GRE

PROJECT ID: 6200-19-71

WITH: N/A

COUNTY: WINNEBAGO

MARCH 2025

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 = 80

29

N

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PLAN OF PROPOSED IMPROVEMENT

OSHKOSH - WINCHESTER

BROOKS ROAD OVERPASS, R-70-0007

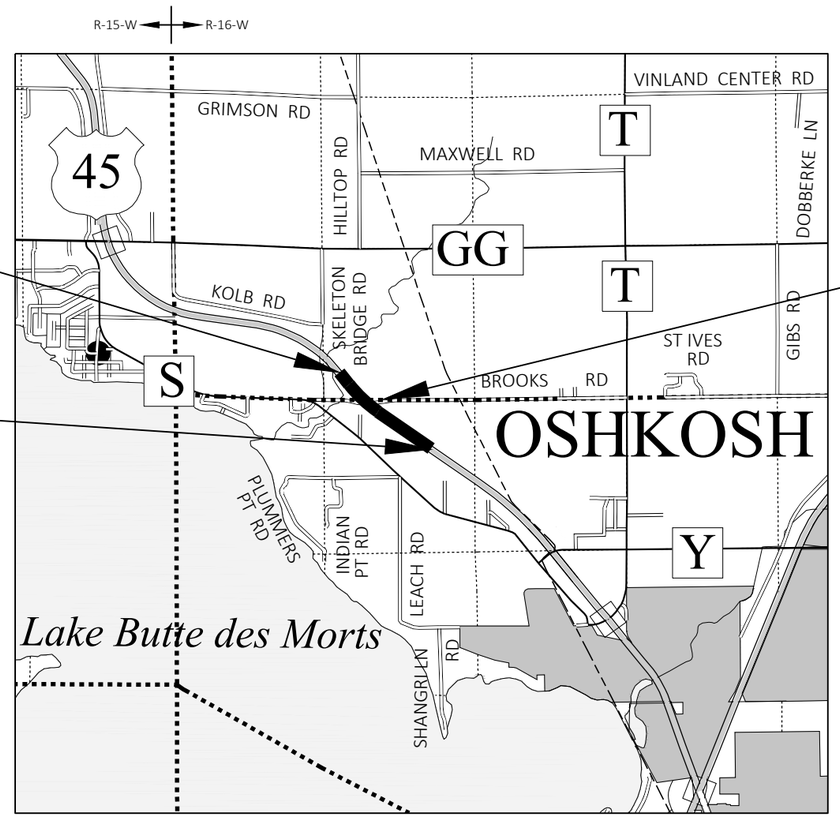
USH 45

WINNEBAGO COUNTY

STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
6200-19-71		

STATE PROJECT NUMBER

6200-19-71



END PROJECT
STA 263+00
Y = 502,054.919
X = 771,958.501

R-70-0007 BROOKS RD

BEGIN PROJECT
STA 256+75.00
Y = 501,673.644
X = 772,453.166

DESIGN DESIGNATION

A.A.D.T.	2025	=	18,100
A.A.D.T.	2045	=	21,900
D.H.V.		=	2,190
D.D.		=	60/40
T.		=	14.4%
DESIGN SPEED		=	65 MPH
ESALS		=	N/A

CONVENTIONAL SYMBOLS

PLAN

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

PROFILE

- GRADE LINE
- ORIGINAL GROUND
- MARSH OR ROCK PROFILE (To be noted as such) (ROCK)
- SPECIAL DITCH (LABEL)
- GRADE ELEVATION (95.36)
- CULVERT (Profile View)

UTILITIES

- ELECTRIC (E)
- FIBER OPTIC (FO)
- GAS (G)
- SANITARY SEWER (SAN)
- STORM SEWER (SS)
- TELEPHONE (T)
- WATER (W)
- UTILITY PEDESTAL
- POWER POLE
- TELEPHONE POLE

LAYOUT

SCALE 0 0.5 MI

TOTAL NET LENGTH OF CENTERLINE = 0.118 MI

HORIZONTAL POSITIONS SHOWN ON THIS PLAN ARE WISCONSIN COUNTY COORDINATE SYSTEM (WCCS), WINNEBAGO COUNTY, NAD83 (2011), IN U.S. SURVEY FEET. POSITIONS SHOWN ARE GRID COORDINATES, GRID BEARINGS, AND GRID DISTANCES. GRID DISTANCES ARE THE SAME AS GROUND DISTANCES.

ELEVATIONS ARE REFERENCED TO NAVD 88 (2012). GPS DERIVED ELEVATIONS ARE BASED ON GEOID 18.

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PREPARED BY

Surveyor	SURVEYOR
Designer	BRIAN HEIDEN
Project Manager	WILLIAM BERTRAND
Regional Examiner	REGIONAL EXAMINER
Regional Supervisor	TAMMY RABE

APPROVED FOR THE DEPARTMENT

DATE: 11-1-2024 Bill Bertrand, P.E.
(Signature)

E

FILE NAME : N:\PDS\C3D\62001900\SHEETSPLAN\010101-TI.DWG PLOT DATE : 10/28/2024 12:41 PM PLOT BY : CAMPSHURE, MICHAEL R PLOT NAME :

GENERAL NOTES

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

RIGHT OF WAY INFORMATION SHOWN ON THE PLANS IS APPROXIMATE.

BEARINGS SHOWN ARE BASED ON THE COUNTY COORDINATE SYSTEM.

CURVE DATA IS BASED ON THE ARC DEFINITION.

WHEN THE QUANTITY OF THE ITEMS OF BASE AGGREGATE, SUBBASE OR HMA PAVEMENT IS MEASURED FOR PAYMENT BY THE TON OR CUBIC YARD, THE DEPTH OR THICKNESS OF THE LAYERS SHOWN ON THE PLAN IS APPROXIMATE AND THE ACTUAL THICKNESS WILL DEPEND ON THE DISTRIBUTION OF THE MATERIAL AS DIRECTED BY THE ENGINEER.

THE PROPOSED SHOULDER WIDTH SHOWN IN THE TYPICAL SECTIONS ARE MINIMUM WIDTH. PERPETUATE EXISTING SHOULDERS THAT ARE WIDER THAN WHAT IS SHOWN IN THE TYPICAL SECTIONS.

PRIOR TO PLACEMENT OF BEAM GUARD THE SHOULDERS SHALL BE IN PLACE, SHAPED AND COMPACTED.

DO NOT DRIVE OR STORE EQUIPMENT, OR STORE CONSTRUCTION MATERIALS IN ENVIRONMENTALLY SENSITIVE AREAS, WETLANDS, FLOODPLAINS, OR WATERWAYS.

ORDER OF SECTION 2 DETAIL SHEETS

CONTACTS

WISCONSIN DNR LIAISON

JAY SCHIEFELBEIN
2984 SHAWANO AVENUE
GREEN BAY, WI 54313
(920) 360-3784
jeremiah.schiefelbein@wisconsin.gov

WINNEBAGO COUNTY HIGHWAY COMMISSIONER

ROBERT DOEMEL, JR.
901 WEST COUNTY ROAD Y
OSHKOSH, WI 54901
(920) 232-1713
rdoemel@co.winnebago.wi.us

NE REGION SURVEY COORDINATOR

MICHAEL ANDRASCHKO, PLS
944 VANDERPERREN WAY
GREEN BAY, WI 54304
(920) 492-4166
michael.andraschko@dot.wi.gov

NE REGION DESIGN PROJECT MANAGER

WILLIAM BERTRAND, PE
944 VANDERPERREN WAY
GREEN BAY, WI 54304
(920) 360-3124
william.bertrand@dot.wi.gov

UTILITY CONTACTS

LINDA TREBIATOWSKI
WPS - ELECTRICITY
3300 N MAIN STREET
OSHKOSH, WI 54901
PHONE: 920-660-3266
E-MAIL: LINDA.TREBIATOWSKI@WISCONSINPUBLICSERVICE.COM
UTILITIESRELOCATION@WISCONSINPUBLICSERVICE.COM

CHUCK CORNISH
WPS - GAS
3300 N MAIN STREET
OSHKOSH, WI 54901
PHONE: 920-236-5902
E-MAIL: CHARLES.CORNISH@WISCONSINPUBLICSERVICE.COM
UTILITIESRELOCATION@WISCONSINPUBLICSERVICE.COM

2

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 STRIPTURF:	.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 SLOPETURF:			.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 = 1.5 ACRES
TOTAL AREA EXPECTED TO BE DISTURBED BY CONSTRUCTION ACTIVITIES = 0.9 ACRES

2

2

N

SPIEGELBERG ROAD

KOLB ROAD

USH 45

SKELETON BRIDGE ROAD

TOWN OF VINLAND

BROOKS ROAD

USH 45

TOWN OF OSHKOSH

TOWNSHIP BOUNDARY

END PROJECT
STA 263+00.00
Y=502,054.919
X=771,958.501

END CONSTRUCTION
STA 21+88.00
Y=502,039.768
X=772,343.463

BROOKS ROAD

BEGIN CONSTRUCTION
STA 19+29.57
Y=502,007.631
X=772,087.044

DAGGETS CREEK

APPROXIMATE LOCATION OF SKELETON BRIDGE ARCHAEOLOGICAL SITE. CONTACT PROJECT ENGINEER FOR FURTHER LOCATION IDENTIFICATION.

BEGIN PROJECT
STA 256+75.00
Y=501,673.644
X=772,453.166

COUNTY ROAD S

APPROXIMATE LOCATION SOGGY OATS ARCHAEOLOGICAL SITE. SEE PLAN SHEET FOR MORE DETAIL AND CONTACT PROJECT ENGINEER FOR FURTHER LOCATION IDENTIFICATION

USH 45

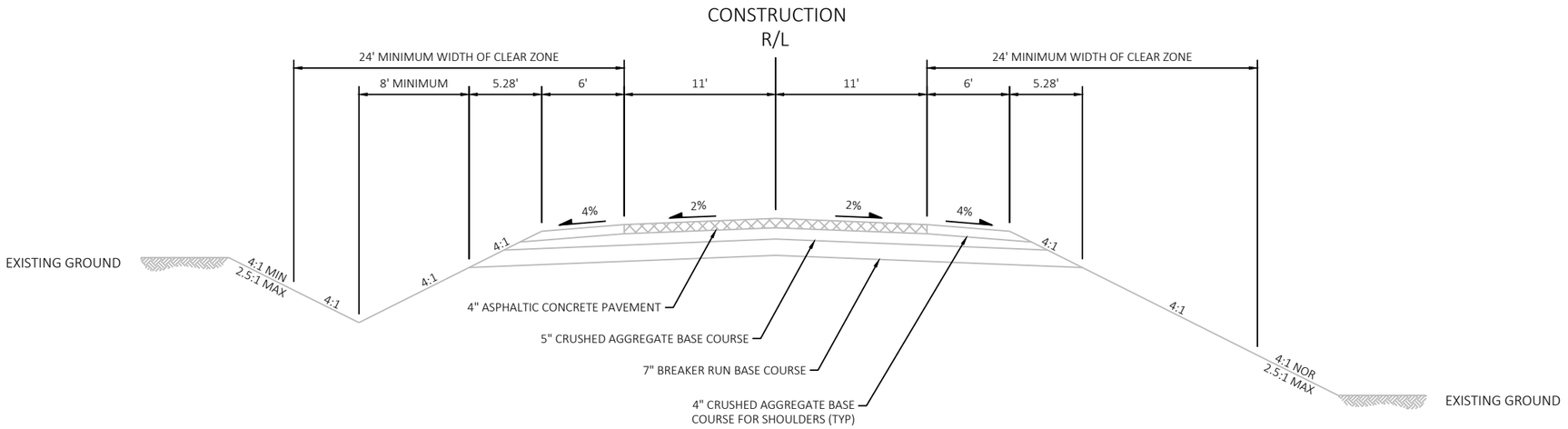
LAKE BUTTE DES MORTS

PLUMMERS POINT ROAD

PROJECT NO: 6200-19-71	HWY: USH 45	COUNTY: WINNEBAGO	PROJECT OVERVIEW	SHEET 3	E

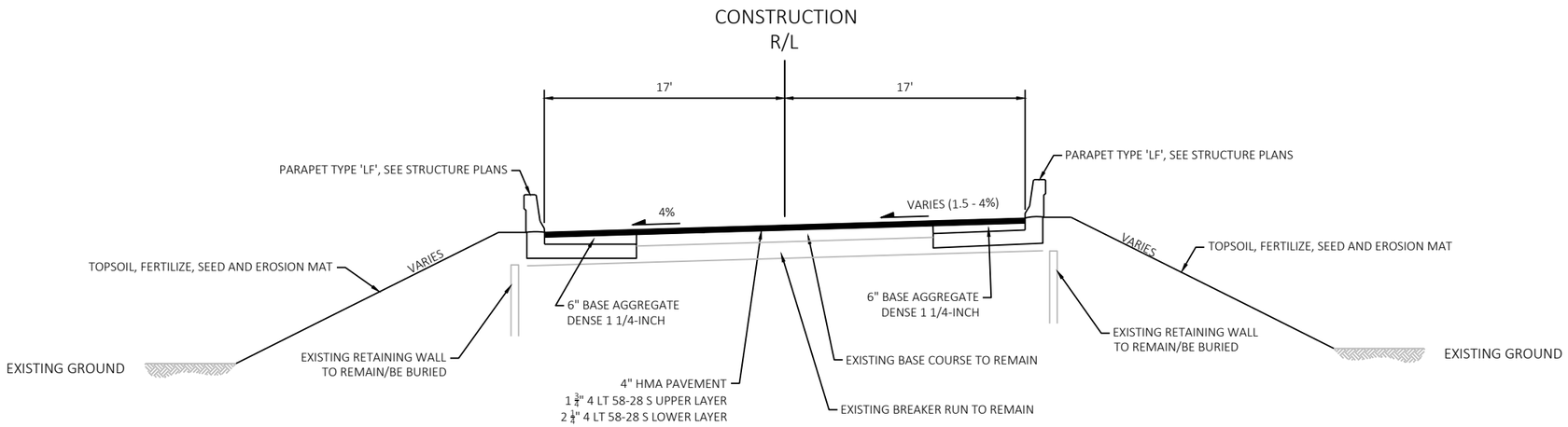
FILE NAME : N:\PDS\C3D\62001900\SHEETSPLAN\020201-PO.DWG
LAYOUT NAME - 020201-po
PLOT DATE : 10/28/2024 12:45 PM
PLOT BY : CAMPSHURE, MICHAEL R
PLOT NAME :
PLOT SCALE : 1 IN:1000 FT
WISDOT/CADDS SHEET 42

2



EXISTING TYPICAL SECTION BROOKS ROAD

STA 19+12 TO STA 30+00

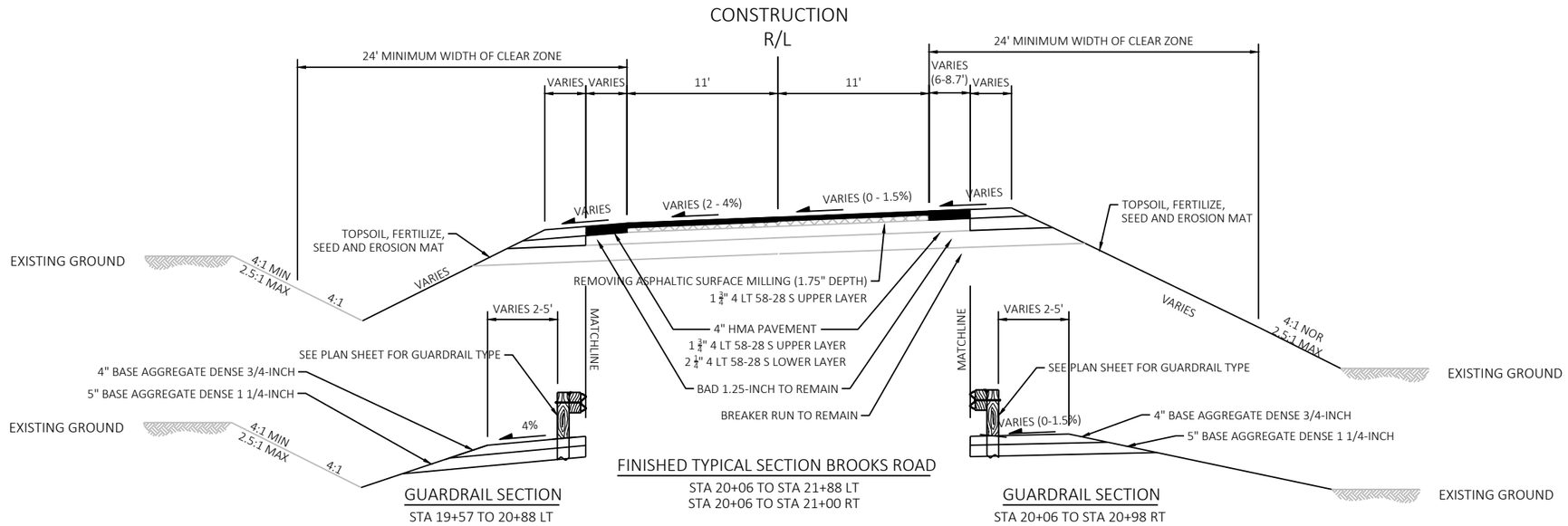


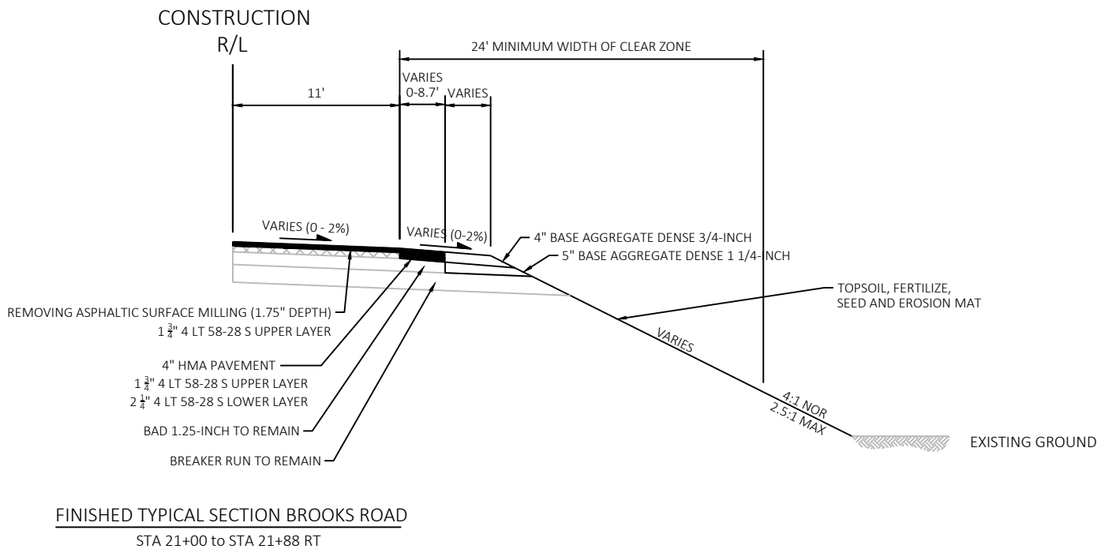
FINISHED TYPICAL SECTION BROOKS ROAD

STA 19+20 TO STA 19+57 LT
STA 19+55 TO STA 20+06 RT

PROJECT NO: 6200-19-71	HWY: USH 45	COUNTY: WINNEBAGO	TYPICAL SECTIONS	SHEET 4	E

2



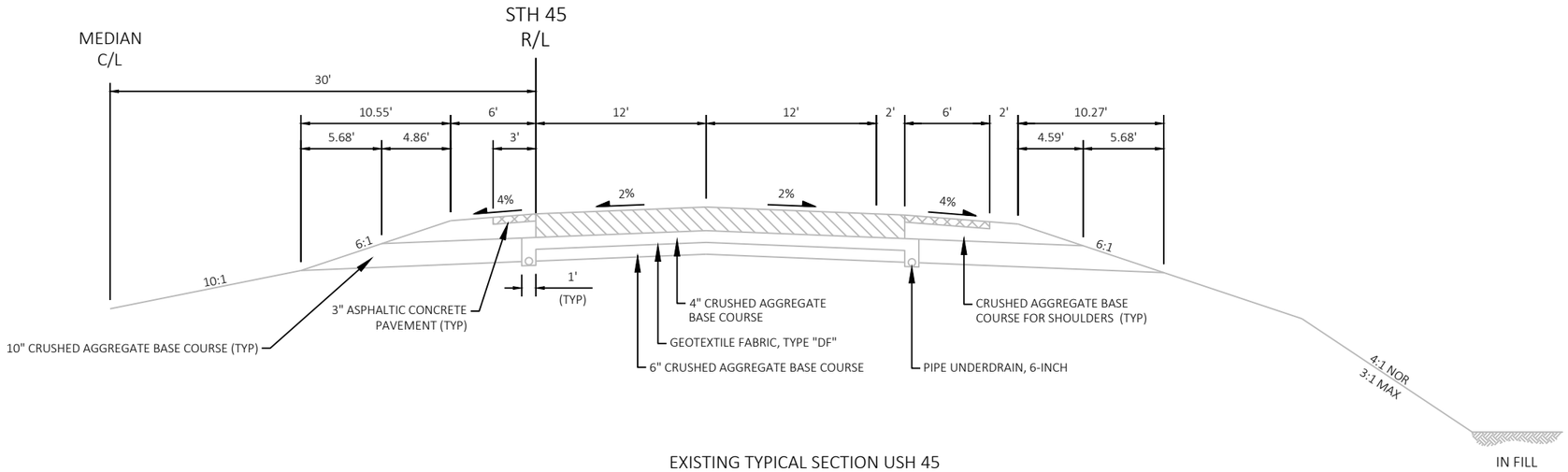


FINISHED TYPICAL SECTION BROOKS ROAD

STA 21+00 to STA 21+88 RT

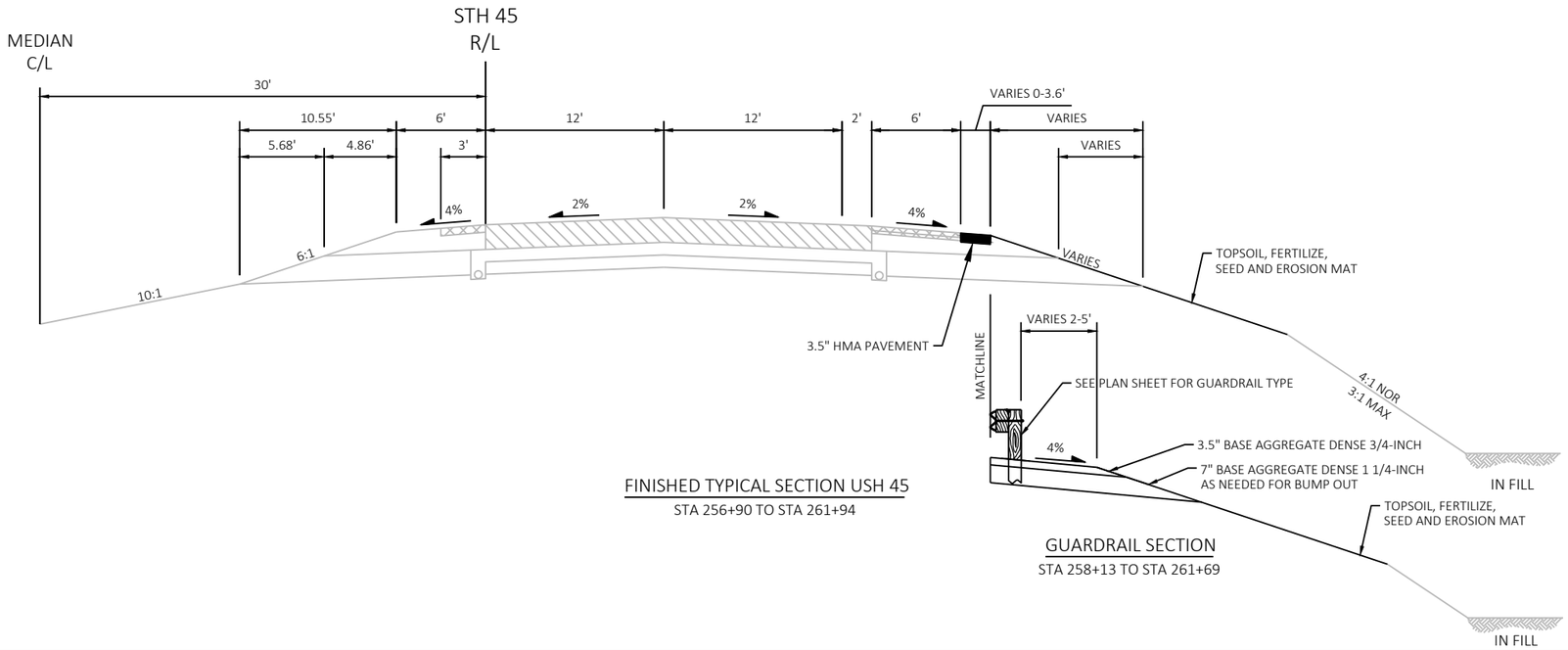
PROJECT NO: 6200-19-71	HWY: USH 45	COUNTY: WINNEBAGO	TYPICAL SECTIONS	SHEET 5	E

2



EXISTING TYPICAL SECTION USH 45

STA 257+70 TO STA 261+79



FINISHED TYPICAL SECTION USH 45

STA 256+90 TO STA 261+94

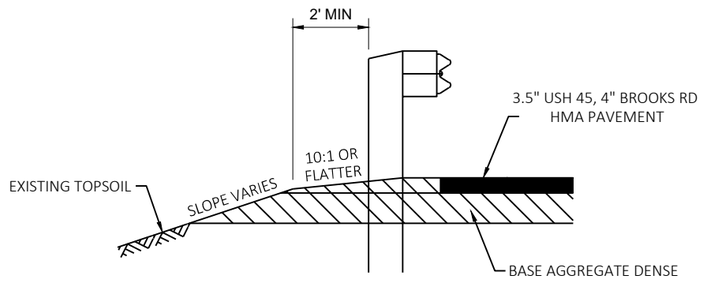
GUARDRAIL SECTION

STA 258+13 TO STA 261+69

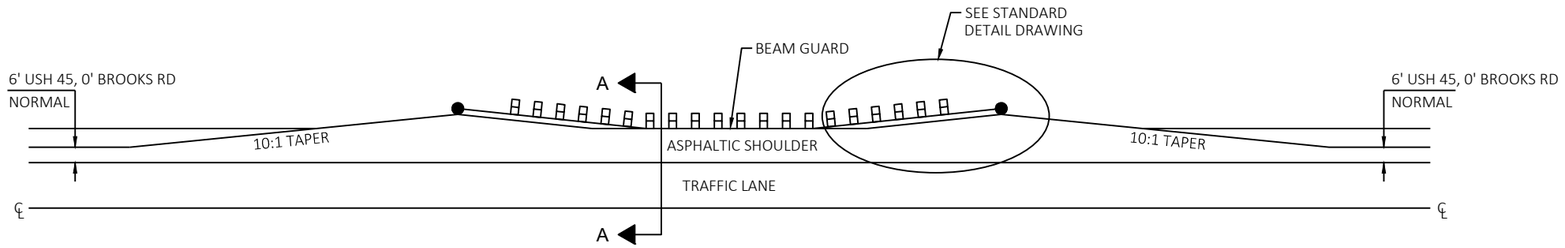
PROJECT NO: 6200-19-71	HWY: USH 45	COUNTY: WINNEBAGO	TYPICAL SECTIONS	SHEET 6	E

2

BUTT JOINT DETAIL FOR ASPHALTIC PAVEMENTS (NO PROFILE CHANGE)



SECTION A-A

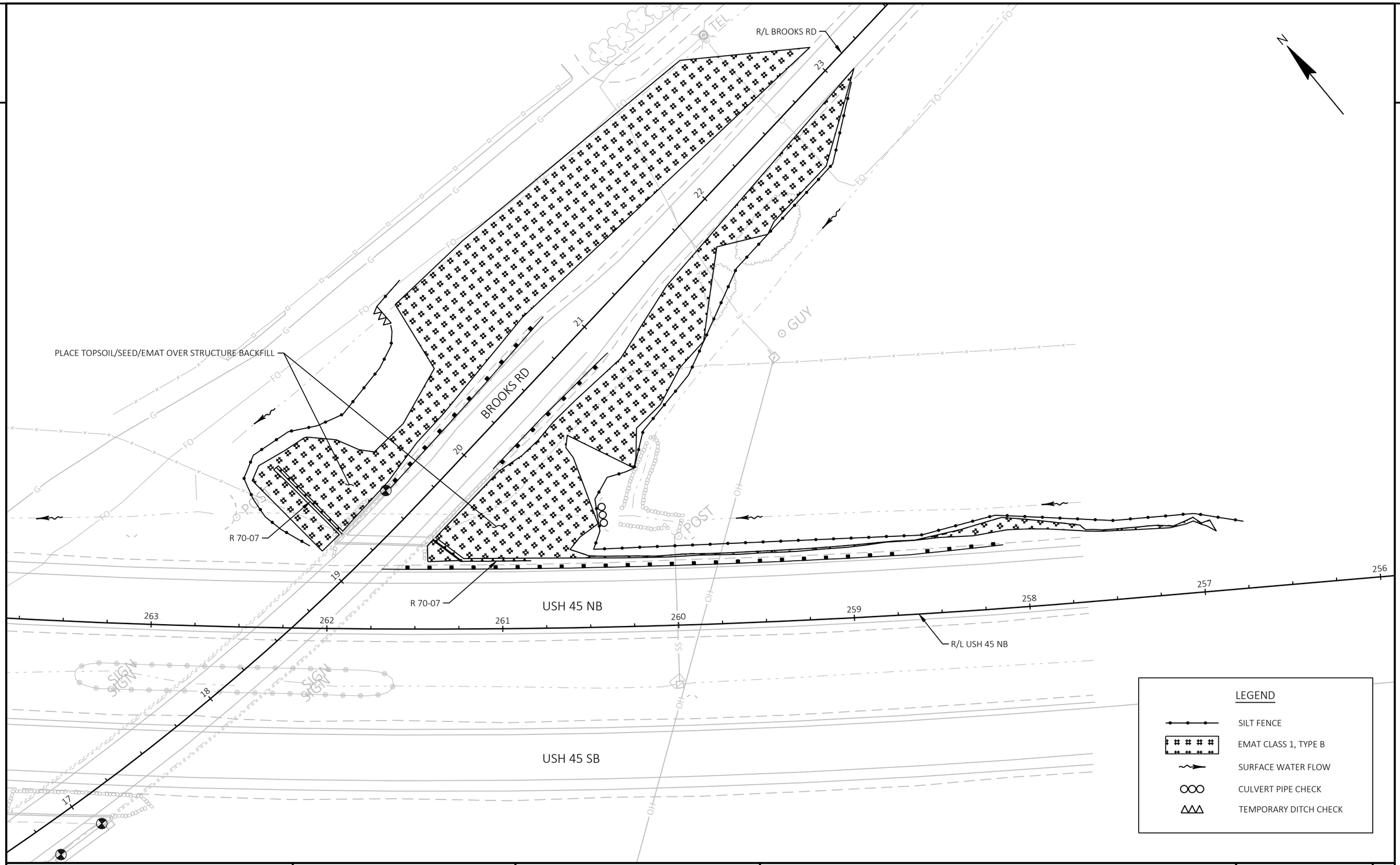


DETAIL FOR ASPHALTIC SHOULDER AT BEAM GUARD

PROJECT NO: 6200-19-71	HWY: USH 45	COUNTY: WINNEBAGO	CONSTRUCTION DETAILS	SHEET 7	E

FILE NAME : N:\PDS\C3D\62001900\SHEETSPLAN\020401_CD.DWG
LAYOUT NAME - 021007-cd
PLOT DATE : 10/28/2024 1:37 PM
PLOT BY : CAMPSHURE, MICHAEL R
PLOT NAME :
PLOT SCALE : 1 IN:10 FT
WISDOT/CADDS SHEET 42

2



LEGEND

- SILT FENCE
- EMAT CLASS 1, TYPE B
- SURFACE WATER FLOW
- CULVERT PIPE CHECK
- TEMPORARY DITCH CHECK

PROJECT NO: 6200-19-71	HWY: USH 45	COUNTY: WINNEBAGO	EROSION CONTROL	SHEET 8	E

FILE NAME : N:\PDS\C3D\62001900\SHEETSPLAN\022001-EC.DWG
LAYOUT NAME - 022001-ec

PLOT DATE : 10/28/2024 12:57 PM PLOT BY : CAMPSHURE, MICHAEL R PLOT NAME : PLOT SCALE : Custom

2

2

INSTALL "BARRICADES AND SIGNS FOR MAINLINE CLOSURES", "DETAIL C - MAINLINE CLOSURE, NO POSTED DETOUR SDD 15C02-09a, AND "BARRICADES AND SIGN FOR VARIOUS CLOSURES" SDD 15C02-09b

FOR WORK ON R-70-07 SOUTH OF BROOKS ROAD, UTILIZE CONTINUOUS LANE CLOSURE PER SDD 15D12-13a UNTIL PROPOSED BEAM GUARD IS INSTALLED

INSTALL BASIC TRAFFIC QUEUE WARNING SYSTEM (BQWS) WHILE LANE CLOSURE IS IN EFFECT

INSTALL "BARRICADES AND SIGNS FOR MAINLINE CLOSURES", "DETAIL C - MAINLINE CLOSURE, NO POSTED DETOUR SDD 15C02-09a, AND "BARRICADES AND SIGN FOR VARIOUS CLOSURES" SDD 15C02-09b

N

BROOKS ROAD

USH 45 NB

USH 45 SB

PC: 257+49.01

PROJECT NO: 6200-19-71	HWY: USH 45	COUNTY: WINNEBAGO	TRAFFIC CONTROL	SHEET 9	E

FILE NAME : N:\PDS\C3D\62001900\SHEETSPLAN\025001-TC.DWG
LAYOUT NAME - 025001-tc

PLOT DATE : 10/28/2024 1:00 PM PLOT BY : CAMPSHURE, MICHAEL R PLOT NAME : PLOT SCALE : 1 IN:100 FT

Estimate Of Quantities

6200-19-71

Line	Item	Item Description	Unit	Total	Qty
0002	203.0220	Removing Structure (structure) 01. R-70-0007	EACH	1.000	1.000
0004	204.0110	Removing Asphaltic Surface	SY	430.000	430.000
0006	204.0115	Removing Asphaltic Surface Butt Joints	SY	5.000	5.000
0008	204.0120	Removing Asphaltic Surface Milling	SY	444.000	444.000
0010	204.0165	Removing Guardrail	LF	205.000	205.000
0012	204.0170	Removing Fence	LF	260.000	260.000
0014	206.3001	Excavation for Structures Retaining Walls (structure) 01. R-70-0007	EACH	1.000	1.000
0016	210.1500	Backfill Structure Type A	TON	1,965.000	1,965.000
0018	211.0101	Prepare Foundation for Asphaltic Paving (project) 01. 6200-19-71	EACH	1.000	1.000
0020	211.0400	Prepare Foundation for Asphaltic Shoulders	STA	4.000	4.000
0022	213.0100	Finishing Roadway (project) 01. 6200-19-71	EACH	1.000	1.000
0024	305.0110	Base Aggregate Dense 3/4-Inch	TON	85.000	85.000
0026	305.0120	Base Aggregate Dense 1 1/4-Inch	TON	82.000	82.000
0028	450.4000	HMA Cold Weather Paving	TON	181.000	181.000
0030	455.0605	Tack Coat	GAL	74.000	74.000
0032	460.2000	Incentive Density HMA Pavement	DOL	120.000	120.000
0034	460.5224	HMA Pavement 4 LT 58-28 S	TON	181.000	181.000
0036	502.0110.S	Concrete Masonry Soldier Pile Footings	CY	32.000	32.000
0038	502.3210	Pigmented Surface Sealer	SY	35.000	35.000
0040	502.4105	Adhesive Anchors 5/8-inch	EACH	37.000	37.000
0042	504.0500	Concrete Masonry Retaining Walls	CY	83.000	83.000
0044	505.0600	Bar Steel Reinforcement HS Coated Structures	LB	9,940.000	9,940.000
0046	506.0605	Structural Steel HS	LB	29,510.000	29,510.000
0048	506.3010	Welded Stud Shear Connectors 7/8x5-Inch	EACH	327.000	327.000
0050	513.2001	Railing Pipe	LF	117.000	117.000
0052	517.0601	Painting Epoxy System (structure) 01. R-70-0007	EACH	1.000	1.000
0054	612.0406	Pipe Underdrain Wrapped 6-Inch	LF	140.000	140.000
0056	614.0010	Barrier System Grading Shaping Finishing	EACH	3.000	3.000
0058	614.0150	Anchor Assemblies for Steel Plate Beam Guard	EACH	2.000	2.000
0060	614.2300	MGS Guardrail 3	LF	238.000	238.000
0062	614.2310	MGS Guardrail 3 HS	LF	100.000	100.000
0064	614.2500	MGS Thrie Beam Transition	LF	78.000	78.000
0066	614.2610	MGS Guardrail Terminal EAT	EACH	3.000	3.000
0068	614.2620	MGS Guardrail Terminal Type 2	EACH	1.000	1.000
0070	616.0100	Fence Woven Wire (height) 01. 4-FT	LF	260.000	260.000
0072	618.0100	Maintenance and Repair of Haul Roads (project) 01. 6200-19-71	EACH	1.000	1.000
0074	619.1000	Mobilization	EACH	1.000	1.000
0076	624.0100	Water	MGAL	1.700	1.700
0078	625.0500	Salvaged Topsoil	SY	679.000	679.000
0080	628.1504	Silt Fence	LF	1,052.000	1,052.000
0082	628.1520	Silt Fence Maintenance	LF	1,052.000	1,052.000
0084	628.1905	Mobilizations Erosion Control	EACH	5.000	5.000
0086	628.1910	Mobilizations Emergency Erosion Control	EACH	2.000	2.000
0088	628.2004	Erosion Mat Class I Type B	SY	679.000	679.000
0090	628.7504	Temporary Ditch Checks	LF	10.000	10.000
0092	628.7555	Culvert Pipe Checks	EACH	5.000	5.000
0094	629.0210	Fertilizer Type B	CWT	0.400	0.400
0096	630.0130	Seeding Mixture No. 30	LB	12.000	12.000
0098	630.0500	Seed Water	MGAL	16.000	16.000

6200-19-71

Line	Item	Item Description	Unit	Total	Qty
0100	642.5201	Field Office Type C	EACH	1.000	1.000
0102	643.0300	Traffic Control Drums	DAY	2,770.000	2,770.000
0104	643.0420	Traffic Control Barricades Type III	DAY	1,212.000	1,212.000
0106	643.0705	Traffic Control Warning Lights Type A	DAY	1,912.000	1,912.000
0108	643.0715	Traffic Control Warning Lights Type C	DAY	900.000	900.000
0110	643.0800	Traffic Control Arrow Boards	DAY	60.000	60.000
0112	643.0900	Traffic Control Signs	DAY	1,436.000	1,436.000
0114	643.1050	Traffic Control Signs PCMS	DAY	21.000	21.000
0116	643.1205.S	Basic Traffic Queue Warning System	DAY	60.000	60.000
0118	643.3180	Temporary Marking Line Removable Tape 6-Inch	LF	780.000	780.000
0120	643.3960	Temporary Marking Removable Mask Out Tape 6-Inch	LF	213.000	213.000
0122	643.5000	Traffic Control	EACH	1.000	1.000
0124	645.0111	Geotextile Type DF Schedule A	SY	134.000	134.000
0126	650.6501	Construction Staking Structure Layout (structure) 01. R-70-0007	EACH	1.000	1.000
0128	690.0150	Sawing Asphalt	LF	386.000	386.000
0130	715.0502	Incentive Strength Concrete Structures	DOL	690.000	690.000
0132	SPV.0060	Special 01. Tieback Anchors	EACH	6.000	6.000
0134	SPV.0060	Special 02. Tieback Anchor Performance Tests	EACH	2.000	2.000
0136	SPV.0090	Special 01. Foundation Drilling	LF	222.000	222.000
0138	SPV.0110	Special 01. Timber Lagging	MBM	7.000	7.000

3

3

REMOVING ASPHALTIC SURFACE

CATEGORY	ROADWAY	STATION	TO	STATION	204.0110 REMOVING ASPHALTIC SURFACE SY
0010	BROOKS RD	19+21	-	21+50	430
				PROJECT TOTAL	430

REMOVING ASPHALTIC SURFACE BUTT JOINTS

CATEGORY	ROADWAY	STATION	OFFSET	204.0115 REMOVING ASPHALTIC SURFACE BUTT JOINTS SY
0010	BROOKS RD	21+88	LT/RT	5
			PROJECT TOTAL	5

REMOVING ASPHALTIC SURFACE MILLING

CATEGORY	ROADWAY	STATION	TO	STATION	204.0120 REMOVING ASPHALTIC SURFACE MILLING SY
0010	BROOKS RD	20+06	-	21+88	444
				PROJECT TOTAL	444

REMOVING GUARDRAIL

CATEGORY	ROADWAY	STATION	TO	STATION	OFFSET	204.0165 REMOVING GUARDRAIL LF
0010	BROOKS RD	19+60	-	20+80	LT	120
0010	BROOKS RD	20+05	-	20+90	RT	85
					PROJECT TOTAL	205

REMOVING FENCE

CATEGORY	ROADWAY	STATION	TO	STATION	OFFSET	204.0170 REMOVING FENCE LF
0010	USH 45 NB	259+70	-	261+30	RT	200
0010	USH 45 NB	261+95	-	262+51	RT	60
					PROJECT TOTAL	260

3

3

PREPARE FOUNDATION FOR ASPHALTIC SHOULDERS

CATEGORY	STATION	TO	STATION	OFFSET	211.0400 PREPARE FOUNDATION FOR ASPHALTIC SHOULDERS STA
0010	257+76	-	261+94	RT	4
			PROJECT TOTAL		4

BASE AGGREGATE

CATEGORY	ROADWAY	STATION	TO	STATION	OFFSET	305.0110 BASE AGGREGATE DENSE 3/4-INCH TON	305.0120 BASE AGGREGATE DENSE 1 1/4-INCH TON	624.0100 WATER MGAL
0010	USH 45	256+90	-	261+85	RT	21	12	0.3
0010	BROOKS RD LT	19+23	-	23+04	LT	31	30	0.6
0010	BROOKS RD RT	19+52	-	23+12	RT	33	40	0.7
					PROJECT TOTAL	85	82	1.7

HMA ITEMS

CATEGORY	ROADWAY	STATION	TO	STATION	OFFSET	450.4000 HMA COLD WEATHER PAVING TON	455.0605 TACK COAT GAL	460.5224 HMA PAVEMENT 4 LT 58-28 S TON	REMARKS
0010	USH 45 NB	257+76	-	261+94	RT	16	7	16	SHOULDER 4" DEPTH (MAINLINE/SHOULDERS) 1.75" MILL/OVERLAY
0010	BROOKS RD	19+36	-	21+88	RT/LT	118	36	118	
0010	BROOKS RD	20+06	-	21+88	RT/LT	47	31	47	
					PROJECT TOTAL	181	74	181	

FENCE WOVEN WIRE 4-FT

CATEGORY	ROADWAY	STATION	TO	STATION	OFFSET	616.0100 FENCE WOVEN WIRE 4-FT LF	REMARKS
0010	USH 45 NB	259+70	-	261+30	RT	200	INSTALL NEW FENCE ON EXISTING ALIGNMENT
0010	USH 45 NB	261+95	-	262+51	RT	60	
					PROJECT TOTAL	260	

BARRIER SYSTEM GRADING SHAPING AND FINISHING

CATEGORY	ROADWAY	STATION	TO	STATION	OFFSET	614.0010 BARRIER SYSTEM GRADING SHAPING AND FINISHING EACH	*EROSION MAT CLASS 1 TYPE B SY	*EXCAVATION COMMON CY	*BORROW CY	*SEED WATER MGAL	*SALVAGED TOPSOIL SY	*FERTILIZER TYPE B CWT	*SEEDING MIXTURE #30 LB
0010	USH 45 NB	256+91	-	261+69	RT	1	53	-	5	1.3	53	0.03	1
0010	BROOKS RD	19+57	-	23+04	LT	1	1,300	-	383	31.2	1,300	0.82	23
0010	BROOKS RD	20+06	-	23+12	RT	1	1,015	-	225	21.2	883	0.56	16
					PROJECT TOTAL	3	2,368	0	613	54	2,236	1	40

NOTES:
*ITEMS & QUANTITIES LISTED FOR BID INFORMATION ONLY

3

3

GUARDRAIL ITEMS

CATEGORY	ROADWAY	STATION	TO	STATION	OFFSET	614.2300 MGS GUARDRAIL 3 LF	614.2310 MGS GUARDRAIL 3 HS LF	614.2500 MGS THRIE BEAM TRANSITION LF	614.2610 MGS GUARDRAIL TERMINAL EAT EACH	614.2620 MGS GUARDRAIL TERMINAL TYPE 2 EACH
0010	USH 45 NB	258+13	-	261+69	RT	200	100	-	1	1
0010	BROOKS RD	19+57	-	20+88	LT	37.5	-	39	1	-
0010	BROOKS RD	20+06	-	20+98	RT	-	-	39	1	-
					PROJECT TOTAL	238	100	78	3	1

MOBILIZATIONS EROSION CONTROL

CATEGORY	LOCATION	628.1905 MOBILIZATIONS EROSION CONTROL EACH	628.1910 MOBILIZATIONS EMERGENCY EROSION CONTROL EACH
0010	6200-19-71	5	2
	PROJECT TOTAL	5	2

EROSION CONTROL

CATEGORY	ROADWAY	STATION	TO	STATION	OFFSET	625.0500 SALVAGED TOPSOIL SY	628.1504 SILT FENCE LF	628.1520 SILT FENCE MAINTENANCE LF	628.2004 EROSION MAT CLASS I TYPE B SY	628.7504 TEMPORARY DITCH CHECK LF	628.7555 CULVERT PIPE CHECKS EACH	629.0210 FERTILIZER TYPE B CWT	630.0130 SEEDING MIXTURE NO. 30 LB	630.0500 SEED WATER MGAL	REMARKS
0010	BROOKS RD	19+04	-	19+57	LT	320	210	210	320	10	-	0.2	6	7.7	-
0010	BROOKS RD	19+42	-	20+06	RT	270	325	325	270	-	-	0.2	5	6.5	-
0010	USH 45 NB	256+70	-	261+43	RT	-	380	380	-	-	5	-	-	-	-
0010			UNDISTRIBUTED			89	137	137	89	-	-	0.1	2	2.1	-
					PROJECT TOTAL	679	1,052	1,052	679	10	5	0.4	12	16	

TRAFFIC CONTROL SUMMARY

CATEGORY	LOCATION	ESTIMATED DURATION DAYS	643.0300 TRAFFIC CONTROL DRUMS EACH	643.0300 TRAFFIC CONTROL DRUMS DAY	643.0420 TRAFFIC CONTROL BARRICADES TYPE III EACH	643.0420 TRAFFIC CONTROL BARRICADES TYPE III DAY	643.0705 TRAFFIC CONTROL WARNING LIGHTS TYPE A EACH	643.0705 TRAFFIC CONTROL WARNING LIGHTS TYPE A DAY	643.0715 TRAFFIC CONTROL WARNING LIGHTS TYPE C EACH	643.0715 TRAFFIC CONTROL WARNING LIGHTS TYPE C DAY	643.0800 TRAFFIC CONTROL ARROW BOARDS EACH	643.0800 TRAFFIC CONTROL ARROW BOARDS DAY	643.0900 TRAFFIC CONROL SIGNS EACH	643.0900 TRAFFIC CONROL SIGNS DAY	643.1050 TRAFFIC CONTROL SIGNS PCMS EACH	643.1050 TRAFFIC CONTROL SIGNS PCMS DAY	643.3180 TEMPORARY MARKING LINE REMOVABLE TAPE 6-INCH (WHITE) LF	643.3960 TEMPORARY MARKING REMOVABLE MASK OUT TAPE 6-INCH LF	REMARKS
0010	USH 45	7	5	35	-	-	-	-	-	-	-	-	-	-	1	7	-	-	USH 45 NB
0010	USH 45	60	45	2,700	1	60	2	120	15	900	1	60	9	540	-	-	780	213	USH 45 NB RIGHT LANE CLOSURE
0010	BROOKS RD	7	5	35	-	-	-	-	-	-	-	-	-	-	2	14	-	-	BROOKS RD CLOSURE
0010	BROOKS RD	64	-	-	18	1,152	28	1,792	-	-	-	-	14	896	-	-	-	-	BROOKS RD CLOSURE
		PROJECT TOTAL		2,770		1,212		1,912		900		60		1,436		21	780	213	

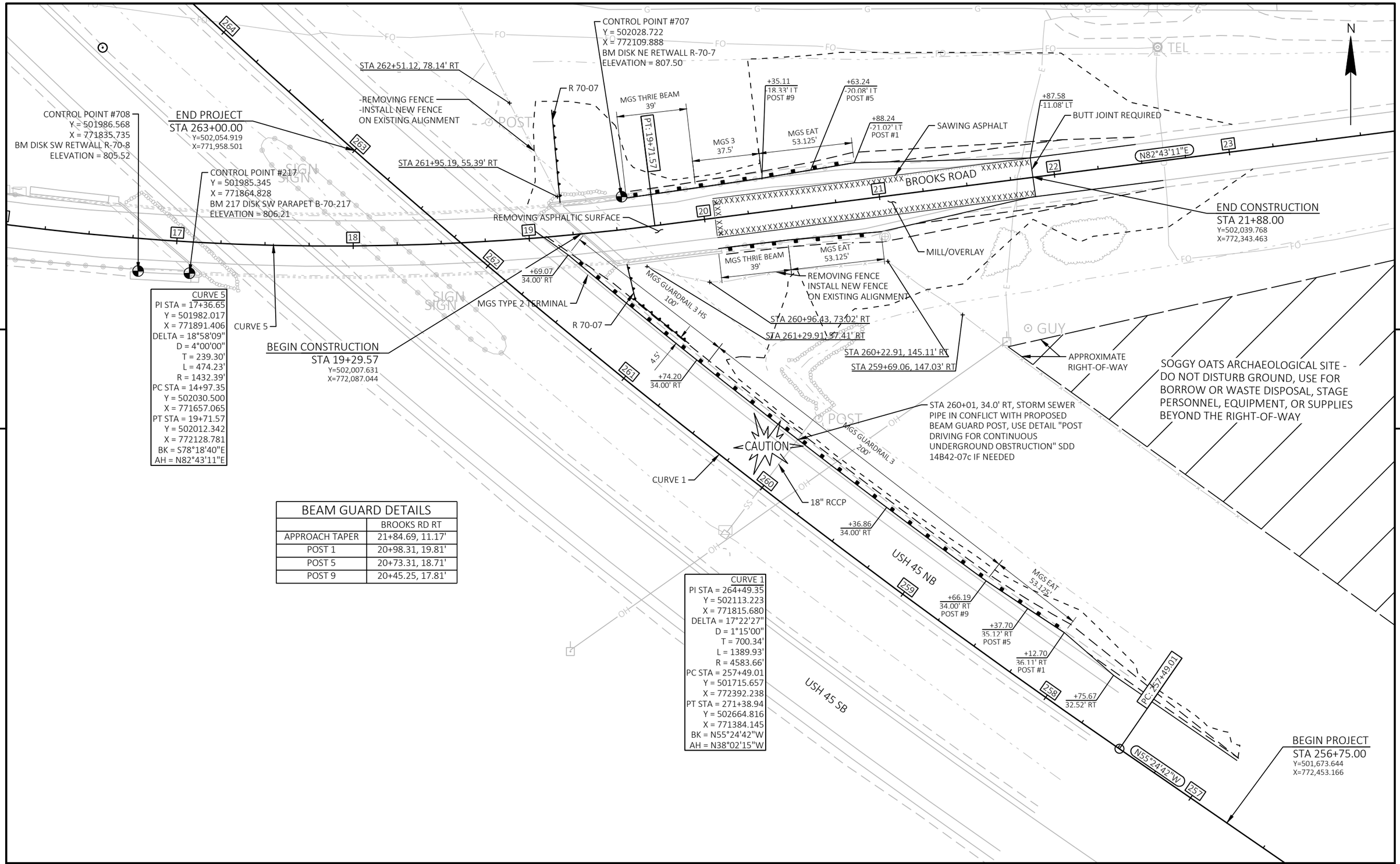
BASIC TRAFFIC QUEUE WARNING SYSTEM (QWS ITEM 643.1205.S)

ROADWAY	STAGE	FLASHING BEACON SIGNS (FBS)	PORTABLE TRAFFIC SENSORS (PTS)	BASIC QUEUE WARNING SYSTEM (DAY)
USH 45 NB	1, RIGHT LANE CLOSURE	3	3	60

SAWING ASPHALT

CATEGORY	ROADWAY	STATION	TO	STATION	OFFSET	690.0150 SAWING ASPHALT LF
0010	BROOKS RD	20+06	-	21+88	LT/RT	386
					PROJECT TOTAL	386

PROJECT NO: 6200-19-71 | HWY: USH 45 | COUNTY: WINNEBAGO | MISCELLANEOUS QUANTITIES | SHEET 14 | E



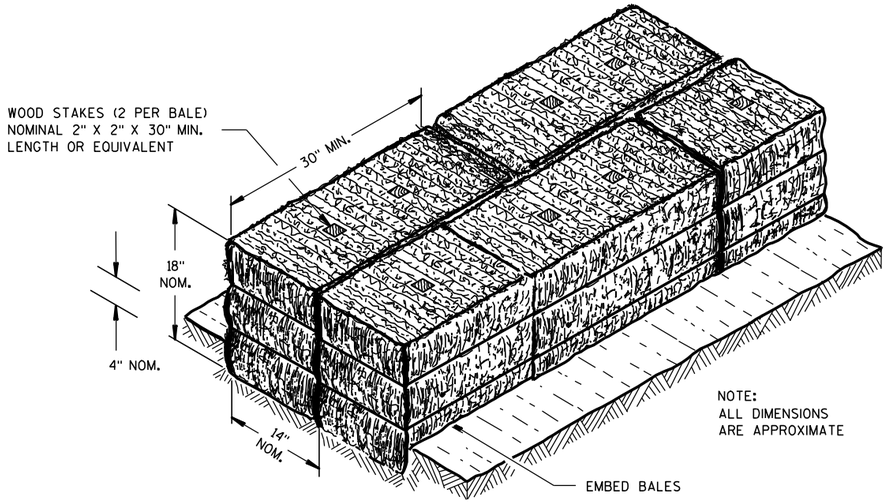
BEAM GUARD DETAILS	
	BROOKS RD RT
APPROACH TAPER	21+84.69, 11.17'
POST 1	20+98.31, 19.81'
POST 5	20+73.31, 18.71'
POST 9	20+45.25, 17.81'

PROJECT NO: 6200-19-71	HWY: USH 45	COUNTY: WINNEBAGO	PLAN SHEETS	SHEET 15	E

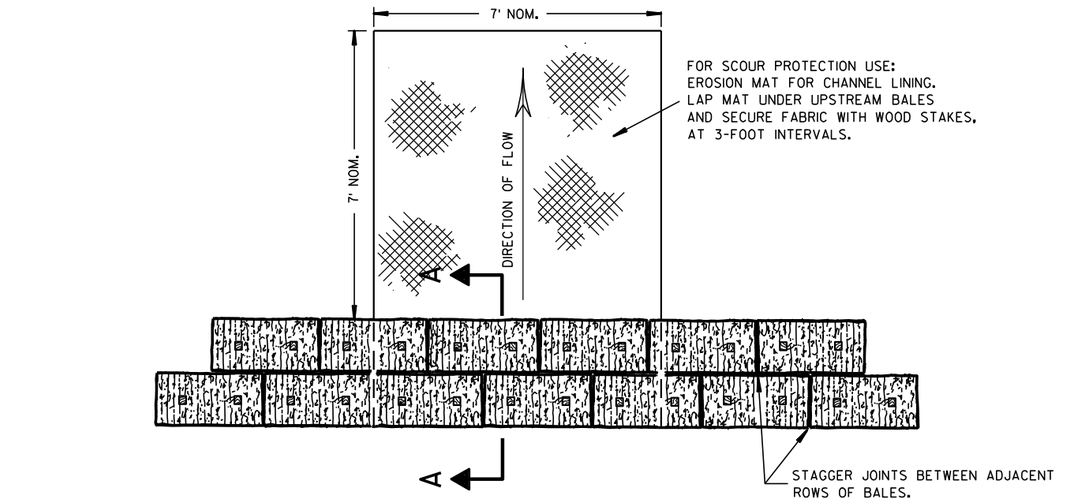
FILE NAME : N:\PDS\C3D\62001900\SHEETSPLAN\050201-PN.DWG
LAYOUT NAME - 050201-pn
PLOT DATE : 1/7/2025 4:41 PM
PLOT BY : CAMPSHURE, MICHAEL R
PLOT NAME :
PLOT SCALE : 1 IN:50 FT
WISDOT/CADDS SHEET 44

Standard Detail Drawing List

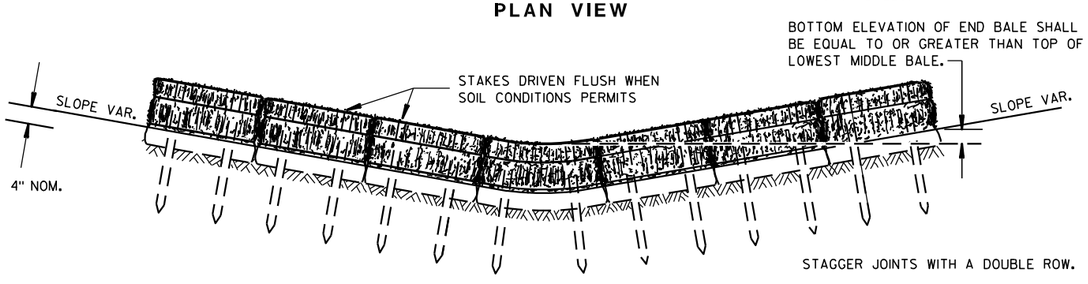
08E08-03	TYPICAL INSTALLATIONS OF EROSION BALES / TEMPORARY DITCH CHECKS
08E09-06	SILT FENCE
08E15-01	CULVERT PIPE CHECK
13C19-03	HMA LONGITUDINAL JOINTS
14B42-07A	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-07B	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-07C	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
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)
14B47-05A	MIDWEST GUARDRAIL SYSTEM (MGS) TYPE 2 TERMINAL
14B47-05B	MIDWEST GUARDRAIL SYSTEM (MGS) TYPE 2 TERMINAL
14B47-05C	MIDWEST GUARDRAIL SYSTEM (MGS) TYPE 2 TERMINAL
14B47-05D	MIDWEST GUARDRAIL SYSTEM (MGS) TYPE 2 TERMINAL
14B47-05E	MIDWEST GUARDRAIL SYSTEM (MGS) TYPE 2 TERMINAL
14B47-05F	MIDWEST GUARDRAIL SYSTEM (MGS) TYPE 2 TERMINAL
14B47-05G	MIDWEST GUARDRAIL SYSTEM (MGS) TYPE 2 TERMINAL
15B01-08A	FENCE WOVEN WIRE
15B01-08B	FENCE WOVEN WIRE
15C02-09A	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C02-09B	BARRICADES AND SIGNS FOR VARIOUS CLOSURES
15C11-10B	CHANNELIZING DEVICES DRUMS, CONES, BARRICADES AND VERTICAL PANELS
15D12-13A	TRAFFIC CONTROL, TAPERED ENTRANCE RAMP WITHIN LANE CLOSURE
Error 2023	
15D27-03	TRAFFIC CONTROL, SHOULDER CLOSURE ON DIVIDED ROADWAY, SPEEDS GREATER THAN 40 MPH



SECTION A-A



PLAN VIEW



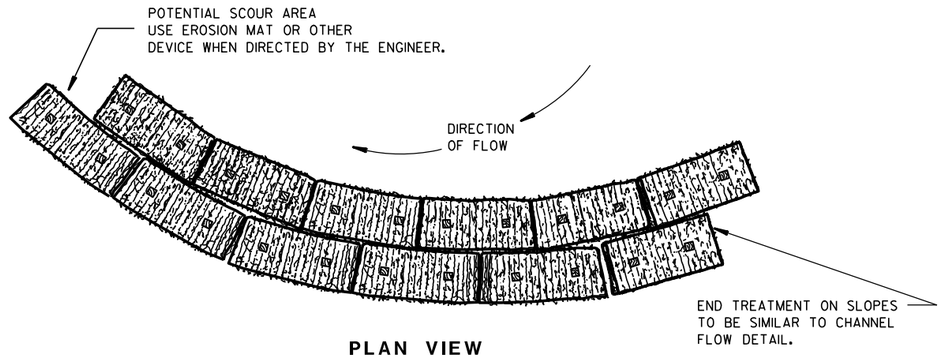
FRONT ELEVATION

TEMPORARY DITCH CHECK USING EROSION BALES ①

GENERAL NOTES

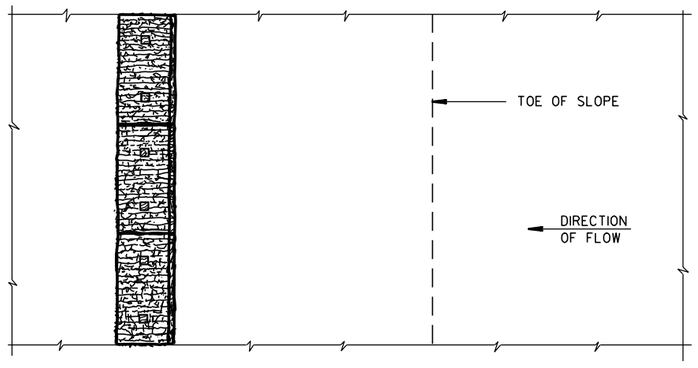
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

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

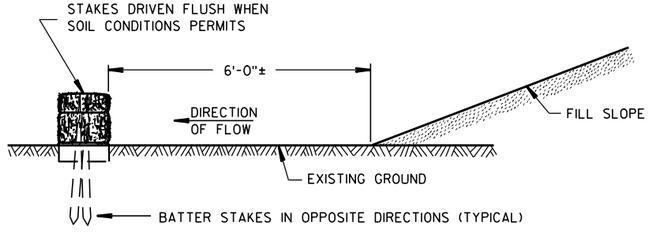


PLAN VIEW

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 — /S/ Beth Cannestra — CHIEF ROADWAY DEVELOPMENT ENGINEER

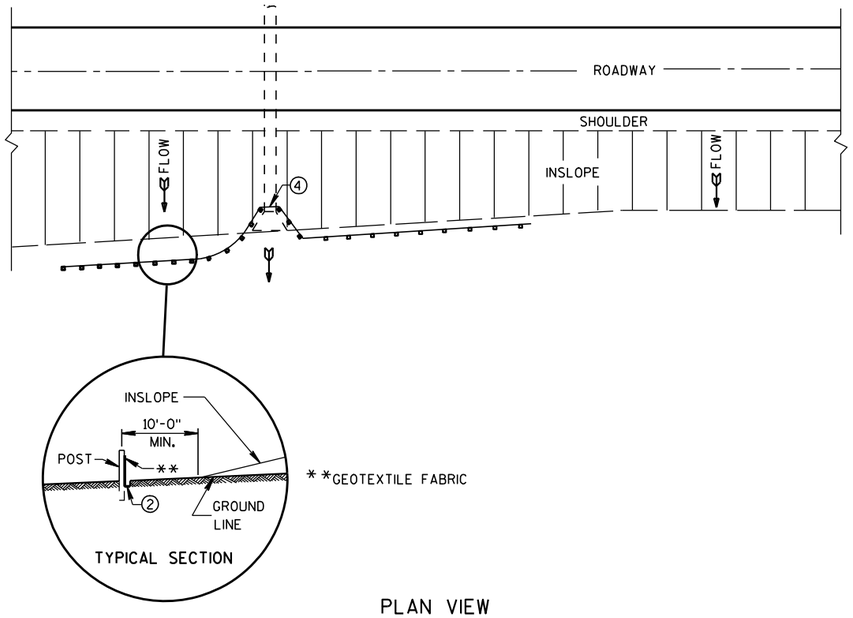
FHWA

6

S.D.D. 8 E 8-3

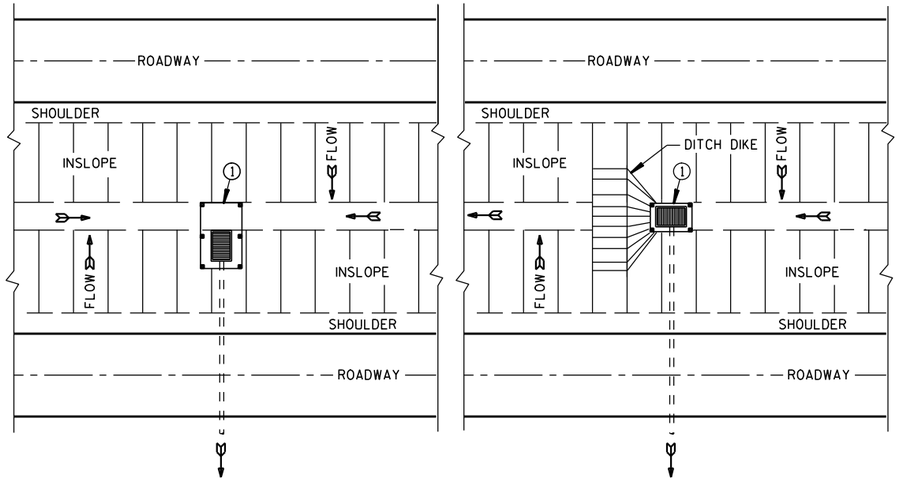
6

S.D.D. 8 E 8-3



PLAN VIEW

TYPICAL APPLICATION OF SILT FENCE



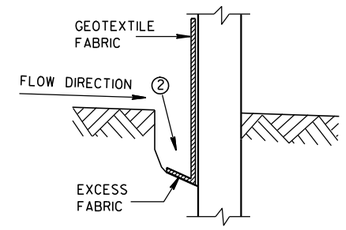
PLAN VIEW

SILT FENCE AT MEDIAN SURFACE DRAINS

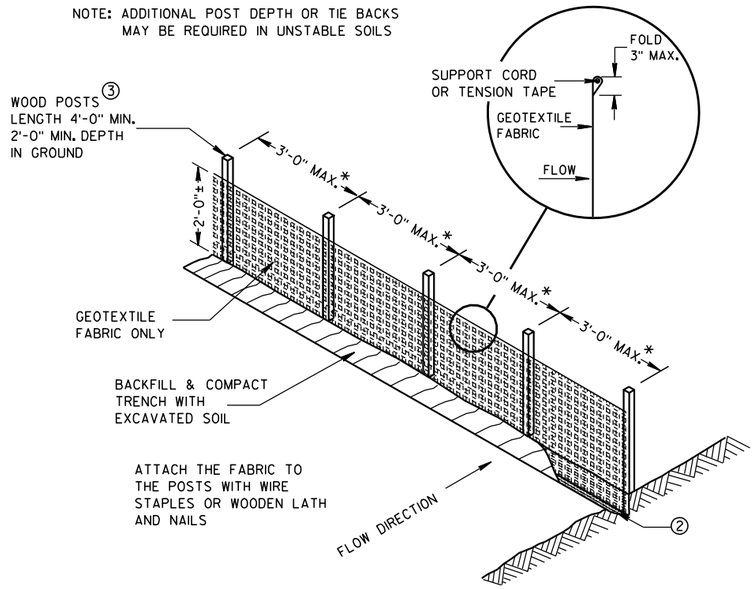
GENERAL NOTES

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

1. HORIZONTAL BRACE REQUIRED WITH 2" X 4" WOODEN FRAME OR EQUIVALENT AT TOP OF POSTS.
2. FOR MANUAL INSTALLATIONS THE TRENCH SHALL BE A MINIMUM OF 4" WIDE & 6" DEEP TO BURY AND ANCHOR THE GEOTEXTILE FABRIC. FOLD MATERIAL TO FIT TRENCH AND BACKFILL & COMPACT TRENCH WITH EXCAVATED SOIL.
3. WOOD POSTS SHALL BE A MINIMUM SIZE OF 1⅛" X 1⅛" OF OAK OR HICKORY.
4. SILT FENCE TO EXTEND ACROSS THE TOP OF THE PIPE.
5. CONSTRUCT SILT FENCE FROM A CONTINUOUS ROLL IF POSSIBLE BY CUTTING LENGTHS TO AVOID JOINTS. IF A JOINT IS NECESSARY USE ONE OF THE FOLLOWING TWO METHODS; A) OVERLAP THE END POSTS AND TWIST, OR ROTATE, AT LEAST 180 DEGREES, B) HOOK THE END OF EACH SILT FENCE LENGTH.

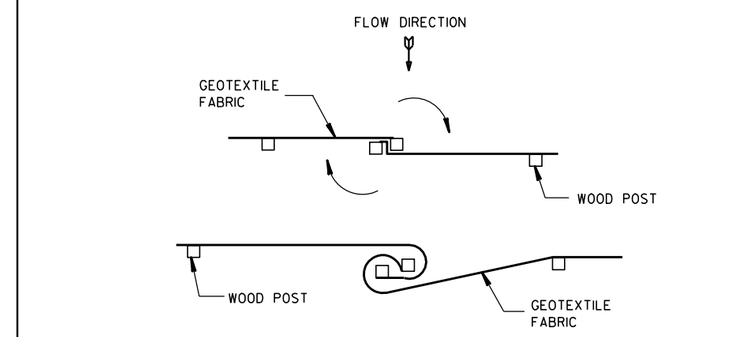


TRENCH DETAIL

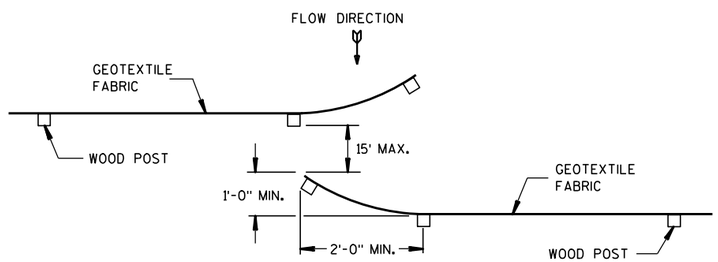


*NOTE: 8'-0" POST SPACING ALLOWED IF A WOVEN GEOTEXTILE FABRIC IS USED.

SILT FENCE

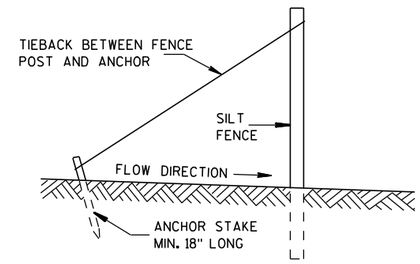


TWIST METHOD



HOOK METHOD

JOINING TWO LENGTHS OF SILT FENCE 5



SILT FENCE TIE BACK

(WHEN REQUIRED BY THE ENGINEER)

SILT FENCE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

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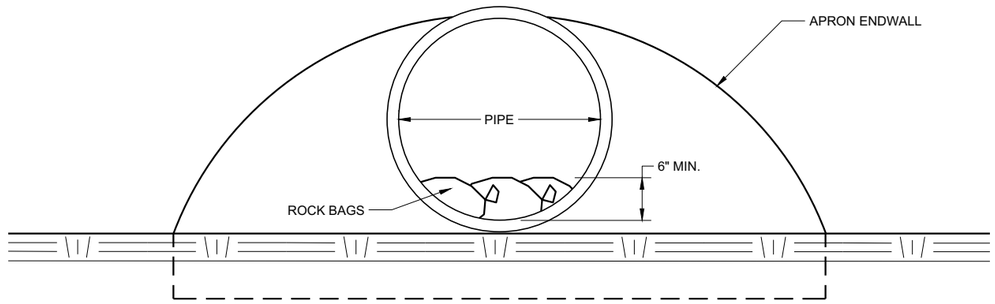
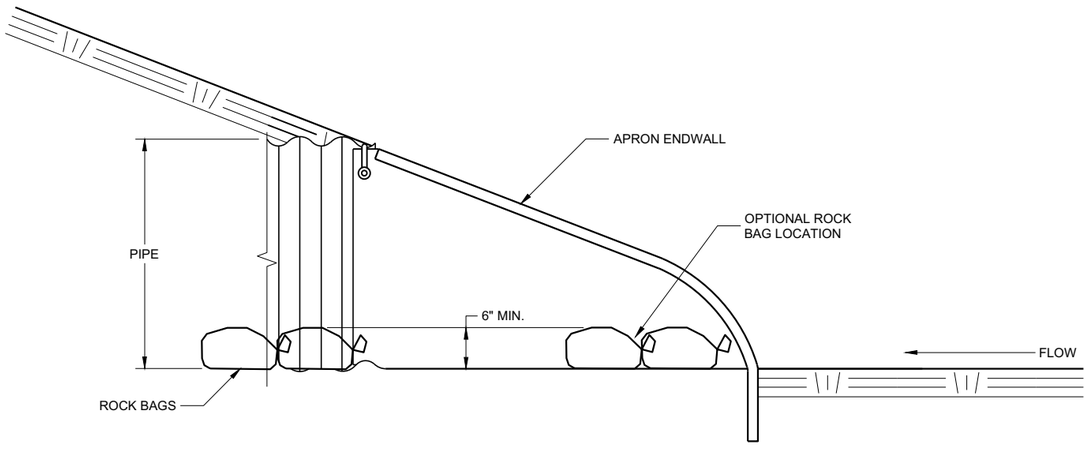
S.D.D. 8 E 9-6

6

S.D.D. 8 E 9-6



END VIEW



SIDE VIEW

CULVERT PIPE CHECK

(INSTALL ON INLET END ONLY)

CULVERT PIPE CHECK	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED May 2019 DATE	/S/ Daniel Schave EROSION CONTROL ENGI
FHWA	

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SDD 08E15 - 01

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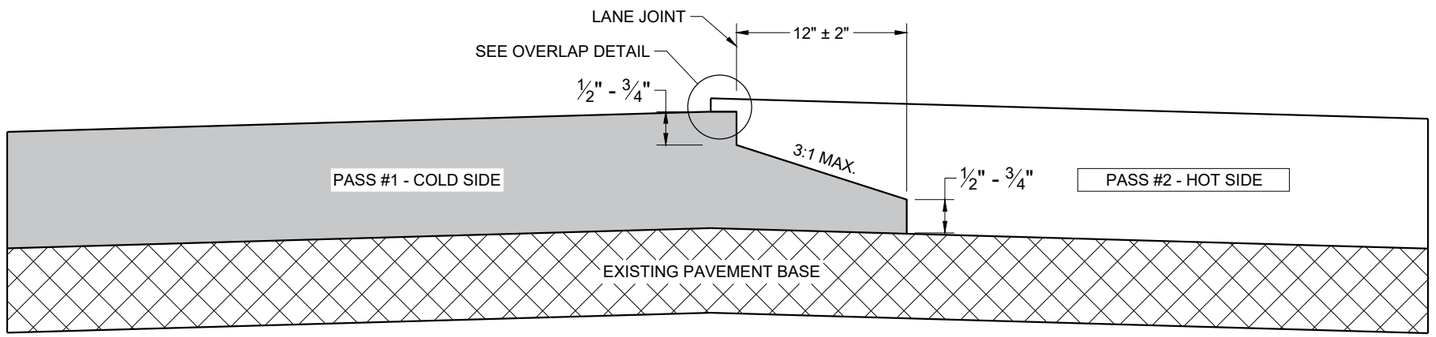
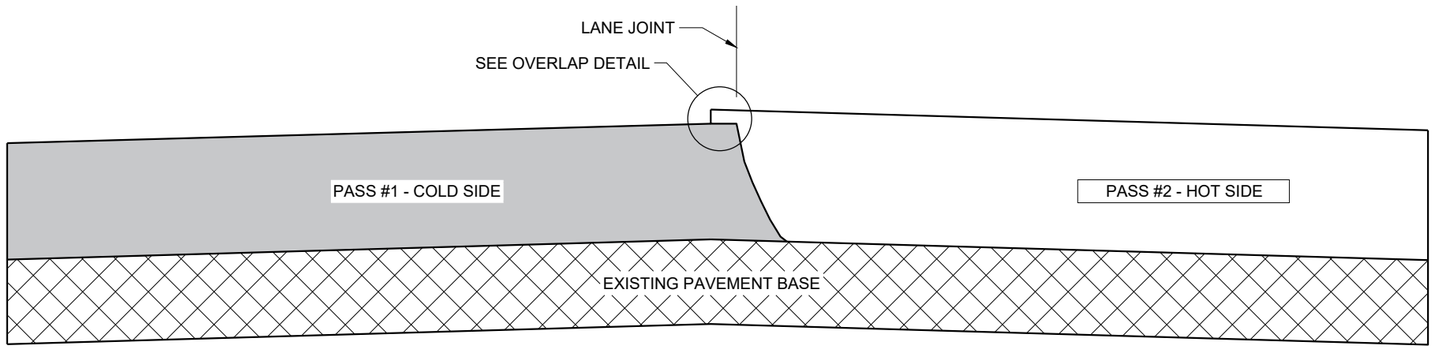
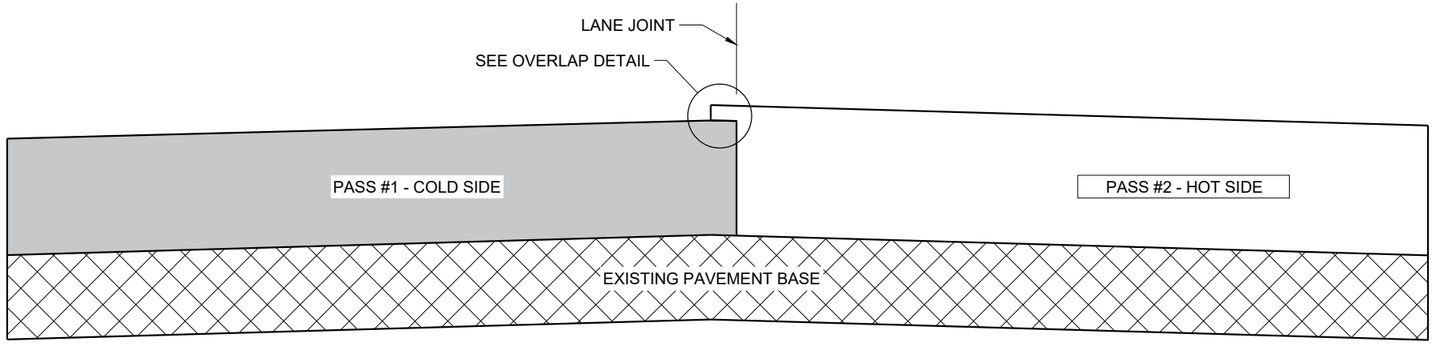
SDD 08E15 - 01



TYPICAL PAVEMENT CROSS SECTION
NOTCHED WEDGE JOINT



TYPICAL PAVEMENT CROSS SECTION
VERTICAL JOINT



TYPICAL PAVEMENT CROSS SECTION
VERTICAL JOINT (MILLED)

GENERAL NOTES

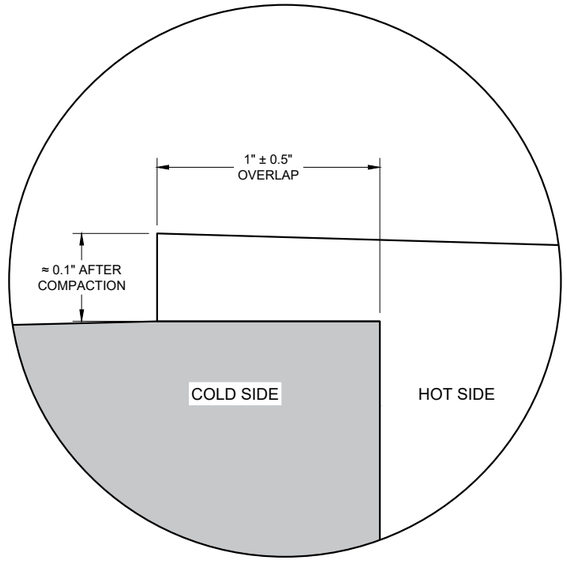
IN ADDITION TO THE DETAILS PROVIDED IN THIS DRAWING, CONFORM TO STANDARD SPECIFICATION 450.3.2.8 FOR WHEN A NOTCHED WEDGE JOINT IS REQUIRED AND FOR GENERAL JOINT CONSTRUCTION REQUIREMENTS.

FOR ALL LONGITUDINAL JOINTS, ENSURE THE PAVER SCREED OVERLAPS THE PREVIOUSLY PLACED PAVEMENT BY 1" ± 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)

6

6

SDD 13C19 - 03

SDD 13C19 - 03

HMA LONGITUDINAL JOINTS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
November 2020
DATE

/S/ Steven Hefel
HMA PAVEMENT ENGIN

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.

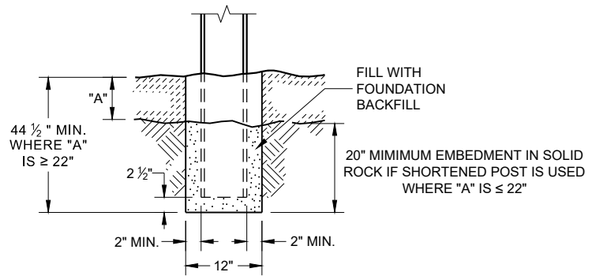
(3) IF ROCK IS ENCOUNTERED DURING EXCAVATION, PROVIDE A HOLE 12 INCHES IN DIAMETER EXTENDING 20 INCHES DEEP INTO THE ROCK. PLACE APPROXIMATELY 2 1/2" INCHES OF GRANULAR MATERIAL IN THE BOTTOM OF THE HOLE. CUT THE POSTS THE TO LENGTH AMD INSTALL. BACKFILL WITH EXCAVATED MATERIAL AND COMPACT. BACKFILL 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).

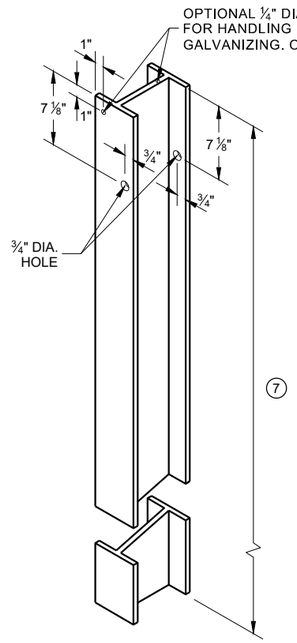
(5) FOR NEW MGS INSTALLATION TOP OF W-BEAM RAIL TOLERANCE IS ±1". FOR EXISTING MGS INSTALLATION TOP OF W-BEAM IS BETWEEN 27 ¾" TO 32".

(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.

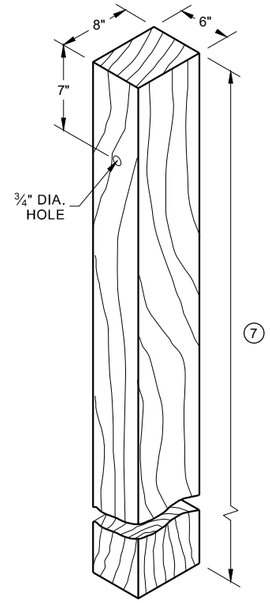
(7) TOTAL POST LENGTH FOR TYPE K IS 7' - 0".
TOTAL POST LENGTH FOR OTHER MGS TYPES IS 6' - 0".



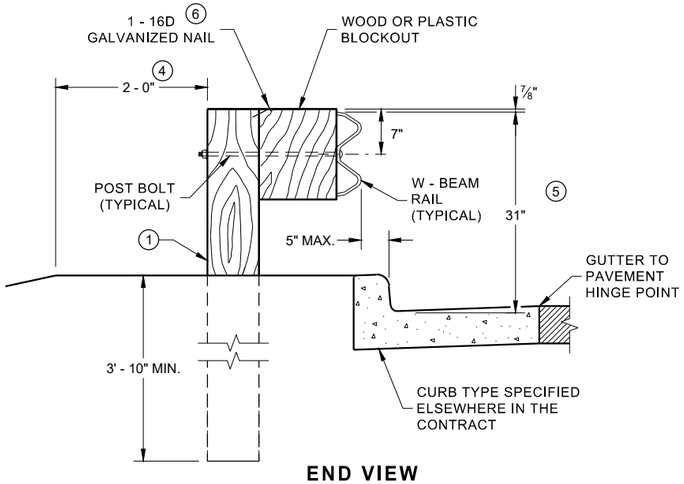
END VIEW
SETTING STEEL OR WOOD POST IN ROCK (3)



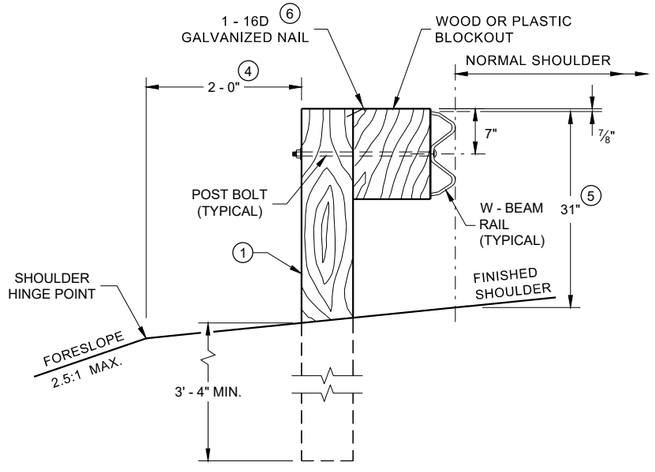
STEEL POST & HOLE PUNCHING DETAIL (W 6 X 9) (1)



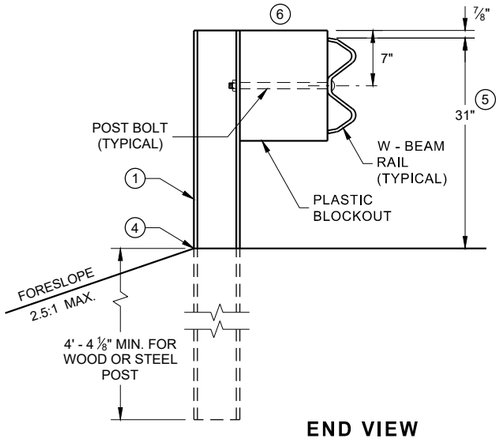
WOOD POST (6" X 8") NOMINAL (1)



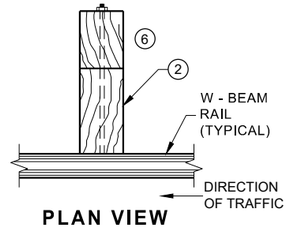
END VIEW
LOCATED ALONG A CURBED ROADWAY



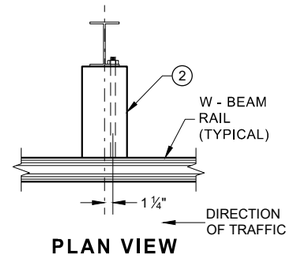
END VIEW
LOCATED ALONG A ROADWAY SHOULDER STANDARD INSTALLATION



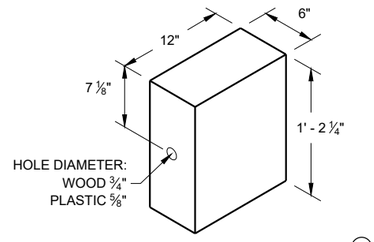
END VIEW
MGS LONGER POST AT HALFPOST SPACING W BEAM (K)



PLAN VIEW
WOOD POST, BLOCKOUT & BEAM



PLAN VIEW
STEEL POST, PLASTIC BLOCKOUT & BEAM



WOOD OR PLASTIC BLOCKOUT (2)

MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

SDD 14B42 - 07a

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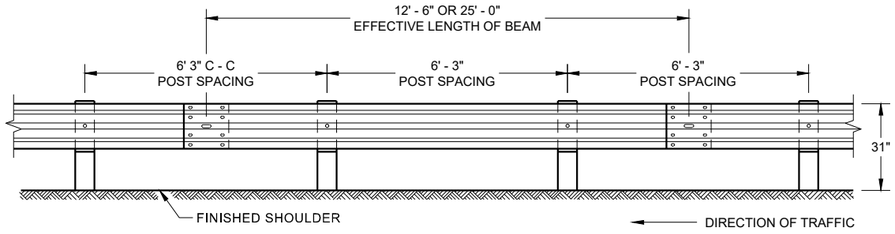
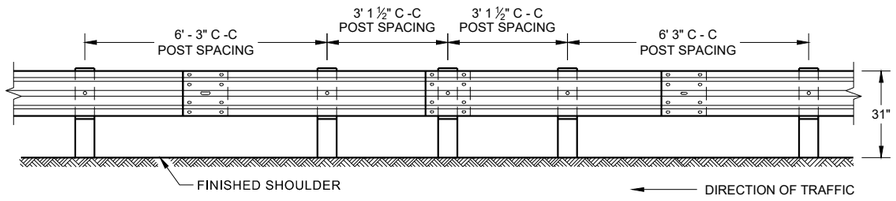
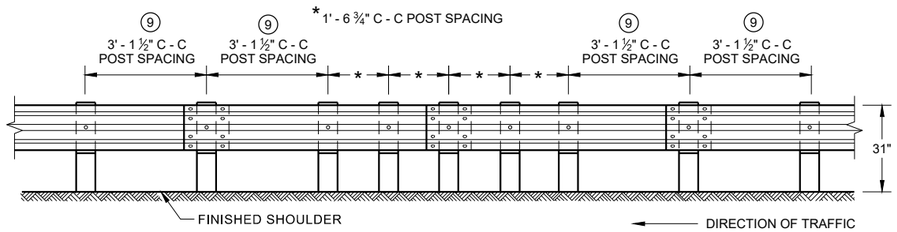


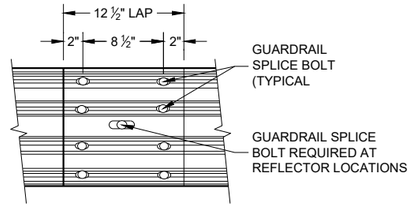
FRONT VIEW
POST SPACING STANDARD INSTALLATION



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



FRONT VIEW
QUARTER POST SPACING (QS)



FRONT VIEW
MID-SPAN BEAM SPLICE

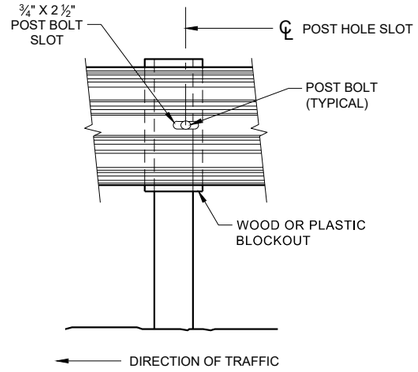
GENERAL NOTES

⑧ DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINAL.

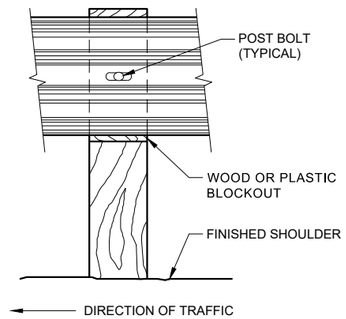
⑨ 25 FEET OF HALF POST SPACING IS REQUIRED ON APPROACH AND DEPARTURE ENDS OF QUARTER POST SPACING.

POST BOLTS ARE A ⅝" DIAMETER ASTM A307 GUARDRAIL BOLT. A POST BOLT REQUIRES ⅝" DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX NUT AND ⅝" DIAMETER F844 FLAT WASHER. POST BOLTS MAY BE LONGER IF MULTIPLE BLOCKOUTS ARE BEING USED.

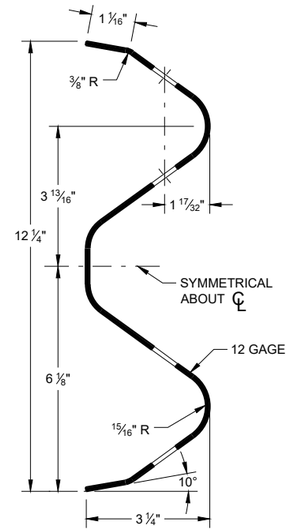
GUARD RAIL SPLICE BOLTS ARE A ⅝" DIAMETER ASTM A307 GUARDRAIL HEAD BOLT. A GUARDRAIL SPLICE BOLT REQUIRES ⅝" DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX NUT.



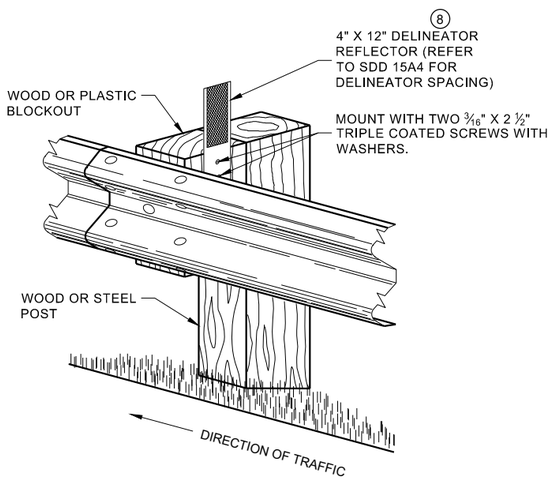
FRONT VIEW AT STEEL POST



FRONT VIEW AT WOOD POST



SECTION THRU W-BEAM RAIL



ONE SIDED REFLECTOR DETAIL
AND TYPICAL INSTALLATION

MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6

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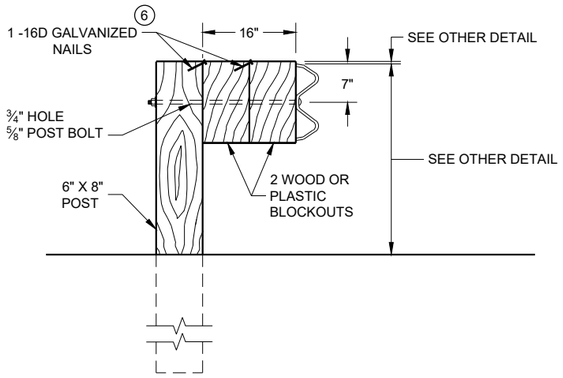
SDD 14B42 - 07b

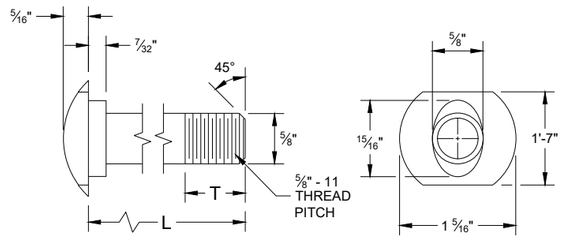


DETAIL FOR 16" BLOCKOUT DEPTH

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

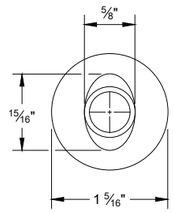
NOTE:

1. ALL FILLETS SHALL HAVE A MINIMUM RADIUS OF 3⁄16".
2. IF THE BOLT EXTENDS MORE THAN ¼" FROM THE NUT THE BOLT SHOULD BE TRIMMED BACK.

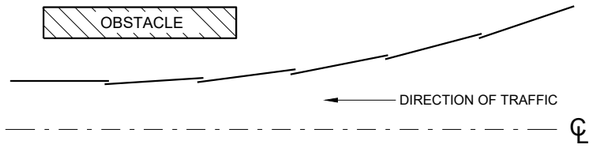


POST BOLT TABLE

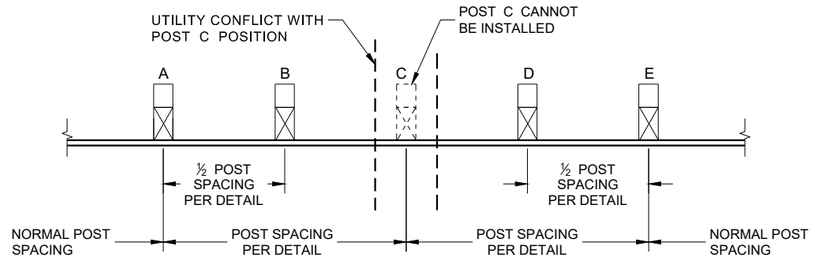
L	T (MIN.)
1 ¼"	1 ⅛"
2"	1 ¾"
10"	4"
14"	4 1⁄16"
18"	4"
21"	4 1⁄16"
25"	4"



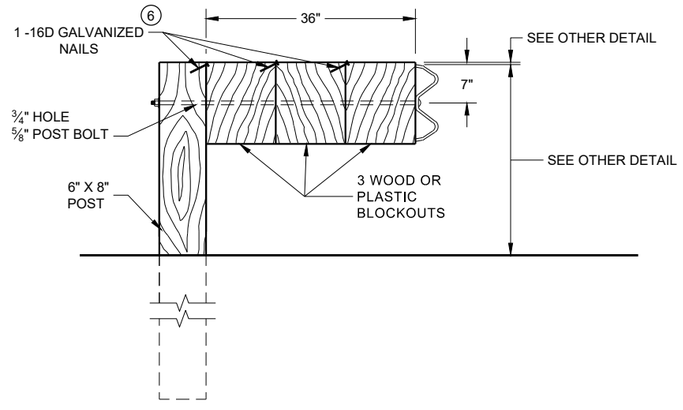
ALTERNATE BOLT HEAD



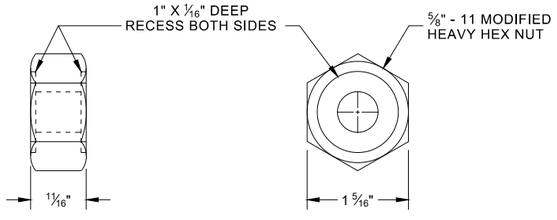
PLAN VIEW
BEAM LAPPING DETAIL



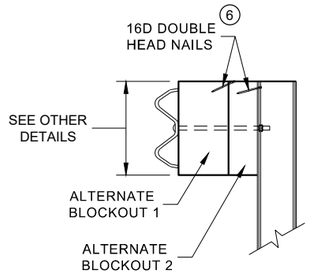
POST DRIVING FOR CONTINUOUS UNDERGROUND OBSTRUCTION



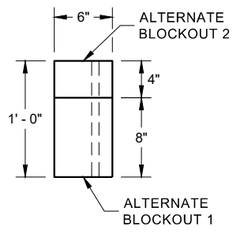
DETAIL FOR 36" BLOCKOUT DEPTH



POST BOLT, SPLICE BOLT AND RECESS NUT



SIDE VIEW



PLAN VIEW

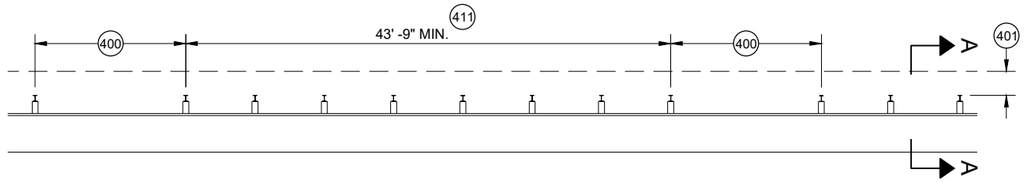
ALTERNATE WOOD BLOCKOUT DETAIL

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.

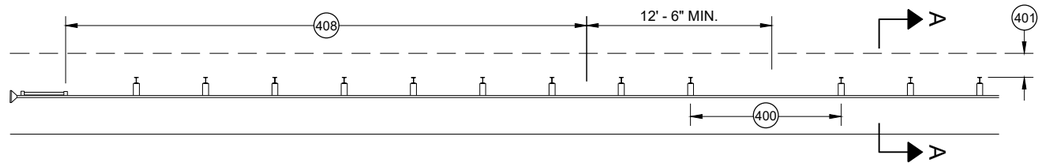
DO NOT USE 16" OR 36" BLOCKOUTS IF IT CAUSES THE POST TO BE DRIVEN BEYOND SHOULDER HINGE POINT OR CAUSES A FIXED OBJECT TO BE WITHIN THE DEFLECTION DISTANCE OF THE BARRIER.

(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.

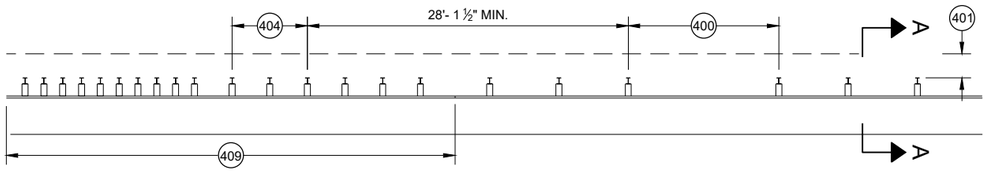
MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL



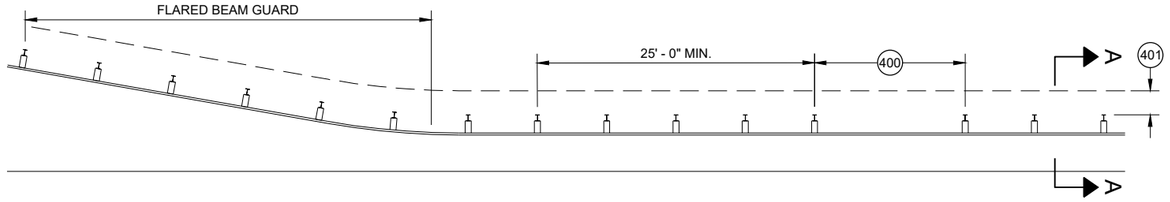
MISSING POST IN MGS GUARDRAIL



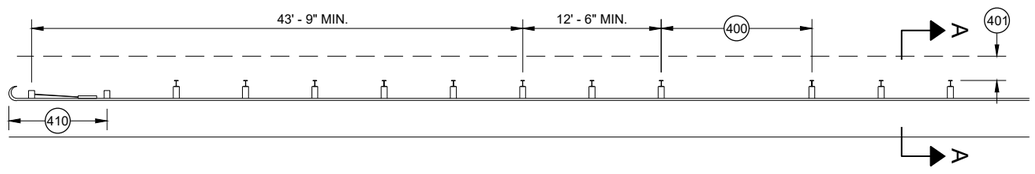
MISSING POST IN MGS GUARDRAIL NEAR EAT



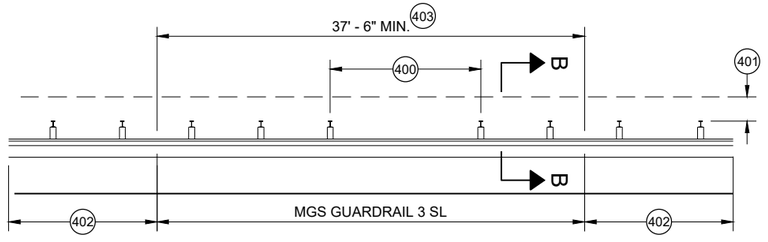
MISSING POST IN MGS GUARDRAIL NEAR AN APPROACH TRANSITION



MISSING POST IN MGS GUARDRAIL NEAR FLARED BEAM GUARD

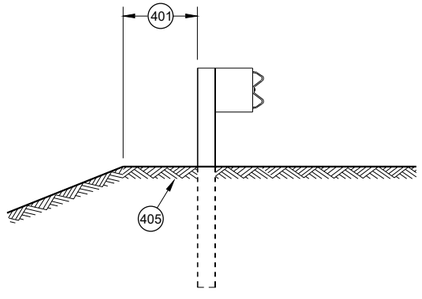


MISSING POST IN MGS GUARDRAIL NEAR A TYPE 2 END TERMINAL

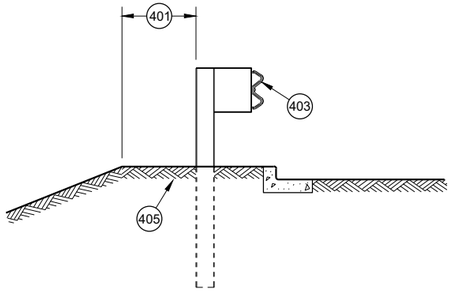


MISSING POST IN SHORT SPAN MGS GUARDRAIL NEAR CURB (SL) 407

(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 406



SECTION B - B 406

MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
May 2021 — DATE
/S/ Rodney Taylor — ROADWAY STANDARDS DEVE UNIT SUPERVISOR
FHWA

6

SDD 14B42 - 07d

SDD 14B42 - 07d

GENERAL NOTES

(A) THE SLOPE IN THE AREA BOUNDED BY THE GRADELINE, THE HINGE POINT LINE (HPL) AND THE CLEAR ZONE LIMITS (CZL) SHALL BE 4:1 OR FLATTER.

(B) AFTER FINAL ASSEMBLY, RECHECK CABLE TO BE SURE IT IS TAUT AND HAS NOT RELAXED

(C) DIFFERENT MANUFACTURERS REQUIRE DIFFERENT PERFORATED W - BEAM RAIL END PANELS. SEE MANUFACTURER'S INFORMATION.

(D) ATTACH ALUMINUM SHEET TO E.A.T. HEAD USING 4 STAINLESS STEEL SELF - TAPPING SCREWS. ONE SCREW PER CORNER.

(E) HARDWARE MAY VARY BETWEEN MANUFACTURER. SEE MANUFACTURER'S DRAWING FOR INFORMATION.

DIMENSIONS MAY VARY, MANUFACTURER'S INFORMATION.

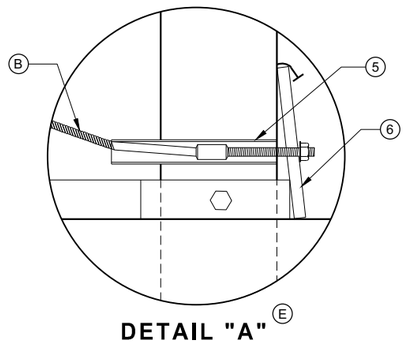
SEE SDD 14B42 FOR MORE INFORMATION.

* DO NOT ATTACH BLOCKOUTS TO POST 1 AND 2.

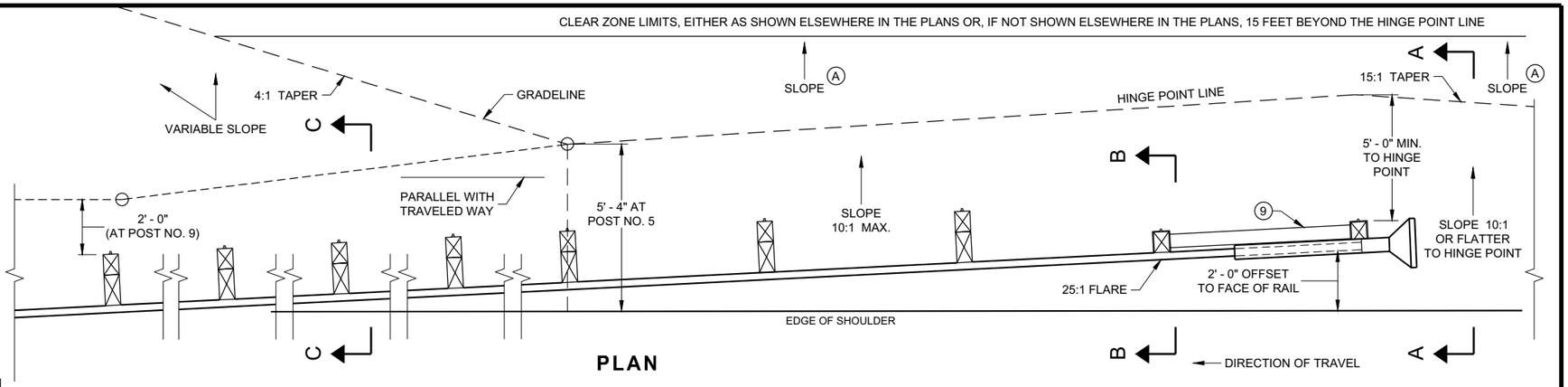
DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINAL.

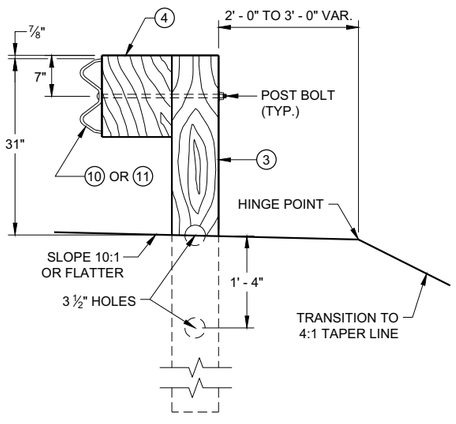
SEE MANUFACTURER'S DRAWING FOR SPLICE LOCATION, HARDWARE DIMENSIONS AND INSTALLATION INSTRUCTIONS.

THE CENTER OF THE UPPER 3 ½" 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.

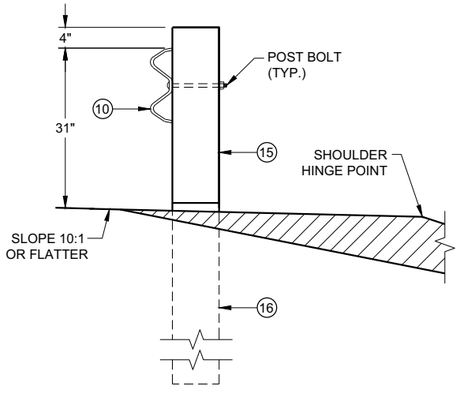


DETAIL "A" (E)

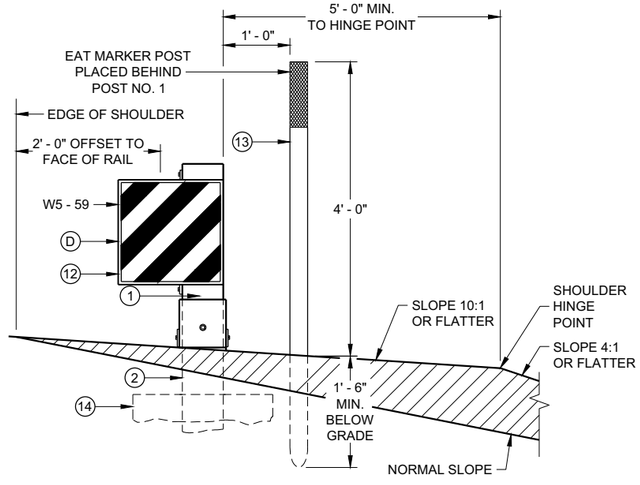




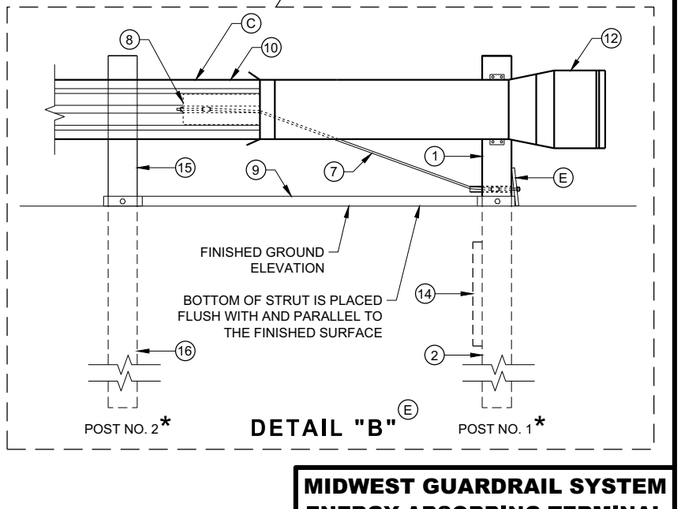
SECTION C - C
TYPICAL AT POST NOS. 3 - 9



SECTION B - B
TYPICAL AT POST NO. 2*



SECTION A - A
TYPICAL AT POST NO. 1*



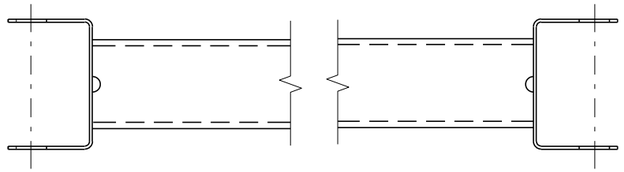
DETAIL "B" (E)

MIDWEST GUARDRAIL SYSTEM
ENERGY ABSORBING TERMINAL (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

SDD 14B44 - 04a

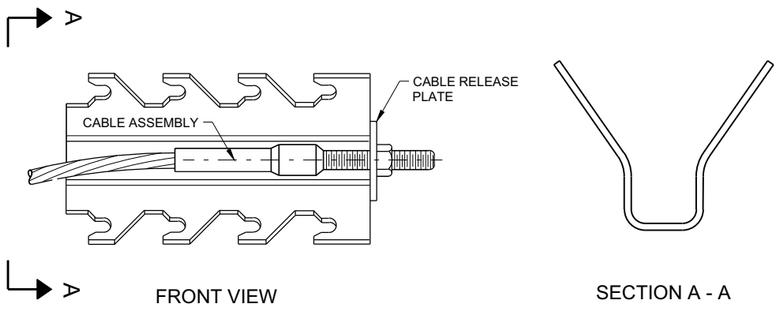
SDD 14B44 - 04a



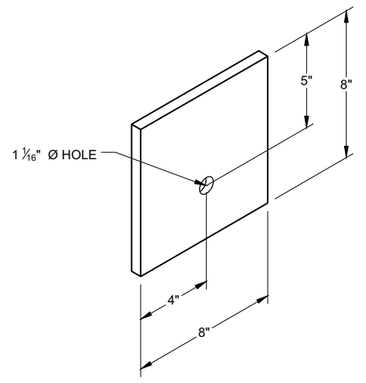
GENERIC GROUND STRUT ⑨ Ⓔ

BILL OF MATERIALS

PART NO.	DESCRIPTION MATERIALS PROVIDED BY MGS EAT MANUFACTURER. SEE MANUGACTURER'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 ⑨ Ⓔ



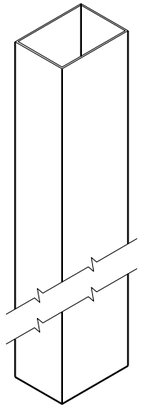
BEARING PLATE ⑥ Ⓔ

MIDWEST GUARDRAIL SYSTEM
ENERGY ABSORBING TERMINAL
(MGS)

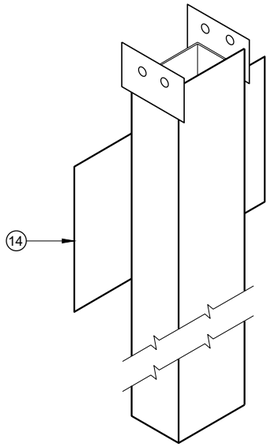
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6

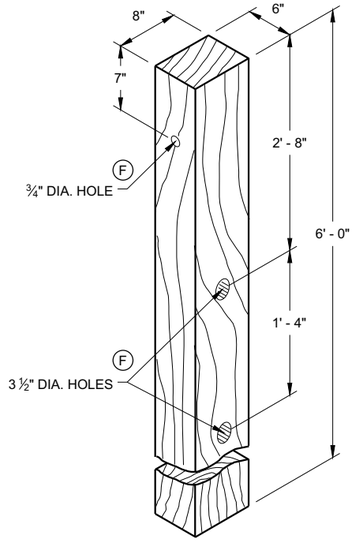
SDD 14B44 - 04b



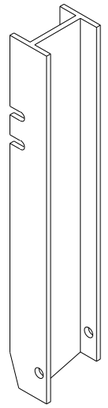
UPPER POST NO. 1 (1) (E)



LOWER POST NO. 1 (2) (E)



WOOD CRT POST (3) (E)
POSTS NUMBER 3-9



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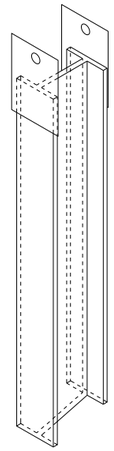

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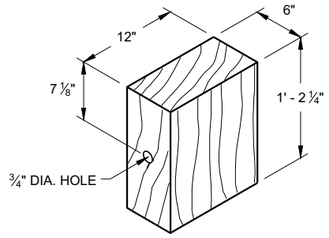
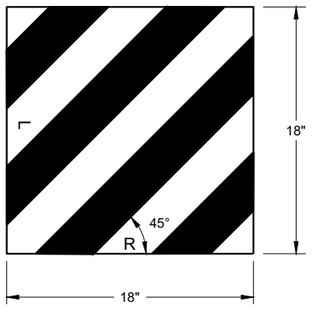
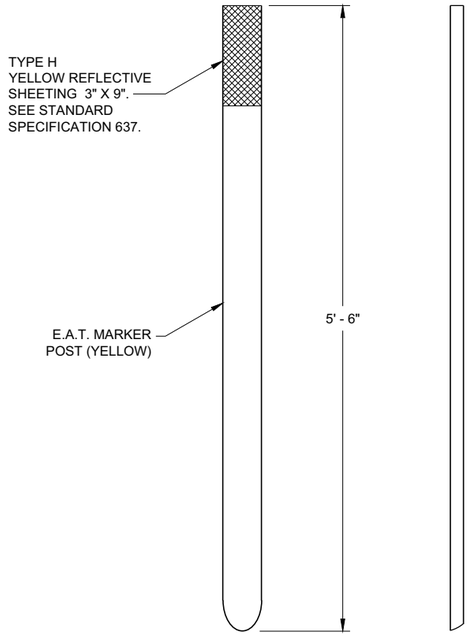


WOOD BLOCKOUT (4)
REQ'D. AT ALL POSTS EXCEPT POST NO'S 1 & 2



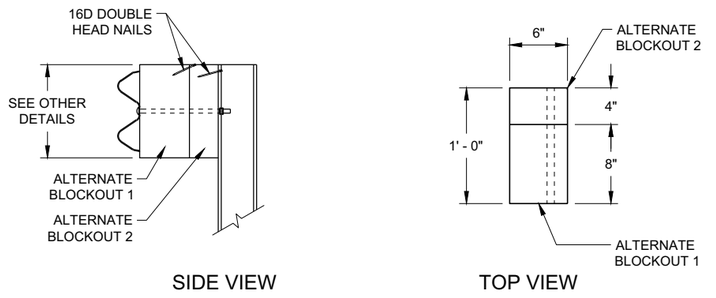
W5 - 59

REFLECTIVE SHEETING DETAIL (E)



FRONT VIEW SIDE VIEW

E.A.T. MARKER POST (13)



SIDE VIEW TOP VIEW

ALTERNATE WOOD BLOCKOUT DETAIL

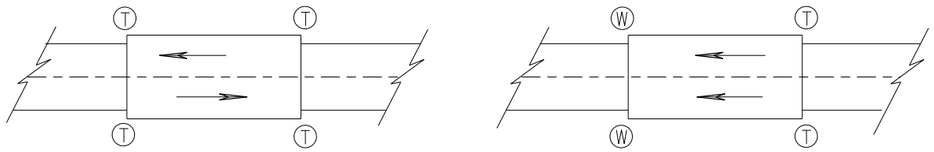
MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

6

SDD 14B44 - 04c



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 2½", AND 12" DIAMETER AROUND POST. SEE 14B42 FOR MORE DETAILS.

TRANSITION USES STEEL POSTS ONLY.

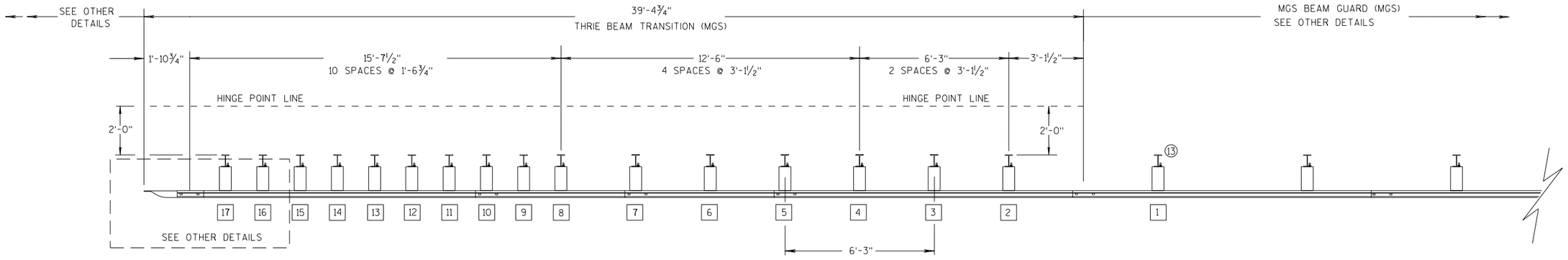
SEE STANDARD DETAIL DRAWING 14 B 42 FOR MORE INFORMATION.

POST 2 THROUGH 17 USES STEEL POST ONLY

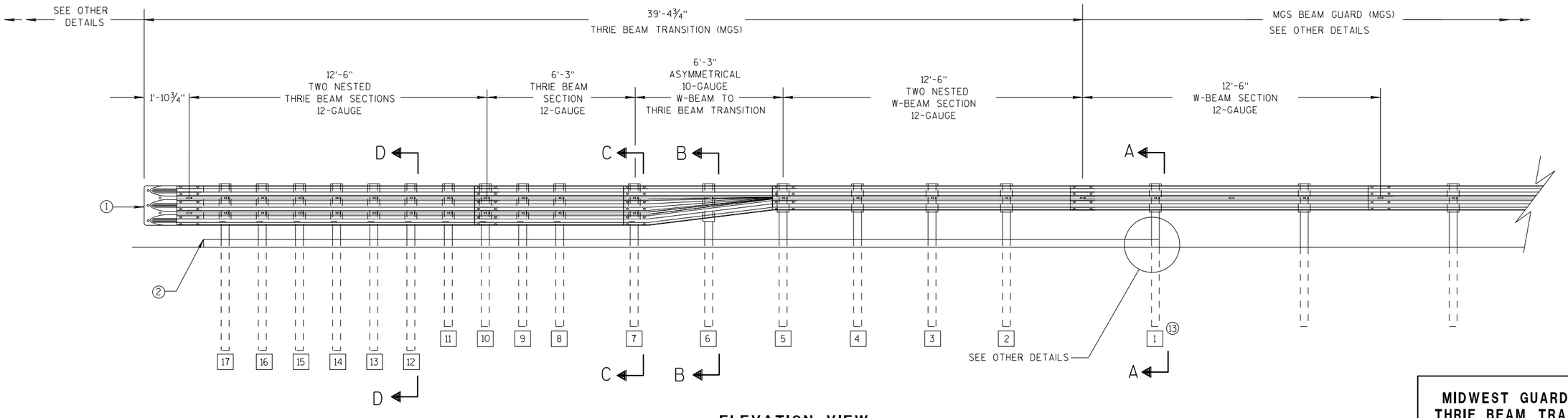
(1) BRIDGE RAILING TYPE "W" DOES NOT REQUIRE A TERMINAL CONNECTOR.

(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 TRANSPOR

6

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

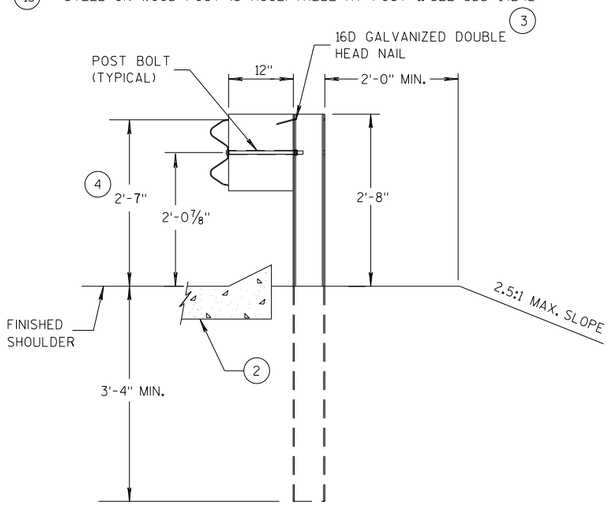
GENERAL NOTES

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

(3) WHEN USING STEEL POSTS AND WOOD BLOCKOUTS INSTALL FOUR 10D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.

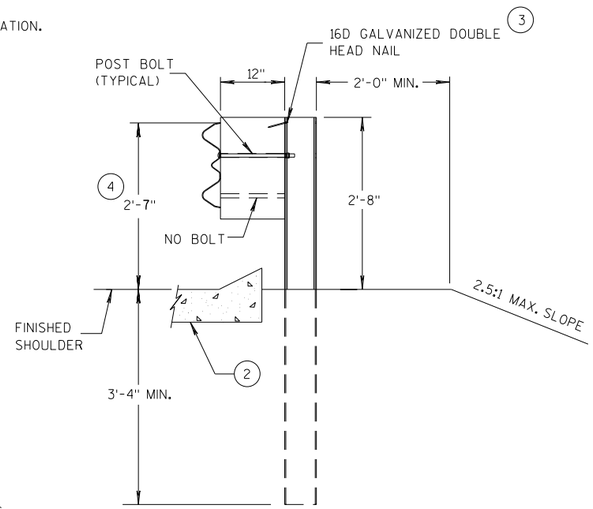
(4) TOLERANCE FOR TOP OF W-BEAM RAIL IS ± 1".

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



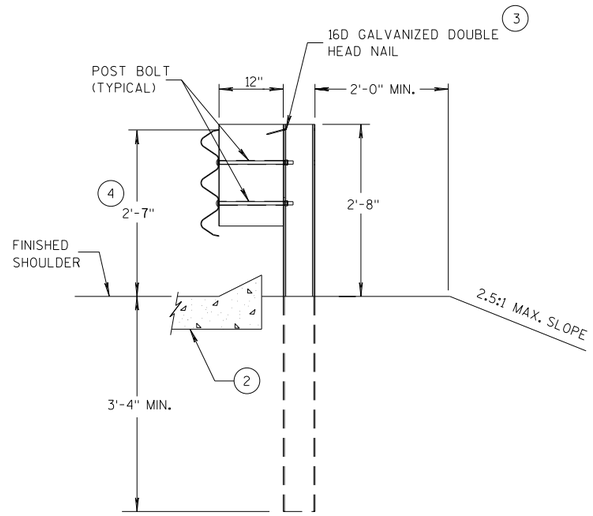
SECTION A-A (13)

POSTS 1-5



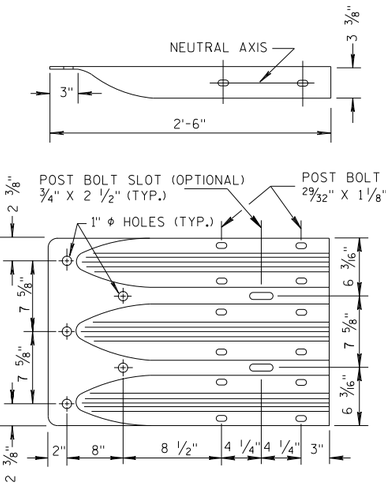
SECTION B-B

POST 6

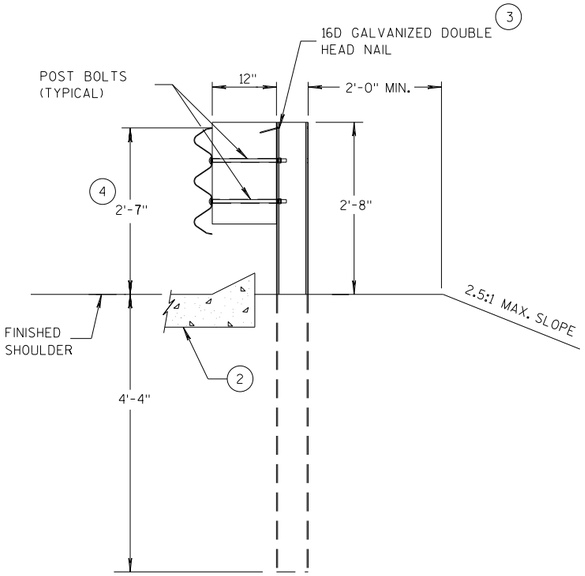


SECTION C-C

POSTS 7-11

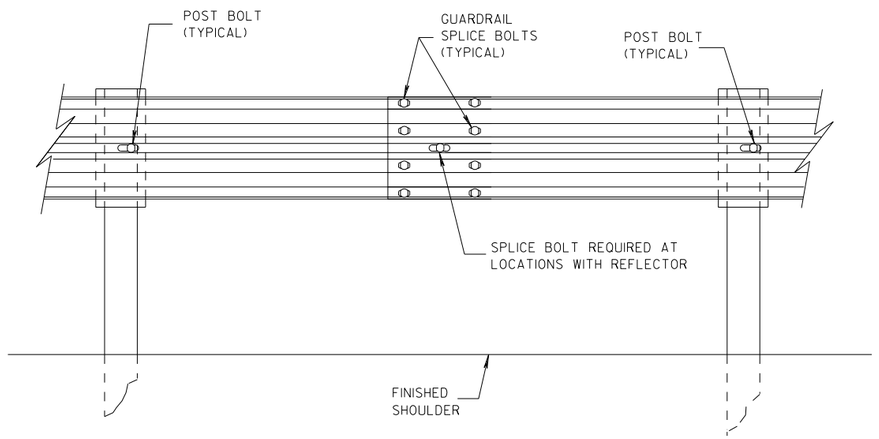


THRIE BEAM TERMINAL CONNECTOR



SECTION D-D

POSTS 12-17



SPLICE DETAIL

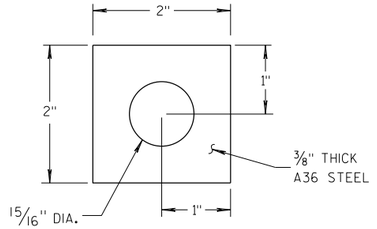
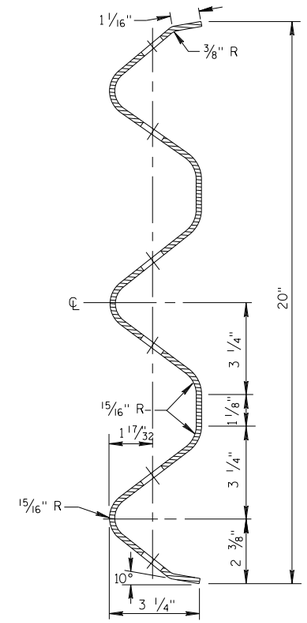


PLATE WASHER DETAIL



SECTION THRU THRIE BEAM RAIL ELEMENT

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR 29

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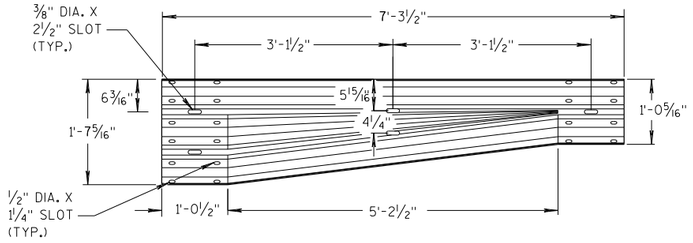
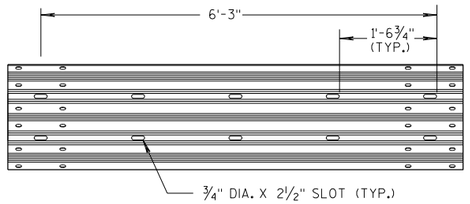
S.D.D. 14 B 45-5b

6

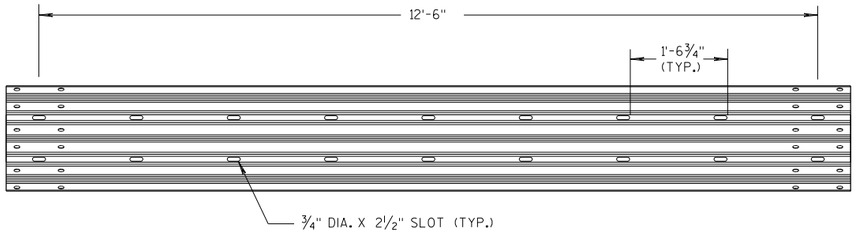
S.D.D. 14 B 45-5b



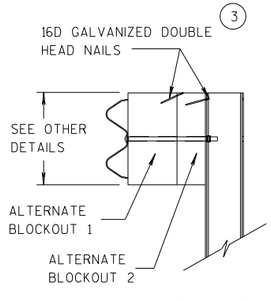
W-BEAM TO THRIE BEAM TRANSITION SECTION



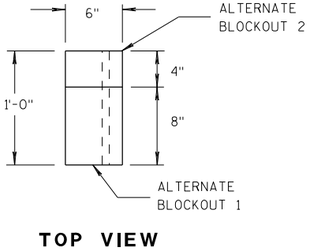
6'-3" THRIE BEAM SECTION



12'-6" THRIE BEAM SECTION

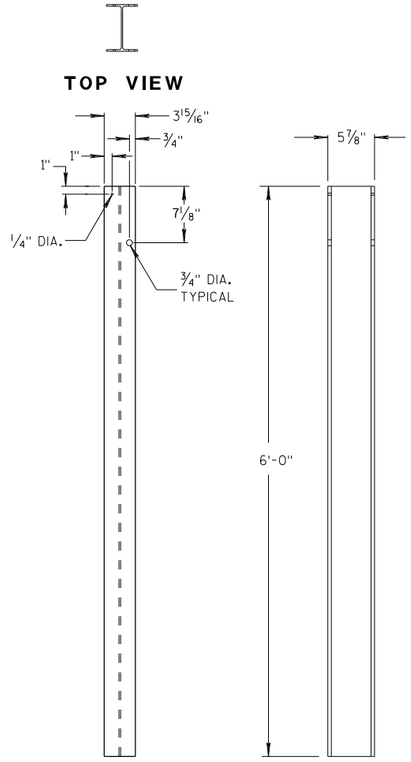


SIDE VIEW



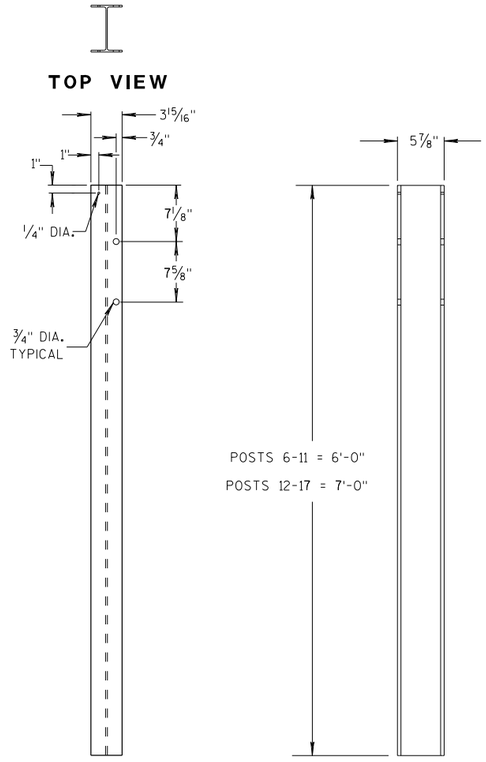
TOP VIEW

ALTERNATE WOOD BLOCKOUT DETAIL



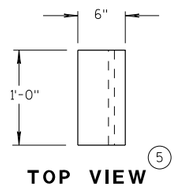
FRONT VIEW SIDE VIEW

STEEL POSTS 1-5 (13)

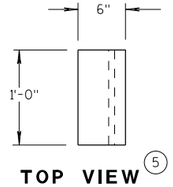


FRONT VIEW SIDE VIEW

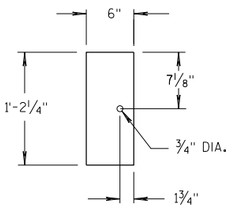
STEEL POSTS 6-17



TOP VIEW (5)

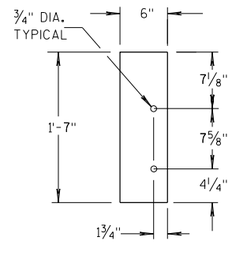


TOP VIEW (5)



FRONT VIEW

BLOCKOUT POSTS 1-5



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.

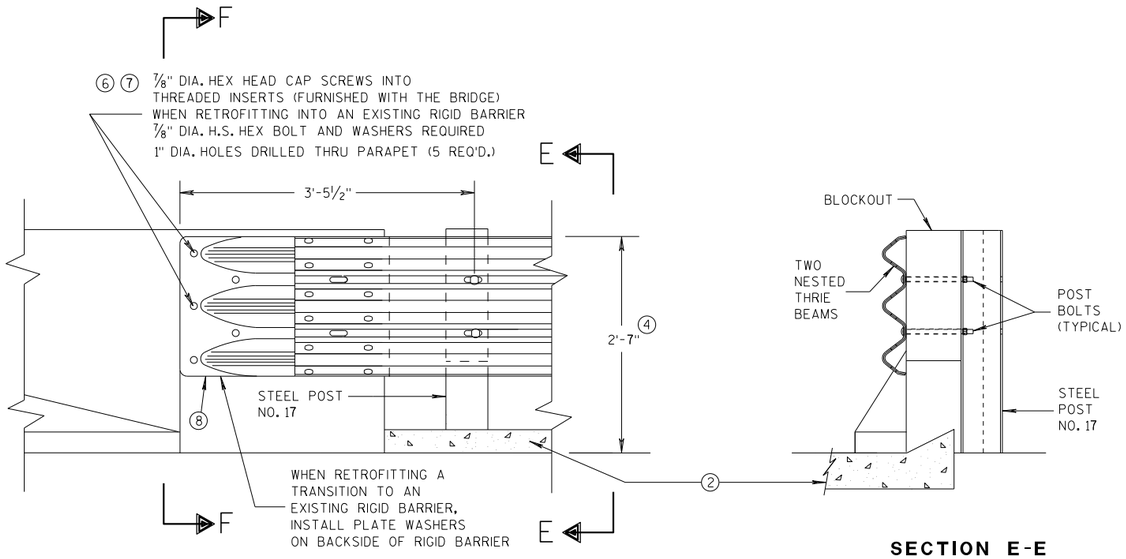
(5) WOOD BLOCKS MAY BE CONSTRUCTED OUT OF 2 WOOD BLOCKS. SEE ALTERNATE WOOD BLOCK DETAIL.

(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 TRANSPOR

6
S.D.D. 14 B 45-5c



FRONT VIEW

SECTION E-E

THRIE BEAM CONNECTION TO BRIDGE PARAPET WITH SQUARE ENDS

GENERAL NOTES

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

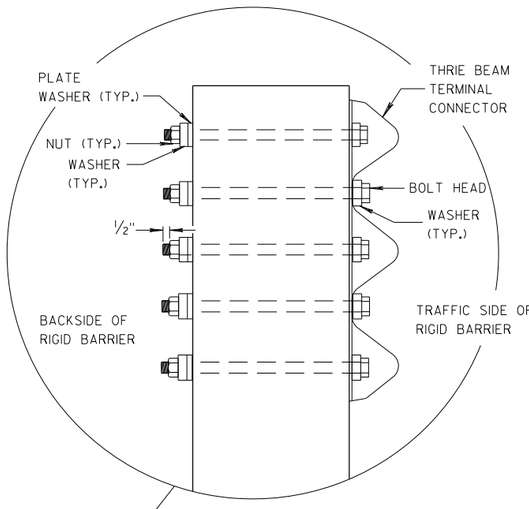
② OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.

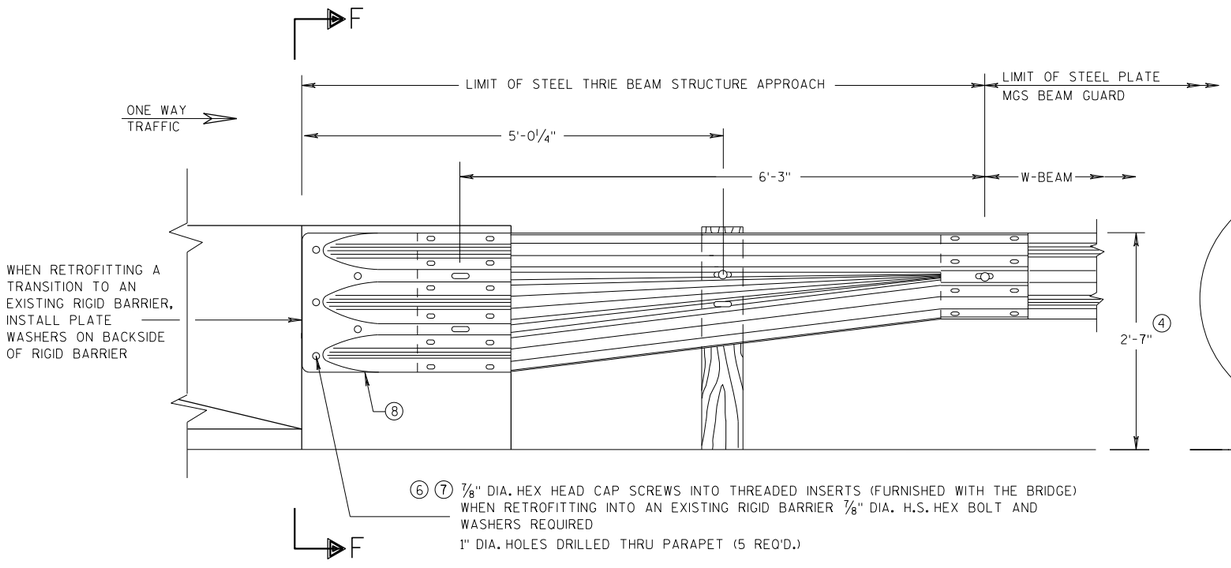
④ TOLERANCE FOR TOP OF BEAM IS ± 1".

⑥ DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.

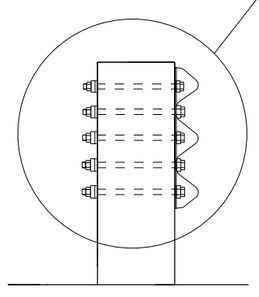
⑦ BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM CONNECTOR PLATE. BOLTS THAT EXTEND THROUGH THE PARAPET AND OUT THE BACK FACE REQUIRE A HARDENED ROUND STEEL WASHER THAT IS 2" O.D. X 5/32" THICK AND ONE PLATE WASHER. REPAIR ANY DAMAGED CONCRETE FROM BOLT INSTALLATION.

⑧ THE RECESS FOR A W-BEAM CONNECTION, WHICH EXISTS ON SOME PARAPETS OF THIS TYPE, SHALL BE FILLED WITH A TREATED TIMBER BLOCKOUT. BLOCKOUT SIZE IS 1'-6" X 2'-0" X 3 1/2".

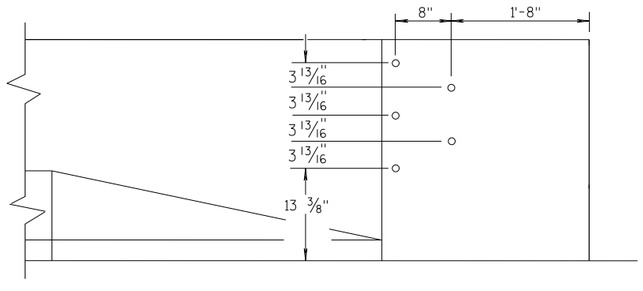




FRONT VIEW



SECTION F-F



DRILL HOLE LOCATION

W BEAM TRANSITION AND CONNECTION TO BRIDGE PARAPETS WITH SQUARE ENDS

(USE ONLY ON THE TRAFFIC EXIT END OF ONE WAY BRIDGES)

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
07/2018 — DATE
/S/ Rodney Taylor — ROADWAY STANDARDS D[illegible] UNIT SUPERVIS[illegible]
[illegible]NT
FHWA

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

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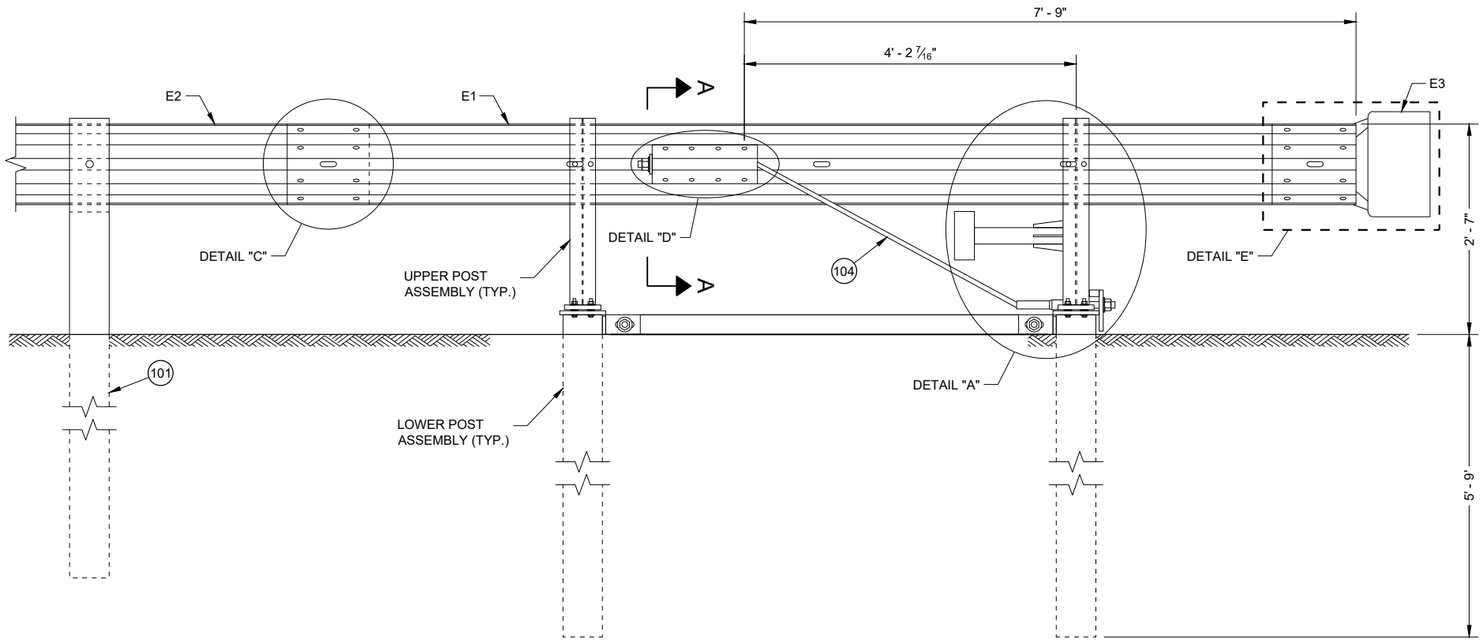
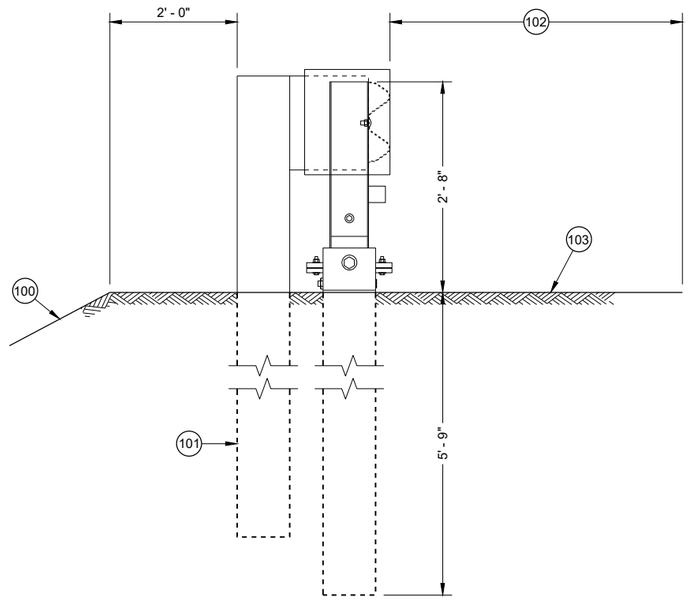
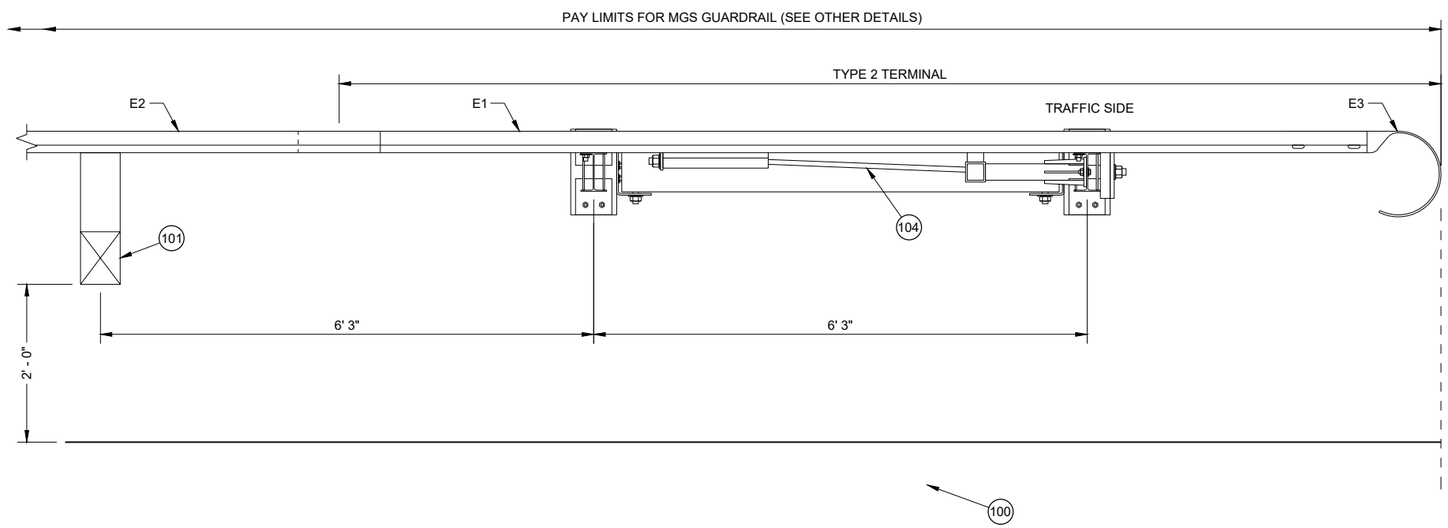
S.D.D. 14 B 45-5d



BACK VIEW
TYPE 2 TERMINAL



SIDE VIEW
TYPE 2 TERMINAL



TOP VIEW
TYPE 2 TERMINAL

GENERAL NOTES

(100) MAXIMUM SLOPE IS 2.5:1.

(101) SEE SDD 14B42 FOR MORE INFORMATION.

(102) SHOULDER

(103) MAXIMUM SLOPE IS 10:1.

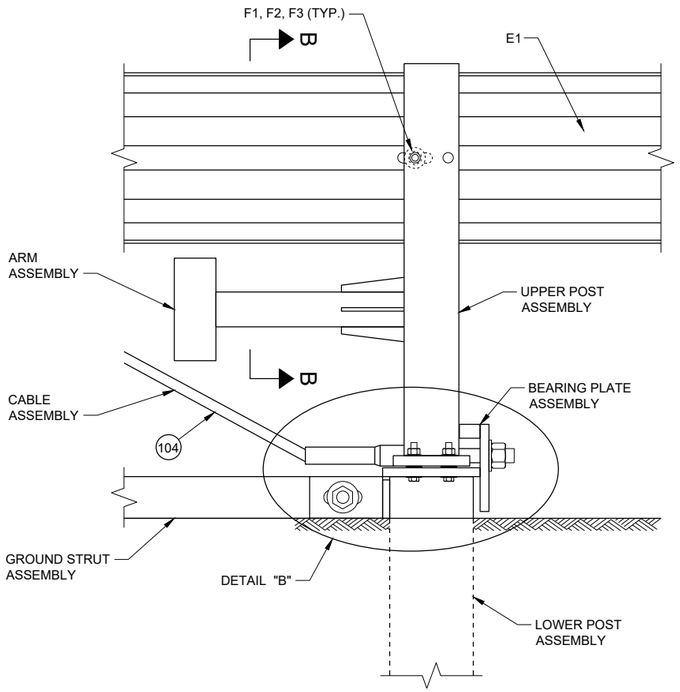
(104) AFTER ASSEMBLY, CABLE IS TO BE TIGHTENED WITHOUT TWISTING THE CABLE.

MIDWEST GUARDRAIL SYSTEM (MGS)
TYPE 2 TERMINAL

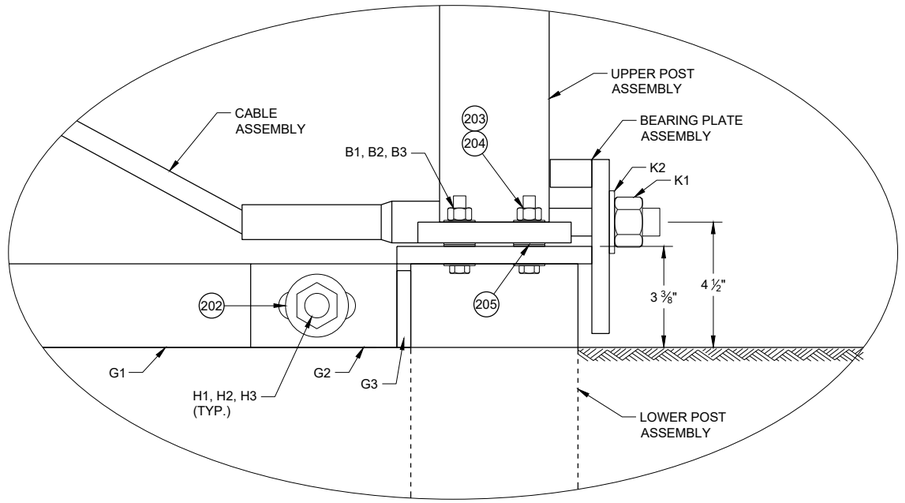
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6

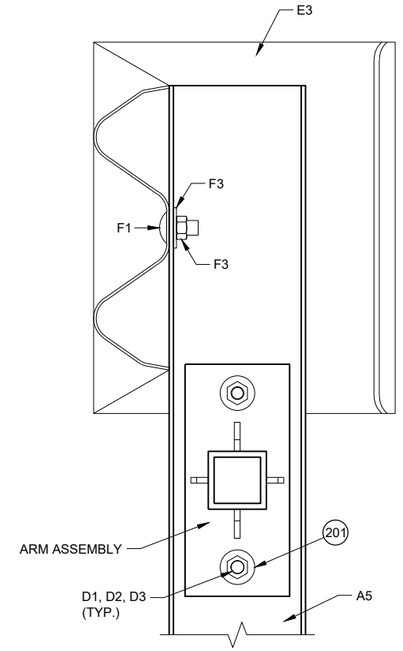
SDD 14B47 - 05a



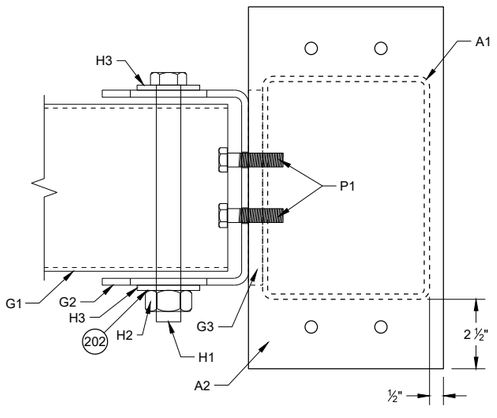
DETAIL "A"



DETAIL "B"

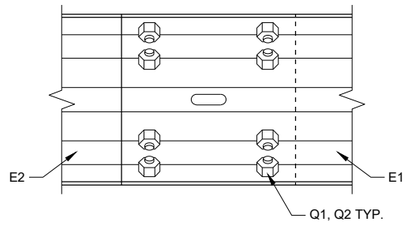


SECTION B - B



TOP VIEW

GROUND STRUT CONNECTION DETAIL



DETAIL "C"

GENERAL NOTES

(200) INSTALL ONE WASHER UNDER BOLT HEAD AND RAIL AND ON WASHER BETWEEN NUT AND ANCHOR BRACKET ASSEMBLY.

(201) INSTALL ONE WASHER UNDER BOLT HEAD AND UPPER POST ASSEMBLY AND ONE WASHER BETWEEN NUT AND ARM PLATE.

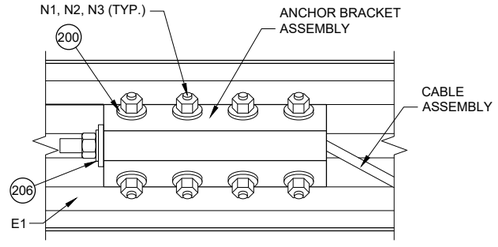
(202) INSTALL ONE WASHER UNDER BOLT HEAD AND GROUND STRUT CONNECTOR AND ONE WASHER BETWEEN NUT AND GROUND STRUT CONNECTOR.

(203) INSTALL ONE WASHER UNDER BOLT HEAD AND LOWER POST ASSEMBLY AND ONE WASHER BETWEEN NUT AND UPPER POST ASSEMBLY.

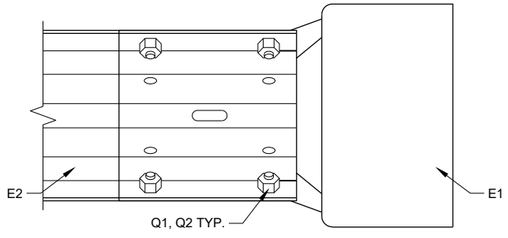
(204) TORQUE VALUE IS BETWEEN 60 - 75 FT-LB.

(205) TWO WASHERS BETWEEN UPPER AND LOWER POST ASSEMBLY.

(206) INSTALL ONE WASHER BETWEEN NUT AND ANCHOR BRACKET ASSEMBLY.



DETAIL "D"



DETAIL "E"

MIDWEST GUARDRAIL SYSTEM (MGS) TYPE 2 TERMINAL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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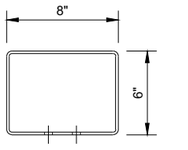
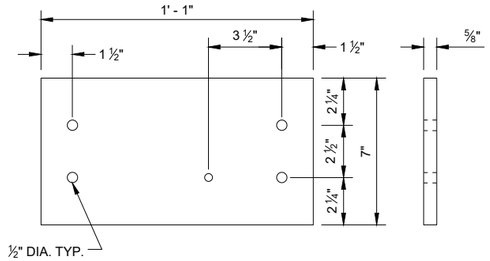
GENERAL NOTES

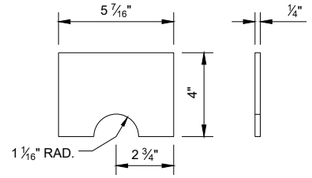
(300) TAP FOR 1/2" AFTER GALVANIZATION



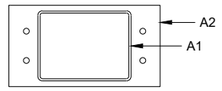
TOP VIEW



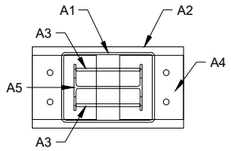
LOWER PLATE (A2)

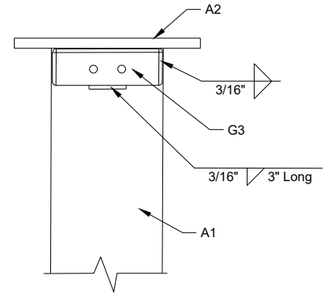


POST GUSSET (A3)

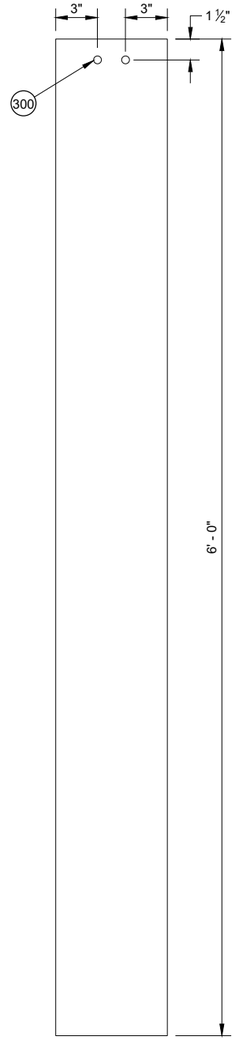


PLAN VIEW



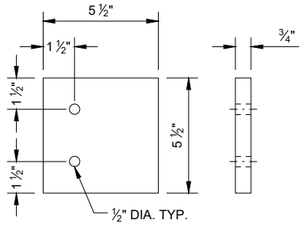


WELDING DETAIL
G3 AND A1

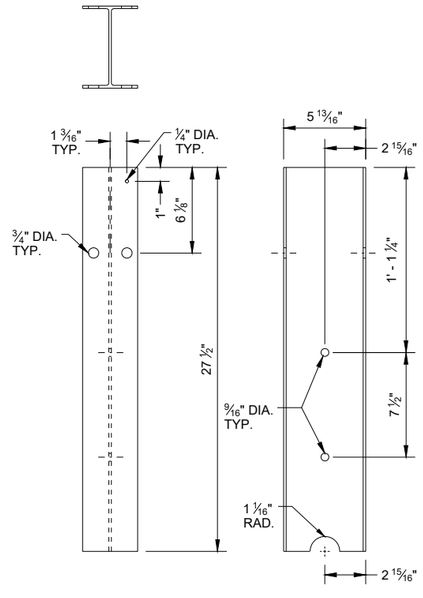


SIDE VIEW

FOUNDATION
TUBE (A1)

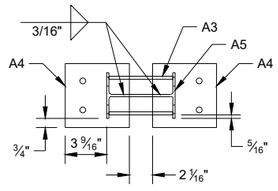


UPPER PLATE (A4)

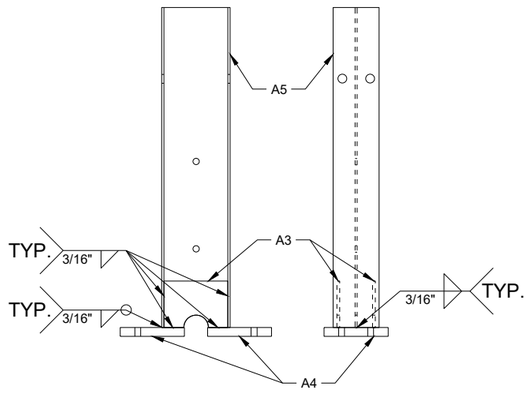


FRONT VIEW SIDE VIEW

TYPE 2 POST (A5)

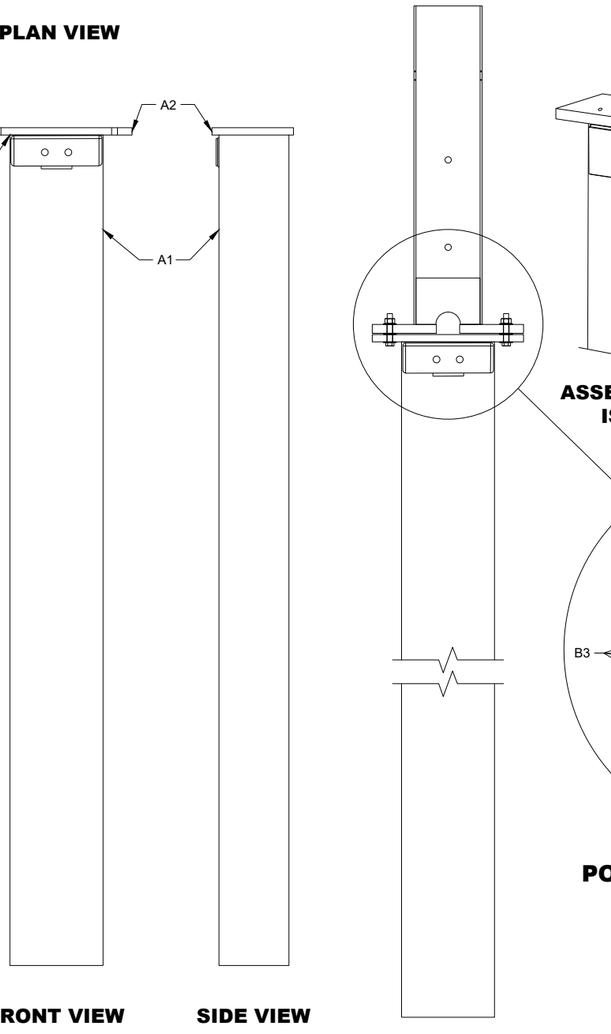


PLAN VIEW



SIDE VIEW FRONT VIEW

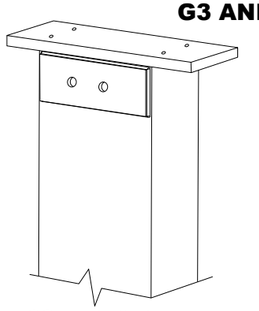
UPPER POST ASSEMBLY



FRONT VIEW SIDE VIEW

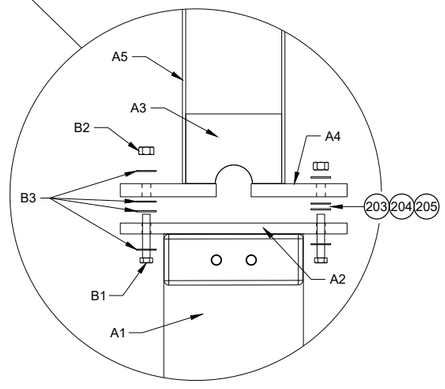
LOWER POST ASSEMBLY

ASSEMBLED POST



ASSEMBLY DETAIL
ISOMETRIC

A1



POST CONNECTION DETAIL

MIDWEST GUARDRAIL SYSTEM (MGS) TYPE 2 TERMINAL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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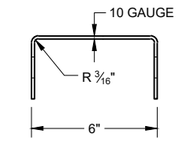
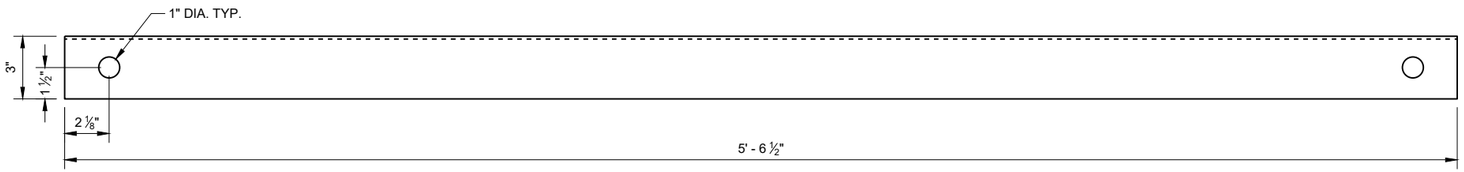
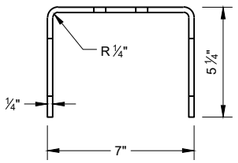


SIDE VIEW

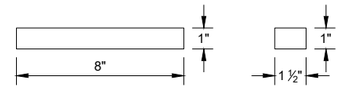


FRONT VIEW

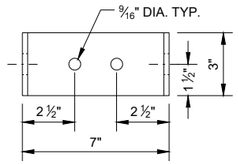
GROUND STRUT CHANNEL (G1)



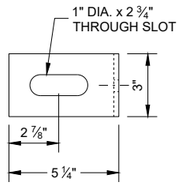
TOP VIEW



BEARING PLATE FLANGE (L2)

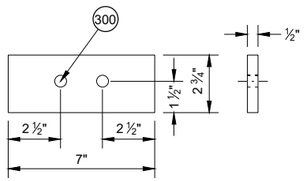


FRONT VIEW

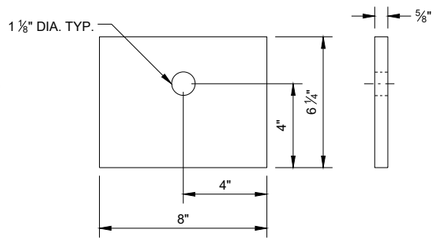


SIDE VIEW

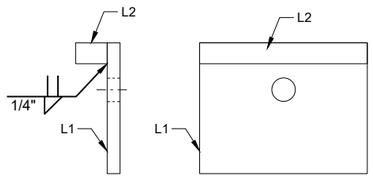
GROUND STRUT CONNECTOR (G2)



GROUND STRUT PLATE (G3)

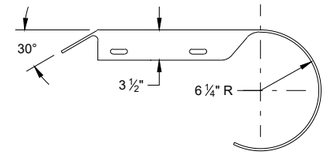


BEARING PLATE (L1)

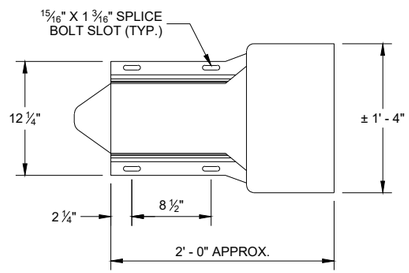


SIDE VIEW FRONT VIEW

BEARING PLATE ASSEMBLY

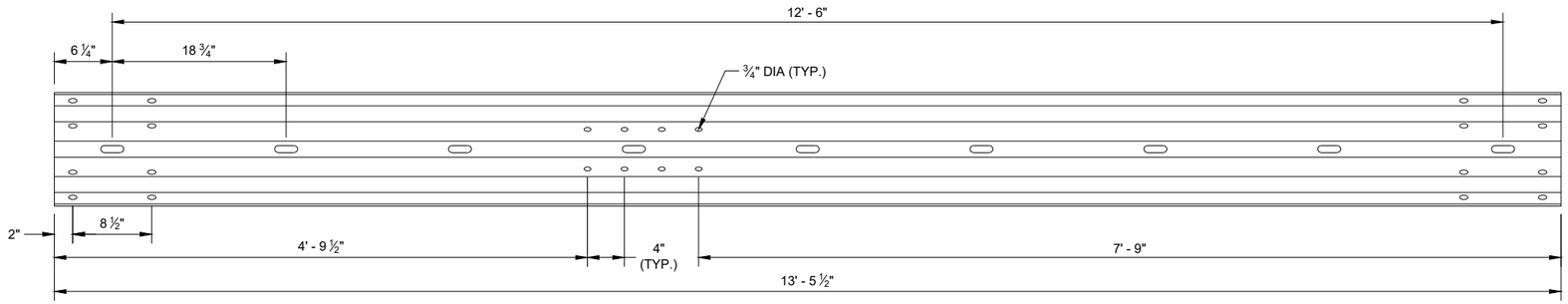


PLAN VIEW

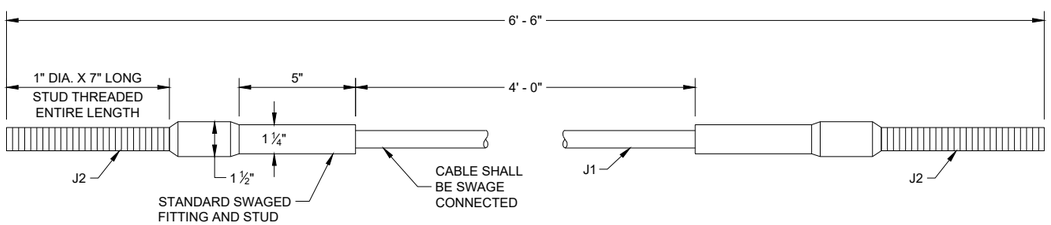


ELEVATION VIEW

ROUNDED BUFFER END (E3)



TYPE 2 GUARDRAIL (E1)



CABLE ASSEMBLY

MIDWEST GUARDRAIL SYSTEM (MGS) TYPE 2 TERMINAL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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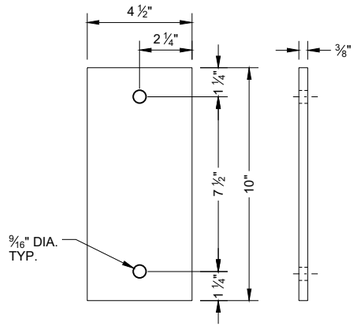
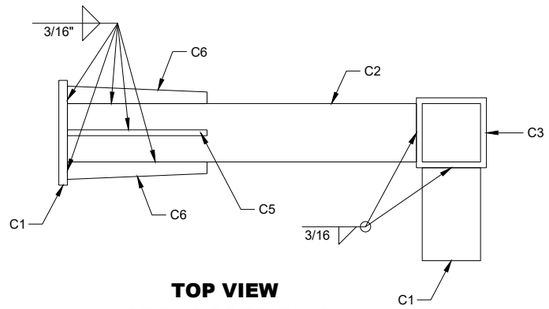
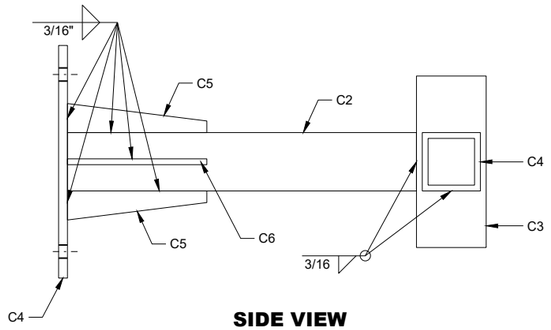


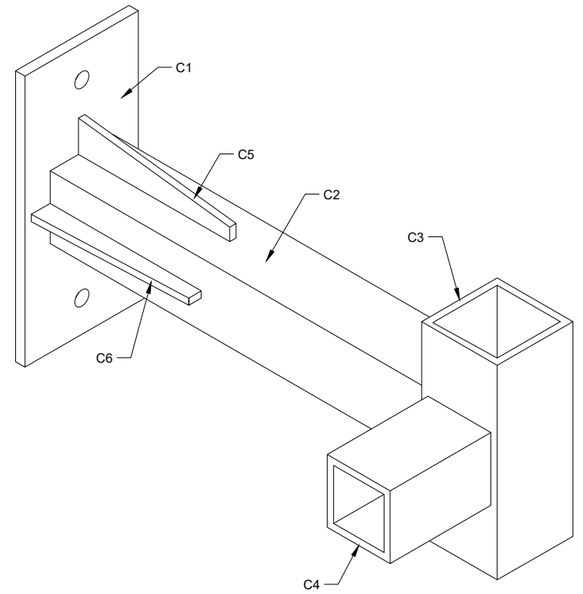
ARM PLATE (C1)



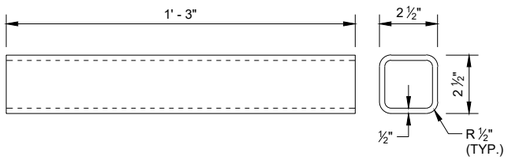
TOP VIEW
ARM ASSEMBLY



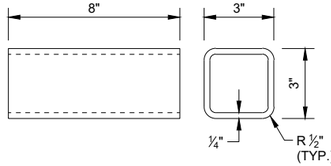
SIDE VIEW
ARM ASSEMBLY



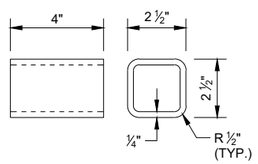
ISOMETRIC VIEW
ARM ASSEMBLY



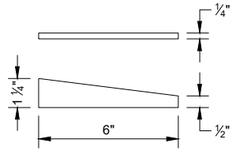
ARM TUBE 1 (C2)



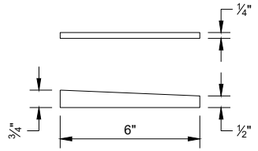
ARM TUBE 2 (C3)



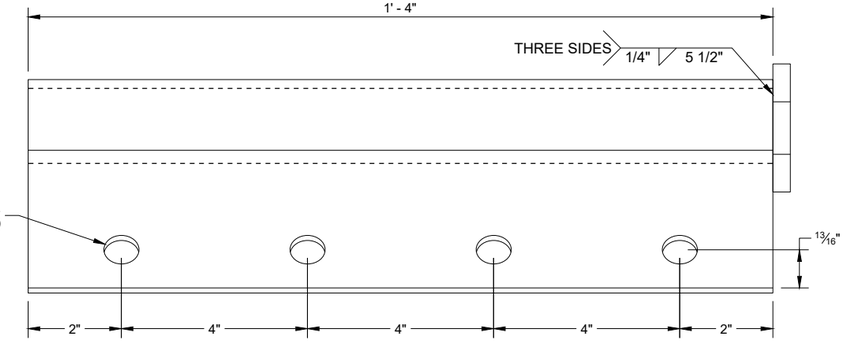
ARM TUBE 3 (C4)

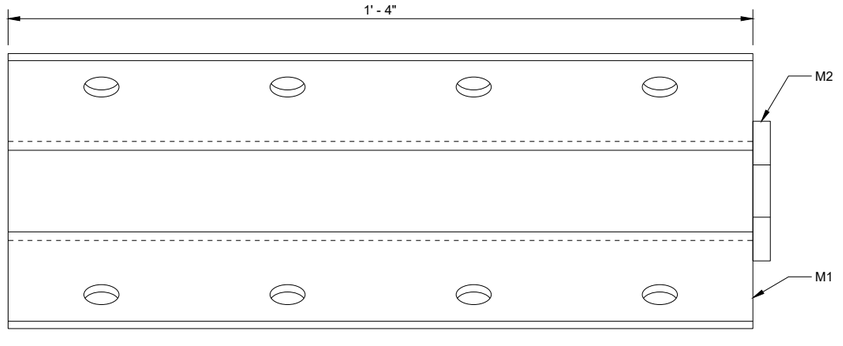


ARM GUSSET PLATE 1 (C5)

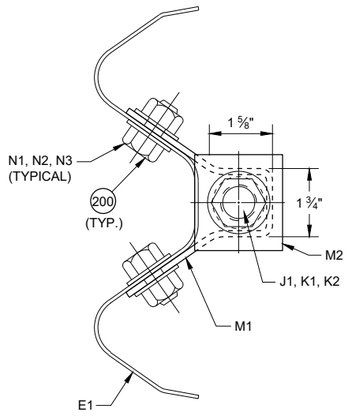


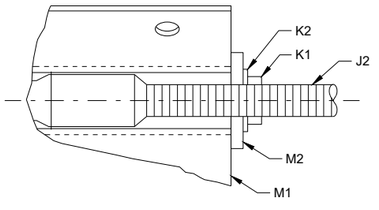
ARM GUSSET PLATE 2 (C6)



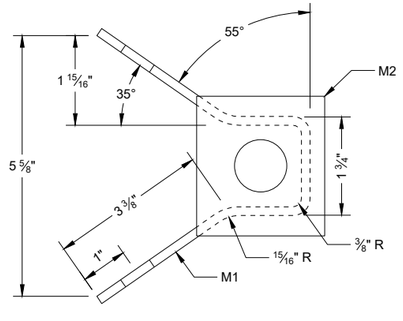


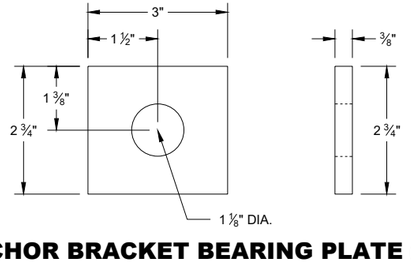
ANCHOR BRACKET (M1, M2)





SECTION A - A





ANCHOR BRACKET BEARING PLATE (M2)

MIDWEST GUARDRAIL SYSTEM (MGS) TYPE 2 TERMINAL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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BILL OF MATERIALS - TYPE 2 TERMINAL (MGS)

PART	DESCRIPTION	MATERIALS SPECIFICATIONS	NOTES
A1	TYPE 2 FOUNDATION TUBE	AASHTO M111 / ASTM A123 ASTM A500 GRADE B OR ASTM A-501	TS 8" x 6" x 3/16"
A2	LOWER PLATE	AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI, OR ASTM A709 MAX STRENGTH 50 KSI, OR ASTM A992 MAX STRENGTH 50 KSI	5/8" THICKNESS
A3	POST GUSSET	AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI, OR ASTM A709 MAX STRENGTH 50 KSI, OR ASTM A992 MAX STRENGTH 50 KSI	1/4" THICKNESS
A4	UPPER PLATE	AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI, OR ASTM A709 MAX STRENGTH 50 KSI, OR ASTM A992 MAX STRENGTH 50 KSI	3/4" THICKNESS
A5	TYPE 2 POST	AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI, OR ASTM A709 MAX STRENGTH 50 KSI, OR ASTM A992 MAX STRENGTH 50 KSI, w6x9 or w6x8.5	
B1	BREAKAWAY BOLT	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 UNC HEAVY HEX HEAD ASTM F3125 GRADE A325 TYPE 1 HEAVY HEX HEAD OR SAE J429 GRADE 5 HEAVY HEX HEAD / ASTM A449 TYPE 1 HEAVY HEX HEAD. BOLTS MAY BE FULLY THREADED . PROVIDE ENOUGH THREADING FOR PROPER TIGHTENING OF BOLT.	7/16" DIA.
B2	BREAKAWAY BOLT WASHER	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 F436 TYPE 1 (HARDEN WASHER ONLY)	7/16" DIA.
B3	BREAKAWAY BOLT NUT	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 UNC OVER TAP NUTS AS SPECIFIED IN AASHTO 291/ASTM A 563 HEAVY HEX HEAD ASTM A563DH OR SAE J995 GRADE 5	
C1	ARM ASSEMBLY PLATE	AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI, OR ASTM A709 MAX STRENGTH 50 KSI, OR ASTM A992 MAX STRENGTH 50 KSI	3/8" THICKNESS
C2	ARM ASSEMBLY TUBE 1	AASHTO M111 / ASTM A123 ASTM A500 GRADE B OR ASTM A-501	TS 8" x 6" x 3/16"
C3	ARM ASSEMBLY TUBE 2	AASHTO M111 / ASTM A123 ASTM A500 GRADE B OR ASTM A-501	TS 3" x 3" x 1/4"
C4	ARM ASSEMBLY TUBE 3	AASHTO M111 / ASTM A123 ASTM A500 GRADE B OR ASTM A-501	TS 2 1/2" x 2 1/2" X 1/4"
C5	ARM ASSEMBLY GUSSET PLATE 1	AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI, OR ASTM A709 MAX STRENGTH 50 KSI, OR ASTM A992 MAX STRENGTH 50 KSI	1/4" THICKNESS
C6	ARM ASSEMBLY GUSSET PLATE 2	AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI, OR ASTM A709 MAX STRENGTH 50 KSI, OR ASTM A992 MAX STRENGTH 50 KSI	1/4" THICKNESS
D1	ARM ASSEMBLY BOLT	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 UNC HEAVY HEX HEAD ASTM A307 GRADE B OR SAE J429 GRADE 2 OR ASTM F1554 GRADE 36	1/2" DIA.
D2	ARM ASSEMBLY WASHER	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 F436 TYPE 1 (HARDEN WASHER ONLY)	1/2" DIA.
D3	ARM ASSEMBLY NUT	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 UNC OVER TAP NUTS AS SPECIFIED IN AASHTO 291 / ASTM A 563 HEAVY HEX HEAD ASTM A563DH OR SAE J995 GRADE 5	1/2" DIA.
E1	TYPE 2 GUARD RAIL	AASHTO M180 CLASS A TYPE 2 12 GAUGE APPROVED PRODUCER	
E2	BEAM GUARD RAIL	AASHTO M180 CLASS A TYPE 2 12 GAUGE APPROVED PRODUCER	
E3	BEAM GUARD ROUNDED BUFFER END	AASHTO M180 CLASS A TYPE 2 12 GAUGE APPROVED PRODUCER	
F1	POST BOLT	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 UNC UNC HEAVY HEX HEAD ASTM A307 GRADE B OR SAE J429 GRADE 2 OR ASTM F1554 GRADE 36	5/8" DIA.
F2	POST BOLT WASHER	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 F436 TYPE 1 (HARDEN WASHER ONLY)	5/8" DIA.
F3	POST BOLT NUT	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 UNC OVER TAP NUTS AS SPECIFIED IN AASHTO 291/ASTM A 563 AASHTO M180 RECESSED HEAVY HEX HEAD ASTM A563DH OR SAE J995 GRADE 5	
G1	GROUND STRUT CHANNEL	AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI, OR ASTM A709 MAX STRENGTH 50 KSI, OR ASTM A992 MAX STRENGTH 50 KSI	1/2" x 11 3/4" x 10 GAUGE
G2	GROUND STRUT CONNECTOR	AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI, OR ASTM A709 MAX STRENGTH 50 KSI, OR ASTM A992 MAX STRENGTH 50 KSI	1/4" THICKNESS
G3	GROUND STRUT PLATE	AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI, OR ASTM A709 MAX STRENGTH 50 KSI, OR ASTM A992 MAX STRENGTH 50 KSI	1/2" THICKNESS

MIDWEST GUARDRAIL SYSTEM (MGS) TYPE 2 TERMINAL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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SDD 14B47 - 05f

BILL OF MATERIALS - TYPE 2 TERMINAL (MGS)

PART	DESCRIPTION	MATERIALS SPECIFICATIONS	NOTES
H1	GROUND STRUT BOLT	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 UNC HEAVY HEX HEAD ASTM A307 GRADE B OR SAE J429 GRADE 2 OR ASTM F1554 GRADE 36	7/8" DIA.
H2	GROUND STRUT BOLT WASHER	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1/ ASTM B695 CLASS 50 TYPE 1 F436 TYPE 1 (HARDEN WASHER ONLY)	7/8" DIA.
H3	GROUND STRUT BOLT NUT	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 UNC HEAVY HEX HEAD 5/8" ASTM A307 GRADE B OR SAE J429 GRADE 2 OR ASTM F1554 GRADE 36	
J1	BCT CABLE	AASHTO M30 / ASTM A741 6 x 19 INDEPENDENT WIRE CORE (IWRC) IMPROVED PLOW STEEL (IPS), 6 x 19 INDEPENDENT WIRE CORE (IWRC) IMPROVED PLOW STEEL (IPS) TYPE II OR IIC, CLASS C ZINC COATED MIN. BREAKING STRENGTH OF 42.7 KIPS	**3/4" DIA.**
J2	BCT CABLE	UNC 1" ASTM A576 GRADE 1035 SWAGE FITTINGS ARE TO BE FACTORY SWEDGED. MIN BREAKING STRENGTH OF 42.7 KIPS ASME B30.26 "FORGED, CAST, OR DIE STAMPED WITH THE FOLLOWING IN TO CONNECTION: NAME OF MANUFACTURE OR TRADEMARK OF CONNECTION'S MANUFACTURER, SIZE OR RATED LOAD, GRADE FOR ALLOY EYEBOLTS."	
K1	CABLE ASSEMBLY NUT	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 UNC OVER TAP NUTS AS SPECIFIED IN AASHTO 291 / ASTM A 563 HEAVY HEX HEAD ASTM A563DH OR SAE J995 GRADE 5	1" DIA.
K2	CABLE ASSEMBLY WASHER	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1	1" DIA.
L1	BEARING PLATE	AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI, OR ASTM A709 MAX STRENGTH 50 KSI, OR ASTM A992 MAX STRENGTH 50 KSI	5/8" THICKNESS
L2	BEARING PLATE FLANGE	AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI, OR ASTM A709 MAX STRENGTH 50 KSI, OR ASTM A992 MAX STRENGTH 50 KSI	1" THICKNESS
M1	BEAM GUARD ANCHOR BRACKET	AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI, OR ASTM A709 MAX STRENGTH 50 KSI, OR ASTM A992 MAX STRENGTH 50 KSI	
M2	BEAM GUARD ANCHOR END PLATE	AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI, OR ASTM A709 MAX STRENGTH 50 KSI, OR ASTM A992 MAX STRENGTH 50 KSI	3/8" THICKNESS
N1	ANCHOR BRACKET BOLT	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 UNC AASHTO M180 HEAD ASTM A307 GRADE B OR SAE J429 GRADE 2 OR ASTM F1554 GRADE 36	5/8" DIA.
N2	ANCHOR BRACKET BOLT WASHER	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1/ ASTM B695 CLASS 50 TYPE 1 F436 TYPE 1 (HARDEN WASHER ONLY)	5/8" DIA.
N3	ANCHOR BRACKET BOLT NUT	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 UNC OVER TAP NUTS AS SPECIFIED IN AASHTO 291 /ASTM A 563 HEAVY HEX HEAD ASTM A563DH OR SAE J995 GRADE 5	
P1	FOUNDATION TUBE BOLT	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1/ ASTM B695 CLASS 50 TYPE 1 UNC OVER TAP NUTS AS SPECIFIED IN AASHTO 291 / ASTM A 563 HEAVY HEX HEAD ASTM A563DH OR SAE J995 GRADE 5	1/2" DIA.
Q1	SPLICE BOLT	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 UNC AASHTO M180 HEAD ASTM A307 GRADE B OR SAE J429 GRADE 2 OR ASTM F1554 GRADE 36	
Q2	SPLICE NUT	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 UNC OVER TAP NUTS AS SPECIFIED IN AASHTO 291 / ASTM A 563 AASHTO M180 RECESSED HEAVY HEX HEAD ASTM A563DH OR SAE J995 GRADE 5	5/8" DIA.

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SDD 14B47 - 05g

MIDWEST GUARDRAIL SYSTEM (MGS) TYPE 2 TERMINAL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

May 2023
DATE

/S/ Rodney Taylor
ROADWAY STANDARDS DEVE ENGINEER

FHWA

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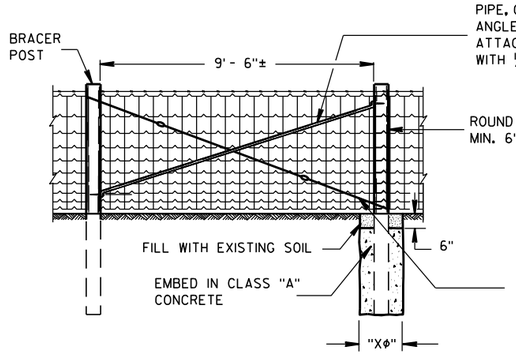
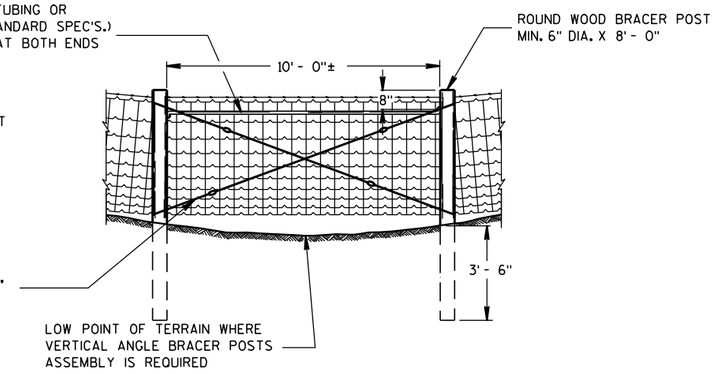
SDD 14B47 - 05g

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

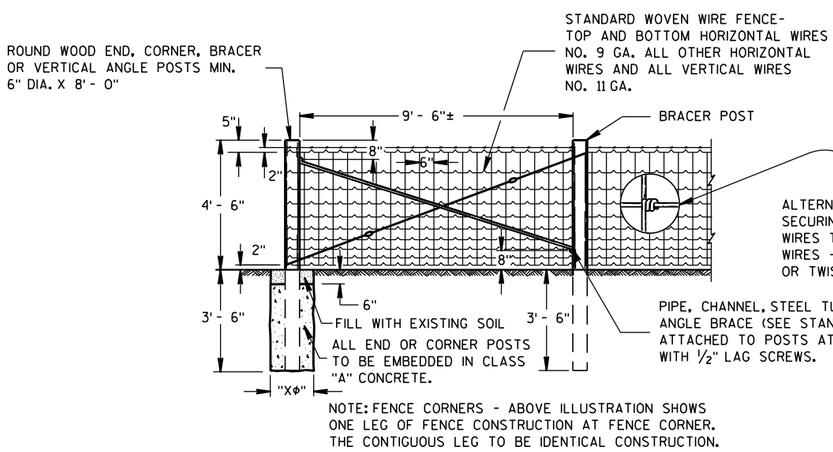
ILLUSTRATION SHOWS POSITION OF STANDARD STEEL BRACE, DOUBLE STRAND GALVANIZED WIRE, AND THE POST TO BE EMBEDDED IN CONCRETE WHEN WIRE FENCE IS INSTALLED FROM LEFT TO RIGHT. THE BRACES SHALL BE POSITIONED ON THE OPPOSITE DIAGONALS AND THE OPPOSITE POST SHALL BE EMBEDDED IN CONCRETE WHEN WIRE FENCE IS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



PULL OR STRETCHER POSTS ASSEMBLY

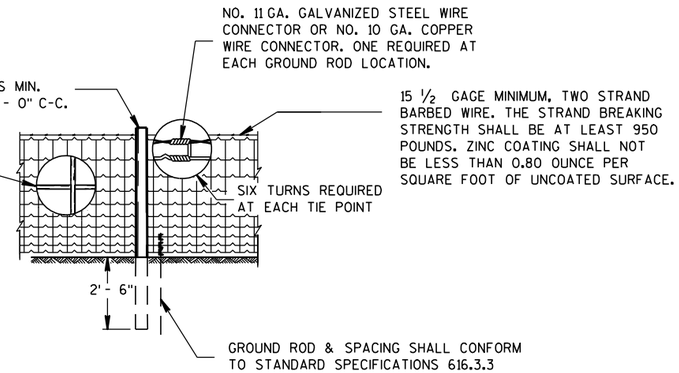


VERTICAL ANGLE BRACER POSTS ASSEMBLY



NOTE: FENCE CORNERS - ABOVE ILLUSTRATION SHOWS ONE LEG OF FENCE CONSTRUCTION AT FENCE CORNER. THE CONTIGUOUS LEG TO BE IDENTICAL CONSTRUCTION.

END OR CORNER POSTS ASSEMBLY



LINE FENCE CONSTRUCTION

GENERAL NOTES

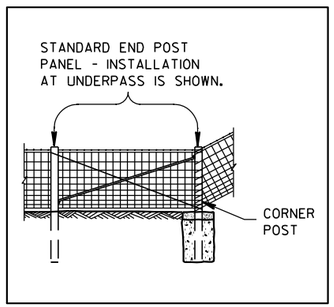
"XΦ" = DIAMETER OF THE POST PLUS 12".

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

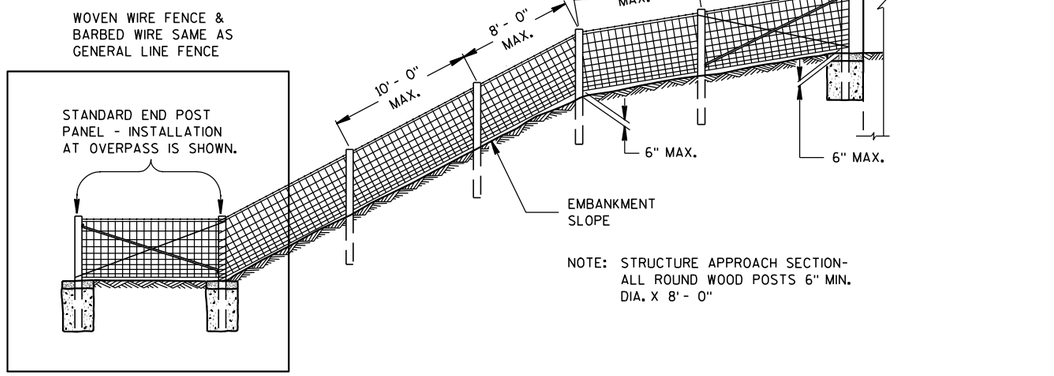
DO NOT STAPLE WIRE TIGHT TO THE LINE POSTS. ALLOW MOVEMENT OF WIRE FOR EXPANSION AND CONTRACTION. STAPLE ARRANGEMENT SHALL BE THE SAME FOR ALL OTHER POSTS EXCEPT THAT THEY SHALL BE DRIVEN TIGHT TO POSTS. ALL STAPLES SHALL BE 2" X 9 GAGE AND SHALL BE MANUFACTURED FROM GALVANIZED WIRE OR HOT DIP GALVANIZED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

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

GENERAL ROADSIDE VIEW OF WOVEN WIRE FENCE



ALTERNATE FENCE DESIGN AT STRUCTURE



NOTE: STRUCTURE APPROACH SECTION- ALL ROUND WOOD POSTS 6" MIN. DIA. X 8' - 0"

FENCE DESIGN AT STRUCTURE APPROACH

FENCE WOVEN WIRE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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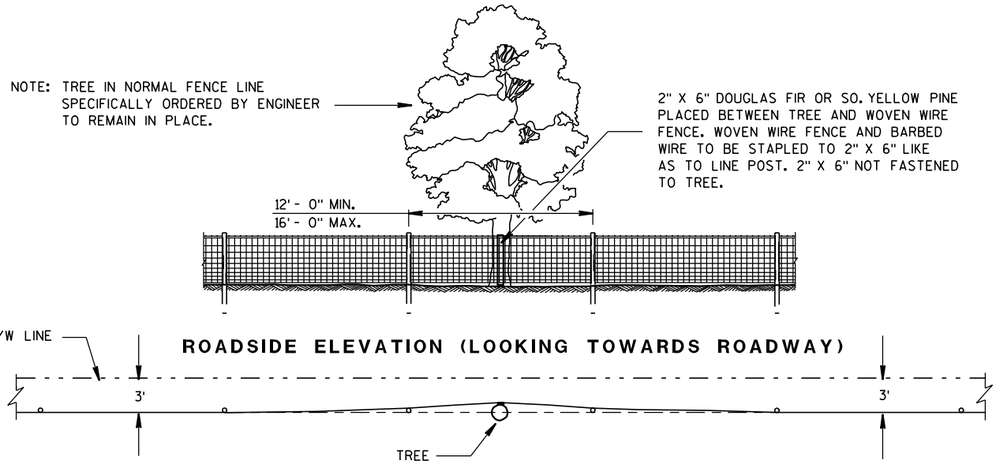
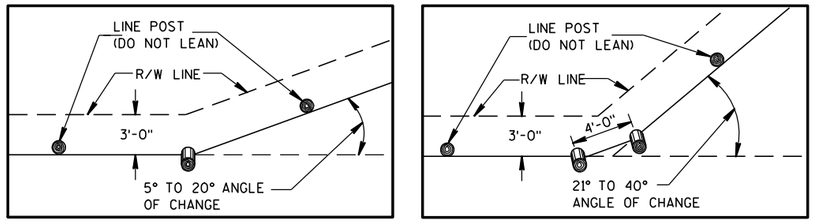
S.D.D. 15 B 1-8a



PLAN VIEW

FENCE DESIGN AT TREES REMAINING IN NORMAL FENCE LINE



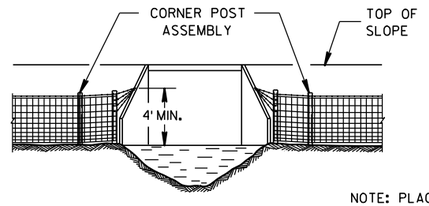
PLAN VIEW SINGLE POST CORNER

PLAN VIEW DOUBLE POST CORNER

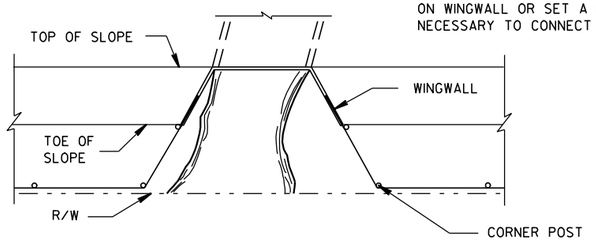
RIGHT OF WAY LINE CHANGE 40° AND LESS

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

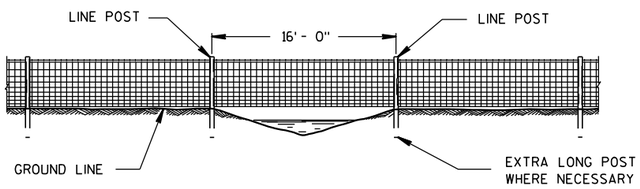
WHEN THE RIGHT OF WAY LINE CHANGE IS MORE THAN 40° USE THE CORNER OR STRETCHER POSTS ASSEMBLY.



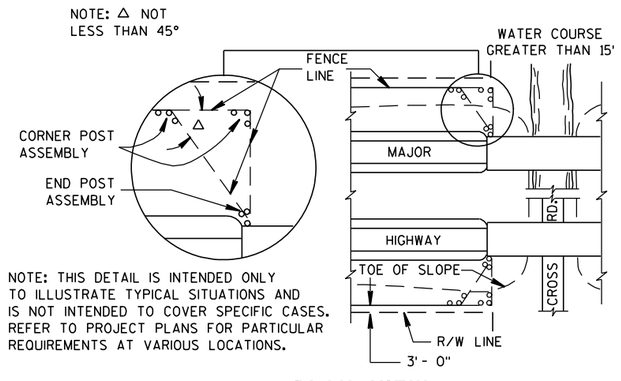
NOTE: PLACE A MINIMUM OF 4 STRANDS OF BARBED WIRE, 6" MAXIMUM CENTERS IN FAN SHAPE CONNECTED TO AN EYE BOLT ON WINGWALL OR SET A LONE POST WHEN NECESSARY TO CONNECT BARBED WIRE.



FENCE INSTALLATION TO WINGWALLS

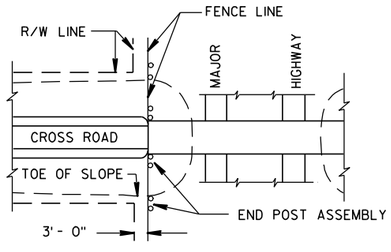


FENCE CONSTRUCTION OVER STREAM COURSES OF 15 FT. OR LESS IN WIDTH



PLAN VIEW

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

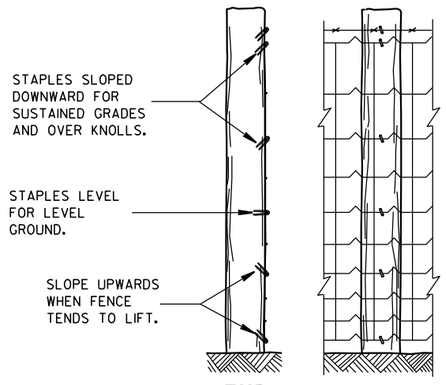


PLAN VIEW

MAJOR HIGHWAY UNDERPASS

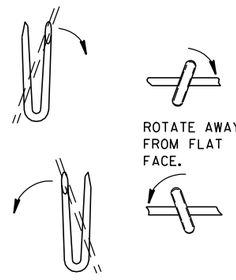
FENCE LOCATION AT STRUCTURES

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



END ELEVATION **FARM SIDE ELEVATION**

FENCE MOUNTING DETAIL



LINE POST

FENCE WOVEN WIRE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
4/4/2008 DATE
/S/ Jerry H. ---- ROADWAY STANDARDS ENGINEER
FHWA

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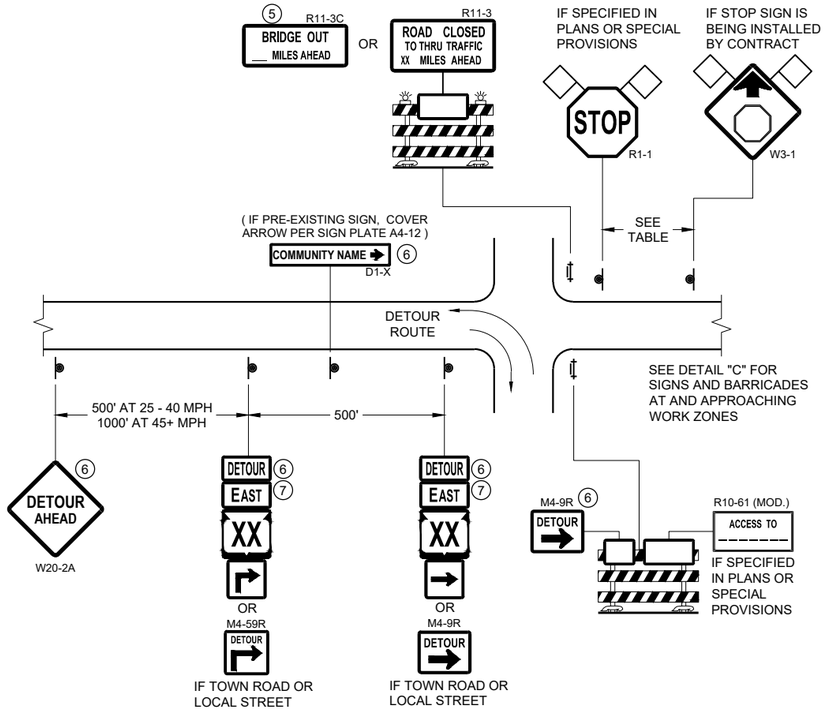
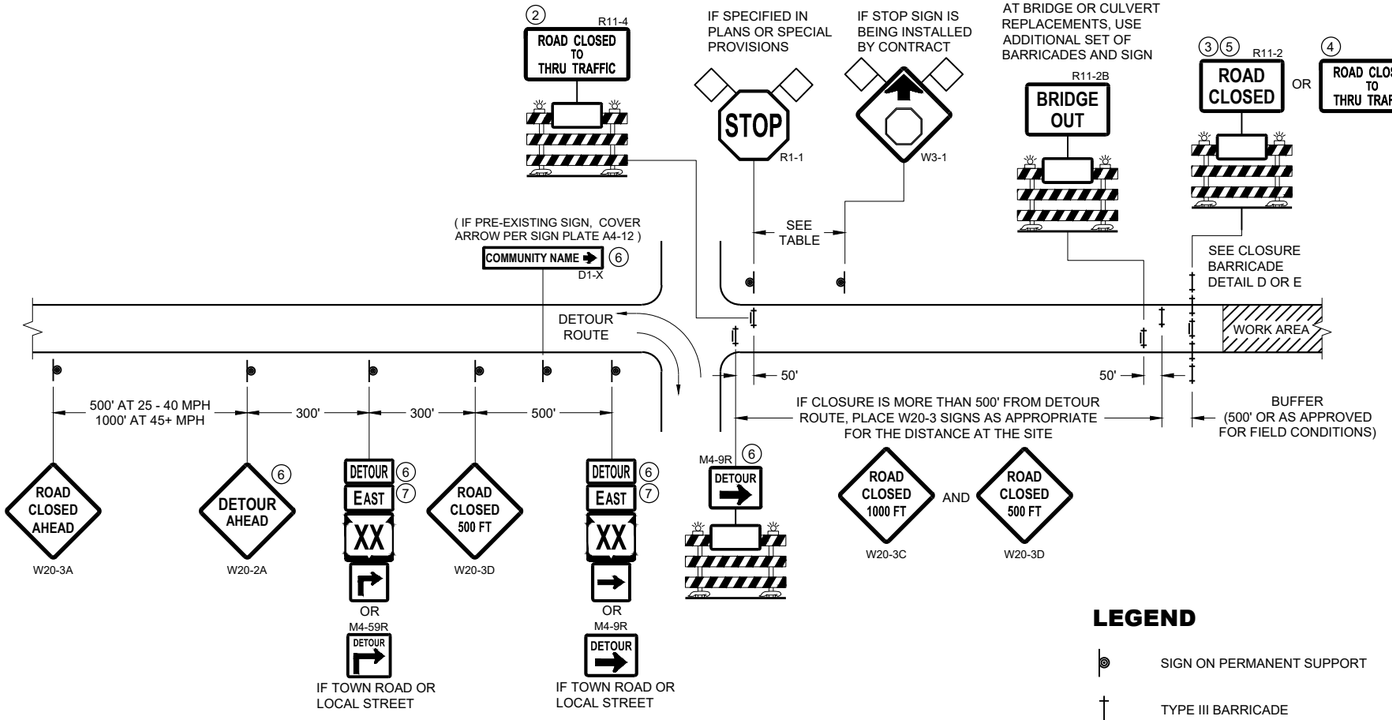
S.D.D. 15 B 1-8b



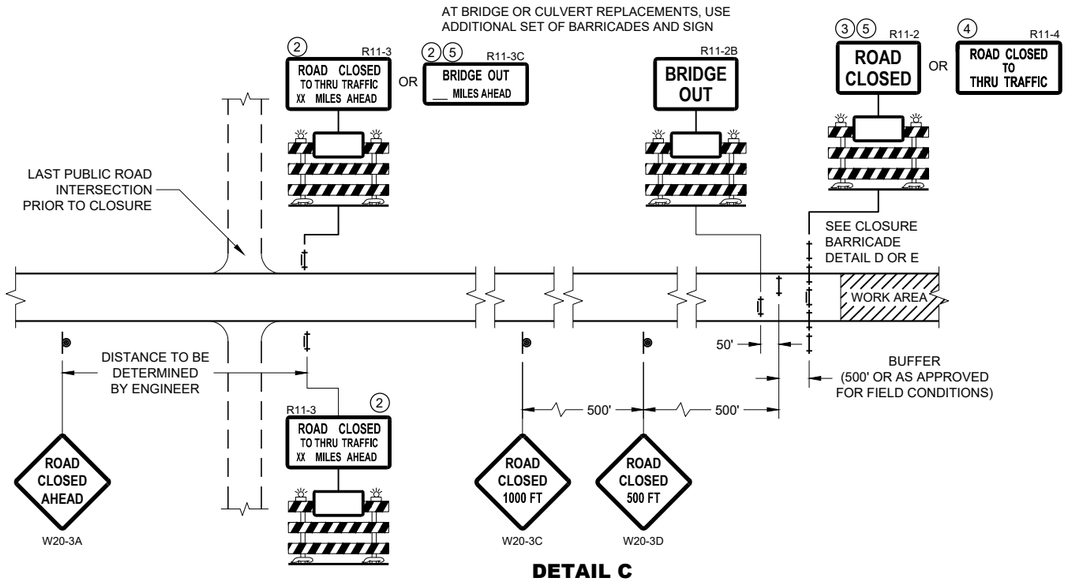
DETAIL A
MAINLINE CLOSURE WITH POSTED DETOUR

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)



DETAIL C
MAINLINE CLOSURE, NO POSTED DETOUR

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

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

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 X — M1 - 5A
- M05 - 1 OR M06 - 1

BARRICADES AND SIGNS FOR MAINLINE CLOSURES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

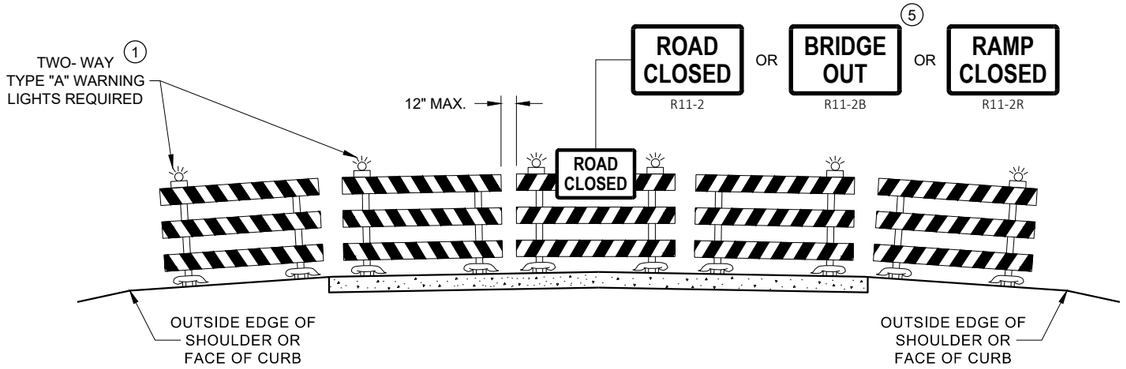
APPROVED
May 2023
DATE
/S/ Andrew Heidtke
WORK ZONE ENGINEER

FHWA

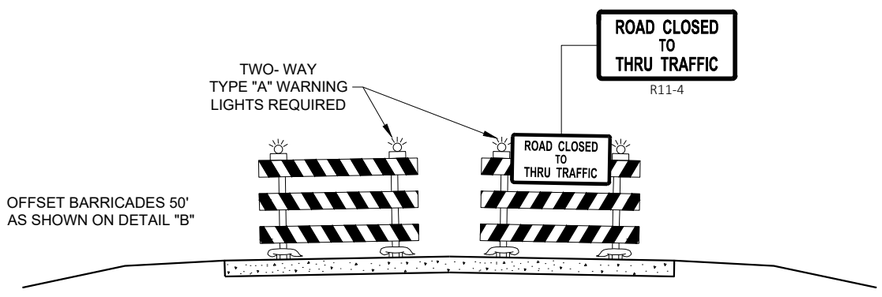
6

SDD 15C02 - 09a

SDD 15C02 - 09a



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
DATE
/S/ Andrew Heidtke
WORK ZONE ENGINEER
FHWA

6

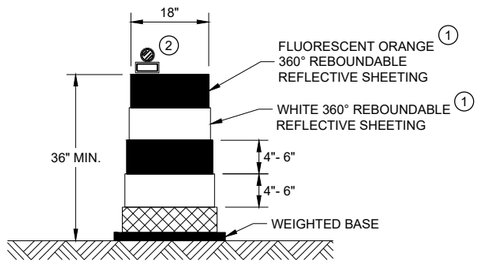
SDD 15C02 - 09b

6

SDD 15C02 - 09b

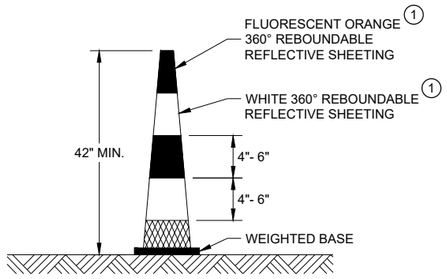
GENERAL NOTES

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.



DRUM

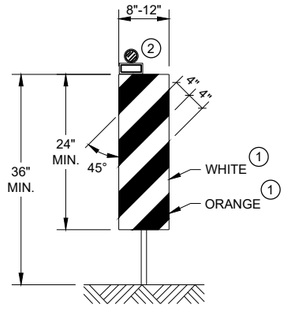
BALLAST WIDTHS
RANGE FROM 24"-36"



42" CONE

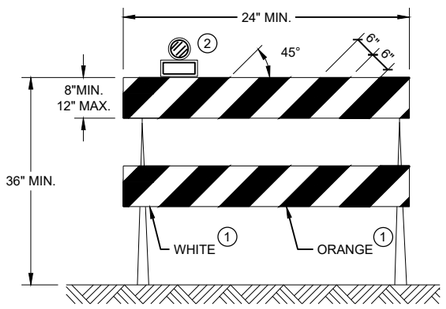
DO NOT USE IN TAPERS
½ SPACING OF DRUMS

BALLAST WIDTHS
RANGE FROM 14"-20"



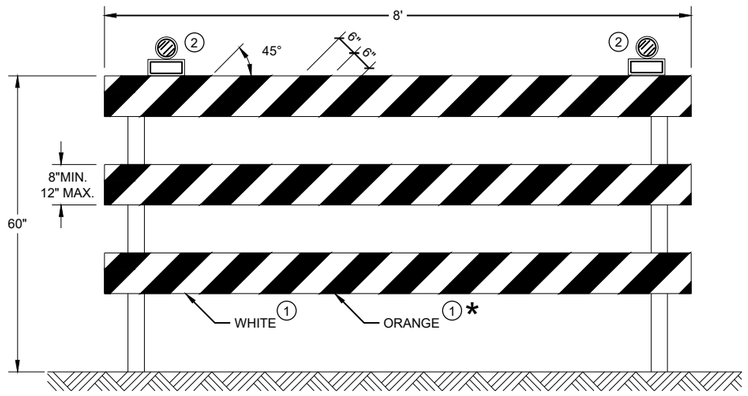
VERTICAL PANEL

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.

CHANNELIZING DEVICES DRUMS, CONES, BARRICADES AND VERTICAL PANELS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
November 2022
DATE

/S/ Andrew Heidtke
WORK ZONE ENGINEE

FHWA

6

SDD 15C11 - 10b

6

SDD 15C11 - 10b

GENERAL NOTES

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

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

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

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

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

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

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

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

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

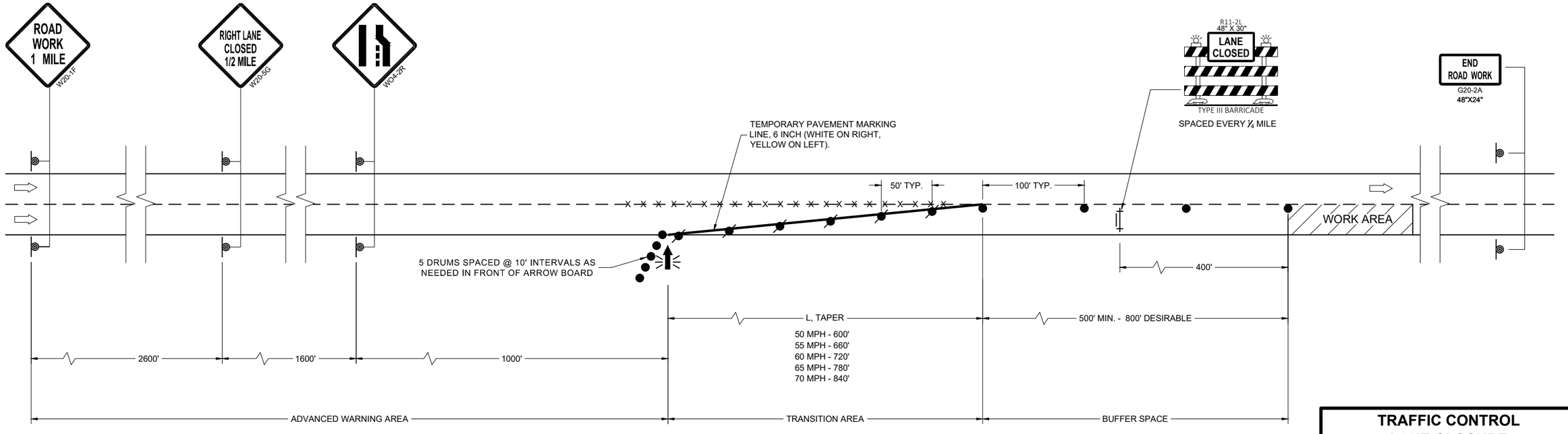
WARNING LIGHTS ARE NOT REQUIRED IF THE LANE CLOSURE IS A DAYTIME ONLY OPERATION.

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

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

LEGEND

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



TRAFFIC CONTROL LANE CLOSURE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
March 2024
DATE

/S/ Andrew Heidtke
Work Zone Engineer

FHWA

6

SDD 15D12-13a

6

SDD 15D12-13a

LEGEND

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

GENERAL NOTES

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

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

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

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

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

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

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

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

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

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

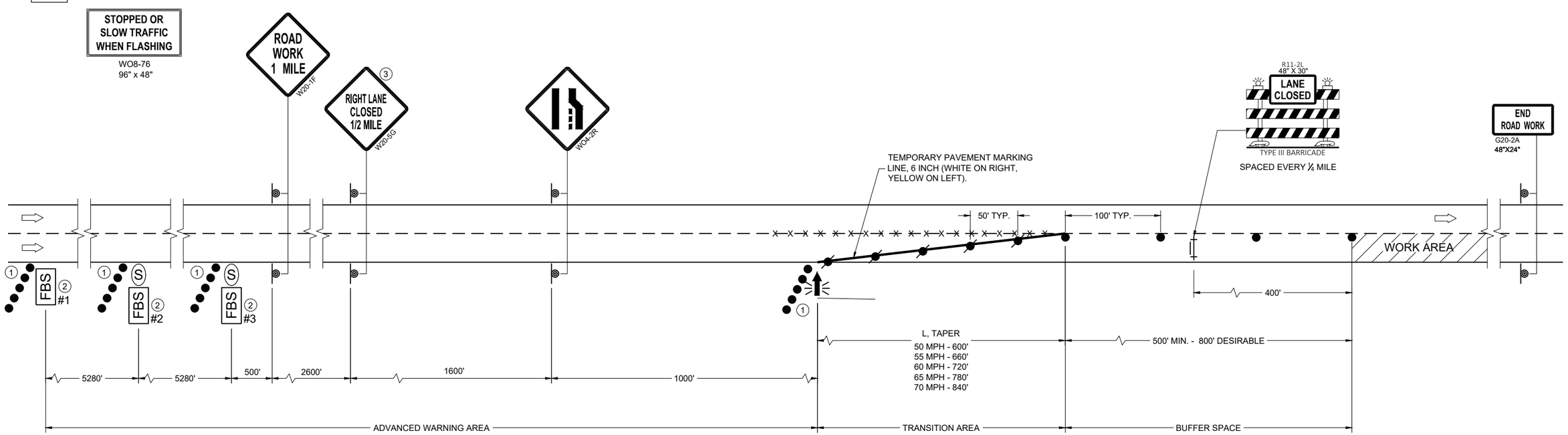
CONSIDER ROADWAY GEOMETRICS WHEN LOCATING SIGNS AND ARROW BOARD SO THE DRIVER HAS A CLEAR VIEW OF THE ARROW BOARD AND LANE CLOSURE DRUMS.

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

(1) 5 DRUMS SPACED AT 10 FOOT INTERVALS AS NEEDED.

(2) IF THERE ARE MORE THAN TWO LANES OR IF SPECIFIED IN THE PLANS, PLACE FBS ON BOTH SIDES OF THE ROADWAY.

(3) IF THERE IS AN APPROVED TEMPORARY SPEED DECLARATION, ADD WO-3-5 SIGNS 400 FEET AFTER THE W20-5G SIGNS AND ADD R2-1 SIGNS (48"x60") 700 FEET AFTER THE WO3-5 SIGNS. A SPEED LIMIT SIGN SHALL BE LOCATED 1500 FEET BEYOND THE END OF THE ACCELERATION LANE OF EACH ENTRANCE RAMP. PLACE A SPEED LIMIT SIGN A MINIMUM OF EVERY 3 MILES. INCLUDE A "RESUME SPEED LIMIT" SIGN 200 FEET MINIMUM (800 FEET DESIRABLE) BEYOND THE G30-3A "END ROAD WORK" SIGN.



TRAFFIC CONTROL, LANE CLOSURE, BASIC TRAFFIC QUEUE WARNING SYSTEM

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
March 2024
DATE

/S/ Erin Schwark
Work Zone Engineer

FHWA

6

SDD 15D12-13d

SDD 15D12-13d

LEGEND

- TRAFFIC CONTROL DRUM
- SIGN ON PERMANENT SUPPORT
- DIRECTION OF TRAFFIC
- FLASHING ARROW BOARD
- WORK AREA

GENERAL NOTES

THIS DETAIL IS TYPICAL FOR CLOSING THE RIGHT SHOULDER. FOR CLOSING THE LEFT SHOULDER, REVERSE THE TRAFFIC CONTROL.

THIS DETAIL MAY BE USED FOR DIVIDED ROADWAYS WITH ANY NUMBER OF TRAVEL LANES.

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

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

SIGN LAYOUTS SHALL BE IN ACCORDANCE WITH THE FHWA'S MANUAL OF STANDARD HIGHWAY SIGNS OR THE WISCONSIN STANDARD SIGN PLATES.

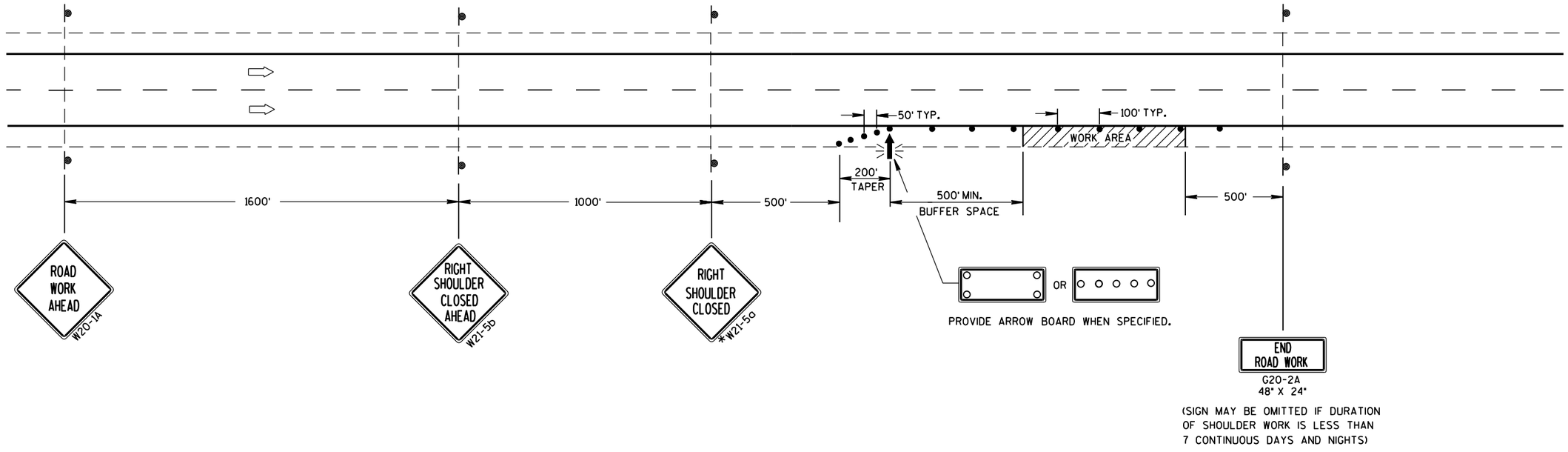
SIGNS THAT WILL BE IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS MAY BE MOUNTED ON PORTABLE SUPPORTS.

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

CHANNELIZING DEVICES PLACED ADJACENT TO THE WORK AREA SHALL BE PULLED BACK FROM THE TRAVEL LANE WHEN WORK IS NOT IN PROGRESS.

WHEN A RAMP INTERSECTS THE FACILITY ON WHICH THE WORK IS BEING PERFORMED, ADDITIONAL TRAFFIC CONTROLS SHALL BE PROVIDED AS SPECIFIED IN THE PLANS AND/OR THE SPECIAL PROVISIONS OR AS APPROVED BY THE ENGINEER.

*FOR SHORT DURATION SHOULDER WORK OF LESS THAN ONE HOUR, THE W21-5a SIGN MAY BE OMITTED.



TRAFFIC CONTROL SHOULDER CLOSURE ON DIVIDED ROADWAY, SPEEDS GREATER THAN 40 MPH

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

June 2016 — DATE

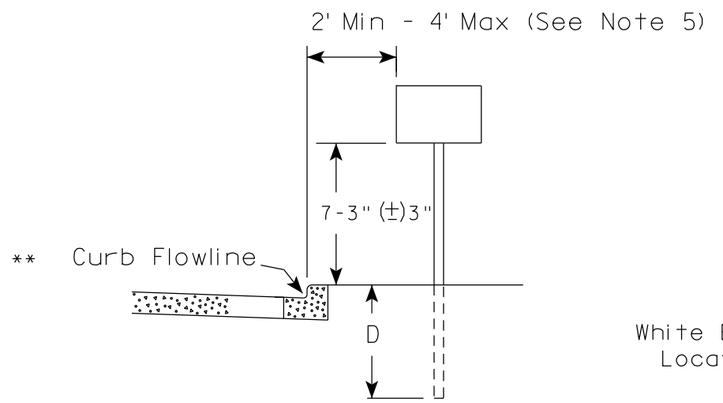
/S/ Peter Amakobe Atepe
STATEWIDE WORK ZO[illegible] SAFETY ENGI[illegible]

FHWA

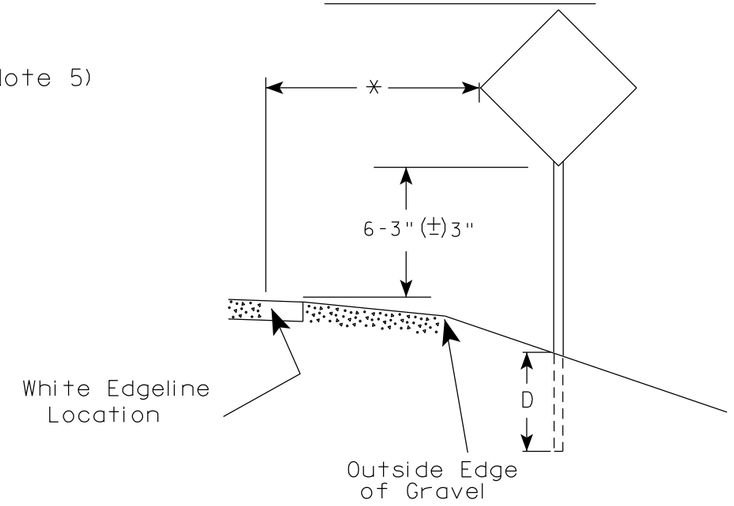
6

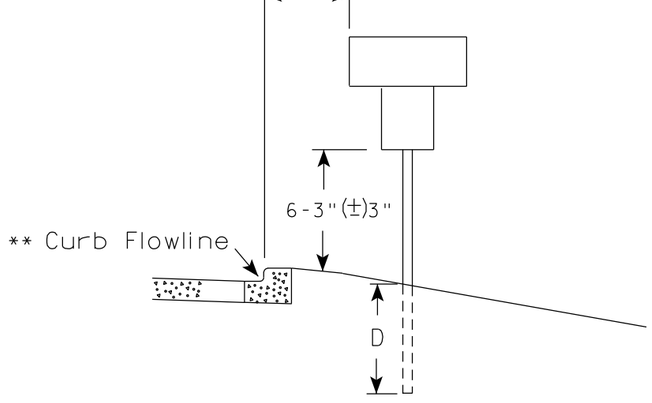
S.D.D. 15 D 27-3

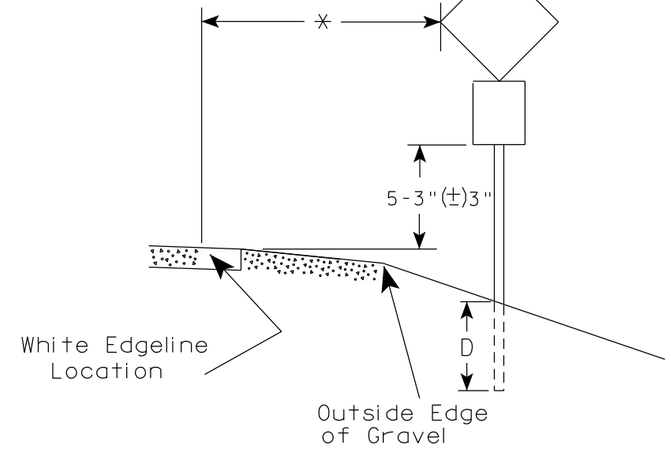
URBAN AREA



RURAL AREA (See Note 2)







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

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 directd by the Engineer.

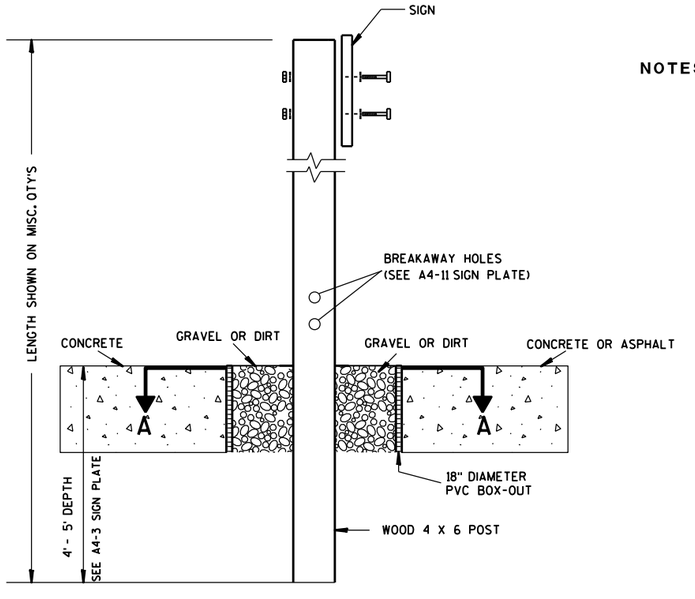
TYPICAL INSTALLATION OF PERMANENT TYPE II SIGNS ON SINGLE POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

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

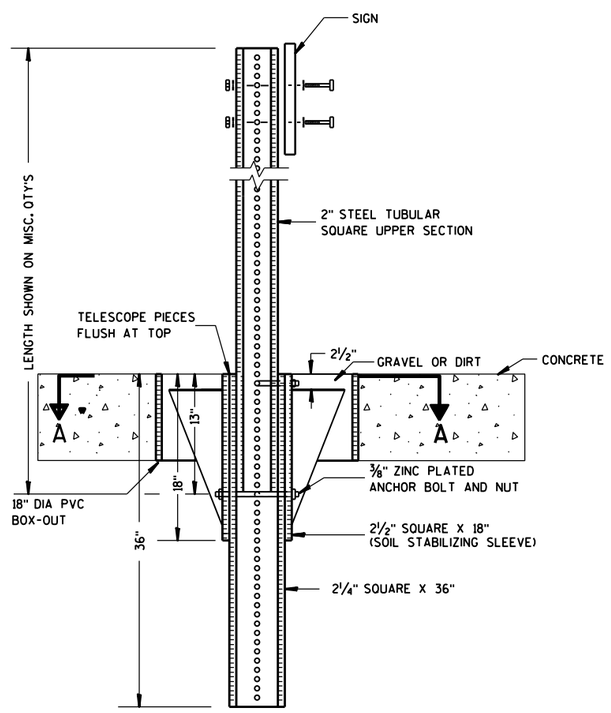
PROJECT NO:	HWY:	COUNTY:		SHEET NO: 47	E



ELEVATION VIEW

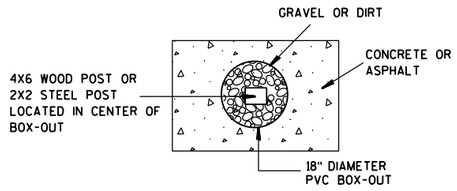
DETAIL OF WOOD 4 X 6 SIGN POST IN BOX-OUT

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



ELEVATION VIEW

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



PLAN VIEW

FOR NEW CONCRETE/ASPHALT INSTALLATIONS

SIGN POST BOX-OUTS A4-3B

WISCONSIN DEPT OF TRANSPORTATION

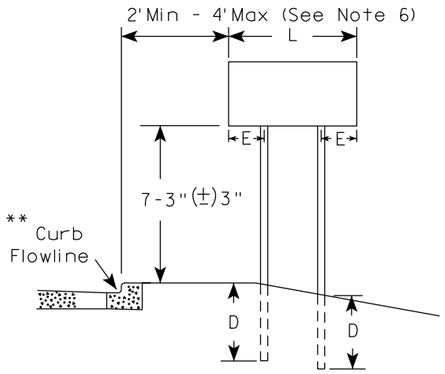
APPROVED Matthew R Rauch
for State Traffic Engineer

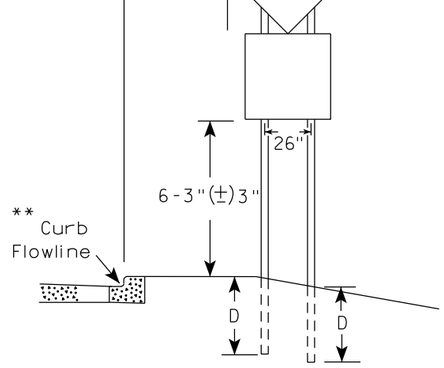
DATE 1/27/14 PLATE NO. A4-3B.1

PROJECT NO:	HWY:	COUNTY:		SHEET NO:	E

FILE NAME : C:\CAEFiles\Projects\tr_stdplate\A43B.DGN PLOT DATE : 27-JAN-2014 09:48 PLOT BY : mscsja PLOT NAME : PLOT SCALE : 13.659812:1.000000 WISDOT/CADDS SHEET 42

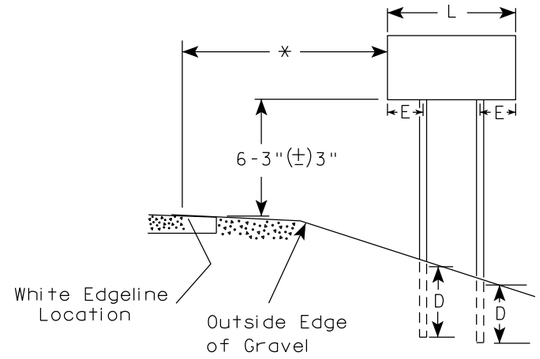
URBAN AREA

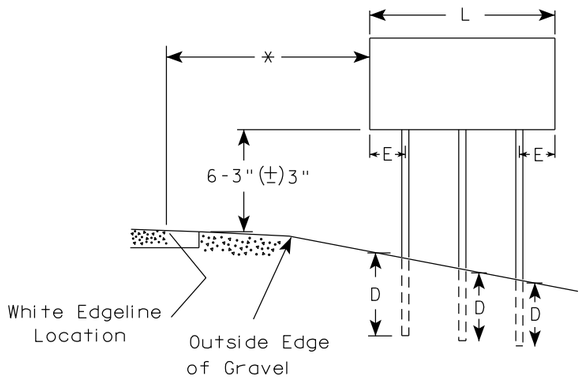


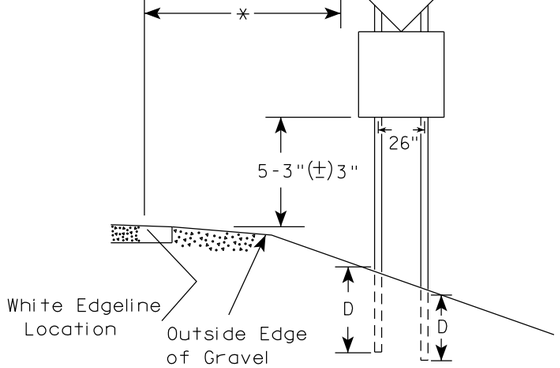


48" DIAMOND WARNING SIGN

RURAL AREA (See Note 3)







48" DIAMOND WARNING SIGN

GENERAL NOTES

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

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

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

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

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'

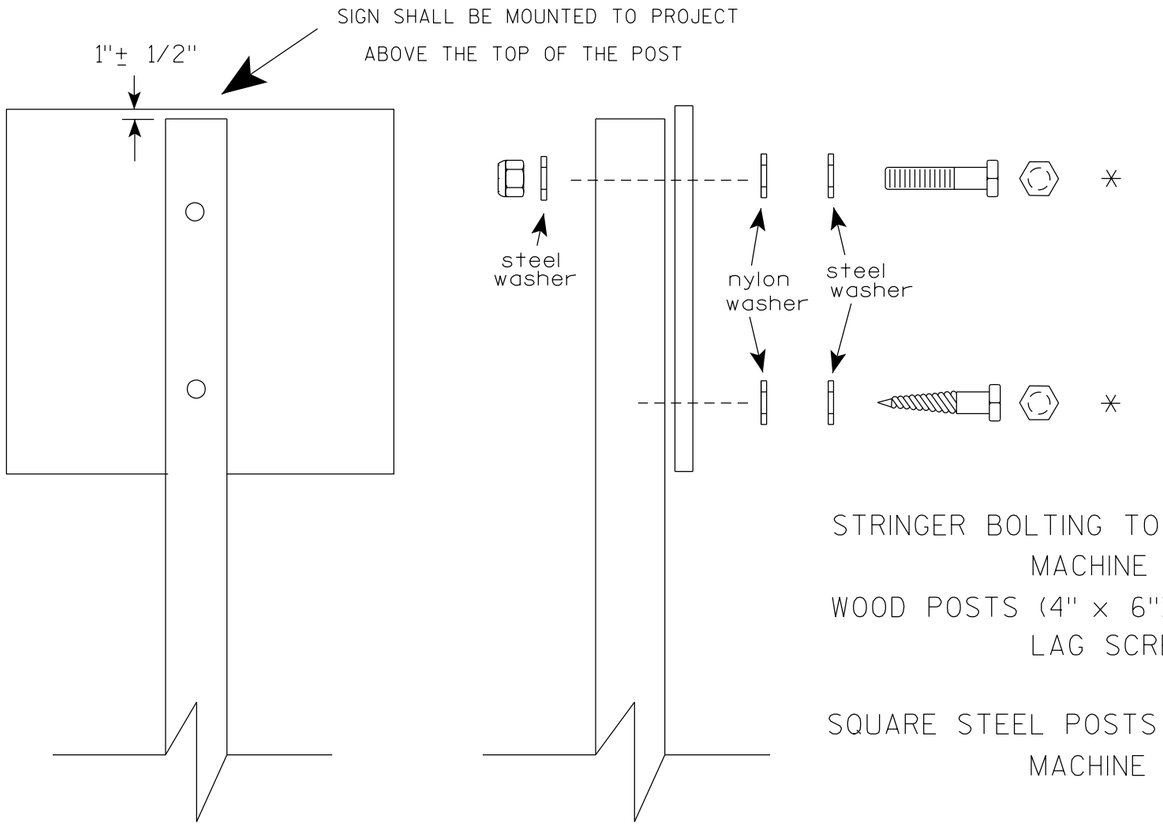
TYPICAL INSTALLATION OF TYPE II SIGNS ON MULTIPLE POSTS

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: 49	E



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

a. Hot dip galvanized in accordance with ASTM Designation: A 153, Class D, or SC 3

b. Electro-galvanized in accordance with ASTM Designation : B 633, TYPE III, SC 3.

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

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

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

WOOD POSTS (4" x 6")

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

SQUARE STEEL POSTS (2" x 2")

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

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

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

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

ATTACHMENT OF SIGNS TO POSTS

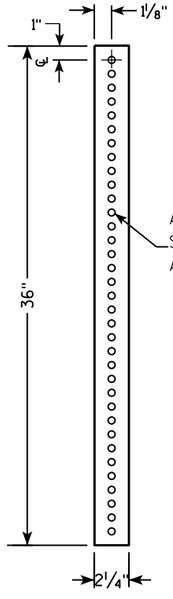
WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
For State Traffic Engineer

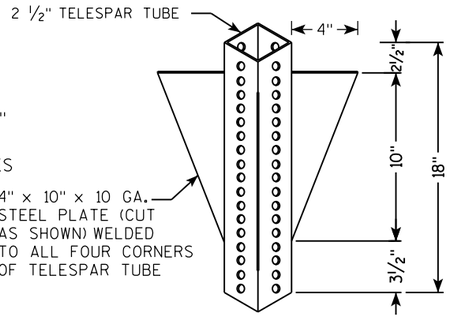
DATE 4/1/2020 PLATE NO. A4-8.9

TELESCOPIC TUBING ANCHORS
TWO PIECE SYSTEM

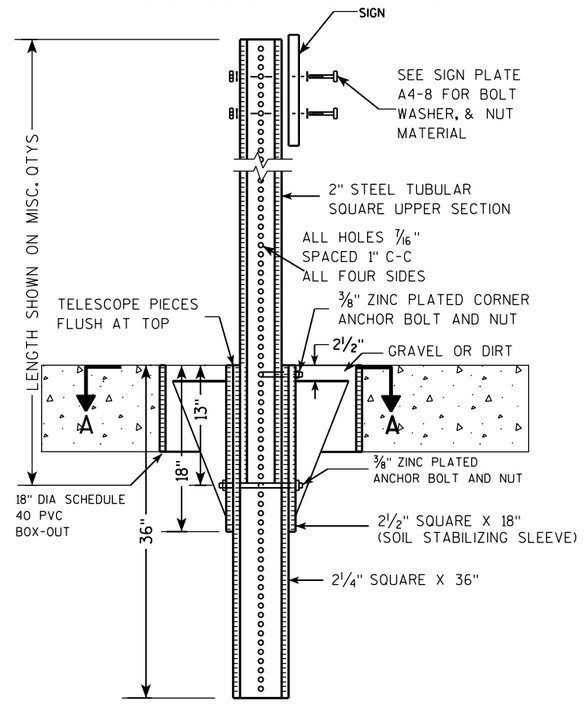
2 1/4 " SQUARE
12 GAUGE
PERFORATED
GALVANIZED FINISH



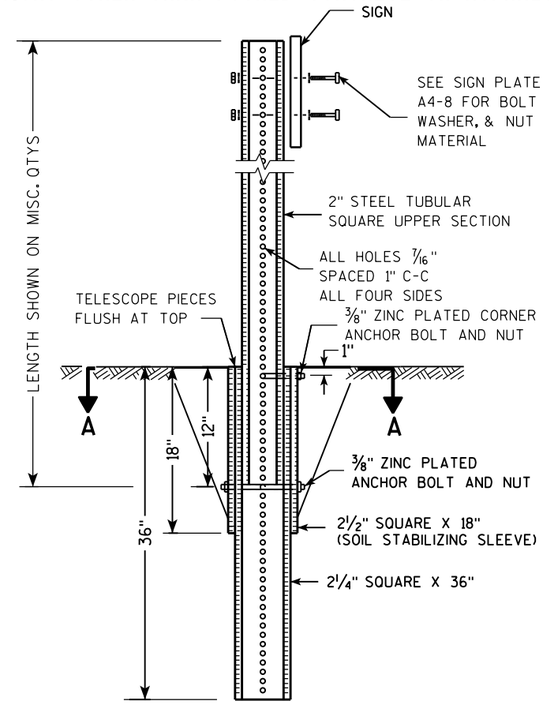
2 1/2 " SQUARE
12 GAUGE
OMNI-DIRECTIONAL
PERFORATED
SOIL STABILIZING SLEEVE
GALVANIZED FINISH

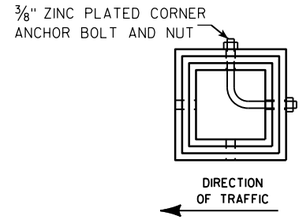


DETAIL OF TUBULAR STEEL SIGN POST
(IN POURED CONCRETE OR ASPHALT)



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





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).

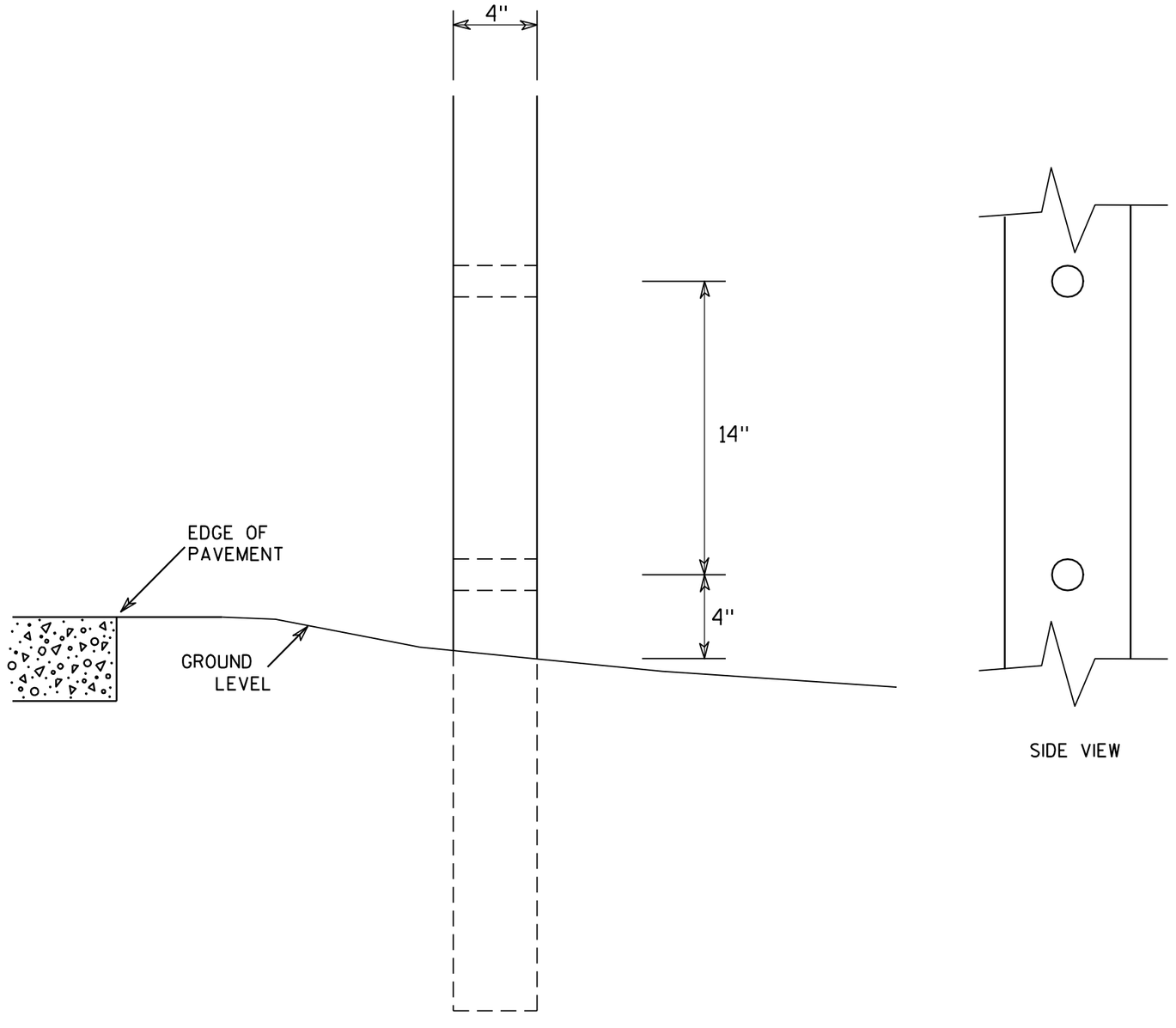
TUBULAR STEEL
SIGN POST
A4-9

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 2/05/15 PLATE A4-9.9

PROJECT NO:	HWY:	COUNTY:		SHEET NO:	E



SIDE VIEW

GENERAL NOTES

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

4 X 6 WOOD POST MODIFICATIONS

WISCONSIN DEPT OF TRANSPORTATION

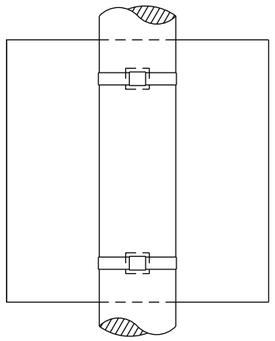
APPROVED Chester J Spang for State Traffic Engineer

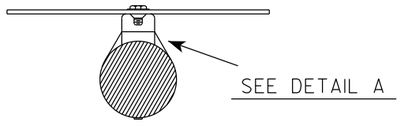
DATE 3/27/97 PLATE NO. A4-11.2

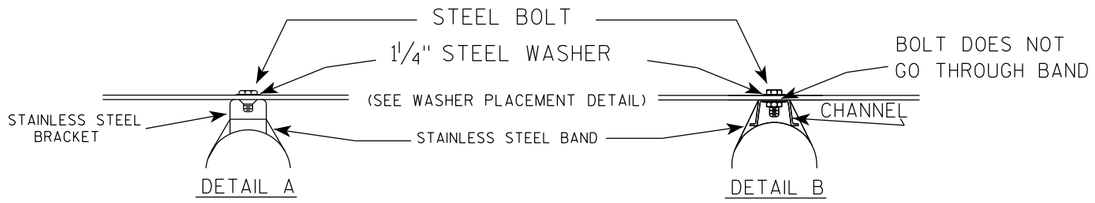
PROJECT NO:	HWY:	COUNTY:		SHEET NO: 52	E

BANDING

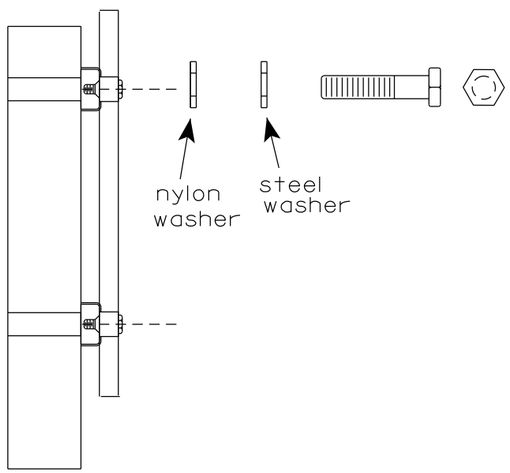
SINGLE SIGN







WASHER PLACEMENT

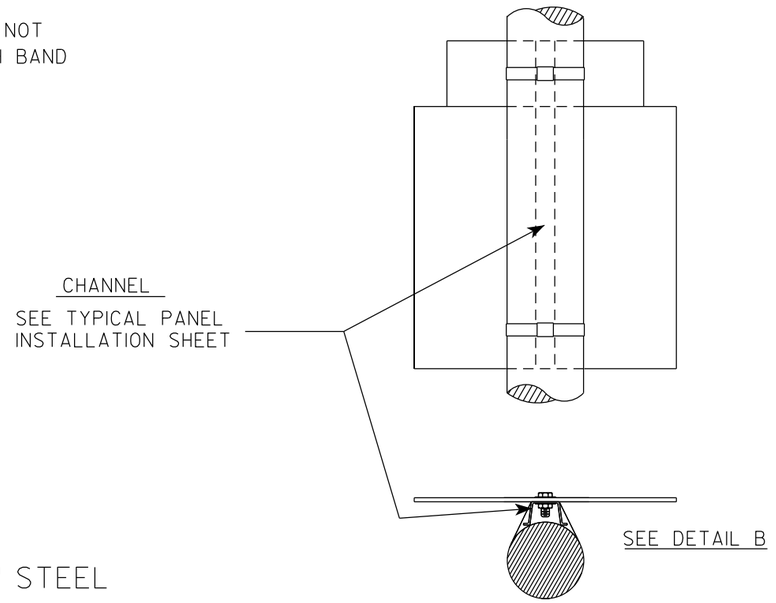


WASHERS (ALL POSTS) -
1-1/4" O.D. X 3/8" I.D. X 1/16" STEEL
1-1/4" O.D. X 3/8" I.D. X .080 NYLON
FOR ALL TYPE H SIGNS

GENERAL NOTES

1. Any sign over 3 feet in width shall use the V-Block banding method. See A5-10 standard plate.
2. Signs 3 feet or greater in height shall have three bracket bands installed. Signs less than 3 feet in height shall have two bracket bands installed.
3. Banding and assembly bracket shall be stainless steel. All bands shall be ¾" in width and 0.025" thickness.
4. ALL SIGN MOUNTING BOLTS AND WASHERS SHALL BE EITHER:
   a. Hot dip or mechanically galvanized in accordance with ASTM Designation: A 153, Class D
   b. Electro-galvanized in accordance with ASTM designation: B 633, Type III, SC 3

"J" ASSEMBLY



STANDARD SIGN
SIGN BANDING DETAILS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

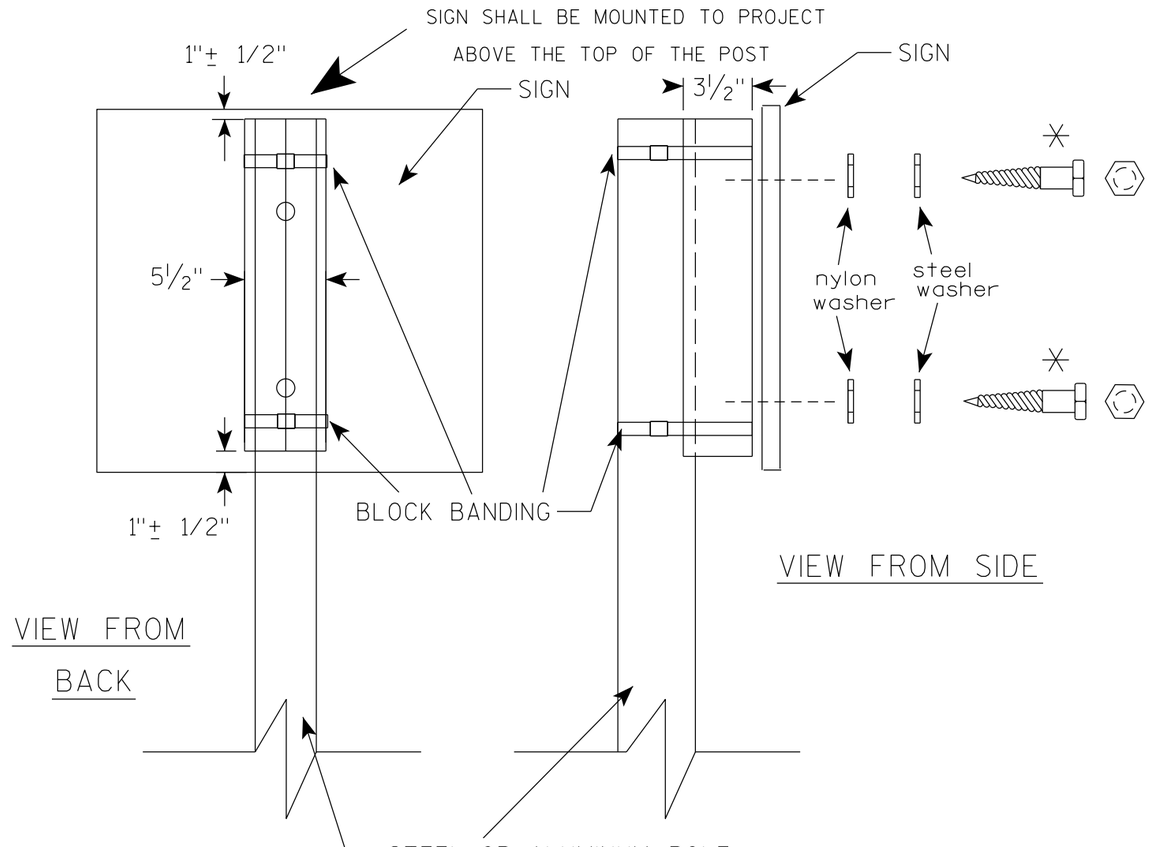
DATE 6/10/19 PLATE NO. A5-9.4

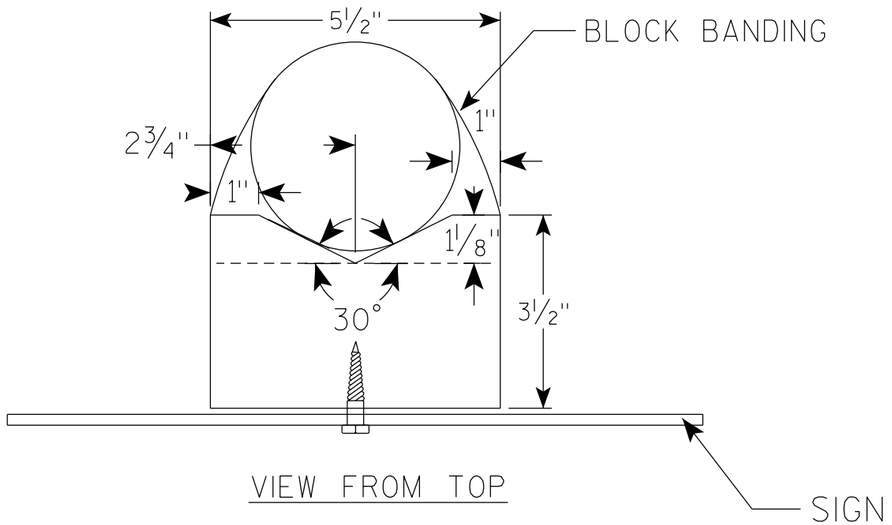
PROJECT NO:	HWY:	COUNTY:		SHEET NO: 53	E

FILE NAME : C:\CAEfiles\Projects\tr_stdplate\A59.dgn PLOT DATE : 10-JUN 2019 4:10 PLOT BY : mscj9h PLOT NAME : PLOT SCALE : $$.....plotscale.....$$ WISDOT/CADDS SHEET 42

7

7





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, ¾" 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 NORNALLY 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 1¼" O.D. X ⅜" I.D. X 1/16"
8. NYLON WASHERS SHALL BE 1¼" O.D. X ⅜" I.D. X .080 FOR TYPE H OR TYPE F FACE SIGN

✳ LAG BOLTS SHALL BE ⅜" X 2½"

BLOCK BANDING DETAIL (V-BLOCK OPTION)

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

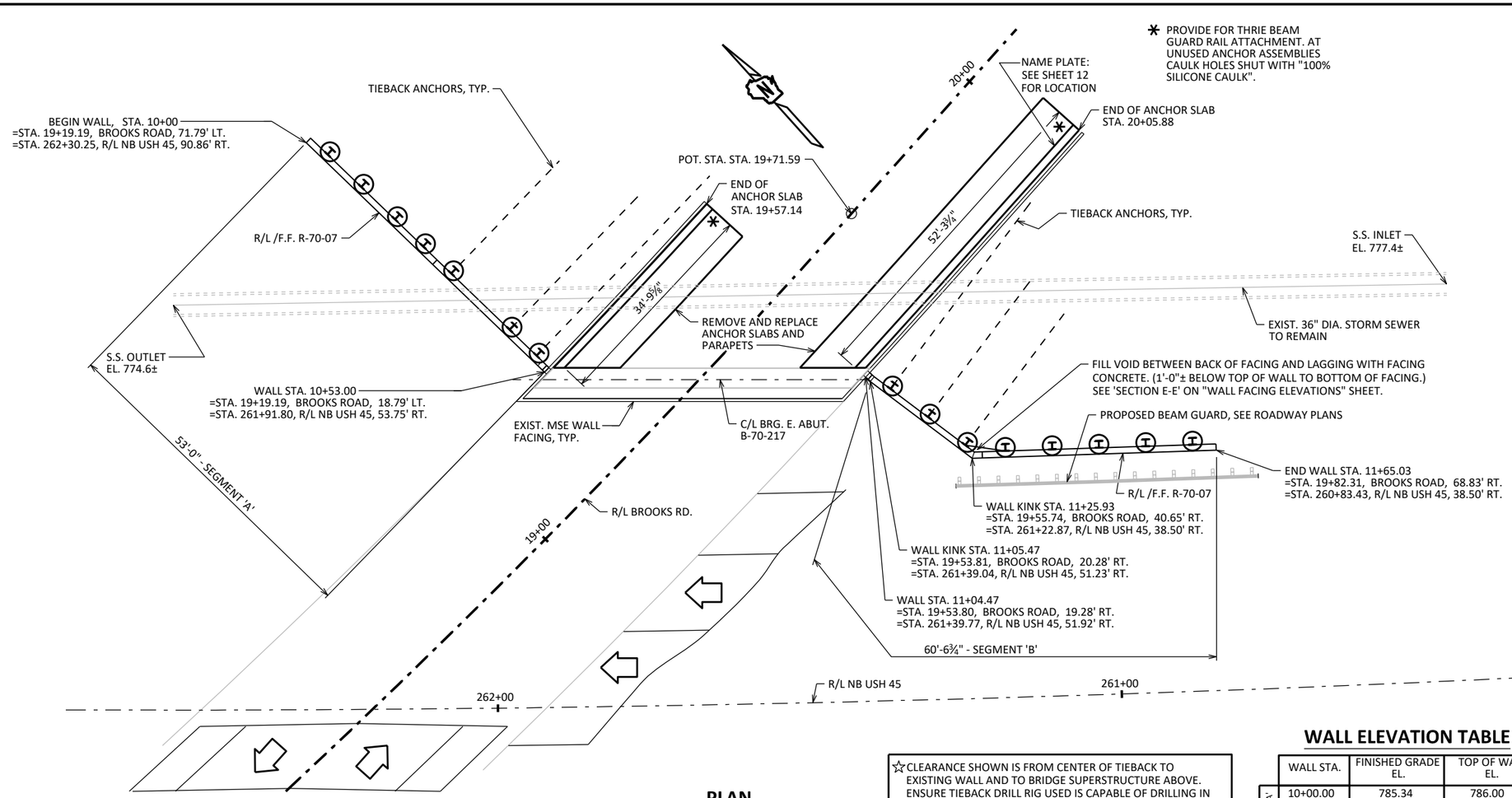
DATE 4/19/2022 PLATE NO. A5-10.3

PROJECT NO:

SHEET NO: 54 E

STATE PROJECT NUMBER

6200-19-71



PLAN

DESIGN DATA

MATERIAL PROPERTIES

CONCRETE MASONRY RETAINING WALL	f'c = 4,000 PSI
CONCRETE MASONRY-ALL OTHER	f'c = 3,500 PSI
BAR STEEL REINFORCEMENT, GRADE 60	fy = 60,000 PSI
HIGH STRENGTH STRUCTURAL STEEL	fy = 50,000 PSI
⬖ TIMBER LAGGING	fbo = 1,000 PSI E = 1,700,000 PSI

⬖ MATERIAL VALUES BASED ON DOUGLAS FIR-LARCH NO. 1 > 2" WIDE,
REFERENCE AASHTO LRFD SPECIFICATION TABLE 8.4.1.1.4-1
SEE TABLE ON 'WALL DATA TABLES' SHEET FOR REQUIRED THICKNESS

LIVE LOAD

LIVE LOAD SURCHARGE: 100 PSF

TRAFFIC DATA

BROOKS ROAD	USH 45
A.D.T. = 200 (2025)	A.D.T. = 18,100 (2025)
R.D.S. = 45 MPH	R.D.S. = 65 MPH

CURVE DATA

BROOKS ROAD	NB. LANE USH 45
P.I. = STA. 17+36.67	P.I. = STA. 264+49.35
△ = 18°-58'-09"	△ = 17°-22'-27"
D = 4°-00'-00"	D = 1°-15'-00"
T = 239.30'	T = 700.34'
L = 474.23'	L = 1389.94'
R = 1432.39'	R = 4583.66'
S.E. = 5.2%	S.E. = 4.0%
P.C. = STA. 14+97.36	P.C. = STA. 257+49.01
P.T. = STA. 19+71.59	P.T. = STA. 271+38.94

LIST OF DRAWINGS

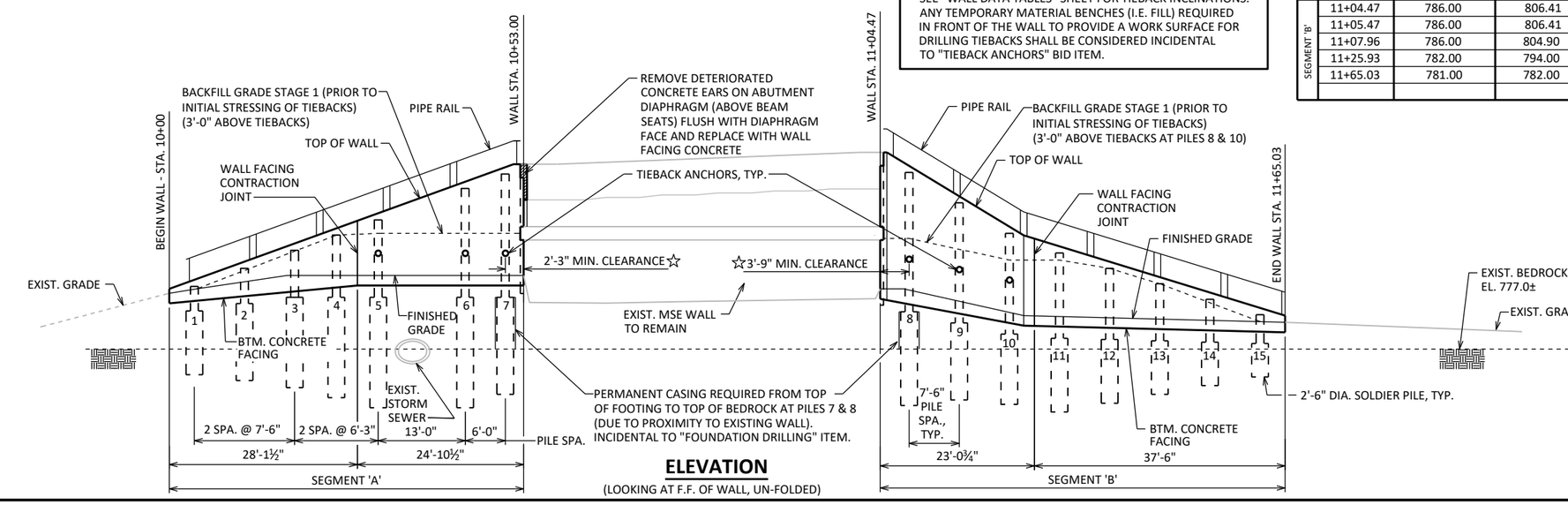
STRUCTURE DESIGN CONTACTS:

CHRISTOPHER DOLL (608) 266-3229
KYLE BUSCH (608) 267-0465

☆CLEARANCE SHOWN IS FROM CENTER OF TIEBACK TO EXISTING WALL AND TO BRIDGE SUPERSTRUCTURE ABOVE. ENSURE TIEBACK DRILL RIG USED IS CAPABLE OF DRILLING IN CLOSE PROXIMITY TO THESE OBSTRUCTIONS WHEN MAST IS TURNED 90 DEGREES TO LEFT (AT PILE 7) AND RIGHT (AT PILE 8), AND TO THE TIEBACK INCLINATIONS DETAILED.
SEE "WALL DATA TABLES" SHEET FOR TIEBACK INCLINATIONS.
ANY TEMPORARY MATERIAL BENCHES (I.E. FILL) REQUIRED IN FRONT OF THE WALL TO PROVIDE A WORK SURFACE FOR DRILLING TIEBACKS SHALL BE CONSIDERED INCIDENTAL TO "TIEBACK ANCHORS" BID ITEM.

WALL ELEVATION TABLE

	WALL STA.	FINISHED GRADE EL.	TOP OF WALL EL.
SEGMENT 'A'	10+00.00	785.34	786.00
	10+17.60	788.00	792.36
	10+51.50	788.00	804.62
	10+53.00	788.00	804.62
SEGMENT 'B'	11+04.47	786.00	806.41
	11+05.47	786.00	806.41
	11+07.96	786.00	804.90
	11+25.93	782.00	794.00
	11+65.03	781.00	782.00



ELEVATION

(LOOKING AT F.F. OF WALL, UN-FOLDED)

NO.	DATE	REVISION	BY

BUREAU OF STRUCTURES

ACCEPTED KHB 10/29/24
CHIEF STRUCTURES DESIGN ENGINEER — DATE

STRUCTURE R-70-07

BROOKS ROAD OVER USH 45, EAST ABUT. WALL

COUNTY	TOWN
WINNEBAGO	OSHKOSH

DESIGN SPEC.
AASHTO LRFD BRIDGE DESIGN SPECIFICATION

DESIGNED BY	DESIGN CK'D	DRAWN BY	PLANS CK'D
CAD	ARC	CAD/JPH	ARC

GENERAL PLAN & ELEVATION

SHEET 1 OF 16
55

I.D. 6200-19-00A DATE: AUG. 2024

8

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STATE PROJECT NUMBER
6200-19-71

TOTAL ESTIMATED QUANTITIES

BID ITEM NUMBER	BID ITEMS	UNIT	TOTALS
203.0220	REMOVING STRUCTURE R-70-7	EACH	1
206.3001	EXCAVATION FOR STRUCTURES RETAINING WALLS R-70-7	EACH	1
210.1500	BACKFILL STRUCTURE TYPE A	TON	1,965
502.0110.S	CONCRETE MASONRY SOLDIER PILE FOOTINGS	CY	32
502.3210	PIGMENTED SURFACE SEALER	SY	35
502.4105	ADHESIVE ANCHORS 5/8-INCH	EACH	37
504.0500	CONCRETE MASONRY RETAINING WALLS	CY	83
505.0600	BAR STEEL REINFORCEMENT HS COATED STRUCTURES	LB	9,940
506.0605	STRUCTURAL STEEL HS	LB	29,510
506.3010	WELDED STUD SHEAR CONNECTORS 7/8 X 5-INCH	EACH	327
513.2001	RAILING PIPE	LF	117
517.0601	PAINTING EPOXY SYSTEM R-70-7	EACH	1
612.0406	PIPE UNDERDRAIN WRAPPED 6-INCH	LF	140
614.0150	ANCHOR ASSEMBLIES FOR STEEL PLATE BEAM GUARD	EACH	2
645.0111	GEOTEXTILE TYPE DF SCHEDULE A	SY	134
SPV.0060	TIEBACK ANCHORS	EACH	6
SPV.0060	TIEBACK ANCHORS PERFORMANCE TESTS	EACH	2
SPV.0090	FOUNDATION DRILLING	LF	222
SPV.0110	TIMBER LAGGING	MBM	7
	NON-BID ITEMS		
	FILLER	SIZE	¾"

SOLDIER PILE WALL NOTES

THE QUANTITY OF CAST-IN-PLACE CONCRETE MASONRY FOR THE SOLDIER PILE CAST-IN-PLACE CONCRETE FACING, ANCHOR SLAB AND PARAPET IS PAID FOR UNDER THE ITEM "CONCRETE MASONRY RETAINING WALLS".

THE VOLUME OF EARTHWORK REQUIRED TO INSTALL THE ANCHOR SLAB, SOLDIER PILES AND FOOTINGS IS INCLUDED IN THE BID ITEM "EXCAVATION FOR STRUCTURES RETAINING WALLS R-70-7". ALSO INCLUDED IN THIS ITEM IS ALL EARTHWORK REQUIRED IN FRONT OF THE RETAINING WALL FOR FACING INSTALLATION.

SURFACE PREP AND PAINT SOLDIER PILES FROM TOP OF PILE TO 1'-0" BELOW TOP OF FOOTING WITH ONE COAT OF ZINC-RICH PRIMER AS SPECIFIED IN SECTION 517 OF THE STANDARD SPECIFICATIONS. WELDED STUD SHEAR CONNECTORS ARE NOT REQUIRED TO BE PAINTED. PAINTING OF PILES IS MEASURED AND PAID FOR AS BID ITEM NUMBER 517.0601, PAINTING EPOXY SYSTEM R-70-7.

PLACE TEMPORARY FILL IN FRONT OF WALL WHERE NEEDED TO PROVIDE WORKING SURFACE. FILL INCIDENTAL TO BID ITEM "TIEBACK ANCHORS".

BACKFILL TO 3'-0" MIN. ABOVE THE TIEBACK ELEVATION PRIOR TO INITIAL STRESSING OF TIEBACK ANCHORS. BACKFILL INCLUDED IN BID ITEM "BACKFILL STRUCTURE TYPE A".

DRILLING OF TIEBACK ANCHORS IN CLOSE PROXIMITY TO THE EXISTING STRUCTURES (TO REMAIN) IS REQUIRED. ENSURE ALL EQUIPMENT USED IS CAPABLE OF PERFORMING THE WORK AS DETAILED WITHOUT MODIFICATION TO THE EXISTING STRUCTURES OR MODIFICATIONS TO TIEBACK LOCATIONS AND INCLINATIONS SHOWN.

GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.

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

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

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

ALL DIMENSIONS ARE ALONG THE FRONT FACE OF WALL UNLESS OTHERWISE SHOWN OR NOTED.

THE EXISTING GROUND LINE SHALL BE USED AS THE UPPER LIMITS OF "EXCAVATION FOR STRUCTURES RETAINING WALLS R-70-7".

BACKFILL ALL SPACES ABOVE AND BELOW EXISTING GRADE AT THE BACK FACE AND NOT OCCUPIED BY THE NEW STRUCTURE WITH "STRUCTURE BACKFILL TYPE A". COMPACTION WITH SMALL WALK BEHIND EQUIPMENT AT THE BACKFACE OF WALL IS REQUIRED WITHIN AN OFFSET EQUIVALENT TO THE EXPOSED HEIGHT OF THE WALL.

EXISTING ANCHOR SLAB AND PARAPET REMOVAL PAID FOR UNDER "REMOVING STRUCTURE R-70-7" BID ITEM.

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

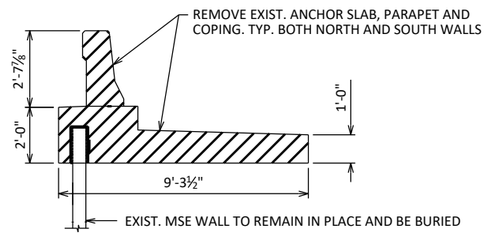
THE CONTRACTOR SHALL SUPPLY A NEW NAME PLATE IN ACCORDANCE WITH SECTION 502.3.11 OF THE STANDARD SPECIFICATIONS AND THE STANDARD DETAIL DRAWINGS. NAME PLATE TO SHOW ORIGINAL CONSTRUCTION YEAR.

SOIL PROPERTIES TABLE

SOIL DESCRIPTION	FRICTION ANGLE (DEGREES)	COHESION (PSF)	UNIT WEIGHT (PCF)	DRILLED SHAFT (SOLDIER PILE) AXIAL PILE PARAMETERS		TIEBACK PARAMETERS	LATERAL PILE PARAMETERS		
				FACTORED UNIT SHAFT RESISTANCE (PSF)	FACTORED UNIT BASE RESISTANCE (PSF)	NOMINAL BOND STRENGTH (PSF) [4]	STATIC SOIL MODULUS, k_c (PCI) [1]	SOIL STRAIN, ε_{50} [2]	P-Y CURVE SOIL MODEL [3]
BOR-1 AND BOR-2									
CLAY, RED (ELEVATION 787.3 FEET/ 786.3 FEET - 782.8 FEET/ 781.3 FEET)	—	200	120	50	NA	400	30	0.02	SOFT CLAY
SAND AND GRAVEL, BROWN, TRACE SILT (ELEVATION 782.8 FEET/ 781.3 FEET - 776.8 FEET/ 777.3 FEET)	30	—	120	300	6,000	850	90	NA	SAND ABOVE WATER
LIMESTONE (ELEVATION 776.8 FEET/ 777.3 FEET AND BELOW)	40	—	140	1,700	15,000	4,000	225	NA	DENSE SAND ABOVE WATER [5]

1. FHWA GEC 9 - TABLES A-1, A-3
2. FHWA GEC 9 - TABLE A-2
3. FHWA GEC 9 - APPENDIX A
4. FHWA GEC 7 - TABLES 4.4a, 4.4b, 4.5
5. WEATHERED LIMESTONE MODELED AS DENSE SAND FOR LATERAL ANALYSIS.

NA = NOT APPLICABLE



NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE R-70-07

DRAWN BY JPH | PLANS CK'D ARC

GENERAL NOTES & QUANTITIES

SHEET 2
56

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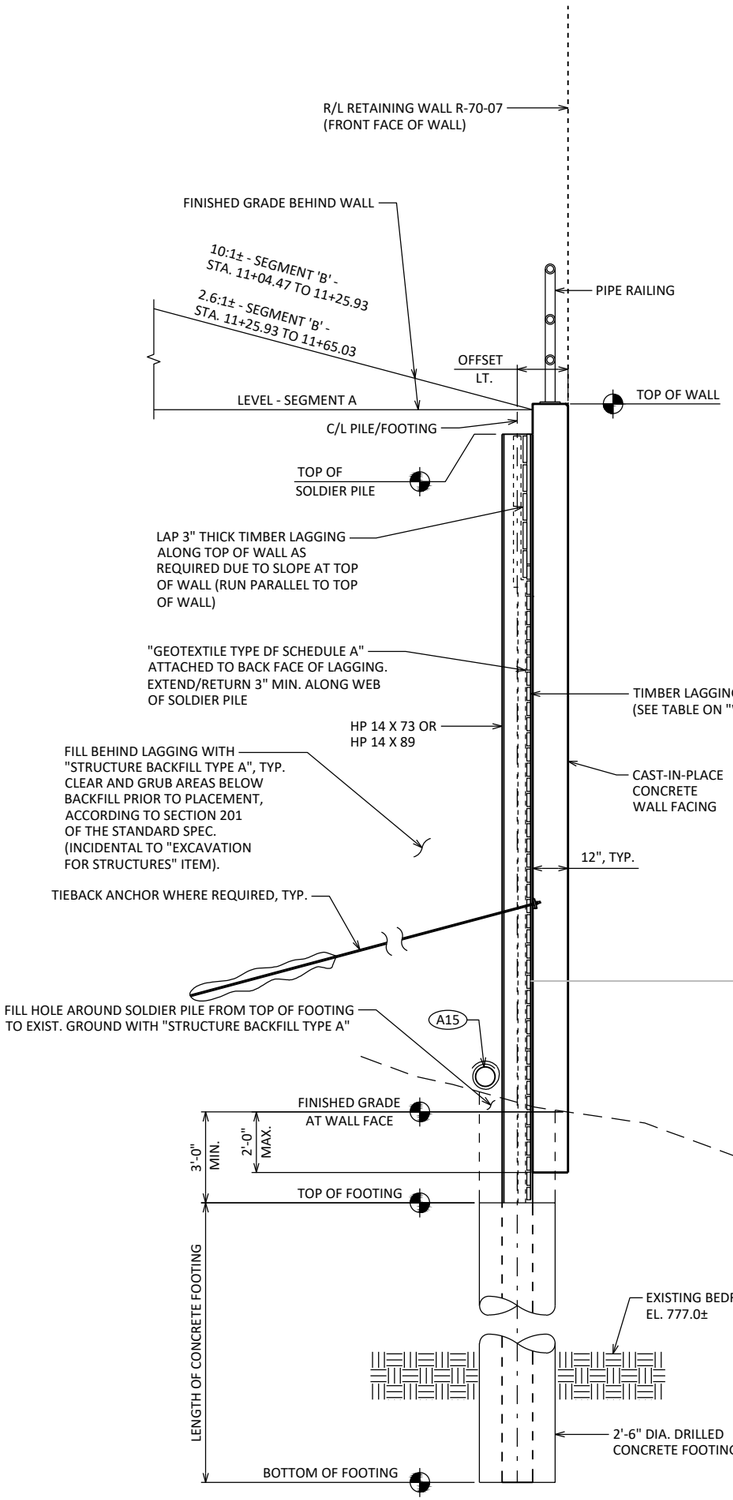
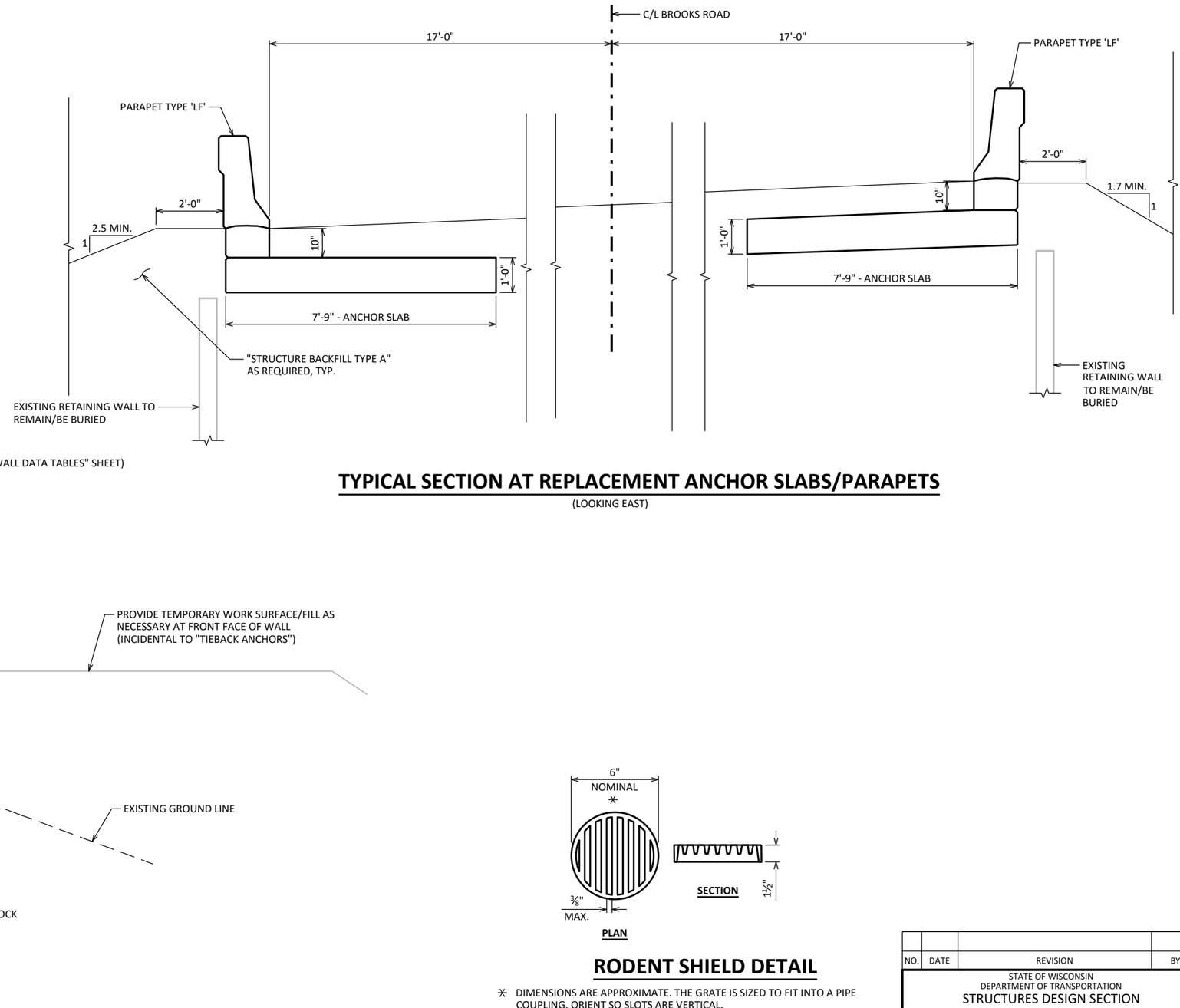
STATE PROJECT NUMBER

6200-19-71



TYPICAL SECTION THRU WALL

A15 PIPE UNDERDRAIN WRAPPED (6-INCH). SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. RODENT SHIELD REQUIRED.



TYPICAL SECTION AT REPLACEMENT ANCHOR SLABS/PARAPETS

(LOOKING EAST)

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 COMMERCIALLY 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.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE R-70-07

DRAWN BY JPH | PLANS CK'D ARC

TYPICAL SECTIONS

SHEET 3
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8

STATE PROJECT NUMBER

6200-19-71

SOLDIER PILE DATA TABLE

PILE NO.	WALL R/L STA	OFFSET LEFT (FT.)	APPROX. EXISTING GRADE	FINISHED GRADE AT WALL FACE	FOUNDATION DRILLING LENGTH (FT.)	TOP OF WALL	TOP OF SOLDIER PILE	TOP OF FOOTING	BOTTOM OF FOOTING	FOOTING LENGTH (FT.)	FOOTING DIAMETER (FT.)	SOLDIER PILE SECTION	SOLDIER PILE LENGTH (FT.)	NO. OF SHEAR STUDS REQ'D (FACING)	NO. OF SHEAR STUDS REQ'D (FOOTING)	TIEBACK ELEV.
1	10+03.75	1.57	785.94	785.94	12.67	787.36	786.36	782.69	773.19	9.50	2.50	HP14X73	13.17	3	-	-
2	10+11.25	1.57	787.06	787.06	14.75	790.07	789.07	783.81	772.31	11.50	2.50	HP14X73	16.76	5	-	-
3	10+18.75	1.57	788.00	788.00	16.75	792.78	791.78	784.75	770.75	14.00	2.50	HP14X73	21.03	7	-	-
4	10+25.00	1.58	788.00	788.00	18.25	795.04	794.04	784.75	769.75	15.00	2.50	HP14X89	24.29	18	-	-
5	10+31.25	1.58	788.00	788.00	19.75	797.30	796.30	784.75	768.25	16.50	2.50	HP14X89	28.05	22	8	791.30
6	10+44.25	1.58	788.00	788.00	19.75	802.00	801.00	784.75	768.25	16.50	2.50	HP14X89	32.75	30	8	791.30
7	10+50.25	1.58	788.00	788.00	17.75	804.17	803.17	784.75	770.25	14.50	2.50	HP14X89	32.92	36	8	791.30
8	11+08.78	1.58	785.82	785.82	17.25	804.40	803.40	782.57	768.57	14.00	2.50	HP14X89	34.83	42	8	790.40
9	11+16.28	1.58	784.15	784.15	14.75	799.85	798.85	780.90	769.40	11.50	2.50	HP14X89	29.45	36	8	788.35
10	11+23.78	1.58	782.48	782.48	13.75	795.30	794.30	779.23	768.73	10.50	2.50	HP14X89	25.57	28	8	787.30
11	11+31.28	1.58	781.86	781.86	14.25	792.36	791.36	778.61	767.61	11.00	2.50	HP14X89	23.75	24	-	-
12	11+38.78	1.57	781.67	781.67	12.75	790.06	789.06	778.42	768.92	9.50	2.50	HP14X73	20.14	10	-	-
13	11+46.28	1.57	781.48	781.48	11.25	787.75	786.75	778.23	770.23	8.00	2.50	HP14X73	16.52	8	-	-
14	11+53.78	1.57	781.29	781.29	9.75	785.45	784.45	778.04	771.54	6.50	2.50	HP14X73	12.91	6	-	-
15	11+61.28	1.57	781.10	781.10	8.25	783.15	782.15	777.85	772.85	5.00	2.50	HP14X73	9.30	4	-	-

NOTES

ALL DIMENSIONS AND ELEVATIONS GIVEN IN FEET.

FOUNDATION DRILLING LENGTH BASED ON ELEVATION 6" BELOW TOP OF SOLDIER PILE OR EXISTING GRADE (WHEN EXIST. GRADE IS MORE THAN 6" LOWER THAN THE TOP OF SOLDIER PILE) TO THE BOTTOM OF FOOTING.

TIEBACK ANCHOR DATA TABLE

PILE NO.	TIEBACK NUMBER	◭ TIEBACK ELEVATION	TIEBACK VERTICAL ORIENTATION (DEGREES)	** TIEBACK HORIZONTAL ORIENTATION (DEGREES)	* ESTIMATED BONDED ANCHOR LENGTH (FT)	MINIMUM UNBONDED ANCHOR LENGTH (FT)	FACTORED DESIGN LOAD (KIPS)	STAGE 1 BACKFILL LOAD (KIPS)	LOCK OFF LOAD (KIPS)	PROOF TEST LOAD (KIPS)
5	1	791.30	40	90	10	24	61	37	37	70
6	2	791.30	40	90	13	24	105	47	63	120
7	3	791.30	30	90	11	31	89	42	54	102
8	4	790.40	45	90	20	30	162	51	98	186
9	5	788.35	40	90	13	20	105	47	63	120
10	6	787.30	40	90	10	18	60	36	36	69

TIEBACK NOTES

* ESTIMATED BONDED ANCHOR LENGTH BASED ON 8" DIA. ANCHOR AND AN ASSUMED UNIFORM, ULTIMATE BOND STRESS OF 4.0 KSF (PHI=1.0) FOR BEDROCK.
MINIMUM BONDED ANCHOR LENGTH = 10'-0" (FOR BEDROCK).

◭ ELEVATION GIVEN AT FRONT FACE OF SOLDIER PILE.

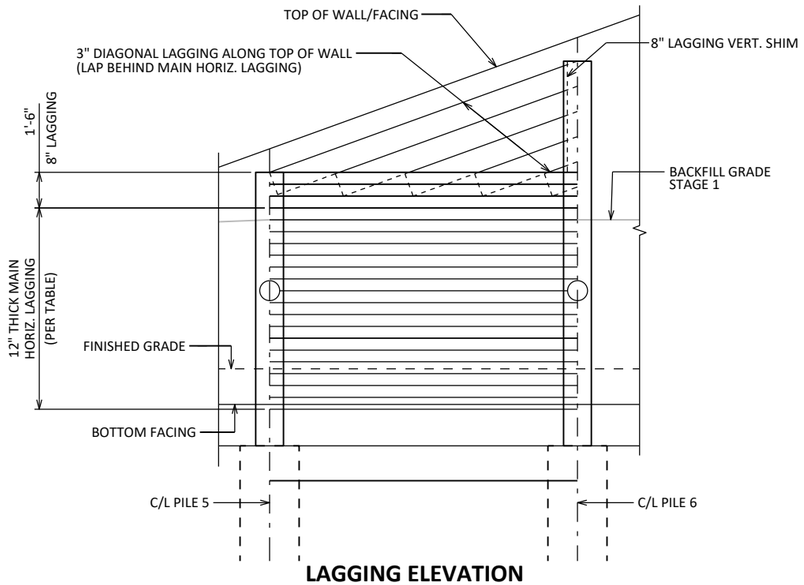
** HORIZONTAL ORIENTATION IS MEASURED FROM WALL R/L IN COUNTER-CLOCKWISE DIRECTION.

MINIMUM UNBONDED LENGTH IS THE DISTANCE ALONG THE ANCHOR PRECEDING REACHING BEDROCK, OR AS REQUIRED TO PREVENT FROM BONDING ANCHOR NEAR EXISTING UTILITIES (EXTENDING PAST INITIAL BEDROCK ELEVATION).

PERFORM "TIEBACK ANCHORS PERFORMANCE TESTS" ON TIEBACKS 1 & 6 AFTER COMPLETION OF STAGE 1 BACKFILL.

STRESS TIEBACKS 2 THRU 5 TO THE STAGE 1 BACKFILL LOAD AFTER THE COMPLETION OF STAGE 1 BACKFILL AND TEMPORARILY LOCK OFF. WHERE THIS LOAD IS GREATER THAN A LOAD INCREMENT NOTED IN THE "PROOF TEST SCHEDULE" (SEE SPECIAL PROVISIONS), LOAD TO THE SMALLER INCREMENTS NOTED IN THE SCHEDULE FIRST, AND RECORD GROUND ANCHOR MOVEMENTS AS REQUIRED. ENSURE ANY LOAD INCREMENTS ABOVE 25% OF THE FACTORED DESIGN LOAD MEET THE ELASTIC ELONGATION REQUIREMENTS NOTED IN THE SPECIAL PROVISIONS PRIOR TO INCREASING BACKFILL HEIGHT.

PERFORM PROOF TEST ON TIEBACKS 2 THRU 5 ONCE BACKFILL HAS REACHED AN ELEVATION BETWEEN 7'-0" & 8'-0" ABOVE THE INDIVIDUAL ANCHORS. DURING PROOF TEST, DO NOT REDUCE THE LOAD BELOW THE STAGE 1 BACKFILL LOAD SHOWN AND PREVIOUSLY APPLIED TO THE TIEBACKS. IF A PROOF TEST FAILS TO MEET THE ACCEPTANCE CRITERIA DOCUMENTED IN THE SPECIAL PROVISIONS, REMOVE BACKFILL TO THE STAGE 1 BACKFILL ELEVATION AND REFER TO THE SPECIAL PROVISIONS FOR GUIDANCE. ONCE REMEDIATION HAS BEEN COMPLETED ON FAILED ANCHORS, FIRST RESTRESS TO THE STAGE 1 BACKFILL LOAD, AND THEN REPLACE BACKFILL AND RETEST.



LAGGING ELEVATION

(SHOWN BETWEEN PILES 5 & 6, TOP SIMILAR AT ALL OTHER LOCATIONS)

TIMBER LAGGING THICKNESS TABLE

PILE NO.		PILE NO.	MIN. THICKNESS (IN.)
1	TO	2	4
2	TO	3	4
3	TO	4	4
4	TO	5	4
5	TO	6	12
6	TO	7	5
7	TO	WALL	3
WALL	TO	8	3
8	TO	9	7
9	TO	10	6
10	TO	11	6
11	TO	12	6
12	TO	13	5
13	TO	14	5
14	TO	15	4

LAGGING NOTES

LAGGING THICKNESS ARE REQUIRED MINIMUMS FOR CONTROLLING DEFLECTION OF LAGGING, AND ARE ACTUAL WOOD THICKNESSES.

LAGGING USED TO CREATE THE TOP OF WALL SLOPE (RUN DIAGONALLY PARALLEL TO TOP OF WALL AND LAPPING BEHIND MAIN HORIZONTAL LAGGING) MAY BE 3" MINIMUM THICKNESS. FILL ANY VOIDS BETWEEN THIS UPPER LAGGING AND BACK OF CONCRETE FACING WITH "BACKFILL STRUCTURE TYPE A".

LAGGING THICKNESS BETWEEN PILES 5 & 6 MAY BE REDUCED TO 8" THICK WITHIN 1'-6" OF THE TOP OF PILE 5. (SEE 'LAGGING ELEVATION' DETAIL ON THIS SHEET)

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STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE R-70-07

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WALL DATA TABLES

SHEET 4
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8

8

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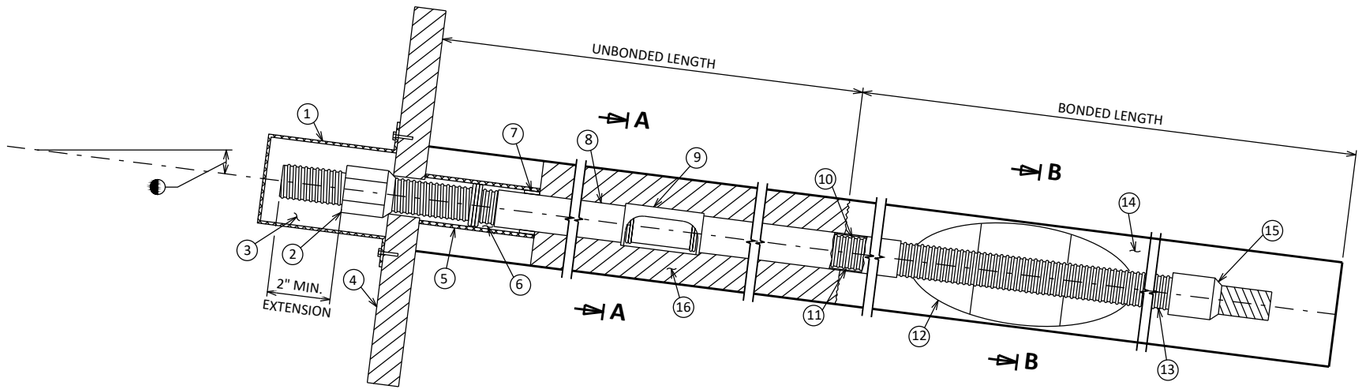


ENCAPSULATED TIEBACK

(BAR TENDON SHOWN, PRESTRESSED STEEL TENDONS MAY BE USED AS AN ALTERNATE)

LEGEND

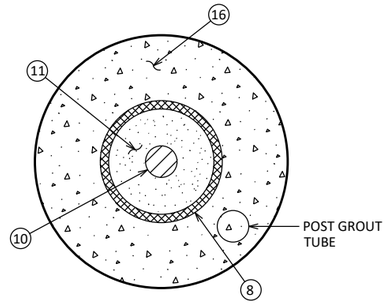
1. ANCHORAGE COVER
2. NUT
3. ANTICORROSION GREASE
4. BEARING PLATE
5. TRUMPET
6. ANTICORROSION GREASE
7. SEAL
8. SMOOTH PVC BOND BREAKER
9. PROTECTED BAR COUPLER
10. BAR TENDON
11. ENCAPSULATION GROUT
12. CENTRALIZERS
13. CORRUGATED PVC
14. ANCHOR GROUT
15. END CAP
16. GROUT

✱ BEARING PLATE SHALL BE DESIGNED BY THE CONTRACTOR IN ACCORDANCE WITH THE "TIEBACK ANCHORS" SPECIAL PROVISION

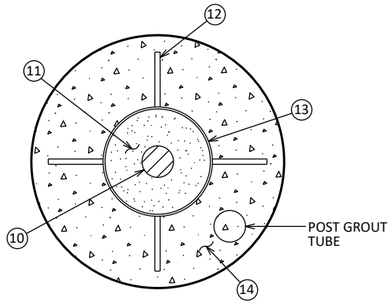
◐ "TIEBACK VERTICAL ORIENTATION", SEE TIEBACK ANCHOR DATA TABLES.

NOTE

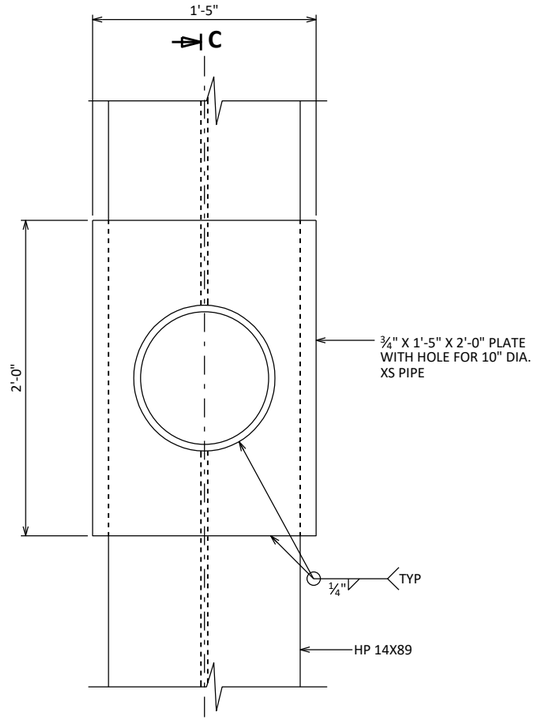
HP 14X89 SHALL BE PRE-FABRICATED WITH ANCHORAGE DETAIL SHOWN BEFORE INSTALLATION INTO DRILLED CONCRETE FOOTING. BEARING PLATE, STIFFENERS, 10" XS PIPE, AND ANCHOR MODIFICATIONS TO THE HP 14X89 ARE INCLUDED IN THE BID ITEM "TIEBACK ANCHORS".



SECTION A-A

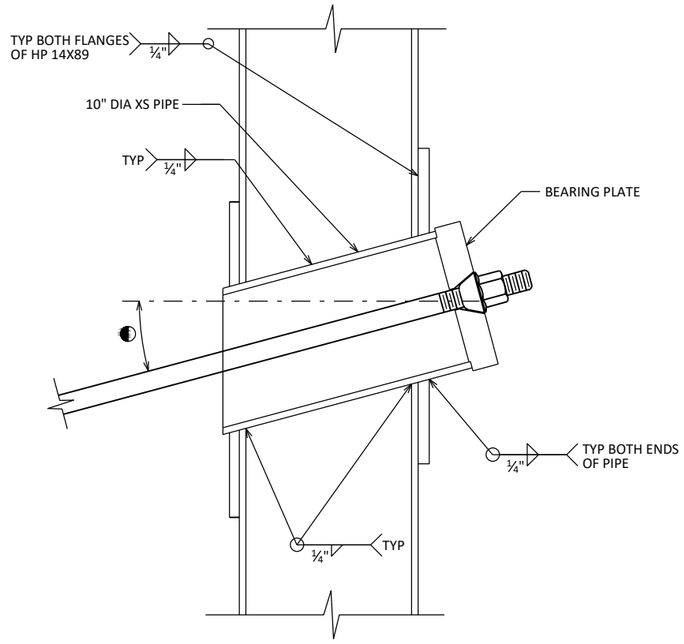


SECTION B-B

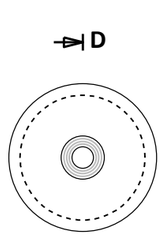


HP 14X89 ANCHOR DETAIL

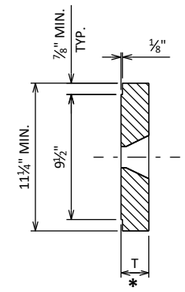
(BEARING PLATE, TENDON & ANCHOR HEAD NOT SHOWN FOR CLARITY)



SECTION C-C



PLAN



SECTION D-D

BEARING PLATE DETAILS

NO.	DATE	REVISION	BY

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DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE R-70-07

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TIEBACK ANCHOR DETAILS

SHEET 5
59

8

8

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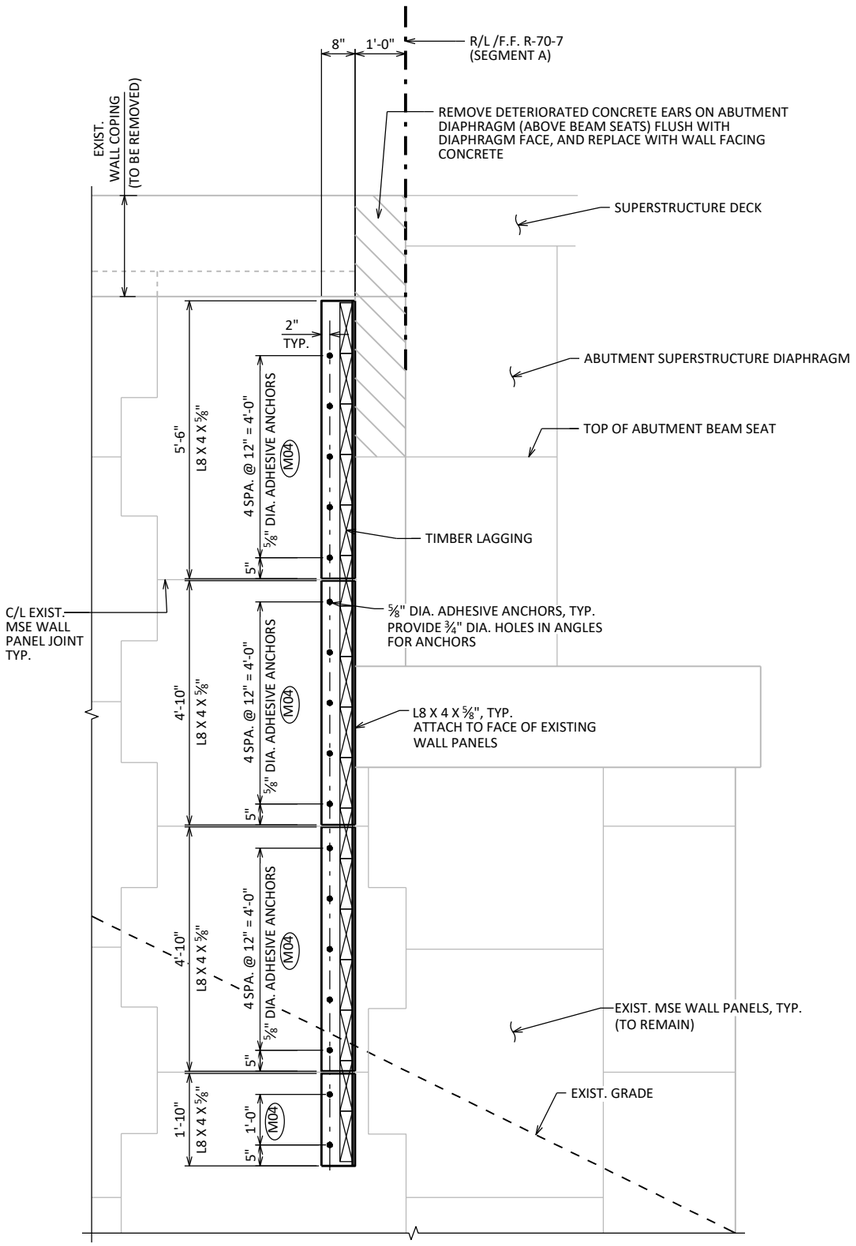
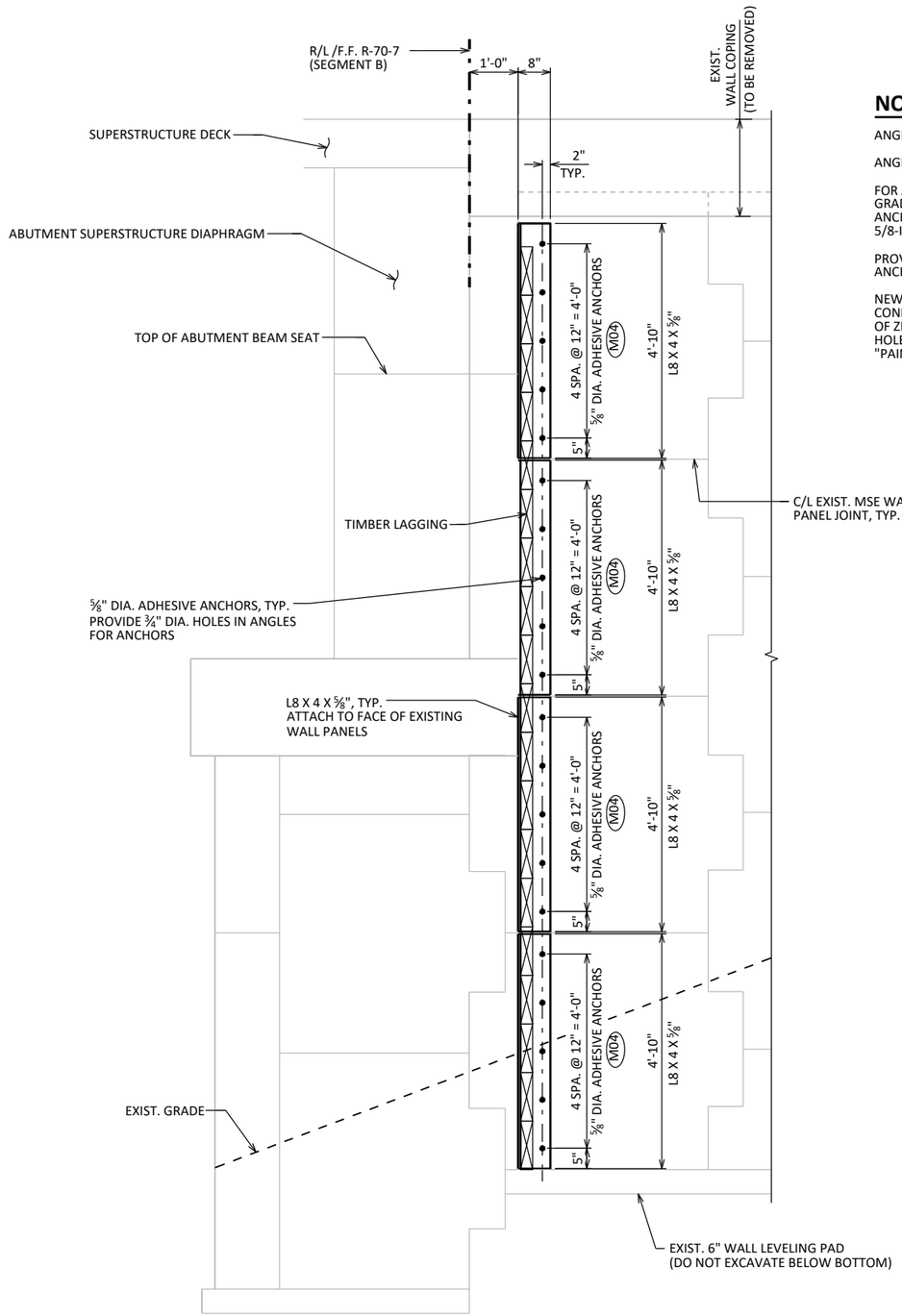


ELEVATION - LAGGING SUPPORT ANGLES - SEGMENT A

(PARAPET ABOVE WALL NOT SHOWN)



ELEVATION - LAGGING SUPPORT ANGLES - SEGMENT B

(PARAPET ABOVE WALL NOT SHOWN)

M04 ADHESIVE ANCHORS 5/8-INCH. EMBED 4" IN CONCRETE.

NOTES

ANGLES SHALL BE INCLUDED IN BID ITEM "STRUCTURAL STEEL HS".

ANGLE STEEL SHALL CONFORM TO ASTM A709 GRADE 50.

FOR ADHESIVE ANCHORS, PROVIDE GALV. 5/8" DIA. X 6"± ASTM F1554 GRADE 36 OR 55 FULLY THREADED RODS, NUTS, AND WASHERS. ANCHOR RODS INCLUDED IN BID ITEM "ADHESIVE ANCHORS 5/8-INCH".

PROVIDE 3/4" DIA. HOLES IN ANGLES FOR 5/8" DIA. ADHESIVE ANCHORS.

NEW STEEL PIECES SHALL RECEIVE A SHOP BLAST CLEANING CONFORMING TO SSPC-SP 10 AND BE PAINTED WITH ONE COAT OF ZINC-RICH PRIMER. CLEAN AND PRIME AFTER SHOP DRILLING HOLES. SHOP PAINTING/PRIMING SHALL BE INCLUDED IN "PAINTING EPOXY SYSTEM R-70-7"

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STRUCTURES DESIGN SECTION

STRUCTURE R-70-07

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LAGGING SUPPORTS AT EXISTING WALLS

SHEET 6
60

8

8

STATE PROJECT NUMBER

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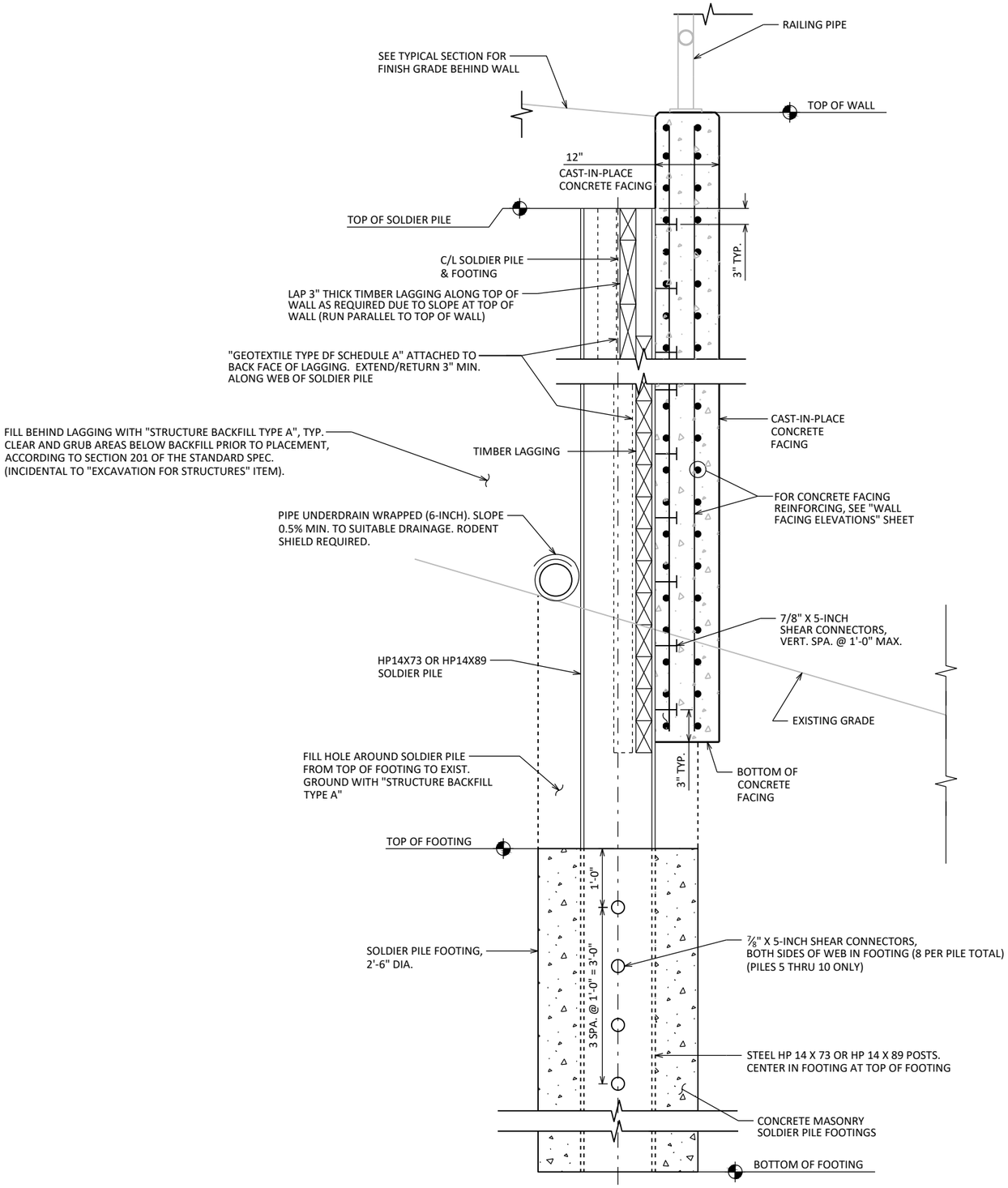

SOLDIER PILE AND WALL SECTION

8

8

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE R-70-07

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WALL FACING DETAILS 1

SHEET 7
61

STATE PROJECT NUMBER

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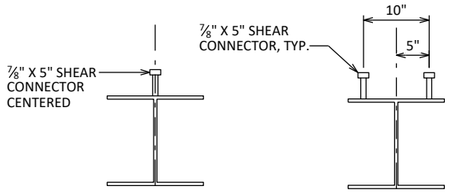
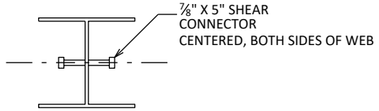


STUD LAYOUT

HP14X73
(WITHOUT TIEBACKS)

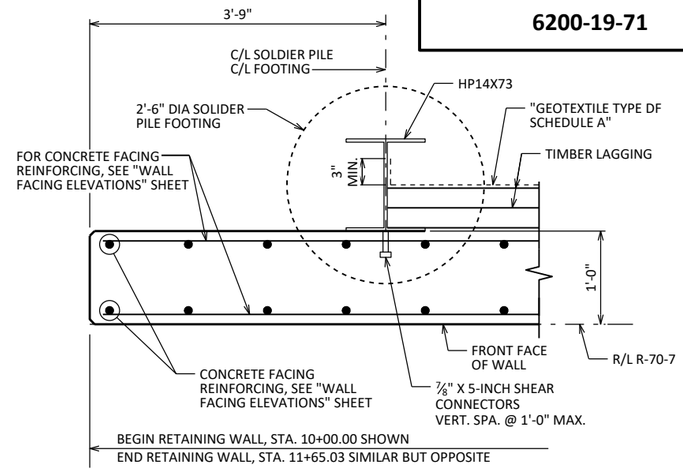
STUD LAYOUT

HP14X89
(WITH & WITHOUT TIEBACKS)

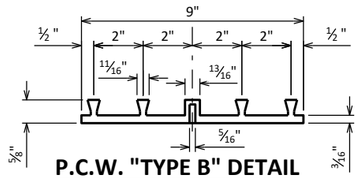


STUD LAYOUT IN FOOTING

HP14X89
(WITH TIEBACKS)

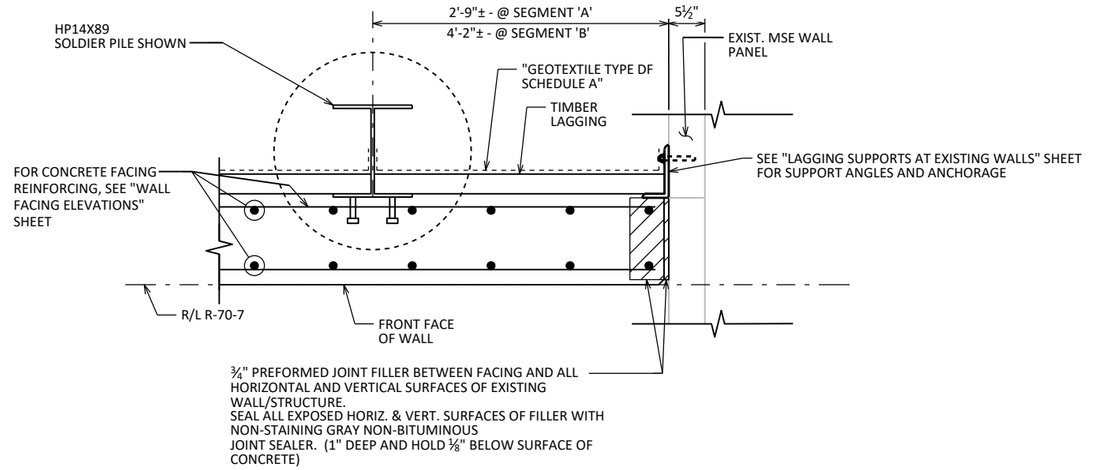


SECTION AT BEGINNING/END OF WALL



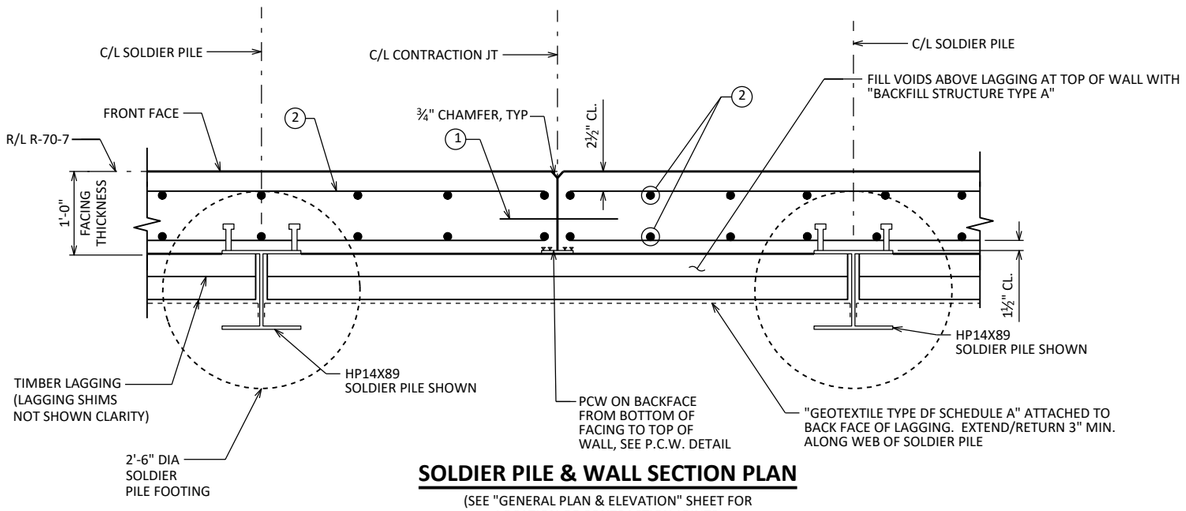
P.C.W. "TYPE B" DETAIL

(POLYVINYL CHLORIDE WATERSTOP)
(INCLUDED IN BID ITEM "CONCRETE MASONRY RETAINING WALLS")
P.C.W. SHALL BE BUTT SPLICED AT ANY INTERSECTIONS BY USING A HEATED SPLICING IRON. HOLD P.C.W. FLUSH WITH CONCRETE.
SEAL ALL VERTICAL ENDS OF P.C.W. WITH NON-STAINING BITUMINOUS JOINT SEALER.



SECTION AT EXIST MSE PANEL WALL

SECTION SHOWN AT SEGMENT 'A', SEGMENT 'B' SIMILAR



SOLDIER PILE & WALL SECTION PLAN

(SEE "GENERAL PLAN & ELEVATION" SHEET FOR LOCATION OF CONTRACTION JOINTS)
(TIEBACKS NOT SHOWN)

NOTES

1. ¾" DIA X 1'-6" SMOOTH EPOXY COATED DOWELS PLACED AT 2'-0" CENTERS MID-DEPTH IN THE WALL. DOWELS SHALL BE LIGHTLY COATED WITH A DEBONDING SURFACE TREATMENT OVER 1/2 THE DOWEL LENGTH. EMBED 9" INTO ADJACENT WALL. DOWELS INCLUDED IN THE BID ITEM "CONCRETE MASONRY RETAINING WALLS".
2. SEE "WALL FACING ELEVATIONS" SHEET FOR REINFORCEMENT BAR MARKS

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STRUCTURES DESIGN SECTION

STRUCTURE R-70-07

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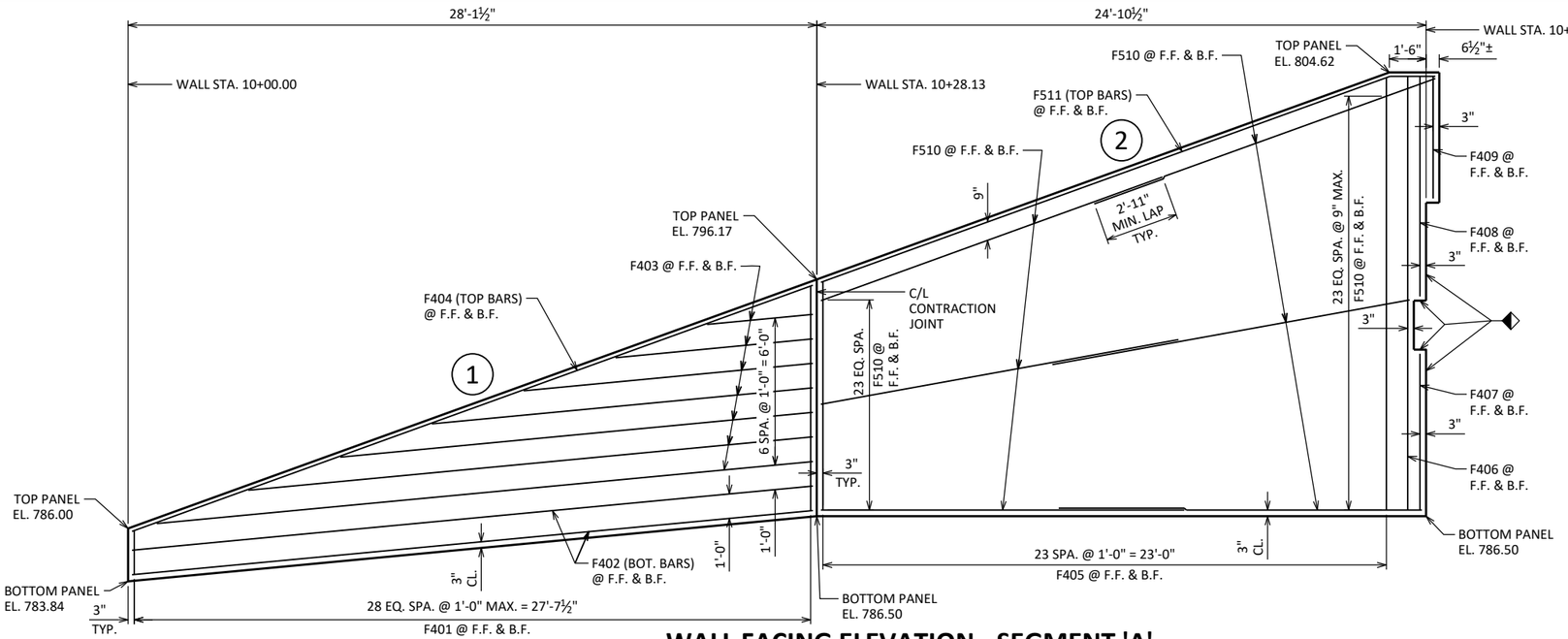
WALL FACING DETAILS 2

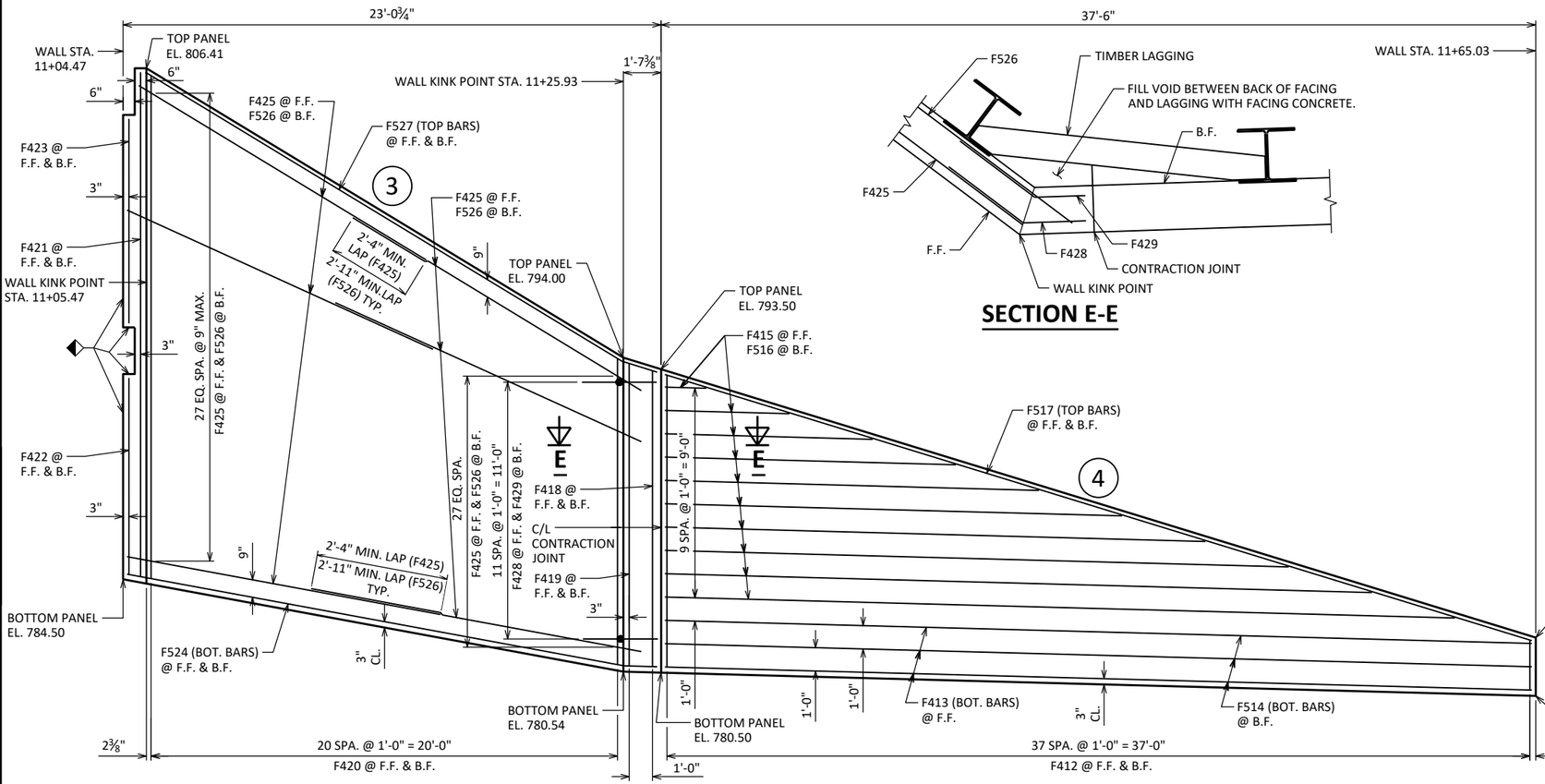
SHEET 8
62

8

8



WALL FACING ELEVATION - SEGMENT 'A'



WALL FACING ELEVATION - SEGMENT 'B'

(UN-FOLDED)

SECTION E-E

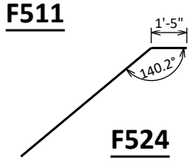
BILL OF BARS

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
F401	X	58	5'-6"		◭	WALL FACING-VERTICAL-F.F. & B.F.-SEGMENT A/PANEL 1
F402	X	4	27'-11"			WALL FACING-BOTTOM-HORIZ.-F.F. & B.F.-SEGMENT A/PANEL 1
F403	X	14	15'-9"		◭	WALL FACING-HORIZONTAL-F.F & B.F.-SEGMENT A/PANEL 1
F404	X	2	29'-6"			WALL FACING-TOP-HORIZONTAL-F.F & B.F.-SEGMENT A/PANEL 1
F405	X	48	13'-6"		◭	WALL FACING-VERTICAL-F.F. & B.F.-SEGMENT A/PANEL 2
F406	X	2	17'-8"			WALL FACING-VERTICAL-F.F. & B.F.-SEGMENT A/PANEL 2-AT END
F407	X	2	6'-4"			WALL FACING-BOT.-VERTICAL-F.F. & B.F.-SEGMENT A/PANEL 2-AT END
F408	X	2	8'-11"			WALL FACING-TOP-VERTICAL-F.F. & B.F.-SEGMENT A/PANEL 2-AT END
F409	X	2	4'-11"			WALL FACING-TOP-VERTICAL-F.F. & B.F.-SEGMENT A/PANEL 2-AT END
F510	X	96	14'-10"			WALL FACING-HORIZ.-F.F. & B.F.-SEGMENT A/PANEL 2
F511	X	2	26'-6"	X		WALL FACING-TOP-HORIZONTAL-F.F & B.F.-SEGMENT A/PANEL 2
F412	X	76	7'-4"		◭	WALL FACING-VERTICAL-F.F. & B.F.-SEGMENT B/PANEL 4
F413	X	3	37'-2"			WALL FACING-BOTTOM-HORIZ.-F.F.-SEGMENT B/PANEL 4
F514	X	3	37'-2"			WALL FACING-BOTTOM-HORIZ.-B.F.-SEGMENT B/PANEL 4
F415	X	10	17'-9"		◭	WALL FACING-HORIZONTAL-F.F.-SEGMENT B/PANEL 4
F516	X	10	17'-9"		◭	WALL FACING-HORIZONTAL-B.F.-SEGMENT B/PANEL 4
F517	X	2	38'-10"			WALL FACING-TOP-HORIZONTAL-F.F & B.F.-SEGMENT B/PANEL 4
F418	X	2	12'-8"			WALL FACING-VERTICAL-F.F. & B.F.-SEGMENT B/PANEL 3
F419	X	2	12'-11"			WALL FACING-VERTICAL-F.F. & B.F.-SEGMENT B/PANEL 3
F420	X	42	17'-4"		◭	WALL FACING-VERTICAL-F.F. & B.F.-SEGMENT B/PANEL 3
F421	X	2	21'-7"			WALL FACING-VERTICAL-F.F. & B.F.-SEGMENT B/PANEL 3-AT END
F422	X	2	8'-5"			WALL FACING-BOT.-VERTICAL-F.F. & B.F.-SEGMENT B/PANEL 3-AT END
F423	X	2	8'-9"			WALL FACING-TOP-VERTICAL-F.F. & B.F.-SEGMENT B/PANEL 3-AT END
F524	X	2	23'-1"	X		WALL FACING-BOT.-HORIZ.-F.F. & B.F.-SEGMENT B/PANEL 3
F425	X	56	13'-5"			WALL FACING-HORIZ.-F.F.-SEGMENT B/PANEL 3
F526	X	56	14'-3"			WALL FACING-HORIZ.-B.F.-SEGMENT B/PANEL 3
F527	X	2	25'-5"	X		WALL FACING-TOP-HORIZ.-F.F. & B.F.-SEGMENT B/PANEL 3
F428	X	12	3'-4"	X		WALL FACING-HORIZ.-F.F.-SEGMENT B/PANEL 3-AT KINK POINT
F429	X	12	3'-2"	X		WALL FACING-HORIZ.-B.F.-SEGMENT B/PANEL 3-AT KINK POINT

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

F511



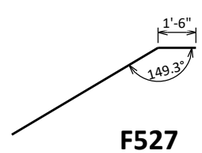
F524

BAR SERIES TABLE

BUNDLE AND TAG EACH SERIES SEPARATELY.

BAR MARK	NUMBER REQUIRED	LENGTH
F401	2 SERIES OF 29 BARS	1'-9" TO 9'-2"
F403	2 SERIES OF 7 BARS	4'-6" TO 27'-0"
F405	2 SERIES OF 24 BARS	9'-4" TO 17'-7"
F412	2 SERIES OF 38 BARS	2'-1" TO 12'-6"
F415	1 SERIES OF 10 BARS	1'-8" TO 33'-10"
F516	1 SERIES OF 10 BARS	1'-8" TO 33'-10"
F420	2 SERIES OF 21 BARS	13'-1" TO 21'-6"

◆ ¾" PREFORMED JOINT FILLER BETWEEN FACING AND ALL HORIZONTAL AND VERTICAL SURFACES OF EXISTING WALL/STRUCTURE. SEAL ALL EXPOSED HORIZ. & VERT. SURFACES OF FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. (1" DEEP AND HOLD ⅛" BELOW SURFACE OF CONCRETE)



F527

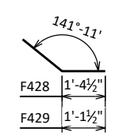
NOTES

ONLY WALL FACING SHOWN FOR CLARITY.

ALL DIMENSIONS ARE MEASURED ALONG THE FRONT FACE OF PANEL.

LEGEND

(X) CAST-IN-PLACE CONCRETE FACING PANEL NUMBER



F428 F429

STATE PROJECT NUMBER

6200-19-71

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE R-70-07

DRAWN BY JPH | PLANS CK'D ARC

WALL FACING ELEVATIONS

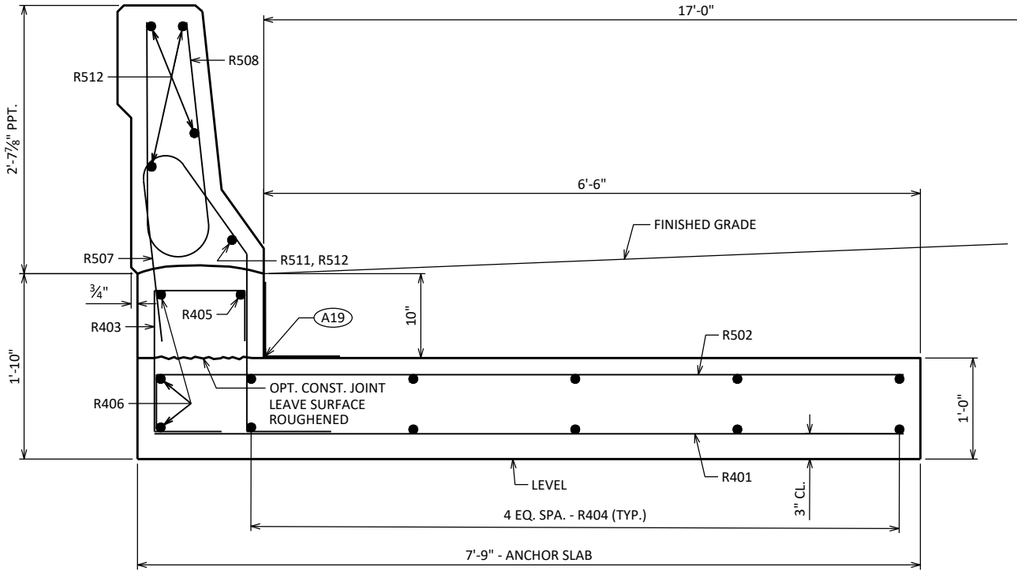
SHEET 9
63

8

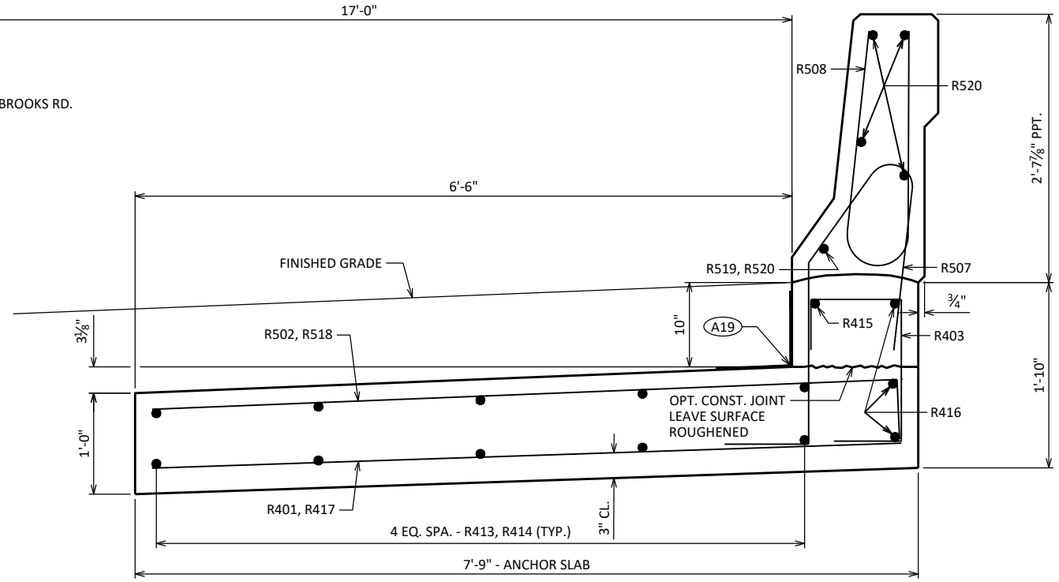
8

STATE PROJECT NUMBER

6200-19-71



NORTH WALL CAST-IN-PLACE TRAFFIC BARRIER CROSS SECTION DETAIL



SOUTH WALL CAST-IN-PLACE TRAFFIC BARRIER CROSS SECTION DETAIL

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
R401	X	70	7'-5"			ANCHOR SLABS-BOTTOM-HORIZONTAL-TRANSVERSE
R502	X	131	7'-10"	X		ANCHOR SLABS-TOP-VERTICAL-TRANSVERSE
R403	X	70	3'-3"	X		ANCHOR SLABS-VERTICAL-TRANSVERSE
R404	X	10	31'-6"		⚠	NORTH ANCHOR SLAB-TOP & BOTTOM-HORIZONTAL-LONGITUDINAL
R405	X	1	34'-7"			NORTH ANCHOR SLAB-TOP-HORIZONTAL-LONGITUDINAL
R406	X	3	35'-3"			NORTH ANCHOR SLAB-HORIZONTAL-LONGITUDINAL-OUTSIDE FACE
R507	X	109	5'-9"	X		ANCHOR SLABS/PARAPETS-VERTICAL-TRANSVERSE
R508	X	138	4'-10"	X		PARAPETS-VERTICAL-TRANSVERSE
R509	X	16	2'-4"	X		ANCHOR SLABS/PARAPETS-VERTICAL-TRANSVERSE-AT ENDS
R510	X	28	4'-7"	X		ANCHOR SLABS/PARAPETS-VERTICAL-TRANSVERSE-AT ENDS
R511	X	1	18'-8"	X		NORTH PARAPET-BOTTOM-HORIZONTAL-LONGITUDINAL-INSIDE FACE
R512	X	9	18'-8"			NORTH PARAPET-HORIZONTAL-LONGITUDINAL-BOTH FACES
R413	X	10	35'-3"			SOUTH ANCHOR SLAB-TOP & BOTTOM-HORIZONTAL-LONGITUDINAL-EAST END
R414	X	10	20'-7"		⚠	SOUTH ANCHOR SLAB-TOP & BOTTOM-HORIZONTAL-LONGITUDINAL-WEST END
R415	X	2	26'-5"			SOUTH ANCHOR SLAB-TOP-HORIZONTAL-LONGITUDINAL
R416	X	6	26'-1"			SOUTH ANCHOR SLAB-HORIZONTAL-LONGITUDINAL-OUTSIDE FACE
R417	X	5	4'-2"		⚠	SOUTH ANCHOR SLAB-BOTTOM-HORIZONTAL-TRANSVERSE-WEST END
R518	X	9	3'-11"		⚠	SOUTH ANCHOR SLAB-TOP-HORIZONTAL-TRANSVERSE-WEST END
R519	X	1	26'-10"	X		SOUTH PARAPET-BOTTOM-HORIZONTAL-LONGITUDINAL-INSIDE FACE
R520	X	9	26'-10"			SOUTH PARAPET-HORIZONTAL-LONGITUDINAL-BOTH FACES

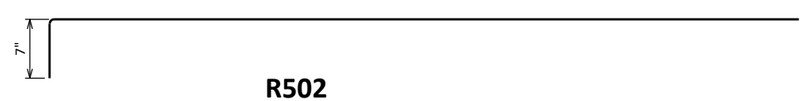
⚠ LENGTH SHOWN FOR BAR IS AN AVERAGE AND SHOULD ONLY BE USED FOR BAR WEIGHT CALCULATIONS. SEE BAR SERIES TABLE FOR ACTUAL LENGTHS.

BAR SERIES TABLE

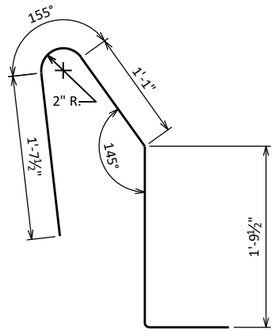
BUNDLE AND TAG EACH SERIES SEPARATELY.

BAR MARK	NUMBER REQUIRED	LENGTH
R404	2 SERIES OF 5 BARS	28'-6" TO 34'-6"
R414	2 SERIES OF 5 BARS	17'-8" TO 23'-6"
R417	1 SERIES OF 5 BARS	1'-5" TO 6'-11"
R518	1 SERIES OF 9 BARS	11" TO 6'-10"

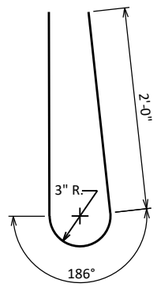
(A19) IF. THE OPT. CONST. JT. IS USED, PLACE 18" RUBBERIZED MEMBRANE WATERPROOFING (RMW) ALONG THE ENTIRE LONGITUDINAL JOINT. THIS RMW SHALL BE INCIDENTAL TO THE "CONCRETE MASONRY" BID ITEM.



R502



R507



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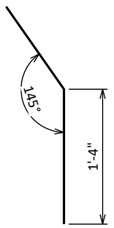

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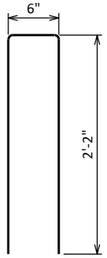

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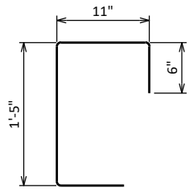

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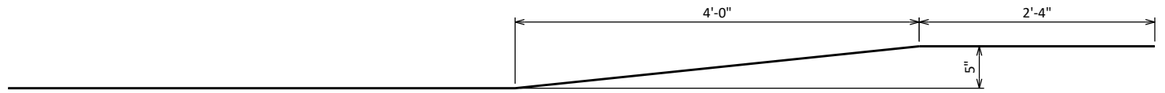


R511 R519

NOTE:
SEE "SLOPED FACE PARAPET LF" SHEET FOR THE PARAPET DETAILS.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE R-70-07

DRAWN BY JPH | PLANS CK'D ARC

CONCRETE TRAFFIC BARRIER DETAILS

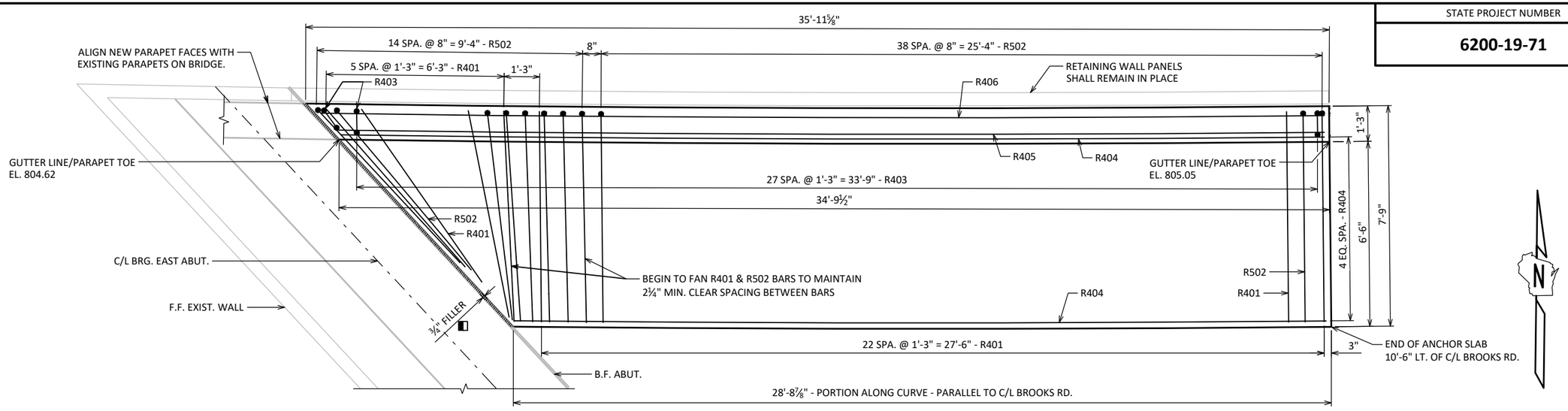
SHEET 10
64

8

8

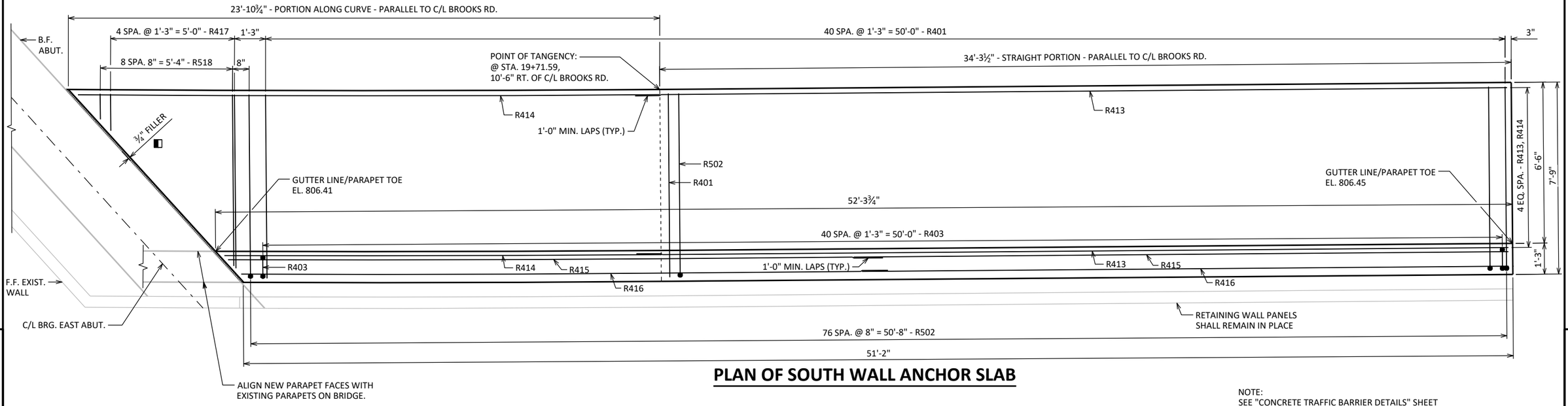
STATE PROJECT NUMBER

6200-19-71



PLAN OF NORTH WALL ANCHOR SLAB

¾" FILLER: SEAL ALL EXPOSED HORIZ. & VERT. SURFACES OF ¾" FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. (1" DEEP AND HOLD ⅛" BELOW SURFACE OF CONCRETE). EXTEND SEALER 3" BELOW GUTTER LINE AT INSIDE FACE.



PLAN OF SOUTH WALL ANCHOR SLAB

NOTE:
SEE "CONCRETE TRAFFIC BARRIER DETAILS" SHEET FOR THE BILL OF BARS & BAR DETAILS.

8

8

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE R-70-07

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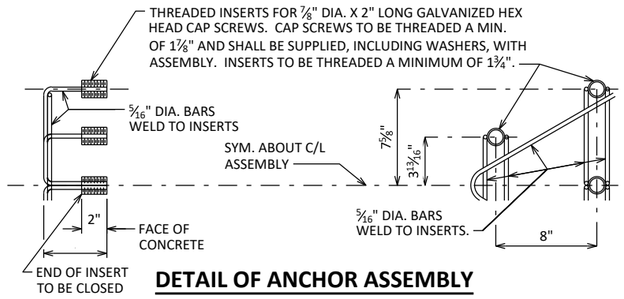
ANCHOR SLAB PLAN VIEWS

SHEET 11
65

STATE PROJECT NUMBER

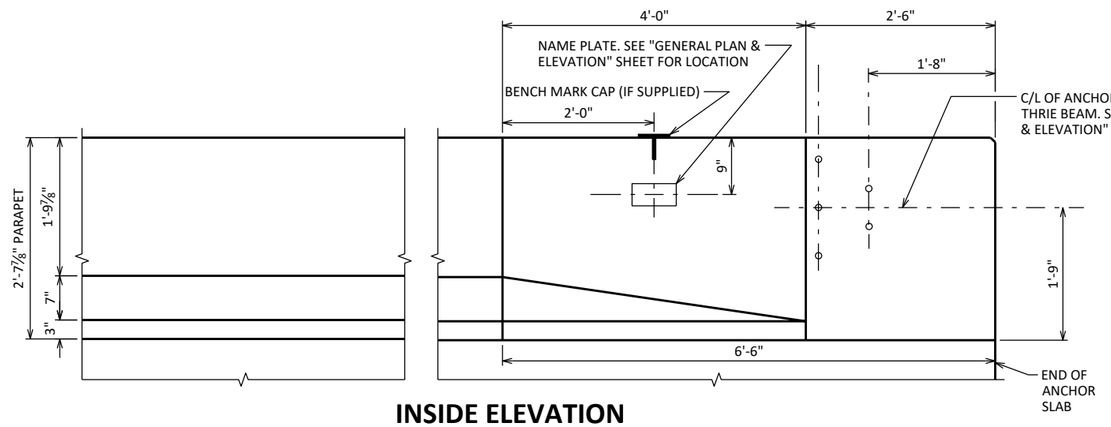
6200-19-71



DETAIL OF ANCHOR ASSEMBLY

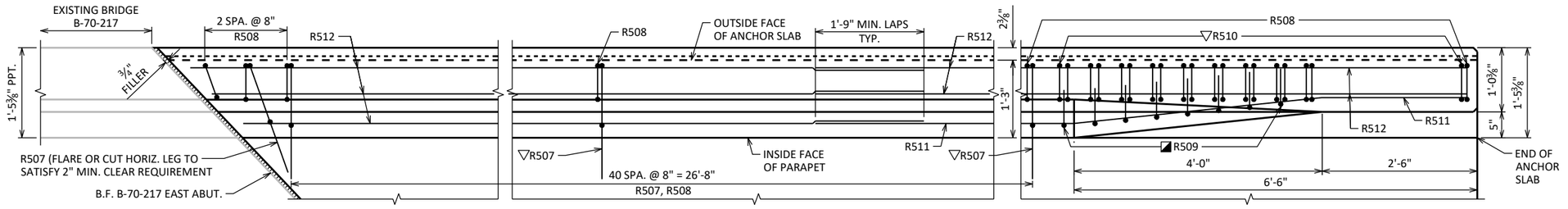
NOTE: HEX HEAD CAP SCREWS & WASHERS TO BE GALVANIZED IN ACCORDANCE WITH AASHTO M232 CLASS C.

ASSEMBLY SHALL BE BID ITEM "ANCHOR ASSEMBLIES FOR STEEL PLATE BEAM GUARD", EACH.

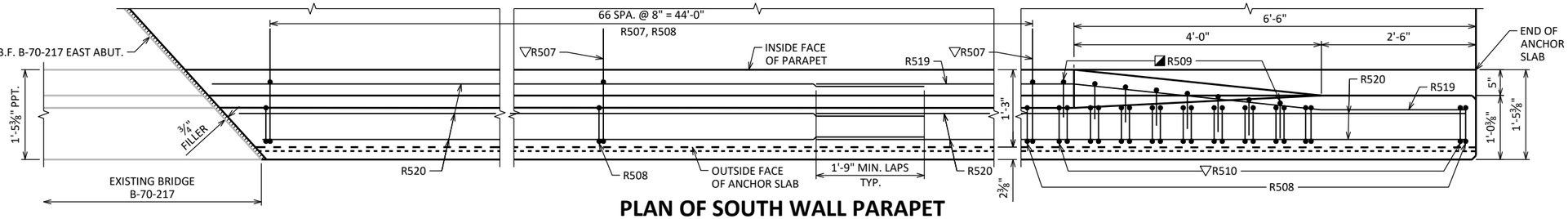


INSIDE ELEVATION

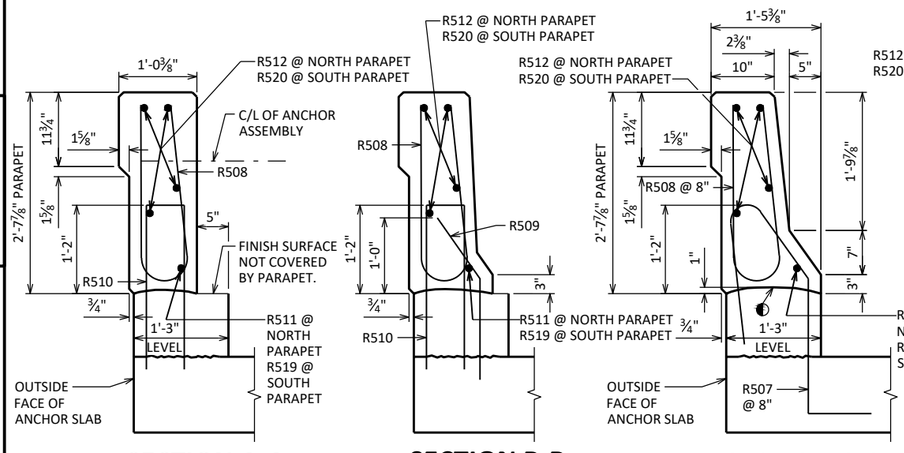
NORTH PARAPET SHOWN, SOUTH PARAPET SIMILAR

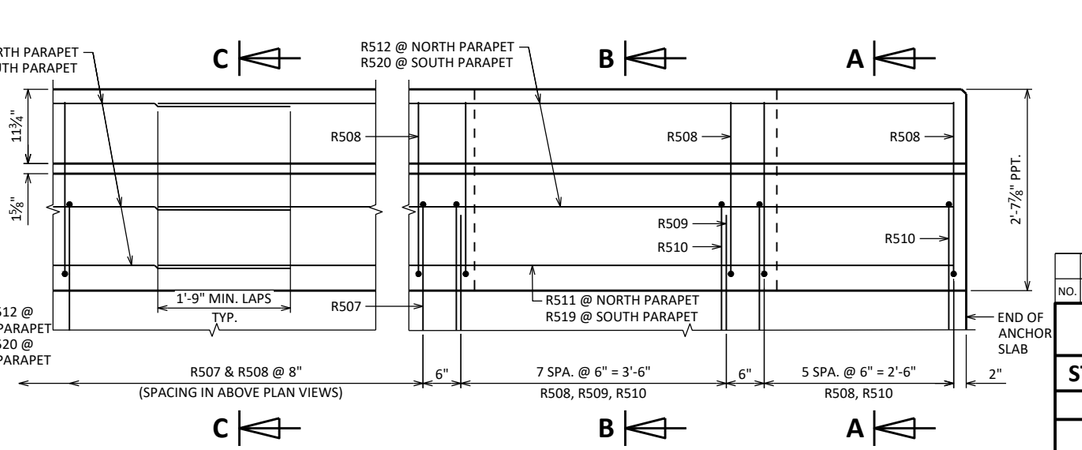


PLAN OF NORTH WALL PARAPET



PLAN OF SOUTH WALL PARAPET





OUTSIDE ELEVATION

SOUTH PARAPET SHOWN, NORTH PARAPET SIMILAR

NOTE:
SEE "CONCRETE TRAFFIC BARRIER DETAILS" SHEET FOR THE PARAPETS BILL OF BARS & BAR DETAILS.

◐ CONST. JOINT - STRIKE OFF AS SHOWN

◪ R509 BARS MAY BE PLACED AFTER CONCRETE IS POURED BUT BEFORE INITIAL SET HAS TAKEN PLACE. USE CARE TO PLACE R509 BARS CORRECTLY ALONG TRANSITION OF PARAPET.

▽ R507 AND R510 BARS TO BE TIED TO ANCHOR SLAB STEEL BEFORE ANCHOR SLAB IS POURED.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE R-70-07

DRAWN BY JPH | PLANS CK'D ARC

SLOPED FACE PARAPET 'LF'

SHEET 12
66

SCALE = 2.00

8

8

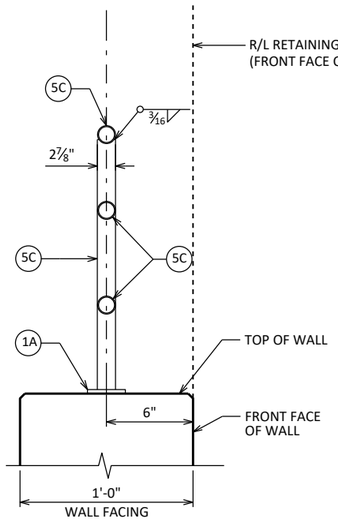
NOTE: SEE RAILING PIPE ELEVATION SHEETS FOR THE RAILING PIPE ELEVATION VIEWS.

STATE PROJECT NUMBER

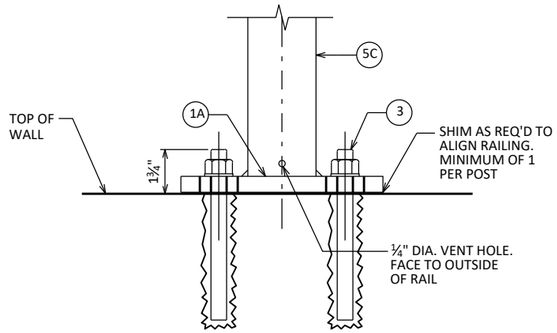
6200-19-71

LEGEND

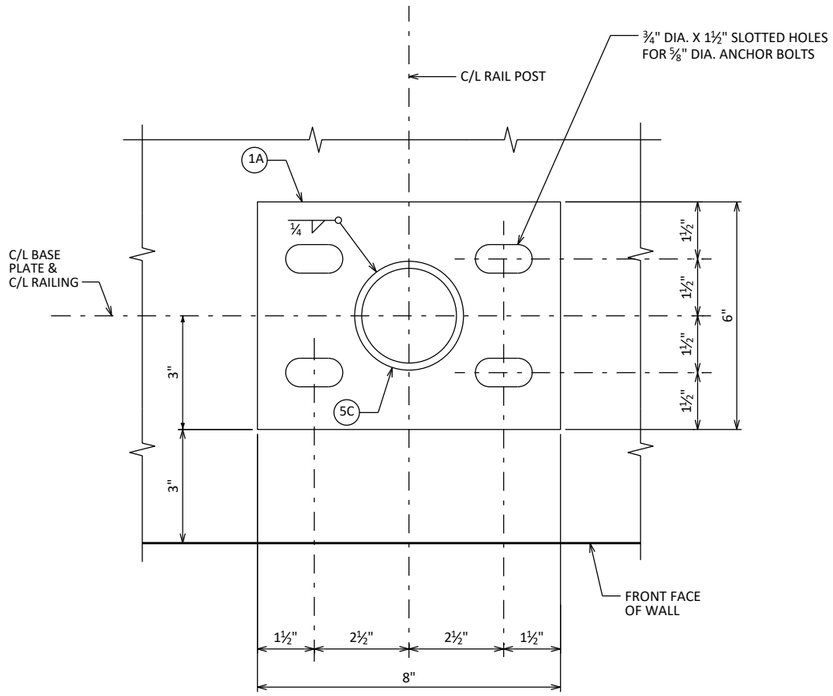
- (1A) PLATE ⅝" X 6" X 8" WITH ¾" X 1½" SLOTTED HOLES.
- (3) STAINLESS STEEL CONCRETE MASONRY ANCHORS, TYPE S (EPOXY), ⅝" DIA. EMBED A MIN OF 7".
- (5C) 2½" DIA. STANDARD PIPE RAIL (2.875" O.D.). PLACE POSTS VERTICAL. WELD TO 1A. PLACE RAILS PARALLEL TO TOP OF COPING. WELD TO POSTS.
- ½" DIA. DRAIN HOLE @ BOTTOM OF EACH RAIL END.



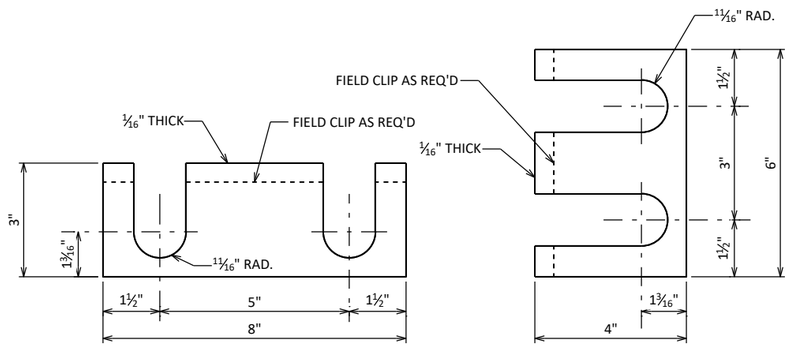
WALL RAILING PIPE SECTION



ANCHOR BOLTS FOR RAIL POST



RAIL POST BASE PLATE



RAIL POST SHIM DETAIL

(2 SETS PER POST)

NOTES

BID ITEM SHALL BE "RAILING PIPE", WHICH SHALL INCLUDE ALL STEEL ITEMS SHOWN, GALVANIZING AND PAINTING.

POST BASE PLATES SHALL BE FLAT WITH ALL SURFACES SMOOTH AND FREE FROM WARP AND ALL EDGES SMOOTH, STRAIGHT AND VERTICAL. ALL PLATE CUTS SHALL BE MACHINE OR MACHINE FLAME CUTS.

NO. 1A SHALL CONFORM TO A.S.T.M. A709 GRADE 36. STANDARD PIPE RAIL SHALL CONFORM TO A.S.T.M. A500 GRADE B (NO. 5C).

ANCHORAGES SHALL BE ACCURATELY PLACED TO PROVIDE CORRECT ALIGNMENT OF RAILING. SET NORMAL TO GRADE.

CUT BOTTOM OF POST TO MAKE POST VERTICAL IN BOTH TRANSVERSE AND LONGITUDINAL DIRECTION. SEE "RAILING PIPE ELEVATION" SHEETS FOR TOP OF WALL SLOPES.

STEEL SHIMS SHALL BE PROVIDED & USED UNDER BASE PLATES WHERE REQUIRED FOR ALIGNMENT.

FILL BOLT SLOT OPENINGS IN SHIMS AND PLATE NO. 1A AND CAULK AROUND PERIMETER OF PLATE NO. 1A WITH NON-STAINING BLACK NON-BITUMINOUS JOINT SEALER.

VENT HOLES SHALL BE DRILLED IN MEMBERS AS REQUIRED TO FACILITATE GALVANIZING AND DRAINAGE.

GALVANIZE AFTER FABRICATION AND THEN PAINT GALVANIZED RAILING ASSEMBLIES WITH A TWO COAT SYSTEM SPECIFICALLY INTENDED FOR PAINTING OF GALVANIZED SURFACES PER THE SPECIAL PROVISIONS. SHIMS SHALL BE GALVANIZED PER ASTM A123. THE FINISH COLOR SHALL BE AMS STANDARD COLOR NO. 27038 BLACK.

RAILING SHALL BE FABRICATED IN LENGTHS THAT INCLUDE 2 POSTS.

PAINT TOUCH-UP TO BE DONE AT COMPLETION OF STEEL RAILING INSTALLATION TO THE SATISFACTION OF THE ENGINEER AT NO EXTRA COST.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE R-70-07

DRAWN BY JPH | PLANS CK'D ARC

RAILING PIPE DETAILS

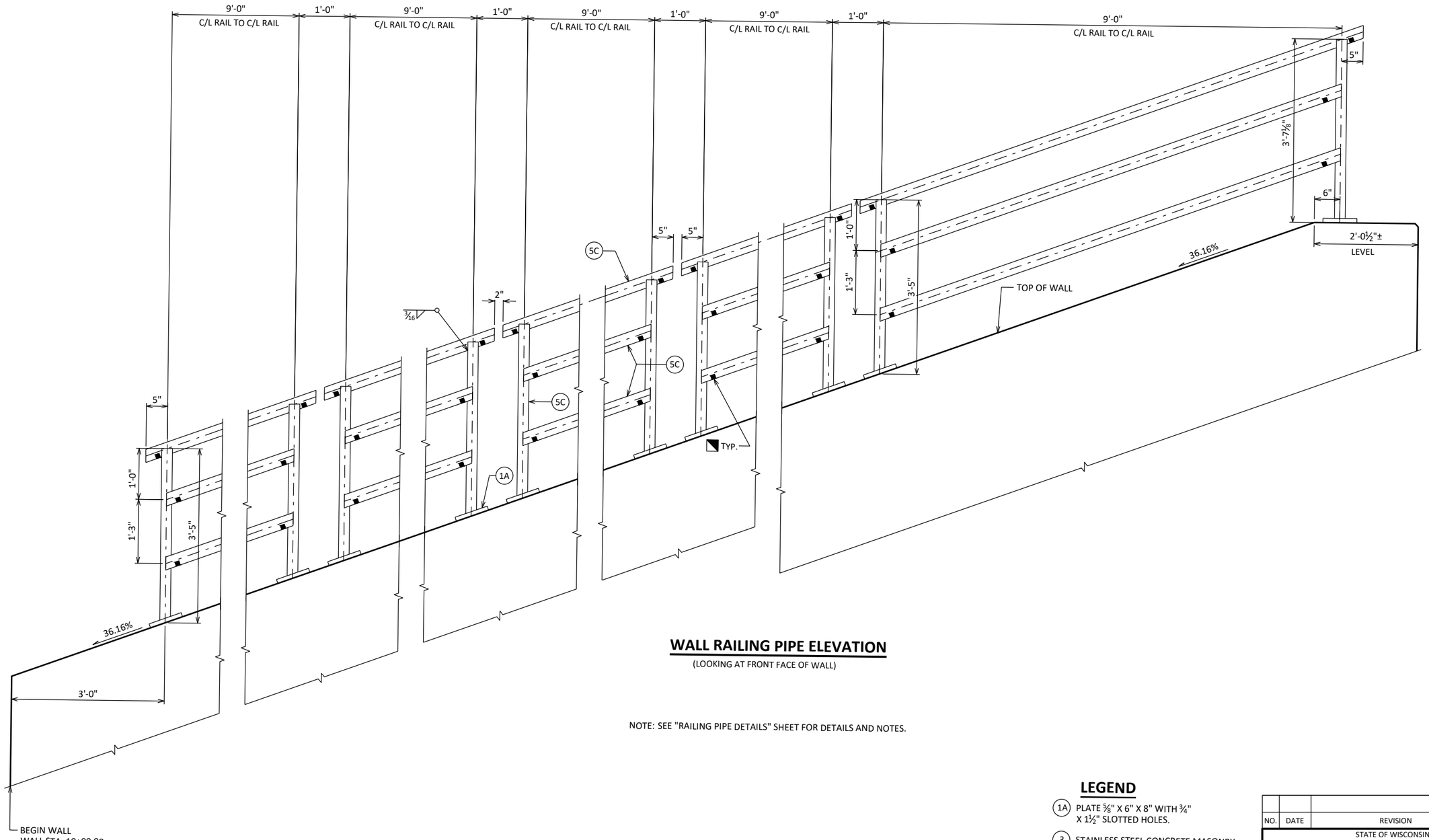
SHEET 13
67

8

8

STATE PROJECT NUMBER

6200-19-71



WALL RAILING PIPE ELEVATION

(LOOKING AT FRONT FACE OF WALL)

NOTE: SEE "RAILING PIPE DETAILS" SHEET FOR DETAILS AND NOTES.

LEGEND

- (1A) PLATE ⅝" X 6" X 8" WITH ¾" X 1½" SLOTTED HOLES.
- (3) STAINLESS STEEL CONCRETE MASONRY ANCHORS, TYPE S (EPOXY), ⅝" DIA. EMBED A MIN OF 7".
- (5C) 2½" DIA. STANDARD PIPE RAIL (2.875" O.D.). PLACE POSTS VERTICAL. WELD TO 1A. PLACE RAILS PARALLEL TO TOP OF COPING. WELD TO POSTS.
- ◥ ½" DIA. DRAIN HOLE @ BOTTOM OF EACH RAIL END.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE R-70-07

DRAWN BY JPH | PLANS CK'D ARC

RAILING PIPE ELEVATION "SEGMENT A"

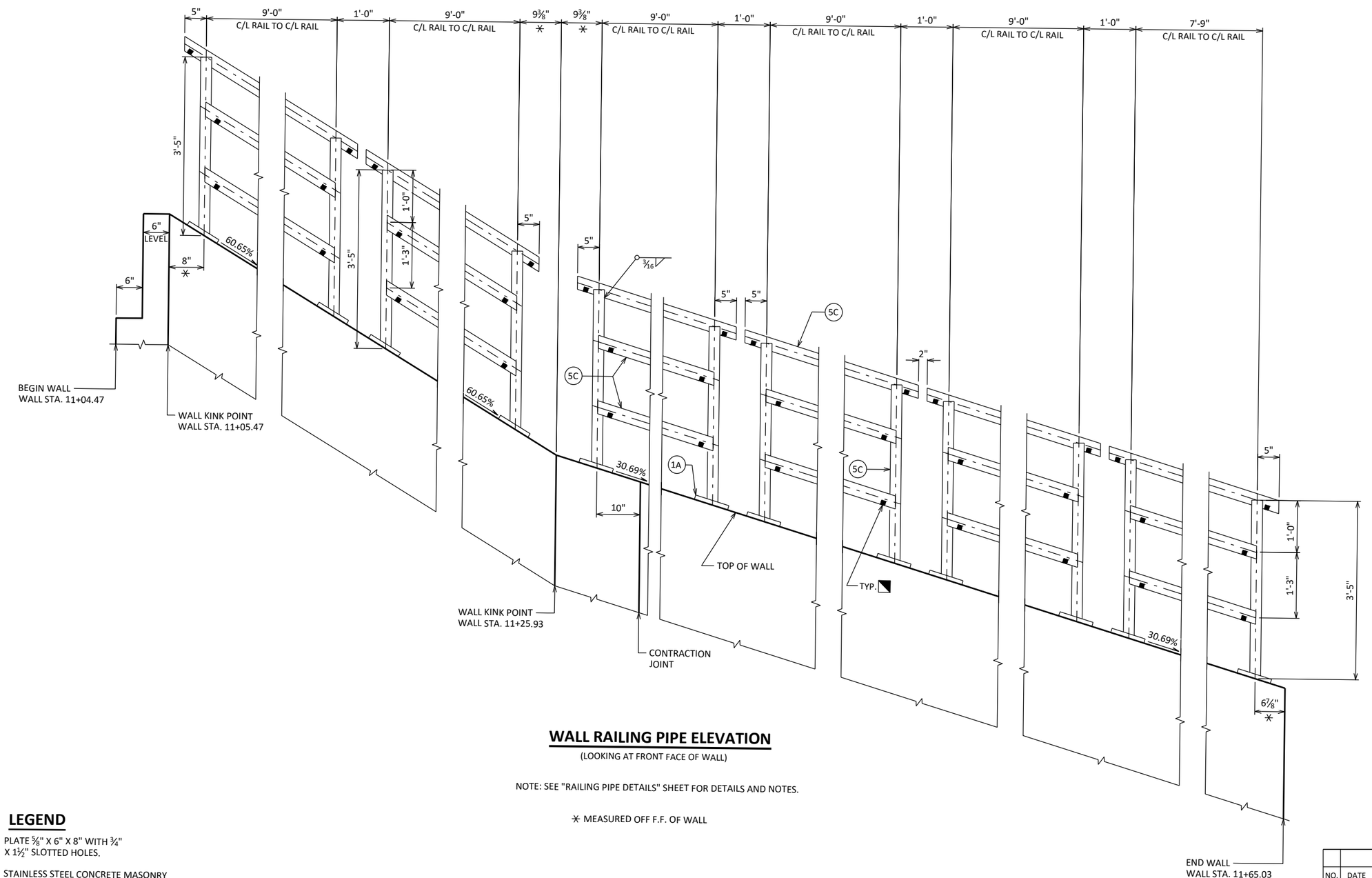
SHEET 14

8

8

STATE PROJECT NUMBER

6200-19-71



WALL RAILING PIPE ELEVATION

(LOOKING AT FRONT FACE OF WALL)

NOTE: SEE "RAILING PIPE DETAILS" SHEET FOR DETAILS AND NOTES.

✳ MEASURED OFF F.F. OF WALL

LEGEND

(1A) PLATE ⅝" X 6" X 8" WITH ¾" X 1½" SLOTTED HOLES.

(3) STAINLESS STEEL CONCRETE MASONRY ANCHORS, TYPE S (EPOXY), ⅝" DIA. EMBED A MIN OF 7".

(5C) 2½" DIA. STANDARD PIPE RAIL (2.875" O.D.). PLACE POSTS VERTICAL. WELD TO 1A. PLACE RAILS PARALLEL TO TOP OF COPING. WELD TO POSTS.

◥ ½" DIA. DRAIN HOLE @ BOTTOM OF EACH RAIL END.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE R-70-07

DRAWN BY JPH | PLANS CK'D ARC

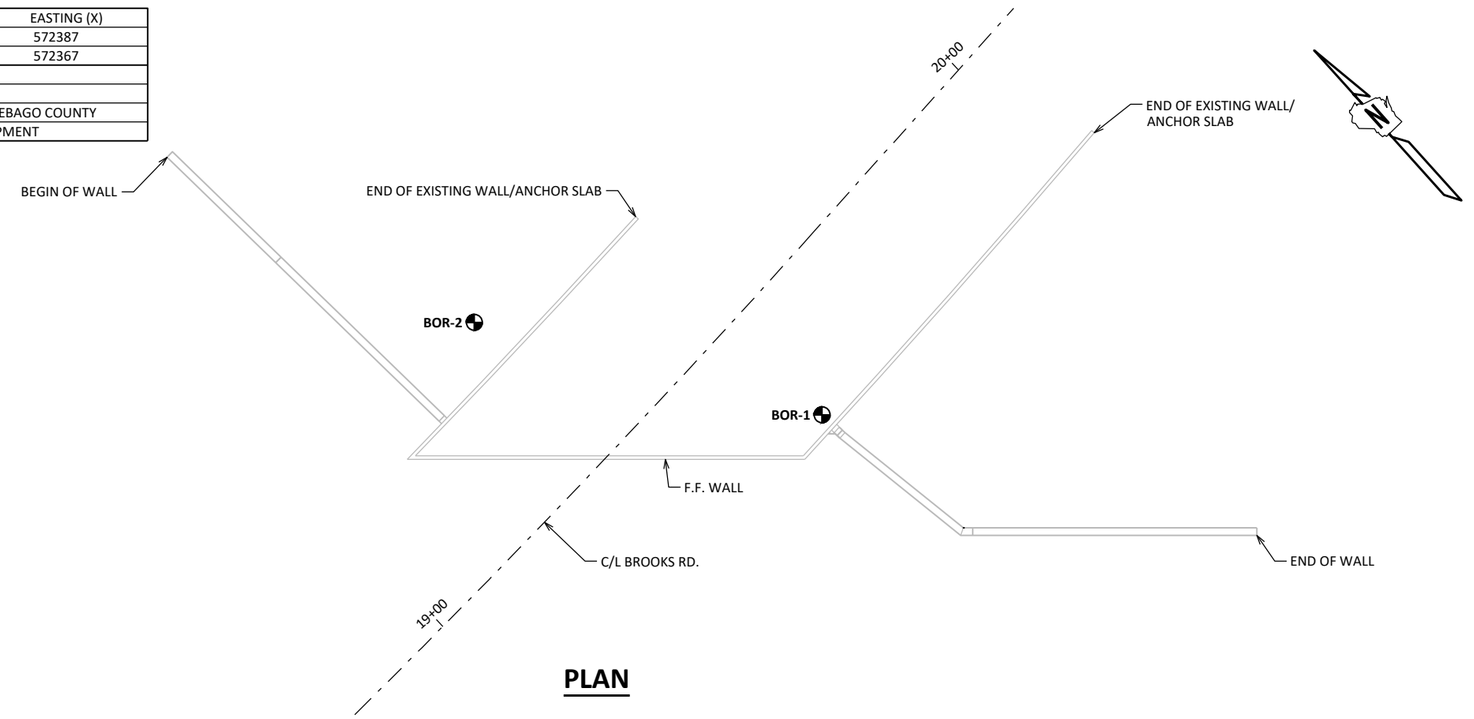
RAILING PIPE ELEVATION "SEGMENT B"

SHEET 15
69

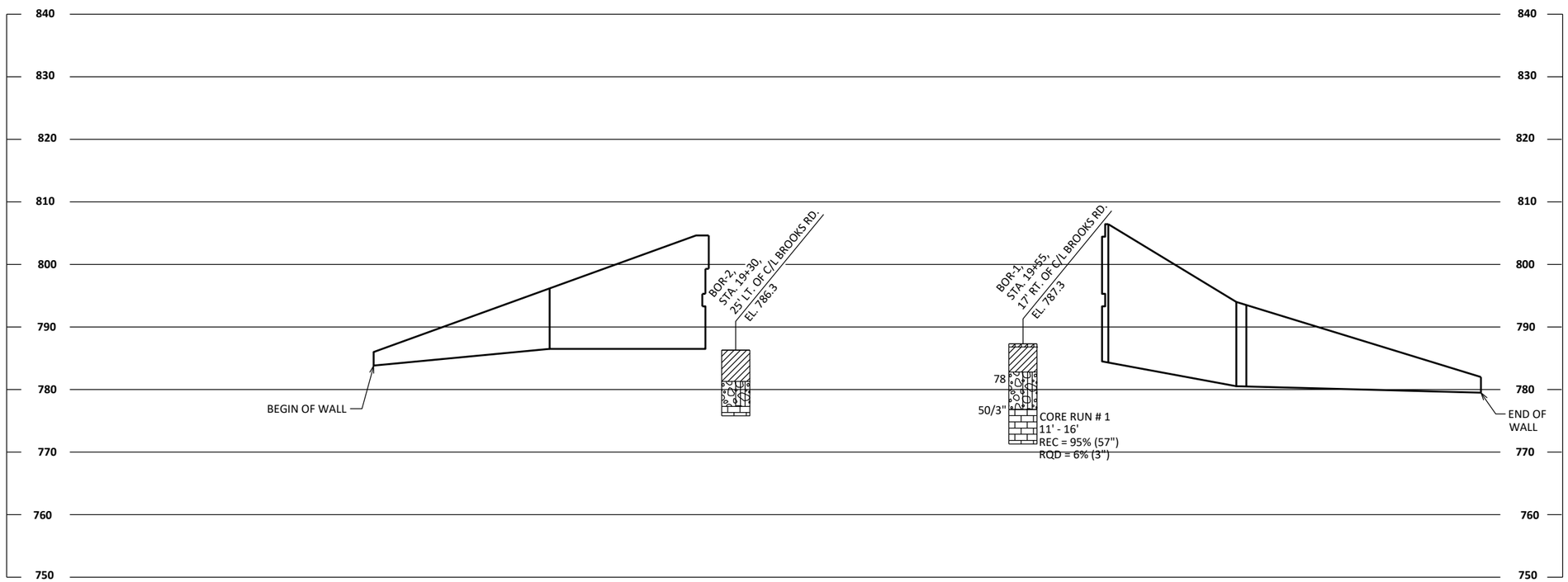
8

8

BORING #	DATE COMPLETED	NORTHING (Y)	EASTING (X)
1	3/14/2000	335644	572387
2	3/14/2000	335679	572367
BORINGS COMPLETED BY: WISDOT			
REPORT COMPLETED BY: WISDOT			
ALL COORDINATES REFERENCED TO WCCS NAD 83 (91) WINNEBAGO COUNTY			
COORDINATES COLLECTED USING NON-SURVEY GRADE EQUIPMENT			



PLAN



ELEVATION

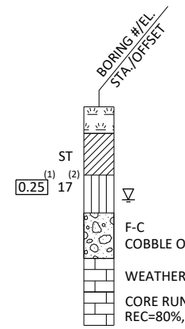
STATE PROJECT NUMBER

6200-19-71

MATERIAL SYMBOLS

ASPHALT, TOPSOIL, PEAT, CONCRETE, FILL, GRAVEL, SAND, CLAY, SILT, BOULDERS OR COBBLES, LIMESTONE, BEDROCK (UNKNOWN), SHALE, SANDSTONE, IGNEOUS/ META

LEGEND OF BORING



(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
STRUCTURES DESIGN SECTION

STRUCTURE R-70-07

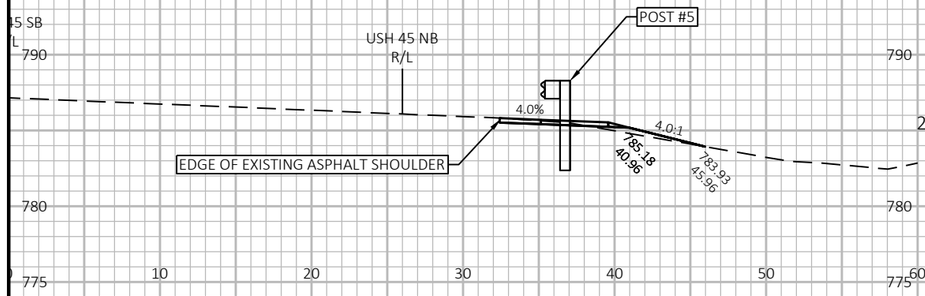
DRAWN BY JPH | PLANS CK'D ARC

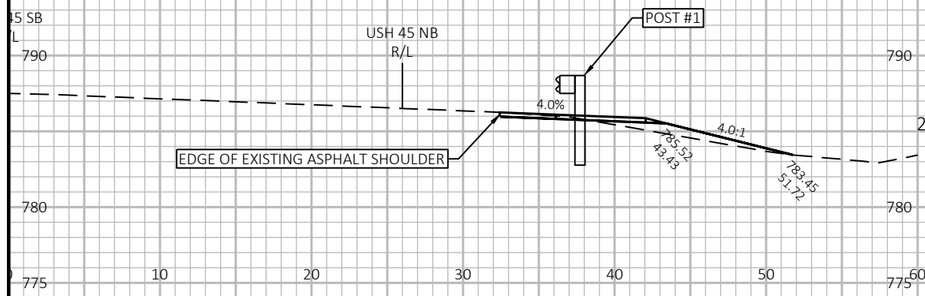
SUBSURFACE EXPLORATION

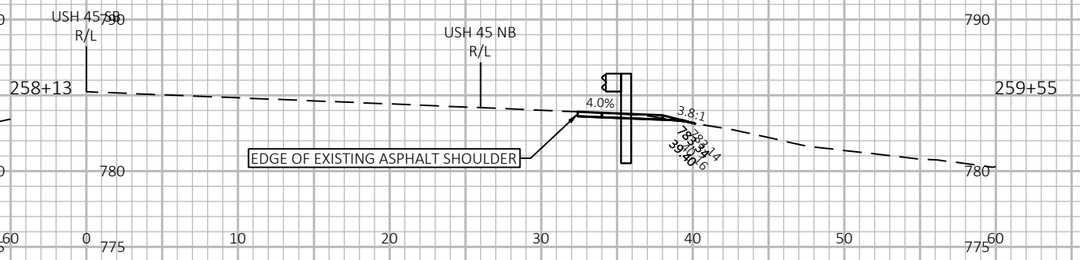
SHEET 16
70

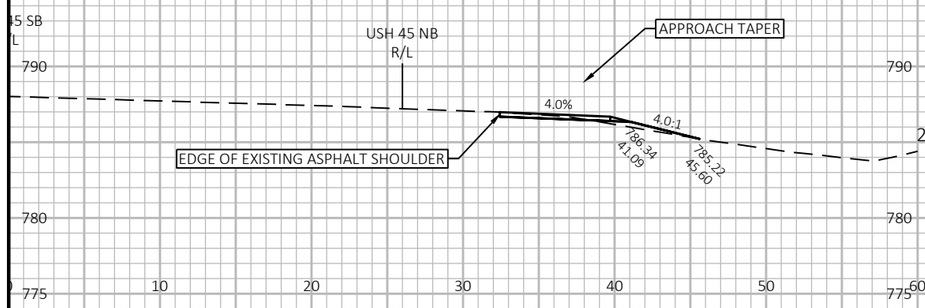
8

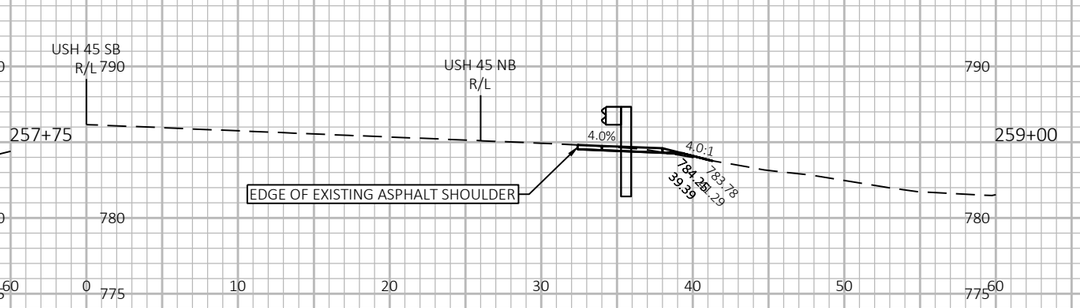
8

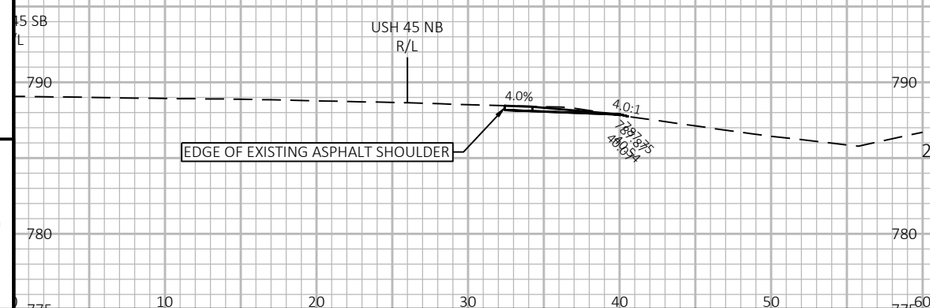


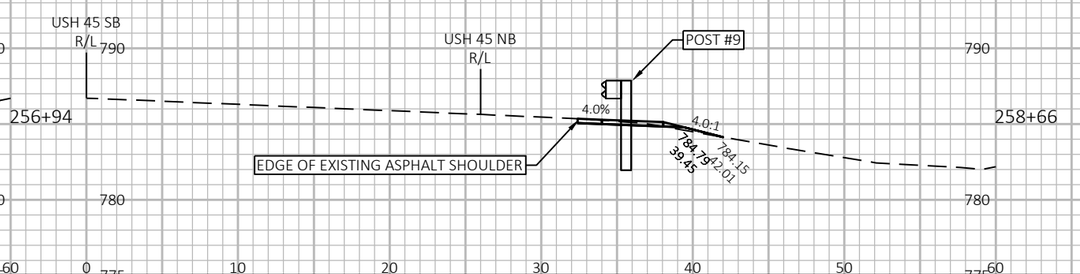


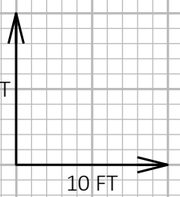












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9

PROJECT NO: 6200-19-71	HWY: USH 45	COUNTY: WINNEBAGO	CROSS SECTIONS: CROSS SECTIONS	SHEET 71	E

FILE NAME : N:\PDS\C3D\62001900\SHEETSPLAN\090201-XS.DWG
LAYOUT NAME - 090201-xs

PLOT DATE : 10/28/2024 1:05 PM PLOT BY : CAMPSHURE, MICHAEL R PLOT NAME : **PLOT SCALE :** 1 IN:10 FT HORZ. / 1 IN:10 FT VERT.

790
45 SB
L

USH 45 NB
R/L

4.0%

4.0:1

EDGE OF EXISTING ASPHALT SHOULDER

780

775

10 20 30 40 50 60

790

260+49

780

790
45 SB
L

USH 45 NB
R/L

4.0%

2.7:1

EDGE OF EXISTING ASPHALT SHOULDER

780

260+00

770

775

10 20 30 40 50 60

10 FT

10 FT

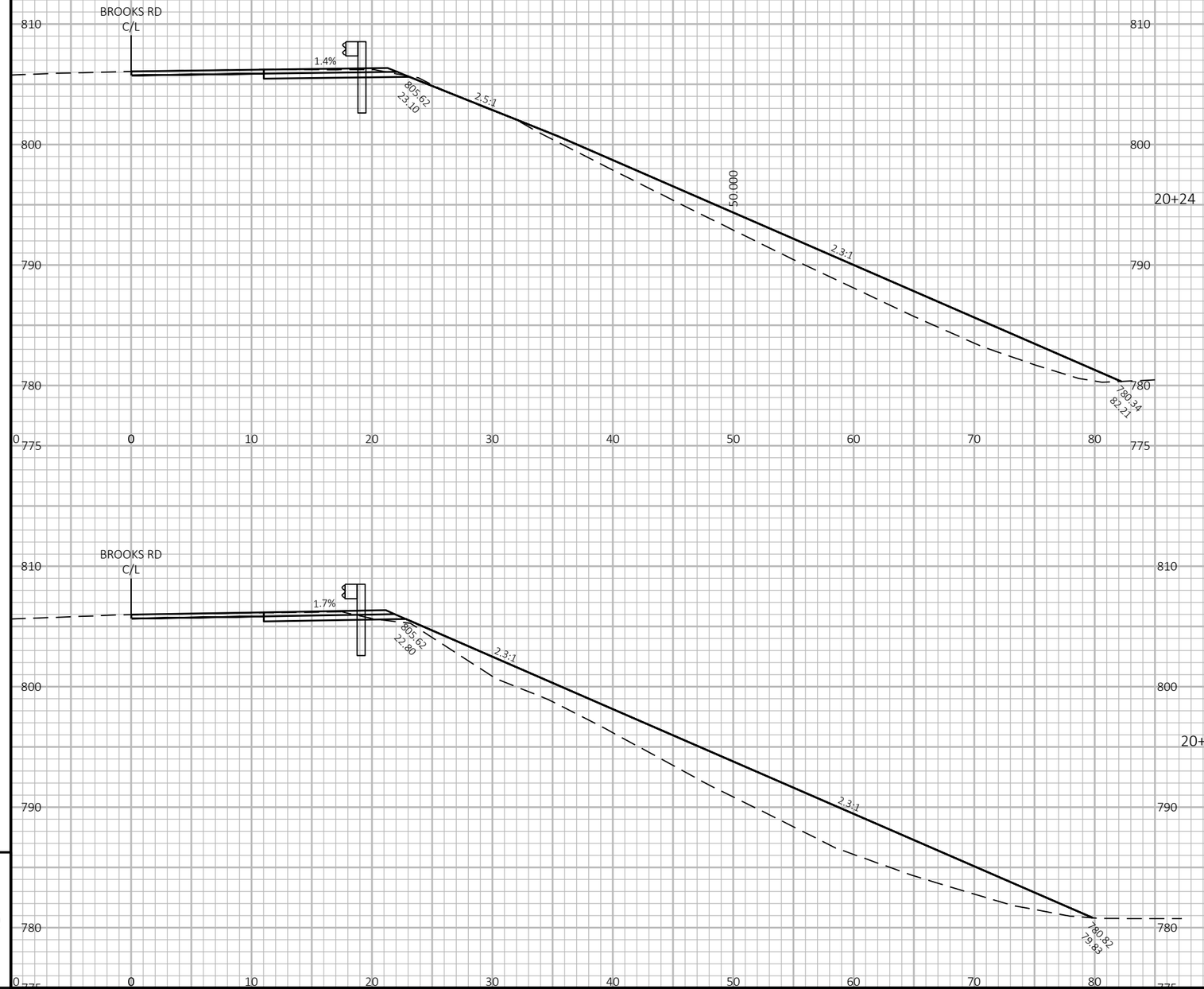
9

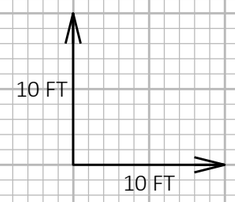
9

PROJECT NO: 6200-19-71	HWY: USH 45	COUNTY: WINNEBAGO	CROSS SECTIONS: CROSS SECTIONS	SHEET 72	E

FILE NAME : N:\PDS\C3D\62001900\SHEETSPLAN\090201-XS.DWG
LAYOUT NAME - 090202-xs

PLOT DATE : 10/28/2024 1:05 PM PLOT BY : CAMPSHURE, MICHAEL R PLOT NAME : PLOT SCALE : 1 IN:10 FT HORZ. / 1 IN:10 FT VERT.





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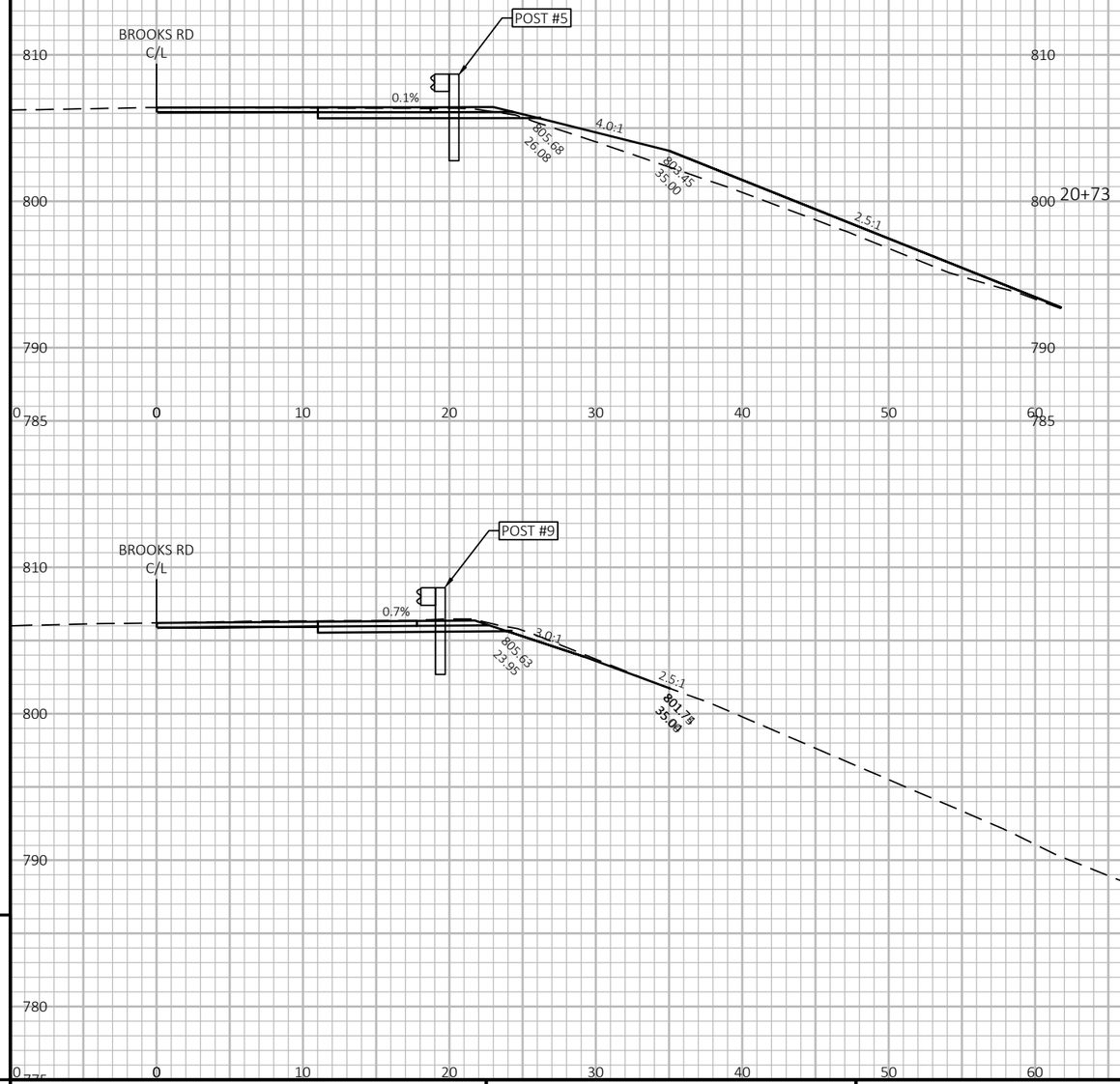
PROJECT NO: 6200-19-71	HWY: BROOKS RD	COUNTY: WINNEBAGO	CROSS SECTIONS: CROSS SECTIONS	SHEET 73	E

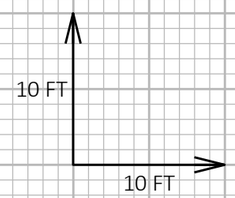
FILE NAME : N:\PDS\C3D\62001900\SHEETSPLAN\090201-XS.DWG
LAYOUT NAME - 090203-xs

PLOT DATE : 10/28/2024 1:05 PM PLOT BY : CAMPSHURE, MICHAEL R PLOT NAME :

PLOT SCALE : 1 IN:10 FT HORZ. / 1 IN:10 FT VERT.

WISDOT/CADDS SHEET 49





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PROJECT NO: 6200-19-71	HWY: BROOKS RD	COUNTY: WINNEBAGO	CROSS SECTIONS: CROSS SECTIONS	SHEET 74	E

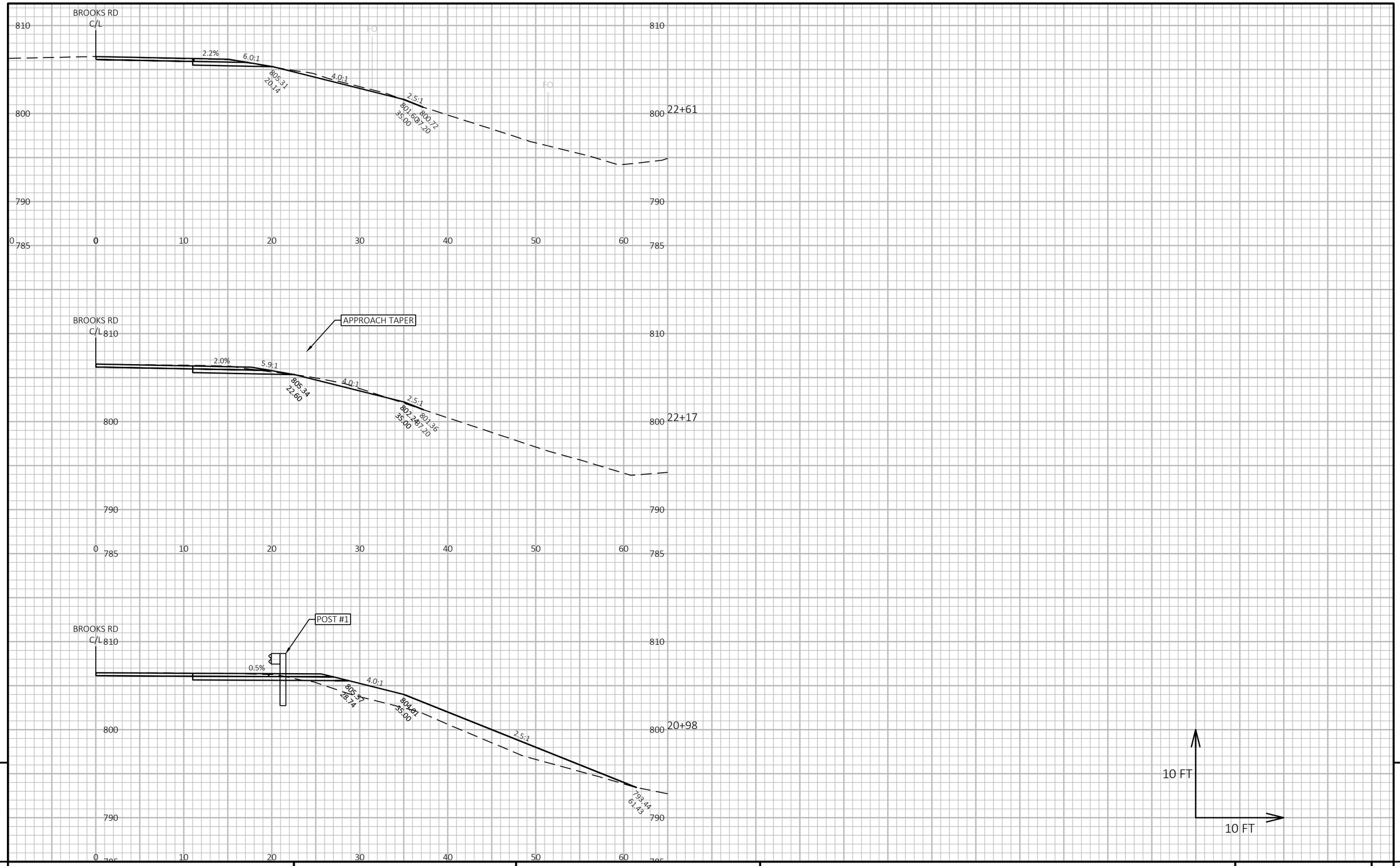
FILE NAME : N:\PDS\C3D\62001900\SHEETSPLAN\090201-XS.DWG
LAYOUT NAME - 090204-xs

PLOT DATE : 10/28/2024 1:05 PM

PLOT BY : CAMPSHURE, MICHAEL R

PLOT NAME :

PLOT SCALE : 1 IN:10 FT HORZ. / 1 IN:10 FT VERT.



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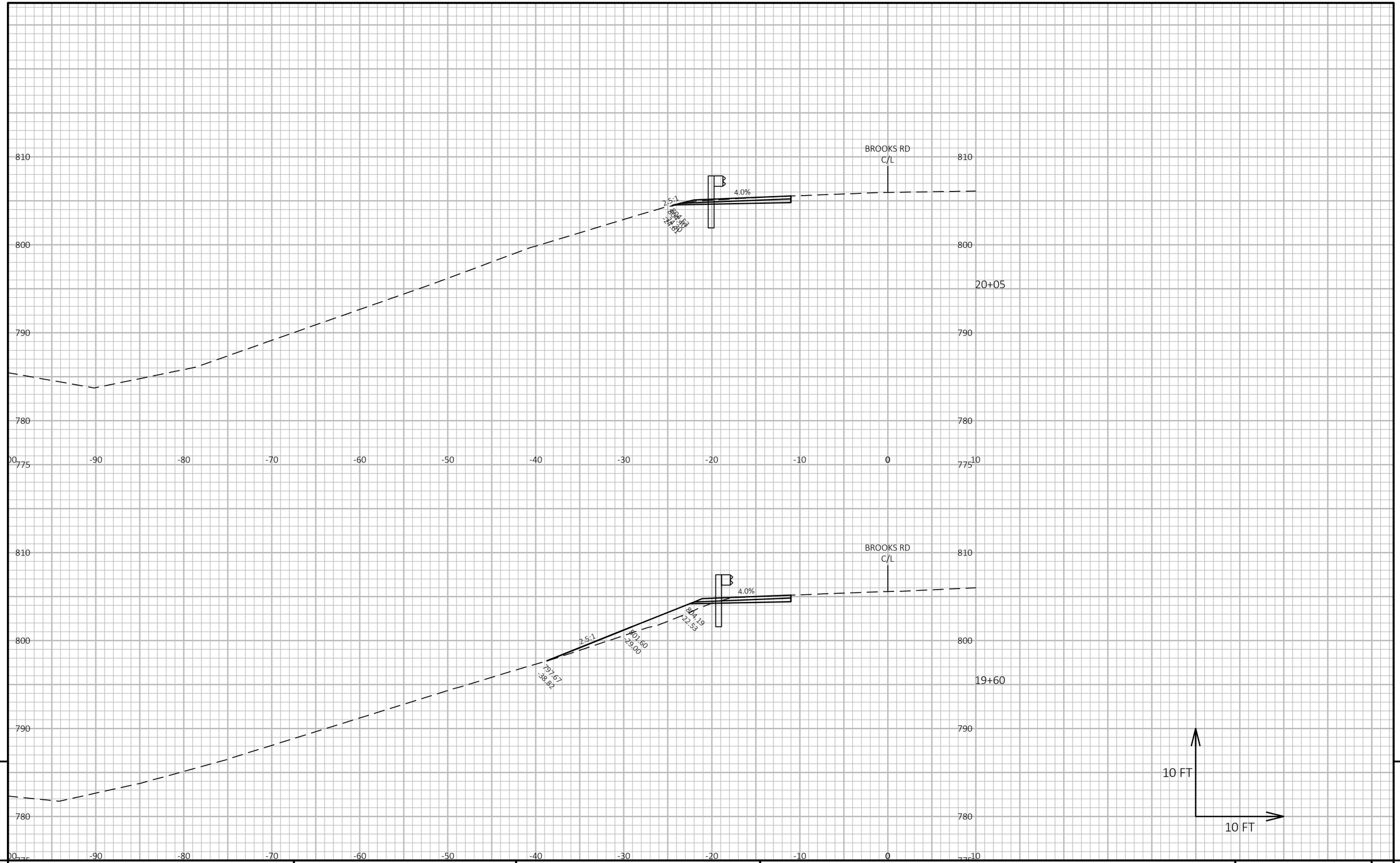
PROJECT NO: 6200-19-71	HWY: BROOKS RD	COUNTY: WINNEBAGO	CROSS SECTIONS: CROSS SECTIONS	SHEET 75	E

FILE NAME : N:\PDS\C3D\62001900\SHEETSPLAN\090201-XS.DWG
LAYOUT NAME - 090205-xs

PLOT DATE : 10/28/2024 1:05 PM PLOT BY : CAMPSHURE, MICHAEL R PLOT NAME :

PLOT SCALE : 1 IN:10 FT HORZ. / 1 IN:10 FT VERT.

WISDOT/CADDS SHEET 49



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PROJECT NO: 6200-19-71	HWY: BROOKS RD	COUNTY: WINNEBAGO	CROSS SECTIONS: CROSS SECTIONS	SHEET 76	E

FILE NAME : N:\PDS\C3D\62001900\SHEETSPLAN\090201-XS.DWG
LAYOUT NAME - 090207-xs

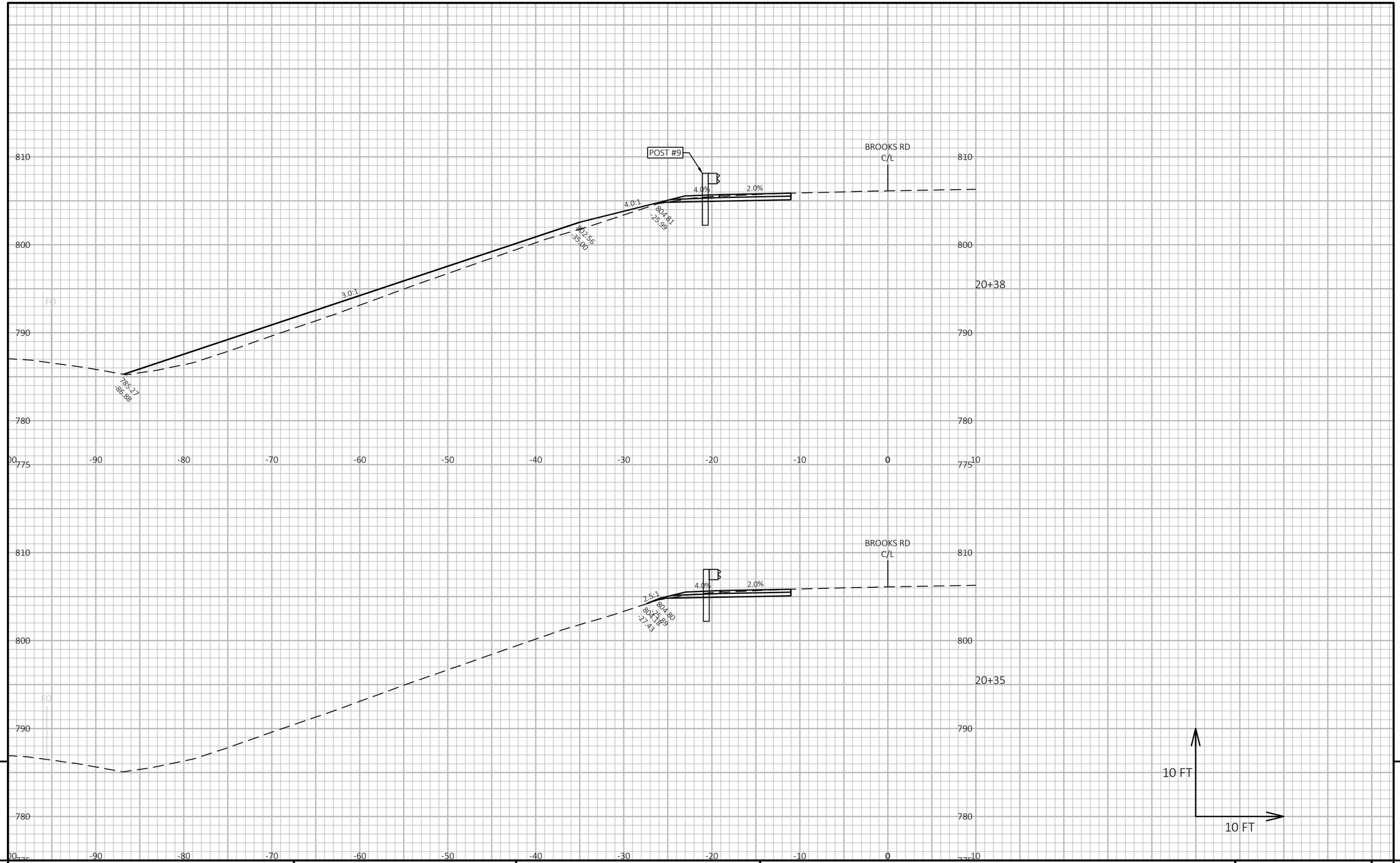
PLOT DATE : 10/28/2024 1:05 PM

PLOT BY : CAMPSHURE, MICHAEL R

PLOT NAME :

PLOT SCALE : 1 IN:10 FT HORZ. / 1 IN:10 FT VERT.

WISDOT/CADDS SHEET 49



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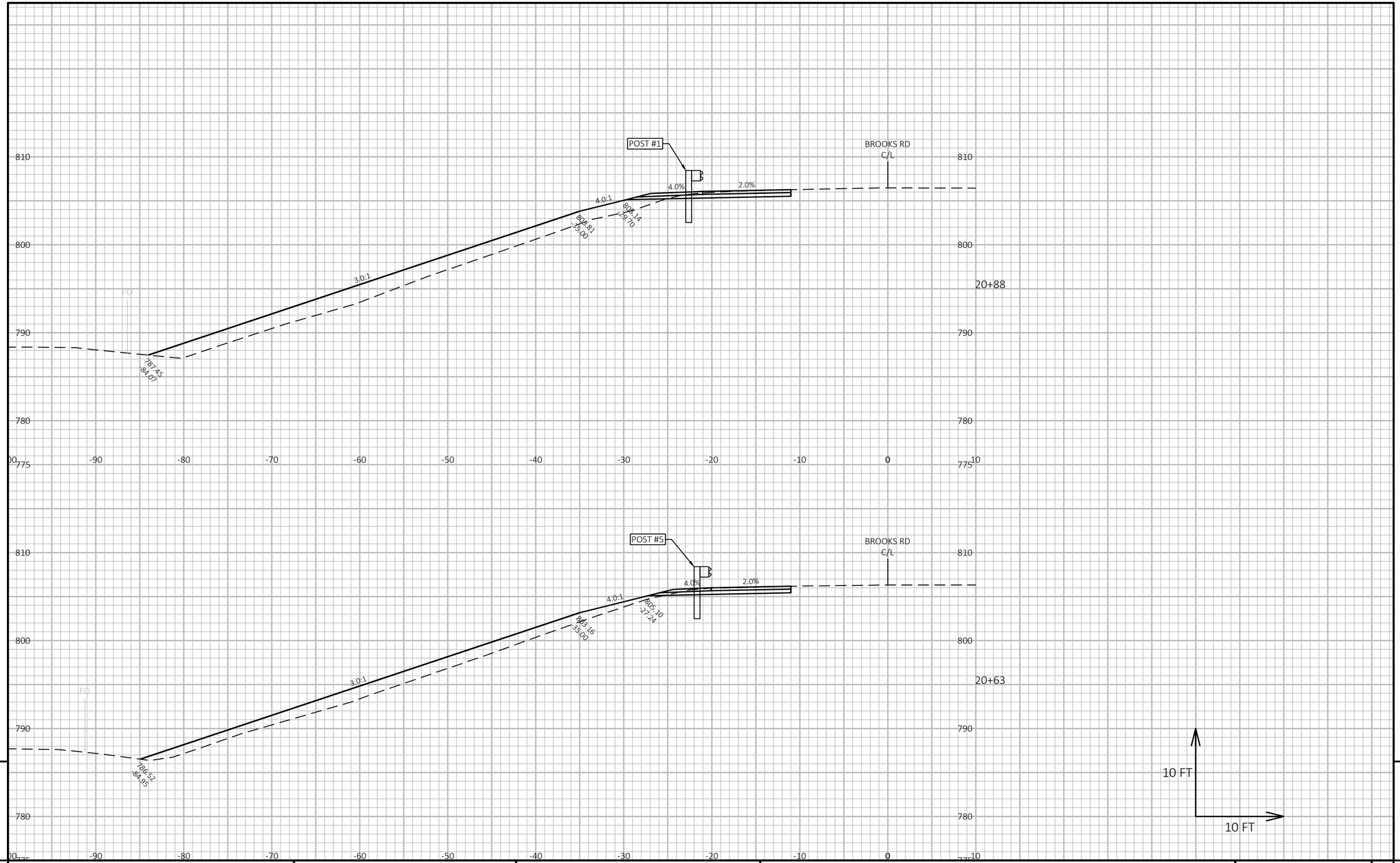
PROJECT NO: 6200-19-71	HWY: BROOKS RD	COUNTY: WINNEBAGO	CROSS SECTIONS: CROSS SECTIONS	SHEET 77	E

FILE NAME : N:\PDS\C3D\62001900\SHEETSPLAN\090201-XS.DWG
LAYOUT NAME - 090208-xs

PLOT DATE : 10/28/2024 1:05 PM PLOT BY : CAMPSHURE, MICHAEL R PLOT NAME : PLOT SCALE : 1 IN:10 FT HORZ. / 1 IN:10 FT VERT.

WISDOT/CADDS SHEET 49

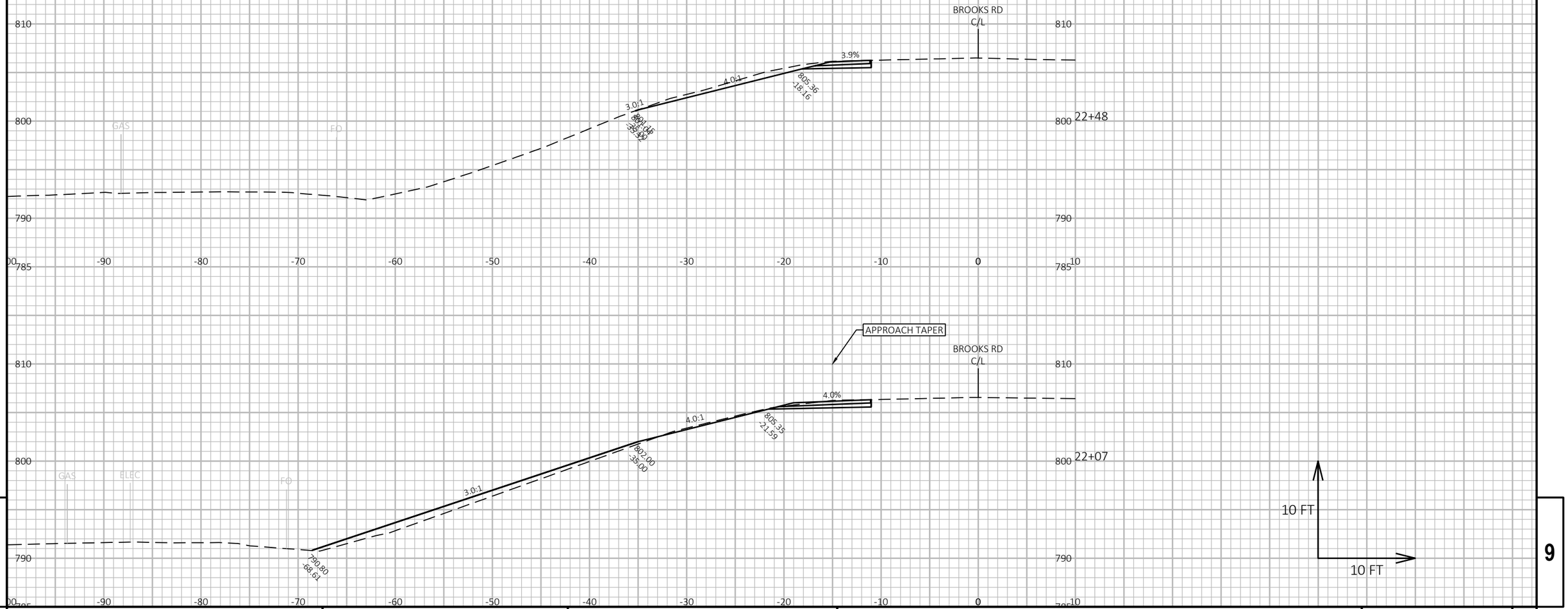


PROJECT NO: 6200-19-71	HWY: BROOKS RD	COUNTY: WINNEBAGO	CROSS SECTIONS: CROSS SECTIONS	SHEET 78	E

FILE NAME : N:\PDS\C3D\62001900\SHEETSPLAN\090201-XS.DWG
LAYOUT NAME - 090209-xs

PLOT DATE : 10/28/2024 1:05 PM PLOT BY : CAMPSHURE, MICHAEL R PLOT NAME : PLOT SCALE : 1 IN:10 FT HORZ. / 1 IN:10 FT VERT.

WISDOT/CADDS SHEET 49



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9

PROJECT NO: 6200-19-71	HWY: BROOKS RD	COUNTY: WINNEBAGO	CROSS SECTIONS: CROSS SECTIONS	SHEET 79	E

FILE NAME : N:\PDS\C3D\62001900\SHEETSPLAN\090201-XS.DWG
LAYOUT NAME - 090210-xs

PLOT DATE : 10/28/2024 1:05 PM PLOT BY : CAMPSHURE, MICHAEL R PLOT NAME : PLOT SCALE : 1 IN:10 FT HORZ. / 1 IN:10 FT VERT.

WISDOT/CADDS SHEET 49

Wisconsin Department of Transportation

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through innovation and exceptional service.

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