LAX

JANUARY 2023

PROJECT ID: 7117-00-72

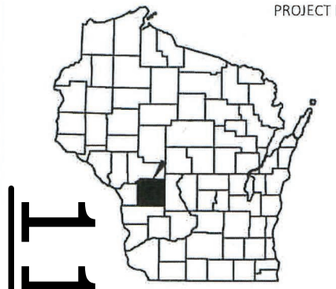
WITH: N/A

COUNTY: MONROE

ORDER OF SHEETS

TOTAL SHEETS = 56

PROJECT LOCATION



N

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PLAN OF PROPOSED IMPROVEMENT

VILLAGE OAKDALE - STH 21

EAST FORK LEMONWEIR RIVER BRIDGE B-41-0320

CTH PP

MONROE COUNTY

STATE PROJECT NUMBER
7117-00-72

STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
7117-00-02	WISC 2023144	1

STRUCTURE B-41-0320
STA 10+00

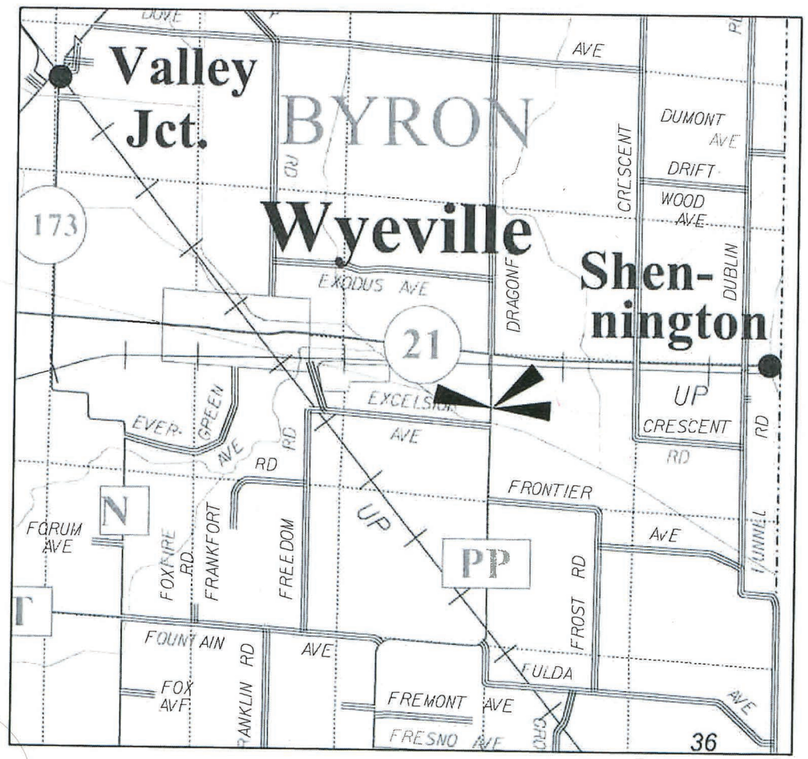
ACCEPTED FOR
MONROE COUNTY HIGHWAY DEPARTMENT
DATE: 07/22/22
(Highway Commissioner Signature)

DESIGN DESIGNATION

A.A.D.T.	2023	=	1350
A.A.D.T.	2043	=	1820
D.H.V		=	180
D.D.		=	50/50
T.		=	10%
DESIGN SPEED		=	60 MPH
ESALS		=	530,000

BEGIN PROJECT
STA 9+25
Y = 407592.977
X = 747068.450

R-1-W



END PROJECT
STA 10+75
Y = 407743.175
X = 747067.864

ORIGINAL PLANS PREPARED BY

SEH

WISCONSIN
TARA L. KRISTA
37975
CHIPPEWA FALLS, WI
PROFESSIONAL ENGINEER

DATE: 7-25-2022
(Professional Engineer Signature)

CONVENTIONAL SYMBOLS

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

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

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

LAYOUT

SCALE 0 1 MI

TOTAL NET LENGTH OF CENTERLINE = 0.028 MI

HORIZONTAL POSITIONS SHOWN ON THIS PLAN ARE WISCONSIN COORDINATE REFERENCE SYSTEM (WISCRS), MONROE COUNTY, NAD83 (2011), IN U.S. SURVEY FEET. POSITIONS SHOWN ARE GRID COORDINATES, GRID BEARINGS, AND GRID DISTANCES. GRID DISTANCES ARE THE SAME AS GROUND DISTANCES. ELEVATIONS ARE REFERENCED TO NAVD 88 (2012). GPS DERIVED ELEVATIONS ARE BASED ON GEOID 12A.

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PREPARED BY

Surveyor	SEH
Designer	SEH
Project Manager	VALERIE GUIDER
Regional Examiner	
Regional Supervisor	KYLE HEMP

APPROVED FOR THE DEPARTMENT

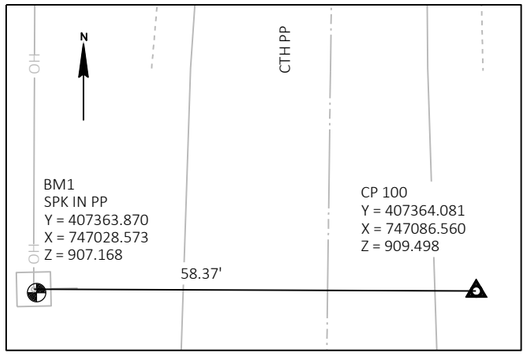
DATE: _____ Valerie Guider, P.E. (Electronically signed by Valerie Guider, P.E. Date: 2022.07.26 11:00:41 -05'00')
(Signature)

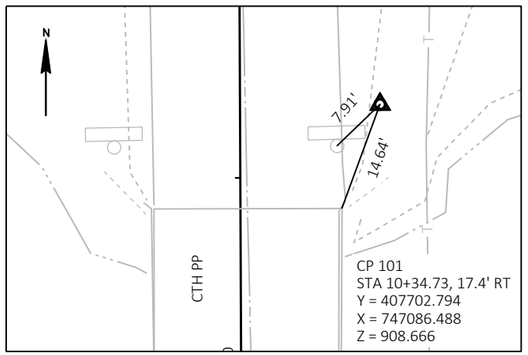
E

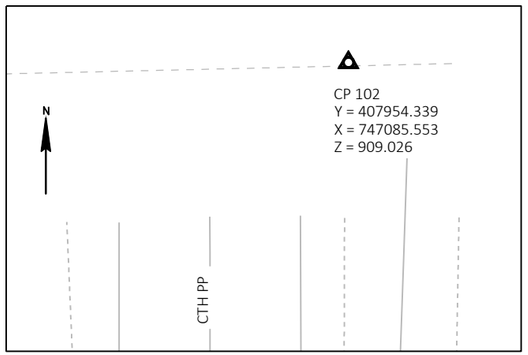
FILE NAME : X:\KO\M\MONRO\157574\5-FINAL-DSGN\CIVIL 3D - CTH PP\SHEETSPLAN\010101-TI.DWG

PLOT DATE : 7/11/2022 10:17 AM PLOT BY : JUSTIN SHAVLIK PLOT NAME :

ALIGNMENT TIES







GENERAL NOTES

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

WHEN THE QUANTITY OF BASE AGGREGATE OR ASPHALTIC SURFACE IS MEASURED FOR PAYMENT BY THE TON, THE DEPTH OR THICKNESS OF THE LAYER SHOWN ON THE PLANS IS APPROXIMATE AND THE ACTUAL THICKNESS WILL DEPEND ON THE DISTRIBUTION OF THE MATERIAL AS DIRECTED BY THE ENGINEER.

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

THE EXACT LOCATION OF THE EROSION CONTROL DEVICES SHALL BE DETERMINED IN THE FIELD.

SILT FENCE AND TURBIDITY BARRIER IS TO BE PLACED AS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER, AND IN PLACE PRIOR TO BRIDGE REMOVAL.

DISTURBED AREAS WITHIN THE RIGHT-OF-WAY, EXCEPT THE AREAS WITHIN THE FINISHED SHOULDER POINTS, SHALL BE SALVAGED TOPSOILED, FERTILIZED, SEEDED AND EMATTED.

A VERTICAL SAWCUT SHALL BE MADE THROUGH EXISTING PAVEMENTS AT REMOVAL LIMITS.

ALL PAVEMENT DIMENSIONS AND STATIONS ARE SHOWN TO THE EDGE OF PAVEMENT UNLESS NOTED OTHERWISE.

5" ASPHALTIC SURFACE SHALL BE CONSTRUCTED IN TWO 2.5" LAYERS.

WISDOT MONUMENTS WILL BE SUPPLIED BY THE STATE AND INSTALLED BY THE CONTRACTOR AS DIRECTED BY THE ENGINEER.

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 = 0.61 ACRES
TOTAL AREA EXPECTED TO BE DISTURBED BY CONSTRUCTION ACTIVITIES = 0.42 ACRES

UTILITY CONTACTS

BRIGHTSPEED
333 NORTH FRONT STREET
LA CROSSE, WI 54601
TELEPHONE:608.615.4169 (OFFICE), 608.780.0895 (CELL)
ATTENTION:TOM MURRAY
EMAIL:TOM.L.MURRAY@BRIGHTSPEED.COM

OAKDALE ELECTRIC COOP
PO BOX 40
OAKDALE, WI 54649
TELEPHONE:608.372.8828 (OFFICE), 608.343.3669 (CELL)
ATTENTION:MATT RIGGS
EMAIL:MRIGGS@OAKDALEREC.COM

DIGGERS HOTLINE
Dial 811 or (800)242-8511
www.DiggersHotline.com

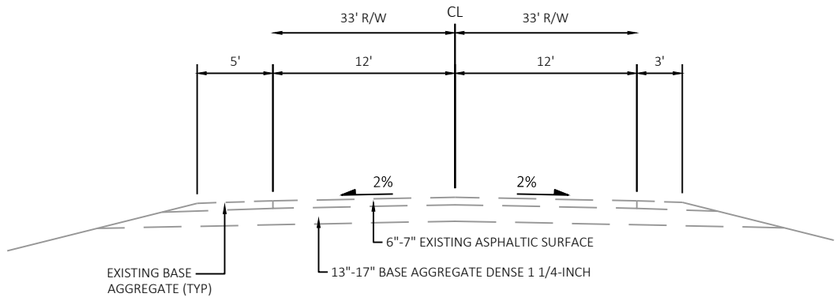
WISDOT CONTACT
WISDOT SOUTHWEST REGION - MADISON OFFICE
2101 WRIGHT STREET
MADISON, WI 53704
TELEPHONE: 608.789.6303
ATTENTION: VALERIE GUIDER
EMAIL: VALERIE.GUIDER@DOT.WI.GOV

DESIGN CONTACT
SEH
10 NORTH BRIDGE STREET
CHIPPEWA FALLS, WI 54729
TELEPHONE: 715.720.6291
ATTENTION: TARA KRISTA
EMAIL: TKRISTA@SEHINC.COM

COUNTY CONTACT
MONROE COUNTY HIGHWAY DEPARTMENT
803 WASHINGTON STREET
SPARTA, WI 54656
TELEPHONE: 608.269.8740
ATTENTION: DAVID OHNSTAD
EMAIL: DAVID.OHNSTAD@CO.MONROE.WI.US

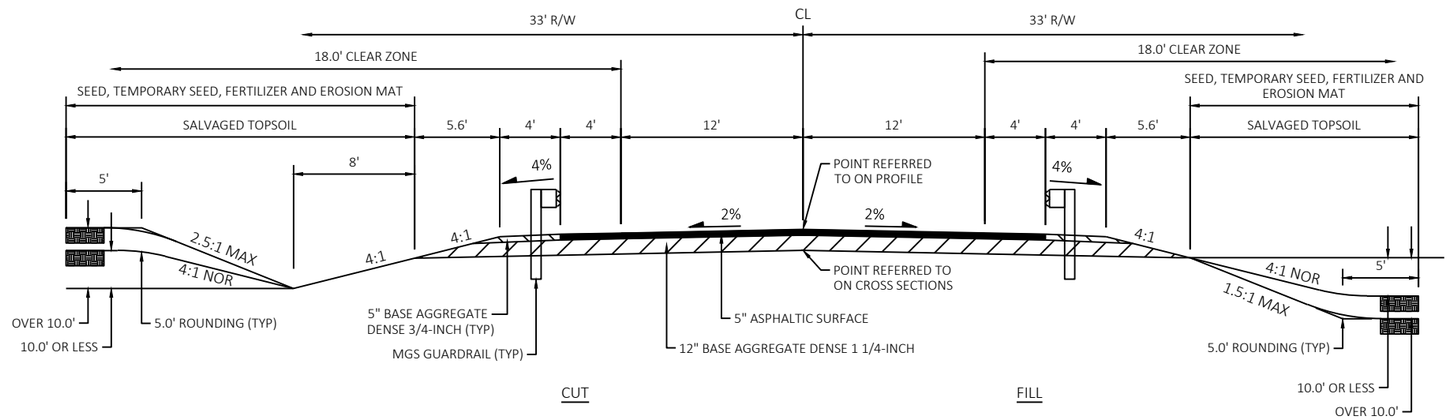
TOWN CONTACT
ADDRESS: 12850 CO HWY N
TOMAH, WI 54660
TELEPHONE: 608.372.7048
ATTENTION: ALLEN BERNHARDT

WDNR CONTACT
DNR SERVICE CENTER
ADDRESS: 3550 MORMON COULEE ROAD
LA CROSSE, WI 54601
TELEPHONE: 608.785.9115
ATTENTION: KAREN KALVELAGE
EMAIL: KAREN.KALVELAGE@WISCONSIN.GOV



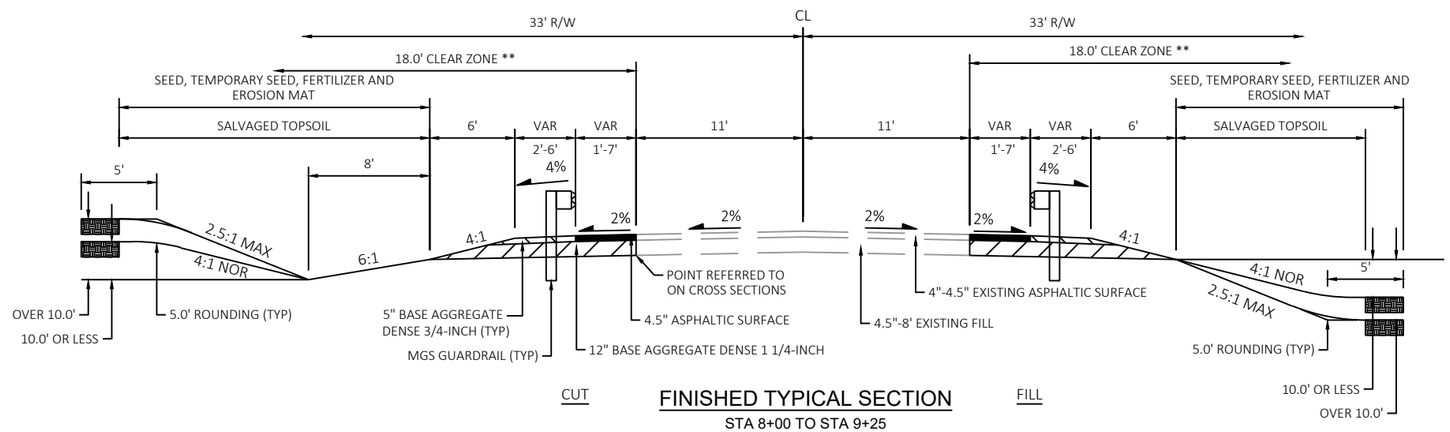
EXISTING TYPICAL SECTION

STA 8+15 TO STA 9+74.76
STA 10+25.32 TO STA 11+85



FINISHED TYPICAL SECTION

STA 9+25 TO STA 9+72.75
STA 10+27.25 TO STA 10+75



FINISHED TYPICAL SECTION

STA 8+00 TO STA 9+25
STA 10+75 TO STA 12+00

** 30' CLEAR ZONE FROM OUTSIDE BEAMGUARD TO POST 5 OF EAT REQ'D

PROJECT NO: 7117-00-02	HWY: CTH PP	COUNTY: MONROE	TYPICAL SECTIONS	SHEET 3	E

2

LEGEND

- TYPE III BARRICADE
- TYPE III BARRICADE WTH ATTACHED SIGN
- SIGN ON PERMANENT SUPPORT
- MB — TRAFFIC CONTROL SIGNS PCMS
- WORK AREA

REFER TO STANDARD DETAIL DRAWING "BARRICADES AND SIGNS FOR MAINLINE CLOSURES" & "BARRICADES AND SIGNS FOR VARIOUS CLOSURES" FOR MORE DETAIL

N

2

ROAD CLOSED AHEAD W20-3A — 1

ROAD CLOSED 1000 FT W20-3C — 2

ROAD CLOSED 500 FT W20-3D — 3

BRIDGE OUT — 4
R11-2B
48"X30"
SEE CLOSURE BARRICADE DETAIL C

BRIDGE OUT
XX MILES AHEAD
LOCAL TRAFFIC ONLY — 5
R11-3B
60"X30"

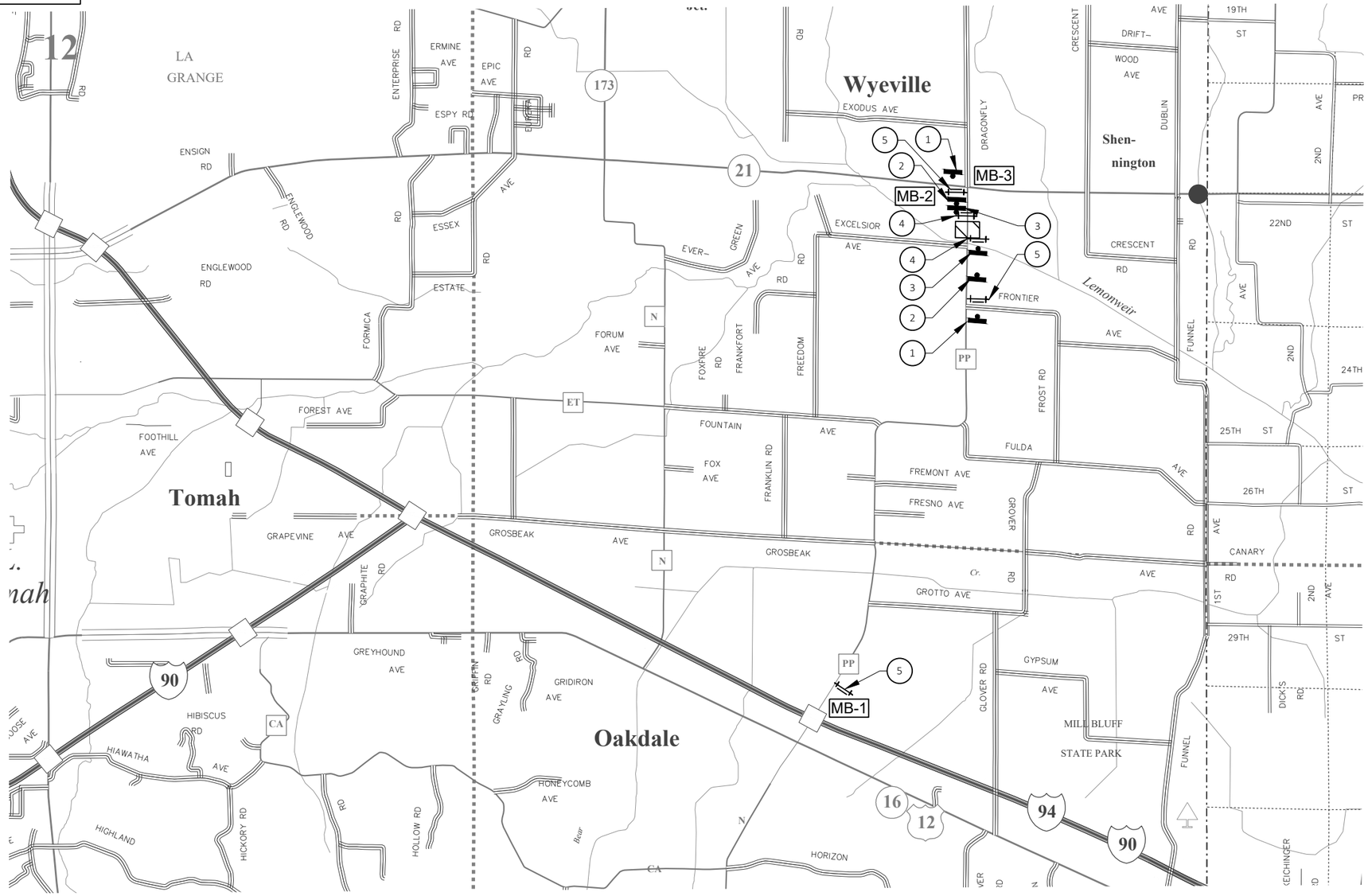
PCMS #1 MESSAGING*

FRAME 1	FRAME 2
BRIDGE OUT X MILES AHEAD	STARTING XX-XX-23

PCMS #2 & 3 MESSAGING*

FRAME 1	FRAME 2
CR PP BRIDGE OUT	STARTING XX-XX-23

* INSTALL PCMS 7 CALENDAR DAYS PRIOR TO START OF CONSTRUCTION AND REMOVE WHEN CONSTRUCTION BEGINS



PROJECT NO: 7117-00-72	HWY: CTH PP	COUNTY: MONROE	TRAFFIC CONTROL	SHEET 4	E

FILE NAME : X:\KO\M\MONRO\157574\5-FINAL-DSGN\CIVIL 3D - CTH PP\SHEETSPLAN\025001-TC.DWG
LAYOUT NAME - 025001

PLOT DATE : 10/28/2022 12:22 PM PLOT BY : DUSTIN SCHUH PLOT NAME : PLOT SCALE : 1 IN:1 MI

WISDOT/CADDS SHEET 42

Estimate Of Quantities

7117-00-72

Line	Item	Item Description	Unit	Total	Qty
0002	203.0260	Removing Structure Over Waterway Minimal Debris (structure) 01. B-41-320	EACH	1.000	1.000
0004	205.0100	Excavation Common	CY	339.000	339.000
0006	206.1001	Excavation for Structures Bridges (structure) 01. B-41-320	EACH	1.000	1.000
0008	208.0100	Borrow	CY	107.000	107.000
0010	210.1500	Backfill Structure Type A	TON	336.000	336.000
0012	213.0100	Finishing Roadway (project) 01. 7117-00-72	EACH	1.000	1.000
0014	305.0110	Base Aggregate Dense 3/4-Inch	TON	101.000	101.000
0016	305.0120	Base Aggregate Dense 1 1/4-Inch	TON	656.000	656.000
0018	455.0605	Tack Coat	GAL	38.000	38.000
0020	465.0105	Asphaltic Surface	TON	170.000	170.000
0022	502.0100	Concrete Masonry Bridges	CY	227.000	227.000
0024	502.3200	Protective Surface Treatment	SY	262.000	262.000
0026	505.0400	Bar Steel Reinforcement HS Structures	LB	4,210.000	4,210.000
0028	505.0600	Bar Steel Reinforcement HS Coated Structures	LB	33,360.000	33,360.000
0030	513.4061	Railing Tubular Type M	LF	158.000	158.000
0032	516.0500	Rubberized Membrane Waterproofing	SY	22.000	22.000
0034	550.1100	Piling Steel HP 10-Inch X 42 Lb	LF	500.000	500.000
0036	606.0300	Riprap Heavy	CY	298.000	298.000
0038	612.0406	Pipe Underdrain Wrapped 6-Inch	LF	220.000	220.000
0040	614.2500	MGS Thrie Beam Transition	LF	158.000	158.000
0042	614.2610	MGS Guardrail Terminal EAT	EACH	4.000	4.000
0044	618.0100	Maintenance And Repair of Haul Roads (project) 01. 7117-00-72	EACH	1.000	1.000
0046	619.1000	Mobilization	EACH	1.000	1.000
0048	624.0100	Water	MGAL	8.000	8.000
0050	625.0500	Salvaged Topsoil	SY	1,080.000	1,080.000
0052	628.1504	Silt Fence	LF	670.000	670.000
0054	628.1520	Silt Fence Maintenance	LF	670.000	670.000
0056	628.1905	Mobilizations Erosion Control	EACH	2.000	2.000
0058	628.1910	Mobilizations Emergency Erosion Control	EACH	2.000	2.000
0060	628.2008	Erosion Mat Urban Class I Type B	SY	1,080.000	1,080.000
0062	628.6005	Turbidity Barriers	SY	330.000	330.000
0064	629.0210	Fertilizer Type B	CWT	0.800	0.800
0066	630.0120	Seeding Mixture No. 20	LB	29.000	29.000
0068	630.0200	Seeding Temporary	LB	29.000	29.000
0070	630.0500	Seed Water	MGAL	30.000	30.000
0072	634.0612	Posts Wood 4x6-Inch X 12-FT	EACH	4.000	4.000
0074	637.2230	Signs Type II Reflective F	SF	12.000	12.000
0076	638.2602	Removing Signs Type II	EACH	4.000	4.000
0078	638.3000	Removing Small Sign Supports	EACH	4.000	4.000
0080	642.5001	Field Office Type B	EACH	1.000	1.000
0082	643.0300	Traffic Control Drums	DAY	105.000	105.000
0084	643.0420	Traffic Control Barricades Type III	DAY	1,188.000	1,188.000
0086	643.0705	Traffic Control Warning Lights Type A	DAY	1,848.000	1,848.000
0088	643.0900	Traffic Control Signs	DAY	1,188.000	1,188.000
0090	643.1050	Traffic Control Signs PCMS	DAY	21.000	21.000
0092	643.5000	Traffic Control	EACH	1.000	1.000
0094	645.0111	Geotextile Type DF Schedule A	SY	58.000	58.000
0096	645.0120	Geotextile Type HR	SY	448.000	448.000
0098	646.1020	Marking Line Epoxy 4-Inch	LF	38.000	38.000

Estimate Of Quantities

7117-00-72

Line	Item	Item Description	Unit	Total	Qty
0100	646.1040	Marking Line Grooved Wet Ref Epoxy 4-Inch	LF	800.000	800.000
0102	650.4500	Construction Staking Subgrade	LF	336.000	336.000
0104	650.5000	Construction Staking Base	LF	336.000	336.000
0106	650.6501	Construction Staking Structure Layout (structure) 01. B-41-320	EACH	1.000	1.000
0108	650.9911	Construction Staking Supplemental Control (project) 01. 7117-00-72	EACH	1.000	1.000
0110	650.9920	Construction Staking Slope Stakes	LF	336.000	336.000
0112	690.0150	Sawing Asphalt	LF	550.000	550.000
0114	715.0502	Incentive Strength Concrete Structures	DOL	2,362.000	2,362.000
0116	999.2000.S	Installing and Maintaining Bird Deterrent System (station) 01. 10+00	EACH	1.000	1.000
0118	ASP.1T0A	On-the-Job Training Apprentice at $5.00/HR	HRS	500.000	500.000
0120	ASP.1T0G	On-the-Job Training Graduate at $5.00/HR	HRS	375.000	375.000

BASE AGGREGATE DENSE

STATION	LOCATION	305.0110 3/4-INCH TON	305.0120 1 1/4-INCH TON	624.0100 WATER MGAL
CTH PP				
8+00-9+61.75	LT & RT	54	335	4
10+38.25-12+00	LT & RT	47	321	4
ITEM TOTALS		101	656	8

MOBILIZATIONS EROSION CONTROL

STATION	628.1905 EROSION CONTROL EACH	628.1910 EMERGENCY EROSION CONTROL EACH
CTH PP		
8+00 - 12+00	2	2
ITEM TOTALS	2	2

CONSTRUCTION STAKING

STATION	LOCATION	650.4500 SUBGRADE LF	650.5000 BASE LF	650.6501 STAKING STRUCTURE LAYOUT EACH	650.9911 STAKING SUPPLEMENTAL CONTROL EACH	650.9920 SLOPE STAKES LF
CTH PP						
8+00-9+61.75	LT & RT	168	168	0.5	0.5	168
10+38.25-12+00	LT & RT	168	168	0.5	0.5	168
ITEM TOTALS		336	336	1	1	336

EXCAVATION

STATION	LOCATION	205.0100 EXCAVATION COMMON CY	AVAILABLE MATERIAL CY	EXPANDED FILL CY	208.0100 BORROW CY
CTH PP					
8+00-9+61.75	LT & RT	175	152	173	21
10+38.25-12+00	LT & RT	164	138	224	86
ITEM TOTALS		339	290	397	107

NOTES:
1) UNUSABLE PAVEMENT MATERIAL IS INCLUDED IN COMMON EXCAVATION.
2) AVAILABLE MATERIAL DOES NOT INCLUDE UNUSABLE PAVEMENT EXCAVATION VOLUME.
3) EXPANSION FACTOR = 1.3

MGS GUARDRAIL

STATION	LOCATION	614.2500 MGS THRIE BEAM TRANSISTION LF	614.2610 MGS GUARDRAIL TERMINAL EAT EACH
CTH PP			
8+71 - 9+60	LT & RT	79	2
10+38 - 11+28	LT & RT	79	2
ITEM TOTALS		158	4

PERMANENT SIGNING

SIGN GROUP CODE	SIGN CODE	SIGN MESSAGE	TYPE II SIZE	637.2230 SIGNS TYPE II REFLECTIVE F SF	634.0612 POSTS WOOD 4X6-INCH 12-FT EACH	638.2602 REMOVING SIGNS TYPE II EACH	638.3000 REMOVING SMALL SIGN SUPPORTS EACH	REMARKS
CTH PP								
1-1	W5-52L	CLEARANCE STRIPER	12" X 36"	3	1	1	1	REPLACE
1-2	W5-52R	CLEARANCE STRIPER	12" X 36"	3	1	1	1	REPLACE
1-3	W5-52R	CLEARANCE STRIPER	12" X 36"	3	1	1	1	REPLACE
1-4	W5-52L	CLEARANCE STRIPER	12" X 36"	3	1	1	1	REPLACE
ITEM TOTALS				12	4	4	4	

ASPHALTIC PAVEMENT ITEMS

STATION	LOCATION	455.0605 TACK COAT GAL	465.0105 ASPHALTIC SURFACE TON
CTH PP			
8+00 - 9+72.75	LT & RT	19	85
10+27.25 - 12+00	LT & RT	19	85
ITEM TOTALS		38	170

SALVAGED TOPSOIL AND SEEDING

STATION	LOCATION	625.0500 SALVAGED TOPSOIL SY	629.0210 FERTILIZER TYPE B CWT	630.0120 SEEDING MIXTURE NO. 20 LB	630.0200 SEEDING TEMPORARY LB	630.0500 SEED WATER MGAL
CTH PP						
8+00-9+61.75	LT & RT	520	0.4	13.9	13.9	14.5
10+38.25-12+00	LT & RT	560	0.4	15.1	15.1	15.7
ITEM TOTALS		1080	0.8	29	29	30

TRAFFIC CONTROL

STATION	643.0300 DRUMS EACH	643.0300 DRUMS DAY	643.0420 BARRICADES TYPE III EACH	643.0420 BARRICADES TYPE III DAY	643.0705 WARNING LIGHTS TYPE A EACH	643.0705 WARNING LIGHTS TYPE A DAY	643.0900 SIGNS EACH	643.0900 SIGNS DAY	643.1050 SIGNS PCMS EACH	643.1050 SIGNS PCMS DAY	CALENDAR DAYS
CTH PP											
8+00 - 12+00	15	105	18	1188	28	1848	18	1188	3	21	66
ITEM TOTALS		105		1188		1848		1188		21	

RIPRAP ITEMS

STATION	LOCATION	606.0300* RIPRAP HEAVY CY	645.0120* GEOTEXTILE TYPE HR SY
CTH PP			
9+50 - 9+62	LT & RT	28	43
ITEM TOTALS		28	43

*ITEM LOCATED ELSEWHERE IN PLANS

EROSION CONTROL ITEMS

STATION	LOCATION	628.15 SILT FENCE LF	628.1520 SILT FENCE MAINTENANCE LF	628.2008 EROSION MAT URBAN CLASS I TYPE B SY	628.601 TURBIDITY BARRIERS SY
CTH PP					
8+00-9+61.75	LT & RT	340	340	520	160
10+38.25-12+00	LT & RT	330	330	560	170
ITEM TOTALS		670	670	1080	330

MARKING LINE

STATION	LOCATION	646.1020 EPOXY 4-INCH LF	646.1040 GROOVED WET REF EPOXY 4-INCH LF	REMARKS
CTH PP				
9+25 - 10+75	CL	38	-	YELLOW SKIP CENTERLINE
8+00 - 12+00	LT & RT	-	800	WHITE EDGELINE
ITEM TOTAL		38	800	

SAWING ASPHALT

STATION	LOCATION	690.0150 LF
CTH PP		
8+00 - 9+25	LT & RT	276
10+75 - 12+00	LT & RT	274
ITEM TOTAL		550

PROJECT NO: 7117-00-72	HWY: CTH PP	COUNTY: MONROE	MISCELLANEOUS QUANTITIES	SHEET 7	E

CONVENTIONAL SYMBOLS

SECTION LINE
QUARTER LINE
SIXTEENTH LINE
NEW REFERENCE LINE
NEW R/W LINE
EXISTING R/W OR HE LINE
PROPERTY LINE
LOT, TIE & OTHER MINOR LINES
SLOPE INTERCEPT
CORPORATE LIMITS
UNDERGROUND FACILITY (COMMUNICATIONS, ELECTRIC, ETC) — W — (TYP.)
NEW R/W (FEE OR HE) (HATCHING VARIES BY OWNER)
TEMPORARY LIMITED EASEMENT AREA
EASEMENT AREA (PERMANENT LIMITED OR RESTRICTED DEVELOPMENT)
TRANSMISSION STRUCTURES
BUILDING — TO BE REMOVED
BRIDGE — CULVERT

SECTION CORNER SYMBOL
SECTION CORNER MONUMENT
R/W MONUMENT (TO BE SET)
NON-MONUMENTED R/W POINT
FOUND IRON PIN (1-INCH UNLESS NOTED) IP
GEODETIC SURVEY MONUMENT
SIXTEENTH CORNER MONUMENT
SIGN — SIGN
OFF-PREMISE SIGN — P1-25 — SIGN

	COMPENSABLE	NON-COMPENSABLE
ELECTRIC POLE	■	□
TELEPHONE POLE	◪	⌀
PEDESTAL (LABEL TYPE) (TV, TEL, ELEC, ETC.)	⧓	⧒

ACCESS RESTRICTED BY ACQUISITION
NO ACCESS (BY STATUTORY AUTHORITY)
ACCESS RESTRICTED (BY PREVIOUS PROJECT OR CONTROL)
NO ACCESS (NEW HIGHWAY)
PARCEL NUMBER 25 — UTILITY NUMBER 40
PARALLEL OFFSETS

CONVENTIONAL UTILITY SYMBOLS

WATER	W
GAS	G
TELEPHONE	T
OVERHEAD TRANSMISSION LINES	OH
ELECTRIC	E
CABLE TELEVISION	TV
FIBER OPTIC	FO
SANITARY SEWER	SAN
STORM SEWER	SS
ELECTRIC TOWER	⊠

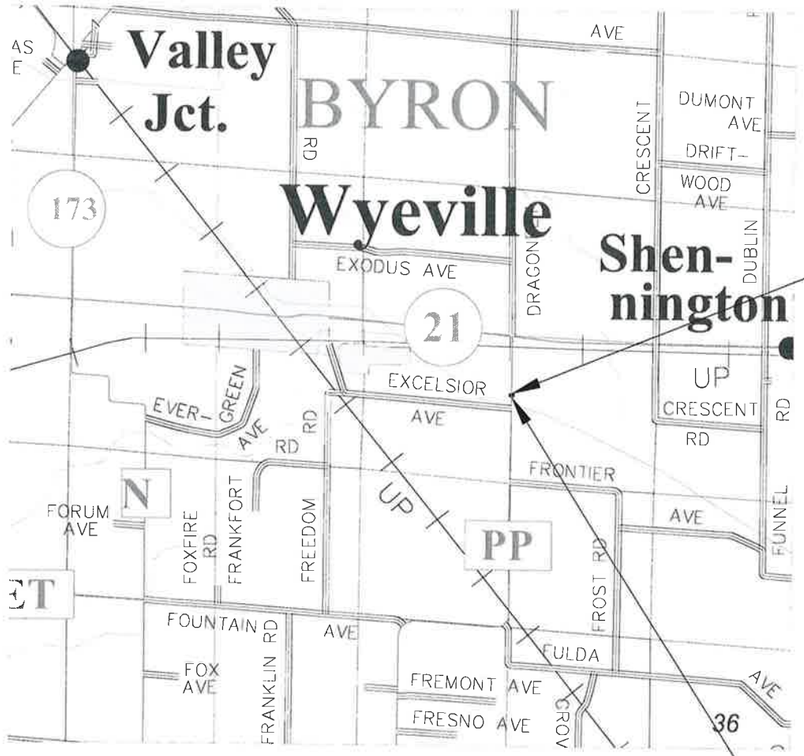
CONVENTIONAL ABBREVIATIONS

ACCESS RIGHTS	AR	POINT OF COMPOUND CURVE	PCC
ACRES	AC	POINT OF INTERSECTION	PI
AHEAD	AH	PROPERTY LINE	PL
ALUMINUM	ALUM	RECORDED AS	(100')
AND OTHERS	ET AL	REEL / IMAGE	R/I
BACK	BK	REFERENCE LINE	R/L
BLOCK	BLK	REMAINING	REM
CENTERLINE	C/L	RESTRICTIVE DEVELOPMENT EASEMENT	RDE
CERTIFIED SURVEY MAP	CSM	RIGHT	RT
CONCRETE	CONC	RIGHT OF WAY	R/W
COUNTY	CO	SECTION	SEC
COUNTY TRUNK HIGHWAY	CTH	SEPTIC VENT	SEPV
DISTANCE	DIST	SQUARE FEET	SF
CORNER	COR	STATE TRUNK HIGHWAY	STH
DOCUMENT NUMBER	DOC	STATION	STA
EASEMENT	EASE	TELEPHONE PEDESTAL	TP
EXISTING	EX	TEMPORARY LIMITED EASEMENT	TLE
GAS VALVE	GV	TRANSPORTATION PROJECT PLAT	TPP
GRID NORTH	GN	UNITED STATES HIGHWAY	USH
HIGHWAY EASEMENT	HE	VOLUME	V
IDENTIFICATION	ID		
LAND CONTRACT	LC		
LEFT	LT		
MONUMENT	MON		
NATIONAL GEODETIC SURVEY	NGS		
NUMBER	NO		
OUTLOT	OL		
PAGE	P		
POINT OF TANGENCY	PT		
PERMANENT LIMITED EASEMENT	PLE		
POINT OF BEGINNING	POB		
POINT OF CURVATURE	PC		

CURVE DATA ABBREVIATIONS

LONG CHORD	LCH
LONG CHORD BEARING	LCB
RADIUS	R
DEGREE OF CURVE	D
CENTRAL ANGLE	Δ /DELTA
LENGTH OF CURVE	L
TANGENT	T
DIRECTION AHEAD	DA
DIRECTION BACK	DB

R-1-E



N

END RELOCATION ORDER
STA 12+00
Y = 407868.072
X = 747067.377
660.159 FEET NORTH AND
1.243 FEET EAST OF THE SOUTH
1/4 OF SECTION 22, T18N, R1E

T-18-N

BEGIN RELOCATION ORDER
STA 8+00
Y = 407468.075
X = 747068.937
260.162 FEET NORTH AND
2.803 FEET EAST OF THE SOUTH
1/4 OF SECTION 22, T18N, R1E

LAYOUT
SCALE 0 — 50'

TOTAL NET LENGTH OF CENTERLINE = LENGTH

THIS PLAT IS A GRAPHIC REPRESENTATION AND IS FOR REFERENCE PURPOSES ONLY. DEEDS MUST BE CHECKED TO DETERMINE PROPERTY BOUNDARIES AND ACCESS RIGHTS.

R/W PROJECT NUMBER	SHEET NUMBER	TOTAL SHEETS
7117-00-02	4.01	2
FEDERAL PROJECT NUMBER 7117-00-02		

PLAT OF RIGHT OF WAY REQUIRED FOR

VILLAGE OF OAKDALE - STH 21
EAST FORK LEMONWEIR RIVER BRIDGE B-41-0320

CTH PP	MONROE COUNTY

CONSTRUCTION PROJECT NUMBER
7117-00-72

NOTES:

POSITIONS SHOWN ON THIS PLAT ARE WISCONSIN COORDINATE REFERENCE SYSTEM COORDINATES (WISCRS), MONROE COUNTY, NAD83 (2011)IN US SURVEY FEET. VALUES SHOWN ARE GRID COORDINATES, GRID BEARINGS, AND GRID DISTANCES. GRID DISTANCES MAY BE USED AS GROUND DISTANCES.

ALL NEW RIGHT-OF-WAY MONUMENTS WILL BE TYPE 2 (TYPICALLY ¾" X 24" IRON REBARS), UNLESS OTHERWISE NOTED, AND WILL BE PLACED PRIOR TO THE COMPLETION OF THE PROJECT.

DIMENSIONING FOR THE NEW RIGHT-OF-WAY IS MEASURED ALONG AND PERPENDICULAR TO THE NEW REFERENCE LINES.

RIGHT-OF-WAY BOUNDARIES ARE DEFINED WITH COURSES OF THE PERIMETER OF THE HIGHWAY LANDS REFERENCED TO THE U.S. PUBLIC LAND SURVEY SYSTEM OR OTHER "SURVEYS" OF PUBLIC RECORD.

FOR THE CURRENT ACCESS/DRIVEWAY INFORMATION, CONTACT, MONROE COUNTY HIGHWAY DEPARTMENT.

INFORMATION FOR THE BASIS OF EXISTING HIGHWAY RIGHT-OF-WAY POINTS OF REFERENCE AND ACCESS CONTROL ARE LISTED ON THE DETAIL PAGES.

ORIGINAL PLAT PREPARED BY

SEH

WISCONSIN
JASON L. CANCE
S-2688
CHIPPEWA FALLS WI
LAND SURVEYOR

DATE: 3-30-2022

REVISION DATE

MONROE COUNTY HIGHWAY DEPARTMENT

APPROVED FOR THE DEPARTMENT
DATE 04/06/22 (Signature)

STATION & OFFSET TABLE		
POINT	STATION	OFFSET
103	8+10.00	33.71' LT
104	8+70.00	50.00' LT
105	9+00.00	50.00' LT
106	9+25.00	40.00' LT
107	9+50.00	40.00' LT
108	9+80.00	32.28' LT
109	10+25.00	31.91' LT
110	10+40.00	40.00' LT
111	10+75.00	40.00' LT
112	11+00.00	51.00' LT
113	11+50.00	51.00' LT
114	11+75.00	32.44' LT
120	11+75.00	33.56' RT
121	11+30.00	48.00' RT
122	11+05.00	33.87' RT
123	9+30.00	33.30' RT
124	8+75.00	50.00' RT
125	8+10.00	32.29' RT

UTILITY EASEMENT TABLE			
UTILITY NUMBER	PARCEL (S)	RECORDING INFORMATION	UTILITY NAME
10	2	VOL. 152 PG. 342 DOC NO. 203379	OAKDALE ELECTRIC COOP
11	2	VOL. 75 PG. 294 DOC NO. 329587	NORTH-WEST TELEPHONE COMPANY (LUMEN)

UTILITY INTERESTS		
UTILITY NUMBER	OWNER(S)	INTEREST REQUIRED
10	OAKDALE ELECTRIC COOP	RELEASE OF RIGHTS
11	NORTH-WEST TELEPHONE COMPANY (LUMEN)	RELEASE OF RIGHTS

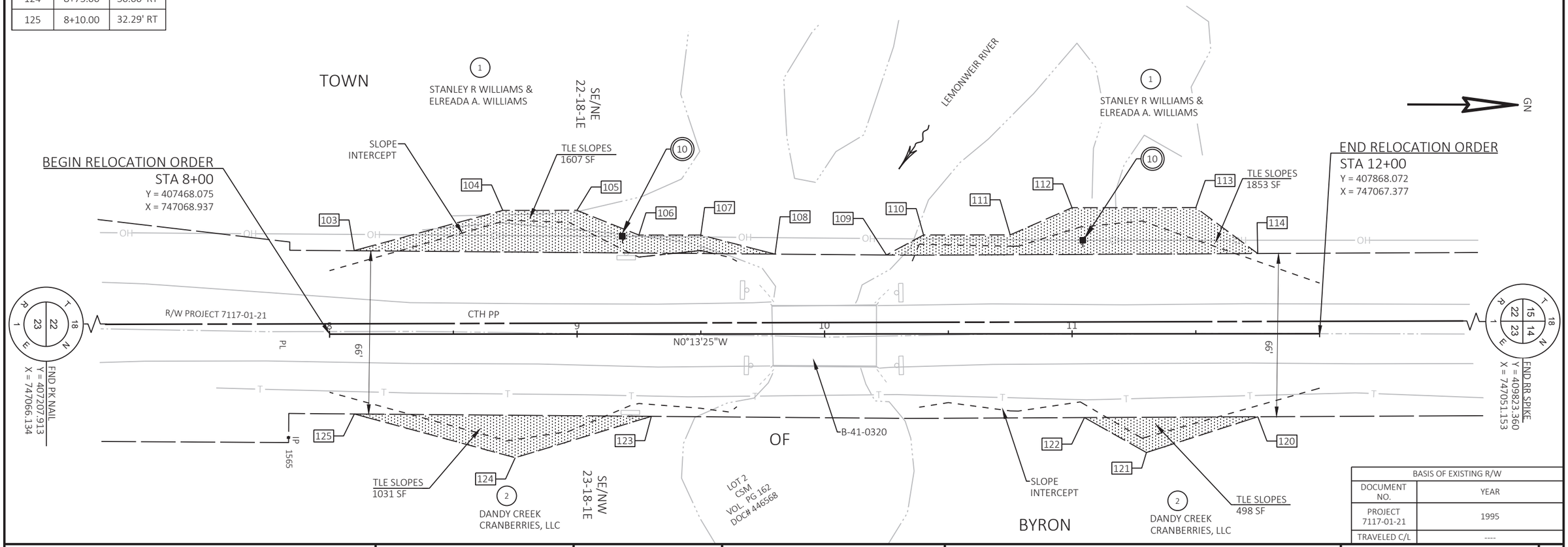
SCHEDULE OF LANDS & INTERSTS						
PARCEL NUMBER	OWNER	INTEREST REQUIRED	R/W NEW SF	R/W EXISTING SF	R/W TOTAL SF	TLE SF
1	STANLEY R WILLIAMS & ELREADA A. WILLIAMS	TLE	--	--	--	3460
2	DANDY CREEK CRANBERRIES, LLC	TLE	--	--	--	1529

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

NOTES :
POSITIONS SHOWN ON THIS PLAT ARE WISCONSIN COORDINATE REFERENCE SYSTEM COORDINATES (WISCRS), MONROE COUNTY, NAD83 (2011) IN SURVEY FEET. VALUES SHOWN ARE GRID COORDINATES, GRID BEARINGS, AND GRID DISTANCES. GRID DISTANCES MAY BE USED AS GROUND DISTANCES.

ALL NEW RIGHT-OF-WAY MONUMENTS WILL BE TYPE 2 (TYPICALLY 3/4"X24" IRON REBARS) UNLESS OTHERWISE NOTED, AND WILL BE PLACE PRIOR TO THE COMPLETION OF THE PROJECT.

FOR THE LATEST ACCESS/DRIVEWAY INFORMATION, CONTACT THE MONROE COUNTY HIGHWAY DEPARTMENT.



BASIS OF EXISTING R/W	
DOCUMENT NO.	YEAR
PROJECT 7117-01-21	1995
TRAVELED C/L	----

REVISION DATE	DATE	SCALE, FEET 0 20 40	HWY: CTH PP	STATE R/W PROJECT NUMBER 7117-00-02	PLAT SHEET 4.02
	GRID FACTOR N/A		COUNTY: MONROE	CONSTRUCTION PROJECT NUMBER 7117-00-72	PS&E SHEET 9 E

FILE NAME : X:\KO\M\MONRO\157574\5-final-dsgn\Civil 3D - CTH PP\RW\4.01.dwg PLOT DATE : 3/30/2022 3:39 PM PLOT BY : NICK ENGH PLOT NAME :

WISDOT/CADDS SHEET 75

ALL UTILITIES ARE APPROXIMATE
ACTUAL LOCATION MUST BE FIELD VERIFIED

STANLEY R. WILLIAMS &
ELREANA A. WILLIAMS

STANLEY R. WILLIAMS &
ELREANA A. WILLIAMS

N

1-1 W5-52L 12"X36"

1-2 W5-52R 12"X36"

1-3 W5-52R 12"X36"

1-4 W5-52L 12"X36"

SLOPE INTERCEPT (TYP)

TLE

MGS GUARDRAIL TERMINAL EAT

MGS THRIE BEAM TRANSITION

REMOVE EXISTING STRUCTURE P-41-0937

B-41-0320 PROPOSED STRUCTURE

MGS THRIE BEAM TRANSITION

MGS GUARDRAIL TERMINAL EAT

TLE

OAKDALE ELEC COOP

Y = 407468.075
X = 747068.937
BP: 8+00.00

53.1'

39.4'

WETLANDS IMPACT
0.004 ACRES

39.4'

53.1'

Y = 407868.072
X = 747067.377
EP: 12+00.00

BM 1

BM 2

BM 3

BEGIN CONSTRUCTION
STA 8+00
SAWCUT REQ'D

END CONSTRUCTION
STA 12+00
SAWCUT REQ'D

8+00

N0°13'25"W

9+00

10+00

11+00

BRIGHTSPEED

CTH PP

CP 100

CP 101

CP 102

EAST FORK
LEMONWEIR RIVER

TLE

53.1'

39.4'

39.4'

53.1'

TLE

EX R/W (TYP)

LIMITS OF CLEARING
AND GRUBBING

SCALE, FEET 0 20 40

BEGIN PROJECT
STA 9+25
MATCH EXISTING
SAWCUT REQ'D
Y = 407592.977
X = 747068.450

MGS GUARDRAIL TERMINAL EAT

MGS THRIE BEAM TRANSITION

WETLANDS IMPACT
0.003 ACRES

WETLANDS IMPACT
0.015 ACRES

MGS THRIE BEAM TRANSITION

MGS GUARDRAIL TERMINAL EAT

END PROJECT
STA 10+75
MATCH EXISTING
SAWCUT REQ'D
Y = 407743.175
X = 747067.864

DANDY CREEK
CRANBERRIES, LLC

DANDY CREEK
CRANBERRIES, LLC

LEGEND

- SILT FENCE
- TURBIDITY BARRIER
- RIP RAP
- SURFACE WATER FLOW
- EROSION MAT URBAN CLASS I TYPE B

BENCHMARK TABLE

NO	STATION	DESCRIPTION	ELEV.
BM 1	≈300' SW OF BRIDGE, LT	SKP IN PP	907.17
BM 2	9+17.55, 39.7' LT	SPK IN PP	904.85
BM 3	11+04.30, 39.0' LT	SPK IN PP	905.93

EARTHWORK SUMMARY
STA 8+00 - 9+61.75

CUT	175 CY
FILL	133 CY
FILL AT 1.3 EXP	173 CY
BORROW	21 CY

EARTHWORK SUMMARY
STA 10+38.25 - 12+00

CUT	164 CY
FILL	172 CY
FILL AT 1.3 EXP	224 CY
BORROW	86 CY

FINISHED ℄ PROFILE

-0.20%

EXISTING ℄ PROFILE

STA 9+25.00
EL 909.96

STA 10+75.00
EL 909.65

HIGH WATER
100 YR EL 907.98

HIGH WATER
2 YR EL 904.63

OBSERVED WATER
EL 903.53 (11-04-2020)

STA 10+00
STRUCTURE B-41-0320 REQ'D
PROPOSED SINGLE-SPAN REINFORCED CONCRETE SLAB
52.5' OVERALL LENGTH
32.0' CLEAR ROADWAY WIDTH

STA 10+00
REMOVE STRUCTURE P-41-0937
SINGLE SPAN STEEL DECK GIRDER BRIDGE
42.5' OVERALL LENGTH
24.8' CLEAR ROADWAY WIDTH

910 905 900 895 894

EXISTING ℄ ELEVATIONS — FINISHED ℄ ELEVATIONS

910.01	910.01	910.01	910.01	910.03	910.03	909.84	909.91	896.47	909.81	909.66	909.70	909.67	909.67	909.82	909.82

7 8 9 10 11 12 13

PROJECT NO: 7117-00-72	HWY: CTH PP	COUNTY: MONROE	PLAN AND PROFILE: CTH PP	SHEET 10	E

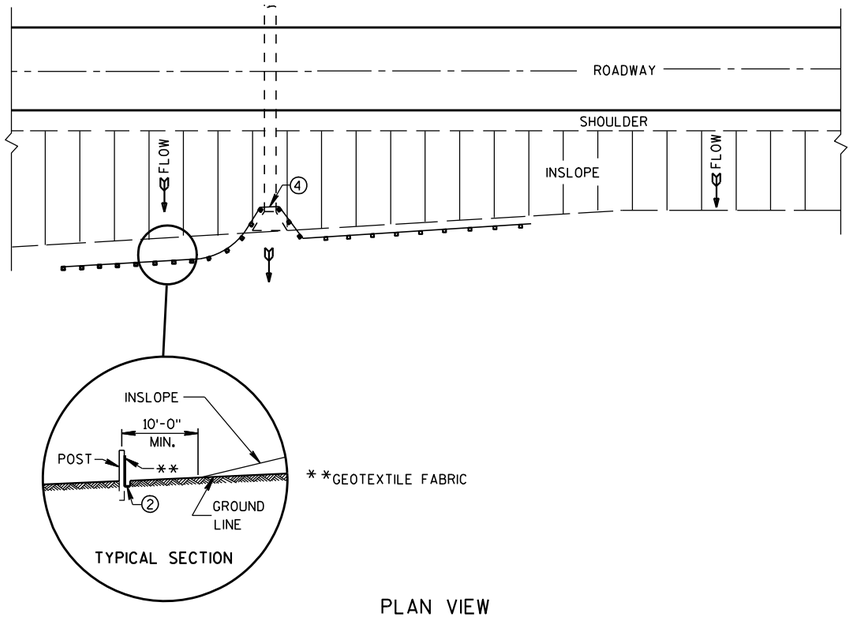
FILE NAME : X:\KO\M\MONRO\157574\5-FINAL-DSGN\CIVIL 3D - CTH PP\SHEETSPLAN\050101-PP.DWG
LAYOUT NAME - 050101

PLOT DATE : 11/14/2022 1:33 PM PLOT BY : JUSTIN SHAVLIK PLOT NAME : PLOT SCALE : 1 IN:40 FT

WISDOT/CADDS SHEET 44

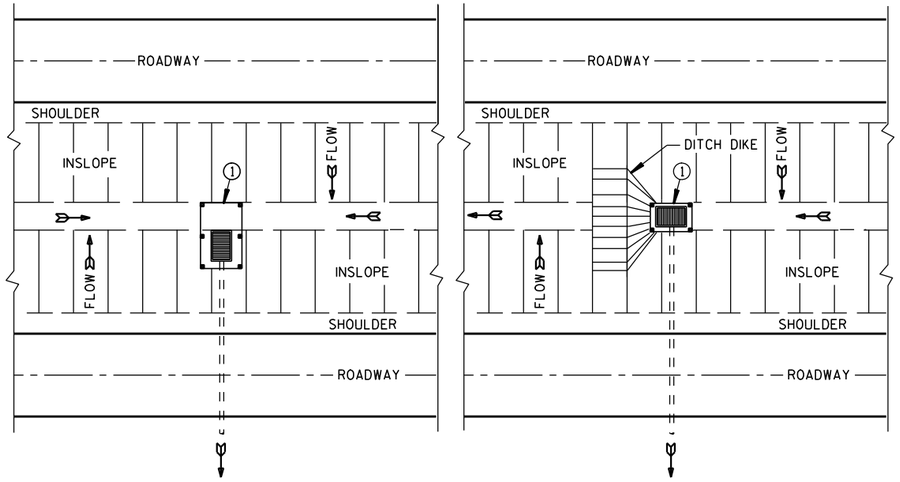
Standard Detail Drawing List

08E09-06	SILT FENCE
08E11-02	TURBIDITY BARRIER
12A03-10	NAME PLATE (STRUCTURES)
14B42-07A	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-07B	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-07C	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-07D	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B44-04A	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B44-04B	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B44-04C	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B45-05A	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05B	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05C	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05D	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05E	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
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)
15C02-08A	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C02-08B	BARRICADES AND SIGNS FOR VARIOUS CLOSURES
15C06-10	SIGNING & MARKING FOR TWO LANE BRIDGES
15C08-21A	LONGITUDINAL MARKING (MAINLINE)
15C11-09B	CHANNELIZING DEVICES DRUMS, CONES, BARRICADES AND VERTICAL PANELS



PLAN VIEW

TYPICAL APPLICATION OF SILT FENCE



PLAN VIEW

SILT FENCE AT MEDIAN SURFACE DRAINS

GENERAL NOTES

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

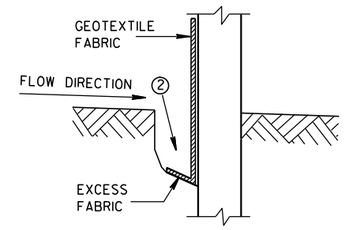
(1) HORIZONTAL BRACE REQUIRED WITH 2" X 4" WOODEN FRAME OR EQUIVALENT AT TOP OF POSTS.

(2) FOR MANUAL INSTALLATIONS THE TRENCH SHALL BE A MINIMUM OF 4" WIDE & 6" DEEP TO BURY AND ANCHOR THE GEOTEXTILE FABRIC. FOLD MATERIAL TO FIT TRENCH AND BACKFILL & COMPACT TRENCH WITH EXCAVATED SOIL.

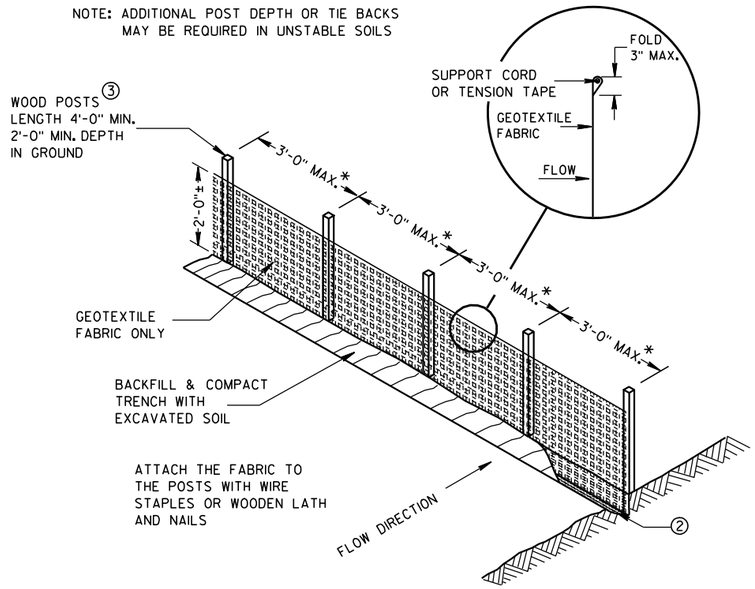
(3) WOOD POSTS SHALL BE A MINIMUM SIZE OF 1⅛" X 1⅛" OF OAK OR HICKORY.

(4) SILT FENCE TO EXTEND ACROSS THE TOP OF THE PIPE.

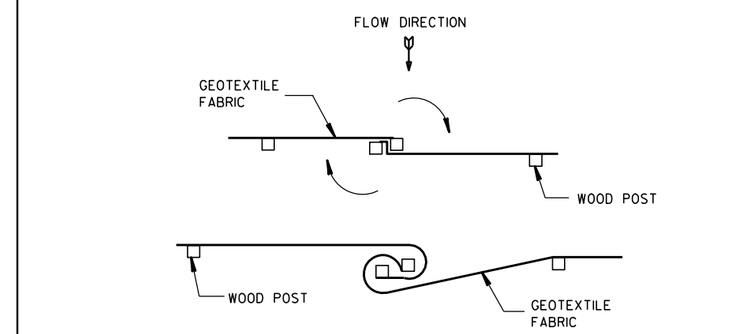
(5) CONSTRUCT SILT FENCE FROM A CONTINUOUS ROLL IF POSSIBLE BY CUTTING LENGTHS TO AVOID JOINTS. IF A JOINT IS NECESSARY USE ONE OF THE FOLLOWING TWO METHODS; A) OVERLAP THE END POSTS AND TWIST, OR ROTATE, AT LEAST 180 DEGREES, B) HOOK THE END OF EACH SILT FENCE LENGTH.



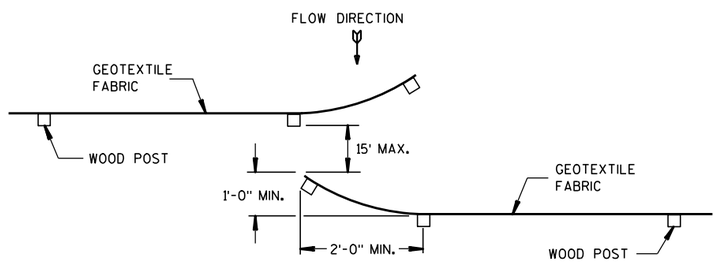
TRENCH DETAIL



SILT FENCE

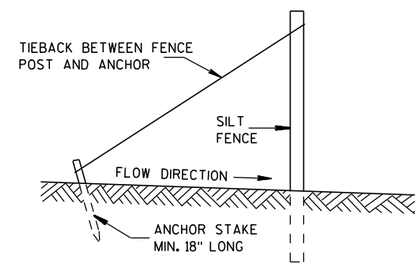


TWIST METHOD



HOOK METHOD

JOINING TWO LENGTHS OF SILT FENCE (5)



SILT FENCE TIE BACK

(WHEN REQUIRED BY THE ENGINEER)

SILT FENCE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

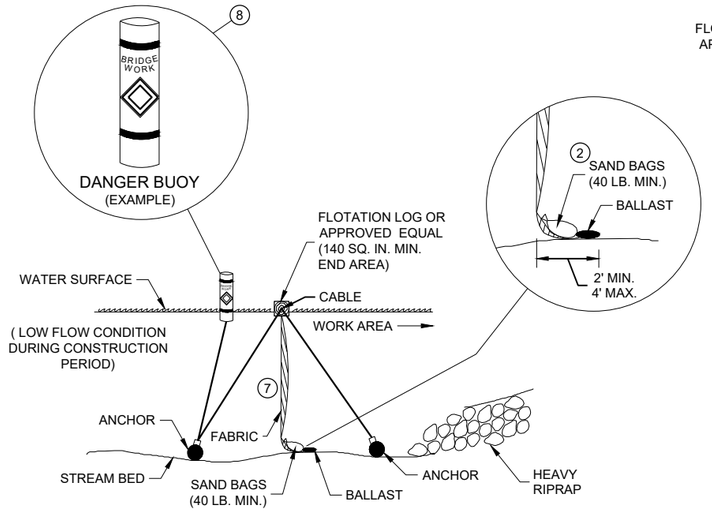
APPROVED
4-29-05 DATE
/S/ Beth Cannestra
CHIEF ROADWAY DEVELOPMENT ENGINEER
FHWA

6

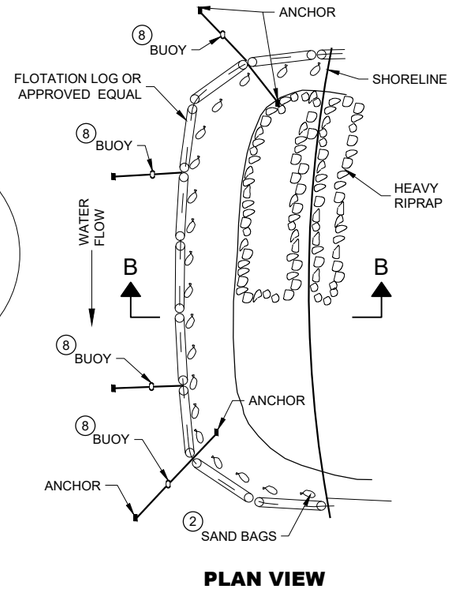
S.D.D. 8 E 9-6

6

S.D.D. 8 E 9-6

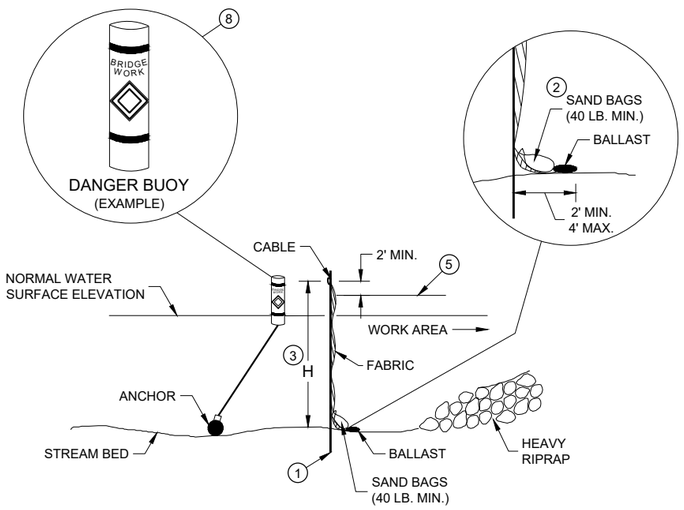


SECTION B - B

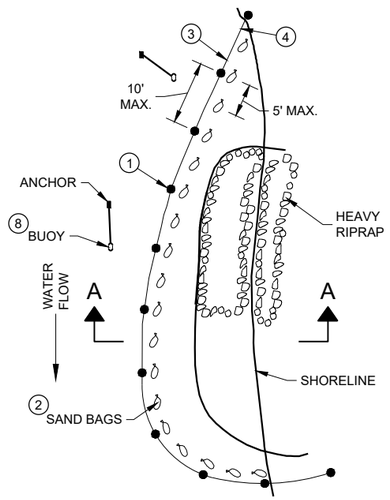


PLAN VIEW

TURBIDITY BARRIER - FLOAT ALTERNATIVE
CAUTION - SEE NOTE 6



SECTION A - A



PLAN VIEW

TURBIDITY BARRIER - STANDARD POST INSTALLATION

TURBIDITY BARRIER PLACEMENT DETAILS

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.

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

(1) DRIVEN STEEL POSTS, PIPES, OR CHANNELS. LENGTH SHALL BE SUFFICIENT TO SECURELY SUPPORT BARRIER AT HIGH WATER ELEVATIONS.

(2) SAND BAGS TO BE USED AS ADDITIONAL BALLAST WHEN ORDERED BY THE ENGINEER TO MEET ADVERSE FIELD CONDITIONS. SPACE AS APPROPRIATE FOR SITE CONDITIONS.

(3) WHEN BARRIER HEIGHT "H" EXCEEDS 8 FEET, POST SPACING MAY NEED TO BE DECREASED.

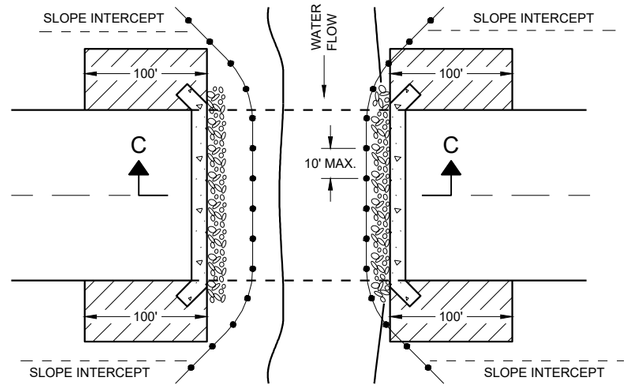
(4) IN WATERWAYS SUBJECT TO FLUCTUATING WATER ELEVATIONS, PROVISIONS SHOULD BE MADE TO ALLOW THE WATER TO EQUALIZE ON EACH SIDE OF THE BARRIER. THIS MAY BE ACCOMPLISHED BY LEAVING A PORTION OF THE BARRIER OPEN ON THE UPSTREAM END.

(5) ESTIMATED HIGH WATER ELEVATION DURING CONSTRUCTION PERIOD. MINIMUM BARRIER HEIGHT SHALL BE 2' GREATER THAN EITHER THE Q2 ELEVATION OR THE ESTIMATED HIGH WATER ELEVATION DURING CONSTRUCTION, WHICHEVER IS GREATER.

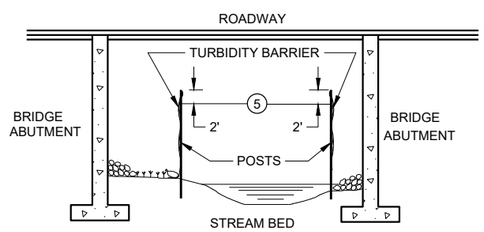
(6) FLOAT ALTERNATIVE WILL ONLY BE ALLOWED WITH WRITTEN APPROVAL OF THE ENGINEER, AND IS MEANT FOR LOCATIONS WHERE BEDROCK PREVENTS THE INSTALLATION OF POSTS.

(7) ALLOW SUFFICIENT SLACK VERTICALLY AND HORIZONTALLY SO THAT SEDIMENT BUILD UP WILL NOT SEPARATE OR LOWER THE TURBIDITY BARRIER.

(8) USE AS DIRECTED BY COAST GUARD OR DNR PERMIT WHEN WORKING IN NAVIGABLE WATERWAYS.



PLAN VIEW



SECTION C - C

TURBIDITY BARRIER DETAIL SHOWING TYPICAL PLACEMENT AT STRUCTURES

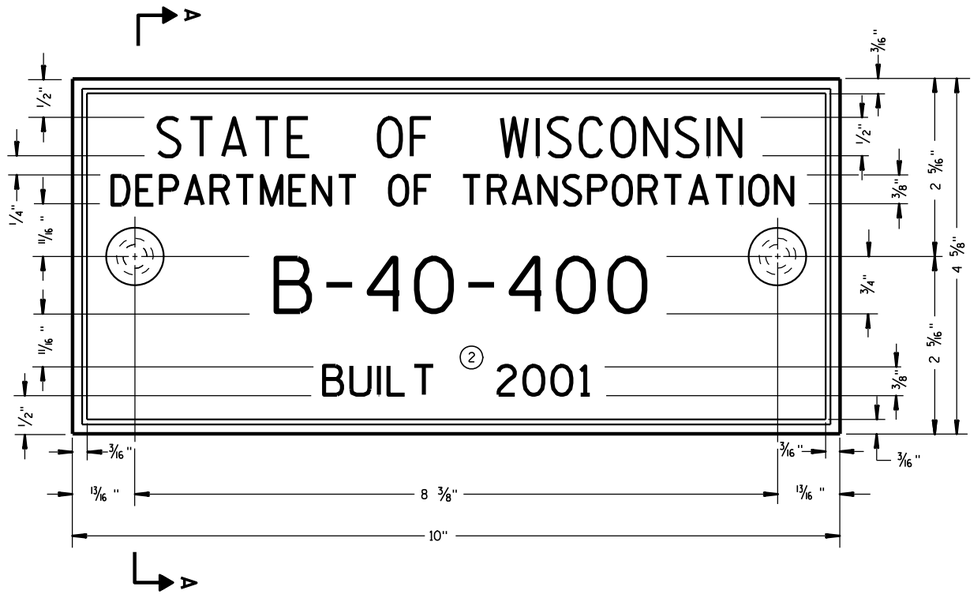
TURBIDITY BARRIER

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
6/4/02
DATE
/S/ Beth Cannestra
CHIEF ROADWAY DEVELOPMENT ENGINEER

FHWA

6
SDD 08E11 - 02



TYPICAL NAME PLATE

(BRIDGES, CULVERTS, AND RETAINING WALLS)

FOR MULTI-UNIT STRUCTURES
LINE 3 ABOVE SHALL READ

B = BRIDGE
C = CULVERT
R = RETAINING WALL

COUNTY NO.

BRIDGE NO.

UNIT NO. FOR MULTIPLE UNIT BRIDGE

B-40-400-1A

NUMBERING DESIGNATION MULTI-UNIT STRUCTURES

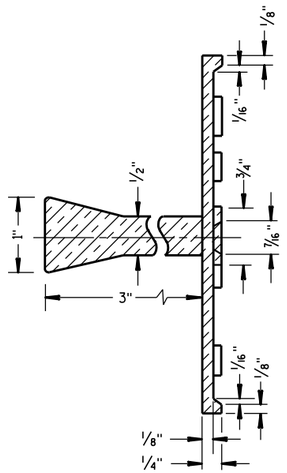
GENERAL NOTES

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.

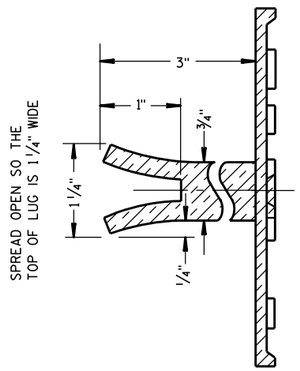
THE BRIDGE NUMBER AND YEAR BUILT SHOWN ON THIS DRAWING ARE EXAMPLES ONLY. SEE CONSTRUCTION PLANS FOR INDIVIDUAL NUMBERING AND YEAR BUILT.

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

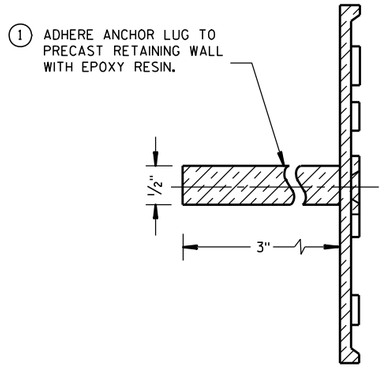
(2) REHABILITATION OF AN EXISTING STRUCTURE SHOULD USE THE DATE OF ORIGINAL STRUCTURE CONSTRUCTION.



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 DEVELOPMENT ENGINEER

FHWA

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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.

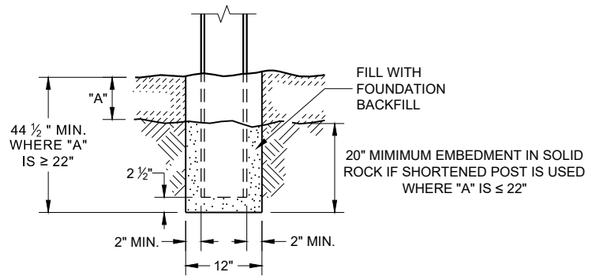
(3) IF ROCK IS ENCOUNTERED DURING EXCAVATION, PROVIDE A HOLE 12 INCHES IN DIAMETER EXTENDING 20 INCHES DEEP INTO THE ROCK. PLACE APPROXIMATELY 2 1/2" INCHES OF GRANULAR MATERIAL IN THE BOTTOM OF THE HOLE. CUT THE POSTS THE TO LENGTH AMD INSTALL. BACKFILL WITH EXCAVATED MATERIAL AND COMPACT. BACKFILL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

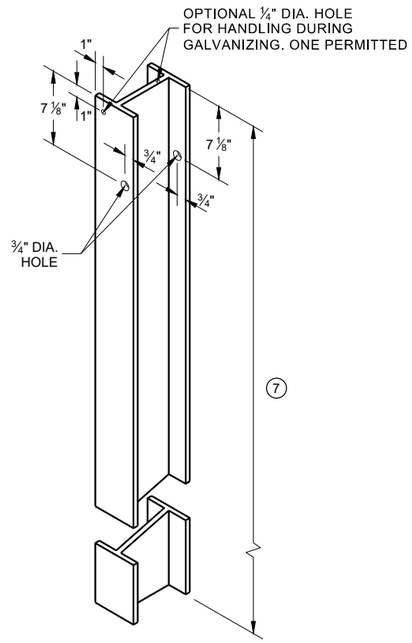
(5) FOR NEW MGS INSTALLATION TOP OF W-BEAM RAIL TOLERANCE IS ±1". FOR EXISTING MGS INSTALLATION TOP OF W-BEAM IS BETWEEN 27 ¾" TO 32".

(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.

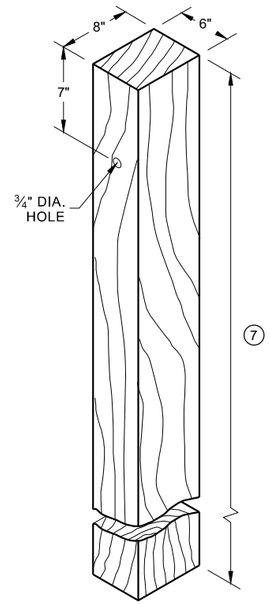
(7) TOTAL POST LENGTH FOR TYPE K IS 7' - 0".
TOTAL POST LENGTH FOR OTHER MGS TYPES IS 6' - 0".



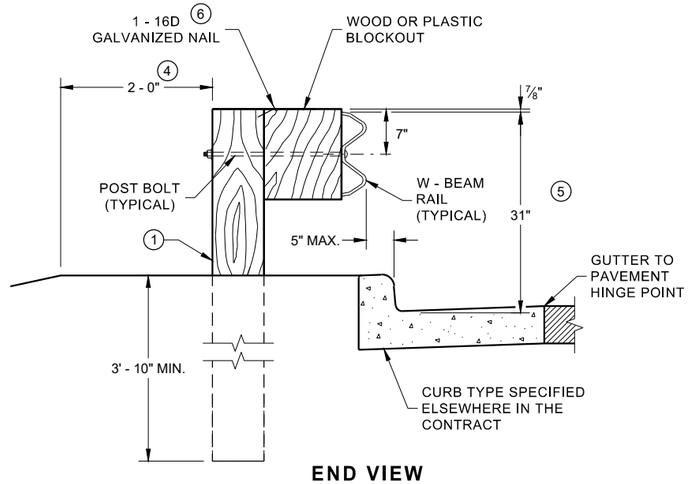
END VIEW
SETTING STEEL OR WOOD POST IN ROCK (3)



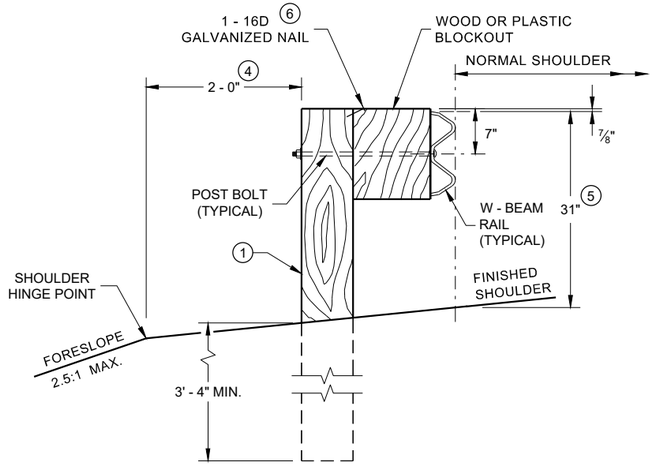
STEEL POST & HOLE PUNCHING DETAIL (W 6 X 9) (1)



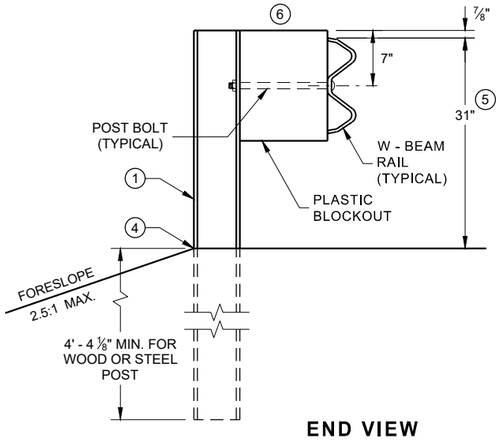
WOOD POST (6" X 8") NOMINAL (1)



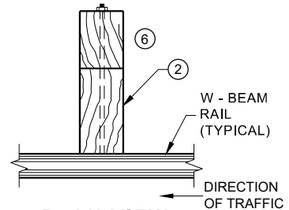
END VIEW
LOCATED ALONG A CURBED ROADWAY



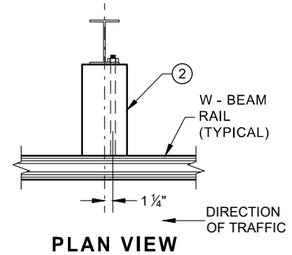
END VIEW
LOCATED ALONG A ROADWAY SHOULDER STANDARD INSTALLATION



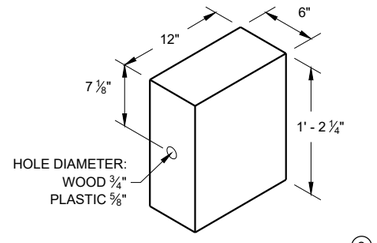
END VIEW
MGS LONGER POST AT HALFPOST SPACING W BEAM (K)



PLAN VIEW
WOOD POST, BLOCKOUT & BEAM



PLAN VIEW
STEEL POST, PLASTIC BLOCKOUT & BEAM



WOOD OR PLASTIC BLOCKOUT (2)

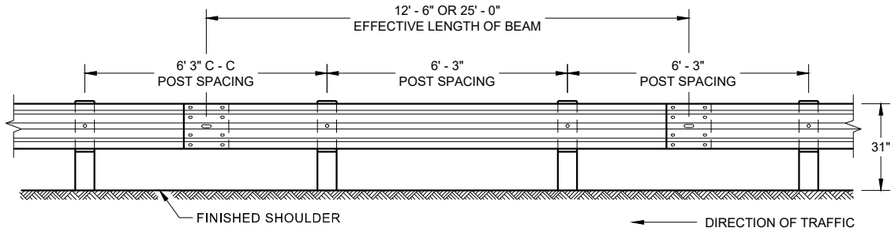
MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

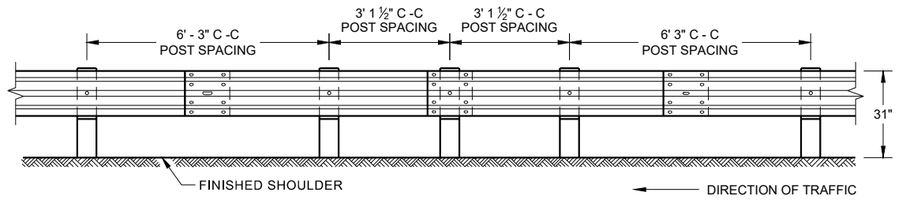
SDD 14B42 - 07a

6

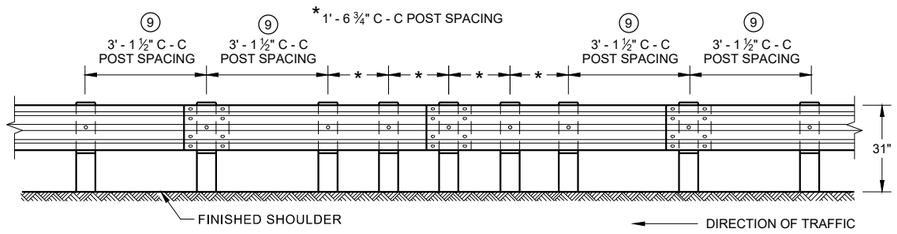
SDD 14B42 - 07a



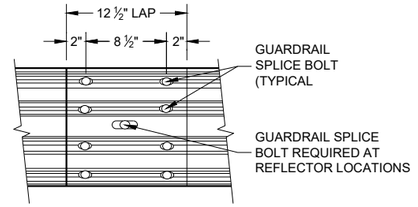
FRONT VIEW
POST SPACING STANDARD INSTALLATION



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



FRONT VIEW
QUARTER POST SPACING (QS)



FRONT VIEW
MID-SPAN BEAM SPLICE

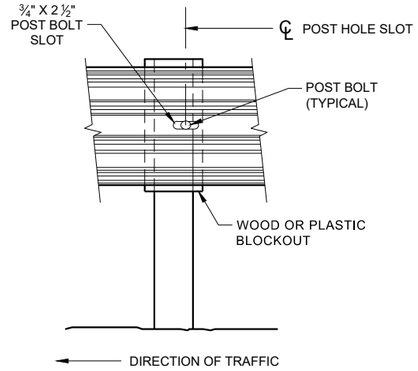
GENERAL NOTES

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

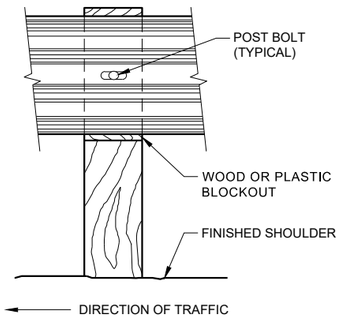
⑨ 25 FEET OF HALF POST SPACING IS REQUIRED ON APPROACH AND DEPARTURE ENDS OF QUARTER POST SPACING.

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

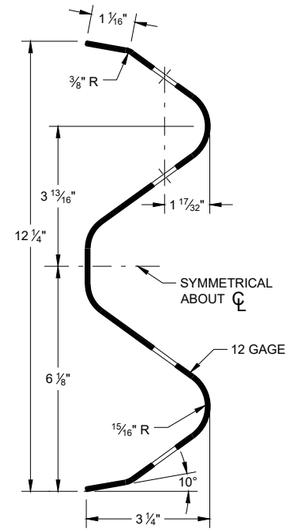
GUARD RAIL SPLICE BOLTS ARE A ⅝" DIAMETER ASTM A307 GUARDRAIL HEAD BOLT. A GUARDRAIL SPLICE BOLT REQUIRES ⅝" DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX NUT.



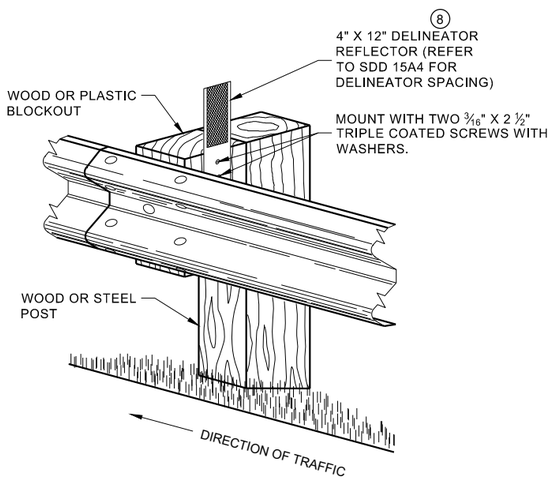
FRONT VIEW AT STEEL POST



FRONT VIEW AT WOOD POST



SECTION THRU W-BEAM RAIL



ONE SIDED REFLECTOR DETAIL
AND TYPICAL INSTALLATION

MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL

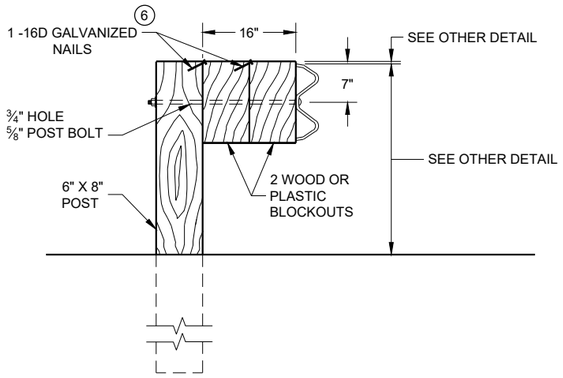
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTA 16

6

SDD 14B42 - 07b

6

SDD 14B42 - 07b

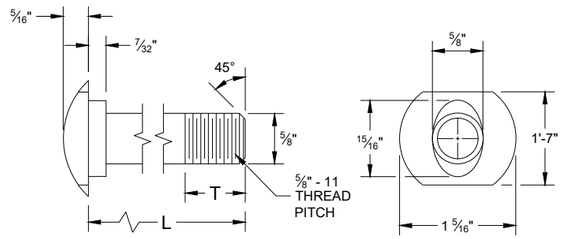


DETAIL FOR 16" BLOCKOUT DEPTH

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

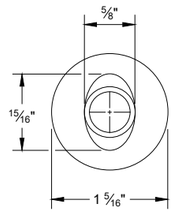
NOTE:

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

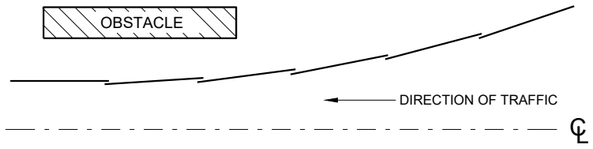


POST BOLT TABLE

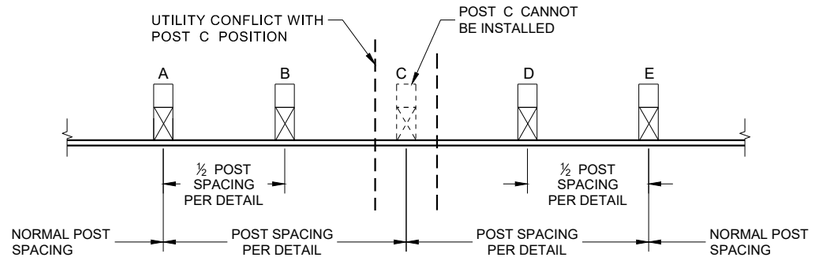
L	T (MIN.)
1 ¼"	1 ⅛"
2"	1 ¾"
10"	4"
14"	4 1⁄16"
18"	4"
21"	4 1⁄16"
25"	4"



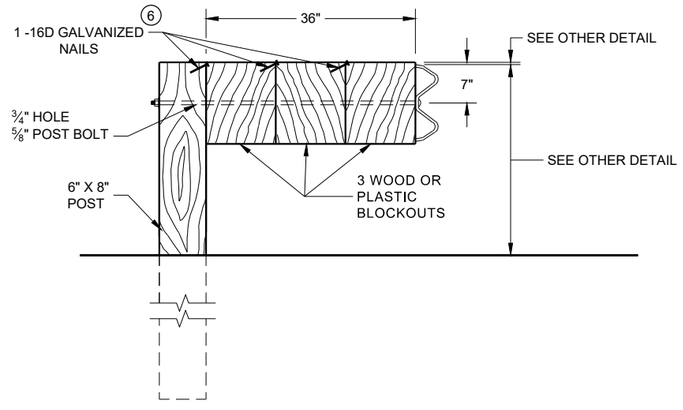
ALTERNATE BOLT HEAD



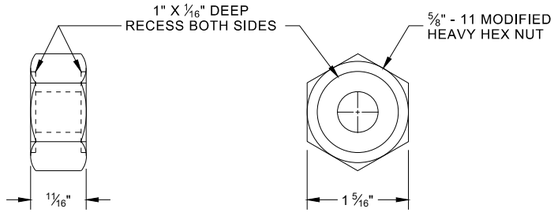
PLAN VIEW
BEAM LAPPING DETAIL



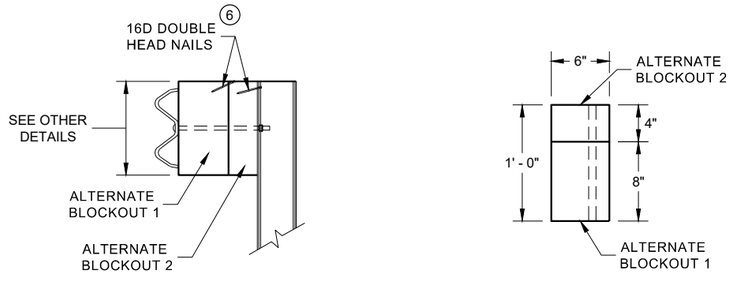
POST DRIVING FOR CONTINUOUS UNDERGROUND OBSTRUCTION



DETAIL FOR 36" BLOCKOUT DEPTH



POST BOLT, SPLICE BOLT AND RECESS NUT



SIDE VIEW

PLAN VIEW

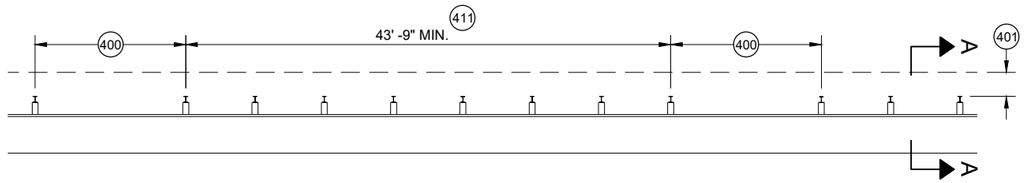
ALTERNATE WOOD BLOCKOUT DETAIL

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

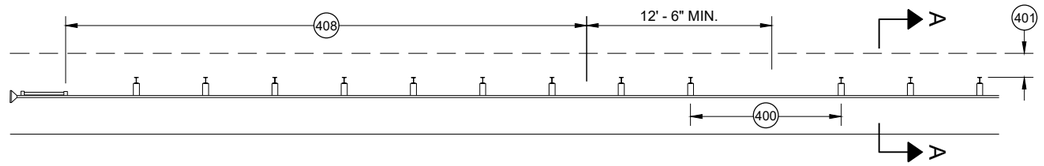
DO NOT USE 16" OR 36" BLOCKOUTS IF IT CAUSES THE POST TO BE DRIVEN BEYOND SHOULDER HINGE POINT OR CAUSES A FIXED OBJECT TO BE WITHIN THE DEFLECTION DISTANCE OF THE BARRIER.

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

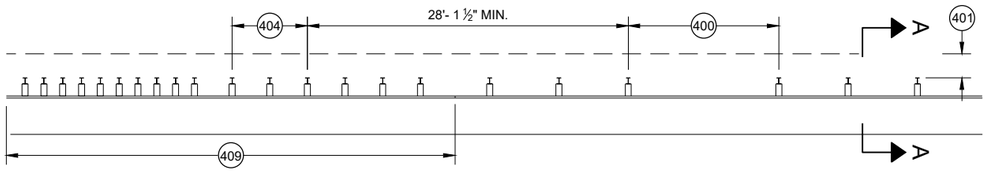
MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL



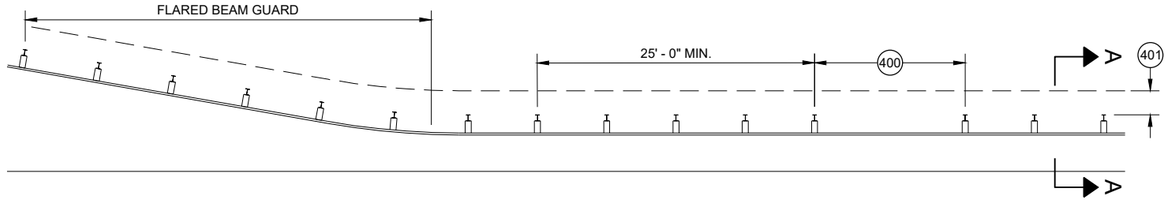
MISSING POST IN MGS GUARDRAIL



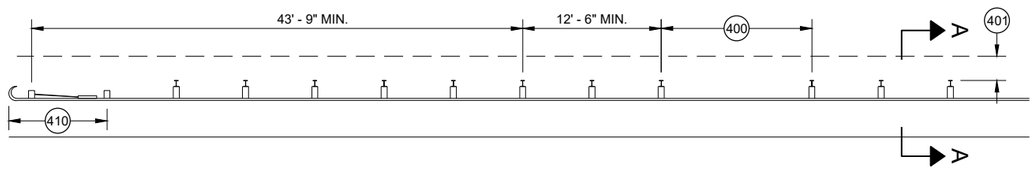
MISSING POST IN MGS GUARDRAIL NEAR EAT



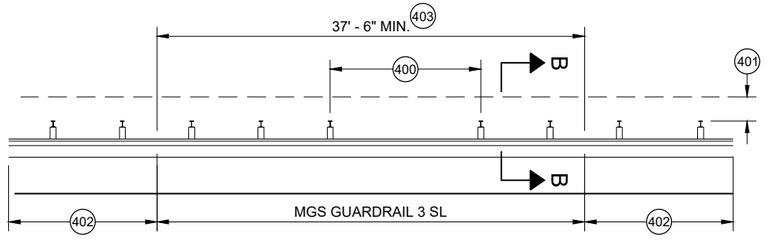
MISSING POST IN MGS GUARDRAIL NEAR AN APPROACH TRANSITION



MISSING POST IN MGS GUARDRAIL NEAR FLARED BEAM GUARD

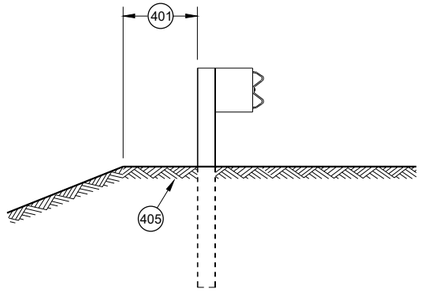


MISSING POST IN MGS GUARDRAIL NEAR A TYPE 2 END TERMINAL

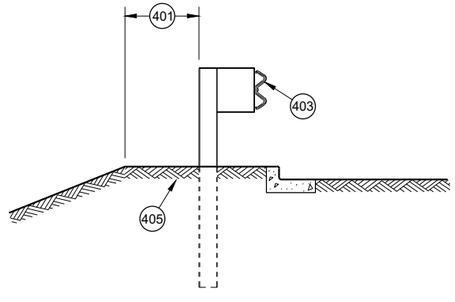


MISSING POST IN SHORT SPAN MGS GUARDRAIL NEAR CURB (SL) 407

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



SECTION A - A 406



SECTION B - B 406

MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

FHWA

6

SDD 14B42 - 07d

GENERAL NOTES

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

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

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

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

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

DIMENSIONS MAY VARY, MANUFACTURER'S INFORMATION.

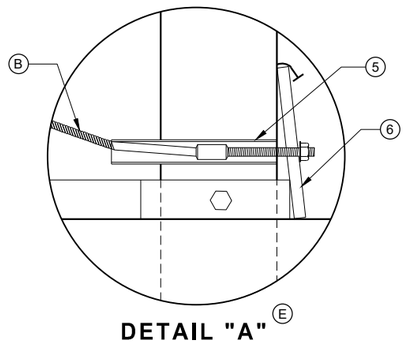
SEE SDD 14B42 FOR MORE INFORMATION.

* DO NOT ATTACH BLOCKOUTS TO POST 1 AND 2.

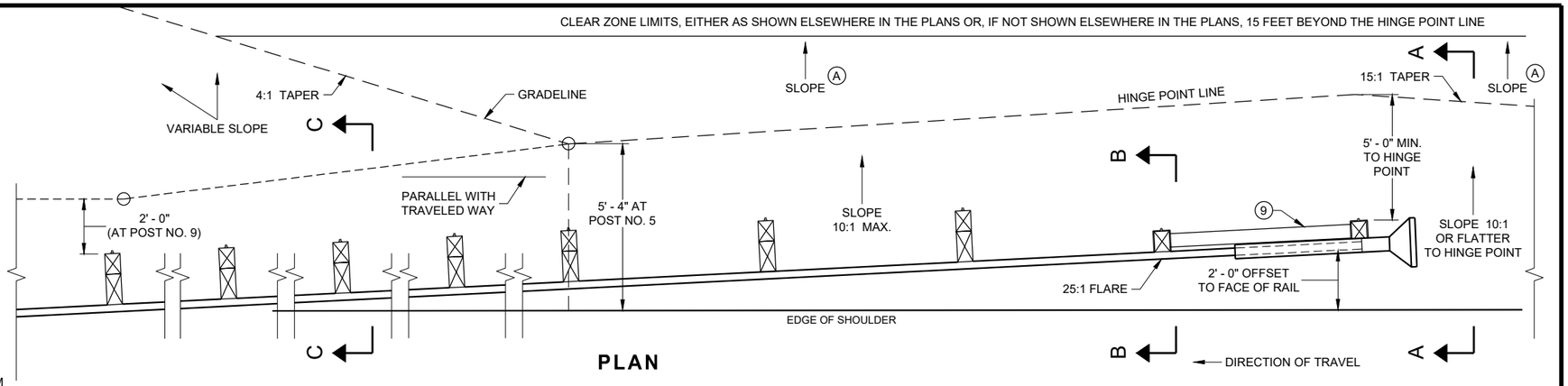
DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINAL.

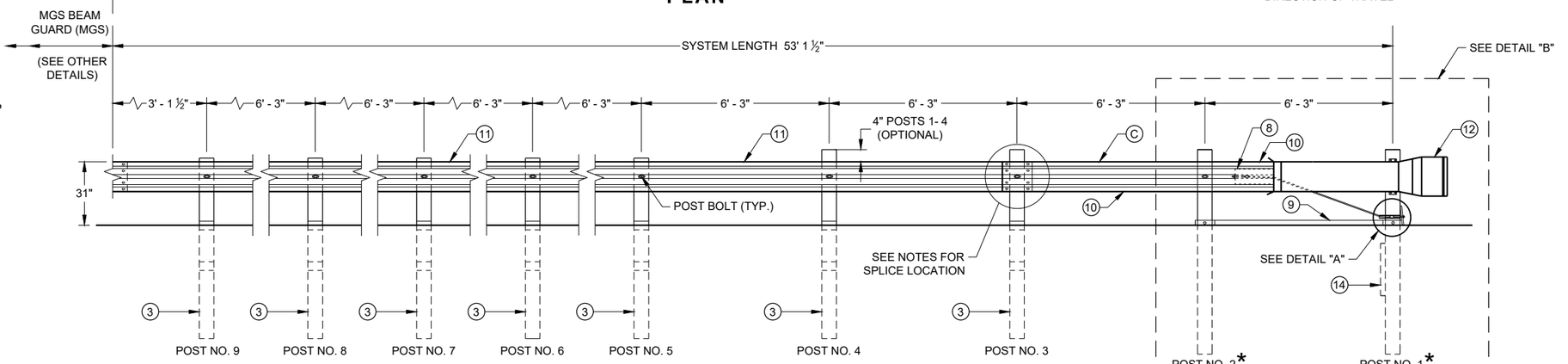
SEE MANUFACTURER'S DRAWING FOR SPLICE LOCATION, HARDWARE DIMENSIONS AND INSTALLATION INSTRUCTIONS.

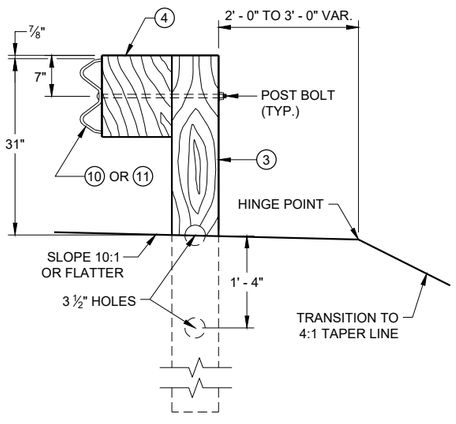
THE CENTER OF THE UPPER 3 ½" DIAMETER HOLE ON POST NUMBER 3 THROUGH POST 9 IS TO BE FLUSH WITH THE GROUND LINE UP TO A MAXIMUM OF 2" ABOVE GROUND LINE. WOOD BLOCKS ON POSTS NUMBERED 3 THROUGH 9 MAY BE ADJUSTED UP TO 3" ABOVE THE TOP OF POST.



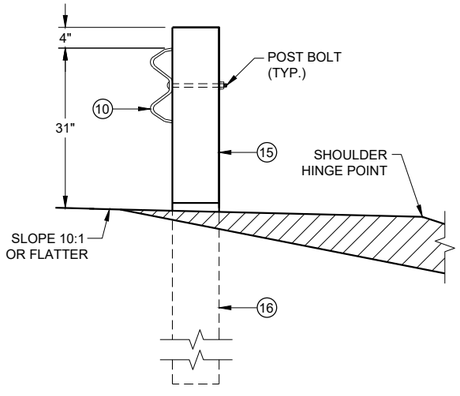
DETAIL "A" (E)



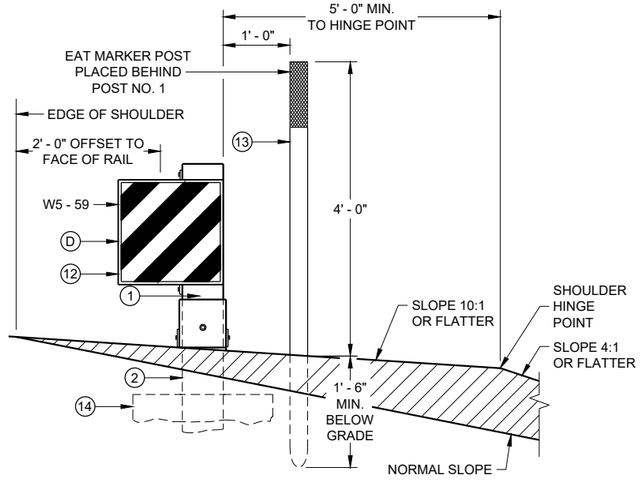




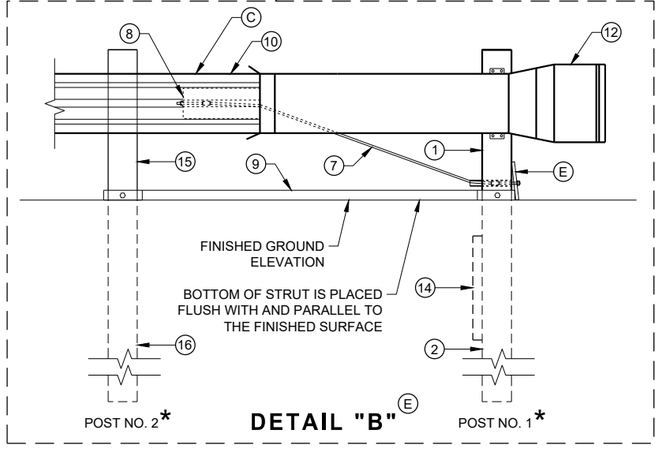
SECTION C - C
TYPICAL AT POST NOS. 3 - 9



SECTION B - B
TYPICAL AT POST NO. 2*



SECTION A - A
TYPICAL AT POST NO. 1*



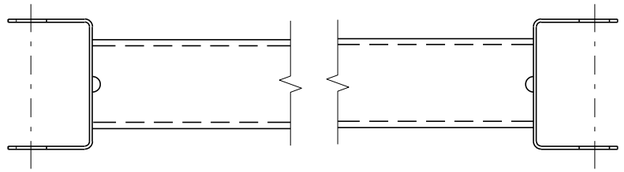
DETAIL "B" (E)

MIDWEST GUARDRAIL SYSTEM
ENERGY ABSORBING TERMINAL (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

SDD 14B44 - 04a

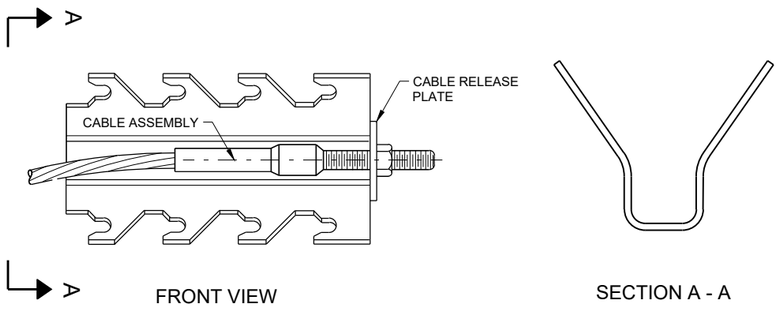
SDD 14B44 - 04a



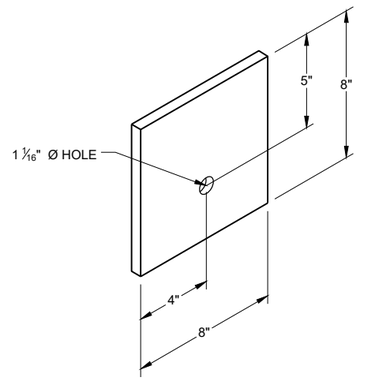
GENERIC GROUND STRUT ⑨ Ⓔ

BILL OF MATERIALS

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



GENERIC ANCHOR CABLE BOX ⑨ Ⓔ



BEARING PLATE ⑥ Ⓔ

6

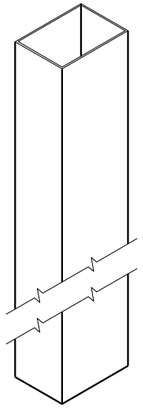
6

SDD 14B44 - 04b

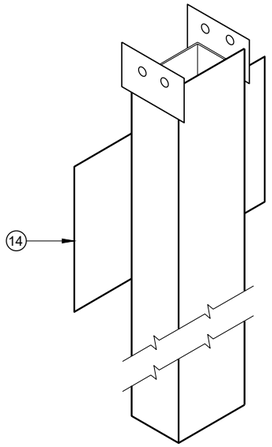
SDD 14B44 - 04b

MIDWEST GUARDRAIL SYSTEM
ENERGY ABSORBING TERMINAL
(MGS)

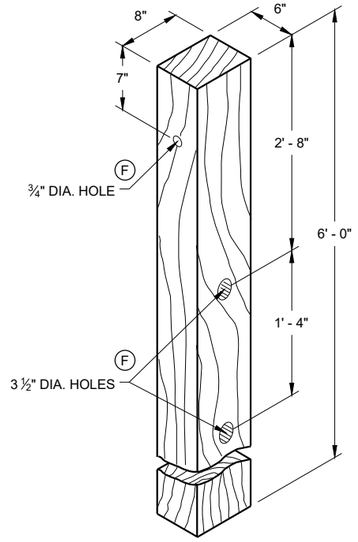
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



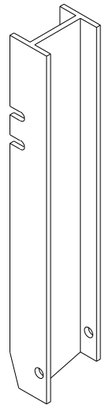
UPPER POST NO. 1 (1) (E)



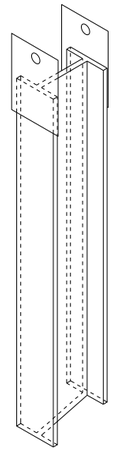
LOWER POST NO. 1 (2) (E)



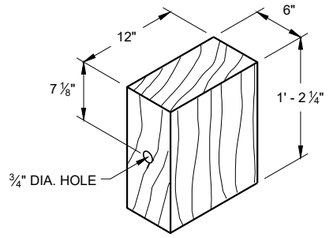
WOOD CRT POST (3) (E)
POSTS NUMBER 3-9



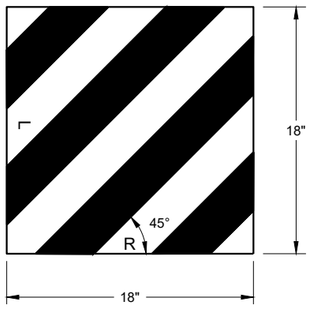
UPPER POST NO. 2 (15) (E)



LOWER POST NO. 2 (16) (E)

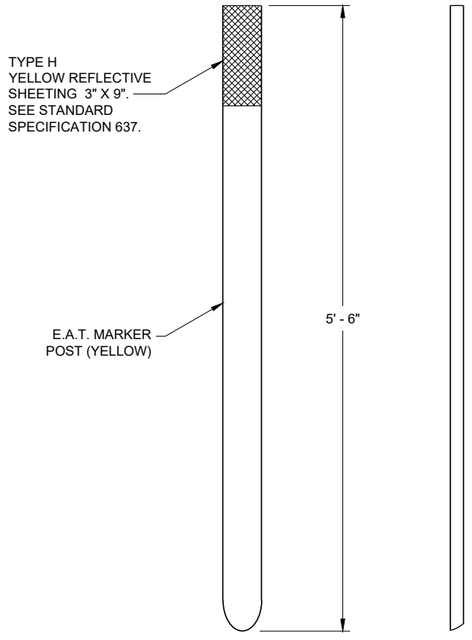


WOOD BLOCKOUT (4)
REQ'D. AT ALL POSTS EXCEPT POST NO'S 1 & 2



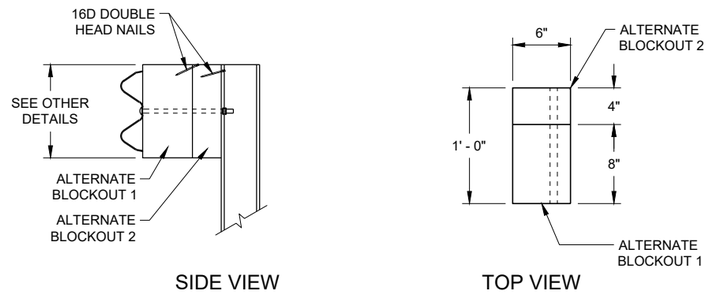
W5 - 59

REFLECTIVE SHEETING DETAIL (E)



FRONT VIEW SIDE VIEW

E.A.T. MARKER POST (13)



SIDE VIEW TOP VIEW

ALTERNATE WOOD BLOCKOUT DETAIL

MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)

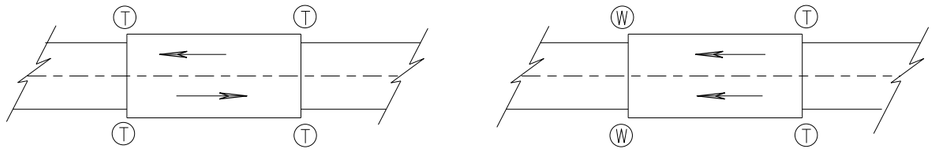
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

FHWA

6

SDD 14B44 - 04c
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.

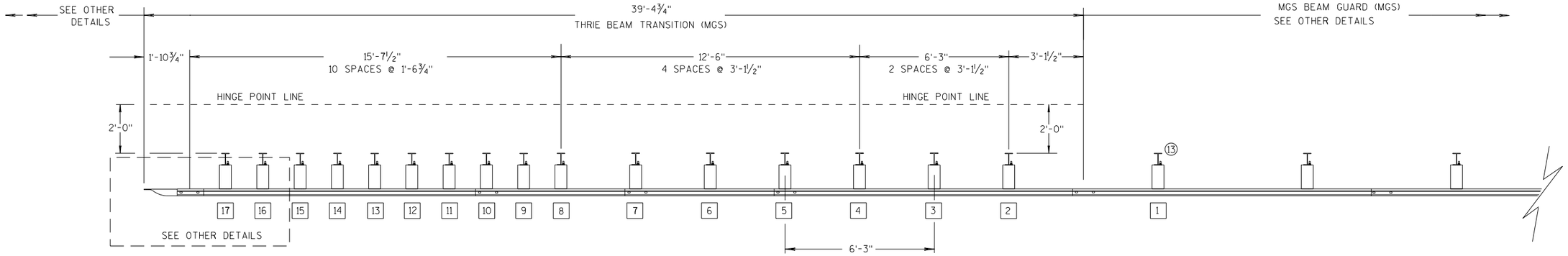
SEE STANDARD DETAIL DRAWING 14 B 42 FOR MORE INFORMATION.

POST 2 THROUGH 17 USES STEEL POST ONLY

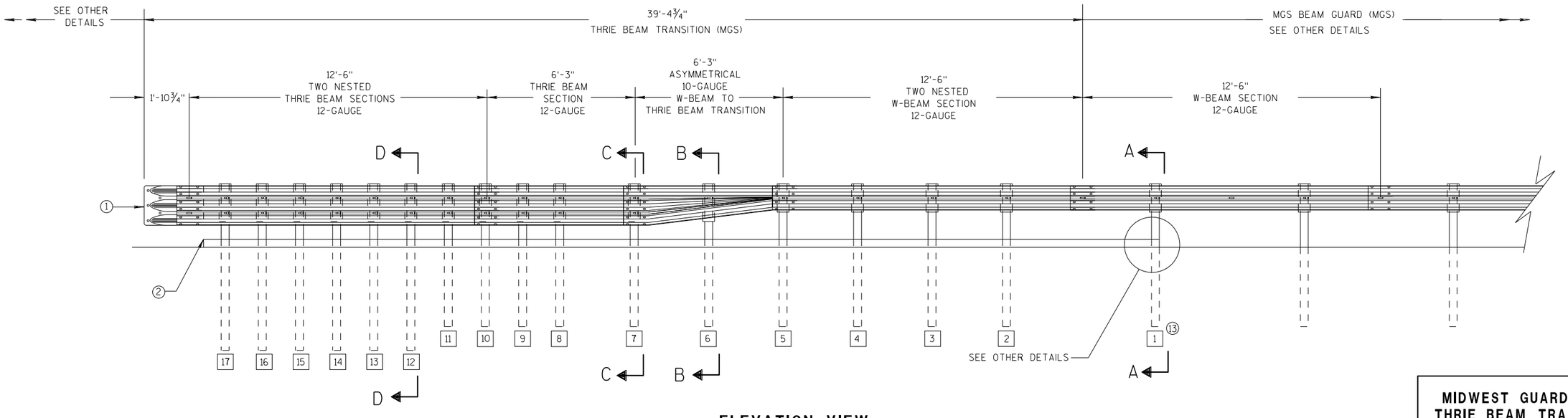
(1) BRIDGE RAILING TYPE "W" DOES NOT REQUIRE A TERMINAL CONNECTOR.

(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

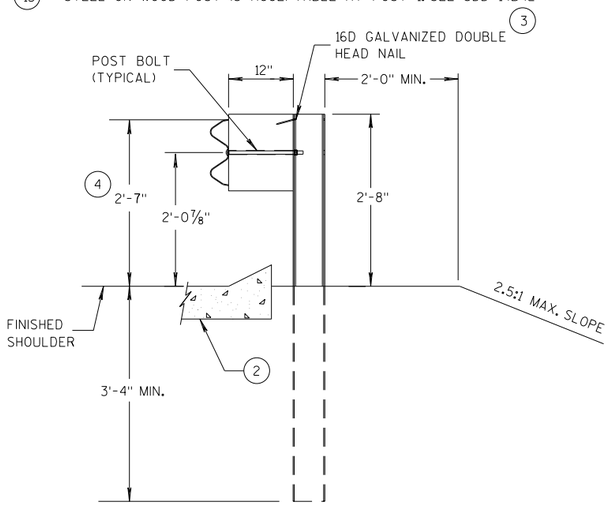
GENERAL NOTES

(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.

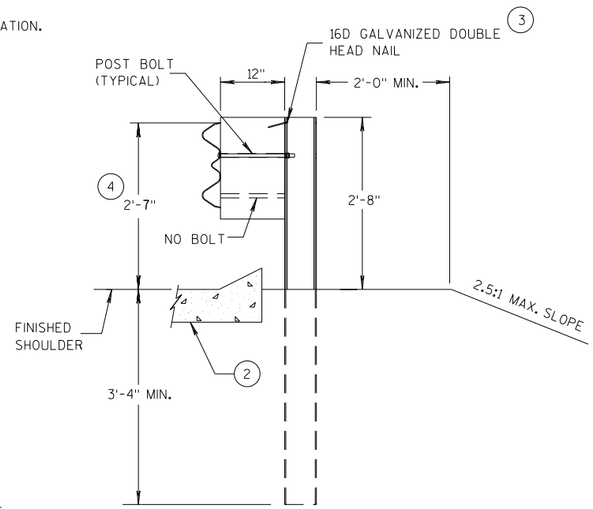
(4) TOLERANCE FOR TOP OF W-BEAM RAIL IS ± 1".

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



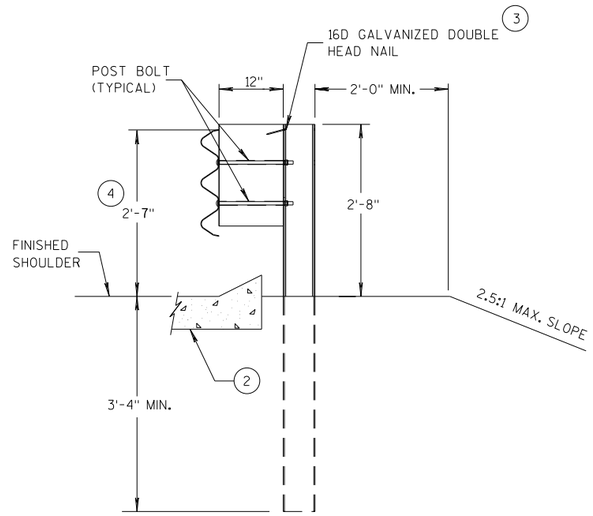
SECTION A-A (13)

POSTS 1-5



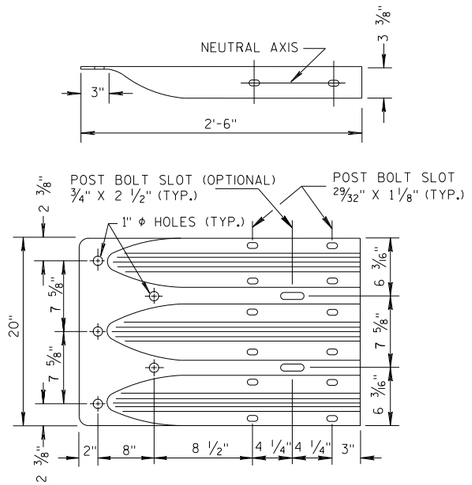
SECTION B-B

POST 6

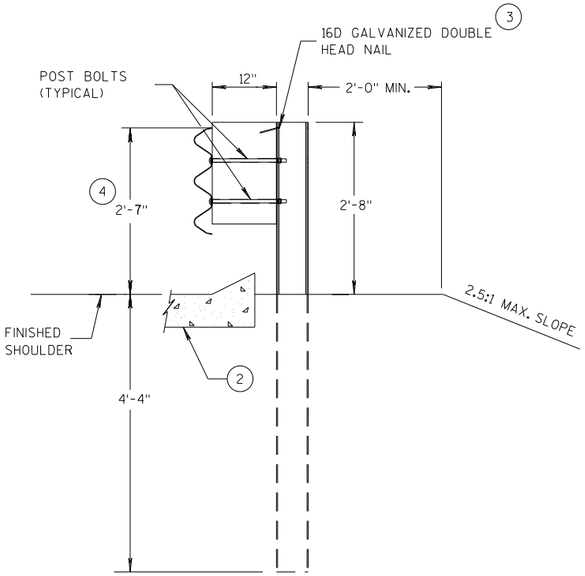


SECTION C-C

POSTS 7-11

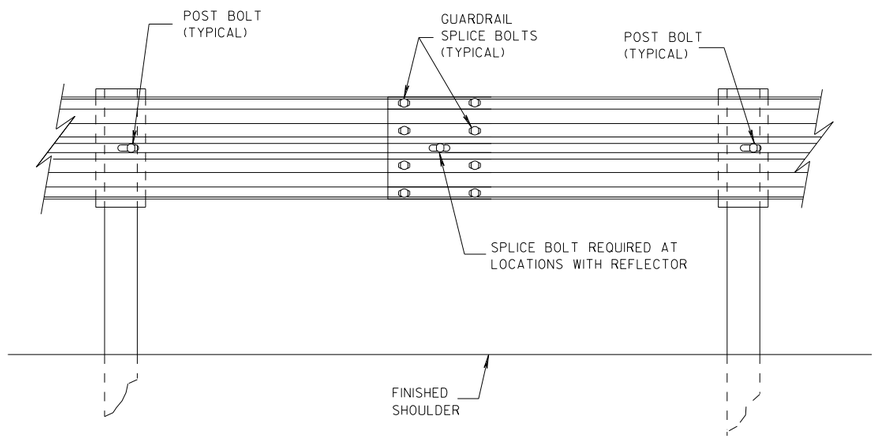


THRIE BEAM TERMINAL CONNECTOR



SECTION D-D

POSTS 12-17



SPLICE DETAIL

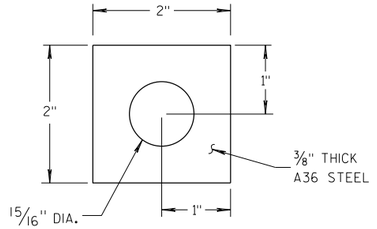
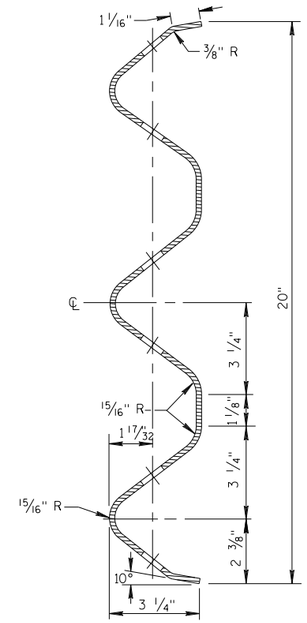


PLATE WASHER DETAIL



SECTION THRU THRIE BEAM RAIL ELEMENT

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

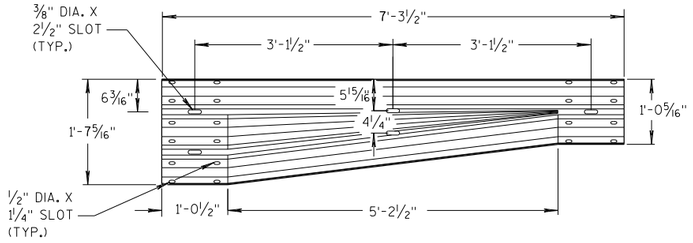
STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR 23

6

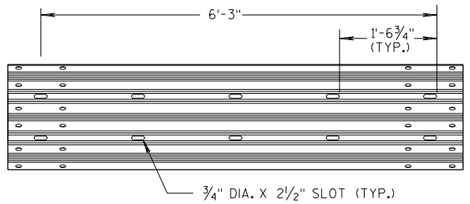
S.D.D. 14 B 45-5b

6

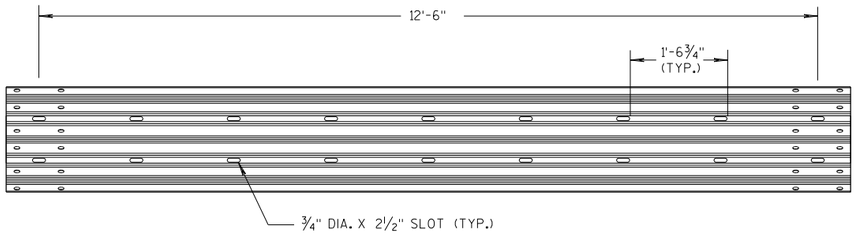
S.D.D. 14 B 45-5b



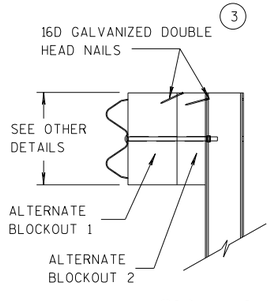
W-BEAM TO THRIE BEAM TRANSITION SECTION



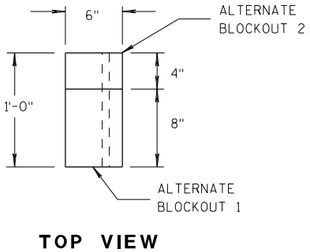
6'-3" THRIE BEAM SECTION



12'-6" THRIE BEAM SECTION

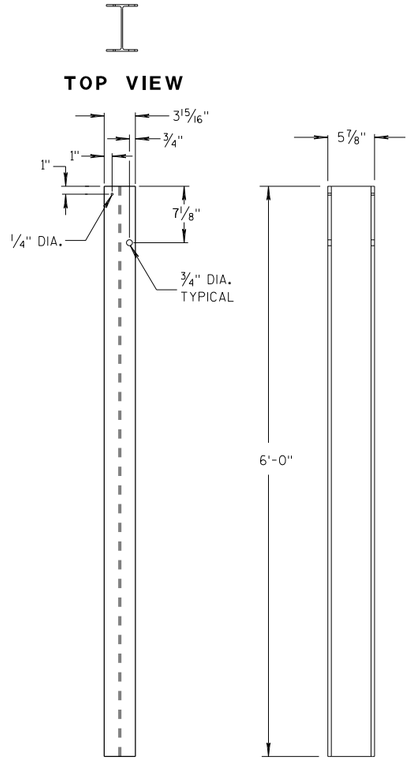


SIDE VIEW



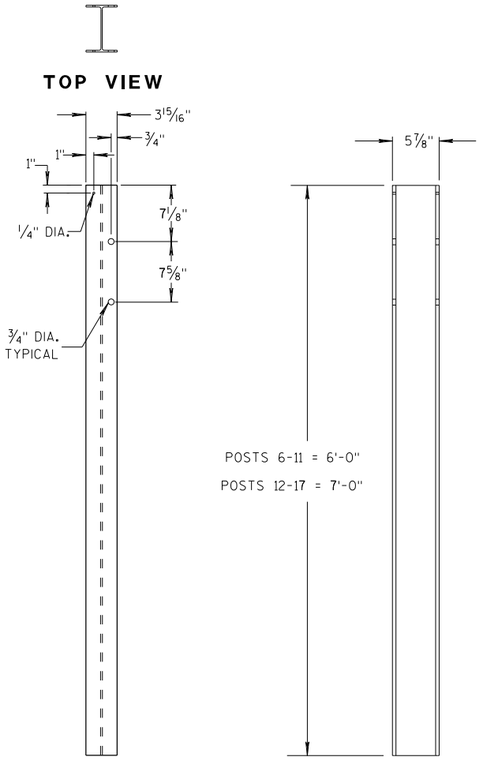
TOP VIEW

ALTERNATE WOOD BLOCKOUT DETAIL



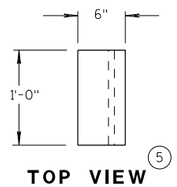
FRONT VIEW SIDE VIEW

STEEL POSTS 1-5 (13)

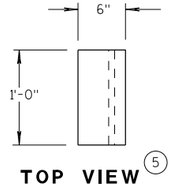


FRONT VIEW SIDE VIEW

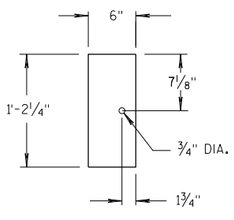
STEEL POSTS 6-17



TOP VIEW (5)

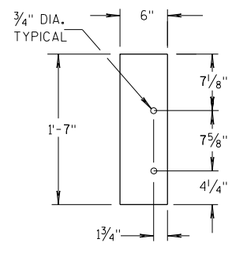


TOP VIEW (5)



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)

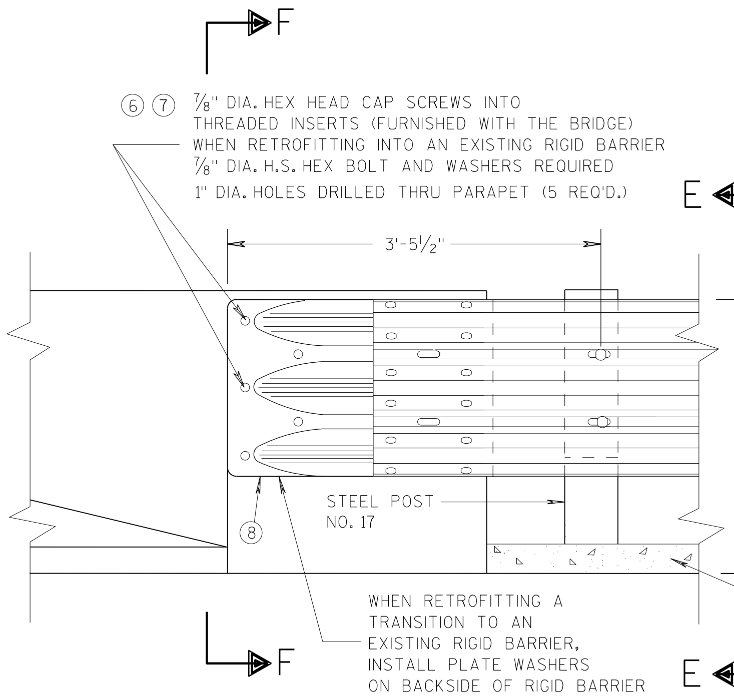
STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR 24

6

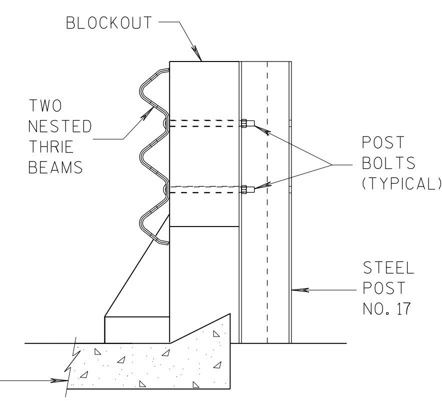
S.D.D. 14 B 45-5c

6

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



FRONT VIEW



SECTION E-E

THRIE BEAM CONNECTION TO BRIDGE PARAPET WITH SQUARE ENDS

GENERAL NOTES

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

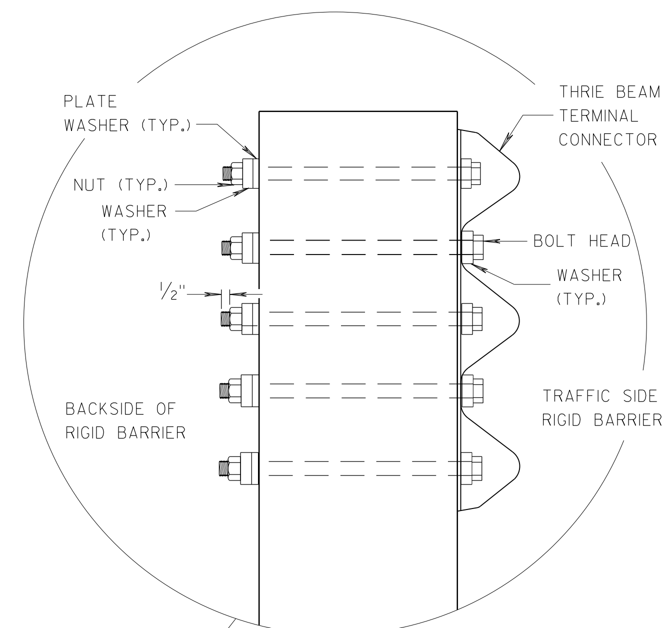
② OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.

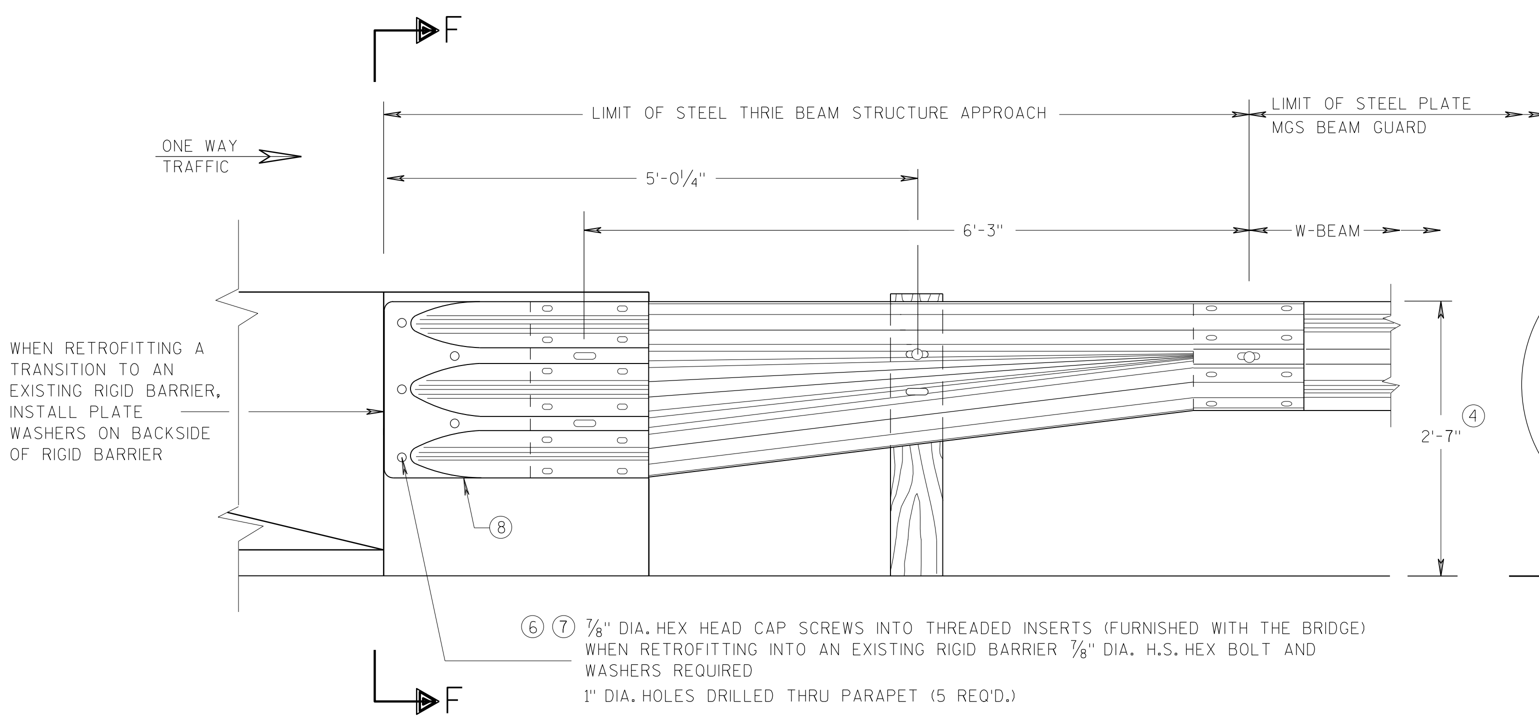
④ TOLERANCE FOR TOP OF BEAM IS ± 1".

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

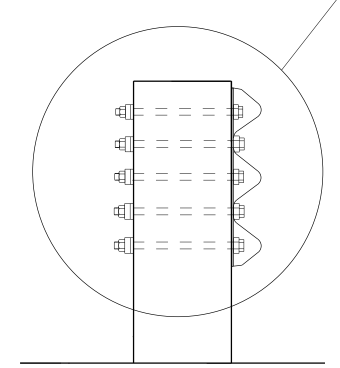
⑦ BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM CONNECTOR PLATE.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

⑧ THE RECESS FOR A W-BEAM CONNECTION, WHICH EXISTS ON SOME PARAPETS OF THIS TYPE, SHALL BE FILLED WITH A TREATED TIMBER BLOCKOUT. BLOCKOUT SIZE IS 1'-6" X 2'-0" X 3 ½".

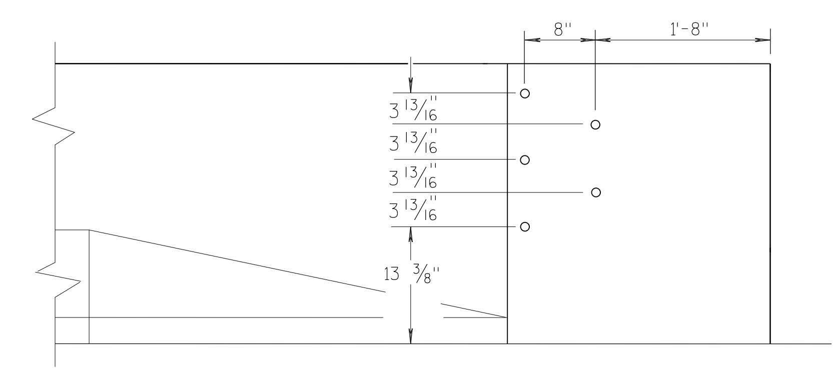




FRONT VIEW



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 DEVELOPMENT UNIT SUPERVISOR
FHWA	NT

GENERAL NOTES

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

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

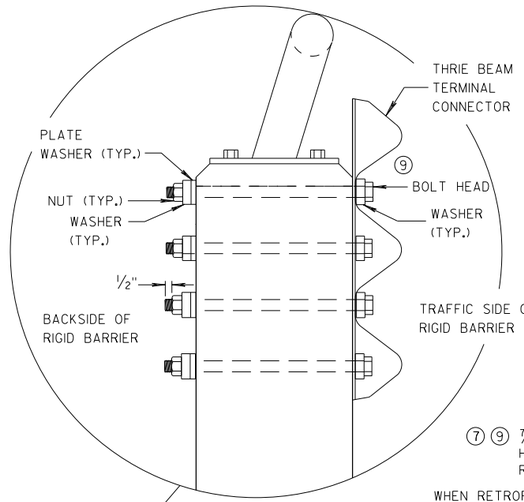
(4) TOLERANCE FOR TOP OF BEAM IS ± 1".

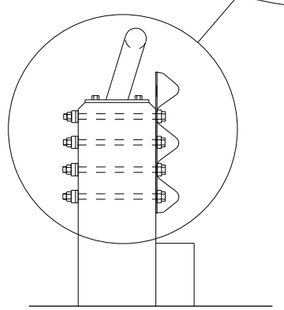
(6) DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.

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

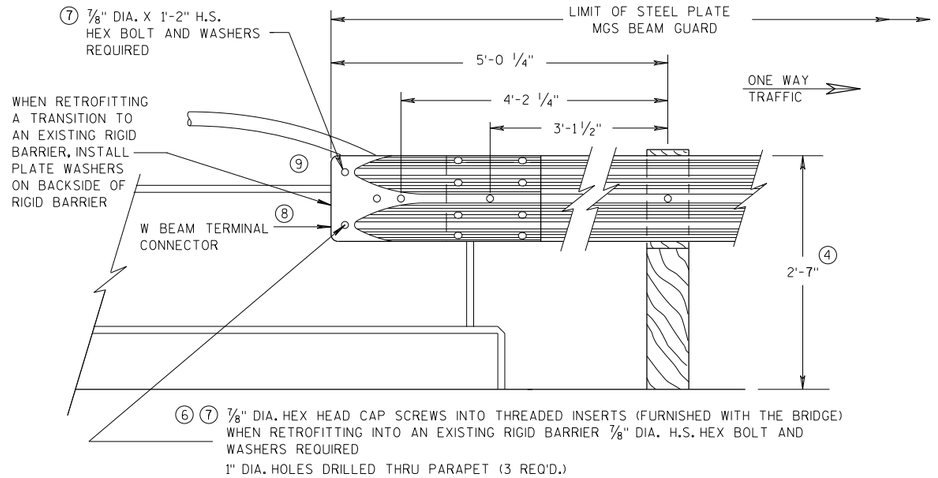
(8) THE RECESS FOR A W-BEAM CONNECTION, WHICH EXISTS ON SOME PARAPETS OF THIS TYPE, SHALL BE FILLED WITH A TREATED TIMBER BLOCKOUT. BLOCKOUT SIZE IS 1'-6" X 2'-0" X 3 ½".

(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.





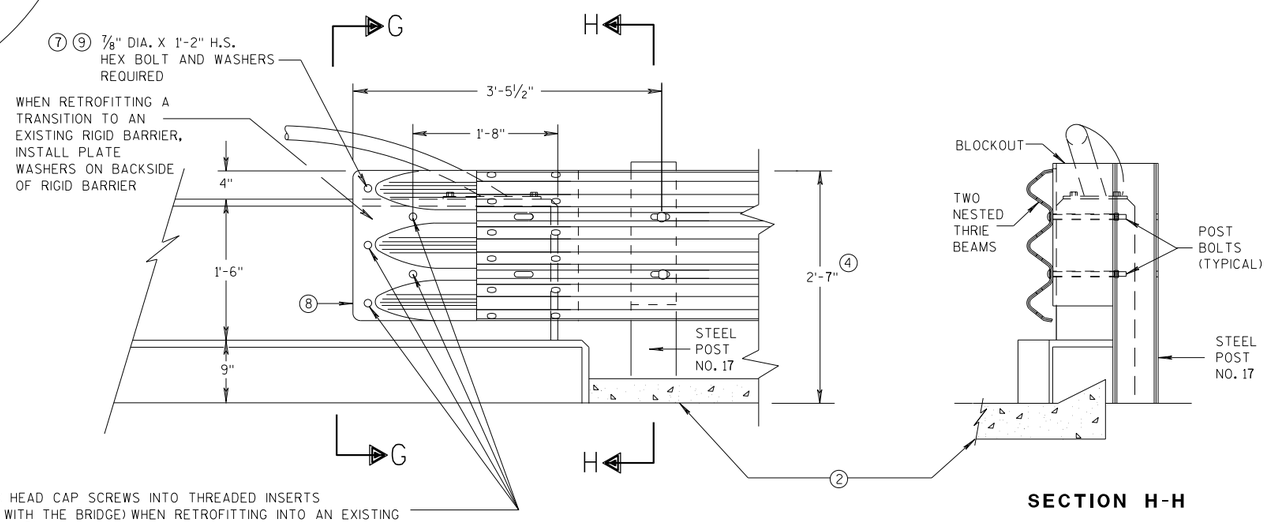
SECTION G-G



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

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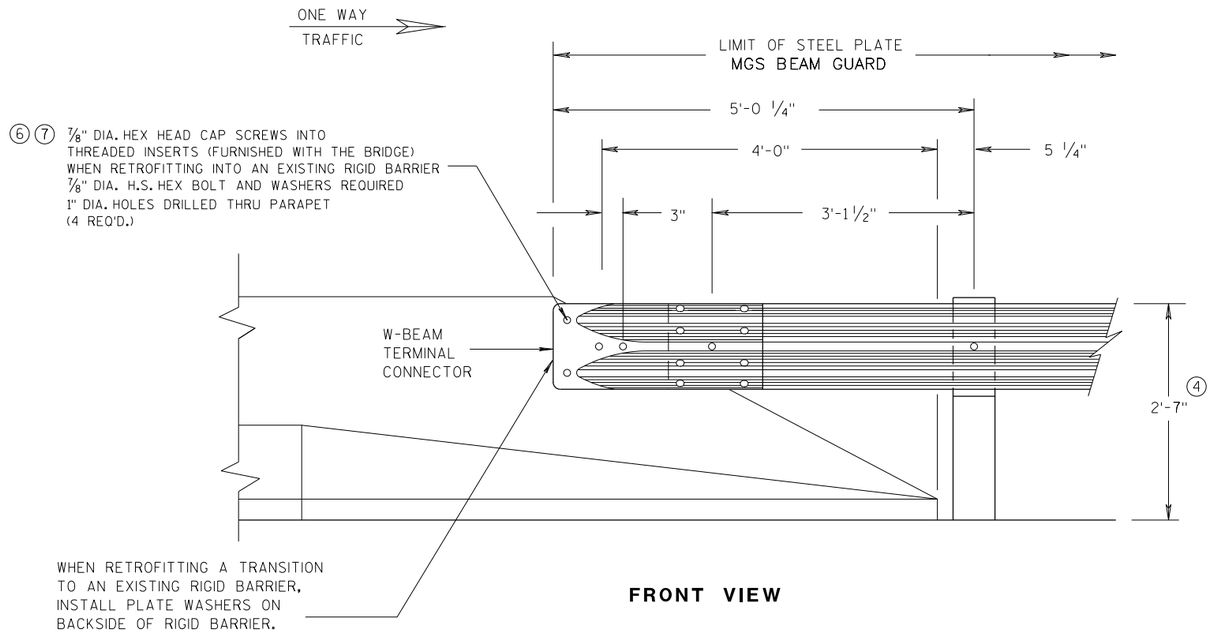


FRONT VIEW

W BEAM CONNECTION TO PARAPETS WITH SLOPED ENDS

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

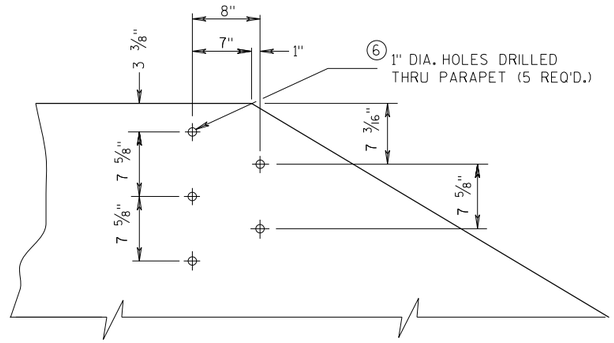
GENERAL NOTES

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

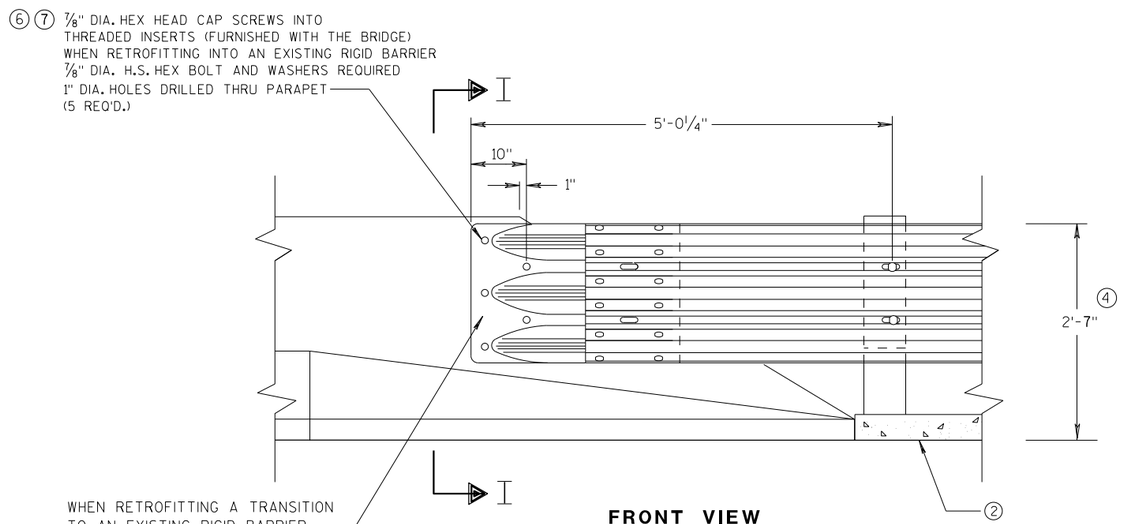
④ TOLERANCE FOR TOP OF BEAM IS ± 1".

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

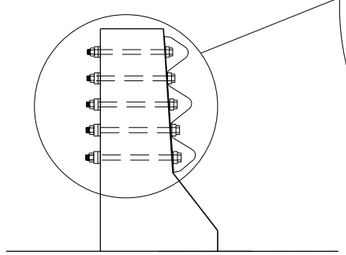
⑦ BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM CONNECTOR PLATE.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



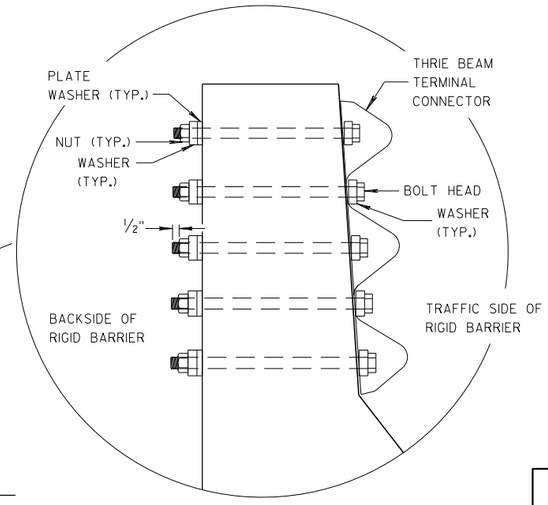
DRILL HOLE LOCATION AND PATTERN
FOR THRIE BEAM CONNECTION



FRONT VIEW



SECTION I-I



THRIE BEAM CONNECTION TO BRIDGE PARAPETS WITH SLOPED ENDS

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
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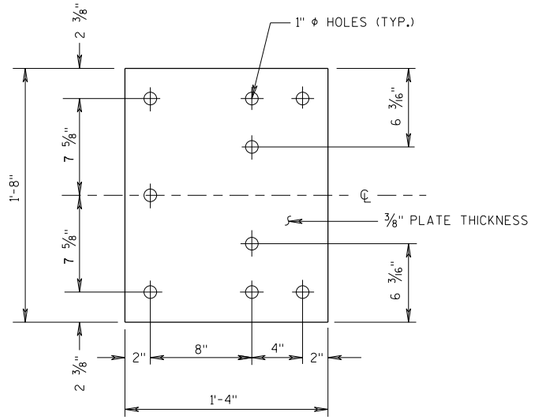
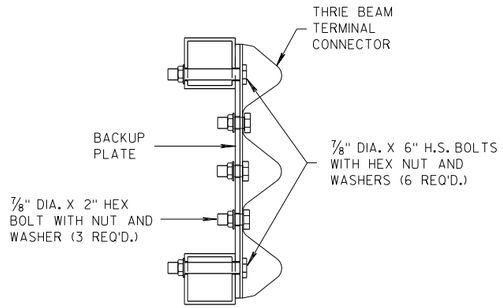
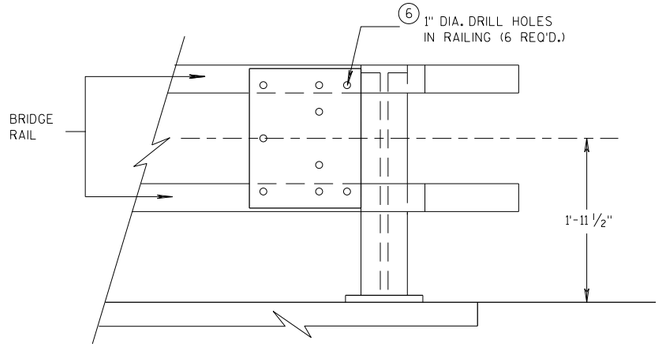


BACK-UP PLATE DETAIL



SECTION J-J

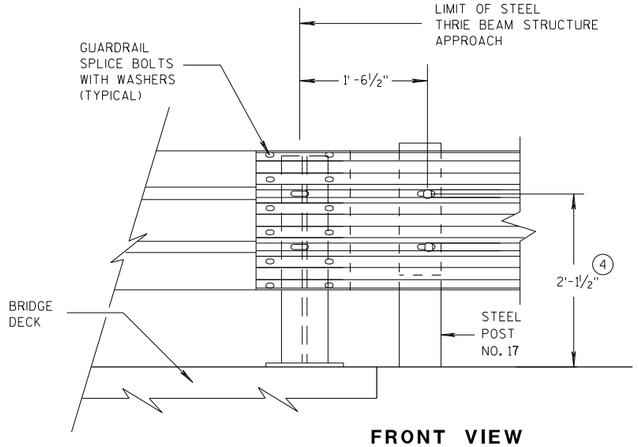


BACK-UP PLATE MOUNTING ONTO BRIDGE RAILING

GENERAL NOTES

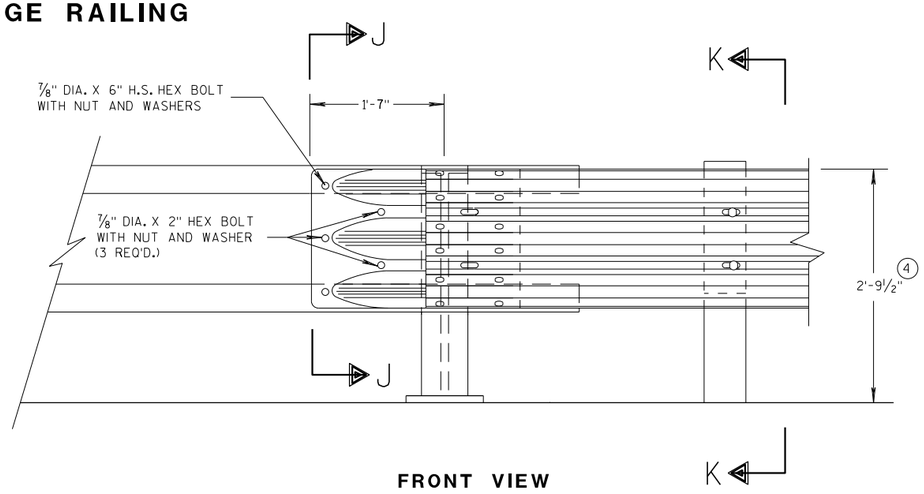
④ TOLERANCE FOR TOP OF BEAM IS ± 1".

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

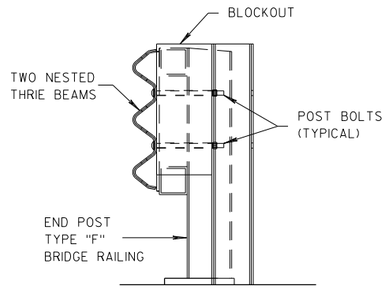


FRONT VIEW

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
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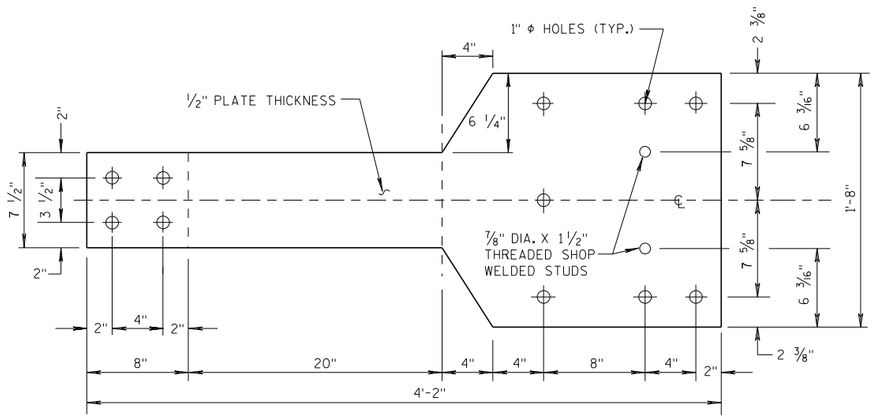
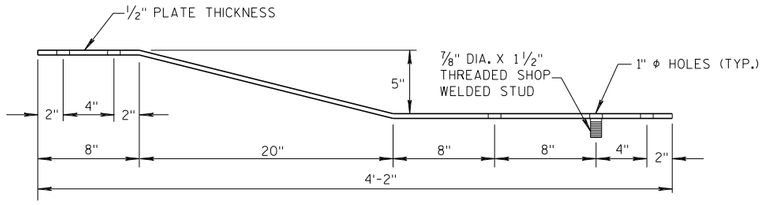
GENERAL NOTES

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

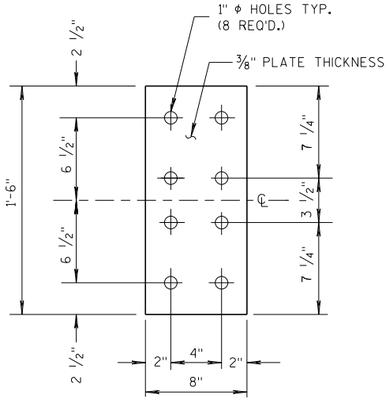


FRONT VIEW



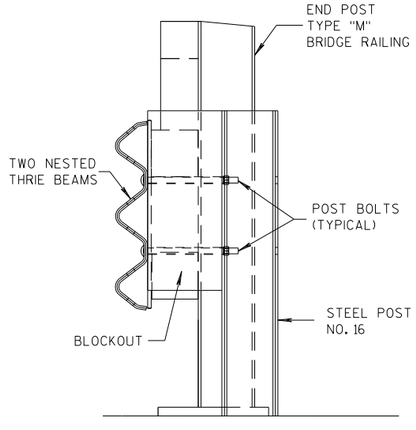
PLAN VIEW

BACK-UP PLATE DETAIL, TYPE "M"

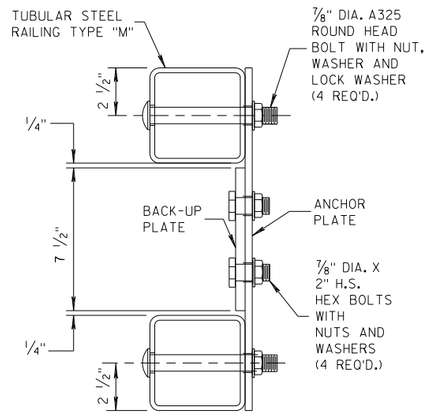


FRONT VIEW

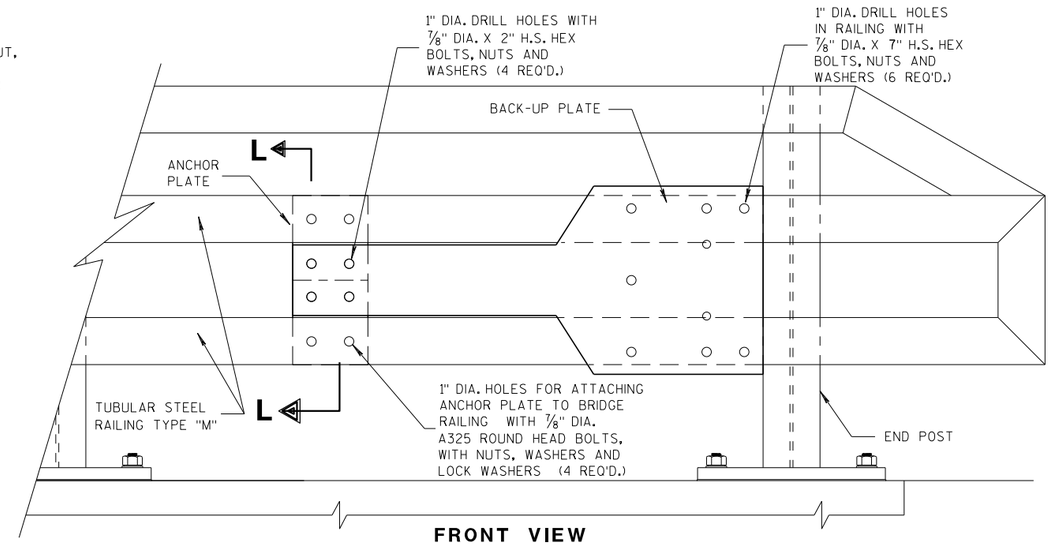
ANCHOR PLATE DETAIL, TYPE "M"



SECTION M-M

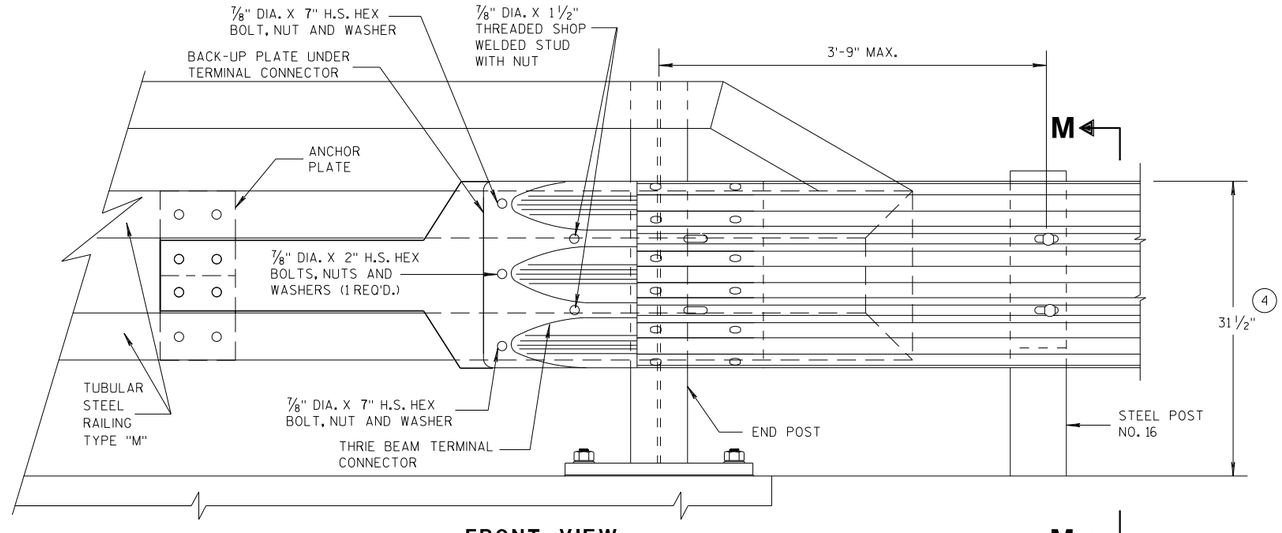


SECTION L-L

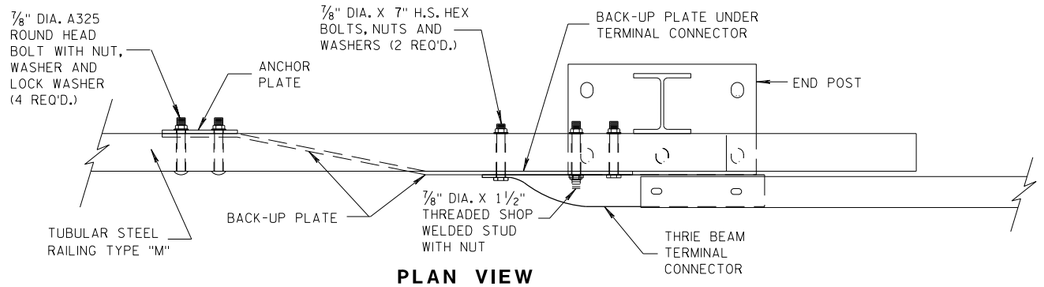


FRONT VIEW

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)

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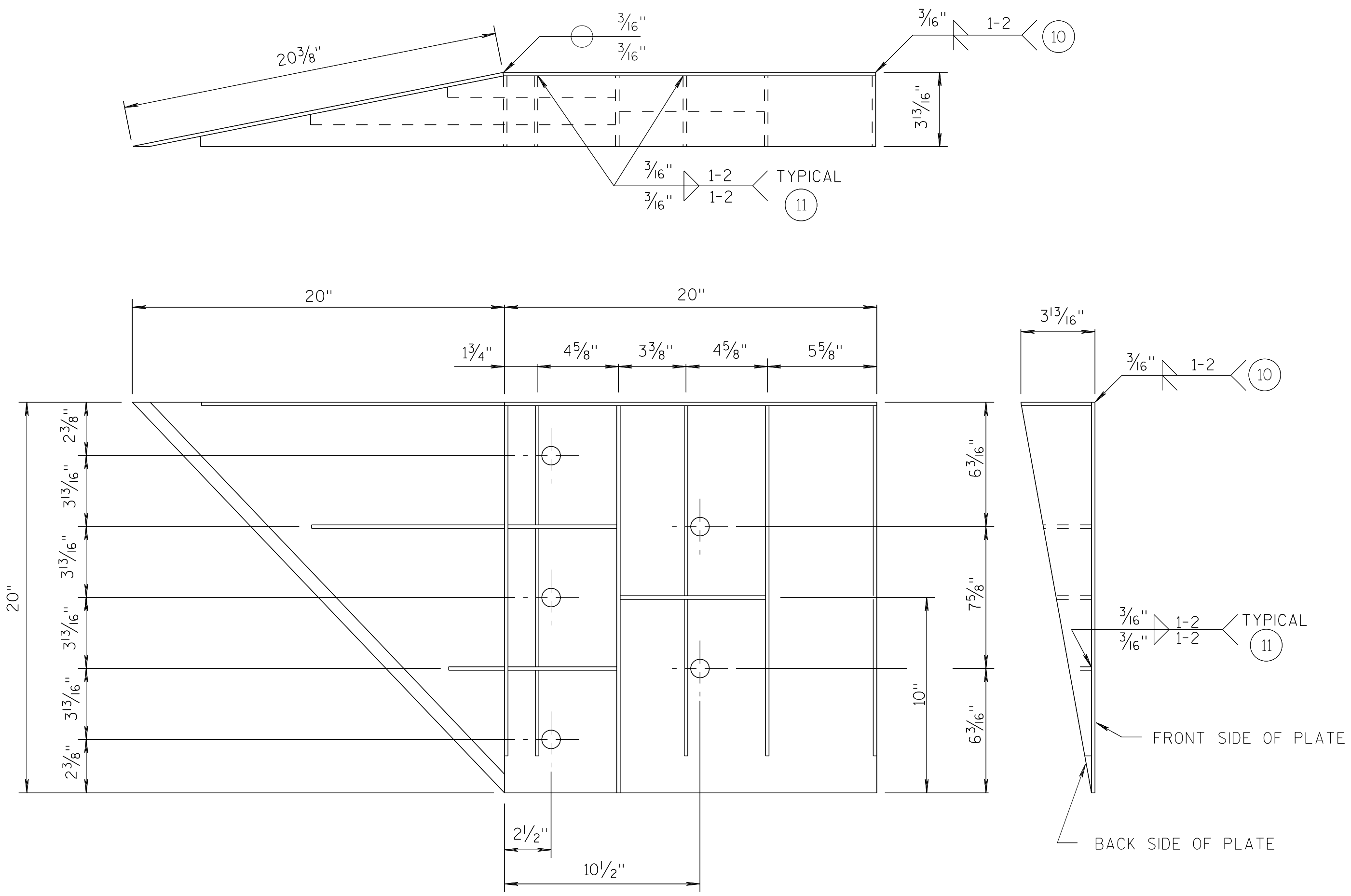

WELDING INSTRUCTION

(VIEWED FROM BACK SIDE OF PLATE)

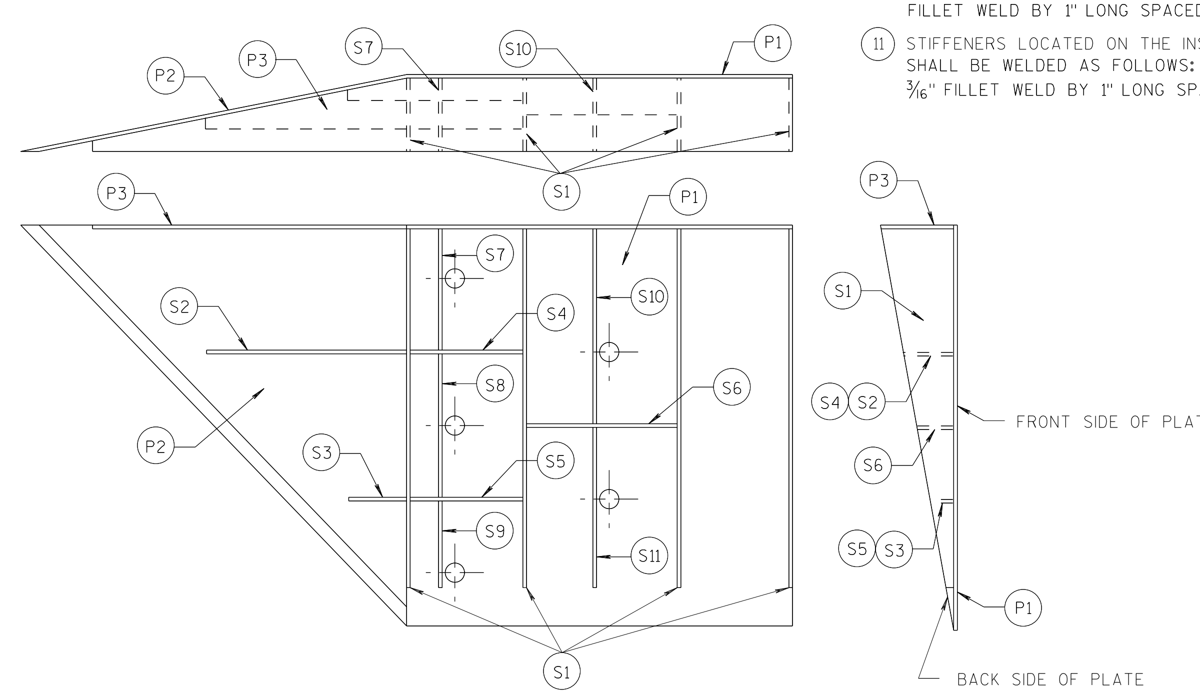

PLATE AND STIFFENER IDENTIFICATION

(VIEWED FROM BACK SIDE OF PLATE)

GENERAL NOTES

COVER PLATE PANELS ARE $\frac{3}{16}$" THICK.

ALL STIFFENERS ARE $\frac{1}{4}$" 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 $\frac{3}{16}$" 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: $\frac{3}{16}$" 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"	$\frac{3}{16}$"
P2	1		20" x 20" x $28\frac{9}{16}$"	$\frac{3}{16}$"
P3	1		39" x $3\frac{5}{8}$" x 20" x $19\frac{5}{16}$"	$\frac{3}{16}$"
S1	4		$18\frac{7}{16}$" x $3\frac{5}{8}$" x $18\frac{3}{4}$"	$\frac{1}{4}$"
S2	1		$10\frac{1}{4}$" x $2\frac{7}{16}$" x $10\frac{3}{8}$" x $\frac{1}{2}$"	$\frac{1}{4}$"
S3	1		3" x $1\frac{1}{16}$" x $3\frac{1}{8}$" x $\frac{1}{2}$"	$\frac{1}{4}$"
S4	1		$6\frac{1}{8}$" x $2\frac{7}{16}$"	$\frac{1}{4}$"
S5	1		$6\frac{1}{8}$" x $1\frac{1}{16}$"	$\frac{1}{4}$"
S6	1		$7\frac{3}{4}$" x $1\frac{3}{4}$"	$\frac{1}{4}$"
S7	1		$2\frac{9}{16}$" x 6" x $3\frac{5}{8}$" x $5\frac{7}{8}$"	$\frac{1}{4}$"
S8	1		$1\frac{5}{32}$" x $7\frac{1}{2}$" x $2\frac{1}{2}$" x $7\frac{3}{8}$"	$\frac{1}{4}$"
S9	1		$6\frac{1}{16}$" x $6\frac{3}{16}$" x $1\frac{3}{32}$"	$\frac{1}{4}$"
S10	1		$1\frac{7}{8}$" x $9\frac{7}{8}$" x $3\frac{5}{8}$" x $9\frac{11}{16}$"	$\frac{1}{4}$"
S11	1		$8\frac{1}{2}$" x $8\frac{3}{4}$" x $1\frac{13}{16}$"	$\frac{1}{4}$"

SINGLE SLOPE CONNECTION PLATE

MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)

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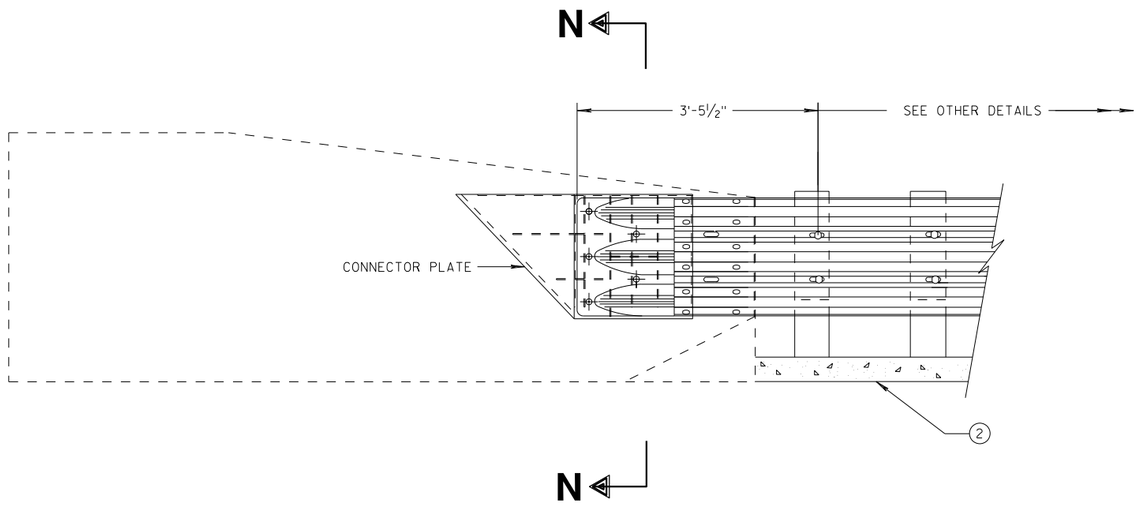
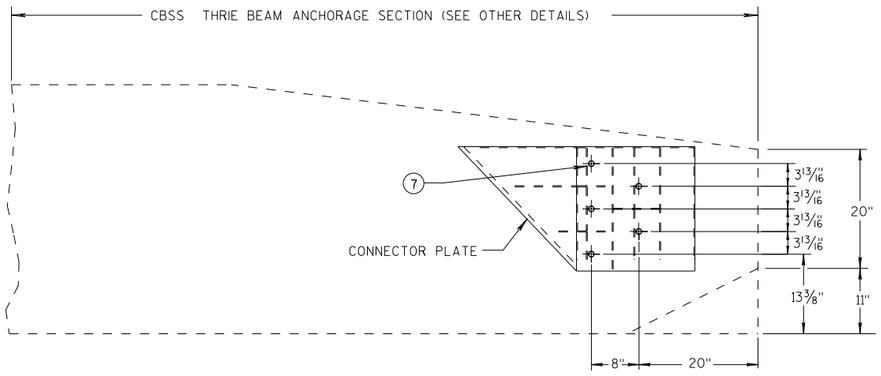


THRIE BEAM CONNECTION TO SINGLE SLOPE BARRIER



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.

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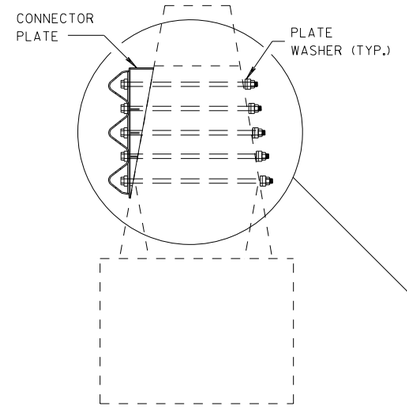
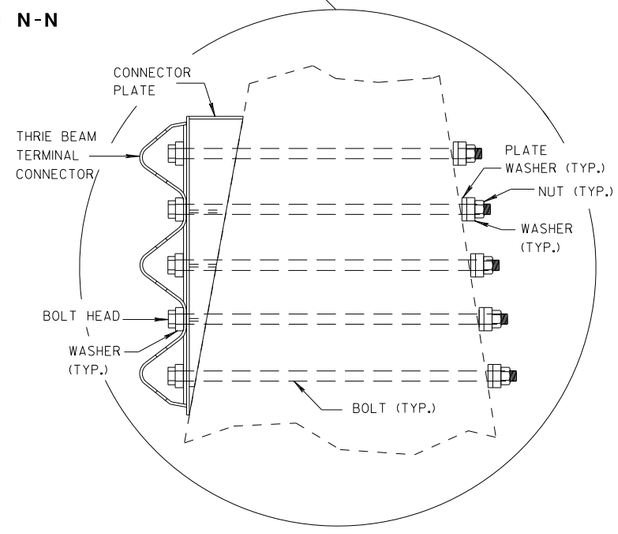


SECTION N-N



MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
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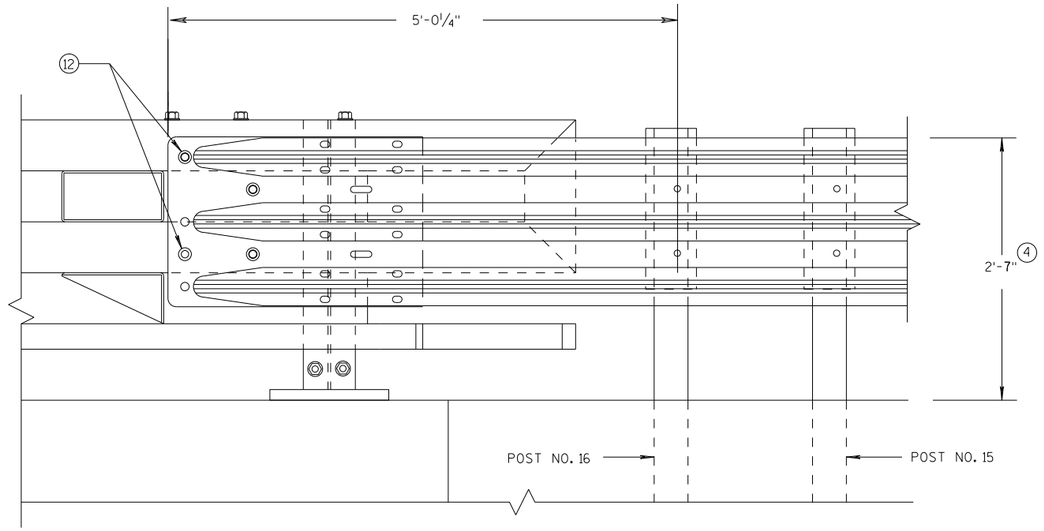
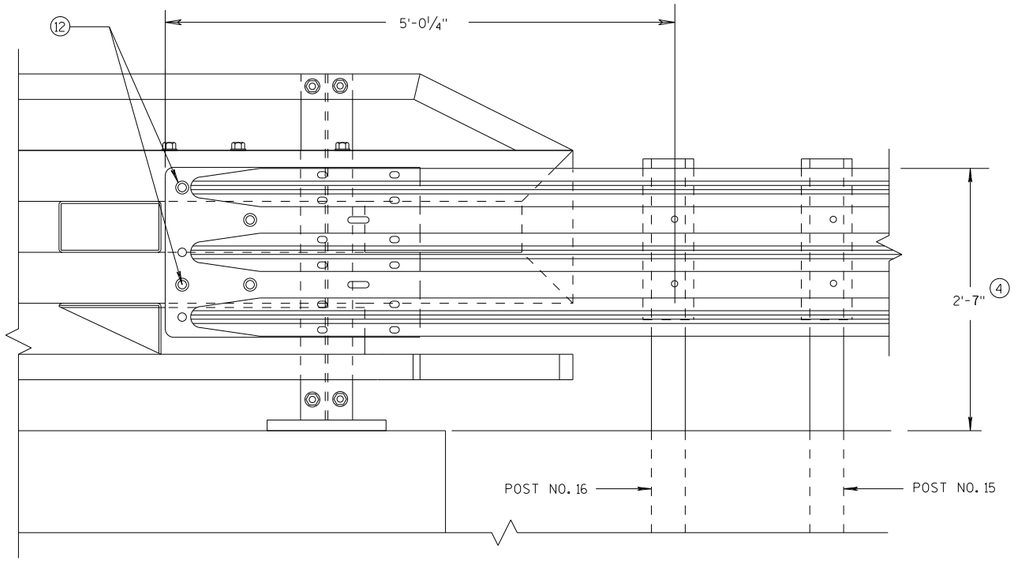


ELEVATION OF DETAIL AT NY3 END POST

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)

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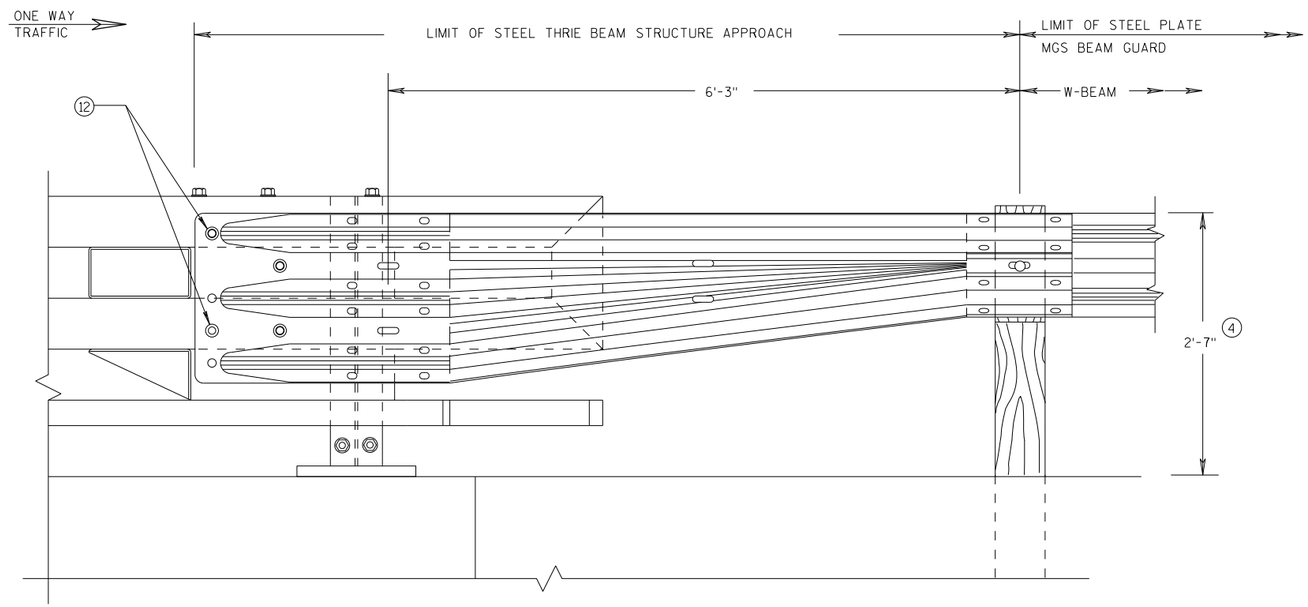


FRONT VIEW

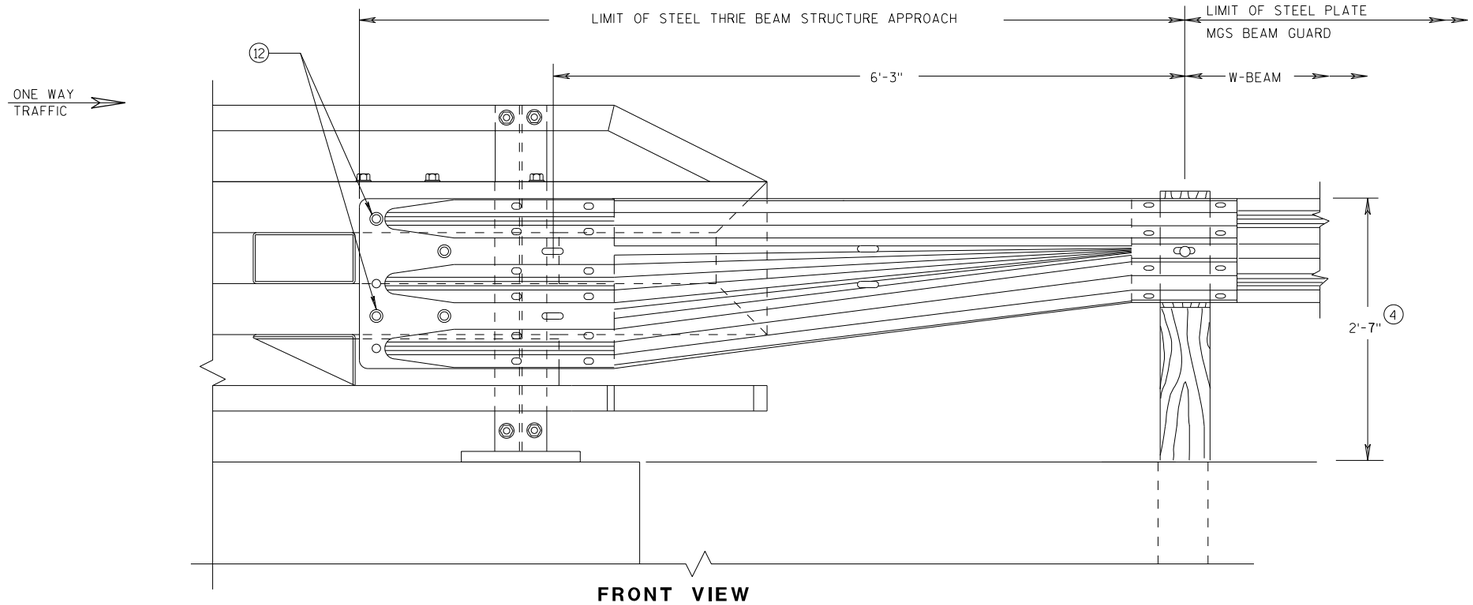
W BEAM TRANSITION AND CONNECTION TO BRIDGE RAILING TYPE "NY3"

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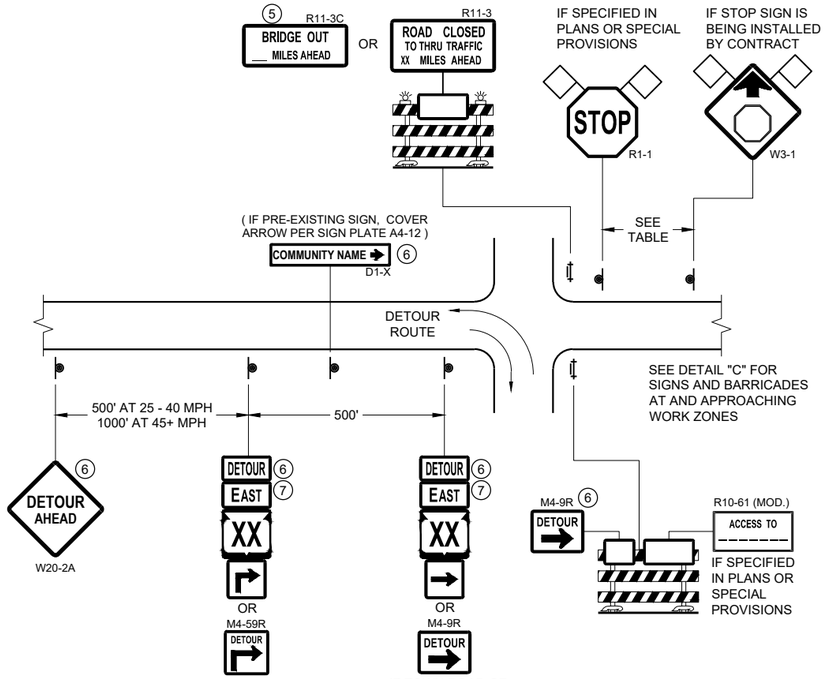
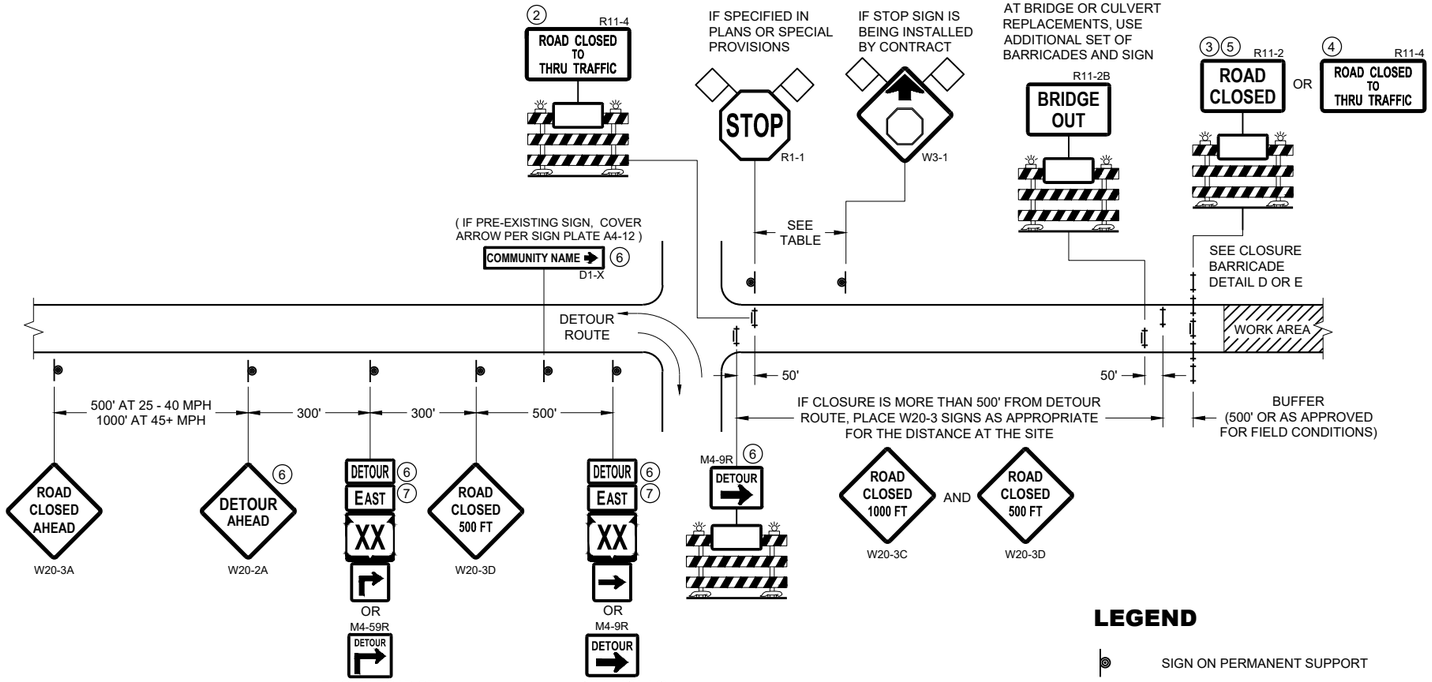
S.D.D. 14 B 45-5L





DETAIL A
MAINLINE CLOSURE WITH POSTED DETOUR

WORK ZONE GREATER THAN OR EQUAL TO ½ MILE FROM DETOUR ROUTE (1000 FEET IF URBAN)

DETAIL B
MAINLINE CLOSURE WITH POSTED DETOUR

WORK ZONE LESS THAN ½ MILE FROM DETOUR ROUTE (1000 FEET IF URBAN)

LEGEND

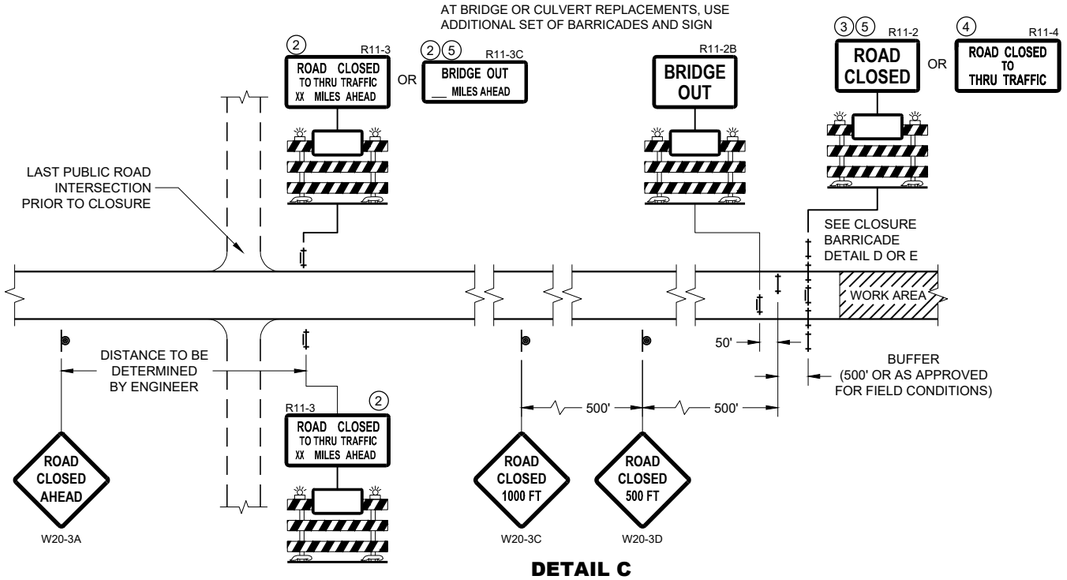
- SIGN ON PERMANENT SUPPORT
- TYPE III BARRICADE
- TYPE III BARRICADE WITH ATTACHED SIGN
- TYPE "A" WARNING LIGHT (FLASHING)
- WORK AREA
- FLAGS, 16" X 16" MIN. (ORANGE)

DETOUR M4 - 8

EAST M3 - X

XX M1 - 4 OR XX M1 - 6 OR COUNTY X M1 - 5A

M05 - 1 OR M06 - 1



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

BARRICADES AND SIGNS FOR MAINLINE CLOSURES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
February 2020
DATE

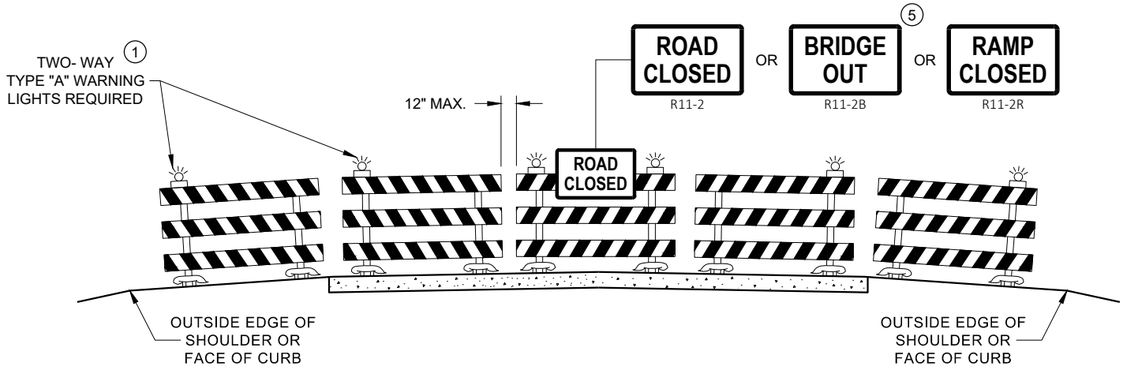
/S/ Andrew Heidtke
WORK ZONE ENGINEER

FHWA

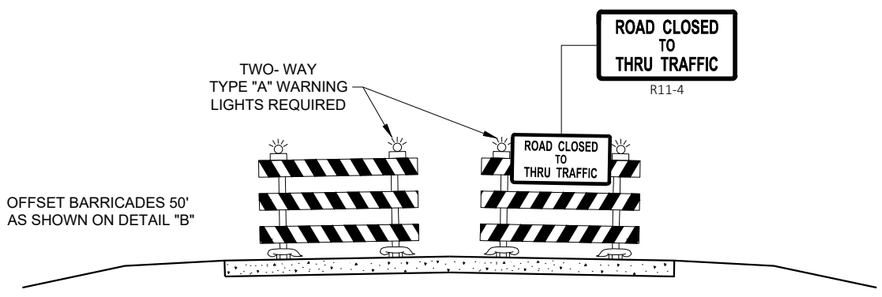
SDD 15C02 - 08a

6

SDD 15C02 - 08a



DETAIL D
ROAD CLOSURE BARRICADE DETAIL
APPROACH VIEW



DETAIL E
LANE CLOSURE BARRICADE DETAIL
APPROACH VIEW

SEE SDD 15C2 - SHEET "a" FOR LEGEND

GENERAL NOTES

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

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

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

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

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

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

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

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

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

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

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

(2) THESE SIGNS AND BARRICADES ARE NOT REQUIRED IF ROAD CLOSURE BEGINS AT AN INTERSECTION.

(3) FOR ROAD CLOSURE WITHOUT LOCAL ACCESS TO PROJECT, SEE ROAD CLOSURE BARRICADE DETAIL "D".

(4) FOR ROAD CLOSURE WITH LOCAL ACCESS TO PROJECT, SEE ROAD CLOSURE BARRICADE DETAIL "E".

(5) FOR BRIDGE OR CULVERT REPLACEMENTS, SUBSTITUTE "BRIDGE OUT" INSTEAD OF "ROAD CLOSED" ON R11 - 2 AND R11 - 3 SIGNS.

(6) INSTALL DETOUR AND COMMUNITY GUIDE SIGNS AND ARROWS ONLY IF SPECIFIED IN THE CONTRACT. IF THERE ARE EXISTING ROUTE MARKER ASSEMBLIES THAT WILL REMAIN IN PLACE, ADJUST THE LOCATION OF THE DETOUR ROUTE SIGNS TO CORRESPOND WITH THE EXISTING ASSEMBLIES. MODIFY EXISTING SIGNS WHERE POSSIBLE. SEE SPECIFIC PROJECT DETOUR SIGNING DETAIL SHEETS. IF DETOUR SIGNS ARE BEING INSTALLED BY OTHERS, PLACE THE CONTRACTED TRAFFIC CONTROL SIGNS TO ALLOW FOR PLACEMENT OF ALL WARNING, DETOUR AND GUIDE SIGNS AS SHOWN.

(7) "EAST" CARDINAL DIRECTION MARKERS AND RIGHT TURN ARROWS ARE SHOWN. USE OTHER CARDINAL DIRECTIONS AND ARROWS AS APPROPRIATE.

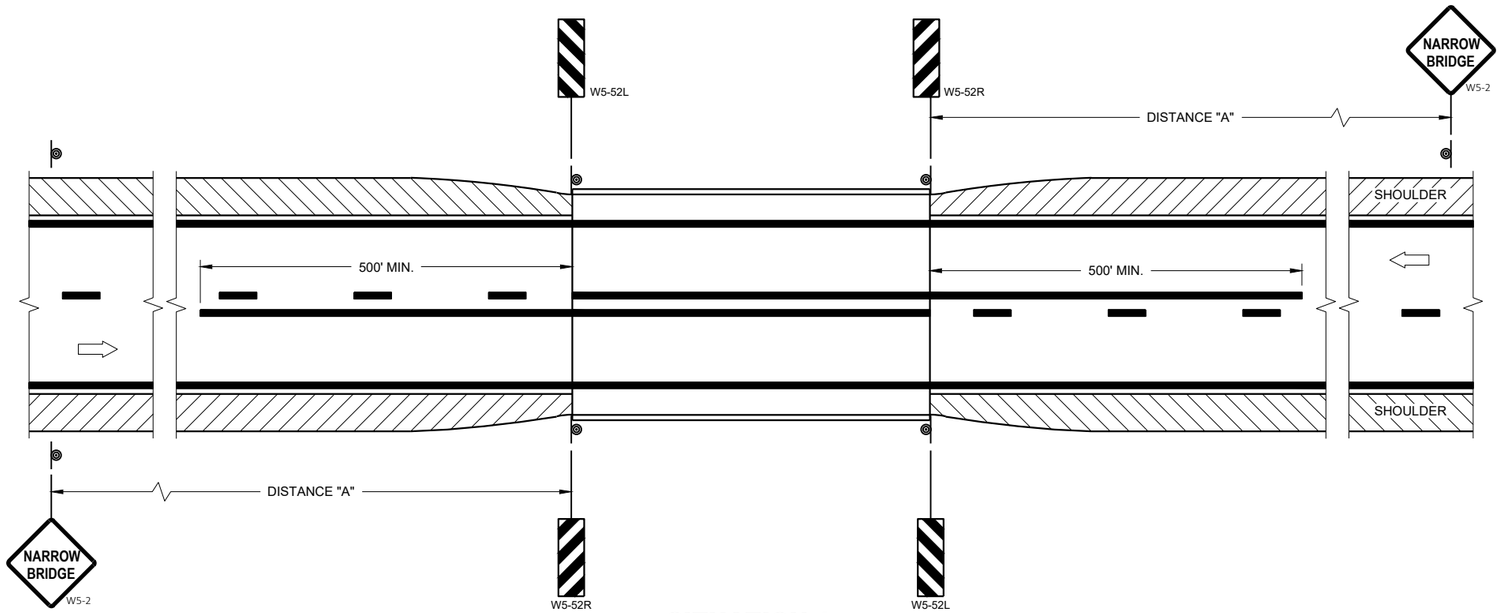
BARRICADES AND SIGNS FOR VARIOUS CLOSURES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
February 2020
DATE
/S/ Andrew Heidtke
WORK ZONE ENGINEER
FHWA

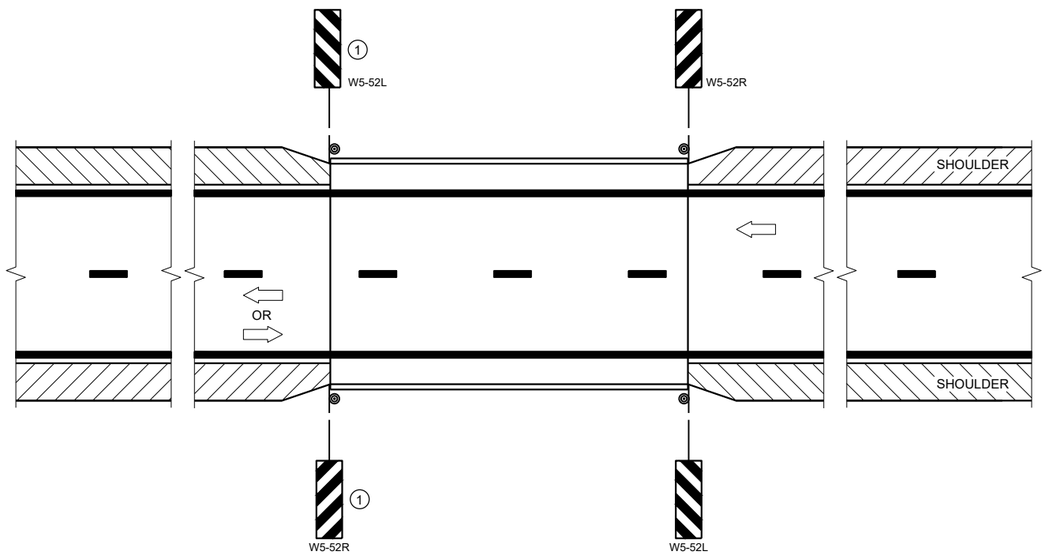
6

SDD 15C02 - 08b



SITUATION 1

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



SITUATION 2

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

GENERAL NOTES

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

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

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

ON BRIDGE ONLY PROJECTS, PLACE 300 FEET OF EDGELINE.

OMIT EDGELINES ON ROADWAYS WITHOUT EXISTING EDGELINES.

(1) OMIT ON ONE-WAY TRAVELED WAYS.

LEGEND

SIGN ON PERMANENT SUPPORT

DIRECTION OF TRAFFIC

DISTANCE TABLE

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

SIGNING AND MARKING FOR TWO LANE BRIDGES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
May 2022 — DATE
/S/ Jeannie Silver — STATE SIGNING AND MAF ENGINEER
FHWA

6
SDD 15C06 - 10

GENERAL NOTES

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

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

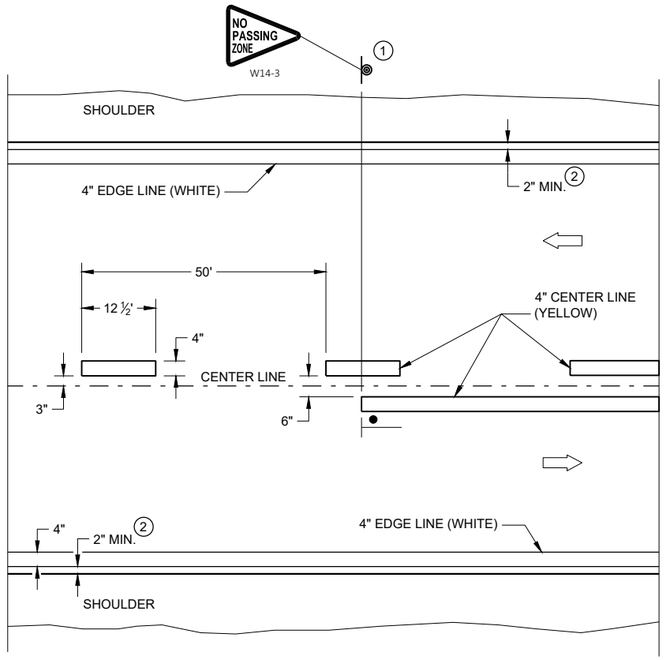
(2) MEASURE FROM EDGE OF MARKING TO JOINT LINE. THIS DOES NOT INCLUDE SPACE NEEDED FOR GROOVING OPERATIONS.

LEGEND

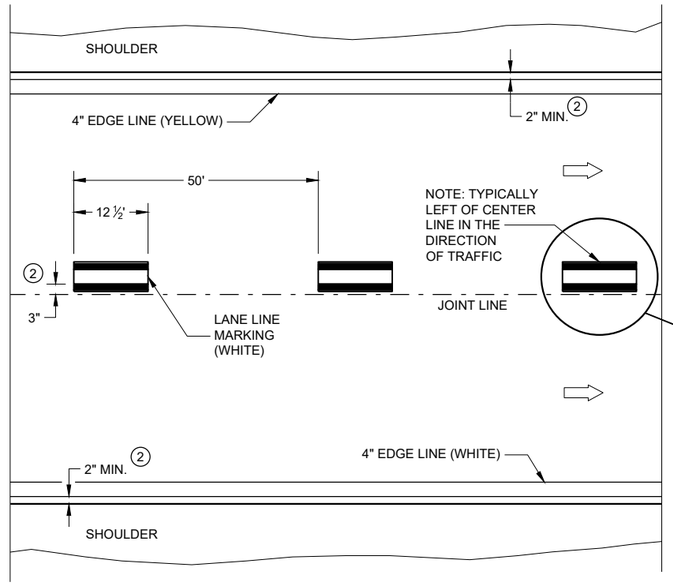
"T" MARKING

SIGN ON PERMANENT SUPPORT

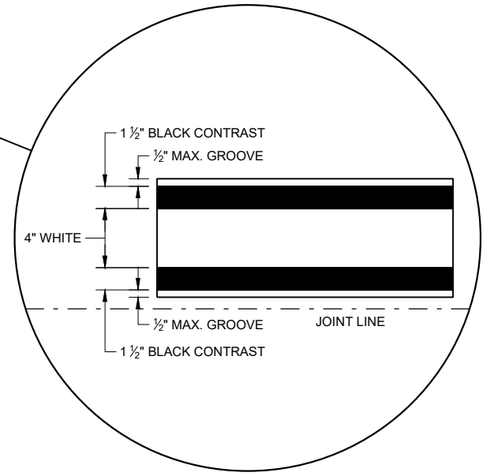
DIRECTION OF TRAFFIC



TWO WAY TRAFFIC



ONE WAY TRAFFIC



PERMANENT PAVEMENT MARKING

PERMANENT LONGITUDINAL PAVEMENT MARKINGS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
May 2022 — DATE
/S/ Jeannie Silver — STATEWIDE SIGNING AND M ENGINEER

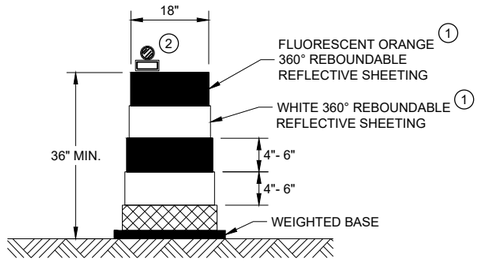
FHWA

SDD 15C08 - 21a

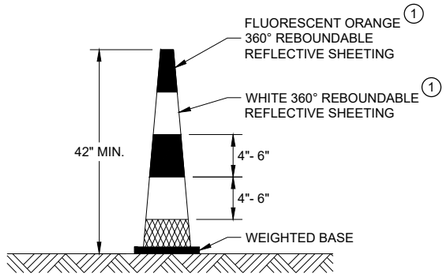
SDD 15C08 - 21a

GENERAL NOTES

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

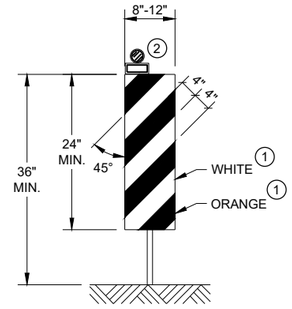


DRUM



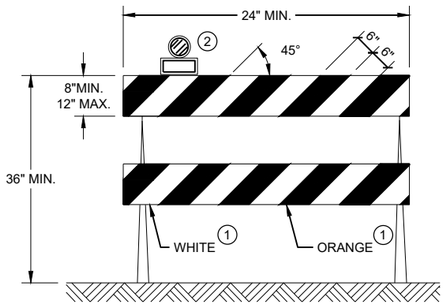
42" CONE

DO NOT USE IN TAPERS
½ SPACING OF DRUMS



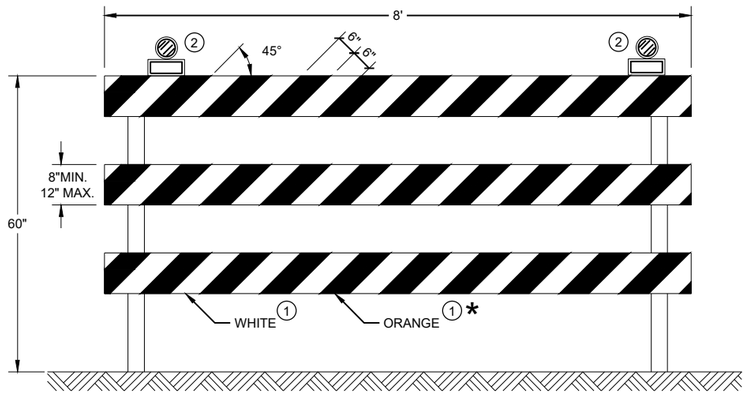
VERTICAL PANEL

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



TYPE II BARRICADE

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



TYPE III BARRICADE

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

* IF USED FOR A PERMANENT APPLICATION USE RED SHEETING.

CHANNELIZING DEVICES
DRUMS, CONES, BARRICADES
AND VERTICAL PANELS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
May 2021 — DATE
/S/ Andrew Heidtke — WORK ZONE ENGINEER
FHWA

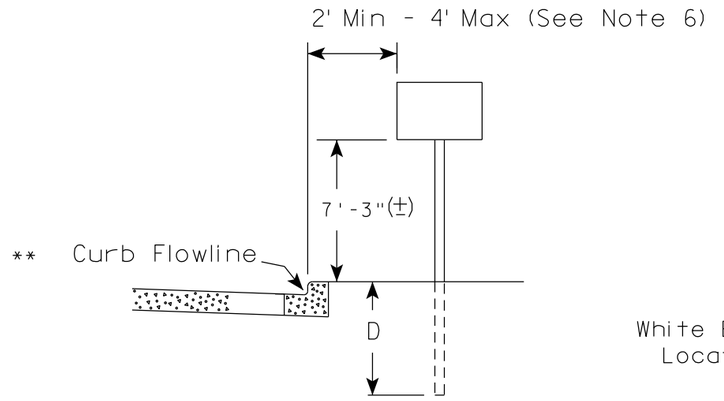
6

SDD15C11 - 09b

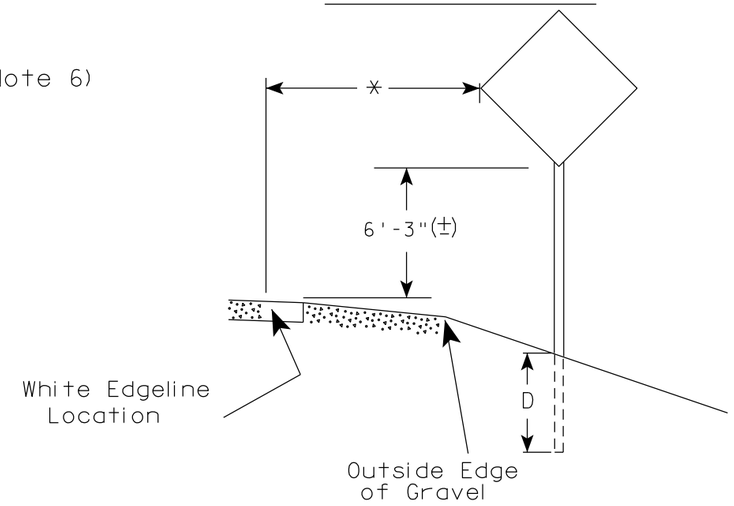
6

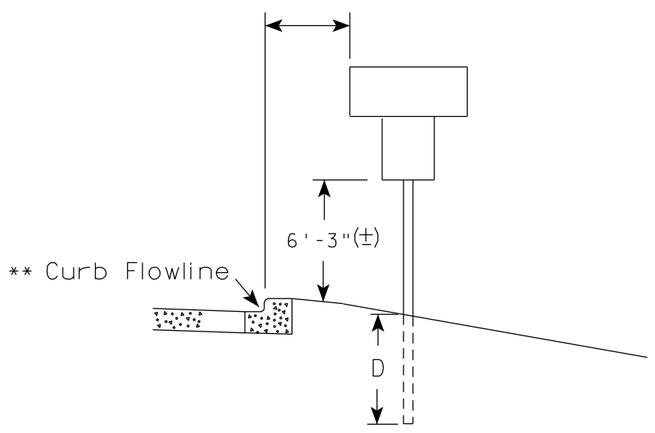
SDD15C11 - 09b

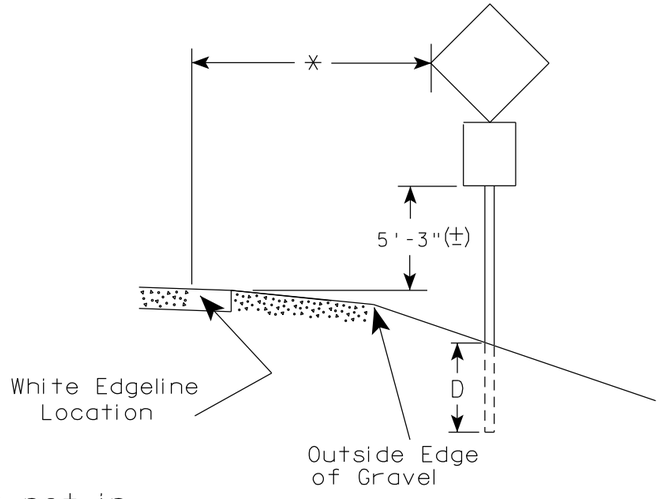
URBAN AREA



RURAL AREA (See Note 2)







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

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

POST EMBEDMENT DEPTH

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

GENERAL NOTES

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

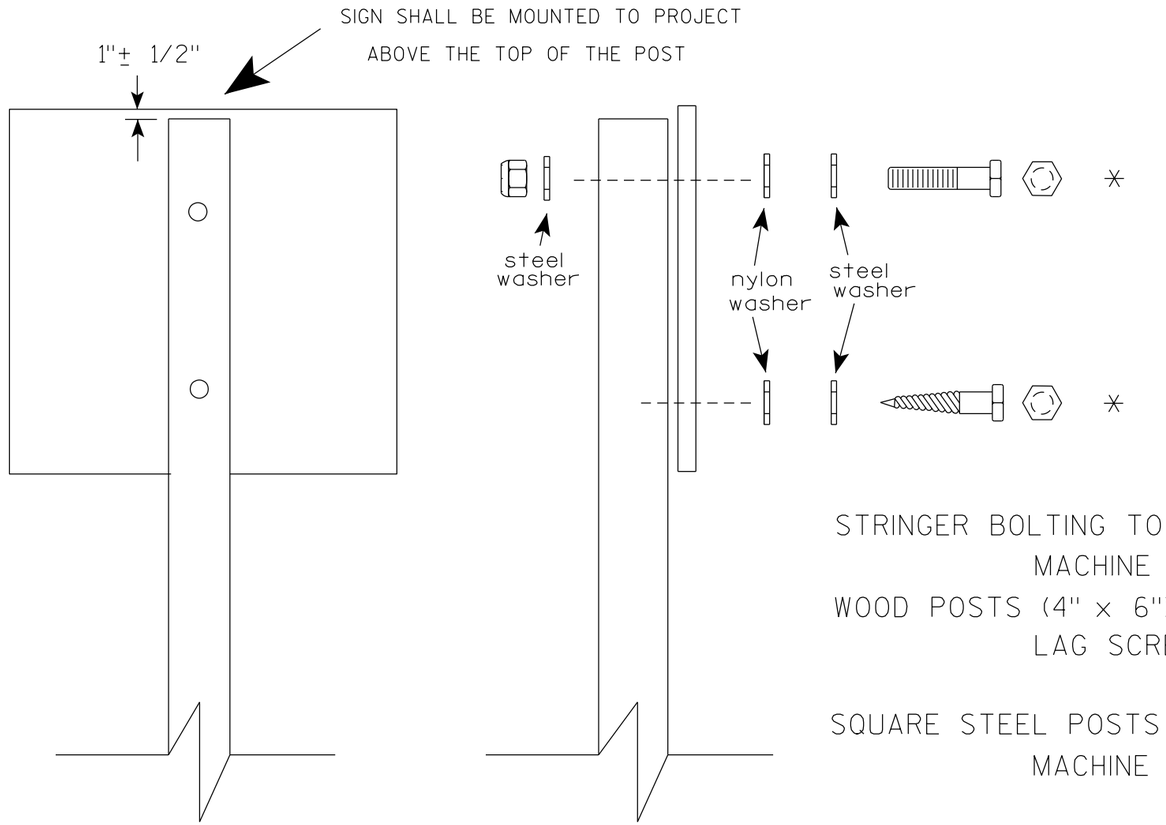
TYPICAL INSTALLATION OF PERMANENT TYPE II SIGNS ON SINGLE POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

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

PROJECT NO:	HWY:	COUNTY:		SHEET NO: 39	E



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

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

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

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

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

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

WOOD POSTS (4" x 6")

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

SQUARE STEEL POSTS (2" x 2")

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

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

WASHERS (ALL POSTS) -

1-1/4" O.D. X 3/8" I.D. X 1/16" STEEL
1-1/4" O.D. X 3/8" I.D. X .080 NYLON

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

ATTACHMENT OF SIGNS TO POSTS

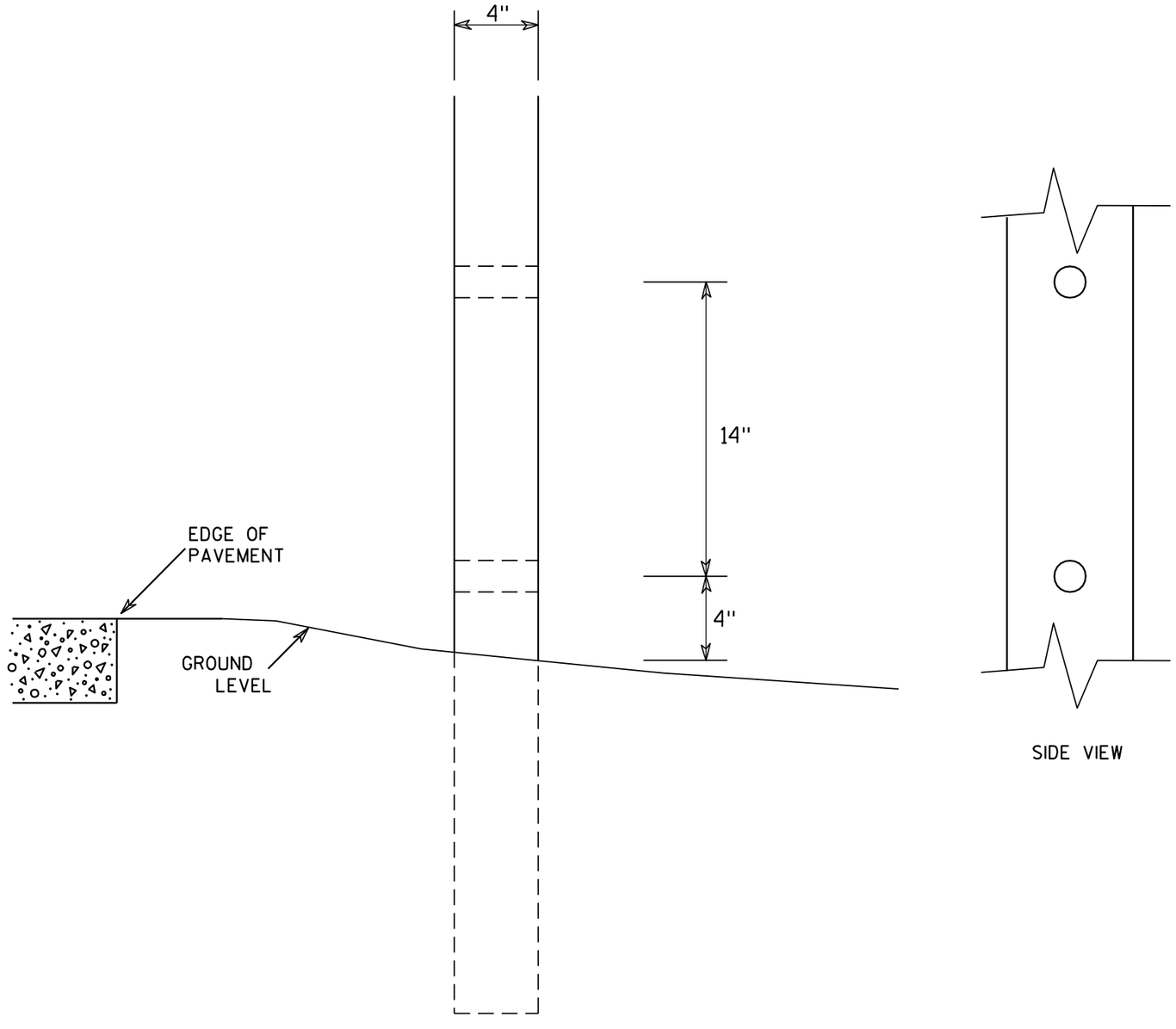
WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

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

PROJECT NO:

SHEET NO: 40 E



SIDE VIEW

GENERAL NOTES

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

7

7

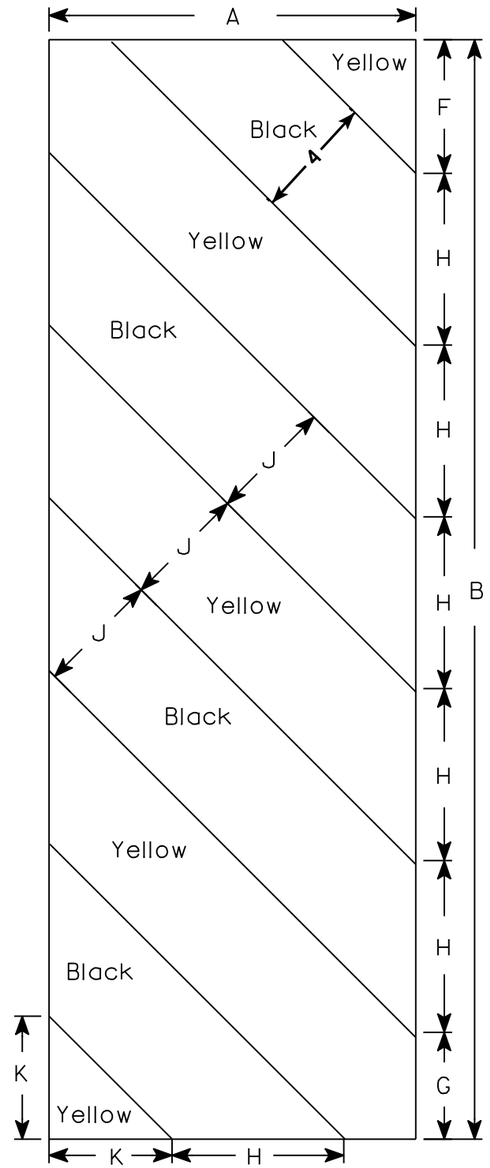
4 X 6 WOOD POST MODIFICATIONS

WISCONSIN DEPT OF TRANSPORTATION

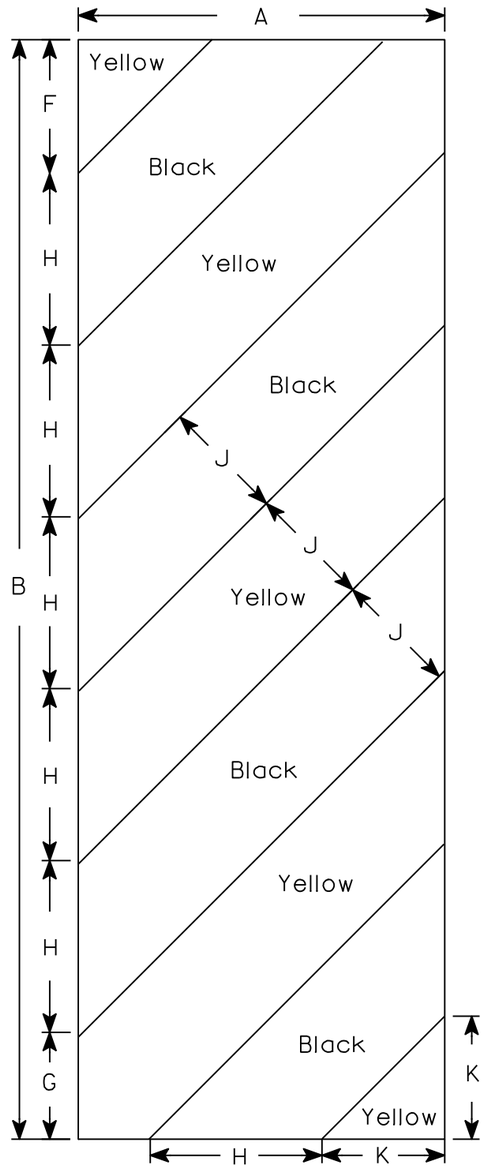
APPROVED Chester J Spang
for State Traffic Engineer

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

PROJECT NO:	HWY:	COUNTY:		SHEET NO: 41	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

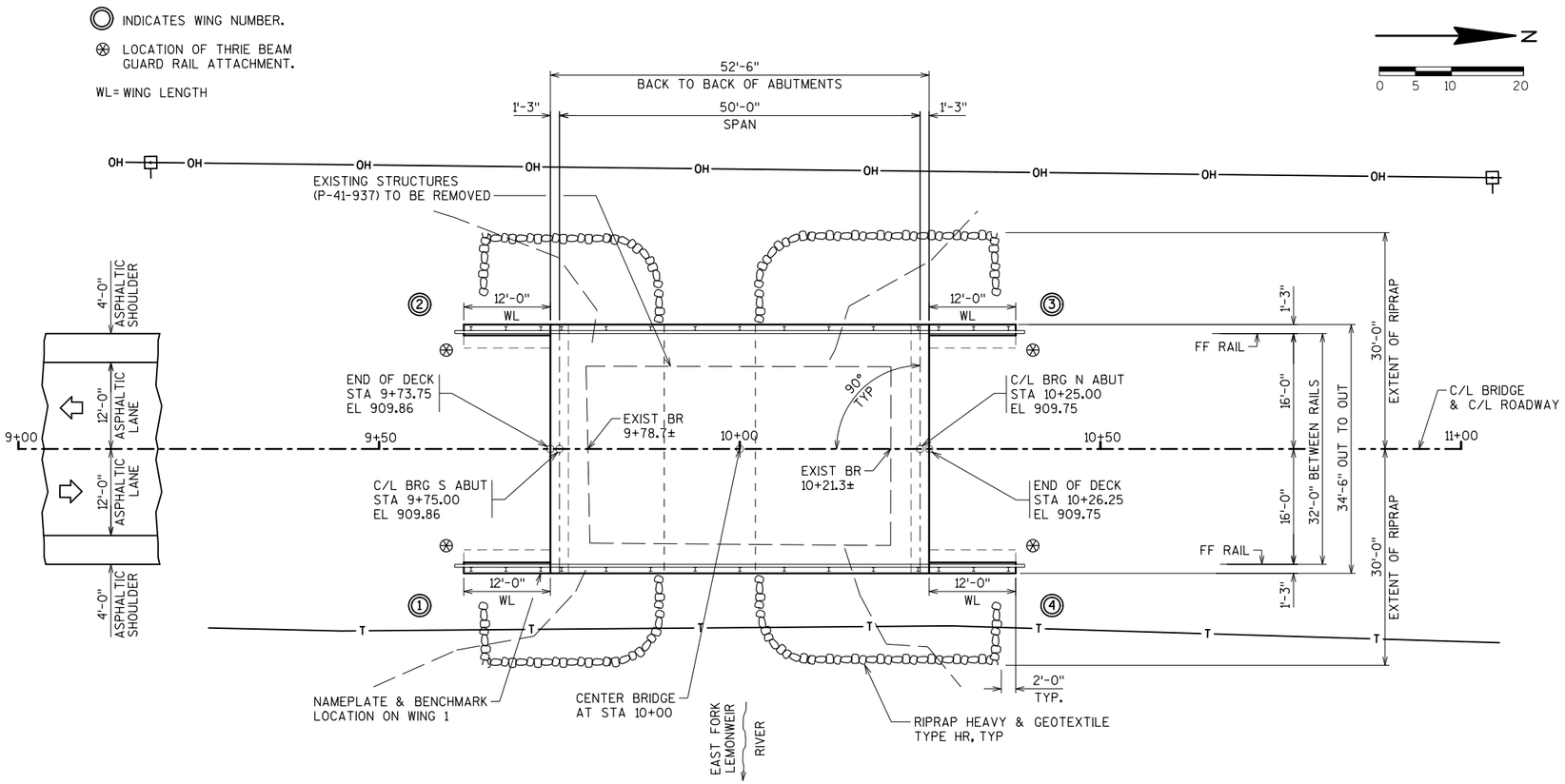
WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

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

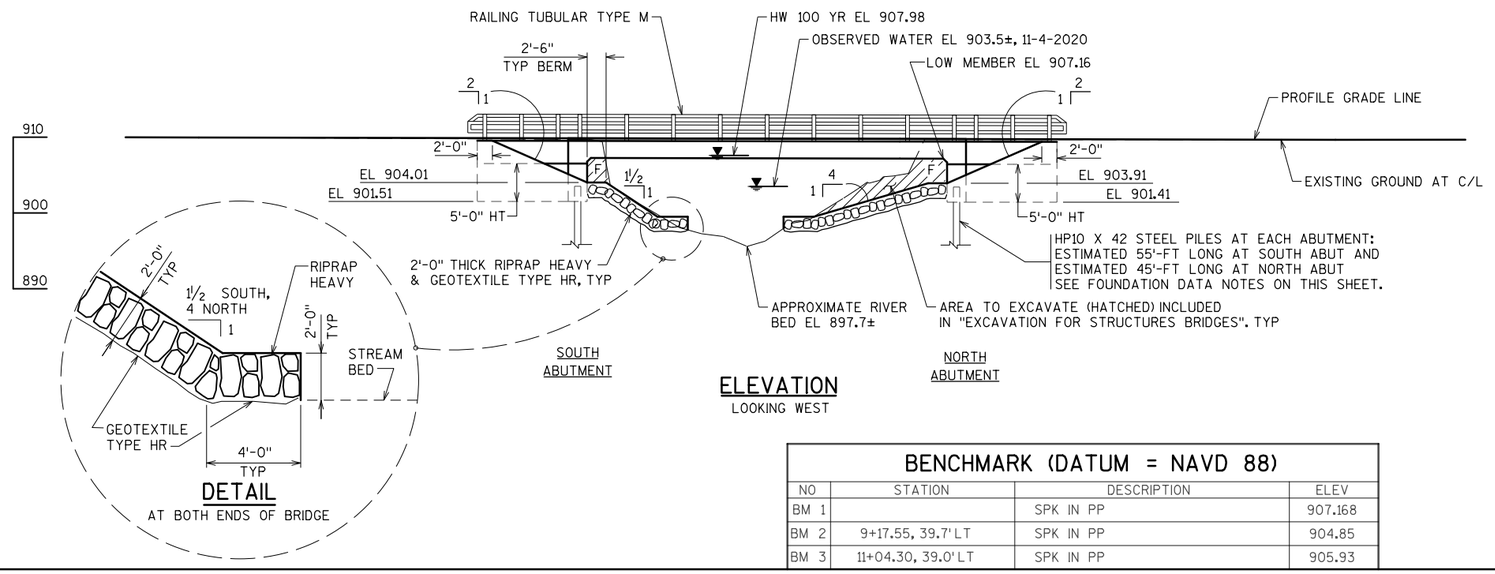
PROJECT NO:	HWY:	COUNTY:		SHEET NO: 42	E

STATE PROJECT NUMBER
7117-00-72



PLAN

SINGLE-SPAN REINFORCED CONCRETE FLAT SLAB BRIDGE



ELEVATION

LOOKING WEST

DETAIL

AT BOTH ENDS OF BRIDGE

BENCHMARK (DATUM = NAVD 88)

NO	STATION	DESCRIPTION	ELEV
BM 1		SPK IN PP	907.168
BM 2	9+17.55, 39.7'LT	SPK IN PP	904.85
BM 3	11+04.30, 39.0'LT	SPK IN PP	905.93

DESIGN DATA

LIVE LOAD:

DESIGN LOADING: HL-93
INVENTORY RATING FACTOR: RF = 1.10
OPERATING RATING FACTOR: RF = 1.43
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

SOUTH ABUTMENT TO BE SUPPORTED ON HP 10X42 STEEL PILING WITH A REQUIRED DRIVING RESISTANCE OF 180 TONS* PER PILE AS DETERMINED BY THE MODIFIED GATES DYNAMIC EQUATION. ESTIMATED 55-FEET LONG.

NORTH ABUTMENT TO BE SUPPORTED ON HP 10X42 STEEL PILING WITH A REQUIRED DRIVING RESISTANCE OF 180 TONS* PER PILE AS DETERMINED BY THE MODIFIED GATES DYNAMIC EQUATION. ESTIMATED 45-FEET LONG.

*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.

HYDRAULIC DATA

100 YEAR FREQUENCY

Q_{100}	5,400* CFS
Q_{100} THRU STRUCTURE	1,364** CFS
VELOCITY	4.56 FPS
HIGH WATER$_{100}$ EL	907.98 FT
DRAINAGE AREA	204 SQ MI
WATERWAY AREA	299 SQ FT
BRIDGE OPEN AREA	294 SQ FT

2 YEAR FREQUENCY

Q_2	520 CFS
Q_2 HIGH WATER EL	904.63 FT
Q_2 VEL	3.02 FPS
SCOUR CODE	5

* INCLUDES B-41-211
** 3,660 CFS THRU B-41-211

TRAFFIC DATA

ADT (2023)	= 1350
ADT (2043)	= 1850
DHV	= 180
DD	= 50/50 %
T	= 10 %
DESIGN SPEED	= 60 MPH

LIST OF DRAWINGS

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

10/28/2022

SEH CONTACT: CHRIS BLUM, PE, 608.620.6192
WISDOT BRIDGE OFFICE CONTACT: AARON BONK, PE, 608.261.0261

NO.	DATE	REVISION	BY

SEH
SHORT ELLIOTT HENDRICKSON INC.

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

ACCEPTED SDR 10/31/22
CHIEF STRUCTURES DESIGN ENGINEER DATE

STRUCTURE B-41-320

CTH PP OVER EAST FORK LEMONWEIR RIVER

COUNTY	TOWN ~~/CITY/VILLAGE~~
MONROE	BYRON

DESIGN SPEC. AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS

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

GENERAL PLAN

SHEET 1 OF 8
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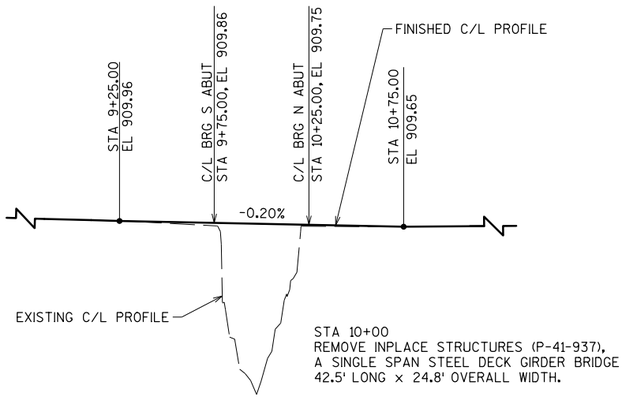
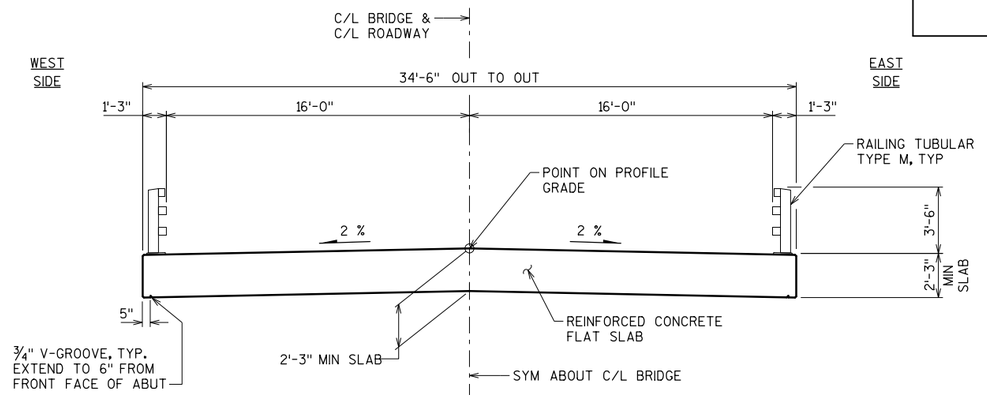


PROFILE GRADE LINE



CROSS SECTION THRU BRIDGE
(LOOKING NORTH)

TOTAL ESTIMATED QUANTITIES - B-41-320

	BID ITEM NUMBER	BID ITEMS	UNIT	SOUTH ABUT	NORTH ABUT	SUPER	TOTALS
	203.0260	REMOVING STRUCTURE OVER WATERWAY MINIMAL DEBRIS B-41-320	EACH	-	-	-	1
	206.1001	EXCAVATION FOR STRUCTURES BRIDGES B-41-320	EACH	-	-	-	1
(1)	210.1500	BACKFILL STRUCTURE TYPE A	TON	168	168	-	336
	502.0100	CONCRETE MASONRY BRIDGES	CY	35	35	157	227
(3)	502.3200	PROTECTIVE SURFACE TREATMENT	SY	-	-	262	262
	505.0400	BAR STEEL REIFNORCEMENT HS STRUCTURES	LB	2,105	2,105	-	4,210
	505.0600	BAR STEEL REINFORCEMENT HS COATED STRUCTURES	LB	1,720	1,720	29,920	33,360
	513.4061	RAILING TUBULAR TYPE M	LF	-	-	158	158
(4)	516.0500	RUBBERIZED MEMBRANE WATERPROOFING	SY	11	11	-	22
	550.1100	PILING STEEL HP 10-INCH X 42 LB	LF	275	225	-	500
	606.0300	RIPRAP HEAVY	CY	105	165	-	270
(2)	612.0406	PIPE UNDERDRAIN WRAPPED 6-INCH	LF	110	110	-	220
	645.0111	GEOTEXTILE TYPE DF SCHEDULE A	SY	29	29	-	58
	645.0120	GEOTEXTILE TYPE HR	SY	158	247	-	405
		NON-BID ITEMS					
		FILLER	SIZE	———	———	———	½ & ¾
		NAMEPLATE & BENCHMARK	EACH	1	———	———	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, INCLUDING THE SLAB EDGE AND 1'-0" UNDER SLAB, THE TOP AND EXTERIOR EXPOSED FACE OF WINGS, AND THE END 1'-0" OF THE FRONT FACE OF ABUTMENT.

(4) INCLUDES QUANTITY ON BACKFACE OF WINGS.

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-41-320" 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 BACKFILL QUANTITIES ARE BASED ON THE PAY LIMITS SHOWN ON THE MICELLANEOUS DETAILS SHEET AND MAY NOT REFLECT ACTUAL PLACED QUANTITIES. "BACKFILL STRUCTURE TYPE A" REQUIRED DIRECTLY BEHIND ABUTMENTS AND ABUTMENT WINGS FOR 3 FEET.

BACKFILL STRUCTURE PLACED BEYOND BACKFILL PAY LIMITS OR EXCEEDING PLAN QUANTITIES SHALL BE INCIDENTAL TO EXCAVATION FOR STRUCTURES.

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.

AT ABUTMENTS, CONCRETE POURED UNDER WATER WILL BE ALLOWED AND SHALL BE DONE IN ACCORDANCE WITH SECTION 502.3.5.3 OF THE STANDARD SPECIFICATIONS.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-41-320

DRAWN BY DLF | PLANS CK'D. CJB

CROSS SECTION AND QUANTITIES

SHEET 2 OF 8

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8

8

BORING #	DATE COMPLETED	NORTHING (Y)	EASTING (X)
B-1	12/3/2020	-	-
B-2	12/3/2020	-	-
B-3	12/3/2020	-	-

SOIL BORINGS PERFORMED BY:

PROFESSIONAL SERVICES INDUSTRIES, INC.
12839 30TH AVENUE
CHIPPEWA FALLS, WISCONSIN 54729
PH: (715) 738-2770, FAX: (715) 738-2771

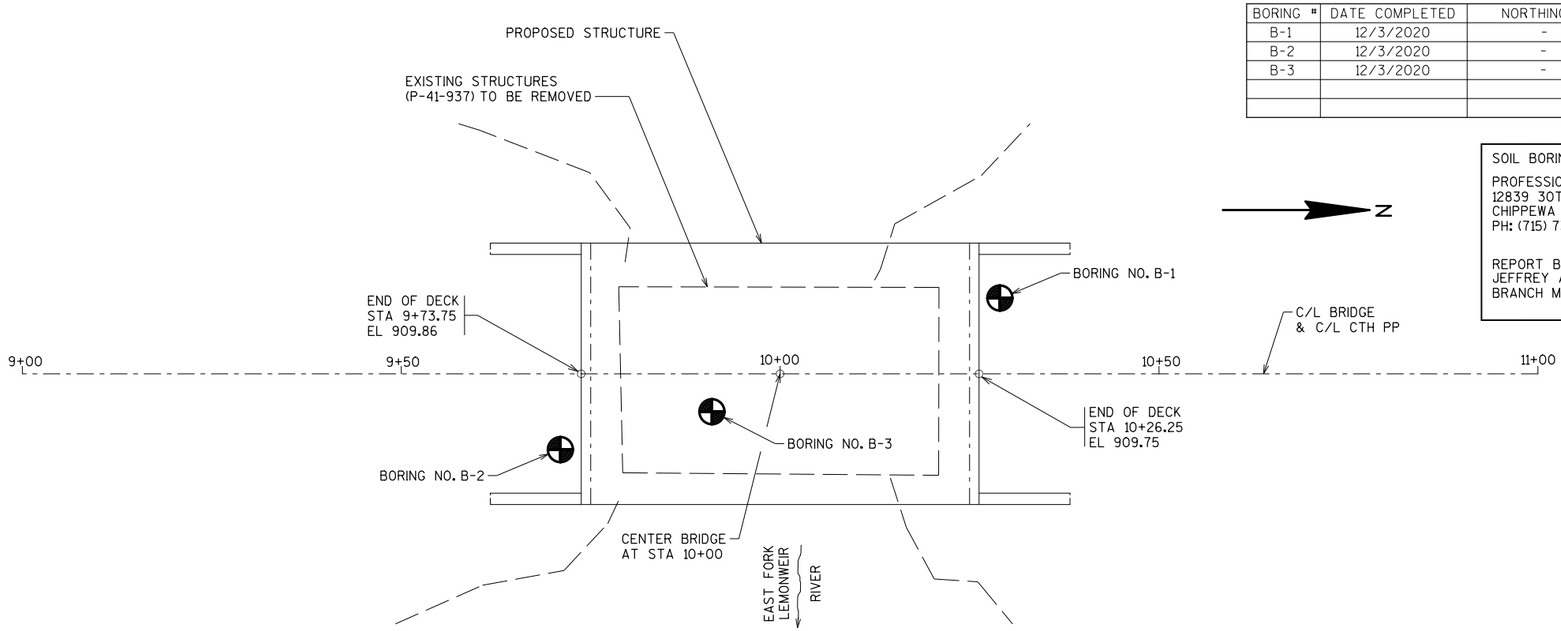
REPORT BY:
JEFFREY A. MANNINEN
BRANCH MANAGER

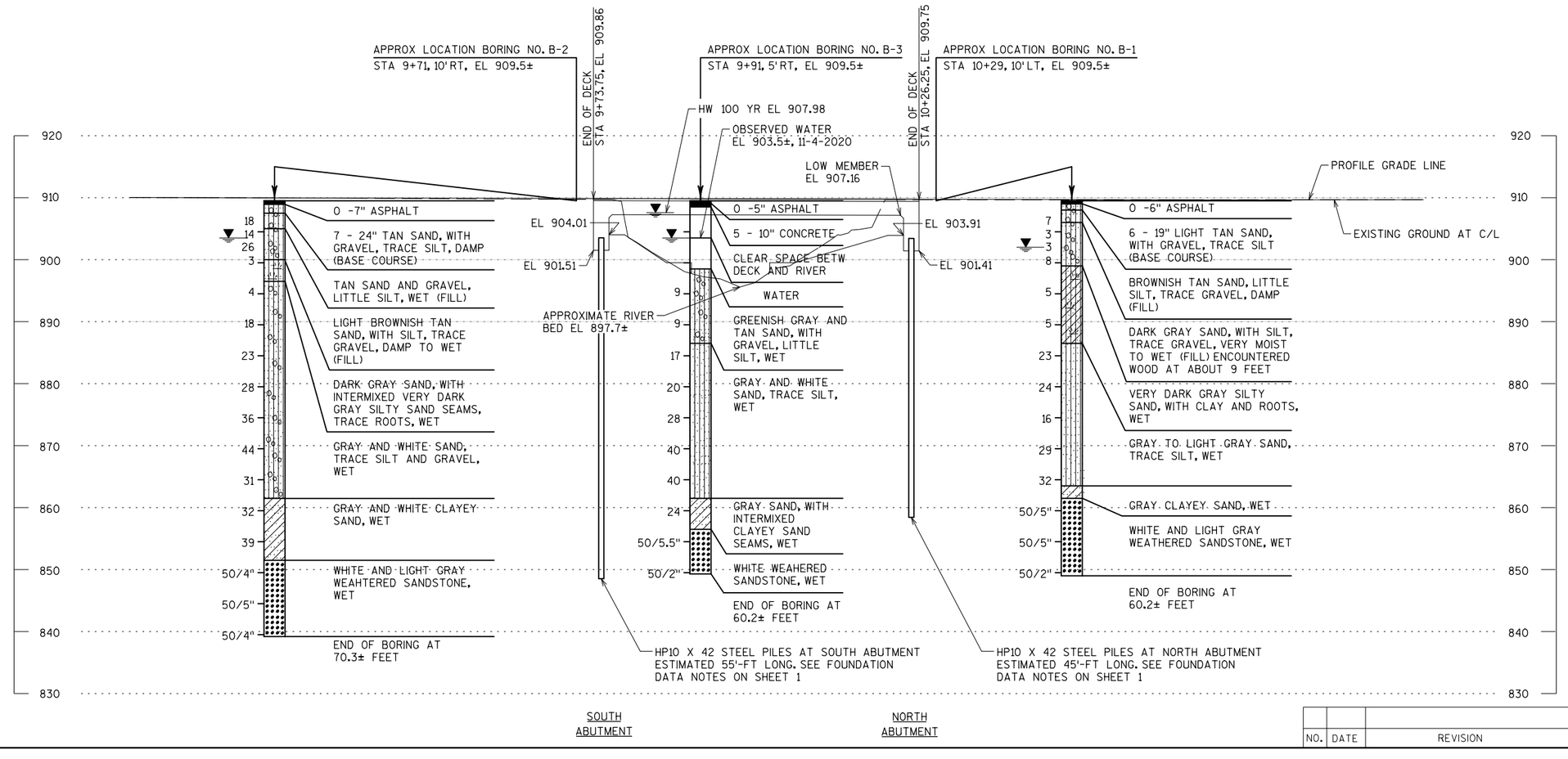
STATE PROJECT NUMBER

7117-00-72

MATERIAL SYMBOLS

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



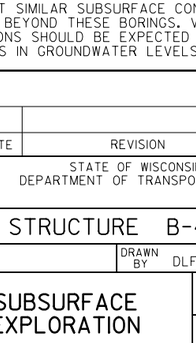


SOUTH ABUTMENT

NORTH ABUTMENT

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.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-41-320

DRAWN BY DLF | PLANS CK'D. CJB

SUBSURFACE EXPLORATION

SHEET 3 OF 8

45

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STATE PROJECT NUMBER

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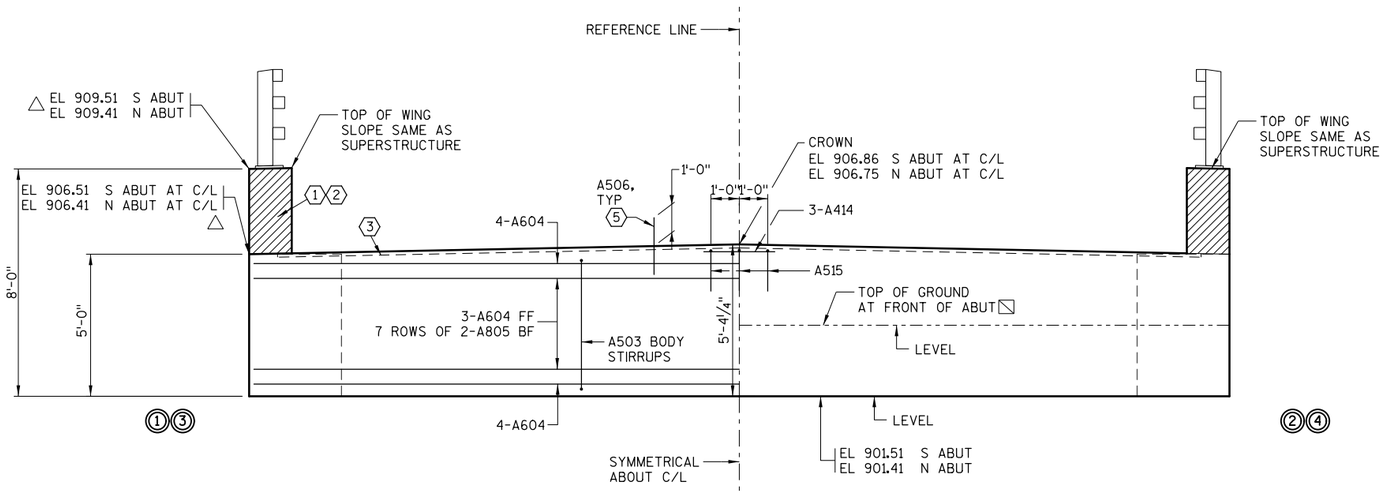
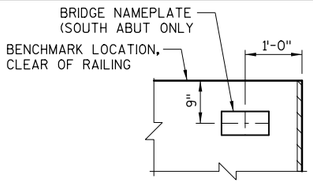


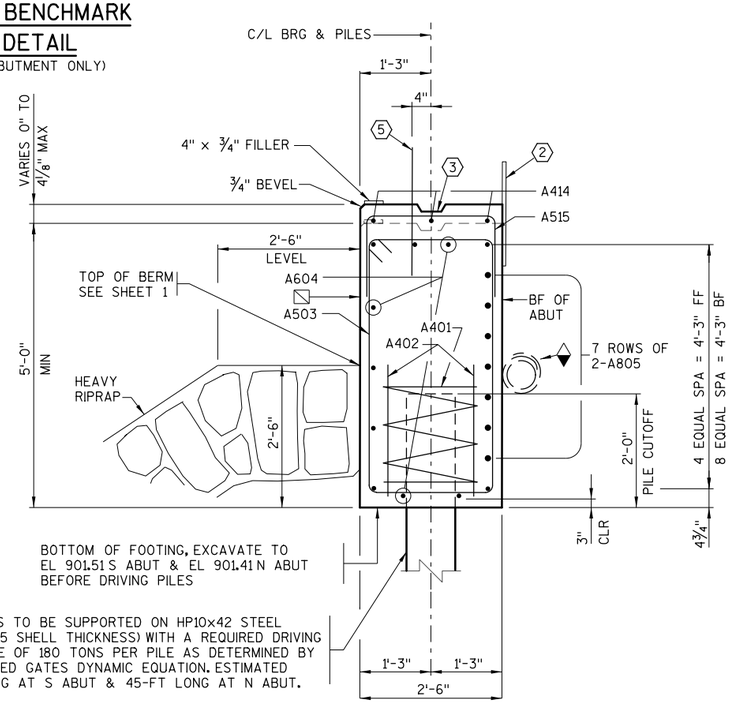
FRONT ELEVATION

(PILES NOT SHOWN FOR CLARITY)



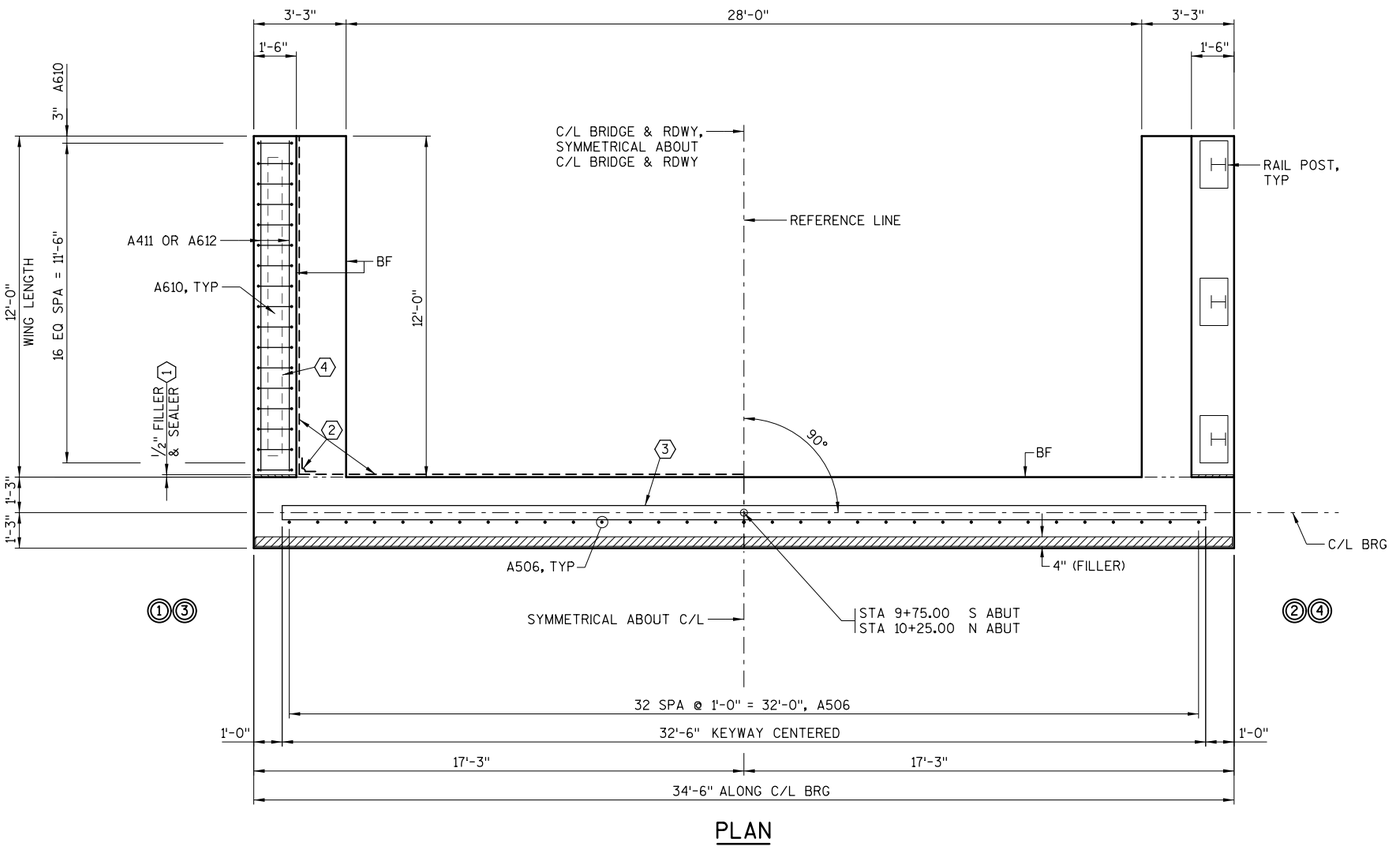
NAMEPLATE & BENCHMARK LOCATION DETAIL

(ON WING 1 SOUTH ABUTMENT ONLY)



TYPICAL SECTION THRU BODY

ALL HORIZ BARS TO BE A604 UNLESS OTHERWISE SHOWN OF NOTED



PLAN

ABUTMENT NOTES

1. SEAL ALL EXPOSED HORIZ. AND VERTICAL SURFACES OF 1/2" FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. (1" DEEP AND HOLD 1/8" BELOW SURFACE OF CONCRETE). FILLER INCLUDED IN WING LENGTH.
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. A506 BARS MAY BE PLACED AFTER CONC HAS BEEN POURED BUT BEFORE INITIAL SET HAS TAKEN PLACE.
- PIPE UNDERDRAIN WRAPPED (6-INCH) SLOPE 0.5% MIN TO SUITABLE DRAINAGE. ATTACH RODENT SHIELD AT END OF PIPE. PIPE UNDERDRAIN SHOULD BE SLOPED TO DISCHARGE A MINIMUM OF 1' ABOVE THE NORMAL WATER ELEVATION IF BOTTOM OF ABUTMENT IS LOCATED BELOW THE NORMAL WATER ELEVATION.
- ATTACH RODENT SHIELD AT END OF PIPE UNDERDRAIN, FOR RODENT SHIELD DETAIL SEE SHEET 8.
- △ ELEV GIVEN AT THIS POINT, SEE 'ELEVATION LOCATION DRAWING' ON SHEET 5.
- ▨ COAT WITH PROTECTIVE SURFACE TREATMENT PER THE STANDARD SPECIFICATIONS. PROTECTIVE SURFACE TREATMENT TO BE APPLIED TO THE TOP AND EXTERIOR EXPOSED FACE OF WINGS AND THE END 1'-0" OF THE FRONT FACE OF THE ABUTMENT.

S ABUT = SOUTH ABUTMENT
N ABUT = NORTH ABUTMENT

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

◎ INDICATES WING NUMBER

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-41-320

DRAWN BY NCM | PLANS CK'D. CJB

SOUTH AND NORTH ABUTMENT DETAILS

SHEET 4 OF 8

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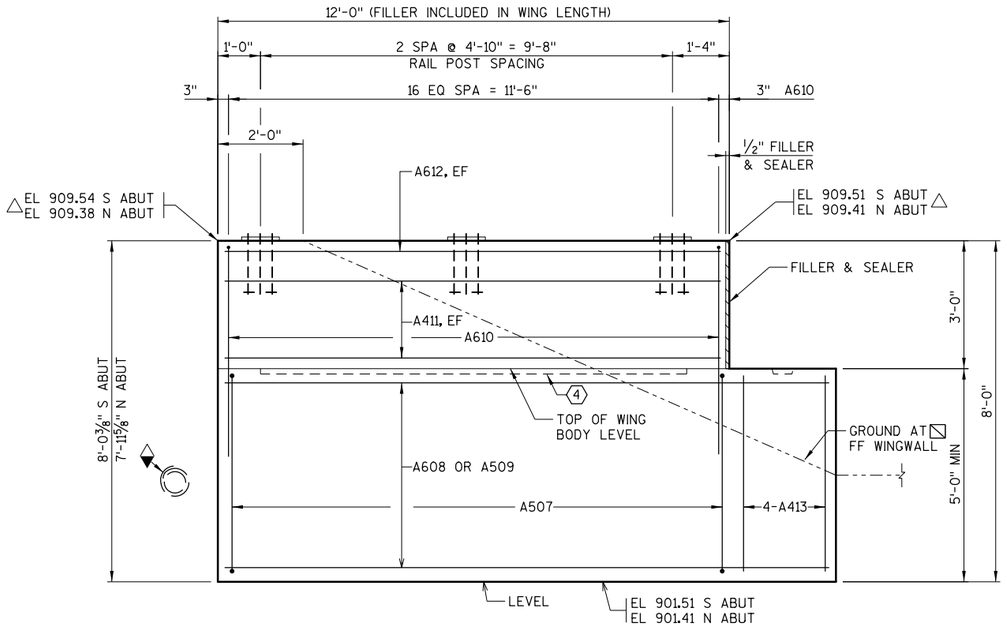
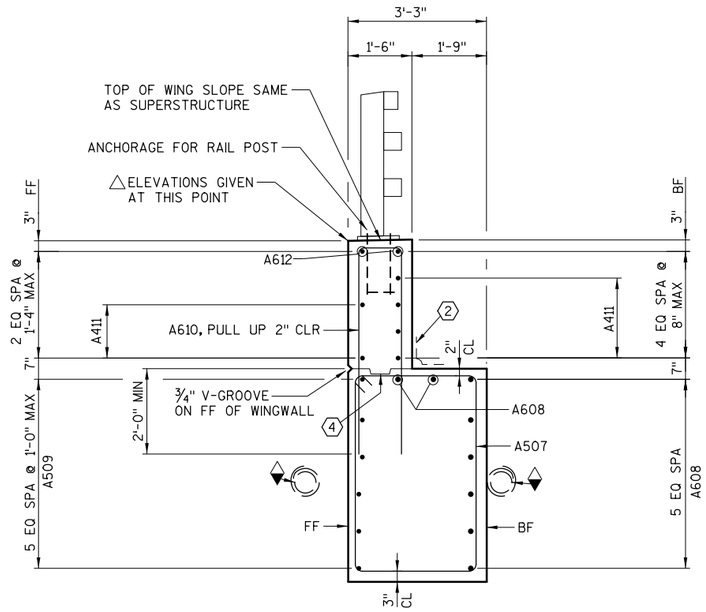


TYP WING ELEVATION



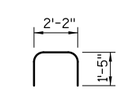
TYP SECTION THRU WINGWALLS

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

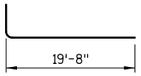
DIMENSIONS IN BENDING DETAILS ARE OUT TO OUT.

* NO. REQ'D. IS FOR 2 ABUTMENTS. DIVIDE BY 2 FOR EACH ABUTMENT.

BILL OF BARS						BOTH ABUTMENTS
BAR MARK	COAT	NO. * REQ'D.	LENGTH (FT-IN)	BAR SERIES	BENT	LOCATION
A401		10	28-0		X	BODY AT PILES
A402		20	2-3			BODY AT PILES
A503		84	13-10		X	BODY STIRRUPS
A604		22	34-2			BODY HORIZ
A805		28	20-10		X	BODY HORIZ BF
A506	X	66	2-0			BODY DOWELS
A507	X	52	15-4		X	WING STIRRUPS
A608	X	32	14-2			WING HORIZ BF
A509	X	24	14-2			WING HORIZ FF
A610	X	68	10-10		X	WING VERT
A411	X	24	11-7			WING HORIZ EF
A612	X	8	11-7			WING HORIZ EF TOP
A413		16	4-7			BODY AT ENDS
A414		6	2-6			BODY TOP HORIZ
A515		6	4-11		X	BODY TOP STIRRUPS



A515



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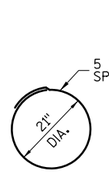

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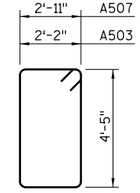
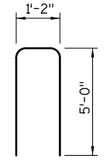


A503, A507



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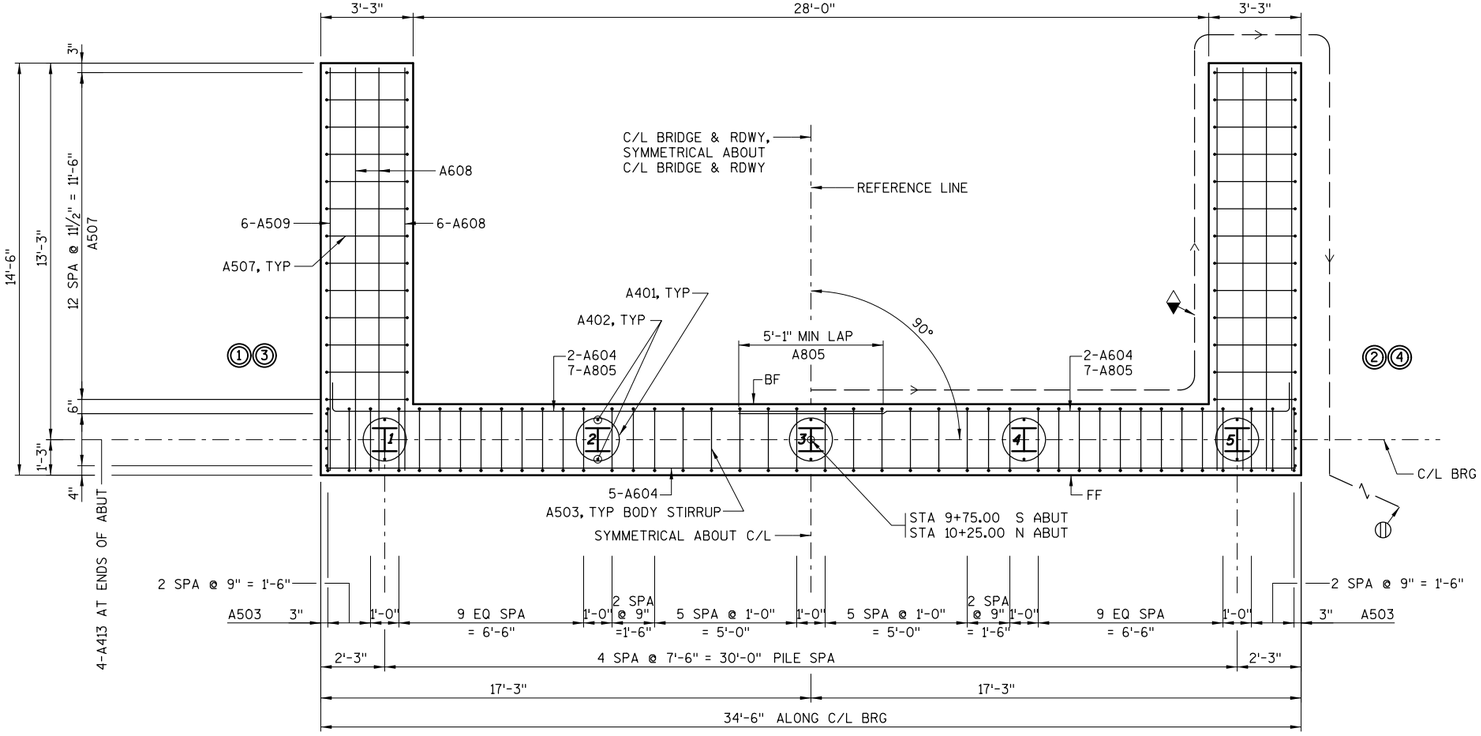
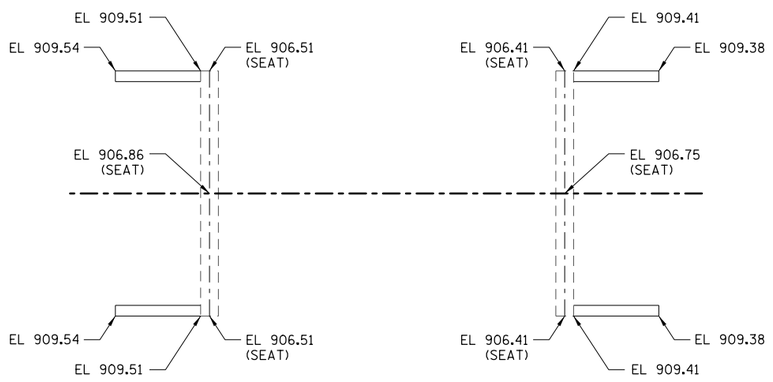


FOOTING LAYOUT



SOUTH ABUT NORTH ABUT

ELEVATION LOCATION DRAWING △

ABUTMENT NOTES

SEE ABUTMENT NOTES ON SHEET 4 (⟨2⟩ ⟨4⟩ ◆ ◍ △ ▨).

S ABUT = SOUTH ABUTMENT
N ABUT = NORTH ABUTMENT

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

◎ INDICATES WING NUMBER

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-41-320

DRAWN BY NCM | PLANS CK'D. CJB

SOUTH AND NORTH ABUTMENT DETAILS

SHEET 5 OF 8
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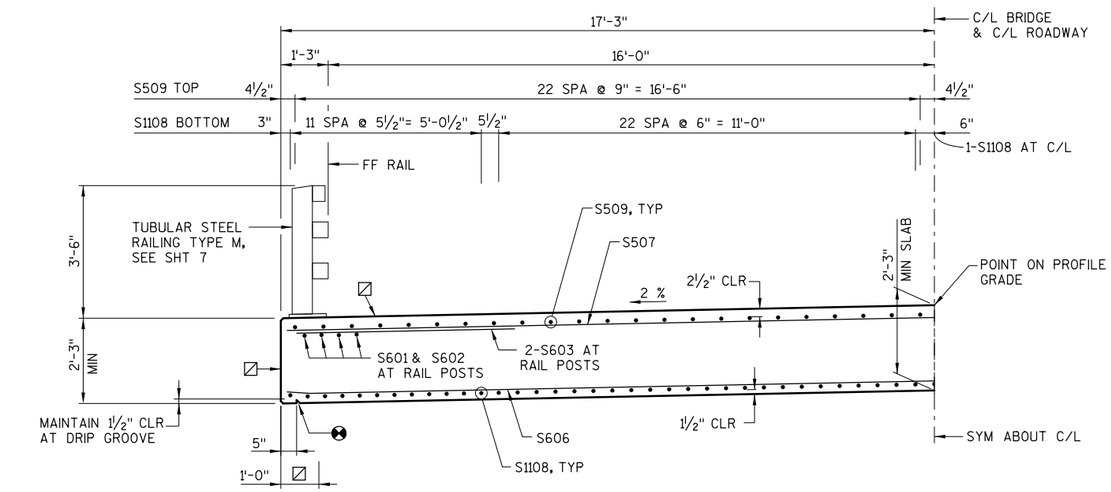
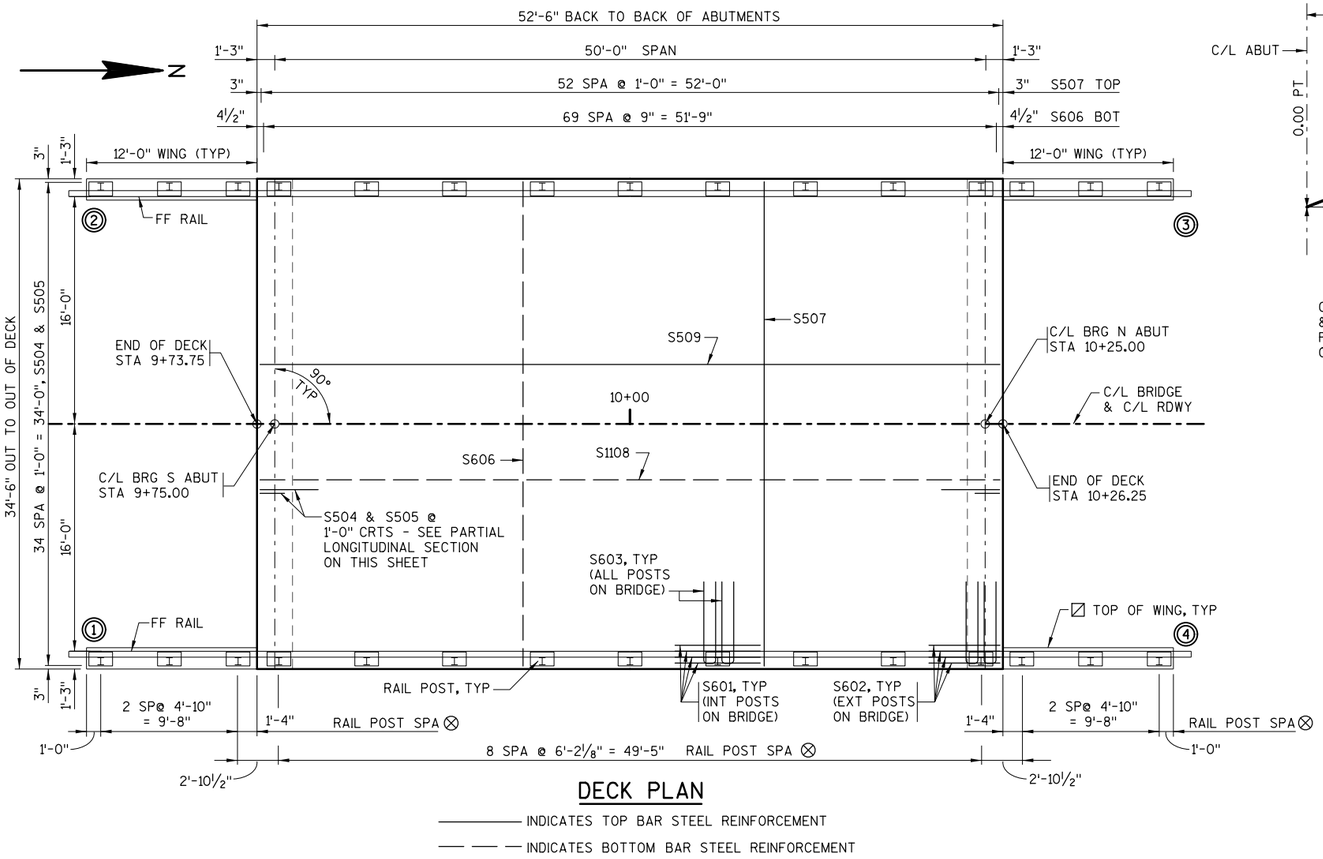


HALF TRANSVERSE SECTION



DECK PLAN

——— INDICATES TOP BAR STEEL REINFORCEMENT

— — — INDICATES BOTTOM BAR STEEL REINFORCEMENT

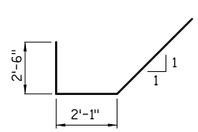
FINAL TOP OF DECK ELEVATIONS

	SOUTH ABUT	.1	.2	.3	.4	.5	.6	.7	.8	.9	NORTH ABUT
WEST EDGE OF DECK	909.51	909.50	909.49	909.48	909.47	909.46	909.45	909.44	909.43	909.42	909.41
C/L	909.86	909.85	909.84	909.83	909.82	909.81	909.79	909.78	909.77	909.76	909.75
EAST EDGE OF DECK	909.51	909.50	909.49	909.48	909.47	909.46	909.45	909.44	909.43	909.42	909.42

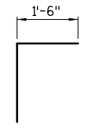
SURVEY TOP OF SLAB ELEVATIONS

	S. ABUTMENT	5/10 PT.	N. ABUTMENT
W. GUTTER			
CROWN OR ℄			
E. GUTTER			

PRIOR TO RELEASING SLAB FALSEWORK, TAKE TOP OF DECK ELEVATIONS AT THE ℄ OF ABUTMENTS, AND AT 5/10 PTS. TO VERIFY CAMBER. TAKE ELEVATIONS ALONG GUTTER LINES AND CROWN OR ℄. RECORD THE ELEVATIONS IN THE ABOVE TABLE FOR THE "AS BUILT" PLANS.



S504



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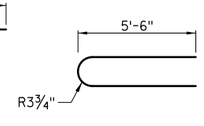
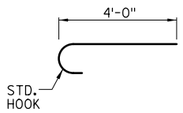
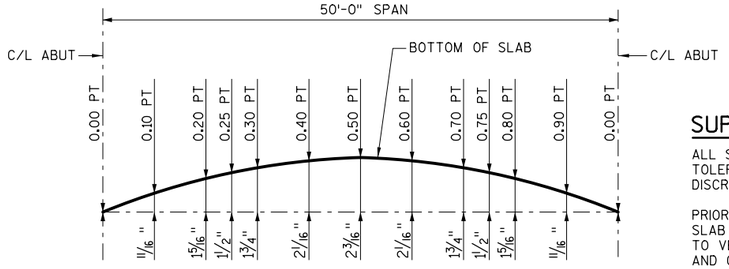


S603

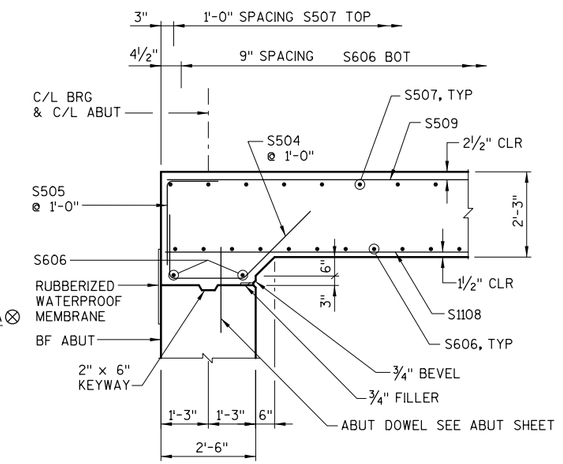


S602



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.



AT ABUTMENTS

PARTIAL LONGITUDINAL SECTION

STATE PROJECT NUMBER

7117-00-72

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
S601	X	56	6 - 0			RAIL POST
S602	X	16	6 - 0		X	RAIL POST
S603	X	36	12 - 0		X	RAIL POST
S504	X	70	6 - 5		X	END OF DECK
S505	X	70	3 - 11		X	END OF DECK
S606	X	74	34 - 2			BOT TRANS
S507	X	53	34 - 2			TOP TRANS
S1108	X	71	52 - 2			BOT LONG
S509	X	46	52 - 2			TOP LONG

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 CROWN OR C/L.

TRANSVERSE BARS SHALL BE PLACED 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 APPROXIMATELY 4'-0" CENTERS.

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

☐ COAT WITH "PROTECTIVE SURFACE TREATMENT" PER THE STANDARD SPECIFICATIONS. PROTECTIVE SURFACE TREATMENT TO BE APPLIED TO THE TOP OF DECK, EDGE OF DECK AND 1'-0" UNDER DECK TO THE TOP, AND EXTERIOR EXPOSED FACE OF WINGS, AND THE END 1'-0" OF THE FRONT FACE OF ABUTMENT.

⊗ TYPICAL EACH SIDE OF DECK, MEASURED ALONG EDGE OF DECK.

S ABUT = SOUTH ABUTMENT
N ABUT = NORTH ABUTMENT

FF = FRONT FACE
BF = BACK FACE
EF = EACH FACE
UN = UNLESS OTHERWISE NOTED

◎ INDICATES WING NUMBER

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

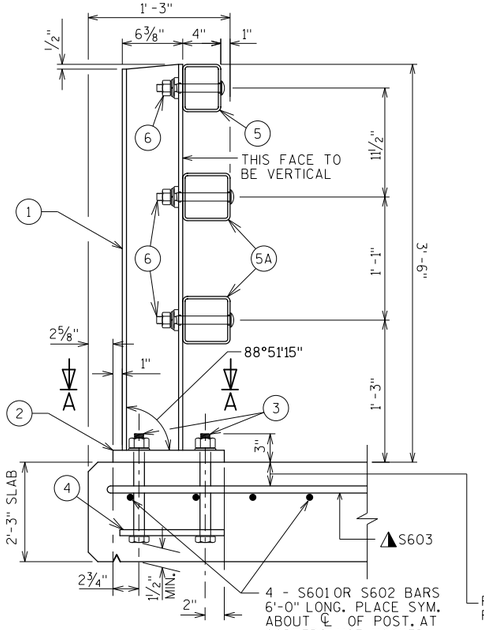
STRUCTURE B-41-320

DRAWN BY NCM | PLANS CK'D. CJB

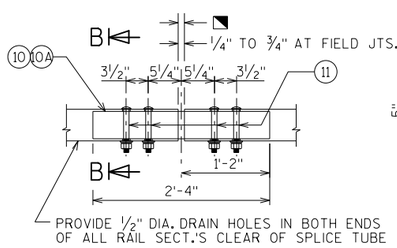
SUPERSTRUCTURE DETAILS

SHEET 6 OF 8
48

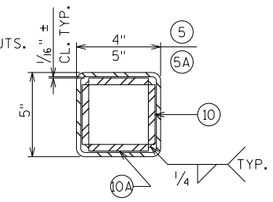
8



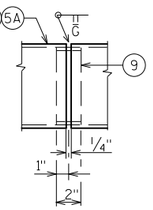
SECTION THRU RAILING ON DECK



FIELD ERECTION JOINT DETAIL

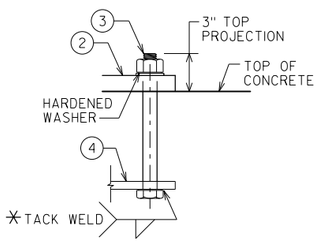


SECTION B-B

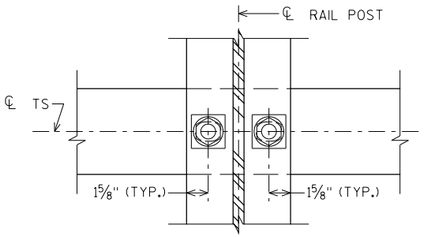


SHOP RAIL SPLICE DETAIL

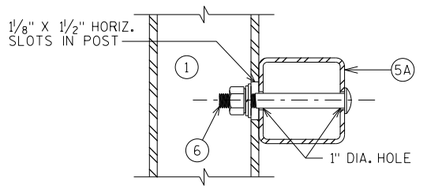
LOCATION MUST BE SHOWN ON SHOP DRAWINGS



ANCHOR BOLTS



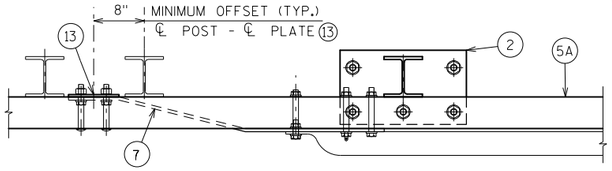
SECTION THRU POST WEB



SECTION THRU RAIL

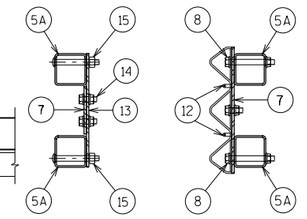
NOTE: CONNECTIONS AT LOWER RAILS SHOWN. CONNECTIONS AT TOP RAIL SIMILAR.

TYPICAL RAIL TO POST CONNECTIONS



TOP VIEW AT END POST

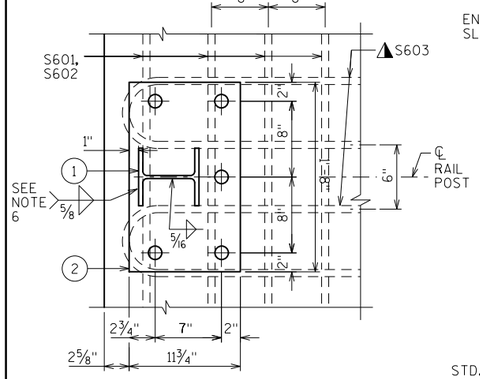
THRIE BEAM RAIL ATTACHMENT



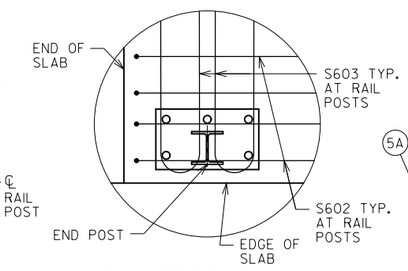
SECTION C-C SECTION D-D

LEGEND

1. W6 x 25 WITH 1 1/8" X 1 1/2" HORIZ. SLOTS ON EACH SIDE OF POST FOR BOLT NO. 6. CUT BOTTOM OF POST TO MATCH CROSS SLOPE OF ROADWAY. PLACE POST VERTICAL. PLACE POSTS NORMAL TO GRADE LINE.
2. PLATE 1 1/4" X 11 3/4" X 1'-8" WITH 1 7/16" DIA. OVERSIZED HOLES FOR ANCHOR BOLTS NO. 3. WELD TO NO. 1 AS SHOWN.
3. ASTM A449 - 1 1/8" DIA. ANCHOR BOLTS WITH NUT AND HARDENED WASHER (ALL GALVANIZED). 5 REQ'D. PER POST. THREAD 3" AND PLACE NORMAL TO PLATE NO. 2. CHAMFER TOP OF BOLTS BEFORE THREADING. USE 1'-9" LONG IN ABUTMENT WINGS. AT POSTS ON CONCRETE SLAB SUPERSTRUCTURES WHERE THE SLAB THICKNESS IS > 16" USE 1'-3" LONG. USE 10 3/4" LONG AT ALL OTHER LOCATIONS. (AN EQUIVALENT THREADED ROD WITH NUTS AND HARDENED WASHERS MAY BE SUBSTITUTED FOR ANCHOR BOLTS IN WINGS IF REQ'D. FOR CONSTRUCTABILITY.)
4. 5/8" X 11" X 1'-8" ANCHOR PLATE (GALVANIZED) WITH 1 3/16" DIA. HOLES FOR ANCHOR BOLTS NO. 3
5. TS 5 x 4 x 0.25 STRUCTURAL TUBING. ATTACH TO NO. 1 WITH NO. 6.
5A. TS 5 x 5 x 0.25 STRUCTURAL TUBING. ATTACH TO NO. 1 WITH NO. 6.
6. 7/8" DIA. A325 SLOTTED ROUND HEAD BOLT WITH NUT, 3/16" X 1 5/8" X 1 5/8" MIN. WASHER, AND LOCK WASHER (2 REQ'D. AT EACH RAIL TO POST LOCATION.)
7. 1/2" THK. BACK-UP PLATE WITH 2 - 7/8" X 1 1/2" THREADED SHOP WELDED STUDS (NO. 12). BOLT TO RAIL AS SHOWN IN DETAIL. REQUIRED AT THRIE BEAM GUARD RAIL ATTACHMENTS ONLY. PLACE SYMMETRICALLY ABOUT TUBES NO. 5A.
8. 1" DIA. HOLES IN PLATE NO. 7 & TUBES NO. 5A FOR 7/8" DIA. A325 BOLTS WITH HEX NUTS AND WASHERS. 6 HOLES IN TUBES AND PLATE NO. 7.
9. SPLICE SLEEVE FABRICATED FROM 1/4" PLATE. PROVIDE "SLIDING FIT".
10. 3/8" X 3 5/8" X 2'-4" PLATE. 2 PER RAIL. USED IN NO. 5 & 5A.
10A. 3/8" X 2 5/8" X 2'-4" PLATE USED IN NO. 5, 3/8" X 3 5/8" X 2'-4" PLATE USED IN NO. 5A. 2 PER RAIL.
11. 7/8" DIA. A325 ROUND HEAD BOLT WITH NUT, WASHER, AND LOCK WASHER. USE 15/16" X 1 1/4" LONGIT. SLOTTED HOLES AT FIELD JOINTS AND 15/16" X 2 1/4" MIN. LONGIT. SLOTTED HOLES AT EXP. JOINTS IN PLATE NO. 10A.
12. 7/8" DIA. X 1 1/2" LONG THREADED SHOP WELDED STUDS (2 REQ'D).
13. 3/8" X 8" X 1'-6" PLATE. BOLT TO RAIL AS SHOWN IN DETAIL. REQ'D. AT THRIE BEAM GUARD RAIL ATTACHMENTS ONLY. PLACE SYM. ABOUT TUBES NO. 5A.
14. 7/8" DIA. X 2" LONG A325 HEX BOLT WITH NUT AND WASHER (5 REQ'D.).
15. 1" DIA. HOLES IN TUBES NO. 5A FOR 7/8" DIA. A325 ROUND HEAD BOLT WITH NUT, WASHER AND LOCK WASHER (4 REQ'D.). 4 HOLES IN TUBES.

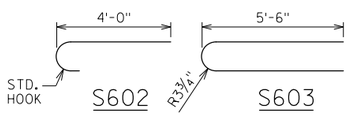


SECTION A-A

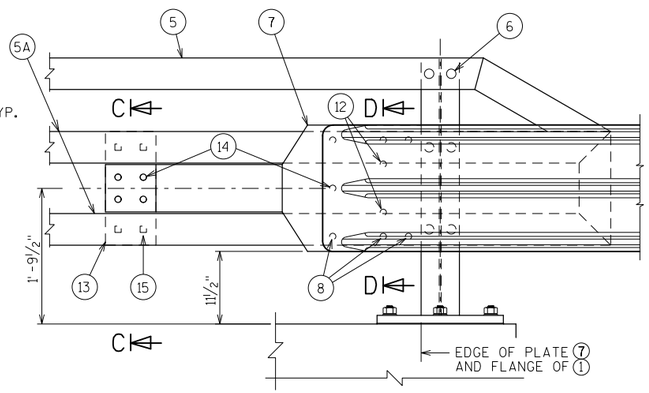


END POST DETAIL

REINFORCEMENT AT CORNERS

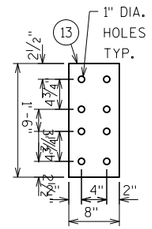


S602 S603



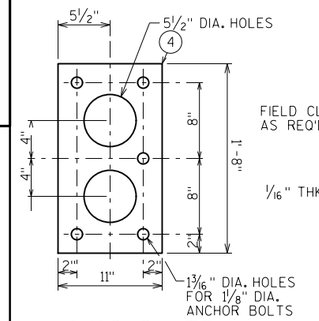
DETAIL AT END POST

THRIE BEAM RAIL ATTACHMENT



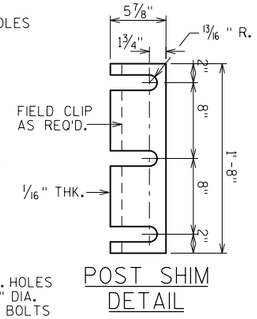
ANCHOR PLATE

AT BEAM GUARD ATTACHMENT

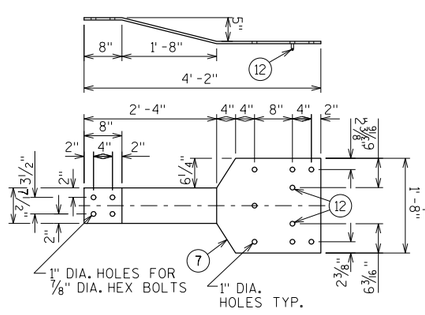


ANCHOR PLATE

AT RAIL TO DECK CONNECTION

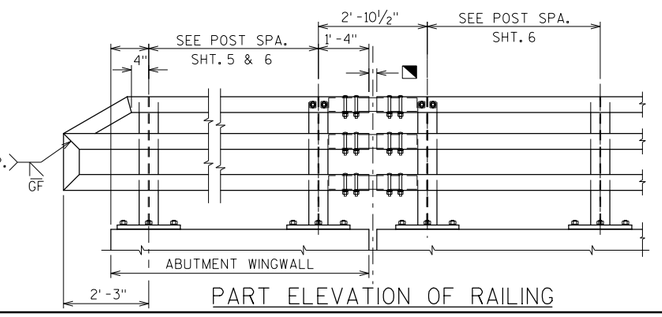


POST SHIM DETAIL



BACK-UP PLATE DETAIL

AT BEAM GUARD ATTACHMENT



PART ELEVATION OF RAILING

▲ TIE TO TOP MAT OF STEEL.

✳ ANCHOR BOLT ASSEMBLY MAY BE TACK WELDED, EITHER IN THE SHOP, OR IN THE FIELD AFTER THE ANCHOR PLATE IS PLACED.

◥ 1/2" OPENING FOR A1 ABUTMENT.

GENERAL NOTES

1. BID ITEM SHALL BE "RAILING TUBULAR TYPE M" WHICH INCLUDES ALL ITEMS SHOWN.
2. RAIL POST AND BASE PLATES SHALL CONFORM TO THE REQUIREMENTS OF ASTM A709 GRADE 50. HOLLOW RAILING STRUCTURAL TUBING SHALL CONFORM TO THE REQUIREMENTS OF ASTM A500 GRADE B OR C WITH A CERTIFIED FY = 50 KSI. ANCHOR PLATES, AND SPLICE TUBE PLATES SHALL CONFORM TO THE REQUIREMENTS OF ASTM A709 GRADE 36.
3. THE NUT SECURING THE POST BASE PLATE TO THE CONCRETE SHALL BE TIGHTENED TO A SNUG FIT AND GIVEN AN ADDITIONAL 1/8 TURN.
4. RAILS SHALL BE CONTINUOUS OVER A MINIMUM OF THREE (3) POSTS WITHOUT SPLICES WHERE POSSIBLE. RAILS SHALL BE SPLICED IN A PANEL OVER EXPANSION JOINTS.
5. ENDS OF TUBE SECTIONS SHALL BE SAWED. GRIND SMOOTH EXPOSED EDGES. ALL CUT ENDS SHALL BE TRUE AND SMOOTH.
6. WELD IS THE SAME ON BOTH FLANGES. FLANGE WELD DOES NOT REQUIRE MAGNETIC PARTICLE TESTING.
7. FILL BOLT SLOT OPENINGS IN POST SHIMS AND PLATE NO. 2 AND CAULK AROUND PERIMETER OF PLATE NO. 2 WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. STEEL POST SHIMS MAY BE USED UNDER POSTS WHERE REQ'D. FOR ALIGNMENT.
8. POST BASE PLATES SHALL BE FLAT WITH ALL SURFACES SMOOTH AND FREE FROM WARP AND ALL EDGES SMOOTH, STRAIGHT AND VERTICAL. ALL PLATE CUTS SHALL BE MACHINE OR MACHINE FLAME CUT.
9. ALL MATERIAL SHALL BE GALVANIZED AFTER FABRICATION. PRIOR TO GALVANIZING, ALL STEEL RAILING POSTS & STEEL TUBING SHALL BE GIVEN A NO. 6 BLAST CLEANING BY SSPC SPECIFICATIONS.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

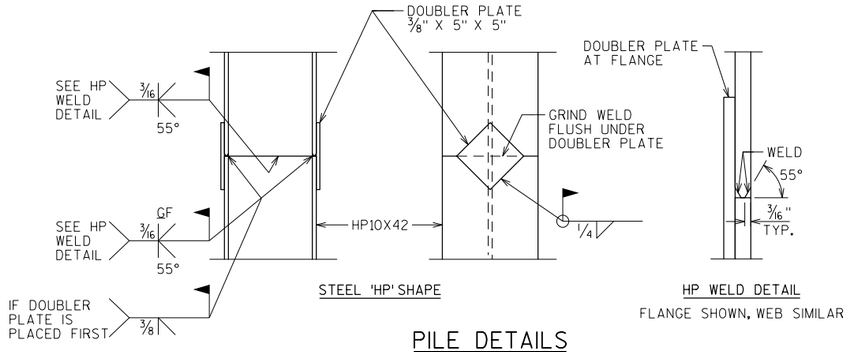
STRUCTURE B-41-320

DRAWN BY NCM | PLANS CK'D. CJB

TUBULAR STEEL RAILING TYPE M

SHEET 7 OF 8
49

PLOT DATE: 10/28/2022
PLOT TIME: 9:48:04 AM
FILE NAME : X:\KO\M\MONRO\157574\5-final-dsgn\5i-drawings\20-Struct\bridge\Sheet\b41320ml.dgn

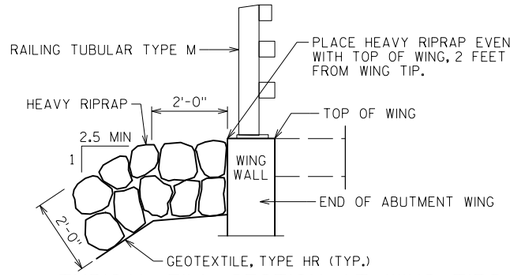


STEEL 'HP' SHAPE

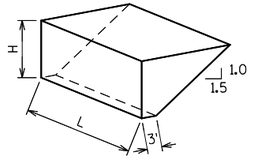
HP WELD DETAIL

FLANGE SHOWN, WEB SIMILAR

PILE DETAILS

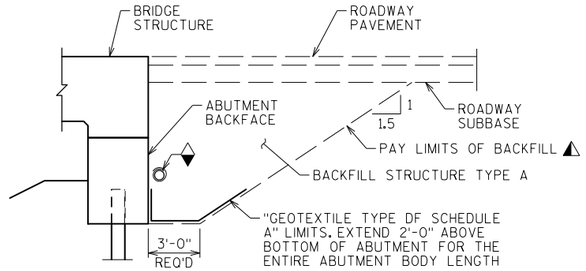


TYPICAL FILL SECTION AT WING TIPS



ABUTMENT BACKFILL DIAGRAM FOR WINGS PARALLEL TO ROADWAY

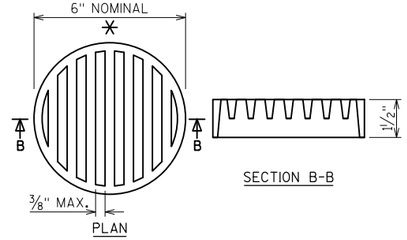
L = OUT TO OUT OF ABUTMENT, INCLUDING WINGS (FT)
H = AVERAGE ABUTMENT FILL HEIGHT (FT)
EF = EXPANSION FACTOR (1.20 FOR CY BID ITEMS AND 1.00 FOR TON BID ITEMS)
V_{CF} = (L)(3.0')(H) + (L)(0.5)(1.5H)(H)
V_{CY} = V_{CF} (EF)/27
V_{TON} = V_{CY} (2.0)



TYPICAL SECTION THRU ABUTMENT

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

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



RODENT SHIELD DETAIL

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

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

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

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-41-320

DRAWN BY NCM | PLANS CK'D. CJB

MISCELLANEOUS DETAILS

SHEET 8 OF 8

50

8

8

CTH PP											
		AREA (SF)		Incremental Vol (CY) (Unadjusted)			Cumulative Vol (CY)				
Station	Distance	Cut Note 1	Fill	Cut Note 2	Unusable Pavement Material	Fill Note 3	Cut 1.00 Note 2	Unusable Material	Available Material 1.00 Note 3	Expanded Fill 1.30 Note 4	Mass Ordinate Note 5
8+00	0.00	23.7	0.1	0.0	0.0	0.0	0.0	0	0	0	0
8+72	71.73	21.6	49.8	60.1	3.8	66.2	60	4	56	86	-30
8+97	25.00	22.0	30.9	20.2	3.8	37.4	80	8	73	135	-62
9+22	25.00	23.0	4.8	20.8	3.8	16.5	101	11	90	156	-66
9+25	3.27	56.0	3.2	4.8	3.8	0.5	106	15	91	157	-66
9+50	25.00	48.3	12.1	48.3	3.8	7.1	154	19	135	166	31
9+62	11.75	44.5	12.1	20.2	3.8	5.3	174	23	152	173	-21
9+62	0.25	0.0	0.0	0.2	0.0	0.1	175	23	152	173	-21
10+38	76.00	0.0	0.0	0.0	0.0	0.0	175	23	152	173	-21
10+38	0.25	45.8	23.0	0.2	3.8	0.1	175	26	148	173	-25
10+50	11.75	49.2	15.9	20.7	3.8	8.5	195	30	165	184	19
10+75	25.00	53.8	8.7	47.7	3.8	11.3	243	34	209	199	11
10+78	3.28	22.0	8.9	4.6	3.8	1.1	248	38	210	200	10
11+03	25.00	21.8	35.0	20.3	3.8	20.3	268	41	227	227	0
11+28	25.00	19.9	64.0	19.3	3.8	45.9	287	45	242	286	-44
12+00	71.72	18.8	0.0	51.4	3.8	85.0	339	49	290	397	-107

Notes:

1) Salvaged/Unusable Pavement Material is included in Cut.
2) Excavation Common is the sum of the Cut column. Item number 205.0100
3) Does not include Unusable Pavement Excavation volume.
4) Will be backfilled with Excavation Common or Borrow.
5) Plus quantity indicates an excess of material. Minus indicates a shortage of material. Borrow item number 208.0100

9

9

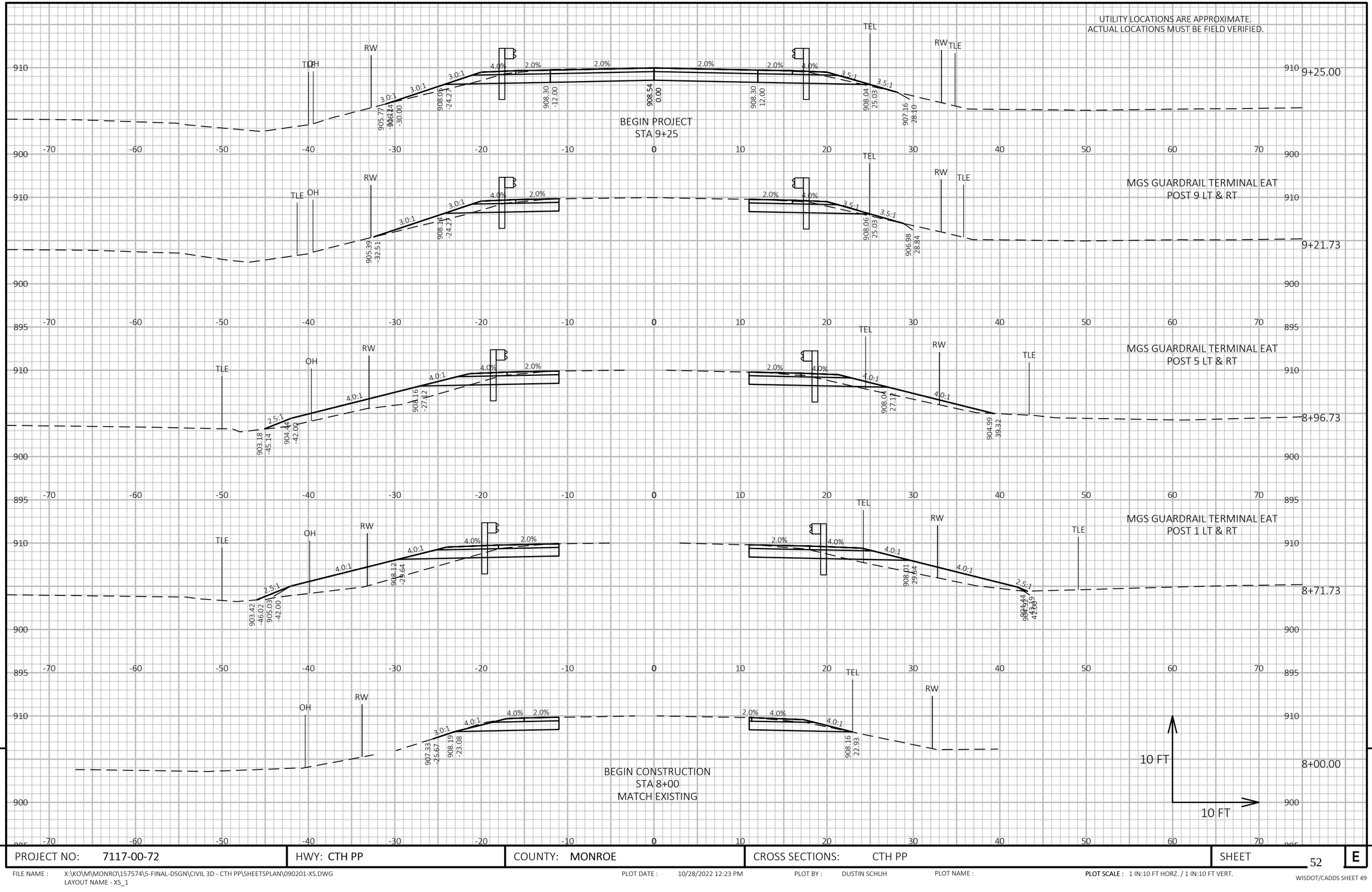
PROJECT NO: 7117-00-72 | HWY: CTH PP | COUNTY: MONROE | EARTHWORK DATA | SHEET 51 | E

FILE NAME : X:\KO\M\MONRO\157574\5-FINAL-DSGN\CIVIL 3D - CTH PP\SHEETSPLAN\090101-EW.DWG
LAYOUT NAME - 01

PLOT DATE : 10/28/2022 12:23 PM PLOT BY : DUSTIN SCHUH PLOT NAME : PLOT SCALE : 1" = 1'

WISDOT/CADDS SHEET 49

UTILITY LOCATIONS ARE APPROXIMATE.
ACTUAL LOCATIONS MUST BE FIELD VERIFIED.



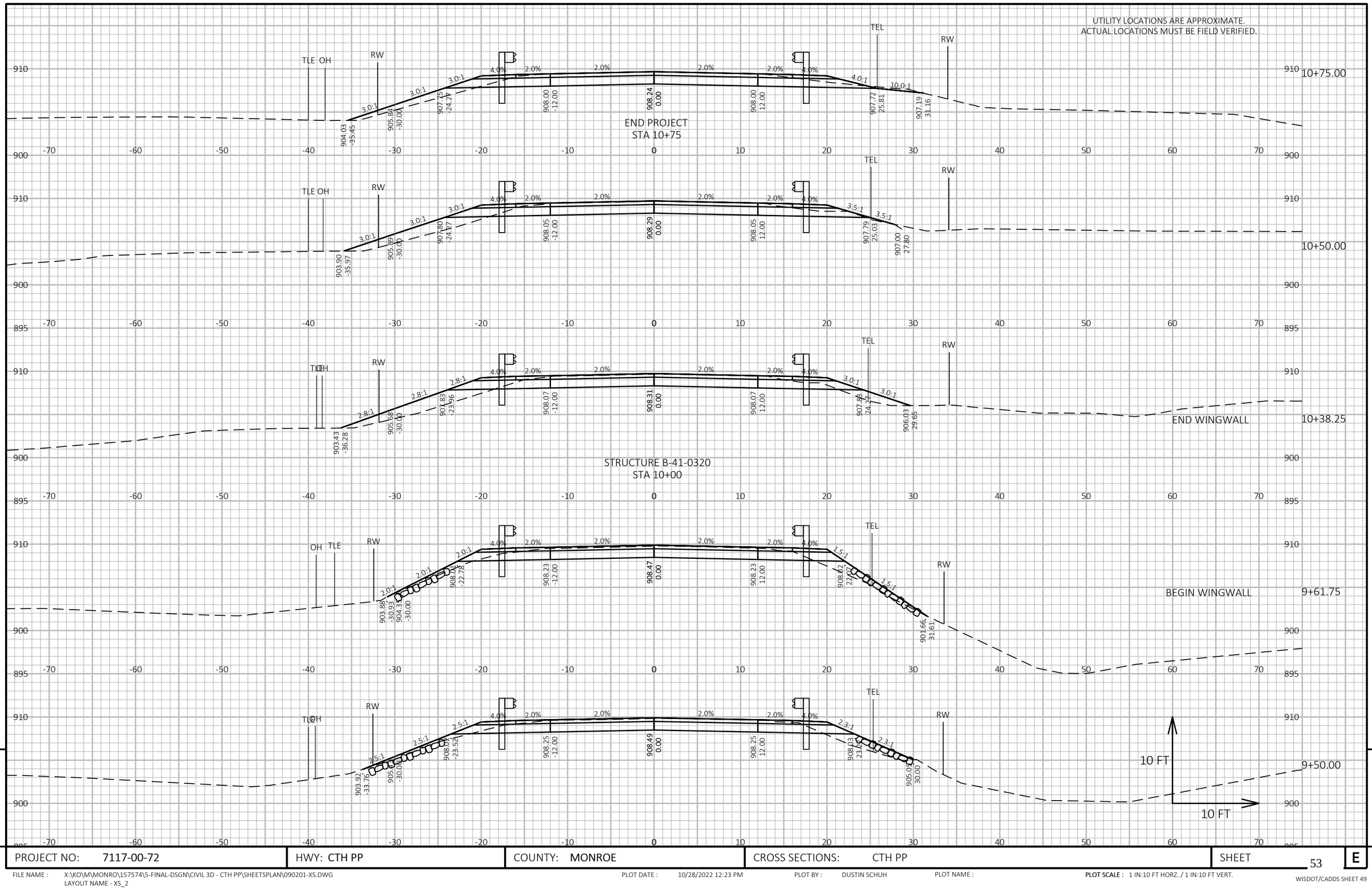
PROJECT NO: 7117-00-72	HWY: CTH PP	COUNTY: MONROE	CROSS SECTIONS: CTH PP	SHEET 52	E

FILE NAME : X:\KO\M\MONRO\157574\5-FINAL-DSGN\CIVIL 3D - CTH PP\SHEETSPLAN\090201-XS.DWG
LAYOUT NAME - XS_1

PLOT DATE : 10/28/2022 12:23 PM PLOT BY : DUSTIN SCHUH PLOT NAME : PLOT SCALE : 1 IN:10 FT HORZ. / 1 IN:10 FT VERT.

WISDOT/CADDS SHEET 49

UTILITY LOCATIONS ARE APPROXIMATE.
ACTUAL LOCATIONS MUST BE FIELD VERIFIED.



9

9

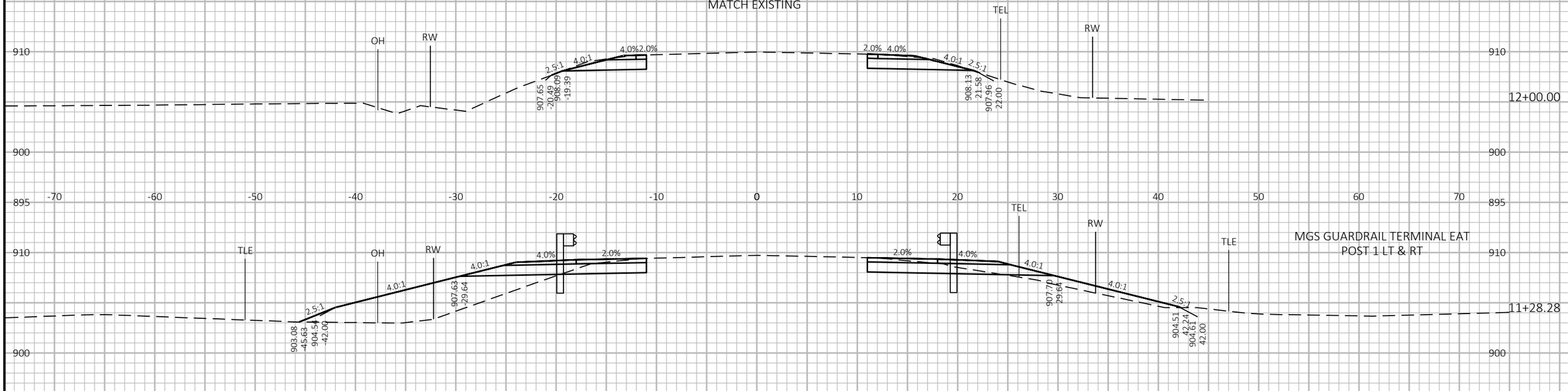
PROJECT NO: 7117-00-72	HWY: CTH PP	COUNTY: MONROE	CROSS SECTIONS: CTH PP	SHEET 53	E

FILE NAME : X:\KO\M\MONRO\157574\5-FINAL-DSGN\CIVIL 3D - CTH PP\SHEETSPLAN\090201-XS.DWG
LAYOUT NAME - XS_2

PLOT DATE : 10/28/2022 12:23 PM PLOT BY : DUSTIN SCHUH PLOT NAME : **PLOT SCALE :** 1 IN:10 FT HORZ. / 1 IN:10 FT VERT.

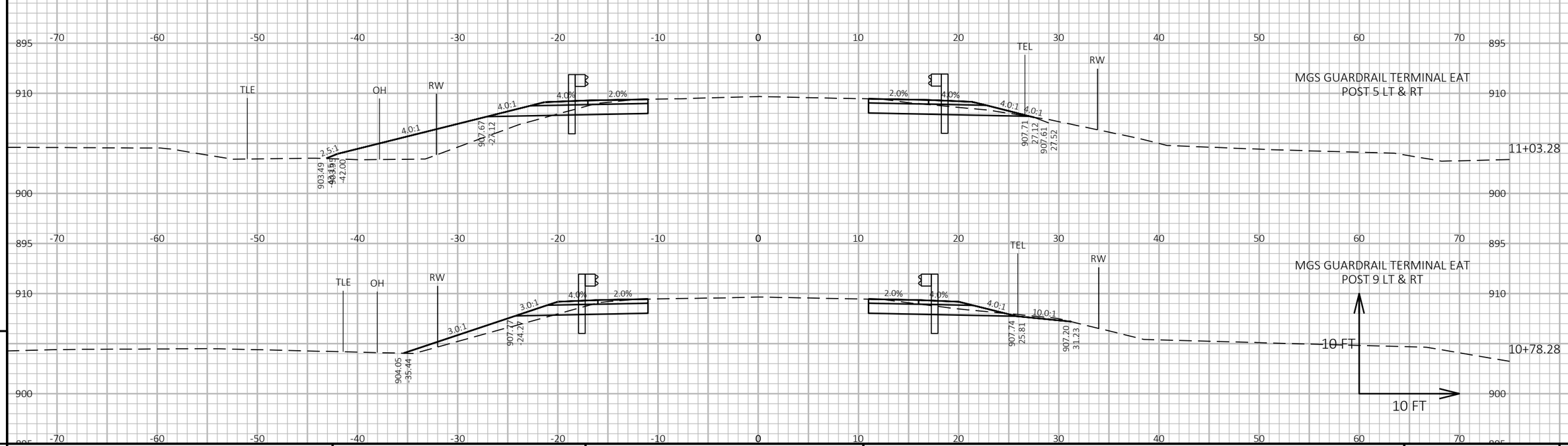
UTILITY LOCATIONS ARE APPROXIMATE.
ACTUAL LOCATIONS MUST BE FIELD VERIFIED.

END CONSTRUCTION
STA 12+00
MATCH EXISTING

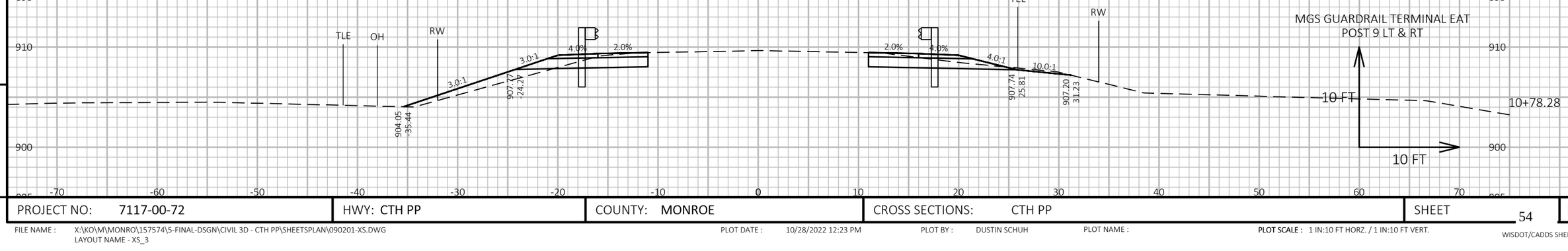


MGS GUARDRAIL TERMINAL EAT
POST 1 LT & RT

MGS GUARDRAIL TERMINAL EAT
POST 5 LT & RT



MGS GUARDRAIL TERMINAL EAT
POST 9 LT & RT



9

9

PROJECT NO: 7117-00-72	HWY: CTH PP	COUNTY: MONROE	CROSS SECTIONS: CTH PP	SHEET 54	E

FILE NAME : X:\KO\M\MONRO\157574\5-FINAL-DSGN\CIVIL 3D - CTH PP\SHEETSPLAN\090201-XS.DWG
LAYOUT NAME - XS_3

PLOT DATE : 10/28/2022 12:23 PM PLOT BY : DUSTIN SCHUH PLOT NAME : **PLOT SCALE :** 1 IN:10 FT HORZ. / 1 IN:10 FT VERT.

WISDOT/CADDS SHEET 49

Notes

Wisconsin Department of Transportation

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through innovation and exceptional service.

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