

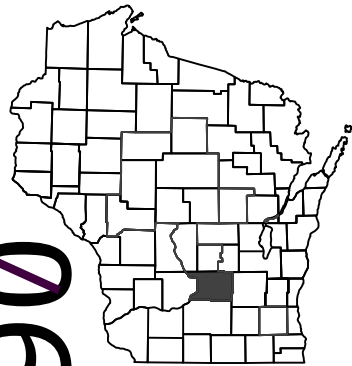
MAD

Nov 09, 2021

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.	<del>4</del>	<del>Right of Way Plat</del>
Section No.	5	Plan and Profile
Section No.	6	Standard Detail Drawings
Section No.	7	Sign Plates
Section No.	8	Structure Plans
Section No.	<del>9</del>	<del>Computer Earthwork Data</del>
Section No.	<del>9</del>	<del>Cross Sections</del>

TOTAL SHEETS = 76



06

DESIGN DESIGNATION

A.A.D.T. (2022)	=	8930
A.A.D.T. (2050)	=	10515
D.H.V.	=	13%
D.D.	=	62/38
T.	=	17.6%
DESIGN SPEED	=	60 MPH
ESALS	=	

CONVENTIONAL SYMBOLS

<b>PLAN</b>	
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	

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

# STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION

## PLAN OF PROPOSED IMPROVEMENT

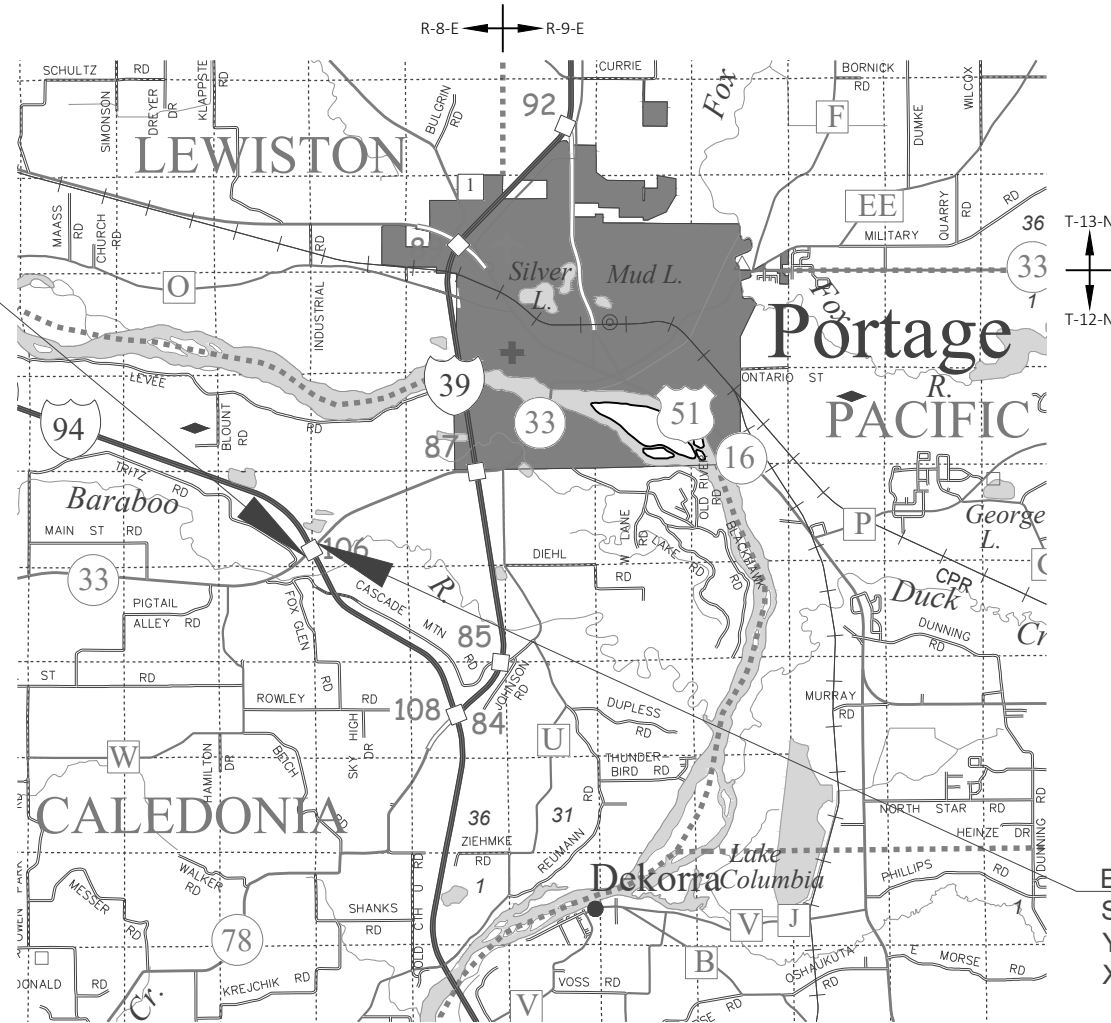
# BARABOO - PORTAGE

IH-90/94 OVERPASS B-11-030

STH 33

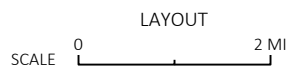
COLUMBIA COUNTY

STATE PROJECT NUMBER  
**5090-04-80**



BEGIN PROJECT  
STA 334+43  
Y=384480.59  
X=520720.96

END PROJECT  
STA 335+28  
Y=384541.79  
X=520779.95



TOTAL NET LENGTH OF CENTERLINE = 0.016 MI

HORIZONTAL POSITIONS SHOWN ON THIS PLAN ARE WISCONSIN COORDINATE REFERENCE SYSTEM (WISCRS), 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
5090-04-80		

STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
PREPARED BY	Surveyor: JOHN MORAN
Designer	ANTHONY JOHNSON
Project Manager	DELLA KOENIG
Regional Examiner	SW REGION
Regional Supervisor	JOHN STOLZMAN

APPROVED FOR THE DEPARTMENT  
DATE: 8/30/2021 *John Stolzman*  
(Signature)

E

PROJECT ID:

5090-04-80

COUNTY:

COLUMBIA

**GENERAL NOTES**

THE LOCATIONS OF EXISTING UTILITY INSTALLATIONS AS SHOWN ON THE PLANS ARE APPROXIMATE. THERE MAY BE OTHER UTILITY INSTALLATIONS WITHIN THE PROJECT AREA THAT ARE NOT SHOWN. COORDINATE CONSTRUCTION ACTIVITIES WITH A CALL TO DIGGERS HOTLINE AND/OR A DIRECT CALL TO THE UTILITIES THAT HAVE FACILITIES IN THE AREA. NOT ALL UTILITIES ARE MEMBERS OF DIGGERS HOTLINE.

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

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

CONTRACTOR TO PROTECT DH8614 AND KEEP CONSTRUCTION EQUIPMENT AT LEAST 10 FEET AWAY FROM DH8614. ENSURE THAT DH8614 IS NOT DISTURBED, BUMPED OR MOVED DURING THE DURATION OF THE PROJECT. NOTIFY JACOB ROCKWEILER IMMEDIATELY IF DH8614 HMOD IS DISTURBED, BUMPED OR MOVED DURING CONSTRUCTION OPERATIONS. JACOB ROCKWEILER, P.E., WISCONSIN HEIGHT MODERNIZATION PROGRAM MANAGER WITH THE WISCONSIN DEPARTMENT OF TRANSPORTATION WHOSE PHONE NUMBER IS (608) 516-6362 EMAIL IS JACOB.ROCKWEILER@DOT.WI.GOV

**DESIGN CONTACTS**

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ANTHONY JOHNSON  
PROJECT LEADER  
WISDOT SW REGION  
2101 WRIGHT ST.  
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JACOB ROCKWEILER, P.E.  
WISCONSIN HEIGHT MODERNIZATION PROGRAM  
MANAGER  
WISDOT  
(608) 516-6362  
JACOB.ROCKWEILER@DOT.WI.GOV

**WDNR LIASON**

ERIC HEGGELUND  
ENVIRONMENTAL ANALYSIS & REVIEW SPECIALIST  
WISCONSIN DEPT. OF NATURAL RESOURCES  
SOUTH CENTRAL REGION  
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**UTILITIES**

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CHARTER - COMMUNICATION  
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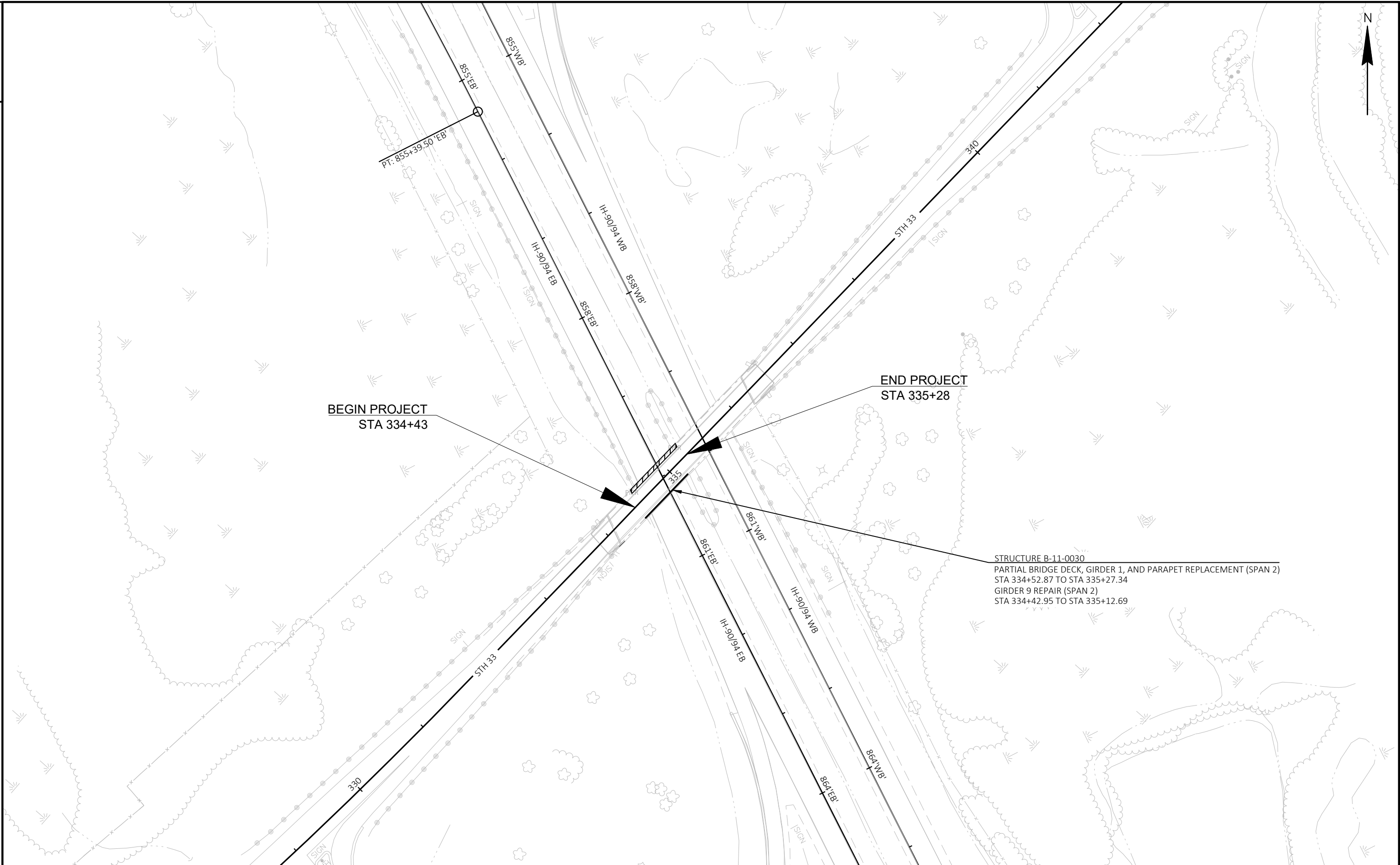
**SECTION 2 SHEETS**

GENERAL NOTES  
PROJECT OVERVIEW  
TYPICAL SECTIONS  
CONSTRUCTION DETAILS  
TRAFFIC CONTROL  
TRAFFIC SIGNAL TEMPORARY

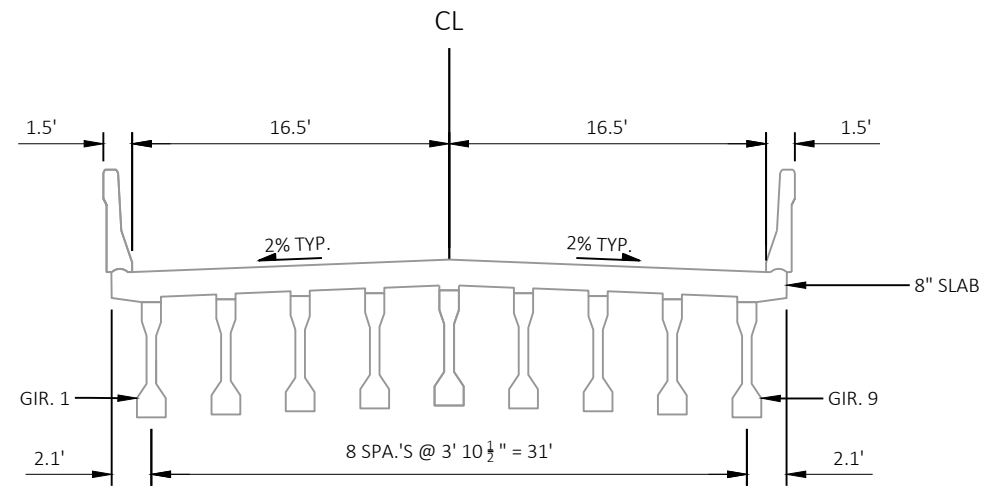
**STANDARD ABBREVIATIONS**

AGG	AGGREGATE	LS	LUMP SUM
ASPH.	ASPHALTIC	N.P.	NORMAL CROWN
A.D.T.	AVERAGE DAILY TRAFFIC	N	NORTH
A.A.D.T.	ANNUAL AVERAGE DAILY TRAFFIC	NB	NORTHBOUND
BM	BENCHMARK	NOR	NORMAL
C/L	CENTER LINE	PAV'T	PAVEMENT
CTR.	COUNTY	P.C.	POINT OF CURVATURE
CTH	COUNTY TRUNK HIGHWAY	P.I.	POINT OF INTERSECTION
CABC	CRUSHED AGGREGATE BASE COURSE	P.T.	POINT OF TANGENCY
CY	CUBIC YARD	PCC	PORTLAND CEMENT CONCRETE
CP	CONTROL POINT	PL	PROPERTY LINE
D.H.V.	DESIGN HOURLY VOLUME	R	RADIUS OR RANGE
D.F.	DIRECTIONAL DISTRIBUTION	R/L	REFERENCE LINE
EA	EACH	R.C.C.P.	REINFORCED CONCRETE CULVERT PIPE
E	EAST	REQ'D	REQUIRED
EB	EAST BOUND	RT	RIGHT
CR.	ELECTRIC(AL), ELEC. CABLE	R/W	RIGHT OF WAY
EL., ELEV.	ELEVATION	RD	ROAD
ESALS	EQUIVALENT SINGLE AXLE LOADS	SHLDR	SHOULDER(S)
EXIST	EXISTING	S	SOUTH
EXC.	FERTILIZER	SB	SOUTHBOUND
F/L, F.L.	FLOW LINE	SF	SQUARE FOOT (FEET)
H.F.	HIGH STRENGTH	SDD	STANDARD DETAIL DRAWING(S)
CWT	HUNDRED WEIGHT	STH	STATE TRUNK HIGHWAY
IH	INTERSTATE HIGHWAY	STA	STATION
LT	LEFT	S.E.	SUPERELEVATION
LF	LINEAR FOOT(FEET)	S/L	SURVEY LINE
		SYM	SYMMETRICAL
		PT	PERCENT TRUCKS
		T	TELEPHONE
		TEMP	TEMPORARY
		T.L.E.	TEMPORARY LIMITED EASEMENT
		T.O.C.	TOP OF CURB
		TYP	TYPICAL
		U.G.	UNDERGROUND (CABLE)
		VAR	VARIABLE
		V.C.	VERTICAL CURVE
		V.P.C.	VERTICAL POINT OF CURVATURE
		V.P.I.	VERTICAL POINT OF INTERSECTION
		V.P.T.	VERTICAL POINT OF TANGENCY
		WT	WEIGHT
		W	WEST
		WB	WESTBOUND

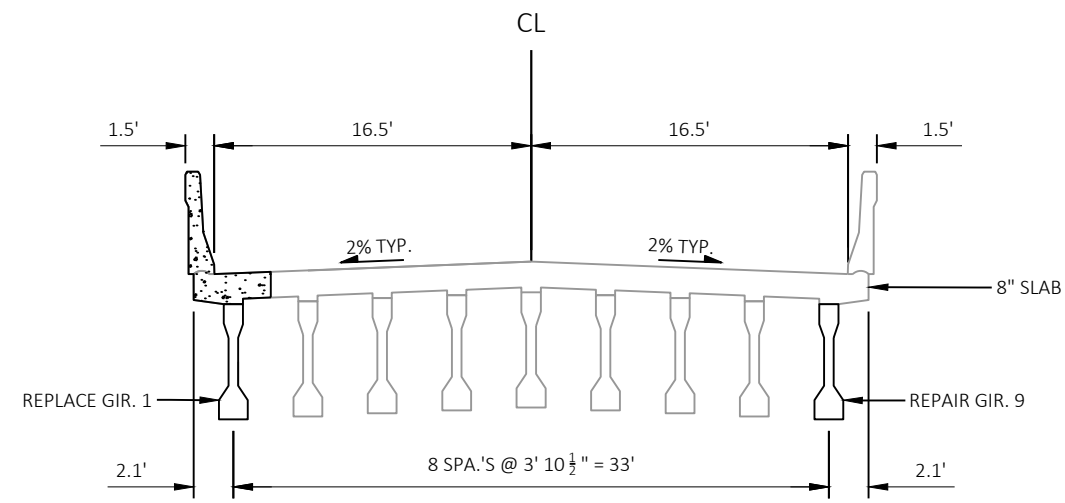




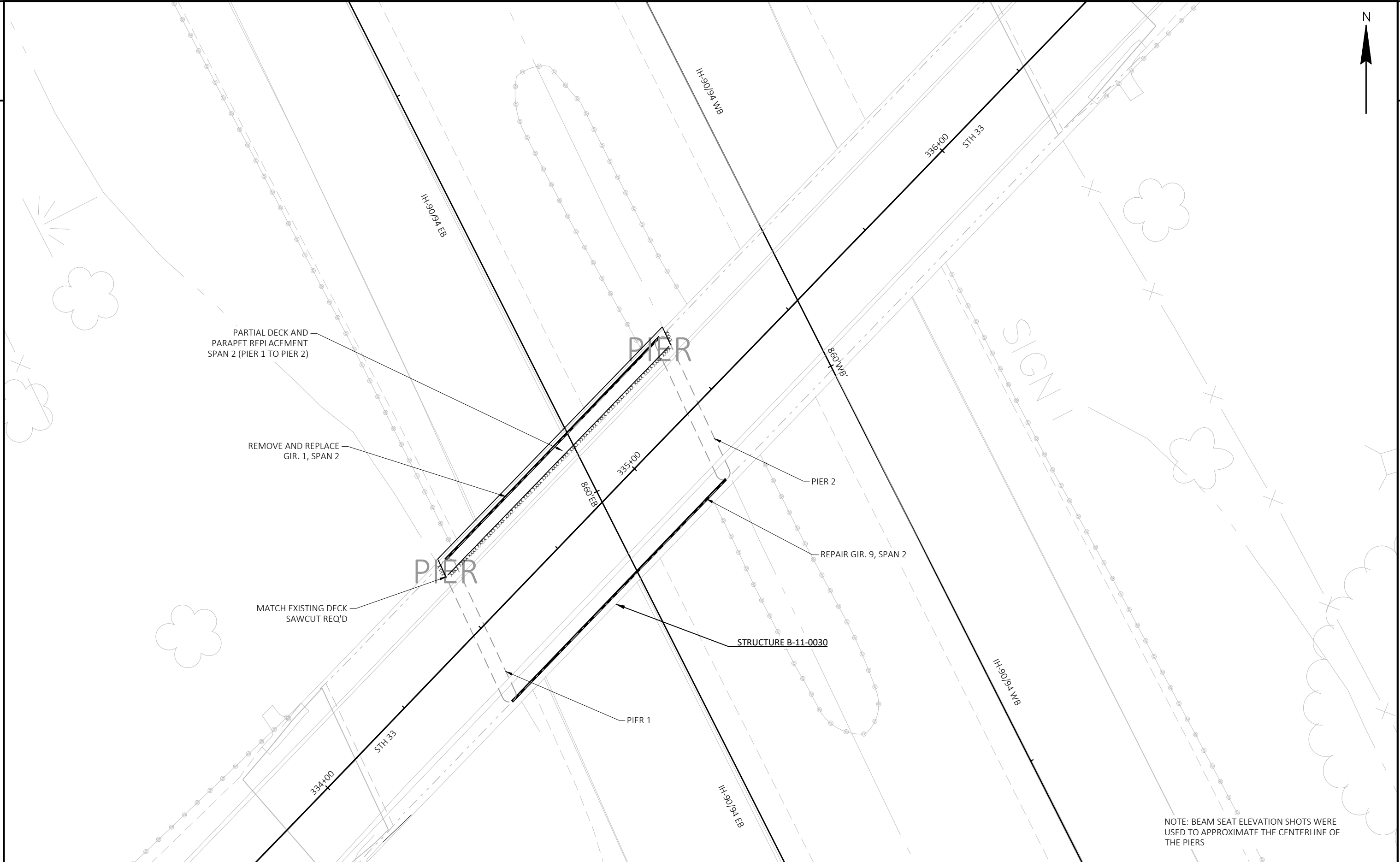
PROJECT NO: 5090-04-80	HWY: STH 33	COUNTY: COLUMBIA	PROJECT OVERVIEW	SHEET <b>E</b>
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**STH 33 EXISTING CROSS SECTION B-11-0030**  
 STA 334+53 TO STA 355+27 (SPAN 2)

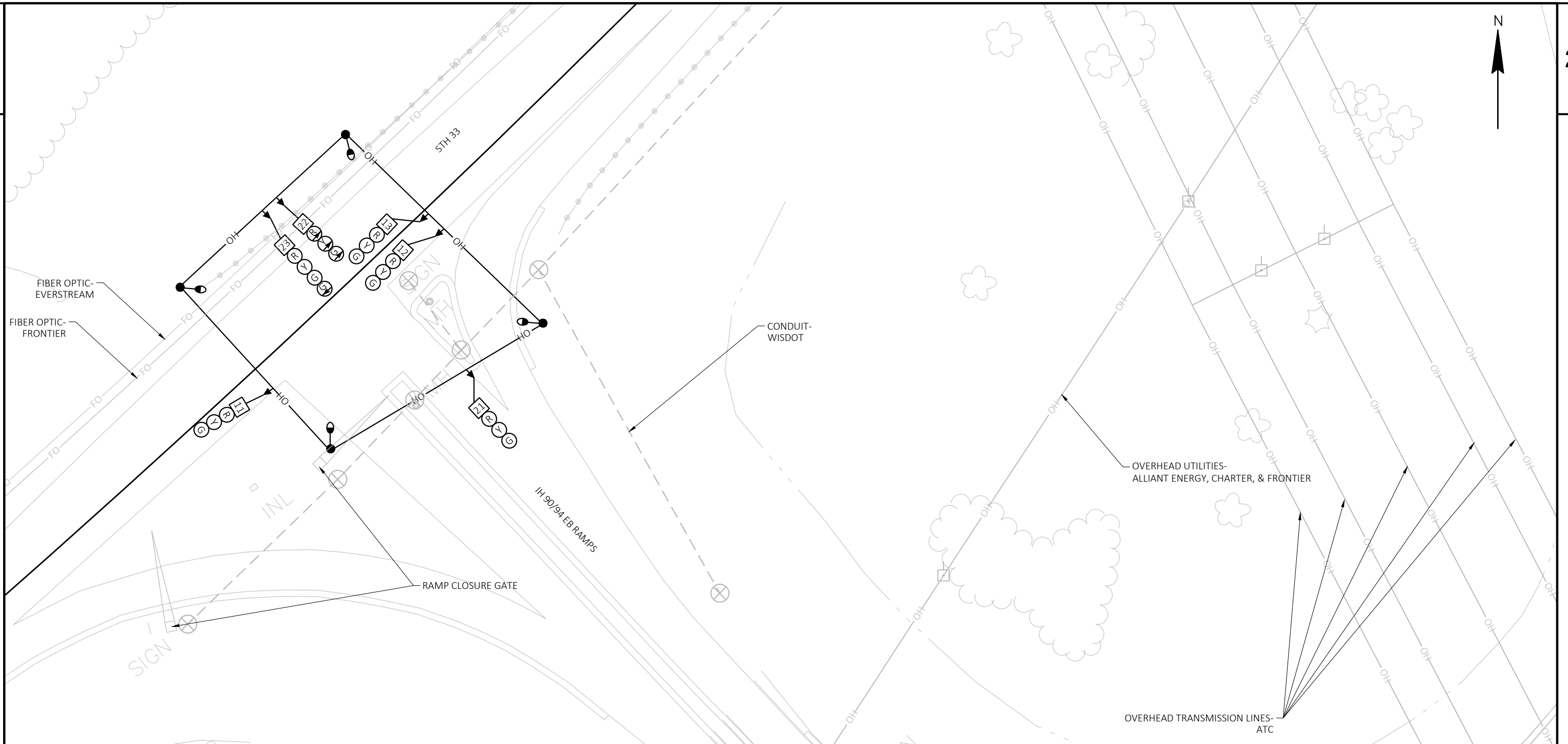


**STH 33 FINISHED CROSS SECTION B-11-0030**  
 STA 334+53 TO STA 355+27 (SPAN 2)



NOTE: BEAM SEAT ELEVATION SHOTS WERE USED TO APPROXIMATE THE CENTERLINE OF THE PIERS

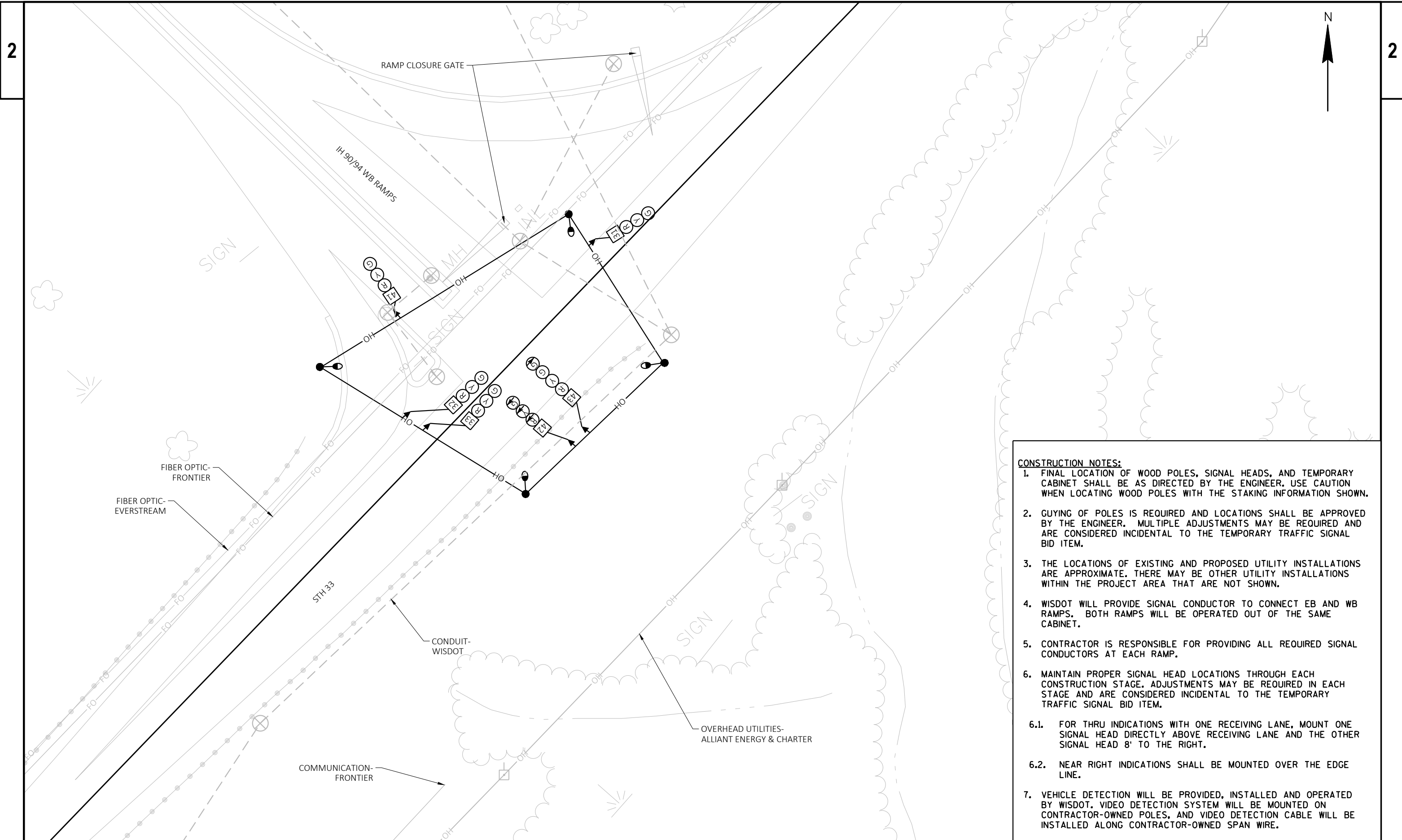
PROJECT NO: 5090-04-80	HWY: STH 33	COUNTY: COLUMBIA	CONSTRUCTION DETAILS	SHEET	<b>E</b>
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**CONSTRUCTION NOTES:**

- 1. FINAL LOCATION OF WOOD POLES, SIGNAL HEADS, AND TEMPORARY CABINET SHALL BE AS DIRECTED BY THE ENGINEER. USE CAUTION WHEN LOCATING WOOD POLES WITH THE STAKING INFORMATION SHOWN.
- 2. GUYING OF POLES IS REQUIRED AND LOCATIONS SHALL BE APPROVED BY THE ENGINEER. MULTIPLE ADJUSTMENTS MAY BE REQUIRED AND ARE CONSIDERED INCIDENTAL TO THE TEMPORARY TRAFFIC SIGNAL BID ITEM.
- 3. THE LOCATIONS OF EXISTING AND PROPOSED UTILITY INSTALLATIONS ARE APPROXIMATE. THERE MAY BE OTHER UTILITY INSTALLATIONS WITHIN THE PROJECT AREA THAT ARE NOT SHOWN.
- 4. WISDOT WILL PROVIDE SIGNAL CONDUCTOR TO CONNECT EB AND WB RAMPS. BOTH RAMPS WILL BE OPERATED OUT OF THE SAME CABINET.

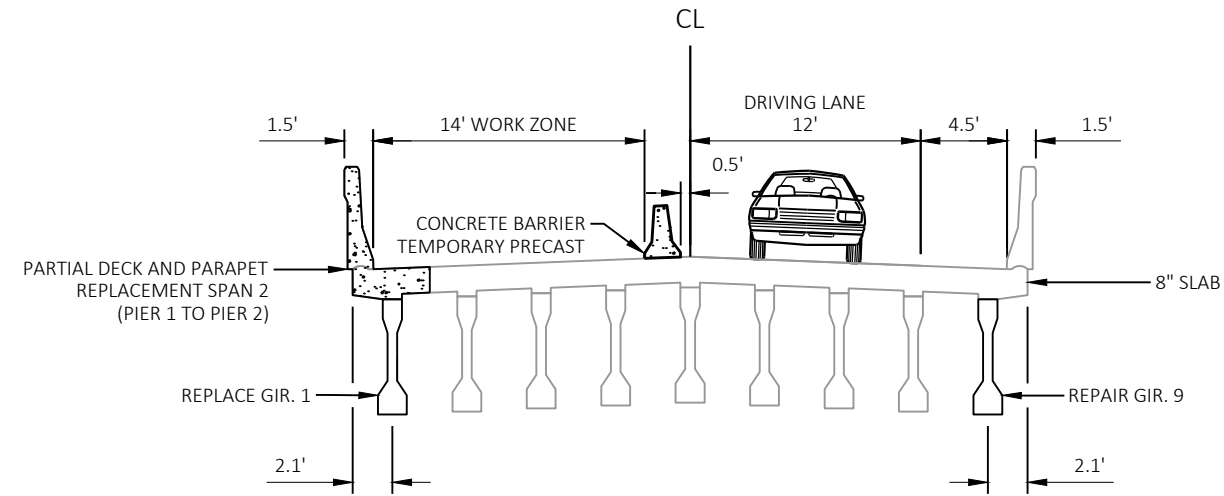
- 5. CONTRACTOR IS RESPONSIBLE FOR PROVIDING ALL REQUIRED SIGNAL CONDUCTORS AT EACH RAMP.
- 6. MAINTAIN PROPER SIGNAL HEAD LOCATIONS THROUGH EACH CONSTRUCTION STAGE. ADJUSTMENTS MAY BE REQUIRED IN EACH STAGE AND ARE CONSIDERED INCIDENTAL TO THE TEMPORARY TRAFFIC SIGNAL BID ITEM.
  - 6.1. FOR THRU INDICATIONS WITH ONE RECEIVING LANE, MOUNT ONE SIGNAL HEAD DIRECTLY ABOVE RECEIVING LANE AND THE OTHER SIGNAL HEAD 8' TO THE RIGHT.
  - 6.2. NEAR RIGHT INDICATIONS SHALL BE MOUNTED OVER THE EDGE LINE.
- 7. VEHICLE DETECTION WILL BE PROVIDED, INSTALLED AND OPERATED BY WISDOT. VIDEO DETECTION SYSTEM WILL BE MOUNTED ON CONTRACTOR-OWNED POLES, AND VIDEO DETECTION CABLE WILL BE INSTALLED ALONG CONTRACTOR-OWNED SPAN WIRE.



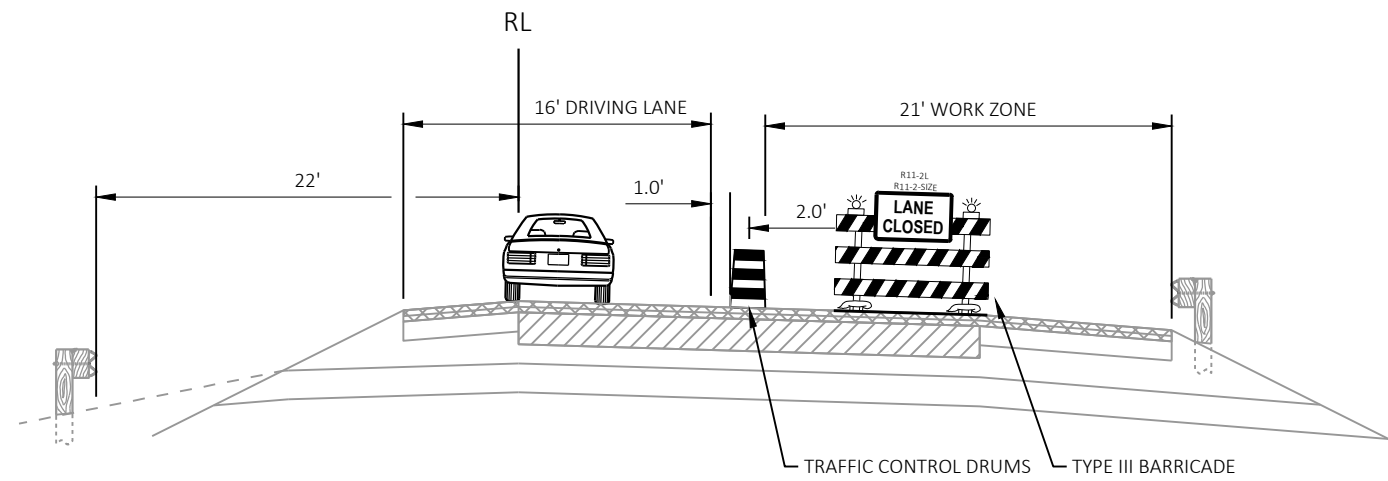
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**STH 33 WB LANE CLOSED ON B-11-0030**

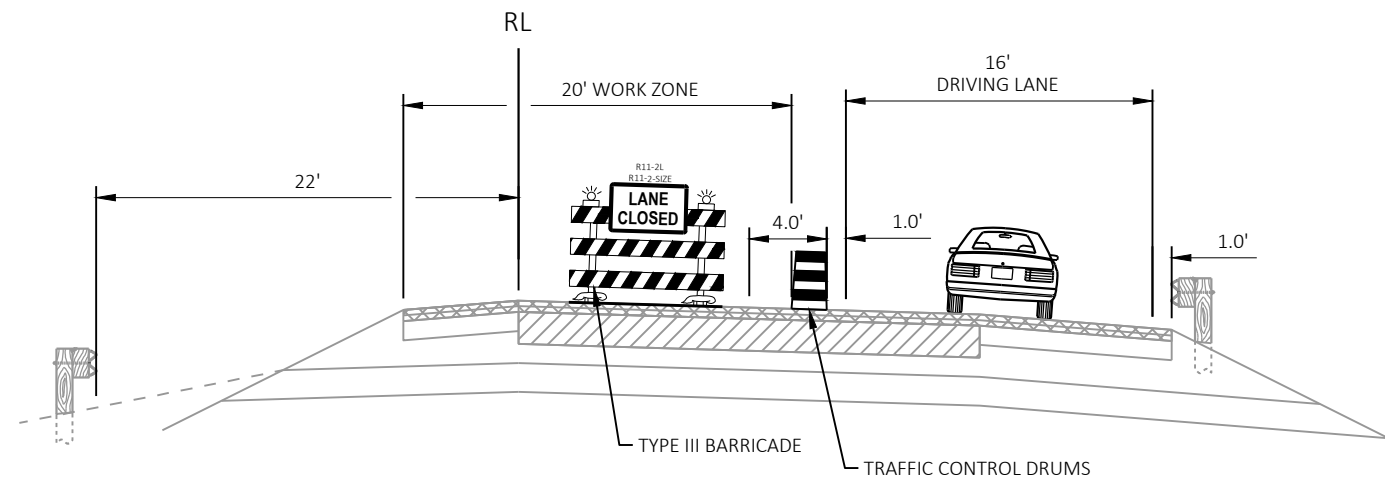


**IH-90/94 EB RIGHT LANE CLOSED, LANE SHIFT, AND EXIT RAMP CLOSURE**

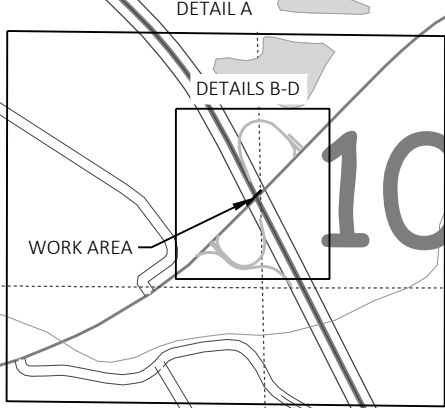
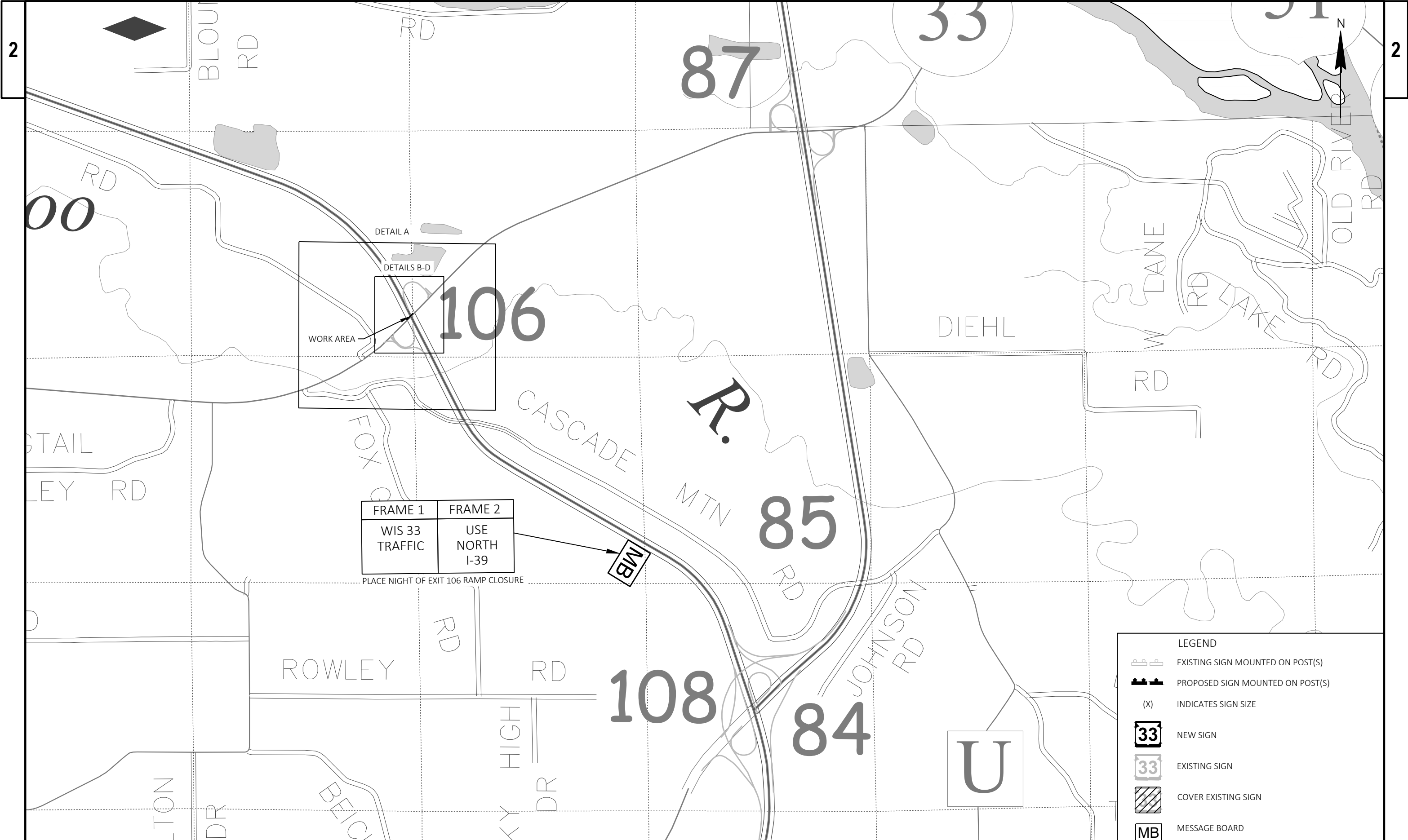
SEE STANDARD DETAIL DRAWINGS:  
 15D12-A TRAFFIC CONTROL, LANE CLOSURE  
 15D16 TRAFFIC CONTROL, EXIT RAMP CLOSURE  
 15D33 TRAFFIC CONTROL, ONE LANE ROAD WITH TEMPORARY SIGNALS  
 15D40-D TRAFFIC CONTROL, PARTIAL LANE SHIFT MULTILANE DIVIDED 50 MPH AND GREATER

NOTES: FOR EXIT RAMP CLOSURE, IN LIEU OF G20-60, G20-61 & COVERING EXIT SIGNS, REFERENCE PCMS

DECREASE BARREL SPACING IN LANE CLOSURE FROM 100 FT TO 25 FT FROM STA 859'EB'+31 TO









IH-90/94 EB LEFT LANE CLOSED AND LANE SHIFT



















FRAME 1	FRAME 2
WIS 33 TRAFFIC	USE NORTH I-39

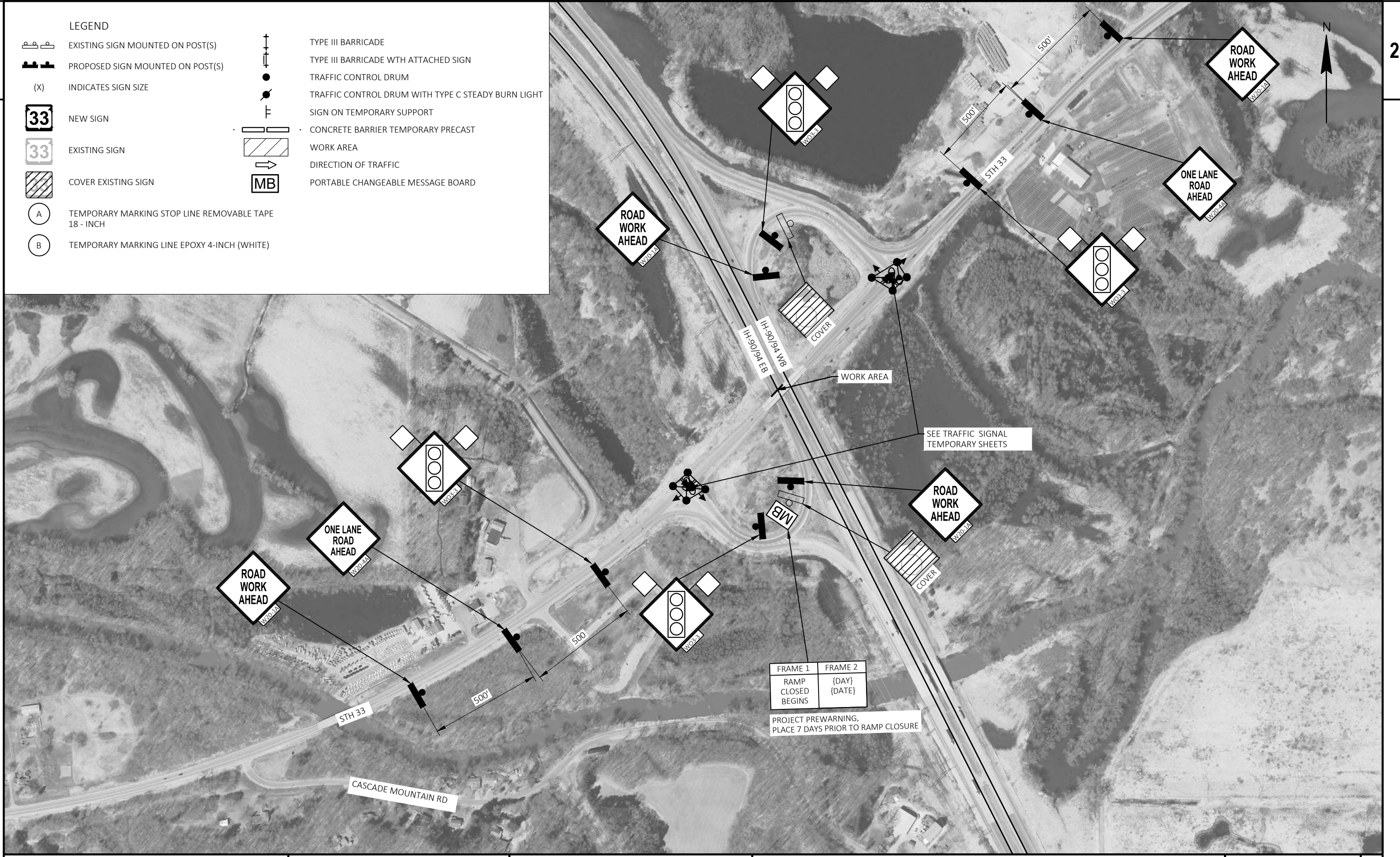
PLACE NIGHT OF EXIT 106 RAMP CLOSURE

**LEGEND**

-  EXISTING SIGN MOUNTED ON POST(S)
-  PROPOSED SIGN MOUNTED ON POST(S)
- (X) INDICATES SIGN SIZE
-  NEW SIGN
-  EXISTING SIGN
-  COVER EXISTING SIGN
-  MESSAGE BOARD

LEGEND

-  EXISTING SIGN MOUNTED ON POST(S)
-  PROPOSED SIGN MOUNTED ON POST(S)
- (X) INDICATES SIGN SIZE
-  NEW SIGN
-  EXISTING SIGN
-  COVER EXISTING SIGN
-  TEMPORARY MARKING STOP LINE REMOVABLE TAPE 18 - INCH
-  TEMPORARY MARKING LINE EPOXY 4-INCH (WHITE)
-  TYPE III BARRICADE
-  TYPE III BARRICADE WITH ATTACHED SIGN
-  TRAFFIC CONTROL DRUM
-  TRAFFIC CONTROL DRUM WITH TYPE C STEADY BURN LIGHT
-  SIGN ON TEMPORARY SUPPORT
-  CONCRETE BARRIER TEMPORARY PRECAST
-  WORK AREA
-  DIRECTION OF TRAFFIC
-  PORTABLE CHANGEABLE MESSAGE BOARD

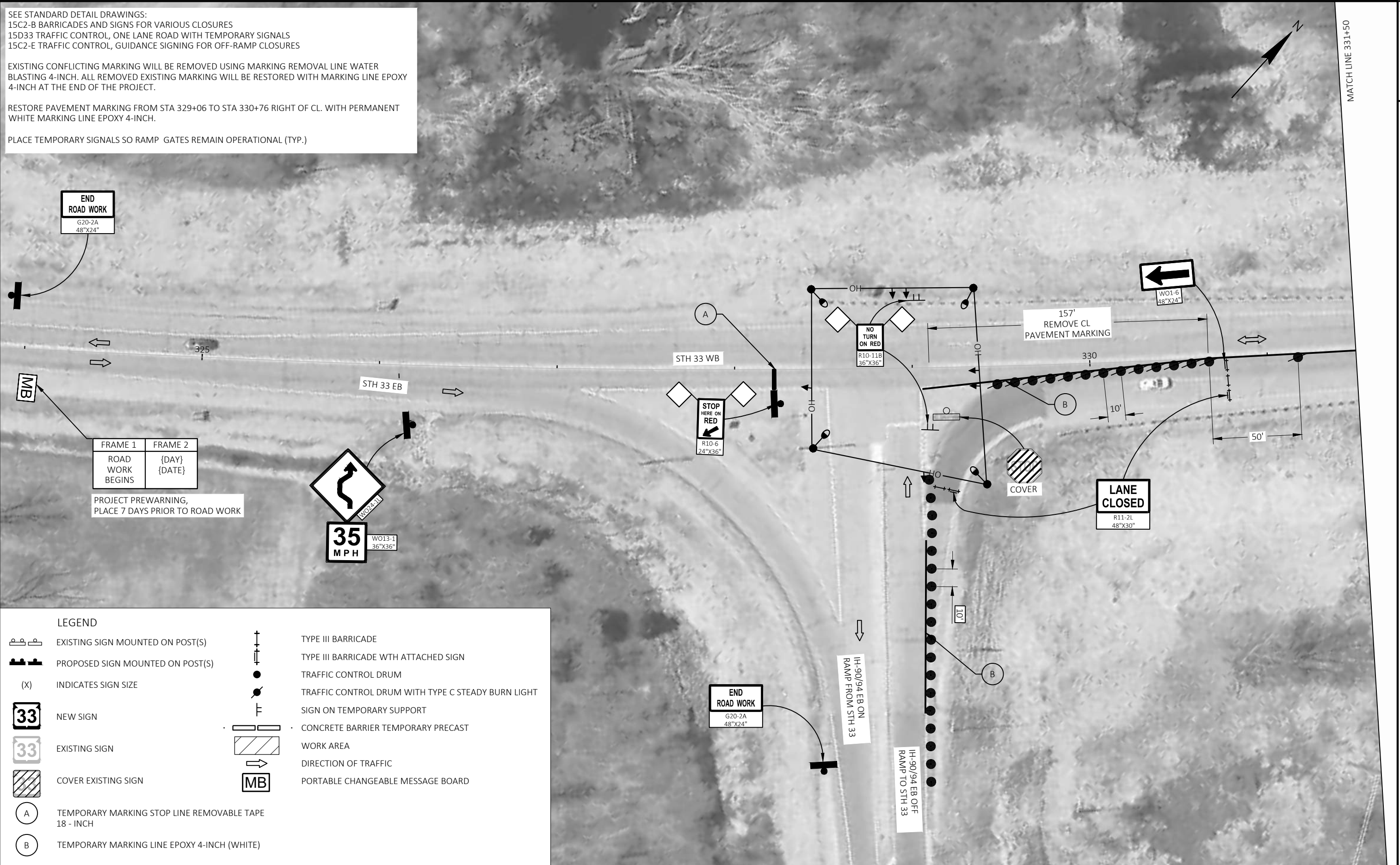


SEE STANDARD DETAIL DRAWINGS:  
 15C2-B BARRICADES AND SIGNS FOR VARIOUS CLOSURES  
 15D33 TRAFFIC CONTROL, ONE LANE ROAD WITH TEMPORARY SIGNALS  
 15C2-E TRAFFIC CONTROL, GUIDANCE SIGNING FOR OFF-RAMP CLOSURES

EXISTING CONFLICTING MARKING WILL BE REMOVED USING MARKING REMOVAL LINE WATER BLASTING 4-INCH. ALL REMOVED EXISTING MARKING WILL BE RESTORED WITH MARKING LINE EPOXY 4-INCH AT THE END OF THE PROJECT.

RESTORE PAVEMENT MARKING FROM STA 329+06 TO STA 330+76 RIGHT OF CL. WITH PERMANENT WHITE MARKING LINE EPOXY 4-INCH.

PLACE TEMPORARY SIGNALS SO RAMP GATES REMAIN OPERATIONAL (TYP.)



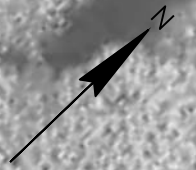
MATCH LINE 331+50

LEGEND	
	EXISTING SIGN MOUNTED ON POST(S)
	PROPOSED SIGN MOUNTED ON POST(S)
(X)	INDICATES SIGN SIZE
	NEW SIGN
	EXISTING SIGN
	COVER EXISTING SIGN
(A)	TEMPORARY MARKING STOP LINE REMOVABLE TAPE 18 - INCH
(B)	TEMPORARY MARKING LINE EPOXY 4-INCH (WHITE)
	TYPE III BARRICADE
	TYPE III BARRICADE WITH ATTACHED SIGN
	TRAFFIC CONTROL DRUM
	TRAFFIC CONTROL DRUM WITH TYPE C STEADY BURN LIGHT
	SIGN ON TEMPORARY SUPPORT
	CONCRETE BARRIER TEMPORARY PRECAST
	WORK AREA
	DIRECTION OF TRAFFIC
	PORTABLE CHANGEABLE MESSAGE BOARD

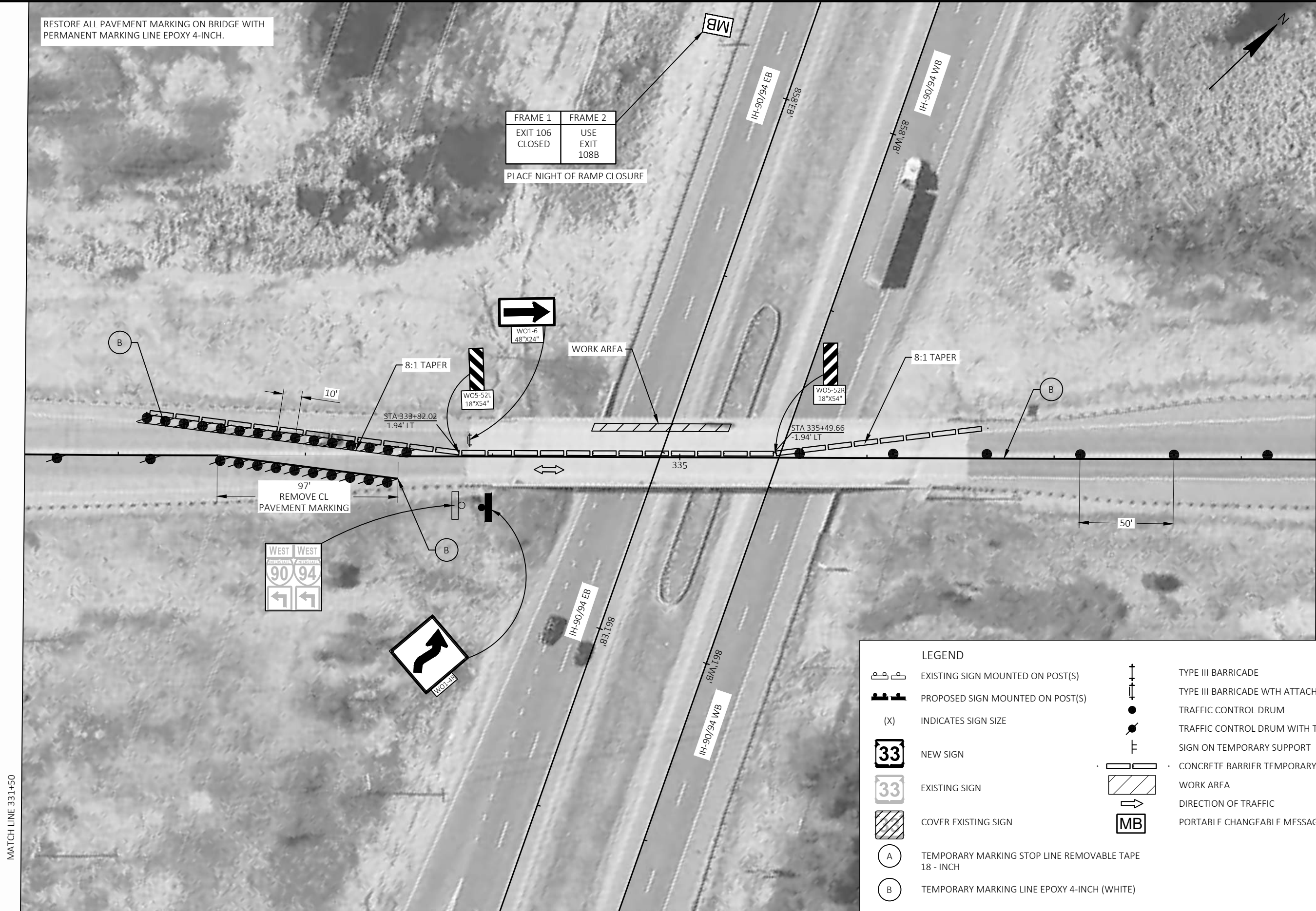
RESTORE ALL PAVEMENT MARKING ON BRIDGE WITH PERMANENT MARKING LINE EPOXY 4-INCH.

FRAME 1	FRAME 2
EXIT 106 CLOSED	USE EXIT 108B

















PLACE NIGHT OF RAMP CLOSURE

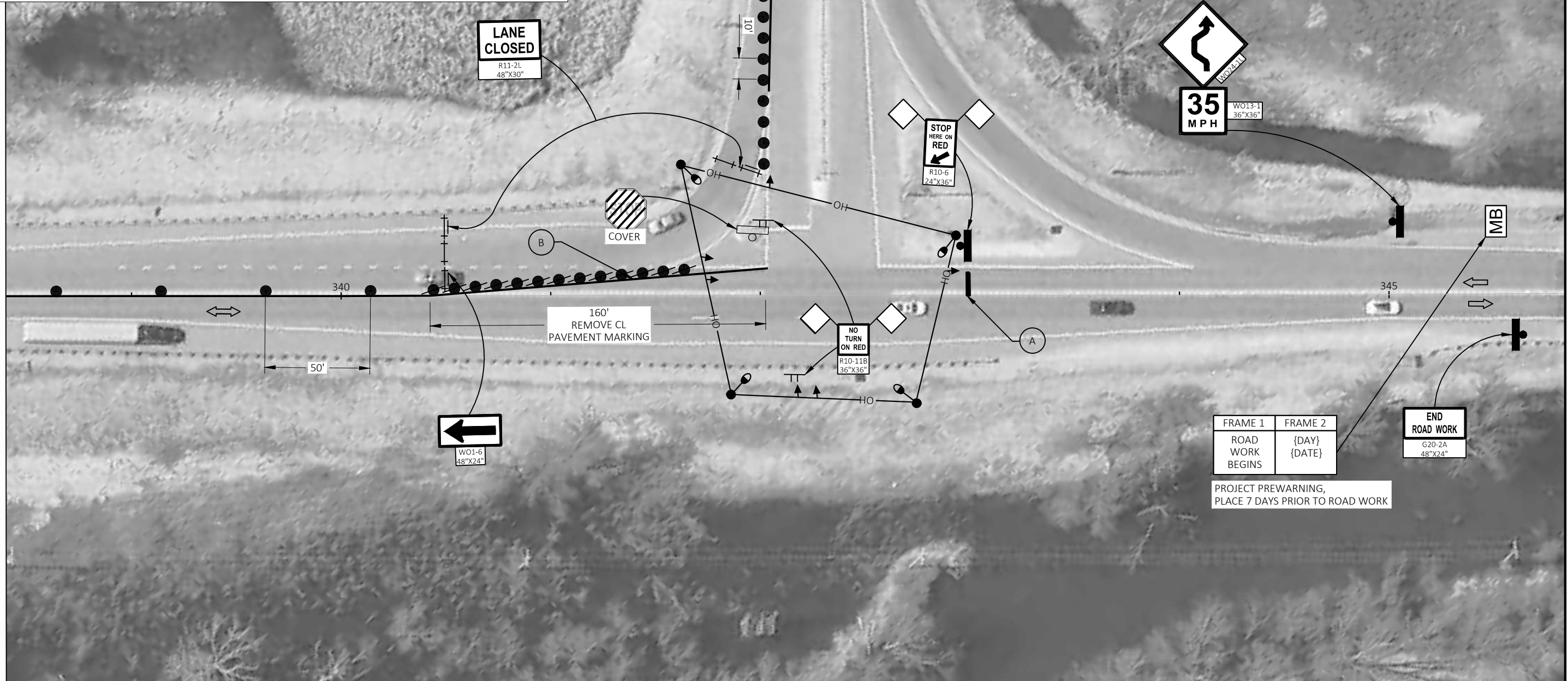


MATCH LINE 338+40



LEGEND	
	EXISTING SIGN MOUNTED ON POST(S)
	PROPOSED SIGN MOUNTED ON POST(S)
(X)	INDICATES SIGN SIZE
	NEW SIGN
	EXISTING SIGN
	COVER EXISTING SIGN
(A)	TEMPORARY MARKING STOP LINE REMOVABLE TAPE 18 - INCH
(B)	TEMPORARY MARKING LINE EPOXY 4-INCH (WHITE)
	TYPE III BARRICADE
	TYPE III BARRICADE WITH ATTACHED SIGN
	TRAFFIC CONTROL DRUM
	TRAFFIC CONTROL DRUM WITH TYPE C STEADY BURN LIGHT
	SIGN ON TEMPORARY SUPPORT
	CONCRETE BARRIER TEMPORARY PRECAST
	WORK AREA
	DIRECTION OF TRAFFIC
	PORTABLE CHANGEABLE MESSAGE BOARD

- LEGEND**
-  EXISTING SIGN MOUNTED ON POST(S)
  -  PROPOSED SIGN MOUNTED ON POST(S)
  - (X) INDICATES SIGN SIZE
  -  NEW SIGN
  -  EXISTING SIGN
  -  COVER EXISTING SIGN
  -  TEMPORARY MARKING STOP LINE REMOVABLE TAPE 18 - INCH
  -  TEMPORARY MARKING LINE EPOXY 4-INCH (WHITE)
  -  TYPE III BARRICADE
  -  TYPE III BARRICADE WITH ATTACHED SIGN
  -  TRAFFIC CONTROL DRUM
  -  TRAFFIC CONTROL DRUM WITH TYPE C STEADY BURN LIGHT
  -  SIGN ON TEMPORARY SUPPORT
  -  CONCRETE BARRIER TEMPORARY PRECAST
  -  WORK AREA
  -  DIRECTION OF TRAFFIC
  -  PORTABLE CHANGEABLE MESSAGE BOARD



MATCH LINE 338+40

Estimate Of Quantities

5090-04-80

Line	Item	Item Description	Unit	Total	Qty
0002	203.0220	Removing Structure (structure) 01. B-11-030	EACH	1.000	1.000
0004	204.0165	Removing Guardrail	LF	44.000	44.000
0006	213.0100	Finishing Roadway (project) 01. 5090-04-80	EACH	1.000	1.000
0008	502.0100	Concrete Masonry Bridges	CY	19.000	19.000
0010	502.3200	Protective Surface Treatment	SY	33.000	33.000
0012	502.3210	Pigmented Surface Sealer	SY	32.000	32.000
0014	503.0136	Prestressed Girder Type I 36-Inch	LF	70.000	70.000
0016	505.0600	Bar Steel Reinforcement HS Coated Structures	LB	3,450.000	3,450.000
0018	506.4000	Steel Diaphragms (structure) 01. B-11-030	EACH	2.000	2.000
0020	509.1500	Concrete Surface Repair	SF	6.000	6.000
0022	603.8000	Concrete Barrier Temporary Precast Delivered	LF	452.000	452.000
0024	603.8125	Concrete Barrier Temporary Precast Installed	LF	452.000	452.000
0026	614.0920	Salvaged Rail	LF	44.000	44.000
0028	614.0950	Replacing Guardrail Posts and Blocks	EACH	7.000	7.000
0030	619.1000	Mobilization	EACH	1.000	1.000
0032	627.0200	Mulching	SY	150.000	150.000
0034	628.1905	Mobilizations Erosion Control	EACH	1.000	1.000
0036	628.1910	Mobilizations Emergency Erosion Control	EACH	1.000	1.000
0038	629.0210	Fertilizer Type B	CWT	1.000	1.000
0040	630.0130	Seeding Mixture No. 30	LB	3.000	3.000
0042	642.5001	Field Office Type B	EACH	1.000	1.000
0044	643.0300	Traffic Control Drums	DAY	7,240.000	7,240.000
0046	643.0420	Traffic Control Barricades Type III	DAY	784.000	784.000
0048	643.0705	Traffic Control Warning Lights Type A	DAY	56.000	56.000
0050	643.0715	Traffic Control Warning Lights Type C	DAY	1,820.000	1,820.000
0052	643.0800	Traffic Control Arrow Boards	DAY	16.000	16.000
0054	643.0900	Traffic Control Signs	DAY	2,220.000	2,220.000
0056	643.0920	Traffic Control Covering Signs Type II	EACH	2.000	2.000
0058	643.1050	Traffic Control Signs PCMS	DAY	29.000	29.000
0060	643.5000	Traffic Control	EACH	1.000	1.000
0062	646.1020	Marking Line Epoxy 4-Inch	LF	3,300.000	3,300.000
0064	646.9010	Marking Removal Line Water Blasting 4-Inch	LF	2,590.000	2,590.000
0066	649.0120	Temporary Marking Line Epoxy 4-Inch	LF	1,650.000	1,650.000
0068	649.0850	Temporary Marking Stop Line Removable Tape 18-Inch	LF	24.000	24.000
0070	661.0200	Temporary Traffic Signals for Intersections (location) 01. STH 33 / Off Ramps	LS	1.000	1.000



**MGS GUARDRAIL SUMMARY**

CATEGORY	STATION	TO	STATION	LOCATION	204.0165 REMOVING GUARDRAIL LF	614.0920 SALVAGED RAIL LF	614.0950 REPLACING GUARDRAIL POSTS AND BLOCKS EACH	REMARKS
0010	859+31	-	859+75	IH-90/94 MEDIAN	44	44	7	
TOTAL 0010					44	44	7	

**EROSION CONTROL SUMMARY**

CATEGORY	STATION	TO	STATION	LOCATION	627.0200 MULCHING SY	628.1905 MOBILIZATIONS EROSION CONTROL EACH	628.1910 MOBILIZATIONS EMERGENCY EROSION CONTROL EACH	629.0210 FERTILIZER TYPE B CWT	630.0130 SEEDING MIXTURE NO. 30 LB	REMARKS
0010	859+31	-	859+75	IH-90/94 MEDIAN	150	1	1	0.10	3	Crane Affected Area
TOTAL 0010					150	1	1	1	3	

**TRAFFIC CONTROL SUMMARY**

CATEGORY	STATION	TO	STATION	LOCATION	EST. SERVICE PERIOD DAYS	603.8000 CONCRETE BARRIER TEMPORARY PRECAST DELIVERED LF	603.8125 CONCRETE BARRIER TEMPORARY PRECAST INSTALLED LF	643.0300 TRAFFIC CONTROL DRUMS DAY	643.0420 TRAFFIC CONTROL BARRICADES TYPE III DAY	643.0705 TRAFFIC CONTROL WARNING LIGHTS TYPE A DAY	643.0715 TRAFFIC CONTROL WARNING LIGHTS TYPE C DAY	643.5000 TRAFFIC CONTROL EACH	661.0200 TEMPORARY TRAFFIC SIGNALS FOR INTERSECTIONS (STH 33 & IH 90/94 ) LS	REMARKS
0010	323+85	-	331+50	STH 33	68	--	--	2176	340	--	204	--	--	DETAIL B
0010	331+50	-	338+40	STH 33	68	452	452	2244	68	--	1224	--	--	DETAIL C
0010	338+40	-	345+85	STH 33	68	--	--	2244	340	--	204	--	--	DETAIL D
0010	323+35	-	345+85	STH 33 & IH 90/94 RAMP	--	--	--	--	--	--	--	--	1	SIGNALS
0010	791+34	-	859+84	IH-90/94 EB	4	--	--	300	20	40	72	--	--	RIGHT LANE AND RAMP CLOSED
0010	323+85	-	859+84	IH-90/94 EB	4	--	--	272	16	16	108	--	--	LEFT LANE CLOSED
0010	323+35	-	347+32	PROJECT	--	--	--	--	--	--	--	1	--	
TOTAL 0010						452	452	7,240	784	56	1,820	1	1	

**TRAFFIC CONTROL SIGNS**

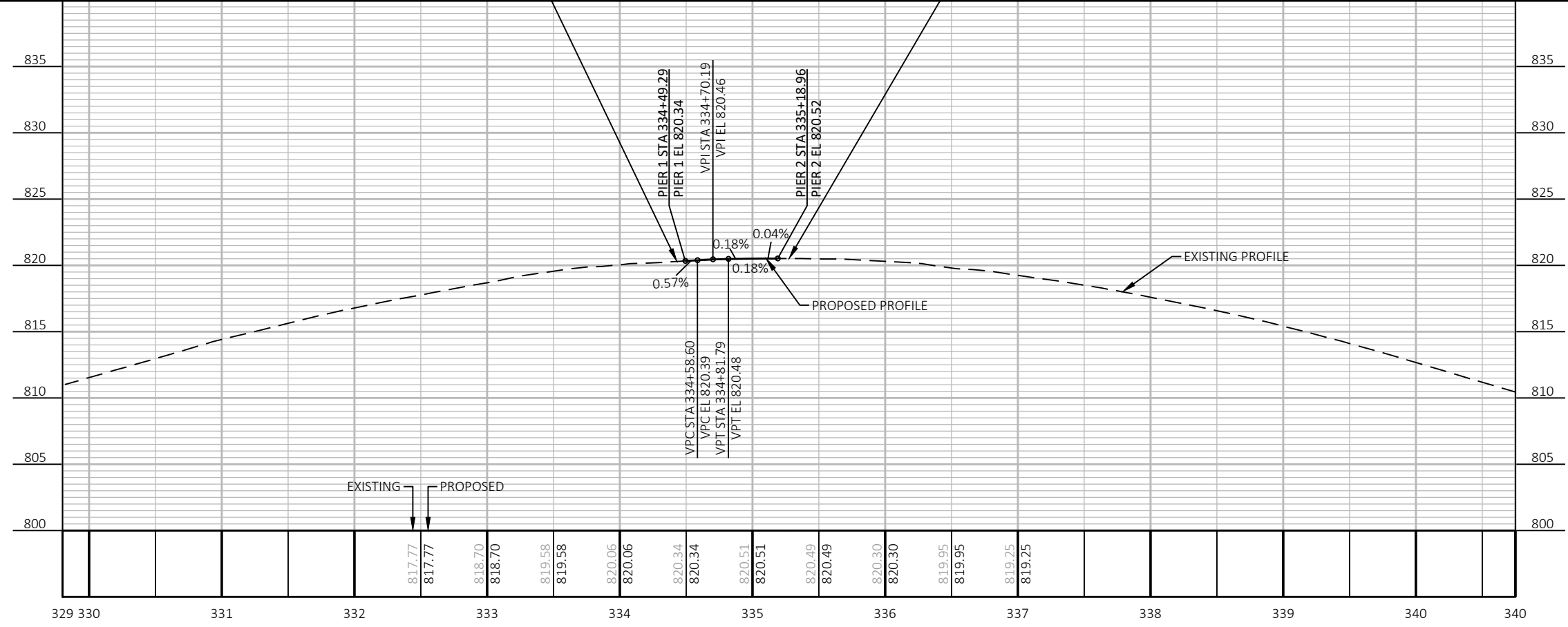
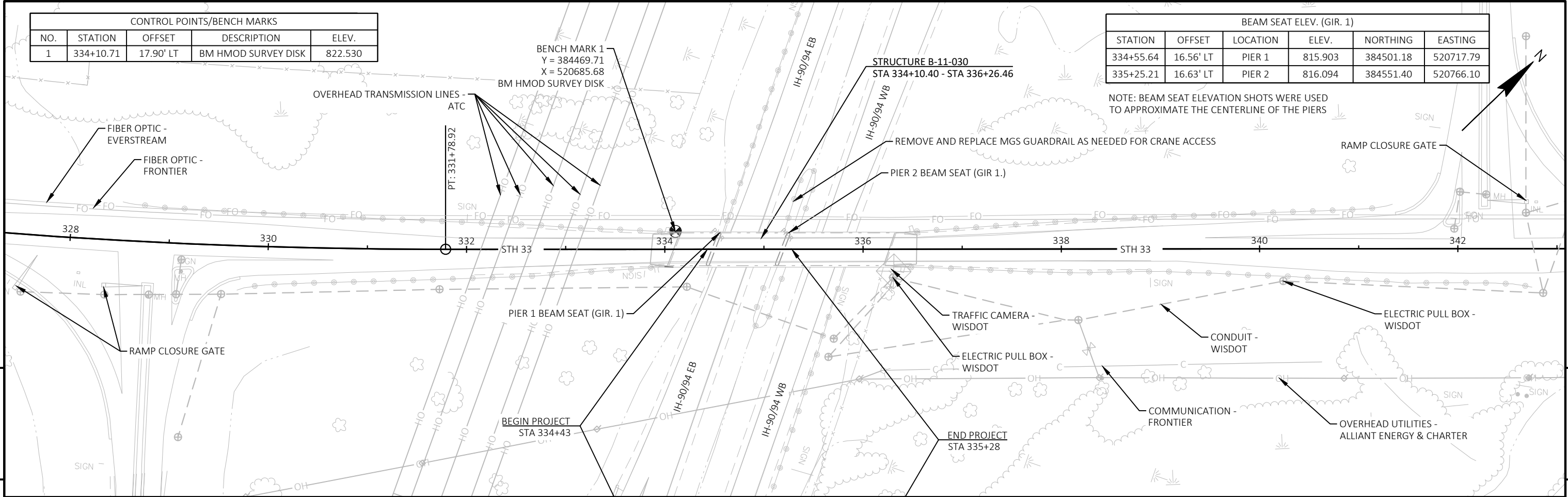
CATEGORY	LOCATION	EST. SERVICE PERIOD DAYS	643.0800	643.0900	643.0920	643.1050	REMARKS
			TRAFFIC CONTROL ARROW BOARDS DAY	TRAFFIC CONTROL SIGNS DAY	TRAFFIC CONTROL COVERING SIGNS TYPE II EACH	TRAFFIC CONTROL SIGNS PCMS DAY	
0010	Prewarn	7	--	--	--	29	Ramp Closure and Work to begin
0010	IH-90/94 & STH 33	68	--	748	-	--	DETAIL A
0010	STH 33 & RAMPS	68	--	544	1	--	DETAIL B
0010	STH 33	68	--	272	-	--	DETAIL C
0010	STH 33 & RAMPS	68	--	544	1	--	DETAIL D
0010	IH-90/94 EB	4	8	60	--	--	RIGHT LANE AND RAMP CLOSURE
0010	IH-90/94 EB	4	8	52	--	--	LEFT LANE CLOSURE
TOTAL 0010			16	2,220	2	29	

**PAVEMENT MARKING SUMMARY**

CATEGORY	STATION	TO	STATION	LOCATION	646.1020	646.1020	646.9010	649.0120	649.0850	REMARKS
					MARKING LINE EPOXY 4-INCH (YELLOW) LF	MARKING LINE EPOXY 4-INCH (WHITE) LF	MARKING REMOVAL LINE WATER BLASTING 4-INCH LF	TEMPORARY MARKING LINE EPOXY 4-INCH (WHITE) LF	TEMPORARY MARKING STOP LINE REMOVABLE TAPE 18-INCH LF	
0010	329+09	-	330+67	STH 33 TAPER TO 1 LANE	315	--	315	162	--	REMOVE AND REPLACE DOUBLE YELLOW
0010	329+06	-	330+76	NEW PERMANENT PAVEMENT MARKINGS	--	171	--	--	--	RESTORE OLD PAVEMENT MARKINGS ON RT SIDE
0010	330+67	-	332+53	STH 33	373	--	373	186	--	REMOVE EXISTING, TEMP MARKINGS, & REPLACE I
0010	332+53	-	333+50	STH 33 TAPER TO OTHER LANE	194	--	194	238	--	REMOVE AND REPLACE DOUBLE YELLOW
0010	333+50	-	340+43	STH 33	1386	--	1386	693	--	REMOVE EXISTING, TEMP MARKINGS, & REPLACE I
0010	333+88	-	336+54	BRIDGE	--	533	--	--	--	REPLACE EDGELINES
0010	340+43	-	342+03	STH 33 TAPER TO 1 LANE	320	--	320	162	--	REMOVE AND REPLACE DOUBLE YELLOW
0010	328+21	-	343+00	STOP BAR	--	--	--	--	24	WB ON/OFF RAMP INTERSECTION
0010	329+03	-	329+06	IH-90/94 & STH 33	--	--	--	98	--	
0010	342+04	-	342+04	IH-90/94 & STH 33	--	--	--	102	--	
TOTAL 0010					3,300		2,590	1,650	24	

CONTROL POINTS/BENCH MARKS				
NO.	STATION	OFFSET	DESCRIPTION	ELEV.
1	334+10.71	17.90' LT	BM HMOD SURVEY DISK	822.530

BEAM SEAT ELEV. (GIR. 1)					
STATION	OFFSET	LOCATION	ELEV.	NORTHING	EASTING
334+55.64	16.56' LT	PIER 1	815.903	384501.18	520717.79
335+25.21	16.63' LT	PIER 2	816.094	384551.40	520766.10

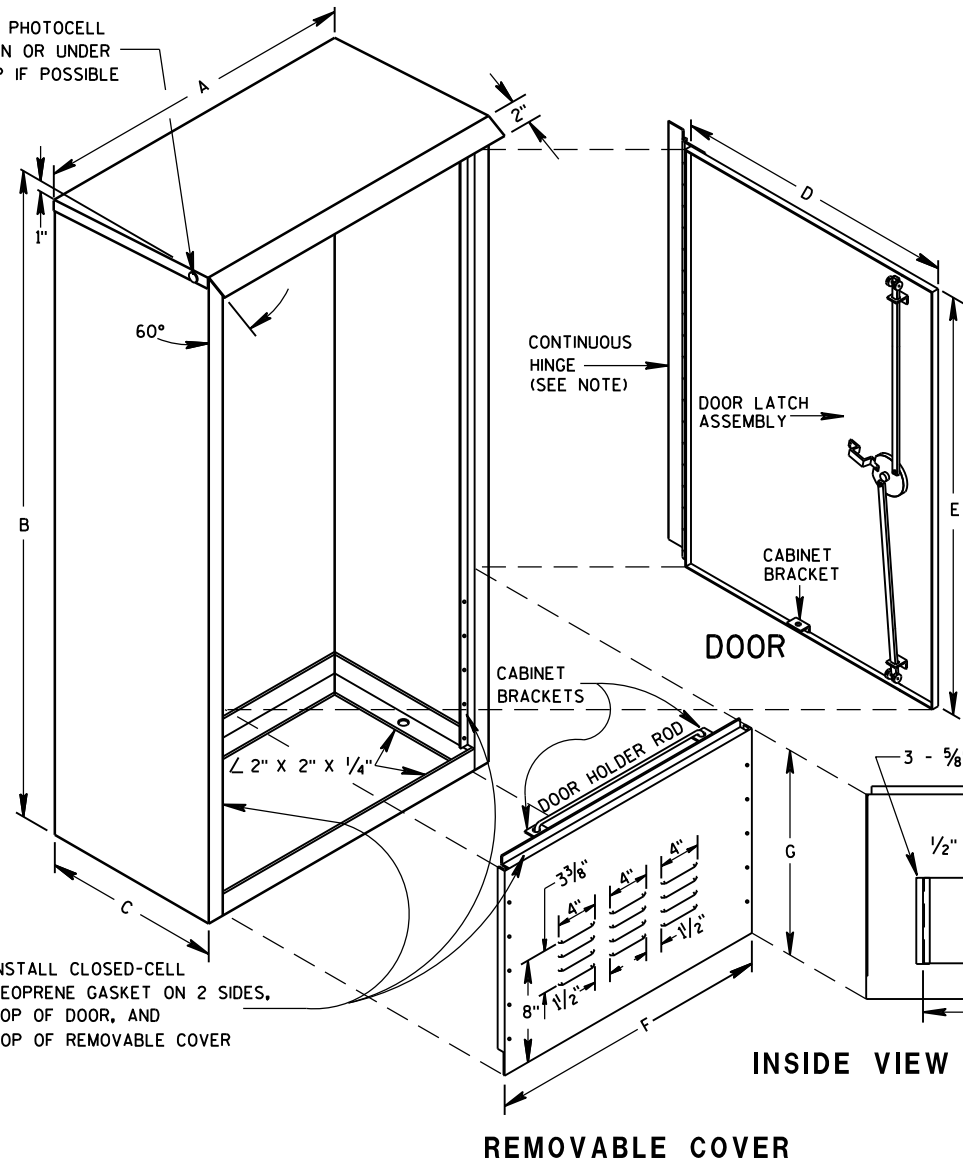


PROJECT NO: 5090-04-80	HWY: STH 33	COUNTY: COLUMBIA	PLAN AND PROFILE:	SHEET	<b>E</b>
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## Standard Detail Drawing List

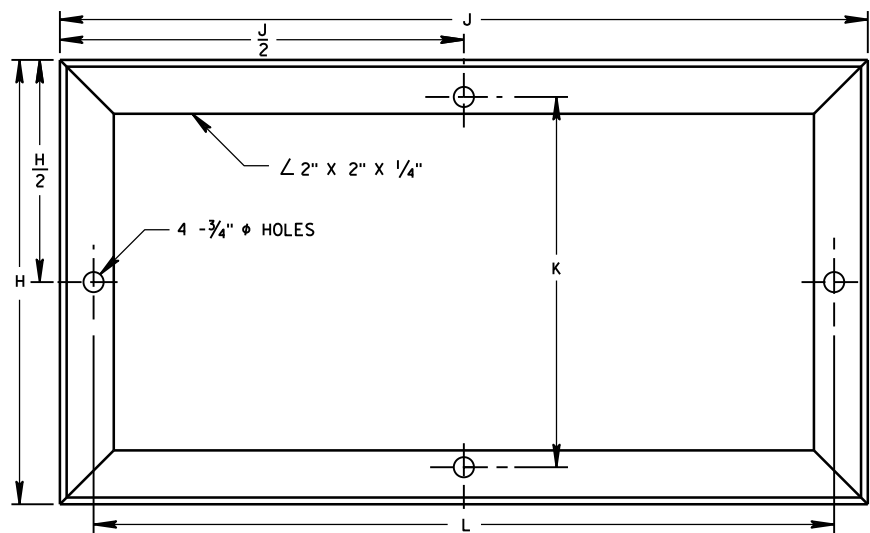
09D02-03	SIGNAL CONTROL CABINET
09G01-04A	SPAN WIRE TEMPORARY TRAFFIC SIGNAL
09G01-04D	SPAN WIRE TEMPORARY TRAFFIC SIGNAL
09G01-04E	SPAN WIRE TEMPORARY TRAFFIC SIGNAL
09G01-04F	SPAN WIRE TEMPORARY TRAFFIC SIGNAL
09G01-04G	SPAN WIRE TEMPORARY TRAFFIC SIGNAL
14B07-15A	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B07-15B	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B07-15C	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B07-15D	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B07-15E	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B07-15F	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B07-15G	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B07-15H	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B07-15I	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
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
15C04-05	TRAFFIC CONTROL, ADVANCE WARNING SIGNS 45 M.P.H. OR GREATER TWO-WAY UNDIVIDED ROAD OPEN TO TRAFFIC
15C06-09	SIGNING & MARKING FOR TWO LANE BRIDGES
15C08-20A	LONGITUDINAL MARKING (MAINLINE)
15C11-09B	CHANNELIZING DEVICES DRUMS, CONES, BARRICADES AND VERTICAL PANELS
15D12-09A	TRAFFIC CONTROL, LANE CLOSURE
15D16-04	TRAFFIC CONTROL, EXIT RAMP CLOSURE
15D33-06	TRAFFIC CONTROL, ONE LANE ROAD WITH TEMPORARY SIGNALS
15D38-02A	TEMPORARY TRAFFIC CONTROL SIGN MOUNTING
15D38-02B	ATTACHMENT OF SIGNS TO POSTS
15D40-02D	TRAFFIC CONTROL, PARTIAL LANE SHIFT MULTILANE DIVIDED 50 MPH AND GREATER

TYPICAL PHOTOCELL LOCATION OR UNDER DRIP LIP IF POSSIBLE

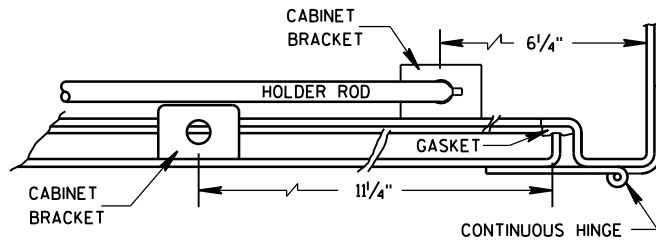


INSTALL CLOSED-CELL NEOPRENE GASKET ON 2 SIDES, TOP OF DOOR, AND TOP OF REMOVABLE COVER

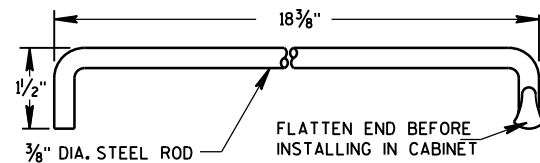
REMOVABLE COVER



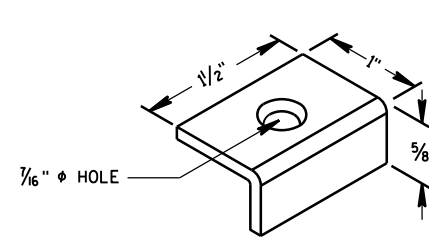
MOUNTING BASE



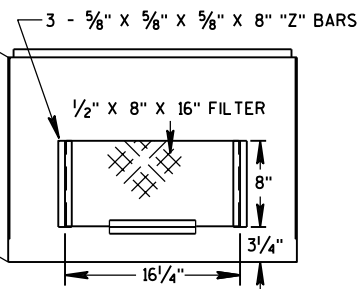
HINGE & DOOR HOLDER



HOLDER ROD



CABINET BRACKET



INSIDE VIEW SHOWING FILTER

TABLE OF DIMENSIONS (INCHES)

MARK	CABINET TYPE		
	3060	3860	3866
A	30	38	38
B	60	60	66
C	16 1/2	16 1/2	24
D	26 1/2	34 3/4	33 3/4
E	38 3/4	38 3/4	38 3/4
F	26 1/2	34 3/4	33 3/4
G	19	19	25
H	16 1/2	16 1/2	24
H/2	8 1/4	8 1/4	12
J	30	38	38
J/2	15	19	19
K	13 3/4	13 3/4	21 1/4
L	27 1/2	35 1/2	35 1/2

GENERAL NOTES

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

PRIME WITH PHOSPHATE TREATMENT AND PRIMER.

FINISH EXTERIOR SURFACES WITH RUSTOLEUM #906 SILVER GRAY OR APPROVED EQUAL.

FINISH INTERIOR WITH RUSTOLEUM #2766 HIGH GLOSS WHITE ENAMEL OR APPROVED EQUAL.

ALL SHEET METAL PARTS SHALL BE .125 INCH THICK ALUMINUM.

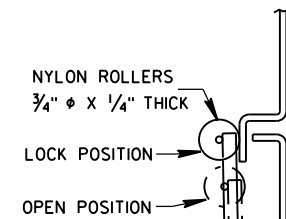
ALL SEAMS SHALL BE CONTINUOUSLY WELDED.

ALUMINUM SHALL BE TYPE 5052-H32.

CONTINUOUS HINGE SHALL BE HEAVY GAUGE ALUMINUM WITH 1/4" DIAMETER STAINLESS STEEL HINGE PIN. HINGE IS SECURED WITH 1/4" X 20 TPI STAINLESS STEEL CARRIAGE BOLTS AND STAINLESS STEEL NYLOCK NUTS.

A SINGLE PHOTOCELL SHALL BE LOCATED ON THE NORTH-NORTHEAST SIDE OF THE CABINET UNLESS OTHERWISE CALLED FOR IN THE SPECIAL PROVISIONS. THE PHOTOCELL SHALL BE PLACED AS SHOWN AND SHALL BE LISTED ON THE DEPARTMENTS APPROVED PRODUCTS LIST.

DOOR LATCH ASSEMBLY TO BE PROVIDED WITH THREE-POINT LOCKING MECHANISM.



LATCH BAR GUIDE

LOCK NO. 2510 WITH 2 KEYS AND DUST CAP. KEY NO. IR6380

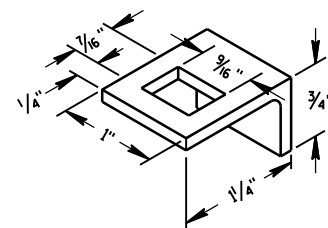
LATCH BARS 1/2" X 1/4" X LENGTH REQUIRED

3/4" SOLID STAINLESS STEEL INWARD-TURNING HANDLE WITH PROVISIONS FOR PADLOCKING

SIDE VIEW

FRONT VIEW

LATCH ASSEMBLY



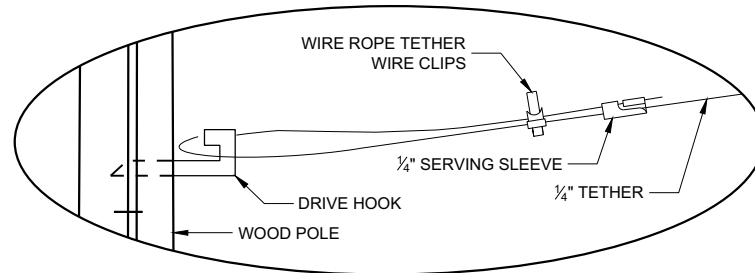
LATCH BAR GUIDE

SIGNAL CONTROL CABINET

STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION

APPROVED  
 Sept. 2014 /S/ Ahmet Demireblek  
 DATE STATE ELECTRICAL ENGINEER  
 FHWA

MINIMUM POLE LENGTHS	POLE BURIAL DEPTHS
25'	5'
30'	6'
35'	7'
40'	8'
45'	9'

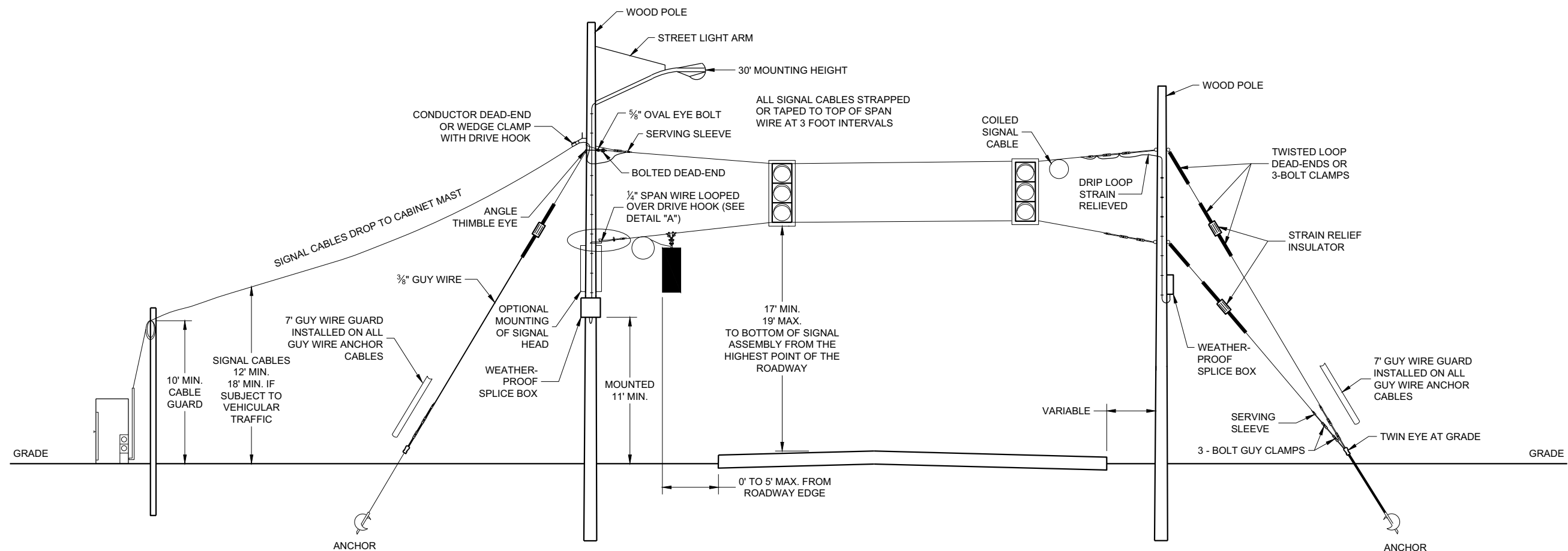


**DETAIL "A"**

**GENERAL NOTES**

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

1. WOOD POLES SHALL BE CLASS 4. LENGTH DETERMINED BY SIGNAL PLAN.
2. SIGNAL FACES:
  - A. ALL SECTIONS SHALL BE 12" AND POLYCARBONATE.
  - B. EACH SHALL CONTAIN A 5" WIDE DULL BLACK POLYCARBONATE BACKPLATE.
  - C. EACH SHALL BE WIRED FROM THE TOP SIGNAL MOUNTING BRACKET.
  - D. NEAR RIGHT SIGNAL FACE SUSPENDED ON THE TETHER (NO BACKPLATE) SHALL NOT BE OVER THE TRAVELED WAY. IF THE POLE IS WITHIN 5 FEET OF THE TRAVELED WAY MOUNT THE SIGNAL FACE ON THE WOOD POLE WITH BACKPLATE.
3. SPAN WIRE:
  - A. EACH SPAN WIRE SHALL BE INDIVIDUALLY DOWN GUYED
  - B. SIGNAL AND LIGHTING CABLES SHALL ONLY BE ATTACHED TO THE UPPER SPAN WIRE.
  - C. THE SIGNAL ASSEMBLY SHALL HAVE A 17' MIN. HEIGHT ABOVE THE ROADWAY. THIS SHALL BE MEASURED AFTER THE SPAN WIRE INSTALLATION IS COMPLETED WITH ALL CABLES AND SIGNAL FACES IN PLACE. MAINTAIN MINIMUM AND MAXIMUM HEIGHTS AS ROADWAY WORK PROGRESSES.



**SPAN WIRE TEMPORARY SIGNALS**

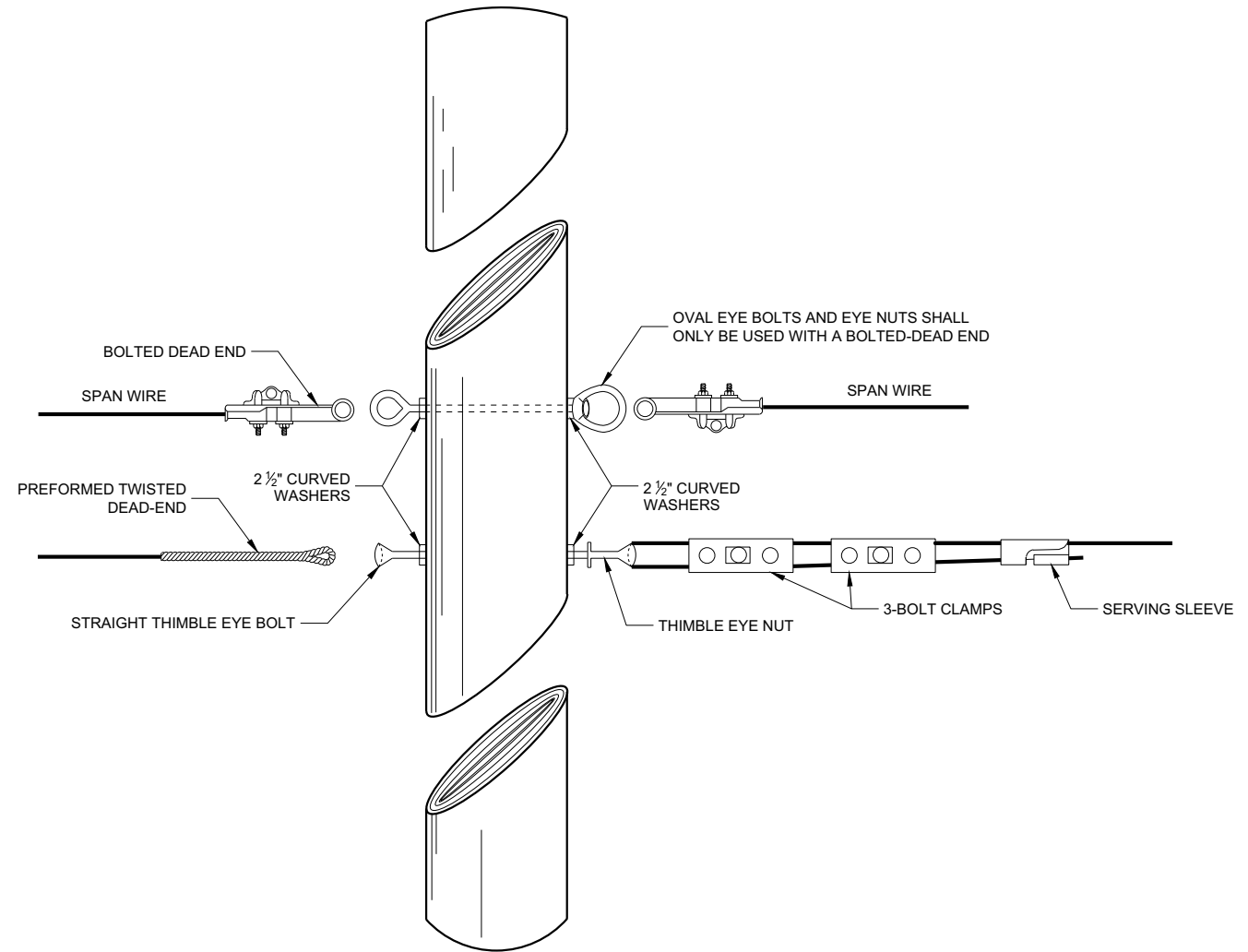
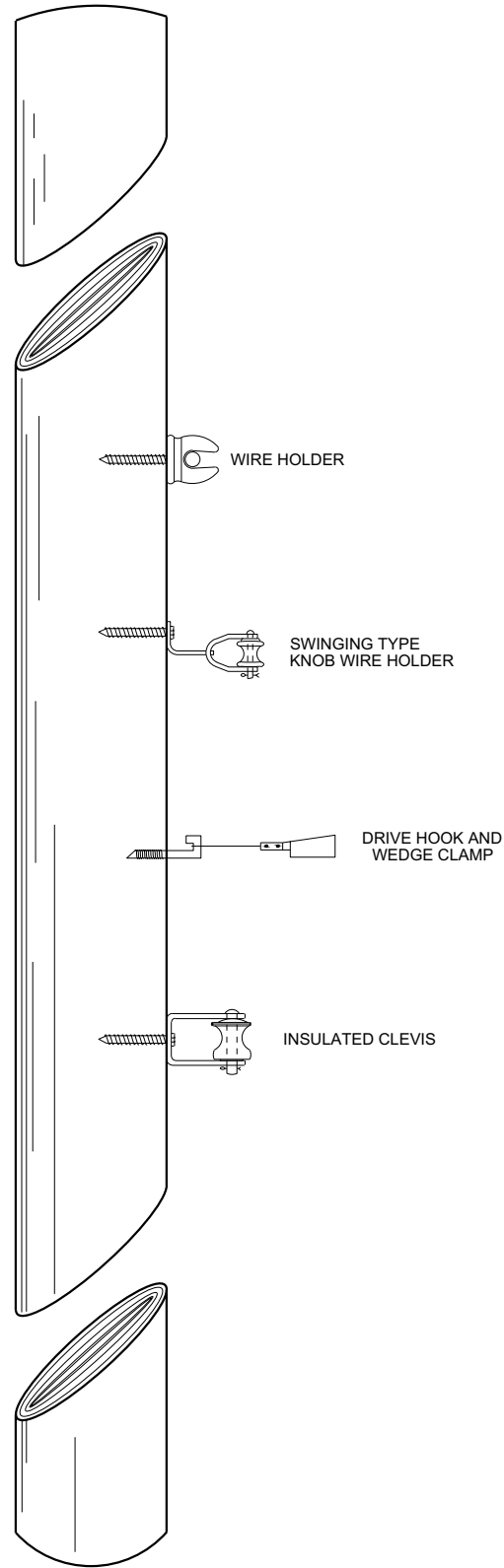
<b>SPAN WIRE TEMPORARY TRAFFIC SIGNAL</b>	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED June 2015 DATE	/s/ Ahmet Demerbilek STATE ELECTRICAL ENGINEER
FHWA	

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6

SDD09G01 - 04a

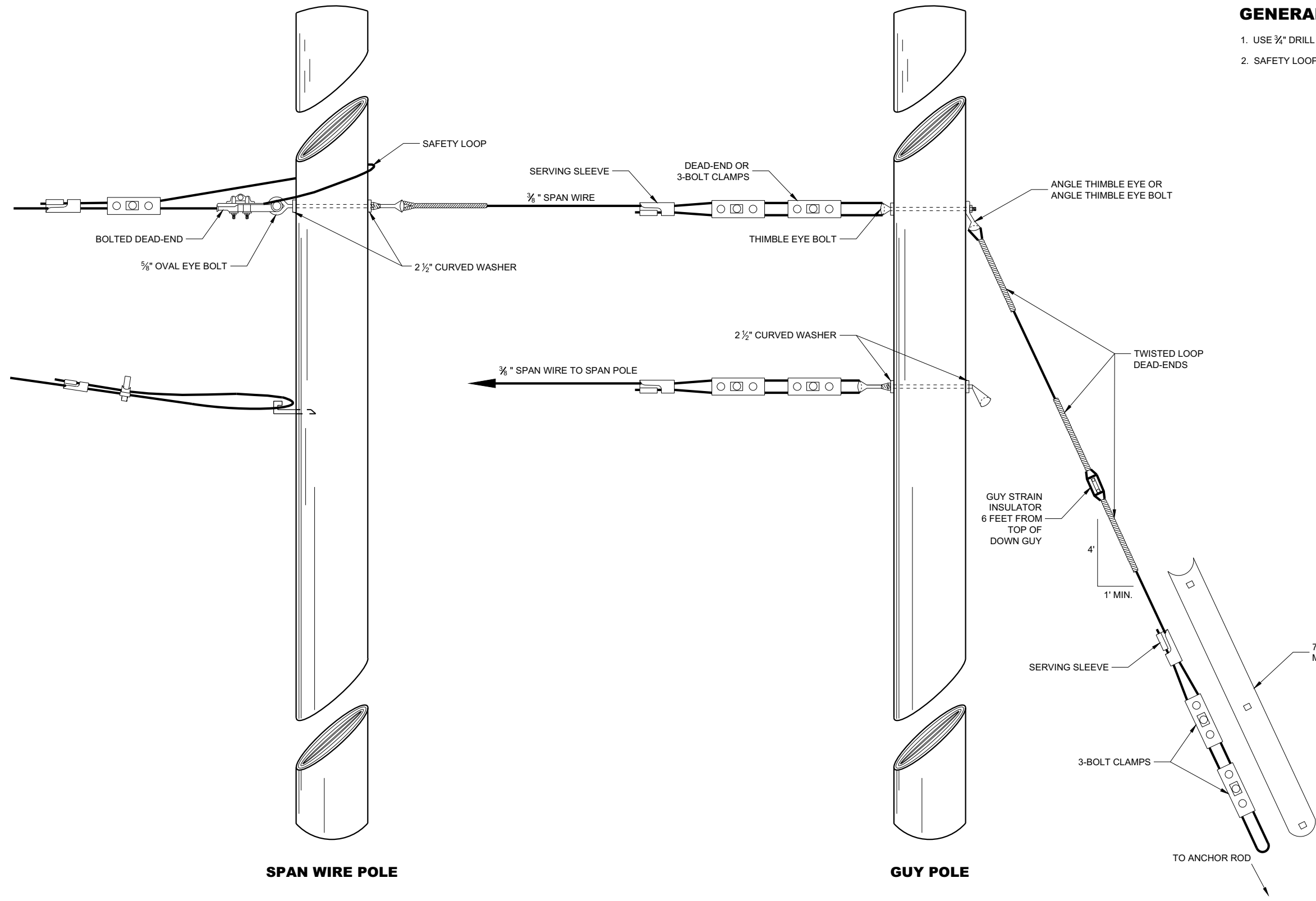
SDD09G01 - 04a



**SPAN WIRE TEMPORARY TRAFFIC SIGNAL**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
June 2015 /S/ Ahmet Demerbilek  
DATE ROADWAY STANDARDS DEVELOPMENT ENGINEER



**GENERAL NOTES**

1. USE 3/4" DRILL IN WOOD POLE TO PROVIDE FOR 5/8" BOLTS.
2. SAFETY LOOP REQUIRED ON EACH END OF ALL SPAN WIRES.

SPAN WIRE POLE

GUY POLE

**TYPICAL DEAD-ENDINGS OR GUYING**

<b>SPAN WIRE TEMPORARY TRAFFIC SIGNAL</b>	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED June 2015 DATE	/S/ Ahmet Demerbilek ROADWAY STANDARDS DEVELOPMENT ENGINEER
<small>FHWA</small>	

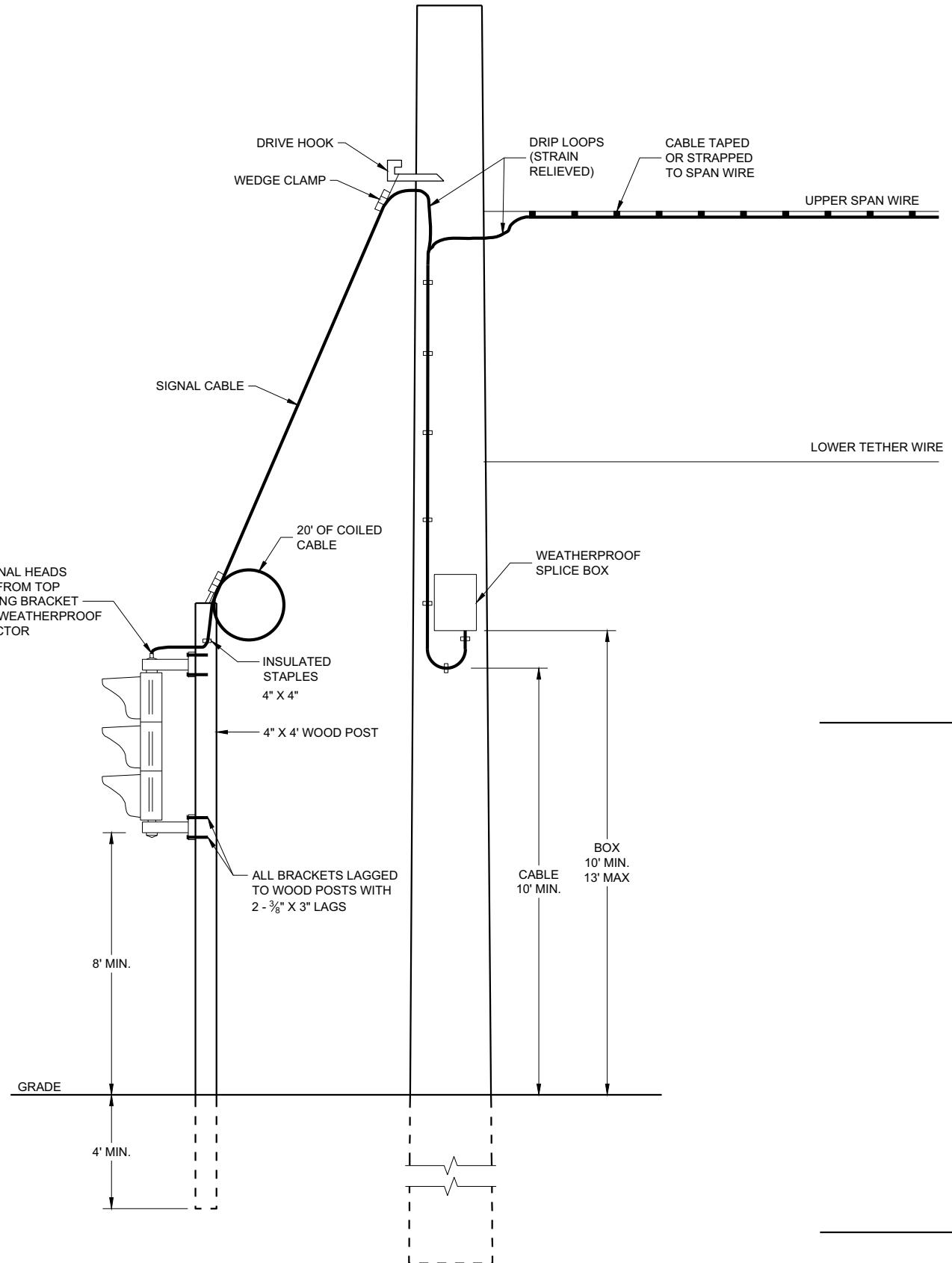
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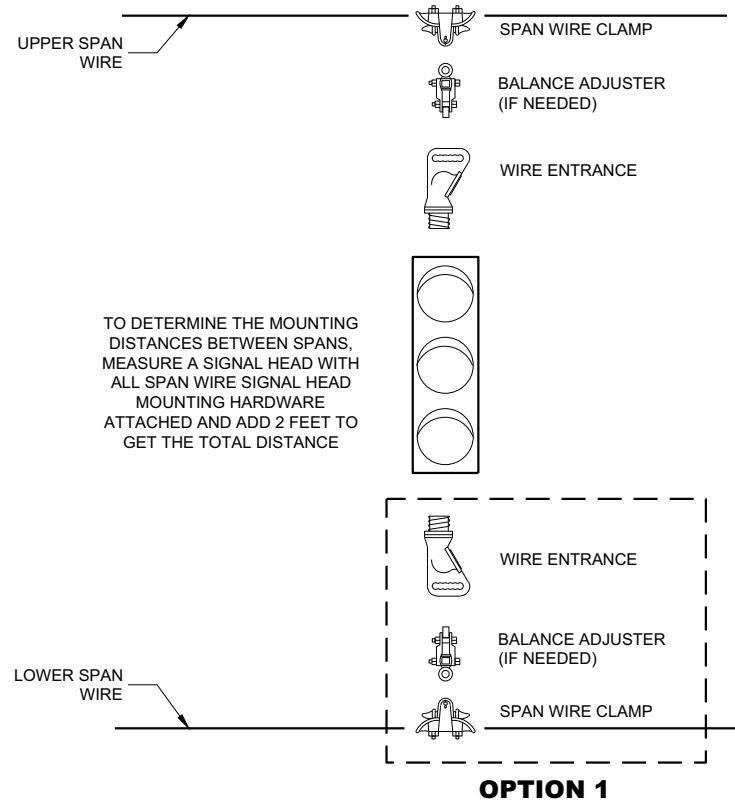
SDD 09G01 - 4e

SDD 09G01 - 4e

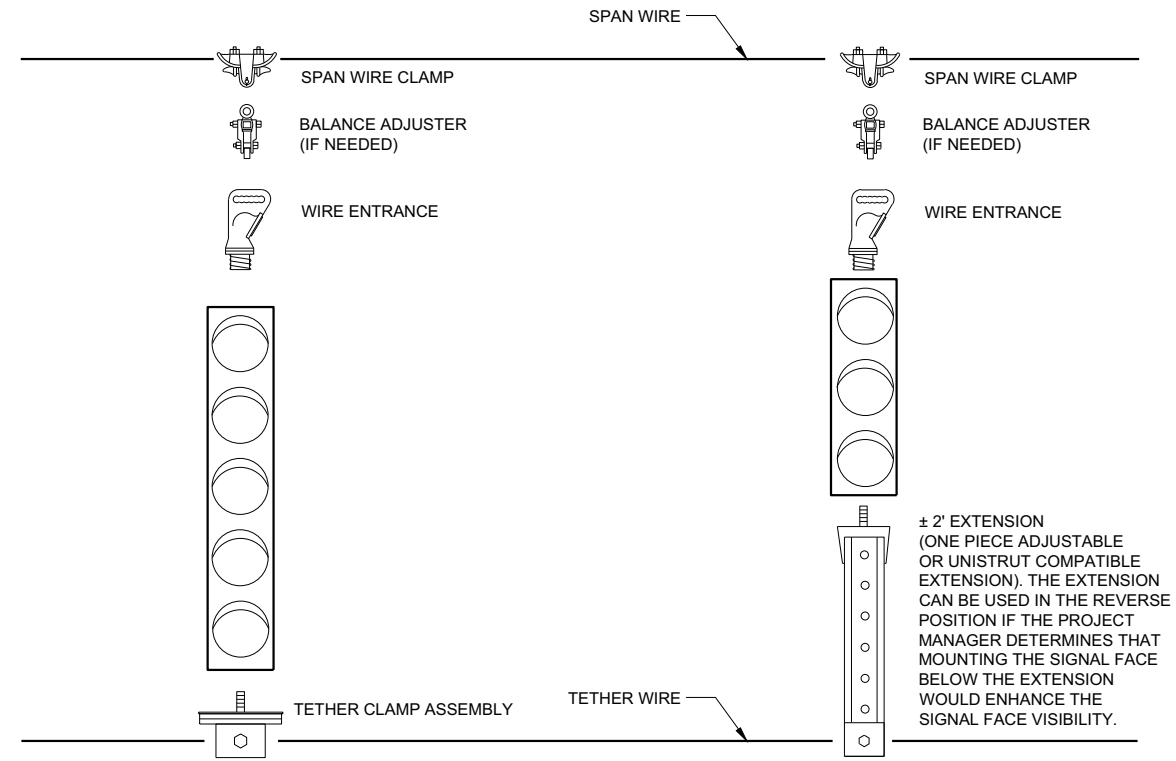




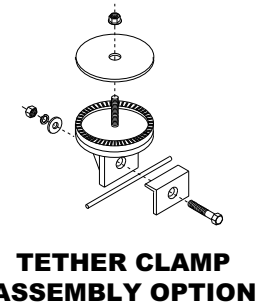
TYPICAL DROP TO TEMPORARY MOVEABLE SIGNAL



TYPICAL SPAN WIRE MOUNTING HARDWARE



5 SECTION VERTICAL WITH 3 SECTION VERTICAL ON ONE SPAN WIRE



USE OPTION 1 OR TETHER CLAMP ASSEMBLY

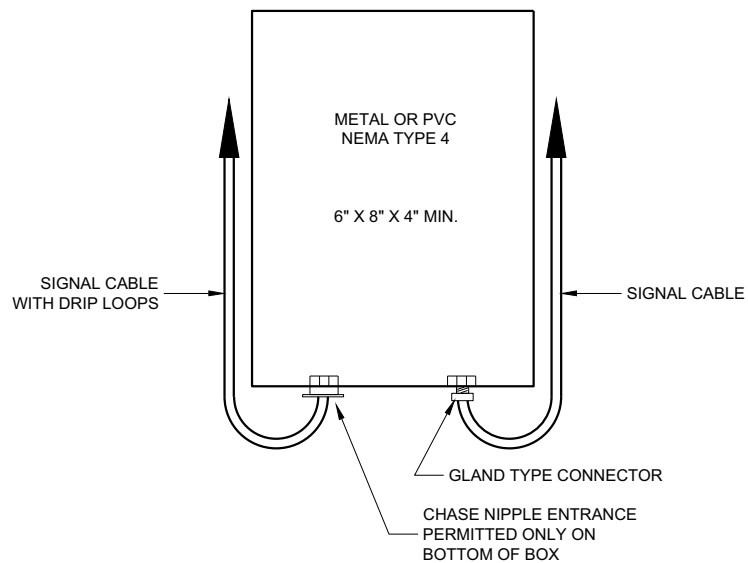
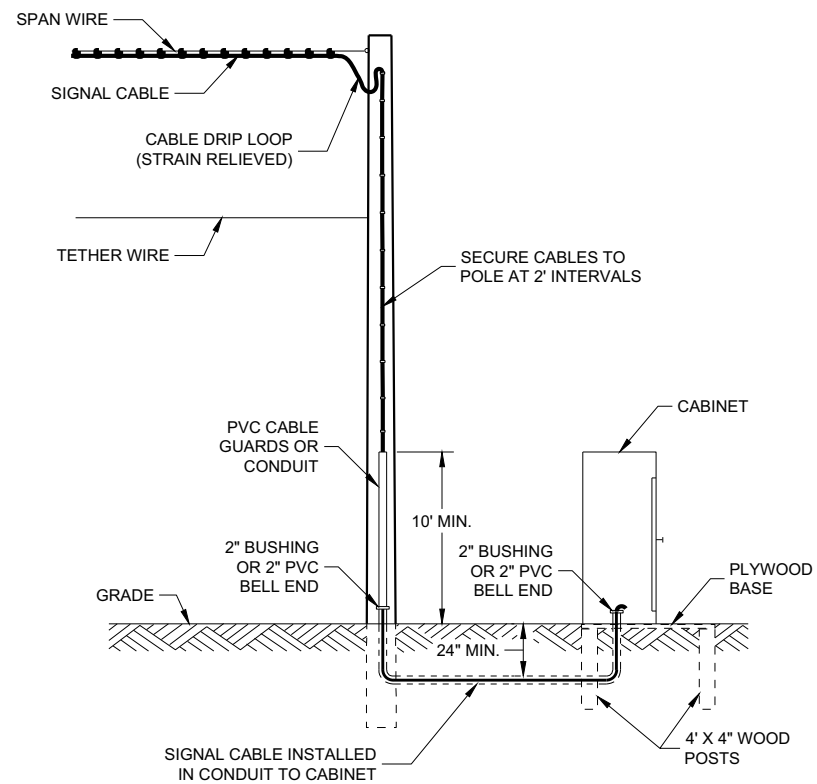
TETHER CLAMP ASSEMBLY OPTION

SPAN WIRE TEMPORARY TRAFFIC SIGNAL

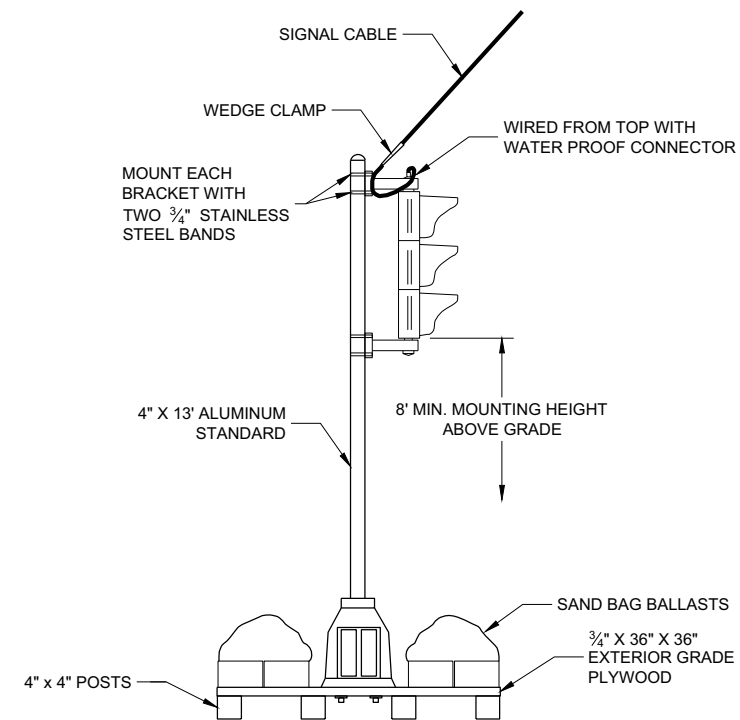
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION

APPROVED  
 June 2015 /S/ Ahmet Demerbilek  
 DATE ROADWAY STANDARDS DEVELOPMENT ENGINEER

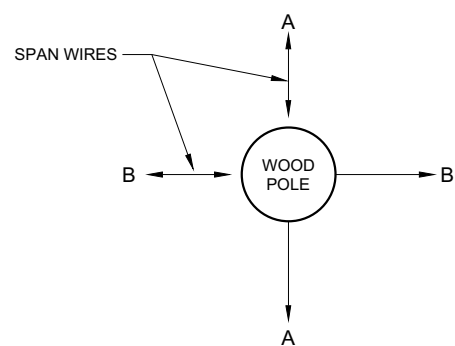
FHWA



**SPLICE BOX**

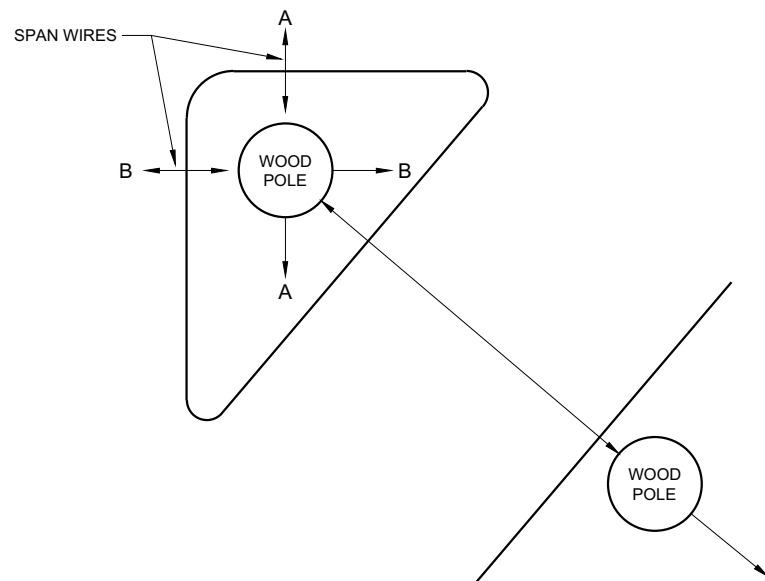


**TYPICAL SKID TYPE TEMPORARY**

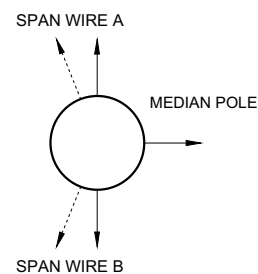


**CORNER POLES**

ALL DOWN OR SIDEWALK GUYS SHALL BE INSTALLED IN THE OPPOSITE DIRECTION OF THE STRAIN OF THE SPAN WIRE



**ISLAND POLES**



**MEDIAN POLES**

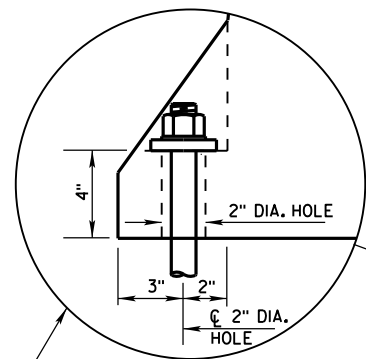
GUY AWAY FROM INTERSECTION OR IN OPPOSITE DIRECTION OF THE SPAN LOADING

**SPAN WIRE TEMPORARY TRAFFIC SIGNAL**

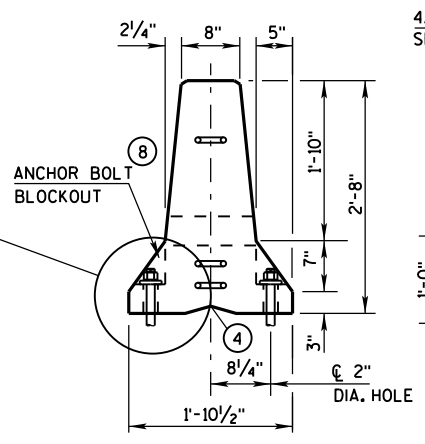
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
June 2015 /S/ Ahmet Demerbilek  
DATE ROADWAY STANDARDS DEVELOPMENT  
ENGINEER

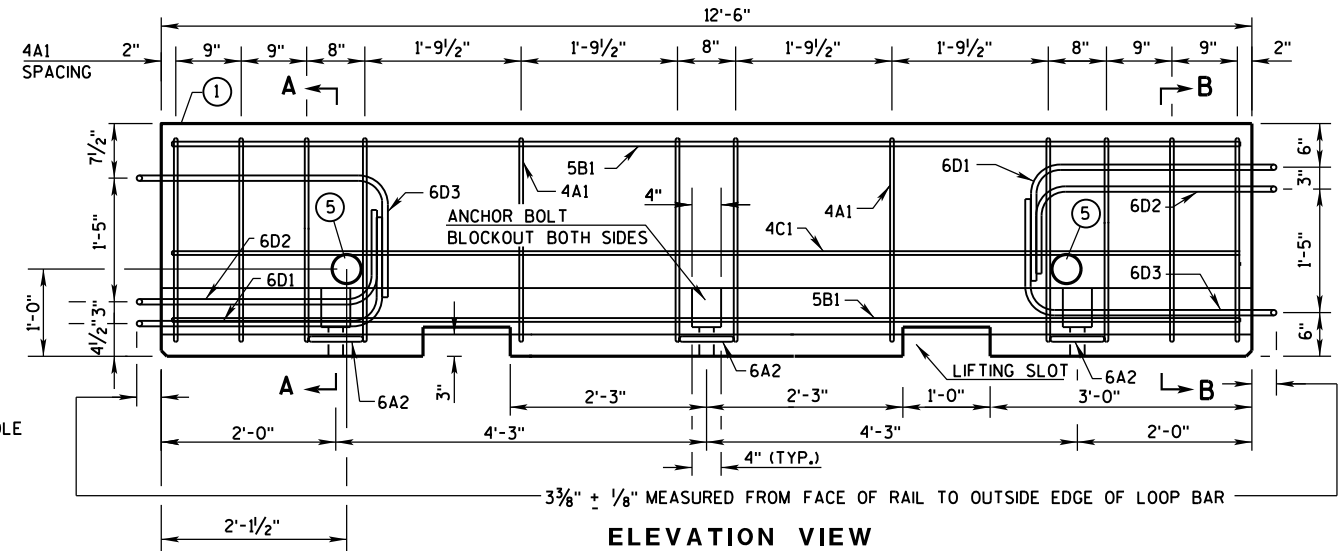
FHWA



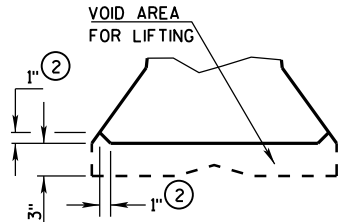
ANCHOR ON TRAFFIC SIDE (8) ONLY WHEN REQUIRED (SEE SHEET D FOR ADDITIONAL ANCHOR DETAIL)



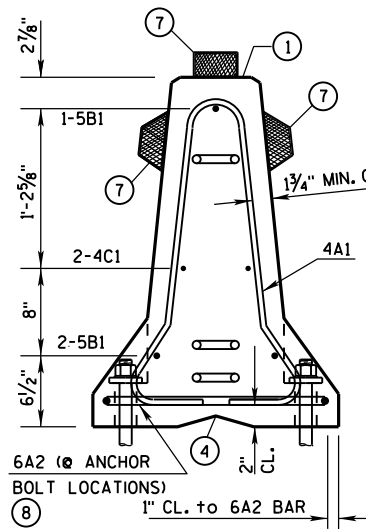
END VIEW



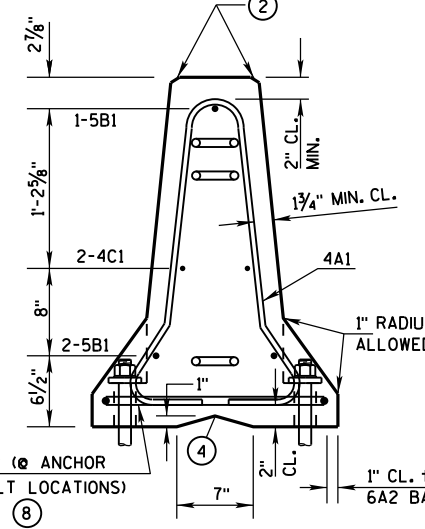
ELEVATION VIEW



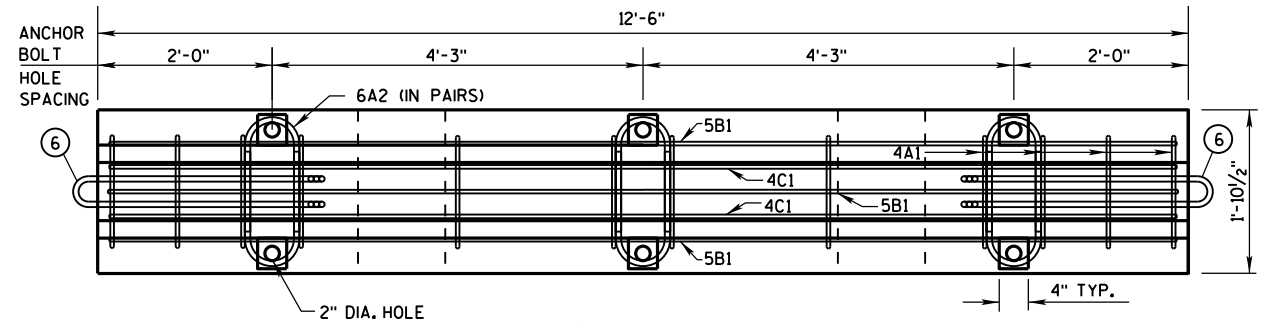
DETAIL "B" LIFTING SLOT DETAIL



SECTION A-A (STIRRUP PLACEMENT)



SECTION B-B (STIRRUP PLACEMENT)



PLAN VIEW

DETAILS OF BARRIER SECTION

GENERAL NOTES

THESE GENERAL NOTES APPLY TO SHEETS 14B7-15(d) THRU 14B7-15(i).

DO NOT INTERMIX CONCRETE BARRIER TEMPORARY PRECAST, 12'-6" (CBTP12.5) WITH OTHER TEMPORARY CONCRETE BARRIERS.

USE ASTM A-615, GRADE 60, DEFORMED STEEL BARS FOR BARS 4A1, 6A2, 5B1 AND 4C1 IN THE BARRIER SECTION AND FOR 4V1, 4V2, 4V3, 4V4, 4V5, 4V6, 4F1, 4F2 AND 5F3 IN THE BARRIER TAPER SECTION.

LOOP BARS 6D1, 6D2 AND 6D3 SHALL BE 3/4" SMOOTH STEEL BARS WITH A MINIMUM YIELD STRENGTH OF 60 KSI, A TENSILE STRENGTH OF NOT LESS THAN 1.25 TIMES THE YIELD STRENGTH BUT A MINIMUM OF 80 KSI, A MINIMUM 14% ELONGATION IN 8 INCHES AND PASSING A 180 DEGREE BEND TEST USING A 3-1/2" PIN BEND DIAMETER FOR BEND TESTS. THE LOOPS SHALL BE INSTALLED WITHIN 1/8" OF THE PLAN DIMENSION.

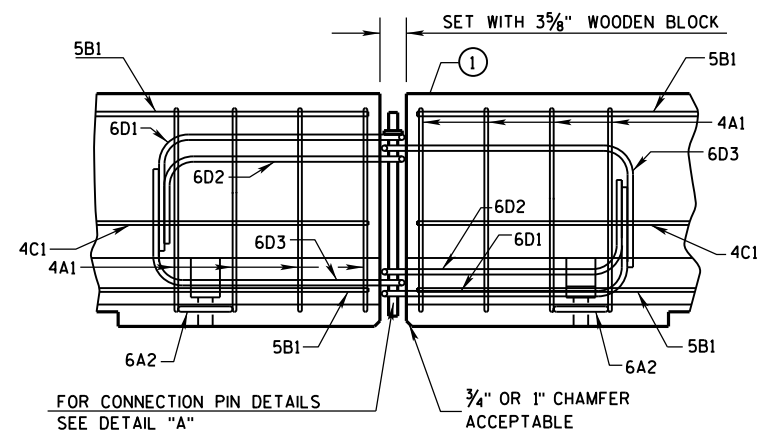
CONSTRUCT LIFTING SLOTS AS SPECIFIED ON THE PLANS TO FACILITATE THE DRAINAGE OF WATER AFTER INSTALLATION.

PLACE BARRIER ON A PAVED SURFACE. REMOVE ALL LOOSE DIRT AND SAND FROM THE ROADWAY SURFACE PRIOR TO PLACEMENT OF THE BARRIER.

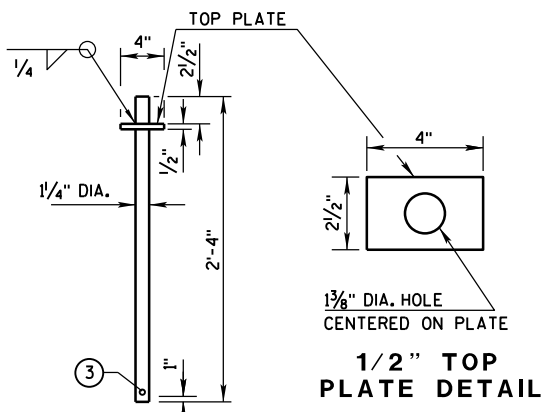
INSTALL MECHANICAL OR ADHESIVE ANCHORS PER MANUFACTURER'S RECOMMENDATIONS. PROVIDE MANUFACTURER'S INFORMATION TO PROJECT ENGINEER.

- 1 MARK ONE END OF EACH BARRIER PERMANENTLY BY FORMING INTO THE BARRIER THE FOLLOWING INFORMATION:
  - a. TYPE: WICBTP
  - b. MANUFACTURER
  - c. DATE MANUFACTURED (MONTH AND YEAR)
- 2 1" CHAMFER TO PREVENT SPALLING.
- 3 A 3/8" HOLE IN THE CONNECTION PIN, AT THE LOCATION SHOWN, IS ACCEPTABLE, BUT NOT REQUIRED..
- 4 "V" NOTCH IS OPTIONAL.
- 5 THE 4" DIAMETER, 11 GAUGE STEEL, ROUND MECHANICAL TUBING SLEEVE FOR LIFTING (OPTIONAL).
- 6 NEVER USE LOOP BARS (6D1, 6D2 OR 6D3) TO LIFT, MOVE OR REPOSITION THE BARRIER.
- 7 USE DELINEATORS CONFORMING TO SECTION 633 OF THE STANDARD SPECIFICATIONS. CONTRACTOR MAY USE ALTERNATE SHAPES AND HOUSING. INSTALL DELINEATORS ACCORDING TO MANUFACTURER'S INSTRUCTION. INSTALL YELLOW REFLECTORS WHEN BARRIER IS LOCATED TO THE LEFT OF TRAFFIC AND WHITE REFLECTORS WHEN BARRIER IS LOCATED TO THE RIGHT OF TRAFFIC. SPACE DELINEATORS A MAXIMUM OF 25 FEET APART. PROVIDE TOP MOUNTED DELINEATORS IN ADDITION TO THE SIDE MOUNTED DELINEATORS ON ALL BARRIER INSTALLATIONS LOCATED ON A CURVED ALIGNMENT LONGER THAN 200 FEET AND ON BARRIERS USED TO SEPARATE OPPOSING TRAFFIC.
- 8 SEE SHEET D FOR HOW TO ANCHOR BARRIER. SEE SHEET E FOR WHEN TO ANCHOR BARRIER.
- 9 1" CHAMFER OPTIONAL.

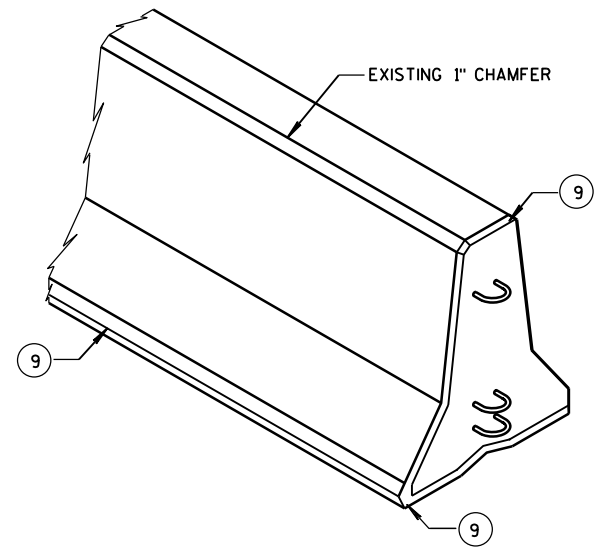
f'c = 4,000 psi



DETAILS OF BARRIER CONNECTION



DETAIL "A" CONNECTION PIN (A36 STEEL (10.9 LB EACH))



CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"

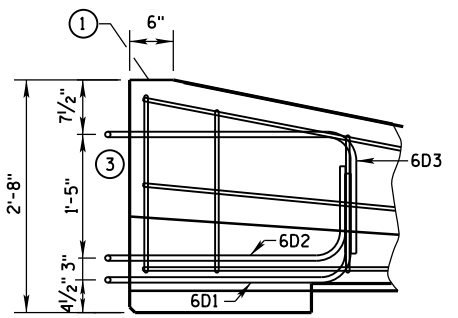
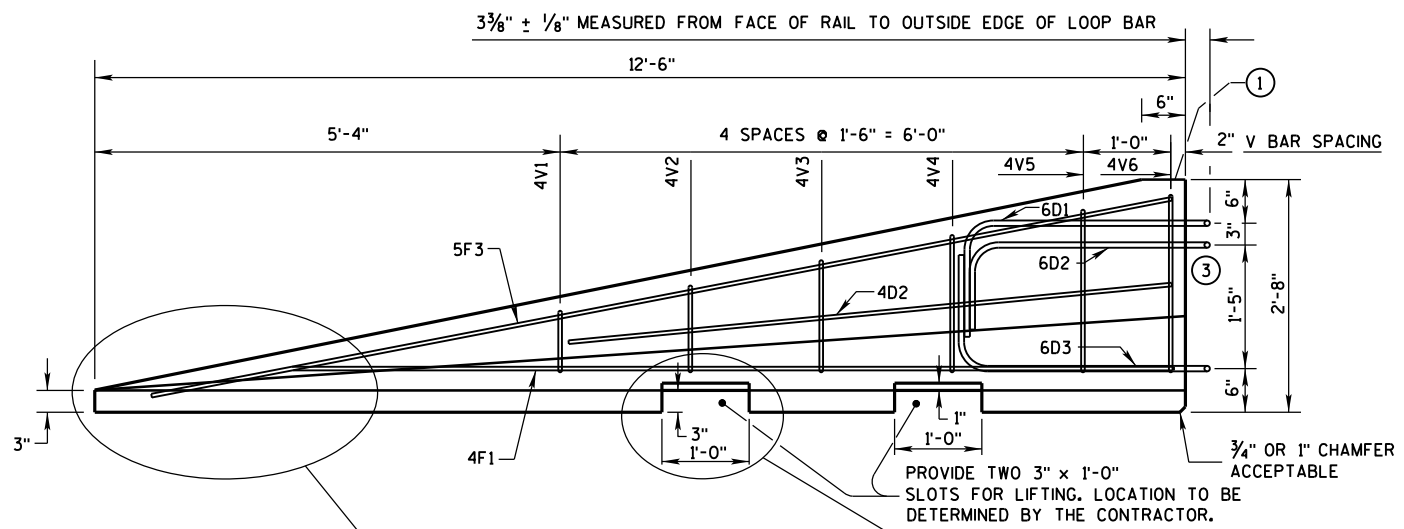
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION

6

6

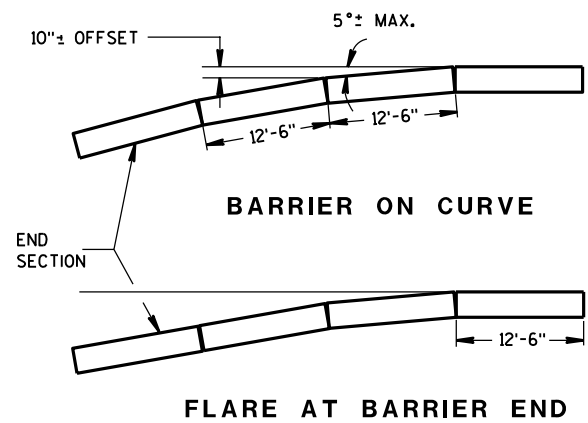
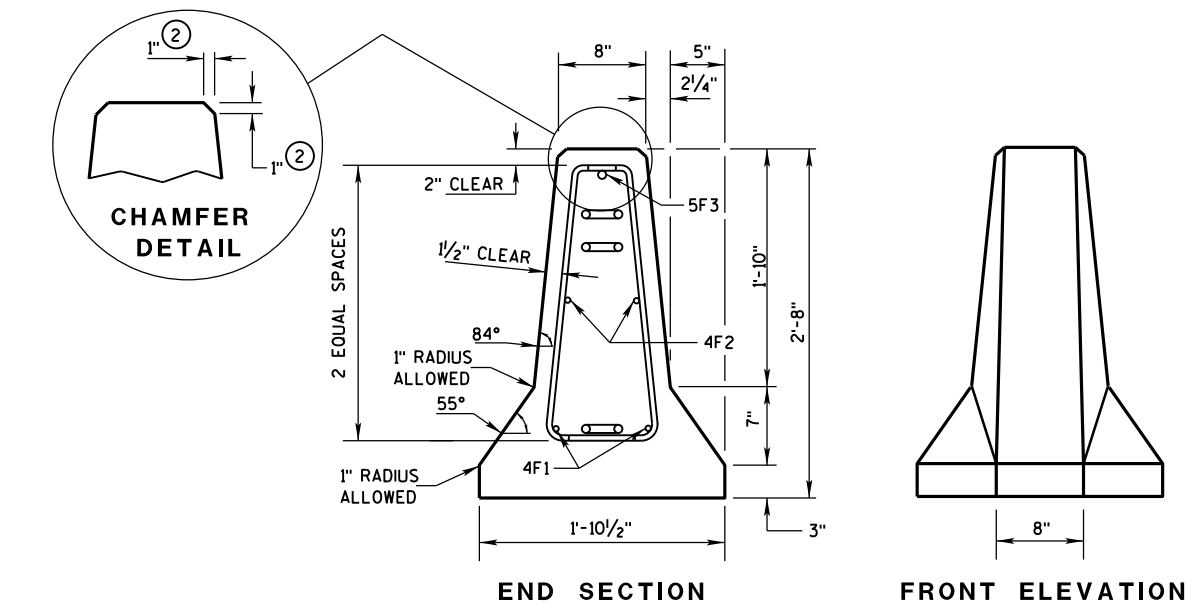
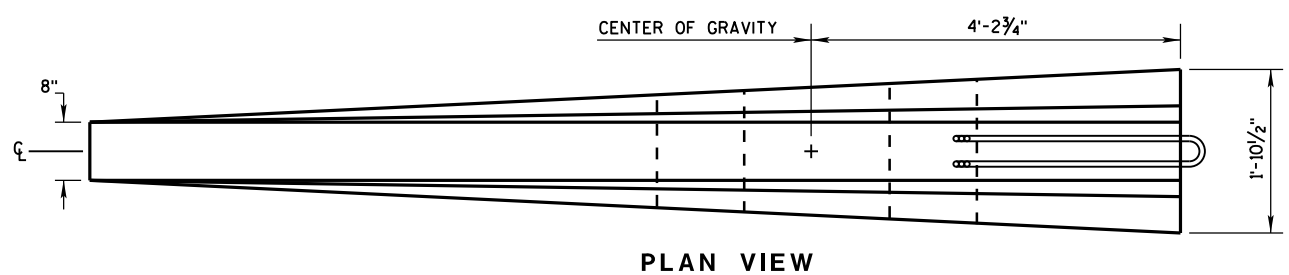
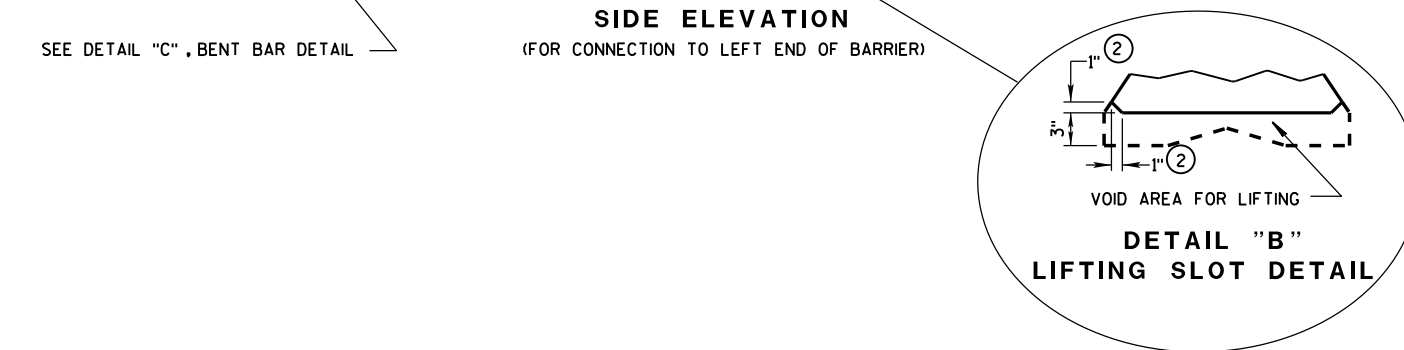
S.D.D. 14 B 7-15a

S.D.D. 14 B 7-15a



**GENERAL NOTES**

- ① MARK ONE END OF EACH BARRIER PERMANENTLY BY FORMING INTO THE BARRIER THE FOLLOWING INFORMATION:
  - a. TYPE WICBTP
  - b. MANUFACTURER
  - c. DATE MANUFACTURED (MONTH AND YEAR)
- ② 1" CHAMFER TO PREVENT SPALLING.
- ③ NEVER USE LOOP BARS (6D1, 6D2 OR 6D3) TO LIFT, MOVE OR REPOSITION THE BARRIER.



POSTED SPEED, (MPH)	FLARE RATE
40 OR LESS	6:1
45 OR GREATER	8:1

**DETAILS OF BARRIER TAPER SECTION**

CONCRETE BARRIER  
 TEMPORARY PRECAST, 12'-6"

STATE OF WISCONSIN  
 DEPARTMENT OF TRANSPORTATION

**GENERAL NOTES**

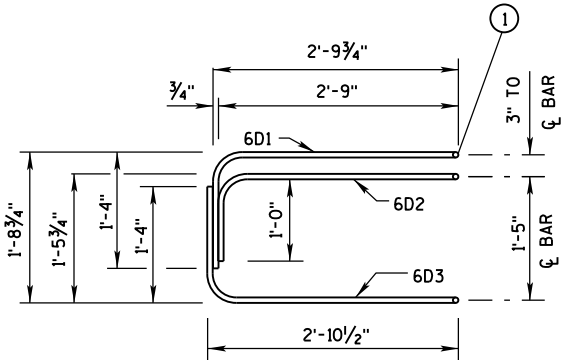
① NEVER USE LOOP BARS (6D1, 6D2 OR 6D3) TO LIFT, MOVE OR REPOSITION THE BARRIER.

**BARRIER TAPER SECTION  
BILL OF MATERIALS**  
(PER 12'-6" BARRIER TAPER SECTION)

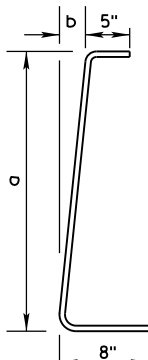
BAR	BAR SIZE	NO. OF BARS	LENGTH FT.
4V1	4	2	1'-11"
4V2	4	2	2'-2"
4V3	4	2	2'-6"
4V4	4	2	2'-9"
4V5	4	2	3'-2"
4V6	4	2	3'-4"
4F1	4	2	12'-0"
4F2	4	2	7'-6"
5F3	5	1	11'-9"

LOOP ASSEMBLY			
BAR	BAR SIZE	NO. OF BARS	LENGTH FT.
6D1	6	1	8'-5"
6D2	6	1	7'-7"
6D3	6	1	8'-6"

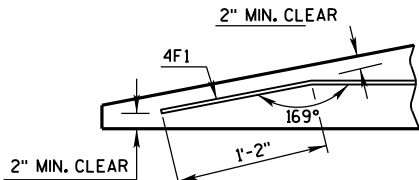


**ELEVATION  
LOOP BAR ASSEMBLY**



BAR	a	b
V1	10"	1"
V2	1'-1"	1 1/4"
V3	1'-5"	1 5/8"
V4	1'-8"	1 7/8"
V5	2'-0 1/2"	2 3/8"
V6	2'-3"	2 3/4"

**4V BARS**  
2 AT EACH SIZE REQUIRED  
FOR STIRRUP ASSEMBLY



**DETAIL "C"  
BENT BAR DETAIL**

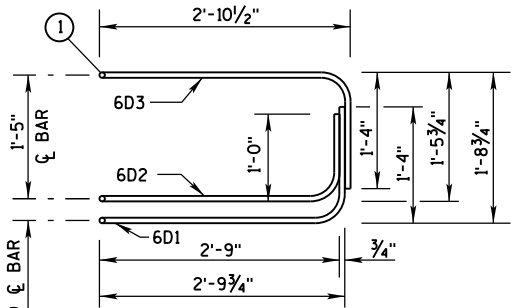
**TAPER BARRIER SECTION**

**BARRIER SECTION  
BILL OF MATERIALS**  
(PER 12'-6" BARRIER SECTION)

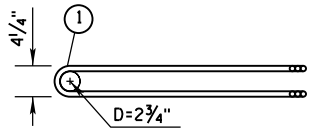
BAR	BAR SIZE	NO. OF BARS	LENGTH FT.
4A1	4	12	6'-0"
6A2	6	6	2'-11"
5B1	5	3	12'-2"
4C1	4	2	12'-2"

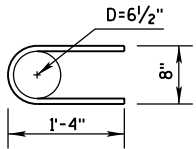
LOOP ASSEMBLY			
BAR	BAR SIZE	NO. OF BARS	LENGTH FT.
6D1	6	2	8'-5"
6D2	6	2	7'-7"
6D3	6	2	8'-6"



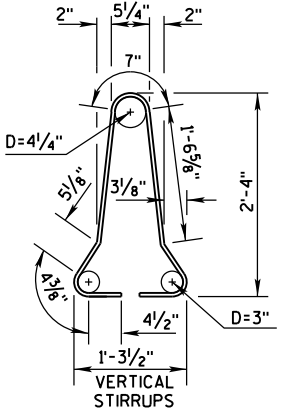
**ELEVATION VIEW**



**PLAN VIEW  
LOOP BAR ASSEMBLY**  
(MARKED END SHOWN, INVERT FOR OTHER END)



**6A2**

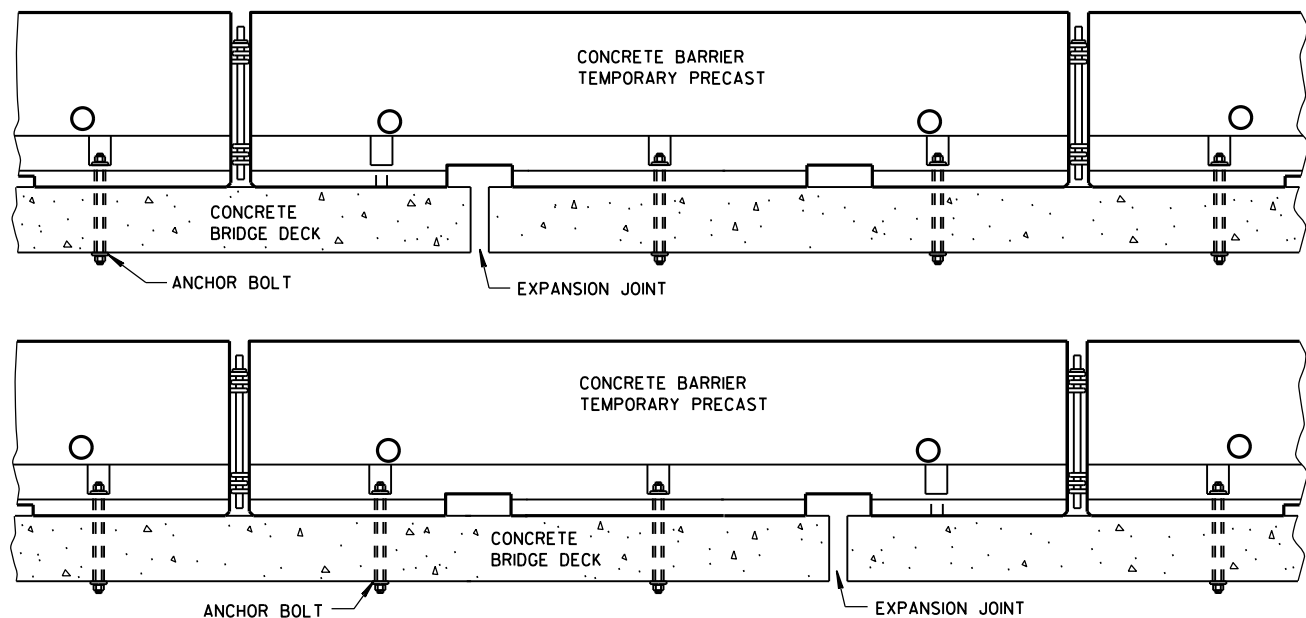


**4A1**

**BARRIER SECTION**

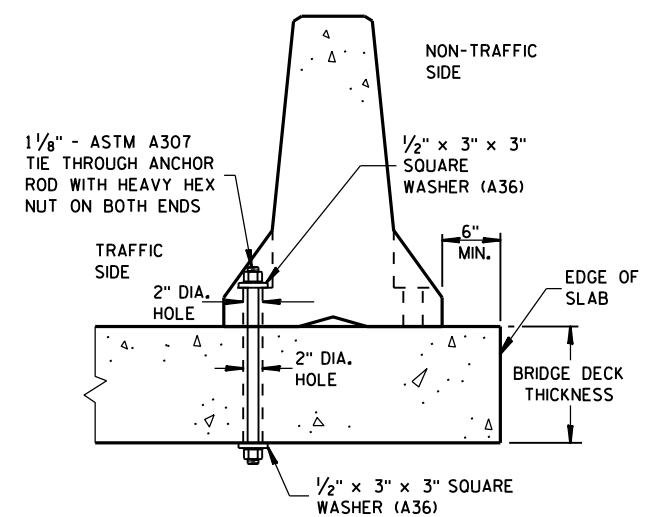
CONCRETE BARRIER  
TEMPORARY PRECAST, 12'-6"

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



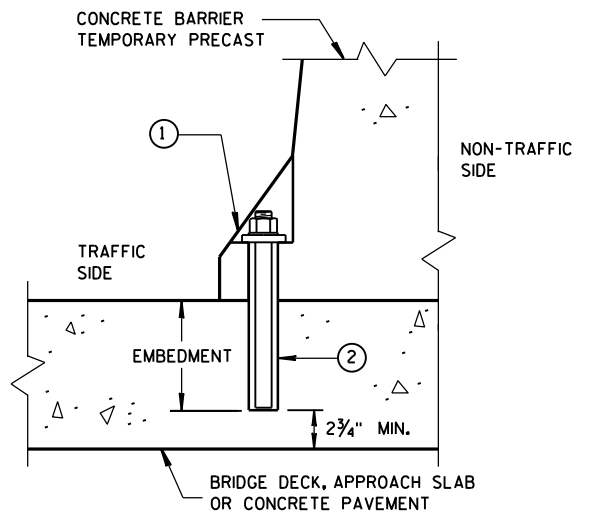
**TREATMENT AT BRIDGE DECK EXPANSION JOINTS**

(NO SINGLE CONCRETE BARRIER SECTION SHALL BE ANCHORED TO BOTH THE BRIDGE DECK AND THE APPROACH SLAB. ALL ANCHOR BOLT LOCATIONS SHALL BE ANCHORED TO THE DECK IN ACCORDANCE WITH THE DETAIL. NO MORE THAN ONE ANCHOR BOLT SHALL BE ELIMINATED FROM A BARRIER SECTION WHEN SPANNING AN EXPANSION JOINT.)



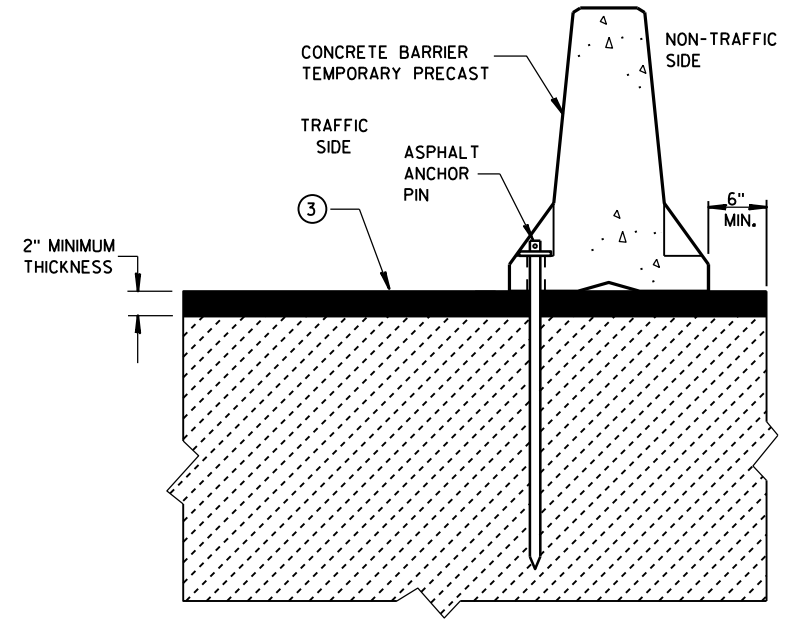
**THROUGH BOLTED ANCHOR INSTALLATION ON BRIDGE DECK**

(DO NOT USE ON CONCRETE BRIDGE DECK WITH ASPHALT OVERLAY)

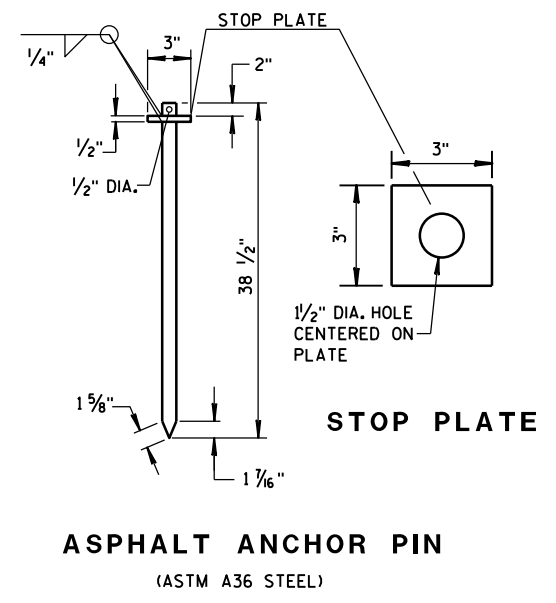


**REMOVABLE ADHESIVE ANCHOR INSTALLATION ON CONCRETE BRIDGE DECK, CONCRETE APPROACH SLAB, OR CONCRETE PAVEMENT**

(DO NOT USE ON CONCRETE WITH AN ASPHALTIC OVERLAY)



**STAKE DOWN INSTALLATION FOR ASPHALTIC SURFACE**



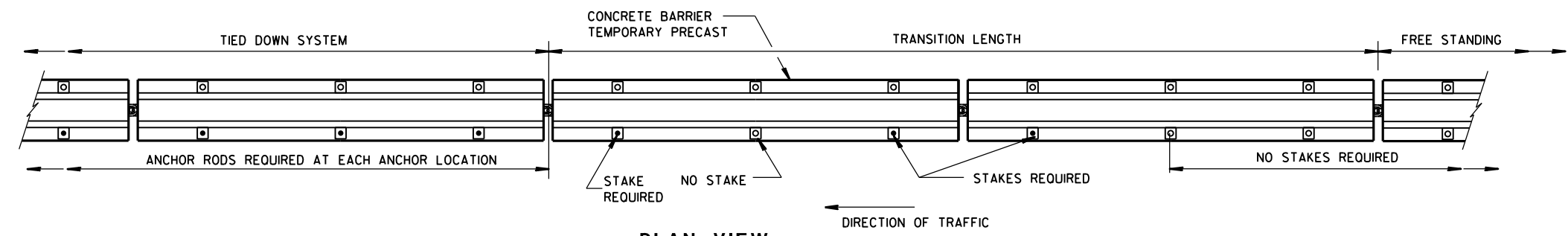
**ASPHALT ANCHOR PIN (ASTM A36 STEEL)**

**GENERAL NOTES**

SEE SHEET E FOR WHEN TO ANCHOR. OTHER PARTS OF THE PLAN MAY SHOW ADDITIONAL LOCATIONS REQUIRING ANCHORING.

REMOVE ALL ANCHORS WHEN NO LONGER NEEDED. FILL CONCRETE PAVEMENTS, DECKS AND APPROACH SLABS WITH NON-SHRINK COMMERCIAL GROUT FROM THE APPROVED PRODUCT LIST. FILL ASPHALT PAVEMENTS WITH ASTM D6690 TYPE II RUBBERIZED CRACK FILLER.

- ① 1/8" DIAMETER A307 THREADED ROD, 1/2" X 3" X 3" SQUARE PLATE WASHER WITH ASTM A36 STEEL, ASTM A563A HEAVY HEX NUT.
- ② ADHESIVE ANCHORS WITH A MINIMUM BOND STRENGTH OF 1,800 PSI AND 5/4" EMBEDMENT. SEE 603.2 AND 603.3.1.2 OF THE WISCONSIN STANDARD SPECIFICATIONS FOR MORE INFORMATION ON ADHESIVE ANCHORS.
- ③ ASPHALT SURFACE SHOWN. CONTRACTOR MAY DRILL THROUGH CONCRETE PAVEMENT AND THEN DRIVE ASPHALT ANCHOR PIN.



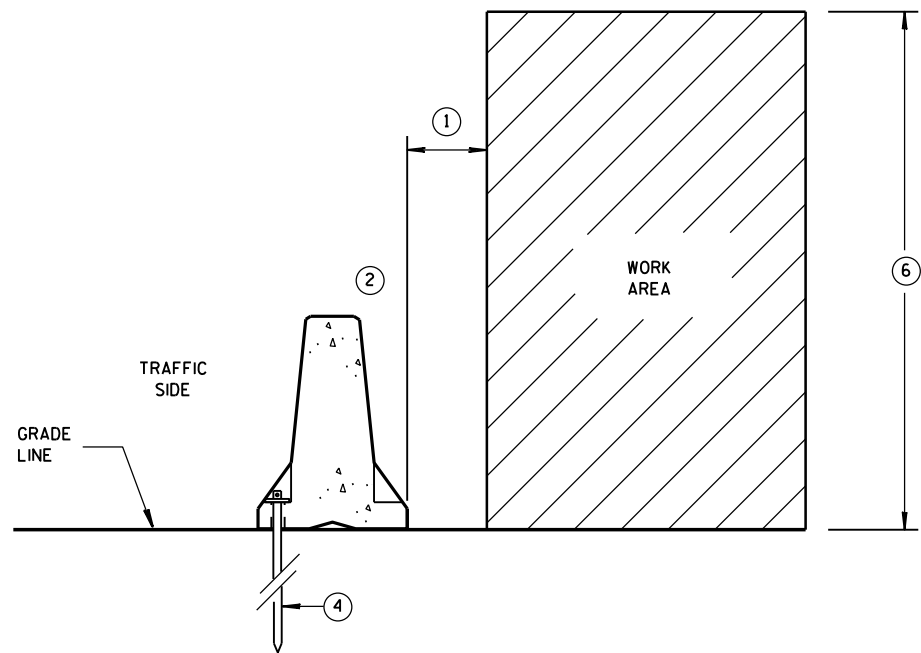
**FREE STANDING TRANSITION TO TIED-DOWN SYSTEM**

(PLACE TRANSITION IN A TANGENT SECTION OF BARRIER PARALLEL TO THE ROADWAY. IF TRANSITION OCCURS ON STRUCTURAL SLAB, ANCHOR AS SHOWN.)

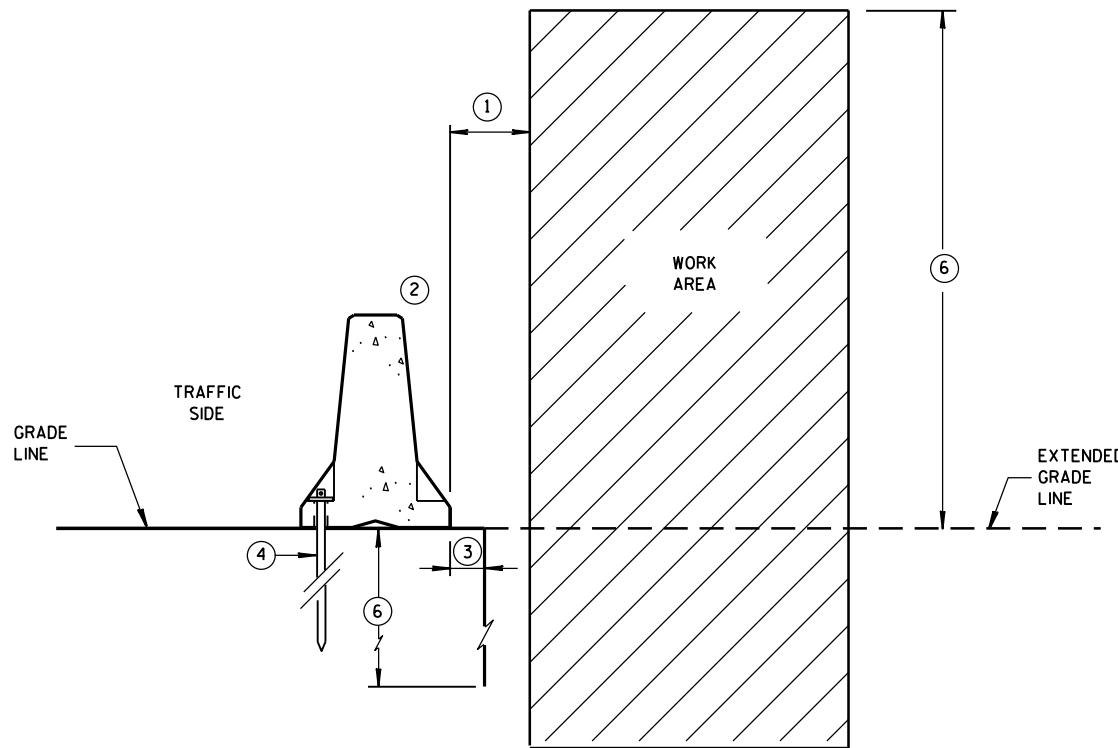
CONCRETE BARRIER  
TEMPORARY PRECAST, 12'-6"  
  
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

**GENERAL NOTES**

- ① WHEN OBJECTS EXTEND ABOVE THE GRADE, A MINIMUM OF 1 FOOT IS REQUIRED FROM BACK OF BARRIER TO OBJECT. SEE OTHER DETAILS FOR FOR THE MINIMUM OFFSET FROM BACK OF BARRIER TO SLOPES OR VERTICAL DROPS.
- ② OBJECTS ARE NOT TO BE PLACED ON, MOUNTED TO, OR LEANED AGAINST THE BARRIER WITHOUT PERMISSION OF THE PROJECT ENGINEER.
- ③ SEE OTHER DETAIL ON SHEET "D" FOR SPACE REQUIREMENTS.
- ④ SEE BOLT THROUGH DECK, REMOVABLE ADHESIVE ANCHOR, OR A STAKE DOWN FOR ASPHALTIC SURFACE TREATMENT DETAILS. ASPHALTIC ANCHOR SHOWN.
- ⑤ DEPTH OF 3 FEET OR MORE.
- ⑥ Y = 6'-6".

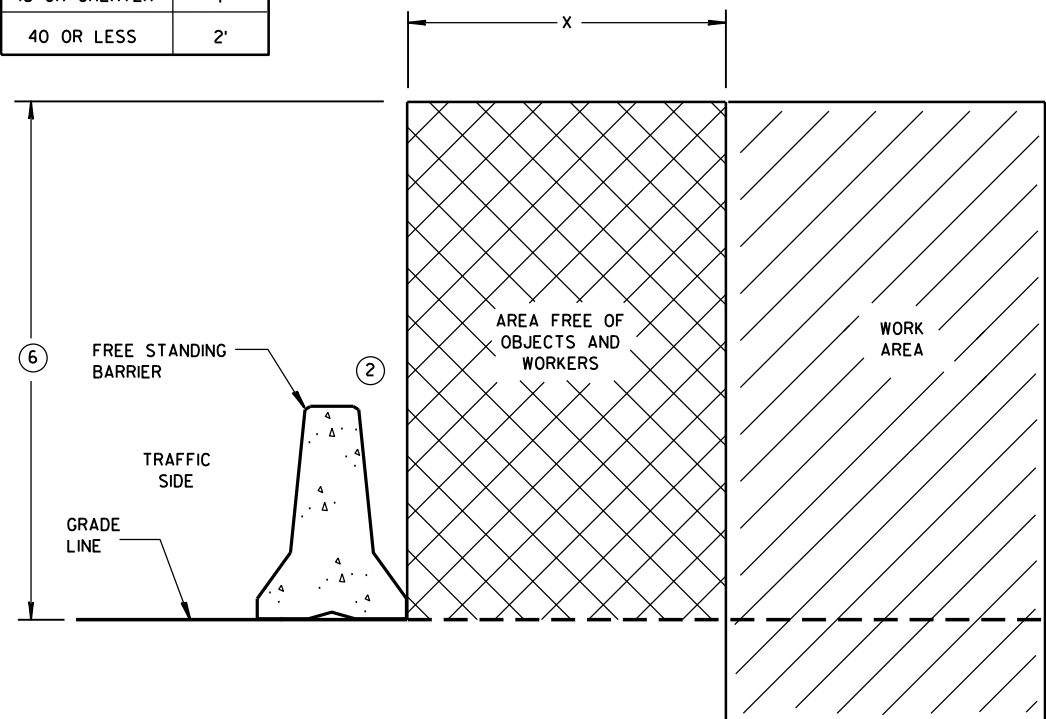


**ANCHORED BARRIER SPACE REQUIREMENTS FOR HAZARDS EXTENDED ABOVE THE GRADE LINE**

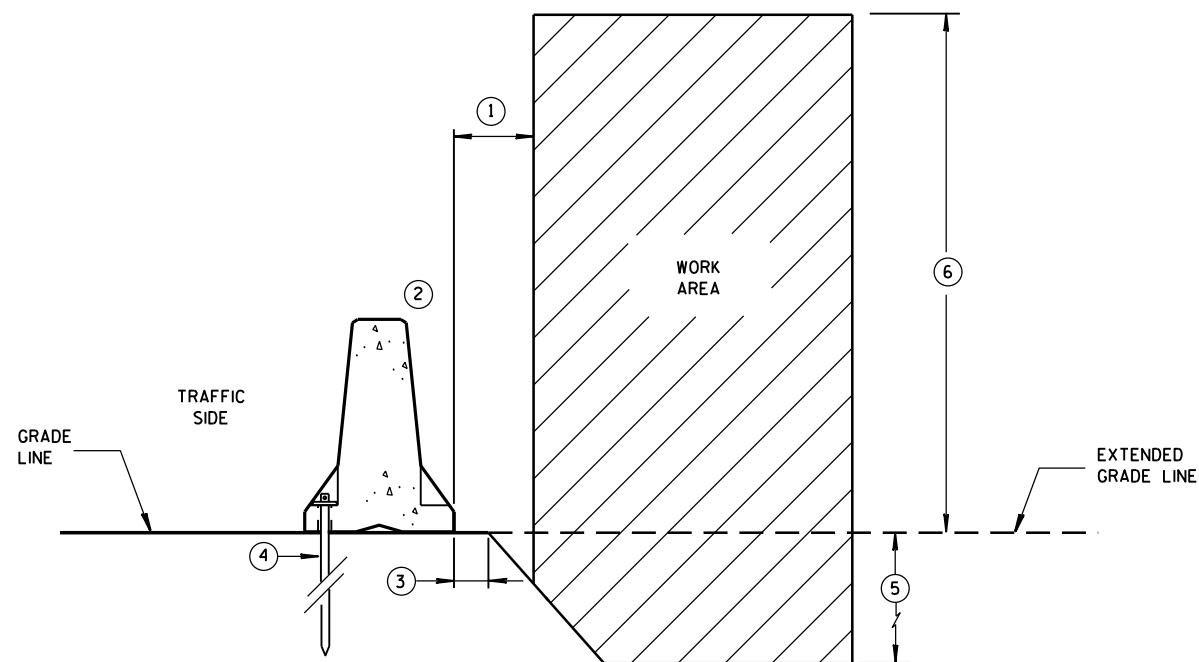


**ANCHORED BARRIER SPACE REQUIREMENTS ON VERTICAL DROP OFFS**

POSTED SPEED MPH	X
45 OR GREATER	4'
40 OR LESS	2'



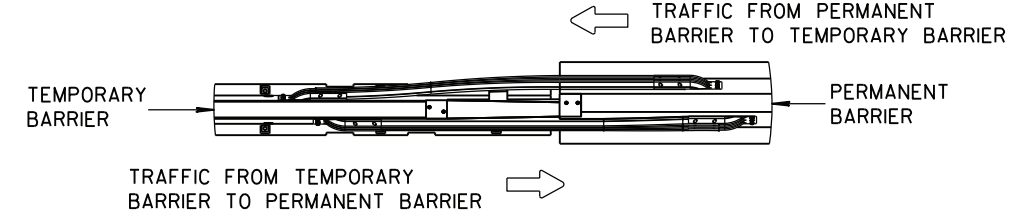
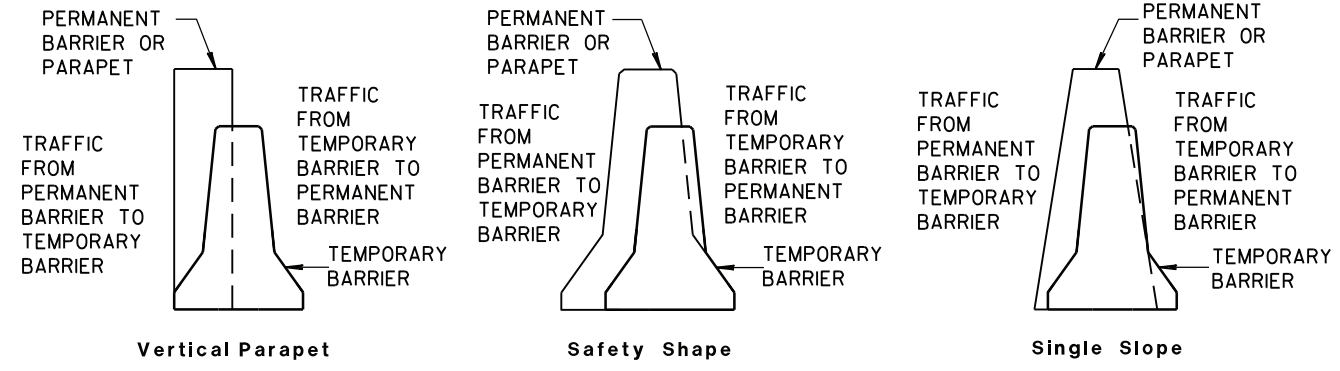
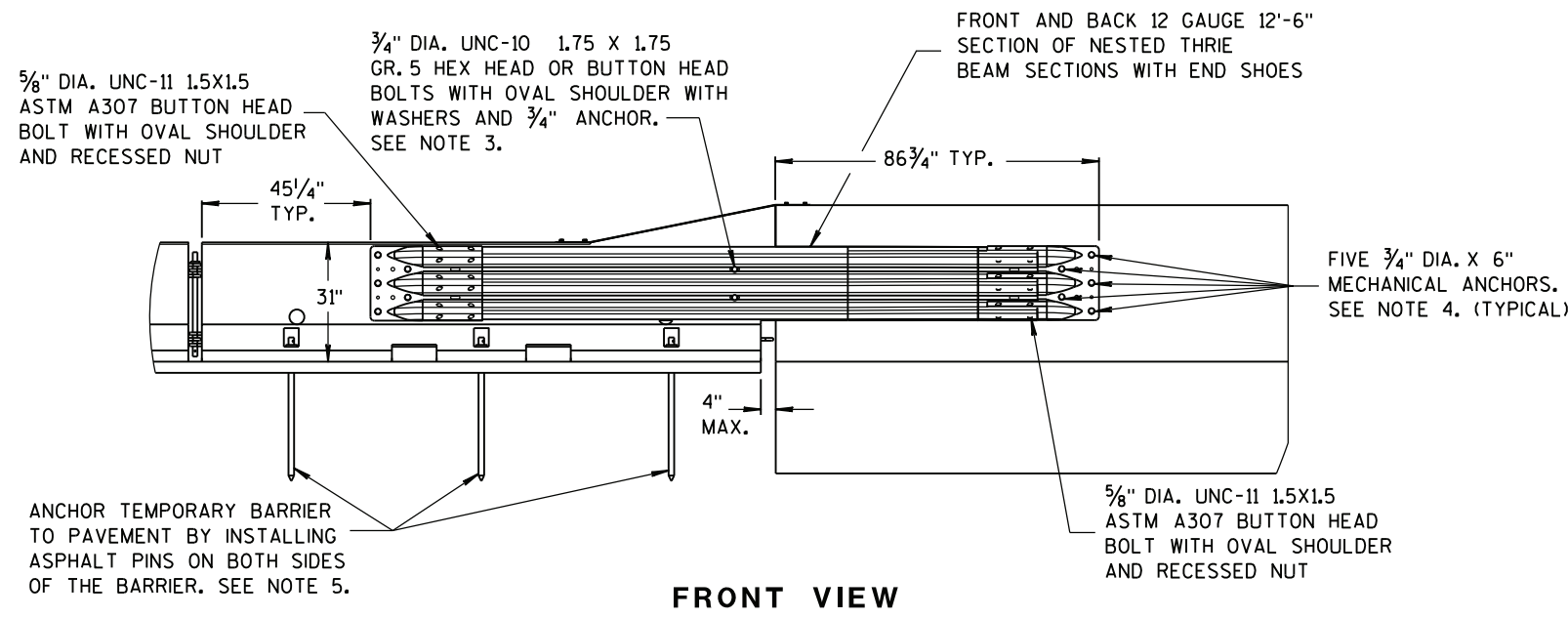
**FREE STANDING BARRIER SPACE REQUIREMENTS**



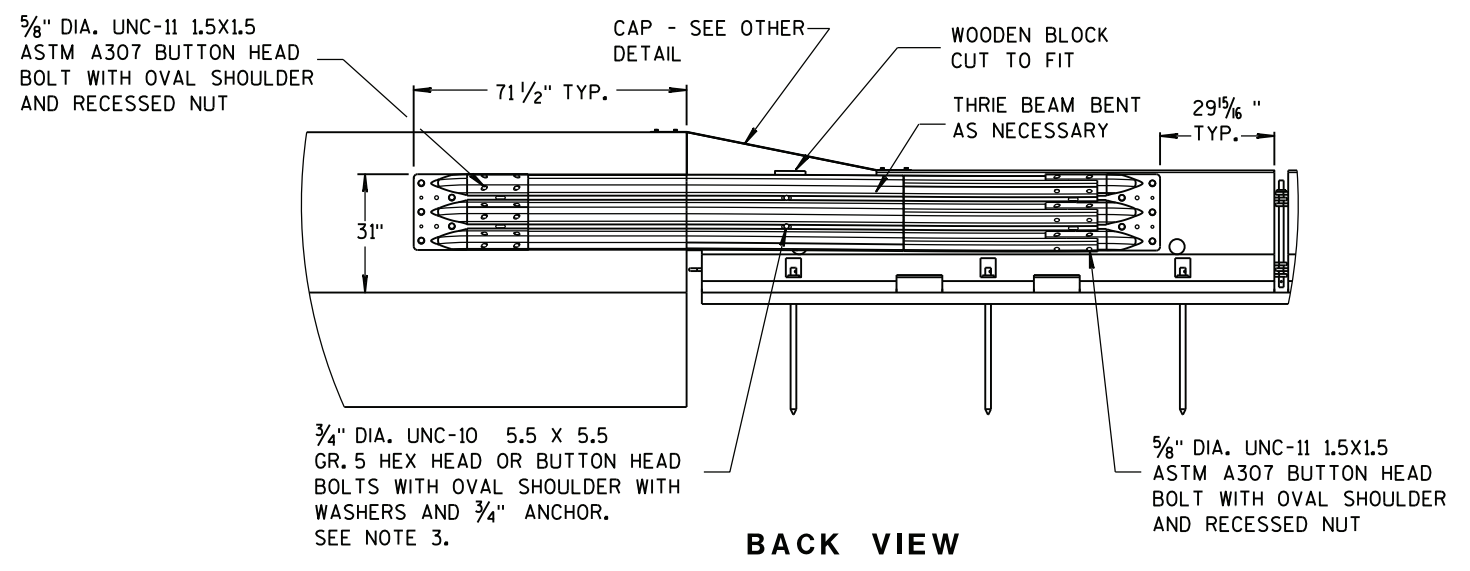
**ANCHORED BARRIER SPACE REQUIREMENTS ON SLOPES**

**CONCRETE BARRIER  
TEMPORARY PRECAST, 12'-6"**

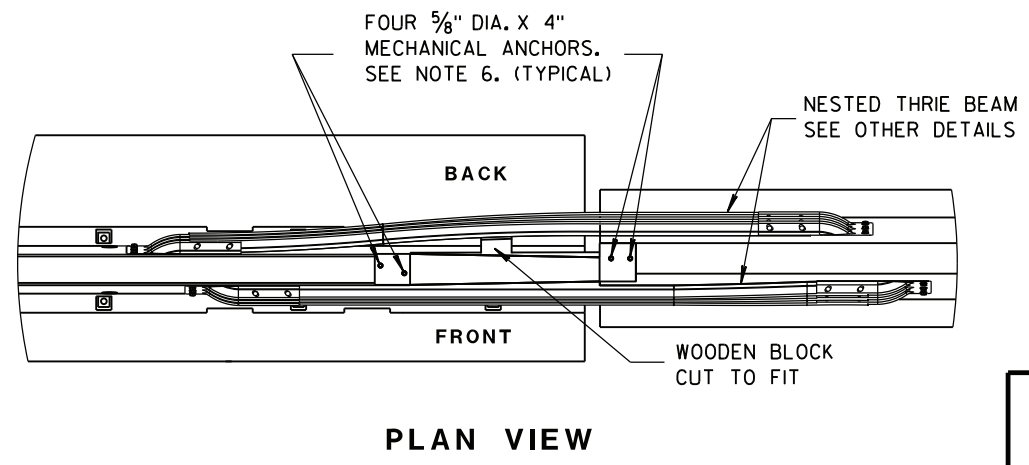
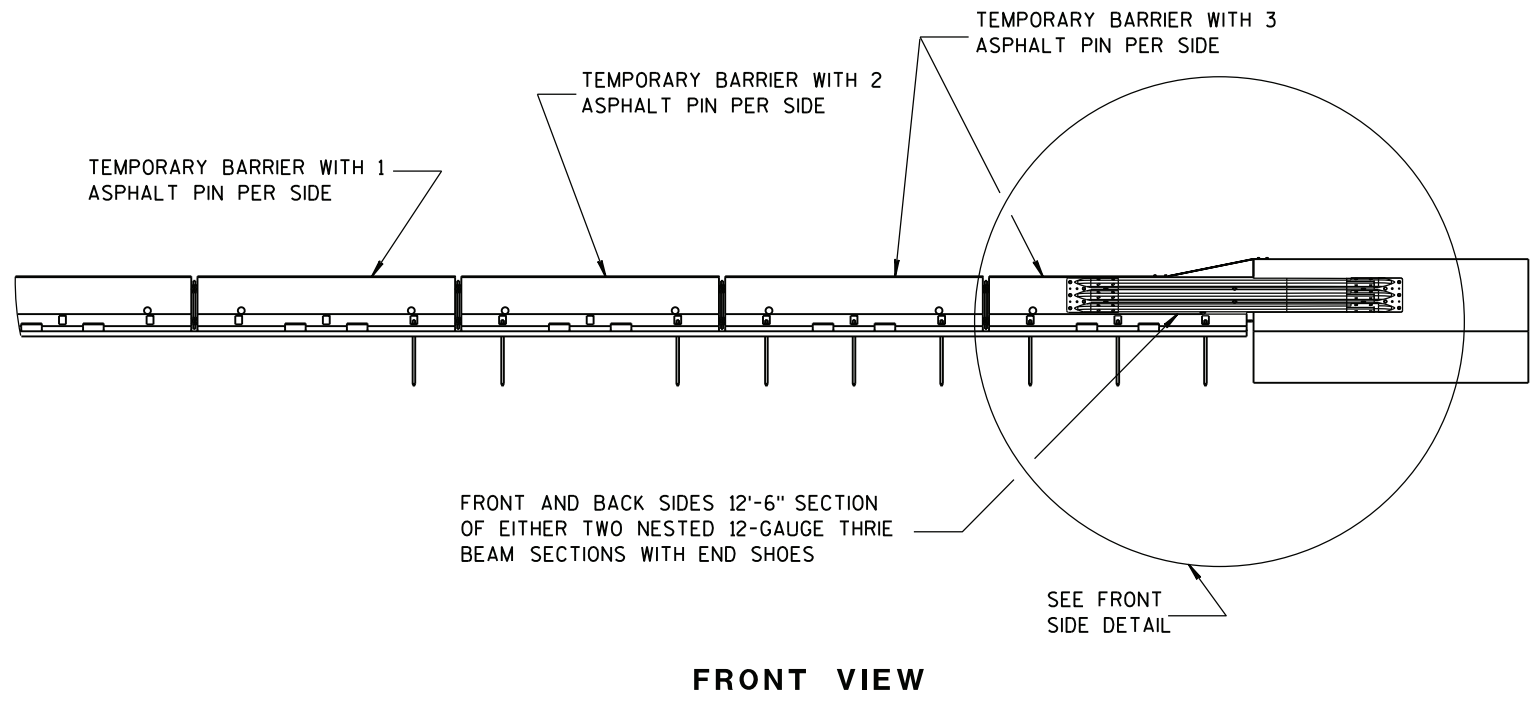
STATE OF WISCONSIN  
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**TEMPORARY BARRIER PLACEMENT FOR TRANSITION TO TIED DOWN SYSTEM**



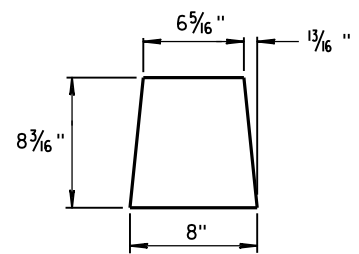
- NOTES**
1. CAP END PLATE PLACED FLUSH WITH UPSTREAM END OF PERMANENT BARRIER OR PARAPET.
  2. THRIE BEAM PIECES ARE OFFSET 15 1/4" TO PREVENT INTERFERENCE FROM THE ANCHORS ON OPPOSING SIDES.
  3. MINIMUM MECHANICAL OR ADHESIVE ANCHOR STRENGTH REQUIREMENTS: ULTIMATE TENSILE LOAD 9.48 KIPS AND ULTIMATE SHEAR LOAD 10.48 KIPS.
  4. MINIMUM MECHANICAL OR ADHESIVE ANCHOR STRENGTH REQUIREMENTS: ULTIMATE TENSILE LOAD 17.9 KIPS AND ULTIMATE SHEAR LOAD 21.96 KIPS.
  5. MAY BE USED ON CONCRETE OR ASPHALT PAVEMENTS. ASPHALT OPTION SHOWN. FOR CONCRETE OPTION SEE OTHER DETAILS.
  6. MINIMUM MECHANICAL OR ADHESIVE ANCHOR STRENGTH REQUIREMENTS: ULTIMATE TENSILE LOAD 12.14 KIPS AND ULTIMATE SHEAR LOAD 17.5 KIPS.



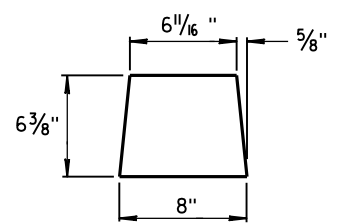
CONCRETE BARRIER  
TEMPORARY PRECAST, 12'-6"

STATE OF WISCONSIN  
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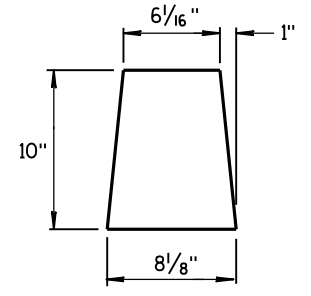




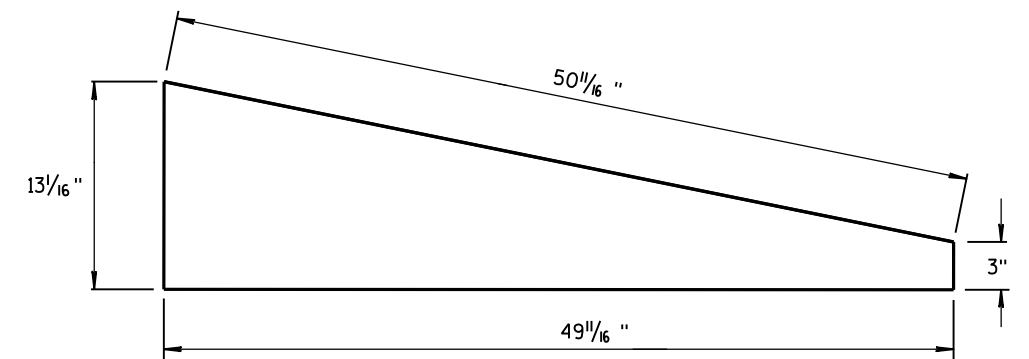
GUSSET 1



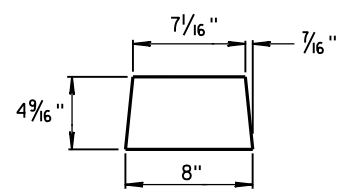
GUSSET 2



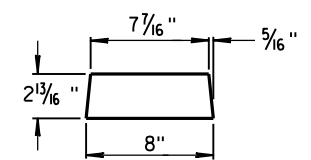
END PLATE



SIDE PLATE

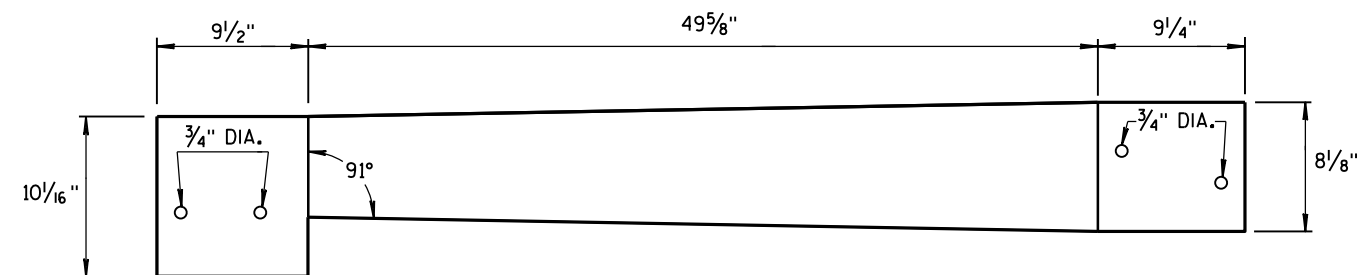


GUSSET 3

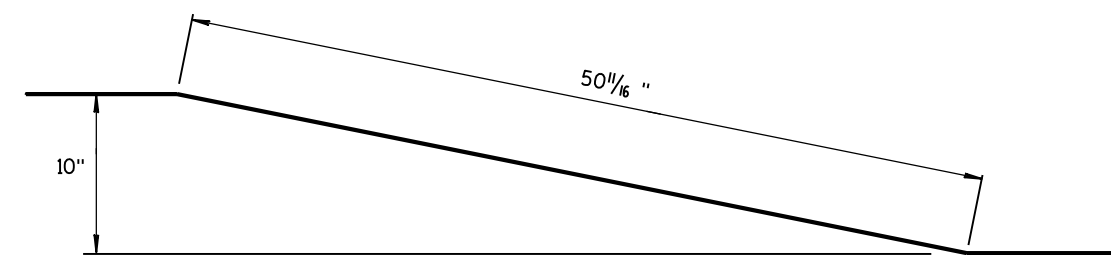


GUSSET 4

GUSSETS

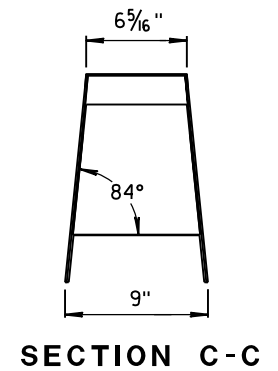
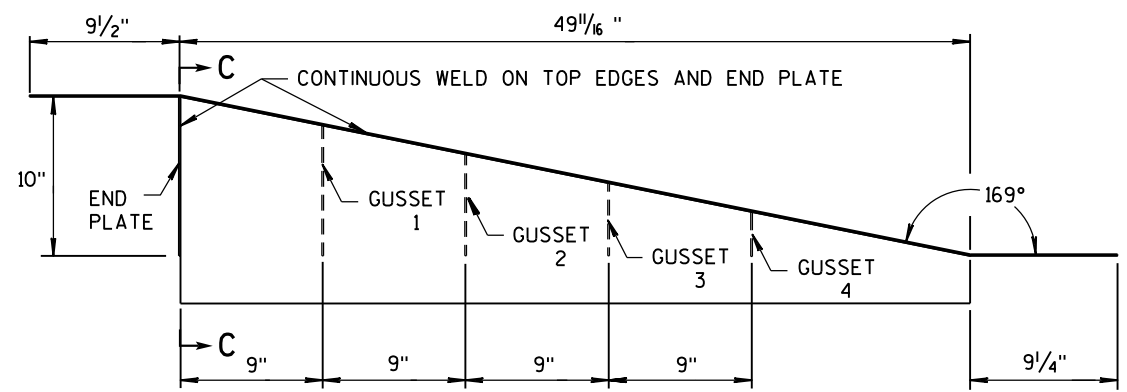
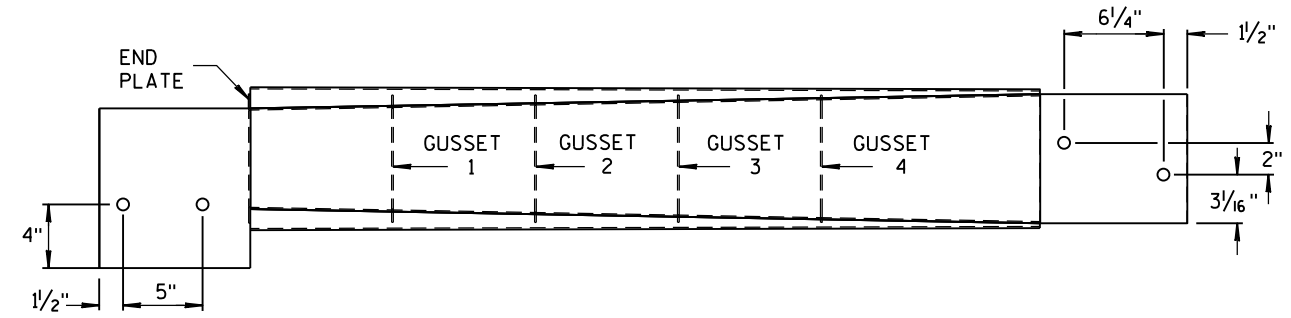


TOP PLATE



SIDE, TOP AND END PLATES FOR CAP FROM TEMPORARY CONCRETE BARRIER TO 42" PERMANENT CONCRETE BARRIER

SIDE PLATES, TOP PLATE, END PLATE AND GUSSETS ARE 12 GAUGE ASTM A36 GALVANIZED STEEL.



SECTION C-C

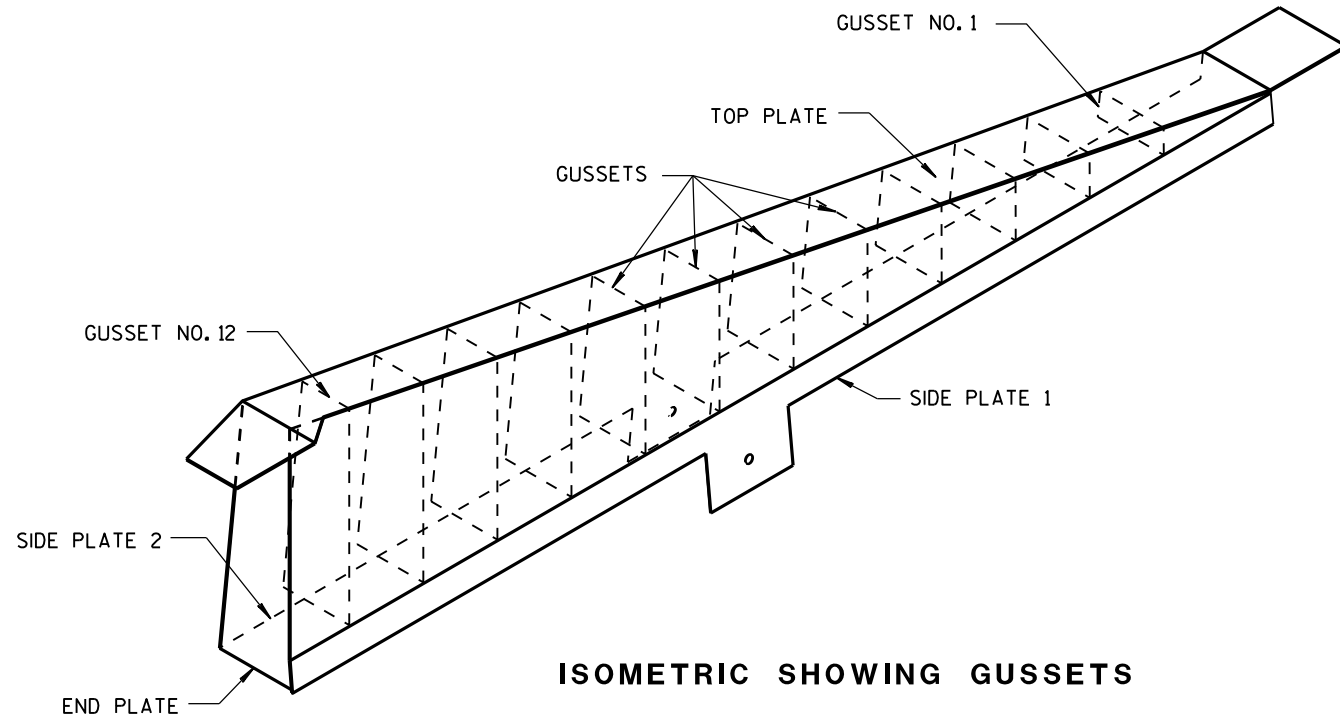
NOTES

- FOUR GUSSETS AND END PLATE ARE STITCH WELDED ON THREE SIDES.
- TWO TRIANGULAR SIDE PLATES ARE STITCH WELDED TO TOP PLATE, END PLATE, AND GUSSETS.

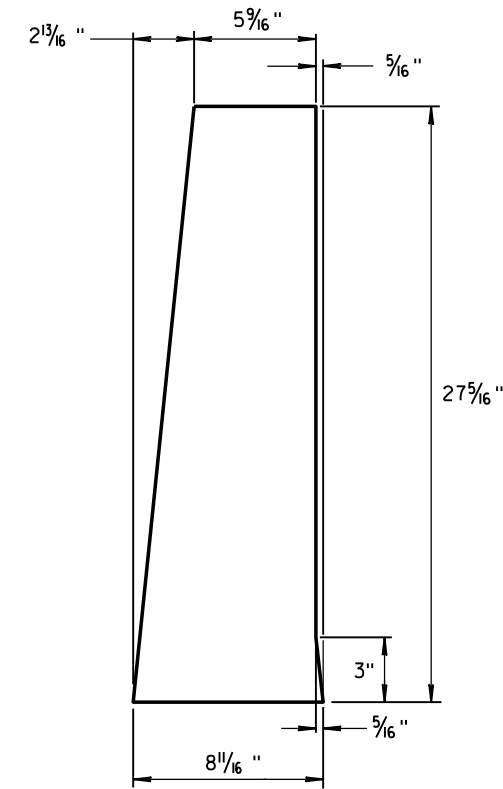
CAP DETAILS FOR TEMPORARY CONCRETE BARRIER TO 42" PERMANENT CONCRETE BARRIER

CONCRETE BARRIER  
TEMPORARY PRECAST, 12'-6"

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

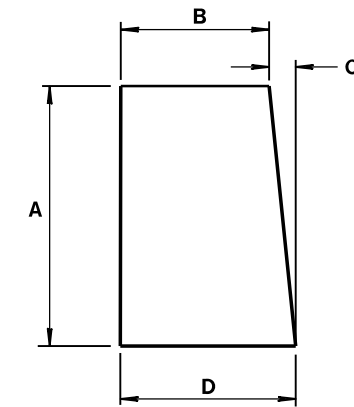


ISOMETRIC SHOWING GUSSETS



END PLATE

1/8" STEEL PLATE



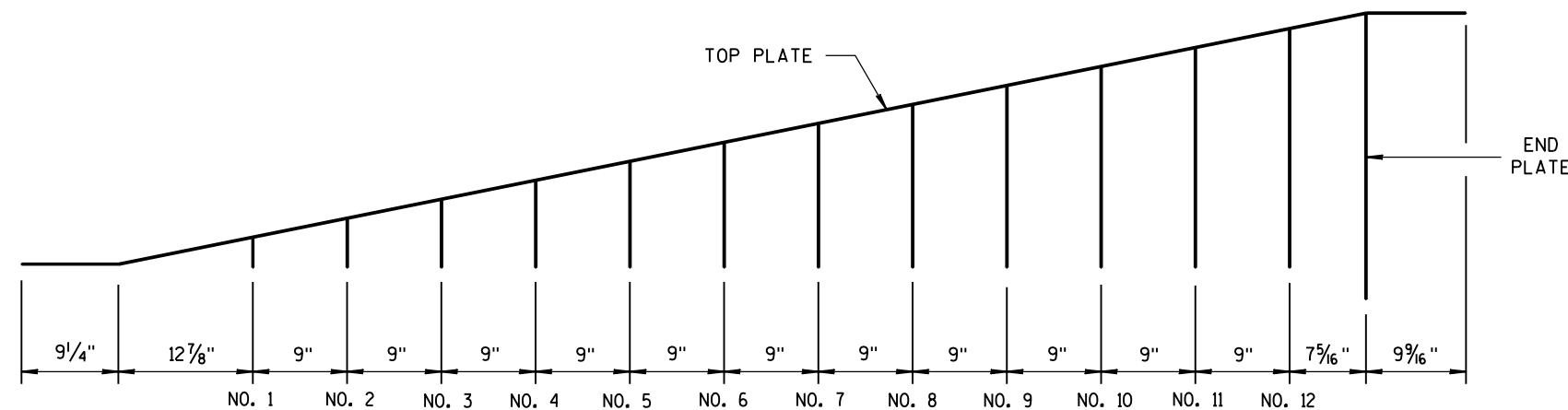
GUSSETS 1 - 12

ALL GUSSETS 1/8" STEEL PLATE

GUSSET DIMENSIONS				
GUSSET NO.	A	B	C	D
1	2 7/8"	7 3/4"	1/4"	8
2	4 1/16"	7 7/16"	1/2"	8
3	6 1/2"	7 3/8"	11/16"	8 1/16"
4	8 5/16"	7 3/16"	7/8"	8 1/16"
5	10 1/8"	7"	1 1/16"	8 1/16"
6	11 5/16"	6 13/16"	1 1/4"	8 1/16"
7	13 3/4"	6 5/8"	1 7/16"	8 1/16"
8	15 3/16"	6 7/16"	1 9/16"	8 1/16"
9	17 3/8"	6 1/4"	1 13/16"	8 1/16"
10	19 3/16"	6 1/16"	1 15/16"	8 1/16"
11	21"	5 7/8"	2 3/16"	8 1/16"
12	22 13/16"	5 1/16"	2 5/16"	8 1/16"

SIDE PLATES, TOP PLATE, END PLATE AND GUSSETS ARE 12 GAUGE ASTM A36 STEEL AND GALVANIZED.

GUSSETS AND END PLATE ARE STITCH WELDED ON 3 SIDES. TWO TRIANGULAR SIDE PLATES ARE STITCH WELDED TO TOP PLATE, END PLATE AND GUSSETS.

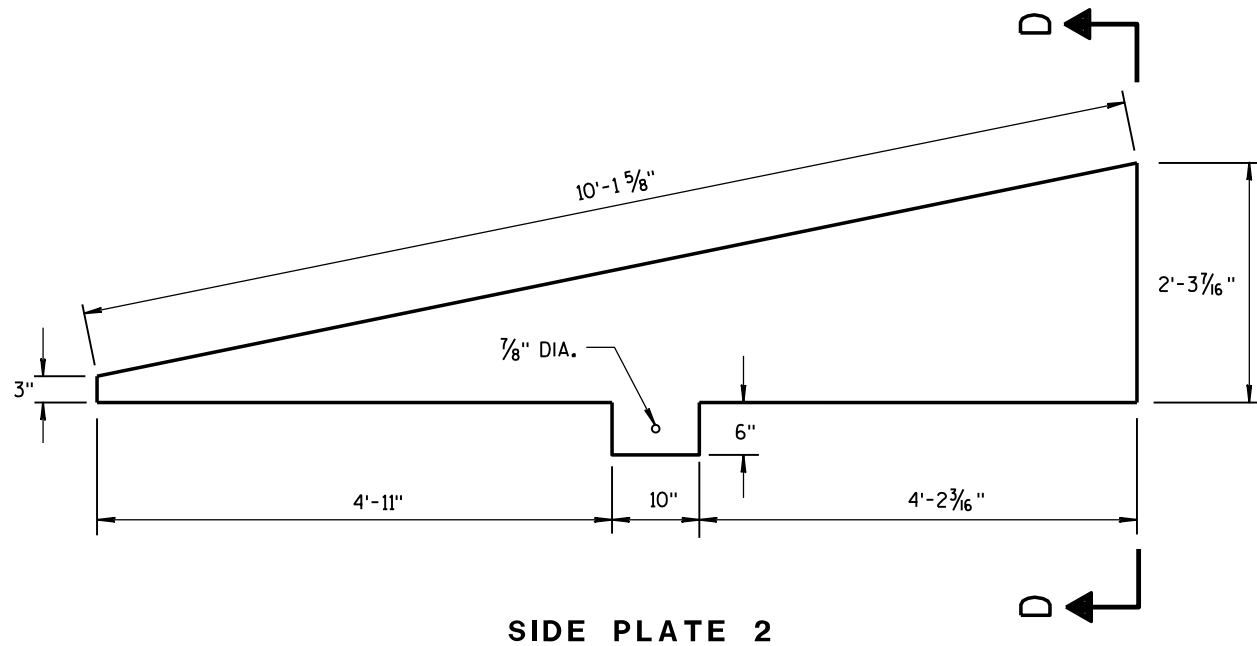


GUSSET LOCATION

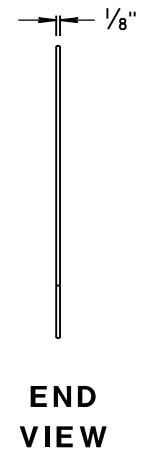
CAP DETAILS FOR TEMPORARY CONCRETE BARRIER TO 56" PERMANENT CONCRETE BARRIER

CONCRETE BARRIER  
TEMPORARY PRECAST, 12'-6"

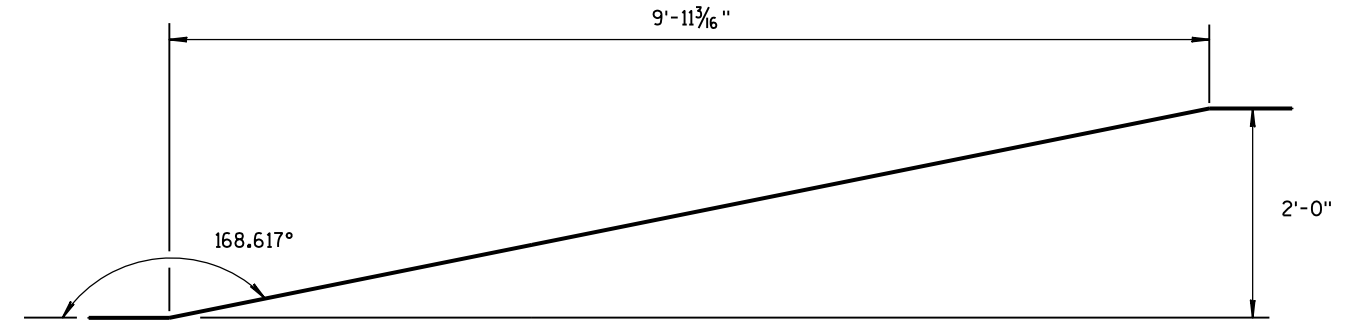
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



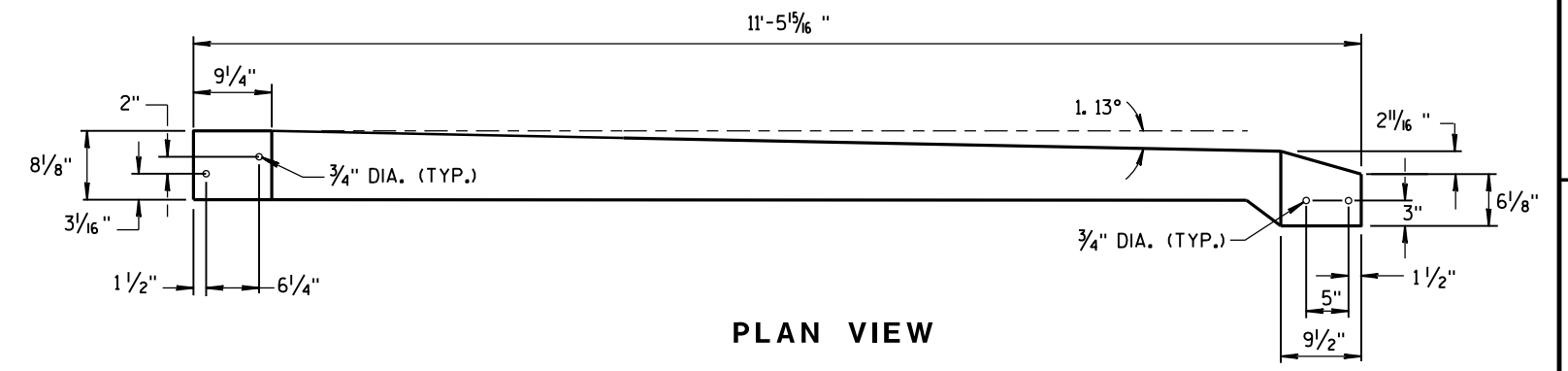
**SIDE PLATE 2**



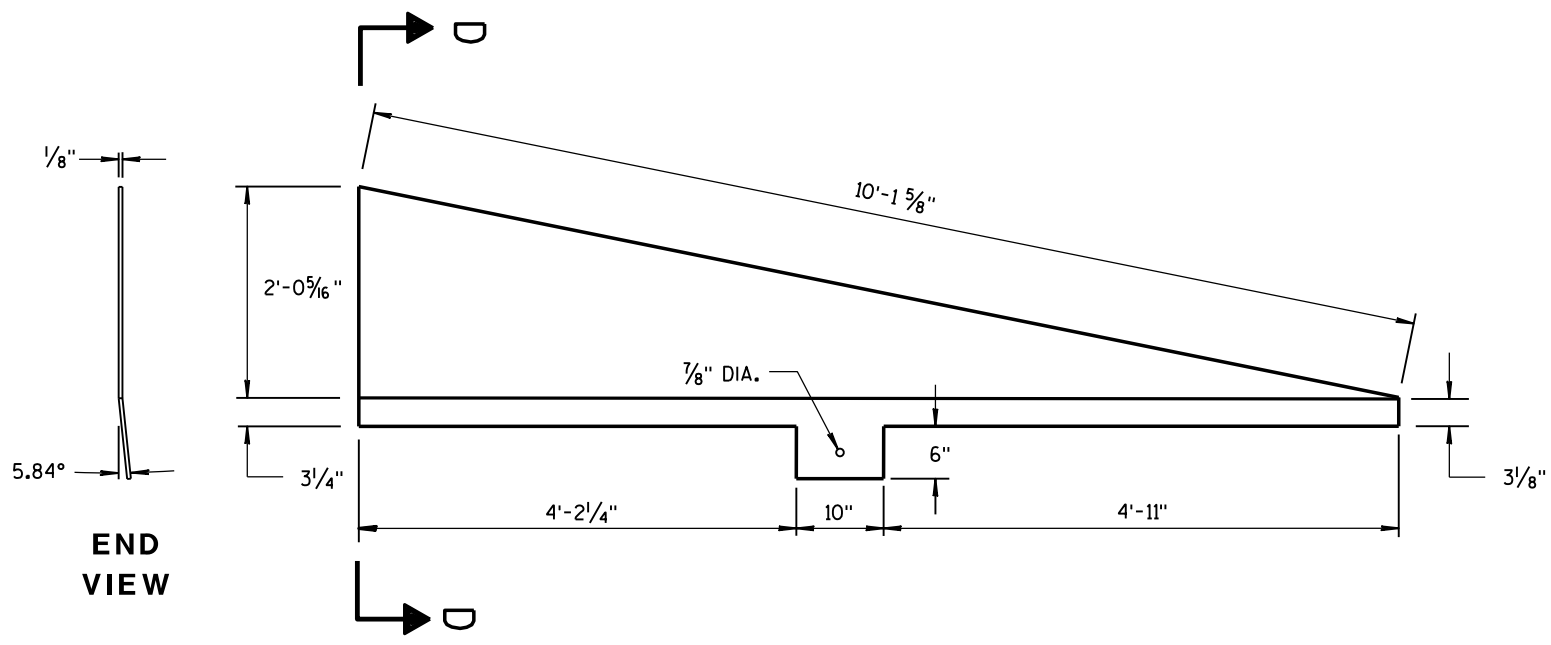
**END VIEW**



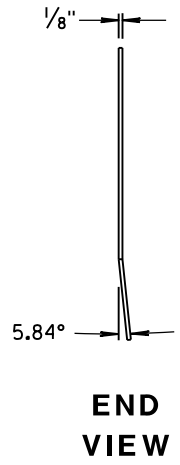
**SIDE VIEW  
TOP PLATE**



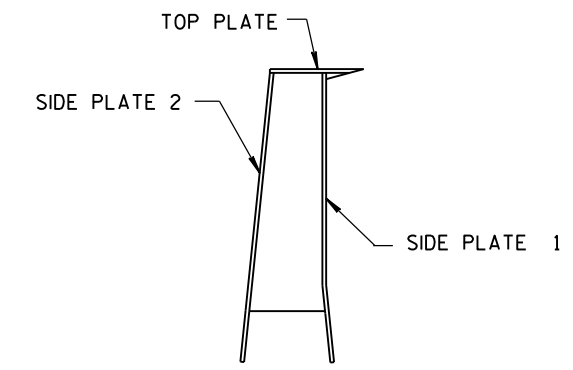
**PLAN VIEW  
TOP PLATE**



**SIDE PLATE 1**



**END VIEW**



**SECTION D-D**

**CAP DETAILS FOR TEMPORARY CONCRETE BARRIER TO 56" PERMANENT CONCRETE BARRIER**

<b>CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"</b>	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED June 2017 DATE	/s/ Rodney Taylor ROADWAY STANDARD DEVELOPMENT UNIT SUPERVISOR
FHWA	

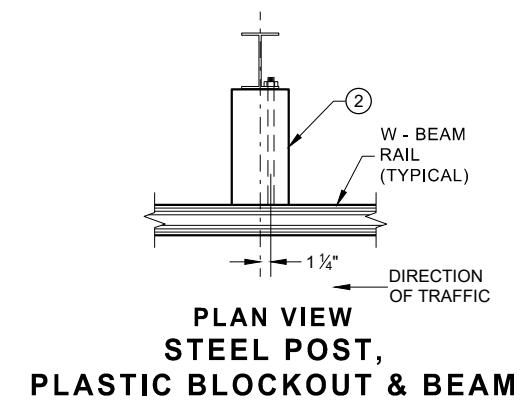
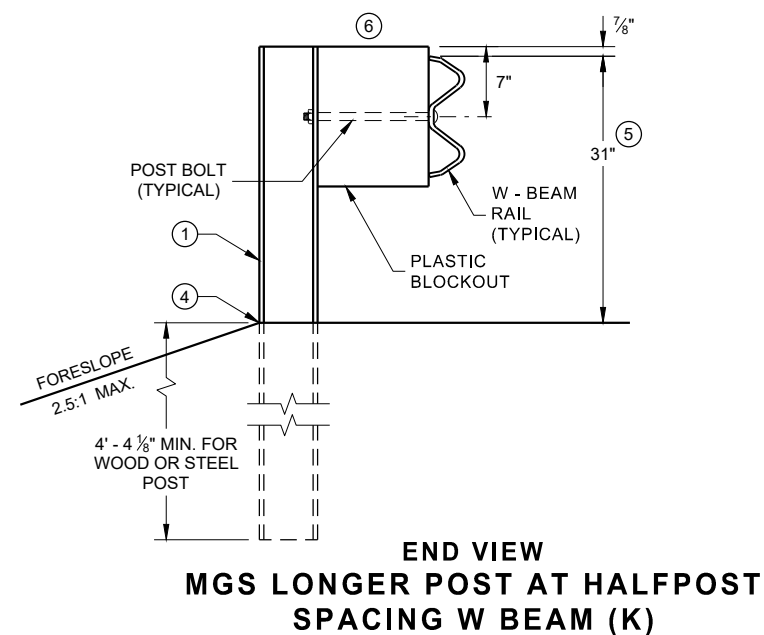
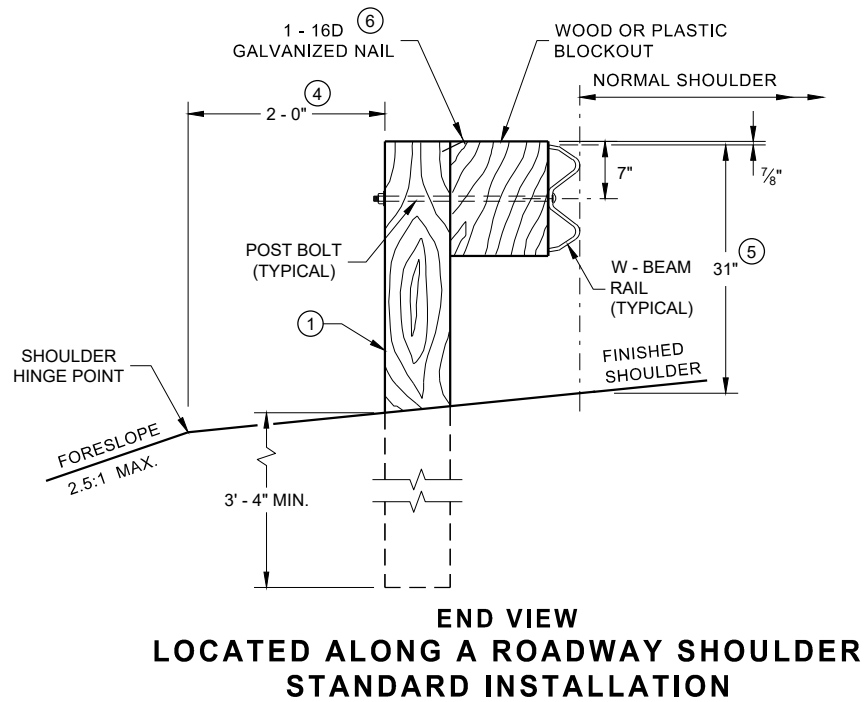
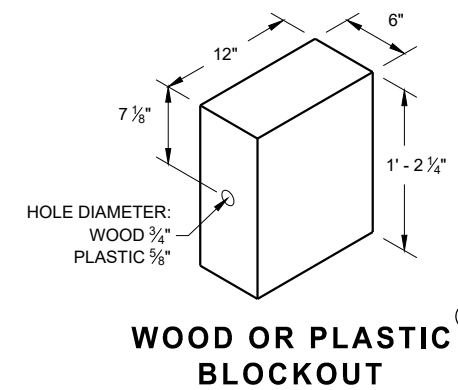
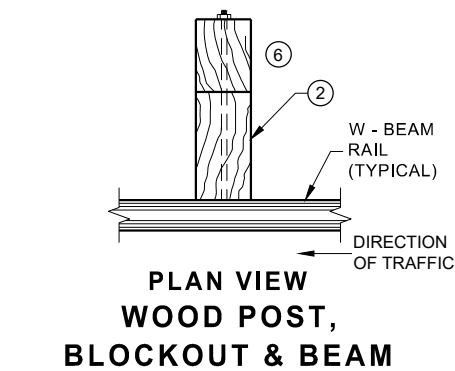
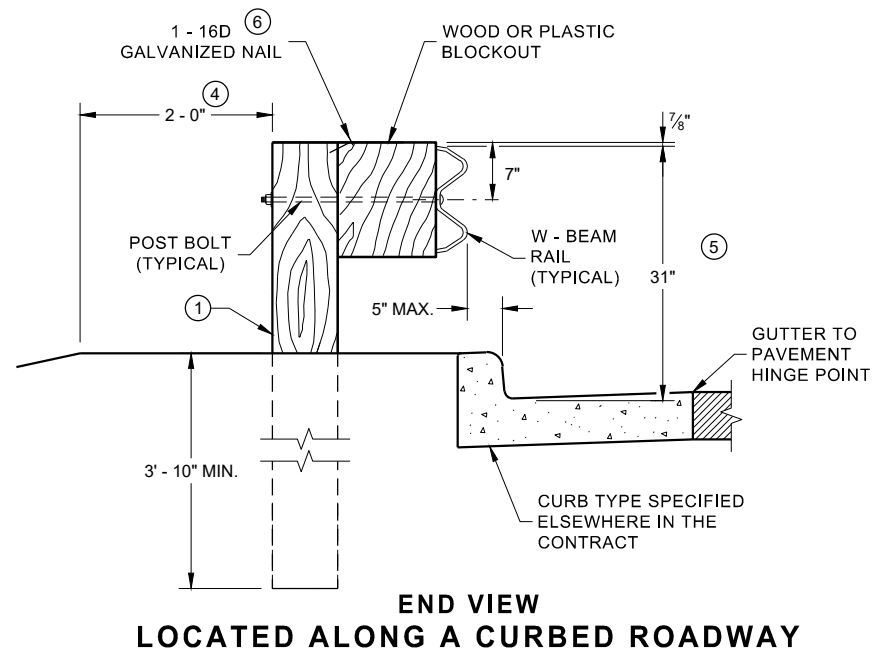
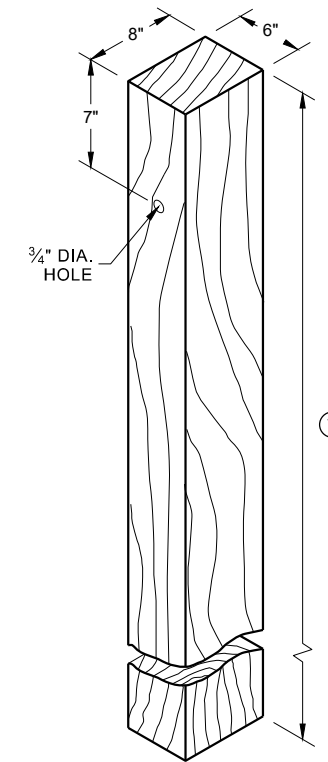
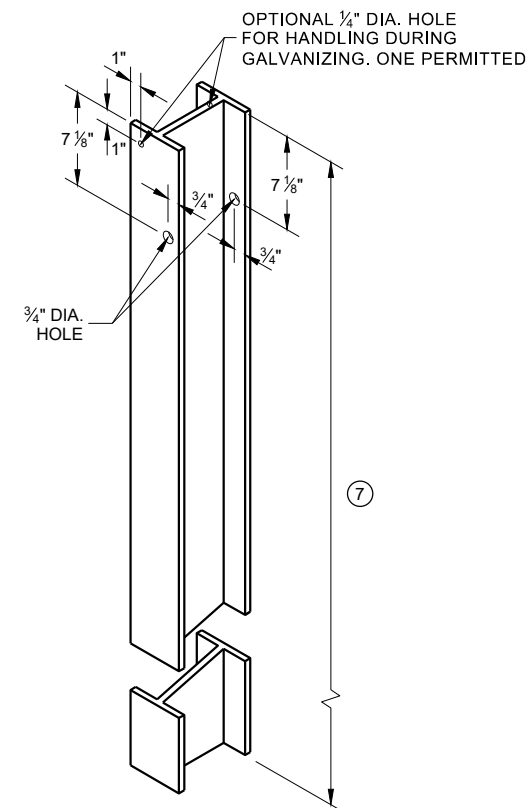
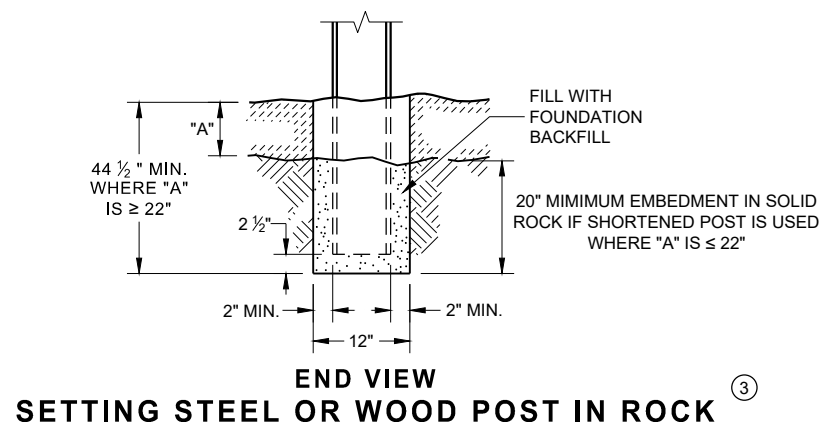
6

6

S.D.D. 14 B 7-15i

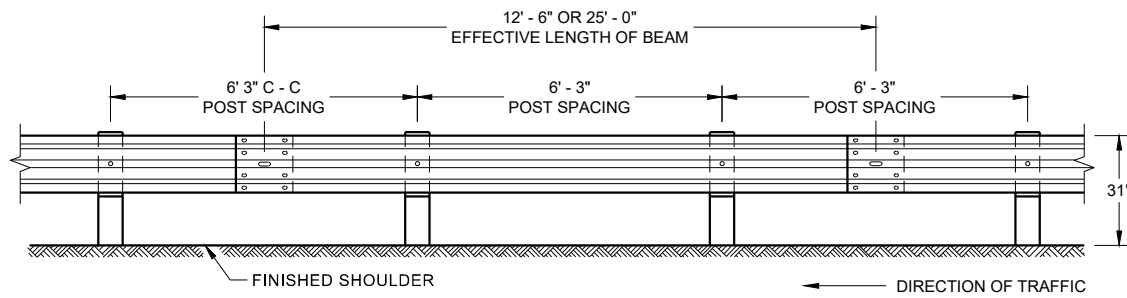
S.D.D. 14 B 7-15i

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

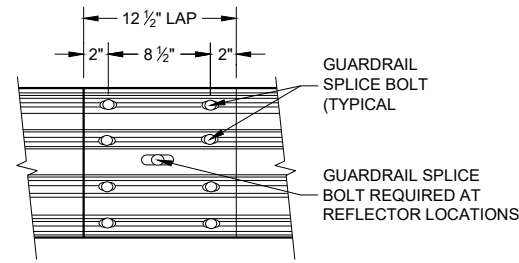


**MIDWEST GUARDRAIL SYSTEM  
(MGS) GUARDRAIL**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



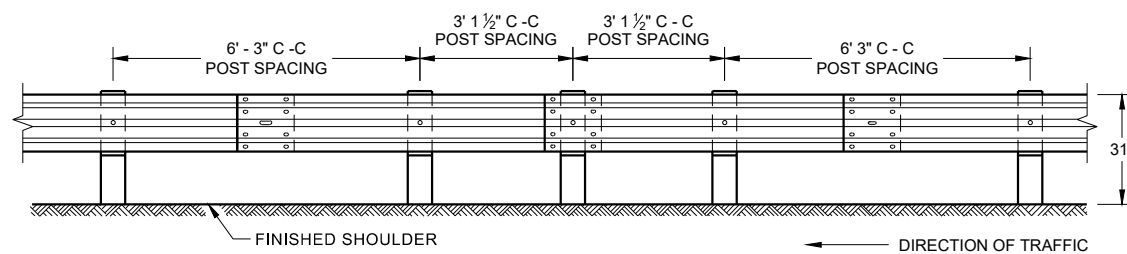
**FRONT VIEW  
POST SPACING STANDARD INSTALLATION**



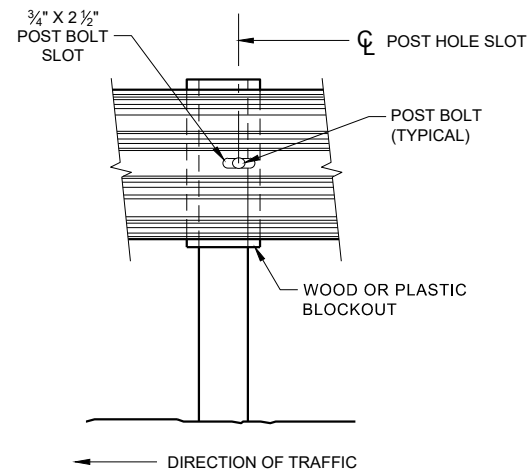
**FRONT VIEW  
MID-SPAN BEAM SPLICE**

**GENERAL NOTES**

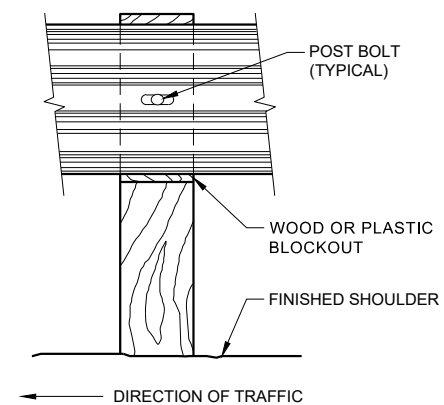
- ⑧ DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINAL.
  - ⑨ 25 FEET OF HALF POST SPACING IS REQUIRED ON APPROACH AND DEPARTURE ENDS OF QUARTER POST SPACING.
- POST BOLTS ARE A 5/8" DIAMETER ASTM A307 GUARDRAIL BOLT. A POST BOLT REQUIRES 3/4" DIAMETER 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.



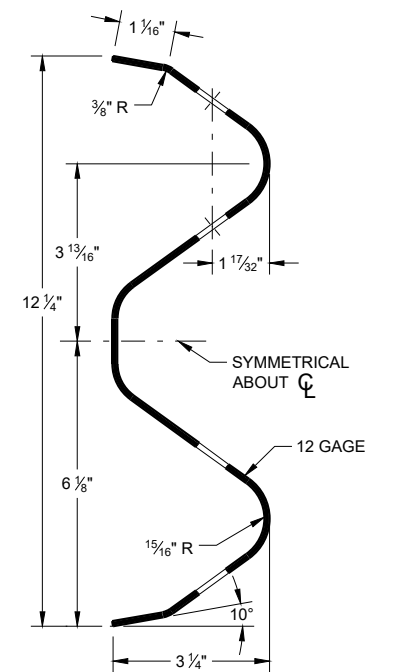
**FRONT VIEW  
HALF POST SPACING (HS) AND  
HALF POST SPACING WITH LONGER POSTS (K)**



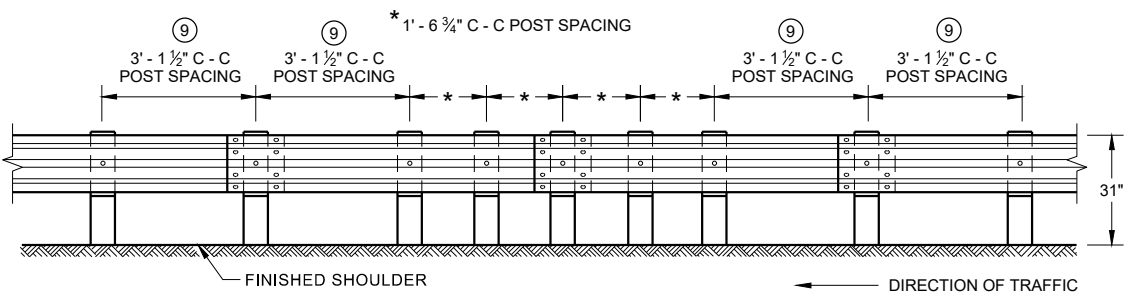
**FRONT VIEW AT STEEL POST**



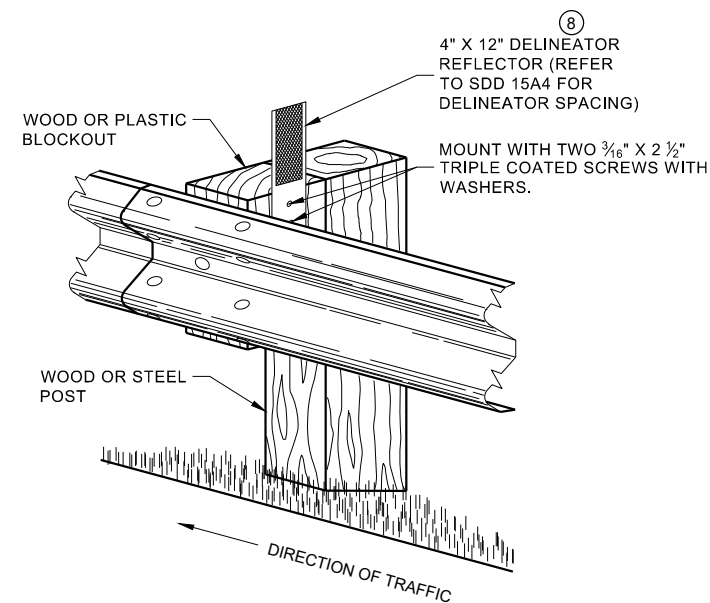
**FRONT VIEW AT WOOD POST**



**SECTION THRU W-BEAM RAIL**



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



**ONE SIDED REFLECTOR DETAIL  
AND TYPICAL INSTALLATION**

**MIDWEST GUARDRAIL SYSTEM  
(MGS) GUARDRAIL**

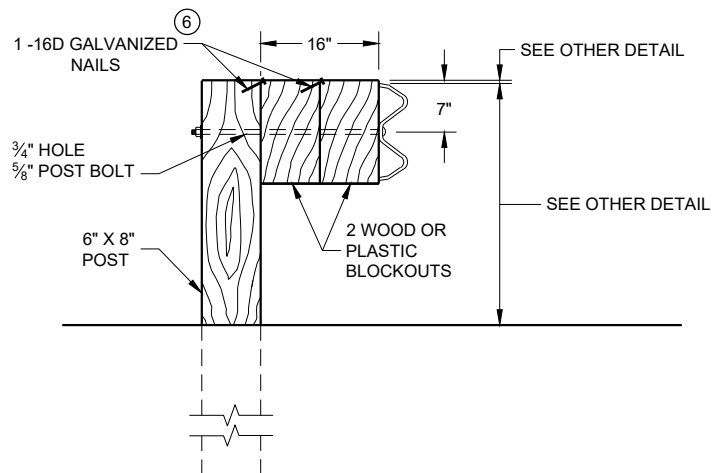
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

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6

SDD 14B42 - 07b

SDD 14B42 - 07b

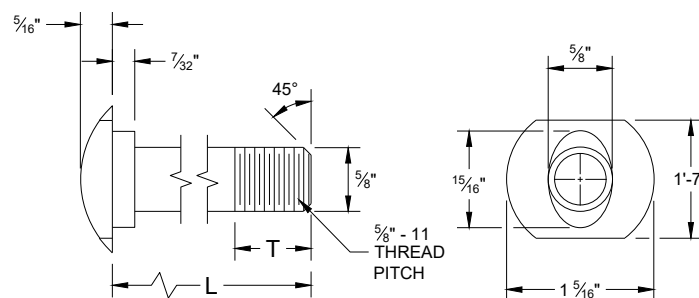


**DETAIL FOR 16" BLOCKOUT DEPTH**

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.

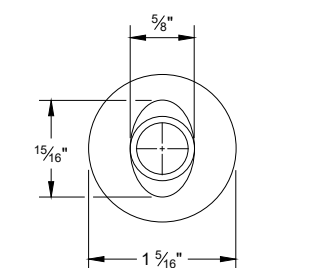
**NOTE:**

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.

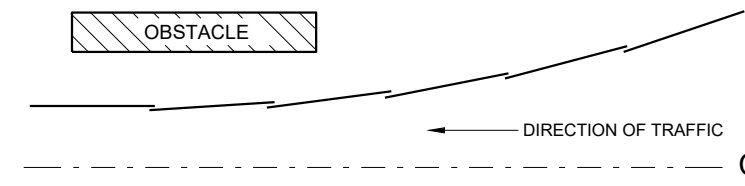


**POST BOLT TABLE**

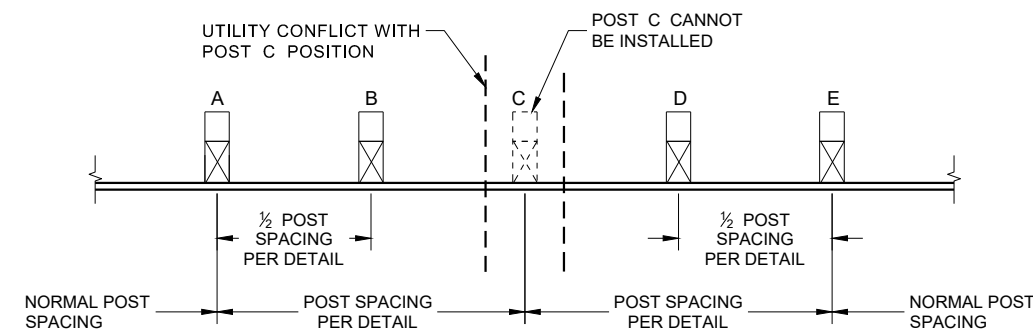
L	T (MIN.)
1 1/4"	1 1/8"
2"	1 3/4"
10"	4"
14"	4 1/16"
18"	4"
21"	4 1/16"
25"	4"



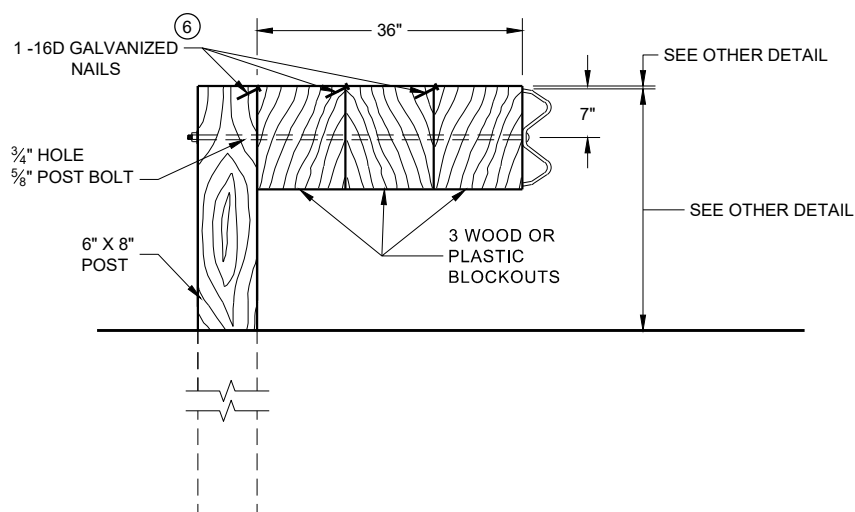
**ALTERNATE BOLT HEAD**



**PLAN VIEW  
BEAM LAPPING DETAIL**

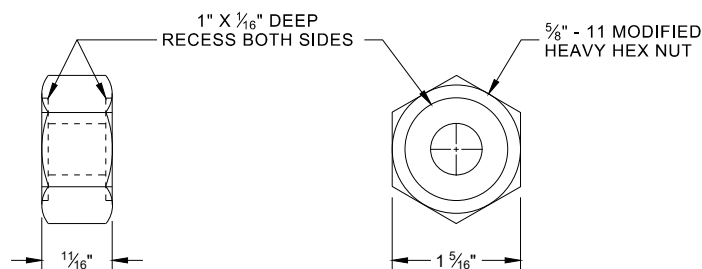


**POST DRIVING FOR CONTINUOUS  
UNDERGROUND OBSTRUCTION**

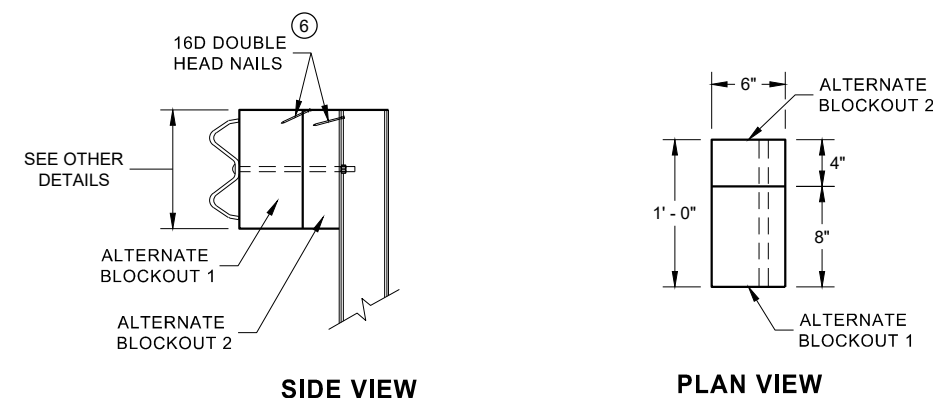


**DETAIL FOR 36" BLOCKOUT DEPTH**

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**

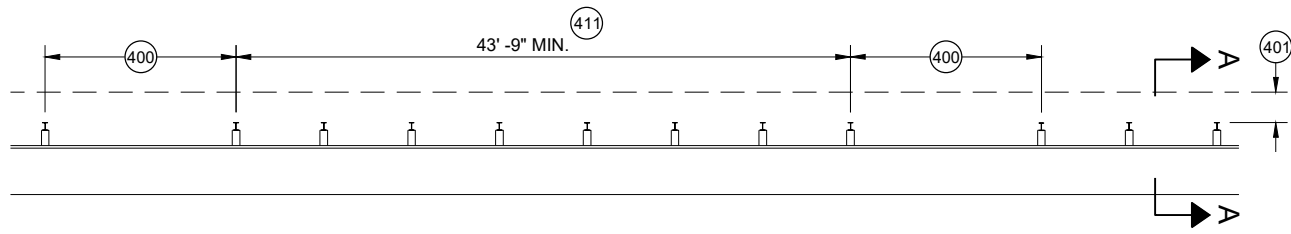


**ALTERNATE WOOD  
BLOCKOUT DETAIL**

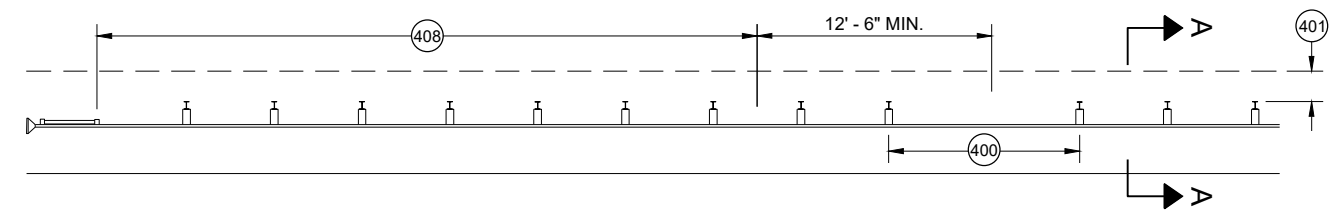
6 WHEN USING STEEL POST AND WOOD BLOCKOUTS, INSTALL FOUR 16D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.

**MIDWEST GUARDRAIL SYSTEM  
(MGS) GUARDRAIL**

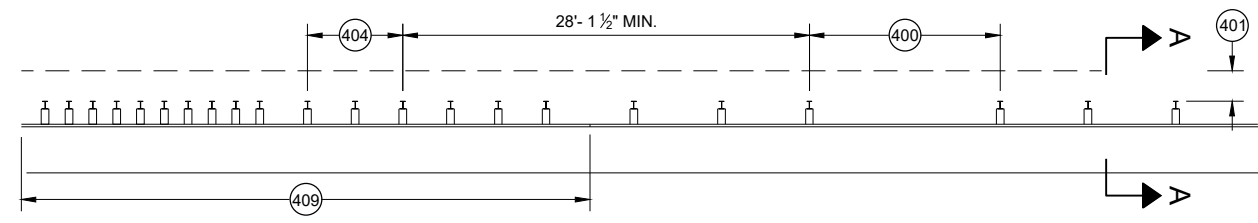
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



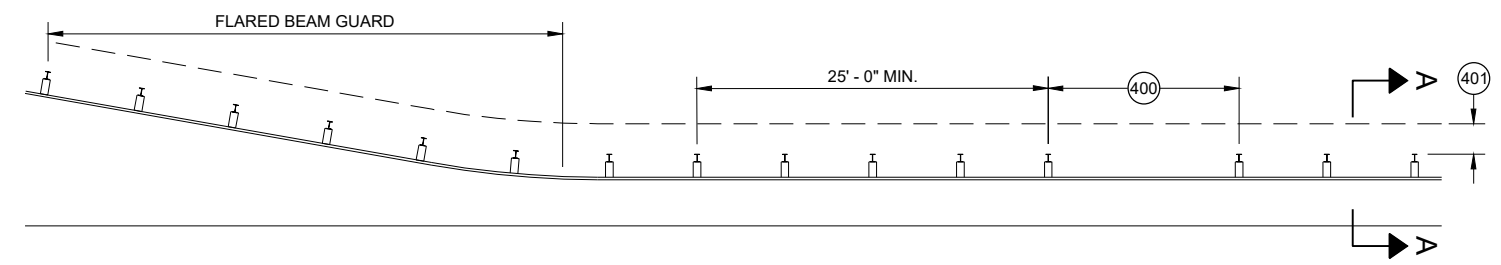
**MISSING POST IN MGS GUARDRAIL**



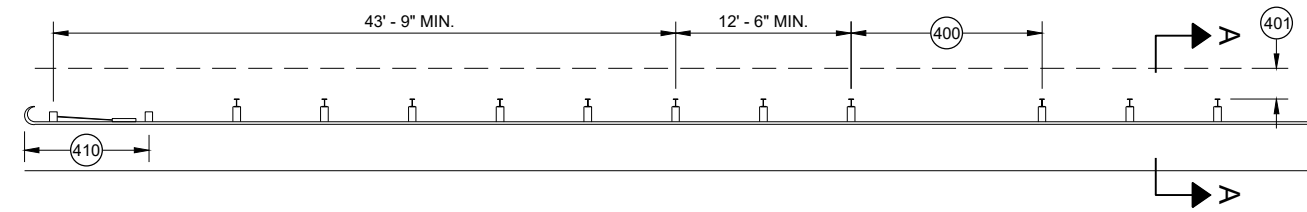
**MISSING POST IN MGS GUARDRAIL NEAR EAT**



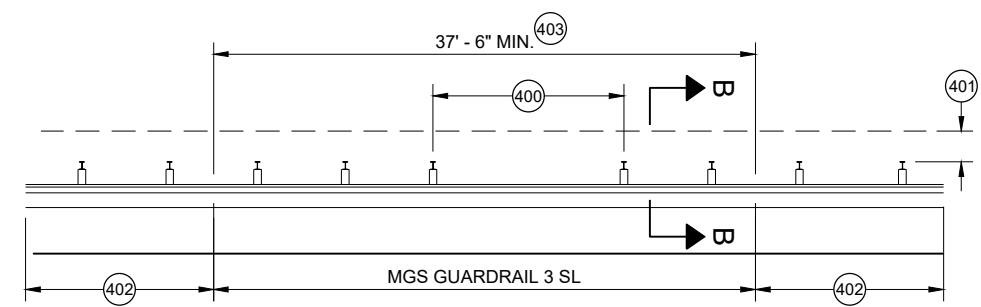
**MISSING POST IN MGS GUARDRAIL NEAR AN APPROACH TRANSITION**



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

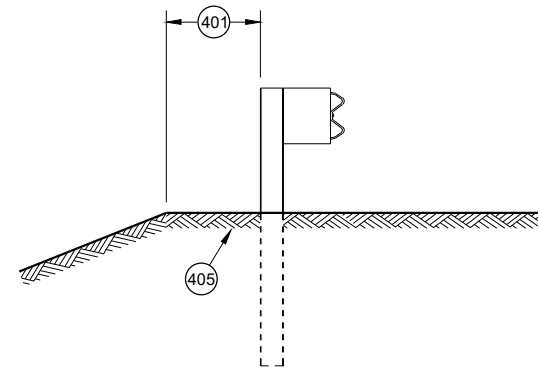


**MISSING POST IN MGS GUARDRAIL NEAR A TYPE 2 END TERMINAL**

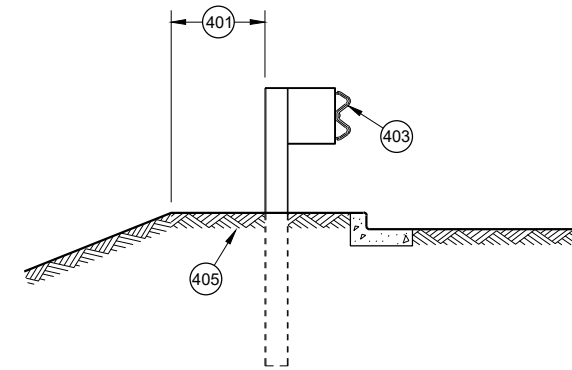


**MISSING POST IN SHORT SPAN MGS GUARDRAIL NEAR CURB (SL)**

- 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**

THE EXACT NUMBER, LOCATION, AND SPACING OF ALL SIGNS AND DEVICES SHALL BE ADJUSTED TO FIT FIELD CONDITIONS.

THE SPACING BETWEEN TRAFFIC CONTROL SIGNS SHOULD BE ADJUSTED TO NOT CONFLICT WITH AND SHOULD PROVIDE A MINIMUM OF 200 FEET (500 FEET DESIRABLE) CLEARANCE TO EXISTING SIGNS THAT WILL REMAIN IN PLACE.




ALL SIGNS ARE 48" X 48" UNLESS OTHERWISE NOTED.

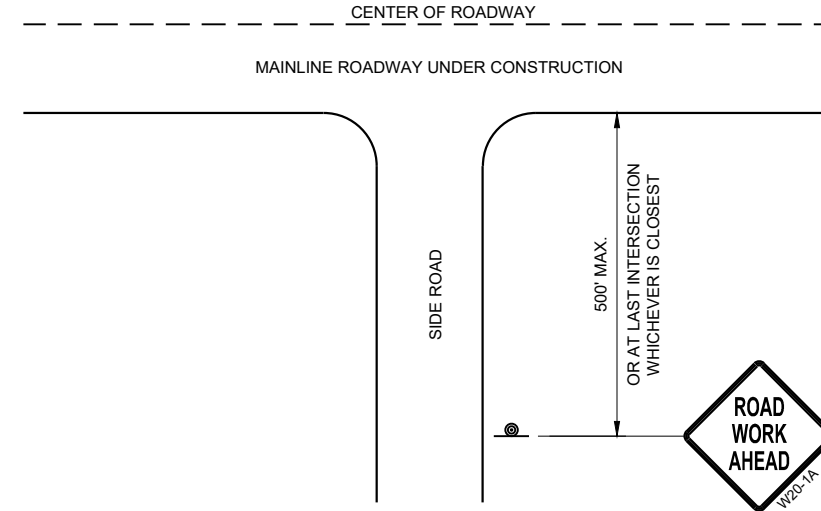
SIGNS THAT WILL BE IN PLACE LESS THAN SEVEN CONTINUOUS DAYS AND NIGHTS MAY BE MOUNTED ON PORTABLE SUPPORTS.

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

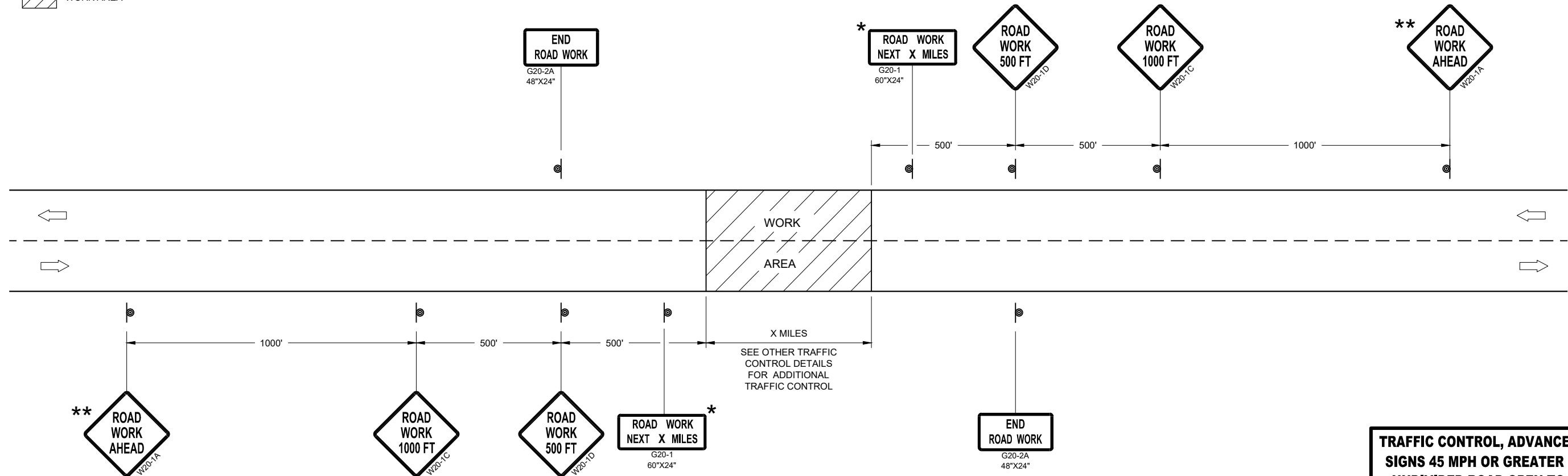
- \* OMIT G20-1 SIGNS IF LENGTH OF WORK AREA IS 2 MILES OR LESS
- \*\* PLACE AN ADDITIONAL W20-1A "ROAD WORK AHEAD" SIGN IF WORK AREA WITHIN THE PROJECT IS SEPARATED BY MORE THAN 2 MILES FROM PREVIOUS WORK AREA.

**LEGEND**

-  SIGN ON PERMANENT SUPPORT
-  DIRECTION OF TRAFFIC
-  WORK AREA



**TYPICAL SIDE ROAD APPROACH  
WARNING SIGN DETAIL**



**TRAFFIC CONTROL, ADVANCE WARNING SIGNS 45MPH OR GREATER**

**TRAFFIC CONTROL, ADVANCE WARNING  
SIGNS 45 MPH OR GREATER TWO-WAY  
UNDIVIDED ROAD OPEN TO TRAFFIC**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
DATE July 2018 /S/ Andrew Heidtke  
WORK ZONE ENGINEER

FHWA



**GENERAL NOTES**

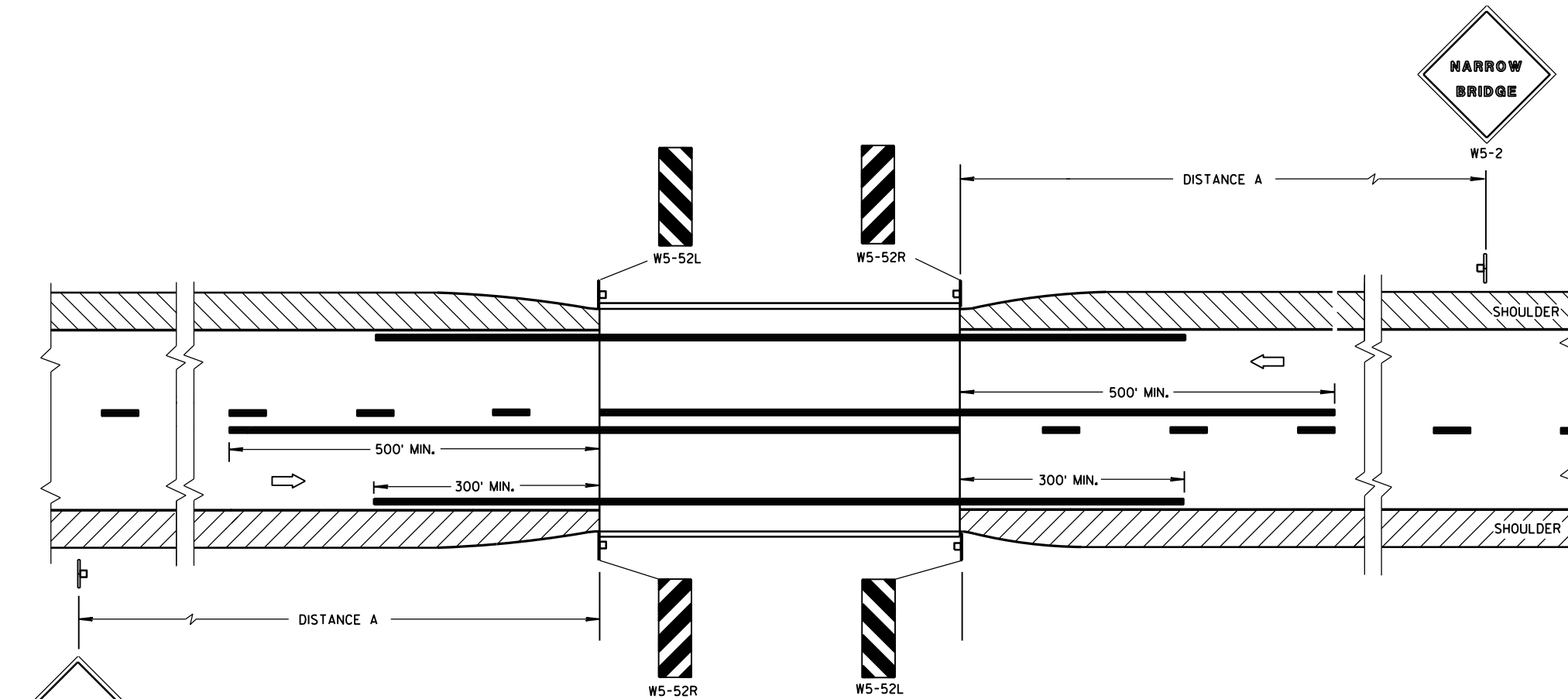
DETAILS OF TRAFFIC CONTROL DEVICES AND INSTALLATION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS, THE SPECIAL PROVISIONS, AND THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

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.

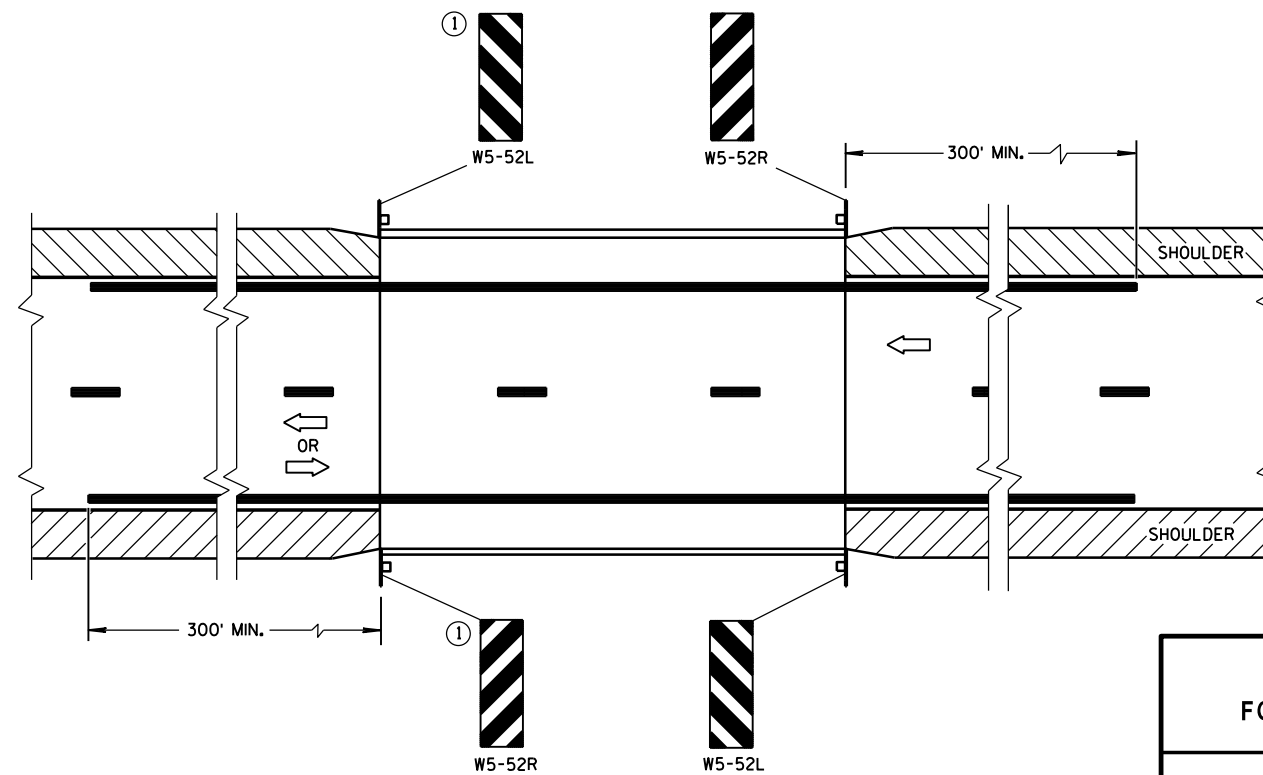
① OMIT ON ONE-WAY TRAVELLED WAYS.

➡ DIRECTION OF TRAFFIC



**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.

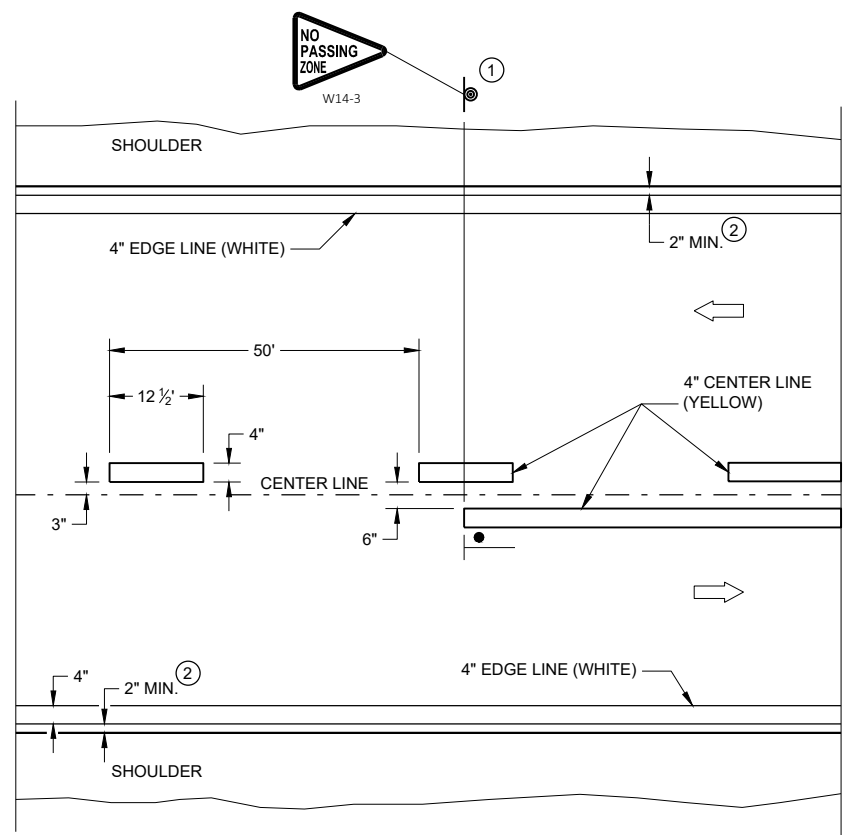
**DISTANCE TABLE**

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

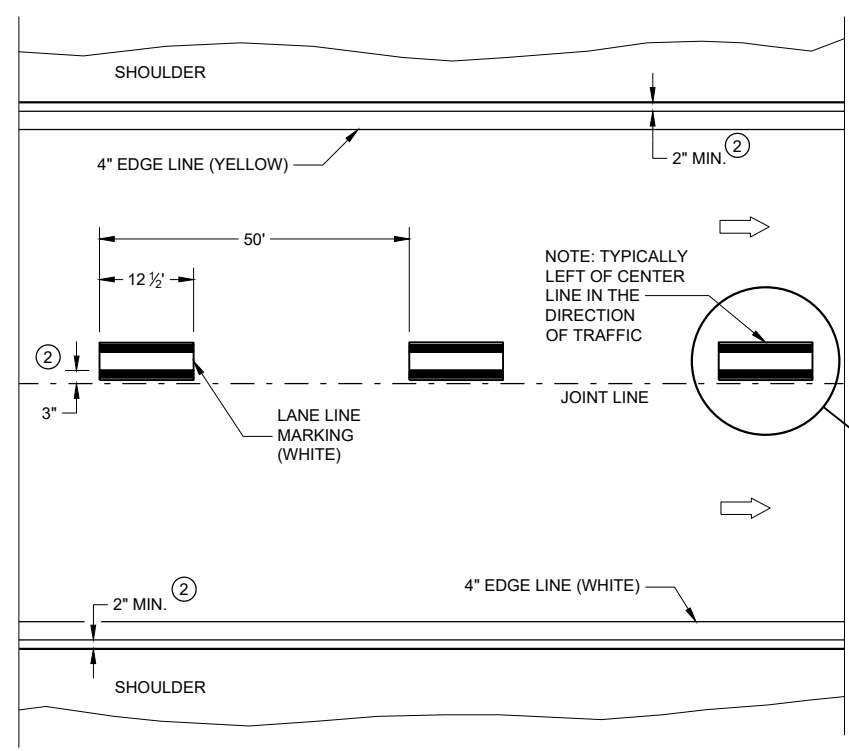
**SIGNING & MARKING FOR TWO LANE BRIDGES**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
June 2017 /S/ Matthew R. Rauch  
DATE STATE SIGNING AND MARKING ENGINEER  
FHWA

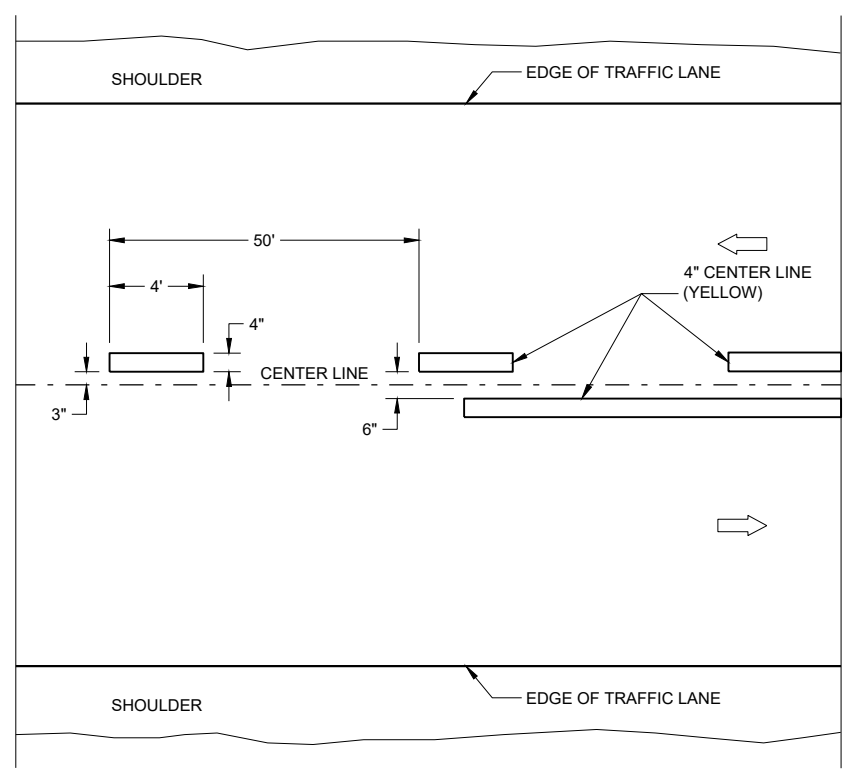


TWO WAY TRAFFIC

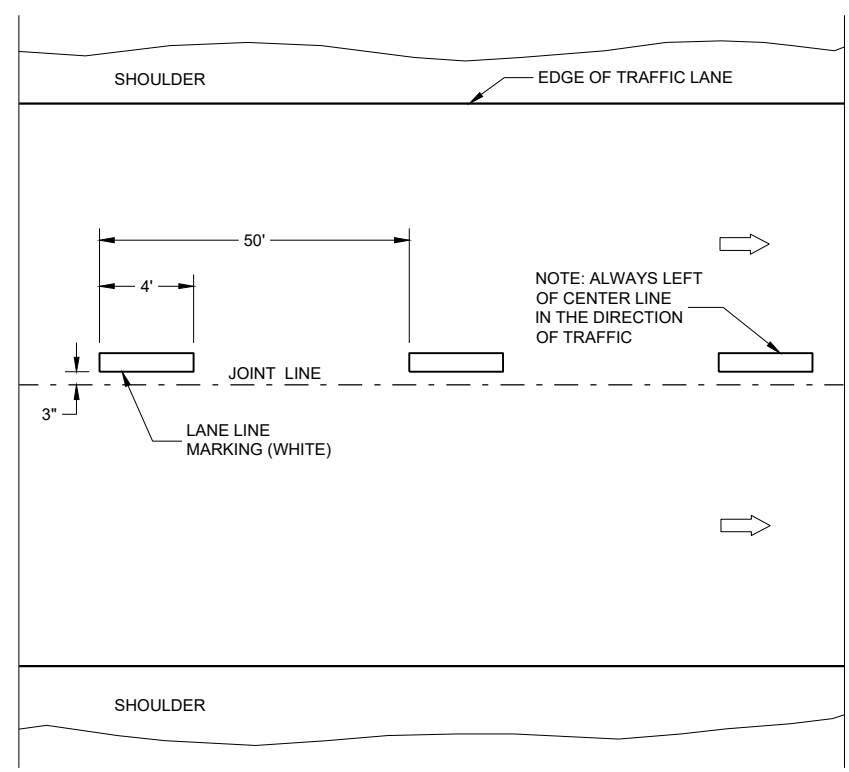


ONE WAY TRAFFIC

PERMANENT PAVEMENT MARKING



TWO WAY TRAFFIC



ONE WAY TRAFFIC

TEMPORARY PAVEMENT MARKING

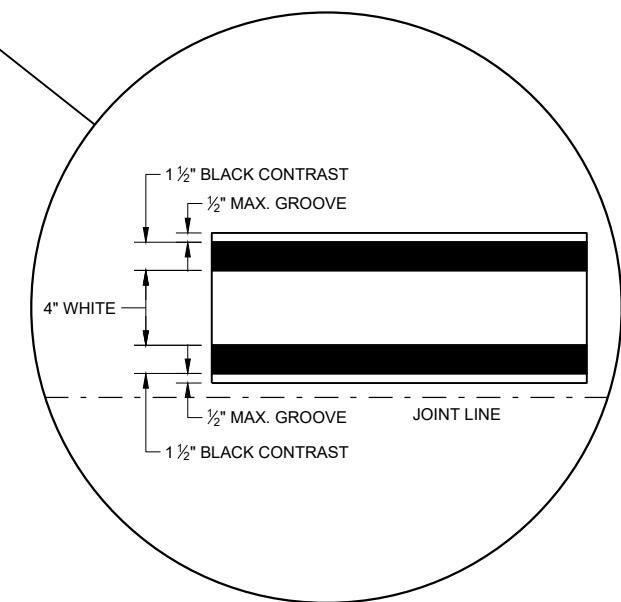
GENERAL NOTES

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

- ① LOCATE THE NO PASSING ZONE W14-3 SIGN WITHIN 50 FEET OF THE "T" MARKING
- ② MEASURE FROM EDGE OF MARKING TO JOINT LINE. THIS DOES NOT INCLUDE SPACE NEEDED FOR GROOVING OPERATIONS.

LEGEND

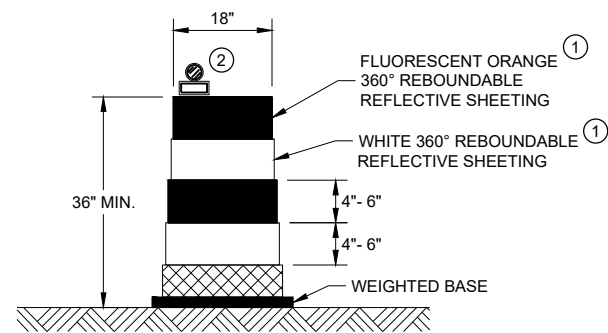
- |—"T" MARKING
- SIGN ON PERMANENT SUPPORT
- DIRECTION OF TRAFFIC



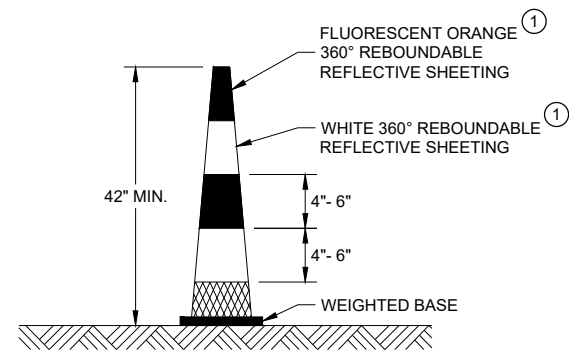
LONGITUDINAL MARKING (MAINLINE)

STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION

APPROVED  
 February 2020 /S/ Matthew Rauch  
 DATE STATEWIDE SIGNING AND MARKING ENGINEER  
 FHWA

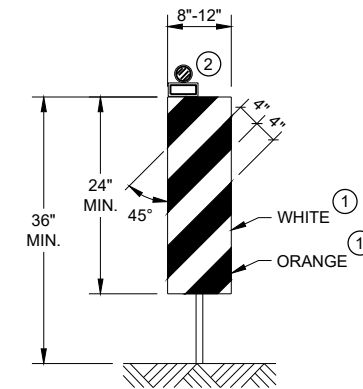


**DRUM**



**42" CONE**

DO NOT USE IN TAPERS  
 1/2 SPACING OF DRUMS

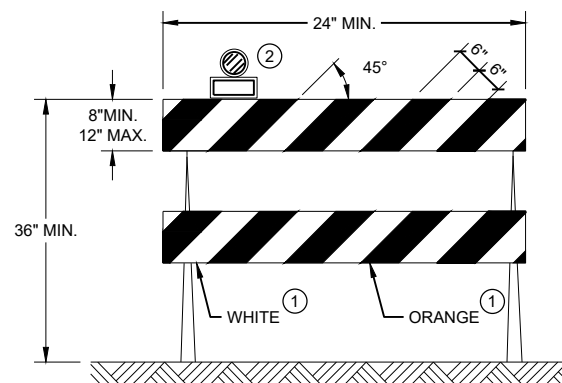


**VERTICAL PANEL**

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

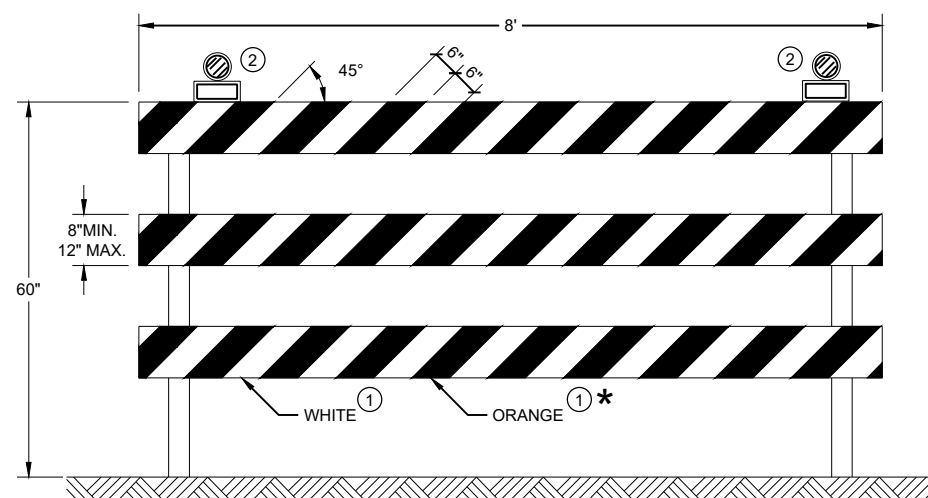
**GENERAL NOTES**

- 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>	

## GENERAL NOTES

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

THE SPACING BETWEEN SIGNS SHOULD BE ADJUSTED TO NOT CONFLICT WITH AND TO PROVIDE A MINIMUM OF 200 FEET (500 FEET DESIRABLE) CLEARANCE TO EXISTING SIGNS.

THIS LANE CLOSURE IS TYPICAL FOR CLOSING RIGHT LANE - REVERSE FOR CLOSING LEFT LANE.

ALL SIGNS ARE 48" x 48" UNLESS OTHERWISE NOTED.

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

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

FOR A LANE CLOSURE THAT IS IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS, THE ADVANCED WARNING SIGNS MAY BE MOUNTED ON PORTABLE SUPPORTS.

REMOVE PAVEMENT MARKINGS IF LANE CLOSURE IS TO BE IN PLACE 4 OR MORE CONTINUOUS DAYS AND NIGHTS.

IF THE HORIZONTAL ALIGNMENT IS SUCH THAT A CURVE MAY REQUIRE ADDITIONAL DELINEATION, THE DEVICE SPACING MAY BE DECREASED TO 50 FEET.










WARNING LIGHTS ARE NOT REQUIRED IF THE LANE CLOSURE IS A DAYTIME ONLY OPERATION.

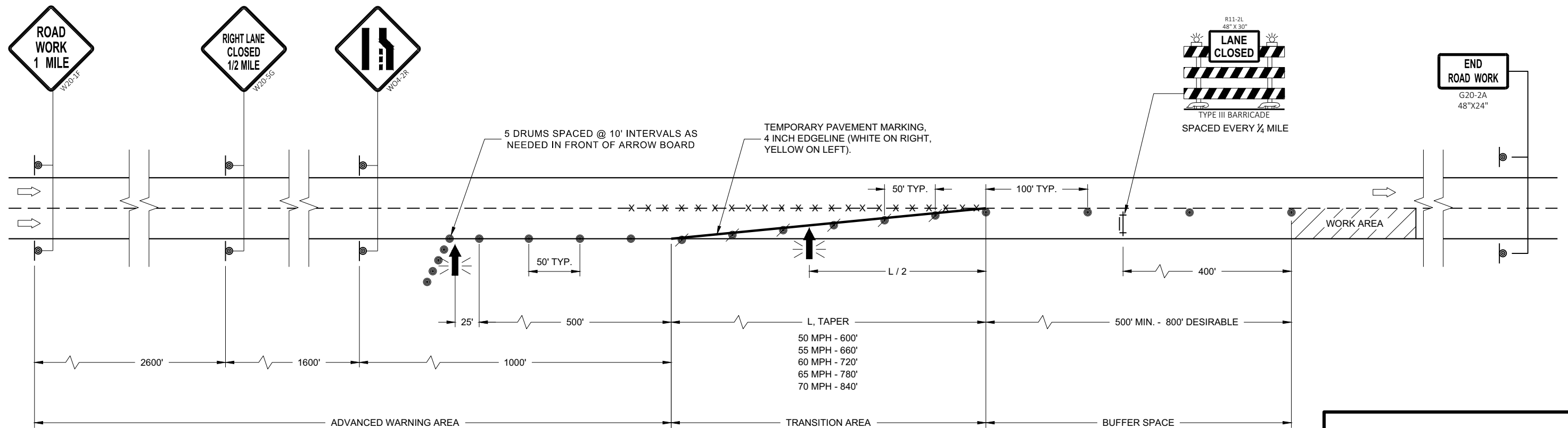
ADJUSTMENTS IN BUFFER SPACE NEED TO BE INCORPORATED WHEN THE LANE CLOSURE OCCURS

NEAR AN INTERCHANGE EXIT OR ENTRANCE RAMP OR INTERSECTION. THE LANE CLOSURE MUST TAKE PLACE FAR ENOUGH IN ADVANCE OF AN EXIT OR ENTRANCE RAMP TO STILL ALLOW FOR ADEQUATE BUFFER SPACE. THE MINIMUM LENGTH OF THE BUFFER SPACE BEFORE AN EXIT RAMP SHOULD BE ONE HALF THE LENGTH OF THE TRANSITION AREA. THE ENTRANCE RAMP SHOULD BE FOLLOWED BY THE ORIGINAL BUFFER SPACE LENGTH OF 800 FEET DESIRABLE PRIOR TO ANOTHER TRAFFIC CONTROL CHANGE SUCH AS A CROSSOVER MANEUVER.

CONSIDER ROADWAY GEOMETRICS WHEN LOCATING SIGNS AND ARROW BOARD SO THE DRIVER HAS A CLEAR VIEW OF THE ARROW BOARD AND LANE CLOSURE DRUMS.

## LEGEND

-  SIGN ON PERMANENT SUPPORT
-  TRAFFIC CONTROL DRUM
-  TRAFFIC CONTROL DRUM WITH TYPE "C" STEADY BURN LIGHT
-  TYPE III BARRICADE WITH ATTACHED SIGN
-  TYPE "A" WARNING LIGHT (FLASHING)
-  REMOVING PAVEMENT MARKINGS
-  DIRECTION OF TRAFFIC
-  WORK AREA
-  FLASHING ARROW BOARD



### TRAFFIC CONTROL LANE CLOSURE

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

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

FHWA

**LEGEND**

- † TYPE III BARRICADE
- †† TYPE III BARRICADE WITH ATTACHED SIGN
- TRAFFIC CONTROL DRUM
- ⊙ SIGN ON PERMANENT SUPPORT
- ⚡ TYPE "A" WARNING LIGHT (FLASHING)
- ➡ DIRECTION OF TRAFFIC

**GENERAL NOTES**

THIS RAMP CLOSURE DETAIL IS TYPICAL FOR CLOSING A RIGHT SIDE EXIT RAMP. FOR A LEFT SIDE EXIT RAMP, REVERSE THE TRAFFIC CONTROL.

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

THE SPACING BETWEEN TRAFFIC CONTROL SIGNS SHOULD BE ADJUSTED TO NOT CONFLICT WITH AND SHOULD PROVIDE A MINIMUM OF 200 FEET (500 FEET DESIRABLE) CLEARANCE TO EXISTING SIGNS THAT WILL REMAIN IN PLACE.

ALL SIGNS ARE 48" X 48" UNLESS OTHERWISE NOTED.

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

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.

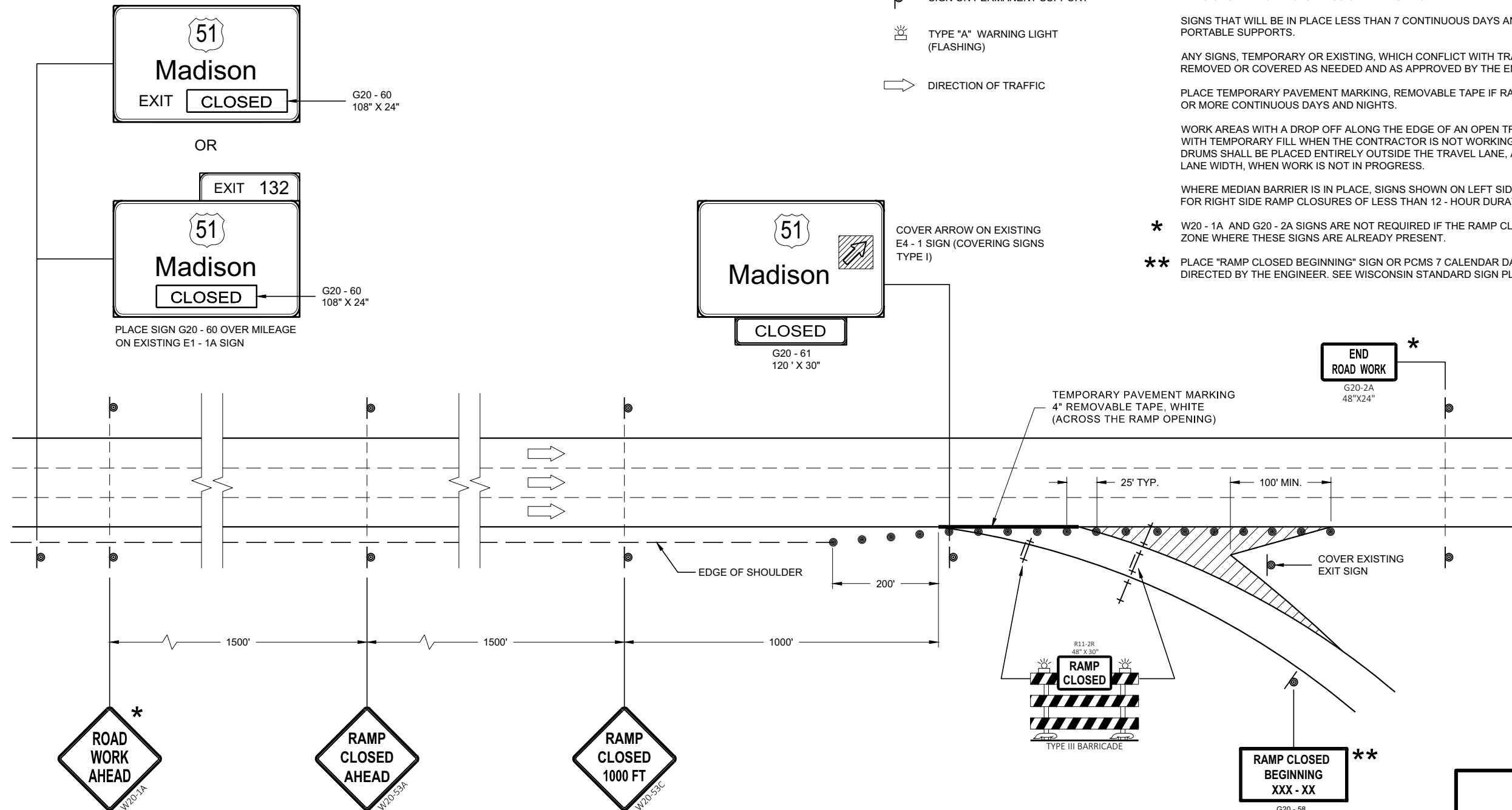
PLACE TEMPORARY PAVEMENT MARKING, REMOVABLE TAPE IF RAMP CLOSURE IS TO BE IN PLACE 4 OR MORE CONTINUOUS DAYS AND NIGHTS.

WORK AREAS WITH A DROP OFF ALONG THE EDGE OF AN OPEN TRAVEL LANE SHALL BE LEVELED WITH TEMPORARY FILL WHEN THE CONTRACTOR IS NOT WORKING ADJACENT TO THE TRAVEL LANE. DRUMS SHALL BE PLACED ENTIRELY OUTSIDE THE TRAVEL LANE, ALLOWING THE FULL UNOBSTRUCTED LANE WIDTH, WHEN WORK IS NOT IN PROGRESS.

WHERE MEDIAN BARRIER IS IN PLACE, SIGNS SHOWN ON LEFT SIDE OF ROADWAY MAY BE OMITTED FOR RIGHT SIDE RAMP CLOSURES OF LESS THAN 12 - HOUR DURATION.

\* W20 - 1A AND G20 - 2A SIGNS ARE NOT REQUIRED IF THE RAMP CLOSURE IS WITHIN A LARGER WORK ZONE WHERE THESE SIGNS ARE ALREADY PRESENT.

\*\* PLACE "RAMP CLOSED BEGINNING" SIGN OR PCMS 7 CALENDAR DAYS PRIOR TO CLOSURE OR AS DIRECTED BY THE ENGINEER. SEE WISCONSIN STANDARD SIGN PLATES FOR SIGN LAYOUT.



**RAMP CLOSED BEGINNING** \*\*

G20 - 58  
OR  
PCMS MESSAGING

FRAME 1	FRAME 2
RAMP TO CLOSE	XXXDAY XX XX XX

**TRAFFIC CONTROL,  
EXIT RAMP CLOSURE**











STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
November 2018  
DATE

/S/ Andrew Heidtke  
ROADWAY STANDARDS DEVELOPMENT  
ENGINEER

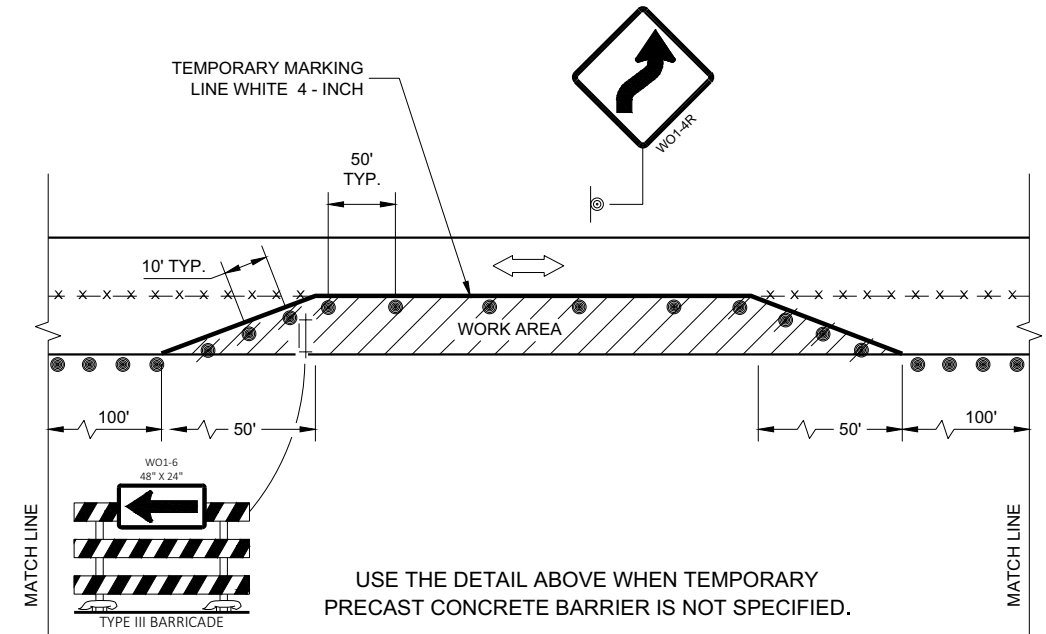
FHWA

**LEGEND**

-  TYPE III BARRICADE WITH ATTACHED SIGN
-  SIGN ON PERMANENT SUPPORT
-  TRAFFIC CONTROL DRUM WITH TYPE "C" STEADY BURN LIGHT
-  TRAFFIC CONTROL DRUM
-  FLAGS, 16" X 16" MIN. (ORANGE)
-  REMOVING PAVEMENT MARKING
-  DIRECTION OF TRAFFIC
-  ASPHALTIC PAVEMENT WIDENING
-  CONCRETE BARRIER TEMPORARY PRECAST
-  TEMPORARY SIGNAL. SEE SDD 09G02 FOR EXACT PLACEMENT

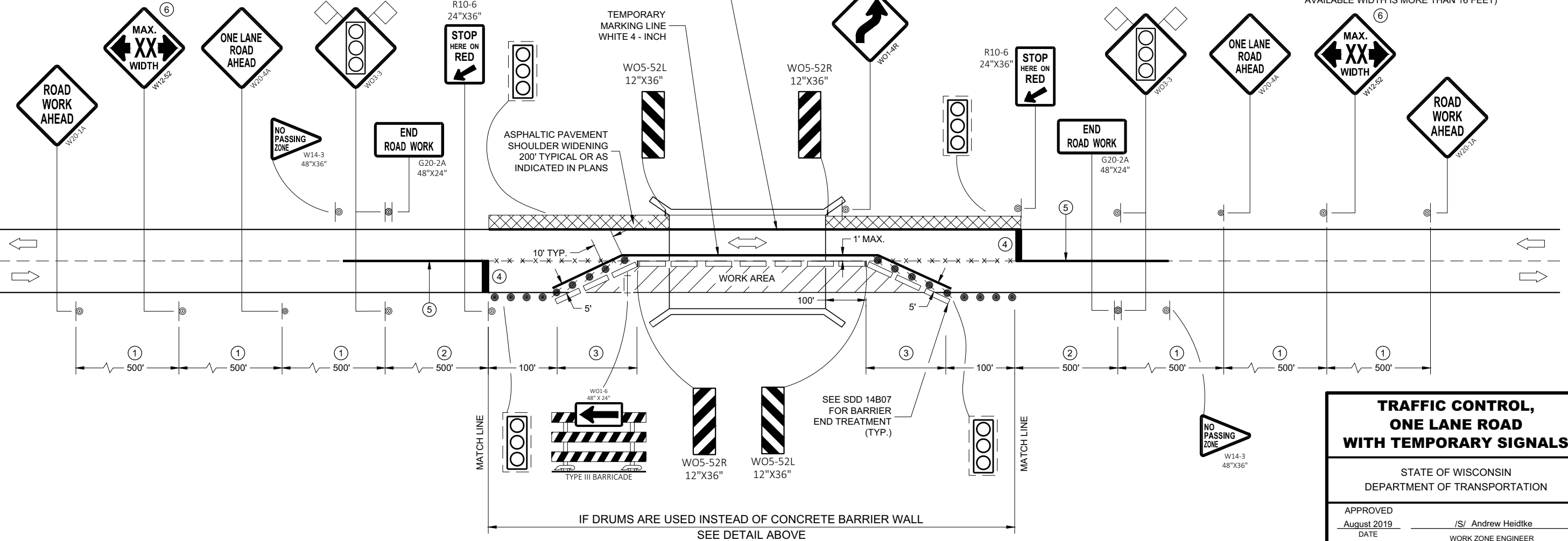
**GENERAL NOTES**

- THE EXACT NUMBER, LOCATION, AND SPACING OF ALL SIGNS AND DEVICES SHALL BE ADJUSTED TO FIT FIELD CONDITIONS AS APPROVED BY THE ENGINEER.
- THE SPACING BETWEEN TRAFFIC CONTROL SIGNS SHOULD BE ADJUSTED TO NOT CONFLICT WITH AND TO PROVIDE A MINIMUM OF 200 FEET (500 FEET DESIRABLE) CLEARANCE TO EXISTING SIGNS THAT WILL REMAIN IN PLACE..
- THIS LANE CLOSURE IS TYPICAL FOR CLOSING RIGHT LANE - REVERSE FOR CLOSING LEFT LANE.
- ALL SIGNS ARE 48" x 48" UNLESS OTHERWISE NOTED.
- "WO" IS THE SAME AS "W" EXCEPT THE BACKGROUND IS ORANGE.
- ANY SIGNS TEMPORARY OR EXISTING, WHICH CONFLICT WITH TRAFFIC CONTROL "IN USE" SHALL BE REMOVED OR COVERED AS NEEDED OR AS APPROVED BY THE ENGINEER.
- PLACE TEMPORARY PAVEMENT MARKING EDGELINE AND CENTERLINE AND REMOVE EXISTING PAVEMENT MARKINGS IF LANE CLOSURE IS TO BE IN PLACE 4 OR MORE CONTINUOUS DAYS AND NIGHTS OR AS NOTED ON DETAIL.
- ① 500 FOOT SPACING SHOWN IS FOR ROADWAYS WITH A PRE-CONSTRUCTION REGULATORY SPEED LIMIT OF 45 MPH OR MORE. FOR 35 - 40 MPH, USE 350 FOOT TYPICAL SPACING. FOR 25 - 30 MPH, USE 200 FOOT TYPICAL SPACING.
  - ② USE 300 FOOT SPACING IF THE PRE - CONSTRUCTION REGULATORY SPEED IS 35 MPH OR LESS.
  - ③ DIMENSION DETERMINED BY CBTP TAPER FROM EDGE LINE TO TANGENT SECTION OF THE ROAD.
  - ④ TEMPORARY MARKING STOP LINE REMOVABLE TAPE 18 - INCH.
  - ⑤ 700 FOOT TEMPORARY MARKING LINE, DOUBLE YELLOW 4 - INCH . WHEN THE DISTANCE FOR THE PRECEDING NO - PASSING ZONE IS LESS THAN THE MINIMUM DISTANCE BETWEEN ZONES AS INDICATED IN THE SPECIFICATIONS, THE TWO ZONES SHALL BE CONNECTED.
  - ⑥ SEE SDD 15C02 - SHEET "F" FOR ADVANCED WIDTH RESTRICTION SIGNING.



WIDTH ON SIGN TO BE APPROX. 1-FOOT LESS THAN AVAILABLE WIDTH. (OMIT IF AVAILABLE WIDTH IS MORE THAN 16 FEET)

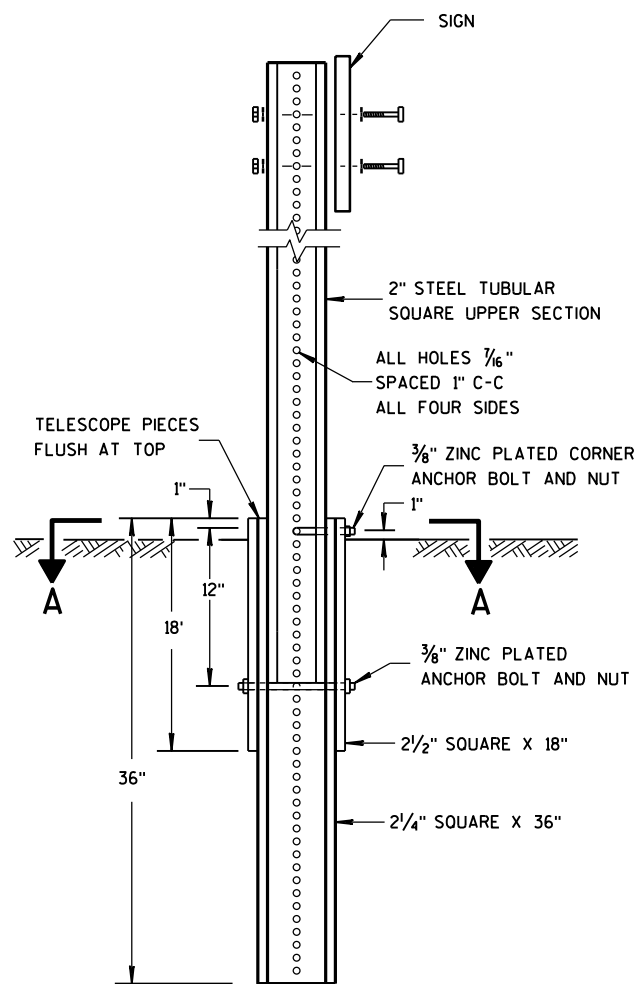
WIDTH ON SIGN TO BE APPROX. 1-FOOT LESS THAN AVAILABLE WIDTH. (OMIT IF AVAILABLE WIDTH IS MORE THAN 16 FEET)



**TRAFFIC CONTROL,  
ONE LANE ROAD  
WITH TEMPORARY SIGNALS**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
August 2019 /S/ Andrew Heidtke  
DATE WORK ZONE ENGINEER



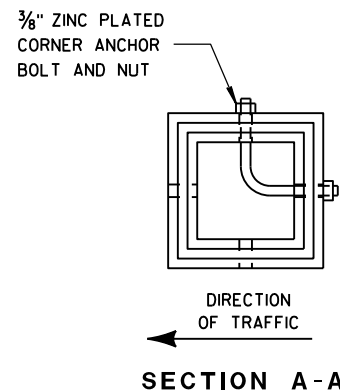
**DETAIL OF TUBULAR STEEL SIGN POST**

**TUBULAR STEEL POSTS**

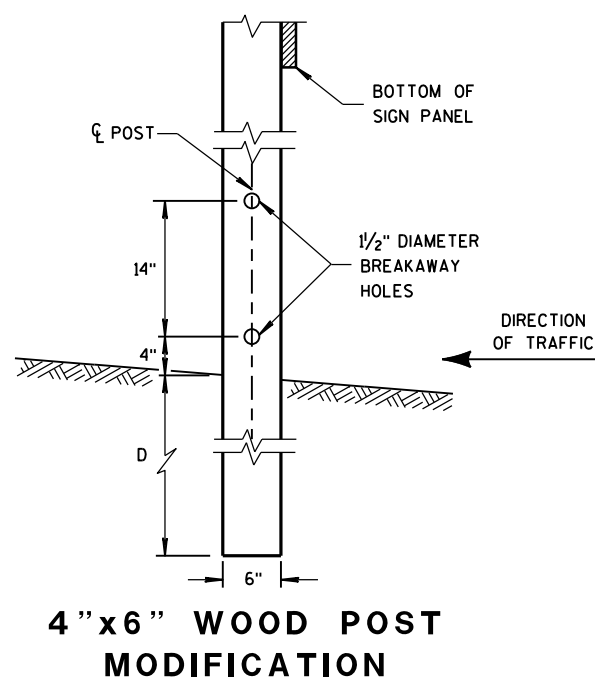
AREA OF SIGN INSTALLATION (SQ. FT.)	NUMBER OF REQUIRED TUBULAR STEEL POSTS
9 OR LESS	1
GREATER THAN 9 LESS THAN OR EQUAL TO 18	2
GREATER THAN 18 LESS THAN OR EQUAL TO 27	3

SIGNS WIDER THAN 3 FEET OR LARGER THAN 9 SQ. FT. SHALL BE MOUNTED ON MULTIPLE POSTS (SEE ABOVE TABLE).

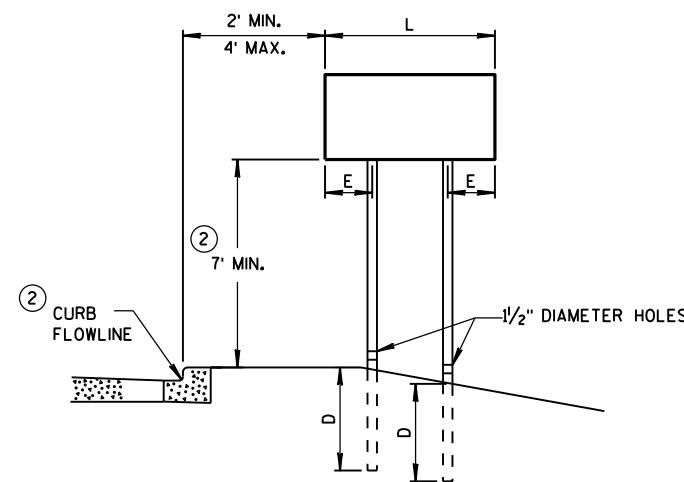
SIGNS LARGER THAN 27 SQ. FT. SHALL NOT BE MOUNTED ON TUBULAR STEEL POSTS.



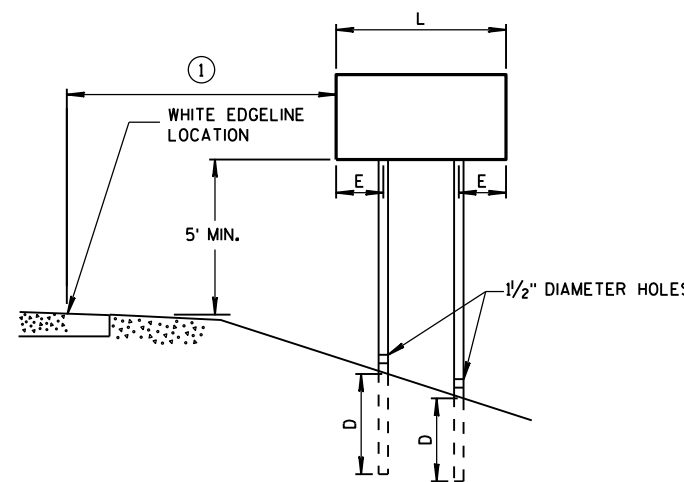
**SECTION A-A**



**4" X 6" WOOD POST MODIFICATION**



**URBAN AREA**



**RURAL AREA**

**POST MOUNTING DETAIL FOR TEMPORARY TRAFFIC CONTROL FIXED MESSAGE SIGNS**

**WOOD POST EMBEDMENT DEPTH**

AREA OF SIGN INSTALLATION (SQ. FT.)	D (MIN)
20 OR LESS	4'
GREATER THAN 20	5'

**4" X 6" WOOD POST**

POST SPACING REQUIREMENTS		NUMBER OF WOOD POSTS REQUIRED
L	E	
48" OR LESS AND LESS THAN 20 SQ. FT.	-	1
LESS THAN 60"	12"	2
60" TO 120"	L/5	2
GREATER THAN 120" LESS THAN 168"	12"	3
168" AND GREATER	12"	4

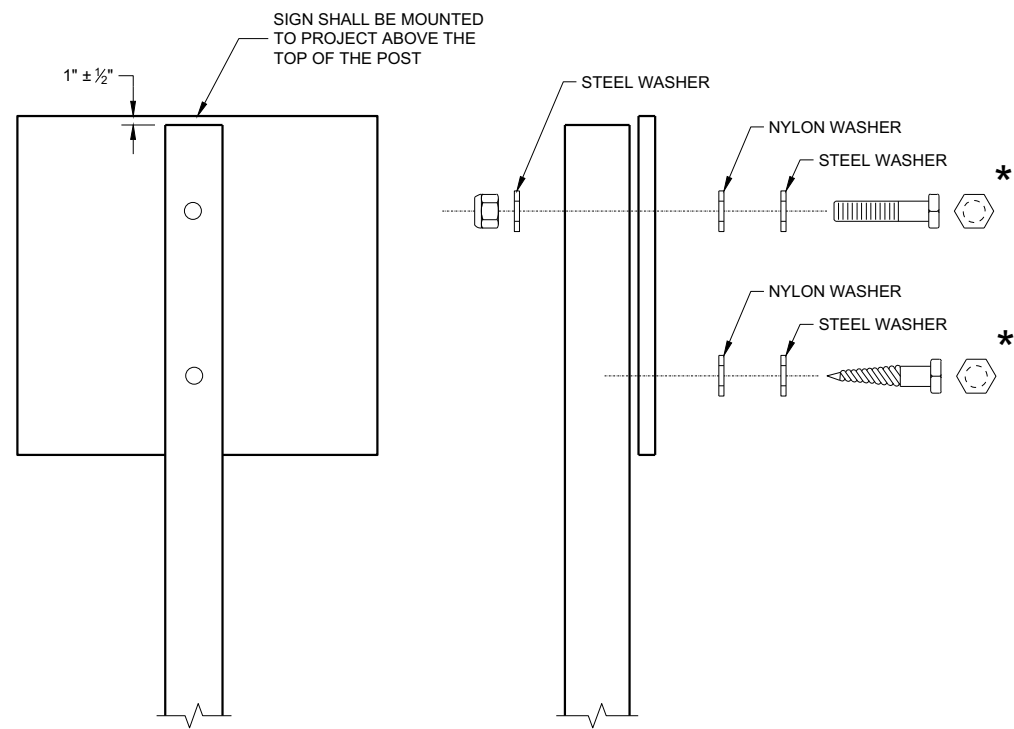
SEE NOTE ③

**GENERAL NOTES**

- ① 6 FEET FROM THE EDGE OF PAVEMENT (EDGE LINE LOCATION) UNLESS OTHERWISE DIRECTED BY THE PROJECT ENGINEER. LATERAL OFFSET SHOULD BE ADJUSTED TO AVOID THE DITCH FLOWLINE.
- ② 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. IF NO SIDEWALK AND NO PARKING, VERTICAL CLEARANCE MAY BE REDUCED TO 5 FOOT MINIMUM. OFFSET OF SIGNS IS MEASURED FROM THE CURB FLOWLINE.
- ③ FOR SIGNS REQUIRING 4 POSTS, SPACE INTERMEDIATE POSTS EVENLY.

**TEMPORARY TRAFFIC CONTROL SIGN MOUNTING**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



NUTS, BOLTS AND LAGS USED FOR MOUNTING SIGNS SHALL HAVE HEXAGONAL HEADS AND SHALL BE EITHER:

- A. HOT DIP GALVANIZED IN ACCORDANCE WITH ASTM DESIGNATION: A 153, CLASS D, OR SC 3
- B. ELECTRO-GALVANIZED IN ACCORDANCE WITH ASTM DESIGNATION: B 633, TYPE III, SC 3

THREADS ON BOLTS AND NUTS SHALL BE MANUFACTURED WITH SUFFICIENT ALLOWANCE FOR THE CADMIUM PLATE OR GALVANIZED COATING TO PERMIT THE NUTS TO RUN FREELY ON THE BOLTS.

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

SQUARE STEEL POST (2" x 2")  
 MACHINE BOLTS - 3/8" x 3 1/4" LENGTH W/NUTS  
 RIVETS - 3/32" (6605-9-6) BULB-TITE, TRI-FOLD, ALUMINUM  
 BODY/MANDREL O.D. FLANGE 0.720 - 0.765 INCH,  
 GRIP RANGE 0.042 - 0.375 INCH





WASHERS (ALL POSTS) -  
 1 1/4" O.D. x 3/8" I.D. x 1/16" STEEL  
 1 1/4" O.D. x 3/8" I.D. x 0.080 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. FOR A SINGLE POST INSTALLATION, ALL SIGNS GREATER THAN 9 SQ. FT. REQUIRE THE USE OF 3 FASTENERS.

<b>ATTACHMENT OF SIGNS TO POSTS</b>	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED June 2017 DATE	/S/ Andrew Heidtke WORK ZONE ENGINEER
FHWA	



**LEGEND**

-  TYPE III BARRICADE WITH ATTACHED SIGN
-  SIGN ON PERMANENT SUPPORT
-  TRAFFIC CONTROL DRUM
-  TRAFFIC CONTROL DRUM WITH TYPE "C" STEADY BURN LIGHT
-  TYPE "A" WARNING LIGHT (FLASHING)
-  DIRECTION OF TRAFFIC
-  WORK AREA
-  REMOVE PAVEMENT MARKING

**GENERAL NOTES**

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

THE SPACING BETWEEN SIGNS SHOULD BE ADJUSTED TO NOT CONFLICT WITH AND TO PROVIDE A MINIMUM OF 200 FEET, (500 FEET DESIRABLE) DISTANCE TO EXISTING SIGNS.

THIS LANE CLOSURE IS TYPICAL FOR LANE SHIFT LEFT - REVERSE FOR SHIFTING RIGHT.

ALL SIGNS ARE 48"x48" UNLESS OTHERWISE NOTED.

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

ANY SIGNS TEMPORARY OR EXISTING, WHICH CONFLICT WITH TRAFFIC CONTROL "IN USE" SHALL BE REMOVED OR COVERED AS NEEDED AND AS APPROVED BY THE ENGINEER. NO WARNING LIGHTS SHALL BE WORKING ON ANY "COVERED" OR "DOWNED" SIGNS.

CONSIDER GEOMETRICS WHEN LOCATING SIGNS AND ARROW BOARDS SO THE DRIVER HAS A CLEAR VIEW OF THE ARROW BOARD AND LANE CLOSURE DRUMS FOR A MINIMUM 1500 FEET IN FRONT OF DRUMS.

FOR A LANE CLOSURE THAT IS IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS, THE ADVANCED WARNING SIGNS MAY BE MOUNTED ON PORTABLE SUPPORTS.

REMOVE PAVEMENT MARKINGS IF LANE CLOSURE IS TO BE IN PLACE FOR LONGER THAN 4 OR MORE DAYS AND NIGHTS.

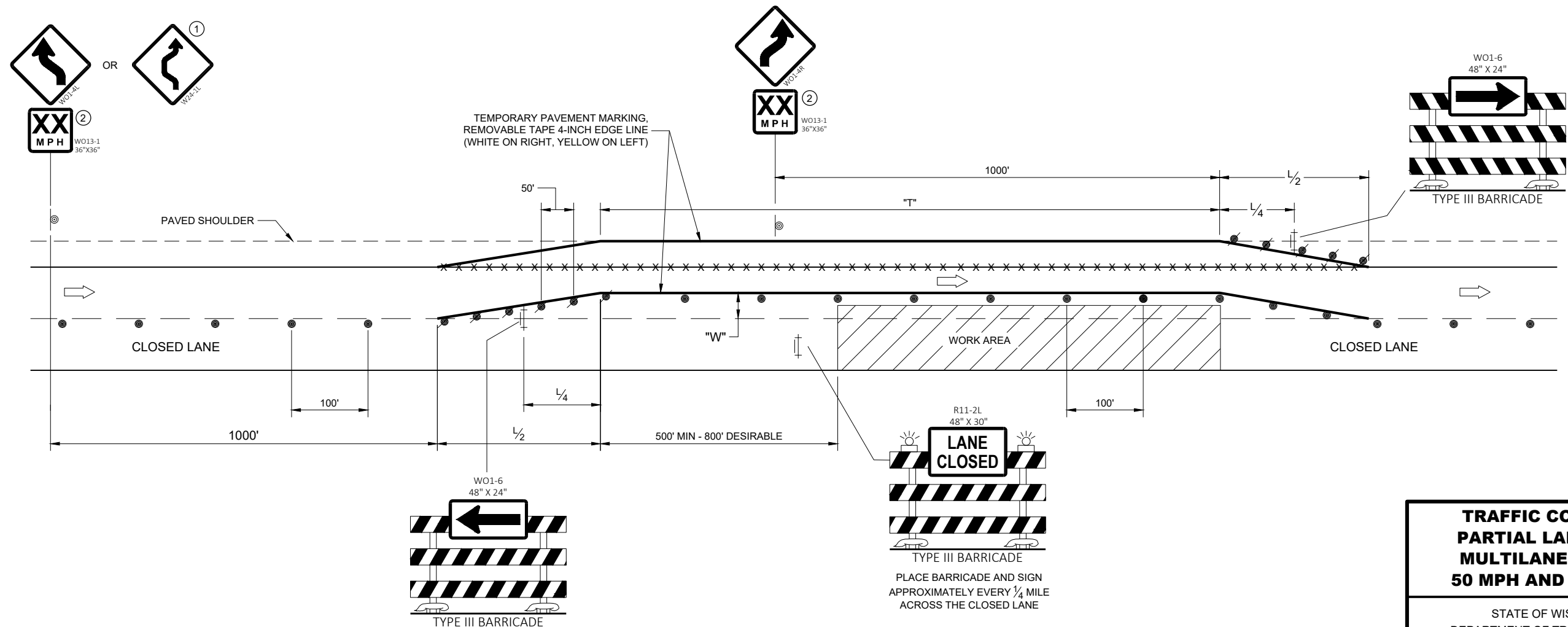
WARNING LIGHTS ARE NOT REQUIRED IF THE LANE CLOSURE IS A DAYTIME ONLY OPERATION.

IF THE HORIZONTAL ALIGNMENT IS SUCH THAT A CURVE MAY REQUIRE ADDITIONAL DELINEATION, THE DEVICE SPACING MAY BE DECREASED TO 50 FEET.

ADJUSTMENTS IN BUFFER SPACE NEED TO BE INCORPORATED WHEN THE LANE SHIFT OCCURS NEAR AN INTERCHANGE EXIT OR ENTRANCE RAMP. THE LANE SHIFT MUST TAKE PLACE FAR ENOUGH IN ADVANCE OF AN EXIT OR ENTRANCE RAMP TO STILL ALLOW FOR ADEQUATE BUFFER SPACE. THE MINIMUM LENGTH OF THE BUFFER SPACE BEFORE AN EXIT RAMP SHOULD BE 1/2 THE LENGTH OF THE TRANSITION AREA. THE ENTRANCE RAMP SHOULD BE FOLLOWED BY THE ORIGINAL BUFFER SPACE LENGTH OF 800 FEET DESIRABLE PRIOR TO ANOTHER TRAFFIC CONTROL CHANGE SUCH AS A CROSSOVER MANEUVER.

- ① USE ONLY WHEN T<600', OMIT WO1-4R.
- ② IF NEEDED, USE ONLY IF DESIGN SPEED IS 10 MPH BELOW POSTED SPEED.

POSTED SPEED LIMIT PRIOR TO WORK STARTING (MPH)	SHIFTING TAPER $\frac{1}{2}$ W, LATERAL OFFSET (FT)								
	1	2	3	4	5	6	7	8	9
50	25	50	75	100	125	150	175	200	225
55	28	55	83	110	138	165	193	220	248
60	30	60	90	120	150	180	210	240	270
65	33	65	98	130	163	195	228	260	293
70	35	70	105	140	175	210	245	280	315



**TRAFFIC CONTROL,  
PARTIAL LANE SHIFT  
MULTILANE DIVIDED  
50 MPH AND GREATER**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

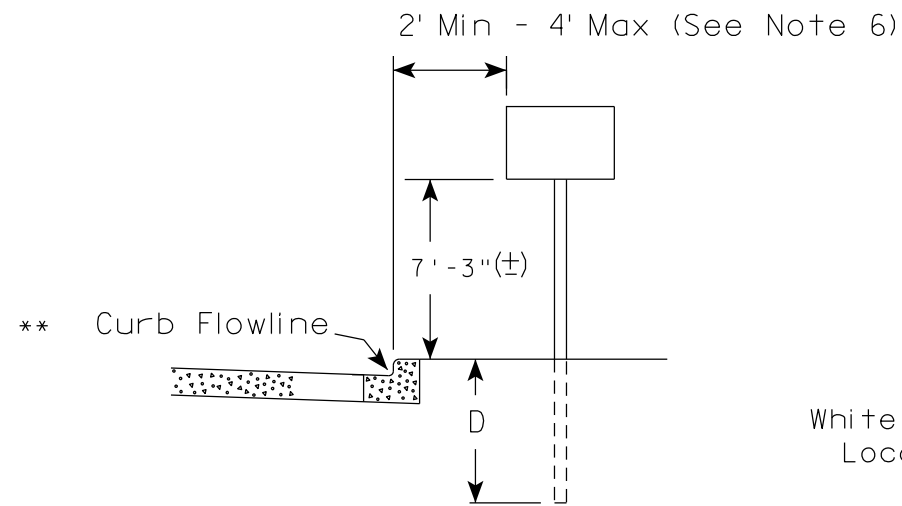
APPROVED  
February 2021 /S/ Andrew Heidtke  
DATE ROADWAY STANDARDS DEVELOPMENT  
ENGINEER

FHWA

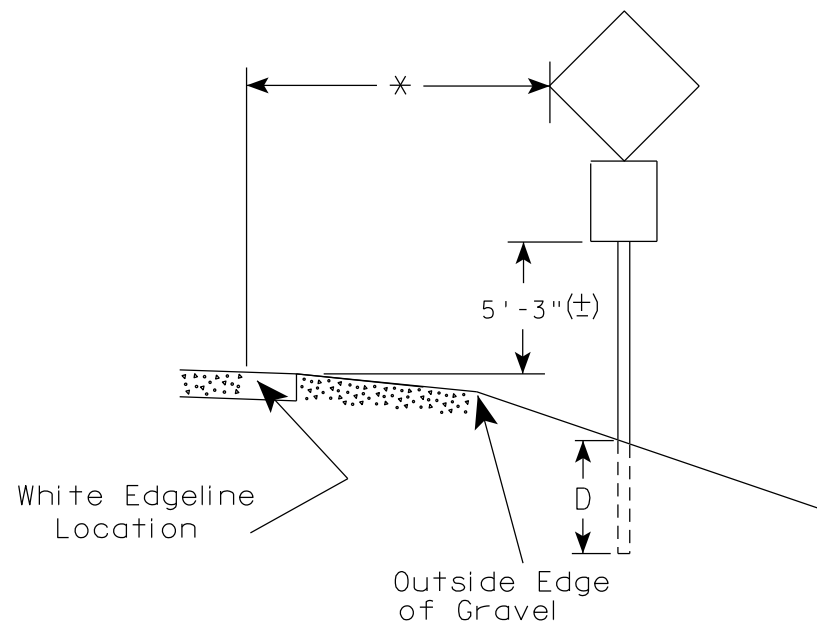
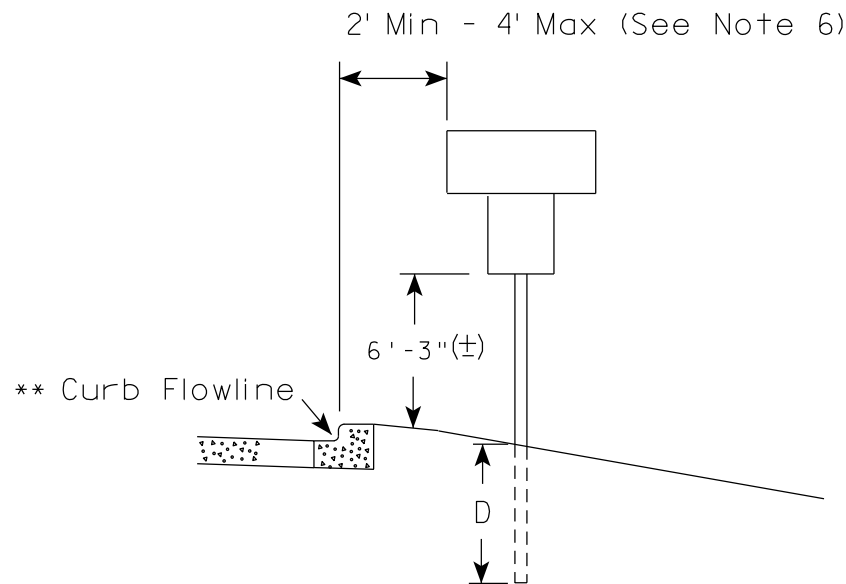
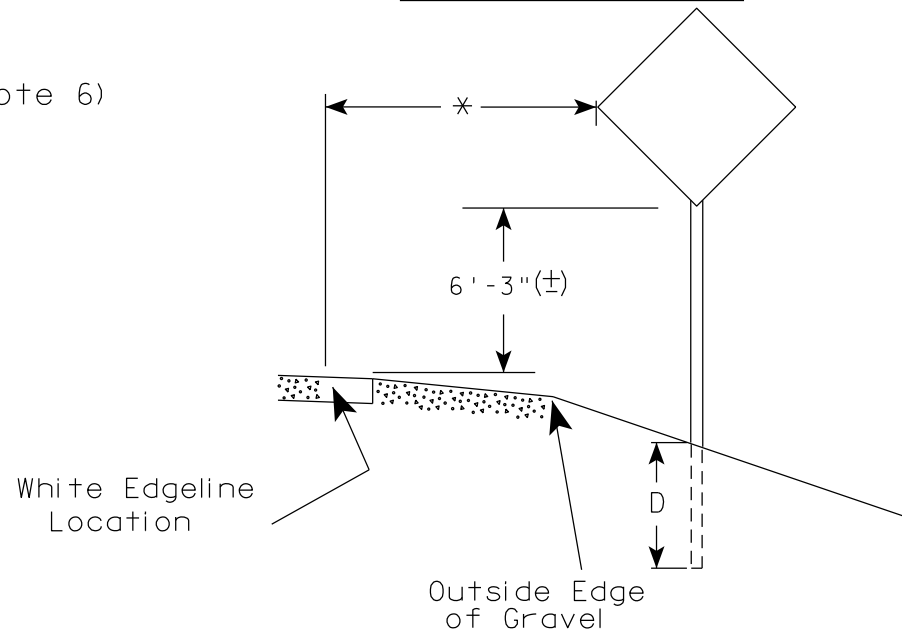
SDD 15D40 - 02d

SDD 15D40 - 02d

URBAN AREA



RURAL AREA (See Note 2)



POST EMBEDMENT DEPTH

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

- GENERAL NOTES**
1. Signs wider than 4 feet or 20 sq.ft or larger, shall be mounted on multiple posts. Refer to plate A4-4.
  2. If signs are mounted on or behind barrier wall, see A4-10 sign plate.  
The Double Arrow sign (W12-1D) shall be mounted at a height of 2'-3" (±). 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.

\* \* 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.

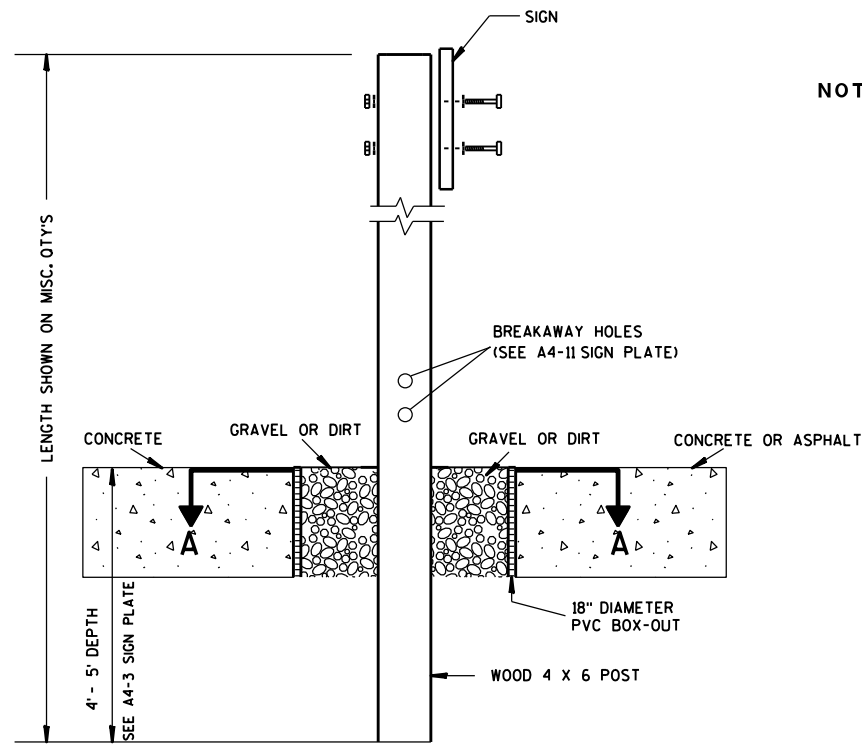
\* 6 feet from edge of a paved shoulder or 12 feet from the edge of pavement (edge line location) or 2 feet from outside edge of gravel, whichever is greater unless directed by project engineer.

TYPICAL INSTALLATION OF PERMANENT TYPE II SIGNS ON SINGLE POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*  
for State Traffic Engineer

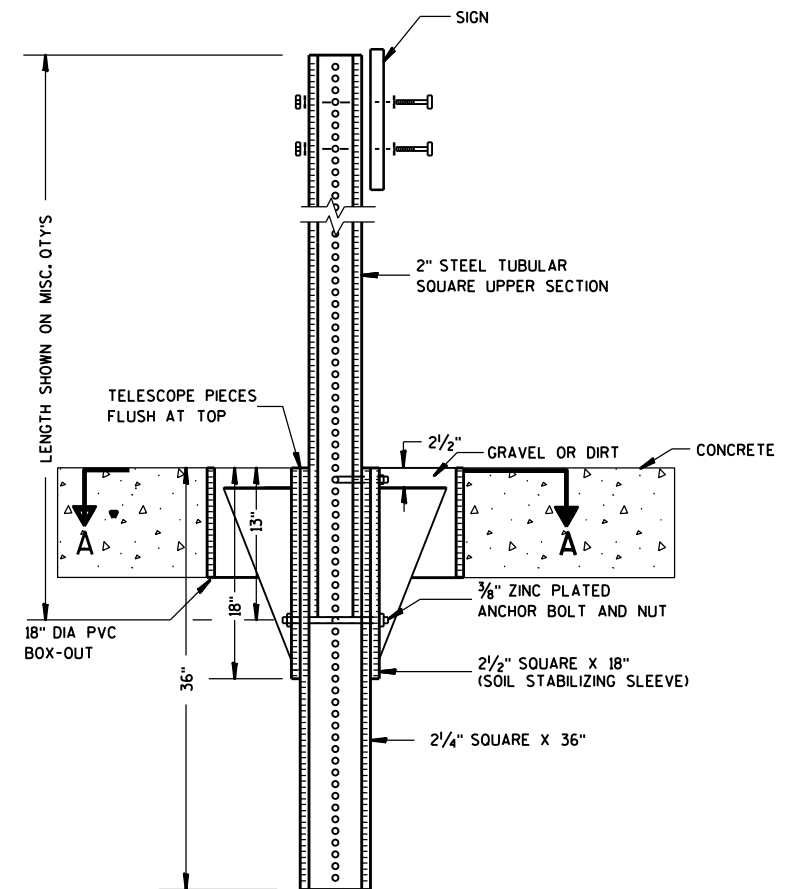
DATE 5/13/2020 PLATE NO. A4-3.22



**ELEVATION VIEW**

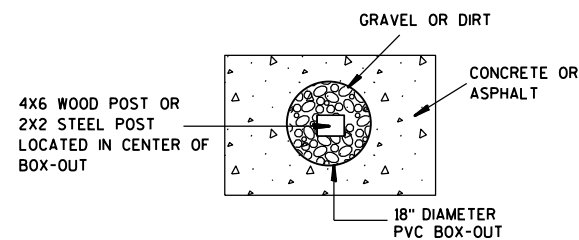
**DETAIL OF WOOD 4 X 6 SIGN POST IN BOX-OUT**

- 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**

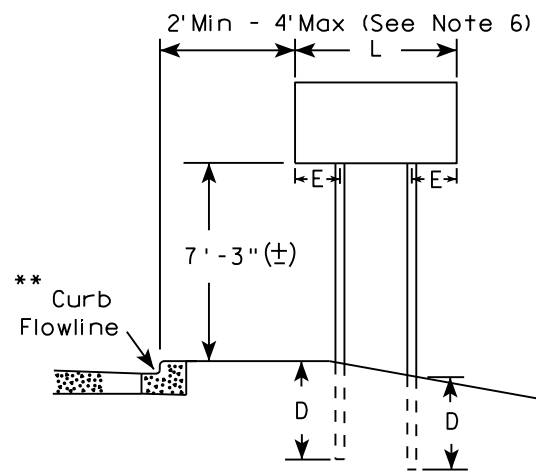
**FOR NEW CONCRETE/ ASPHALT INSTALLATIONS**

<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>

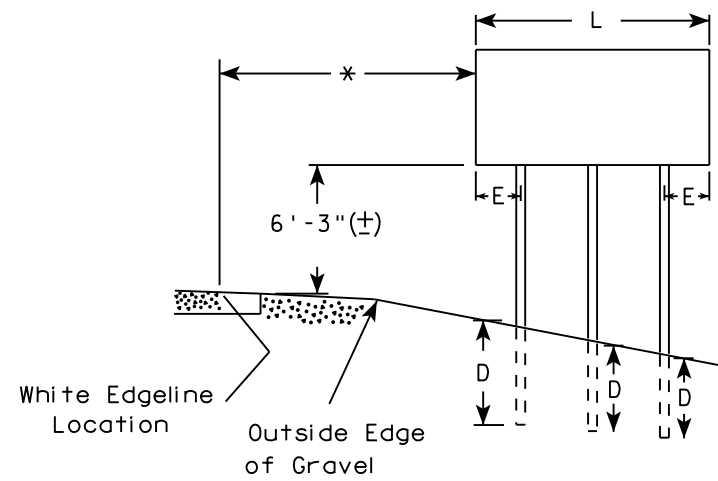
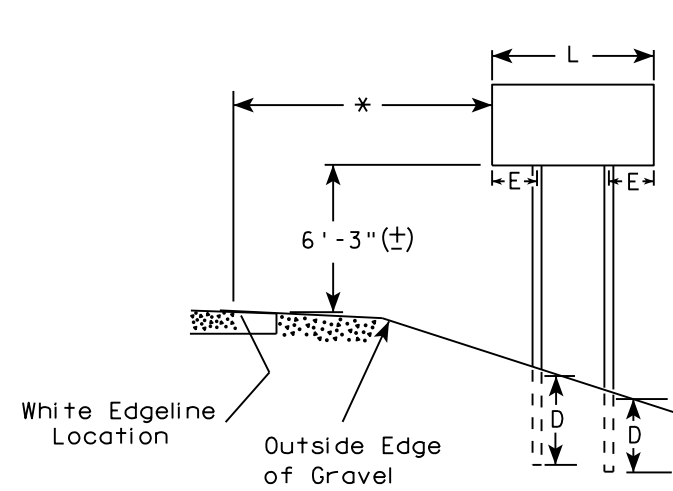
GENERAL NOTES

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" (±).

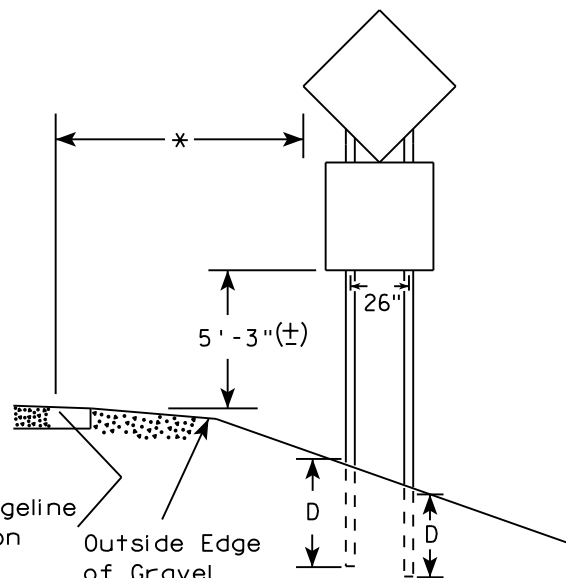
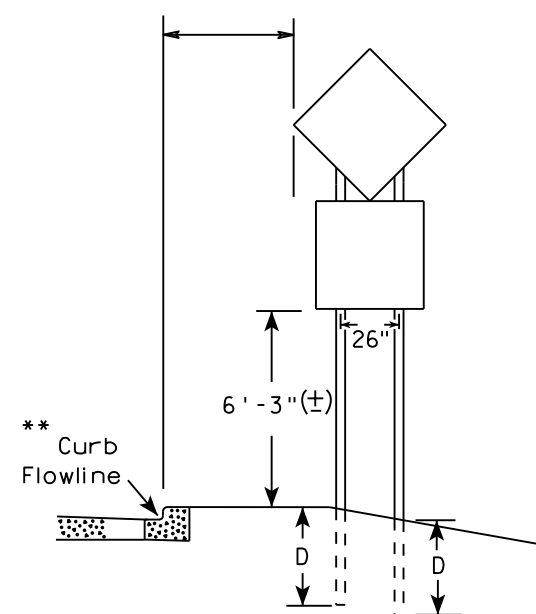
URBAN AREA



RURAL AREA (See Note 3)



URBAN AREA



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

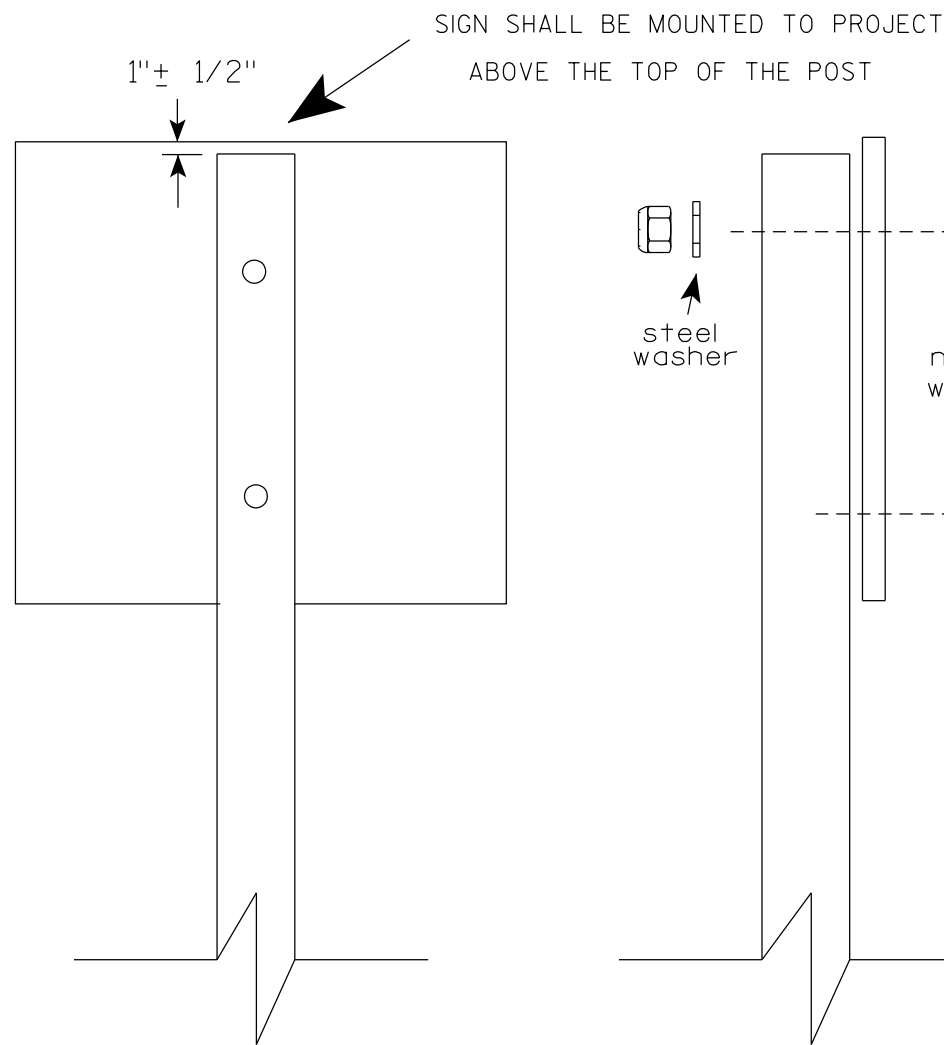
Area of Sign Installation ( Sq. Ft. )	D ( Min )
20 or Less	4'
Greater than 20	5'

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 :

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

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

STRINGER BOLTING TO ALUMINUM SIGNS (SEE SIGN PLATE A4-18)

MACHINE BOLTS - 5/16" X 1-3/4" Length w/ lock nuts

WOOD POSTS (4" x 6")

LAG SCREWS - 3/8" X 3" (NO STRINGERS ON BACK OF SIGN)  
3/8" X 4" (STRINGERS ON BACK OF SIGN)

SQUARE STEEL POSTS (2" x 2")

MACHINE BOLTS - 3/8" X 3-1/4" Length w/ nuts (NO STRINGER ON BACK OF SIGN)  
3/8" X 5" Length w/ nuts (STRINGERS ON BACK OF SIGN)

RIVETS - 9/32" (6605-9-6) BULB-TITE, TRI-FOLD, ALUMINUM BODY/MANDREL  
O.D. FLANGE .720-.765 INCH, GRIP RANGE .042-.375 INCH

WASHERS (ALL POSTS) -

1-1/4" O.D. X 3/8" I.D. X 1/16" STEEL

1-1/4" O.D. X 3/8" I.D. X .080 NYLON

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

ATTACHMENT OF SIGNS  
TO POSTS

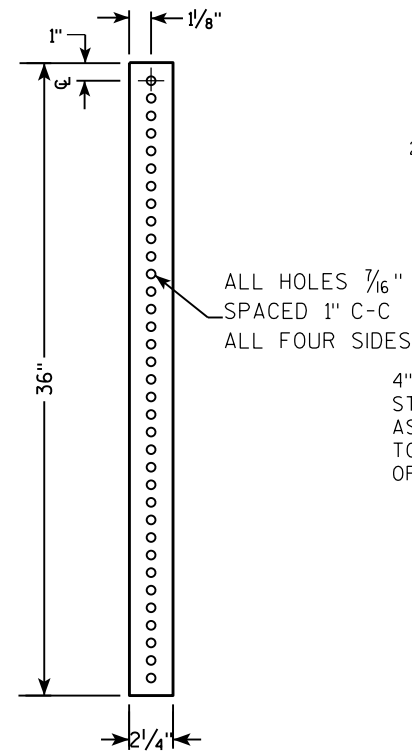
WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R Rauch*  
For State Traffic Engineer

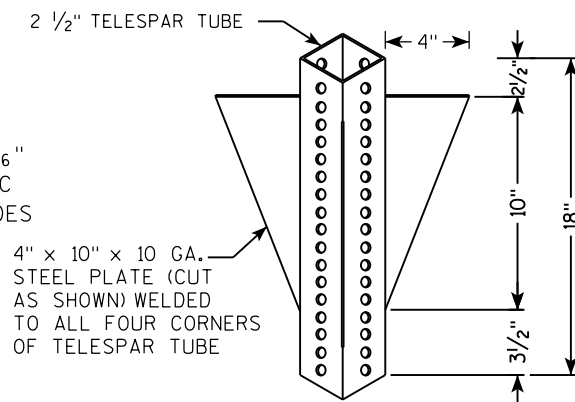
DATE 4/1/2020 PLATE NO. A4-8.9

**TELESCOPIC TUBING ANCHORS  
TWO PIECE SYSTEM**

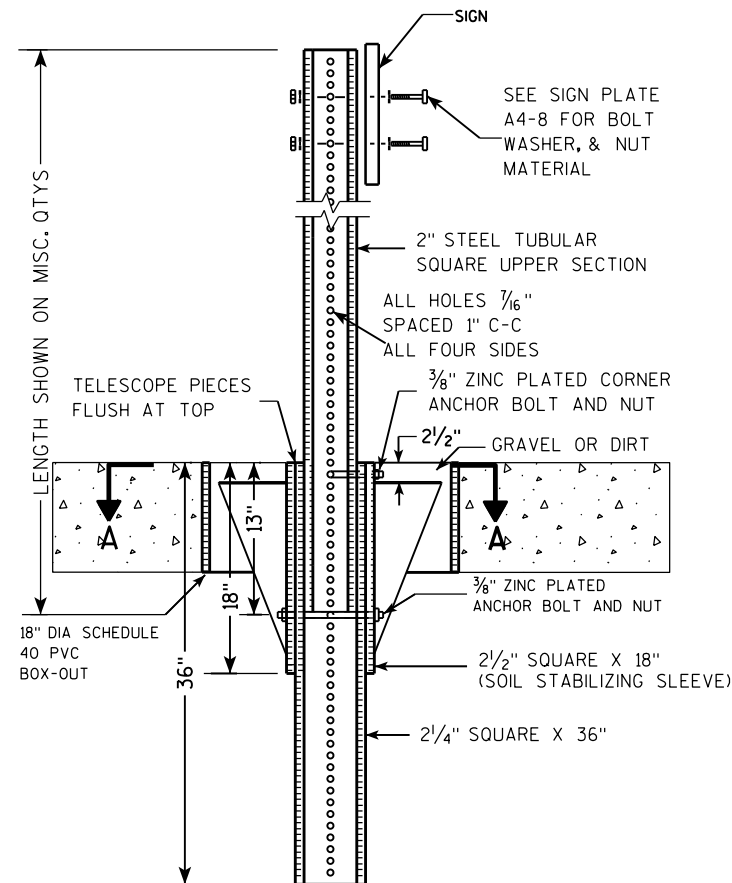
2 1/4" SQUARE  
12 GAUGE  
PERFORATED  
GALVANIZED FINISH



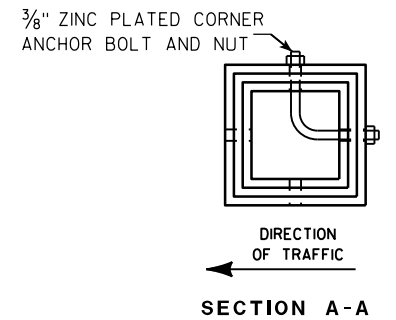
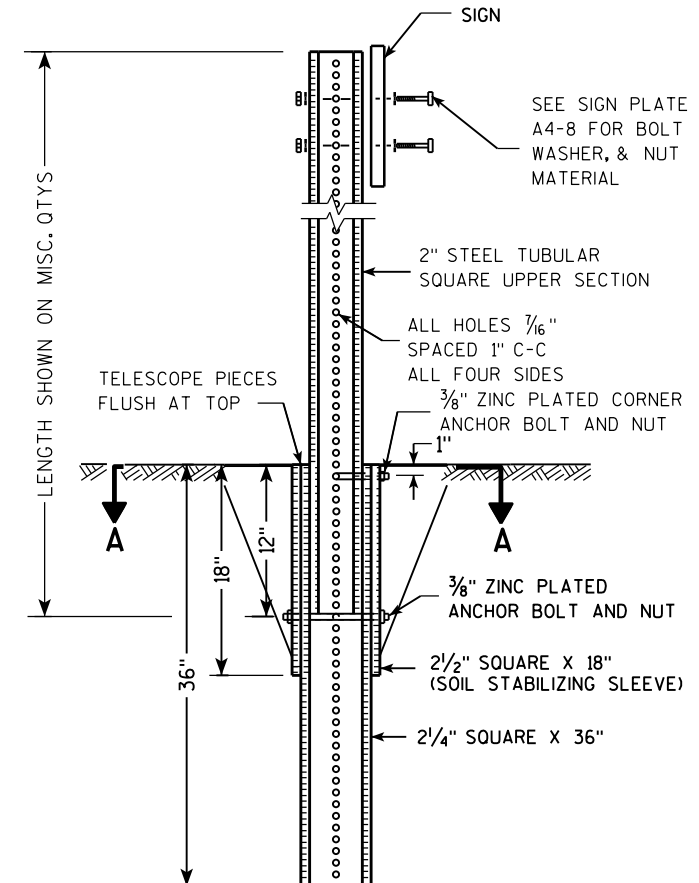
2 1/2" SQUARE  
12 GAUGE  
OMNI-DIRECTIONAL  
PERFORATED  
SOIL STABILIZING SLEEVE  
GALVANIZED FINISH



**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

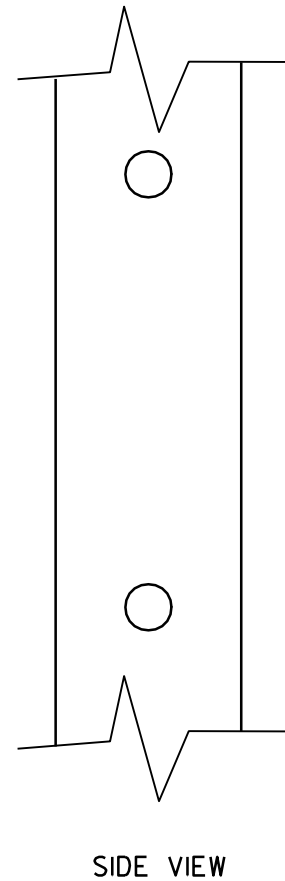
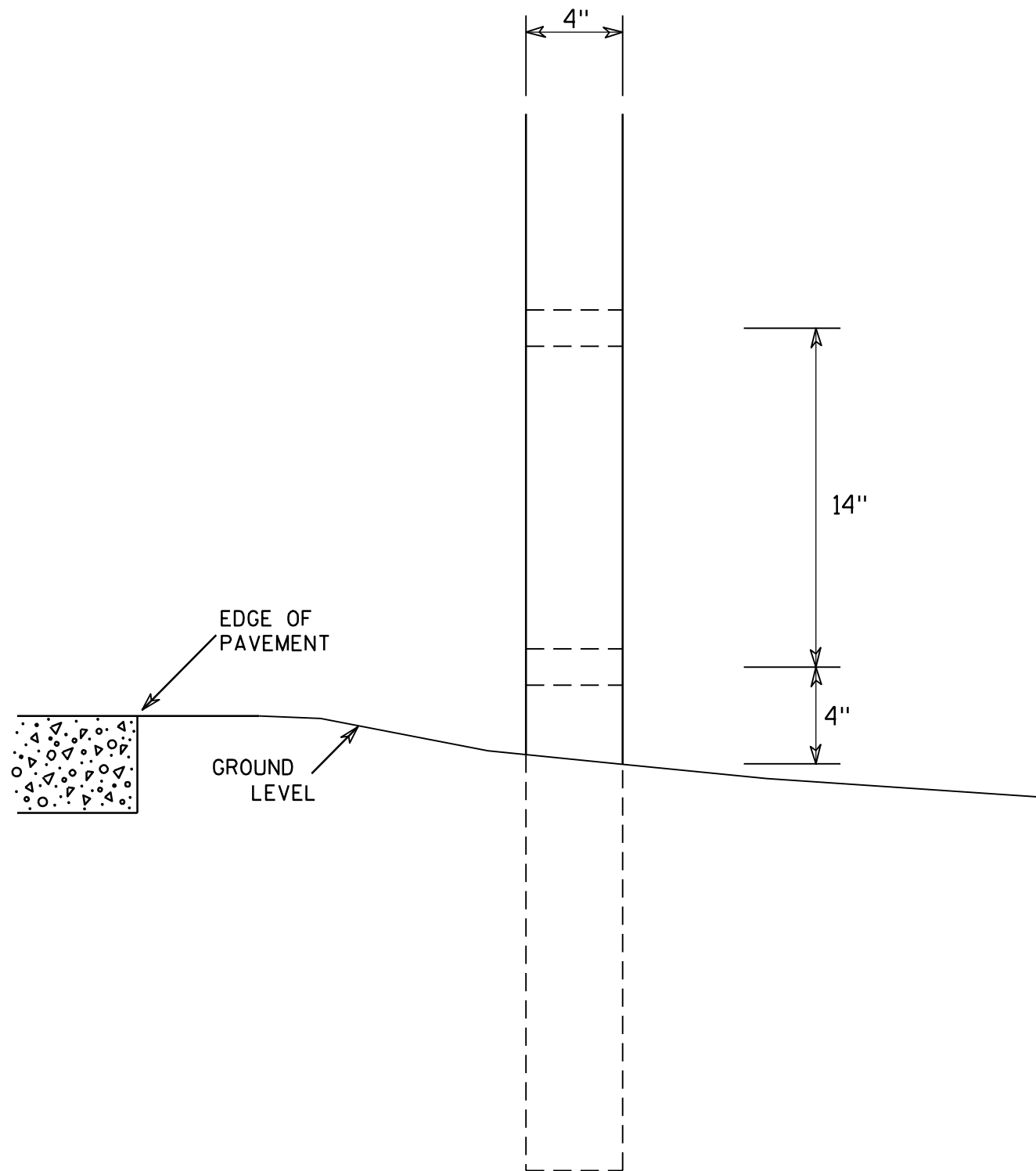
Signs wider than 3 feet or larger than 9 sq. ft shall be mounted on multiple posts (see above table).

**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.

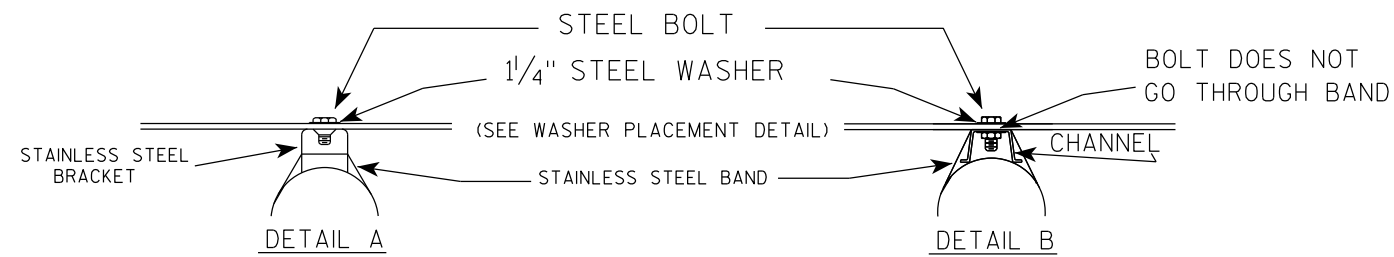
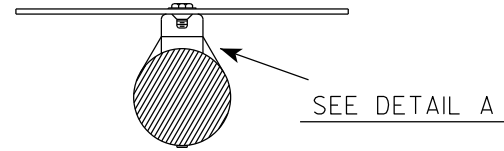
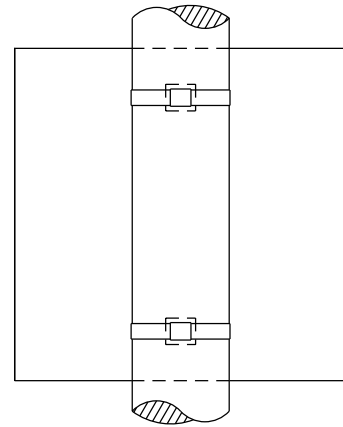
7

7

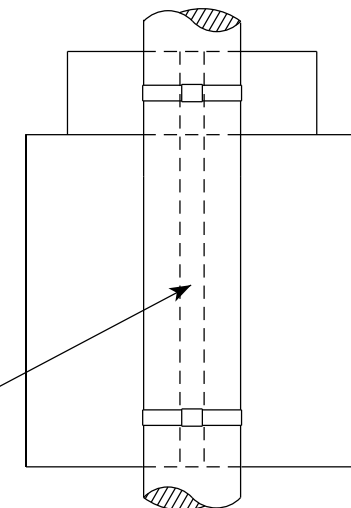
<b>4 X 6 WOOD POST MODIFICATIONS</b>	
<i>WISCONSIN DEPT OF TRANSPORTATION</i>	
APPROVED	<i>Chester J Spang</i> for State Traffic Engineer
DATE <u>3/27/97</u>	PLATE NO. <u>A4-11.2</u>

# BANDING

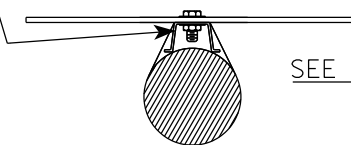
SINGLE SIGN



"J" ASSEMBLY

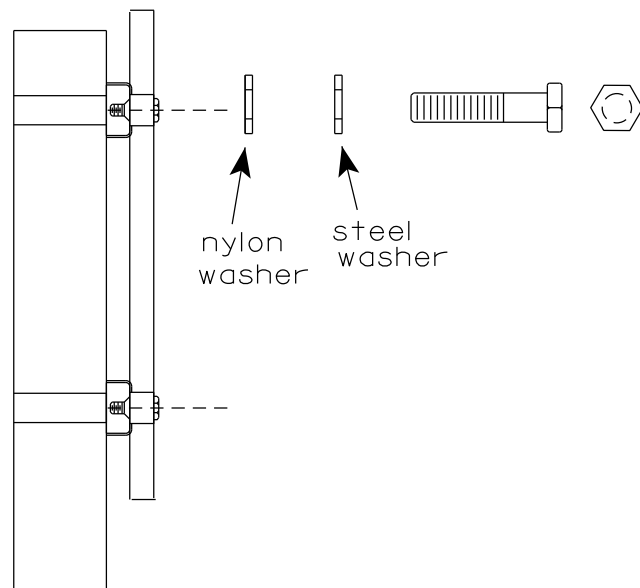


CHANNEL  
SEE TYPICAL PANEL  
INSTALLATION SHEET



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

WASHER PLACEMENT



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

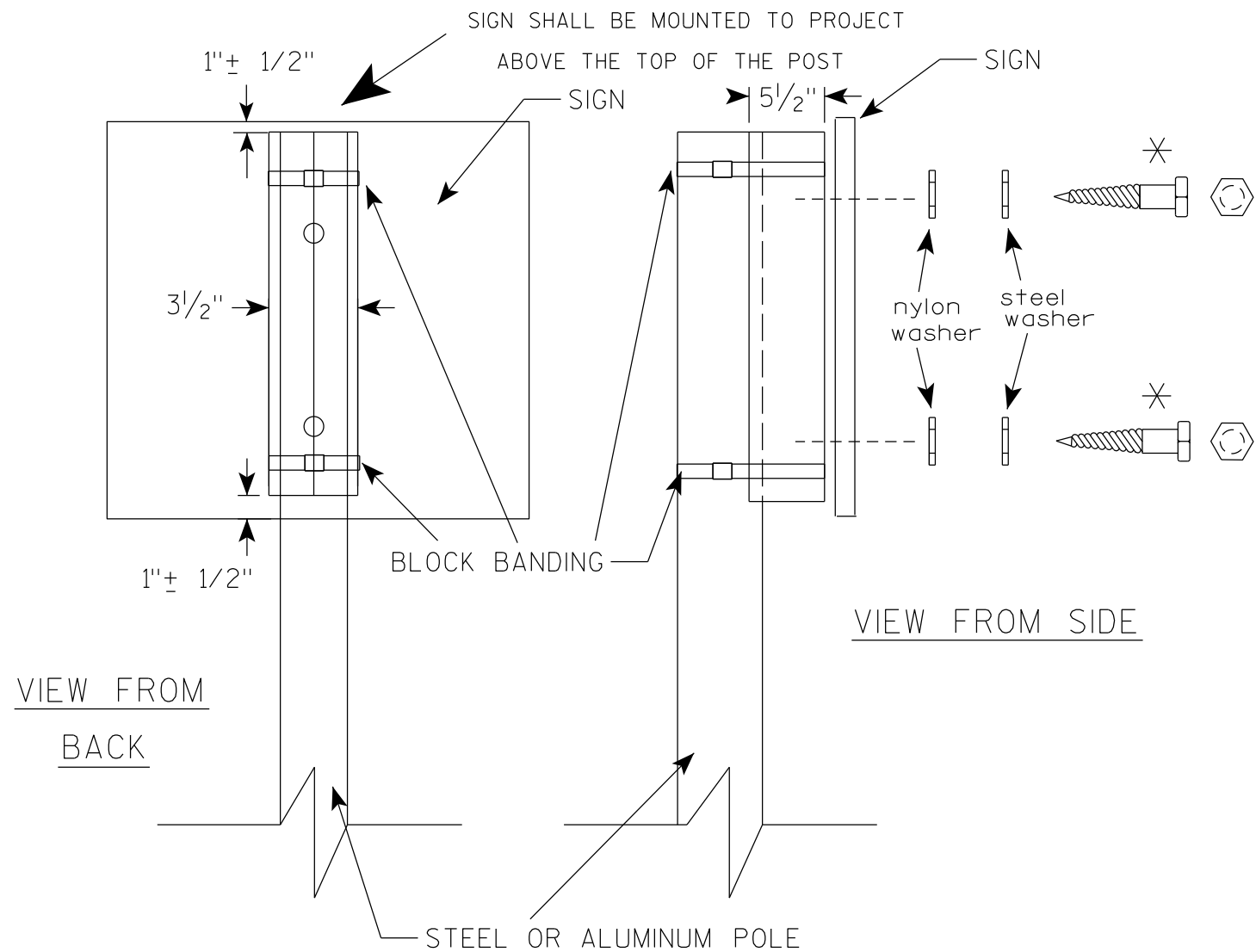
STANDARD SIGN  
SIGN BANDING DETAILS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*  
for State Traffic Engineer

DATE 6/10/19 PLATE NO. A5-9.4

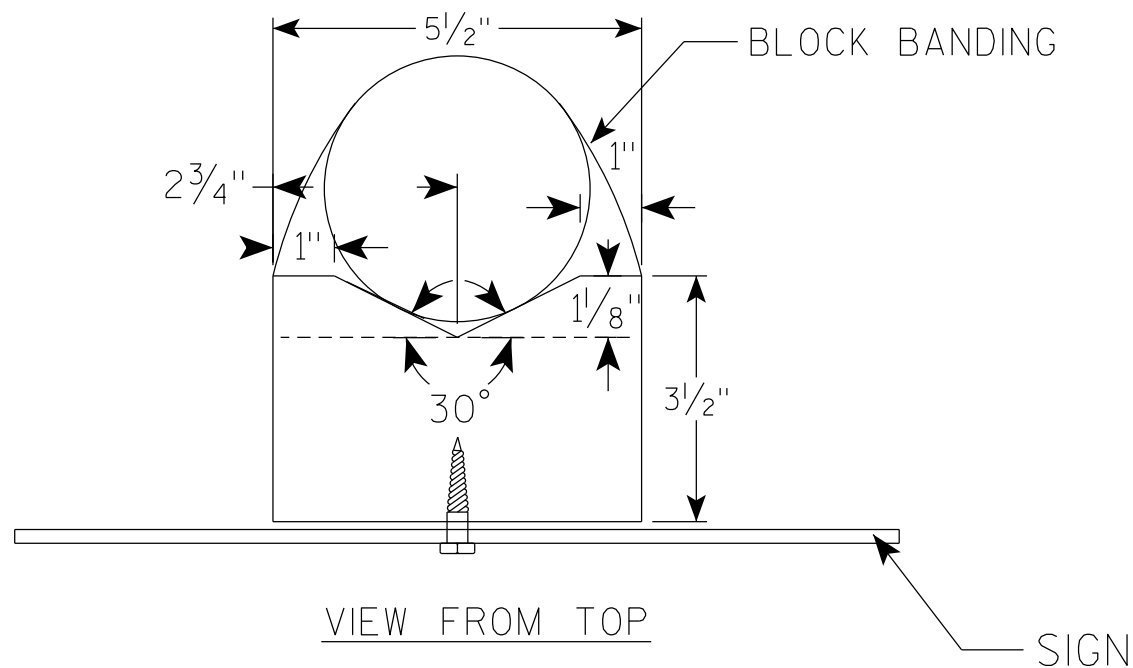




GENERAL NOTES

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

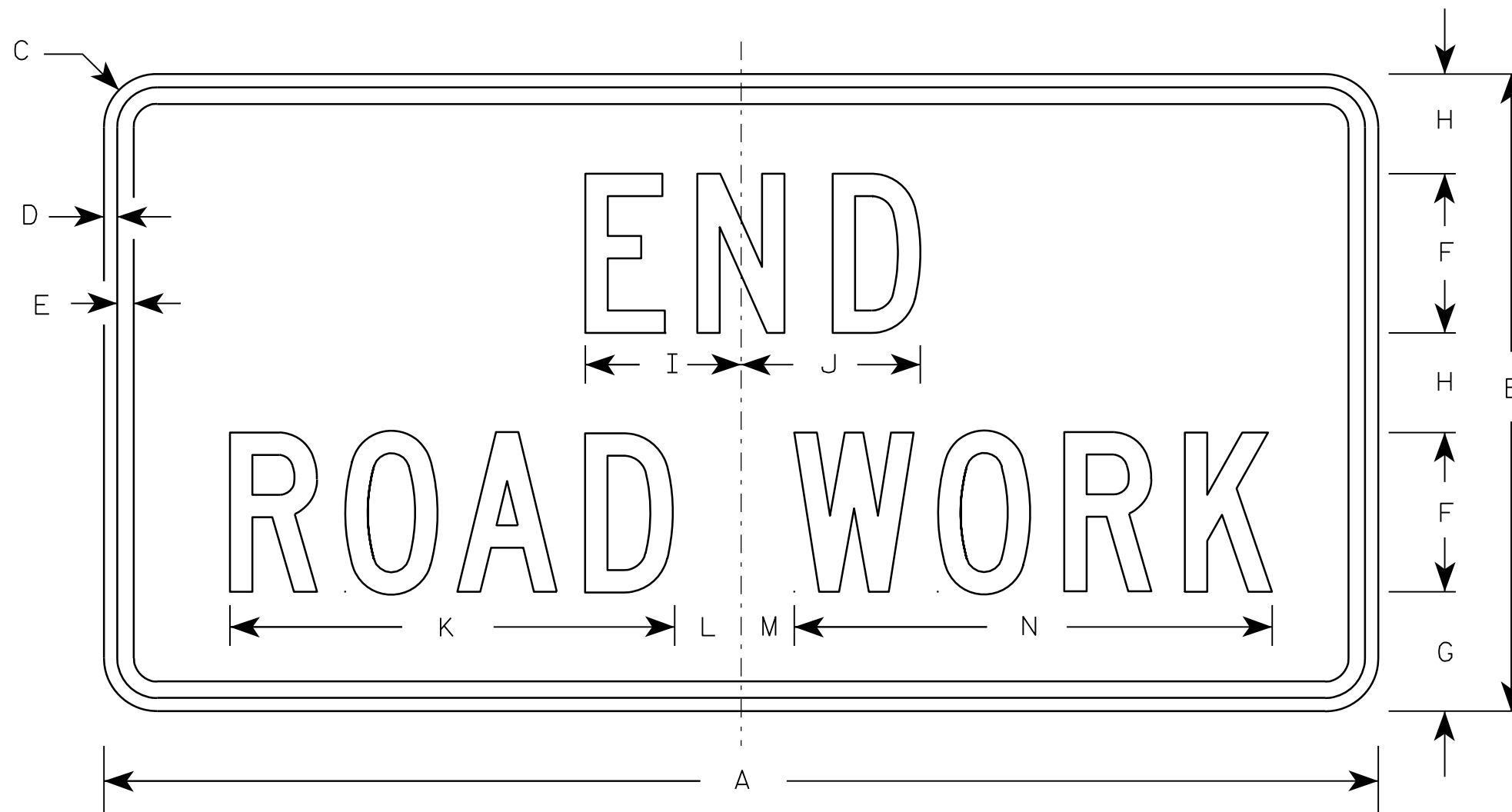
✱ LAG BOLTS SHALL BE 3/8" X 2 1/2"



BLOCK BANDING DETAIL ( V-BLOCK OPTION )	
WISCONSIN DEPT OF TRANSPORTATION	
APPROVED	<i>Matthew R Rauch</i> For State Traffic Engineer
DATE 6/10/19	PLATE NO. A5-10.2

NOTES

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



G20-2A

7

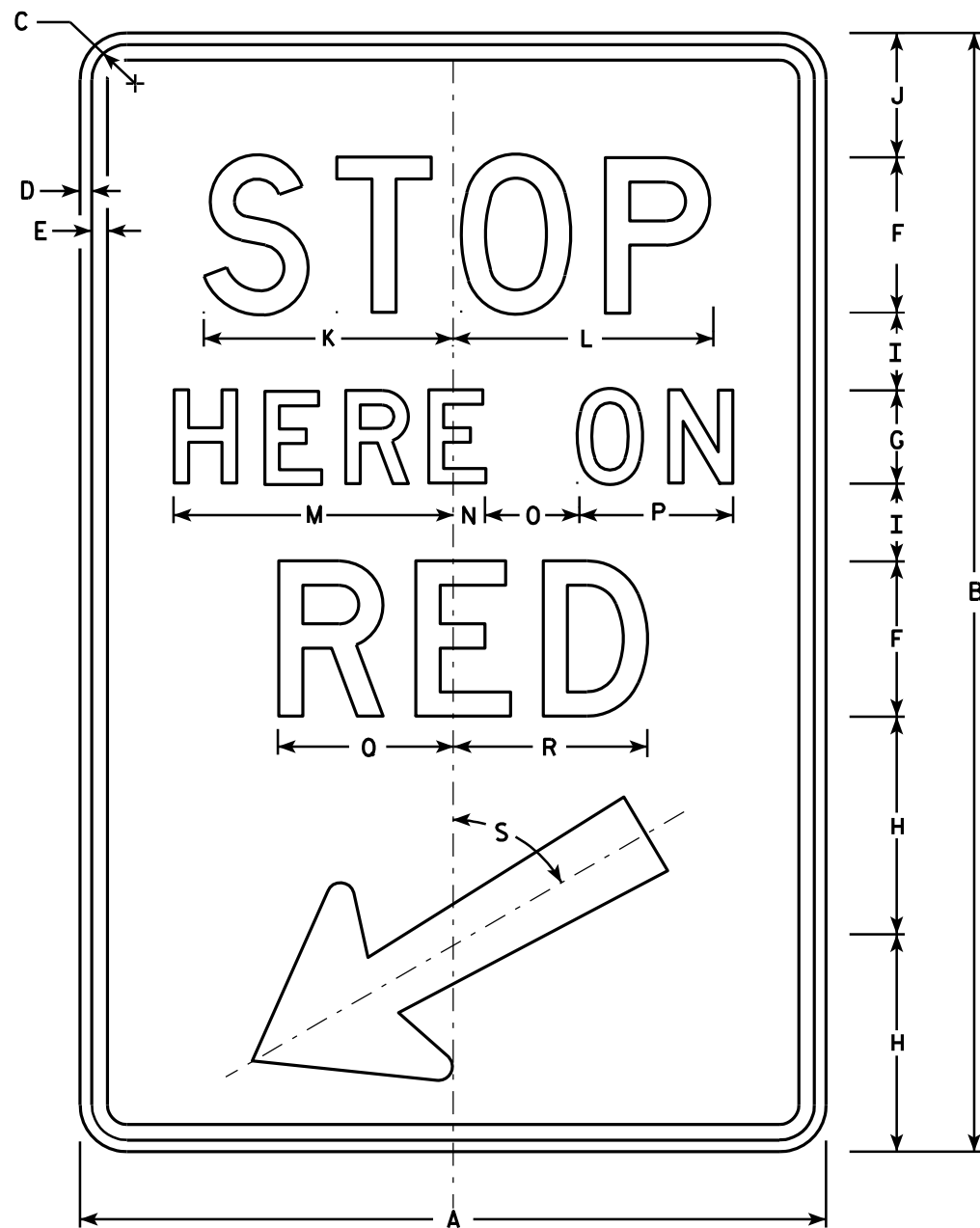
7

Metric equivalent for this sign is:

SIZE	
1	900 mm X 450 mm
2	1200 mm X 600 mm
3	1200 mm X 600 mm
4	1200 mm X 600 mm
5	1200 mm X 600 mm

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.	Area sq. m.
1	36	18	1 1/8	3/8	1/2	4	3 3/4	2 1/2	4 1/8	4 1/8	11 1/8	2	1	12 1/8													4.5	0.41
2	48	24	1 1/2	1/2	5/8	6	4 1/2	3 3/4	5 7/8	6 3/4	16 3/4	2 1/2	1 3/4	18 1/2													8.0	0.72
3	48	24	1 1/2	1/2	5/8	6	4 1/2	3 3/4	5 7/8	6 3/4	16 3/4	2 1/2	1 3/4	18 1/2													8.0	0.72
4	48	24	1 1/2	1/2	5/8	6	4 1/2	3 3/4	5 7/8	6 3/4	16 3/4	2 1/2	1 3/4	18 1/2													8.0	0.72
5	48	24	1 1/2	1/2	5/8	6	4 1/2	3 3/4	5 7/8	6 3/4	16 3/4	2 1/2	1 3/4	18 1/2													8.0	0.72

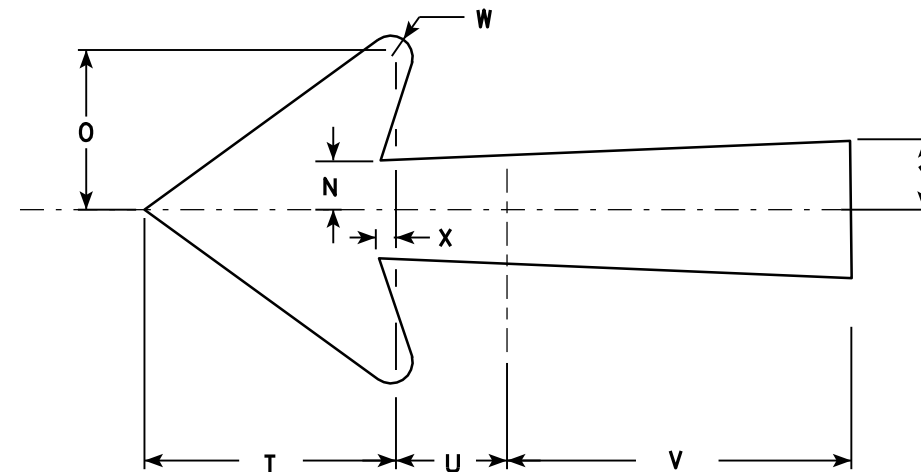
STANDARD SIGN G20-2A	
WISCONSIN DEPT OF TRANSPORTATION	
APPROVED	<i>Matthew R. Rauch</i> For State Traffic Engineer
DATE 9/30/09	PLATE NO. G20-2A.8



R10-6

NOTES

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



Arrow Detail

7

7

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	24	36	1 1/8	3/8	1/2	5	3	7	2 1/2	4	8	8 3/8	9	1	3	5	5 5/8	6 1/4	60°	5 1/4	2 1/4	7 1/8	1/2	3/8	1 3/8	6.0	
2M	24	36	1 1/8	3/8	1/2	5	3	7	2 1/2	4	8	8 3/8	9	1	3	5	5 5/8	6 1/4	60°	5 1/4	2 1/4	7 1/8	1/2	3/8	1 3/8	6.0	
3																											
4																											
5																											

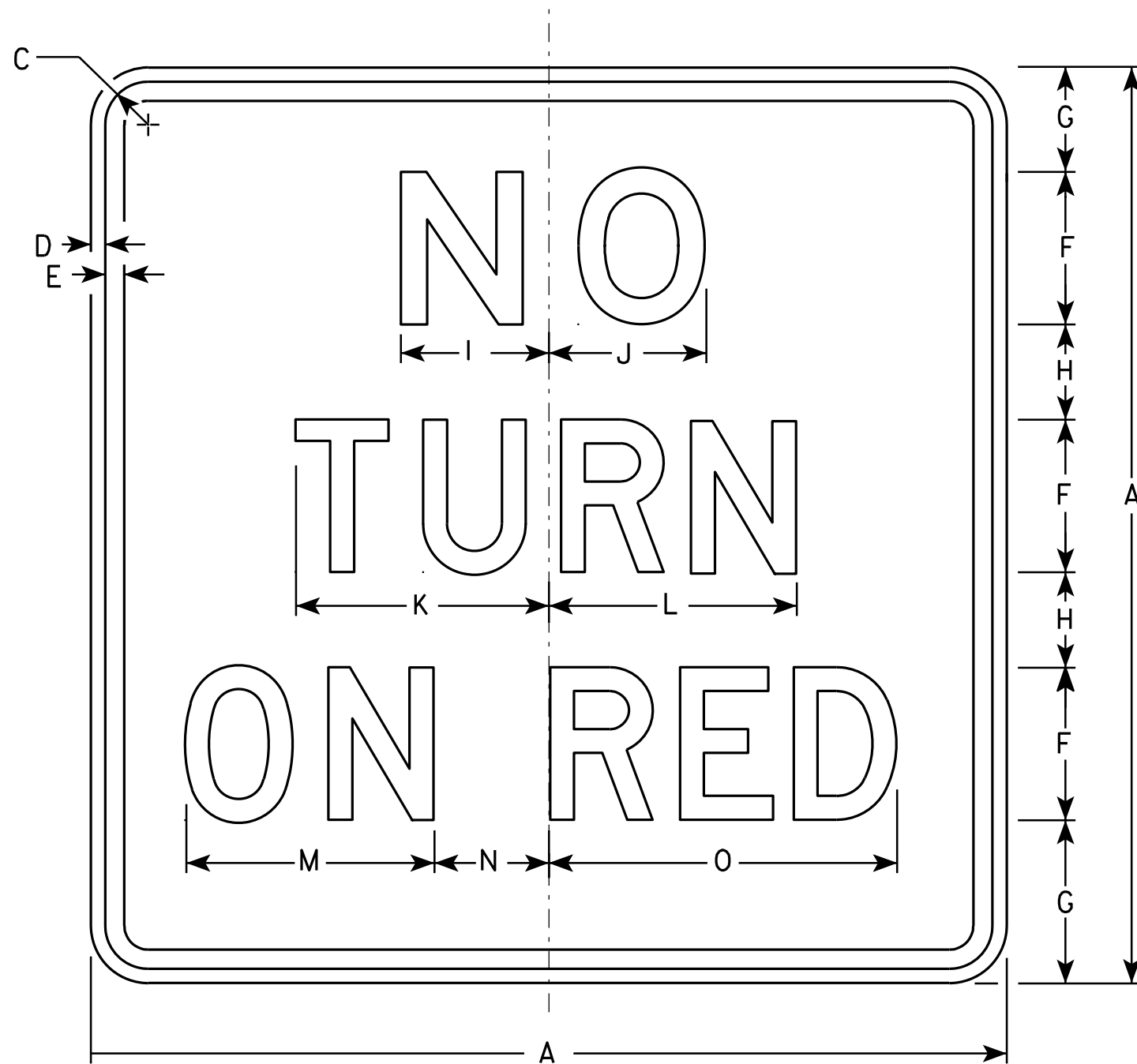
**STANDARD SIGN**  
R10-6

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*  
for State Traffic Engineer

DATE 4/5/11 PLATE NO. R10-6.6

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



**NOTES**

1. Sign is Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:  
Background - White  
Message - Black
3. Message Series - See Note 5.
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. Line 1 is Series E.  
Lines 2 and 3 are Series D.

R10-11B

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	18		1 1/8	3/8	3/8	3	2 3/4	1 3/4	3	3 1/8	5	4 7/8	5 1/4	1 7/8	7 1/8												2.25
2S	24		1 1/8	3/8	1/2	4	3 1/2	2 1/2	3 7/8	4 1/8	6 5/8	6 1/2	6 1/2	3	9 1/8												4.0
2M	24		1 1/8	3/8	1/2	4	3 1/2	2 1/2	3 7/8	4 1/8	6 5/8	6 1/2	6 1/2	3	9 1/8												4.0
3	30		1 3/8	1/2	5/8	5	4 1/2	3	4 7/8	5 1/4	8 1/4	8 1/8	7 3/4	4 1/8	11 7/8												6.25
4																											
5																											

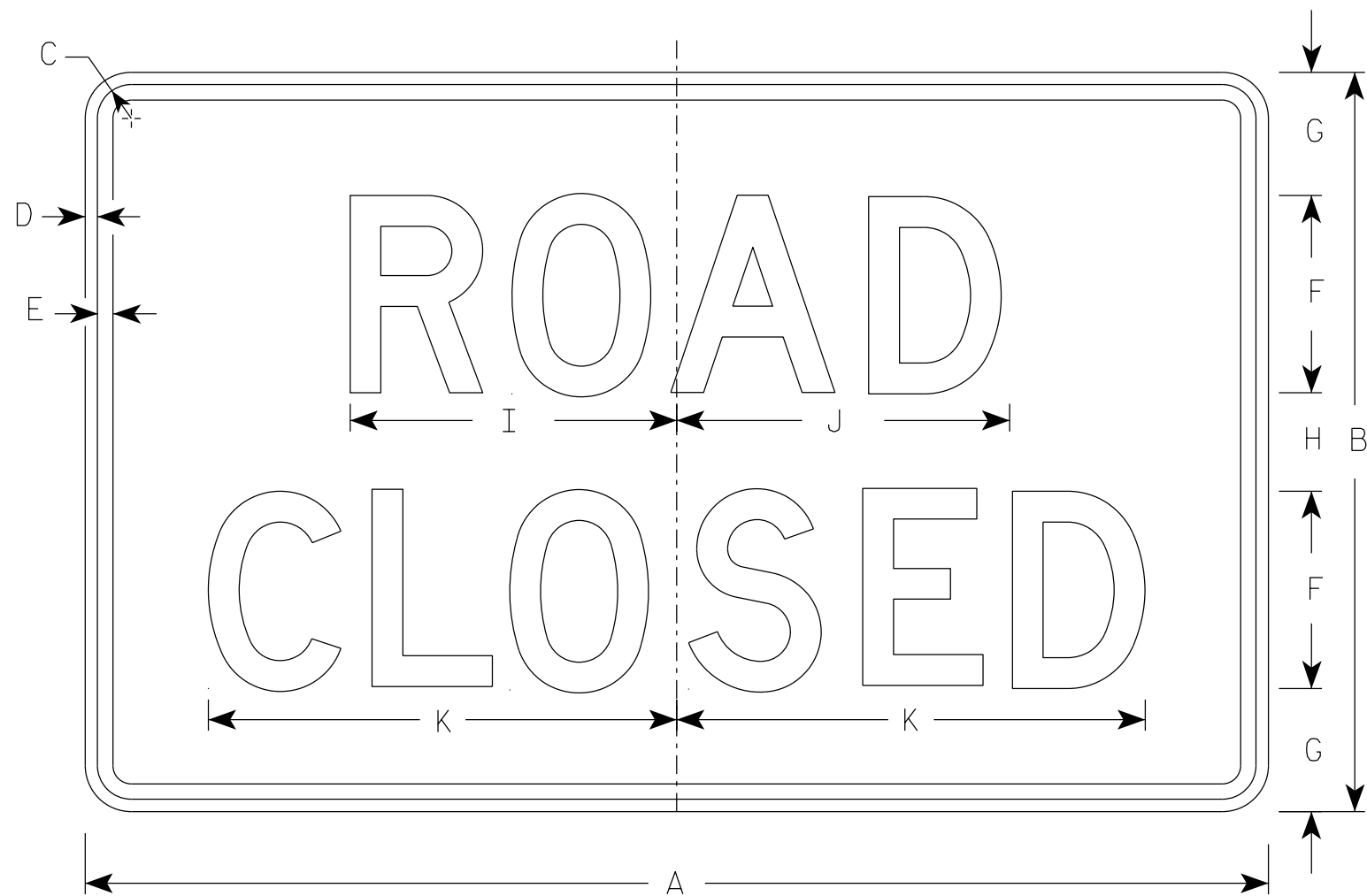
**STANDARD SIGN**  
R10-11B

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*  
For State Traffic Engineer

DATE 4/5/11 PLATE NO. R10-11B.4

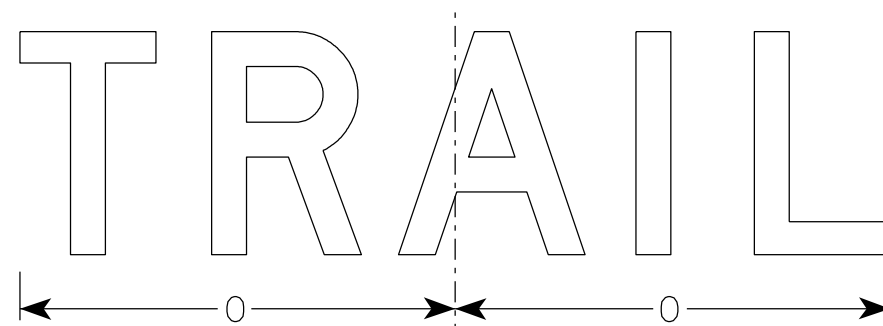
PROJECT NO: \_\_\_\_\_ HWY: \_\_\_\_\_ COUNTY: \_\_\_\_\_ SHEET NO: **E**



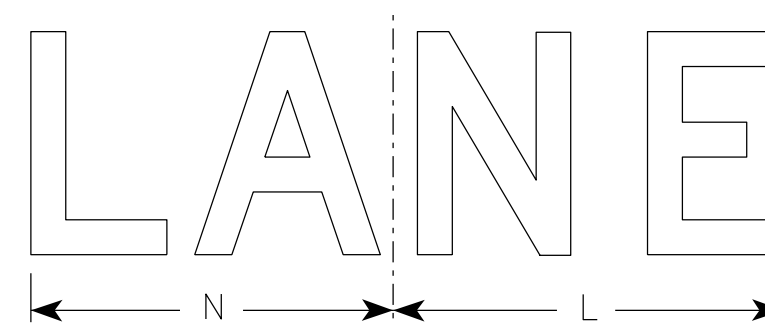
R11-2



R11-2R



R11-2T



R11-2L

NOTES

1. Sign is Type II - Type H Reflective
2. Color:  
Background - White  
Message - Black
3. Message Series - D
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. Modify the message as required.

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	48	30	1 3/8	1/2	5/8	8	5	4	13 1/4	13 1/2	19	14	15	13	15 5/8												10.0
2M	48	30	1 3/8	1/2	5/8	8	5	4	13 1/4	13 1/2	19	14	15	13	15 5/8												10.0
3	48	30	1 3/8	1/2	5/8	8	5	4	13 1/4	13 1/2	19	14	15	13	15 5/8												10.0
4	48	30	1 3/8	1/2	5/8	8	5	4	13 1/4	13 1/2	19	14	15	13	15 5/8												10.0
5	48	30	1 3/8	1/2	5/8	8	5	4	13 1/4	13 1/2	19	14	15	13	15 5/8												10.0

STANDARD SIGN  
R11-2

WISCONSIN DEPT OF TRANSPORTATION

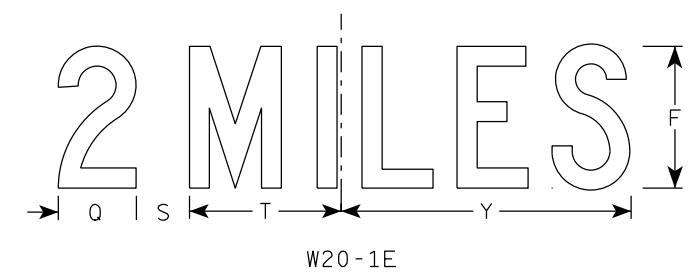
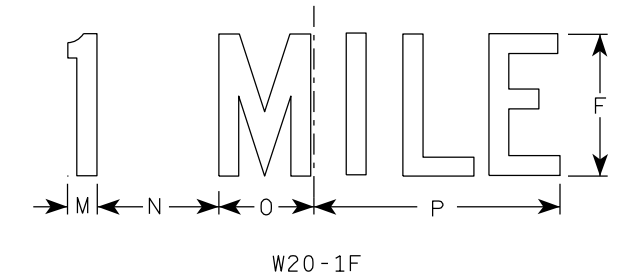
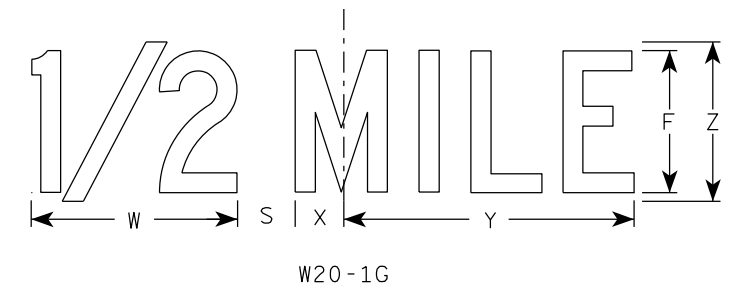
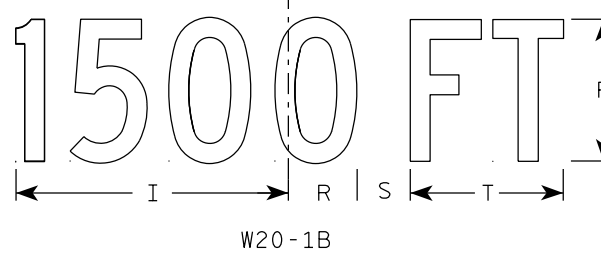
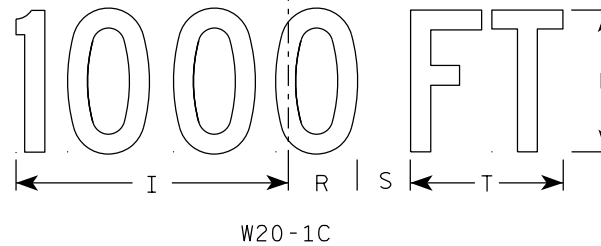
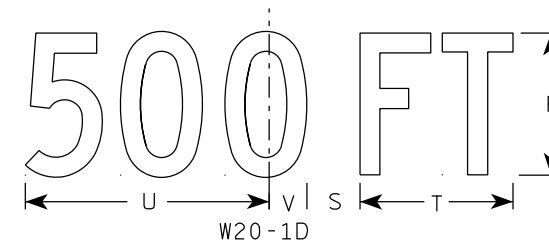
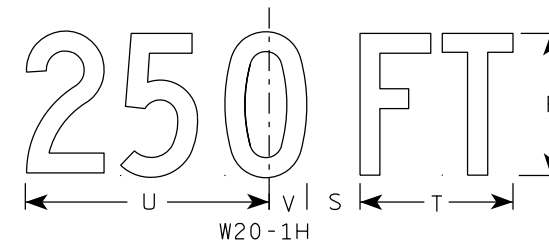
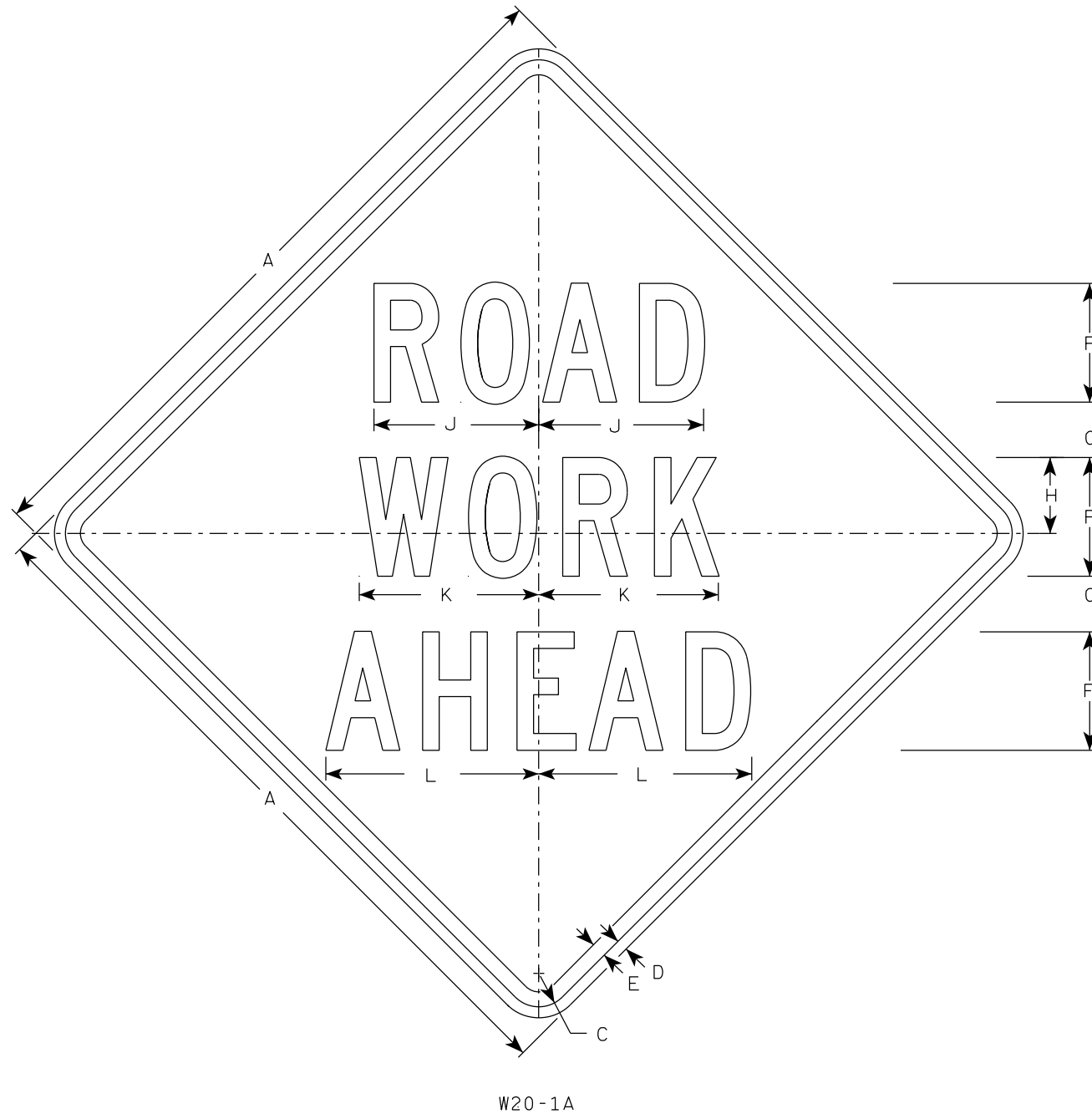
APPROVED *Matthew R Rauch*  
For State Traffic Engineer

DATE 3/29/2021 PLATE NO. R11-2.11

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

**NOTES**

1. Sign is Type II - Type F Reflective
2. Color:  
Background - Orange  
Message - Black
3. Message Series - C
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.



W20-1A

W20-1C

W20-1B

W20-1G

W20-1F

W20-1E

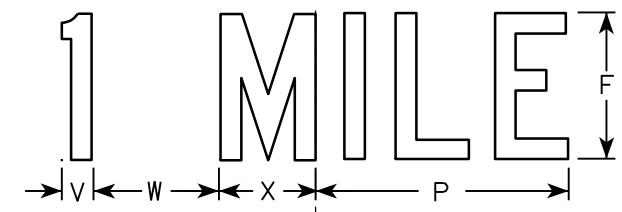
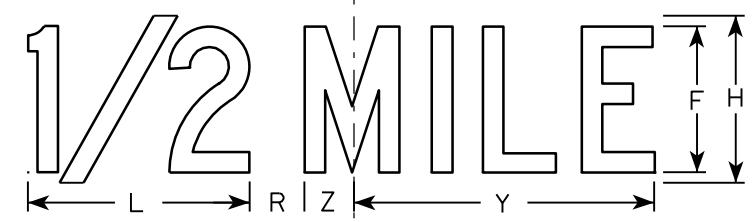
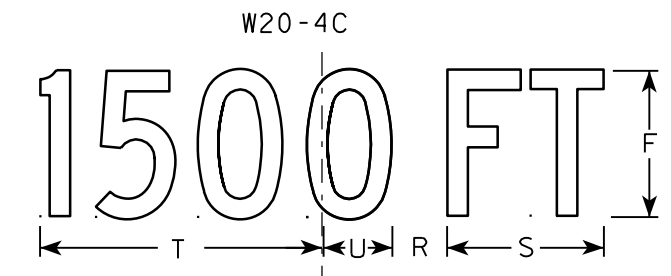
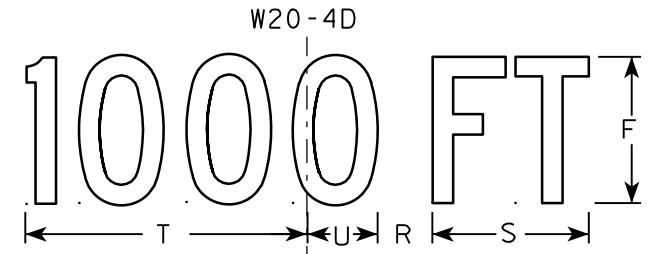
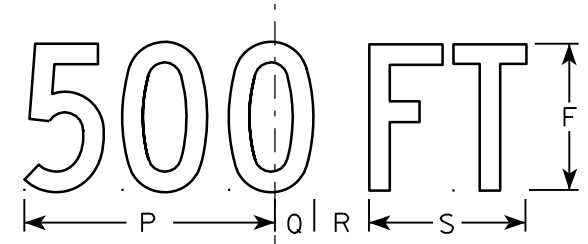
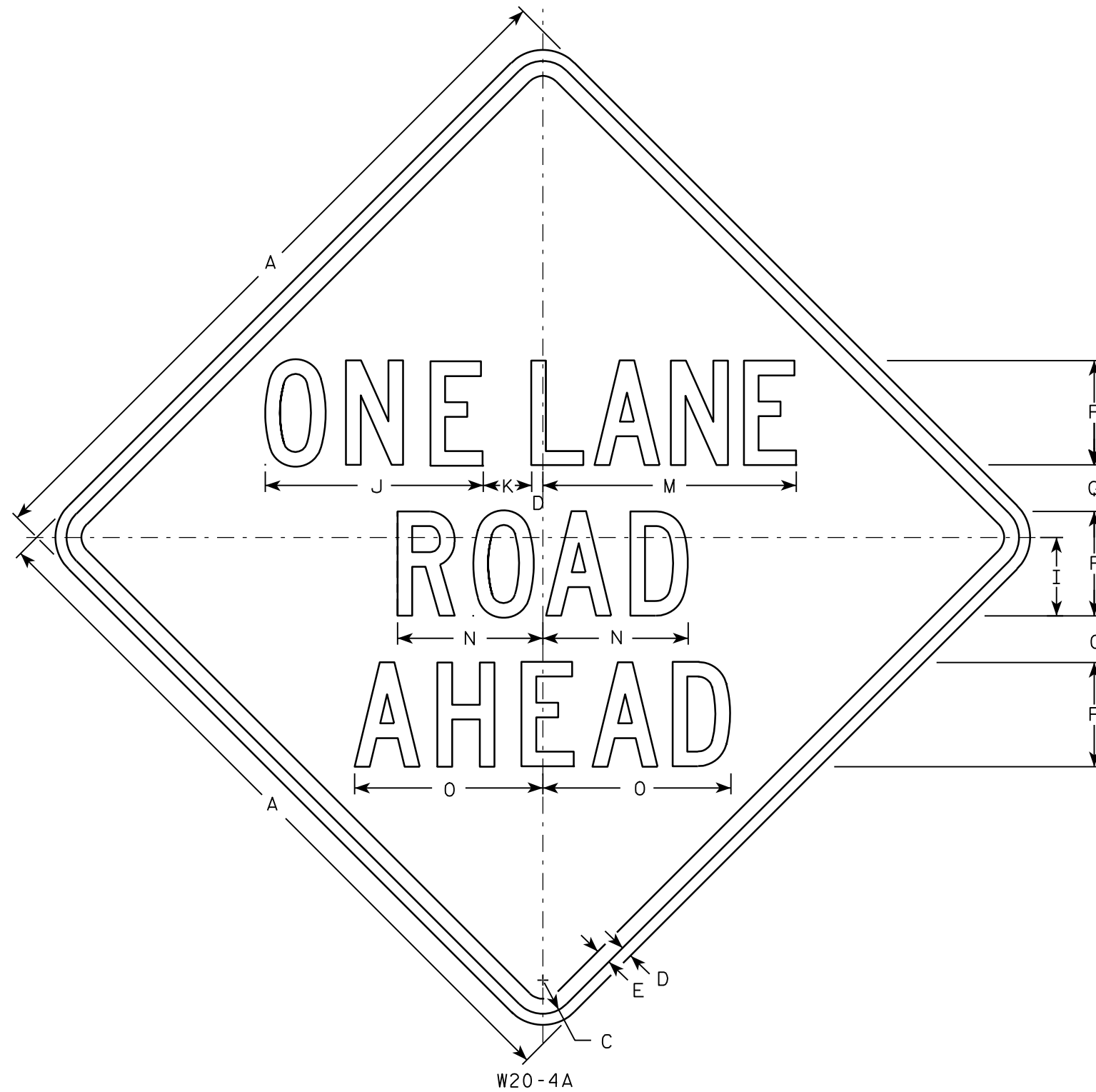
SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	36		1 5/8	5/8	3/4	5	2 5/8	3 1/4	10 1/8	7	7 5/8	8 7/8	1 1/8	4 1/2	3 1/2	9	3 1/4	2 1/2	2 1/4	5 5/8	9	1 3/8	8	1 3/4	10 3/4	6	9.0
2S	48		2 1/4	3/4	1	8	3 3/4	5 1/8	15 3/8	11 1/8	12 1/8	14 3/8	1 5/8	6 7/8	5 3/8	13 7/8	4 3/8	3 7/8	3	8 5/8	13 3/4	2 1/8	11 7/8	2 3/4	16 3/8	9	16.0
2M	48		2 1/4	3/4	1	8	3 3/4	5 1/8	15 3/8	11 1/8	12 1/8	14 3/8	1 5/8	6 7/8	5 3/8	13 7/8	4 3/8	3 7/8	3	8 5/8	13 3/4	2 1/8	11 7/8	2 3/4	16 3/8	9	16.0
3	48		2 1/4	3/4	1	8	3 3/4	5 1/8	15 3/8	11 1/8	12 1/8	14 3/8	1 5/8	6 7/8	5 3/8	13 7/8	4 3/8	3 7/8	3	8 5/8	13 3/4	2 1/8	11 7/8	2 3/4	16 3/8	9	16.0
4	48		2 1/4	3/4	1	8	3 3/4	5 1/8	15 3/8	11 1/8	12 1/8	14 3/8	1 5/8	6 7/8	5 3/8	13 7/8	4 3/8	3 7/8	3	8 5/8	13 3/4	2 1/8	11 7/8	2 3/4	16 3/8	9	16.0
5	48		2 1/4	3/4	1	8	3 3/4	5 1/8	15 3/8	11 1/8	12 1/8	14 3/8	1 5/8	6 7/8	5 3/8	13 7/8	4 3/8	3 7/8	3	8 5/8	13 3/4	2 1/8	11 7/8	2 3/4	16 3/8	9	16.0

STANDARD SIGN  
W20-1A, B, C, D, E, F, G & H

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*  
For State Traffic Engineer

DATE 3/25/2020 PLATE NO. W20-1.11



**NOTES**

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

7

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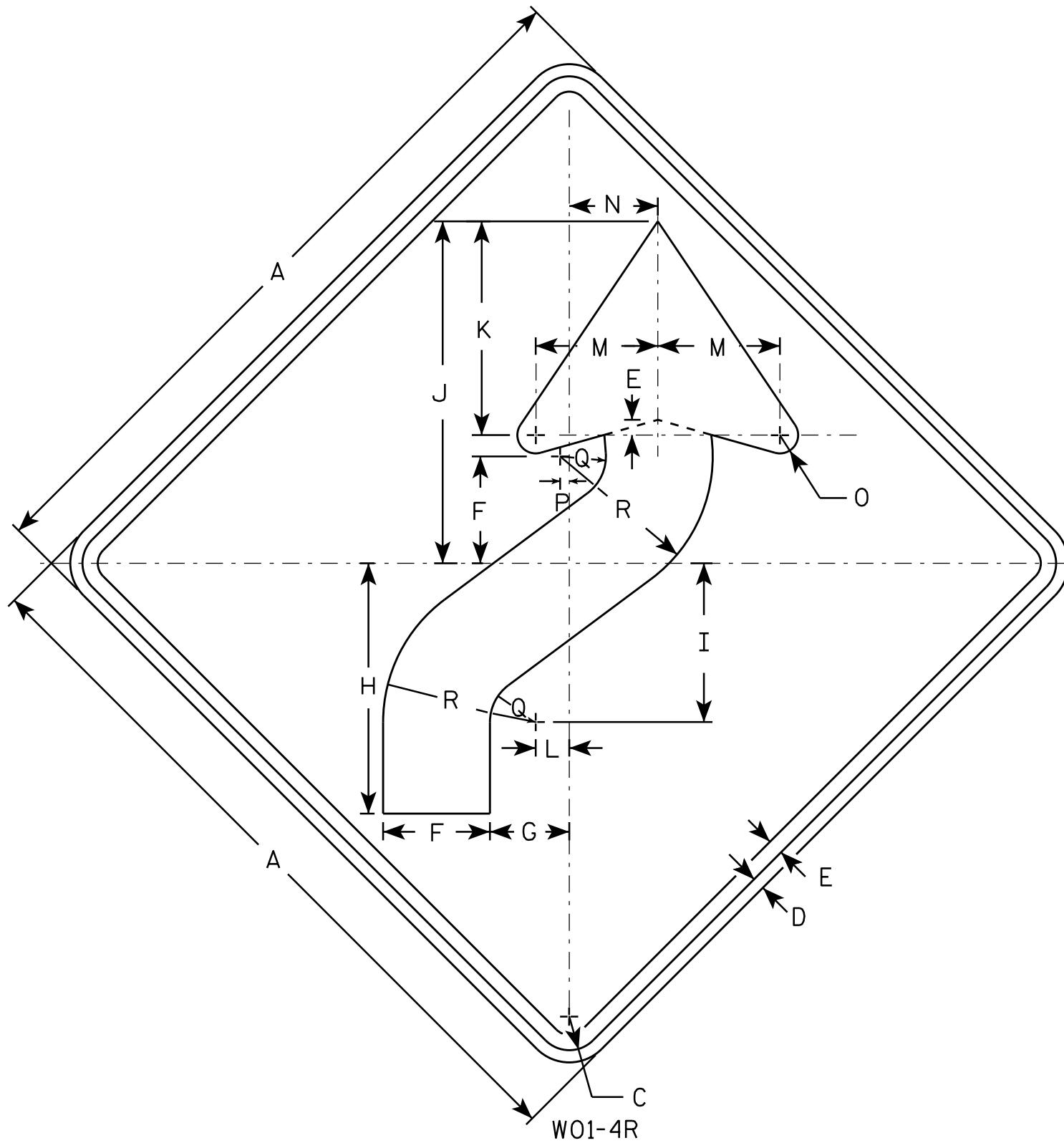
SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	36		1 5/8	5/8	3/4	5	2 3/8	6	3 3/4	10 3/8	2 3/8	8	13 1/2	7	8 7/8	9	1 3/8	1 7/8	5 5/8	10 1/8	2 1/2	1 1/8	4 1/2	3 1/2	10 3/4	1 3/4	9.0
2S	48		2 1/4	3/4	1	7	3 1/8	8	5 1/4	14 5/8	3 1/4	10 5/8	17 3/4	9 3/4	12 5/8	12	1 7/8	2 5/8	7 1/2	13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

STANDARD SIGN  
W20-4A, B, C, D, F & G

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R Rauch*  
for State Traffic Engineer

DATE 3/18/11 PLATE NO. W20-4.9



NOTES

1. Sign is Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:  
Background - Orange  
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. W01-4L is the same as W01-4R except the arrow is reversed along the vertical centerline.

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W01-4R

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	36		1 5/8	5/8	3/4	5 1/4	4	12 3/8	7 7/8	16 7/8	10 1/2	1 5/8	6	4 1/2	1	1/2	2 1/4	7 1/2									9.0
2S	48		2 1/4	3/4	1	7	5 1/4	16 1/2	10 1/2	22 1/2	14	2 1/4	8	6	1 1/4	5/8	3	10									16.0
2M	48		2 1/4	3/4	1	7	5 1/4	16 1/2	10 1/2	22 1/2	14	2 1/4	8	6	1 1/4	5/8	3	10									16.0
3	48		2 1/4	3/4	1	7	5 1/4	16 1/2	10 1/2	22 1/2	14	2 1/4	8	6	1 1/4	5/8	3	10									16.0
4	48		2 1/4	3/4	1	7	5 1/4	16 1/2	10 1/2	22 1/2	14	2 1/4	8	6	1 1/4	5/8	3	10									16.0
5	48		2 1/4	3/4	1	7	5 1/4	16 1/2	10 1/2	22 1/2	14	2 1/4	8	6	1 1/4	5/8	3	10									16.0

STANDARD SIGN  
W01-4

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*  
for State Traffic Engineer

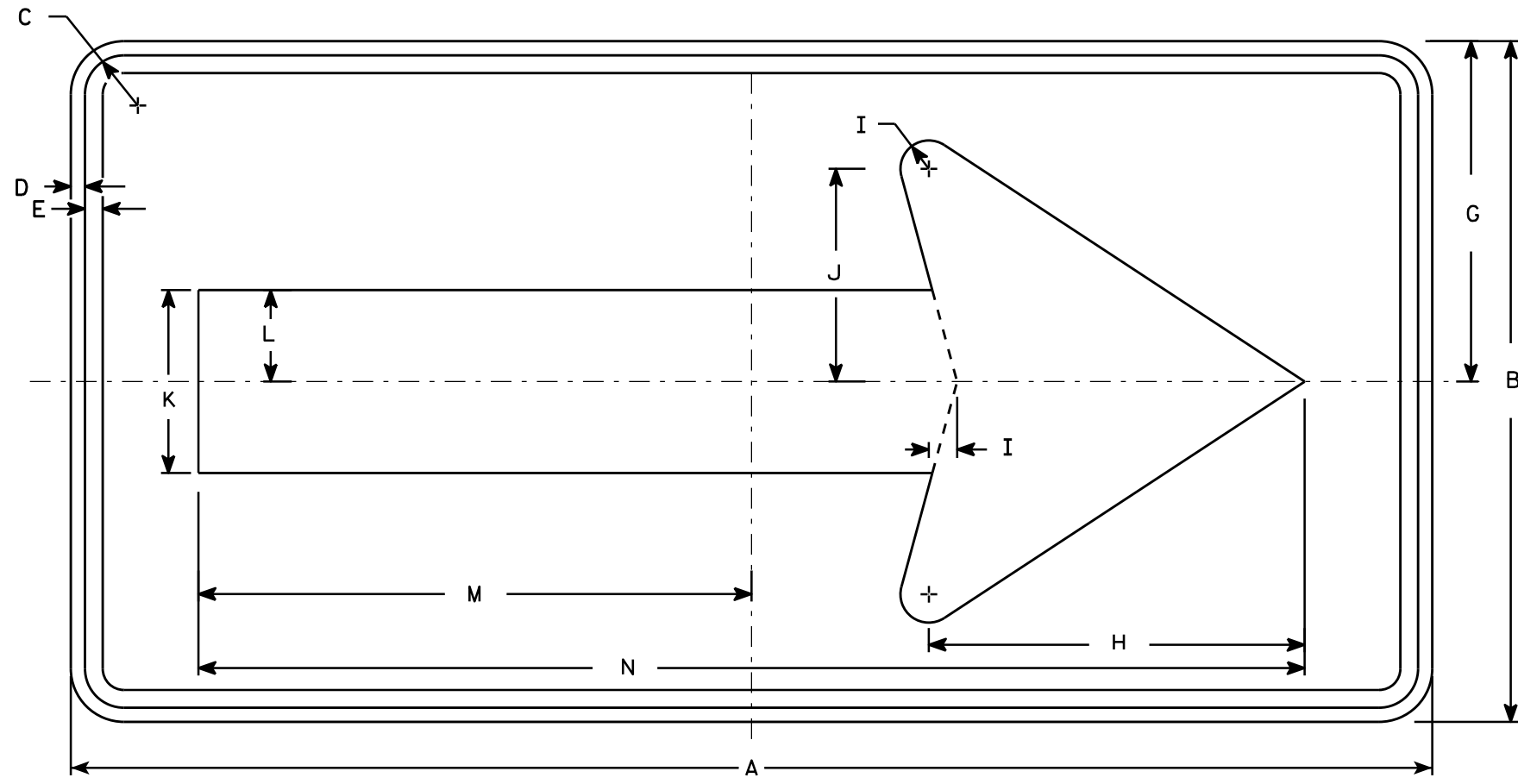
DATE 11/18/13 PLATE NO. W01-4.1

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



NOTES

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



W01-6

7

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SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	48	24	1 3/8	1/2	5/8		12	13 1/4	1	7 1/2	6 1/2	3 1/4	19 1/2	39													8.0
2M	48	24	1 3/8	1/2	5/8		12	13 1/4	1	7 1/2	6 1/2	3 1/4	19 1/2	39													8.0
3	60	30	1 3/8	1/2	5/8		15	16 1/4	1 1/4	9 1/4	8	4	24 3/8	48 3/4													12.5
4	60	30	1 3/8	1/2	5/8		15	16 1/4	1 1/4	9 1/4	8	4	24 3/8	48 3/4													12.5
5	60	30	1 3/8	1/2	5/8		15	16 1/4	1 1/4	9 1/4	8	4	24 3/8	48 3/4													12.5

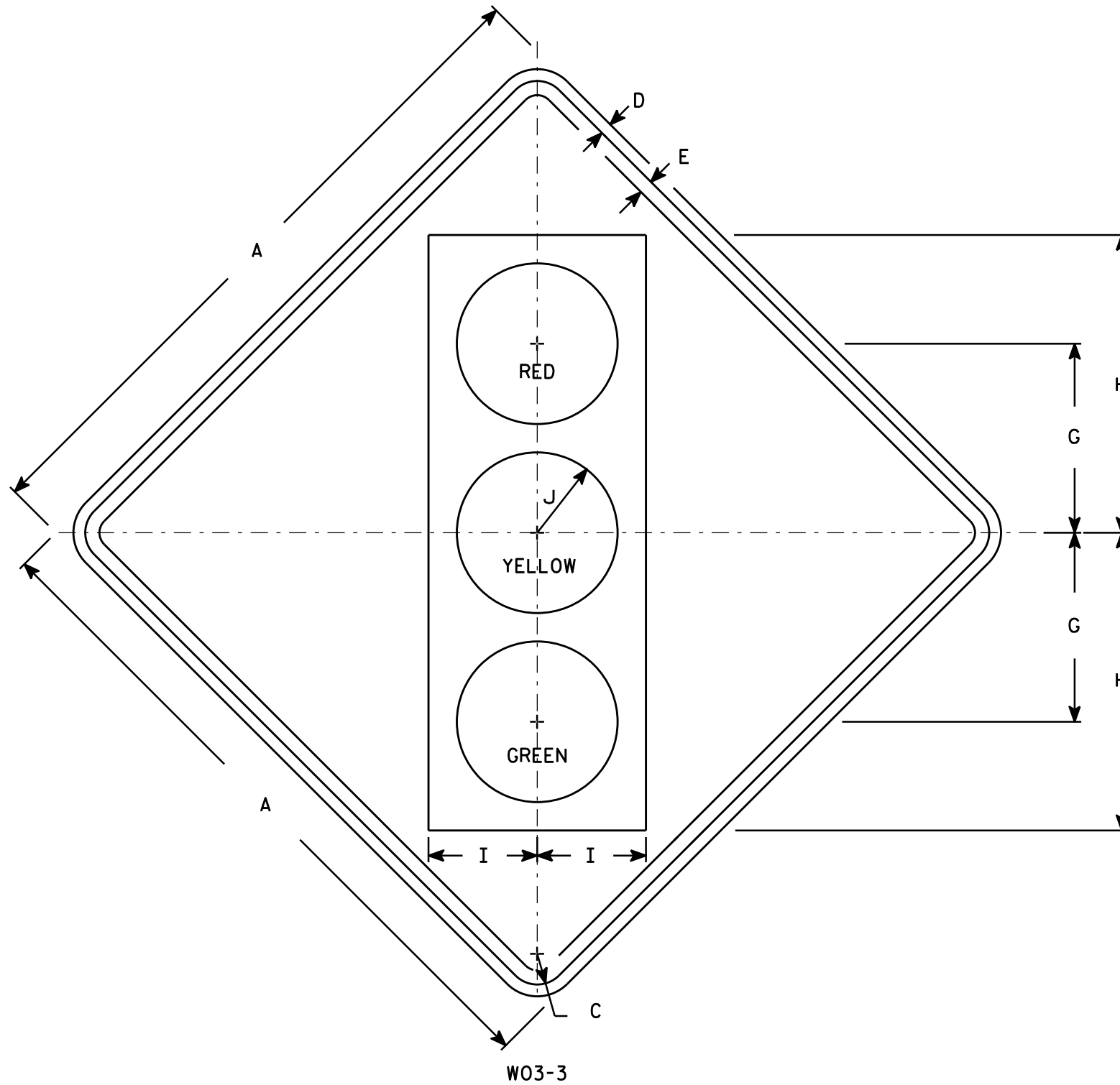
**STANDARD SIGN**  
**W01-6**

*WISCONSIN DEPT OF TRANSPORTATION*

APPROVED *Matthew R. Rauch*  
for State Traffic Engineer

DATE 11/18/13 PLATE NO. W01-6.1

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



NOTES

1. Sign is Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:  
Background - Orange  
Message - See Note 4
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. Symbol and border are non-reflective black.  
Top circle - Type H ReflectORIZED Red  
Center circle - Same as background  
Bottom circle - Type H ReflectORIZED Green

7

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

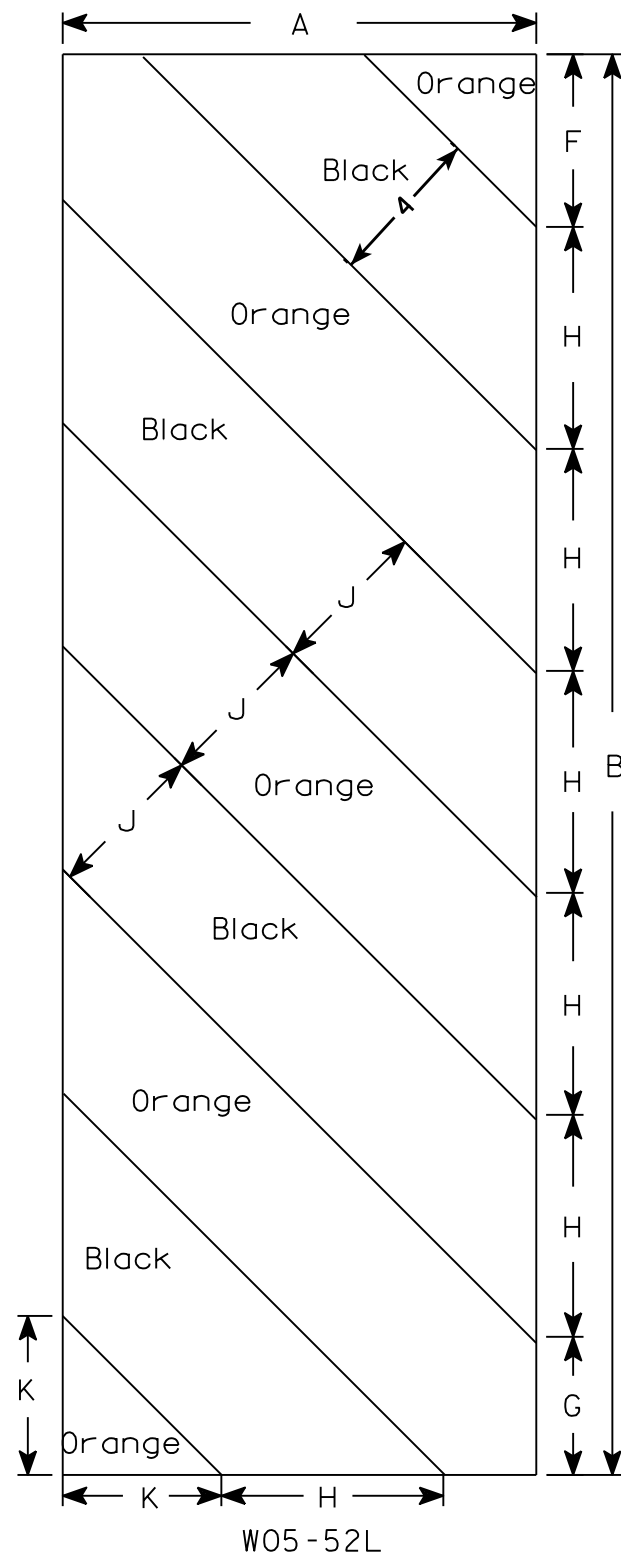
**STANDARD SIGN**  
**W03-3**

*WISCONSIN DEPT OF TRANSPORTATION*

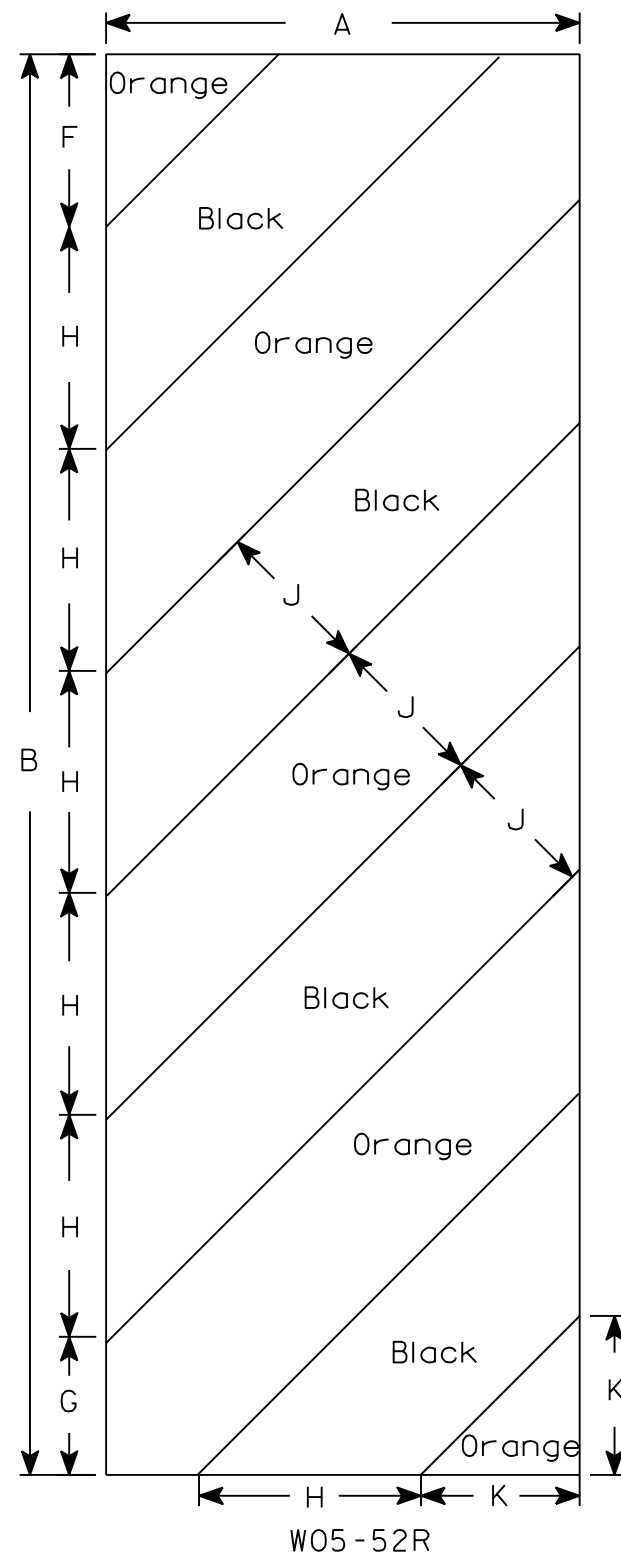
APPROVED *Matthew R. Rauch*  
for State Traffic Engineer

DATE 11/20/13 PLATE NO. W03-3.1

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



W05-52L



W05-52R

**NOTES**

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

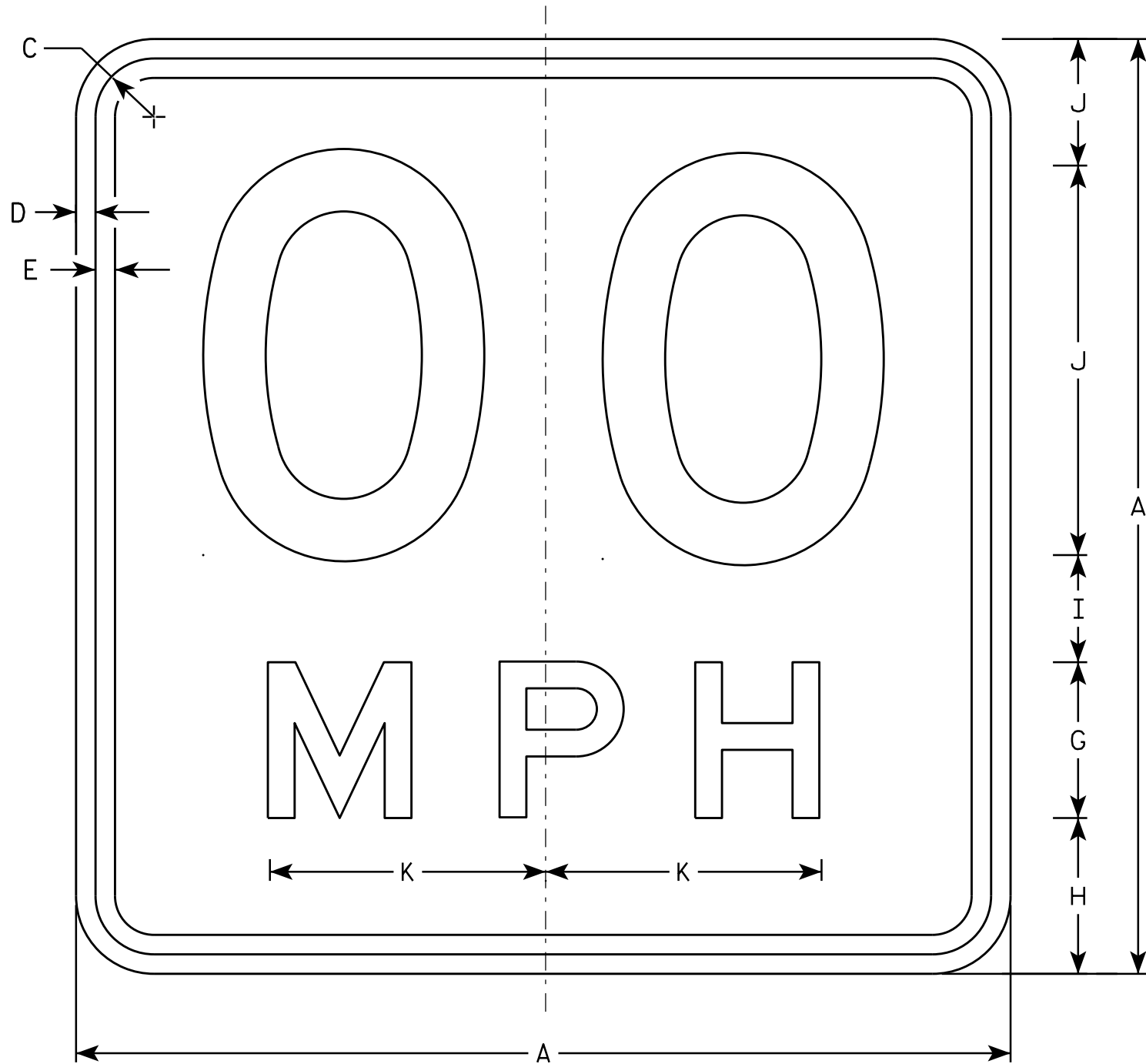
STANDARD SIGN  
W05-52L & W05-52R

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R Raub*  
for State Traffic Engineer

DATE 11/20/13 PLATE NO. W05-52.1

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



W013-1

NOTES

1. Sign is Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:  
Background - Orange  
Message - Black
3. Message Series - See Note 6
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. Substitute appropriate numerals and optically space about centerline to achieve proper balance.
6. Line 1 is Series D  
Line 2 is Series E

7

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SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	O	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	24		1 1/8	3/8	1/2	10	4	4	2 3/4	3 1/4	7 1/8																4.00
2S	36		1 5/8	5/8	3/4	16	6	5 1/2	4	4 1/2	10 5/8																9.00
2M	36		1 5/8	5/8	3/4	16	6	5 1/2	4	4 1/2	10 5/8																9.00
3	36		1 5/8	5/8	3/4	16	6	5 1/2	4	4 1/2	10 5/8																9.00
4	36		1 5/8	5/8	3/4	16	6	5 1/2	4	4 1/2	10 5/8																9.00
5	36		1 5/8	5/8	3/4	16	6	5 1/2	4	4 1/2	10 5/8																9.00

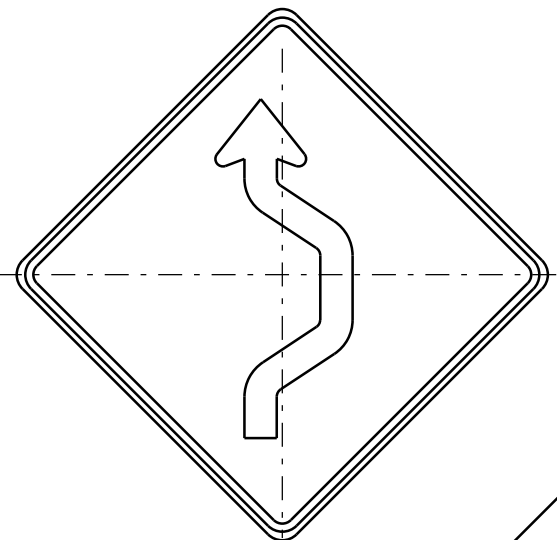
STANDARD SIGN  
W013-1

WISCONSIN DEPT OF TRANSPORTATION

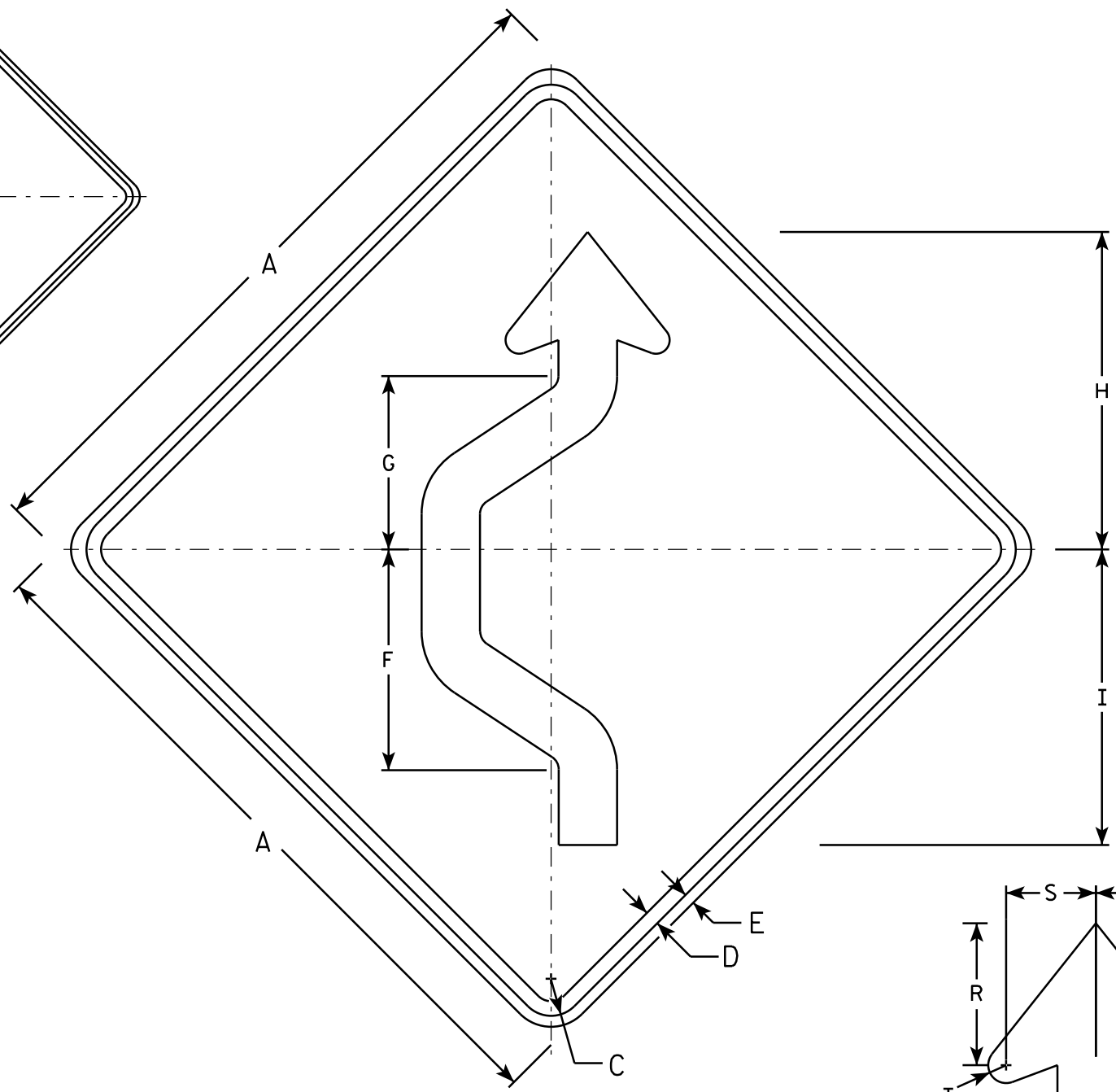
APPROVED *Matthew R Rauch*  
For State Traffic Engineer

DATE 11/21/13 PLATE NO. W013-1.1

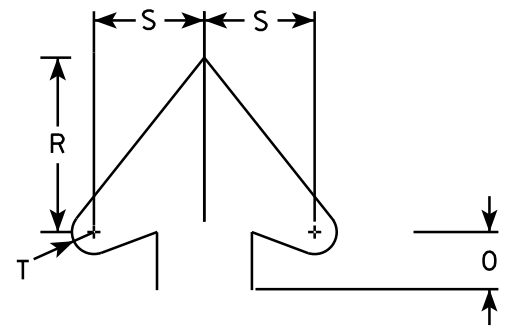
PROJECT NO: \_\_\_\_\_ HWY: \_\_\_\_\_ COUNTY: \_\_\_\_\_ SHEET NO: \_\_\_\_\_ E



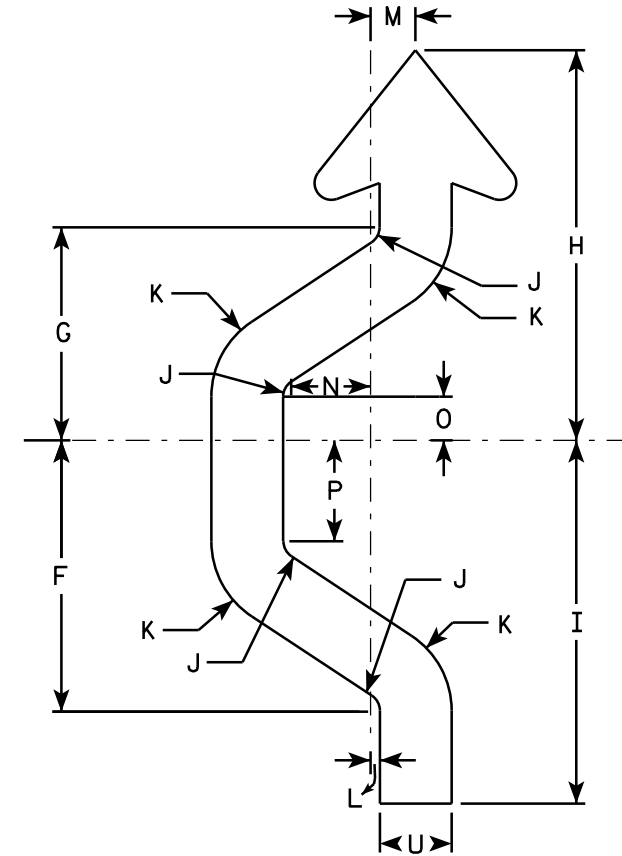
W024-1R



W024-1L



Arrowhead Detail



Arrow Detail

**NOTES**

1. Sign is Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:  
Background - Orange  
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. W024-1R is the same as W024-1L except reversed along the vertical centerline.

7

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SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	36		1 3/8	5/8	1/2	11 3/8	8 7/8	16 3/8	15 1/4	3/4	3 3/4	3/8	2	3 3/8	1 7/8	4 1/4		5 1/2	3 1/2	5/8	3						9
2S	48		2 1/4	1	3/4	15 1/8	11 7/8	21 3/4	20 1/4	1	5	1/2	2 1/2	4 3/8	2 3/8	5 5/8		7 3/8	4 3/4	7/8	4						16
2M	48		2 1/4	1	3/4	15 1/8	11 7/8	21 3/4	20 1/4	1	5	1/2	2 1/2	4 3/8	2 3/8	5 5/8		7 3/8	4 3/4	7/8	4						16
3	48		2 1/4	1	3/4	15 1/8	11 7/8	21 3/4	20 1/4	1	5	1/2	2 1/2	4 3/8	2 3/8	5 5/8		7 3/8	4 3/4	7/8	4						16
4	48		2 1/4	1	3/4	15 1/8	11 7/8	21 3/4	20 1/4	1	5	1/2	2 1/2	4 3/8	2 3/8	5 5/8		7 3/8	4 3/4	7/8	4						16
5	48		2 1/4	1	3/4	15 1/8	11 7/8	21 3/4	20 1/4	1	5	1/2	2 1/2	4 3/8	2 3/8	5 5/8		7 3/8	4 3/4	7/8	4						16

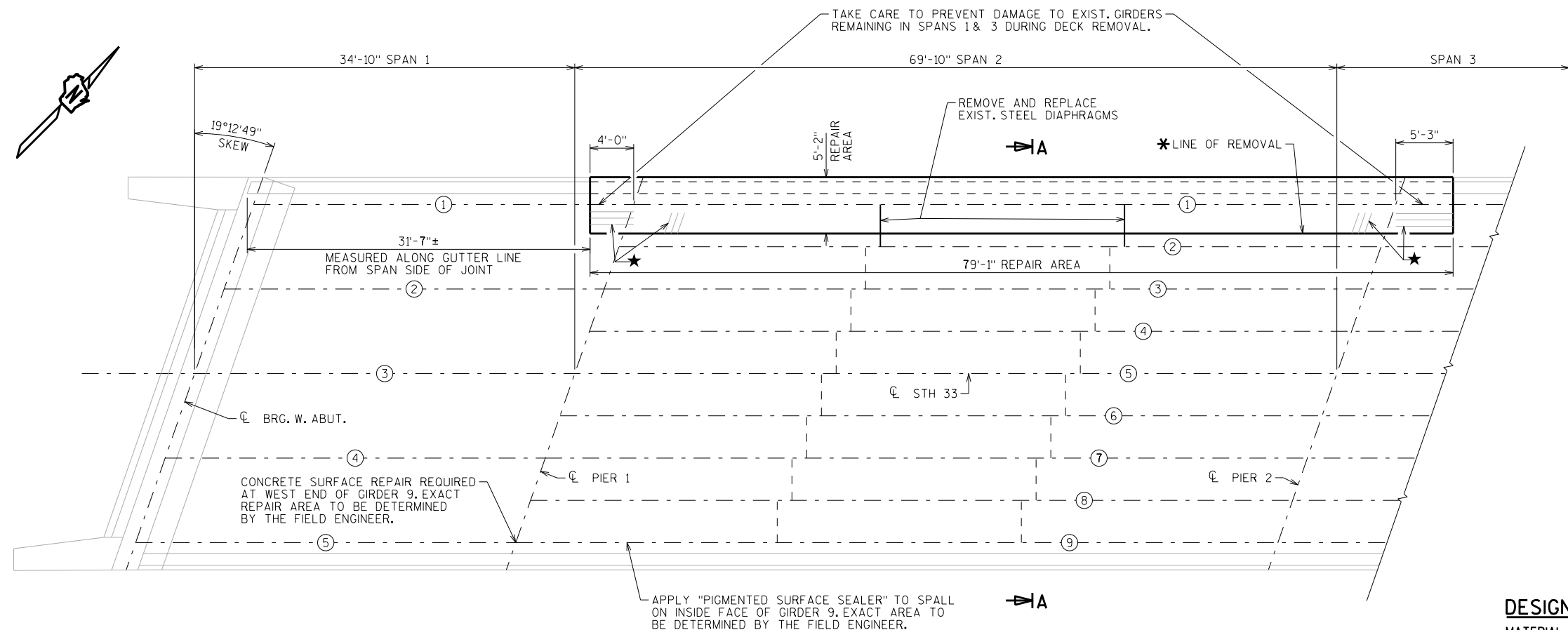
**STANDARD SIGN**  
**W024-1 L & R**

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*  
for State Traffic Engineer

DATE 9/25/2013 PLATE NO. W024-1.1

- ★ SALVAGE BOT. LONGITUDINAL AND HAUNCH REINF. OVER PIERS AND EXTEND 2'-0" MIN. INTO NEW WORK.
- SALVAGE TOP LONGIT. REINF. AND EXTEND 4'-0" MIN. INTO NEW WORK AT PIER 1, 5'-3" MIN. INTO NEW WORK AT PIER 2.
- SALVAGE TOP AND BOT. TRANSVERSE REINF. AND EXTEND 2'-0" MIN. INTO NEW WORK.
- SALVAGE LONGIT. REINF. IN PARAPET AND EXTEND 2'-0" MIN. INTO NEW WORK.



**PART PLAN**  
GIRDER REPLACEMENT - SPAN 2

- ⊗ INDICATES GIRDER NUMBER
- ★ DEFINE ALL EXPOSED REMOVAL LINES WITH 1" MIN. SAW CUT (TYP.)

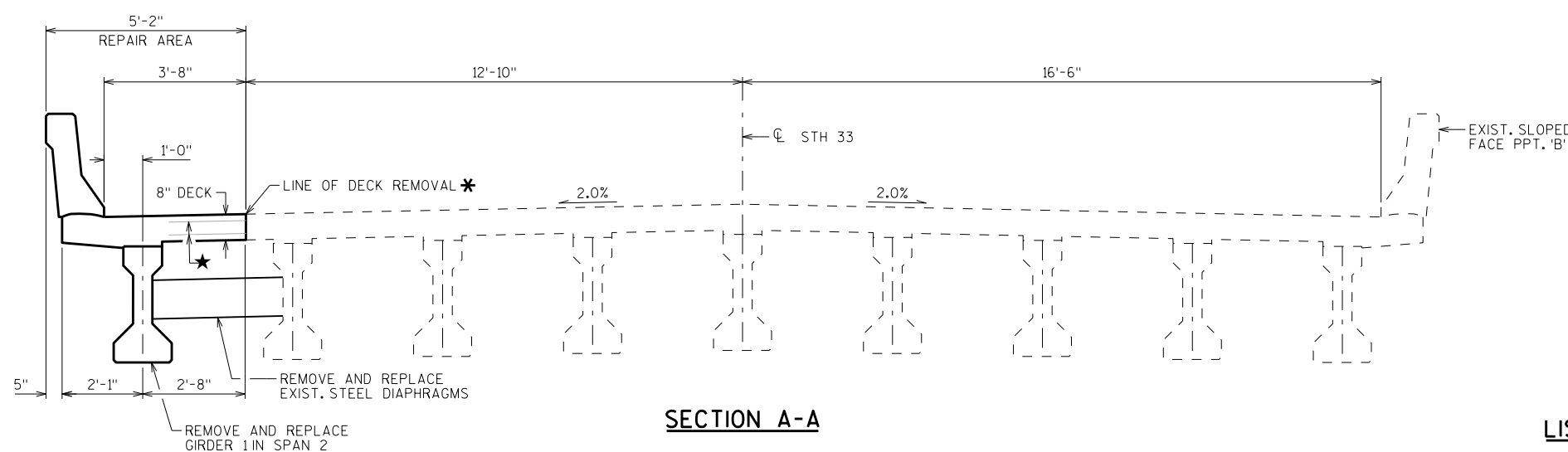
**DESIGN DATA**

**MATERIAL PROPERTIES:**  
 CONCRETE MASONRY: ALL  $f'c = 4,000$  P.S.I.  
 BAR STEEL REINFORCEMENT: GRADE 60  $f_y = 60,000$  P.S.I.  
 36" PRESTRESSED GIRDERS: CONCRETE MASONRY  $f'c = 8,000$  P.S.I.  
 STRANDS: 0.6" DIA. WITH ULTIMATE TENSILE STRENGTH OF 270,000 P.S.I.

**TRAFFIC VOLUME**

**STH 33**  
 ADT = 8,650 (2050)  
 R.D.S. = 60 M.P.H.  
**IH 90/94**  
 ADT = 45,560 (2050)  
 R.D.S. = 70 M.P.H.

**STRUCTURE DESIGN CONTACTS:**  
 MICAH BROOKS (608) 266-5080  
 LAURA SHADEWALD (608) 267-9592

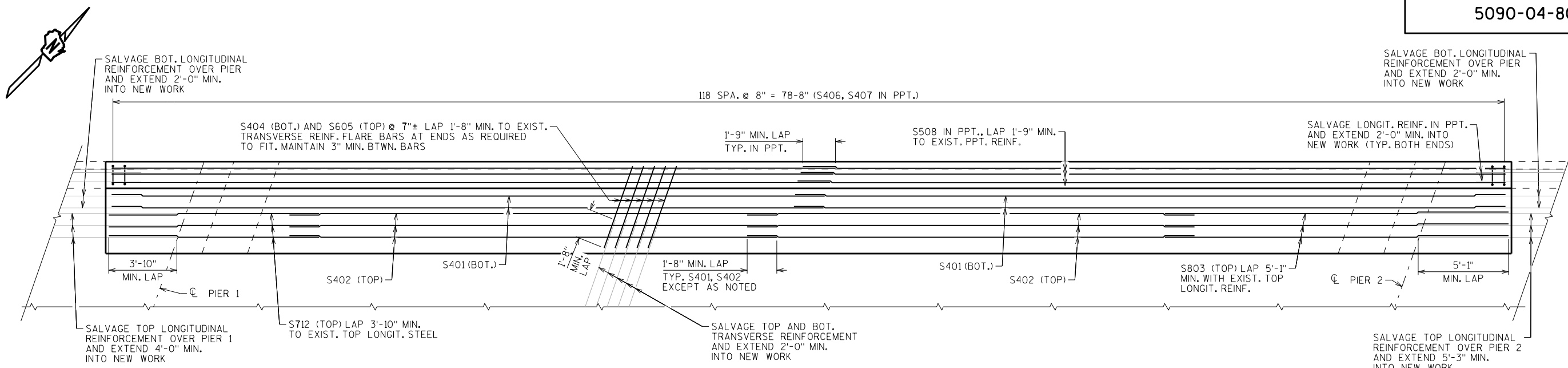


**SECTION A-A**

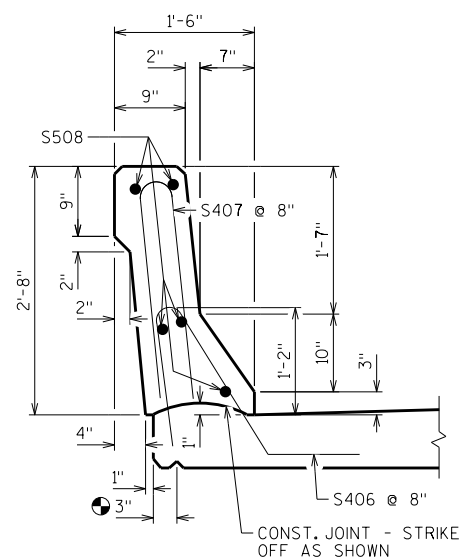
**LIST OF DRAWINGS**

1. GENERAL PLAN
2. DECK REPAIR DETAILS
3. PIER DIAPHRAGM DETAILS
4. 36" PRESTRESSED GIRDER DETAILS
5. STEEL DIAPHRAGMS

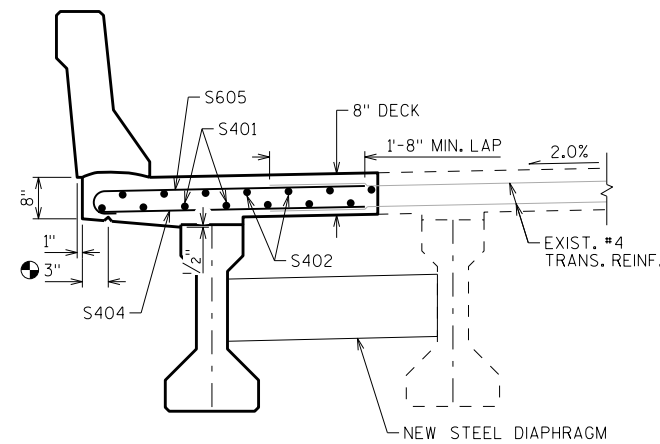
NO.	DATE	REVISION	BY
 ACCEPTED <i>[Signature]</i> 9/13/21 CHIEF STRUCTURES DESIGN ENGINEER DATE			
<b>STRUCTURE B-11-30</b>			
STH 33 OVER IH 90/94			
COUNTY	COLUMBIA	TOWN	CALEDONIA
DESIGN SPEC.	REHABILITATION N/A		
DESIGNED BY	MWB	DESIGNED CK'D.	CAD
DRAWN BY	MWB	PLANS CK'D.	CAD
<b>GENERAL PLAN</b>			SHEET 1 OF 5



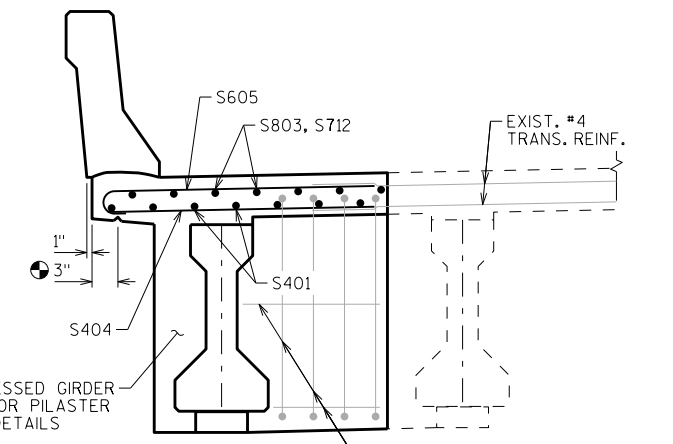
**REPAIR AREA PLAN**



**SECTION THRU PARAPET**



**IN SPAN**



**AT PIERS**

**EDGE OF DECK DETAIL**  
PARAPET REINF. NOT SHOWN FOR CLARITY

**TOTAL ESTIMATED QUANTITIES**

BID ITEM NUMBER	BID ITEMS	UNIT	TOTALS
203.0220	REMOVING STRUCTURE B-11-30	EACH	1
502.0100	CONCRETE MASONRY BRIDGES	CY	19
502.3200	PROTECTIVE SURFACE TREATMENT	SY	33
502.3210	PIGMENTED SURFACE SEALER	SY	32
503.0136	PRESTRESSED GIRDER TYPE 136-INCH	LF	70
505.0600	BAR STEEL REINFORCEMENT HS COATED STRUCTURES	LB	3,450
506.4000	STEEL DIAPHRAGMS B-11-30	EACH	2
509.1500	CONCRETE SURFACE REPAIR	SF	6
NON-BID ITEMS			
	FILLER	SIZE	1/2", 3/4"

■ INCLUDES QUANTITY FOR SEALING SPALL ON INSIDE FACE OF GIRDER 9

**GENERAL NOTES**

PRIOR TO EXISTING DECK REMOVAL, SURVEY AND RECORD EXISTING TOP OF DECK ELEVATIONS AT  $\phi$  GIRDER 1 SPAN 2 1/10TH POINTS. THESE VALUES TO BE USED IN DETERMINING HAUNCH HEIGHT "T" IN "DECK HAUNCH DETAIL" ON SHEET 4.

DRAWINGS SHALL NOT BE SCALED.

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

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

BEVEL EXPOSED EDGES OF CONCRETE 3/4" UNLESS OTHERWISE NOTED.

PROTECTIVE SURFACE TREATMENT TO BE APPLIED TO THE ENTIRE EXPOSED TOP OF NEW DECK AREA.

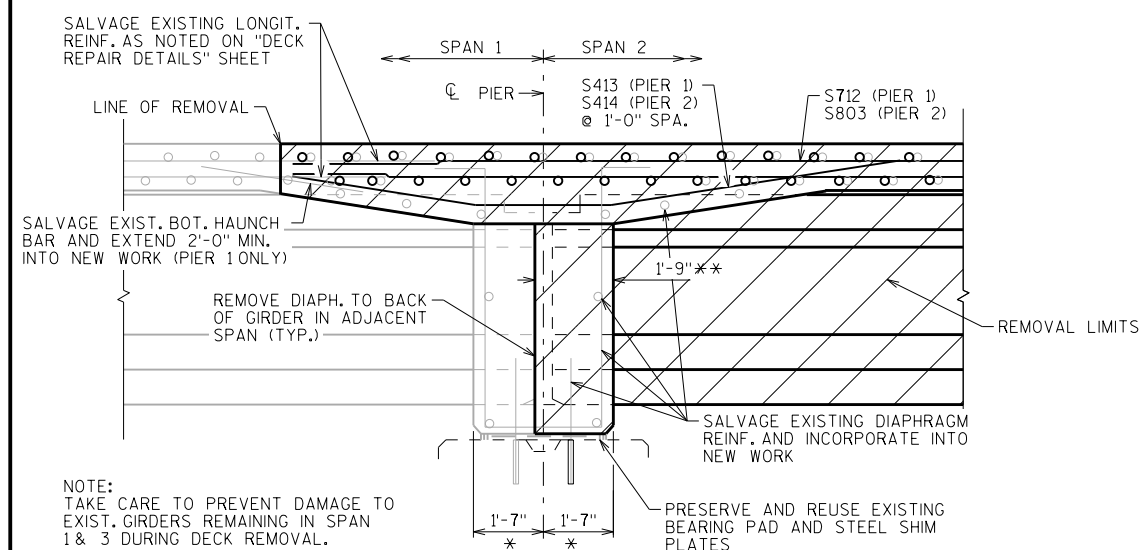
PIGMENTED SURFACE SEALER TO BE APPLIED TO THE FRONT FACE AND THE TOP OF THE NEW PARAPET.

THE HAUNCH CONCRETE QUANTITY IS BASED ON THE AVERAGE HAUNCH SHOWN ON THE '36" PRESTRESSED GIRDER DETAILS' SHEET.

DIMENSIONS SHOWN ARE BASED ON THE ORIGINAL STRUCTURE PLANS.

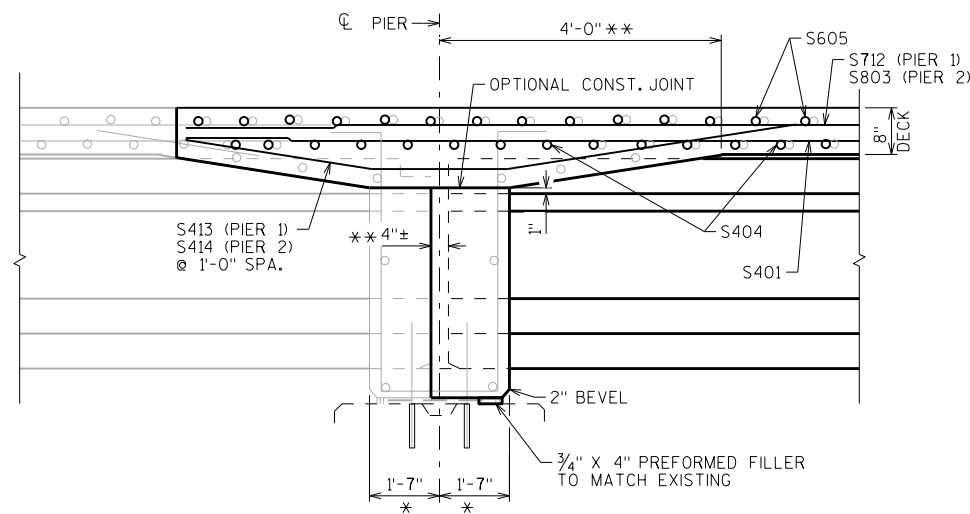
3/4" V-GROOVE REQUIRED FULL LENGTH OF NEW WORK. ENSURE THAT V-GROOVE ALIGNS WITH EXISTING GROOVE.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
<b>STRUCTURE B-11-30</b>			
DRAWN BY		PLANS CK'D.	
MWB		CAD	
<b>DECK REPAIR DETAILS</b>			SHEET 2



**PART. LONGIT. SECTION**

SHOWING REMOVAL LIMITS AT PIER 1, PIER 2 SIMILAR



**PART. LONGIT. SECTION**

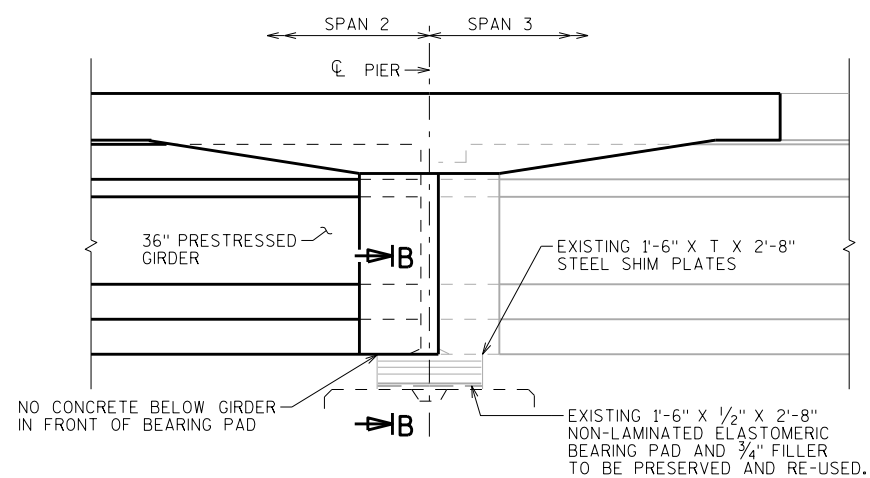
SHOWING NEW CONSTRUCTION AT PIER 1, PIER 2 SIMILAR

**BILL OF BARS**

NOTE: THE FIRST OR FIRST TWO DIGITS OF THE BAR MARK SIGNIFIES THE BAR SIZE

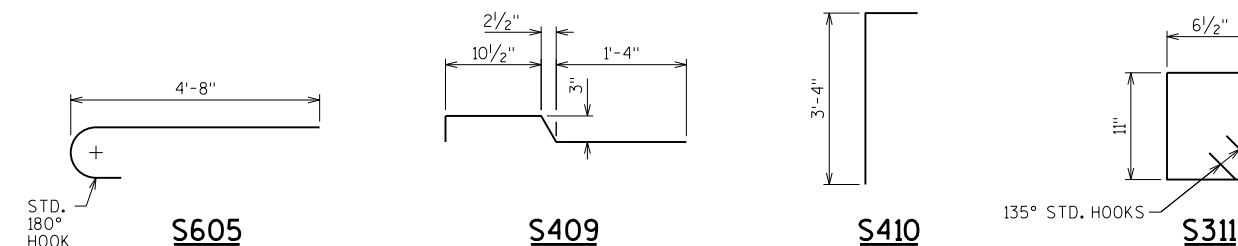
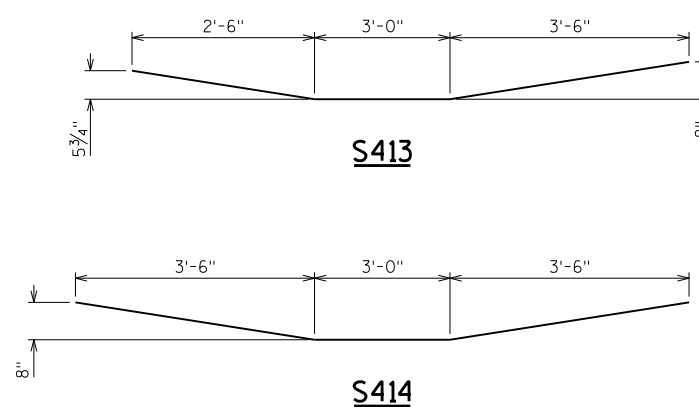
BAR MARK	COAT	NO. REQ'D.	LENGTH	BENT	BAR SERIES	LOCATION
S401	X	14	40'-1"			DECK - BOT. - LONGIT.
S402	X	14	26'-4"			DECK - TOP - LONGIT.
S803	X	7	19'-3"			DECK - TOP - LONGIT. - PIER 2
S404	X	135	4'-8"			DECK - BOT. - TRANS.
S605	X	136	5'-4"	X		DECK - TOP - TRANS.
S406	X	119	4'-3"	X		PPT. & DECK - VERT.
S407	X	119	4'-10"	X		PPT. - VERT.
S508	X	10	40'-2"			PPT. - LONGIT.
S409	X	4	3'-8"	X		PILASTER - VERT.
S410	X	4	2'-11"	X		PILASTER - VERT.
S311	X	6	3'-7"	X		PILASTER - HORIZ.
S712	X	7	11'-10"			DECK - TOP - LONGIT. - PIER 1
S413	X	3	9'-0"	X		DECK - BOT. - LONGIT. - PIER 1 HAUNCH
S414	X	3	10'-0"	X		DECK - BOT. - LONGIT. - PIER 2 HAUNCH

\* DIMENSION IS TAKEN NORMAL TO  $\phi$  SUBSTRUCTURE UNITS.  
 \*\* DIMENSION IS TAKEN PARALLEL TO  $\phi$  OF GIRDER.

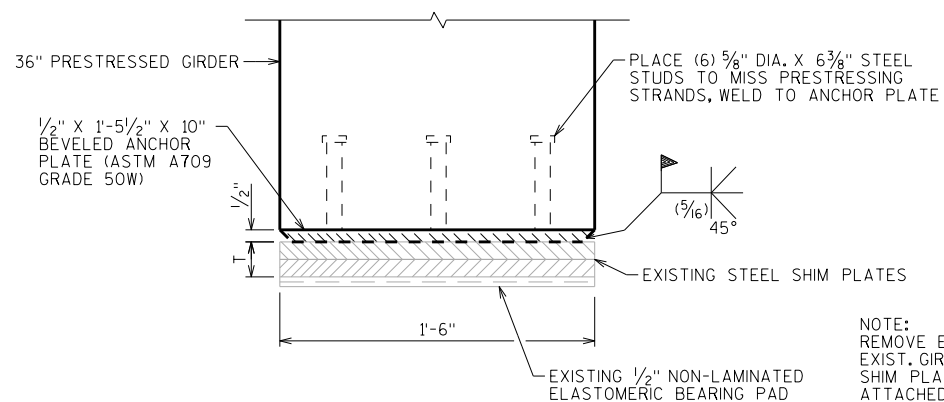


**PART. LONGIT. SECTION**

SHOWING BEARING CONFIGURATION AT PIER 2, PIER 1 SIMILAR

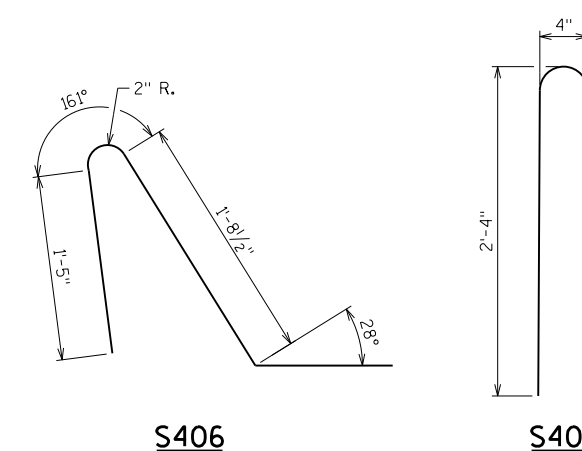


	PIER 1	PIER 2
T	3 3/8"	2 1/8"



**SECTION B-B**

NOTE: REMOVE EXIST. WELDS PRIOR TO REMOVING EXIST. GIRDER, EXISTING BEARING PAD AND SHIM PLATES TO BE SALVAGED AND RE-USED. ATTACHED TO NEW GIRDER AS SHOWN. COST OF REMOVING AND RESETTING BEARINGS TO BE INCLUDED WITH BID ITEM "PRESTRESSED GIRDER TYPE 136-INCH".



NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
<b>STRUCTURE B-11-30</b>			
DRAWN BY MWB		PLANS CK'D. CAD	
<b>PIER DIAPHRAGM DETAILS</b>			SHEET 3



**NOTES**

TOP OF GIRDER TO BE ROUGH FLOATED AND BROOMED TRANSVERSELY, EXCEPT THE OUTSIDE 2" OF GIRDER, WHICH SHALL RECEIVE A SMOOTH FINISH. AN APPROVED CONCRETE SEALER SHALL BE APPLIED TO ALL SMOOTH SURFACES INCLUDING THE OUTSIDE 2" OF THE TOP FLANGE.

THE GIRDERS SHALL BE PROVIDED WITH A SUITABLE LIFTING DEVICE FOR HANDLING AND ERECTING THE GIRDERS. SEE SECT. 503.3.3 OF STANDARD SPECIFICATIONS FOR GUIDANCE.

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

ALL GIRDERS SHALL BE CAST FULL LENGTH AS SHOWN.

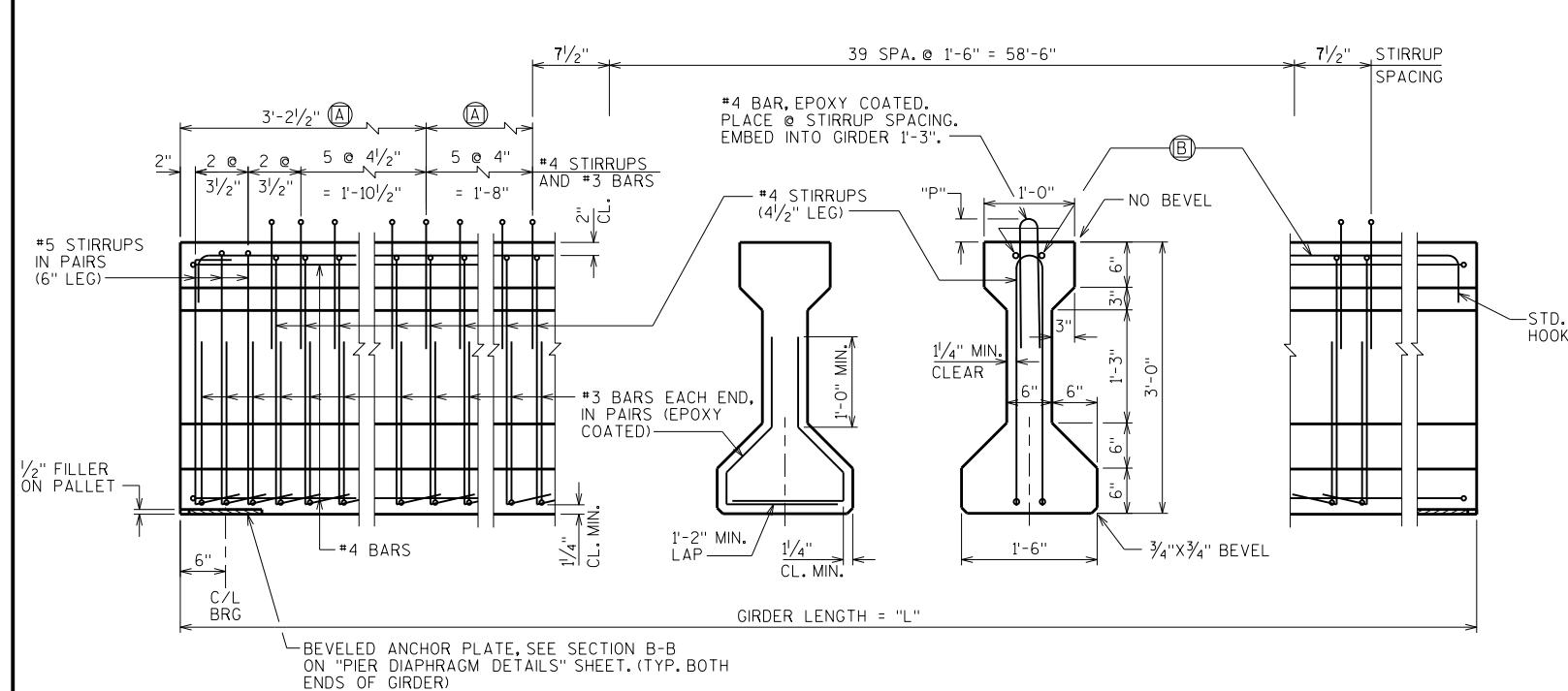
SPACING SHOWN FOR #4 STIRRUPS IS FOR GRADE 60 REINFORCEMENT.

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

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

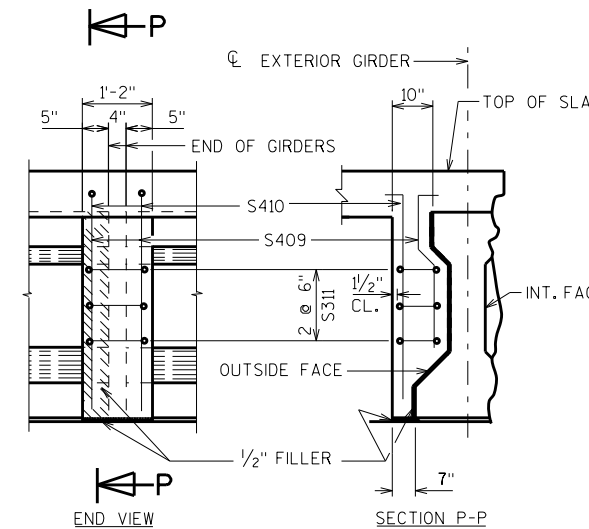
BEND EACH END OF #4 STIRRUPS 4 1/2" AND #5 STIRRUPS 6".

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



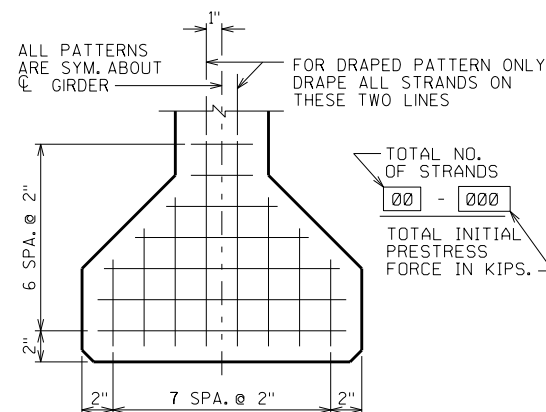
**SIDE VIEW & TYPICAL SECTION IN SPAN** (A) DETAIL TYP. AT EACH END

(B) 2-#4 BARS, FULL LENGTH, MIN. LAP = 1'-11", STD. 90° HOOK AT ENDS

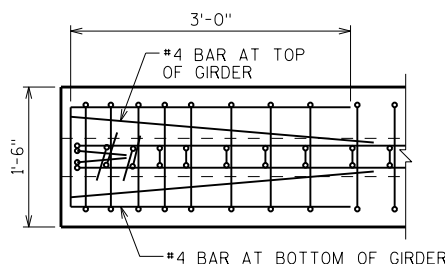


**PILASTER DETAILS AT PIERS**

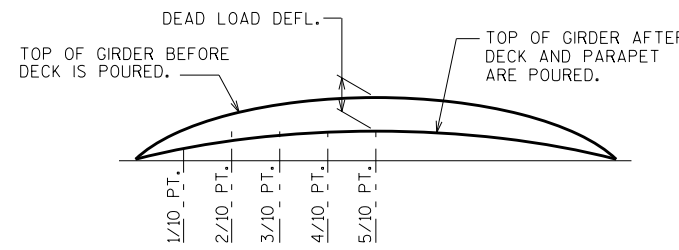
NOTE: COMPLETELY REMOVE EXISTING PILASTERS AT EXTERIOR FACE OF GIRDERS AT PIERS 1 & 2. RE-CONSTRUCT AS SHOWN DURING PLACEMENT OF NEW DECK.



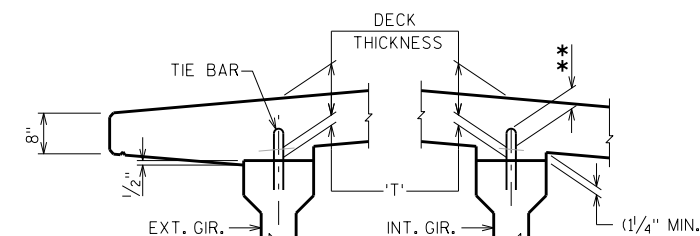
**TYP. STRAND PATTERN**



**TOP VIEW OF GIRDER ENDS**



**DEAD LOAD DEFLECTION DIAGRAM**



**DECK HAUNCH DETAIL**

THE PLAN DECK THICKNESS SHALL BE HELD. NOTIFY THE STRUCTURES SECTION \*\* IF 3" MINIMUM DECK EMBEDMENT OF TIE BAR CANNOT BE OBTAINED.

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

$$\begin{aligned} & \text{TOP OF DECK ELEV. FROM SURVEY} \\ & - \text{TOP OF GIRDER ELEVATION} \\ & + \text{DEAD LOAD DEFLECTION} \\ & - \text{DECK THICKNESS} \\ & = \text{HAUNCH HEIGHT 'T'} \end{aligned}$$

NOTE: AN AVERAGE HAUNCH ('T') OF 1 3/4" WAS USED IN THE QUANTITY "CONCRETE MASONRY BRIDGES".

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

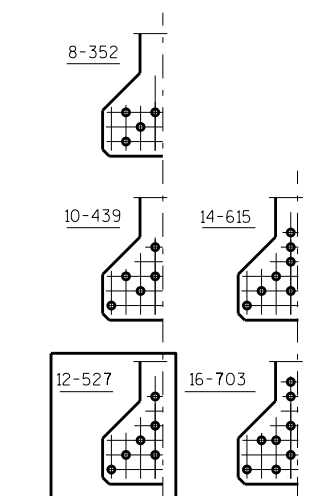
SPAN	CAMBER (IN.) *
2	1.2

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

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

**GIRDER DATA**

SPAN	GIRDER	GIRDER LENGTH "L" (FEET)	DEAD LOAD DEFL. (IN.)									CONC. STRGTH. f'c (P.S.I.)	"P" (IN.)			DIA. OF STRAND (IN.)	DRAPED PATTERN (IN.)				UNDRAPED PATTERN	
			1/10	2/10	3/10	4/10	5/10	6/10	7/10	8/10	9/10		1ST 1/3 OF GIRDER	MID 1/3 OF GIRDER	END 1/3 OF GIRDER		TOTAL NO. OF STRANDS	f'ci (P.S.I.) *	"A"	"B" MIN.	"B" MAX.	"C"
2	1	69.5	0.2	0.4	0.6	0.7	0.7	0.6	0.4	0.2	8,000	6	6	6	0.6					12	6,800	



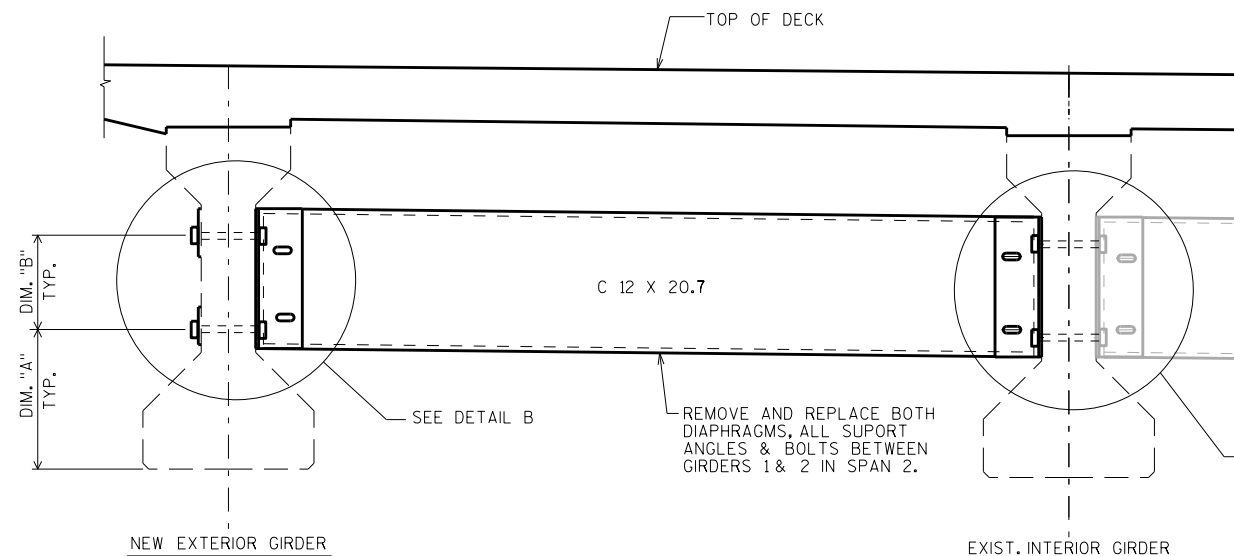
**UNDRAPED PATTERN**

0.6" DIA. STRANDS

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
<b>STRUCTURE B-11-30</b>			
		DRAWN BY MWB	PLANS CK'D. CAD
<b>36" PRESTRESSED GIRDER DETAILS</b>			SHEET 4

**TABLE**

GIRDER HEIGHT	DIM. "A"	DIM. "B"	DIM. "L"	DIM. "X"
36"	1'-2"	11"	1'-2"	3 1/2"



**PART TRANSVERSE SECTION AT DIAPHRAGM**

**NOTES**

ALL DIAPHRAGM MATERIAL NOT EMBEDDED IN THE CONCRETE GIRDER SHALL BE PAID FOR AT THE UNIT PRICE BID FOR "STEEL DIAPHRAGMS B-11-30", EACH.

EACH DIAPHRAGM BETWEEN GIRDERS SHALL CONSTITUTE ONE UNIT.

ALL DIAPHRAGM STRUCTURAL STEEL SHALL BE ASTM A709 GRADE 36.

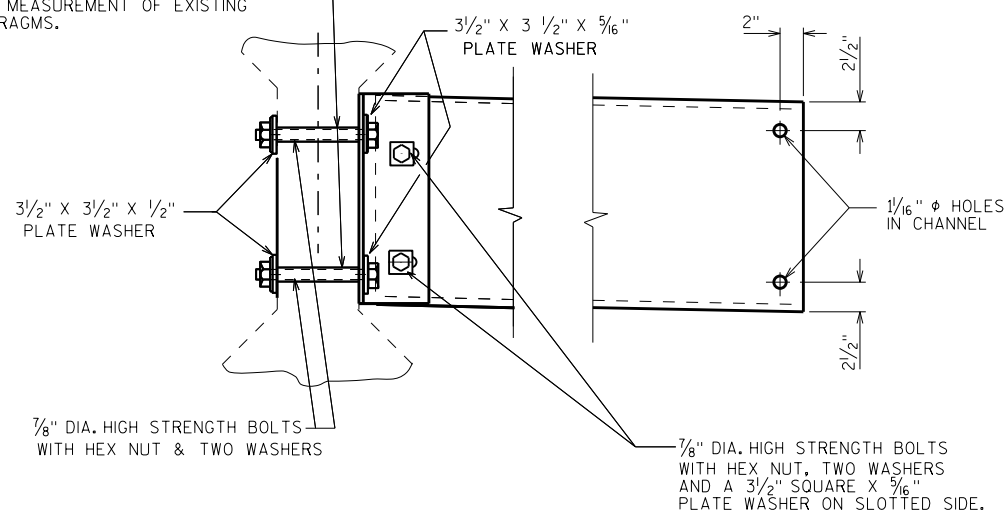
ALL DIAPHRAGM MATERIAL INCLUDING BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED AFTER FABRICATION.

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

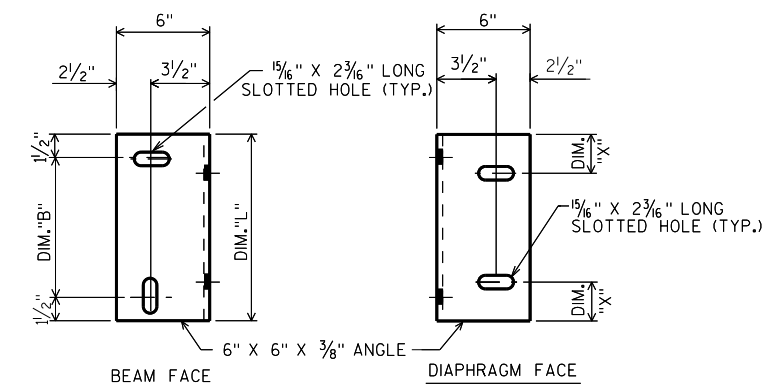
REMOVING AND DISPOSING OF EXISTING DIAPHRAGMS, SUPPORT ANGLES, AND BOLTS TO BE INCLUDED WITH BID ITEM "REMOVING STRUCTURE B-11-30".

USE EXISTING HOLES AT INTERIOR GIRDER 2 TO ATTACH NEW DIAPHRAGMS. LOCATE HOLES IN NEW EXTERIOR GIRDER TO ALIGN WITH EXISTING HOLES IN GIRDER 2. REMOVE EXISTING SUPPORT ANGLE AND REPLACE WITH NEW SUPPORT ANGLE, BOLTS, AND WASHERS.

1/4" DIA. HOLES CAST IN WEB. HOLE LOCATIONS TO BE DETERMINED BY FIELD MEASUREMENT OF EXISTING DIAPHRAGMS.



**DETAIL B**



**DIAPHRAGM SUPPORT**

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
<b>STRUCTURE B-11-30</b>			
DRAWN BY		MWB	PLANS CK'D. CAD
<b>STEEL DIAPHRAGM</b>			SHEET 5

# Notes



## ***Wisconsin Department of Transportation***

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