LAX

DECEMBER 2018

PROJECT ID: 5467-00-70

WITH: N/A

COUNTY: VERNON

ORDER OF SHEETS

TOTAL SHEETS = 64

DESIGN DESIGNATION

A.A.D.T. 2019	=	340
A.A.D.T. 2039	=	420
D.H.V. 2039	=	74
D.D.	=	60/40
T.	=	25%
DESIGN SPEED	=	40 MPH
ESALS	=	210,000

CONVENTIONAL SYMBOLS

PLAN

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PLAN OF PROPOSED IMPROVEMENT

STH 82 - CTH P

OTTER CREEK BRIDGE B-62-0256

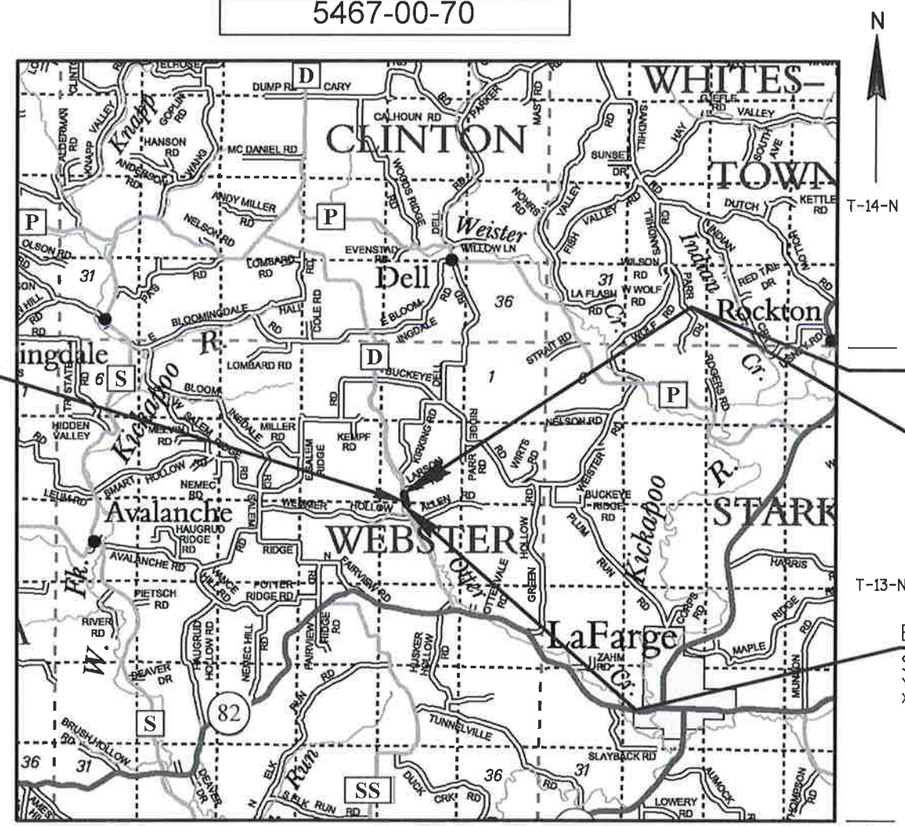
CTH D

VERNON COUNTY

STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
5467-00-70		

STATE PROJECT NUMBER

5467-00-70



STRUCTURE B-62-0256

END CONSTRUCTION
STA 11+75
END PROJECT
STA 11+50

BEGIN PROJECT
STA 8+25
Y = 455,388.294
X = 879,696.298

LAYOUT
SCALE 0 1 MI.

TOTAL NET LENGTH OF CENTERLINE = 0.062 MI.

HORIZONTAL POSITIONS SHOWN ON THIS PLAN ARE WISCONSIN COUNTY COORDINATES, VERNON COUNTY, NAD83 (2007), IN U.S. SURVEY FEET. VALUES ARE GRID COORDINATES, GRID BEARINGS, AND GRID DISTANCES. GRID DISTANCES MAY BE USED AS GROUND DISTANCES. VERTICAL DATUM BASED ON USGS (NAVD 88)

ACCEPTED FOR
COUNTY OF VERNON

Hwy. Comm

DATE: 6-20-2018 Chris Hewett
(Signature & Title of Official)

ORIGINAL PLANS PREPARED BY

SEH
Short Elliott Hendrickson Inc.
6808 Odana Road, Suite 200
Madison, WI 53719-1137
Building a Better World for All of Us®
608.620.6199 main | 888.908.8166 fax
800.732.4362 toll free | www.sehinc.com

WISCONSIN
CHRISTOPHER J. BLUM
E-33157
MADISON, WI
PROFESSIONAL ENGINEER

6.20.18 Christopher J Blum
(Date) (Signature)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PREPARED BY

Surveyor	SEH INC.
Designer	SEH INC.
Management Consultant	KL ENGINEERING, INC.

APPROVED FOR THE DEPARTMENT

DATE: 7/25/18 Jeff Mehlos
(Management Consultant Signature)

E

2

GENERAL NOTES

1. NO TREES OR SHRUBS SHALL BE REMOVED WITHOUT APPROVAL OF THE ENGINEER.
2. 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.
3. THE CONTRACTOR SHALL NOTIFY DIGGERS HOTLINE AND AFFECTED UTILITIES PRIOR TO THE START OF WORK. ANY LOCAL MUNICIPAL UTILITY WHICH IS NOT A MEMBER OF THE DIGGERS HOTLINE MUST BE CONTACTED SEPARATELY.
4. WETLANDS, WATERWAYS, AND OTHER ENVIRONMENTALLY SENSITIVE AREAS SHALL BE PROTECTED AT ALL TIMES. DO NOT STORE EQUIPMENT OR MATERIALS NEAR THESE SITES UNLESS APPROVED BY THE ENGINEER.
5. SILT FENCE IS TO BE PLACED AS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER, AND IN PLACE PRIOR TO BRIDGE REMOVAL.
6. BROKEN CONCRETE CONTAINING RE-BAR SHALL NOT BE USED AS RIPRAP.
7. TRAFFIC CONTROL DEVICES SHALL BE ADJUSTED TO FIT FIELD CONDITIONS AS DIRECTED BY THE ENGINEER.
8. THE EROSION CONTROL FEATURES AS SHOWN IN THE PLANS ARE AT SUGGESTED LOCATIONS. EXACT LOCATIONS WILL BE DETERMINED BY THE ENGINEER IN THE FIELD.
9. ASPHALTIC AND CONCRETE SURFACES SHALL BE SAWCUT AT THE MATCH LINE AS SHOWN ON THE PLAN OR AS DIRECTED BY THE ENGINEER.
10. DISTURBED AREAS WITHIN THE RIGHT OF WAY, EXCEPT THE AREAS WITHIN THE FINISHED SHOULDER POINTS, SHALL BE SALVAGE TOPSOILED, FERTILIZED, SEEDED AND MULCHED.
11. FERTILIZER SHALL NOT BE USED NEAR NAVIGABLE WATERWAYS OR WETLANDS.
12. A CONVERSION FACTOR OF 2.1 TONS/CY IS USED TO ESTIMATE QUANTITIES FOR BASE AGGREGATE DENSE 3/4-INCH.
13. A CONVERSION FACTOR OF 2.0 TONS/CY IS USED TO ESTIMATE QUANTITIES FOR BASE AGGREGATE DENSE 1 1/4-INCH.
14. A CONVERSION FACTOR OF 110 LBS/IN/SY IS USED TO ESTIMATE QUANTITIES FOR HMA PAVEMENT.
15. ALL TYPES OF ASPHALTIC PAVEMENT SHALL BE CONSTRUCTED WITH THE FOLLOWING LAYERS AND GRADATIONS:

TOTAL PAVEMENT DEPTH (INCH)	LAYER DEPTH (INCH)	HMA PAVEMENT ITEM
4.0	UPPER: 2.0	4 LT 58-28 S
	LOWER: 2.0	4 LT 58-28 S

STANDARD ABBREVIATIONS

ABUT	ABUTMENT	CWT	HUNDREDWEIGHT
AC	ACRE	HYD	HYDRANT
AGG	AGGREGATE	ID	INSIDE DIAMETER
AECPRC	APRON ENDWALL FOR CULVERT PIPE REINFORCED CONCRETE	INV	INVERT
		IP	IRON PIPE OR PIN
AECPRCHE	APRON ENDWALL FOR CULVERT PIPE REINFORCED CONCRETE HORIZONTAL ELLIPTICAL	LHF	LEFT-HAND FORWARD
		L	LENGTH OF CURVE
		LF	LINEAR FOOT
AECPCS	APRON ENDWALL FOR CULVERT PIPE STEEL	LC	LONG CHORD OF CURVE
		LS	LUMP SUM
ASPH	ASPHALTIC	MH	MANHOLE
AVG	AVERAGE	MOR	MID POINT OF RADIUS
ADT	AVERAGE DAILY TRAFFIC	MCE	MARKERS CULVERT END
BF	BACK FACE	NC	NORMAL CROWN
BM	BENCH MARK	NO	NUMBER
BR	BRIDGE	OBLIT	OBLITERATE
CE	COMMERCIAL ENTRANCE	PAVT	PAVEMENT
CL OR C/L OR ℄	CENTER LINE	PE	PRIVATE ENTRANCE
Δ	CENTRAL ANGLE OR DELTA	PVRC	POINT OF VERTICAL REVERSE CURVE
CONC	CONCRETE	QOR	QUARTER POINT OF RADIUS
CPRC	CULVERT PIPE REINFORCED CONCRETE	R	RADIUS
CPCS	CULVERT PIPE CORRUGATED STEEL	REQ'D	REQUIRED
CR	CREEK	RES	RESIDENCE OR RESIDENTIAL
CY	CUBIC YARD	RHF	RIGHT-HAND FORWARD
C & G	CURB AND GUTTER	R/W	RIGHT-OF-WAY
D	DEGREE OF CURVE	R	RIVER
DHV	DESIGN HOUR VOLUME	RDWY	ROADWAY
DISCH	DISCHARGE	R/L OR ℞	REFERENCE LINE
DG	DITCH GRADE	SALV	SALVAGED
DWY	DRIVEWAY	SAN	SANITARY SEWER
X	EAST GRID COORDINATE	SF	SQUARE FEET
EAT	STEEL PLATE BEAM GUARD ENERGY ABSORBING TERMINAL	SY	SQUARE YARD
		SDD	STANDARD DETAIL DRAWINGS
EOR	END POINT OF RADIUS	STA	STATION
EL	ELEVATION	SS	STORM SEWER
ENT	ENTRANCE	SSPRC	STORM SEWER PIPE REINFORCED CONCRETE
ESALS	EQUIVALENT SINGLE AXLE LOADS		
EXC	EXCAVATION	SE	SUPERELEVATION RATE
EBS	EXCAVATION BELOW SUBGRADE	TC	TOP OF CURB
EXIST	EXISTING	T OR TN	TOWN
FC	FACE OF CURB	T	TRUCKS (PERCENT OF)
FF	FACE TO FACE	TYP	TYPICAL
FERT	FERTILIZE	VAR	VARIABLE
FE	FIELD ENTRANCE	VC	VERTICAL CURVE
FL	FLOW LINE	Y	NORTH GRID COORDINATE
FO	FIBER OPTIC	YD	YARD

CONSULTANT DESIGN

SEH INC.
6808 ODANA ROAD, SUITE 200
MADISON, WI 53719
ATTN: CHRIS BLUM
PHONE: (608) 620-6192
EMAIL: CBLUM@SEHINC.COM

VERNON COUNTY

VERNON COUNTY HIGHWAY DEPARTMENT
602 NORTH MAIN STREET
VIROQUA, WI 54665
ATTN: PHIL HEWITT
PHONE: (608) 637-5452
EMAIL: PHIL.HEWITT@VERNONCOUNTY.ORG

WDNR LIAISON

DNR SERVICE CENTER
3550 MORMON COULEE ROAD
LA CROSSE, WI 54601
ATTN: KAREN KALVELAGE
PHONE: (608) 785-9115
EMAIL: KAREN.KALVELAGE@WISCONSIN.GOV

UTILITY CONTACT LIST

VERNON ELECTRIC
110 SAUGSTAD ROAD
WESTBY, WI 54667
ATTN: MARK SEE
PHONE: 608-634-3121
EMAIL: MSEE@VERNONELECTRIC.ORG

VERNON COMMUNICATIONS
103 NORTH MAIN STREET
PO BOX 20
WESTBY, WI 54667
ATTN: SCOTT FREDERICK
PHONE: 608-634-7434
EMAIL: SFREDERICK@VERNONCOM.COOP

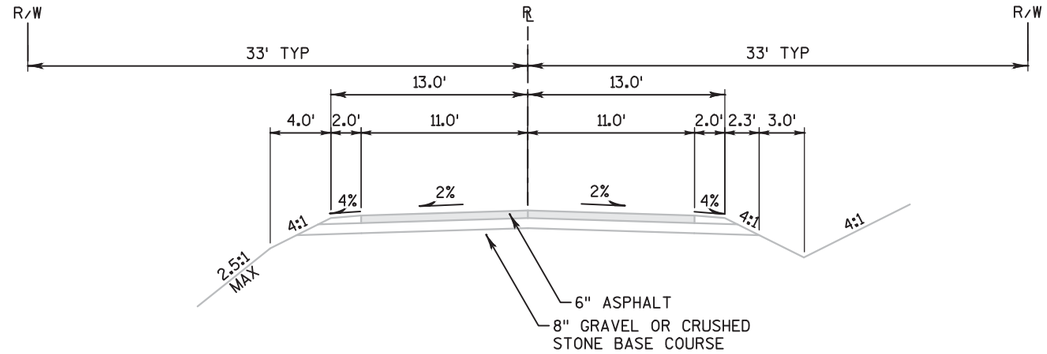
TO OBTAIN LOCATION OF PARTICIPANTS' UNDERGROUND FACILITIES BEFORE YOU DIG IN WISCONSIN

DIGGERS HOTLINE

Dial 811 or (800)242-8511

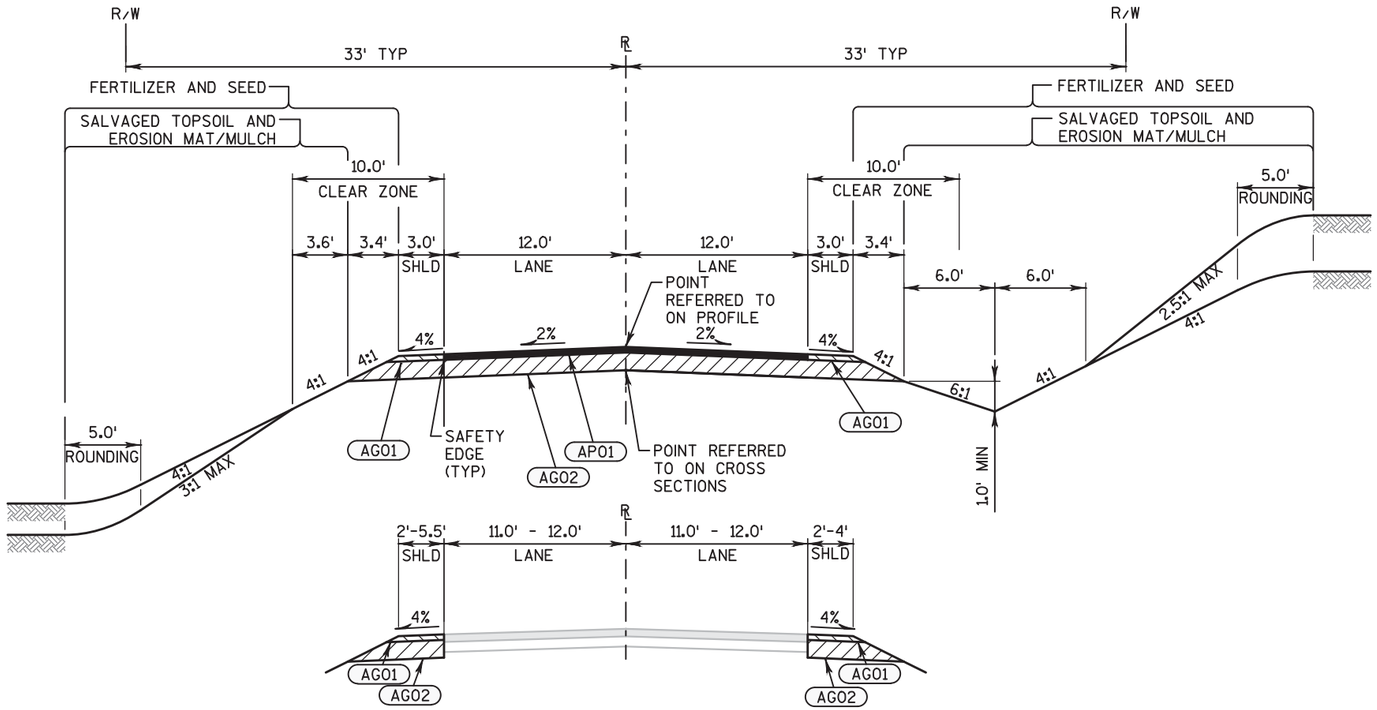
www.DiggersHotline.com

NOTE: WIS. STATUTE 182.0175 REQUIRES MIN. OF 3 WORK DAYS NOTICE BEFORE YOU EXCAVATE.



TYPICAL EXISTING SECTION - CTH D

STA 8+25 TO STA 11+50



STA 11+50 TO STA 11+75, LT

STA 11+50 TO STA 11+75, RT

KEYED NOTE LEGEND

AP01	4.0-INCH HMA PAVEMENT 4 LT 58-28 S
AG01	BASE AGGREGATE DENSE 3/4-INCH
AG02	BASE AGGREGATE DENSE 1 1/4-INCH, 14-INCH

TYPICAL FINISHED SECTION - CTH D

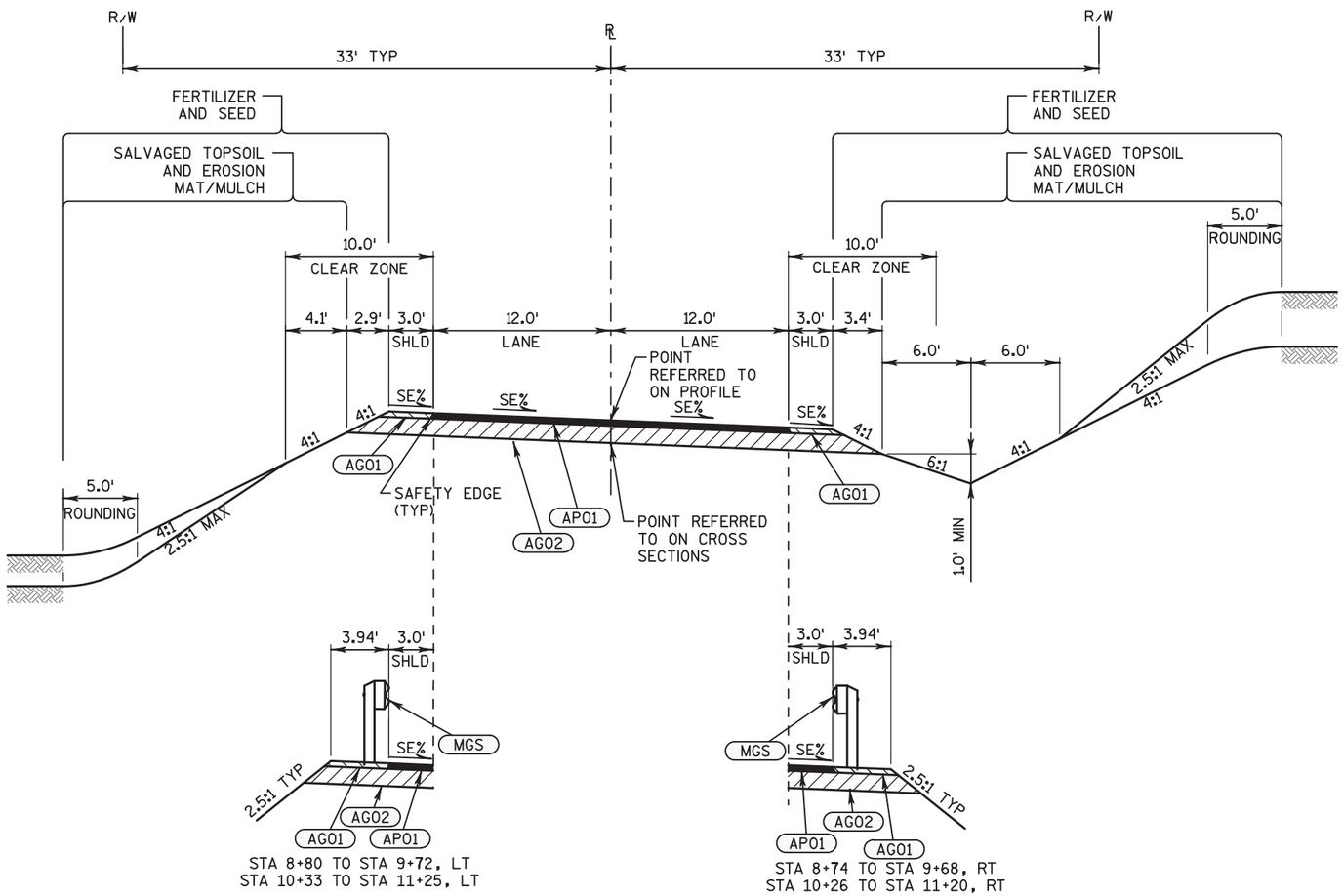
STA 8+25 TO STA 11+50

PROJECT NO:5467-00-70	HWY: CTH D	COUNTY: VERNON	TYPICAL SECTIONS	SHEET 3	E

SUPER ELEVATION - CTH D

STATION	TYPE	LEFT SHOULDER	LEFT LANE	RIGHT LANE	RIGHT SHOULDER
8+30.00	END NORMAL SHOULDER	-4.00%	-2.00%	-2.00%	-4.00%
8+30.00	END NORMAL CROWN	-4.00%	-2.00%	-2.00%	-4.00%
8+72.00	LEVEL CROWN	0.00%	0.00%	-2.00%	-4.00%
9+14.00	REVERSE CROWN	2.00%	2.00%	-2.00%	-4.00%
9+53.90	BEGIN FULL SUPER	3.90%	3.90%	-3.90%	-4.00%
10+23.00	END FULL SUPER	3.90%	3.90%	-3.90%	-4.00%
10+62.90	REVERSE CROWN	2.00%	2.00%	-2.00%	-4.00%
11+04.90	LEVEL CROWN	0.00%	0.00%	-2.00%	-4.00%
11+46.90	BEGIN NORMAL CROWN	-4.00%	-2.00%	-2.00%	-4.00%
11+46.90	BEGIN NORMAL SHOULDER	-4.00%	-2.00%	-2.00%	-4.00%

NOTE: DS = 40 MPH; X = 42'



KEYED NOTE LEGEND

AP01	4.0-INCH HMA PAVEMENT 4 LT 58-28 S
AG01	BASE AGGREGATE DENSE 3/4-INCH
AG02	BASE AGGREGATE DENSE 1 1/4-INCH, 14-INCH
MGS	MGS GUARDRAIL ITEMS

TYPICAL FINISHED SECTION - CTH D
SUPERELEVATED SECTION

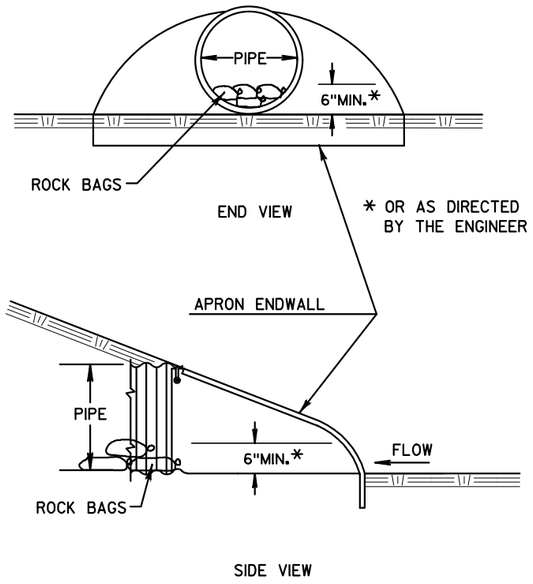
STA 8+30 TO STA 11+46.90

PROJECT NO:5467-00-70	HWY: CTH D	COUNTY: VERNON	TYPICAL SECTIONS	SHEET 4	E

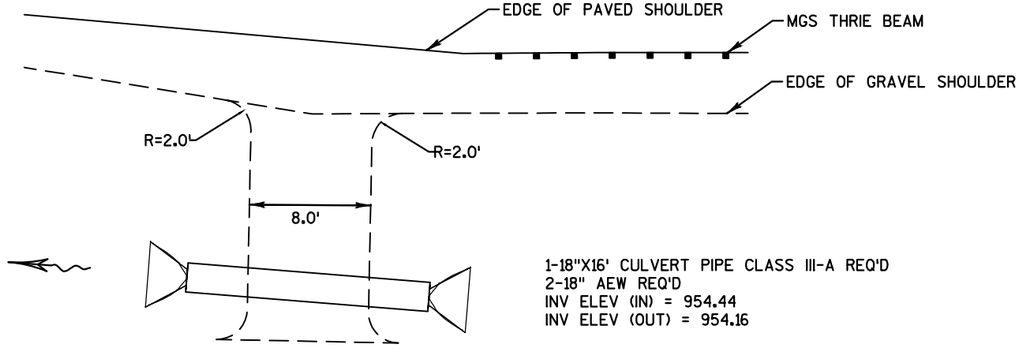
RUNOFF COEFFICIENT TABLE

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

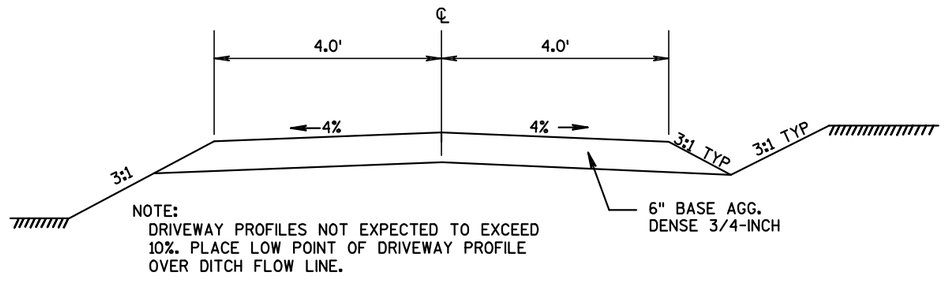
TOTAL PROJECT AREA = 0.583 ACRES
TOTAL AREA EXPECTED TO BE DISTURBED BY CONSTRUCTION ACTIVITIES = 0.439 ACRES



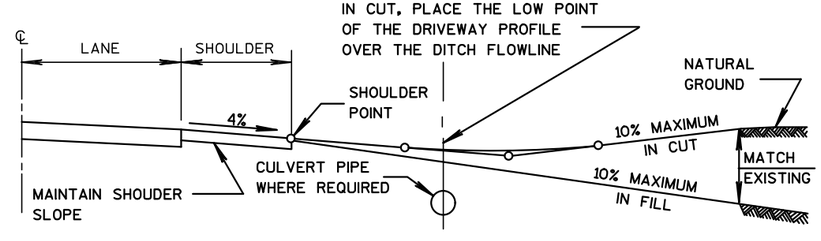
CULVERT PIPE CHECK



AGGREGATE FIELD ENTRANCE DETAIL
STA 8+64, RT



AGGREGATE FE TYPICAL SECTION DETAIL



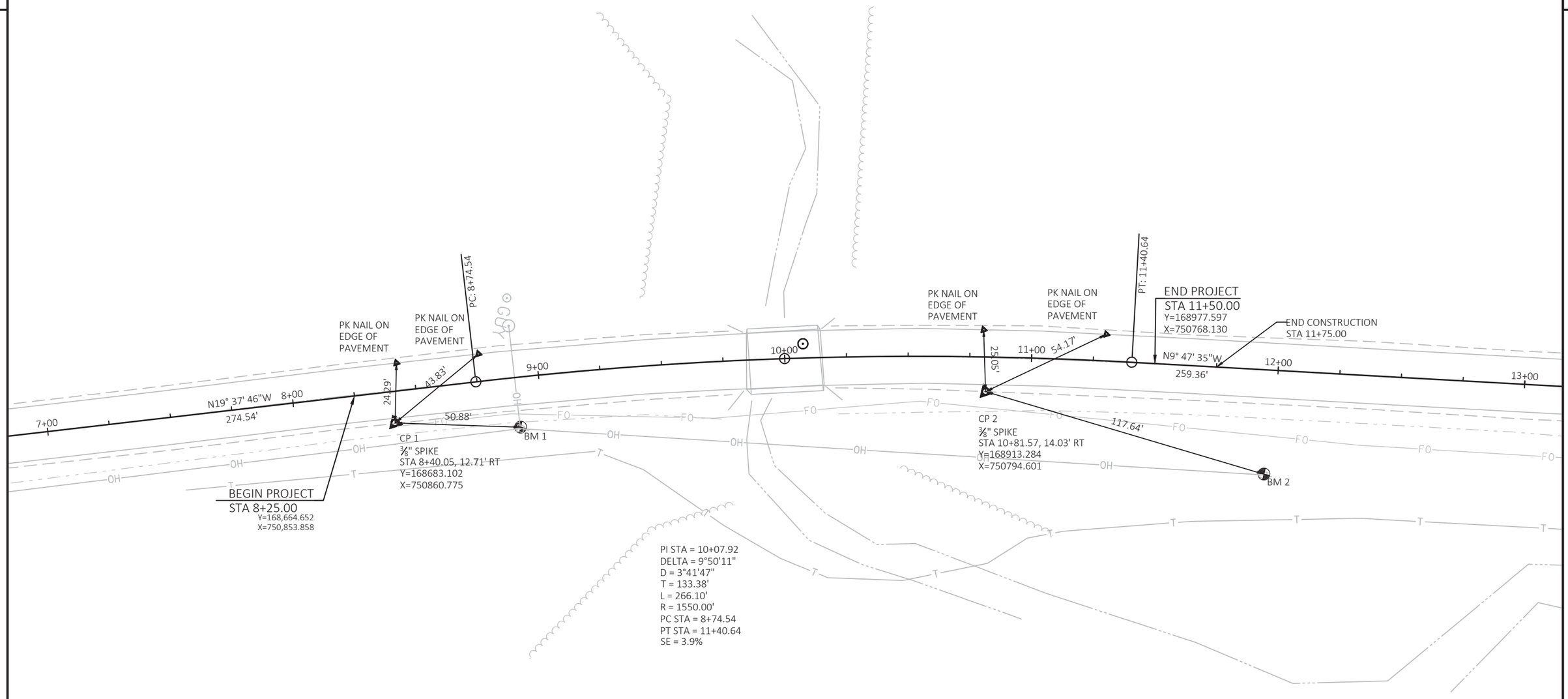
TYPICAL AGGREGATE FE PROFILES

PROJECT NO: 5467-00-70	HWY: CTH D	COUNTY: VERNON	CONSTRUCTION DETAILS	SHEET 5	E

2

BENCH MARK TABLE				
NO	STATION,	OFFSET	DESCRIPTION	ELEV
1	8+90.64,	20.23'RT	⅜" SPIKE IN POWER POLE	957.593
2	11+96.62,	42.22'RT	⅜" SPIKE IN POWER POLE	960.361

2



PROJECT NO: 5467-00-70	HWY: CTH D	COUNTY: VERNON	ALIGNMENT DATA & PROJECT CONTROL TIES	SHEET 6	E

5467-00-70

Line	Item	Item Description	Unit	Total	Qty
0002	203.0600.S	Removing Old Structure Over Waterway With Minimal Debris (station) 01. 10+00	LS	1.000	1.000
0004	205.0100	Excavation Common **P**	CY	589.000	589.000
0006	206.1000	Excavation for Structures Bridges (structure) 01. B-62-0256	LS	1.000	1.000
0008	210.1500	Backfill Structure Type A	TON	300.000	300.000
0010	213.0100	Finishing Roadway (project) 01. 5467-00-70	EACH	1.000	1.000
0012	305.0110	Base Aggregate Dense 3/4-Inch	TON	64.000	64.000
0014	305.0120	Base Aggregate Dense 1 1/4-Inch	TON	1,194.000	1,194.000
0016	455.0605	Tack Coat	GAL	45.000	45.000
0018	460.2000	Incentive Density HMA Pavement	DOL	130.000	130.000
0020	460.5224	HMA Pavement 4 LT 58-28 S	TON	201.000	201.000
0022	502.0100	Concrete Masonry Bridges	CY	206.000	206.000
0024	502.3200	Protective Surface Treatment	SY	143.000	143.000
0026	502.3210	Pigmented Surface Sealer	SY	67.000	67.000
0028	505.0400	Bar Steel Reinforcement HS Structures	LB	5,150.000	5,150.000
0030	505.0600	Bar Steel Reinforcement HS Coated Structures	LB	26,050.000	26,050.000
0032	516.0500	Rubberized Membrane Waterproofing	SY	20.000	20.000
0034	520.1018	Apron Endwalls for Culvert Pipe 18-Inch	EACH	2.000	2.000
0036	520.3318	Culvert Pipe Class III-A 18-Inch	LF	16.000	16.000
0038	550.0500	Pile Points	EACH	10.000	10.000
0040	550.1100	Piling Steel HP 10-Inch X 42 Lb	LF	250.000	250.000
0042	606.0300	Riprap Heavy	CY	130.000	130.000
0044	612.0406	Pipe Underdrain Wrapped 6-Inch	LF	220.000	220.000
0046	614.0150	Anchor Assemblies for Steel Plate Beam Guard	EACH	4.000	4.000
0048	614.2500	MGS Thrie Beam Transition	LF	157.600	157.600
0050	614.2610	MGS Guardrail Terminal EAT	EACH	4.000	4.000
0052	618.0100	Maintenance And Repair of Haul Roads (project) 01. 5467-00-70	EACH	1.000	1.000
0054	619.1000	Mobilization	EACH	1.000	1.000
0056	624.0100	Water	MGAL	13.000	13.000
0058	625.0500	Salvaged Topsoil **P**	SY	1,041.000	1,041.000
0060	627.0200	Mulching **P**	SY	831.000	831.000
0062	628.1504	Silt Fence	LF	490.000	490.000
0064	628.1520	Silt Fence Maintenance	LF	490.000	490.000
0066	628.1905	Mobilizations Erosion Control	EACH	2.000	2.000
0068	628.1910	Mobilizations Emergency Erosion Control	EACH	2.000	2.000
0070	628.2008	Erosion Mat Urban Class I Type B	SY	495.000	495.000
0072	628.7555	Culvert Pipe Checks	EACH	4.000	4.000
0074	629.0210	Fertilizer Type B	CWT	0.700	0.700

5467-00-70

Line	Item	Item Description	Unit	Total	Qty
0076	630.0120	Seeding Mixture No. 20 **P**	LB	18.000	18.000
0078	630.0200	Seeding Temporary **P**	LB	28.000	28.000
0080	634.0612	Posts Wood 4x6-Inch X 12-FT	EACH	4.000	4.000
0082	637.2230	Signs Type II Reflective F	SF	12.000	12.000
0084	638.2602	Removing Signs Type II	EACH	4.000	4.000
0086	638.3000	Removing Small Sign Supports	EACH	4.000	4.000
0088	642.5001	Field Office Type B	EACH	1.000	1.000
0090	643.0420	Traffic Control Barricades Type III	DAY	630.000	630.000
0092	643.0705	Traffic Control Warning Lights Type A	DAY	840.000	840.000
0094	643.0900	Traffic Control Signs	DAY	490.000	490.000
0096	643.0920	Traffic Control Covering Signs Type II	EACH	1.000	1.000
0098	643.5000	Traffic Control	EACH	1.000	1.000
0100	645.0111	Geotextile Type DF Schedule A	SY	76.000	76.000
0102	645.0120	Geotextile Type HR	SY	310.000	310.000
0104	646.1020	Marking Line Epoxy 4-Inch	LF	1,300.000	1,300.000
0106	650.4500	Construction Staking Subgrade	LF	308.000	308.000
0108	650.5000	Construction Staking Base	LF	308.000	308.000
0110	650.6500	Construction Staking Structure Layout (structure) 01. B-62-0256	LS	1.000	1.000
0112	650.9910	Construction Staking Supplemental Control (project) 01. 5467-00-70	LS	1.000	1.000
0114	650.9920	Construction Staking Slope Stakes	LF	308.000	308.000
0116	690.0150	Sawing Asphalt	LF	44.000	44.000
0118	715.0502	Incentive Strength Concrete Structures	DOL	1,236.000	1,236.000

3

EARTHWORK SUMMARY

LOCATION	205.0100 EXCAVATION COMMON **P** (CY) (3)	FILL (CY) (1)	EXPANDED FILL (CY) (2)	WASTE (CY)
SOUTH APPROACH	332	83	108	224
NORTH APPROACH	257	108	140	117
PROJECT TOTAL	**589**	**191**	**248**	**341**

(1) - NOT A BID ITEM - FOR INFORMATIONAL PURPOSES ONLY
(2) - FILL EXPANSION 30%
(3) - EXISTING ASPHALTIC PAVEMENT IS INCLUDED IN COMMON EXCAVATION TOTALS

BASE AGGREGATE DENSE

STATION	-	STATION	305.0110 BASE AGGREGATE DENSE 3/4-INCH (TON)	305.0120 BASE AGGREGATE DENSE 1 1/4-INCH (TON)	**624.0100 WATER (MGAL)
8+25	-	9+79	32	623	7
10+21	-	11+75	32	571	6
		PROJECT TOTALS	**64**	**1194**	**13**

** WATER CONVERSION IS 1 MGAL/100 TON OF BASE AGGREGATE DENSE MATERIAL. USE WATER FOR BASE COMPACTION AND DUST CONTROL

P - PAY PLAN QUANTITY

NOTE:
ALL ITEMS AND QUANTITIES ON THIS SHEET ARE FOR ENGINEERS ESTIMATE CATEGORY 0010 UNLESS OTHERWISE NOTED.

ASPHALTIC PAVEMENT ITEMS

STATION	-	STATION	LAYER THICKNESS (IN)	455.0605 TACK COAT (GAL)	460.5224 HMA PAVEMENT 4 LT 58-28 S (TON)	
8+25	-	9+79	2.00	-	54	LOWER
8+25	-	9+79	2.00	24	54	UPPER
10+21	-	11+65	2.00	-	47	LOWER
10+21	-	11+65	2.00	21	47	UPPER
		PROJECT TOTALS		**45**	**201**	

CULVERT ITEMS

INLET STATION	OFFSET	ELEV. (FT)	OUTLET STATION	OFFSET	ELEV. (FT)	SLOPE (%)	520.3318 CULVERT PIPE CLASS III-A 18-INCH (LF)	520.1018 APRON ENDWALLS FOR CULVERT PIPE 18-INCH (EACH)
8+72	31.0' RT	954.44	8+56	29.7' RT	954.16	1.75%	16	2
				PROJECT TOTALS			**16**	**2**

GUARDRAIL ITEMS

STATION	-	STATION	LOCATION	614.2500 MGS THRIE BEAM TRANSITION (LF)	614.2610 MGS GUARDRAIL TERMINAL EAT (EACH)
8+74	-	9+68	RT	39.4	1
8+80	-	9+72	LT	39.4	1
10+26	-	11+20	RT	39.4	1
10+33	-	11+25	LT	39.4	1
			PROJECT TOTAL	**157.6**	**4**

EROSION CONTROL ITEMS

STATION	-	STATION	LOCATION	628.1504 SILT FENCE (LF)	628.1520 SILT FENCE MAINTENANCE (LF)	628.2008 EROSION MAT URBAN CLASS I TYPE B (SY)	628.7555 CULVERT PIPE CHECKS (ROCK BAGS) (EACH)
8+15	-	9+75	LT	180	180	74	-
8+15	-	9+75	RT	-	-	-	3
10+30	-	11+85	LT	180	180	66	-
10+30	-	11+85	RT	-	-	70	-
9+75	-	10+30	BRIDGE	161	161	-	-
			UNDISTRIBUTED	130	130	285	1
			PROJECT TOTALS	**490**	**490**	**495**	**4**

FINISHING ITEMS

STATION	-	STATION	LOCATION	625.0500 SALVAGED TOPSOIL **P** (SY)	627.0200 MULCHING **P** (SY)	629.0210 FERTILIZER TYPE B (CWT)	630.0120 SEEDING MIXTURE NO. 20 **P** (LB)	630.0200 SEEDING TEMPORARY **P** (LB)
8+25	-	9+79	LT	245	171	0.2	4	7
8+25	-	9+79	RT	300	300	0.2	5	8
10+21	-	11+75	LT	228	163	0.1	4	6
10+21	-	11+75	RT	268	198	0.2	5	7
			PROJECT TOTALS	**1,041**	**831**	**0.7**	**18**	**28**

MAINTENANCE AND REPAIR OF HAUL ROADS 5467-00-70

LOCATION	CATEGORY	618.1000 (EACH)
PROJECT 5467-00-70	0030	1
TOTAL		**1**

EROSION CONTROL MOBILIZATION

DESCRIPTION	628.1905 MOBILIZATION EROSION CONTROL (EACH)	628.1910 MOBILIZATIONS EMERGENCY EROSION CONTROL (EACH)
PROJECT 5467-00-70	2	2
TOTAL	**2**	**2**

3

SIGNING ITEMS

LOCATION	SIGN CODE	SIGN SIZE	638.2602 REMOVING SIGNS TYPE II (EACH)	638.3000 REMOVING SMALL SIGN SUPPORTS (EACH)	634.0612 POSTS WOOD 4X6-INCH X 12 FT (EACH)	637.2230 SIGNS TYPE II REFLECTIVE F (SF)	REMARKS
SW BRIDGE CORNER	W5-52L	12"X36"	1	1	1	3.00	EXISTING OBJECT MARKER
SE BRIDGE CORNER	W5-52R	12"X36"	1	1	1	3.00	EXISTING OBJECT MARKER
NW BRIDGE CORNER	W5-52L	12"X36"	1	1	1	3.00	EXISTING OBJECT MARKER
NE BRIDGE CORNER	W5-52R	12"X36"	1	1	1	3.00	EXISTING OBJECT MARKER
		PROJECT TOTAL	**4**	**4**	**4**	**12.00**	

NOTE:
ALL ITEMS AND QUANTITIES ON THIS SHEET ARE FOR ENGINEERS ESTIMATE CATEGORY 0010 UNLESS OTHERWISE NOTED.

PAVEMENT MARKING ITEMS

STATION	-	STATION	LOCATION	646.1020 MARKING LINE EPOXY 4-INCH WHITE (LF)	646.1020 MARKING LINE EPOXY 4-INCH YELLOW (LF)
8+25	-	11+50	CENTERLINE - DOUBLE	-	650
8+25	-	11+50	EDGELINE LT & RT	650	-
			PROJECT TOTALS	**1,300**	

3

TRAFFIC CONTROL

DESCRIPTION	DAYS	BARRICADES TYPE III EACH	643.0420 BARRICADES TYPE III (DAYS)	WARNING LIGHTS TYPE A EACH	643.0705 WARNING LIGHTS TYPE A (DAYS)	643.0900 SIGNS (DAYS)	643.0920 COVERING SIGNS TYPE II (EACH)	COVERING SIGNS TYPE II # OF CYCLES	643.5000 TRAFFIC CONTROL (EACH)
5467-00-70	35	18	630	24	840	490	1	1	1
			630		**840**	**490**	**1**		**1**

CONSTRUCTION STAKING

STATION	-	STATION	650.4500 SUBGRADE (LF)	650.5000 BASE (LF)	650.9920 SLOPE STAKES (LF)	650.9910 SUPPLEMENTAL CONTROL 5467-00-70 (LS)
8+25	-	9+79	154	154	154	-
10+21	-	11+75	154	154	154	-
		PROJECT TOTALS	**308**	**308**	**308**	**1**

SAWING ASPHALT

STATION	LOCATION	690.0150 (LF)	REMARKS
8+25	CL	22	TRANSVERSE
11+50	CL	22	TRANSVERSE
	PROJECT TOTALS	**44**	

BENCH MARK TABLE				
NO	STATION,	OFFSET	DESCRIPTION	ELEV
1	8+90.64,	20.23'RT	3/8" SPIKE IN POWER POLE	957.593
2	11+96.62,	42.22'RT	3/8" SPIKE IN POWER POLE	960.361

EROSION CONTROL LEGEND	
######	EROSION MAT URBAN CLASS I, TYPE B
	SILT FENCE
	RIP RAP
	SLOPE INTERCEPT
	CULVERT PIPE DITCH CHECK
	SURFACE WATER FLOW

TOWN

MGS THRIE BEAM MGS EAT (POST 1 STA 8+80.02, LT)

8+66.72 -39.00' LT

8+66.72 -33.00' LT

TLE SLOPES 298 SF 9+15.81 -39.00' LT 9+15.83 -33.00' LT

SLOPE INTERCEPTS (TYP)

EXIST R/W (TYP)

1 KIP J. & KRISTINE K. WALKER

PC: 8+74.54

VERNON ELECTRIC

6:1 TAPER

27' TAPER

33'

11'

15'

7+00 CTH D 8+00 9+00 10+00 11+00 12+00 13+00

BM 1

8+30.91 33.00' RT

8+30.91 44.50' RT

9+06.32 38.00' RT

9+06.32 44.50' RT

9+65.54 33.00' RT

9+65.54 38.00' RT

BEGIN PROJECT STA 8+25.00

TLE SLOPES 1157 SF

1 KIP J. & KRISTINE K. WALKER

MGS THRIE BEAM MGS EAT (POST 1 STA 8+74.54, RT)

STA 8+64, RT
CONSTRUCT AGG FE
1-18"x16' CULVERT PIPE CLASS III-A REQ'D
2-18" AEW REQ'D
SEE "AGGREGATE FIELD ENTRANCE" DETAIL

10 VERNON COMMUNICATIONS

S89°43'47"E 1052.00'

OF

LUNDE MONUMENT
Y=168823.680
X=751852.532

LUNDE MONUMENT
Y=168836.132
X=749212.729

S89°43'47"E 1587.83'

PI

REMOVE EXISTING STRUCTURE P-62-936

10+80.50 -38.00' LT

10+80.50 -33.00' LT

SECTION LINE = 9+97.50
Y=168828.643
X=750800.543

STRUCTURE B-62-256
SEE STRUCTURE PLANS

PI STA = 10+07.92
Y = 168836.941
X = 750792.408
DELTA = 9°50'11"
D = 3°41'47"
T = 133.38'
L = 266.10'
R = 1550.00'
PC STA = 8+74.54
PT STA = 11+40.64
SE = 3.9%

TLE SLOPES 285 SF

11+35.24 -38.00' LT

11+35.24 -33.00' LT

PT: 11+40.64

MGS THRIE BEAM MGS EAT (POST 1 STA 11+25.22, LT)

2 GENE R. & RITA M. ALLEN

SE/SW

6:1 TAPER

25' TAPER

27' TAPER

PL

10+83.38 33.00' RT

10+83.38 40.85' RT

11+53.39 33.00' RT

11+53.39 41.00' RT

END CONSTRUCTION STA 11+75.00

BM 2

END PROJECT STA 11+50.00

MGS THRIE BEAM MGS EAT (POST 1 STA 11+20.29, RT)

TLE SLOPES 551 SF

VERNON ELECTRIC

VERNON COMMUNICATIONS

1 KIP J. & KRISTINE K. WALKER

WEBSTER

OWNERS NAMES ARE SHOWN FOR REFERENCE PURPOSE ONLY AND ARE SUBJECT TO CHANGE PRIOR TO THE TRANSFER OF LAND INTEREST TO THE COUNTY

SCHEDULE OF LANDS & INTERESTS REQUIRED						
PARCEL NUMBER	OWNER(S)	INTEREST REQUIRED	R/W NEW SF	R/W EXISTING SF	R/W TOTAL SF	TLE SF
1	KIP J. & KRISTINE K. WALKER	TLE	-	-	-	2006
2	GENE R. & RITA M. ALLEN	TLE	-	-	-	285
10	VERNON COMMUNICATIONS	RELEASE OF RIGHTS				

RIGHT OF WAY DETERMINED BY LOCATION OF TRAVELED CENTERLINE WITH A WIDTH OF 66' PER WI STATUTE 82.31(2)

HORIZONTAL POSITIONS SHOWN ON THIS PLAN ARE WISCONSIN COUNTY COORDINATES, VERNON COUNTY, NAD83 (2007), IN U.S. SURVEY FEET VALUES ARE GRID COORDINATES, GRID BEARINGS, AND GRID DISTANCES. GIRD DISTANCES MAY BE USED AS GROUND DISTANCES. VERTICAL DATUM BASED ON USGS (NAVD 88).

STA 10+00
REMOVE STRUCTURE P-62-936
STRUCTURE B-62-256 REQ'D
SINGLE SPAN REINFORCED CONCRETE FLAT SLAB
40 FT OVERALL LENGTH
30.2 FT CLEAR ROADWAY WIDTH

STA 8+25.00 EL 956.50

VPC STA 8+40.47 VPC EL 956.84

VPI STA 9+05.47 VPI EL 958.30

VPT STA 9+70.47 VPT EL 958.59

STA 11+50.00 EL 959.38

2.24%

0.44%

VCL = 130.00

K = 72.26

HW 100YR EL 956.84

OBSERVED WATER LEVEL EL 950.1

STREAMBED EL 949.5

960 955 950 948

952.88 954.45 955.85 957.06 957.05 958.07 957.93 958.74 958.47 958.89 958.72 959.09 958.94 959.31 959.16 959.38 959.38 959.79 960.49 961.54

7+00 8+00 9+00 10+00 11+00 12+00 13+00

MAP DATE 4-12-18

PROJECT NO: 5467-00-70	HWY: CTH D	COUNTY: VERNON	PLAN, PROFILE AND PLAT: CTH D PROPOSED	SHEET 11	E

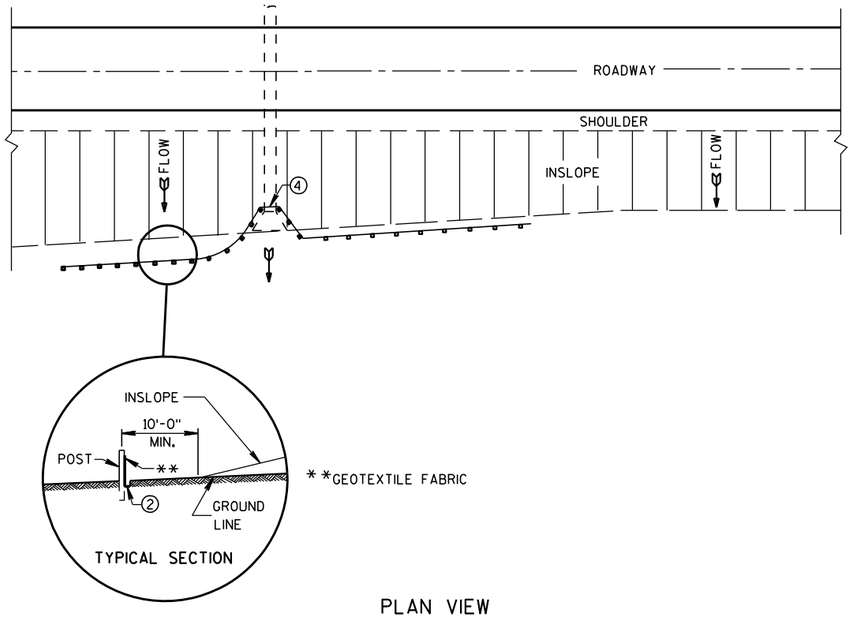
FILE NAME : P:\UZ\V\VERHD\140016\5-FINAL-DSGN\50-FINAL-DSGN\40-TRANSHWY\CIVIL 3D\140016\SHEETSPLAN\050101_PP.DWG
LAYOUT NAME - 050101_PP

PLOT DATE : 9/20/2018 9:15 AM PLOT BY : SAVANNAH A. STEHN PLOT NAME : PLOT SCALE : 1 IN:40 FT

WISDOT/CADDS SHEET 44

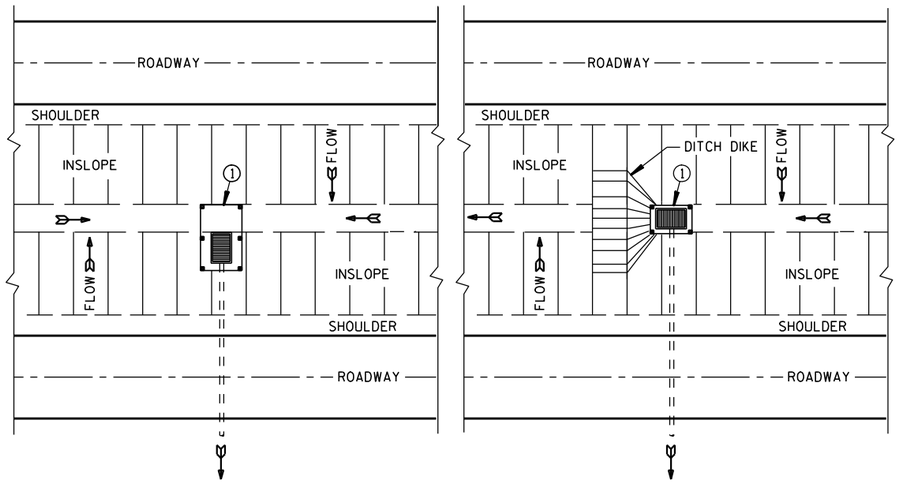
Standard Detail Drawing List

08E09-06	SILT FENCE
08F01-11	APRON ENDWALLS FOR CULVERT PIPE
08F04-07	JOINT TIES FOR CONCRETE PIPE AND CONCRETE COLLAR DETAIL
12A03-10	NAME PLATE (STRUCTURES)
14B42-06A	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-06B	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-06C	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-06D	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B44-04A	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B44-04B	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B44-04C	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B45-05A	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05B	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05C	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05D	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05E	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05F	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05G	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05H	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05I	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05J	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05K	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05L	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
15C02-06A	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C02-06B	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C06-09	SIGNING & MARKING FOR TWO LANE BRIDGES
15C08-19A	LONGITUDINAL MARKING (MAINLINE)
15C11-07B	CHANNELIZING DEVICES DRUMS, CONES, BARRICADES AND VERTICAL PANELS
15D38-02A	TEMPORARY TRAFFIC CONTROL SIGN MOUNTING
15D38-02B	ATTACHMENT OF SIGNS TO POSTS



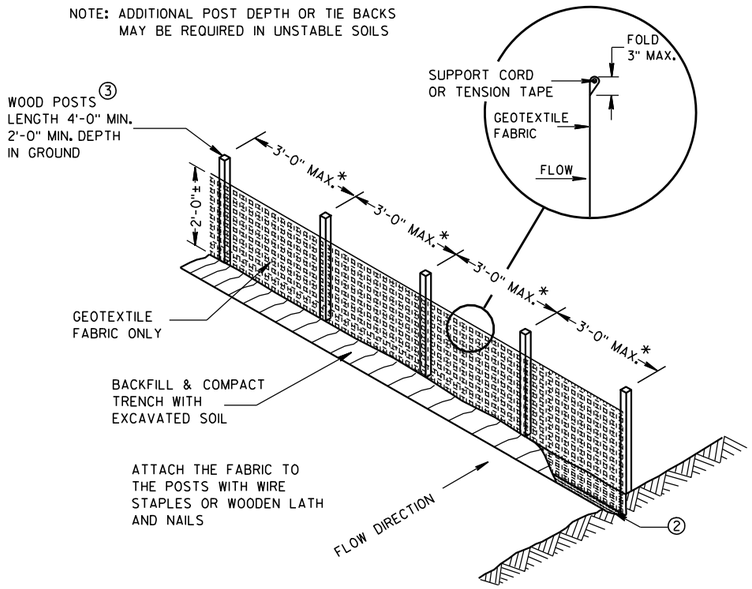
PLAN VIEW

TYPICAL APPLICATION OF SILT FENCE



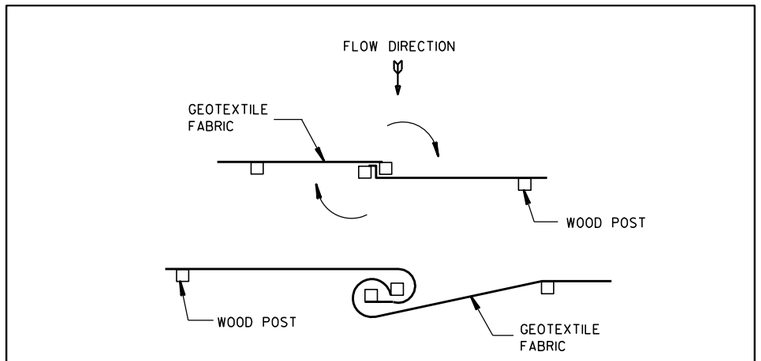
PLAN VIEW

SILT FENCE AT MEDIAN SURFACE DRAINS

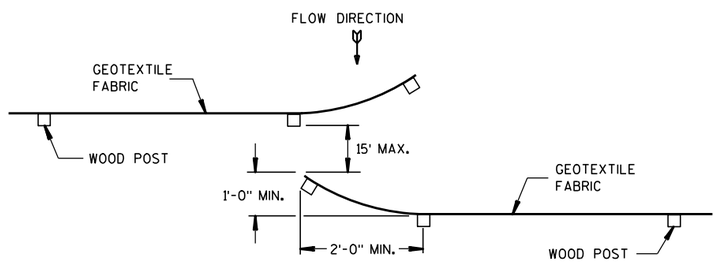


*NOTE: 8'-0" POST SPACING ALLOWED IF A WOVEN GEOTEXTILE FABRIC IS USED.

SILT FENCE



TWIST METHOD



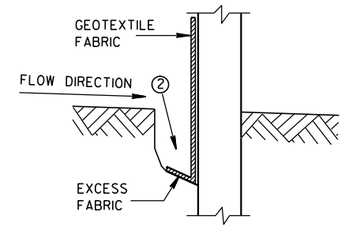
HOOK METHOD

JOINING TWO LENGTHS OF SILT FENCE 5

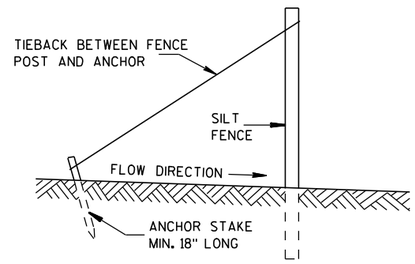
GENERAL NOTES

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



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

S.D.D. 8 E 9-6

S.D.D. 8 E 9-6

METAL APRON ENDWALLS

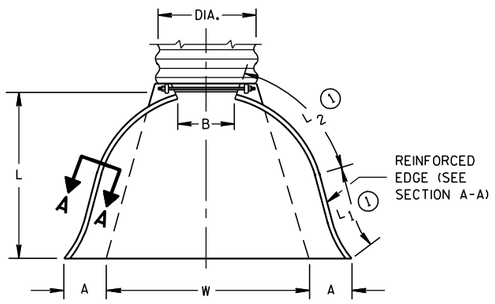
PIPE DIA. (IN.)	MIN. THICK. (Inches) STEEL	MIN. THICK. (Inches) ALUM.	DIMENSIONS (Inches) A (±1")	B (MAX.)	H (±1")	L (±1 1/2")	L1 ①	L2 ①	W (±2")	APPROX. SLOPE	BODY
12	.064	.060	6	6	6	21	12	17 1/2	24	2 1/2 to 1	1 Pc.
15	.064	.060	7	8	6	26	14	21 3/4	30	2 1/2 to 1	1 Pc.
18	.064	.060	8	10	6	31	15	28 1/4	36	2 1/2 to 1	1 Pc.
21	.064	.060	9	12	6	36	18	29 5/8	42	2 1/2 to 1	1 Pc.
24	.064	.075	10	13	6	41	18	37 1/4	48	2 1/2 to 1	1 Pc.
30	.079	.075	12	16	8	51	18	52 1/4	60	2 1/2 to 1	1 Pc.
36	.079	.105	14	19	9	60	24	59 3/4	72	2 1/2 to 1	2 Pc.
42	.109	.105	16	22	11	69	24	75 5/8	84	2 1/2 to 1	2 Pc.
48	.109	.105	18	27	12	78	24	81	90	2 1/4 to 1	3 Pc.
54	.109	.105	18	30	12	84	30	85 1/2	102	2 1/4 to 1	3 Pc.
60	.109×	.105×	18	33	12	87	—	—	114	2 to 1	3 Pc.
66	.109×	.105×	18	36	12	87	—	—	120	2 to 1	3 Pc.
72	.109×	.105×	18	39	12	87	—	—	126	2 to 1	3 Pc.
78	.109×	.105×	18	42	12	87	—	—	132	1 1/2 to 1	3 Pc.
84	.109×	.105×	18	45	12	87	—	—	138	1 1/2 to 1	3 Pc.
90	.109×	.105×	18	37	12	87	—	—	144	1 1/2 to 1	3 Pc.
96	.109×	.105×	18	35	12	87	—	—	150	1 1/2 to 1	3 Pc.

× EXCEPT CENTER PANEL SEE GENERAL NOTES

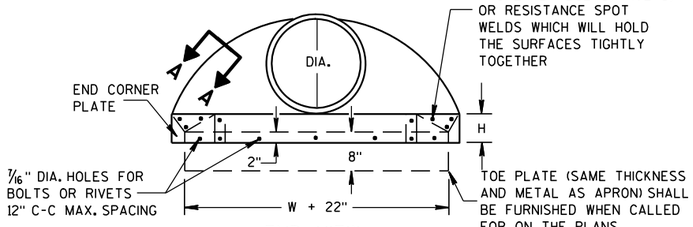
REINFORCED CONCRETE APRON ENDWALLS

PIPE DIA. (IN.)	DIMENSIONS (Inches) T	A	B	C	D	E	G	APPROX. SLOPE
12	2	4	24	48 7/8	72 1/8	24	2	3 to 1
15	2 1/4	6	27	46	73	30	2 1/4	3 to 1
18	2 1/2	9	27	46	73	36	2 1/2	3 to 1
21	2 3/4	9	36	37 1/2	73 1/2	42	2 3/4	3 to 1
24	3	9 1/2	43 1/2	30	73 1/2	48	3	3 to 1
27	3 1/4	10 1/2	49 1/2	24	73 1/2	54	3 1/4	3 to 1
30	3 1/2	12	54	19 3/4	73 1/2	60	3 1/2	3 to 1
36	4	15	63	34 3/4	97 3/4	72	4	3 to 1
42	4 1/2	21	63	35	98	78	4 1/2	3 to 1
48	5	24	72	26	98	84	5	3 to 1
54	5 1/2	27	65	* 33 1/4 - ** 35	* 98 1/4 - ** 100	90	5 1/2	2 2/5 to 1
60	6	* 30 - ** 35	60	39	99	96	5	2 to 1
66	6 1/2	* 24 - ** 30	* 72 - ** 78	* 21 - ** 27	99	102	5 1/2	2 to 1
72	7	* 24 - ** 36	78	21	99	108	6	2 to 1
78	7 1/2	* 24 - ** 36	78	21	99	114	6 1/2	2 to 1
84	8	36	90 1/2	21	111 1/2	120	6 1/2	1 1/2 to 1
90	8 1/2	41	87 1/2	24	111 1/2	132	6 1/2	1 1/2 to 1

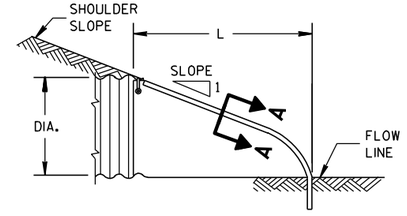
*MINIMUM
**MAXIMUM



PLAN VIEW

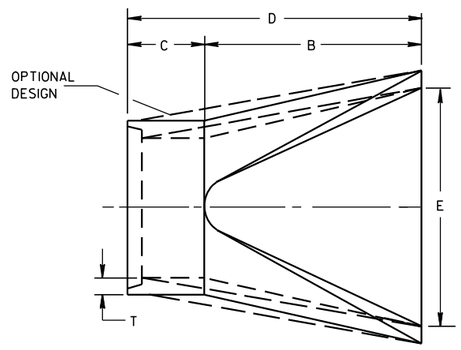


END VIEW

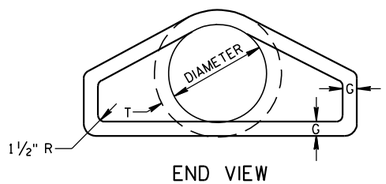


SIDE ELEVATION

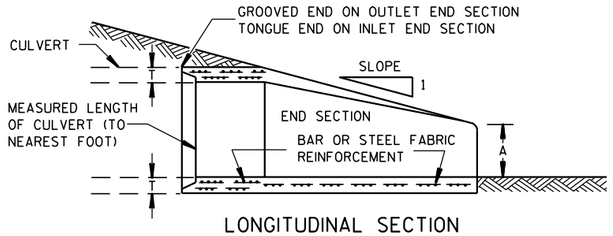
METAL ENDWALLS



PLAN

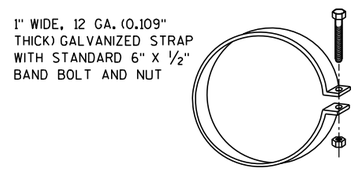


END VIEW



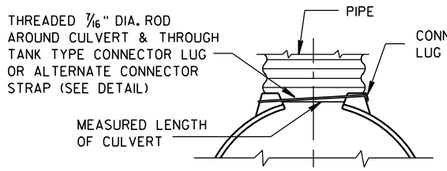
LONGITUDINAL SECTION

CONCRETE ENDWALLS

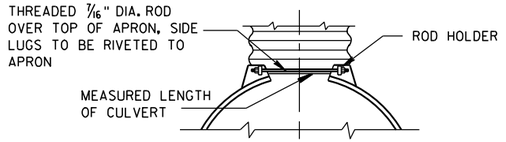


ALTERNATE FOR TYPE 1 CONNECTION

END SECTION CONNECTOR STRAP

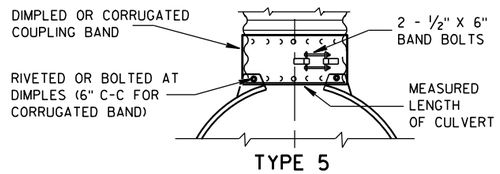


TYPE 1
FOR 12" THRU 24" CORR. PIPE



TYPE 2
FOR 30" THRU 96" CORR. PIPE

TYPE 3
FOR 42" THRU 96" CORR. PIPE



TYPE 5
ALTERNATE FOR:
ALL SIZES CORRUGATED CIRCULAR PIPE

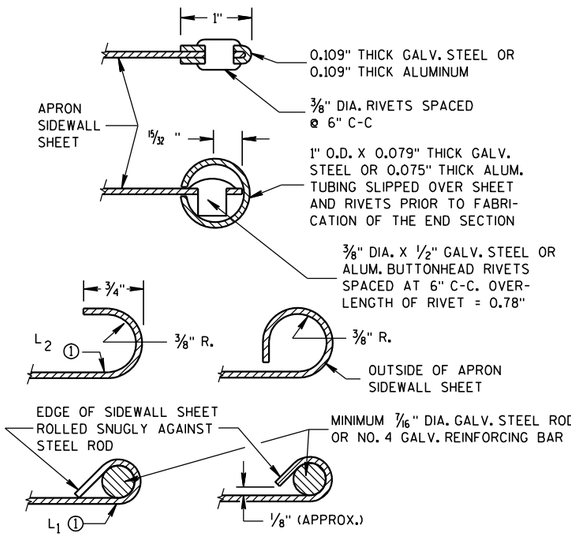
NOTE: DIMPLED BAND FITS OVER OUTSIDE OF ENDWALL. AND CORRUGATED BAND FITS INSIDE ENDWALL. DIMPLED BAND MAY BE USED WITH HELICALLY CORRUGATED PIPE.

FOR CIRCUMFERENTIALLY CORRUGATED PIPE USE ENDWALL CONNECTION DETAILS 1, 2, 3 OR 5 AS APPLICABLE.

FOR HELICALLY CORRUGATED PIPE USE ENDWALL CONNECTION DETAILS 1, 2 OR 5.

FOR HELICALLY CORRUGATED PIPES WITH TWO CIRCUMFERENTIAL CORRUGATIONS AT EACH END USE ENDWALL CONNECTION DETAILS 1, 2 OR 3.

CONNECTION DETAILS



SECTION A-A

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.

CONCRETE CULVERT ENDWALLS MAY NOT BE USED WITH GALVANIZED STEEL OR ALUMINUM CULVERT PIPE OR VISE VERSA. GALVANIZED STEEL OR ALUMINUM ENDWALLS SHALL NORMALLY BE INSTALLED ON CULVERT PIPE OF THE SAME METAL.

ALL THREE PIECE STEEL APRON ENDWALLS FOR 60" DIAMETER PIPE AND LARGER SHALL HAVE 0.109" SIDES AND 0.138" CENTER PANELS. ALL THREE PIECE ALUMINUM APRON ENDWALLS FOR 60" DIAMETER PIPE AND LARGER SHALL HAVE 0.105" SIDES AND 0.134" CENTER PANELS. THE WIDTH OF CENTER PANELS SHALL BE GREATER THAN 20 PERCENT OF THE PIPE PERIMETER.

LAP SEAMS SHALL BE TIGHTLY JOINED BY GALVANIZED RIVETS OR BOLTS FOR STEEL UNITS AND ALUMINUM RIVETS AND BOLTS FOR ALUMINUM UNITS. FOR THE 60" THROUGH 96" DIAMETER APRON ENDWALL SIZES, THE REINFORCED EDGES AND CENTER PANEL SEAMS SHALL BE FURTHER REINFORCED WITH GALVANIZED STEEL OR ALUMINUM STIFFENER ANGLES. THE ANGLES SHALL BE ATTACHED BY GALVANIZED NUTS AND BOLTS FOR STEEL UNITS AND ALUMINUM NUTS AND BOLTS FOR ALUMINUM UNITS.

WHERE TWO OR MORE PIPES WITH APRON ENDWALLS ARE LAID ADJACENT TO EACH OTHER, THEY SHALL BE SEPARATED BY A DISTANCE SUFFICIENT TO PROVIDE A MINIMUM CLEARANCE OF 6 INCHES BETWEEN APRON ENDWALLS.

① FOR PIPE SIZES UP TO 60" DIAMETER, A 180° ROLLED EDGE MAY BE USED INSTEAD OF STEEL ROD REINFORCEMENT. SEE SECTION A-A.

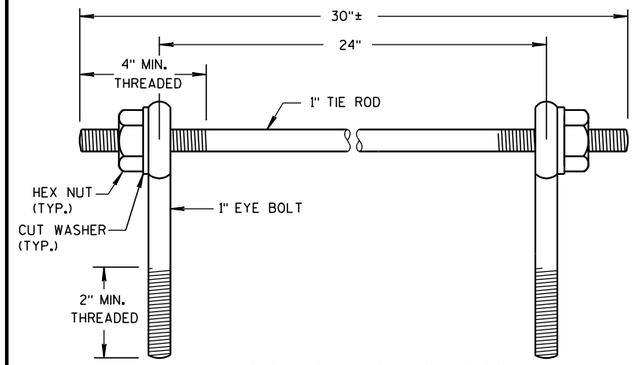
APRON ENDWALLS FOR CULVERT PIPE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

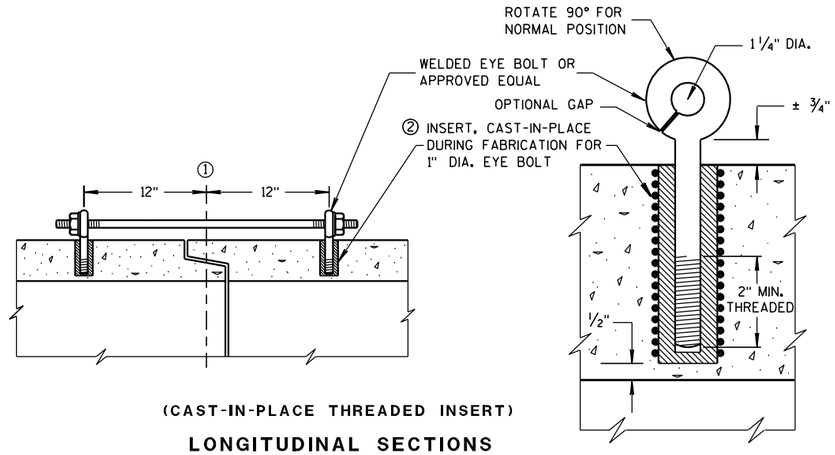
APPROVED
11/30/94 — DATE
/S/ Rory L. Rhinesmith — CHIEF ROADWAY DEVELOPMENT ENGINEER
FHWA

6

S.D.D. 8 F 1-11



EYE BOLTS AND TIE ROD



(CAST-IN-PLACE THREADED INSERT)

LONGITUDINAL SECTIONS

EYE BOLT AND TIE ROD ASSEMBLY (ALTERNATE NO. 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 APPLICABLE SPECIAL PROVISIONS.

CONCRETE CULVERT AND STORM SEWER PIPE SHALL BE TIED TOGETHER IN THE MANNER ILLUSTRATED BY THIS DETAIL AT LOCATIONS DESIGNATED IN THE STANDARD SPECIFICATIONS AND THE PLAN. THE CONTRACTOR MAY USE EITHER ALTERNATE 1, 2 OR 3 FOR DRAINAGE STRUCTURES. ONLY ALTERNATE 1 AND 3 MAY BE USED FOR CATTLE PASSES, UNLESS OTHERWISE STATED IN THE CONTRACT. THE MATERIALS, FABRICATION AND WORK NECESSARY TO TIE THE PIPE BY THIS DETAIL WILL BE CONSIDERED INCIDENTAL TO THE PIPE AND APRON ENDWALLS IF REQUIRED.

DETAILED DRAWINGS FOR PROPOSED ALTERNATE DESIGNS FOR JOINT TIES SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL.

JOINT TIES TO BE HOT-DIP GALVANIZED PER ASTM A 153.

① ℄ OF TONGUE AND GROOVE OR BELL AND SPIGOT JOINTS.

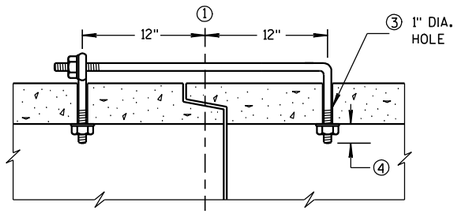
② THE INSIDE OF THE THREADED INSERTS SHALL BE CLEAN TO ALLOW THE INSERTION OF THREADED EYE BOLTS.

③ HOLES SHALL BE CAST-IN-PLACE OR DRILLED 12 INCHES FROM ℄ OF TONGUE AND GROOVE.

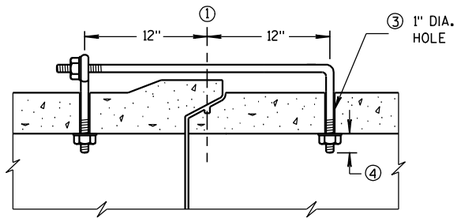
④ BOLT PROJECTION INSIDE OF PIPE SHALL NOT EXCEED 2 INCHES.

⑤ OPENING TO BE ROD DIAMETER PLUS 1 INCH.

⑥ LENGTH ADEQUATE TO EXTEND TO WITHIN 1/2 INCH OF THE INNER SURFACE OF THE PIPE.



(TONGUE & GROOVE PIPE)

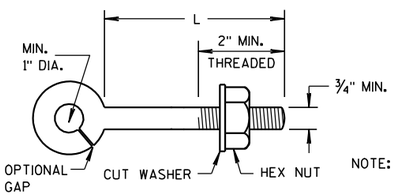


(MODIFIED BELL PIPE)

LONGITUDINAL SECTION

EYE BOLT DIMENSION TABLE

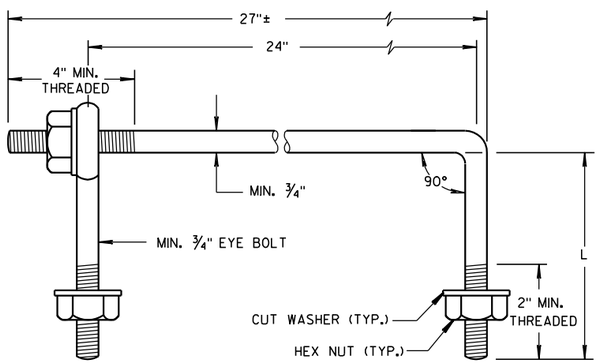
PIPE SIZE	L = LENGTH	
	TONGUE & GROOVE PIPE	MODIFIED BELL PIPE
18" TO 24"	4 1/2"	6 1/4"
30"	5"	7"
36"	5 1/2"	7"
42"	6"	
48"	6 1/2"	
60"	7 1/2"	
66"	8"	



NOTE:

EYE BOLT

NOTE: TWO EYE BOLTS MAY BE USED WITH A 30" LONG THREADED ROD IN LIEU OF THE 90° BENT TIE ROD.



EYE BOLT AND TIE ROD

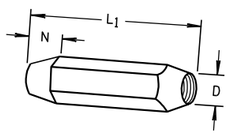
(JOINT TIES FOR 18" TO 66" DIA. CONCRETE PIPE)

EYE BOLT AND TIE ROD ASSEMBLY (ALTERNATE NO. 2)

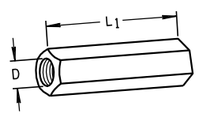
ADJUSTABLE TIE ROD TABLE

PIPE DIAMETER	TIE ROD DIAMETER	D	L_1	N
12-60	5/8	5/8	5	1/2
66-84	3/4	3/4	5	1/2
90-108	1	1	7	1 1/16

DIMENSIONS SHOWN ARE IN INCHES



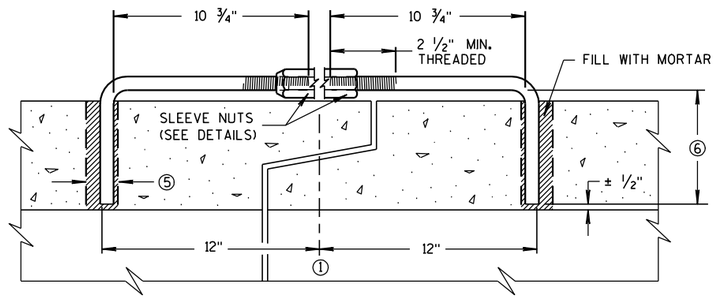
TAPERED



PLAIN

RIGHT AND LEFT THREADS

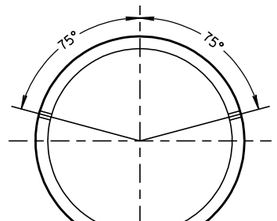
SLEEVE NUTS



LONGITUDINAL SECTION

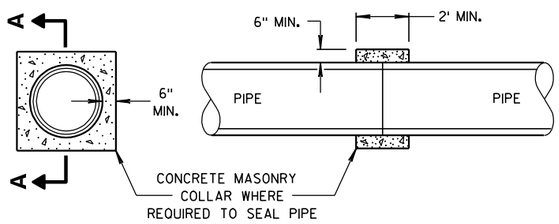
(JOINT TIES FOR 12" TO 108" DIA. CONCRETE PIPE)

ADJUSTABLE TIE ROD (ALTERNATE NO. 3)



PLACEMENT OF (2) CAST-IN-PLACE INSERTS OR HOLES DURING FABRICATION FOR PIPE SECTIONS REQUIRING TIE RODS

TRANSVERSE SECTION



SECTION A-A

CONCRETE COLLAR DETAIL

JOINT TIES FOR CONCRETE PIPE AND CONCRETE COLLAR DETAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

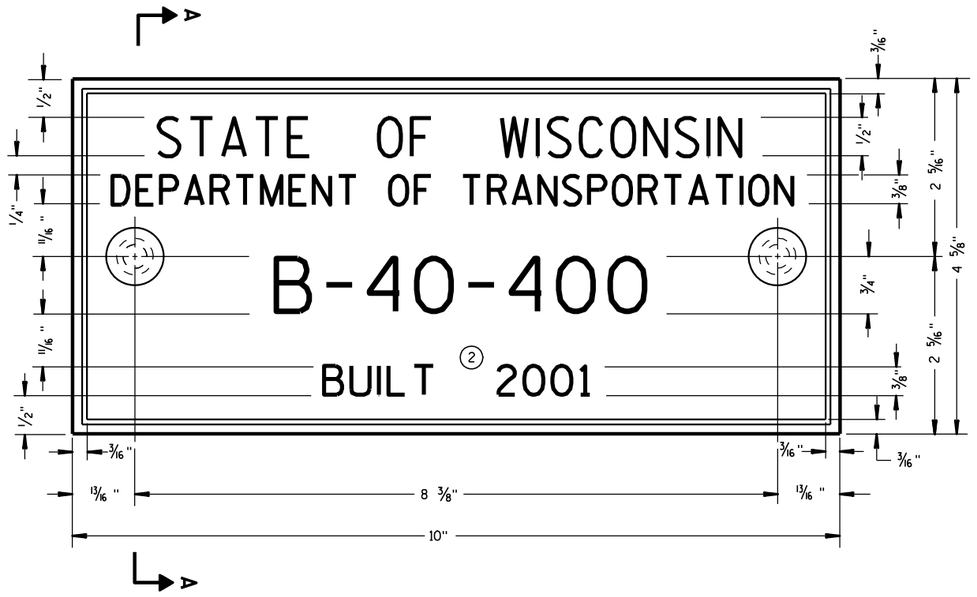
APPROVED
6/5/2012 — DATE
/S/ Jerry H. Zogg — ROADWAY STANDARDS ENGINEER
FHWA

6

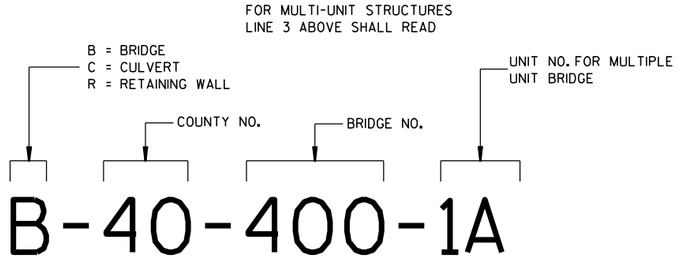
S.D.D. 8 F 4-7

6

S.D.D. 8 F 4-7



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



NUMBERING DESIGNATION
MULTI-UNIT STRUCTURES

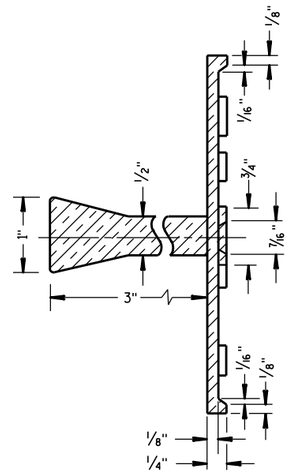
GENERAL NOTES

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

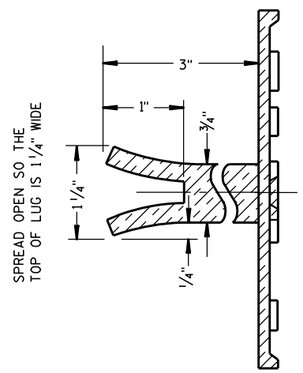
THE BRIDGE NUMBER AND YEAR BUILT SHOWN ON THIS DRAWING ARE EXAMPLES ONLY. SEE CONSTRUCTION PLANS FOR INDIVIDUAL NUMBERING AND YEAR BUILT.

(1) EPOXY RESIN SHALL BE FROM AN APPROVED MANUFACTURER AND USED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

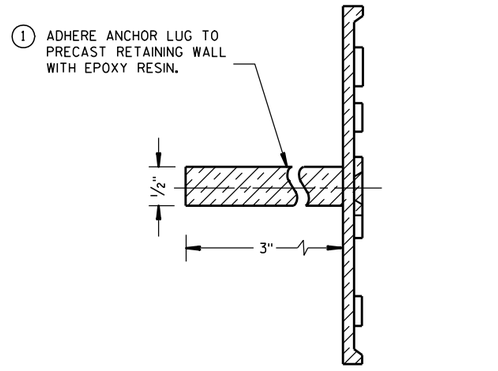
(2) REHABILITATION OF AN EXISTING STRUCTURE SHOULD USE THE DATE OF ORIGINAL STRUCTURE CONSTRUCTION.



SECTION A-A



ALTERNATE LUG



ALTERNATE LUG
(FOR ATTACHMENT TO PRECAST STRUCTURES)

NAME PLATE (STRUCTURES)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

3/26/10 DATE

/S/ Scot Beck -- CHIEF STRUCTURAL DEVELOP ENGINEER

FHWA

6

S.D.D. 12 A 3-10

6

S.D.D. 12 A 3-10

(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.

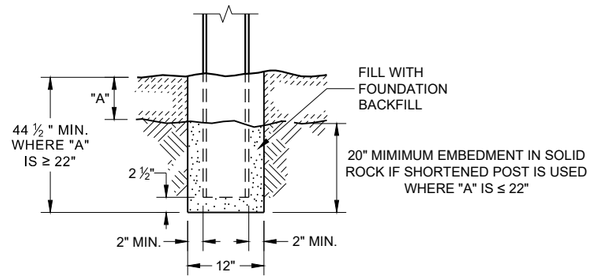
(3) IF ROCK IS ENCOUNTERED DURING EXCAVATION, PROVIDE A HOLE 12 INCHES IN DIAMETER EXTENDING 20 INCHES DEEP INTO THE ROCK. PLACE APPROXIMATELY 2 1/2" INCHES OF GRANULAR MATERIAL IN THE BOTTOM OF THE HOLE. CUT THE POSTS THE TO LENGTH AMD INSTALL. BACKFILL WITH EXCAVATED MATERIAL AND COMPACT. BACKFILL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

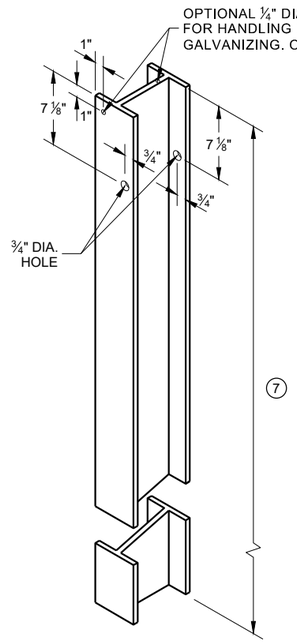
(5) FOR NEW MGS INSTALLATION TOP OF W-BEAM RAIL TOLERANCE IS +1". FOR EXISTING MGS INSTALLATION TOP OF W-BEAM IS BETWEEN 27 ¾" TO 32".

(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.

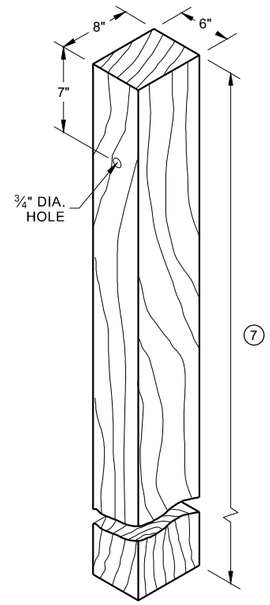
(7) TOTAL POST LENGTH FOR TYPE K IS 7' - 0".
TOTAL POST LENGTH FOR OTHER MGS TYPES IS 6' - 0".



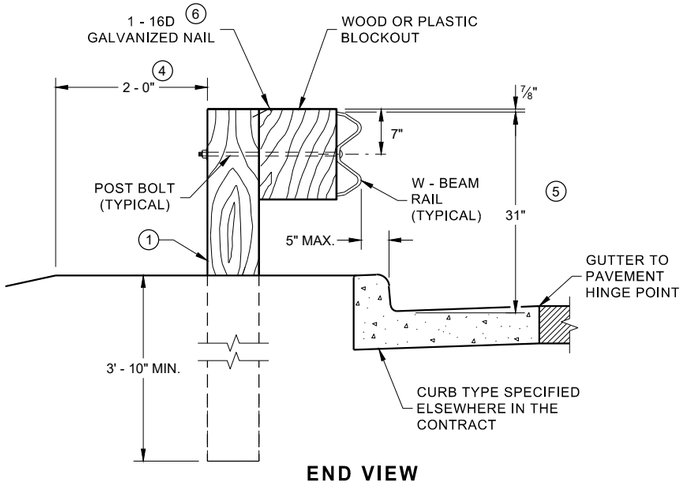
END VIEW
SETTING STEEL OR WOOD POST IN ROCK (3)



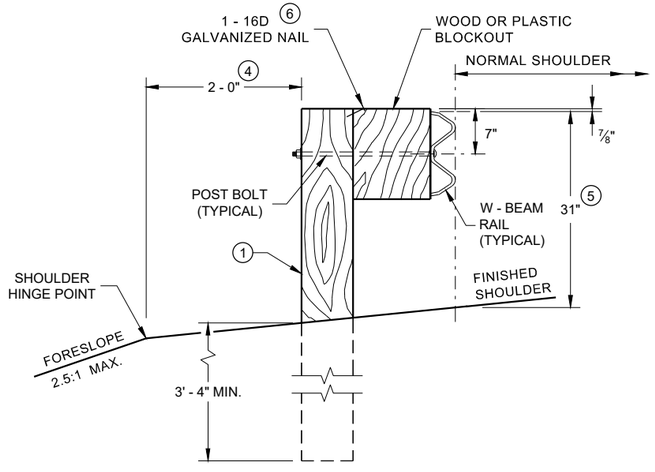
STEEL POST & HOLE PUNCHING DETAIL (W 6 X 9) (1)



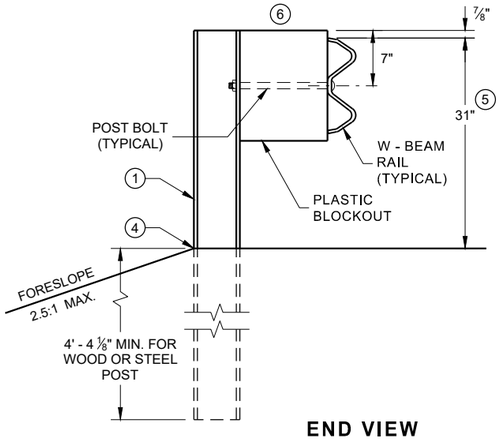
WOOD POST (6" X 8") NOMINAL (1)



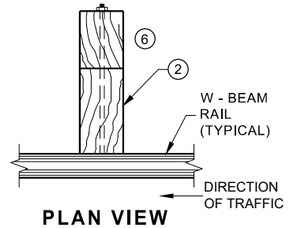
END VIEW
LOCATED ALONG A CURBED ROADWAY



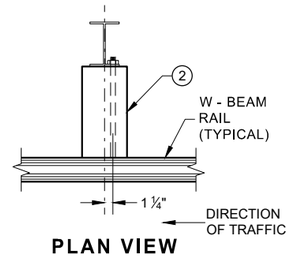
END VIEW
LOCATED ALONG A ROADWAY SHOULDER STANDARD INSTALLATION



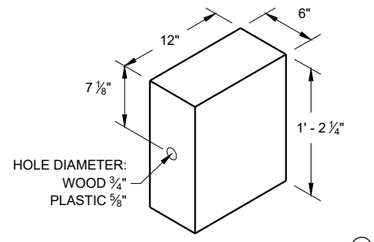
END VIEW
MGS LONGER POST AT HALFPOST SPACING W BEAM (K)



PLAN VIEW
WOOD POST, BLOCKOUT & BEAM



PLAN VIEW
STEEL POST, PLASTIC BLOCKOUT & BEAM



WOOD OR PLASTIC BLOCKOUT (2)

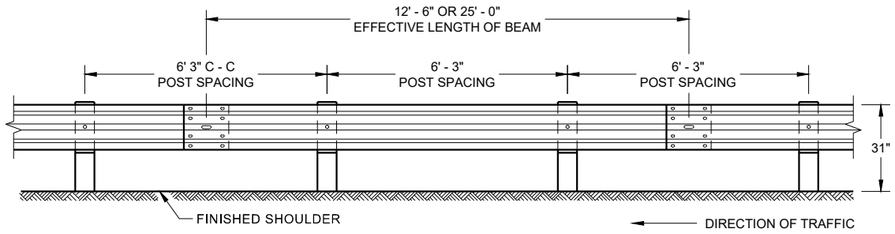
MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

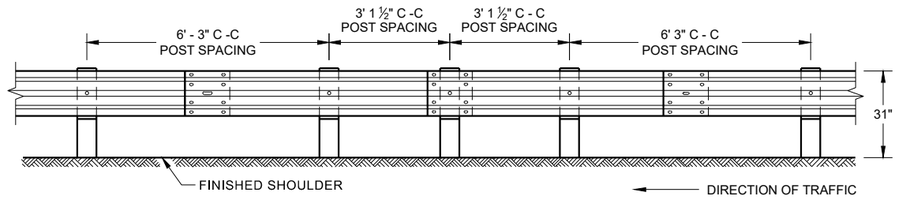
SDD 14B42 - 06a

6

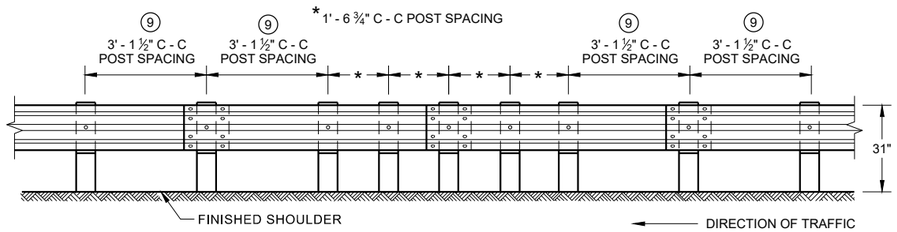
SDD 14B42 - 06a



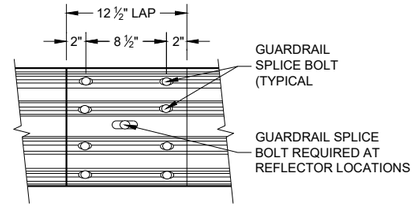
FRONT VIEW
POST SPACING STANDARD INSTALLATION



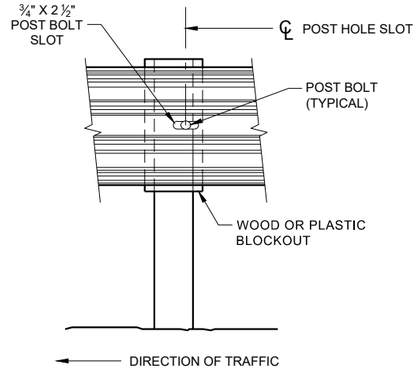
FRONT VIEW
HALF POST SPACING (HS) AND
HALF POST SPACING WITH LONGER POSTS (K)



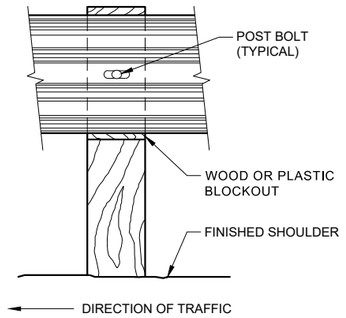
FRONT VIEW
QUARTER POST SPACING (QS)



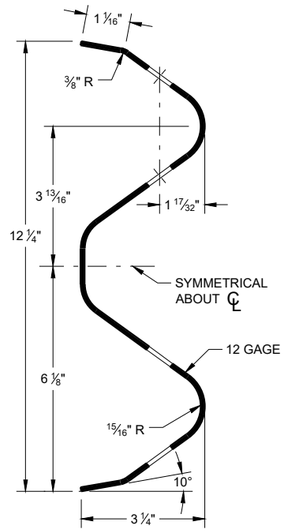
FRONT VIEW
MID-SPAN BEAM SPLICE



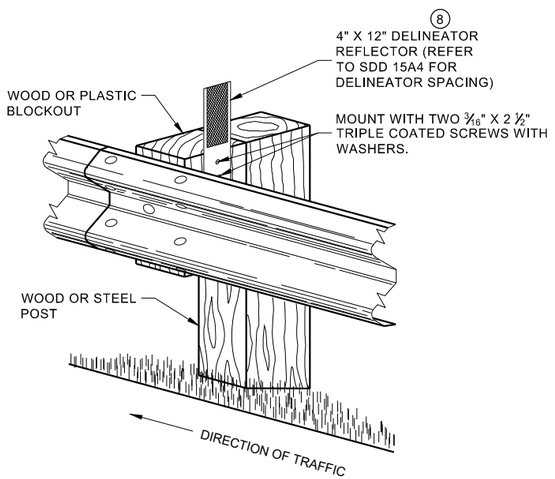
FRONT VIEW AT STEEL POST



FRONT VIEW AT WOOD POST



SECTION THRU W-BEAM RAIL



ONE SIDED REFLECTOR DETAIL
AND TYPICAL INSTALLATION

GENERAL NOTES

⑧ DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINAL. RAIL SPLICE LOCATIONS ARE THE ONLY ACCEPTABLE LOCATIONS FOR REFLECTORS.

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

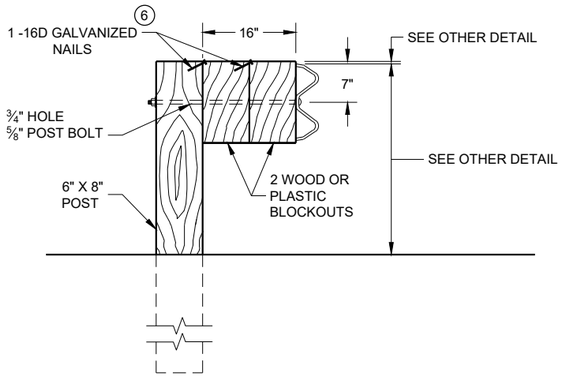
POST BOLTS ARE A ¾" DIAMETER ASTM A307 GUARDRAIL BOLT. A POST BOLT REQUIRES ⅝" DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX NUT AND ⅝" DIAMETER F844 FLAT WASHER. POST BOLTS MAY BE LONGER IF MULTIPLE BLOCKOUTS ARE BEING USED.

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.

MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6
SDD 14B42 - 06b

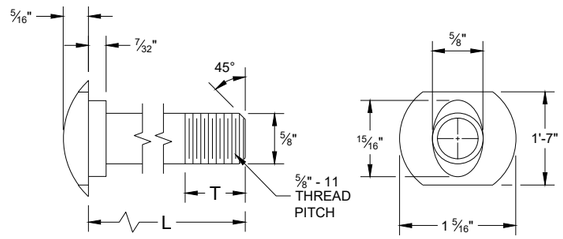


DETAIL FOR 16" BLOCKOUT DEPTH

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.

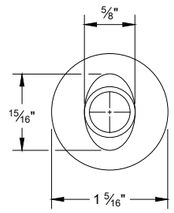
NOTE:

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.

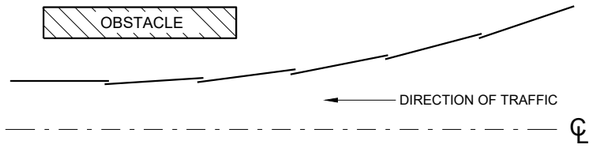


POST BOLT TABLE

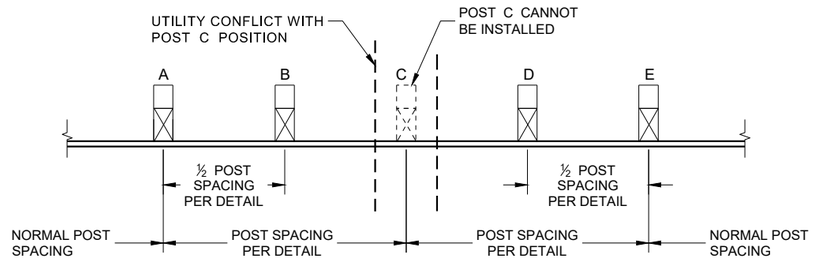
L	T (MIN.)
1 ¼"	1 ⅛"
2"	1 ¾"
10"	4"
14"	4 1/16"
18"	4"
21"	4 1/16"
25"	4"



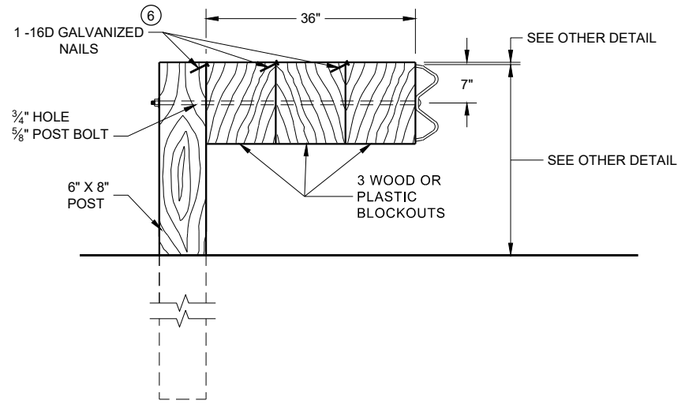
ALTERNATE BOLT HEAD



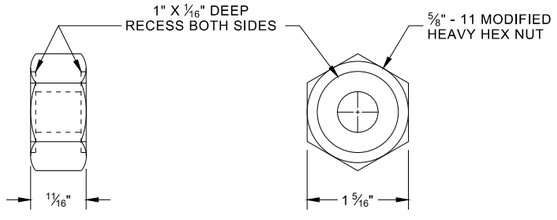
PLAN VIEW
BEAM LAPPING DETAIL



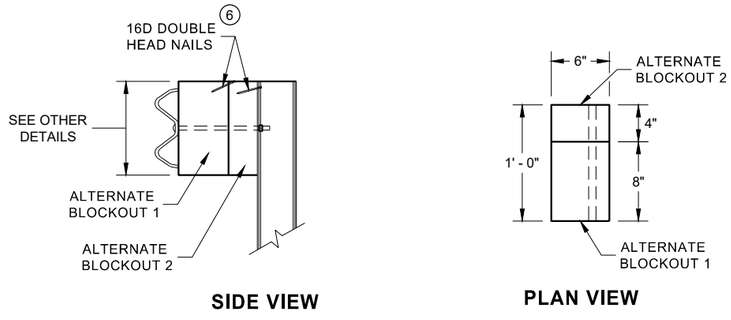
POST DRIVING FOR CONTINUOUS UNDERGROUND OBSTRUCTION



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.

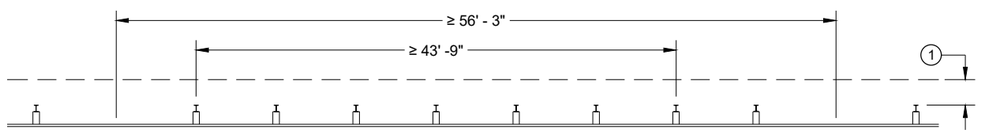
(6) WHEN USING STEEL POST AD WOOD BLOCKOUTS, INSTALL FOUR 16D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.

MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL

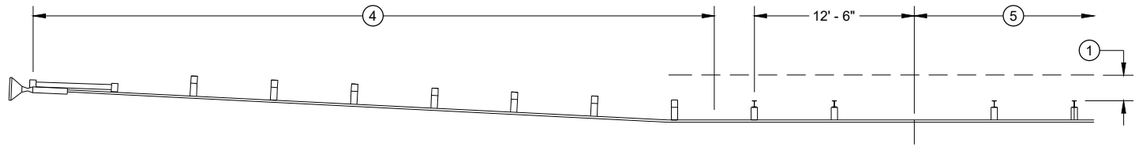
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6

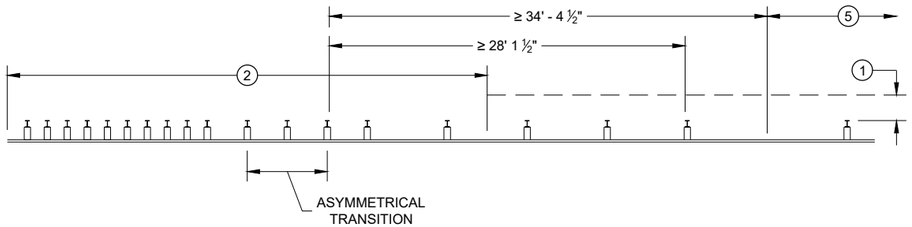
SDD 14B42 - 06c



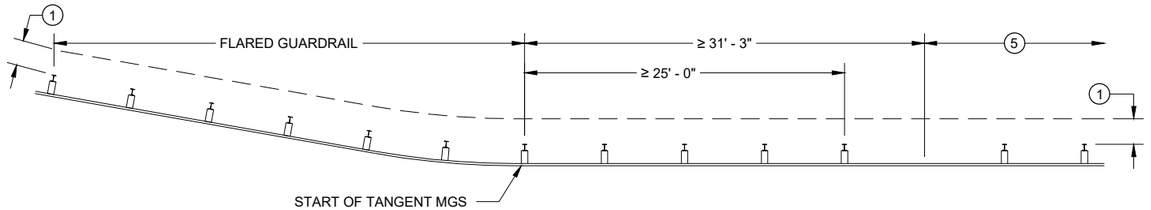
MISSING POST IN NORMAL BEAM GUARD RUN



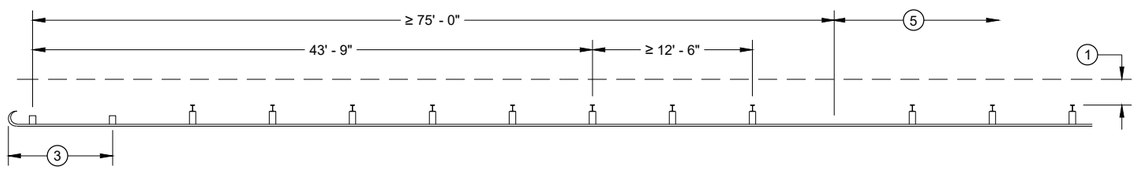
MISSING POST IN NORMAL BEAM GUARD RUN NEAR EAT



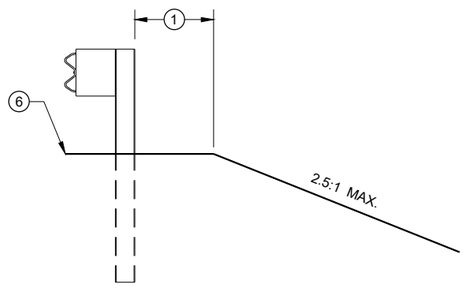
MISSING POST NEAR APPROACH THRIE BEAM TRANSITION



MISSING POST IN NORMAL BEAM GUARD RUN NEAR FLARED BEAM GUARD



MISSING POST IN NORMAL BEAM GUARD RUN NEAR TYPE 2 TERMINAL



CROSS SECTION VIEW

1. MINIMUM OF 2 FEET OF GRADING BEHIND POST.
2. SEE SDD 14B45 FOR MORE DETAILS.
3. SEE SDD 14B47 FOR MORE DETAILS.
4. SEE SDD 14B44 FOR MORE DETAILS.
5. SEE MISSING POST IN NORMAL BEAM GUARD RUN FOR DISTANCE TO NEXT MISSING POST AND AREA FOR WELL DRAINED, COMPACTED SOILS.
6. SEE PLAN FOR SHOULDER DESIGN.

MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

6

SDD 14B42 - 06d

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.

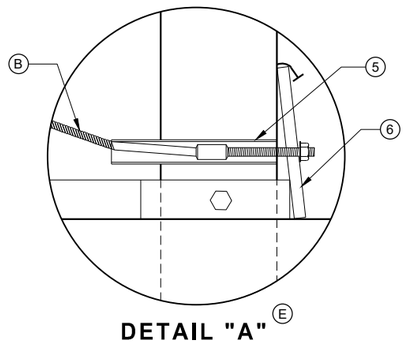
SEE SDD 14B42 FOR MORE INFORMATION.

* DO NOT ATTACH BLOCKOUTS TO POST 1 AND 2.

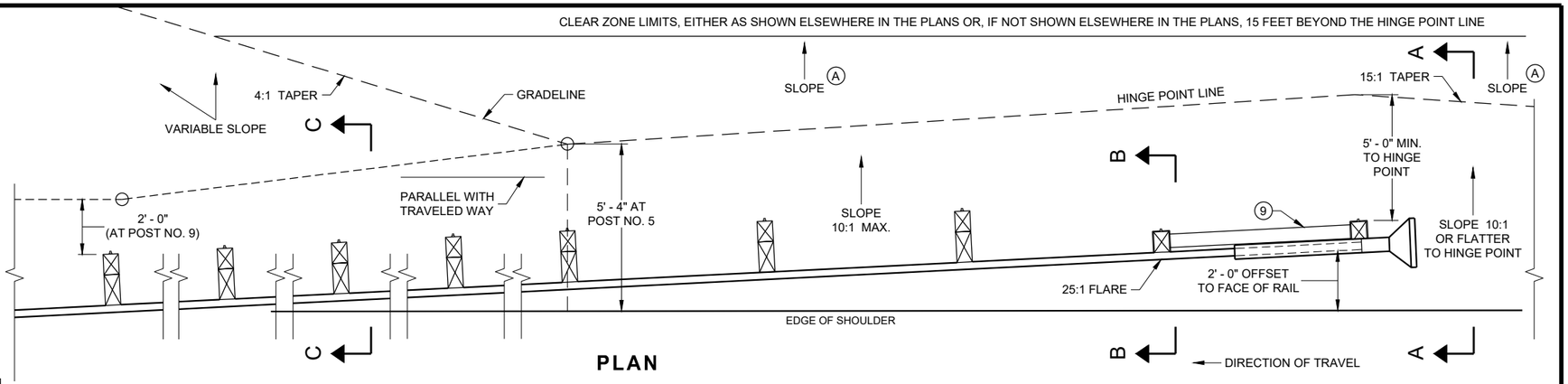
DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINAL.

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

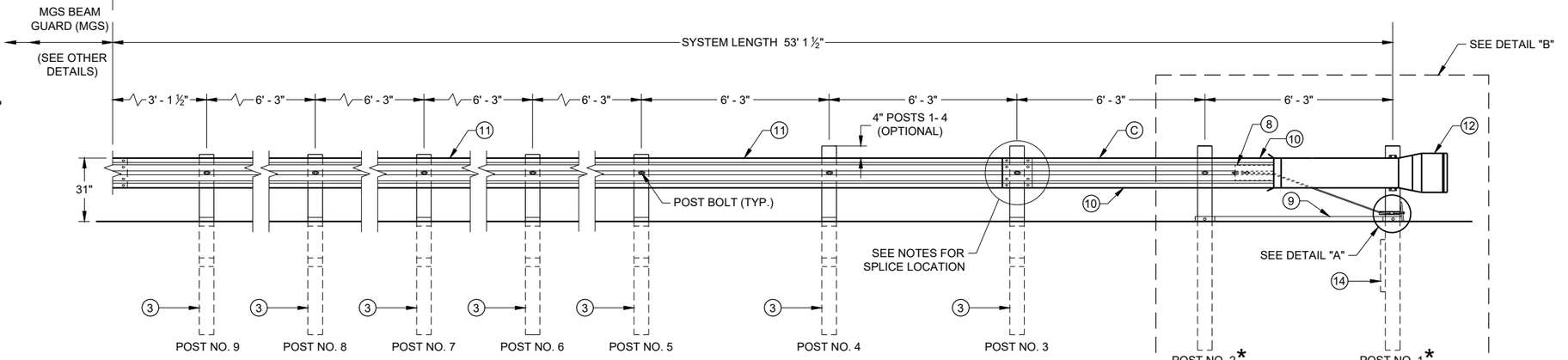
THE CENTER OF THE UPPER 3 ½" DIAMETER HOLE ON POST NUMBER 3 THROUGH POST 9 IS TO BE FLUSH WITH THE GROUND LINE UP TO A MAXIMUM OF 2" ABOVE GROUND LINE. WOOD BLOCKS ON POSTS NUMBERED 3 THROUGH 9 MAY BE ADJUSTED UP TO 3" ABOVE THE TOP OF POST.



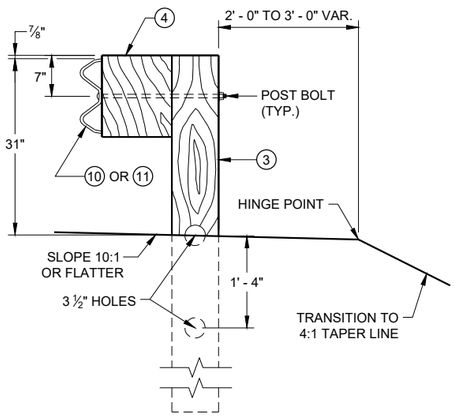
DETAIL "A" (E)



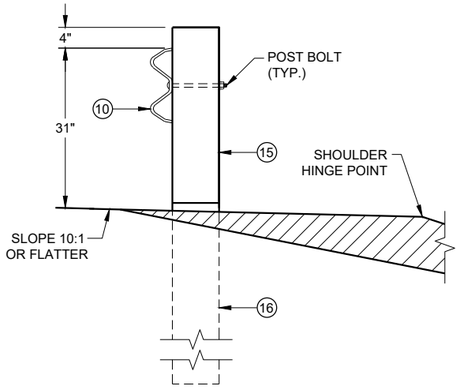
PLAN



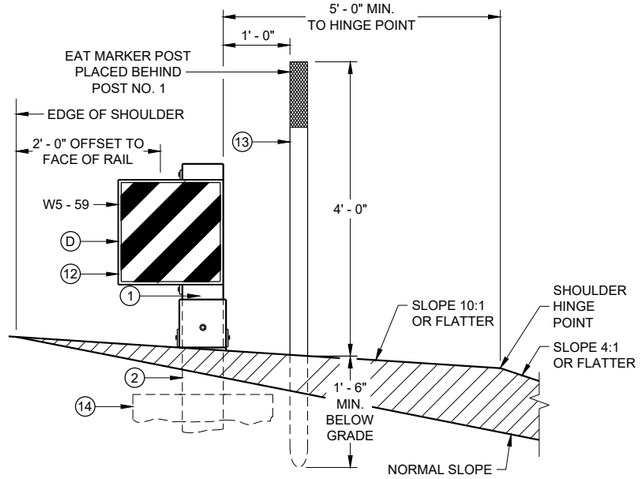
ELEVATION



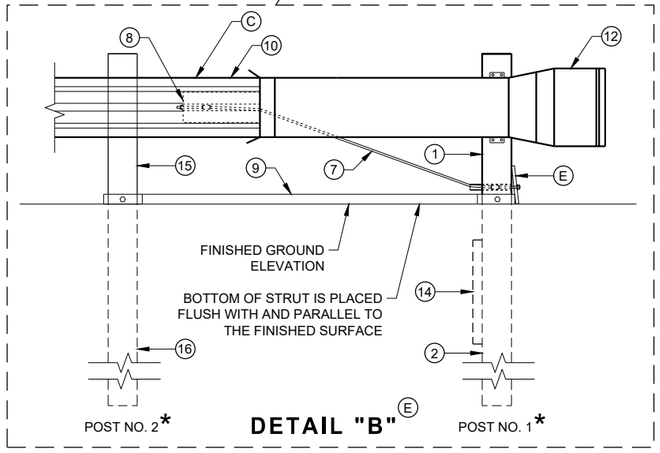
SECTION C - C
TYPICAL AT POST NOS. 3 - 9



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)

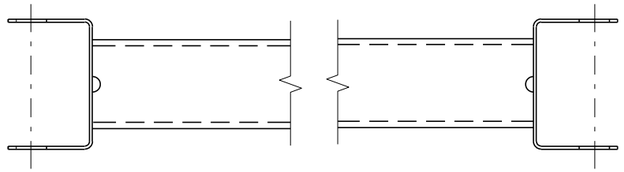
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

SDD 14B44 - 04a

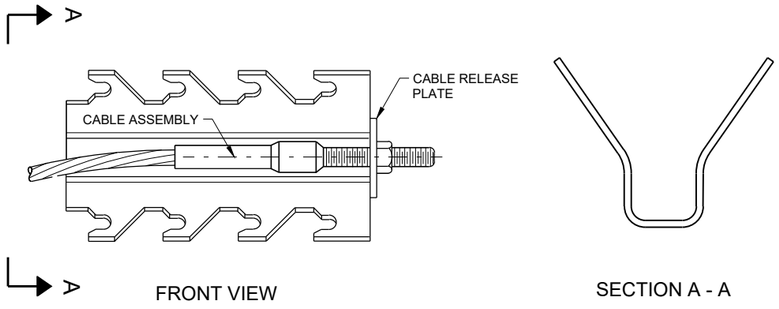
SDD 14B44 - 04a

BILL OF MATERIALS

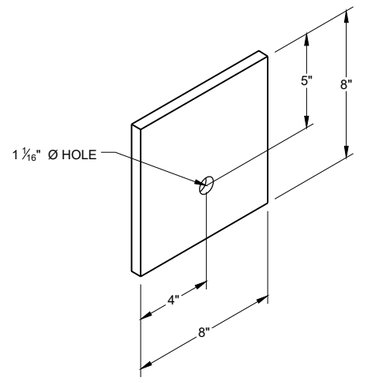
PART NO.	DESCRIPTION MATERIALS PROVIDED BY MGS EAT MANUFACTURER. SEE MANUGACTURER'S DETAILS FOR MORE INFORMATION.
①	UPPER POST NO. 1 6" X 6" TUBE
②	LOWER POST NO. 1
③	WOOD CRT
④	WOOD BLOCKOUT
⑤	PIPE SLEEVE
⑥	BEARING PLATE
⑦	BCT CABLE ASSEMBLY
⑧	ANCHOR CABLE BOX
⑨	GROUND STRUT
⑩	PERFORATED W-BEAM RAIL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



GENERIC ANCHOR CABLE BOX ⑨ Ⓔ



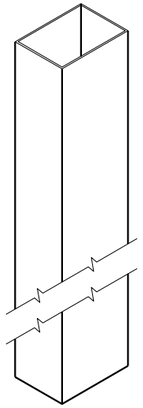
BEARING PLATE ⑥ Ⓔ

MIDWEST GUARDRAIL SYSTEM
ENERGY ABSORBING TERMINAL
(MGS)

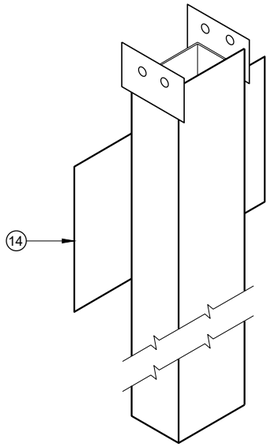
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6

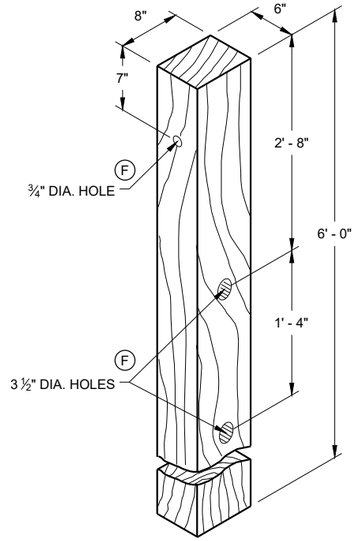
SDD 14B45 - 04b



UPPER POST NO. 1 ① Ⓔ

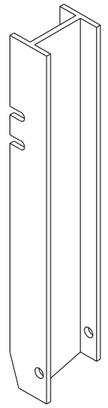


LOWER POST NO. 1 ② Ⓔ

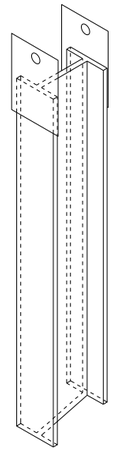


WOOD CRT POST ③ Ⓔ

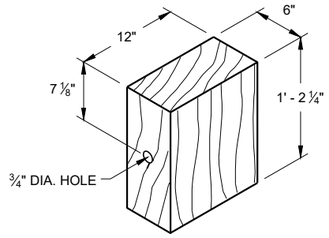
POSTS NUMBER 3-9



UPPER POST NO. 2 ⑮ Ⓔ

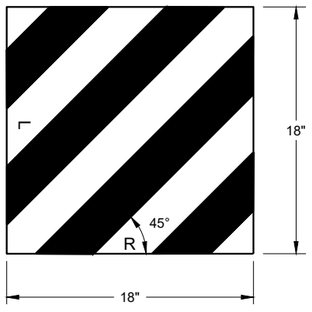


LOWER POST NO. 2 ⑯ Ⓔ



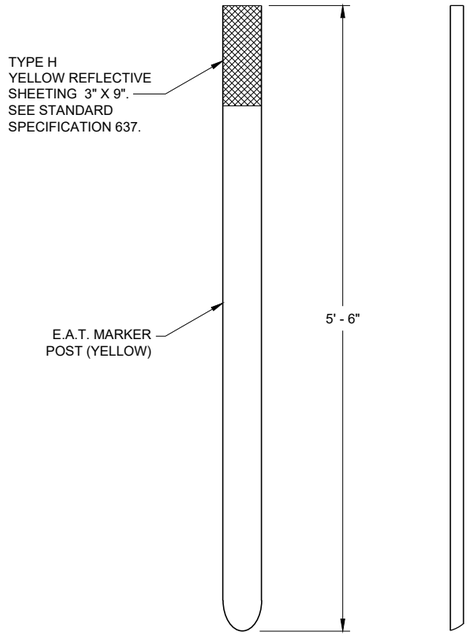
WOOD BLOCKOUT ④

REQ'D. AT ALL POSTS EXCEPT POST NO'S 1 & 2



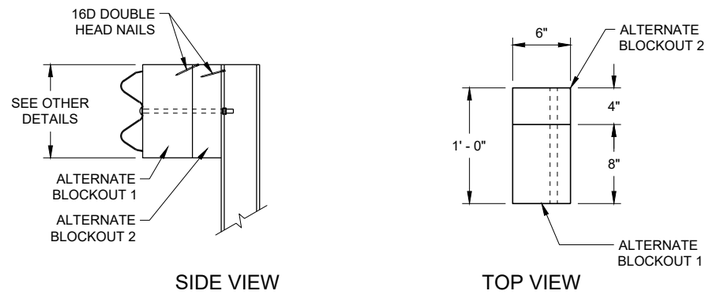
W5 - 59

REFLECTIVE SHEETING DETAIL Ⓔ



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

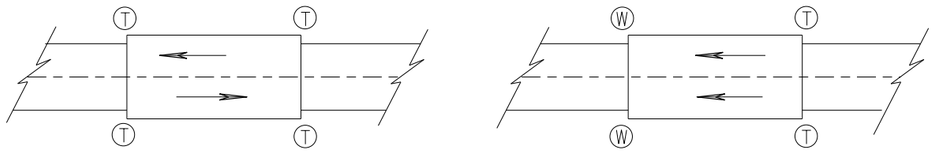
7/2018
DATE

/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.

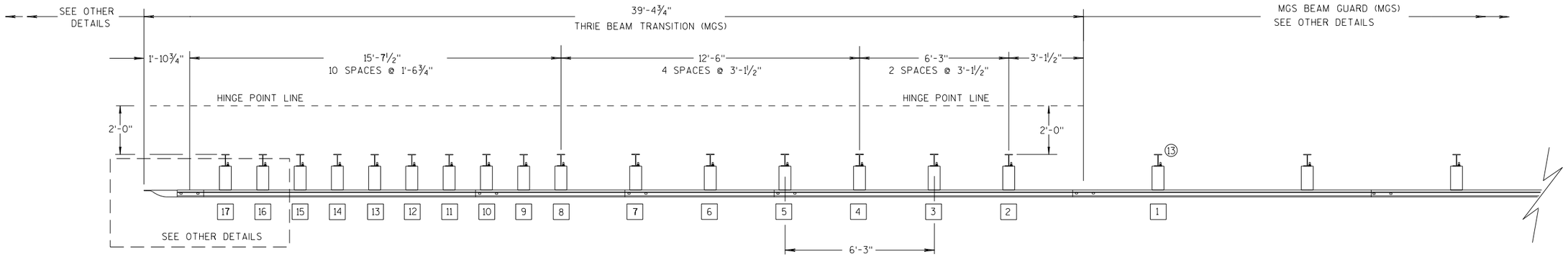
SEE STANDARD DETAIL DRAWING 14 B 42 FOR MORE INFORMATION.

POST 2 THROUGH 17 USES STEEL POST ONLY

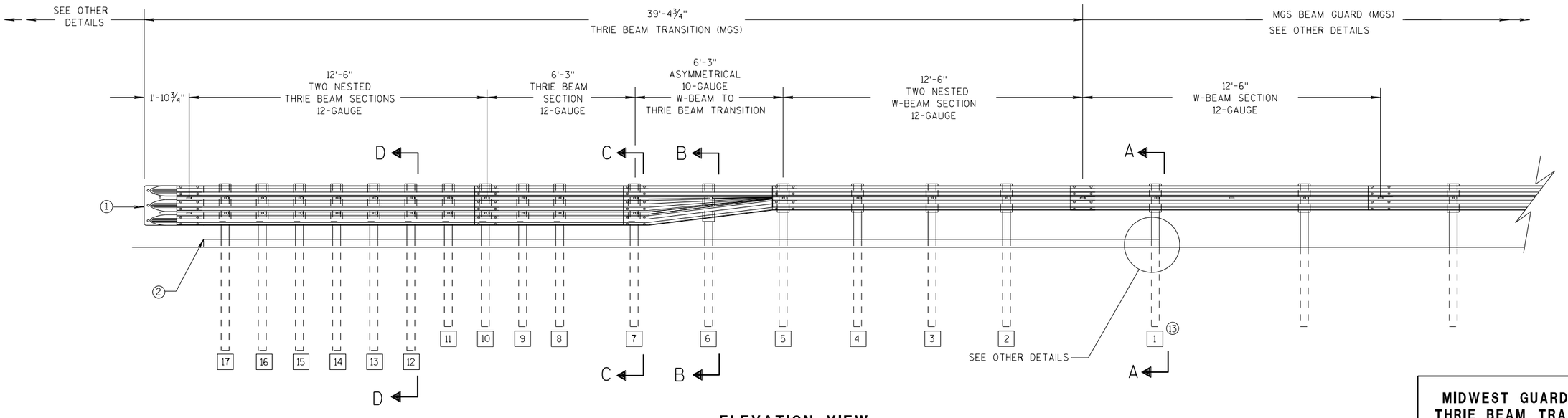
(1) BRIDGE RAILING TYPE "W" DOES NOT REQUIRE A TERMINAL CONNECTOR.

(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

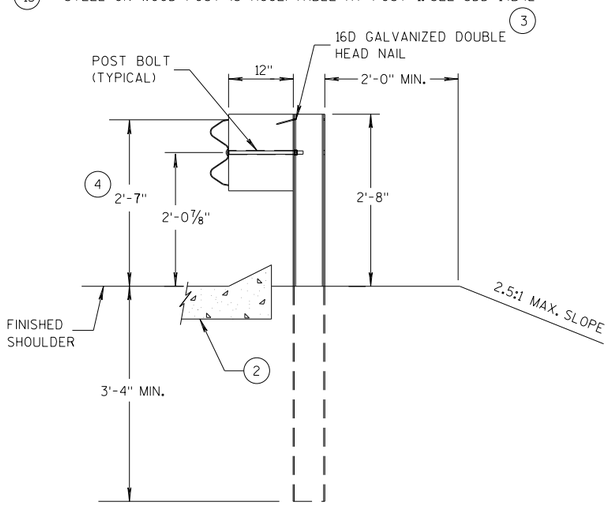
GENERAL NOTES

(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.

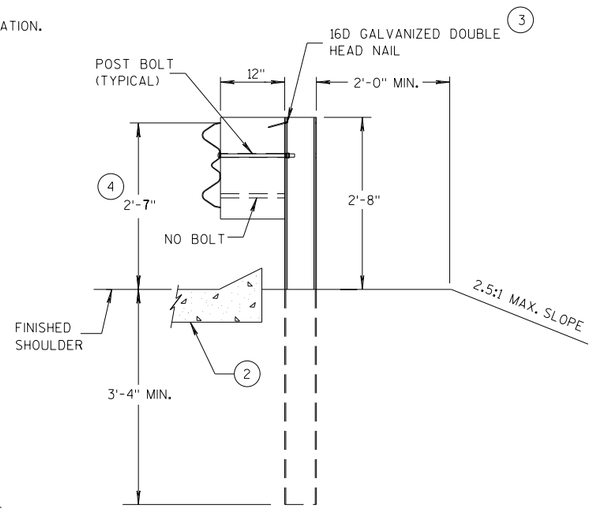
(4) TOLERANCE FOR TOP OF W-BEAM RAIL IS ± 1".

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



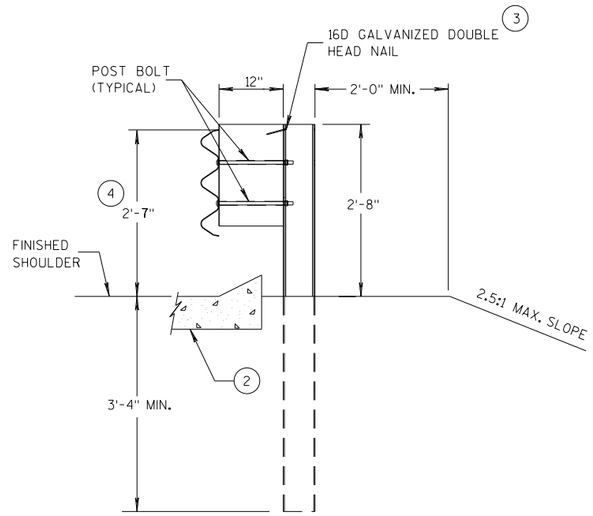
SECTION A-A (13)

POSTS 1-5



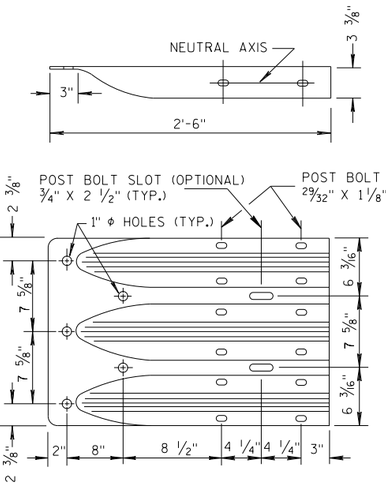
SECTION B-B

POST 6

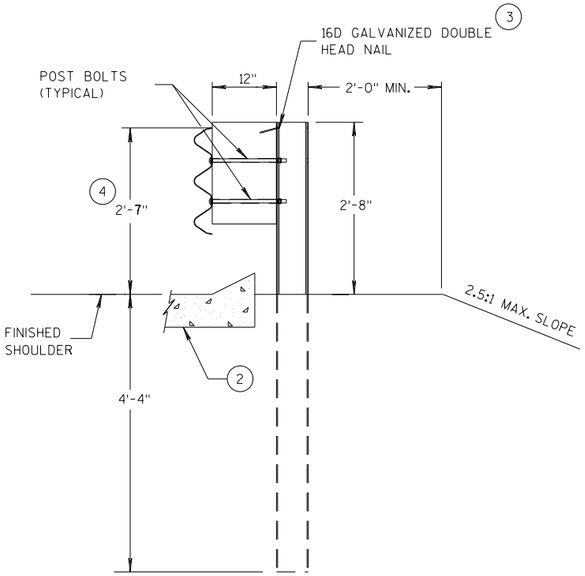


SECTION C-C

POSTS 7-11

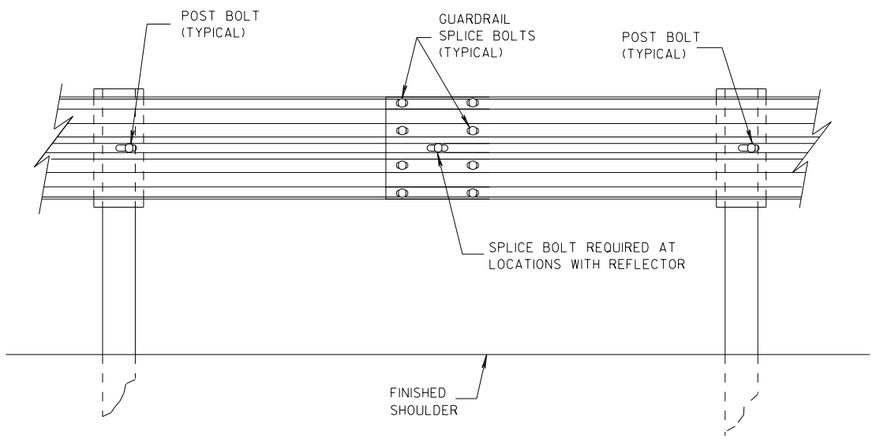


THRIE BEAM TERMINAL CONNECTOR



SECTION D-D

POSTS 12-17



SPLICE DETAIL

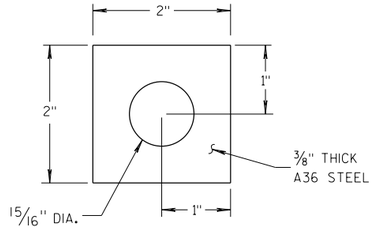
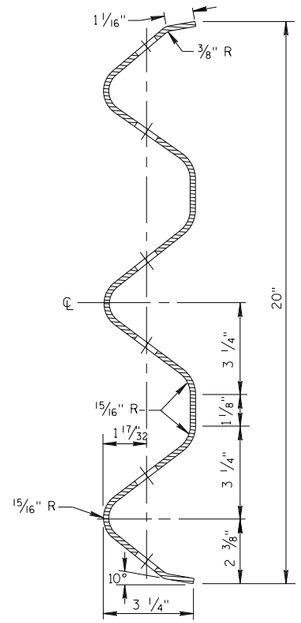


PLATE WASHER DETAIL



SECTION THRU THRIE BEAM RAIL ELEMENT

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

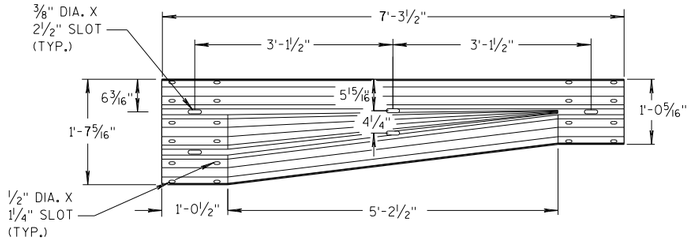
STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR 25

6

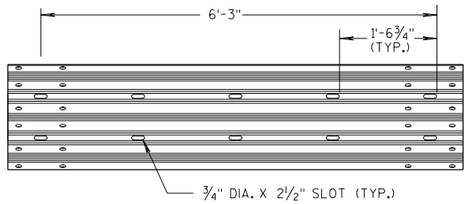
S.D.D. 14 B 45-5b

6

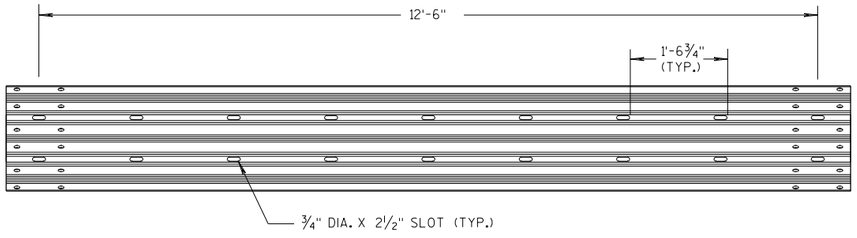
S.D.D. 14 B 45-5b



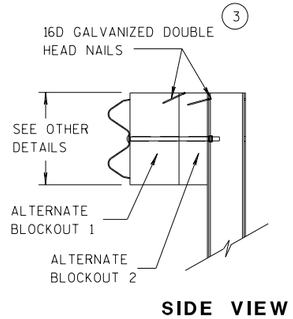
W-BEAM TO THRIE BEAM TRANSITION SECTION



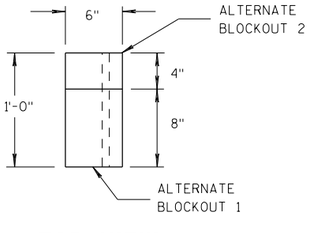
6'-3" THRIE BEAM SECTION



12'-6" THRIE BEAM SECTION

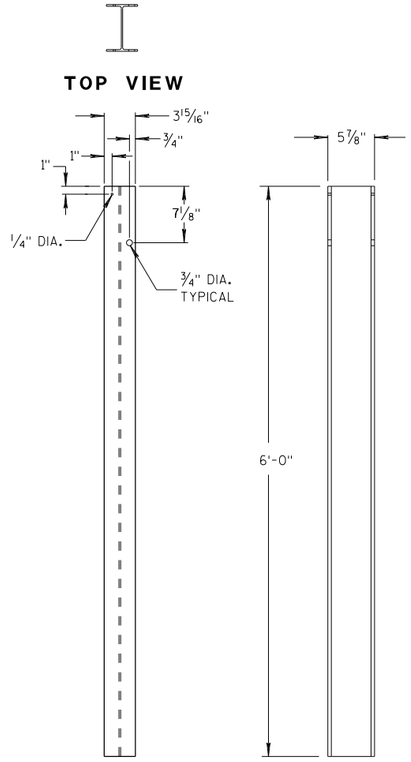


SIDE VIEW



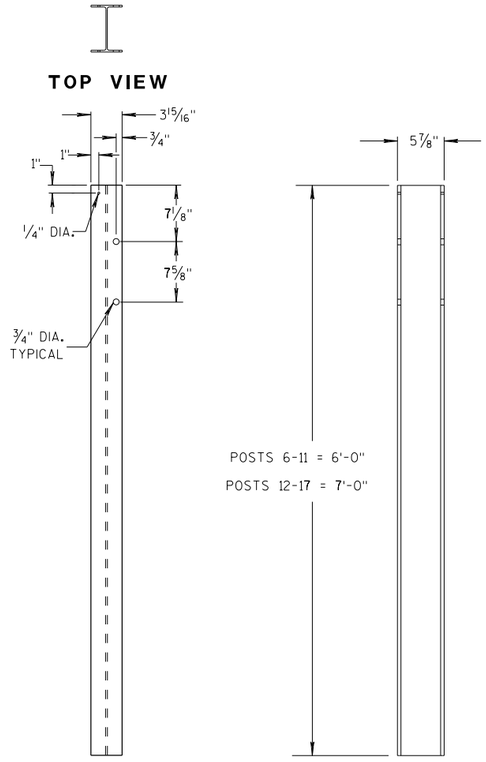
TOP VIEW

ALTERNATE WOOD BLOCKOUT DETAIL



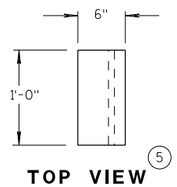
FRONT VIEW SIDE VIEW

STEEL POSTS 1-5 (13)

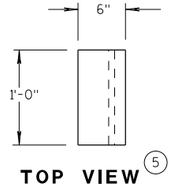


FRONT VIEW SIDE VIEW

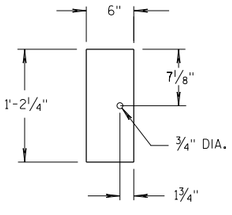
STEEL POSTS 6-17



TOP VIEW (5)

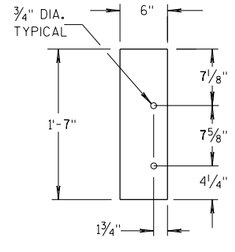


TOP VIEW (5)



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.

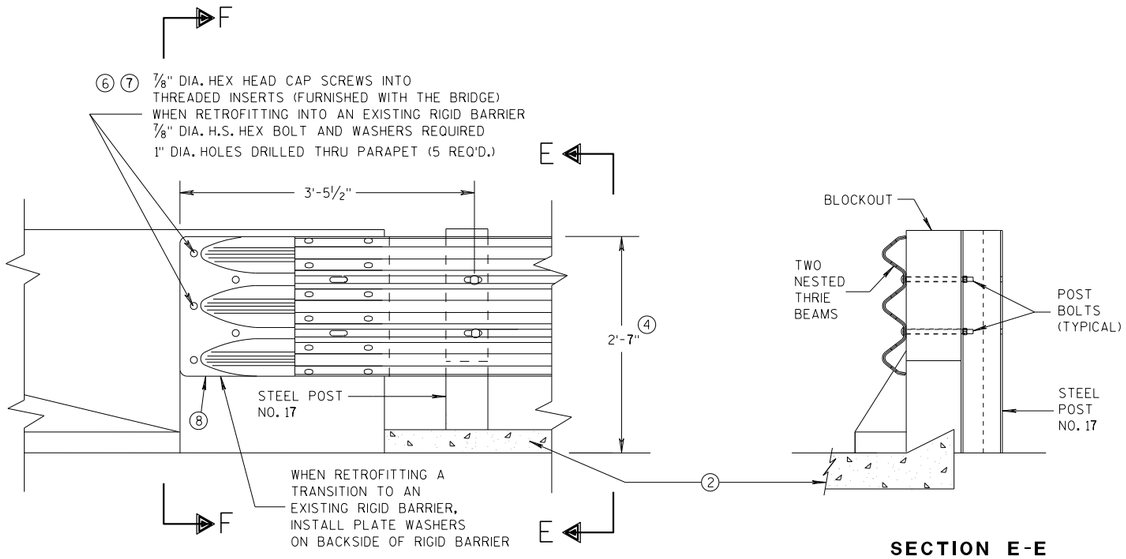
(5) WOOD BLOCKS MAY BE CONSTRUCTED OUT OF 2 WOOD BLOCKS. SEE ALTERNATE WOOD BLOCK DETAIL.

(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.

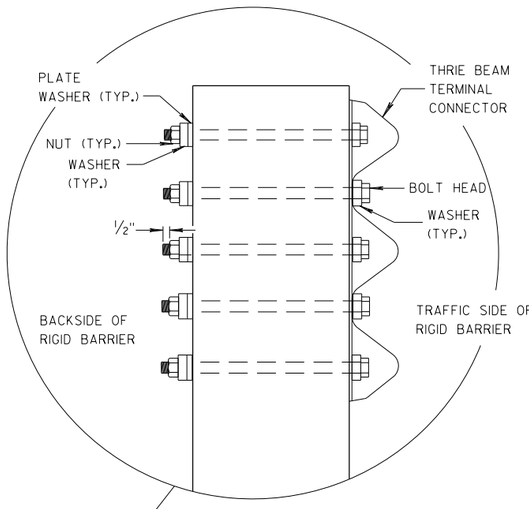
② OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.

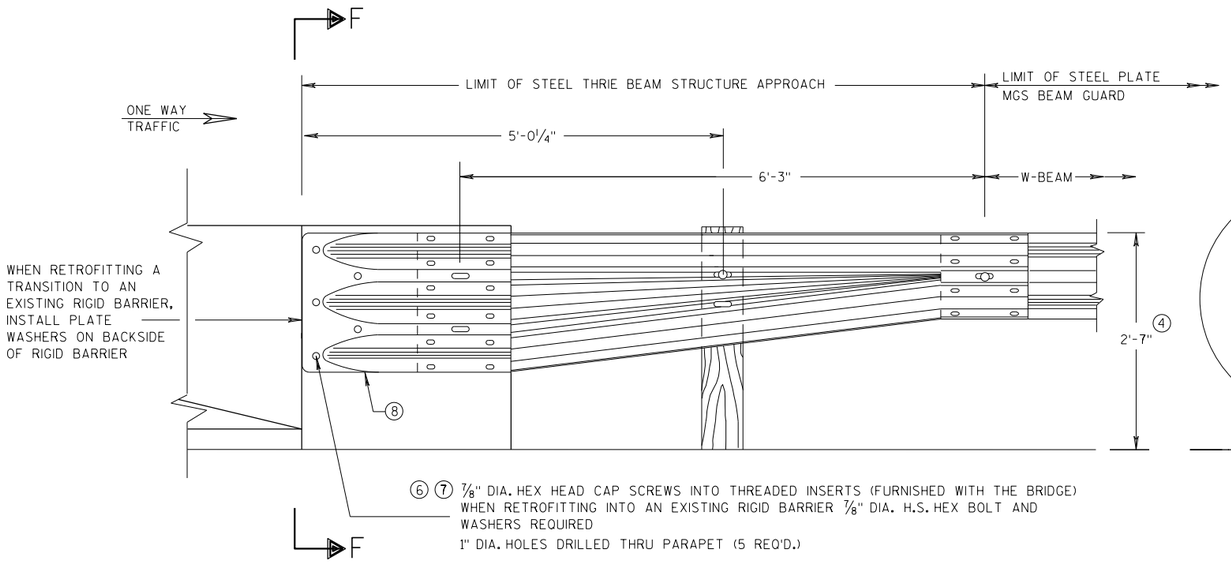
④ TOLERANCE FOR TOP OF BEAM IS ± 1".

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

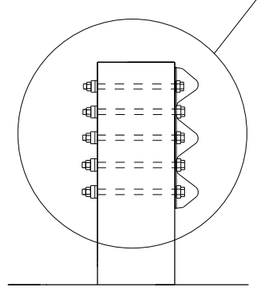
⑦ BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM CONNECTOR PLATE. BOLTS THAT EXTEND THROUGH THE PARAPET AND OUT THE BACK FACE REQUIRE A HARDENED ROUND STEEL WASHER THAT IS 2" O.D. X 5/8" 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".

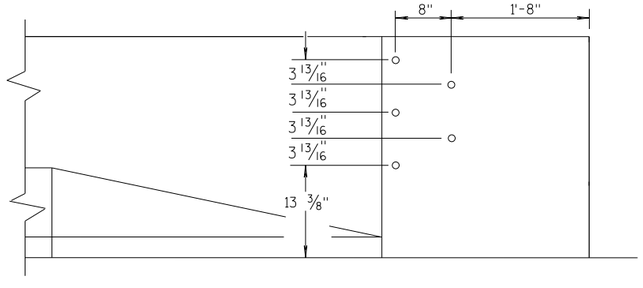




FRONT VIEW



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 UNIT SUPERVI
NT
FHWA

6

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

6

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

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.

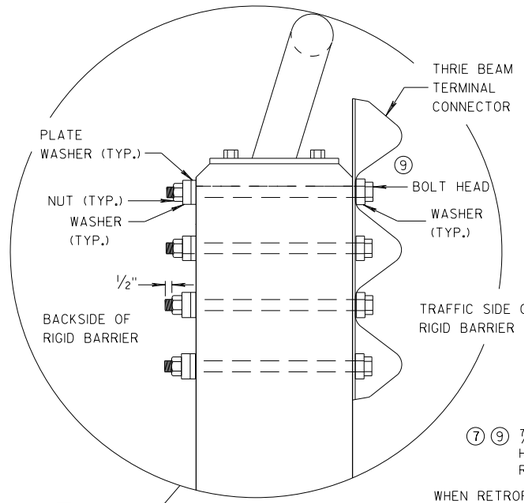
(4) TOLERANCE FOR TOP OF BEAM IS ± 1".

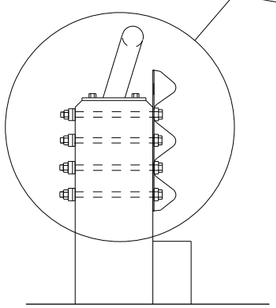
(6) DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.

(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 5/8" THICK AND ONE PLATE WASHER. REPAIR ANY DAMAGED CONCRETE FROM BOLT INSTALLATION.

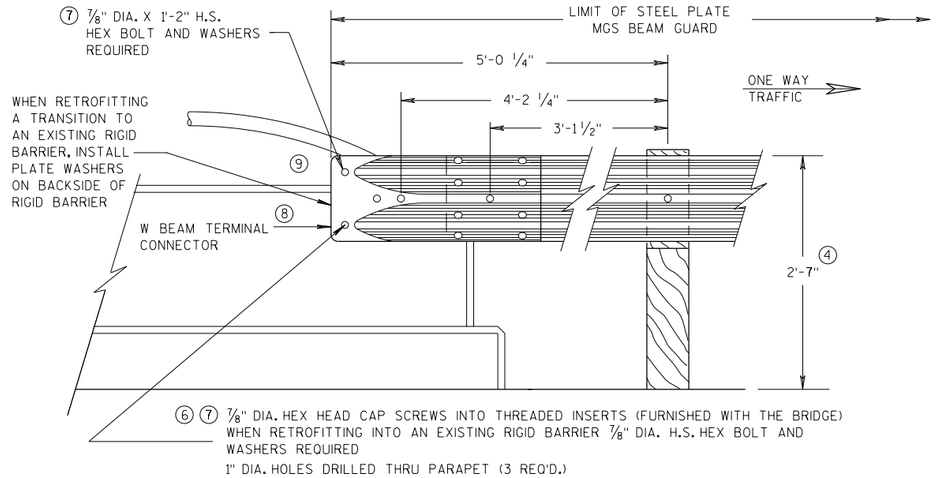
(8) THE RECESS FOR A W-BEAM CONNECTION, WHICH EXISTS ON SOME PARAPETS OF THIS TYPE, SHALL BE FILLED WITH A TREATED TIMBER BLOCKOUT. BLOCKOUT SIZE IS 1'-6" X 2'-0" X 3 1/2".

(9) BOLT, NUT AND WASHERS NOT REQUIRED FOR THIS LOCATION WHEN RETROFITTING AN EXISTING PAPAPET AND THE HOLE IS EITHER ABOVE PARAPET OR WITHIN 4 INCHES OF THE EDGE OF PARAPET.





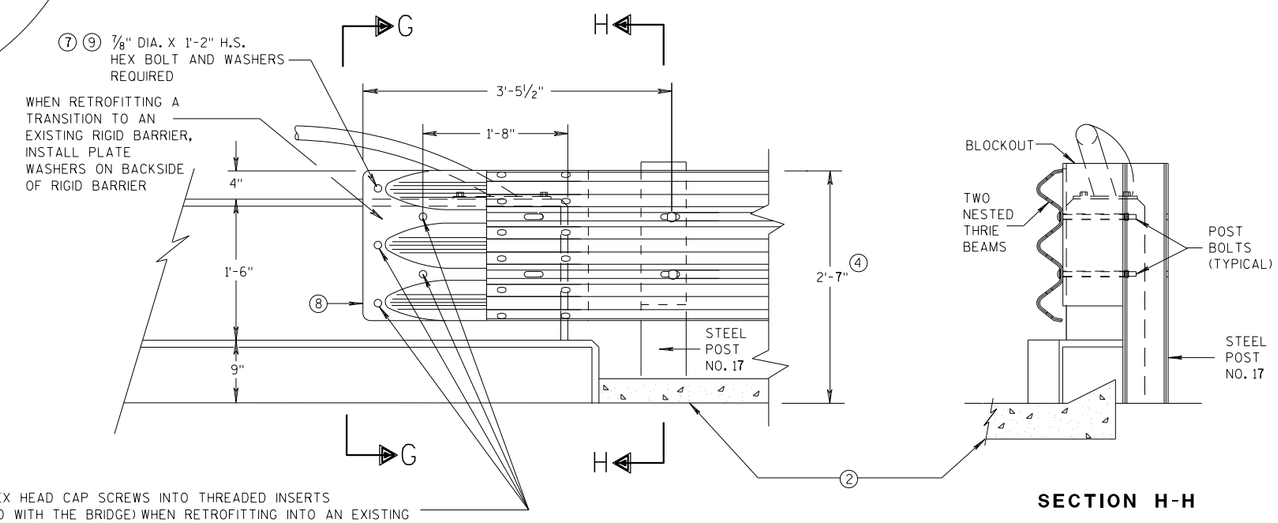
SECTION G-G



FRONT VIEW

W BEAM CONNECTION TO VERTICAL FACE PARAPET

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



FRONT VIEW

SECTION H-H

THRIE BEAM CONNECTION TO VERTICAL FACED PARAPETS

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

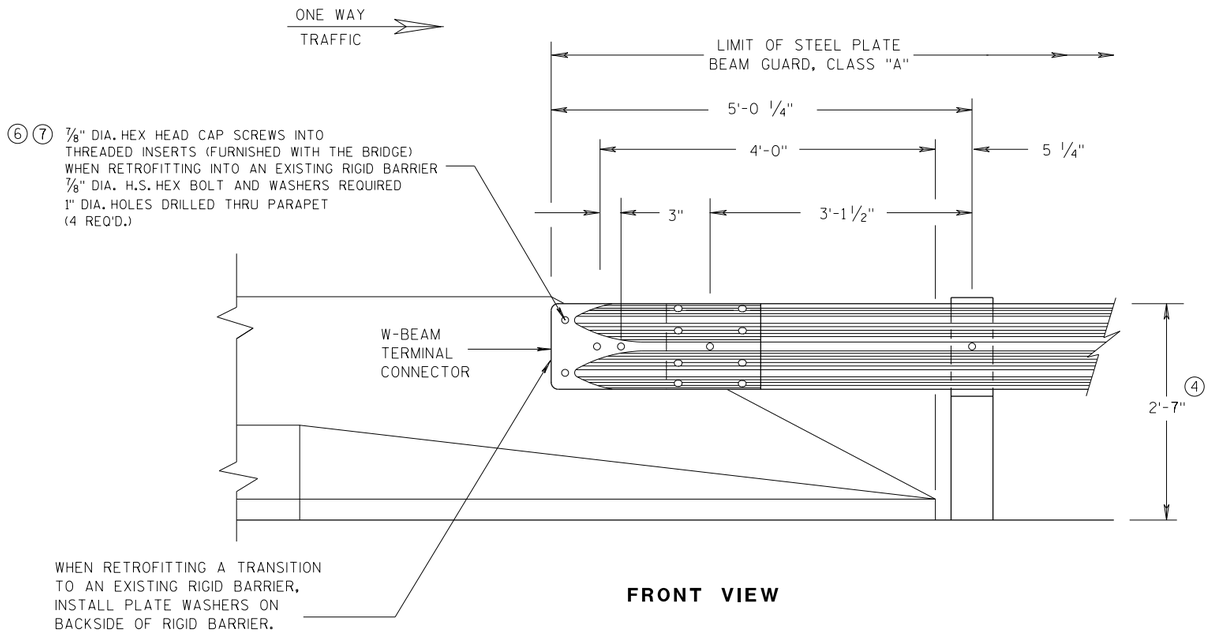
APPROVED
07/2018 — DATE
/S/ Rodney Taylor
ROADWAY STANDARDS D UNIT SUPERVI
NT
FHWA

6

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

6

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



FRONT VIEW

W BEAM CONNECTION TO PARAPETS WITH SLOPED ENDS

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

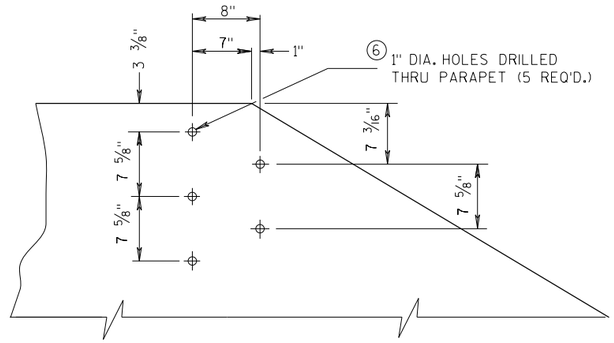
GENERAL NOTES

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

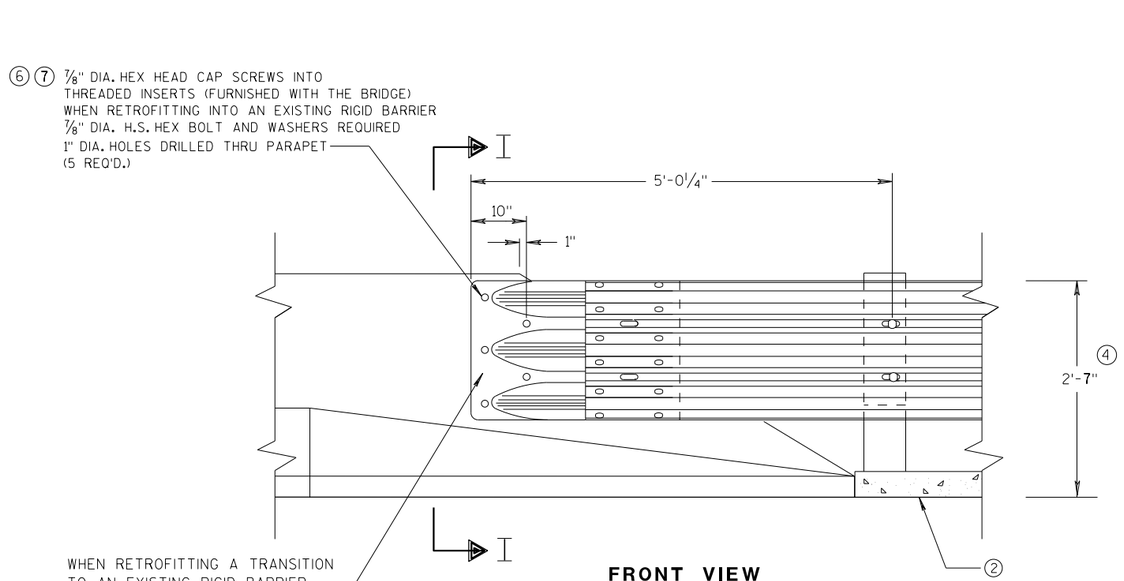
④ TOLERANCE FOR TOP OF BEAM IS ± 1".

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

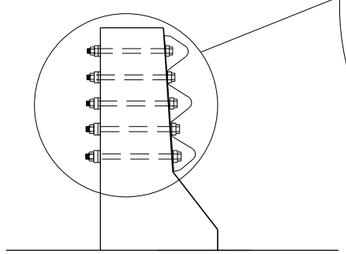
⑦ BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM CONNECTOR PLATE. BOLTS THAT EXTEND THROUGH THE PARAPET AND OUT THE BACK FACE REQUIRE A HARDENED ROUND STEEL WASHER THAT IS 2" O.D. X 5/8" THICK AND ONE PLATE WASHER. REPAIR ANY DAMAGED CONCRETE FROM BOLT INSTALLATION.



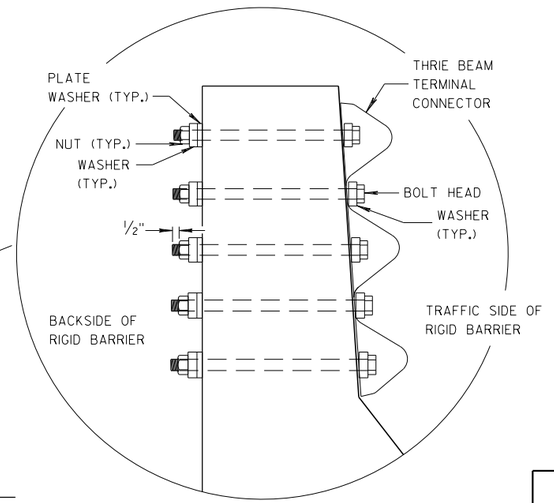
DRILL HOLE LOCATION AND PATTERN
FOR THRIE BEAM CONNECTION



FRONT VIEW



SECTION I-I



THRIE BEAM CONNECTION TO BRIDGE PARAPETS WITH SLOPED ENDS

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

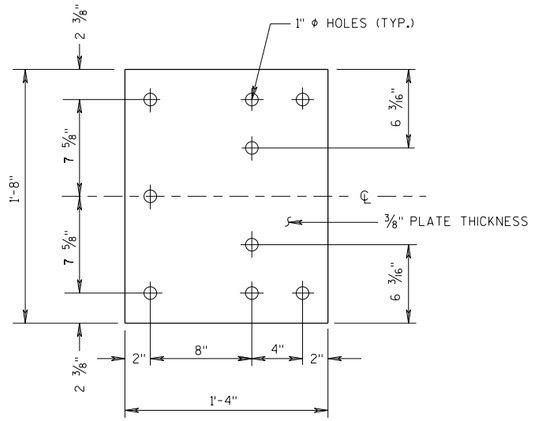
APPROVED
07/2018 — DATE
/S/ Rodney Taylor — ROADWAY STANDARDS I[illegible]ENT UNIT SUPERVI
FHWA

6

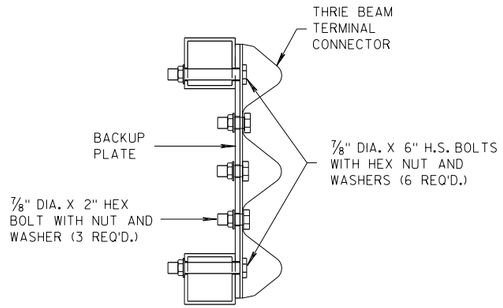
S.D.D. 14 B 45-5f

6

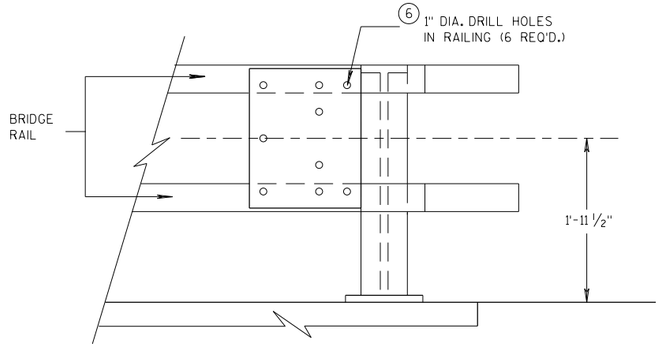
S.D.D. 14 B 45-5f



BACK-UP PLATE DETAIL



SECTION J-J

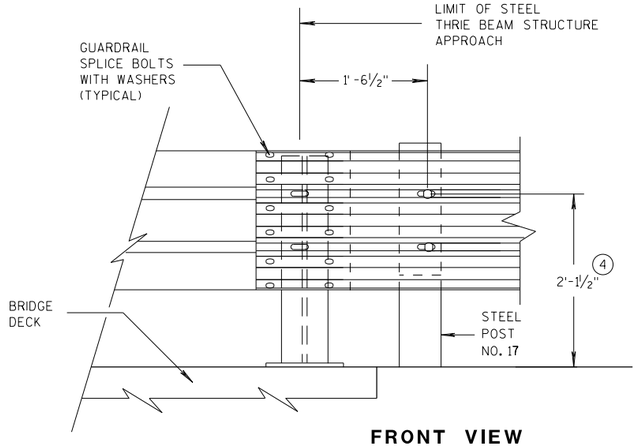


BACK-UP PLATE MOUNTING ONTO BRIDGE RAILING

GENERAL NOTES

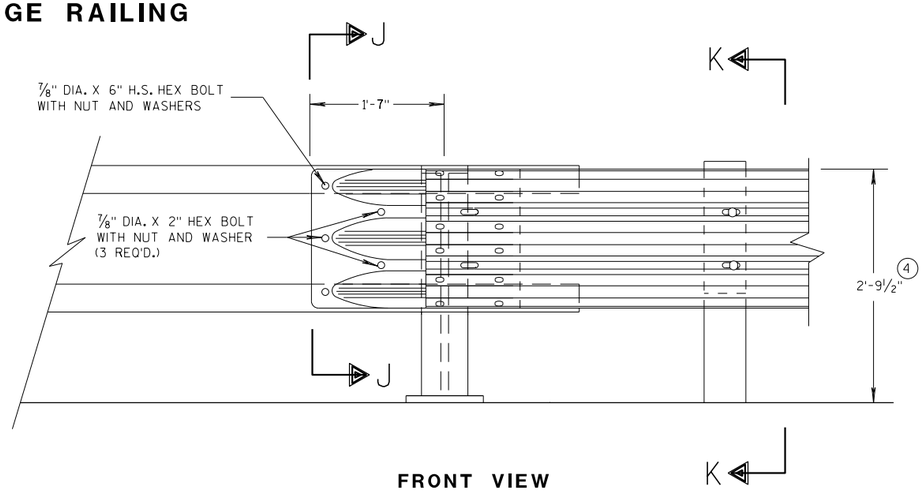
④ TOLERANCE FOR TOP OF BEAM IS ± 1".

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

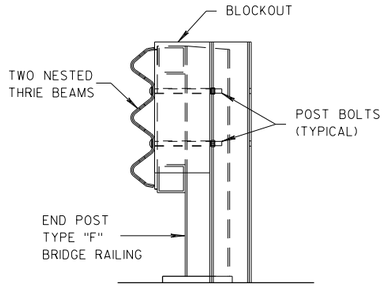


FRONT VIEW

THRIE BEAM CONNECTION TO STEEL RAILING TYPE "W"



FRONT VIEW



SECTION K-K

THRIE BEAM CONNECTION TO TUBULAR RAILING TYPE "F"

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED 07/2018 — DATE
FHWA

/S/ Rodney Taylor — ROADWAY STANDARDS DEVELOPMENT UNIT SUPERVISOR

6

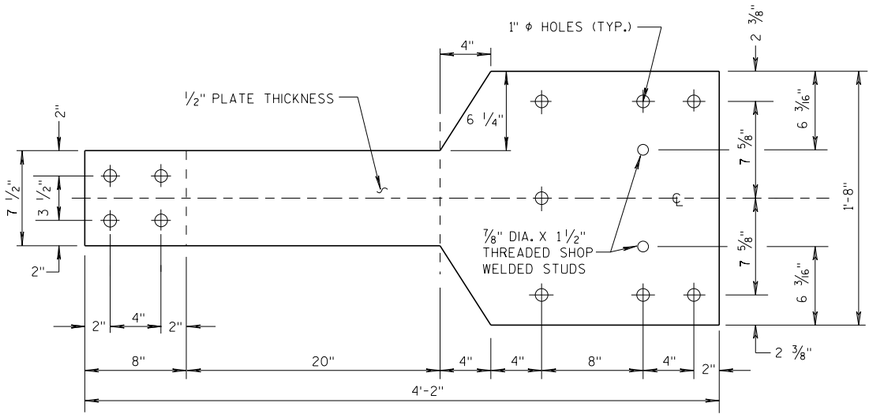
S.D.D. 14 B 45-5g

6

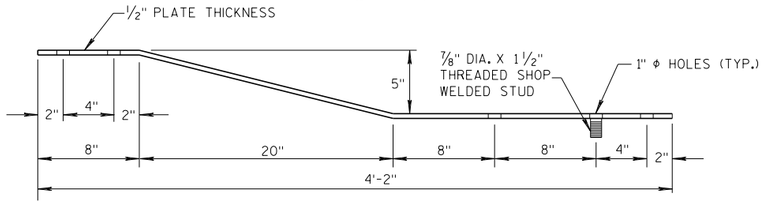
S.D.D. 14 B 45-5g

GENERAL NOTES

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

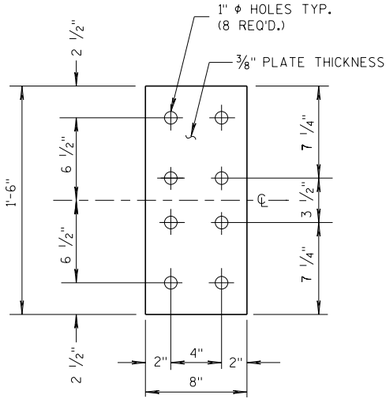


FRONT VIEW



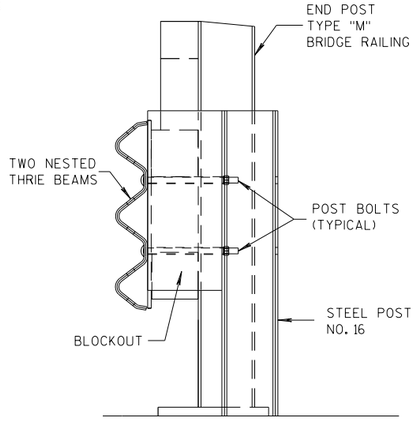
PLAN VIEW

BACK-UP PLATE DETAIL, TYPE "M"

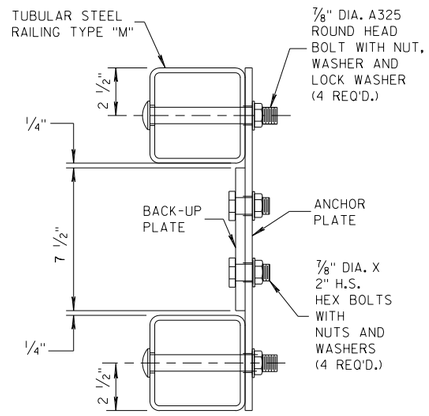


FRONT VIEW

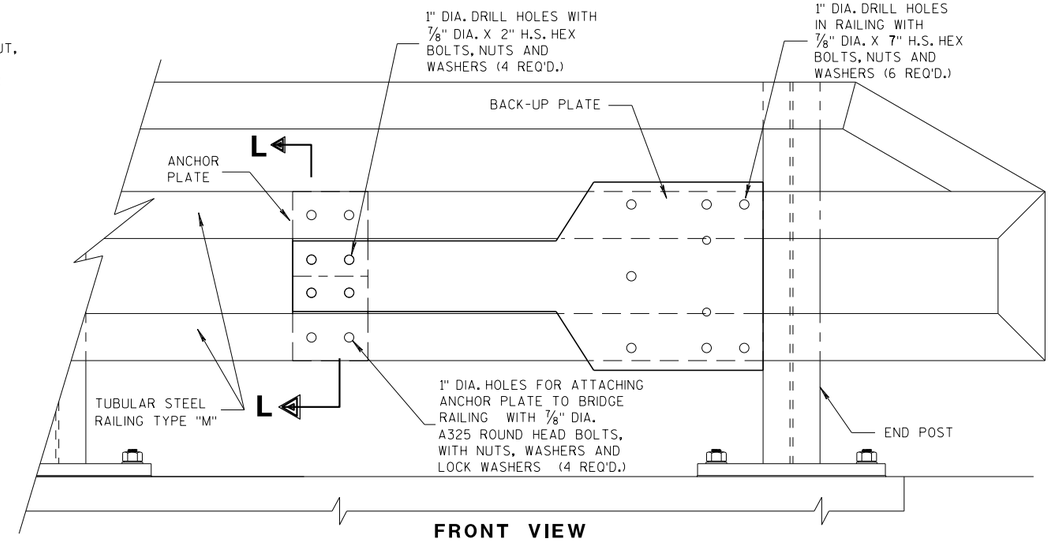
ANCHOR PLATE DETAIL, TYPE "M"



SECTION M-M

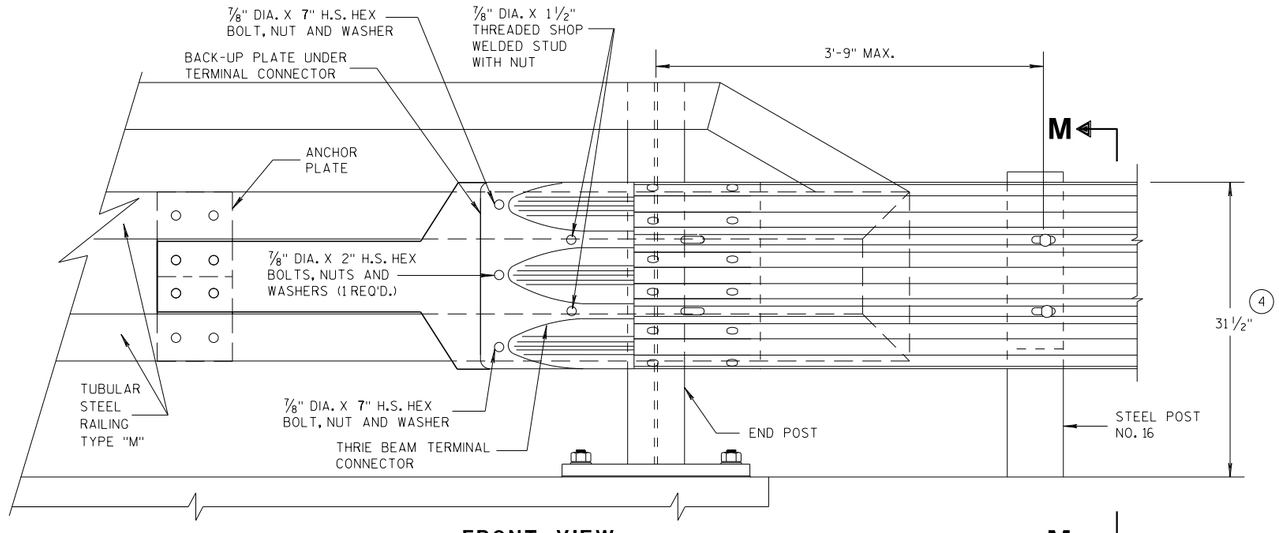


SECTION L-L

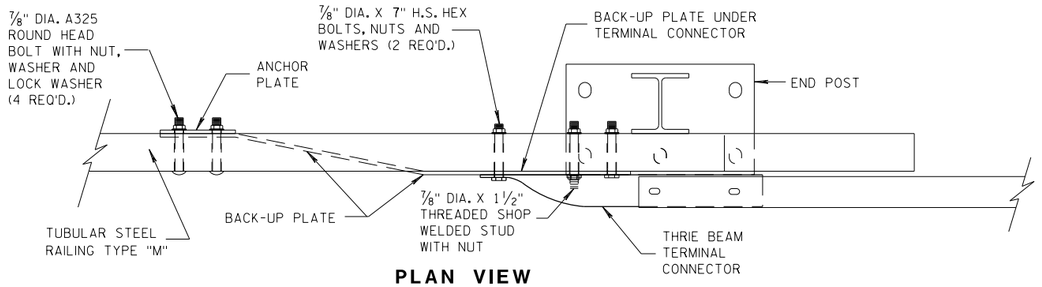


FRONT VIEW

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



FRONT VIEW



PLAN VIEW

THRIE BEAM CONNECTION TO TUBULAR RAILING, TYPE "M"

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

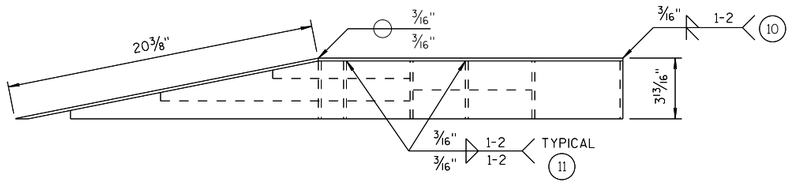
APPROVED
07/2018 — DATE
/S/ Rodney Taylor — ROADWAY STANDARDS DEVELOPMENT UNIT SUPERVISOR
FHWA

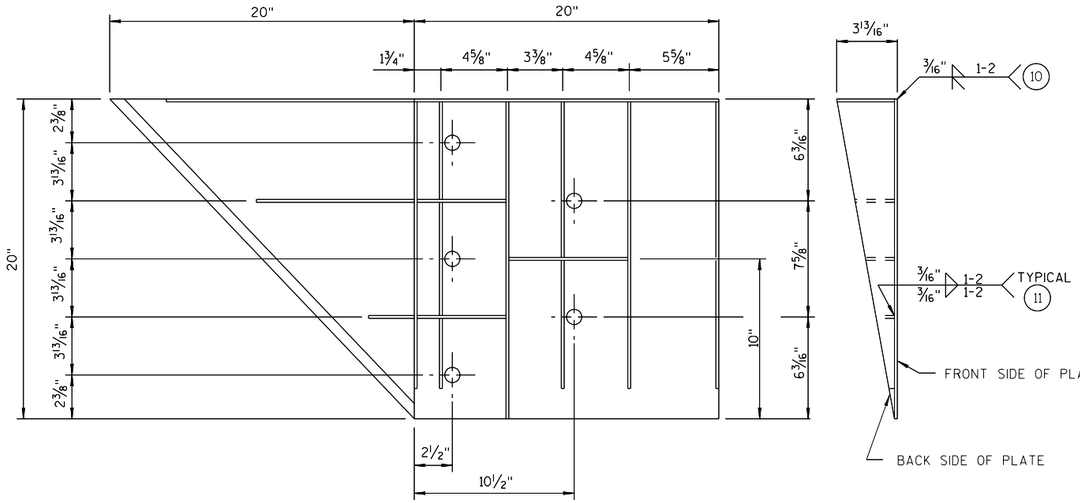
6

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

6

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





WELDING INSTRUCTION

(VIEWED FROM BACK SIDE OF PLATE)

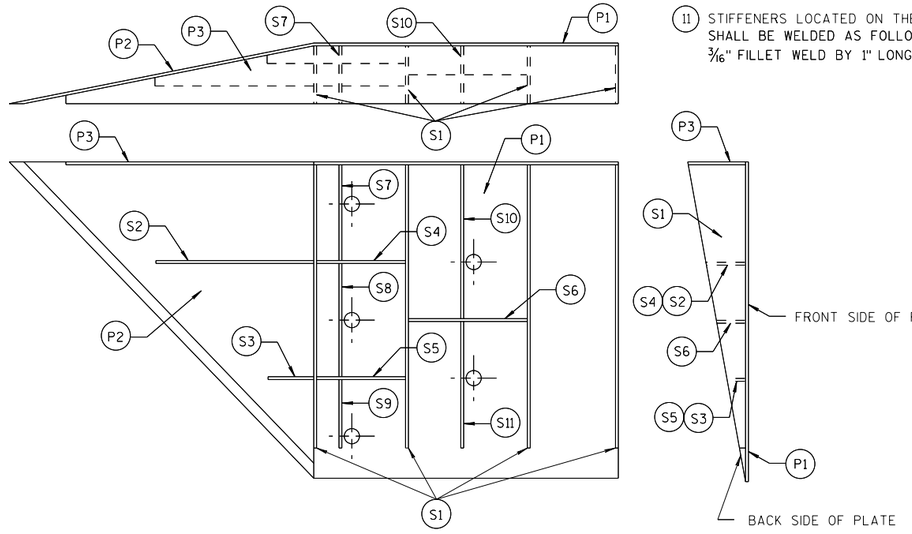


PLATE AND STIFFENER IDENTIFICATION

(VIEWED FROM BACK SIDE OF PLATE)

GENERAL NOTES

COVER PLATE PANELS ARE 3/16" THICK.

ALL STIFFENERS ARE 1/4" THICK.

CONNECTOR PLATE SHALL BE FABRICATED FROM ASTM GRADE A36 STEEL AND GALVANIZED.

FOR GALVANIZED REQUIREMENTS, SEE SECTION 614 OF THE STANDARD SPECIFICATIONS.

ALL HOLE DIAMETERS SHALL BE 1".

FOR OPPOSITE SIDE INSTALLATION MIRROR DRAWINGS.

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

(11) STIFFENERS LOCATED ON THE INSIDE OF THE COVER PLATE SHALL BE WELDED AS FOLLOWS:
3/16" FILLET WELD BY 1" LONG SPACED AT 2".

CONNECTOR PLATE DIMENSION (PER ASSEMBLY)

PLATE	QUANTITY	SHAPE	SIZE (A x B x C x D)	THICKNESS
P1	1		20" x 20"	3/16"
P2	1		20" x 20" x 28 9/16"	3/16"
P3	1		39" x 3 5/8" x 20" x 19 5/16"	3/16"
S1	4		18 7/16" x 3 5/8" x 18 3/4"	1/4"
S2	1		10 1/4" x 2 7/16" x 10 3/8" x 1/2"	1/4"
S3	1		3" x 1 1/16" x 3 1/8" x 1/2"	1/4"
S4	1		6 1/8" x 2 7/16"	1/4"
S5	1		6 1/8" x 1 1/16"	1/4"
S6	1		7 3/4" x 1 3/4"	1/4"
S7	1		2 9/16" x 6" x 3 5/8" x 5 7/8"	1/4"
S8	1		1 5/32" x 7 1/2" x 2 1/2" x 7 3/8"	1/4"
S9	1		6 1/16" x 6 3/16" x 1 3/32"	1/4"
S10	1		1 7/8" x 9 7/8" x 3 5/8" x 9 11/16"	1/4"
S11	1		8 1/2" x 8 3/4" x 1 13/16"	1/4"

SINGLE SLOPE CONNECTION PLATE

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

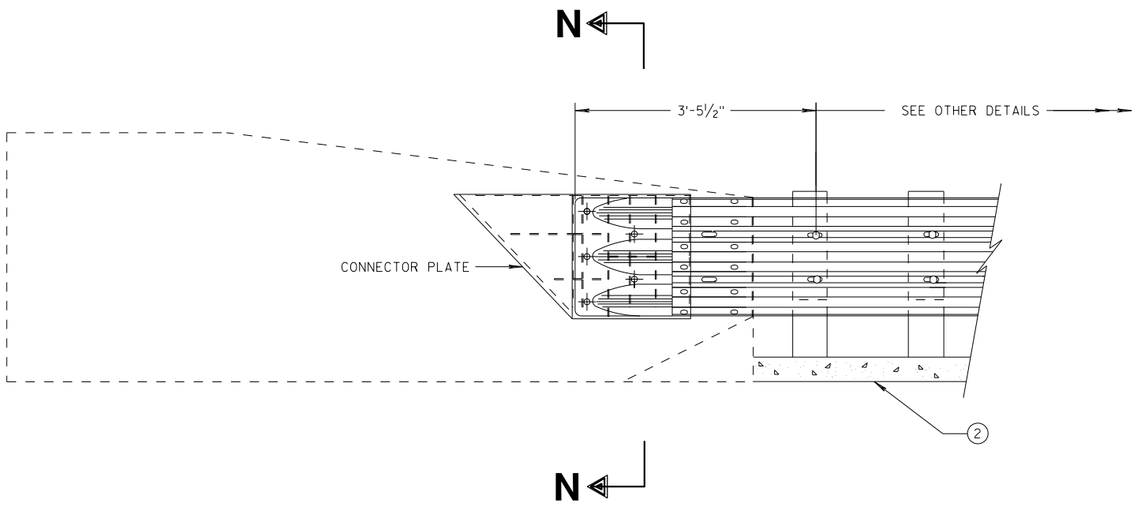
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
7/2018
DATE
FHWA

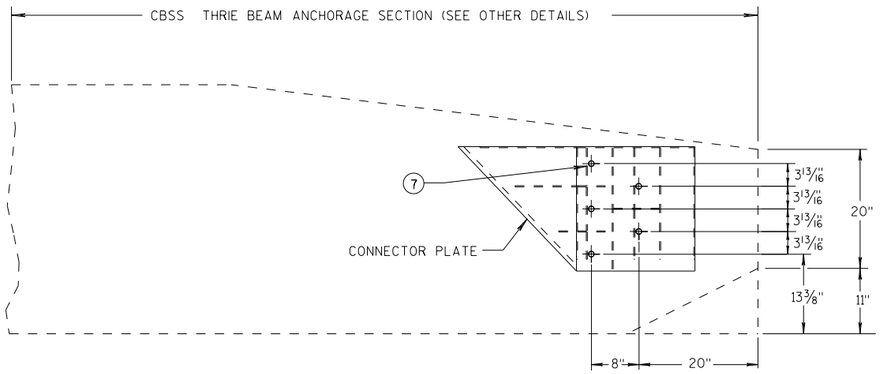
/S/ Rodney Taylor
ROADWAY STANDARDS I
UNIT SUPERVI

6

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



THRIE BEAM CONNECTION TO SINGLE SLOPE BARRIER



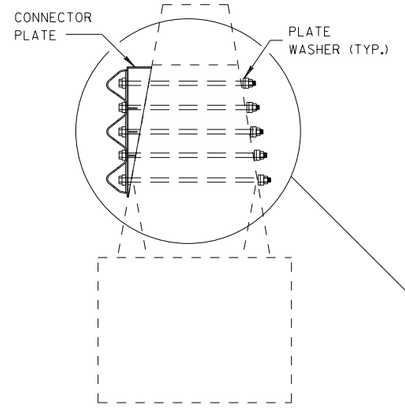
SINGLE SLOPE CONNECTION PLATE PLACEMENT

GENERAL NOTES

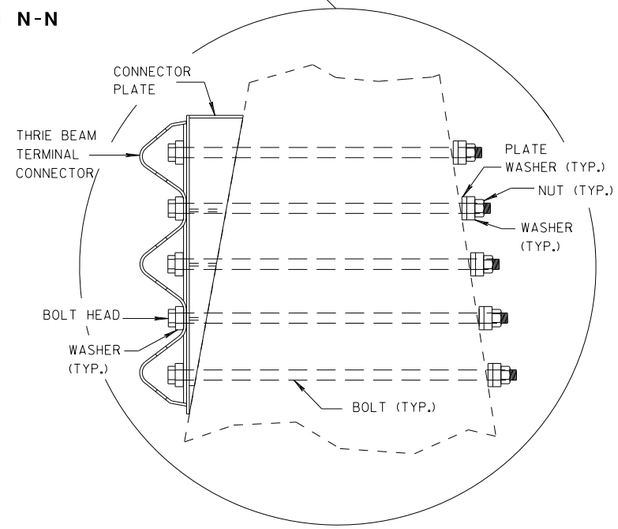
CONNECTOR PLATE, DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.

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

(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 ⅝" THICK AND ONE PLATE WASHER. REPAIR ANY DAMAGED CONCRETE FROM BOLT INSTALLATION.



SECTION N-N



MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

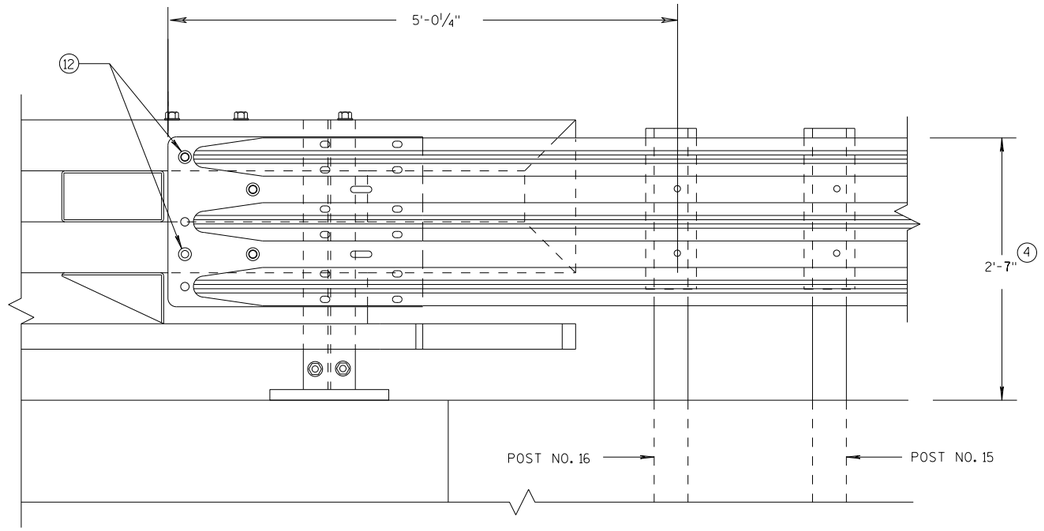
APPROVED
7/2018
DATE
/S/ Rodney Taylor
ROADWAY STANDARDS DI UNIT SUPERVIS
NT
FHWA

6

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

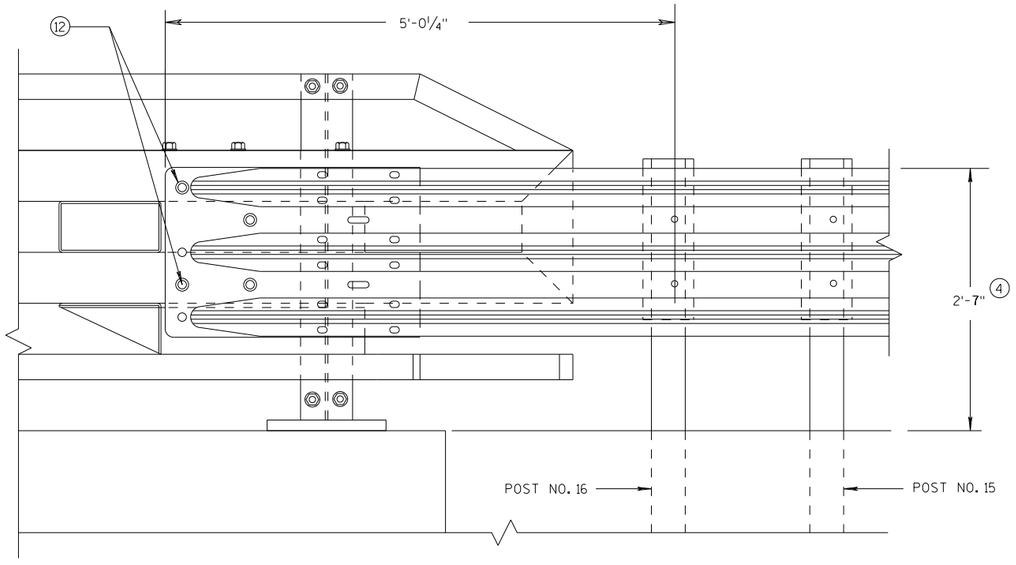
6

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



ELEVATION OF DETAIL AT NY3 END POST

THRIE BEAM RAIL ATTACHMENT



ELEVATION OF DETAIL AT NY4 END POST

THRIE BEAM RAIL ATTACHMENT

GENERAL NOTES

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

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

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

7/2018
DATE

/S/ Rodney Taylor
ROADWAY STANDARDS D
UNIT SUPERVIS

NT

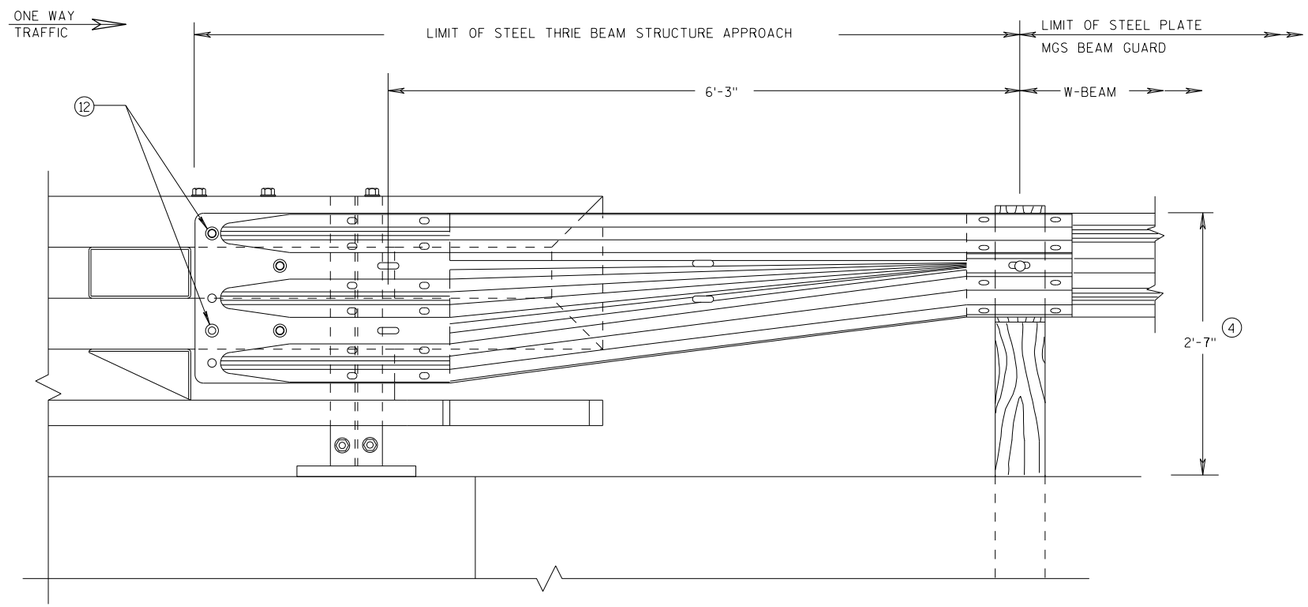
FHWA

6

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

6

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



FRONT VIEW

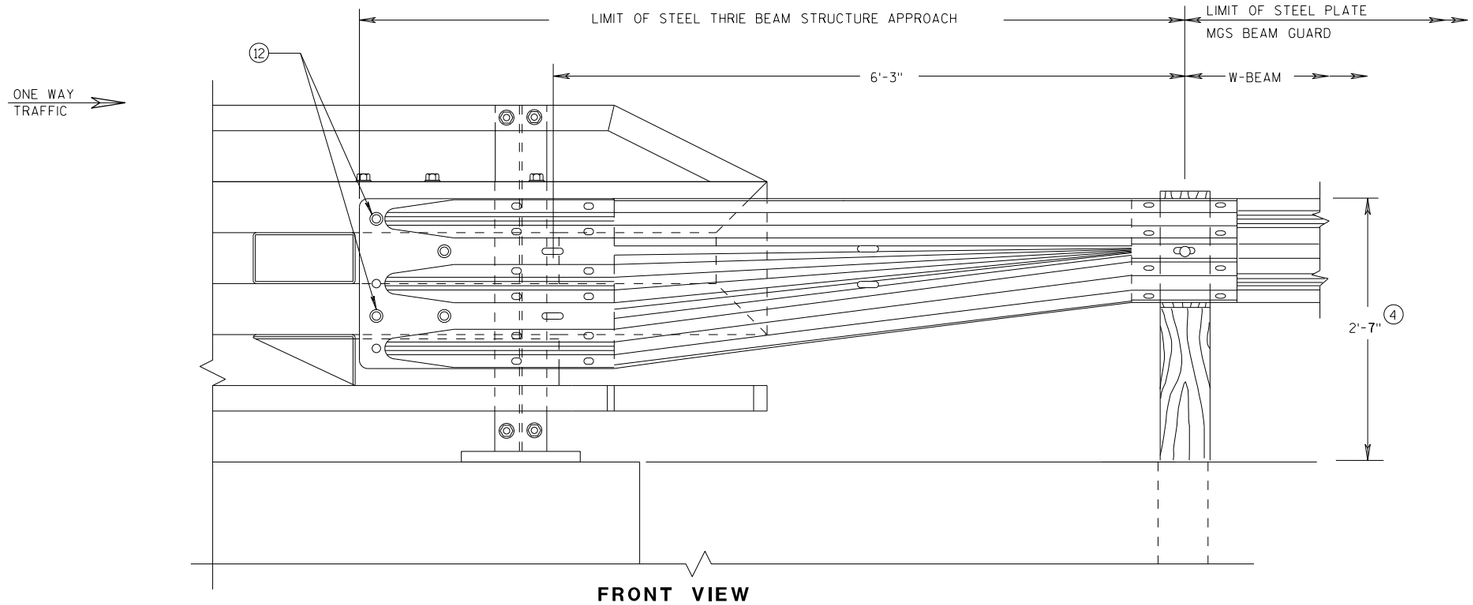
W BEAM TRANSITION AND CONNECTION TO BRIDGE RAILING TYPE "NY3"

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

GENERAL NOTES

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

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



FRONT VIEW

W BEAM TRANSITION AND CONNECTION TO BRIDGE RAILING TYPE "NY4"

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

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

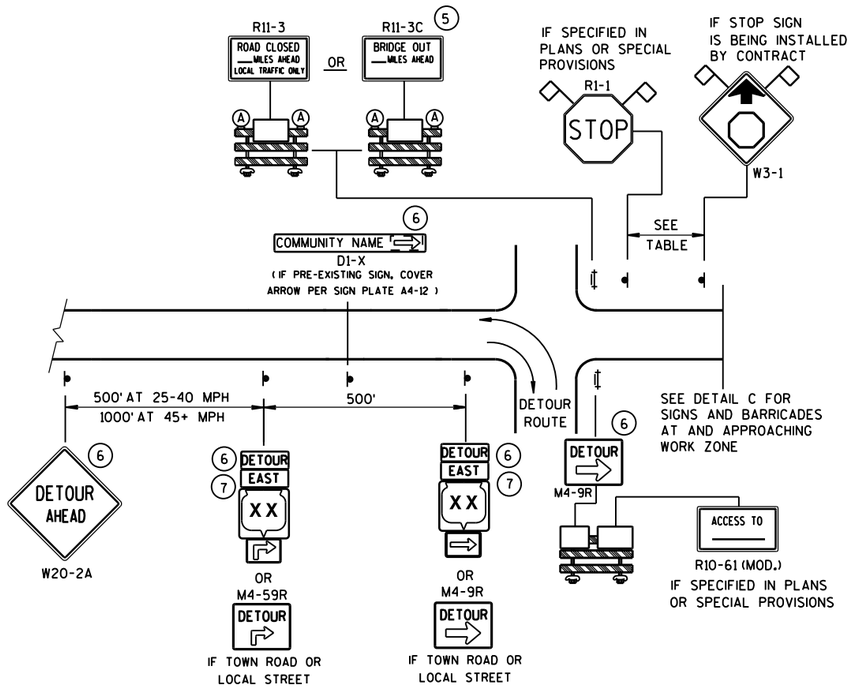
APPROVED
7/2018 DATE
/S/ Rodney Taylor
ROADWAY STANDARDS D
UNIT SUPERVIS
FHWA

6

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

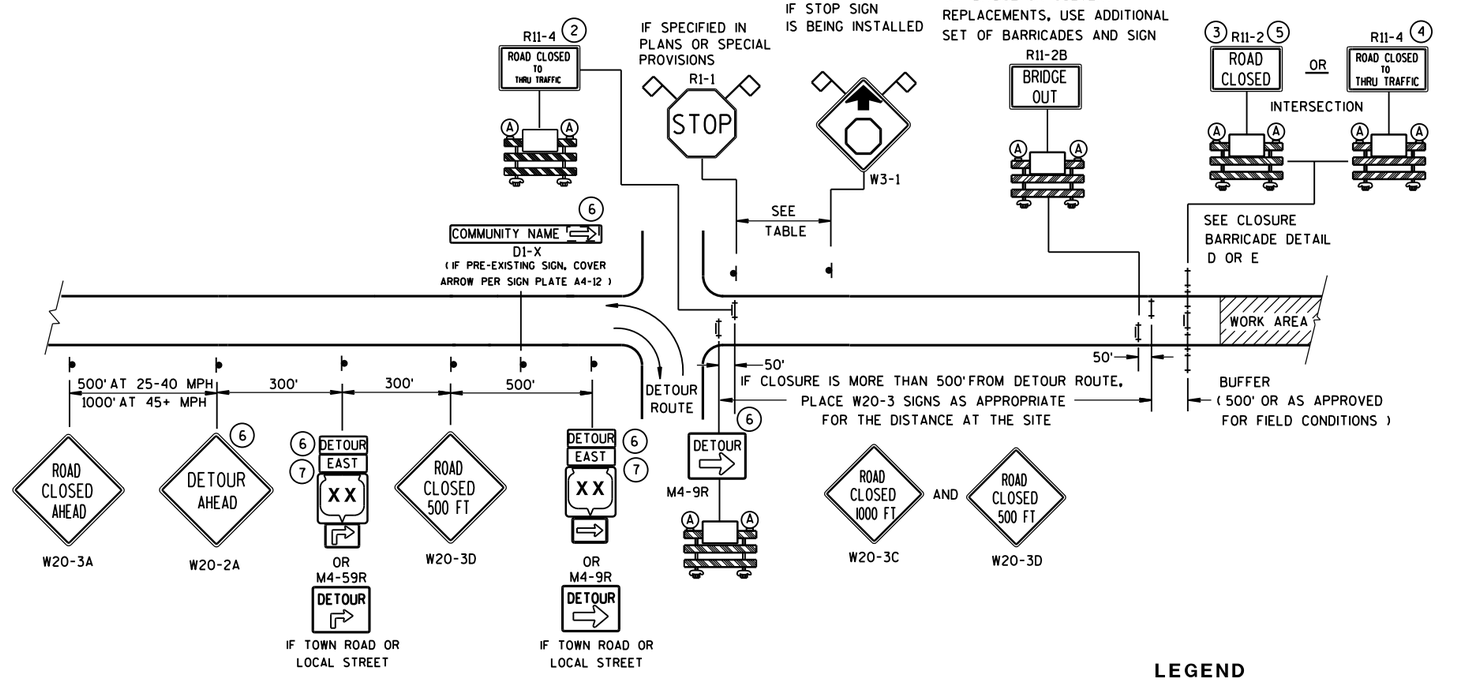
6

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



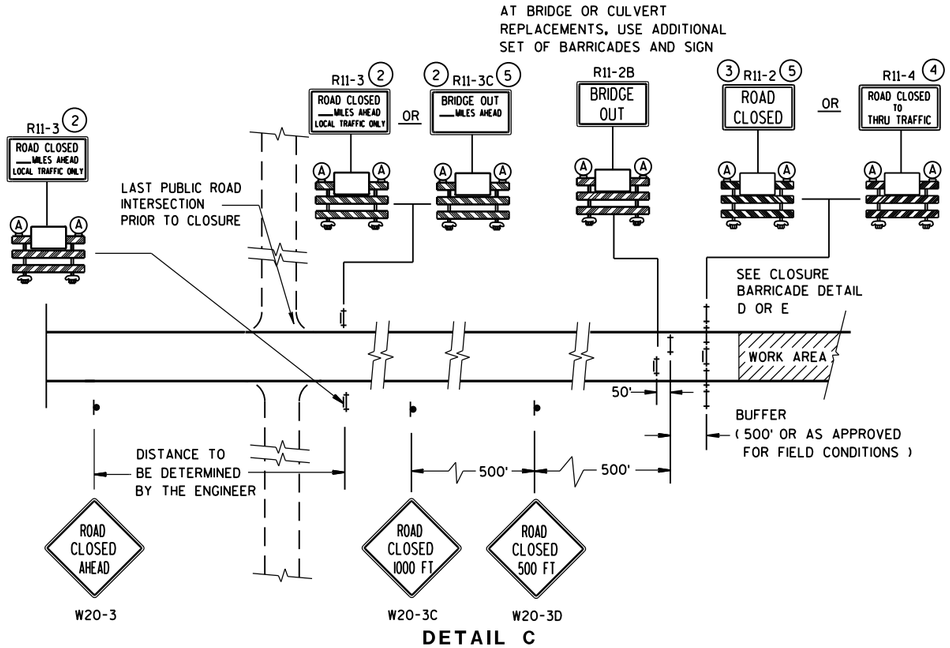
DETAIL A
MAINLINE CLOSURE WITH POSTED DETOUR

WORK ZONE GREATER THAN 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
- (A) TYPE "A" WARNING LIGHT (FLASHING)
- WORK AREA
- DETOUR / EAST — M4-8 / M3-X
- XX — M1-4; COUNTY XX — M1-5A; XX — M1-6
- M05-1 OR M06-1
- FLAGS, 16" X 16" MIN., (ORANGE)

BARRICADES AND SIGNS FOR MAINLINE CLOSURES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

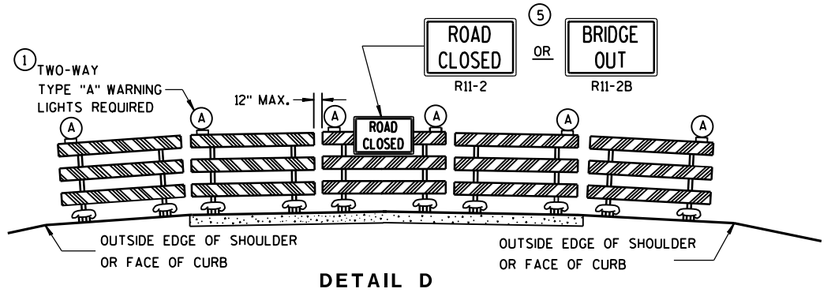
Sept. 2015 — DATE
/S/ Peter Amakobe Atepe
STATEWIDE WORK ZONE TRAFFIC SAFETY ENGINEER
FHWA

6

S.D.D. 15 C 2-6a

6

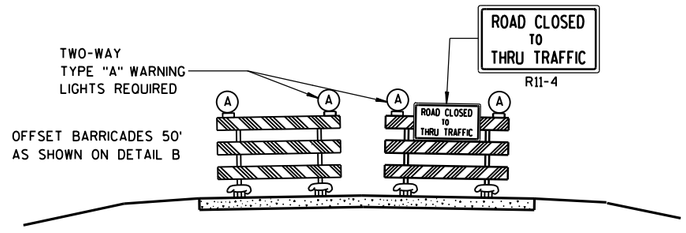
S.D.D. 15 C 2-6a



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 BARRICADES SHALL COVER NO MORE THAN THE TOP RAIL. THE SIGNS SHALL NOT COVER ANY PORTION OF THE MIDDLE 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, 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". (30" X 15" IF NEEDED TO MATCH EXISTING SIGNS.)
- M1-4, M1-5A, AND M1-6 SHALL BE 24" X 24". (36" X 36" IF NEEDED TO MATCH EXISTING SIGNS.)
- M05-1 AND M06-1 SHALL BE 21" X 21". (30" X 30" IF NEEDED TO MATCH EXISTING SIGNS.)
- 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 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 LANE 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 MAINLINE CLOSURES

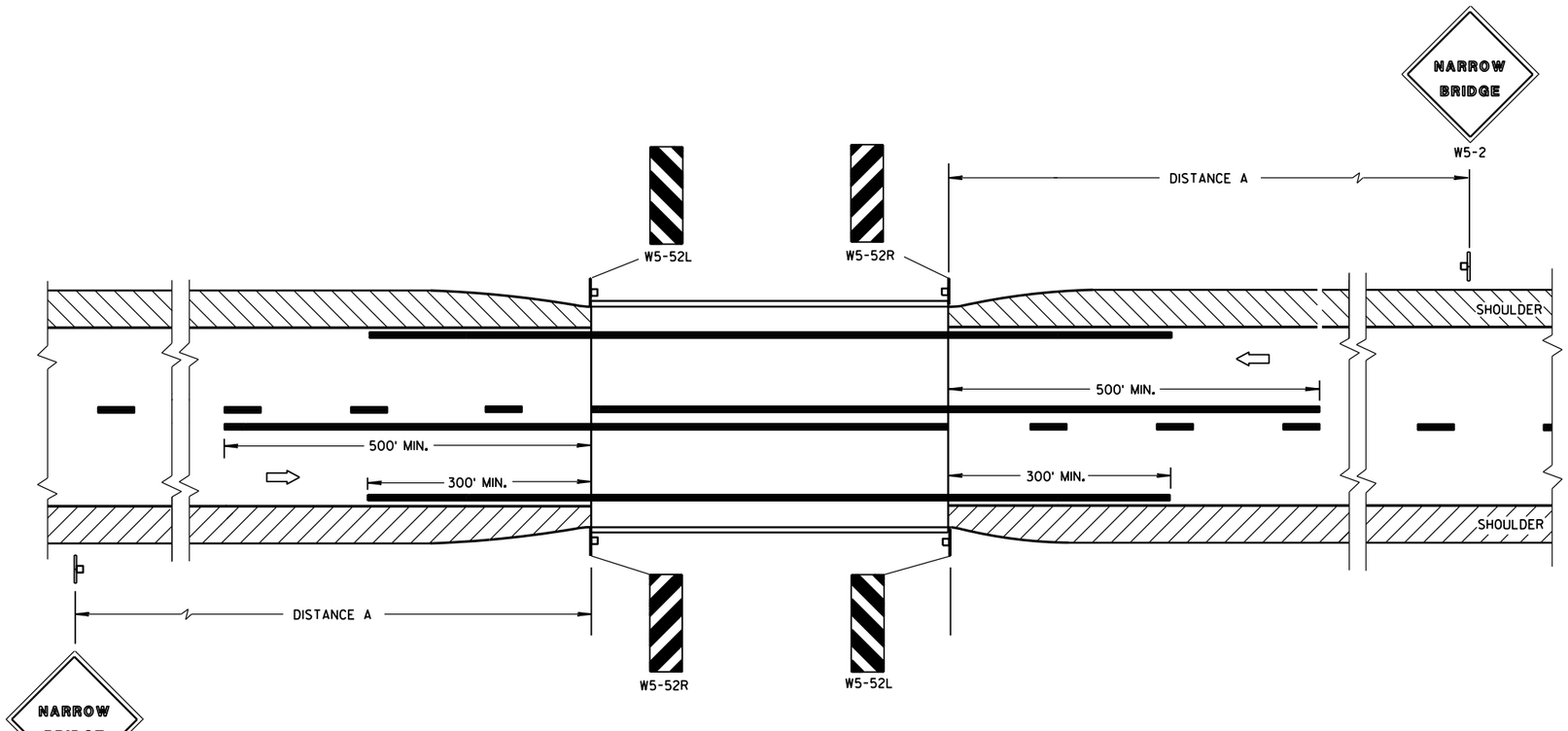
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

Sept. 2015 — DATE

/S/ Peter Amakobe Atepe
STATEWIDE WORK ZO... SAFETY ENGI... — FHWA — FIC

6

S.D.D. 15 C 2-6b



SITUATION 1

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

DISTANCE TABLE

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

GENERAL NOTES

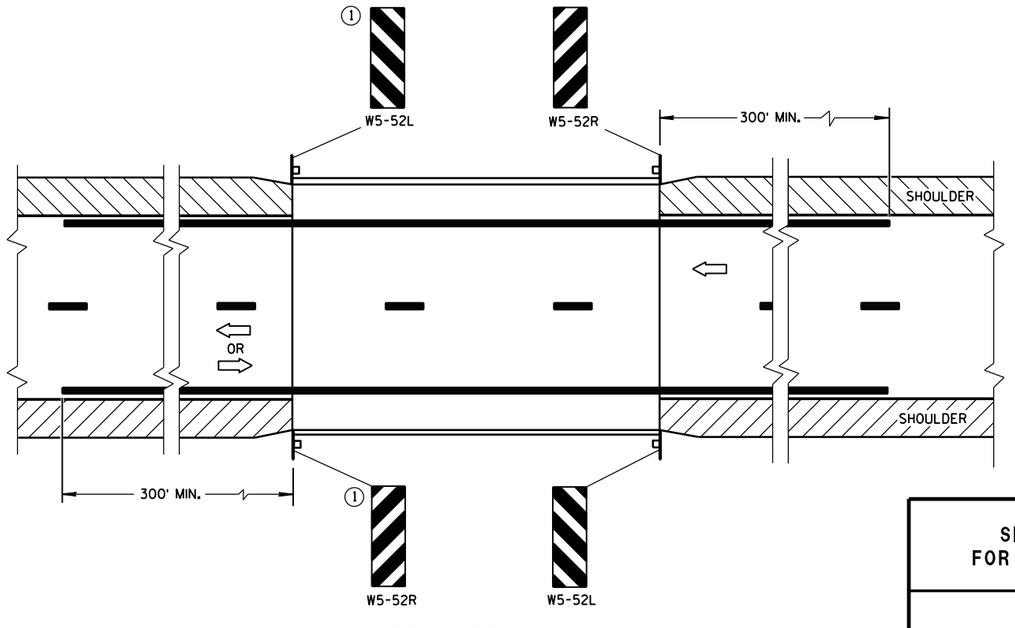
DETAILS OF TRAFFIC CONTROL DEVICES AND INSTALLATION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS, THE SPECIAL PROVISIONS, AND THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

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

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

(1) OMIT ON ONE-WAY TRAVELLED WAYS.

⇨ DIRECTION OF TRAFFIC



SITUATION 2

WARRANTING CRITERIA:

1. BRIDGE WIDTH IS AT LEAST 24 FEET AND
2. BRIDGE SHOULDER WIDTH IS LESS THAN 6 FEET.

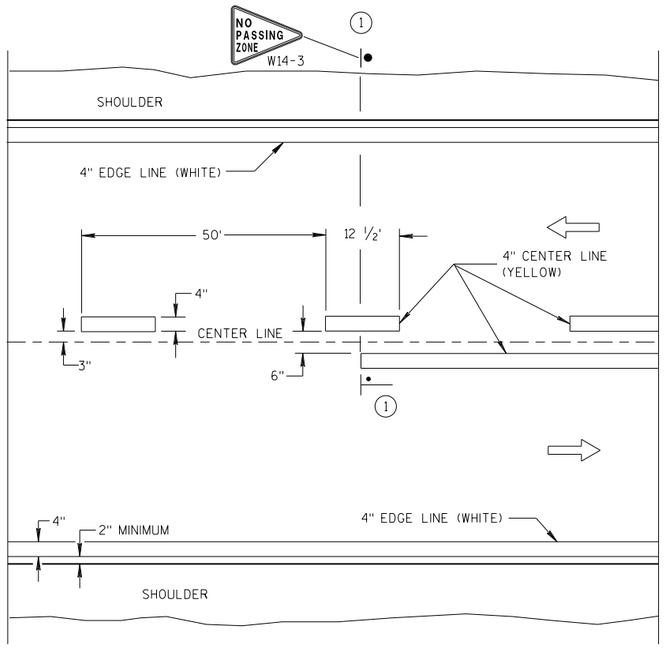
SIGNING & MARKING FOR TWO LANE BRIDGES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

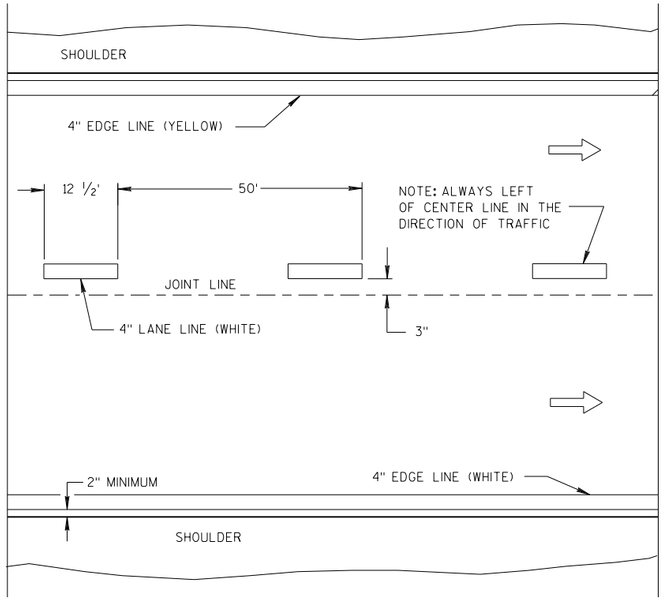
APPROVED
June 2017 — DATE
/S/ Matthew R. Rauch — STATE SIGNING AND MAR ...IEER
FHWA

6

S.D.D. 15 C 6-9



TWO WAY TRAFFIC



ONE WAY TRAFFIC

PERMANENT PAVEMENT MARKING

GENERAL NOTES

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

(1) LOCATE THE NO PASSING ZONE W14-3 SIGN WITHIN 50 FEET OF THE "T" MARKING.

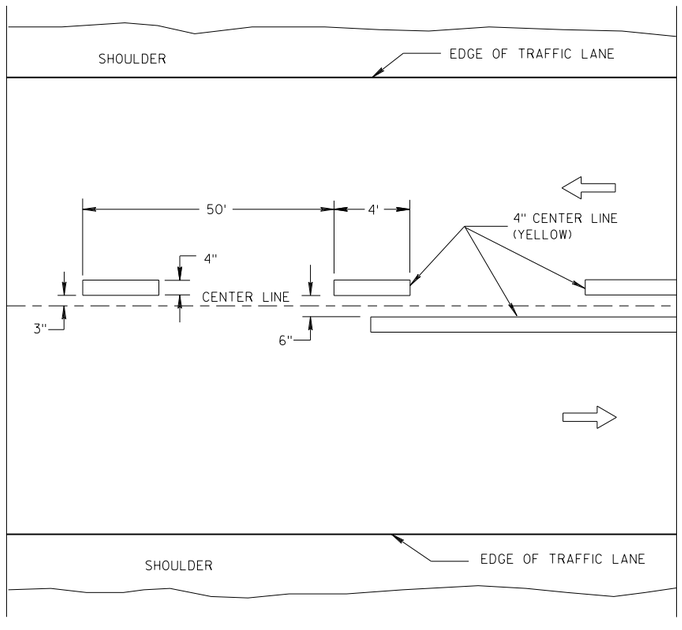
NOTE

ARROW SYMBOL (⇨) SHOWS DIRECTION OF TRAVEL

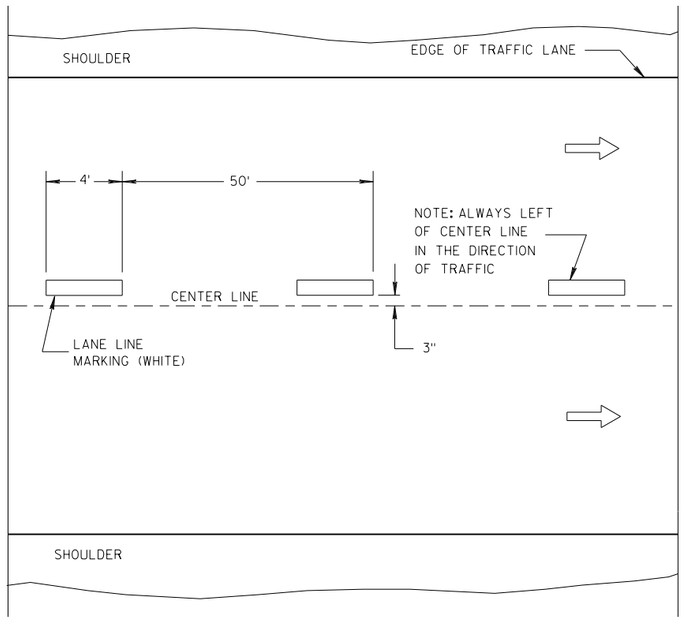
LEGEND

"T" MARKING

POST MOUNTED SIGN



TWO WAY TRAFFIC



ONE WAY TRAFFIC

TEMPORARY PAVEMENT MARKING

LONGITUDINAL MARKING (MAINLINE)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

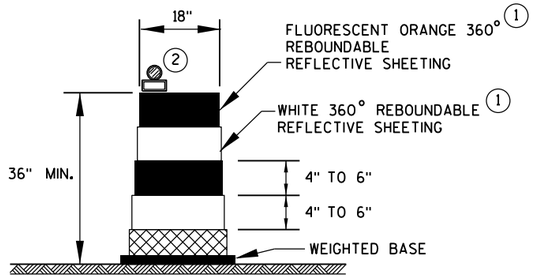
7/2018 — DATE

/S/ Matthew R. Rauch — STATE SIGNING AND MARKING ENGINEER

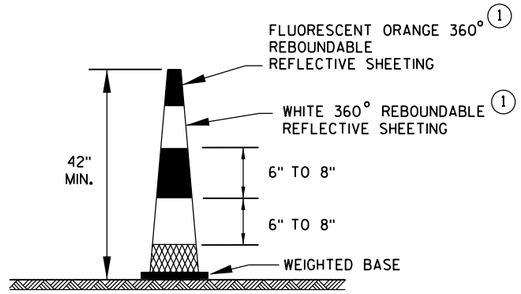
FHWA

6

S.D.D. 15 C 8-19a



DRUM

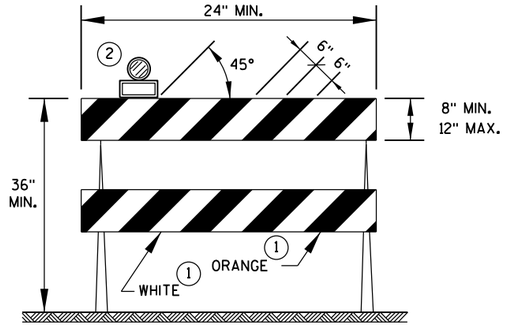


42" CONE

DO NOT USE IN TAPERS
1/2 SPACING OF DRUMS

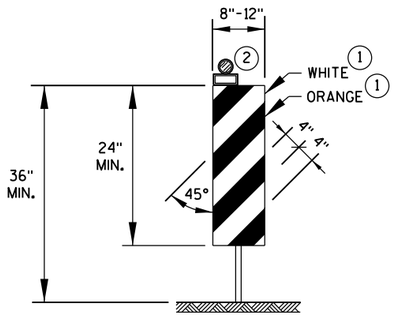
GENERAL NOTES

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



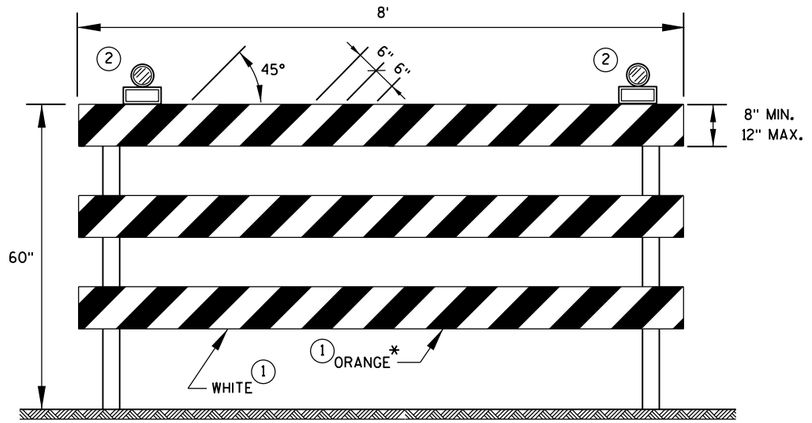
TYPE 2 BARRICADE

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



VERTICAL PANEL

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



TYPE 3 BARRICADE

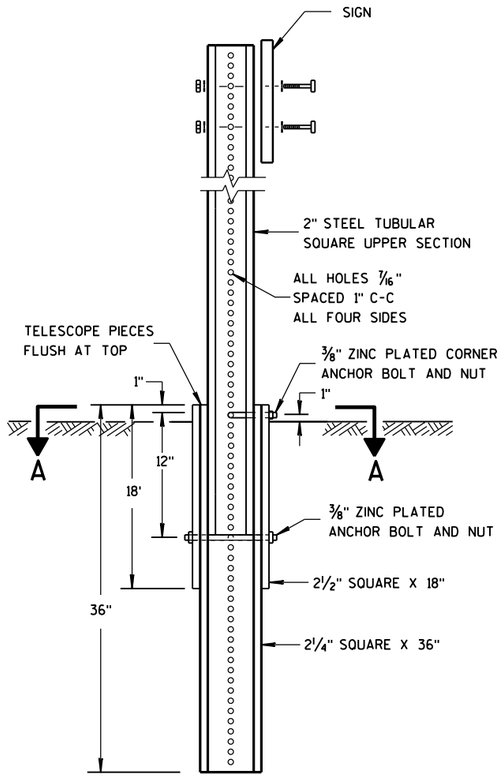
IF SIGN MOUNTED, DO NOT COVER MORE THAN 50% OF THE TOP TWO RAILS OR 33% OF THE TOTAL AREA OF THE THREE RAILS.

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

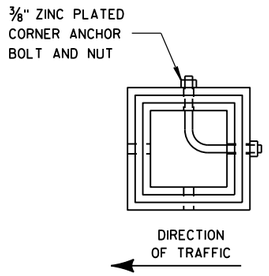
CHANNELIZING DEVICES DRUMS, CONES, BARRICADES AND VERTICAL PANELS	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED	
June 2017 DATE	/S/ Andrew Heidtke WORK ZONE ENG
FHWA	

6

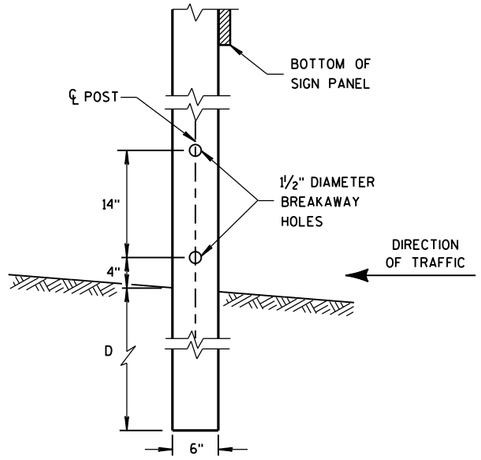
S.D.D. 15 C 11-7b



DETAIL OF TUBULAR STEEL SIGN POST



SECTION A-A



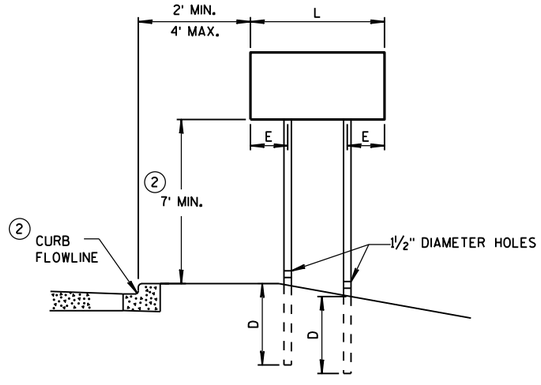
4"x6" WOOD POST MODIFICATION

GENERAL NOTES

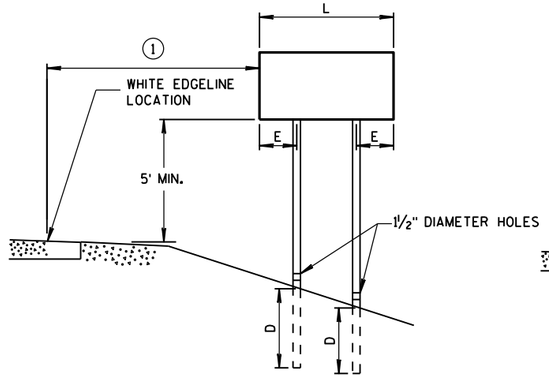
(1) 6 FEET FROM THE EDGE OF PAVEMENT (EDGE LINE LOCATION) UNLESS OTHERWISE DIRECTED BY THE PROJECT ENGINEER. LATERAL OFFSET SHOULD BE ADJUSTED TO AVOID THE DITCH FLOWLINE.

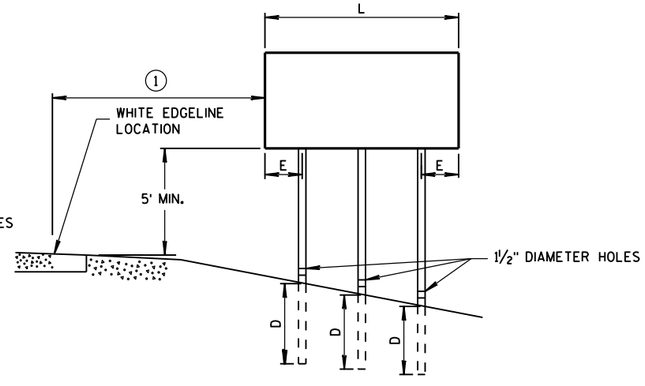
(2) THE EXISTENCE OF CURB AND GUTTER DOES NOT IN ITSELF MANDATE THE VERTICAL CLEARANCE ILLUSTRATED. THAT HEIGHT IS TYPICALLY MEASURED WHERE THERE IS SIDEWALK ADJACENT TO THE ROADWAY OR PARKING IS PERMITTED. IN THE ABSENCE OF SIDEWALK, VERTICAL CLEARANCE IS MEASURED FROM THE TOP OF THE CURB. IF NO SIDEWALK AND NO PARKING, VERTICAL CLEARANCE MAY BE REDUCED TO 5 FOOT MINIMUM. OFFSET OF SIGNS IS MEASURED FROM THE CURB FLOWLINE.

(3) FOR SIGNS REQUIRING 4 POSTS, SPACE INTERMEDIATE POSTS EVENLY.



URBAN AREA





RURAL AREA

POST MOUNTING DETAIL FOR TEMPORARY TRAFFIC CONTROL FIXED MESSAGE SIGNS

TUBULAR STEEL POSTS

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

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

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

WOOD POST EMBEDMENT DEPTH

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

4" X 6" WOOD POST

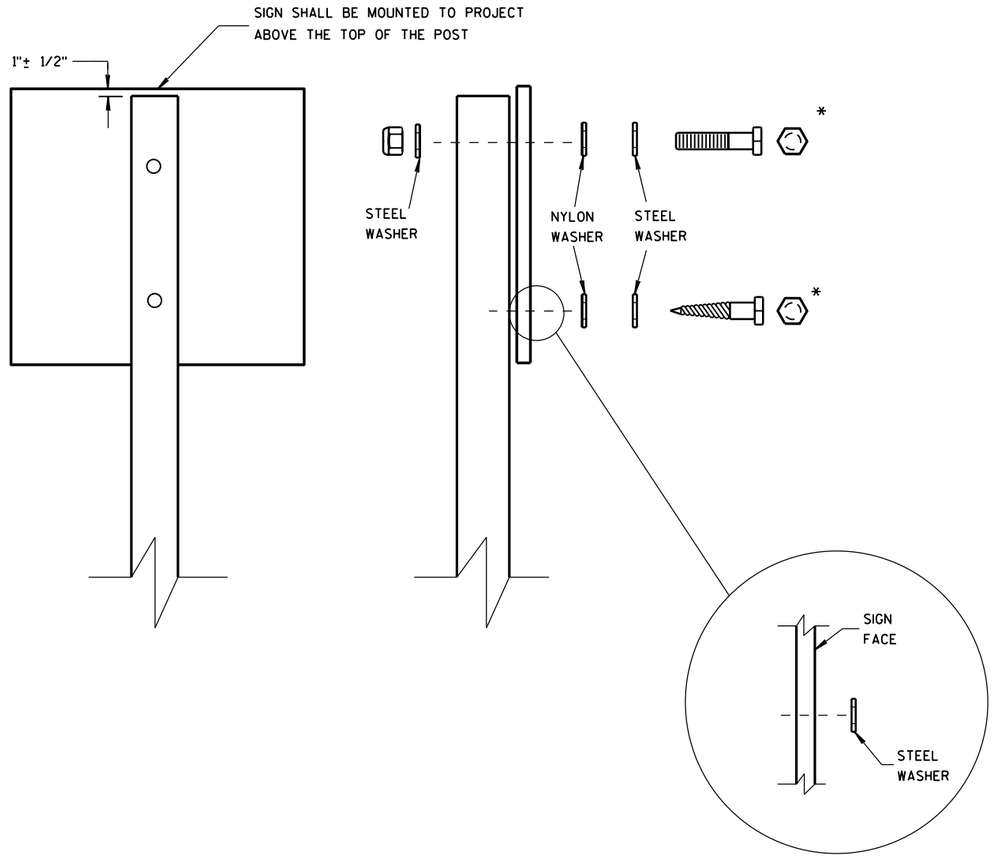
POST SPACING REQUIREMENTS		NUMBER OF WOOD POSTS REQUIRED
L	E	
48" OR LESS AND LESS THAN 20 SQ. FT.	-	1
LESS THAN 60"	12"	2
60" TO 120"	L/5	2
GREATER THAN 120" LESS THAN 168"	12"	3
168" AND GREATER	12"	4

SEE NOTE (3)

TEMPORARY TRAFFIC CONTROL SIGN MOUNTING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI

6
S.D.D. 15 D 38-2a



WASHER PLACEMENT WHEN SIGN HAS OTHER THAN TYPE H OR TYPE F FACE

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

A. HOT DIP GALVANIZED IN ACCORDANCE WITH ASTM DESIGNATION: A 153, CLASS D, OR SC 3

B. ELECTRO-GALVANIZED IN ACCORDANCE WITH ASTM DESIGNATION: B 633, TYPE III, SC 3

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

WOOD POSTS (4" x 4" or 4" x 6")

LAG SCREWS - 3/8" X 3"

MACHINE BOLTS - 5/16" X 6-1/2" OR 7" LENGTH W/ NUTS

SQUARE STEEL POSTS (2" x 2")

MACHINE BOLTS - 3/8" X 3-1/4" LENGTH W/ NUTS

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 FOR ALL TYPE H SIGNS

* TWO DIFFERENT FASTENING SYSTEMS ARE SHOWN FOR ILLUSTRATION PURPOSES. ON ANY INDIVIDUAL SIGN, EITHER ONE OR THE OTHER SYSTEM SHALL BE USED. ACTUAL NUMBER OF FASTENERS PER SIGN VARIES WITH THE SIGN AREA. FOR A SINGLE POST INSTALLATION, ALL SIGNS GREATER THAN 9 SQ. FT. REQUIRE THE USE OF 3 FASTENERS.

6

6

S.D.D. 15 D 38-2b

S.D.D. 15 D 38-2b

ATTACHMENT OF SIGNS TO POSTS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

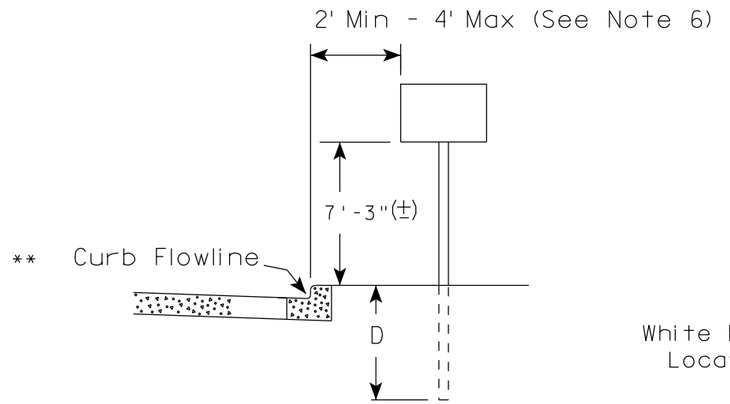
APPROVED

June 2017
DATE

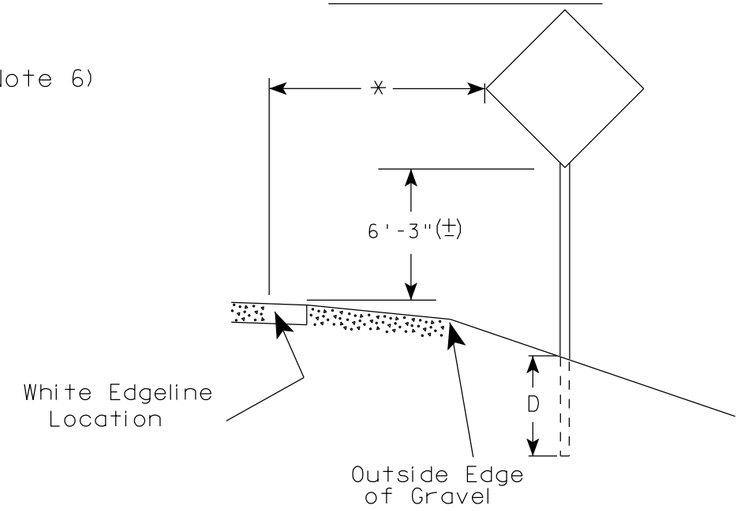
/S/ Andrew Heldtke
WORK ZONE ENG

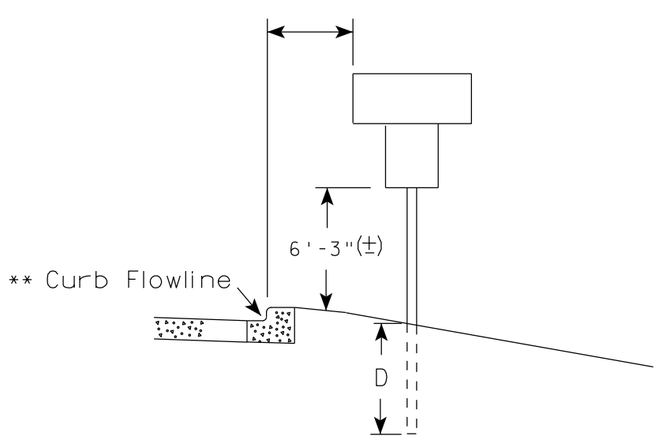
FHWA

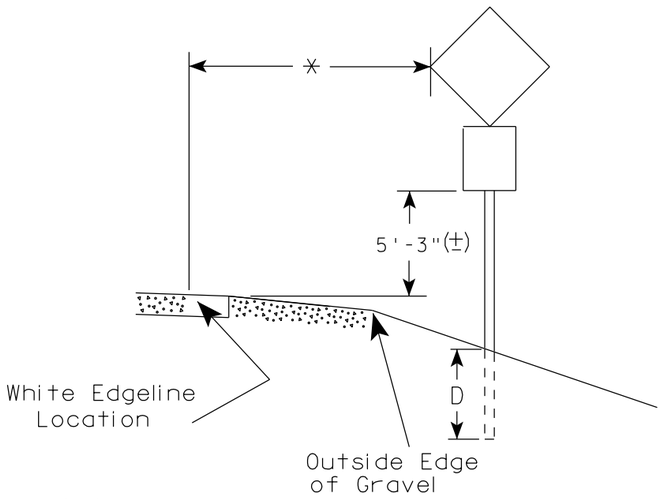
URBAN AREA



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 barrier wall, see A4-10 sign plate.
3. For expressways and freeways, mounting height is 7'- 3" (±) or 6'-3" (±) depending upon existence of a sub-sign.
4. Minimum mounting height for J assemblies (A2-1S) is 7'-3" (±) or 6'-3" (±) per urban or rural detail respectively.
5. Minimum mounting height for signs mounted on traffic signal poles is 5'- 3" (±).
6. Offset distance shall be consistent with existing signs or consistent throughout length of project.
7. The (±) tolerance for mounting height is 3 inches.
8. Folding signs shall be mounted at a height of 5'-3" (±) or as directd by the Engineer.
9. The Double Arrow sign (W12-1) shall be mounted at a height of 2'-3" (±). The Chevron sign (W1-8), Roundabout Chevron panel (R6-4B), 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" (±).

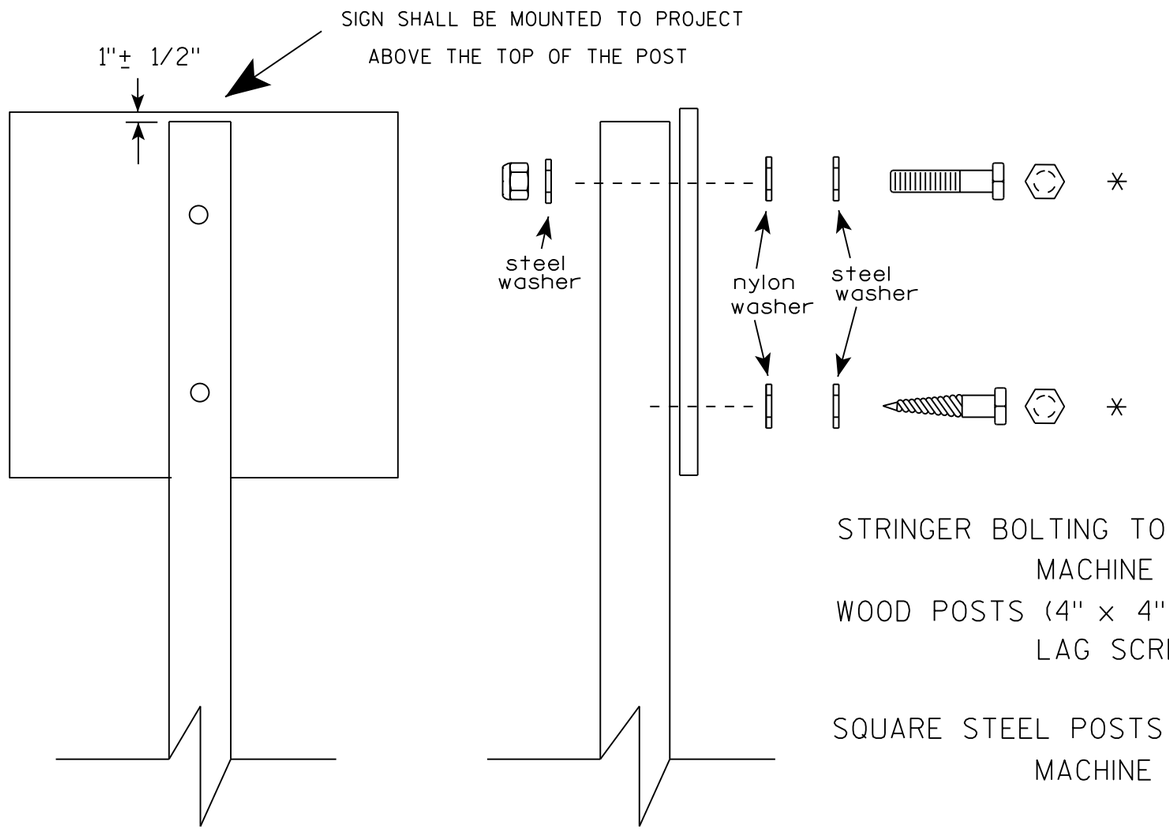
TYPICAL INSTALLATION OF PERMANENT TYPE II SIGNS ON SINGLE POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 7/23/15 PLATE NO. A4-3.20

PROJECT NO: 5467-00-70	HWY: CTH D	COUNTY: VERNON		SHEET NO:	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 4" or 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

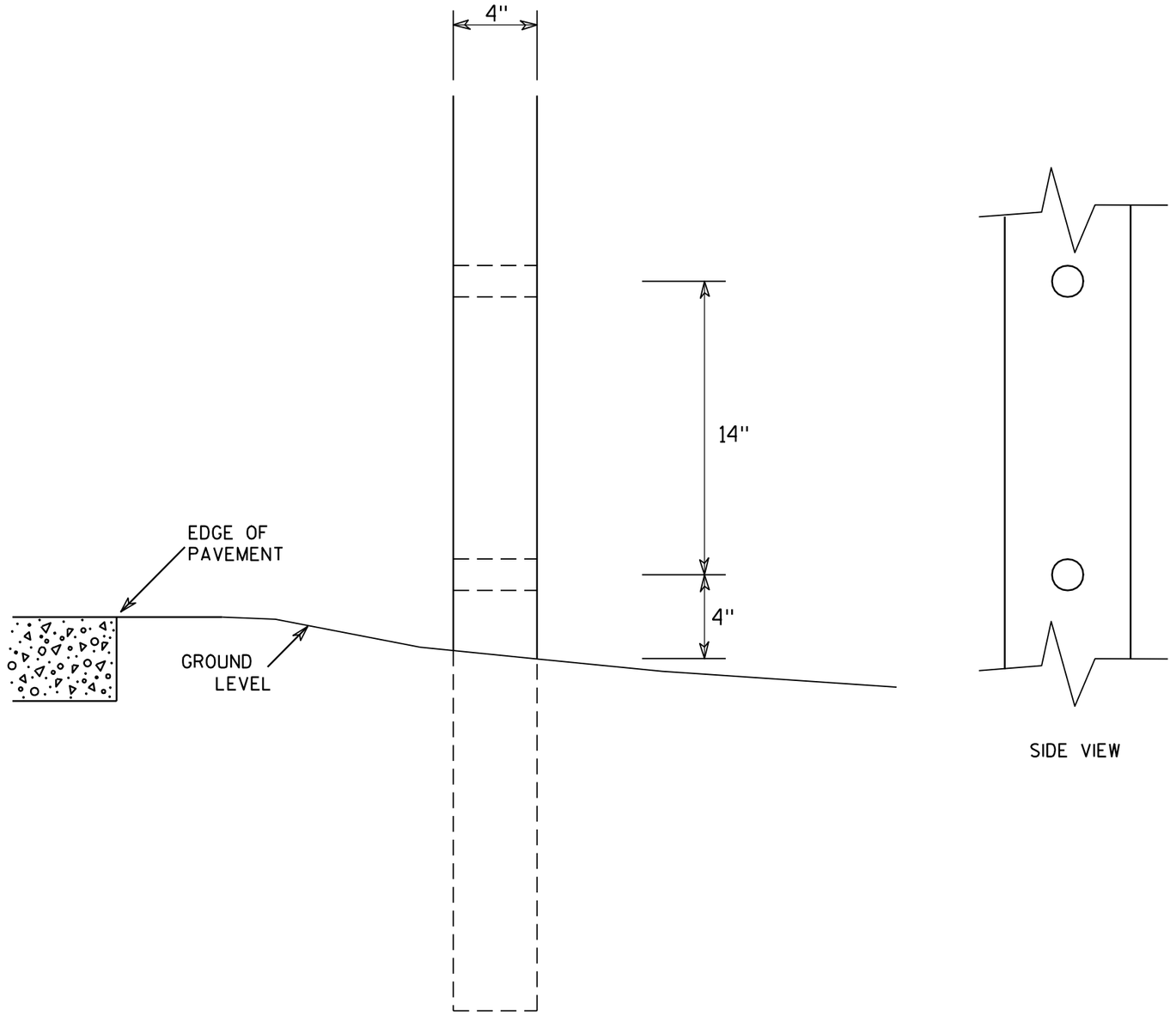
WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
For State Traffic Engineer

DATE 8/11/16 PLATE NO. A4-8.8

PROJECT NO: 5467-00-70 SHEET NO: E

FILE NAME : C:\CADfiles\Projects\tr_stdplate\A48.DGN PLOT DATE : 11-AUG-2016 11:35 PLOT BY : $$ plotuser $$



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.

7

7

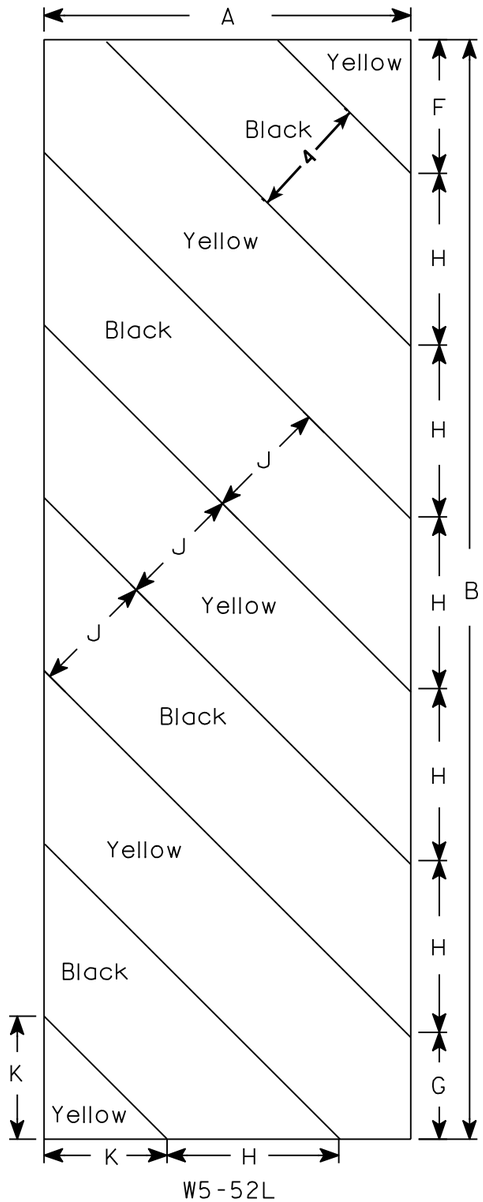
4 X 6 WOOD POST MODIFICATIONS

WISCONSIN DEPT OF TRANSPORTATION

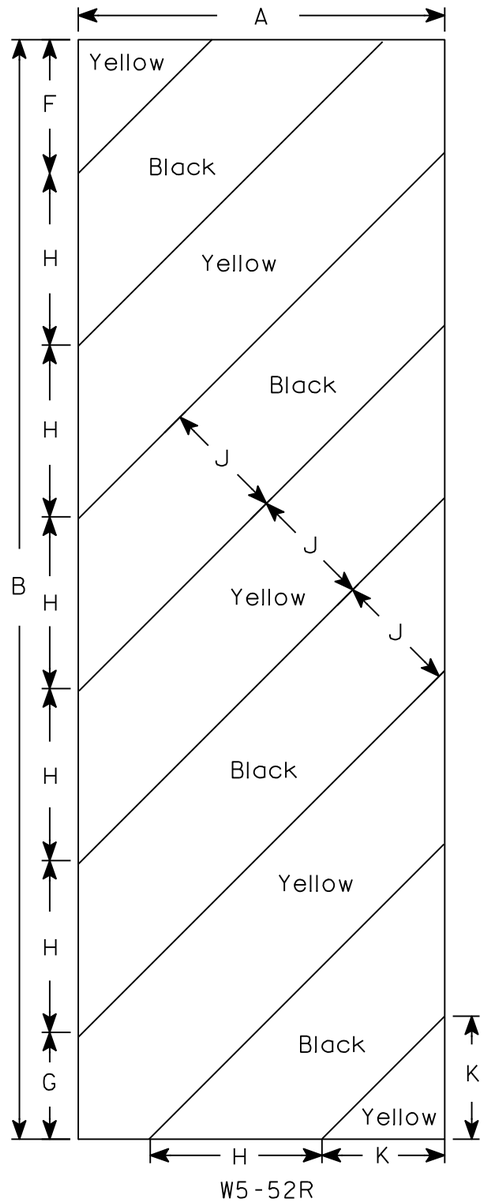
APPROVED Chester J Spang for State Traffic Engineer

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

PROJECT NO: 5467-00-70	HWY: CTH D	COUNTY: VERNON		SHEET NO: 45	E



W5-52L



W5-52R

NOTES

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

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

STANDARD SIGN

W5-52L & W5-52R

WISCONSIN DEPT OF TRANSPORTATION

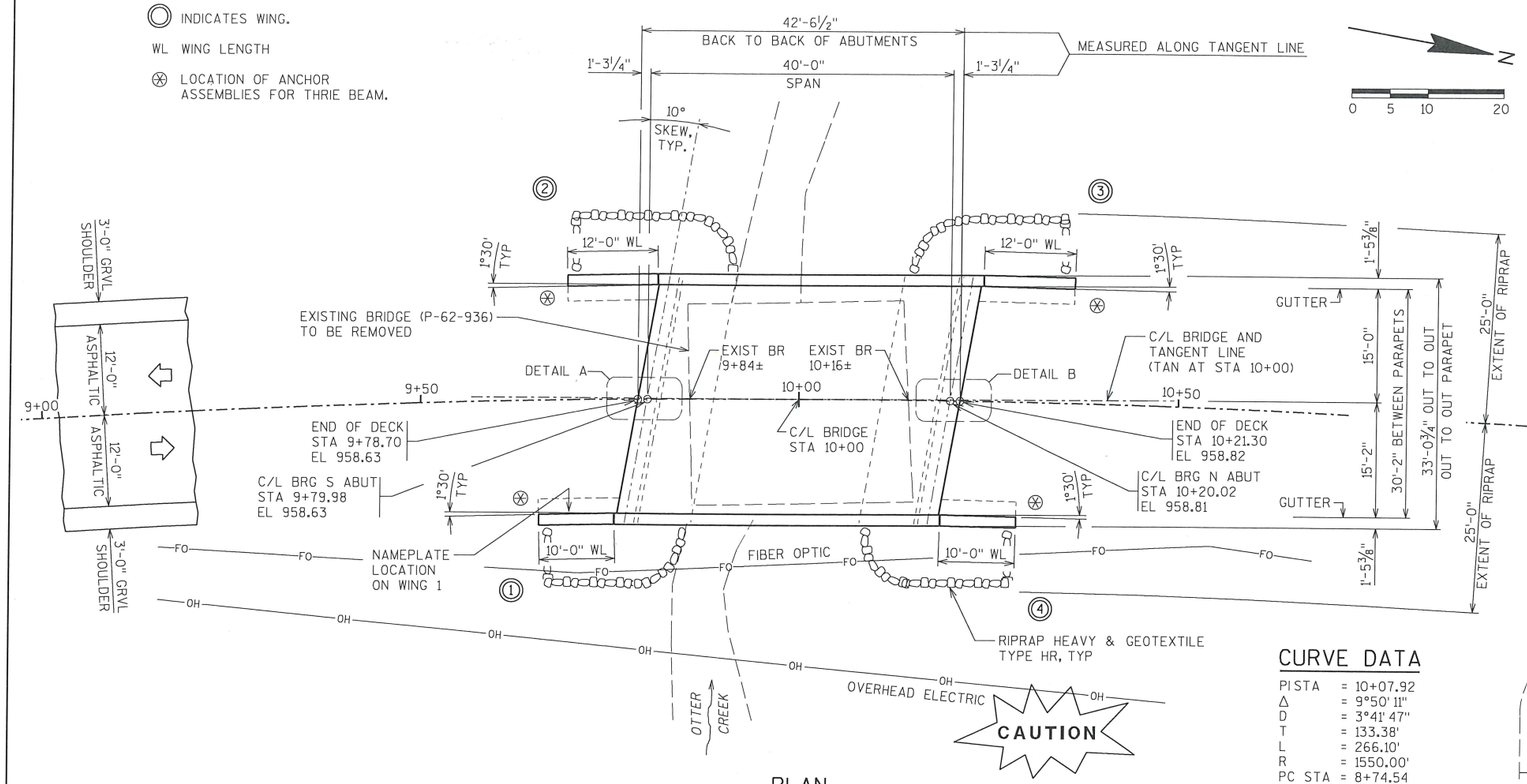
APPROVED Matthew R Rauch
for State Traffic Engineer

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

PROJECT NO: 5467-00-70 | HWY: CTH D | COUNTY: VERNON | SHEET NO: 46 | E

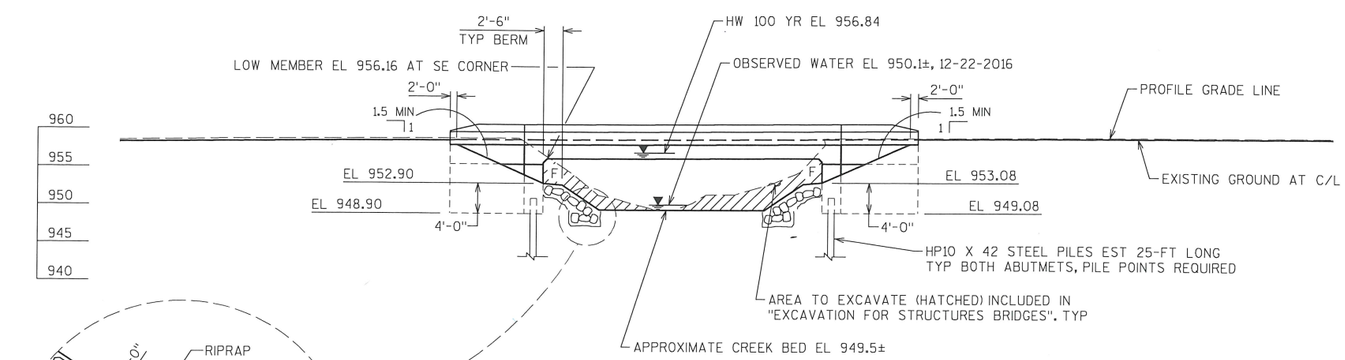
STATE PROJECT NUMBER

5467-00-70



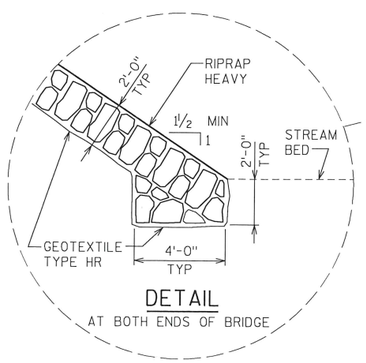
PLAN

SINGLE-SPAN REINFORCED CONCRETE FLAT SLAB



ELEVATION

LOOKING NORMAL TO C/L SUBSTRUCTURES



DETAIL

AT BOTH ENDS OF BRIDGE

HYDRAULIC DATA

100 YEAR FREQUENCY

Q_{100}	1000 CFS
Q_{100} THRU STRUCTURE	1000 CFS
VELOCITY	5.34 FPS
HIGH WATER$_{100}$ EL	956.84 FT
WATERWAY AREA	187 SQ FT
DRAINAGE AREA	1.75 SQ MI

2 YEAR FREQUENCY

Q_2	125 CFS
Q_2 HIGH WATER EL	953.23 FT

SCOUR CODE 8

DESIGN DATA

LIVE LOAD:

DESIGN LOADING: HL-93
INVENTORY RATING FACTOR: RF = 1.08
OPERATING RATING FACTOR: RF = 1.40
WISCONSIN STANDARD PERMIT VEHICLE (WIS-SPV) = 250 KIPS

STRUCTURE IS DESIGNED FOR A FUTURE WEARING SURFACE OF 20 PSF

INVENTORY AND OPERATING RATINGS DO NOT INCLUDE FUTURE WEARING SURFACE.

MATERIAL PROPERTIES;

CONCRETE MASONRY - SUPERSTRUCTURE f'c = 4,000 psi
- ALL OTHER f'c = 3,500 psi

HIGH STRENGTH BAR STEEL REINFORCEMENT
AASHTO GRADE 60 fy = 60,000 psi

FOUNDATION DATA

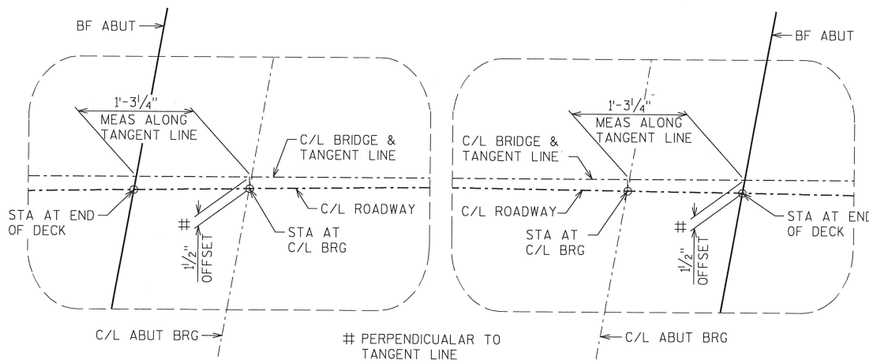
ABUTMENTS TO BE SUPPORTED ON HP 10X42 STEEL PILING WITH A REQUIRED DRIVING RESISTANCE OF 170 TONS* PER PILE AS DETERMINED BY THE MODIFIED GATES DYNAMIC EQUATION. ESTIMATED 25-FEET LONG AT EACH ABUTMENT.

PILE POINTS REQUIRED.

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

CURVE DATA

PISTA	= 10+07.92
Δ	= 9°50' 11"
D	= 3°41' 47"
T	= 133.38'
L	= 266.10'
R	= 1550.00'
PC STA	= 8+74.54
PT STA	= 11+40.64



DETAIL A

DETAIL B

LIST OF DRAWINGS

TRAFFIC DATA

ADT (2019)	= 340
ADT (2039)	= 420
DHV	= 74
DD	= 60/40 %
T	= 25 %
DESIGN SPEED	= 40 MPH

BENCHMARK (DATUM = NAVD 88)

NO.	STATION	DESCRIPTION	ELEV
1	8+90.64,20.23' RT	⅜" SPIKE IN POWER POLE	957.593
2	11+96.62,42.22'RT	⅜" SPIKE IN POWER POLE	960.361

SEH CONTACT: CHRIS BLUM, PE, 608.620.6192
WISDOT BRIDGE OFFICE CONTACT: BILL DREHER, PE, 608.266.8489

NO.	DATE	REVISION	BY

SEH
SHORT ELLIOTT HENDRICKSON INC.

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

ACCEPTED William C. Dreher SDR 08/15/18
CHIEF STRUCTURES DESIGN ENGINEER DATE

STRUCTURE B-62-256

CTH D OVER OTTER CREEK

COUNTY	TOWN ~~CITY/VILLAGE~~
VERNON	WEBSTER

DESIGN SPEC. AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS

DESIGNED BY	DESIGN CK'D.	DRAWN BY	PLANS CK'D.
CJB	NCK	DLF	CJB

GENERAL PLAN

SHEET 47 OF 10

PLOT TIME: 10:06:32 AM
PLOT DATE: 5/23/2018
FILE NAME : S:\UZ\VV\VERHDV\40016\5-final-dsgn\5l-drawings\20-Struct\bridge\b62256gl.dgn

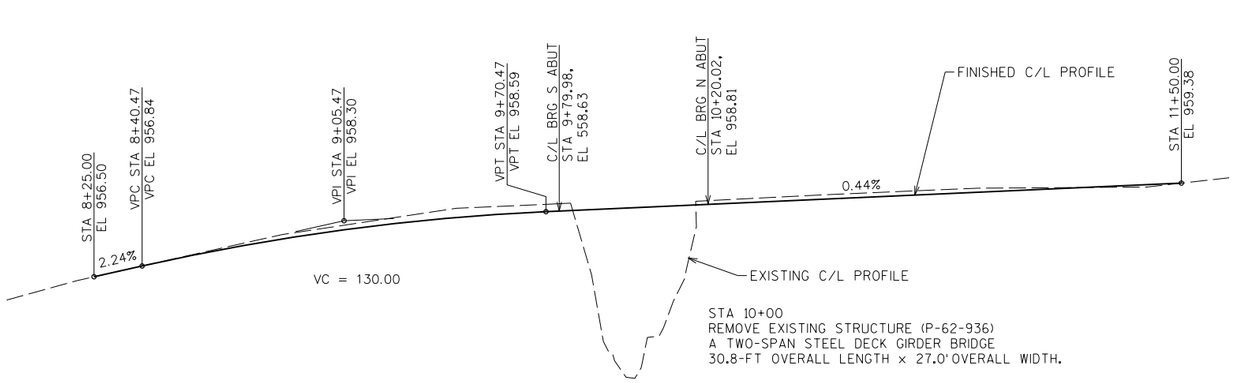
8

8

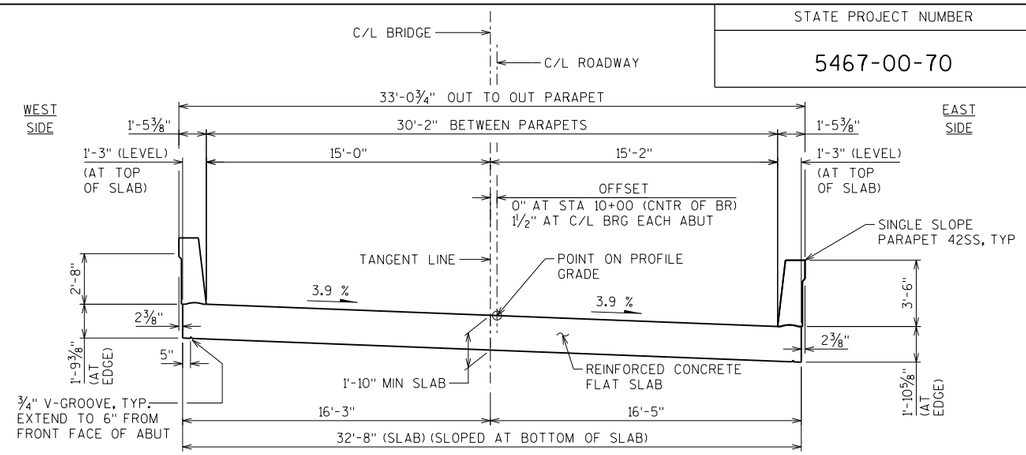
PLOT TIME: 1h07:50 AM
PLOT DATE: 5/23/2018
FILE NAME : S:\UZ\V\VERHD\400165-final-dsgn\51-drawings\20-Struct\bridge\b62256g2.dgn

STATE PROJECT NUMBER

5467-00-70

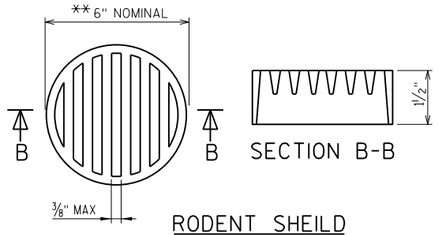


PROFILE GRADE LINE



CROSS SECTION THRU BRIDGE

(LOOKING NORTH)
(STRAIGHT BRIDGE ON CURVED ROADWAY)



RODENT SHEILD

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

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 SIMLAR 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.

TOTAL ESTIMATED QUANTITIES - B-62-256

	BID ITEM NUMBER	BID ITEMS	UNIT	SOUTH ABUT	NORTH ABUT	SUPER	TOTALS
	203.0600.S	REMOVING OLD STRUCTURE OVER WATERWAY WITH MINIMAL DEBRIS STATION 10+00	LS	-	-	-	1
	206.1000	EXCAVATION FOR STRUCTURES BRIDGES B-62-256	LS	-	-	-	1
(1)	210.1500	BACKFILL STRUCTURE TYPE A	TON	150	150	-	300
(4)	502.0100	CONCRETE MASONRY BRIDGES	CY	47	47	112	206
(3)	502.3200	PROTECTIVE SURFACE TREATMENT	SY	-	-	143	143
(3)	502.3210	PIGMENTED SURFACE SEALER	SY	-	-	67	67
	505.0400	BAR STEEL REINFORCEMENT HS STRUCTURES	LB	2,575	2,575	-	5,150
(5)	505.0600	BAR STEEL REINFORCEMENT HS COATED STRUCTURES	LB	1,590	1,590	22,870	26,050
	516.0500	RUBBERIZED MEMBRANE WATERPROOFING	SY	10	10	-	20
	550.0500	PILE POINTS	EACH	5	5	-	10
	550.1100	PILING STEEL HP 10-INCH X 42 LB	LF	125	125	-	250
	606.0300	RIPRAP HEAVY	CY	65	65	-	130
(2)	612.0406	PIPE UNDERDRAIN WRAPPED 6-INCH	LF	110	110	-	220
	614.0150	ANCHOR ASSEMBLIES FOR STEEL PLATE BEAM GUARD	EACH	2	2	-	4
	645.0111	GEOTEXTILE TYPE DF SCHEDULE A	SY	38	38	-	76
	645.0120	GEOTEXTILE TYPE HR	SY	155	155	-	310
		NON-BID ITEMS					
		FILLER	SIZE	———	———	———	½ & ¾
		NAMEPLATE	EACH	———	———	———	1

(1) A FACTOR OF 2.0 WAS USED TO CONVERT CU YDS TO TONS.

(2) INCLUDES RODENT SHIELD FOR PIPE UNDERDRAIN PER SDD 8F6-4.

(3) FURNISH AND APPLY A PROTECTIVE SURFACE FINISH TREATMENT TO THE ENTIRE TOP OF THE BRIDGE DECK. FURNISH AND APPLY PIGMENTED SURFACE SEALER TO THE INSIDE FACES, ENDS, AND TOP OF THE CONCRETE PARAPETS.

(4) INCLUDES ITEMS FOR 42SS PARAPETS. PARAPET CONCRETE QUANTITY ON WINGS IS INCLUDED IN THE ABUTMENT QUANTITY.

(5) PARAPET REBAR QUANTITY IS INCLUDED IN THE SUPERSTRUCTURE QUANTITY.

GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.

FOR EXISTING STRUCTURE SEE PROFILE GRADE LINE THIS SHEET.

REFER TO ROADWAY DRAWINGS FOR EXISTING UTILITY LOCATIONS.

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 ¾" UNLESS OTHERWISE NOTED.

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

THE SLOPE OF THE FILL IN FRONT OF THE ABUTMENTS SHALL BE COVERED WITH RIPRAP HEAVY AND GEOTEXTILE TYPE HR TO THE EXTENT SHOWN ON THE GENERAL PLAN SHEET AND IN THE ABUTMENTS DETAILS.

SEAL ALL EXPOSED HORIZONTAL AND VERTICAL SURFACES OF ½" FILLER WITH NON-STAINING GRAY NON-ASPHALTIC JOINT SEALER (1" DEEP & HOLD ⅛" BELOW SURFACE OF CONCRETE).

THE UPPER LIMITS OF EXCAVATION FOR STRUCTURES BRIDGES B-62-256 SHALL BE THE EXISTING GROUNDLINE.

EXCAVATION BELOW THE ABUTMENTS AND ABUTMENTS BEDDING MATERIALS REQUIRES ENGINEER APPROVAL. GEOTEXTILE SHALL BE SET AT THE BOTTOM OF EXCAVATION AND EXTEND 2'-0" ABOVE BOTTOM OF ABUTMENT.

THE QUANTITY FOR BACKFILL STRUCTURE TYPE A IS CALCULATED BASED ON THE BACKFILL STRUCTURE LIMITS DETAILS SHOWN ON THIS SHEET.

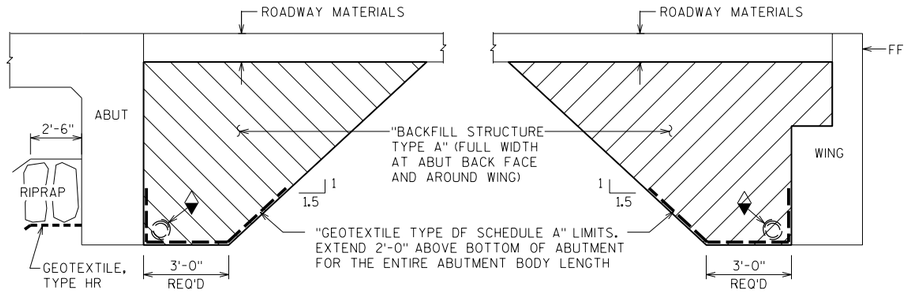
BACKFILL STRUCTURE BEYOND BACKFILL PAY LIMITS SHALL BE INCIDENTAL TO EXCAVATION FOR STRUCTURES. LIMITS OF EXCAVATION SHALL BE DETERMINED BY THE CONTRACTOR.

AT THE BACKFACE OF ABUTMENTS ALL VOLUME WHICH CANNOT BE PLACED BEFORE ABUTMENT CONSTRUCTION AND IS NOT OCCUPIED BY THE NEW STRUCTURE SHALL BE BACKFILLED WITH STRUCTURE BACKFILL.

JOINT FILLER SHALL CONFORM TO THE REQUIREMENTS OF AASHTO DESIGNATION M153 TYPE 1, 2, OR 3 OR AASHTO DESIGNATION M213.

APPLY A PROTECTIVE SURFACE FINISH TREATMENT & APPLY A PIGMENTED SURFACE SEALER PER THE STANDARD SPECIFICATIONS AND AS SHOWN IN THIS PLAN SET.

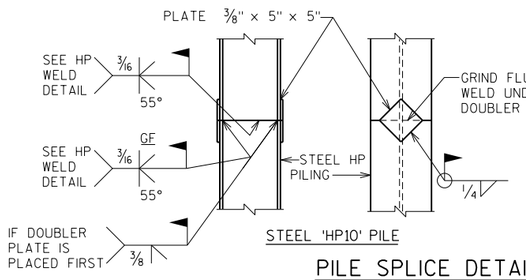
◆ PIPE UNDERDRAIN WRAPPED (6-INCH) SLOPE 0.5% MIN TO SUITABLE DRAINAGE. ATTACH RODENT SHIELD AT ENDS OF PIPE.



AT ABUTMENT — AT WING

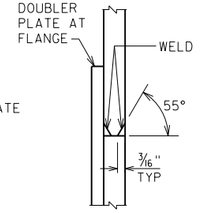
BACKFILL STRUCTURE LIMITS

A FACTOR OF 2.0 WAS USED TO CONVERT CU YDS TO TONS



STEEL 'HP10' PILE

PILE SPLICE DETAIL



'HP10' WELD DETAIL

FLANGE SHOWN, WEB SIMILAR

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-62-256

DRAWN BY DLF | PLANS CK'D. CJB

CROSS SECTION AND QUANTITIES

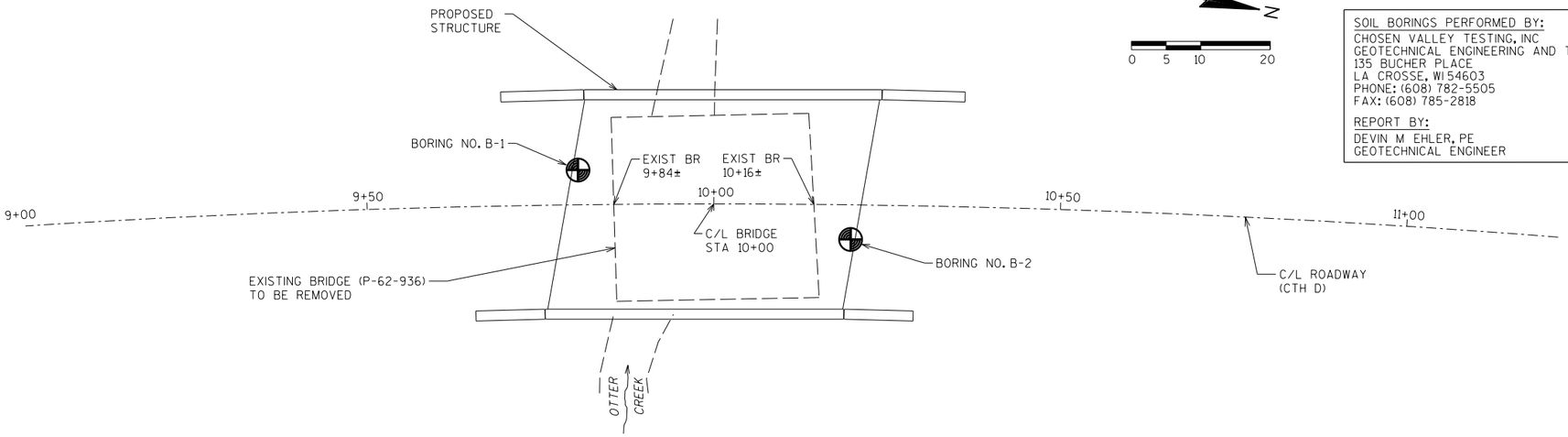
SHEET 2 OF 10

48

8

8

BORING #	DATE COMPLETED	NORTHING (Y)	EASTING (X)
B-1	1-12-2017	-	-
B-2	1-12-2017	-	-



N

0 5 10 20

SOIL BORINGS PERFORMED BY:
CHOSEN VALLEY TESTING, INC
GEOTECHNICAL ENGINEERING AND TESTING
135 BUCHER PLACE
LA CROSSE, WI 54603
PHONE: (608) 782-5505
FAX: (608) 785-2818

REPORT BY:
DEVIN M EHLER, PE
GEOTECHNICAL ENGINEER

STATE PROJECT NUMBER

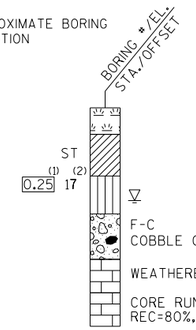
5467-00-70

MATERIAL SYMBOLS

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

LEGEND OF BORING

= APPROXIMATE BORING LOCATION



(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

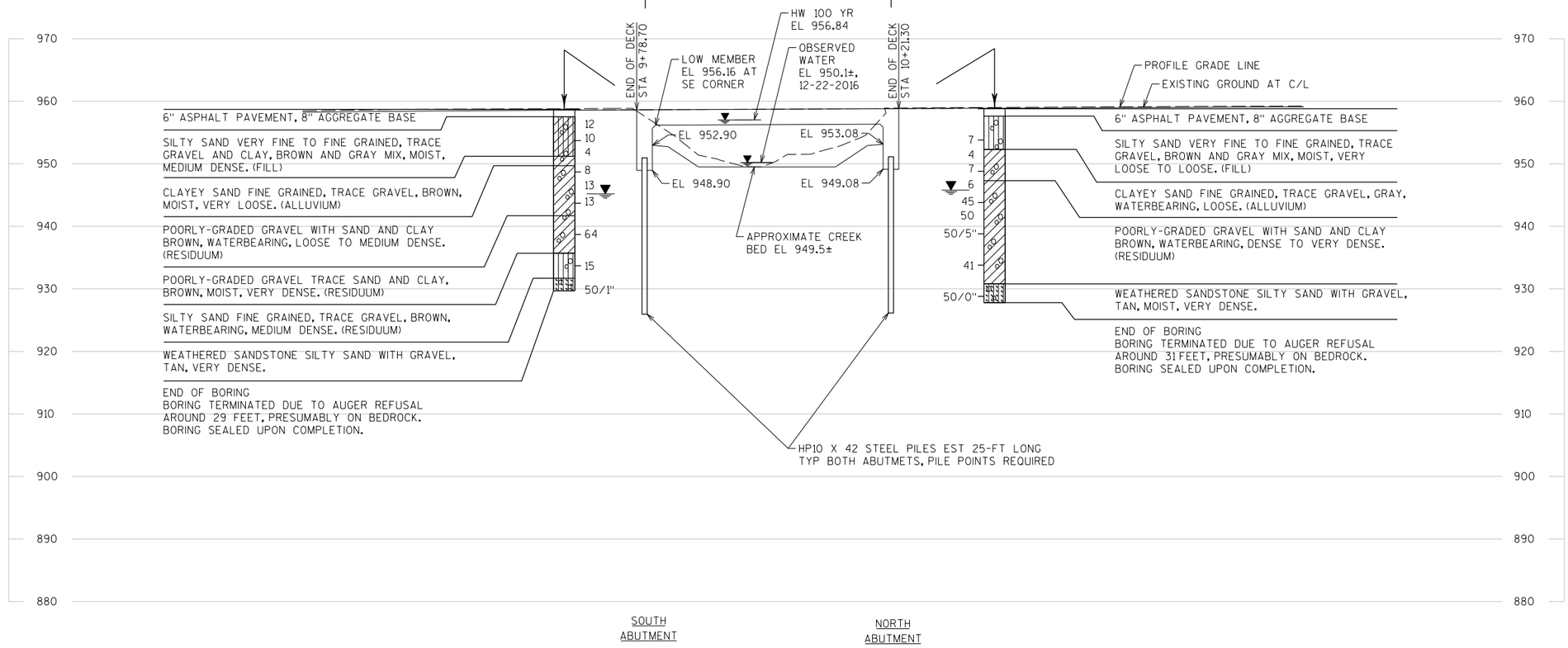
F-FINE M-MEDIUM C-COARSE ST-SHELBY TUBE

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.

APPROX LOCATION BORING NO. B-1
STA 9+80, 5'LT
EL 958.7

APPROX LOCATION BORING NO. B-2
STA 10+20, 5'RT
EL 958.8



SOUTH ABUTMENT

NORTH ABUTMENT

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-62-256

DRAWN BY DLF | PLANS CK'D. CJB

SUBSURFACE EXPLORATION

SHEET 3 OF 10

49

8

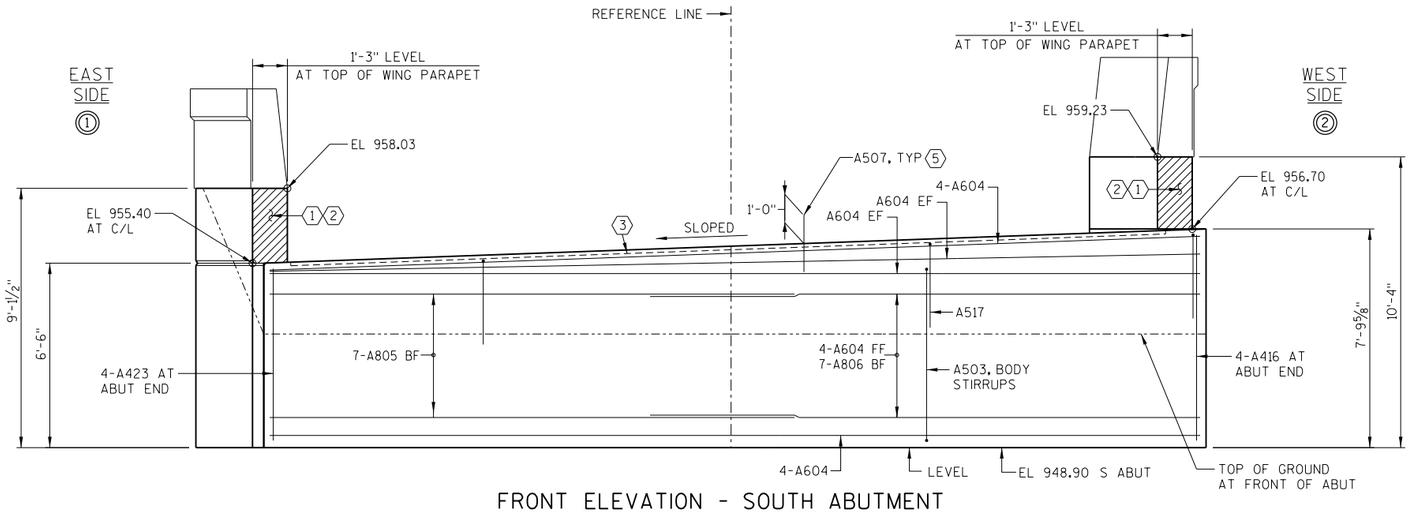
8

PLOT DATE: 5/23/2018 PLOT TIME: 11:07:51 AM

FILE NAME : S:\UZ\V\VERHDV140016\5-final-dsgn\51-drawings\20-Struct\bridge\b62256bi.dgn

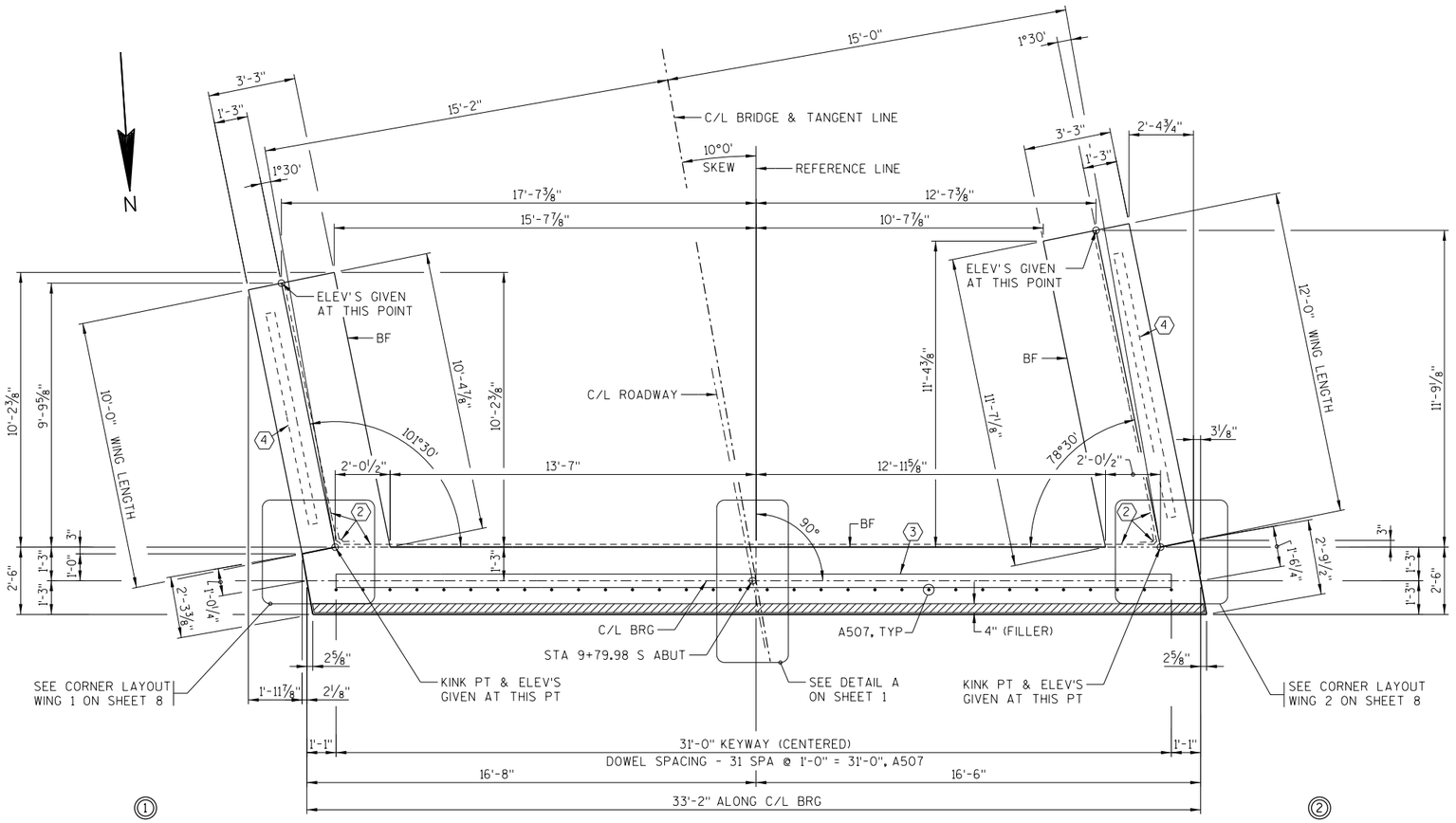
PLOT TIME: 11:07:51 AM
PLOT DATE: 5/23/2018
FILE NAME : S:\UZ\VV\VERHD\140016\5-final-dsgn\5i-drawings\20-Struct\bridge\b62256dl.dgn

STATE PROJECT NUMBER
5467-00-70



FRONT ELEVATION - SOUTH ABUTMENT

(PILES NOT SHOWN FOR CLARITY)



PLAN - SOUTH ABUTMENT

ABUTMENT NOTES

1. SEAL ALL EXPOSED HORIZ. AND VERTICAL SURFACES OF ½" FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. (1" DEEP AND HOLD ⅛" BELOW SURFACE OF CONCRETE). FILLER INCLUDED IN WING LENGTH. EXTEND SEALER 3" BELOW GUTTER LINE AT INSIDE FACE. FILLER TO EXTEND FROM BRIDGE SEAT TO TOP OF CONCRETE PARAPET.
2. 18" RUBBERIZED MEMBRANE WATERPROOFING. SEAL ALL HORIZ & VERT JOINTS ON BACKFACE. VERTICAL WATERPROOFING TO EXTEND FROM BRIDGE SEAT TO TOP OF WING.
3. KEYED CONSTRUCTION JOINT FORMED BY A BEVELED 2" X 6".
4. OPTIONAL KEYED CONSTRUCTION JOINT FORMED BY A BEVELED 2" X 6" WITH MEMBRANE ON BACKFACE.
5. A507 BARS MAY BE PLACED AFTER CONC HAS BEEN POURED BUT BEFORE INITIAL SET HAS TAKEN PLACE.

◐ CONST. JOINT - STRIKE OFF AS SHOWN.

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

ⓓ ATTACH RODENT SHIELD AT END OF PIPE UNDERDRAIN, FOR RODENT SHIELD DETAIL SEE SHEET 2.

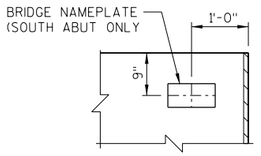
⧖ FURNISH AND APPLY PIGMENTED SURFACE SEALER TO THE INSIDE FACES, ENDS, AND TOP OF THE CONCRETE PARAPETS.

◎ INDICATES WING

S ABUT = SOUTH ABUTMENT
N ABUT = NORTH ABUTMENT

W1 = WING 1
W2 = WING 2
W3 = WING 3
W4 = WING 4

FF = FRONT FACE
BF = BACK FACE
EF = EACH FACE



NAMEPLATE LOCATION DETAIL

(ON WING 1 SOUTH ABUTMENT ONLY)

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-62-256

DRAWN BY DLF | PLANS CK'D. CJB

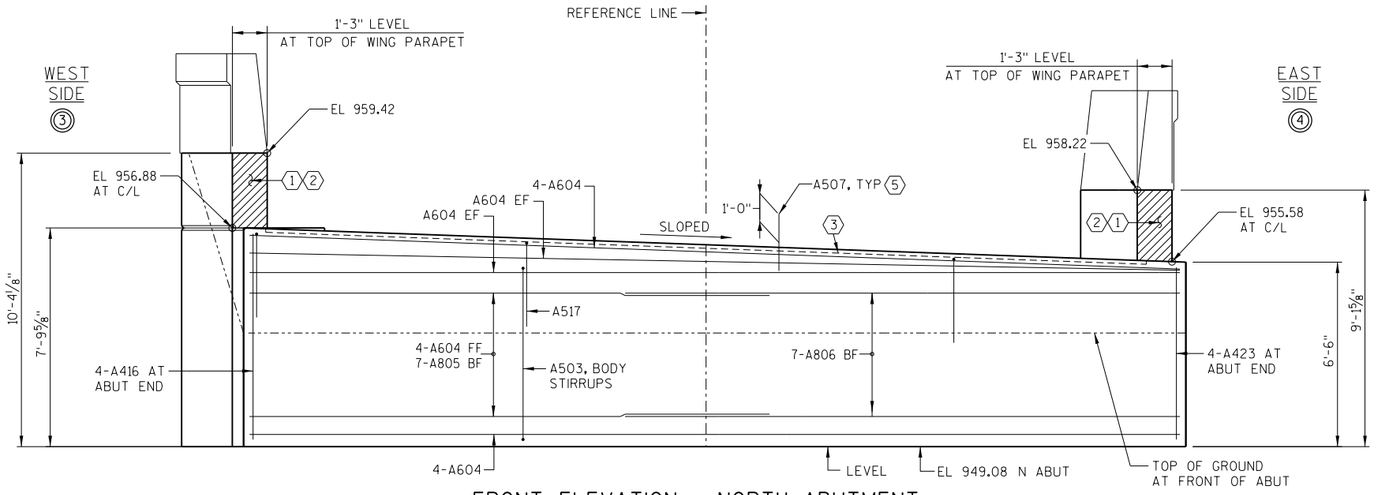
SOUTH ABUTMENT DETAILS

SHEET 4 OF 10
50

8

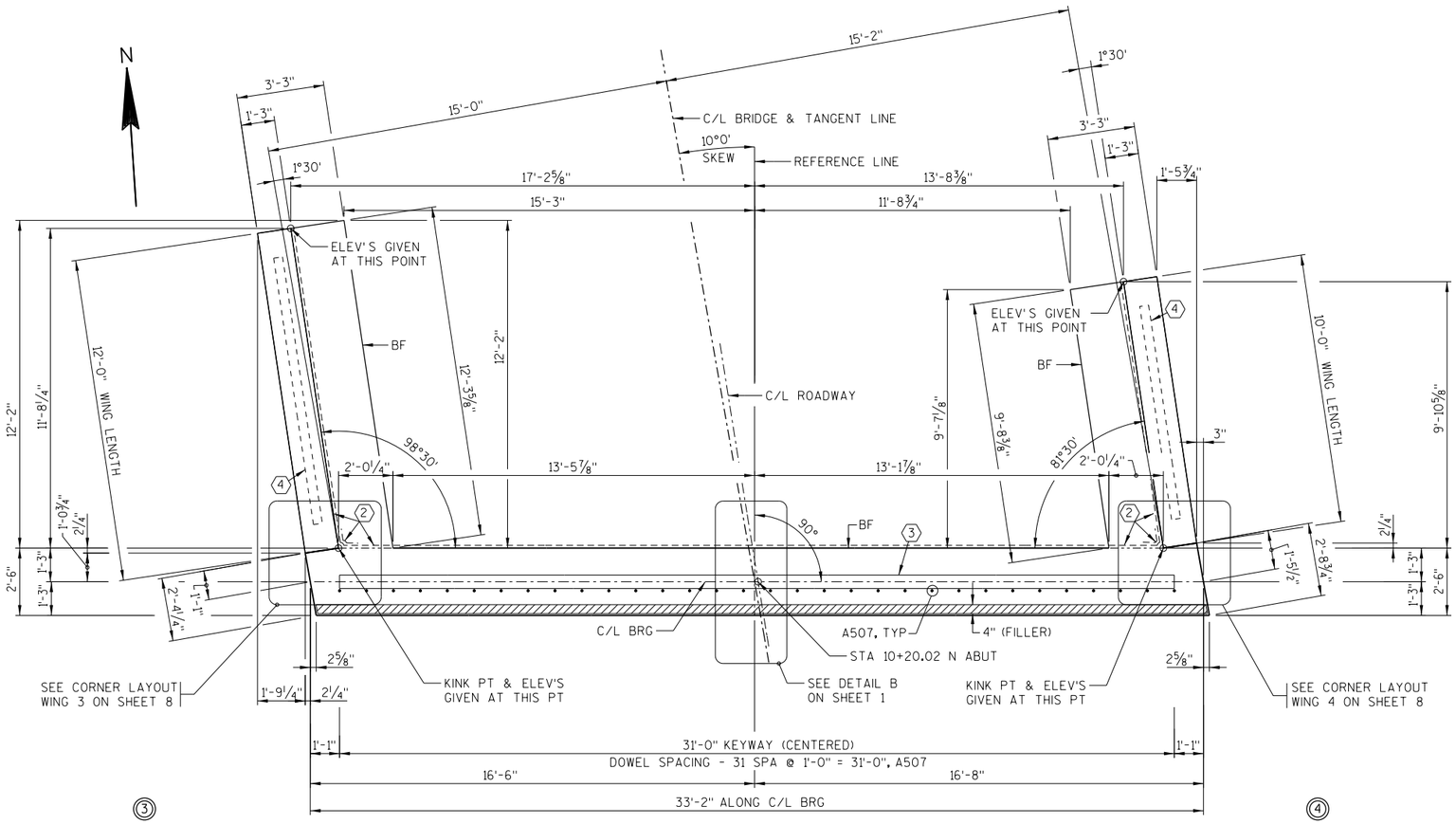
8

STATE PROJECT NUMBER
5467-00-70



FRONT ELEVATION - NORTH ABUTMENT

(PILES NOT SHOWN FOR CLARITY)



PLAN - NORTH ABUTMENT

NOTES

SEE ABUTMENT NOTES ON SHEET 4 - (◯1 2 3 4 5).

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-62-256

DRAWN BY DLF | PLANS CK'D. CJB

NORTH ABUTMENT DETAILS

SHEET 5 OF 10
51

PLOT DATE: 5/23/2018 PLOT TIME: 11:07:52 AM

FILE NAME : S:\UZ\V\VERHD\400161\5-final-dsgn\5i-drawings\20-Struct\bridge\b62256al.dgn

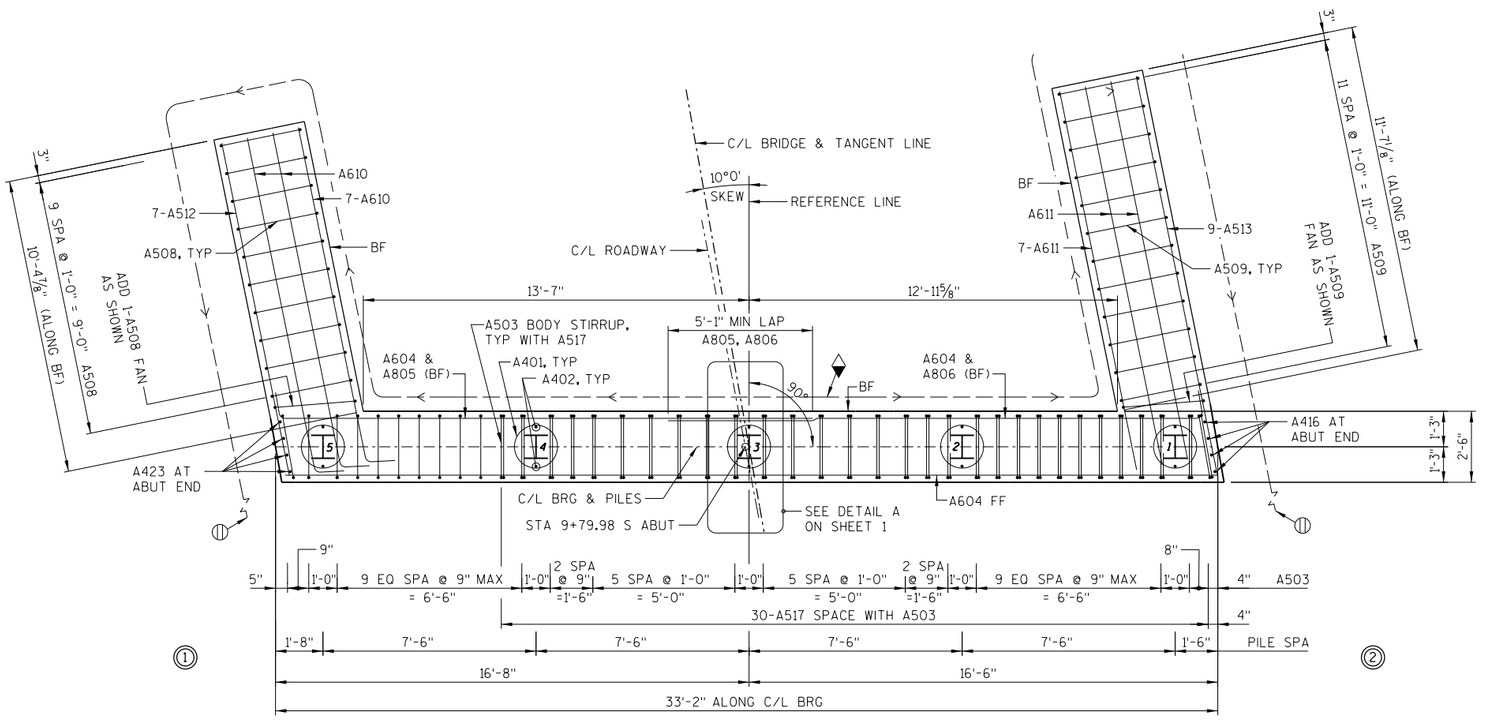
8

8

PLOT TIME: 11:07:52 AM
PLOT DATE: 5/23/2018
FILE NAME : S:\UZ\VV\ERHD\400106\5-final-dsgn\5i-drawings\20-Struct\bridge\b62256oi.dgn

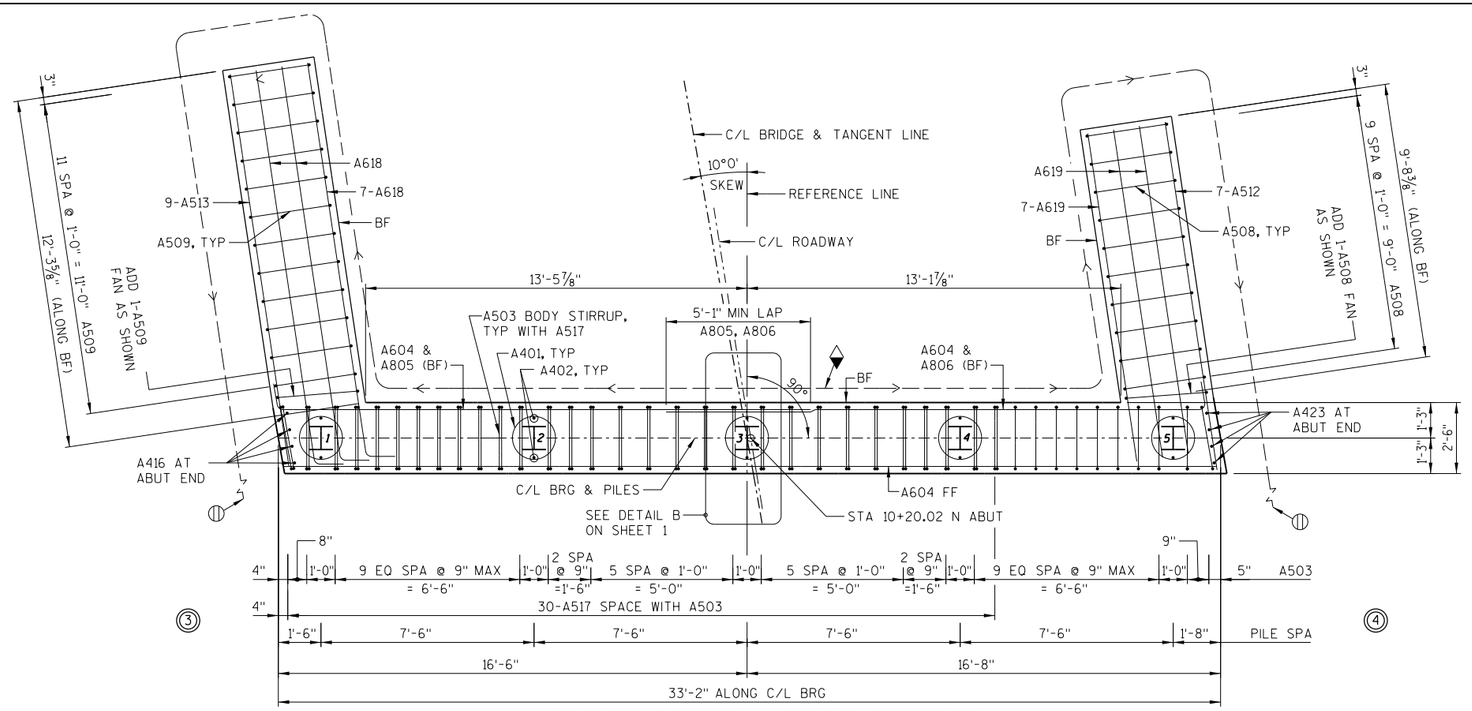
STATE PROJECT NUMBER

5467-00-70



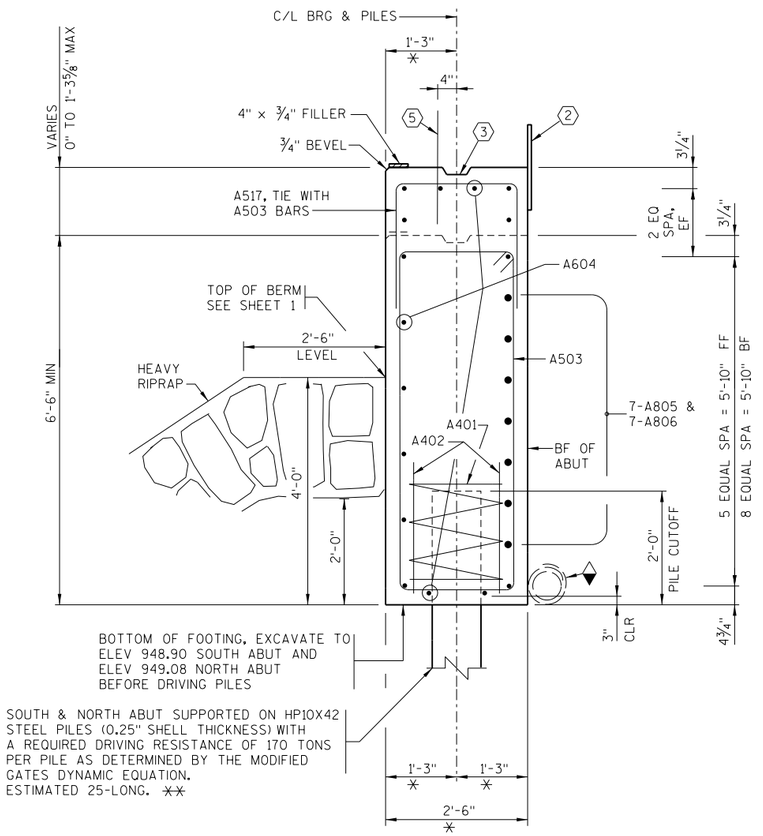
FOOTING LAYOUT - SOUTH ABUTMENT

(SHOWING PILE SPACING AND REINFORCEMENT)



FOOTING LAYOUT - NORTH ABUTMENT

(SHOWING PILE SPACING AND REINFORCEMENT)



TYPICAL SECTION THRU BODY

ALL HORIZ BARS TO BE A604 UNLESS OTHERWISE SHOWN OF NOTED

NOTES

SEE ABUTMENT NOTES ON SHEET 4 - (◎ ② ③ ⑤ ◆ ◍).

* MEASURED PERPENDICULAR TO ABUTMENT BODY.

** SEE SHEET 1 FOR FOUNDATION DATA NOTE.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-62-256

DRAWN BY DLF | PLANS CK'D. CJB

SOUTH AND NORTH ABUTMENT DETAILS

SHEET 6 OF 10

52

8

8

PLOT TIME: 11:07:52 AM
PLOT DATE: 5/23/2018
FILE NAME : S:\UZ\VV\VERHD\140016\5-final-dsgn\5i-drawings\20-Struct\bridge\b62256d1.dgn

STATE PROJECT NUMBER

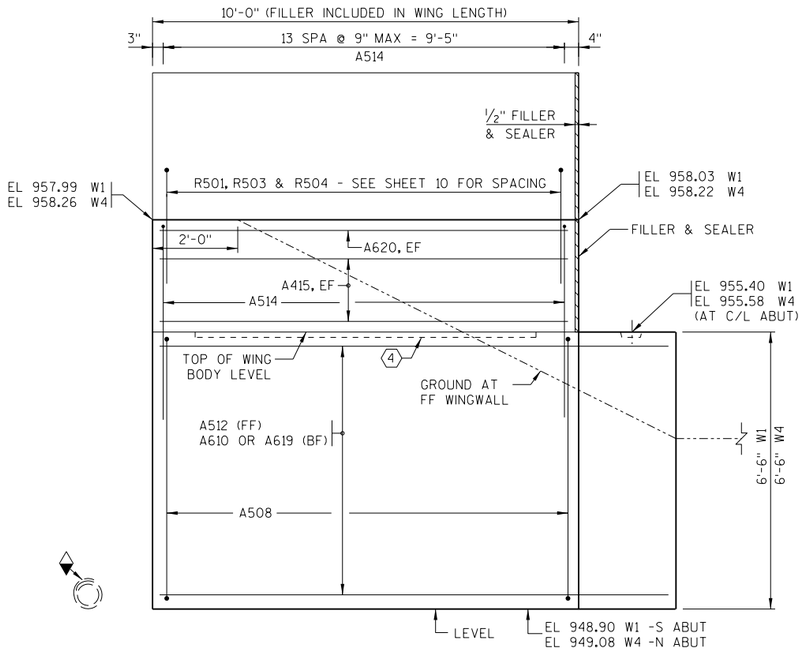
5467-00-70

NOTE: THE FIRST DIGIT OF THE BAR MARK SIGNIFIES THE ENGLISH BAR DIAMETER SIZE.

DIMENSIONS IN BENDING DETAILS ARE OUT TO OUT.

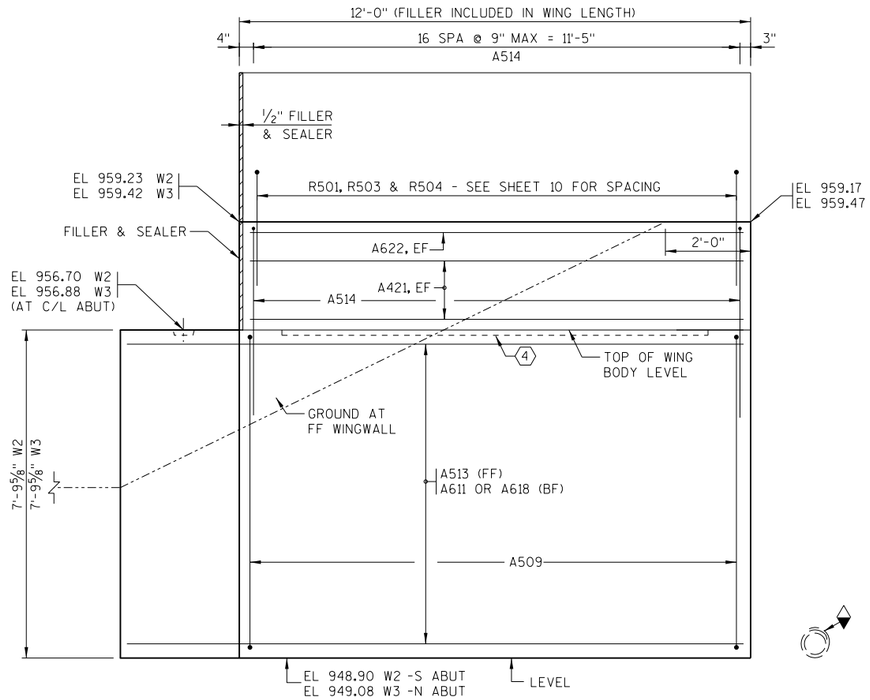
BILL OF BARS — BOTH ABUTMENTS

BAR MARK	COAT	SOUTH ABUT NO. REQ'D.	NORTH ABUT NO. REQ'D.	LENGTH (FT-IN)	BAR SERIES	BENT	LOCATION
A401		5	5	28 - 0		X	BODY AT PILES
A402		10	10	2 - 3			BODY AT PILES
A503		40	40	16 - 9		X	BODY STIRRUPS
A604		16	16	32 - 10			BODY HORIZ
A805		7	7	20 - 2		X	BODY HORIZ BF
A806		7	7	20 - 2		X	BODY HORIZ BF
A507	X	32	32	2 - 0			BODY DOWELS
A508	X	11	11	18 - 7		X	WING STIRRUPS W1& W4
A509	X	13	13	21 - 1		X	WING STIRRUPS W2 & W3
A610	X	9	-	13 - 0		X	WING HORIZ BF W1
A611	X	9	-	13 - 7			WING HORIZ BF W2
A512	X	7	7	11 - 11			WING HORIZ FF W1 & W4
A513	X	9	9	14 - 0			WING HORIZ FF W2 & W3
A514	X	31	31	9 - 8		X	WING VERT
A415	X	5	5	9 - 7			WING HORIZ EF W1 & W4
A416		4	4	7 - 4			BODY AT ENDS
A517		30	30	6 - 7		X	BODY VERT AT TOP
A618	X	-	9	15 - 1		X	WING HORIZ BF W3
A619	X	-	9	11 - 7			WING HORIZ BF W4
A620	X	2	2	9 - 7			WING HORIZ EF TOP W1 & W4
A421	X	5	5	11 - 7			WING HORIZ EF W2 & W3
A622	X	2	2	11 - 7			WING HORIZ EF TOP W2 & W3
A423		4	4	6 - 2			BODY AT ENDS



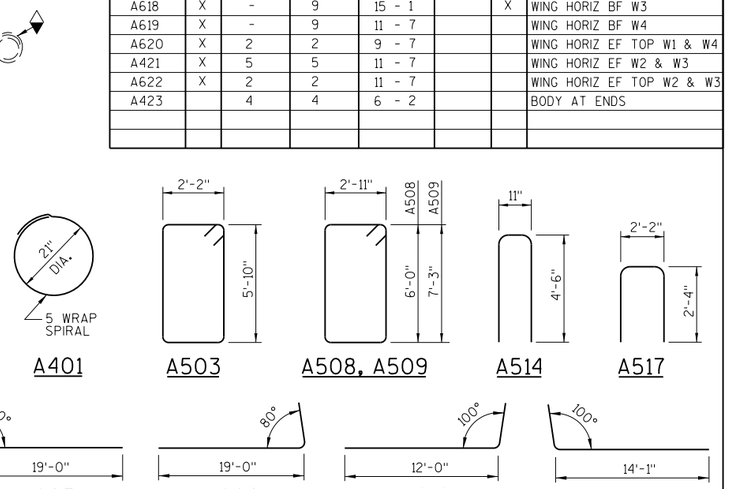
WING 1 & WING 4

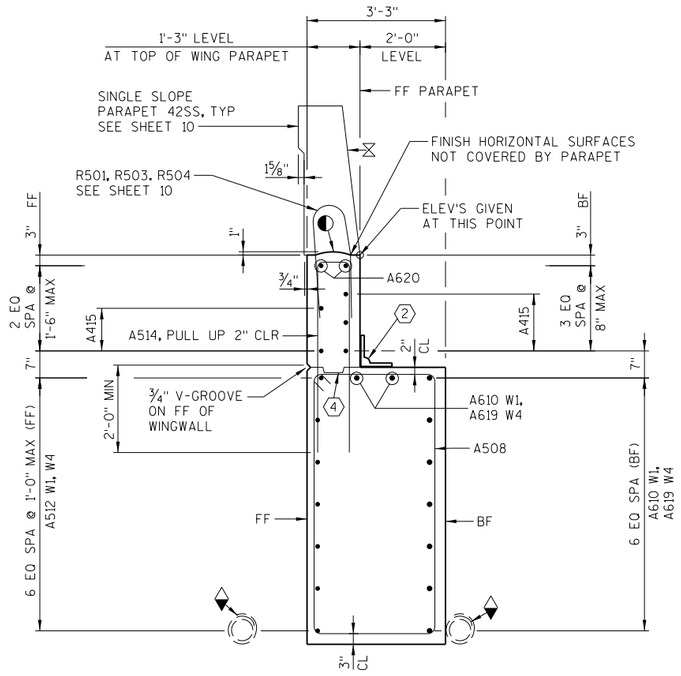
(WING 1 SHOWN)



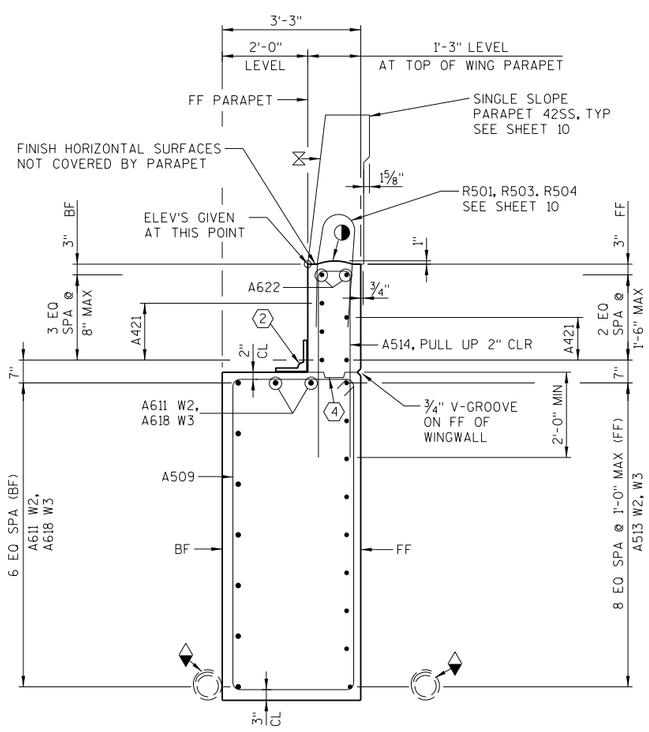
WING 2 & WING 3

(WING 2 SHOWN)





TYPICAL SECTION THRU WING 1 & WING 4



TYPICAL SECTION THRU WING 2 & WING 3

NOTES

SEE ABUTMENT NOTES ON SHEET 4 - (2)(4)◐◆⧖).

R501 AND R504 BARS TO BE TIED TO WING STEEL BEFORE WING IS POURED.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-62-256

DRAWN BY DLF | PLANS CK'D. CJB

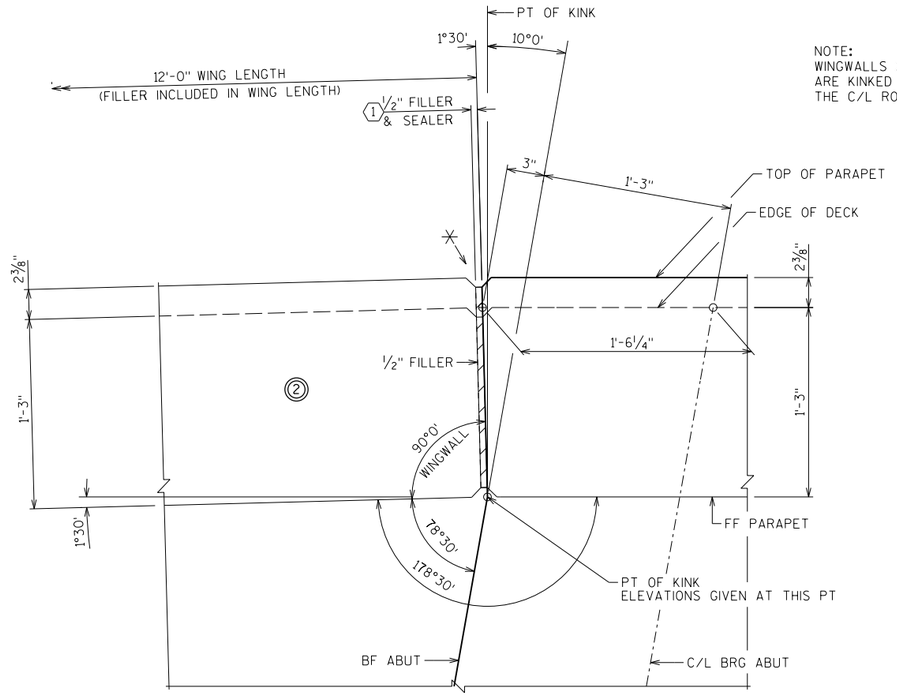
SOUTH AND NORTH ABUTMENT DETAILS

SHEET 7 OF 10

53

8

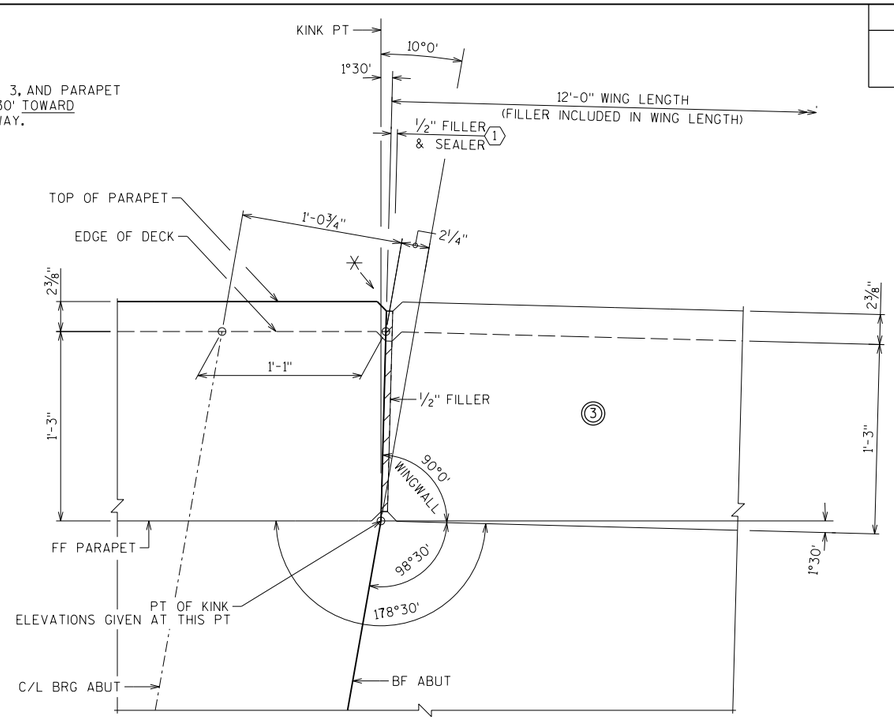
8



WING 2

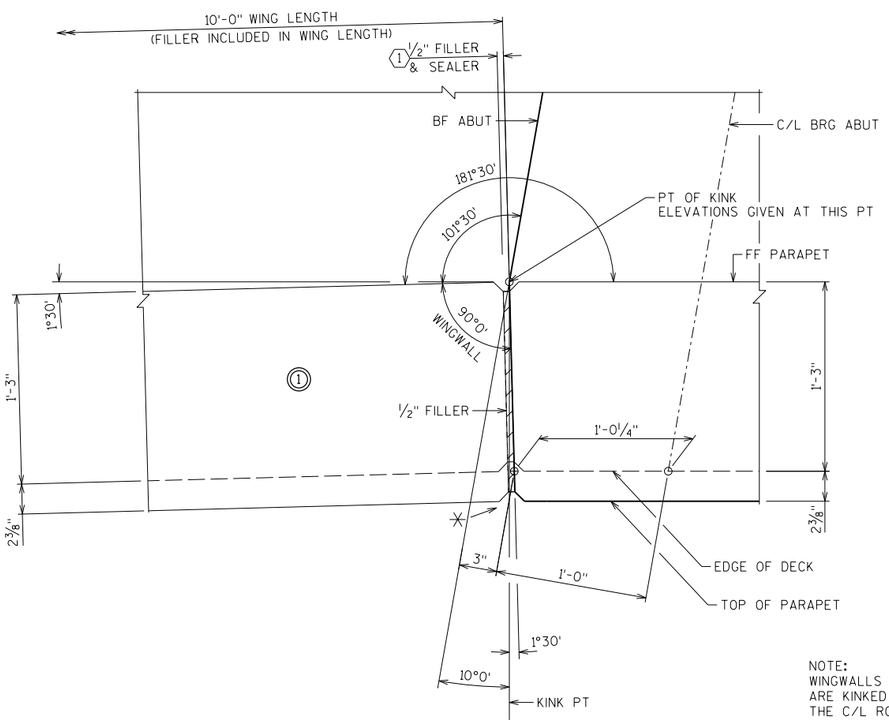
3/4" BEVELS SHOWN FOR CLARITY

NOTE:
WINGWALLS 2 & 3, AND PARAPET
ARE KINKED 1° 30' TOWARD
THE C/L ROADWAY.



WING 3

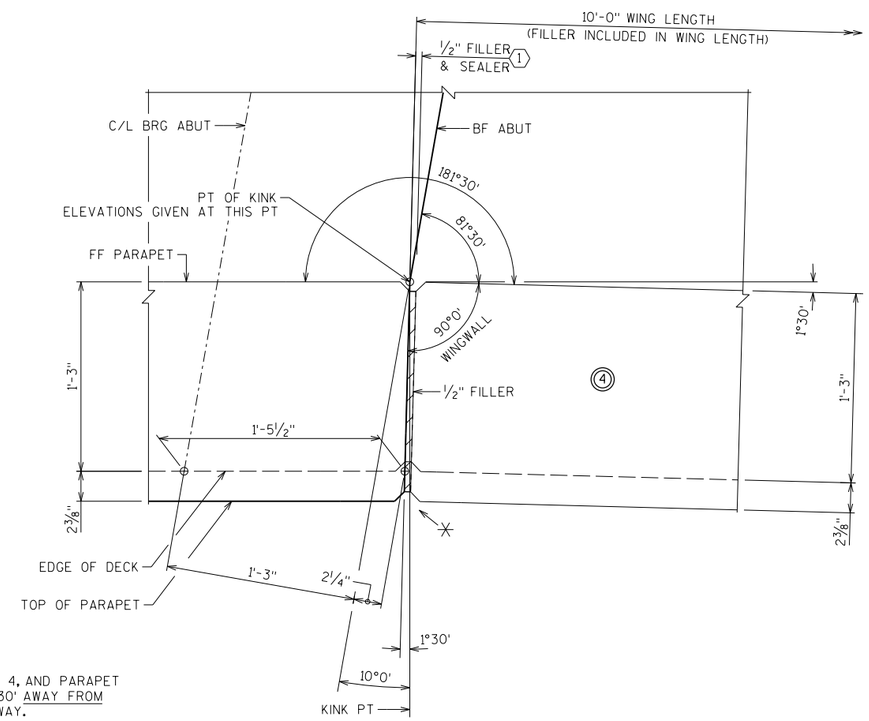
3/4" BEVELS SHOWN FOR CLARITY



WING 1

3/4" BEVELS SHOWN FOR CLARITY

NOTE:
WINGWALLS 1 & 4, AND PARAPET
ARE KINKED 1° 30' AWAY FROM
THE C/L ROADWAY.



WING 4

3/4" BEVELS SHOWN FOR CLARITY

NOTES

SEE ABUTMENT NOTES ON SHEET 4 - (1).

* 3/4" BEVELS TO EXTEND FROM BRIDGE SEAT TO TOP OF CONCRETE PARAPET. BEVELS TO CONTINUE ACCROSS TOP OF PARAPET DOWN INSIDE FACE TO TOP OF DECK.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-62-256

DRAWN BY DLF | PLANS CK'D. CJB

CORNER LAYOUTS

SHEET 8 OF 10
54

8

8

PLOT DATE: 5/23/2018 PLOT TIME: 11:07:52 AM
FILE NAME : S:\UZ\V\VERHD\140016\5-final-dsgn\5l-drawings\20-Struct\bridge\b62256a3.dgn

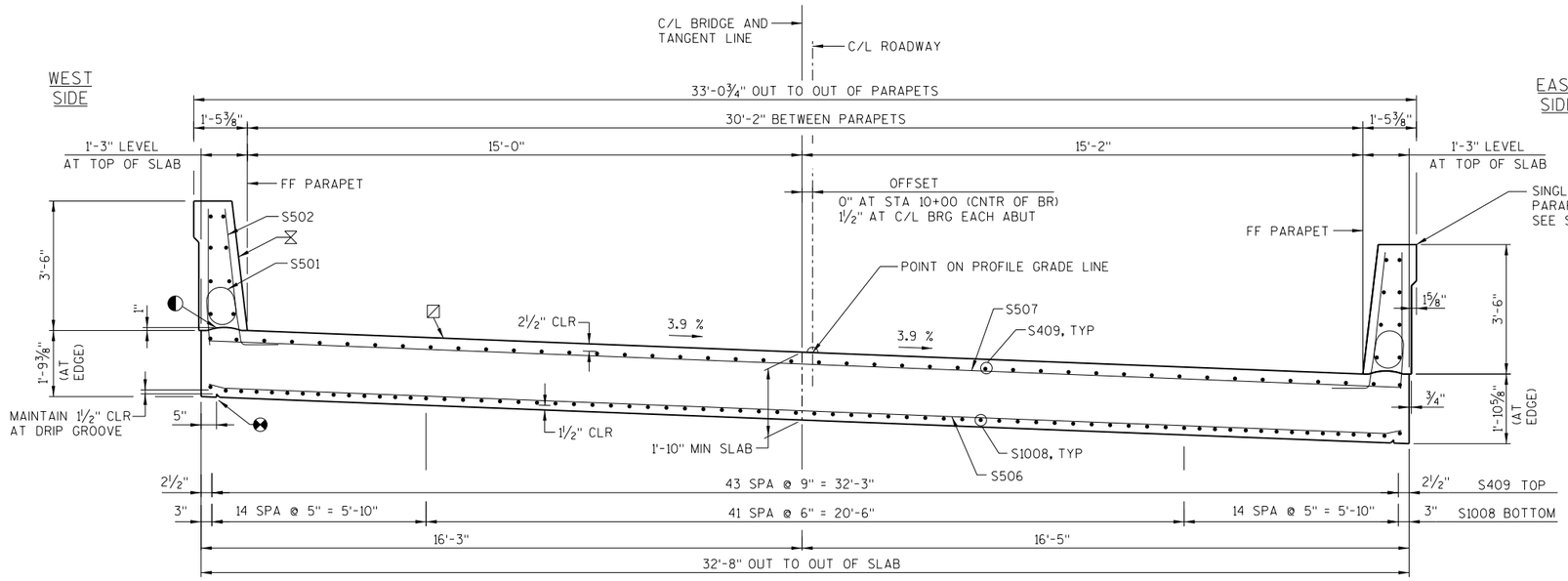
STATE PROJECT NUMBER
5467-00-70

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

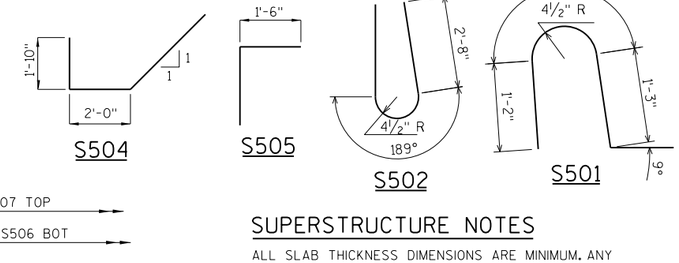
DIMENSIONS IN BENDING DETAILS ARE OUT TO OUT.

BILL OF BARS — SUPERSTRUCTURE

BAR MARK	COAT	NO. REQ'D.	LENGTH (FT-IN)	BAR SERIES	BENT	LOCATION
S501	X	128	4 - 5		X	PARAPET VERT
S502	X	128	6 - 8		X	PARAPET VERT
S503	X	32	22 - 3			PARAPET HORIZ
S504	X	66	6 - 3		X	END OF DECK
S505	X	66	3 - 6		X	END OF DECK
S506	X	89	32 - 9			BOT TRANS
S507	X	43	32 - 9			TOP TRANS
S1008	X	70	42 - 1			BOT LONG
S409	X	44	42 - 1			TOP LONG



TRANSVERSE SECTION



SUPERSTRUCTURE NOTES

ALL SLAB THICKNESS DIMENSIONS ARE MINIMUM. ANY TOLERANCES NECESSARY TO CORRECT CONSTRUCTION DISCREPANCIES ARE TO BE PLUS (+).

PRIOR TO RELEASING SLAB FLASEWORK, TAKE TOP OF SLAB ELEVATIONS AT C/L ABUTMENTS AND 5/10 POINTS TO VERIFY CAMBER. TAKE ELEVATIONS ALONG EDGE LINE AND C/L.

TRANSVERSE BARS SHALL BE PLACED PARALLEL TO THE C/L OF SUBSTRUCTURE UNITS.

TOP TRANSVERSE BARS IN SLAB SHALL BE SUPPORTED BY INDIVIDUAL BAR CHAIRS AT APPROXIMATELY 3'-0" CENTERS EACH WAY. BOTTOM LONGITUDINAL BARS SHALL BE SUPPORTED ON CONTINUOUS BAR CHAIRS AT APPROXIMATELY 4'-0" CENTERS.

◐ ¾" V-GROOVE, EXTEND V-GROOVE TO 6" FROM FRONT FACE OF ABUTMENT.

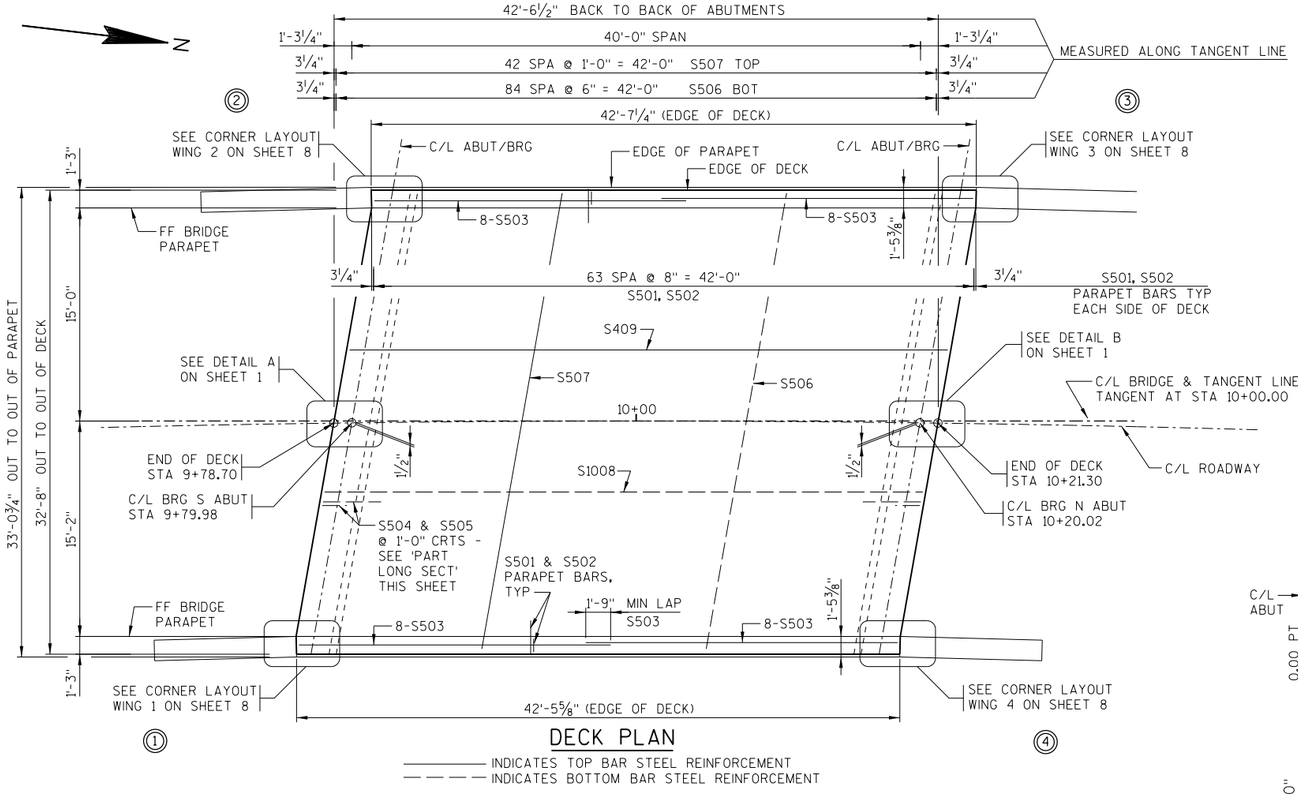
▨ COAT WITH PROTECTIVE SURFACE TREATMENT PER THE STANDARD SPECIFICATIONS. PROTECTIVE SURFACE TREATMENT TO BE APPLIED TO THE TOP OF THE DECK.

⧖ FURNISH AND APPLY PIGMENTED SURFACE SEALER TO THE INSIDE FACES, ENDS, AND TOP OF THE CONCRETE PARAPETS.

◐ CONST. JOINT - STRIKE OFF AS SHOWN.

◎ INDICATES WING

FF = FRONT FACE
BF = BACK FACE
EF = EACH FACE



DECK PLAN

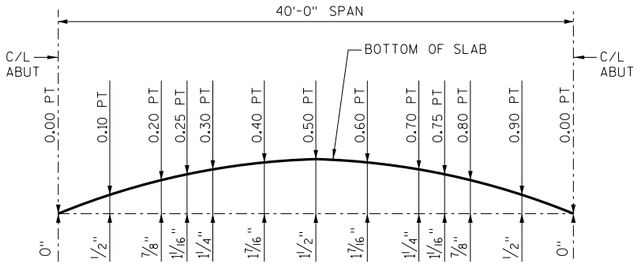
——— INDICATES TOP BAR STEEL REINFORCEMENT
– – – – INDICATES BOTTOM BAR STEEL REINFORCEMENT

PARTIAL LONGITUDINAL SECTION

✳ MEASURED PERPENDICULAR TO ABUTMENT BODY.

FINAL TOP OF DECK ELEVATIONS

	SPAN										
	SOUTH ABUT	.1	.2	.3	.4	.5	.6	.7	.8	.9	NORTH ABUT
WEST EDGE FF PARAPET	959.23	959.25	959.26	959.28	959.30	959.32	959.33	959.35	959.37	959.39	959.41
TANGENT LINE	958.64	958.65	958.67	958.69	958.70	958.72	958.74	958.76	958.77	958.79	958.81
EAST EDGE FF PARAPET	958.04	958.05	958.07	958.08	958.10	958.12	958.13	958.15	958.17	958.19	958.21



CAMBER DIAGRAM

CAMBER SPAN AS SHOWN TO PROVIDE FOR DEAD LOAD DEFLECTION & FUTURE CREEP. CAMBER DOES NOT INCLUDE VERTICAL ROADWAY PROFILE OR ALLOWANCE FOR FORM SETTLEMENT. DEAD LOAD DEFLECTION ONLY EQUALS APPROXIMATELY 1/3 OF CAMBER VALUES SHOWN.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-62-256

DRAWN BY DLF | PLANS CK'D. CJB

SUPERSTRUCTURE DETAILS

SHEET 9 OF 10
55

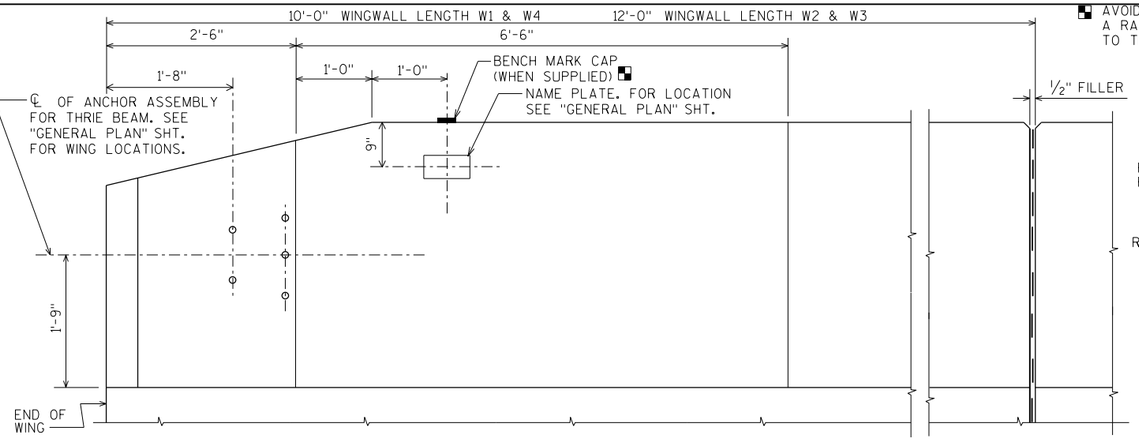
PLOT DATE: 5/23/2018 PLOT TIME: 11:07:53 AM
FILE NAME : S:\UZ\VV\ERHD\1400166\5-final-dsgn\5i-drawings\20-Struct\bridge\b62256sl.dgn

8

8

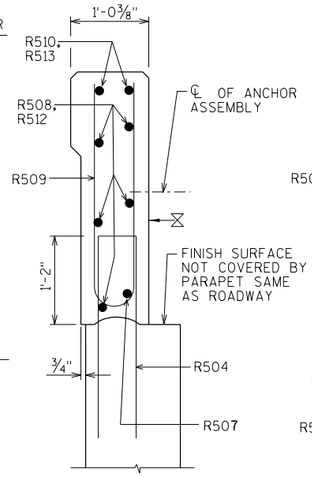
PLOT TIME: 11:07:53 AM
PLOT DATE: 5/23/2018
FILE NAME : S:\U2\V\VERHD\V40016\S-final-dsgn\S1-drawings\20-Struct\bridge\b62256ss42win.dgn

STATE PROJECT NUMBER
5467-00-70

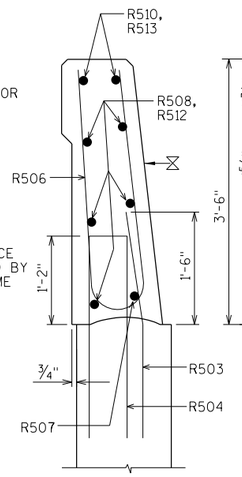


INSIDE ELEVATION

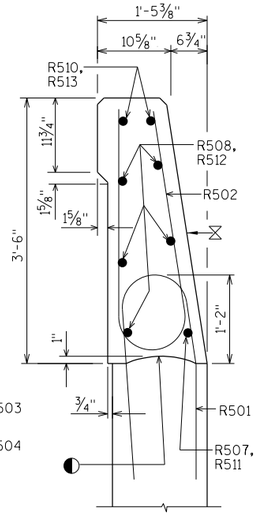
■ AVOID PLACING A BENCH MARK CAP BELOW A RAIL OR FENCE SYSTEM THAT IS ATTACHED TO THE TOP OF THE PARAPET.



SECTION A



SECTION B



SECTION C

BILL OF BARS

FOR WING PARAPETS

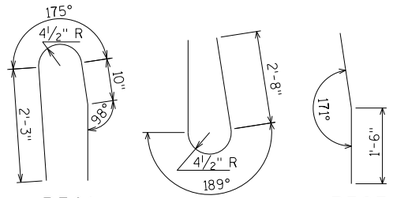
BAR MARK	COAT	SOUTH ABUT.	NORTH ABUT.	LENGTH (FT-IN)	BENT	BAR SERIES	LOCATION
R501	X	9	9	5 - 10	X		PAR. VERT
R502	X	9	9	6 - 8	X		PAR. VERT
R503	X	22	22	3 - 0	X		PAR. VERT
R504	X	34	34	5 - 7	X		PAR. VERT
R505	X	10	10	6 - 5	X		PAR. VERT
R506	X	12	12	6 - 6	X		PAR. VERT
R507	X	1	1	9 - 7	X		PAR. HORIZ W1 & W4
R508	X	5	5	9 - 7			PAR. HORIZ W1 & W4
R509	X	12	12	5 - 5	X	◭	PAR. VERT
R510	X	2	2	9 - 7	X		PAR. HORIZ W1 & W4
R511	X	1	1	11 - 7	X		PAR. HORIZ W2 & W3
R512	X	5	5	11 - 7			PAR. HORIZ W2 & W3
R513	X	2	2	11 - 7	X		PAR. HORIZ W2 & W3

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

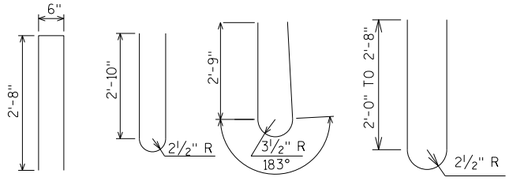
BAR SERIES TABLE

MARK	NO. REQD.	LENGTH
R509	4 SERIES OF 6	4'-9" TO 6'-1"

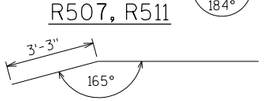
BUNDLE AND TAG EACH SERIES SEPARATELY.



R501 R502 R503

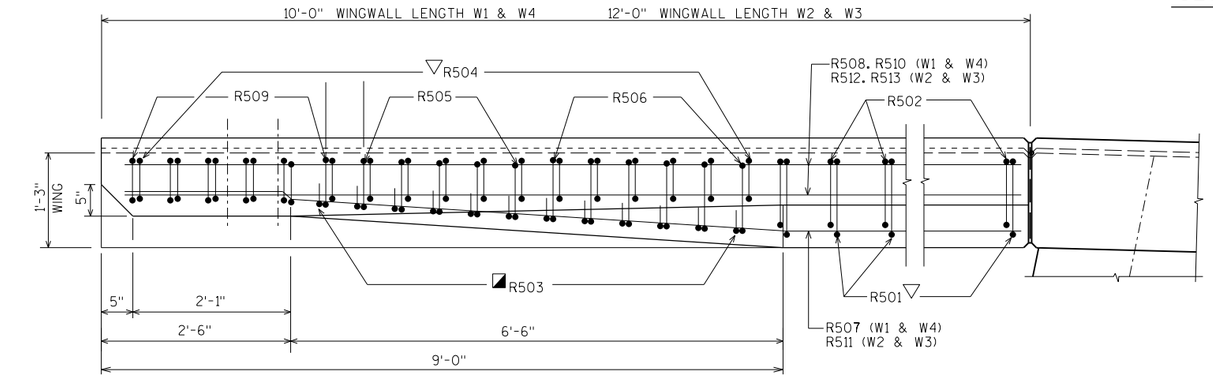


R504 R505 R506 R509

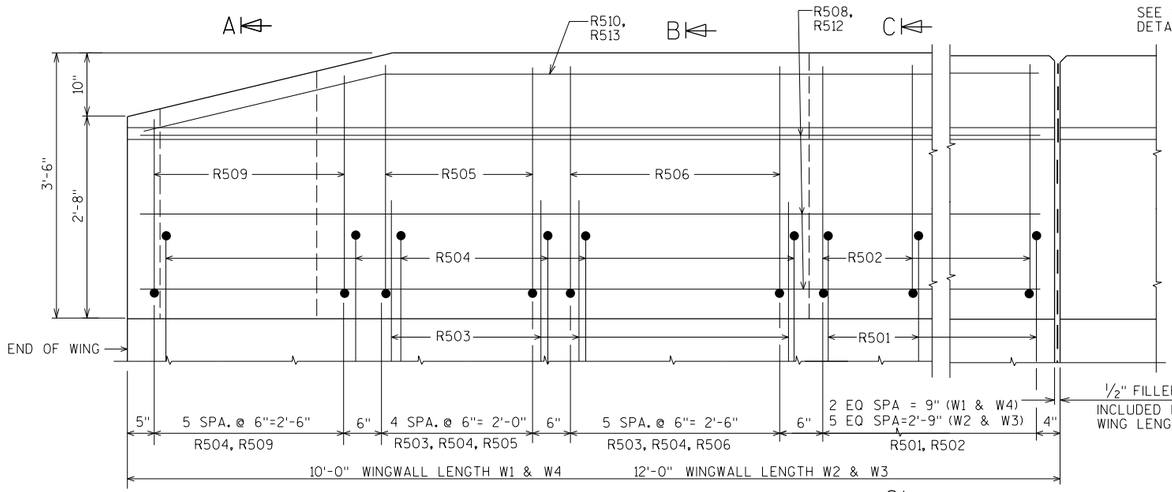


R507, R511

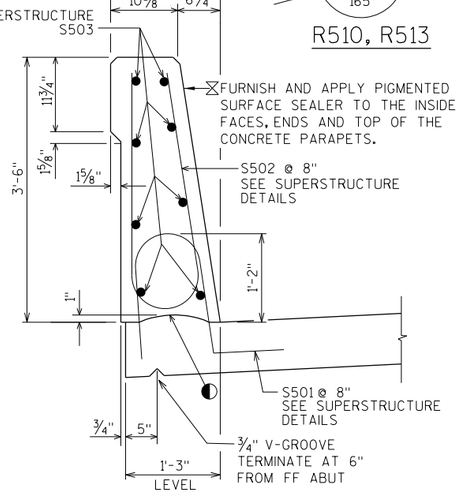
R510, R513



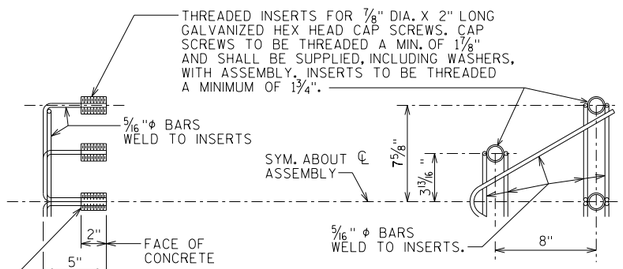
PLAN



OUTSIDE ELEVATION



SECTION THRU PARAPET ON BRIDGE



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.

◐ CONST. JOINT - STRIKE OFF AS SHOWN.

◪ R503 BARS MAY BE PLACED AFTER CONCRETE IS POURED BUT BEFORE INITIAL SET HAS TAKEN PLACE. USE CARE TO PLACE R503 BARS CORRECTLY ALONG TRANSITION OF PARAPET.

▽ R501 & R504 BARS TO BE TIED TO WING STEEL BEFORE WING IS POURED.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-62-256

DRAWN BY DLF | PLANS CK'D. CJB

PARAPET 42SS ENDING ON WING

SHEET 10 OF 10

56

42SSWIN
7-17

8 12 7 1 2 3 4 8

EARTHWORK SUMMARY

STATION	Real Station	Distance	AREA (SF) Cut	AREA (SF) Fill	Incremental Vol (CY) (Unadjusted) Cut	Incremental Vol (CY) (Unadjusted) Fill (1)	Cumulative Vol (CY) Cut 1.00	Cumulative Vol (CY) Expanded Fill 1.30 (2)	Mass Ordinate
8+25 AH	825.00	0.00	42.86	0.98	0	0	0	0	0
8+50	850.00	25.00	60.64	5.52	48	3	48	4	44
8+74	874.37	24.37	70.15	14.31	59	9	107	16	91
8+75	875.00	0.63	70.18	14.31	2	0	109	16	93
8+80	880.02	5.02	71.74	14.06	13	3	122	19	102
9+00	900.00	19.98	71.91	19.82	53	13	175	36	139
9+05	904.78	4.78	59.61	23.07	12	4	187	41	146
9+25	925.00	20.22	60.03	21.26	45	17	231	62	169
9+30	930.03	5.03	62.55	23.16	11	4	243	68	175
9+50	950.00	19.97	65.00	23.91	47	17	290	90	200
9+68 BK	968.28	18.28	58.60	18.72	42	14	332	109	223
STRUCTURE B-62-0256									
10+31 AH	1031.12	0.00	44.84	22.99	0	0	332	109	223
10+50	1050.00	18.89	47.08	25.05	32	17	364	131	233
10+70	1069.80	19.80	48.50	24.32	35	18	399	154	245
10+76	1075.70	5.90	48.93	23.73	11	5	410	161	248
10+77	1076.70	1.00	49.11	23.53	2	1	411	162	249
10+95	1095.05	18.35	55.42	28.52	36	18	447	185	262
11+00	1100.00	4.95	56.35	27.52	10	5	457	192	265
11+20	1120.22	20.22	56.83	22.05	42	19	500	216	283
11+25	1125.00	4.78	56.83	21.66	10	4	510	221	288
11+50	1150.00	25.00	52.61	11.31	51	15	560	241	319
11+75 BK	1175.00	25.00	8.75	1.26	28	6	589	249	340
				TOTALS	589	191			

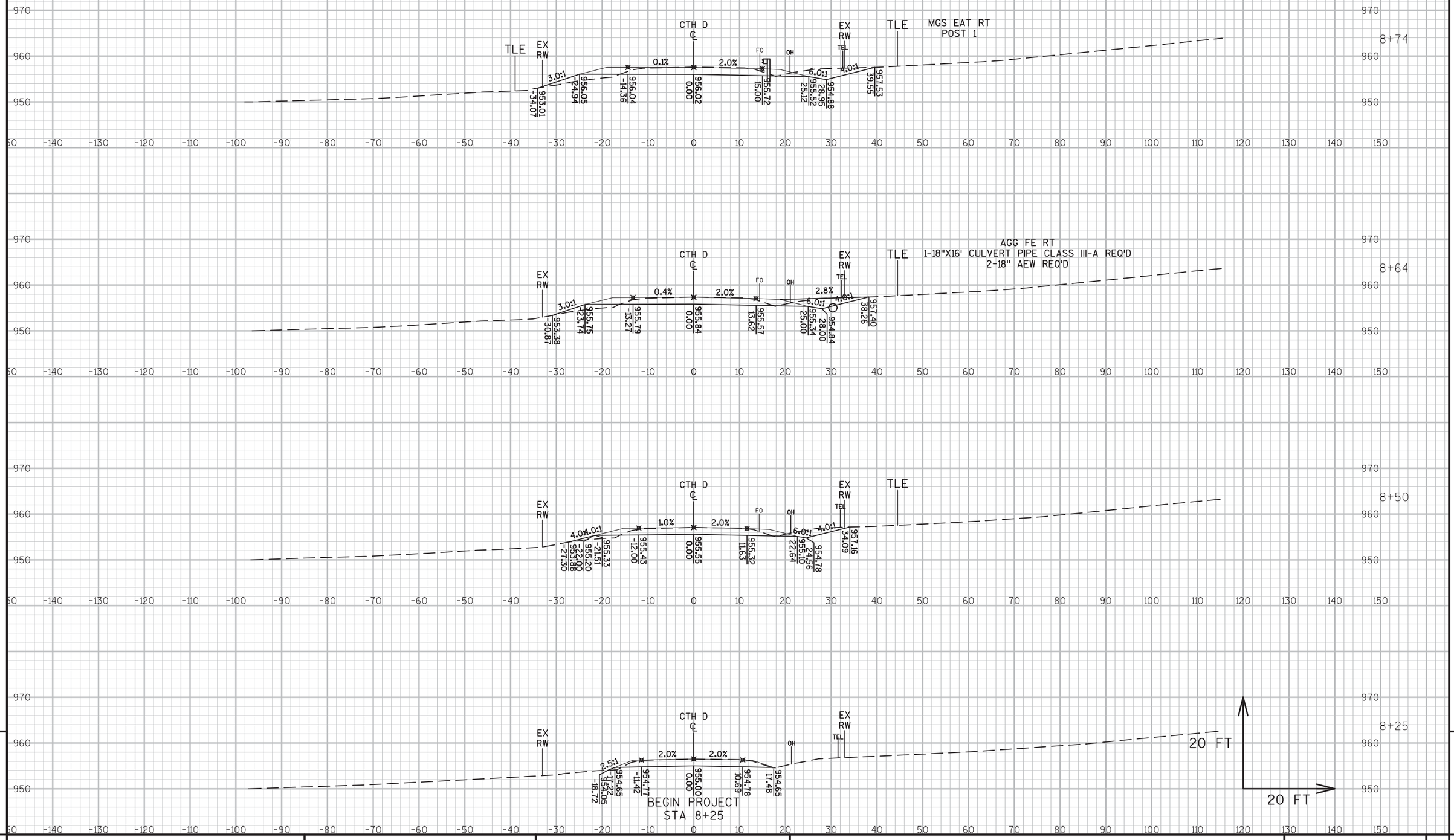
(1) - NOT A BID ITEM - FOR INFORMATIONAL PURPOSES ONLY
(2) - FILL EXPANSION 30%
(3) - EXISTING ASPHALTIC PAVEMENT IS INCLUDED IN COMMON EXCAVATION TOTALS

9

9

PROJECT NO:5467-00-70	HWY:CTH D	COUNTY:VERNON	COMPUTER EARTHWORK DATA	SHEET 57	E

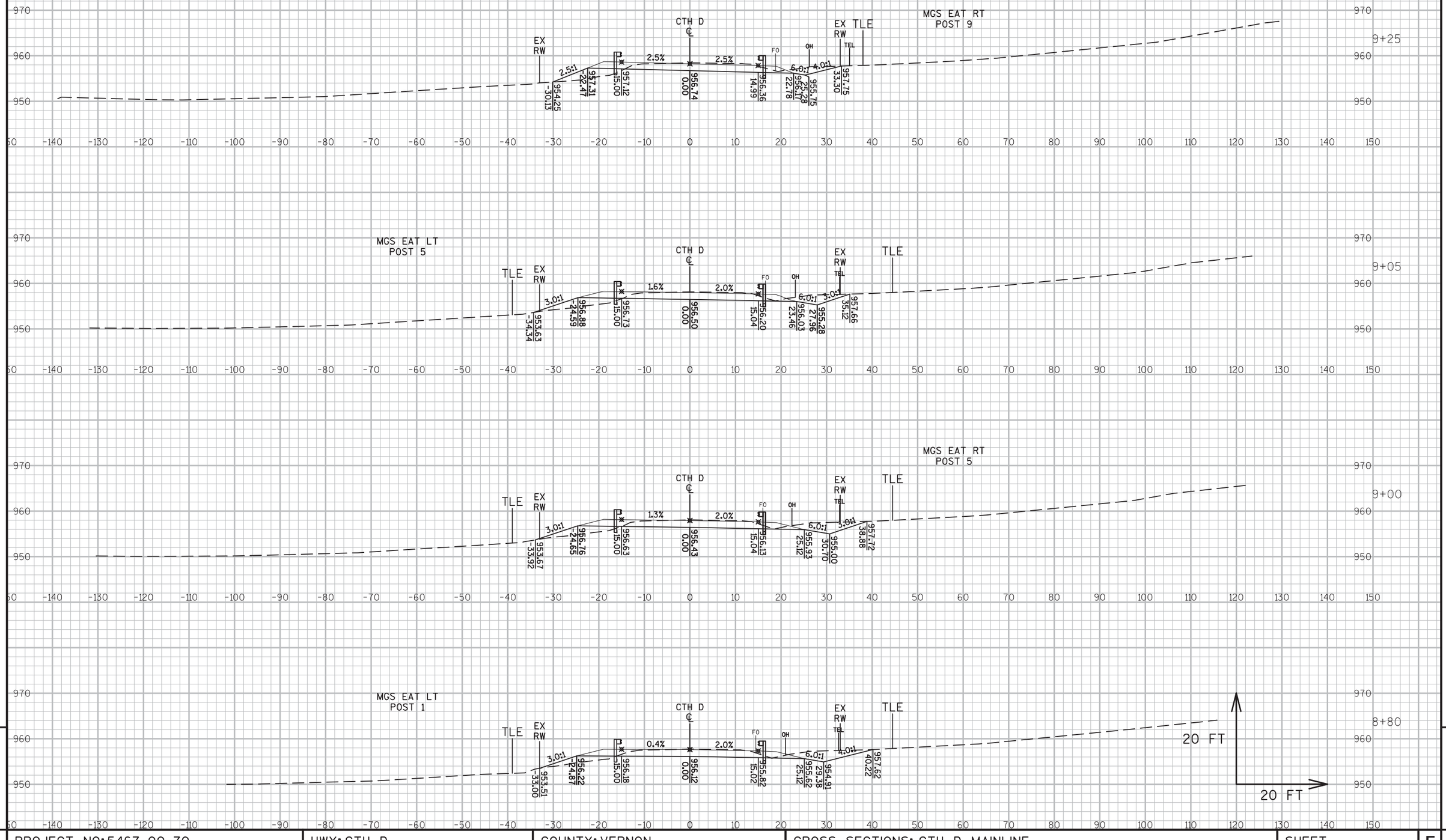
FILE NAME : P:\UZ\V\VERHD\140016\5-FINAL-DSGN\50-FINAL-DSGN\40-TRANSHWY\CIVIL 3D\140016\SHEETSPLAN\090101_EW.DWG
LAYOUT NAME - 090101_EW
PLOT DATE : 5/30/2018 8:57 AM PLOT BY : BRIAN BOELTER PLOT NAME : PLOT SCALE : NTS



9 9

PROJECT NO: 5467-00-70	HWY: CTH D	COUNTY: VERNON	CROSS SECTIONS: CTH D MAINLINE	SHEET 58	E

FILE NAME : P:\UZ\V\VERHD\140016\5-FINAL-DSGN\50-FINAL-DSGN\40-TRANSHWY\CIVIL 3D\140016\SHEETSPLAN\090201_XS.DWG
LAYOUT NAME - 090201_XS
PLOT DATE : 7/16/2018 3:00 PM PLOT BY : BRIAN BOELTER PLOT NAME : PLOT SCALE : 1 IN:20 FT
WISDOT/CADDS SHEET 49

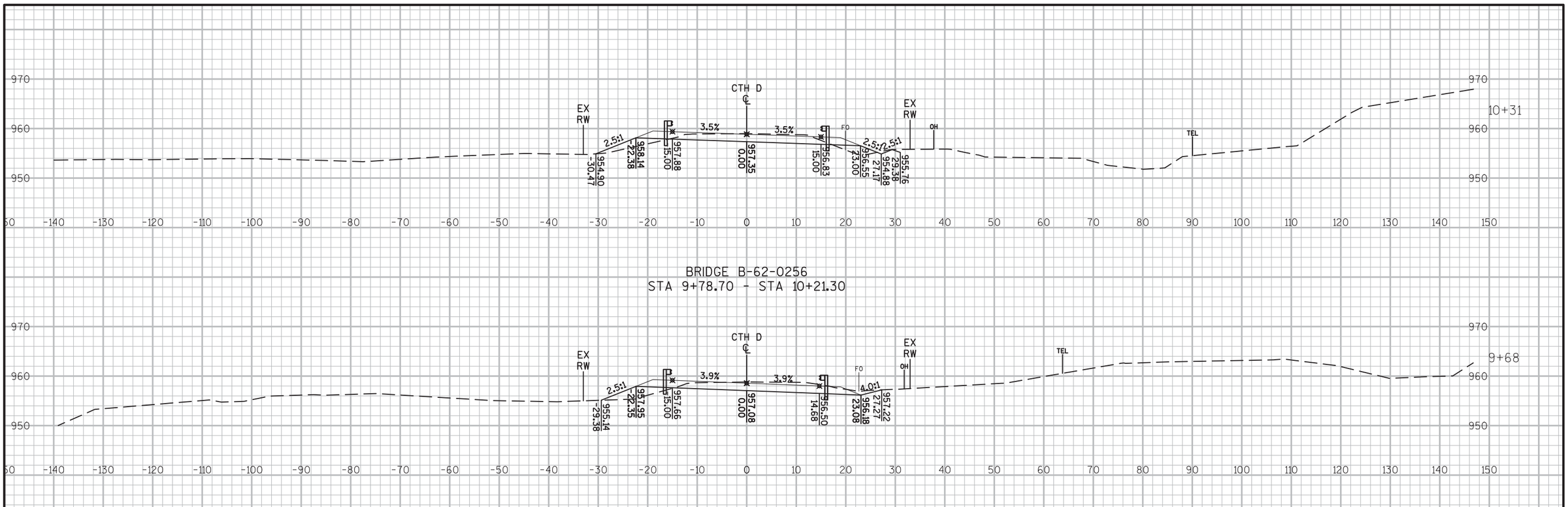


9

9

PROJECT NO: 5467-00-70	HWY: CTH D	COUNTY: VERNON	CROSS SECTIONS: CTH D MAINLINE	SHEET 59	E

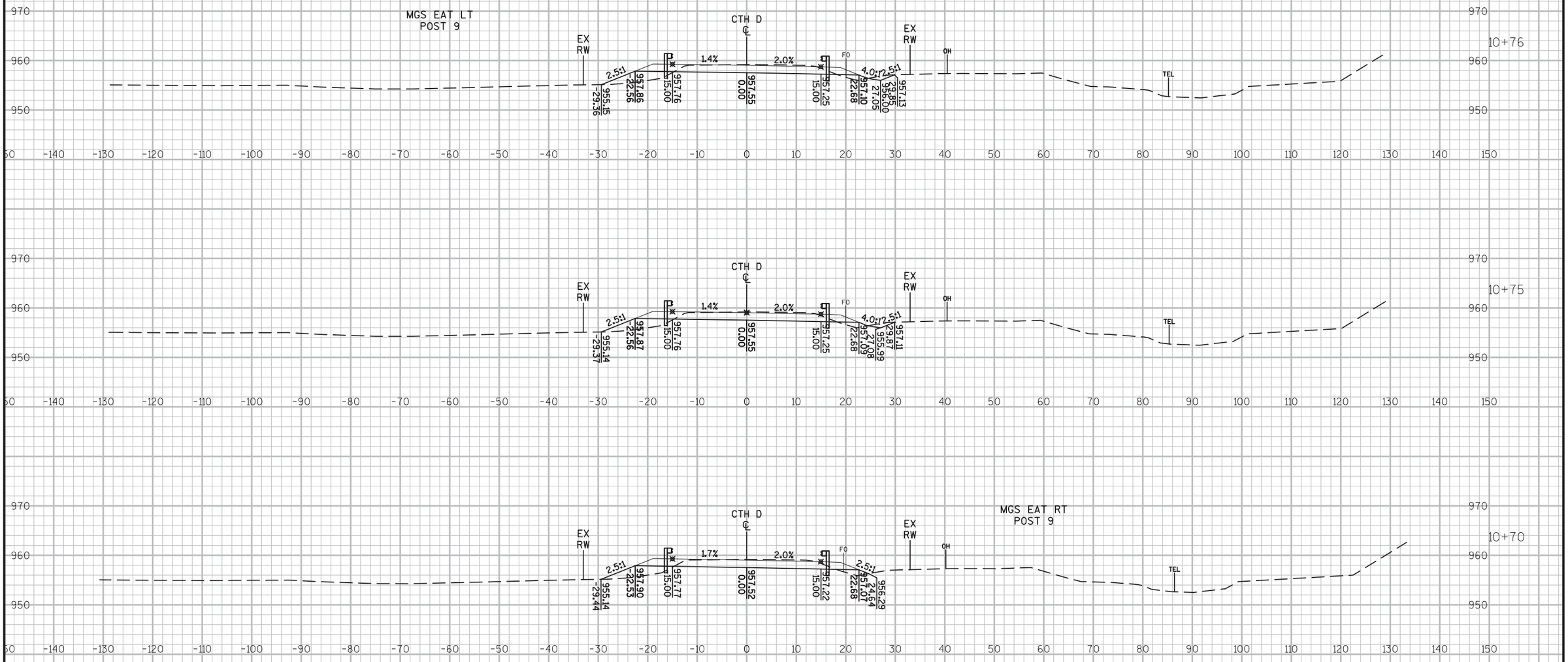
FILE NAME : P:\UZ\V\VERHD\140016\5-FINAL-DSGN\50-FINAL-DSGN\40-TRANSHWY\CIVIL 3D\140016\SHEETSPLAN\090201_XS.DWG
LAYOUT NAME - 090202_XS
PLOT DATE : 7/16/2018 3:00 PM PLOT BY : BRIAN BOELTER PLOT NAME : PLOT SCALE : 1 IN:20 FT
WISDOT/CADDS SHEET 49



PROJECT NO: 5467-00-70	HWY: CTH D	COUNTY: VERNON	CROSS SECTIONS: CTH D MAINLINE	SHEET 60	E

FILE NAME : P:\UZ\V\VERHD\140016\5-FINAL-DSGN\50-FINAL-DSGN\40-TRANSHWY\CIVIL 3D\140016\SHEETSPLAN\090201_XS.DWG
LAYOUT NAME - 090203_XS

PLOT DATE : 7/16/2018 3:00 PM PLOT BY : BRIAN BOELTER PLOT NAME : PLOT SCALE : 1 IN:20 FT

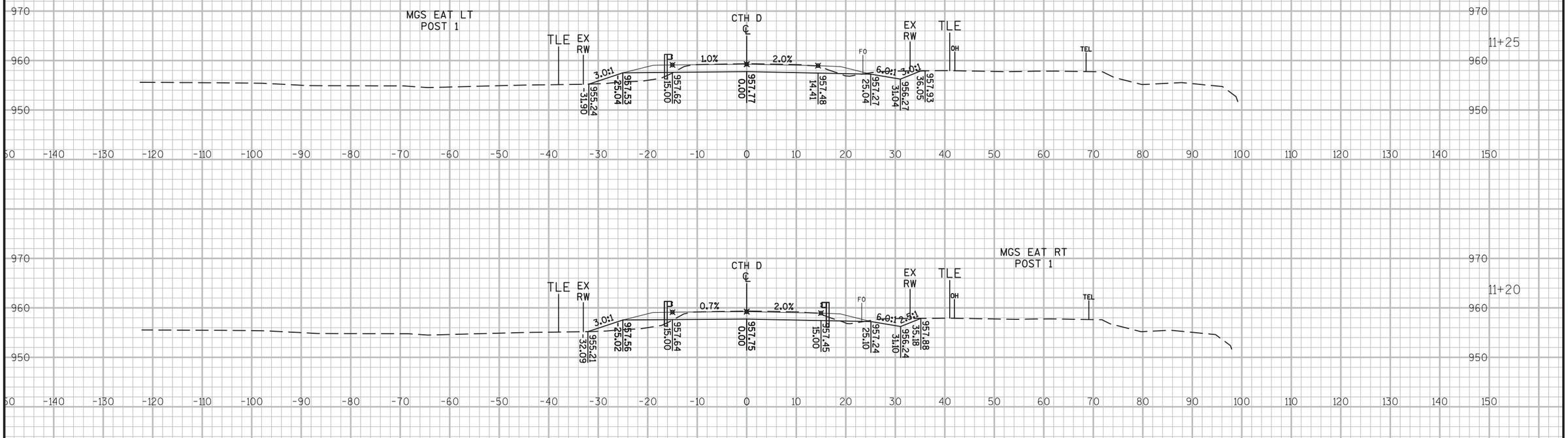


9

9

PROJECT NO: 5467-00-70	HWY: CTH D	COUNTY: VERNON	CROSS SECTIONS: CTH D MAINLINE	SHEET 61	E

FILE NAME : P:\UZ\V\VERHD\140016\5-FINAL-DSGN\50-FINAL-DSGN\40-TRANSHWY\CIVIL 3D\140016\SHEETSPLAN\090201_XS.DWG
LAYOUT NAME - 090204_XS
PLOT DATE : 7/16/2018 3:00 PM PLOT BY : BRIAN BOELTER PLOT NAME : PLOT SCALE : 1 IN:20 FT
WISDOT/CADDS SHEET 49



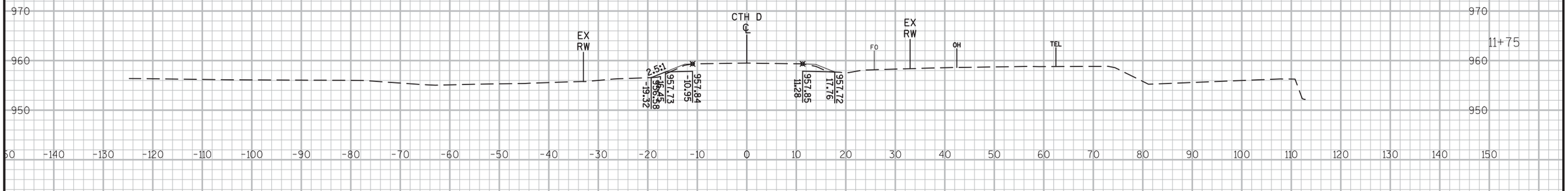
PROJECT NO: 5467-00-70	HWY: CTH D	COUNTY: VERNON	CROSS SECTIONS: CTH D MAINLINE	SHEET 62	E

FILE NAME : P:\UZ\V\VERHD\140016\5-FINAL-DSGN\50-FINAL-DSGN\40-TRANSHWY\CIVIL 3D\140016\SHEETSPLAN\090201_XS.DWG
LAYOUT NAME - 090205_XS

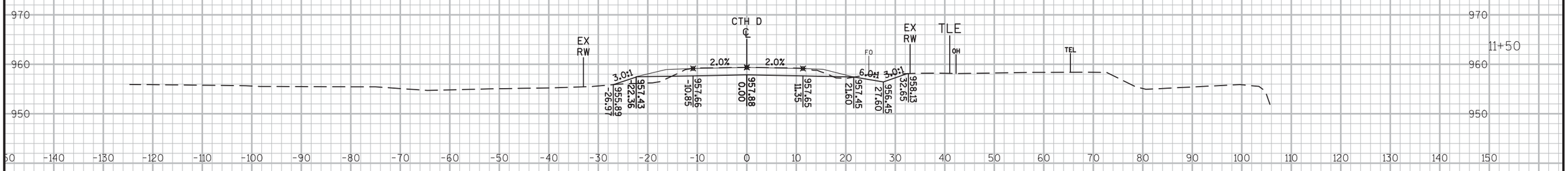
PLOT DATE : 7/16/2018 3:00 PM PLOT BY : BRIAN BOELTER PLOT NAME : PLOT SCALE : 1 IN:20 FT

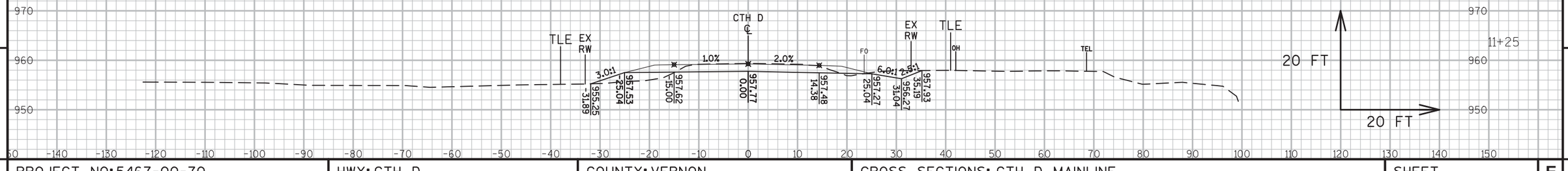
WISDOT/CADDS SHEET 49

END CONSTRUCTION
STA 11+75



END PROJECT
STA 11+50





9

9

PROJECT NO: 5467-00-70	HWY: CTH D	COUNTY: VERNON	CROSS SECTIONS: CTH D MAINLINE	SHEET 63	E

FILE NAME : P:\UZ\V\VERHD\140016\5-FINAL-DSGN\50-FINAL-DSGN\40-TRANSHWY\CIVIL 3D\140016\SHEETSPLAN\090201_XS.DWG
LAYOUT NAME - 090206_XS

PLOT DATE : 7/16/2018 3:00 PM PLOT BY : BRIAN BOELTER PLOT NAME : PLOT SCALE : 1 IN:20 FT

Wisconsin Department of Transportation

Dedicated people creating transportation solutions
through innovation and exceptional service.

http://www.dot.wisconsin.gov