

GRE

PROJECT ID:  
WITH: N/A

4816-00-71

COUNTY: FOND DU LAC

December 2024

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 = 78



DESIGN DESIGNATION

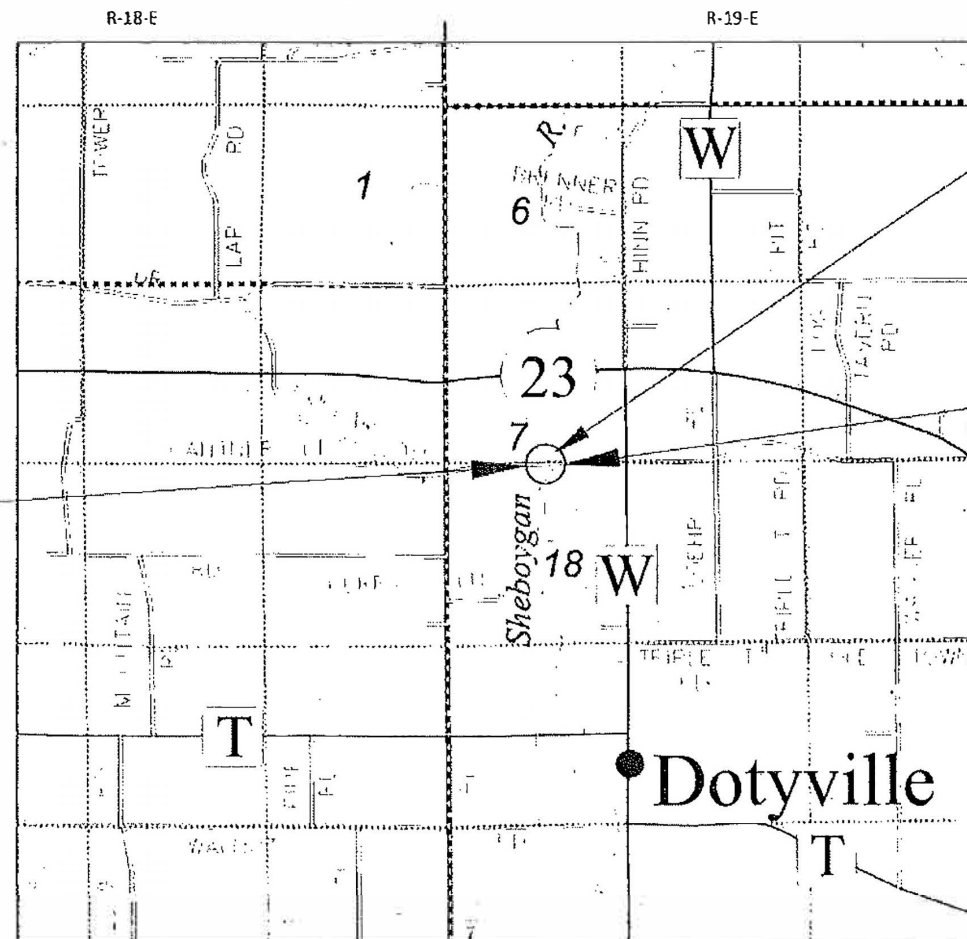
A A D T (2025)	= 60
A A D T (2045)	= 70
D.H.V.	= 10
D.D	= 60/40
T	= 9.4 %
DESIGN SPEED	= 30 MPH
ESALS	= 7,300

CONVENTIONAL SYMBOLS

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

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

BEGIN PROJECT  
STA 13+00  
Y= 385,107.361  
X= 863,747.288



LAYOUT  
SCALE 0 10.0 MI  
TOTAL NET LENGTH OF CENTERLINE 0.026 MI

HORIZONTAL POSITIONS SHOWN ON THIS PLAN ARE WISCONSIN COORDINATE REFERENCE SYSTEM (WISCRS), FOND DU LAC 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 OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

PLAN OF PROPOSED IMPROVEMENT

T FOREST, POPLAR ROAD

SHEBOYGAN RIVER BRIDGE

LOCAL STREET

FOND DU LAC COUNTY

STATE PROJECT NUMBER

4816-00-71

STATE PROJECT

4816-00-71

FEDERAL PROJECT

PROJECT

WISC 2025109

CONTRACT

1

ACCEPTED FOR  
TOWN OF FOREST

DATE: 7-8-2024 By: [Signature]  
(Signature and Title of Official)

ENGINEERING



DATE: 6/20/24 By: [Signature]  
(Professional Engineer Signature)

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

PREPARED BY	IS: [Signature]
SURVEYED	IS: [Signature]
DESIGNED	IS: [Signature]
PROJECT MANAGER	IS: [Signature]
REGIONAL ENGINEER	IS: [Signature]
REGIONAL SUPERVISOR	IS: [Signature]

APPROVED FOR THE DEPARTMENT  
DATE: 7-17-24 By: [Signature]  
(Professional Engineer Signature)

E

GENERAL NOTES

IF THERE ARE UTILITY FACILITIES WITHIN THE PROJECT AREA THAT ARE NOT SHOWN ON THE PLANS, THE CONTRACTOR SHALL COORDINATE THEIR CONSTRUCTION ACTIVITIES WITH A CALL TO DIGGER'S HOTLINE AND/OR A DIRECT CALL TO THE UTILITIES THAT HAVE FACILITIES IN THE AREA.

ANY UTILITY WHICH IS NOT A MEMBER OF DIGGER'S HOTLINE MUST BE CONTRACTED SEPARATELY.

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

SAW CUT LOCATIONS SHOWN ON THE PLANS ARE SUBJECT TO ADJUSTMENT BY THE ENGINEER IN THE FIELD,

ALL DISTURBED AREAS NOT OTHERWISE SURFACED ARE TO BE TOPSOILED, FERTILIZED, SEEDED AND COVERED WITH EROSION MAT.

THE LOCATIONS OF ALL EROSION CONTROL ITEMS SHALL BE DETERMINED BY THE ENGINEER IN THE FIELD.

DO NOT PLACE FERTILIZER 20 FEET OF A WETLAND OR WATER BODY.

WETLAND ARE PRESENT. DO NOT OPERATE MACHINERY OUTSIDE OF SLOPE INTERCEPTS

TACK COAT HAS BEEN ESTIMATED AT AN APPLICATION OF 0.05 GAL/SY AND SHALL BE PLACED BETWEEN THE LAYERS OF ASPHALTIC PAVEMENT.

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

UTILITY CONTACTS

ALLIANT ENERGY (ELECTRIC)  
JOSH COLLIN  
883 W SCOTT ST  
FOND DU LAC, WI 54937  
OFFICE: 920-322-6646  
CELL: 608-393-5695  
EMAIL: JOSHUACOLLIEN@ALLIANTENERGY.COM

AT&T (COMMUNICATIONS)  
CHARLES BARTELT  
70 E DIVISION STREET  
FOND DU LAC, WI 54935  
OFFICE: 920-929-1013  
CELL: 920-375-9172  
EMAIL: CB1461@ATT.COM



Dial  or (800)242-8511

www.DiggersHotline.com

AGENCY/ PROJECTS CONTACTS

WISCONSIN DNR - NE REGION  
MARTY DILLENBURG  
625 E COUNTY ROAD Y STE 700  
OSHKOSH, WI 54901  
(920) 410-7428  
MARTY.DILLENBURG@WISCONSIN.GOV

WISDOT - NE REGION  
KATIE SCHWARTZ  
944 VANDERPERREN WAY  
GREEN BAY, WI 54304  
(920) 492-5652  
KATIEA.SCHWARTZ@DOT.WI.GOV

DESIGN CONTACT

JT ENGINEERING, INC.  
RICH GLEN  
1077 CENTENNIAL CENTRE BLVD  
HOBART, WI 54155  
PHONE: 920-468-4771  
EMAIL: RICHG@JT-ENGINEERING.COM

SEQUENCE OF SECTION 2

GENERAL NOTES  
TYPICAL SECTIONS  
CONSTRUCTION DETAILS  
EROSION CONTROL  
DETOUR PLANS

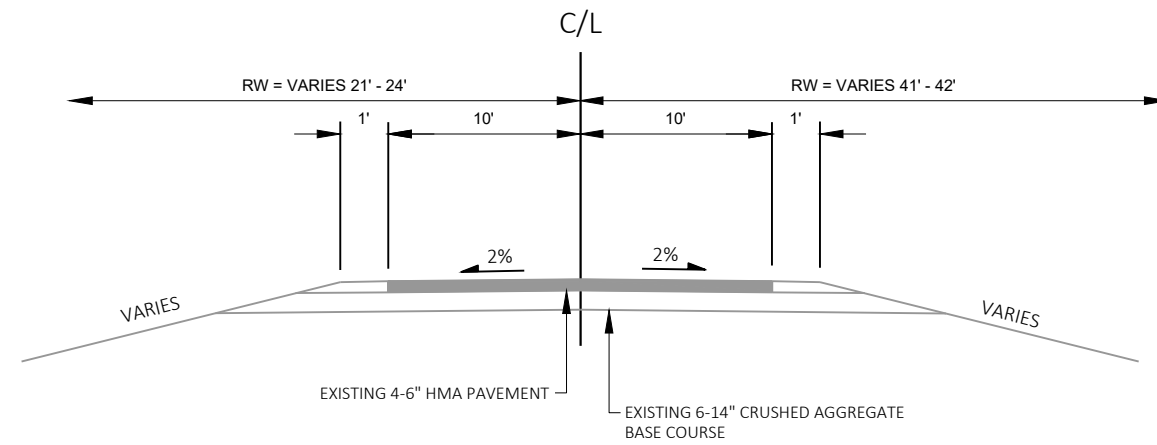
STANDARD ABBREVIATIONS

ADT	AVERAGE DAILY TRAFFIC	NC	NORMAL CROWN
AC	ASPHALT CEMENT	PT	POINT OF TANGENT
AGG	AGGREGATE	PC	POINT OF CURVATURE
ASPH	ASPHALT	PI	POINT OF INTERSECTION
BM	BENCHMARK	PE	PRIVATE ENTRANCE
C/L	CENTERLINE	R	RADIUS
CONC	CONCRETE	REM	REMOVE
CMP	CORRUGATED METAL PIPE	R/L OR RL	REFERENCE LINE
CR	CREEK	RCCP	REINFORCED CONCRETE CULVERT PIPE
D	DEGREE OF CURVE	RCPSS	REINFORCED CONCRETE STORM SEWER
DHV	DESIGN HOUR VOLUME	RO	RUNOUT
ESALS	EQUIVALENT SINGLE AXIS LOADS	R/W	RIGHT OF WAY
EXIST	EXISTING	STA	STATION
FE	FIELD ENTRANCE	SE	SUPER ELEVATION
HYD	HYDRANT	SS	STORM SEWER
IP	IRON PIPE	T	TANGENT
L	LENGTH OF CURVE	TEL	TELEPHONE
LC	LONG CHORD OF CURVE	TLE	TEMPORARY LIMITED EASEMENT
LR	LENGTH OF RUN OFF	T	TRUCKS
MH	MANHOLE	VC	VERTICAL CURVE
		W	WELL

RUNOFF COEFFICIENT TABLE

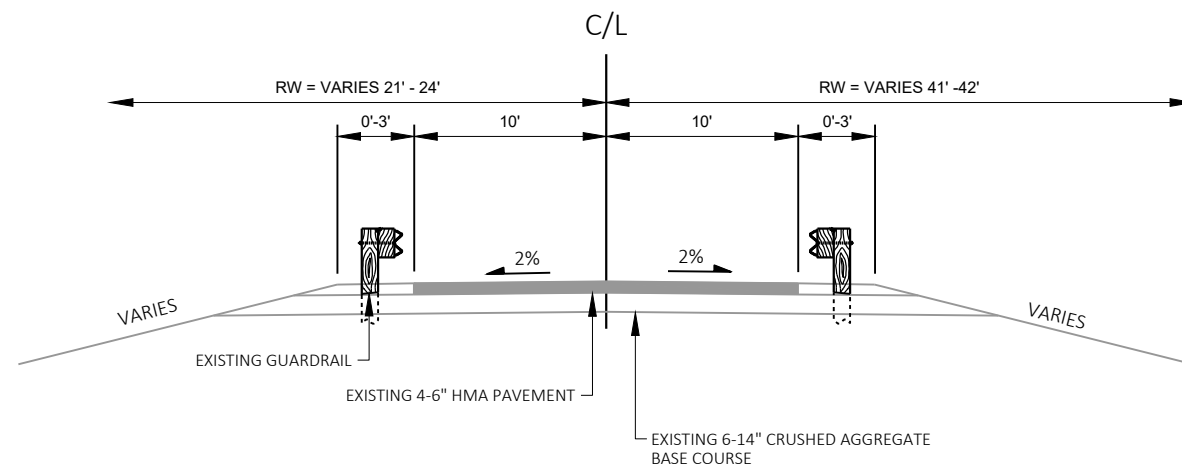
	HYDROLOGIC SOIL GROUP											
	A			B			C			D		
	SLOPE RANGE (PERCENT)			SLOPE RANGE (PERCENT)			SLOPE RANGE (PERCENT)			SLOPE RANGE (PERCENT)		
LAND USE:	0-2	2-6	6 & OVER	0-2	2-6	6 & OVER	0-2	2-6	6 & OVER	0-2	2-6	6 & OVER
ROW CROPS	.08 .22	.16 .30	.22 .38	.12 .26	.20 .34	.27 .44	.15 .30	.24 .37	.33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

TOTAL PROJECT AREA = 0.93 ACRES  
TOTAL AREA EXPECTED TO BE DISTURBED BY CONSTRUCTION ACTIVITIES = 0.24 ACRES



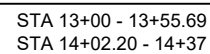
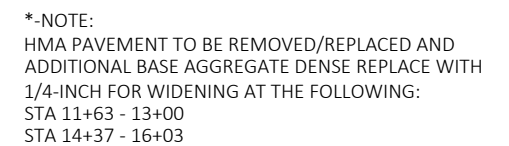
EXISTING TYPICAL SECTION

STA 11+63 - 13+49  
STA 14+11 - 16+03

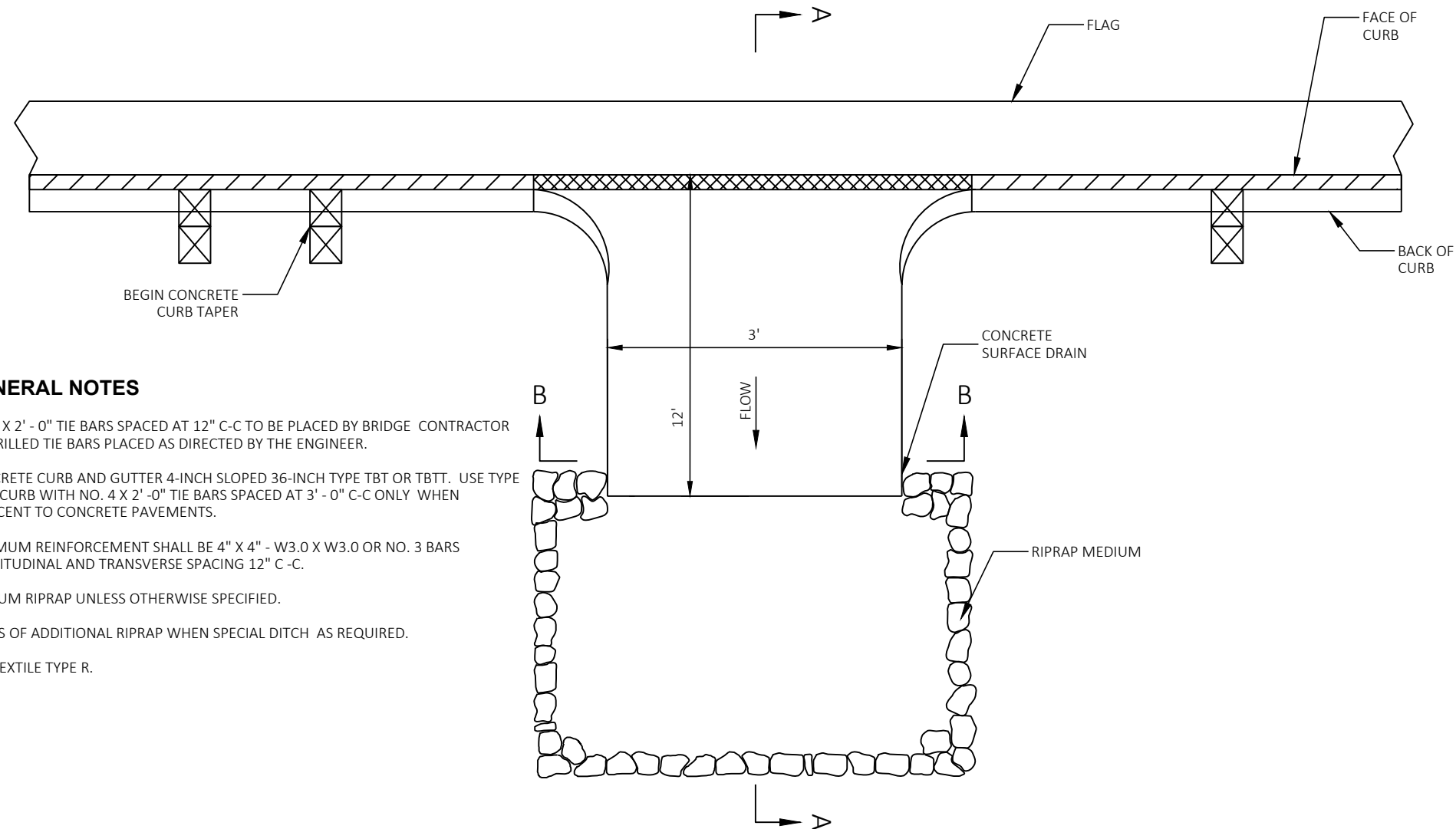


EXISTING TYPICAL SECTION

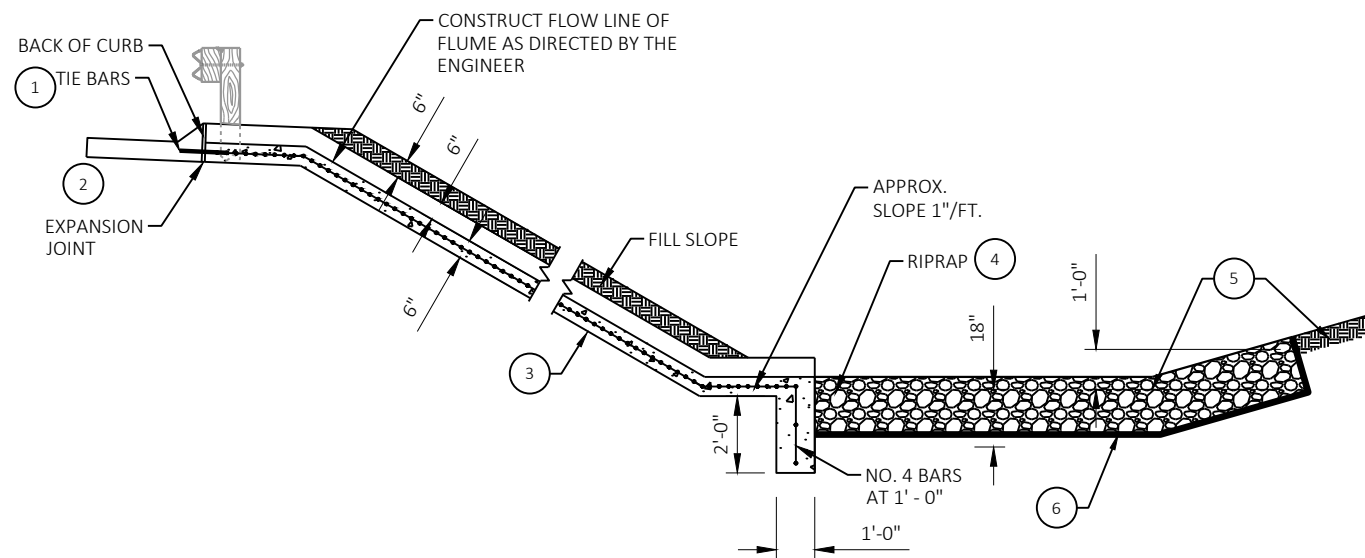
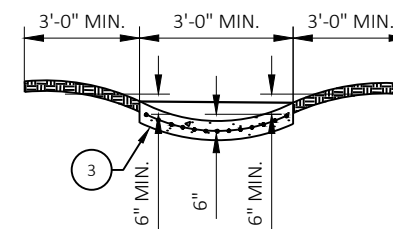
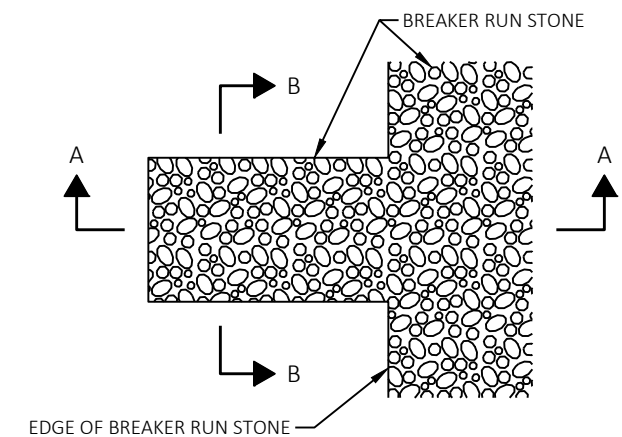
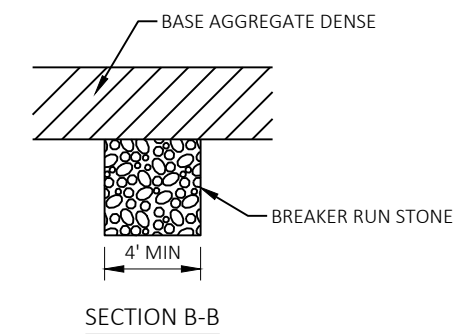
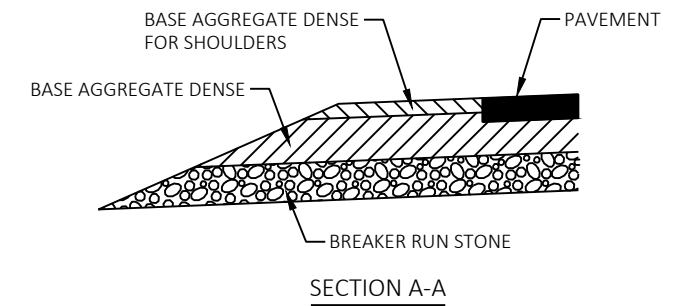
STA 13+49 - 13+63.50  
STA 13+96.44 - 14+11





**GENERAL NOTES**

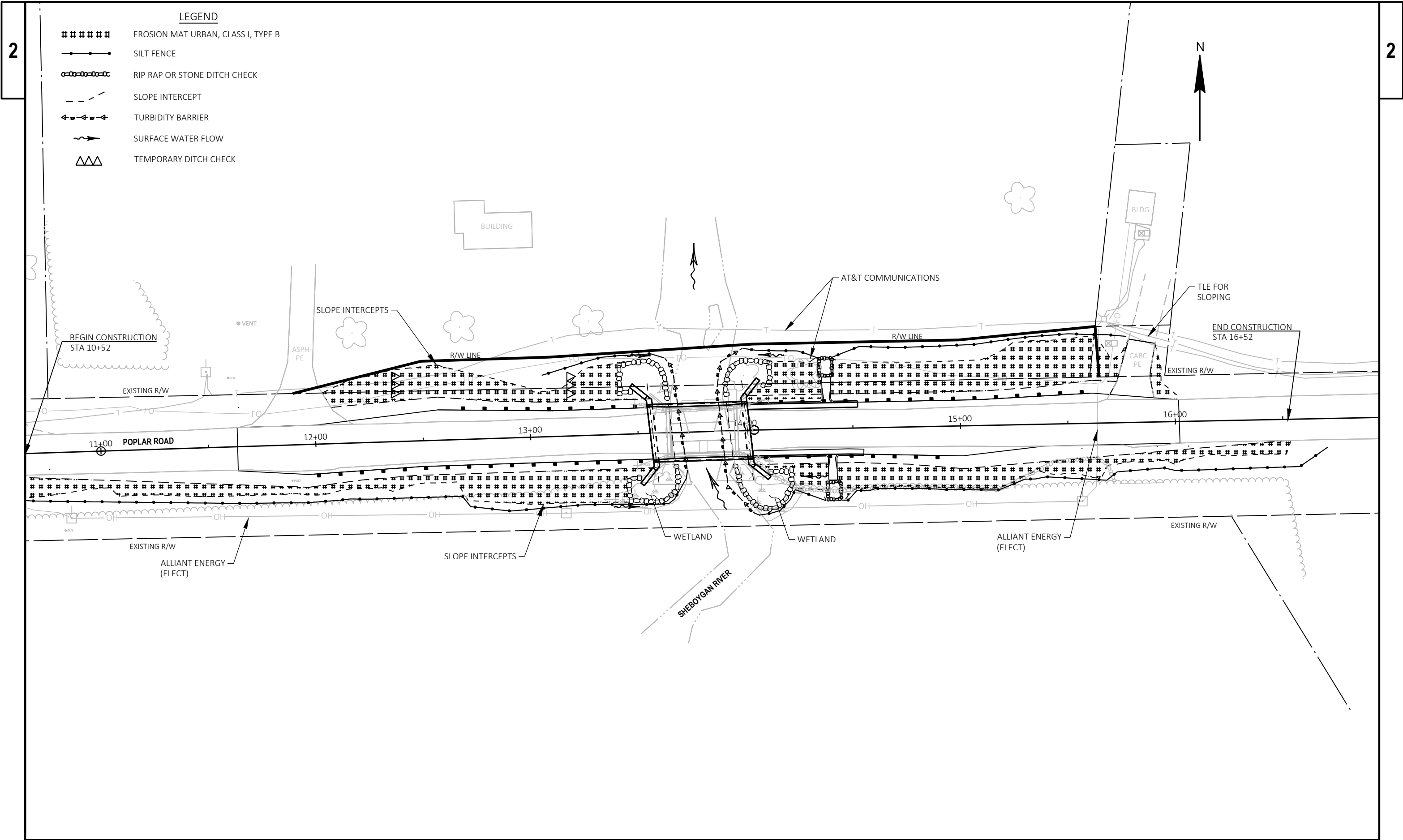
- 1 NO. 4 X 2' - 0" TIE BARS SPACED AT 12" C-C TO BE PLACED BY BRIDGE CONTRACTOR OR DRILLED TIE BARS PLACED AS DIRECTED BY THE ENGINEER.
- 2 CONCRETE CURB AND GUTTER 4-INCH SLOPED 36-INCH TYPE TBT OR TBTT. USE TYPE TBTT CURB WITH NO. 4 X 2' - 0" TIE BARS SPACED AT 3' - 0" C-C ONLY WHEN ADJACENT TO CONCRETE PAVEMENTS.
- 3 MINIMUM REINFORCEMENT SHALL BE 4" X 4" - W3.0 X W3.0 OR NO. 3 BARS LONGITUDINAL AND TRANSVERSE SPACING 12" C -C.
- 4 MEDIUM RIPRAP UNLESS OTHERWISE SPECIFIED.
- 5 LIMITS OF ADDITIONAL RIPRAP WHEN SPECIAL DITCH AS REQUIRED.
- 6 GEOTEXTILE TYPE R.

**SECTION A - A****CONCRETE SURFACE DRAIN****SECTION B - B****DETAIL FOR FRENCH DRAINS**

STA 13+54 LT/RT  
STA 14+33 LT/RT

FINAL LOCATIONS TO BE DETERMINED IN THE FIELD BY THE ENGINEER.

EXCAVATION REQUIRED TO CONSTRUCT FRENCH DRAINS SHALL BE CONSIDERED INCIDENTAL TO THE ITEM BREAKER RUN STONE.



Estimate Of Quantities

4816-00-71

Line	Item	Item Description	Unit	Total	Qty
0002	201.0205	Grubbing	STA	1.000	1.000
0004	203.0250	Removing Structure Over Waterway Remove Debris (structure) 01. P-20-082	EACH	1.000	1.000
0006	204.0165	Removing Guardrail	LF	60.000	60.000
0008	205.0100	Excavation Common	CY	330.000	330.000
0010	206.1001	Excavation for Structures Bridges (structure) 01. B-20-257	EACH	1.000	1.000
0012	208.0100	Borrow	CY	122.000	122.000
0014	210.1500	Backfill Structure Type A	TON	316.000	316.000
0016	211.0101	Prepare Foundation for Asphaltic Paving (project) 01. 4816-00-71	EACH	1.000	1.000
0018	213.0100	Finishing Roadway (project) 01. 4816-00-71	EACH	1.000	1.000
0020	305.0110	Base Aggregate Dense 3/4-Inch	TON	140.000	140.000
0022	305.0120	Base Aggregate Dense 1 1/4-Inch	TON	800.000	800.000
0024	311.0110	Breaker Run	TON	575.000	575.000
0026	450.4000	HMA Cold Weather Paving	TON	246.000	246.000
0028	455.0605	Tack Coat	GAL	72.000	72.000
0030	460.2000	Incentive Density HMA Pavement	DOL	157.000	157.000
0032	460.5223	HMA Pavement 3 LT 58-28 S	TON	130.000	130.000
0034	460.5224	HMA Pavement 4 LT 58-28 S	TON	116.000	116.000
0036	502.0100	Concrete Masonry Bridges	CY	161.000	161.000
0038	502.3200	Protective Surface Treatment	SY	158.000	158.000
0040	502.3210	Pigmented Surface Sealer	SY	46.000	46.000
0042	505.0400	Bar Steel Reinforcement HS Structures	LB	3,980.000	3,980.000
0044	505.0600	Bar Steel Reinforcement HS Coated Structures	LB	25,315.000	25,315.000
0046	516.0500	Rubberized Membrane Waterproofing	SY	10.000	10.000
0048	550.0500	Pile Points	EACH	12.000	12.000
0050	550.1100	Piling Steel HP 10-Inch X 42 Lb	LF	390.000	390.000
0052	601.0588	Concrete Curb & Gutter 4-Inch Sloped 36-Inch Type TBT	LF	103.000	103.000
0054	602.3010	Concrete Surface Drains	CY	2.000	2.000
0056	606.0200	Riprap Medium	CY	6.000	6.000
0058	606.0300	Riprap Heavy	CY	155.000	155.000
0060	612.0406	Pipe Underdrain Wrapped 6-Inch	LF	142.000	142.000
0062	614.0150	Anchor Assemblies for Steel Plate Beam Guard	EACH	4.000	4.000
0064	614.2300	MGS Guardrail 3	LF	175.000	175.000
0066	614.2500	MGS Thrie Beam Transition	LF	158.000	158.000
0068	614.2610	MGS Guardrail Terminal EAT	EACH	4.000	4.000
0070	619.1000	Mobilization	EACH	1.000	1.000
0072	624.0100	Water	MGAL	18.000	18.000
0074	625.0100	Topsoil	SY	1,160.000	1,160.000
0076	628.1504	Silt Fence	LF	1,040.000	1,040.000
0078	628.1520	Silt Fence Maintenance	LF	1,040.000	1,040.000
0080	628.1905	Mobilizations Erosion Control	EACH	5.000	5.000
0082	628.1910	Mobilizations Emergency Erosion Control	EACH	3.000	3.000
0084	628.2008	Erosion Mat Urban Class I Type B	SY	1,160.000	1,160.000
0086	628.6005	Turbidity Barriers	SY	130.000	130.000
0088	628.7504	Temporary Ditch Checks	LF	20.000	20.000
0090	628.7570	Rock Bags	EACH	10.000	10.000
0092	629.0210	Fertilizer Type B	CWT	1.000	1.000
0094	630.0130	Seeding Mixture No. 30	LB	31.000	31.000
0096	630.0200	Seeding Temporary	LB	31.000	31.000
0098	630.0500	Seed Water	MGAL	18.000	18.000

Estimate Of Quantities

4816-00-71

Line	Item	Item Description	Unit	Total	Qty
0100	634.0614	Posts Wood 4x6-Inch X 14-FT	EACH	4.000	4.000
0102	637.2230	Signs Type II Reflective F	SF	12.000	12.000
0104	638.2602	Removing Signs Type II	EACH	6.000	6.000
0106	638.3000	Removing Small Sign Supports	EACH	6.000	6.000
0108	642.5001	Field Office Type B	EACH	1.000	1.000
0110	643.0420	Traffic Control Barricades Type III	DAY	854.000	854.000
0112	643.0705	Traffic Control Warning Lights Type A	DAY	732.000	732.000
0114	643.0900	Traffic Control Signs	DAY	854.000	854.000
0116	643.5000	Traffic Control	EACH	1.000	1.000
0118	645.0111	Geotextile Type DF Schedule A	SY	58.000	58.000
0120	645.0120	Geotextile Type HR	SY	320.000	320.000
0122	645.0130	Geotextile Type R	SY	20.000	20.000
0124	650.4500	Construction Staking Subgrade	LF	555.000	555.000
0126	650.5000	Construction Staking Base	LF	555.000	555.000
0128	650.5500	Construction Staking Curb Gutter and Curb & Gutter	LF	103.000	103.000
0130	650.6501	Construction Staking Structure Layout (structure) 01. B-20-257	EACH	1.000	1.000
0132	650.9911	Construction Staking Supplemental Control (project) 01. 4816-00-71	EACH	1.000	1.000
0134	650.9920	Construction Staking Slope Stakes	LF	555.000	555.000
0136	690.0150	Sawing Asphalt	LF	95.000	95.000
0138	715.0502	Incentive Strength Concrete Structures	DOL	966.000	966.000
0140	999.2000.S	Installing and Maintaining Bird Deterrent System (station) 01. 13+80	EACH	1.000	1.000
0142	ASP.1T0A	On-the-Job Training Apprentice at \$5.00/HR	HRS	600.000	600.000
0144	ASP.1T0G	On-the-Job Training Graduate at \$5.00/HR	HRS	300.000	300.000

EARTHWORK SUMMARY

CATEGORY	From/To Station	LOCATION	Common Excavation (205.0100) Cut (1)	Unusable Pavement Material (2)	Available Material (3)	Unexpanded Fill	Expanded Fill (4) Factor 1.25	Mass Ordinate +/- (5)	BORROW (208.0100)	Comment:
0010	10+52 TO 13+56	POPLAR ROAD	230	20	210	93	116	94	0	WEST APPROACH
0010	14+02 TO 16+52	POPLAR ROAD	100	13	87	167	209	-122	122	EAST APPROACH
Total 0010			330	33	297	260	325	-28	122	

- 1) Unusable Pavement is included in Cut
- 2) Unusable Pavement Material = Existing Asphaltic Pavement
- 3) Available Material = Cut - Unusable Pavement Material
- 4) Expanded Fill Factor = 1.25    Expanded Fill = Unexpanded Fill \* Fill Factor
- 5) The Mass Ordinate + or - Qty calculated for the Division. Plus quantity indicates an excess of material within the Division. Minus indicates a shortage of material within the Division.

GRUBBING SUMMARY

201.0205 GRUBBING					
CATEGORY	STATION	STATION	LOCATION	STA	
0010	13+50	- 14+50	POPLAR ROAD	1	
TOTAL 0010				1	

REMOVING GUARDRAIL SUMMARY

204.0165 REMOVING GUARDRAIL					
CATEGORY	STATION	STATION	LOCATION	LF	
0010	13+45	- 13+60	POPLAR ROAD LT	15	
0010	13+45	- 13+60	POPLAR ROAD RT	15	
0010	13+92	- 14+07	POPLAR ROAD LT	15	
0010	13+92	- 14+07	POPLAR ROAD RT	15	
TOTAL 0010				60	

BASE AGGREGATE SUMMARY

				305.0110	305.0120	305.0110	624.0100
				BASE AGGREGATE DENSE 3/4-INCH	BASE AGGREGATE DENSE 1 1/4-INCH	BREAKER RUN	WATER
CATEGORY	STATION	STATION	LOCATION	TON	TON	TON	MGAL
0010	10+52	- 13+57	POPLAR ROAD	60	400	325	9
0010	14+01	- 16+54	POPLAR ROAD	60	350	200	8
0010	UNDISTRUBUTED			20	50	50	1
TOTAL 0010				140	800	575	18

CONCRETE SURFACE DRAIN

602.3010 CONCRETE SURFACE DRAIN			
CATEGORY	STATION	LOCATION	CY
0010	14+37	POPLAR RD, LT	1
0010	14+37	POPLAR RD, RT	1
TOTAL 0010			2

3

3

ASPHALT PAVEMENT SUMMARY

				450.4000				455.0605		460.5223		460.5224	
				HMA COLD WEATHER				TACK COAT		HMA PAVEMENT 3		HMA PAVEMENT 4	
				AREA				PAVING		LT 58-28 S		LT 58-28 S	
CATEGORY	STATION		STATION	LOCATION	SY	IN	IN	TON	GAL	TON		TON	
0010	10+52	-	13+57	POPLAR RD	525	2.25	1.75	117	37	66		51	
0010	14+01	-	16+02	POPLAR RD	510	2.25	1.75	129	36	64		64	
TOTAL 0010								246	72	130		116	

CONCRETE CURB AND GUTTER

					601.0588	
					4-INCH SLOPED 36-INCH	
					TYPE TBT	
CATEGORY	STATION		STATION	LOCATION	LF	
0010	14+01	-	14+52	POPLAR RD, LT	51	
0010	14+03	-	14+55	POPLAR RD, RT	52	
TOTAL 0010					103	

RIP-RAP AND GEOTEXTILE SUMMARY

			606.0200		645.0130	
			RIPRAP		GEOTEXTILE	
			MEDIUM		TYPER	
CATEGORY	STATION	LOCATION	CY	SY	REMARKS	
0010	14+37	POPLAR RD, LT	3	10	APPROXIMATELY 6' X 8'	
0010	14+39	POPLAR RD, RT	3	10	APPROXIMATELY 6' X 8'	
TOTAL 0010			6	20		

EROSION CONTROL SUMMARY

					628.1910						
					628.1504	628.1520	628.1905	MOBILIZATION	628.6005	628.7504	628.7570
						SILT FENCE	MOBILIZATION	EMERGENCY	TURBIDITY	TEMPORARY	
					SILT FENCE	MAINTENANCE	EROSION CONTROL	EROSION CONTROL	BARRIER	DITCH CHECKS	ROCK BAGS
CATEGORY	STATION		STATION	LOCATION	LF	LF	EACH	EACH	SY	LF	EACH
0010	10+52	-	13+70	POPLAR ROAD LT	60	60			50	20	10
0010	10+52	-	13+70	POPLAR ROAD RT	340	340	5	3	---	---	---
0010	14+00	-	16+52	POPLAR ROAD LT	170	170			70	---	---
0010	14+00	-	16+52	POPLAR ROAD RT	235	235			---	---	---
UNDISTRIBUTED					235	235			10	---	---
TOTAL 0010					1,040	1,040	5	3	130	20	10

PROJECT NO: 4816-00-71

HWY: POPLAR ROAD

COUNTY: FOND DU LAC

MISCELLANEOUS QUANTITIES

SHEET

E

GUARDRAIL SUMMARY

					614.2300	614.2500	614.2610
					MGS GUARDRAIL 3	MGS THRIE BEAM TRANSITION	MGS GUARDRAIL TERMINAL EAT
CATEGORY	STATION		STATION	OFFSET	LOCATION	LF	EA
0010	12+56	-	13+58	LT	POPLAR ROAD	12.5	39.4
0010	11+95	-	13+58	RT	POPLAR ROAD	75.0	39.4
0010	13+99	-	15+62	LT	POPLAR ROAD	75.0	39.4
0010	13+99	-	15+01	RT	POPLAR ROAD	12.5	39.4
TOTAL 0010					175	158	4

TRAFFIC CONTROL SUMMARY

					643.5000	643.0420	643.0705	643.0900
					TRAFFIC CONTROL	BARRICADES	WARNING LIGHTS	
					APPROXIMATE	PROJECT	TYPE III	TYPE A
					SERVICE	NO. IN	NO. IN	SIGNS
CATEGORY	STATION	TO	STATION	LOCATION	DAYS	EA	SERVICE	DAYS
0010	10+52	-	16+52	POPLAR ROAD	61	1	14	854
TOTAL 0010						1	854	732

LANDSCAPING SUMMARY

					625.0100	628.2008	629.0210	630.0130	630.0200	630.0500
					TOPSOIL	EROSION MAT URBAN, CLASS I	FERTILIZER	SEEDING	SEEDING	SEED
						TYPE B	TYPE B	MIXTURE NO. 30	TEMPORARY	WATER
CATEGORY	STATION		STATION	LOCATION	SY	SY	CWT	LB	LB	MGAL
0010	12+05	-	13+70	POPLAR ROAD LT	185	185	0.12	5	5	2
0010	10+52	-	13+70	POPLAR ROAD RT	280	280	0.18	8	8	4
0010	14+00	-	15+75	POPLAR ROAD LT	320	320	0.20	9	9	6
0010	14+00	-	16+52	POPLAR ROAD RT	210	210	0.13	6	6	2
UNDISTRIBUTED					165	165	0.10	4	4	4
TOTAL 0010					1,160	1,160	1.0	31	31	18

PERMANENT SIGNING, TYPE II

				634.0614 WOOD POSTS 4X6X14-FOOT		637.2230 SIGNS TYPE II REFLECTIVE F		638.2602 REMOVING SIGNS		638.3000 REMOVING SMALL SIGN	
						TYPE II		TYPE II		SUPPORTS	
CATEGORY	STATION	LOCATION	SIGN CODE	SIZE	DESCRIPTION	EACH	SF	EACH	EACH		
0010		RT			10 TON LOAD SIGN	---	---	1	1		
0010	13+57	LT	W5-52L	12X36	BRIDGE HAZARD MARKER	1	3	1	1		
0010	13+57	RT	W5-52R	12X36	BRIDGE HAZARD MARKER	1	3	1	1		
0010	14+02	LT	W5-52L	12X36	BRIDGE HAZARD MARKER	1	3	1	1		
0010	14+02	RT	W5-52R	12X36	BRIDGE HAZARD MARKER	1	3	1	1		
0010		LT			10 TON LOAD SIGN	---	---	1	1		
TOTAL 0010						4	12	6	6		

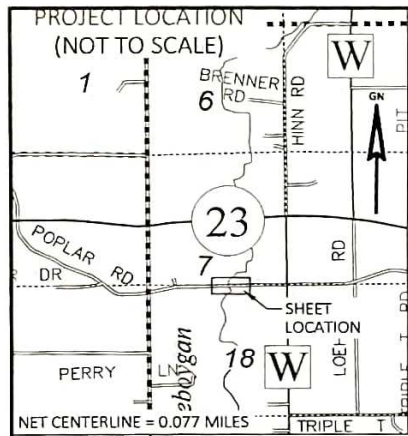
CONSTRUCTION STAKING SUMMARY

				650.4500	650.5000	650.5500	650.6501	650.9911	650.9920
				CONSTRUCTION	CONSTRUCTION	CONSTRUCTION	CONSTRUCTION	CONSTRUCTION	CONSTRUCTION
				STAKING	STAKING	STAKING	STAKING	STAKING	STAKING
				SUBGRADE	BASE	CURB & GUTTER	STRUCTURE LAYOUT	SUPPLEMENTAL CONTROL	SLOPE STAKES
CATEGORY	STATION	STATION	LOCATION	LF	LF	LF	EACH	EACH	LF
0010	10+52	-	16+52	POPLAR ROAD	555	555	103	---	555
0010	PROJECT		POPLAR ROAD	---	---	---	1	1	---
TOTAL 0010				555	555	103	1	1	555

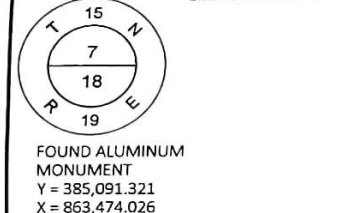
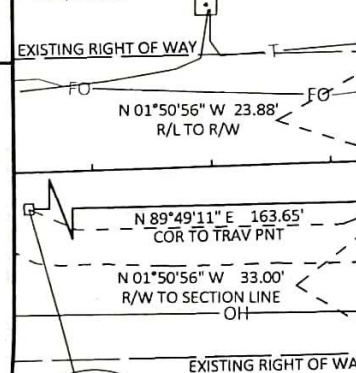
SAWING SUMMARY

				690.0150 SAWING ASPHALT
CATEGORY	STATION	LOCATION	LF	
0010	11+63	POPLAR ROAD	20	
0010	11+93	POPLAR ROAD LT	55	
0010	16+02	POPLAR ROAD	20	
TOTAL 0010			95	





BEGIN RELOCATION ORDER  
PROJECT 4816-00-00  
STA 11+90.00  
Y = 385,103.812  
X = 863,637.345  
LOCATED 12.49' NORTH AND 163.32' EAST OF  
THE SOUTH QUARTER CORNER OF SECTION 7,  
T 15 N, R 19 E.



FOUND ALUMINUM MONUMENT  
Y = 385,091.321  
X = 863,474.026

CONVENTIONAL SYMBOLS

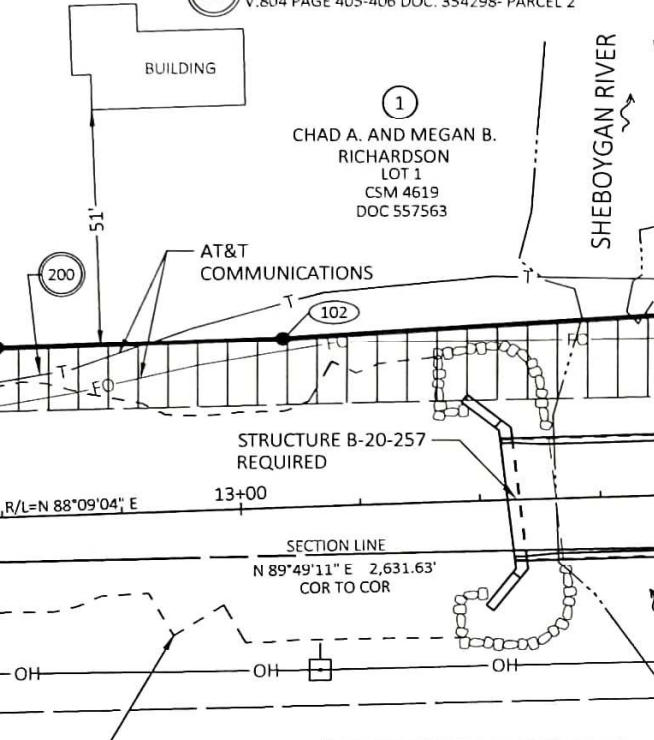
FOUND IRON PIPE/PIN (1" UNLESS NOTED)  
R/W MONUMENT  
R/W STANDARD  
SIGN  
SECTION CORNER MONUMENT  
SECTION CORNER SYMBOL  
FEE (HATCH VARIES)

TEMPORARY LIMITED EASEMENT  
PERMANENT LIMITED EASEMENT  
R/W BOUNDARY POINT  
PARCEL NUMBER  
UTILITY PARCEL NUMBER  
SIGN NUMBER (OFF PREMISE)  
BUILDING

SECTION LINE  
QUARTER LINE  
SIXTEENTH LINE  
NEW REFERENCE LINE  
NEW R/W LINE  
EXISTING R/W LINE  
PROPERTY LINE  
LOT & TIE  
CORPORATE LIMITS  
TEMPORARY LIMITED EASEMENT  
FENCE  
SLOPE INTERCEPTS  
PERMANENT LIMITED EASEMENT  
NO ACCESS (BY STATUTORY AUTHORITY)  
NO ACCESS (BY PREVIOUS ACQUISITION/CONTROL)  
ACCESS CONTROL BY ACQUISITION  
ACCESS RESTRICTED (BY PREVIOUS PROJECT/CONTROL)

FILE NAME : 0400001-RP.DWG  
APPRAISAL PLAT DATE: 6/29/2023

UTILITY INTERESTS REQUIRED		
UTILITY NUMBER	OWNER (S)	INTEREST REQUIRED
200	AT&T	RELEASE OF RIGHTS
200	AT&T (WISCONSIN TELEPHONE COMPANY) V.804 PAGE 405-406 DOC. 354298- PARCEL 2	



COURSE TABLE		
COURSE	BEARING	DISTANCE
SEC-R/L	N01°50'56"W	9.12'
R/L-100	N01°50'56"W	23.88'
100-101	N75°48'49"E	61.42'
101-102	N88°09'04"E	60.00'
102-103	N86°20'12"E	94.56'
103-104	N88°50'32"E	95.97'
104-105	N84°20'46"E	63.78'
105-106	S04°35'24"E	23.60'
106-107	N89°49'11"E	35.00'
107-R/L	S01°09'26"E	21.46'
R/L-SEC	S01°09'26"E	11.56'
SEC-108	S01°09'26"E	33.00'
108-109	S88°49'11"W	409.08'
109-SEC	N01°50'56"W	33.00'

CONVENTIONAL UTILITY SYMBOLS

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

W  
G  
T  
OH  
E  
TV  
FO  
SAN  
SS  
NON

POWER POLE  
TELEPHONE POLE  
TELEPHONE PEDESTAL  
ELECTRIC TOWER

W  
G  
T  
OH  
E  
TV  
FO  
SAN  
SS  
NON

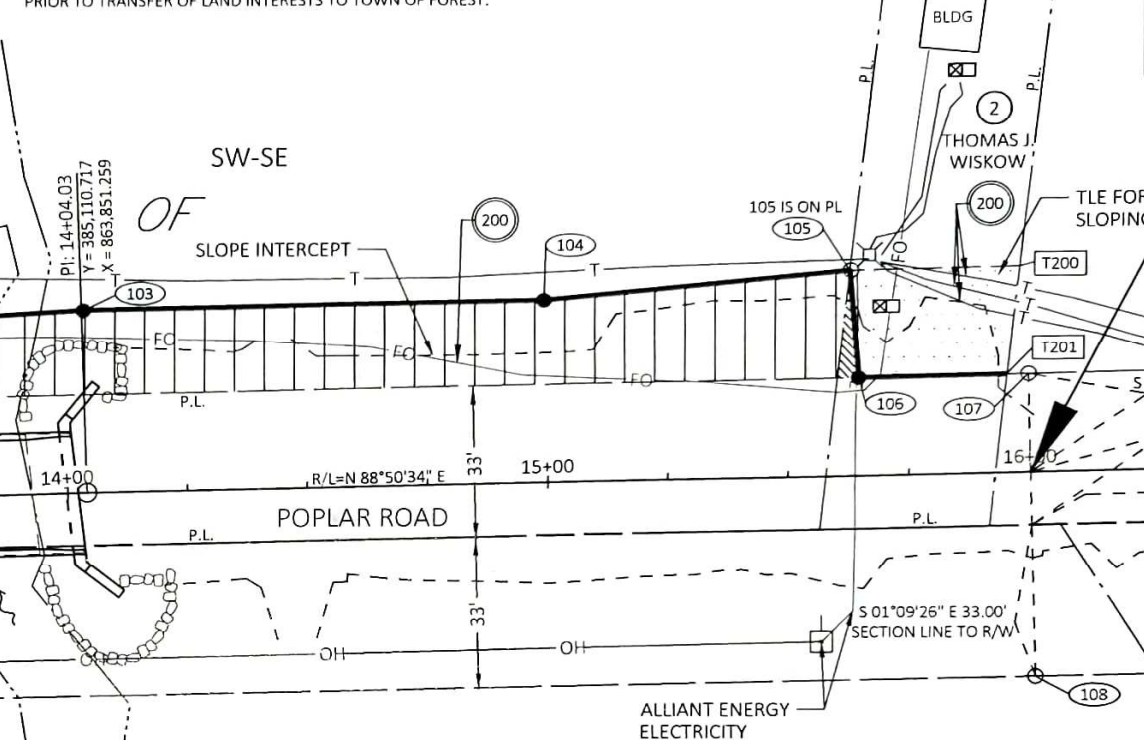
ACCESS POINT/  
DRIVEWAY CONNECTION  
ACCESS RIGHTS  
ACRES  
AND OTHERS  
CENTERLINE  
CERTIFIED SURVEY MAP  
CORNER  
DOCUMENT  
EASEMENT  
FIELD ENTRANCE  
LAND CONTRACT  
MONUMENT  
PAGE  
PERMANENT LIMITED EASEMENT  
PROPERTY LINE  
RECORDED AS

AP  
AR  
AC  
ET.AL.  
C/L  
CSM  
COR.  
DOC.  
EASE.  
F.E.  
LC  
MON.  
P.  
PLE  
PL  
(100')

BUILDING  
REFERENCE LINE  
RELEASE OF RIGHTS  
REMAINING  
RIGHT-OF-WAY  
SECTION  
STATION  
TEMPORARY LIMITED EASEMENT  
VOLUME  
CURVE DATA  
LONG CHORD  
LONG CHORD BEARING  
RADIUS  
DEGREE OF CURVE  
CENTRAL ANGLE OR DELTA  
LENGTH OF CURVE  
TANGENT

B  
R/L  
ROR  
REM.  
R/W  
SEC.  
STA.  
TLE  
V.  
LCH  
LCB  
R  
D  
DELTA  
L  
TAN

SCHEDULE OF LANDS & INTERESTS REQUIRED							
PARCEL NUMBER	OWNER (S)	INTERESTS REQUIRED	FEE R/W ACRES, REQUIRED			TLE ACRES	
			NEW	EXISTING	TOTAL		
1	CHAD A. AND MEGAN B. RICHARDSON	FEE	0.136	---	0.136	---	---
2	THOMAS J. WISKOW	FEE & TLE	0.001	0.027	0.028	0.018	---



R/W STATION & OFFSET TABLE					
POINT	STATION	OFFSET	Y COORDS	X COORDS	
100	11+90.00	23.87'	385127.676	863636.575	
101	12+50.00	37.00'	385142.728	863696.120	
102	13+10.00	37.00'	385144.664	863756.089	
103	14+04.03	40.00'	385150.706	863850.457	
104	15+00.00	40.00'	385152.645	863946.407	
105	15+63.59	45.00'	385158.929	864009.880	
106	15+65.00	21.44'	385135.406	864011.768	
107	16+00.00	21.46'	385136.127	864046.761	
108	16+00.00	44.54'	385070.140	863048.094	
109	11+90.00	42.13'	385061.706	863638.705	

CONVENTIONAL ABBREVIATIONS

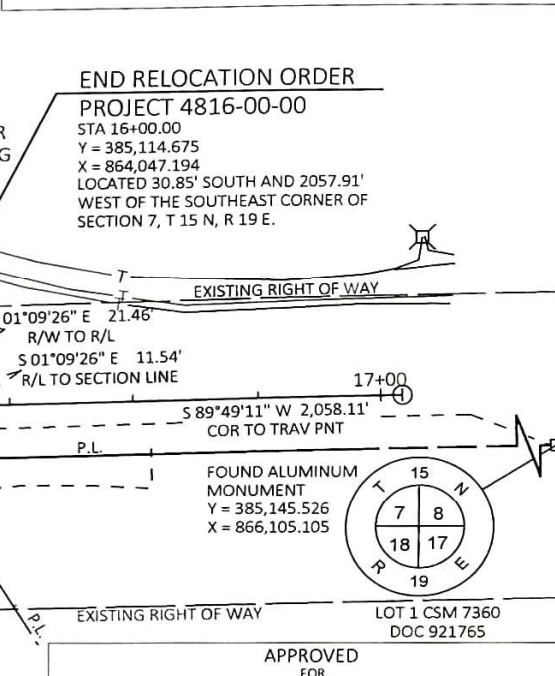
AP  
AR  
AC  
ET.AL.  
C/L  
CSM  
COR.  
DOC.  
EASE.  
F.E.  
LC  
MON.  
P.  
PLE  
PL  
(100')

BUILDING  
REFERENCE LINE  
RELEASE OF RIGHTS  
REMAINING  
RIGHT-OF-WAY  
SECTION  
STATION  
TEMPORARY LIMITED EASEMENT  
VOLUME  
CURVE DATA  
LONG CHORD  
LONG CHORD BEARING  
RADIUS  
DEGREE OF CURVE  
CENTRAL ANGLE OR DELTA  
LENGTH OF CURVE  
TANGENT

B  
R/L  
ROR  
REM.  
R/W  
SEC.  
STA.  
TLE  
V.  
LCH  
LCB  
R  
D  
DELTA  
L  
TAN

JAMES CAPPEART  
PLOT NAME :

R/W PROJECT NUMBER	4816-00-00	SHEET NUMBER	4.01	TOTAL SHEETS	1
FEDERAL PROJECT NUMBER					
PLAT OF RIGHT-OF-WAY REQUIRED FOR					
T FOREST, POPLAR ROAD SHEBOYGAN RIVER BRIDGE					
LOCAL ROAD					
FOND DU LAC COUNTY					
CONSTRUCTION PROJECT NUMBER					
4816-00-71					



APPROVED FOR  
TOWN OF FOREST

9-12-2023  
DATE

(SIGNATURE)

ENGINEERING, INC  
Consultant Services

THE SURVEY IS PREPARED AT THE REQUEST OF THE TOWN OF FOREST. THE TOPOGRAPHY AND UTILITY SURVEY WAS PERFORMED IN FEBRUARY 2022. THIS SURVEY IS ACCURATE TO THE BEST OF MY KNOWLEDGE AND BELIEF.

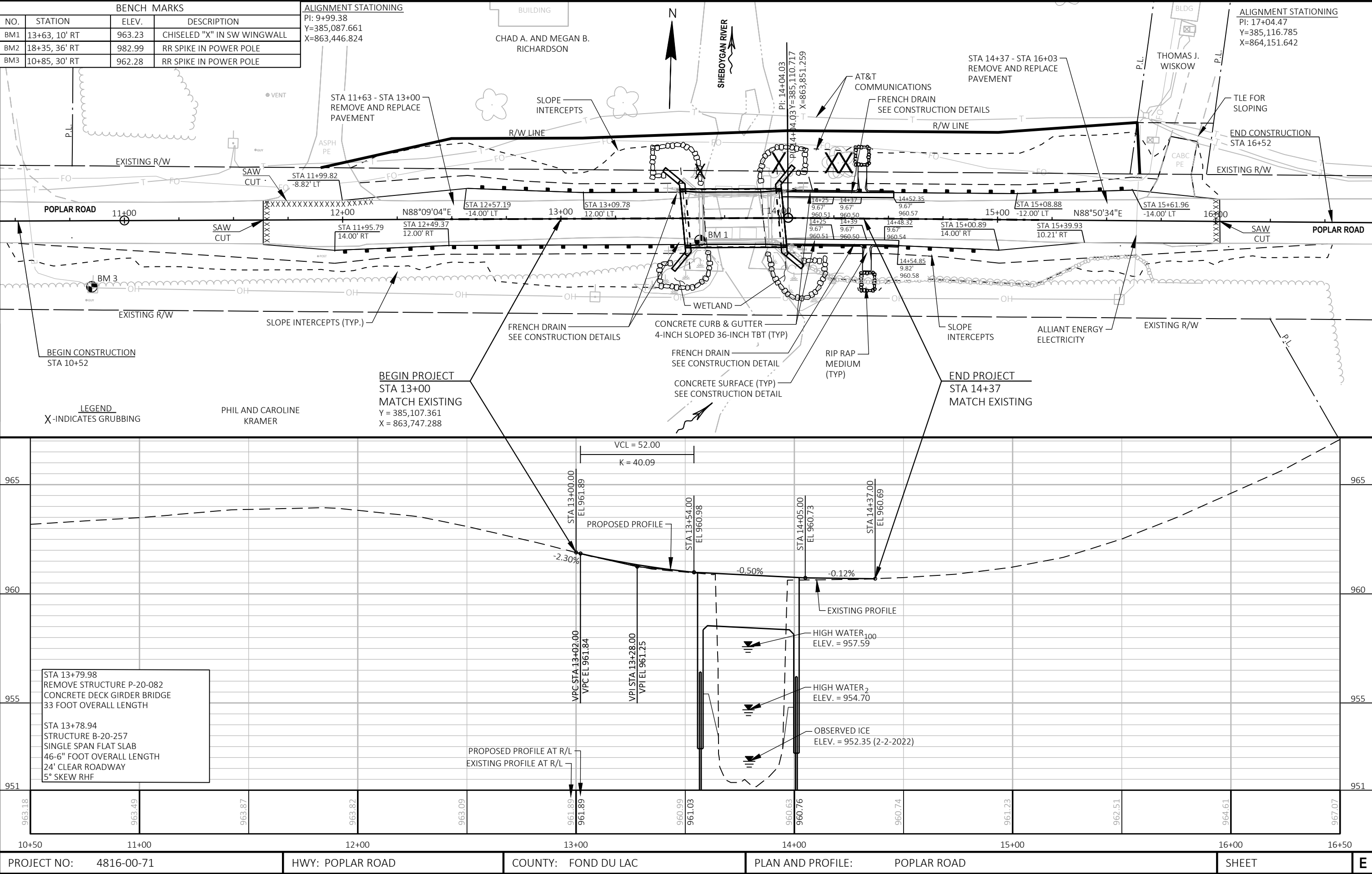
WISCONSIN  
James R. Cappeart  
S-3044  
Green Bay  
Wis.  
LAND SURVEYOR

6/29/2023  
DATE

JAMES CAPPEART  
REGISTRATION NUMBER S-3044

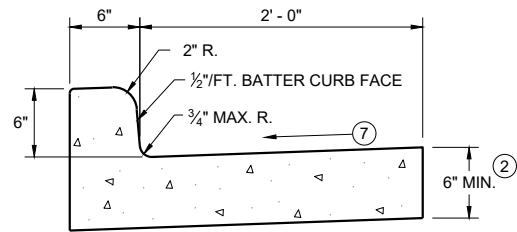
PLOT SCALE :



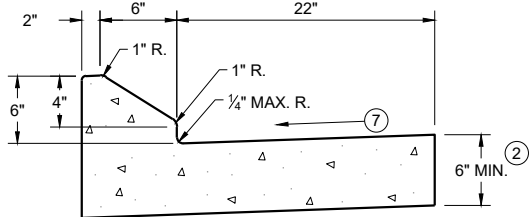


Standard Detail Drawing List

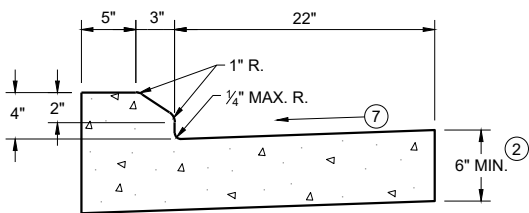
08D01-23A	CONCRETE CURB & GUTTER
08D01-23B	CONCRETE CURB, TIES AND CURB AND GUTTER APPLICATIONS
08D02-08A	CONCRETE SURFACE DRAINS FLUME TYPE AT STRUCTURES
08D02-08B	CONCRETE SURFACE DRAINS FLUME TYPE AT STRUCTURES
08D02-08C	CONCRETE SURFACE DRAINS FLUME TYPE AT STRUCTURES
08D21-01	DRIVEWAYS WITHOUT CURB & GUTTER
08E08-03	TYPICAL INSTALLATIONS OF EROSION BALES / TEMPORARY DITCH CHECKS
08E09-06	SILT FENCE
08E11-02	TURBIDITY BARRIER
08E15-01	CULVERT PIPE CHECK
12A03-10	NAME PLATE (STRUCTURES)
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)
15C02-09A	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C02-09B	BARRICADES AND SIGNS FOR VARIOUS CLOSURES
15C06-12	SIGNING & MARKING FOR TWO LANE BRIDGES
15C11-10A	CHANNELIZING DEVICES FLEXIBLE TUBULAR MARKER POST
15C11-10B	CHANNELIZING DEVICES DRUMS, CONES, BARRICADES AND VERTICAL PANELS



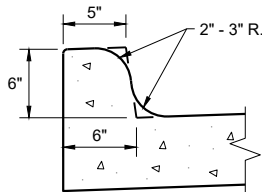
TYPES A<sup>①</sup> & D



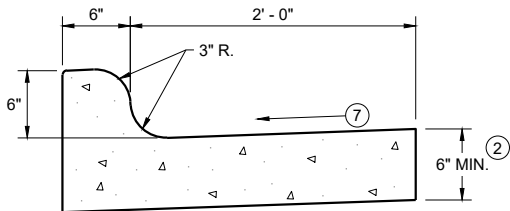
6" SLOPED CURB TYPES G<sup>①</sup> & J



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

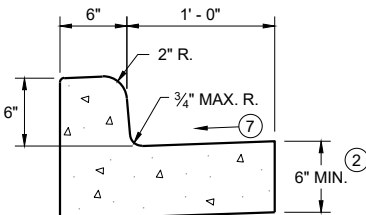


TYPES K<sup>①</sup> & L  
(OPTIONAL CURB SHAPE)



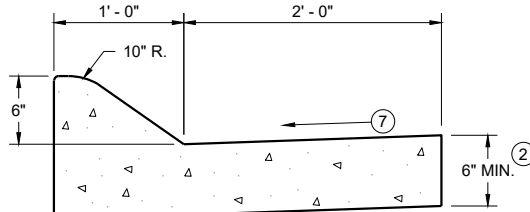
TYPES K<sup>①</sup> & L

CONCRETE CURB AND GUTTER 30"

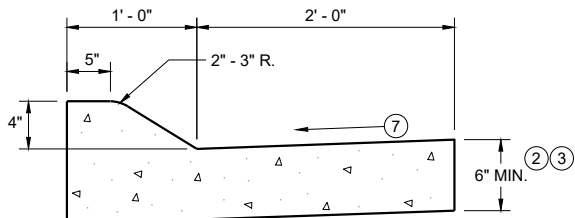


TYPES A<sup>①</sup> & D

CONCRETE CURB AND GUTTER 18"

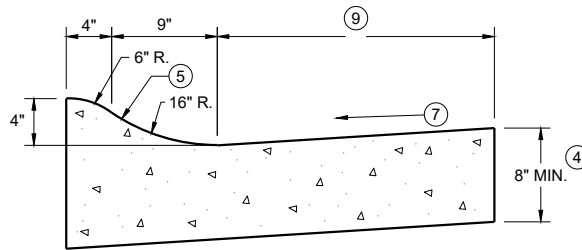


6" SLOPED CURB TYPES A<sup>①</sup> & D



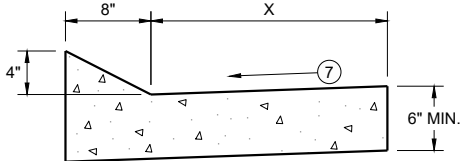
4" SLOPED CURB TYPES A<sup>①</sup> & D

CONCRETE CURB AND GUTTER 36"



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

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

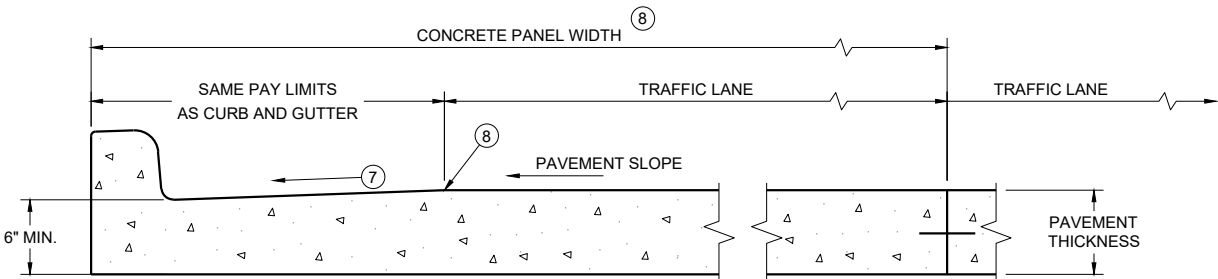


TYPES TBT & TBTT<sup>①</sup>

CONCRETE CURB AND GUTTER

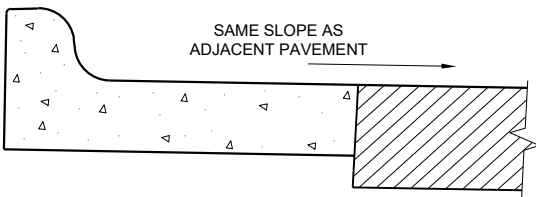
PAVEMENT THICKNESS  
AND MAXIMUM CONCRETE  
PANEL WIDTH TABLE

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)

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.

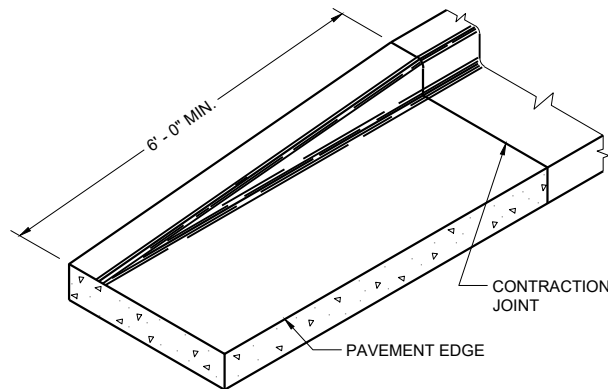
INTEGRAL CURB AND GUTTER SHALL CONFORM TO THE DETAILS SHOWN FOR CONCRETE CURB AND GUTTER INCLUDING THE TRANSVERSE GUTTER SLOPE.

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

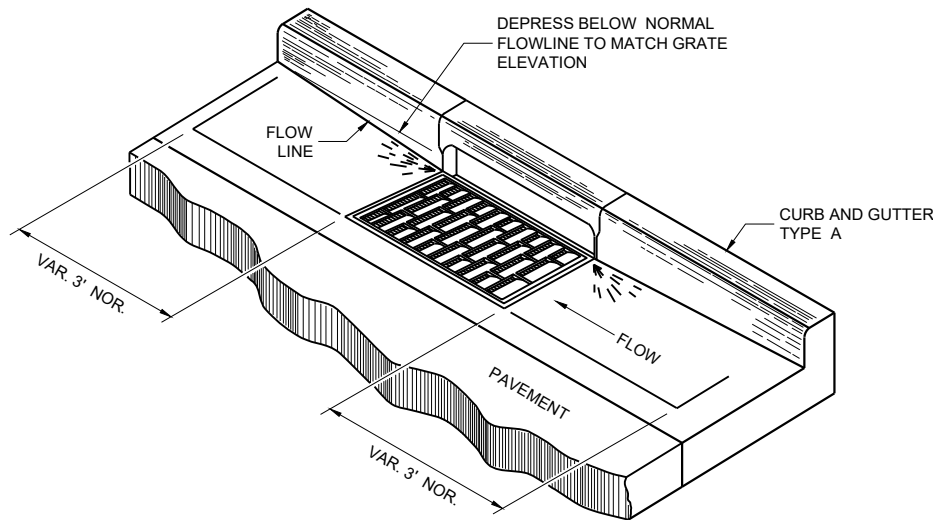
- ① TIE BARS ARE REQUIRED FOR CURB AND GUTTERS TYPES A, G, K, R, AND TBTT.
- ② THE BOTTOM OF CURB AND GUTTER MAY BE CONSTRUCTED EITHER LEVEL OR PARALLEL TO THE SLOPE OF THE SUBGRADE OR BASE AGGREGATE PROVIDED A 6" MINIMUM GUTTER THICKNESS IS MAINTAINED.
- ③ USE 8" MINIMUM GUTTER THICKNESS WHEN USED WITH 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 CONCRETE CURB AND GUTTER 4-INCH SLOPED 30-INCH TYPE "R" AND "T" = 17 INCHES  
CONCRETE CURB AND GUTTER 4-INCH SLOPED 36-INCH TYPE "R" AND "T" = 23 INCHES

CONCRETE CURB AND GUTTER

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

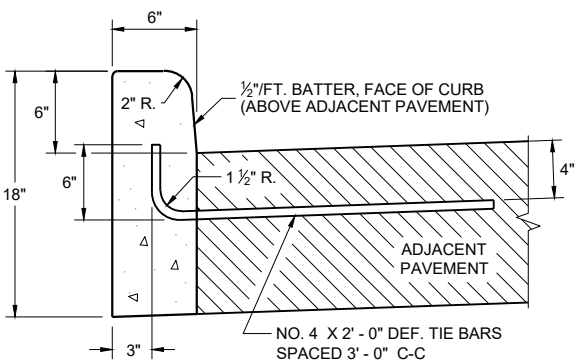


END SECTION CURB AND GUTTER

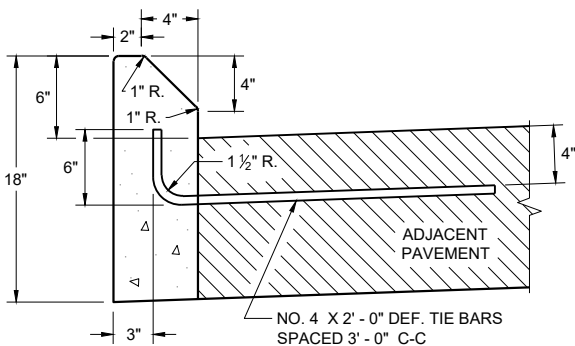


DETAIL OF CURB AND GUTTER AT INLETS

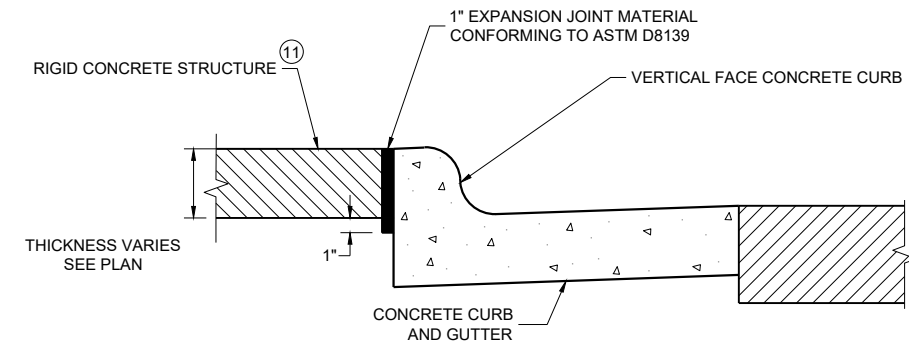
(TYPICAL H INLET COVER SHOWN)



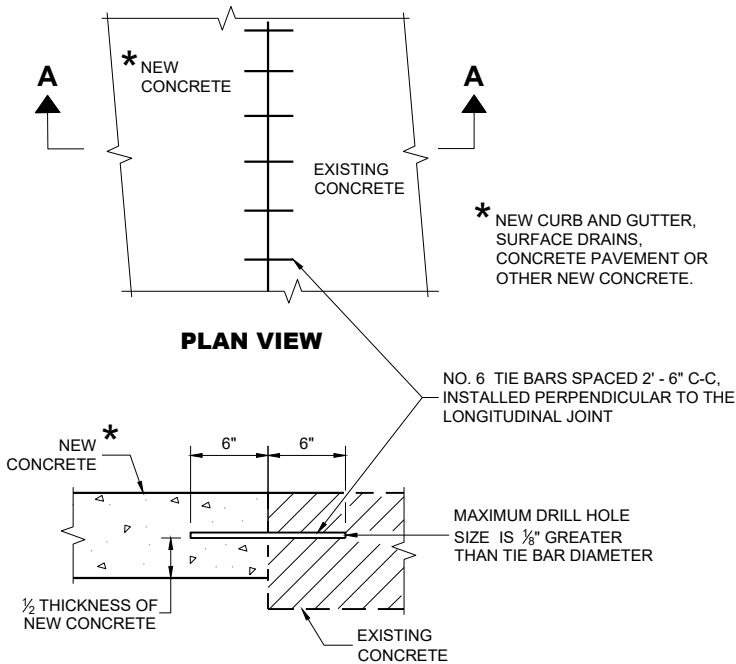
TYPES A<sup>①</sup> & D



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



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



SECTION A - A  
TIE BARS DRILLED INTO EXISTING PAVEMENT

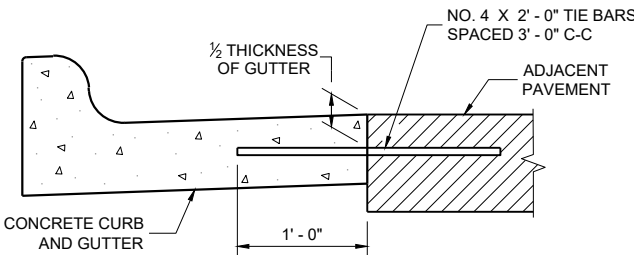
GENERAL NOTES

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

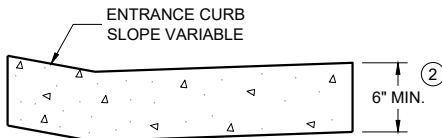
PAVEMENT TIES AND TIE BARS SHALL BE EPOXY COATED IN CONFORMANCE WITH SUBSECTION 505.2.6.2 OF THE STANDARD SPECIFICATIONS.

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.



TYPICAL TIE BAR LOCATION<sup>①</sup>



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

CONCRETE CURB, TIES  
AND CURB AND GUTTER  
APPLICATIONS

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
May 2023 /S/ Rodney Taylor  
DATE ROADWAY STANDARDS DEVELOPMENT  
FHWA UNIT SUPERVISOR

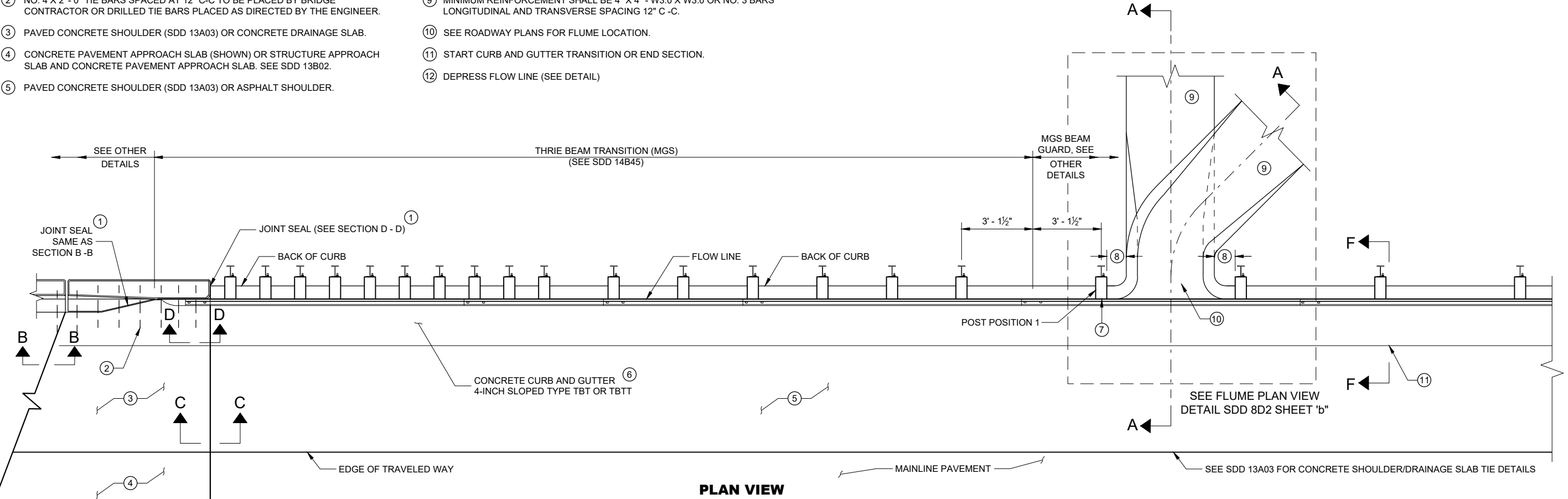
GENERAL NOTES

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

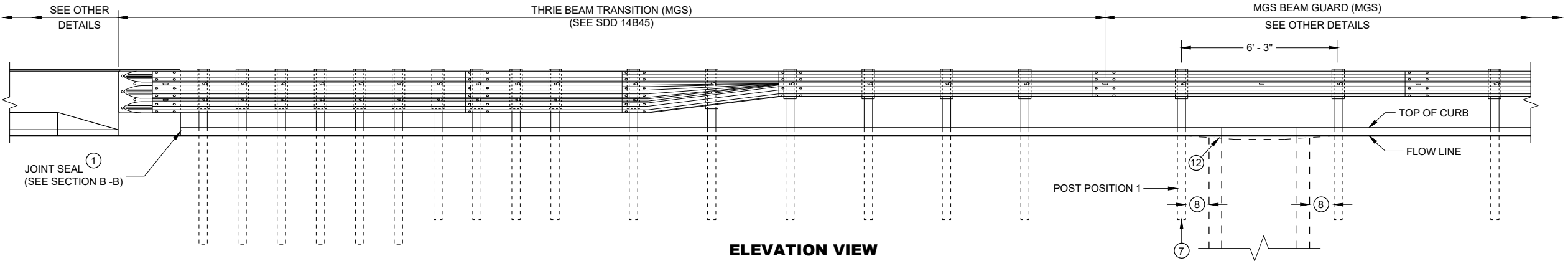
ALL STEEL REINFORCEMENT SHALL BE EMBEDDED 2 INCHES CLEAR UNLESS OTHERWISE SHOWN OR NOTED.

- 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)



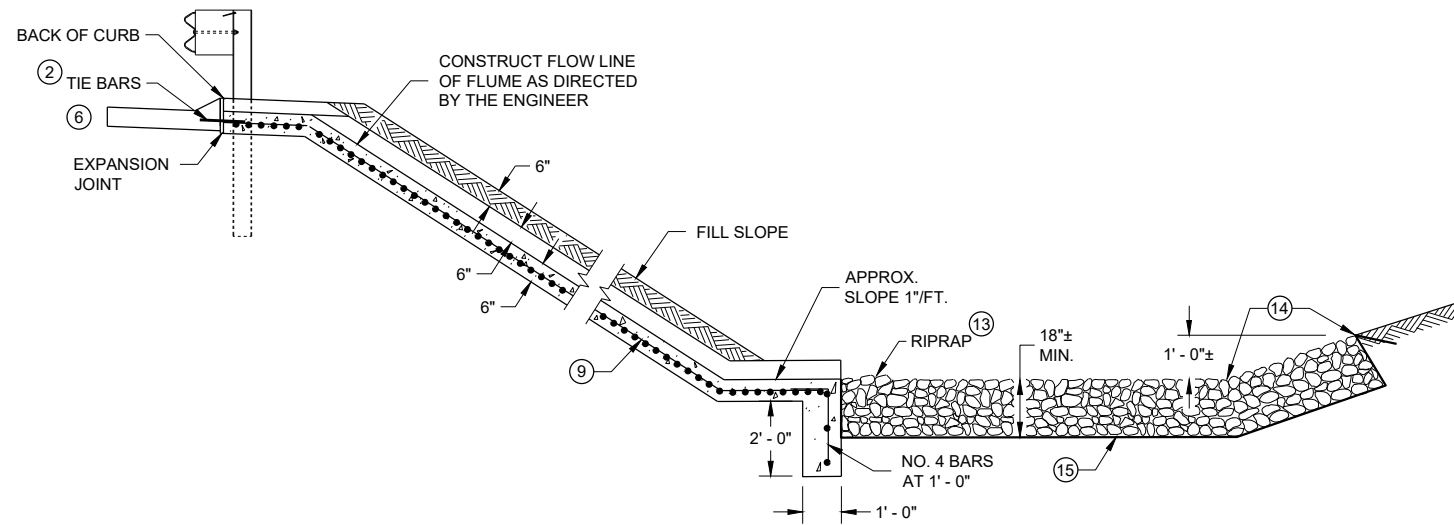
PLAN VIEW



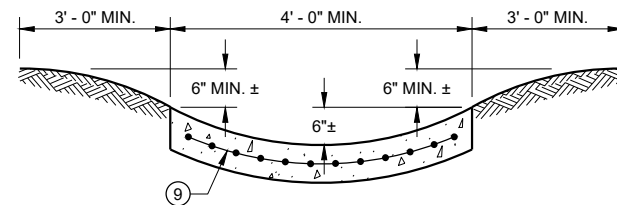
ELEVATION VIEW

CONCRETE SURFACE  
DRAINS FLUME TYPE  
AT STRUCTURES

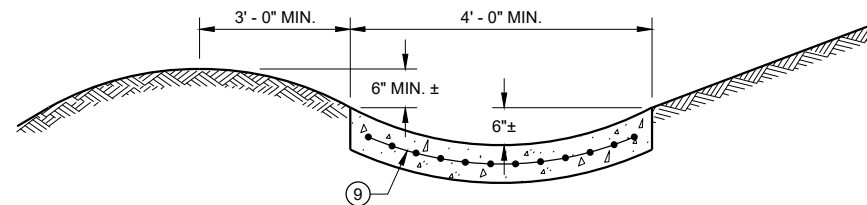
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



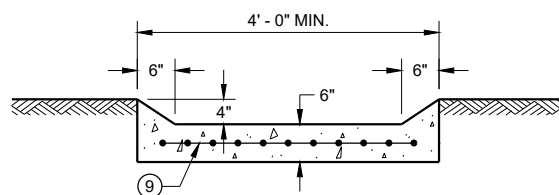
SECTION A - A



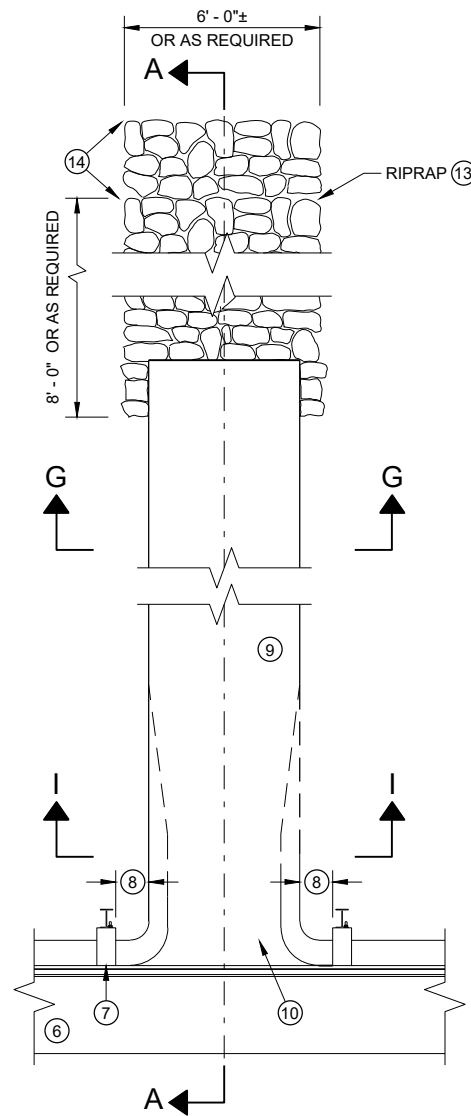
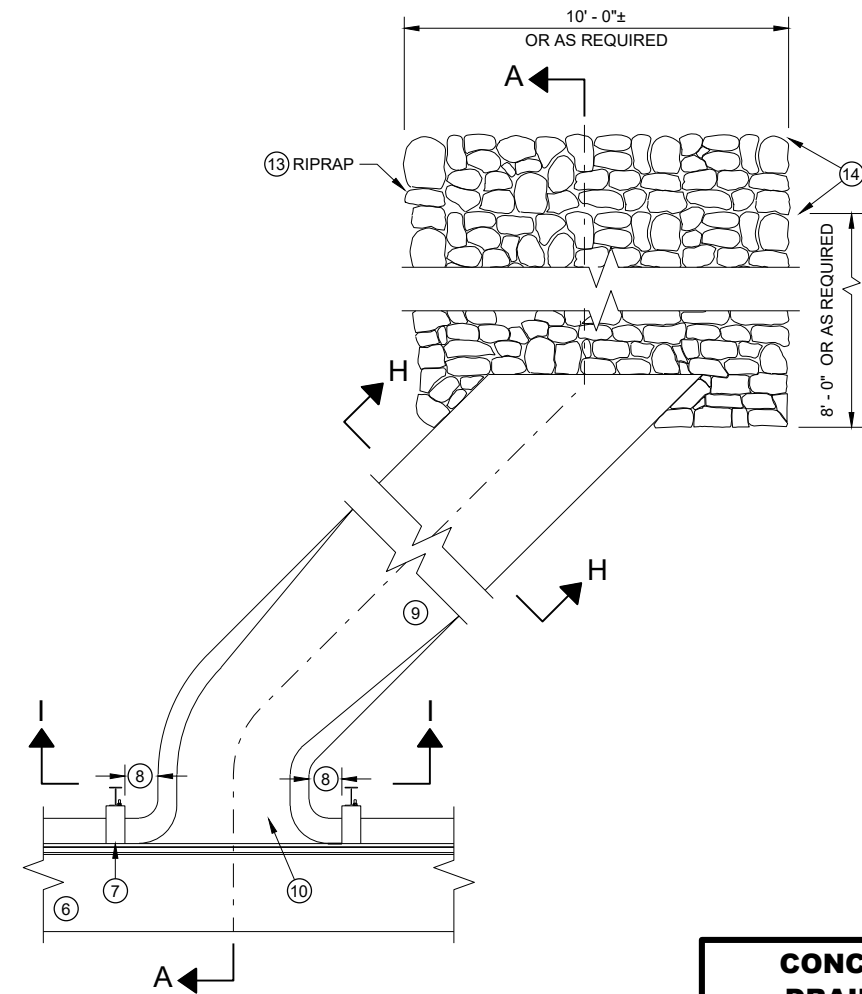
SECTION G - G



SECTION H - H



SECTION I - I

PLAN VIEW  
PERPENDICULAR FLUMEPLAN VIEW  
SKEWED FLUME

## GENERAL NOTES

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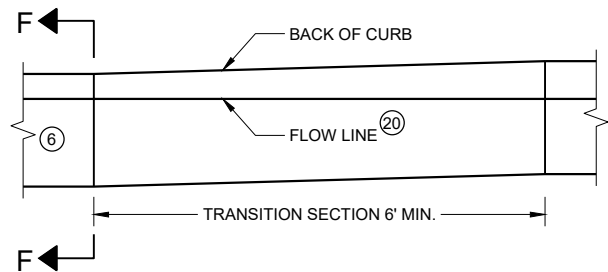
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- ⑤ PAVED CONCRETE SHOULDER (SDD 13A03) OR ASPHALT SHOULDER.
- ⑥ CONCRETE CURB AND GUTTER 4-INCH SLOPED 36-INCH TYPE TBT OR TBT. USE TYPE TBT CURB WITH NO. 4 X 2' - 0" TIE BARS SPACED AT 3' - 0" C-C ONLY WHEN ADJACENT TO CONCRETE PAVEMENTS.

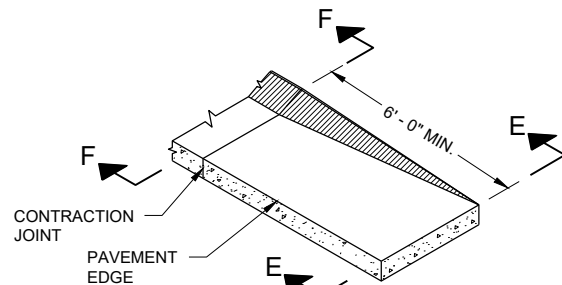
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- ⑧ CENTER FLUME BETWEEN POSTS. 6-INCH MINIMUM SEPARATION FROM OUTSIDE EDGE OF FLUME TO POSTS.
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- ⑩ SEE ROADWAY PLANS FOR FLUME LOCATION.
- ⑪ START CURB AND GUTTER TRANSITION OR END SECTION.
- ⑫ DEPRESS 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**

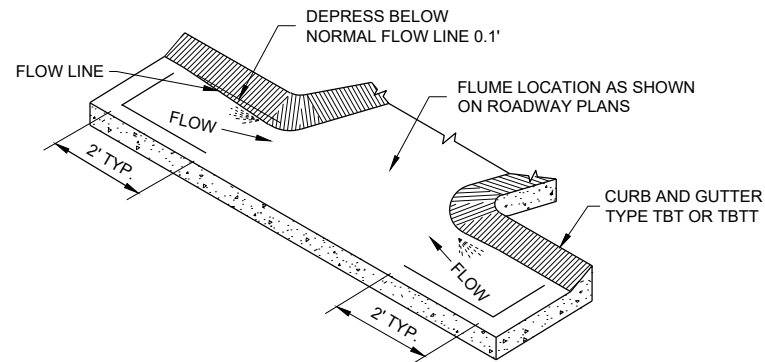
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



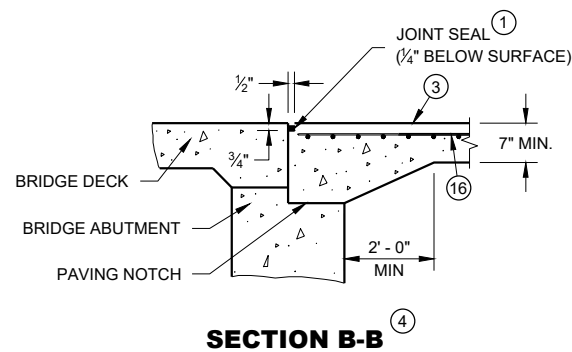
**CURB AND GUTTER TRANSITION SECTION  
CONCRETE CURB AND GUTTER 4-INCH SLOPED  
36 INCH TYPE TBT OR TBTT**



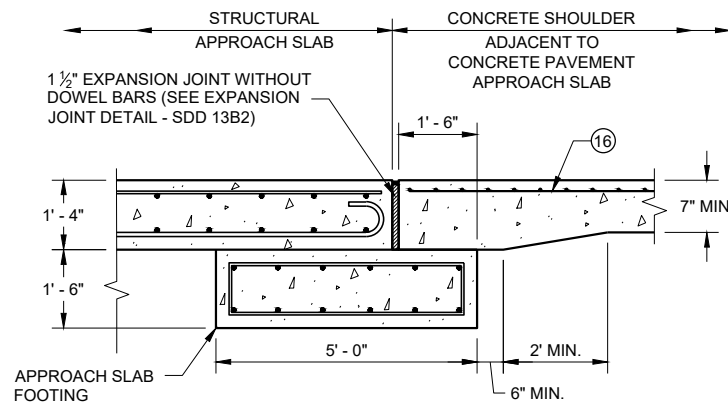
**CURB AND GUTTER END SECTION  
CONCRETE CURB AND GUTTER 4-INCH SLOPED  
36 INCH TYPE TBT OR TBTT**



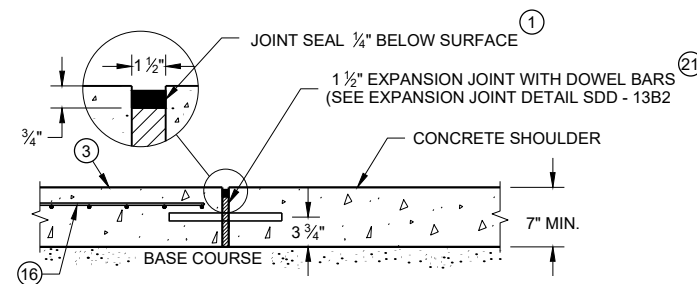
**CURB AND GUTTER FLOW LINE DEPRESSION  
AT FLUMES CONCRETE CURB AND GUTTER  
4-INCH SLOPED 36 INCH TYPE TBT OR TBTT**



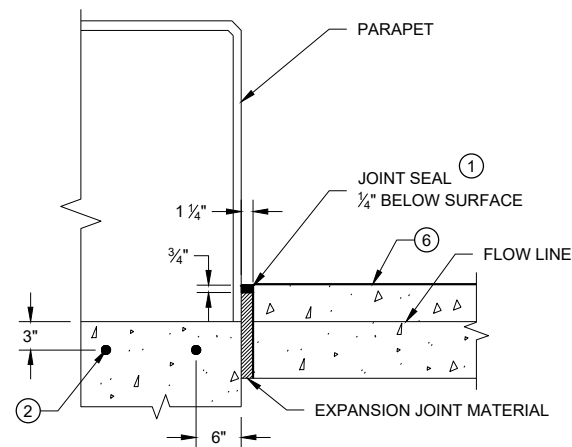
**SECTION B-B**



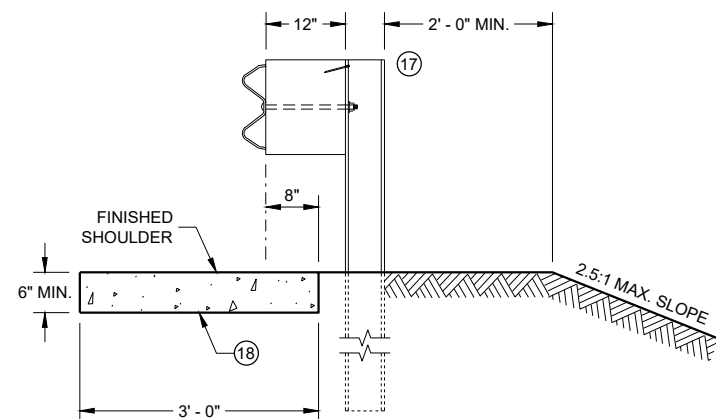
**SECTION C - C  
JOINT DETAIL FOR BRIDGE WITH STRUCTURAL  
APPROACH SLAB AND CONCRETE APPROACH SLAB**



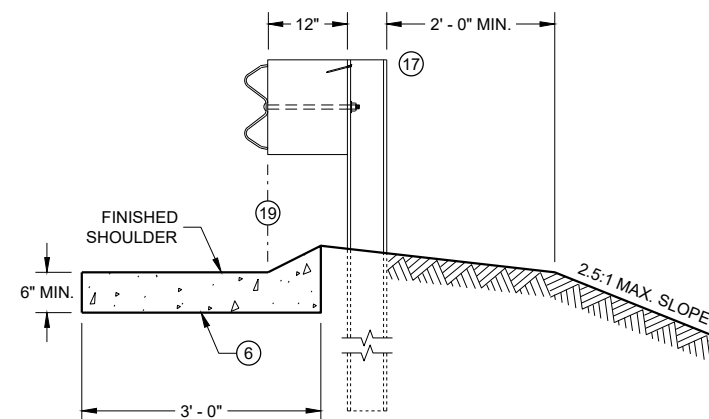
**SECTION C - C  
JOINT DETAIL FOR BRIDGE APPROACH  
WITH CONCRETE SHOULDERS**



**SECTION D - D**



**SECTION E - E**



**SECTION F - F**

## GENERAL NOTES

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- 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

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED

May 2023

DATE

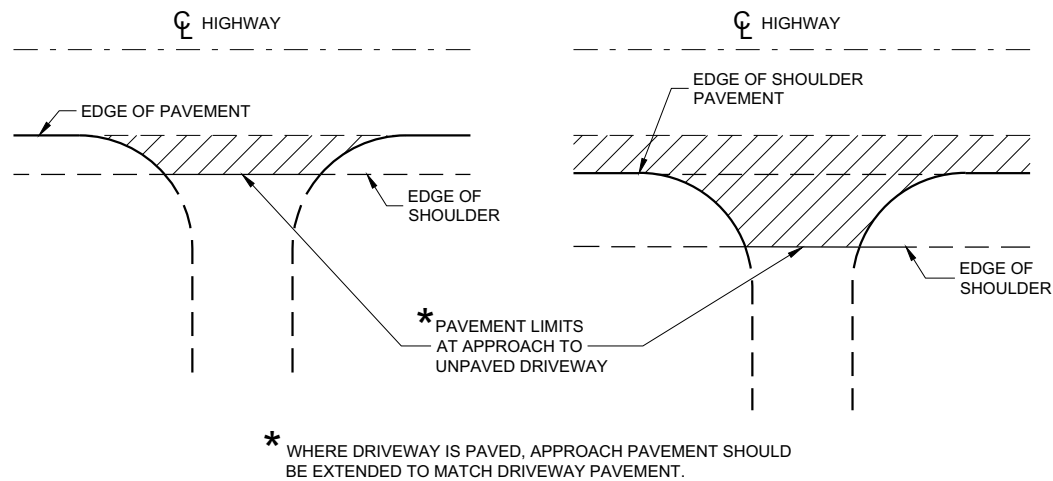
FHWA

/S/ Rodney Taylor

ROADWAY STANDARDS DEVELOPMENT

ENGINEER

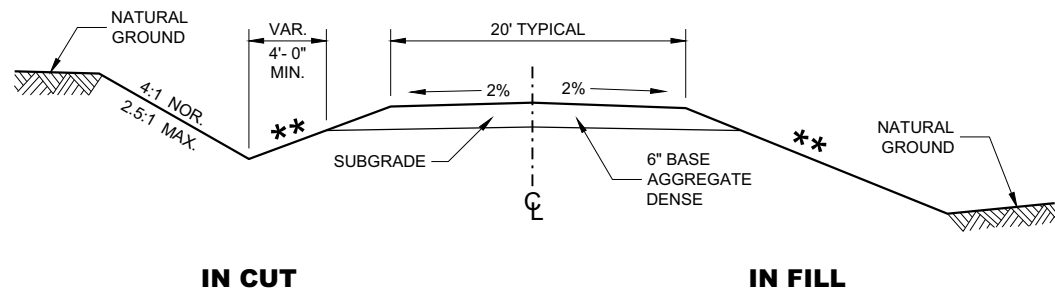




**PLAN VIEW**  
(UNPAVED SHOULDER ON HIGHWAY)

**PLAN VIEW**  
(PAVED SHOULDER ON HIGHWAY)

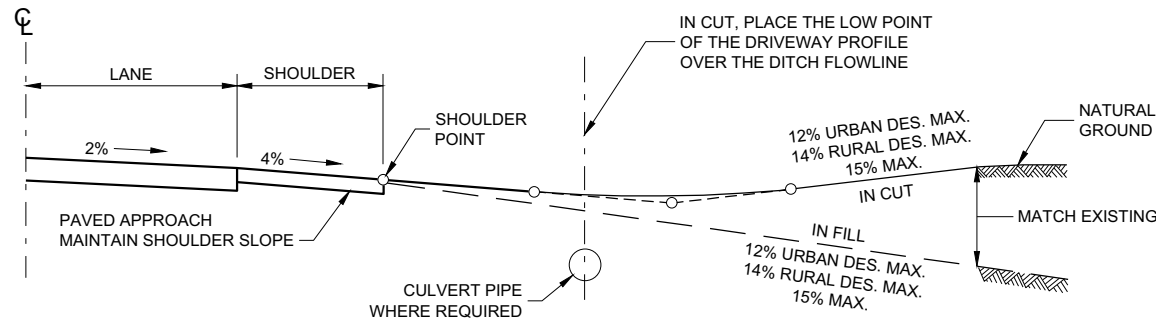
**RURAL DRIVEWAY INTERSECTION DETAIL  
(NO CURB AND GUTTER OR SIDEWALK)**



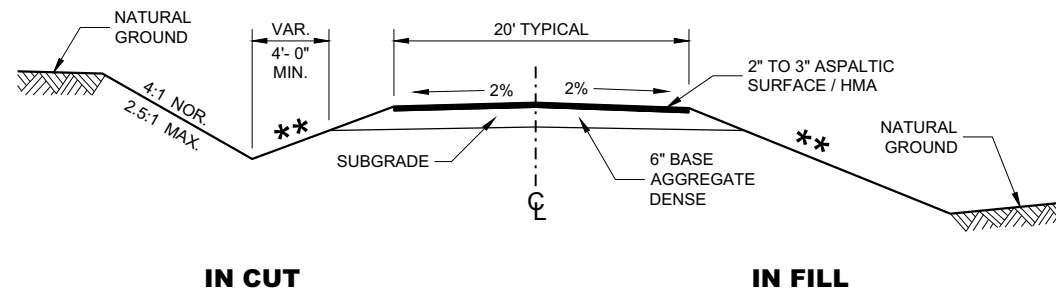
**TYPICAL CROSS SECTION FOR  
PRIVATE DRIVE OR FIELD ENTRANCE  
AGGREGATE SURFACE**

**\*\*** SLOPE CAN VARY WITH SPEED. SEE 11-45-30.6.2

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



**TYPICAL DRIVEWAY PROFILES**



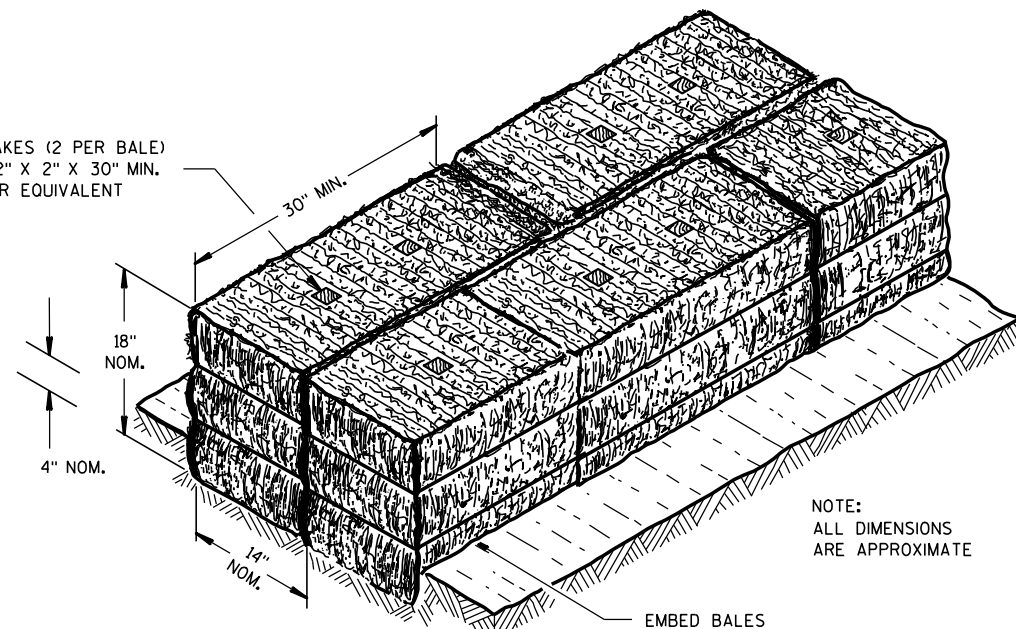
**TYPICAL CROSS SECTION FOR  
PRIVATE DRIVE OR FIELD ENTRANCE  
ASPHALTIC SURFACE**

**DRIVEWAYS WITHOUT  
CURB AND GUTTER**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

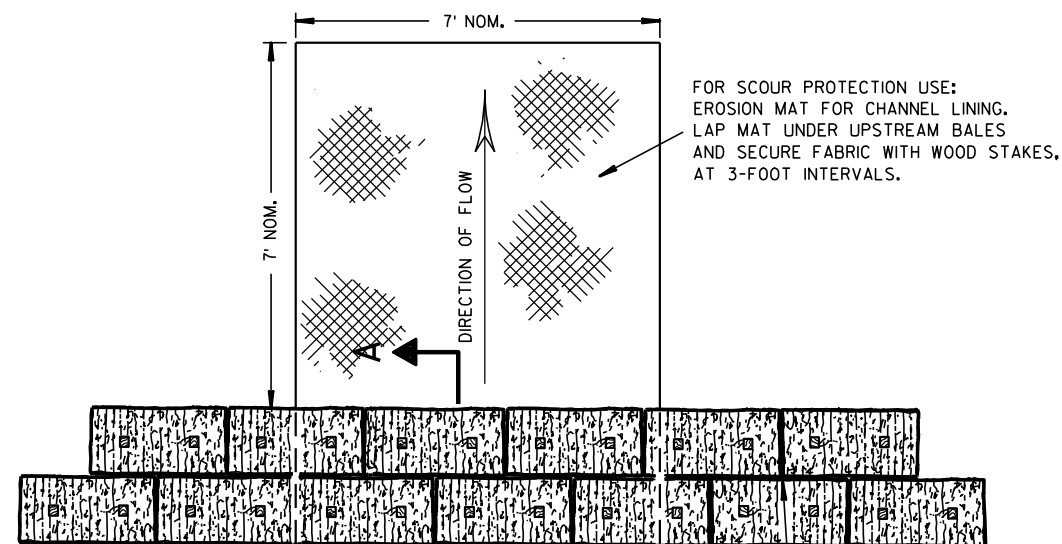
APPROVED  
December 2017  
DATE /S/ Rodney Taylor  
ROADWAY STANDARDS DEVELOPMENT  
UNIT SUPERVISOR  
FHWA

WOOD STAKES (2 PER BALE)  
NOMINAL 2" X 2" X 30" MIN.  
LENGTH OR EQUIVALENT



NOTE:  
ALL DIMENSIONS  
ARE APPROXIMATE

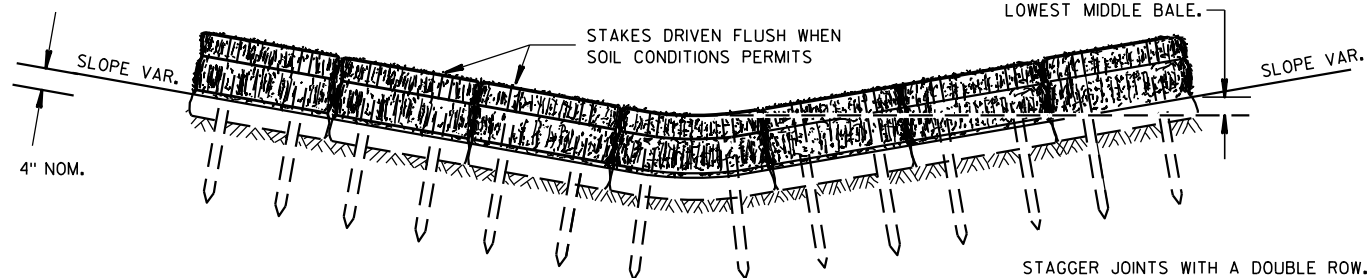
SECTION A-A



PLAN VIEW

STAGGER JOINTS BETWEEN ADJACENT  
ROWS OF BALES.

BOTTOM ELEVATION OF END BALE SHALL  
BE EQUAL TO OR GREATER THAN TOP OF  
LOWEST MIDDLE BALE.



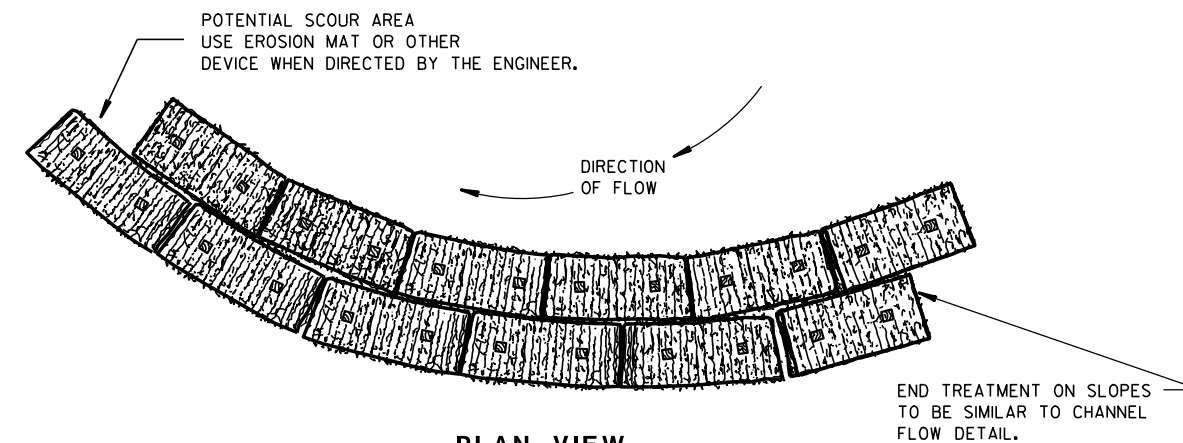
FRONT ELEVATION

TEMPORARY DITCH CHECK USING EROSION BALES ①

## GENERAL NOTES

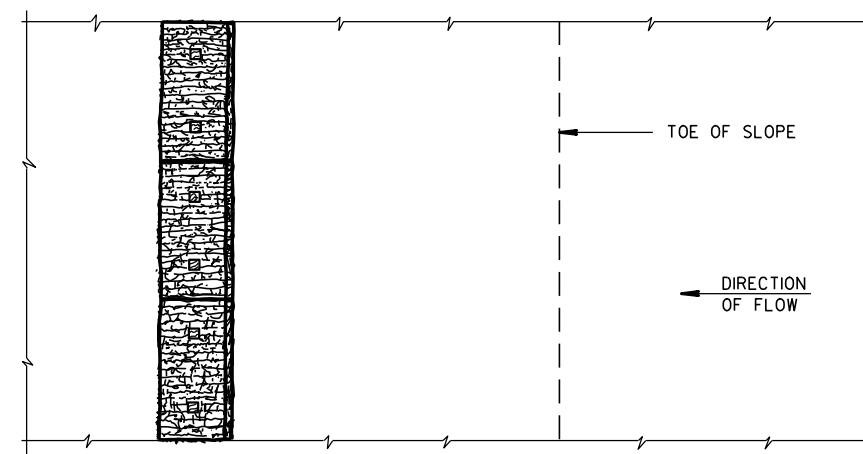
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- ① TEMPORARY DITCH CHECKS EITHER EROSION BALES OR MANUFACTURED SHALL BE PAID FOR UNDER THE BID ITEM OF TEMPORARY DITCH CHECK. THE DEPARTMENT WILL NOT PAY FOR TEMPORARY DITCH CHECKS CONSTRUCTED OF A SINGLE ROW OF EROSION BALES.

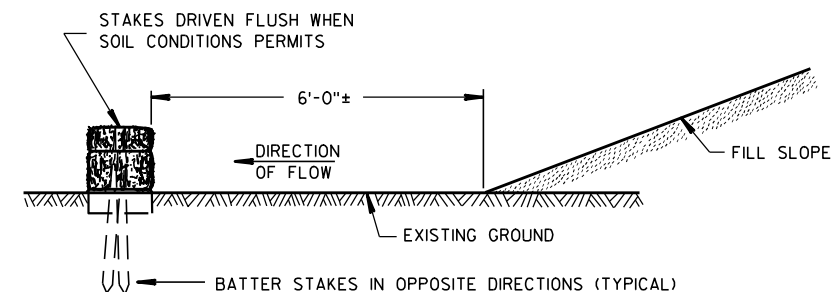


PLAN VIEW

WHEN ALTERING THE DIRECTION OF FLOW



PLAN VIEW



FRONT ELEVATION

WHEN EXISTING GROUND SLOPES AWAY FROM FILL SLOPE

EROSION BALES FOR SHEET FLOW

TYPICAL INSTALLATIONS OF  
EROSION BALES / TEMPORARY  
DITCH CHECKS

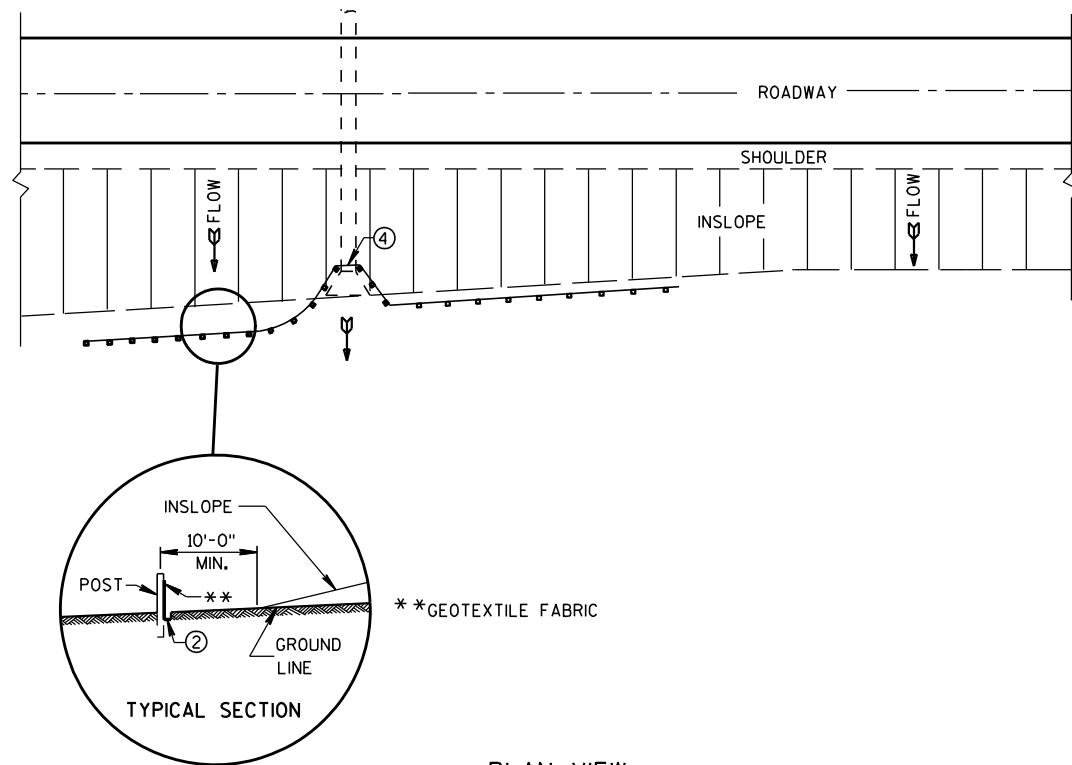
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED

6/04/02  
DATE

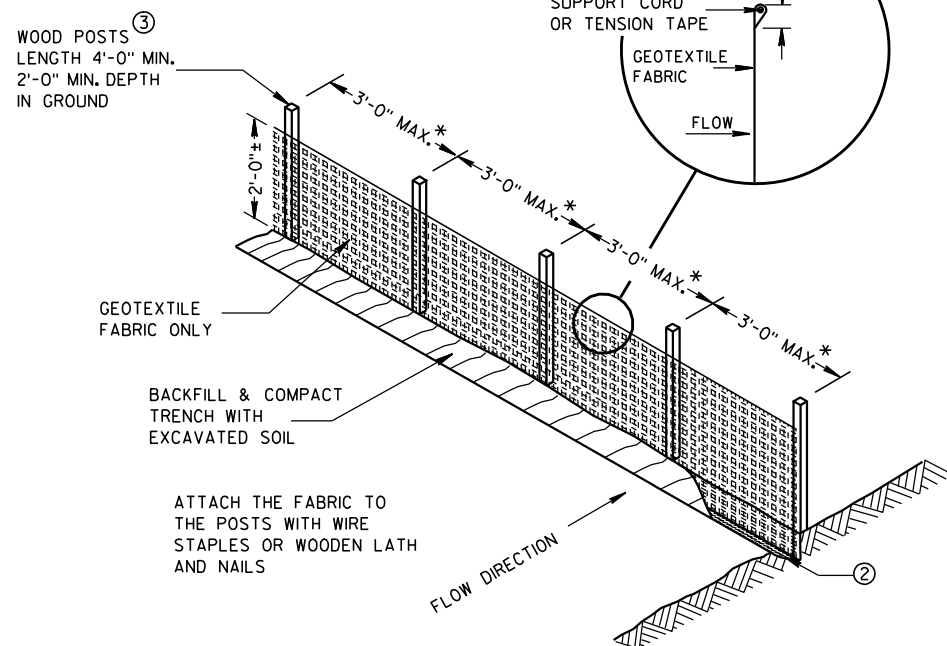
FHWA

/S/ Beth Canestra  
CHIEF ROADWAY DEVELOPMENT ENGINEER

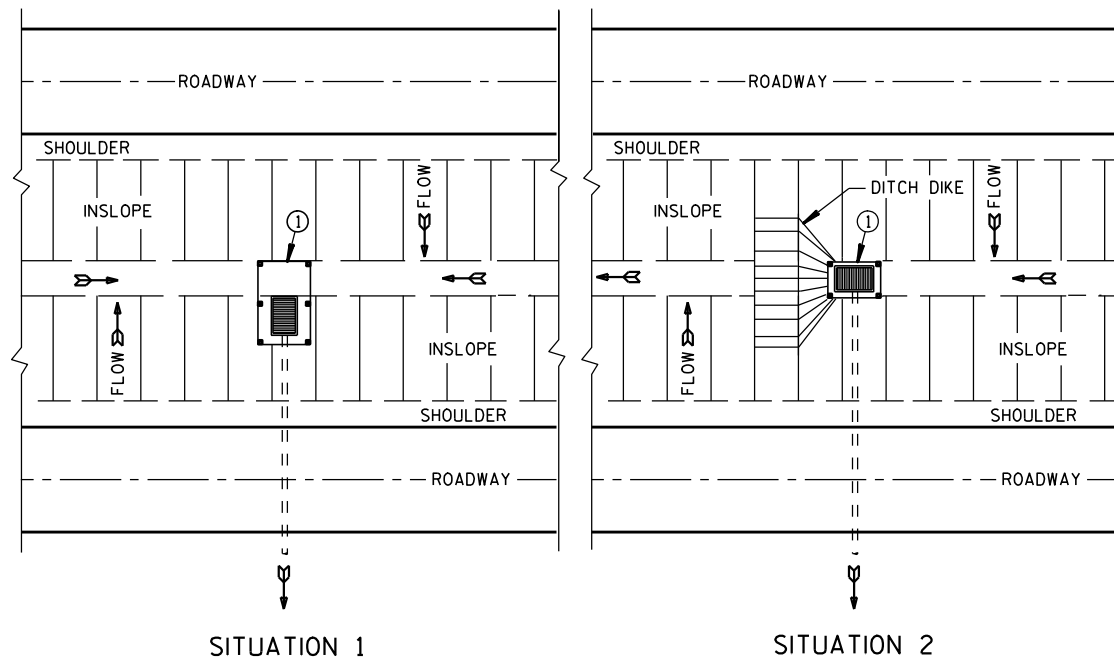


PLAN VIEW  
TYPICAL APPLICATION OF SILT FENCE

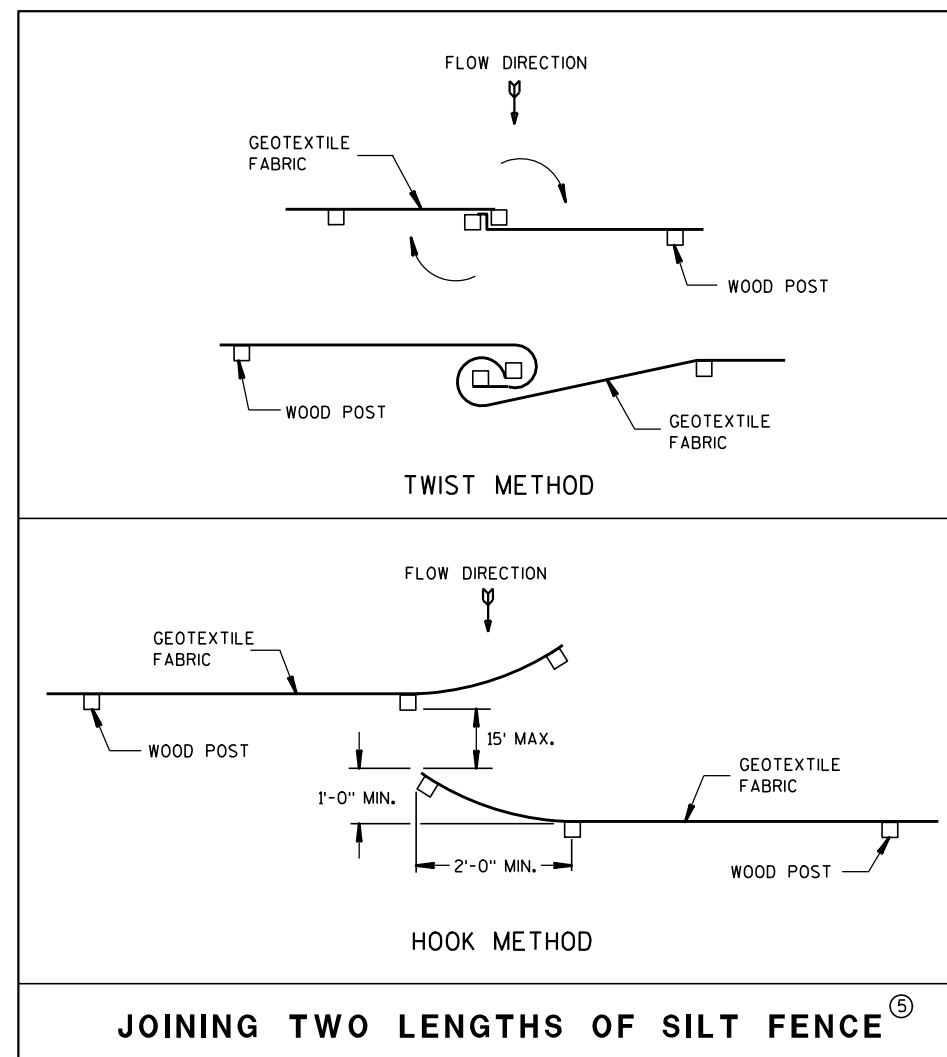
NOTE: ADDITIONAL POST DEPTH OR TIE BACKS  
MAY BE REQUIRED IN UNSTABLE SOILS



SILT FENCE



PLAN VIEW  
SILT FENCE AT MEDIAN SURFACE DRAINS

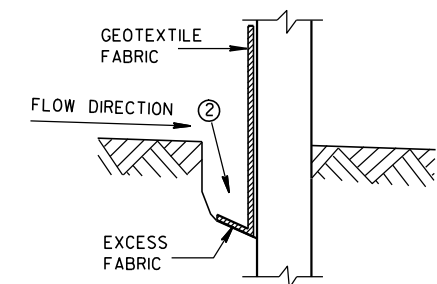


JOINING TWO LENGTHS OF SILT FENCE<sup>⑤</sup>

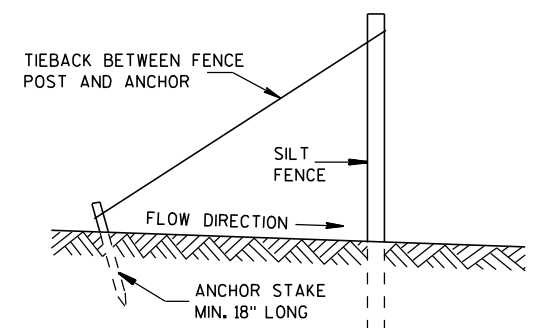
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- ① HORIZONTAL BRACE REQUIRED WITH 2" X 4" WOODEN FRAME OR EQUIVALENT AT TOP OF POSTS.
- ② FOR MANUAL INSTALLATIONS THE TRENCH SHALL BE A MINIMUM OF 4" WIDE & 6" DEEP TO BURY AND ANCHOR THE GEOTEXTILE FABRIC. FOLD MATERIAL TO FIT TRENCH AND BACKFILL & COMPACT TRENCH WITH EXCAVATED SOIL.
- ③ WOOD POSTS SHALL BE A MINIMUM SIZE OF 1 1/8" X 1 1/8" OF OAK OR HICKORY.
- ④ SILT FENCE TO EXTEND ACROSS THE TOP OF THE PIPE.
- ⑤ CONSTRUCT SILT FENCE FROM A CONTINUOUS ROLL IF POSSIBLE BY CUTTING LENGTHS TO AVOID JOINTS. IF A JOINT IS NECESSARY USE ONE OF THE FOLLOWING TWO METHODS; A) OVERLAP THE END POSTS AND TWIST, OR ROTATE, AT LEAST 180 DEGREES, B) HOOK THE END OF EACH SILT FENCE LENGTH.



TRENCH DETAIL



SILT FENCE TIE BACK  
(WHEN REQUIRED BY THE ENGINEER)

## SILT FENCE

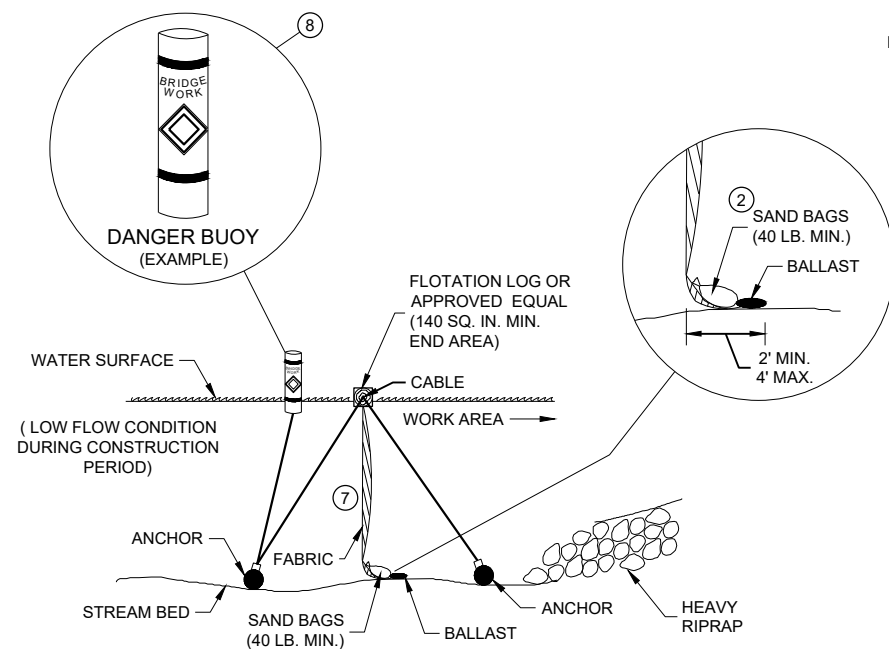
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED

4-29-05  
DATE

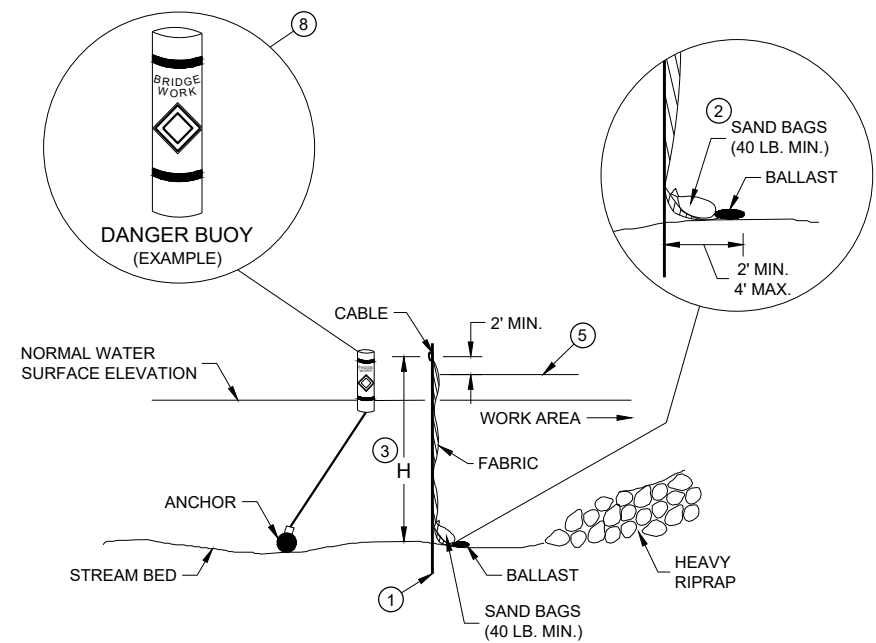
FHWA

/S/ Beth Canestra  
CHIEF ROADWAY DEVELOPMENT ENGINEER



SECTION B - B

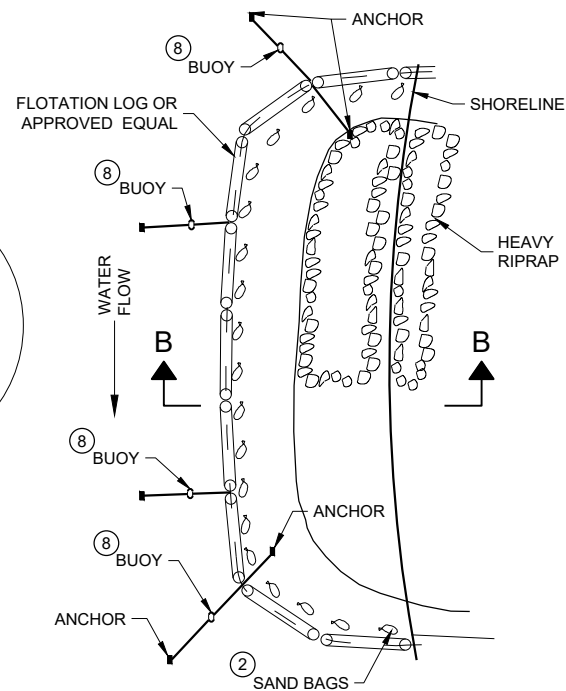
### TURBIDITY BARRIER - FLOAT ALTERNATIVE CAUTION - SEE NOTE 6



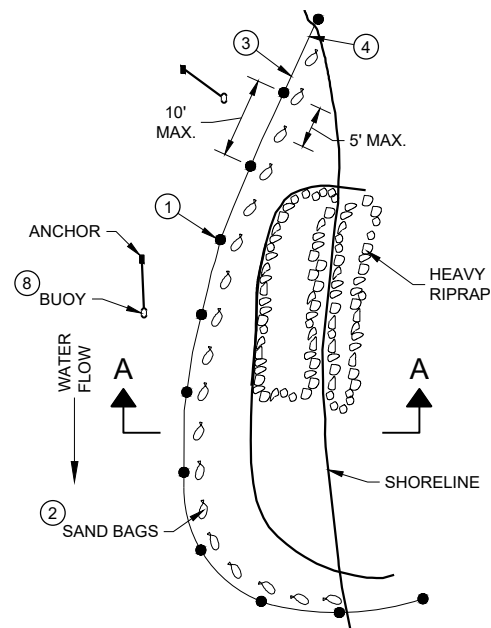
SECTION A - A

### TURBIDITY BARRIER - STANDARD POST INSTALLATION

### TURBIDITY BARRIER PLACEMENT DETAILS



PLAN VIEW



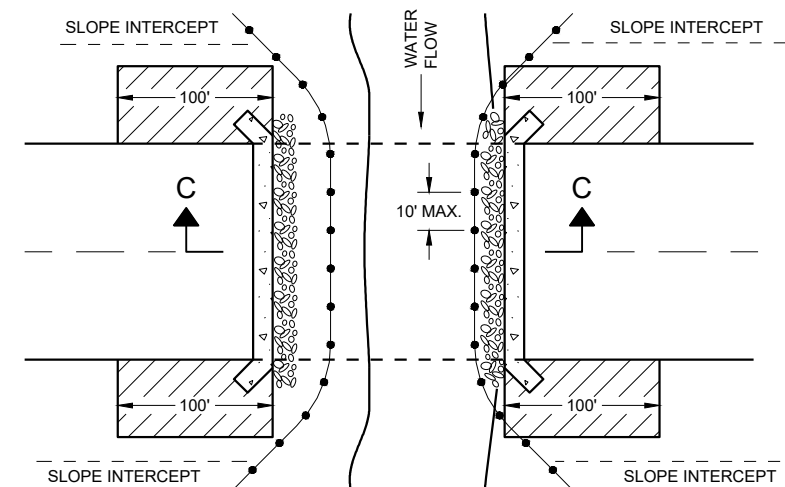
PLAN VIEW

### GENERAL NOTES

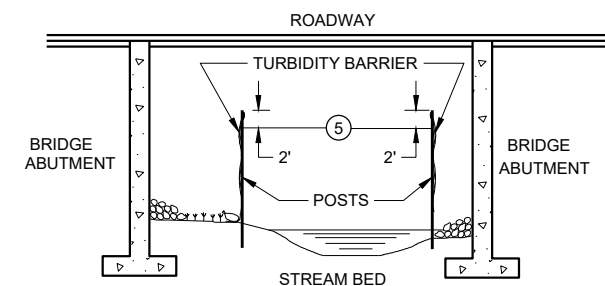
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TURBIDITY BARRIER MAY BE REMOVED AT THE ENGINEERS DISCRETION, WHEN PERMANENT EROSION CONTROL MEASURES HAVE BEEN ESTABLISHED.

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



PLAN VIEW



SECTION C - C

### TURBIDITY BARRIER DETAIL SHOWING TYPICAL PLACEMENT AT STRUCTURES

### TURBIDITY BARRIER

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

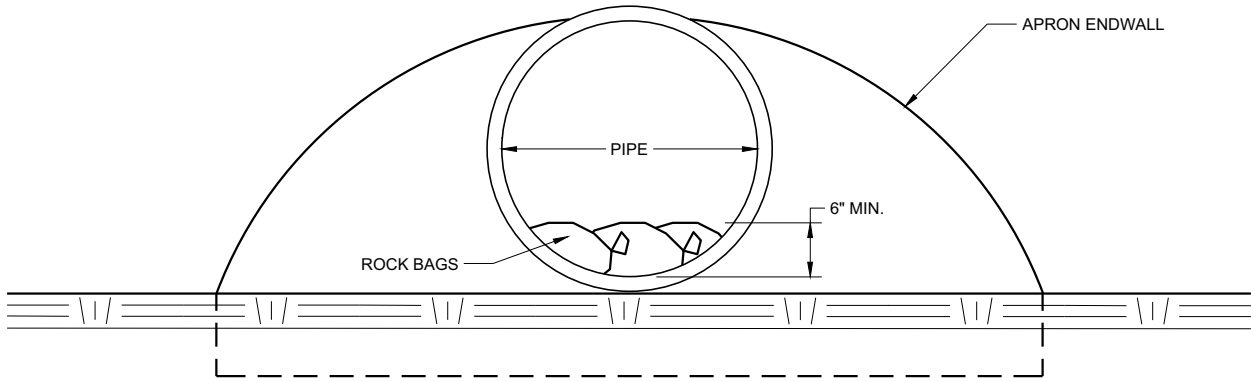
APPROVED

6/4/02

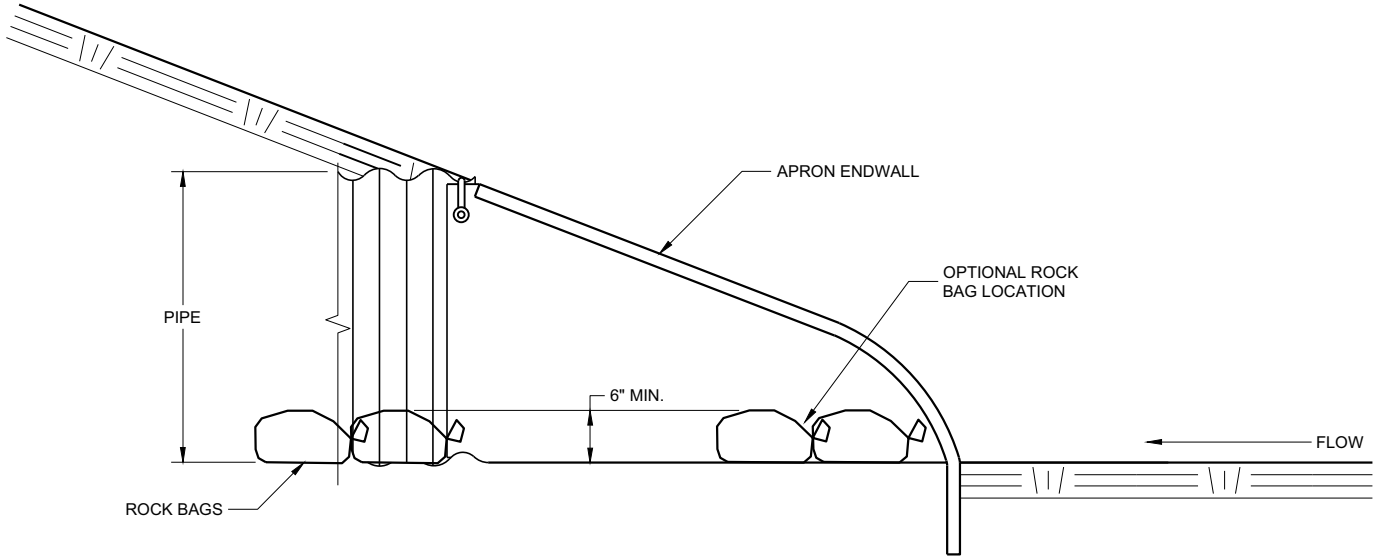
DATE

FHWA

/S/ Beth Canestra  
CHIEF ROADWAY DEVELOPMENT  
ENGINEER



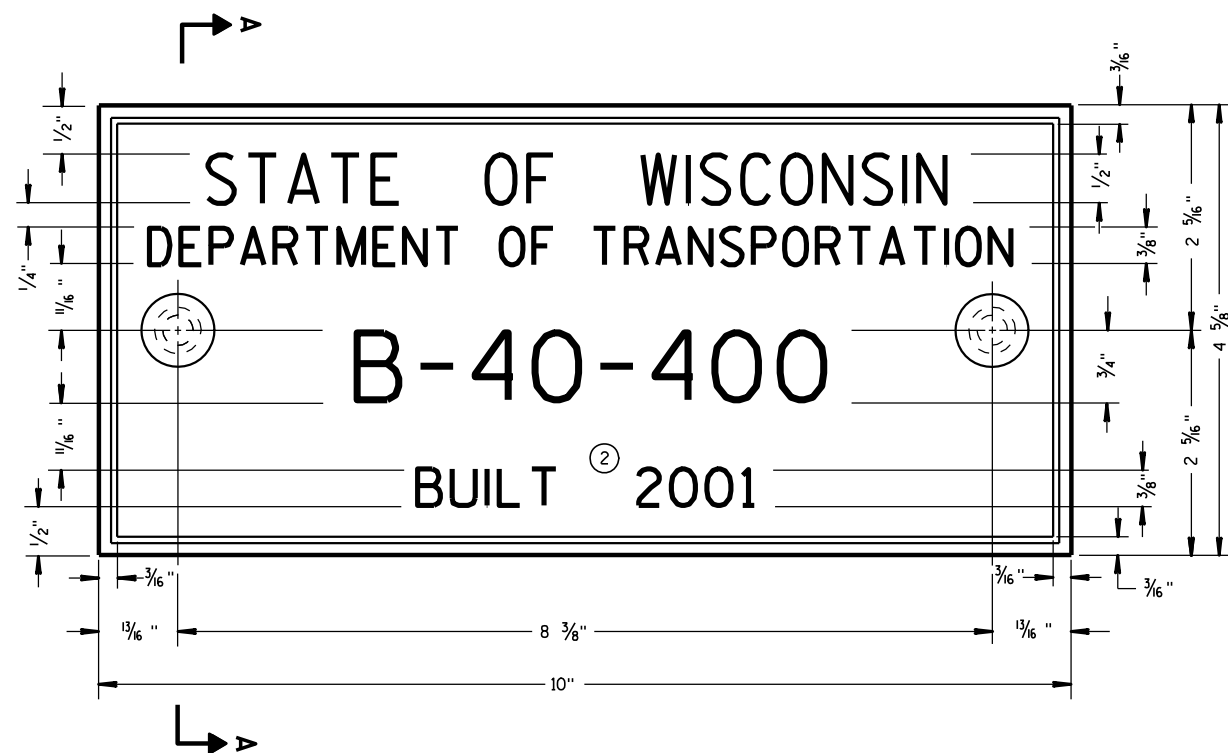
END VIEW



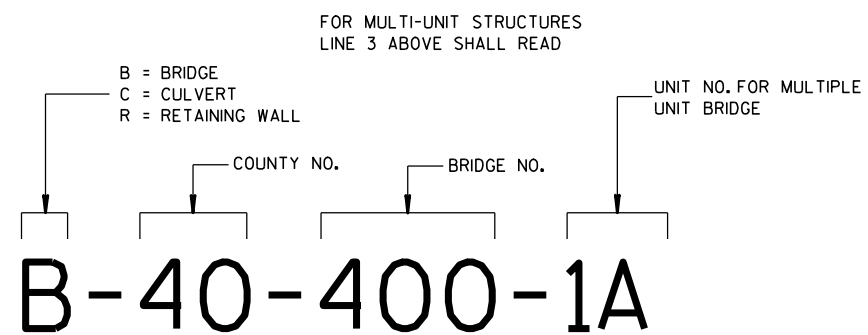
SIDE VIEW

**CULVERT PIPE CHECK**  
(INSTALL ON INLET END ONLY)

<b>CULVERT PIPE CHECK</b>	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED May 2019 DATE	/S/ Daniel Schave EROSION CONTROL ENGINEER
FHWA	



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



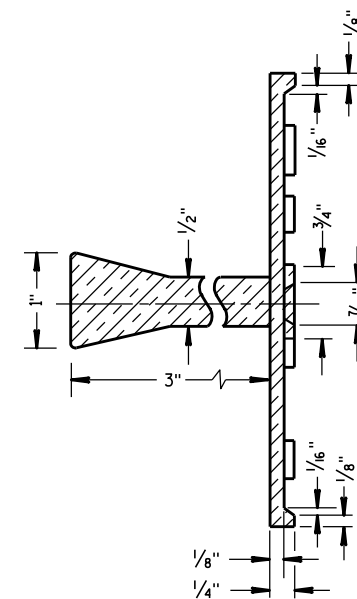
**NUMBERING DESIGNATION  
MULTI-UNIT STRUCTURES**

## GENERAL NOTES

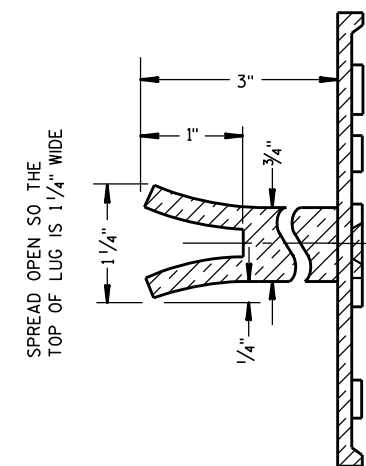
NAME PLATES TO BE INSTALLED ON BRIDGES, CULVERTS, AND RETAINING WALLS SHALL CONFORM TO THE REQUIREMENTS OF SECTION 502.3.11 OF THE STANDARD SPECIFICATIONS.

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

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

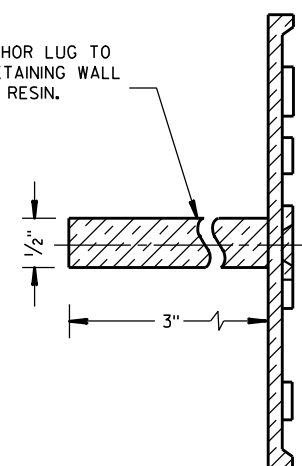


**SECTION A-A**



**ALTERNATE LUG**

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



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

**NAME PLATE  
(STRUCTURES)**

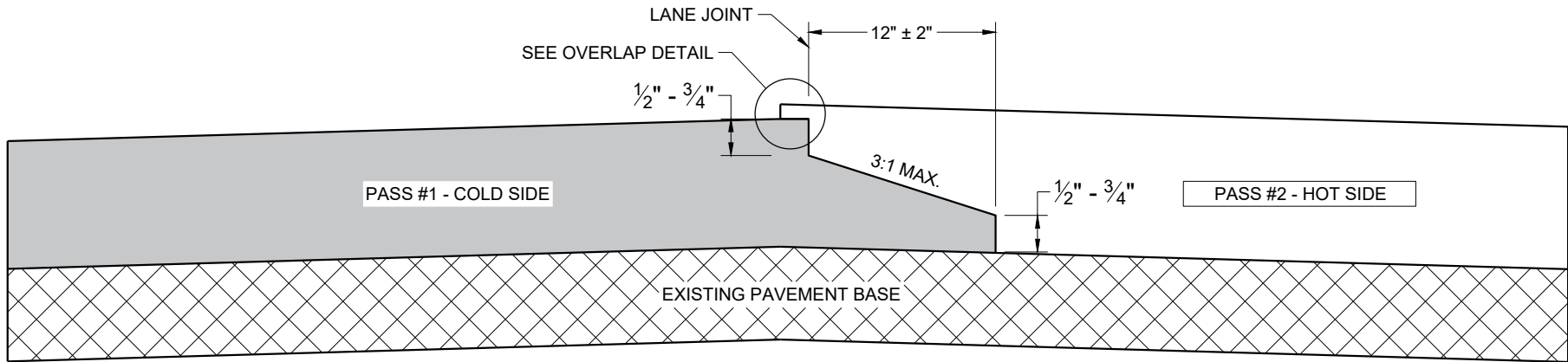
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED

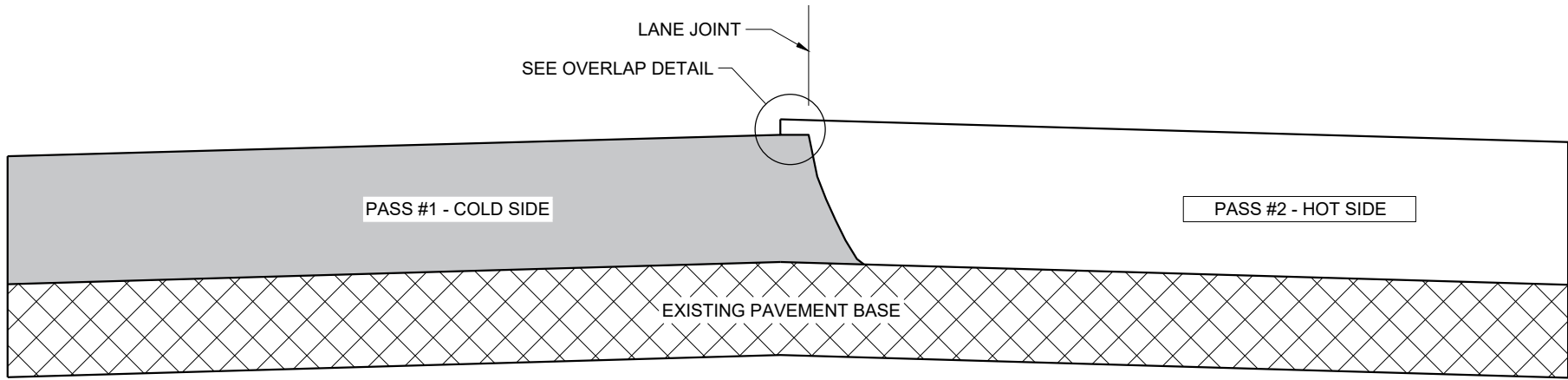
3/26/10  
DATE

FHWA

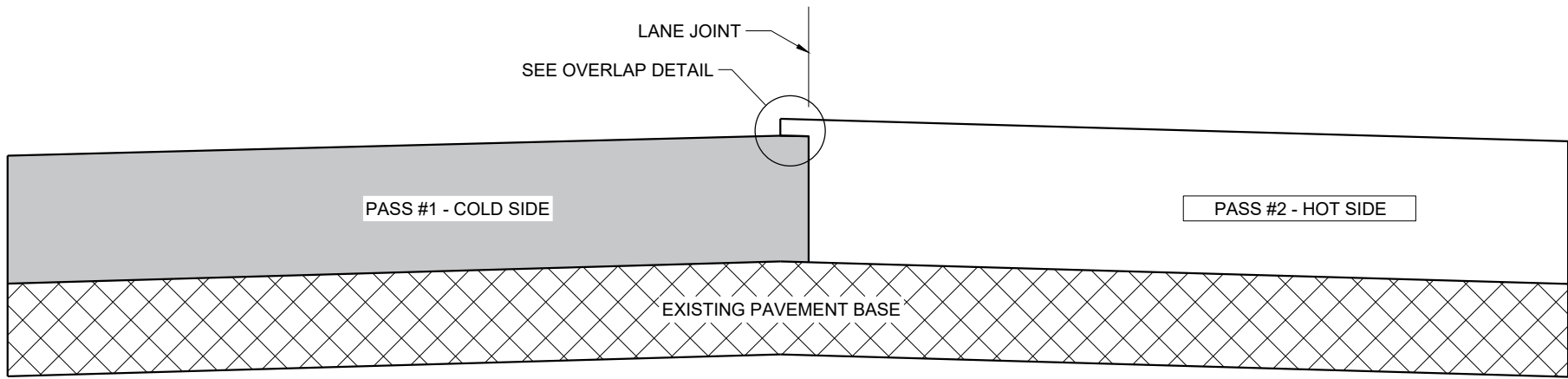
/S/ Scot Becker  
CHIEF STRUCTURAL DEVELOPMENT ENGINEER



**TYPICAL PAVEMENT CROSS SECTION  
NOTCHED WEDGE JOINT**



**TYPICAL PAVEMENT CROSS SECTION  
VERTICAL JOINT**



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

**GENERAL NOTES**

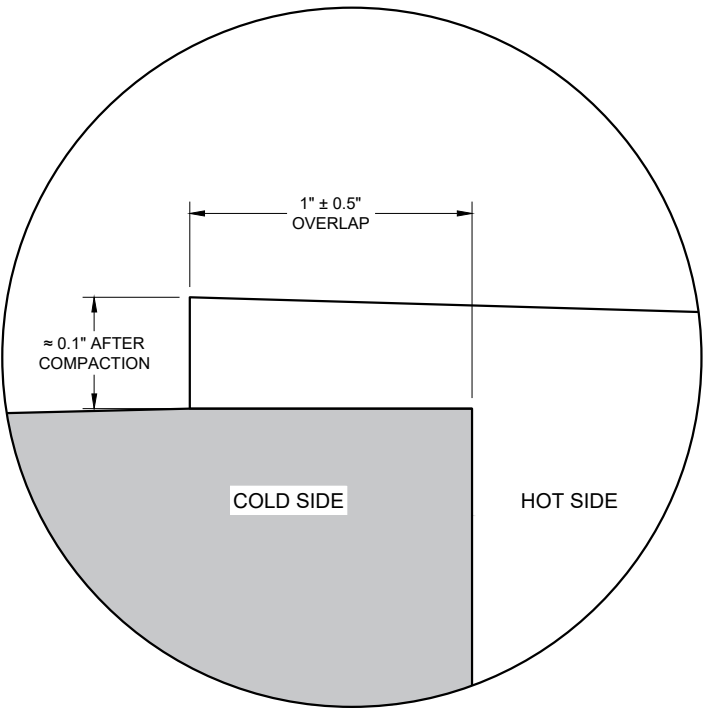
IN ADDITION TO THE DETAILS PROVIDED IN THIS DRAWING, CONFORM TO STANDARD SPECIFICATION 450.3.2.8 FOR WHEN A NOTCHED WEDGE JOINT IS REQUIRED AND FOR GENERAL JOINT CONSTRUCTION REQUIREMENTS.

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.



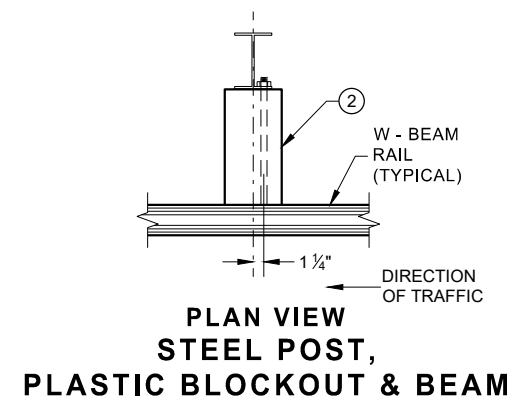
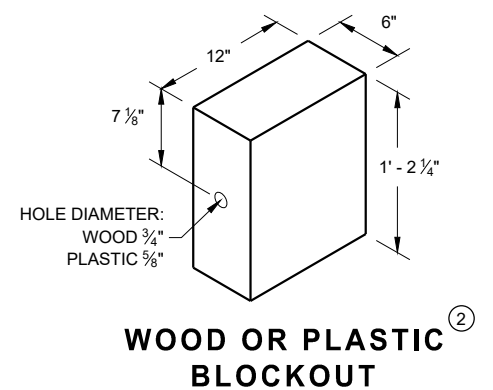
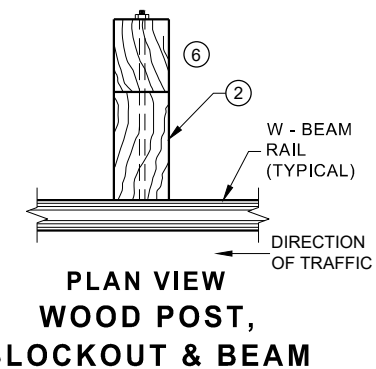
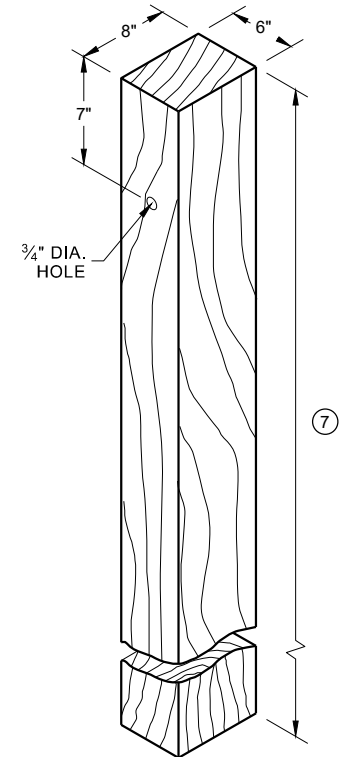
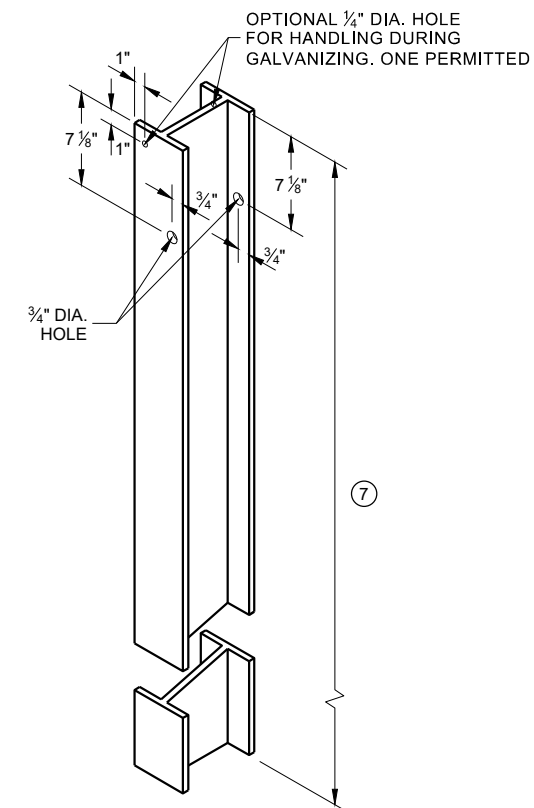
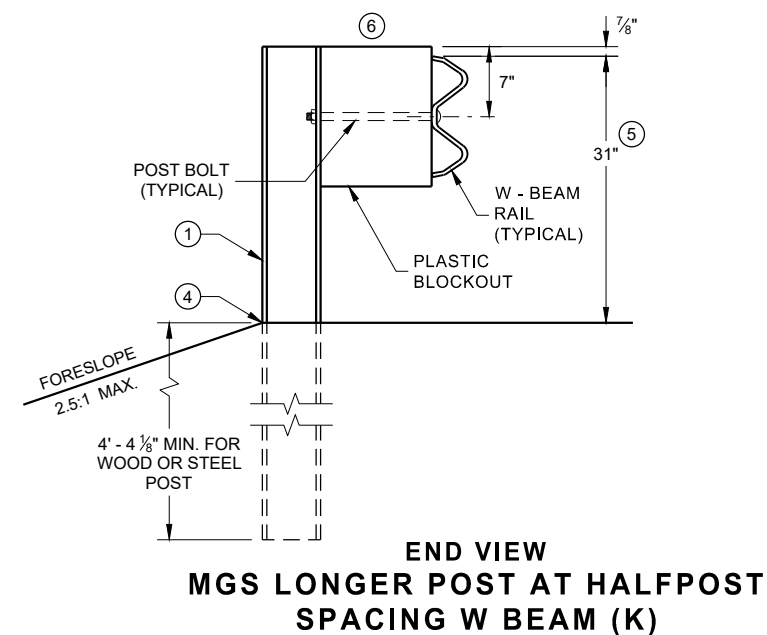
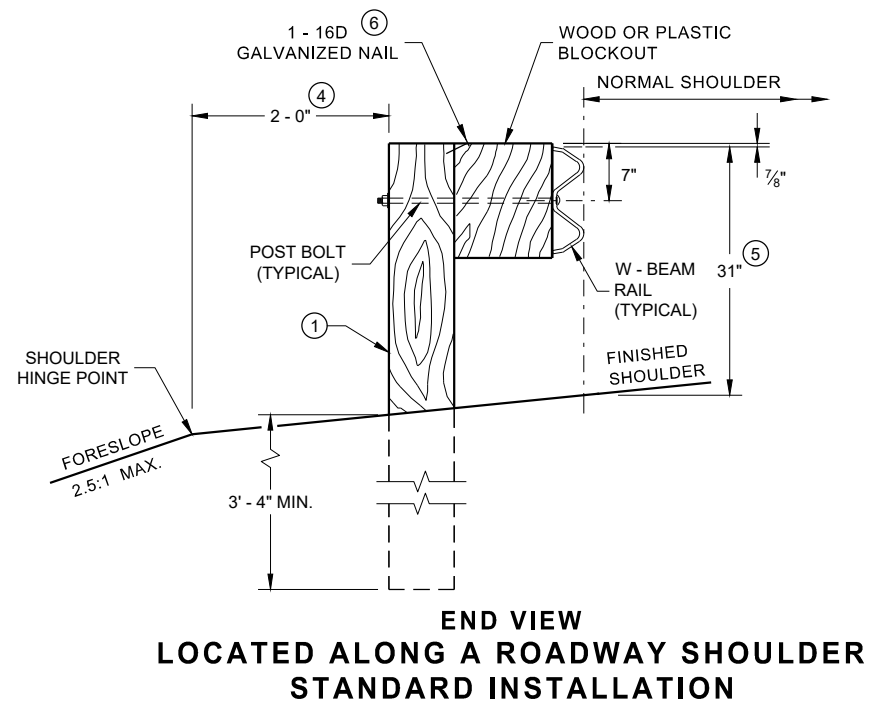
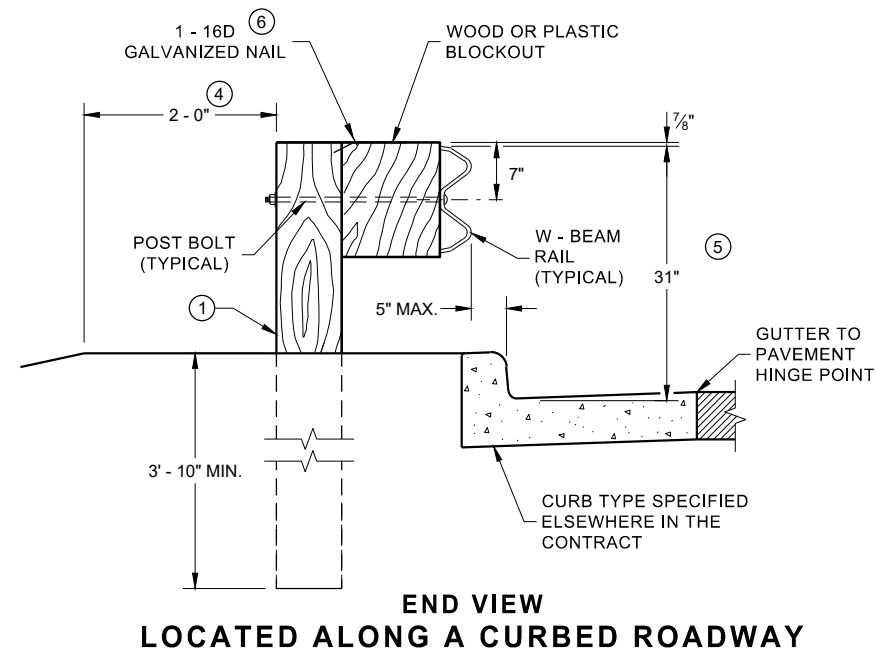
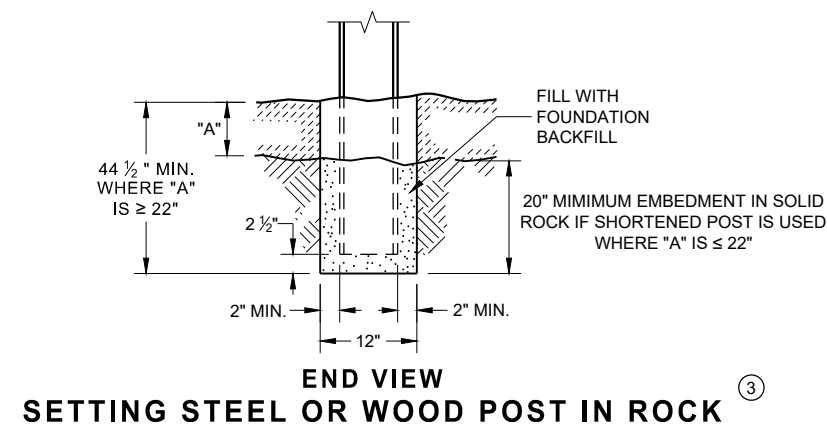
**OVERLAP DETAIL (TYPICAL)**

**HMA LONGITUDINAL JOINTS**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
November 2020  
DATE /S/ Steven Hefel  
HMA PAVEMENT ENGINEER  
FHWA

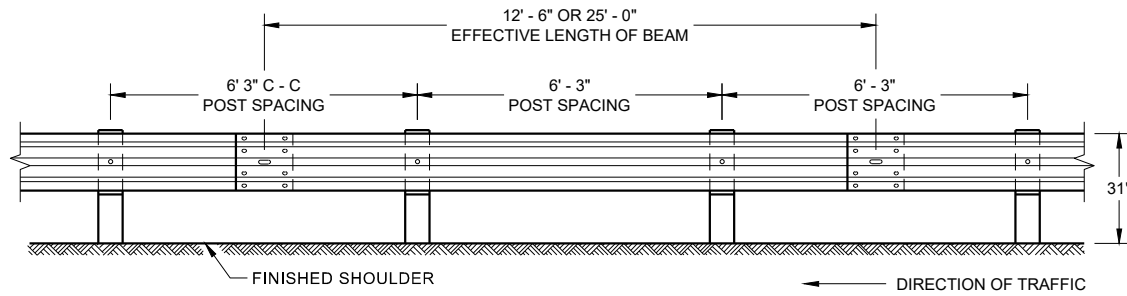
- ① WOOD OR STEEL POSTS (w6X9 OR w6X8.5) MAY BE USED. DO NOT INTERMIX WOOD AND STEEL POSTS. INSTALL STEEL POSTS WITH HOLES ON APPROACHING TRAFFIC SIDE.
- ② USE WOOD OR APPROVED PLASTIC BLOCKOUTS. WOOD BLOCKOUTS MAY BE CONSTRUCTED OUT OF TWO OR MORE WOOD BLOCKOUTS. SEE ALTERNATE WOOD BLOCKOUT DETAIL.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



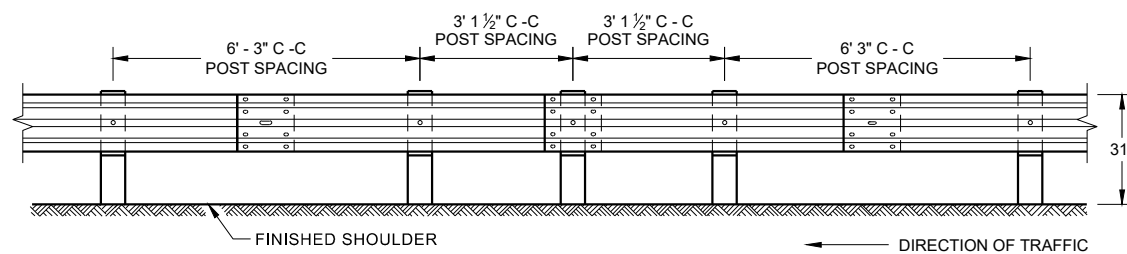
**MIDWEST GUARDRAIL SYSTEM  
(MGS) GUARDRAIL**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

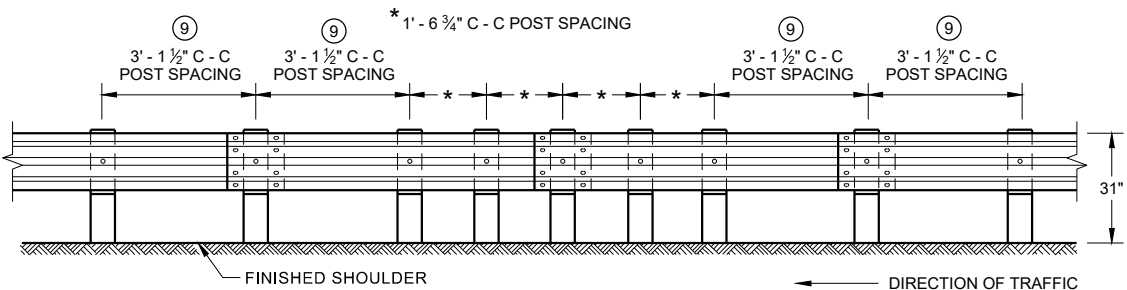




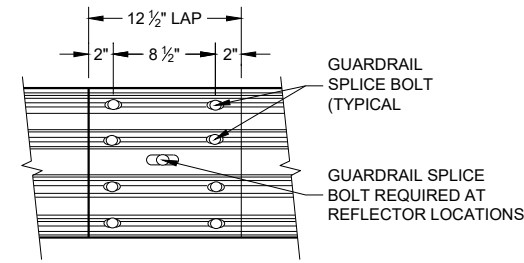
**FRONT VIEW  
POST SPACING STANDARD INSTALLATION**



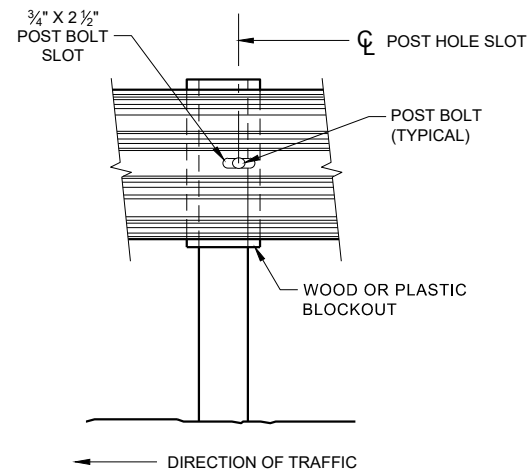
**FRONT VIEW  
HALF POST SPACING (HS) AND  
HALF POST SPACING WITH LONGER POSTS (K)**



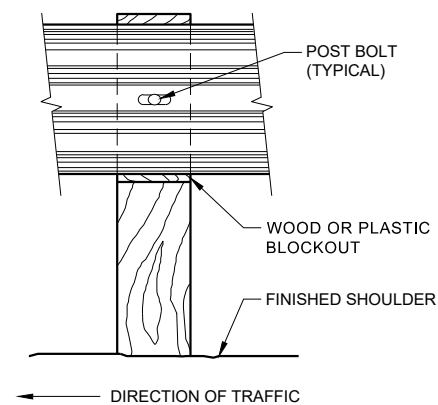
**FRONT VIEW  
QUARTER POST SPACING (QS)**



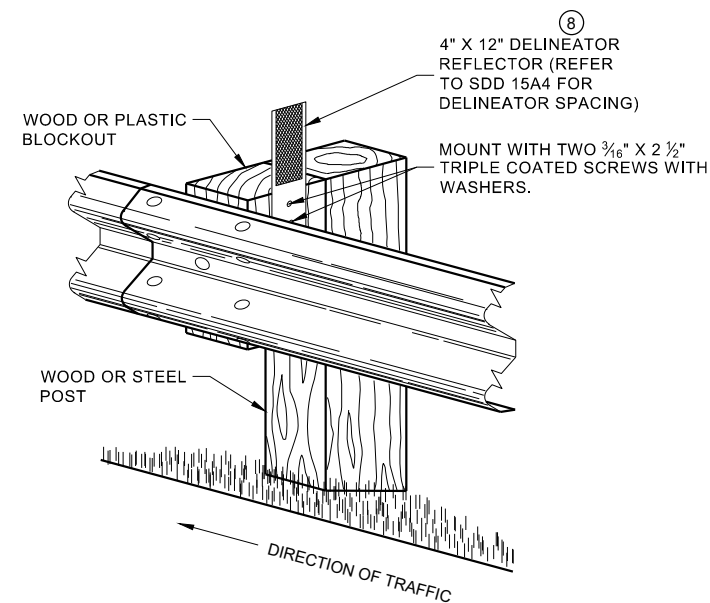
**FRONT VIEW  
MID-SPAN BEAM SPLICE**



**FRONT VIEW AT STEEL POST**



**FRONT VIEW AT WOOD POST**



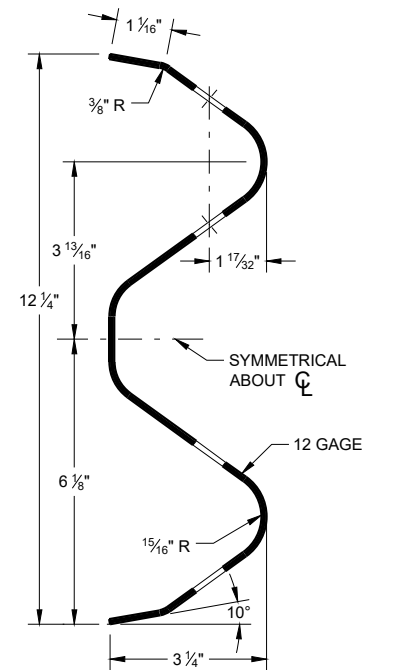
**ONE SIDED REFLECTOR DETAIL  
AND TYPICAL INSTALLATION**

## 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 3/8" 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 3/8" DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX NUT.



**SECTION THRU W-BEAM RAIL**

**MIDWEST GUARDRAIL SYSTEM  
(MGS) GUARDRAIL**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



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.

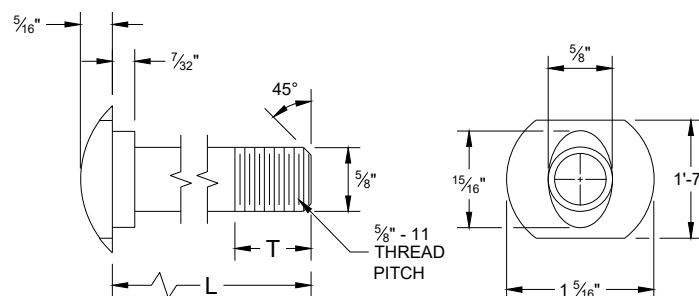


NOTES: UNDER SPECIAL CIRCUMSTANCES, SUCH AS AVOIDING OBSTACLES THAT ARE NOT RELOCATED, IT IS ACCEPTABLE TO INSTALL ADDITIONAL BLOCKOUTS TO OBTAIN UP TO 36" DEPTH FOR ONE OR TWO POSTS IN A SECTION OF GUARDRAIL.

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.

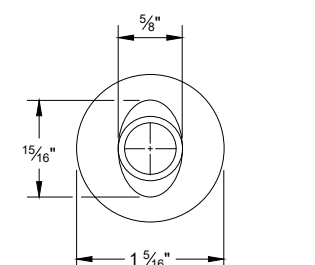
NOTE:

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.

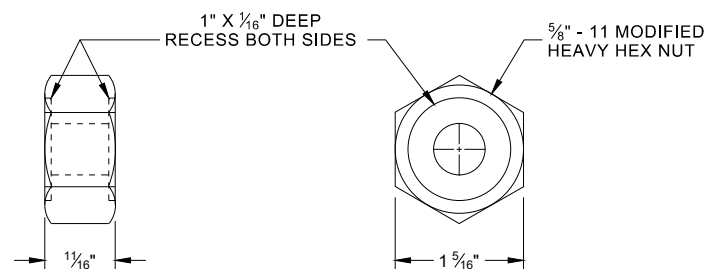


## POST BOLT TABLE

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"

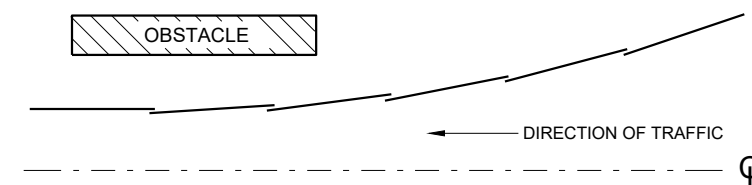


### ALTERNATE BOLT HEAD

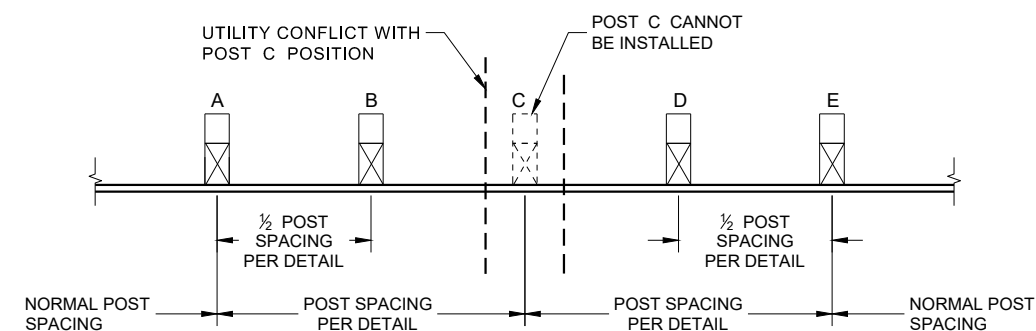


## POST BOLT, SPLICE BOLT AND RECESS NUT

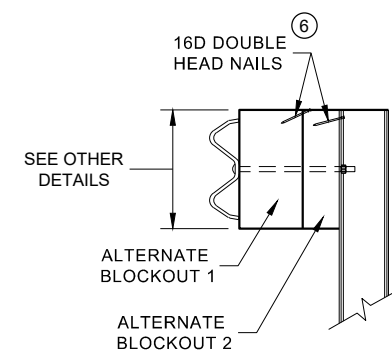
⑥ WHEN USING STEEL POST AD WOOD BLOCKOUTS, INSTALL FOUR 16D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.



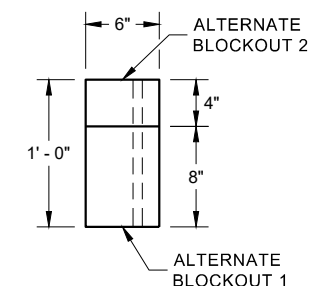
**PLAN VIEW  
BEAM LAPPING DETAIL**



## POST DRIVING FOR CONTINUOUS UNDERGROUND OBSTRUCTION



### SIDE VIEW

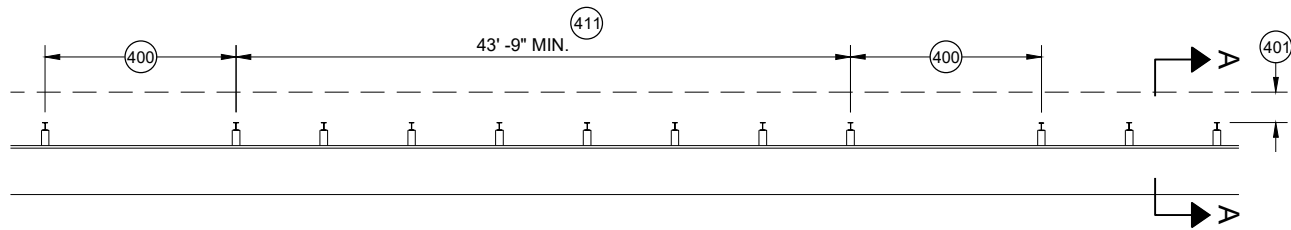


### PLAN VIEW

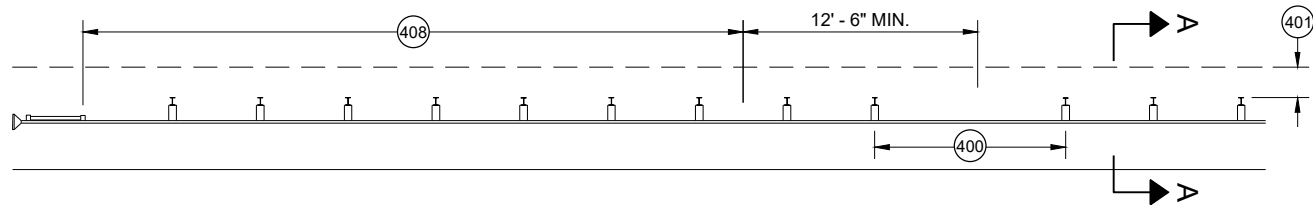
## ALTERNATE WOOD BLOCKOUT DETAIL

## MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL

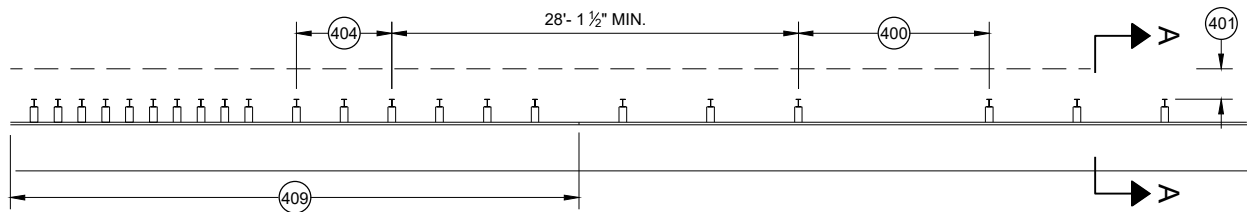
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



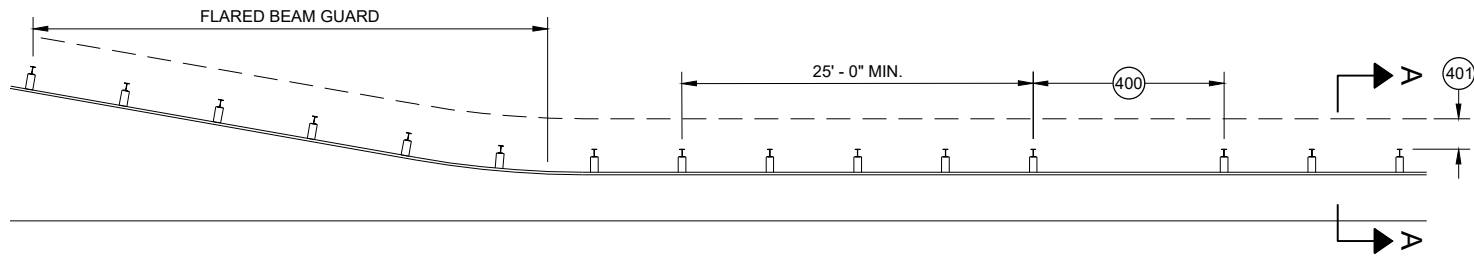
**MISSING POST IN MGS GUARDRAIL**



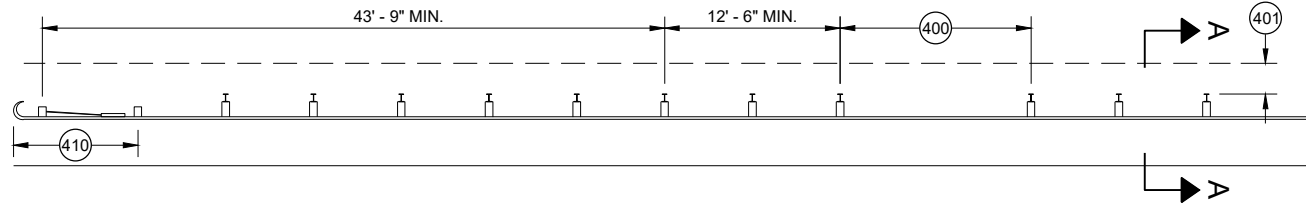
**MISSING POST IN MGS GUARDRAIL NEAR EAT**



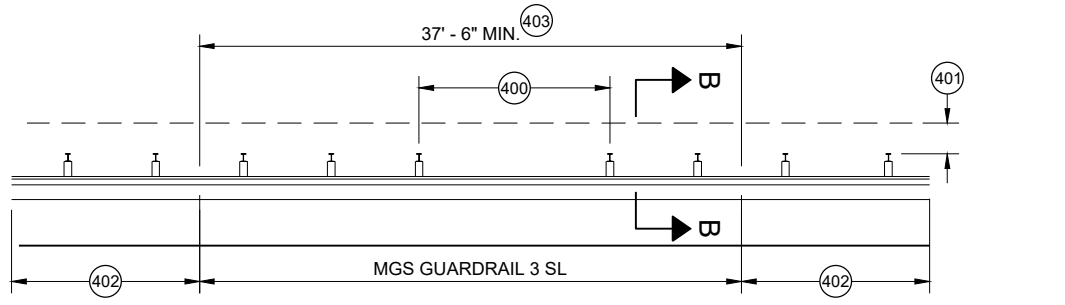
**MISSING POST IN MGS GUARDRAIL NEAR AN APPROACH TRANSITION**



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

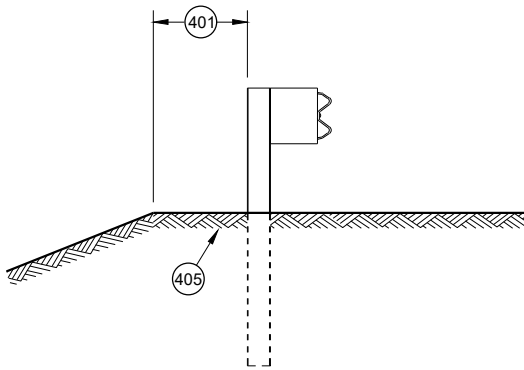


**MISSING POST IN MGS GUARDRAIL NEAR A TYPE 2 END TERMINAL**

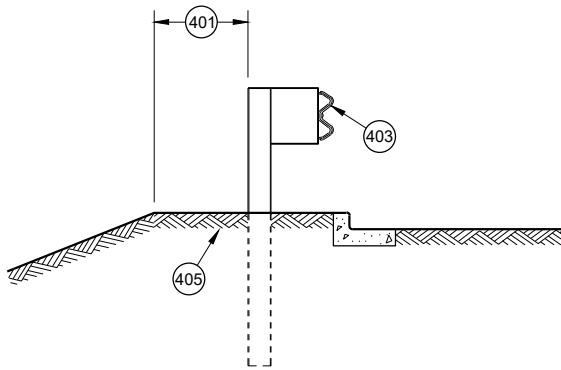


**MISSING POST IN SHORT SPAN MGS GUARDRAIL NEAR CURB (SL)**

- (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

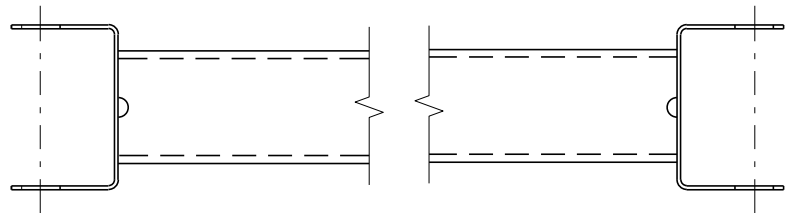
- (A) THE SLOPE IN THE AREA BOUNDED BY THE GRADELINE, THE HINGE POINT LINE (HPL) AND THE CLEAR ZONE LIMITS (CZL) SHALL BE 4:1 OR FLATTER.
- (B) AFTER FINAL ASSEMBLY, RECHECK CABLE TO BE SURE IT IS TAUT AND HAS NOT RELAXED
- (C) DIFFERENT MANUFACTURERS REQUIRE DIFFERENT PERFORATED W - BEAM RAIL END PANELS. 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.

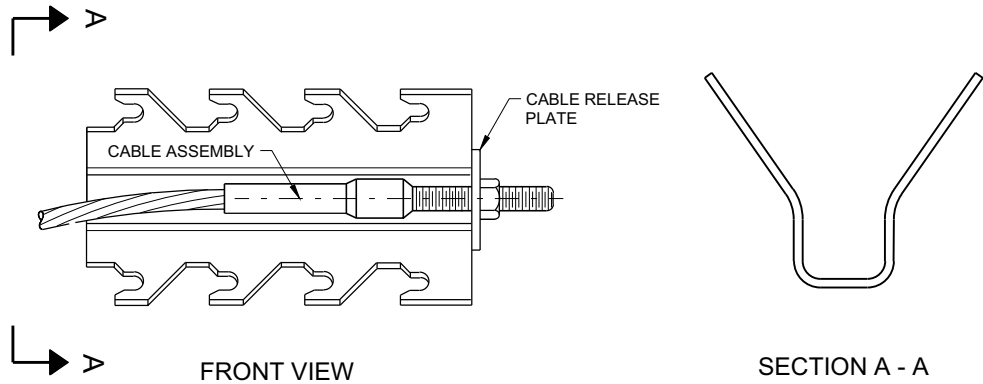


STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

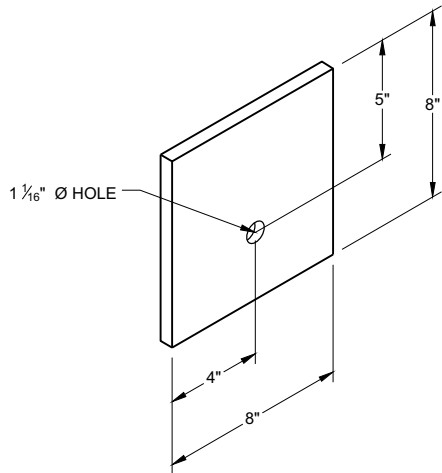


GENERIC GROUND STRUT<sup>⑨</sup> <sup>Ⓔ</sup>

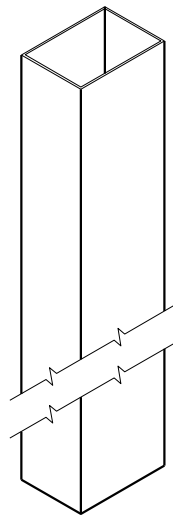
BILL OF MATERIALS	
PART NO.	DESCRIPTION MATERIALS PROVIDED BY MGS EAT MANUFACTURER. SEE MANUFACTURER'S DETAILS FOR MORE INFORMATION.
①	UPPER POST NO. 1 6" X 6" TUBE
②	LOWER POST NO. 1
③	WOOD CRT
④	WOOD BLOCKOUT
⑤	PIPE SLEEVE
⑥	BEARING PLATE
⑦	BCT CABLE ASSEMBLY
⑧	ANCHOR CABLE BOX
⑨	GROUND STRUT
⑩	PERFORATED 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



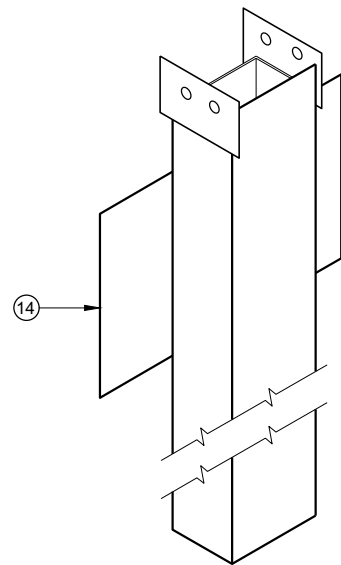
GENERIC ANCHOR CABLE BOX<sup>⑨</sup> <sup>Ⓔ</sup>



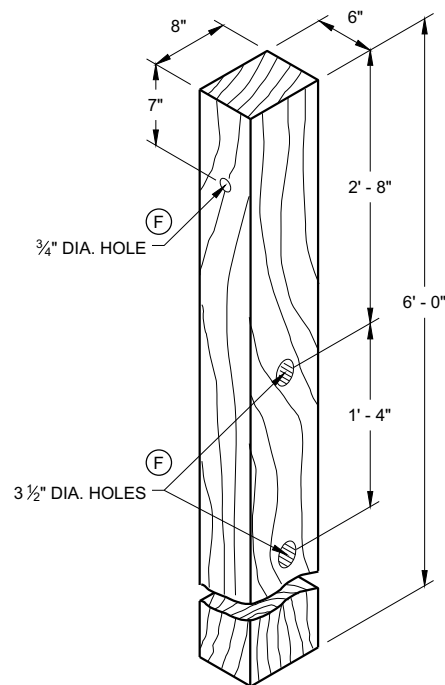
BEARING PLATE<sup>⑥</sup> <sup>Ⓔ</sup>



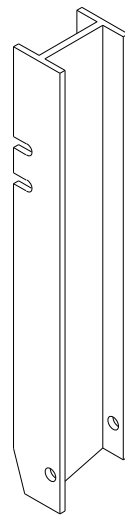
UPPER POST NO. 1 <sup>(1)</sup> (E)



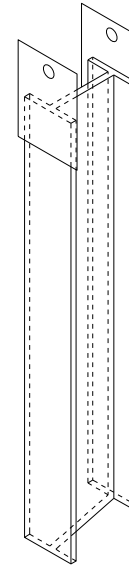
LOWER POST NO. 1 <sup>(2)</sup> (E)



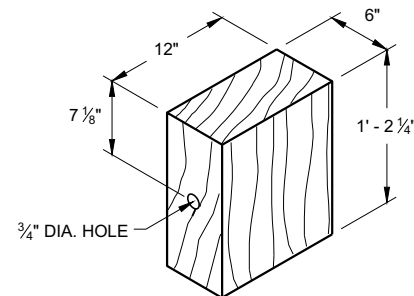
WOOD CRT POST <sup>(3)</sup> (E)  
POSTS NUMBER 3-9



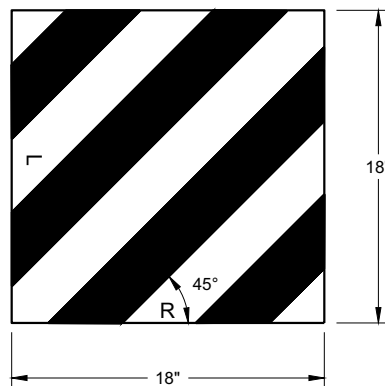
UPPER POST NO. 2 <sup>(15)</sup> (E)



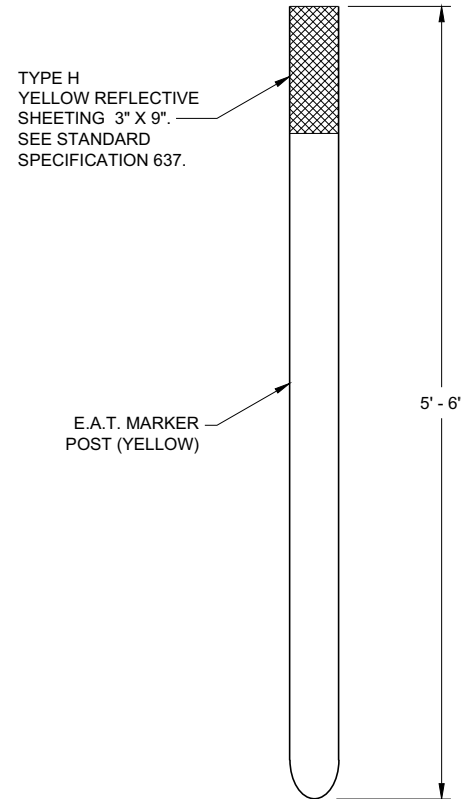
LOWER POST NO. 2 <sup>(16)</sup> (E)



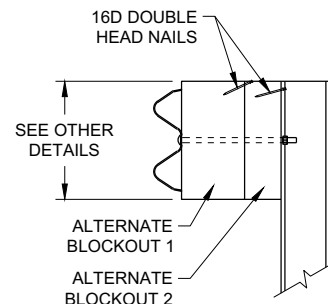
WOOD BLOCKOUT <sup>(4)</sup>  
REQ'D. AT ALL POSTS EXCEPT POST NO'S 1 & 2



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

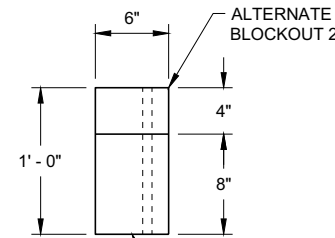


FRONT VIEW  
SIDE VIEW  
E.A.T. MARKER POST <sup>(13)</sup>



SIDE VIEW

ALTERNATE WOOD  
BLOCKOUT DETAIL

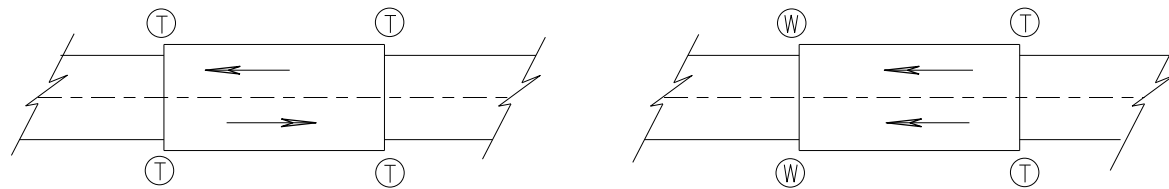


TOP VIEW

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

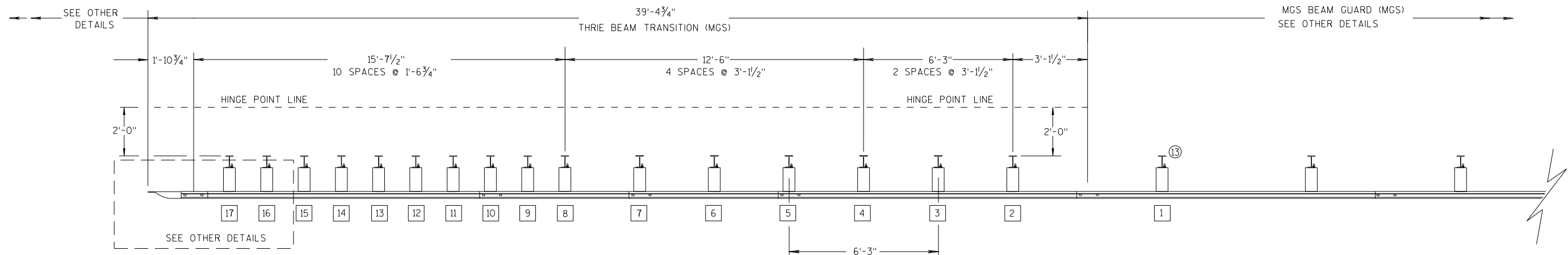
IF ROCK IS ENCOUNTERED, REMOVE ROCK TO FULL DEPTH OF POST PLUS 2 1/2", AND 12" DIAMETER AROUND POST. SEE 14B42 FOR MORE DETAILS.

TRANSITION USES STEEL POSTS ONLY.

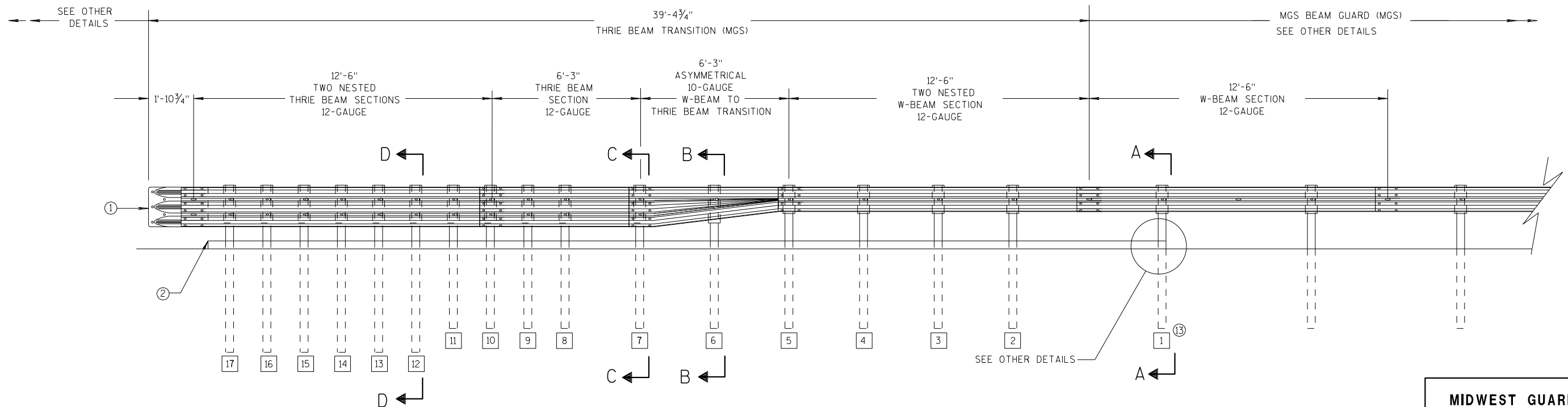
SEE STANDARD DETAIL DRAWING 14 B 42 FOR MORE INFORMATION.

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

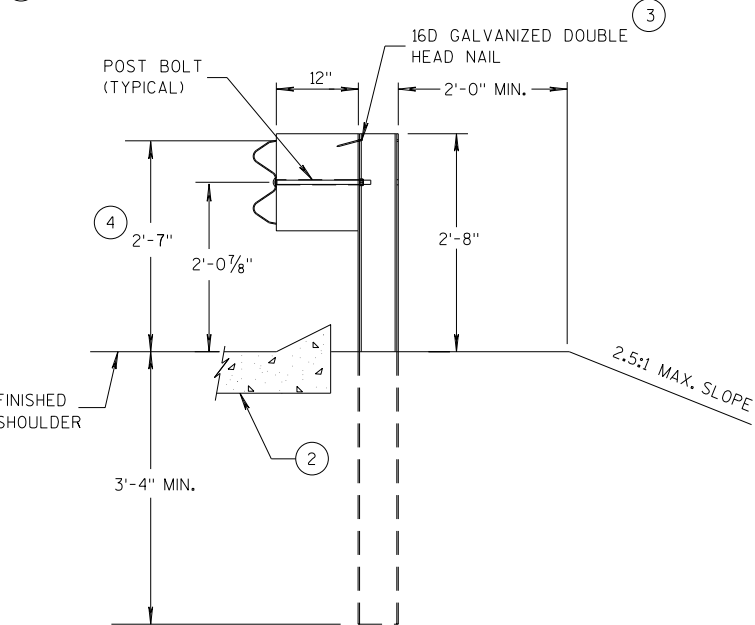
## MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION

MIDWEST GUARDRAIL SYSTEM  
THRIE BEAM TRANSITION (MGS)

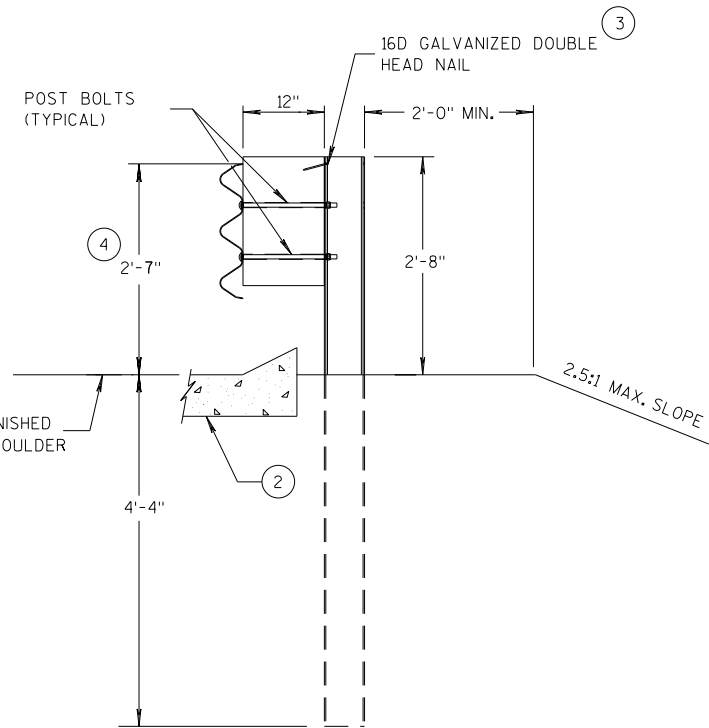
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

GENERAL NOTES

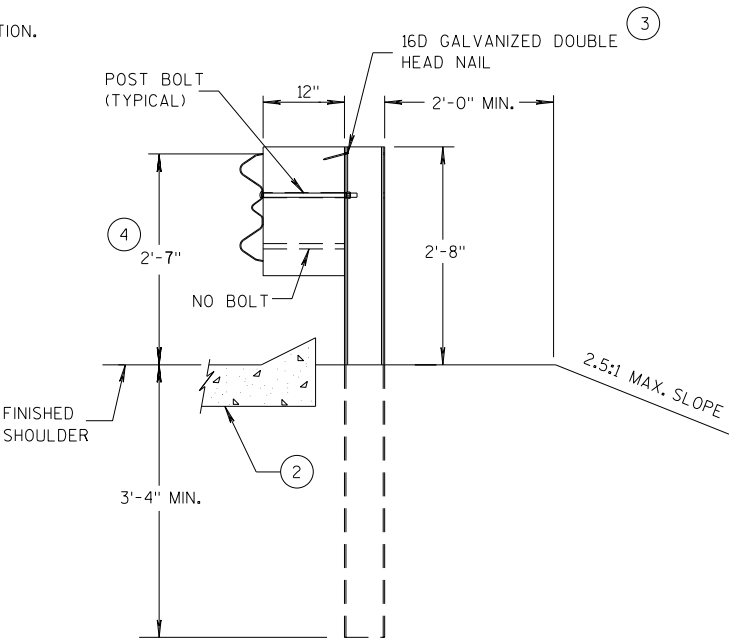
- 2 OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.
- 3 WHEN USING STEEL POSTS AND WOOD BLOCKOUTS INSTALL FOUR 10D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.
- 4 TOLERANCE FOR TOP OF W-BEAM RAIL IS  $\pm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



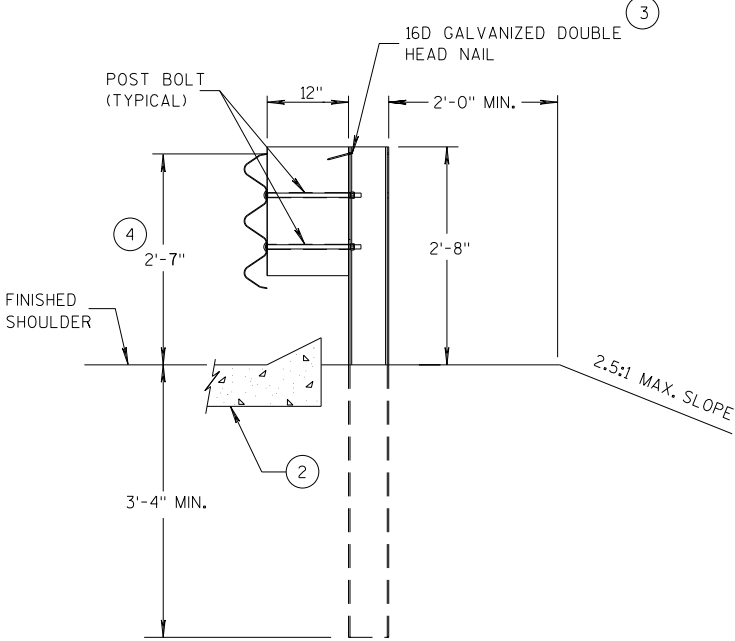
SECTION A-A  
POSTS 1-5



SECTION D-D  
POSTS 12-17



SECTION B-B  
POST 6



SECTION C-C  
POSTS 7-11

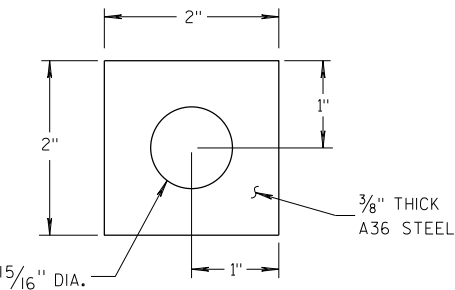
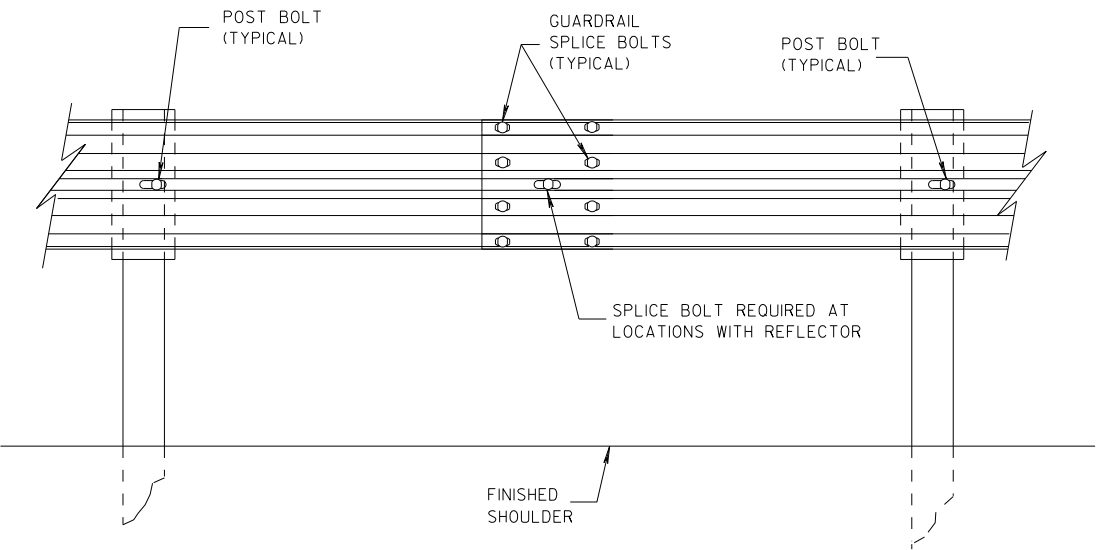
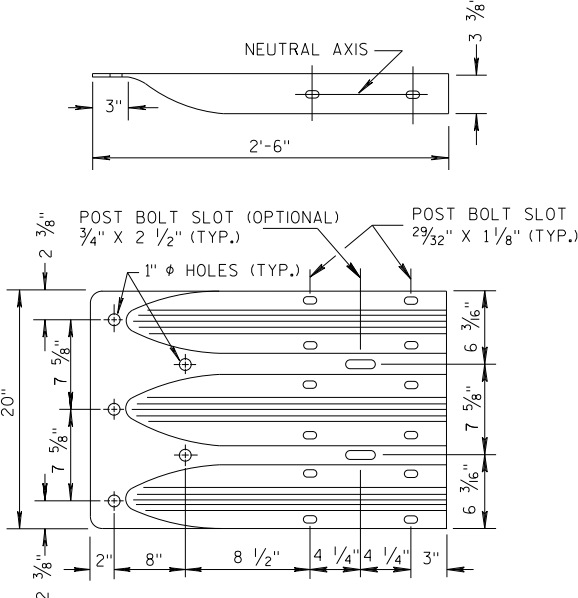


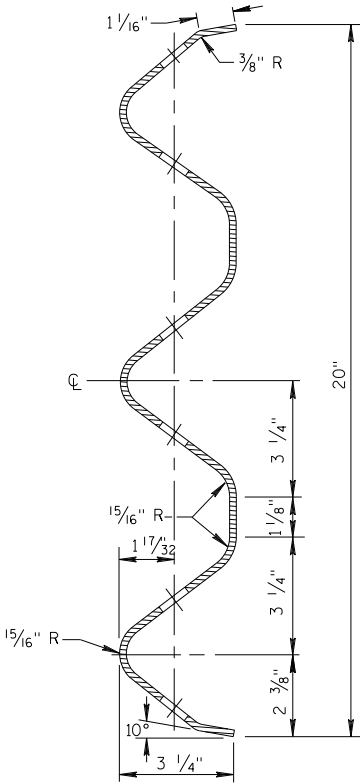
PLATE WASHER DETAIL



SPLICE DETAIL



THRIE BEAM  
TERMINAL CONNECTOR

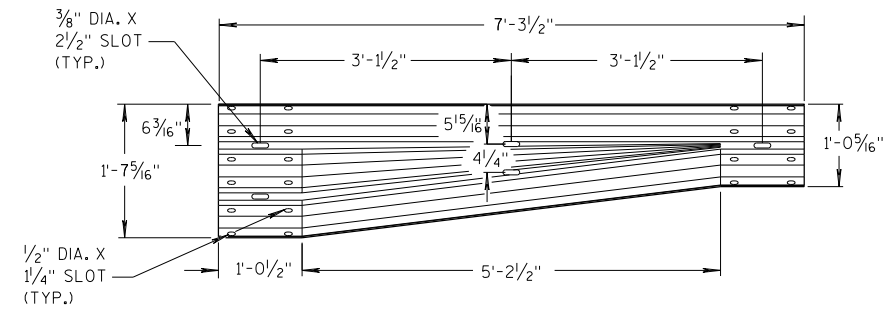


SECTION THRU THRIE  
BEAM RAIL ELEMENT

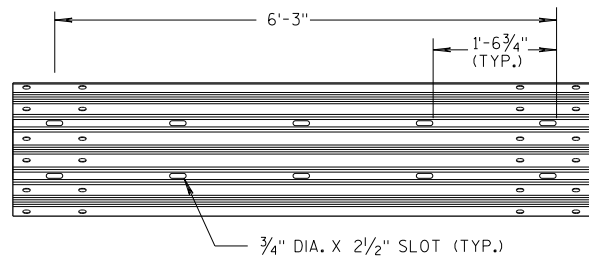
MIDWEST GUARDRAIL SYSTEM  
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

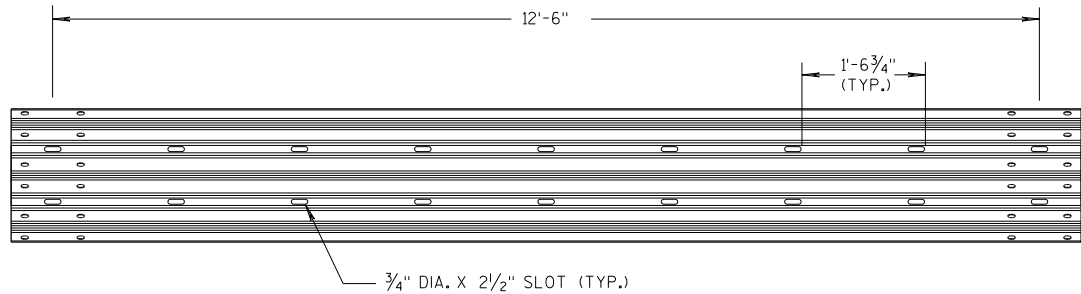




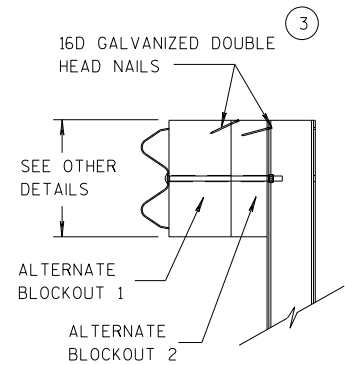
W-BEAM TO THRIE BEAM TRANSITION SECTION



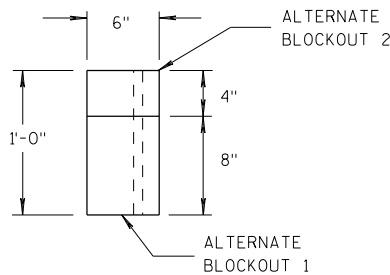
6'-3" THRIE BEAM SECTION



12'-6" THRIE BEAM SECTION

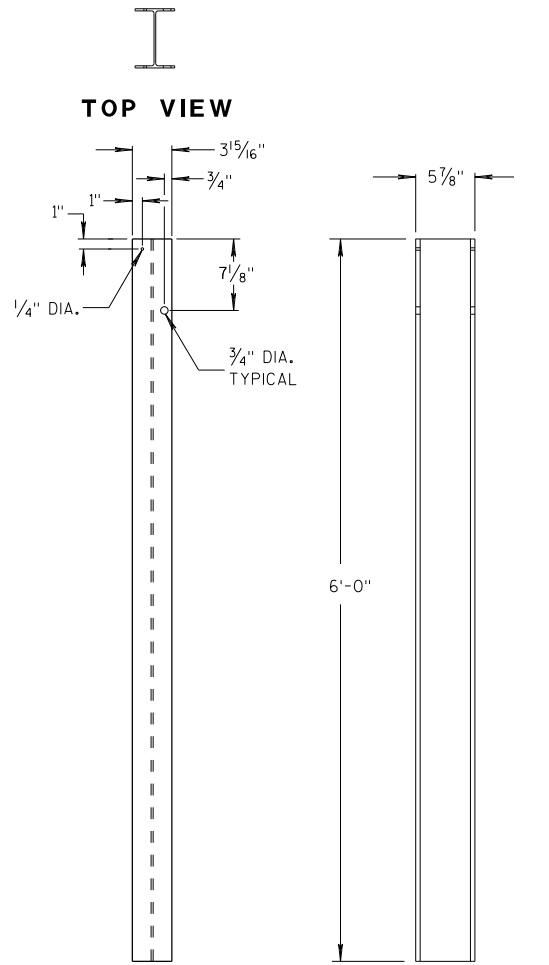


SIDE VIEW



TOP VIEW

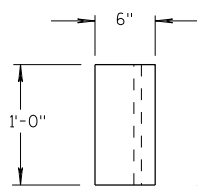
ALTERNATE WOOD BLOCKOUT DETAIL



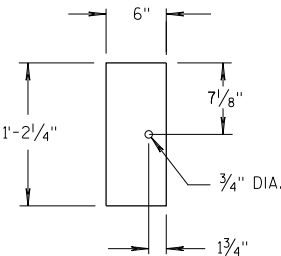
FRONT VIEW

SIDE VIEW

STEEL POSTS 1-5

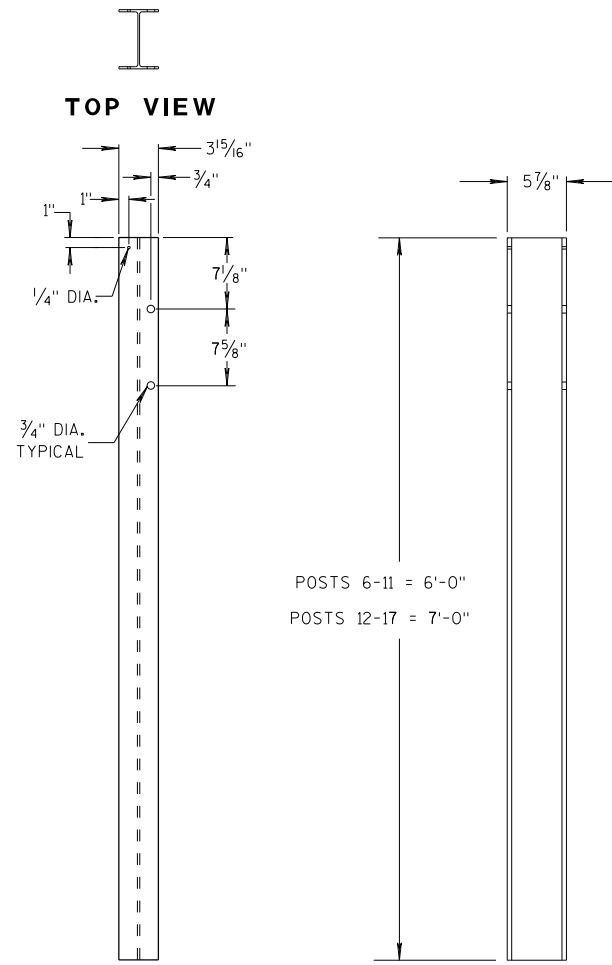


TOP VIEW



FRONT VIEW

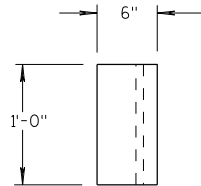
BLOCKOUT POSTS 1-5



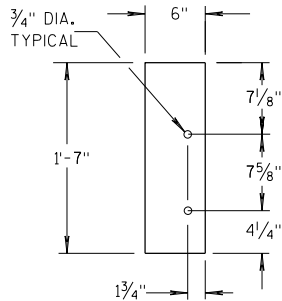
FRONT VIEW

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.

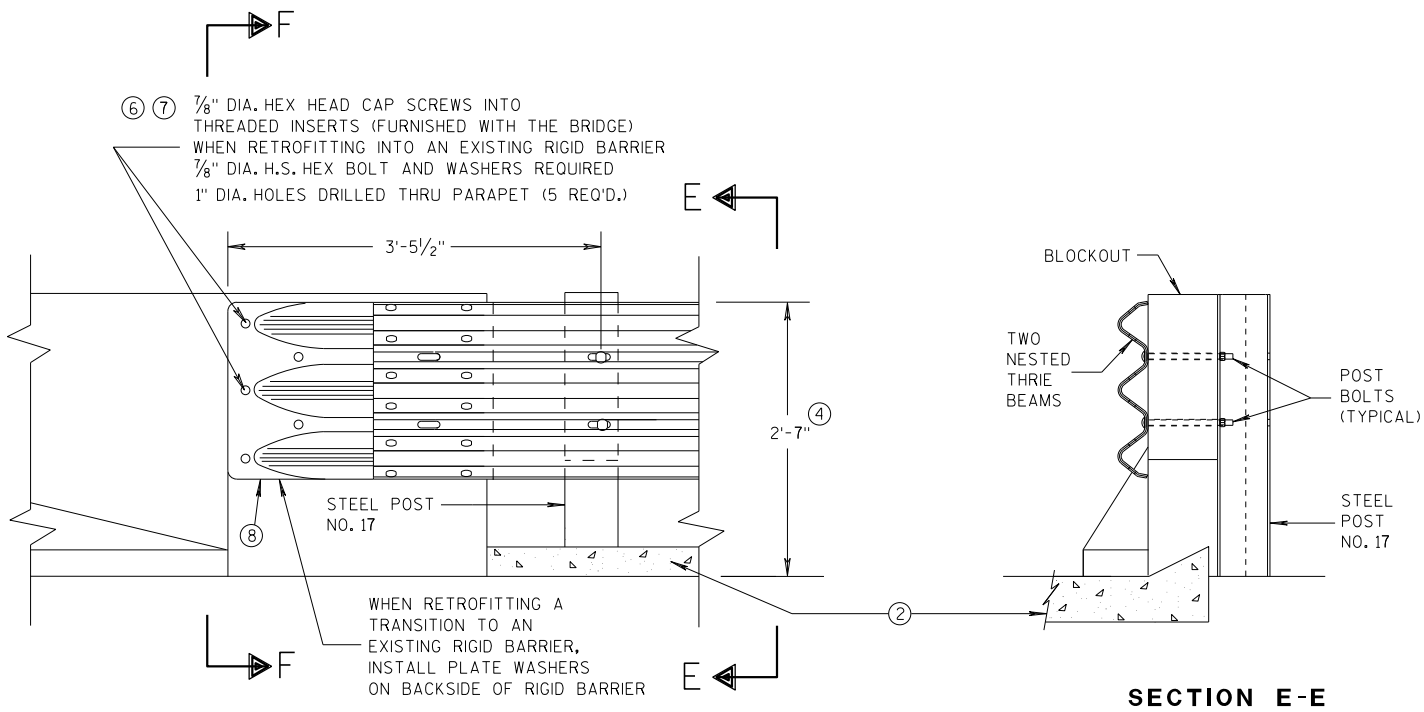
③ WHEN USING STEEL POSTS AND WOOD BLOCKOUTS INSTALL FOUR 16D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.

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)

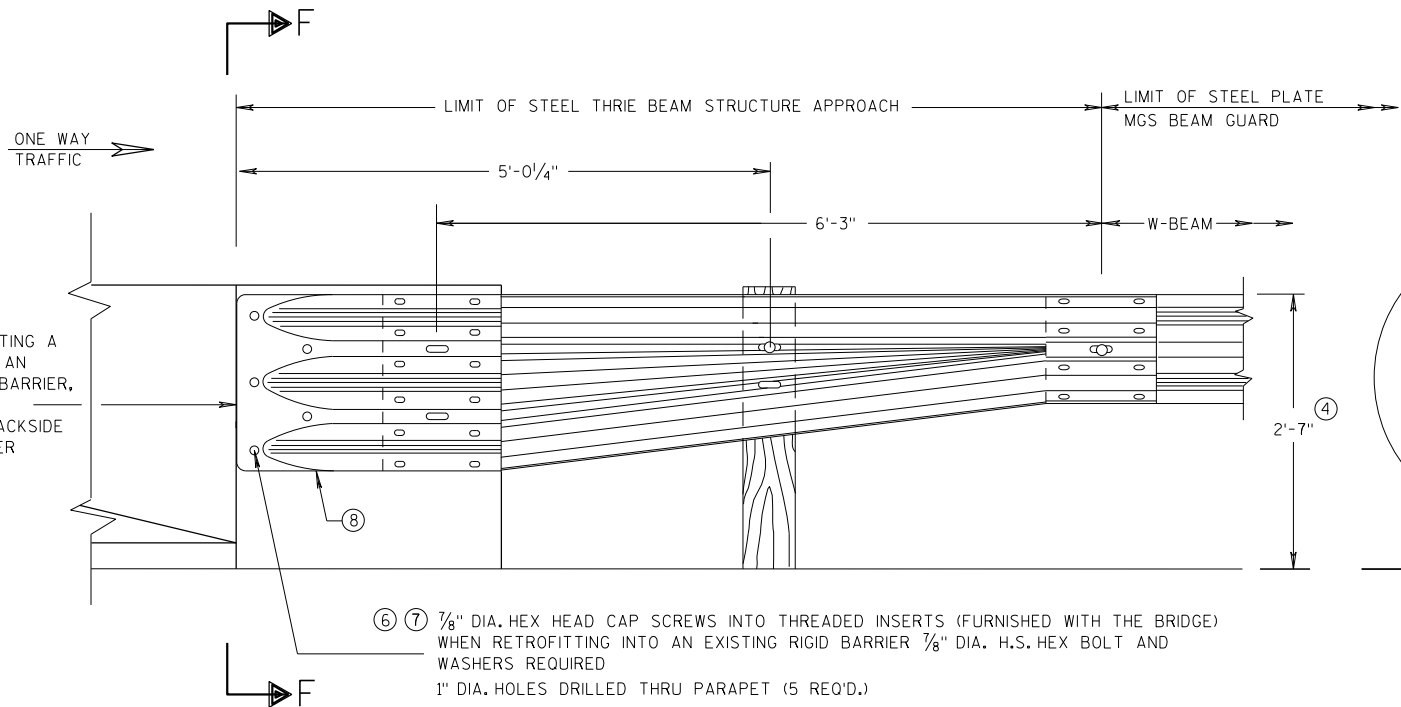
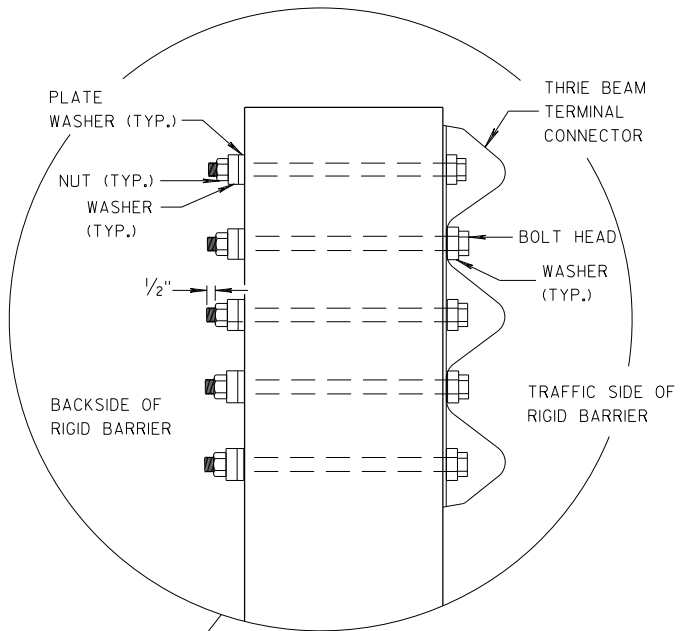
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



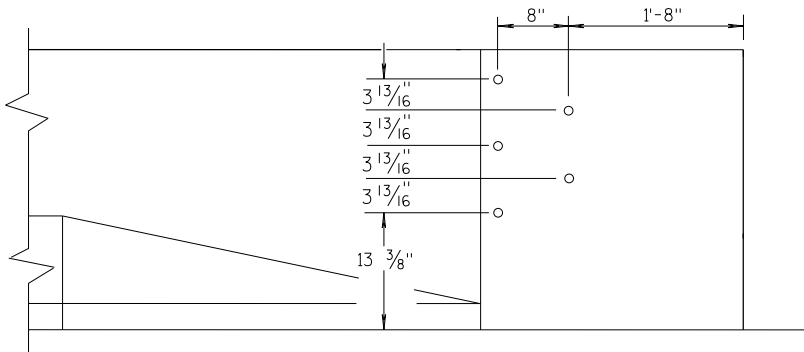
**GENERAL NOTES**

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**



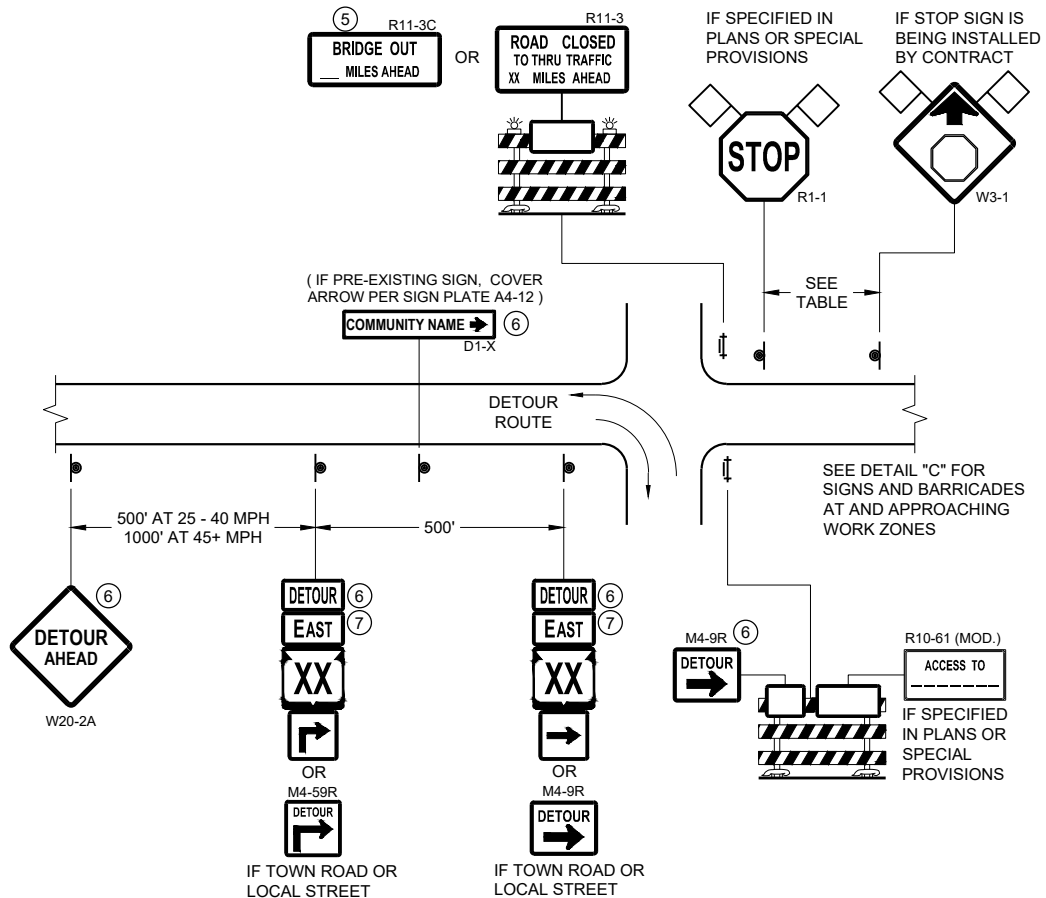
**DRILL HOLE LOCATION**

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

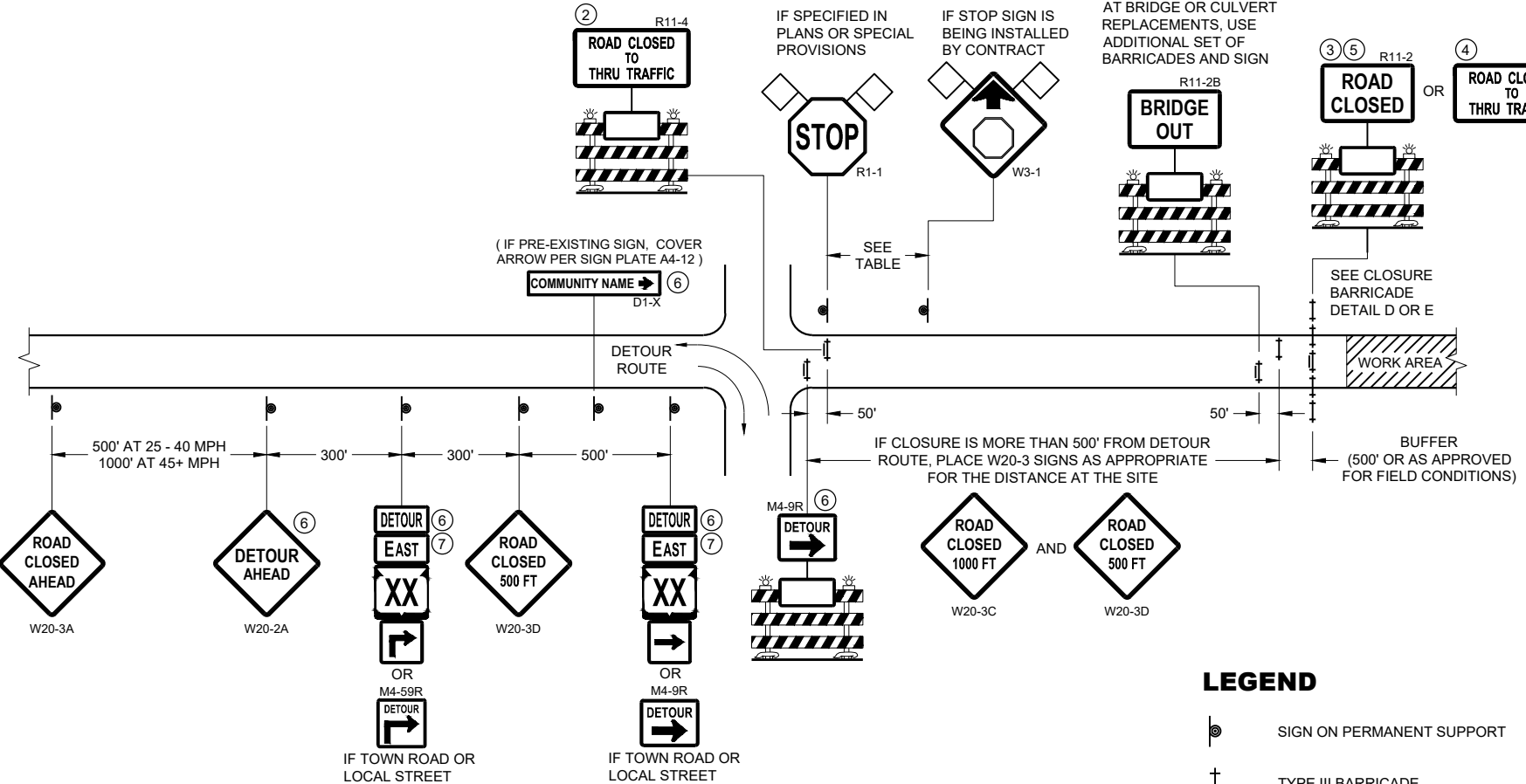
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
07/2018  
DATE  
FHWA

/S/ Rodney Taylor  
ROADWAY STANDARDS DEVELOPMENT  
UNIT SUPERVISOR



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



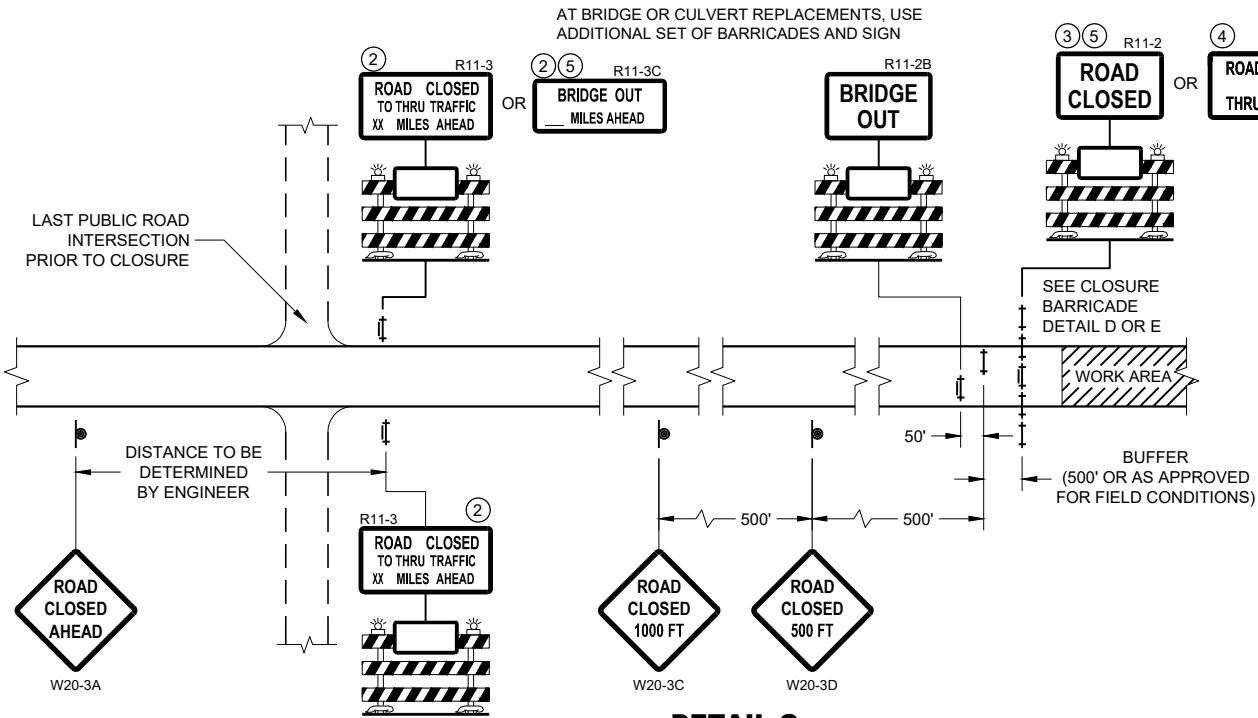
**DETAIL B**  
**MAINLINE CLOSURE WITH POSTED DETOUR**  
WORK ZONE LESS THAN ½ MILE FROM  
DETOUR ROUTE ( 1000 FEET IF URBAN )

- 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 M1 - 4 OR XX M1 - 6 OR COUNTY M1 - 5A
- OR M05 - 1 OR M06 - 1

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

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

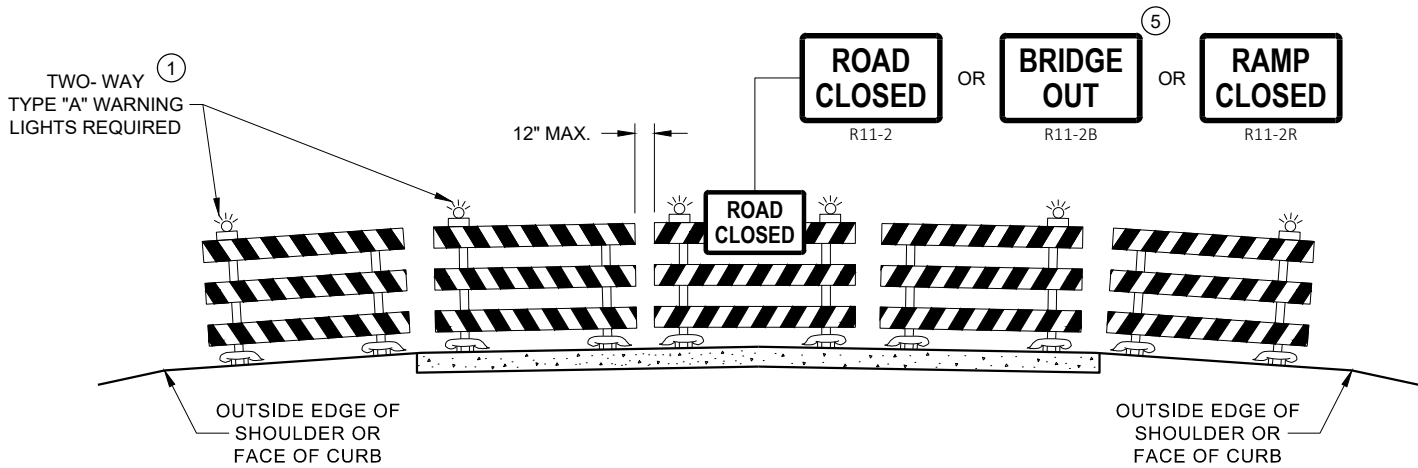


**DETAIL C**  
**MAINLINE CLOSURE, NO POSTED DETOUR**

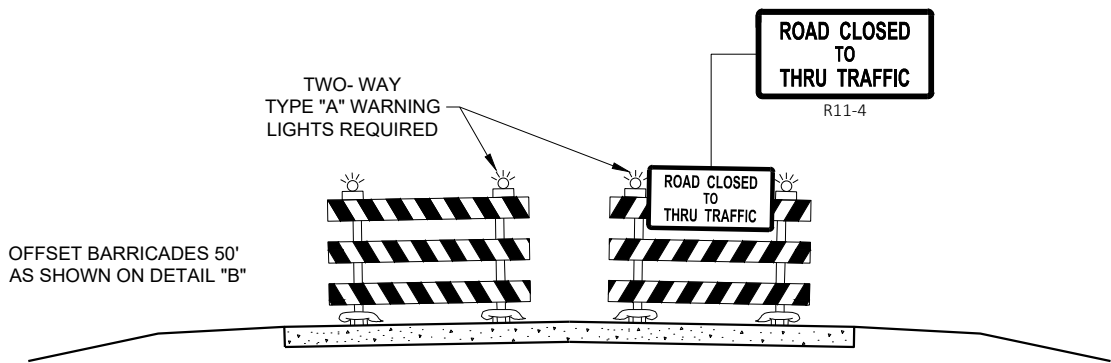
**BARRICADES AND SIGNS  
FOR MAINLINE CLOSURES**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

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

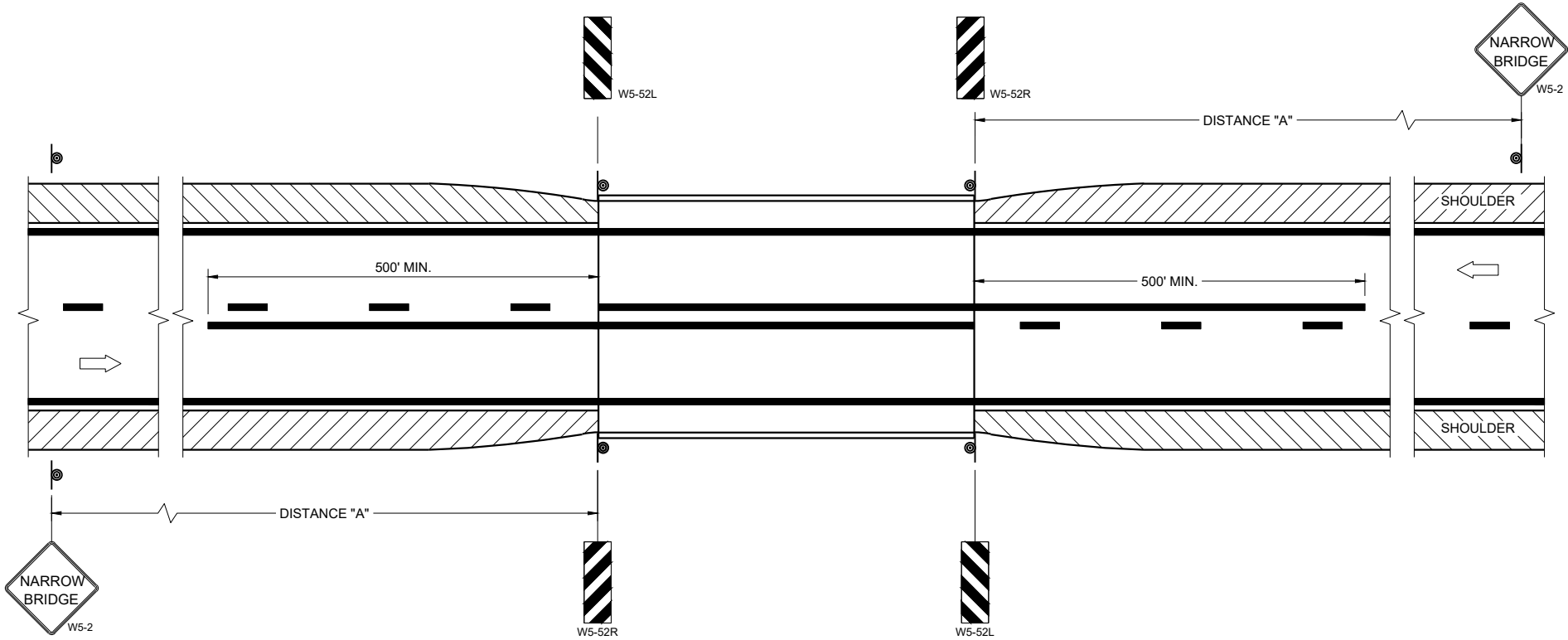
- 1 TWO WARNING LIGHTS SHALL BE PROVIDED ON THE CENTER BARRICADE AND A MINIMUM OF ONE WARNING LIGHT SHALL BE PROVIDED ON EACH OF THE OTHER BARRICADES WITHIN THE ROADWAY LIMITS. SPACING OF THE WARNING LIGHTS SHALL BE UNIFORM TO THE EDGE OF ROADWAY AS SHOWN (APPROX. 8 FOOT LIGHT SPACING).
- 2 THESE SIGNS 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**

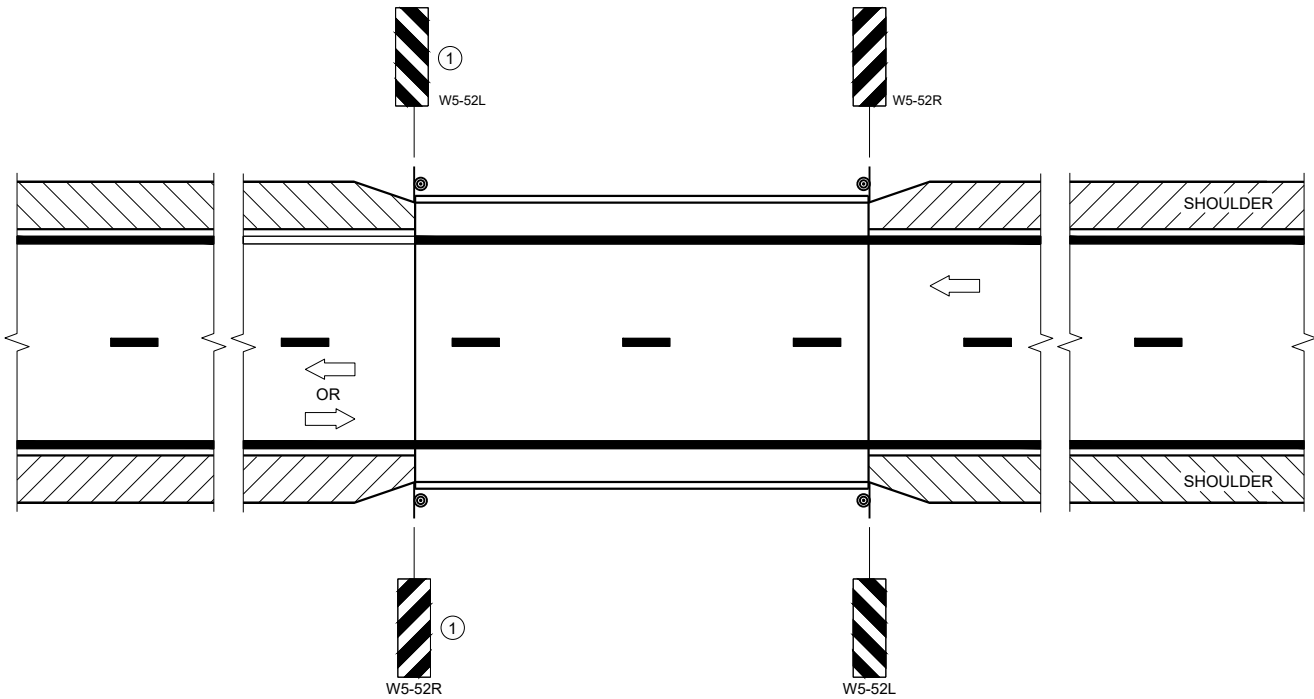
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

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

FHWA



**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

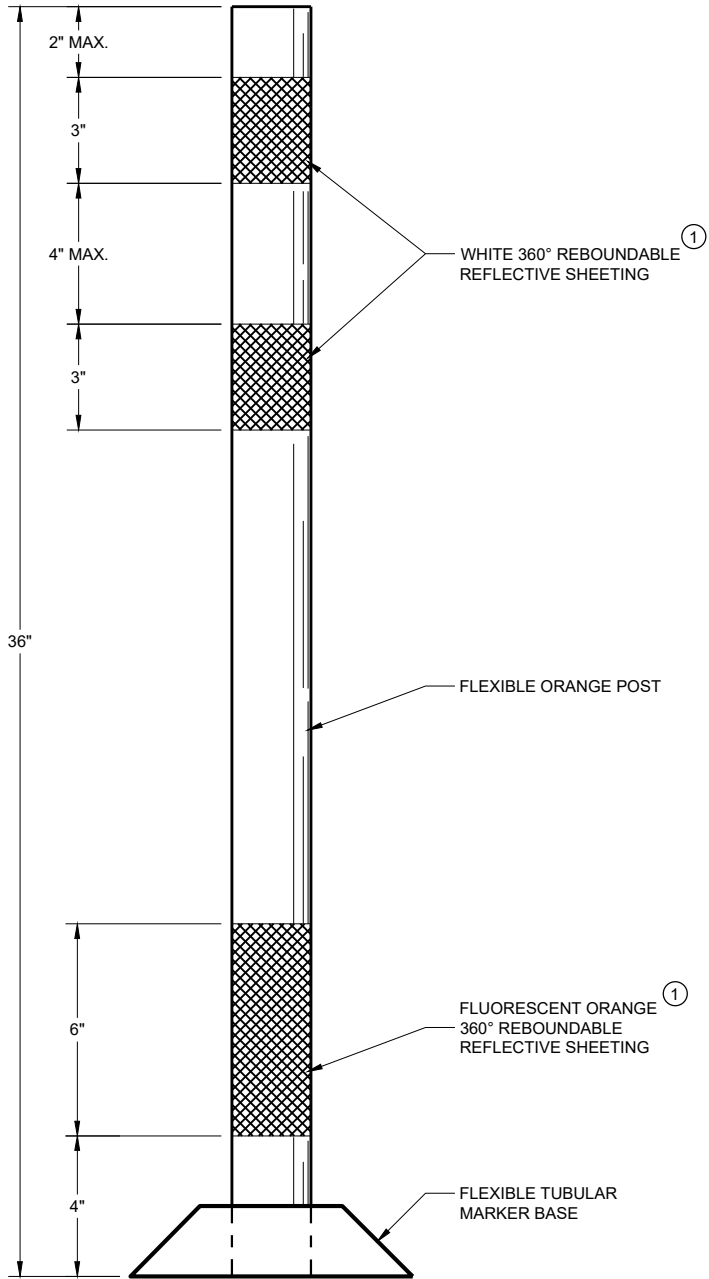
**DISTANCE TABLE**

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



FLEXIBLE TUBULAR  
MARKER POST  
WORK ZONE

GENERAL NOTES

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

SURFACE MOUNTED BASES SHALL BE FURNISHED IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS TO BE COMPATIBLE WITH FLEXIBLE TUBULAR MARKER POSTS TO A SIZE AND SHAPE THAT WILL PROVIDE A STABLE POST FOUNDATION WHEN SECURED TO THE PAVEMENT.

THE ASPHALTIC ADHESIVE OR BUTYL PAD FURNISHED SHALL BE IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS, UNLESS DIRECTED BY THE ENGINEER TO USE BOLTS.

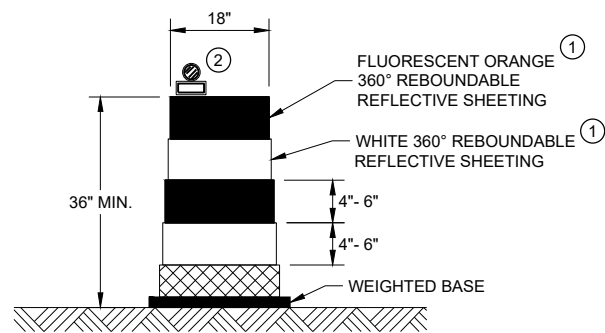
① REFLECTIVE SHEETING SHALL FOLLOW THE REQUIREMENTS IN THE APPROVED PRODUCTS LISTING FOR SIGN SHEETING.

CHANNELIZING DEVICES  
FLEXIBLE TUBULAR  
MARKER POST

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

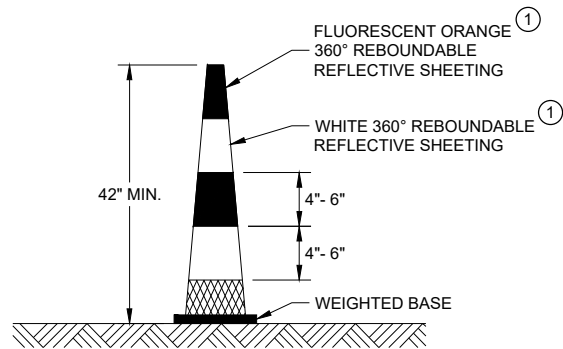
APPROVED  
November 2022 /S/ Andrew Heidtke  
DATE WORK ZONE ENGINEER

FHWA



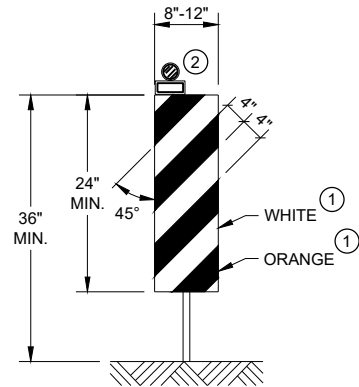
**DRUM**

BALLAST WIDTHS  
RANGE FROM 24"-36"



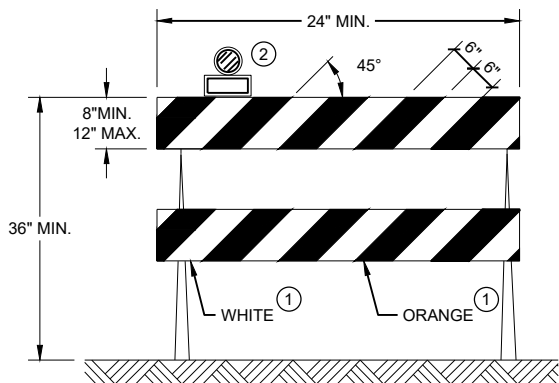
**42" CONE**

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



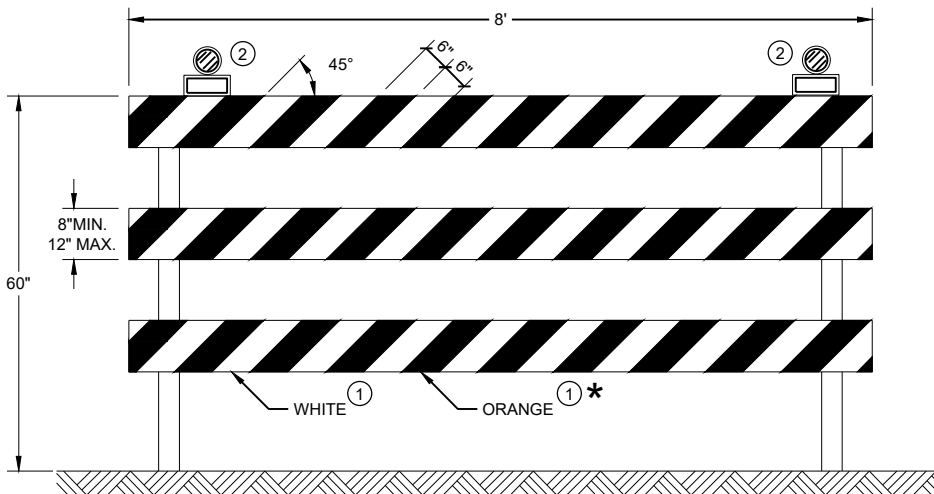
**VERTICAL PANEL**

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.

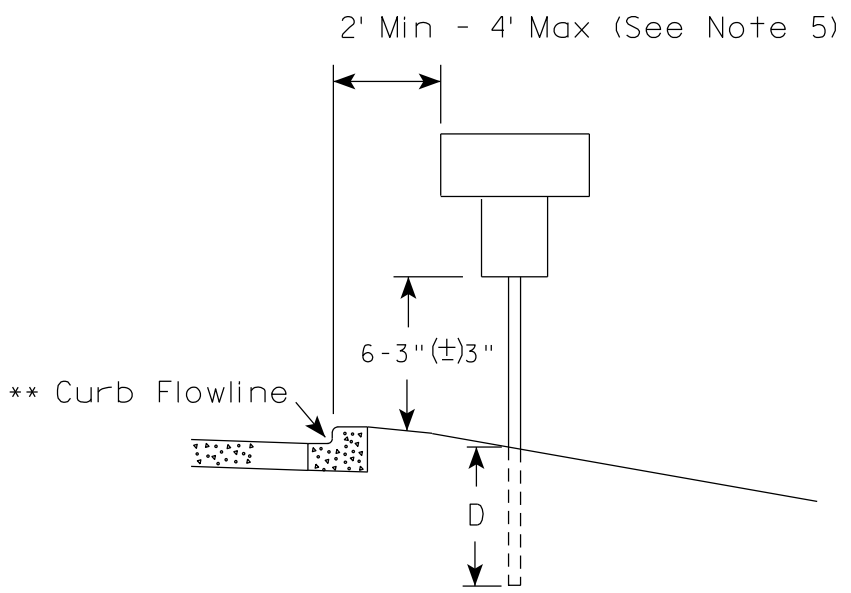
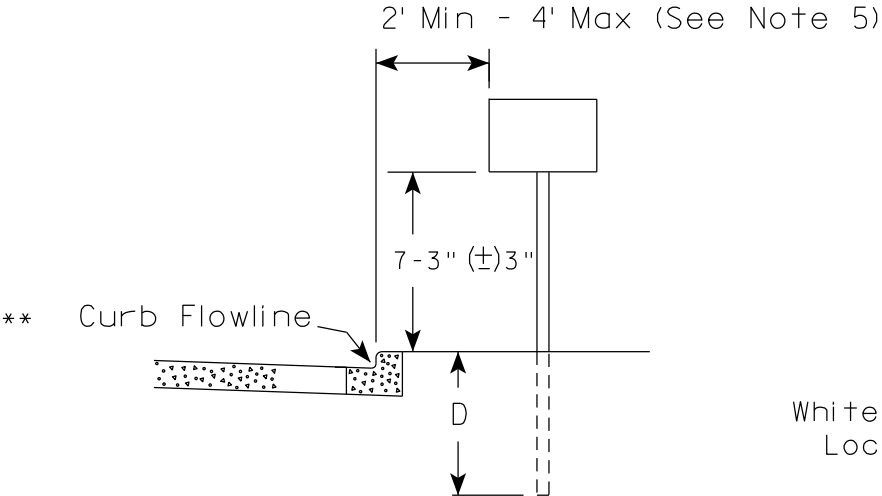
**CHANNELIZING DEVICES  
DRUMS, CONES, BARRICADES  
AND VERTICAL PANELS**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

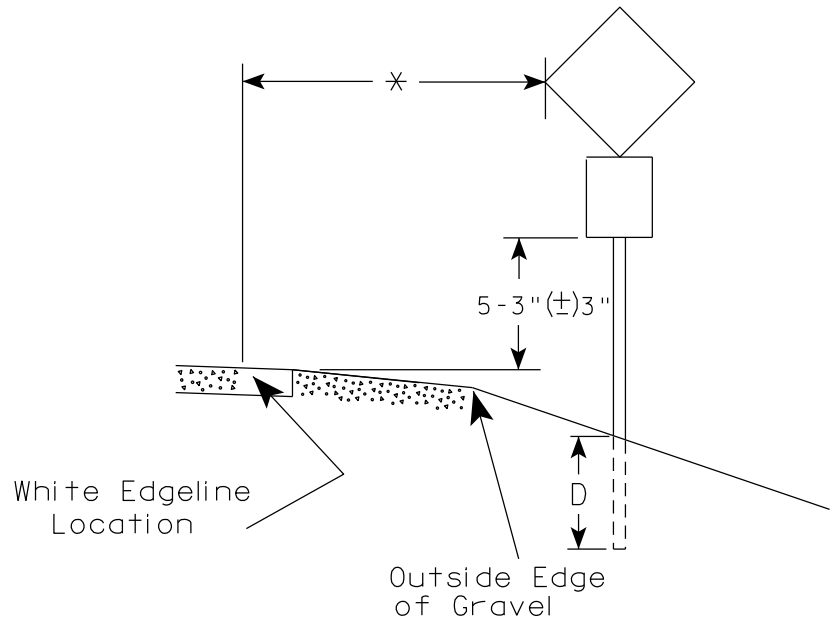
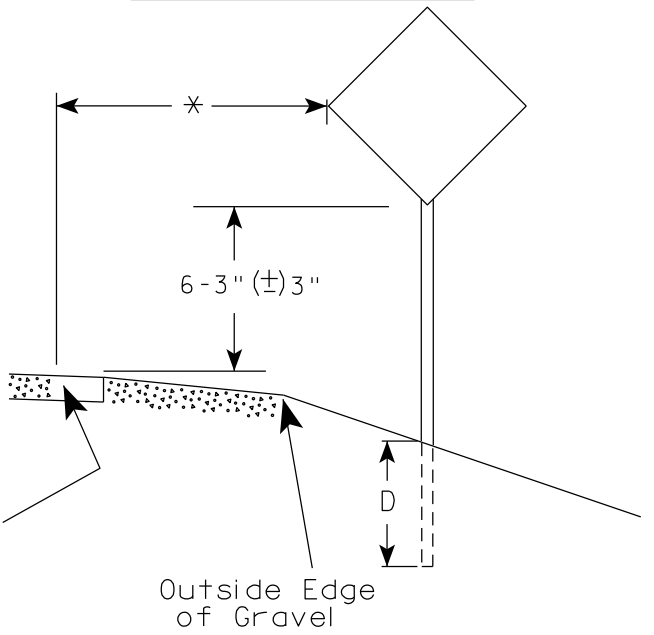
APPROVED  
November 2022 /S/ Andrew Heidtke  
DATE WORK ZONE ENGINEER

FHWA

URBAN AREA



RURAL AREA (See Note 2)



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

GENERAL NOTES

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

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

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

TYPICAL INSTALLATION  
OF PERMANENT TYPE II  
SIGNS ON SINGLE POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*  
for State Traffic Engineer

DATE 12/6/23 PLATE NO. A4-3.23





### 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 PLATE NO. A4-3B.1

PROJECT NO:

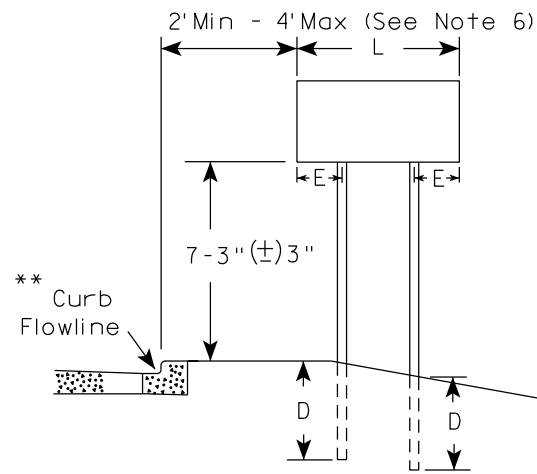
HWY:

COUNTY:

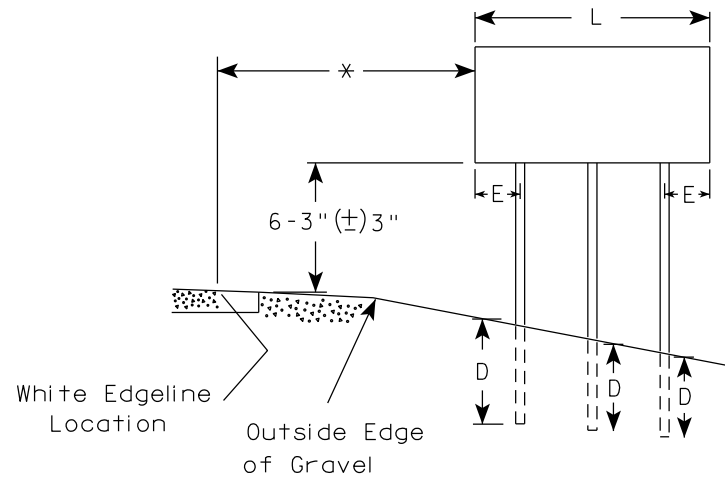
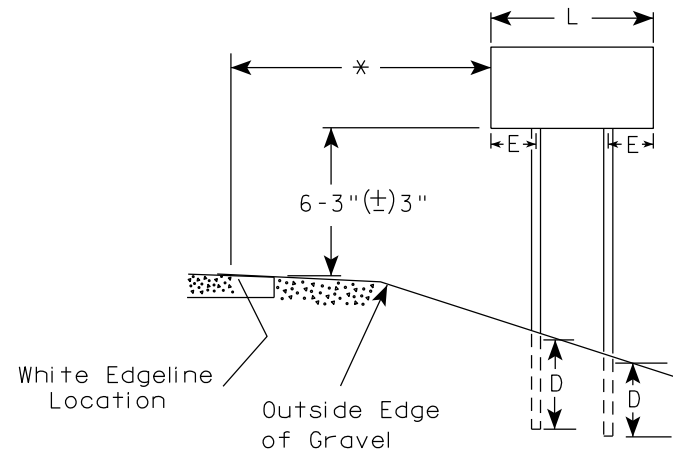
SHEET NO:

E

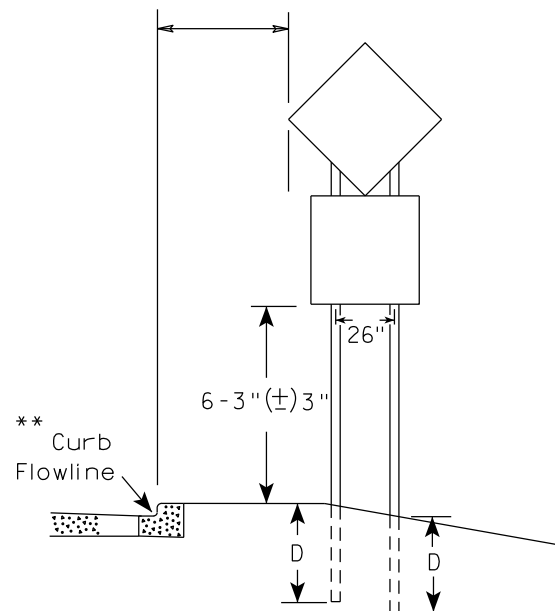
URBAN AREA



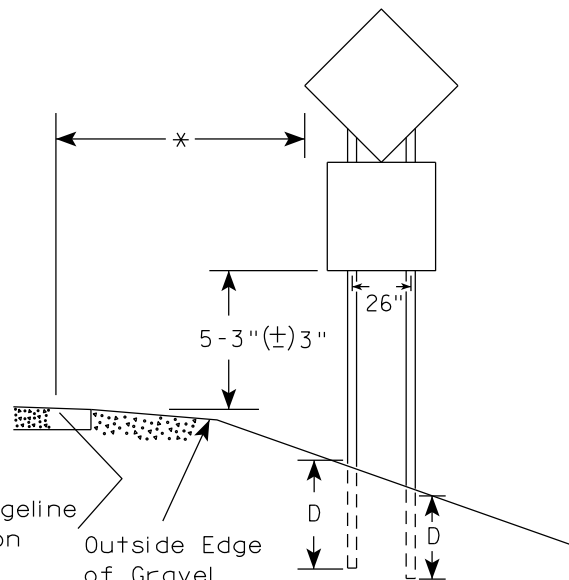
RURAL AREA (See Note 3)



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

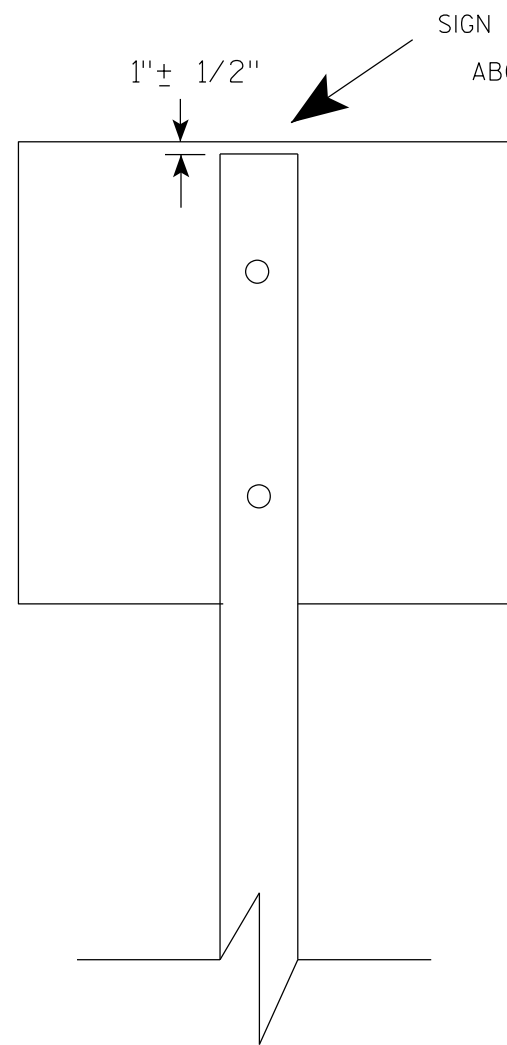
PROJECT NO:

HWY:

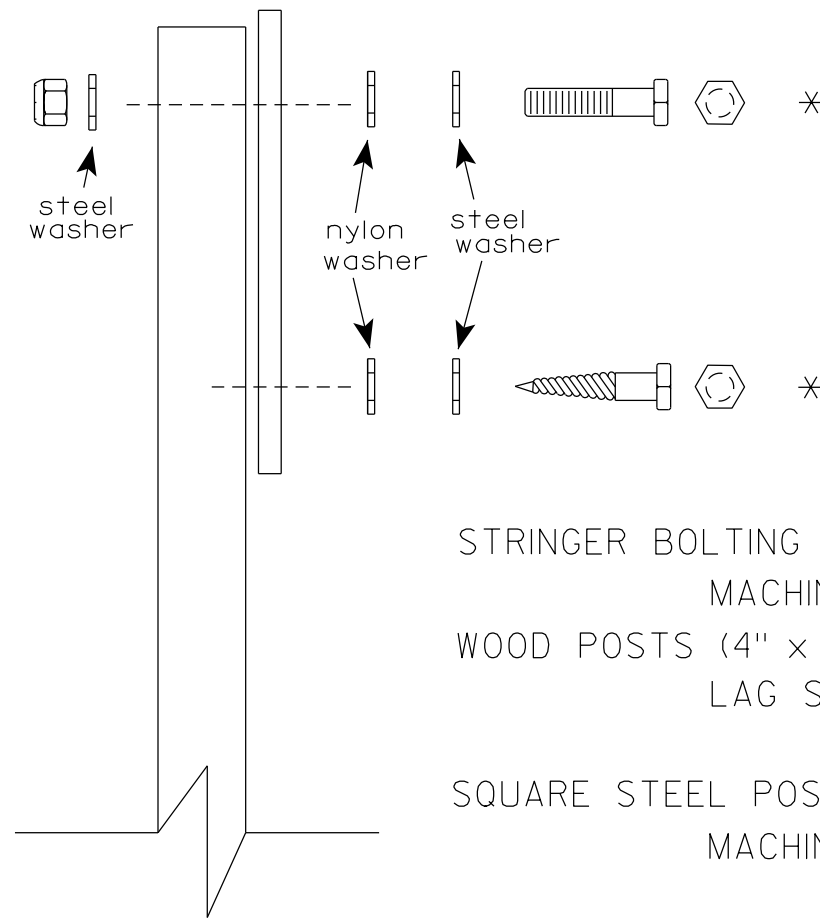
COUNTY:

SHEET NO:

E



SIGN SHALL BE MOUNTED TO PROJECT  
ABOVE THE TOP OF THE POST



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

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

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

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

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

WOOD POSTS (4" x 6")

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

SQUARE STEEL POSTS (2" x 2")

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

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

WASHERS (ALL POSTS) -

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

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

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

## ATTACHMENT OF SIGNS TO POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R. Rauch  
For State Traffic Engineer

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

**2 1/4 " SQUARE  
12 GAUGE  
PERFORATED  
GALVANIZED FINISH**

4" x 10" x 10 GA. ———→  
STEEL PLATE (CUT  
AS SHOWN) WELDED  
TO ALL FOUR CORNERS  
OF TELESPAR TUBE

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

2 1/2" TELES PAR TUBE

4" x 10" x 10 GA. STEEL PLATE (CUT AS SHOWN) WELDED TO ALL FOUR CORNERS OF TELES PAR TUBE

4"

2 1/2"

10"

3 1/2"

16"

LENGTH SHOWN ON MISC. QTY'S

TELESCOPE PIECES FLUSH AT TOP

18" DIA SCHEDULE 40 PVC BOX-OUT

36"

18"

13"

2 1/2"

2 1/4" SQUARE X 36"

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

3/8" ZINC PLATED ANCHOR BOLT AND NUT

2 1/2" GRAVEL OR DIRT

2" STEEL TUBULAR SQUARE UPPER SECTION

ALL HOLES 7/16" SPACED 1" C-C ALL FOUR SIDES

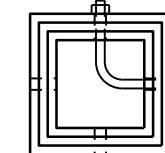
SEE SIGN PLATE A4-8 FOR BOLT WASHER, & NUT MATERIAL

SIGN

TECHNICAL DRAWING OF A SIGNPOST ASSEMBLY:

- Dimensions:**
  - Overall height: LENGTH SHOWN ON MISC. QTY'S
  - Section 1 height: 36"
  - Section 2 height: 18"
  - Section 3 height: 12"
- Components and Labels:**
  - SIGN
  - SEE SIGN PLATE A4-8 FOR BOLT WASHER, & NUT MATERIAL
  - 2" STEEL TUBULAR SQUARE UPPER SECTION
  - ALL HOLES  $\frac{7}{16}$ " SPACED 1" C-C
  - ALL FOUR SIDES
  - $\frac{3}{8}$ " ZINC PLATED CORNER ANCHOR BOLT AND NUT
  - TELESCOPE PIECES FLUSH AT TOP
  - $\frac{3}{8}$ " ZINC PLATED ANCHOR BOLT AND NUT
  - 2 1/2" SQUARE X 18" (SOIL STABILIZING SLEEVE)
  - 2 1/4" SQUARE X 36"

3/8" ZINC PLATED CORNER  
ANCHOR BOLT AND NUT



DIRECTION  
OF TRAFFIC

SECTION A-A

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

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

TUBULAR STEEL  
SIGN POST  
A4-9

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R. Rauch

for State Traffic Engineer

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

PROJECT NO:

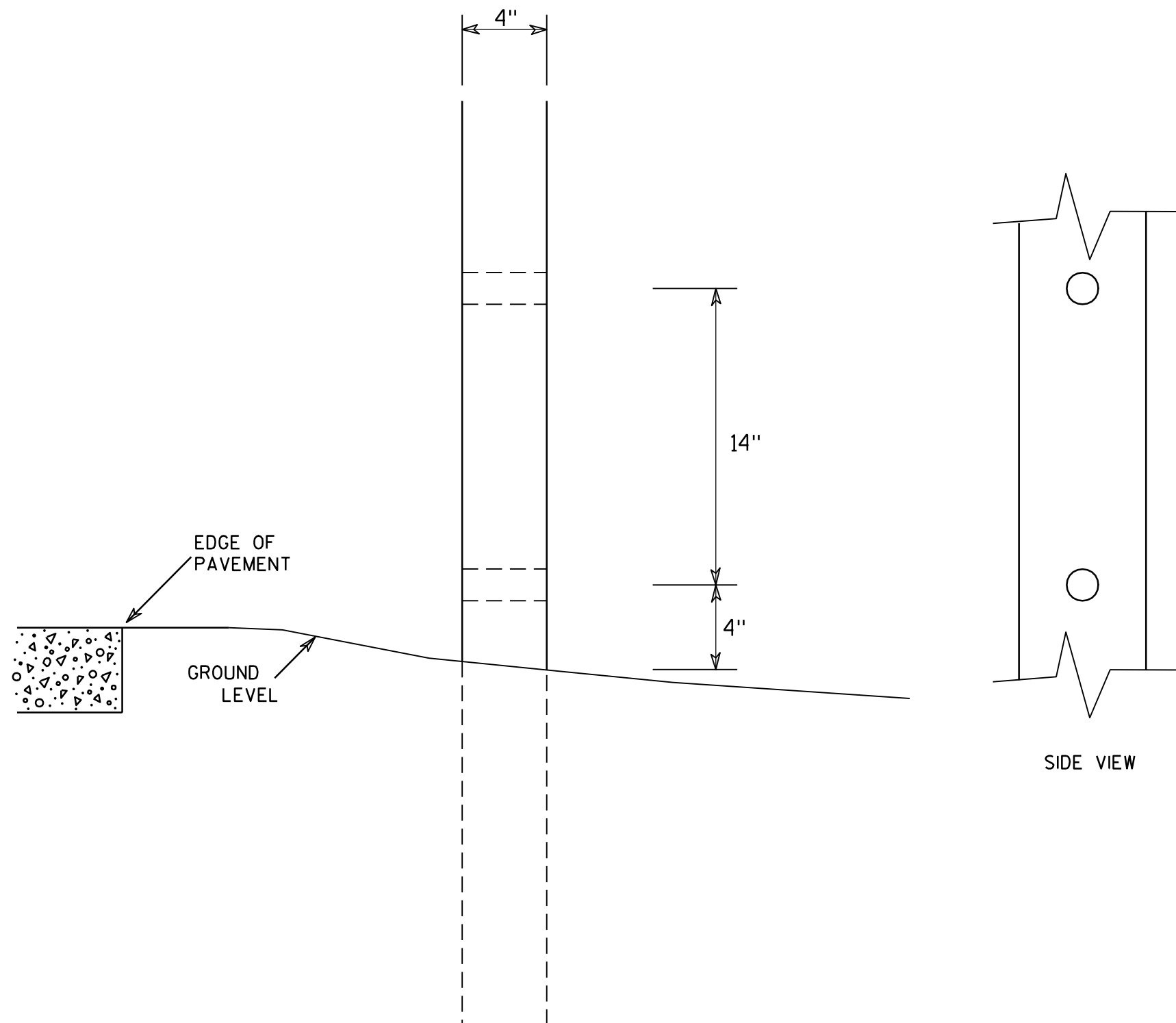
HWY:

COUNTY:

SHEET NO:

**T**

7



### GENERAL NOTES

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

7

### 4 X 6 WOOD POST MODIFICATIONS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED

*Chester J. Spang*  
for State Traffic Engineer

DATE 3/27/97

PLATE NO. A4-11.2

PROJECT NO:

HWY:

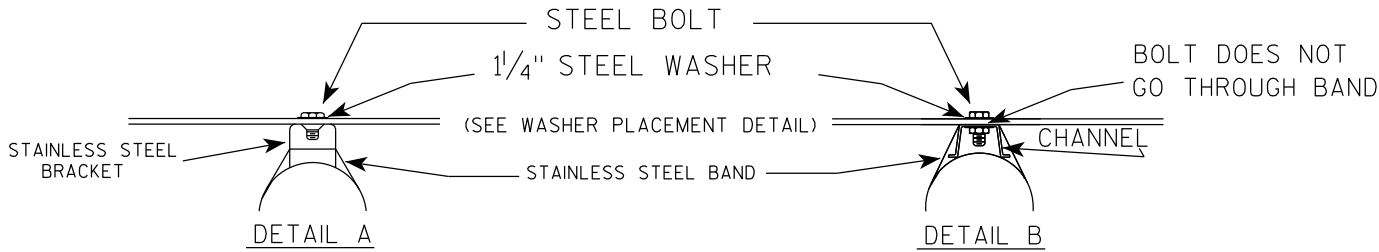
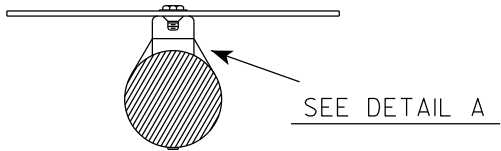
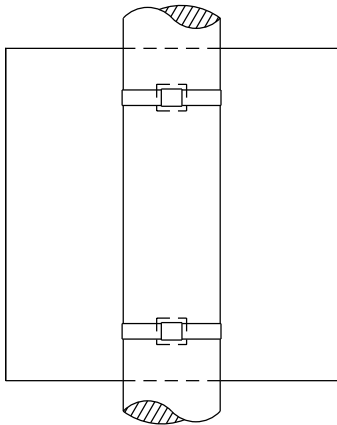
COUNTY:

SHEET NO:

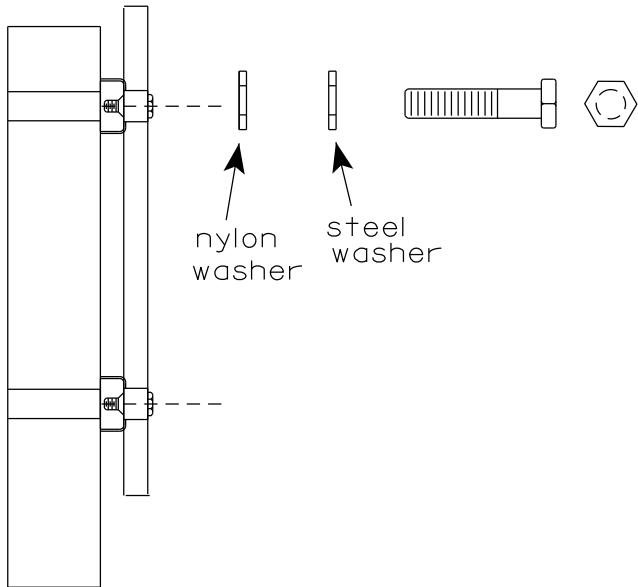
E

BANDING

SINGLE SIGN



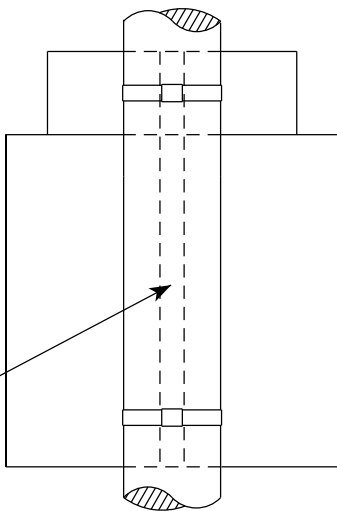
WASHER PLACEMENT



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

CHANNEL  
SEE TYPICAL PANEL  
INSTALLATION SHEET

"J" ASSEMBLY



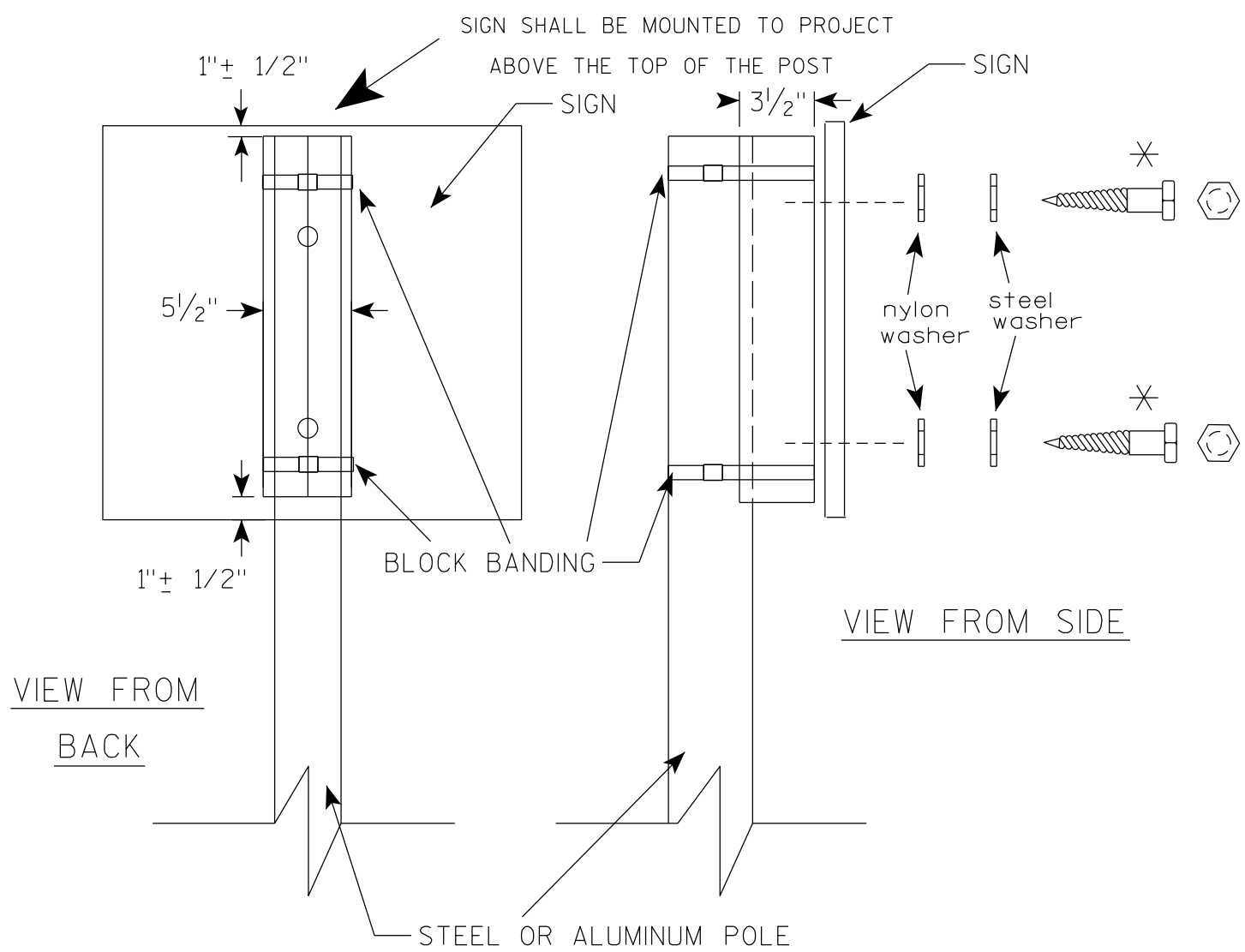
SEE DETAIL B

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

STANDARD SIGN  
SIGN BANDING DETAILS

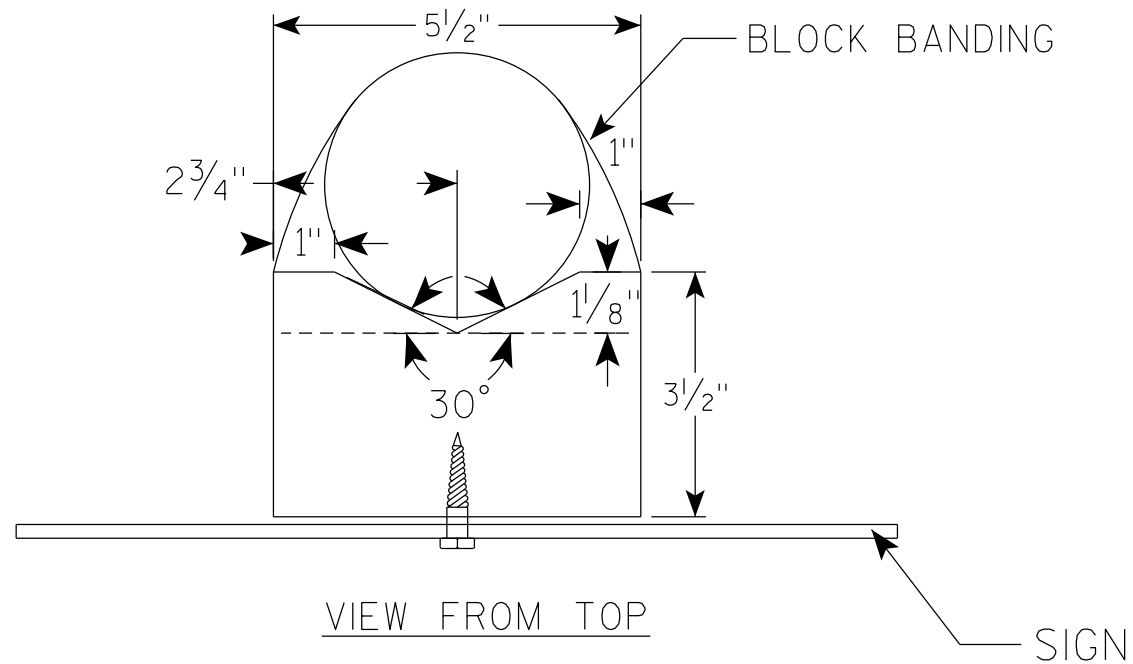
WISCONSIN DEPT OF TRANSPORTATION

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

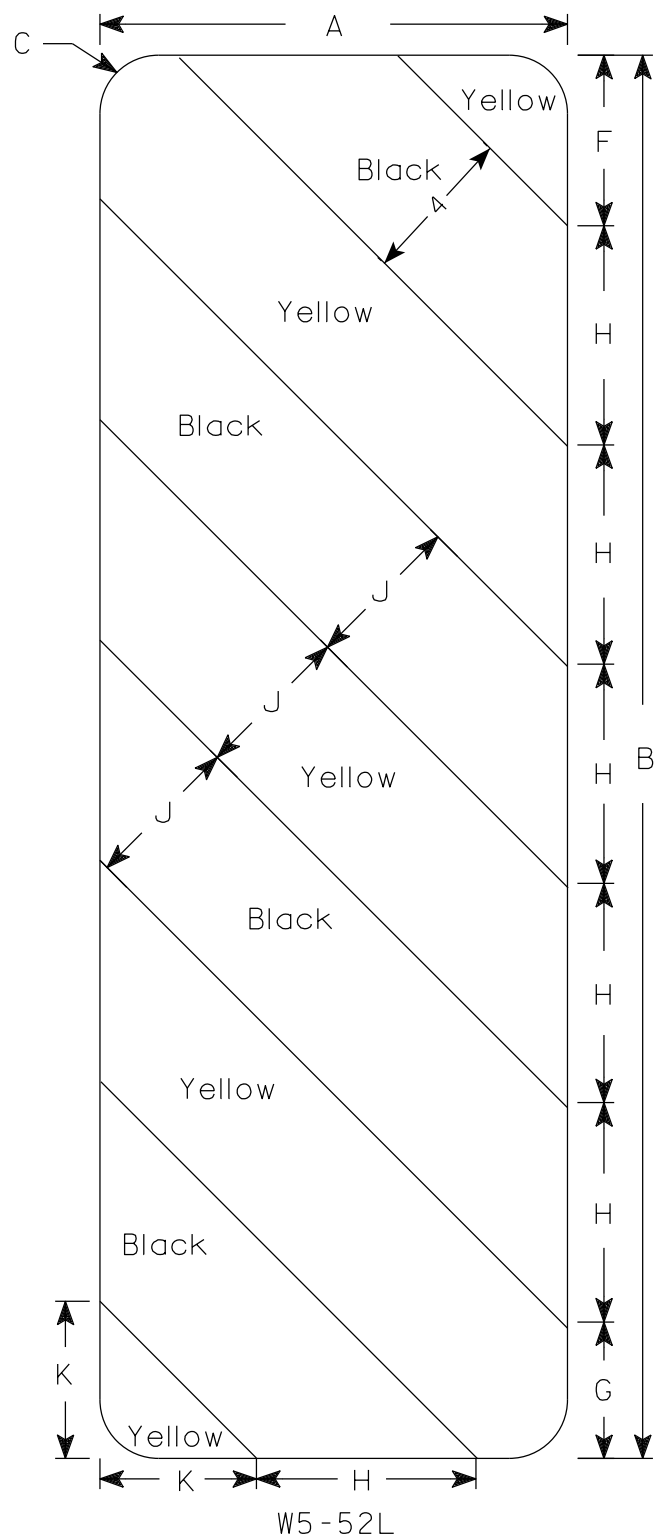
APPROVED *Matthew R. Rauch*  
for State Traffic Engineer

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

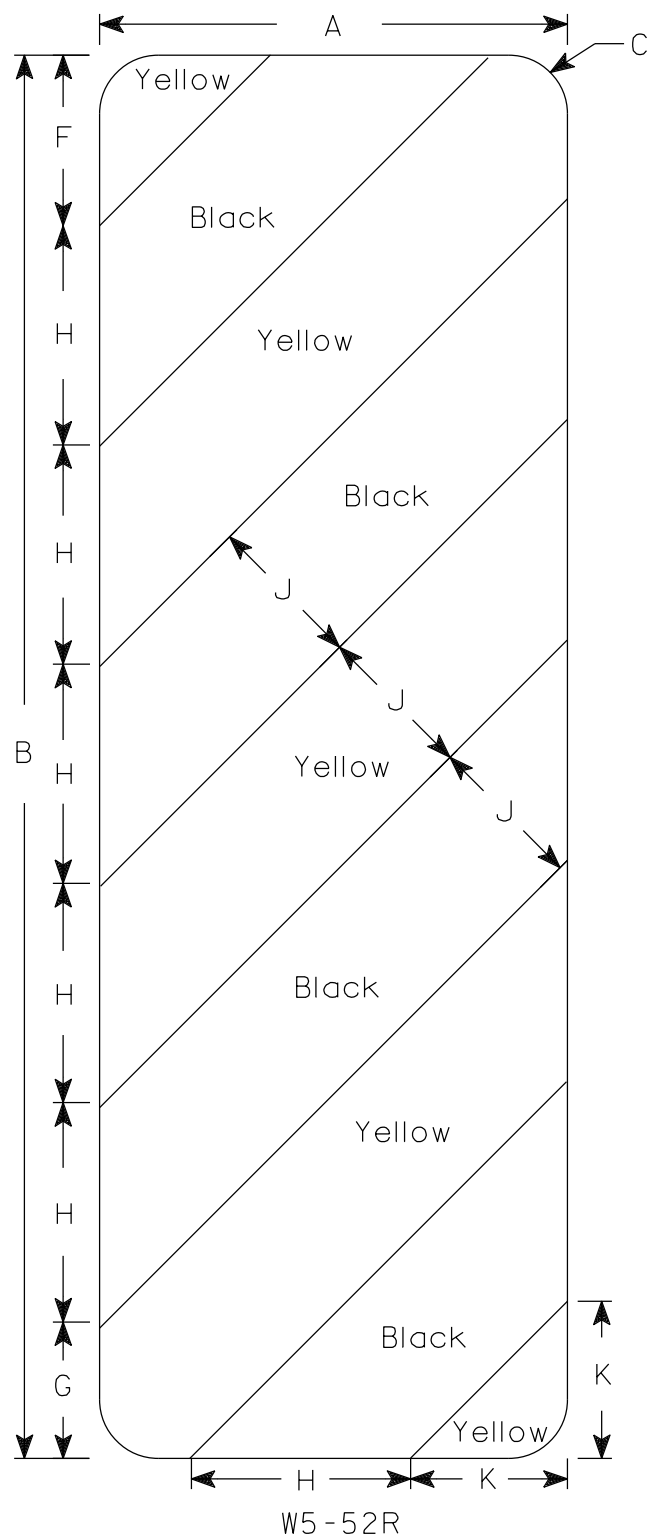
PROJECT NO:

SHEET NO:

E



W5-52L



W5-52R

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

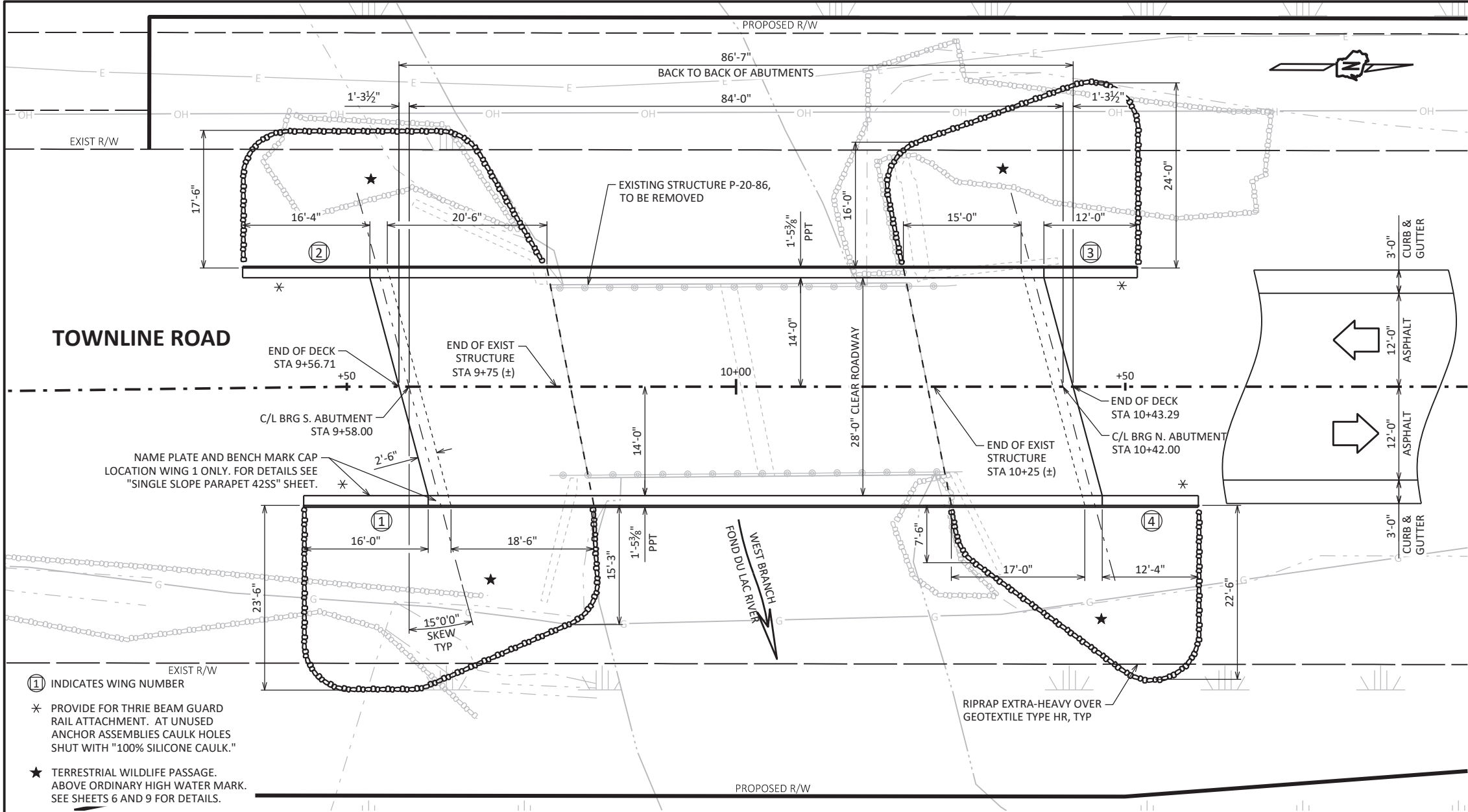
W5-52L & W5-52R

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*  
For State Traffic Engineer

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





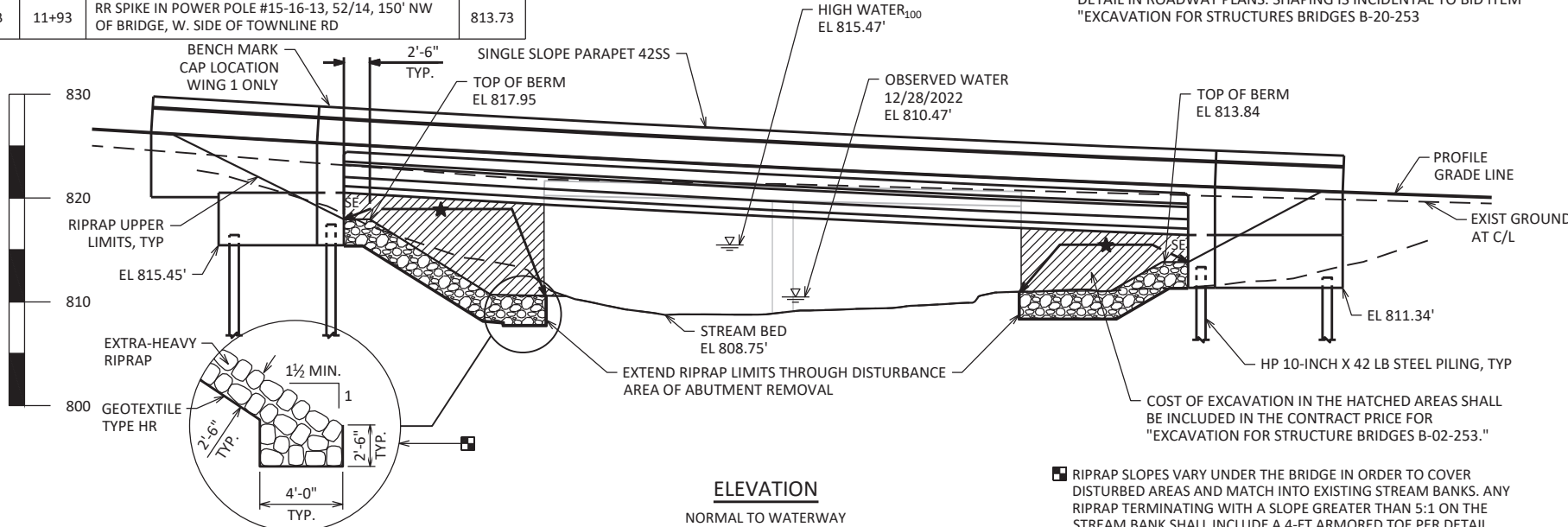
- ① INDICATES WING NUMBER
- \* PROVIDE FOR THRIE BEAM GUARD RAIL ATTACHMENT. AT UNUSED ANCHOR ASSEMBLIES CAULK HOLES SHUT WITH "100% SILICONE CAULK."
  - ★ TERRESTRIAL WILDLIFE PASSAGE. ABOVE ORDINARY HIGH WATER MARK. SEE SHEETS 6 AND 9 FOR DETAILS.

BENCH MARKS

BM	STA	DESCRIPTION	ELEV
A	8+61	RR SPIKE IN POWER POLE #15-16-13, 52/10, 110' SW OF BRIDGE, W. SIDE OF TOWNLINE RD	830.48
B	11+93	RR SPIKE IN POWER POLE #15-16-13, 52/14, 150' NW OF BRIDGE, W. SIDE OF TOWNLINE RD	813.73

PLAN  
SINGLE SPAN 36W" PRESTRESSED CONCRETE GIRDER

NOTE: SHAPE SLOPES IN FRONT OF ABUTMENTS PER CONSTRUCTION DETAIL IN ROADWAY PLANS. SHAPING IS INCIDENTAL TO BID ITEM "EXCAVATION FOR STRUCTURES BRIDGES B-20-253"



ELEVATION  
NORMAL TO WATERWAY

■ RIPRAP SLOPES VARY UNDER THE BRIDGE IN ORDER TO COVER DISTURBED AREAS AND MATCH INTO EXISTING STREAM BANKS. ANY RIPRAP TERMINATING WITH A SLOPE GREATER THAN 5:1 ON THE STREAM BANK SHALL INCLUDE A 4-FT ARMORED TOE PER DETAIL.

DESIGN DATA

LIVE LOAD:

DESIGN LOADING: HL-93  
INVENTORY RATING: RF = 1.21  
OPERATING RATING: RF = 1.61  
WISCONSIN STANDARD PERMIT VEHICLE (WIS-SPV): 250 (KIPS)

STRUCTURE IS DESIGNED FOR A FUTURE WEARING SURFACE OF 20 POUNDS PER SQUARE FOOT.

MATERIAL PROPERTIES:

CONCRETE MASONRY:  
SUPERSTRUCTURE  $f'_c = 4,000$  PSI  
ALL OTHER  $f'_c = 3,500$  PSI

BAR STEEL REINFORCEMENT  
GRADE 60  $f_y = 60,000$  PSI

36-W" PRESTRESSED GIRDERS:  
CONCRETE MASONRY  $f'_c = 8,000$  PSI  
STRANDS: 0.6" DIA. WITH ULTIMATE TENSILE STRENGTH OF 270,000 P.S.I.

FOUNDATION DATA

ABUTMENTS TO BE SUPPORTED ON HP 10-INCH X 42 LB STEEL PILING DRIVEN TO A REQUIRED DRIVING RESISTANCE OF 170 TONS \*\* PER PILE AS DETERMINED BY THE MODIFIED GATES DYNAMIC FORMULA.  
ESTIMATED 35'-0" LONG AT SOUTH ABUTMENT.  
ESTIMATED 30'-0" LONG AT NORTH ABUTMENT.

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

HYDRAULIC DATA

100-YEAR FREQUENCY:

$Q_{100} = 2,000$  C.F.S.  
 $V_{100} = 9.5$  F.P.S.  
 $HW_{100} = EL. 815.47$   
WATERWAY AREA = 210 SQ. FT.  
DRAINAGE AREA = 79.4 SQ. MI.  
ROADWAY OVERTOPPING = N/A  
SCOUR CRITICAL CODE = 5

2-YEAR FREQUENCY:

$Q_2 = 600$  C.F.S.  
 $V_2 = 5.3$  F.P.S.  
 $HW_2 = EL. 812.25$

TRAFFIC DATA

TOWNLINE ROAD:

ADT = 410 (2025)  
ADT = 550 (2045)  
R.D.S. = 35 MPH

STRUCTURE DESIGN CONTACTS:

CONSULTANT CONTACT: ANDREW KLEMP  
920-924-5720  
BRIDGE OFFICE CONTACT: AARON BONK  
608-261-0261



STATE OF WISCONSIN  
DEPARTMENT OF  
TRANSPORTATION  
ACCEPTED SDR 08/05/24  
CHIEF STRUCTURES DESIGN ENGINEER DATE

STRUCTURE B-20-253

TOWNLINE ROAD OVER WEST BRANCH FOND DU LAC RIVER

COUNTY FOND DU LAC TOWN LAMARTINE

DESIGN SPEC. AASHTO LRFD BRIDGE DESIGN SPECIFICATION

DESIGNED BY RTA CK'D ALK DRAWN BY MJK CK'D ALK

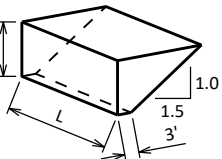
GENERAL PLAN

SHEET 1 OF 16

SHAPE SLOPES N FRONT OF ABUTMENTS PER CONSTRUCTION DETAILS WITHIN THE ROADWAY PLANS. SHAPING IS INCIDENTAL TO BID ITEM "EXCAVATION FOR STRUCTURES BRIDGES B-20-253."



BID ITEM NUMBER	BID ITEMS	UNIT	S ABUT	N ABUT	SUPER	TOTAL
203.0260	REMOVING STRUCTURE OVER WATERWAY MINIMAL DEBRIS P-20-86	EACH	---	---	---	1
206.1001	EXCAVATION FOR STRUCTURES BRIDGES B-20-253	EACH	---	---	---	1
210.1500	BACKFILL STRUCTURE TYPE A	TON	188	188	---	376
502.0100	CONCRETE MASONRY BRIDGES	CY	34.7	34.3	130.3	199.3
502.3200	PROTECTIVE SURFACE TREATMENT	SY	---	---	270	270
502.3210	PIGMENTED SURFACE SEALER	SY	---	---	115	115
503.0137	PRESTRESSED GIRDER TYPE I 36W-INCH	LF	---	---	340	340
505.0400	BAR STEEL REINFORCEMENT HS STRUCTURES	LB	2110	1750	---	3,860
505.0600	BAR STEEL REINFORCEMENT HS COATED STRUCTURES	LB	1960	1560	22250	25,770
506.2605	BEARING PADS ELASTOMERIC NON-LAMINATED	EACH	---	---	8	8
506.4000	STEEL DIAPHRAGMS B-20-253	EACH	---	---	6	6
516.0500	RUBBERIZED MEMBRANE WATERPROOFING	SY	9	10	---	19
550.0500	PILE POINTS	EACH	8	8	---	16
550.1100	PIILING STEEL HP 10-INCH X 42 LB	LF	277	237	---	514
606.0400	RIPRAP EXTRA-HEAVY	CY	181	149	---	330
612.0406	PIPE UNDERDRAIN WRAPPED 6-INCH	LF	82	88	---	170
614.0150	ANCHOR ASSEMBLY FOR STEEL PLATE BEAM GUARD	EACH	---	---	4	4
645.0111	GEOTEXTILE TYPE DF SCHEDULE A	SY	44	48	---	92
645.0120	GEOTEXTILE TYPE HR	SY	239	197	---	436
SPV.0195	SELECT CRUSHED MATERIAL FOR TRAVEL CORRIDOR	TON	137	114	---	251
	NON-BID ITEMS					
-----	JOINT FILLER	SIZE	---	---	---	1/2" & 3/4"
-----	NAME PLATE					

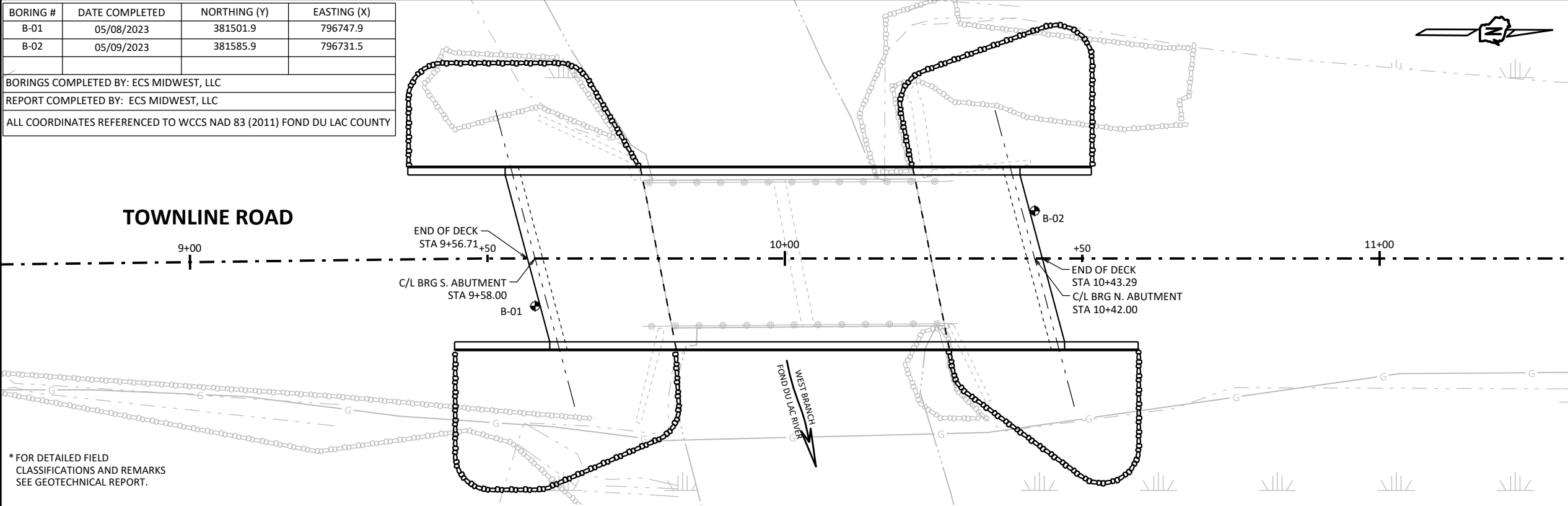


L = OUT TO OUT OF ABUTMENT BODY INCLUDING WINGS (FT)  
H = AVERAGE ABUTMENT FILL HEIGHT (FT)  
EF = EXPANSION FACTOR (1.20 FOR CY BID ITEMS AND  
1.00 FOR TON BID ITEMS)  
 $V_{CF} = (L)(3.0')(H) + (L)(0.5)(1.5H)(H)$   
 $V_{CY} = V_{CF}(EF)/27$   
 $V_{TON} = V_{CY}(2.0)$

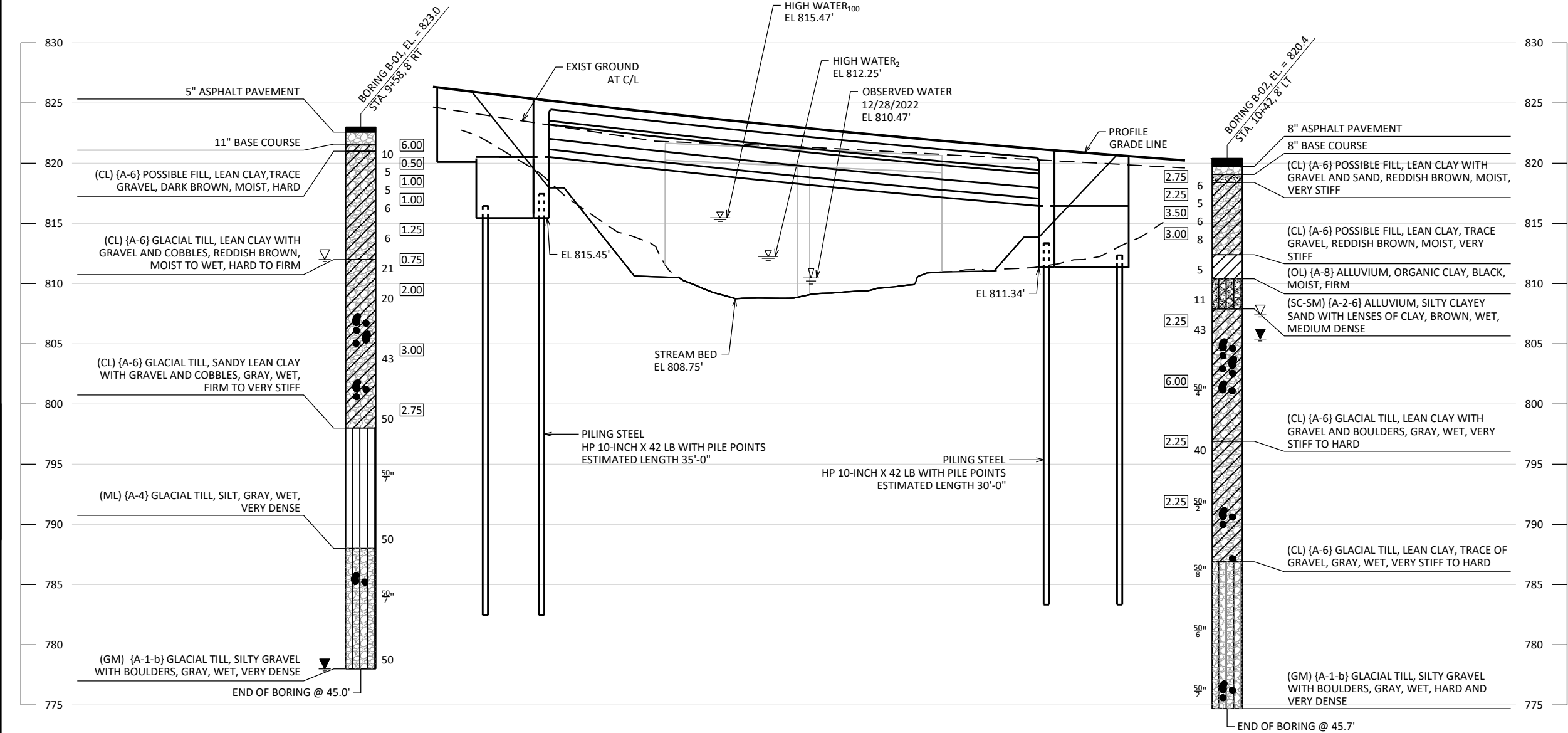


NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-20-253</b>			
DRAWN BY		MJK	PLANS CK'D ALK
<b>QUANTITIES AND CROSS SECTION</b>		SHEET 2	

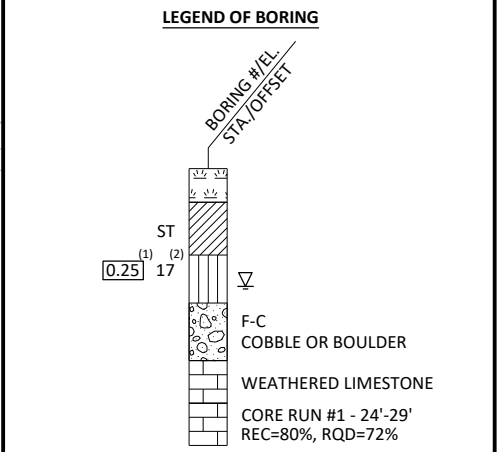
BORING #	DATE COMPLETED	NORTHING (Y)	EASTING (X)
B-01	05/08/2023	381501.9	796747.9
B-02	05/09/2023	381585.9	796731.5
BORINGS COMPLETED BY: ECS MIDWEST, LLC			
REPORT COMPLETED BY: ECS MIDWEST, LLC			
ALL COORDINATES REFERENCED TO WCCS NAD 83 (2011) FOND DU LAC COUNTY			



\* FOR DETAILED FIELD CLASSIFICATIONS AND REMARKS SEE GEOTECHNICAL REPORT.



STATE PROJECT NUMBER		
3822-02-71		
MATERIAL SYMBOLS		
ASPHALT	TOPSOIL	PEAT
CONCRETE	FILL	GRAVEL
SAND	CLAY	SILT
BOULDERS OR COBBLES	LIMESTONE	BEDROCK (UNKNOWN)
SHALE	SANDSTONE	IGNEOUS/META



- (1) UNCONFINED STRENGTH, AS DETERMINED BY A POCKET PENETROMETER (TSF)
- (2) UNLESS OTHERWISE, SPECIFIED THE SPT 'N' VALUE IS BASED ON AASHTO T-206, STANDARD PENETRATION TEST. THE SPT 'N' VALUE PRESENTED HAS NOT BEEN CORRECTED FOR OVERBURDEN PRESSURE OR HAMMER EFFICIENCY.

GROUND WATER ELEVATION			
▽	AT TIME OF DRILLING		
▼	END OF DRILLING		
▼	AFTER DRILLING		
ABBREVIATIONS			
F-FINE	M-MEDIUM	C-COARSE	ST-SHELBY TUBE

SUBSURFACE EXPLORATION FOR FOUNDATION DESIGN AND BIDDERS INFORMATION

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




NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-20-253			
DRAWN BY		MJK	PLANS CK'D ALK
SUBSURFACE EXPLORATION		SHEET 3	

\*ELEVATIONS AND DIMENSIONS AT C/L OF BRG. OF SOUTH ABUTMENT. SEE SHEET #6 FOR DETAILS.

STATE PROJECT NUMBER


**3822-02-71**

## LEGEND

-  INDICATES WING NUMBER
-  INDICATES GIRDER NUMBER
-  INDICATES PILE NUMBER

F.F. FRONT FACE

B.F. BACK FACE

 SUPPORT ABUTMENT ON HP 10 x 42 STEEL PILING,  
 ESTIMATED 35'-0" LONG WITH A REQUIRED DRIVING  
 RESISTANCE OF 170 TONS PER PILE.

**18" (RMW) RUBBERIZED MEMBRANE WATERPROOFING SEAL ALL HORIZ. & VERT. JOINTS AT BACKFACE.**

▲  $\frac{1}{2}$ " FILLER (INCLUDED IN WING LENGTH): SEAL ALL EXPOSED HORIZ. & VERT. SURFACES OF  $\frac{1}{2}$ " FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. (1" DEEP AND HOLD  $\frac{1}{8}$ " BELOW SURFACE OF CONCRETE). EXTEND SEALER 3" BELOW GUTTER LINE AT INSIDE FACE.

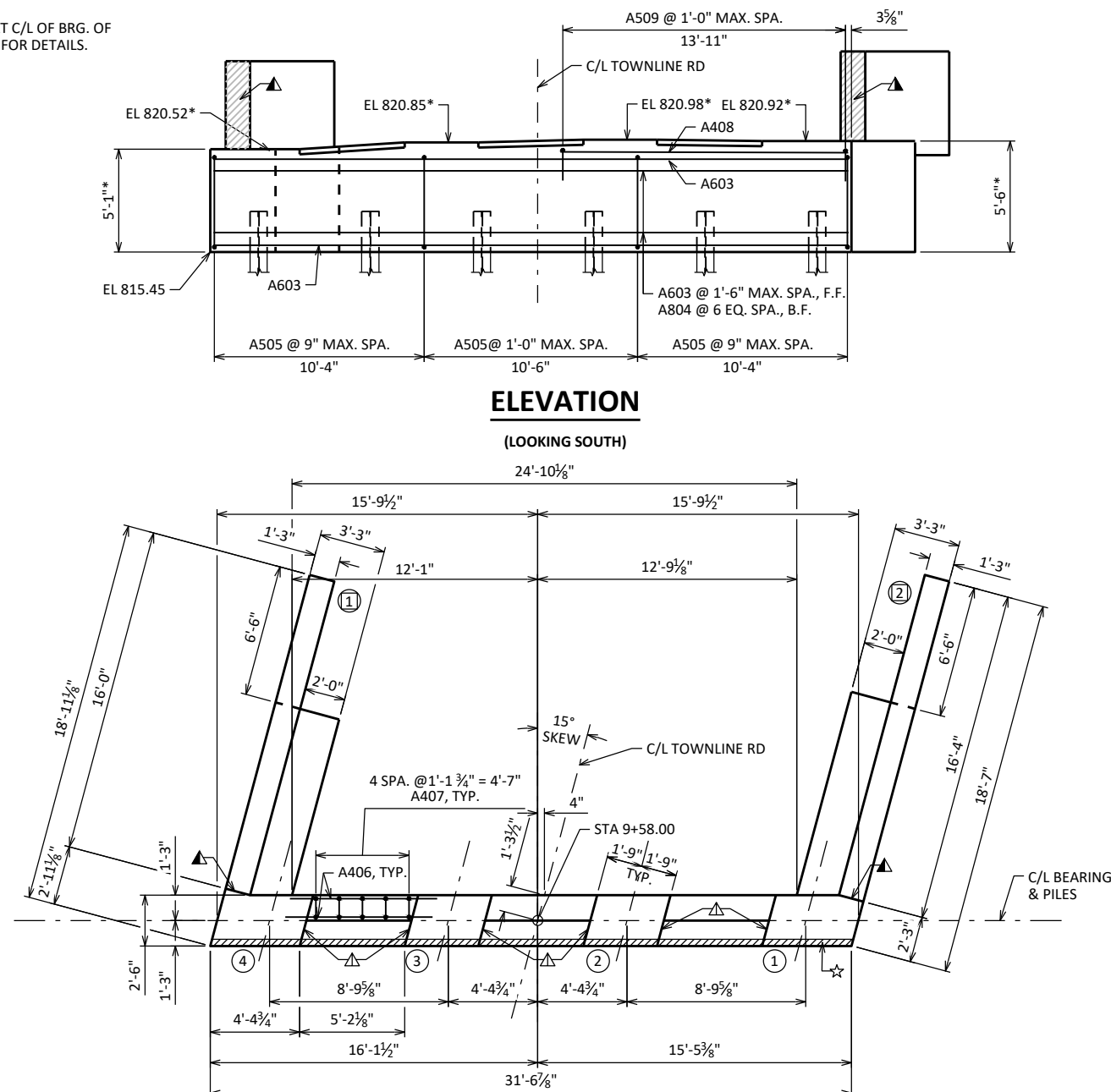
☆ 4" X ½" PREFORMED JOINT FILLER, LENGTH OF ABUTMENT.

△ 3/4" CORK FILLER ON VERTICAL BEAM SEAT FACES THAT RUN PARALLEL WITH GIRDER.

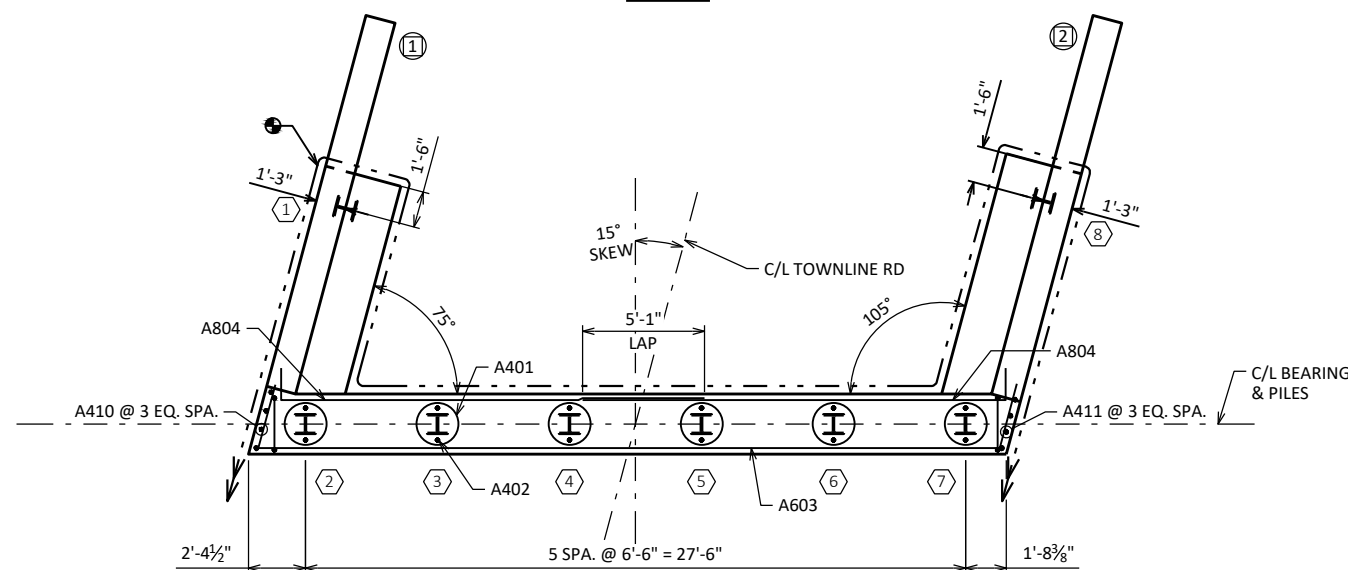
PIPE UNDERDRAIN WRAPPED (6-INCH). SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. RODENT SHIELD REQUIRED.

## ELEVATION

(LOOKING SOUTH)

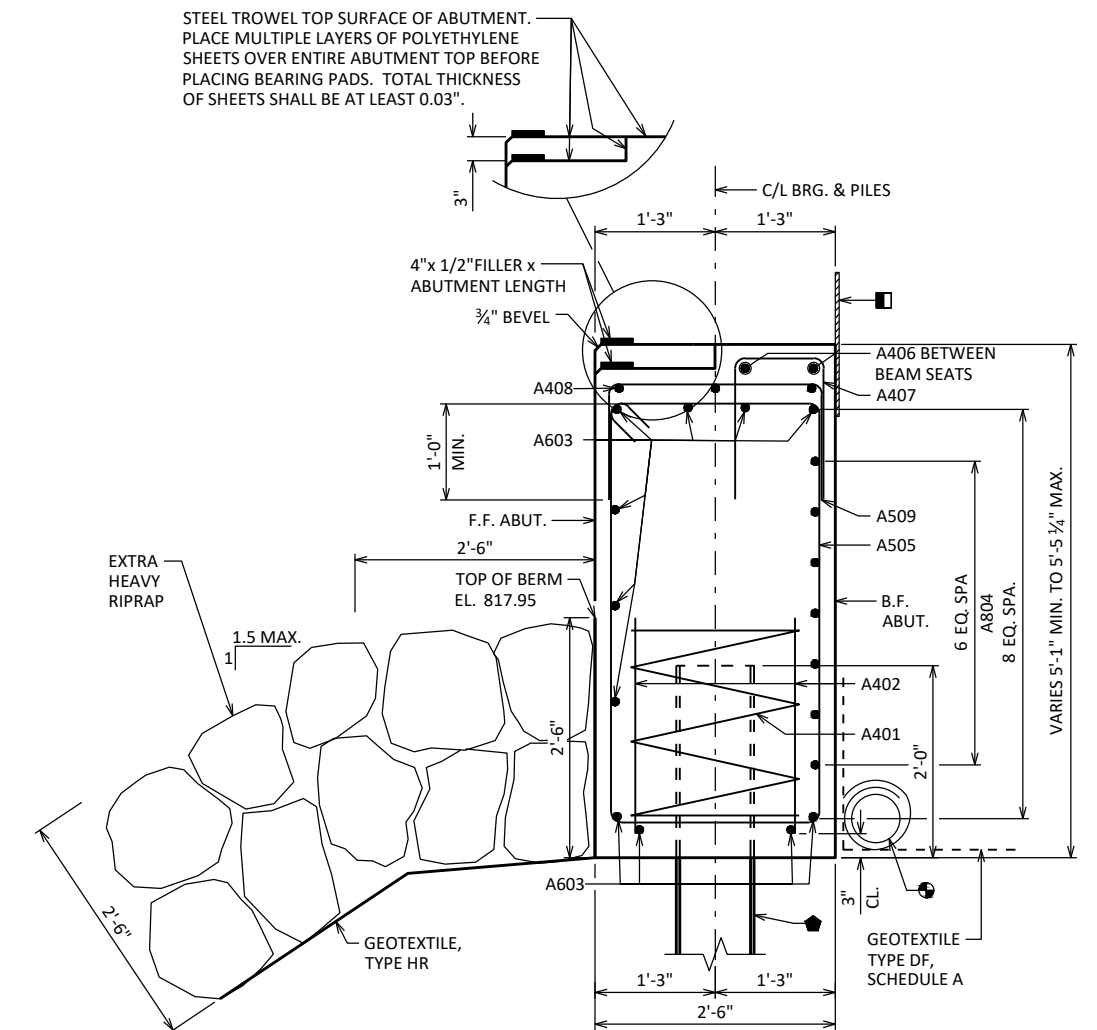


## PLAN



## PILE PLAN

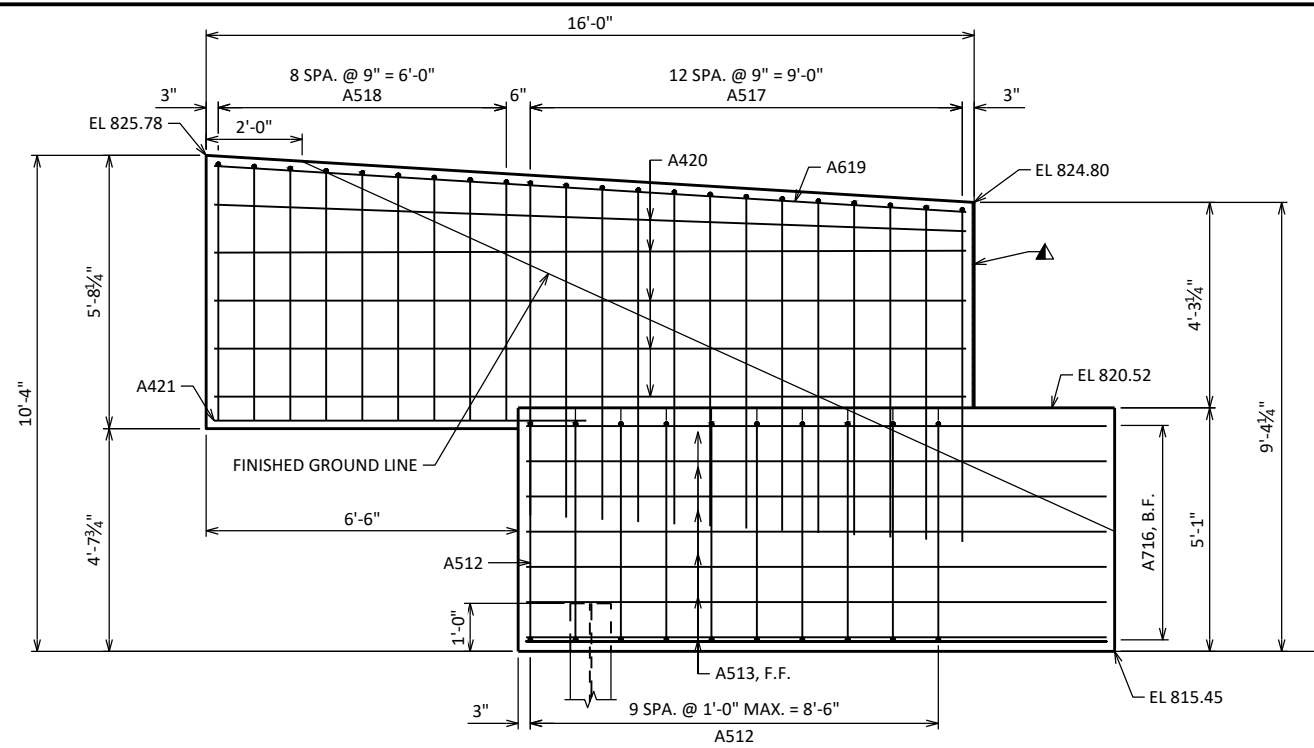
STEEL TROWEL TOP SURFACE OF ABUTMENT. -  
PLACE MULTIPLE LAYERS OF POLYETHYLENE  
SHEETS OVER ENTIRE ABUTMENT TOP BEFORE  
PLACING BEARING PADS. TOTAL THICKNESS  
OF SHEETS SHALL BE AT LEAST 0.03".



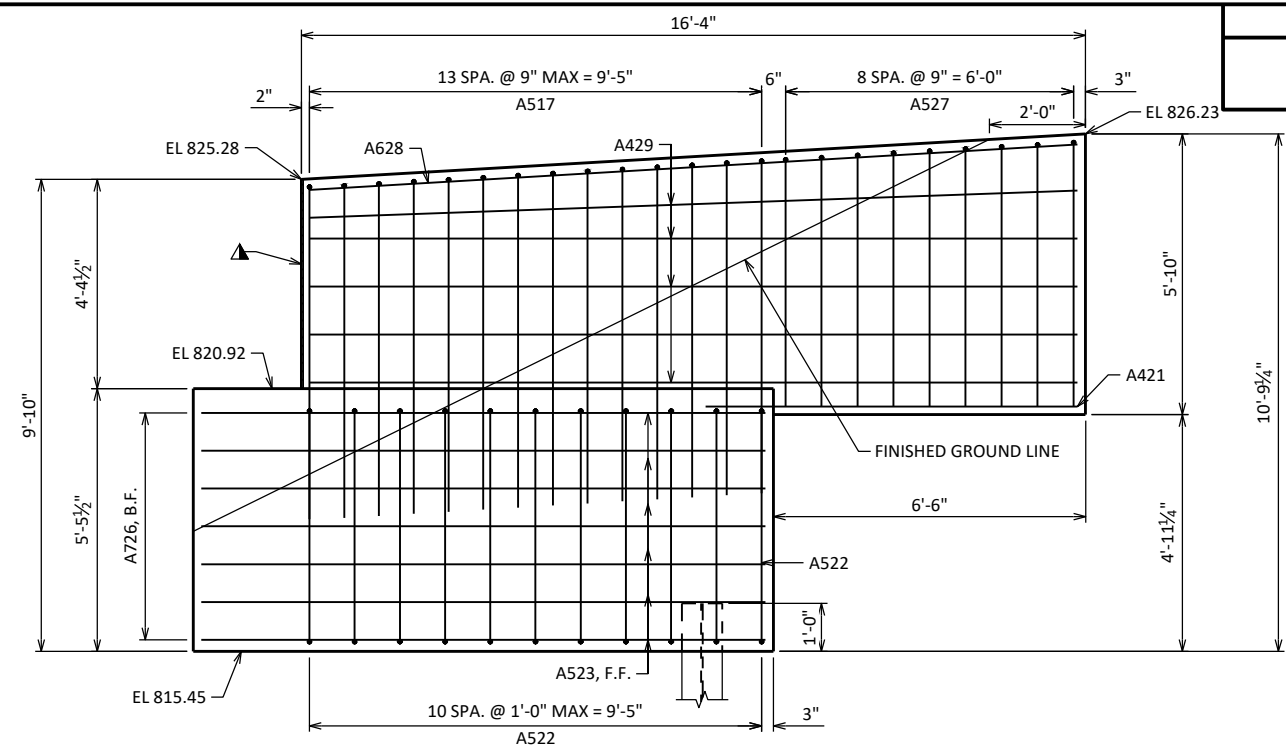
### SECTION THRU BODY

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-20-253</b>			
		DRAWN BY	PLANS CK'D
		MJK	ALK
<b>SOUTH ABUTMENT</b>		SHEET 4	

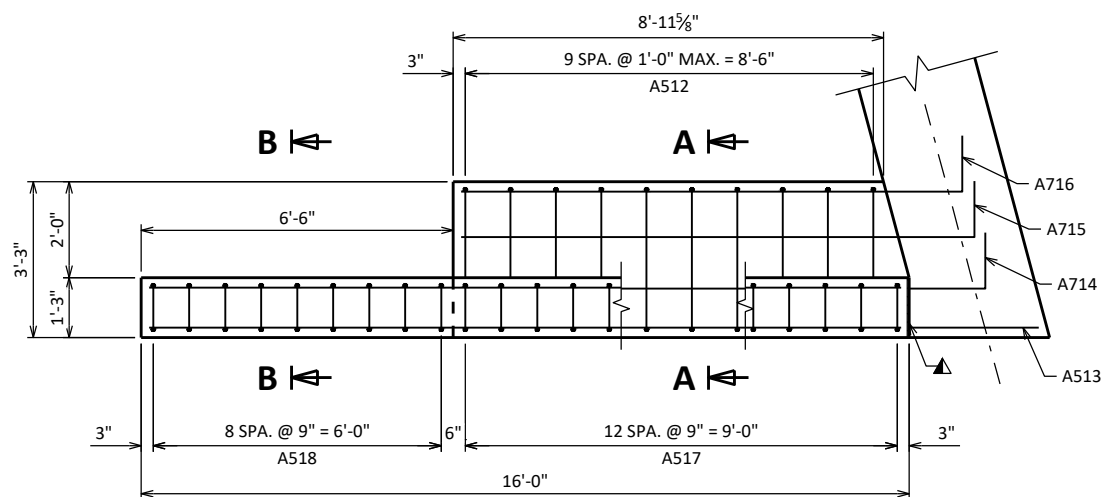
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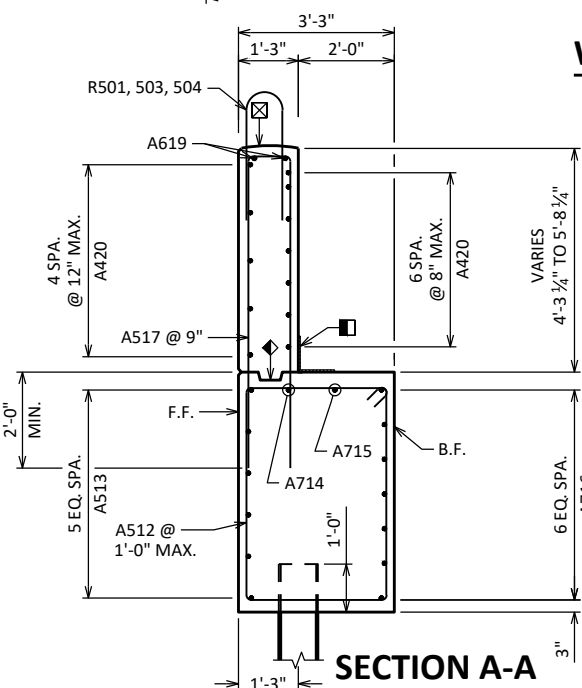
## WING 1 ELEVATION



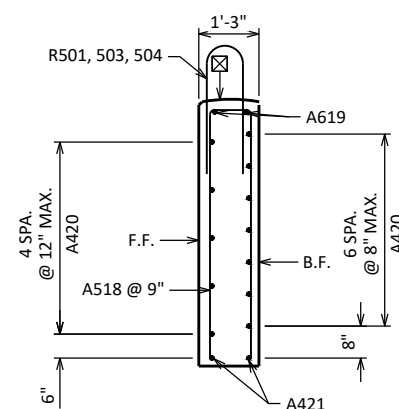
## WING 2 ELEVATION



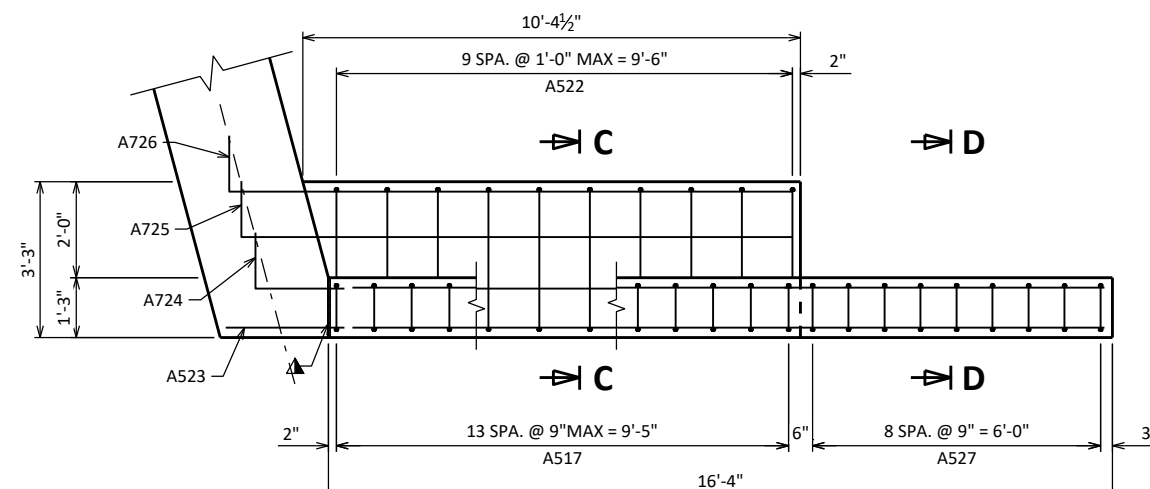
## WING 1 PLAN



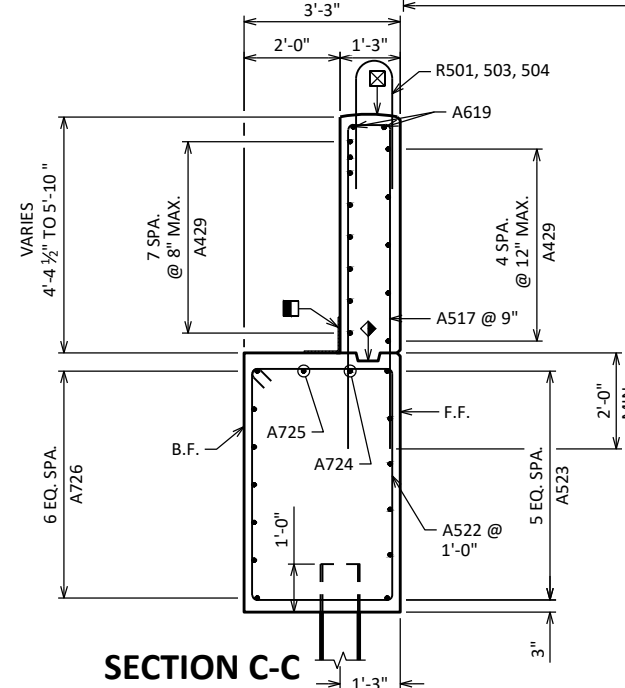
## SECTION A-A



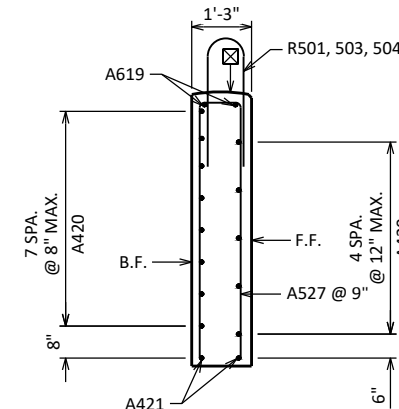
## SECTION B-B



## WING 2 PLAN



## SECTION C-C



## SECTION D-D

- ## LEGEND

 INDICATES WING NUMBER

F.F. FRONT FACE

B.F. BACK FACE

18" (RMW) RUBBERIZED MEMBRANE  
WATERPROOFING SEAL ALL HORIZ. & VERT. JOINTS  
AT BACKFACE.

▲ ½" FILLER (INCLUDED IN WING LENGTH): SEAL ALL EXPOSED HORIZ. & VERT. SURFACES OF ½" FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. (1" DEEP AND HOLD ¼" BELOW SURFACE OF CONCRETE). EXTEND SEALER 3" BELOW GUTTER LINE AT INSIDE FACE.

☒ CONSTRUCTION JOINT. STRIKE OFF AND LEAVE ROUGH

◆ **OPTIONAL CONST. JOINT: KEYWAY FORMED BY BEVELED 2 x 6. (18" RMW @ B.F. & 3/4" "V" GROOVE @ F.F. IF JOINT IS USED).**

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-20-253</b>			
	DRAWN BY	MJK	PLANS CK'D ALK
<b>SOUTH ABUTMENT WING DETAILS</b>		SHEET 5	

SCALE = 4"=1'

SCALE - 4:00

BILL OF BARS

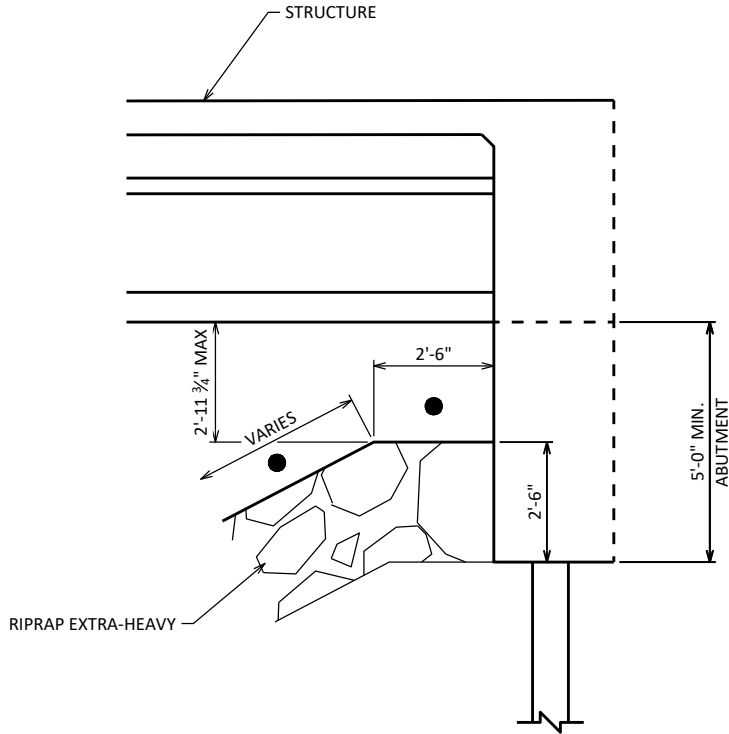
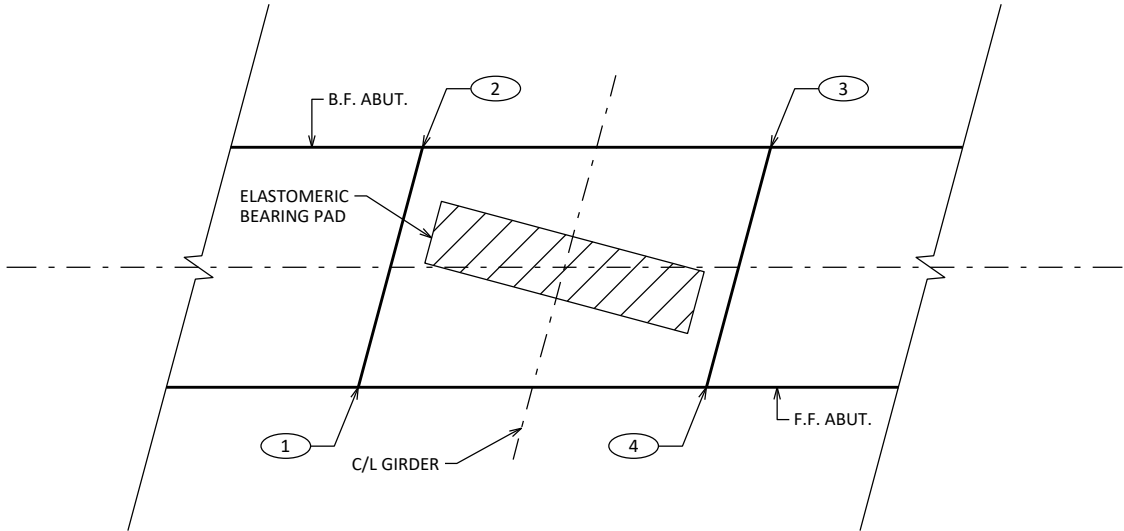
NOTE: THE FIRST OR FIRST TWO DIGITS OF THE BAR MARK SIGNIFIES THE BAR SIZE.

BAR MARK	COAT	NO. REQ'D.	LENGTH	BENT	BAR SERIES	LOCATION
A401		6	28'-0"	X		BODY - PILES
A402		12	2'-3"			BODY - PILES
A603		11	31'-2"			BODY - HORIZONTAL - F.F., TOP, BOTTOM
A804		14	18'-9"	X		BODY - HORIZONTAL - B.F.
A505		40	13'-6"	X		BODY - TIES
A406		6	7'-3"			BODY - HORIZONTAL
A407		15	4'-3"	X		BODY - VERTICAL
A408		3	14'-2"			BODY - HORIZONTAL
A509		15	4'-11"	X		BODY - TIE UPPER - VERTICAL
A410		4	4'-7"			ABUTMENT END - VERTICAL - EAST
A411		4	4'-11"			ABUTMENT END - VERTICAL - WEST
A512	X	10	15'-6"	X		WING 1 - VERTICAL STIRRUPS
A513	X	6	12'-1"			WING 1 - HORIZONTAL - F.F.
A714	X	1	11'-9"	X		WING 1 - HORIZONTAL - TOP
A715	X	1	11'-8"	X		WING 1 - HORIZONTAL - TOP
A716	X	7	11'-5"	X		WING 1 - HORIZONTAL - B.F.
A517	X	28	14'-6"	X		WINGS UPPER WINGS - VERTICAL
A518	X	9	10'-11"	X	△	WING 1 UPPER WING - VERTICAL
A619	X	2	15'-8"			WING 1 UPPER WING - HORIZONTAL
A420	X	12	15'-8"			WING 1 UPPER WING - HORIZONTAL
A421	X	4	8'-1"			WINGS UPPER WING - HORIZONTAL
A522	X	11	16'-1"	X		WING 2 - VERTICAL STIRRUPS
A523	X	6	12'-0"			WING 2 - HORIZONTAL - F.F.
A724	X	1	12'-7"	X		WING 2 - HORIZONTAL - TOP
A725	X	1	12'-10"	X		WING 2 - HORIZONTAL - TOP
A726	X	7	13'-1"	X		WING 2 - HORIZONTAL - B.F.
A527	X	9	11'-3"	X	△	WING 2 UPPER WING - VERTICAL
A628	X	2	16'-0"			WING 2 UPPER WING - HORIZONTAL
A429	X	13	16'-0"			WING 2 UPPER WING - HORIZONTAL

△ LENGTH SHOWN FOR BAR SERIES IS AN AVERAGE LENGTH AND SHOULD ONLY BE USED FOR BAR WEIGHT CALCULATIONS. SEE BAR SERIES TABLE FOR ACTUAL LENGTHS.

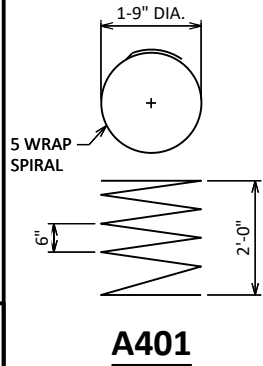
ABUTMENT SLOPED BEAM SEAT ELEVATIONS

GIRDER	ELEVATION AT POINTS				
	C/L OF BRG.	1	2	3	4
1	820.92	820.85	820.95	820.99	820.89
2	820.98	820.90	821.02	821.06	820.94
3	820.85	820.77	820.89	820.93	820.81
4	820.52	820.45	820.55	820.59	820.49

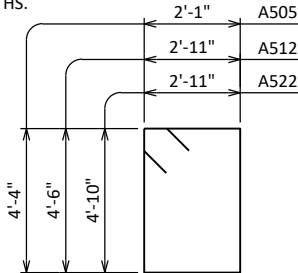


TERRESTRIAL WILDLIFE PASSAGE DETAIL

● FILL VOIDS IN ALL EXTRA-HEAVY RIPRAP WITH SELECT CRUSHED MATERIAL FOR TRAVEL CORRIDOR TO FULLY FILL ALL VOIDS AND LEAVE, ON AVERAGE, THREE INCHES ABOVE THE LOWEST ROCK POINTS WHERE THEY ABUT EACH OTHER. PROVIDE LEVEL SURFACE OF THE TERRESTRIAL WILDLIFE PASSAGE.



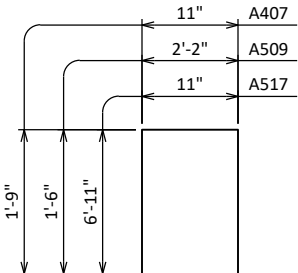
A804



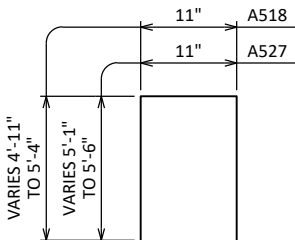
A505, A512, A522



A714, A715, A716, A724, A725, A726



A407, A509, A517

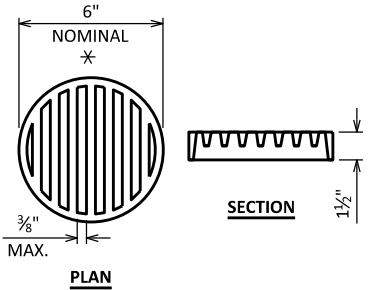


A518, A527

BAR SERIES TABLE

BUNDLE AND TAG EACH SERIES SEPARATELY.

BAR MARK	NO. REQ'D.	LENGTH
A518	1 SERIES OF 9	10'-6" TO 11'-4"
A527	1 SERIES OF 9	10'-10" TO 11'-8"

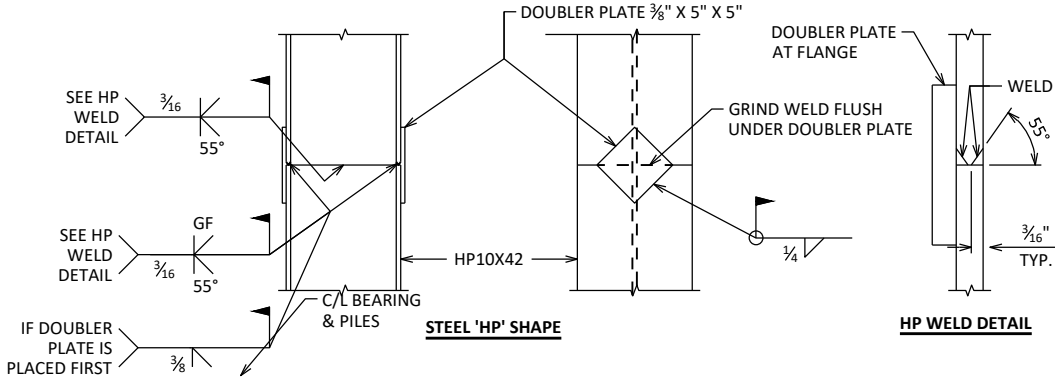


RODENT SHIELD DETAIL

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

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

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



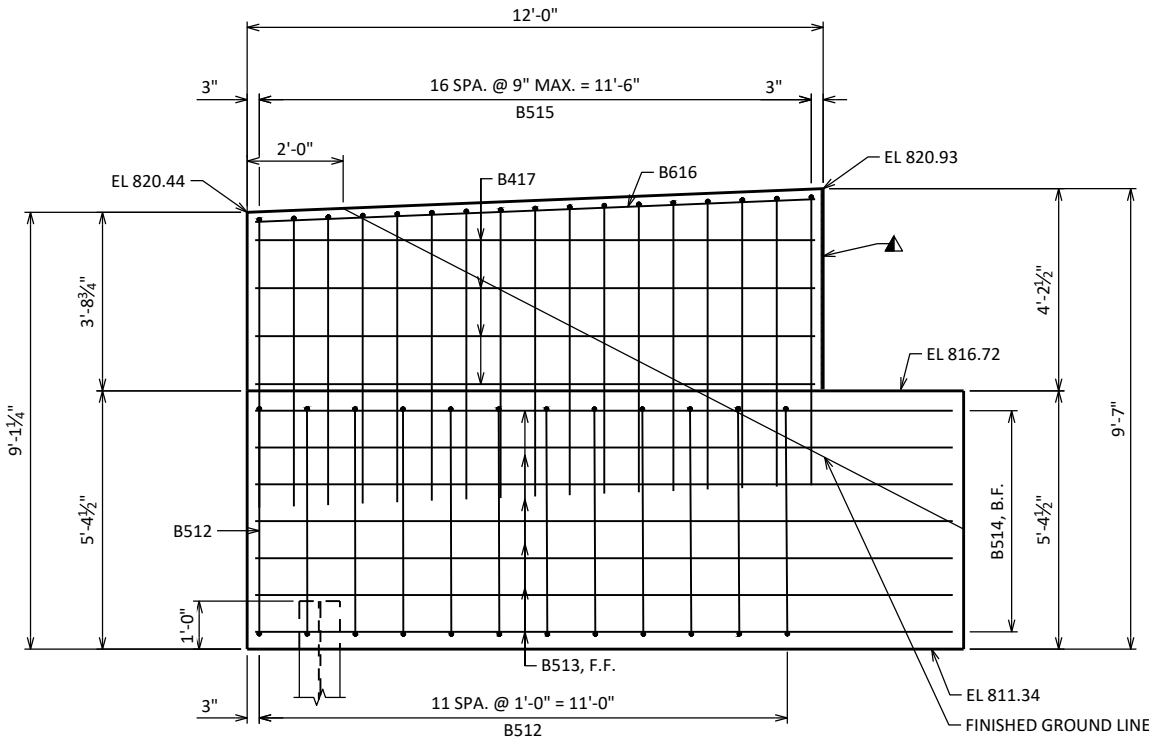
'HP' PILE DETAILS

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-20-253			
		DRAWN BY MJK	PLANS CK'D ALK
SOUTH ABUTMENT DETAILS		SHEET 6	

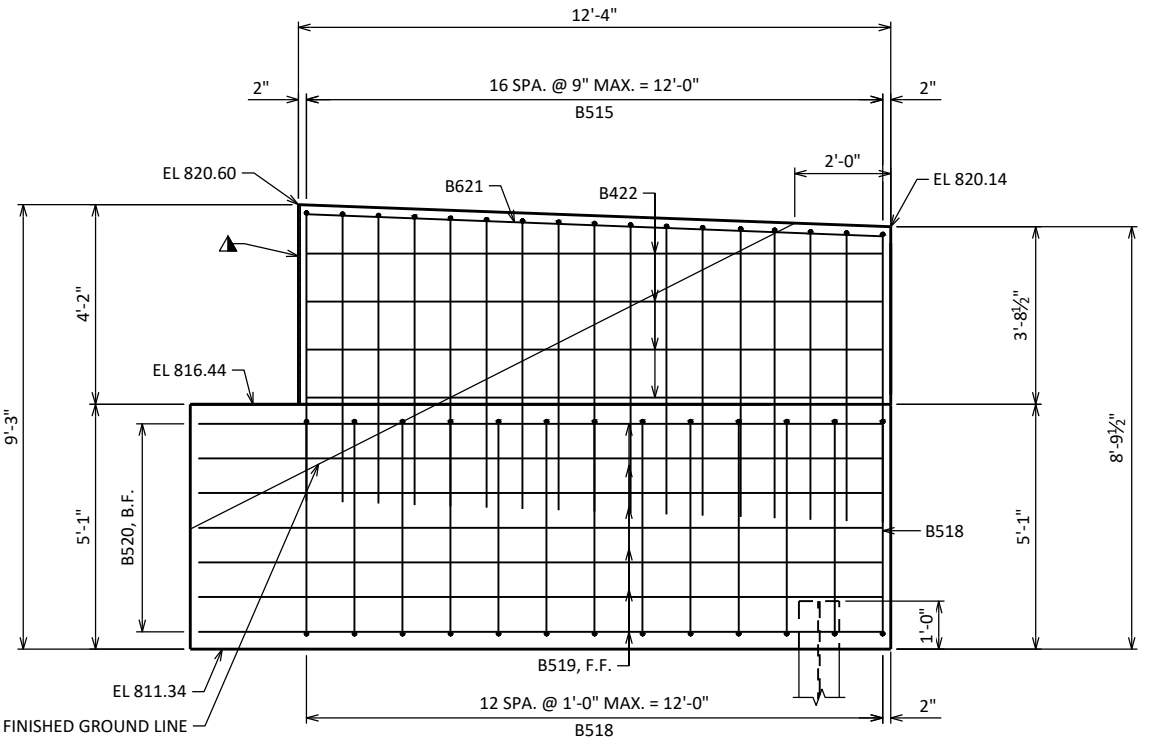


LEGEND

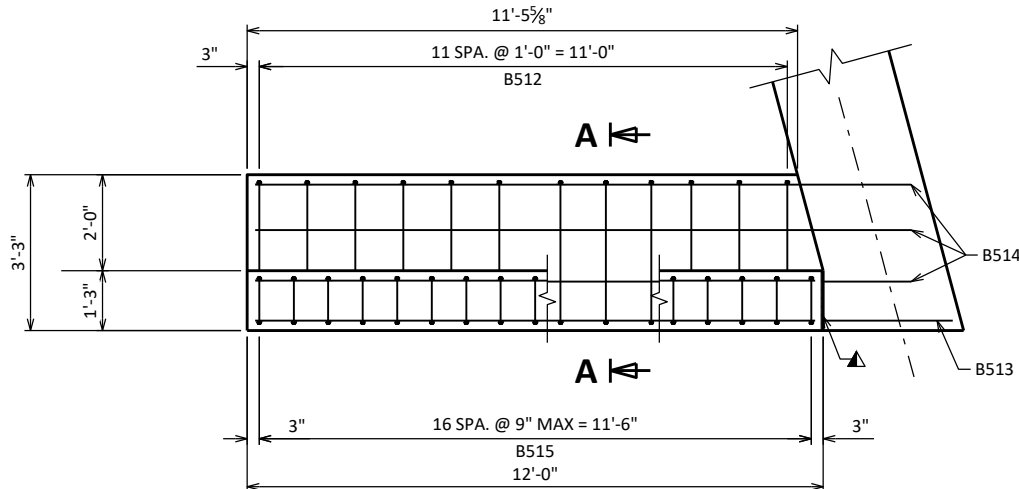
- INDICATES WING NUMBER
- F.F. FRONT FACE
- B.F. BACK FACE
- 18" (RMW) RUBBERIZED MEMBRANE  
WATERPROOFING SEAL ALL HORIZ. & VERT. JOINTS  
AT BACKFACE.
- 1/2" FILLER (INCLUDED IN WING LENGTH); SEAL ALL  
EXPOSED HORIZ. & VERT. SURFACES OF 1/2" FILLER  
WITH NON-STAINING GRAY NON-BITUMINOUS JOINT  
SEALER. (1" DEEP AND HOLD 3/8" BELOW SURFACE OF  
CONCRETE). EXTEND SEALER 3" BELOW GUTTER LINE  
AT INSIDE FACE.
- CONSTRUCTION JOINT. STRIKE OFF AND LEAVE ROUGH
- OPTIONAL CONST. JOINT: KEYWAY FORMED BY  
BEVELED 2 x 6. (18" RMW @ B.F. & 3/4" "V" GROOVE @  
F.F. IF JOINT IS USED).



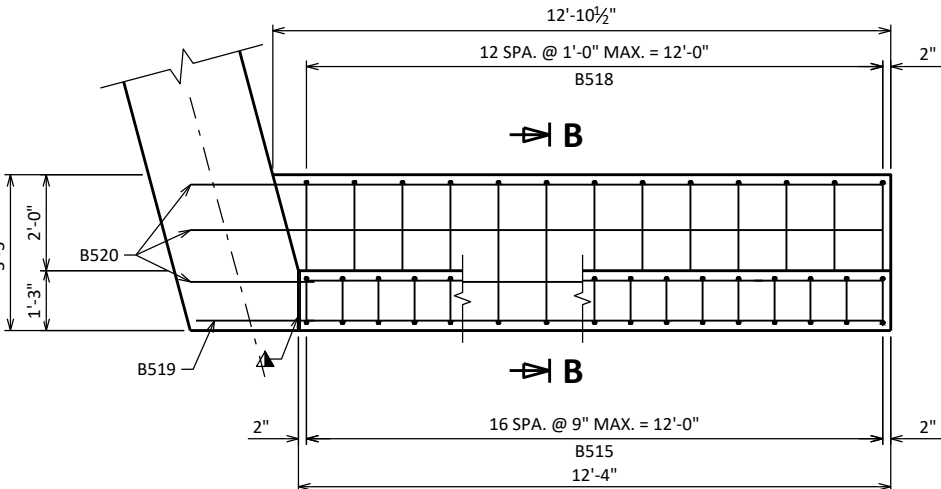
WING 3 ELEVATION



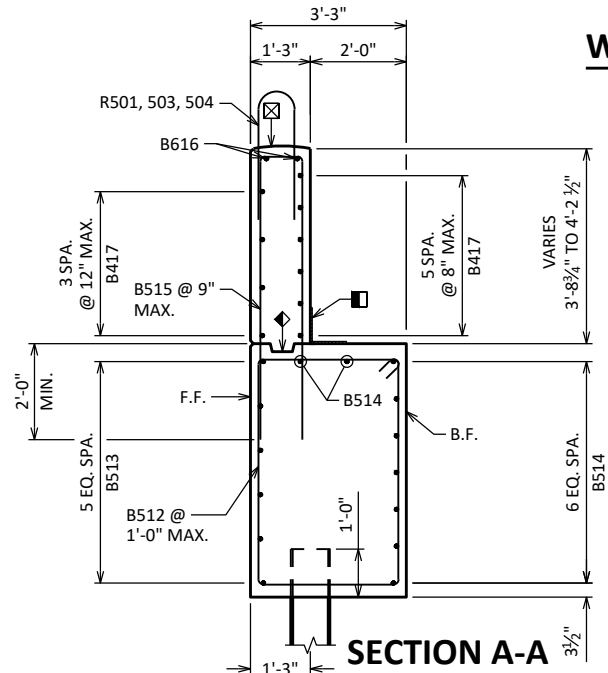
WING 4 ELEVATION



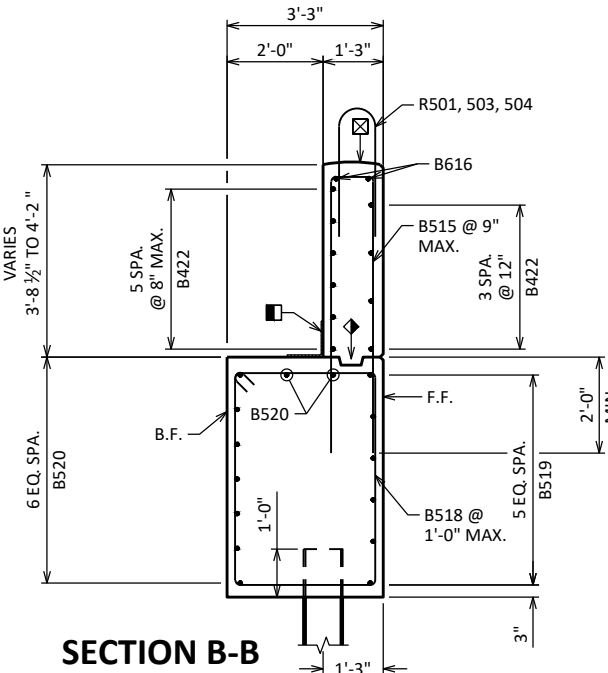
WING 3 PLAN



WING 4 PLAN



SECTION A-A



SECTION B-B



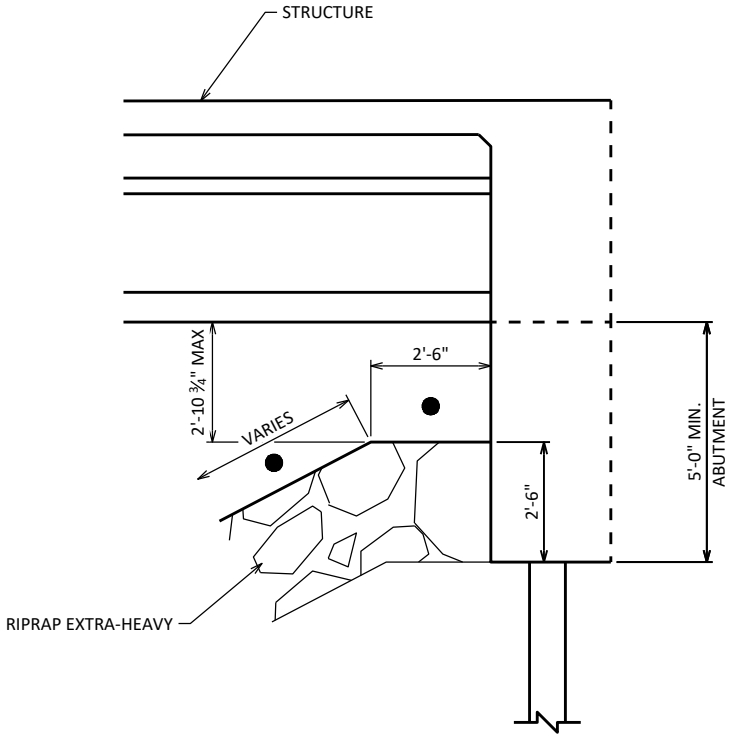
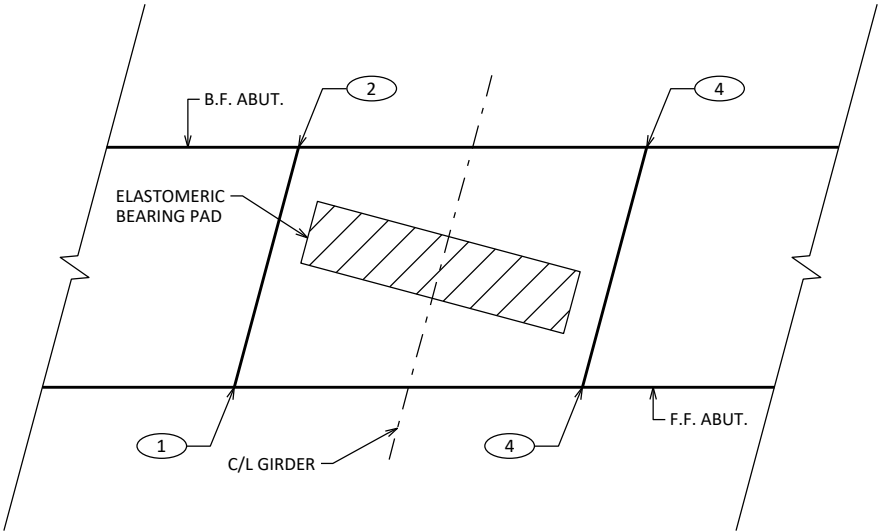
BILL OF BARS

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

	COAT	NO. REQ'D.	LENGTH	BENT	BAR SERIES	LOCATION
B401		6	28'-0"	X		BODY - PILES
B402		12	2'-3"			BODY - PILES
B603		11	31'-2"			BODY - HORIZONTAL - F.F., TOP, BOTTOM
B704		6	31'-2"			BODY - HORIZONTAL - B.F.
B505		40	13'-6"	X		BODY - TIES
B406		6	7'-3"			BODY - HORIZONTAL
B407		15	4'-1"	X		BODY - VERTICAL
B408		3	8'-6"			BODY - HORIZONTAL
B509		10	4'-11"	X		BODY - TIE UPPER - VERTICAL
B410		4	4'-10"			ABUTMENT END - VERTICAL - WEST
B411		4	4'-7"			ABUTMENT END - VERTICAL - EAST
B512	X	12	15'-11"	X		WING 3 - VERTICAL STIRRUPS
B513	X	6	14'-6"			WING 3 - HORIZONTAL - F.F.
B514	X	9	13'-8"			WING 3 - HORIZONTAL - TOP, B.F.
B515	X	34	12'-8"	X		WINGS UPPER WING - VERTICAL
B616	X	2	11'-8"			WING 3 UPPER WING - HORIZONTAL
B417	X	10	11'-8"			WING 3 UPPER WING - HORIZONTAL
B518	X	13	15'-6"	X		WING 4 - VERTICAL STIRRUPS
B519	X	6	14'-7"			WING 4 - HORIZONTAL - F.F.
B520	X	9	14'-9"			WING 4 - HORIZONTAL - TOP, B.F.
B621	X	2	12'-0"			WING 4 UPPER WING - HORIZONTAL
B422	X	10	12'-0"			WING 4 UPPER WING - HORIZONTAL

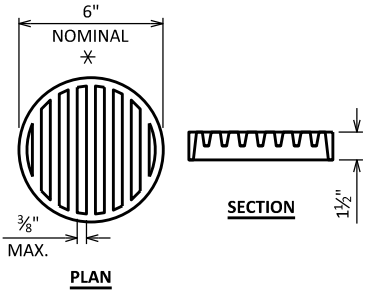
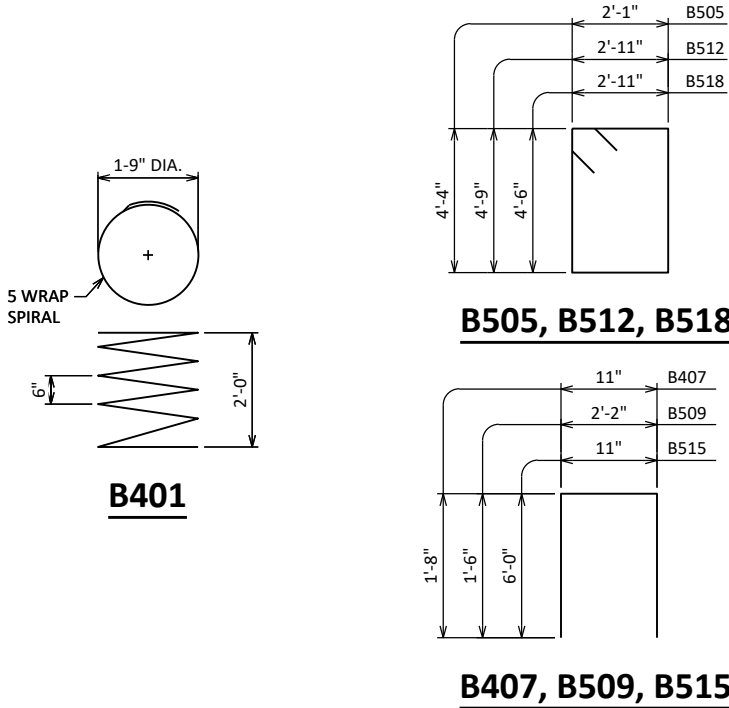
ABUTMENT SLOPED BEAM SEAT ELEVATIONS

GIRDER	ELEVATION AT POINTS				
	C/L OF BRG.	1	2	3	4
1	816.72	816.82	816.67	816.62	816.77
2	816.81	816.91	816.76	816.71	816.86
3	816.72	816.82	816.67	816.62	816.77
4	816.44	816.54	816.39	816.34	816.49



TERRESTRIAL WILDLIFE PASSAGE DETAIL

● FILL VOIDS IN ALL EXTRA-HEAVY RIPRAP WITH SELECT CRUSHED MATERIAL FOR TRAVEL CORRIDOR TO FULLY FILL ALL VOIDS AND LEAVE, ON AVERAGE, THREE INCHES ABOVE THE LOWEST ROCK POINTS WHERE THEY ABUT EACH OTHER. PROVIDE LEVEL SURFACE OF THE TERRESTRIAL WILDLIFE PASSAGE.

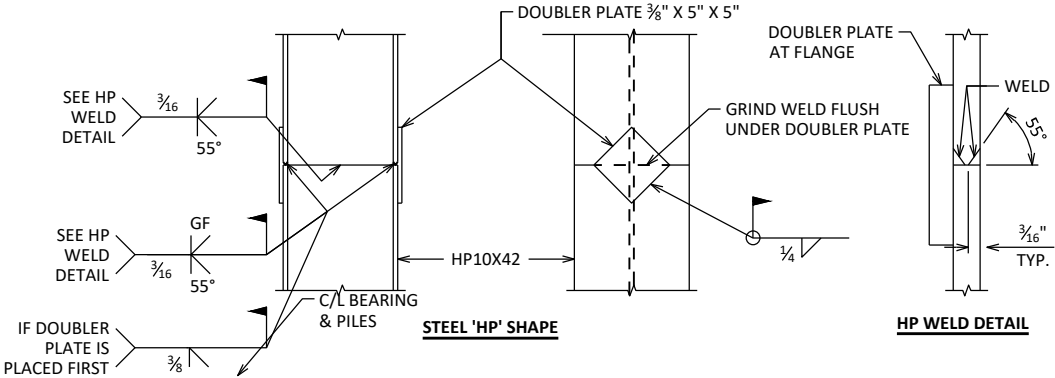


RODENT SHIELD DETAIL

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

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

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



'HP' PILE DETAILS

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-20-253			
		DRAWN BY MJK	PLANS CK'D ALK
NORTH ABUTMENT DETAILS		SHEET 9	

SCALE = ####

TOP OF GIRDER TO BE ROUGH FLOATED AND BROOMED TRANSVERSELY, EXCEPT THE OUTSIDE 8" OF GIRDER, WHICH SHALL RECEIVE A SMOOTH FINISH. AN APPROVED CONCRETE SEALER SHALL BE APPLIED TO ALL SMOOTH SURFACES INCLUDING THE OUTSIDE 8" OF THE TOP FLANGE.

THE GIRDERS SHALL BE PROVIDED WITH A SUITABLE LIFTING DEVICE FOR HANDLING AND ERECTING THE GIRDERS. SEE SECT. 503.3.4 OF STANDARD SPECIFICATIONS FOR GUIDANCE.

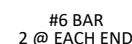
ALL GIRDERS SHALL BE CAST FULL LENGTH AS SHOWN.

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

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

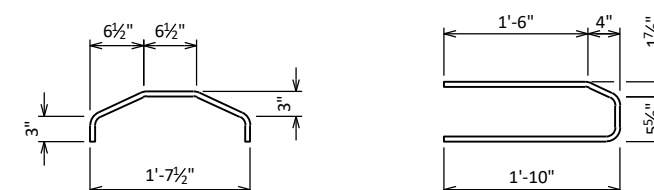
PRESTRESSING STRANDS SHALL BE (0.6" DIA.)-7 WIRE LOW-RELAXATION STRANDS WITH AN ULTIMATE STRENGTH OF 270,000 PSI.

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



#6 BAR  
8 @ EACH END

#5 BAR  
1 @ EACH END



#3 BAR  
3 @ EACH END  
(EPOXY COATED)

#3 BAR  
23 PAIRS EACH END  
(EPOXY COATED)

## SECTION A-A

## BOTTOM FLANGE

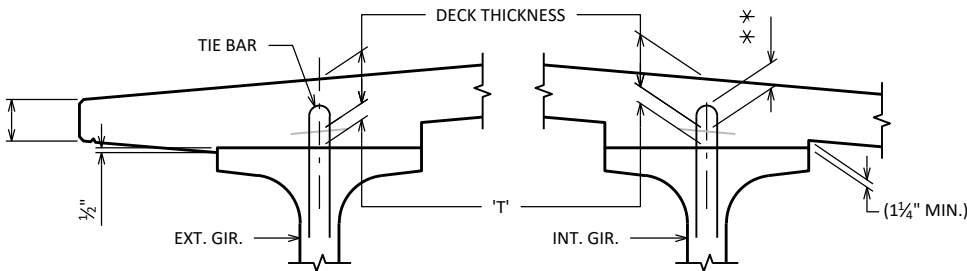
**(A)** DETAIL TYP. AT EACH END  
**(B)** 6 #4 BARS, FULL LENGTH, MIN. LAP = 2'-4"

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

## GIRDER DATA

[illegible]

NO.	DATE	REVISION			BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION					
<b>STRUCTURE      B-20-253</b>					
		DRAWN BY	MJK	PLANS CK'D	ALK
<b>36W" PRESTRESSED GIRDER DETAILS</b>				SHEET 10	



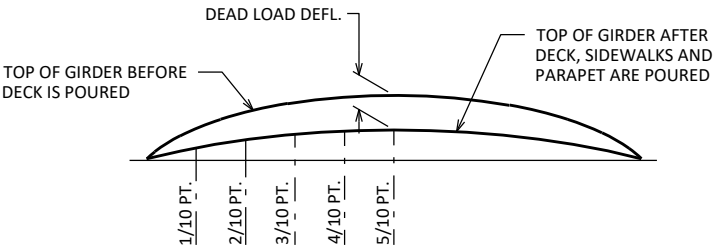
DECK HAUNCH DETAIL

IF 1 1/4" MINIMUM HAUNCH HEIGHT AT EDGE OF GIRDER CANNOT BE MAINTAINED, THE GRADE LINE MAY BE REVISED BY THE ENGINEER AT THE OPTION OF THE CONTRACTOR, THE PLAN DECK THICKNESS SHALL BE HELD. NOTIFY THE STRUCTURES SECTION IF THE GRADE LINE IS RAISED FROM THE PLAN PROFILE BY MORE THAN 1/2" OR, IF 3" MINIMUM DECK EMBEDMENT OF TIE BAR CANNOT BE OBTAINED.

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

- TOP OF DECK ELEV. AT FINAL GRADE
- TOP OF GIRDER ELEVATION
- + DEAD LOAD DEFLECTION
- DECK THICKNESS
- = HAUNCH HEIGHT 'T'

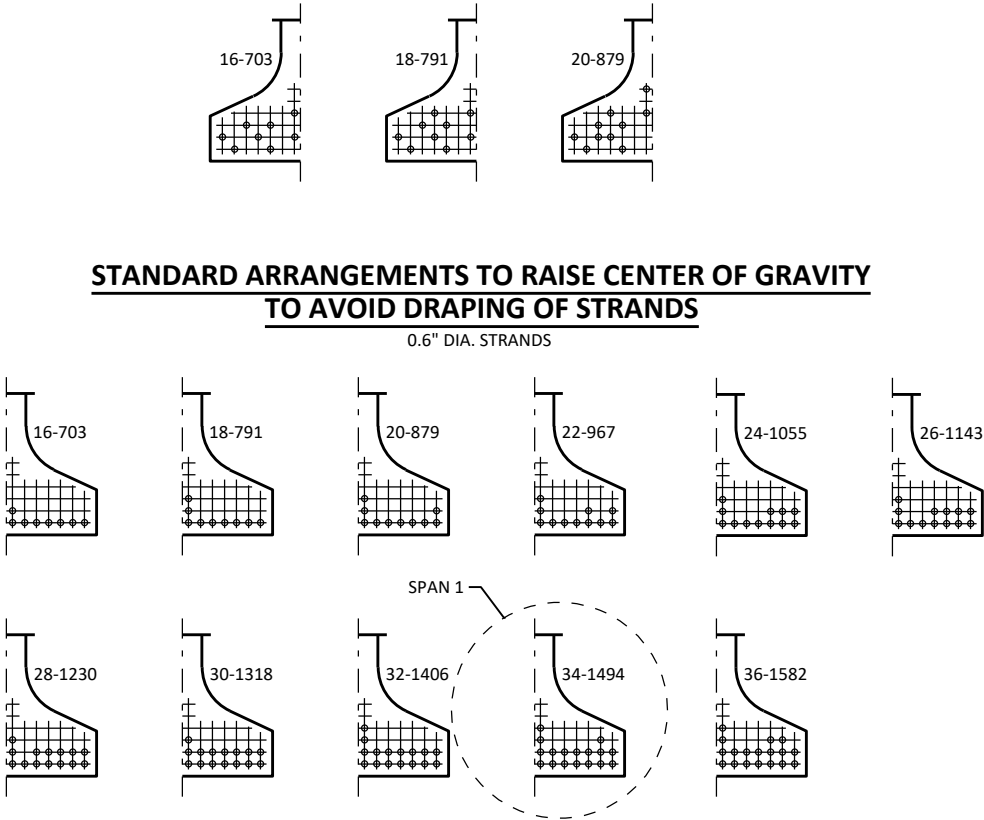
NOTE: AN AVERAGE HAUNCH ('T') OF 4" WAS USED IN THE QUANTITY "CONCRETE MASONRY BRIDGES".



DEAD LOAD DEFLECTION DIAGRAM

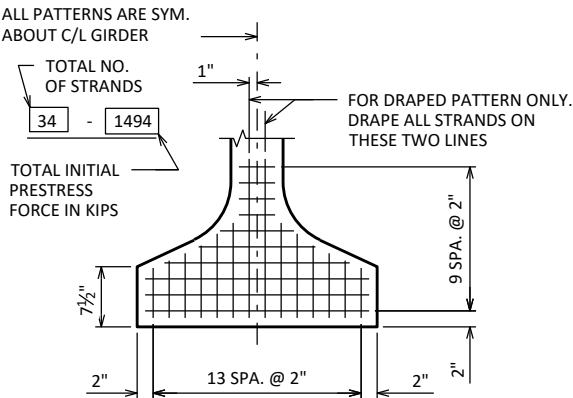
STANDARD ARRANGEMENTS TO RAISE CENTER OF GRAVITY TO AVOID DRAPING OF STRANDS

0.6" DIA. STRANDS



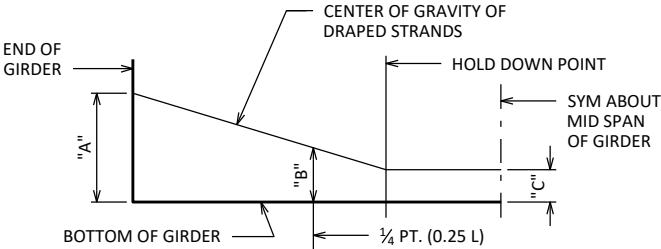
ARRANGEMENT AT C/L SPAN - FOR GIRDERS WITH DRAPED STRANDS

0.6" DIA. STRANDS



TYP. STRAND PATTERN

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



DRAPED STRAND PROFILE

SPAN	CAMBER (IN.) *
1	3.7

THESE VALUES ARE NOT TO BE USED IN DETERMINING 'T', USE ACTUAL GIRDER SHOTS.

THESE VALUES ARE FOR INFORMATIONAL PURPOSES ONLY.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-20-253			
	DRAWN BY	MJK	PLANS CK'D ALK
36W" PRESTRESSED GIRDER DETAILS			SHEET 11

NOTES

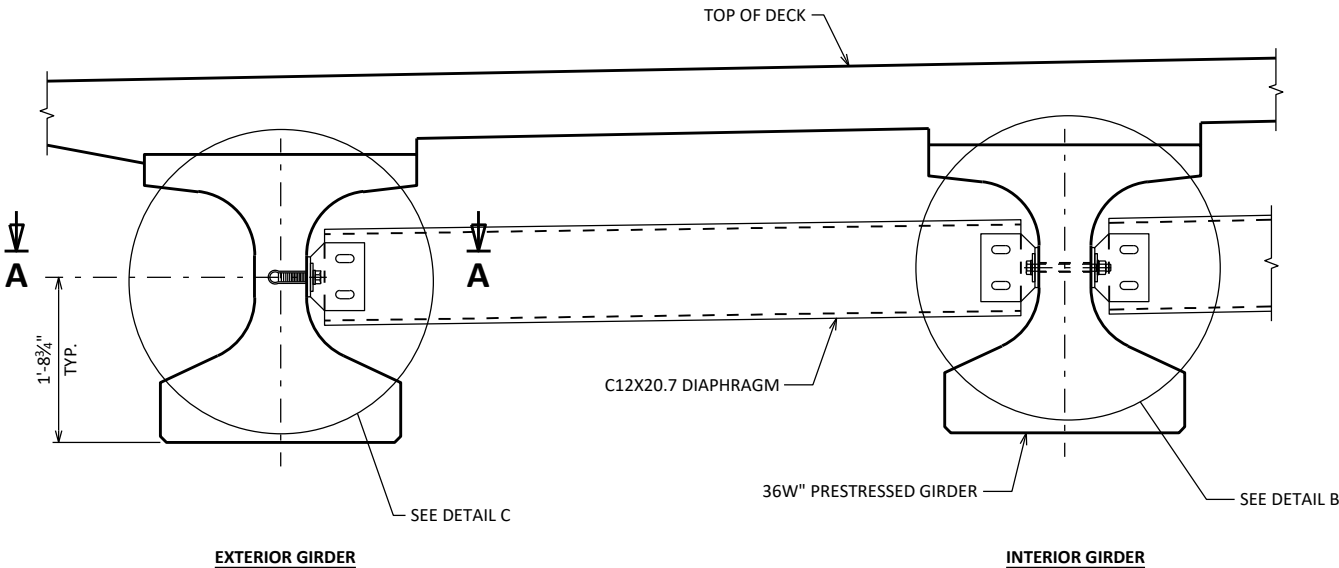
ALL DIAPHRAGM MATERIAL NOT EMBEDDED IN THE CONCRETE GIRDER SHALL BE PAID FOR AT THE UNIT PRICE BID FOR "STEEL DIAPHRAGMS B-20-253", EACH.

EACH DIAPHRAGM BETWEEN GIRDERS SHALL CONSTITUTE ONE UNIT.

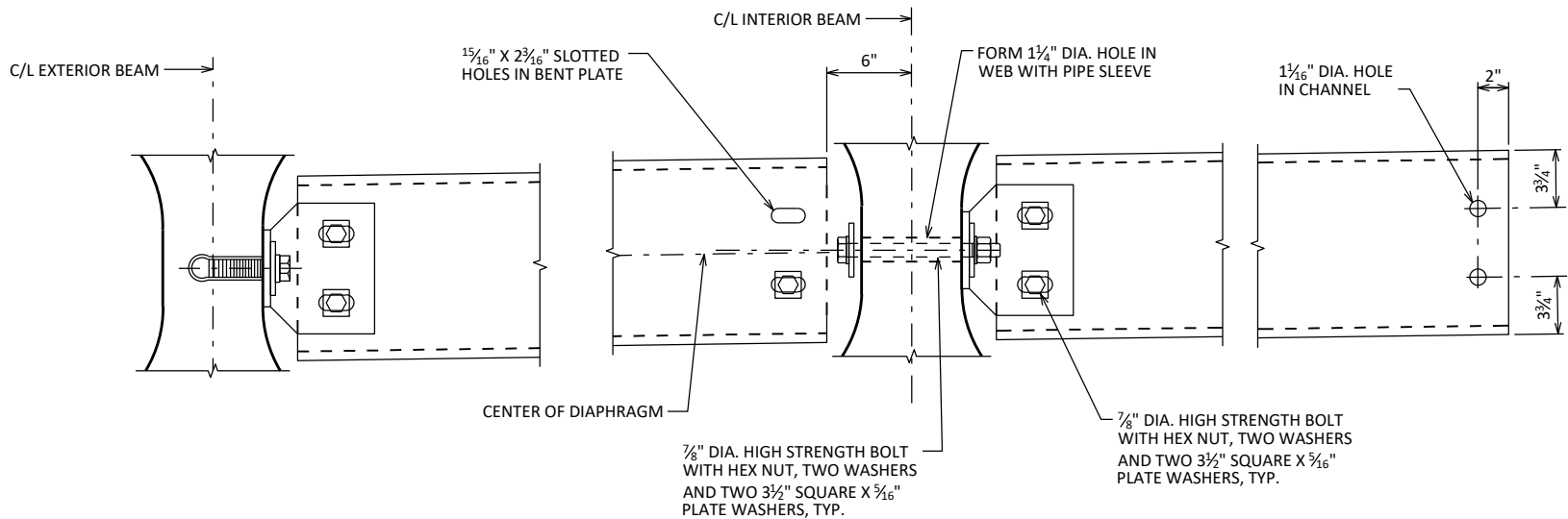
ALL DIAPHRAGM STRUCTURAL STEEL SHALL BE ASTM A709 GRADE 36.

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

STEEL DIAPHRAGM TO CONCRETE WEB CONNECTION SHALL BE SNUG-TIGHT PLUS ¼ TURN, UNLESS NOTED OTHERWISE. HIGH STRENGTH BOLTS FOR WEB CONNECTION SHALL MEET THE REQUIREMENTS FOR ASTM A325 OR ASTM A449.



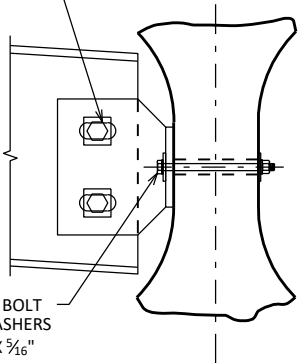
PART TRANSVERSE SECTION AT DIAPHRAGM



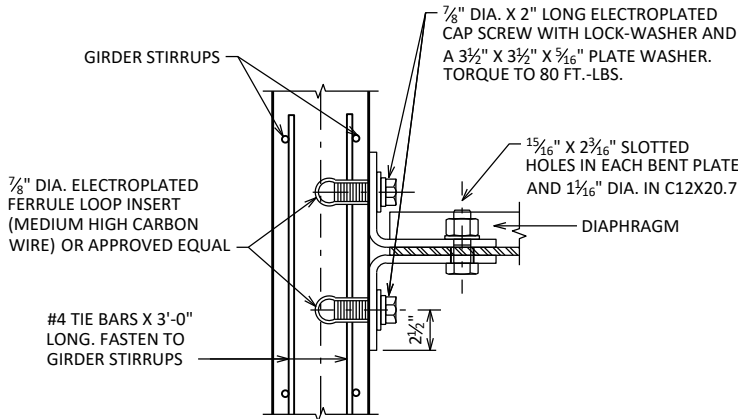
DETAIL C

DETAIL B

7/8" DIA. HIGH STRENGTH BOLT WITH HEX NUT, TWO WASHERS AND TWO 3 1/2" SQUARE X 5/16" PLATE WASHERS, TYP.

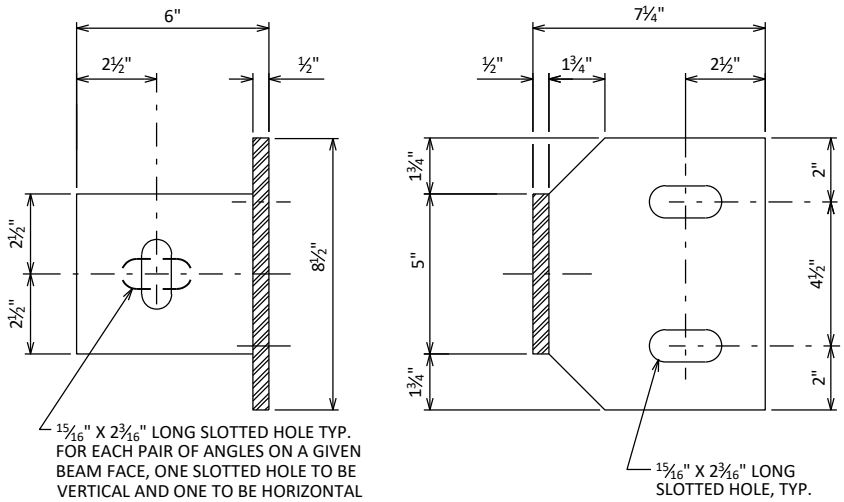


SECTION AT INTERIOR GIRDERS THRU DIAPHRAGM FOR SKEW ANGLES > 10°



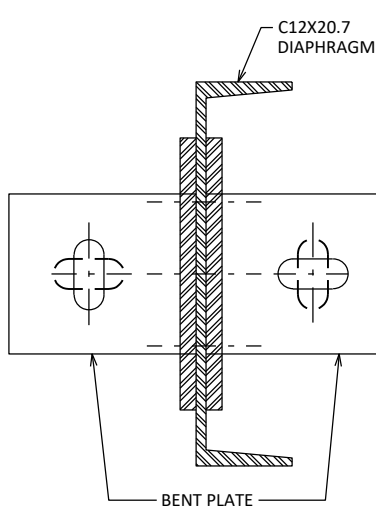
SECTION A-A

(FOR EXTERIOR ATTACHMENT)



BEAM FACE

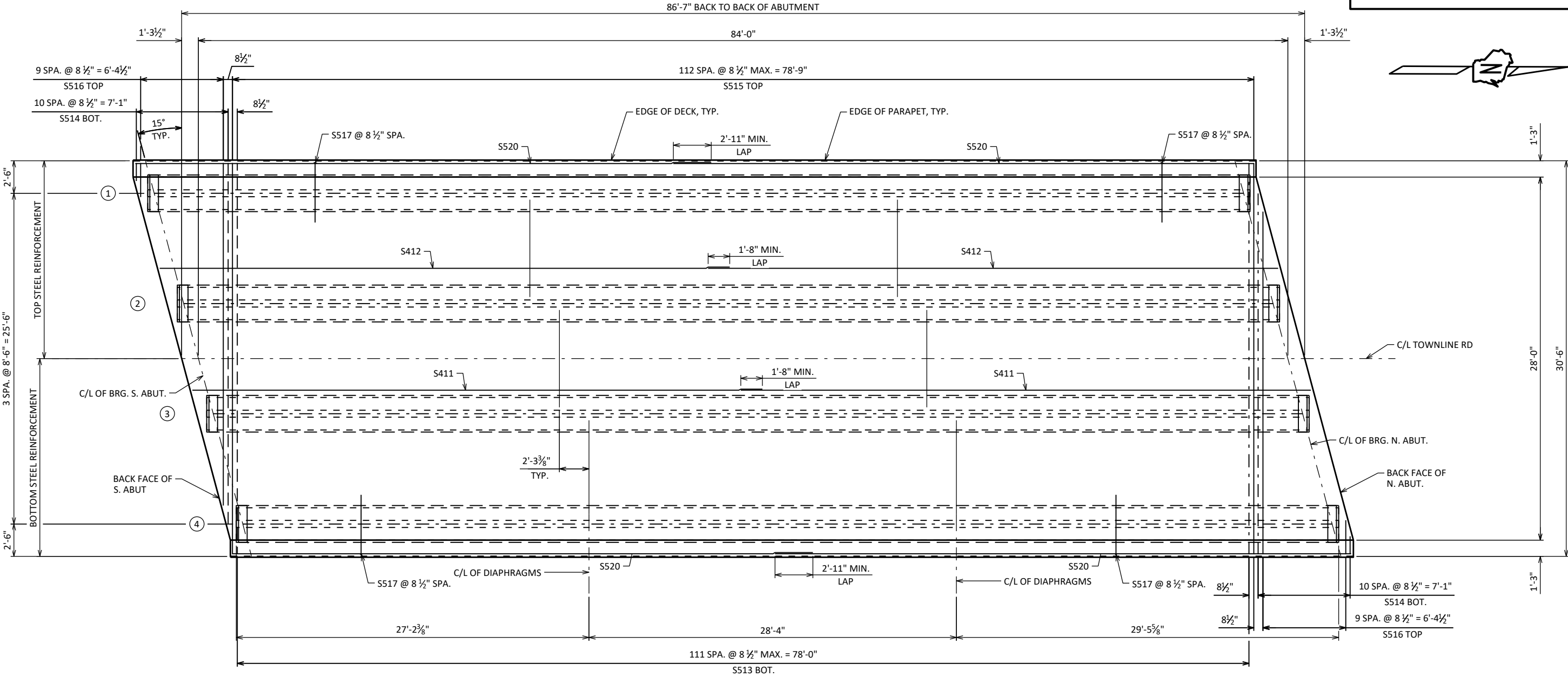
DIAPHRAGM FACE



ATTACHMENT TO CHANNEL

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-20-253			
DRAWN BY		PLANS CK'D	ALK
MJK		SHEET 12	
STEEL DIAPHRAGMS			

SCALE = 2.00



8

8

TOP OF DECK ELEVATIONS

SPAN	LOCATION	C/L BRG. S. ABUT.	1/10 PT.	2/10 PT.	3/10 PT.	4/10 PT.	5/10 PT.	6/10 PT.	7/10 PT.	8/10 PT.	9/10 PT.	C/L BRG. N. ABUT.
1	W. EDGE OF DECK	825.20	824.71	824.24	823.78	823.34	822.91	822.50	822.10	821.71	821.34	820.98
	GIRDER 1	825.21	824.73	824.25	823.80	823.36	822.93	822.52	822.12	821.73	821.36	821.01
	GIRDER 2	825.25	824.77	824.30	823.85	823.41	822.98	822.58	822.18	821.80	821.43	821.08
	R/L	825.27	824.79	824.32	823.87	823.43	823.01	822.61	822.21	821.83	821.47	821.12
	GIRDER 3	825.12	824.64	824.17	823.73	823.29	822.87	822.47	822.08	821.70	821.34	820.99
	GIRDER 4	824.81	824.34	823.88	823.44	823.01	822.59	822.19	821.80	821.43	821.07	820.73
	E. EDGE OF DECK	824.73	824.25	823.80	823.35	822.92	822.51	822.11	821.72	821.35	820.99	820.65

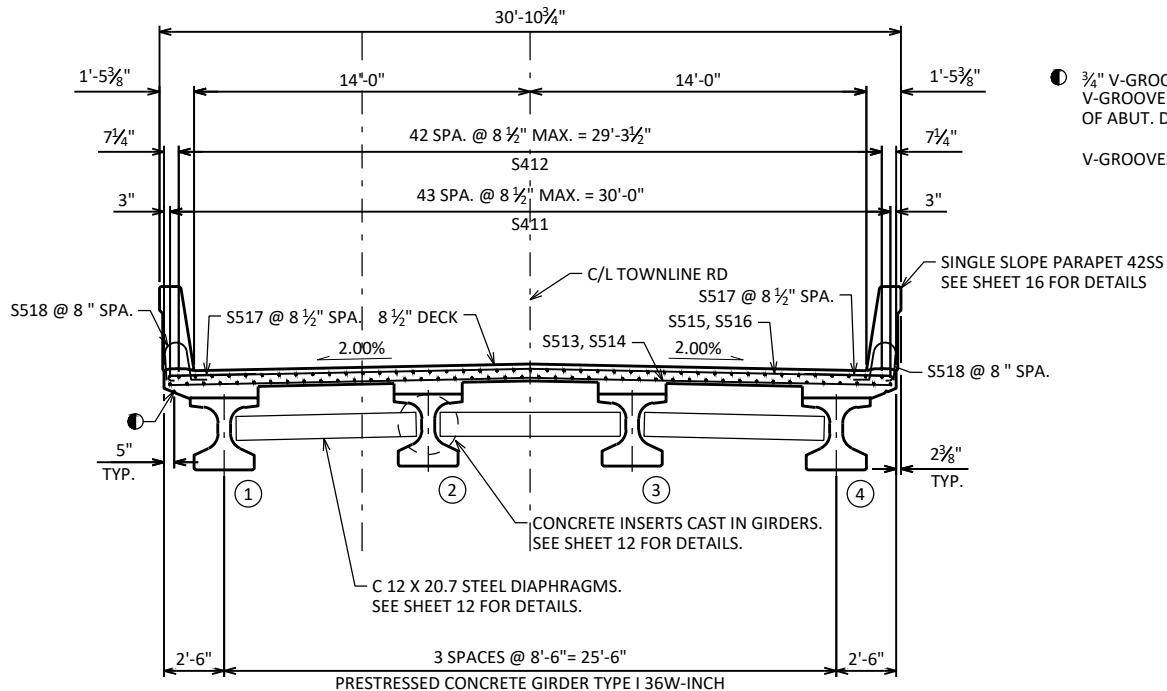
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-20-253			
DRAWN BY		PLANS CK'D	ALK
MJK		SHEET 13	
SUPERSTRUCTURE			

BILL OF BARS

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

BAR MARK	COAT	NO. REQ'D.	LENGTH	BENT	BAR SERIES
S401	X	36	3'-5"	X	DIAPH. @ ABUT. - VERT. @ NOTCH
S402	X	12	4'-7"		DIAPH. @ ABUT. - HORIZ. @ NOTCH
S503	X	48	12'-2"	X	DIAPH. @ ABUT. - VERTICAL
S504	X	16	7'-8"	X	DIAPH. @ ABUT. - VERTICAL
S605	X	10	31'-2"		DIAPH. @ ABUT. - HORIZONTAL
S606	X	24	4'-7"		DIAPH. @ ABUT. - HORIZ. BETW. GIRDERS
S607	X	4	5'-9"	X	DIAPH. @ ABUT. - HORIZ. @ EXT. GIRDERS 1, 3
S608	X	2	4'-4"	X	DIAPH. @ ABUT. - HORIZ. @ EXT. GIRDERS 1, 3
S409	X	8	3'-9"		DIAPH. @ ABUT. - VERT. @ EXT. GIRDERS
S510	X	16	6'-0"		DIAPH @ ABUT. - HORIZ. THRU GIRDERS
S411	X	88	44'-1"		DECK - LONGITUDINAL - BOTTOM
S412	X	86	44'-1"		DECK - LONGITUDINAL - TOP
S513	X	112	30'-2"		DECK - TRANSVERSE - BOTTOM
S514	X	22	14'-7"	△	DECK - TRANSVERSE - BOTTOM
S515	X	113	30'-2"		DECK - TRANSVERSE - TOP
S516	X	20	14'-6"	△	DECK - TRANSVERSE - TOP
S517	X	246	4'-7"	X	DECK - TRANSVERSE - EDGE
S518	X	262	4'-5"	X	DECK - PARAPET - VERTICAL
S519	X	262	6'-8"	X	DECK - PARAPET - VERTICAL
S520	X	32	44'-10"		DECK - PARAPET - HORIZONTAL
S621	X	4	5'-6"	X	DIAPH. @ ABUT. - HORIZ. @ EXT. GIRDERS 2, 4
S622	X	2	4'-5"	X	DIAPH. @ ABUT. - HORIZ. @ EXT. GIRDERS 2, 4
S523	X	2	12'-6"	X	DIAPH. @ CORNERS 1, 3 - VERTICAL
S524	X	2	12'-8"	X	DIAPH. @ CORNERS 1, 3 - VERTICAL
S525	X	2	11'-11"	X	DIAPH. @ CORNERS 2, 4 - VERTICAL
S526	X	2	12'-1"	X	DIAPH. @ CORNERS 2, 4 - VERTICAL

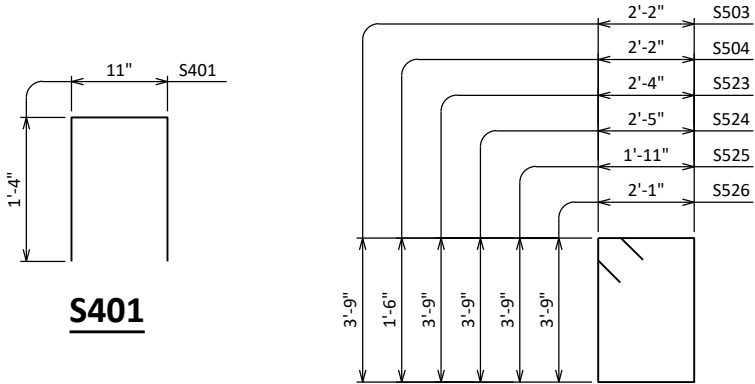
△ LENGTH SHOWN FOR BAR SERIES IS AN AVERAGE LENGTH AND SHOULD ONLY BE USED FOR BAR WEIGHT CALCULATIONS. SEE BAR SERIES TABLE FOR ACTUAL LENGTHS.



● 3/4" V-GROOVE. EXTEND V-GROOVE TO 6" FROM F.F. OF ABUT. DIAPHRAGM.

V-GROOVES ARE REQUIRED.

CROSS SECTION THRU BRIDGE



S503, S504, S523, S524, S525, S526

S401

S517

STD. 180° HOOK

S518

BAR SERIES TABLE

BUNDLE AND TAG EACH SERIES SEPARATELY.

BAR MARK	NO. REQ'D.	LENGTH
S514	2 SERIES OF 11	1'-5" TO 27'-9"
S516	2 SERIES OF 10	2'-7" TO 26'-5"

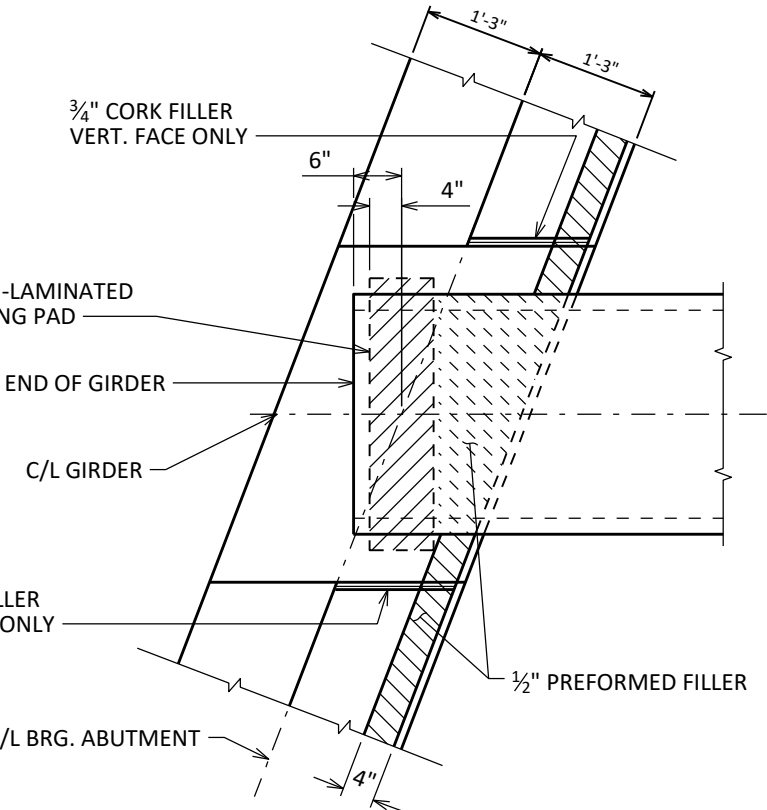
S519

S607

S608

S621

S622

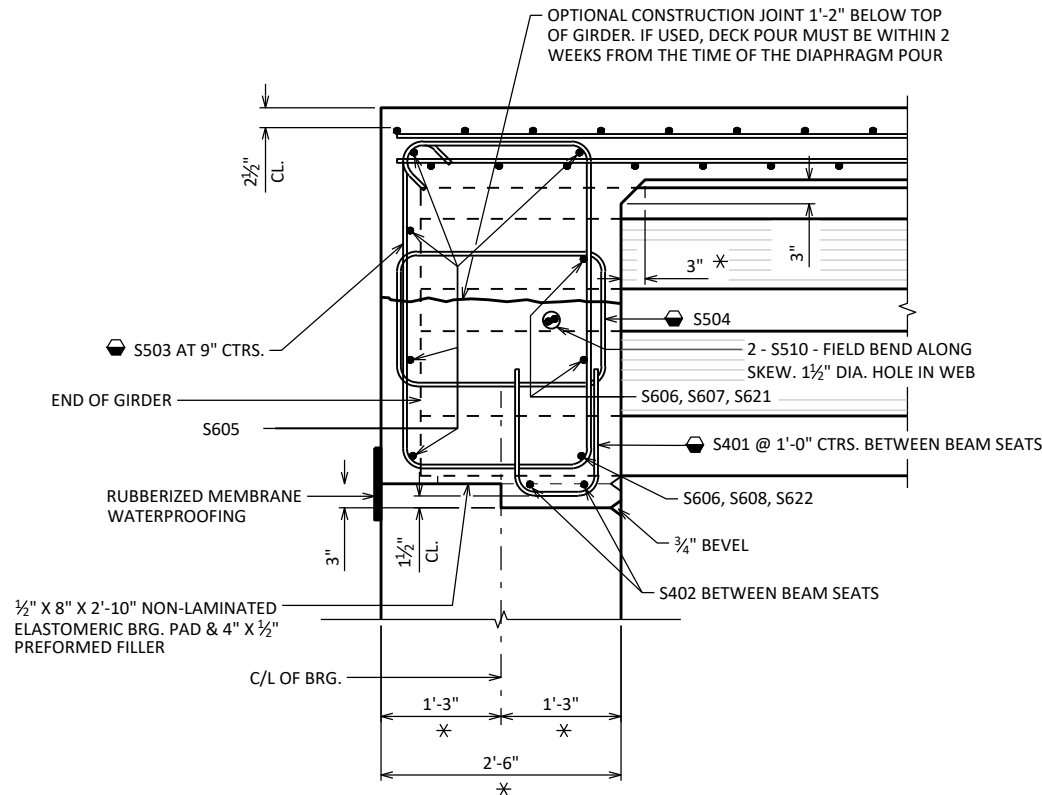


BEARING PAD DETAIL

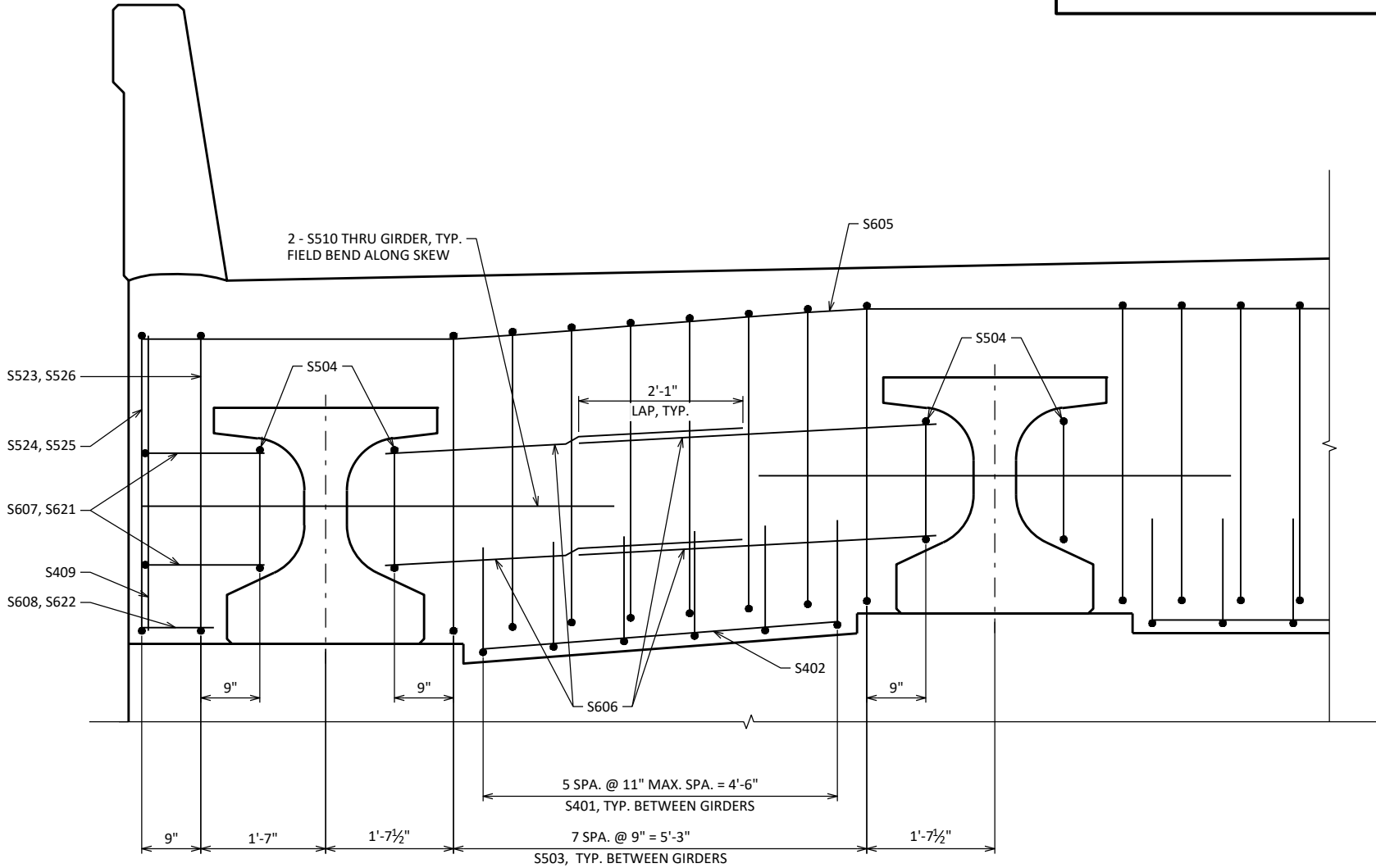
AT ABUTMENTS

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-20-253			
DRAWN BY		PLANS CK'D	ALK
MJK		SHEET 14	
SUPERSTRUCTURE DETAILS			

SCALE = NTS

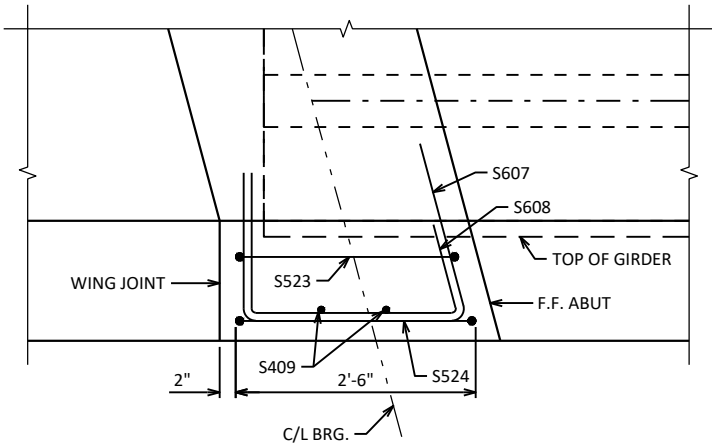


**PART LONGIT. SECTION**  
AT ABUTMENTS



**PART TRANS. SECTION**  
AT ABUTMENT DIAPHRAGMS

- \* DIMENSION IS TAKEN NORMAL TO C/L SUBSTRUCTURE UNITS.
- ☞ BARS PLACED PARALLEL TO GIRDERS SPACING PERPENDICULAR TO C/L GIRDERS.



**PLAN VIEW DIAPHRAGM END**  
WINGS 1 & 3 SHOWN  
(WINGS 2 & 4 SIMILAR)

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-20-253			
DRAWN BY		MJK	PLANS CK'D ALK
SUPERSTRUCTURE DETAILS		SHEET 15	

SCALE = NTS

BAR MARK	COAT	SOUTH ABUT.	NORTH ABUT.	LENGTH	BENT	BAR SERIES	LOCATION
R501	X	24	12	5'-10"	X		PARAPET VERT.
R502	X	24	12	6'-8"	X		PARAPET VERT.
R503	X	24	24	3'-0"	X		PARAPET VERT.
R504	X	34	34	5'-7"	X		PARAPET VERT.
R505	X	10	10	6'-5"	X		PARAPET VERT.
R506	X	12	12	6'-6"	X		PARAPET VERT.
R507	X	2	---	15'-6"	X		PARAPET HORIZ.
R508	X	10	---	15'-8"			PARAPET HORIZ.
R509	X	12	12	5'-5"	X	✕	PARAPET VERT.
R510	X	4	---	15'-9"	X		PARAPET HORIZ.
R511	X	---	2	11'-6"	X		PARAPET HORIZ.
R512	X	---	10	11'-8"			PARAPET HORIZ.
R513	X	---	4	11'-9"	X		PARAPET HORIZ.

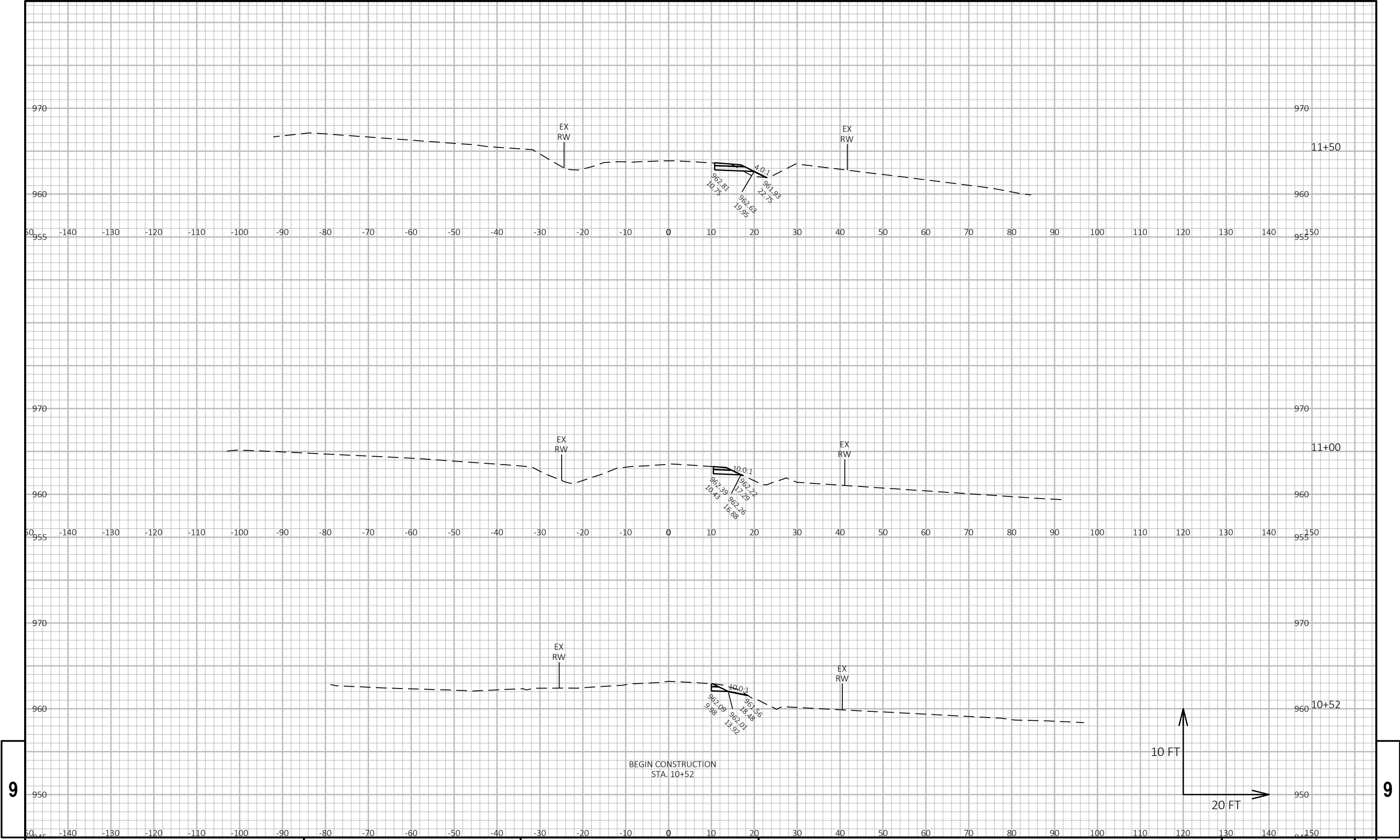
BAR MARK	NO. REQ'D.	LENGTH
R509	4 SERIES OF 6	4'-9" TO 6'-1"

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
<b>STRUCTURE B-20-253</b>			
	DRAWN BY	MJK	PLANS CK'D ALK
<b>SINGLE SLOPE PARAPET 42SS</b>			SHEET 16



STATION	REAL STATION	DISTANCE	AREA (SF)		INCREMENTAL VOL (CY) (UNADJUSTED)		CUMULATIVE VOL (CY)	
			CUT	FILL	CUT	FILL	CUT	EXPANDED FILL
							1.00	1.25
					NOTE 1	NOTE 3	NOTE 1	
10+50.89	1050.89	0.00	0.05	0.00	0	0	0	0
10+60	1060.00	9.11	5.66	0.10	1	0	1	0
10+70	1070.00	10.00	6.62	0.00	2	0	3	0
10+80	1080.00	10.00	5.83	0.00	2	0	5	0
10+90	1090.00	10.00	4.95	0.00	2	0	7	0
11+00	1100.00	10.00	4.56	0.00	2	0	9	0
11+10	1110.00	10.00	4.74	0.26	2	0	11	0
11+20	1120.00	10.00	4.99	0.75	2	0	13	0
11+30	1130.00	10.00	4.97	1.12	2	0	15	0
11+40	1140.00	10.00	4.86	1.57	2	0	17	0
11+50	1150.00	10.00	5.14	1.62	2	1	19	1
11+60	1160.00	10.00	6.01	1.35	2	1	21	3
11+70	1170.00	10.00	6.93	1.03	2	0	23	3
11+80	1180.00	10.00	7.10	0.68	3	0	26	3
11+90	1190.00	10.00	7.82	0.17	3	0	29	3
12+00	1200.00	10.00	9.40	0.00	3	0	32	3
12+10	1210.00	10.00	8.35	0.00	3	0	35	3
12+20	1220.00	10.00	29.54	0.27	7	0	42	3
12+30	1230.00	10.00	25.72	0.61	10	0	52	3
12+40	1240.00	10.00	26.67	0.00	10	0	62	3
12+50	1250.00	10.00	24.86	0.00	10	0	72	3
12+60	1260.00	10.00	23.13	0.00	9	0	81	3
12+70	1270.00	10.00	18.17	3.08	8	1	89	4
12+80	1280.00	10.00	14.31	5.43	6	2	95	6
12+90	1290.00	10.00	9.73	8.97	4	3	99	10
13+00	1300.00	10.00	58.69	15.18	13	4	112	15
13+10	1310.00	10.00	57.45	16.88	22	6	134	23
13+20	1320.00	10.00	56.71	24.13	21	8	155	33
13+30	1330.00	10.00	55.80	40.47	21	12	176	48
13+40	1340.00	10.00	55.57	50.76	21	17	197	69
13+50	1350.00	10.00	56.68	65.34	21	21	218	95
13+55.676	1355.68	5.68	55.45	91.86	12	17	230	116

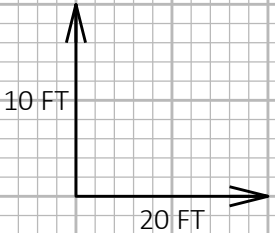
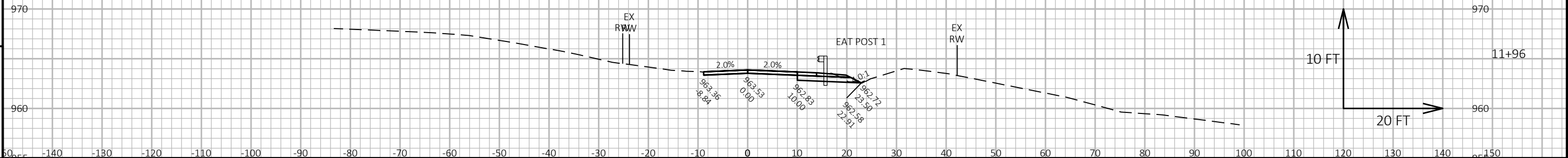
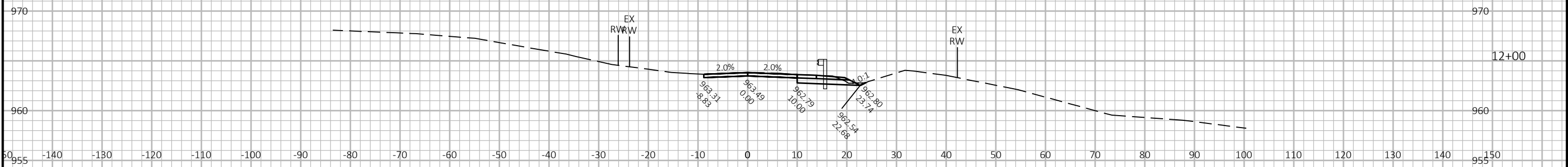
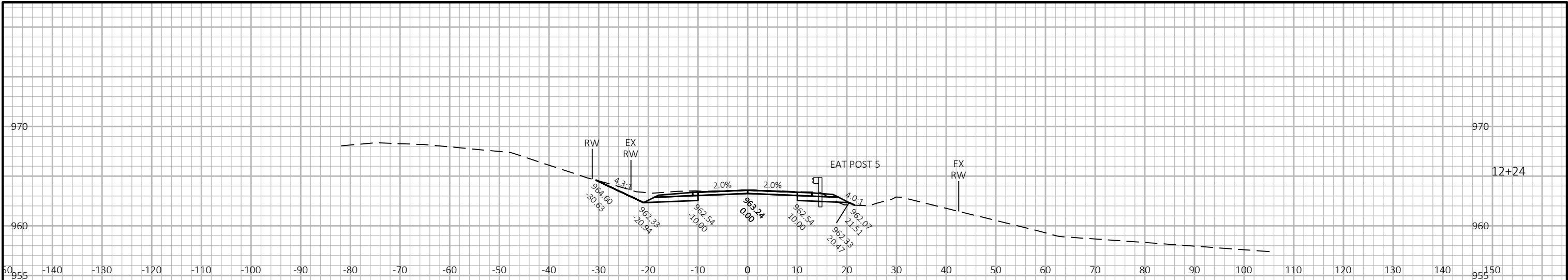
STATION	REAL STATION	DISTANCE	AREA (SF)		INCREMENTAL VOL (CY) (UNADJUSTED)		CUMULATIVE VOL (CY)	
			CUT	FILL	CUT	FILL	CUT	EXPANDED FILL
							1.00	1.25
					NOTE 1	NOTE 3	NOTE 1	
14+02.202	1402.20	0.00	54.81	92.58	0	0	0	0
14+10	1410.00	7.80	55.62	46.60	16	20	16	25
14+20	1420.00	10.00	55.14	39.19	21	16	37	45
14+30	1430.00	10.00	56.13	35.77	21	14	58	63
14+40	1440.00	10.00	3.25	30.98	11	12	69	78
14+50	1450.00	10.00	3.74	26.64	1	11	70	91
14+60	1460.00	10.00	3.28	15.93	1	8	71	101
14+70	1470.00	10.00	4.79	11.81	1	5	72	108
14+80	1480.00	10.00	6.21	11.78	2	4	74	113
14+90	1490.00	10.00	6.76	11.67	2	4	76	118
15+00	1500.00	10.00	6.54	11.09	2	4	78	123
15+10	1510.00	10.00	6.38	11.18	2	4	80	128
15+20	1520.00	10.00	5.71	21.57	2	6	82	135
15+30	1530.00	10.00	4.70	31.77	2	10	84	148
15+40	1540.00	10.00	4.53	34.73	2	12	86	163
15+50	1550.00	10.00	4.77	41.60	2	14	88	180
15+60	1560.00	10.00	5.10	41.84	2	15	90	199
15+70	1570.00	10.00	4.26	0.00	2	8	92	209
15+80	1580.00	10.00	3.01	0.02	1	0	93	209
15+90	1590.00	10.00	2.45	0.09	1	0	94	209
16+00	1600.00	10.00	1.93	0.56	1	0	95	209
16+10	1610.00	10.00	2.35	0.03	1	0	96	209
16+20	1620.00	10.00	2.48	0.00	1	0	97	209
16+30	1630.00	10.00	2.86	0.00	1	0	98	209
16+40	1640.00	10.00	2.95	0.00	1	0	99	209
16+50	1650.00	10.00	3.02	0.00	1	0	100	209
16+53.504	1653.50	3.50	0.00	0.00	0	0	100	209



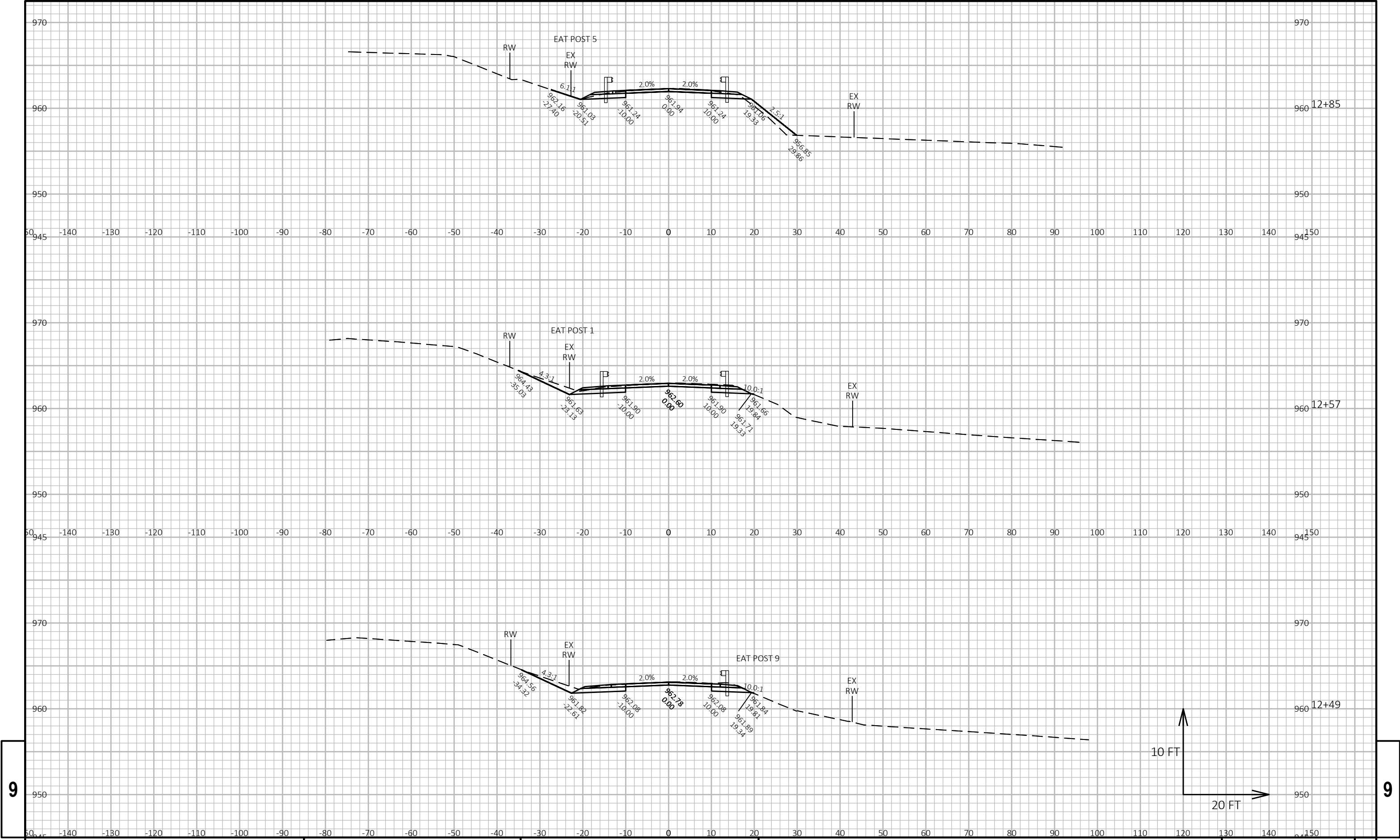
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PROJECT NO: 4816-00-71	HWY: POPLAR ROAD	COUNTY: FOND DU LAC	CROSS SECTIONS: POPLAR ROAD	SHEET	E
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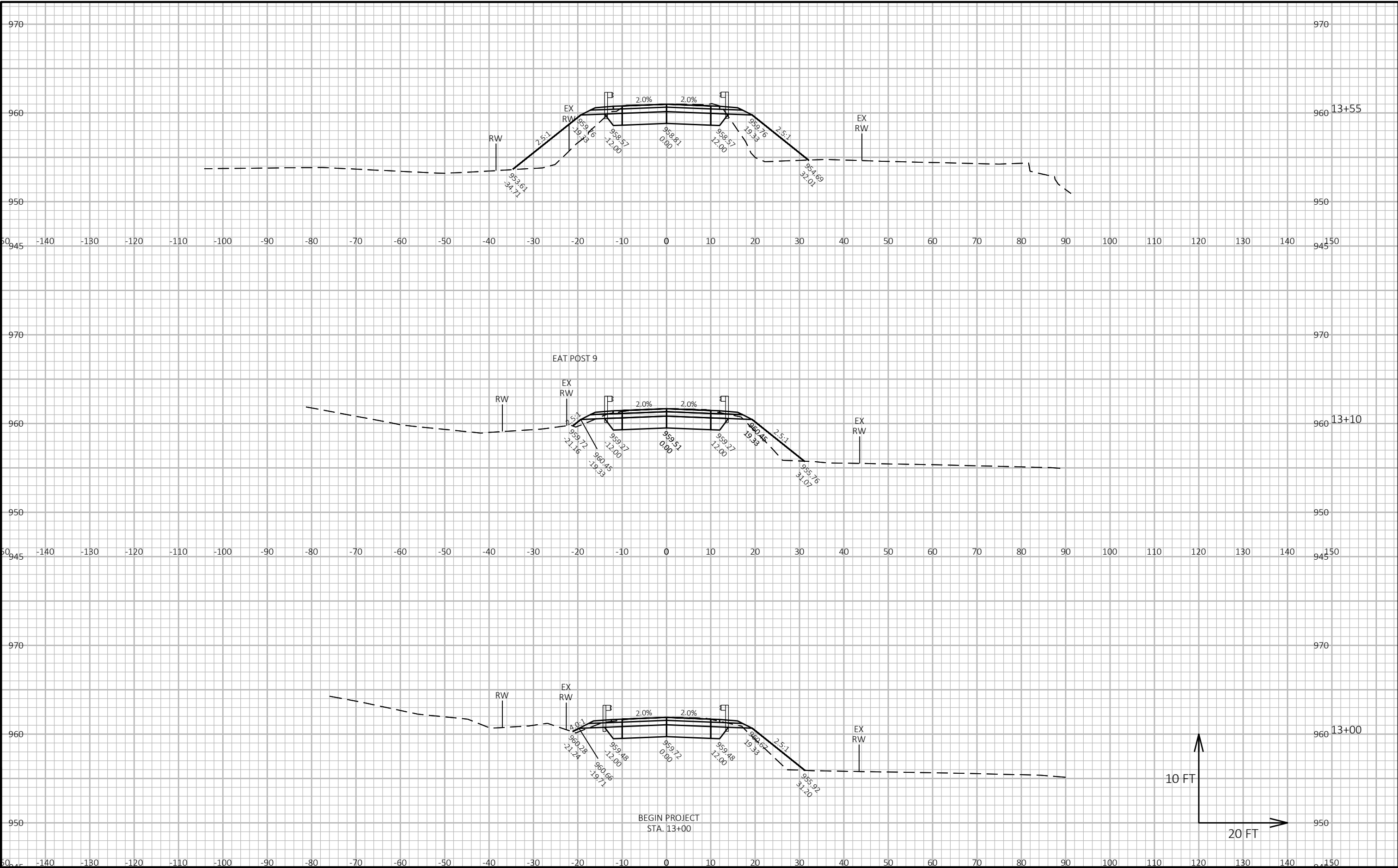
PROJECT NO: 4816-00-71	HWY: POPLAR ROAD	COUNTY: FOND DU LAC	CROSS SECTIONS: POPLAR ROAD	SHEET	E
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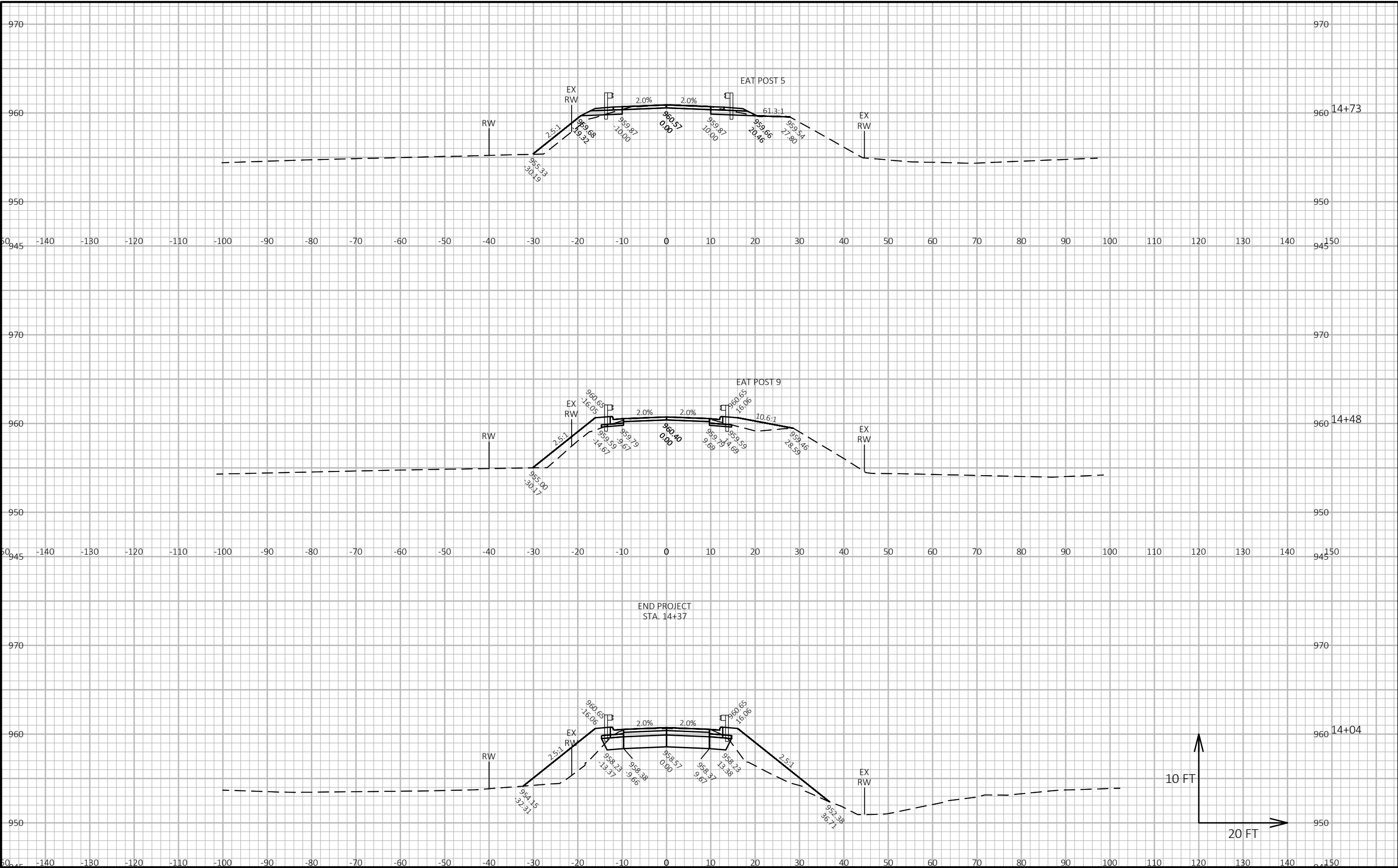
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PROJECT NO: 4816-00-71	HWY: POPLAR ROAD	COUNTY: FOND DU LAC	CROSS SECTIONS: POPLAR ROAD	SHEET E
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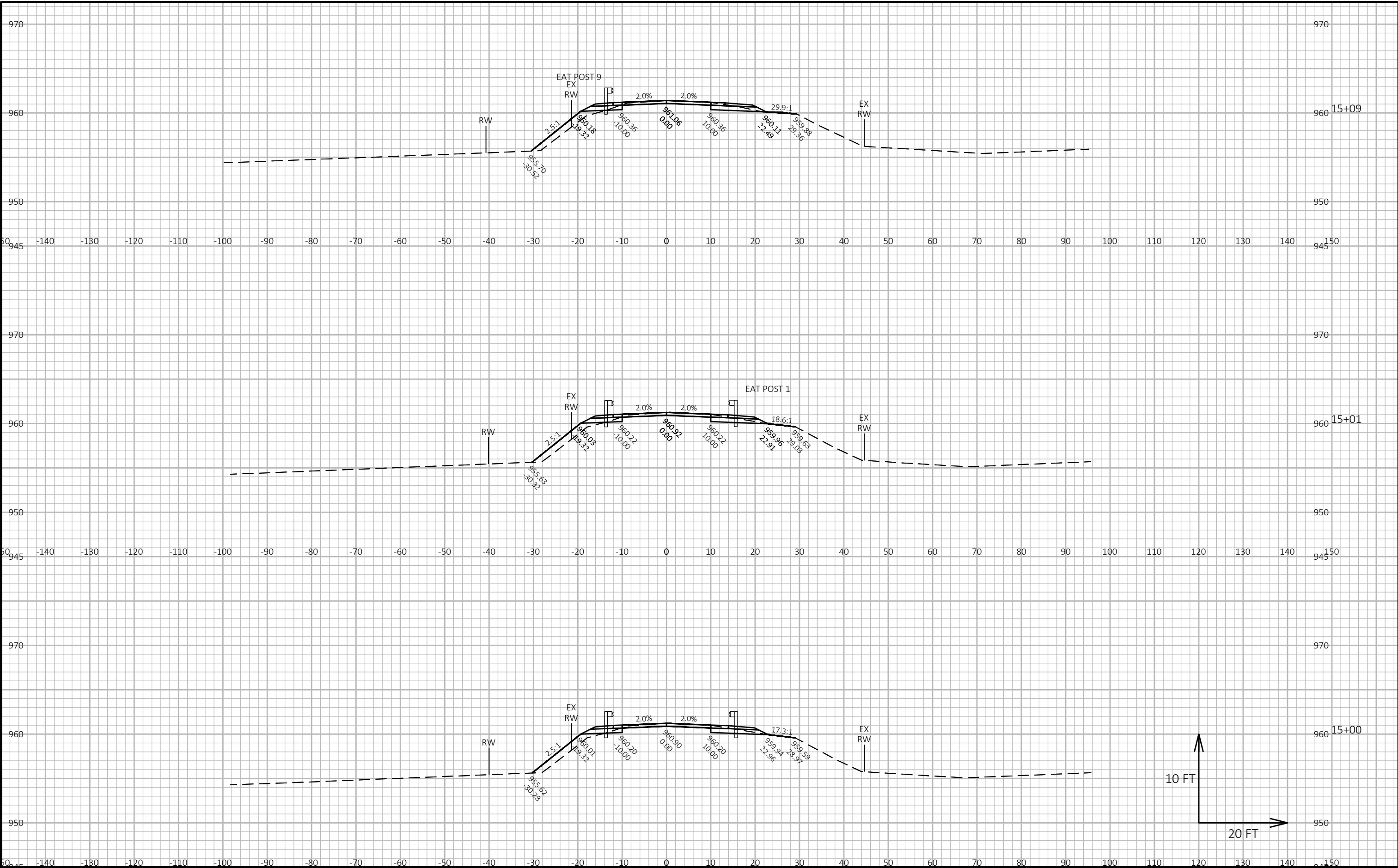
PROJECT NO: 4816-00-71	HWY: POPLAR ROAD	COUNTY: FOND DU LAC	CROSS SECTIONS: POPLAR ROAD	SHEET	E
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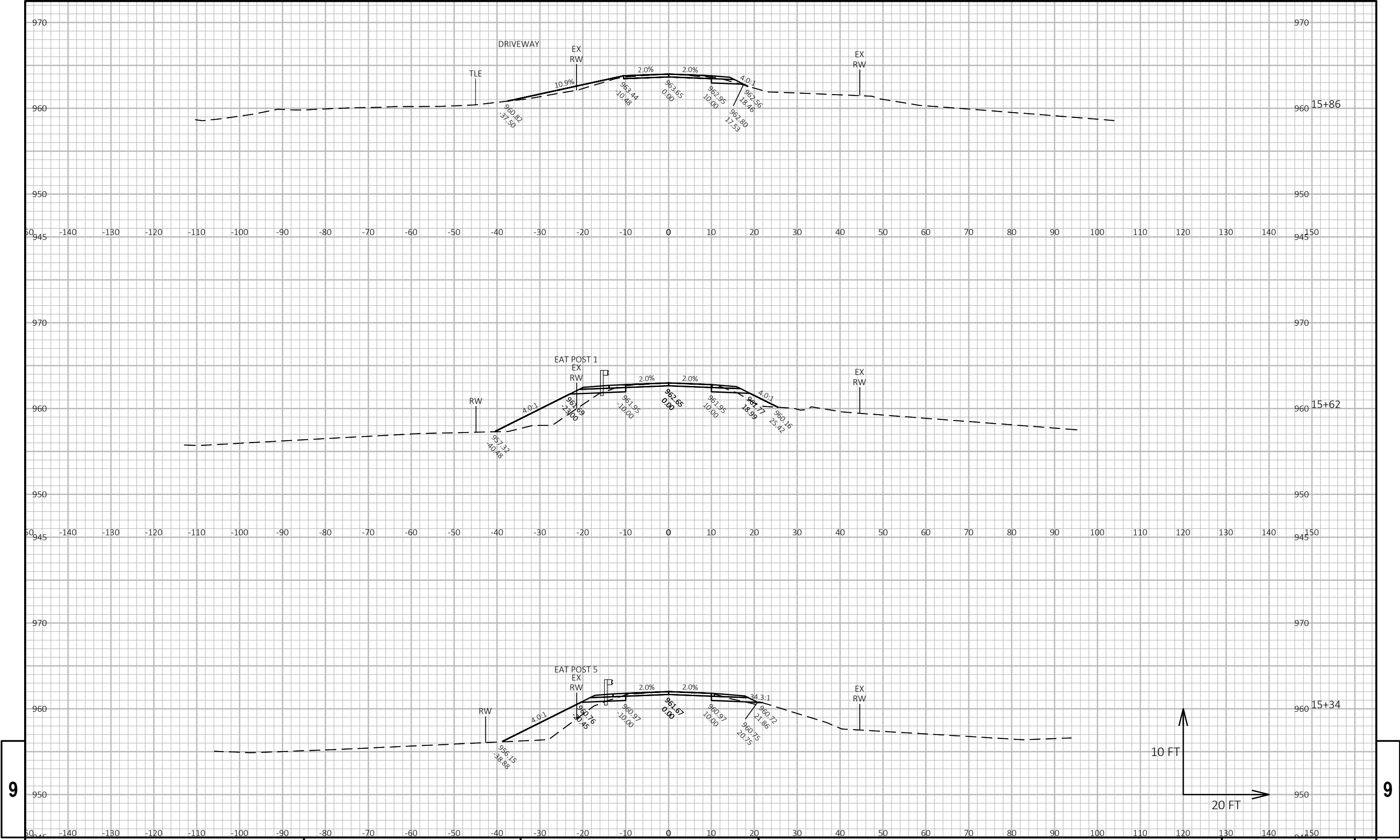


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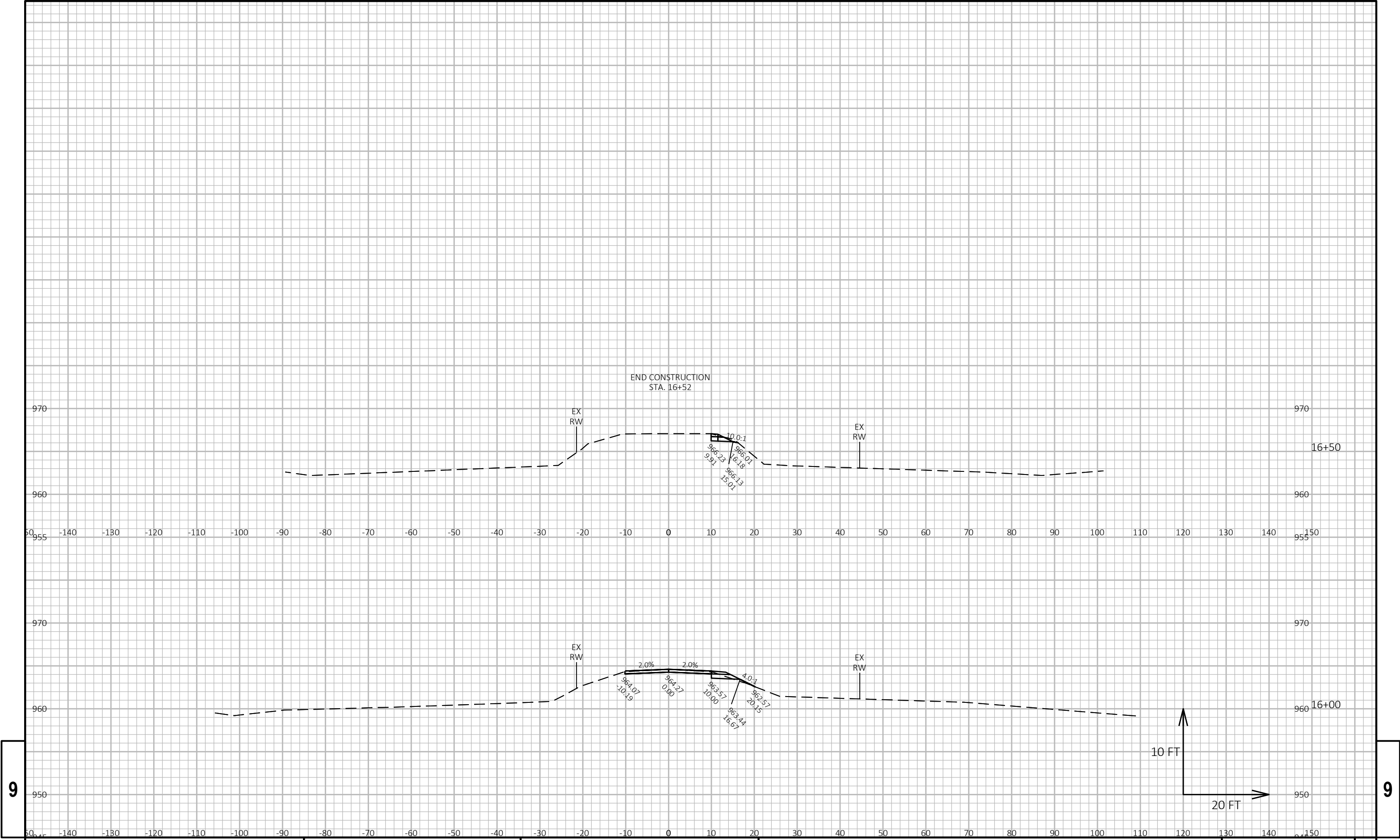
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PROJECT NO: 4816-00-71	HWY: POPLAR ROAD	COUNTY: FOND DU LAC	CROSS SECTIONS: POPLAR ROAD	SHEET	E
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## ***Wisconsin Department of Transportation***

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