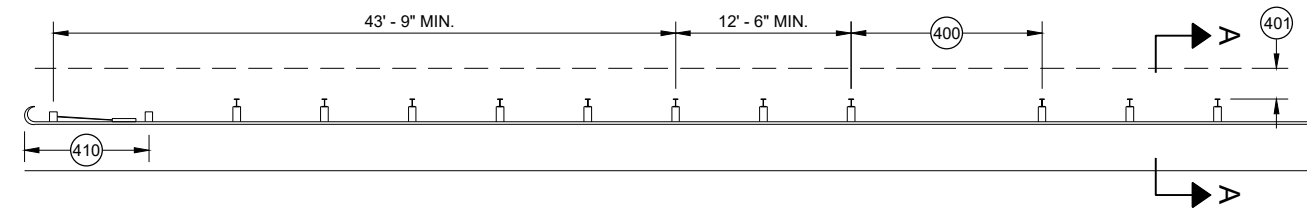
**MISSING POST IN MGS GUARDRAIL NEAR EAT**



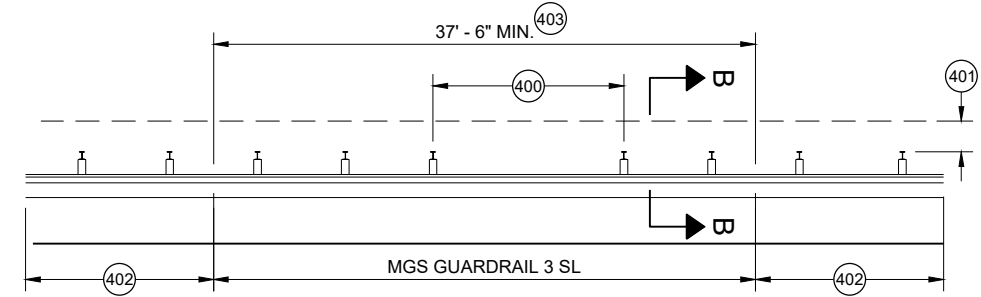
**MISSING POST IN MGS GUARDRAIL NEAR AN APPROACH TRANSITION**



**MISSING POST IN MGS GUARDRAIL NEAR FLARED BEAM GUARD**

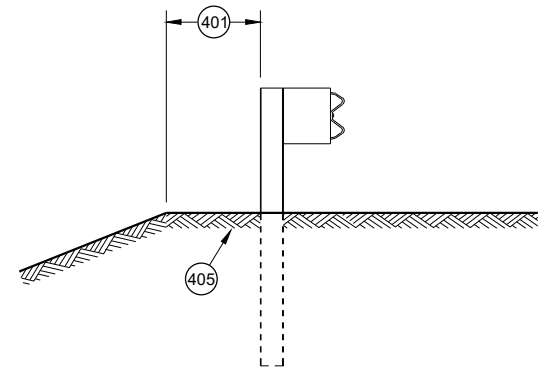


**MISSING POST IN MGS GUARDRAIL NEAR A TYPE 2 END TERMINAL**

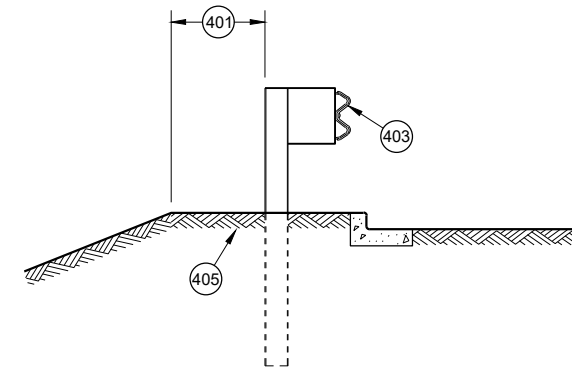


**MISSING POST IN SHORT SPAN MGS GUARDRAIL NEAR CURB (SL)**

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



**SECTION A - A**



**SECTION B - B**

<b>MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL</b>	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED May 2021 DATE	/s/ Rodney Taylor ROADWAY STANDARDS DEVELOPMENT UNIT SUPERVISOR
<small>FHWA</small>	



**GENERAL NOTES**

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

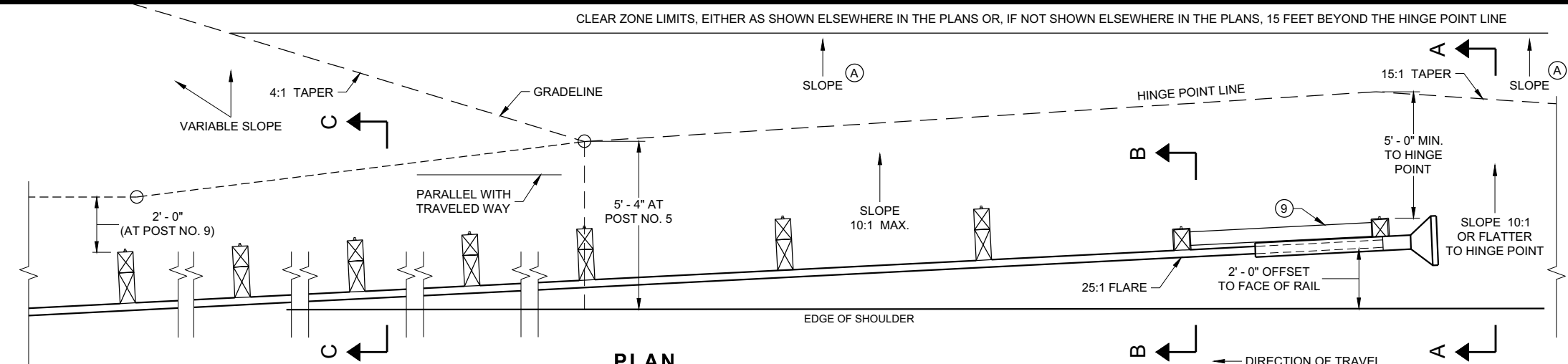
SEE SDD 14B42 FOR MORE INFORMATION.

\* DO NOT ATTACH BLOCKOUTS TO POST 1 AND 2.

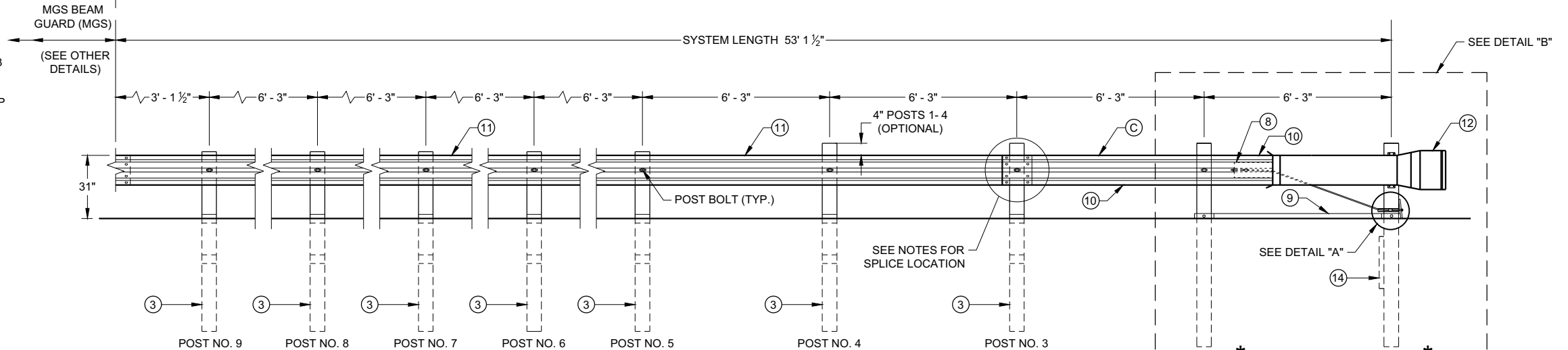
DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINAL.

SEE MANUFACTURER'S DRAWING FOR SPLICE LOCATION, HARDWARE DIMENSIONS AND INSTALLATION INSTRUCTIONS.

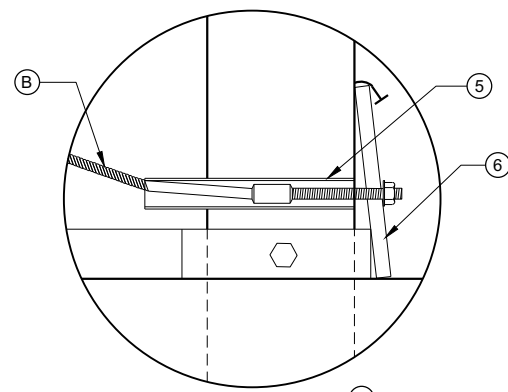
THE CENTER OF THE UPPER 3 1/2" DIAMETER HOLE ON POST NUMBER 3 THROUGH POST 9 IS TO BE FLUSH WITH THE GROUND LINE UP TO A MAXIMUM OF 2" ABOVE GROUND LINE. WOOD BLOCKS ON POSTS NUMBERED 3 THROUGH 9 MAY BE ADJUSTED UP TO 3" ABOVE THE TOP OF POST.



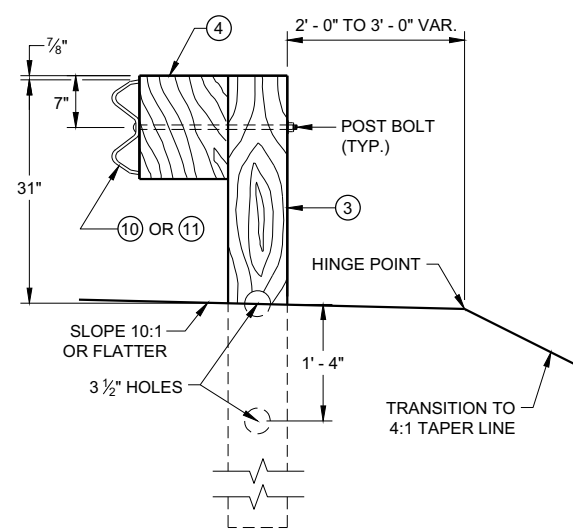
**PLAN**



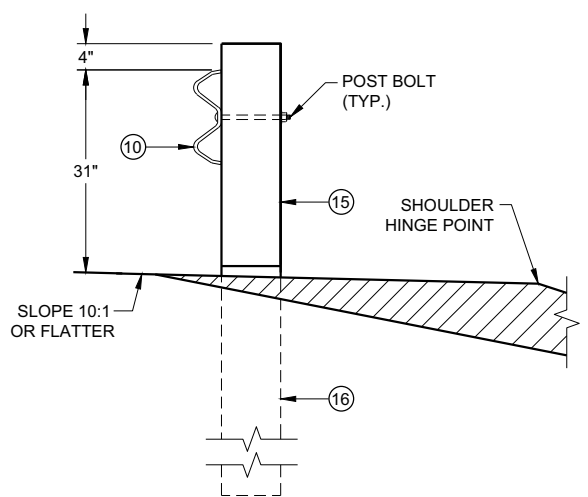
**ELEVATION**



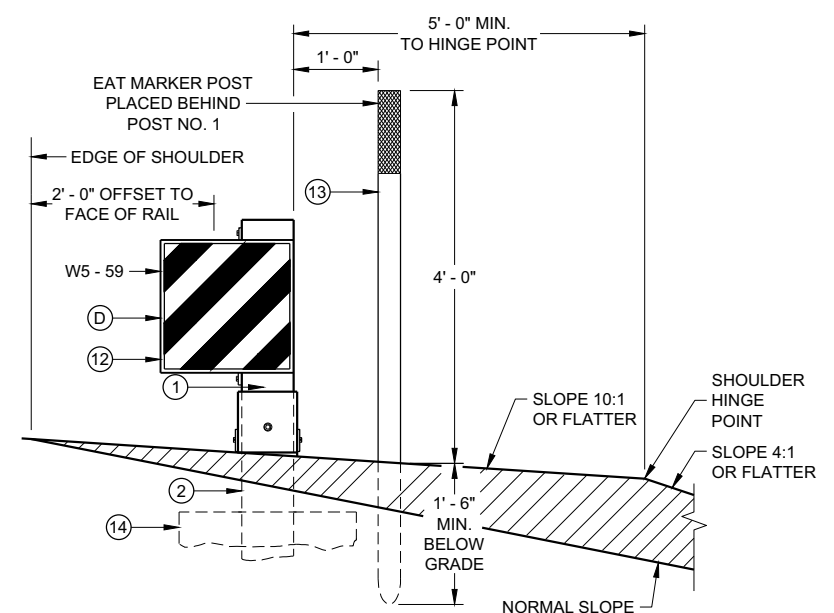
**DETAIL "A"**



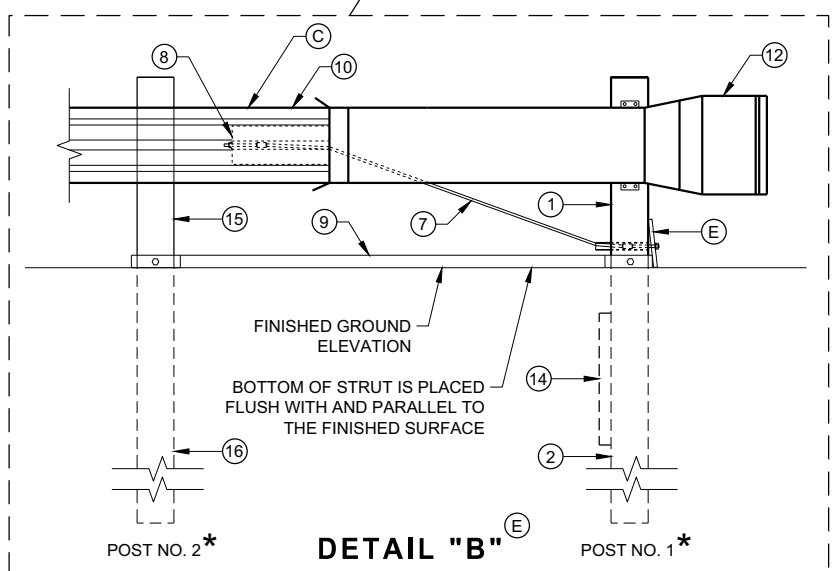
**SECTION C - C  
TYPICAL AT POST NOS. 3 - 9**



**SECTION B - B  
TYPICAL AT POST NO. 2\***



**SECTION A - A  
TYPICAL AT POST NO. 1\***



**DETAIL "B"**

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

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

6

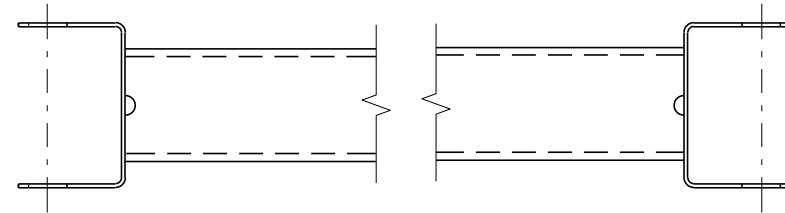
6

SDD 14B44 - 04a

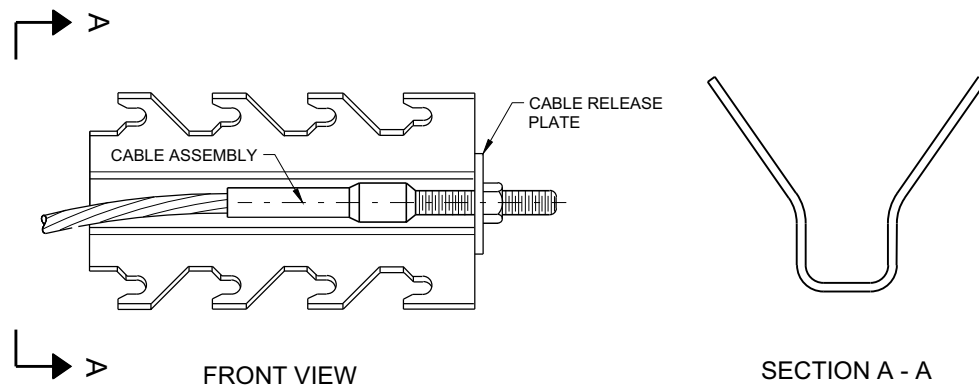
SDD 14B44 - 04a

**BILL OF MATERIALS**

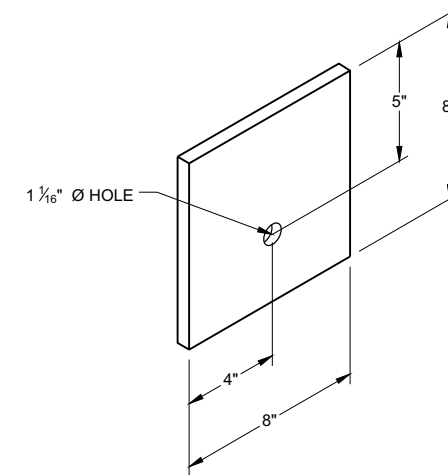
PART NO.	DESCRIPTION MATERIALS PROVIDED BY MGS EAT MANUFACTURER. SEE MANUFACTURER'S DETAILS FOR MORE INFORMATION.
①	UPPER POST NO. 1 6" X 6" TUBE
②	LOWER POST NO. 1
③	WOOD CRT
④	WOOD BLOCKOUT
⑤	PIPE SLEEVE
⑥	BEARING PLATE
⑦	BCT CABLE ASSEMBLY
⑧	ANCHOR CABLE BOX
⑨	GROUND STRUT
⑩	PERFORATED W-BEAM RAIL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



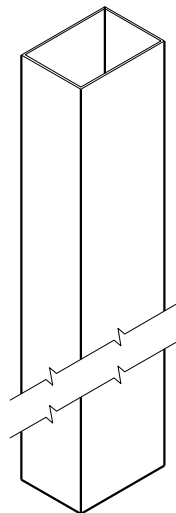
**GENERIC GROUND STRUT** ⑨ ⑤



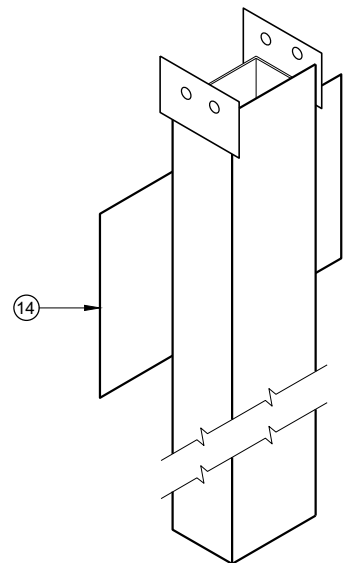
**GENERIC ANCHOR CABLE BOX** ⑨ ⑤



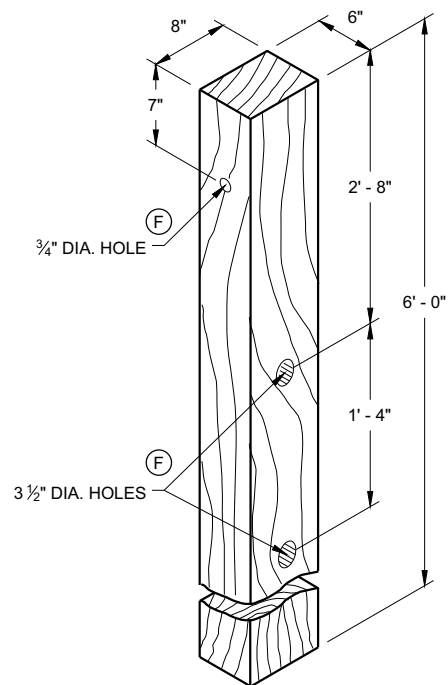
**BEARING PLATE** ⑥ ⑤



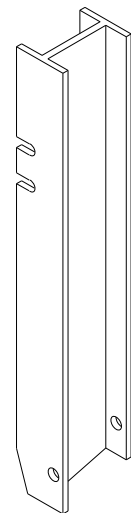
UPPER POST NO. 1 <sup>(1)</sup> (E)



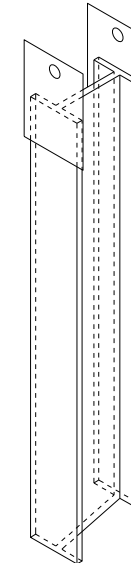
LOWER POST NO. 1 <sup>(2)</sup> (E)



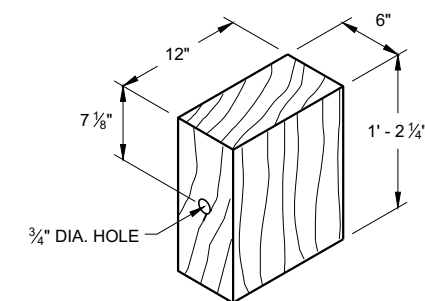
WOOD CRT POST <sup>(3)</sup> (E)  
POSTS NUMBER 3-9



UPPER POST NO. 2 <sup>(15)</sup> (E)

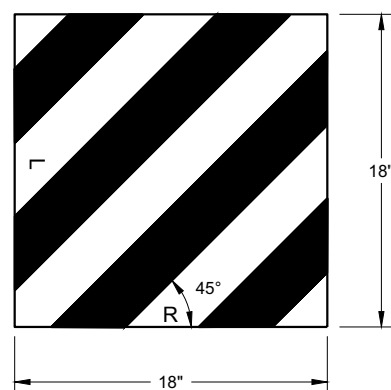


LOWER POST NO. 2 <sup>(16)</sup> (E)



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

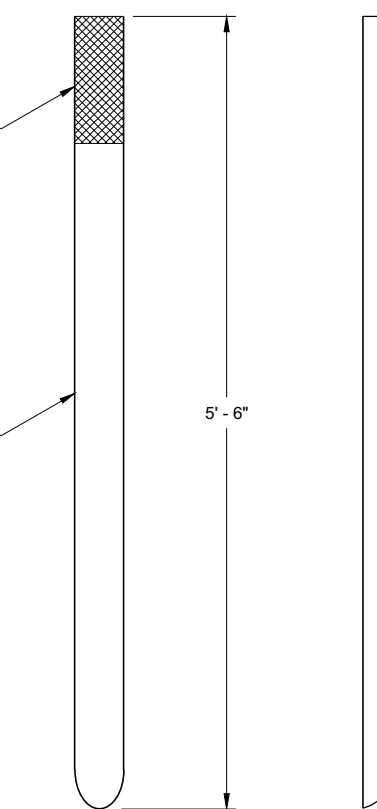
6



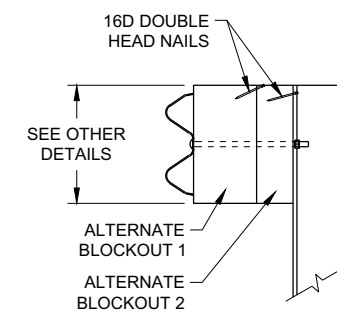
REFLECTIVE SHEETING DETAIL <sup>(E)</sup>

TYPE H  
YELLOW REFLECTIVE  
SHEETING 3" X 9".  
SEE STANDARD  
SPECIFICATION 637.

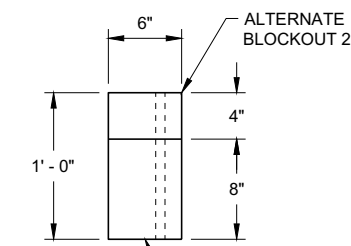
E.A.T. MARKER  
POST (YELLOW)



FRONT VIEW SIDE VIEW  
E.A.T. MARKER POST <sup>(13)</sup>



SIDE VIEW



TOP VIEW

ALTERNATE WOOD  
BLOCKOUT DETAIL

6

SDD 14B44 - 04c

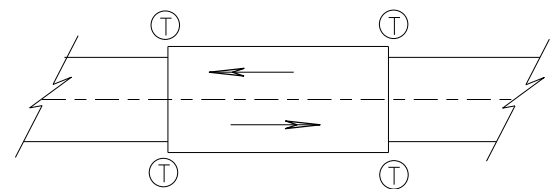
SDD 14B44 - 04c

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

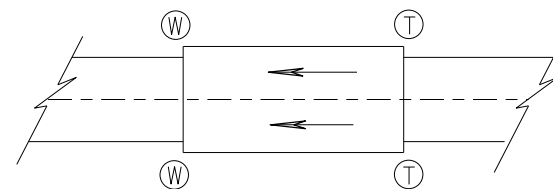
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

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

FHWA



**TWO WAY TRAFFIC**



**ONE WAY TRAFFIC**

(T) THRIE BEAM CONNECTION

(W) W-BEAM CONNECTION WHEN REQUIRED

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

**GENERAL NOTES**

IF ROCK IS ENCOUNTERED, REMOVE ROCK TO FULL DEPTH OF POST PLUS 2 1/2", AND 12" DIAMETER AROUND POST. SEE 14B42 FOR MORE DETAILS.

TRANSITION USES STEEL POSTS ONLY.

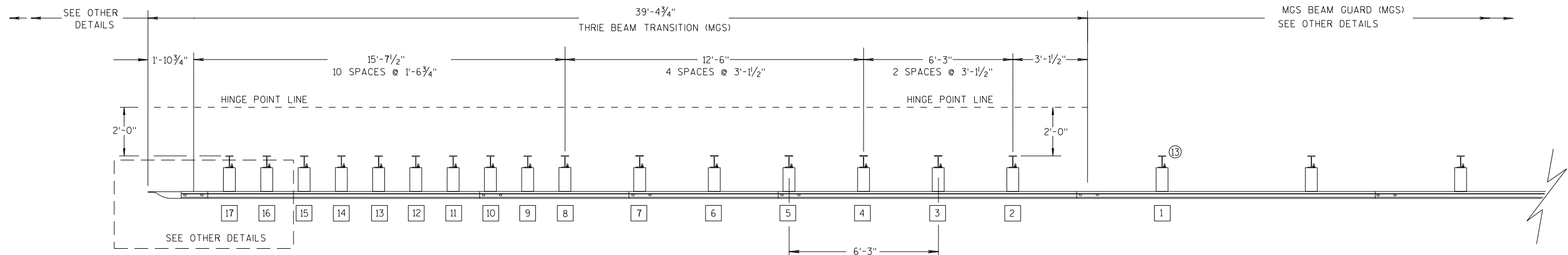
SEE STANDARD DETAIL DRAWING 14 B 42 FOR MORE INFORMATION.

POST 2 THROUGH 17 USES STEEL POST ONLY

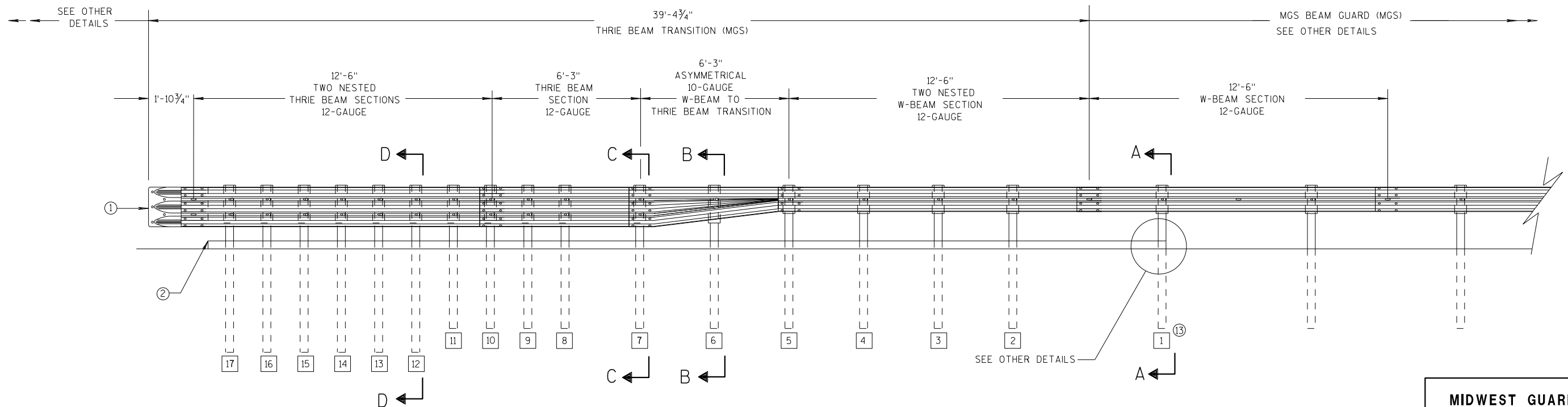
① BRIDGE RAILING TYPE "W" DOES NOT REQUIRE A TERMINAL CONNECTOR.

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

⑬ STEEL OR WOOD POST IS ACCEPTABLE AT POST 1. SEE SDD14B42



**PLAN VIEW**



**ELEVATION VIEW**

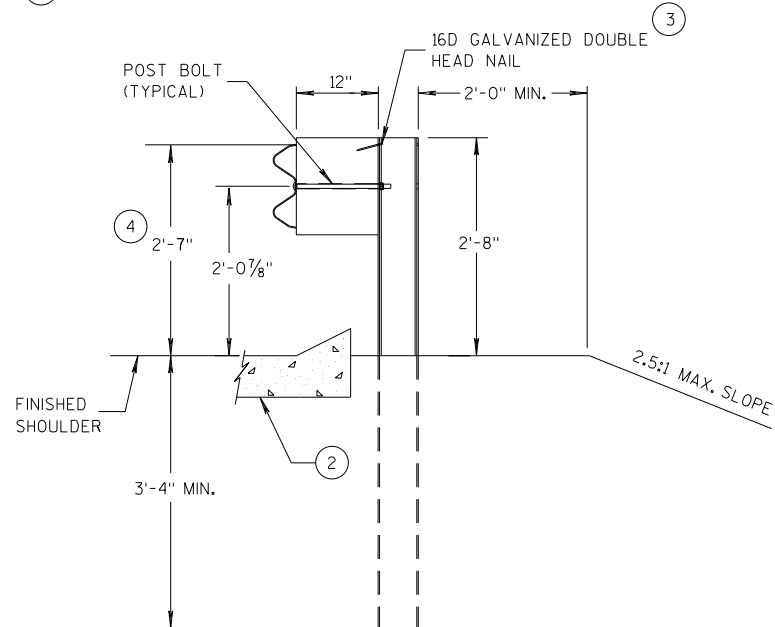
**MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION**

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

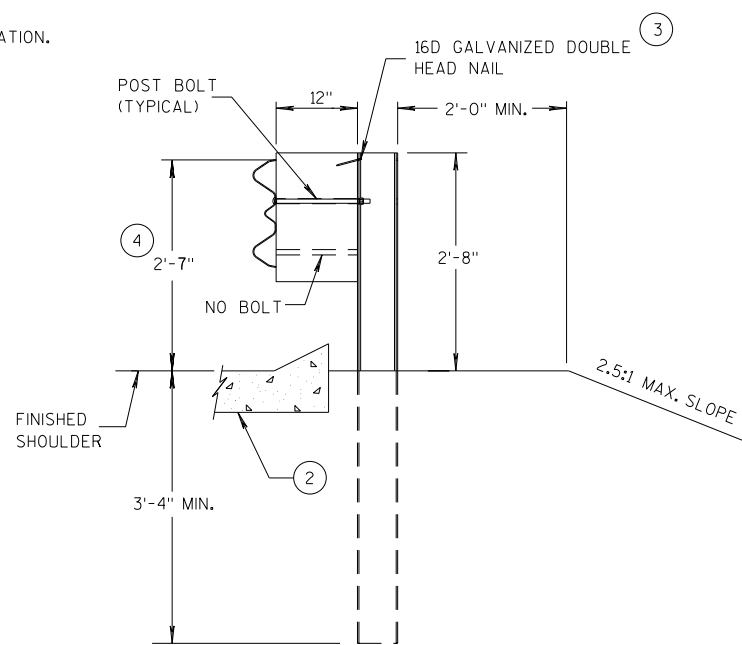
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

**GENERAL NOTES**

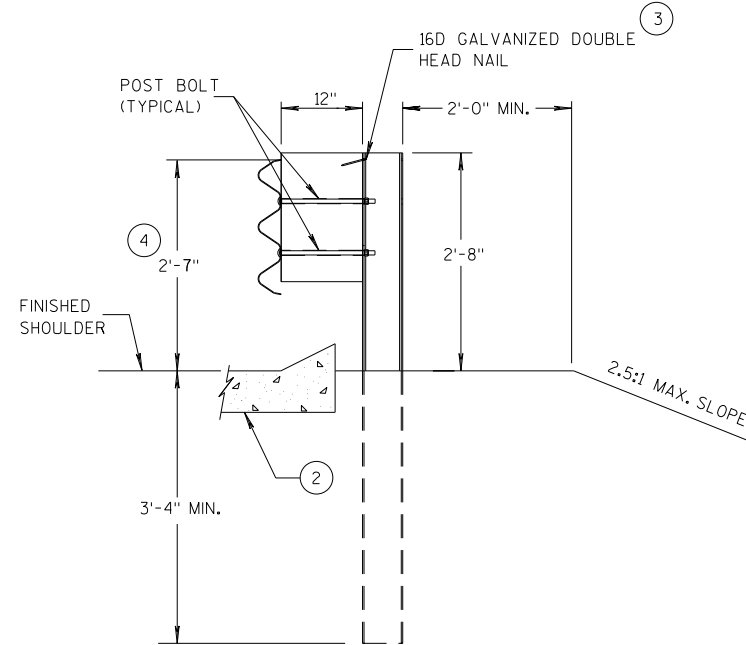
- ② OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.
- ③ WHEN USING STEEL POSTS AND WOOD BLOCKOUTS INSTALL FOUR 10D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.
- ④ TOLERANCE FOR TOP OF W-BEAM RAIL IS ± 1".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



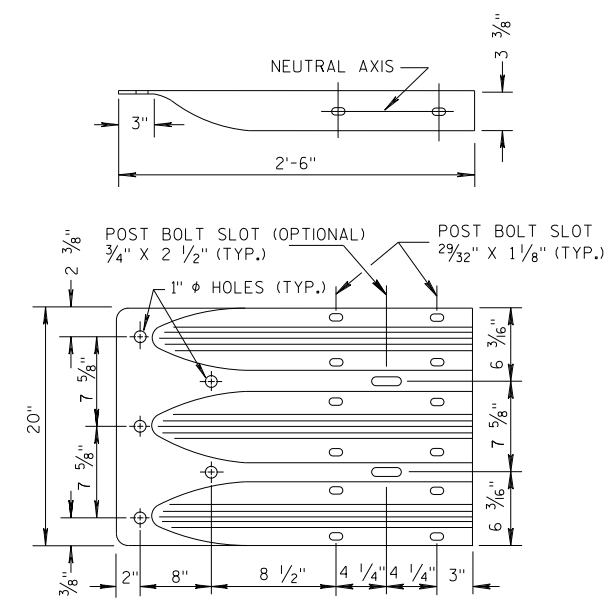
**SECTION A-A  
POSTS 1-5**



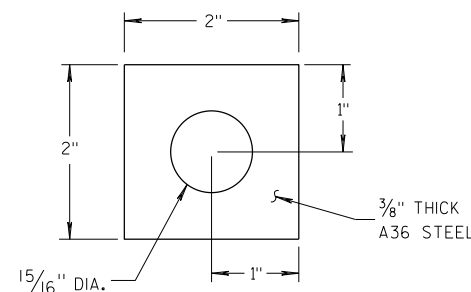
**SECTION B-B  
POST 6**



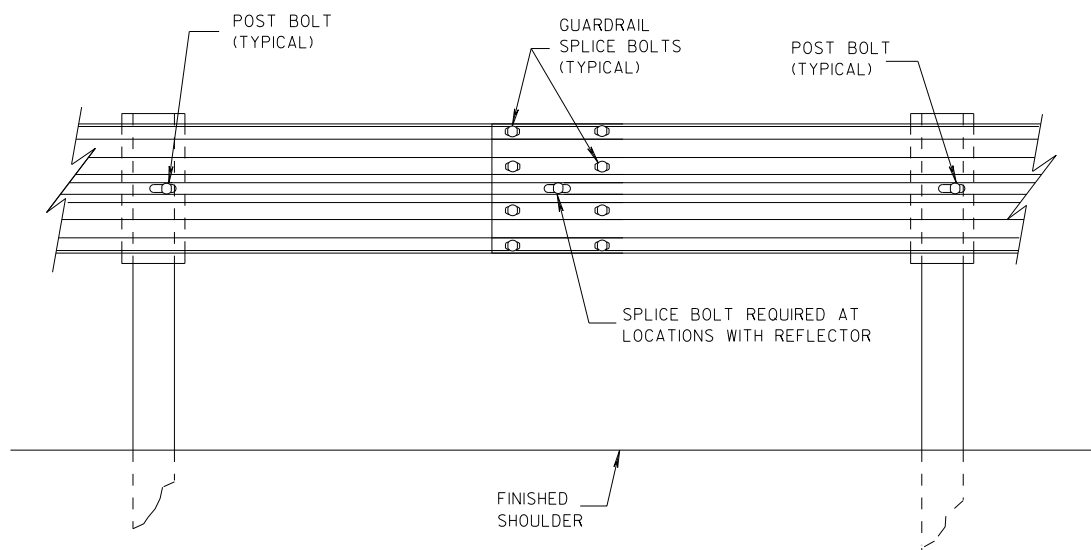
**SECTION C-C  
POSTS 7-11**



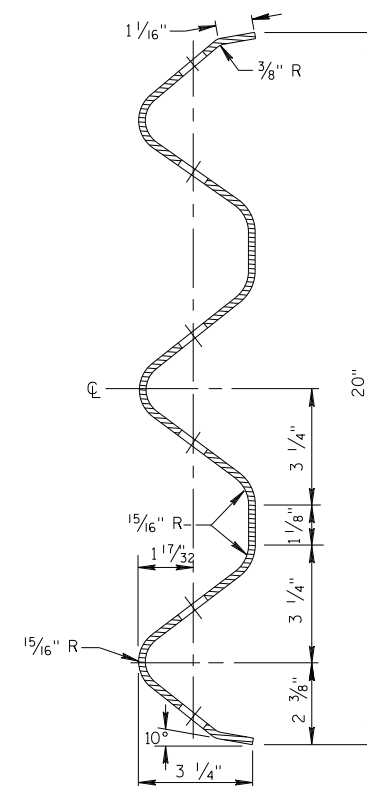
**THRIE BEAM  
TERMINAL CONNECTOR**



**PLATE WASHER DETAIL**



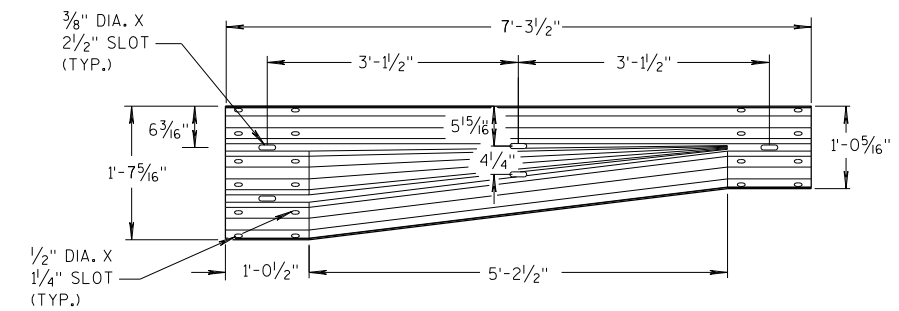
**SPLICE DETAIL**



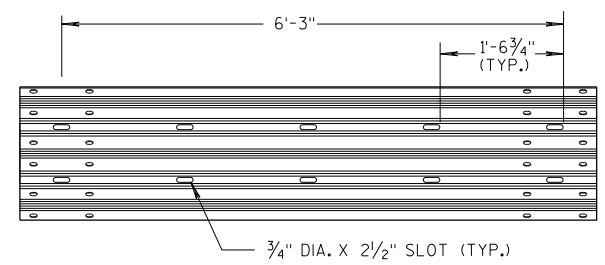
**SECTION THRU THRIE  
BEAM RAIL ELEMENT**

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

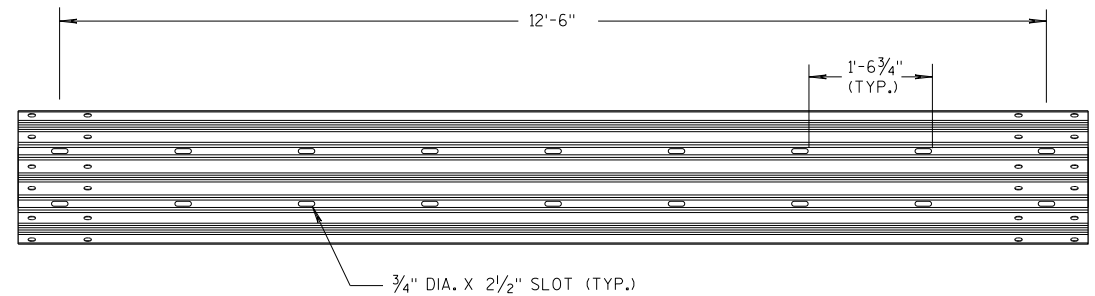
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



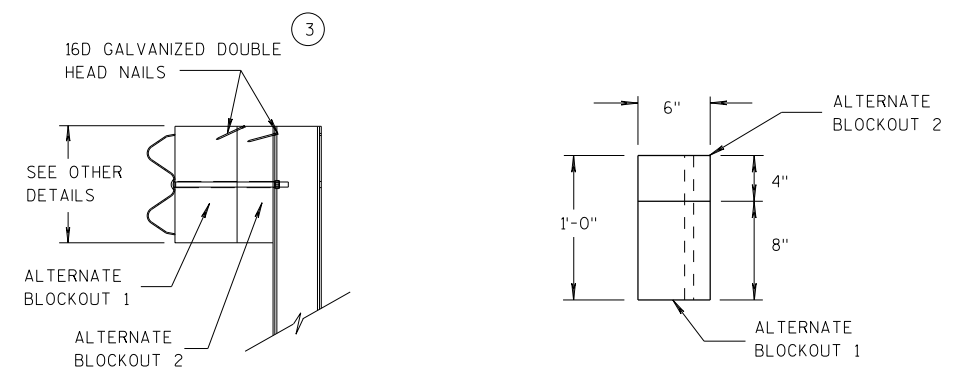
**W-BEAM TO THRIE BEAM TRANSITION SECTION**



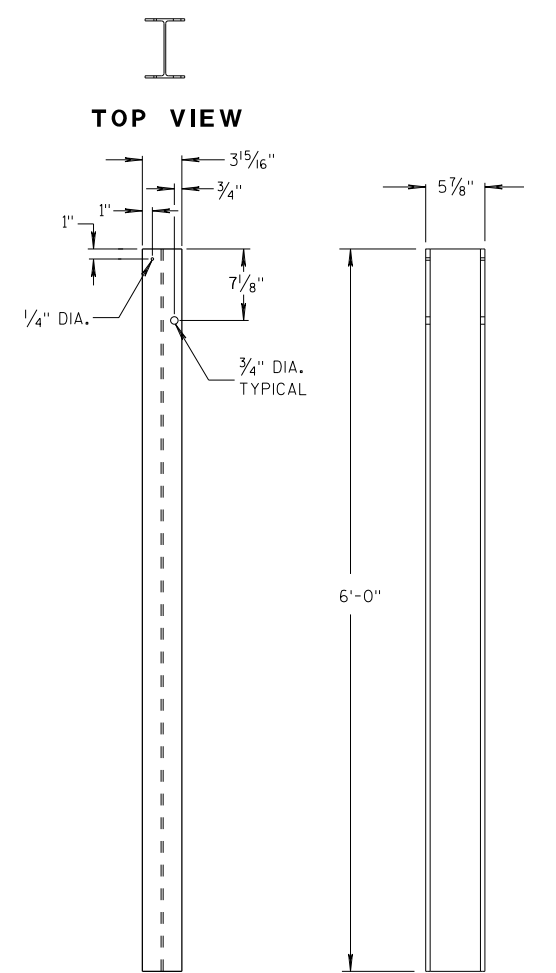
**6'-3\"/>**



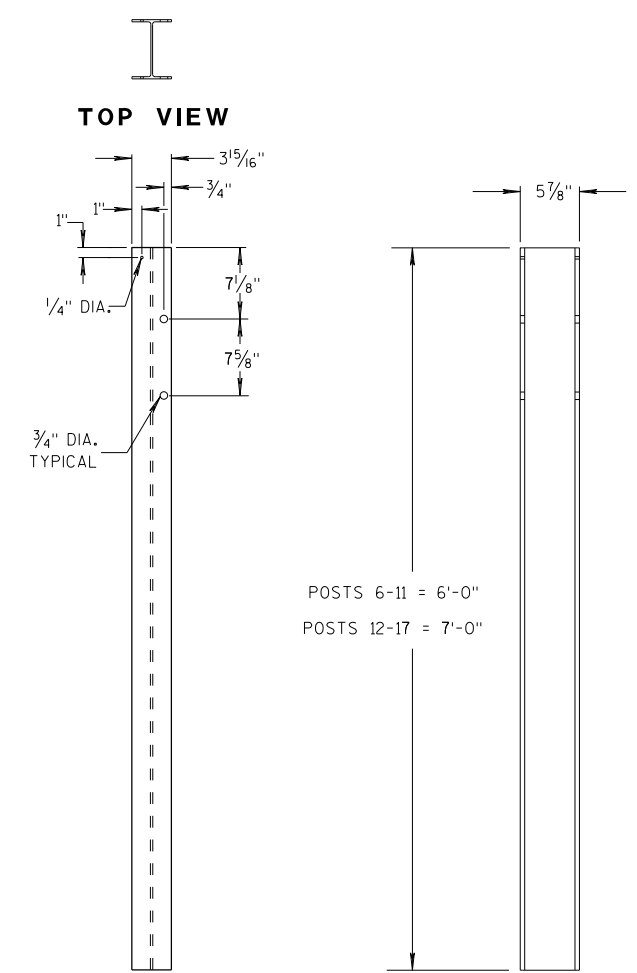
**12'-6\"/>**



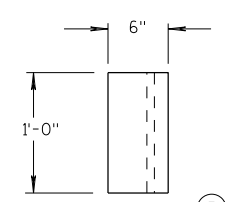
**ALTERNATE WOOD BLOCKOUT DETAIL**



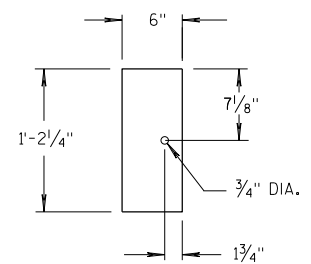
**STEEL POSTS 1-5**



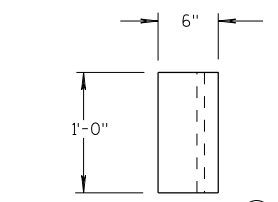
**STEEL POSTS 6-17**



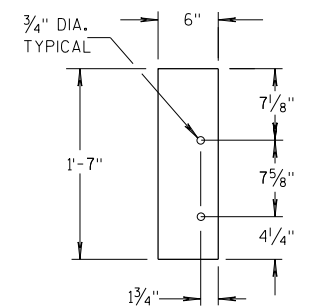
**TOP VIEW**



**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.
- (13) STEEL OR WOOD POST IS ACCEPTABLE AT POST 1. SEE SDD 14B42.

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

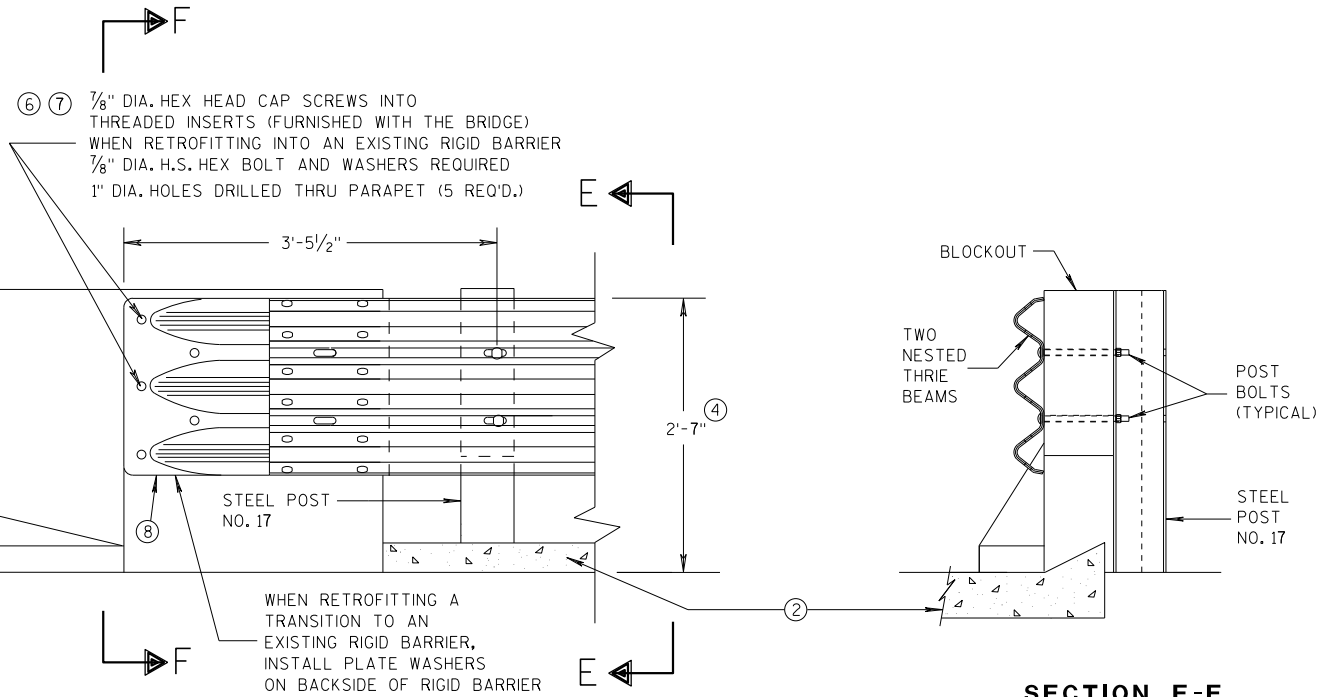
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DEPARTMENT OF TRANSPORTATION

6

6

S.D.D. 14 B 45-5c

S.D.D. 14 B 45-5c



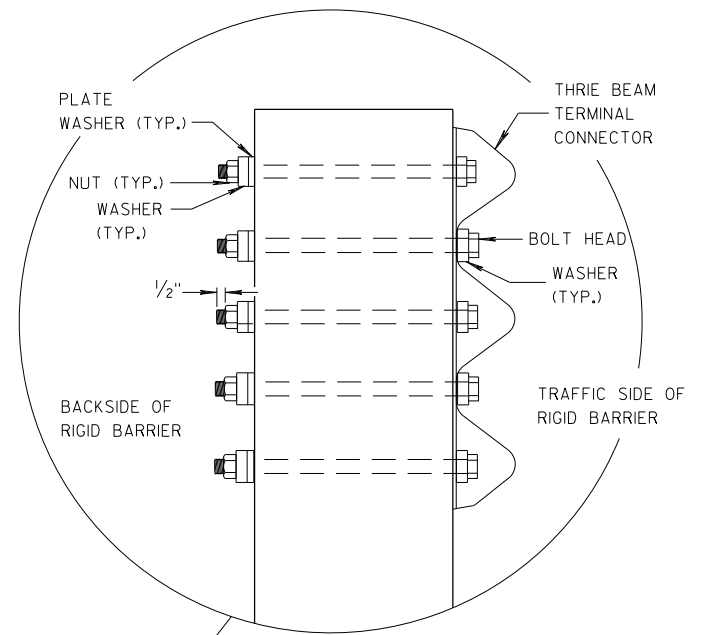
FRONT VIEW

**THRIE BEAM CONNECTION TO BRIDGE PARAPET WITH SQUARE ENDS**

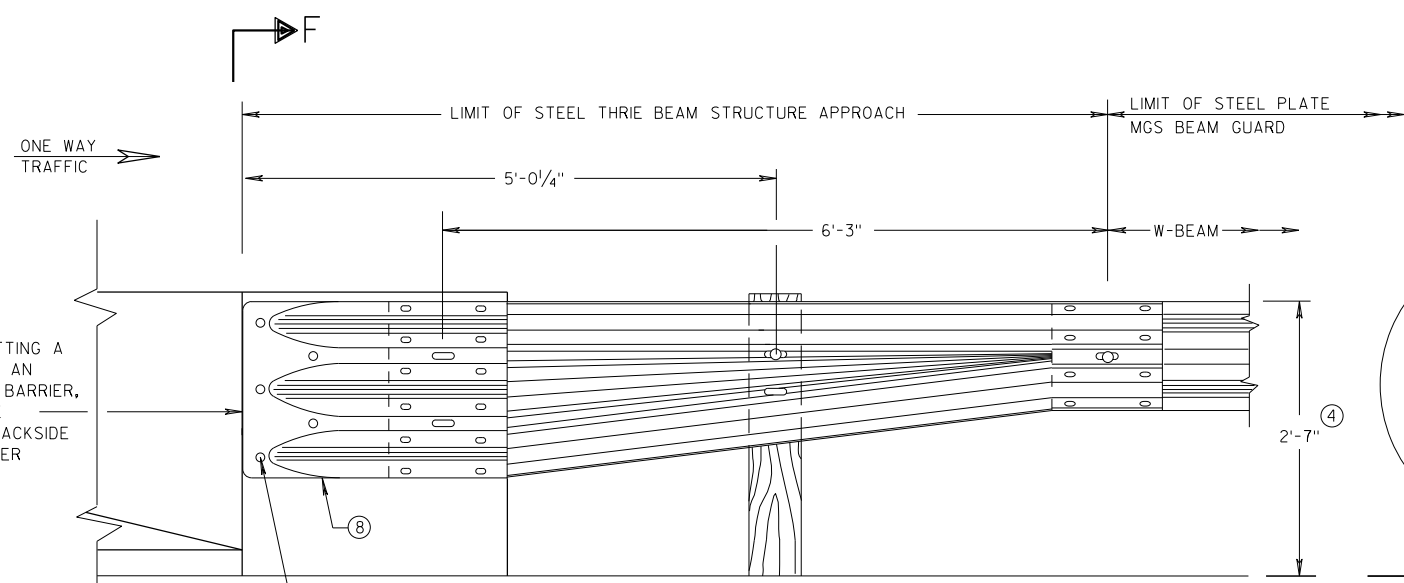
SECTION E-E

**GENERAL NOTES**

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

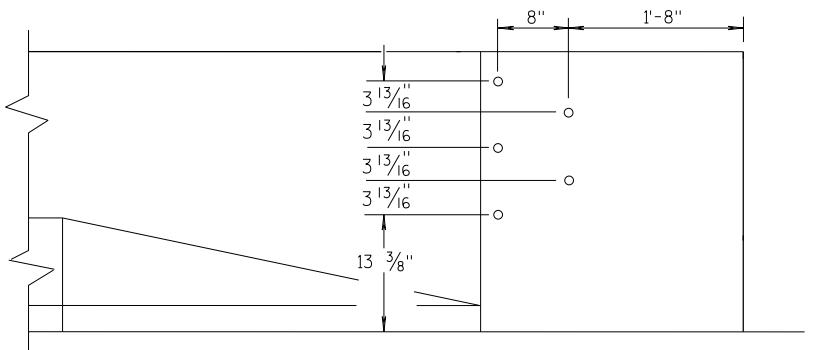


SECTION F-F



FRONT VIEW

**W BEAM TRANSITION AND CONNECTION TO BRIDGE PARAPETS WITH SQUARE ENDS  
(USE ONLY ON THE TRAFFIC EXIT END OF ONE WAY BRIDGES)**



DRILL HOLE LOCATION

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

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

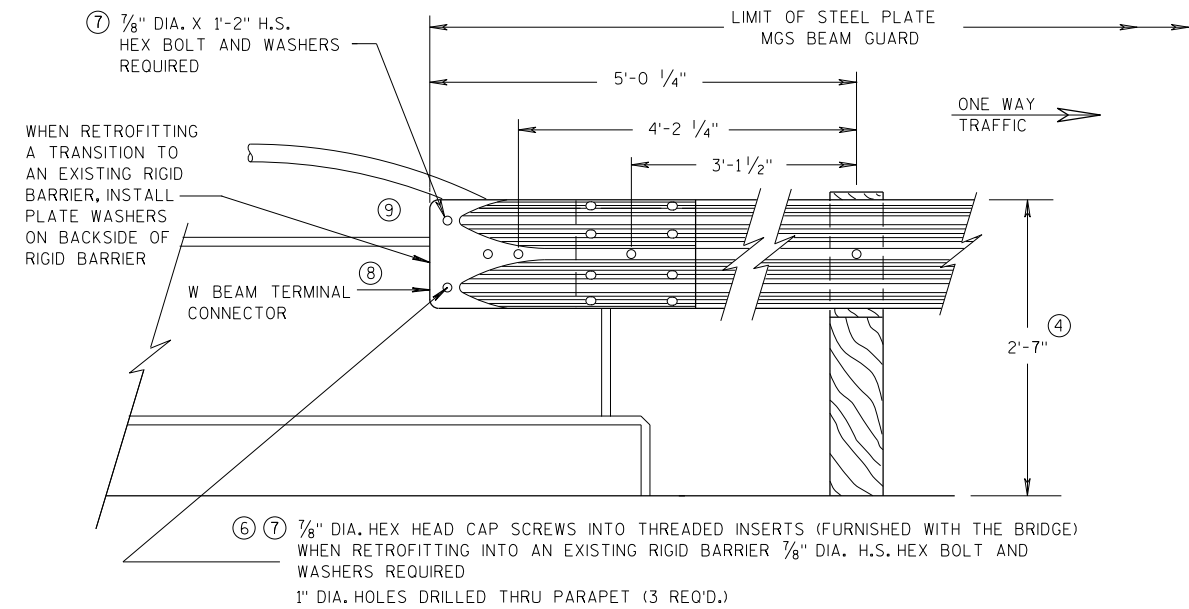
APPROVED  
DATE 07/2018  
FHWA

/S/ Rodney Taylor  
ROADWAY STANDARDS DEVELOPMENT  
UNIT SUPERVISOR

## GENERAL NOTES

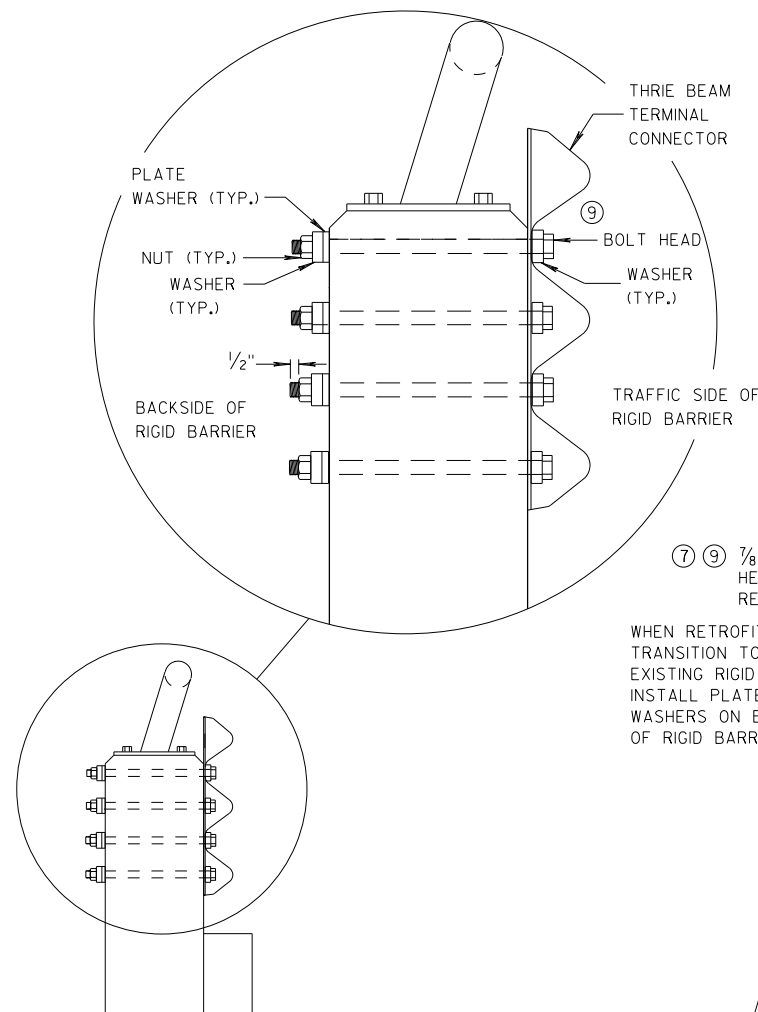
THESE ARE TYPICAL CONNECTION DETAILS. ADJUST THE POSITION OF CONNECTIONS TO EXISTING BRIDGES TO FIT THE ACTUAL BRIDGE AND SITE DIMENSIONS.

- ② OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.
- ④ TOLERANCE FOR TOP OF BEAM IS  $\pm 1"$ .
- ⑥ DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.
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- ⑧ THE RECESS FOR A W-BEAM CONNECTION, WHICH EXISTS ON SOME PARAPETS OF THIS TYPE, SHALL BE FILLED WITH A TREATED TIMBER BLOCKOUT. BLOCKOUT SIZE IS 1'-6" X 2'-0" X 3 1/2".
- ⑨ BOLT, NUT AND WASHERS NOT REQUIRED FOR THIS LOCATION WHEN RETROFITTING AN EXISTING PAPAPET AND THE HOLE IS EITHER ABOVE PARAPET OR WITHIN 4 INCHES OF THE EDGE OF PARAPET.

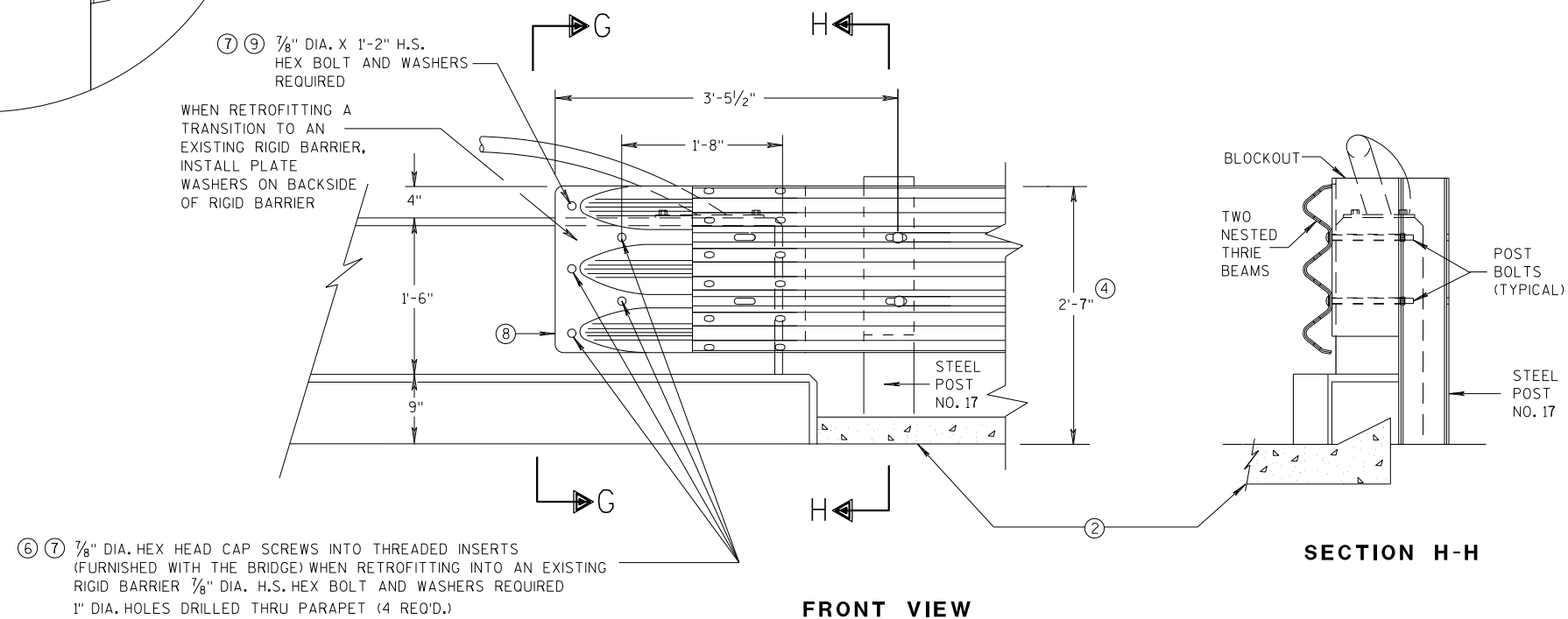


FRONT VIEW

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

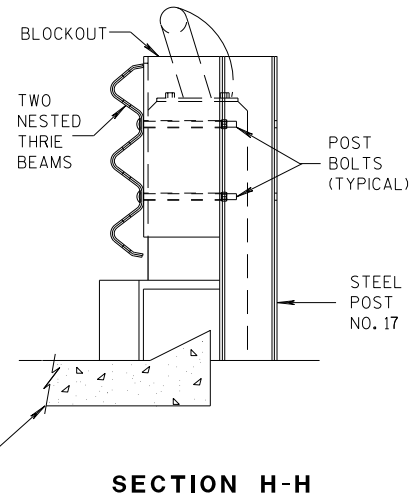


SECTION G-G



FRONT VIEW

### THRIE BEAM CONNECTION TO VERTICAL FACED PARAPETS



SECTION H-H

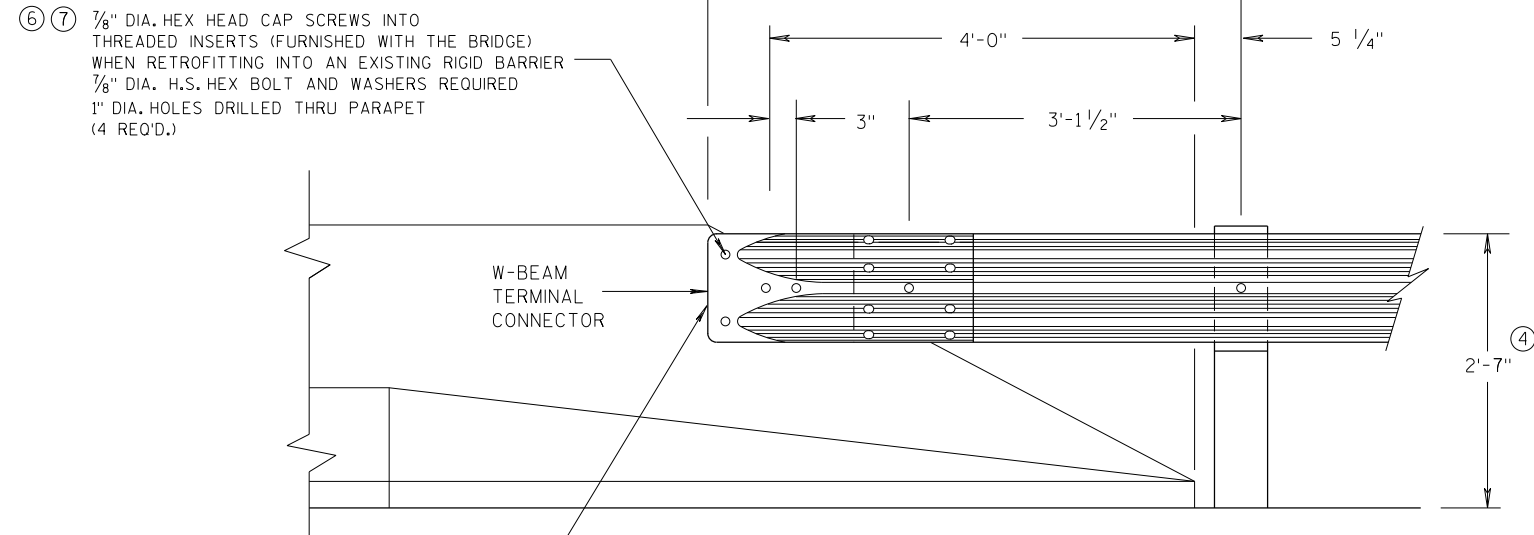
MIDWEST GUARDRAIL SYSTEM  
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

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



ONE WAY  
TRAFFIC



FRONT VIEW

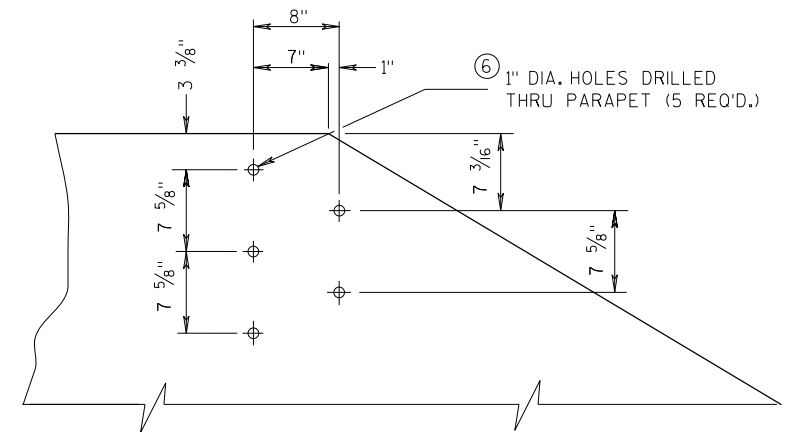
**W BEAM CONNECTION TO  
PARAPETS WITH SLOPED ENDS**

(USE ONLY AT TRAFFIC EXIT END OF ONE WAY BRIDGE)

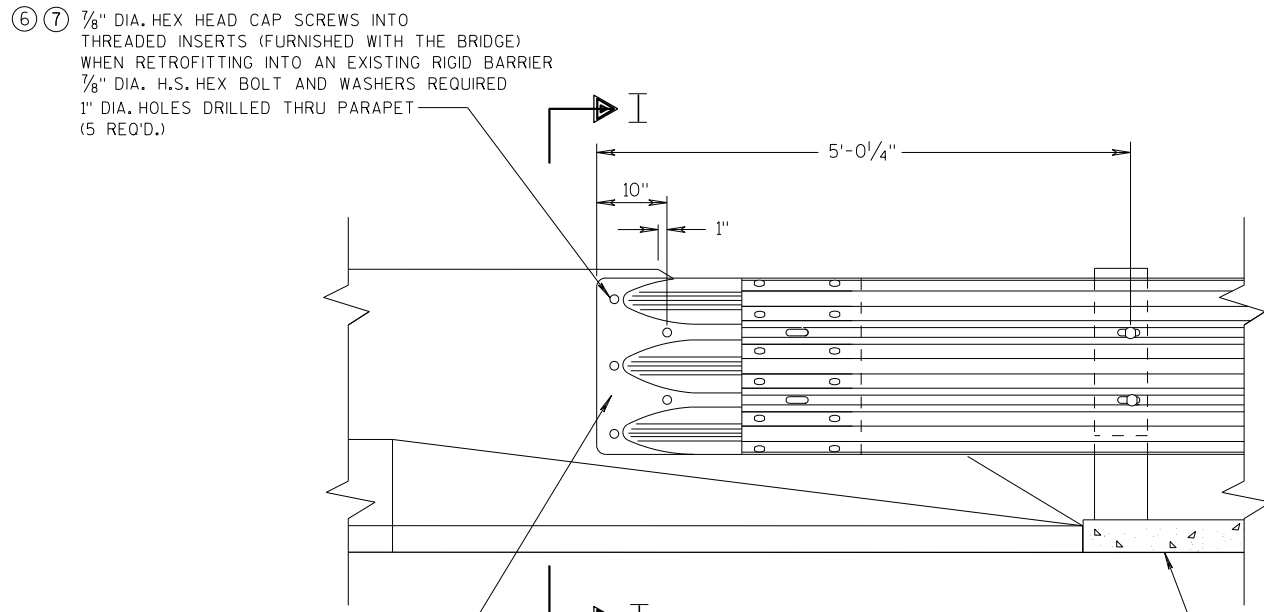
WHEN RETROFITTING A TRANSITION  
TO AN EXISTING RIGID BARRIER,  
INSTALL PLATE WASHERS ON  
BACKSIDE OF RIGID BARRIER.

**GENERAL NOTES**

- ② OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.
- ④ TOLERANCE FOR TOP OF BEAM IS  $\pm 1"$ .
- ⑥ DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.
- ⑦ BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM CONNECTOR PLATE. BOLTS THAT EXTEND THROUGH THE PARAPET AND OUT THE BACK FACE REQUIRE A HARDENED ROUND STEEL WASHER THAT IS 2" O.D. X 5/32" THICK AND ONE PLATE WASHER. REPAIR ANY DAMAGED CONCRETE FROM BOLT INSTALLATION.



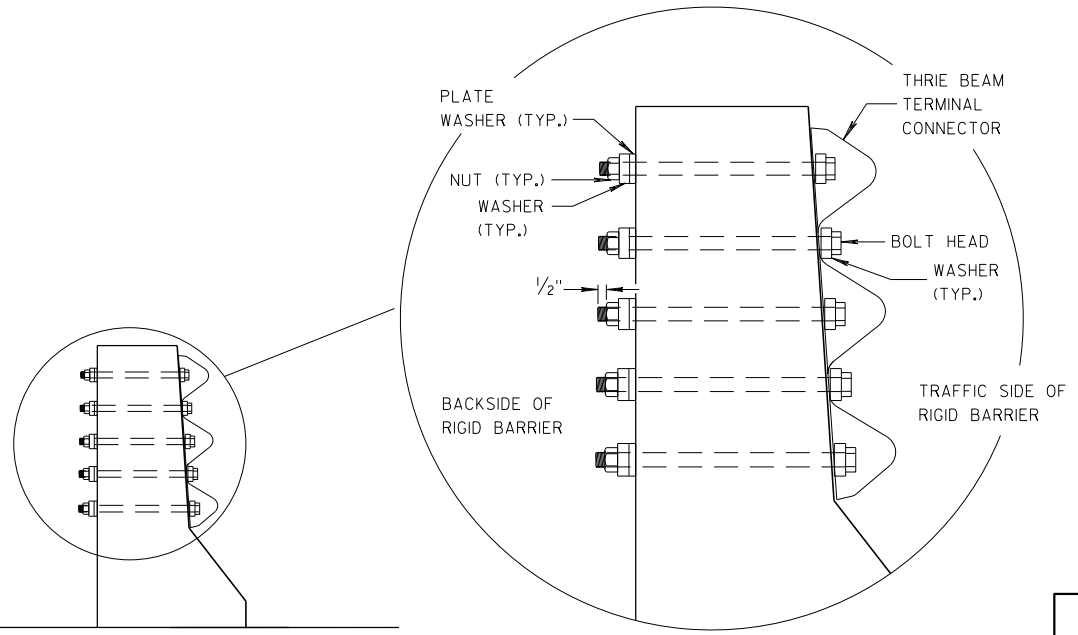
**DRILL HOLE LOCATION AND PATTERN  
FOR THRIE BEAM CONNECTION**



FRONT VIEW

**THRIE BEAM CONNECTION TO BRIDGE  
PARAPETS WITH SLOPED ENDS**

WHEN RETROFITTING A TRANSITION  
TO AN EXISTING RIGID BARRIER,  
INSTALL PLATE WASHERS ON  
BACKSIDE OF RIGID BARRIER.

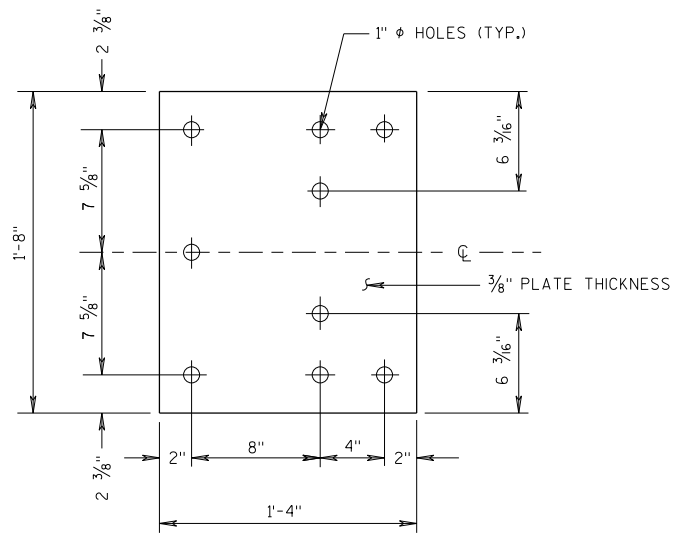


SECTION I-I

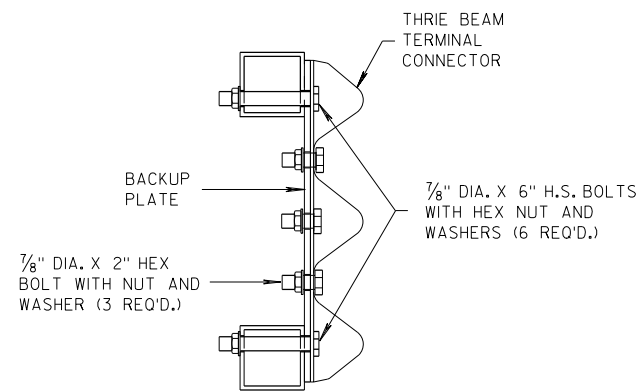
**MIDWEST GUARDRAIL SYSTEM  
THRIE BEAM TRANSITION (MGS)**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

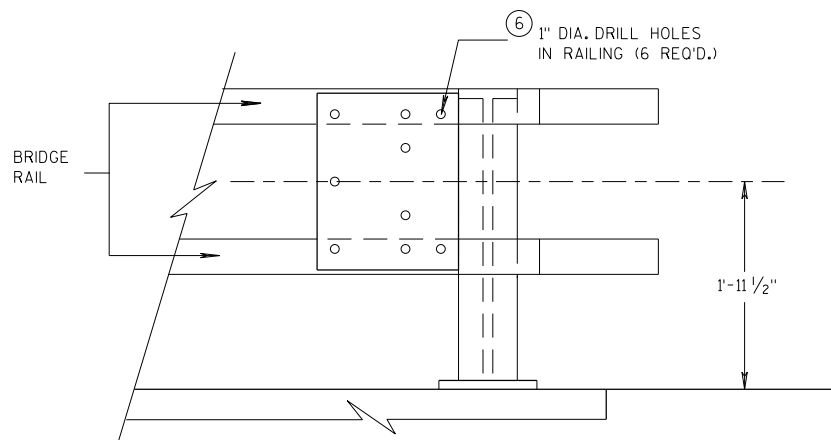
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UNIT SUPERVISOR  
FHWA



**BACK-UP PLATE DETAIL**



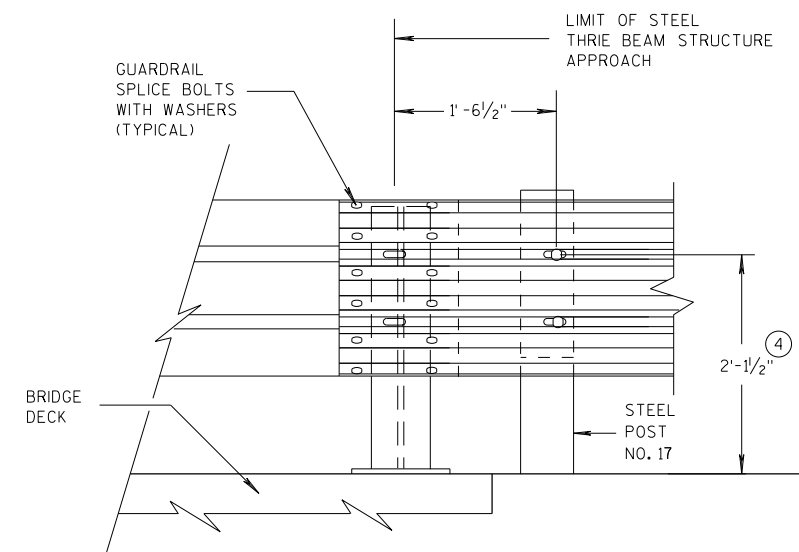
**SECTION J-J**



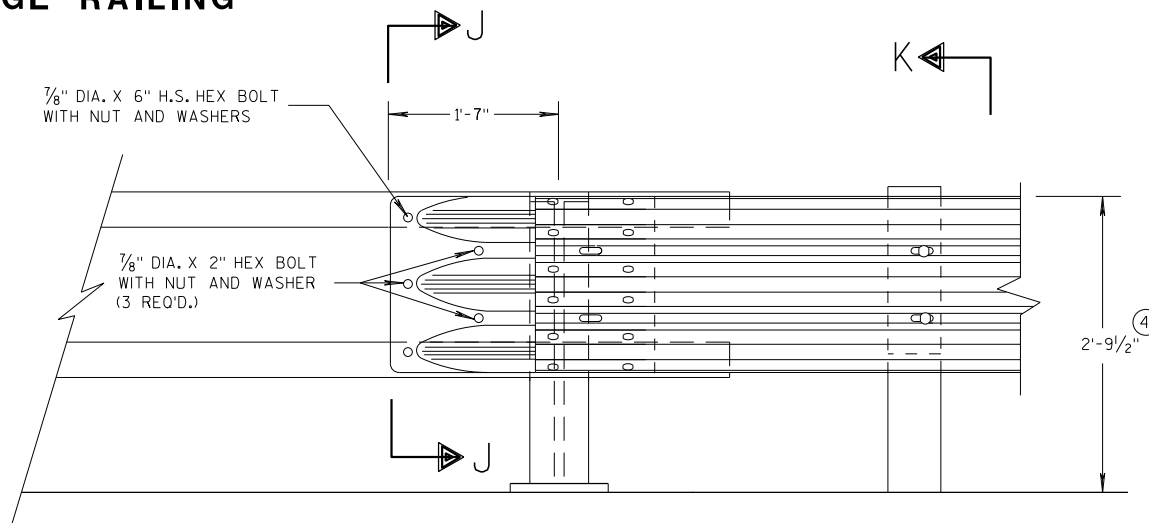
**BACK-UP PLATE MOUNTING ONTO BRIDGE RAILING**

**GENERAL NOTES**

- ④ TOLERANCE FOR TOP OF BEAM IS  $\pm 1'$ .
- ⑥ DRILLING HOLES THROUGH THE PAPER, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.

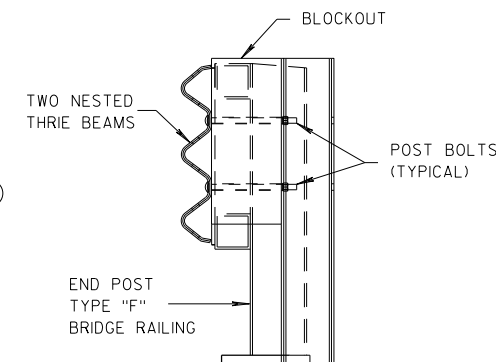


**FRONT VIEW  
THRIE BEAM CONNECTION TO  
STEEL RAILING TYPE "W"**



**FRONT VIEW**

**THRIE BEAM CONNECTION TO  
TUBULAR RAILING TYPE "F"**



**SECTION K-K**

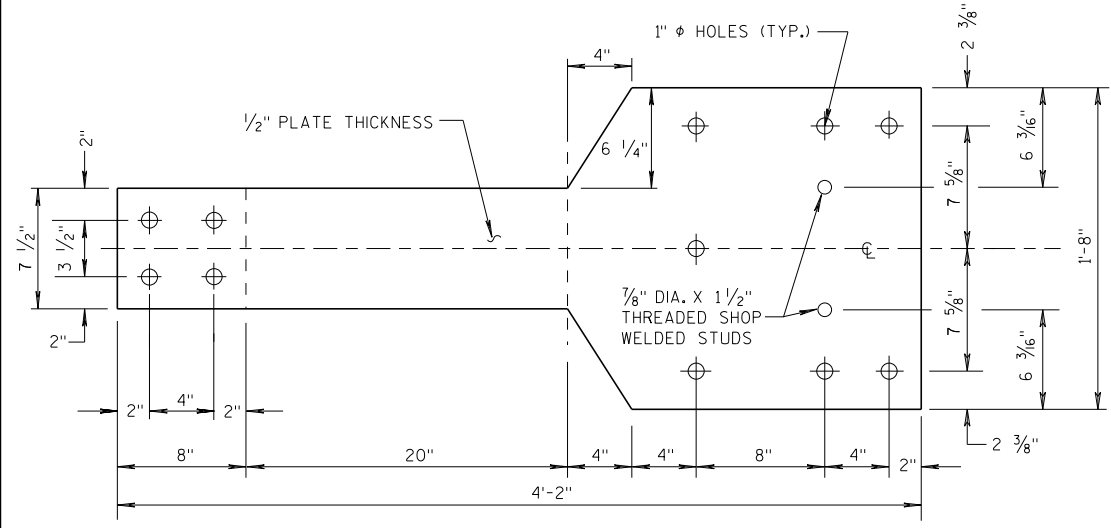
**MIDWEST GUARDRAIL SYSTEM  
THRIE BEAM TRANSITION (MGS)**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

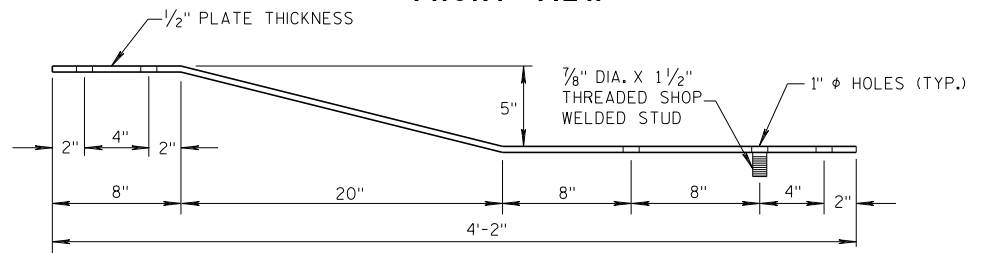
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FHWA UNIT SUPERVISOR

**GENERAL NOTES**

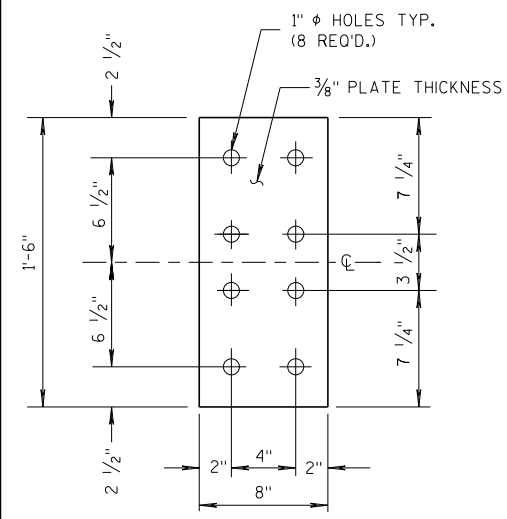
(4) TOLERANCE FOR TOP OF W-BEAM RAIL IS ± 1".



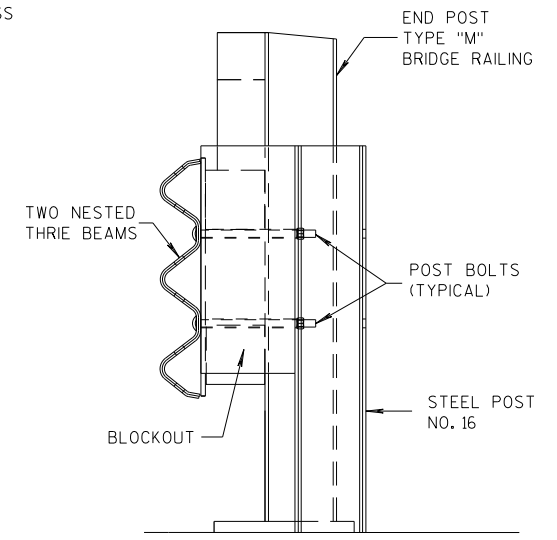
**FRONT VIEW**



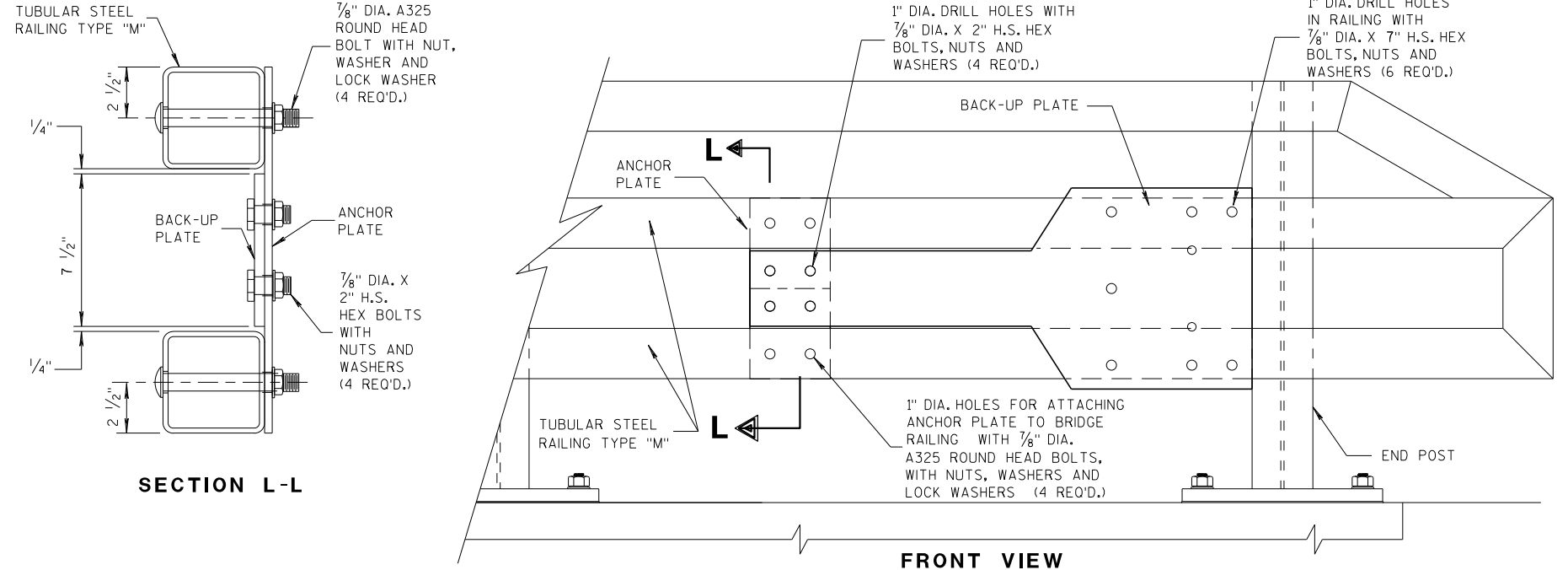
**PLAN VIEW  
BACK-UP PLATE DETAIL, TYPE "M"**



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



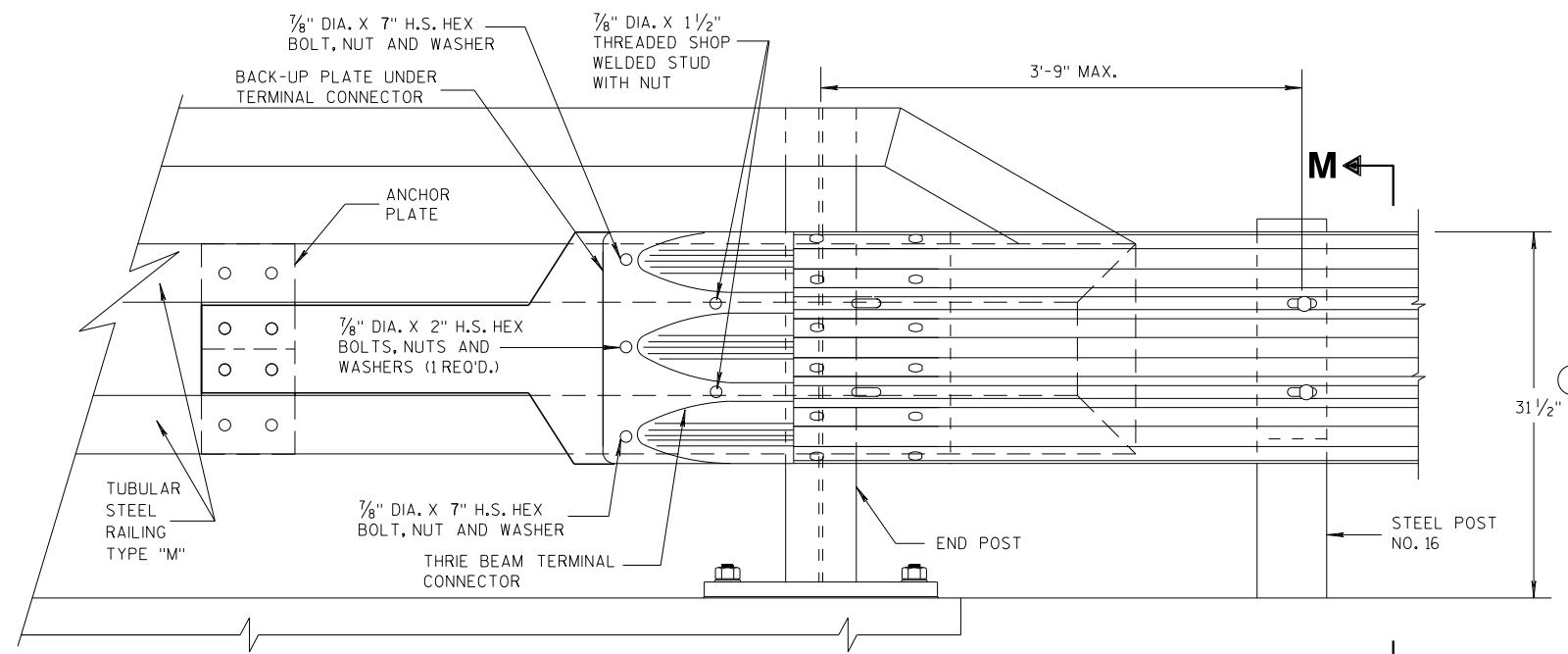
**SECTION M-M**



**SECTION L-L**

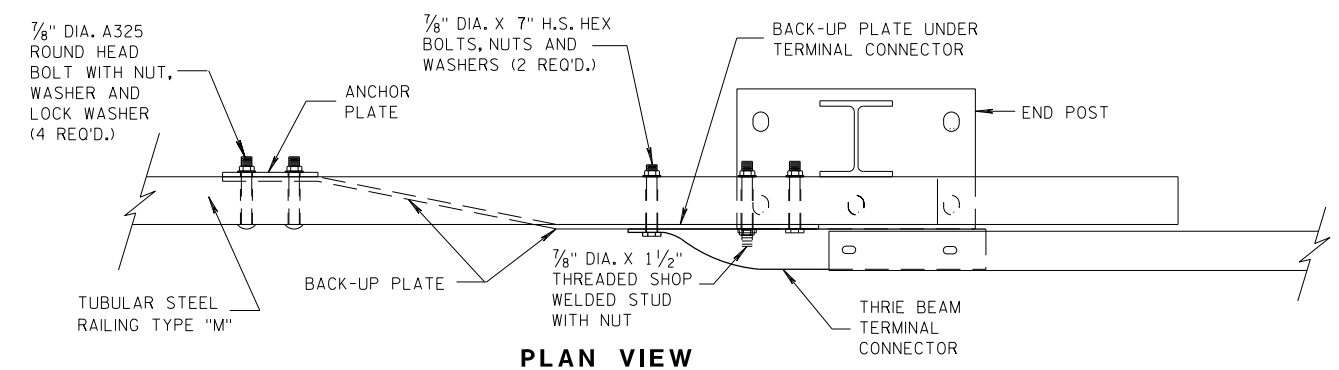
**FRONT VIEW**

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



**FRONT VIEW**

**M**



**PLAN VIEW**

**THRIE BEAM CONNECTION TO TUBULAR RAILING, TYPE "M"**

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

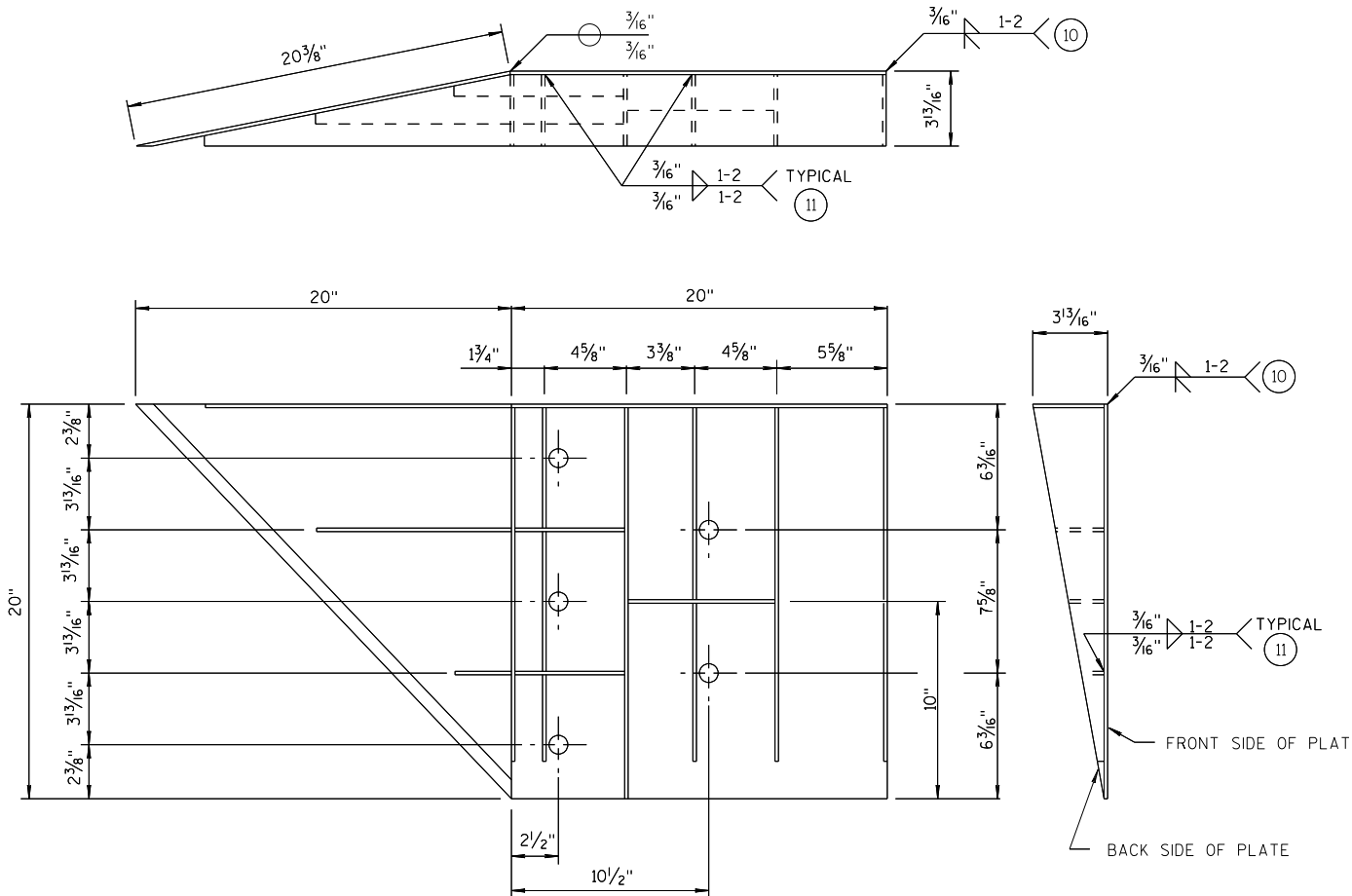
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UNIT SUPERVISOR  
FHWA

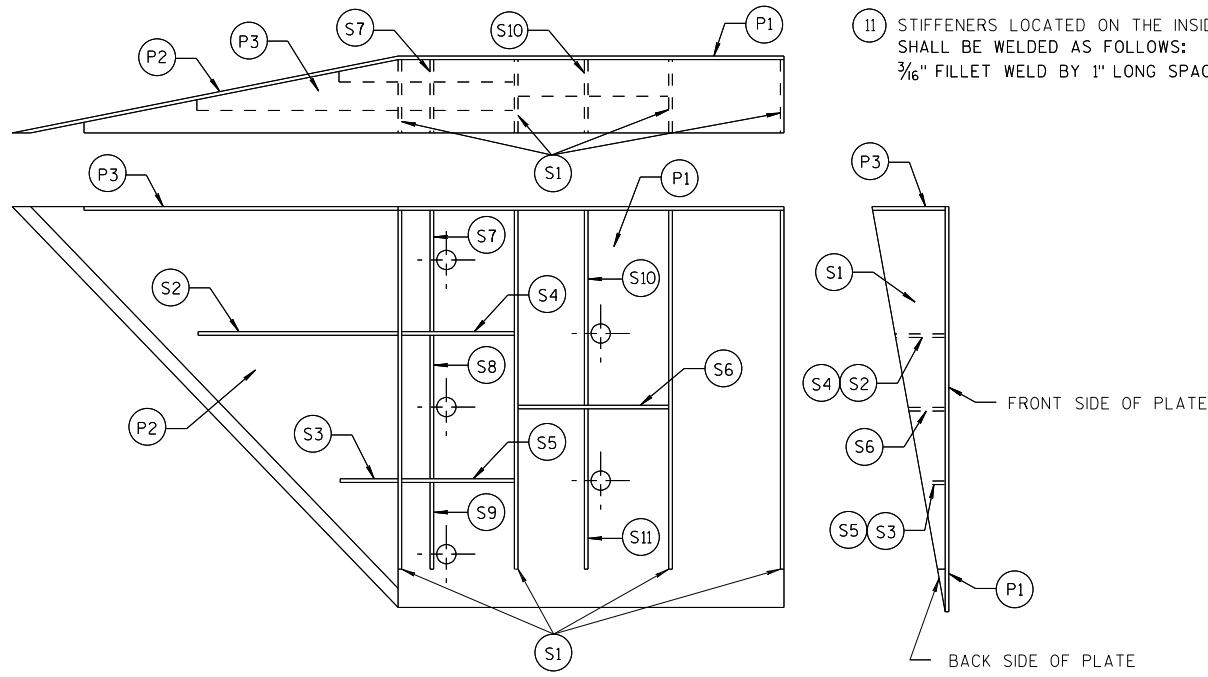
**GENERAL NOTES**

- COVER PLATE PANELS ARE 3/16" THICK.
- ALL STIFFENERS ARE 1/4" THICK.
- CONNECTOR PLATE SHALL BE FABRICATED FROM ASTM GRADE A36 STEEL AND GALVANIZED.
- FOR GALVANIZED REQUIREMENTS, SEE SECTION 614 OF THE STANDARD SPECIFICATIONS.
- ALL HOLE DIAMETERS SHALL BE 1".
- FOR OPPOSITE SIDE INSTALLATION MIRROR DRAWINGS.

- (10) STIFFENERS LOCATED AT THE OUTSIDE EDGES OF THE COVER PLATES SHALL BE WELDED AS FOLLOWS:  
SINGLE BEVEL GROOVE WELD ON EXTERNAL SIDES AND 3/16" FILLET WELD BY 1" LONG SPACED AT 2" ON INTERNAL SIDES.
- (11) STIFFENERS LOCATED ON THE INSIDE OF THE COVER PLATE SHALL BE WELDED AS FOLLOWS:  
3/16" FILLET WELD BY 1" LONG SPACED AT 2".



**WELDING INSTRUCTION**  
(VIEWED FROM BACK SIDE OF PLATE)



**PLATE AND STIFFENER IDENTIFICATION**  
(VIEWED FROM BACK SIDE OF PLATE)

CONNECTOR PLATE DIMENSION (PER ASSEMBLY)				
PLATE	QUANTITY	SHAPE	SIZE (A x B x C x D)	THICKNESS
P1	1		20" x 20"	3/16"
P2	1		20" x 20" x 28 3/16"	3/16"
P3	1		39" x 3 5/8" x 20" x 19 5/16"	3/16"
S1	4		18 7/16" x 3 5/8" x 18 3/4"	1/4"
S2	1		10 1/4" x 2 1/16" x 10 3/8" x 1/2"	1/4"
S3	1		3" x 1 1/16" x 3 3/8" x 1/2"	1/4"
S4	1		6 1/8" x 2 1/16"	1/4"
S5	1		6 1/8" x 1 1/16"	1/4"
S6	1		7 3/4" x 1 3/4"	1/4"
S7	1		2 3/16" x 6" x 3 5/8" x 5 1/8"	1/4"
S8	1		1 5/32" x 7 1/2" x 2 1/2" x 7 3/8"	1/4"
S9	1		6 1/16" x 6 3/16" x 1 3/32"	1/4"
S10	1		1 7/8" x 9 7/8" x 3 3/8" x 9 1 1/16"	1/4"
S11	1		8 1/2" x 8 3/4" x 1 3/16"	1/4"

**SINGLE SLOPE CONNECTION PLATE**

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

STATE OF WISCONSIN  
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DATE

/S/ Rodney Taylor  
ROADWAY STANDARDS DEVELOPMENT  
UNIT SUPERVISOR

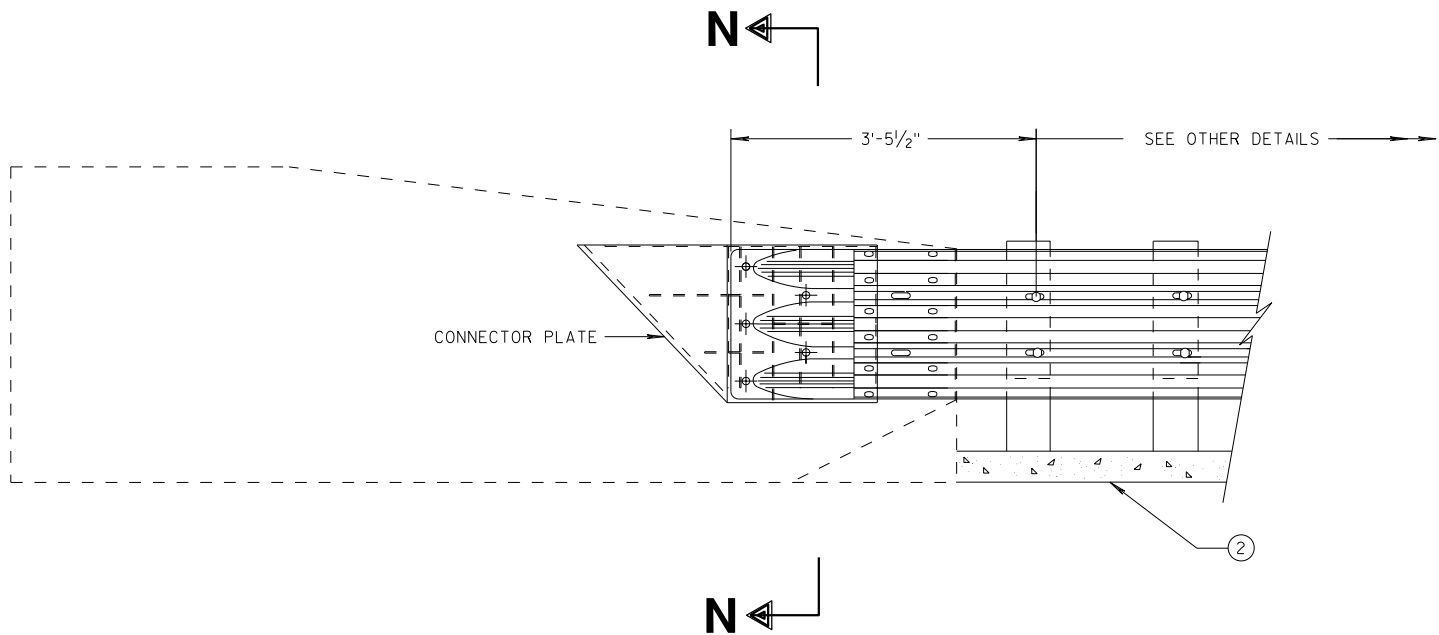
FHWA

**GENERAL NOTES**

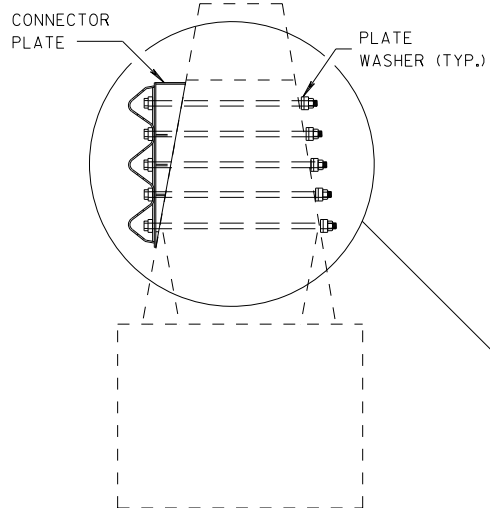
CONNECTOR PLATE, DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.

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

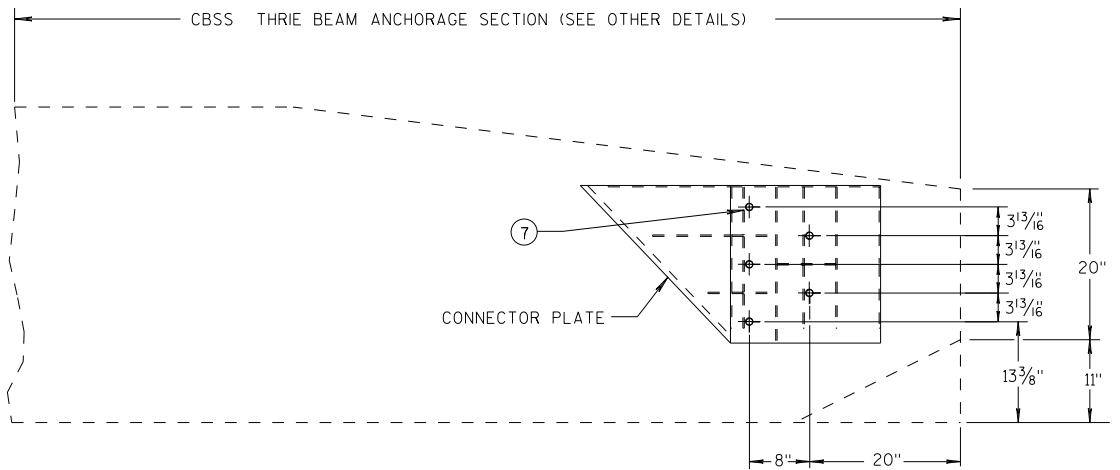
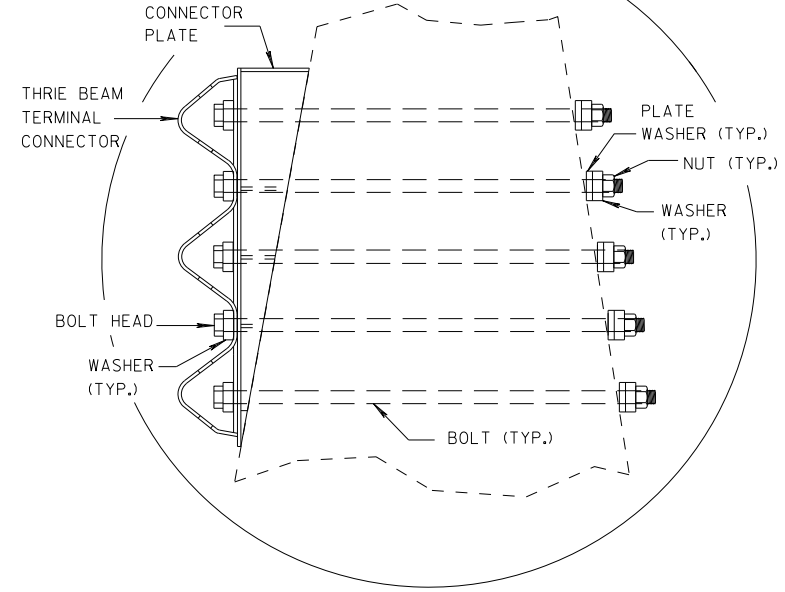
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**THRIE BEAM CONNECTION TO SINGLE SLOPE BARRIER**



**SECTION N-N**

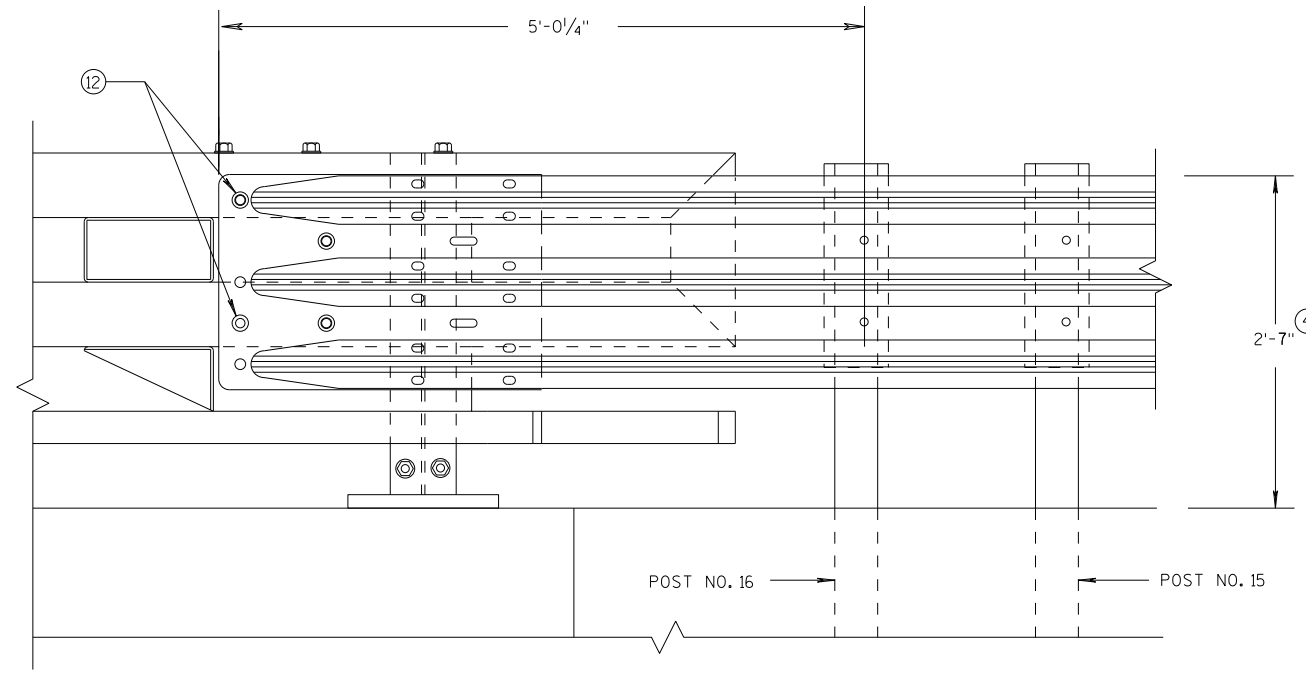


**SINGLE SLOPE CONNECTION PLATE PLACEMENT**

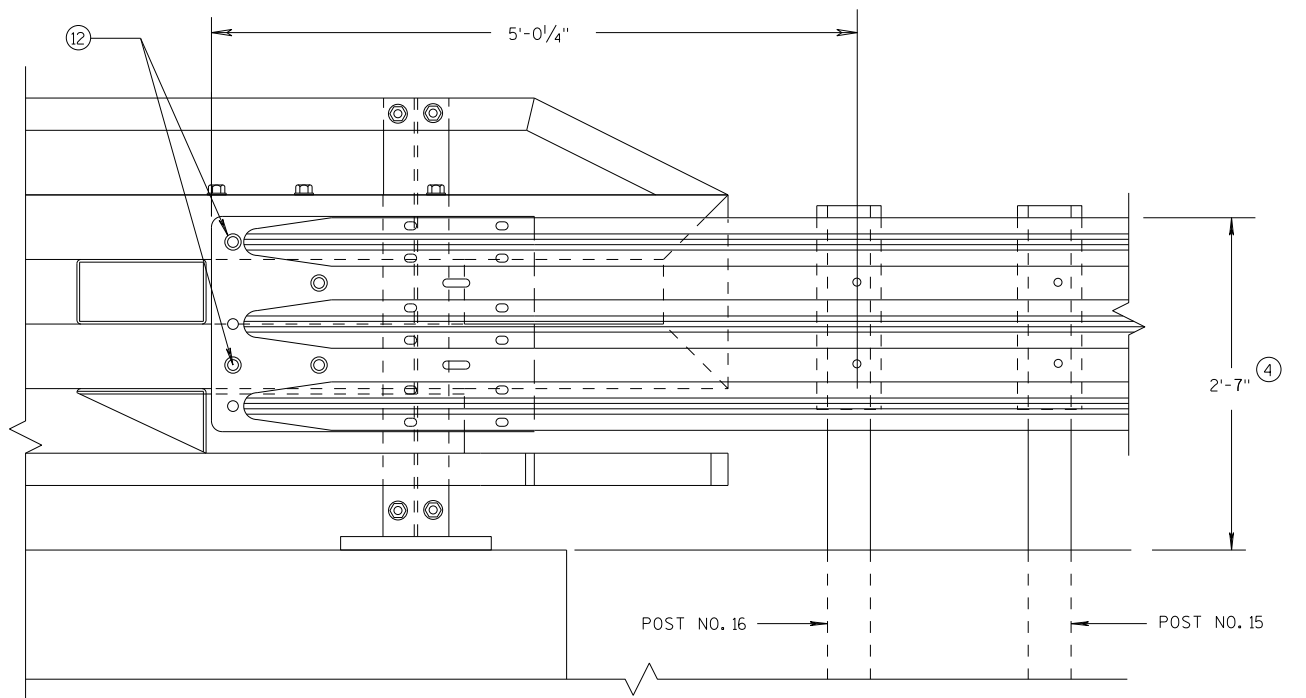
**MIDWEST GUARDRAIL SYSTEM  
THRIE BEAM TRANSITION (MGS)**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

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



**ELEVATION OF DETAIL AT NY3 END POST**  
**THRIE BEAM RAIL ATTACHMENT**



**ELEVATION OF DETAIL AT NY4 END POST**  
**THRIE BEAM RAIL ATTACHMENT**

**GENERAL NOTES**

- (4) TOLERANCE FOR TOP OF BEAM IS ± 1".
- (12) BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM CONNECTOR PLATE. ON BACKSIDE OF PARAPET ONE ROUND WASHER, AND NUT REQUIRED. BOLT THREAD IS TO EXTEND 1/2-INCH BEYOND NUT.

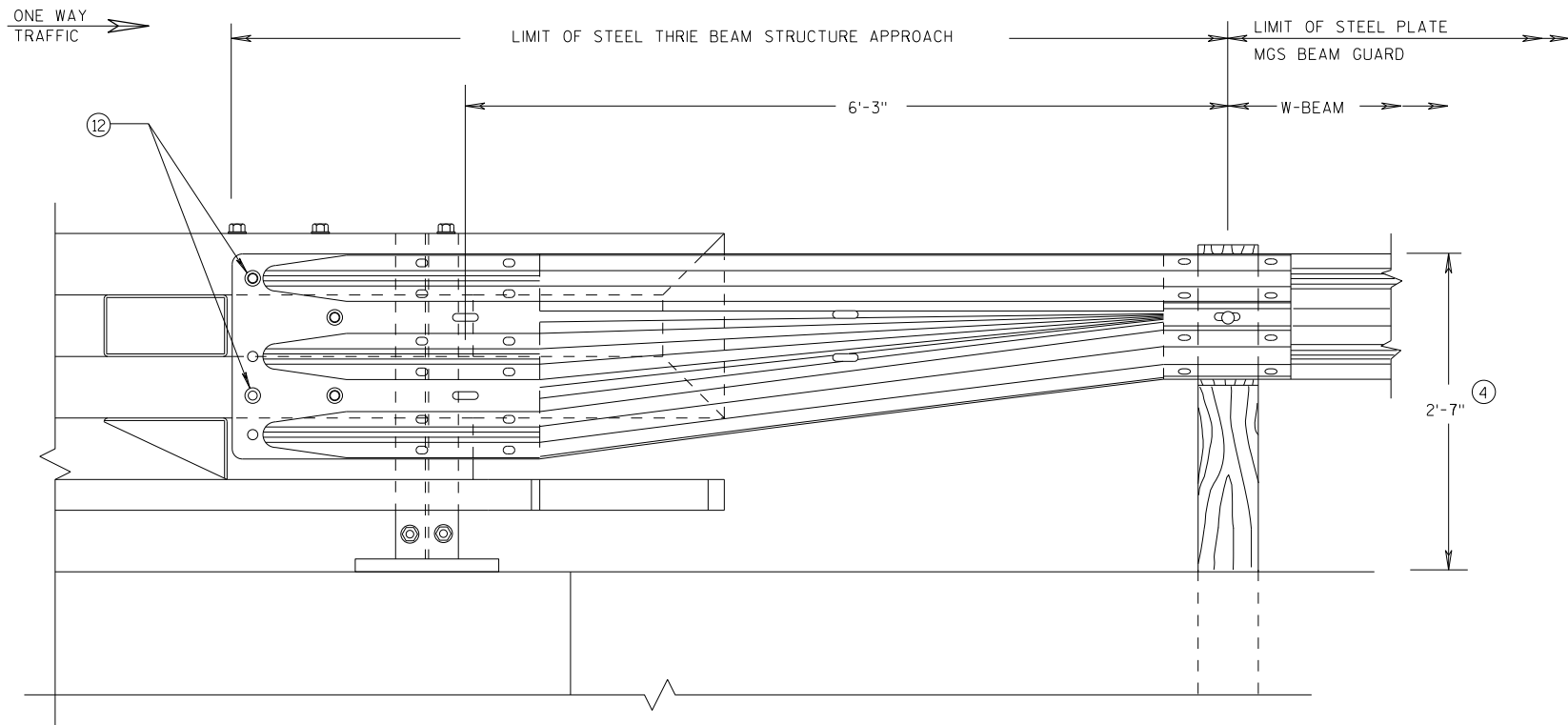
6

6

S.D.D. 14 B 45-5k

S.D.D. 14 B 45-5k

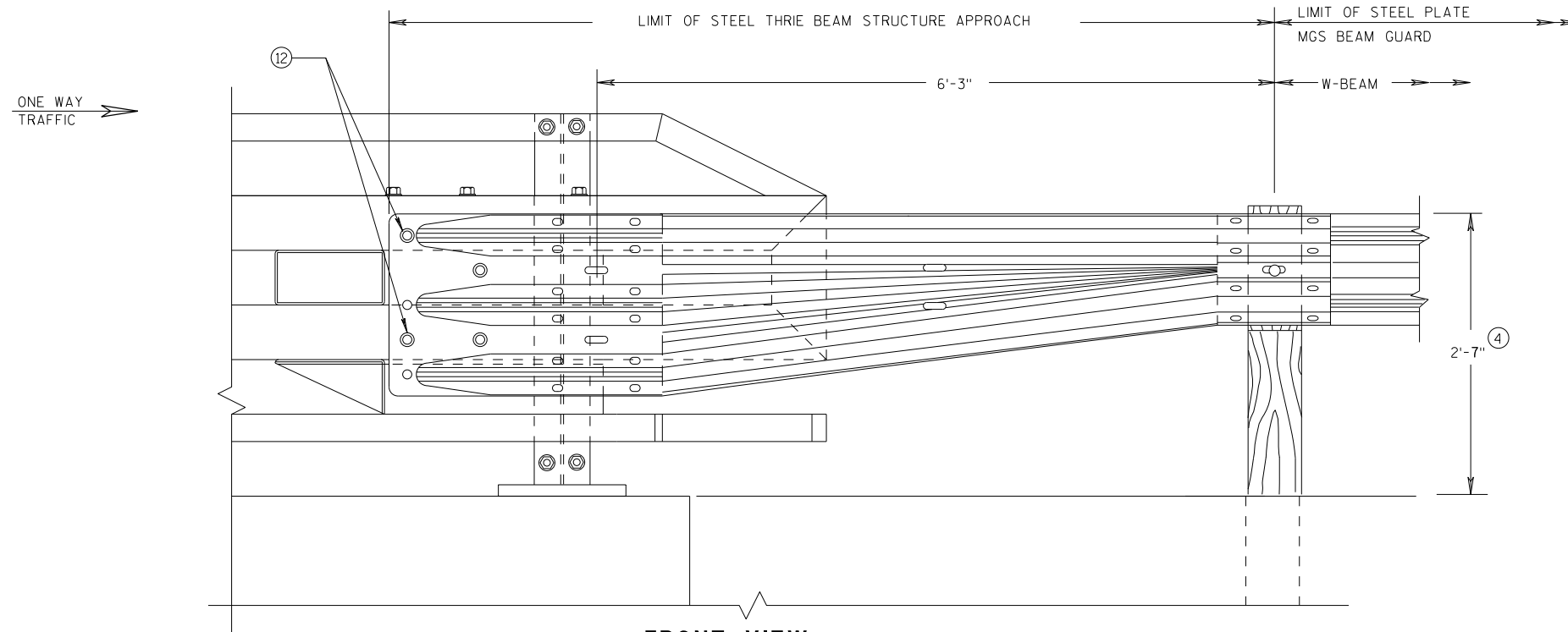
<b>MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)</b>	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED DATE	/S/ Rodney Taylor ROADWAY STANDARDS DEVELOPMENT UNIT SUPERVISOR
FHWA	



**FRONT VIEW**  
**W BEAM TRANSITION AND**  
**CONNECTION TO BRIDGE RAILING TYPE "NY3"**  
 (USE ONLY ON THE TRAFFIC EXIT END OF ONE WAY BRIDGES)

**GENERAL NOTES**

- ④ TOLERANCE FOR TOP OF BEAM IS ± 1".
- ⑫ BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM CONNECTOR PLATE. ON BACKSIDE OF PARAPET ONE ROUND WASHER, AND NUT REQUIRED. BOLT THREAD IS TO EXTEND 1/2-INCH BEYOND NUT.

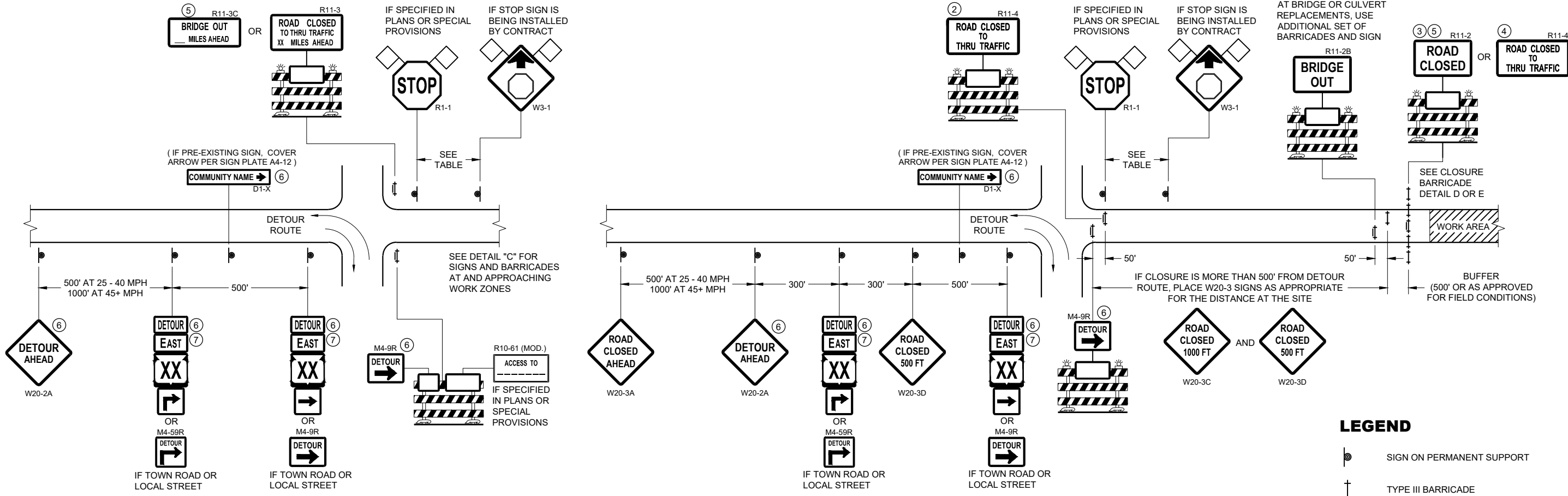


**FRONT VIEW**  
**W BEAM TRANSITION AND**  
**CONNECTION TO BRIDGE RAILING TYPE "NY4"**  
 (USE ONLY ON THE TRAFFIC EXIT END OF ONE WAY BRIDGES)

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

STATE OF WISCONSIN  
 DEPARTMENT OF TRANSPORTATION

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



**DETAIL A  
MAINLINE CLOSURE WITH POSTED DETOUR**

WORK ZONE GREATER THAN OR EQUAL TO 1/2 MILE FROM  
DETOUR ROUTE ( 1000 FEET IF URBAN )

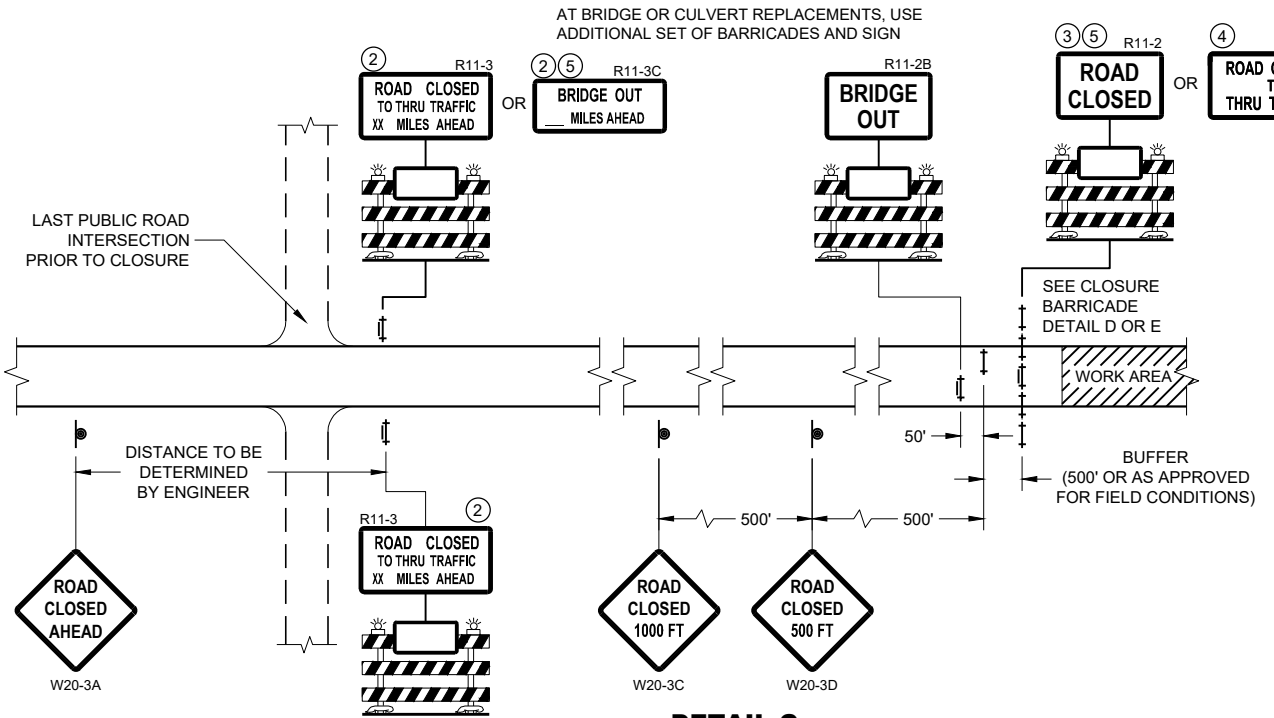
**DETAIL B  
MAINLINE CLOSURE WITH POSTED DETOUR**

WORK ZONE LESS THAN 1/2 MILE FROM  
DETOUR ROUTE ( 1000 FEET IF URBAN )

**LEGEND**

- SIGN ON PERMANENT SUPPORT
- TYPE III BARRICADE
- TYPE III BARRICADE WITH ATTACHED SIGN
- TYPE "A" WARNING LIGHT (FLASHING)
- WORK AREA
- FLAGS, 16" X 16" MIN. (ORANGE)
- M4 - 8
- M3 - X
- M1 - 4 OR M1 - 6 OR M1 - 5A
- M05 - 1 OR M06 - 1

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



**DETAIL C  
MAINLINE CLOSURE, NO POSTED DETOUR**

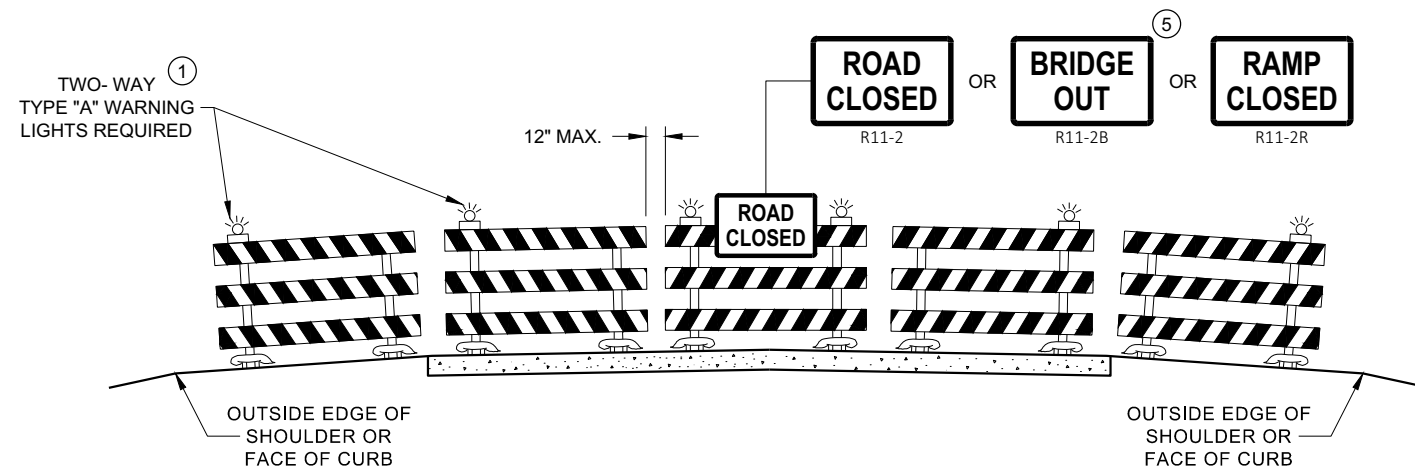
SEE SDD 15C2-SHEET "b"  
FOR GENERAL NOTES  
AND FOOTNOTES ① THROUGH ⑦

**BARRICADES AND SIGNS  
FOR MAINLINE CLOSURES**

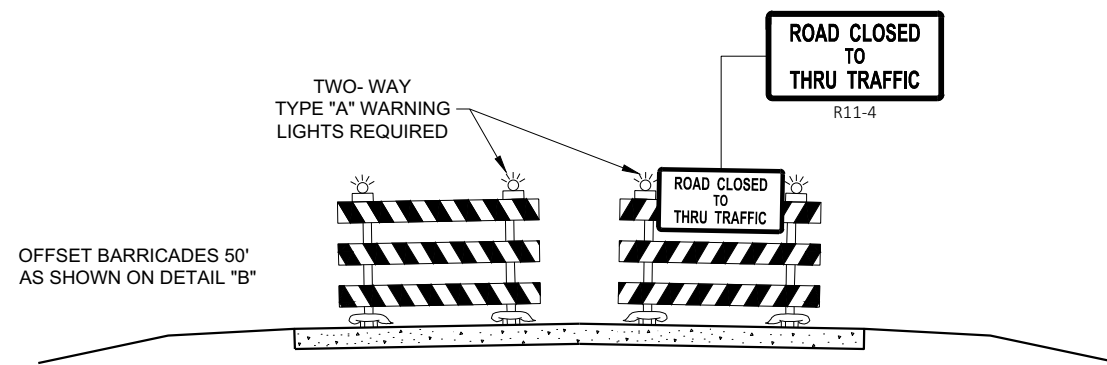
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
February 2020 /S/ Andrew Heidtke  
DATE WORK ZONE 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 THE BARRICADES SHALL COVER NO MORE THAN THE TOP RAIL. THE SIGNS SHALL NOT COVER ANY PORTION OF THE MIDDLE RAIL OR BOTTOM RAILS.

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

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

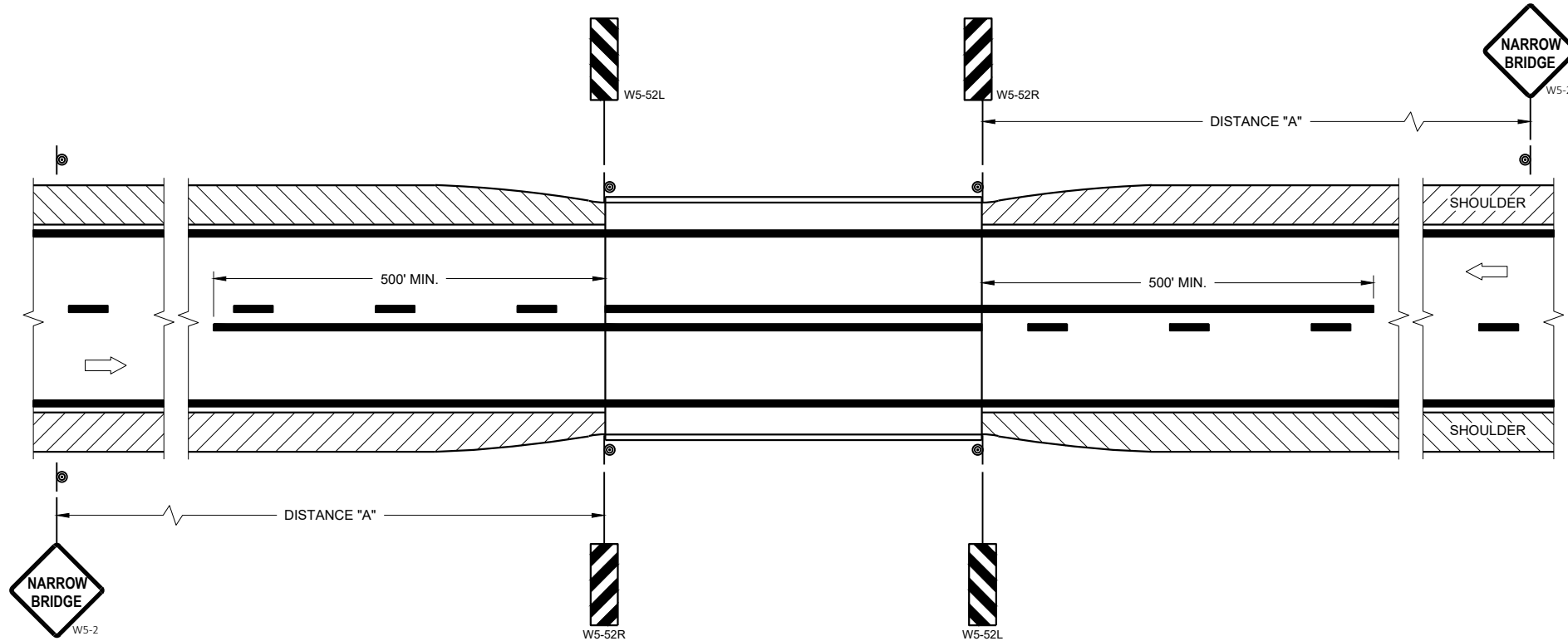
- R11 - 2 SHALL BE 48" X 30"
- R11 - 3 SHALL, R11 - 4 AND R10 - 61 SHALL BE 60" X 30"
- M4 - 9 SHALL BE 30" X 24"
- M3 - X SHALL BE 24" X 12" (36" X 18" IF NEEDED TO MATCH EXISTING SIGNS)
- M4 - 8 SHALL BE 24" X 12" (36" X 18" IF NEEDED TO MATCH EXISTING SIGNS)
- M1 - 4, M1 - 5A AND M1 - 6 SHALL BE 24"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

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

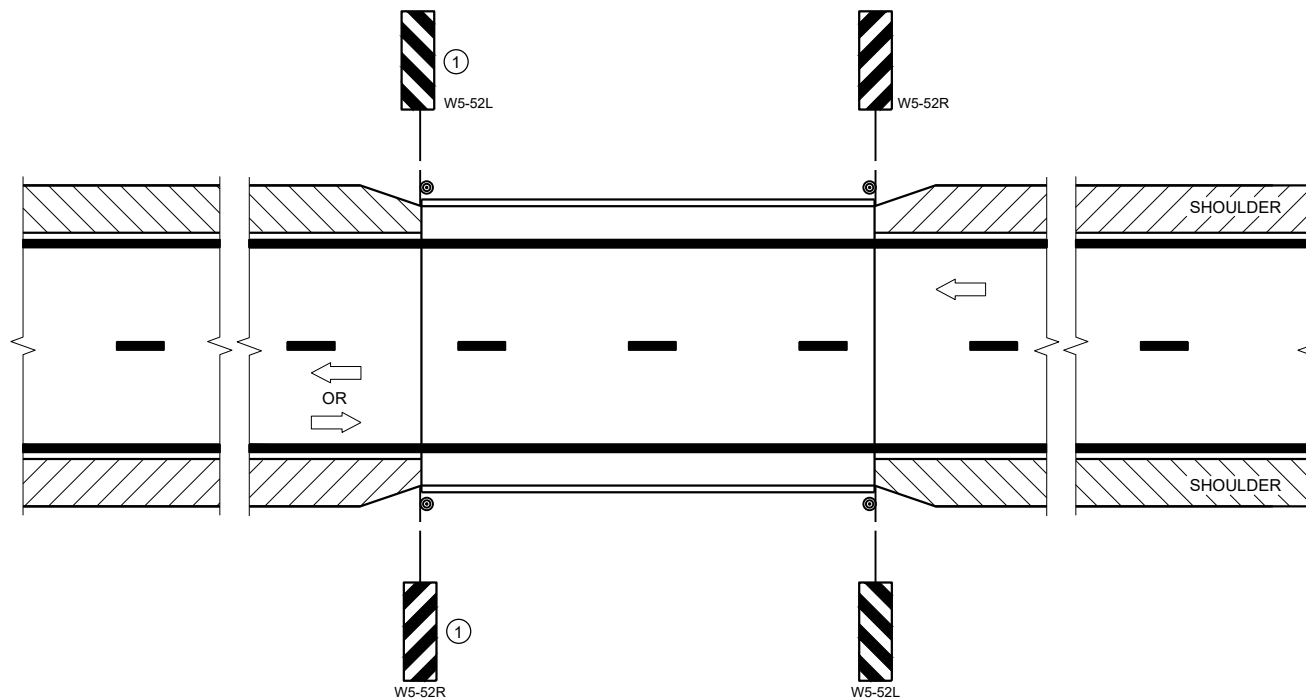
**BARRICADES AND SIGNS  
FOR  
VARIOUS CLOSURES**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
February 2020 /S/ Andrew Heidtke  
DATE WORK ZONE ENGINEER



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



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

**GENERAL NOTES**

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

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

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

ON BRIDGE ONLY PROJECTS, PLACE 300 FEET OF EDGELINE.

OMIT EDGELINES ON ROADWAYS WITHOUT EXISTING EDGELINES.

① OMIT ON ONE-WAY TRAVELED WAYS.

**LEGEND**

⊙ SIGN ON PERMANENT SUPPORT

➡ DIRECTION OF TRAFFIC

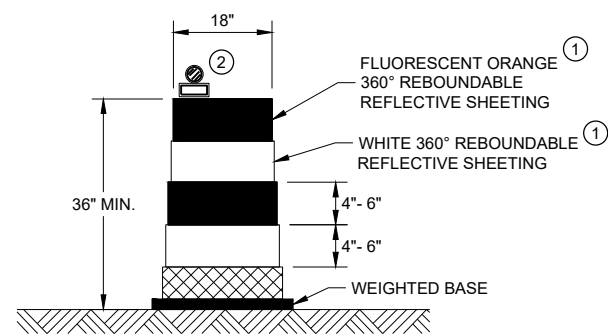
**DISTANCE TABLE**

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

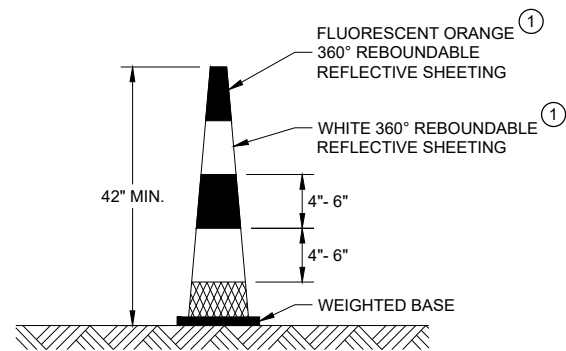
**SIGNING AND MARKING FOR TWO LANE BRIDGES**

STATE OF WISCONSIN  
 DEPARTMENT OF TRANSPORTATION

APPROVED  
 May 2022 /S/ Jeannie Silver  
 DATE STATE SIGNING AND MARKING ENGINEER

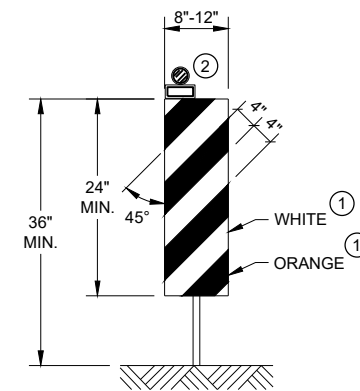


**DRUM**



**42" CONE**

DO NOT USE IN TAPERS  
1/2 SPACING OF DRUMS

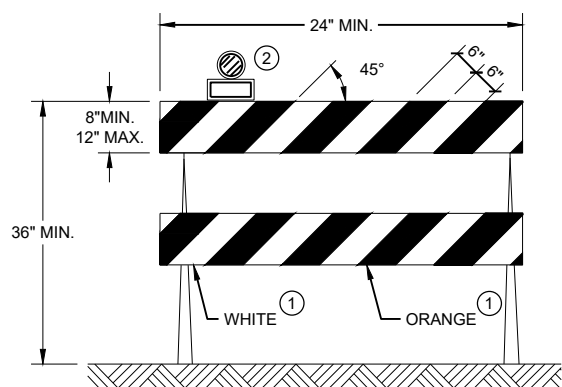


**VERTICAL PANEL**

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

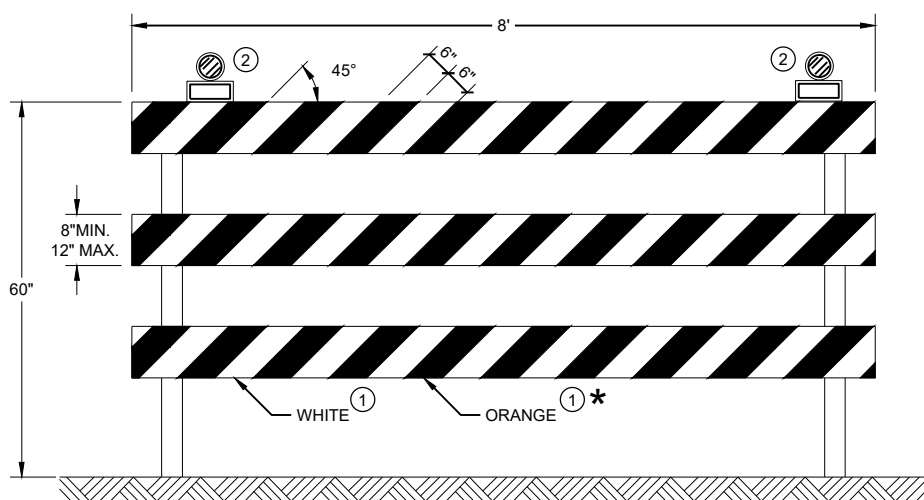
**GENERAL NOTES**

- ① REFLECTIVE SHEETING SHALL FOLLOW THE REQUIREMENTS IN THE APPROVED PRODUCTS LISTING FOR SIGN SHEETING.
- ② LOCATION OF WARNING LIGHTS WHEN SHOWN ON THE PLAN.



**TYPE II BARRICADE**

FOR RAILS LESS THAN 36" LONG, 4" WIDE STRIPES  
MAY BE USED. ALL STRIPES SHALL SLOPE DOWNWARD  
TO THE TRAFFIC SIDE FOR CHANNELIZATION.



**TYPE III BARRICADE**

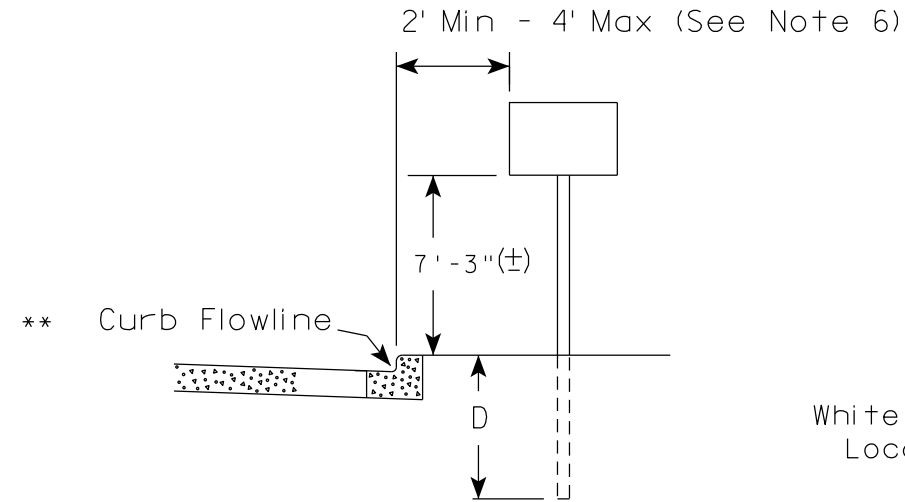
IF SIGN MOUNTED, DO NOT COVER MORE THAN 50% OF THE TOP  
TWO RAILS OR 33% OF THE TOTAL AREA OF THE THREE RAILS.

\* IF USED FOR A PERMANENT APPLICATION USE RED SHEETING.

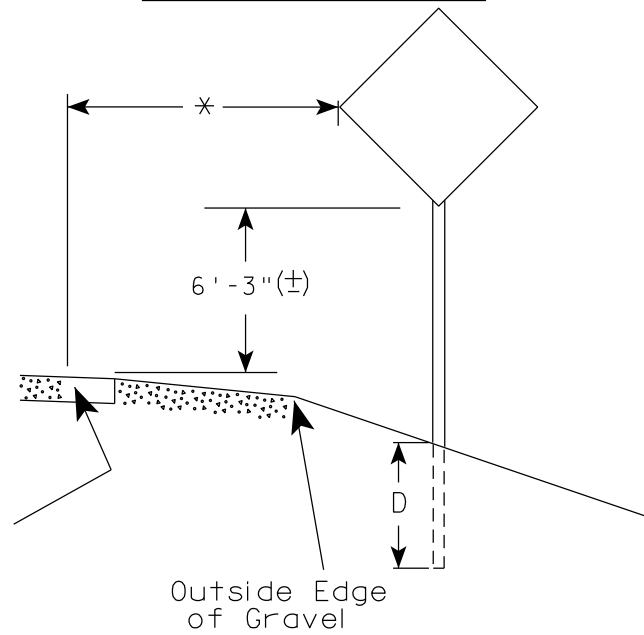
<b>CHANNELIZING DEVICES DRUMS, CONES, BARRICADES AND VERTICAL PANELS</b>	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED May 2021 DATE	/S/ Andrew Heidtke WORK ZONE ENGINEER
<small>FHWA</small>	

URBAN AREA

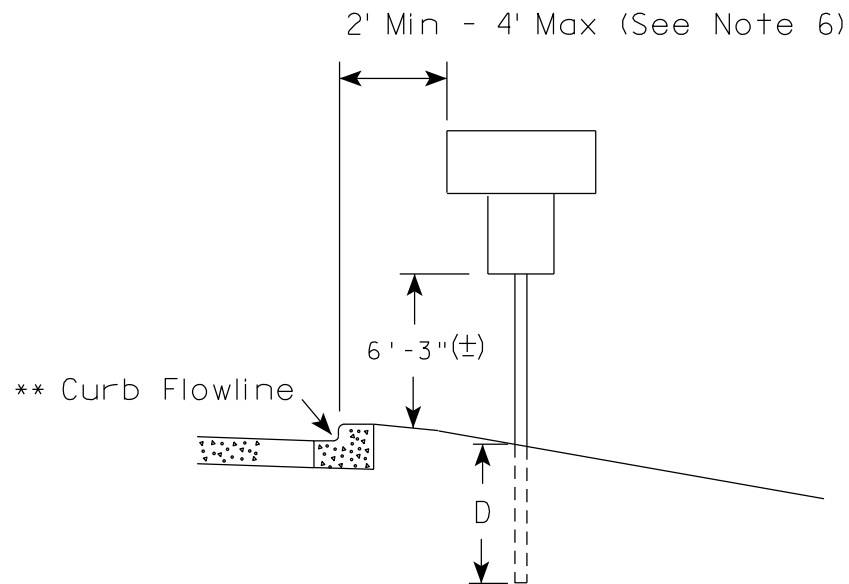
RURAL AREA (See Note 2)



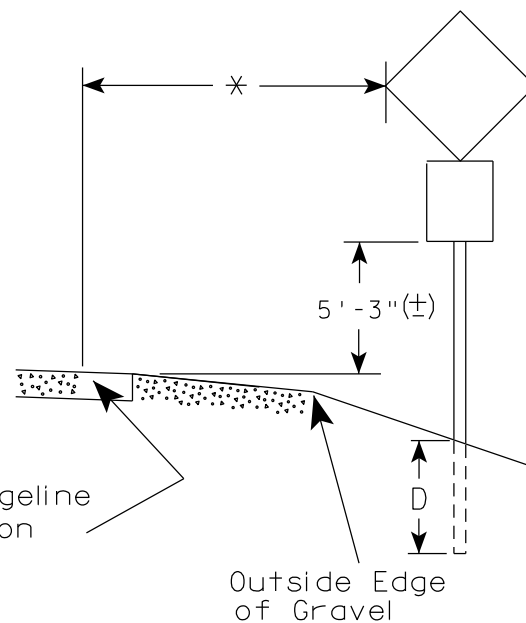
White Edgeline Location



Outside Edge of Gravel



White Edgeline Location



Outside Edge of Gravel

POST EMBEDMENT DEPTH

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

GENERAL NOTES

1. Signs wider than 4 feet or 20 sq.ft or larger, shall be mounted on multiple posts. Refer to plate A4-4.
2. If signs are mounted on or behind barrier wall, see A4-10 sign plate.  
The Double Arrow sign (W12-1D) shall be mounted at a height of 2'-3" (±). The Chevron sign (W1-8), Roundabout Chevron panel (R6-4B), Enhanced Reference Markers, Clearance Markers (W5-52), Mile Markers (D10 series), In Road Object Markers (W5-54) & End of Road Markers (W5-56) shall be mounted at a height of 4'-3" (±).
3. For expressways and freeways, mounting height is 7'- 3" (±) or 6'-3" (±) depending upon existence of a sub-sign.
4. Minimum mounting height for signs mounted on traffic signal poles is 5'- 3" (±).
5. Offset distance shall be consistent with existing signs or consistent throughout length of project.
6. The (±) tolerance for mounting height is 3 inches.
7. Folding signs shall be mounted at a height of 5'-3" (±) or as directed by the Engineer.

7

7

\* \* 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.

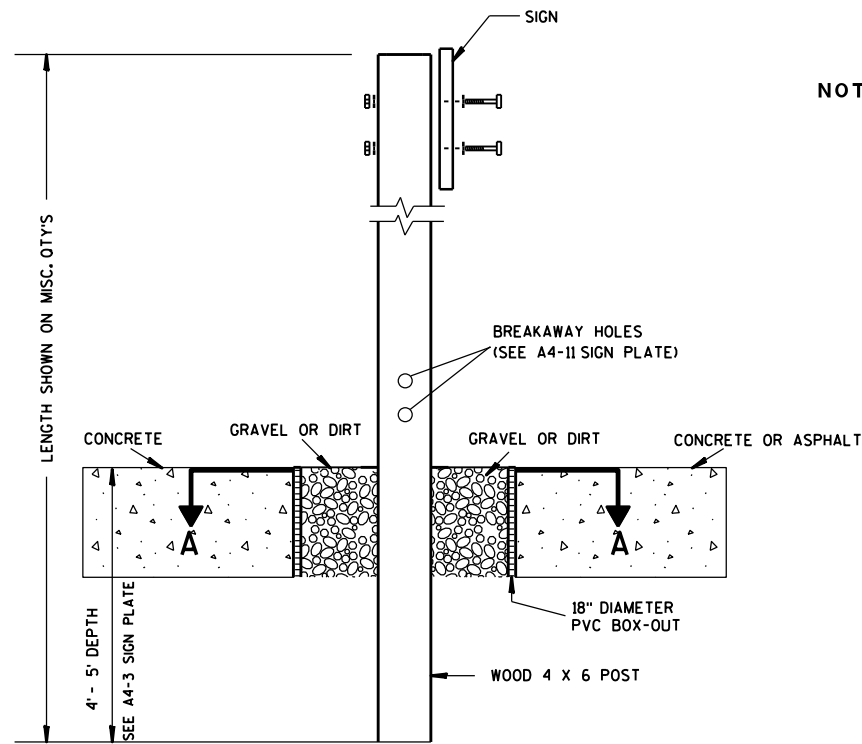
\* 6 feet from edge of a paved shoulder or 12 feet from the edge of pavement (edge line location) or 2 feet from outside edge of gravel, whichever is greater unless directed by project engineer.

TYPICAL INSTALLATION OF PERMANENT TYPE II SIGNS ON SINGLE POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*  
for State Traffic Engineer

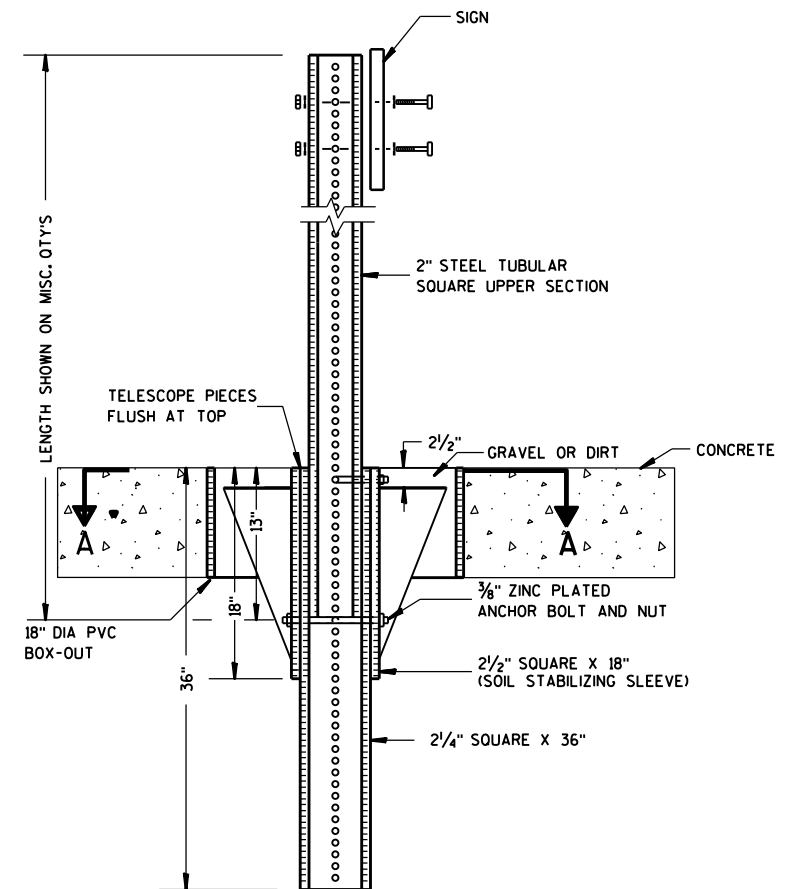
DATE 5/13/2020 PLATE NO. A4-3.22



**ELEVATION VIEW**

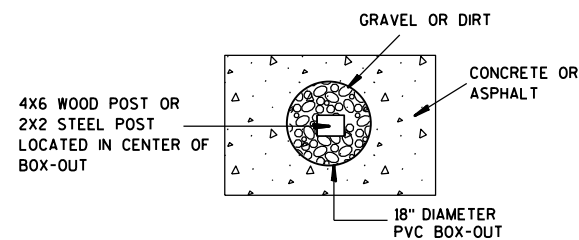
**DETAIL OF WOOD 4 X 6 SIGN POST IN BOX-OUT**

- NOTES:**
1. ALL MATERIAL TO BE APPROVED BY ENGINEER PRIOR TO INSTALLATION
  2. SEE SIGN PLATE A4-8 FOR SIGN HARDWARE REQUIREMENTS
  3. 18 INCH X 18 INCH SQUARE BOX-OUTS MAY BE USED FOR INSTALLATIONS IN EXISTING CONCRETE OR ASPHALT LOCATIONS.



**ELEVATION VIEW**

**DETAIL OF STEEL 2 X 2 SIGN POST IN BOX-OUT**



**PLAN VIEW**

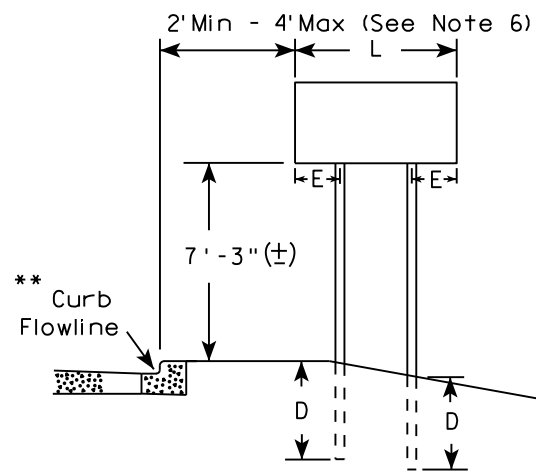
**FOR NEW CONCRETE/ ASPHALT INSTALLATIONS**

<b>SIGN POST BOX-OUTS A4-3B</b>	
<small>WISCONSIN DEPT OF TRANSPORTATION</small>	
APPROVED <i>Matthew R. Rauch</i> <small>for State Traffic Engineer</small>	
<small>DATE 1/27/14</small>	<small>PLATE NO. A4-3B.1</small>

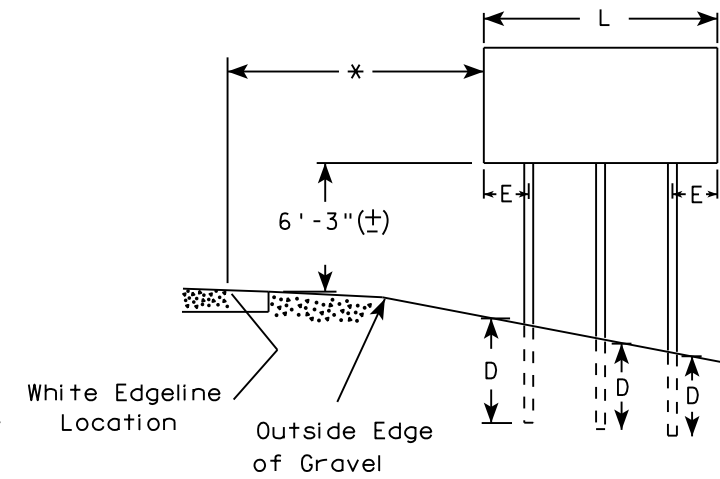
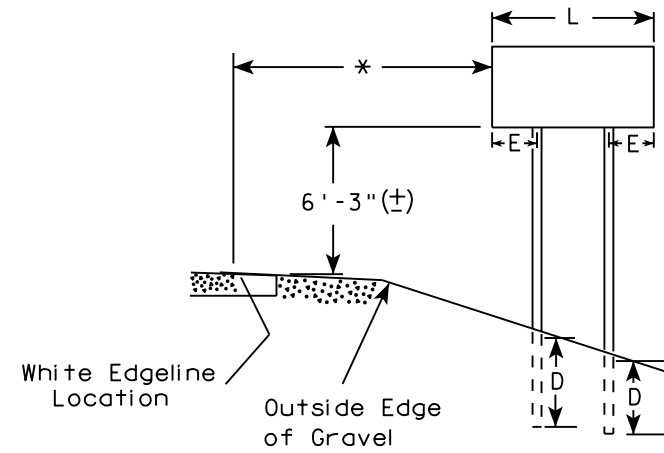
GENERAL NOTES

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

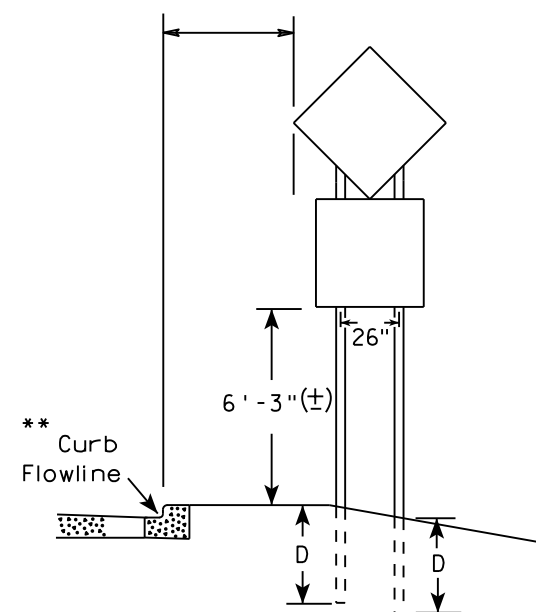
URBAN AREA



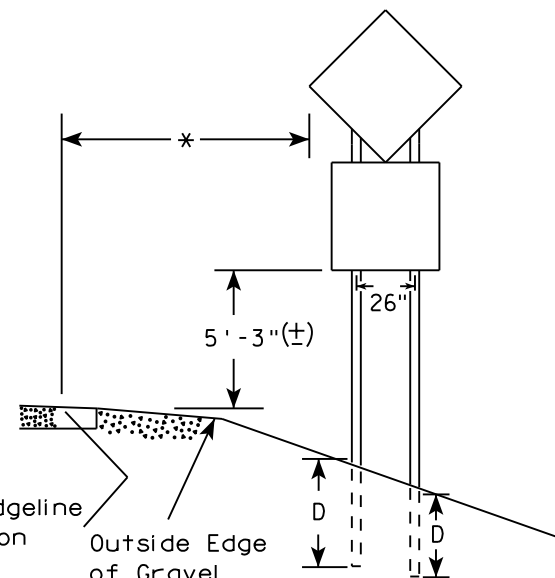
RURAL AREA (See Note 3)



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



48" DIAMOND WARNING SIGN



48" DIAMOND WARNING SIGN

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

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

\*\*\* See A4-3 sign plate for signs 4' or less in width and less than 20 S.F. in area.

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

\*\*\*

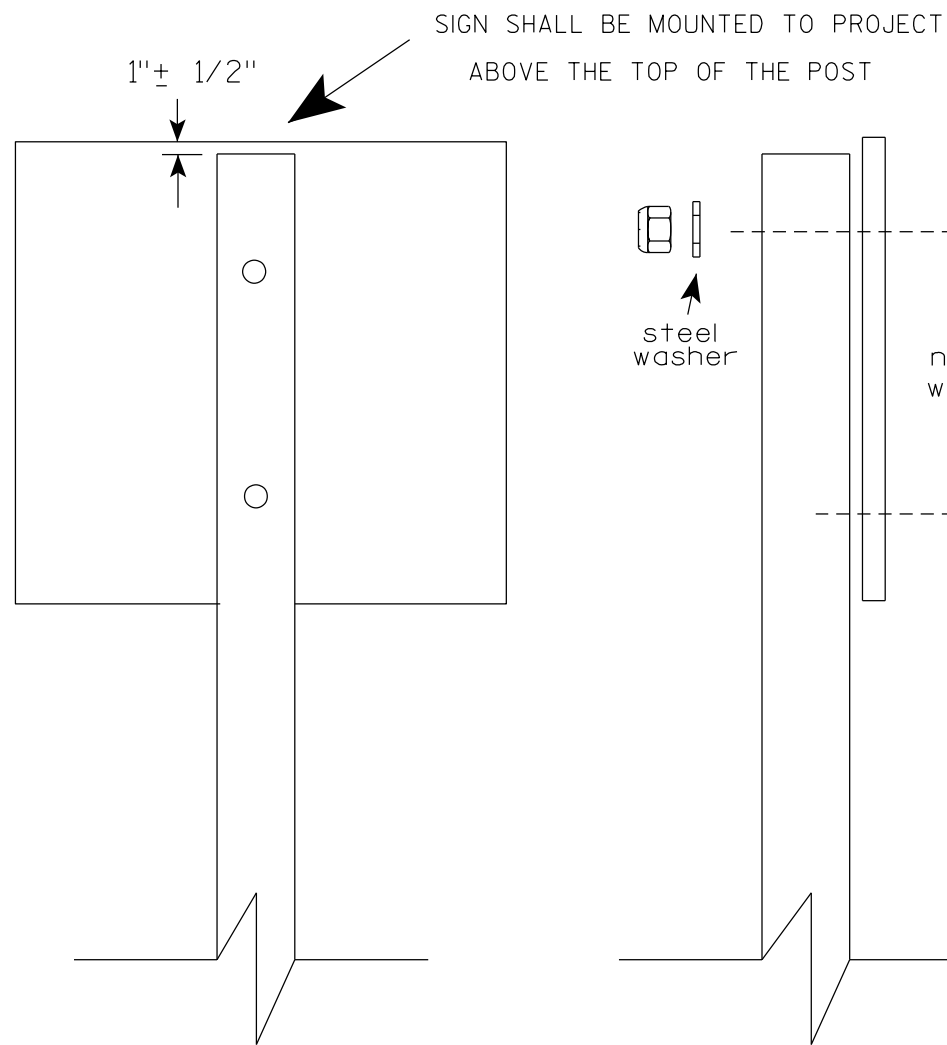
SIGN SHAPE OTHER THAN DIAMOND (THREE POSTS REQUIRED)	
L	E
Greater than 108" to 144"	12"

POST EMBEDMENT DEPTH

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

TYPICAL INSTALLATION OF TYPE II SIGNS ON MULTIPLE POSTS

WISCONSIN DEPT OF TRANSPORTATION  
 APPROVED *Matthew R. Rauch*  
 For State Traffic Engineer  
 DATE 8/21/17 PLATE NO. A4-4.15



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

- Hot dip galvanized in accordance with ASTM Designation: A 153, Class D, or SC 3
- Electro-galvanized in accordance with ASTM Designation : B 633, TYPE III, SC 3.

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

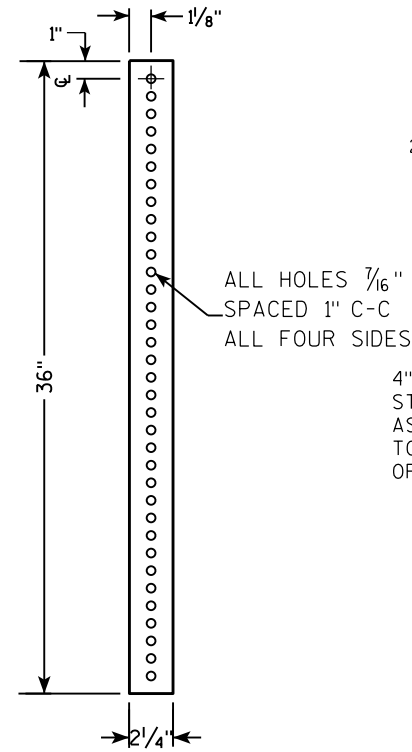
- STRINGER BOLTING TO ALUMINUM SIGNS (SEE SIGN PLATE A4-18)
- MACHINE BOLTS -  $\frac{5}{16}$ " X 1-3/4" Length w/ lock nuts
- WOOD POSTS (4" x 6")
- LAG SCREWS -  $\frac{3}{8}$ " X 3" (NO STRINGERS ON BACK OF SIGN)
  - $\frac{3}{8}$ " X 4" (STRINGERS ON BACK OF SIGN)
- SQUARE STEEL POSTS (2" x 2")
- MACHINE BOLTS -  $\frac{3}{8}$ " X 3-1/4" Length w/ nuts (NO STRINGER ON BACK OF SIGN)
  - $\frac{3}{8}$ " X 5" Length w/ nuts (STRINGERS ON BACK OF SIGN)
- RIVETS -  $\frac{9}{32}$ " (6605-9-6) BULB-TITE, TRI-FOLD, ALUMINUM BODY/MANDREL
- O.D. FLANGE .720-.765 INCH, GRIP RANGE .042-.375 INCH
- WASHERS (ALL POSTS) -
- 1-1/4" O.D. X  $\frac{3}{8}$ " I.D. X  $\frac{1}{16}$ " STEEL
  - 1-1/4" O.D. X  $\frac{3}{8}$ " I.D. X .080 NYLON

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

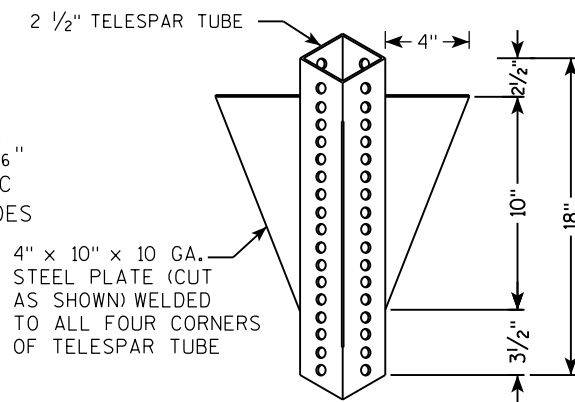
ATTACHMENT OF SIGNS TO POSTS	
WISCONSIN DEPT OF TRANSPORTATION	
APPROVED	<i>Matthew R Rauch</i> For State Traffic Engineer
DATE 4/1/2020	PLATE NO. A4-8.9

**TELESCOPIC TUBING ANCHORS  
TWO PIECE SYSTEM**

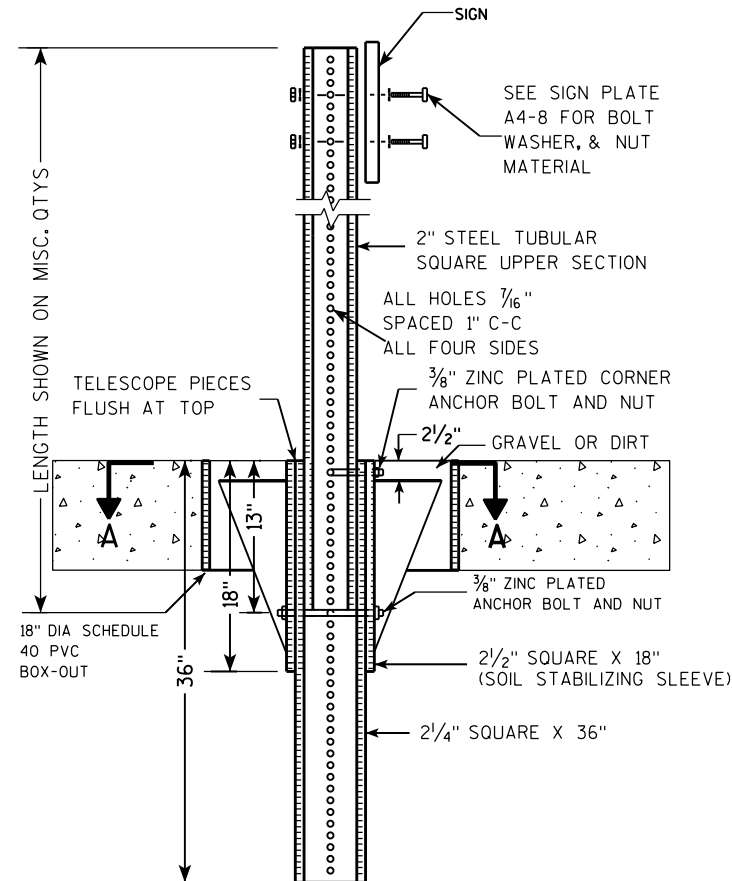
2 1/4" SQUARE  
12 GAUGE  
PERFORATED  
GALVANIZED FINISH



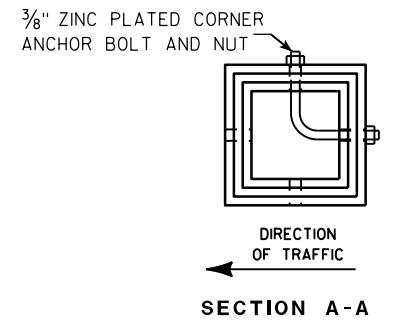
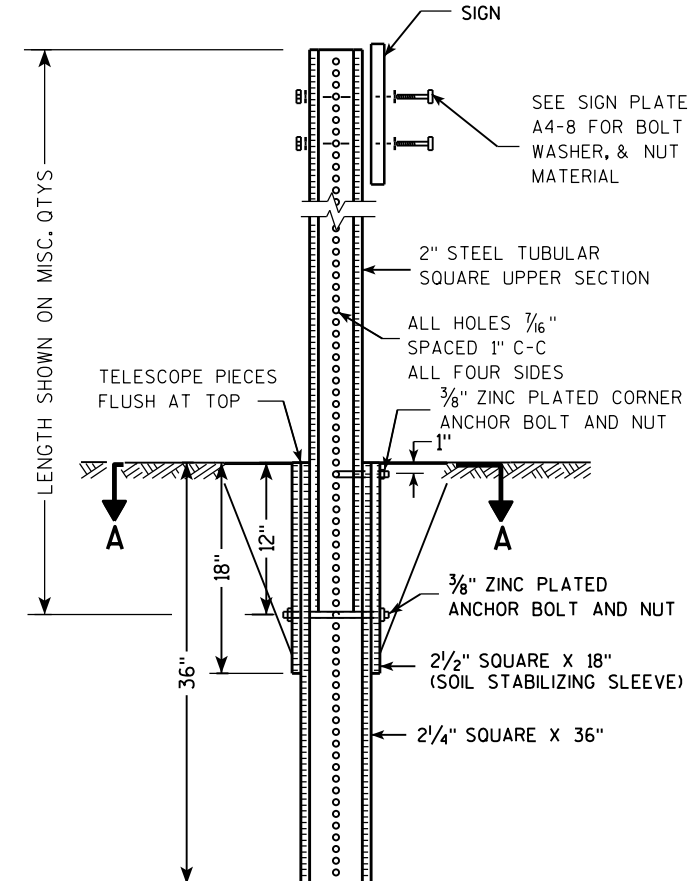
2 1/2" SQUARE  
12 GAUGE  
OMNI-DIRECTIONAL  
PERFORATED  
SOIL STABILIZING SLEEVE  
GALVANIZED FINISH



**DETAIL OF TUBULAR STEEL SIGN POST  
(IN POURED CONCRETE OR ASPHALT)**



**DETAIL OF TUBULAR STEEL SIGN POST  
(IN LOCATIONS OTHER THAN POURED CONCRETE OR ASPHALT)**



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

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

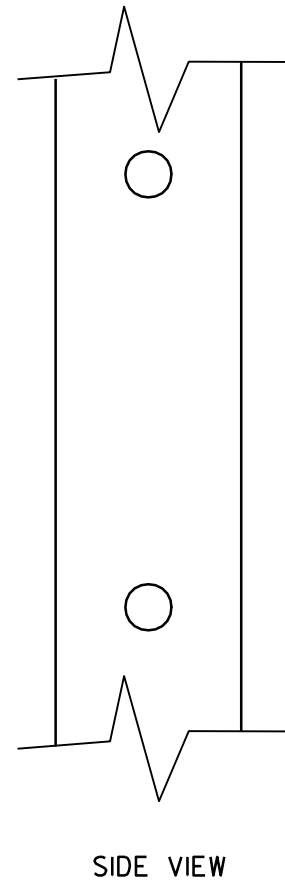
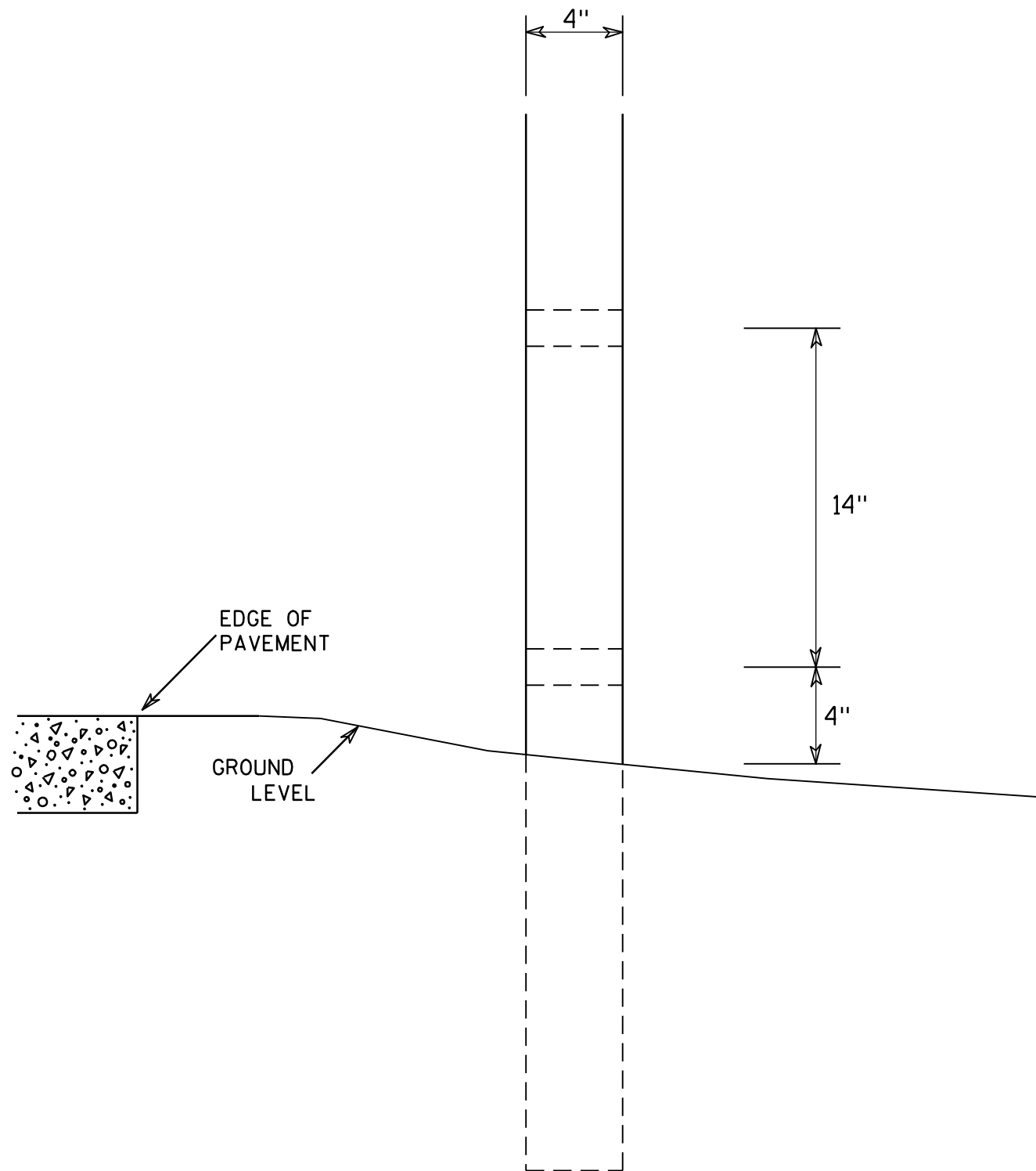
**TUBULAR STEEL  
SIGN POST  
A4-9**

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*  
for State Traffic Engineer

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





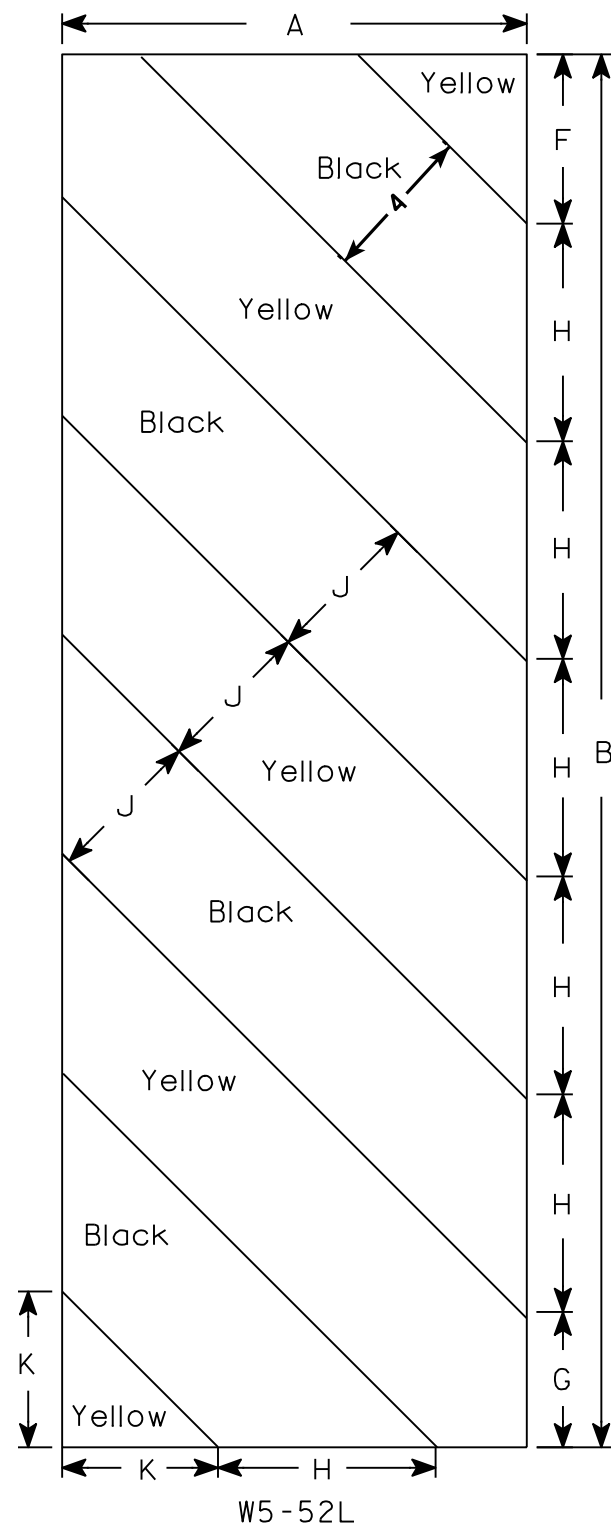
GENERAL NOTES

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

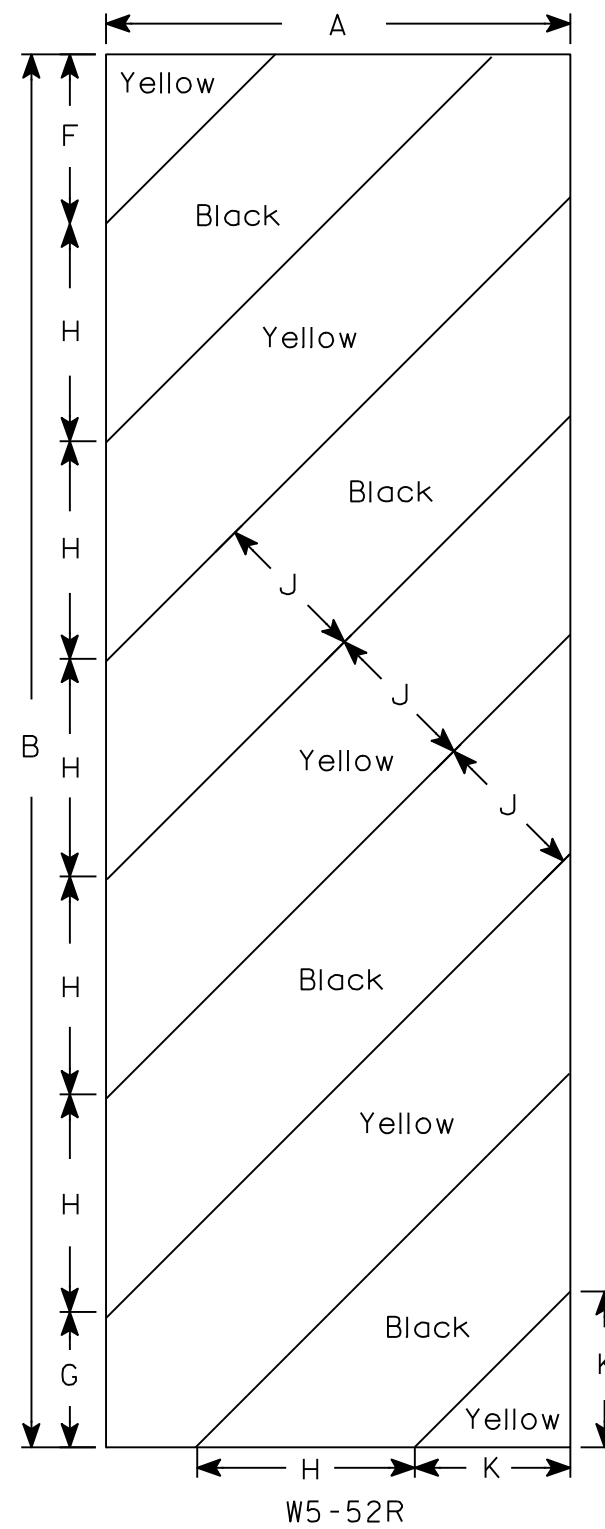
7

7

<b>4 X 6 WOOD POST MODIFICATIONS</b>	
<i>WISCONSIN DEPT OF TRANSPORTATION</i>	
APPROVED	<i>Chester J Spang</i> for State Traffic Engineer
DATE <u>3/27/97</u>	PLATE NO. <u>A4-11.2</u>



W5-52L



W5-52R

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.

7

7

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

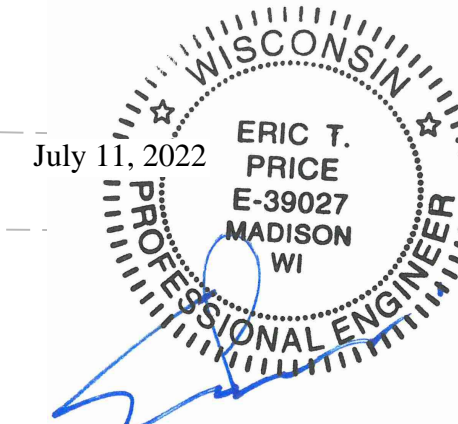
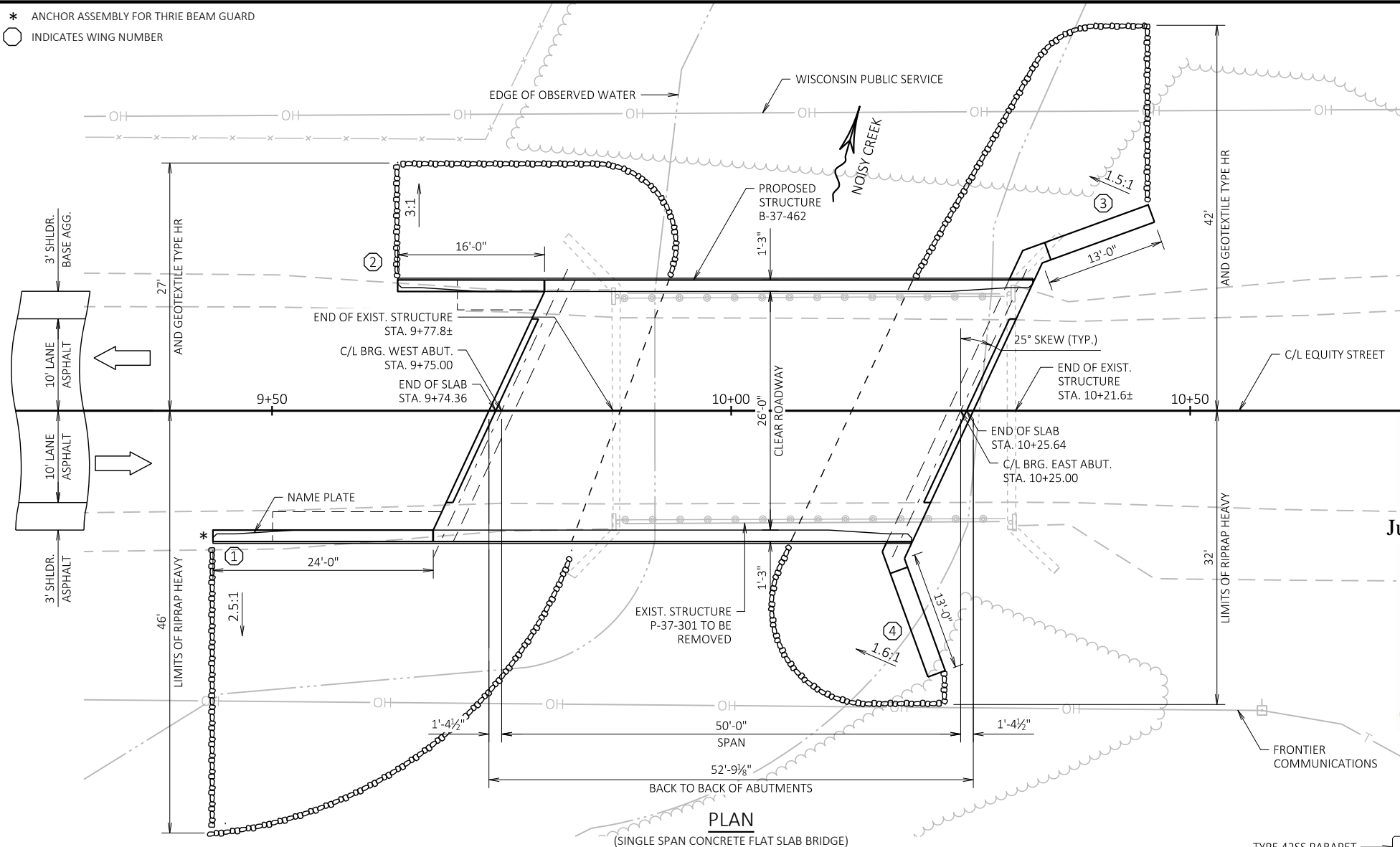
DATE 5/29/12 PLATE NO. W5-52.9

PROJECT NO: \_\_\_\_\_ HWY: \_\_\_\_\_ COUNTY: \_\_\_\_\_ SHEET NO: \_\_\_\_\_ E

\* ANCHOR ASSEMBLY FOR THRIE BEAM GUARD  
 ○ INDICATES WING NUMBER

STATE PROJECT NUMBER

6678-01-70



**DESIGN DATA**

DESIGN LOADING \_\_\_\_\_ HL-93  
 INVENTORY RATING FACTOR \_\_\_\_\_ 1.15  
 OPERATIONAL RATING FACTOR \_\_\_\_\_ 1.50  
 WISCONSIN STANDARD PERMIT VEHICLE (WIS-SPV) \_\_\_\_\_ 250 KIPS  
 STRUCTURE IS DESIGNED FOR A FUTURE WEARING SURFACE OF 20 PSF.

**MATERIAL PROPERTIES**

CONCRETE MASONRY, SUPERSTRUCTURE \_\_\_\_\_  $f_c = 4,000$  PSI  
 ALL OTHER \_\_\_\_\_  $f_c = 3,500$  PSI  
 HIGH STRENGTH BAR STEEL REINFORCEMENT \_\_\_\_\_  $f_y = 60,000$  PSI

**TRAFFIC DATA**

ADT (2023) = 185  
 ADT (2043) = 198  
 DESIGN SPEED = 45 MPH

**FOUNDATION DATA**

ABUTMENTS TO BE SUPPORTED ON HP 10-INCH X 42 LB STEEL PILING SEATED IN PREBORED HOLES CORED 3 FEET MINIMUM INTO ROCK. PILE DRIVING IS NOT REQUIRED.

THE FACTORED AXIAL RESISTANCE OF PILES IN COMPRESSION USED FOR DESIGN IS 180 TONS MULTIPLIED BY A RESISTANCE FACTOR OF 0.5. ESTIMATED 15' LONG AT THE WEST ABUTMENT AND 10' AT THE EAST ABUTMENT.

**HYDRAULIC DATA**

**100 YEAR FREQUENCY**  
 $Q_{100} = 2,785$  C.F.S.  
 VEL. = 7.4 F.P.S.  
 HW<sub>100</sub> = EL. 1177.13  
 WATERWAY AREA = 375 SQ. FT.  
 DRAINAGE AREA = 12.4 SQ. MI.  
 SCOUR CRITICAL CODE = 5  
 OVERTOPPING FREQUENCY = N/A

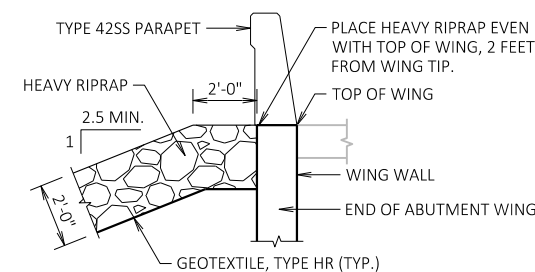
**2 YEAR FREQUENCY**

$Q_2 = 635$  C.F.S.  
 VEL. = 2.7 F.P.S.  
 HW<sub>2</sub> = EL. 1173.10

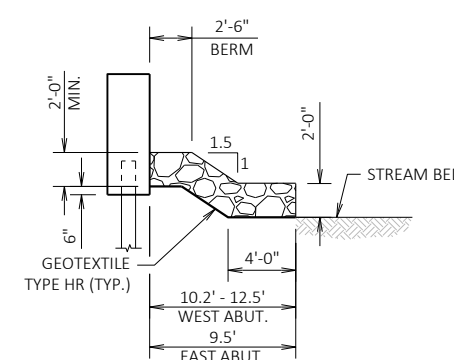
**LIST OF DRAWINGS**

1. GENERAL PLAN
2. CROSS SECTION & QUANTITIES
3. SUBSURFACE EXPLORATION
4. WEST ABUTMENT
5. WEST ABUTMENT DETAILS
6. EAST ABUTMENT
7. EAST ABUTMENT DETAILS
8. SUPERSTRUCTURE
9. SUPERSTRUCTURE DETAILS
10. SINGLE SLOPE PARAPET 42SS

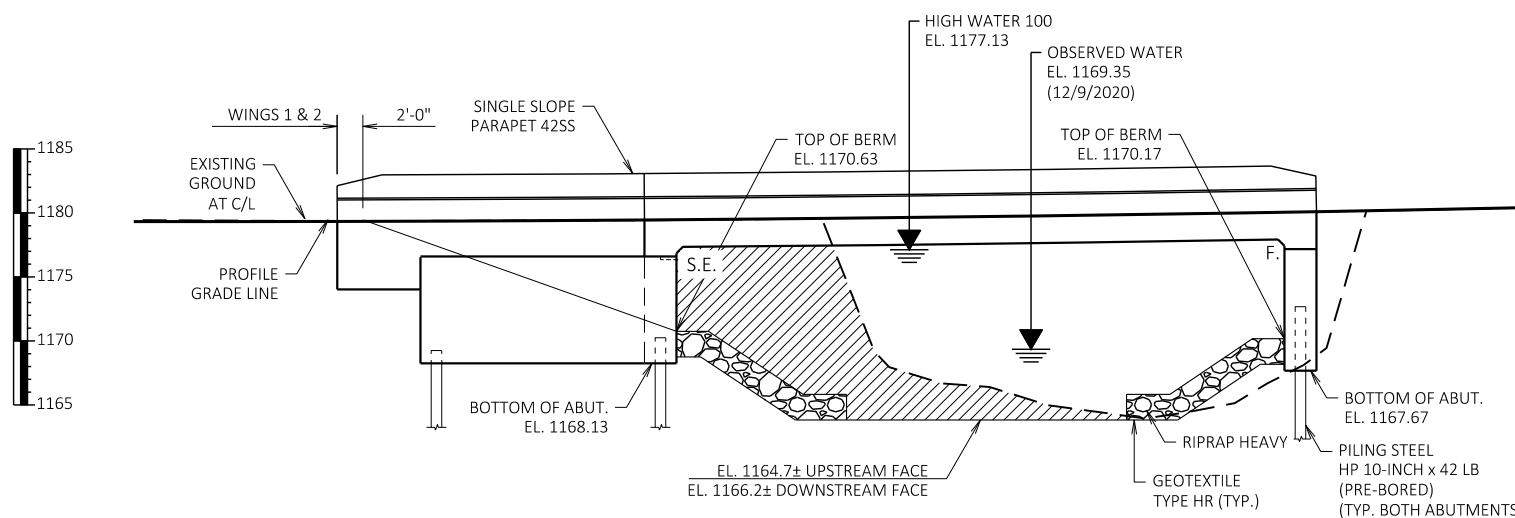
**PLAN**  
 (SINGLE SPAN CONCRETE FLAT SLAB BRIDGE)



**TYPICAL FILL SECTION AT WINGS 1 & 2**



**RIPRAP DETAIL**



**ELEVATION**  
 (LOOKING NORTH)

AREA TO EXCAVATE INCLUDED IN "EXCAVATION FOR STRUCTURES BRIDGES B-37-462"

**BENCH MARKS**

NO.	STATION	DESCRIPTION	ELEV.
BM 5	8+43.57	6" NAIL IN POWER POLE, 31.08' LT	1178.14
BM 6	13+32.79	6" NAIL IN POWER POLE, 31.95' LT	1189.80

**BRIDGE OFFICE CONTACT**  
 AARON BONK, P.E.  
 TELEPHONE: (608) 261-0261

**CONSULTANT CONTACT**  
 ERIC PRICE, P.E.  
 TELEPHONE: (608) 826-6146

NO.	DATE	REVISION	BY

**CORRE**

STATE OF WISCONSIN  
 DEPARTMENT OF TRANSPORTATION

ACCEPTED \_\_\_\_\_ SDR 08/15/22  
 CHIEF STRUCTURES DESIGN ENGINEER DATE

**STRUCTURE B-37-462**

EQUITY STREET OVER NOISY CREEK

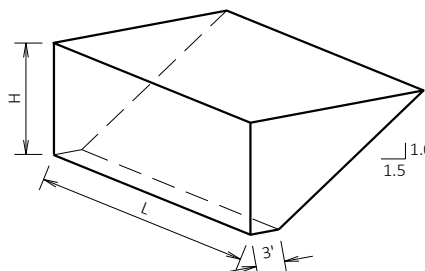
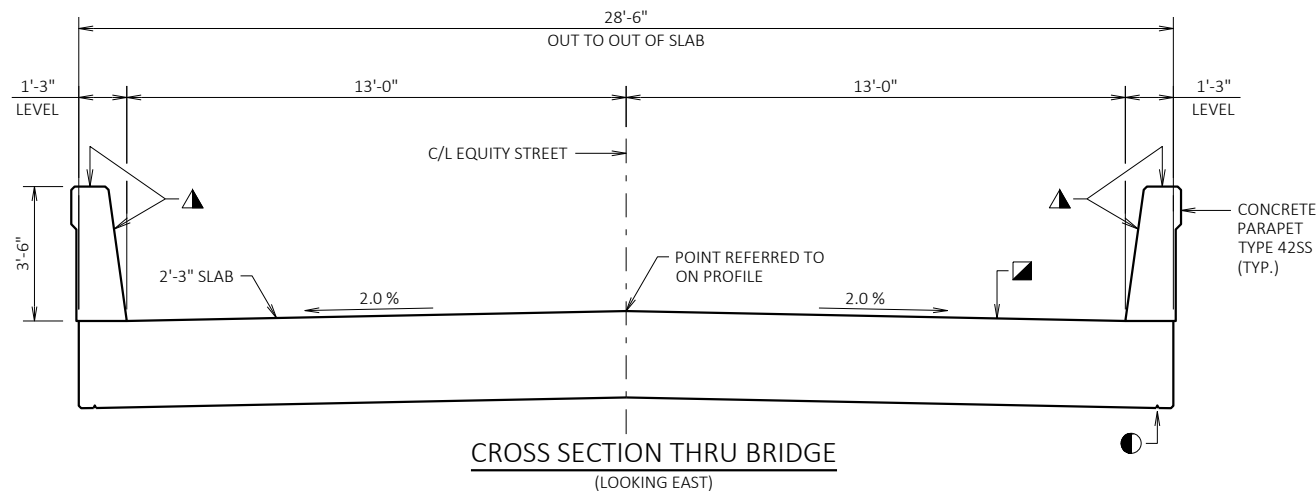
COUNTY MARATHON TOWN/VILLAGE EAU PLEINE

DESIGN SPEC. AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS

DESIGNED BY ETP	DESIGN CK'D. BH	DRAWN BY PKF	PLANS CK'D. ETP
-----------------	-----------------	--------------	-----------------

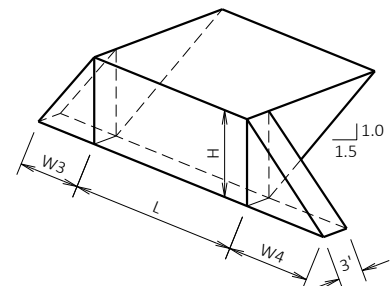
**GENERAL PLAN**

SHEET 1 OF 10



WEST ABUTMENT BACKFILL DIAGRAM

- L = OUT TO OUT OF ABUTMENT, INCLUDING WINGS (FT)
- H = AVERAGE ABUTMENT FILL HEIGHT (FT)
- EF = EXPANSION FACTOR (1.20 FOR CY BID ITEMS AND 1.00 FOR TON BID ITEMS)
- $V_{CF} = (L)(3.0')(H) + (L)(0.5)(1.5H)(H)$
- $V_{CY} = V_{CF}(EF)/27$
- $V_{TON} = V_{CY}(2.0)$



EAST ABUTMENT BACKFILL DIAGRAM

- L = LENGTH OF ABUTMENT BODY BETWEEN WINGS AT B.F. (FT)
- H = AVERAGE ABUTMENT FILL HEIGHT (FT)
- W3 = WING 3 LENGTH (FT)
- W4 = WING 4 LENGTH (FT)
- EF = EXPANSION FACTOR (1.20 FOR CY BID ITEMS AND 1.00 FOR TON BID ITEMS)
- $V_{CF} = (L)(3.0')(H) + (L)(0.5)(1.5H)(H) + (3.0' \times 0.5)(W3+W4)(H)$
- $V_{CY} = V_{CF}(EF)/27$
- $V_{TON} = V_{CF}(2.0)$

GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.

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

THE FIRST DIGIT OF A THREE DIGIT BAR NO. AND THE FIRST TWO DIGITS OF A FOUR DIGIT BAR NO. SIGNIFIES THE BAR SIZE.

JOINT FILLER SHALL CONFORM TO THE REQUIREMENTS OF AASHTO DESIGNATION M153 TYPE I, II OR III OR AASHTO DESIGNATION M213.

THE SLOPE OF THE FILL IN FRONT OF THE ABUTMENTS SHALL BE COVERED WITH RIPRAP HEAVY AND GEOTEXTILE TYPE HR TO THE EXTENT SHOWN ON THE GENERAL PLAN SHEET AND IN THE ABUTMENT DETAILS, OR AS DIRECTED BY THE ENGINEER.

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

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.

THE UPPER LIMITS OF "EXCAVATION FOR STRUCTURES BRIDGES B-37-462" SHALL BE THE EXISTING GROUNDLINE.

THE EXISTING STRUCTURE P-37-301, TO BE REMOVED, IS A SINGLE SPAN STEEL DECK GIRDER BRIDGE, 43.8 FT. LONG WITH A 23.0 FT. CLEAR ROADWAY WIDTH.

THE BACKFILL QUANTITIES ARE BASED ON THE LIMITS SHOWN ON THIS SHEET AND MAY NOT REFLECT ACTUAL PLACED QUANTITIES. "BACKFILL STRUCTURE TYPE A" REQUIRED DIRECTLY BEHIND ABUTMENTS AND WINGS FOR 3 FEET. BACKFILL PLACED BEYOND PAY LIMITS OR EXCEEDING PLAN QUANTITIES SHALL BE INCIDENTAL TO EXCAVATION FOR STRUCTURES.

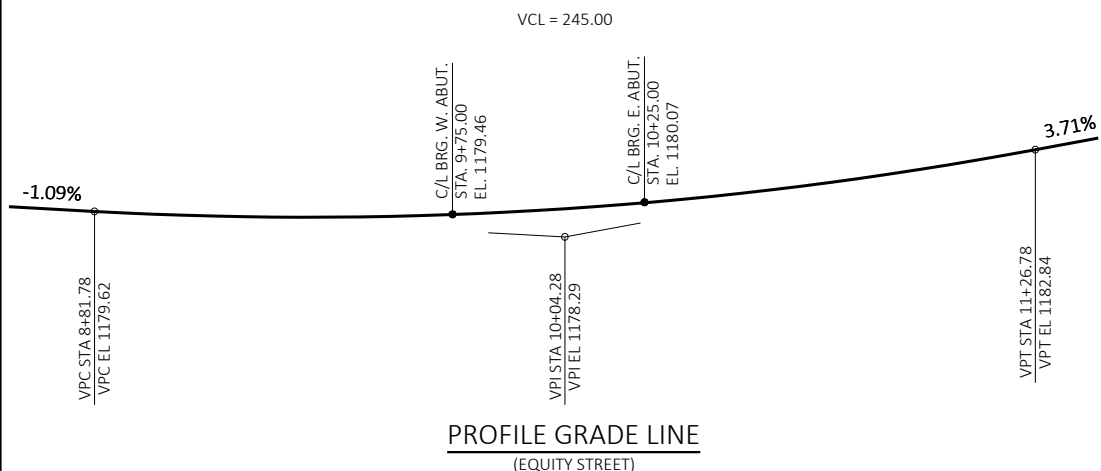
PROTECTIVE SURFACE TREATMENT TO BE APPLIED TO THE ENTIRE EXPOSED TOP OF SLAB AND TO THE VERTICAL AND HORIZONTAL SURFACES OF THE PAVING NOTCHES AT BOTH ABUTMENTS.

PIGMENTED SURFACE SEALER SHALL BE APPLIED TO THE ENTIRE INSIDE FACE AND TOP SURFACE OF THE PARAPETS ON THE STRUCTURE AND WINGS 1 & 2.

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

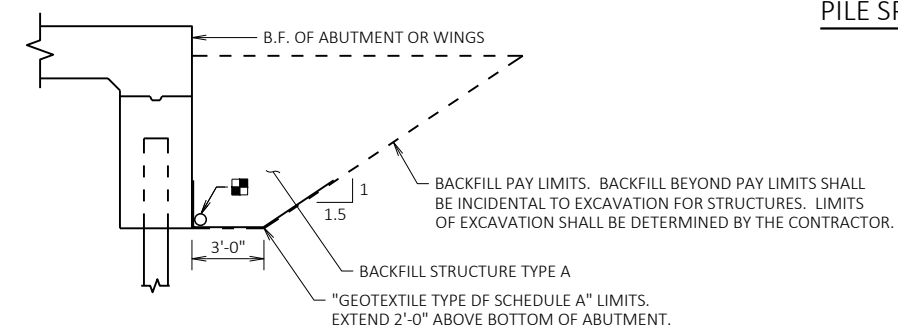
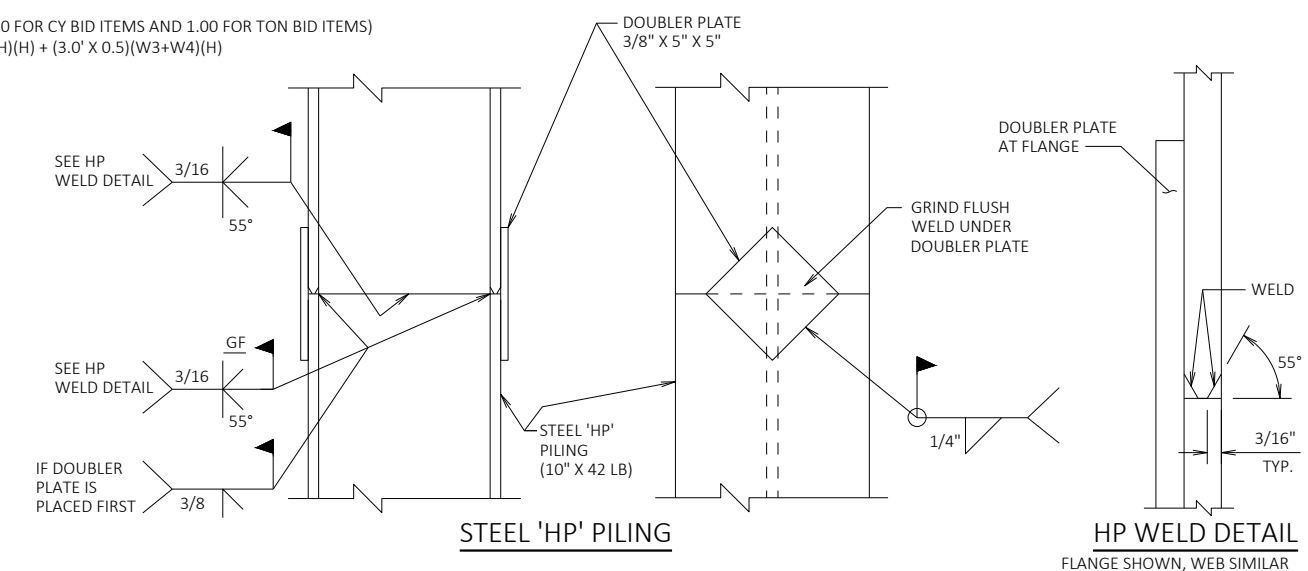
LEGEND

- 3/4" V-GROOVE REQ'D. EXTEND 6" FROM F.F. OF ABUTMENT BODY.
- COAT WITH "PROTECTIVE SURFACE TREATMENT" AS PER THE STANDARD SPECIFICATIONS.
- COAT WITH "PIGMENTED SURFACE SEALER" AS PER THE STANDARD SPECIFICATIONS.



TOTAL ESTIMATED QUANTITIES

BID NUMBER	BID ITEM	UNIT	WEST ABUT	EAST ABUT	SUPER	TOTALS
203.0260	REMOVING STRUCTURE OVER WATERWAY MINIMAL DEBRIS P-37-301	EACH	----	----	----	1
206.1001	EXCAVATION FOR STRUCTURES BRIDGES B-37-462	EACH	----	----	----	1
210.1500	BACKFILL STRUCTURE TYPE A	TON	255	375	----	630
502.0100	CONCRETE MASONRY BRIDGES	CY	62.4	53.1	143.5	259
502.3200	PROTECTIVE SURFACE TREATMENT	SY	----	----	158	158
502.3210	PIGMENTED SURFACE SEALER	SY	20	----	52	72
505.0400	BAR STEEL REINFORCEMENT HS STRUCTURES	LB	3,340	2,760	----	6,100
505.0600	BAR STEEL REINFORCEMENT HS COATED STRUCTURES	LB	3,560	2,760	27,120	33,440
516.0500	RUBBERIZED MEMBRANE WATERPROOFING	SY	11	7	----	18
550.0020	PREBORING ROCK OR CONSOLIDATED MATERIAL	LF	96	42	----	138
550.1100	PILING STEEL HP 10-INCH X 42 LB	LF	120	70	----	190
606.0300	RIPRAP HEAVY	CY	170	125	----	295
612.0406	PIPE UNDERDRAIN WRAPPED 6-INCH	LF	80	90	----	170
614.0150	ANCHOR ASSEMBLIES FOR STEEL PLATE BEAM GUARD	EACH	1	----	----	1
645.0111	GEOTEXTILE TYPE DF SCHEDULE A	SY	31	59	----	90
645.0120	GEOTEXTILE TYPE HR	SY	230	165	----	395
NON-BID ITEMS						
	FILLER	SIZE	----	----	----	1/2" & 3/4"

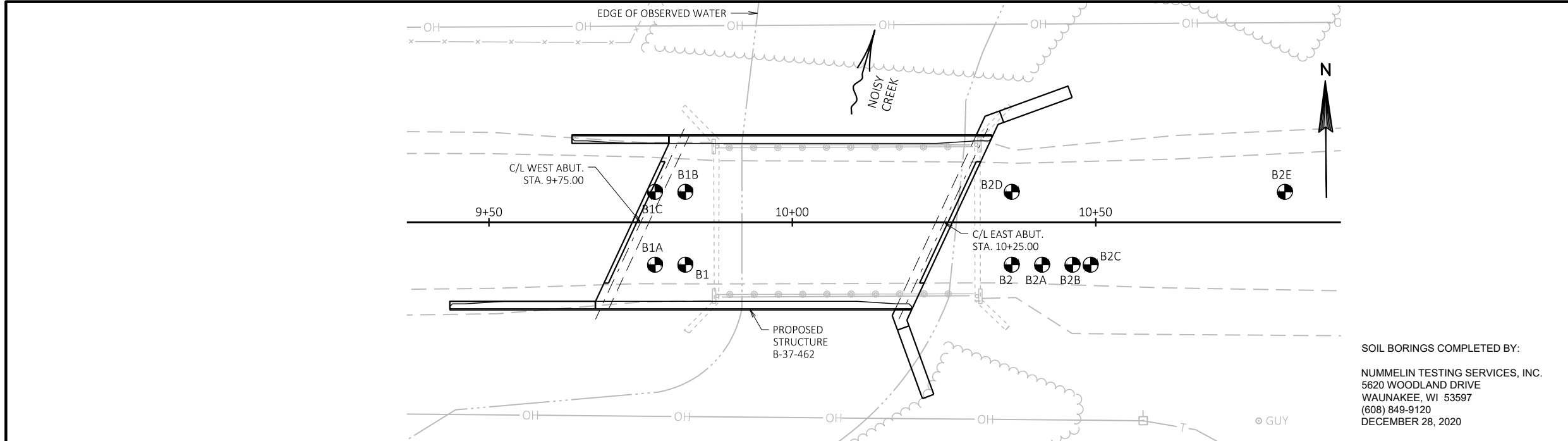


STRUCTURE BACKFILL LIMITS

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

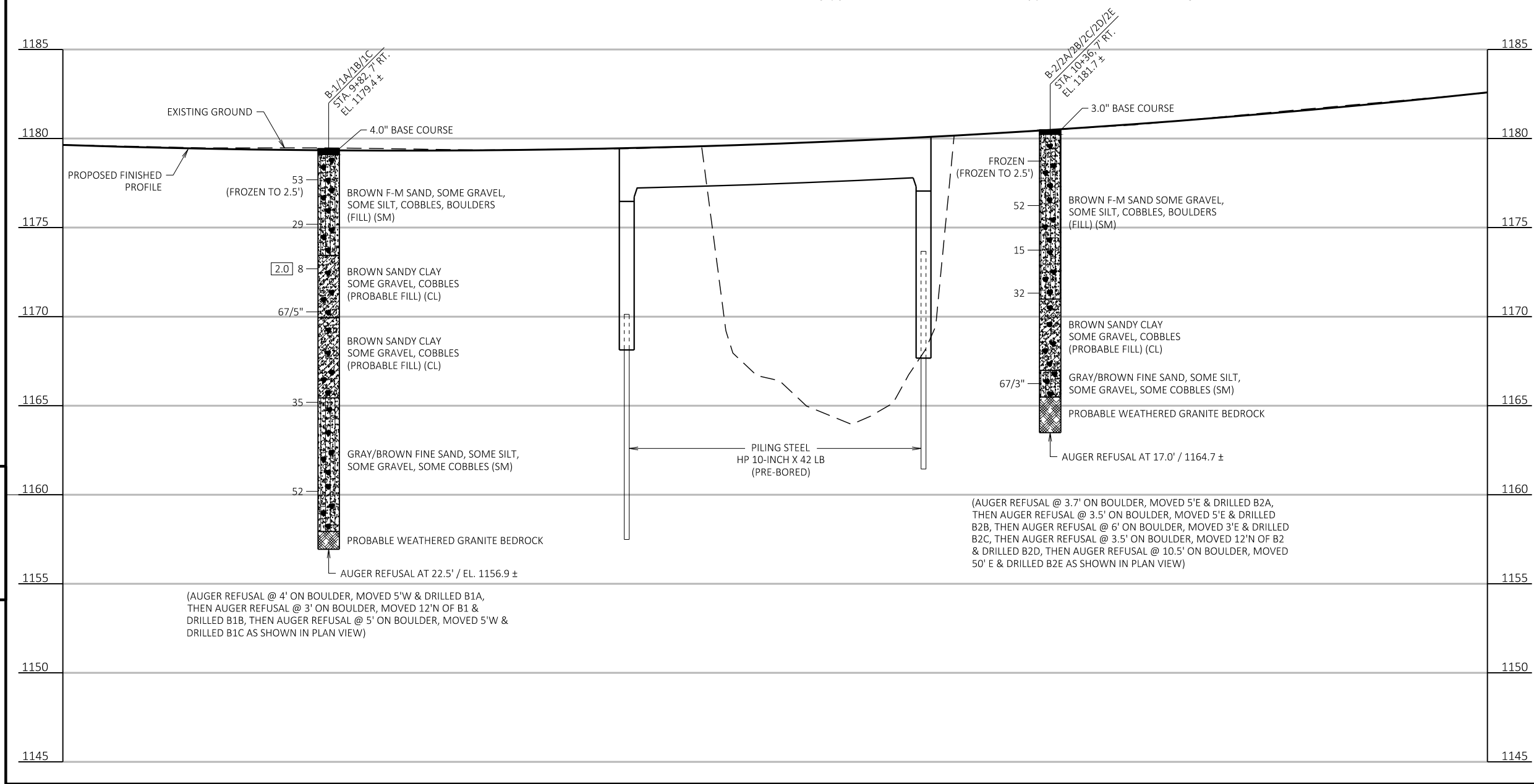
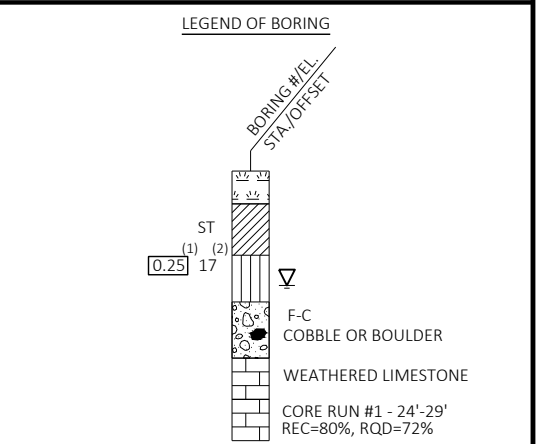
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-37-462</b>			
DRAWN BY PKF		PLANS CK'D. ETP	
<b>CROSS SECTION &amp; QUANTITIES</b>			SHEET 2 OF 10





SOIL BORINGS COMPLETED BY:  
 NUMMELIN TESTING SERVICES, INC.  
 5620 WOODLAND DRIVE  
 WAUNAKEE, WI 53597  
 (608) 849-9120  
 DECEMBER 28, 2020

STATE PROJECT NUMBER		
6678-01-70		
MATERIAL SYMBOLS		
ASPHALT	TOPSOIL	PEAT
CONCRETE	FILL	GRAVEL
SAND	CLAY	SILT
BOULDERS OR COBBLES	LIMESTONE	BEDROCK (UNKNOWN)
SHALE	SANDSTONE	IGNEOUS/META



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

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

GROUND WATER ELEVATION

▽ AT TIME OF DRILLING

▼ END OF DRILLING

▼ AFTER DRILLING

ABBREVIATIONS

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

SUBSURFACE EXPLORATION FOR FOUNDATION DESIGN AND BIDDERS INFORMATION

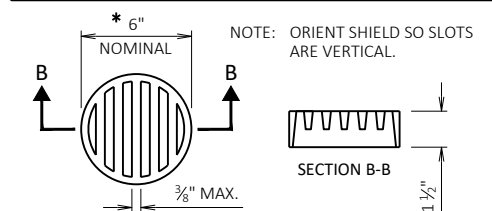
BORINGS WERE COMPLETED AT POINTS APPROXIMATELY AS INDICATED ON THIS DRAWING TO OBTAIN INFORMATION CONCERNING THE CHARACTER OF SUBSURFACE MATERIALS FOUND AT THE SITE. BECAUSE THE INVESTIGATED DEPTHS ARE LIMITED AND THE AREA OF THE BORINGS IS VERY SMALL IN RELATION TO THE ENTIRE SITE, THE WISCONSIN DEPARTMENT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

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-37-462			
DRAWN BY PKF		PLANS CK'D. ETP	
SUBSURFACE EXPLORATION			SHEET 3 OF 10

LEGEND

- INDICATES WING NUMBER
- A01 STEEL TROWEL TOP SURFACE OF ABUTMENT. PLACE MULTIPLE LAYERS OF POLYETHYLENE SHEETS OVER ENTIRE ABUTMENT TOP BEFORE PLACING SUPERSTRUCTURE. TOTAL THICKNESS OF SHEETS SHALL BE AT LEAST 0.03".
- A09 ABUTMENT TO BE SUPPORTED ON HP 10-INCH x 42 LB STEEL PILING SEATED IN PREBORED HOLES CORED 3 FEET MINIMUM INTO ROCK. PILE DRIVING IS NOT REQUIRED. ESTIMATED 15' LONG.
- A15 PIPE UNDERDRAIN WRAPPED 6-INCH. SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. ATTACH RODENT SHIELD AT ENDS OF PIPE UNDERDRAIN. RODENT SHIELD TO BE INCLUDED IN BID PRICE OF "PIPE UNDERDRAIN WRAPPED 6-INCH".
- A17 1/2" FILLER: SEAL ALL EXPOSED HORIZONTAL AND VERTICAL SURFACES OF 1/2" FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. (1" DEEP AND HOLD 1/8" BELOW SURFACE OF CONCRETE.)
- A18 3/4" CORK FILLER ON VERTICAL SEAT FACES THAT RUN PARALLEL WITH ROADWAY.
- A19 18" RUBBERIZED MEMBRANE WATERPROOFING. SEAL ALL HORIZONTAL AND VERTICAL JOINTS ON BACKFACE.

B.F. DENOTES BACK FACE  
F.F. DENOTES FRONT FACE  
E.F. DENOTES EACH FACE

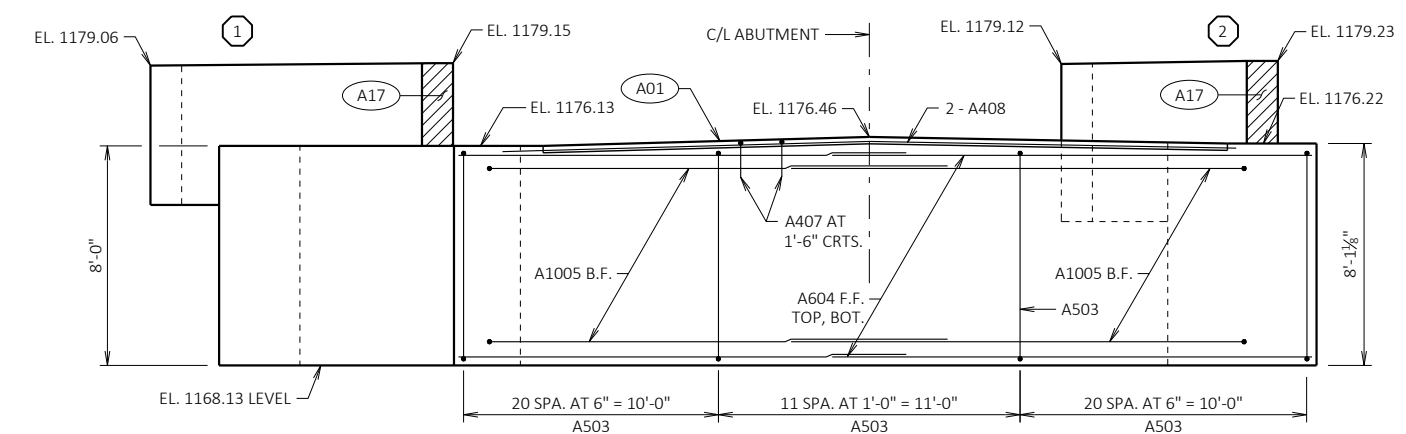


\* DIMENSION IS APPROXIMATE. THE GRATE IS SIZED TO FIT INTO A PIPE COUPLING.

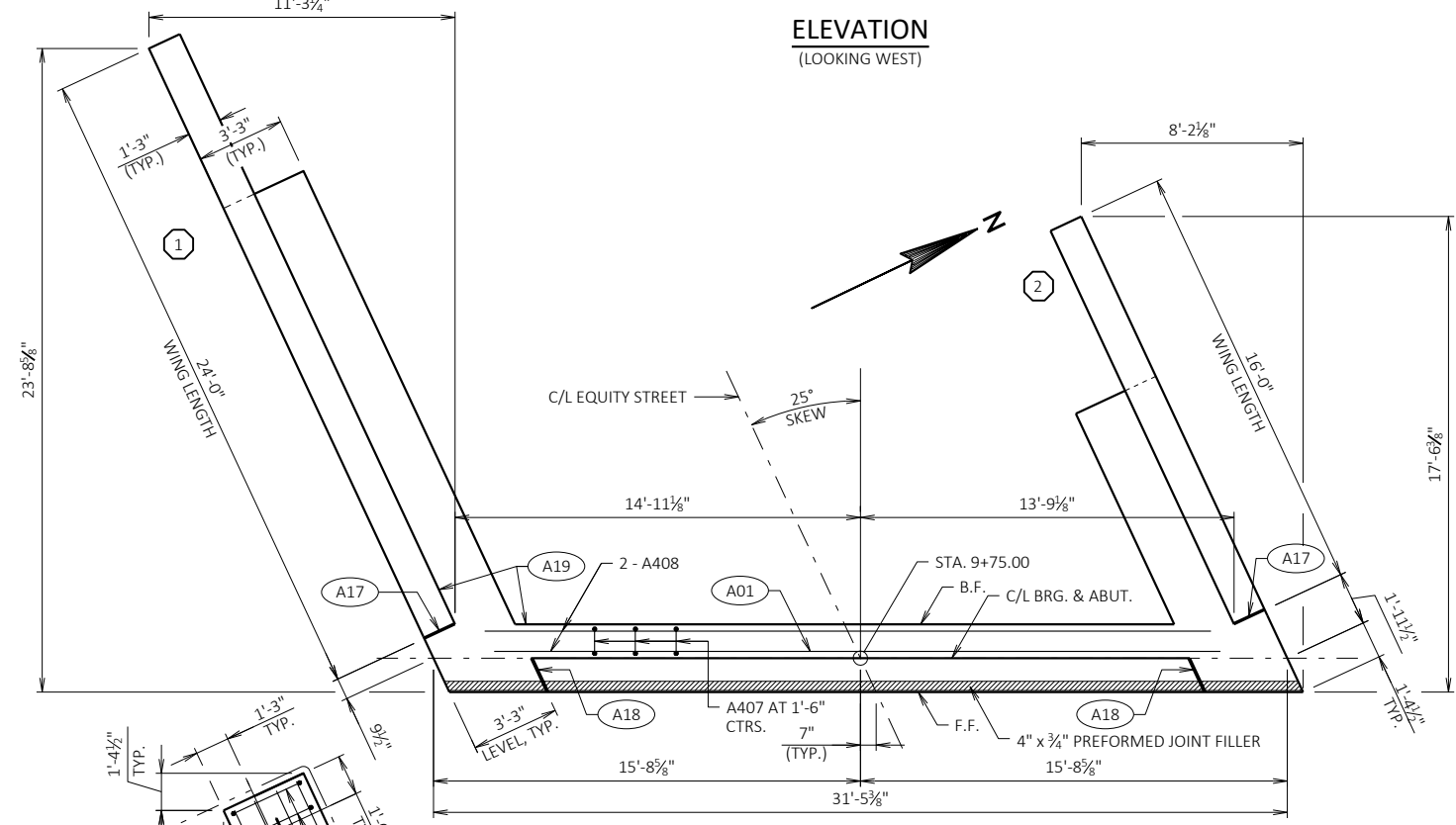
RODENT SHIELD DETAIL

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

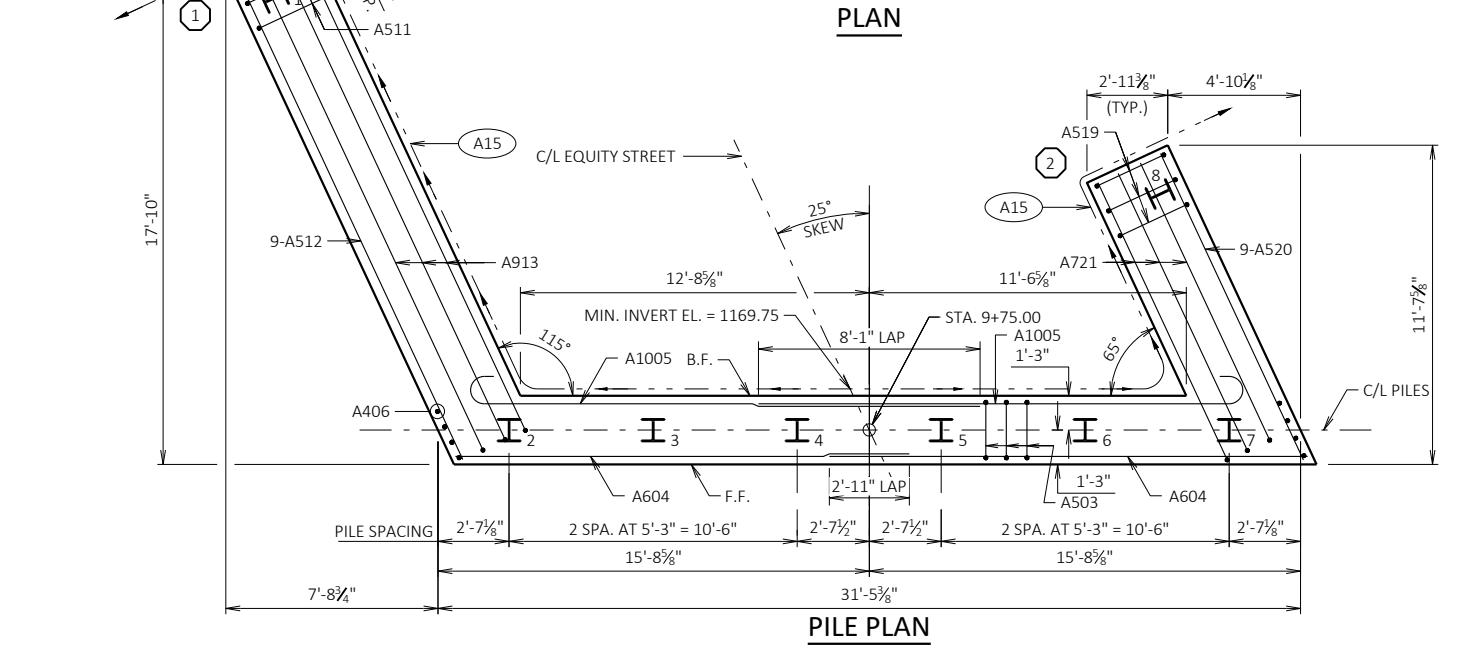
THE RODENT SHIELD SHALL BE A PVC GRATE SIMILAR TO THIS DETAIL. THE GRATE IS COMMERCIALY AVAILABLE AS A FLOOR STRAINER. A PIPE COUPLING IS REQUIRED FOR THE ATTACHMENT OF THIS SHIELD TO THE OUTFALL PIPE. THE SHIELD SHALL BE FASTENED TO THE PIPE COUPLING WITH TWO OR MORE NO. 10 X 1-INCH SCREWS.



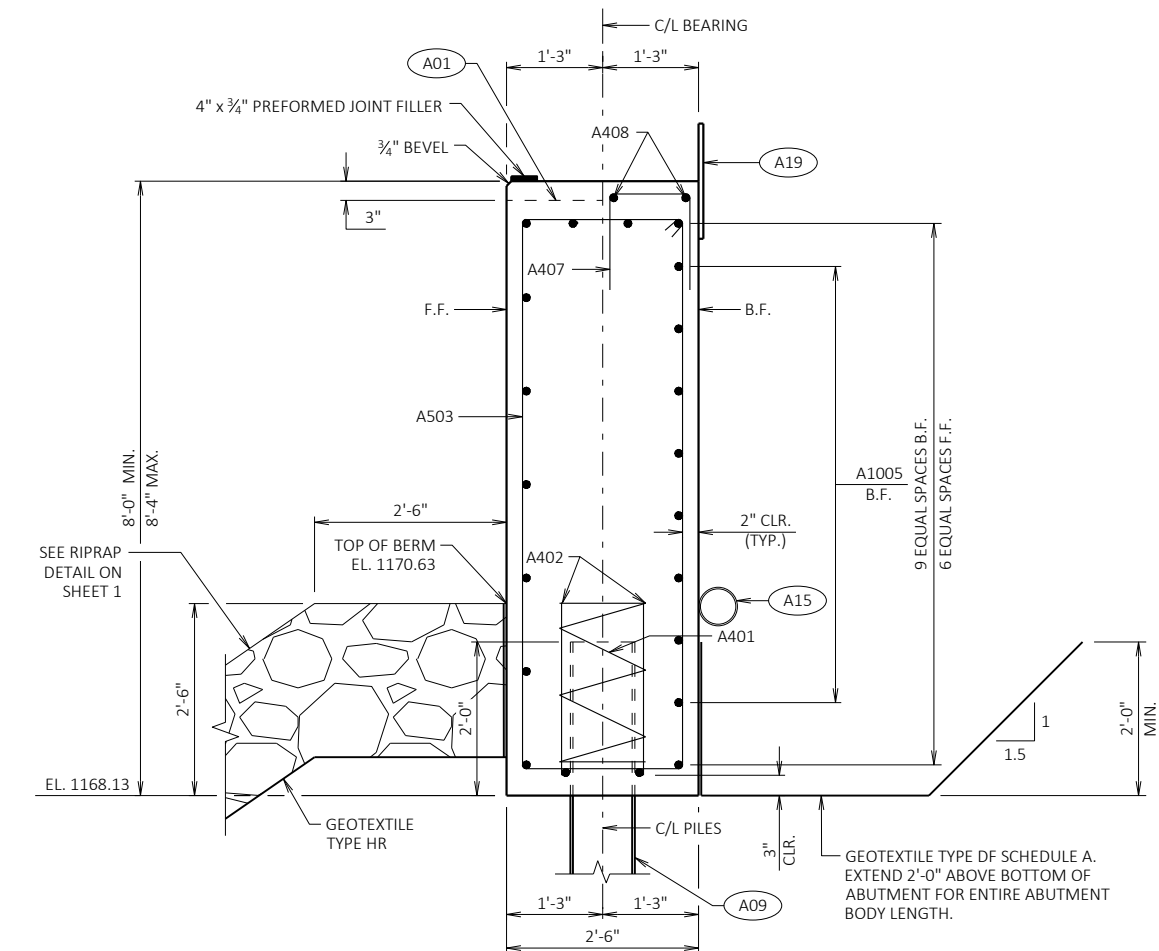
ELEVATION  
(LOOKING WEST)



PLAN



PILE PLAN

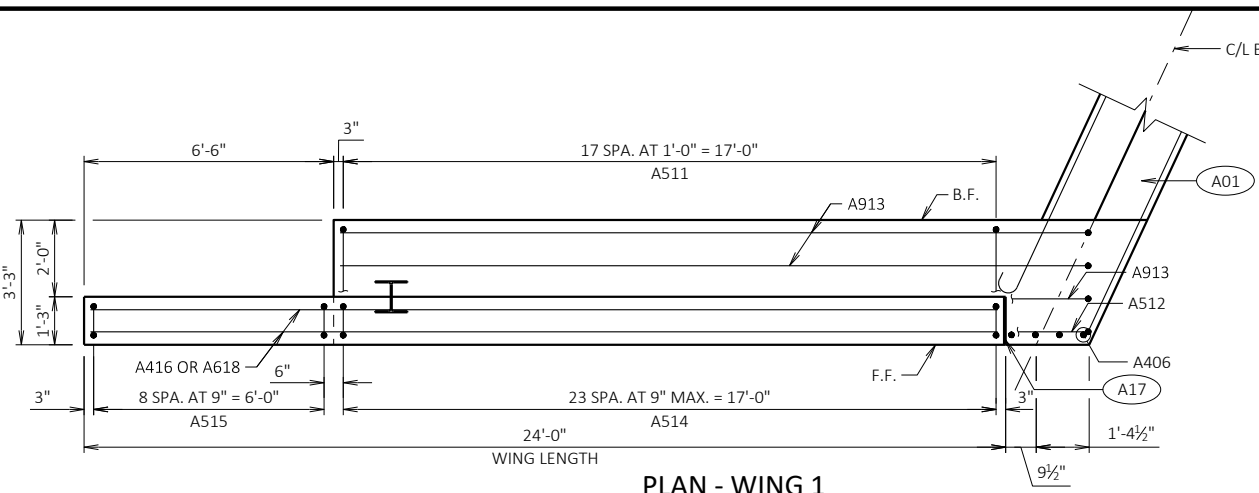


SECTION THRU BODY

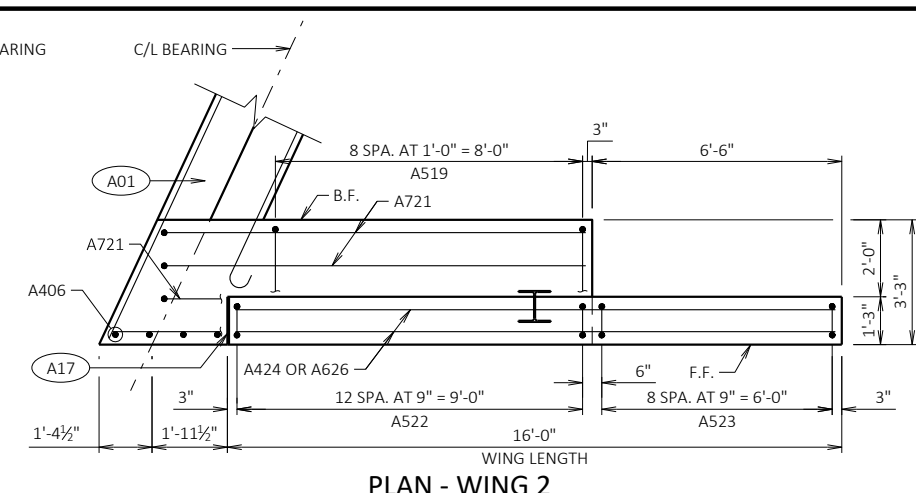
HORIZONTAL BARS NOT OTHERWISE IDENTIFIED ARE A604 BARS.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-37-462</b>			
DRAWN BY		PKF	PLANS CK'D. ETP
<b>WEST ABUTMENT</b>			SHEET 4 OF 10

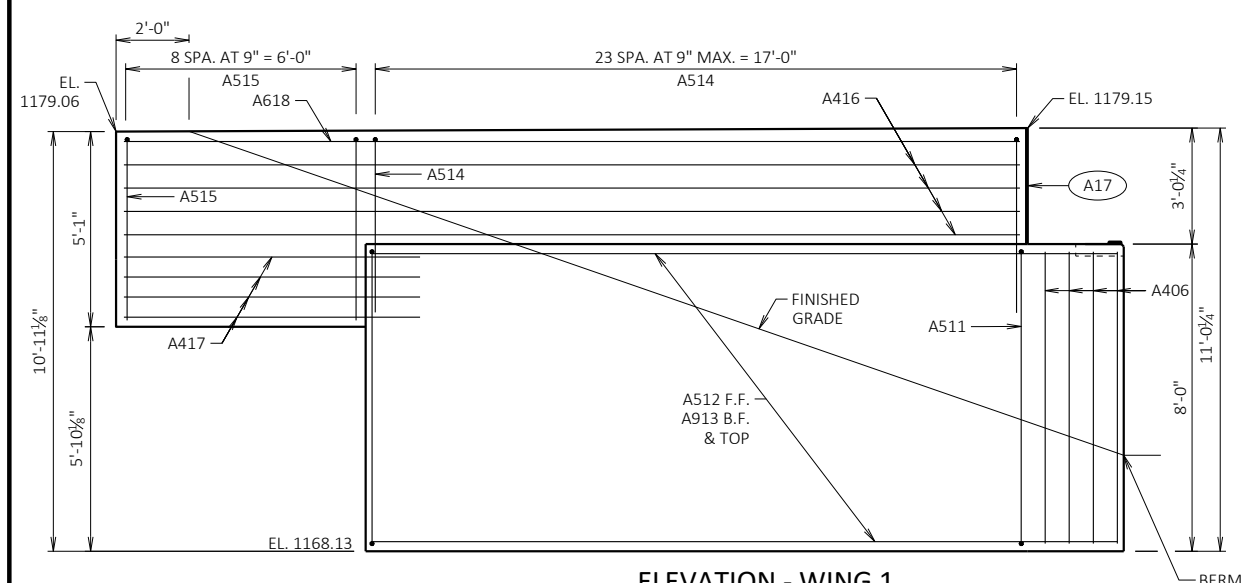




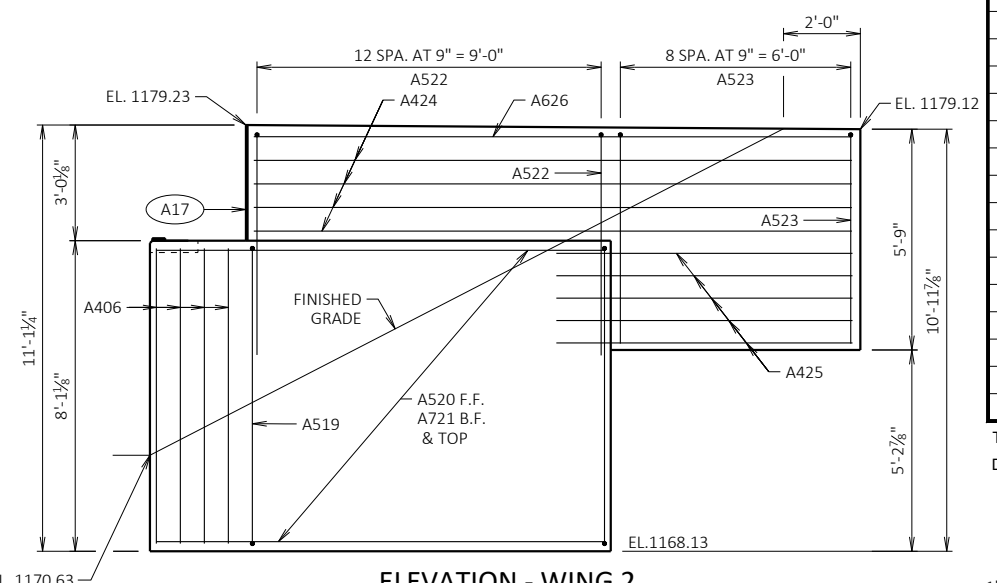
PLAN - WING 1



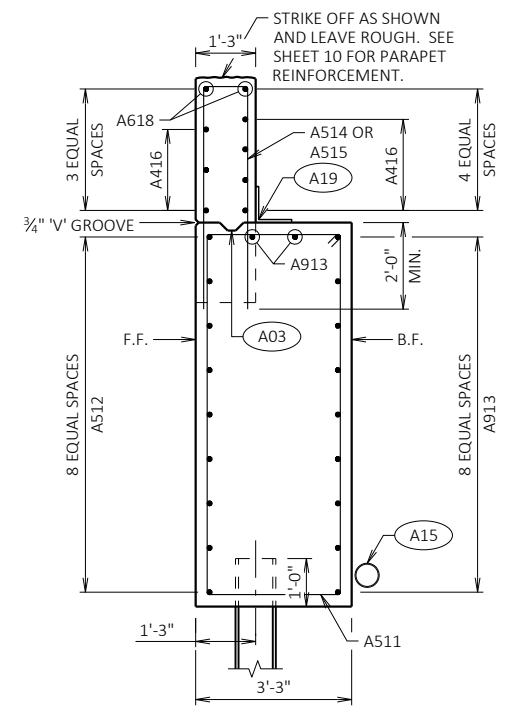
PLAN - WING 2



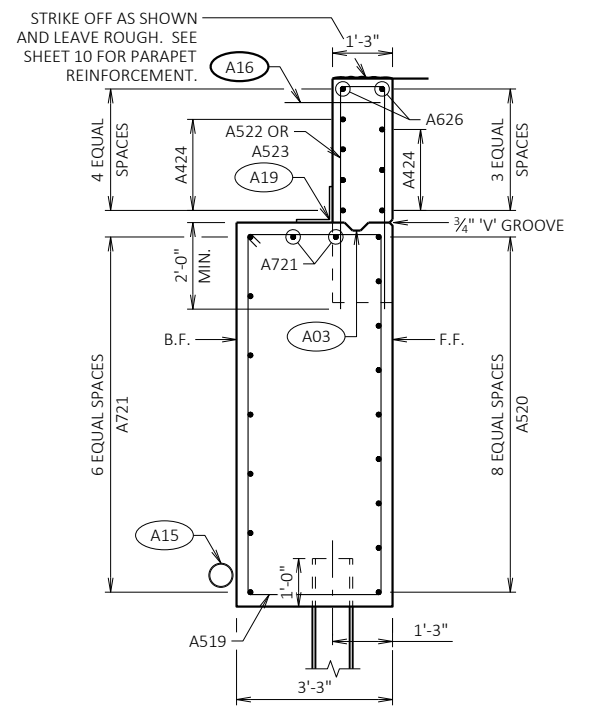
ELEVATION - WING 1



ELEVATION - WING 2



SECTION THRU WING 1



SECTION THRU WING 2

LEGEND

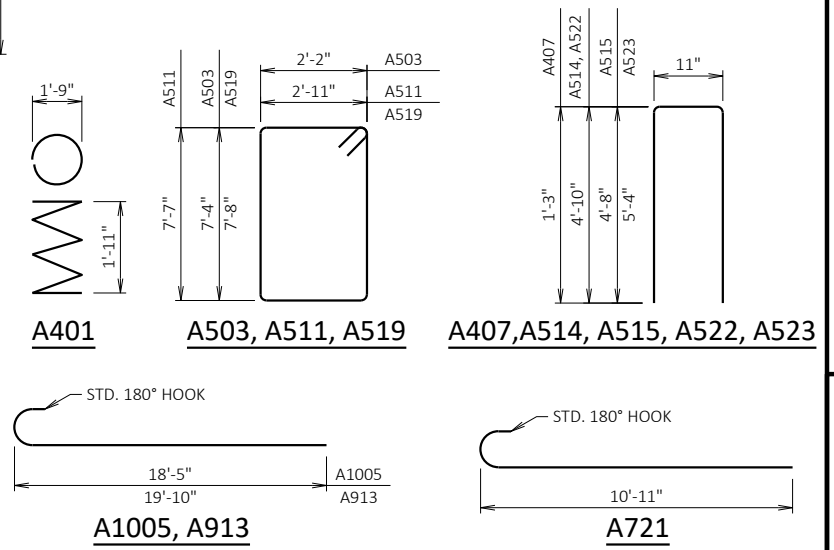
- INDICATES WING NUMBER
- A01 STEEL TROWEL TOP SURFACE OF ABUTMENT. PLACE MULTIPLE LAYERS OF POLYETHYLENE SHEETS OVER ENTIRE ABUTMENT TOP BEFORE PLACING SUPERSTRUCTURE. TOTAL THICKNESS OF SHEETS SHALL BE AT LEAST 0.03".
- A03 OPTIONAL KEYED CONST. JOINT FORMED BY BEVELED 2"x6". SEAL JOINT ON B.F. WITH RUBBERIZED MEMBRANE WATERPROOFING IF USED (COST INCIDENTAL TO CONCRETE MASONRY BRIDGES).
- A09 ABUTMENT TO BE SUPPORTED ON HP 10-INCH x 42 LB STEEL PILING SEATED IN PREBORED HOLES CORED 3 FEET MINIMUM INTO ROCK. PILE DRIVING IS NOT REQUIRED. ESTIMATED 15' LONG.
- A15 PIPE UNDERDRAIN WRAPPED 6-INCH. SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. ATTACH RODENT SCREEN AT ENDS OF PIPE UNDERDRAIN. RODENT SHIELD TO BE INCLUDED IN BID PRICE OF "PIPE UNDERDRAIN WRAPPED 6-INCH".
- A16 A427 BARS AT 1'-0" CTRS. EMBED 1'-0" INTO WING CONCRETE. LOCATE 3" DOWN FROM TOP OF WING AT ABUTMENT TO 6" DOWN AT WING TIP.
- A17 1/2" FILLER: SEAL ALL EXPOSED HORIZONTAL AND VERTICAL SURFACES OF 1/2" FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. (1" DEEP AND HOLD 1/8" BELOW SURFACE OF CONCRETE.)
- A19 18" RUBBERIZED MEMBRANE WATERPROOFING. SEAL ALL HORIZONTAL AND VERTICAL JOINTS ON BACKFACE.

B.F. DENOTES BACK FACE  
F.F. DENOTES FRONT FACE  
E.F. DENOTES EACH FACE

BILL OF BARS - WEST ABUTMENT

BAR MARK	NO. REQ'D	LENGTH	BENT	BAR SERIES	LOCATION
<b>NON-COATED BARS</b>					
					TOTAL WEIGHT = 3,340 LBS
A401	6	28'-0"	X		BODY - AT PILES - 1 PER PILE VERT.
A402	12	2'-3"			BODY - AT PILES - 2 PER PILE VERT.
A503	52	19'-8"	X		BODY - STIRRUPS VERT.
A604	26	17'-0"			BODY HORIZ.
A1005	16	19'-10"	X		BODY - B.F. HORIZ.
A406	8	7'-8"			BODY - ENDS VERT.
A407	17	3'-3"	X		BODY - TOP VERT.
A408	2	26'-9"			BODY - TOP HORIZ.
<b>COATED BARS</b>					
					TOTAL WEIGHT = 2,930 LBS
A511	18	21'-8"	X		WING 1 FTG - STIRRUPS VERT.
A512	9	19'-4"			WING 1 - F.F. HORIZ.
A913	11	21'-1"	X		WING 1 - TOP & B.F. HORIZ.
A514	24	10'-4"	X		WING 1 - TOP - STIRRUPS VERT.
A515	9	10'-0"	X		WING 1 - TOP - STIRRUPS VERT.
A416	7	23'-8"			WING 1 - E.F. HORIZ.
A417	8	7'-9"			WING 1 - E.F. HORIZ.
A618	2	23'-8"			WING 1 - TOP HORIZ.
A519	9	21'-10"	X		WING 2 FTG - STIRRUPS VERT.
A520	9	12'-5"			WING 2 - F.F. HORIZ.
A721	9	11'-9"	X		WING 2 - TOP & B.F. HORIZ.
A522	13	10'-4"	X		WING 2 - TOP - STIRRUPS VERT.
A523	9	11'-4"	X		WING 2 - TOP - STIRRUPS VERT.
A424	7	15'-8"			WING 2 - E.F. HORIZ.
A425	10	7'-9"			WING 2 - E.F. HORIZ.
A626	2	15'-8"			WING 2 - TOP HORIZ.
A427	17	2'-0"			WING 2 - TOP HORIZ.

THE FIRST DIGIT OR FIRST TWO DIGITS OF THE BAR MARK SIGNIFIES THE BAR SIZE.  
DIMENSIONS IN BENDING DETAILS ARE OUT-TO-OUT OF BAR.

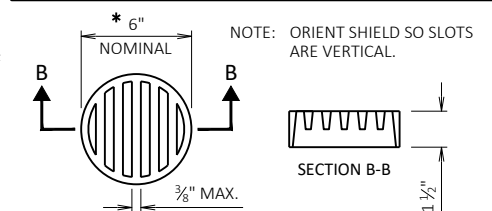


NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-37-462</b>			
DRAWN BY		PKF	PLANS ETP
WEST ABUTMENT DETAILS		SHEET 5 OF 10	

**LEGEND**

- INDICATES WING NUMBER
- A01 KEYED CONST. JOINT FORMED BY BEVELED 2" x 6".
- A03 OPTIONAL KEYED CONST. JOINT FORMED BY BEVELED 2"x6". SEAL JOINT ON B.F. WITH RUBBERIZED MEMBRANE WATERPROOFING IF USED (COST INCIDENTAL TO CONCRETE MASONRY BRIDGES).
- A09 ABUTMENT TO BE SUPPORTED ON HP 10-INCH x 42 LB STEEL PILING SEATED IN PREBORED HOLES CORED 3 FEET MINIMUM INTO ROCK. PILE DRIVING IS NOT REQUIRED. ESTIMATED 10' LONG.
- A15 PIPE UNDERDRAIN WRAPPED 6-INCH. SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. ATTACH RODENT SHIELD AT ENDS OF PIPE UNDERDRAIN. RODENT SHIELD TO BE INCLUDED IN BID PRICE OF "PIPE UNDERDRAIN WRAPPED 6-INCH".
- A17 1/2" FILLER: SEAL ALL EXPOSED HORIZONTAL AND VERTICAL SURFACES OF 1/2" FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. (1" DEEP AND HOLD 1/8" BELOW SURFACE OF CONCRETE.)
- A19 18" RUBBERIZED MEMBRANE WATERPROOFING. SEAL ALL HORIZONTAL AND VERTICAL JOINTS ON BACKFACE.
- A22 B510 BARS AT 1'-0". THESE BARS MAY BE PLACED AFTER CONCRETE IS POURED BUT BEFORE INITIAL SET HAS TAKEN PLACE.

B.F. DENOTES BACK FACE  
 F.F. DENOTES FRONT FACE  
 E.F. DENOTES EACH FACE

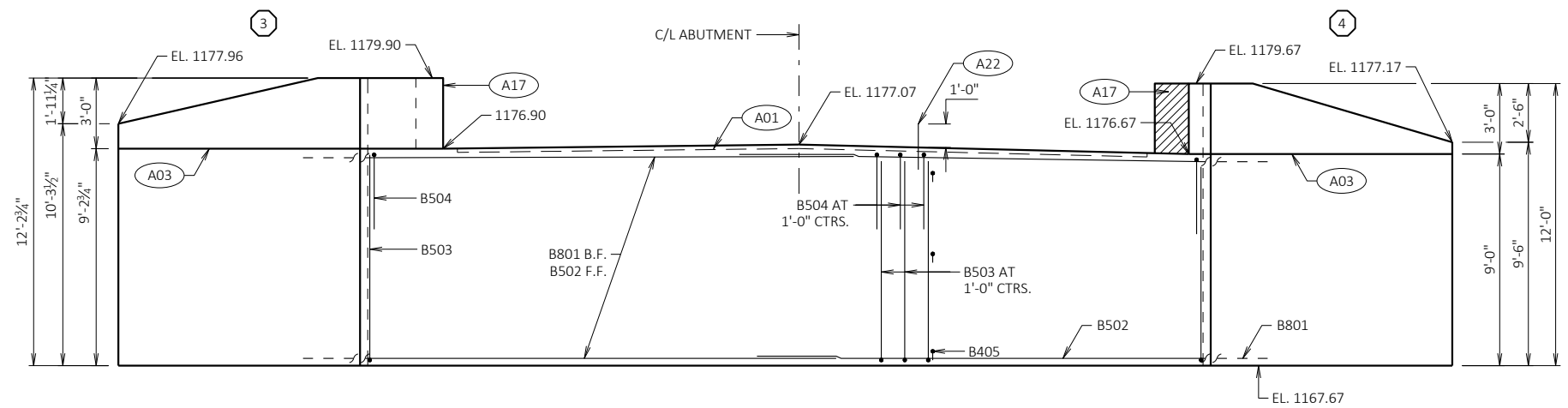


\* DIMENSION IS APPROXIMATE. THE GRATE IS SIZED TO FIT INTO A PIPE COUPLING.

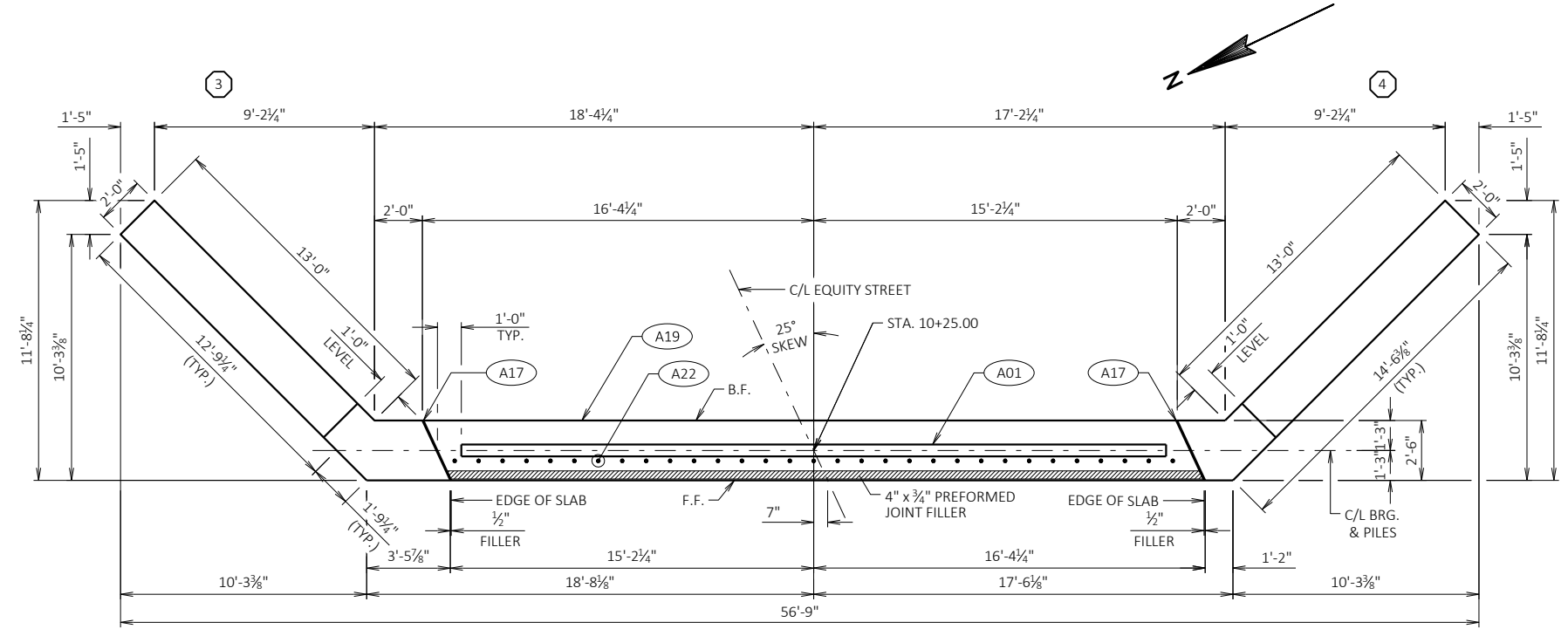
**RODENT SHIELD DETAIL**

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

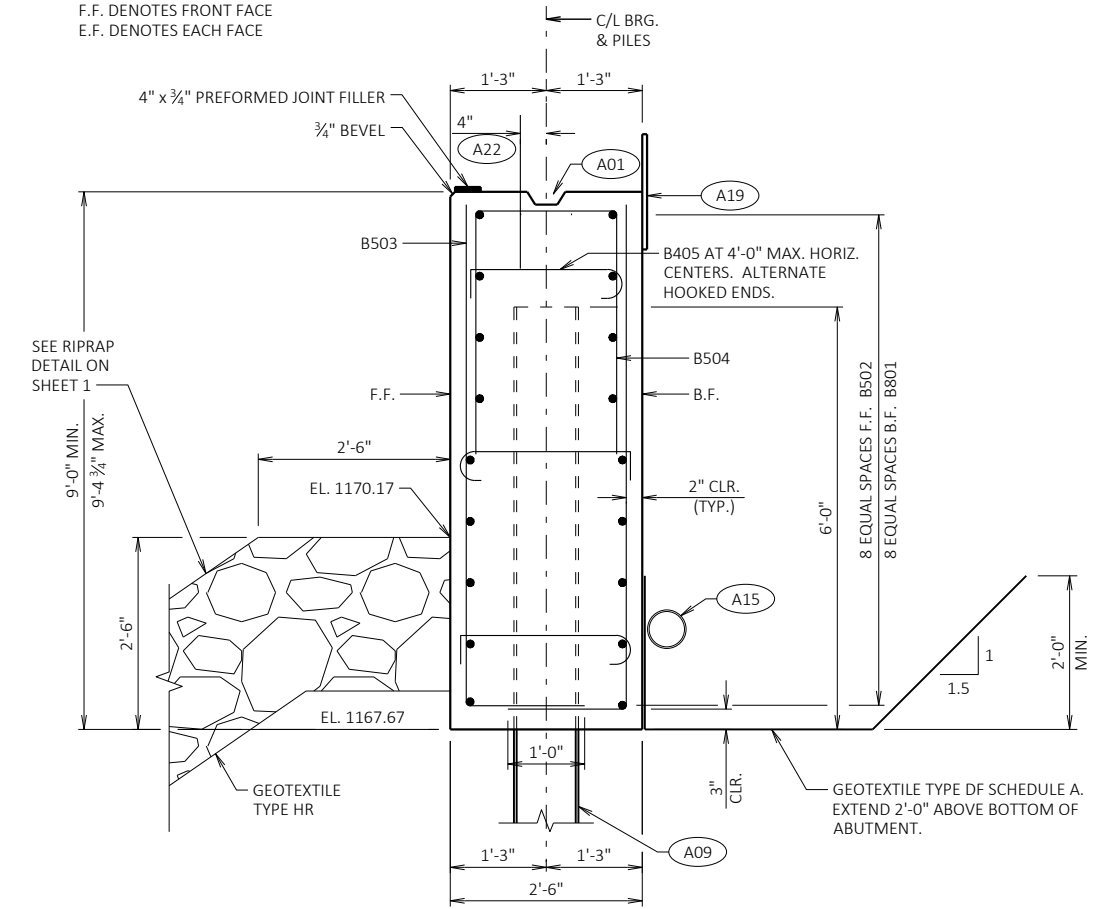
THE RODENT SHIELD SHALL BE A PVC GRATE SIMILAR TO THIS DETAIL. THE GRATE IS COMMERCIALY AVAILABLE AS A FLOOR STRAINER. A PIPE COUPLING IS REQUIRED FOR THE ATTACHMENT OF THIS SHIELD TO THE OUTFALL PIPE. THE SHIELD SHALL BE FASTENED TO THE PIPE COUPLING WITH TWO OR MORE NO. 10 X 1-INCH SCREWS.



**ELEVATION**  
(LOOKING EAST)

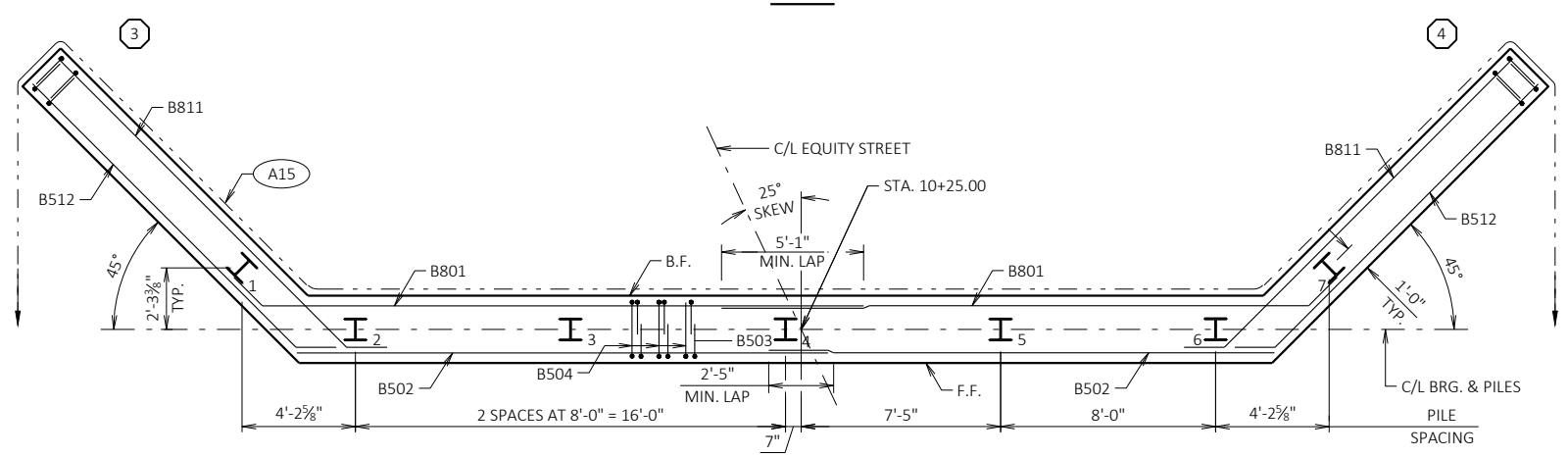


**PLAN**



**SECTION THRU BODY**

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



**PILE PLAN**

NO.	DATE	REVISION	BY

STATE OF WISCONSIN  
 DEPARTMENT OF TRANSPORTATION

**STRUCTURE B-37-462**

DRAWN BY PKF PLANS CK'D. ETP



**EAST ABUTMENT**

SHEET 6 OF 10



**BILL OF BARS - EAST ABUTMENT**

BAR MARK	NO. REQ'D	LENGTH	BENT	BAR SERIES	LOCATION
<b>NON-COATED BARS</b>					<b>TOTAL WEIGHT = 2,760 LBS</b>
B801	18	24'-2"	X		BODY - B.F. HORIZ.
B502	18	19'-3"			BODY - F.F. HORIZ.
B503	74	10'-1"	X		BODY - E.F. VERT.
B504	37	10'-5"	X		BODY - TOP VERT.
B405	30	3'-0"	X		BODY - TIES LONGIT.
<b>COATED BARS</b>					<b>TOTAL WEIGHT = 2,130 LBS</b>
B510	32	2'-0"			BODY - TOP VERT.
B811	18	17'-5"	X		WINGS 3 & 4 - B.F. HORIZ.
B512	18	15'-8"	X		WINGS 3 & 4 - F.F. HORIZ.
B413	34	13'-5"	X	X	WING 3 - E.F. VERT.
B414	4	14'-3"	X		WING 3 - E.F. VERT.
B415	4	14'-2"			WING 3 - TOP HORIZ.
B416	2	10'-4"			WING 3 - TOP HORIZ.
B417	2	6'-4"			WING 3 - TOP HORIZ.
B418	2	14'-4"	X		WING 3 - TOP HORIZ.
B419	34	12'-10"	X	X	WING 4 - E.F. VERT.
B420	4	14'-1"	X		WING 4 - E.F. VERT.
B421	2	14'-2"			WING 4 - TOP HORIZ.
B422	2	11'-8"			WING 4 - TOP HORIZ.
B423	2	8'-7"			WING 4 - TOP HORIZ.
B424	2	14'-5"	X		WING 4 - TOP HORIZ.
B425	5	10'-7"	X		WING 3 - TOP HORIZ.
B426	5	8'-3"	X		WING 4 - TOP HORIZ.
B427	14	4'-4"			WINGS 3 & 4 VERT.
B428	2	5'-7"			WING 4 - TOP HORIZ.

THE FIRST DIGIT OR FIRST TWO DIGITS OF THE BAR MARK SIGNIFIES THE BAR SIZE.  
DIMENSIONS IN BENDING DETAILS ARE OUT-TO-OUT OF BAR.

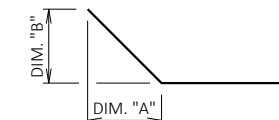
**BAR SERIES TABLE**

BAR MARK	NO. REQ'D.	LENGTH
B413	2 SERIES OF 17	12'-5" TO 14'-4"
B419	2 SERIES OF 17	11'-7" TO 14'-1"

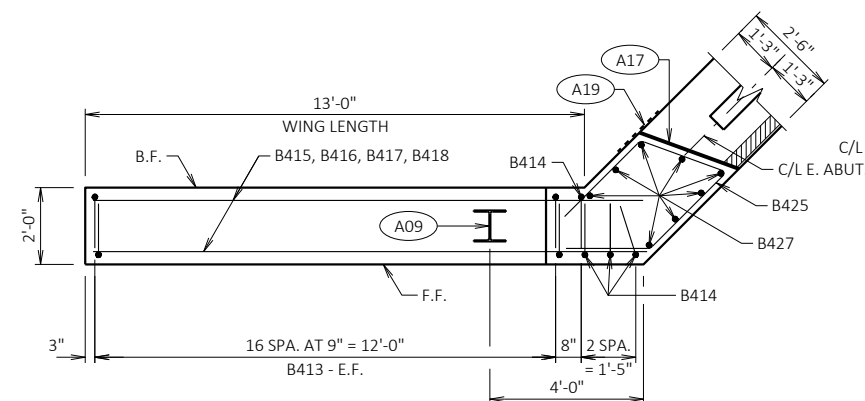
BUNDLE AND TAG EACH SERIES SEPARATELY.

**LEGEND**

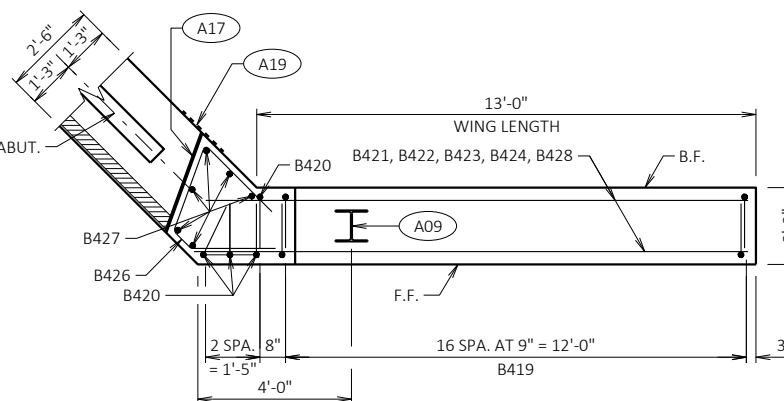
(AXX) FOR SYMBOL DESCRIPTIONS SEE SHEET 6.



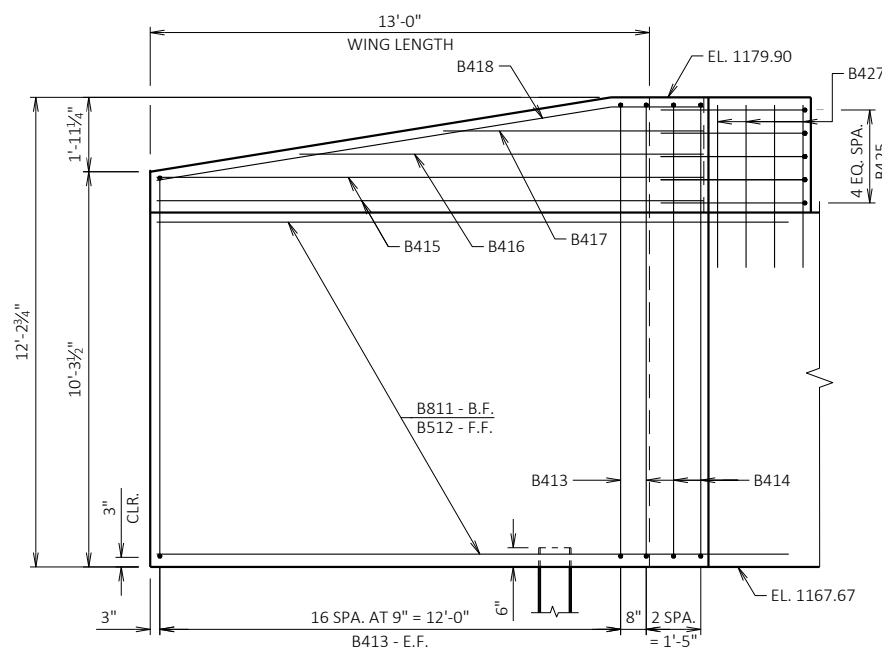
BAR	DIM. "A"	DIM. "B"
B801	1'-0 3/4"	1'-0 3/4"
B811	1'-0 3/4"	1'-0 3/4"
B512	1'-0 3/4"	1'-0 3/4"
B418	2'-3 7/8"	4 1/2"
B424	2'-3 5/8"	5 3/4"



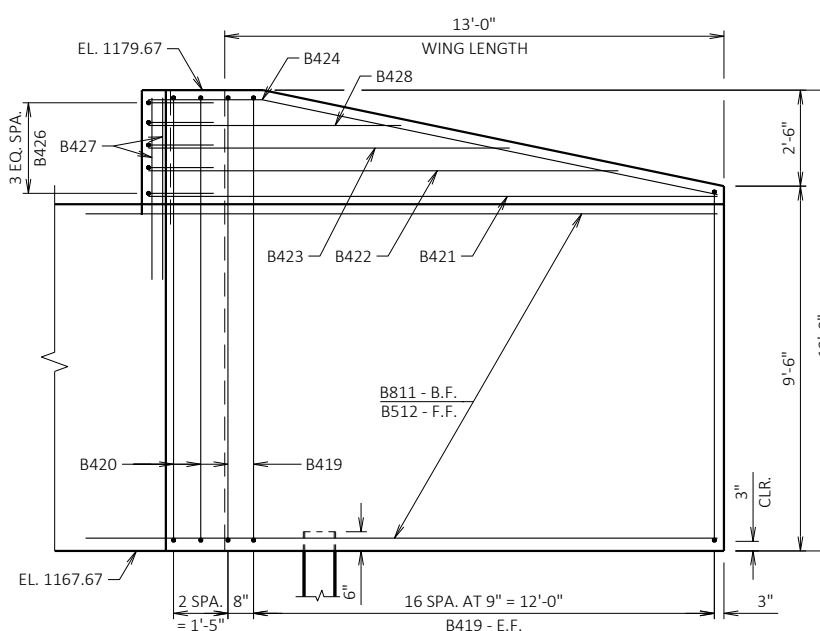
**PLAN - WING 3**  
(B811 & B512 NOT SHOWN FOR CLARITY)



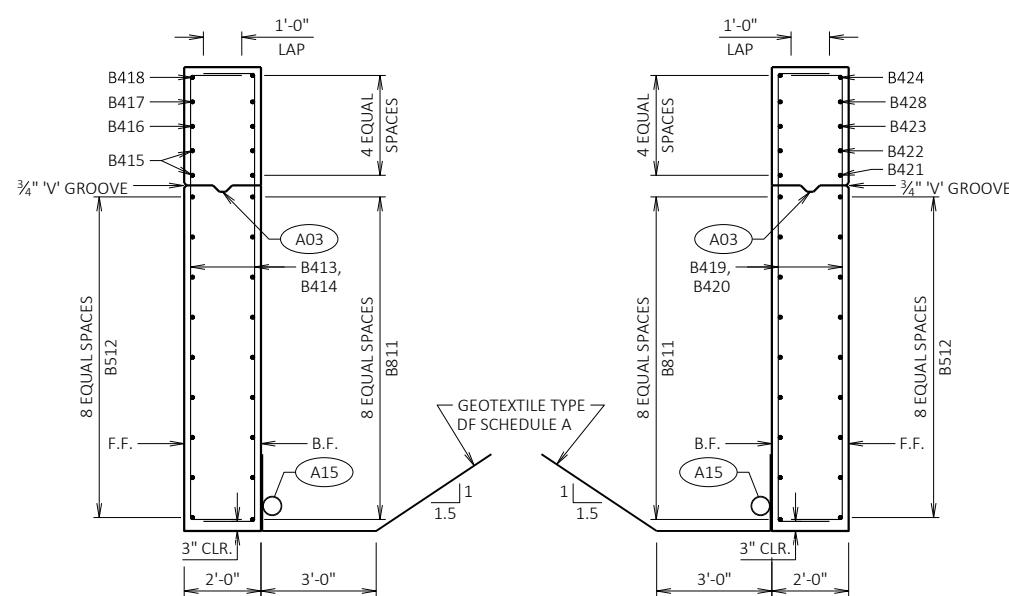
**PLAN - WING 4**  
(B811 & B512 NOT SHOWN FOR CLARITY)



**ELEVATION - WING 3**

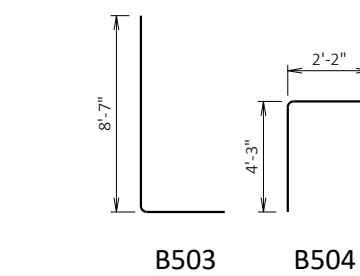


**ELEVATION - WING 4**



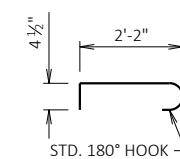
**SECTION THRU WING 3**

**SECTION THRU WING 4**

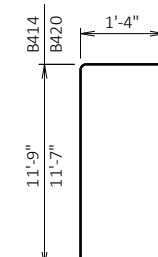


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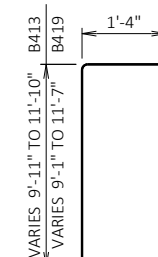
**B504**



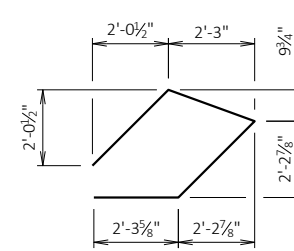
**B405**



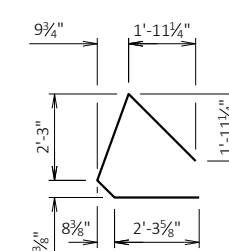
**B414, B420**



**B413, B419**



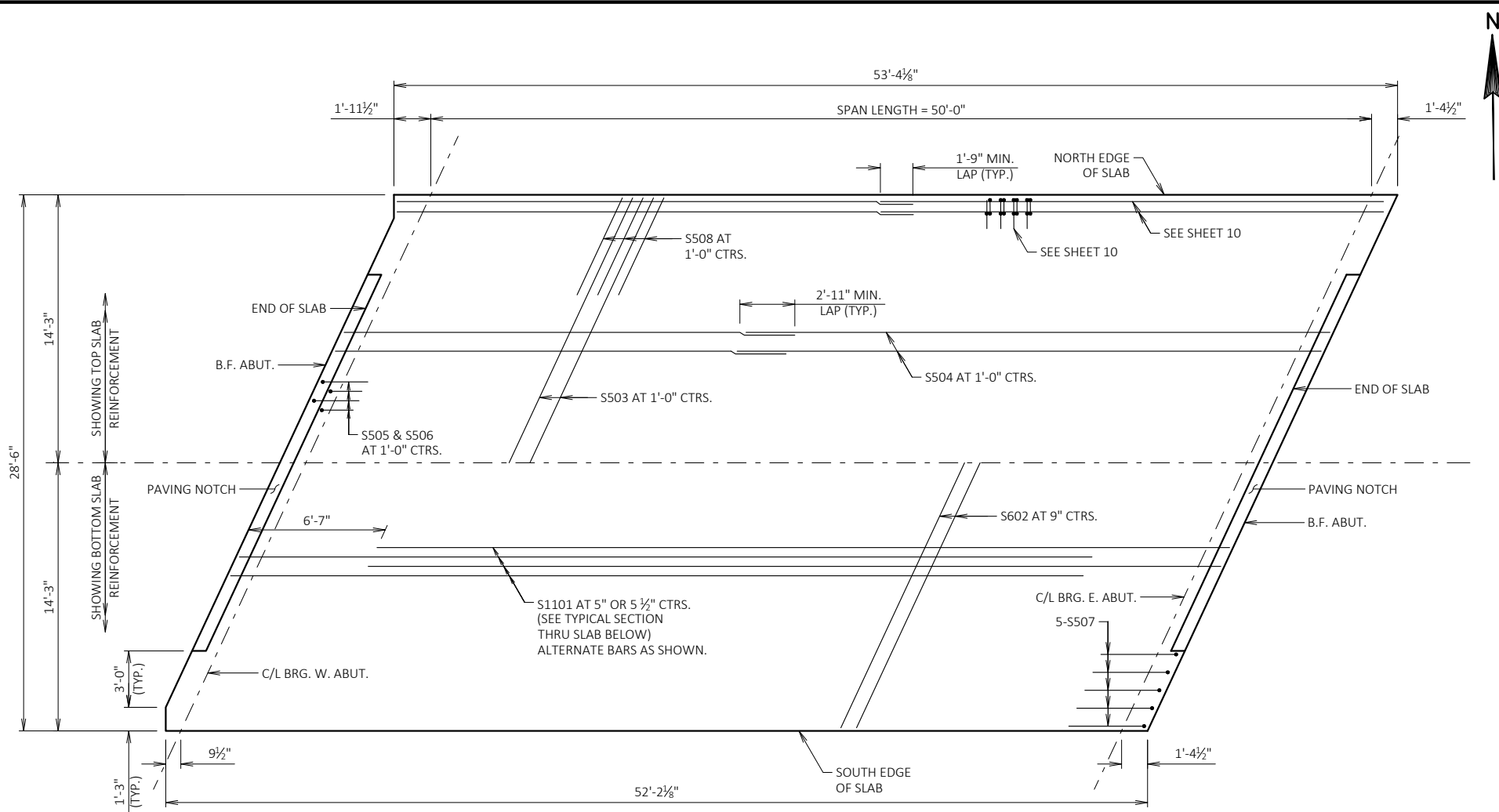
**B425**



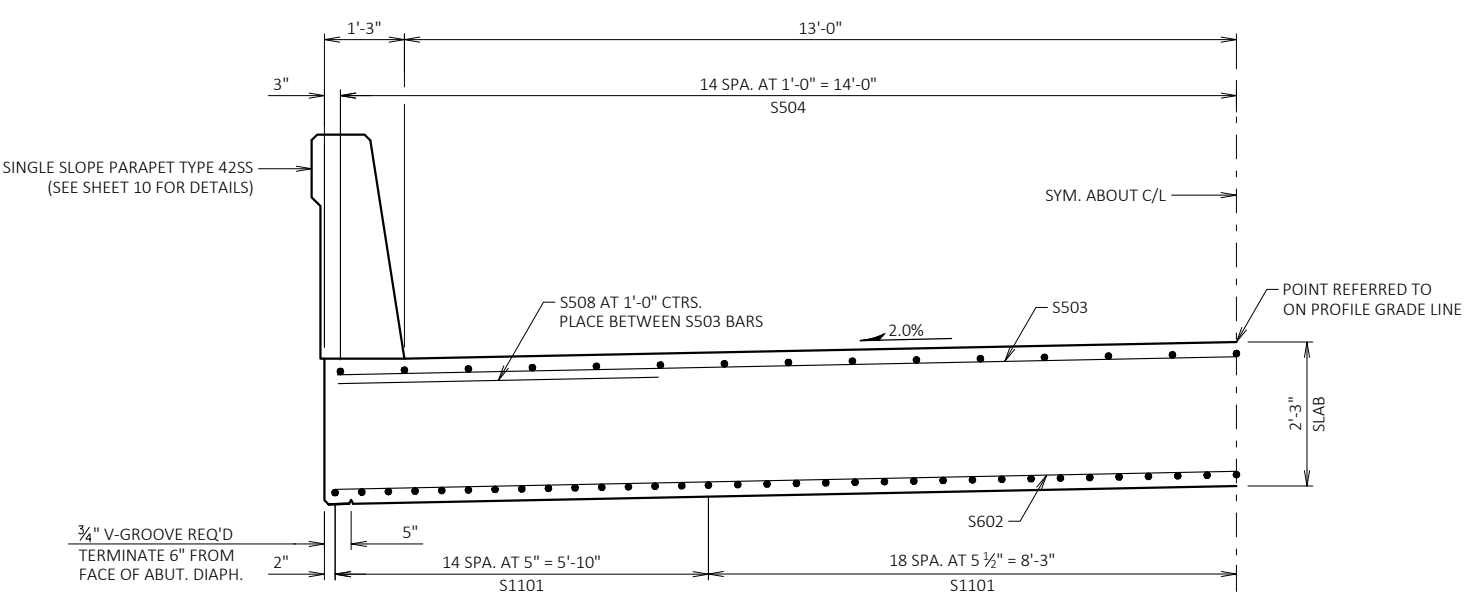
**B426**



NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-37-462</b>			
DRAWN BY PKF		PLANS CK'D. ETP	
<b>EAST ABUTMENT DETAILS</b>			SHEET 7 OF 10



PLAN



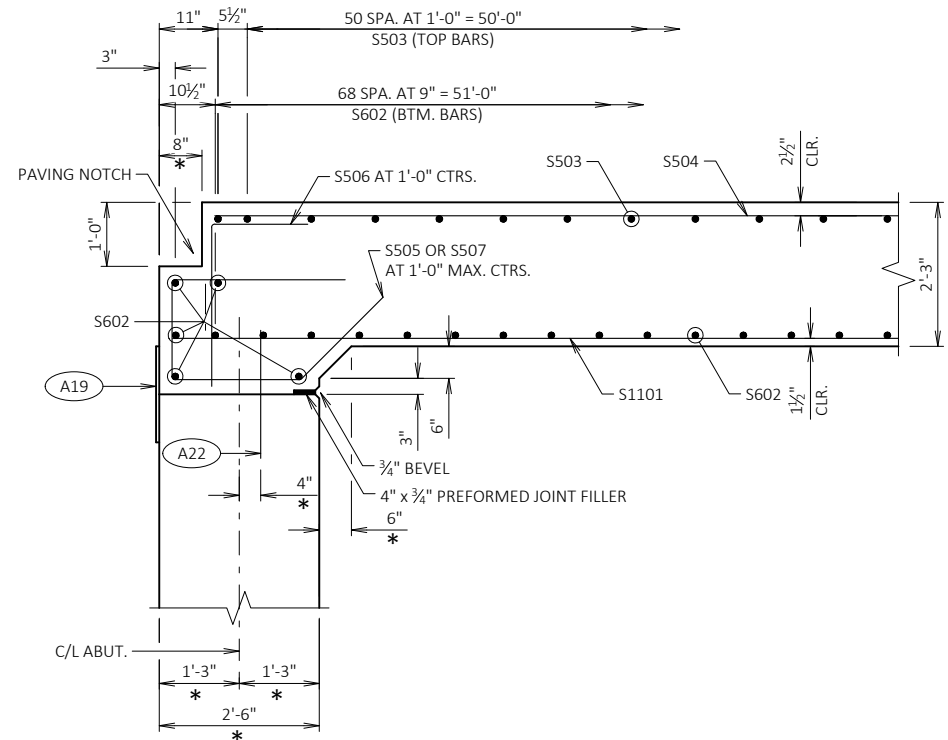
TYPICAL SECTION THRU SLAB

NOTES

- 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.
- TRANSVERSE BARS SHALL BE PLACED PARALLEL TO THE C/L OF SUBSTRUCTURE UNITS.
- ALL SLAB THICKNESS DIMENSIONS ARE MINIMUM. ANY TOLERANCES NECESSARY TO CORRECT CONSTRUCTION DISCREPANCIES ARE TO BE PLUS (+).
- PARAPETS SHALL BE POURED AFTER FALSEWORK HAS BEEN RELEASED.

LEGEND

- A19 18" RUBBERIZED MEMBRANE WATERPROOFING. SEAL ALL HORIZONTAL AND VERTICAL JOINTS ON BACKFACE.
- A22 B510 BARS AT 1'-0" CTRS. THESE BARS MAY BE PLACED AFTER CONCRETE IS POURED BUT BEFORE INITIAL SET HAS TAKEN PLACE.
- \* DIMENSION IS NORMAL TO C/L SUBSTRUCTURE.



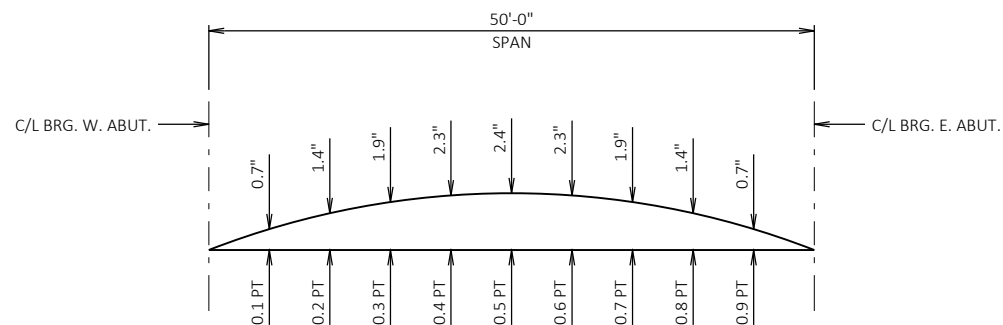
PARTIAL LONGITUDINAL SECTION

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-37-462</b>			
DRAWN BY PKF		PLANS CK'D. ETP	
<b>SUPERSTRUCTURE</b>			SHEET 8 OF 10



8

8



**CAMBER DIAGRAM**

PROVIDE CAMBER AS SHOWN ABOVE TO PROVIDE FOR DEAD LOAD DEFLECTION AND FUTURE CREEP. THIS DOES NOT INCLUDE ANY ALLOWANCE FOR FORM SETTLEMENT.

PRIOR TO RELEASING SLAB FALSEWORK, TAKE TOP OF SLAB ELEVATIONS AT THE C/L OF ABUTMENTS AND AT 5/10 POINTS TO VERIFY CAMBER. TAKE ELEVATIONS ALONG GUTTER LINES AND CROWN OR C/L.

CAMBER SHOWN IS BASED ON 3 TIMES THE DEADLOAD DEFLECTION.

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

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

**BILL OF BARS - SUPERSTRUCTURE**

BAR MARK	NO. REQ'D	LENGTH	BENT	BAR SERIES	LOCATION
COATED BARS					TOTAL WEIGHT = 27,120 LBS
S1101	65	46'-0"			SLAB - BTM LONGIT.
S602	79	31'-1"			SLAB - BTM TRANS.
S503	53	31'-1"			SLAB - TOP TRANS.
S504	58	27'-8"			SLAB - TOP LONGIT.
S505	42	8'-2"	X		SLAB - ABUT. DIAPHRAGMS VERT.
S506	42	4'-1"	X		SLAB - ABUT. DIAPHRAGMS VERT.
S507	20	9'-2"	X		SLAB - ABUT. DIAPHRAGMS VERT.
S508	104	5'-0"			SLAB - EDGES TRANS.
S509	134	4'-5"	X		PARAPETS VERT.
S510	134	6'-8"	X		PARAPETS VERT.
S511	22	2'-9"	X		PARAPETS - TRANSITION VERT.
S512	34	4'-4"	X		PARAPETS - TRANSITION VERT.
S513	10	6'-5"	X		PARAPETS - TRANSITION VERT.
S514	12	6'-6"	X		PARAPETS - TRANSITION VERT.
S515	2	10'-6"	X		PARAPETS - TRANSITION HORIZ.
S516	10	10'-5"			PARAPETS - TRANSITION HORIZ.
S517	4	10'-5"	X		PARAPETS - TRANSITION HORIZ.
S518	32	21'-8"			PARAPETS HORIZ.
S519	12	5'-5"	X	X	PARAPETS VERT.

THE FIRST DIGIT OR FIRST TWO DIGITS OF THE BAR MARK SIGNIFIES THE BAR SIZE. DIMENSIONS IN BENDING DETAILS ARE OUT-TO-OUT OF BAR. SEE SHEET 10 FOR PARAPET REINFORCEMENT DETAILS.

BAR MARK	NO. REQ'D.	LENGTH
S519	2 SERIES OF 6	4'-9" TO 6'-1"

BUNDLE AND TAG EACH SERIES SEPARATELY.

**TOP OF SLAB ELEVATIONS**

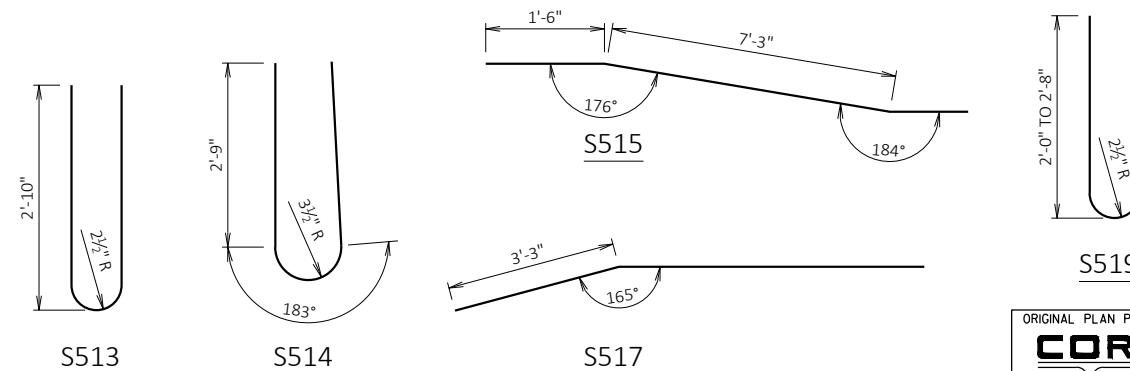
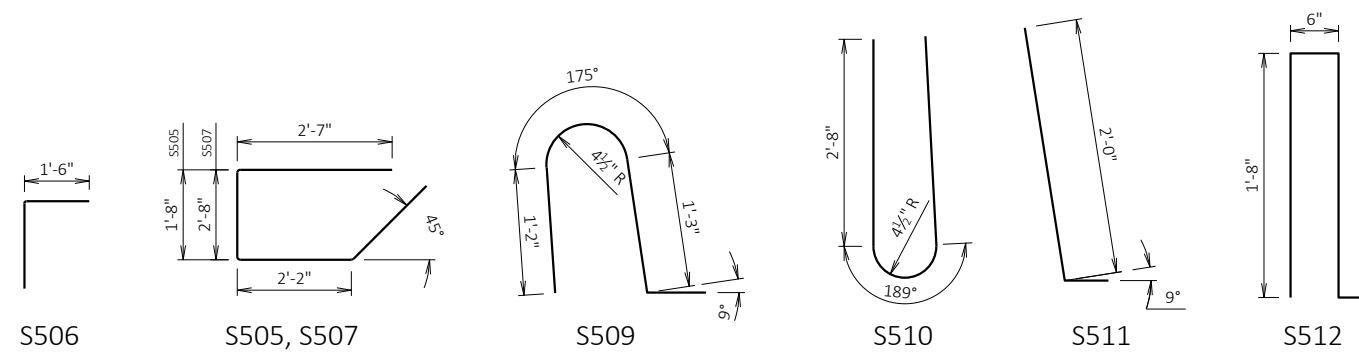
LOCATION	C/L BRG. W. ABUT.	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	C/L BRG. E. ABUT.
NORTH FLOW LINE	1179.24	1179.29	1179.34	1179.39	1179.45	1179.52	1179.59	1179.66	1179.74	1179.83	1179.92
C/L STRUCTURE	1179.46	1179.49	1179.54	1179.59	1179.64	1179.70	1179.76	1179.83	1179.91	1179.98	1180.07
SOUTH FLOW LINE	1179.15	1179.19	1179.23	1179.27	1179.32	1179.37	1179.43	1179.49	1179.56	1179.63	1179.71

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

**SURVEY TOP OF SLAB ELEVATIONS**

	C/L BRG. W. ABUT.	0.5 PT	C/L BRG. E. ABUT.
NORTH FLOW LINE			
C/L STRUCTURE			
SOUTH FLOW LINE			

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



NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-37-462			
DRAWN BY PKF		PLANS CK'D. ETP	
SUPERSTRUCTURE DETAILS			SHEET 9 OF 10

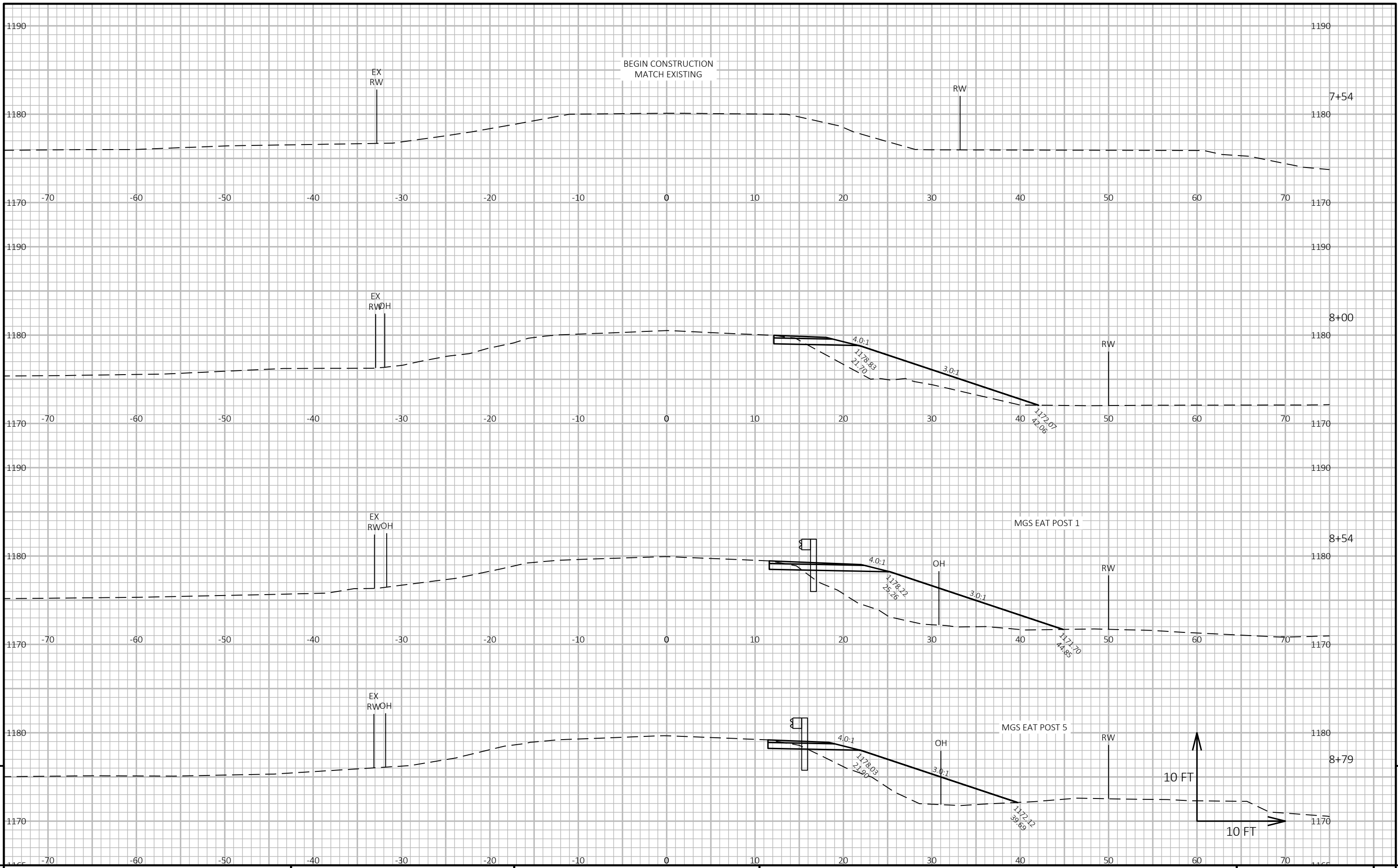




DIVISION -- EQUITY ST

STATION	DISTANCE	AREA (SF)			INCREMENTAL VOL (CY) (UNADJUSTED)			CUMULATIVE VOL (CY)		
		CUT	SALVAGED/UNUSABLE PAVEMENT MATERIAL	FILL	CUT	SALVAGED/UNUSABLE PAVEMENT MATERIAL	FILL	CUT 1.00	EXPANDED FILL 1.25	MASS ORDINATE NOTE 1
7+76.71	0.00	2.45	0.00	20.11	0	0	0	0	0	0
8+00.00	23.29	2.41	0.00	42.32	2	0	27	2	34	-32
8+25.00	25.00	2.19	0.00	71.00	2	0	52	4	99	-95
8+53.54	28.54	2.33	0.00	84.18	2	0	82	6	201	-195
8+78.54	25.00	2.63	0.00	50.72	2	0	62	8	279	-271
9+03.54	25.00	3.30	0.00	8.80	3	0	28	11	314	-303
9+25.00	21.46	28.45	0.00	14.32	13	0	9	24	325	-301
9+43.57	18.57	25.83	0.00	0.86	19	0	5	43	331	-288
9+63.68	20.11	24.58	0.00	4.16	19	0	2	62	334	-272
STRUCTURE B-37-462										
10+28.00	0.00	0.03	0.00	164.01	0	0	0	62	334	-272
10+43.28	15.28	17.58	0.00	0.00	5	0	46	67	391	-324
10+50.00	6.72	31.68	0.00	54.20	6	0	7	73	400	-327
10+75.00	25.00	36.91	0.00	11.43	32	0	30	105	438	-333
10+91.04	16.04	0.00	0.00	0.00	11	0	3	116	441	-325

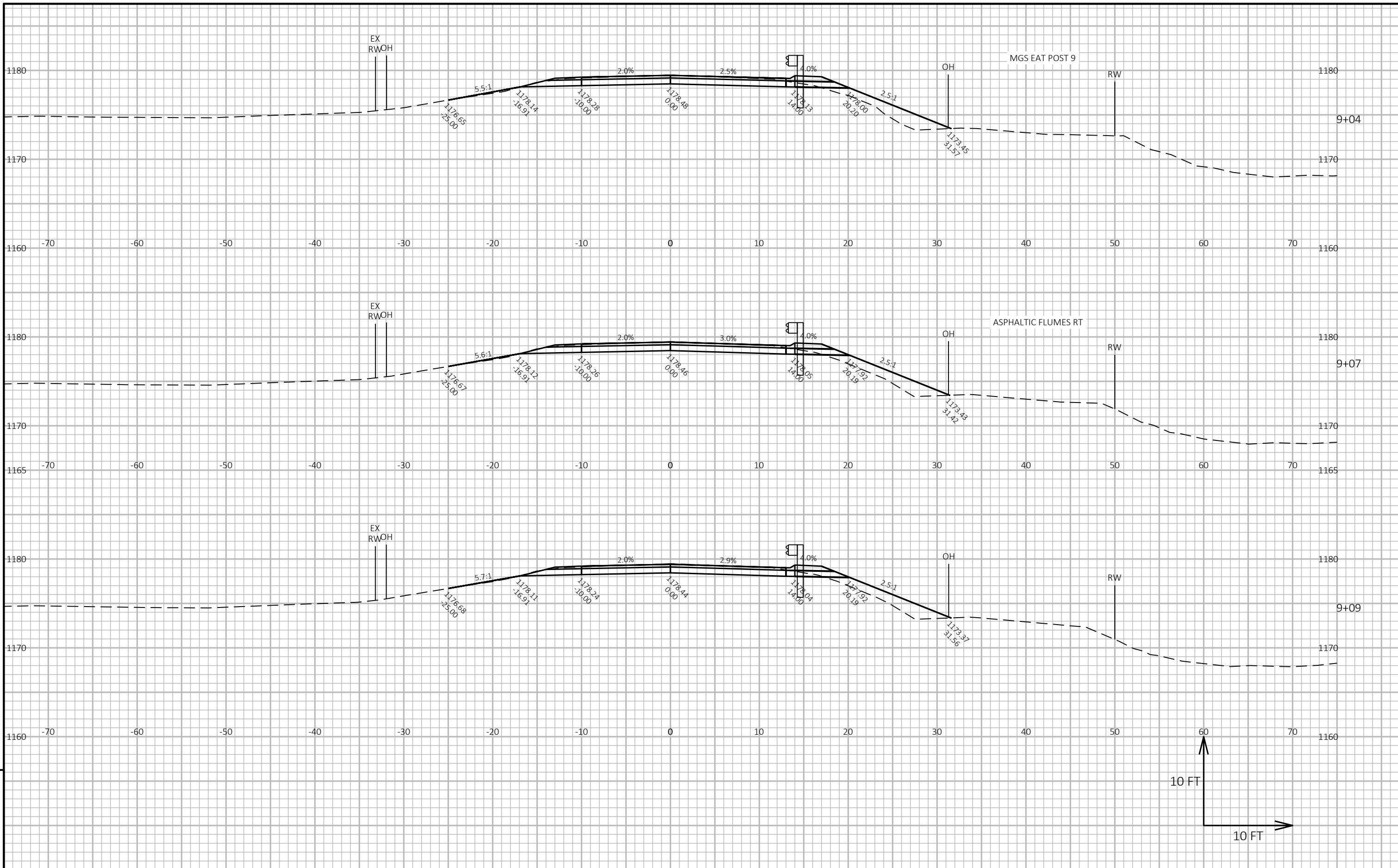
Notes:	
1 - MASS ORDINATE	CUT - (FILL * FILL FACTOR)



9

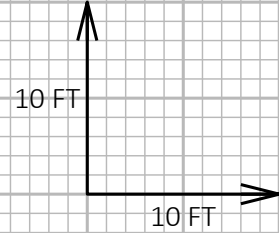
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PROJECT NO: 6678-01-70	HWY: LOC STR	COUNTY: MARATHON	CROSS SECTIONS: CROSS SECTIONS	SHEET	E
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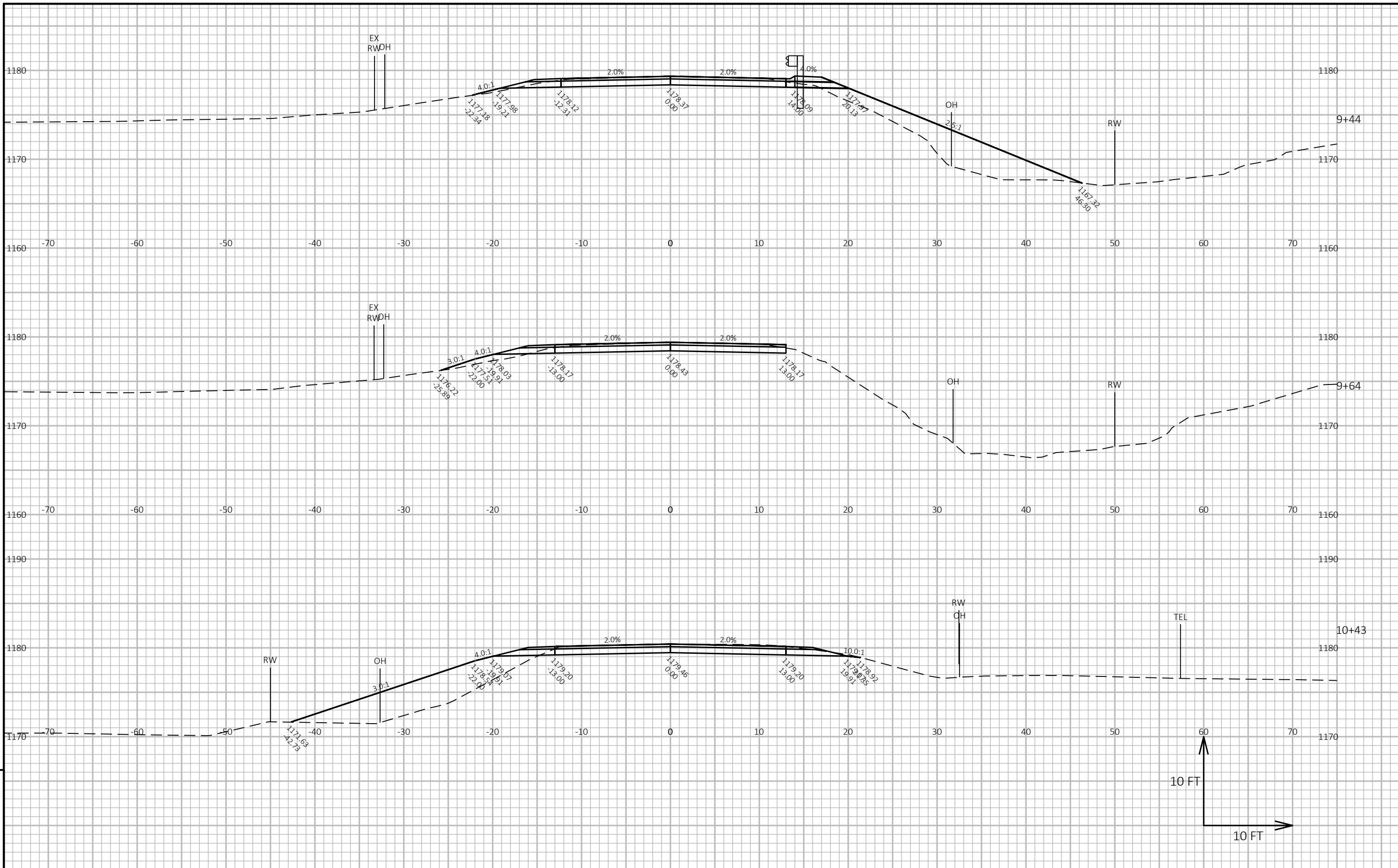


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9



PROJECT NO: 6678-01-70	HWY: LOC STR	COUNTY: MARATHON	CROSS SECTIONS: CROSS SECTIONS	SHEET	E
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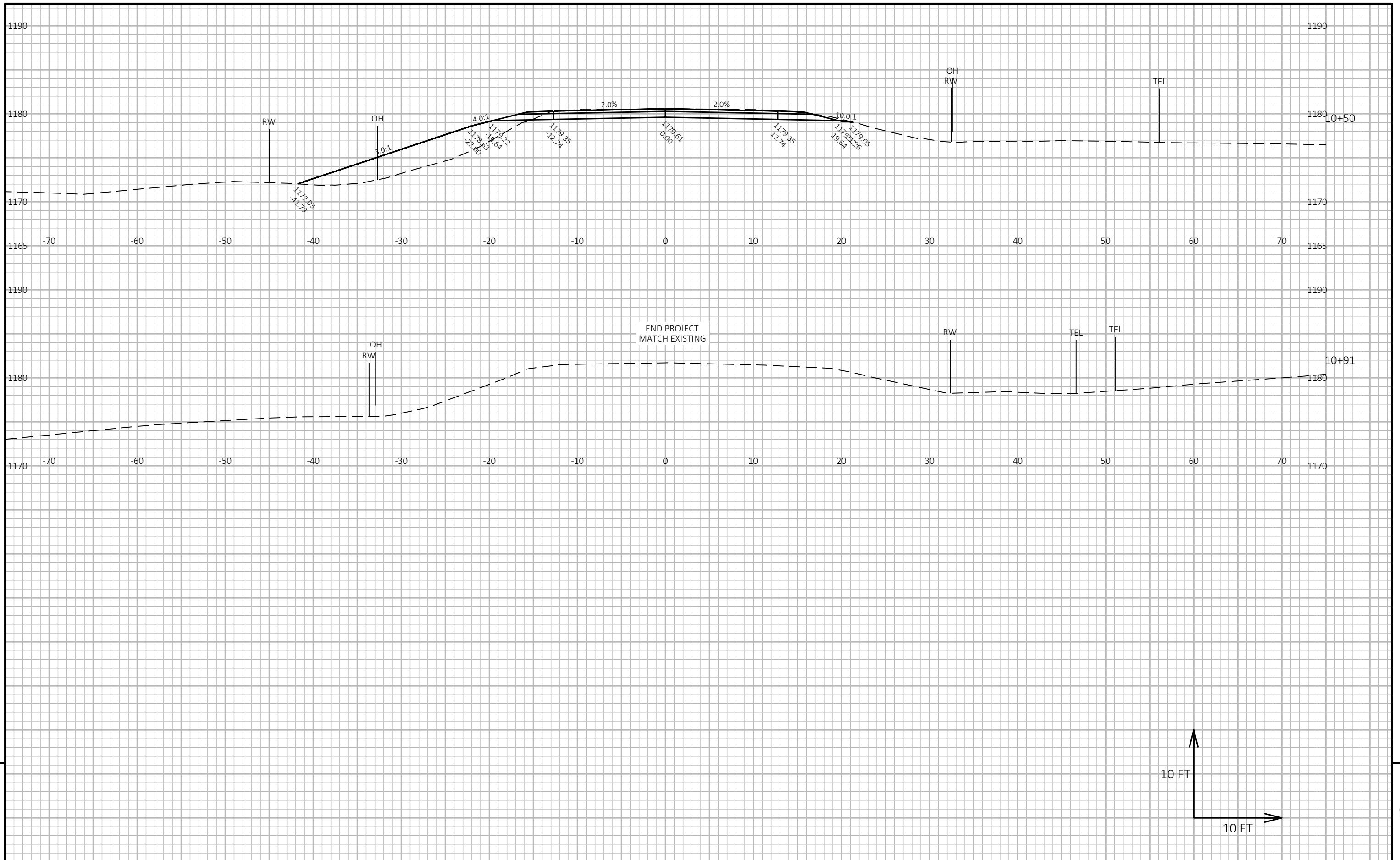


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PROJECT NO: 6678-01-70	HWY: LOC STR	COUNTY: MARATHON	CROSS SECTIONS: CROSS SECTIONS	SHEET	E
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PROJECT NO: 6678-01-70	HWY: LOC STR	COUNTY: MARATHON	CROSS SECTIONS: CROSS SECTIONS	SHEET	E
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## ***Wisconsin Department of Transportation***

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