

RHI

NOVEMBER 2024

PROJECT ID: 9479-00-74

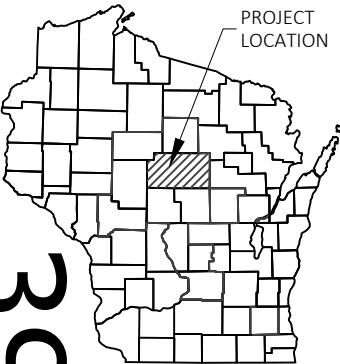
WITH: 39

COUNTY: MARATHON

ORDER OF SHEETS

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

TOTAL SHEETS = 88



DESIGN DESIGNATION

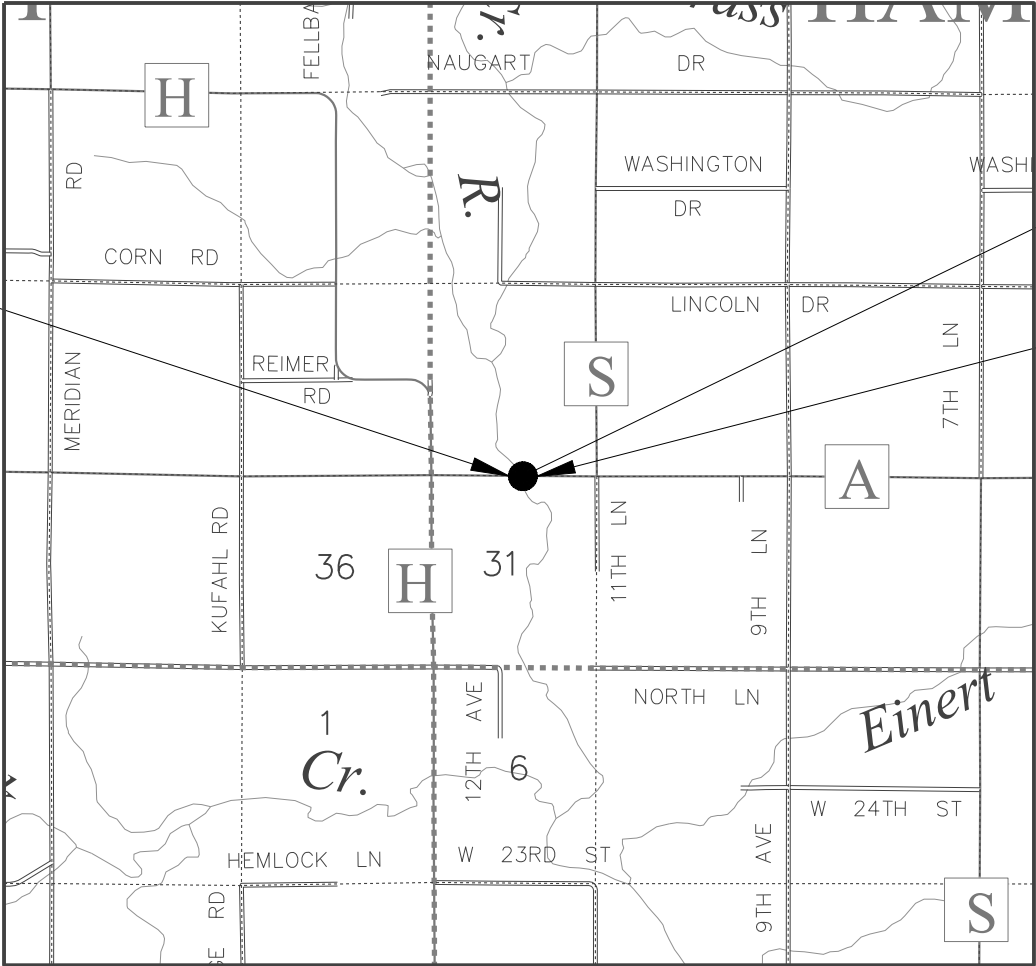
A.A.D.T.	(2025)	=	1,200
A.A.D.T.	(2045)	=	1,300
D.H.V.		=	N/A
D.D.		=	50/50
T.		=	11.0%
DESIGN SPEED		=	55 MPH
ESALS		=	270,000

CONVENTIONAL SYMBOLS

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

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

BEGIN PROJECT
STA 28+63.00
Y = 234044.469
X = 197071.815



LAYOUT
SCALE 0 1 MI
TOTAL NET LENGTH OF CENTERLINE = 0.083 MILES

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

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PLAN OF PROPOSED IMPROVEMENT

CTH H - CTH S

BIG RIB RIVER BRIDGE B-37-475

CTH A

MARATHON COUNTY

STATE PROJECT NUMBER
9479-00-74

R-4-E R-5-E

STRUCTURE B-37-475

END PROJECT
STA 33+00.00

T-30-N
T-29-N

STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
9479-00-74	WISC 2025059	1

ACCEPTED FOR
MARATHON COUNTY
Date 07/29/24 James Griesbach
(Signature and Title of Official)

ORIGINAL PLANS PREPARED BY

CORRE
ENGINEERING

WISCONSIN
ERIC T. PRICE
E-39027
MADISON WI
PROFESSIONAL ENGINEER
10/01/2024

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PREPARED BY	
Surveyor	CORRE, INC.
Designer	CORRE, INC.
Project Manager	MICHAEL GRAGE, P.E.
Regional Examiner	N/A
Regional Supervisor	DAN ERVA, P.E.

APPROVED FOR THE DEPARTMENT
DATE: 7/29/2024 (Signature)

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GENERAL NOTES:

WHEN THE QUANTITY OF BASE AGGREGATE OR ASPHALTIC SURFACE IS MEASURED FOR PAYMENT BY THE TON OR CUBIC YARD, 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.

THE LOCATION OF EXISTING UTILITIES AS SHOWN ON THE PLANS ARE APPROXIMATE. THERE MAY BE OTHER UTILITY INSTALLATIONS WITHIN THE PROJECT AREA THAT ARE NOT SHOWN. THE CONTRACTOR SHALL COORDINATE CONSTRUCTION ACTIVITIES BY CALLING DIGGER'S HOTLINE AND CONTACTING UTILITIES DIRECTLY AS NEEDED.

CONTRACTOR SHALL NOTIFY THE MARATHON COUNTY SURVEYOR, DAVID DECKER, AT (715) 261-6026 AT LEAST 10 DAYS PRIOR TO THE START OF CONSTRUCTION TO COORDINATE THE PRESERVATION OF SURVEY MONUMENTS THAT MAY BE DISTURBED BY CONSTRUCTION ACTIVITIES.

CONTRACTOR SHALL MAINTAIN ACCESS TO ALL DRIVEWAYS AND PUBLIC TRAILS AT ALL TIMES.

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.

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

TACK COAT CALCULATIONS ARE BASED ON AN APPLICATION RATE OF 0.07 GAL/SY.

RUNOFF COEFFICIENT TABLE

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

TOTAL PROJECT AREA = 1.532 ACRES
TOTAL AREA EXPECTED TO BE DISTURBED BY CONSTRUCTION ACTIVITIES = 0.536 ACRES

UTILITY CONTACTS

COMMUNICATION

FRONTIER COMMUNICATIONS
521 N. 4TH STREET
WAUSAU, WI 54403

CHRIS POLLACK
PHONE: (715) 847-1240
CHRISTOPHER.POLLACK@FTR.COM

COMMUNICATION

BUG TUSSEL WIRELESS
1262 CAMBER CT
DE PERE, WI 54301

DUSTIN TEAFF
PHONE: (920) 254-3539
DUSTIN.TEAFF@BTUSSEL.COM

ELECTRICITY

WISCONSIN PUBLIC SERVICE CORP.
P.O. BOX 1166
WAUSAU, WI 54402

JESSE PATTEN
PHONE: (715) 573-0349
JESSE.PATTEN@WISCONSINPUBLICSERVICE.COM



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

STANDARD ABBREVIATIONS

ABUT	ABUTMENT	FTG	FOOTING
AEW	APRON END WALL	HT	HEIGHT
AGG	AGGREGATE	HES	HIGH EARLY STRENGTH
ASPH	ASPHALTIC	CWT	HUNDREDWEIGHT
AVG	AVERAGE	IP	IRON PIPE OR PIN
AADT	ANNUAL AVERAGE DAILY TRAFFIC	LT	LEFT
BK	BACK	LIN FT or LF	LINEAR FOOT
BAD	BASE AGGREGATE DENSE	LS	LUMP SUM
BL or B/L	BASE LINE	MH	MANHOLE
BM	BENCH MARK	ML or M/L	MATCH LINE
BR	BRIDGE	MB	MESSAGE BOARD
CL or C/L	CENTER LINE	N	NORTH
CC	CENTER TO CENTER	NB	NORTHBOUND
CE	COMMERCIAL ENTRANCE	PC	POINT OF CURVATURE
CONC	CONCRETE	PI	POINT OF INTERSECTION
CO	COUNTY	PT	POINT OF TANGENCY
CTH	COUNTY TRUNK HIGHWAY	PCC	PORTLAND CEMENT CONCRETE
CPCS	CULVERT PIPE CORRUGATED STEEL	PE	PRIVATE ENTRANCE
CABC	CRUSHED AGGREGATE BASE COURSE	R	RADIUS
CY or CUYD	CUBIC YARD	RL or R/L	REFERENCE LINE
CP	CULVERT PIPE	RT	RIGHT
CPRC	CULVERT PIPE REINFORCED CONCRETE	R/W	RIGHT-OF-WAY
C&G	CURB AND GUTTER	RD	ROAD
DHV	DESIGN HOUR VOLUME	SHLDR	SHOULDER
DIA	DIAMETER	SW	SIDEWALK
DWY	DRIVEWAY	S	SOUTH
E	EAST	SB	SOUTHBOUND
EB	EASTBOUND	SF or SQ FT	SQUARE FEET
ELEC	ELECTRIC	SY of SQ YD	SQUARE YARD
EL or ELEV	ELEVATION	SDD	STANDARD DETAIL DRAWINGS
ESALS	EQUIVALENT SINGLE AXLE LOADS	STH	STATE TRUNK HIGHWAYS
EXC	EXCAVATION	STA	STATION
EBS	EXCAVATION BELOW SUBGRADE	SE	SUPERELEVATION
EXP	EXPANSION	TEL	TELEPHONE
FF	FACE TO FACE OR FRONT FACE	UG	UNDERGROUND
FE	FIELD ENTRANCE	VC	VERTICAL CURVE
FAB	FLASHING ARROW BOARD	VPI	VERTICAL POINT OF INTERSECTION
FL or F/L Flow	FLOW LINE	W	WEST
FT	FOOT	WB	WESTBOUND

WISDOT CONTACT

NORTH CENTRAL REGION - RHINELANDER OFFICE
510 HANSON LAKE ROAD
RHINELANDER, WI 54501

MICHAEL GRAGE, P.E.
PHONE: (715) 365-5705
MICHAEL.GRAGE@DOT.WI.GOV

DESIGN CONTACT

CORRE, INC.
6510 GRAND TETON PLAZA, SUITE 314
MADISON, WI 53719

ERIC PRICE, P.E.
PHONE: (608) 826-6146
E-MAIL: EPRICE@CORREINC.COM

DNR CONTACT

DNR NORTHEAST REGIONAL HEADQUARTERS
2984 SHAWANO AVENUE
GREEN BAY, WI 54313

JAY SCHIEFELBEIN
PHONE: (920) 360-3784
JEREMIAH.SCHIEFELBEIN@WISCONSIN.GOV

COUNTY CONTACT

HIGHWAY COMMISSIONER
1430 WEST STREET
WAUSAU, WI 54401

JAMES GRIESBACH
PHONE: (715) 261-1800
E-MAIL: JAMES.GRIESBACH@CO.MARATHON.WI.US

PROJECT NO: 9479-00-74

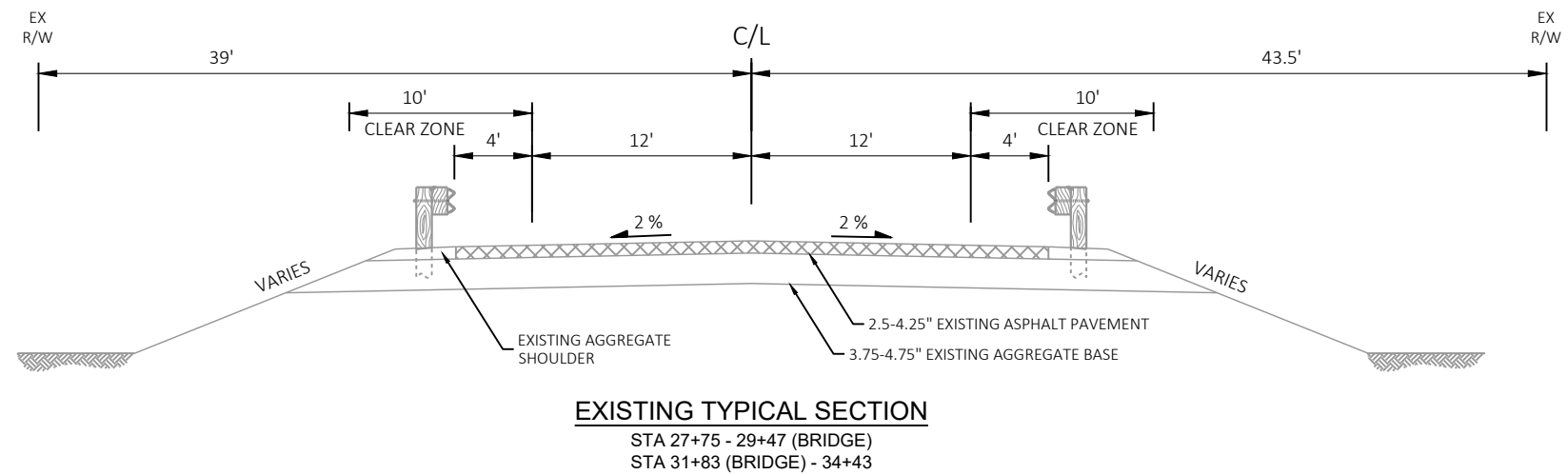
HWY: CTH A

COUNTY: MARATHON

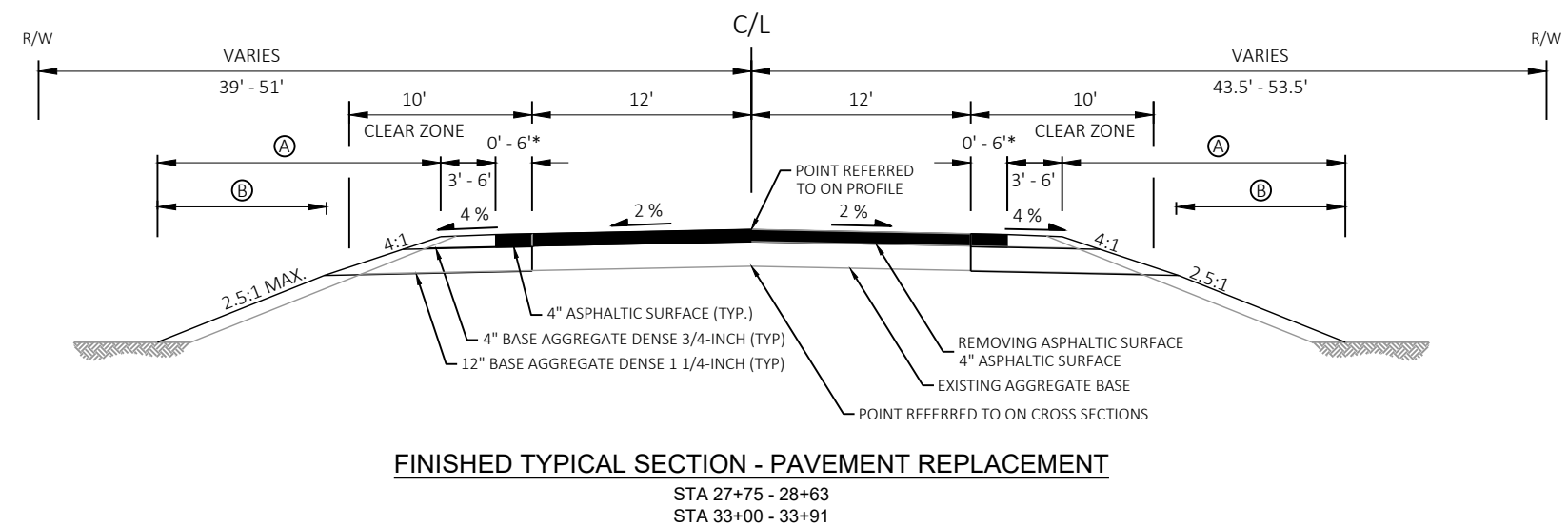
GENERAL NOTES

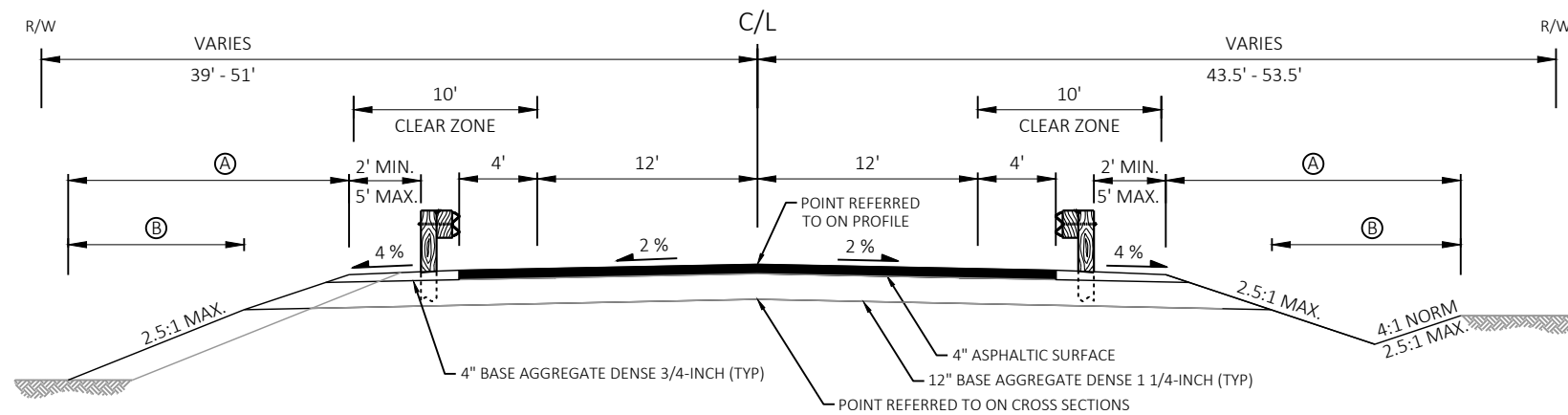
SHEET

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*NOTE: WIDEN EDGE OF PAVEMENT OUT TO GUARDRAIL FACE AT GUARDRAIL END TERMINAL LOCATIONS.



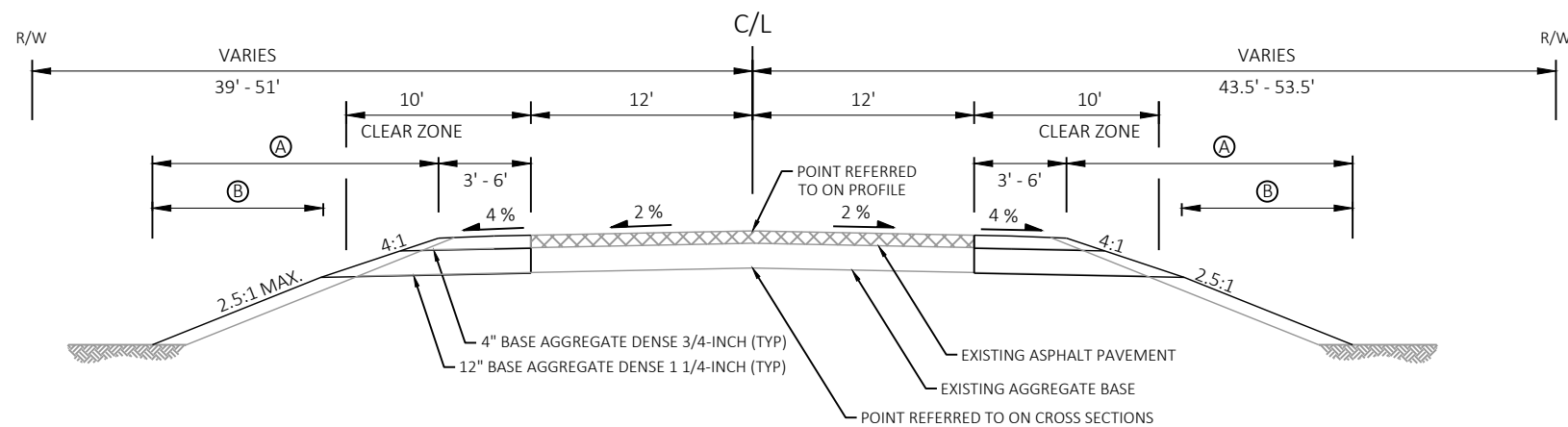


FINISHED TYPICAL SECTION - RECONSTRUCT

STA 28+63 - 29+63 (BRIDGE)
STA 32+00 (BRIDGE) - 33+00

LEGEND

- Ⓐ FERTILIZER TYPE A, SEEDING MIXTURE NO. 20 & SEEDING TEMPORARY
- Ⓑ SALVAGED TOPSOIL & EROSION MAT URBAN CLASS I TYPE B



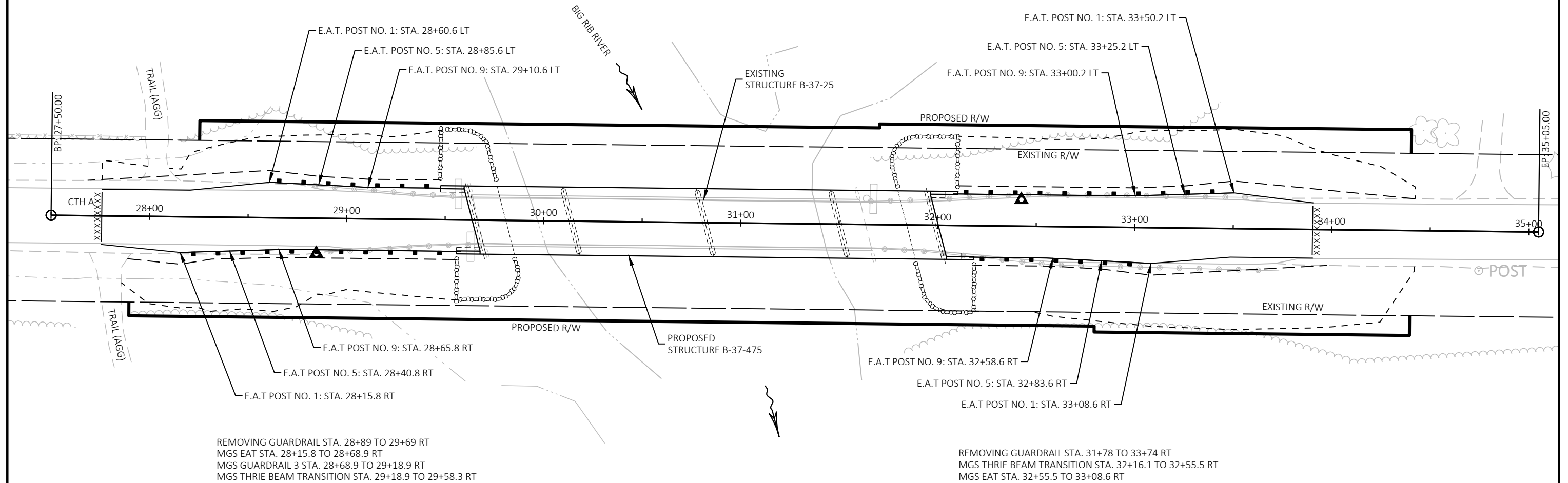
FINISHED TYPICAL SECTION - SHOULDER WIDENING

STA 33+91 - 34+43



REMOVING GUARDRAIL STA. 28+79 TO 29+64 LT
MGS EAT STA. 28+60.6 TO 29+10.6 LT
MGS THRIE BEAM TRANSITION STA. 29+10.6 TO 29+50.0 LT

REMOVING GUARDRAIL STA. 31+60 TO 33+68 LT
MGS THRIE BEAM TRANSITION STA. 32+07.7 TO 32+47.1 LT
MGS GUARDRAIL 3 STA. 32+47.1 TO 32+97.1 LT
MGS EAT STA. 32+97.1 TO 33+50.2 LT



PROJECT NO: 9479-00-74

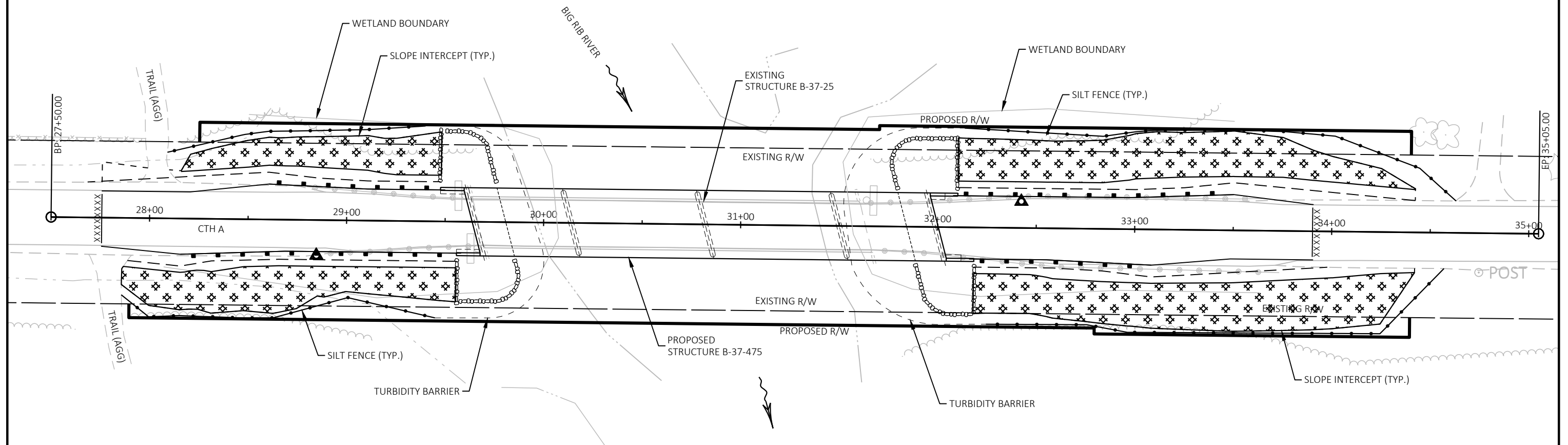
HWY: CTH A

COUNTY: MARATHON

CONSTRUCTION DETAILS - BEAMGUARD

SHEET

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LEGEND

EROSION MAT, URBAN, CLASS I TYPE B

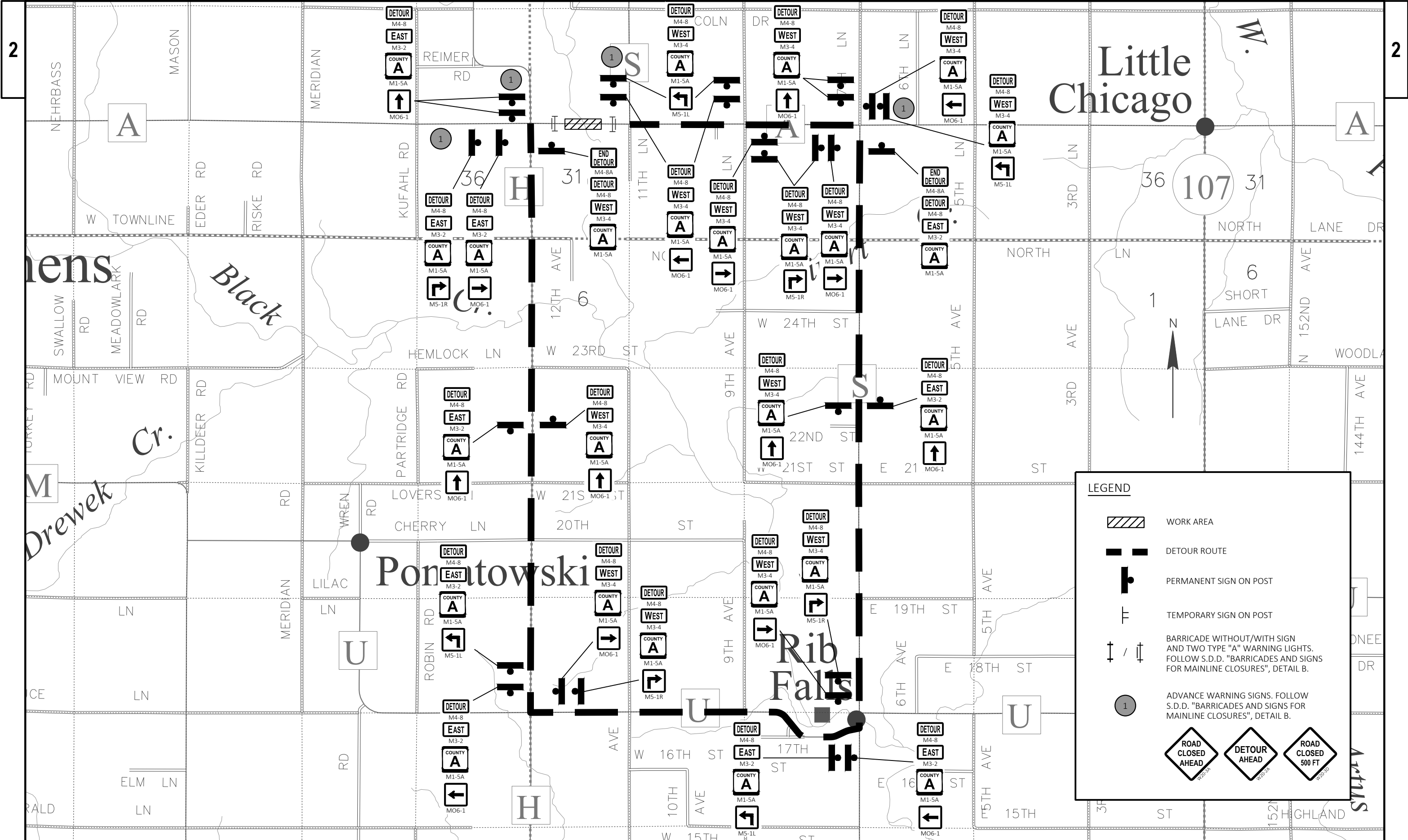
SILT FENCE

RIPRAP, HEAVY

SLOPE INTERCEPT

TURBIDITY BARRIER

SURFACE WATER FLOW



Estimate Of Quantities

9479-00-74

Line	Item	Item Description	Unit	Total	Qty
0002	201.0105	Clearing	STA	3.000	3.000
0004	201.0205	Grubbing	STA	3.000	3.000
0006	203.0260	Removing Structure Over Waterway Minimal Debris (structure) 01. B-37-25	EACH	1.000	1.000
0008	204.0110	Removing Asphaltic Surface	SY	593.000	593.000
0010	204.0165	Removing Guardrail	LF	590.000	590.000
0012	205.0100	Excavation Common	CY	524.000	524.000
0014	206.1001	Excavation for Structures Bridges (structure) 01. B-37-475	EACH	1.000	1.000
0016	206.5001	Cofferdams (structure) 01. B-37-475	EACH	3.000	3.000
0018	208.0100	Borrow	CY	1,293.000	1,293.000
0020	210.1500	Backfill Structure Type A	TON	315.000	315.000
0022	213.0100	Finishing Roadway (project) 01. 9479-00-74	EACH	1.000	1.000
0024	305.0110	Base Aggregate Dense 3/4-Inch	TON	144.000	144.000
0026	305.0120	Base Aggregate Dense 1 1/4-Inch	TON	1,090.000	1,090.000
0028	455.0605	Tack Coat	GAL	95.000	95.000
0030	465.0105	Asphaltic Surface	TON	303.000	303.000
0032	502.0100	Concrete Masonry Bridges	CY	877.000	877.000
0034	502.3200	Protective Surface Treatment	SY	1,086.000	1,086.000
0036	502.9000.S	Underwater Substructure Inspection (structure) 01. B-37-475	EACH	3.000	3.000
0038	505.0400	Bar Steel Reinforcement HS Structures	LB	11,170.000	11,170.000
0040	505.0600	Bar Steel Reinforcement HS Coated Structures	LB	127,800.000	127,800.000
0042	513.4061	Railing Tubular Type M	LF	531.000	531.000
0044	516.0500	Rubberized Membrane Waterproofing	SY	20.000	20.000
0046	550.0020	Pre-Boring Rock or Consolidated Materials	LF	95.000	95.000
0048	550.0500	Pile Points	EACH	37.000	37.000
0050	550.1120	Piling Steel HP 12-Inch X 53 Lb	LF	1,525.000	1,525.000
0052	606.0300	Riprap Heavy	CY	375.000	375.000
0054	612.0406	Pipe Underdrain Wrapped 6-Inch	LF	205.000	205.000
0056	614.2300	MGS Guardrail 3	LF	100.000	100.000
0058	614.2500	MGS Thrie Beam Transition	LF	157.600	157.600
0060	614.2610	MGS Guardrail Terminal EAT	EACH	4.000	4.000
0062	618.0100	Maintenance and Repair of Haul Roads (project) 01. 9479-00-74	EACH	1.000	1.000
0064	619.1000	Mobilization	EACH	1.000	1.000
0066	624.0100	Water	MGAL	23.000	23.000
0068	625.0500	Salvaged Topsoil	SY	1,790.000	1,790.000
0070	628.1504	Silt Fence	LF	1,500.000	1,500.000
0072	628.1520	Silt Fence Maintenance	LF	1,500.000	1,500.000
0074	628.1905	Mobilizations Erosion Control	EACH	5.000	5.000
0076	628.1910	Mobilizations Emergency Erosion Control	EACH	3.000	3.000
0078	628.2008	Erosion Mat Urban Class I Type B	SY	1,970.000	1,970.000
0080	628.6005	Turbidity Barriers	SY	351.000	351.000
0082	629.0205	Fertilizer Type A	CWT	3.000	3.000
0084	630.0120	Seeding Mixture No. 20	LB	70.000	70.000
0086	630.0200	Seeding Temporary	LB	70.000	70.000
0088	630.0500	Seed Water	MGAL	40.000	40.000
0090	633.5100	Markers ROW	EACH	12.000	12.000
0092	634.0614	Posts Wood 4x6-Inch X 14-FT	EACH	4.000	4.000
0094	637.2230	Signs Type II Reflective F	SF	12.000	12.000
0096	638.2602	Removing Signs Type II	EACH	4.000	4.000
0098	638.3000	Removing Small Sign Supports	EACH	4.000	4.000

Estimate Of Quantities

9479-00-74

Line	Item	Item Description	Unit	Total	Qty
0100	642.5001	Field Office Type B	EACH	1.000	1.000
0102	643.0420	Traffic Control Barricades Type III	DAY	2,340.000	2,340.000
0104	643.0705	Traffic Control Warning Lights Type A	DAY	3,640.000	3,640.000
0106	643.0900	Traffic Control Signs	DAY	17,940.000	17,940.000
0108	643.0920	Traffic Control Covering Signs Type II	EACH	16.000	16.000
0110	643.5000	Traffic Control	EACH	1.000	1.000
0112	645.0111	Geotextile Type DF Schedule A	SY	70.000	70.000
0114	645.0120	Geotextile Type HR	SY	595.000	595.000
0116	646.1020	Marking Line Epoxy 4-Inch	LF	1,510.000	1,510.000
0118	650.4500	Construction Staking Subgrade	LF	440.000	440.000
0120	650.5000	Construction Staking Base	LF	440.000	440.000
0122	650.6501	Construction Staking Structure Layout (structure) 01. B-37-475	EACH	1.000	1.000
0124	650.9911	Construction Staking Supplemental Control (project) 01. 9479-00-74	EACH	1.000	1.000
0126	650.9920	Construction Staking Slope Stakes	LF	440.000	440.000
0128	690.0150	Sawing Asphalt	LF	56.000	56.000
0130	715.0502	Incentive Strength Concrete Structures	DOL	5,262.000	5,262.000
0132	999.2000.S	Installing and Maintaining Bird Deterrent System (station) 01. 31+00	EACH	1.000	1.000
0134	ASP.1T0A	On-the-Job Training Apprentice at \$5.00/HR	HRS	2,000.000	2,000.000
0136	ASP.1T0G	On-the-Job Training Graduate at \$5.00/HR	HRS	1,260.000	1,260.000

CLEARING & GRUBBING

STATION	TO	STATION	LOCATION	201.0105 CLEARING STA	201.0205 GRUBBING STA
28+75	-	29+75	LT	1	1
31+50	-	33+50	LT	2	2
TOTAL 0010				3	3

REMOVALS

STATION	TO	STATION	LOCATION	204.0110 REMOVING ASPHALTIC SURFACE SY	204.0165 REMOVING GUARDRAIL LF	690.0150 SAWING ASPHALT LF
27+75	-	29+47	LT & RT	271	170	28
31+83	-	34+43	LT & RT	322	420	28
TOTAL 0010				593	590	56

EARTHWORK

DIVISION	FROM/TO STATION	LOCATION	205.0100 COMMON EXCAVATION (CY)	SALVAGED/UNUSABLE PAVEMENT MATERIAL	AVAILABLE MATERIAL	UNEXPANDED FILL	EXPANDED FILL	MASS ORDINATE +/-	WASTE	208.0100 BORROW (CY)	COMMENT
			CUT				FACTOR 1.25				
CTH A WEST APPROACH	27+75 / 29+56	CTH A	286	69	217	312	390	-173	0	173	
CTH A EAST APPROACH	32+10 / 34+43	CTH A	238	90	148	1,014	1,268	-1,120	0	1,120	
TOTAL COMMON EXC			524	159	365	1,326	1,658	-1,293	0	1,293	

BASE AGGREGATE

STATION	TO	STATION	LOCATION	305.0110 BASE AGGREGATE DENSE 3/4-INCH TON	305.0120 BASE AGGREGATE DENSE 1 1/4-INCH TON	624.0100 WATER MGAL
27+75	-	29+47	WEST APPROACH	63	510	11
31+83	-	34+43	EAST APPROACH	81	580	12
TOTAL 0010				144	1,090	23

ASPHALT ITEMS

STATION	TO	STATION	LOCATION	455.0605 TACK COAT GAL	465.0105 ASPHALTIC SURFACE TON
27+75	-	29+63	WEST APPROACH	47	150
32+00	-	34+80	EAST APPROACH	48	153
TOTAL 0010				95	303

GUARDRAIL

STATION	TO	STATION	LOCATION	614.2300 MGS GUARDRAIL 3 LF	614.2500 MGS THRIE BEAM TRANSITION LF	614.2610 MGS GUARDRAIL TERMINAL EAT EACH
28+60	-	29+50	LT	-	39.4	1
28+15	-	29+58	RT	50.0	39.4	1
32+07	-	33+50	LT	50.0	39.4	1
32+16	-	33+09	RT	-	39.4	1
TOTAL 0010				100	157.6	4

MARKERS ROW

LOCATION	633.5100 MARKERS ROW EACH
27+90 RT	2
28+25 LT	2
30+70 LT	2
32+80 RT	2
34+40 LT & RT	4
TOTAL 0010	12

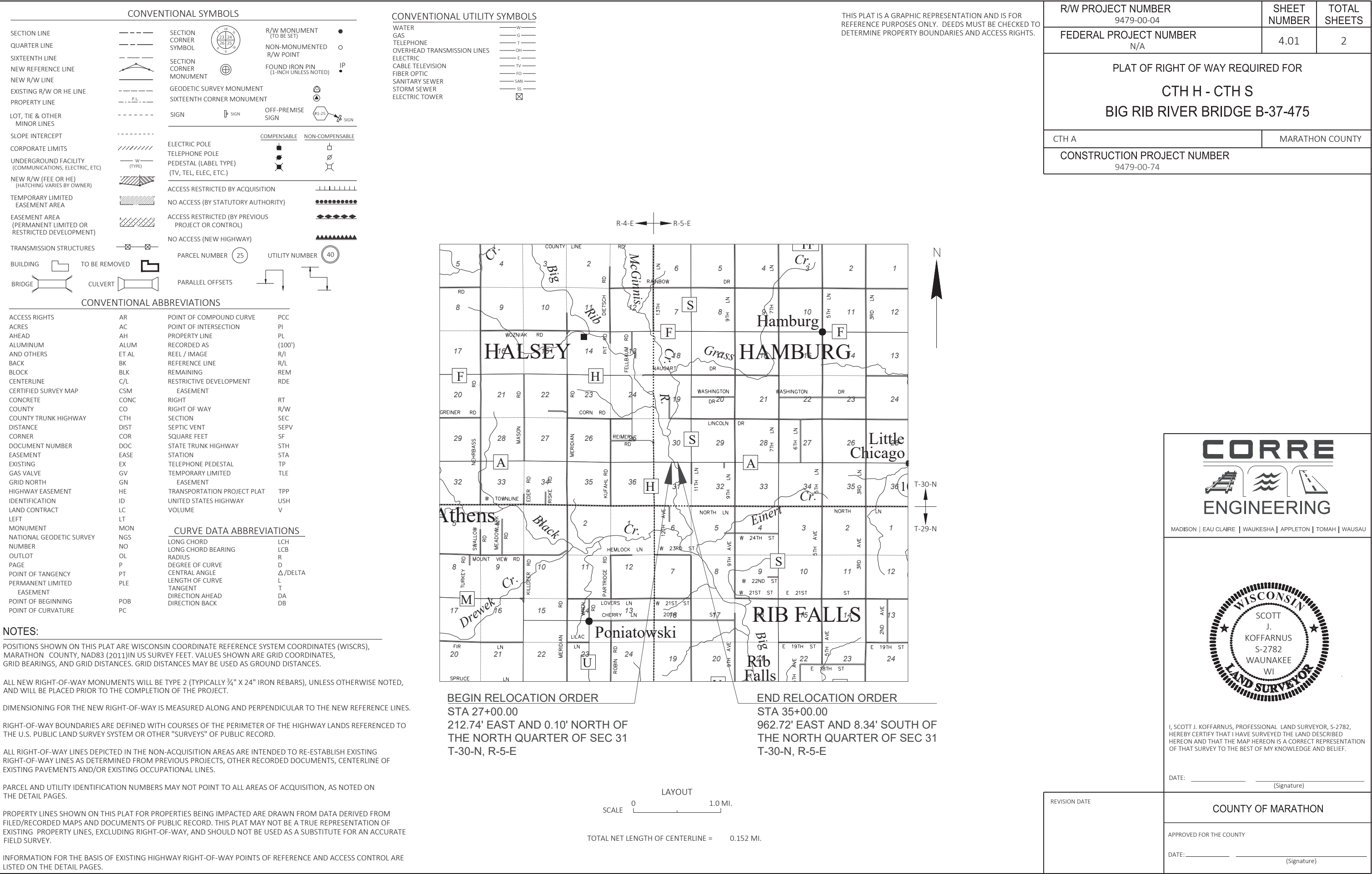
EROSION CONTROL											TURBIDITY BARRIER	
	625.0500	628.1504	628.1520	628.1905	628.1910	628.2008	629.0205	630.0120	630.0200	630.0500		
	SALVAGED			MOBILIZATIONS	MOBILIZATIONS	EROSION MAT	FERTILIZER TYPE	SEEDING	SEEDING	SEED WATER		628.6005
	TOPSOIL	SILT FENCE	SILT FENCE	EROSION	EROSION	URBAN CLASS I	A	MIXTURE NO. 20	TEMPORARY	MGAL		TURBIDITY
LOCATION	SY	LF	LF	EACH	EACH	TYPE B	CWT	LB	LB		LOCATION	SY
ENTIRE PROJECT	1,790	1,200	1,200	5	3	1,790	2	50	50	40	WEST ABUTMENT	156
UNDISTRIBUTED	-	300	300	-	-	180	1	20	20	-	EAST ABUTMENT	195
TOTAL 0010	1,790	1,500	1,500	5	3	1,970	3	70	70	40	TOTAL 0010	351

SIGNS					
	634.0614	637.2230	638.2602	638.3000	
	POSTS WOOD			REMOVING	
	4X6-INCH X 14-	SIGNS TYPE II	REMOVING	SMALL SIGN	
	FT	REFLECTIVE F	SIGNS TYPE II	SUPPORTS	
LOCATION	EACH	SF	EACH	EACH	REMARKS
NW QUADRANT	1	3.0	1	1	PROPOSED BRIDGE MARKER SIGNS, W5-52L & W5-52R. INSTALL ACCORDING TO S.D.D "SIGNING AND MARKING FOR TWO LANE BRIDGES"
SW QUADRANT	1	3.0	1	1	
NE QUADRANT	1	3.0	1	1	
SE QUADRANT	1	3.0	1	1	
TOTAL 0010	4	12	4	4	

TRAFFIC CONTROL					
	643.0420	643.0705	643.0900	643.0920	643.5000
	TRAFFIC	TRAFFIC		TRAFFIC	
	CONTROL	CONTROL		CONTROL	
	BARRICADES	WARNING	TRAFFIC	COVERING SIGNS	TRAFFIC
	TYPE III	LIGHTS TYPE A	CONTROL SIGNS	TYPE II	CONTROL
LOCATION	DAY	DAY	DAY	EACH	EACH
ENTIRE PROJECT	2,340	3,640	17,940	16	1
TOTAL 0010	2,340	3,640	17,940	16	1

PAVEMENT MARKING					
			646.1020		
			MARKING LINE		
			EPOXY 4-INCH		
STATION	TO	STATION	LOCATION	LF	REMARKS
27+75	-	34+43	WEST APPROACH	170	YELLOW DASHED CENTERLINE WHITE EDGE LINES
				1,340	
			TOTAL 0010	1,510	

STAKING				
	650.4500	650.5000	650.9911.01	650.9920
	CONSTRUCTION	CONSTRUCTION	CONSTRUCTION	CONSTRUCTION
	STAKING	STAKING BASE	SUPPLEMENTAL	STAKING SLOPE
	SUBGRADE	STAKING BASE	CONTROL (PROJECT)	STAKES
LOCATION	LF	LF	(9479-00-74)	LF
			EACH	
ENTIRE PROJECT	440	440	1	440
TOTAL 0010	440	440	1	440



TOWN

SCHEDULE OF LANDS & INTERESTS REQUIRED

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

PARCEL NUMBER	SHEET NUMBER	OWNER	INTEREST REQ'D	R/W ACRES REQUIRED		
				NEW (AC)	EXISTING (AC)	TOTAL (AC)
1	4.02	MICHAEL H. THURS (TRUSTEE) BONNIE R. THURS IRREVOCABLE TRUST	FEE	0.15	---	0.15
2	4.02	LYLE F. THURS & SUSAN D. THURS	FEE	0.12	---	0.12

UTILITY INTERESTS REQUIRED

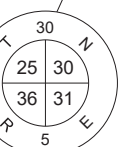
UTILITY NUMBER	SHEET NUMBER	OWNER	INTEREST REQUIRED
80	4.02	FRONTIER COMMUNICATIONS	RELEASE OF RIGHTS

EXISTING UTILITY
EASEMENTS TO BE RELEASED

80 FRONTIER COMMUNICATIONS
NO RECORDED EASEMENT - PARCEL 1

FRACTIONAL
S 1/2 - SW

RAILROAD SPIKE
Y = 234067.936
X = 194815.603



4

1

MICHAEL H. THURS (TRUSTEE)
BONNIE R. THURS IRREVOCABLE TRUST

SW - SE

OF

BIG RIB RIVER

80 FRONTIER COMMUNICATIONS

END RELOCATION ORDER

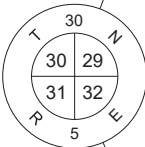
STA 35+00.00
Y = 234037.302
X = 197708.804

BLDG

QUARTER COR. TO SEC COR.

SEC. LINE = N89° 51' 19"W, 2621.59'

COMPUTED
FROM TIES
Y = 234039.019
X = 199367.666



4

FRACTIONAL
N 1/2 - NW

100 MAG NAIL
Y = 234045.641
X = 196746.084

BEGIN RELOCATION ORDER

STA 27+00.00
Y = 234045.740
X = 196958.822

COURSE TABLE

PNT - PNT	BEARING	DISTANCE
100 - PNT'A'	S89° 51' 19"E	288.15'
PNT'A' - PRW1	N00° 01' 50"E	38.89'
PRW1 - PRW2	N00° 38' 41"E	10.00'
PRW2 - PRW3	S89° 23' 10"E	345.00'
PRW3 - PRW4	N00° 38' 41"E	2.00'
PRW4 - PRW5	S89° 23' 10"E	270.00'
PRW5 - PRW6	S00° 38' 41"W	12.00'
PRW6 - PRW1	N89° 23' 10"W	615.00'
100 - PNT'B'	S89° 51' 19"E	252.73'
PNT'B' - PRW7	S00° 38' 41"W	43.32'
PRW7 - PRW8	S89° 23' 10"E	650.00'
PRW8 - PRW9	S00° 38' 41"W	10.00'
PRW9 - PRW10	N89° 23' 10"W	160.00'
PRW10 - PRW11	N00° 38' 41"E	3.00'
PRW11 - PRW12	N89° 23' 10"W	490.00'
PRW12 - PRW7	N00° 38' 41"E	7.00'

POINT TABLE

POINT	Y	X
PNT'A'	234044.913	197034.234
PNT'B'	234045.003	196998.816
PRW1	234083.805	197034.255
PRW2	234093.806	197034.367
PRW3	234090.109	197379.347
PRW4	234092.109	197379.370
PRW5	234089.216	197649.354

POINT TABLE

POINT	Y	X
PRW6	234077.217	197649.219
PRW7	234001.686	196998.329
PRW8	233994.722	197648.291
PRW9	233984.723	197648.179
PRW10	233986.437	197488.188
PRW11	233989.437	197488.222
PRW12	233994.686	196998.250

NOTES:

POSITIONS SHOWN ON THIS PLAT ARE WISCONSIN COORDINATE REFERENCE SYSTEM COORDINATES (WISCRS), MARATHON 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 3/4" X 24" IRON REBARS), UNLESS OTHERWISE NOTED, AND WILL BE PLACED PRIOR TO THE COMPLETION OF THE PROJECT.

EXISTING CTH A RIGHT-OF-WAY ESTABLISHED FROM DEEDS.

HAMBURG

NE - NE

REVISION DATE				

DATE 04/11/2024

GRID FACTOR

SCALE, FEET



HWY: CTH A

COUNTY: MARATHON

STATE R/W PROJECT NUMBER: 9479-00-04

CONSTRUCTION PROJECT NUMBER: 9479-00-74

PLAT SHEET 4.02

PS&E SHEET

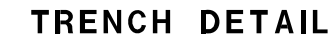
E

Standard Detail Drawing List

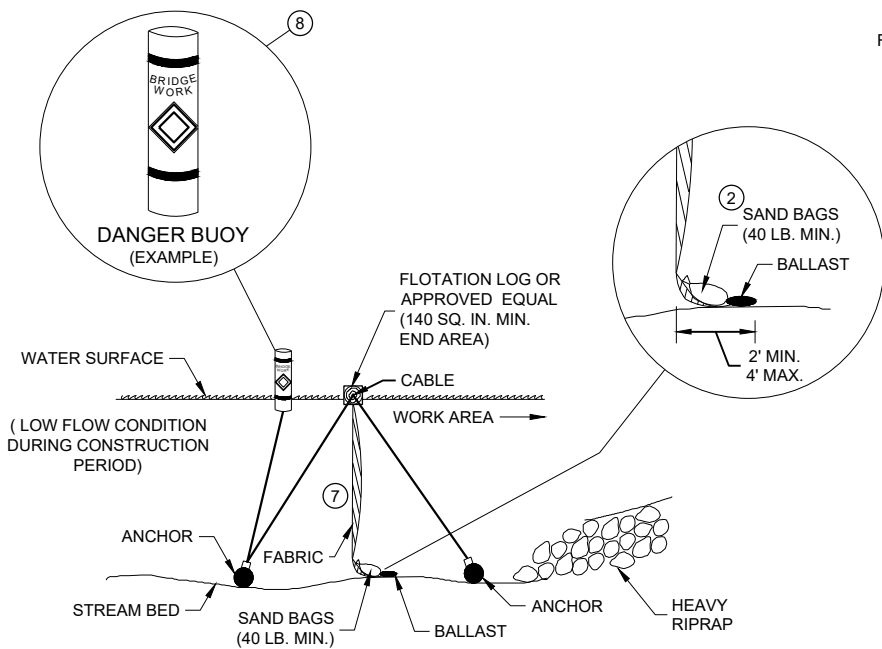
08E09-06	SILT FENCE
08E11-02	TURBIDITY BARRIER
12A03-10	NAME PLATE (STRUCTURES)
14B42-07A	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-07B	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-07C	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-07D	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B44-04A	MIDWEST 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)
15A01-13A	MARKER POST FOR RIGHT-OF-WAY
15A01-13B	FLEXIBLE MARKER POST FOR RIGHT-OF-WAY
15C02-09A	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C02-09B	BARRICADES AND SIGNS FOR VARIOUS CLOSURES
15C06-12	SIGNING & MARKING FOR TWO LANE BRIDGES
15C08-23A	PERMANENT LONGITUDINAL PAVEMENT MARKINGS



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

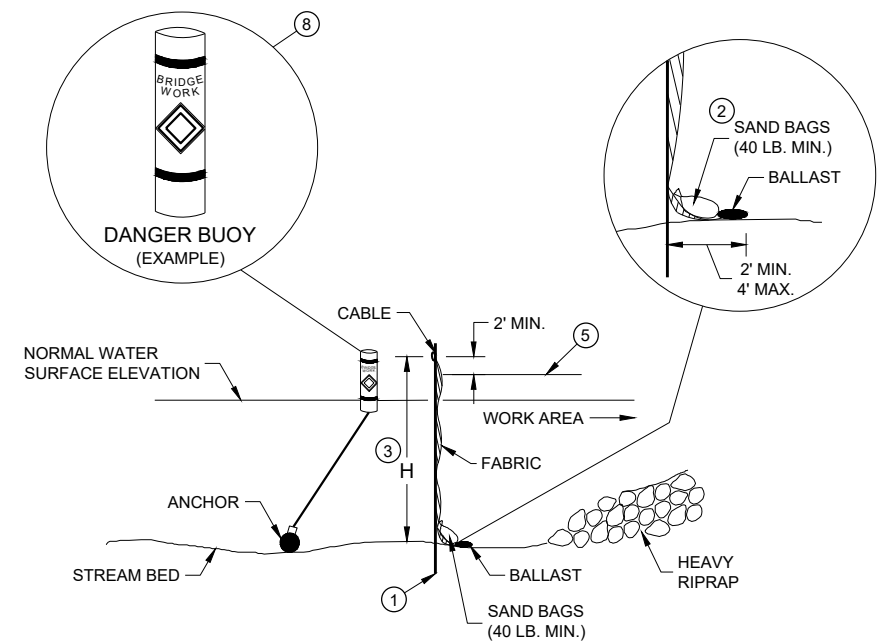


SILT FENCE	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED <u>4-29-05</u> DATE	<u>/S/ Beth Canestra</u> CHIEF ROADWAY DEVELOPMENT ENGINEER



SECTION B - B

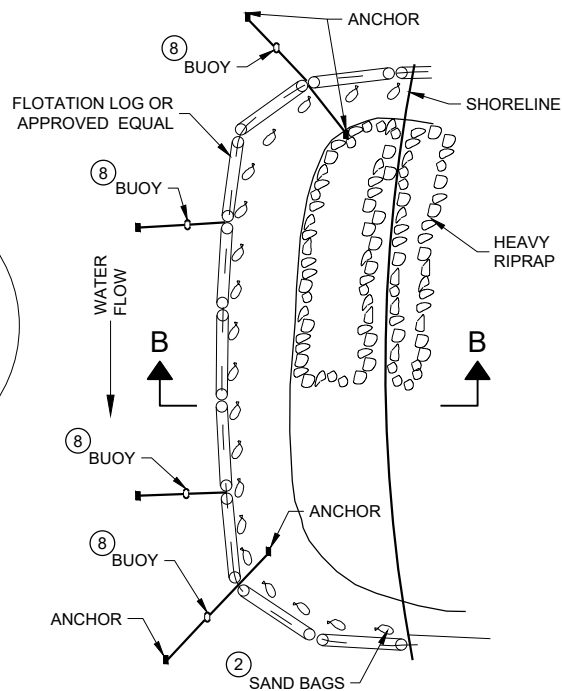
TURBIDITY BARRIER - FLOAT ALTERNATIVE
CAUTION - SEE NOTE 6



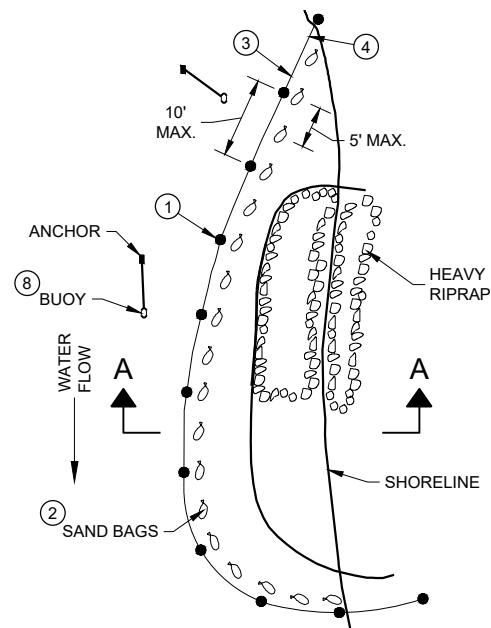
SECTION A - A

TURBIDITY BARRIER - STANDARD POST INSTALLATION

TURBIDITY BARRIER PLACEMENT DETAILS



PLAN VIEW



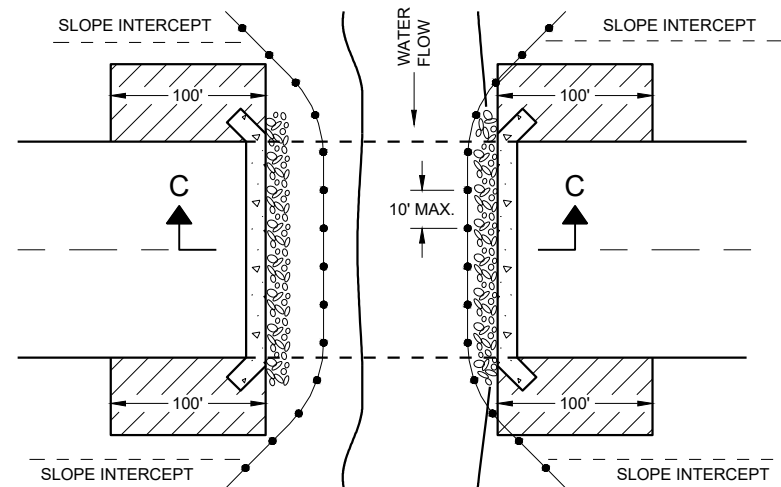
PLAN VIEW

GENERAL NOTES

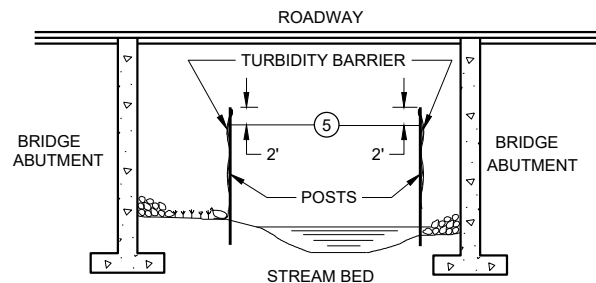
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

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



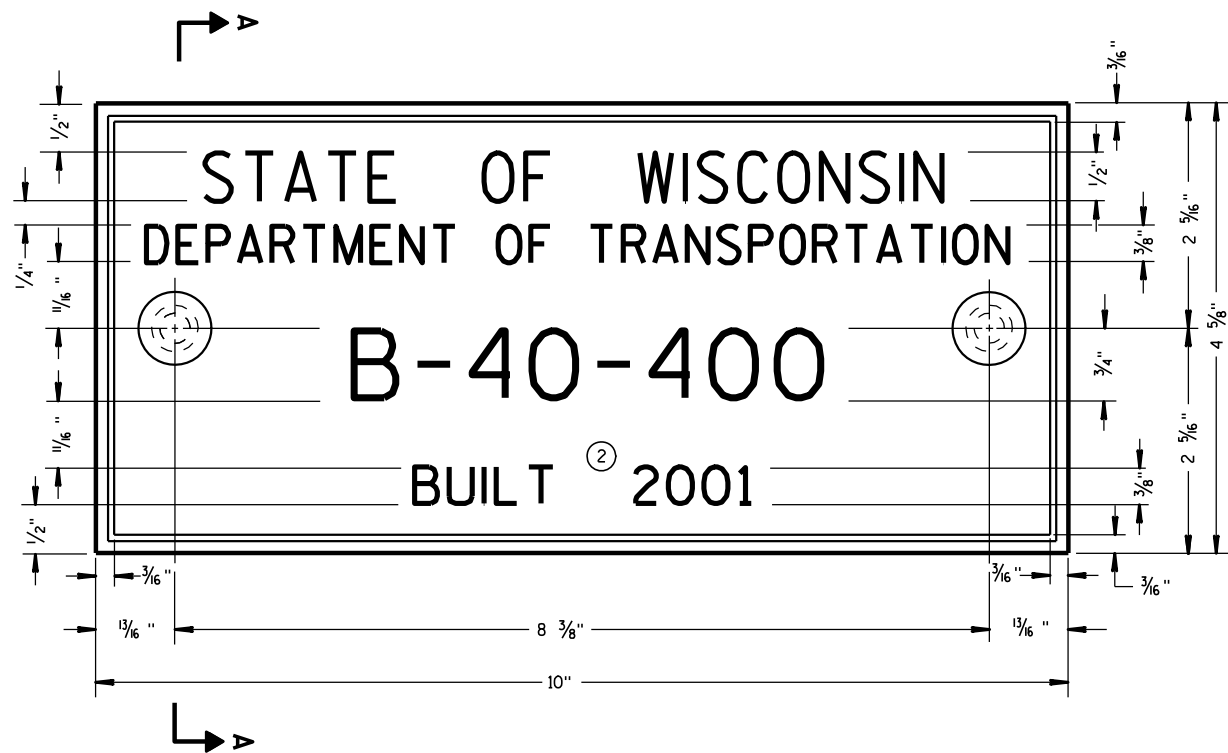
SECTION C - C

TURBIDITY BARRIER DETAIL SHOWING
TYPICAL PLACEMENT AT STRUCTURES

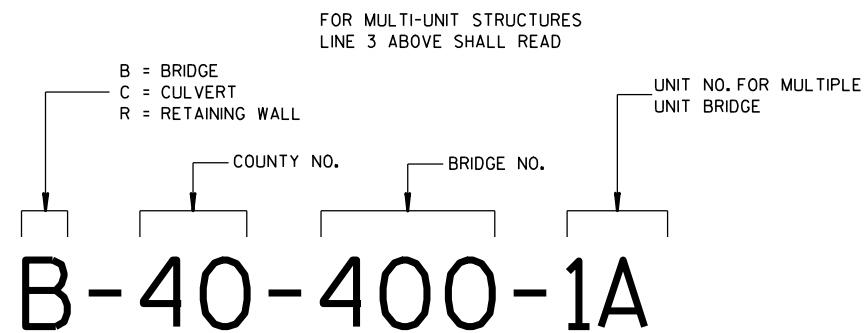
TURBIDITY BARRIER

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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



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



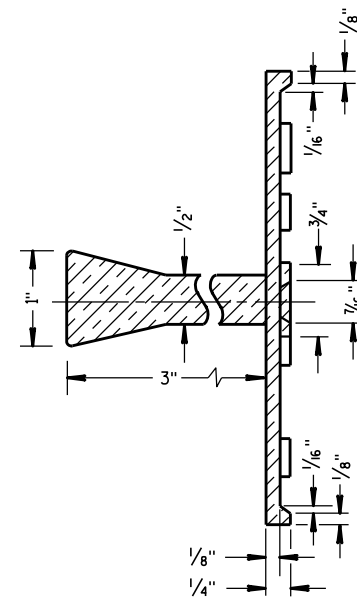
**NUMBERING DESIGNATION
MULTI-UNIT STRUCTURES**

GENERAL NOTES

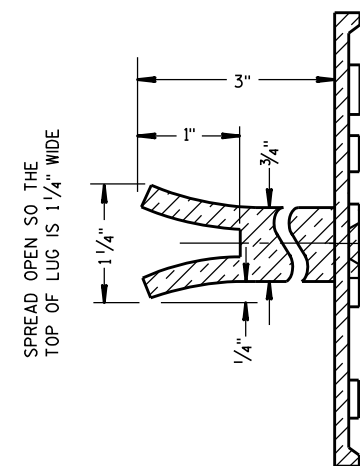
NAME PLATES TO BE INSTALLED ON BRIDGES, CULVERTS, AND RETAINING WALLS SHALL CONFORM TO THE REQUIREMENTS OF SECTION 502.3.11 OF THE STANDARD SPECIFICATIONS.

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

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

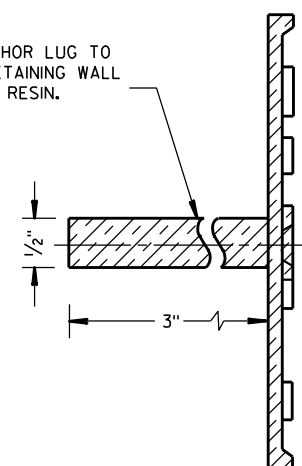


SECTION A-A



ALTERNATE LUG

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



ALTERNATE LUG
(FOR ATTACHMENT TO PRECAST STRUCTURES)

**NAME PLATE
(STRUCTURES)**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

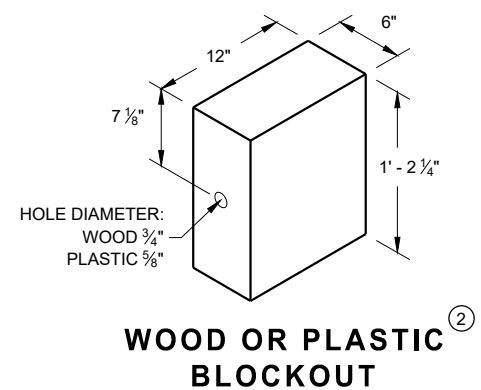
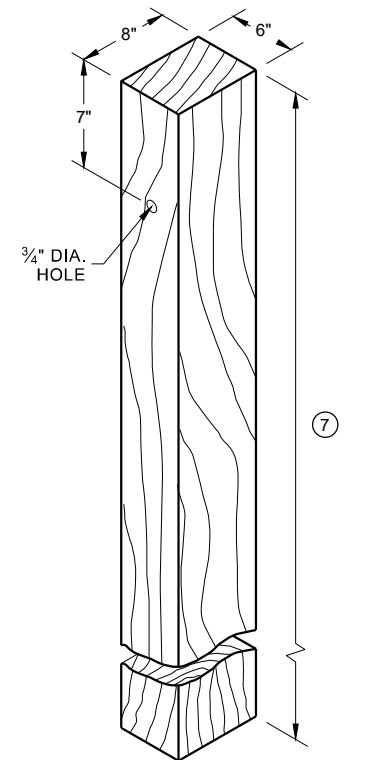
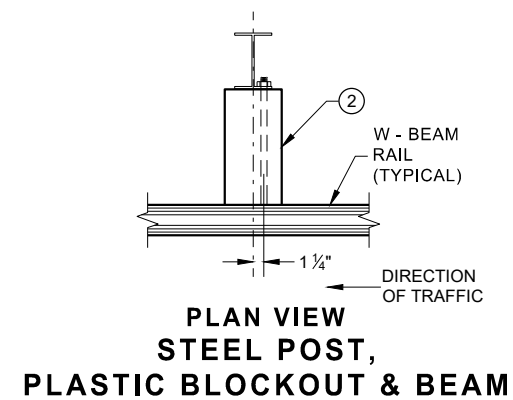
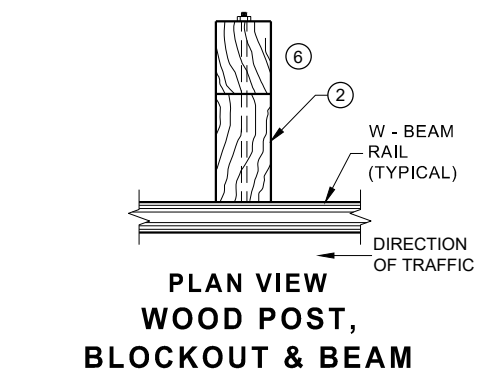
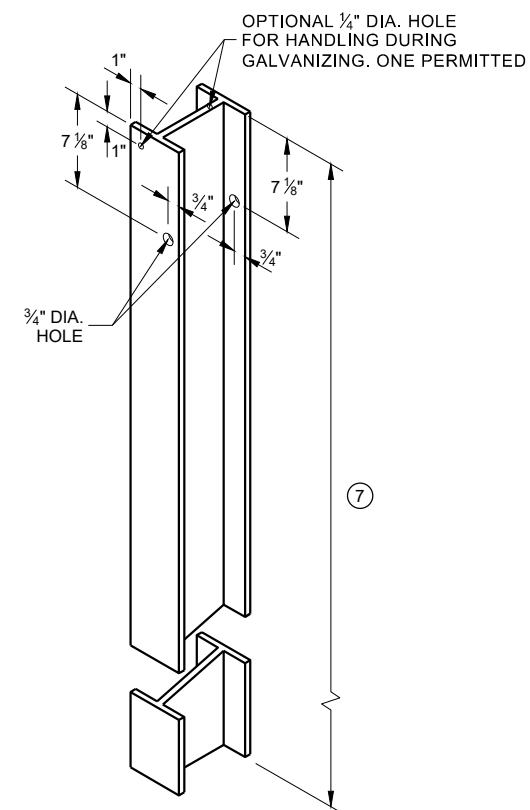
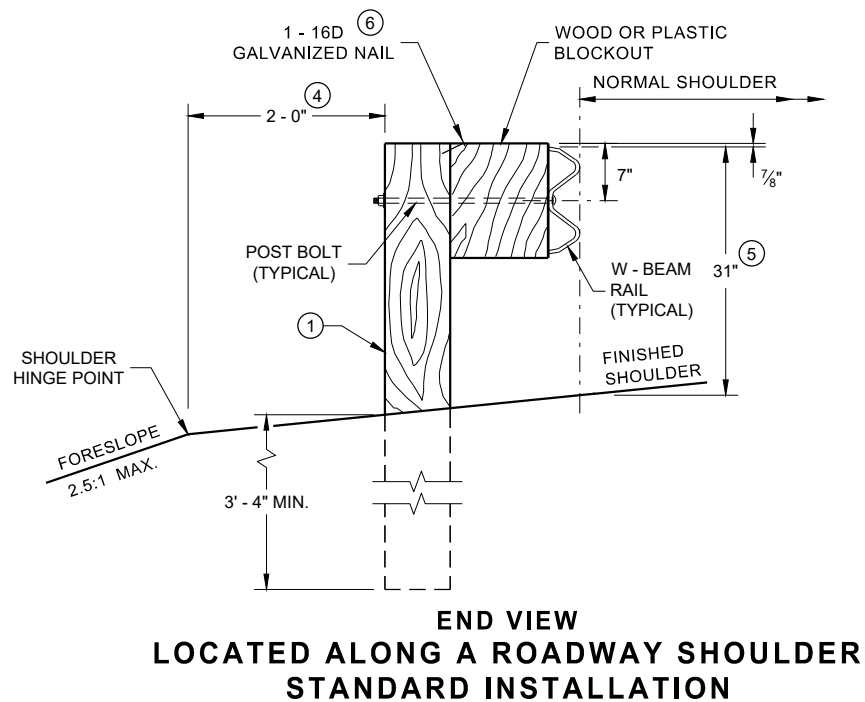
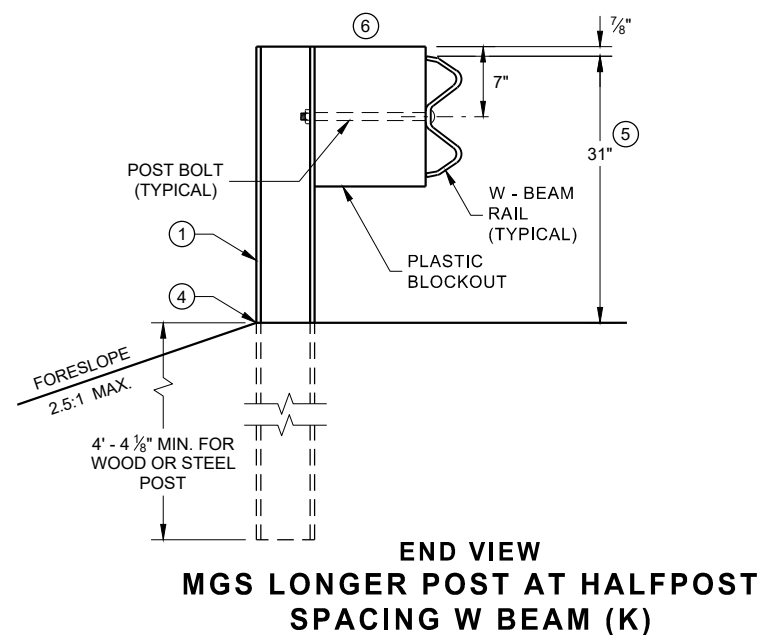
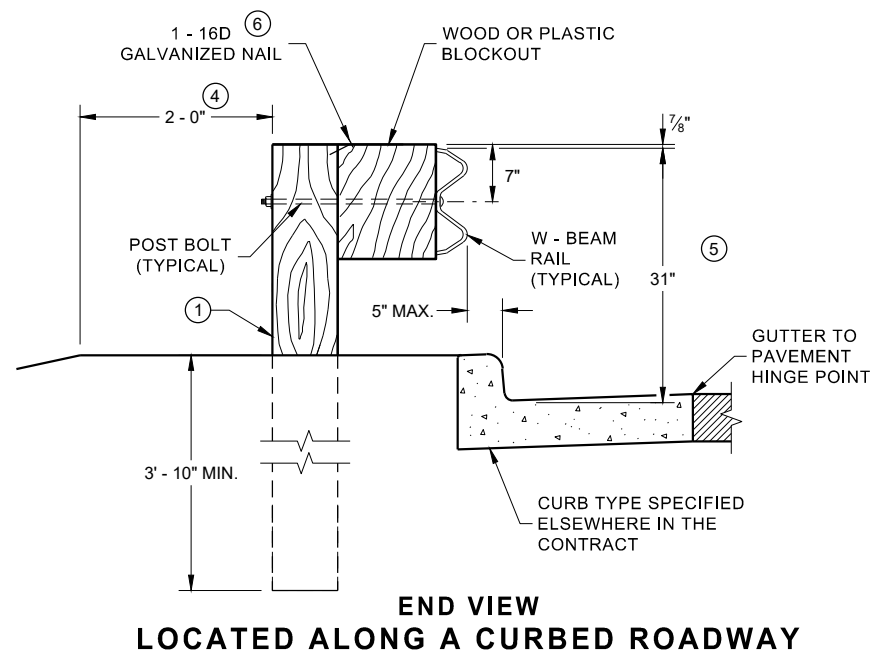
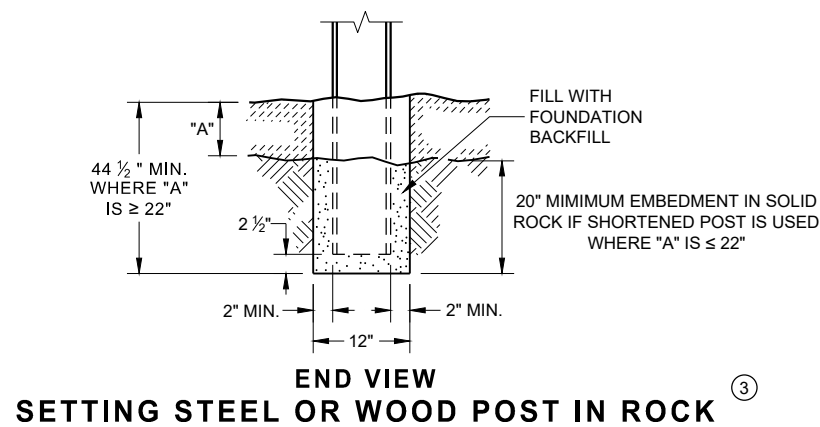
APPROVED

3/26/10
DATE

FHWA

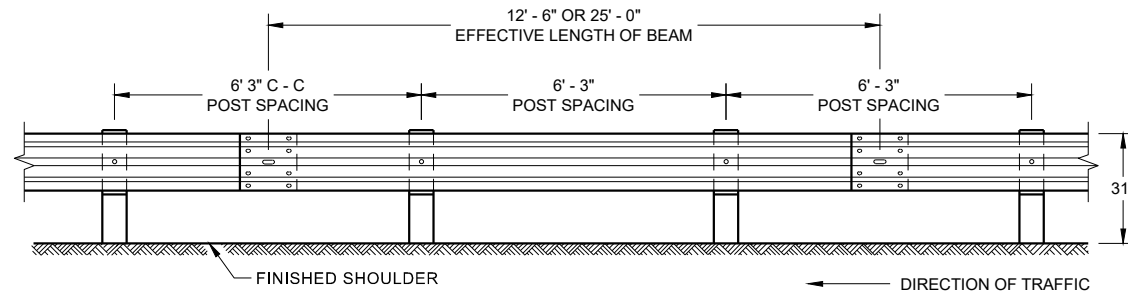
/S/ Scot Becker
CHIEF STRUCTURAL DEVELOPMENT ENGINEER

- 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 $\pm 1"$. FOR EXISTING MGS INSTALLATION TOP OF W-BEAM IS BETWEEN 27 3/4" TO 32".
- ⑥ WHEN USING STEEL POST AND WOOD BLOCKOUTS INSTALL FOUR 16D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.
- ⑦ TOTAL POST LENGTH FOR TYPE K IS 7' - 0". TOTAL POST LENGTH FOR OTHER MGS TYPES IS 6' - 0".

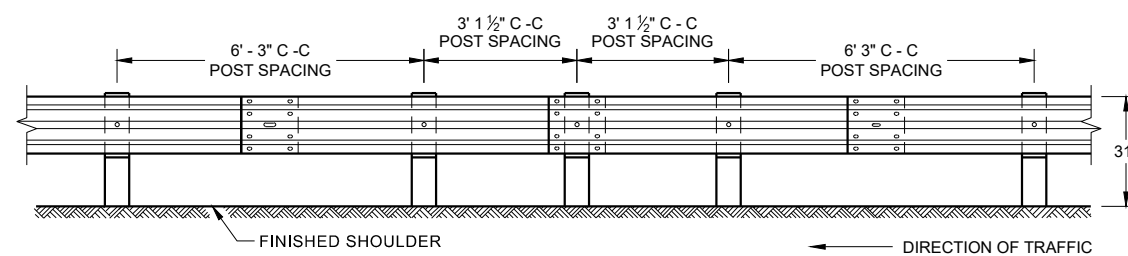


MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL

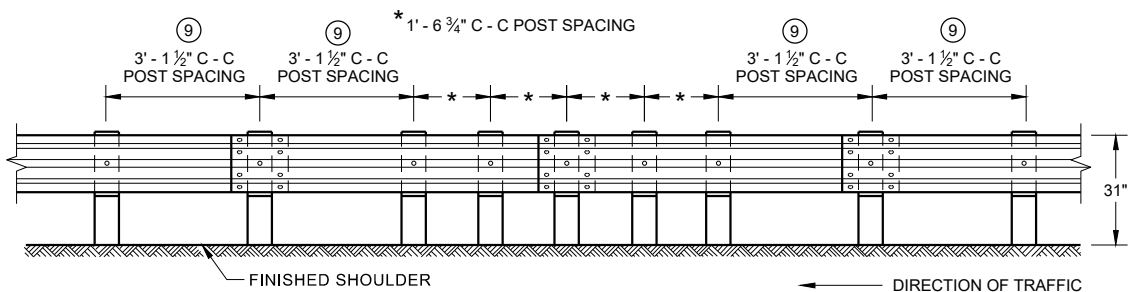
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



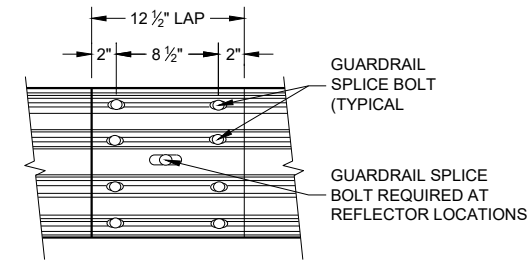
**FRONT VIEW
POST SPACING STANDARD INSTALLATION**



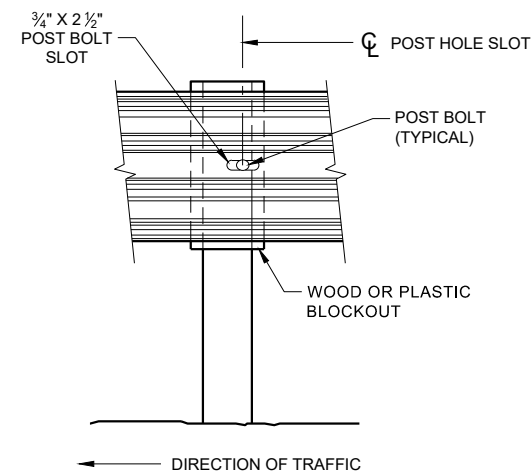
**FRONT VIEW
HALF POST SPACING (HS) AND
HALF POST SPACING WITH LONGER POSTS (K)**



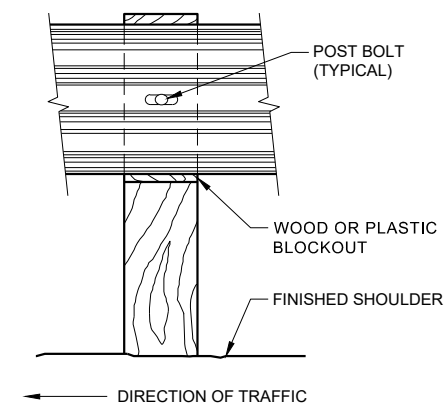
**FRONT VIEW
QUARTER POST SPACING (QS)**



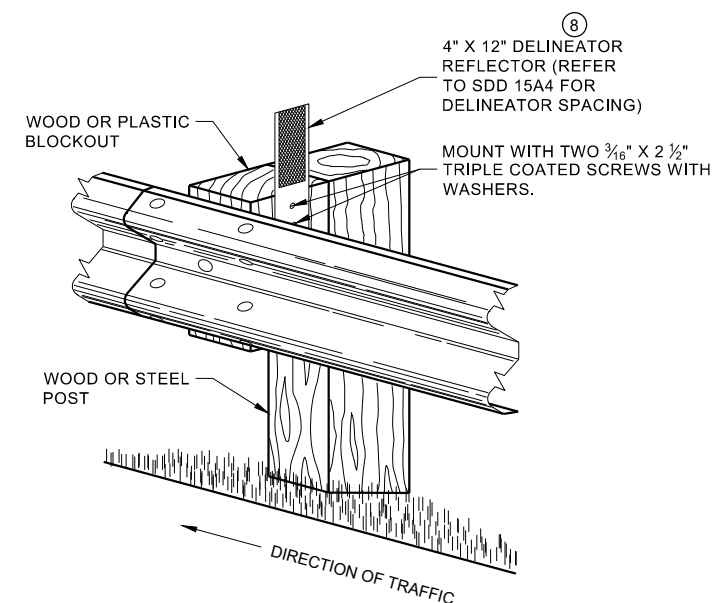
**FRONT VIEW
MID-SPAN BEAM SPLICE**



FRONT VIEW AT STEEL POST



FRONT VIEW AT WOOD POST



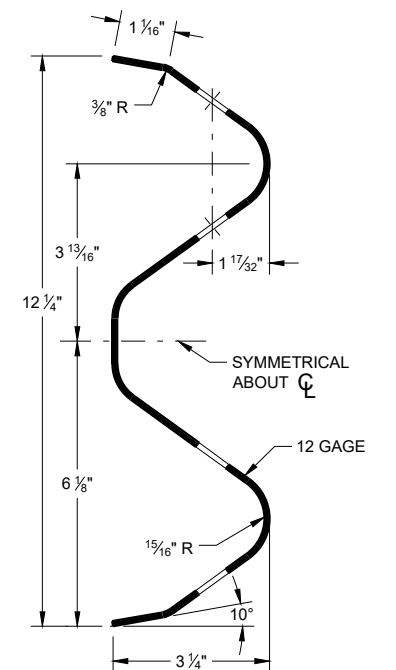
**ONE SIDED REFLECTOR DETAIL
AND TYPICAL INSTALLATION**

GENERAL NOTES

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

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

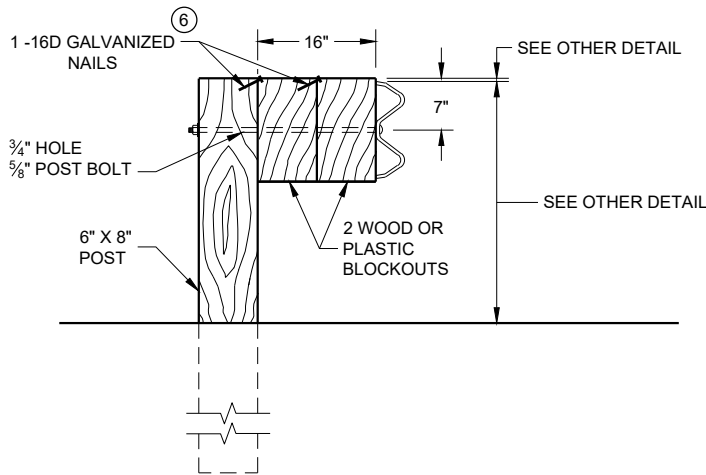
GUARD RAIL SPLICE BOLTS ARE A 3/8" DIAMETER ASTM A307 GUARDRAIL HEAD BOLT. A GUARDRAIL SPLICE BOLT REQUIRES 3/8" DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX NUT.



SECTION THRU W-BEAM RAIL

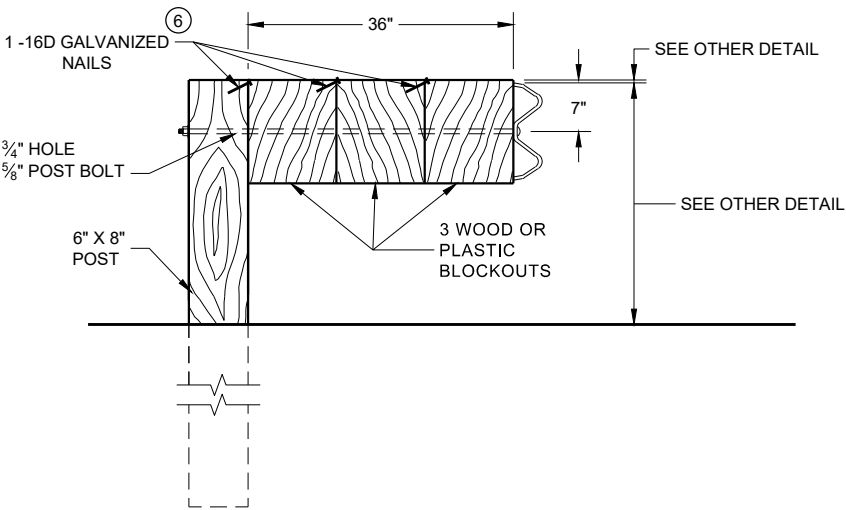
**MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



DETAIL FOR 16" BLOCKOUT DEPTH

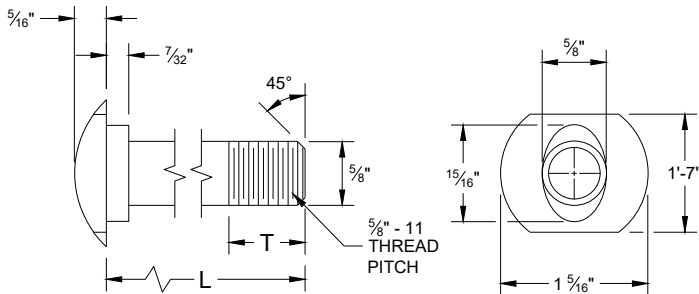
IT IS ACCEPTABLE TO USE BLOCKOUTS UP TO 16" DEEP TO INCREASE THE POST OFFSET TO AVOID UNDERGROUND OBSTACLES. THERE IS NO LIMIT TO THE NUMBER OF POSTS THAT CAN HAVE ADDITIONAL BLOCKOUTS UP TO 16" DEEP.



DETAIL FOR 36" BLOCKOUT DEPTH

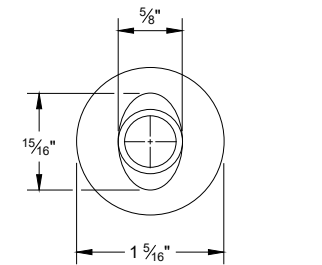
NOTES: UNDER SPECIAL CIRCUMSTANCES, SUCH AS AVOIDING OBSTACLES THAT ARE NOT RELOCATED, IT IS ACCEPTABLE TO INSTALL ADDITIONAL BLOCKOUTS TO OBTAIN UP TO 36" DEPTH FOR ONE OR TWO POSTS IN A SECTION OF GUARDRAIL.
DO NOT USE 16" OR 36" BLOCKOUTS IF IT CAUSES THE POST TO BE DRIVEN BEYOND SHOULDER HINGE POINT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

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

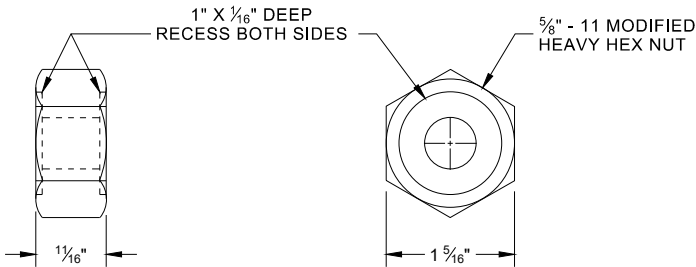


POST BOLT TABLE

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

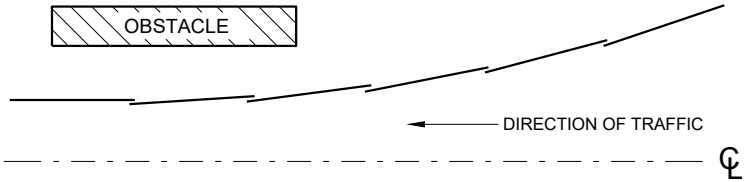


ALTERNATE BOLT HEAD

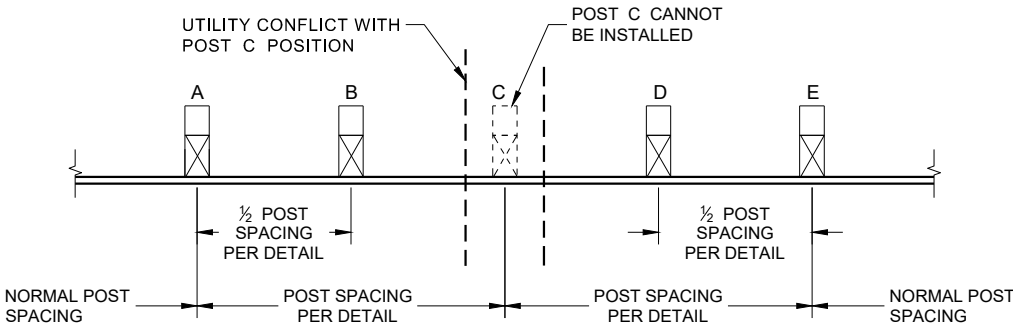


POST BOLT, SPLICE BOLT AND RECESS NUT

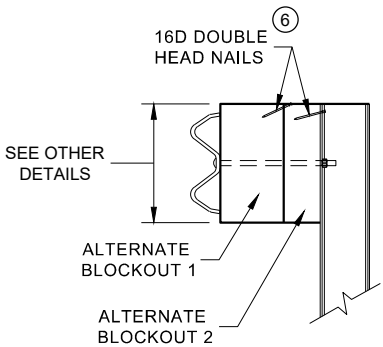
- 6 WHEN USING STEEL POST AD WOOD BLOCKOUTS, INSTALL FOUR 16D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.



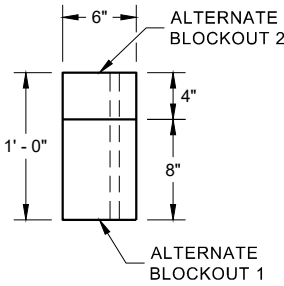
PLAN VIEW
BEAM LAPPING DETAIL



POST DRIVING FOR CONTINUOUS
UNDERGROUND OBSTRUCTION



SIDE VIEW

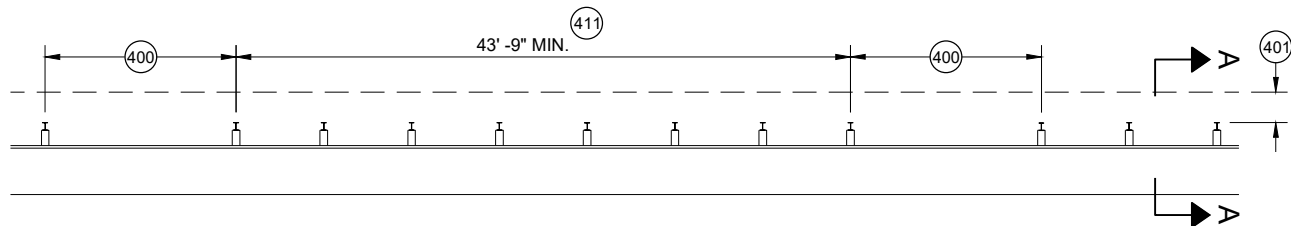


PLAN VIEW

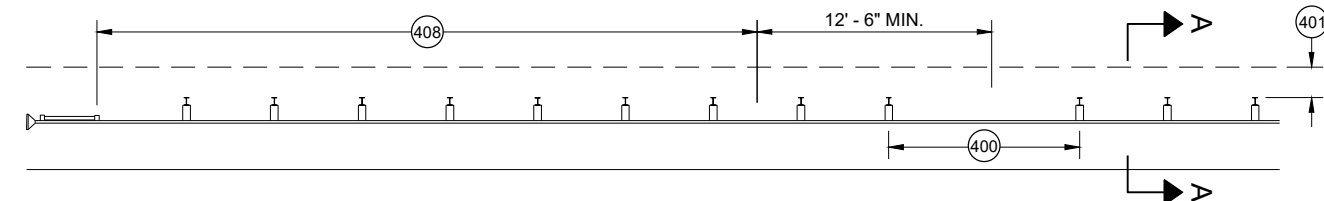
ALTERNATE WOOD
BLOCKOUT DETAIL

MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL

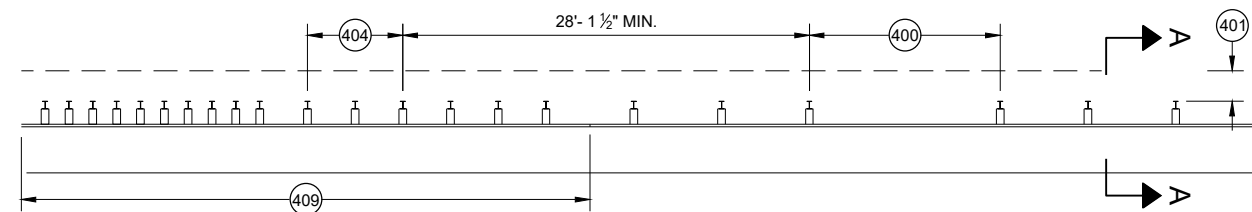
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



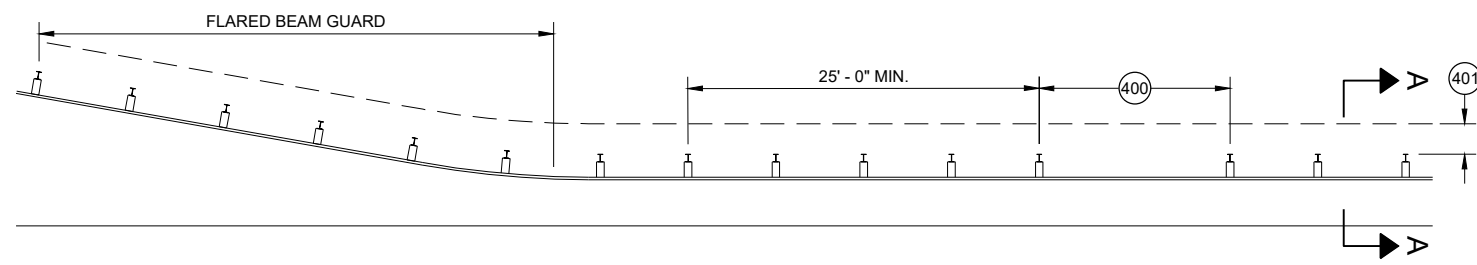
MISSING POST IN MGS GUARDRAIL



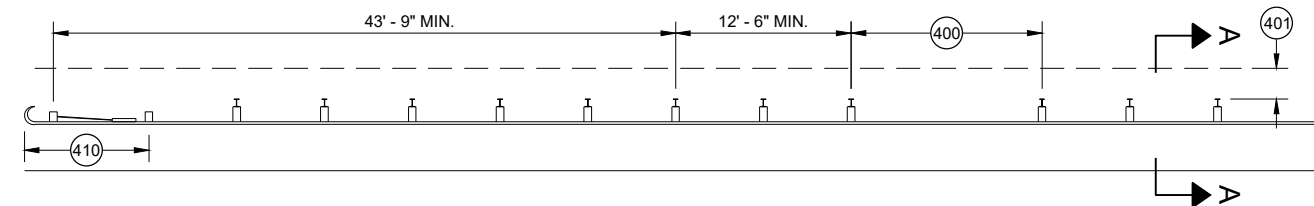
MISSING POST IN MGS GUARDRAIL NEAR EAT



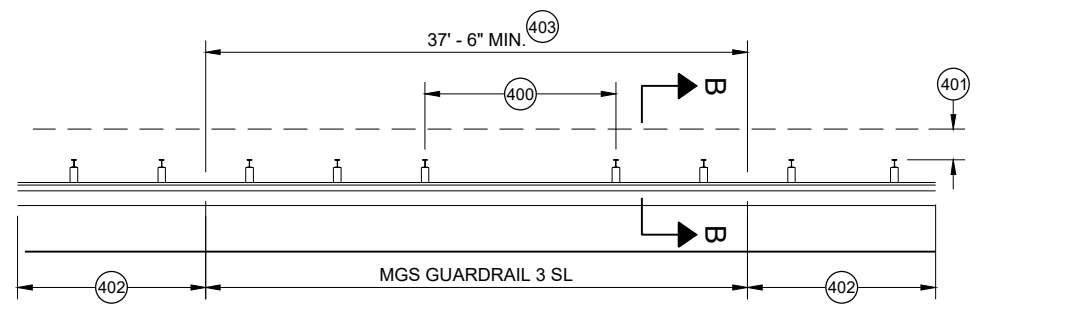
MISSING POST IN MGS GUARDRAIL NEAR AN APPROACH TRANSITION



MISSING POST IN MGS GUARDRAIL NEAR FLARED BEAM GUARD

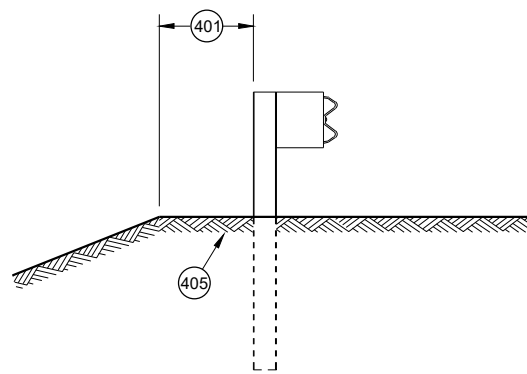


MISSING POST IN MGS GUARDRAIL NEAR A TYPE 2 END TERMINAL

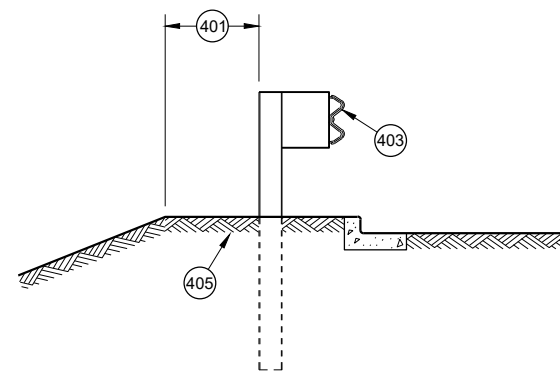


MISSING POST IN SHORT SPAN MGS GUARDRAIL NEAR CURB (SL)

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



SECTION A - A



SECTION B - B

**MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

FHWA

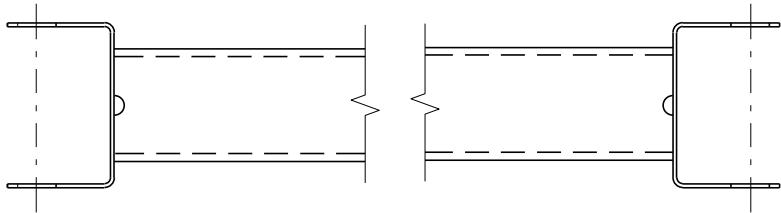
- (A) THE SLOPE IN THE AREA BOUNDED BY THE GRADELINE, THE HINGE POINT LINE (HPL) AND THE CLEAR ZONE LIMITS (CZL) SHALL BE 4:1 OR FLATTER.
- (B) AFTER FINAL ASSEMBLY, RECHECK CABLE TO BE SURE IT IS TAUT AND HAS NOT RELAXED
- (C) DIFFERENT MANUFACTURERS REQUIRE DIFFERENT PERFORATED W - BEAM RAIL END PANELS.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

DIMENSIONS MAY VARY, MANUFACTURER'S INFORMATION.

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

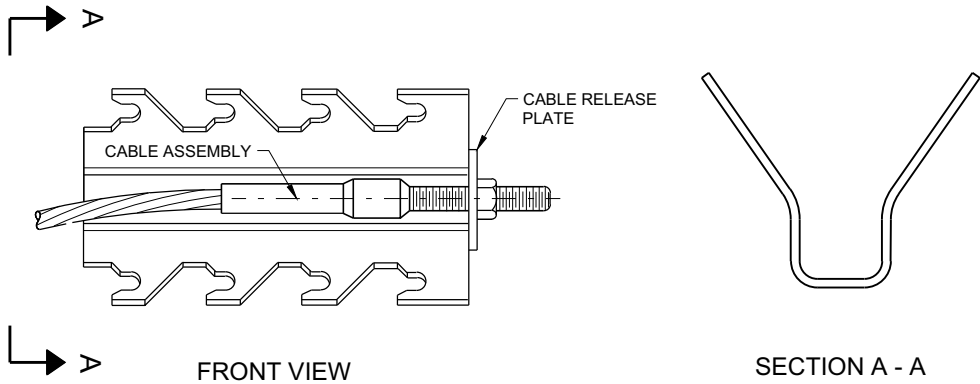


STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

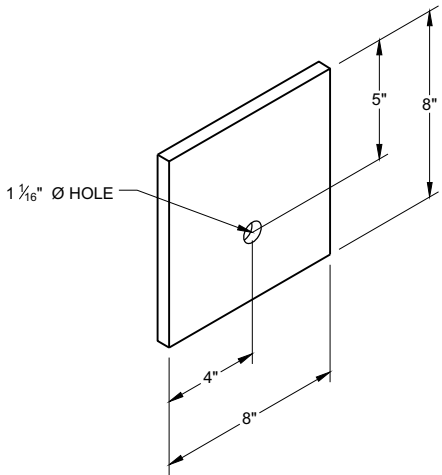


GENERIC GROUND STRUT⁹ ^E

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



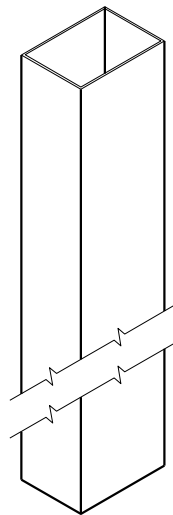
GENERIC ANCHOR CABLE BOX⁹ ^E



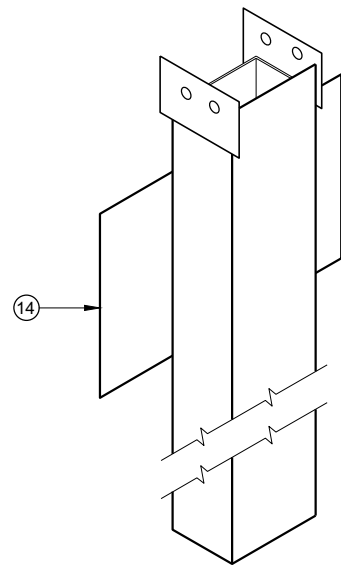
BEARING PLATE⁶ ^E

MIDWEST GUARDRAIL SYSTEM
ENERGY ABSORBING TERMINAL
(MGS)

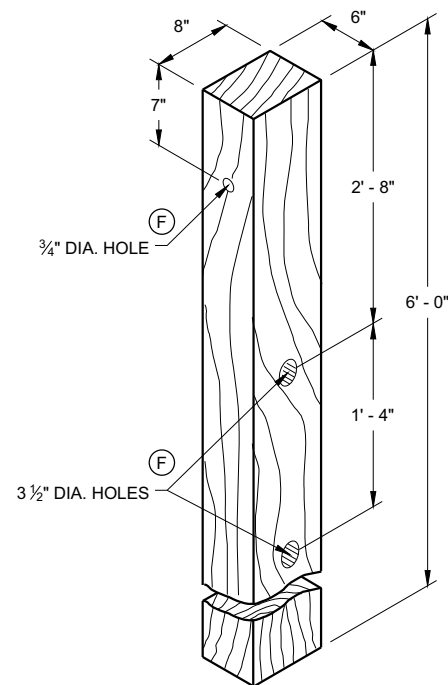
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



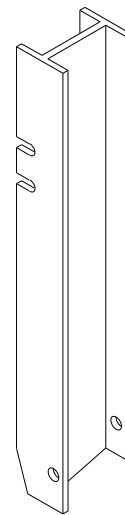
UPPER POST NO. 1^{(1) (E)}



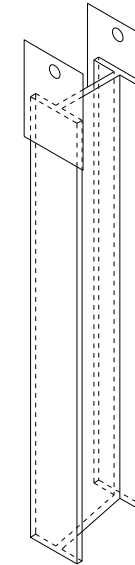
LOWER POST NO. 1^{(2) (E)}



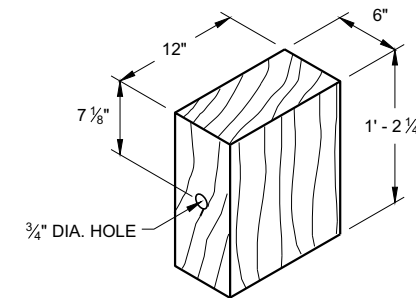
WOOD CRT POST^{(3) (E)}
POSTS NUMBER 3-9



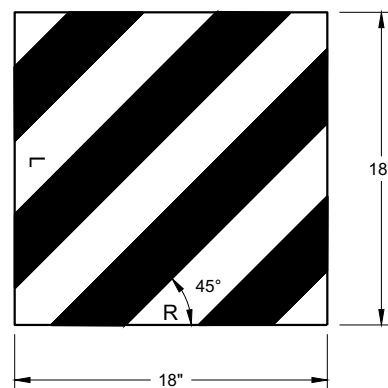
UPPER POST NO. 2^{(15) (E)}



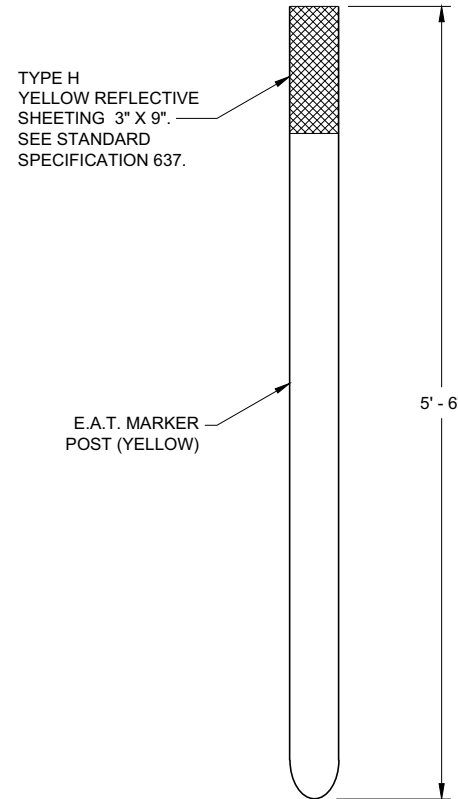
LOWER POST NO. 2^{(16) (E)}



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



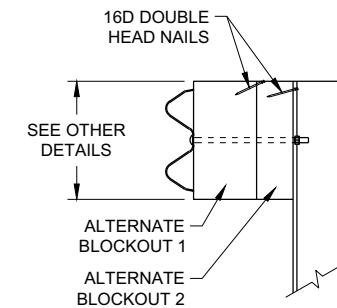
W5 - 59
REFLECTIVE SHEETING DETAIL^(E)



FRONT VIEW

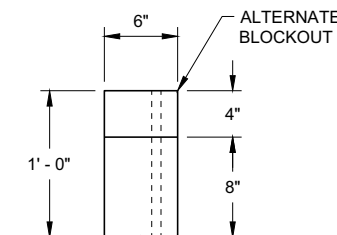
SIDE VIEW

E.A.T. MARKER POST⁽¹³⁾



SIDE VIEW

ALTERNATE WOOD
BLOCKOUT DETAIL

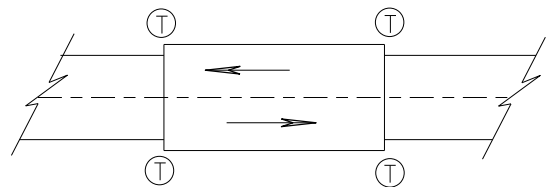


TOP VIEW

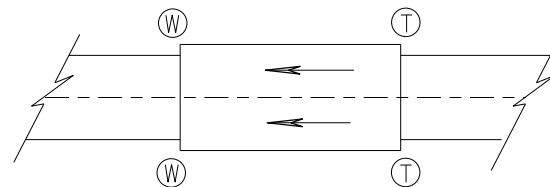
**MIDWEST GUARDRAIL SYSTEM
ENERGY ABSORBING TERMINAL
(MGS)**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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



TWO WAY TRAFFIC



ONE WAY TRAFFIC

(T) THRIE BEAM CONNECTION

(W) W-BEAM CONNECTION WHEN REQUIRED

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

GENERAL NOTES

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

TRANSITION USES STEEL POSTS ONLY.

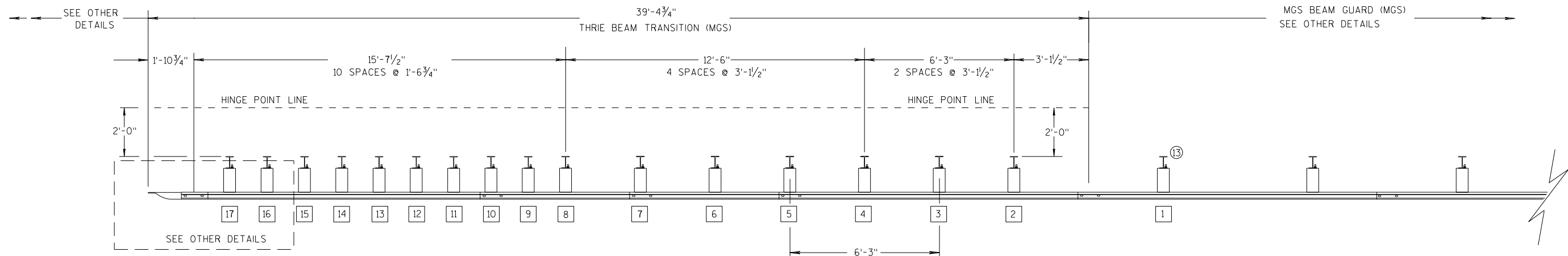
SEE STANDARD DETAIL DRAWING 14 B 42 FOR MORE INFORMATION.

POST 2 THROUGH 17 USES STEEL POST ONLY

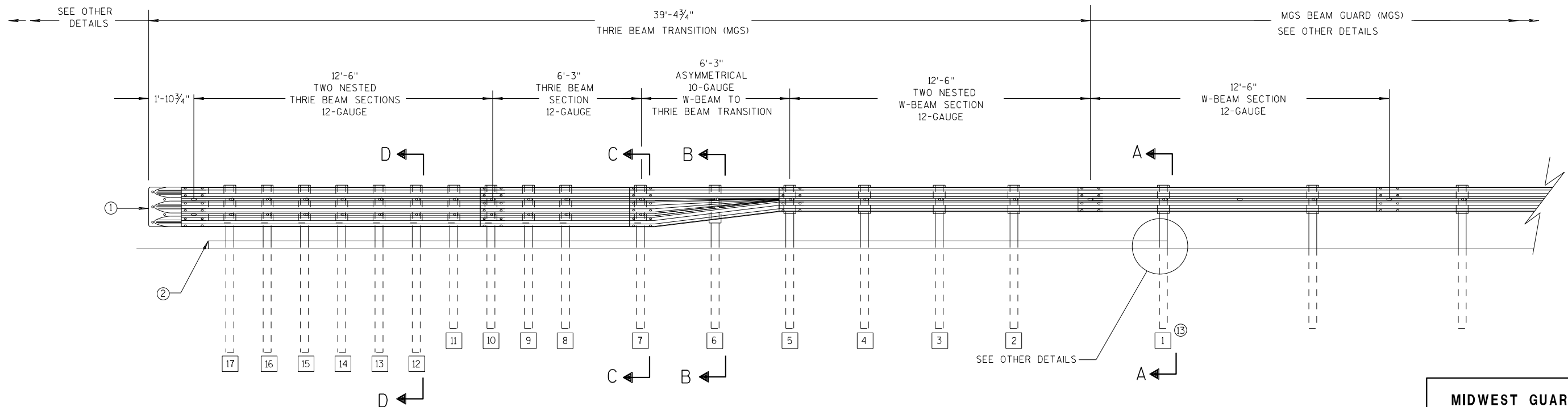
① BRIDGE RAILING TYPE "W" DOES NOT REQUIRE A TERMINAL CONNECTOR.

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

⑬ STEEL OR WOOD POST IS ACCEPTABLE AT POST 1. SEE SDD14B42



PLAN VIEW



ELEVATION VIEW

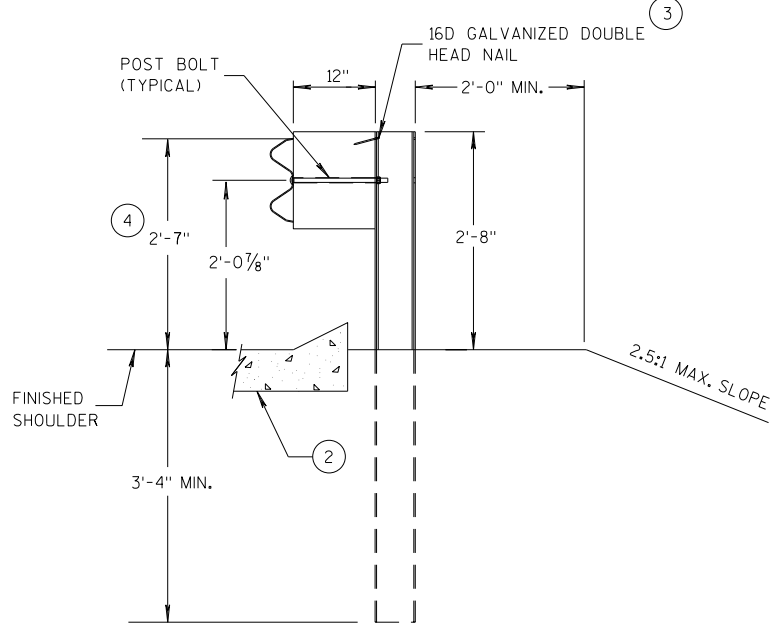
MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION

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

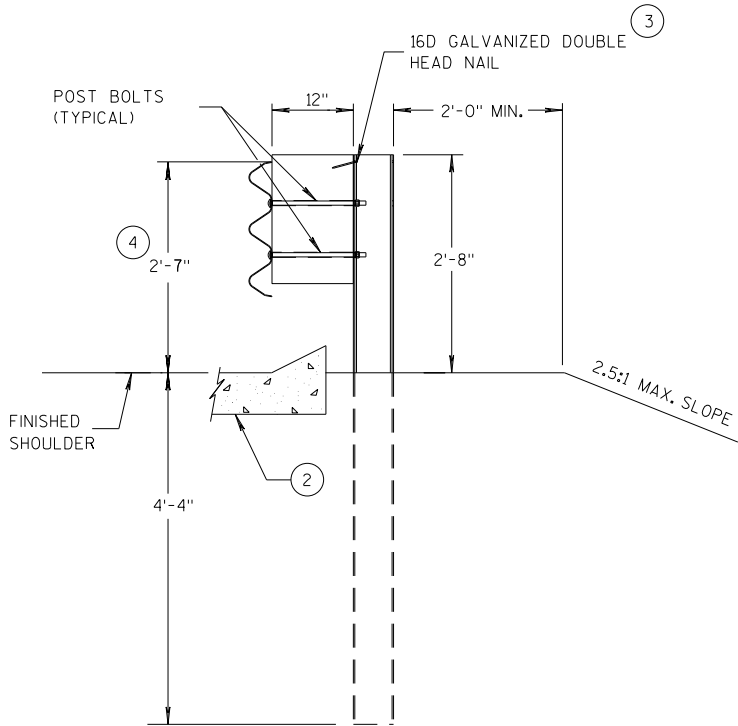
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

GENERAL NOTES

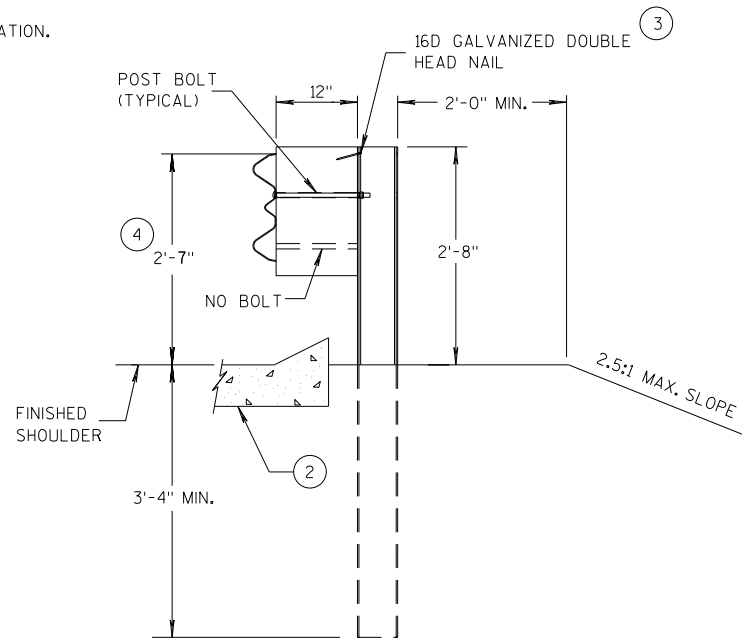
- 2 OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.
- 3 WHEN USING STEEL POSTS AND WOOD BLOCKOUTS INSTALL FOUR 10D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.
- 4 TOLERANCE FOR TOP OF W-BEAM RAIL IS $\pm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



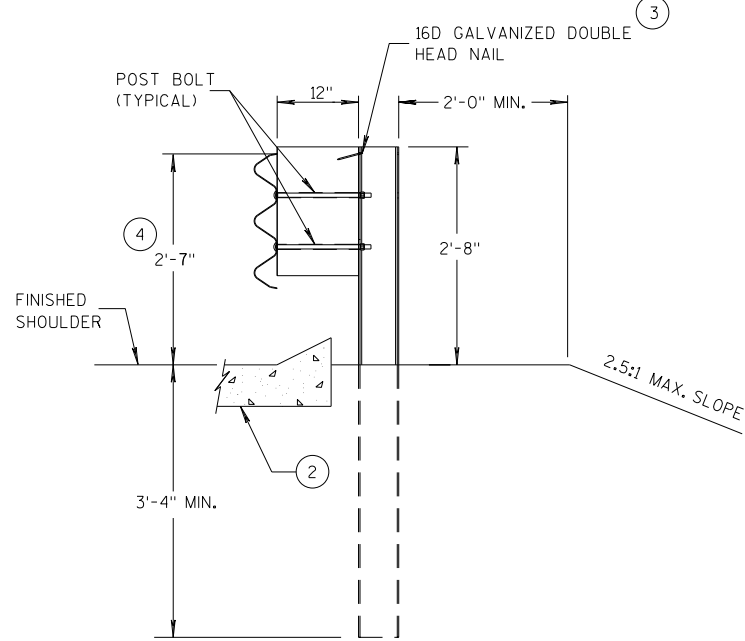
SECTION A-A
POSTS 1-5



SECTION D-D
POSTS 12-17



SECTION B-B
POST 6



SECTION C-C
POSTS 7-11

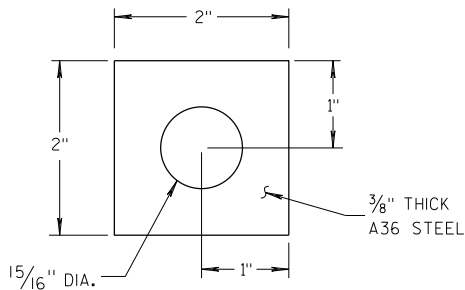
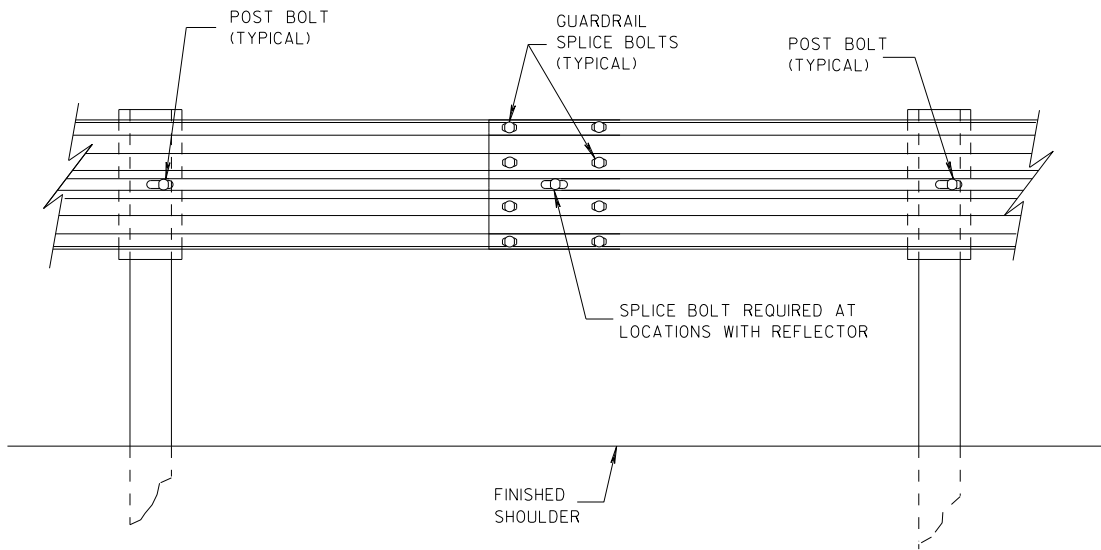
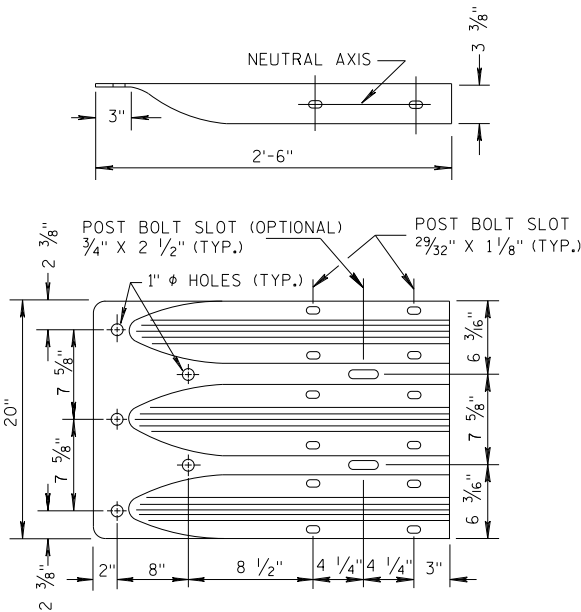


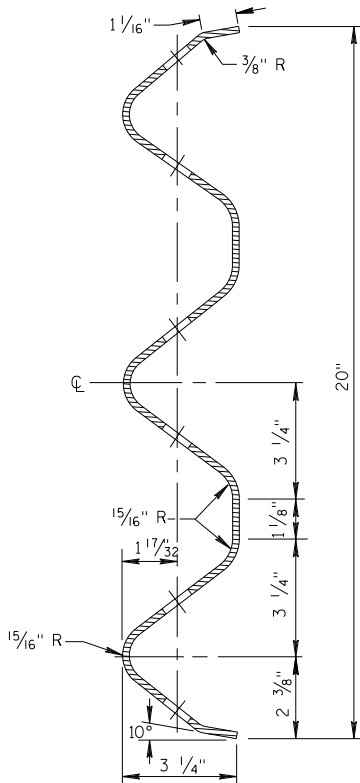
PLATE WASHER DETAIL



SPlice DETAIL



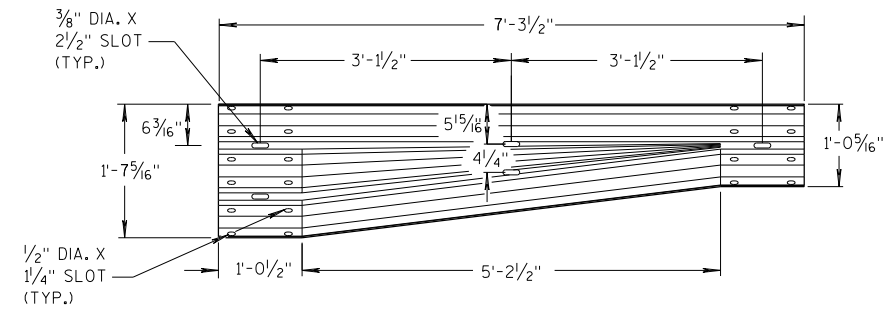
THRIE BEAM
TERMINAL CONNECTOR



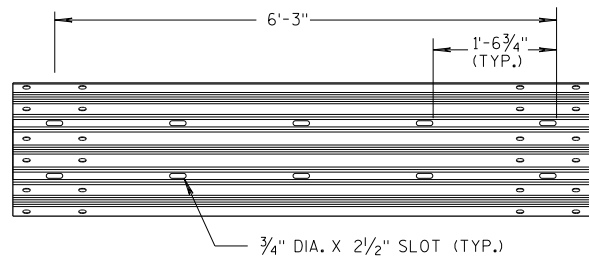
SECTION THRU THRIE
BEAM RAIL ELEMENT

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

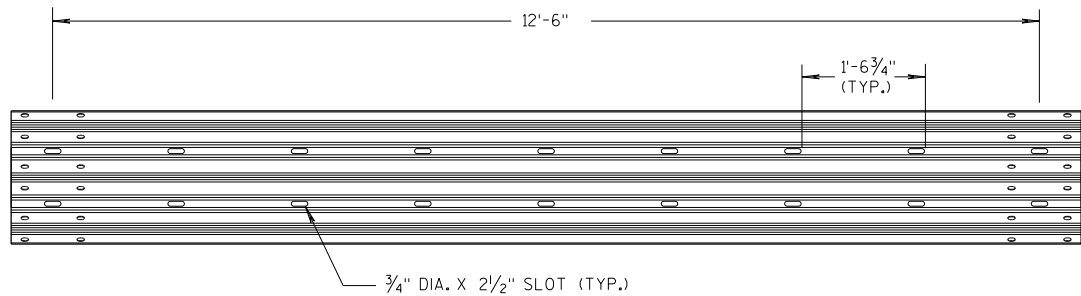
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



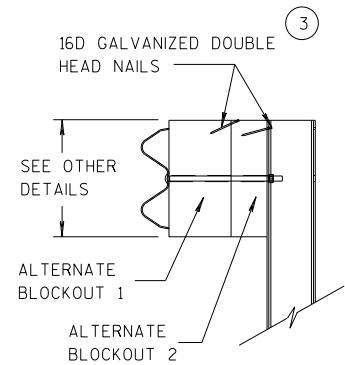
W-BEAM TO THRIE BEAM TRANSITION SECTION



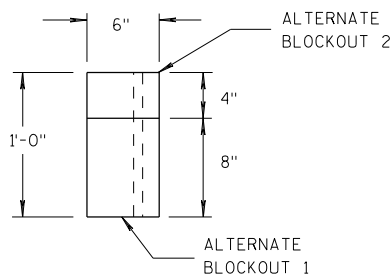
6'-3" THRIE BEAM SECTION



12'-6" THRIE BEAM SECTION

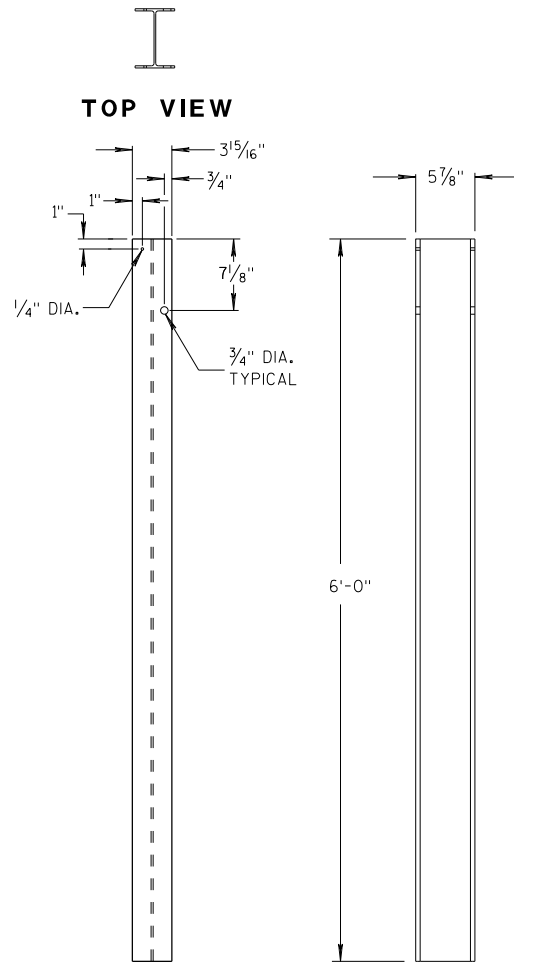


SIDE VIEW



TOP VIEW

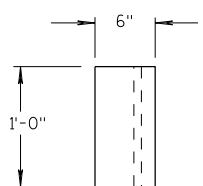
ALTERNATE WOOD BLOCKOUT DETAIL



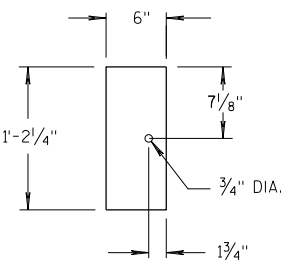
FRONT VIEW

SIDE VIEW

STEEL POSTS 1-5

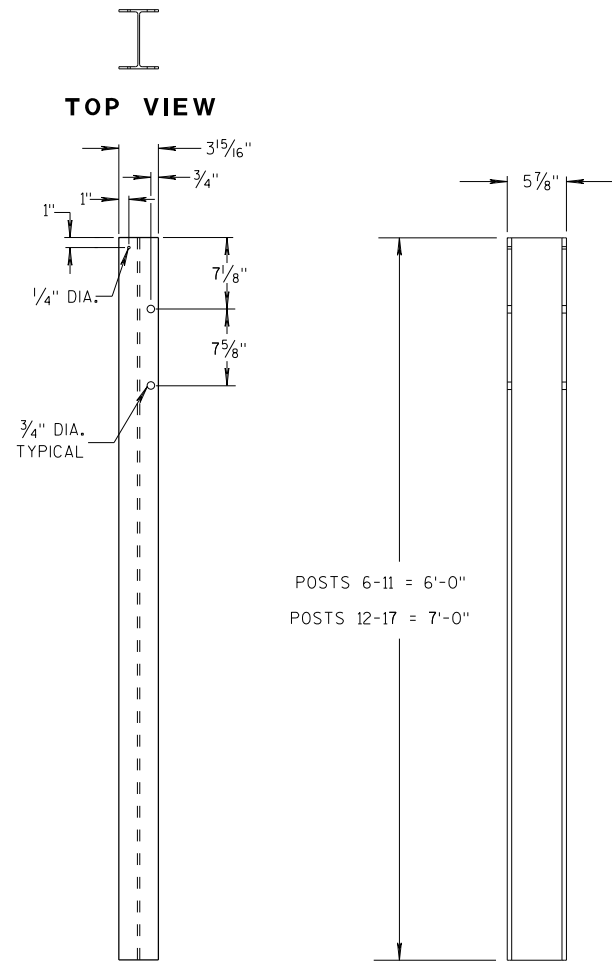


TOP VIEW



FRONT VIEW

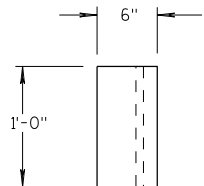
BLOCKOUT POSTS 1-5



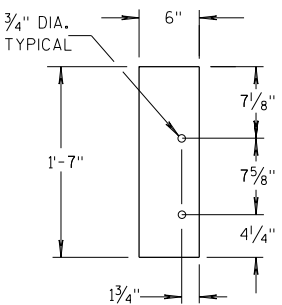
FRONT VIEW

SIDE VIEW

STEEL POSTS 6-17



TOP VIEW



FRONT VIEW

BLOCKOUT POSTS 6-17

GENERAL NOTES

STEEL POSTS ARE W6X9 OR W6X8.5.

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

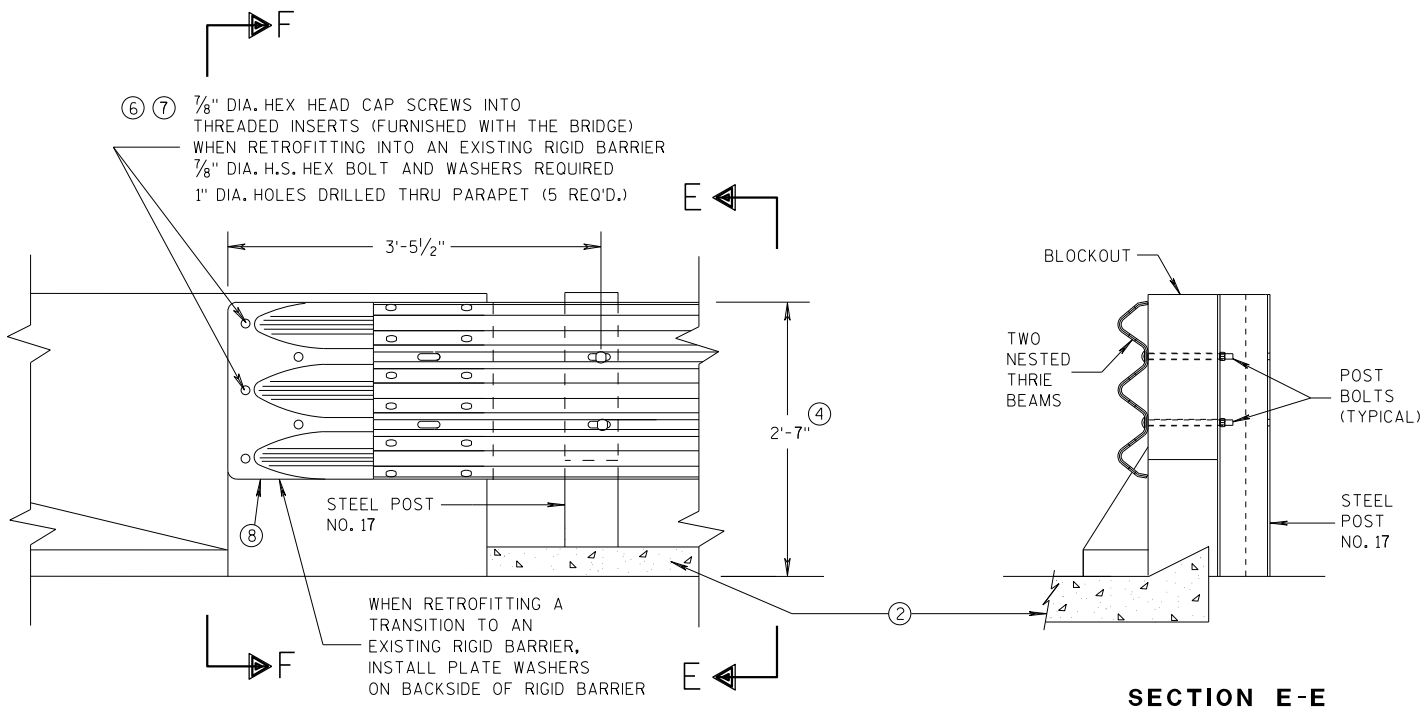
③ WHEN USING STEEL POSTS AND WOOD BLOCKOUTS INSTALL FOUR 16D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.

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

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

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

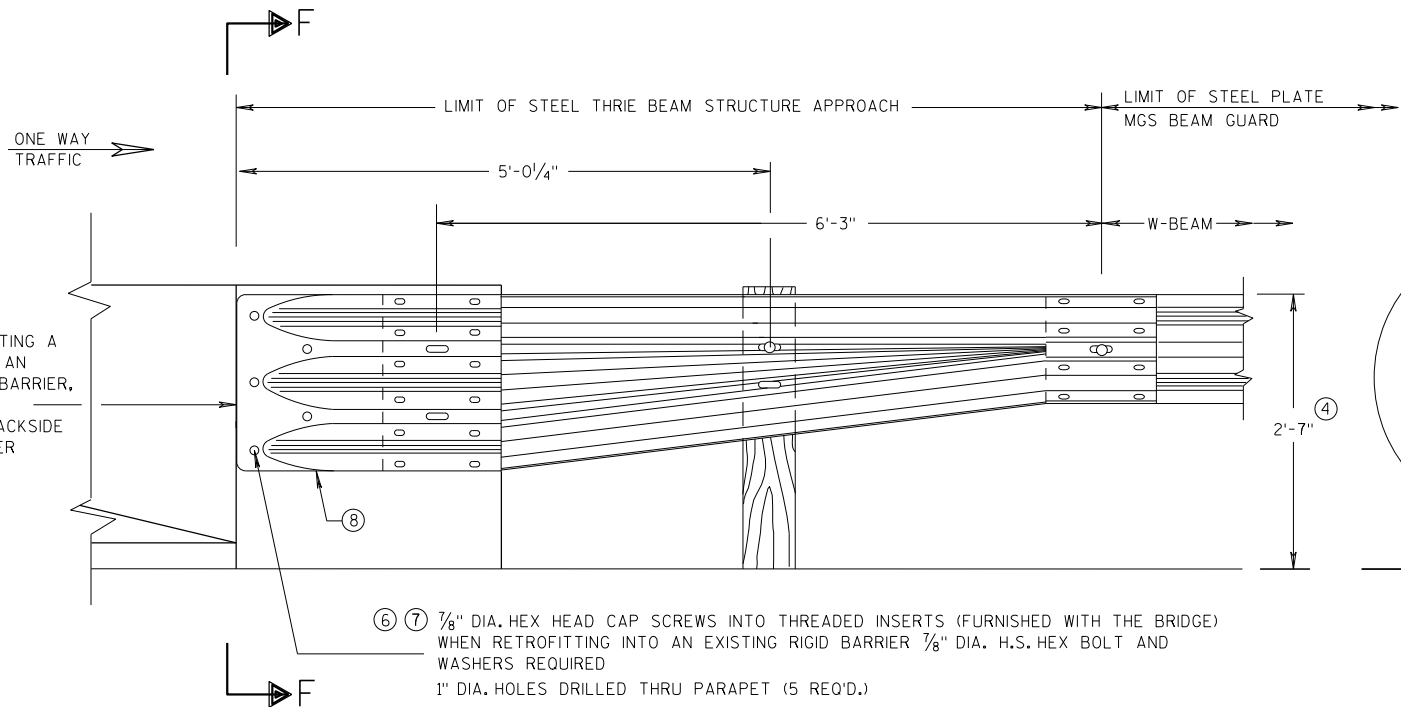
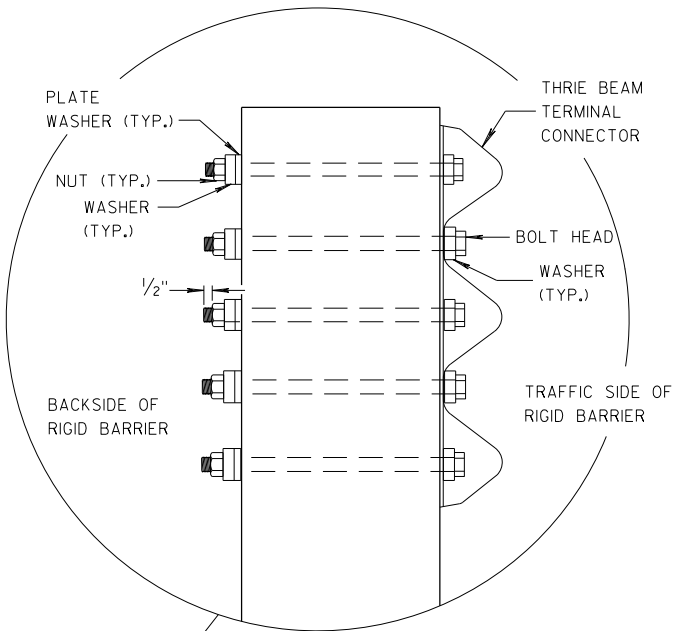
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



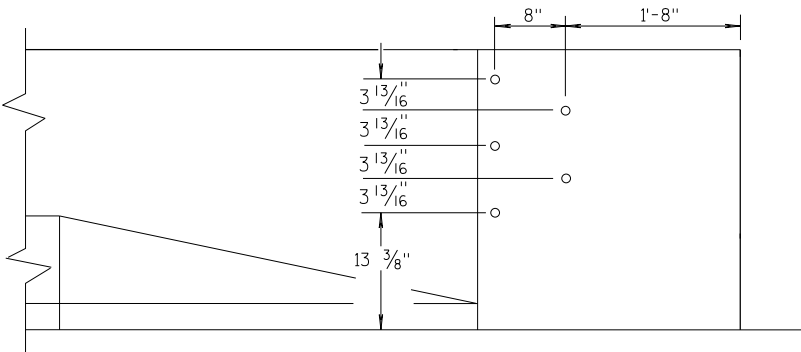
GENERAL NOTES

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

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



SECTION F-F



DRILL HOLE LOCATION

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

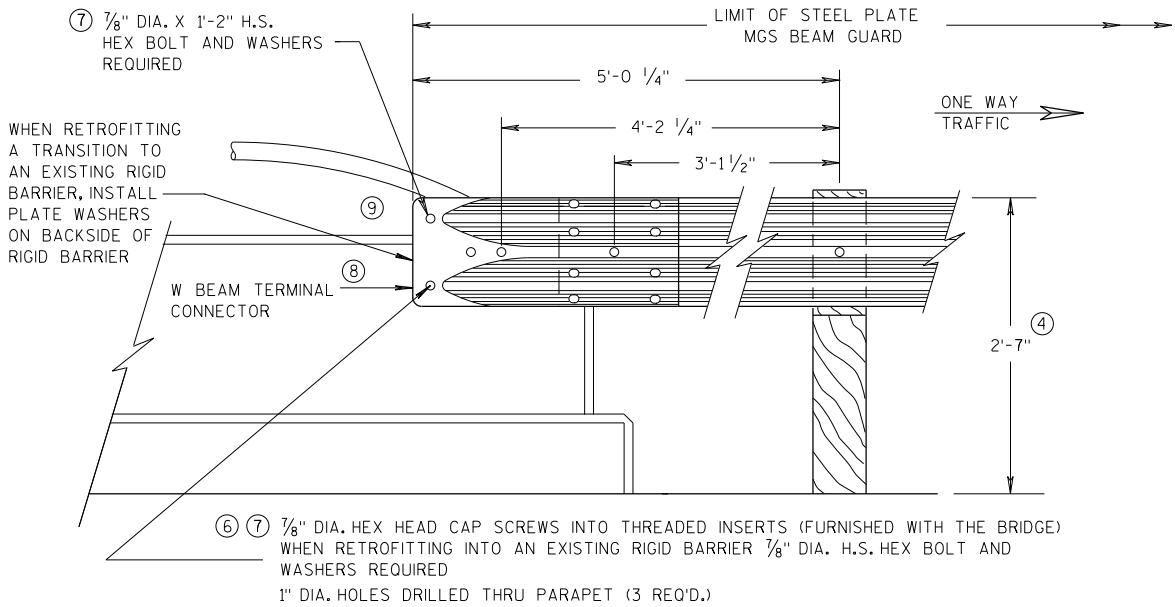
APPROVED
07/2018
DATE
FHWA

/S/ Rodney Taylor
ROADWAY STANDARDS DEVELOPMENT
UNIT SUPERVISOR

GENERAL NOTES

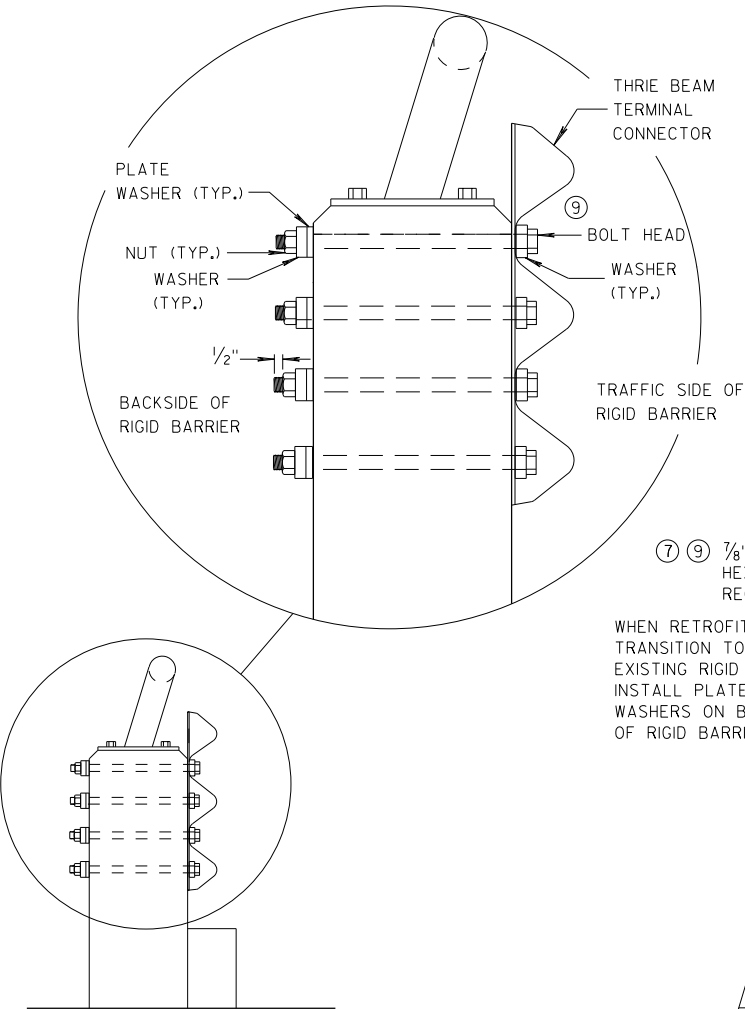
THESE ARE TYPICAL CONNECTION DETAILS. ADJUST THE POSTION OF CONNECTIONS TO EXISTING BRIDGES TO FIT THE ACTUAL BRIDGE AND SITE DIMENSIONS.

- ②
- OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.
- ④
- TOLERANCE FOR TOP OF BEAM IS $\pm 1"$.
- ⑥
- DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.
- ⑦
- BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM CONNECTOR PLATE. BOLTS THAT EXTEND THROUGH THE PARAPET AND OUT THE BACK FACE REQUIRE A HARDENED ROUND STEEL WASHER THAT IS 2" O.D. X $\frac{5}{32}"$ 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 $\frac{1}{2}"$.
- ⑨
- BOLT, NUT AND WASHERS NOT REQUIRED FOR THIS LOCATION WHEN RETROFITTING AN EXISTING PAPAPET AND THE HOLE IS EITHER ABOVE PARAPET OR WITHIN 4 INCHES OF THE EDGE OF PARAPET.

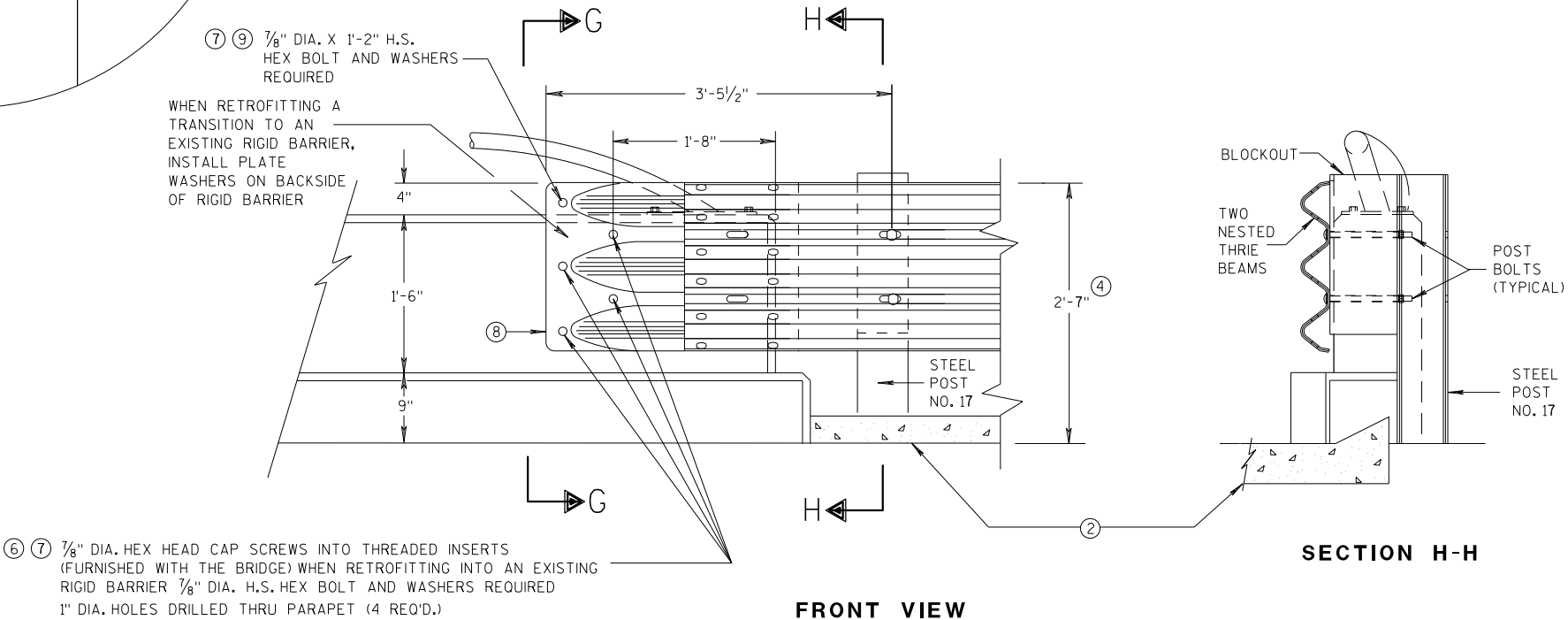


FRONT VIEW

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



SECTION G-G



FRONT VIEW

SECTION H-H

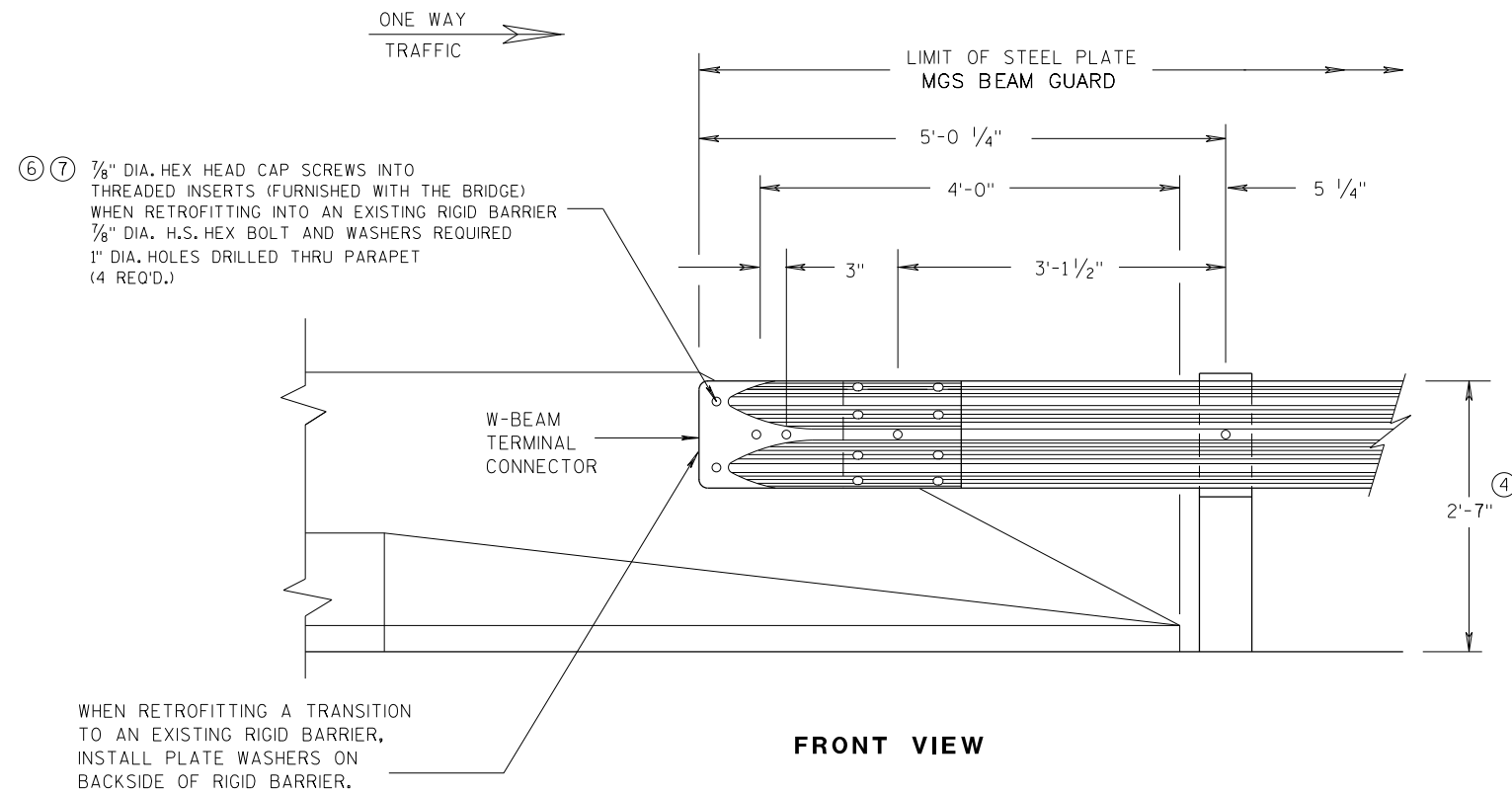
THRIE BEAM CONNECTION TO VERTICAL FACED PARAPETS

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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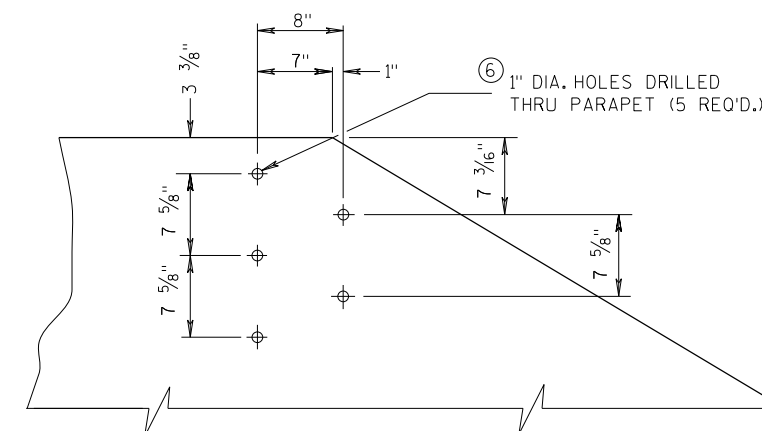
/S/ Rodney Taylor
ROADWAY STANDARDS DEVELOPMENT
UNIT SUPERVISOR



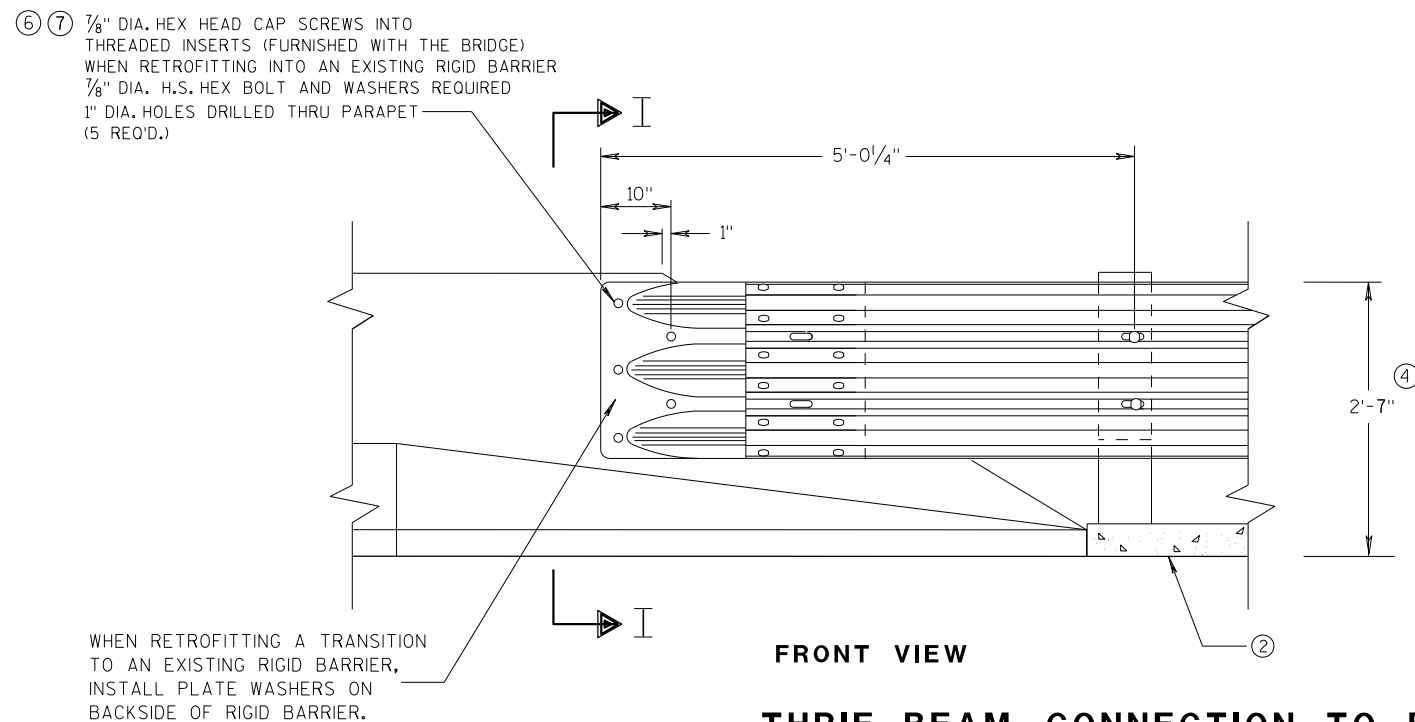
**W BEAM CONNECTION TO
PARAPETS WITH SLOPED ENDS**
(USE ONLY AT TRAFFIC EXIT END OF ONE WAY BRIDGE)

GENERAL NOTES

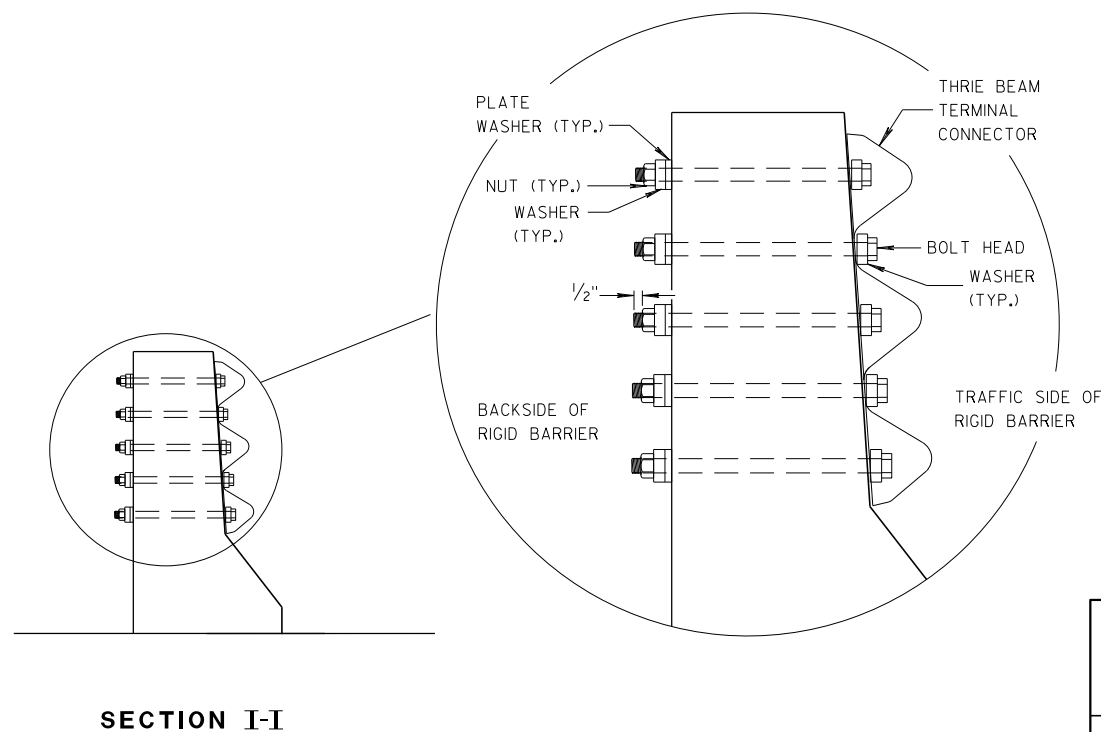
- ② OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.
- ④ TOLERANCE FOR TOP OF BEAM IS $\pm 1"$.
- ⑥ DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.
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**DRILL HOLE LOCATION AND PATTERN
FOR THRIE BEAM CONNECTION**



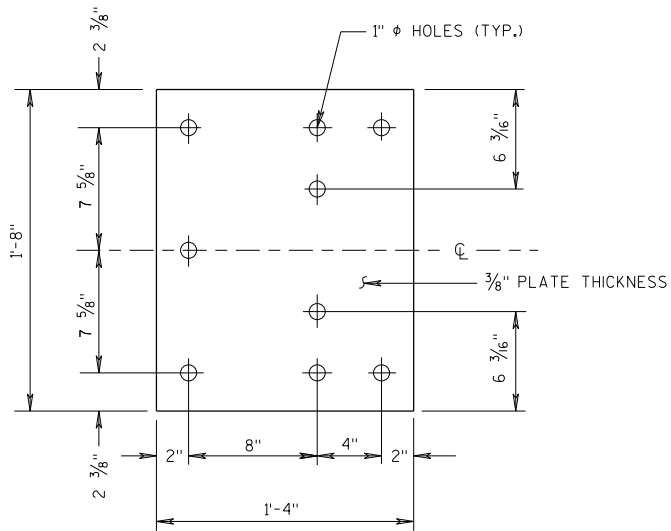
**THRIE BEAM CONNECTION TO BRIDGE
PARAPETS WITH SLOPED ENDS**



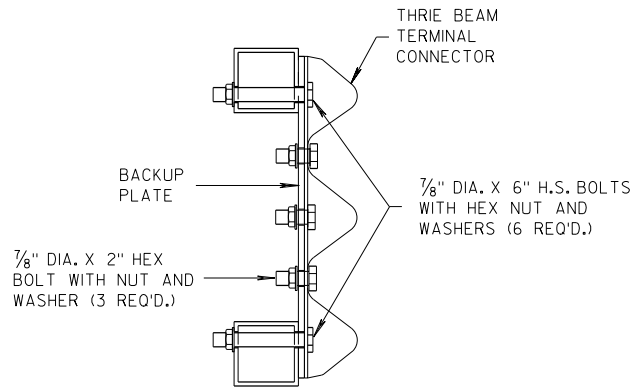
**MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

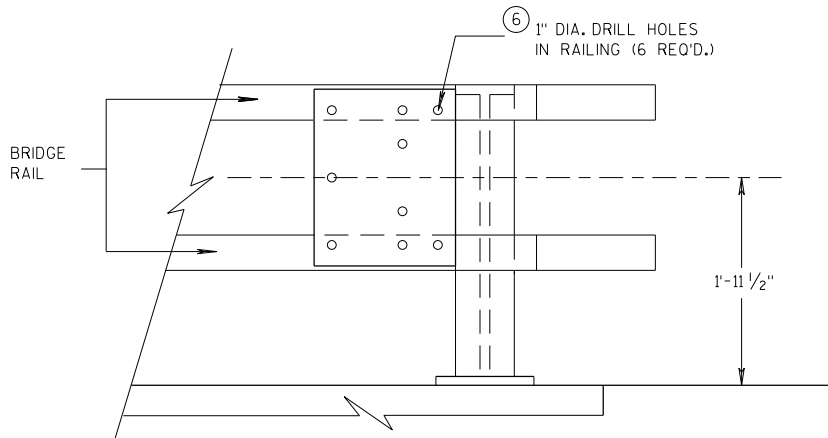
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ROADWAY STANDARDS DEVELOPMENT
UNIT SUPERVISOR
FHWA



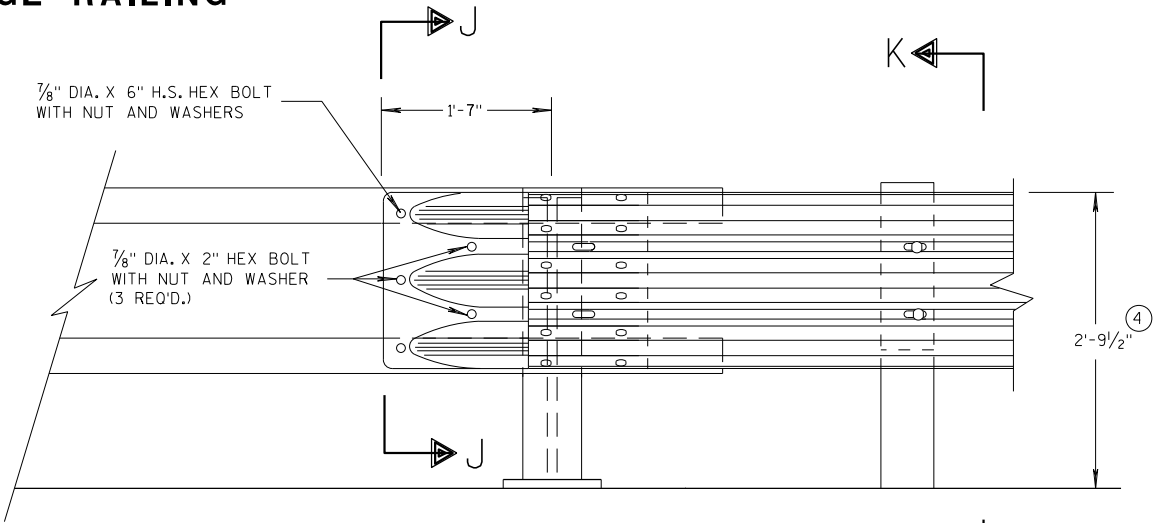
BACK-UP PLATE DETAIL



SECTION J-J

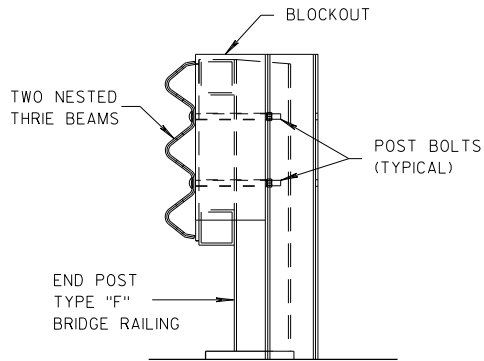


BACK-UP PLATE MOUNTING ONTO BRIDGE RAILING



FRONT VIEW

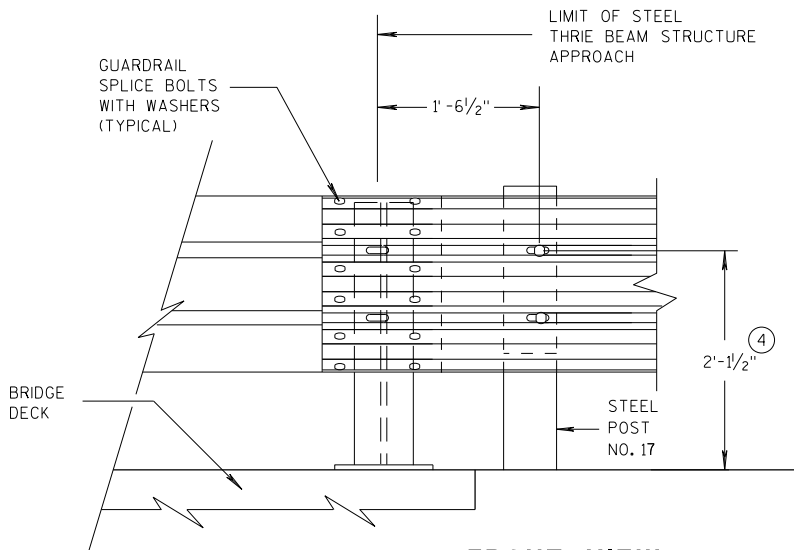
THRIE BEAM CONNECTION TO TUBULAR RAILING TYPE "F"



SECTION K-K

GENERAL NOTES

- ④ TOLERANCE FOR TOP OF BEAM IS $\pm 1"$.
- ⑥ DRILLING HOLES THROUGH THE PAPER, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.



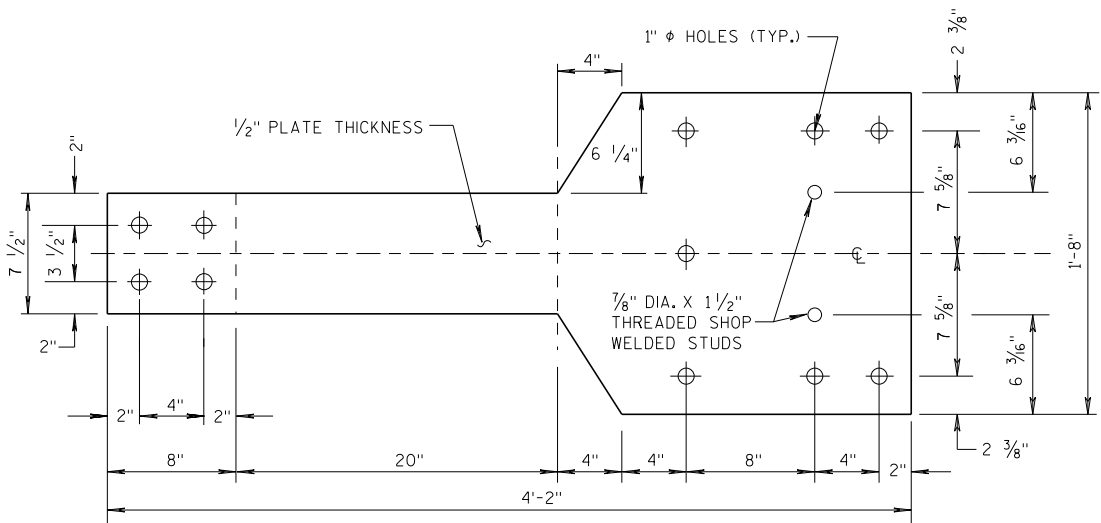
FRONT VIEW

THRIE BEAM CONNECTION TO STEEL RAILING TYPE "W"

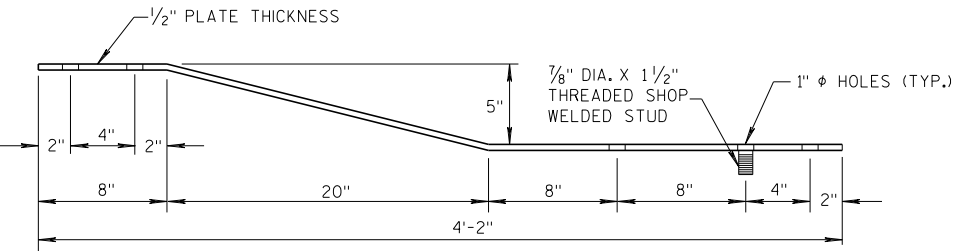
MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 07/2018 DATE	/S/ Rodney Taylor ROADWAY STANDARDS DEVELOPMENT UNIT SUPERVISOR
FHWA	

GENERAL NOTES

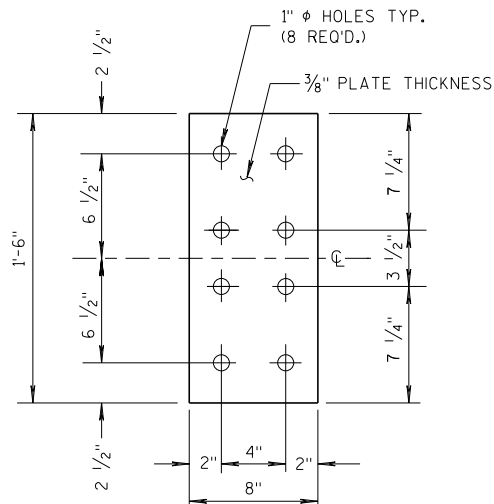
④ TOLERANCE FOR TOP OF W-BEAM RAIL IS ± 1".



FRONT VIEW

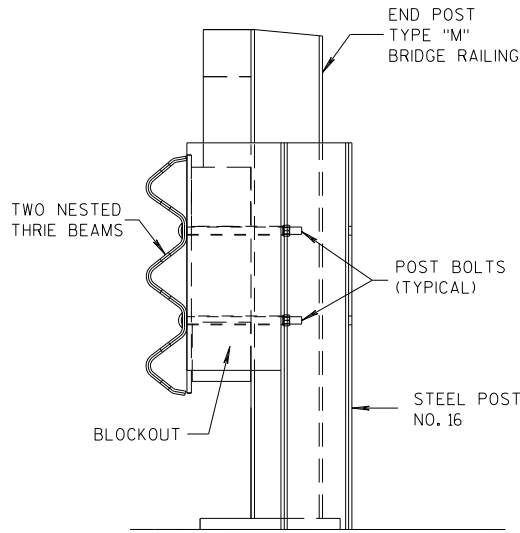


PLAN VIEW
BACK-UP PLATE DETAIL, TYPE "M"

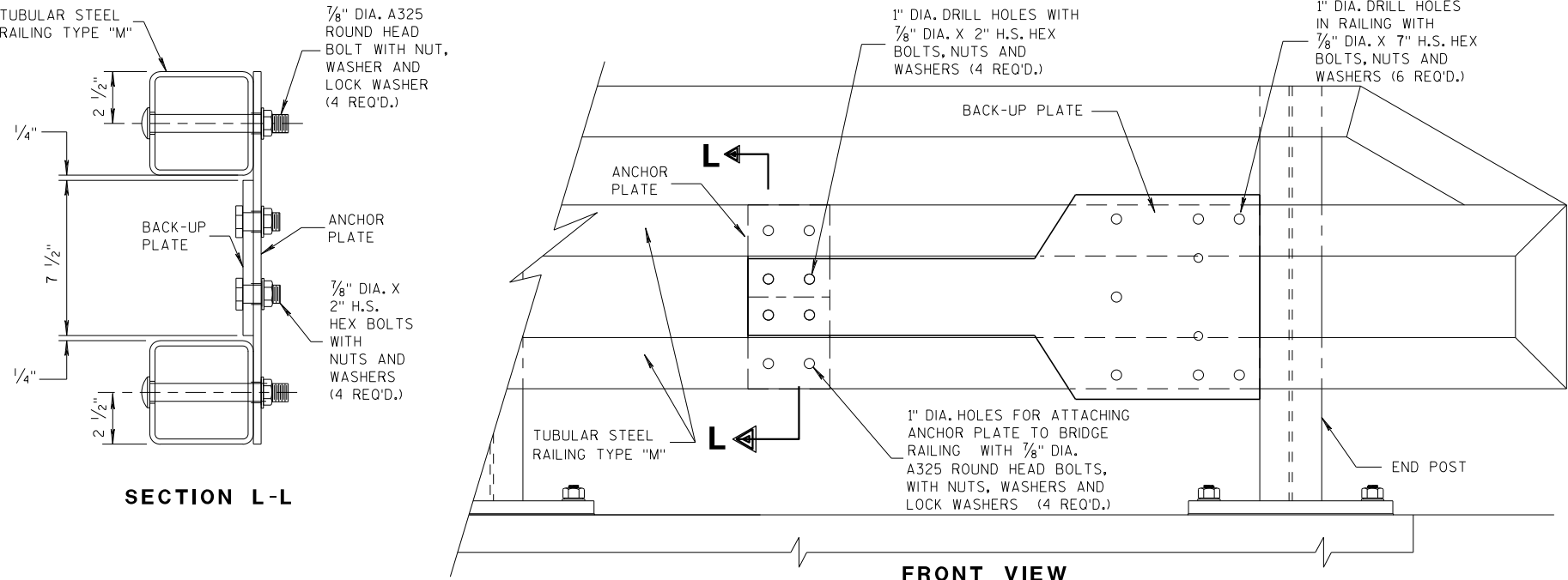


FRONT VIEW

ANCHOR
PLATE DETAIL,
TYPE "M"



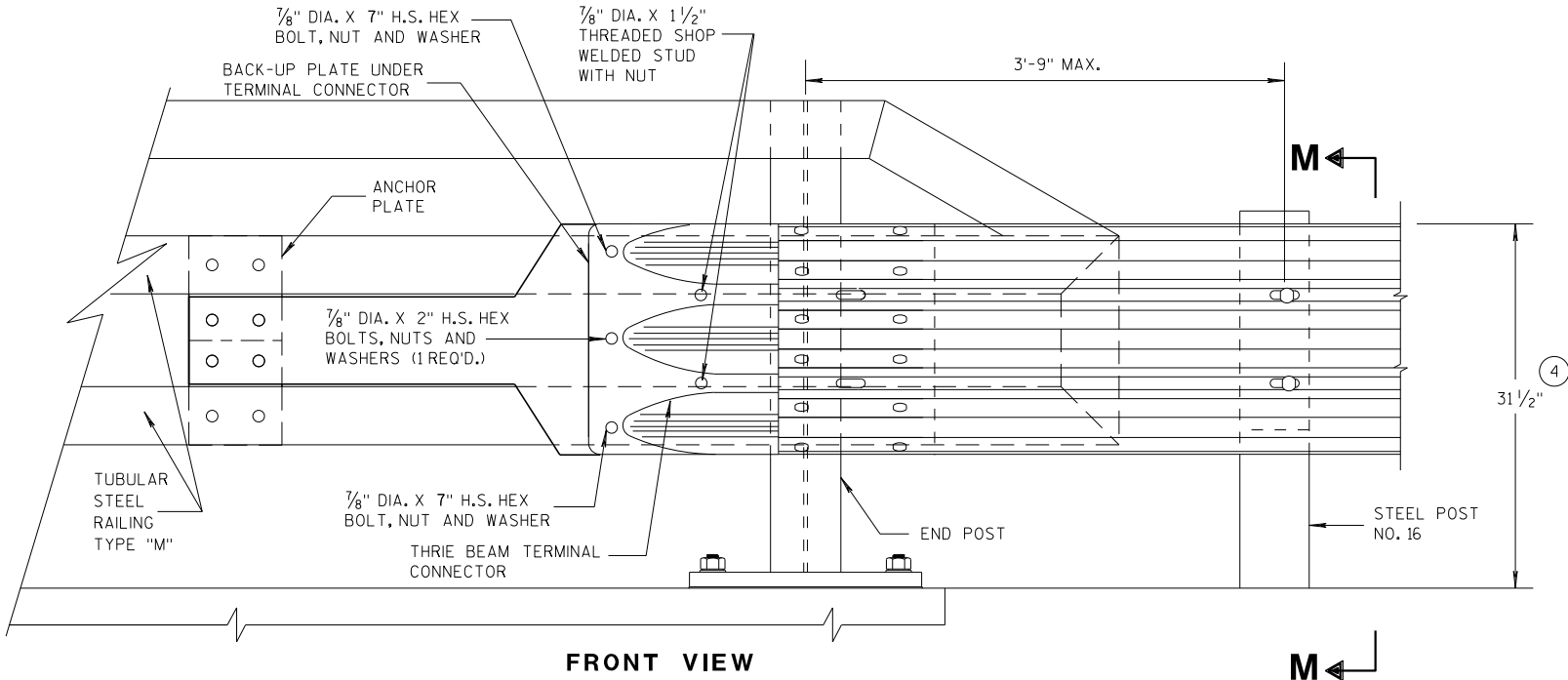
SECTION M-M



SECTION L-L

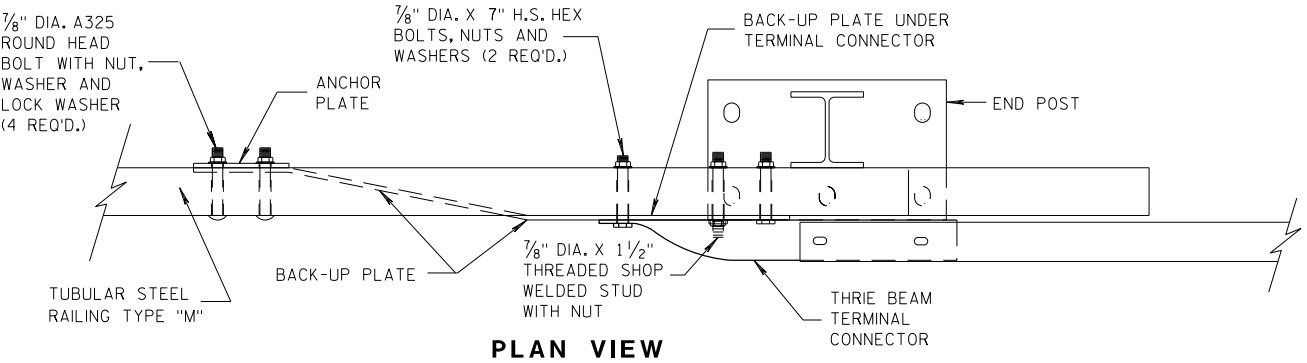
FRONT VIEW

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



FRONT VIEW

M



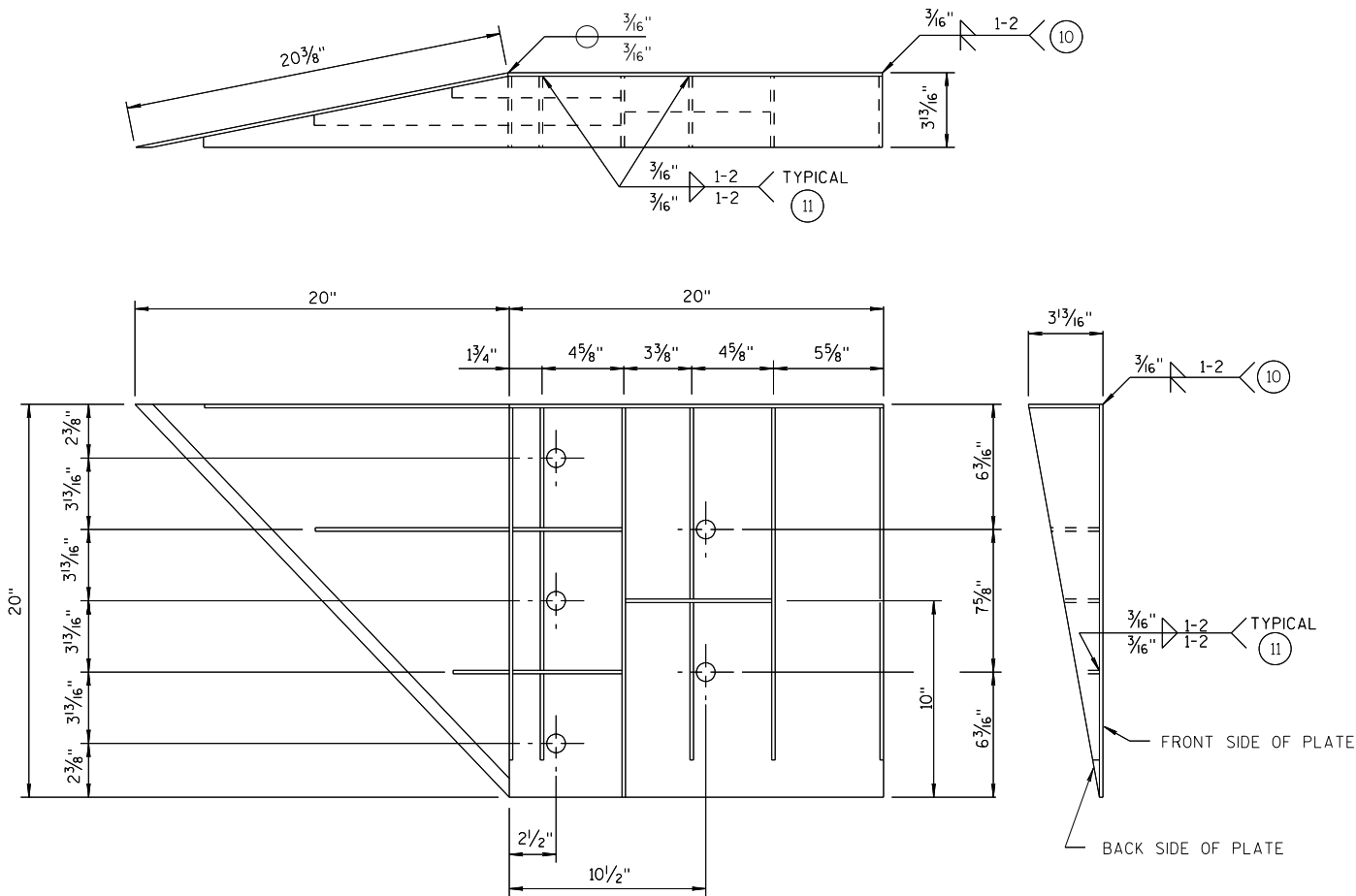
PLAN VIEW

THRIE BEAM CONNECTION TO TUBULAR RAILING, TYPE "M"

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
07/2018
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ROADWAY STANDARDS DEVELOPMENT
UNIT SUPERVISOR
FHWA



WELDING INSTRUCTION
(VIEWED FROM BACK SIDE OF PLATE)

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

SINGLE SLOPE CONNECTION PLATE

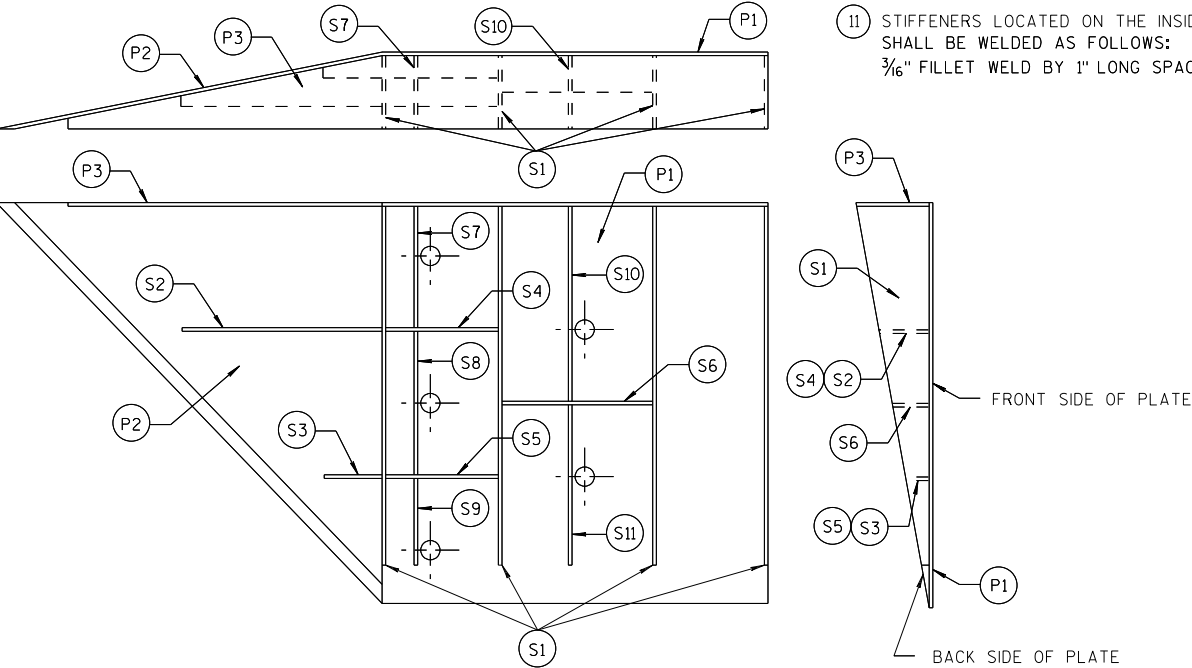


PLATE AND STIFFENER IDENTIFICATION
(VIEWED FROM BACK SIDE OF PLATE)

GENERAL NOTES

COVER PLATE PANELS ARE 3/16" THICK.

ALL STIFFENERS ARE 1/4" THICK.

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

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

ALL HOLE DIAMETERS SHALL BE 1".

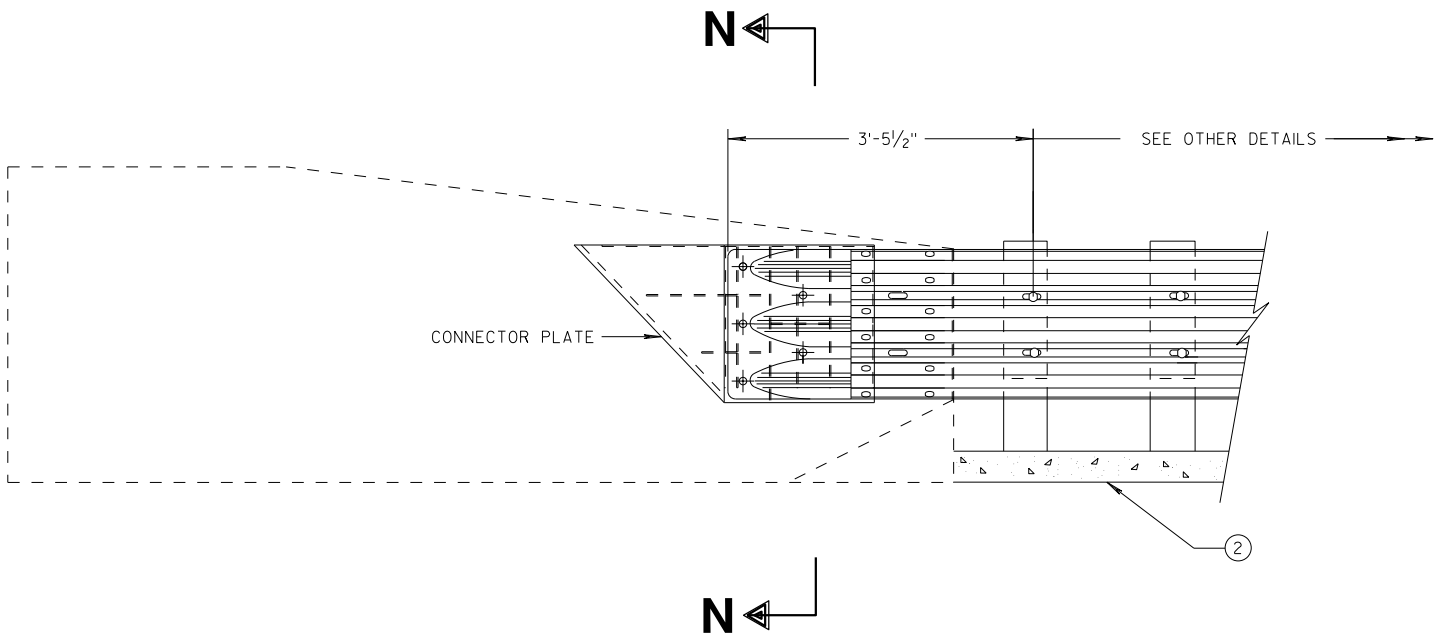
FOR OPPOSITE SIDE INSTALLATION MIRROR DRAWINGS.

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

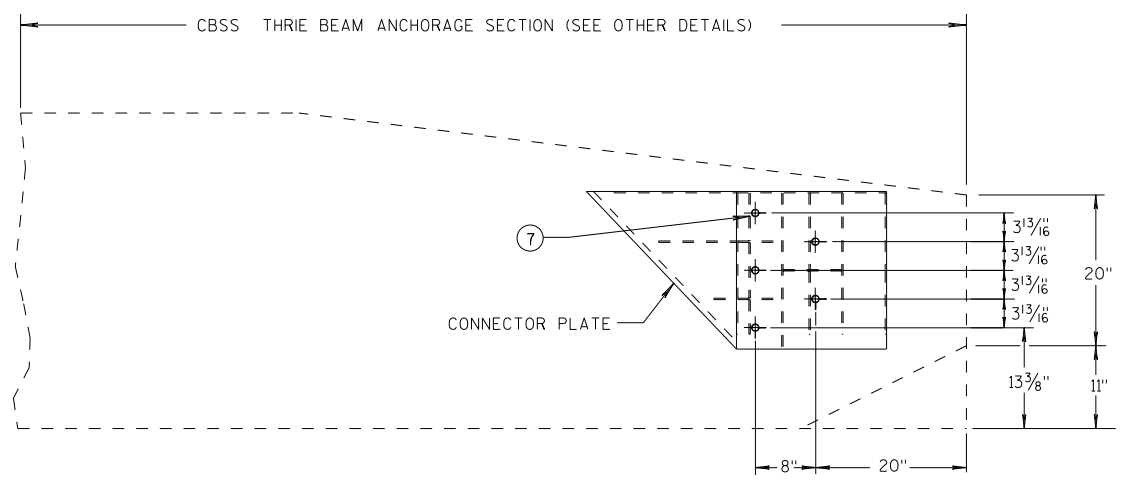
**MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
7/2018
DATE
/S/ Rodney Taylor
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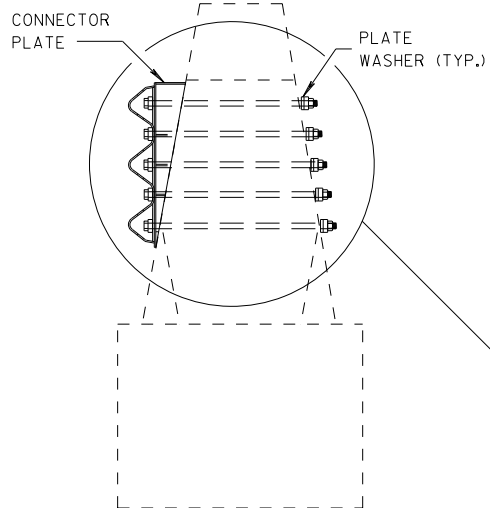
THRIE BEAM CONNECTION TO SINGLE SLOPE BARRIER



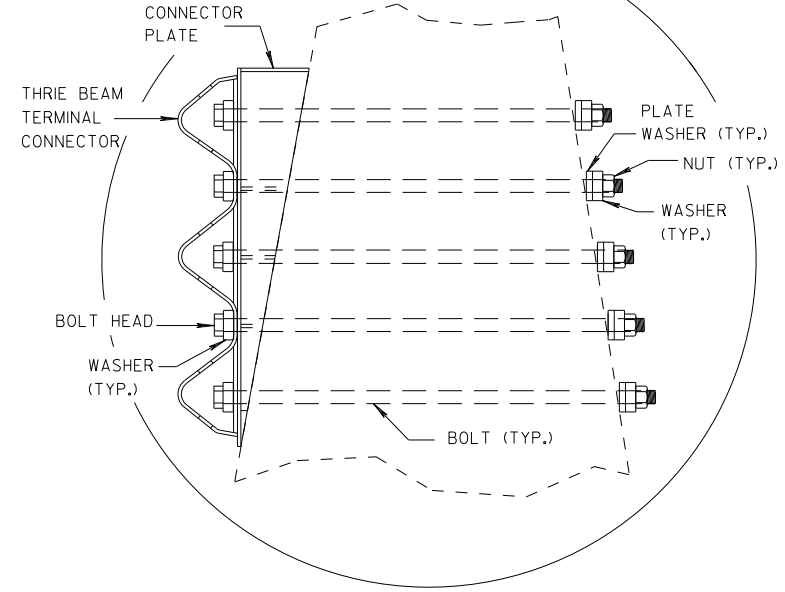
SINGLE SLOPE CONNECTION PLATE PLACEMENT

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.
- 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.



SECTION N-N



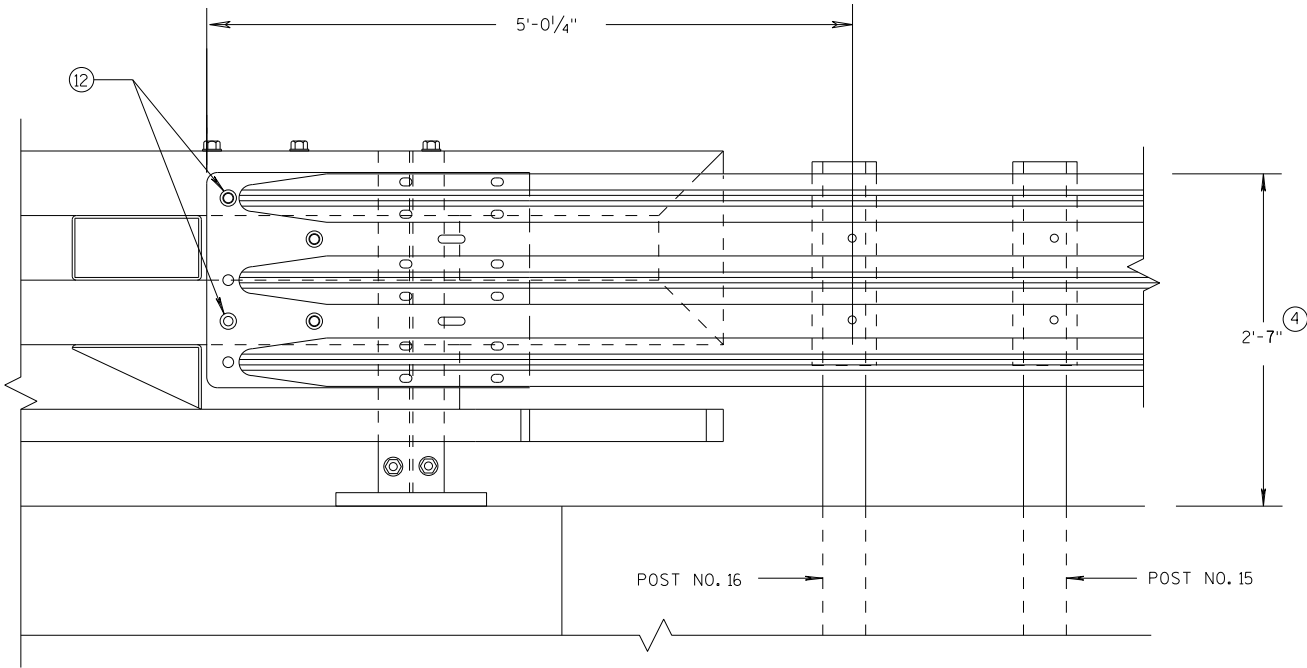
MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

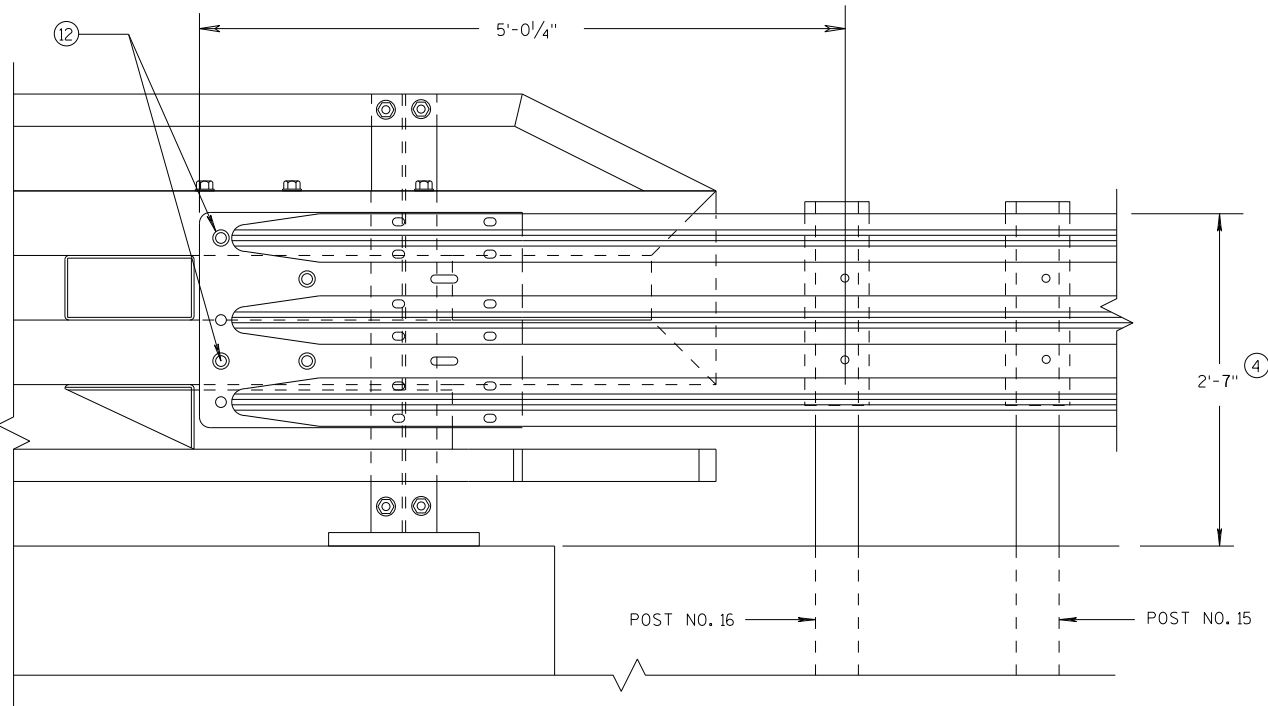
APPROVED
7/2018
DATE
/S/ Rodney Taylor
ROADWAY STANDARDS DEVELOPMENT
UNIT SUPERVISOR
FHWA

GENERAL NOTES

- ④ TOLERANCE FOR TOP OF BEAM IS $\pm 1"$.
- 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 $\frac{1}{2}$ -INCH BEYOND NUT.



ELEVATION OF DETAIL AT NY3 END POST
THRIE BEAM RAIL ATTACHMENT

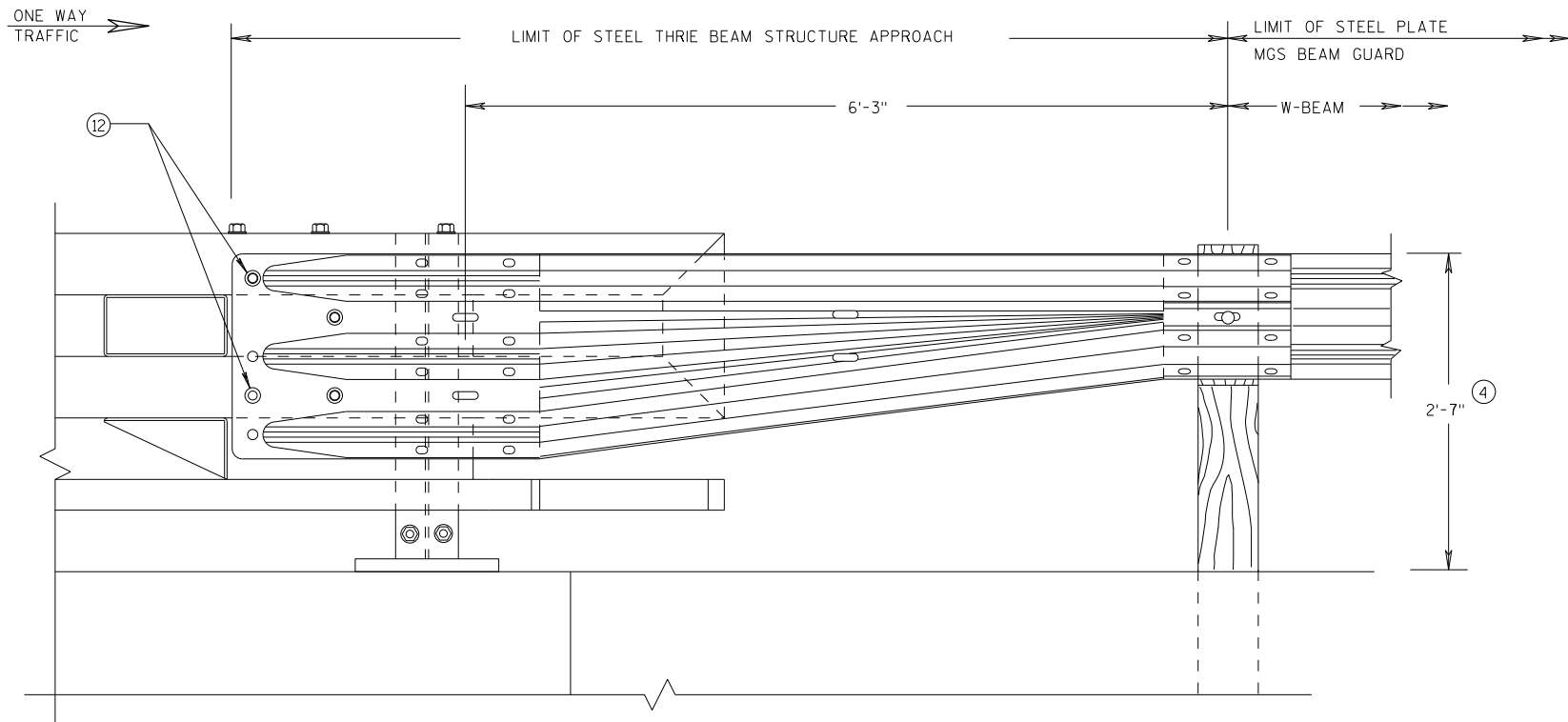


ELEVATION OF DETAIL AT NY4 END POST
THRIE BEAM RAIL ATTACHMENT

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

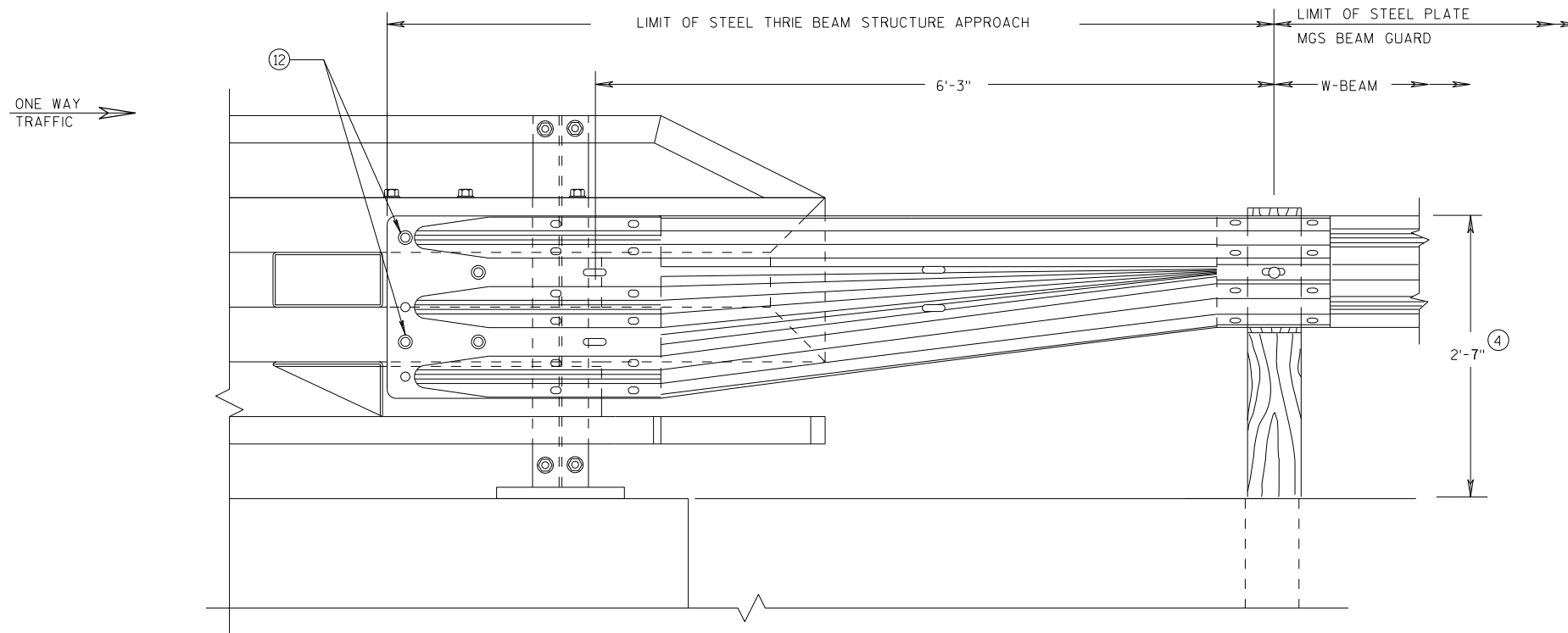


FRONT VIEW

**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 $\pm 1"$.
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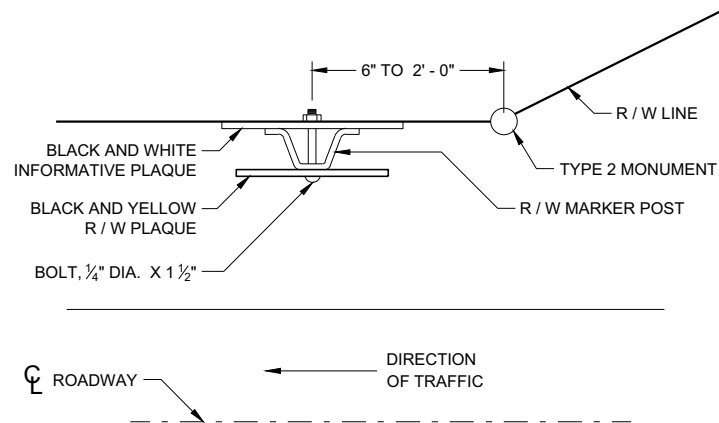
FRONT VIEW

**W BEAM TRANSITION AND
CONNECTION TO BRIDGE RAILING TYPE "NY4"**
(USE ONLY ON THE TRAFFIC EXIT END OF ONE WAY BRIDGES)

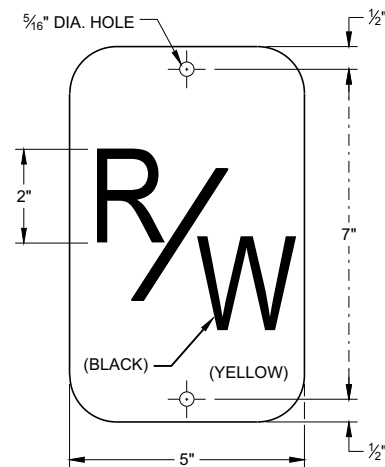
**MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

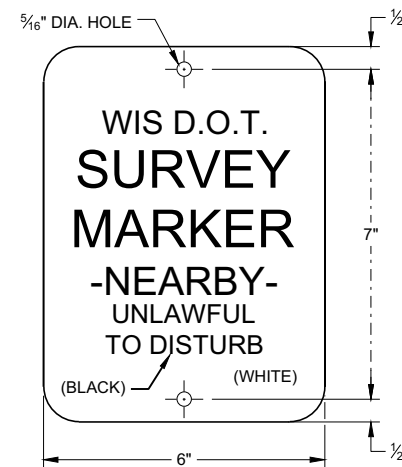


**PLAN VIEW
STEEL MARKER POST**



R / W PLAQUE

THE RIGHT-OF-WAY PLAQUE AND INFORMATIVE PLAQUE WILL BE FURNISHED BY THE WISCONSIN DEPARTMENT OF TRANSPORTATION.



INFORMATIVE PLAQUE

GENERAL NOTES

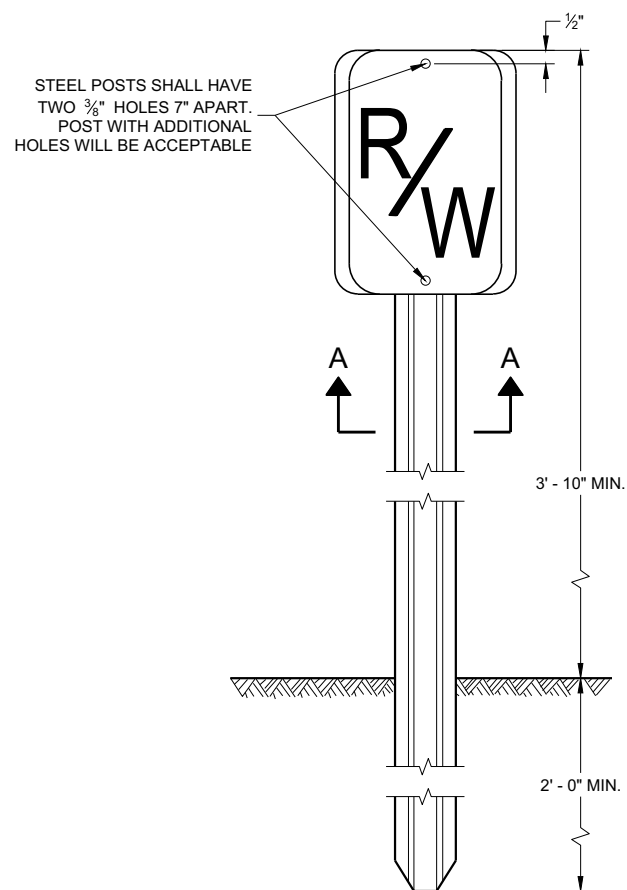
DETAILS OF CONSTRUCTION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

A STEEL MARKER POST FOR RIGHT -OF-WAY SHALL BE PLACED IN THE RIGHT-OF-WAY WITH THE BACK OF THE POST ON THE LONGER RIGHT-OF-WAY TANGENT, 6 INCHES TO 24 INCHES FROM EACH TYPE 2 MONUMENT TO SERVE AS A GUARD POST, AND AT OTHER LOCATIONS AS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER.

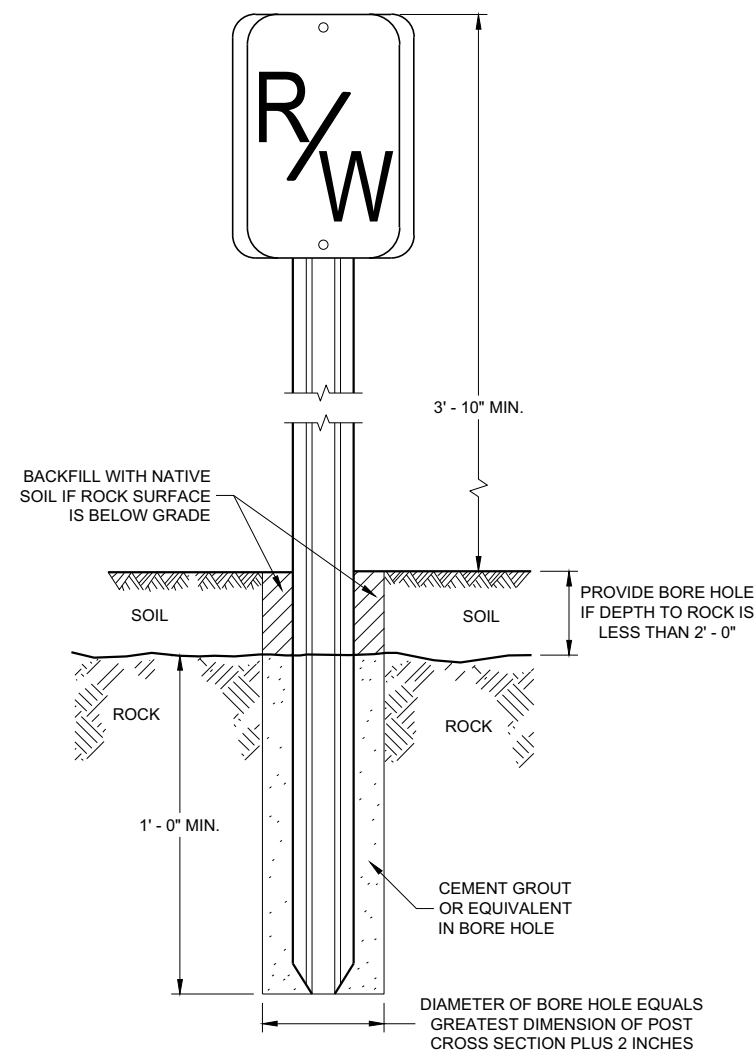
THE "R/W" PLAQUE SHALL FACE THE ROADWAY AND THE INFORMATIVE PLAQUE SHALL FACE AWAY FROM THE ROADWAY. "R/W" AND INFORMATIVE PLAQUES WILL BE FURNISHED BY THE WISCONSIN DEPARTMENT OF TRANSPORTATION.

STEEL MARKER POSTS SHALL MEET THE MINIMUM MATERIAL REQUIREMENTS FOR STEEL DELINEATOR POSTS; EXCEPT POSTS PAINTED WITH FEDERAL YELLOW ENAMEL NEED NOT BE ZINC COATED.

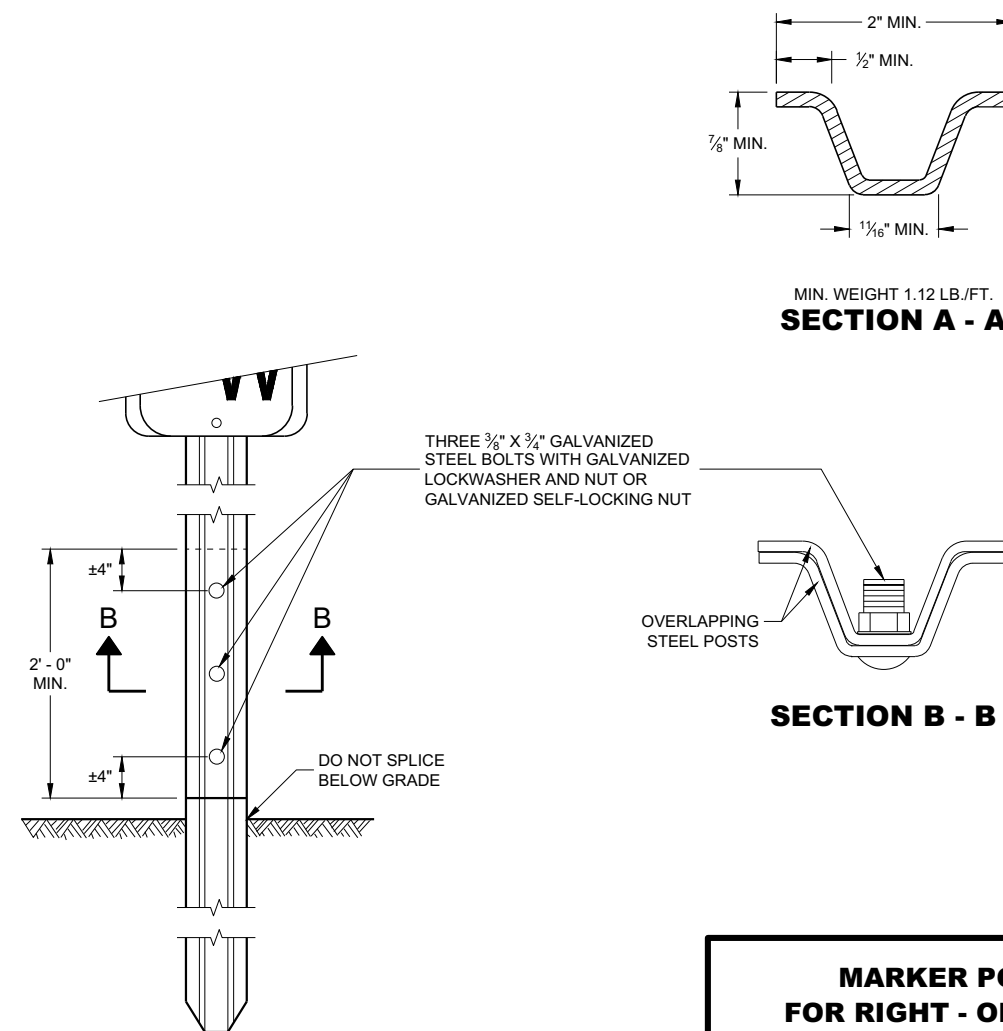
- IN AREAS OF SOLID ROCK, DRILL A BORE HOLE 2" GREATER THAN THE WIDEST DIMENSION OF THE POST CROSS SECTION INTO THE ROCK A MINIMUM DEPTH OF 12 INCHES. CUT OR SPLICE THE POST SO THAT A MINIMUM LENGTH OF 3' - 10" PROTRUDES ABOVE THE GROUND. BLOW OUT THE BORE HOLE IN THE ROCK USING COMPRESSED AIR. FILL THE BORE HOLE WITH CEMENT GROUT OR EQUIVALENT, DEPENDING ON THE STABILITY OF THE ROCK.



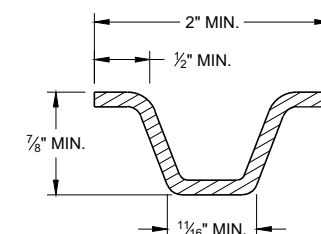
**FRONT VIEW
STEEL MARKER POST**



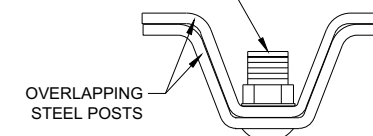
**FRONT VIEW
ROCK INSTALLATION**



**FRONT VIEW
SPLICE DETAIL**



MIN. WEIGHT 1.12 LB./FT.
SECTION A - A



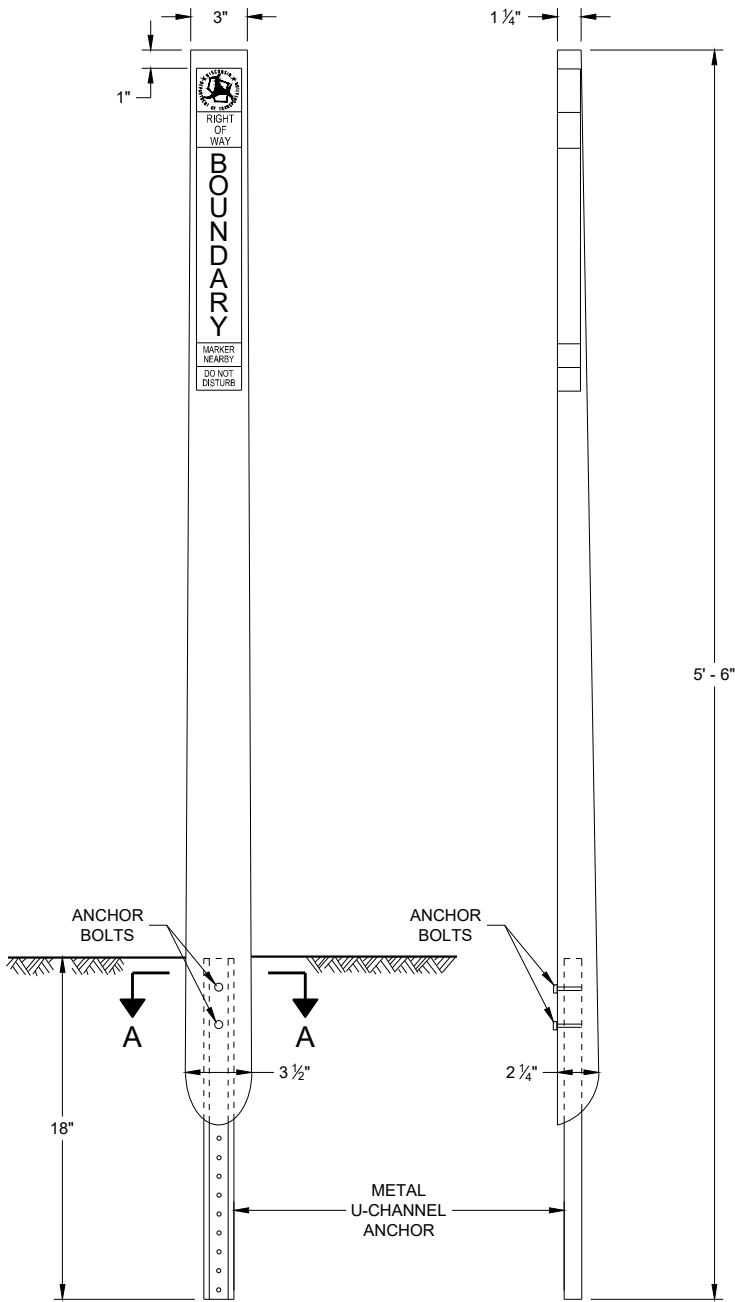
SECTION B - B

MARKER POST FOR RIGHT - OF - WAY

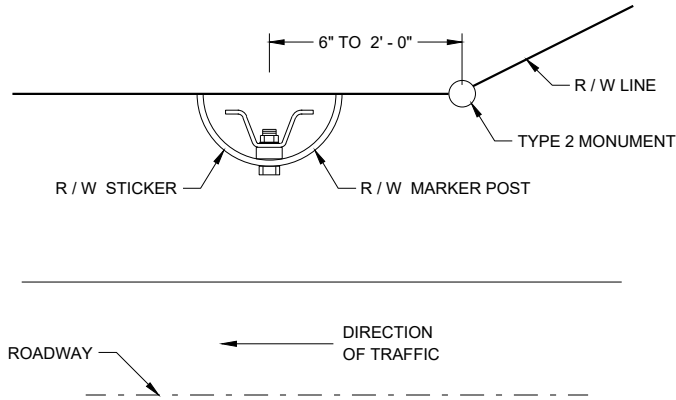
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
2/18/2016
DATE
/S/ Ray Kumapayi
CHIEF SURVEYING AND MAPPING
ENGINEER

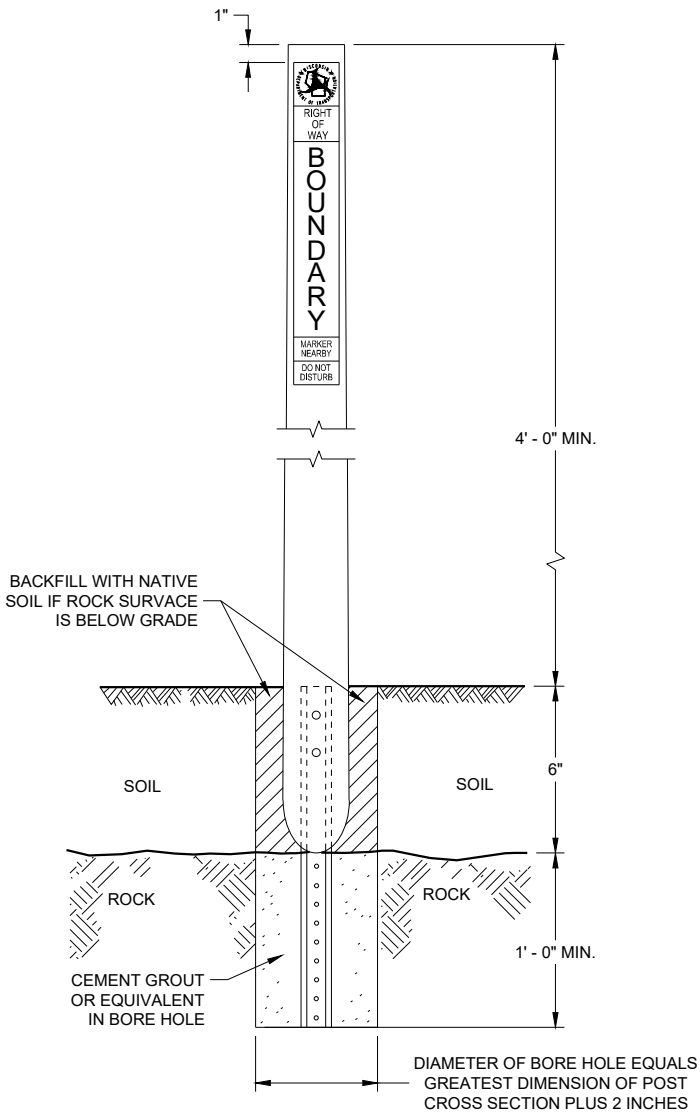
FHWA



FRONT VIEW **SIDE VIEW**
FLEXIBLE MARKER POST FOR RIGHT-OF-WAY ①

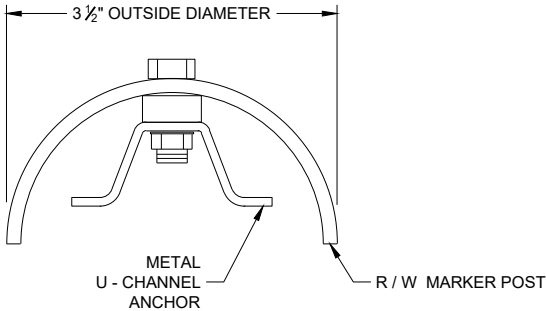
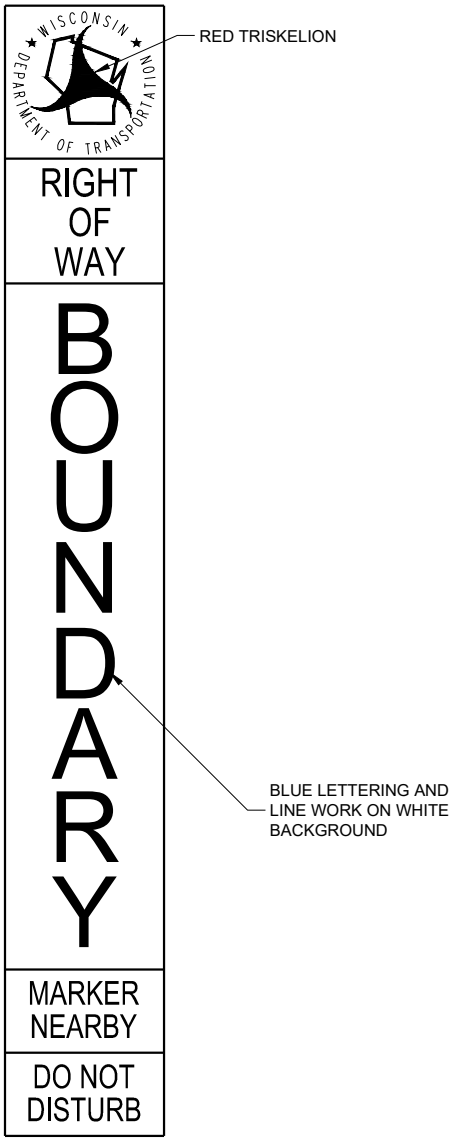


PLAN VIEW



FRONT VIEW ROCK INSTALLATION ① ②

RIGHT-OF-WAY STICKER
THE RIGHT-OF-WAY STICKER SHALL BE ATTACHED 1" FROM THE TOP OF THE RIGHT-OF-WAY POST PRIOR TO DELIVERY.



GENERAL NOTES

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

A FLEXIBLE MARKER POST FOR RIGHT -OF-WAY SHALL BE PLACED IN THE RIGHT-OF-WAY WITH THE BACK OF THE POST ON THE LONGER RIGHT-OF-WAY TANGENT, 6 INCHES TO 24 INCHES FROM EACH TYPE 2 MONUMENT TO SERVE AS A GUARD POST, AND AT OTHER LOCATIONS AS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER.

THE RIGHT-OF-WAY STICKER DIMENSIONS SHALL BE 2 1/4" X 17" AND THE STICKER SHALL BE MADE OF A NON-RELECTIVE VINYL MATERIAL. THE RIGHT-OF-WAY STICKER SHALL FACE THE ROADWAY.

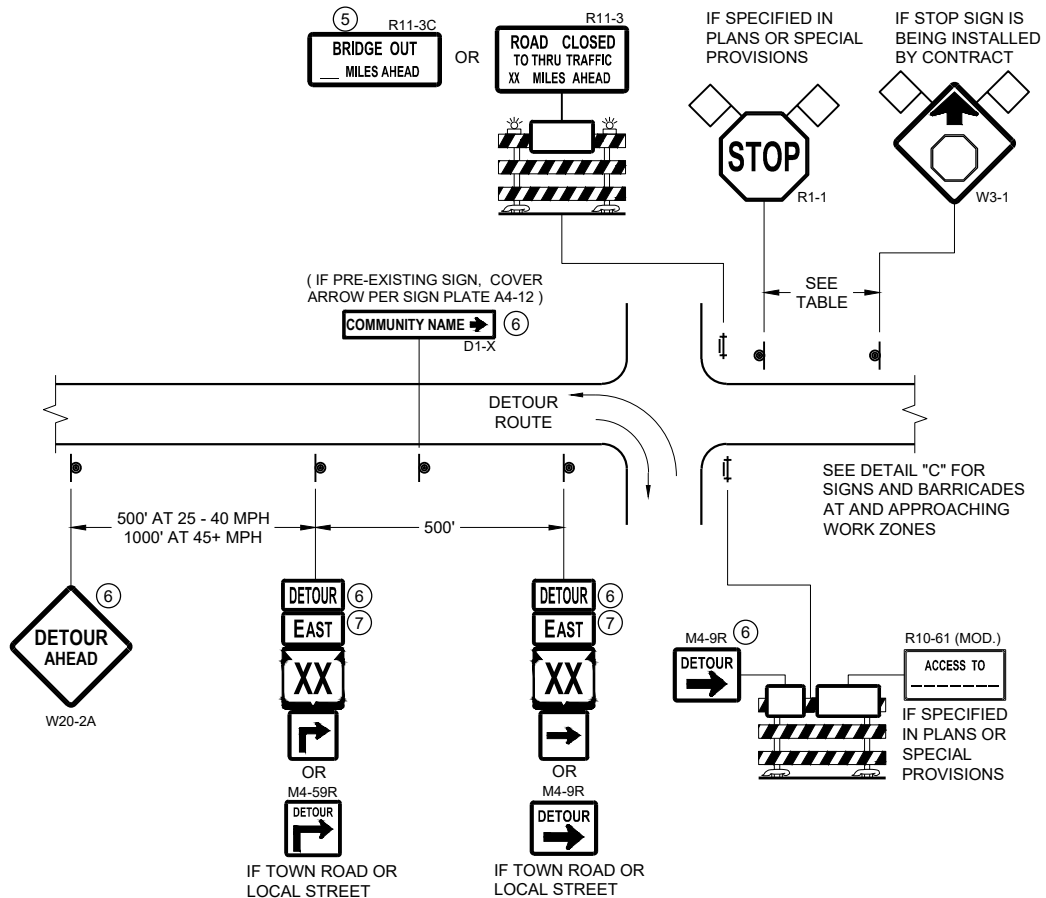
INSTALL PER DEPTH OF MANUFACTURER'S RECOMMENDATION BUT NOT LESS THAN 18 INCHES BELOW GRADE FROM THE BOTTOM OF THE METAL U-CHANNEL ANCHOR.

- ① FLEXIBLE MARKER POSTS SHALL BE INCLUDED IN THE APPROVED PRODUCTS LIST FOR MARKER POSTS AND SHALL BE FEDERAL YELLOW IN COLOR.
- ② IN AREAS OF SOLID ROCK, DRILL A BORE HOLE 2" GREATER THAN THE WIDEST DIMENSION OF THE POST CROSS SECTION INTO THE ROCK A MINIMUM DEPTH OF 12 INCHES. CUT OR SPLICE THE POST SO THAT A MINIMUM LENGTH OF 4' - 0" PROTRUDES ABOVE THE GROUND. BLOW OUT THE BORE HOLE IN THE ROCK USING COMPRESSED AIR. FILL THE BORE HOLE WITH CEMENT GROUT OR EQUIVALENT, DEPENDING ON THE STABILITY OF THE ROCK.

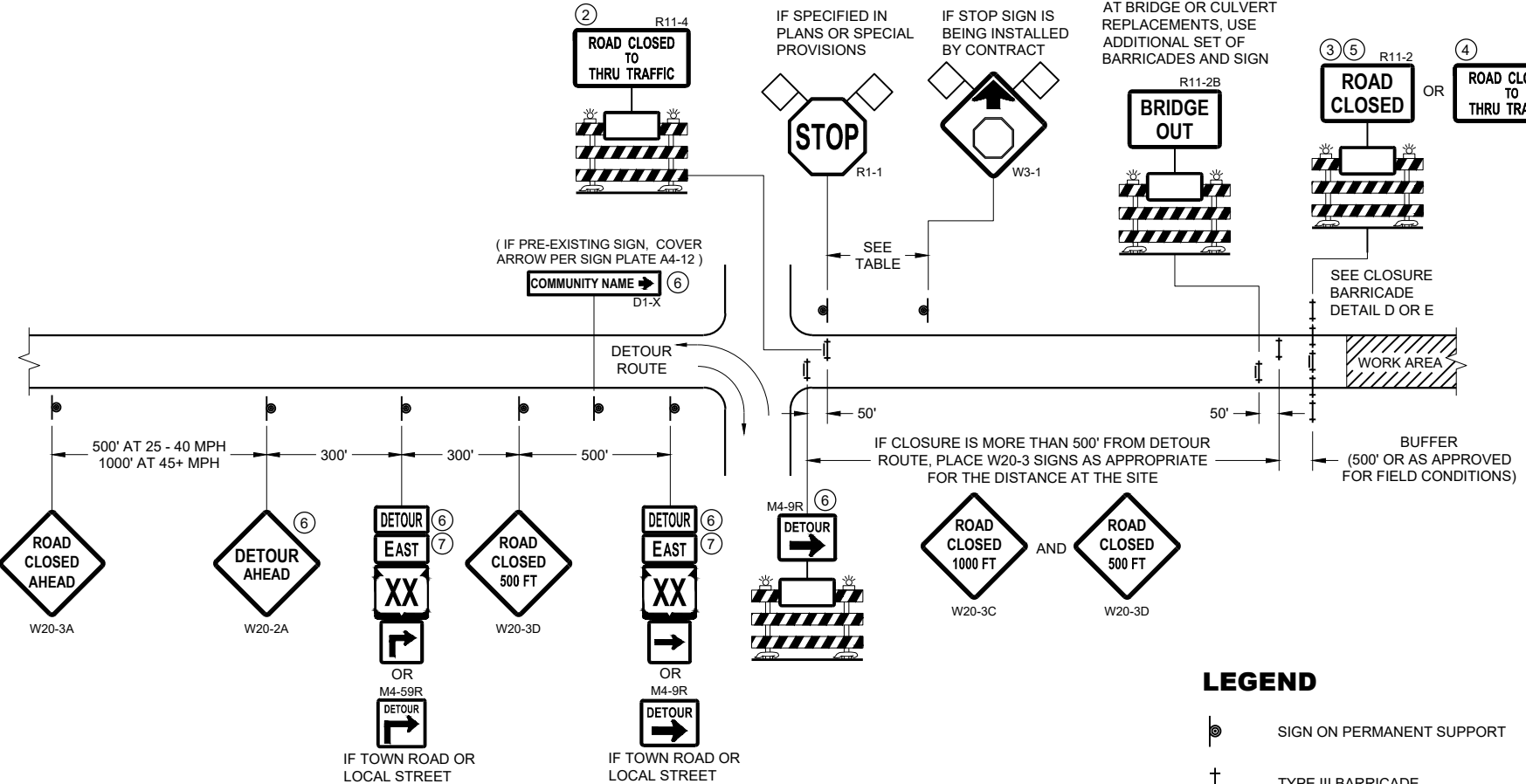
FLEXIBLE MARKER POST FOR RIGHT - OF - WAY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
2/16/2016
DATE
/S/ Ray Kumapayii
CHIEF SURVEYING AND MAPPING ENGINEER
FHWA



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



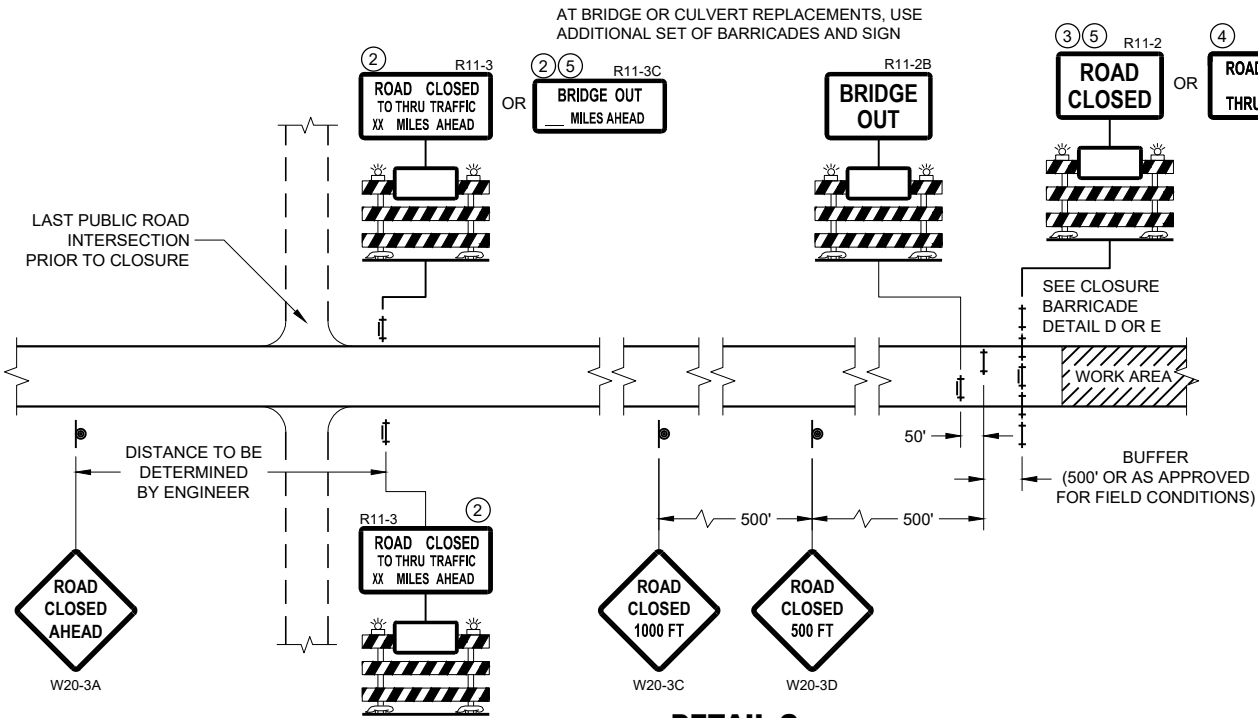
DETAIL B
MAINLINE CLOSURE WITH POSTED DETOUR
WORK ZONE LESS THAN ½ MILE FROM
DETOUR ROUTE (1000 FEET IF URBAN)

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

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

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

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



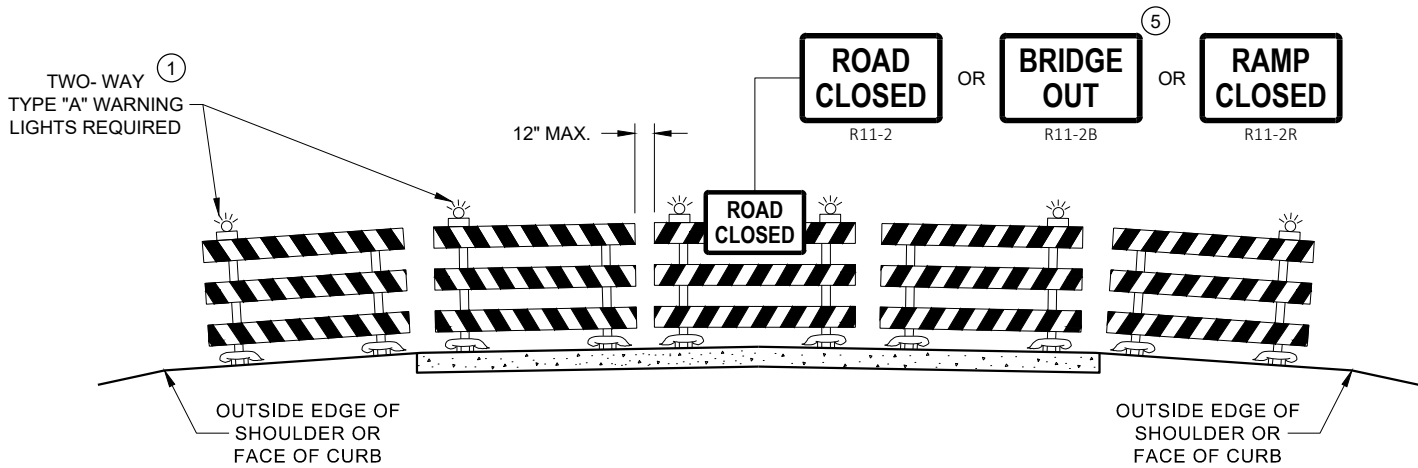
DETAIL C
MAINLINE CLOSURE, NO POSTED DETOUR

**BARRICADES AND SIGNS
FOR MAINLINE CLOSURES**

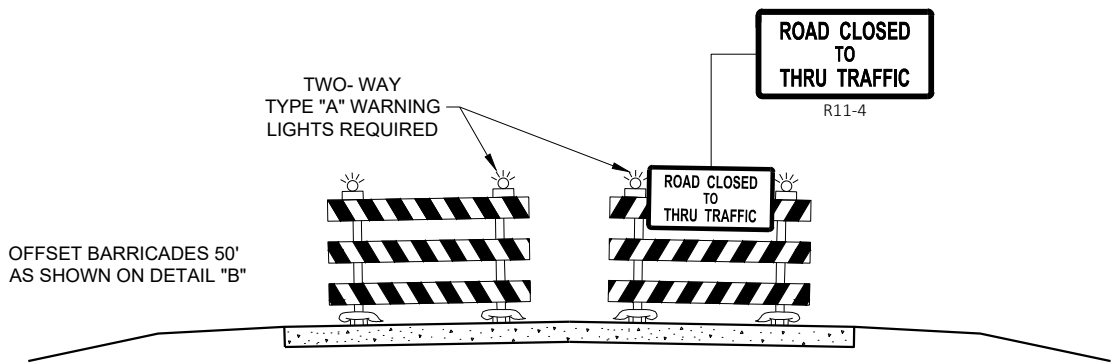
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

FHWA



DETAIL D
ROAD CLOSURE BARRICADE DETAIL
APPROACH VIEW



DETAIL E
LANE CLOSURE BARRICADE DETAIL
APPROACH VIEW

SEE SDD 15C2 - SHEET "a" FOR LEGEND

GENERAL NOTES

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

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

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

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

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

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

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

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

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

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

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

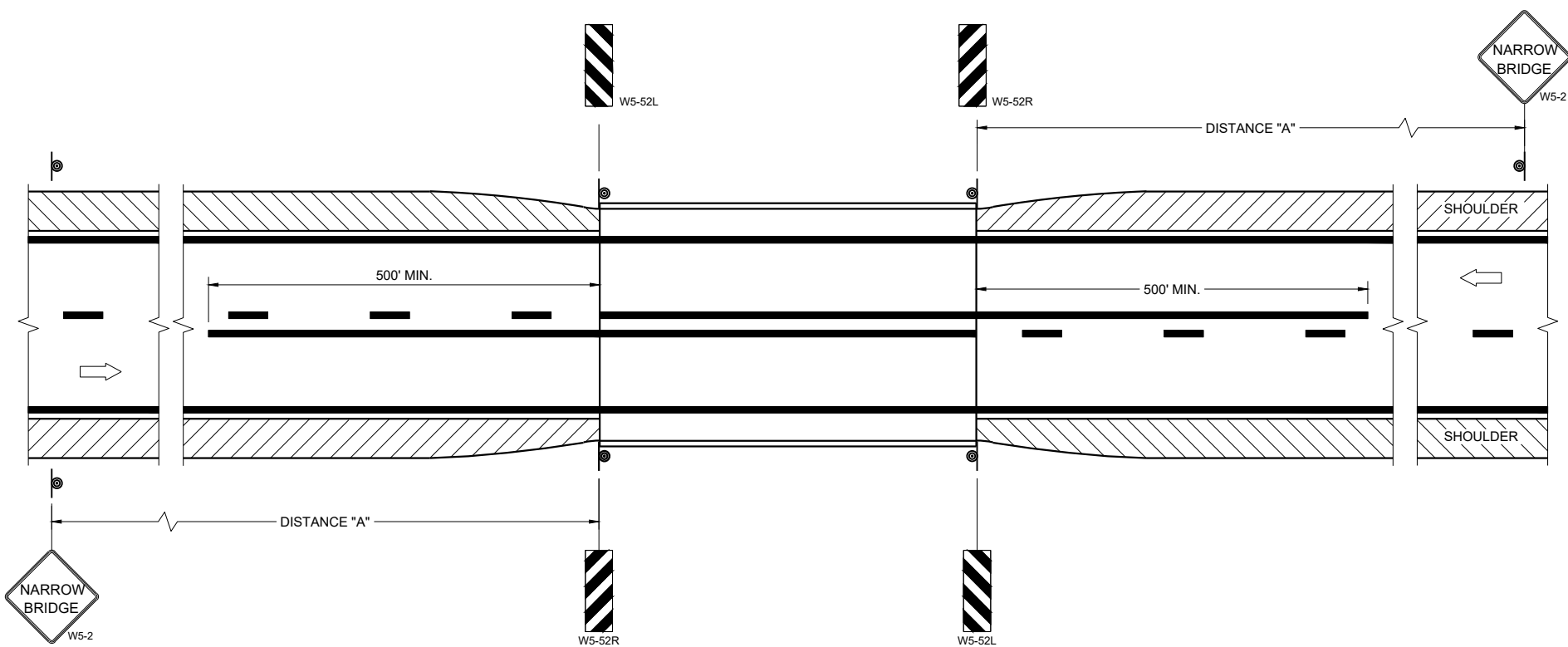
- 1 TWO WARNING LIGHTS SHALL BE PROVIDED ON THE CENTER BARRICADE AND A MINIMUM OF ONE WARNING LIGHT SHALL BE PROVIDED ON EACH OF THE OTHER BARRICADES WITHIN THE ROADWAY LIMITS. SPACING OF THE WARNING LIGHTS SHALL BE UNIFORM TO THE EDGE OF ROADWAY AS SHOWN (APPROX. 8 FOOT LIGHT SPACING).
- 2 THESE SIGNS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

BARRICADES AND SIGNS
FOR
VARIOUS CLOSURES

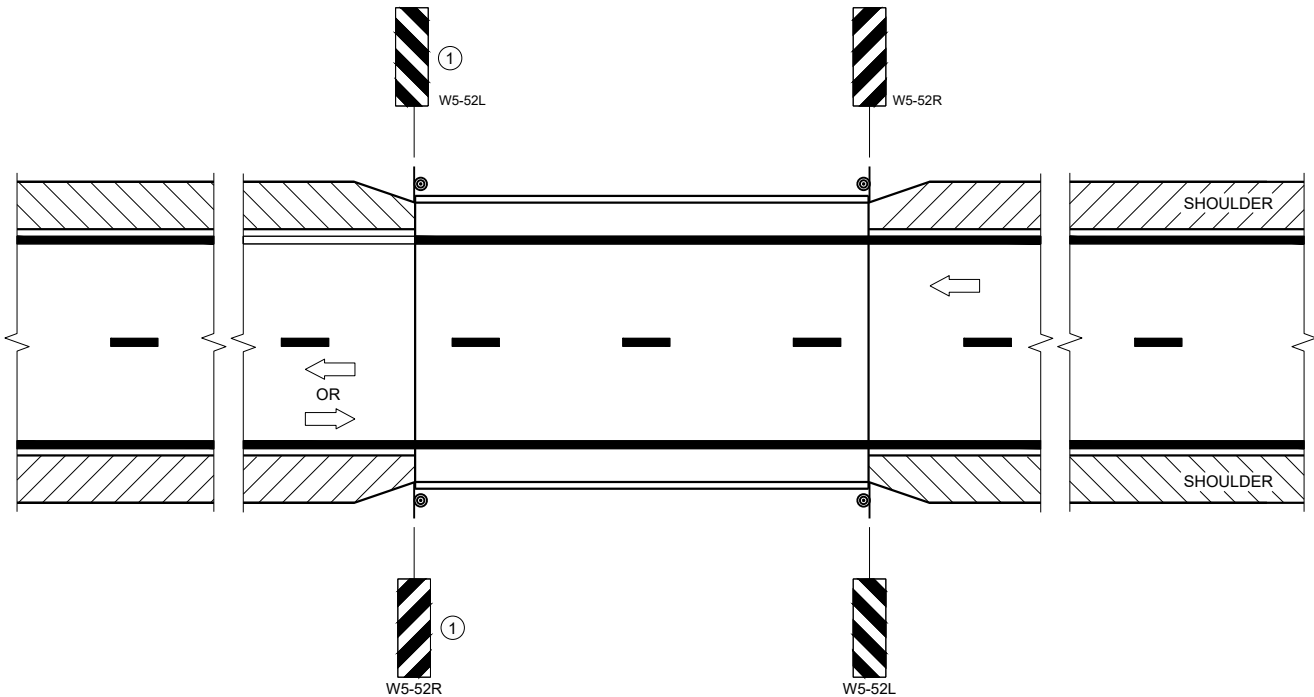
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

FHWA



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



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

GENERAL NOTES

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

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

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

ON BRIDGE ONLY PROJECTS, PLACE 300 FEET OF EDGELINE.

OMIT EDGELINES ON ROADWAYS WITHOUT EXISTING EDGELINES.

① OMIT ON ONE-WAY TRAVELED WAYS.

LEGEND

⊙ SIGN ON PERMANENT SUPPORT

➡ DIRECTION OF TRAFFIC

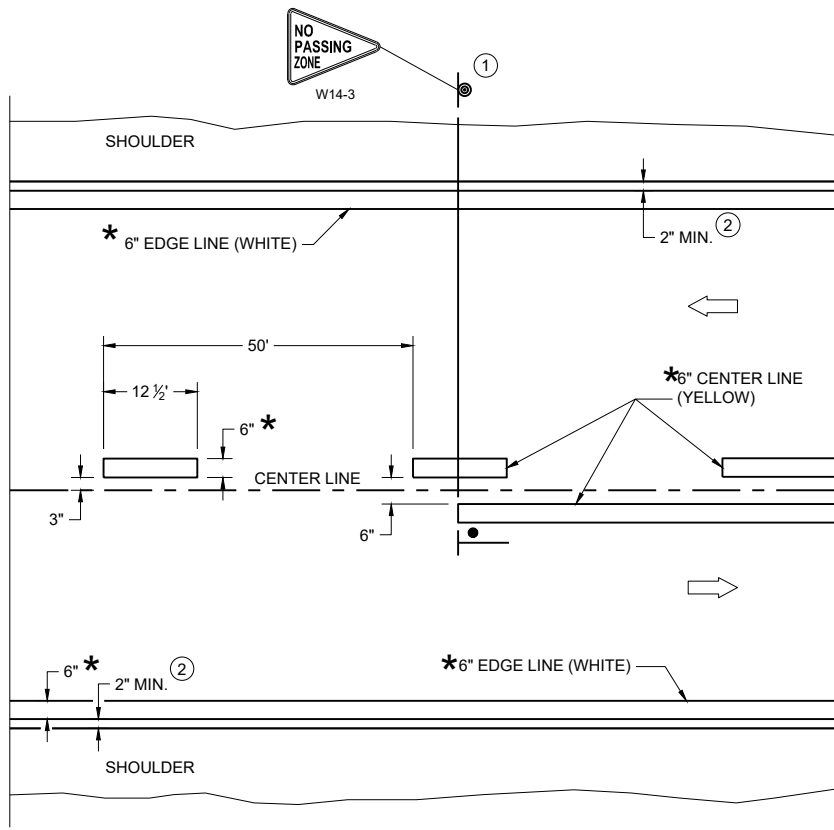
DISTANCE TABLE

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

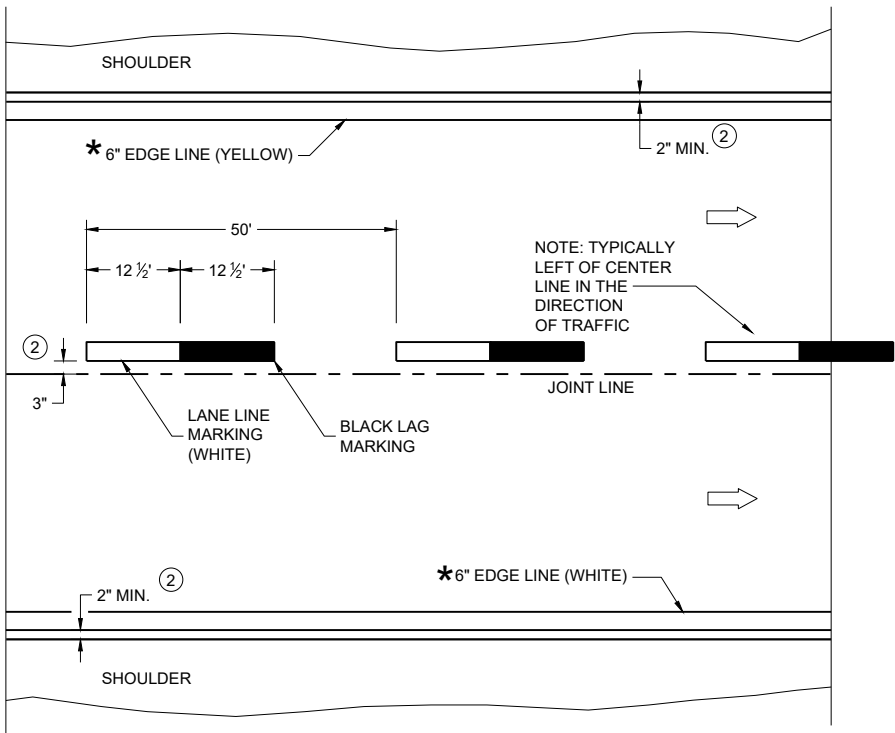
**SIGNING AND MARKING
FOR TWO LANE BRIDGES**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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



TWO WAY TRAFFIC



ONE WAY TRAFFIC

PERMANENT PAVEMENT MARKING

*CONFIRM MARKING LINE WIDTH WITH THE MISCELLANEOUS QUANTITIES

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.

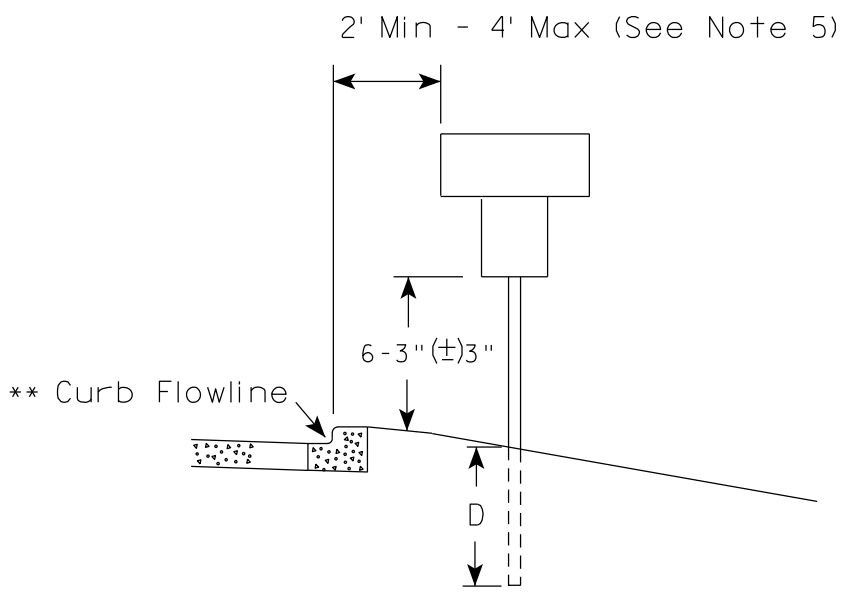
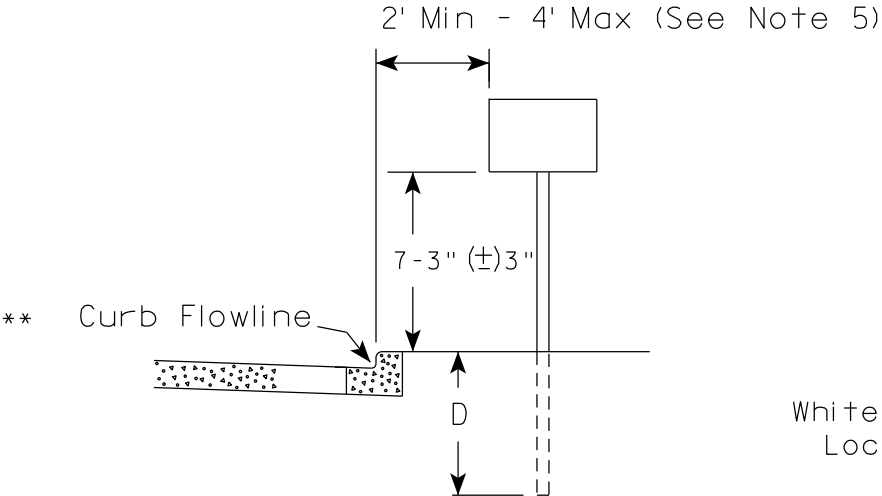
LEGEND

- "T" MARKING
- SIGN ON PERMANENT SUPPORT
- DIRECTION OF TRAFFIC

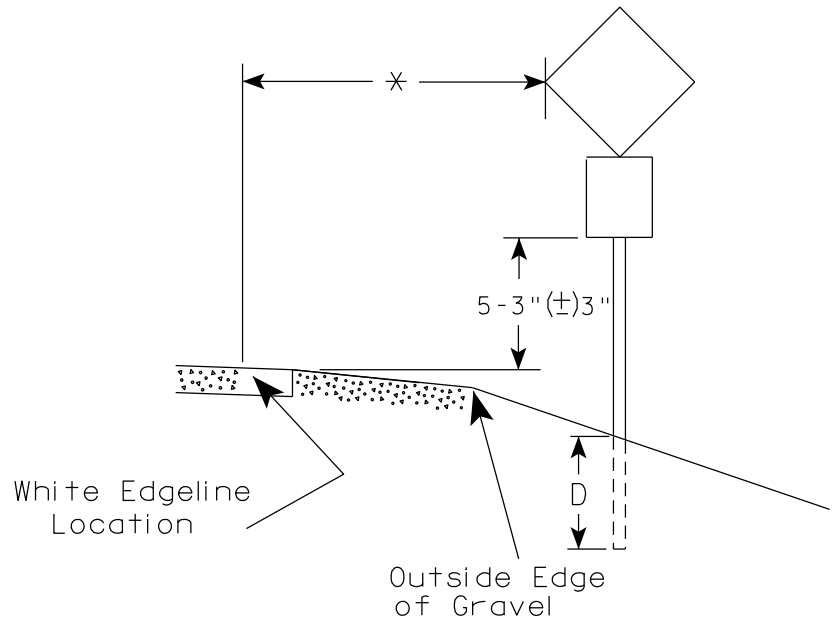
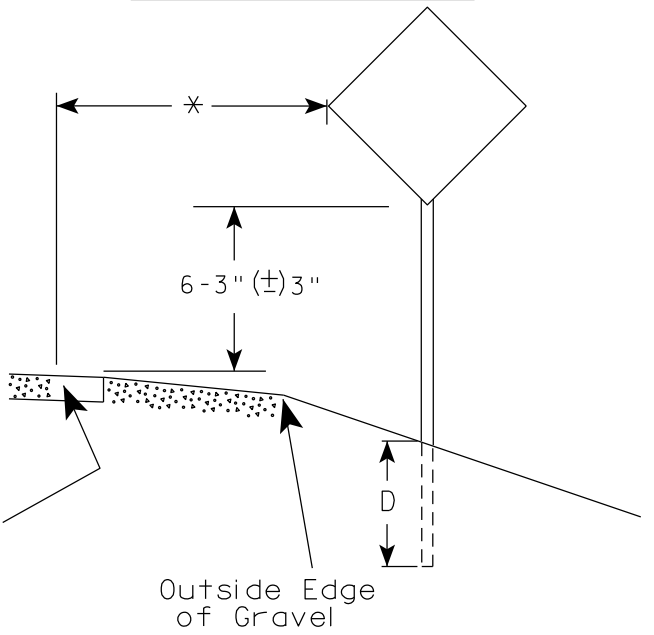
PERMANENT LONGITUDINAL PAVEMENT MARKINGS	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED May 2023 DATE	/S/ Jeannie Silver Statewide Pavement Marking Engineer

FHWA

URBAN AREA



RURAL AREA (See Note 2)



GENERAL NOTES

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

POST EMBEDMENT DEPTH

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

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

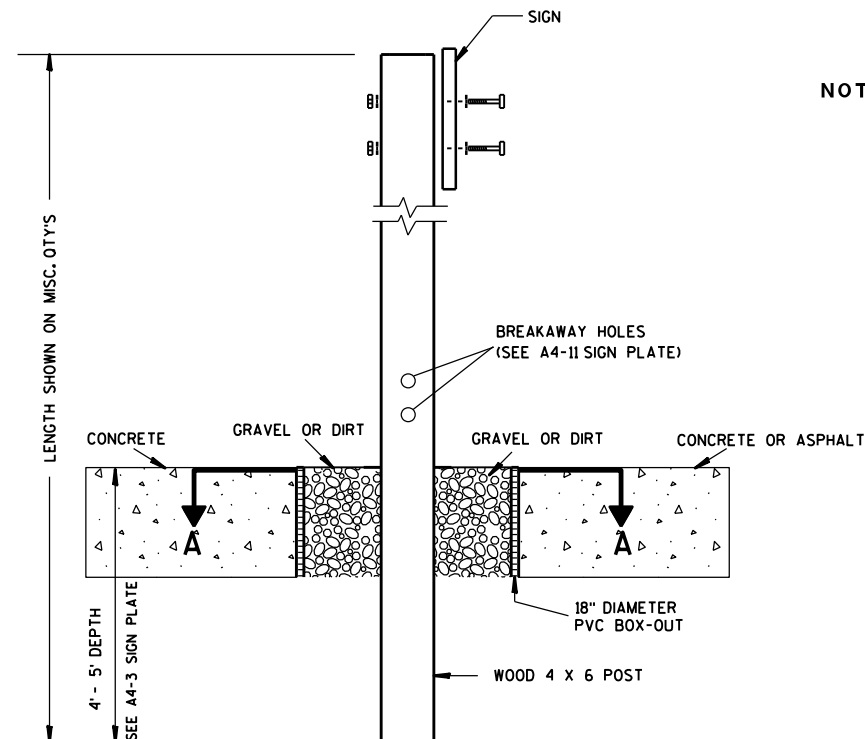
* 6 feet from edge of a paved shoulder or 12 feet from the edge of pavement (edge line location) or 2 feet from outside edge of gravel, whichever is greater unless directed by project engineer.

TYPICAL INSTALLATION
OF PERMANENT TYPE II
SIGNS ON SINGLE POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

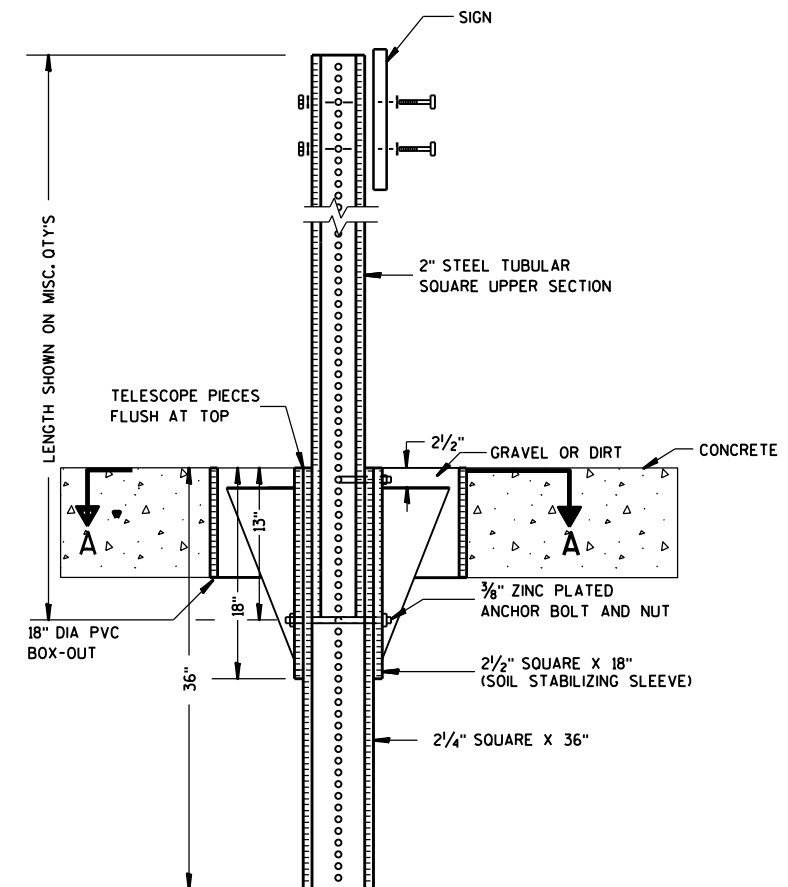
DATE 12/6/23 PLATE NO. A4-3.23



ELEVATION VIEW

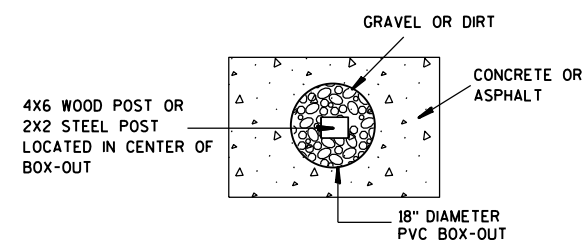
DETAIL OF WOOD 4 X 6 SIGN POST IN BOX-OUT

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



ELEVATION VIEW

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



PLAN VIEW

FOR NEW CONCRETE/ASPHALT INSTALLATIONS

SIGN POST
BOX-OUTS
A4-3B

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

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

PROJECT NO:

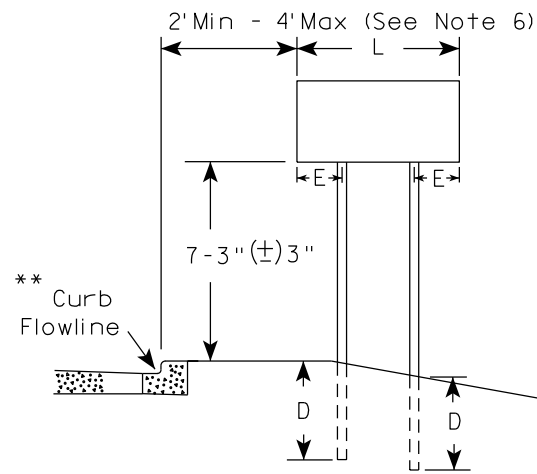
HWY:

COUNTY:

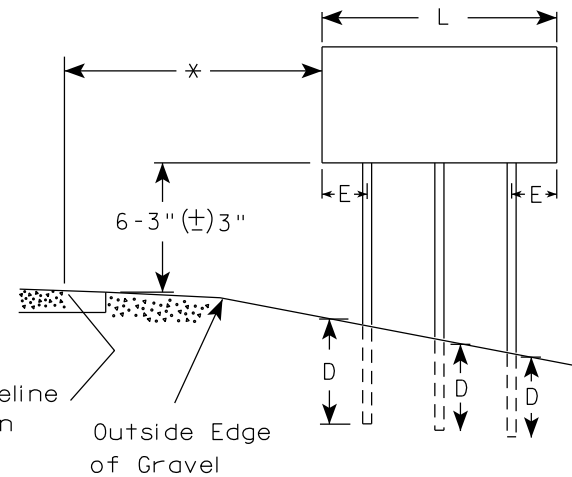
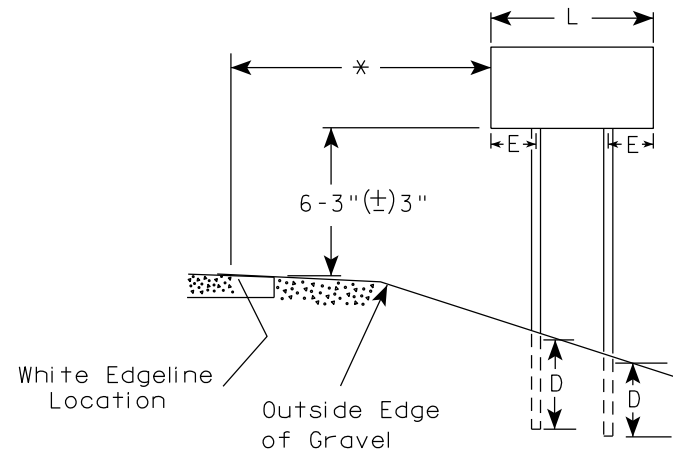
SHEET NO:

E

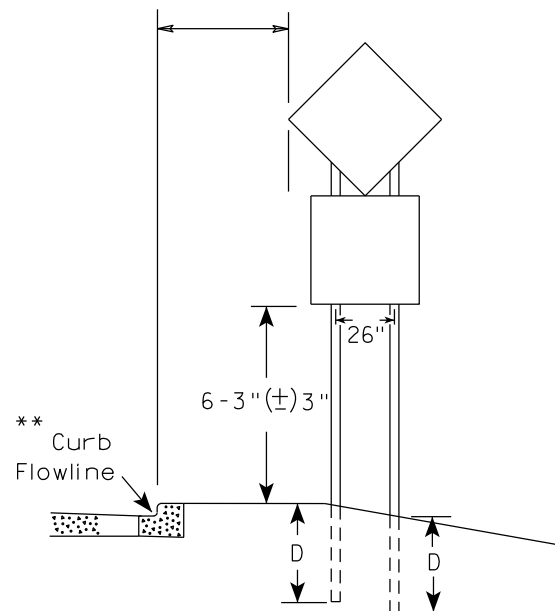
URBAN AREA



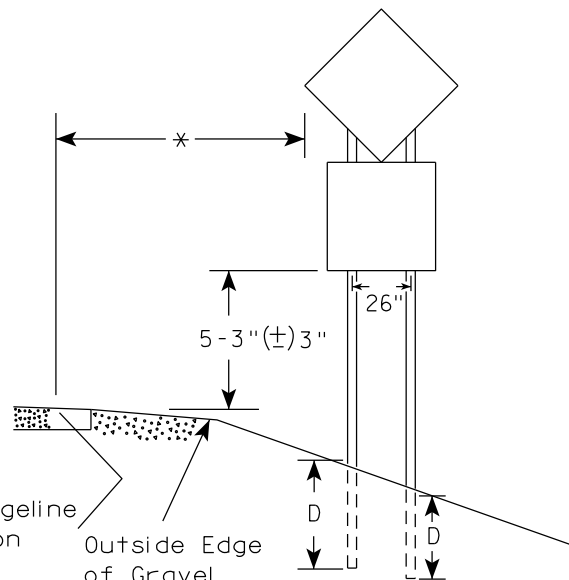
RURAL AREA (See Note 3)



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



48" DIAMOND WARNING SIGN



48" DIAMOND WARNING SIGN

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

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

POST EMBEDMENT DEPTH

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

TYPICAL INSTALLATION
OF TYPE II SIGNS
ON MULTIPLE POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

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

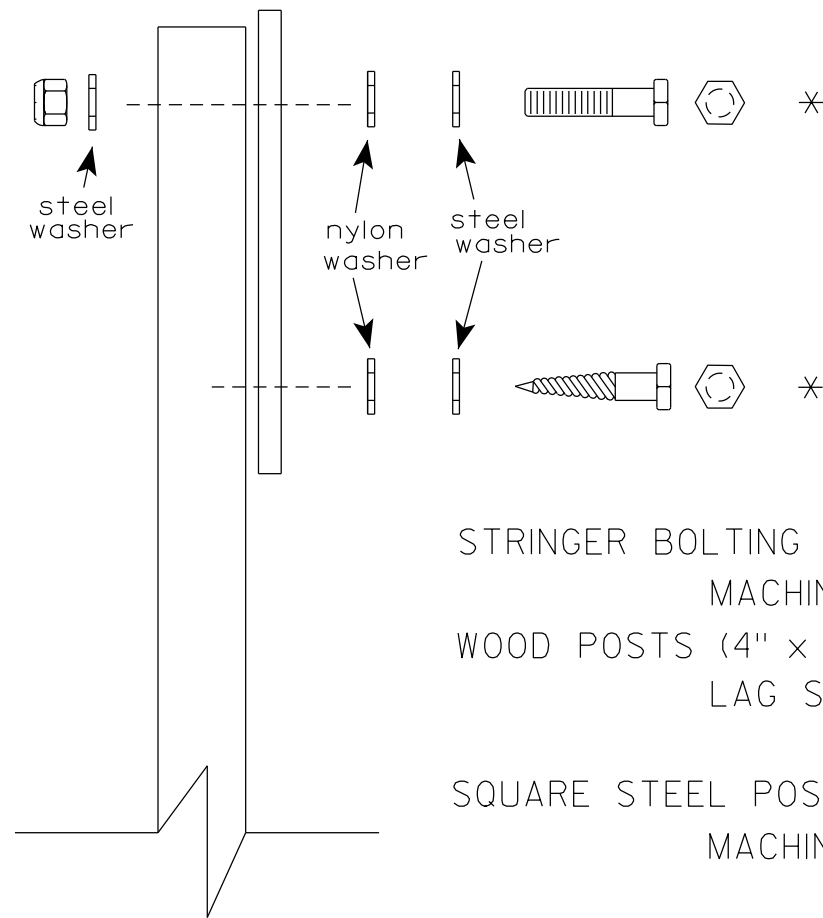
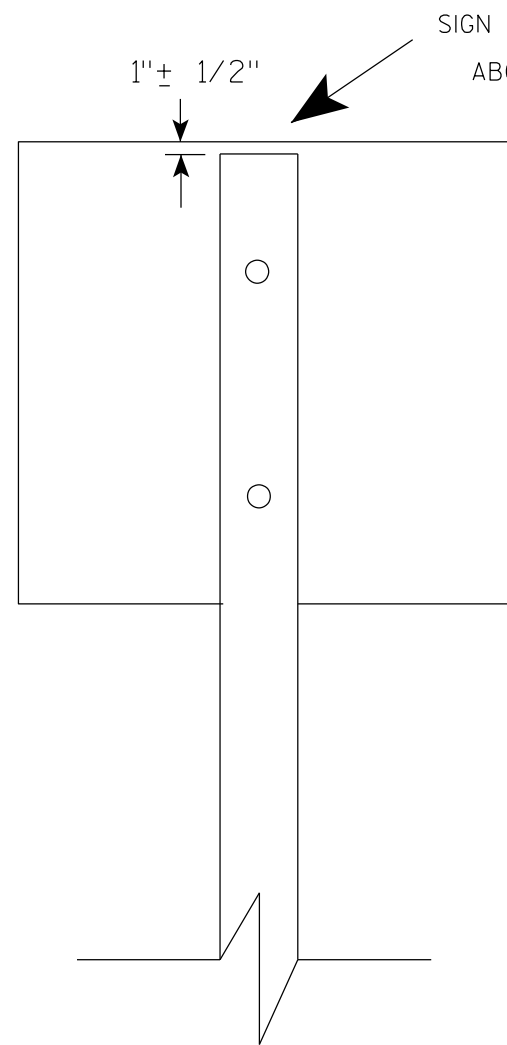
PROJECT NO:

HWY:

COUNTY:

SHEET NO:

E



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

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

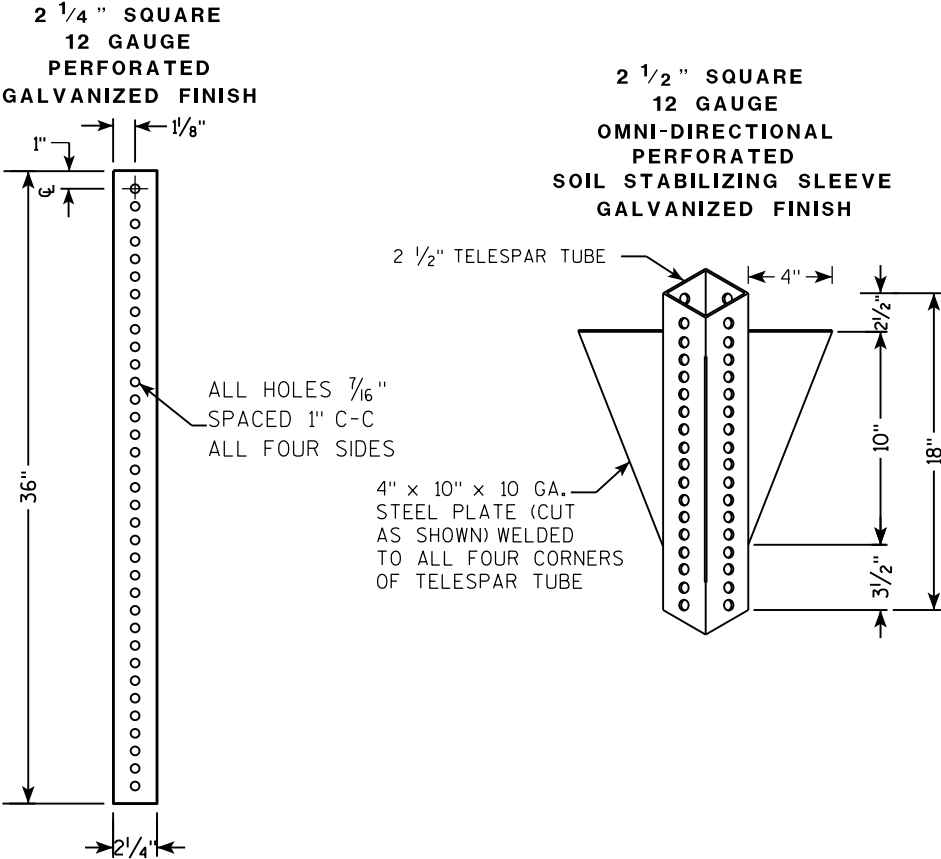
Threads on bolts and nuts shall be manufactured with sufficient allowance for the cadmium plate or galvanized coating to permit the nuts to run freely on the bolts.

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

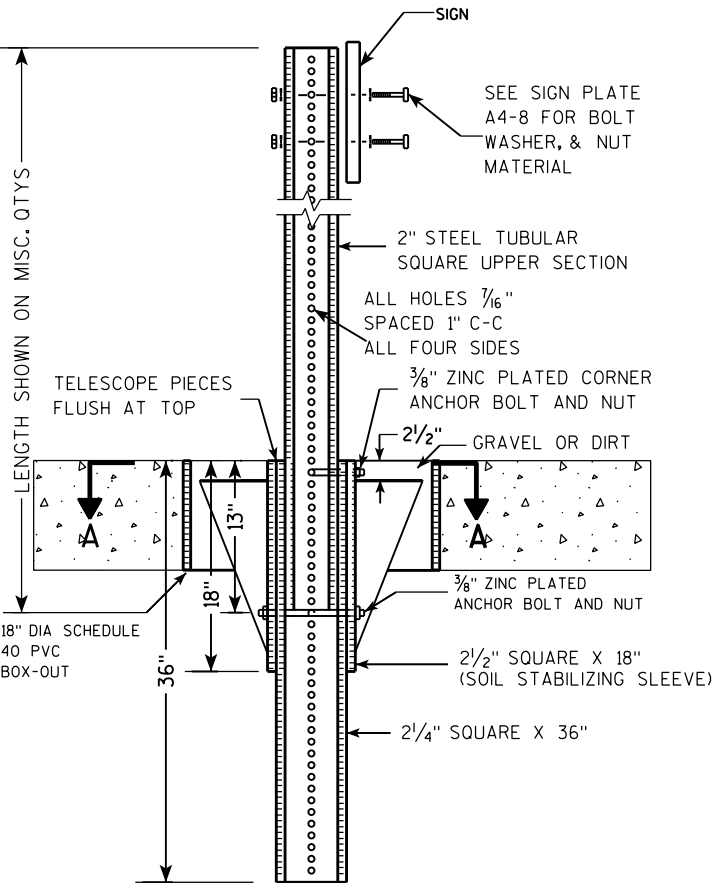
* Two different fastening systems are shown for illustration purposes. On any individual sign, either one or the other system shall be used. Actual number of fasteners per sign varies with the sign area, but normally there are two. For a single post installation, all signs greater than 9 sq. ft. require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

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

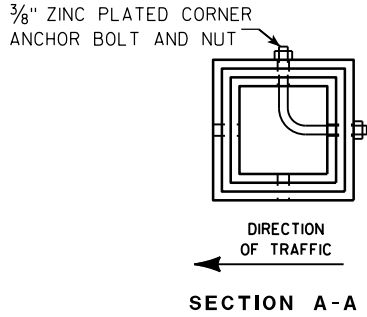
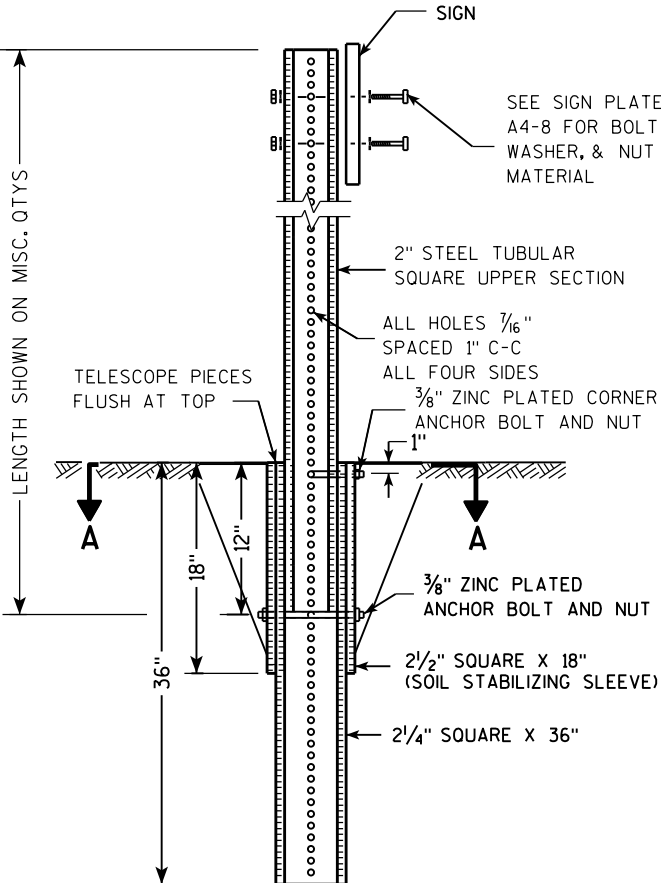
TELESCOPIC TUBING ANCHORS
TWO PIECE SYSTEM



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



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



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

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

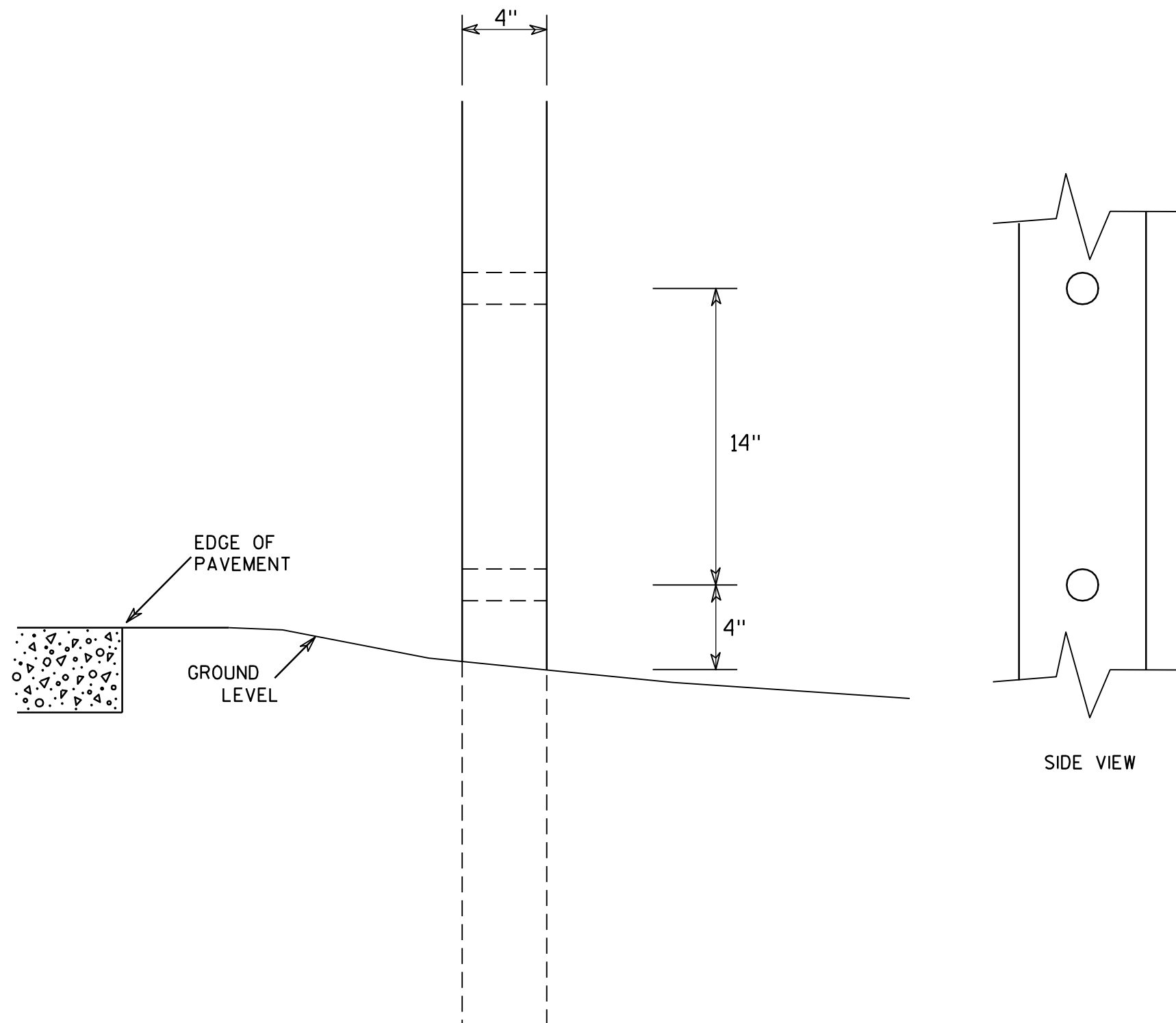
TUBULAR STEEL
SIGN POST
A4-9

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

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

7



GENERAL NOTES

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

7

4 X 6 WOOD POST MODIFICATIONS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED

Chester J. Spang
for State Traffic Engineer

DATE 3/27/97

PLATE NO. A4-11.2

PROJECT NO:

HWY:

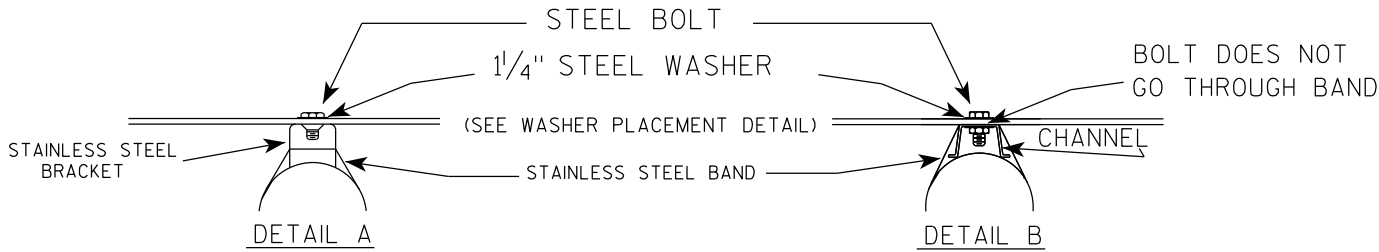
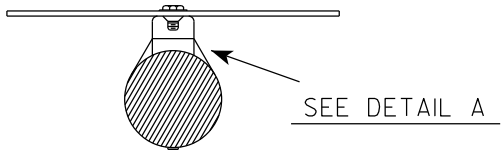
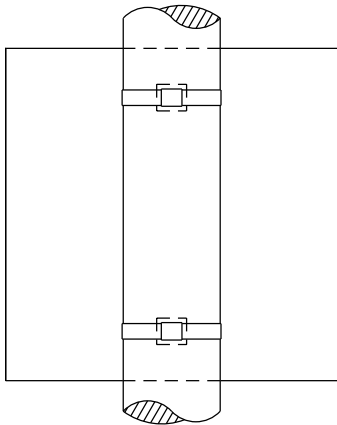
COUNTY:

SHEET NO:

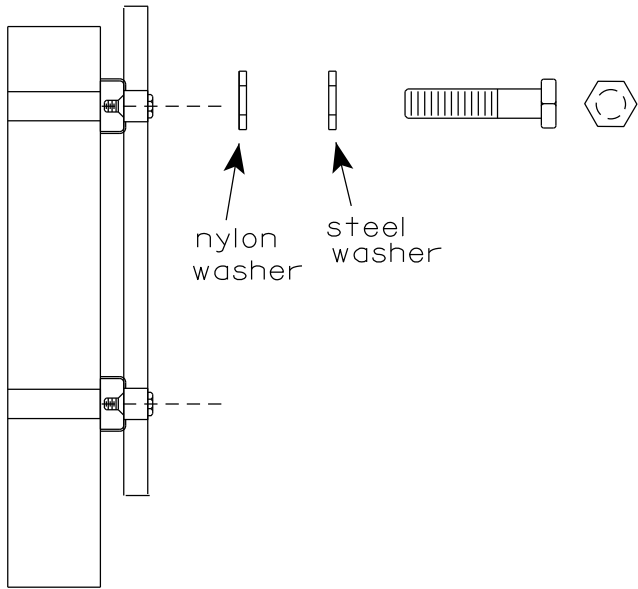
E

BANDING

SINGLE SIGN



WASHER PLACEMENT

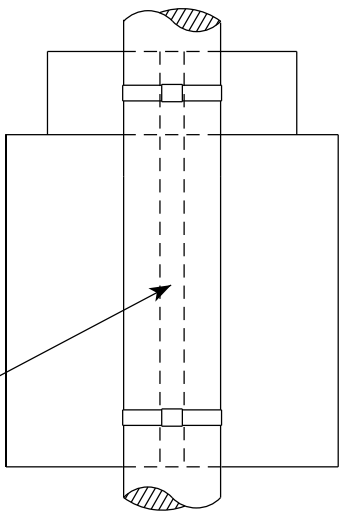


WASHERS (ALL POSTS) -
1-1/4" O.D. X 3/8" I.D. X 1/16" STEEL
1-1/4" O.D. X 3/8" I.D. X .080 NYLON
FOR ALL TYPE H SIGNS

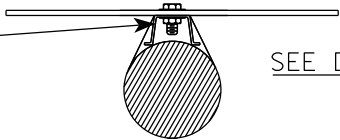
GENERAL NOTES

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

"J" ASSEMBLY



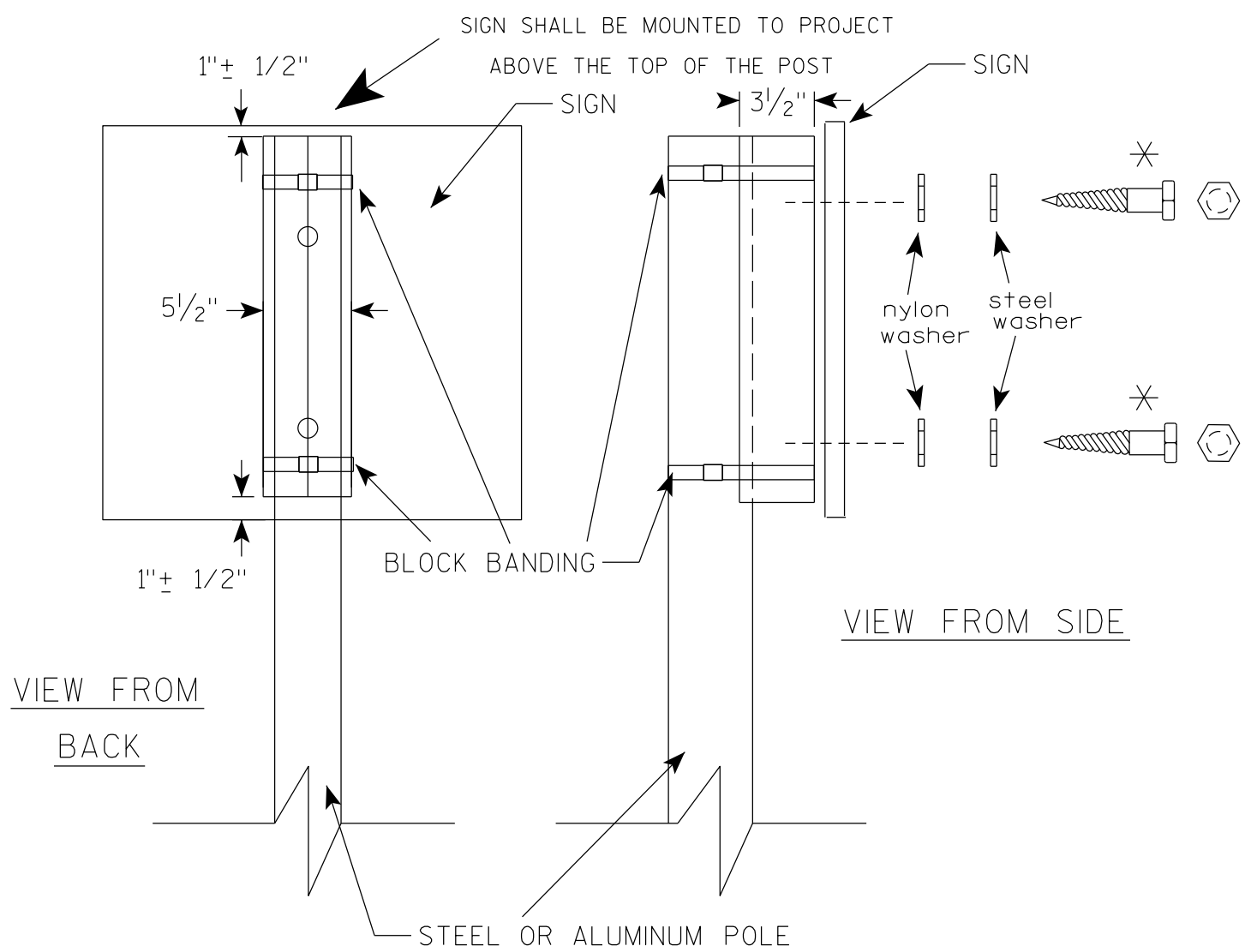
CHANNEL
SEE TYPICAL PANEL
INSTALLATION SHEET



STANDARD SIGN
SIGN BANDING DETAILS

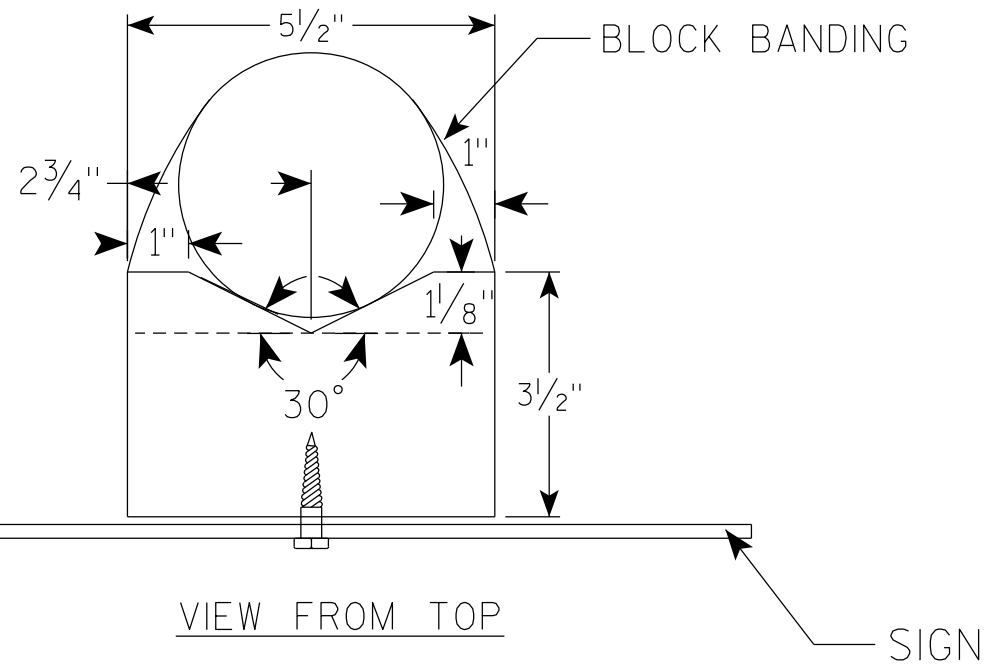
WISCONSIN DEPT OF TRANSPORTATION

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



VIEW FROM
BACK

VIEW FROM SIDE



VIEW FROM TOP

GENERAL NOTES

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

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

BLOCK BANDING DETAIL
(V-BLOCK OPTION)

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

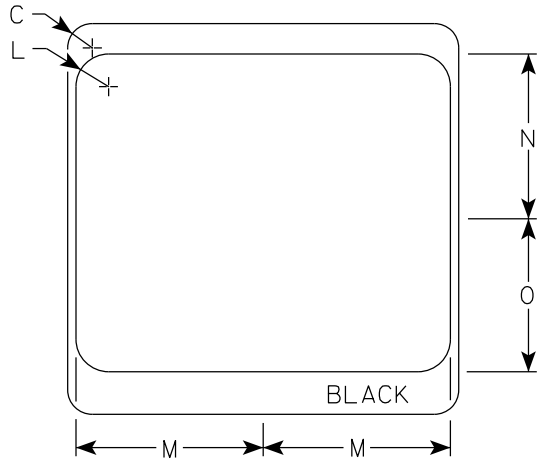
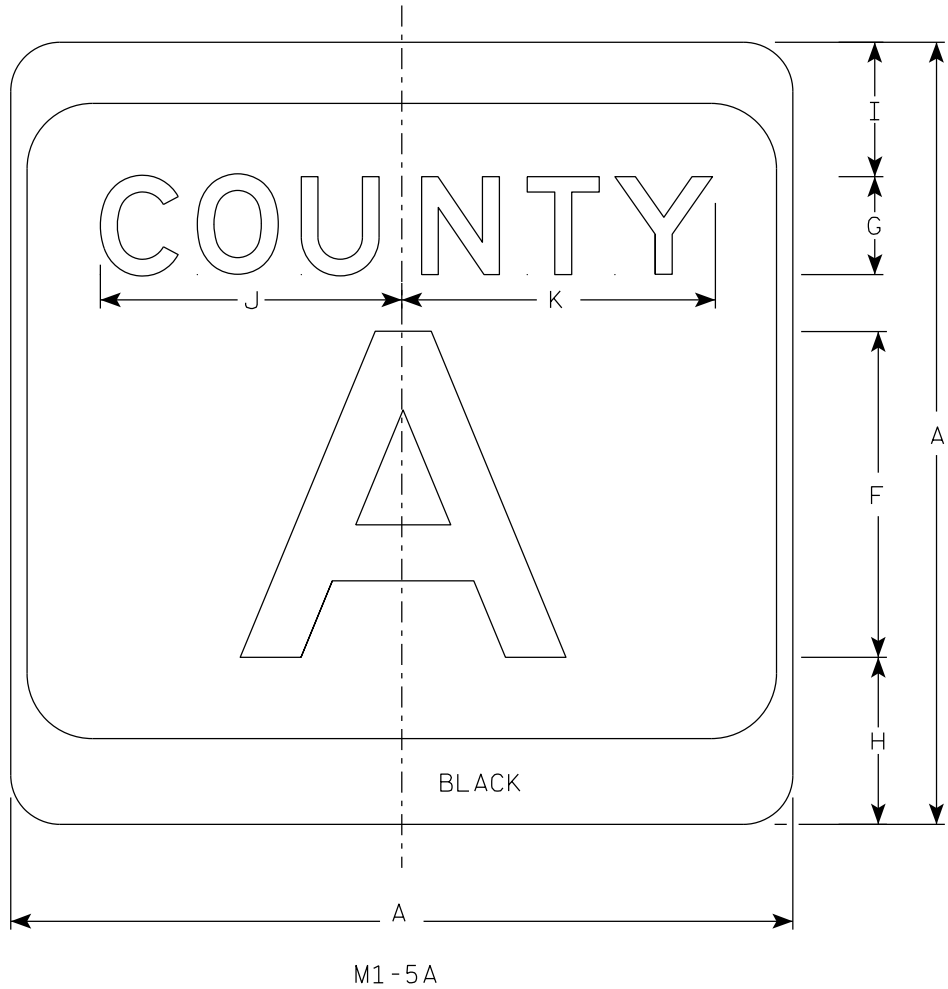
DATE 4/19/2022 PLATE NO. A5-10.3

PROJECT NO:

SHEET NO:

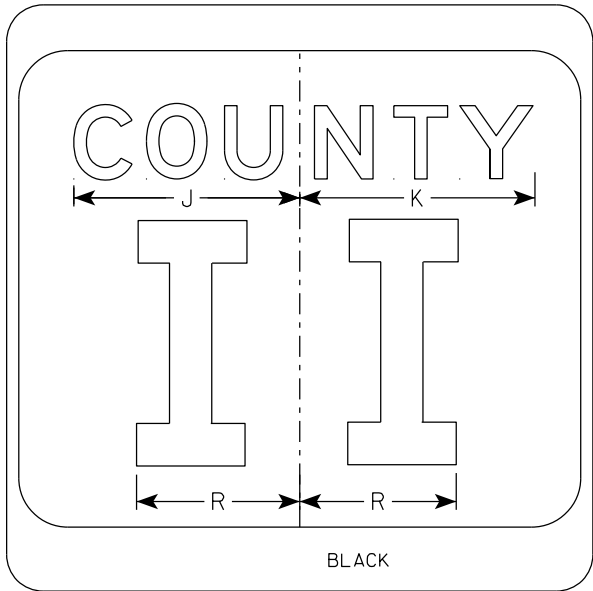
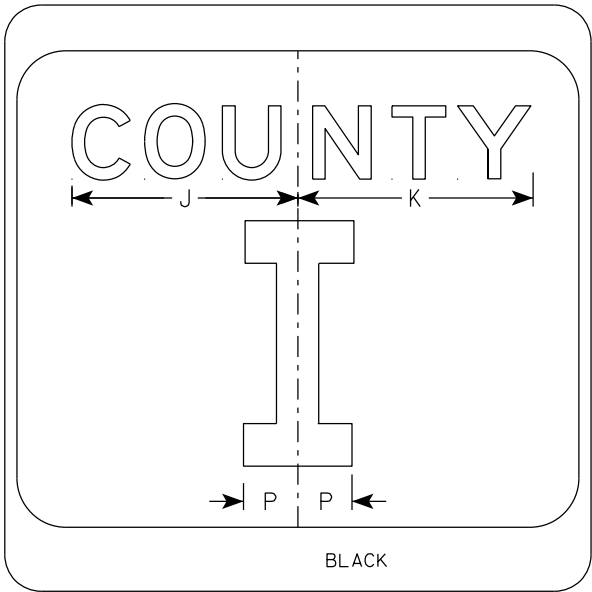
E

7



NOTES

1. Sign is Type II - Type H Reflective
2. Color:
Background - White & Black
Message - Black
3. Message Series - see Note 4
4. Message Series E for 1 letter.
Message Series D for 2 letters unless
message is too big then Series C.
Message Series C for 3 letters unless
message is too big then Series B.
5. Substitute appropriate letters & optically
center to achieve proper balance.



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																											
2	24		1 1/2			10	3	5 1/8	4 1/8	9 1/4	9 5/8	2	11 1/2	10 1/8	9 3/8	2 1/4		6 5/8									4.0
2M	24		1 1/2			10	3	5 1/8	4 1/8	9 1/4	9 5/8	2	11 1/2	10 1/8	9 3/8	2 1/4		6 5/8									4.0
3	36		2 1/4			16	4	7 5/8	5 5/8	12 1/4	12 7/8	3	17 1/8	15 1/4	14	3 3/8		10									9.0
4	36		2 1/4			16	4	7 5/8	5 5/8	12 1/4	12 7/8	3	17 1/8	15 1/4	14	3 3/8		10									9.0
5	36		2 1/4			16	4	7 5/8	5 5/8	12 1/4	12 7/8	3	17 1/8	15 1/4	14	3 3/8		10									9.0

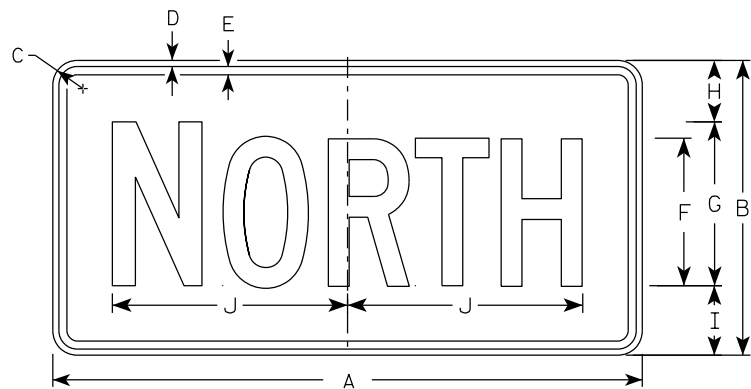
CTH MARKER
M1-5A FOR ASSEMBLIES

WISCONSIN DEPT OF TRANSPORTATION

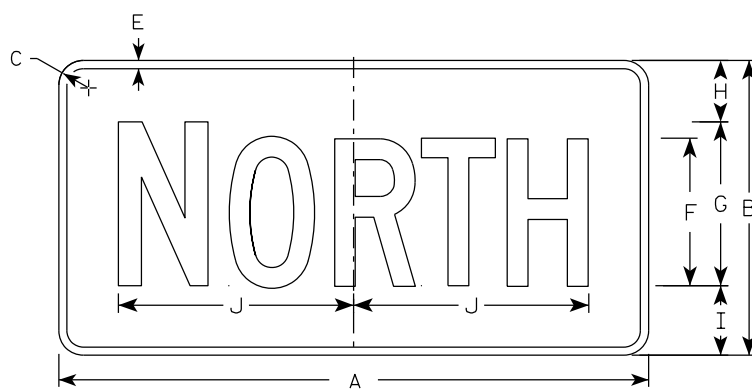
APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 11/8/2022 PLATE NO. M1-5A.9

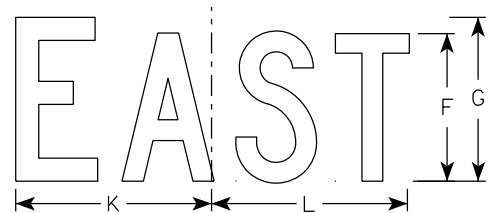
7



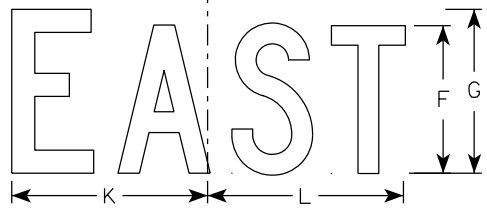
M3-1
MM3-1
MP3-1



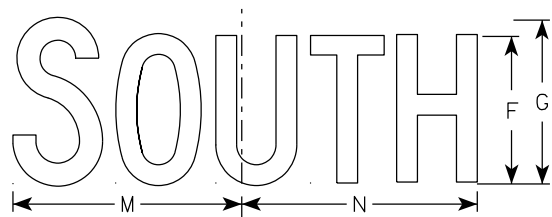
MB3-1
MK3-1
MN3-1



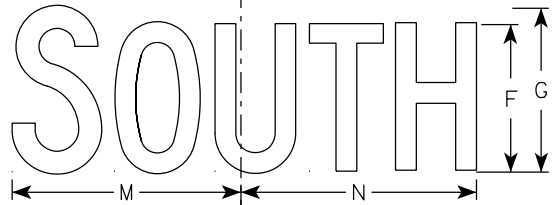
M3-2
MM3-2
MP3-2



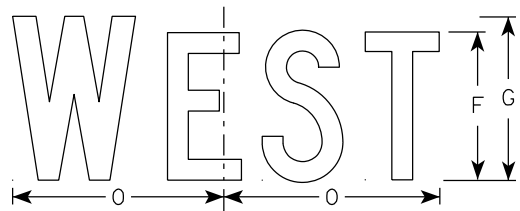
MB3-2
MK3-2
MN3-2



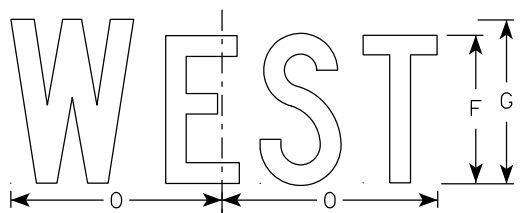
M3-3
MM3-3
MP3-3



MB3-3
MK3-3
MN3-3



M3-4
MM3-4
MP3-4



MB3-4
MK3-4
MN3-4

NOTES

- All Signs Type II - Type H Reflective
- Color:
 - Background - See note 5
 - Message - See note 5
- Message Series - C
- 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.
- M3-1 thru M3-4 Background - White
Message - Black
MB3-1 thru MB3-4 Background - Blue
Message - White
MK3-1 thru MK3-4 Background - Green
Message - White
MM3-1 thru MM3-4 Background - White
Message - Green
MN3-1 thru MN3-4 Background - Brown
Message - White
MP3-1 thru MP3-4 Background - White
Message - Blue
- Note the first letter of each direction is larger than the remainder of the message.

7

7

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	24	12	1 1/2	3/8	3/8	6	7	2 1/4	2 3/4	10 1/4	7 7/8	8 3/8	10 1/4	9 3/4	8 3/4												2.00
2M	24	12	1 1/2	3/8	3/8	6	7	2 1/4	2 3/4	10 1/4	7 7/8	8 3/8	10 1/4	9 3/4	8 3/4												2.00
3	36	18	1 1/2	3/8	1/2	9	10	3 3/4	4 1/4	14 3/8	12	12 1/8	14	14 1/8	13												4.5
4	36	18	1 1/2	3/8	1/2	9	10	3 3/4	4 1/4	14 3/8	12	12 1/8	14	14 1/8	13												4.5
5	36	18	1 1/2	3/8	1/2	9	10	3 3/4	4 1/4	14 3/8	12	12 1/8	14	14 1/8	13												4.5

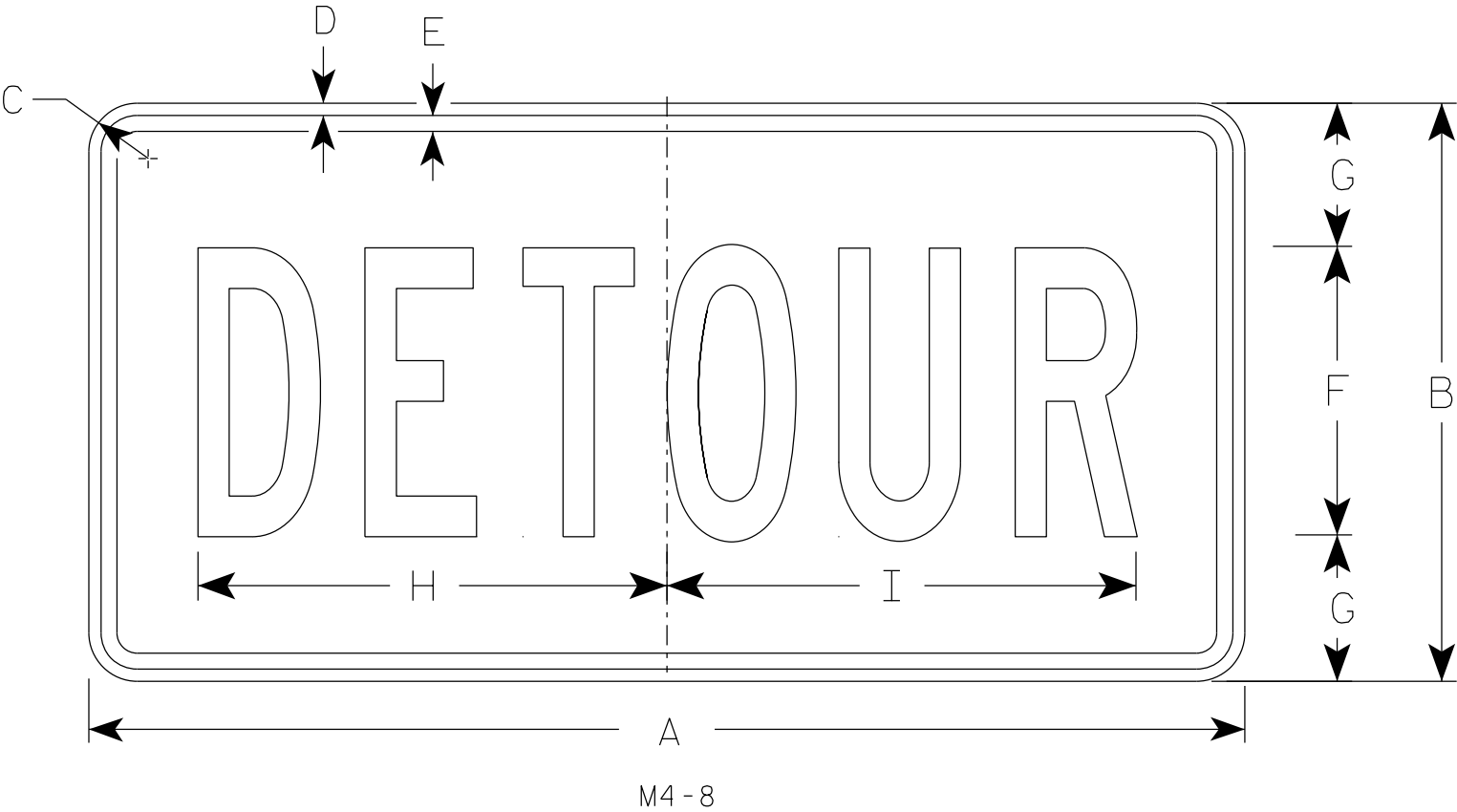
PROJECT NO:	HWY:	COUNTY:	SHEET NO:	E
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7

7

NOTES

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



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																											
2	24	12	1 1/2	3/8	3/8	6	3	10	10 1/4																		2.0
2M	24	12	1 1/2	3/8	3/8	6	3	10	10 1/4																		2.0
3	36	18	1 1/2	3/8	1/2	9	4 1/2	14 5/8	14 1/2																		4.5
4	36	18	1 1/2	3/8	1/2	9	4 1/2	14 5/8	14 1/2																		4.5
5	36	18	1 1/2	3/8	1/2	9	4 1/2	14 5/8	14 1/2																		4.5

STANDARD SIGN

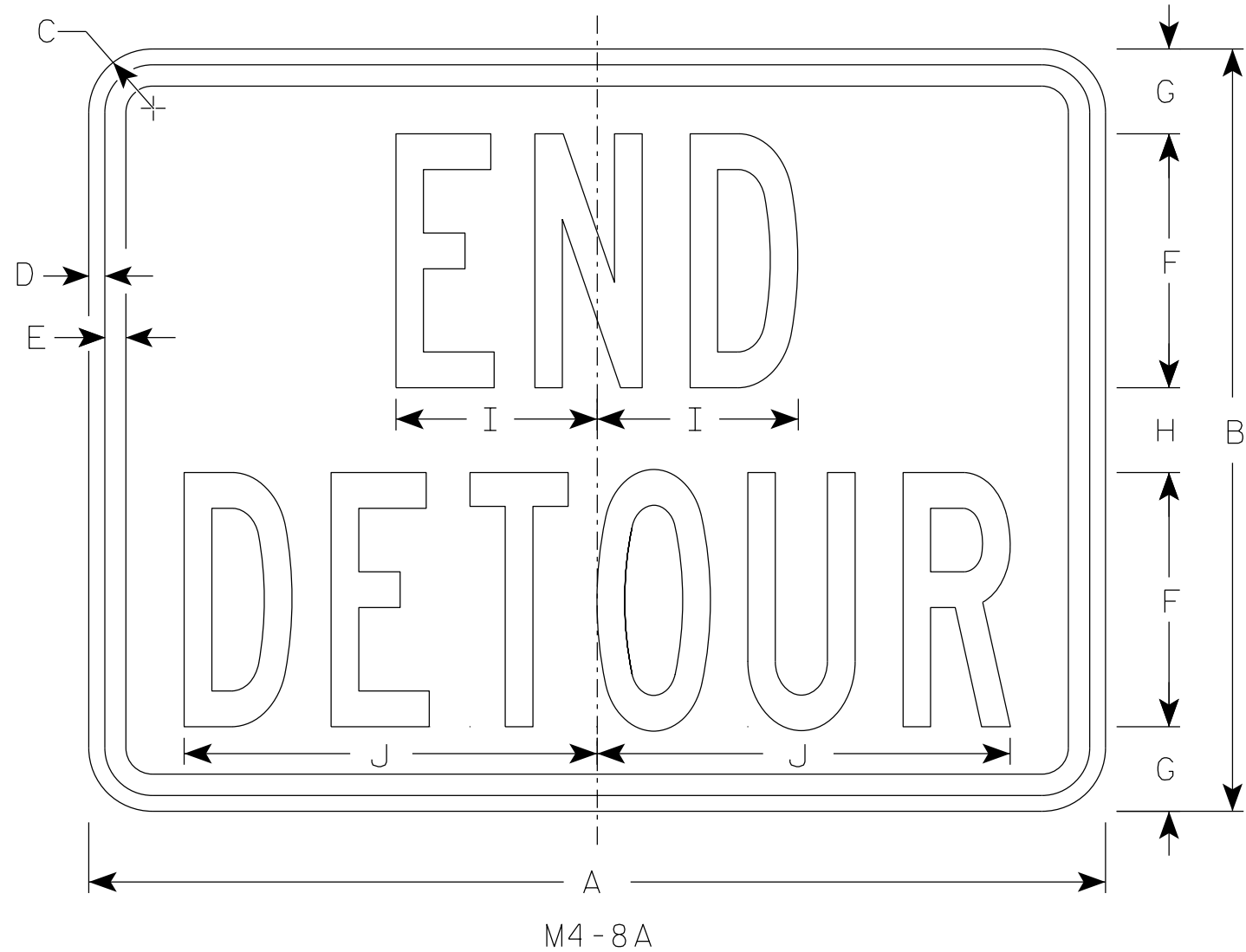
M4-8

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 2/9/2023 PLATE NO. M4-8.4

7



NOTES

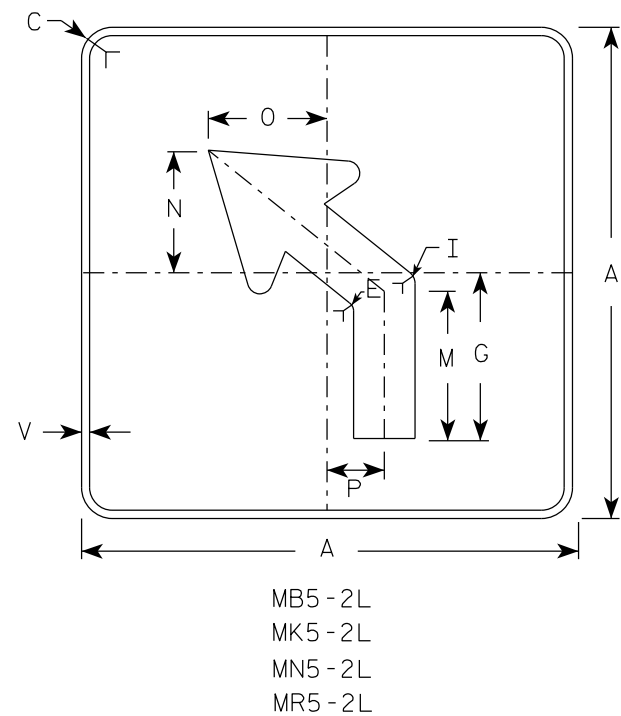
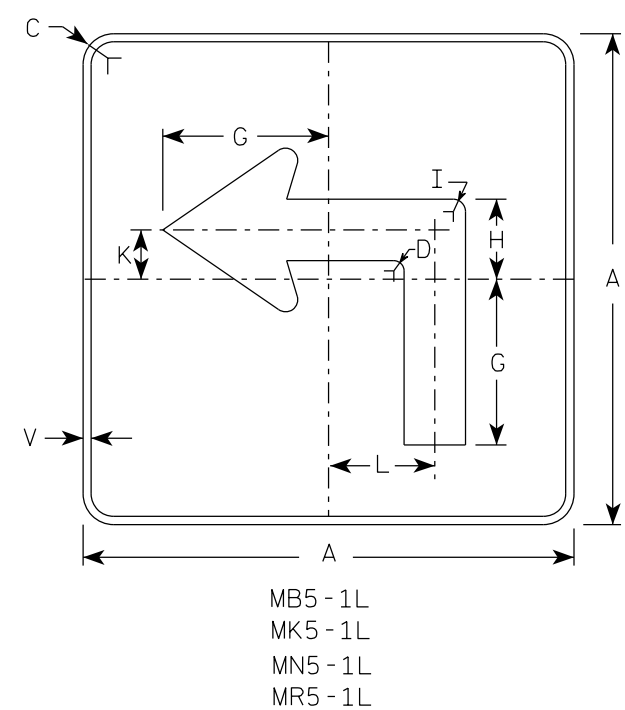
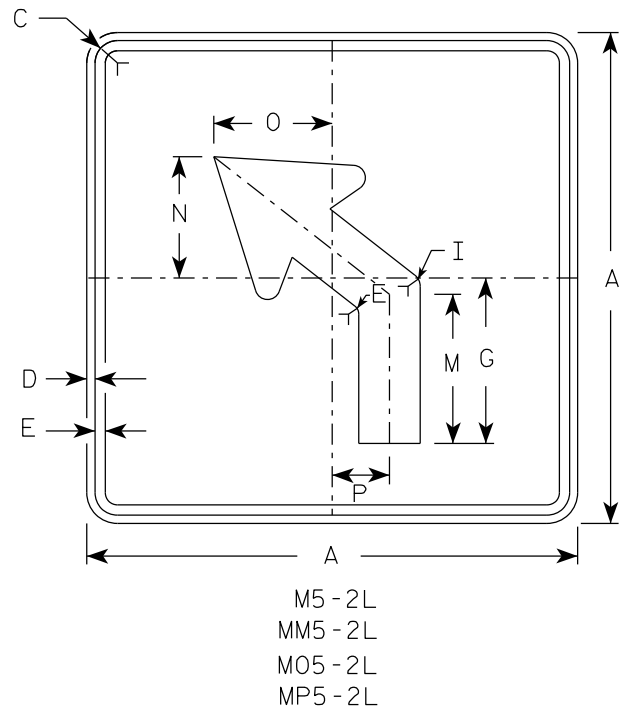
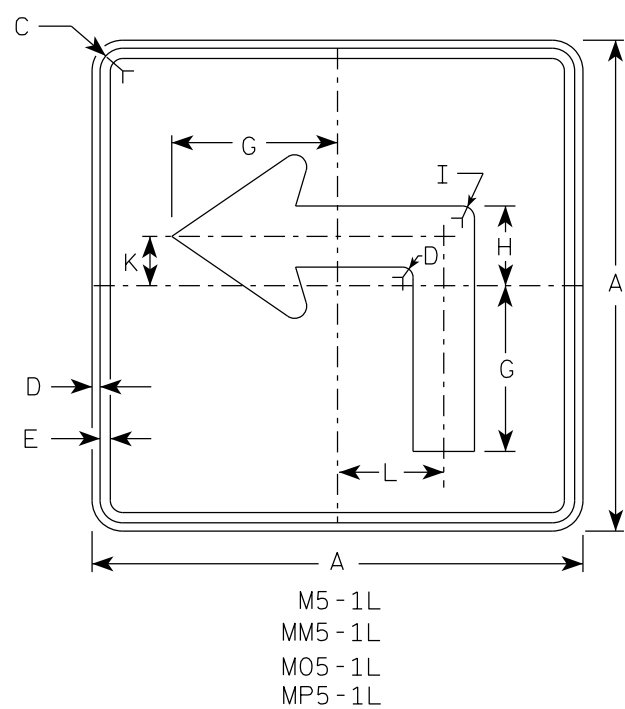
1. Sign is Type II - Type F Reflective
2. Color:
Background - Orange
Message - Black
3. Message Series - B
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.

7

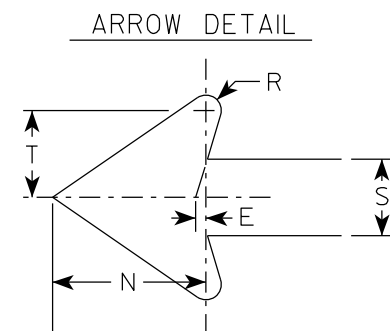
SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	v	W	X	Y	Z	Area sq. ft.
1																											
2	24	18	1 1/2	3/8	1/2	6	2	2	4 3/4	9 3/4																	3.0
2M	24	18	1 1/2	3/8	1/2	6	2	2	4 3/4	9 3/4																	3.0
3	30	24	1 1/2	3/8	1/2	8	2 1/2	3	6 3/4	13																	5.0
4	30	24	1 1/2	3/8	1/2	8	2 1/2	3	6 3/4	13																	5.0
5	30	24	1 1/2	3/8	1/2	8	2 1/2	3	6 3/4	13																	5.0

STANDARD SIGN	
M4-8A	
WISCONSIN DEPT OF TRANSPORTATION	
APPROVED	<i>Matthew R. Rauch</i> For State Traffic Engineer
DATE 2/9/2023	PLATE NO. M4-8A.4

PROJECT NO:	HWY:	COUNTY:	SHEET NO:		E
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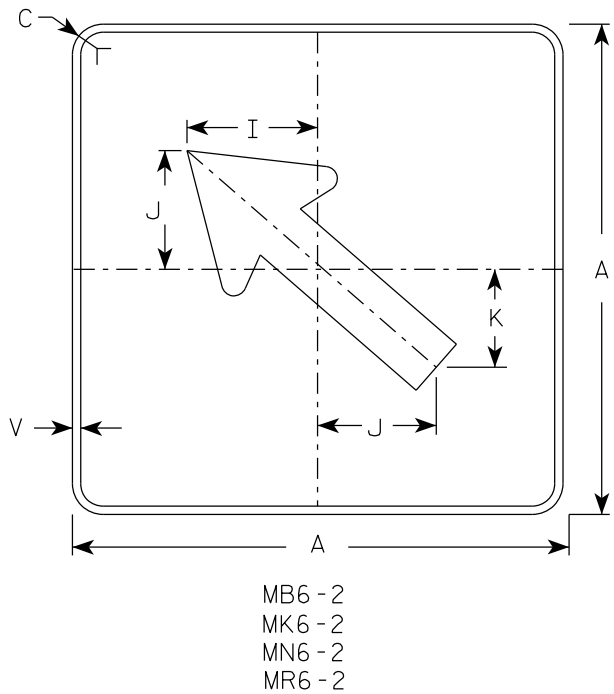
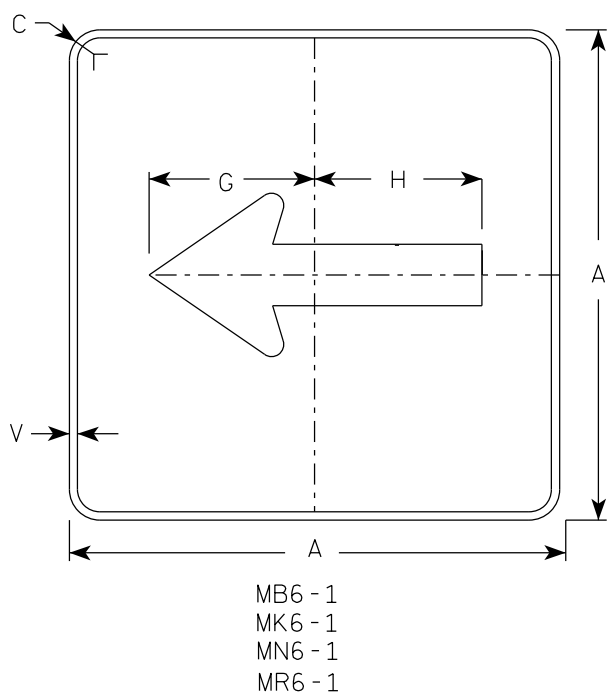
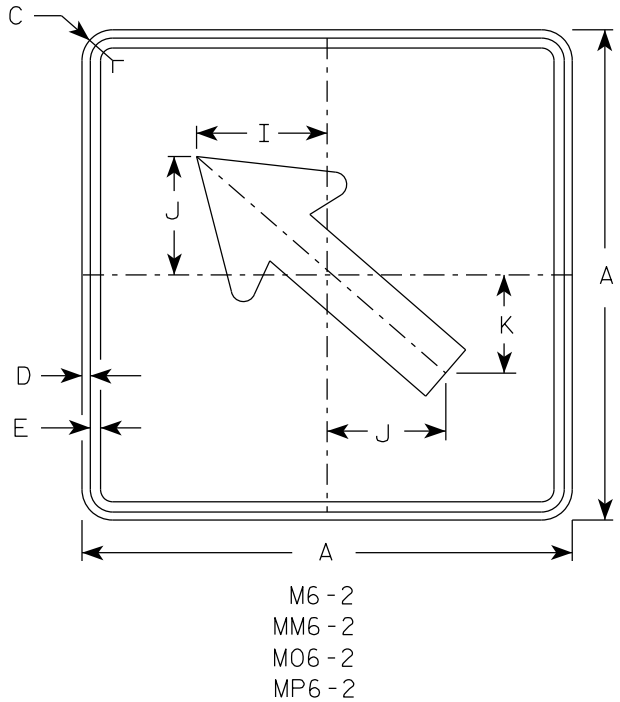
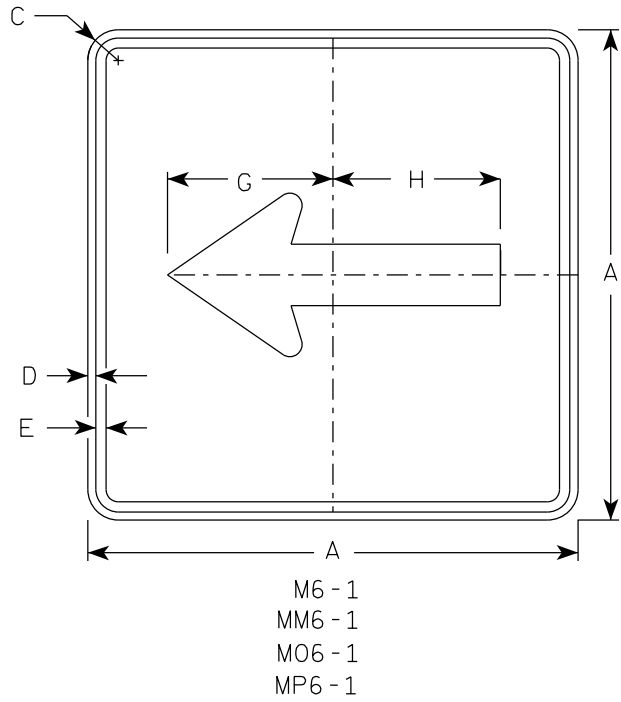


- NOTES
- Signs are Type II - Type H reflective except as shown
 - Color:
Background - See note 4
Message - See note 4
 - Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
 - | | | |
|-----------|-------|---|
| M5-1 and | M5-2 | Background - White |
| | | Message - Black |
| MB5-1 and | MB5-2 | Background - Blue |
| | | Message - White |
| MK5-1 and | MK5-2 | Background - Green |
| | | Message - White |
| MM5-1 and | MM5-2 | Background - White |
| | | Message - Green |
| MN5-1 and | MN5-2 | Background - Brown |
| | | Message - White |
| M05-1 and | M05-2 | Background - Orange - Type F Reflective |
| | | Message - Black |
| MP5-1 and | MP5-2 | Background - White |
| | | Message - Blue |
| MR5-1 and | MR5-2 | Background - Brown |
| | | Message - Yellow |
 - M5-1R same as M5-1L except arrow points right.
 - M5-2R same as M5-2L except arrow tilts right.

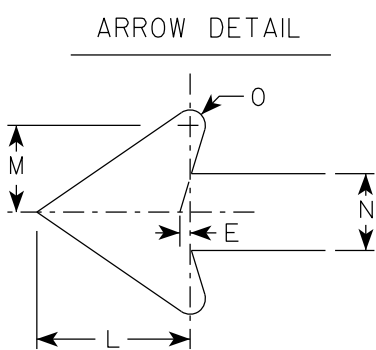


SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	21		1 1/2	3/8	3/8		7	3 3/8	5/8		2 1/8	4 1/2	6 3/8	5 1/4	5	2 1/2		1/2	2 5/8	3		1/2					3.06
2M	21		1 1/2	3/8	3/8		7	3 3/8	5/8		2 1/8	4 1/2	6 3/8	5 1/4	5	2 1/2		1/2	2 5/8	3		1/2					3.06
3	30		1 7/8	1/2	5/8		10 1/8	4 7/8	7/8		3	6 1/2	9 1/8	7 1/2	7 1/4	3 1/2		3/4	3 3/4	4 1/4		1/2					6.25
4	30		1 7/8	1/2	5/8		10 1/8	4 7/8	7/8		3	6 1/2	9 1/8	7 1/2	7 1/4	3 1/2		3/4	3 3/4	4 1/4		1/2					6.25
5	30		1 7/8	1/2	5/8		10 1/8	4 7/8	7/8		3	6 1/2	9 1/8	7 1/2	7 1/4	3 1/2		3/4	3 3/4	4 1/4		1/2					6.25

PROJECT NO:		HWY:		COUNTY:		SHEET NO:		E
FILE NAME : C:\CAEfiles\Projects\tr_stdplate_M51.dgn								
PLOT DATE : 13-FEB 2023 10:05								
PLOT BY : dotc4c								
PLOT NAME :								
PLOT SCALE : \$\$.....plotscale.....\$\$WISDOT/CADDS SHEET 42								



- NOTES**
- Signs are Type II - Type H Reflective except as Shown
 - Color:
Background - See note 4
Message - See note 4
 - Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
 - M6-1 and M6-2 Background - White
Message - Black
MB6-1 and MB6-2 Background - Blue
Message - White
MK6-1 and MK6-2 Background - Green
Message - White
MM6-1 and MM6-2 Background - White
Message - Green
MN6-1 and MN6-2 Background - Brown
Message - White
M06-1 and M06-2 Background - Orange - Type F Reflective
Message - Black
MP6-1 and MP6-2 Background - White
Message - Blue
MR6-1 and MR6-2 Background - Brown
Message - Yellow



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	21		1 1/2	3/8	3/8		7 1/2	7 1/8	5 5/8	5	4 1/4	5 1/4	3	2 5/8	1/2							1/2					3.06
2M	21		1 1/2	3/8	3/8		7 1/2	7 1/8	5 5/8	5	4 1/4	5 1/4	3	2 5/8	1/2							1/2					3.06
3	30		1 7/8	1/2	5/8		10 3/4	10 1/4	8	7 1/4	6	7 1/2	4 1/4	3 3/4	3/4							1/2					6.25
4	30		1 7/8	1/2	5/8		10 3/4	10 1/4	8	7 1/4	6	7 1/2	4 1/4	3 3/4	3/4							1/2					6.25
5	30		1 7/8	1/2	5/8		10 3/4	10 1/4	8	7 1/4	6	7 1/2	4 1/4	3 3/4	3/4							1/2					6.25

PROJECT NO:

HWY:

COUNTY:

SHEET NO:

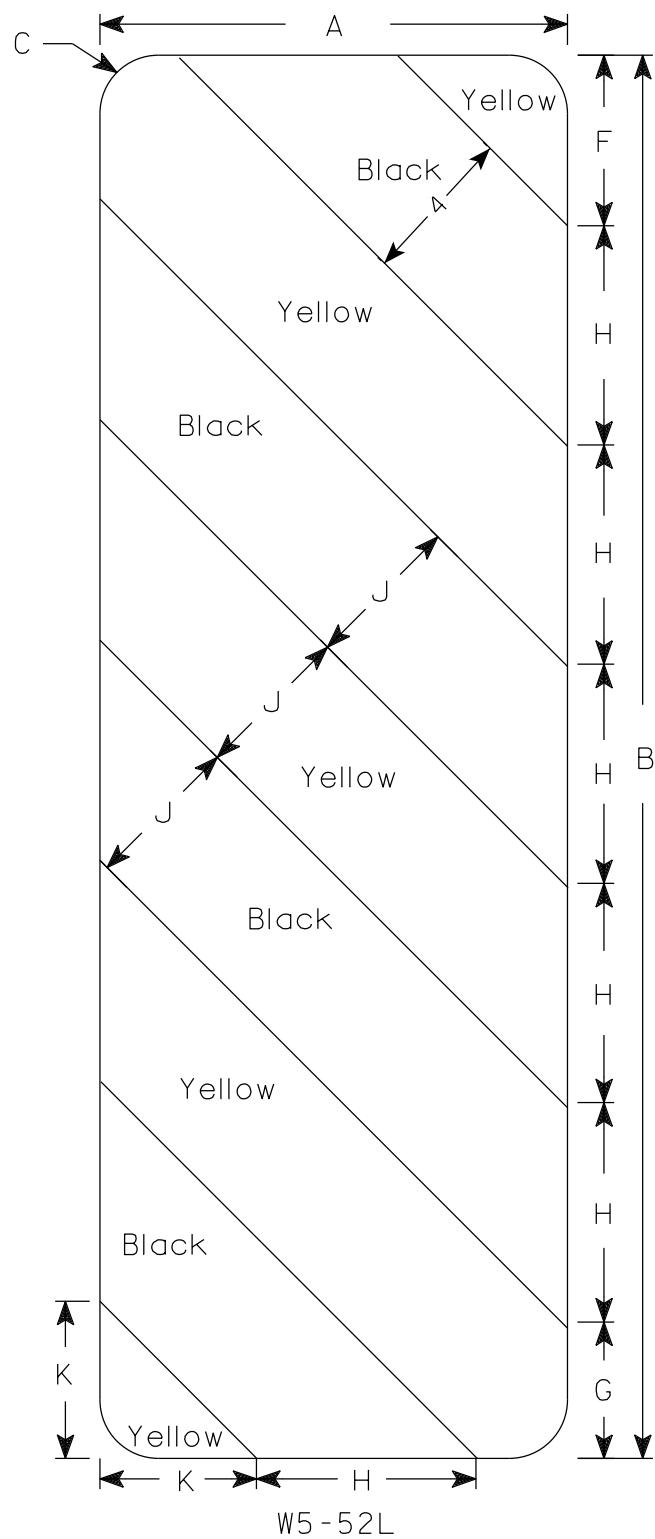
E

STANDARD SIGN
M6-1 & M6-2
SERIES

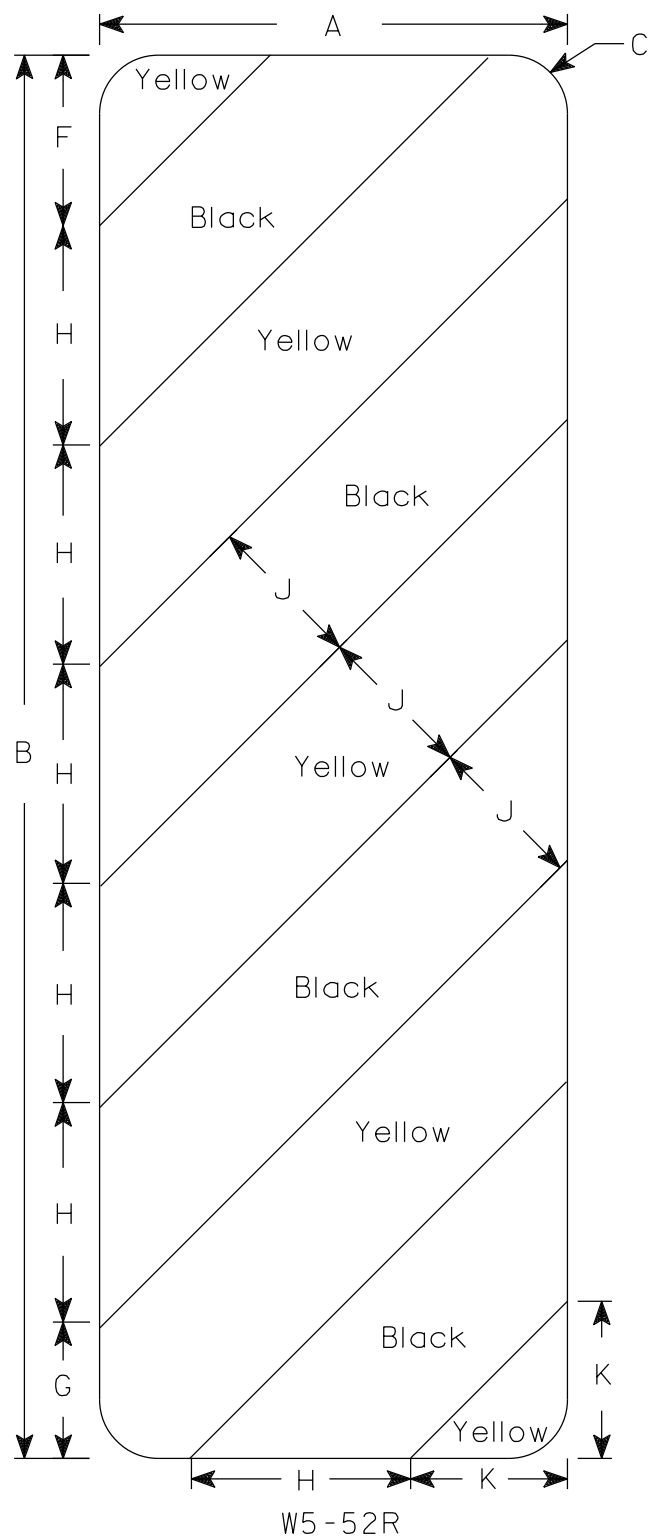
WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 2/13/2023 PLATE NO. M6-1.16



W5-52L



W5-52R

NOTES

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

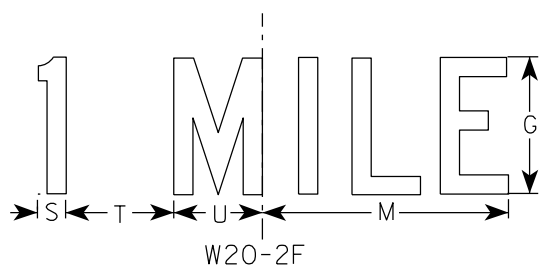
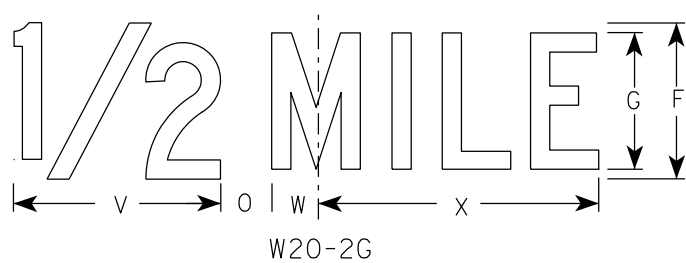
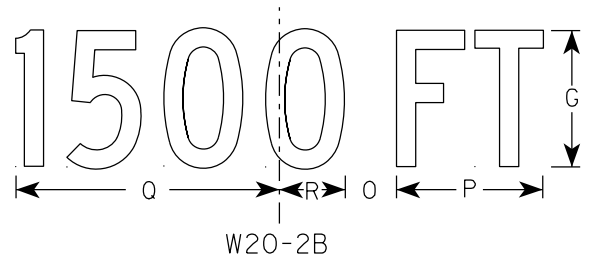
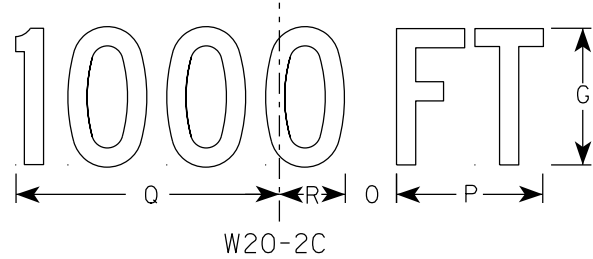
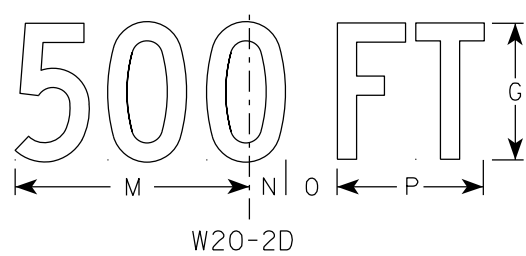
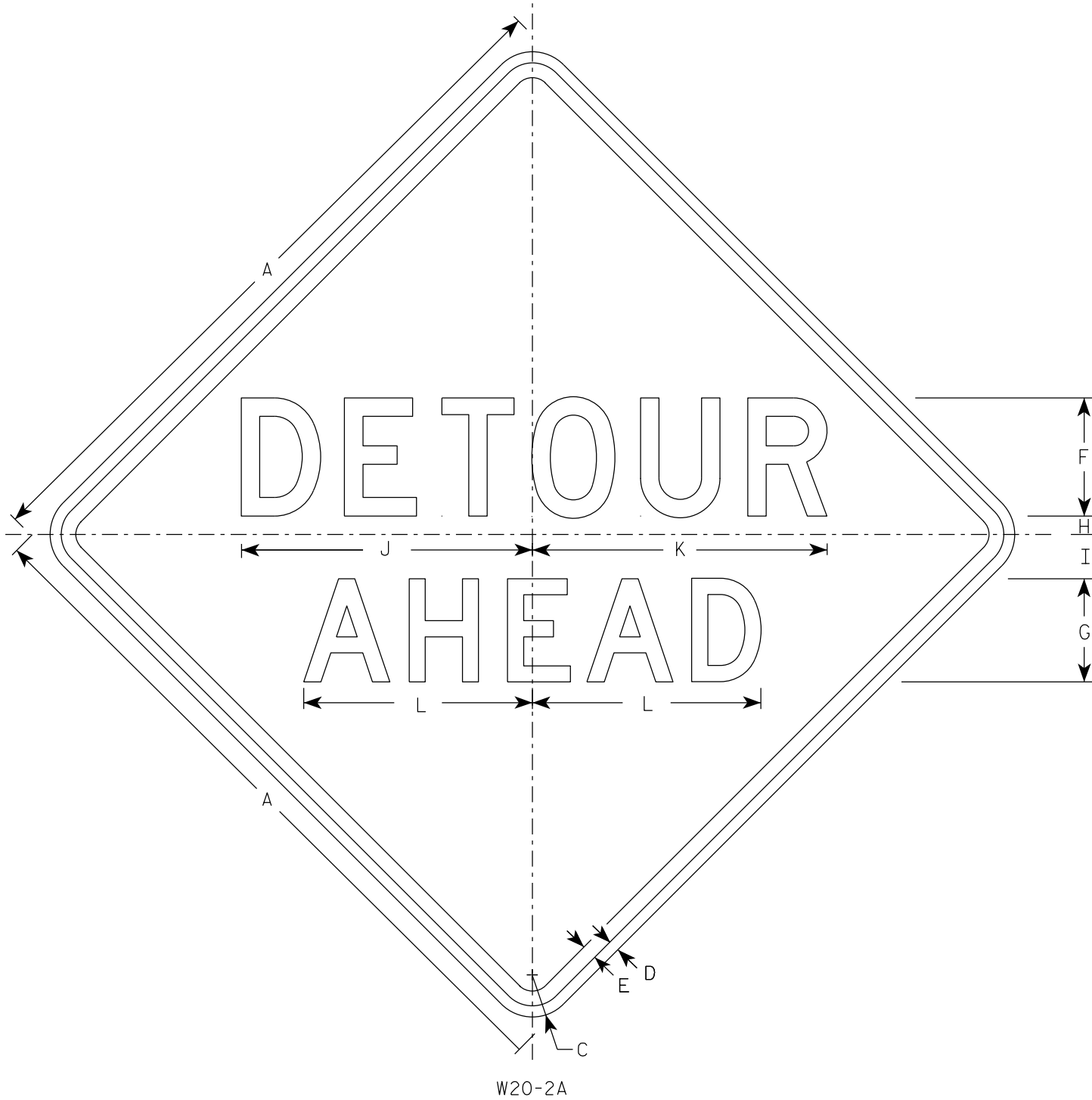
SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	v	W	X	Y	Z	Area sq. ft.
1																											
2S	12	36	1 1/2			4 3/8	3 1/2	5 5/8	45°	4	4																3.0
2M	12	36	1 1/2			4 3/8	3 1/2	5 5/8	45°	4	4																3.0
3	18	54	1 1/2			6	5 1/2	8 1/2	45°	6	6 9/16																6.75
4													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

STANDARD SIGN
W5-52L & W5-52R

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
For State Traffic Engineer

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



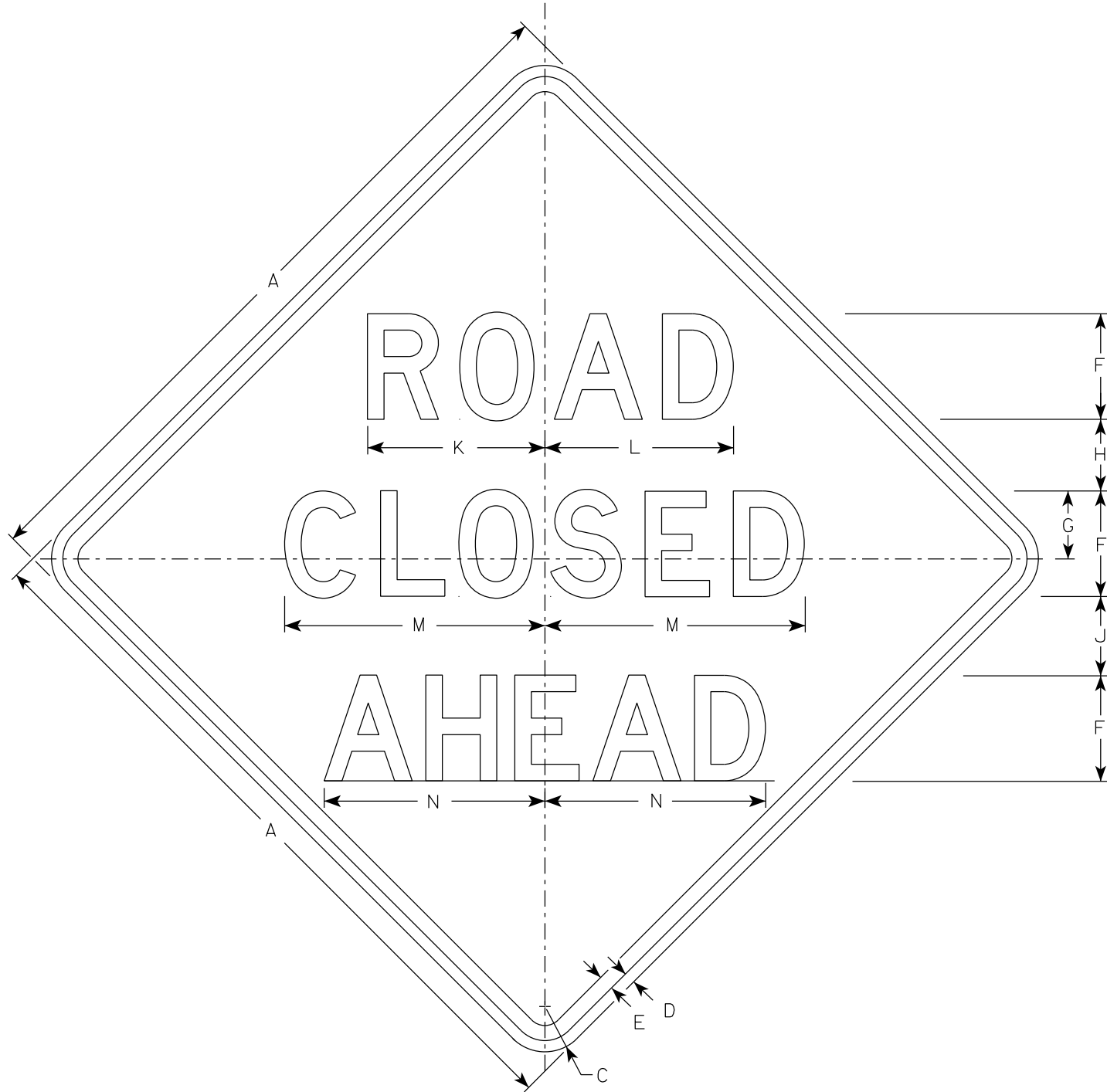
NOTES

1. Sign is Type II - Type F Reflective
2. Color:
Background - Orange
Message - Black
3. Message Series - See note 5
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. Line 1 is Series D.
Line 2 is Series D for AHEAD and Series C for all other distances.

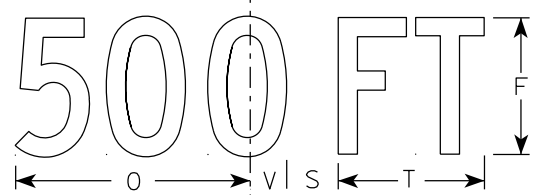
SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	36		2 1/4	5/8	3/4	6	5	1	2 1/4	14 3/4	15	11 5/8	9	1 3/8	1 7/8	5 5/8	10 1/8	2 1/2	1 1/8	4 1/2	3 1/2	8	1 3/4	10 3/4			9.0
2S	48		3	3/4	1	8	7	1 1/4	3	19 3/4	20	15 1/2	12	1 7/8	2 5/8	7 1/2	13 1/2	3 3/8	1 1/2	6	4 5/8	10 5/8	2 3/8	14 3/8			16.0
2M	48		3	3/4	1	8	7	1 1/4	3	19 3/4	20	15 1/2	12	1 7/8	2 5/8	7 1/2	13 1/2	3 3/8	1 1/2	6	4 5/8	10 5/8	2 3/8	14 3/8			16.0
3	48		3	3/4	1	8	7	1 1/4	3	19 3/4	20	15 1/2	12	1 7/8	2 5/8	7 1/2	13 1/2	3 3/8	1 1/2	6	4 5/8	10 5/8	2 3/8	14 3/8			16.0
4	48		3	3/4	1	8	7	1 1/4	3	19 3/4	20	15 1/2	12	1 7/8	2 5/8	7 1/2	13 1/2	3 3/8	1 1/2	6	4 5/8	10 5/8	2 3/8	14 3/8			16.0
5	48		3	3/4	1	8	7	1 1/4	3	19 3/4	20	15 1/2	12	1 7/8	2 5/8	7 1/2	13 1/2	3 3/8	1 1/2	6	4 5/8	10 5/8	2 3/8	14 3/8			16.0

STANDARD SIGN W20-2A,B,C,D,F & G	
WISCONSIN DEPT OF TRANSPORTATION	
APPROVED	<i>Matthew R. Rauch</i> For State Traffic Engineer
DATE 1/10/2024	PLATE NO. W20-2.7

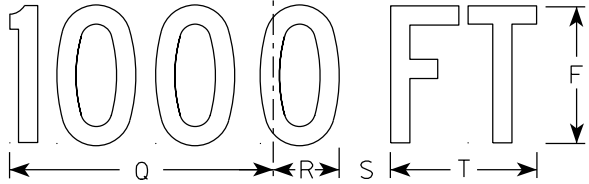
PROJECT NO:	HWY:	COUNTY:	SHEET NO:	E
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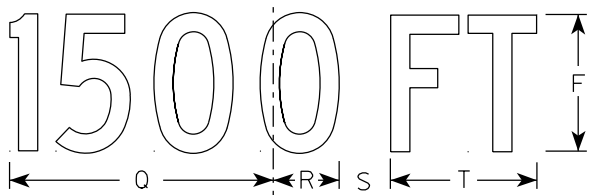
W20-3A



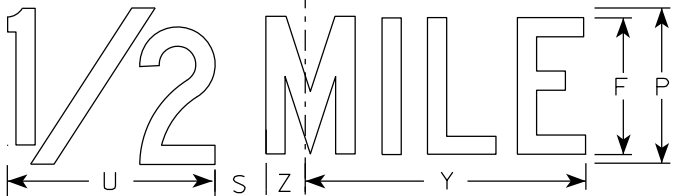
W20-3D



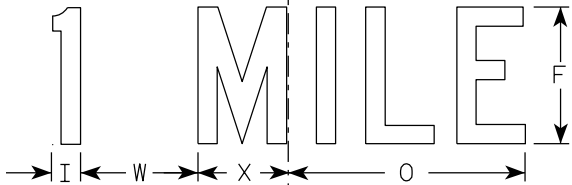
W20-3C



W20-3B



W20-3G



W20-3F

NOTES

1. Sign is Type II - Type F Reflective
2. Color:
Background - Orange
Message - Black
3. Message Series - see note 5
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5. Lines 1 and 2 are Series D.
Line 3 is Series D for AHEAD and Series C for all other distances.

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	v	W	X	Y	Z	Area sq. ft.
1	36		2 1/4	5/8	3/4	5	3 3/8	3 1/2	1 1/8	4	8 3/8	8 7/8	12 1/2	11	9	6	10 1/8	2 1/2	1 7/8	5 5/8	8	1 3/8	4 1/2	3 1/2	10 3/4	1 3/4	9.0
2S	48		3	3/4	1	7	4 1/2	4 3/4	1 1/2	5 1/4	11 3/4	12 1/2	17 1/4	14 5/8	12	8	13 1/2	3 3/8	2 5/8	7 1/2	10 5/8	1 7/8	6	4 5/8	14 3/8	2 3/8	16.0
2M	48		3	3/4	1	7	4 1/2	4 3/4	1 1/2	5 1/4	11 3/4	12 1/2	17 1/4	14 5/8	12	8	13 1/2	3 3/8	2 5/8	7 1/2	10 5/8	1 7/8	6	4 5/8	14 3/8	2 3/8	16.0
3	48		3	3/4	1	7	4 1/2	4 3/4	1 1/2	5 1/4	11 3/4	12 1/2	17 1/4	14 5/8	12	8	13 1/2	3 3/8	2 5/8	7 1/2	10 5/8	1 7/8	6	4 5/8	14 3/8	2 3/8	16.0
4	48		3	3/4	1	7	4 1/2	4 3/4	1 1/2	5 1/4	11 3/4	12 1/2	17 1/4	14 5/8	12	8	13 1/2	3 3/8	2 5/8	7 1/2	10 5/8	1 7/8	6	4 5/8	14 3/8	2 3/8	16.0
5	48		3	3/4	1	7	4 1/2	4 3/4	1 1/2	5 1/4	11 3/4	12 1/2	17 1/4	14 5/8	12	8	13 1/2	3 3/8	2 5/8	7 1/2	10 5/8	1 7/8	6	4 5/8	14 3/8	2 3/8	16.0

STANDARD SIGN
W20-3A, B, C, D, F & G

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 1/10/2024 PLATE NO. W20-3.8

TRAFFIC DATA

ADT (2025) =1200
ADT (2045) =1300
DESIGN SPEED =55 MPH

MATERIAL PROPERTIES

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

HIGH STRENGTH BAR STEEL REINFORCEMENT:
GRADE 60 $f_y = 60,000$ PSI

DESIGN DATA

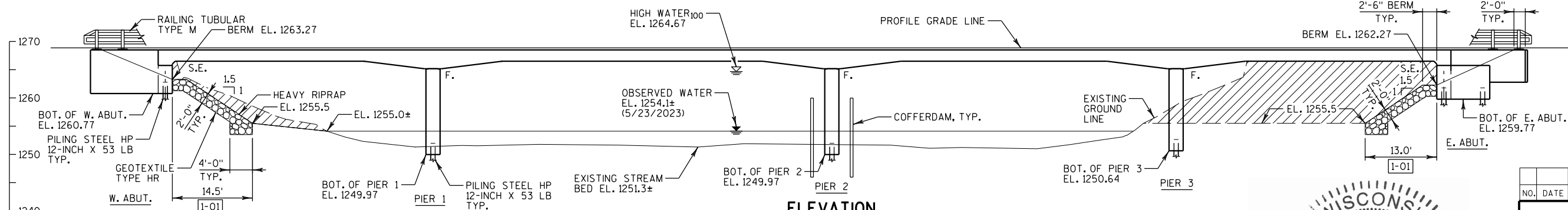
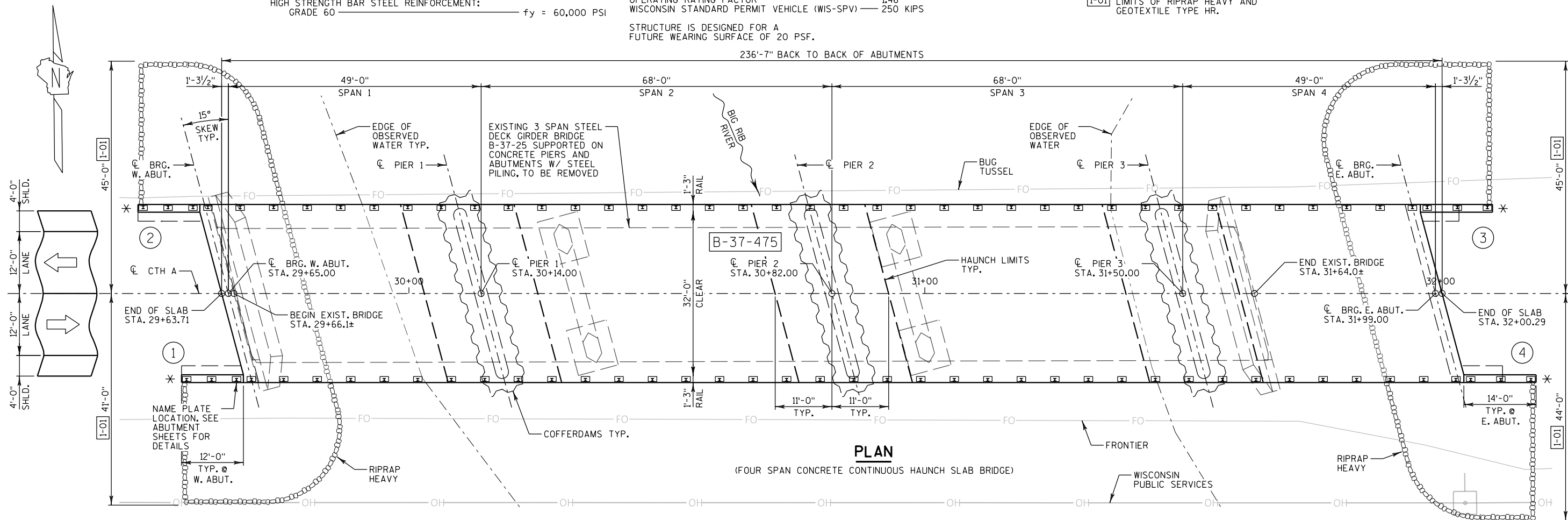
LIVE LOAD:
DESIGN LOADING HL-93
INVENTORY RATING FACTOR 1.13
OPERATING RATING FACTOR 1.46
WISCONSIN STANDARD PERMIT VEHICLE (WIS-SPV) 250 KIPS

LEGEND

(X) INDICATES WING NUMBER.
* MGS THRIE BEAM ATTACHMENT.
[1-01] AREA TO EXCAVATE INCLUDED IN "EXCAVATION FOR STRUCTURES BRIDGES B-37-475".
[1-01] LIMITS OF RIPRAP HEAVY AND GEOTEXTILE TYPE HR.

STATE PROJECT NUMBER

9479-00-74



HYDRAULIC DATA

100 YEAR FREQUENCY
 Q_{100} 10,300 C.F.S.
 VEL_{100} 5.3 F.P.S.
 HW_{100} EL. 1264.67
WATERWAY AREA 1,943 SQ. FT.
DRAINAGE AREA 193 SQ. MI.
OVERTOPPING FREQUENCY N/A
SCOUR CRITICAL CODE 5

2 YEAR FREQUENCY
 Q_2 2,900 C.F.S.
 VEL_2 2.7 F.P.S.
 HW_2 EL. 1259.89

LIST OF DRAWINGS

1. GENERAL PLAN
2. CROSS SECTION & NOTES
3. MISCELLANEOUS DETAILS
4. SUBSURFACE EXPLORATION
5. WEST ABUTMENT
6. WEST ABUTMENT DETAILS-1
7. WEST ABUTMENT DETAILS-2
8. EAST ABUTMENT
9. EAST ABUTMENT DETAILS-1
10. EAST ABUTMENT DETAILS-2
11. PIER 1
12. PIER 2
13. PIER 3
14. SUPERSTRUCTURE DETAILS-1
15. SUPERSTRUCTURE DETAILS-2
16. SUPERSTRUCTURE DETAILS-3
17. SUPERSTRUCTURE DETAILS-4
18. SUPERSTRUCTURE DETAILS-5
19. TUBULAR STEEL RAILING TYPE M

FOUNDATION DATA

WEST ABUTMENT TO BE SUPPORTED ON HP 12-INCH X 53 LB STEEL PILING SEATED IN PRE-BORED HOLES CORED 3' MINIMUM INTO ROCK (PRE-BORED TO EL. 1242.0). THE FACTORED AXIAL RESISTANCE OF THE PILES IN COMPRESSION USED FOR DESIGN IS 220 TONS MULTIPLIED BY A RESISTANCE FACTOR OF 0.5. ESTIMATED 25' LONG.

EAST ABUTMENT TO BE SUPPORTED ON HP 12-INCH X 53 LB STEEL PILING DRIVEN TO A REQUIRED RESISTANCE OF 220** TONS PER PILE AS DETERMINED BY THE MODIFIED GATES DYNAMIC FORMULA. PILE POINTS REQUIRED. ESTIMATED 50' LONG.

PIERS TO BE SUPPORTED ON HP 12-INCH X 53 LB STEEL PILING DRIVEN TO A REQUIRED DRIVING RESISTANCE OF 220** TONS PER PILE AS DETERMINED BY THE MODIFIED GATES DYNAMIC FORMULA. PILE POINTS REQUIRED. ESTIMATED 25' AT PIER 1. ESTIMATED 35' AT PIER 2. ESTIMATED 45' AT PIER 3.

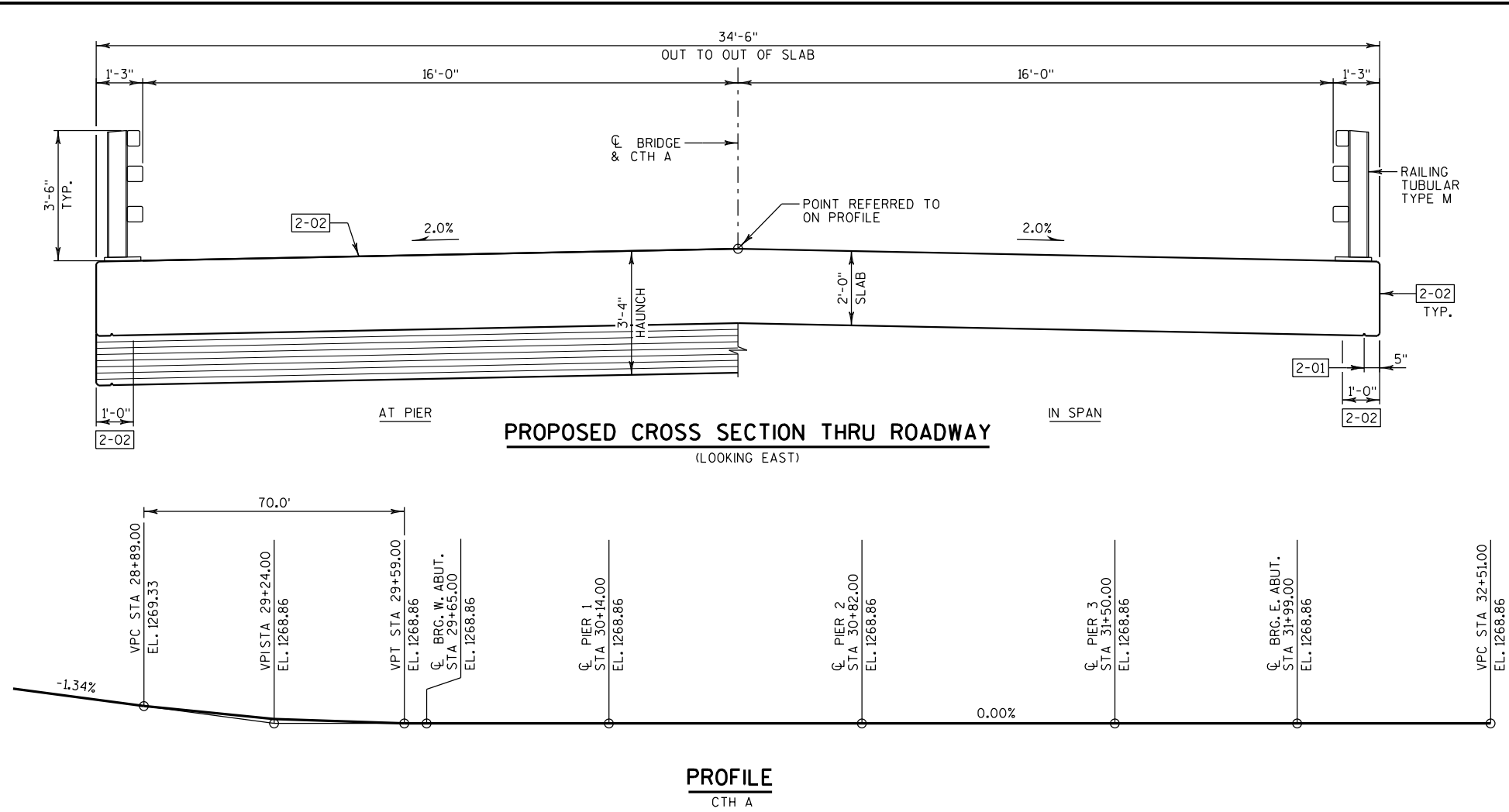
** THE FACTORED AXIAL RESISTANCE OF PILES IN COMPRESSION USED FOR DESIGN IS THE REQUIRED DRIVING RESISTANCE MULTIPLIED BY A RESISTANCE FACTOR OF 0.5 USING MODIFIED GATES TO DETERMINE DRIVEN PILE CAPACITY.

BENCH MARK TABLE

NO.	STATION	DESCRIPTION	ELEVATION
901	28+84.80, 18.0' RT	NAIL WITH RIBBON	1268.85
902	32+42.33, 13.4' LT	MAG SET FLUSH WITH ASPHALT	1268.52

BUREAU OF STRUCTURES CONTACT:
AARON BONK, P.E. (608) 261-0261
CONSULTANT CONTACT:
ERIC PRICE, P.E. (608) 826-6146

NO.	DATE	REVISION	BY
CORRE			
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
ACCEPTED <i>[Signature]</i> SDR 08/13/24 CHIEF STRUCTURES DESIGN ENGINEER DATE			
STRUCTURE B-37-475			
CTH A OVER BIG RIB RIVER			
COUNTY	MARATHON	TOWN/CITY/VILLAGE	HAMBURG
DESIGN SPEC. AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS			
DESIGNED BY	SMS	CKD.	ETP
DRAWN BY	TKB	PLANS CKD.	ETP
GENERAL PLAN			SHEET 1 OF 19



TOTAL ESTIMATED QUANTITIES

BID ITEM NUMBER	BID ITEM	UNIT	WEST ABUTMENT	PIER 1	PIER 2	PIER 3	EAST ABUTMENT	SUPER.	TOTALS
203.0260	REMOVING STRUCTURE OVER WATERWAY MINIMAL DEBRIS B-37-25	EACH	—	—	—	—	—	—	1
206.1001	EXCAVATION FOR STRUCTURES BRIDGES B-37-475	EACH	—	—	—	—	—	—	1
206.5001	COFFERDAMS B-37-475	EACH	—	1	1	1	—	—	3
210.1500	BACKFILL STRUCTURE TYPE A	TON	140	—	—	—	175	—	315
502.0100	CONCRETE MASONRY BRIDGES	CY	35.3	47.5	47.5	35.2	37.6	674.1	877
502.3200	PROTECTIVE SURFACE TREATMENT	SY	9	—	—	—	12	1,065	1,086
502.9000.S	UNDERWATER SUBSTRUCTURE INSPECTION B-37-475	EACH	—	1	1	1	—	—	3
505.0400	BAR STEEL REINFORCEMENT HS STRUCTURES	LB	2,200	2,280	2,280	2,160	2,250	—	11,170
505.0600	BAR STEEL REINFORCEMENT HS COATED STRUCTURES	LB	1,640	70	70	70	1,620	124,330	127,800
513.4061	RAILING TUBULAR TYPE M	LF	—	—	—	—	—	531	531
516.0500	RUBBERIZED MEMBRANE WATERPROOFING	SY	10	—	—	—	10	—	20
550.0010	PRE-BORING UNCONSOLIDATED MATERIALS	LF	95	—	—	—	—	—	95
550.0500	PILE POINTS	EACH	—	10	10	10	7	—	37
550.1120	PILING STEEL HP 12-INCH X 53 LB	LF	125	250	350	450	350	—	1,525
606.0300	RIPRAP HEAVY	CY	185	—	—	—	190	—	375
612.0406	PIPE UNDERDRAIN WRAPPED 6-INCH	LF	105	—	—	—	100	—	205
645.0111	GEOTEXTILE TYPE DF SCHEDULE A	SY	35	—	—	—	35	—	70
645.0120	GEOTEXTILE TYPE HR	SY	290	—	—	—	305	—	595
	NON-BID ITEMS								
	FILLER	SIZE	—	—	—	—	—	—	1/2" & 3/4"

ALL ITEMS ARE CATEGORY 0020

GENERAL NOTES:

- DRAWINGS SHALL NOT BE SCALED.
- BAR STEEL REINFORCEMENT SHALL BE EMBEDDED 2" CLEAR UNLESS OTHERWISE SHOWN OR NOTED.
- THE FIRST OR FIRST TWO DIGITS OF THE BAR MARK SIGNIFIES THE BAR SIZE.
- BEVEL EXPOSED EDGES OF CONCRETE $\frac{3}{4}$ " UNLESS OTHERWISE NOTED.
- THE UPPER LIMITS OF "EXCAVATION FOR STRUCTURES BRIDGES B-37-475" SHALL BE THE EXISTING GROUNDLINE.
- AT THE BACK FACE OF ABUTMENT ALL VOLUME WHICH CANNOT BE PLACED BEFORE ABUTMENT CONSTRUCTION AND IS NOT OCCUPIED BY THE NEW STRUCTURE SHALL BE BACKFILLED WITH STRUCTURE BACKFILL TYPE A.
- EXCAVATION BELOW THE ABUTMENT AND ABUTMENT BEDDING MATERIALS REQUIRES ENGINEER APPROVAL. GEOTEXTILE SHALL BE SET AT THE BOTTOM OF EXCAVATION AND EXTEND 2'-0" ABOVE BOTTOM OF ABUTMENT.
- THE QUANTITY FOR BACKFILL STRUCTURE IS CALCULATED BASED ON THE DETAIL SHOWN IN THE PLANS.
- PROTECTIVE SURFACE TREATMENT TO BE APPLIED TO EXTERIOR EXPOSED FACE OF WINGS, AND THE END 1'-0" OF THE ABUTMENT FRONT FACES, AND AS SHOWN, THE TOP OF SLAB AND WINGS, AND THE SLAB EDGE AND UNDERSIDE OF SLAB.
- THE SLOPE OF THE FILL IN FRONT OF THE ABUTMENTS SHALL BE COVERED WITH HEAVY RIPRAP AND GEOTEXTILE TYPE "HR" TO THE EXTENT SHOWN ON SHEET 1 AND THE ABUTMENT DETAILS.
- SLAB FALSEWORK SHALL BE SUPPORTED ON PILES OR THE SUBSTRUCTURE, UNLESS AN ALTERNATE METHOD IS APPROVED BY THE ENGINEER.
- THE EXISTING STREAM BED SHALL BE USED AS THE UPPER LIMITS OF EXCAVATION AT THE PIERS.
- AT PIERS 1-3, COFFERDAMS REQUIRED. CONCRETE POURED UNDERWATER WILL BE ALLOWED AND SHALL BE DONE IN ACCORDANCE WITH STANDARD SPEC 502.3.5.3. CONCRETE POURED UNDERWATER SHALL NOT EXCEED 10.0 FEET IN DEPTH, UNLESS APPROVED OTHERWISE.

LEGEND

- 2-01 $\frac{3}{4}$ " V-GROOVE, TERMINATE 6" FROM FRONT FACE OF ABUTMENTS.
- 2-02 COAT WITH "PROTECTIVE SURFACE TREATMENT" AS PER THE WISDOT STANDARD SPECIFICATIONS.

STATE PROJECT NUMBER

9479-00-74

ABBREVIATIONS:

- ABUT. - ABUTMENT
BTWN. - BETWEEN
B.F. - BACK FACE
BOT. - BOTTOM
BRG. - BEARING
CL. - CLEAR
CONST. - CONSTRUCTION
DIA. - DIAMETER
E.F. - EACH FACE
EXIST. - EXISTING
F.F. - FRONT FACE
HORIZ. - HORIZONTAL
JT. - JOINT
LONG. - LONGITUDINAL
PPT. - PARAPET
PROJ. - PROJECTION
S.E. - SEMI-EXPANSION
SPA. - SPACED
STD. - STANDARD
SYMM. - SYMMETRICAL
T&B - TOP AND BOTTOM
TRANS. - TRANSVERSE
TYP. - TYPICAL
VERT. - VERTICAL
U.N.O. - UNLESS NOTED OTHERWISE

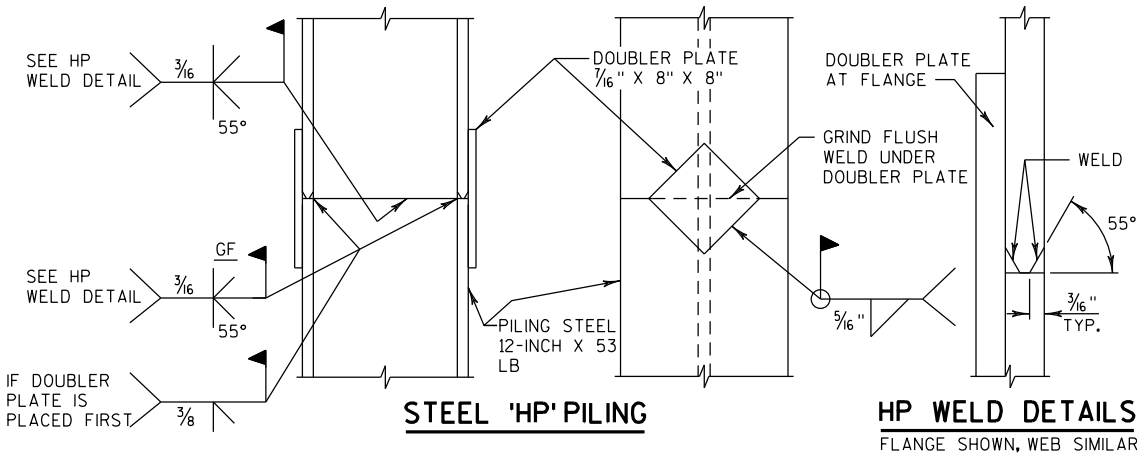
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-37-475			
DRAWN BY TKB		PLANS CK'D. ETP	
CROSS SECTION & NOTES			SHEET 2 OF 19

LEGEND

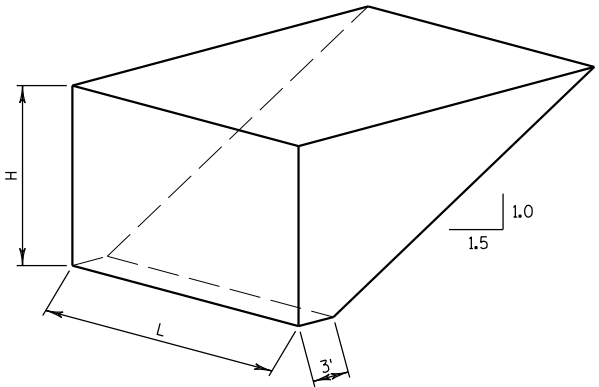
- 3-01
- BACKFILL PAY LIMITS. BACKFILL BEYOND BACKFILL PAY LIMITS SHALL BE INCIDENTAL TO EXCAVATION OF STRUCTURES. LIMITS OF EXCAVATION SHALL BE DETERMINED BY THE CONTRACTOR.

3-02

3-03

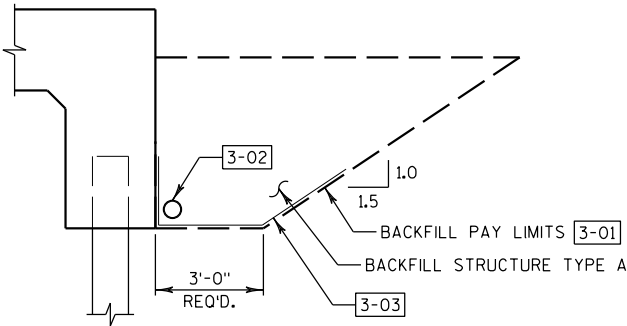


PILE SPLICE DETAILS



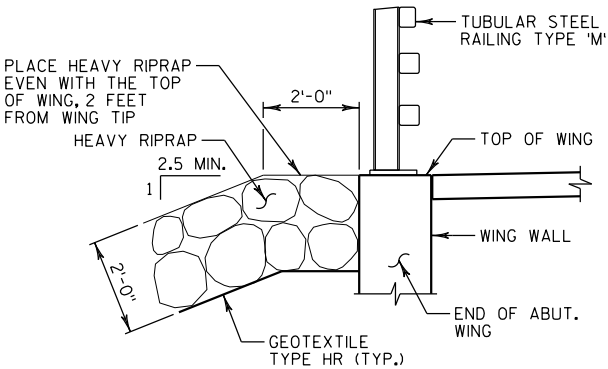
ABUTMENT BACKFILL PAY LIMIT DIAGRAM

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)
 $V_{CF} = (L)(3.0')(H) + (L)(0.5')(1.5H)(H)$
 $V_{CY} = V_{CF} (EF) / 27$
 $V_{TON} = V_{CY} (2.0)$



STRUCTURE BACKFILL LIMITS

THE BACKFILL QUANTITIES ARE BASED ON THE PAY LIMITS SHOWN ON THE PLANS AND MAY NOT REFLECT ACTUAL PLACED QUANTITIES. "BACKFILL STRUCTURE TYPE A" REQUIRED DIRECTLY BEHIND ABUTMENTS AND ABUTMENT WINGS FOR 3 FEET. BACKFILL PLACED BEYOND PAY LIMITS OR EXCEEDING PLAN QUANTITIES SHALL BE INCIDENTAL TO EXCAVATION FOR STRUCTURES.

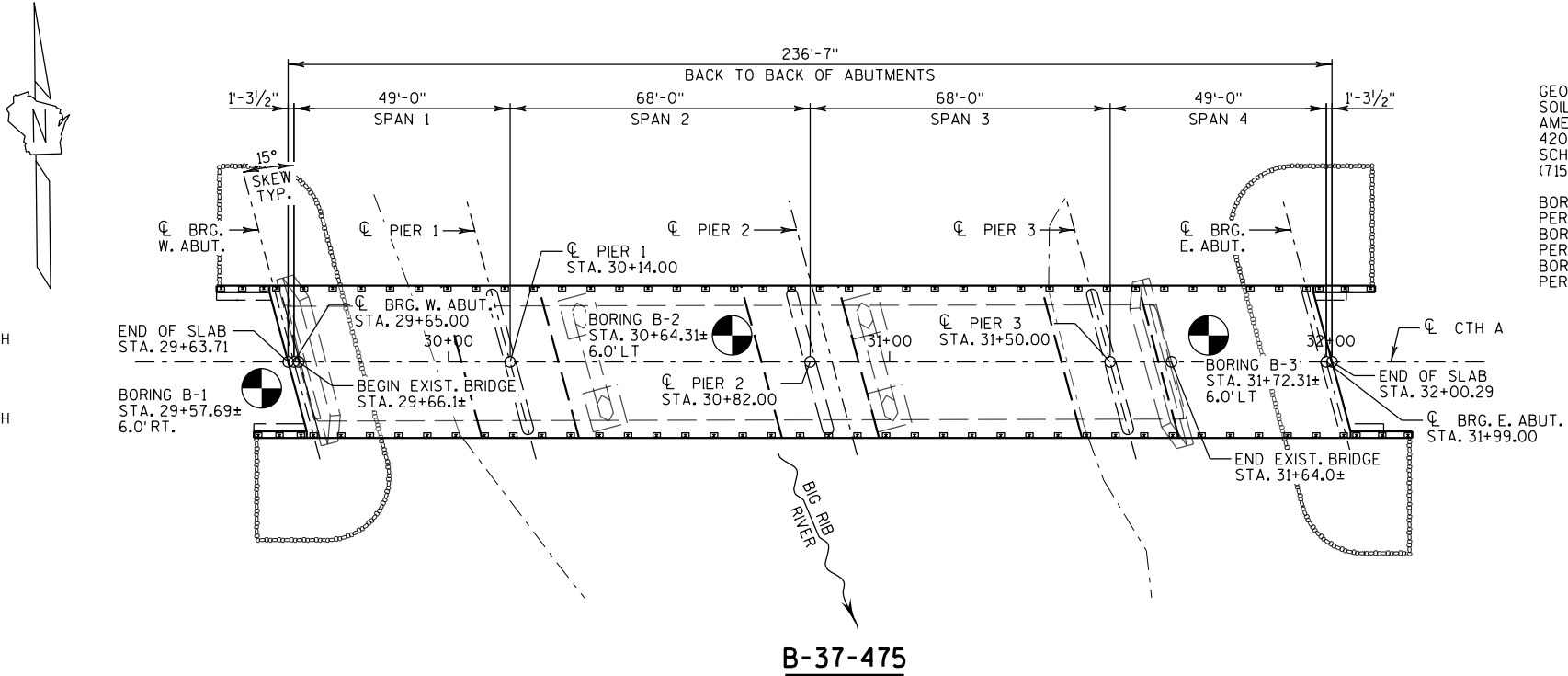


TYPICAL FILL SECTION AT WING TIPS

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-37-475			
DRAWN BY TKB		PLANS CK'D. ETP	
MISCELLANEOUS DETAILS		SHEET 3 OF 19	

NOTES:

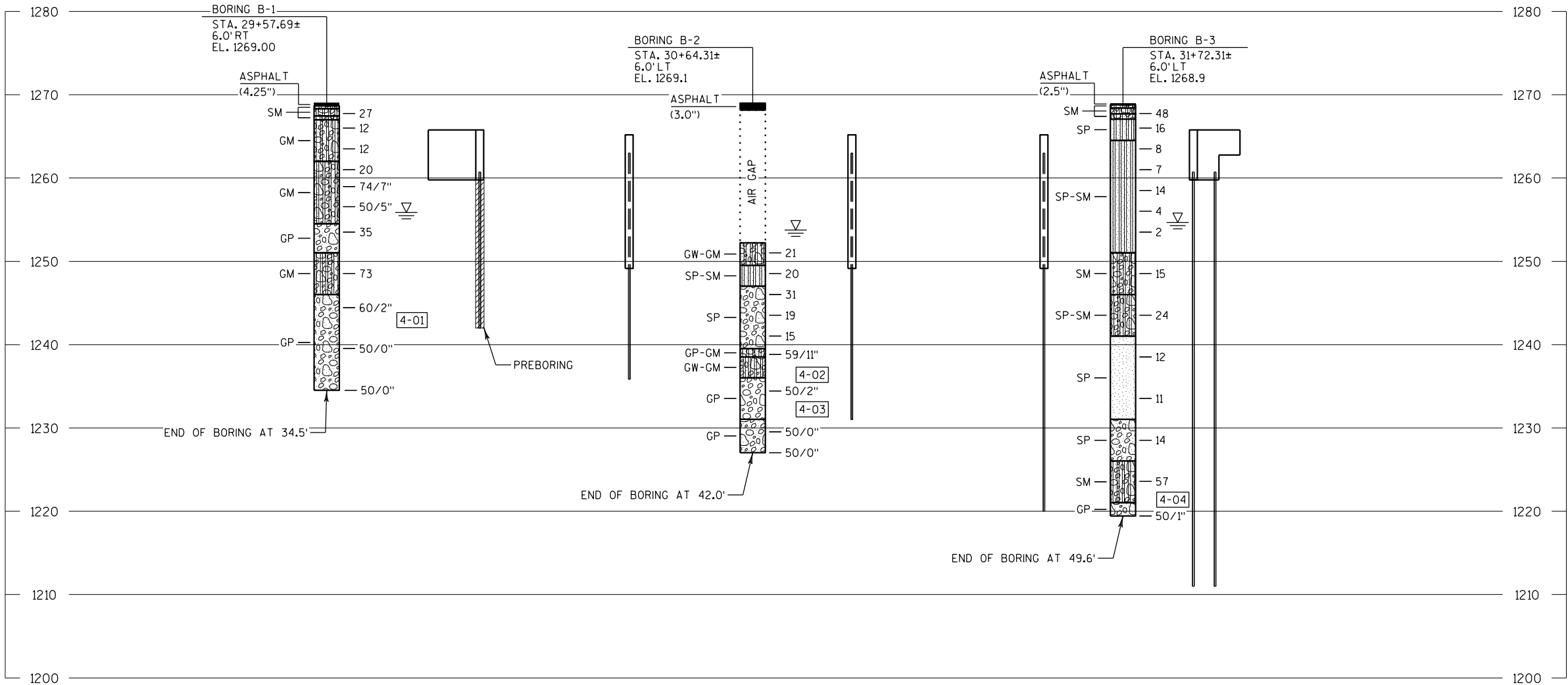
- 4-01 POOR RECOVERY: COLLECTED WASH SAMPLES FROM 24.5' TO 34.5'
- 4-02 VERY HARD DRILLING @ 31.2'
- 4-03 POOR RECOVERY: COLLECTED WASH SAMPLES FROM 34.5' TO 42.0'
- 4-04 VERY HARD DRILLING @ 46.5'



GEOTECHNICAL REPORT & SOIL BORINGS PERFORMED BY: AMERICAN ENGINEERING TESTING, INC. 4203 SCHOFIELD AVENUE, SUITE 1 SCHOFIELD, WI 54476 (715)-359-3534

BORING B-1 PERFORMED ON 6/7/23
BORING B-2 PERFORMED ON 6/8/23
BORING B-3 PERFORMED ON 6/7/23-6/8/23

B-37-475



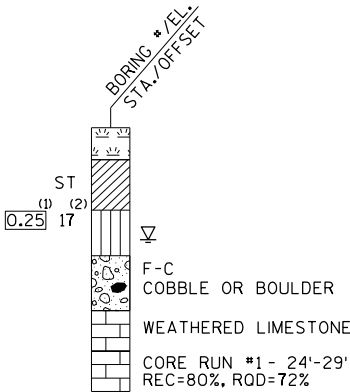
STATE PROJECT NUMBER

9479-00-74

MATERIAL SYMBOLS

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

LEGEND OF BORING



(1) UNCONFINED STRENGTH, AS DETERMINED BY A POCKET PENETROMETER (TSF)

(2) UNLESS OTHERWISE SPECIFIED, THE SPT 'N' VALUE IS BASED ON AASHTO T-206, STANDARD PENETRATION TEST. THE SPT 'N' VALUE PRESENTED HAS NOT BEEN CORRECTED FOR OVERBURDEN PRESSURE OR HAMMER EFFICIENCY.

GROUND WATER ELEVATION

▽ AT TIME OF DRILLING
▽ END OF DRILLING
▽ AFTER DRILLING

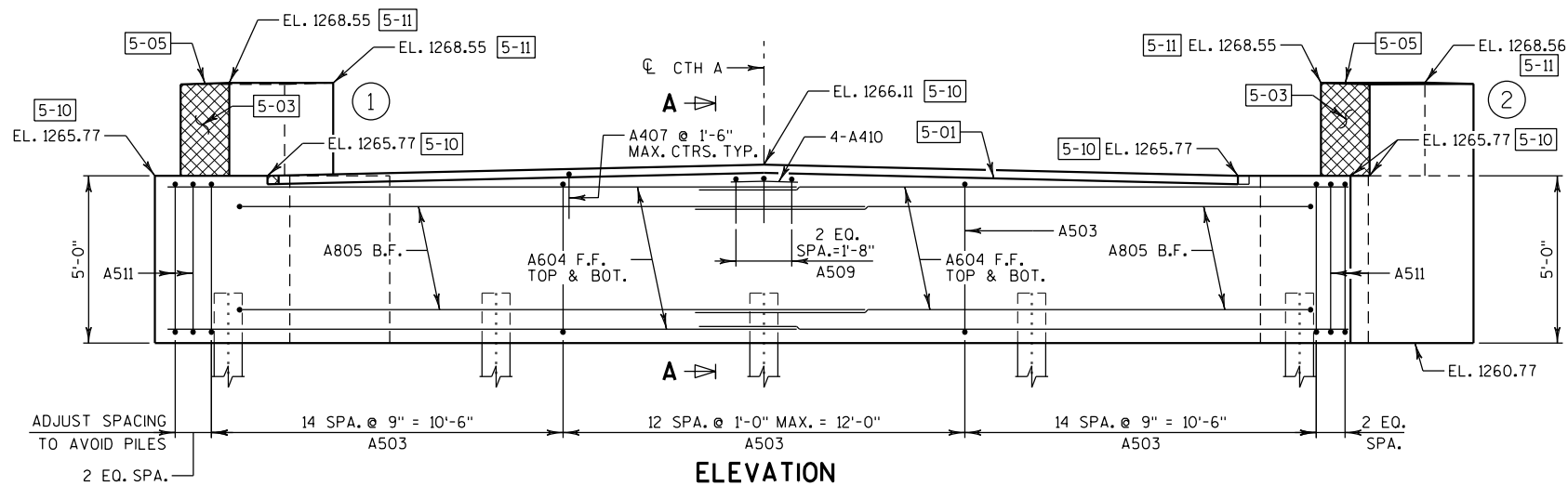
ABBREVIATIONS

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

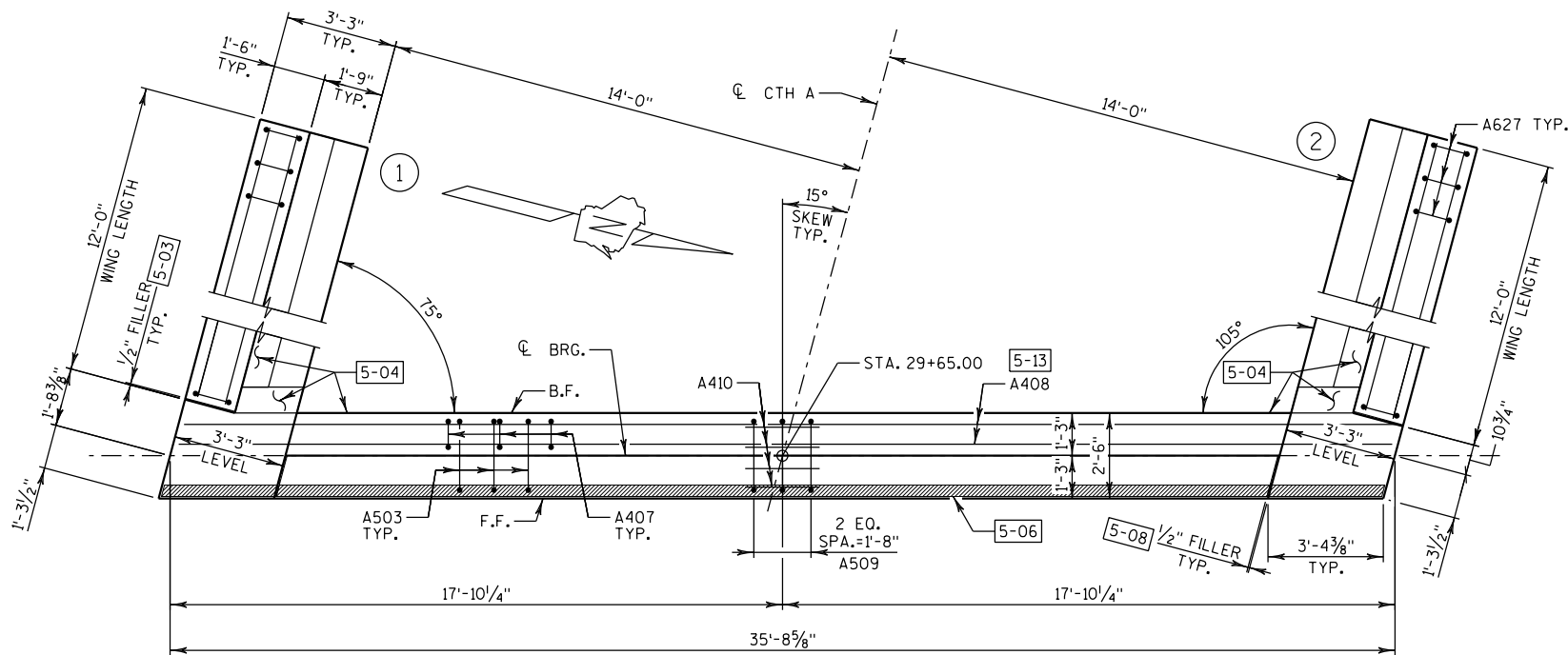
SUBSURFACE EXPLORATION FOR FOUNDATION DESIGN AND BIDDERS INFORMATION

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

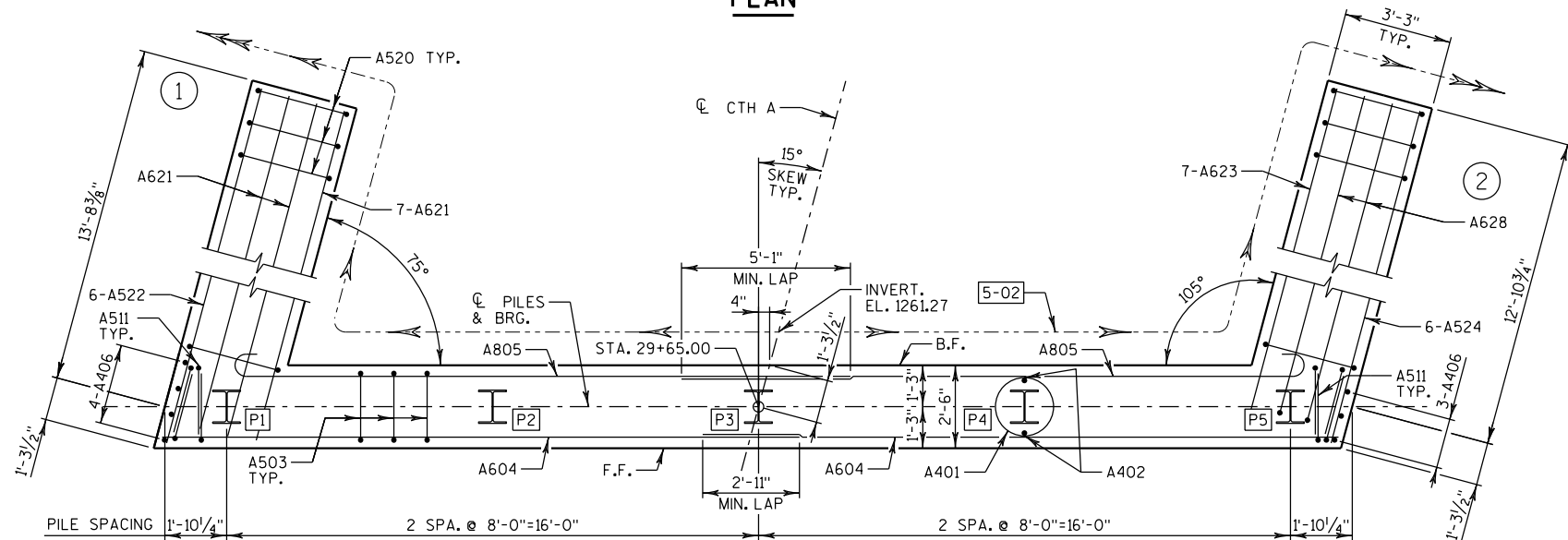
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-37-475			
DRAWN BY TKB		PLANS CK'D. ETP	
SUBSURFACE EXPLORATION			SHEET 4 OF 19



ELEVATION
(LOOKING WEST)



PLAN



PILE PLAN

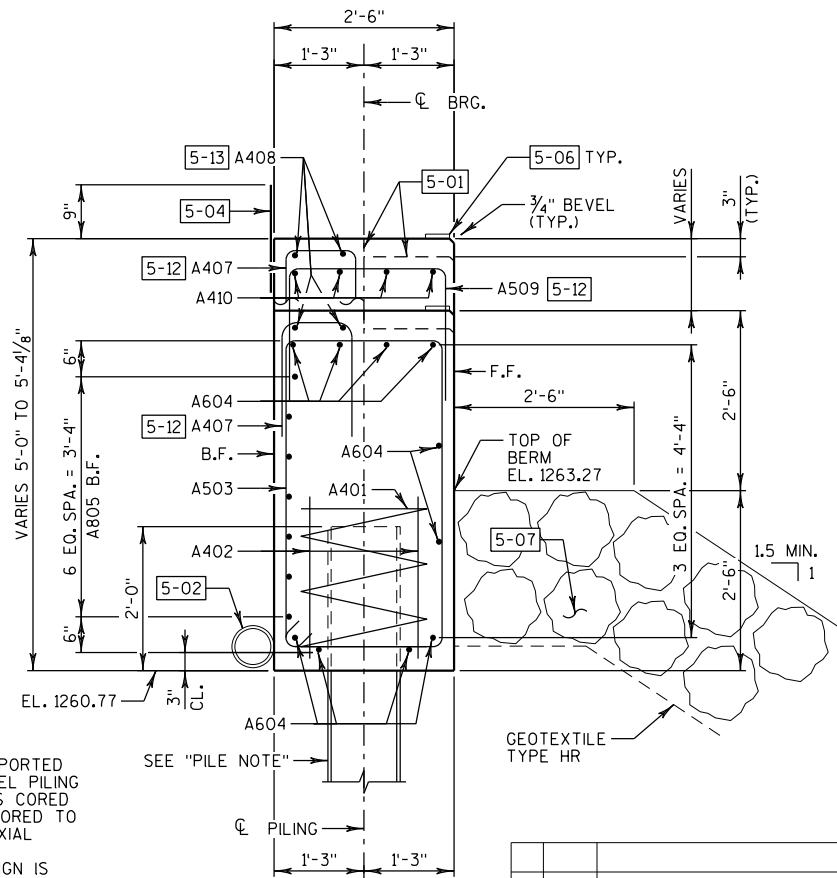
LEGEND

- (X) INDICATES WING NUMBER.
(PX) INDICATES PILE NUMBER.
5-01 STEEL TROWEL TOP SURFACE OF ABUTMENT. PLACE MULTIPLE LAYERS OF POLYETHYLENE SHEETS OVER ENTIRE ABUTMENT TOP BEFORE PLACING SUPERSTRUCTURE. TOTAL THICKNESS OF SHEETS SHALL BE AT LEAST 0.03".
5-02 PIPE UNDERDRAIN WRAPPED 6-INCH. SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. ATTACH RODENT SCREEN AT ENDS OF PIPE UNDERDRAIN. RODENT SHIELD TO BE INCLUDED IN BID PRICE OF "PIPE UNDERDRAIN WRAPPED 6-INCH".
5-03 1/2" FILLER (INCLUDED IN WING LENGTH). SEAL ALL EXPOSED HORIZONTAL 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).
5-04 18" RUBBERIZED MEMBRANE WATERPROOFING. SEAL ALL HORIZONTAL AND VERTICAL JOINTS ON BACK FACE.
5-05 SLOPE 2.0% TO DRAIN.
5-06 3/4"x4" PREFORMED JOINT FILLER TO EXTEND BETWEEN EDGES OF SLAB.
5-07 HEAVY RIPRAP. SEE SHEET 1 FOR ADDITIONAL DETAILS.
5-08 3/4" CORK FILLER ON VERTICAL SEAT FACES THAT RUN PARALLEL WITH ROADWAY.
5-09 OPTIONAL CONSTRUCTION JOINT: KEYWAY FORMED BY BEVELED 2x6 (18" RMW @ B.F. & 3/4" "V" GROOVE @ F.F. IF JOINT IS USED, INCIDENTAL TO "CONCRETE MASONRY").

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- 5-10 ELEVATION SHOWN IS TAKEN AT C. BRG. OF ABUTMENT AT TOP OF NOTCH.
5-11 ELEVATION SHOWN IS TAKEN AT B.F. OF WING.
5-12 PULL UP TO 2" CLEAR.
5-13 FIELD BEND TO FOLLOW SLOPE OF TOP OF ABUTMENT.



SECTION A-A

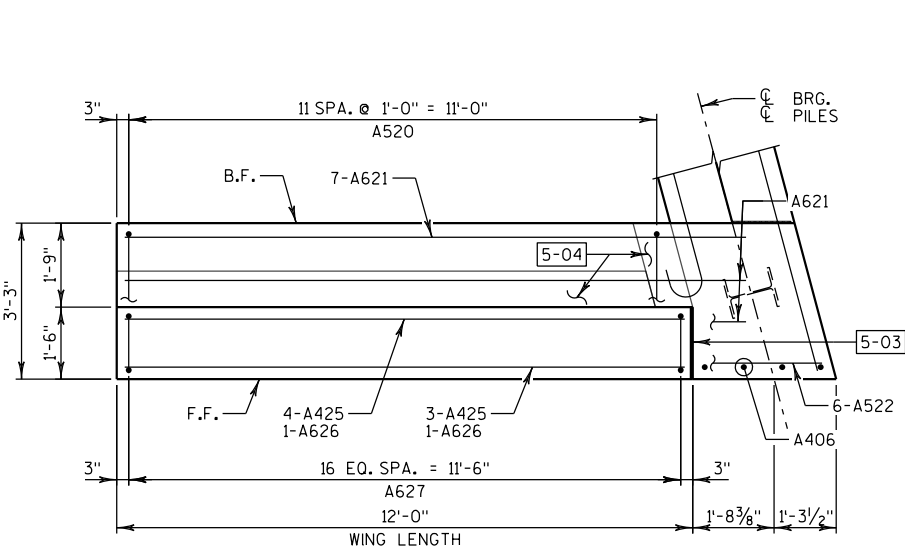
PILE NOTES

WEST ABUTMENT TO BE SUPPORTED ON HP 12-INCH X 53 LB STEEL PILING SEATED IN PRE-BORED HOLES CORED 3' MINIMUM INTO ROCK (PRE-BORED TO EL. 1242.0). THE FACTORED AXIAL RESISTANCE OF THE PILES IN COMPRESSION USED FOR DESIGN IS 220 TONS MULTIPLIED BY A RESISTANCE FACTOR OF 0.5. ESTIMATED 25' LONG.

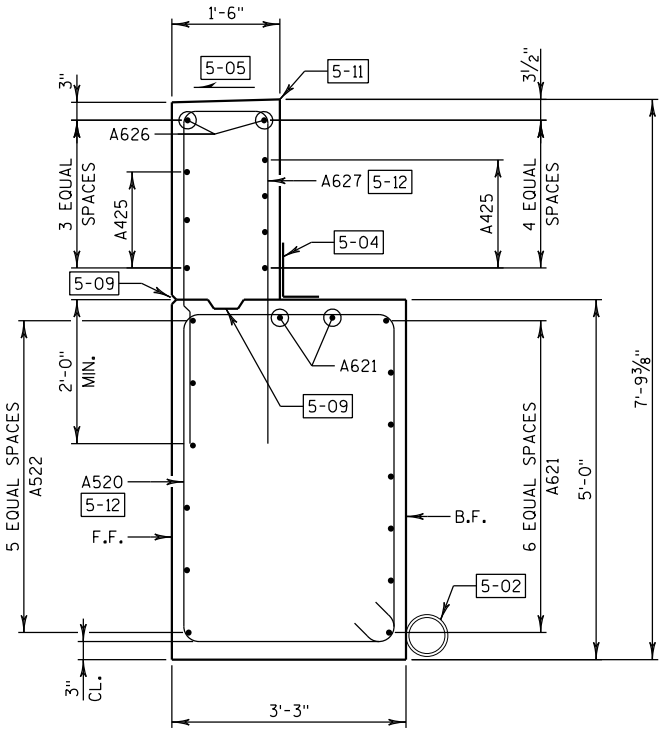
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-37-475			
DRAWN BY TKB		PLANS CK'D. ETP	
WEST ABUTMENT			SHEET 5 OF 19

LEGEND

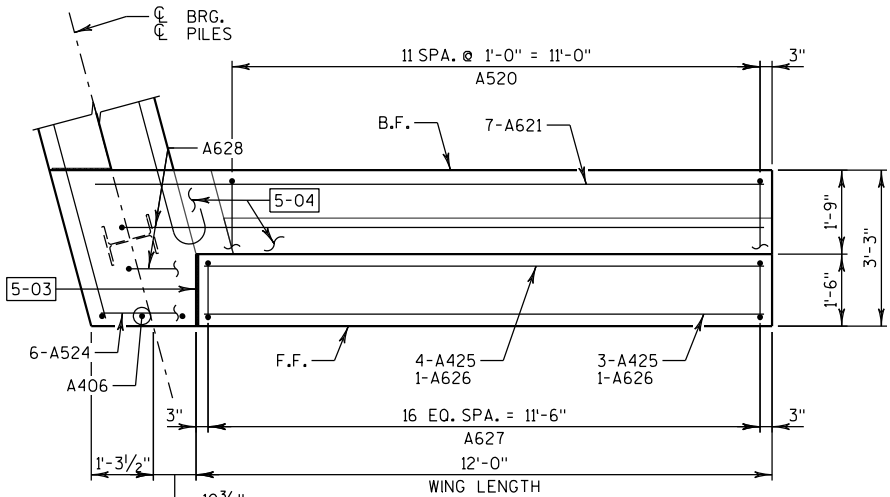
5-XX SEE SHEET 5 FOR CALLOUTS.



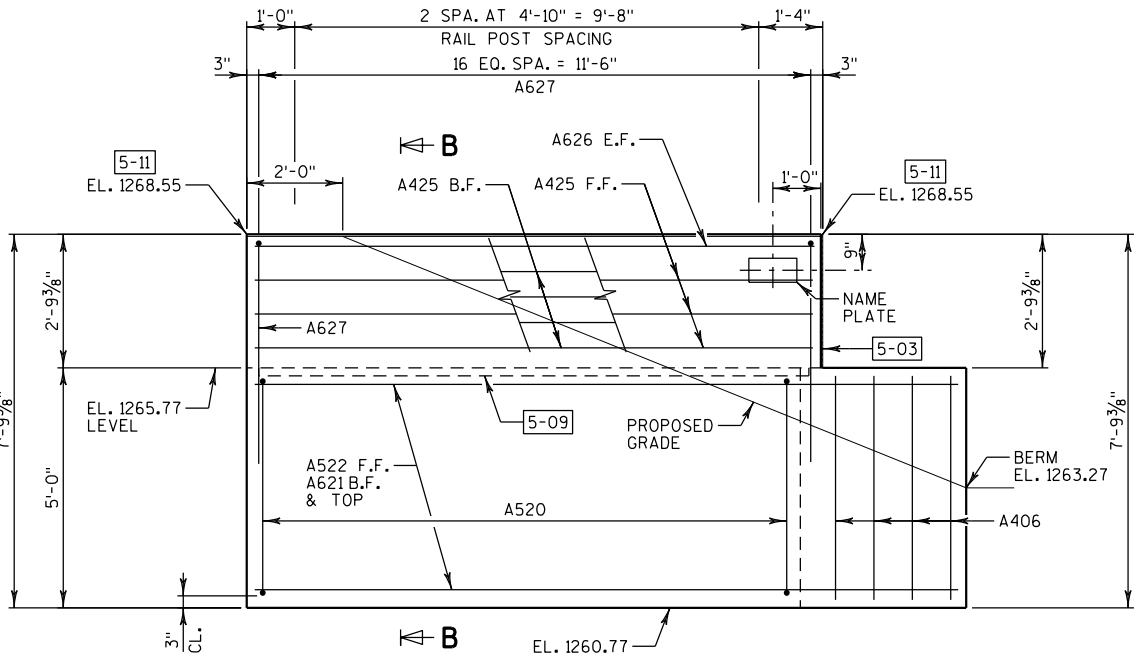
PLAN - WING 1



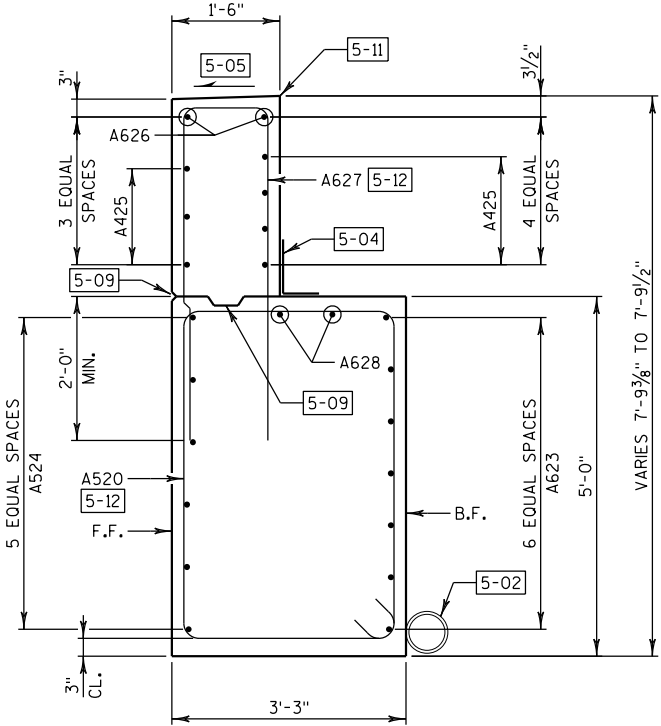
SECTION B-B



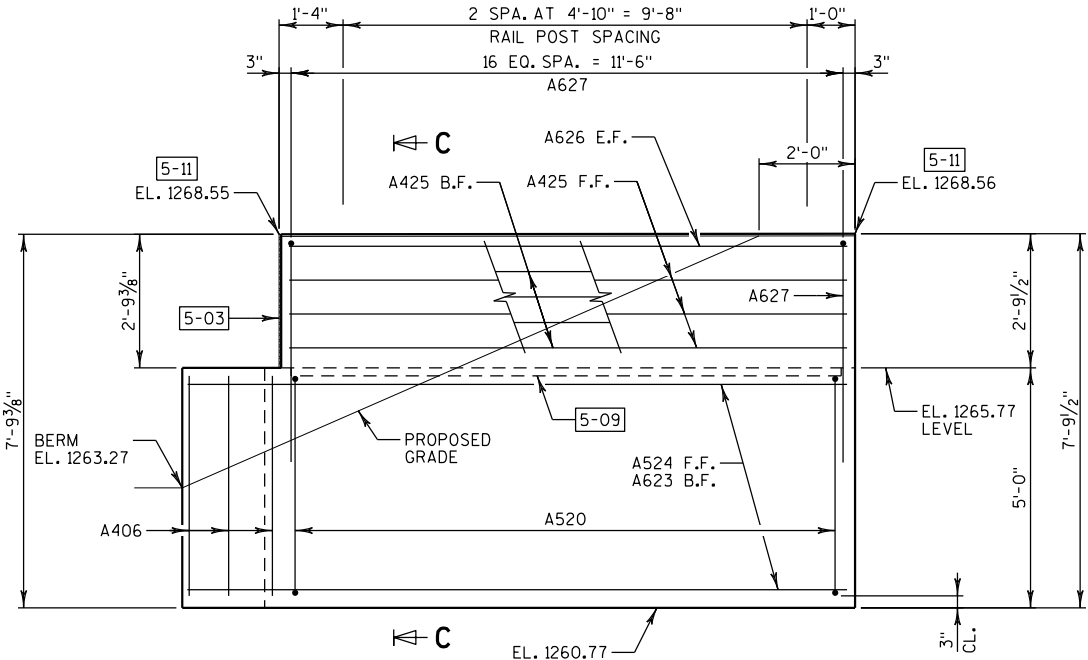
PLAN - WING 2



ELEVATION - WING 1



SECTION C-C



ELEVATION - WING 2

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-37-475			
DRAWN BY TKB		PLANS CK'D. ETP	
WEST ABUTMENT DETAILS-1			SHEET 6 OF 19

BILL OF BARS - WEST ABUTMENT

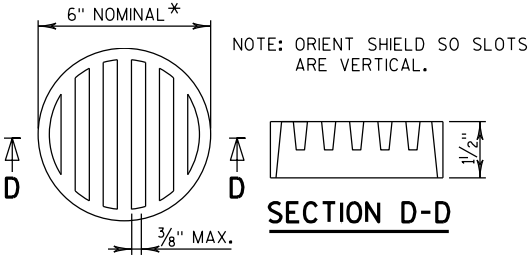
DIMENSIONS IN BENDING DETAILS ARE OUT-TO-OUT OF BAR.

BAR MARK	NO. REQ'D	LENGTH	BENT	BAR SERIES	LOCATION	
NON-COATED BARS					TOTAL WEIGHT = 2,200 LBS	
A401	5	28'-0"	X		BODY - AT PILES - 1 PER PILE	VERT.
A402	10	2'-3"			BODY - AT PILES - 2 PER PILE	VERT.
A503	41	13'-8"	X		BODY - STIRRUPS	VERT.
A604	20	19'-2"			BODY - TOP, F.F. & BOT	HORIZ.
A805	14	19'-3"	X		BODY - B.F.	HORIZ.
A406	7	4'-7"			BODY - ENDS	VERT.
A407	21	4'-1"	X		BODY - TOP NOTCH	VERT.
A408	2	35'-4"			BODY - TOP NOTCH	HORIZ.
A509	3	4'-9"	X		BODY - TOP	VERT.
A410	4	2'-0"			BODY - TOP	HORIZ.
A511	8	7'-8"	X		BODY - ENDS	VERT.
COATED BARS					TOTAL WEIGHT = 1,640 LBS	
A520	24	15'-8"	X		WING FTGS. - STIRRUPS	VERT.
A621	9	13'-7"			WING 1 FTG. - B.F. & TOP	HORIZ.
A522	6	14'-7"			WING 1 FTG. - F.F.	HORIZ.
A623	7	14'-4"			WING 2 FTG. - B.F.	HORIZ.
A524	6	13'-11"			WING 2 FTG. - F.F.	HORIZ.
A425	14	11'-8"			WINGS - B.F. & F.F.	HORIZ.
A626	4	11'-8"			WINGS - TOP	HORIZ.
A627	34	10'-2"	X		WINGS - STIRRUPS	VERT.
A628	2	13'-9"	X		WING 2 FTG. - TOP	HORIZ.

THE FIRST DIGIT OR FIRST TWO DIGITS OF THE BAR MARK SIGNIFIES THE BAR SIZE.
DIMENSIONS IN BENDING DETAILS ARE OUT-TO-OUT OF BAR.

LEGEND

[5-XX] SEE SHEET 5 FOR CALLOUTS.

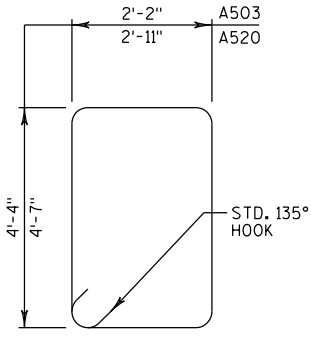


* DIMENSION IS APPROXIMATE. THE GRATE IS SIZED TO FIT INTO A PIPE COUPLING.

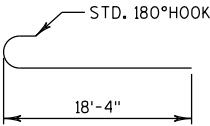
RODENT SHIELD DETAIL

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

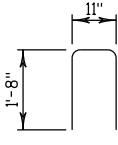
THE RODENT SHIELD SHALL BE A PVC GRATE SIMILAR TO THIS DETAIL. THE GRATE IS COMMERCIALY AVAILABLE AS A FLOOR STRAINER. A PIPE COUPLING IS REQUIRED FOR THE ATTACHMENT OF THIS SHIELD TO THE OUTFALL PIPE. THE SHIELD SHALL BE FASTENED TO THE PIPE COUPLING WITH TWO OR MORE NO.10 X 1-INCH STAINLESS STEEL SHEET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



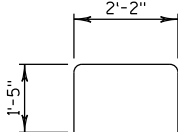
A503, A520



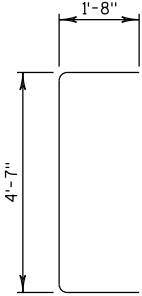
A805



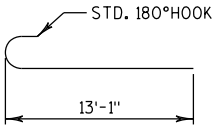
A407



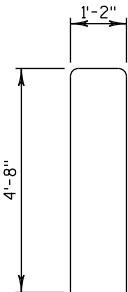
A509



A511

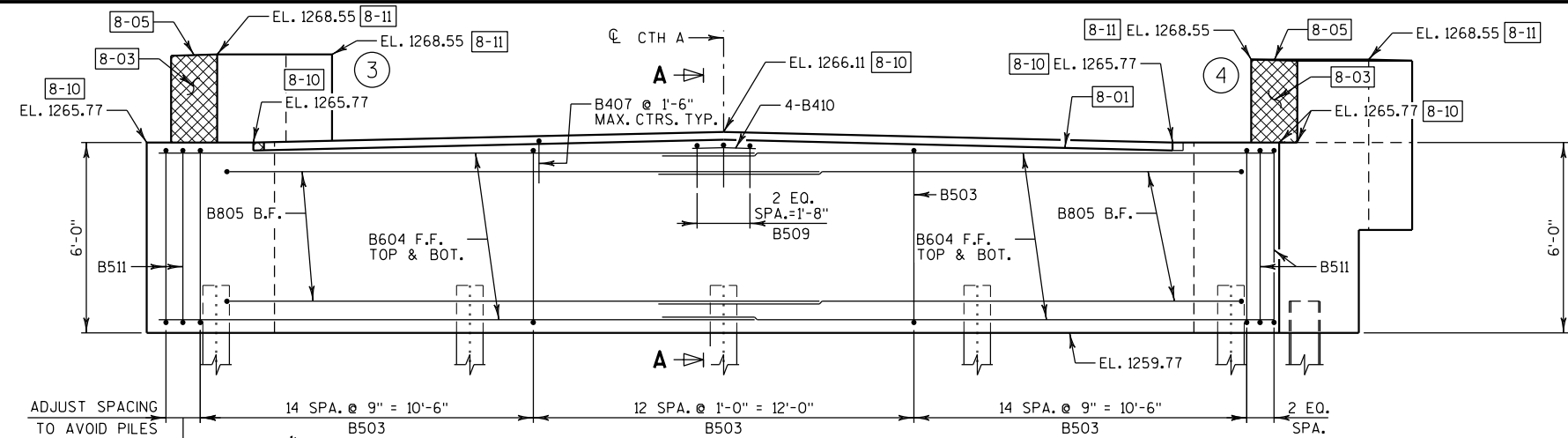


A628

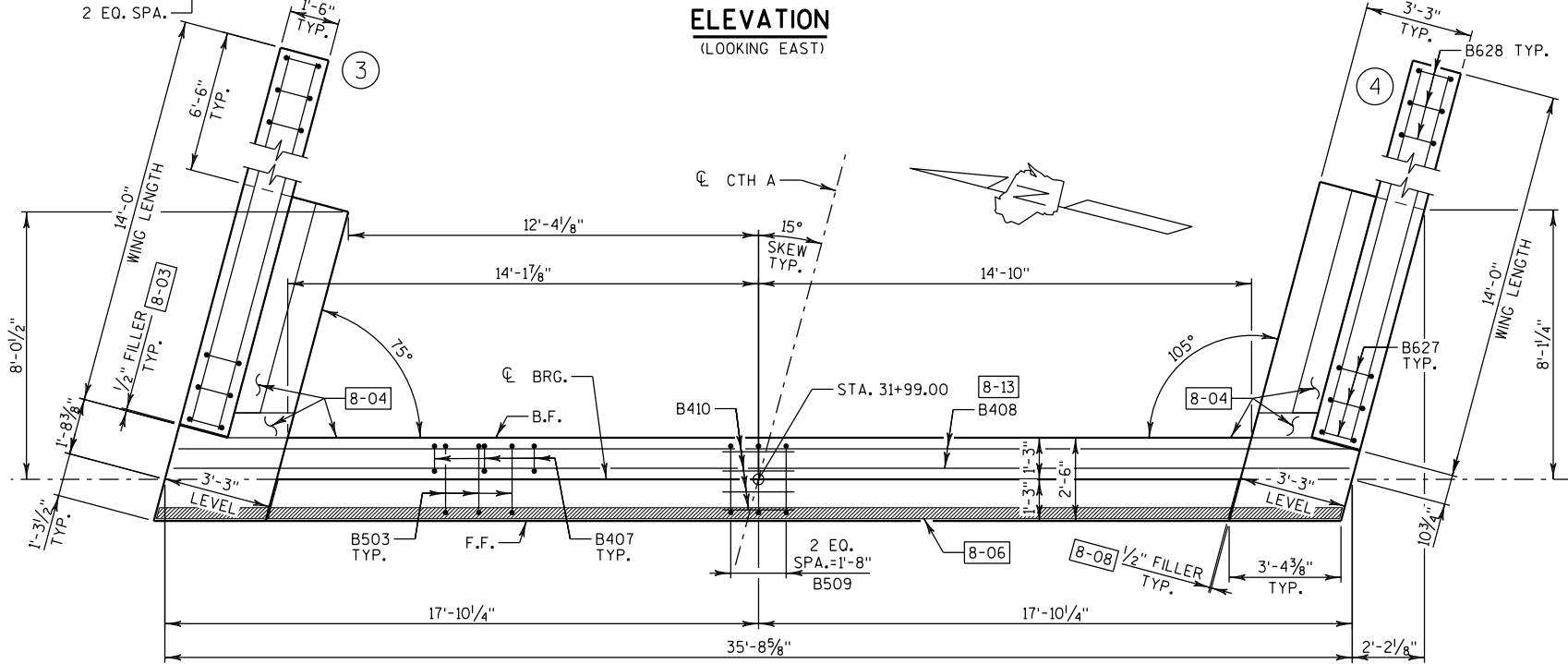


A627

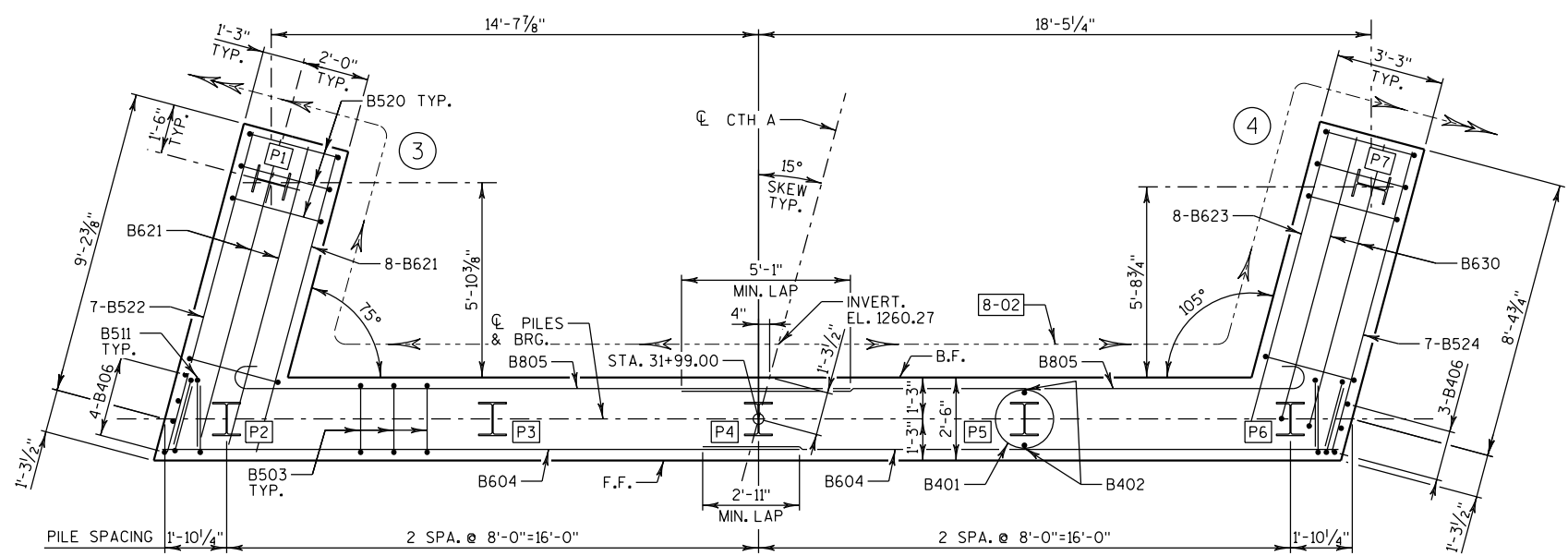
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-37-475			
DRAWN BY TKB		PLANS CK'D. ETP	
WEST ABUTMENT DETAILS-2			SHEET 7 OF 19



ELEVATION
(LOOKING EAST)



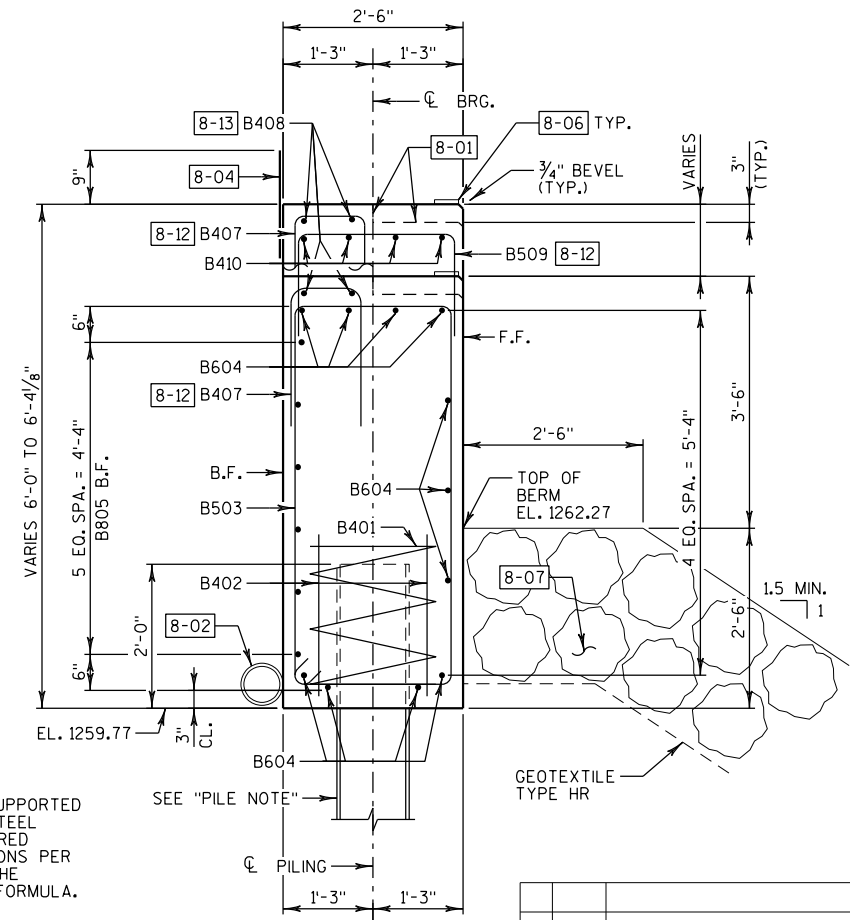
PLAN



PILE PLAN

- LEGEND**
- (X) INDICATES WING NUMBER.
 - (PX) INDICATES PILE NUMBER.
 - 8-01 STEEL TROWEL TOP SURFACE OF ABUTMENT. PLACE MULTIPLE LAYERS OF POLYETHYLENE SHEETS OVER ENTIRE ABUTMENT TOP BEFORE PLACING SUPERSTRUCTURE. TOTAL THICKNESS OF SHEETS SHALL BE AT LEAST 0.03".
 - 8-02 PIPE UNDERDRAIN WRAPPED 6-INCH. SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. ATTACH RODENT SCREEN AT ENDS OF PIPE UNDERDRAIN. RODENT SHIELD TO BE INCLUDED IN BID PRICE OF "PIPE UNDERDRAIN WRAPPED 6-INCH".
 - 8-03 1/2" FILLER (INCLUDED IN WING LENGTH). SEAL ALL EXPOSED HORIZONTAL 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).
 - 8-04 18" RUBBERIZED MEMBRANE WATERPROOFING. SEAL ALL HORIZONTAL AND VERTICAL JOINTS ON BACK FACE.
 - 8-05 SLOPE 2.0% TO DRAIN.
 - 8-06 3/4"x4" PREFORMED JOINT FILLER TO EXTEND BETWEEN EDGES OF SLAB.
 - 8-07 HEAVY RIPRAP. SEE SHEET 1 FOR ADDITIONAL DETAILS.
 - 8-08 3/4" CORK FILLER ON VERTICAL SEAT FACES THAT RUN PARALLEL WITH ROADWAY.
 - 8-09 OPTIONAL CONSTRUCTION JOINT: KEYWAY FORMED BY BEVELED 2x6 (18" RMW @ B.F. & 3/4" "V" GROOVE @ F.F. IF JOINT IS USED. INCIDENTAL TO "CONCRETE MASONRY").

- 8-10 ELEVATION SHOWN IS TAKEN AT C. BRG. OF ABUTMENT AT TOP OF NOTCH.
- 8-11 ELEVATION SHOWN IS TAKEN AT B.F. OF WING.
- 8-12 PULL UP TO 2" CLEAR.
- 8-13 FIELD BEND TO FOLLOW SLOPE OF TOP OF ABUTMENT.
- 8-14 3/4" "V" GROOVE ON FRONT FACE OF WINGWALL.



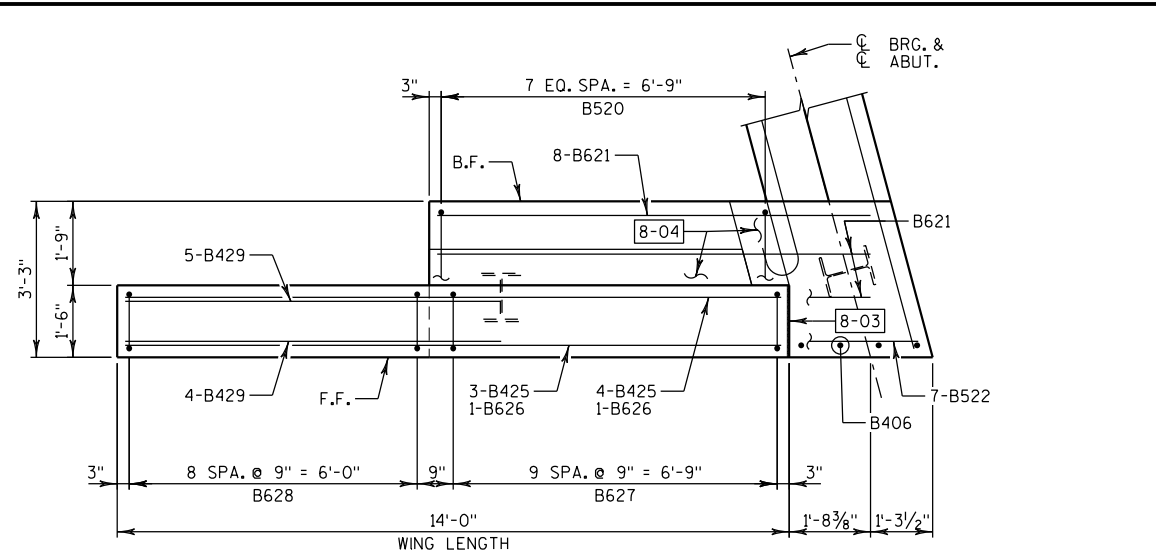
SECTION A-A

PILE NOTES

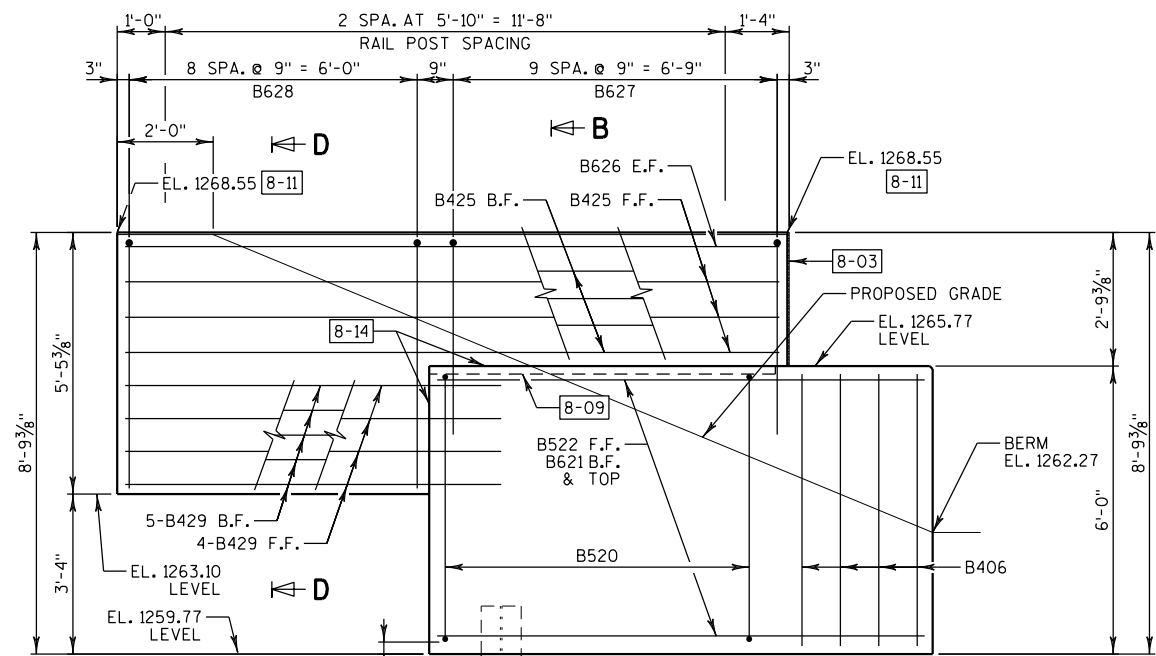
EAST ABUTMENT TO BE SUPPORTED ON HP 12-INCH X 53 LB STEEL PILING DRIVEN TO A REQUIRED RESISTANCE OF 220** TONS PER PILE AS DETERMINED BY THE MODIFIED GATES DYNAMIC FORMULA. PILES POINTS REQUIRED. ESTIMATED 50' LONG.

* 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.

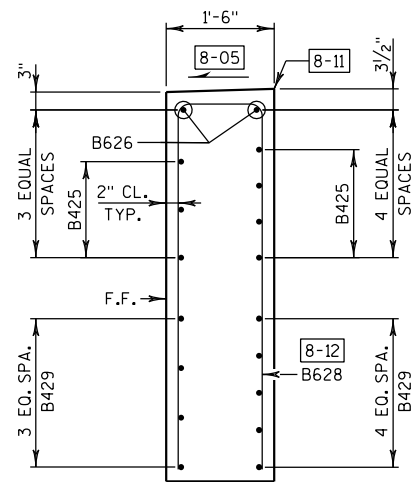
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-37-475			
DRAWN BY TKB		PLANS CK'D. ETP	
EAST ABUTMENT			SHEET 8 OF 19



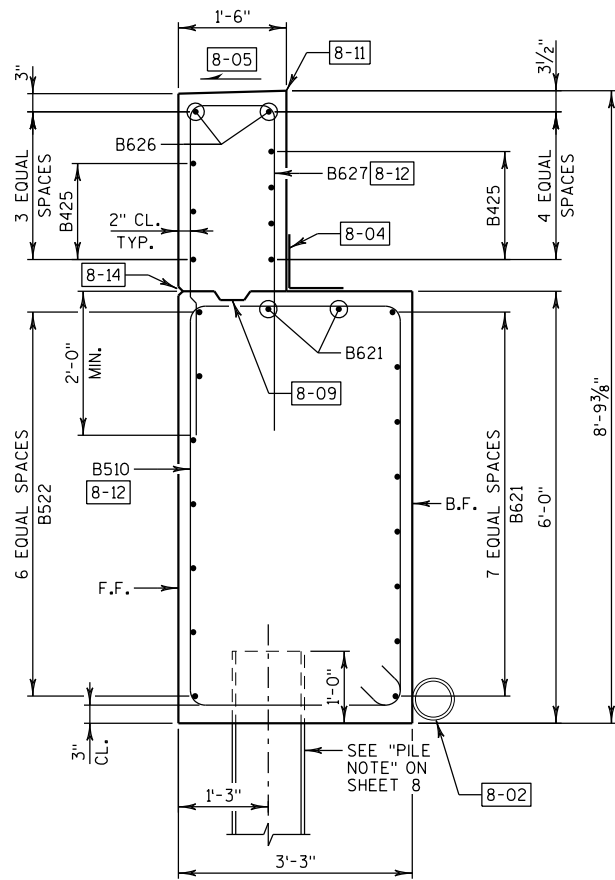
PLAN - WING 3



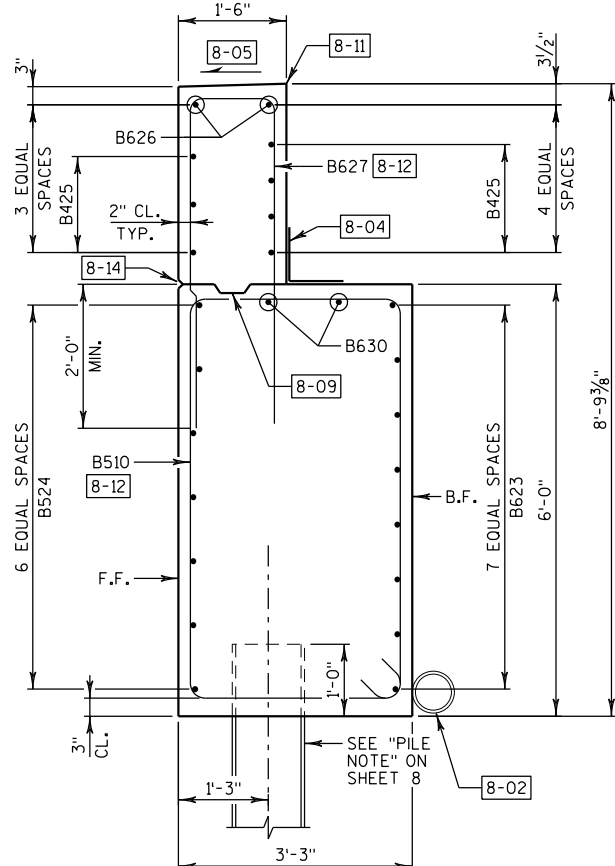
ELEVATION - WING 3



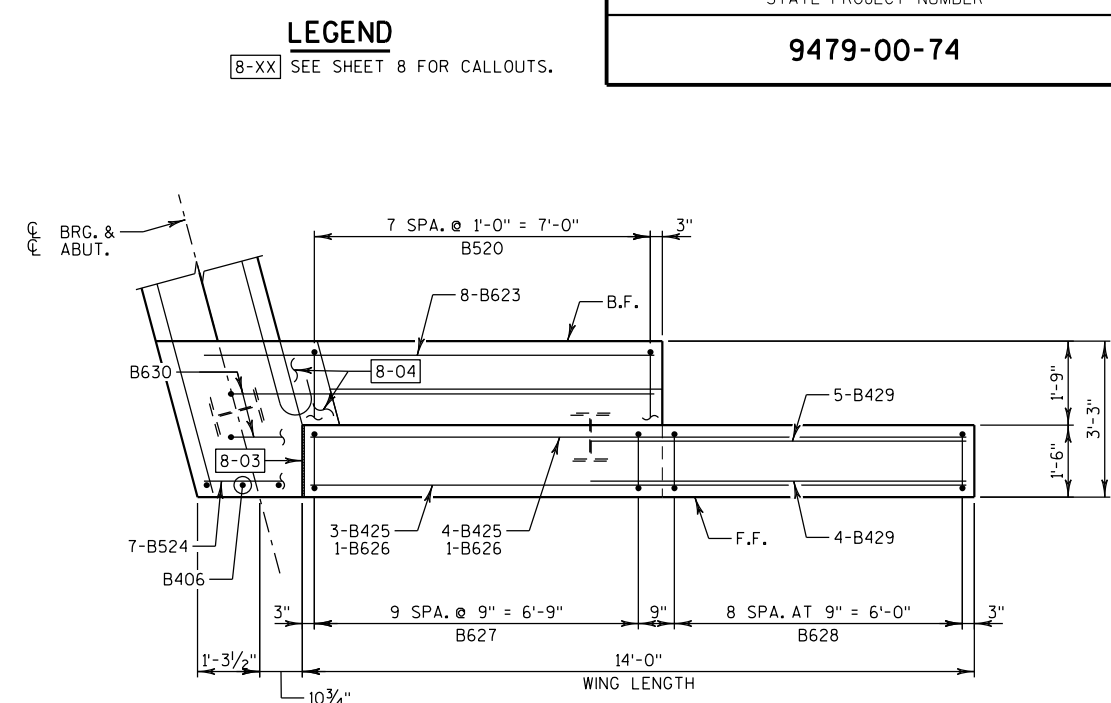
SECTION D-D



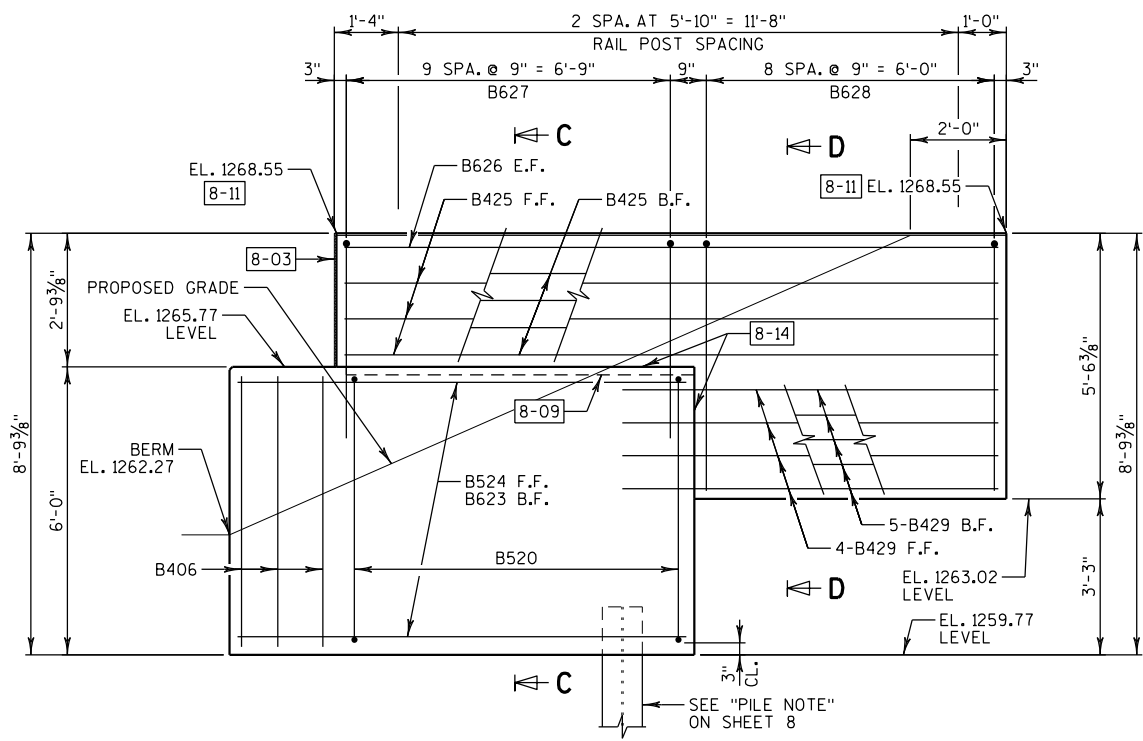
SECTION B-B



SECTION C-C



PLAN - WING 4



ELEVATION - WING 4

LEGEND

8-XX SEE SHEET 8 FOR CALLOUTS.

STATE PROJECT NUMBER

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STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-37-475			
DRAWN BY TKB		PLANS CK'D. ETP	
EAST ABUTMENT DETAILS-1			SHEET 9 OF 19

BILL OF BARS - EAST ABUTMENT

DIMENSIONS IN BENDING DETAILS ARE OUT-TO-OUT OF BAR.

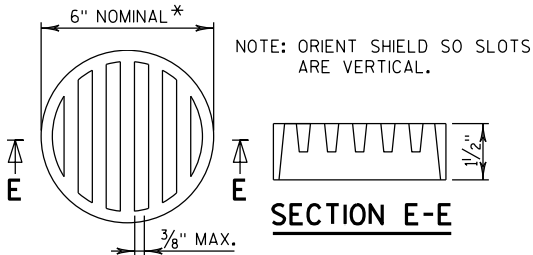
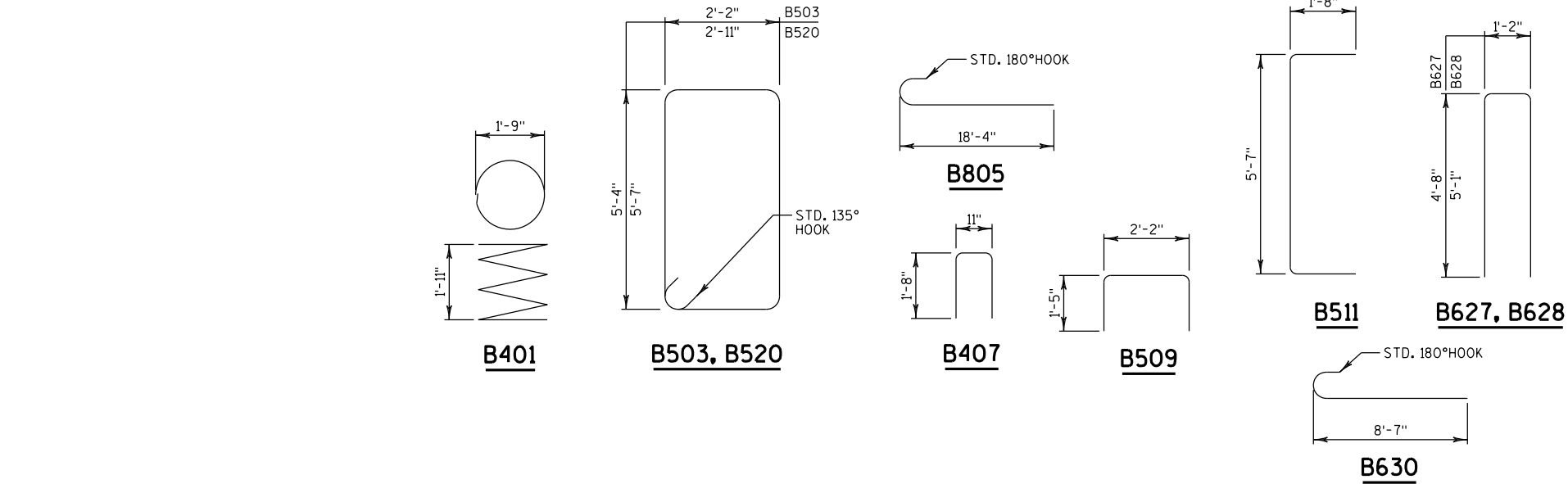
BAR MARK	NO. REQ'D	LENGTH	BENT	BAR SERIES	LOCATION	
NON-COATED BARS					TOTAL WEIGHT = 2,250 LBS	
B401	5	28'-0"	X		BODY - AT PILES - 1 PER PILE	VERT.
B402	10	2'-3"			BODY - AT PILES - 2 PER PILE	VERT.
B503	41	15'-8"	X		BODY - STIRRUPS	VERT.
B604	22	19'-2"			BODY - TOP, F.F. & BOT	HORIZ.
B805	12	19'-3"	X		BODY - B.F.	HORIZ.
B406	7	5'-7"			BODY - ENDS	VERT.
B407	21	4'-1"	X		BODY - TOP NOTCH	VERT.
B408	2	35'-4"			BODY - TOP NOTCH	HORIZ.
B509	3	4'-9"	X		BODY - TOP	VERT.
B410	4	2'-0"			BODY - TOP	HORIZ.
B511	8	8'-8"	X		BODY - ENDS	VERT.
COATED BARS					TOTAL WEIGHT = 1,620 LBS	
B520	16	17'-8"	X		WING FTGS. - STIRRUPS	VERT.
B621	10	9'-0"			WING 3 FTG. - B.F. & TOP	HORIZ.
B522	7	10'-1"			WING 3 FTG. - F.F.	HORIZ.
B623	8	9'-10"			WING 4 FTG. - B.F.	HORIZ.
B524	7	9'-5"			WING 4 FTG. - F.F.	HORIZ.
B425	14	13'-8"			WINGS - B.F. & F.F.	HORIZ.
B626	4	13'-8"			WINGS - TOP	HORIZ.
B627	20	10'-2"	X		WINGS - STIRRUPS	VERT.
B628	18	11'-0"			WINGS - OVERHANG STIRRUPS	VERT.
B429	18	7'-9"			WINGS - OVERHANG F.F. & B.F.	HORIZ.
B630	2	9'-3"	X		WING 4 FTG. - TOP	HORIZ.

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

DIMENSIONS IN BENDING DETAILS ARE OUT-TO-OUT OF BAR.

LEGEND

[8-XX] SEE SHEET 8 FOR CALLOUTS.



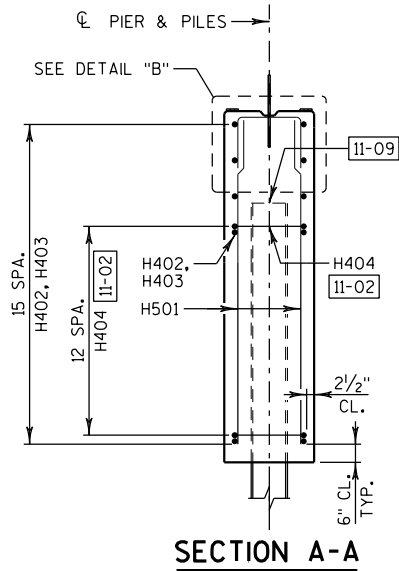
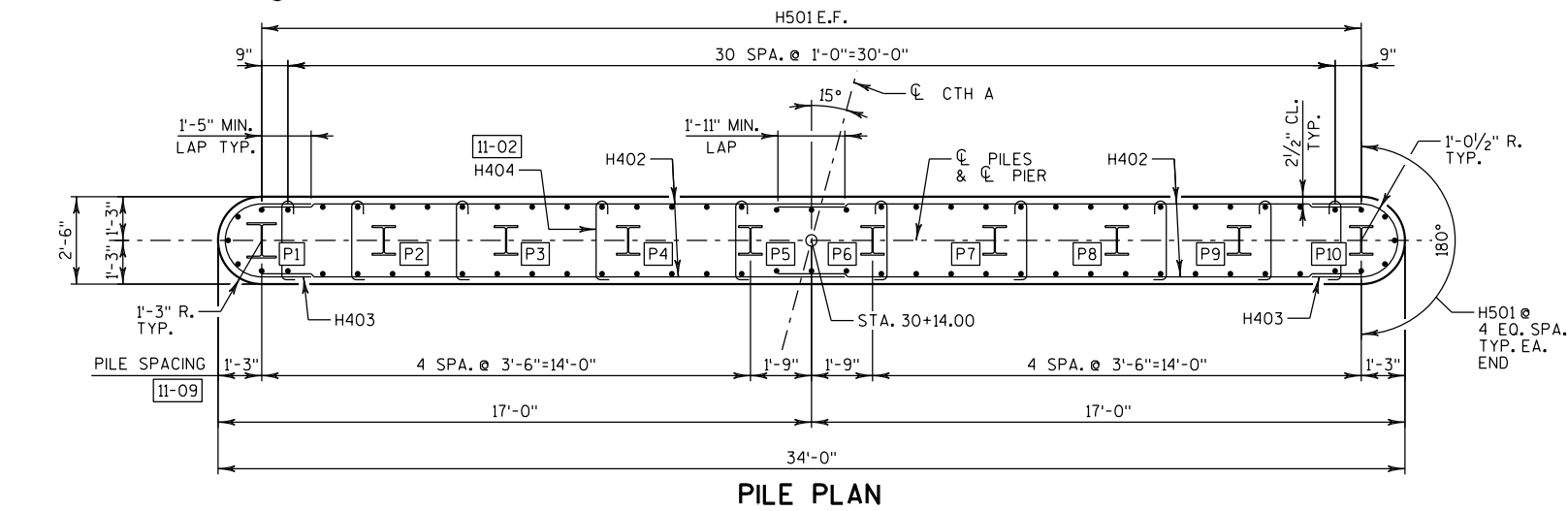
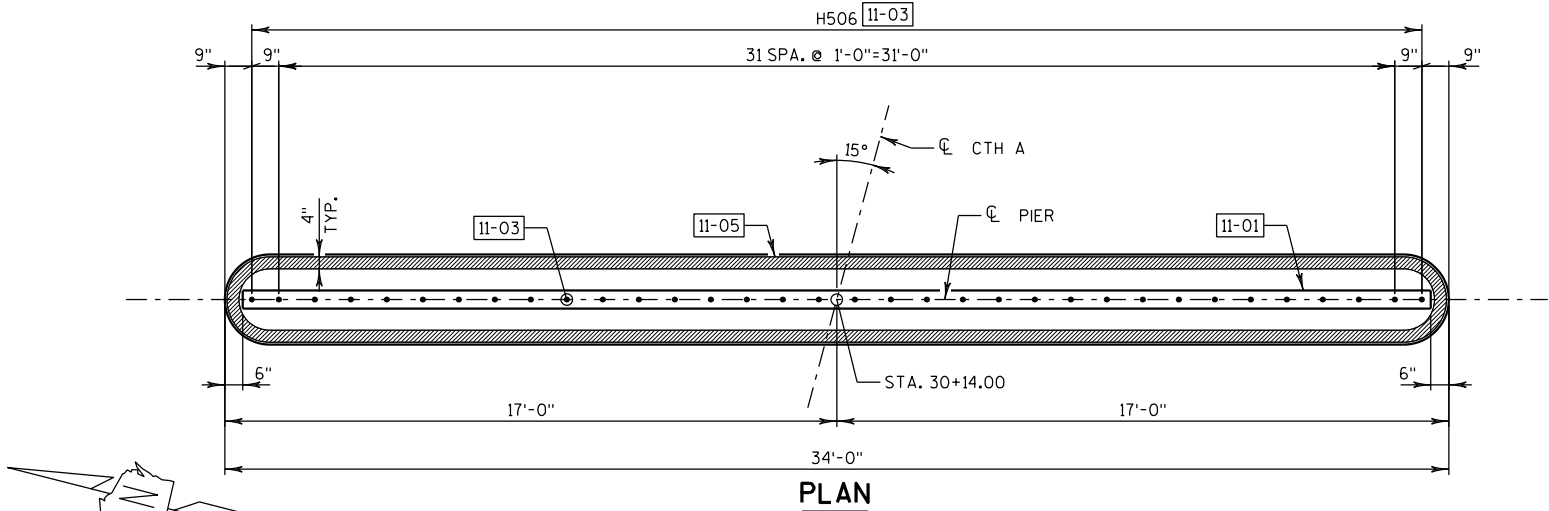
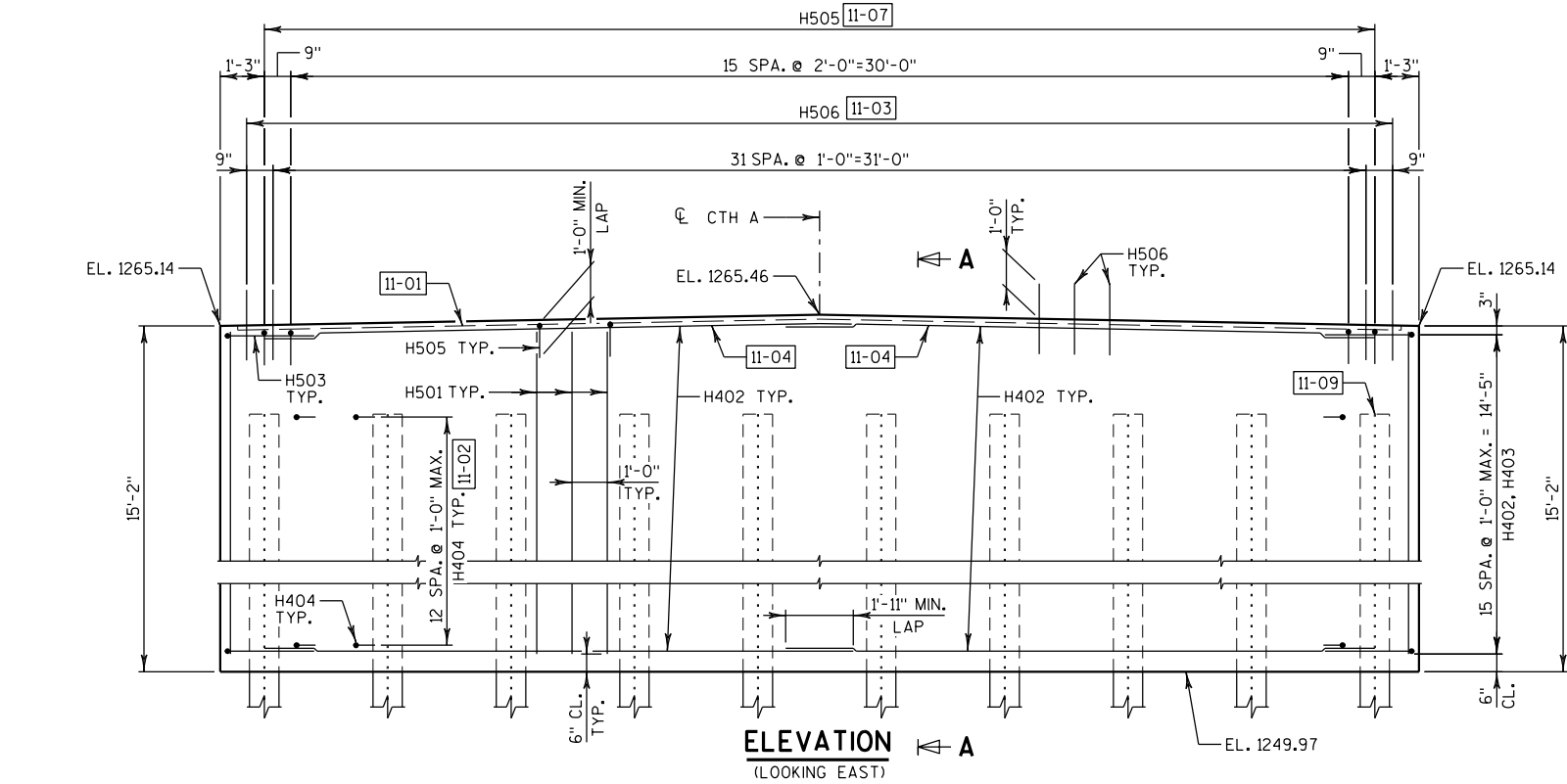
* DIMENSION IS APPROXIMATE. THE GRATE IS SIZED TO FIT INTO A PIPE COUPLING.

RODENT SHIELD DETAIL

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

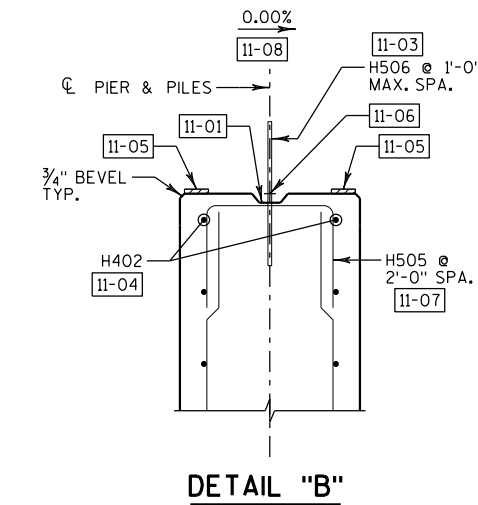
THE RODENT SHIELD SHALL BE A PVC GRATE SIMILAR TO THIS DETAIL. THE GRATE IS COMMERCIALY AVAILABLE AS A FLOOR STRAINER. A PIPE COUPLING IS REQUIRED FOR THE ATTACHMENT OF THIS SHIELD TO THE OUTFALL PIPE. THE SHIELD SHALL BE FASTENED TO THE PIPE COUPLING WITH TWO OR MORE NO.10 X 1-INCH STAINLESS STEEL SHEET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

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-37-475			
DRAWN BY		TKB	PLANS CK'D. ETP
EAST ABUTMENT DETAILS-2			SHEET 10 OF 19



NOTES
AT PIER 1, COFFERDAM REQUIRED. CONCRETE POURED UNDERWATER WILL BE ALLOWED AND SHALL BE DONE IN ACCORDANCE WITH STANDARD SPEC. 502.3.5.3. CONCRETE POURED UNDERWATER SHALL NOT EXCEED 10.0 FEET IN DEPTH, UNLESS APPROVED OTHERWISE.

PILE NOTES
PIER TO BE SUPPORTED ON PILING STEEL HP 12-INCH X 53 LB DRIVEN TO A REQUIRED DRIVING RESISTANCE OF 220* TONS PER PILE AS DETERMINED BY THE MODIFIED GATES DYNAMIC FORMULA, ESTIMATED 25' LONG AT PIER 1. PILE POINTS REQUIRED.
* THE FACTORED AXIAL RESISTANCE OF PILES IN COMPRESSION USED FOR DESIGN IS THE REQUIRED DRIVING RESISTANCE MULTIPLIED BY A RESISTANCE FACTOR OF 0.5 USING MODIFIED GATES TO DETERMINE DRIVEN PILE CAPACITY.

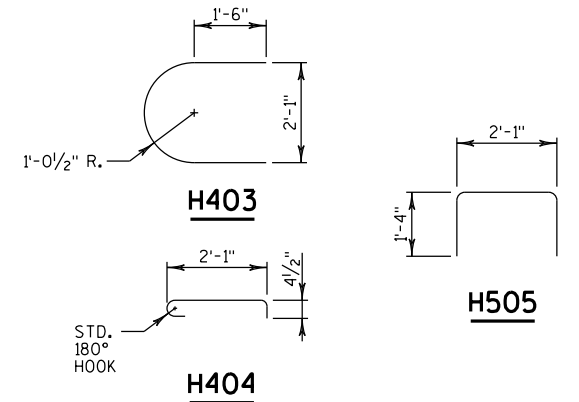


BILL OF BARS - PIER 1

DIMENSIONS IN BENDING DETAILS ARE OUT-TO-OUT OF BAR.

BAR MARK	NO. REQ'D	LENGTH	BENT	BAR SERIES	LOCATION
NON-COATED BARS					TOTAL WEIGHT = 2,280 LBS
H501	72	14'-6"			E.F. VERT.
H402	64	16'-9"			E.F. HORIZ.
H403	32	6'-4"	X		ENDS HORIZ.
H404	130	2'-11"	X		TIE BAR HORIZ.
H505	18	4'-6"	X		TOP TIE VERT.
COATED BARS					TOTAL WEIGHT = 70 LBS
H506	34	2'-0"			DOWEL BAR VERT.

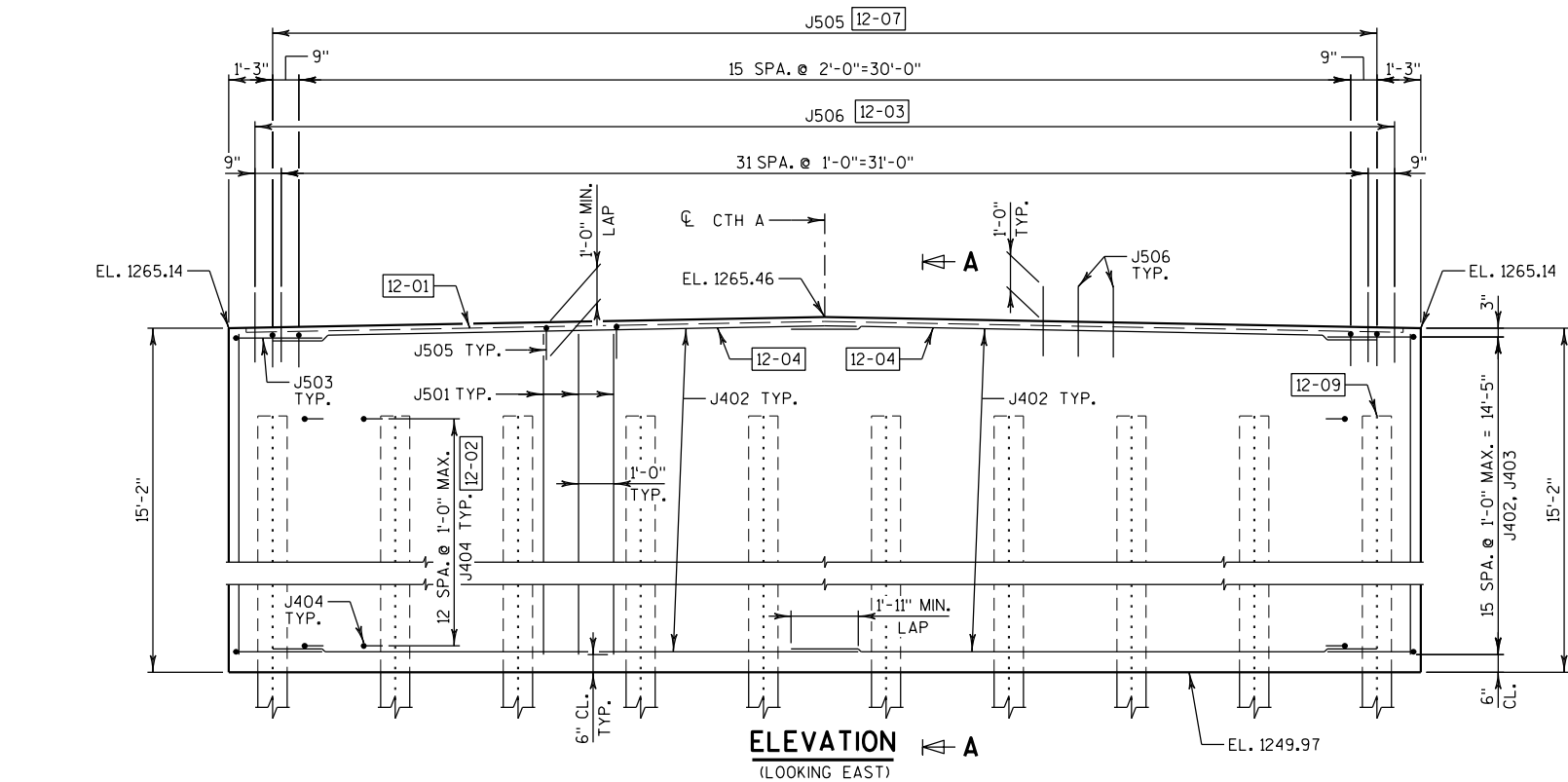
THE FIRST DIGIT OR FIRST TWO DIGITS OF THE BAR MARK SIGNIFIES THE BAR SIZE.



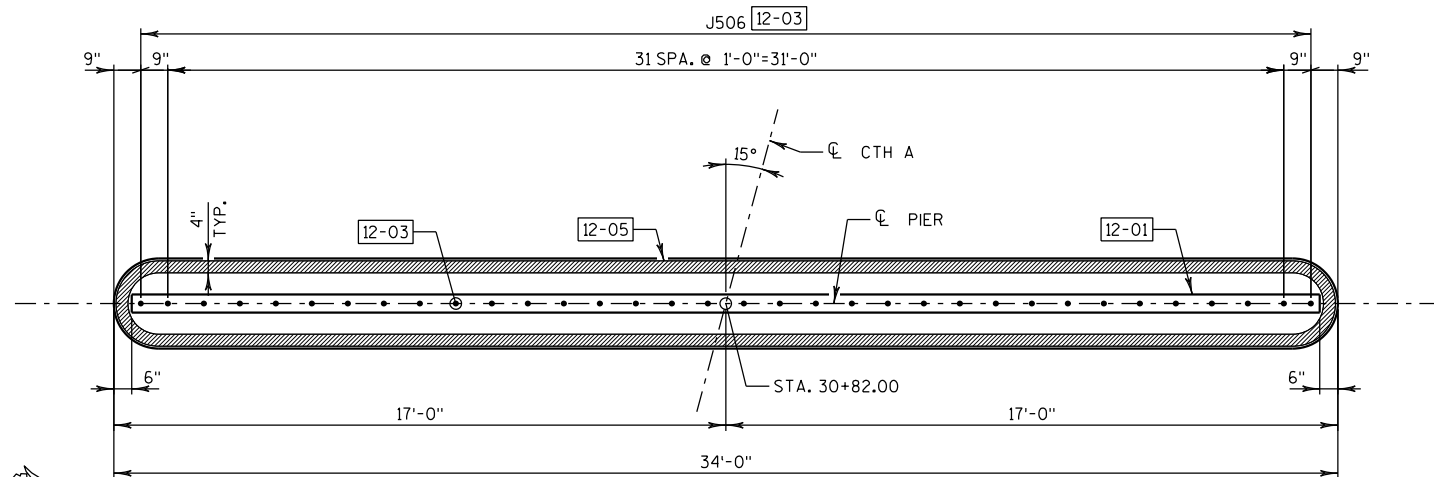
LEGEND

- [PX] INDICATES PILE NUMBER.
- [11-01] KEYED CONSTRUCTION JOINT-FORMED BY BEVELED 2x6.
- [11-02] H404 BARS PLACED ADJACENT TO EACH PILE ONLY. TIE TO THE NEAREST H501 BAR, VERTICAL SPACING TO MATCH TYPICAL H402, H403 SPACING. ALTERNATE THE POSITION OF THE 90° AND 180° HOOKS AT EACH VERTICAL LAYER OF TIES.
- [11-03] H506 BARS @ 1'-0" MAX. CTRS. MAY BE PLACED AFTER CONCRETE IS POURED BUT BEFORE INITIAL SET HAS TAKEN PLACE. (EMBED 1'-0" INTO CONCRETE).
- [11-04] FIELD BEND TO FOLLOW TOP OF PIER SLOPE.
- [11-05] 4"x3/4" PREFORMED JOINT FILLER TYP.
- [11-06] ELEVATION SHOWN IS TAKEN AT THE C/L OF PIER.
- [11-07] PULL UP TO 2" CLEAR.
- [11-08] TOP OF PIER TO BE LEVEL.
- [11-09] TYPICAL TOP OF PILE EL. 1262.64. SEE "PILE NOTES".

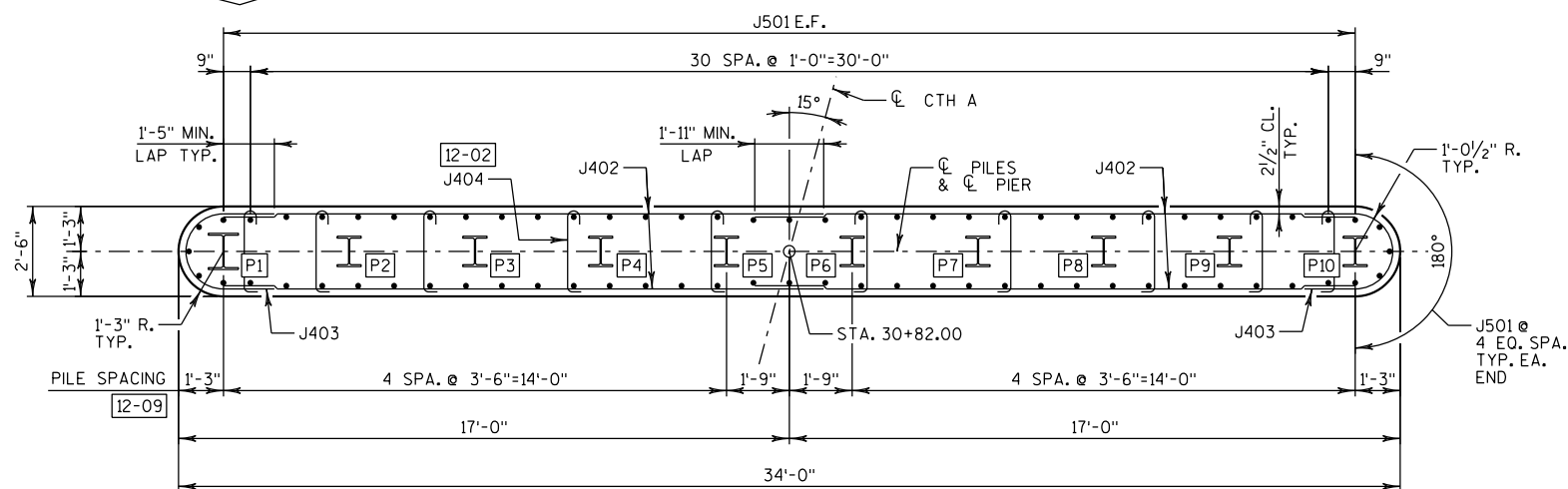
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-37-475			
DRAWN BY TKB		PLANS CK'D. ETP	
PIER 1			SHEET 11 OF 19



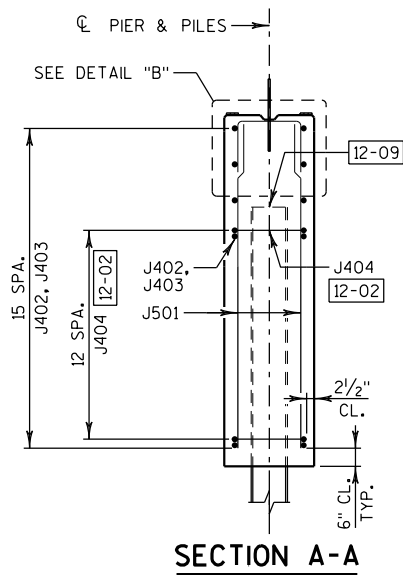
ELEVATION A
(LOOKING EAST)



PLAN



PILE PLAN



SECTION A-A

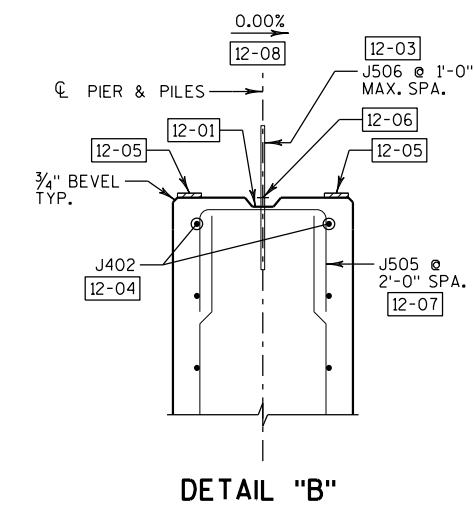
NOTES

AT PIER 2, COFFERDAM REQUIRED. CONCRETE POURED UNDERWATER WILL BE ALLOWED AND SHALL BE DONE IN ACCORDANCE WITH STANDARD SPEC. 502.3.5.3. CONCRETE POURED UNDERWATER SHALL NOT EXCEED 10.0 FEET IN DEPTH, UNLESS APPROVED OTHERWISE.

PILE NOTES

PIER TO BE SUPPORTED ON PILING STEEL HP 12-INCH X 53 LB DRIVEN TO A REQUIRED DRIVING RESISTANCE OF 220* TONS PER PILE AS DETERMINED BY THE MODIFIED GATES DYNAMIC FORMULA, ESTIMATED 35' LONG AT PIER 2. PILE POINTS REQUIRED.

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



DETAIL "B"

STATE PROJECT NUMBER

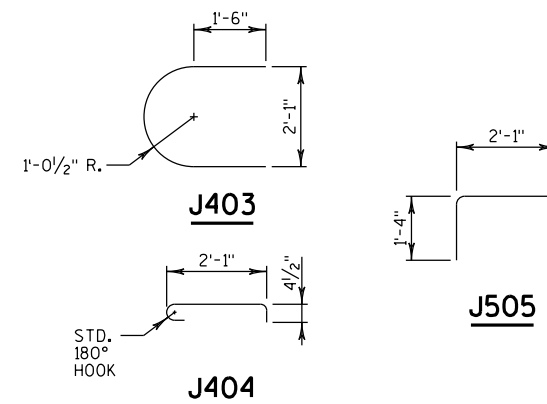
9479-00-74

BILL OF BARS - PIER 2

DIMENSIONS IN BENDING DETAILS ARE OUT-TO-OUT OF BAR.

BAR MARK	NO. REQ'D	LENGTH	BENT	BAR SERIES	LOCATION
NON-COATED BARS					TOTAL WEIGHT = 2,280 LBS
J501	72	14'-6"			E.F. VERT.
J402	64	16'-9"			E.F. HORIZ.
J403	32	6'-4"	X		ENDS HORIZ.
J404	130	2'-11"	X		TIE BAR HORIZ.
J505	18	4'-6"	X		TOP TIE VERT.
COATED BARS					TOTAL WEIGHT = 70 LBS
J506	34	2'-0"			DOWEL BAR VERT.

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



LEGEND

[PX] INDICATES PILE NUMBER.

[12-01] KEYED CONSTRUCTION JOINT-FORMED BY BEVELED 2x6.

[12-02] J404 BARS PLACED ADJACENT TO EACH PILE ONLY. TIE TO THE NEAREST J501 BAR, VERTICAL SPACING TO MATCH TYPICAL J402, J403 SPACING. ALTERNATE THE POSITION OF THE 90° AND 180° HOOKS AT EACH VERTICAL LAYER OF TIES.

[12-03] J506 BARS @ 1'-0" MAX. CTRS. MAY BE PLACED AFTER CONCRETE IS POURED BUT BEFORE INITIAL SET HAS TAKEN PLACE. (EMBED 1'-0" INTO CONCRETE).

[12-04] FIELD BEND TO FOLLOW TOP OF PIER SLOPE.

[12-05] 4"x3/4" PREFORMED JOINT FILLER TYP.

[12-06] ELEVATION SHOWN IS TAKEN AT THE CL OF PIER.

[12-07] PULL UP TO 2" CLEAR.

[12-08] TOP OF PIER TO BE LEVEL.

[12-09] TYPICAL TOP OF PILE EL. 1262.64. SEE "PILE NOTES".

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STRUCTURE B-37-475			
DRAWN BY TKB		PLANS CK'D. ETP	
PIER 2			SHEET 12 OF 19

DIMENSIONS IN BENDING DETAILS ARE OUT-TO-OUT OF BAR.

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

AT PIER 3, COFFERDAM REQUIRED. CONCRETE
POURED UNDERWATER WILL BE ALLOWED AND
SHALL BE DONE IN ACCORDANCE WITH
STANDARD SPEC. 502.3.5.3. CONCRETE POURED
UNDERWATER SHALL NOT EXCEED 10.0 FEET
IN DEPTH, UNLESS APPROVED OTHERWISE.

PIER TO BE SUPPORTED ON PILING STEEL HP
12-INCH X 53 LB DRIVEN TO A REQUIRED
DRIVING RESISTANCE OF 220* TONS PER PILE
AS DETERMINED BY THE MODIFIED GATES
DYNAMIC FORMULA. ESTIMATED 45' LONG AT
PIER 3. PILE POINTS REQUIRED.

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



- 13-01 KEYED CONSTRUCTION JOINT-FORMED BY BEVELED 2x6.
- 13-02 K404 BARS PLACED ADJACENT TO EACH PILE ONLY. TIE TO THE NEAREST K501 BAR. VERTICAL SPACING TO MATCH TYPICAL K402, K403 SPACING. ALTERNATE THE POSITION OF THE 90° AND 180° HOOKS AT EACH VERTICAL LAYER OF TIES.
- 13-03 K506 BARS @ 1'-0" MAX. CTRS. MAY BE PLACED AFTER CONCRETE IS POURED BUT BEFORE INITIAL SET HAS TAKEN PLACE. (EMBED 1'-0" INTO CONCRETE).
- 13-04 FIELD BEND TO FOLLOW TOP OF PIER SLOPE.
- 13-05 4"x $\frac{3}{4}$ " PREFORMED JOINT FILLER TYP.
- 13-06 ELEVATION SHOWN IS TAKEN AT THE C OF PIER.
- 13-07 PULL UP TO 2" CLEAR.
- 13-08 TOP OF PIER TO BE LEVEL.
- 13-09 TYPICAL TOP OF PILE EL. 1262.64.
SEE "PILE NOTES".



NOTES

THE TOP TRANSVERSE BAR STEEL REINFORCEMENT SHALL BE SUPPORTED BY INDIVIDUAL BAR CHAIRS AT APPROXIMATELY 3'-0" CENTERS EACH WAY.

THE BOTTOM LONGITUDINAL BAR STEEL REINFORCEMENT SHALL BE SUPPORTED BY CONTINUOUS BAR CHAIRS AT APPROXIMATELY 4'-0" CENTERS.

TRANSVERSE BARS SHALL BE PLACED PARALLEL TO SUBSTRUCTURE UNITS.

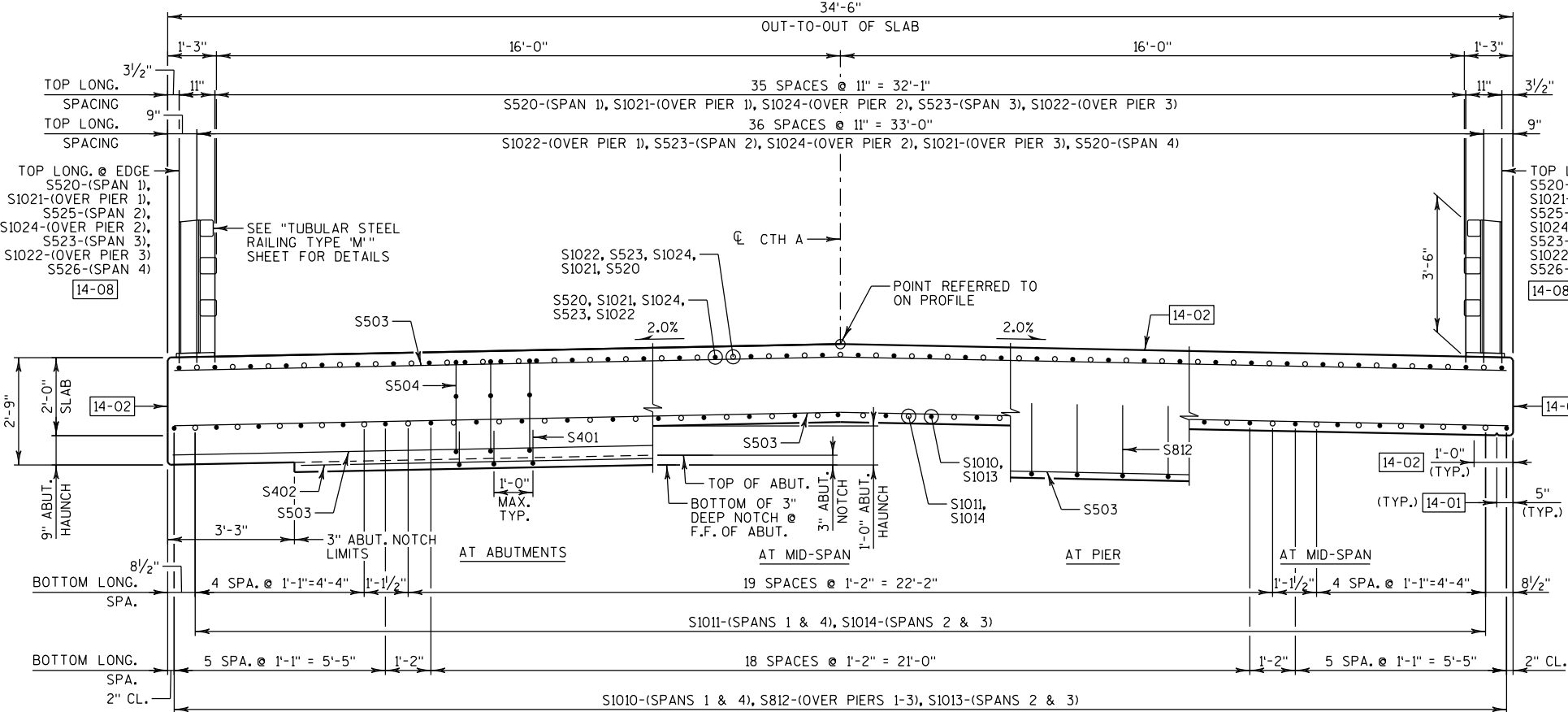
ALL SLAB THICKNESS DIMENSIONS ARE MINIMUM. ANY TOLERANCES NECESSARY TO CORRECT CONSTRUCTION DISCREPANCIES ARE TO BE PLUS (+).

PRIOR TO RELEASING SLAB FALSEWORK, TAKE TOP OF SLAB ELEVATIONS AT THE C_L OF ABUTMENTS, THE C_L PIERS AND AT 5/10 POINTS TO VERIFY CAMBER. TAKE ELEVATIONS ALONG THE EDGE OF SLAB AND R_L CTH A/CROWN POINT. RECORD THE ELEVATIONS IN THE "SURVEY TOP OF SLAB ELEVATIONS" TABLE ON SHEET 18 FOR THE "AS BUILT" PLANS.

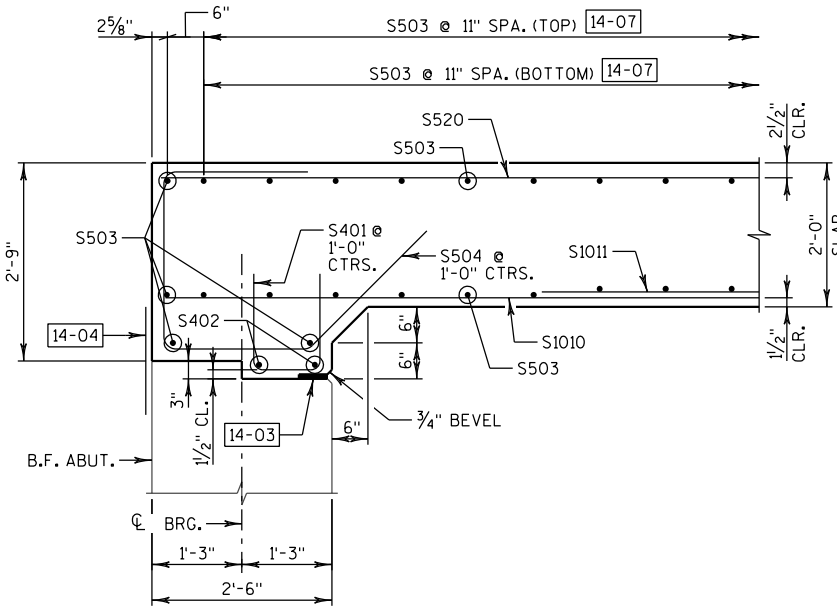
FIELD BEND S503 BARS AT BACK FACE OF ABUTMENT DIAPHRAGM TO ACCOMMODATE CORNERS OF SLAB NEAR WINGS.

LEGEND

- [14-01] 3/4" CONTINUOUS DRIP "V" GROOVE. END 6" FROM FRONT FACE OF ABUTMENTS.
- [14-02] COAT WITH "PROTECTIVE SURFACE TREATMENT" AS PER THE STANDARD SPECIFICATION.
- [14-03] 3/4"x4" PREFORMED JOINT FILLER TO EXTEND BETWEEN EDGES OF SLAB OR AROUND ENTIRE OUTSIDE EDGE OF TOP OF PIER.
- [14-04] 18" RUBBERIZED MEMBRANE WATERPROOFING. SEAL ALL HORIZONTAL AND VERTICAL JOINTS ON BACKFACE.
- [14-05] DIMENSION IS TAKEN PERPENDICULAR TO C_L SUBSTRUCTURES.
- [14-06] DIMENSION IS TAKEN PARALLEL TO R_L CTH A.
- [14-07] BARS PLACED PARALLEL TO SKEW AND SPACED ALONG R_L CTH A.
- [14-08] S525 & S526 BARS ADDED TO SPANS 2 & 4 RESPECTIVELY, AT TOP EDGES. BARS ADDED TO MAINTAIN A CONTINUOUS LINE OF REINFORCEMENT AT THE SLAB EDGES ALONG THE ENTIRE LENGTH OF THE STRUCTURE.
- [14-09] BEND IN FIELD TO MAINTAIN 2" CLEAR FROM WING.

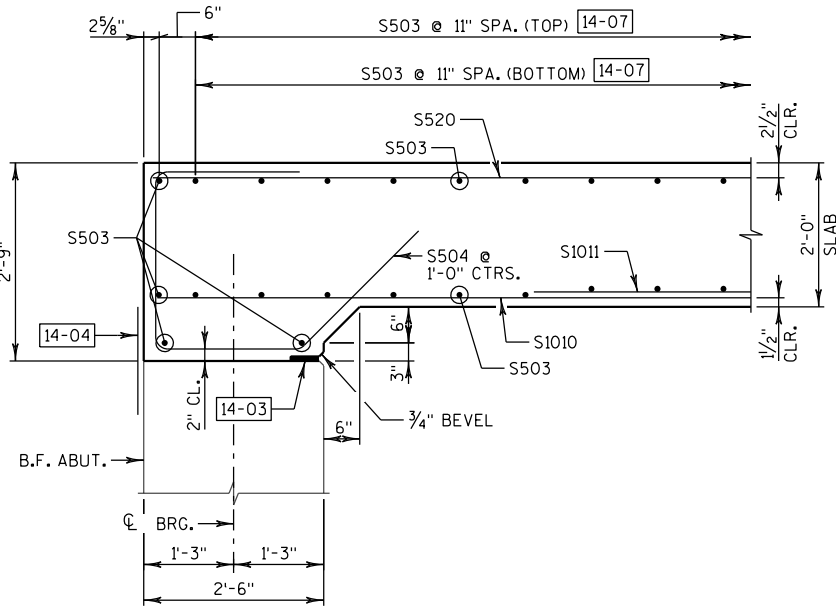


CROSS SECTION THRU SLAB
(LOOKING EAST)



PARTIAL LONGITUDINAL
SECTION AT ABUTMENTS

DIMENSIONS ARE PERPENDICULAR TO C_L ABUTMENT U.N.O.
BARS PLACED PARALLEL TO R_L CTH M U.N.O.



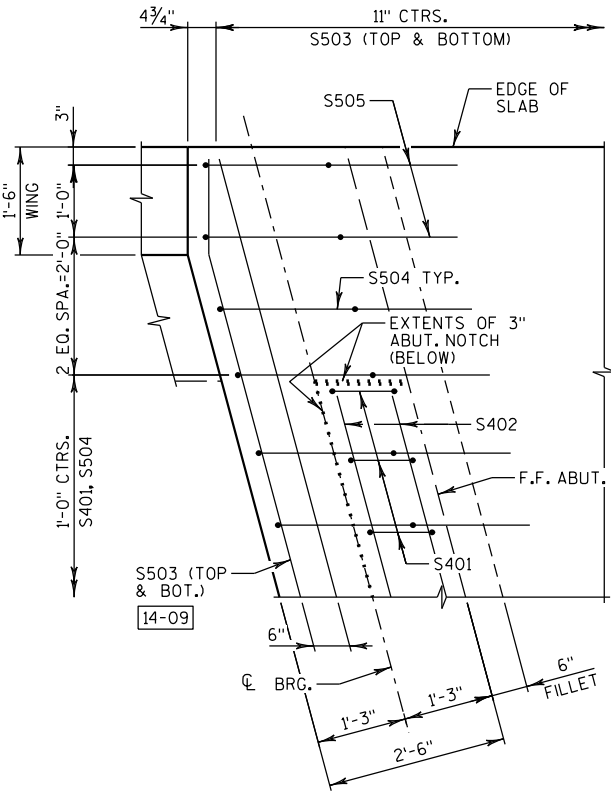
PARTIAL LONGITUDINAL
SECTION AT ABUTMENTS

(SHOWN OUTSIDE 3" ABUTMENT NOTCH LIMITS)
DIMENSIONS ARE PERPENDICULAR TO C_L ABUTMENT U.N.O.
BARS PLACED PARALLEL TO R_L CTH M U.N.O.

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SUPERSTRUCTURE DETAILS-1			SHEET 14 OF 19

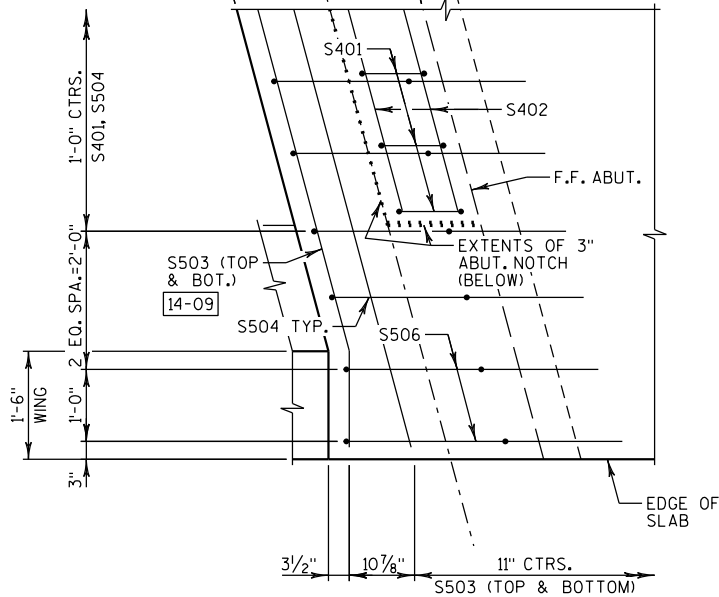
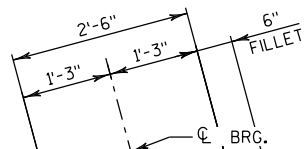
LEGEND

[14-XX] SEE "SUPERSTRUCTURE DETAILS-1" SHEET FOR CALLOUTS AND NOTES.



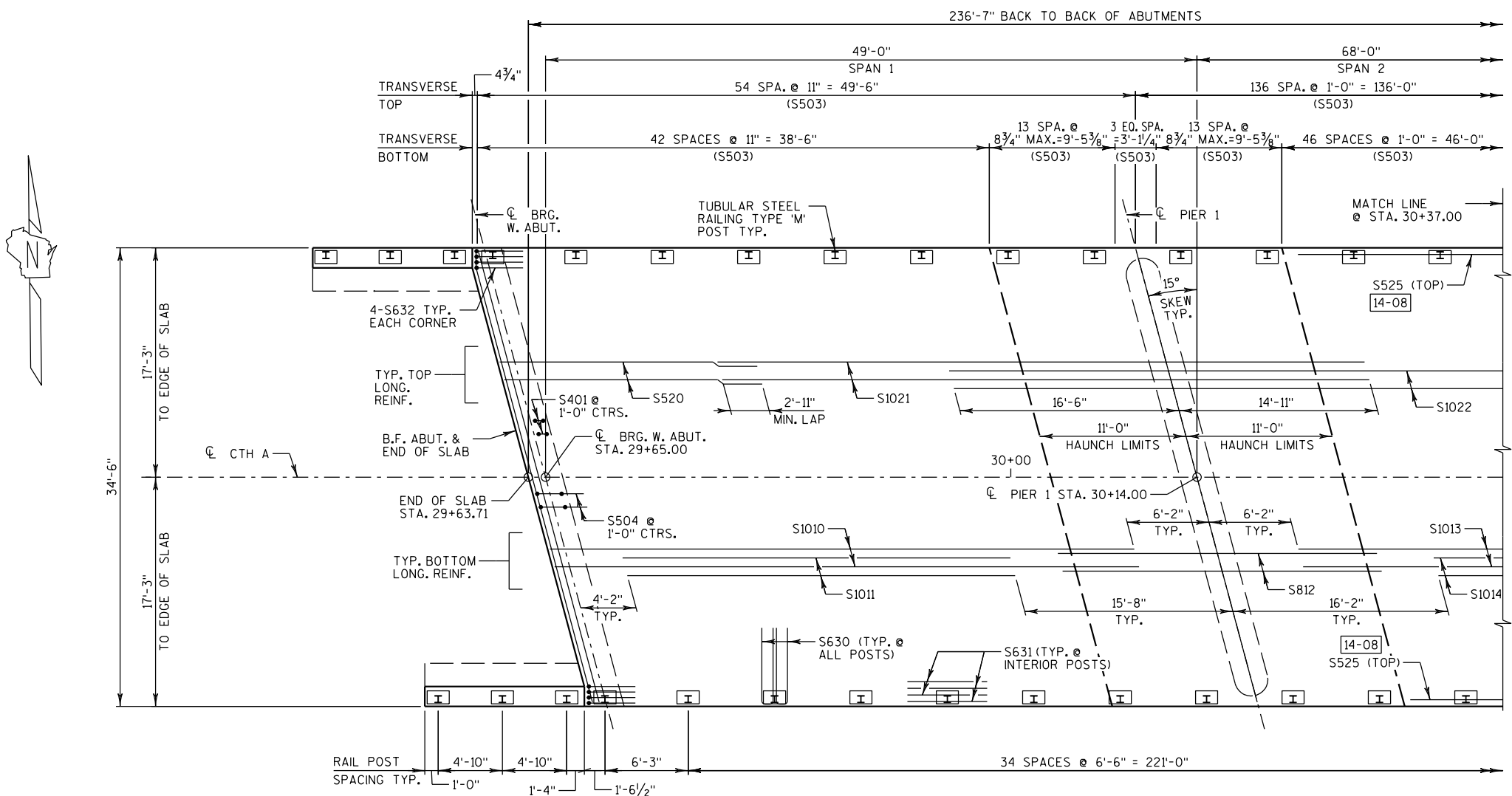
CORNER DETAIL AT WINGS 2 & 4

SLAB LONGITUDINAL AND ADDITIONAL TRANSVERSE REINFORCEMENT NOT SHOWN FOR CLARITY

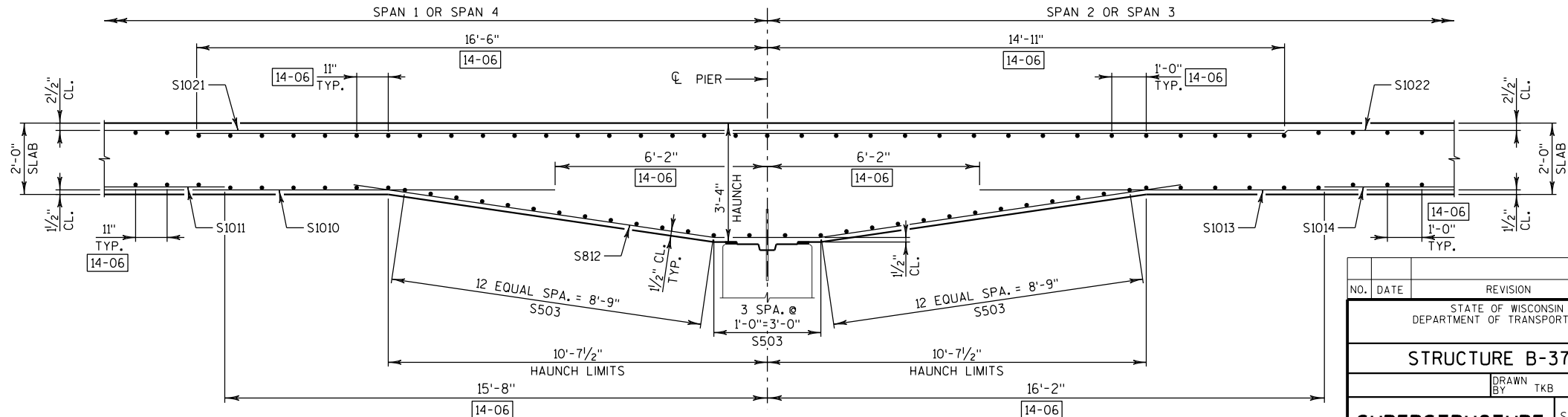


CORNER DETAIL AT WINGS 1 & 3

SLAB LONGITUDINAL AND ADDITIONAL TRANSVERSE REINFORCEMENT NOT SHOWN FOR CLARITY



PARTIAL PLAN (SPANS 1-2)

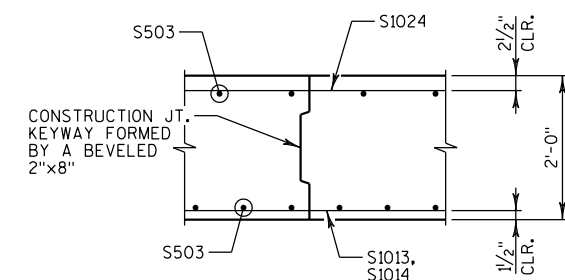


PARTIAL LONGITUDINAL SECTION AT PIERS 1 & 3

(DIMENSIONS ARE PERPENDICULAR TO C.P. PIER U.NO.)

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SUPERSTRUCTURE DETAILS-2			SHEET 15 OF 19

14-XX SEE "SUPERSTRUCTURE DETAILS-1" SHEET FOR CALLOUTS AND NOTES.



OPTIONAL TRANSVERSE CONSTRUCTION JOINT



NO.	DATE	REVISION	BY
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STRUCTURE B-37-475			
DRAWN BY		TKB	PLANS CK'D. ETP
SUPERSTRUCTURE DETAILS-3		SHEET 16 OF 19	

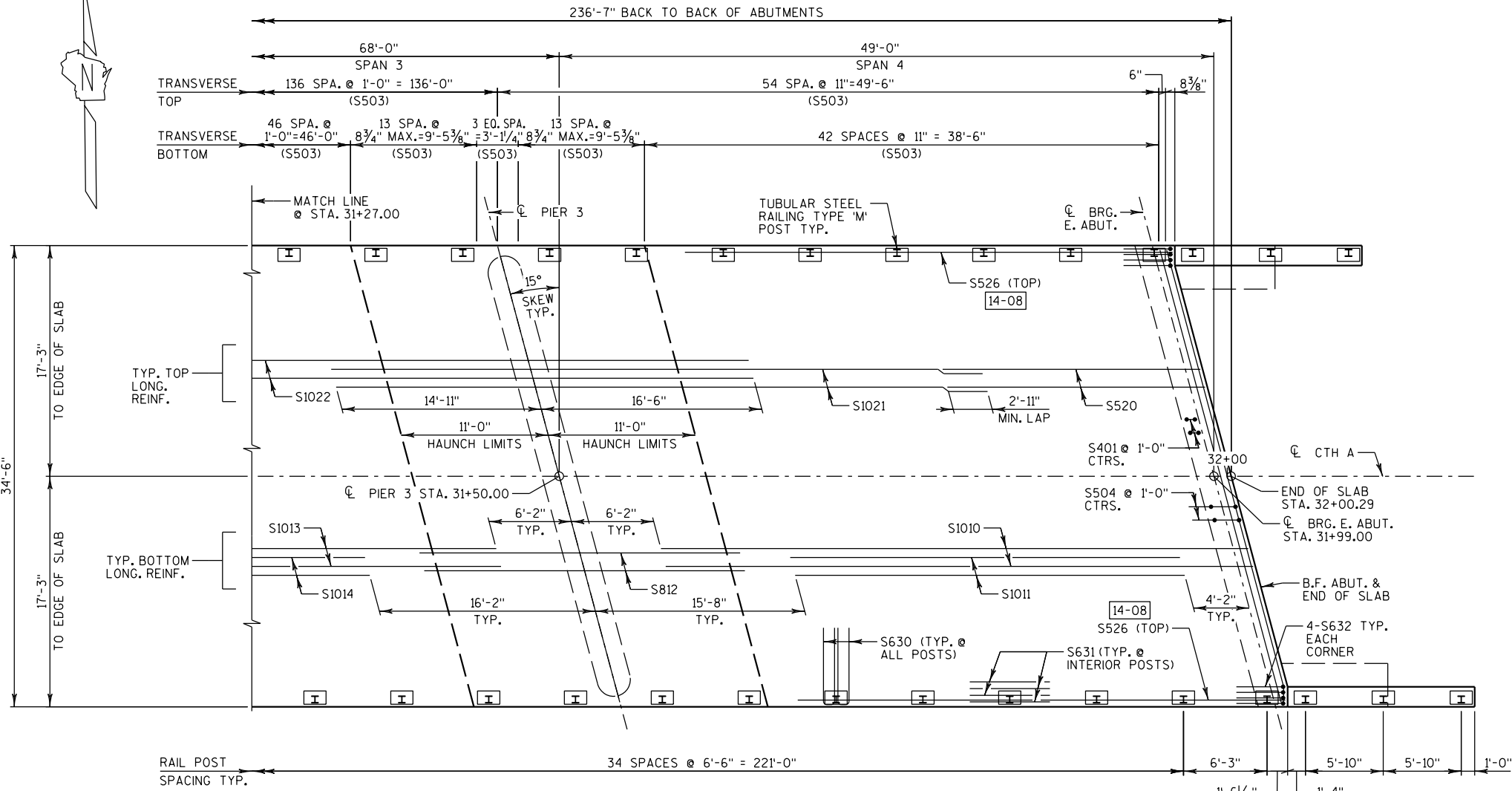
LEGEND

[14-XX] SEE "SUPERSTRUCTURE DETAILS-1" SHEET FOR CALLOUTS AND NOTES.

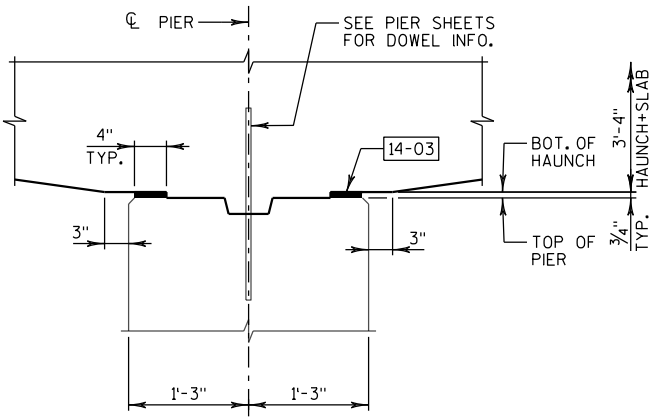
BILL OF BARS - SUPERSTRUCTURE

BAR MARK	NO. REQ'D	LENGTH	BENT	BAR SERIES	LOCATION
COATED BARS					TOTAL WEIGHT = 124,330 LBS
S401	58	3'-3"	X		SLAB AT ABUTMENT NOTCH VERT.
S402	4	28'-7"			SLAB AT ABUTMENT NOTCH TRANS.
S503	523	35'-4"			SLAB TOP & BTM. TRANS.
S504	66	7'-9"	X		SLAB AT ABUTMENT VERT.
S505	2	7'-4"	X		SLAB AT ABUTMENT ENDS NEAR W2 & W4 VERT.
S506	2	7'-11"	X		SLAB AT ABUTMENT ENDS NEAR W1 & W3 VERT.
S1010	62	43'-11"			SLAB - BTM. SPANS 1 & 4 LONGIT.
S1011	60	29'-2"			SLAB - BTM. SPANS 1 & 4 LONGIT.
S812	93	24'-3"	X		SLAB - BTM. HAUNCH LONGIT.
S1013	62	55'-8"			SLAB - BTM. SPANS 2 & 3 LONGIT.
S1014	60	35'-9"			SLAB - BTM. SPANS 2 & 3 LONGIT.
S520	76	19'-2"			SLAB - TOP, SPANS 1 & 4 LONGIT.
S1021	76	48'-10"			SLAB - TOP, OVER PIERS 1 & 3 LONGIT.
S1022	74	46'-9"			SLAB - TOP, OVER PIERS 1 & 3 LONGIT.
S523	75	9'-8"			SLAB - TOP, SPANS 2 & 3 LONGIT.
S1024	75	51'-1"			SLAB - TOP, OVER PIER 2 LONGIT.
S525	2	41'-9"			SLAB - TOP, OVER SPAN 2 AT EDGES LONGIT.
S526	2	36'-8"			SLAB - TOP, OVER SPAN 4 AT EDGES LONGIT.
S630	148	11'-4"	X		SLAB - TOP AT RAIL POSTS TRANS.
S631	280	6'-0"			SLAB - TOP AT INT. RAIL POSTS LONGIT.
S632	16	4'-8"	X		SLAB - TOP AT EXT. RAIL POSTS LONGIT.

THE FIRST DIGIT OR FIRST TWO DIGITS OF THE BAR MARK SIGNIFIES THE BAR SIZE.
DIMENSIONS IN BENDING DETAILS ARE OUT-TO-OUT OF BAR.

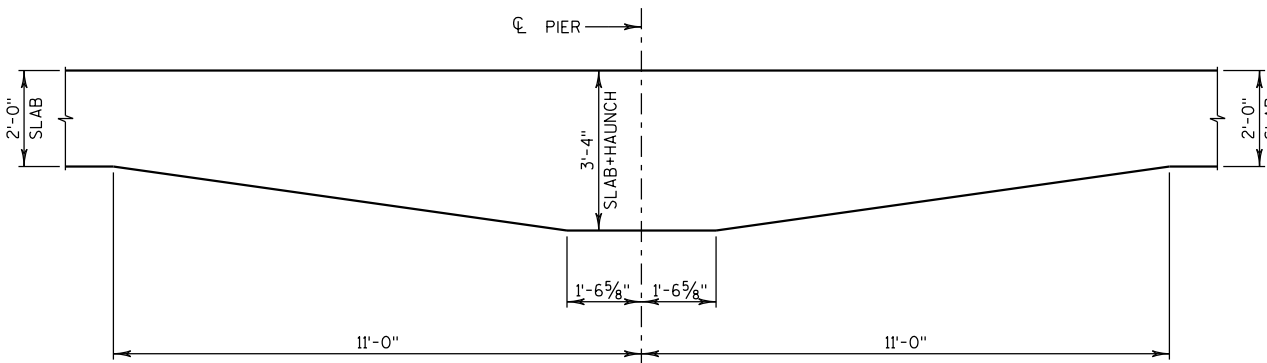


PARTIAL PLAN (SPANS 3-4)



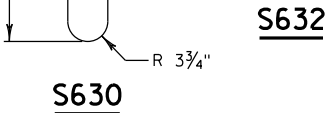
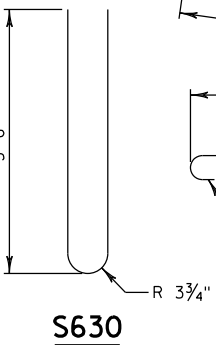
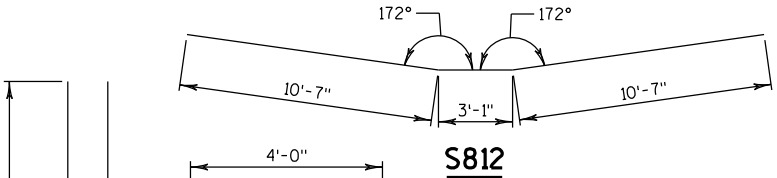
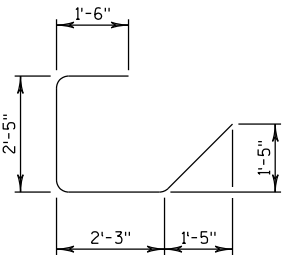
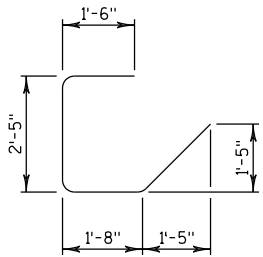
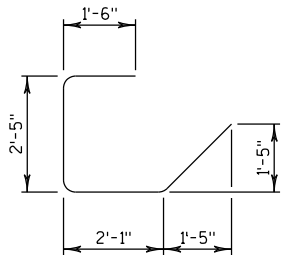
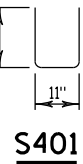
HAUNCH BEARING DETAIL

(DIMENSIONS TAKEN PERPENDICULAR TO CL PIER)
(TYPICAL ALL PIERS)



EDGE OF SLAB AT HAUNCH

(DIMENSIONS ARE PARALLEL TO CL CTH A)
(REINFORCEMENT NOT SHOWN FOR CLARITY)

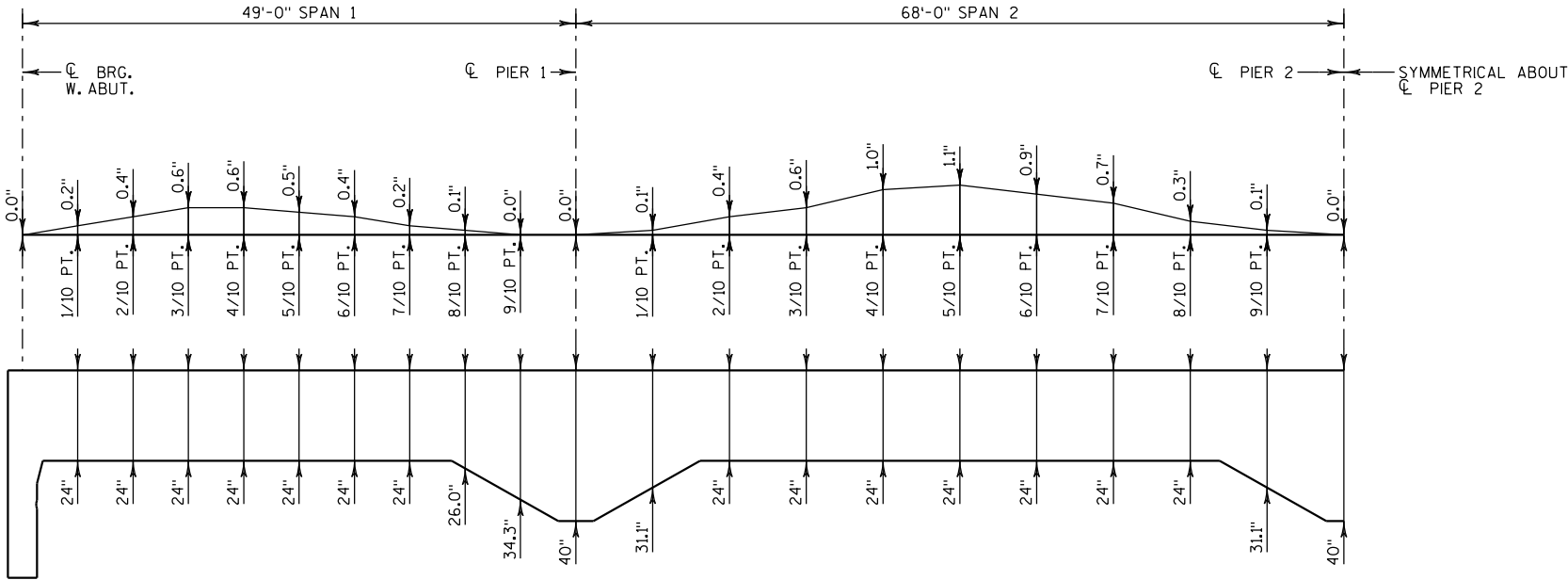


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SUPERSTRUCTURE DETAILS-4			SHEET 17 OF 19

TOP OF SLAB ELEVATIONS

LOCATION	W. ABUT.	1.1 PT	1.2 PT	1.3 PT	1.4 PT	1.5 PT	1.6 PT	1.7 PT	1.8 PT	1.9 PT	PIER 1	2.1 PT	2.2 PT	2.3 PT	2.4 PT	2.5 PT	2.6 PT	2.7 PT	2.8 PT	2.9 PT	PIER 2
NORTH EDGE OF SLAB	1268.52	1268.52	1268.52	1268.52	1268.52	1268.52	1268.52	1268.52	1268.52	1268.52	1268.52	1268.52	1268.52	1268.52	1268.52	1268.52	1268.52	1268.52	1268.52	1268.52	1268.52
CROWN	1268.86	1268.86	1268.86	1268.86	1268.86	1268.86	1268.86	1268.86	1268.86	1268.86	1268.86	1268.86	1268.86	1268.86	1268.86	1268.86	1268.86	1268.86	1268.86	1268.86	1268.86
SOUTH EDGE OF SLAB	1268.52	1268.52	1268.52	1268.52	1268.52	1268.52	1268.52	1268.52	1268.52	1268.52	1268.52	1268.52	1268.52	1268.52	1268.52	1268.52	1268.52	1268.52	1268.52	1268.52	1268.52

LOCATION	PIER 2	3.1 PT	3.2 PT	3.3 PT	3.4 PT	3.5 PT	3.6 PT	3.7 PT	3.8 PT	3.9 PT	PIER 3	4.1 PT	4.2 PT	4.3 PT	4.4 PT	4.5 PT	4.6 PT	4.7 PT	4.8 PT	4.9 PT	E. ABUT
NORTH EDGE OF SLAB	1268.52	1268.52	1268.52	1268.52	1268.52	1268.52	1268.52	1268.52	1268.52	1268.52	1268.52	1268.52	1268.52	1268.52	1268.52	1268.52	1268.52	1268.52	1268.52	1268.52	1268.52
CROWN	1268.86	1268.86	1268.86	1268.86	1268.86	1268.86	1268.86	1268.86	1268.86	1268.86	1268.86	1268.86	1268.86	1268.86	1268.86	1268.86	1268.86	1268.86	1268.86	1268.86	1268.86
SOUTH EDGE OF SLAB	1268.52	1268.52	1268.52	1268.52	1268.52	1268.52	1268.52	1268.52	1268.52	1268.52	1268.52	1268.52	1268.52	1268.52	1268.52	1268.52	1268.52	1268.52	1268.52	1268.52	1268.52



CAMBER AND SLAB THICKNESS DIAGRAM

CAMBER IS BASED ON 3 TIMES DEAD LOAD DEFLECTIONS.
CAMBER SPANS AS SHOWN TO PROVIDE FOR DEADLOAD DEFLECTION & FUTURE CREEP. CAMBER DOES NOT INCLUDE ALLOWANCE FOR FORM SETTLEMENT.

TO DETERMINE FALSEWORK ELEVATION AT EDGE OF SLAB, CROWN OR CENTERLINE FOLLOW THIS PROCEDURE:

TOP OF SLAB ELEVATION AT FINAL GRADE
MINUS (-) SLAB THICKNESS
PLUS (+) CAMBER
PLUS (+) FORM SETTLEMENT/DEFLECTION DUE TO PLACEMENT OF SLAB CONCRETE (TO BE COMPUTED BY THE CONTRACTOR)

EQUALS= TOP OF SLAB FALSEWORK ELEVATION.

CAMBER NOTES:

PRIOR TO RELEASING SLAB FALSEWORK, TAKE TOP OF SLAB ELEVATIONS AT THE CL OF ABUTMENTS, THE CL OF PIERS AND AT 5/10 POINTS, TO VERIFY CAMBER. TAKE ELEVATIONS ALONG EDGE OF SLAB AND CROWN POINT. RECORD THE ELEVATIONS IN THE "SURVEY TOP OF SLAB ELEVATIONS" TABLE FOR THE "AS BUILT" PLANS.

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

SURVEY TOP OF SLAB ELEVATIONS

LOCATION	W. ABUT.	5/10 PT	PIER 1	5/10 PT	PIER 2	5/10 PT	PIER 3	5/10 PT	E. ABUT.
NORTH EDGE OF SLAB									
CROWN									
SOUTH EDGE OF SLAB									

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SUPERSTRUCTURE DETAILS-5			SHEET 18 OF 19

19-01 6x25 WITH 1/8"x1 1/2" HORIZ. SLOTS ON EACH SIDE OF POST FOR BOLT 19-06. CUT BOTTOM OF POST TO MATCH CROSS SLOPE OF ROADWAY. PLACE POST VERTICAL. PLACE POSTS NORMAL TO GRADE LINE.

19-02 PLATE 1/4"x1 3/4"x1'-8" WITH 1/16" DIA. OVERSIZED HOLES FOR ANCHOR BOLTS 19-03. WELD TO 19-01 AS SHOWN.

19-03 ASTM A449 - 1/8" DIA. ANCHOR BOLTS WITH NUT AND HARDENED WASHER (ALL GALVANIZED). 5 REQ'D. PER POST. THREAD 3" AND PLACE NORMAL TO PLATE 19-02. CHAMFER TOP OF BOLTS BEFORE THREADING. USE 1'-9" LONG IN ABUTMENT WINGS. USE 1'-3" 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.)

19-04 5/8"x11"x1'-8" ANCHOR PLATE (GALVANIZED) WITH 1/16" DIA. HOLES FOR ANCHOR BOLTS 19-03.

19-05 TS 5x4x0.25 STRUCTURAL TUBING. ATTACH TO 19-01 WITH 19-06.

19-5A TS 5x5x0.25 STRUCTURAL TUBING. ATTACH TO 19-01 WITH 19-06.

19-06 7/8" DIA. A325 SLOTTED ROUND HEAD BOLT WITH NUT, 3/16"x1 5/8"x1 5/8" MIN. WASHER, AND LOCK WASHER (2 REQ'D. AT EACH RAIL TO POST LOCATION.)

19-07 1/2" THK. BACK-UP PLATE WITH 2 - 7/16"x1 1/2" THREADED SHOP WELDED STUDS (19-12). BOLT TO RAIL AS SHOWN IN DETAIL. REQUIRED AT THREE BEAM GUARD RAIL ATTACHMENTS ONLY. PLACE SYMMETRICALLY ABOUT TUBES 19-5A.

19-08 1" DIA. HOLES IN PLATE 19-07 & TUBES 19-5A FOR 7/8" DIA. A325 BOLTS WITH HEX NUTS AND WASHERS. 6 HOLES IN TUBES AND PLATE 19-07.

19-09 SPLICE SLEEVE FABRICATED FROM 1/4" PLATE. PROVIDE "SLIDING FIT".

19-10 3/8"x3 5/8"x2'-4" PLATE. 2 PER RAIL. USED IN 19-05 & 19-5A.

19-10A 3/8"x2 5/8"x2'-4" PLATE USED IN 19-05, 3/8"x3 5/8"x2'-4" PLATE USED IN 19-5A. 2 PER RAIL.

19-11 7/8" DIA. A325 ROUND HEAD BOLT WITH NUT, WASHER, AND LOCK WASHER. USE 1 5/16"x1 1/4" LONGIT. SLOTTED HOLES IN PLATE 19-10A AT FIELD JOINTS AND 1 1/2"x2 1/4" MIN. LONGIT. SLOTTED HOLES AT EXP. JOINTS IN PLATE 19-10A. PROVIDE 1/16" DIA. ROUND HOLES IN TUBES 19-05 AND 19-5A.

19-12 7/8" DIA. x 1 1/2" LONG THREADED SHOP WELDED STUDS (2 REQ'D).

19-13 3/8"x8"x1'-6" PLATE. BOLT TO RAIL AS SHOWN IN DETAIL. REQ'D. AT THREE BEAM GUARD RAIL ATTACHMENTS ONLY. PLACE SYM. ABOUT TUBES 19-5A.

19-14 7/8" DIA. x 2" LONG A325 HEX BOLT WITH NUT AND WASHER (5 REQ'D.).

19-15 1" DIA. HOLES IN TUBES 19-5A FOR 7/8" DIA. A325 ROUND HEAD BOLT WITH NUT, WASHER AND LOCK WASHER (4 REQ'D.). 4 HOLES IN TUBES.

19-16 TIE BELOW TOP MAT OF STEEL.

19-17 1/4" TO 3/4".

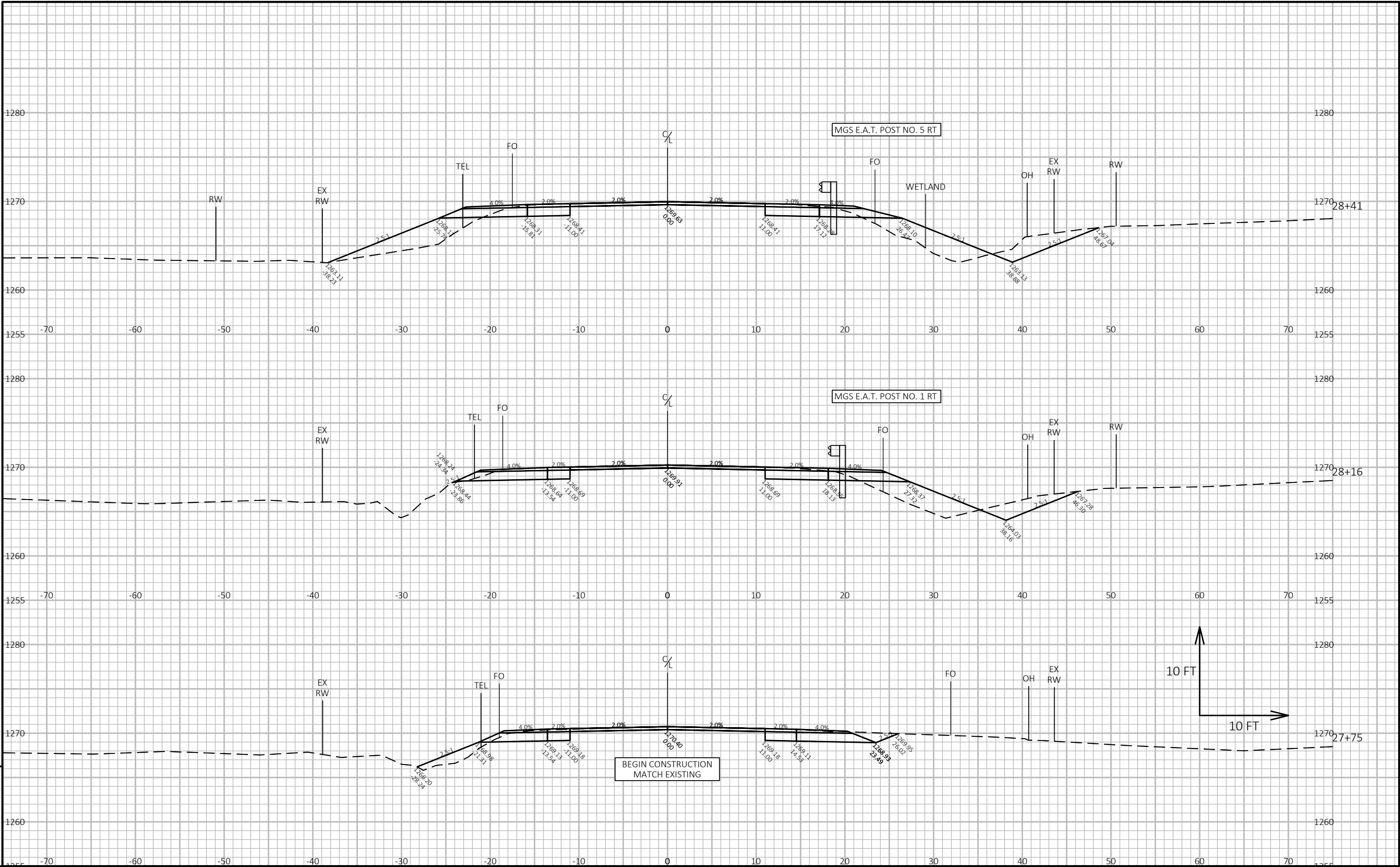
1. BID ITEM SHALL BE "RAILING TUBULAR TYPE M" WHICH INCLUDES ALL ITEMS SHOWN.
2. RAIL POST AND BASE PLATES SHALL CONFORM TO THE REQUIREMENTS OF ASTM A709 GRADE 50. HOLLOW RAILING STRUCTURAL TUBING SHALL CONFORM TO THE REQUIREMENTS OF ASTM A500 GRADE B OR C WITH A CERTIFIED FY = 50 ksi. ANCHOR PLATES, 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 $\frac{1}{8}$ 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 19-02 AND CAULK AROUND PERIMETER OF PLATE 19-02 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-37-475					
			DRAWN BY	TKB	PLANS CK'D. EP
TUBULAR STEEL RAILING TYPE M				SHEET 19 OF 19	

DIVISION 1 - CTH A

STATION	REAL STATION	DISTANCE	AREA (SF)			INCREMENTAL VOL (CY) (UNADJUSTED)						CUMULATIVE VOL (CY)		
			CUT	SALVAGED/UNUSABLE PAVEMENT MATERIAL	FILL	CUT	SALVAGED/UNUSABLE PAVEMENT MATERIAL	FILL	MARSH EXC	ROCK EXC	EBS	CUT	EXPANDED FILL	MASS ORDNATE
						NOTE 1	NOTE 2	NOTE 3				NOTE 1	NOTE 2	NOTE 8
27+75.00	2775.00	0.00	29.06	0.00	6.89	0	0	0	0	0	0	0	0	0
28+15.84	2815.84	40.84	37.73	0.00	22.35	51	9	22	0	0	0	51	28	15
28+40.82	2840.82	24.98	35.47	0.00	44.99	34	9	31	0	0	0	85	66	2
28+60.49	2860.49	19.67	37.24	0.00	59.02	26	9	38	0	0	0	111	114	-29
28+65.80	2865.80	5.31	63.07	0.00	57.68	10	9	11	0	0	0	121	128	-41
28+85.48	2885.48	19.68	49.65	0.00	60.54	41	9	43	0	0	0	162	181	-62
29+09.77	2909.77	24.29	46.83	0.00	63.14	43	9	56	0	0	0	205	251	-98
29+47.49	2947.49	37.72	47.27	0.00	65.01	66	9	90	0	0	0	271	364	-153
29+55.93	2955.93	8.44	46.56	0.00	71.02	15	9	21	0	0	0	286	390	-173
STRUCTURE B-37-475														
32+10.07	3210.07	254.14	41.76	0.00	90.34	0	0	0	0	0		286	390	-173
32+18.51	3218.51	8.44	42.14	0.00	88.10	13	8	28	0	0	0	299	425	-203
32+50.00	3250.00	31.49	45.25	0.00	86.19	51	8	102	0	0	0	350	553	-288
32+58.64	3258.64	8.64	45.47	0.00	97.37	15	8	29	0	0	0	365	589	-317
32+83.62	3283.62	24.98	46.16	0.00	114.72	42	8	98	0	0	0	407	711	-406
33+00.20	3300.20	16.58	20.02	0.00	142.59	20	8	79	0	0	0	427	810	-493
33+08.60	3308.60	8.40	19.44	0.00	151.80	6	8	46	0	0	0	433	868	-553
33+25.18	3325.18	16.58	18.51	0.00	167.93	12	8	98	0	0	0	445	990	-671
33+50.16	3350.16	24.98	18.36	0.00	188.56	17	8	165	0	0	0	462	1,196	-869
33+91.00	3391.00	40.84	19.99	0.00	129.99	29	8	241	0	0	0	491	1,498	-1,149
34+00.00	3400.00	9.00	15.42	0.00	110.55	6	8	40	0	0	0	497	1,548	-1,201
34+43.00	3443.00	43.00	18.77	0.00	0.05	27	8	88	0	0	0	524	1,658	-1,293

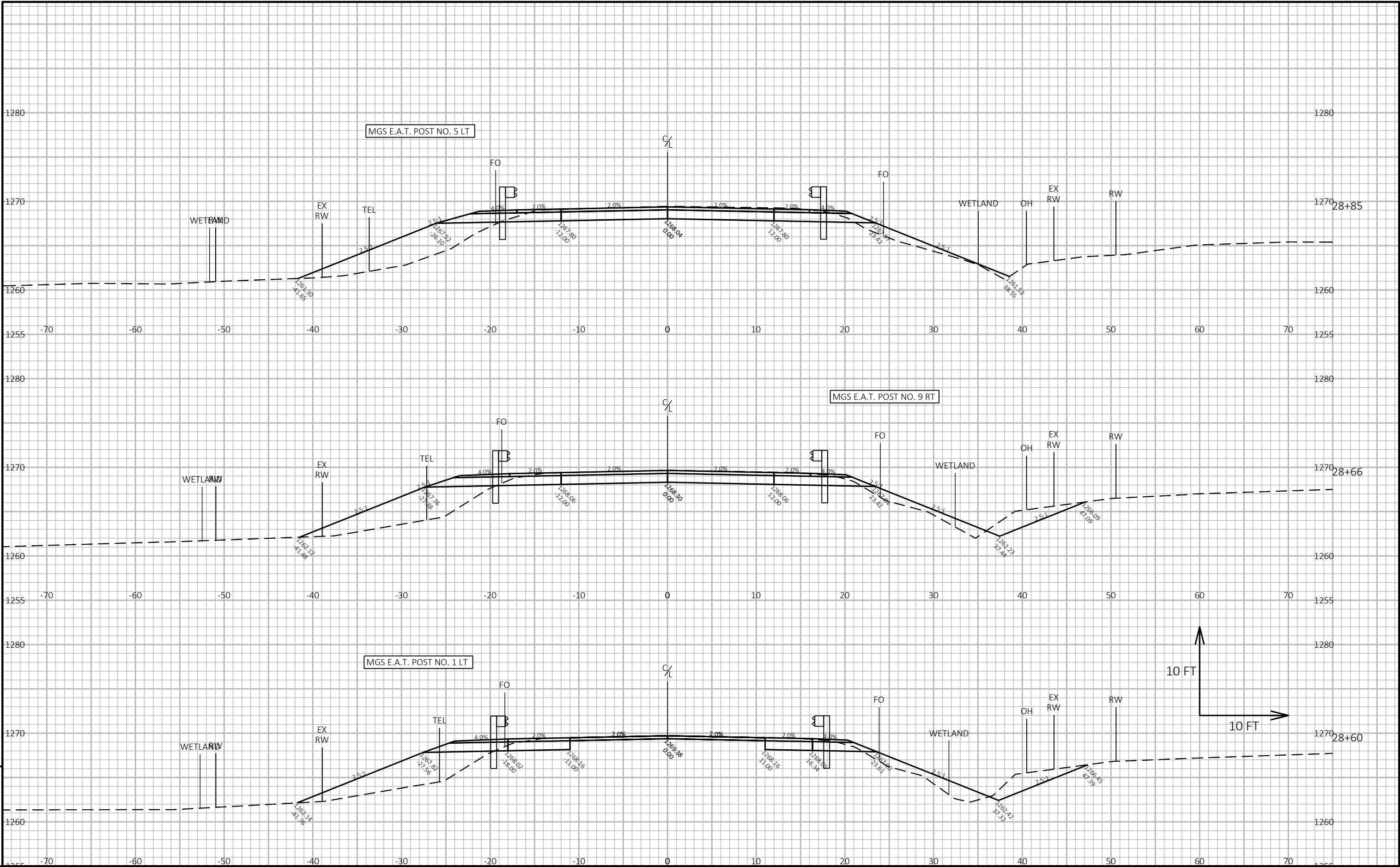
NOTES:	
1 - CUT	CUT INCLUDES SALVAGED/UNUSABLE PAVEMENT MATERIAL
2 - SALVAGED/UNUSABLE PAVEMENT MATERIAL	THIS DOES NOT SHOW UP IN CROSS SECTIONS
3 - FILL	DOES NOT INCLUDE UNUSABLE PAVEMENT EXC VOLUME
4 - MASS ORDNATE	(CUT - SALVAGED PAVT) - (FILL * FILL FACTOR)



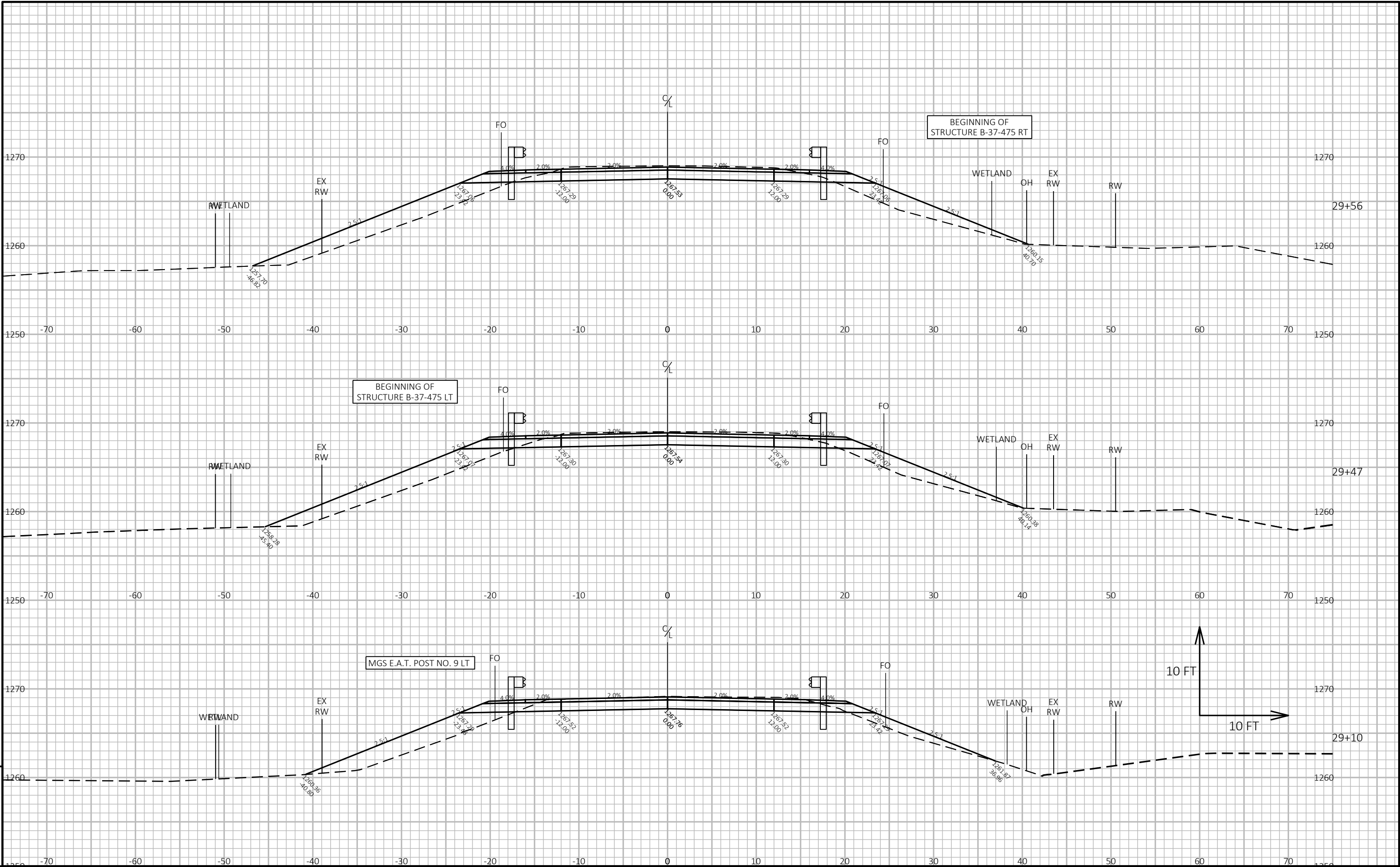
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PROJECT NO: 9479-00-74	HWY: CTH A	COUNTY: MARATHON	CROSS SECTIONS: CTH A	SHEET E
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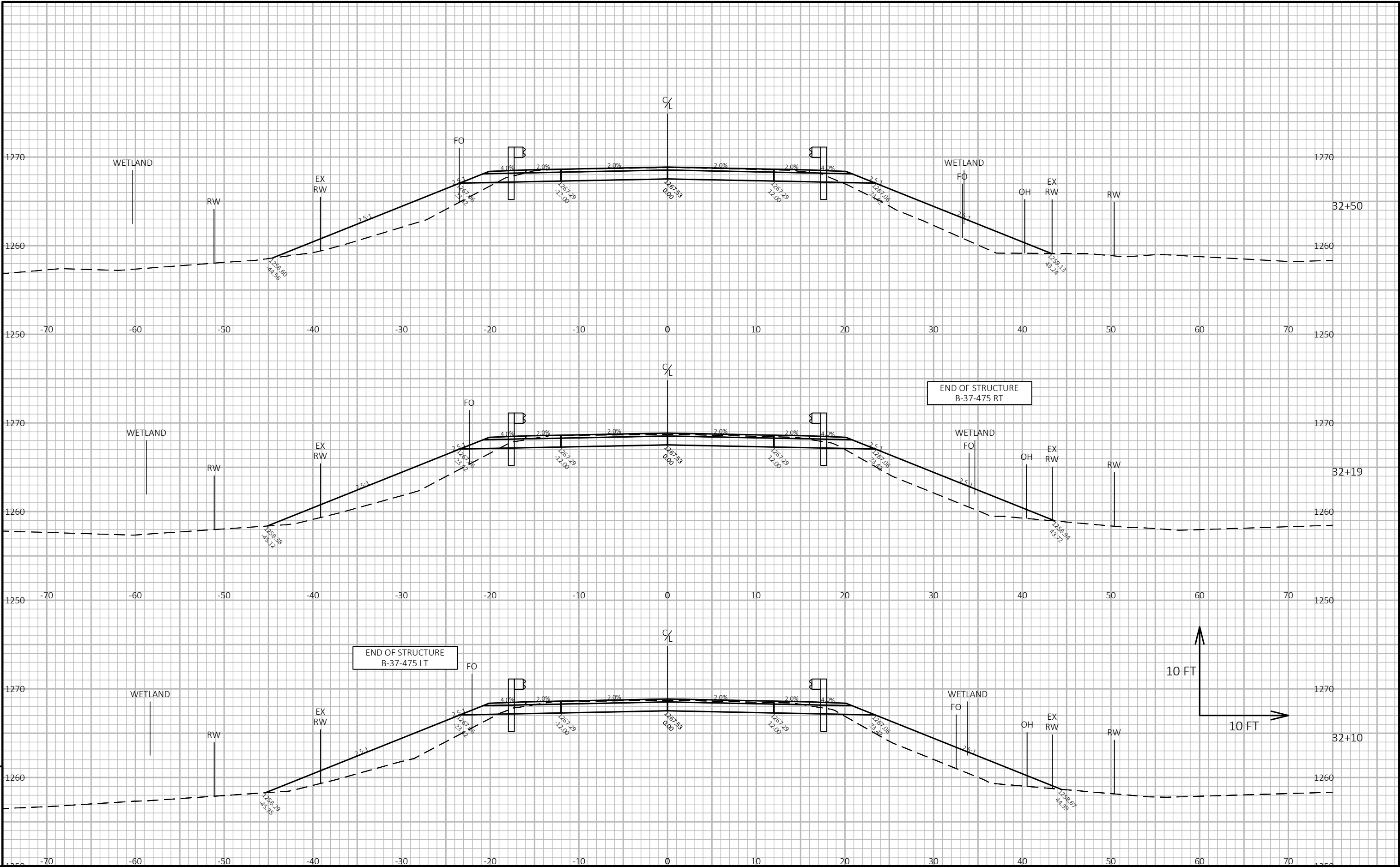
PROJECT NO: 9479-00-74	HWY: CTH A	COUNTY: MARATHON	CROSS SECTIONS: CTH A	SHEET	E
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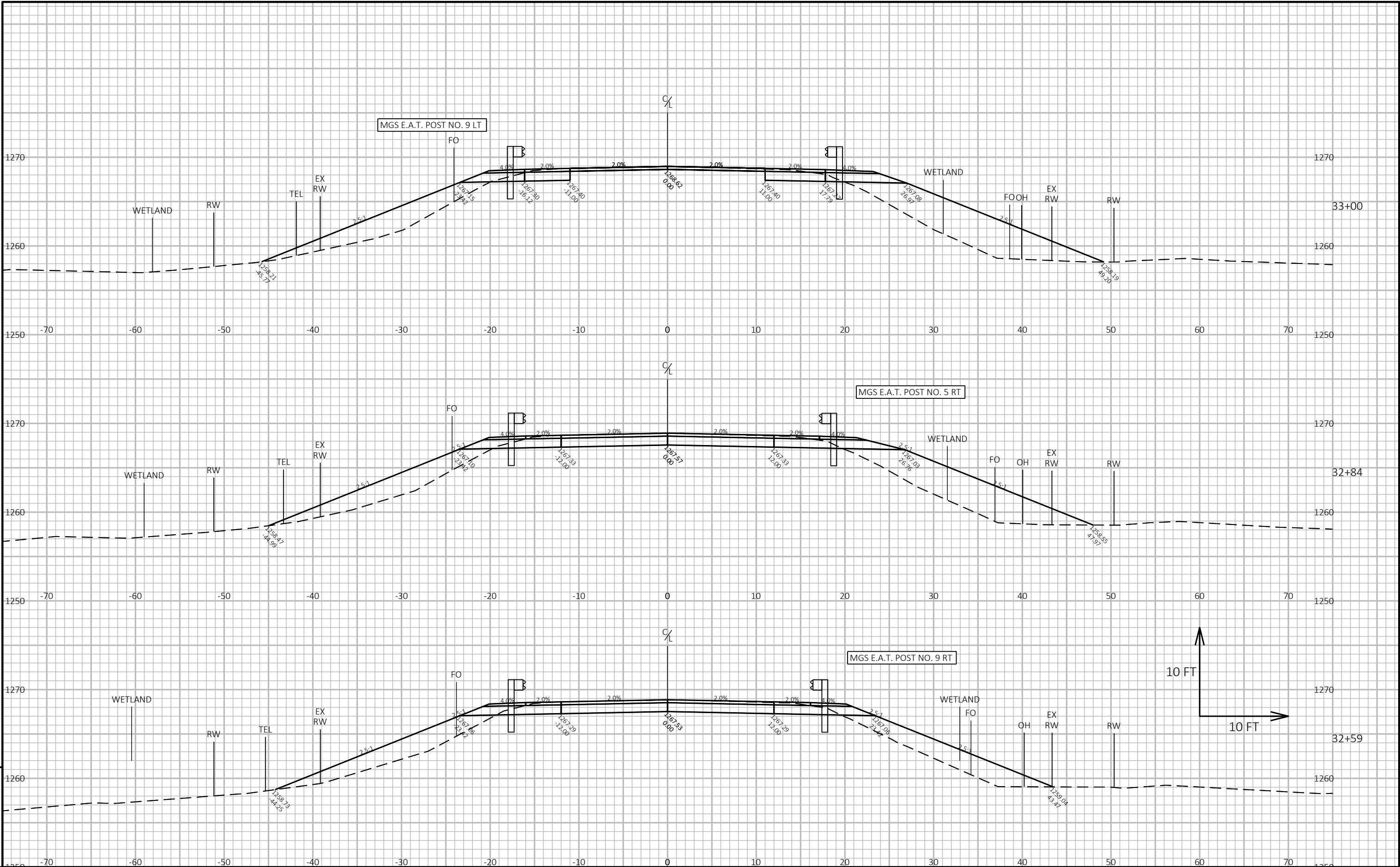


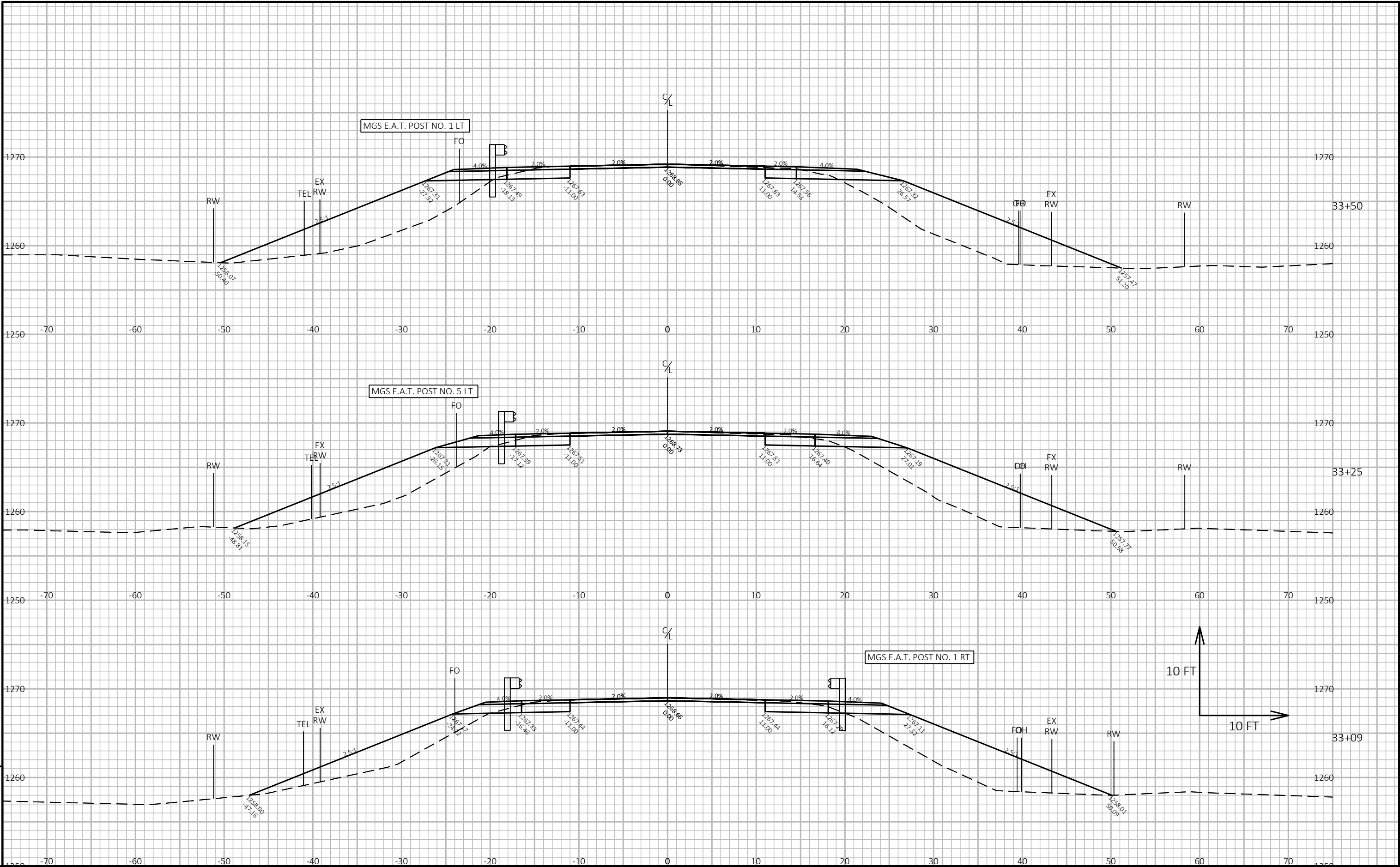
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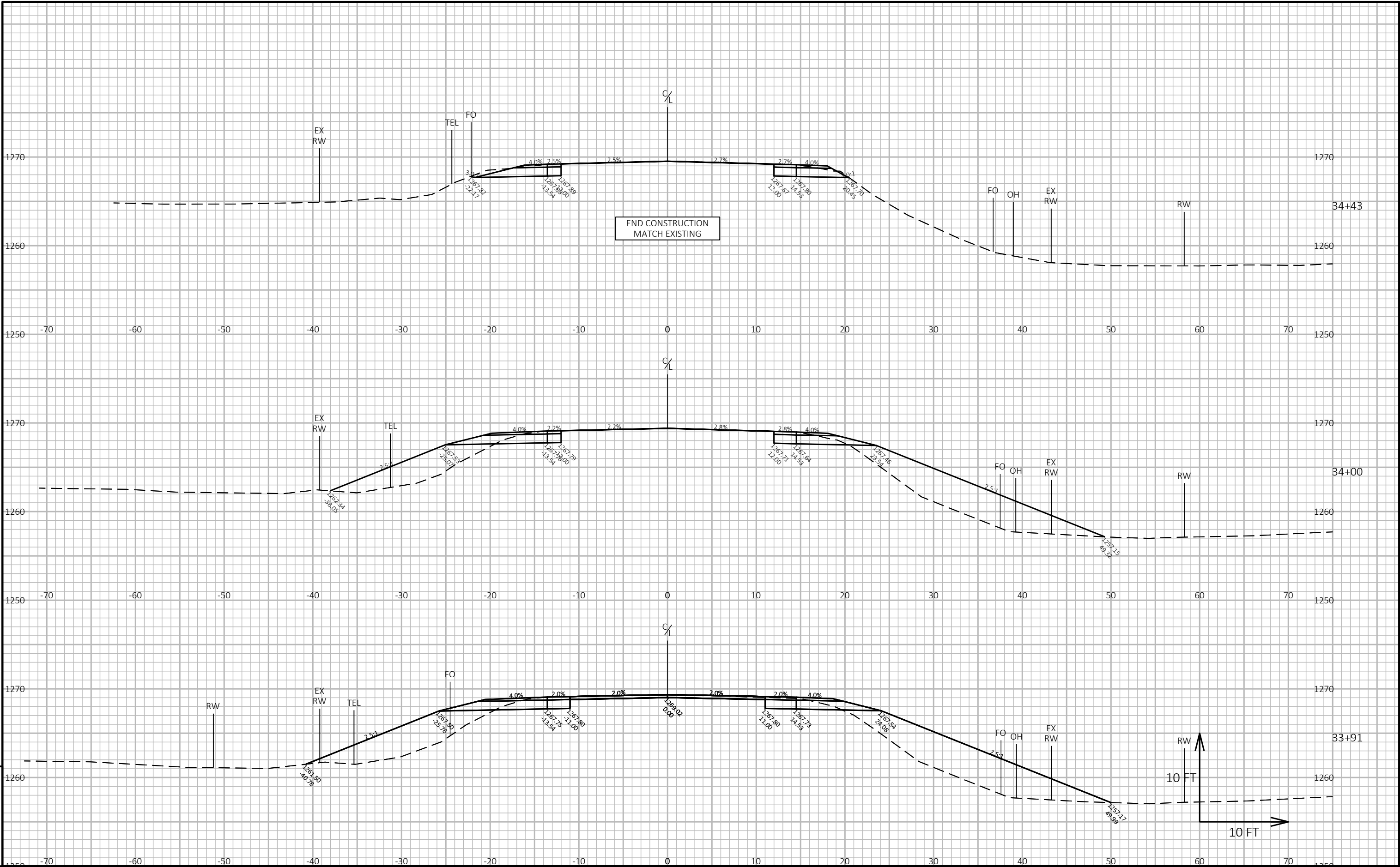
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PROJECT NO: 9479-00-74	HWY: CTH A	COUNTY: MARATHON	CROSS SECTIONS: CTH A	SHEET E
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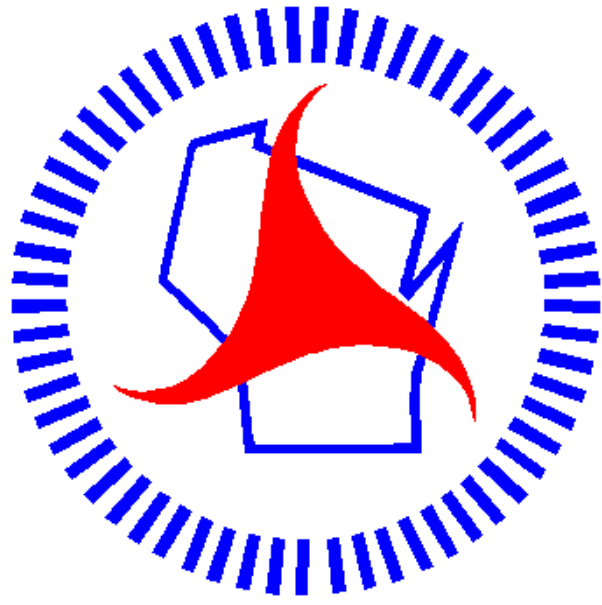








PROJECT NO: 9479-00-74	HWY: CTH A	COUNTY: MARATHON	CROSS SECTIONS: CTH A	SHEET E
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Wisconsin Department of Transportation

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