

LAX PROJECT ID: 1016-05-67 WITH: N/A COUNTY: JUNEAU

MARCH 2026  
ORDER OF SHEETS

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

TOTAL SHEETS = 86



DESIGN DESIGNATION	1016-05-37
A.A.D.T.	2026 = 580
A.A.D.T.	2046 = 580
D.H.V.	= 52
D.D.	= 60/40
T.	= 5.0%
DESIGN SPEED	= 50 M.P.H.
ESALS	= 66,000

CONVENTIONAL SYMBOLS

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

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

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

PLAN OF PROPOSED IMPROVEMENT

MAUSTON - LYNDON STATION

19TH AVENUE BRIDGES, B-29-27 & B-29-28

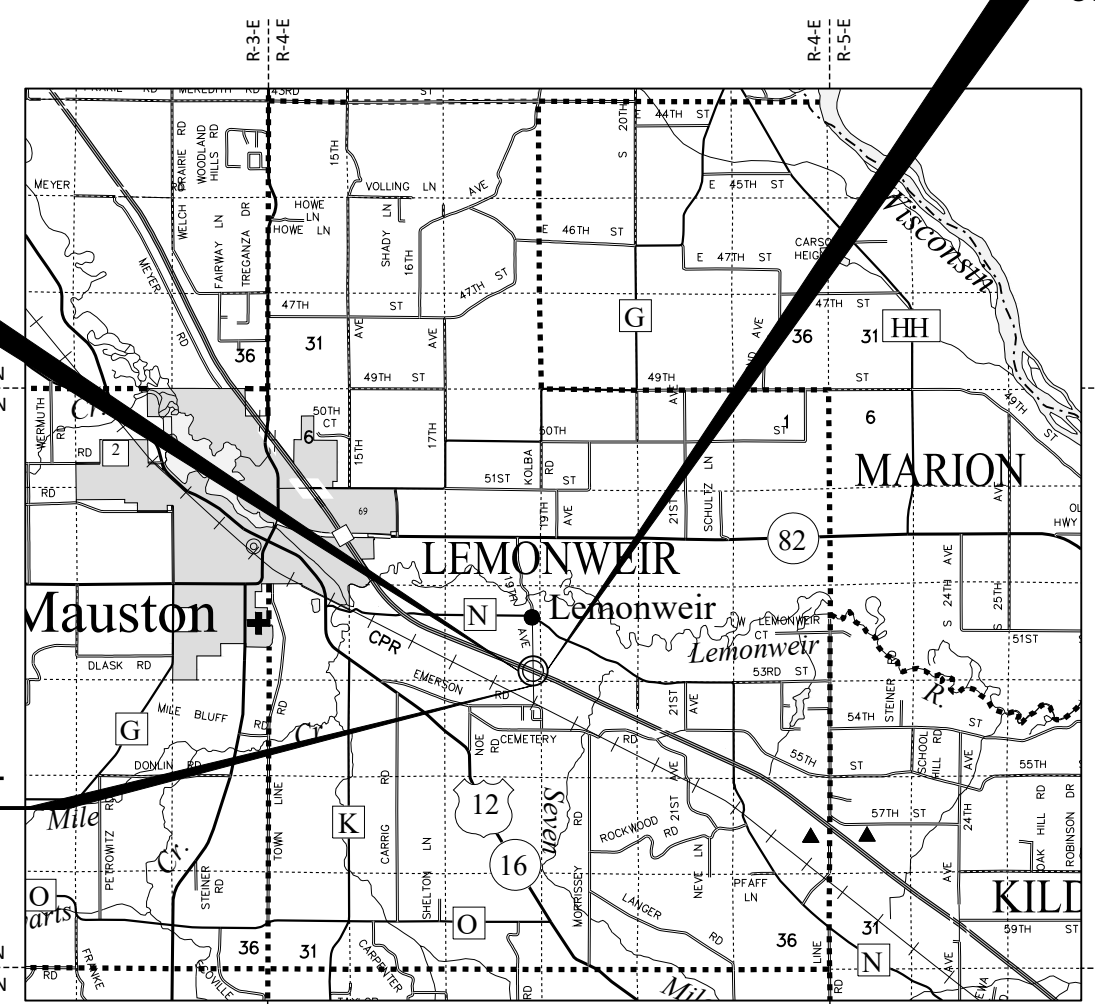
IH 090  
JUNEAU COUNTY

STATE PROJECT NUMBER  
1016-05-67

STRUCTURE B-29-27  
STRUCTURE B-29-28

END PROJECT  
STA. 20+55

BEGIN PROJECT  
STA. 9+50  
Y=148,711.81  
X=478,568.38



LAYOUT  
SCALE 0 2 MI.  
TOTAL NET LENGTH OF CENTERLINE = 0.209 MI.

HORIZONTAL POSITIONS SHOWN ON THIS PLAN ARE WISCONSIN COORDINATE REFERENCE SYSTEM (WISCRS), JUNEAU 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
1016-05-67		

ORIGINAL PLANS PREPARED BY

**JEWELL**

ROBERT B. HANOLD  
E-45655  
PRAIRIE DU SAC  
WI  
10/19/2025

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

PREPARED BY  
Surveyor JEWELL ASSOCIATES ENGINEERS, INC.  
Designer JEWELL ASSOCIATES ENGINEERS, INC.  
Project Manager JEFF FORDICE, P.E.  
Regional Examiner SW REGION  
Regional Supervisor JOHN BAINTER, P.E.

APPROVED FOR THE DEPARTMENT  
DATE: 10-20-2025 (Signature)

E



GENERAL NOTES

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

UNLESS SHOWN OTHERWISE, DISTURBED AREAS SHOWN WITHIN THE RIGHT-OF-WAY, EXCEPT THE AREAS WITHIN THE FINISHED SHOULDER POINTS ARE TO BE FERTILIZED (TYPE B), SEEDED (USE SEED MIX NO. 20), AND EROSION MATTED AS DIRECTED BY THE ENGINEER. ALL POST CONSTRUCTION WET AREAS SHALL BE SEEDED WITH SEEDING MIXTURE NO. 60. DO NOT FERTILIZE WETLAND AREAS.

SILT FENCE SHALL BE PLACED AS SHOWN ON THE PLAN OR AS DIRECTED BY THE ENGINEER IN THE FIELD. SILT FENCE SHALL BE PLACED PRIOR TO CONSTRUCTION AND SHALL BE IN PLACE UNTIL THE COMPLETION OF CONSTRUCTION.

PRIOR TO THE PLACEMENT OF MGS GUARDRAIL, THE SHOULDERS SHALL BE IN PLACE, SHAPED AND COMPACTED UNLESS SHOWN OTHERWISE.

EROSION MAT ALL MAINLINE SLOPES AS DIRECTED BY THE ENGINEER IN THE FIELD.

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

REMOVAL OF ASPHALTIC SURFACE WHERE AN ABUTTING ASPHALTIC SURFACE IS TO REMAIN IN PLACE SHALL REQUIRE A SAWCUT MEETING THE APPROVAL OF THE ENGINEER IN THE FIELD.

THE LOCATION OF ALL PERMANENT SIGNING SHALL BE VERIFIED BY THE ENGINEER IN THE FIELD PRIOR TO PLACEMENT.

WETLAND AND OTHER ENVIRONMENTALLY SENSITIVE AREAS SHALL BE PROTECTED AT ALL TIMES. DO NOT STORE OR OPERATE EQUIPMENT OR STORE MATERIALS NEAR THESE SITES UNLESS APPROVED BY THE ENGINEER.

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

HMA PAVEMENT QUANTITIES WERE CALCULATED USING 112 LB/SY/IN.

3.5-INCHES OF ASPHALTIC SURFACE SHALL TO BE CONSTRUCTED WITH A 1 ¾-INCH LOWER LAYER AND A 1 ¾-INCH UPPER LAYER.

APPLY TACK COAT AT A RATE OF 0.05 GAL/SY BETWEEN LAYERS OF NEW PAVEMENT.

PLACE SALVAGED TOPSOIL OR TOPSOIL IN ALL GRADED AREAS AS DESIGNATED BY THE ENGINEER IMMEDIATELY AFTER GRADING HAS BEEN COMPLETED. SEED AND FERTILIZE ALL AREAS 5 DAYS AFTER PLACEMENT OF SALVAGE TOPSOIL OR TOPSOIL.

CONTACTS

**DESIGN CONSULTANT:**  
JEWELL ASSOCIATES ENGINEERS, INC.  
560 SUNRISE DRIVE  
SPRING GREEN, WI 53588  
ATTN: ROBERT HANOLD, P.E.  
PHONE: (608) 588-7484  
CELL: (608) 606-3568  
EMAIL: robert.hanold@jewellassoc.com

**DNR LIAISON:**  
DNR WEST CENTRAL REGION HEADQUARTERS  
3550 MORMON COULEE ROAD  
LA CROSSE, WI 54601  
ATTN: KAREN KALVELAGE  
PHONE: (608) 785-9115  
EMAIL: karen.kalvelage@wisconsin.gov

**WISCONSIN DEPT. OF TRANSPORTATION**  
WISDOT PROJECT MANAGER  
2101 WRIGHT STREET  
MADISON, WI 53704  
ATTN: JEFF FORDICE, P.E.  
PHONE: (608) 246-3807  
EMAIL: jeff.fordice@dot.wi.gov

UTILITIES

**ELECTRIC**  
ALLIANT ENERGY  
338 E. STATE STREET  
MAUSTON, WI 53948  
ATTN: TYLER DONOVAN  
PHONE: (608) 963-9585  
EMAIL: tylerdonovan@alliantenergy.com

**COMMUNICATION**  
AT&T LEGACY  
110 N. MAIN STREET  
CULVER, IN 46511  
ATTN: KENNETH NINE  
PHONE: (574) 842-8830  
EMAIL: knine@jmceainc.com



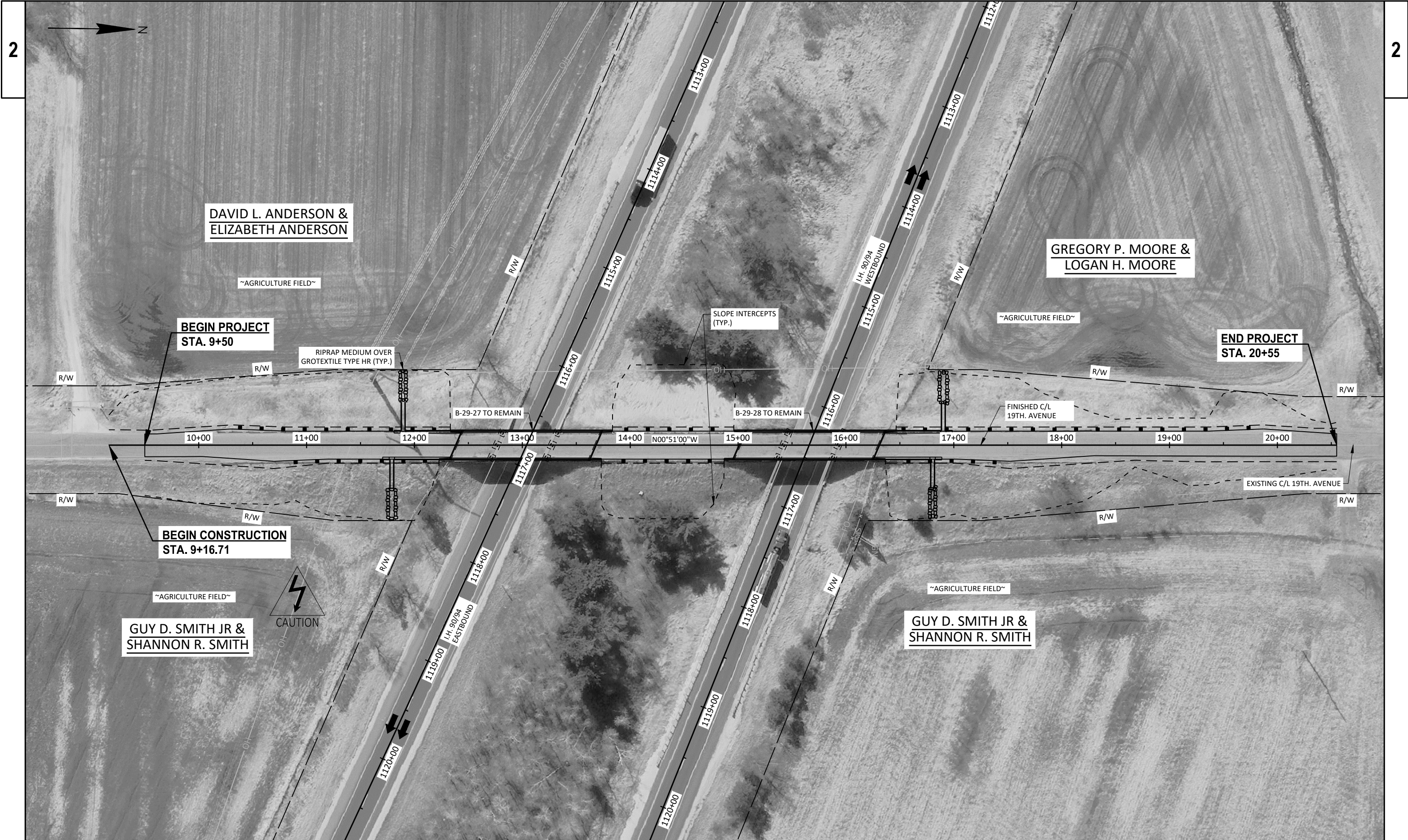
ORDER OF SECTION 2 SHEETS:

- PROJECT OVERVIEW
- TYPICAL SECTIONS
- CONSTRUCTION DETAILS
- ALIGNMENT AND PERMANENT SIGNING
- TRAFFIC CONTROL

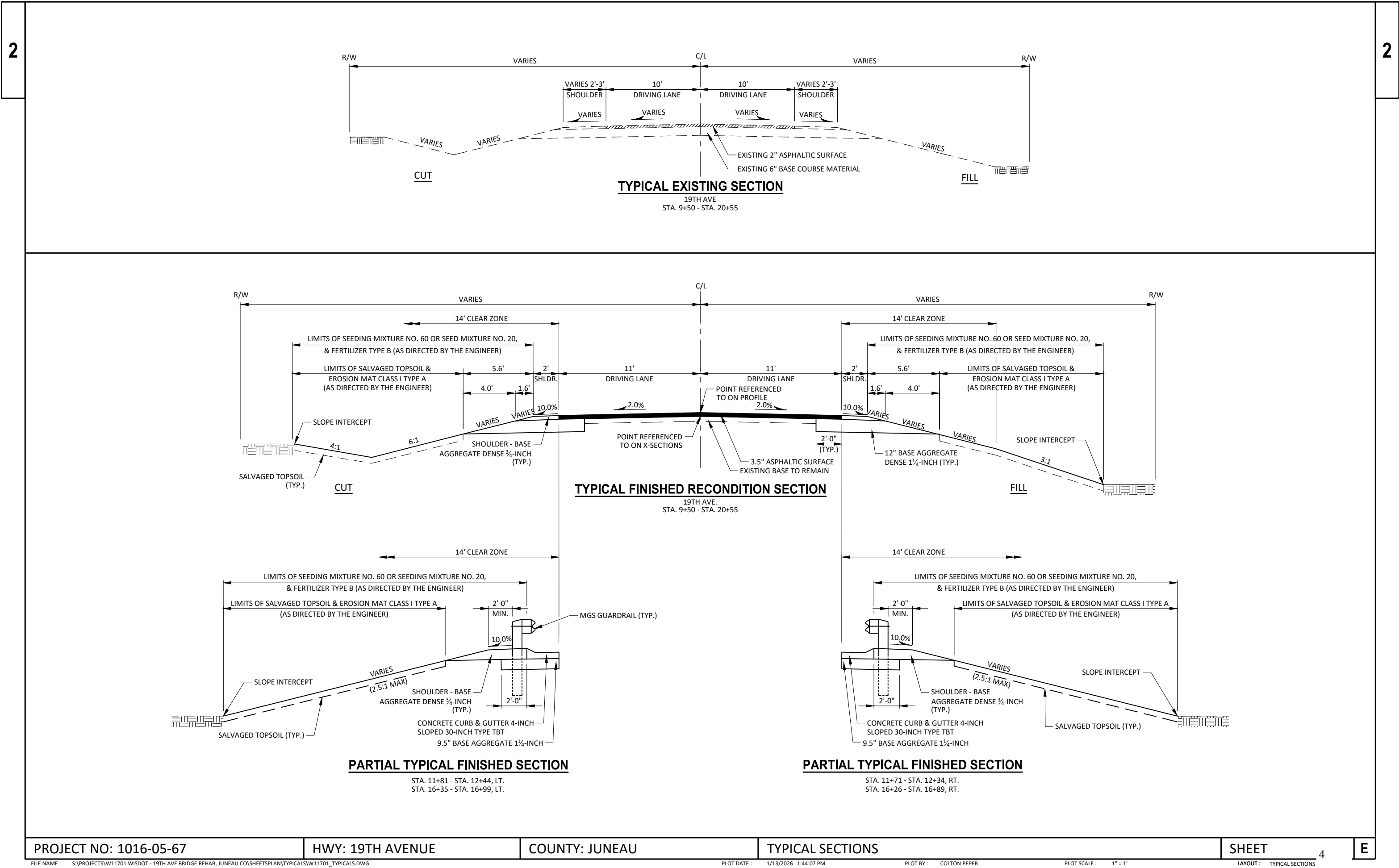
LIST OF STANDARD ABBREVIATIONS

ABUT	Abutment	INV	Invert	RDWY	Roadway
AC	Acre	IP	Iron Pipe or Pin	SALV	Salvaged
AGG	Aggregate	IRS	Iron Rod Set	SAN S	Sanitary Sewer
AH	Ahead	JT	Joint	SEC	Section
<	Angle	JCT	Junction	SHLDR	Shoulder
ASPH	Asphaltic	LHF	Left-Hand Forward	SHR	Shrinkage
AVG	Average	L	Length of Curve	SW	Sidewalk
ADT	Average Daily Traffic	LIN FT or LF	Linear Foot	S	South
BAD	Base Aggregate Dense	LC	Long Chord of Curve	SQ	Square
BK	Back	MH	Manhole	SF or SQ FT	Square Feet
BF	Back Face	MB	Mailbox	SY or SQ YD	Square Yard
BM	Bench Mark	ML or M/L	Match Line	STD	Standard
BR	Bridge	N	North	SDD	Standard Detail Drawings
C or C/L	Center Line	Y	North Grid Coordinate	STH	State Trunk Highways
CC	Center to Center	O.A.L.	Overall Length	STA	Station
CTH	County Trunk Highway	OD	Outside Diameter	SS	Storm Sewer
CR	Creek	PLE	Permanent Limited Easement	SG	Subgrade
CR	Crushed	PT	Point	SE	Superelevation
CY or CU YD	Cubic Yard	PC	Point of Curvature	SL or S/L	Survey Line
CP	Culvert Pipe	PI	Point of Intersection	SV	Septic Vent
C & G	Curb and Gutter	PRC	Point of Reverse Curvature	T	Tangent
D	Degree of Curve	PT	Point of Tangency	TEL	Telephone
DHV	Design Hour Volume	POC	Point On Curve	TEMP	Temporary
DIA	Diameter	POT	Point on Tangent	TI	Temporary Interest
E	East	PVC	Polyvinyl Chloride	TLE	Temporary Limited Easement
X	East Grid Coordinate	PCC	Portland Cement Concrete	t	Ton
ELEC	Electric (al)	LB	Pound	T or TN	Town
EL or ELEV	Elevation	PSI	Pounds Per Square Inch	TRANS	Transition
ESALS	Equivalent Single Axle Loads	PE	Private Entrance	TL or T/L	Transit Line
EBS	Excavation Below Subgrade	R	Radius	T	Trucks (percent of)
ESTR	Existing Sign to Remain	RR	Railroad	TYP	Typical
FF	Face to Face	R	Range	UNCL	Unclassified
FE	Field Entrance	RL or R/L	Reference Line	UG	Underground Cable
F	Fill	RP	Reference Point	USH	United States Highway
FG	Finished Grade	RCCP	Reinforced Concrete Culvert	VAR	Variable
FL or F/L	Flow Line		Pipe	V	Velocity or Design Speed
FT	Foot	REQ'D	Required	VERT	Vertical
FTG	Footing	RES	Residence or Residential	VC	Vertical Curve
GN	Grid North	RW	Retaining Wall	VOL	Volume
HT	Height	RT	Right	WM	Water Main
CWT	Hundredweight	RHF	Right-Hand Forward	WV	Water Valve
HYD	Hydrant	R/W	Right-of-Way	W	West
INL	Inlet	R	River	WB	Westbound
ID	Inside Diameter	RD	Road	YD	Yard

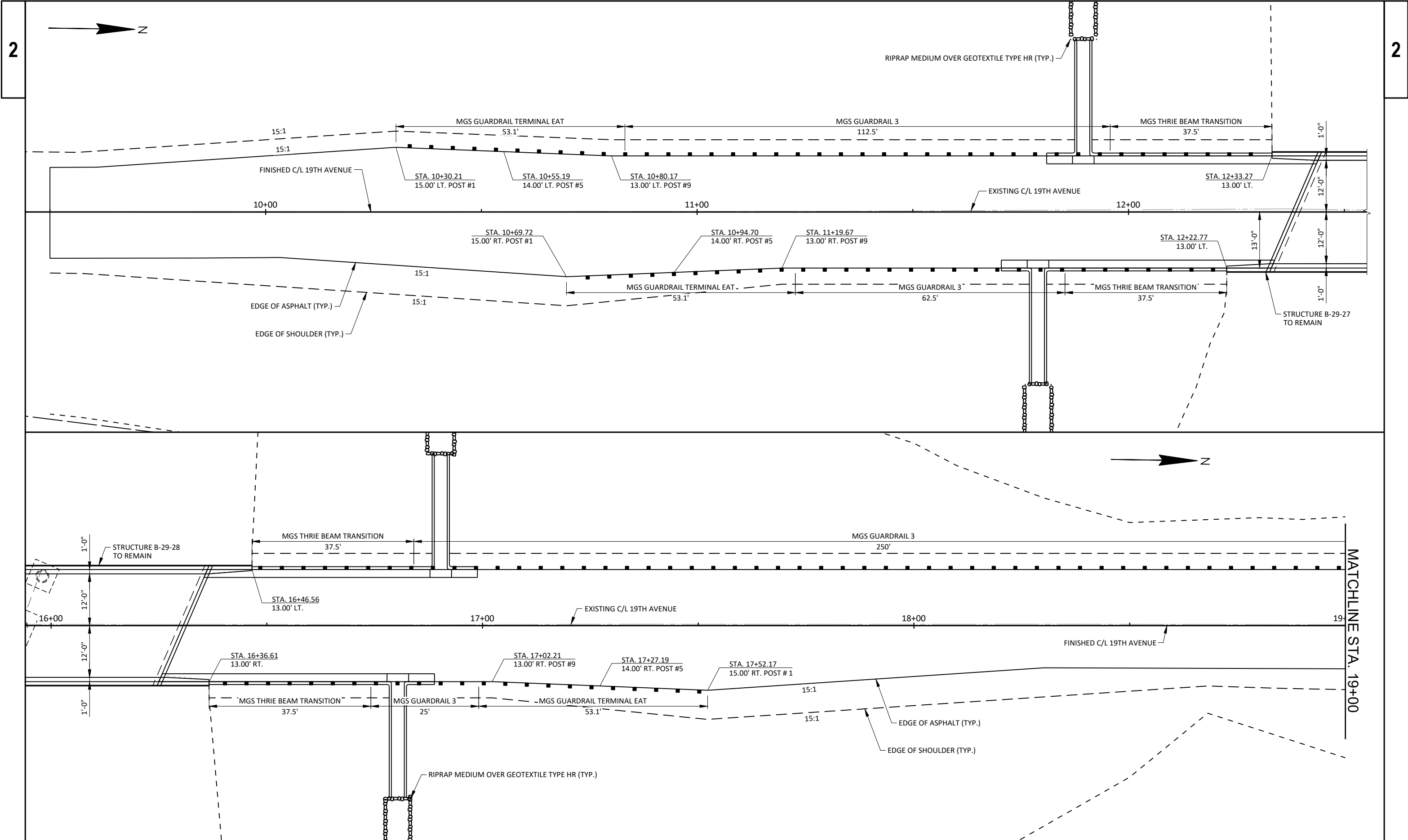




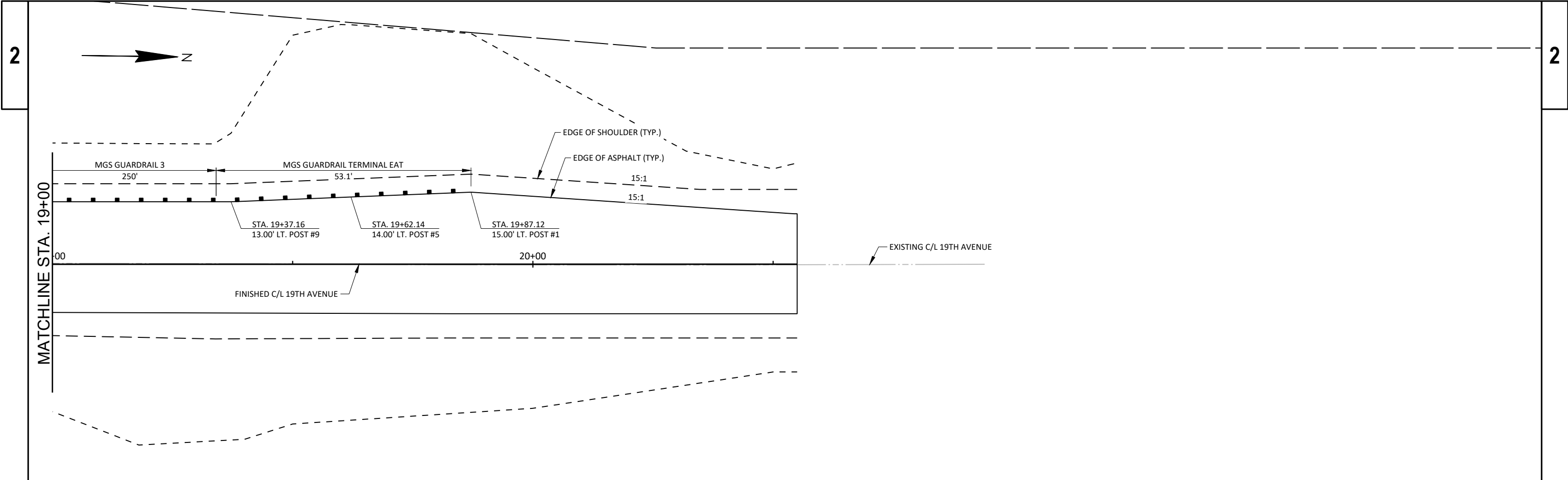




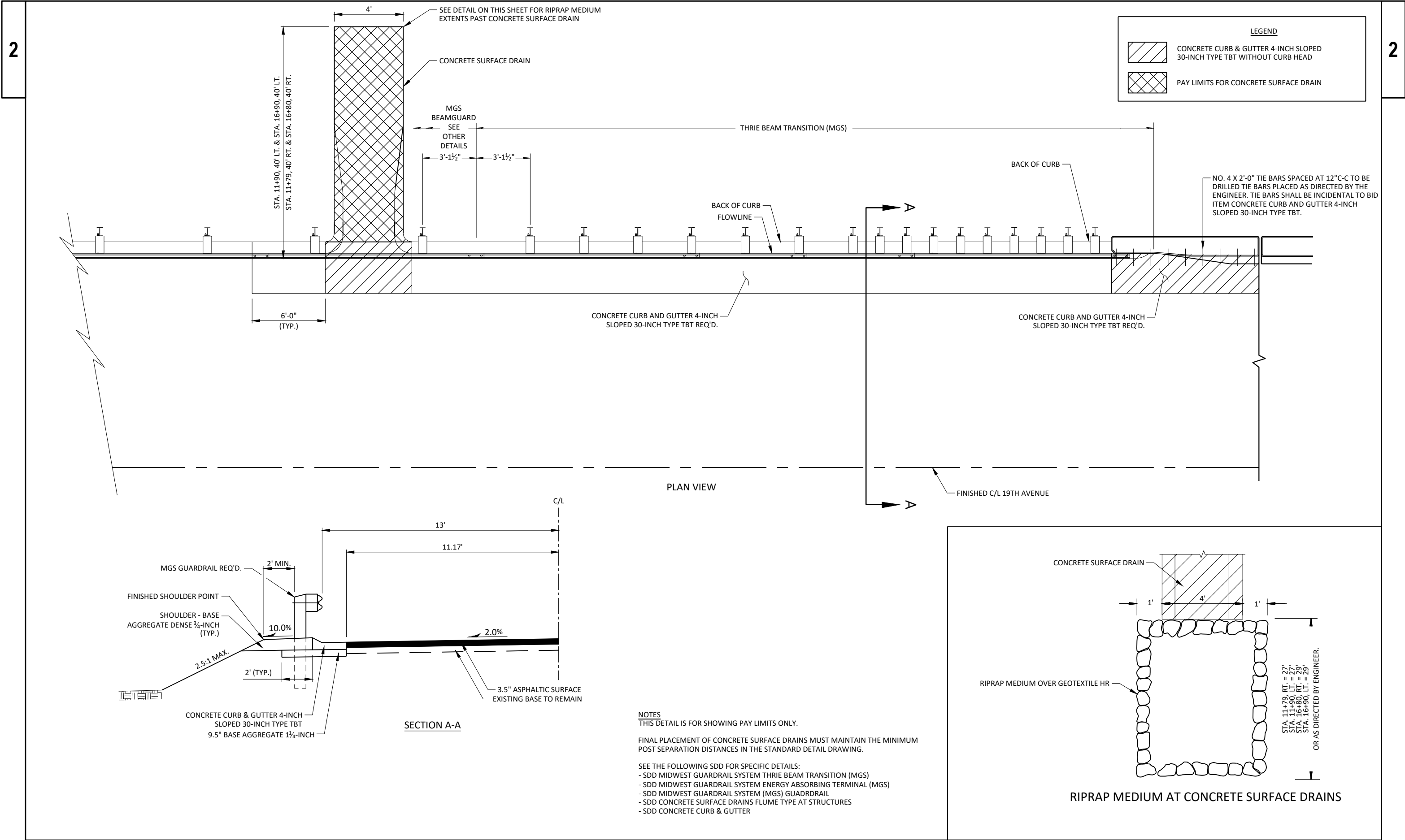




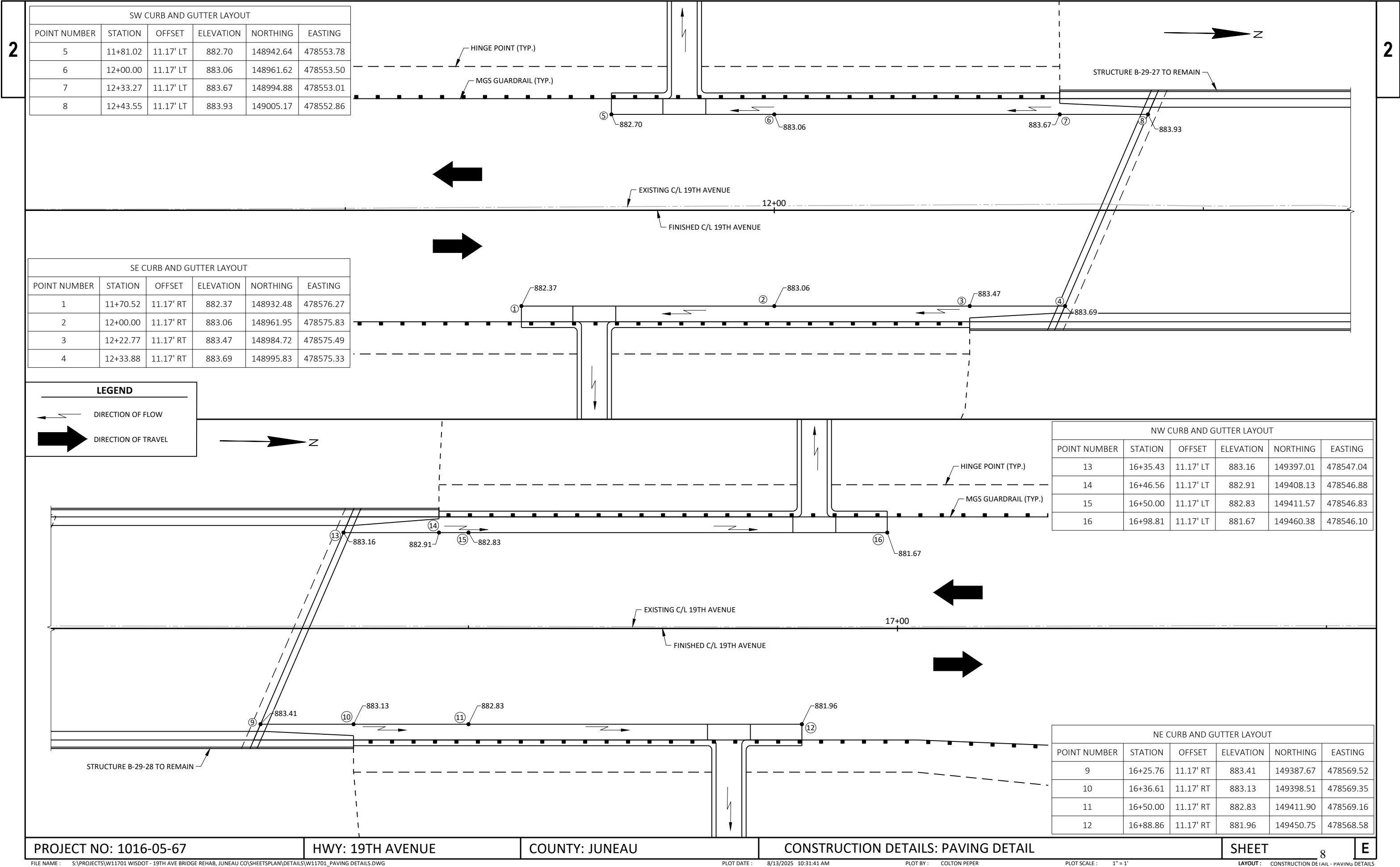




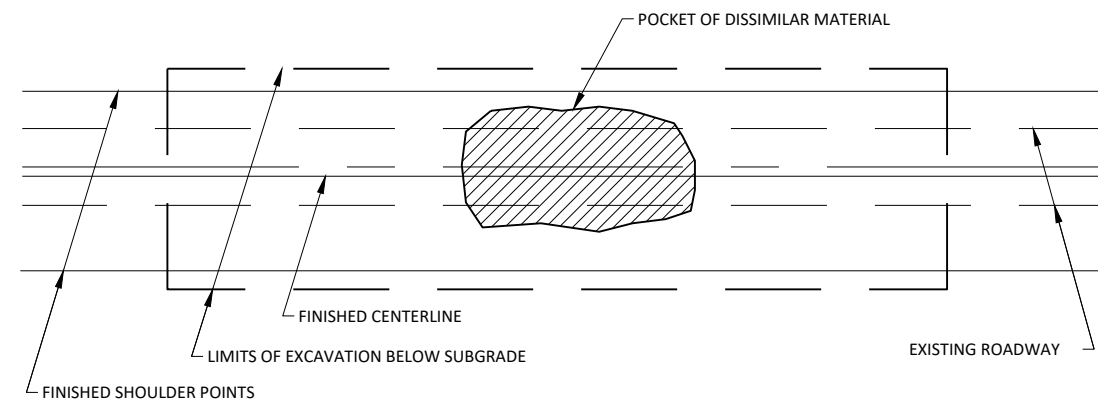
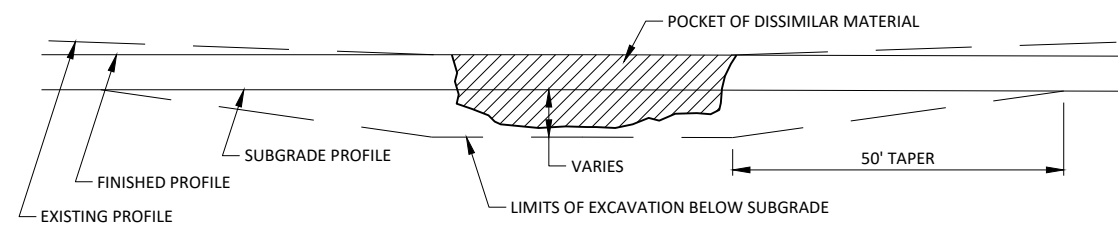
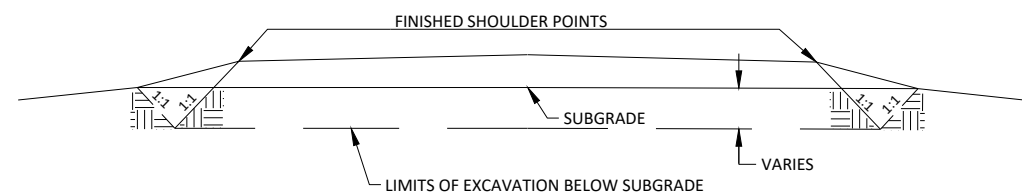




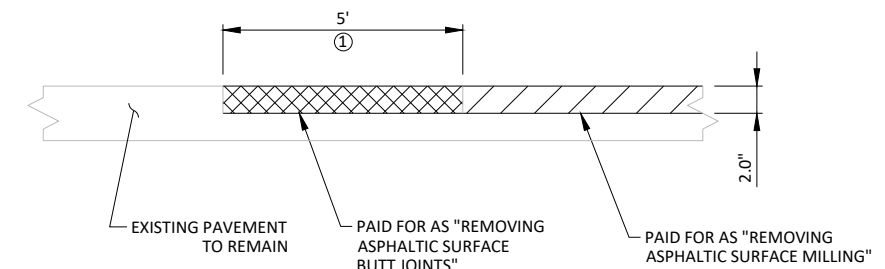




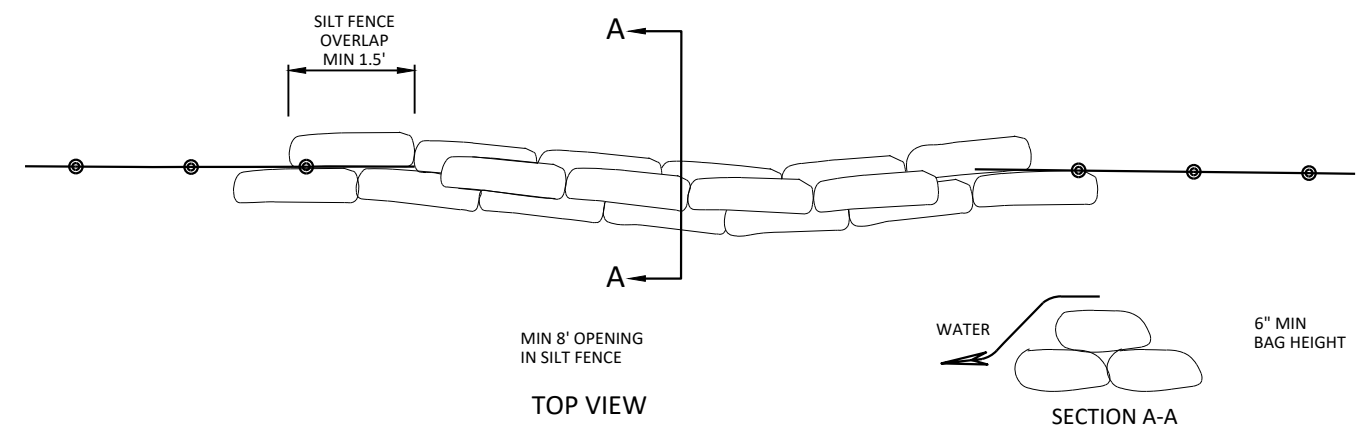


**PLAN VIEW****PROFILE VIEW****CROSS SECTION VIEW**

1. EXACT LOCATION OF E.B.S. (EXCAVATION BELOW SUBGRADE) SHALL BE DETERMINED BY THE ENGINEER IN THE FIELD.
2. E.B.S. AREA TO BE BACKFILLED WITH MATERIAL ACCEPTABLE TO THE ENGINEER. BACKFILL MUST BE HOMOGENEOUS WITH ADJOINING FILL MATERIAL.
3. THE FILL SECTION WITHIN 100' OF THE MOUTH OF THE CUT MUST BE KEPT 2' BELOW SUBGRADE UNTIL E.B.S. IS COMPLETED. LATERAL LIMITS OF EXCAVATION SHALL BE THE SUBGRADE SHOULDER POINTS.

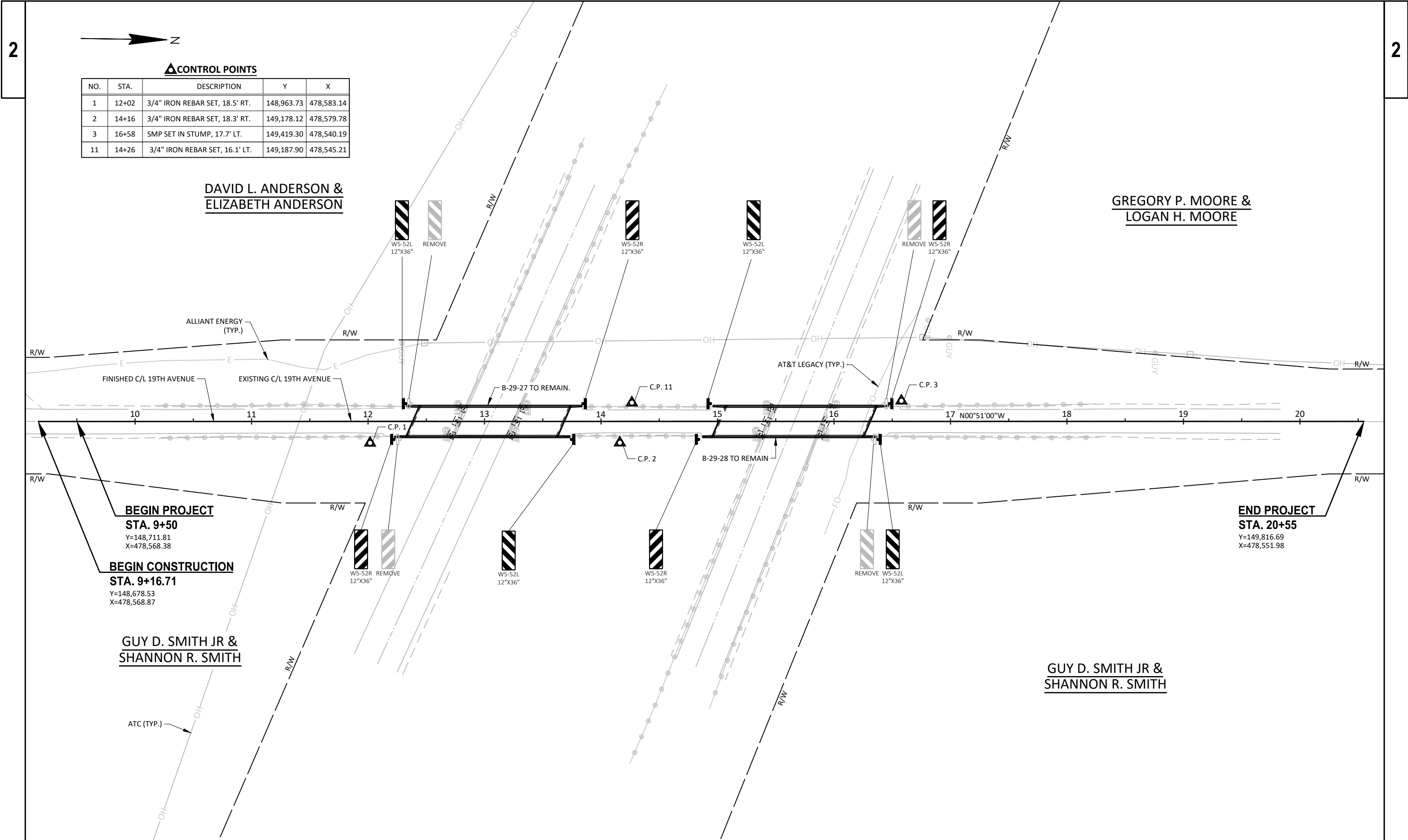
**EXCAVATION BELOW SUBGRADE (E.B.S.) DETAIL****REMOVING ASPHALTIC SURFACE BUTT JOINTS DETAIL**

① LIMITS OF REMOVING ASPHALTIC SURFACE BUTT JOINTS REQ'D.

**TOP VIEW****ROCK BAGS USED FOR SILT FENCE RELIEF**

NOTE: LOCATION AND NUMBER OF ROCK BAGS TO BE DETERMINED BY THE ENGINEER IN THE FIELD.





CONTROL POINTS				
NO.	STA.	DESCRIPTION	Y	X
1	12+02	3/4" IRON REBAR SET, 18.5' RT.	148,963.73	478,583.14
2	14+16	3/4" IRON REBAR SET, 18.3' RT.	149,178.12	478,579.78
3	16+58	SMP SET IN STUMP, 17.7' LT.	149,419.30	478,540.19
11	14+26	3/4" IRON REBAR SET, 16.1' LT.	149,187.90	478,545.21

DAVID L. ANDERSON &  
ELIZABETH ANDERSON

GREGORY P. MOORE &  
LOGAN H. MOORE

BEGIN PROJECT  
STA. 9+50  
Y=148,711.81  
X=478,568.38

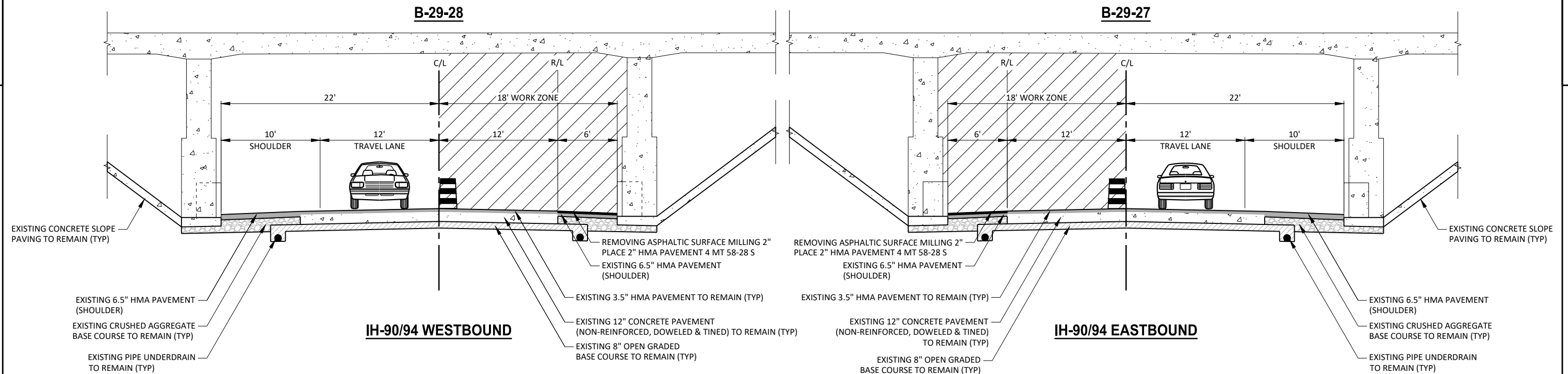
BEGIN CONSTRUCTION  
STA. 9+16.71  
Y=148,678.53  
X=478,568.87

GUY D. SMITH JR &  
SHANNON R. SMITH

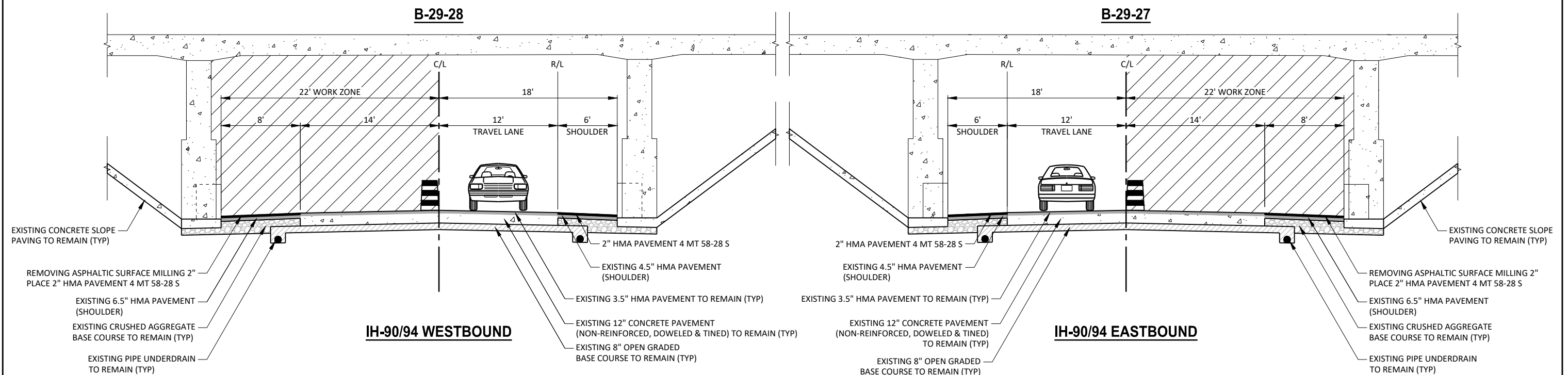
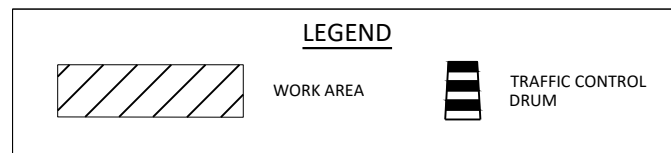
END PROJECT  
STA. 20+55  
Y=149,816.69  
X=478,551.98

GUY D. SMITH JR &  
SHANNON R. SMITH



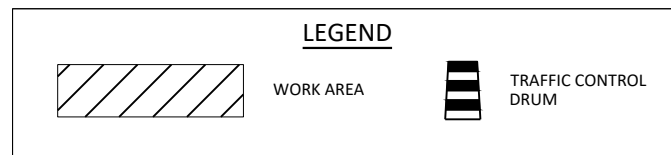
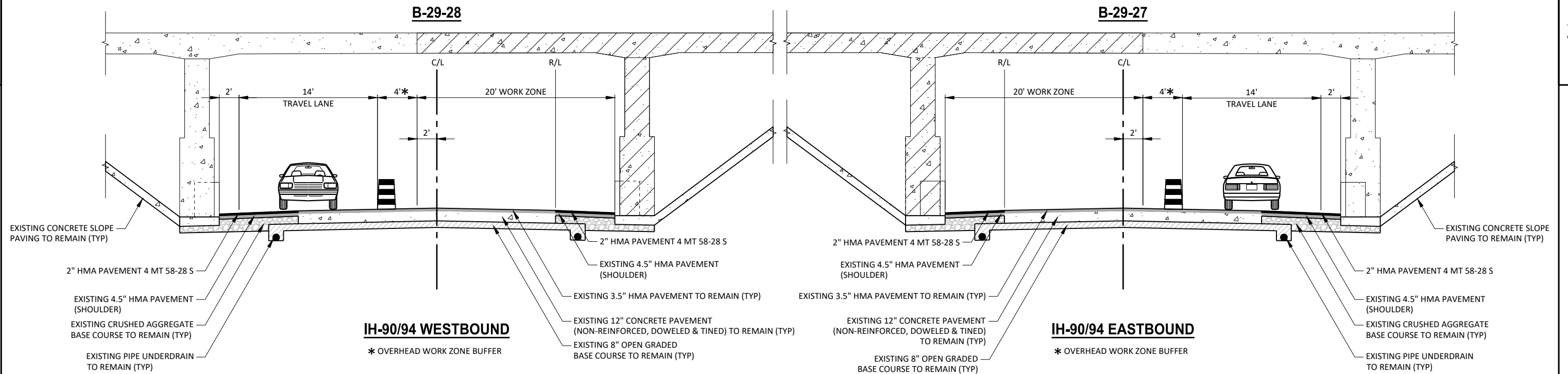
**STAGE 1 TYPICAL SECTION**

IH-90/94  
STA. 1097+80 - STA. 1135+80, WB  
STA. 1097+38 - STA. 1135+38, EB

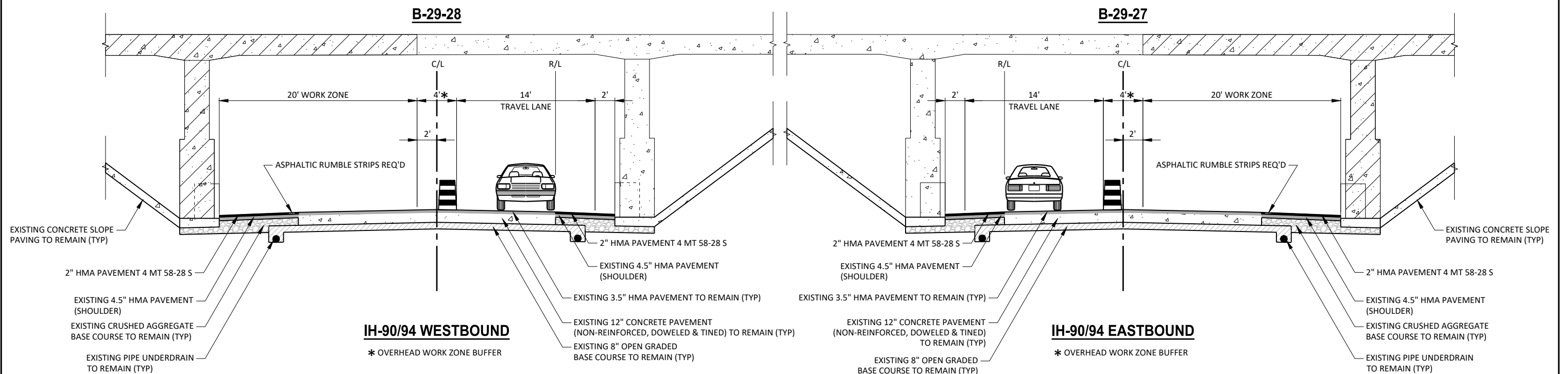
**STAGE 2 TYPICAL SECTION**

IH-90/94  
STA. 1097+80 - STA. 1135+80, WB  
STA. 1097+38 - STA. 1135+38, EB



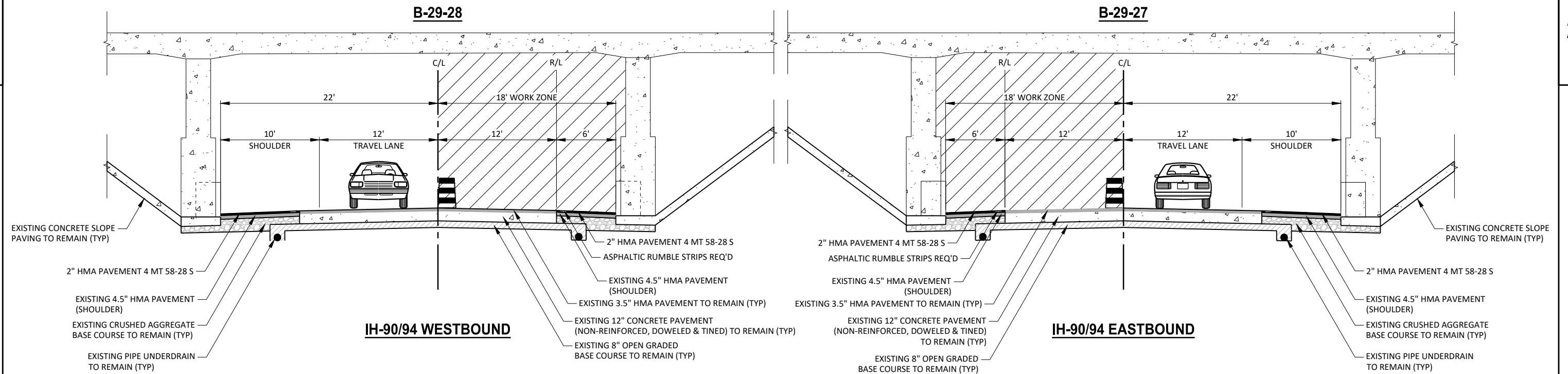
**STAGE 3 TYPICAL SECTION**

IH-90/94  
STA. 1097+80 - STA. 1135+80, WB  
STA. 1097+38 - STA. 1135+38, EB

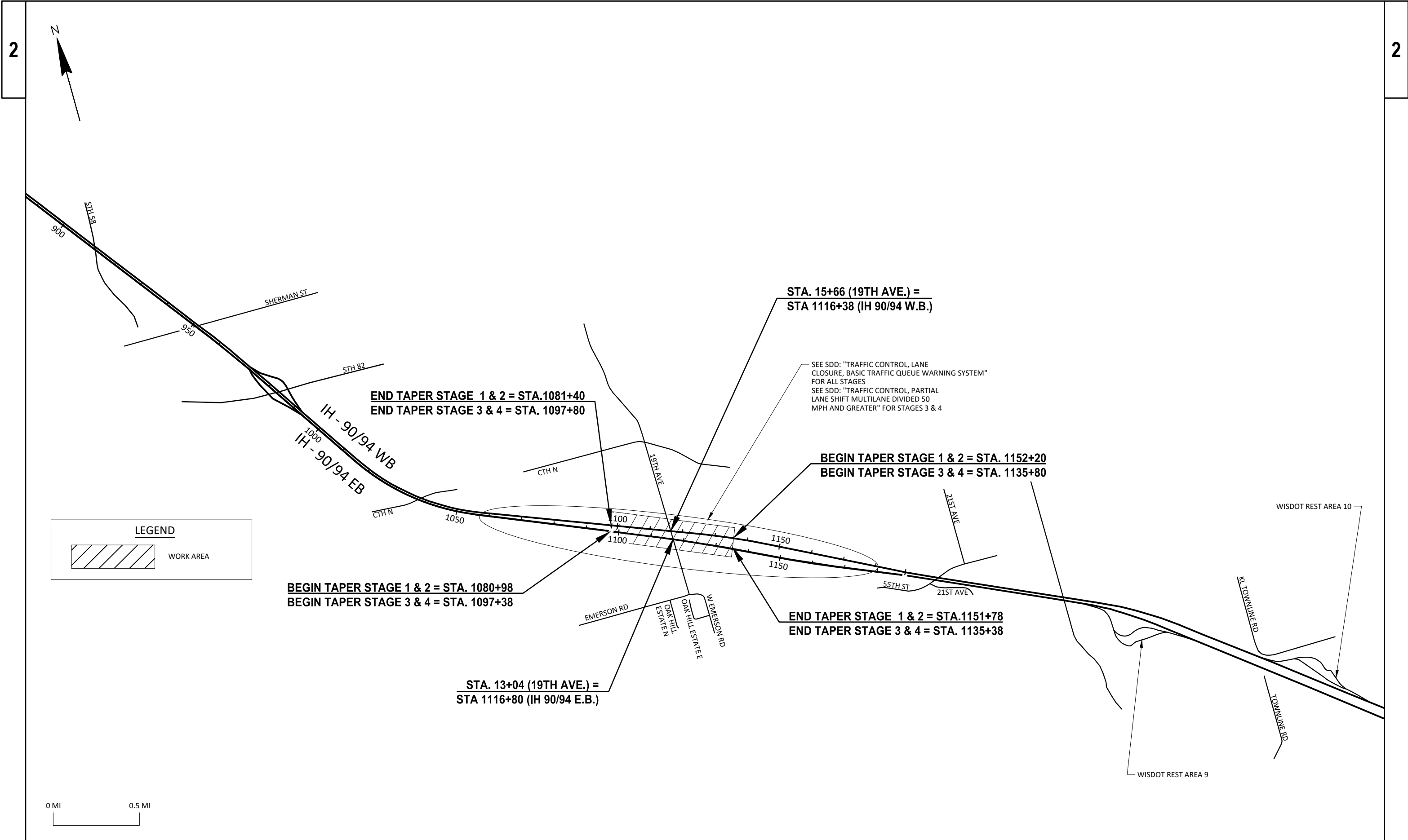
**STAGE 4 TYPICAL SECTION**

IH-90/94  
STA. 1097+80 - STA. 1135+80, WB  
STA. 1097+38 - STA. 1135+38, EB

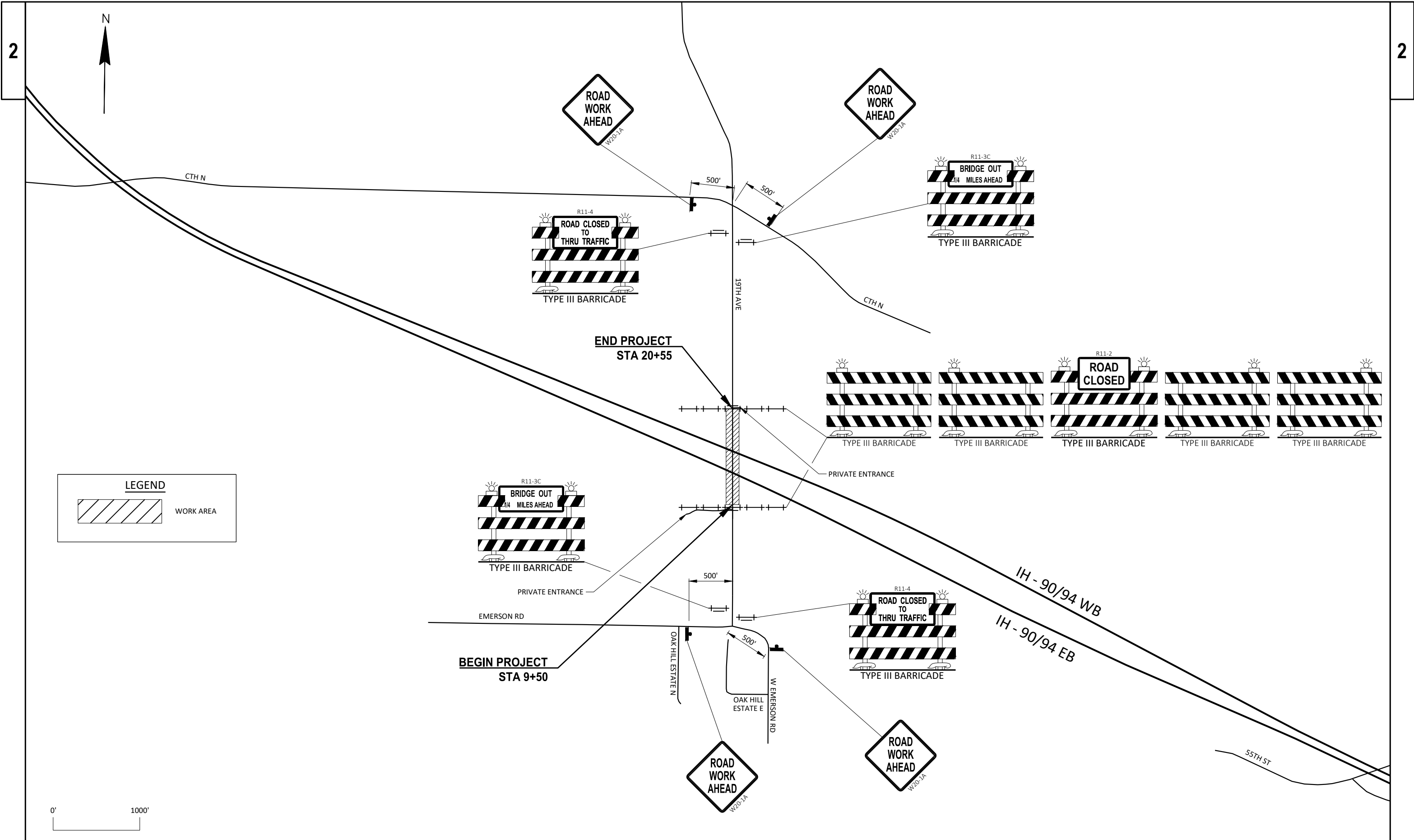














Estimate Of Quantities

1016-05-67

Line	Item	Item Description	Unit	Total	Qty
0002	201.0105	Clearing	STA	3.000	3.000
0004	201.0205	Grubbing	STA	3.000	3.000
0006	204.0110	Removing Asphaltic Surface	SY	1,960.000	1,960.000
0008	204.0115	Removing Asphaltic Surface Butt Joints	SY	36.000	36.000
0010	204.0120	Removing Asphaltic Surface Milling	SY	12,000.000	12,000.000
0012	204.0165	Removing Guardrail	LF	1,040.000	1,040.000
0014	204.0170	Removing Fence	LF	125.000	125.000
0016	205.0100	Excavation Common	CY	610.000	610.000
0018	208.0100	Borrow	CY	3,650.000	3,650.000
0020	211.0101	Prepare Foundation for Asphaltic Paving (project) 01. 1016-05-67	EACH	1.000	1.000
0022	213.0100	Finishing Roadway (project) 01. 1016-05-67	EACH	1.000	1.000
0024	305.0110	Base Aggregate Dense 3/4-Inch	TON	120.000	120.000
0026	305.0120	Base Aggregate Dense 1 1/4-Inch	TON	1,330.000	1,330.000
0028	305.0500	Shaping Shoulders	STA	152.000	152.000
0030	455.0605	Tack Coat	GAL	835.000	835.000
0032	460.2000	Incentive Density HMA Pavement	DOL	870.000	870.000
0034	460.6224	HMA Pavement 4 MT 58-28 S	TON	1,350.000	1,350.000
0036	465.0105	Asphaltic Surface	TON	500.000	500.000
0038	465.0510	Asphaltic Rumble Strips, Shoulder Divided Roadway	LF	15,200.000	15,200.000
0040	502.3200	Protective Surface Treatment	SY	740.000	740.000
0042	509.0301	Preparation Decks Type 1	SY	154.000	154.000
0044	509.0302	Preparation Decks Type 2	SY	78.000	78.000
0046	509.0500	Cleaning Decks	SY	690.000	690.000
0048	509.1200	Curb Repair	LF	11.000	11.000
0050	509.1500	Concrete Surface Repair	SF	224.000	224.000
0052	509.2000	Full-Depth Deck Repair	SY	16.000	16.000
0054	509.2500	Concrete Masonry Overlay Decks	CY	47.000	47.000
0056	509.9010.S	Removing Asphaltic Concrete Deck Overlay (structure) 01. B-29-0027	SY	345.000	345.000
0058	509.9010.S	Removing Asphaltic Concrete Deck Overlay (structure) 02. B-29-0028	SY	345.000	345.000
0060	601.0584	Concrete Curb & Gutter 4-Inch Sloped 30-Inch Type TBT	LF	254.000	254.000
0062	602.3010	Concrete Surface Drains	CY	9.000	9.000
0064	606.0200	Riprap Medium	CY	38.000	38.000
0066	614.2300	MGS Guardrail 3	LF	525.000	525.000
0068	614.2500	MGS Thrie Beam Transition	LF	320.000	320.000
0070	614.2610	MGS Guardrail Terminal EAT	EACH	4.000	4.000
0072	616.0100	Fence Woven Wire (height) 01. 4 FT	LF	130.000	130.000
0074	618.0100	Maintenance and Repair of Haul Roads (project) 01. 1016-05-67	EACH	1.000	1.000
0076	619.1000	Mobilization	EACH	1.000	1.000
0078	624.0100	Water	MGAL	22.000	22.000
0080	625.0500	Salvaged Topsoil	SY	7,440.000	7,440.000
0082	628.1504	Silt Fence	LF	2,610.000	2,610.000
0084	628.1520	Silt Fence Maintenance	LF	5,220.000	5,220.000
0086	628.1905	Mobilizations Erosion Control	EACH	5.000	5.000
0088	628.1910	Mobilizations Emergency Erosion Control	EACH	4.000	4.000
0090	628.2002	Erosion Mat Class I Type A	SY	7,440.000	7,440.000
0092	628.7570	Rock Bags	EACH	42.000	42.000
0094	629.0210	Fertilizer Type B	CWT	4.000	4.000
0096	630.0120	Seeding Mixture No. 20	LB	270.000	270.000
0098	630.0160	Seeding Mixture No. 60	LB	12.000	12.000



Estimate Of Quantities

1016-05-67

Line	Item	Item Description	Unit	Total	Qty
0100	630.0200	Seeding Temporary	LB	160.000	160.000
0102	630.0300	Seeding Borrow Pit	LB	100.000	100.000
0104	630.0500	Seed Water	MGAL	215.000	215.000
0106	634.0612	Posts Wood 4x6-Inch X 12-FT	EACH	8.000	8.000
0108	637.2230	Signs Type II Reflective F	SF	24.000	24.000
0110	638.2602	Removing Signs Type II	EACH	4.000	4.000
0112	638.3000	Removing Small Sign Supports	EACH	4.000	4.000
0114	642.5001	Field Office Type B	EACH	1.000	1.000
0116	643.0300	Traffic Control Drums	DAY	2,320.000	2,320.000
0118	643.0420	Traffic Control Barricades Type III	DAY	1,678.000	1,678.000
0120	643.0705	Traffic Control Warning Lights Type A	DAY	2,636.000	2,636.000
0122	643.0715	Traffic Control Warning Lights Type C	DAY	288.000	288.000
0124	643.0810	Traffic Control Connected Arrow Boards	DAY	22.000	22.000
0126	643.0900	Traffic Control Signs	DAY	1,506.000	1,506.000
0128	643.1050	Traffic Control Signs PCMS	DAY	14.000	14.000
0130	643.1205.S	Basic Traffic Queue Warning System	DAY	9.000	9.000
0132	643.1220	Traffic Control Connected Work Zone Start and End Location Markers	DAY	44.000	44.000
0134	643.5000	Traffic Control	EACH	1.000	1.000
0136	645.0120	Geotextile Type HR	SY	125.000	125.000
0138	650.4500	Construction Staking Subgrade	LF	880.000	880.000
0140	650.5000	Construction Staking Base	LF	880.000	880.000
0142	650.5500	Construction Staking Curb Gutter and Curb & Gutter	LF	254.000	254.000
0144	650.9911	Construction Staking Supplemental Control (project) 01. 1016-05-67	EACH	1.000	1.000
0146	650.9920	Construction Staking Slope Stakes	LF	880.000	880.000
0148	690.0150	Sawing Asphalt	LF	42.000	42.000
0150	SPV.0060	Special 01. Embedded Galvanic Anodes	EACH	135.000	135.000
0152	SPV.0165	Special 01. Fiber Wrap Reinforcing Non-Structural	SF	1,240.000	1,240.000



3

CLEARING AND GRUBBING				REMOVING ASPHALTIC SURFACE			REMOVING ASPHALTIC SURFACE BUTT JOINTS				REMOVING ASPHALTIC SURFACE MILLING			REMOVING GUARDRAIL		
														ALL ITEMS 010 UNLESS OTHERWISE NOTED		



3

												ALL ITEMS 010 UNLESS OTHERWISE NOTED	
FINISHING ITEMS													
		625.0500 SALVAGED TOPSOIL (SY)	628.2002 EROSION MAT CLASS I TYPE A (SY)	629.0210 FERTILIZER TYPE B (CWT)	630.0120 SEEDING MIXTURE NO. 20 (LB)	630.0160 SEEDING MIXTURE NO. 60 (LB)	630.0200 SEEDING TEMPORARY (LB)	630.0300 SEEDING BORROW PIT (LB)	630.0500 SEED WATER (MGAL)				
STATION - STATION	LOCATION												
9+50 - 12+39	MAINLINE	2,530	2,530	1	93	4	56	--	54				
13+68 - 15+01	MAINLINE	1,230	1,230	1	47	2	28	--	26				
16+31 - 20+55	MAINLINE	2,190	2,190	1	75	4	45	--	42				
--	BORROW PIT	--	--	--	--	--	--	100	50				
--	UNDISTRIBUTED	1,490	1,490	1	55	2	31	--	43				
TOTALS =		7,440	7,440	4	270	12	160	100	215				
MOBILIZATION EROSION CONTROL													
		628.1905 MOBILIZATION EROSION CONTROL (EACH)	628.1910 MOBILIZATION EMERGENCY EROSION CONTROL (EACH)										
PROJECT													
1016-05-67		5	4										
TOTALS =		5	4										
ROCK BAGS													
		STATION	LOCATION	628.7570 (EACH)									
		--	UNDISTRIBUTED	7									
		--	UNDISTRIBUTED	7									
		--	UNDISTRIBUTED	7									
		--	UNDISTRIBUTED	7									
		--	UNDISTRIBUTED	7									
TOTALS =				42									

3

PERMANENT SIGNING										
				634.0612 POSTS WOOD 4X6- INCH X 12-FT (EACH)	637.2230 SIGNS TYPE II REFLECTIVE F (SF)	638.2602 REMOVING SIGNS TYPE II (EACH)	638.3000 REMOVING SMALL SIGN SUPPORTS (EACH)			
APPROX. STATION	POSITION	LOCATION	SIGN CODE	SIGN DESCRIPTION	ORDER LINES	SIGN SIZE				
12+22	RIGHT	MAINLINE	W5-52R	BRIDGE HASH MARKS	--	12X36	1	3	--	--
12+23	RIGHT	MAINLINE	W5-52R	BRIDGE HASH MARKS	--	12X36	--	--	1	1
12+33	LEFT	MAINLINE	W5-52L	BRIDGE HASH MARKS	--	12X36	1	3	--	--
12+34	LEFT	MAINLINE	W5-52L	BRIDGE HASH MARKS	--	12X36	--	--	1	1
13+75	RIGHT	MAINLINE	W5-52L	BRIDGE HASH MARKS	--	12X36	1	3	--	--
13+85	LEFT	MAINLINE	W5-52R	BRIDGE HASH MARKS	--	12X36	1	3	--	--
14+84	RIGHT	MAINLINE	W5-52R	BRIDGE HASH MARKS	--	12X36	1	3	--	--
14+94	LEFT	MAINLINE	W5-52L	BRIDGE HASH MARKS	--	12X36	1	3	--	--
16+35	RIGHT	MAINLINE	W5-52L	BRIDGE HASH MARKS	--	12X36	--	--	1	1
16+36	RIGHT	MAINLINE	W5-52L	BRIDGE HASH MARKS	--	12X36	1	3	--	--
16+46	LEFT	MAINLINE	W5-52R	BRIDGE HASH MARKS	--	12X36	--	--	1	1
16+47	LEFT	MAINLINE	W5-52R	BRIDGE HASH MARKS	--	12X36	1	3	--	--
TOTALS =							8	24	4	4

GEOTEXTILE TYPE HR		
STATION	LOCATION	645.0120 (SY)
11+79	MAINLINE, RT.	33.0
11+90	MAINLINE, LT.	32.0
16+80	MAINLINE, RT.	30.0
16+90	MAINLINE, LT.	30.0
TOTALS =		125.0

CONSTRUCTION STAKING						
		650.4500	650.5000	650.5500	650.9911	650.9920
STATION -STATION	LOCATION	SUBGRADE (LF)	BASE (LF)	CURB GUTTER AND CURB & GUTTER (LF)	SUPPLEMENTAL CONTROL (1016-05-67) (EACH)	SLOPE STAKES (LF)
9+16 - 12+39	MAINLINE	323	323	127	--	323
13+68 - 15+01	MAINLINE	133	133	--	--	133
16+31 - 20+55	MAINLINE	424	424	127	--	424
1016-05-67	PROJECT	--	--	--	1	--
TOTAL =		880	880	254	1	880

TRAFFIC CONTROL												
STAGE	LOCATION	DURATION CALENDER DAYS	643.0300 DRUMS (DAY)	643.0420 BARRICADES TYPE III (DAY)	643.0705 WARNING LIGHTS TYPE A (DAY)	643.0715 WARNING LIGHTS TYPE C (DAY)	643.0810 CONNECTED ARROW BOARDS (DAY)	643.0900 SIGNS (DAY)	643.1050 PCMS (DAY)	643.1205.S BASIC TRAFFIC QUEUE WARNING SYSTEM (DAY)	643.1220 CONNECTED WORK ZONE START AND END LOCATION MARKERS (DAY)	643.5000 TRAFFIC CONTROL (EACH)
PROJECT	MAINLINE	90	--	1,620	2,520	--	--	1,260	14	--	--	1
1	IH 90/94 EB & WB	2	520	4	8	48	4	36	--	2	8	--
2	IH 90/94 EB & WB	2	520	4	8	48	4	36	--	2	8	--
3	IH 90/94 EB & WB	3	510	24	48	84	6	78	--	2	12	--
4	IH 90/94 EB & WB	3	510	24	48	84	6	78	--	2	12	--
5	IH 90/94 EB & WB	1	260	2	4	24	2	18	--	1	4	--
TOTALS =			2,320	1,678	2,636	288	22	1,506	14	9	44	1

SAWING ASPHALT		
STATION	LOCATION	690.0150 (LF)
9+50	MAINLINE	21
20+50	MAINLINE	21
TOTAL =		42







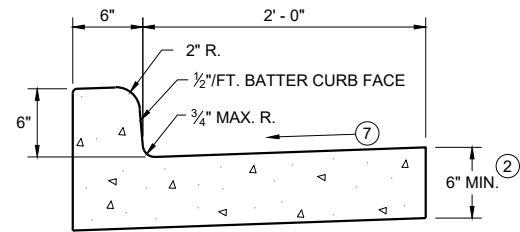




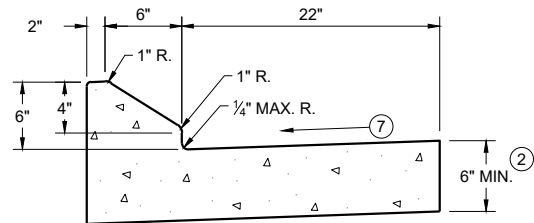
Standard Detail Drawing List

08D01-24A	CONCRETE CURB & GUTTER
08D01-24B	CONCRETE CURB, TIES AND CURB AND GUTTER APPLICATIONS
08D02-08A	CONCRETE SURFACE DRAINS FLUME TYPE AT STRUCTURES
08D02-08B	CONCRETE SURFACE DRAINS FLUME TYPE AT STRUCTURES
08D02-08C	CONCRETE SURFACE DRAINS FLUME TYPE AT STRUCTURES
08E09-06	SILT FENCE
13A05-06A	SHOULDER RUMBLE STRIPS, DIVIDED ROADWAY
13A05-06B	SHOULDER RUMBLE STRIPS, DIVIDED ROADWAY
13C19-03	HMA LONGITUDINAL JOINTS
14B42-07A	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-07B	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-07C	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-07D	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B44-04A	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B44-04B	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B44-04C	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B45-05A	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05B	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05C	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05D	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05E	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
15B01-08A	FENCE WOVEN WIRE
15B01-08B	FENCE WOVEN WIRE
15C02-09A	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C02-09B	BARRICADES AND SIGNS FOR VARIOUS CLOSURES
15C02-09C	DETOUR SIGNING FOR MAINLINE CLOSURES
15C06-12	SIGNING & MARKING FOR TWO LANE BRIDGES
15C11-10B	CHANNELIZING DEVICES DRUMS, CONES, BARRICADES AND VERTICAL PANELS
15D12-15D	TRAFFIC CONTROL, LANE CLOSURE, BASIC TRAFFIC QUEUE WARNING SYSTEM
15D40-06D	TRAFFIC CONTROL, PARTIAL LANE SHIFT MULTILANE DIVIDED 50 MPH AND GREATER

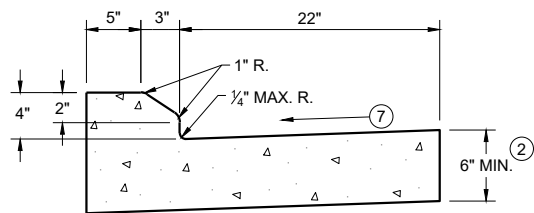




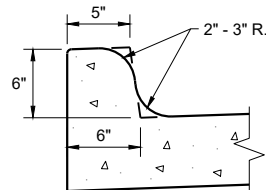
TYPES A<sup>①</sup> & D



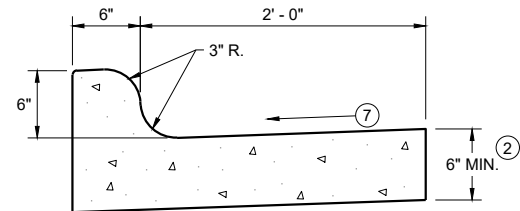
6" SLOPED CURB TYPES G<sup>①</sup> & J



4" SLOPED CURB TYPES G<sup>①</sup> & J

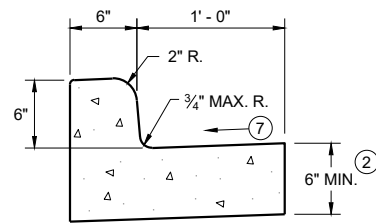


TYPES K<sup>①</sup> & L  
(OPTIONAL CURB SHAPE)



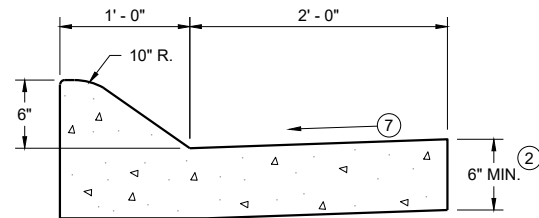
TYPES K<sup>①</sup> & L

CONCRETE CURB AND GUTTER 30"

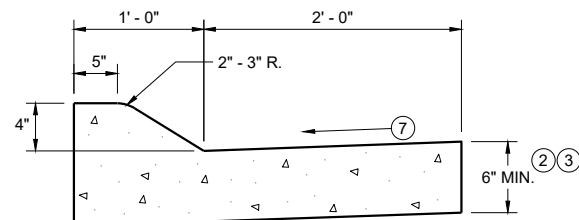


TYPES A<sup>①</sup> & D

CONCRETE CURB AND GUTTER 18"

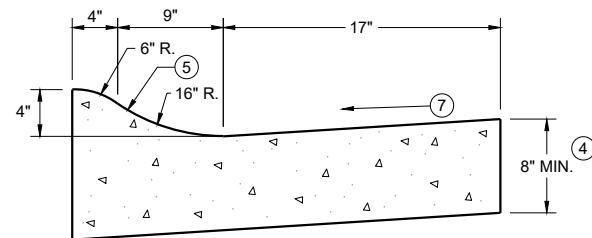


6" SLOPED CURB TYPES A<sup>①</sup> & D



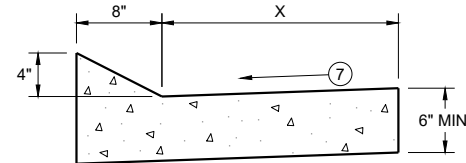
4" SLOPED CURB TYPES A<sup>①</sup> & D

CONCRETE CURB AND GUTTER 36"



4" SLOPED CURB TYPES R<sup>①</sup> & T  
CONCRETE CURB AND GUTTER 30"

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

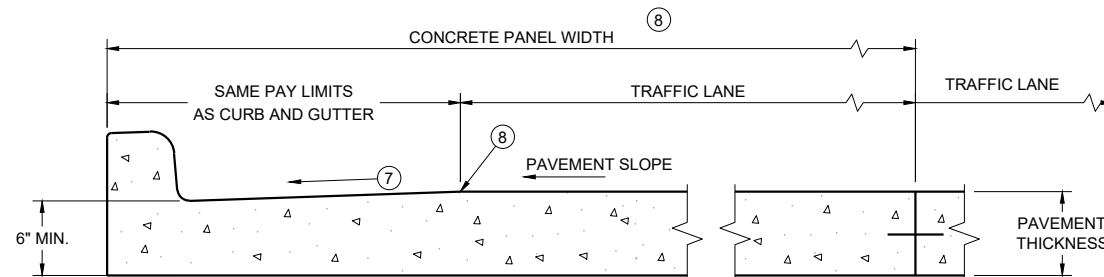


TYPES TBT & TBTT<sup>①</sup>

CONCRETE CURB AND GUTTER

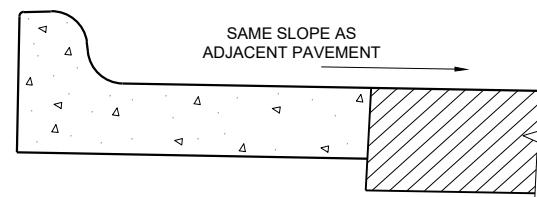
PAVEMENT THICKNESS  
AND MAXIMUM CONCRETE  
PANEL WIDTH TABLE

PAVEMENT THICKNESS	MAXIMUM PANEL WIDTH
LESS THAN 10"	12'
10" & ABOVE	15'

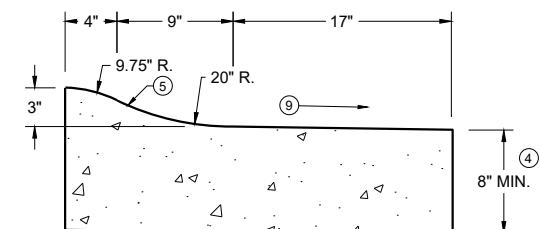


PARTIAL SECTION OF PAVEMENT  
WITH INTEGRAL CURB AND GUTTER

\* BIKE LANE IS NOT SHOWN



REVERSE SLOPE GUTTER<sup>⑥</sup>  
(TYPICAL FOR ALL CURB & GUTTER TYPES)



3" SLOPED CURB TYPES R<sup>①</sup> & T

CONCRETE CURB AND GUTTER

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

GENERAL NOTES

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

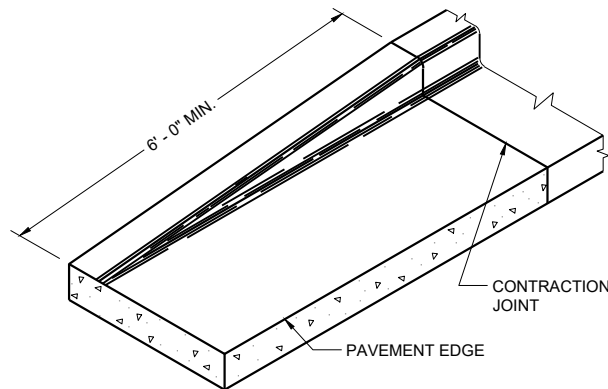
PAVEMENT TIES AND TIE BARS SHALL BE EPOXY COATED IN CONFORMANCE WITH SUBSECTION 505.2.6.2 OF THE STANDARD SPECIFICATIONS.

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

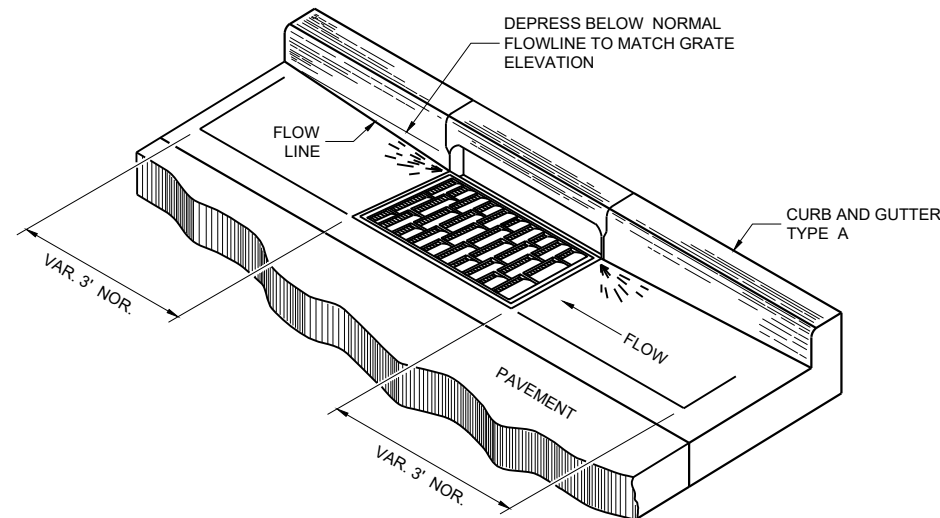
UNLESS OTHERWISE SHOWN ON THE TYPICAL CROSS SECTIONS, THE BASE AGGREGATE AND COMMON EXCAVATION LIMITS ARE 2' - 0" BEHIND THE BACK OF CURBS.

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



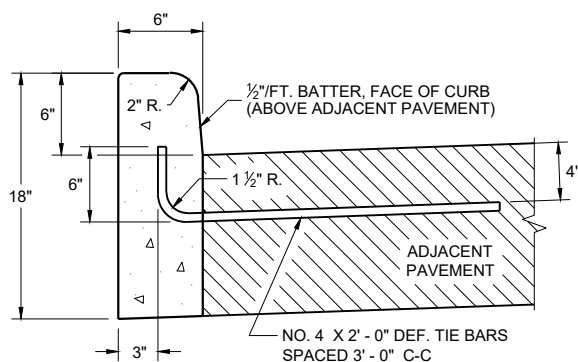


**END SECTION CURB AND GUTTER**

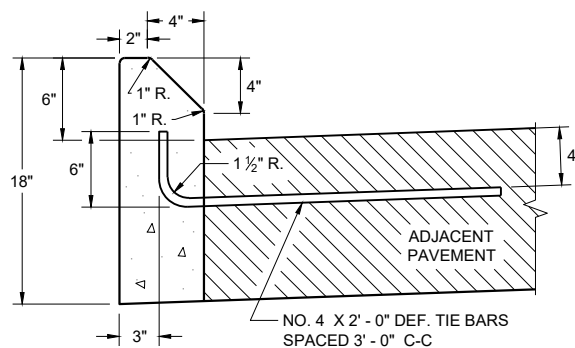


**DETAIL OF CURB AND GUTTER AT INLETS**

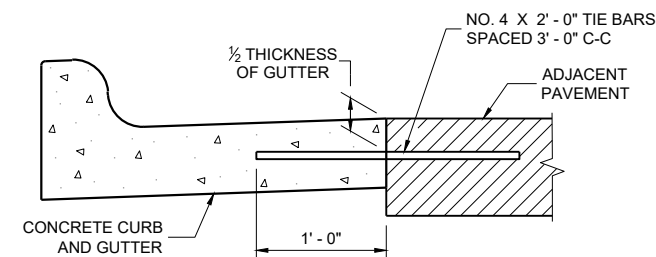
(TYPICAL H INLET COVER SHOWN)



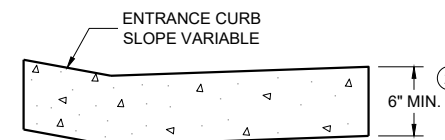
**TYPES A<sup>①</sup> & D**



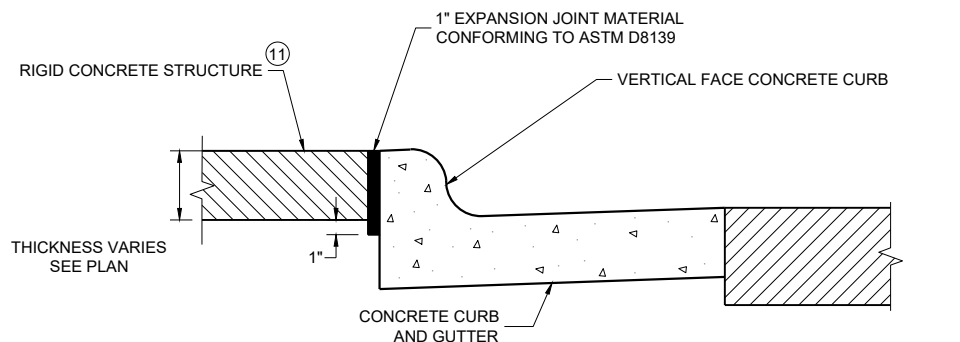
**TYPES G<sup>①</sup> & J  
CONCRETE CURB**



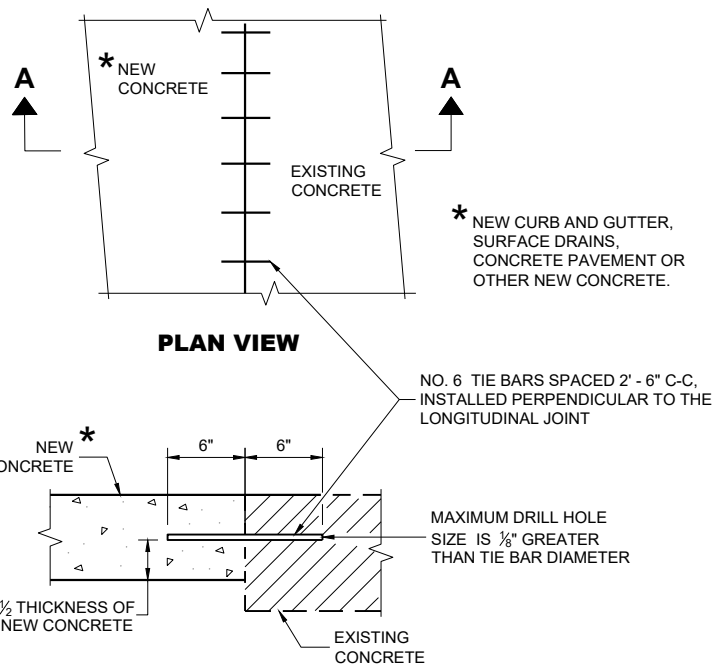
**TYPICAL TIE BAR LOCATION<sup>①</sup>**



**DRIVEWAY ENTRANCE CURB<sup>⑩</sup>  
(WHEN DIRECTED BY THE ENGINEER)**



**EXPANSION JOINT DETAIL FOR VERTICAL CURB ABUTTING A RIGID STRUCTURE<sup>⑪</sup>**



**SECTION A - A  
TIE BARS DRILLED INTO EXISTING PAVEMENT**

**GENERAL NOTES**

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

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

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

- ① TIE BARS ARE REQUIRED FOR CURB AND GUTTERS TYPES A, G, K, R, AND TBTT.
- ② THE BOTTOM OF CURB AND GUTTER MAY BE CONSTRUCTED EITHER LEVEL OR PARALLEL TO THE SLOPE OF THE SUBGRADE OR BASE AGGREGATE PROVIDED A 6" MINIMUM GUTTER THICKNESS IS MAINTAINED.
- ⑩ REFER TO SDD 08D18 AND 08D19 FOR ADDITIONAL DRIVEWAY ENTRANCE CURB DETAILS.
- ⑪ PLACE 1" THICK EXPANSION JOINT MATERIAL BETWEEN VERTICAL FACE CURB TYPES EXTENDING FROM THE TOP OF CURB TO 1 INCH BELOW THE ADJOINING CONCRETE SURFACE. RIGID CONCRETE STRUCTURES INCLUDE RAISED CONCRETE MEDIANS, CONCRETE SAFETY ISLANDS, SPLITTER ISLANDS, OR LOCATIONS IDENTIFIED ON THE PLANS.

**CONCRETE CURB, TIES  
AND CURB AND GUTTER  
APPLICATIONS**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
February 2025 DATE /S/ Rodney Taylor  
ROADWAY STANDARDS DEVELOPMENT  
UNIT SUPERVISOR



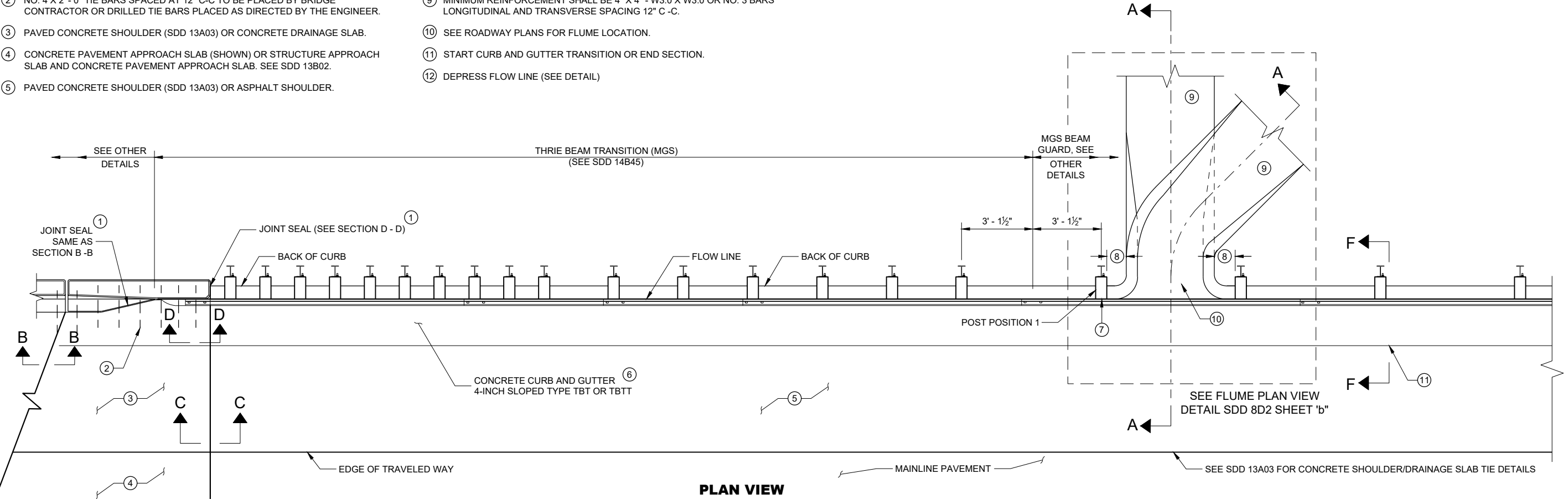
GENERAL NOTES

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

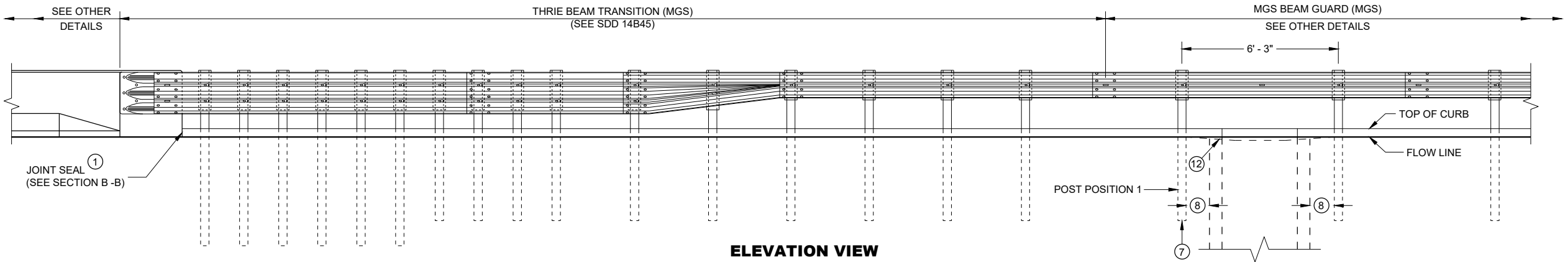
ALL STEEL REINFORCEMENT SHALL BE EMBEDDED 2 INCHES CLEAR UNLESS OTHERWISE SHOWN OR NOTED.

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

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



PLAN VIEW

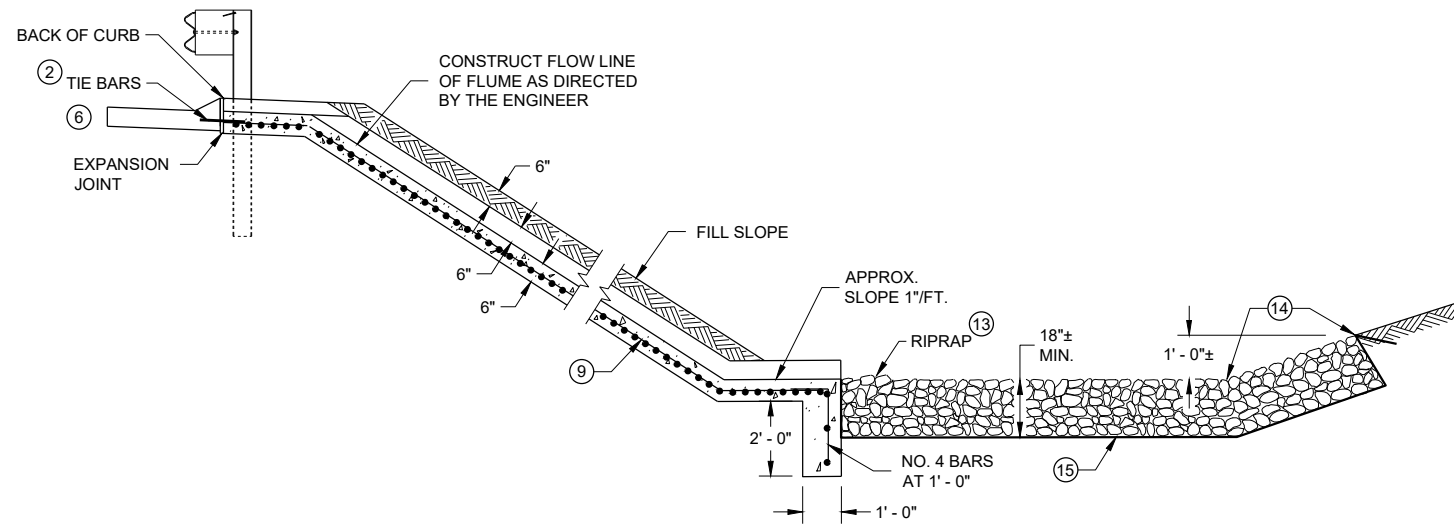


ELEVATION VIEW

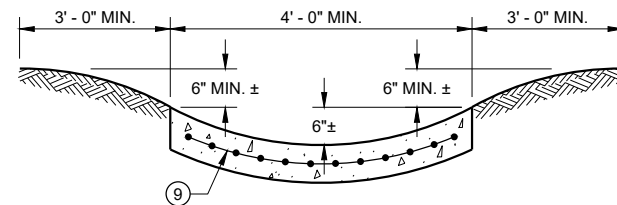
CONCRETE SURFACE  
DRAINS FLUME TYPE  
AT STRUCTURES

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

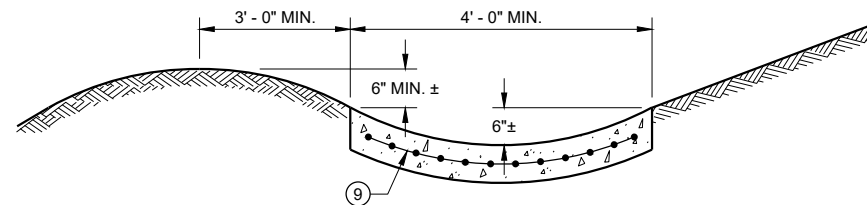




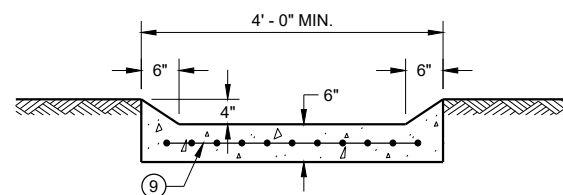
SECTION A - A



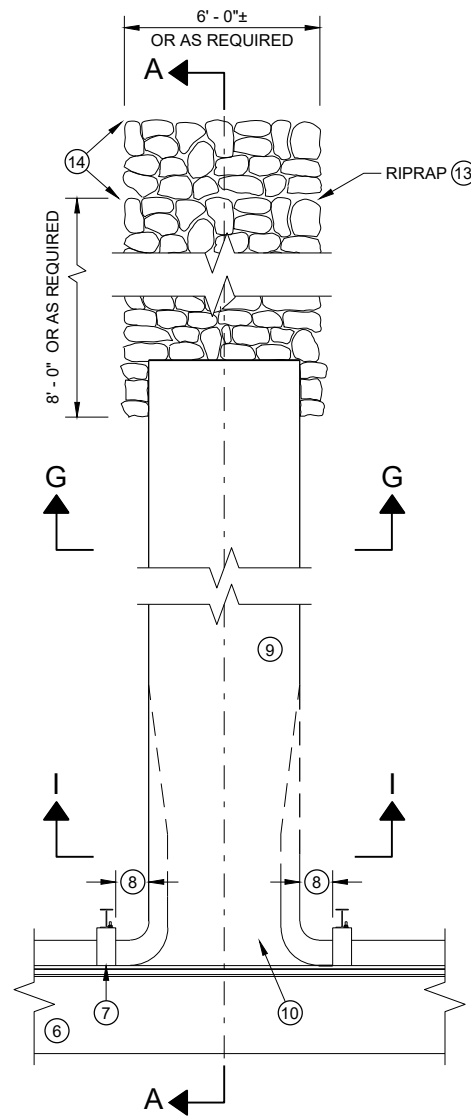
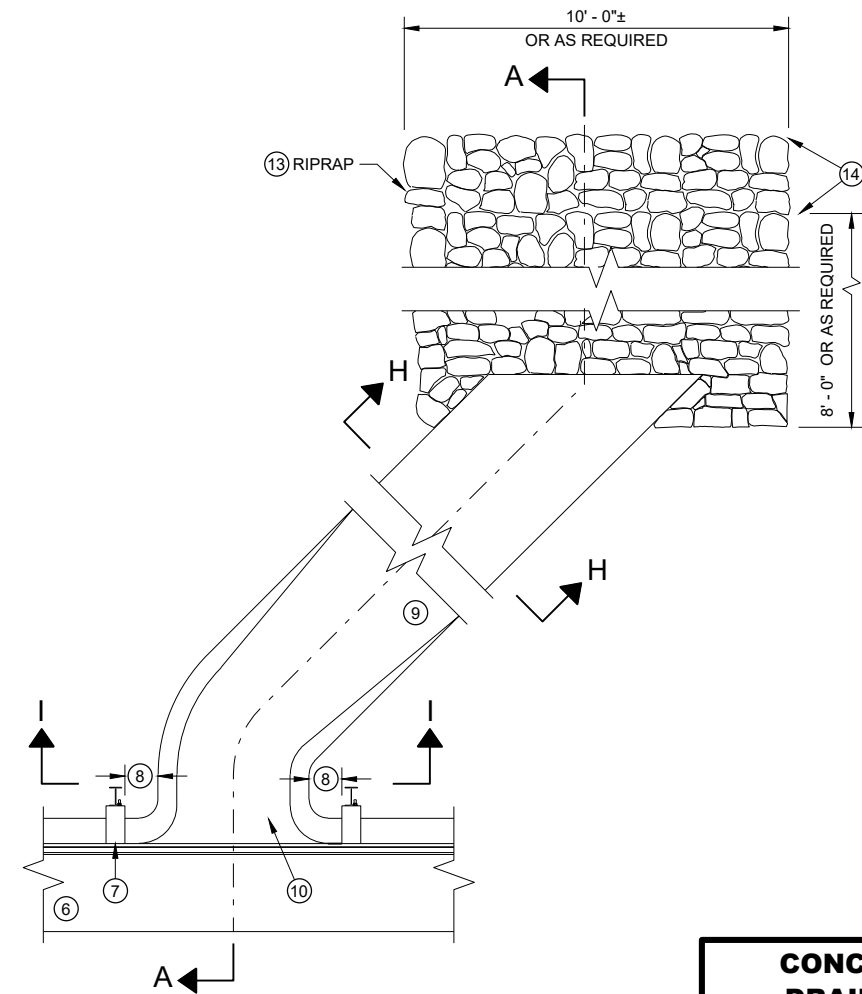
SECTION G - G



SECTION H - H



SECTION I - I

PLAN VIEW  
PERPENDICULAR FLUMEPLAN VIEW  
SKEWED FLUME

## GENERAL NOTES

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

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

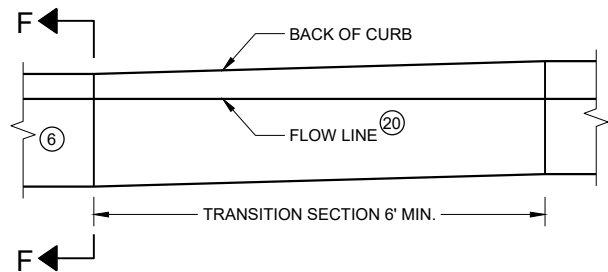
- ① USE A JOINT SEALANT CONFORMING TO STANDARD SPECIFICATION 415.2.6.
- ② NO. 4 X 2' - 0" TIE BARS SPACED AT 12" C-C TO BE PLACED BY BRIDGE CONTRACTOR OR DRILLED TIE BARS PLACED AS DIRECTED BY THE ENGINEER.
- ③ PAVED CONCRETE SHOULDER (SDD 13A03) OR CONCRETE DRAINAGE SLAB.
- ④ CONCRETE PAVEMENT APPROACH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

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

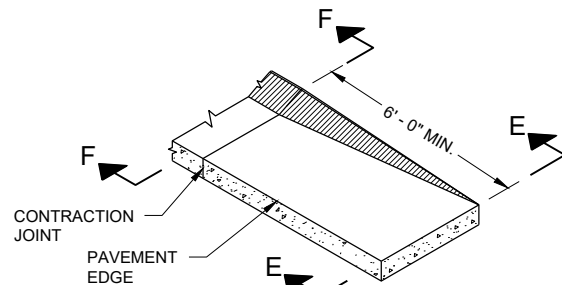
**CONCRETE SURFACE  
DRAINS FLUME TYPE  
AT STRUCTURES**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION 26

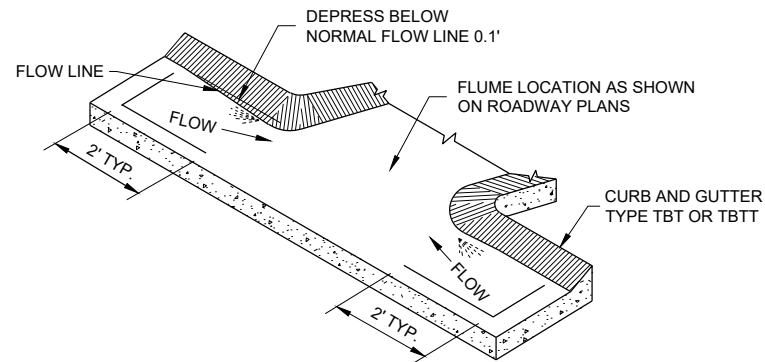




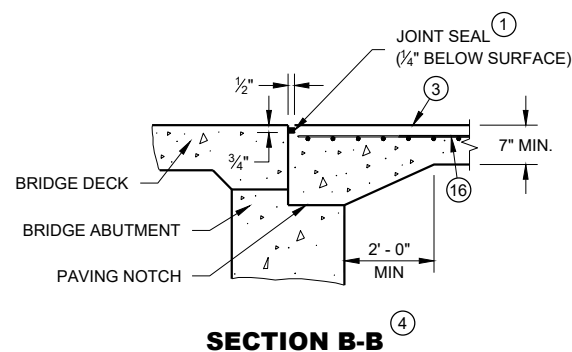
**CURB AND GUTTER TRANSITION SECTION  
CONCRETE CURB AND GUTTER 4-INCH SLOPED  
36 INCH TYPE TBT OR TBTT**



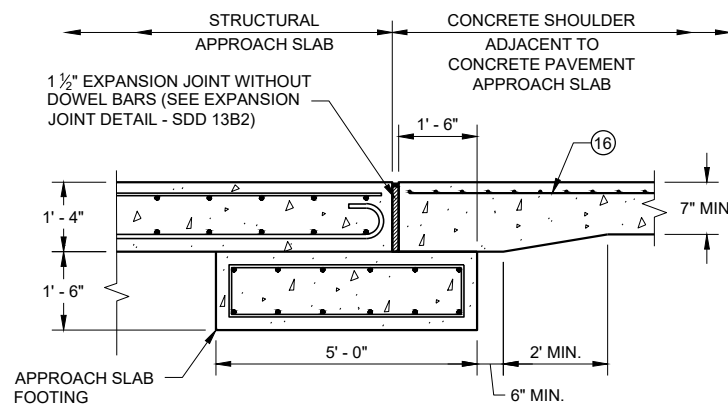
**CURB AND GUTTER END SECTION  
CONCRETE CURB AND GUTTER 4-INCH SLOPED  
36 INCH TYPE TBT OR TBTT**



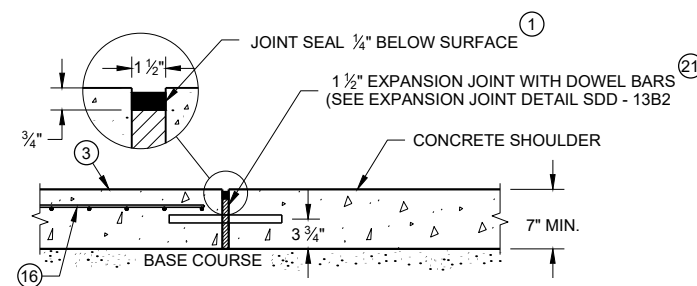
**CURB AND GUTTER FLOW LINE DEPRESSION  
AT FLUMES CONCRETE CURB AND GUTTER  
4-INCH SLOPED 36 INCH TYPE TBT OR TBTT**



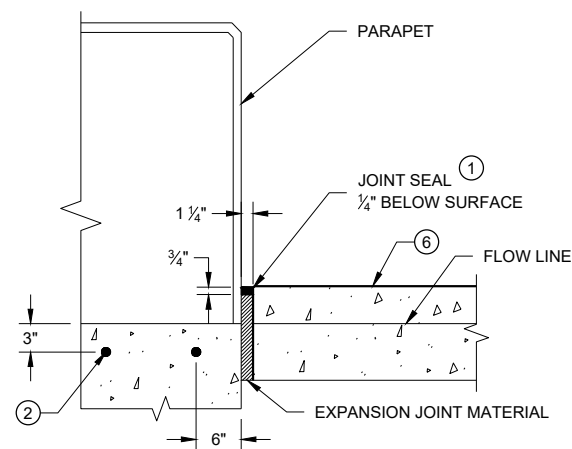
**SECTION B-B**



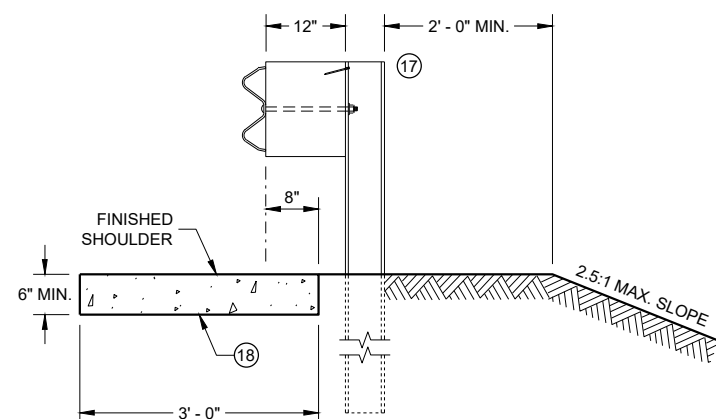
**SECTION C - C  
JOINT DETAIL FOR BRIDGE WITH STRUCTURAL  
APPROACH SLAB AND CONCRETE APPROACH SLAB**



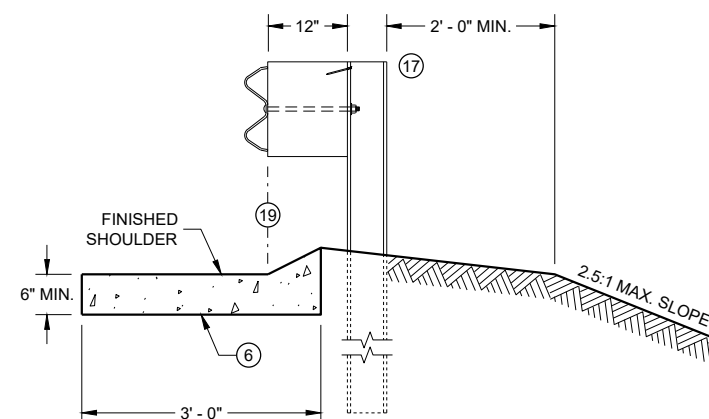
**SECTION C - C  
JOINT DETAIL FOR BRIDGE APPROACH  
WITH CONCRETE SHOULDERS**



**SECTION D - D**



**SECTION E - E**



**SECTION F - F**

## GENERAL NOTES

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

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

- ① USE A JOINT SEALANT CONFORMING TO STANDARD SPECIFICATION 415.2.6.
- ② NO. 4 X 2' - 0" TIE BARS SPACED AT 12" C-C TO BE PLACED BY BRIDGE CONTRACTOR OR DRILLED TIE BARS PLACED AS DIRECTED BY THE ENGINEER.
- ③ PAVED CONCRETE SHOULDER (SDD 13A03) OR CONCRETE DRAINAGE SLAB.
- ④ CONCRETE PAVEMENT APPROACH SLAB (SHOWN) OR STRUCTURE APPROACH SLAB AND CONCRETE PAVEMENT APPROACH SLAB. SEE SDD 13B02 AND STRUCTURE PLANS.
- ⑤ PAVED CONCRETE SHOULDER (SDD 13A03) OR ASPHALT SHOULDER.
- ⑥ CONCRETE CURB AND GUTTER 4-INCH SLOPED 36-INCH TYPE TBT OR TBTT. USE TYPE TBTT CURB WITH NO. 4 X 2' - 0" TIE BARS SPACED AT 3' - 0" C-C ONLY WHEN ADJACENT TO CONCRETE PAVEMENTS.
- ⑦ PLACE FLUME BEFORE MSG THRIE BEAM TRANSITION POST 1 (SEE SDD 14B45)
- ⑧ CENTER FLUME BETWEEN POSTS. 6-INCH MINIMUM SEPARATION FROM OUTSIDE EDGE OF FLUME TO POSTS.
- ⑨ MINIMUM REINFORCEMENT SHALL BE 4" X 4" - W3.0 X W3.0 OR NO. 3 BARS LONGITUDINAL AND TRANSVERSE SPACING 12" C-C.
- ⑩ SEE ROADWAY PLANS FOR FLUME LOCATION.
- ⑪ START CURB AND GUTTER TRANSITION OR END SECTION.
- ⑫ DEPRESS FLOW LINE (SEE DETAIL)
- ⑬ MEDIUM RIPRAP UNLESS OTHERWISE SPECIFIED.
- ⑭ LIMITS OF ADDITIONAL RIPRAP WHEN SPECIAL DITCH IS REQUIRED.
- ⑮ GEOTEXTILE TYPE HR.
- ⑯ MINIMUM REINFORCEMENT SHALL BE 6" X 6" - W4.0 X W4.0 OR NO. 3 BARS LONGITUDINAL AND TRANSVERSE SPACING 12" C-C.
- ⑰ MSG THRIE BEAM TRANSITION POST 1. SEE SDD 14B45 FOR ADDITIONAL CONSTRUCTION DETAILS AND ACCEPTABLE MATERIALS.
- ⑱ MAINTAIN WIDTH, THICKNESS AND CROSS SLOPE OF ADJACENT TYPE TBT OR TBTT CURB. SEE NOTE 6 FOR TIE BAR SPACING.
- ⑲ ALIGN FACE OF POST BLOCK WITH FLOW LINE.
- ⑳ MAINTAIN FLOW LINE AT EDGE OF PAVEMENT/FACE OF BEAM GUARD AS APPLICABLE.
- ㉑ DO NOT CONSTRUCT AN EXPANSION JOINT OR INSTALL DOWEL BARS WHEN ABUTTING HMA PAVEMENTS.

## CONCRETE SURFACE DRAINS FLUME TYPE AT STRUCTURES

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APPROVED  
May 2023 /S/ Rodney Taylor  
DATE ROADWAY STANDARDS DEVELOPMENT ENGINEER 27  
FHWA





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



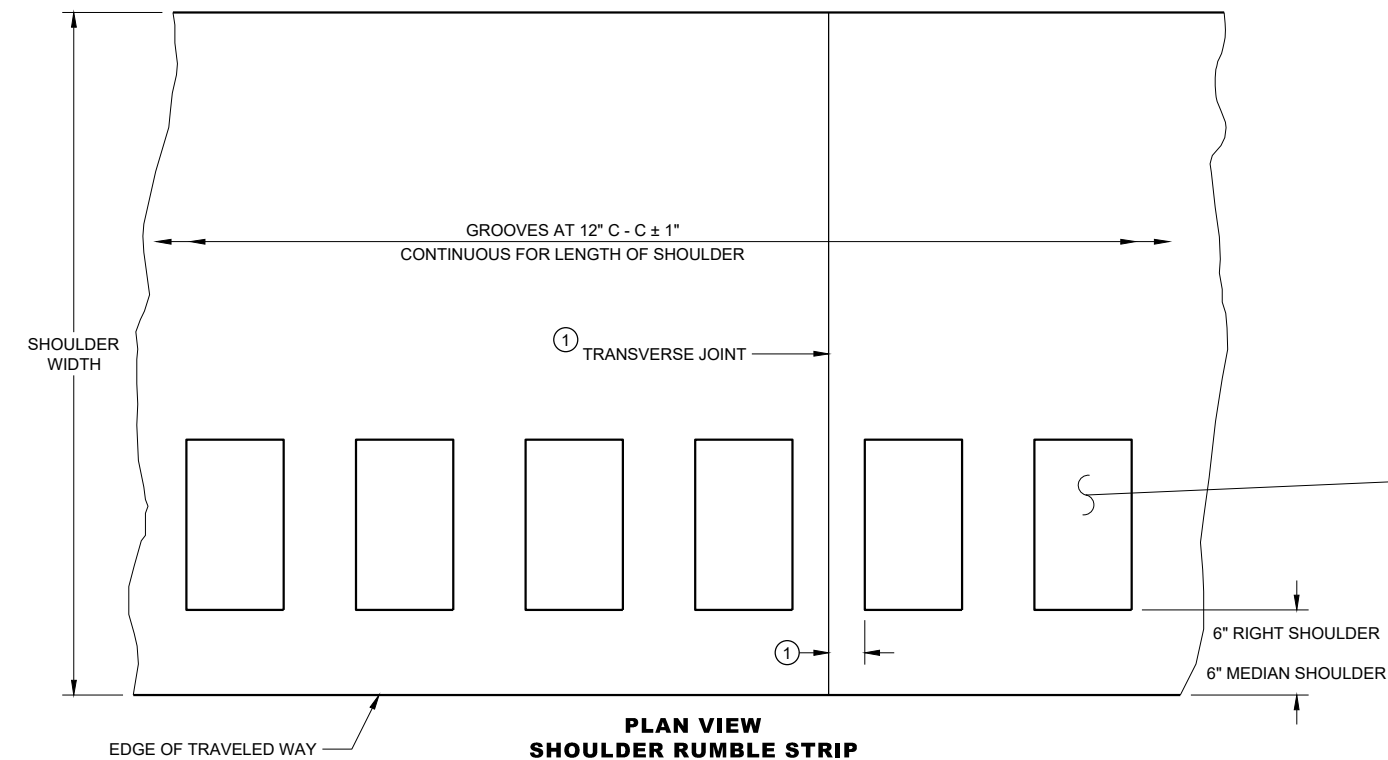
**SILT FENCE**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

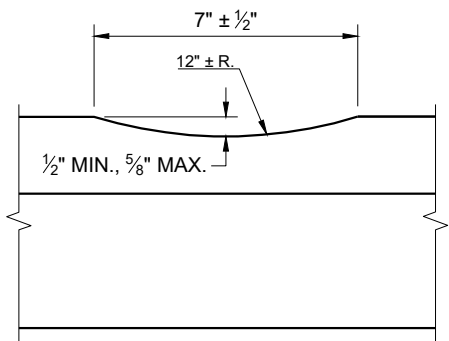
APPROVED  
4-29-05 /S/ Beth Connolly  
DATE CHIEF ROADWAY DEVELOPMENT ENGINEER

FHWA

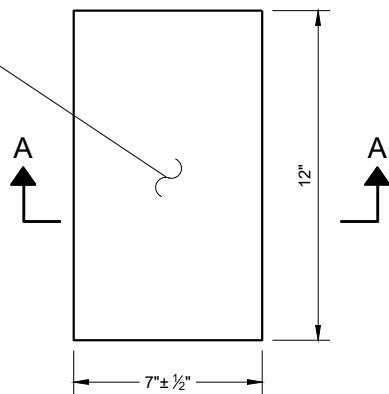




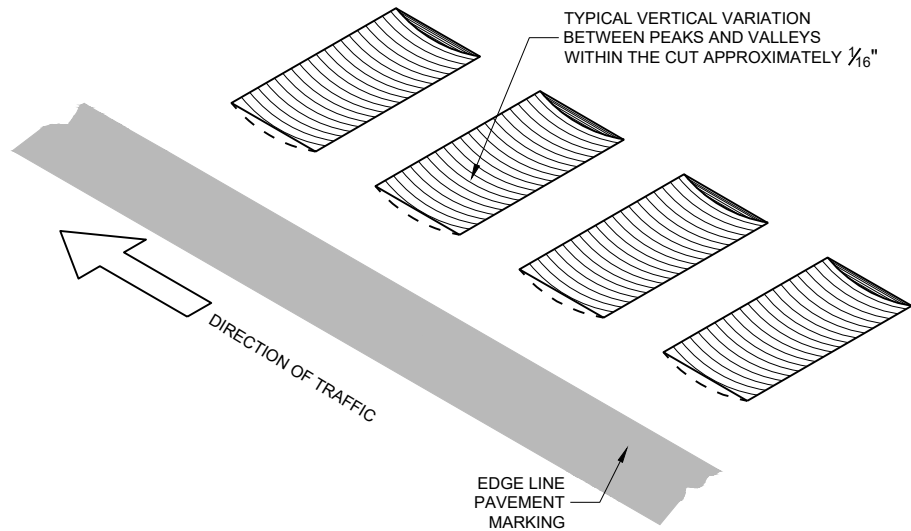
**PLACEMENT DETAIL FOR RUMBLE STRIP**



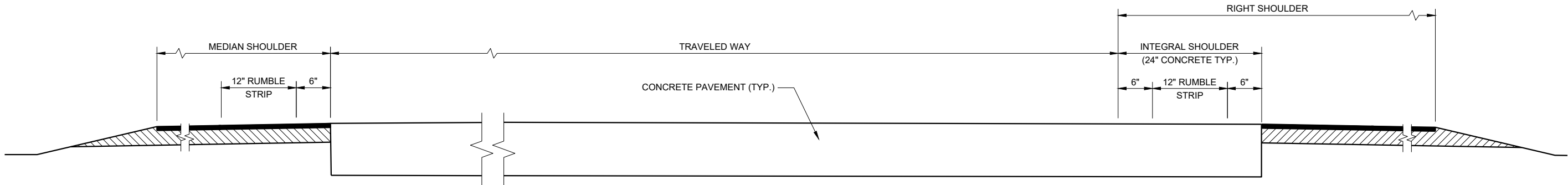
**SECTION A - A**



**PLAN VIEW  
(SINGLE GROOVE)**



**ISOMETRIC**



**SECTION VIEW**

**TYPICAL SHOULDER RUMBLE STRIPS  
(ONE ROADWAY IS SHOWN)**

**GENERAL NOTES**

SDD 13A5, SHEET "b" SHOWS THE LOCATION OF THE RUMBLE STRIPS AT RAMP AND GORE LOCATIONS.

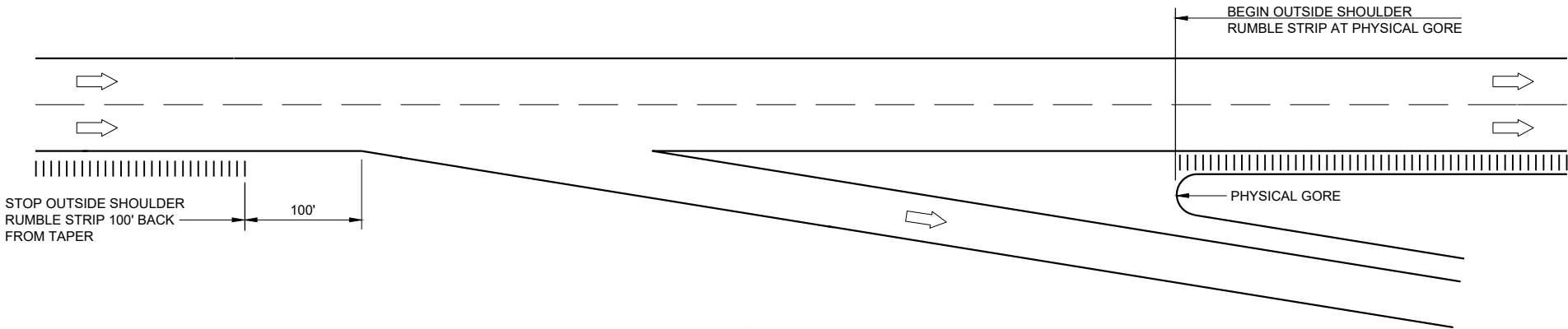
RUMBLE STRIPS ON EXPRESSWAYS:  
DO NOT INSTALL SHOULDER RUMBLE STRIPS ACROSS SIDE ROAD INTERSECTIONS, COMMERCIAL AND PRIVATE DRIVEWAYS, ADJACENT TO RIGHT TURN LANES, LEFT TURN LANES, TURN LANE TAPERS, 25' IN ADVANCE OF BRIDGE DECKS, 25' IN ADVANCE OF BRIDGE APPROACHES, OR 100 FEET IN ADVANCE OF RAILROAD CROSSINGS.

- ① CONCRETE PAVEMENT - RUMBLE STRIPS SHALL BE A MINIMUM OF 6 INCHES AWAY FROM TRANSVERSE JOINTS.

**SHOULDER RUMBLE STRIPS,  
DIVIDED ROADWAY**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION





TYPICAL EXIT RAMP

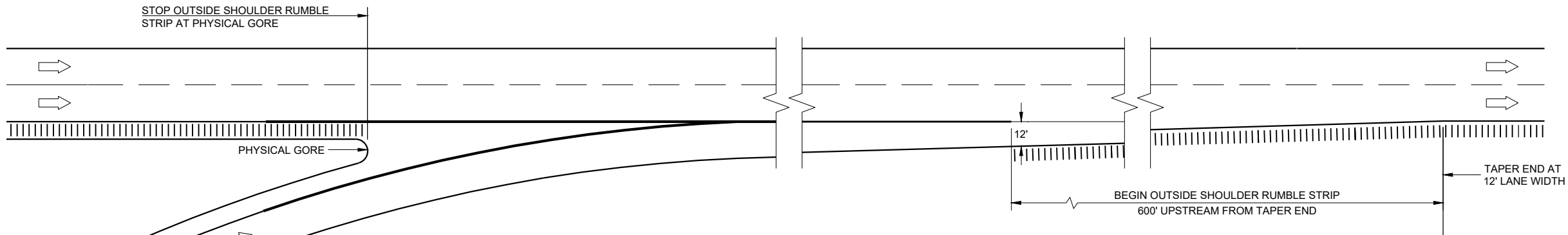
GENERAL NOTES

NO RUMBLE STRIP ON EXIT, DIRECTIONAL OR ENTRANCE RAMP, EXCEPT NEAR THE ENTRANCE TAPER END AND ALONG THE PARALLEL RAMP AREA AS SHOWN.

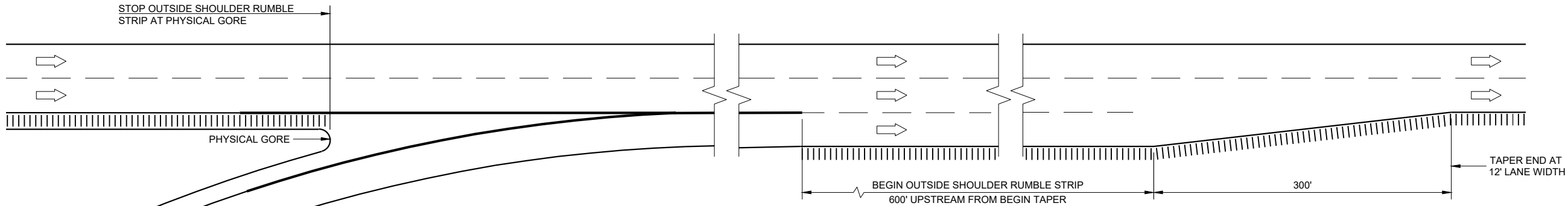
RUMBLE STRIPS ON EXPRESSWAYS:  
DO NOT INSTALL SHOULDER RUMBLE STRIPS ACROSS SIDE ROAD INTERSECTIONS, COMMERCIAL AND PRIVATE DRIVEWAYS, ADJACENT TO RIGHT TURN LANES, LEFT TURN LANES, TURN LANE TAPERS, 25' IN ADVANCE OF BRIDGE DECKS, 25' IN ADVANCE OF BRIDGE APPROACHES, OR 100 FEET IN ADVANCE OF RAILROAD CROSSINGS.

LEGEND

➡ DIRECTION OF TRAFFIC



TYPICAL TAPERED ENTRANCE RAMP  
RAMP AND GORE SHOULDER RUMBLE STRIP LOCATIONS



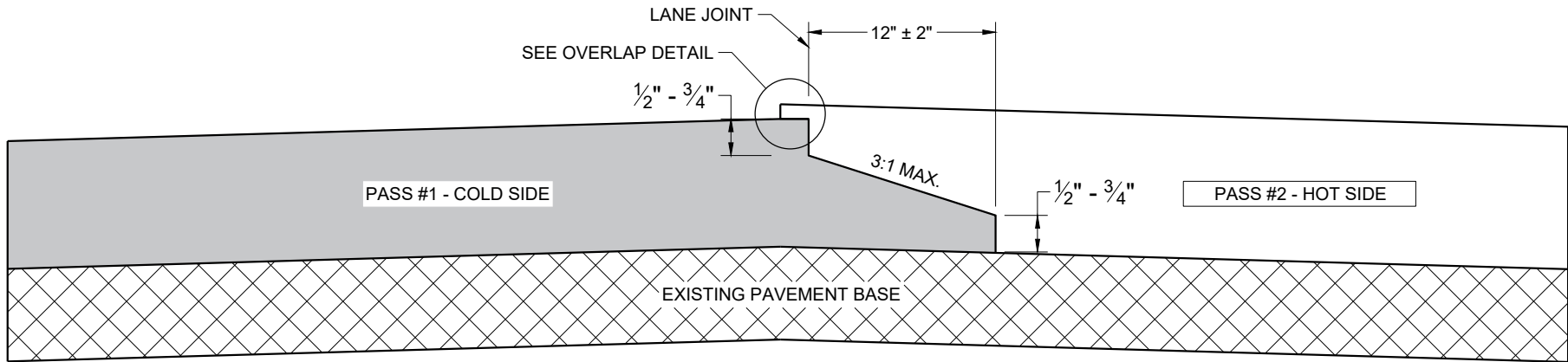
TYPICAL PARALLEL ENTRANCE RAMP  
RAMP AND GORE SHOULDER RUMBLE STRIP LOCATIONS

SHOULDER RUMBLE STRIPS,  
DIVIDED ROADWAY

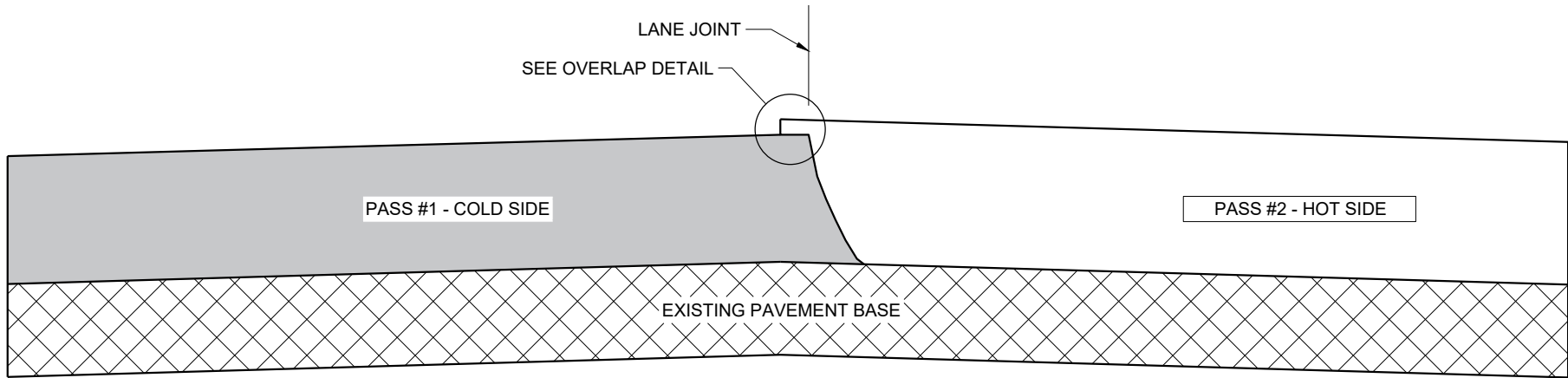
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
May 2023  
DATE  
/S/ Rodney Taylor  
ROADWAY DESIGN STAFF  
UNIT SUPERVISOR  
30  
FHWA

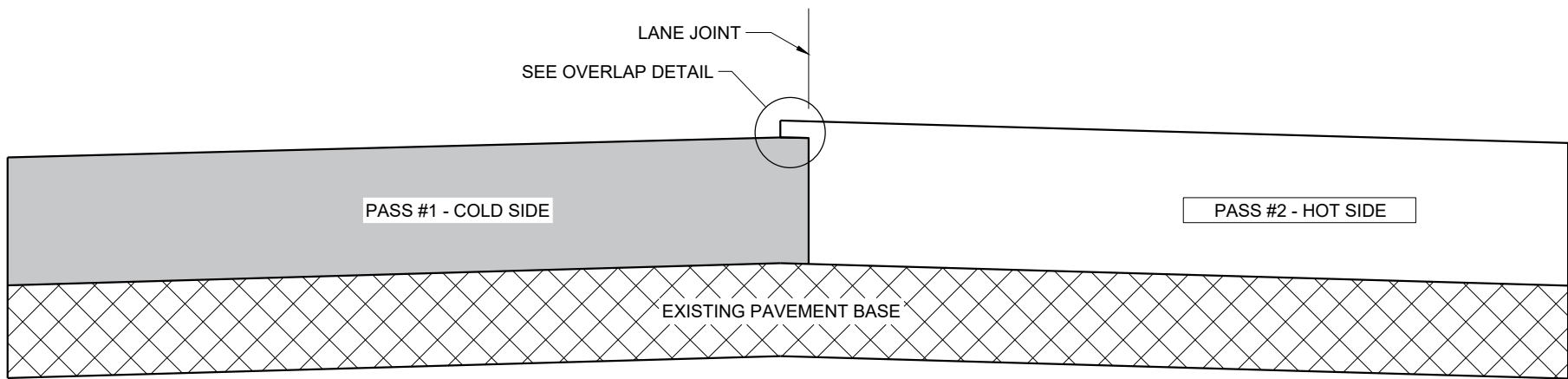




**TYPICAL PAVEMENT CROSS SECTION  
NOTCHED WEDGE JOINT**



**TYPICAL PAVEMENT CROSS SECTION  
VERTICAL JOINT**



**TYPICAL PAVEMENT CROSS SECTION  
VERTICAL JOINT (MILLED)**

**GENERAL NOTES**

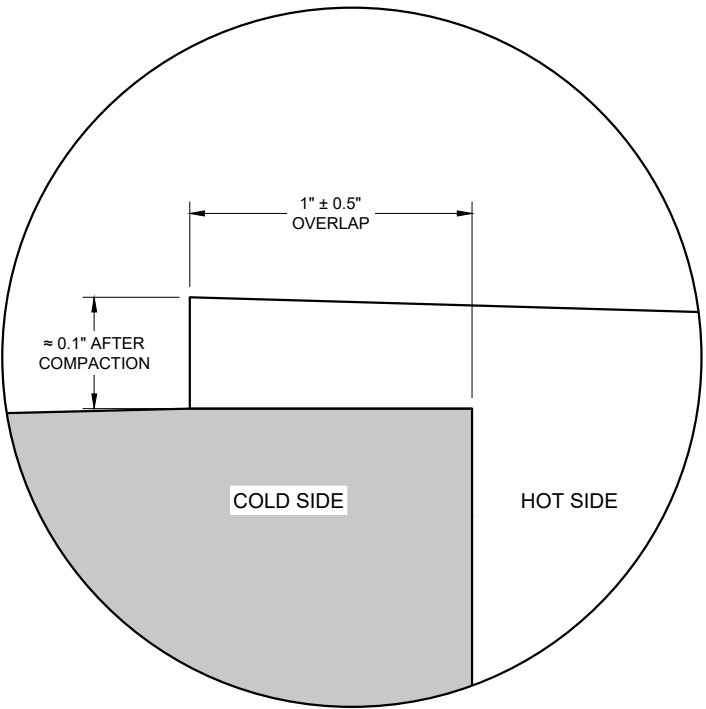
IN ADDITION TO THE DETAILS PROVIDED IN THIS DRAWING, CONFORM TO STANDARD SPECIFICATION 450.3.2.8 FOR WHEN A NOTCHED WEDGE JOINT IS REQUIRED AND FOR GENERAL JOINT CONSTRUCTION REQUIREMENTS.

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

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

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

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



**OVERLAP DETAIL (TYPICAL)**

**HMA LONGITUDINAL JOINTS**

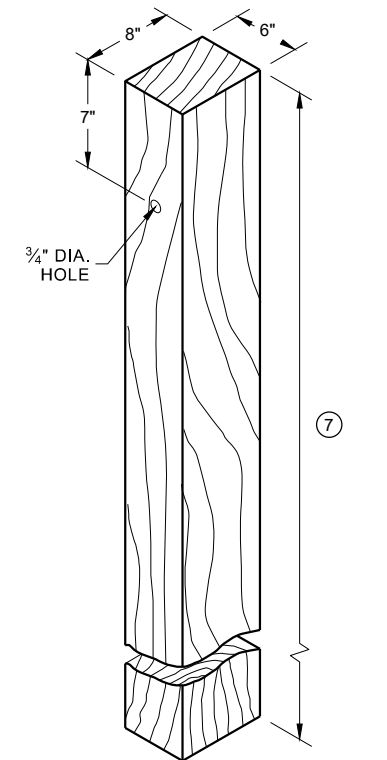
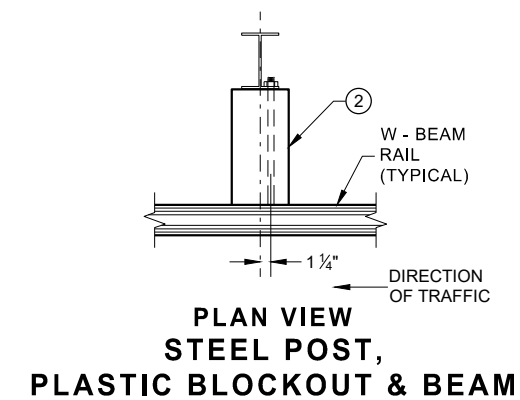
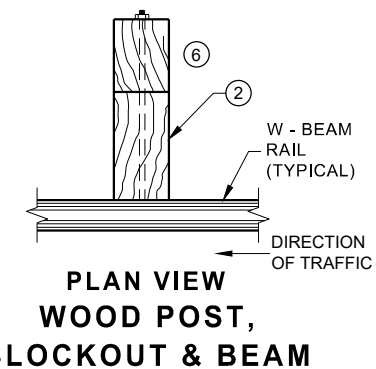
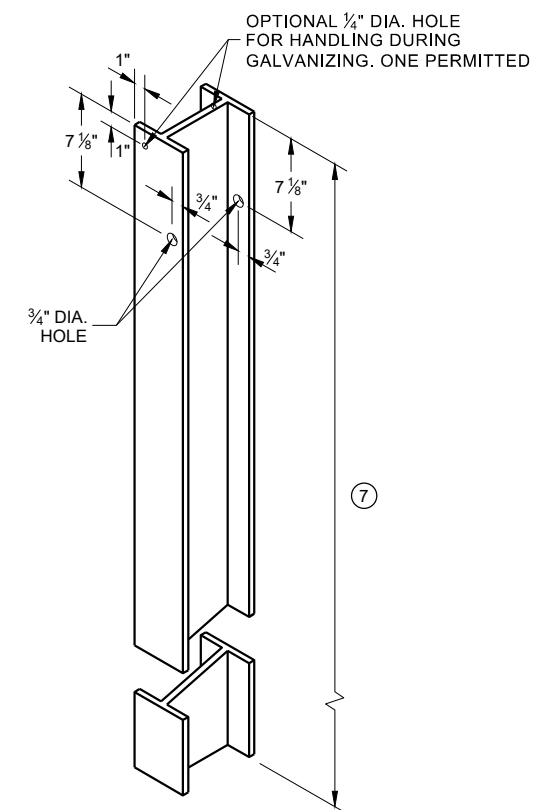
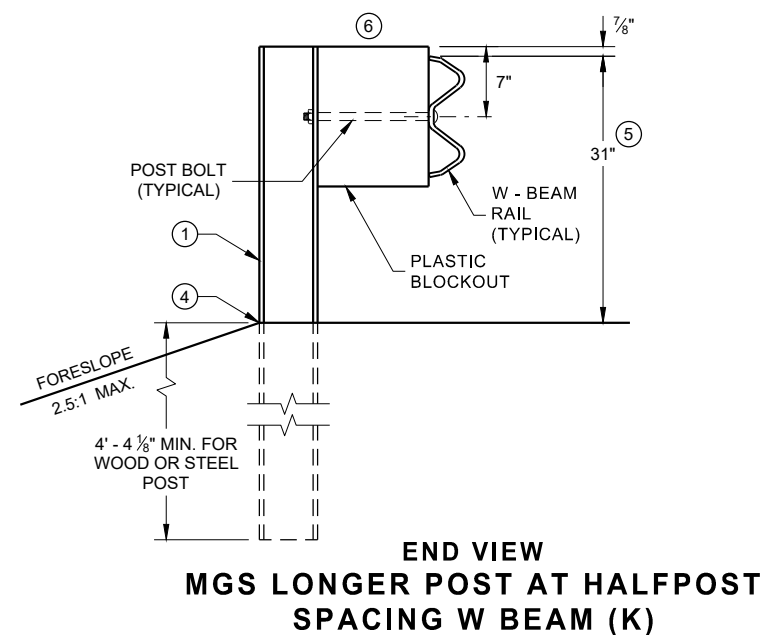
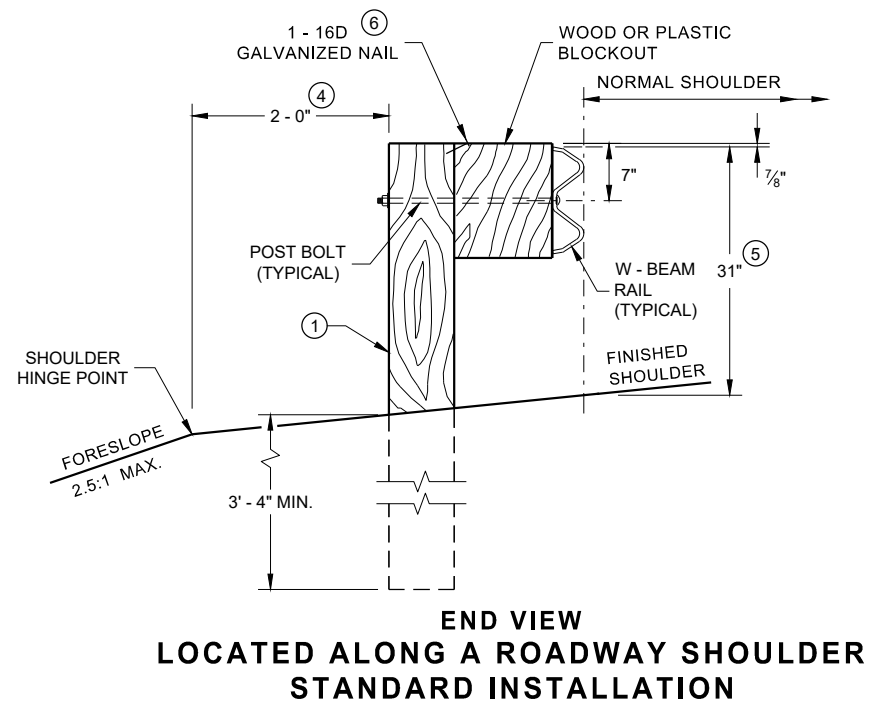
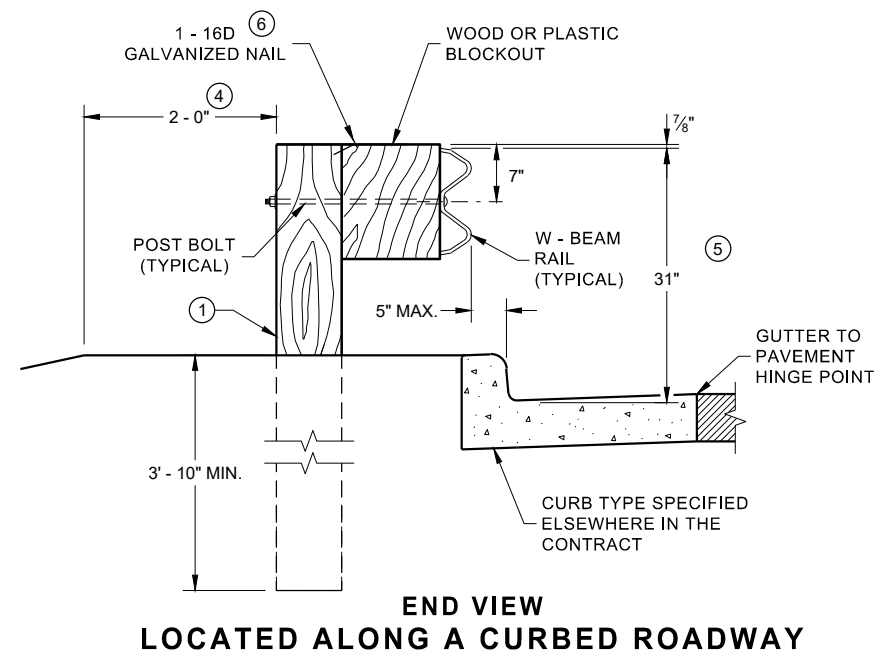
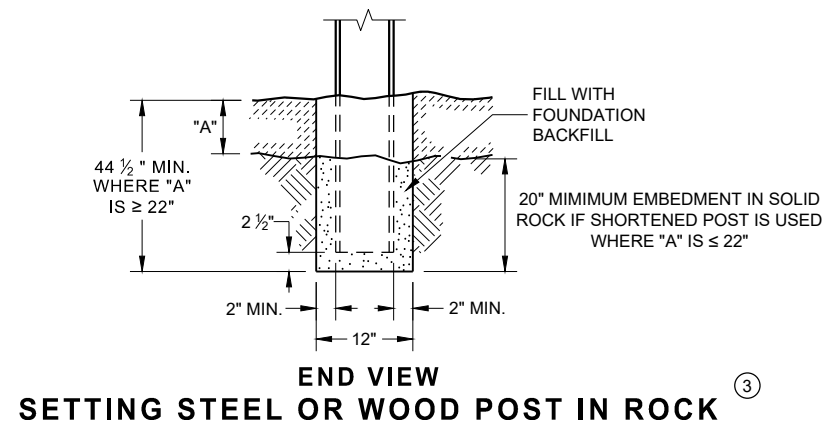
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
November 2020 /S/ Steven Hefel  
DATE HMA PAVEMENT ENGIN 31

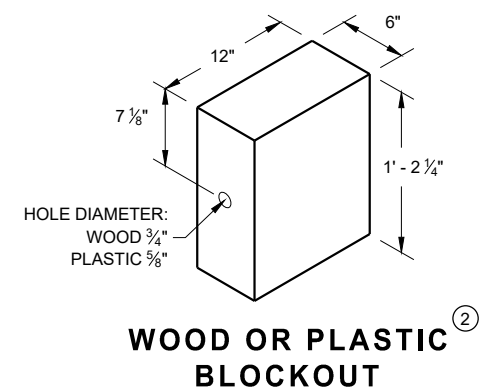
FHWA



- ① WOOD OR STEEL POSTS (w6X9 OR w6X8.5) MAY BE USED. DO NOT INTERMIX WOOD AND STEEL POSTS. INSTALL STEEL POSTS WITH HOLES ON APPROACHING TRAFFIC SIDE.
- ② USE WOOD OR APPROVED PLASTIC BLOCKOUTS. WOOD BLOCKOUTS MAY BE CONSTRUCTED OUT OF TWO OR MORE WOOD BLOCKOUTS. SEE ALTERNATE WOOD BLOCKOUT DETAIL. DIMENSIONS OF APPROVED PLASTIC BLOCKOUTS MAY VARY.
- ③ IF ROCK IS ENCOUNTERED DURING EXCAVATION, PROVIDE A HOLE 12 INCHES IN DIAMETER EXTENDING 20 INCHES DEEP INTO THE ROCK. PLACE APPROXIMATELY 2 1/2" INCHES OF GRANULAR MATERIAL IN THE BOTTOM OF THE HOLE. CUT THE POSTS 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".



**WOOD POST (6" X 8") NOMINAL** <sup>(1)</sup>

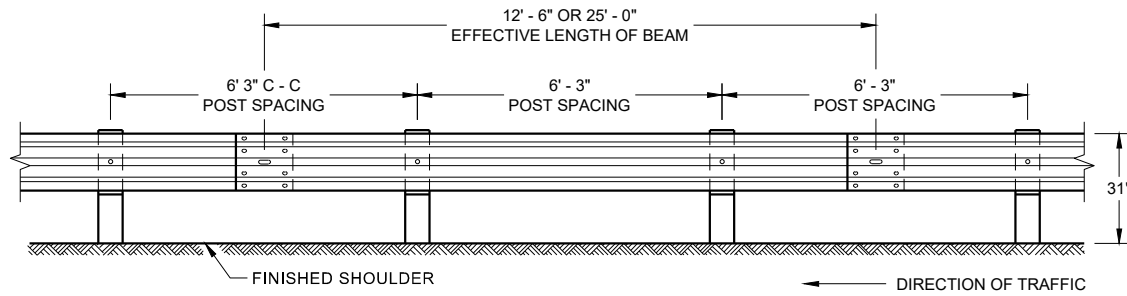


**WOOD OR PLASTIC  
BLOCKOUT**

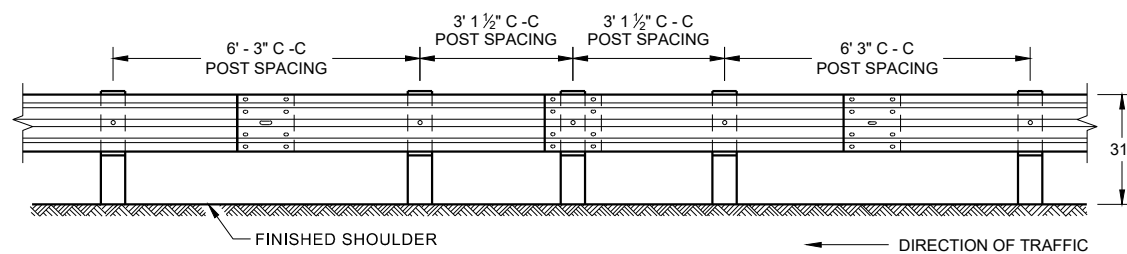
## MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL

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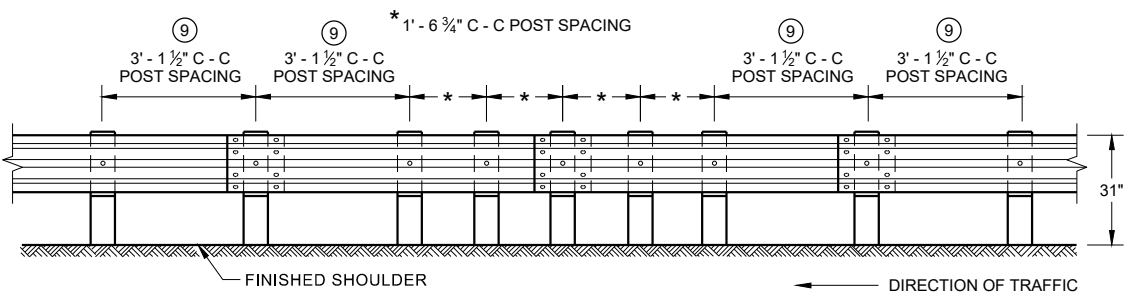




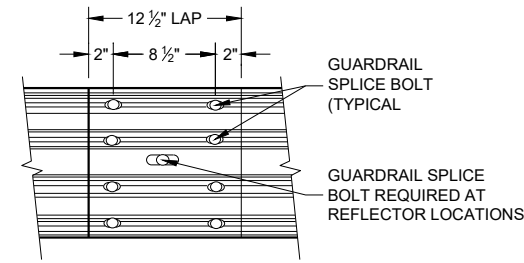
**FRONT VIEW  
POST SPACING STANDARD INSTALLATION**



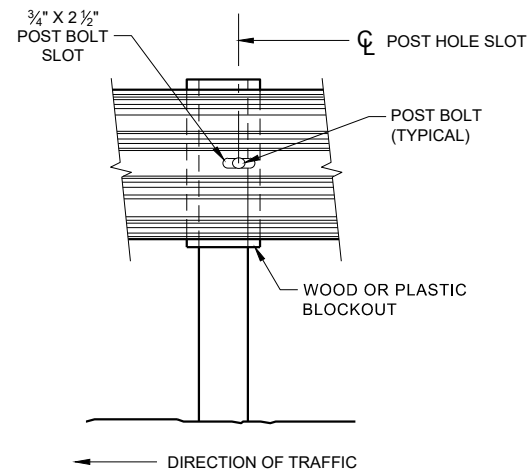
**FRONT VIEW  
HALF POST SPACING (HS) AND  
HALF POST SPACING WITH LONGER POSTS (K)**



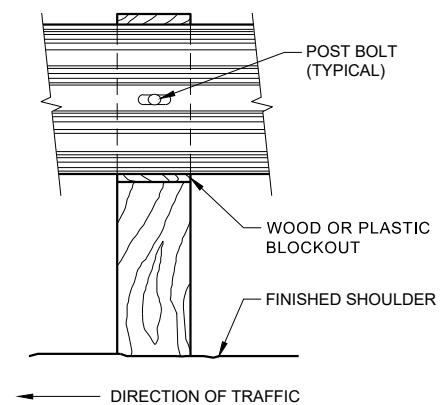
**FRONT VIEW  
QUARTER POST SPACING (QS)**



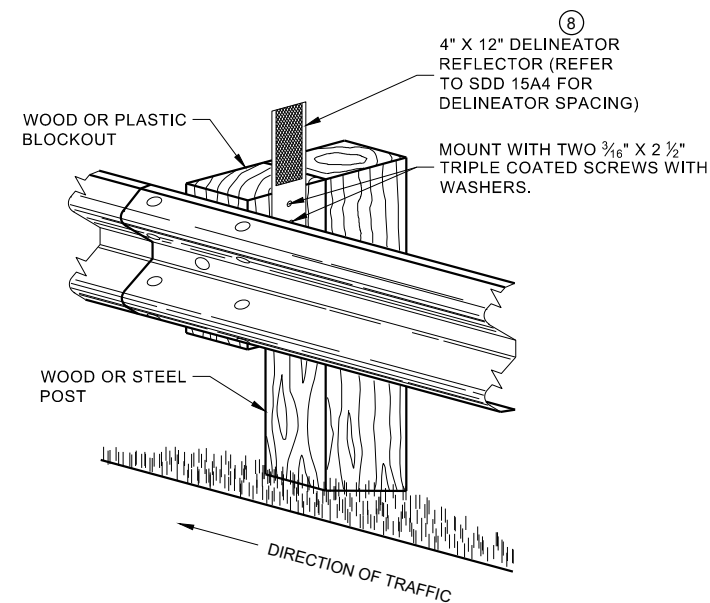
**FRONT VIEW  
MID-SPAN BEAM SPLICE**



**FRONT VIEW AT STEEL POST**



**FRONT VIEW AT WOOD POST**



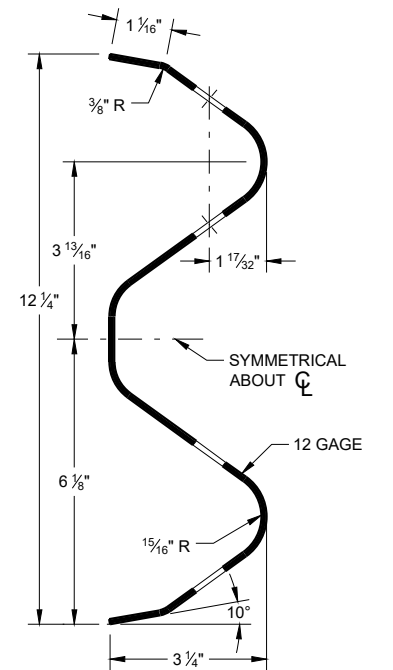
**ONE SIDED REFLECTOR DETAIL  
AND TYPICAL INSTALLATION**

## GENERAL NOTES

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

POST BOLTS ARE A 3/8" DIAMETER ASTM A307 GUARDRAIL BOLT. A POST BOLT REQUIRES 3/4" DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX NUT AND 3/8" DIAMETER F844 FLAT WASHER. POST BOLTS MAY BE LONGER IF MULTIPLE BLOCKOUTS ARE BEING USED.

GUARD RAIL SPLICE BOLTS ARE A 3/8" DIAMETER ASTM A307 GUARDRAIL HEAD BOLT. A GUARDRAIL SPLICE BOLT REQUIRES 3/4" DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX NUT.

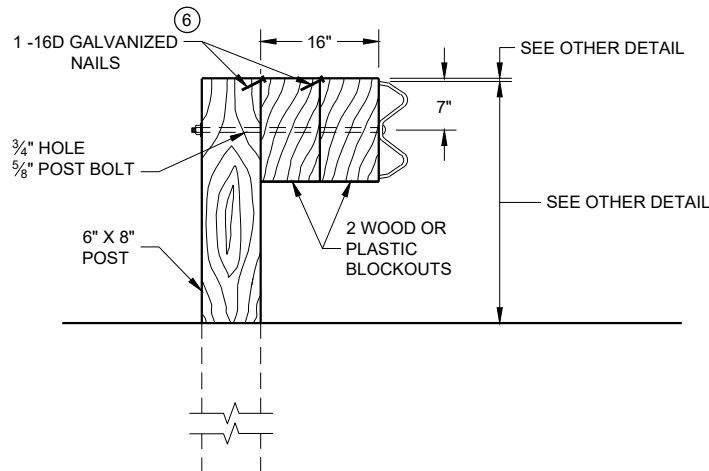


**SECTION THRU W-BEAM RAIL**

**MIDWEST GUARDRAIL SYSTEM  
(MGS) GUARDRAIL**

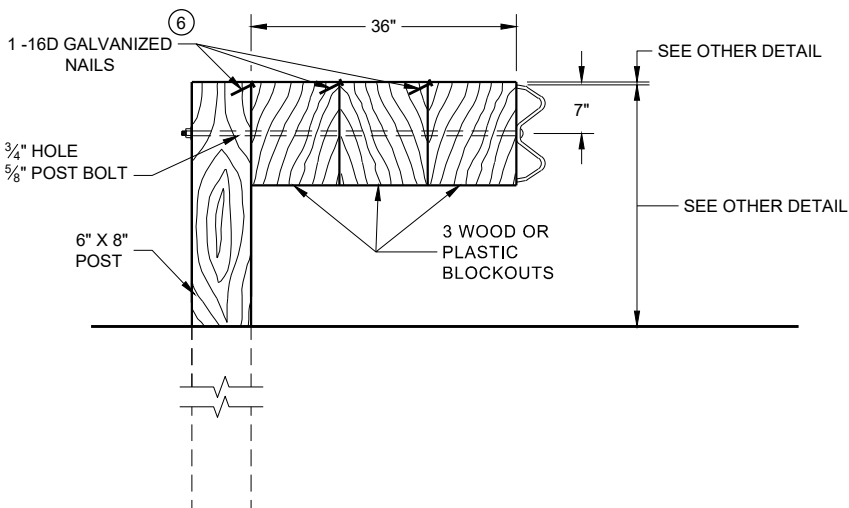
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION





DETAIL FOR 16" BLOCKOUT DEPTH

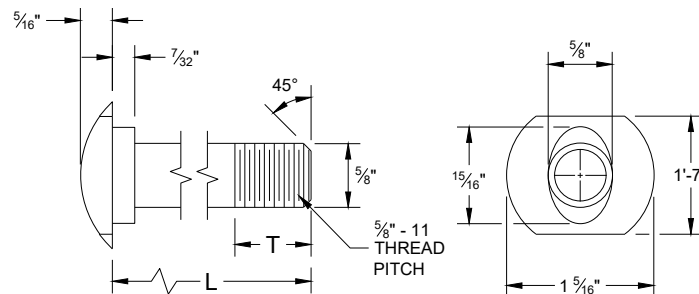
IT IS ACCEPTABLE TO USE BLOCKOUTS UP TO 16" DEEP TO INCREASE THE POST OFFSET TO AVOID UNDERGROUND OBSTACLES. THERE IS NO LIMIT TO THE NUMBER OF POSTS THAT CAN HAVE ADDITIONAL BLOCKOUTS UP TO 16" DEEP.



DETAIL FOR 36" BLOCKOUT DEPTH

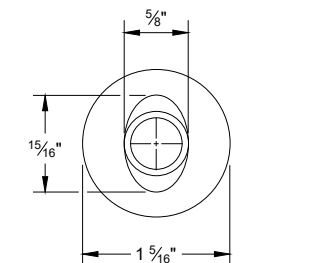
NOTES: UNDER SPECIAL CIRCUMSTANCES, SUCH AS AVOIDING OBSTACLES THAT ARE NOT RELOCATED, IT IS ACCEPTABLE TO INSTALL ADDITIONAL BLOCKOUTS TO OBTAIN UP TO 36" DEPTH FOR ONE OR TWO POSTS IN A SECTION OF GUARDRAIL.  
DO NOT USE 16" OR 36" BLOCKOUTS IF IT CAUSES THE POST TO BE DRIVEN BEYOND SHOULDER HINGE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

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

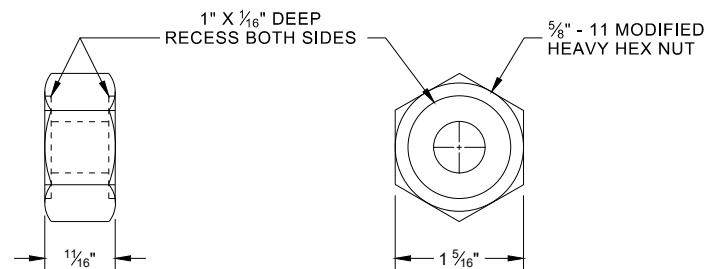


POST BOLT TABLE

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

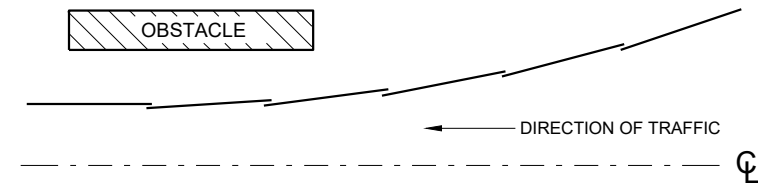


ALTERNATE BOLT HEAD

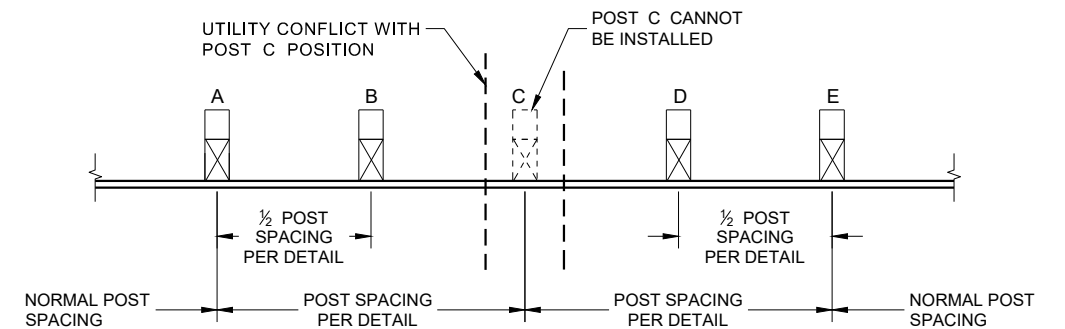


POST BOLT, SPLICE BOLT  
AND RECESS NUT

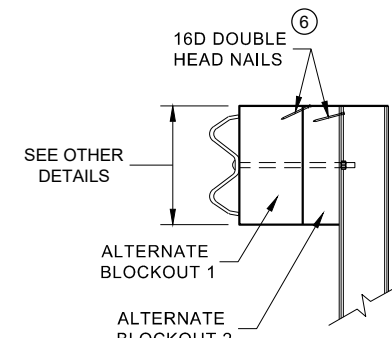
- ⑥ WHEN USING STEEL POST AD WOOD BLOCKOUTS, INSTALL FOUR 16D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.



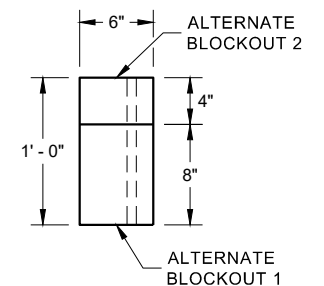
PLAN VIEW  
BEAM LAPPING DETAIL



POST DRIVING FOR CONTINUOUS  
UNDERGROUND OBSTRUCTION



SIDE VIEW



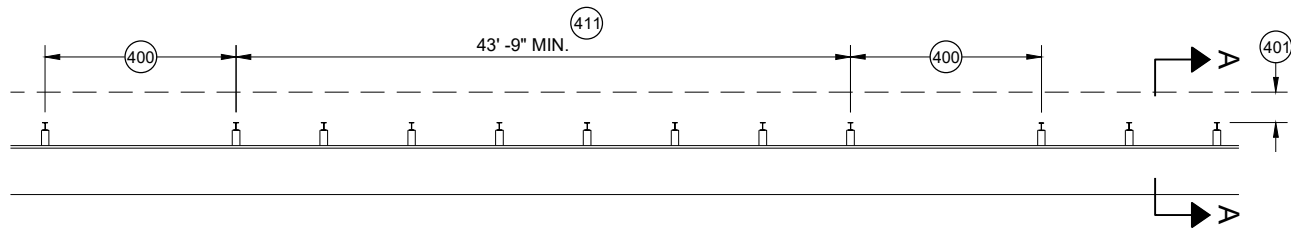
PLAN VIEW

ALTERNATE WOOD  
BLOCKOUT DETAIL

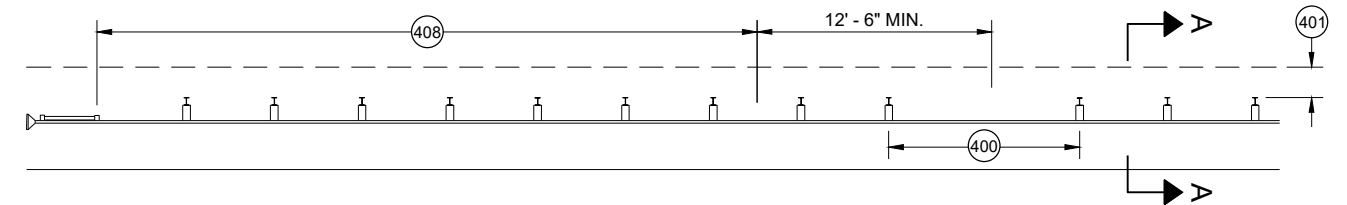
MIDWEST GUARDRAIL SYSTEM  
(MGS) GUARDRAIL

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION 34

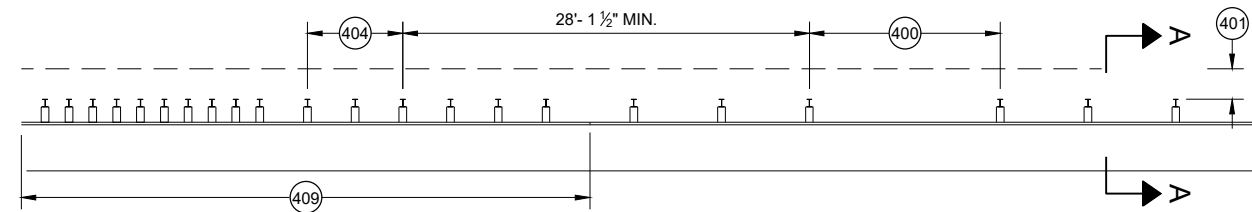




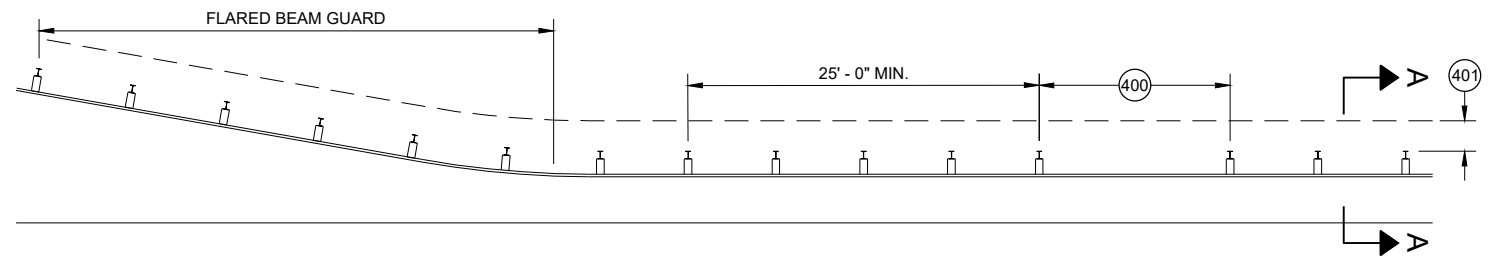
**MISSING POST IN MGS GUARDRAIL**



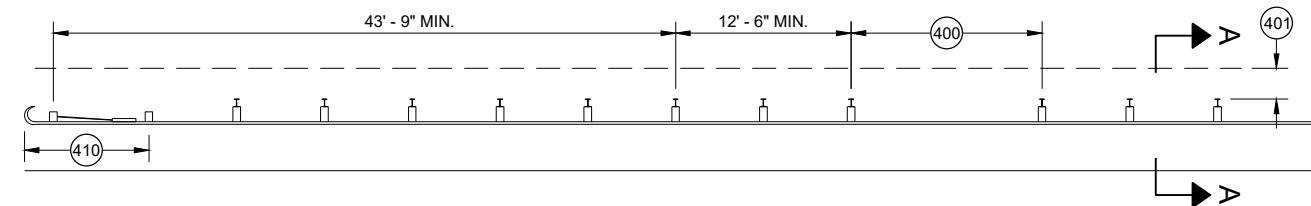
**MISSING POST IN MGS GUARDRAIL NEAR EAT**



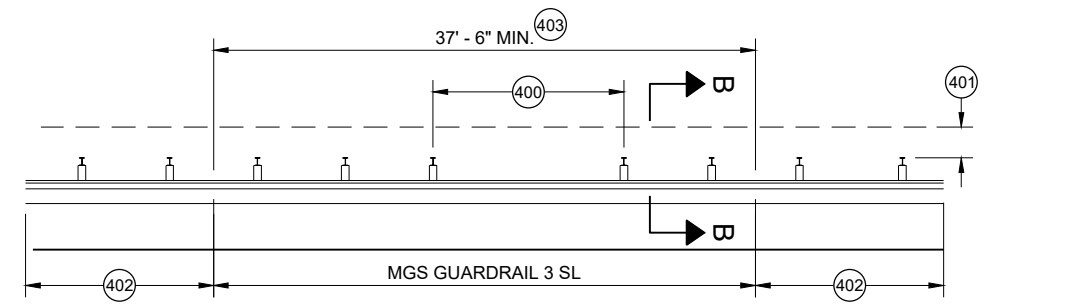
**MISSING POST IN MGS GUARDRAIL NEAR AN APPROACH TRANSITION**



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

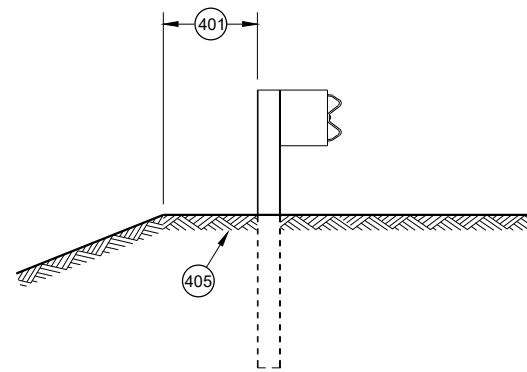


**MISSING POST IN MGS GUARDRAIL NEAR A TYPE 2 END TERMINAL**

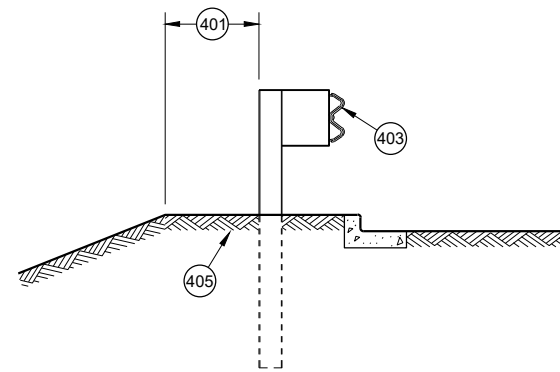


**MISSING POST IN SHORT SPAN MGS GUARDRAIL NEAR CURB (SL)**

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



**SECTION A - A**



**SECTION B - B**

**MIDWEST GUARDRAIL SYSTEM  
(MGS) GUARDRAIL**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

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

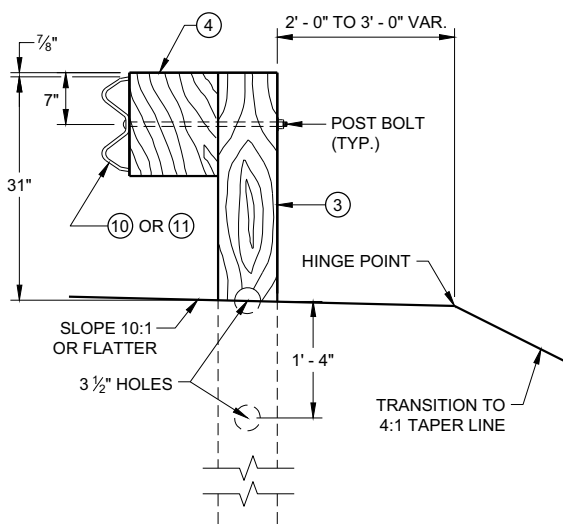
FHWA



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

DIMENSIONS MAY VARY, MANUFACTURER'S INFORMATION.

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



CLEAR ZONE LIMITS, EITHER AS SHOWN ELSEWHERE IN THE PLANS OR, IF NOT SHOWN ELSEWHERE IN THE PLANS, 15 FEET BEYOND THE HINGE POINT LINE

4:1 TAPER

VARIABLE SLOPE

GRADELINE

HINGE POINT LINE

15:1 TAPER

SLOPE 10:1 MAX.

25:1 FLARE

2'-0" OFFSET TO FACE OF RAIL

5'-0" MIN. TO HINGE POINT

SLOPE 10:1 OR FLATTER TO HINGE POINT

2'-0" (AT POST NO. 9)

5'-4" AT POST NO. 5

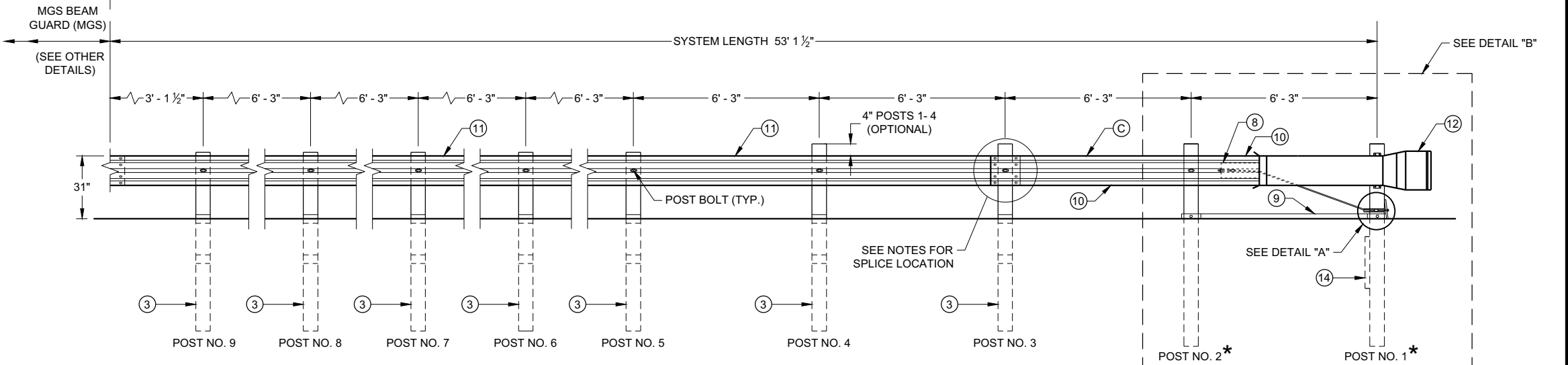
PARALLEL WITH TRAVELED WAY

EDGE OF SHOULDER

DIRECTION OF TRAVEL

PLAN

## PLAN



## ELEVATION

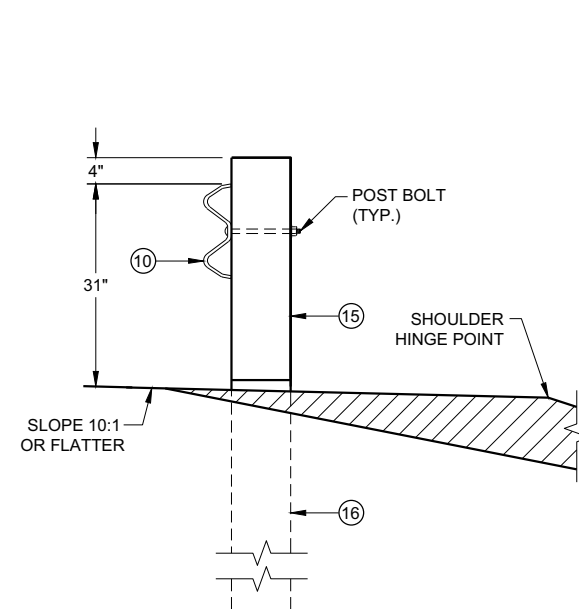


Diagram illustrating the placement of a W5-59 sign on a shoulder. The sign is positioned behind Post No. 1, with an EAT marker post placed behind it. The sign is offset 2'-0" from the face of the rail. The sign is oriented vertically, with the text "W5-59" and "D" visible. The sign is placed on a shoulder with a 10:1 slope or flatter. The sign is positioned 1'-0" from the hinge point and 5'-0" minimum from the hinge point. The sign is placed on a shoulder with a 4:1 slope or flatter. The sign is positioned 1'-6" minimum below grade. The sign is placed on a shoulder with a normal slope. The diagram includes labels for "EDGE OF SHOULDER", "2'-0" OFFSET TO FACE OF RAIL", "W5-59", "D", "1", "2", "14", "1'-0", "5'-0" MIN. TO HINGE POINT", "4'-0", "1'-6" MIN. BELOW GRADE", "SLOPE 10:1 OR FLATTER", "SHOULDER HINGE POINT", "SLOPE 4:1 OR FLATTER", and "NORMAL SLOPE".

8

C

10

12

15

9

7

1

E

FINISHED GROUND ELEVATION

BOTTOM OF STRUT IS PLACED FLUSH WITH AND PARALLEL TO THE FINISHED SURFACE

14

16

POST NO. 2\*

DETAIL "B"

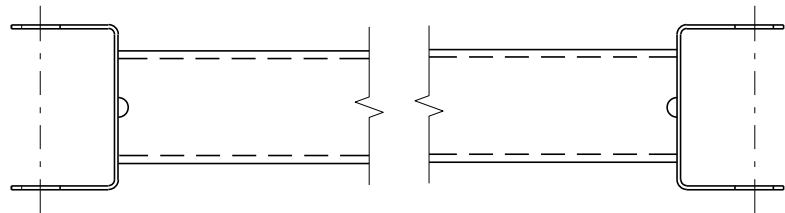
2

POST NO. 1\*

**DETAIL "B"**

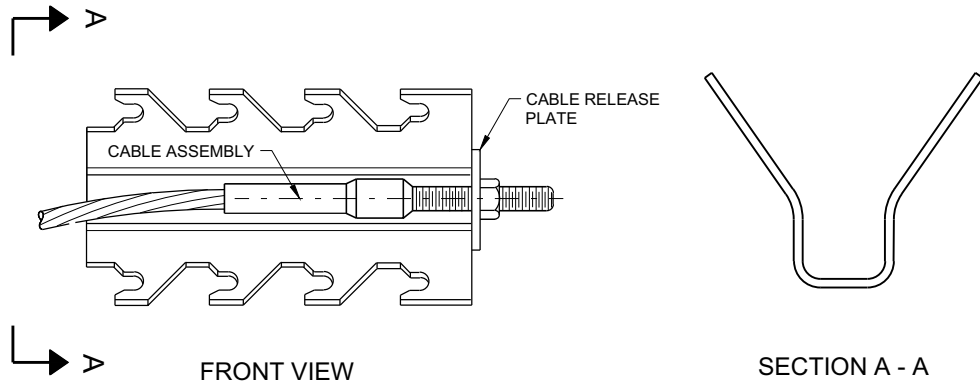
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION 36



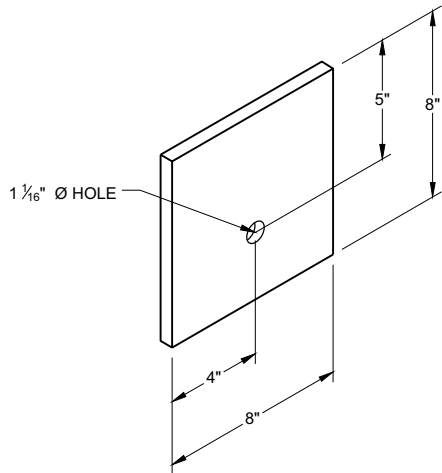


GENERIC GROUND STRUT<sup>9</sup> <sup>E</sup>

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



GENERIC ANCHOR CABLE BOX<sup>9</sup> <sup>E</sup>

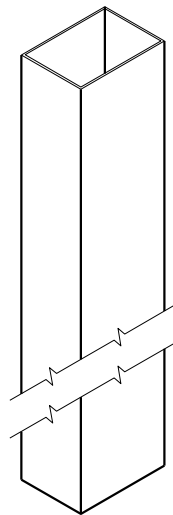


BEARING PLATE<sup>6</sup> <sup>E</sup>

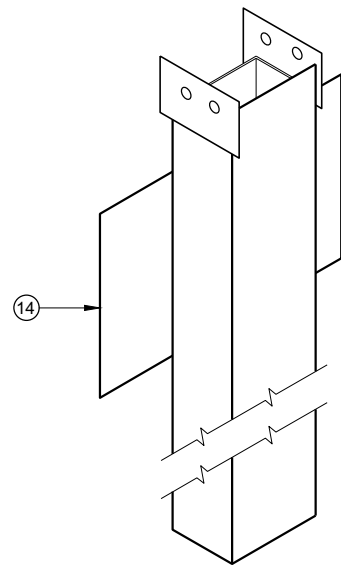
MIDWEST GUARDRAIL SYSTEM  
ENERGY ABSORBING TERMINAL  
(MGS)

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

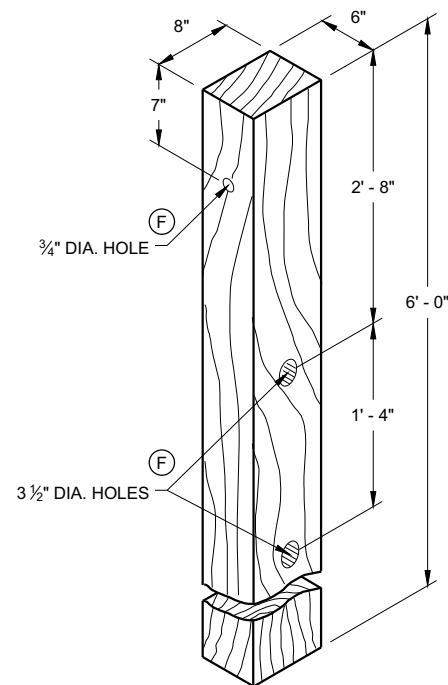




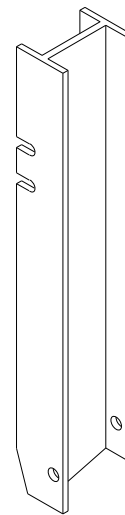
UPPER POST NO. 1 <sup>(1)</sup> (E)



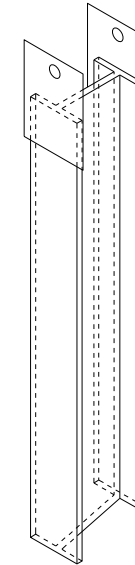
LOWER POST NO. 1 <sup>(2)</sup> (E)



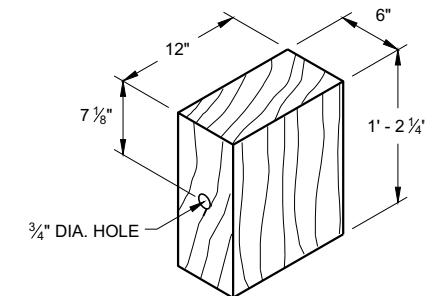
WOOD CRT POST <sup>(3)</sup> (E)  
POSTS NUMBER 3-9



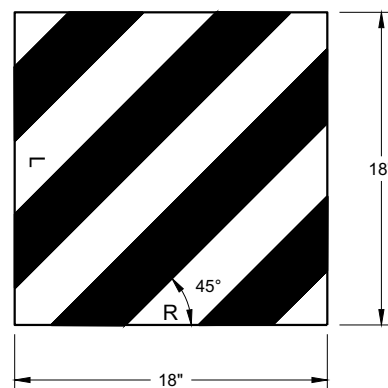
UPPER POST NO. 2 <sup>(15)</sup> (E)



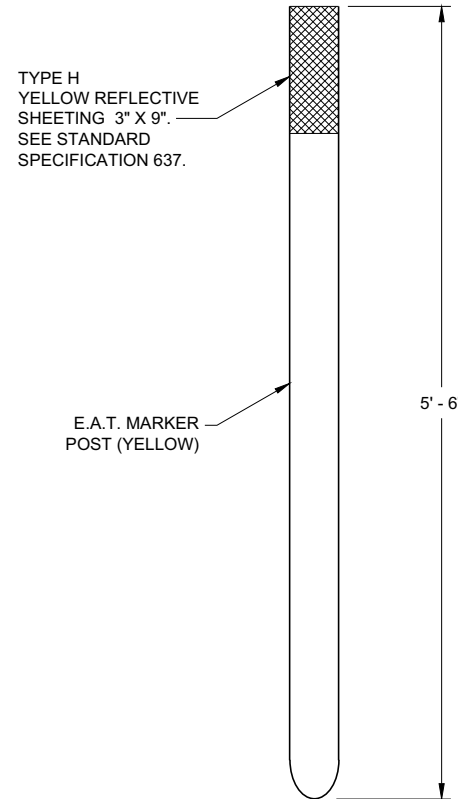
LOWER POST NO. 2 <sup>(16)</sup> (E)



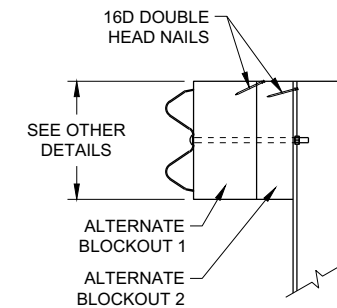
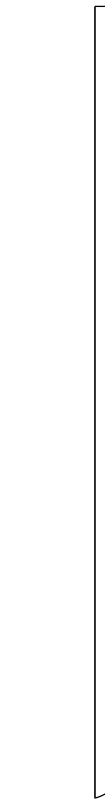
WOOD BLOCKOUT <sup>(4)</sup>  
REQ'D. AT ALL POSTS EXCEPT POST NO'S 1 & 2



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

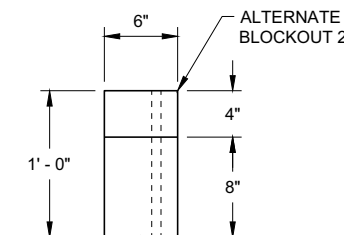


E.A.T. MARKER POST <sup>(13)</sup>



SIDE VIEW

ALTERNATE WOOD  
BLOCKOUT DETAIL



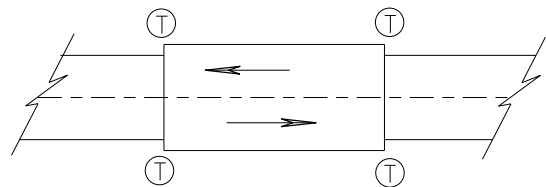
TOP VIEW

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

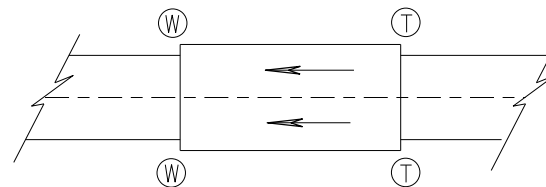
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

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





TWO WAY TRAFFIC



ONE WAY TRAFFIC

(T) THRIE BEAM CONNECTION

(W) W-BEAM CONNECTION WHEN REQUIRED

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

### GENERAL NOTES

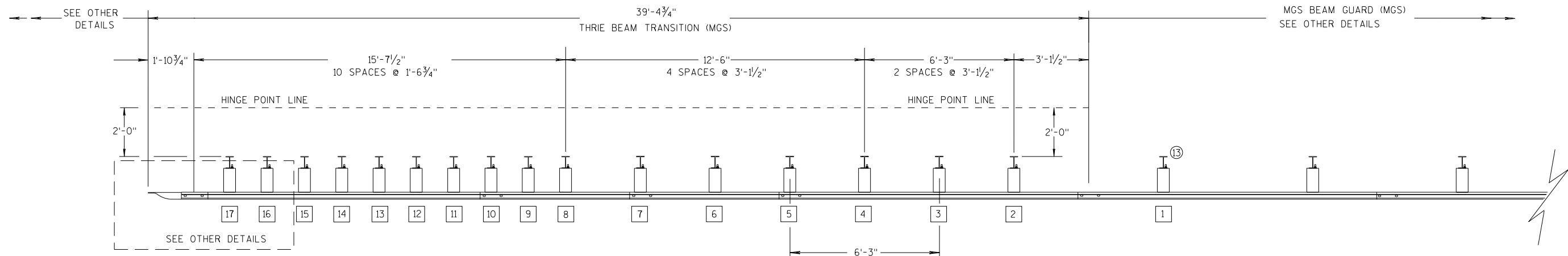
IF ROCK IS ENCOUNTERED, REMOVE ROCK TO FULL DEPTH OF POST PLUS 2 1/2", AND 12" DIAMETER AROUND POST. SEE 14B42 FOR MORE DETAILS.

TRANSITION USES STEEL POSTS ONLY.

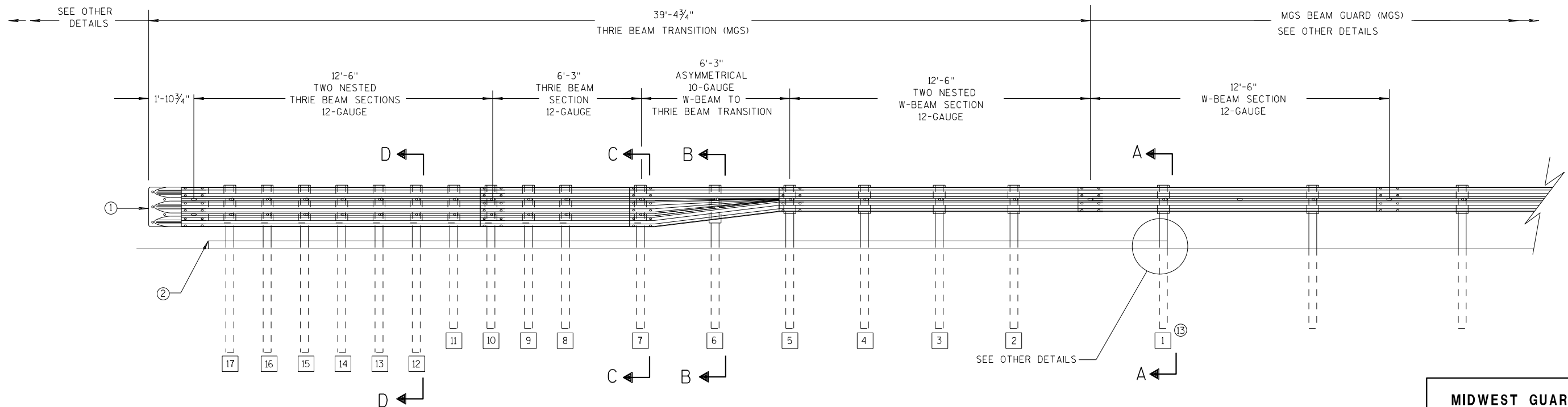
SEE STANDARD DETAIL DRAWING 14 B 42 FOR MORE INFORMATION.

POST 2 THROUGH 17 USES STEEL POST ONLY

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



PLAN VIEW



ELEVATION VIEW

## MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION

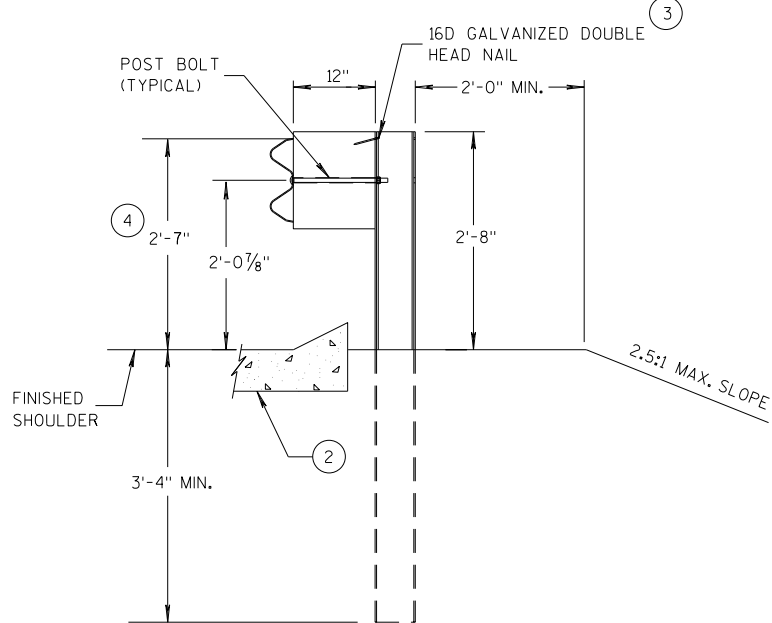
MIDWEST GUARDRAIL SYSTEM  
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

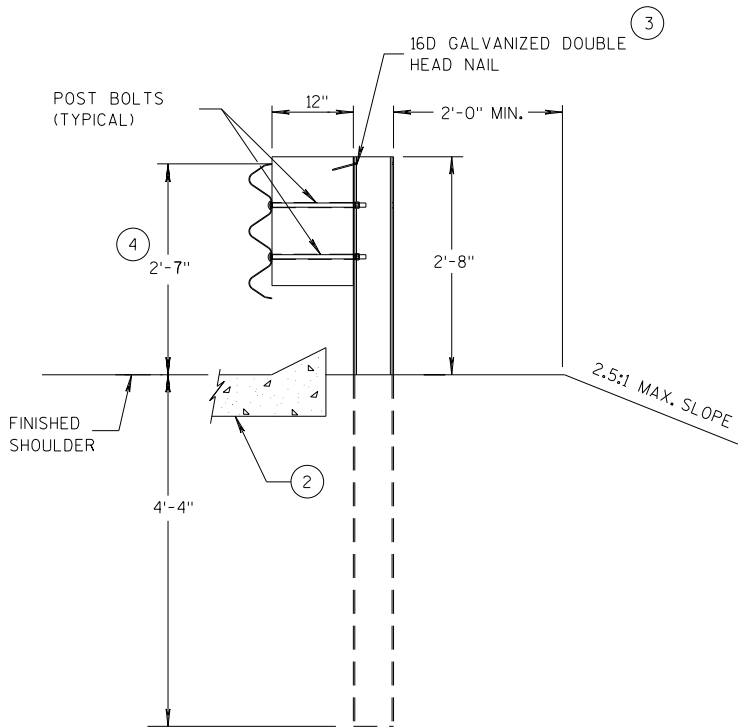


GENERAL NOTES

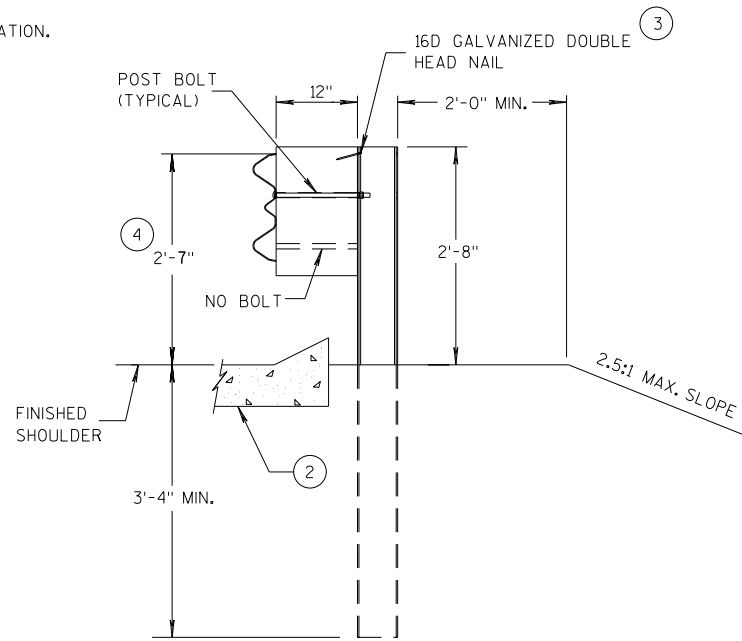
- 2 OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.
- 3 WHEN USING STEEL POSTS AND WOOD BLOCKOUTS INSTALL FOUR 10D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.
- 4 TOLERANCE FOR TOP OF W-BEAM RAIL IS  $\pm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



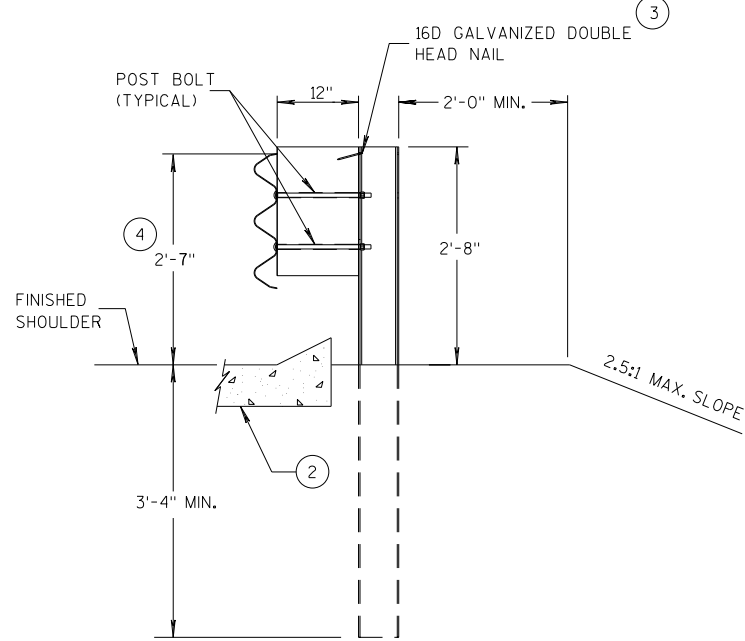
SECTION A-A  
POSTS 1-5



SECTION D-D  
POSTS 12-17



SECTION B-B  
POST 6



SECTION C-C  
POSTS 7-11

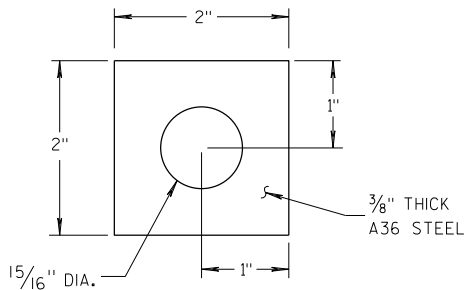
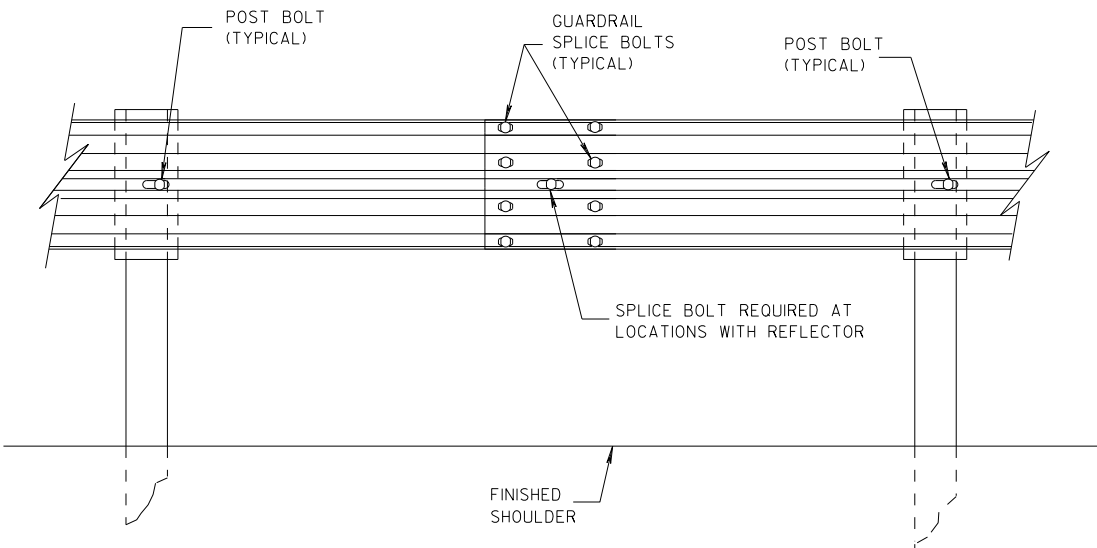
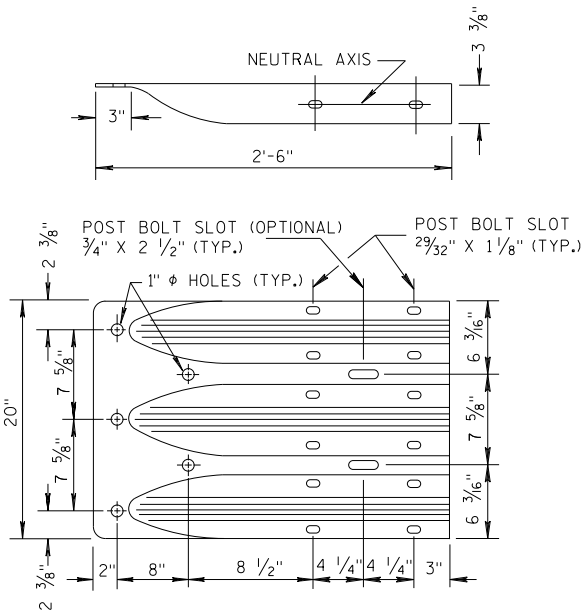


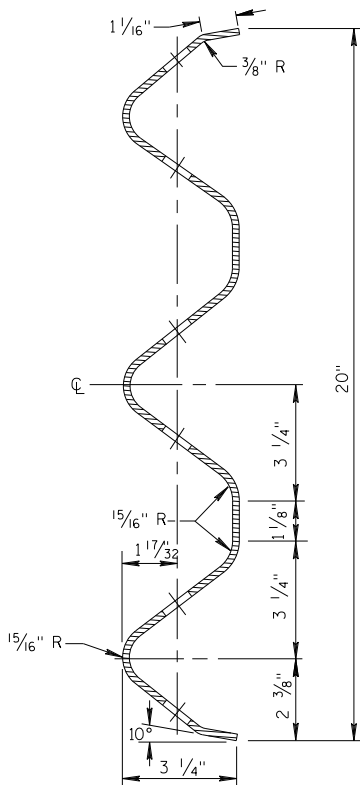
PLATE WASHER DETAIL



SPlice DETAIL



THRIE BEAM  
TERMINAL CONNECTOR

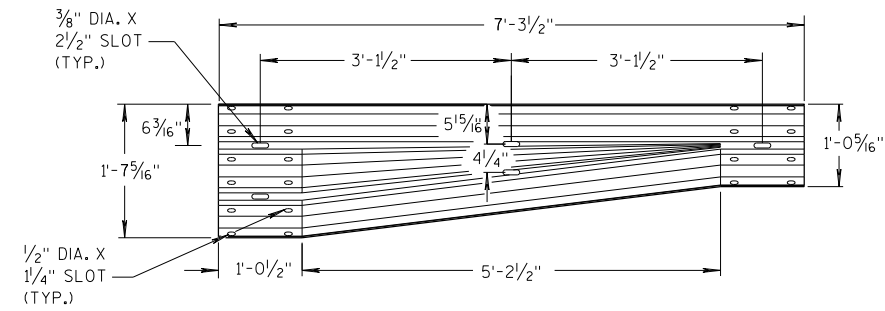


SECTION THRU THRIE  
BEAM RAIL ELEMENT

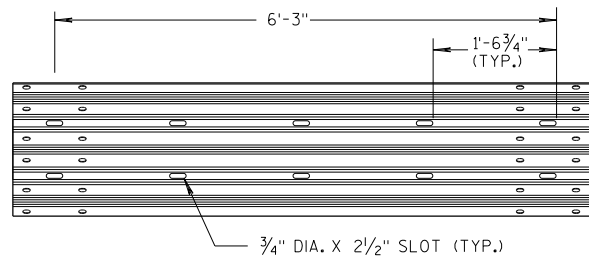
MIDWEST GUARDRAIL SYSTEM  
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

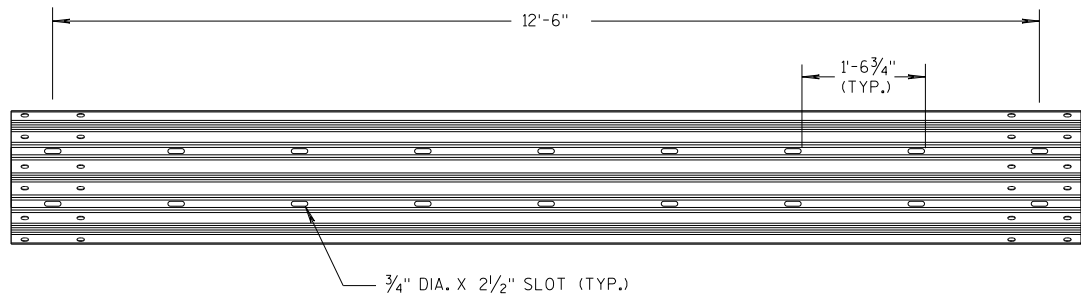




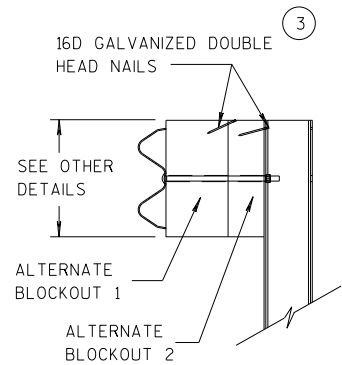
W-BEAM TO THRIE BEAM TRANSITION SECTION



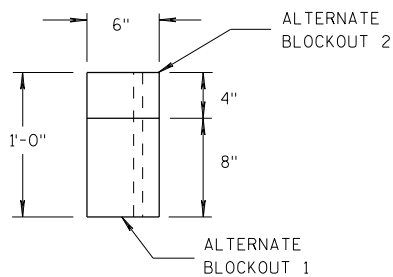
6'-3" THRIE BEAM SECTION



12'-6" THRIE BEAM SECTION

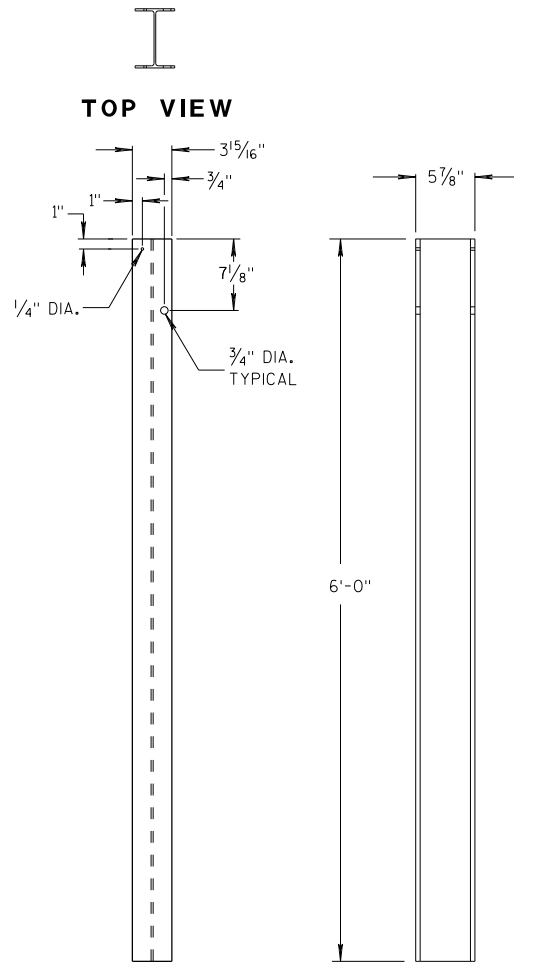


SIDE VIEW



TOP VIEW

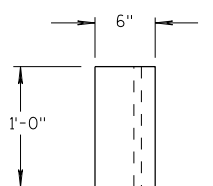
ALTERNATE WOOD BLOCKOUT DETAIL



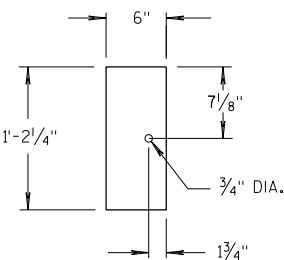
FRONT VIEW

SIDE VIEW

STEEL POSTS 1-5

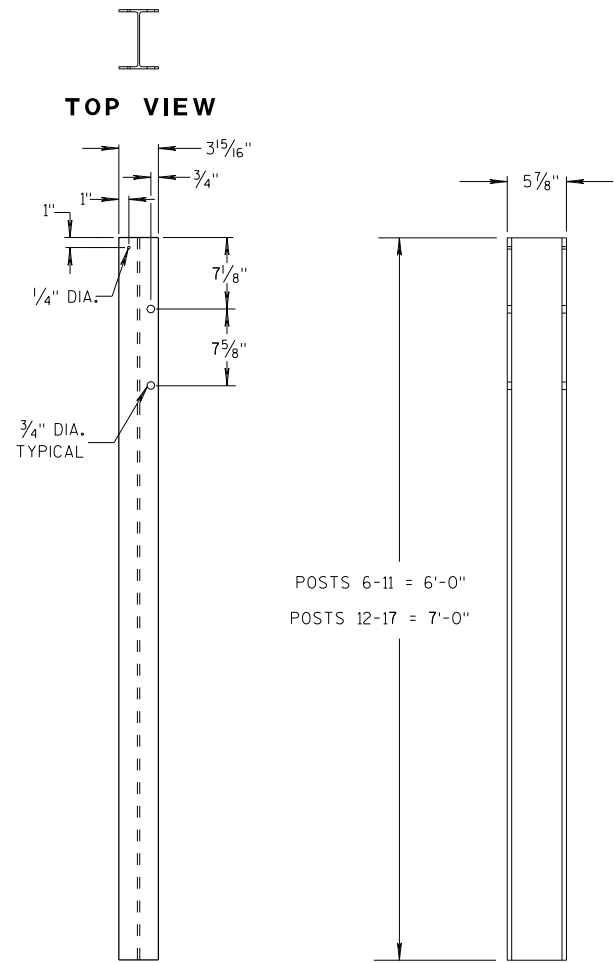


TOP VIEW



FRONT VIEW

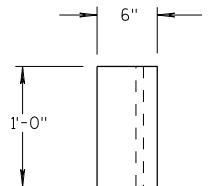
BLOCKOUT POSTS 1-5



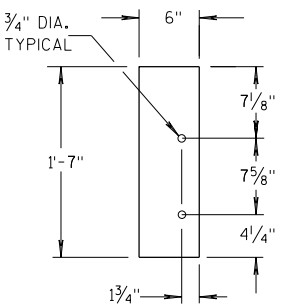
FRONT VIEW

SIDE VIEW

STEEL POSTS 6-17



TOP VIEW



FRONT VIEW

BLOCKOUT POSTS 6-17

### GENERAL NOTES

STEEL POSTS ARE W6X9 OR W6X8.5.

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

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

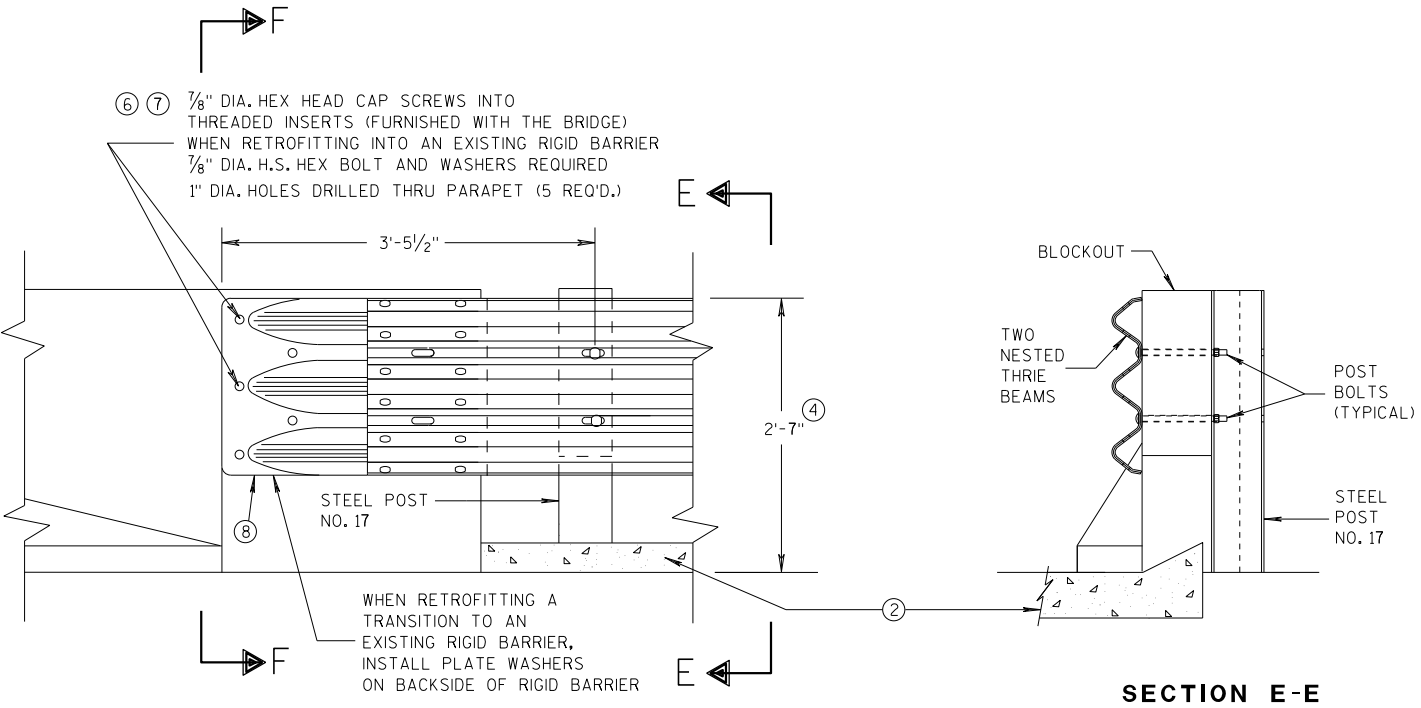
⑤ WOOD BLOCKS MAY BE CONSTRUCTED OUT OF 2 WOOD BLOCKS. SEE ALTERNATE WOOD BLOCK DETAIL.

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

MIDWEST GUARDRAIL SYSTEM  
THRIE BEAM TRANSITION (MGS)

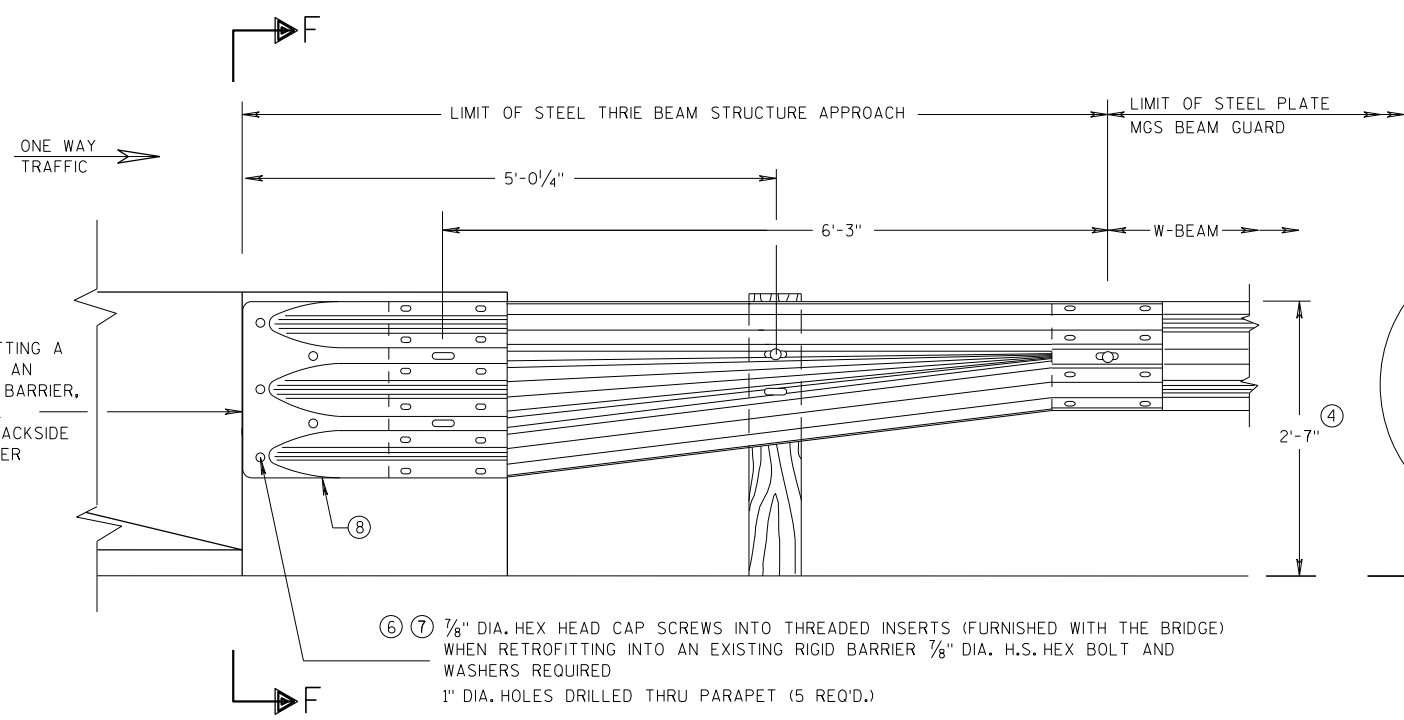
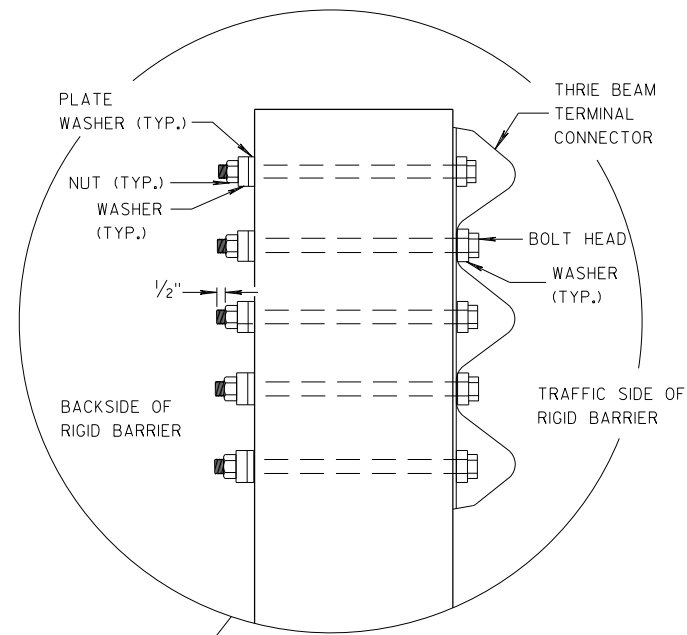
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



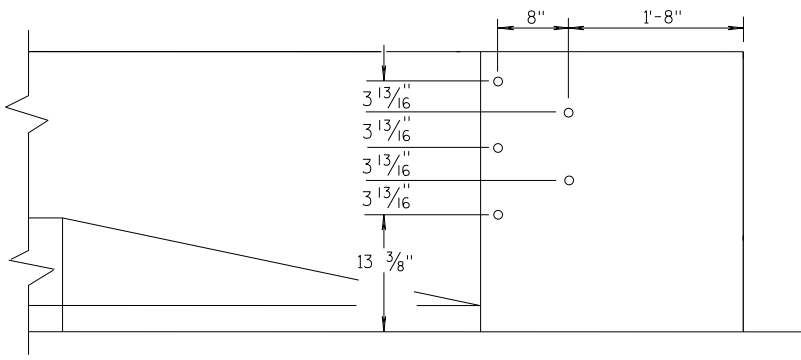


**GENERAL NOTES**

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



**SECTION F-F**



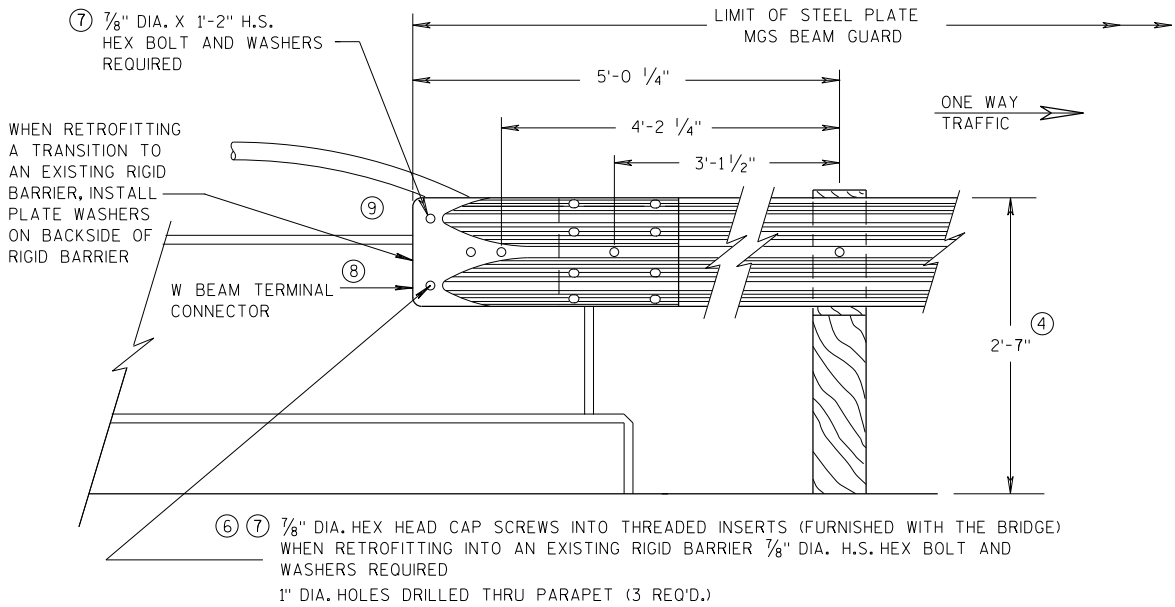
MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)			
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
APPROVED 07/2018	/S/ Rodney Taylor		
DATE	ROADWAY STANDARDS	42	NT
FHWA	UNIT SUPERVISOR		



GENERAL NOTES

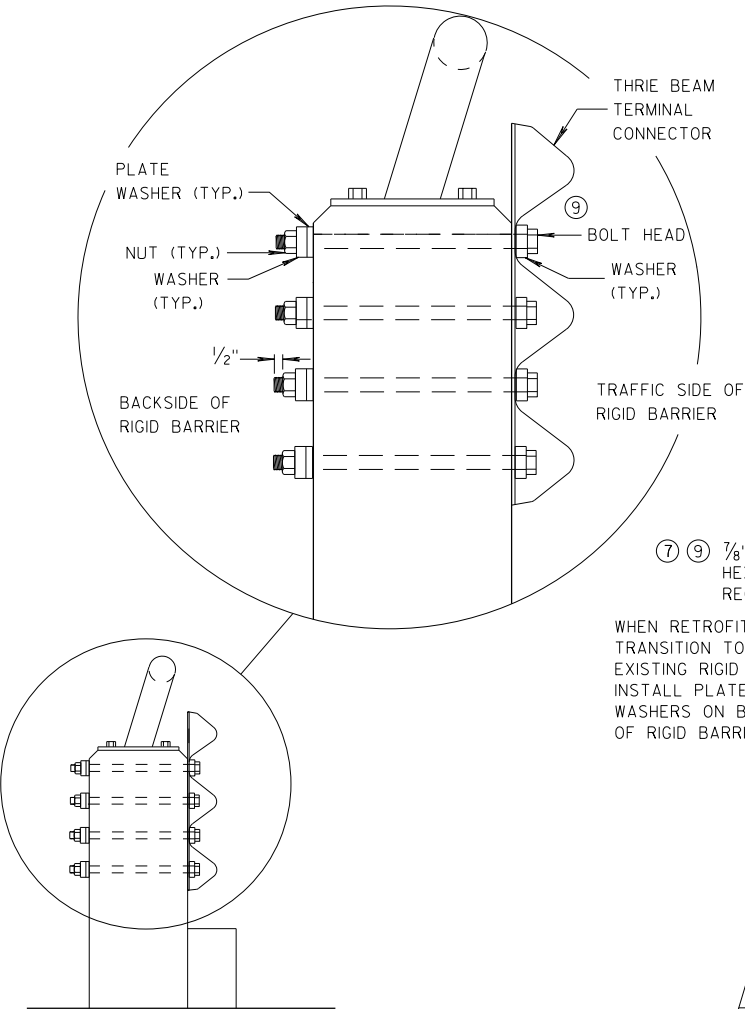
THESE ARE TYPICAL CONNECTION DETAILS. ADJUST THE POSTION OF CONNECTIONS TO EXISTING BRIDGES TO FIT THE ACTUAL BRIDGE AND SITE DIMENSIONS.

- ②
- OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.
- ④
- TOLERANCE FOR TOP OF BEAM IS ± 1".
- ⑥
- DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.
- ⑦
- BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM CONNECTOR PLATE. BOLTS THAT EXTEND THROUGH THE PARAPET AND OUT THE BACK FACE REQUIRE A HARDENED ROUND STEEL WASHER THAT IS 2" O.D. X 5/32" THICK AND ONE PLATE WASHER. REPAIR ANY DAMAGED CONCRETE FROM BOLT INSTALLATION.
- ⑧
- THE RECESS FOR A W-BEAM CONNECTION, WHICH EXISTS ON SOME PARAPETS OF THIS TYPE, SHALL BE FILLED WITH A TREATED TIMBER BLOCKOUT. BLOCKOUT SIZE IS 1'-6" X 2'-0" X 3 1/2".
- ⑨
- BOLT, NUT AND WASHERS NOT REQUIRED FOR THIS LOCATION WHEN RETROFITTING AN EXISTING PAPAPET AND THE HOLE IS EITHER ABOVE PARAPET OR WITHIN 4 INCHES OF THE EDGE OF PARAPET.

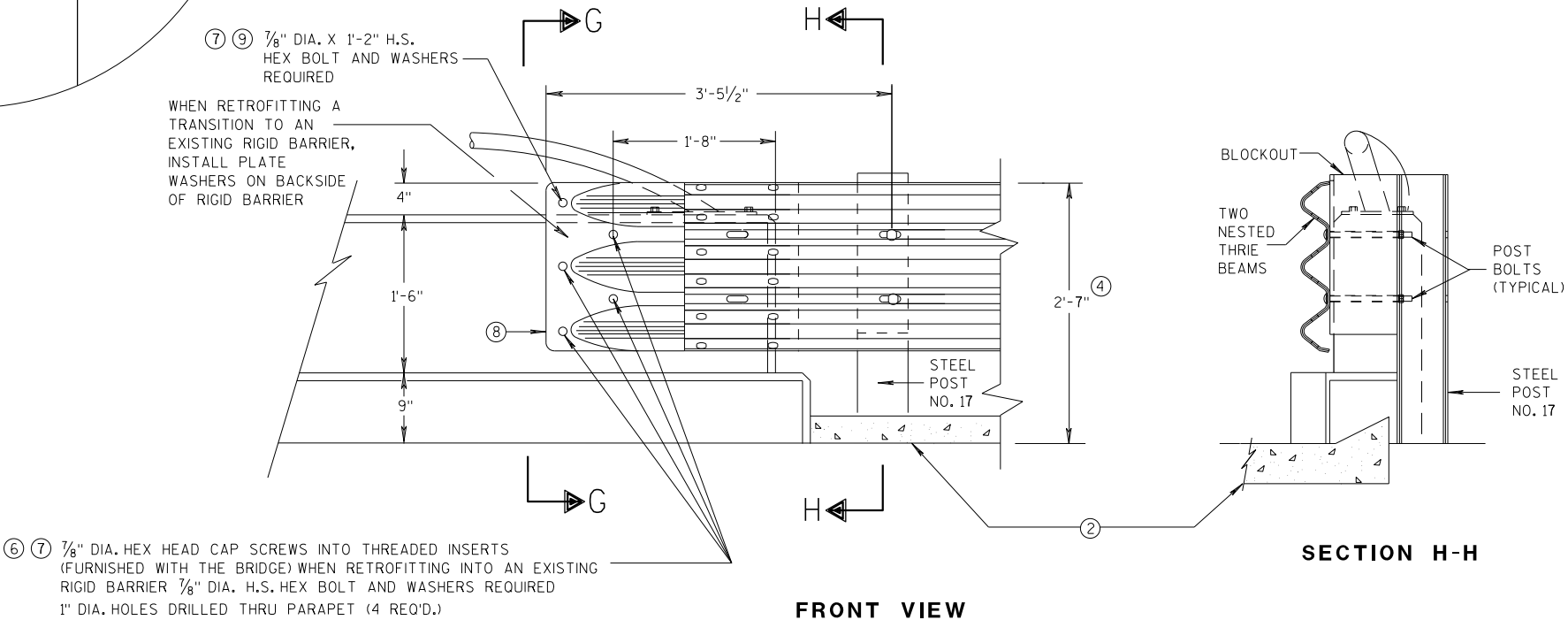


FRONT VIEW

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

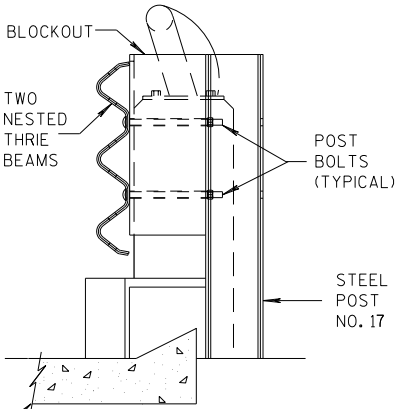


SECTION G-G



FRONT VIEW

THRIE BEAM CONNECTION TO VERTICAL FACED PARAPETS



SECTION H-H

MIDWEST GUARDRAIL SYSTEM  
THRIE BEAM TRANSITION (MGS)

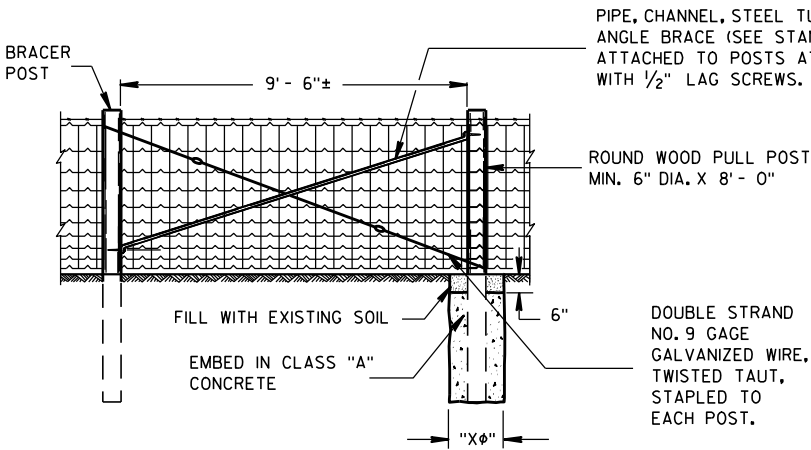
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

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

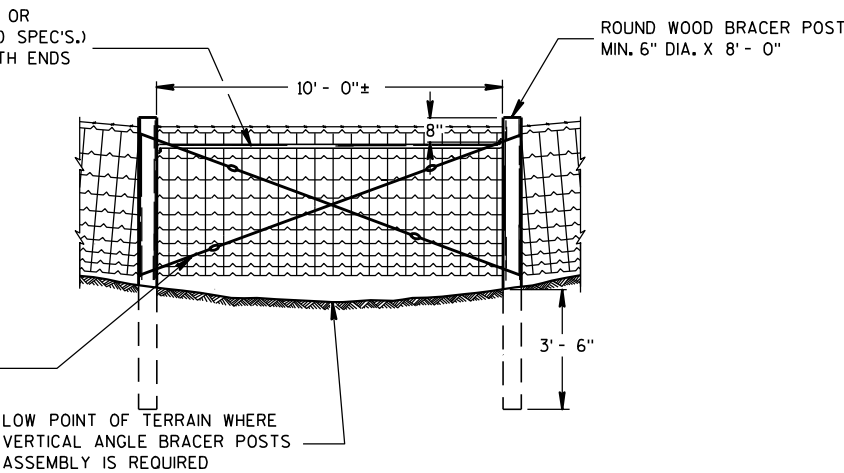


NOTE: PULL OR STRETCHER POST ASSEMBLIES SHALL BE PLACED MIDWAY BETWEEN END POSTS AND CORNER POSTS WHERE A RUN OF FENCE EXCEEDS 660' BUT IS LESS THAN 1,320'. FOR RUNS OF FENCE IN EXCESS OF 1,320' MAXIMUM SPACING OF PULL OR STRETCHER POST ASSEMBLIES SHALL BE 660'± C-C.

ILLUSTRATION SHOWS POSITION OF STANDARD STEEL BRACE, DOUBLE STRAND GALVANIZED WIRE, AND THE POST TO BE EMBEDDED IN CONCRETE WHEN WIRE FENCE IS INSTALLED FROM LEFT TO RIGHT. THE BRACES SHALL BE POSITIONED ON THE OPPOSITE DIAGONALS AND THE OPPOSITE POST SHALL BE EMBEDDED IN CONCRETE WHEN WIRE FENCE IS INSTALLED FROM RIGHT TO LEFT.



PULL OR STRETCHER POSTS ASSEMBLY



VERTICAL ANGLE BRACER POSTS ASSEMBLY

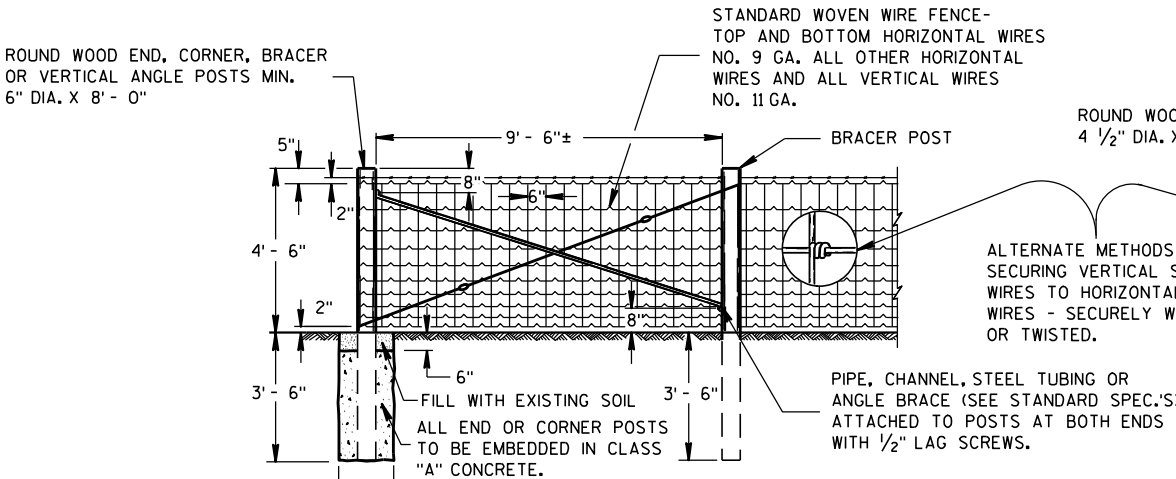
GENERAL NOTES

"Xφ" = DIAMETER OF THE POST PLUS 12".

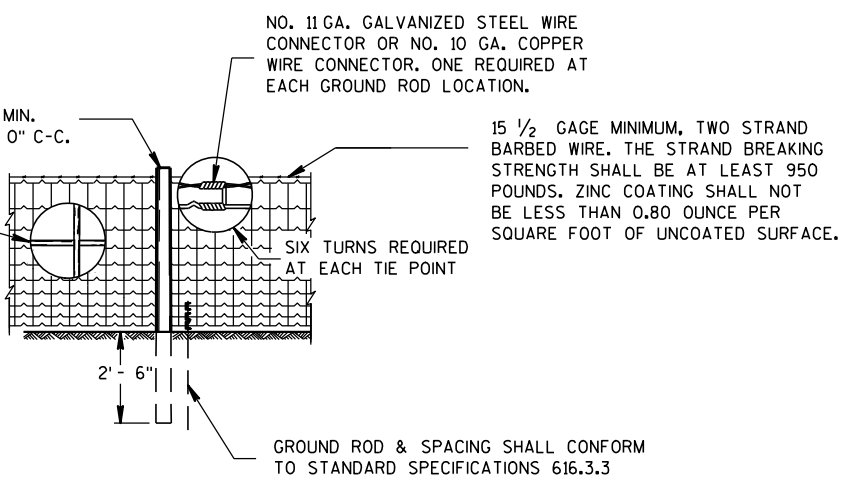
FENCE STAPLES SHOULD NEVER BE DRIVEN VERTICALLY INTO WOOD POSTS (WITH BOTH LEGS PARALLEL WITH THE WOOD GRAIN). DOING SO CAN SEPARATE THE GRAIN AND SIGNIFICANTLY REDUCE THE HOLDING POWER. ROTATING THE STAPLES SLIGHTLY OFF VERTICAL STRADDLES THE GRAIN AND PROVIDES MORE RESISTANCE TO PULL-OUT.

DO NOT STAPLE WIRE TIGHT TO THE LINE POSTS. ALLOW MOVEMENT OF WIRE FOR EXPANSION AND CONTRACTION. STAPLE ARRANGEMENT SHALL BE THE SAME FOR ALL OTHER POSTS EXCEPT THAT THEY SHALL BE DRIVEN TIGHT TO POSTS. ALL STAPLES SHALL BE 2" X 9 GAGE AND SHALL BE MANUFACTURED FROM GALVANIZED WIRE OR HOT DIP GALVANIZED AFTER FORMING. STAPLES SHALL HAVE SLASH-CUT POINTS.

FENCE SHALL BE LOCATED 3'-0" INSIDE THE RIGHT OF WAY LINE UNLESS OTHERWISE INDICATED ON THE PLANS.

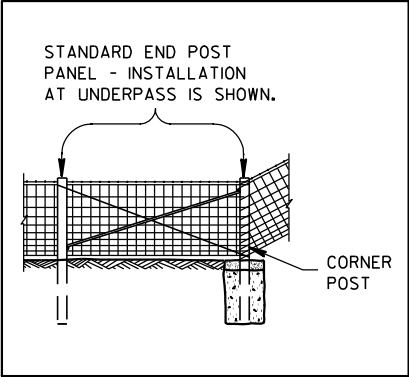


END OR CORNER POSTS ASSEMBLY

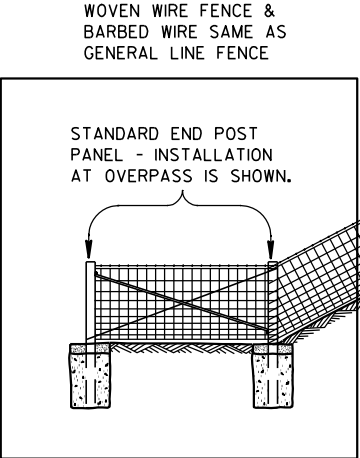


LINE FENCE CONSTRUCTION

GENERAL ROADSIDE VIEW OF WOVEN WIRE FENCE



ALTERNATE FENCE DESIGN AT STRUCTURE



FENCE DESIGN AT STRUCTURE APPROACH

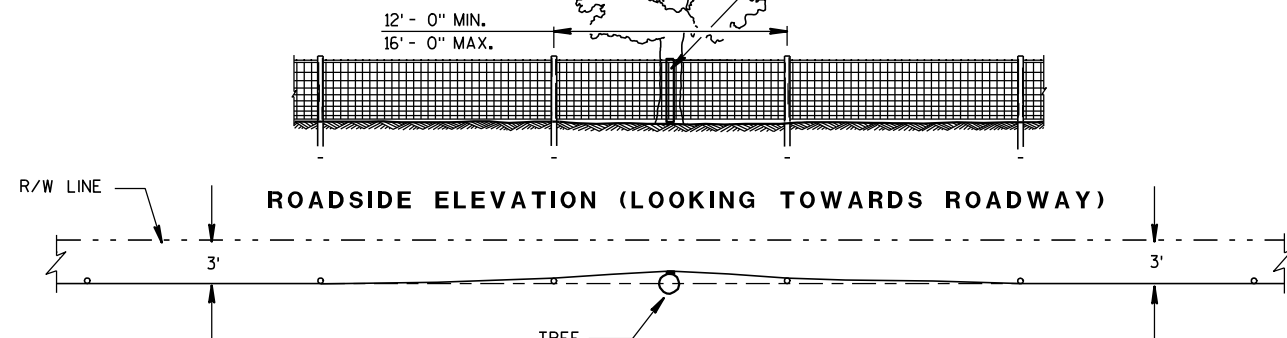
FENCE WOVEN WIRE

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

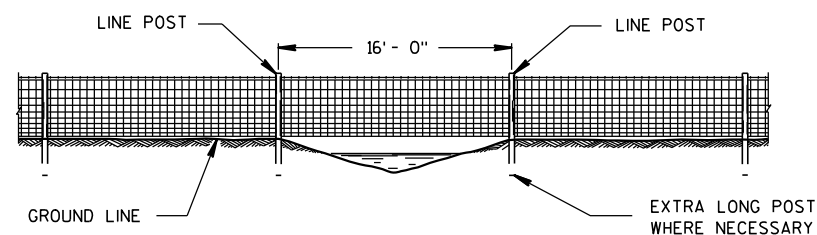


NOTE: TREE IN NORMAL FENCE LINE SPECIFICALLY ORDERED BY ENGINEER TO REMAIN IN PLACE.

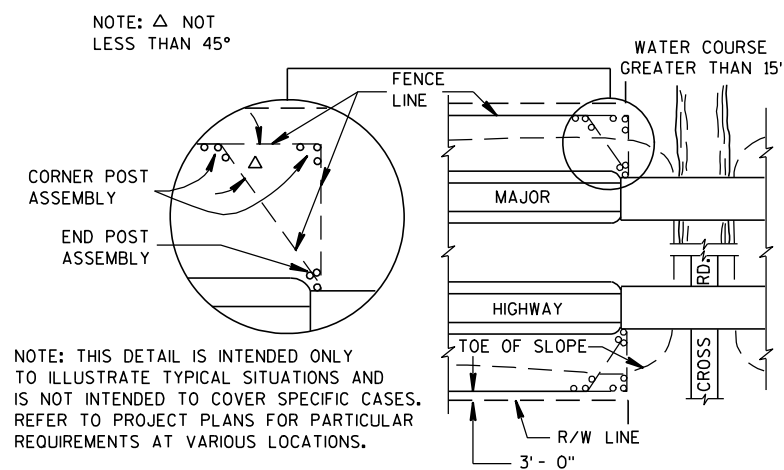
2" X 6" DOUGLAS FIR OR SO. YELLOW PINE PLACED BETWEEN TREE AND WOVEN WIRE FENCE. WOVEN WIRE FENCE AND BARBED WIRE TO BE STAPLED TO 2" X 6" LIKE AS TO LINE POST. 2" X 6" NOT FASTENED TO TREE.



PLAN VIEW  
FENCE DESIGN AT TREES REMAINING  
IN NORMAL FENCE LINE

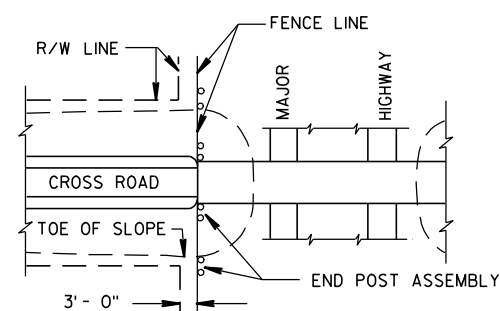


FENCE CONSTRUCTION OVER STREAM  
COURSES OF 15 FT. OR LESS IN WIDTH

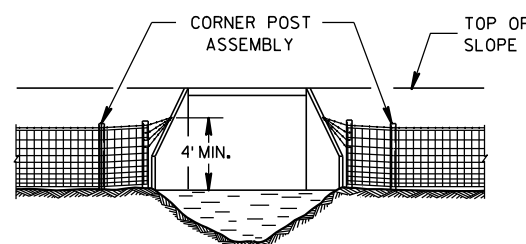


PLAN VIEW  
MAJOR HIGHWAY OVERPASS OR STREAM COURSE  
CROSSING OF GREATER THAN 15 FT. IN WIDTH

FENCE LOCATION AT STRUCTURES

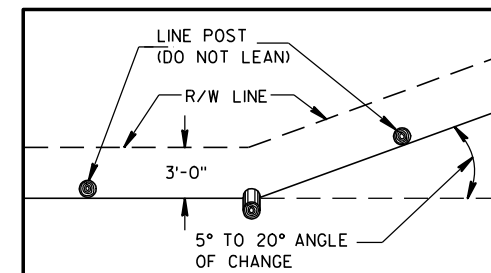
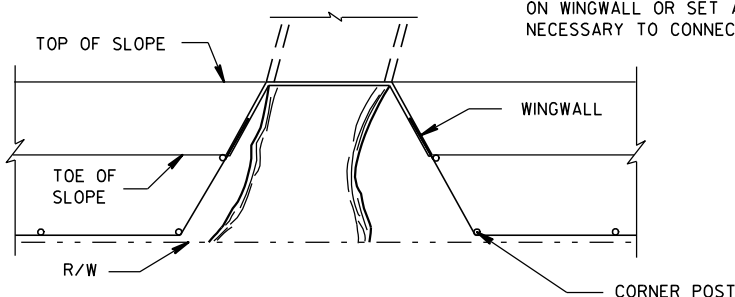


PLAN VIEW  
MAJOR HIGHWAY UNDERPASS

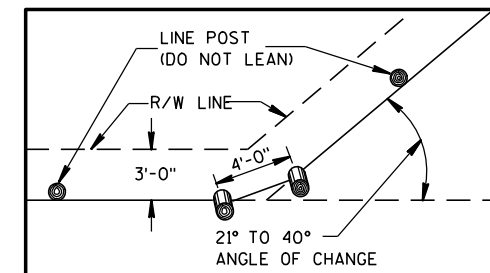


FENCE INSTALLATION TO WINGWALLS

NOTE: PLACE A MINIMUM OF 4 STRANDS OF BARBED WIRE, 6" MAXIMUM CENTERS IN FAN SHAPE CONNECTED TO AN EYE BOLT ON WINGWALL OR SET A LONE POST WHEN NECESSARY TO CONNECT BARBED WIRE.



PLAN VIEW  
SINGLE POST CORNER

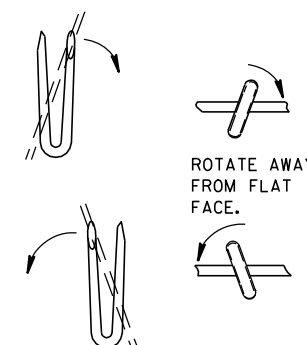


PLAN VIEW  
DOUBLE POST CORNER

## RIGHT OF WAY LINE CHANGE 40° AND LESS

NOTE: SINGLE AND DOUBLE POSTS SHALL BE A MIN. 6" DIA. X 8'-0" WITH A LEAN OF 4" TOWARD THE OUTSIDE OF THE CURVE.

WHEN THE RIGHT OF WAY LINE CHANGE IS MORE THAN 40° USE THE CORNER OR STRETCHER POSTS ASSEMBLY.



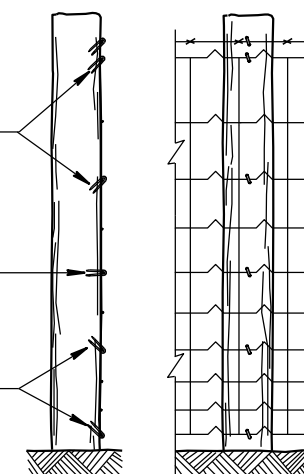
LINE POST

NOTE: WHEN POSTS ARE DRIVEN THE SMALL END SHALL BE DOWN.

STAPLES SLOPED DOWNWARD FOR SUSTAINED GRADES AND OVER KNOLLS.

STAPLES LEVEL FOR LEVEL GROUND.

SLOPE UPWARDS WHEN FENCE TENDS TO LIFT.



END ELEVATION  
FARM SIDE ELEVATION  
FENCE MOUNTING DETAIL

## FENCE WOVEN WIRE

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED

4/4/2008

DATE

FHWA

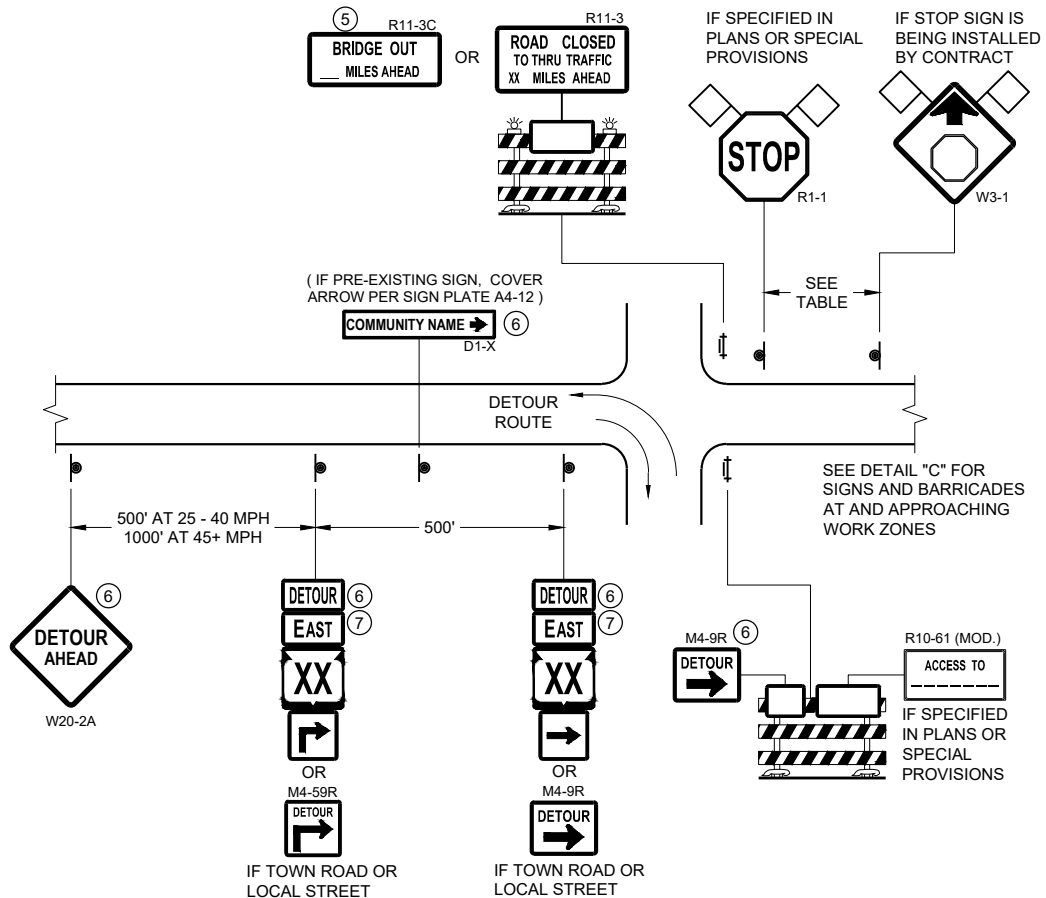
/S/ Jerry H. 7----

ROADWAY STANDARDS 145

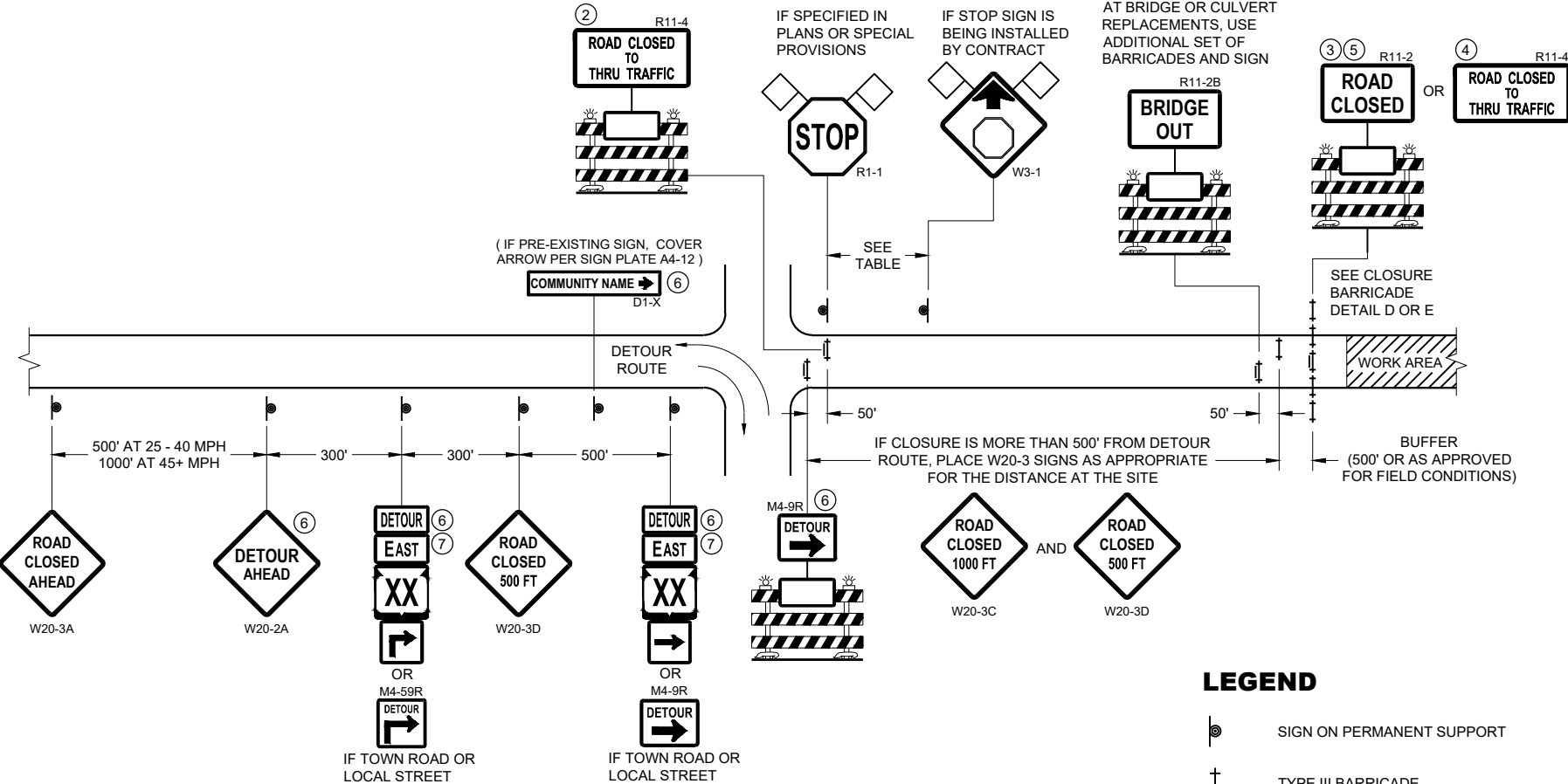
ENGINEER

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



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

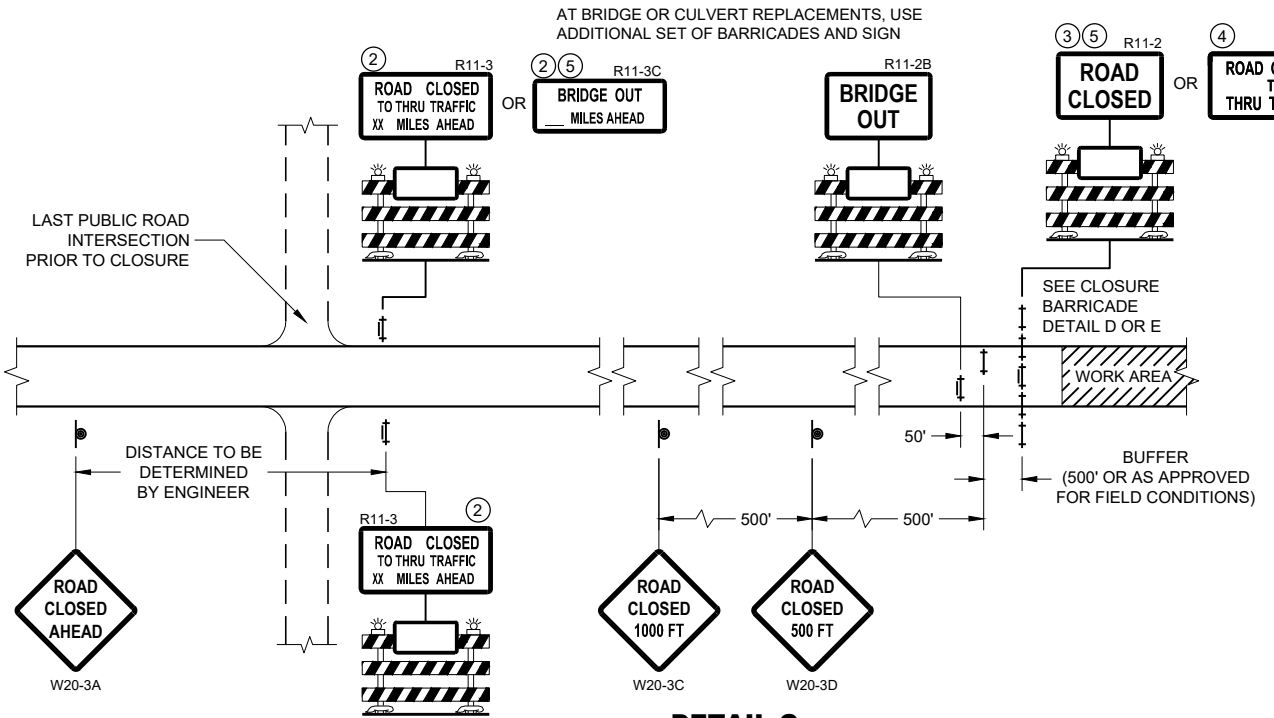
**LEGEND**

- SIGN ON PERMANENT SUPPORT
- TYPE III BARRICADE
- TYPE III BARRICADE WITH ATTACHED SIGN
- TYPE "A" WARNING LIGHT (FLASHING)
- WORK AREA
- FLAGS, 16" X 16" MIN. (ORANGE)

**DETOUR** M4 - 8  
**EAST** M3 - X  
**XX** OR **XX** OR **COUNTY X**  
M1 - 4 M1 - 6 M1 - 5A  
**→** OR **→**  
M05 - 1 M06 - 1

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

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



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

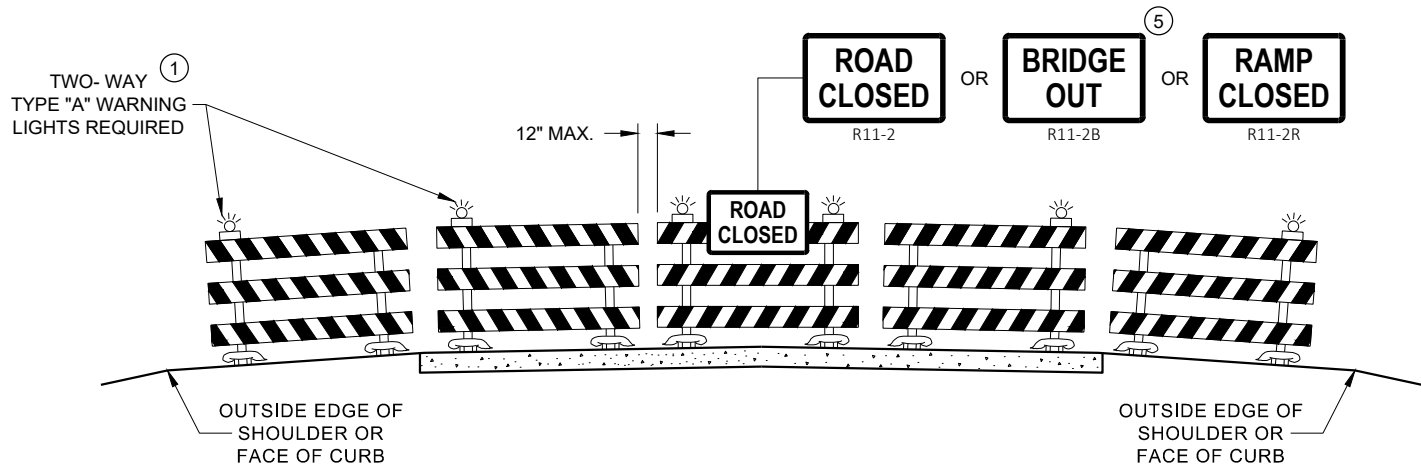
**BARRICADES AND SIGNS  
FOR MAINLINE CLOSURES**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

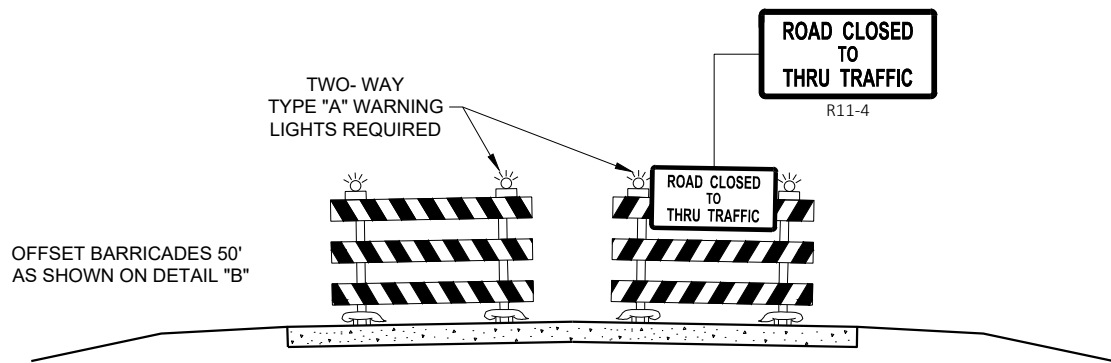
APPROVED  
May 2023 /S/ Andrew Heidtke  
DATE WORK ZONE ENGINEER 46

FHWA





**DETAIL D**  
**ROAD CLOSURE BARRICADE DETAIL**  
**APPROACH VIEW**



**DETAIL E**  
**LANE CLOSURE BARRICADE DETAIL**  
**APPROACH VIEW**

SEE SDD 15C2 - SHEET "a" FOR LEGEND

### GENERAL NOTES

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

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

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

BARRICADES THAT MUST BE MOVED FOR A WORK OPERATION SHALL BE IMMEDIATELY RE-ESTABLISHED UPON COMPLETION OF THE OPERATION, OR FOR CONTINUING OPERATIONS, AT THE END OF EACH WORKING DAY.

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

ALL TYPE III BARRICADES SHALL HAVE RAILS REFLECTORIZED ON BOTH FACES. STRIPES SHALL BE PROPERLY SLOPED DOWN TOWARD THE TRAFFIC SIDE OR AS SHOWN IN THE ROAD CLOSURE BARRICADE DETAIL "D" FOR FULL ROAD CLOSURES.

TYPE "A" LOW - INTENSITY FLASHING WARNING LIGHTS SHALL BE VISIBLE ON BOTH SIDES OF THE BARRICADE.

THE R11 - 2, R11 - 3, M4 - 9, R11 - 4, AND R10 - 61 SIGNS PLACED ON THE BARRICADES SHALL COVER NO MORE THAN THE TOP RAIL. THE SIGNS SHALL NOT COVER ANY PORTION OF THE MIDDLE RAIL OR BOTTOM RAILS.

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

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

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

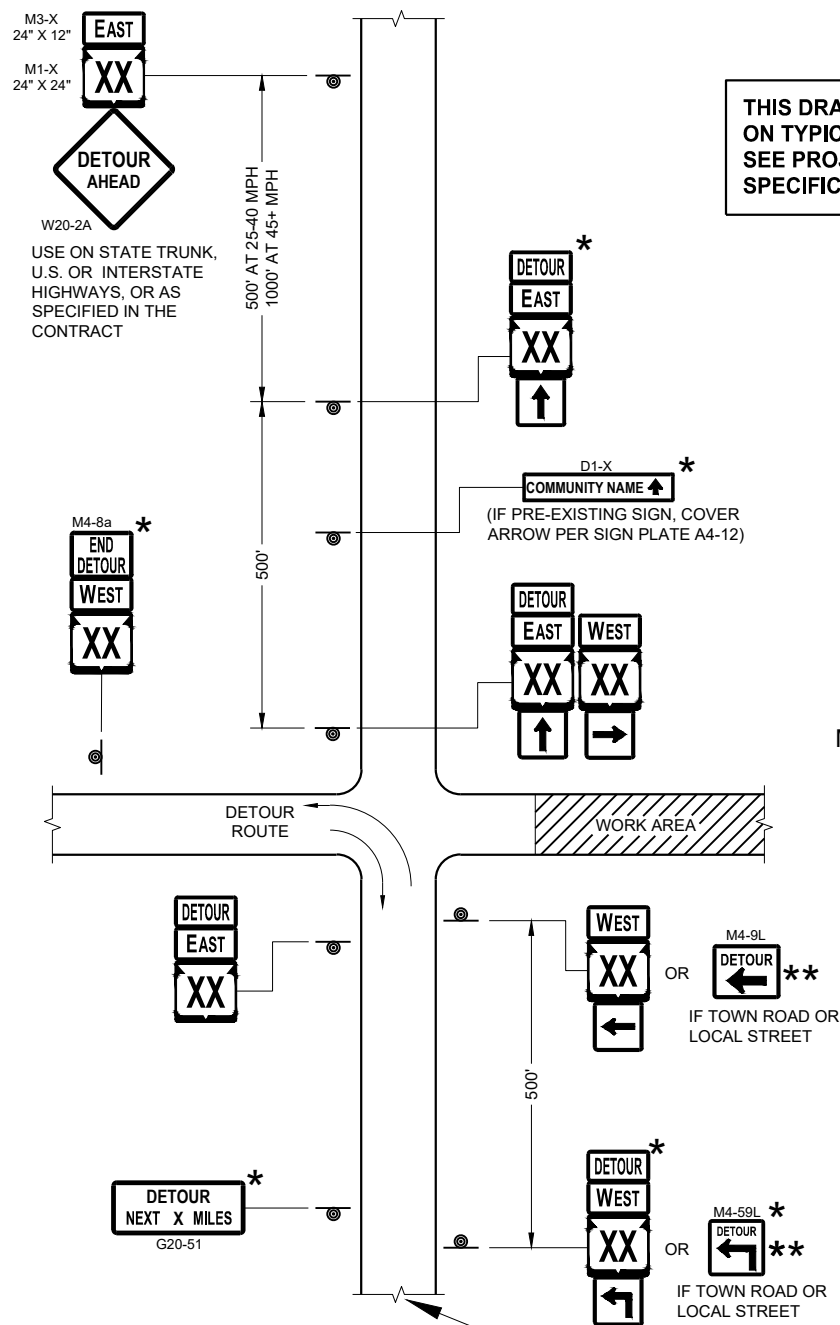
- 1 TWO WARNING LIGHTS SHALL BE PROVIDED ON THE CENTER BARRICADE AND A MINIMUM OF ONE WARNING LIGHT SHALL BE PROVIDED ON EACH OF THE OTHER BARRICADES WITHIN THE ROADWAY LIMITS. SPACING OF THE WARNING LIGHTS SHALL BE UNIFORM TO THE EDGE OF ROADWAY AS SHOWN (APPROX. 8 FOOT LIGHT SPACING).
- 2 THESE SIGNS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

### BARRICADES AND SIGNS FOR VARIOUS CLOSURES

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
May 2023 /S/ Andrew Heidtke  
DATE WORK ZONE ENGINEER 47  
FHWA

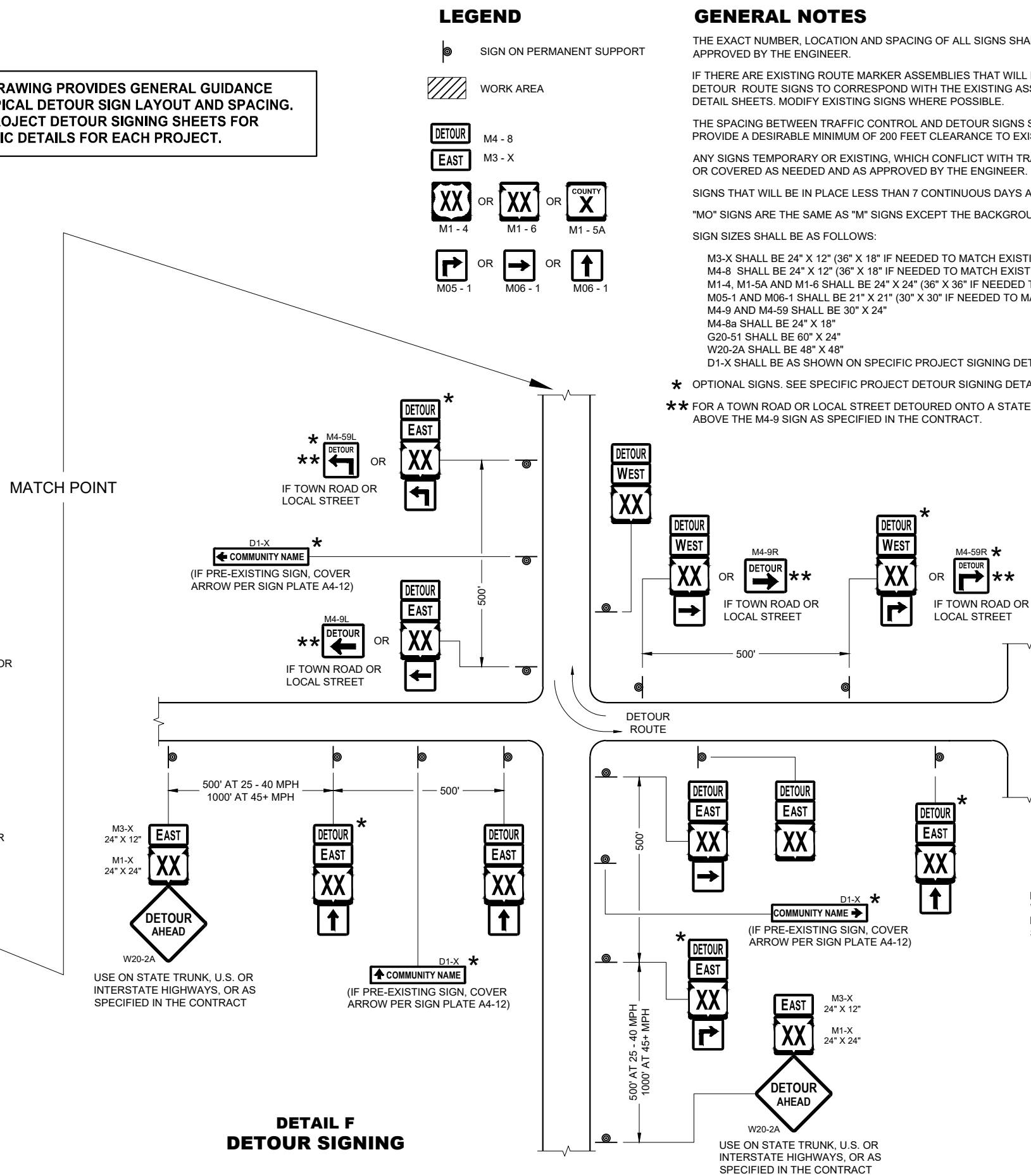




**THIS DRAWING PROVIDES GENERAL GUIDANCE  
ON TYPICAL DETOUR SIGN LAYOUT AND SPACING.  
SEE PROJECT DETOUR SIGNING SHEETS FOR  
SPECIFIC DETAILS FOR EACH PROJECT.**

SEE SPECIFIC PROJECT DETOUR  
SIGNING DETAIL SHEETS AND  
DETAIL A OR B ON SDD SHEET 15C02 - SHEET "a"

**SDD 15C02 - 09c**



## DETAIL F DETOUR SIGNING

## GENERAL NOTES

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

IF THERE ARE EXISTING ROUTE MARKER ASSEMBLIES THAT WILL REMAIN IN PLACE, ADJUST THE LOCATION OF THE DETOUR ROUTE SIGNS TO CORRESPOND WITH THE EXISTING ASSEMBLIES. SEE SPECIFIC PROJECT DETOUR SIGNING DETAIL SHEETS. MODIFY EXISTING SIGNS WHERE POSSIBLE.

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

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

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

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

SIGN SIZES SHALL BE AS FOLLOWS:

M3-X SHALL BE 24" X 12" (36" X 18" IF NEEDED TO MATCH EXISTING SIGNS)  
M4-8 SHALL BE 24" X 12" (36" X 18" IF NEEDED TO MATCH EXISTING SIGNS)  
M1-4, M1-5A AND M1-6 SHALL BE 24" X 24" (36" X 36" IF NEEDED TO MATCH EXISTING SIGNS)  
M05-1 AND M06-1 SHALL BE 21" X 21" (30" X 30" IF NEEDED TO MATCH EXISTING SIGNS)  
M4-9 AND M4-59 SHALL BE 30" X 24"  
M4-8a SHALL BE 24" X 18"  
G20-51 SHALL BE 60" X 24"  
W20-2A SHALL BE 48" X 48"  
D1-X SHALL BE AS SHOWN ON SPECIFIC PROJECT SIGNING DETAIL SHEETS.

\* OPTIONAL SIGNS. SEE SPECIFIC PROJECT DETOUR SIGNING DETAIL SHEETS.

**\*\* FOR A TOWN ROAD OR LOCAL STREET DETOURED ONTO A STATE TRUNK HIGHWAY, PLACE A ROAD NAME PLAQUE ABOVE THE M4-9 SIGN AS SPECIFIED IN THE CONTRACT.**

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

## DETOUR SIGNING FOR MAINLINE CLOSURES

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
May 2023  
 DATE

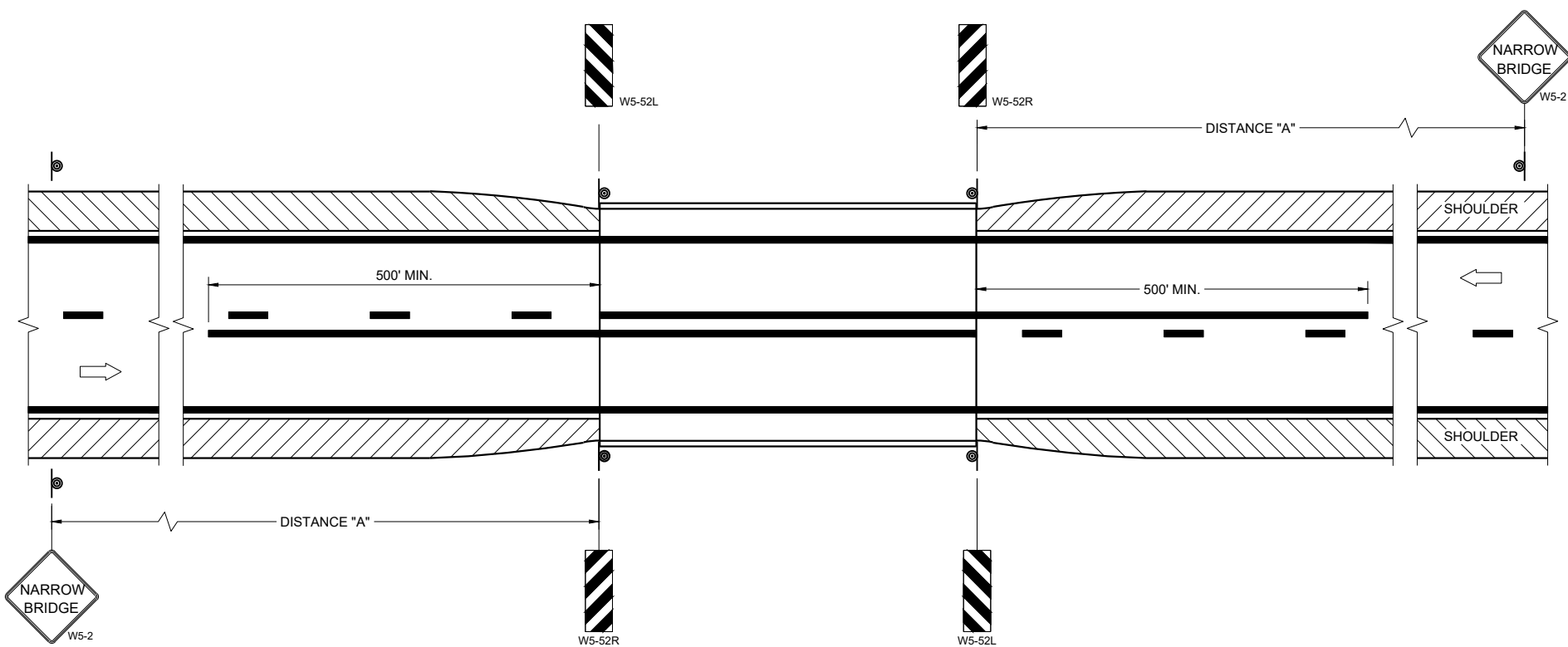
/S/ Andrew Heidtke  
 WORK ZONE ENGINEER 48

FHWA

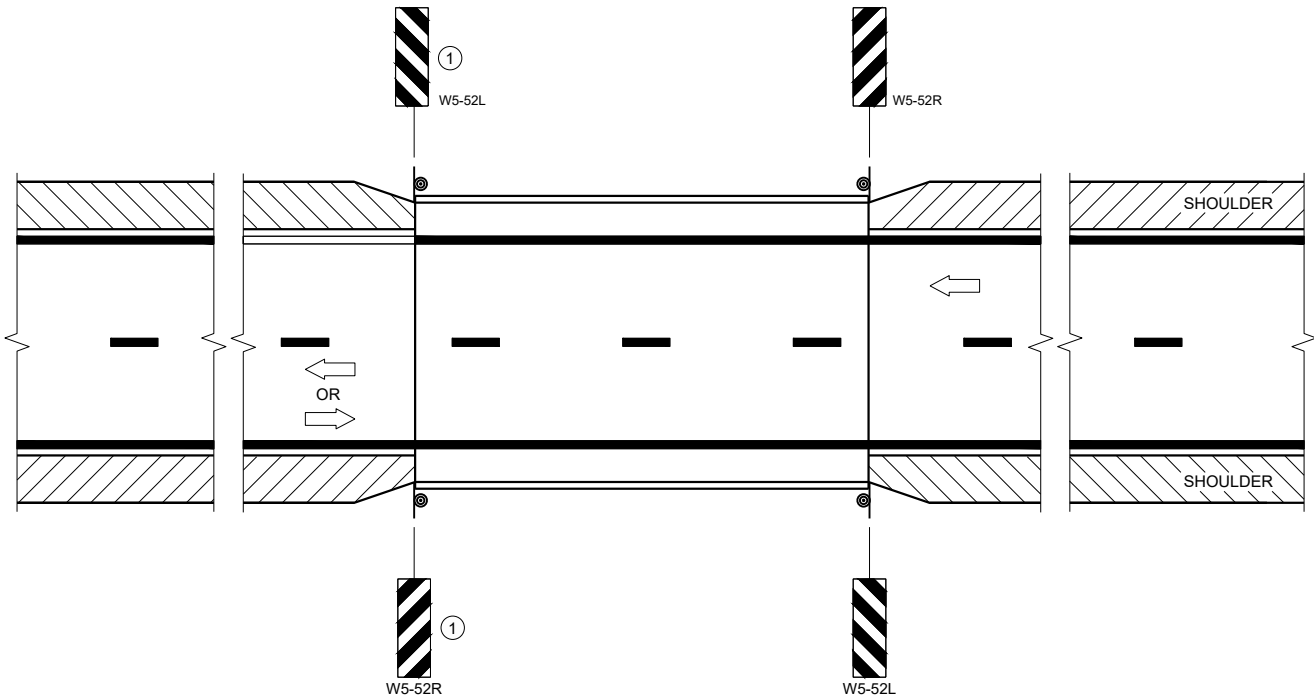
WORK ZONE ENGINEER 48

**SDD15C02 - 09c**





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



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

**GENERAL NOTES**

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

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

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

ON BRIDGE ONLY PROJECTS, PLACE 300 FEET OF EDGELINE.

OMIT EDGELINES ON ROADWAYS WITHOUT EXISTING EDGELINES.

① OMIT ON ONE-WAY TRAVELED WAYS.

**LEGEND**

⊙ SIGN ON PERMANENT SUPPORT

➡ DIRECTION OF TRAFFIC

**DISTANCE TABLE**

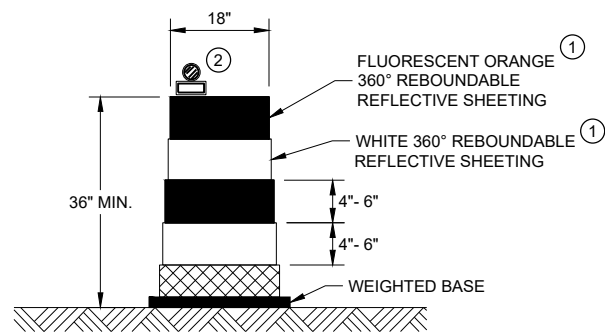
POSTED OR 85TH PERCENTILE SPEED	DISTANCE "A"
25	150'
30	200'
35	250'
40	300'
45	400'
50	550'
55	700'

**SIGNING AND MARKING  
FOR TWO LANE BRIDGES**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

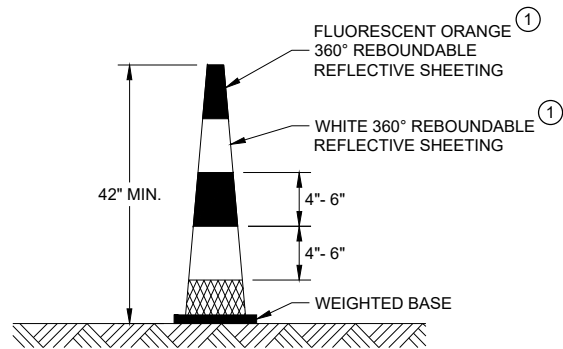
APPROVED  
May 2023 /S/ Jeannie Silver  
DATE Statewide Pavement Marking Engineer  
FHWA





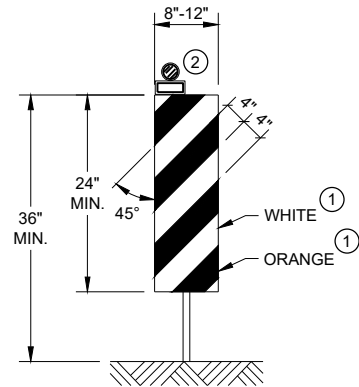
**DRUM**

BALLAST WIDTHS  
RANGE FROM 24"-36"



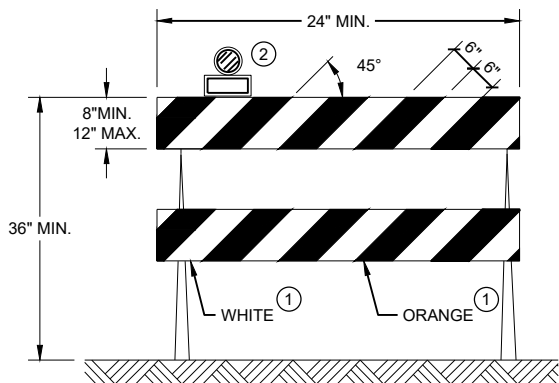
**42" CONE**

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



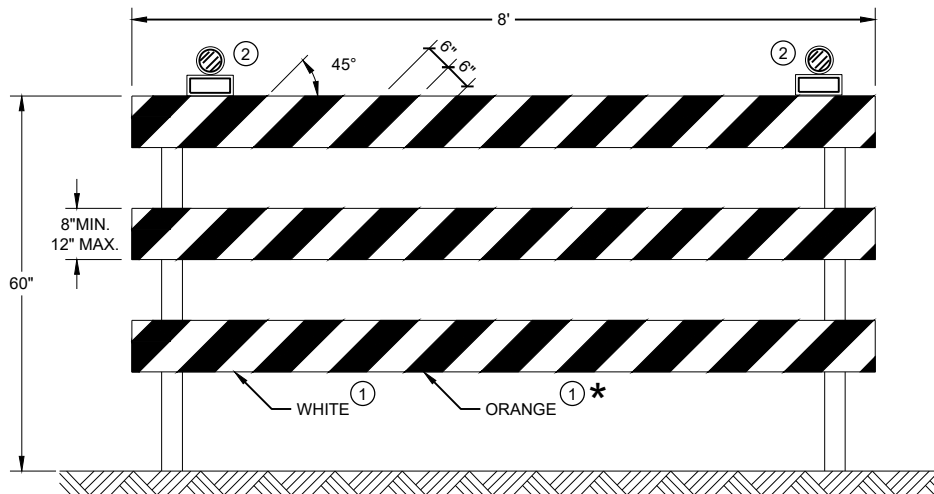
**VERTICAL PANEL**

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



**TYPE II BARRICADE**

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



**TYPE III BARRICADE**

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

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

**GENERAL NOTES**

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

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












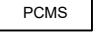



STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
November 2022 /S/ Andrew Heidtke  
DATE WORK ZONE ENGINEER 50

FHWA



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
-  WZ START LOCATION MARKER
-  WZ END LOCATION MARKER
-  CONNECTED ARROW BOARD
-  PORTABLE CHANGEABLE MESSAGE SIGN
-  PORTABLE TRAFFIC SENSOR (PTS)
-  FLASHING BEACON SIGNS
-  STOPPED OR SLOW TRAFFIC WHEN FLASHING  
WO8-76  
96" x 48"

GENERAL NOTES

THE EXACT NUMBER, LOCATION, AND SPACING OF ALL SIGNS, INCLUDING FBS 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" SIGNS ARE THE SAME AS "W" SIGNS EXCEPT THE BACKGROUND IS ORANGE.

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

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 AND PLACE TEMPORARY PAVEMENT MARKING LINE IF LANE CLOSURE IS TO BE IN PLACE 4 OR MORE CONTINUOUS DAYS AND NIGHTS. WARNING LIGHTS ARE NOT REQUIRED IF THE LANE CLOSURE IS A DAYTIME ONLY OPERATION.

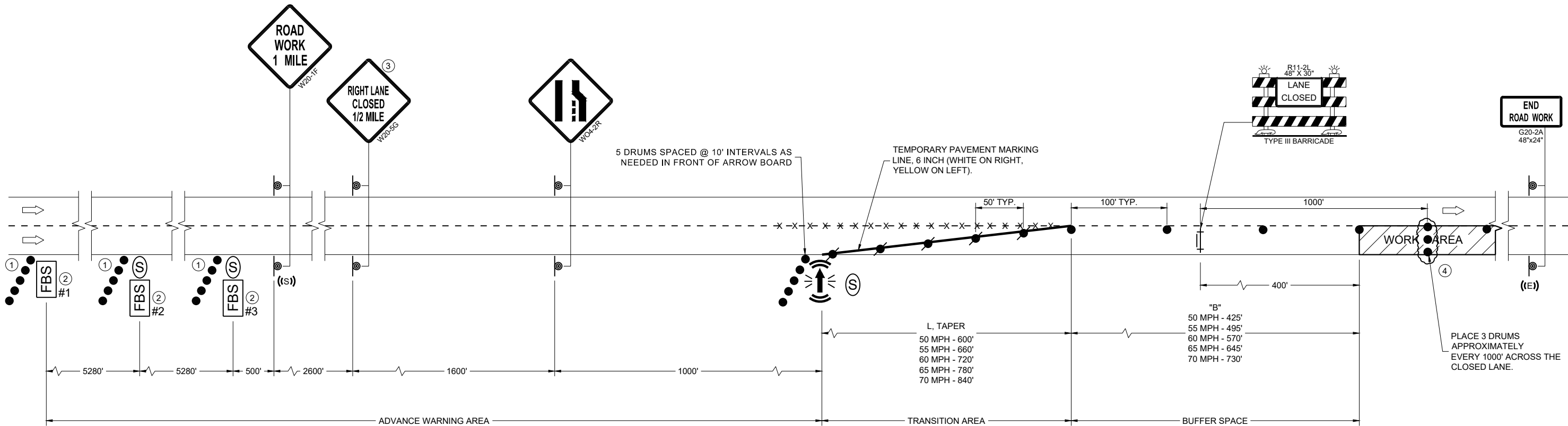
IF THE HORIZONTAL ALIGNMENT IS SUCH THAT A CURVE MAY REQUIRE ADDITIONAL DELINEATION, THE DEVICE SPACING MAY BE DECREASED TO 50 FEET.

ADJUSTMENTS IN BUFFER SPACE NEED TO BE INCORPORATED WHEN THE LANE 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.

PORTABLE TRAFFIC SENSOR (PTS) MAY BE MOUNTED ON THE FBS, ARROW BOARD OR OTHER TRAILER DEVICES.

- 5 DRUMS SPACED AT 10 FOOT INTERVALS AS NEEDED.
- IF THERE ARE MORE THAN TWO LANES OR IF SPECIFIED IN THE PLANS, PLACE FBS ON BOTH SIDES OF THE ROADWAY.
- IF THERE IS AN APPROVED TEMPORARY SPEED DECLARATION, ADD WO-3-5 SIGNS 400 FEET AFTER THE W20-5G SIGNS AND ADD R2-1 SIGNS (48"x60") 700 FEET AFTER THE WO3-5 SIGNS. A SPEED LIMIT SIGN SHALL BE LOCATED 1500 FEET BEYOND THE END OF THE ACCELERATION LANE OF EACH ENTRANCE RAMP. PLACE A SPEED LIMIT SIGN A MINIMUM OF EVERY 3 MILES. INCLUDE A "RESUME SPEED LIMIT" SIGN 200 FEET MINIMUM (800 FEET DESIRABLE) BEYOND THE G30-3A "END ROAD WORK" SIGN
- DRUMS IN A CLOSED LANE THAT MUST BE MOVED FOR A WORK OPERATION SHALL BE IMMEDIATELY REESTABLISHED UPON COMPLETION OF THE OPERATION, OR FOR CONTINUING OPERATIONS, AT THE END OF EACH WORKING DAY.



TRAFFIC CONTROL, LANE CLOSURE, BASIC TRAFFIC QUEUE WARNING SYSTEM

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
November 2025 /S/ Erin Schwark  
DATE ROADWAY STANDARDS DEVELOPMENT UNIT SUPERVISOR



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
- REMOVING PAVEMENT MARKING (SEE GENERAL NOTES)
- CONCRETE BARRIER TEMPORARY PRECAST

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.

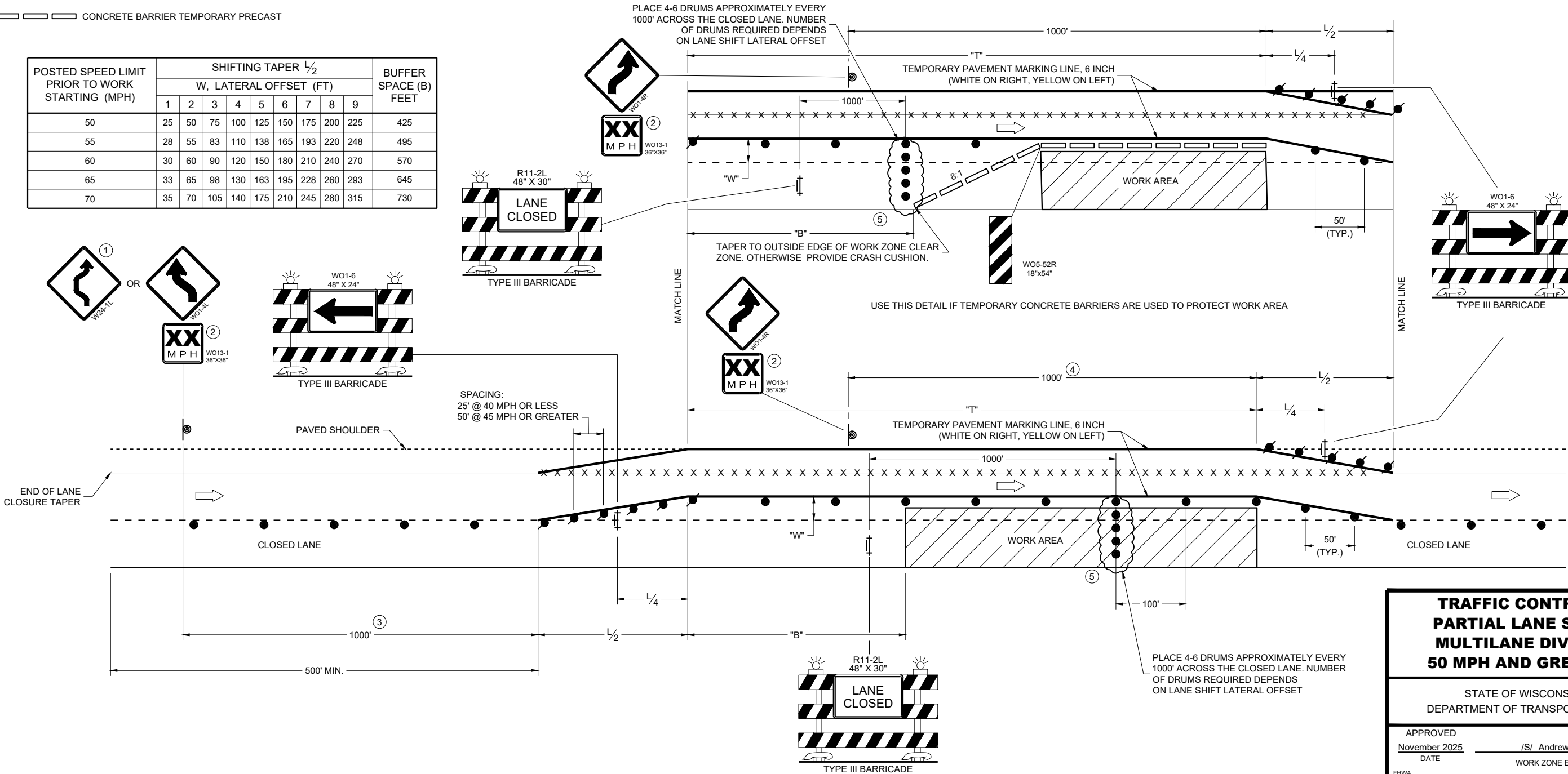
REMOVE PAVEMENT MARKINGS AND PLACE TEMPORARY PAVEMENT MARKING LINES IF LANE CLOSURE IS TO BE IN PLACE FOR 4 OR MORE CONTINUOUS DAYS AND NIGHTS.

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.

- USE ONLY WHEN T<600', OMIT WO1-4R.
- IF NEEDED, USE ONLY IF DESIGN SPEED IS 10 MPH BELOW POSTED SPEED.
- IF THE BEGINNING OF LANE SHIFT TAPER IS 1200 FEET OR LESS FROM END OF LANE CLOSURE TAPER, PLACE THE WO1-4L SIGN 200 FEET AFTER THE END OF THE LANE CLOSURE TAPER.
- IF THE BEGINNING OF THE SECOND LANE SHIFT TAPER IS 1200 FEET OR LESS FROM END OF THE FIRST LANE CLOSURE TAPER, PLACE THE WO1-4L SIGN 200 FEET AFTER THE END OF THE FIRST LANE CLOSURE TAPER.
- DRUMS IN A CLOSED LANE THAT MUST BE MOVED FOR A WORK OPERATION SHALL BE IMMEDIATELY REESTABLISHED UPON COMPLETION OF THE OPERATION, OR FOR CONTINUING OPERATIONS, AT THE END OF EACH WORKING DAY.



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

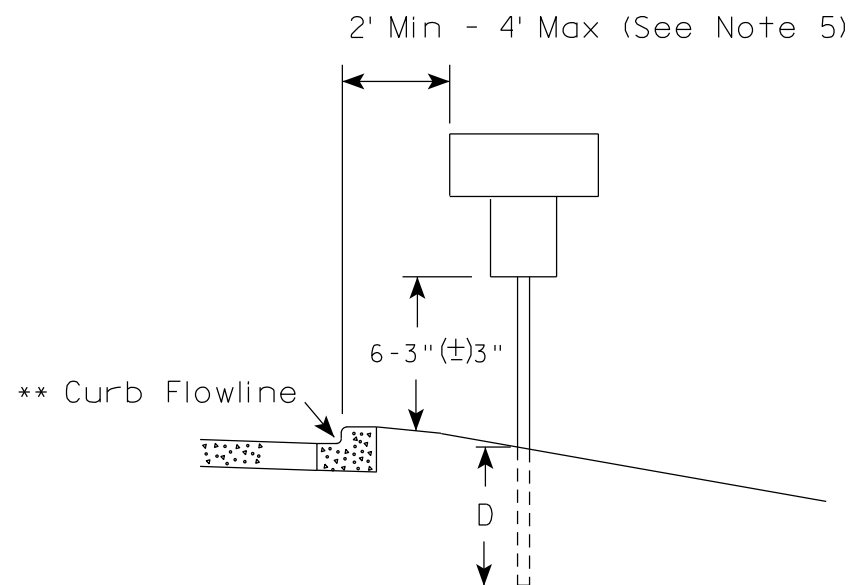
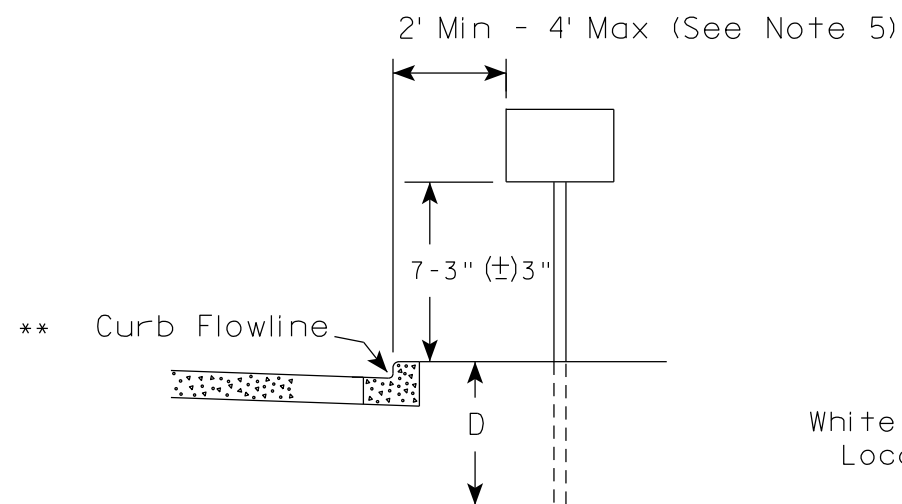
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
November 2025 /S/ Andrew Heidtke  
DATE WORK ZONE ENGINEER

FHWA

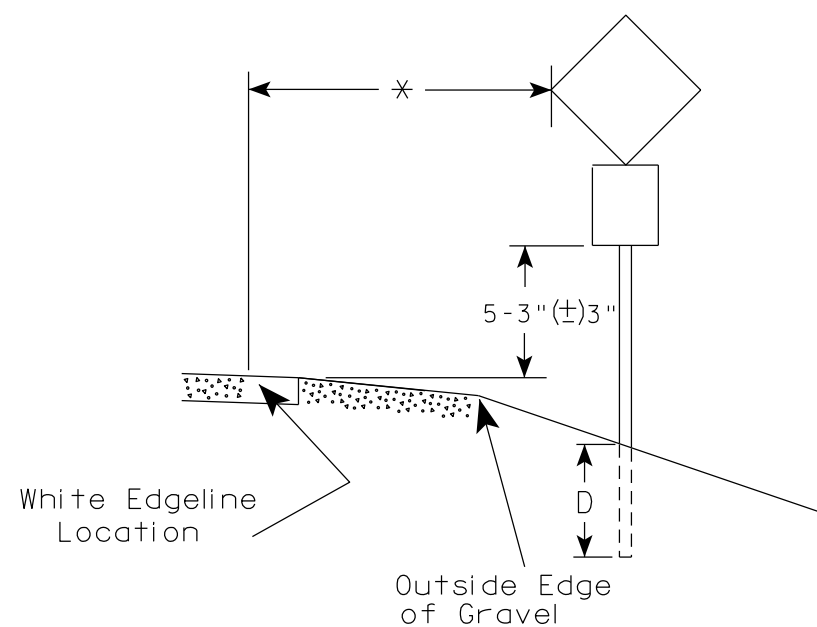
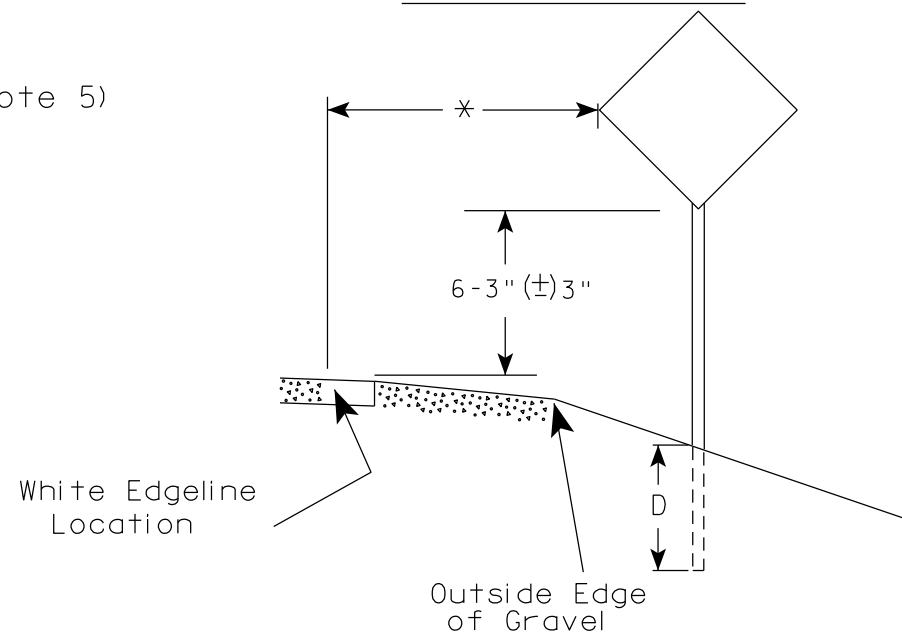


## URBAN AREA



\* \* 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.

## RURAL AREA (See Note 2)



\* 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.

POST EMBEDMENT DEPTH

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

## GENERAL NOTES

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

TYPICAL INSTALLATION  
OF PERMANENT TYPE II  
SIGNS ON SINGLE POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED

*Matthew R. Rauch*  
for State Traffic Engineer

DATE 12/6/23

PLATE NO. A4-3.23

PROJECT NO:

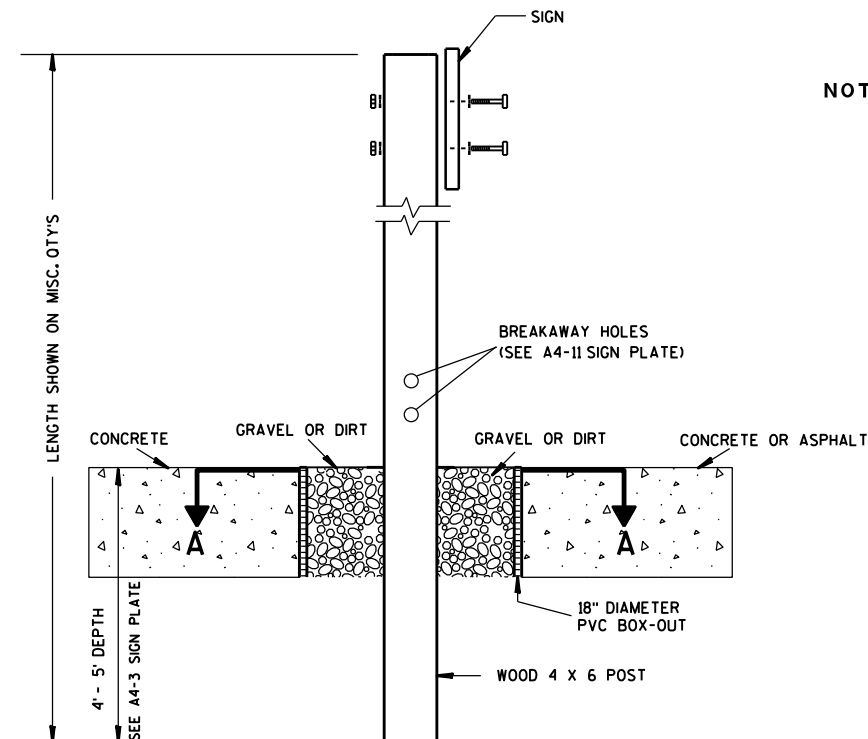
HWY:

COUNTY:

SHEET NO: 53

E

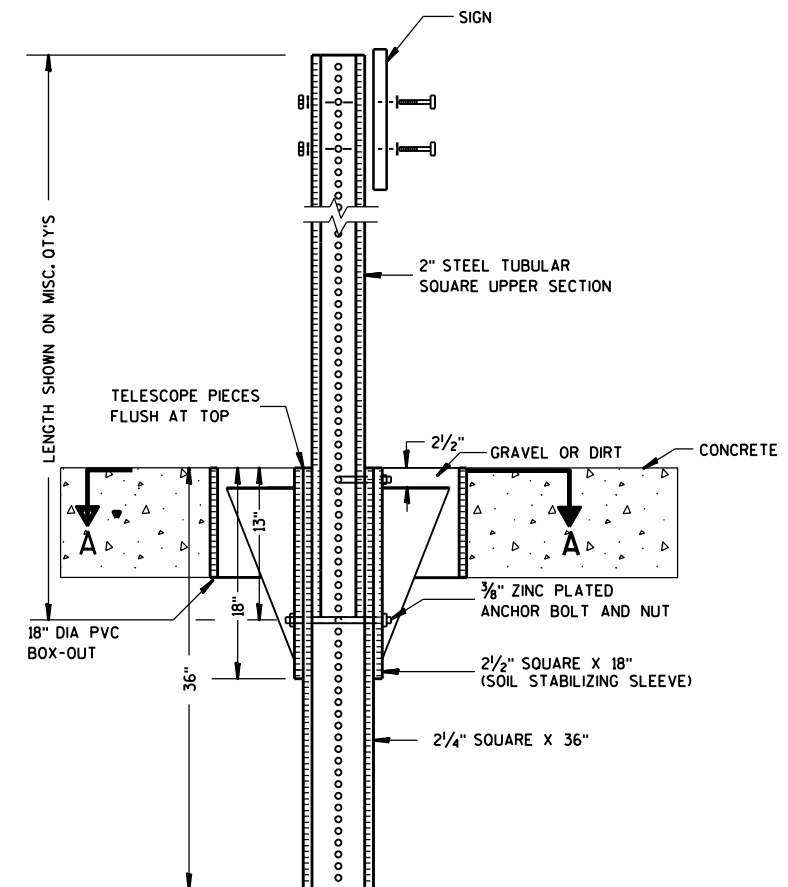




### ELEVATION VIEW

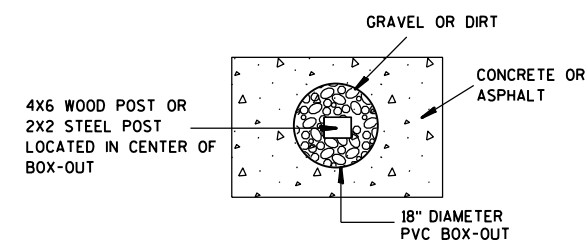
DETAIL OF WOOD 4 X 6 SIGN POST IN BOX-OUT

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



### ELEVATION VIEW

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



### PLAN VIEW

FOR NEW CONCRETE/ASPHALT INSTALLATIONS

SIGN POST  
BOX-OUTS  
A4-3B

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*  
for State Traffic Engineer

DATE 1/27/14 PLAT 54 A4-3B.1

PROJECT NO:

HWY:

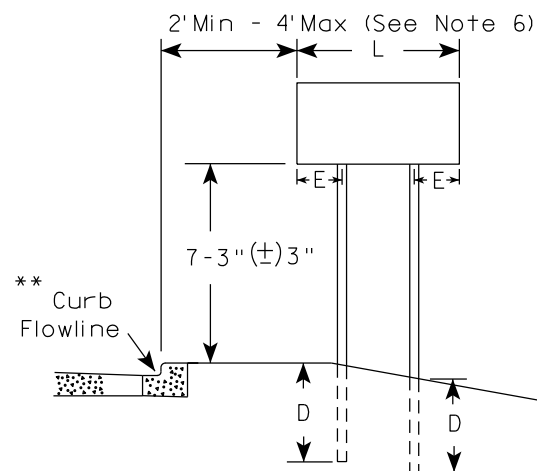
COUNTY:

SHEET NO:

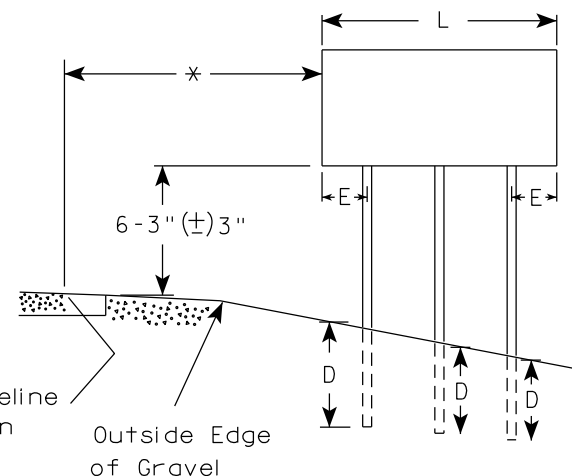
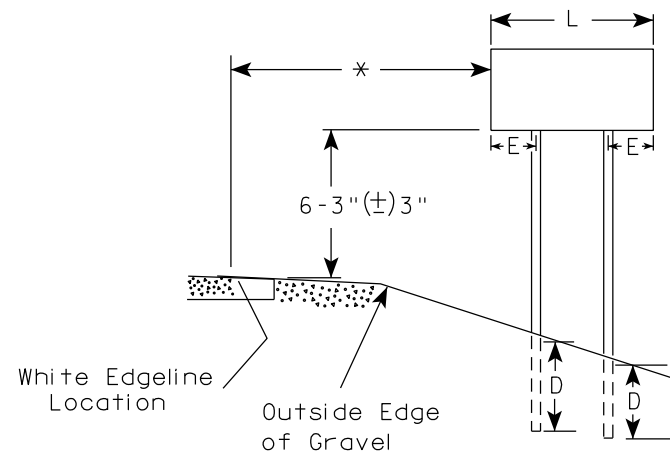
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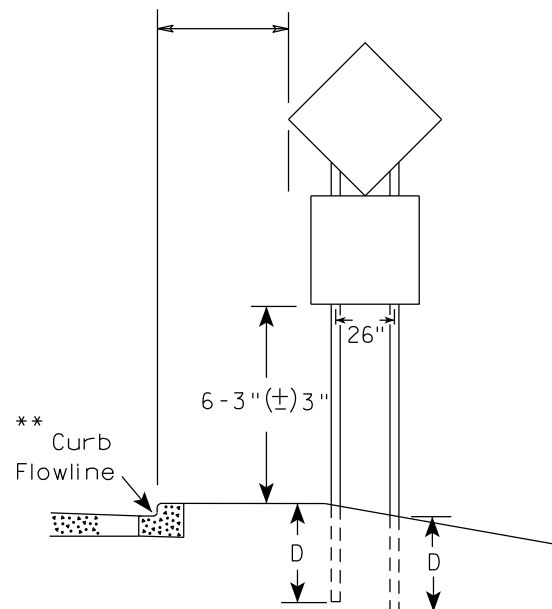
URBAN AREA



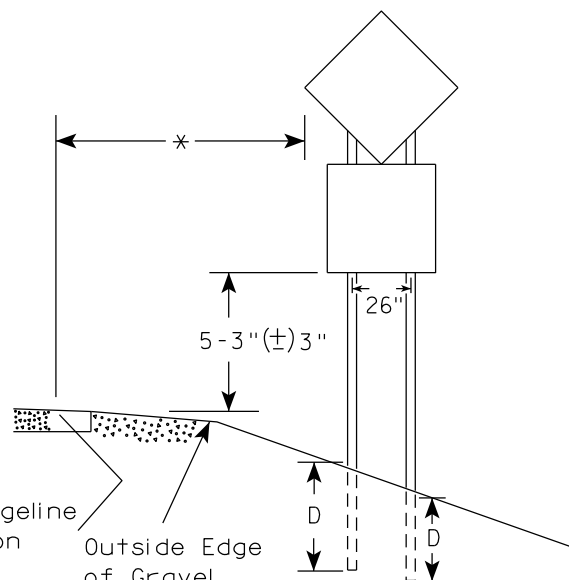
RURAL AREA (See Note 3)



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



48" DIAMOND WARNING SIGN



48" DIAMOND WARNING SIGN

\*\*\*

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

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

POST EMBEDMENT DEPTH

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

TYPICAL INSTALLATION  
OF TYPE II SIGNS  
ON MULTIPLE POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*  
for State Traffic Engineer

DATE 12/6/23 PLATE NO. A4-4.16

GENERAL NOTES

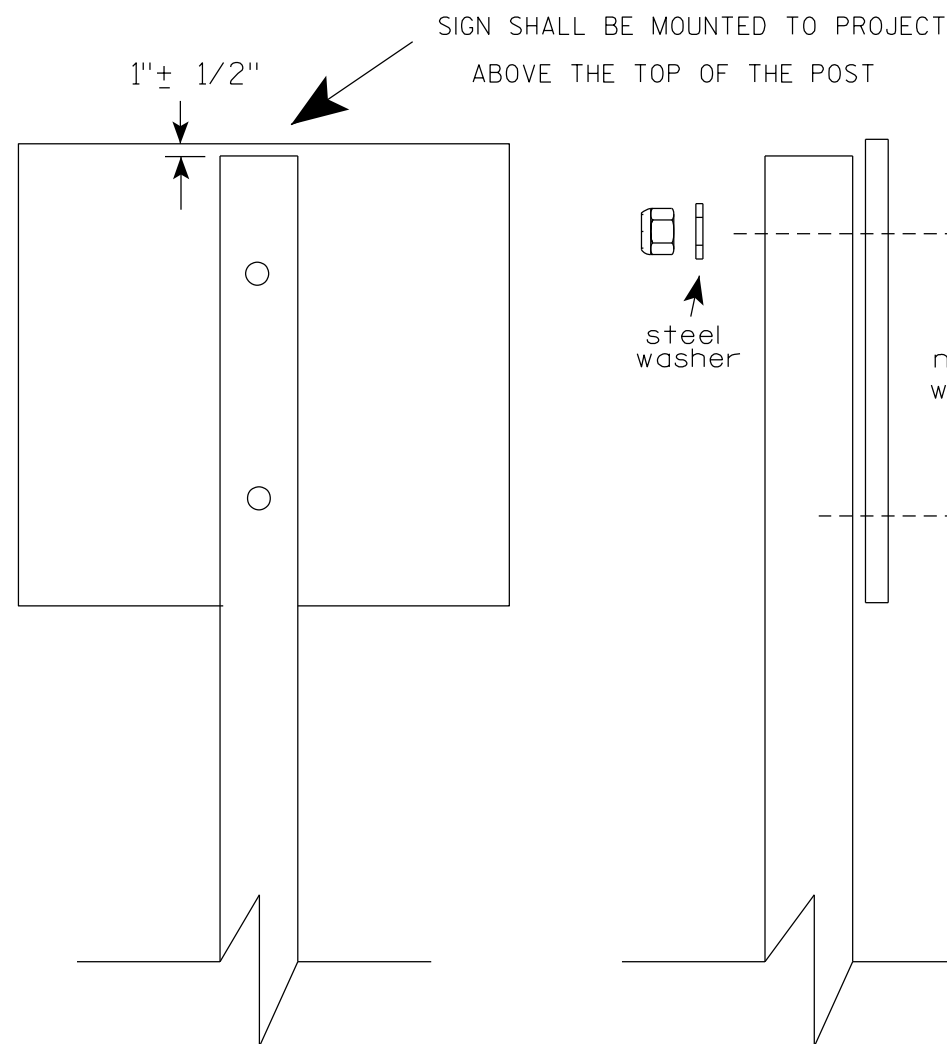
1. For 3 or 4 post installations, individual post spacing shall be greater than 3'-6".
2. See tables below for required number of posts.
3. For expressways and freeways, mounting height is 7'-3" (±) 3" or 6'-3" (±) 3" depending upon existence of sub-sign.
4. The (±) tolerance for mounting height is 3 inches.
5. J-Assemblies are considered to be one sign for mounting height.
6. Offset distance shall be consistent with existing signs or consistent throughout length of project.
7. Folding signs shall be mounted at a height of 5'-3" (±) 3" or as directed by the engineer.
8. The Double Arrow sign (W12-1) shall be mounted at a height of 2'-3" (±) 3". The Chevron sign (W1-8), Roundabout Chevron panel (R6-4B), Clearance Markers (W5-52), Mile Markers (D10 series), In Road Object Markers (W5-54) & End of Road Markers (W5-56) shall be mounted at a height of 4'-3" (±) 3".

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

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

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





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

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

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

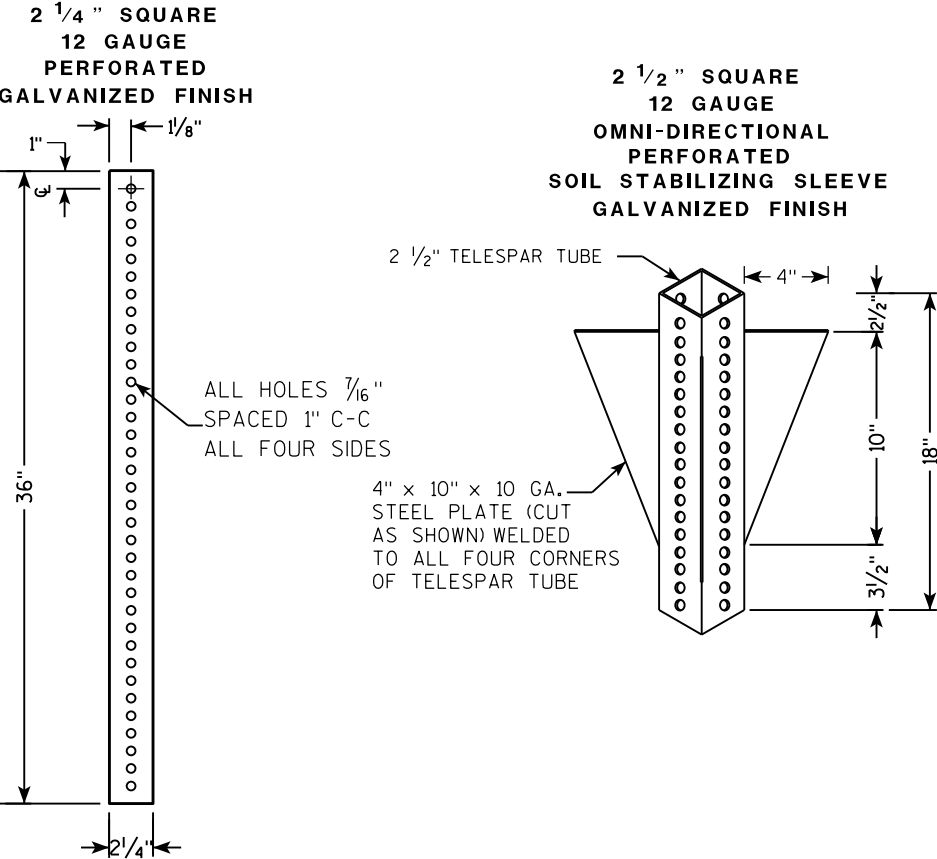
- STRINGER BOLTING TO ALUMINUM SIGNS (SEE SIGN PLATE A4-18)
- MACHINE BOLTS -  $\frac{5}{16}$ " X 1-3/4" Length w/ lock nuts
- WOOD POSTS (4" x 6")
- LAG SCREWS -  $\frac{3}{8}$ " X 3" (NO STRINGERS ON BACK OF SIGN)  
 $\frac{3}{8}$ " X 4" (STRINGERS ON BACK OF SIGN)
- SQUARE STEEL POSTS (2" x 2")
-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

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

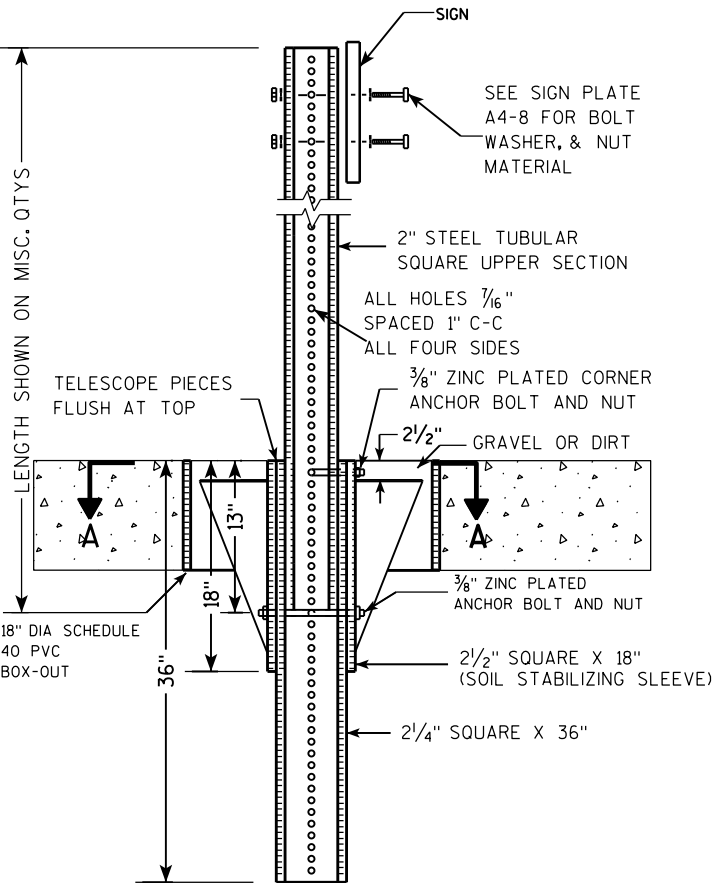
ATTACHMENT OF SIGNS TO POSTS	
WISCONSIN DEPT OF TRANSPORTATION	
APPROVED	<i>Matthew R. Rauch</i> For State Traffic Engineer
DATE 4/1/2020	PLATE NO. A4-8.9



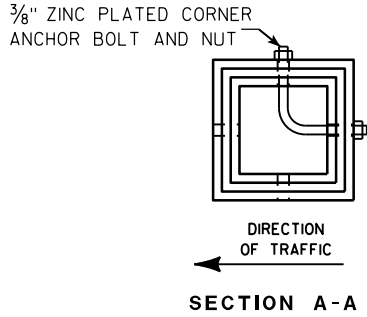
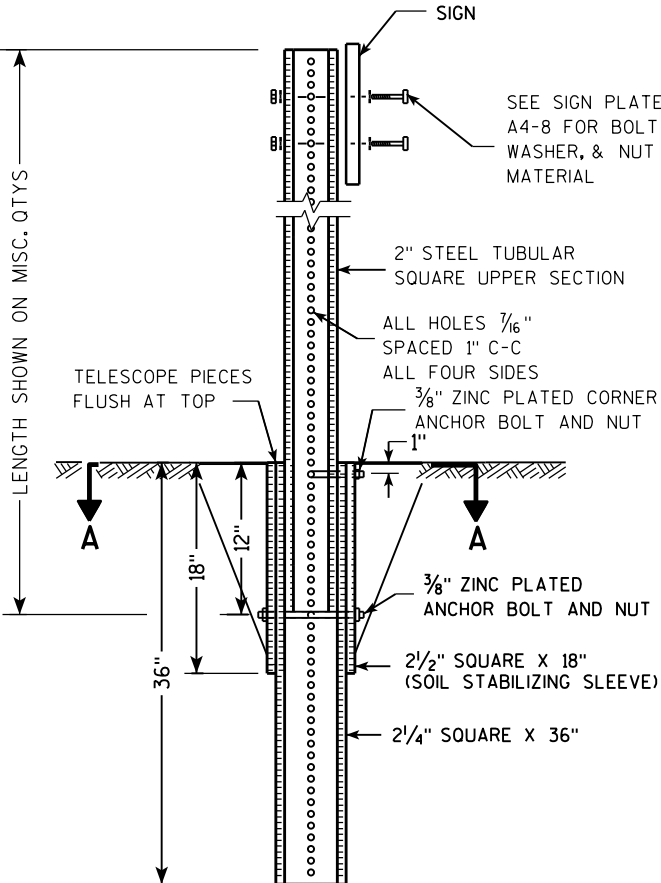
TELESCOPIC TUBING ANCHORS  
TWO PIECE SYSTEM



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).

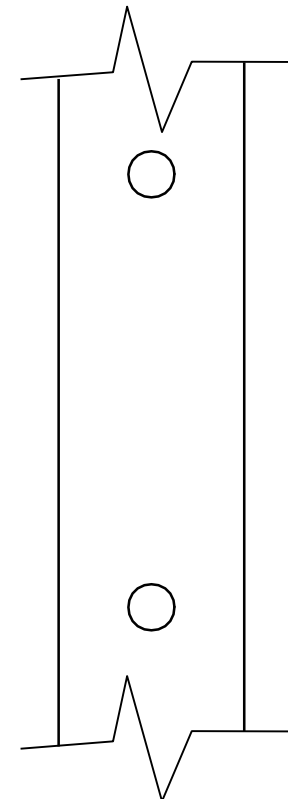
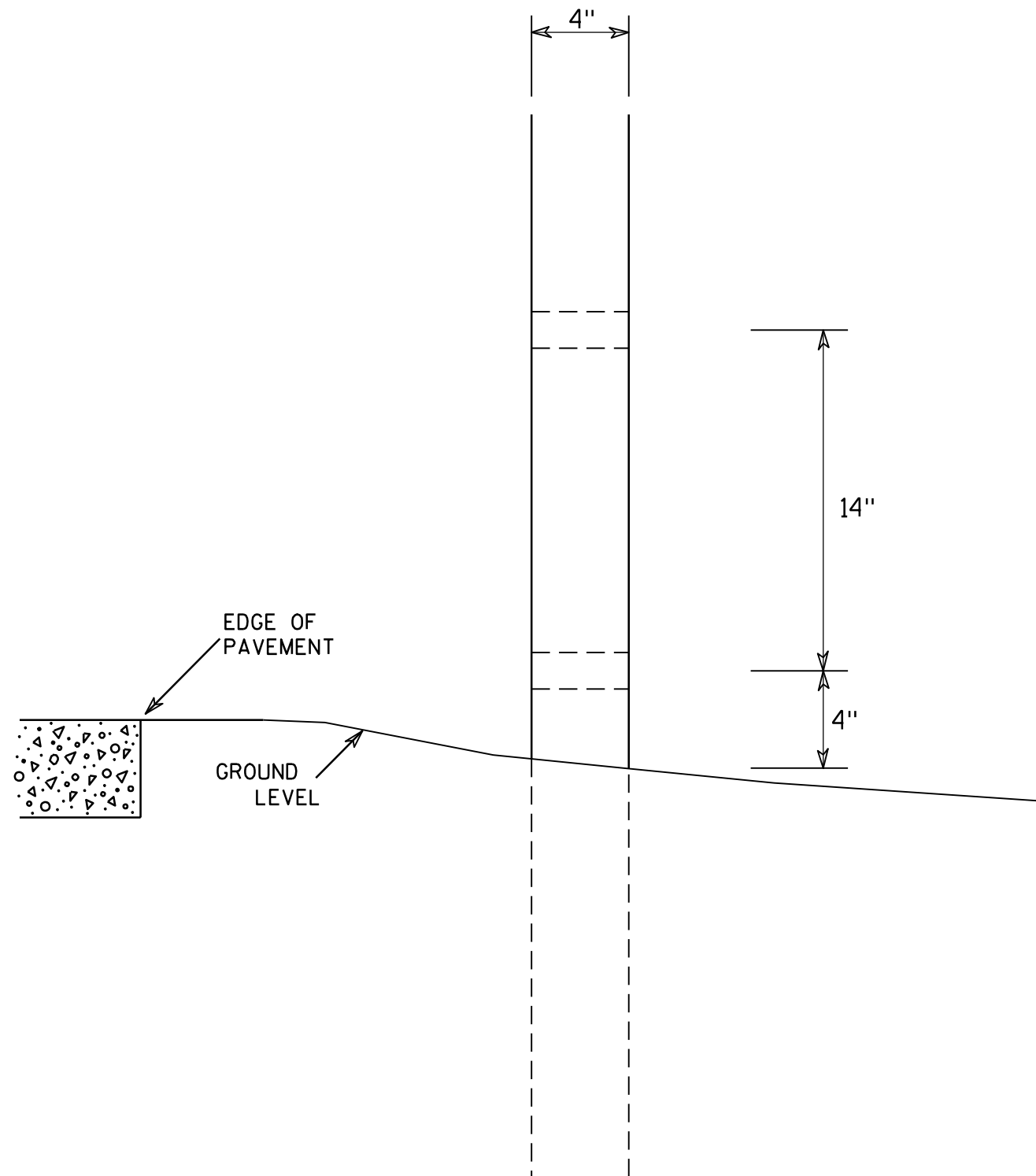
TUBULAR STEEL  
SIGN POST  
A4-9

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*  
for State Traffic Engineer

DATE 2/05/15 PLAT 57 14-9.9





SIDE VIEW

# GENERAL NOTES

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

## 4 X 6 WOOD POST MODIFICATIONS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED

*Chester J. Spang*  
for State Traffic Engineer

DATE 3/27/97

PLATE NO. A4-11.2

PROJECT NO:

HWY:

COUNTY:

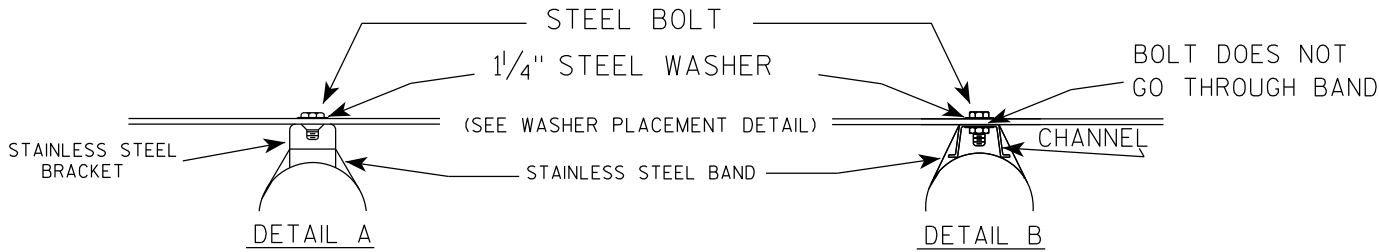
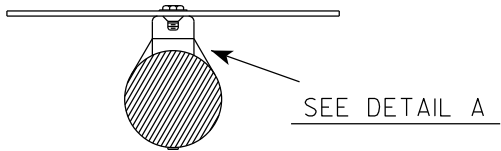
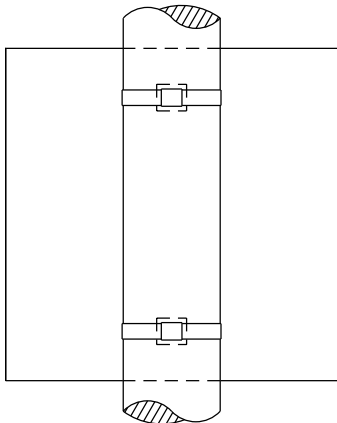
SHEET NO: 58

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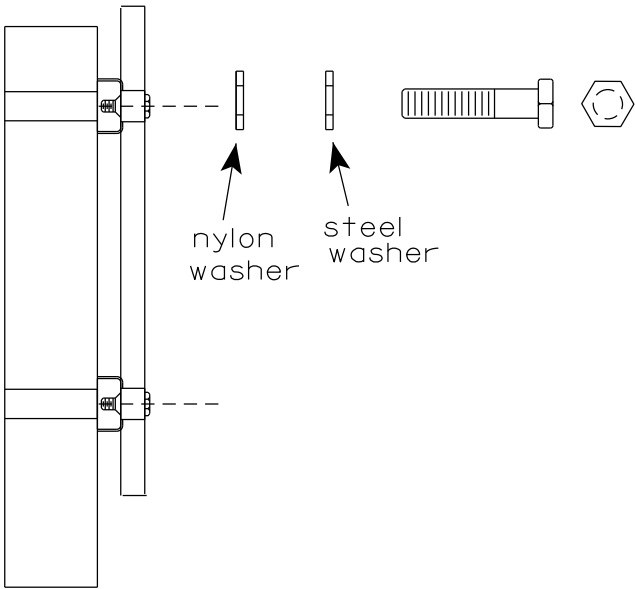


BANDING

SINGLE SIGN



WASHER PLACEMENT

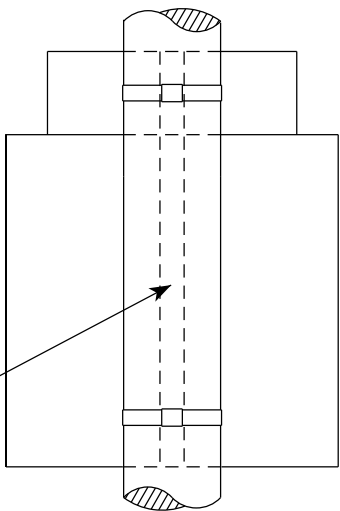


WASHERS (ALL POSTS) -  
1-1/4" O.D. X 3/8" I.D. X 1/16" STEEL  
1-1/4" O.D. X 3/8" I.D. X .080 NYLON  
FOR ALL TYPE H SIGNS

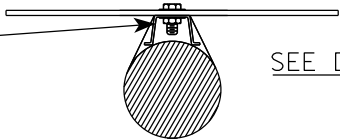
GENERAL NOTES

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 3/4" in width and 0.025" thickness.
4. ALL SIGN MOUNTING BOLTS AND WASHERS SHALL BE EITHER:
  - a. Hot dip or mechanically galvanized in accordance with ASTM Designation: A 153, Class D
  - b. Electro-galvanized in accordance with ASTM designation: B 633, Type III, SC 3

"J" ASSEMBLY



CHANNEL  
SEE TYPICAL PANEL  
INSTALLATION SHEET

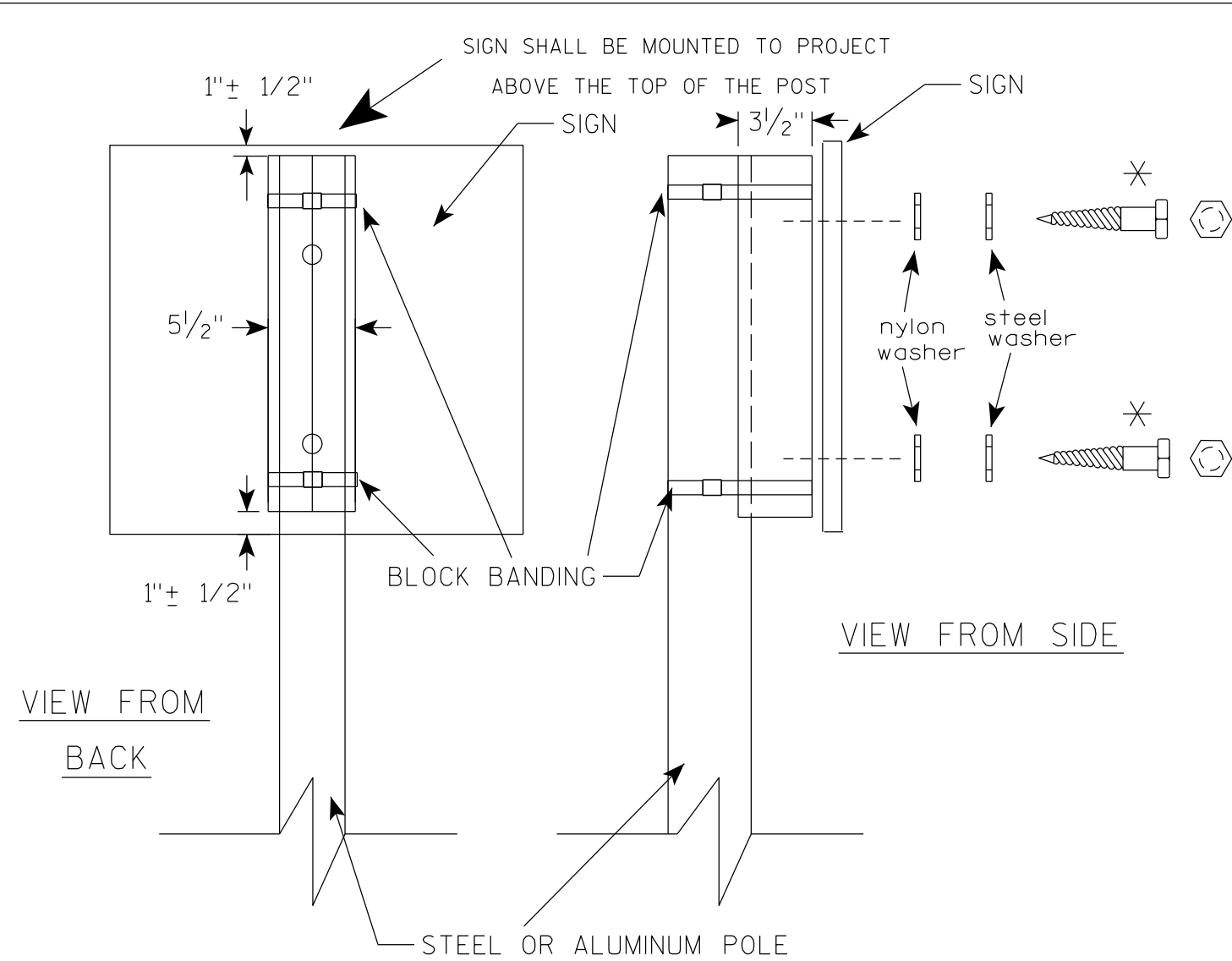


STANDARD SIGN  
SIGN BANDING DETAILS

WISCONSIN DEPT OF TRANSPORTATION

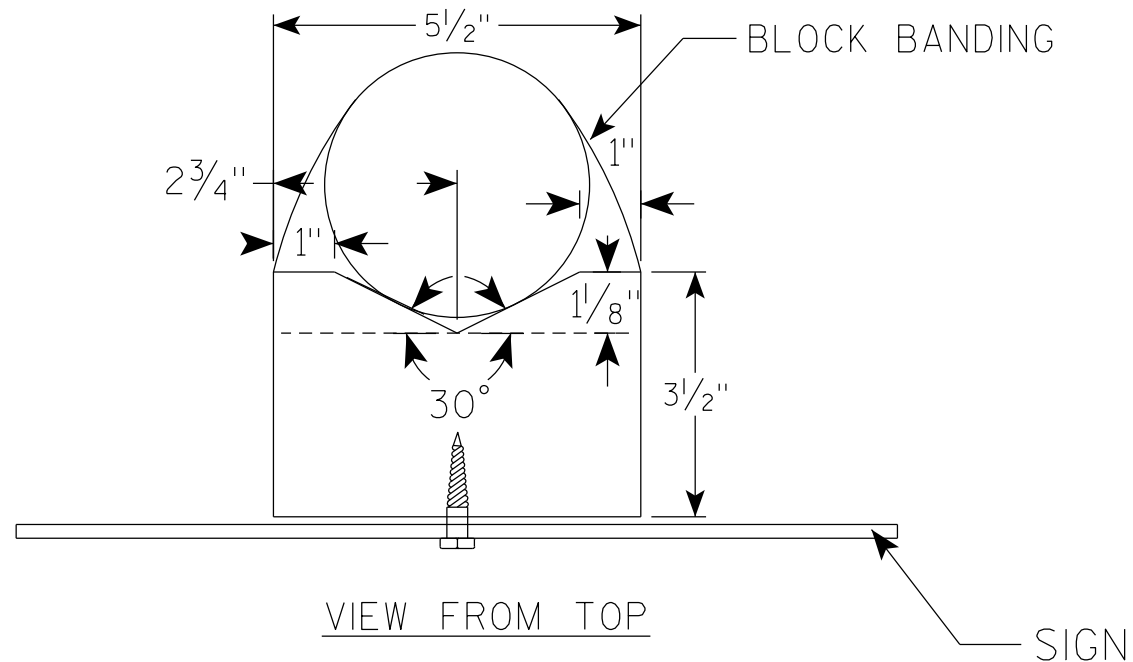
APPROVED *Matthew R. Rauch*  
for State Traffic Engineer  
DATE 6/10/19 PLATE NO. A5-9.4





VIEW FROM  
BACK

VIEW FROM SIDE



VIEW FROM TOP

## GENERAL NOTES

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

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

BLOCK BANDING DETAIL  
( V-BLOCK OPTION )

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*  
for State Traffic Engineer

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

PROJECT NO:

SHEET NO: 60

E





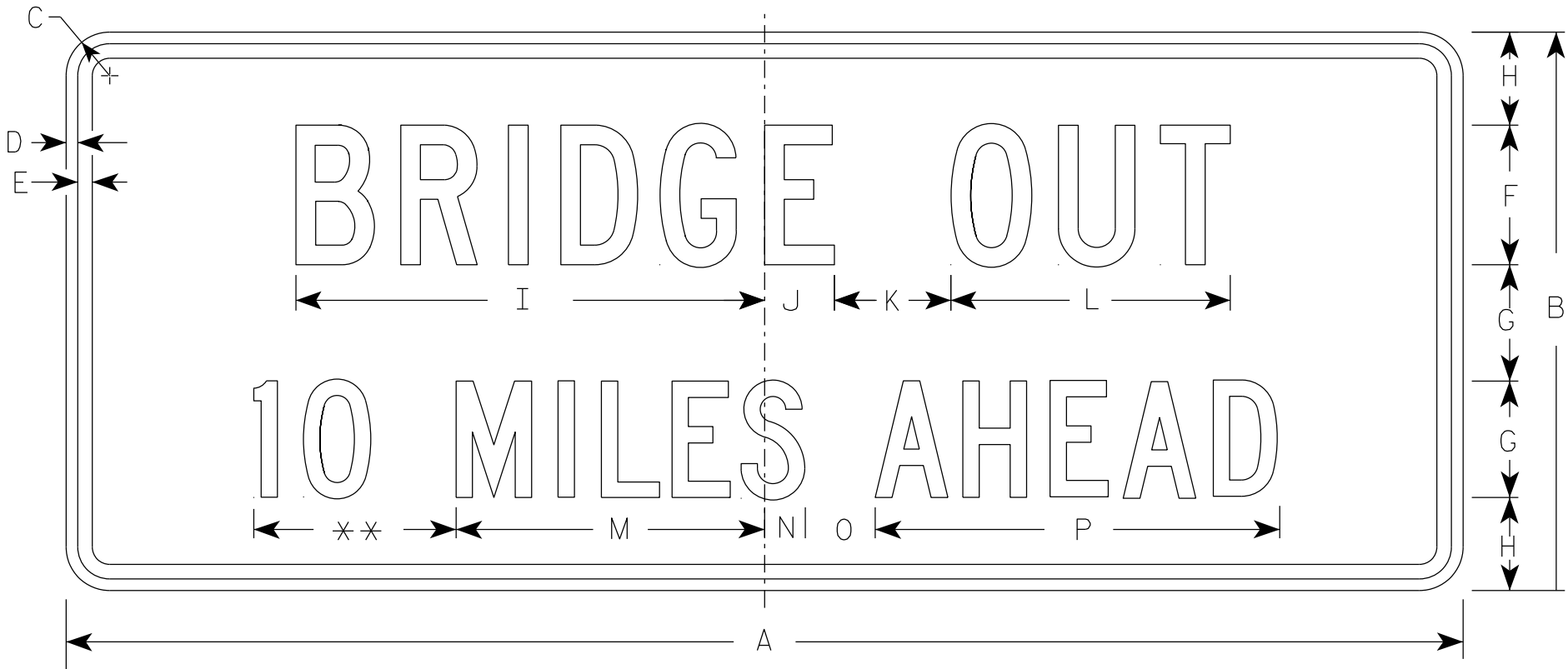


NOTES

1. Sign is Type II - Type H Reflective
2. Color:

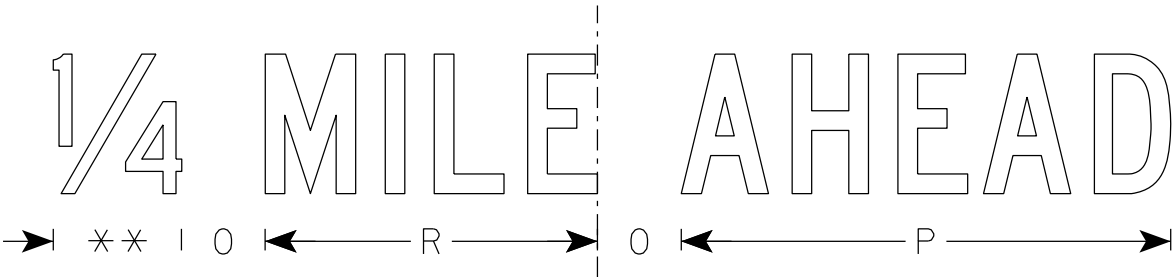
Background - White

Message - Black
3. Message Series - C
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. Substitute appropriate numerals to nearest quarter mile and optically adjust spacing to achieve proper balance.



R11-3C

\*\* See Note 5



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

STANDARD SIGN  
R11-3C

WISCONSIN DEPT OF TRANSPORTATION

APPROVED  
*Matthew R. Rauch*  
for State Traffic Engineer

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

PROJECT NO:

SHEET NO:

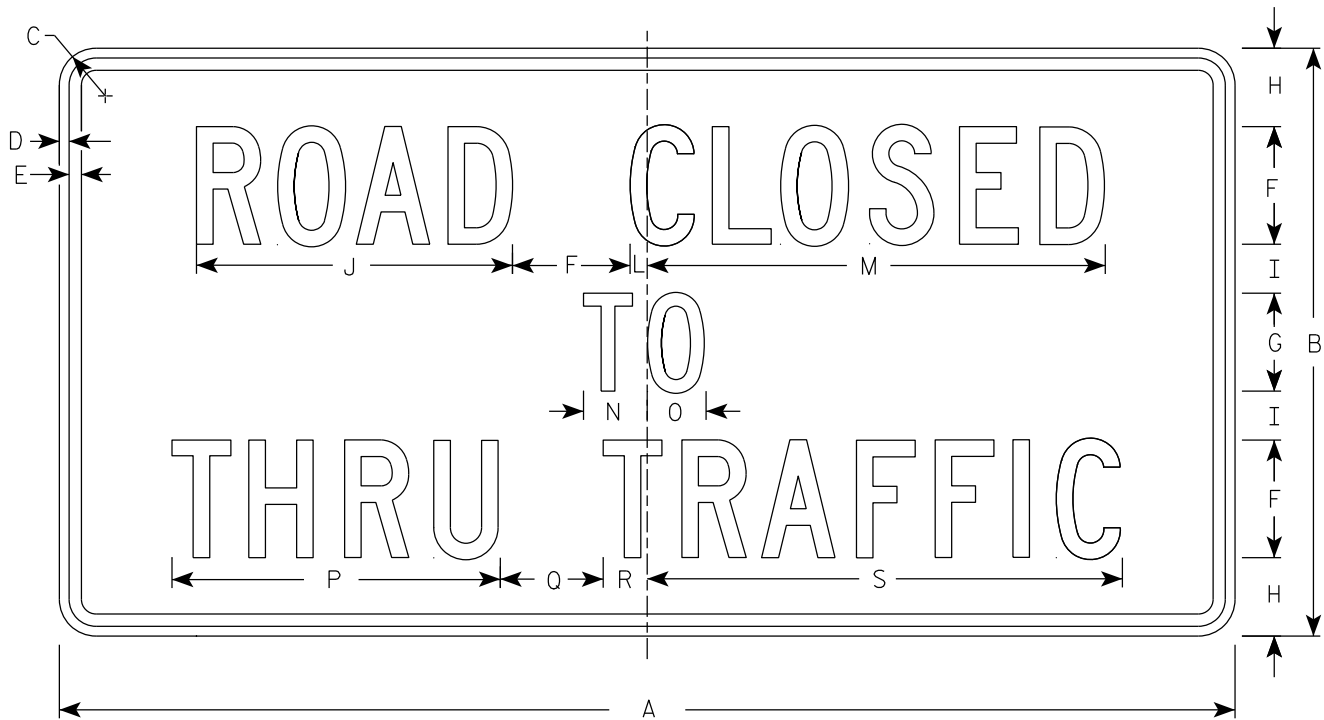
62

E



NOTES

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



R11-4

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	60	30	1 7/8	1/2	5/8	6	5	4	2 1/2	16 1/8		7/8	23 3/8	3 1/4	3	16 3/4	5 1/4	2 1/4	24 1/4								12.5
2M	60	30	1 7/8	1/2	5/8	6	5	4	2 1/2	16 1/8		7/8	23 3/8	3 1/4	3	16 3/4	5 1/4	2 1/4	24 1/4								12.5
3																											
4																											
5																											

PROJECT NO:

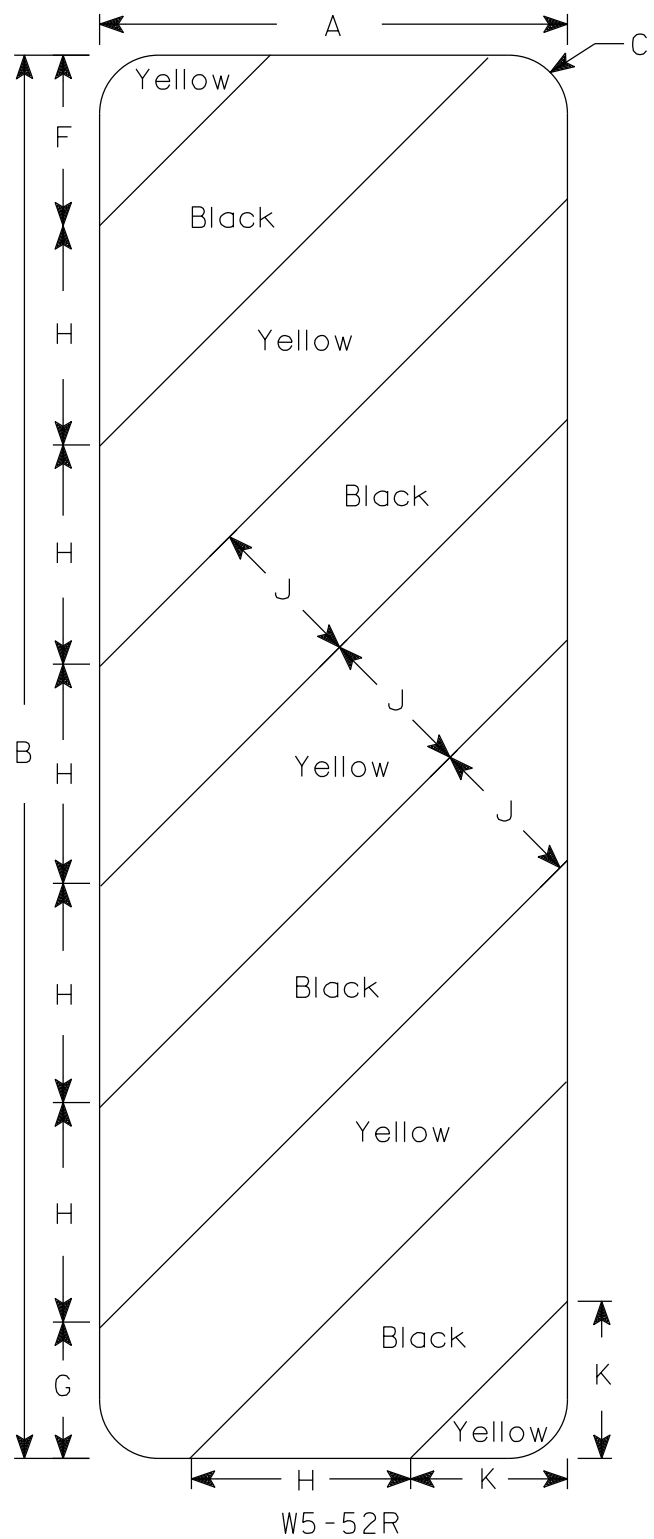
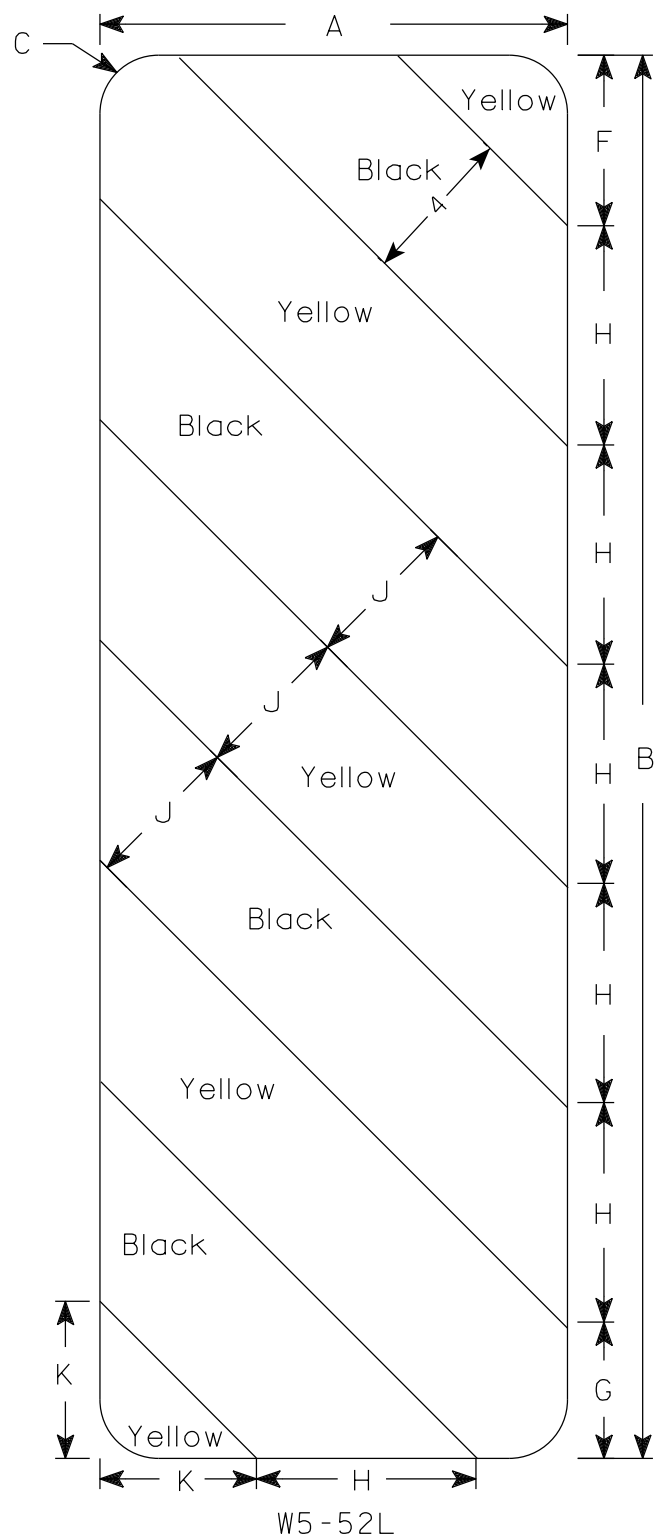
HWY:

COUNTY:

SHEET NO: 63

E





NOTES

- 1. Sign is Type II - Type F Reflective
- 2. Color:
  - Background - Yellow
  - Message - Black
- 3. Alternate colors of stripes as shown.

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

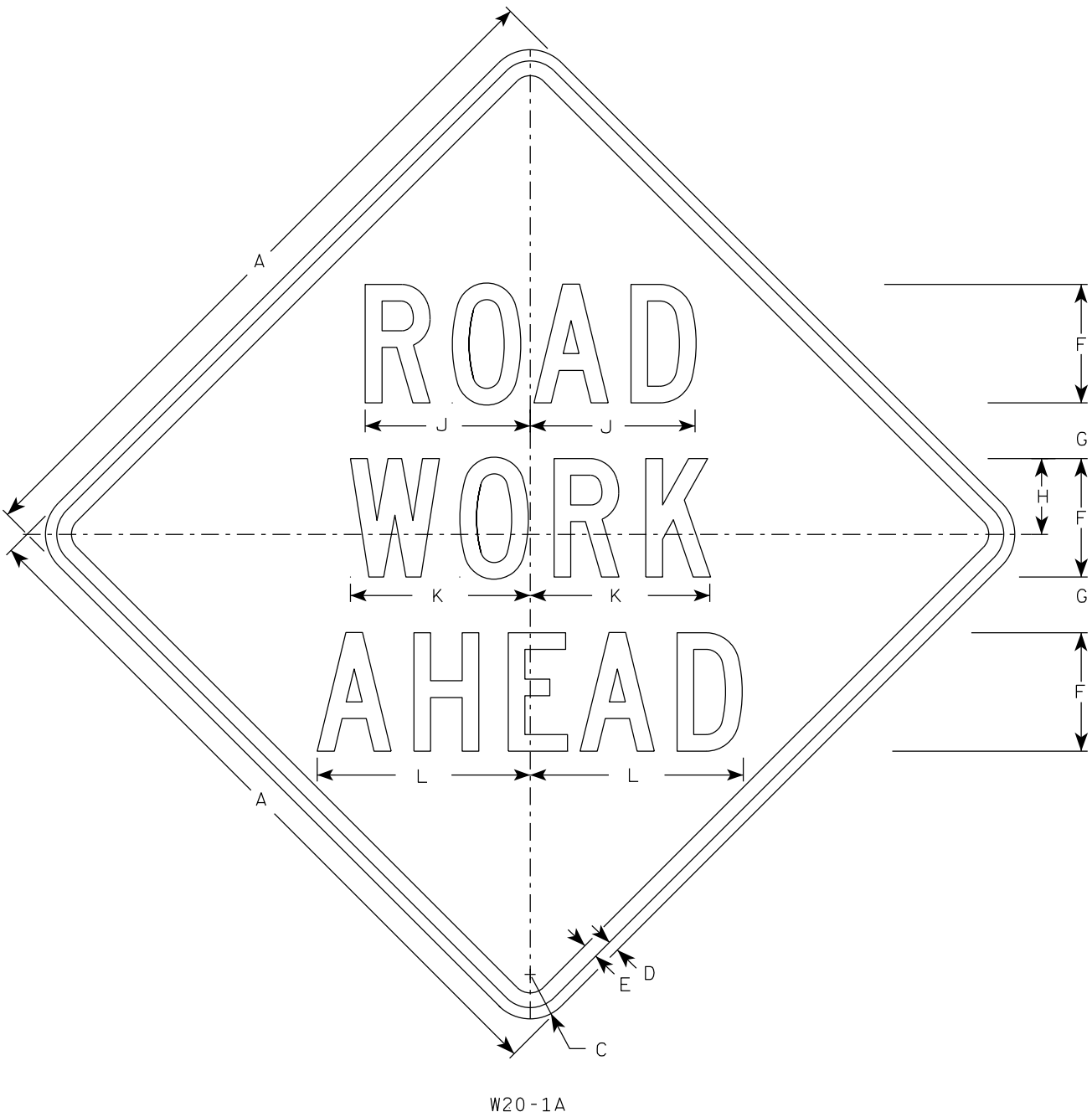
STANDARD SIGN  
W5-52L & W5-52R

WISCONSIN DEPT OF TRANSPORTATION

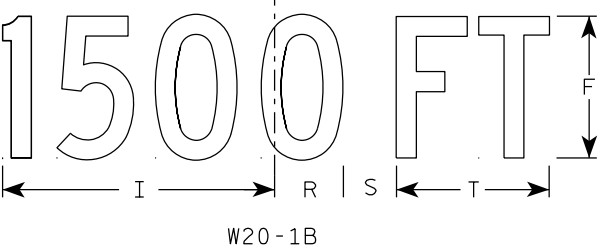
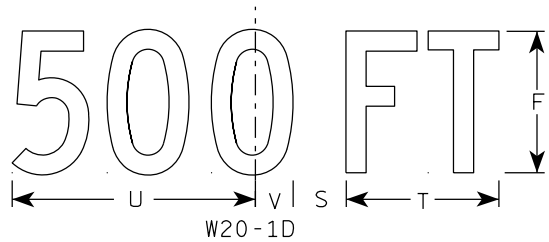
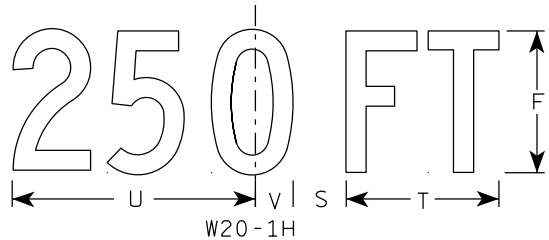
APPROVED *Matthew R. Rauch*  
For State Traffic Engineer

DATE 3/4/2024 PLATE NO. W5-52.10



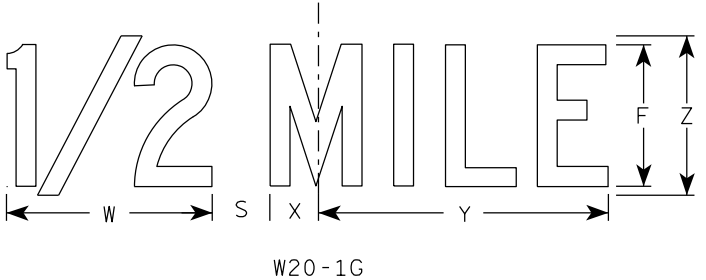


W20-1A

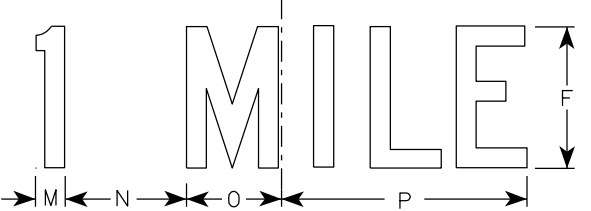


W20-1B

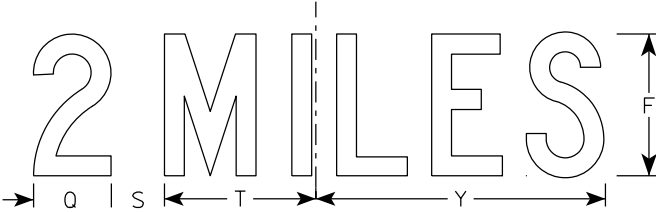
- NOTES
1. Sign is Type II - Type F Reflective
  2. Color:  
Background - Orange  
Message - Black
  3. Message Series - C
  4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.



W20-1G



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		2 1/4	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		3	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		3	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		3	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		3	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		3	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



DESIGN DATA

LIVE LOAD:

DESIGN LOADING	HS-20
INVENTORY RATING	HS-13
OPERATING RATING	HS-22
WISCONSIN STANDARD PERMIT VEHICLE (WIS-SPV)	150 KIPS

MATERIAL PROPERTIES:

CONCRETE MASONRY, OVERLAY AND SLAB	f'c = 4,000 P.S.I.
ALL OTHER	f'c = 3,500 P.S.I.

TRAFFIC DATA

A.D.T. (2026)	580
A.D.T. (2046)	580
DESIGN SPEED	50 M.P.H.

GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.

DIMENSIONS SHOWN ON THE PLANS ARE BASED ON THE ORIGINAL STRUCTURE PLANS, INSPECTION REPORTS, AND FIELD SURVEY.

A MINIMUM OF 1" OF CONCRETE SHALL BE REMOVED FROM THE ENTIRE BRIDGE DECK UNDER BID ITEM "CLEANING DECKS".

PROFILE GRADE LINE SHALL BE DETERMINED IN THE FIELD BASED ON A MINIMUM OVERLAY THICKNESS OF 1½" PLACED ABOVE THE DECK SURFACE AFTER SURFACE PREPARATION. EXPECTED AVERAGE OVERLAY THICKNESS IS 2". IF THE EXPECTED AVERAGE OVERLAY THICKNESS IS EXCEEDED BY MORE THAN ½", CONTACT THE STRUCTURE DESIGN SECTION.

CONCRETE SURFACE REPAIR IS LOCATED AT ABUTMENTS, PIERS, DECK, AND CRASH WALLS. AREAS PROVIDED ARE APPROXIMATE. LOCATIONS AND EXTENTS SHALL BE DETERMINED BY THE FIELD ENGINEER.

EXISTING FLOOR DRAINS TO REMAIN IN PLACE. MATCH EXISTING DRAIN RIM OR SLOPE OVERLAY TOWARDS DRAIN.

ALL CONCRETE REMOVAL NOT COVERED WITH A CONCRETE OVERLAY SHALL BE DEFINED BY A ½" DEEP SAWCUT.

APPLY PROTECTIVE SURFACE TREATMENT TO THE ENTIRE TOP SURFACE OF THE NEW CONCRETE OVERLAY, AND TO THE VERTICAL FACES OF THE CURBS.

PREPARATION DECKS TYPE 1, PREPARATION DECKS TYPE 2, AND FULL-DEPTH DECK REPAIR AREAS ARE BASED ON THE PLANS AND AS DETERMINED BY THE FIELD ENGINEER. DECK PREPARATION AND FULL-DEPTH DECK REPAIRS SHALL BE FILLED WITH "CONCRETE MASONRY OVERLAY DECKS".

SEAL OVERLAY CONSTRUCTION JOINTS ACCORDING TO SECTION 502.3.13.1 OF THE STANDARD SPECIFICATIONS. COST INCIDENTAL TO BID ITEM "CONCRETE MASONRY OVERLAY DECKS".

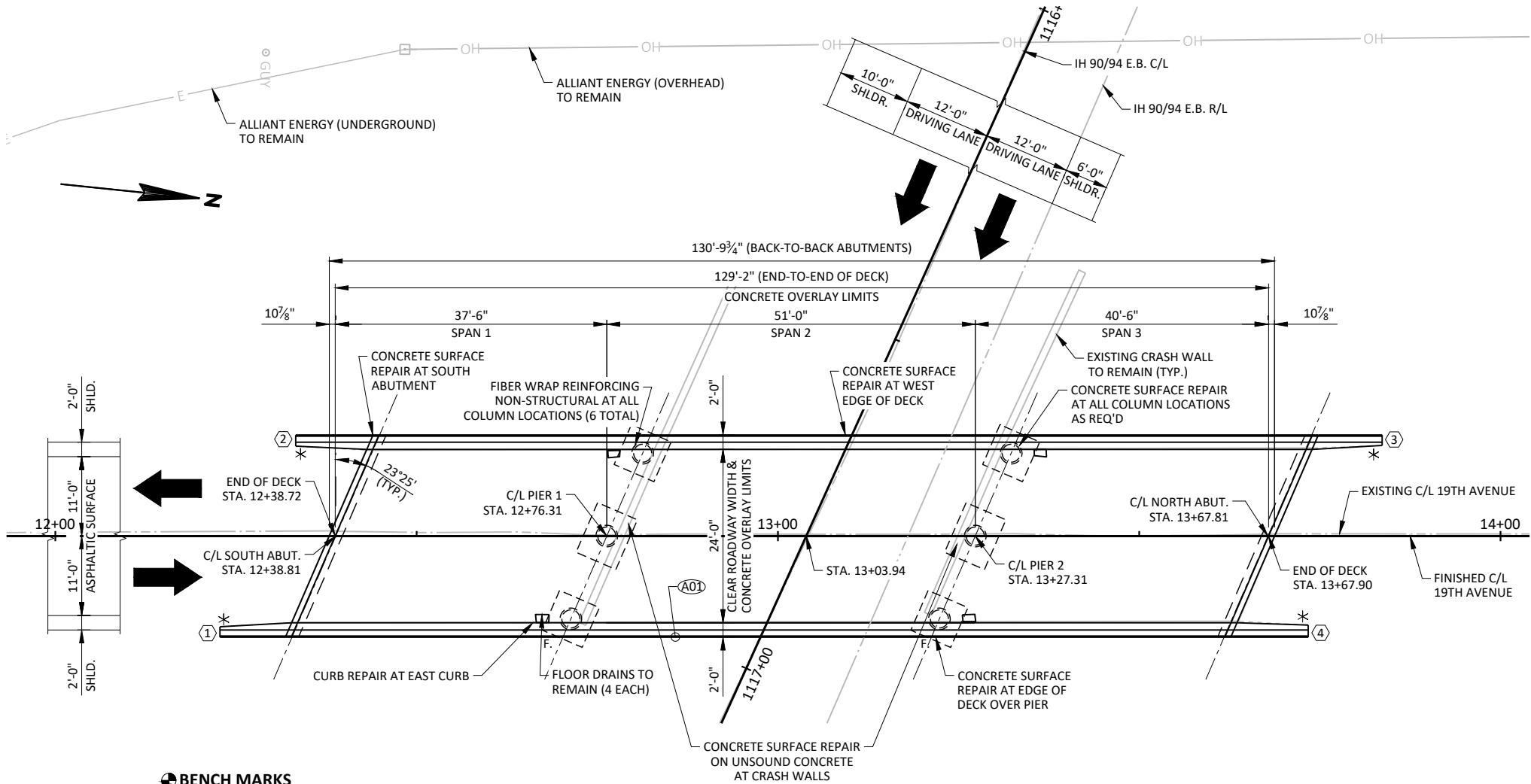
ANY EXCAVATION REQUIRED TO COMPLETE THE OVERLAY OR JOINT REPAIRS AT THE ABUTMENTS TO BE CONSIDERED INCIDENTAL TO THE BID ITEM "CONCRETE MASONRY OVERLAY DECKS".

SCOPE OF WORK

- REMOVAL OF EXISTING ASPHALTIC OVERLAY AND PLACEMENT OF A NEW CONCRETE OVERLAY.
- CONCRETE SURFACE REPAIR AT LOCATIONS SHOWN OR DIRECTED BY THE ENGINEER IN THE FIELD.
- FIBER WRAP REINFORCING NON-STRUCTURAL AT ALL PIER COLUMNS.

LIST OF DRAWINGS

GENERAL PLAN	1.
CROSS SECTION AND QUANTITIES AND DECK REPAIR AREAS	2.



BENCH MARKS

NO.	STA.	DESCRIPTION	ELEV.
1	12+02	3/4" IRON REBAR SET, 18.5' RT.	882.26
2	14+16	3/4" IRON REBAR SET, 18.3' RT.	884.08
3	16+58	SMP SET IN STUMP, 17.7' LT.	882.22
11	14+26	3/4" IRON REBAR SET, 16.1' LT.	884.64

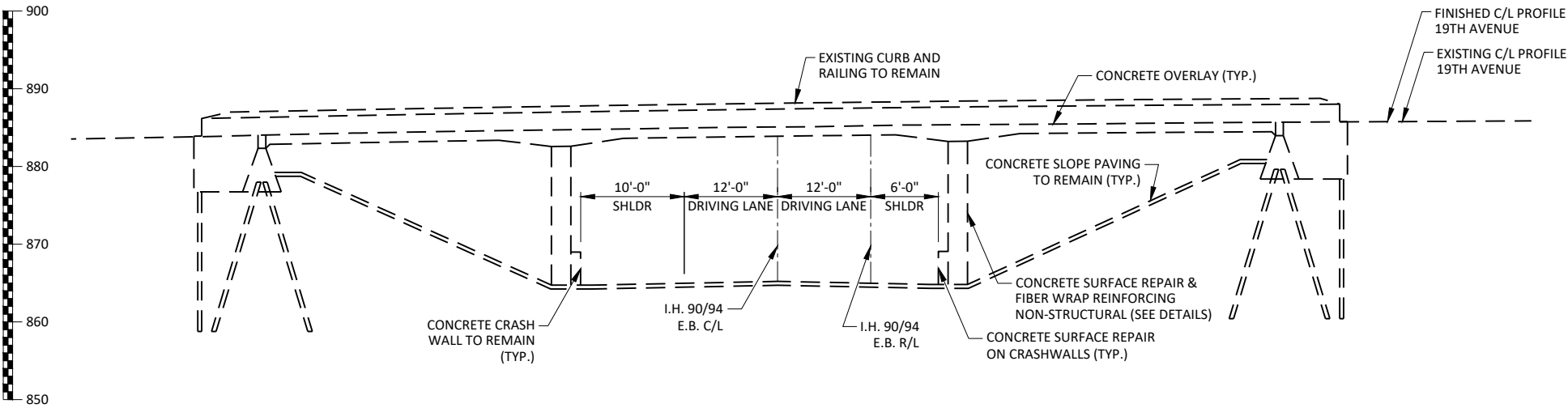
PLAN B-29-27

(THREE-SPAN REINFORCED CONCRETE HAUNCHED SLAB)

⬡ INDICATES WING NUMBER

\* PROVIDE FOR STEEL PLATE BEAM GUARD ATTACHMENT

(A01) POINT OF CRITICAL VERTICAL CLEARANCE = 16.7'



ELEVATION

(NORMAL TO E.B. I.H. 90/94)




DESIGN CONSULTANT

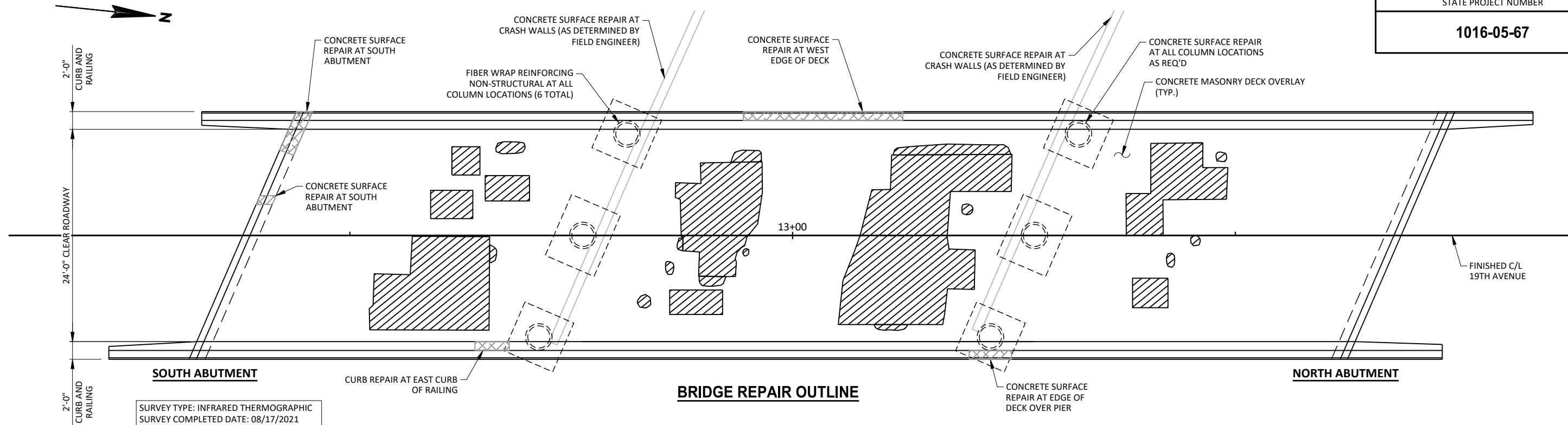
PATRICK BOLAND, PE  
(608) 588-7484

BRIDGE OFFICE CONTACT

AARON BONK, PE  
(608) 261-0261

NO.	DATE	REVISION	BY
<b>JEWELL</b> 560 SUNRISE DRIVE SPRING GREEN, WI 53588 OFFICE: (608) 588-7484 www.jewellassoc.com			
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
ACCEPTED	 CHIEF STRUCTURES DESIGN ENGINEER		JLB DATE 12/01/25
<b>STRUCTURE B-29-27</b>			
19TH AVENUE OVER I.H. 90/94 E.B.			
COUNTY	JUNEAU	TOWN/CITY/VILLAGE	LEMONWEIR
DESIGN SPEC.	REHABILITATION N/A		
DESIGNED BY	CTMP	DESIGN CK'D.	PTB
DRAWN BY	CTMP	PLANS CK'D.	PTB
<b>GENERAL PLAN</b>			SHEET 1 OF 2
			66

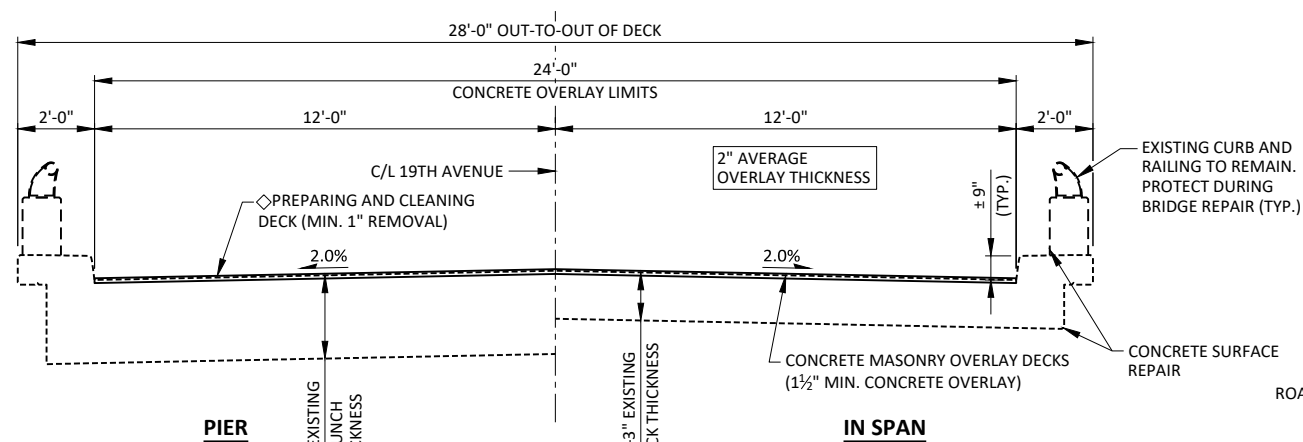


**DECK REPAIR AREAS**

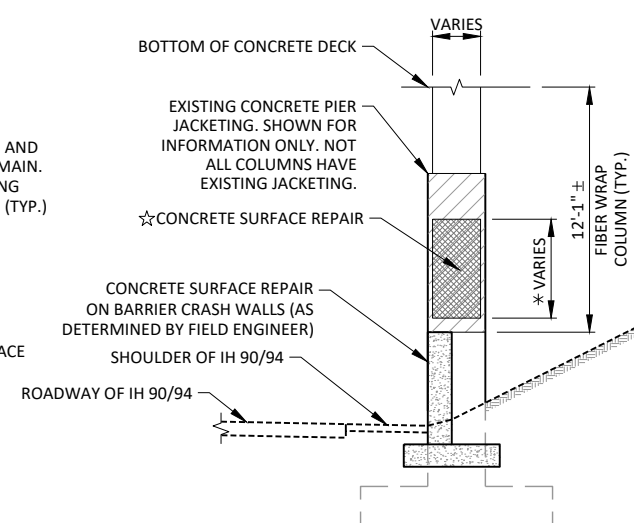
FIELD OBSERVATION SUMMARY	STRUCTURE NO. B-29-27			LEGEND
ITEM	UNIT	QUANTITY	%	
TOTAL AREA	SY	345	100	DELAMINATED AREA
DELAMINATED AREA	SY	69	20.0	
DECK PREPARATION TYPE 1	SY	69	20.0	
DECK PREPARATION TYPE 2	SY	35	10.2	
FULL-DEPTH DECK REPAIR	SY	7	1.7	CONCRETE SURFACE REPAIR

**NOTES:**

DECK INSPECTION AND DECK REPAIR AREAS SHOWN ARE FOR REFERENCE ONLY. ENGINEER IN THE FIELD TO VERIFY REPAIR AREAS. DECK REPAIRS SHALL BE MADE ONLY AS DIRECTED BY THE ENGINEER IN THE FIELD.

**CROSS SECTION THROUGH ROADWAY**

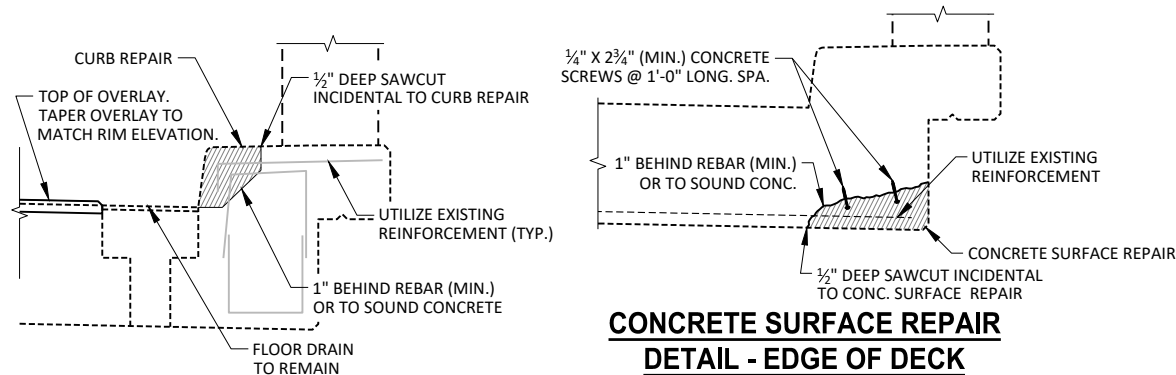
◇ WORK UNDER "REMOVING ASPHALTIC CONCRETE DECK OVERLAY" AND "CLEANING DECKS" INCLUDES REMOVAL OF ALL MATERIALS FROM THE BRIDGE DECK SURFACE, INCLUDING EXISTING CHIP SEAL AND ASPHALTIC PATCHES, AND MILLING A MINIMUM OF 1" OF THE ORIGINAL CONCRETE DECK THICKNESS.

**PIER COLUMN REPAIR DETAIL****NOTES**

☆ CONCRETE SURFACE REPAIR WITH EMBEDDED GALVANIC ANODES REQ'D. AS DETERMINED BY ENGINEER IN THE FIELD.

FIBER WRAP REINFORCING NON-STRUCTURAL REQUIRED AT ALL COLUMNS (6 LOCATIONS) AS SHOWN ON GENERAL PLAN. FIBER WRAP LIMITS TO EXTEND FROM TOP OF CRASH WALL TO BOTTOM OF CONCRETE DECK AT ALL COLUMNS.

STAIN/PAINT FIBER WRAP GRAY IN COLOR TO MATCH EXISTING CONCRETE

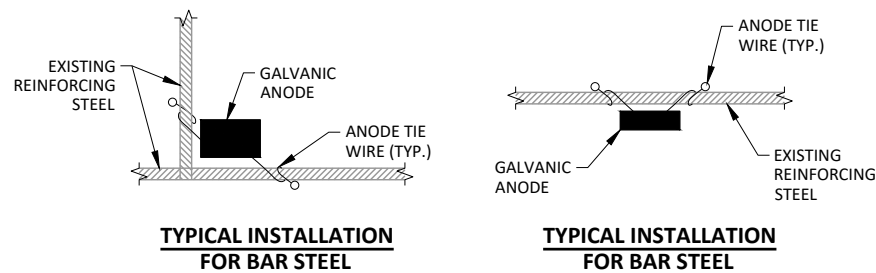
**CURB REPAIR DETAIL****CONCRETE SURFACE REPAIR  
DETAIL - EDGE OF DECK**

AS DIRECTED BY ENGINEER IN THE FIELD

**TOTAL ESTIMATED QUANTITIES**

ITEM NUMBER	ITEM DESCRIPTION	UNIT	S. ABUT.	PIER 1	PIER 2	N. ABUT.	SUPER	TOTALS
502.3200	PROTECTIVE SURFACE TREATMENT	SY	--	--	--	--	370	370
509.0301	PREPARATION DECKS TYPE 1	SY	--	--	--	--	69	69
509.0302	PREPARATION DECKS TYPE 2	SY	--	--	--	--	35	35
509.0500	CLEANING DECKS	SY	--	--	--	--	345	345
509.1200	CURB REPAIR	LF	--	--	--	--	8	8
509.1500	CONCRETE SURFACE REPAIR	SF	15	52	52	--	21	140
509.2000	FULL-DEPTH DECK REPAIR	SY	--	--	--	--	7	7
509.2500	CONCRETE MASONRY OVERLAY DECKS	CY	--	--	--	--	23	23
509.9010.S	REMOVING ASPHALTIC CONCRETE DECK OVERLAY B-29-27	SY	--	--	--	--	345	345
SPV.0060	EMBEDDED GALVANIC ANODES	EACH	--	58	57	--	--	115
SPV.0165	FIBER WRAP REINFORCING NON-STRUCTURAL	SF	--	325	325	--	--	650

\* QUANTITY INCLUDES CONCRETE VOLUME FOR CONCRETE OVERLAY, PREPARATION DECKS TYPE 1, PREPARATION DECKS TYPE 2, FULL-DEPTH DECK REPAIR, AND CURB REPAIR

**TYPICAL INSTALLATION  
FOR BAR STEEL****CATHODIC PROTECTION DETAILS**

SEE SPECIAL PROVISION "EMBEDDED GALVANIC ANODES" FOR DESCRIPTION, MATERIALS, CONSTRUCTION, MEASUREMENT, AND PAYMENT INFORMATION.

EXISTING REINFORCING STEEL TO BE COMPLETELY CLEANED OF CORRODED MATERIAL PRIOR TO INSTALLATION OF GALVANIC ANODES

NO.	DATE	REVISION
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION		
STRUCTURE B-29-27		
DRAWN BY	CTMP	PLANS CK'D. PTB
CROSS SECTION AND QUANTITIES AND DECK REPAIR AREAS		SHEET 2 OF 2 67



DESIGN DATA

LIVE LOAD:

DESIGN LOADING \_\_\_\_\_ HS-20  
INVENTORY RATING \_\_\_\_\_ HS-13  
OPERATING RATING \_\_\_\_\_ HS-22  
WISCONSIN STANDARD PERMIT VEHICLE (WIS-SPV) \_\_\_\_\_ 150 KIPS

MATERIAL PROPERTIES:

CONCRETE MASONRY, OVERLAY AND SLAB \_\_\_\_\_  $f'_c = 4,000$  P.S.I.  
ALL OTHER \_\_\_\_\_  $f'_c = 3,500$  P.S.I.

TRAFFIC DATA

A.D.T. (2026) \_\_\_\_\_ 580  
A.D.T. (2046) \_\_\_\_\_ 580  
DESIGN SPEED \_\_\_\_\_ 50 M.P.H.

GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.

DIMENSIONS SHOWN ON THE PLANS ARE BASED ON THE ORIGINAL STRUCTURE PLANS, INSPECTION REPORTS, AND FIELD SURVEY.

A MINIMUM OF 1" OF CONCRETE SHALL BE REMOVED FROM THE ENTIRE BRIDGE DECK UNDER BID ITEM "CLEANING DECKS".

PROFILE GRADE LINE SHALL BE DETERMINED IN THE FIELD BASED ON A MINIMUM OVERLAY THICKNESS OF  $\frac{1}{2}$ " PLACED ABOVE THE DECK SURFACE AFTER SURFACE PREPARATION. EXPECTED AVERAGE OVERLAY THICKNESS IS 2". IF THE EXPECTED AVERAGE OVERLAY THICKNESS IS EXCEEDED BY MORE THAN  $\frac{1}{2}$ ", CONTACT THE STRUCTURE DESIGN SECTION.

CONCRETE SURFACE REPAIR IS LOCATED AT ABUTMENTS, DECK, PIERS, AND CRASH WALLS. AREAS PROVIDED ARE APPROXIMATE. LOCATIONS AND EXTENTS SHALL BE DETERMINED BY THE FIELD ENGINEER.

EXISTING FLOOR DRAINS TO REMAIN IN PLACE. MATCH EXISTING DRAIN RIM OR SLOPE OVERLAY TOWARDS DRAIN.

ALL CONCRETE REMOVAL NOT COVERED WITH A CONCRETE OVERLAY SHALL BE DEFINED BY A  $\frac{1}{2}$ " DEEP SAWCUT.

APPLY PROTECTIVE SURFACE TREATMENT TO THE ENTIRE TOP SURFACE OF THE NEW CONCRETE OVERLAY, AND TO THE VERTICAL FACES OF THE CURBS.

PREPARATION DECKS TYPE 1, PREPARATION DECKS TYPE 2, AND FULL-DEPTH DECK REPAIR AREAS ARE BASED ON THE PLANS AND AS DETERMINED BY THE FIELD ENGINEER. DECK PREPARATION AND FULL-DEPTH DECK REPAIRS SHALL BE FILLED WITH "CONCRETE MASONRY OVERLAY DECKS".

SEAL OVERLAY CONSTRUCTION JOINTS ACCORDING TO SECTION 502.3.13.1 OF THE STANDARD SPECIFICATIONS. COST INCIDENTAL TO BID ITEM "CONCRETE MASONRY OVERLAY DECKS".

ANY EXCAVATION REQUIRED TO COMPLETE THE OVERLAY OR JOINT REPAIRS AT THE ABUTMENTS TO BE CONSIDERED INCIDENTAL TO THE BID ITEM "CONCRETE MASONRY OVERLAY DECKS".

SCOPE OF WORK

- REMOVAL OF EXISTING ASPHALTIC OVERLAY AND PLACEMENT OF A NEW CONCRETE OVERLAY.
- CONCRETE SURFACE REPAIR AT LOCATIONS SHOWN OR DIRECTED BY THE ENGINEER IN THE FIELD.
- FIBER WRAP REINFORCING NON-STRUCTURAL AT ALL PIER COLUMNS.


LIST OF DRAWINGS

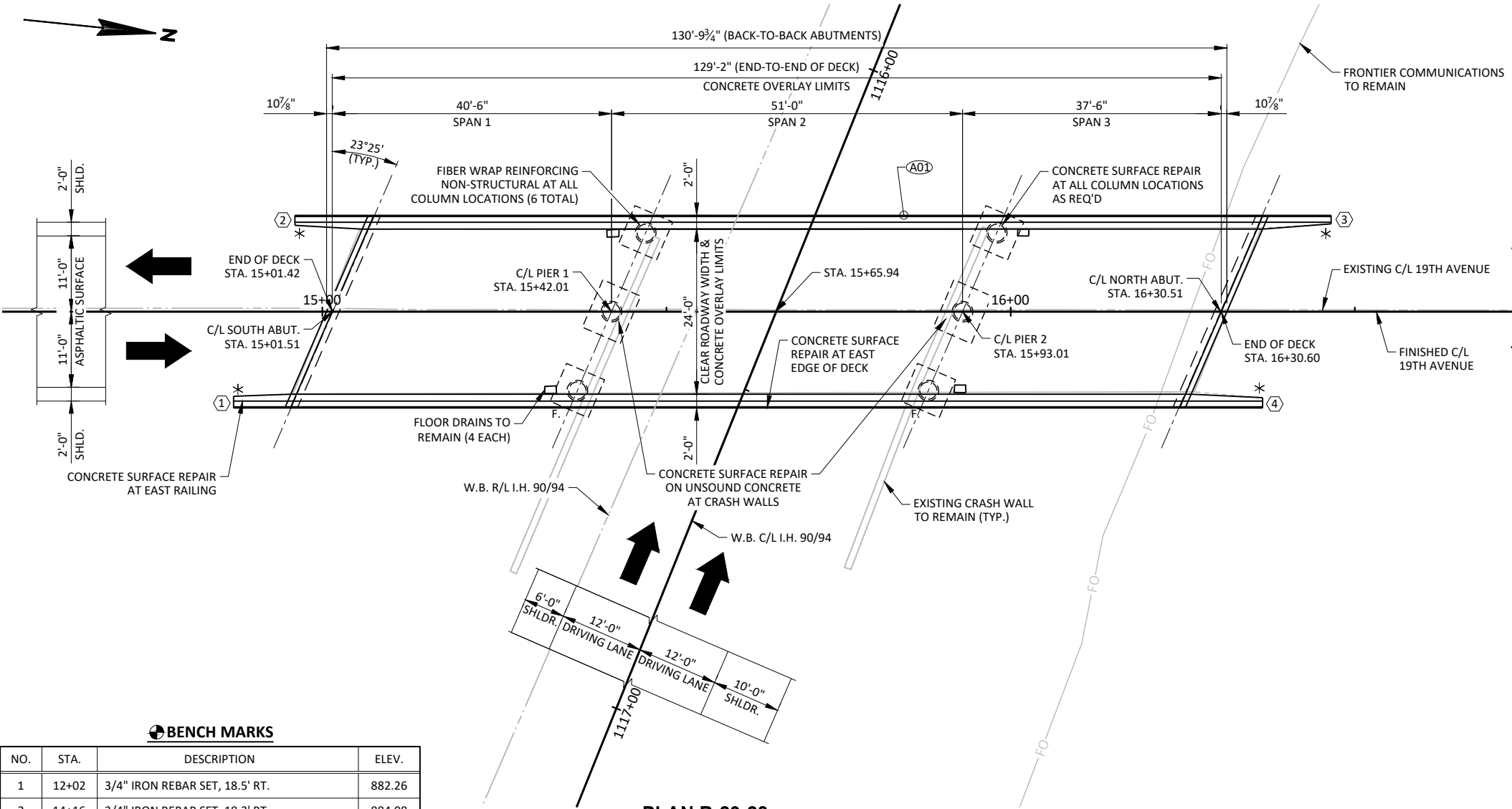
GENERAL PLAN \_\_\_\_\_ 1.  
CROSS SECTION AND QUANTITIES AND DECK REPAIR AREAS \_\_\_\_\_ 2.



DESIGN CONSULTANT  
PATRICK BOLAND, PE  
(608) 588-7484

BRIDGE OFFICE CONTACT  
AARON BONK, PE  
(608) 261-0261

NO.	DATE	REVISION	BY
<b>JEWELL</b> 560 SUNRISE DRIVE SPRING GREEN, WI 53588 OFFICE: (608) 588-7484 www.jewellassoc.com			
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
ACCEPTED	 CHIEF STRUCTURES DESIGN ENGINEER		J.T.B. 12/01/25 DATE
STRUCTURE B-29-28			
19TH AVENUE OVER I.H. 90/94 W.B.			
COUNTY	JUNEAU	TOWN/CITY/VILLAGE	LEMONWEIR
DESIGN SPEC.	REHABILITATION N/A		
DESIGNED BY	CTMP	DESIGN CK'D.	PTB
DRAWN BY	CTMP	PLANS CK'D.	PTB
GENERAL PLAN			SHEET 1 OF 2
			68



PLAN B-29-28

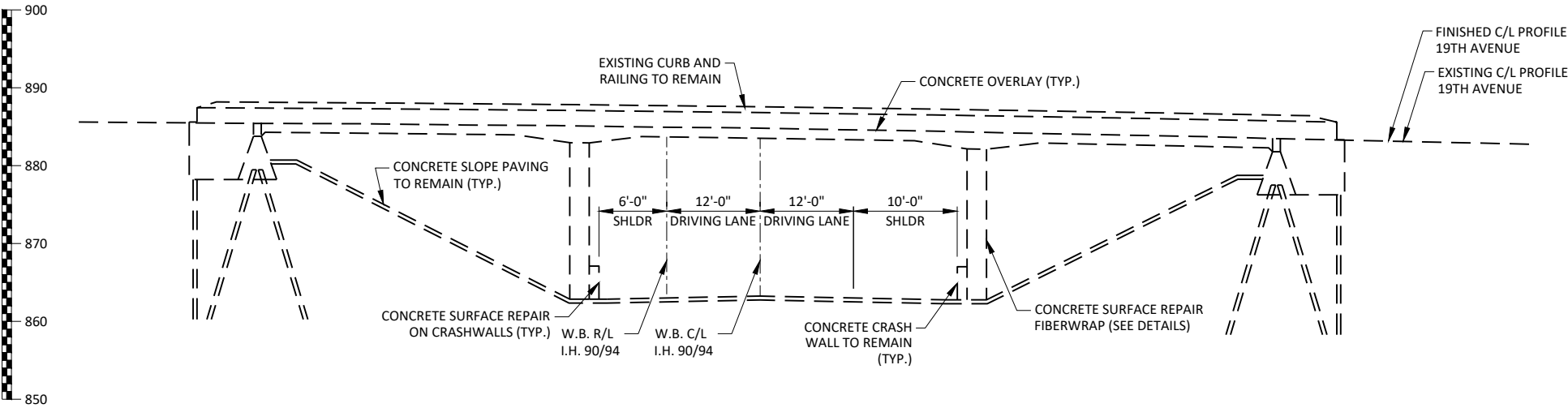
(THREE-SPAN REINFORCED CONCRETE HAUNCHED SLAB)

⬡ INDICATES WING NUMBER

\* PROVIDE FOR STEEL PLATE BEAM GUARD ATTACHMENT

Ⓐ01 POINT OF CRITICAL VERTICAL CLEARANCE = 16.6'

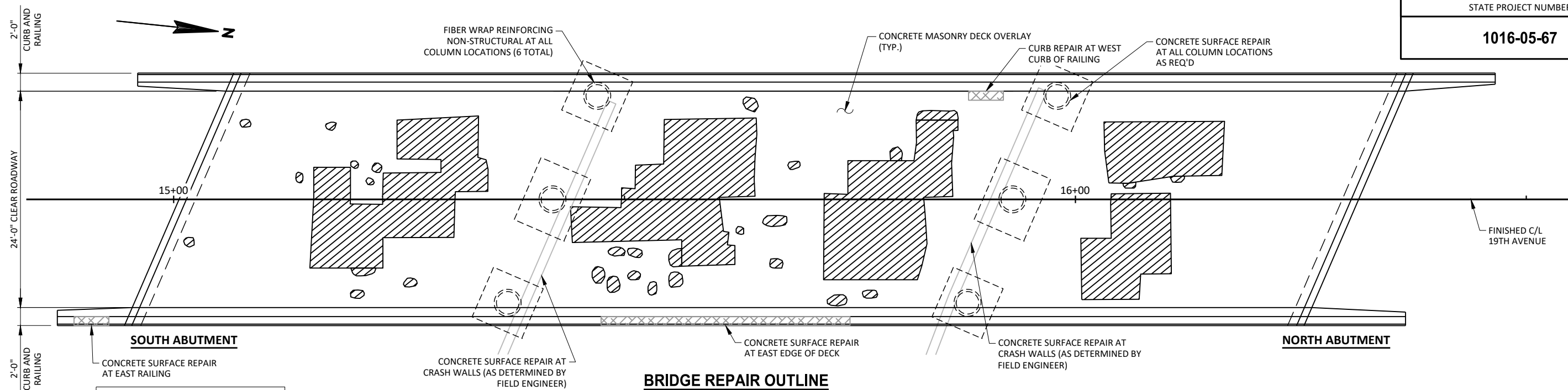
BENCH MARKS			
NO.	STA.	DESCRIPTION	ELEV.
1	12+02	3/4" IRON REBAR SET, 18.5' RT.	882.26
2	14+16	3/4" IRON REBAR SET, 18.3' RT.	884.08
3	16+58	SMP SET IN STUMP, 17.7' LT.	882.22
11	14+26	3/4" IRON REBAR SET, 16.1' LT.	884.64



ELEVATION

(NORMAL TO W.B. I.H. 90/94)



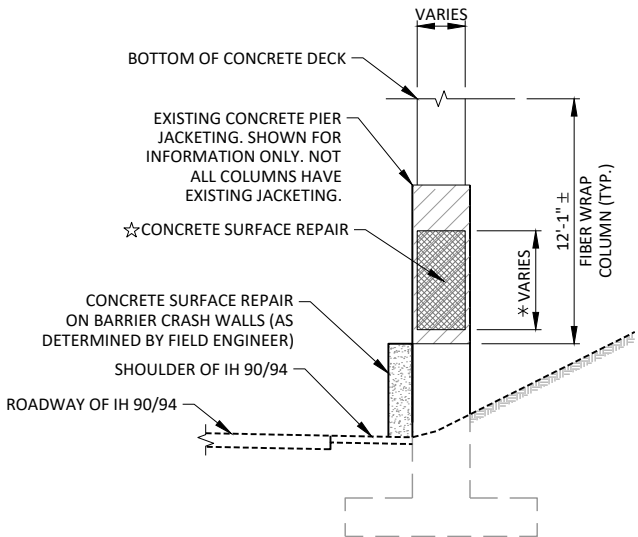
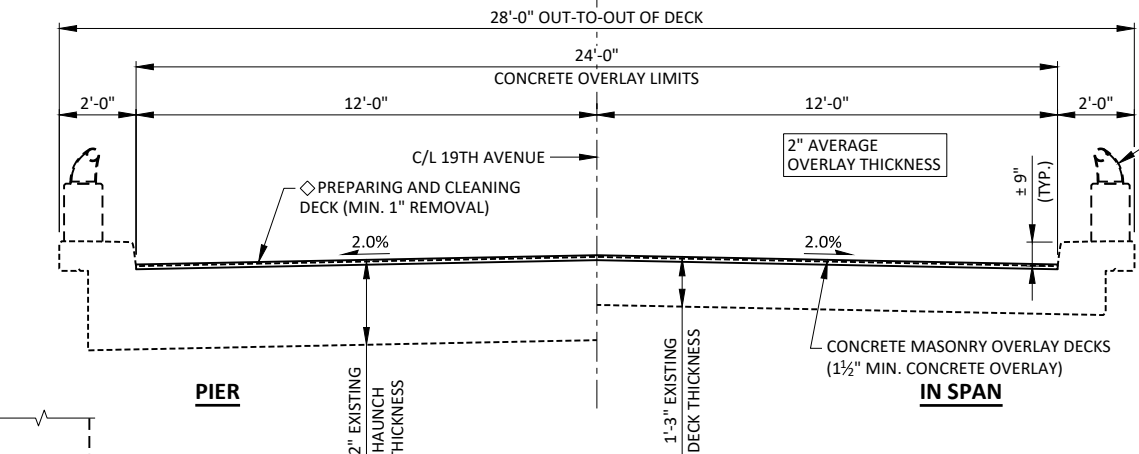


DECK REPAIR AREAS

FIELD OBSERVATION SUMMARY				STRUCTURE NO. B-29-28		LEGEND	
ITEM	UNIT	QUANTITY	%				
TOTAL AREA	SY	345	100				
DELAMINATED AREA	SY	85	24.7				
DECK PREPARATION TYPE 1	SY	85	24.7				
DECK PREPARATION TYPE 2	SY	43	12.5				
FULL-DEPTH DECK REPAIR	SY	9	2.6				

NOTES:

DECK INSPECTION AND DECK REPAIR AREAS SHOWN ARE FOR REFERENCE ONLY. ENGINEER IN THE FIELD TO VERIFY REPAIR AREAS. DECK REPAIRS SHALL BE MADE ONLY AS DIRECTED BY THE ENGINEER IN THE FIELD.



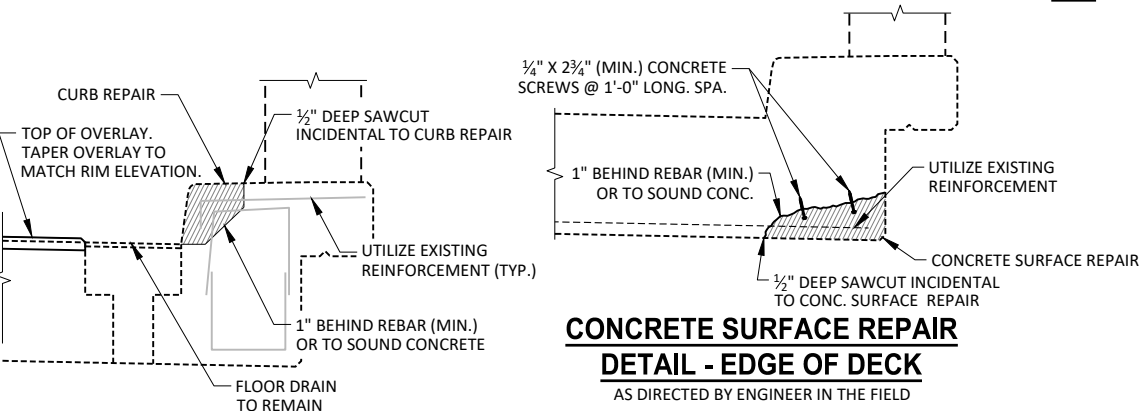
PIER COLUMN REPAIR DETAIL

NOTES

☆ CONCRETE SURFACE REPAIR WITH EMBEDDED GALVANIC ANODES REQ'D. AS DETERMINED BY ENGINEER IN THE FIELD.

FIBER WRAP REINFORCING NON-STRUCTURAL REQUIRED AT ALL COLUMNS (6 LOCATIONS) AS SHOWN ON GENERAL PLAN. FIBER WRAP LIMITS TO EXTEND FROM TOP OF CRASH WALL TO BOTTOM OF CONCRETE DECK AT ALL COLUMNS.

STAIN/PAINT FIBER WRAP GRAY IN COLOR TO MATCH EXISTING CONCRETE

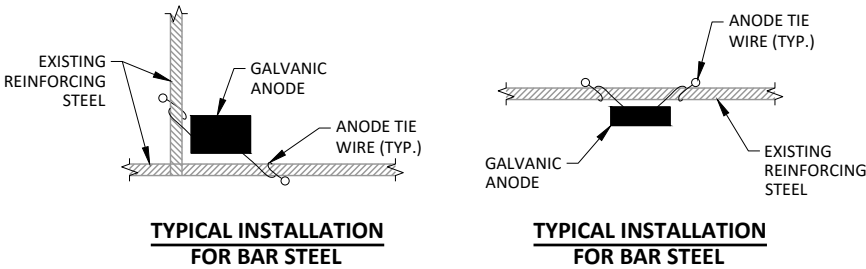


CONCRETE SURFACE REPAIR  
DETAIL - EDGE OF DECK

AS DIRECTED BY ENGINEER IN THE FIELD

CROSS SECTION THROUGH ROADWAY

◇ WORK UNDER "REMOVING ASPHALTIC CONCRETE DECK OVERLAY" AND "CLEANING DECKS" INCLUDES REMOVAL OF ALL MATERIALS FROM THE BRIDGE DECK SURFACE, INCLUDING EXISTING CHIP SEAL AND ASPHALTIC PATCHES, AND MILLING A MINIMUM OF 1" OF THE ORIGINAL CONCRETE DECK THICKNESS.



CATHODIC PROTECTION DETAILS

SEE SPECIAL PROVISION "EMBEDDED GALVANIC ANODES" FOR DESCRIPTION, MATERIALS, CONSTRUCTION, MEASUREMENT, AND PAYMENT INFORMATION.

EXISTING REINFORCING STEEL TO BE COMPLETELY CLEANED OF CORRODED MATERIAL PRIOR TO INSTALLATION OF GALVANIC ANODES

TOTAL ESTIMATED QUANTITIES

ITEM NUMBER	ITEM DESCRIPTION	UNIT	S. ABUT.	PIER 1	PIER 2	N. ABUT.	SUPER	TOTALS
502.3200	PROTECTIVE SURFACE TREATMENT	SY	--	--	--	--	370	370
509.0301	PREPARATION DECKS TYPE 1	SY	--	--	--	--	85	85
509.0302	PREPARATION DECKS TYPE 2	SY	--	--	--	--	43	43
509.0500	CLEANING DECKS	SY	--	--	--	--	345	345
509.1200	CURB REPAIR	LF	--	--	--	--	3	3
509.1500	CONCRETE SURFACE REPAIR	SF	3	10	9	--	62	84
509.2000	FULL-DEPTH DECK REPAIR	SY	--	--	--	--	9	9
509.2500	CONCRETE MASONRY OVERLAY DECKS	CY	--	--	--	--	24	24
509.9010.S	REMOVING ASPHALTIC CONCRETE DECK OVERLAY B-29-28	SY	--	--	--	--	345	345
SPV.0060	EMBEDDED GALVANIC ANODES	EACH	--	10	10	--	--	20
SPV.0165	FIBER WRAP REINFORCING NON-STRUCTURAL	SF	--	305	285	--	--	590

\* QUANTITY INCLUDES CONCRETE VOLUME FOR CONCRETE OVERLAY, PREPARATION DECKS TYPE 1, PREPARATION DECKS TYPE 2, FULL-DEPTH DECK REPAIR, AND CURB REPAIR

NO.	DATE	REVISION	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-29-28			
		DRAWN BY	CTMP
		PLANS CK'D.	PTB
CROSS SECTION AND QUANTITIES AND DECK REPAIR AREAS			SHEET 2 OF 2
			69

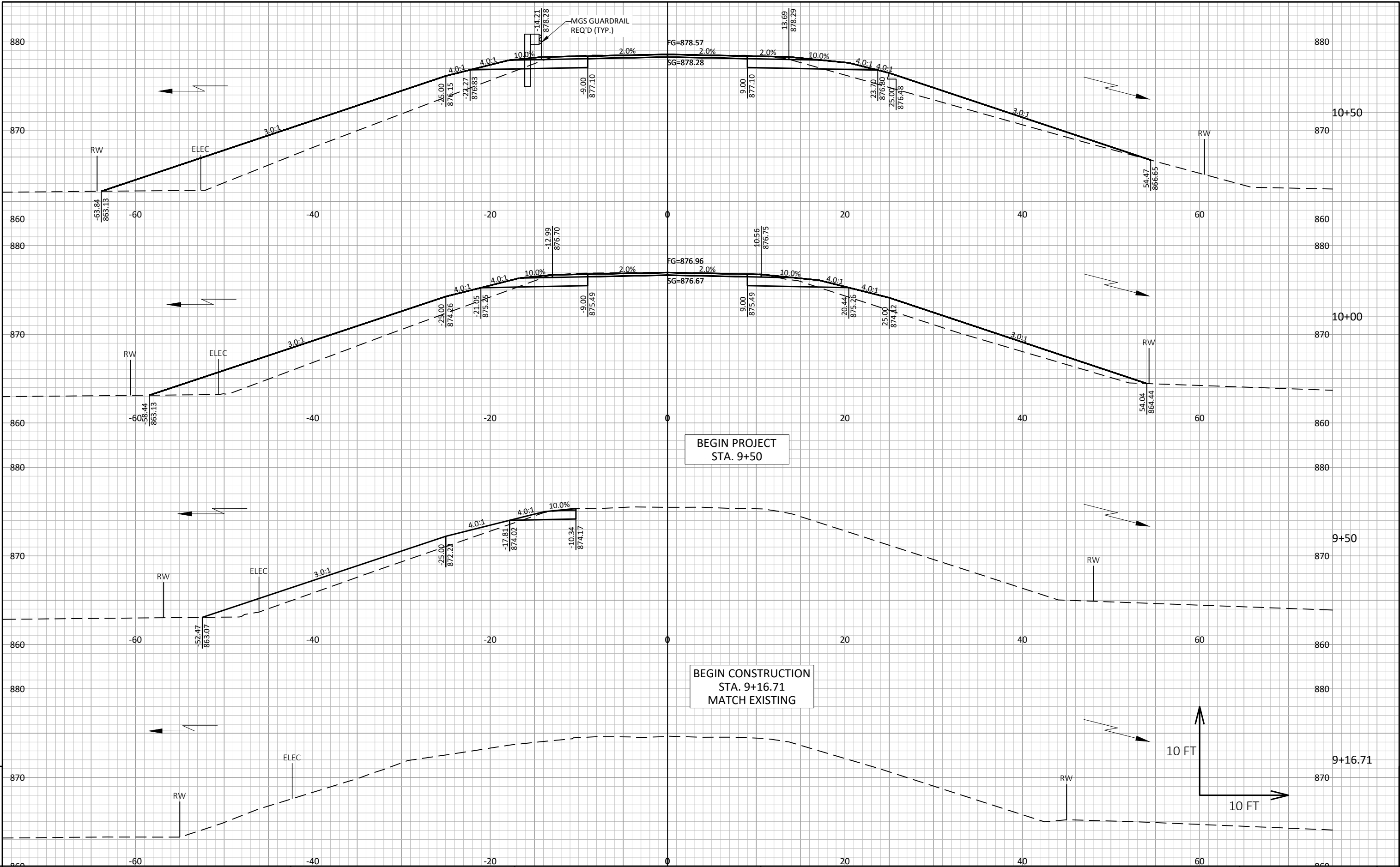


EARTHWORK-19TH AVENUE

STATION	AREA (SF)		INCREMENTAL VOL (CY)			CUMMULATIVE VOLUME (CY)			
			CUT	FILL	FILL (25%)	CUT		FILL	MASS ORDINATE
	CUT	FILL	NOTE 1		NOTE 2	1.00 NOTE 1	FILL	NOTE 2	NOTE 3
9+16.71	0	0	0	0	0	0	0	0	0
9+50	5	40	0	0	0	0	0	0	0
10+00	21	118	2	24	31	2	24	31	-29
10+50	21	148	24	146	182	26	170	213	-187
11+00	22	144	40	245	306	66	415	519	-453
11+50	21	163	40	271	339	106	686	858	-752
12+00	16	172	40	285	356	146	971	1214	-1068
12+38	16	172	36	312	390	182	1283	1604	-1422
13+69	20	185	22	244	305	204	1527	1909	-1705
14+00	20	185	0	0	0	204	1527	1909	-1705
14+50	21	181	23	212	265	227	1739	2174	-1947
15+00	21	181	39	338	423	266	2077	2597	-2331
16+31	15	187	39	336	420	305	2413	3016	-2711
16+50	15	187	0	0	0	305	2413	3016	-2711
17+00	20	94	10	132	165	315	2545	3181	-2866
17+50	22	131	33	254	318	348	2799	3499	-3151
18+00	22	67	40	212	265	388	3011	3764	-3376
18+50	23	3	41	183	229	429	3195	3993	-3564
19+00	23	6	42	65	81	471	3259	4074	-3603
19+50	24	16	42	8	10	513	3268	4084	-3571
20+00	13	56	44	19	24	557	3287	4108	-3551
20+50	7	3	35	67	84	592	3354	4192	-3600
20+55	0	0	18	55	68	610	3408	4260	-3650
COLUMN TOTALS =			610	3,408	4,260				-3,650

NOTES:	
1 - CUT	CUT INCLUDES SALVAGED/UNUSABLE PAVEMENT MATERIAL
2 - FILL 25%	(UNEXPANDED FILL)*1.25
3 - MASS ORDINATE	CUT + ROCK (10%) +REDUCED MARSH (60%) - FILL (25%)

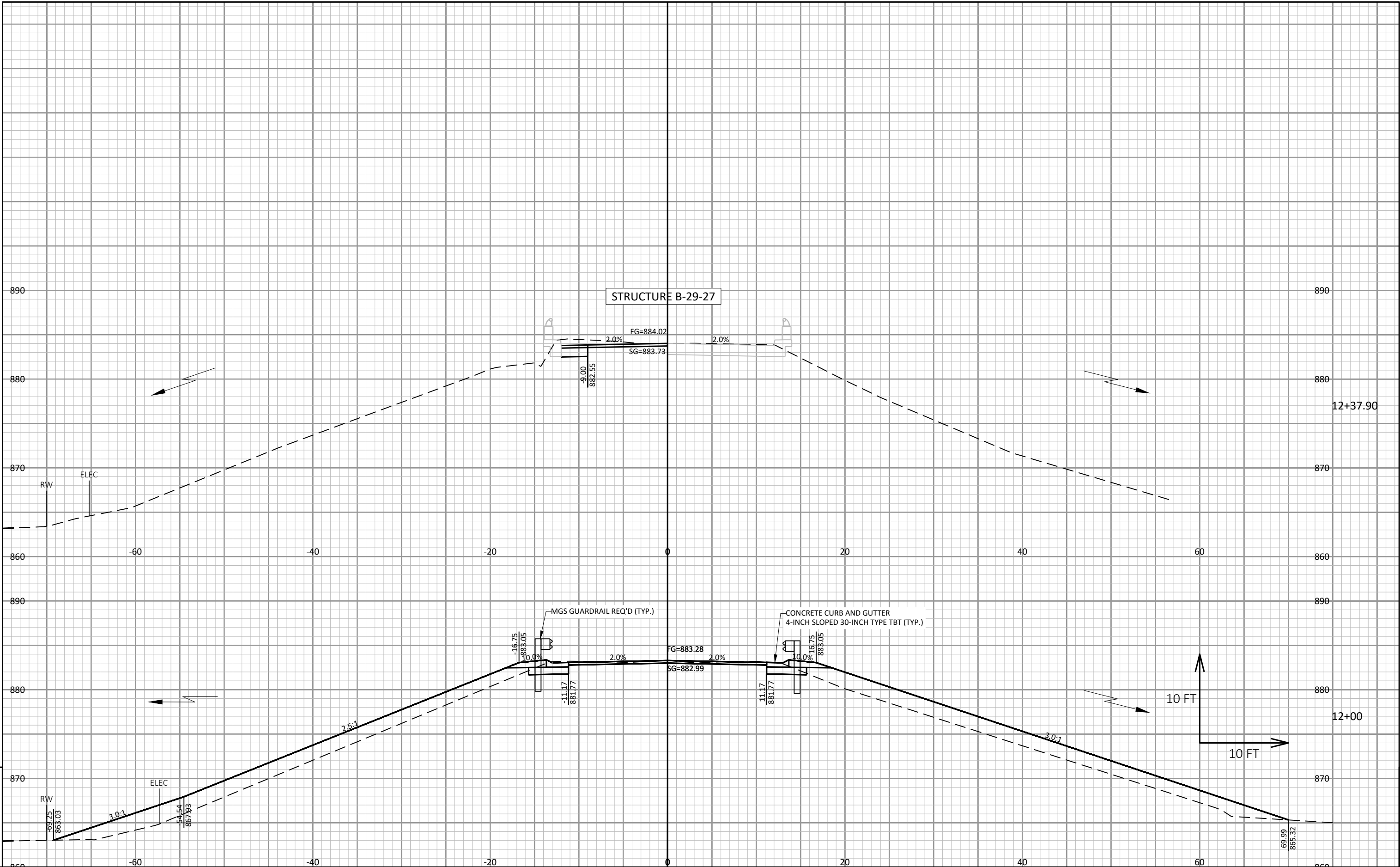








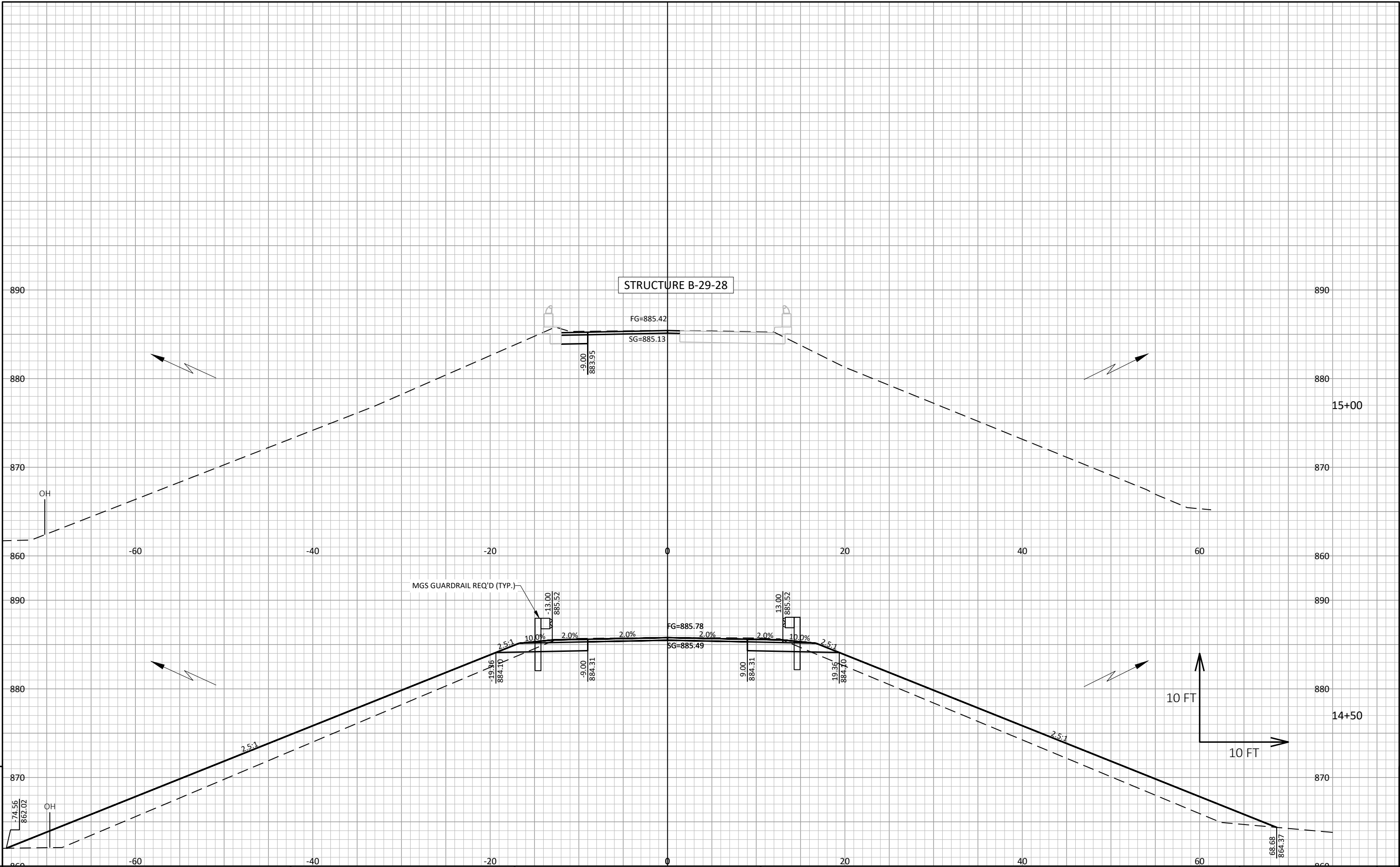




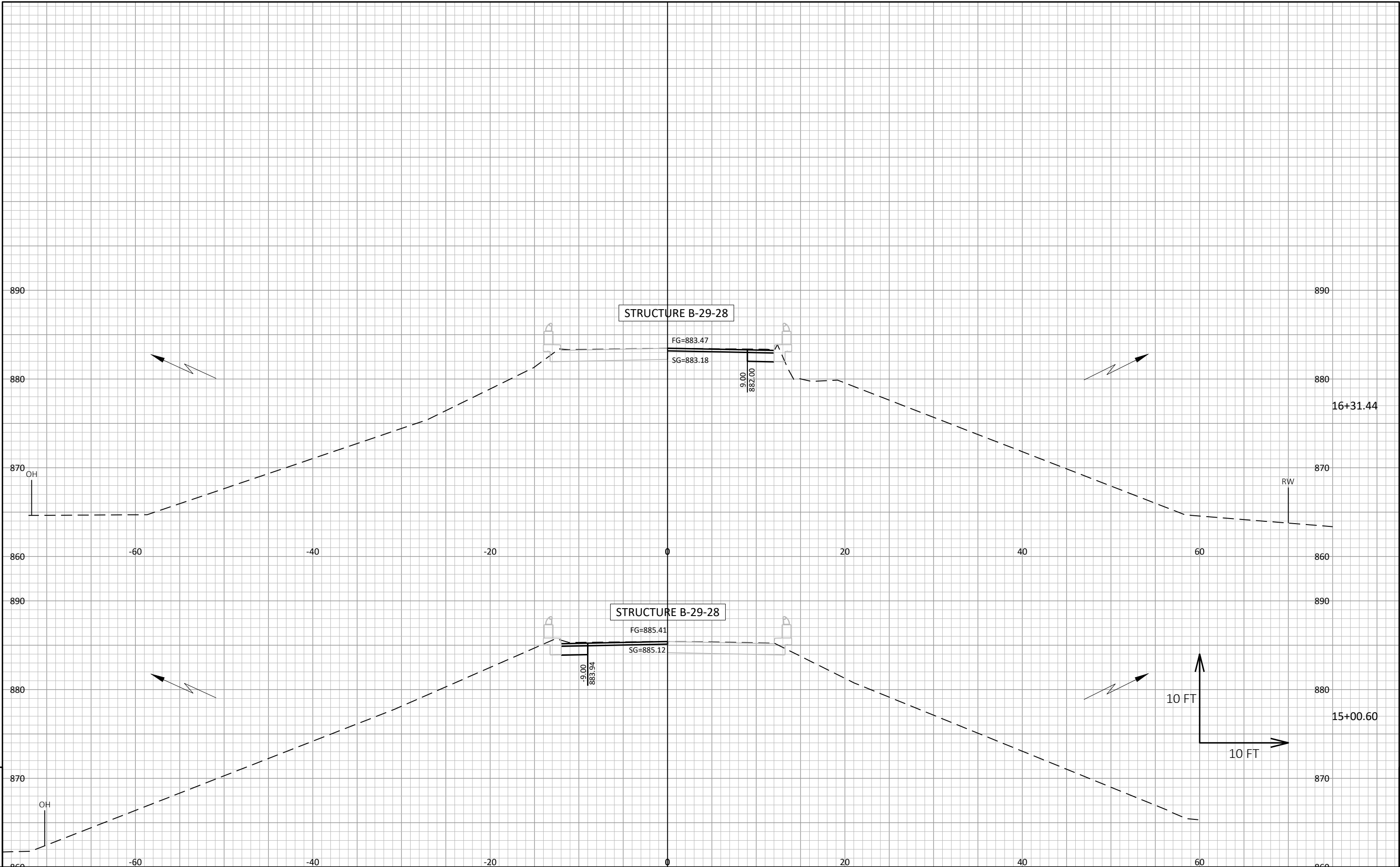




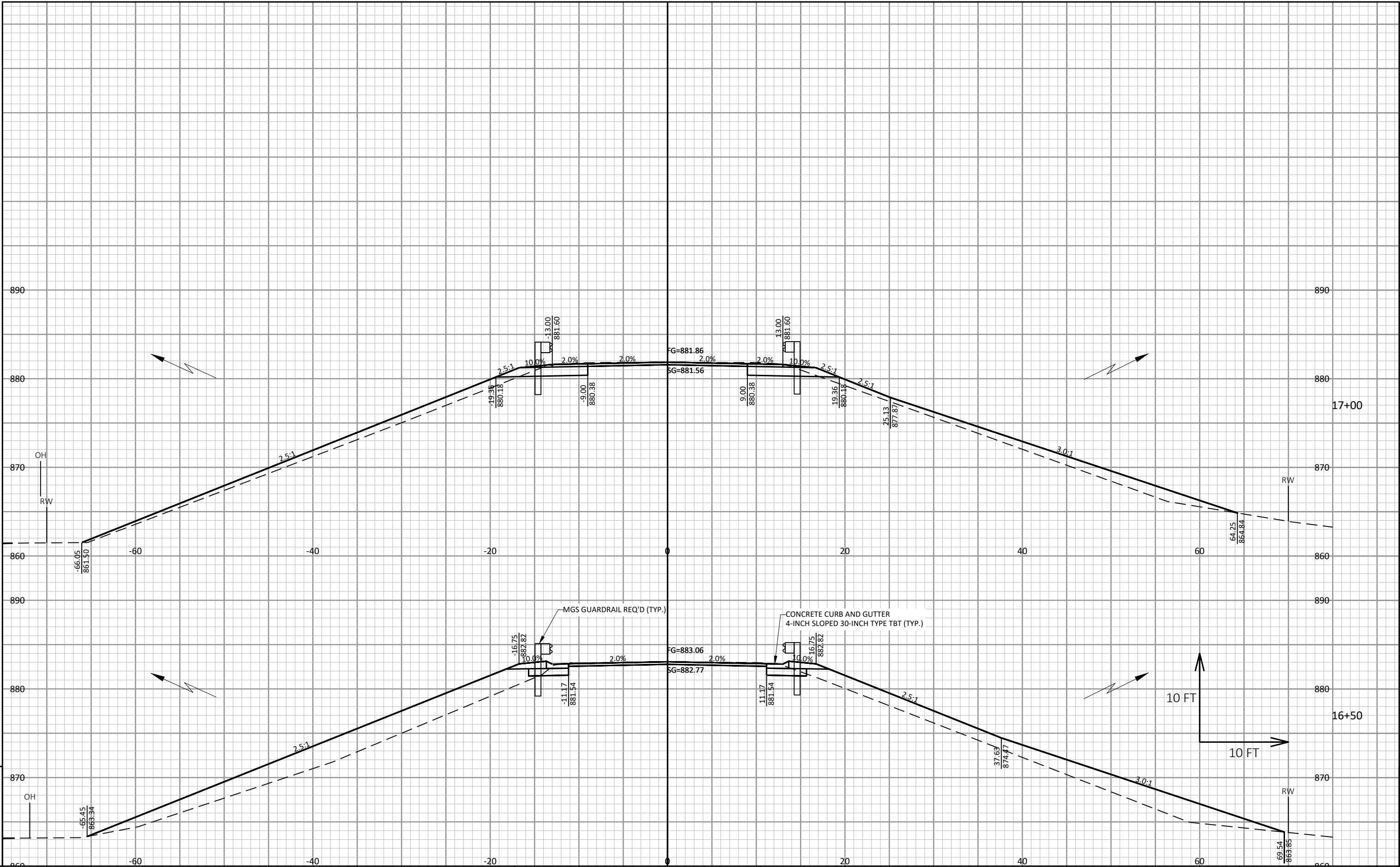




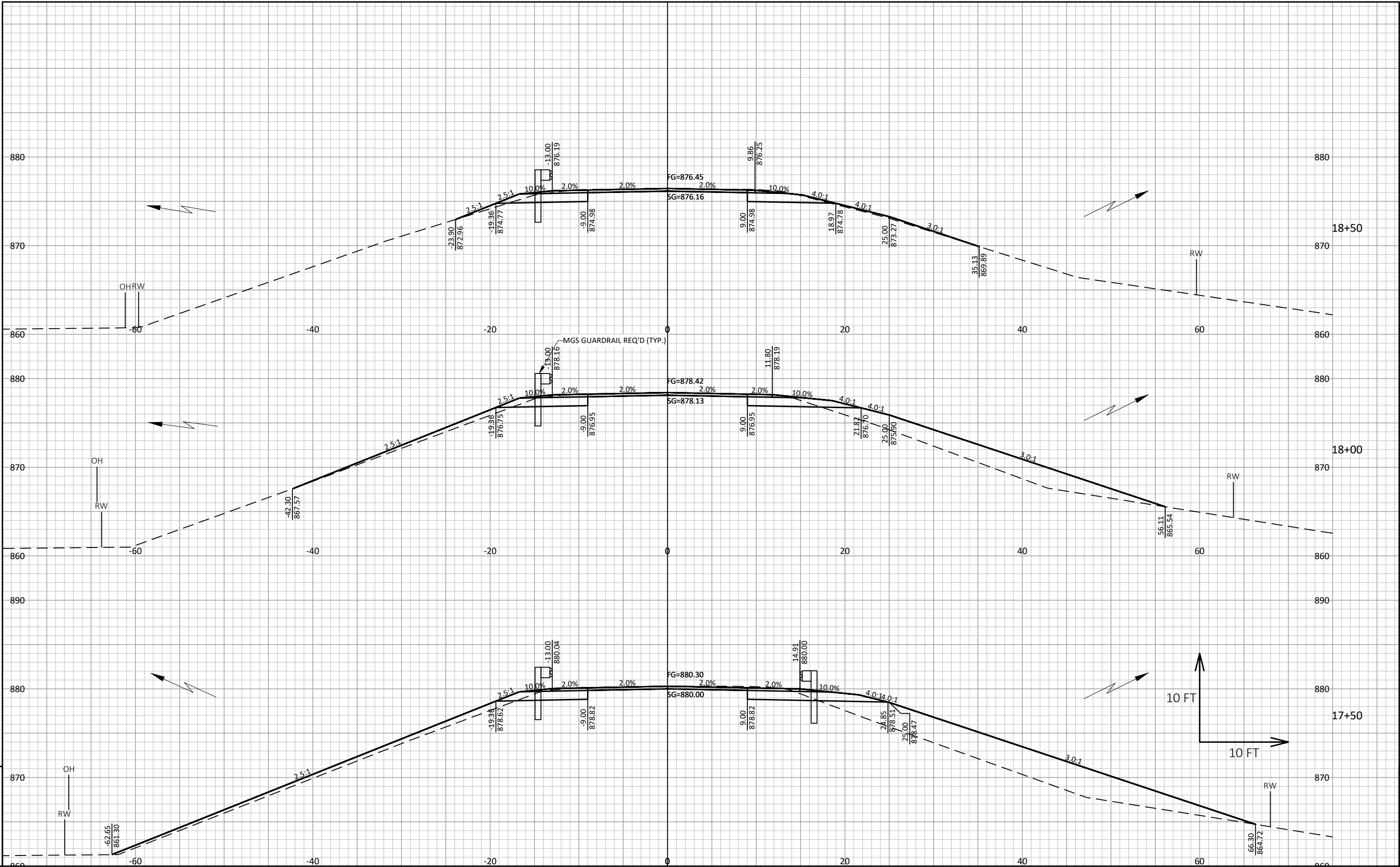








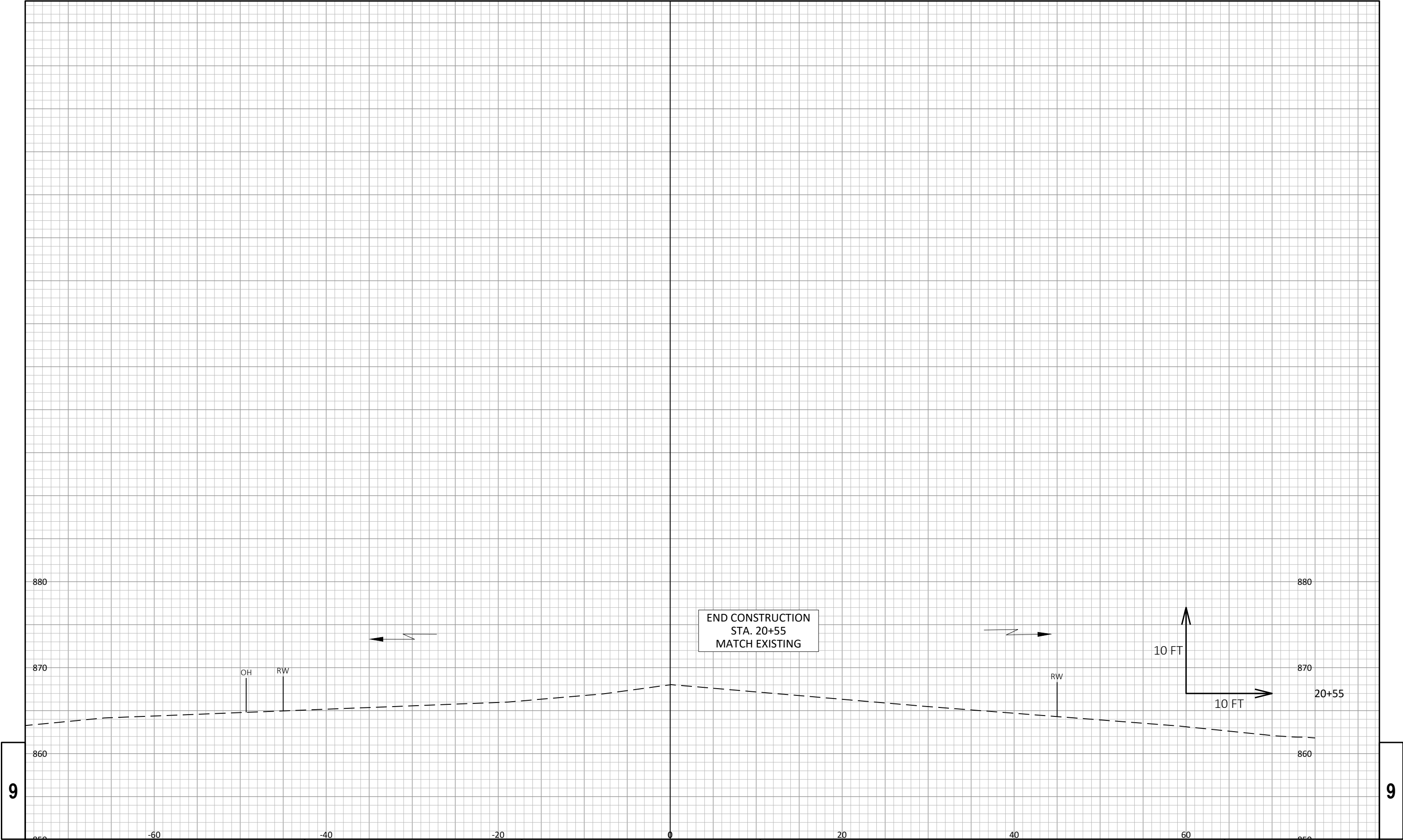








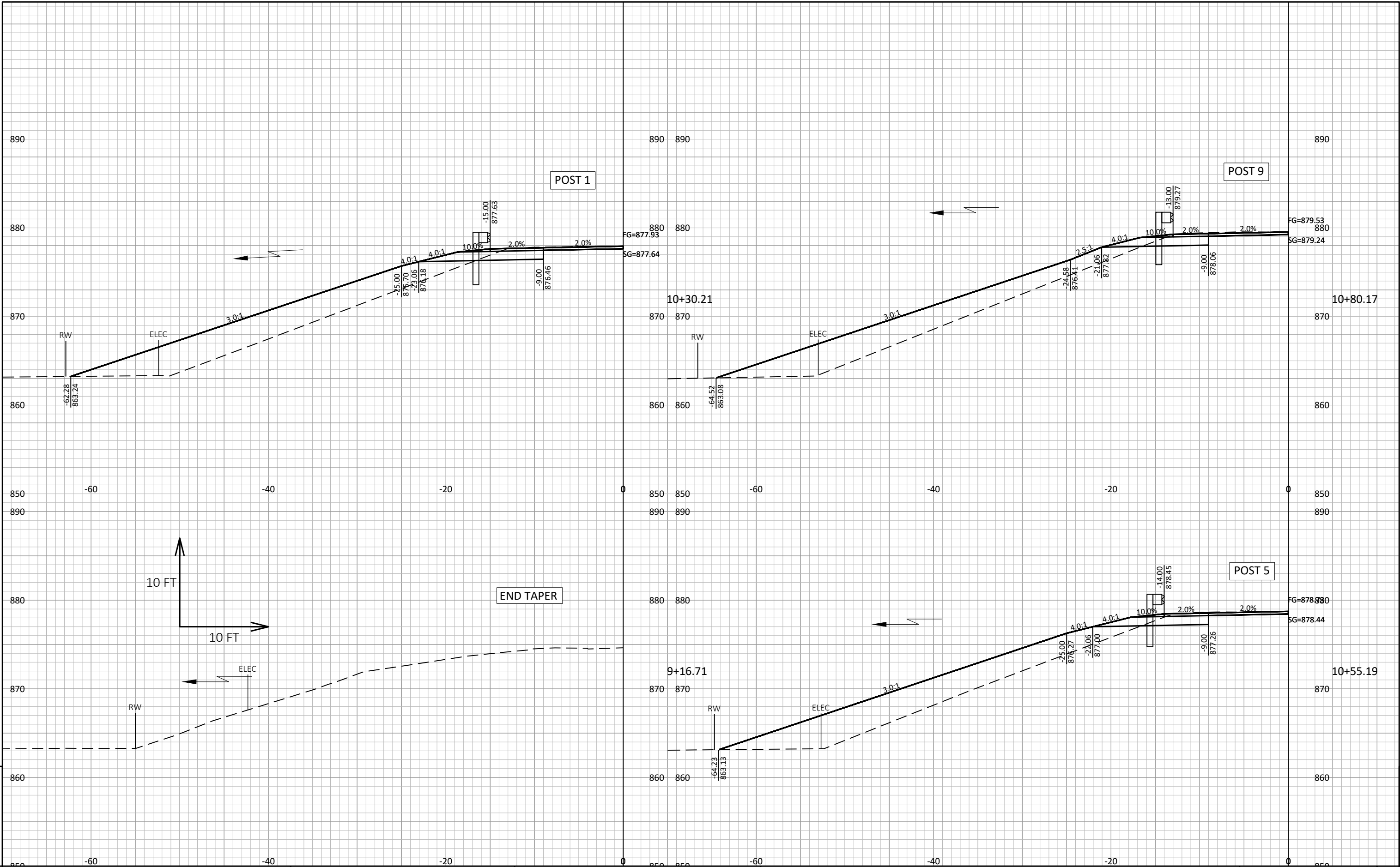




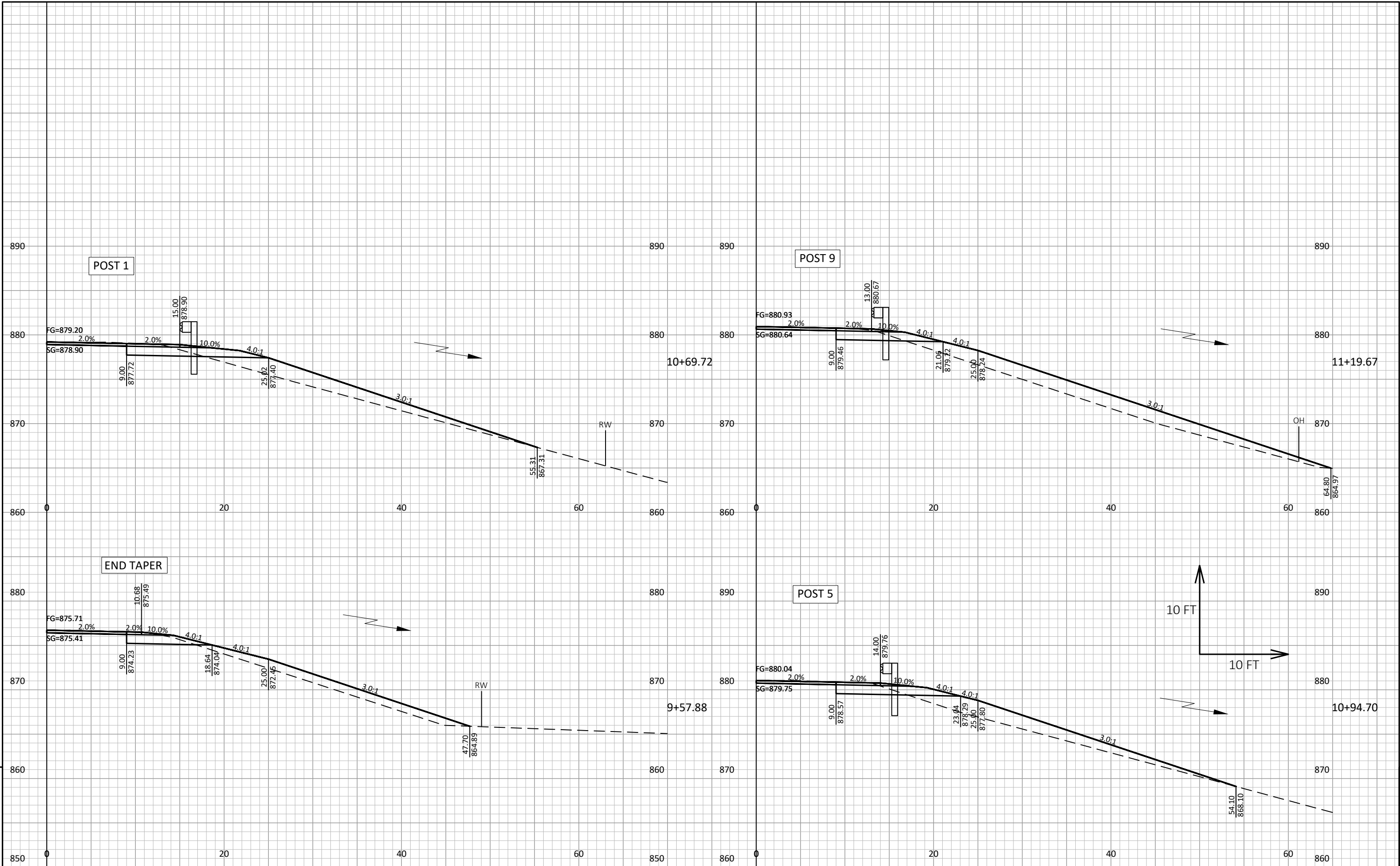
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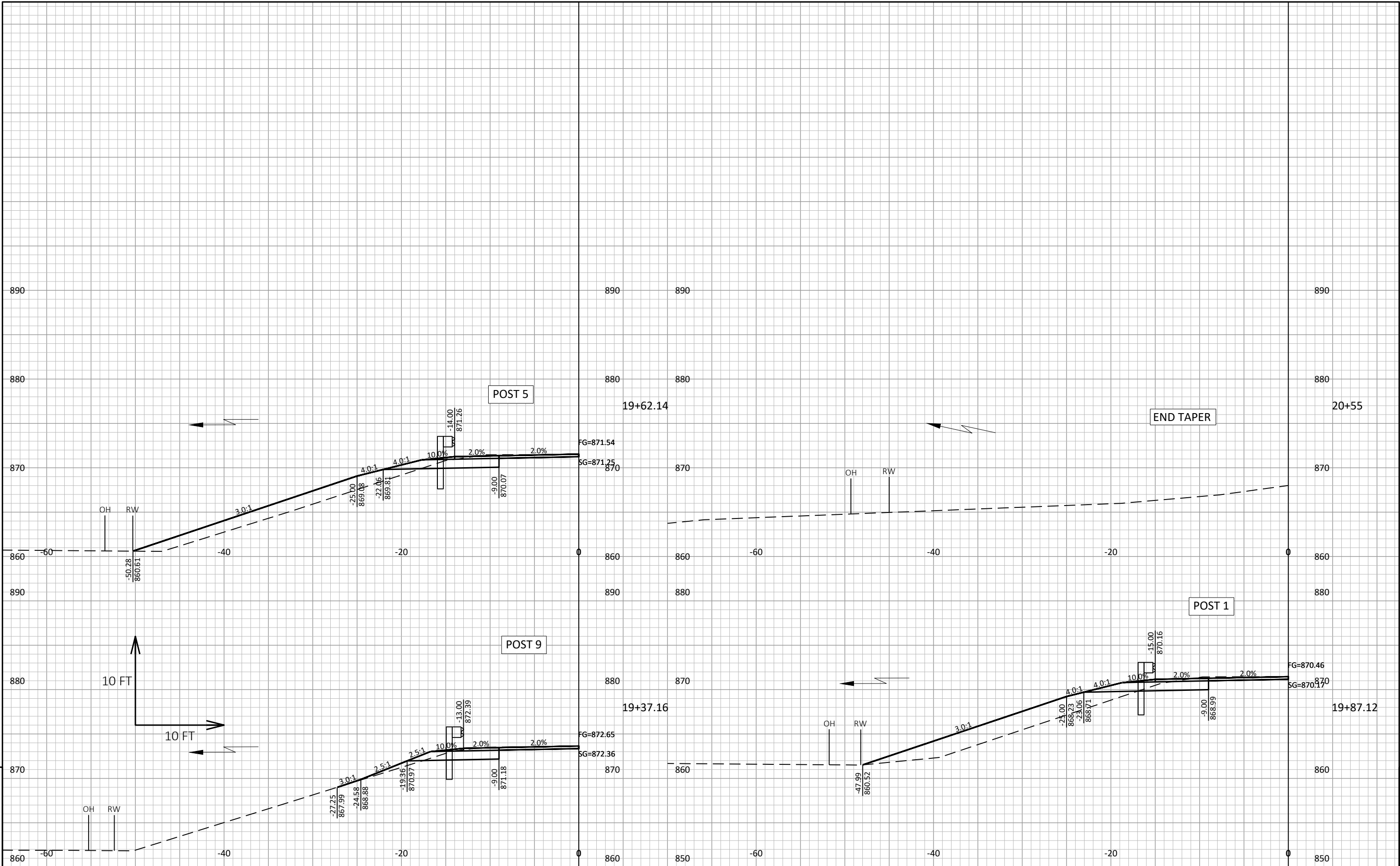














## Notes





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

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