

MAD AUGUST 2021

PROJECT ID: 3653-00-70
WITH: N/A

COUNTY: ROCK

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 (incl. Erosion Control Plans)
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 = 62



DESIGN DESIGNATION 3653-00-70

A.A.D.T. (2022)	=	600
A.A.D.T. (2042)	=	1000
D.H.V.	=	
D.D.	=	
T.	=	5.9%
DESIGN SPEED	=	35 MPH
ESALS	=	95,000

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	

STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION

PLAN OF PROPOSED IMPROVEMENT

CTH S - CTH O

TURTLE CREEK BRIDGE, B-53-0386

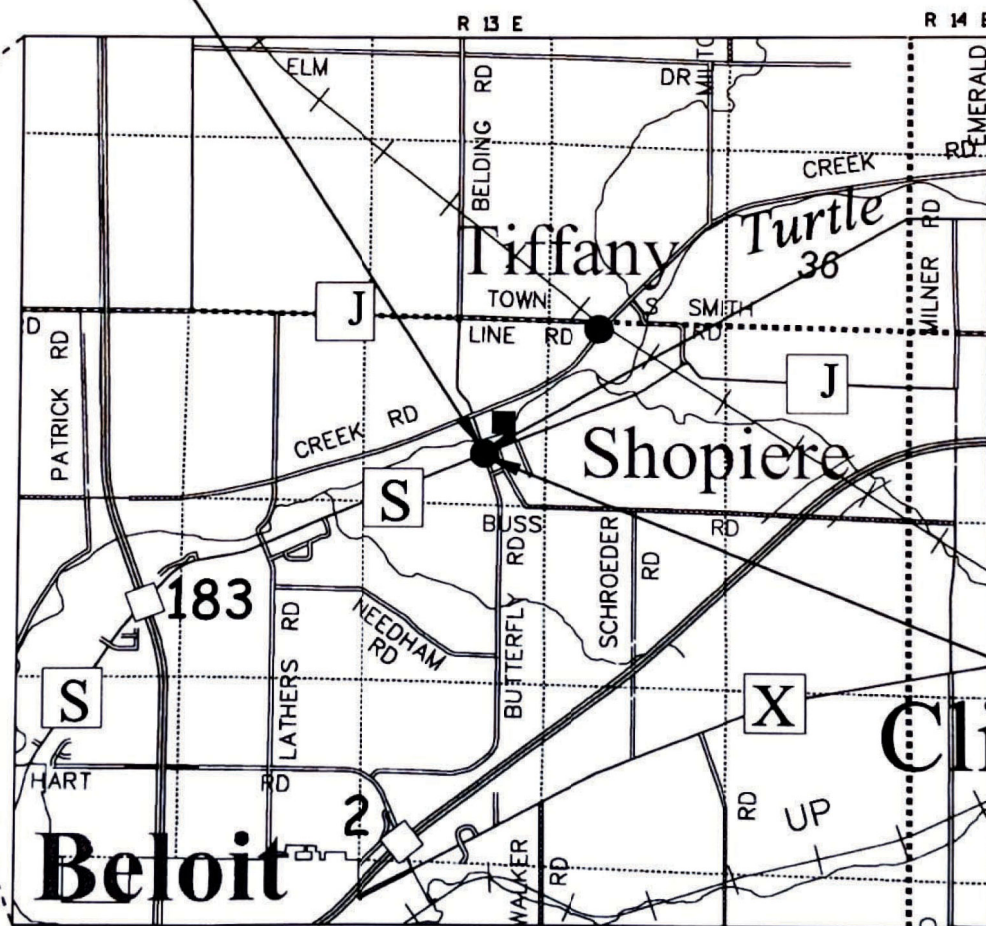
CTH J

ROCK COUNTY

STATE PROJECT NUMBER

3653-00-70

END PROJECT 3653-00-70
STA. 12+20.00
Y = 229,391.480
X = 515,415.917



LAYOUT
SCALE 0 1 MI

TOTAL NET LENGTH OF CENTERLINE = 0.089 MILES

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

STATE PROJECT

3653-00-70

FEDERAL PROJECT

PROJECT

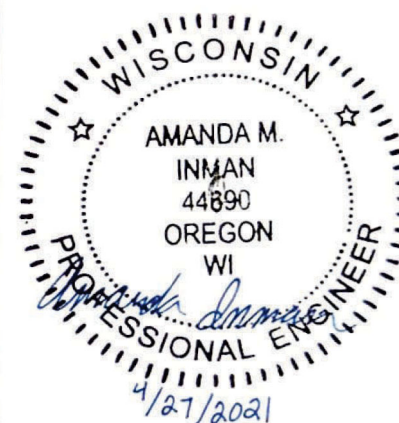
CONTRACT

ACCEPTED FOR
ROCK COUNTY

Date: 3/19/21
(DIRECTOR OF PUBLIC WORKS)

ORIGINAL PLANS PREPARED BY

AYRES



STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PREPARED BY

Surveyor	AYRES ASSOCIATES
Designer	AYRES ASSOCIATES
Regional Examiner	SW REGION
Regional Supervisor	IAN WINGER

APPROVED FOR THE DEPARTMENT

DATE: 04/29/21
(Signature)

E

GENERAL NOTES

NOTIFY DIGGERS HOTLINE AND AFFECTED UTILITIES PRIOR TO THE START OF WORK. ANY UTILITY WHICH IS NOT A MEMBER OF DIGGERS HOTLINE MUST BE CONTACTED SEPARATELY.

THE LOCATIONS OF EXISTING AND PROPOSED UTILITY INSTALLATIONS AS SHOWN ON THE PLANS ARE APPROXIMATE. THERE MAY BE OTHER UTILITY INSTALLATIONS WITHIN THE PROJECT LOCATION THAT ARE NOT SHOWN. THE CONTRACTOR IS RESPONSIBLE FOR FIELD LOCATING ALL UTILITIES.

A SAWED JOINT WILL BE REQUIRED WHERE NEW PAVEMENT IS TO MEET AN EXISTING PAVED SURFACE.

EXACT TRAFFIC CONTROL LOCATIONS WILL BE DETERMINED BY THE ENGINEER IN THE FIELD.

ALL SIGN LOCATIONS SHALL BE REVIEWED BY THE ENGINEER PRIOR TO INSTALLATION.

NO TREES OR SHRUBS SHALL BE REMOVED UNLESS DESIGNATED FOR REMOVAL BY THE ENGINEER.

PROTECT FROM DAMAGE AND COMPLETE SHOULDER WORK AROUND ANY EXISTING SIGNS OR MAILBOXES THAT ARE TO REMAIN IN PLACE.

RESTORATION OF EXPOSED SLOPES AND DITCHES SHALL TAKE PLACE WITHIN 7 CALENDAR DAYS AFTER FINISHED GRADING IS COMPLETE.

WETLANDS ARE PRESENT IN THE PROJECT AREA. DO NOT DISTURB WETLANDS OUTSIDE THE PROPOSED SLOPE INTERCEPTS.

IF AN EXISTING SIGN IS TO BE REMOVED AND REPLACED WITH A NEW SIGN, DO NOT REMOVE THE EXISTING SIGN PRIOR TO INSTALLATION OF THE NEW SIGN.

THE LOCATIONS OF EROSION CONTROL ITEMS SHALL BE PLACED AS SHOWN ON THE PLAN OR AS DIRECTED BY THE ENGINEER. ALL EROSION CONTROL MEASURES SHALL BE MAINTAINED UNTIL SUCH TIME AS THE ENGINEER DETERMINES THE MEASURE IS NO LONGER NECESSARY.

HMA UNIT WEIGHT: 112 LB/SY/IN
TACK COAT APPLICATION RATE: 0.07 GAL/SY

HMA LAYERS:
-UPPER: 2.50-INCH (4 LT 58-28 S)
-LOWER: 3.75-INCH (3 LT 58-28 S)

ABBREVIATIONS

A.D.T.	AVERAGE DAILY TRAFFIC
ATMS	ARTERIAL TRAFFIC MANAGEMENT SYSTEM
BM	BENCHMARK
BOC	BACK OF CURB
BTWN	BETWEEN
C&G	CURB AND GUTTER
C.E.	COMMERCIAL ENTRANCE
CONST	CONSTRUCTION
CP	CONTROL POINT
CTR.	CENTER
D.D.	DIRECTIONAL DISTRIBUTION
D.H.T.	DESIGN HOURLY VOLUME
DMS	DYNAMIC MESSAGE SIGN
EB	EASTBOUND
EXIST	EXISTING
GALV.	GALVANIZED
HMA	HOT MIX ASPHALT
H.S.	HIGH STRENGTH
ITS	INTELLIGENT TRAFFIC SYSTEM
MAX	MAXIMUM
MIN	MINIMUM
NB	NORTHBOUND
NOR	NORMAL
PC	POINT OF CURVATURE
PCC	POINT OF COMMON CURVATURE
PGL	PROFILE GRADE LINE
PI	POINT OF INTERSECTION
PRC	POINT OF REVERSE CURVATURE
PT	POINT OF TANGENCY
PVT	PAVEMENT
R/L	REFERENCE LINE
REQ'D	REQUIRED
SB	SOUTHBOUND
SYM	SYMMETRICAL
T.	PERCENT TRUCKS
TCC	TRAFFIC CONDITION CAMERA
TYP	TYPICAL
VAR	VARIABLE
WB	WESTBOUND
Wt.	WEIGHT
X-WALK	CROSS WALK

PROJECT CONTACTS

ROCK COUNTY PUBLIC WORKS
DUANE JORGENSEN
DIRECTOR OF PUBLIC WORKS
3715 NEWVILLE ROAD
JANESVILLE, WI 53545
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E: JORGEND@CO.ROCK.WI.US

WISCONSIN DEPARTMENT OF NATURAL RESOURCES
SHELLEY NELSON
SOUTHWEST REGION HEADQUARTERS
3911 FISH HATCHERY ROAD
FITCHBURG, WI 53711
P: (608) 444-2835
E: SHELLEY.NELSON@WISCONSIN.GOV

DESIGNER
AMANDA INMAN, PE
AYRES ASSOCIATES
5201 EAST TERRACE DRIVE, SUITE 200
MADISON, WI 53718
P: (608) 443-1239
E: INMANA@AYRESASSOCIATES.COM

UTILITIES

ALLIANT ENERGY (GAS & ELECTRIC)
DEAN COPP
935 WBR TOWNLIN RD
BELOIT, WI 53511
P: (608) 364-6431
C: (608) 751-4440
E: DEANCOPP@ALLIANTENERGY.COM

AT&T
CAROL ANASON
316 W. WASHINGTON AVE
MADISON, WI 53701
P: (608) 252-2385
C: (608) 622-2079
E: CA2624@ATT.COM

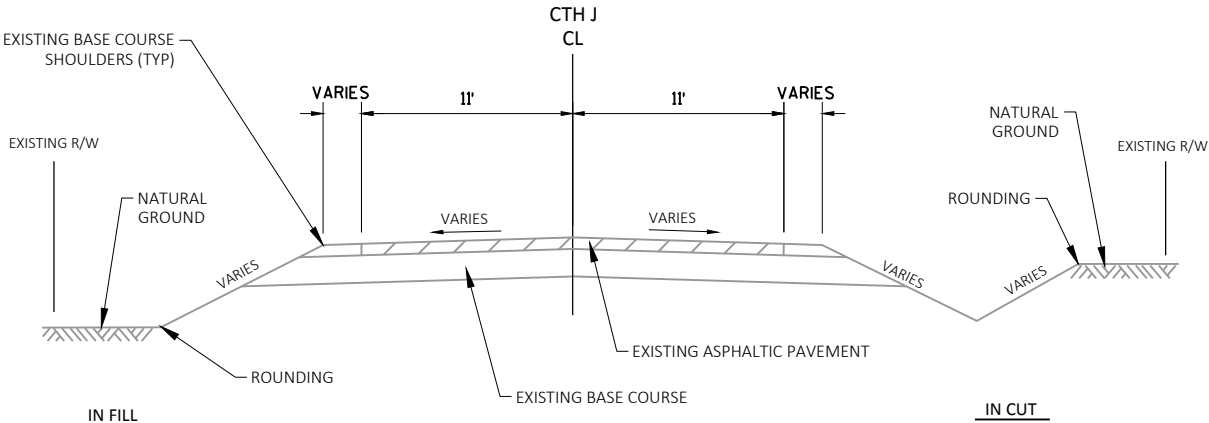
CHARTER COMMUNICATIONS
TOM PHILLIPS
2016 CRANSTON RD
BELOIT, WI 53511
P: (608) 312-2222 EXT. 61862
C: (608) 209-4821
E: THOMAS.PHILLIPS@CHARTER.COM

** DENOTES UTILITIES THAT ARE NOT DIGGERS HOTLINE MEMBERS

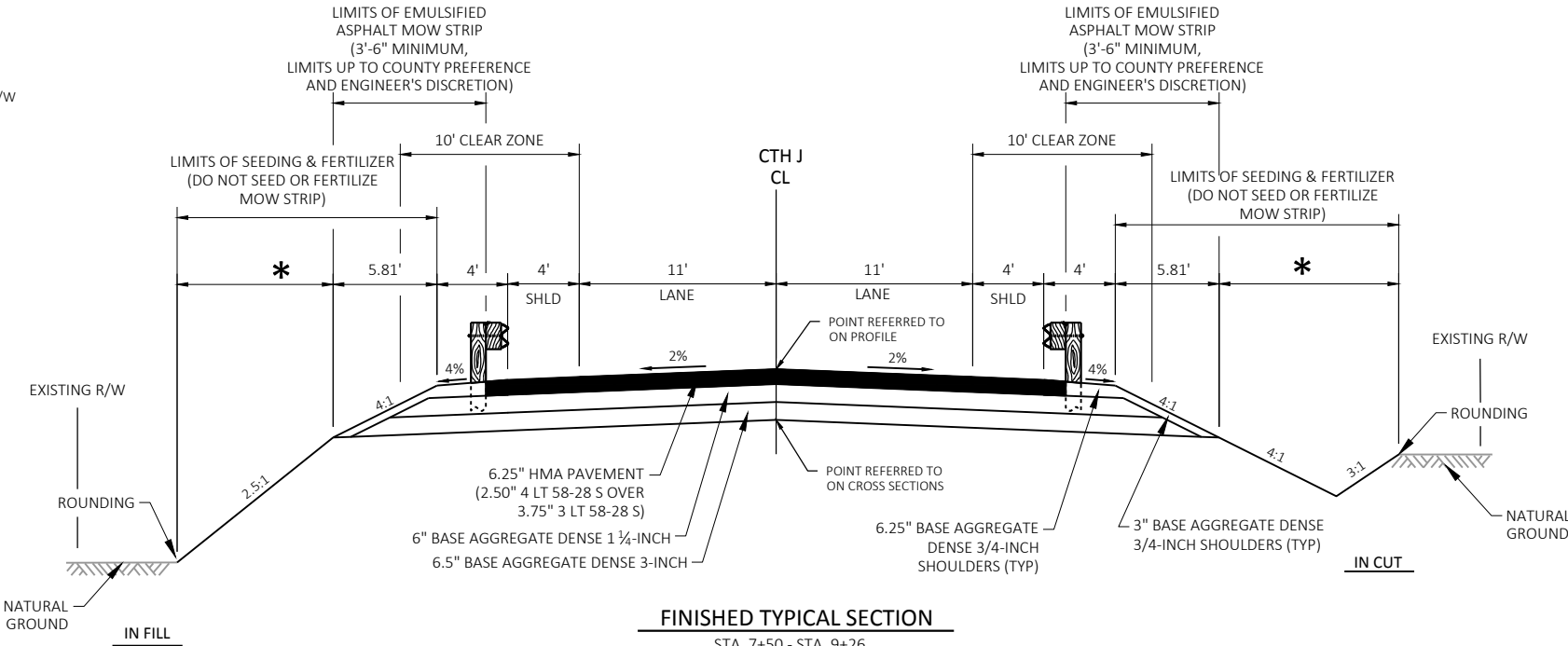
DIGGERSHOTLINE

Dial 811 or (800)242-8511

www.DiggersHotline.com



TYPICAL EXISTING SECTION

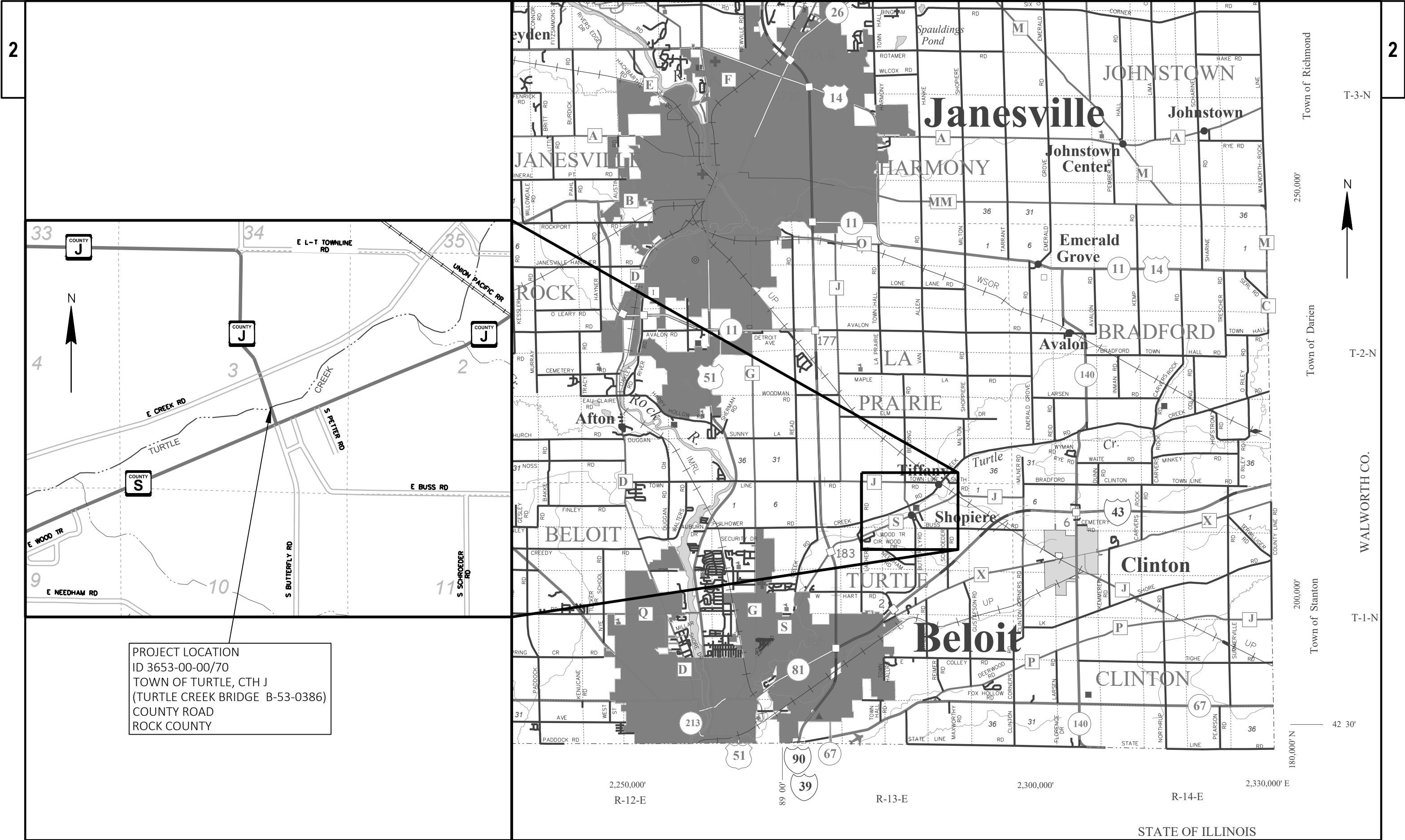


FINISHED TYPICAL SECTION

STA. 7+50 - STA. 9+26
STA. 10+75 - STA. 12+20

* LIMITS OF TOPSOIL AND EROSION MAT

NOTE:
HMA PAVING LIMITS TO FACE OF BEAM GUARD POSTS
BAD 3/4-INCH SHOULDERS TO BE SPRAYED WITH EMULSIFIED ASPHALT TO LIMITS DETERMINED BY ENGINEER



PROJECT NO: 3653-00-70	HWY: CTH J	COUNTY: ROCK	PROJECT OVERVIEW	SHEET E
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Estimate Of Quantities

3653-00-70

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	203.0100	Removing Small Pipe Culverts	EACH	2.000	2.000
0008	203.0600.S	Removing Old Structure Over Waterway With Minimal Debris (station) 01. 10+00	LS	1.000	1.000
0010	204.0165	Removing Guardrail	LF	260.000	260.000
0012	205.0100	Excavation Common	CY	863.000	863.000
0014	206.1000	Excavation for Structures Bridges (structure) 01. B-53-386	LS	1.000	1.000
0016	206.5000	Cofferdams (structure) 01. B-53-386	LS	1.000	1.000
0018	208.0100	Borrow	CY	69.000	69.000
0020	210.1500	Backfill Structure Type A	TON	220.000	220.000
0022	213.0100	Finishing Roadway (project) 01. 3653-00-70	EACH	1.000	1.000
0024	305.0110	Base Aggregate Dense 3/4-Inch	TON	189.000	189.000
0026	305.0120	Base Aggregate Dense 1 1/4-Inch	TON	416.000	416.000
0028	305.0130	Base Aggregate Dense 3-Inch	TON	556.000	556.000
0030	455.0605	Tack Coat	GAL	80.000	80.000
0032	460.2000	Incentive Density HMA Pavement	DOL	140.000	140.000
0034	460.5223	HMA Pavement 3 LT 58-28 S	TON	238.000	238.000
0036	460.5224	HMA Pavement 4 LT 58-28 S	TON	158.000	158.000
0038	465.0120	Asphaltic Surface Driveways and Field Entrances	TON	5.000	5.000
0040	502.0100	Concrete Masonry Bridges	CY	529.000	529.000
0042	502.3200	Protective Surface Treatment	SY	635.000	635.000
0044	505.0400	Bar Steel Reinforcement HS Structures	LB	9,280.000	9,280.000
0046	505.0600	Bar Steel Reinforcement HS Coated Structures	LB	66,020.000	66,020.000
0048	513.4061	Railing Tubular Type M	LF	342.000	342.000
0050	516.0500	Rubberized Membrane Waterproofing	SY	20.000	20.000
0052	521.1018	Apron Endwalls for Culvert Pipe Steel 18-Inch	EACH	2.000	2.000
0054	521.1221	Apron Endwalls for Pipe Arch Steel 21x15-Inch	EACH	2.000	2.000
0056	521.3118	Culvert Pipe Corrugated Steel 18-Inch	LF	36.000	36.000
0058	521.3721	Pipe Arch Corrugated Steel 21x15-Inch	LF	22.000	22.000
0060	550.0020	Pre-Boring Rock or Consolidated Materials	LF	200.000	200.000
0062	550.0500	Pile Points	EACH	30.000	30.000
0064	550.1100	Piling Steel HP 10-Inch X 42 Lb	LF	770.000	770.000
0066	606.0300	Riprap Heavy	CY	325.000	325.000
0068	612.0406	Pipe Underdrain Wrapped 6-Inch	LF	140.000	140.000
0070	614.0397	Guardrail Mow Strip Emulsified Asphalt	SY	413.000	413.000
0072	614.2500	MGS Thrie Beam Transition	LF	157.600	157.600
0074	614.2610	MGS Guardrail Terminal EAT	EACH	4.000	4.000
0076	618.0100	Maintenance And Repair of Haul Roads (project) 01.	EACH	1.000	1.000

Estimate Of Quantities

3653-00-70					
Line	Item	Item Description	Unit	Total	Qty
3653-00-70					
0078	619.1000	Mobilization	EACH	1.000	1.000
0080	623.0200	Dust Control Surface Treatment	SY	1,130.000	1,130.000
0082	624.0100	Water	MGAL	11.000	11.000
0084	625.0100	Topsoil	SY	1,075.000	1,075.000
0086	628.1504	Silt Fence	LF	670.000	670.000
0088	628.1520	Silt Fence Maintenance	LF	1,340.000	1,340.000
0090	628.1905	Mobilizations Erosion Control	EACH	4.000	4.000
0092	628.1910	Mobilizations Emergency Erosion Control	EACH	4.000	4.000
0094	628.2008	Erosion Mat Urban Class I Type B	SY	1,185.000	1,185.000
0096	628.6005	Turbidity Barriers	SY	373.000	373.000
0098	628.7555	Culvert Pipe Checks	EACH	6.000	6.000
0100	629.0210	Fertilizer Type B	CWT	1.000	1.000
0102	630.0140	Seeding Mixture No. 40	LB	26.000	26.000
0104	630.0200	Seeding Temporary	LB	42.000	42.000
0106	630.0300	Seeding Borrow Pit	LB	1.000	1.000
0108	630.0500	Seed Water	MGAL	25.000	25.000
0110	634.0614	Posts Wood 4x6-Inch X 14-FT	EACH	5.000	5.000
0112	637.2210	Signs Type II Reflective H	SF	5.000	5.000
0114	637.2230	Signs Type II Reflective F	SF	12.000	12.000
0116	638.2602	Removing Signs Type II	EACH	5.000	5.000
0118	638.3000	Removing Small Sign Supports	EACH	5.000	5.000
0120	642.5001	Field Office Type B	EACH	1.000	1.000
0122	643.0420	Traffic Control Barricades Type III	DAY	1,926.000	1,926.000
0124	643.0705	Traffic Control Warning Lights Type A	DAY	2,996.000	2,996.000
0126	643.0900	Traffic Control Signs	DAY	1,498.000	1,498.000
0128	643.5000	Traffic Control	EACH	1.000	1.000
0130	645.0111	Geotextile Type DF Schedule A	SY	50.000	50.000
0132	645.0120	Geotextile Type HR	SY	570.000	570.000
0134	646.1020	Marking Line Epoxy 4-Inch	LF	1,880.000	1,880.000
0136	650.4500	Construction Staking Subgrade	LF	321.000	321.000
0138	650.5000	Construction Staking Base	LF	321.000	321.000
0140	650.6500	Construction Staking Structure Layout (structure) 01. B-53-0386	LS	1.000	1.000
0142	650.9910	Construction Staking Supplemental Control (project) 01. 3653-00-70	LS	1.000	1.000
0144	650.9920	Construction Staking Slope Stakes	LF	321.000	321.000
0146	690.0150	Sawing Asphalt	LF	59.000	59.000
0148	715.0502	Incentive Strength Concrete Structures	DOL	3,174.000	3,174.000
0150	999.1000.S	Seismograph	LS	1.000	1.000

Estimate Of Quantities

3653-00-70

Line	Item	Item Description	Unit	Total	Qty
0152	999.1500.S	Crack and Damage Survey	LS	1.000	1.000
0154	999.2000.S	Installing and Maintaining Bird Deterrent System	EACH	1.000	1.000
0156	SPV.0090	Special 01. Flashing Stainless Steel	LF	297.000	297.000
0158	SPV.0180	Special 01. Removal and Disposal of Invasive Plant Species	SY	415.000	415.000

CTH J EARTHWORK SUMMARY									
From/To Station	Location	Common Excavation (1) (Item 205.0100)	Removal and Disposal of Invasive Plant Species SPV.0180.01 (SY)	Unexpanded Fill	Expanded Fill (2)	Mass Ordinate +/- (3)	Waste	Borrow (Item 208.0100) (4)	Comment:
		Cut			Factor 1.30				
7+50 -9+25	SOUTH OF BRIDGE	471	0	51	66	405	405	0	
10+75 - 12+20	NORTH OF BRIDGE	392	0	271	352	40	40	0	
8+75 -9+75, RT	SE CORNER OF BRIDGE	0	415	0	0	0	0	69	
TOTAL		863	415					69	

CLEARING & GRUBBING							
CATEGORY	STATION	TO	STATION	LOCATION	201.0105	201.0205	REMARKS
					CLEARING STA	GRUBBING STA	
0010	8+00	-	11+00	CTH J	3	3	
TOTAL 0010					3	3	

- 1) Common Excavation is the Cut. Item number 205.0100.
- 2) Expanded Fill. Factor = 1.30; Expanded Fill = Unexpanded Fill * Fill Factor
- 3) The Mass Ordinate + or - Qty calculated for the Division. Plus quantity indicates an excess of material on the project.
- 4) Borrow assumed at 6" deep to fill in the invasive plant excavation area.
- 5) All quantities shown in CY unless otherwise specified.

REMOVALS							
CATEGORY	STATION	TO	STATION	LOCATION	203.0100	204.0165	REMARKS
					REMOVING SMALL PIPE CULVERTS EACH	REMOVING GUARDRAIL LF	
0010	7+63	-	7+87	MAINLINE LT	1	-	24' - 18" CPCS
0010	7+80	-	8+20	MAINLINE RT	1	-	40' - 18" CPCS
0010	8+66	-	9+31	MAINLINE LT	-	65	
0010	8+66	-	9+31	MAINLINE RT	-	65	
0010	10+69	-	11+34	MAINLINE LT	-	65	
0010	10+69	-	11+34	MAINLINE RT	-	65	
TOTAL 0010					2	260	

CATEGORY	STATION	TO	STATION	LOCATION	305.0110	305.0120	305.0130	624.0100	REMARKS
					BASE AGGREGATE DENSE 3/4-INCH TON	BASE AGGREGATE DENSE 1 1/4- INCH TON	BASE AGGREGATE DENSE 3-INCH TON	WATER MGAL	
0010	7+25	-	9+26	MAINLINE	93	123	180	4	50' APPROACHES + SHOULDER
0010	10+75	-	12+20	MAINLINE	72	114	163	4	50' APPROACHES + SHOULDER
0010	7+65	-	8+19	P.E. RT	23	-	-	-	6-INCH GRAVEL ENTRANCE
TOTAL 0010					189	237	343	7	
0030	7+25	-	8+76	MAINLINE	-	103	122	2	22' CORE BETWEEN SHOULDERS
0030	11+25	-	12+20	MAINLINE	-	76	91	2	22' CORE BETWEEN SHOULDERS
TOTAL 0030					0	179	213	4	

ASPHALT									
CATEGORY	STATION	TO	STATION	LOCATION	455.0605	460.5223	460.5224	465.0120	REMARKS
					TACK COAT GAL	HMA PAVEMENT 3 LT 58-28 S TON	HMA PAVEMENT 4 LT 58-28 S TON	DRIVEWAYS AND FIELD ENTRANCES TON	
0010	7+50	-	9+26	MAINLINE	21	64	42	-	50' APPROACHES + SHOULDERS
0010	10+75	-	12+20	MAINLINE	21	61	41	-	50' APPROACHES + SHOULDERS
0010	7+58	-	7+86	P.E. LT	-	-	-	5	2.5-INCH ASPHALTIC DRIVEWAY
TOTAL 0010					42	125	83	5	
0030	7+50	-	8+76	MAINLINE	22	65	43	-	22' CORE BETWEEN SHOULDERS
0030	11+25	-	12+20	MAINLINE	16	48	32	-	22' CORE BETWEEN SHOULDERS
TOTAL 0030					38	113	75	0	

CULVERTS									
CATEGORY	STATION	TO	STATION	LOCATION	521.1018	521.1221	521.3118	521.3721	REMARKS
					APRON ENDWALLS FOR CULVERT PIPE STEEL 18-INCH EACH	APRON ENDWALLS FOR PIPE ARCH STEEL 21X15- INCH EACH	CULVERT PIPE CORRUGATED STEEL 18-INCH LF	PIPE ARCH CORRUGATED STEEL 21X15- INCH LF	
0010	7+66	-	7+88	MAINLINE LT	-	2	-	22	
0010	7+81		8+20	MAINLINE RT	2	-	36	-	
TOTAL 0010					2	2	36	22	

*BOTH CULVERT PIPE CORRUGATED STEEL & PIPE ARCH CORRUGATED STEEL: MIN THICKNESS = 0.064-INCH.

ROCK COUNTY TO PAY FOR CORE RECONSTRUCT BETWEEN GUARDRAIL PAVING AND OUTSIDE THE 50' FUNDED APPROACHES ON EITHER SIDE OF THE BRIDGE.

ALL QUANTITIES CATEGORY 0010 UNLESS OTHERWISE NOTED

GUARDRAIL

					614.0397	614.2500	614.2610	
					GUARDRAIL			
					MOW STRIP	MGS THRIE	MGS	
					EMULSIFIED	BEAM	GUARDRAIL	
					ASPHALT	TRANSITION	TERMINAL EAT	
CATEGORY	STATION	TO	STATION	LOCATION	SY	LF	EACH	REMARKS
0010	8+23	-	9+26	MAINLINE LT	105	39.4	1	
0010	8+23	-	9+26	MAINLINE RT	105	39.4	1	
0010	10+75	-	11+77	MAINLINE LT	102	39.4	1	
0010	10+75	-	11+77	MAINLINE RT	102	39.4	1	
TOTAL 0010					413	157.6	4	

MAINTENANCE AND REPAIR OF HAUL ROADS

			618.0100.01	
			MAINTENANCE AND REPAIR OF HAUL	
			ROADS (PROJECT) (01. 3653-00-70)	
CATEGORY	LOCATION		EACH	REMARKS
0030	CTH J		1	
TOTAL 0030			1	

EROSION CONTROL

					625.0100	628.1504	628.1520	628.2008	628.6005	628.7555	629.0210	630.0140	630.0200	630.0300	630.0500	
							SILT FENCE	EROSION MAT				SEEDING				
							MAINTENANCE	URBAN CLASS I	TURBIDITY	CULVERT PIPE		MIXTURE	SEEDING	SEEDING		
								TYPE B	BARRIERS	CHECKS	FERTILIZER TYPE B	NO. 40	TEMPORARY	BORROW PIT	SEED WATER	
STATION	TO	STATION	LOCATION		SY	LF	LF	SY	SY	EACH	CWT	LB	LB	LB	MGAL	REMARKS
7+50	-	9+26	MAINLINE LT		87	130	260	87	-	3	0.1	2	3	0.0	2.0	
7+50	-	9+26	MAINLINE RT		503	45	90	503	220	3	0.3	10	14	0.3	11.3	
10+75	-	12+20	MAINLINE LT		357	180	360	357	-	-	0.2	7	10	0.0	8.0	
10+75	-	12+20	MAINLINE RT		128	180	360	128	119	-	0.1	3	4	0.0	2.9	
UNDISTRIBUTED					-	135	270	110	35	-	0.3	5	10	0.7	0.9	
TOTAL 0010					1,075	670	1,340	1,185	373	6	1.0	26	42	1.0	25.0	

SIGNS

				634.0614	637.2210	637.2230	638.2602	638.3000	
				POSTS WOOD 4X6-	SIGNS TYPE II	SIGNS TYPE II	REMOVING	REMOVING	
				INCH X 14-FT	REFLECTIVE H	REFLECTIVE F	SIGNS TYPE II	SMALL SIGN	
								SUPPORTS	
CATEGORY	STATION	LOCATION		EACH	SF	SF	EACH	EACH	REMARKS
0010	8+67	MAINLINE RT		1	5	-	1	1	R2-1: SPEED LIMIT 30 MPH
0010	9+14	MAINLINE LT		1	-	3	1	1	W5-52L
0010	9+14	MAINLINE RT		1	-	3	1	1	W5-52R
0010	10+85	MAINLINE LT		1	-	3	1	1	W5-52L
0010	10+85	MAINLINE RT		1	-	3	1	1	W5-52R
TOTAL 0010				5	5	12	5	5	

ALL QUANTITIES CATEGORY 0010 UNLESS OTHERWISE NOTED

TRAFFIC CONTROL

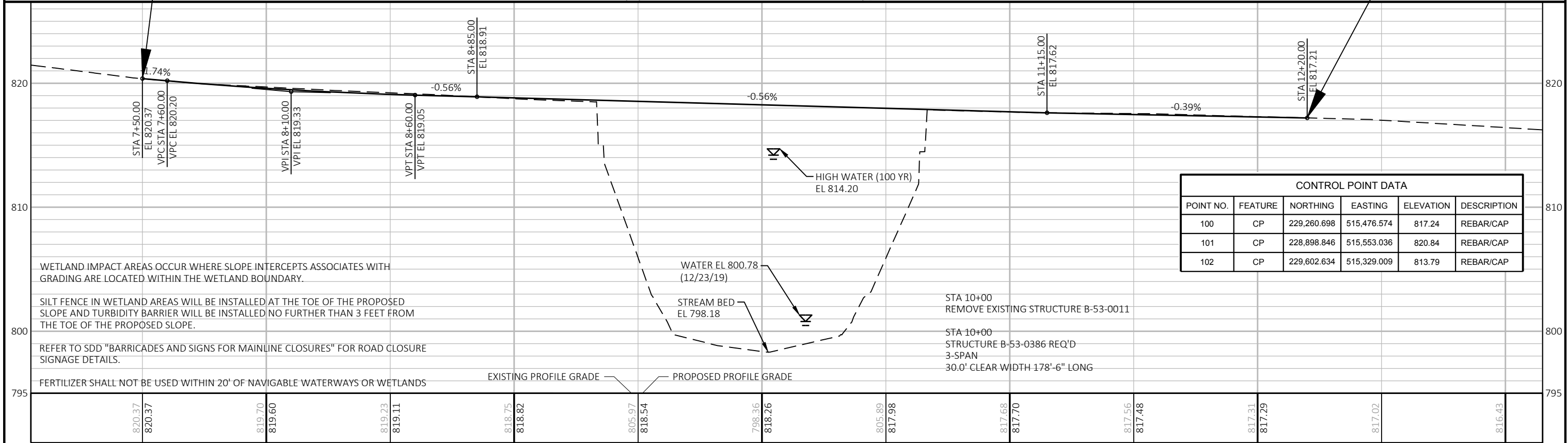
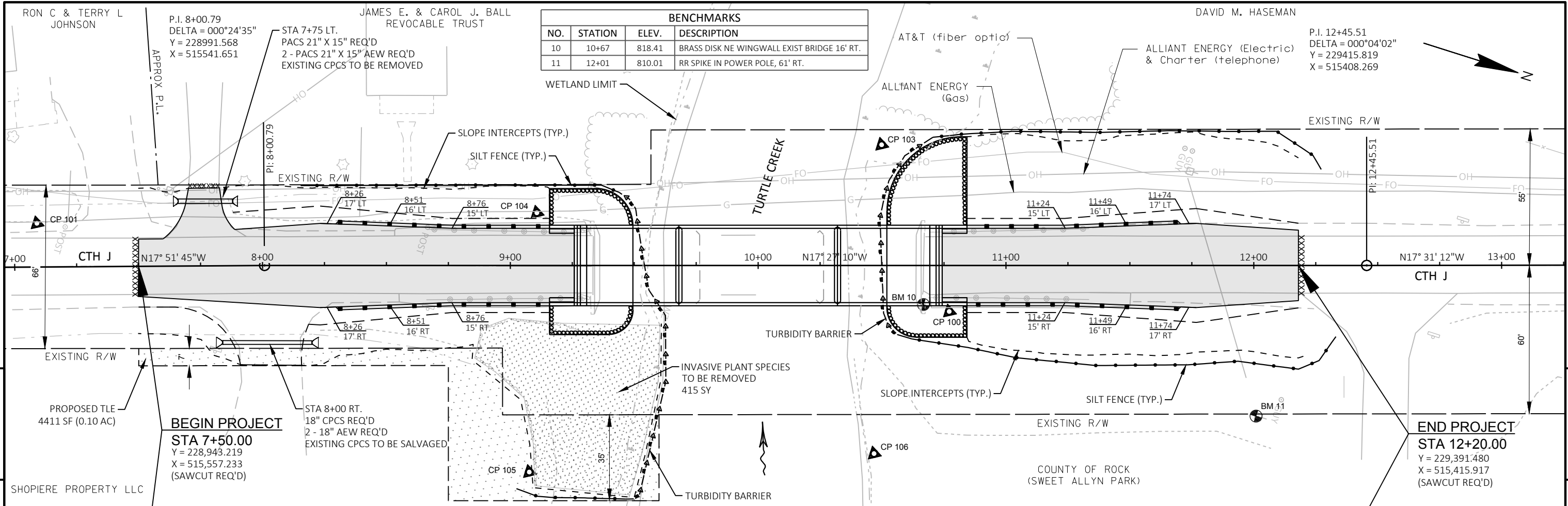
					646.1020	
					MARKING LINE	
					EPOXY 4-INCH	
CATEGORY	STATION	TO	STATION	LOCATION	LF	REMARKS
0010	7+50	-	12+20	MAINLINE	940	DOUBLE YELLOW CENTERLINE
0010	7+50	-	12+20	MAINLINE LT	470	WHITE EDGELINE
0010	7+50	-	12+20	MAINLINE RT	470	WHITE EDGELINE
TOTAL 0010					1,880	

STAKING

			690.0150	
			SAWING	
			ASPHALT	
CATEGORY	STATION	LOCATION	LF	REMARKS
0010	7+50	MAINLINE	23	
0010	7+75	MAINLINE LT	13	
0010	12+20	MAINLINE	23	
		TOTAL 0010	59	

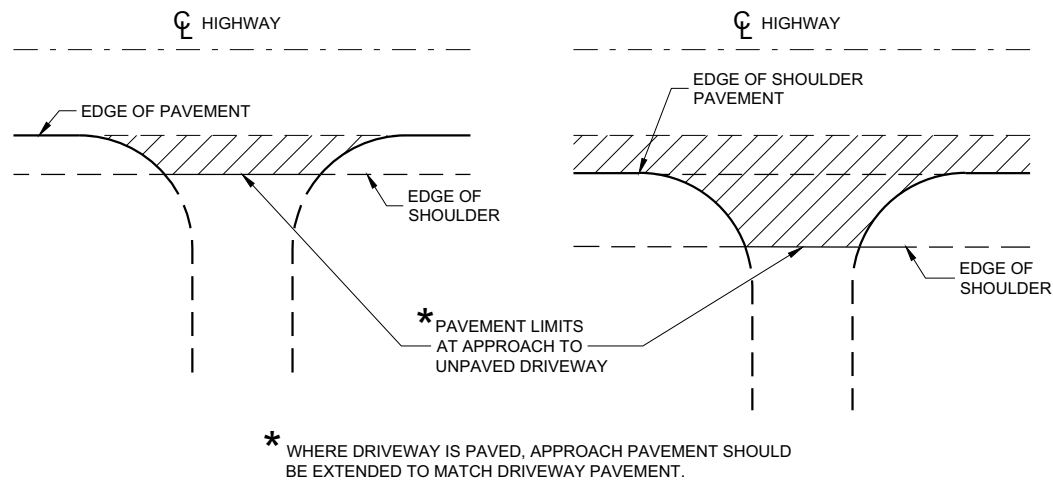
999.2000.S
INSTALLING AND
MAINTAINING BIRD
DETERRENT SYSTEM

ALL QUANTITIES CATEGORY 0010 UNLESS OTHERWISE NOTED



Standard Detail Drawing List

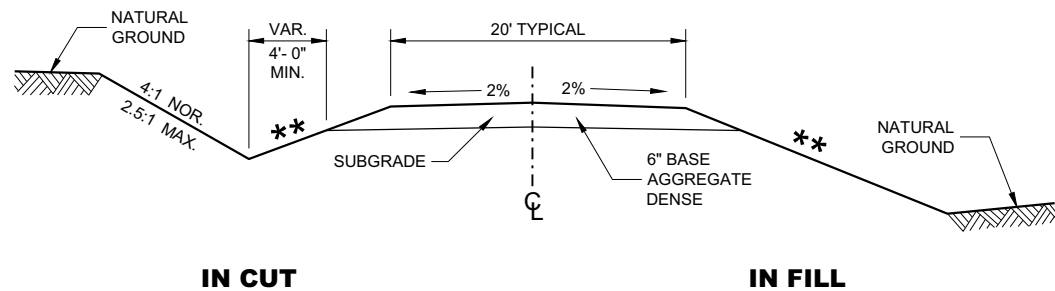
08D21-01	DRIVEWAYS WITHOUT CURB & GUTTER
08E09-06	SILT FENCE
08E11-02	TURBIDITY BARRIER
08E15-01	CULVERT PIPE CHECK
08F01-11	APRON ENDWALLS FOR CULVERT PIPE
08F02-01	APRON ENDWALLS FOR PIPE ARCH AND ELLIPTICAL PIPE
12A03-10	NAME PLATE (STRUCTURES)
14B28-04A	GUARDRAIL MOW STRIP
14B42-06A	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-06B	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-06C	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-06D	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B44-04A	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B44-04B	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B44-04C	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B45-05A	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05B	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05C	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05H	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
15C02-08A	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C02-08B	BARRICADES AND SIGNS FOR VARIOUS CLOSURES
15C06-09	SIGNING & MARKING FOR TWO LANE BRIDGES
15C08-20A	LONGITUDINAL MARKING (MAINLINE)
15D38-02A	TEMPORARY TRAFFIC CONTROL SIGN MOUNTING
15D38-02B	ATTACHMENT OF SIGNS TO POSTS



PLAN VIEW
(UNPAVED SHOULDER ON HIGHWAY)

PLAN VIEW
(PAVED SHOULDER ON HIGHWAY)

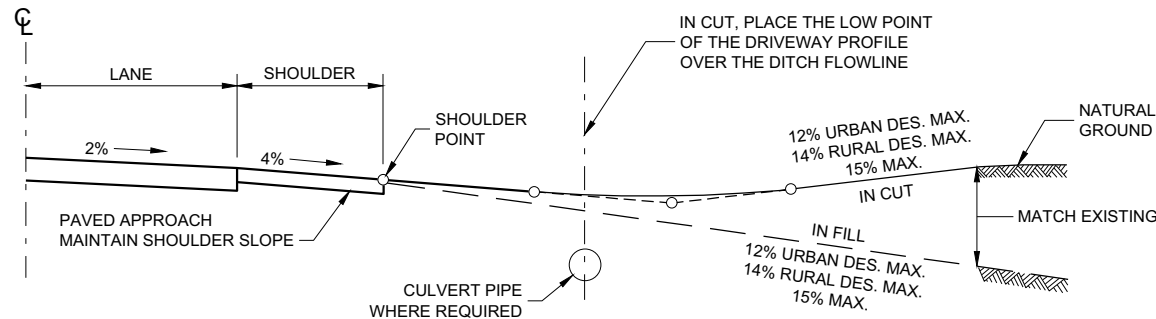
**RURAL DRIVEWAY INTERSECTION DETAIL
(NO CURB AND GUTTER OR SIDEWALK)**



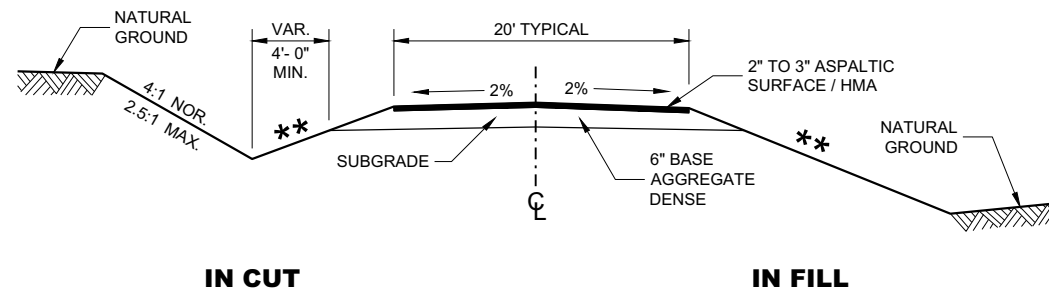
**TYPICAL CROSS SECTION FOR
PRIVATE DRIVE OR FIELD ENTRANCE
AGGREGATE SURFACE**

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

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



TYPICAL DRIVEWAY PROFILES



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

**DRIVEWAYS WITHOUT
CURB AND GUTTER**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

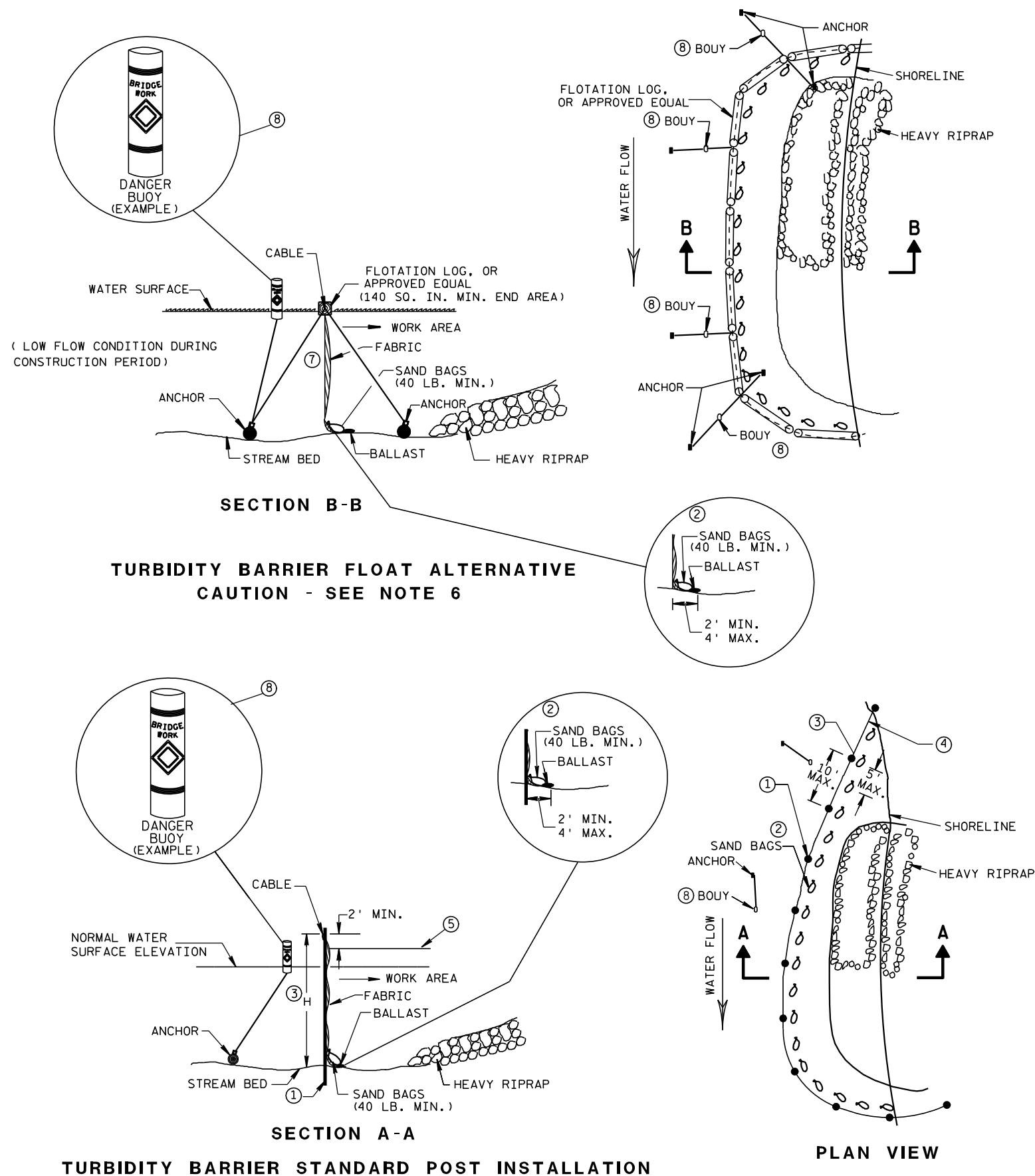
APPROVED
December 2017
DATE /S/ Rodney Taylor
ROADWAY STANDARDS DEVELOPMENT
UNIT SUPERVISOR
FHWA



- 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.



<p style="text-align: center;">SILT FENCE</p>	
<p style="text-align: center;">STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION</p>	
<p>APPROVED</p> <p><u>4-29-05</u></p> <p>DATE</p>	<p><u>/S/ Beth Cannestra</u></p> <p>CHIEF ROADWAY DEVELOPMENT ENGINEER</p>
<p>FHWA</p>	

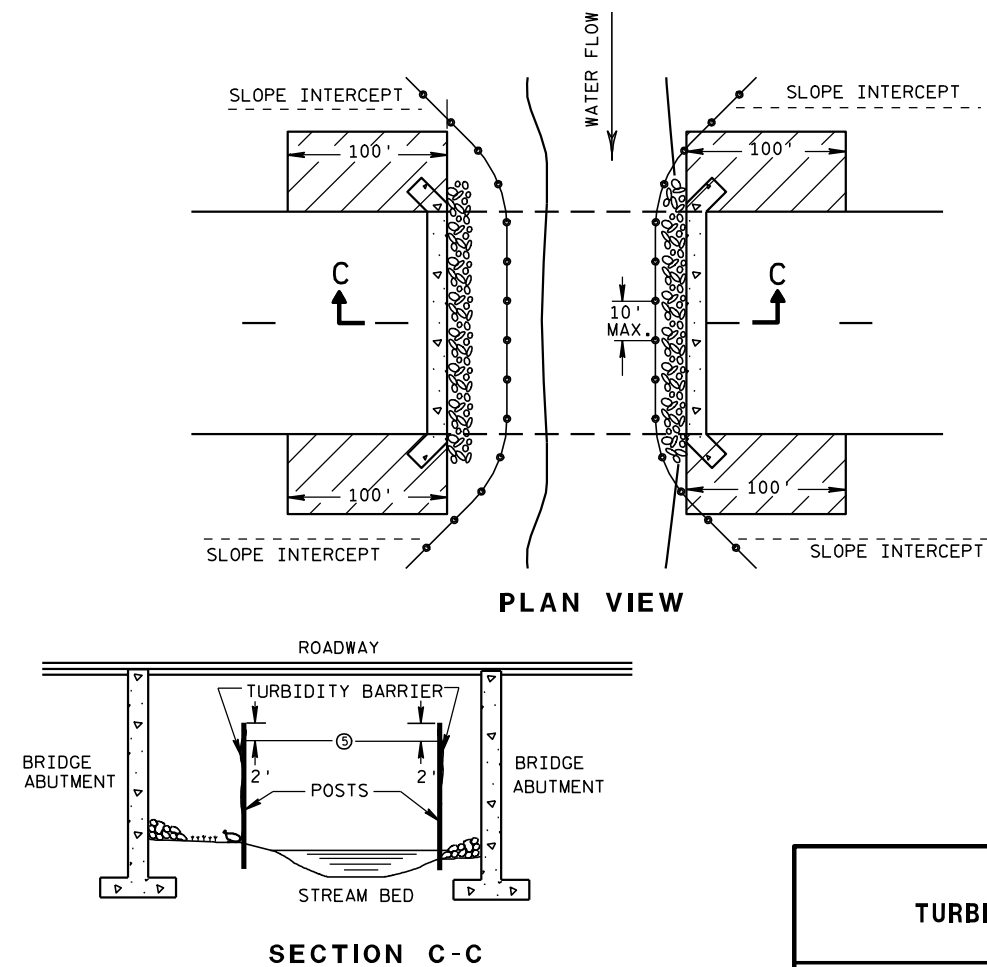


GENERAL NOTES

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 SANDBAGS 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 FT., 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 02 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 BED ROCK 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.



TURBIDITY BARRIER DETAIL SHOWING TYPICAL PLACEMENT AT STRUCTURES

TURBIDITY BARRIER

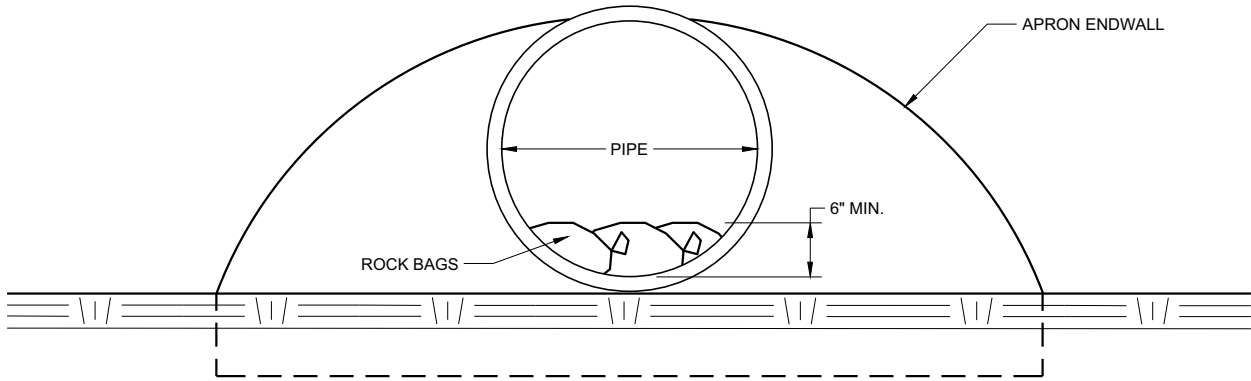
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

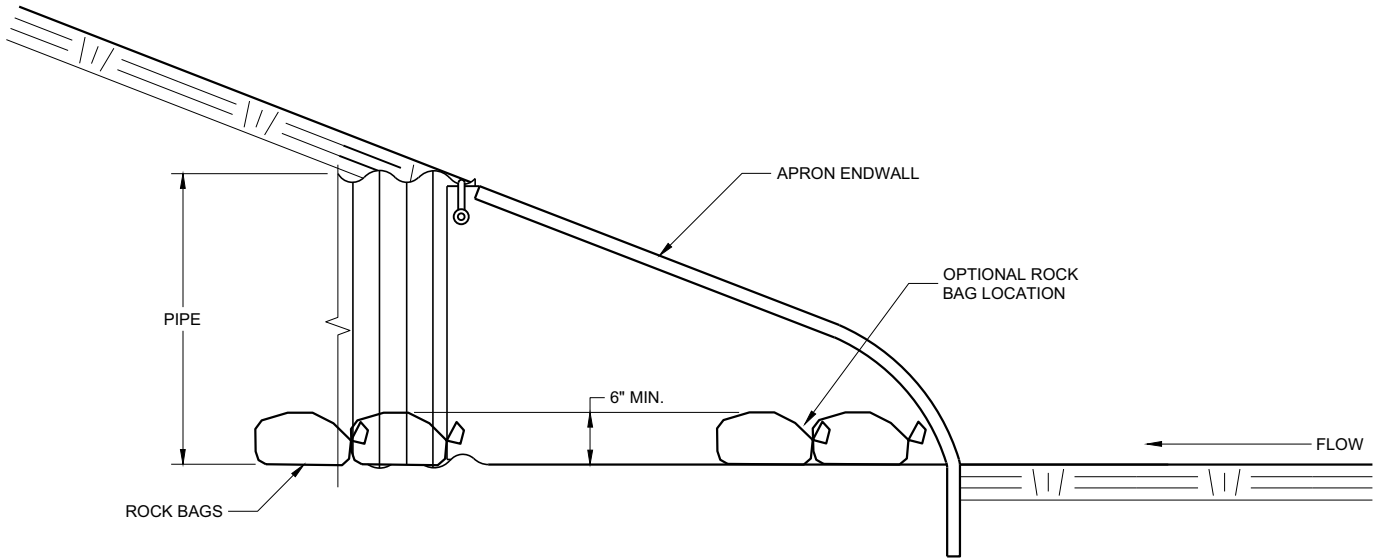
6/04/02
DATE

FWHA

/S/ Beth Canestra
CHIEF ROADWAY DEVELOPMENT ENGINEER



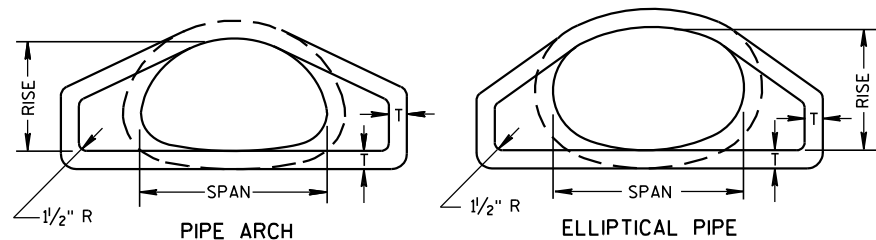
END VIEW



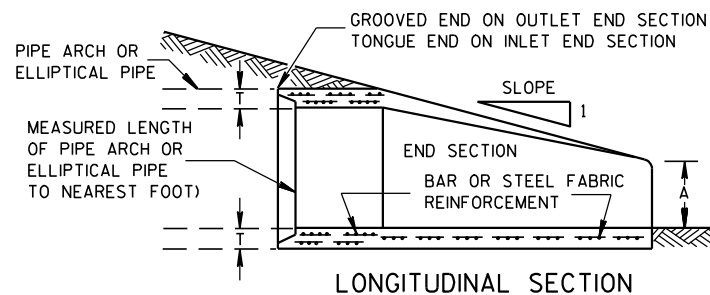
SIDE VIEW

CULVERT PIPE CHECK
(INSTALL ON INLET END ONLY)

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

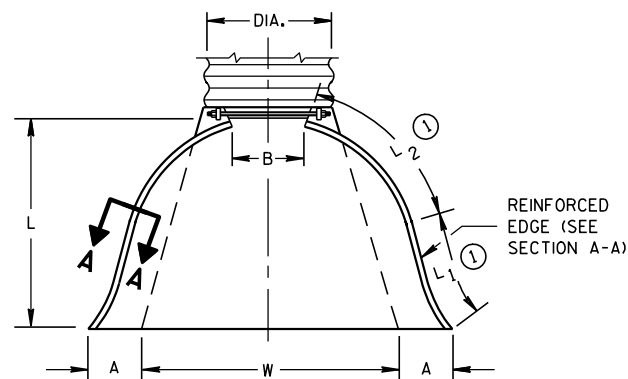


END VIEW

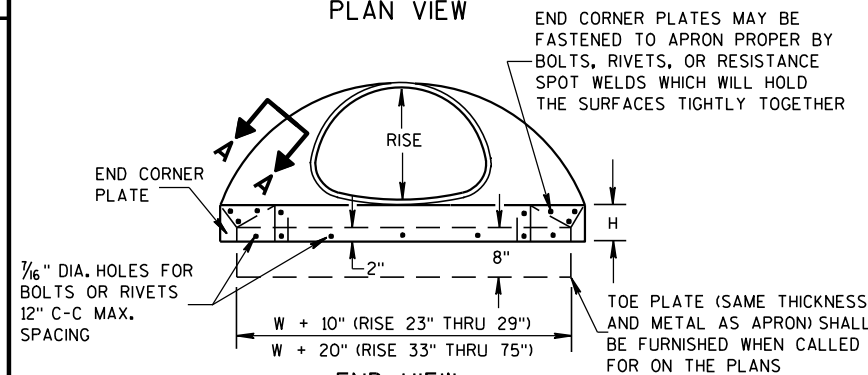


LONGITUDINAL SECTION

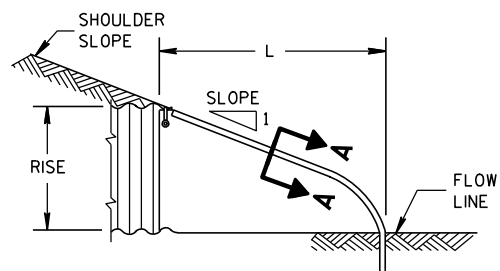
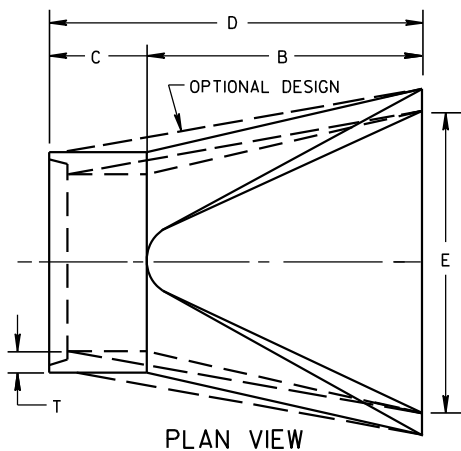
CONCRETE ENDWALLS



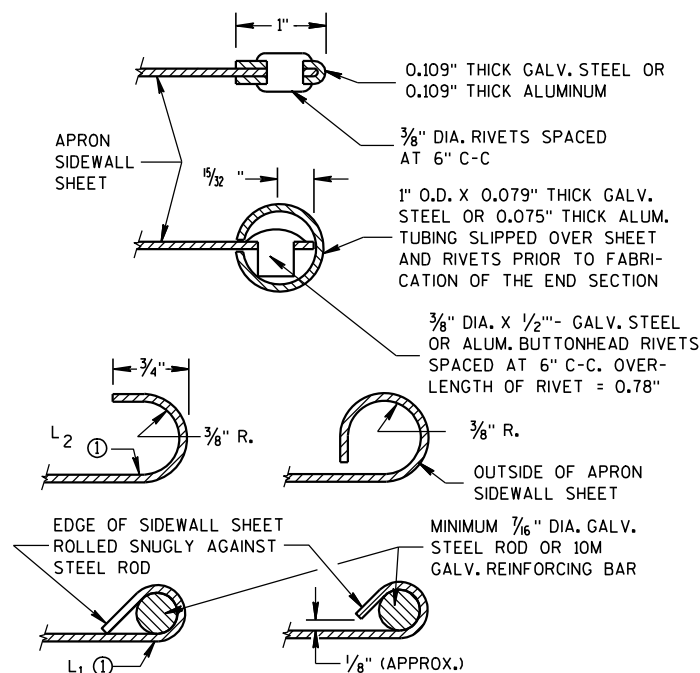
PLAN VIEW



END VIEW

SIDE ELEVATION
METAL ENDWALLS

PLAN VIEW



SECTION A-A

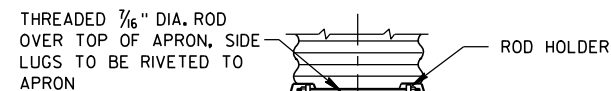
2- 2/3" X 1/2" CORRUGATIONS

EQUIV. DIA. (Inches)	(Inches)		MIN. THICK. (Inches)		DIMENSIONS (Inches)							APPROX. SLOPE	BODY
	SPAN	RISE	STEEL	ALUM.	A (±1")	B (MAX.)	H (±1")	L (±1 1/2")	L1 ①	L2 ①	W (±2")		
					(±1")	(MAX.)	(±1")	(±1 1/2")	①	①	(±2")		
15	17	13	.064	.060	7	9	6	19	14	16	30	2 1/2 to 1	1 Pc.
18	21	15	.064	.060	7	10	6	23	14	19 3/8	36	2 1/2 to 1	1 Pc.
21	24	18	.064	.060	8	12	6	28	18	21 3/4	42	2 1/2 to 1	1 Pc.
24	28	20	.064	.060	9	14	6	32	18	27 1/2	48	2 1/2 to 1	1 Pc.
30	35	24	.079	.075	10	16	6	39	18	37 5/8	60	2 1/2 to 1	1 Pc.
36	42	29	.079	.075	12	18	8	46	24	45 3/8	75	2 1/2 to 1	1 Pc.
42	49	33	.109	.105	13	21	9	53	24	54 3/4	85	2 1/2 to 1	2 Pc.
48	57	38	.109	.105	18	26	12	63	24	68	90	2 1/2 to 1	3 Pc.
54	64	43	.109	.105	18	30	12	70	24	72 3/4	102	2 1/4 to 1	3 Pc.
60	71	47	.109*	.105*	18	33	12	77	30	82 1/4	114	2 1/4 to 1	3 Pc.
66	77	52	.109*	.105*	18	36	12	77	—	—	126	2 to 1	3 Pc.
72	83	57	.109*	.105*	18	39	12	77	—	—	138	2 to 1	3 Pc.

3" X 1" CORRUGATIONS

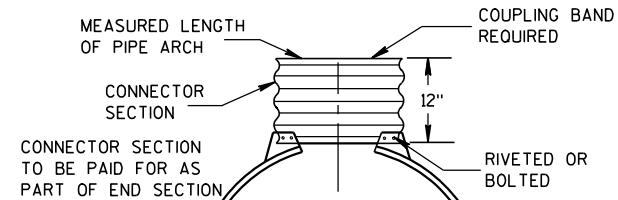
EQUIV. DIA. (Inches)	(Inches)		MIN. THICK. (Inches)		DIMENSIONS (Inches)							APPROX. SLOPE	BODY
	SPAN	RISE	STEEL	ALUM.	A (±1")	B (MAX.)	H (±1")	L (±1 1/2")	L1 ①	L2 ①	W (±2")		
					(±1")	(MAX.)	(±1")	(±1 1/2")	①	①	(±2")		
48	53	41	.109	.105	18	26	12	63	24	72 3/4	90	2 1/2 to 1	2 Pc.
54	60	46	.109	.105	18	30	12	70	30	82 1/4	102	2 to 1	2 Pc.
60	66	51	.109*	.105*	18	33	12	77	—	—	114	1 1/2 to 1	3 Pc.
66	73	55	.109*	.105*	18	36	12	77	—	—	126	1 1/2 to 1	3 Pc.
72	81	59	.109*	.105*	18	39	12	77	—	—	138	2 to 1	3 Pc.
78	87	63	.109*	.105*	22	38	12	77	—	—	148	1 1/2 to 1	3 Pc.
84	95	67	.109*	.105*	22	34	12	77	—	—	162	1 1/2 to 1	3 Pc.
90	103	71	.109*	.105*	22	38	12	77	—	—	174	1 1/2 to 1	3 Pc.
96	112	75	.109*	.105*	24	40	12	77	—	—	174	1 1/2 to 1	3 Pc.

NOTE: ALL SPLICES TO BE LAP RIVETED OR BOLTED.

* EXCEPT CENTER PANEL
SEE GENERAL NOTES

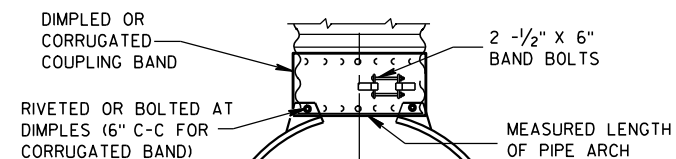
TYPE 2

FOR 17" X 13" THRU 112" X 75" PIPE ARCH



TYPE 3

FOR 64" X 43" THRU 112" X 75" PIPE ARCH



TYPE 5

ALTERNATE FOR:

ALL SIZES CORRUGATED PIPE ARCHES

NOTE: DIMPLED BAND FITS OVER OUTSIDE OF ENDWALL,
AND CORRUGATED BAND FITS INSIDE ENDWALL.

CONNECTION DETAILS

REINFORCED CONCRETE PIPE ARCH

EQUIV. DIA. (Inches)	DIMENSIONS (Inches)								APPROX. SLOPE
	**SPAN	**RISE	T	A	B	C	D	E	
	(Inches)	(Inches)	(Inches)	(Inches)	(Inches)	(Inches)	(Inches)	(Inches)	
24	29	18	3	8 1/2	39	33	72	48	3 to 1
30	36	22	3 1/2	9 1/2	50	46	96	60	3 to 1
36	44	27	4	11 1/8	60	36	96	72	3 to 1
42	51	31	4 1/2	15 1/8	60	36	96	78	3 to 1
48	58	36	5	21	60	36	96	84	3 to 1
54	65	40	5 1/2	25 1/2	60	36	96	90	3 to 1
60	73	45	6	31	60	36	96	96	3 to 1
72	88	54	7	31	60	39	99	120	2 to 1
84	102	62	8	28 1/2	83	19	102	144	2 to 1

REINFORCED CONCRETE ELLIPTICAL PIPE

EQUIV. DIA. (Inches)	DIMENSIONS (Inches)								APPROX. SLOPE
	**SPAN	**RISE	T	A	B	C	D	E	
	(Inches)	(Inches)	(Inches)	(Inches)	(Inches)	(Inches)	(Inches)	(Inches)	
24	30	19	3 1/4	8 1/2	39	33	72	48	3 to 1
30	38	24	3 3/4	9 1/2	54	18	72	60	3 to 1
36	45	29	4 1/2	11 1/8	60	24	84	72	2 1/2 to 1
42	53	34	5	15 1/4	60	36	96	78	2 1/2 to 1
48	60	38	5 1/2	21	60	36	96	84	2 1/2 to 1
54	68	43	6	25 1/2	60	36	96	90	2 1/2 to 1
60	76	48	6 1/2	30	60	36	96	96	2 1/2 to 1

**NOMINAL SIZE

GENERAL NOTES

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

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

ALL THREE PIECE STEEL APRON ENDWALLS FOR 66" X 51" PIPE ARCH AND LARGER SHALL HAVE 0.109" SIDES AND 0.138" CENTER PANELS. ALL THREE PIECE ALUMINUM APRON ENDWALLS FOR 66" X 51" PIPE ARCH AND LARGER SHALL HAVE 0.105" SIDES AND 0.134" CENTER PANELS. THE WIDTH OF CENTER PANELS SHALL BE GREATER THAN 20 PERCENT OF THE PIPE ARCH PERIMETER.

LAP SEAMS SHALL BE TIGHTLY JOINED BY GALVANIZED RIVETS OR BOLTS FOR STEEL UNITS AND ALUMINUM RIVETS AND BOLTS FOR ALUMINUM UNITS. FOR THE 77" X 52" THROUGH 112" X 75" APRON ENDWALL SIZES, THE REINFORCED EDGES AND CENTER PANEL SEAMS SHALL BE FURTHER REINFORCED WITH GALVANIZED STEEL OR ALUMINUM STIFFENER ANGLES. THE ANGLES SHALL BE ATTACHED BY GALVANIZED NUTS AND BOLTS FOR STEEL UNITS AND ALUMINUM NUTS AND BOLTS FOR ALUMINUM UNITS.

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

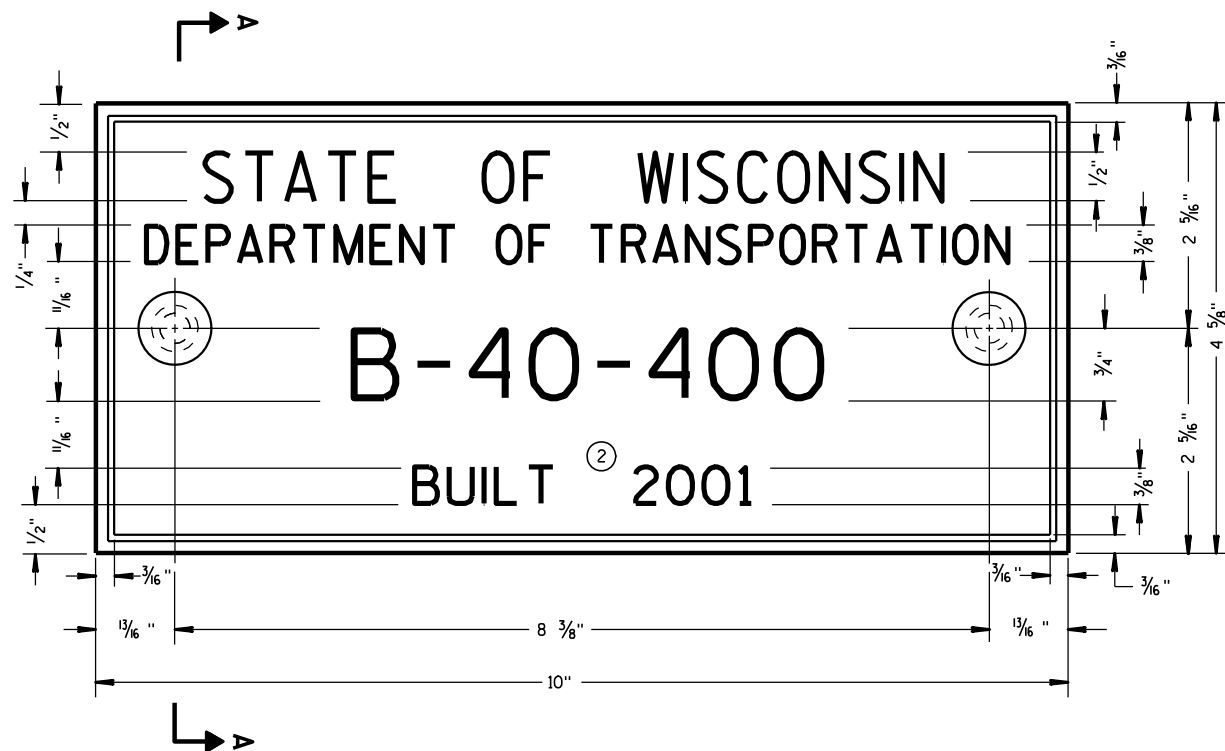
① FOR PIPE ARCH SIZES UP TO 73" X 55" A 180° ROLLED EDGE MAY BE USED INSTEAD OF STEEL ROD REINFORCEMENT. SEE SECTION A-A.

APRON ENDWALLS FOR
PIPE ARCH AND
ELLIPTICAL PIPESTATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

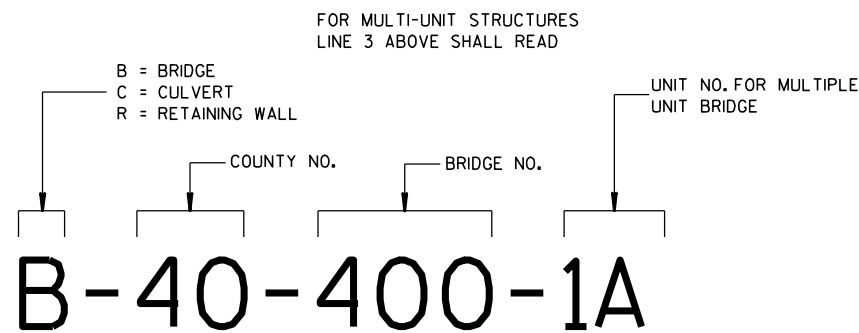
APPROVED

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

FHWA



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



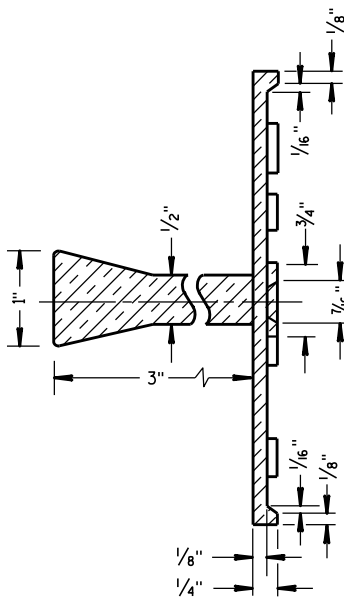
**NUMBERING DESIGNATION
MULTI-UNIT STRUCTURES**

GENERAL NOTES

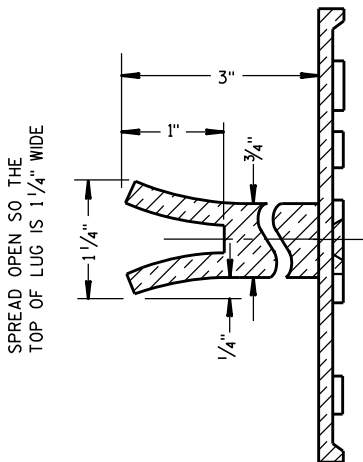
NAME PLATES TO BE INSTALLED ON BRIDGES, CULVERTS, AND RETAINING WALLS SHALL CONFORM TO THE REQUIREMENTS OF SECTION 502.3.11 OF THE STANDARD SPECIFICATIONS.

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.

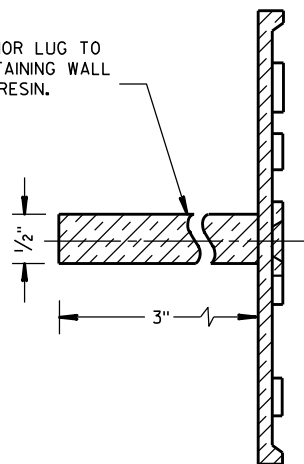


SECTION A-A



ALTERNATE LUG

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

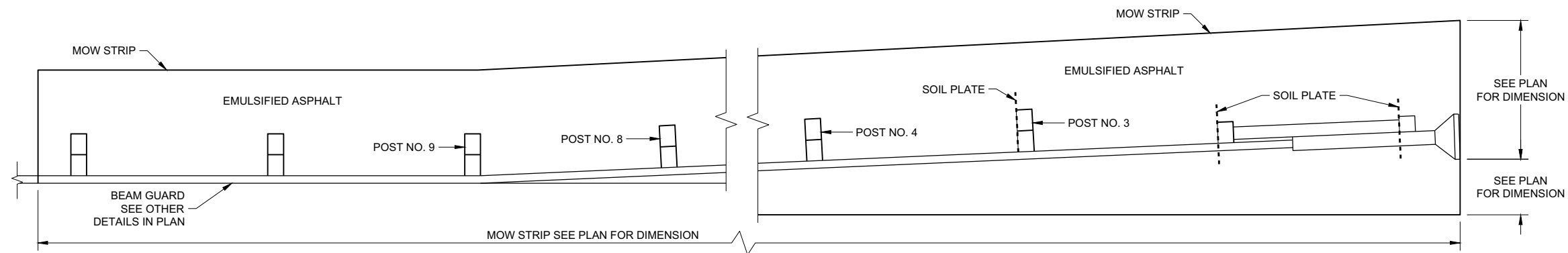


ALTERNATE LUG
(FOR ATTACHMENT TO PRECAST STRUCTURES)

**NAME PLATE
(STRUCTURES)**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
3/26/10
DATE
/S/ Scot Becker
CHIEF STRUCTURAL DEVELOPMENT ENGINEER
FHWA

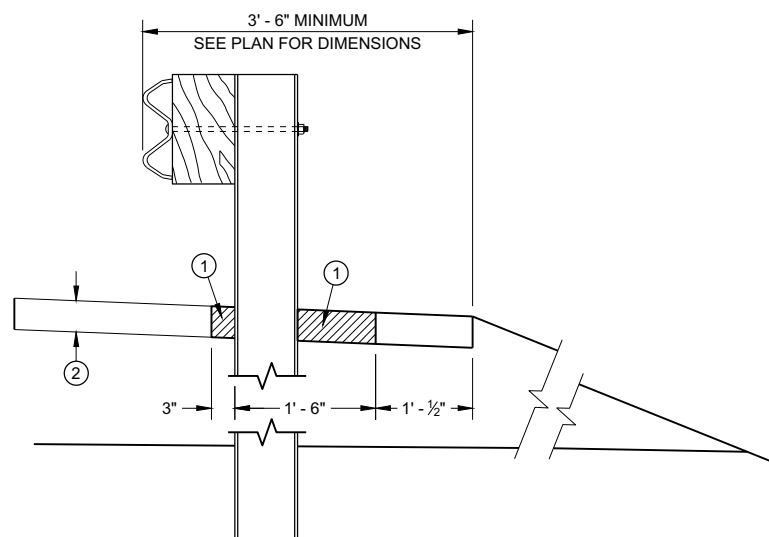


PLAN VIEW
MOW STRIP LAYOUT FOR ENERGY ABSORBING TERMINAL

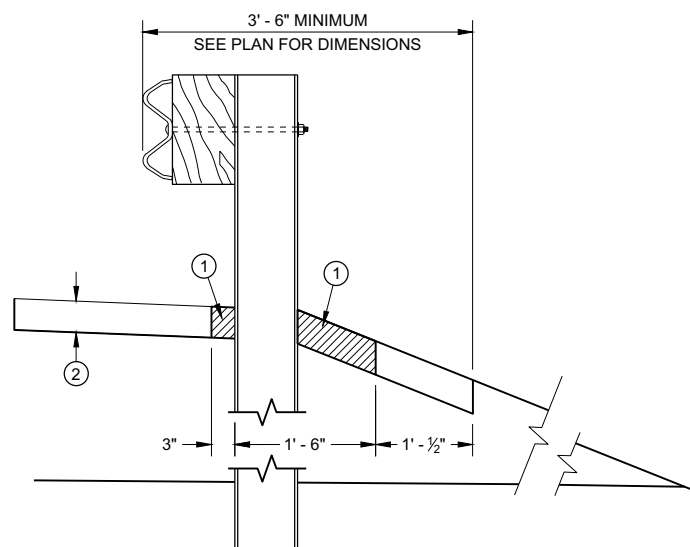
GENERAL NOTES

ONLY USE STEEL POSTS IN CONCRETE AND ASPHALT MOW STRIPS.

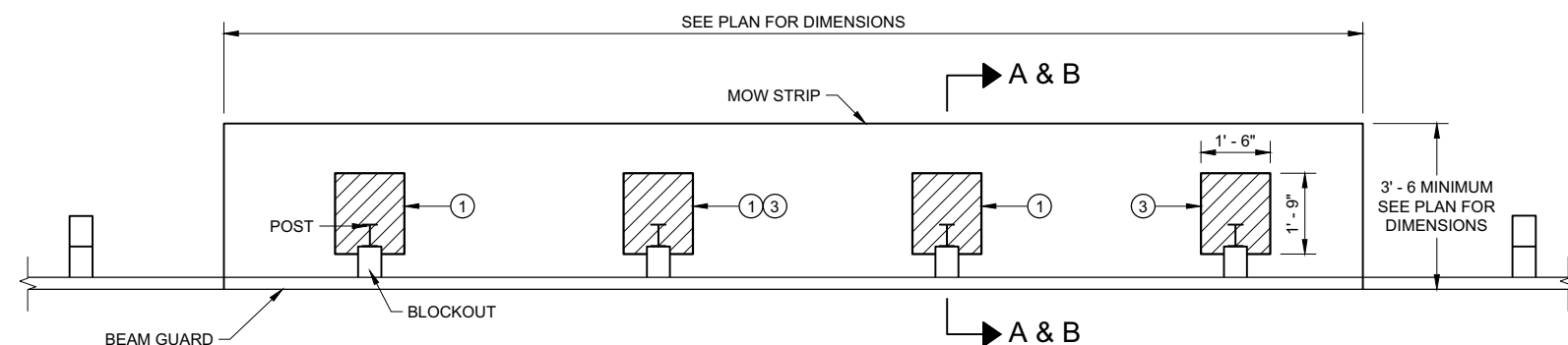
- ① CONTROLLED LOW-STRENGTH BACKFILL OR EMULSIFIED ASPHALT.
- ② DEPTH OF MOW STRIP:
ASPHALT - 4"
CONCRETE - 4"
EMULSIFIED ASPHALT - 1" OR LESS
- ③ FOR EMULSIFIED ASPHALT, MOW STRIP STRIP LEAVE OUTS NOT REQUIRED. (TYPICAL FOR ALL POSTS)



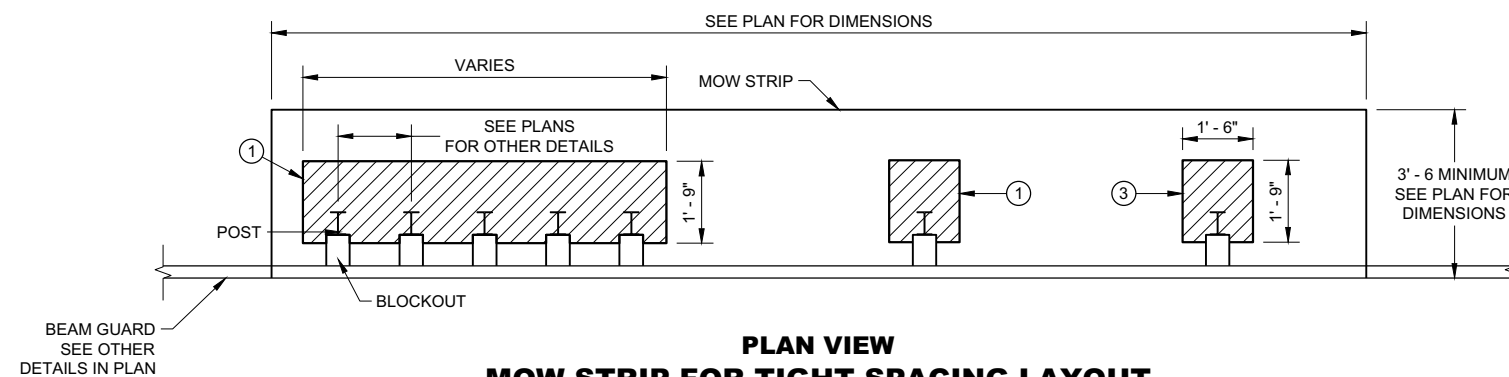
SECTION A - A



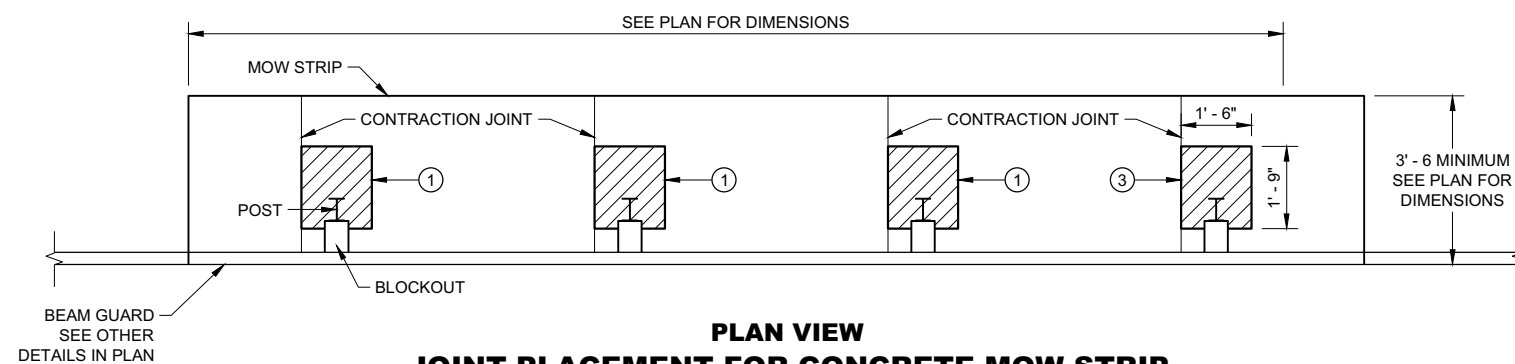
SECTION B - B



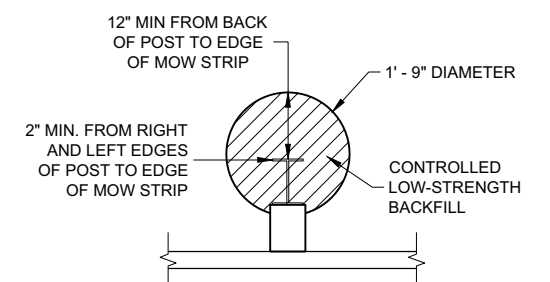
PLAN VIEW
MOW STRIP FOR TYPICAL BLOCKOUT LAYOUT



PLAN VIEW
MOW STRIP FOR TIGHT SPACING LAYOUT



PLAN VIEW
JOINT PLACEMENT FOR CONCRETE MOW STRIP

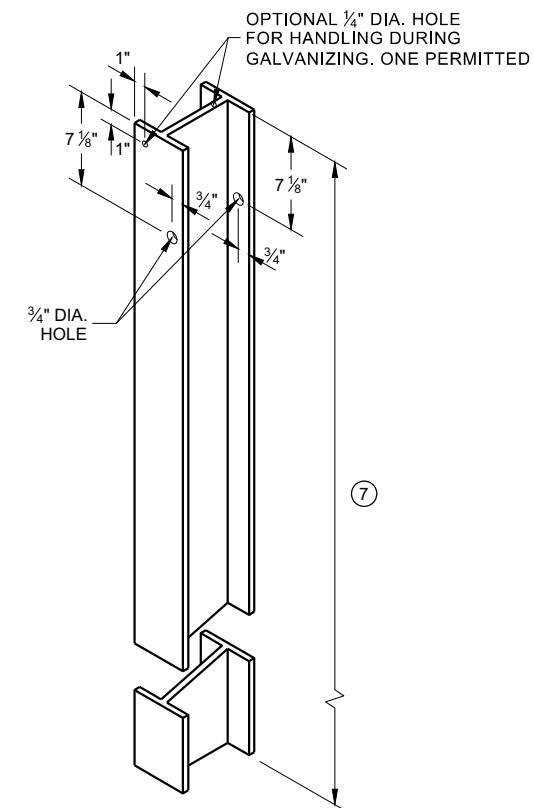
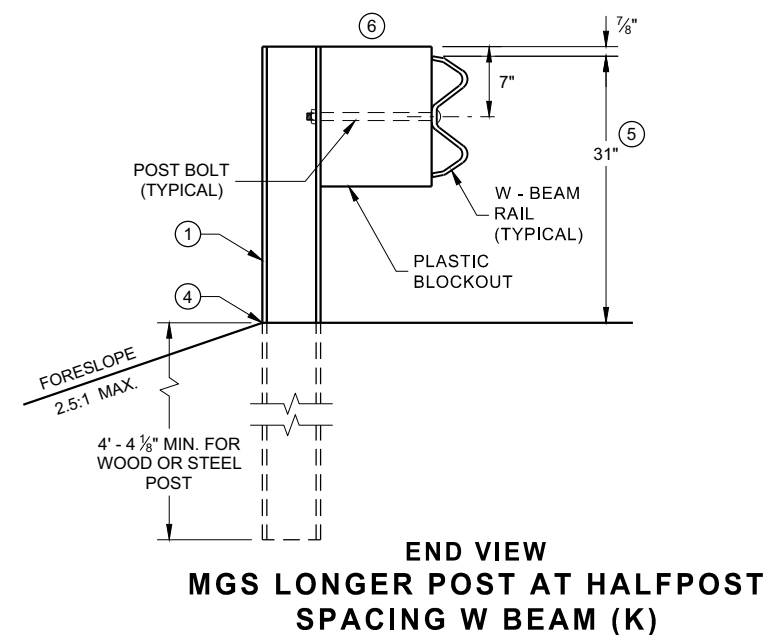
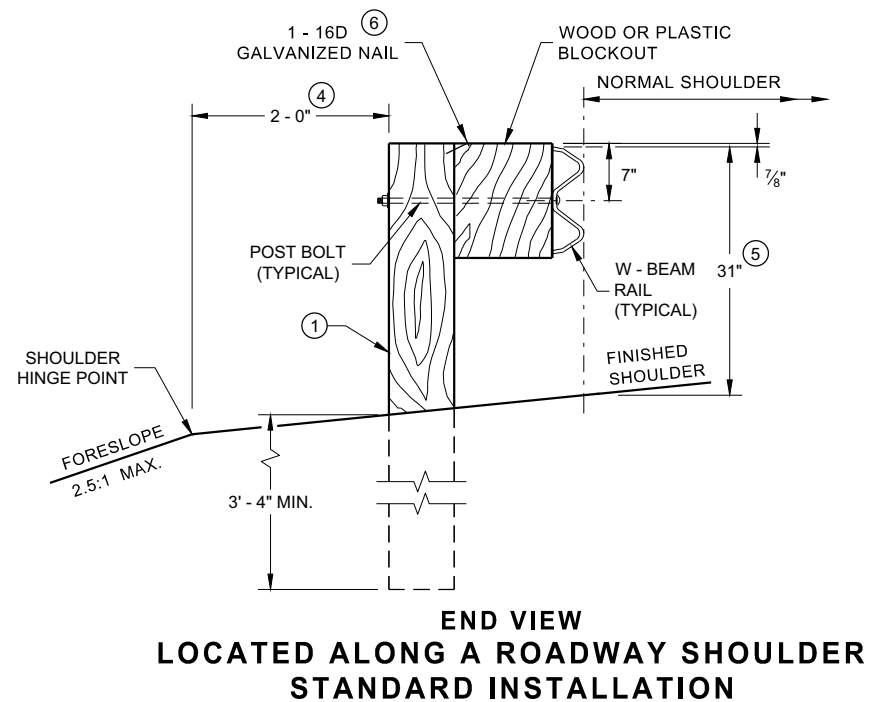
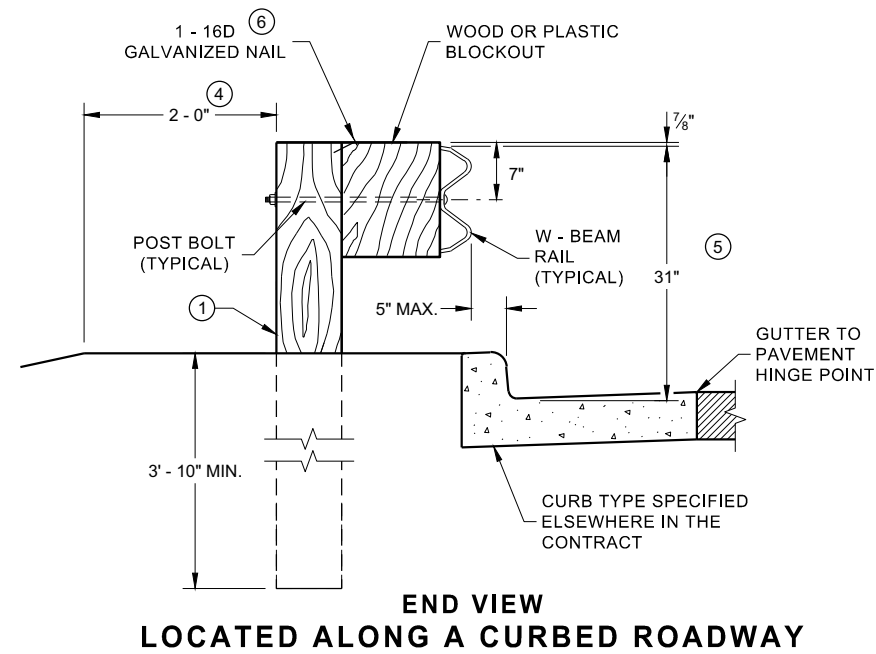
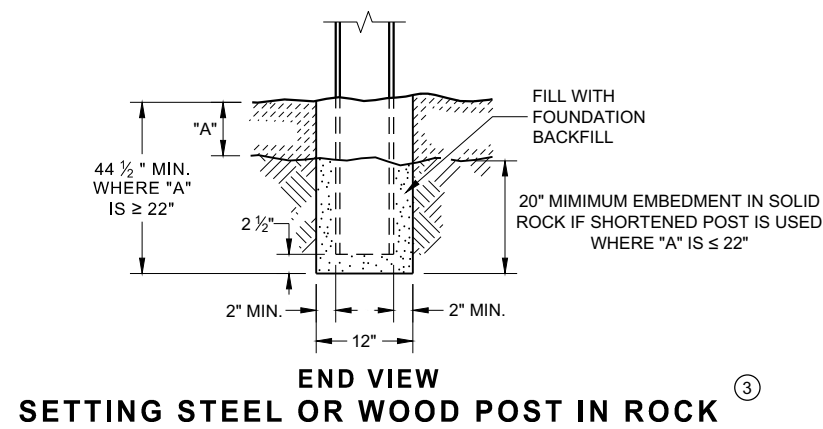


ALTERNATIVE HMA
MOW STRIP DESIGN

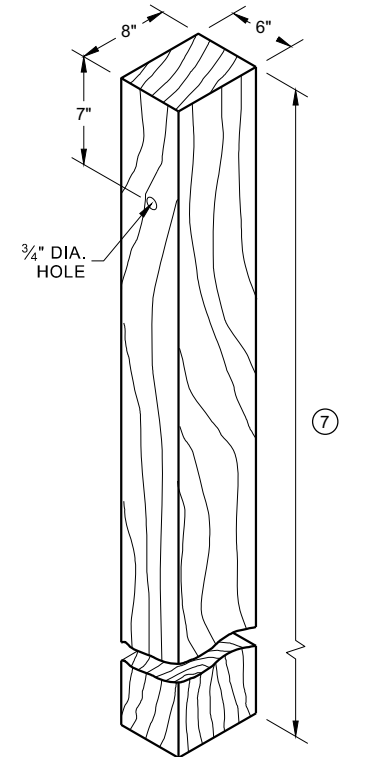
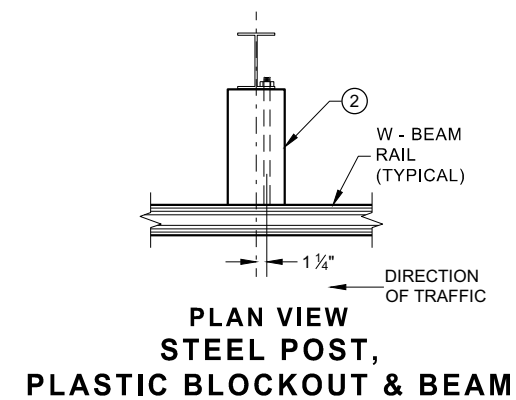
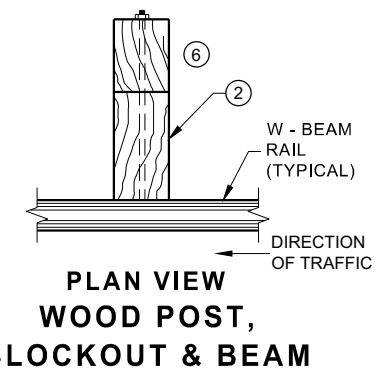
GUARDRAIL MOW STRIP

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

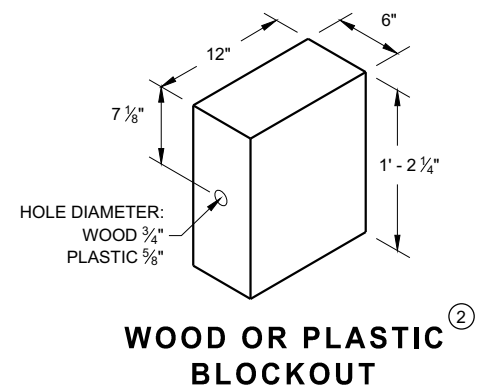
- ① WOOD OR STEEL POSTS (w6X9 OR w6X8.5) MAY BE USED. DO NOT INTERMIX WOOD AND STEEL POSTS. INSTALL STEEL POSTS WITH HOLES ON APPROACHING TRAFFIC SIDE.
- ② USE WOOD OR APPROVED PLASTIC BLOCKOUTS. WOOD BLOCKOUTS MAY BE CONSTRUCTED OUT OF TWO OR MORE WOOD BLOCKOUTS. SEE ALTERNATE WOOD BLOCKOUT DETAIL. DIMENSIONS OF APPROVED PLASTIC BLOCKOUTS MAY VARY.
- ③ IF ROCK IS ENCOUNTERED DURING EXCAVATION, PROVIDE A HOLE 12 INCHES IN DIAMETER EXTENDING 20 INCHES DEEP INTO THE ROCK. PLACE APPROXIMATELY 2 1/2" INCHES OF GRANULAR MATERIAL IN THE BOTTOM OF THE HOLE. CUT THE POSTS THE TO LENGTH AND INSTALL. BACKFILL WITH EXCAVATED MATERIAL AND COMPACT. BACKFILL IS TO BE FREE OF LARGE ROCKS.
- ④ WHEN THE DISTANCE FROM BACK OF POST TO SHOULDER HINGE POINT IS LESS THAN 2 FEET INSTALL LONGER POST AT HALF POST SPACING (K).
- ⑤ FOR NEW MGS INSTALLATION TOP OF W-BEAM RAIL TOLERANCE IS +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".



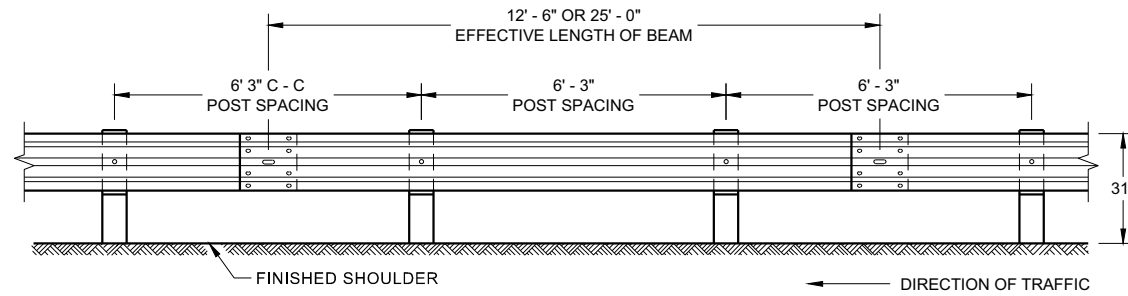
**STEEL POST & HOLE
PUNCHING DETAIL
(W 6 X 9) ①**



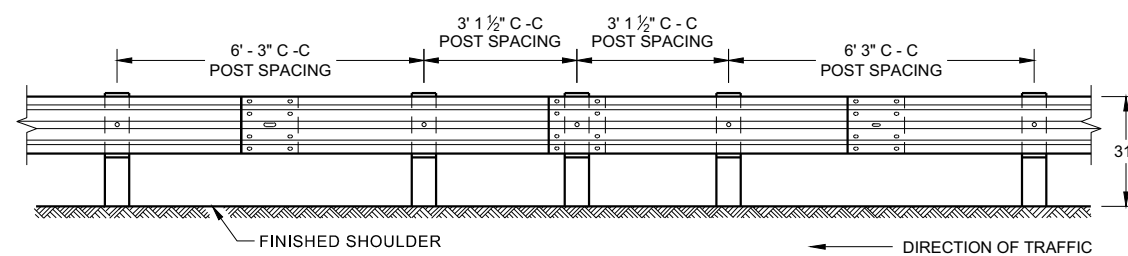
WOOD POST (6" X 8") NOMINAL ⁽¹⁾



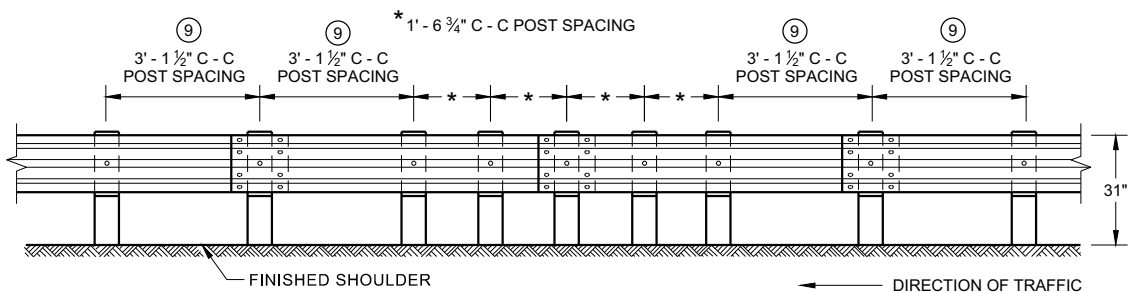
WOOD OR PLASTIC BLOCKOUT ⁽²⁾



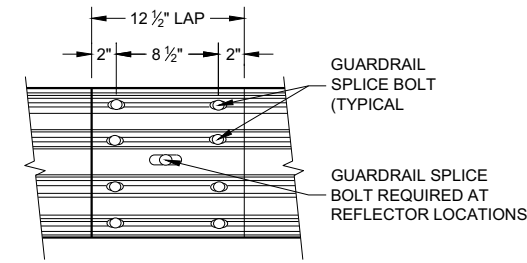
**FRONT VIEW
POST SPACING STANDARD INSTALLATION**



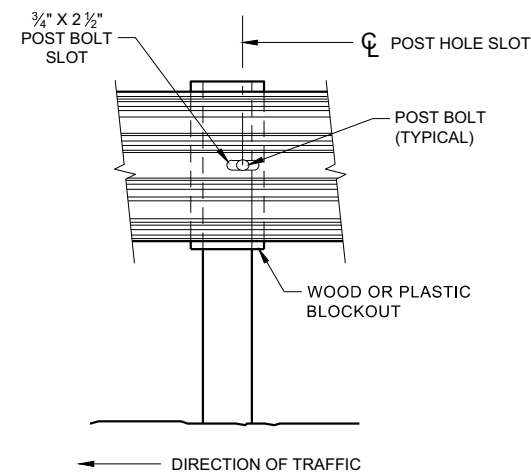
**FRONT VIEW
HALF POST SPACING (HS) AND
HALF POST SPACING WITH LONGER POSTS (K)**



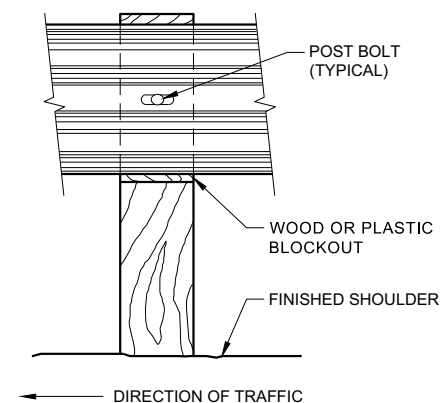
**FRONT VIEW
QUARTER POST SPACING (QS)**



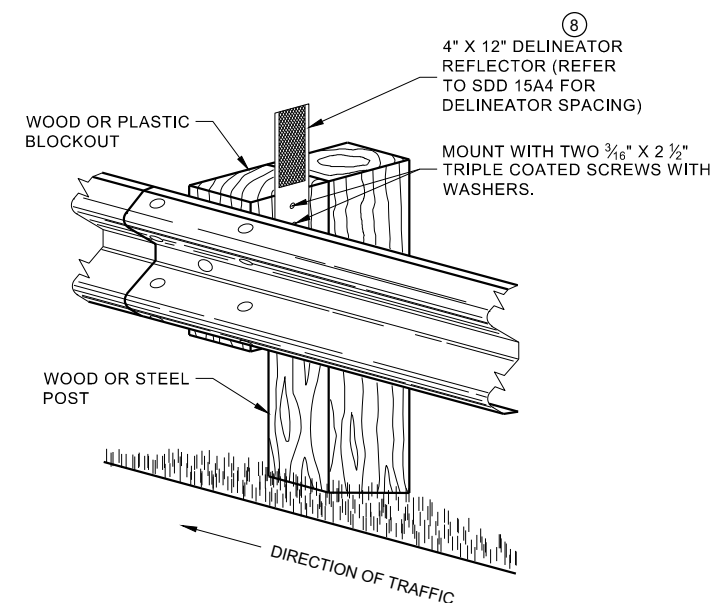
**FRONT VIEW
MID-SPAN BEAM SPLICE**



FRONT VIEW AT STEEL POST



FRONT VIEW AT WOOD POST



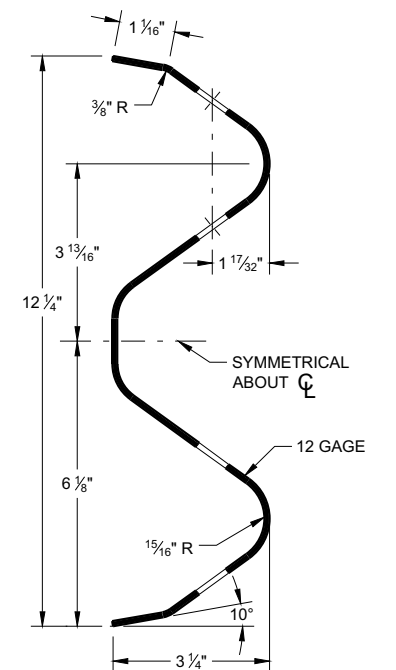
**ONE SIDED REFLECTOR DETAIL
AND TYPICAL INSTALLATION**

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

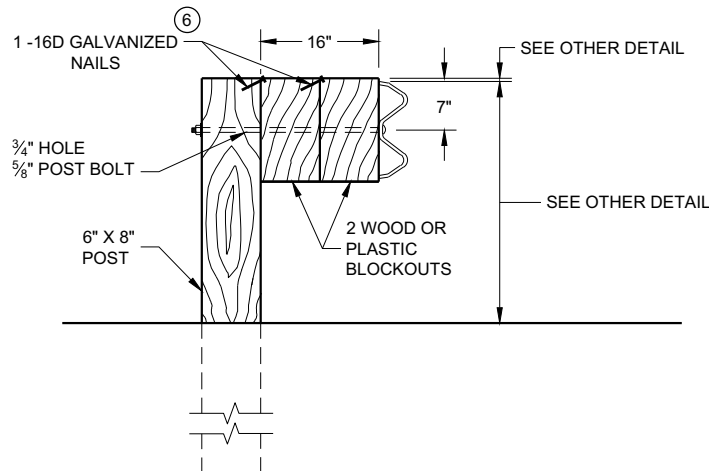
GUARD RAIL SPLICE BOLTS ARE A 3/4" DIAMETER ASTM A307 GUARDRAIL HEAD BOLT. A GUARDRAIL SPLICE BOLT REQUIRES 3/4" DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX NUT.



SECTION THRU W-BEAM RAIL

**MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL**

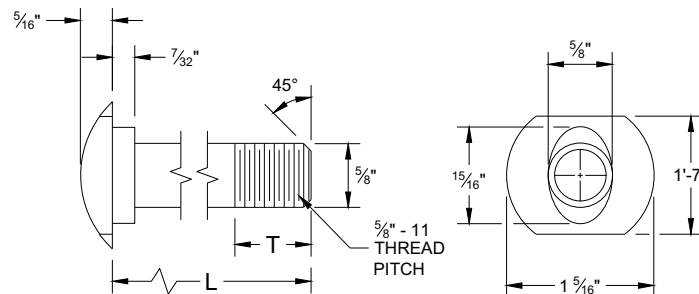
STATE OF WISCONSIN
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DETAIL FOR 16" BLOCKOUT DEPTH

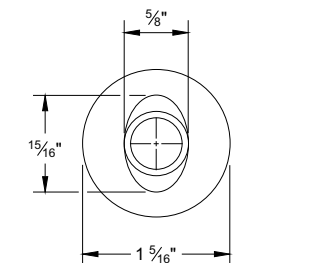
IT IS ACCEPTABLE TO USE BLOCKOUTS UP TO 16" DEEP TO INCREASE THE POST OFFSET TO AVOID UNDERGROUND OBSTACLES. THERE IS NO LIMIT TO THE NUMBER OF POSTS THAT CAN HAVE ADDITIONAL BLOCKOUTS UP TO 16" DEEP.

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

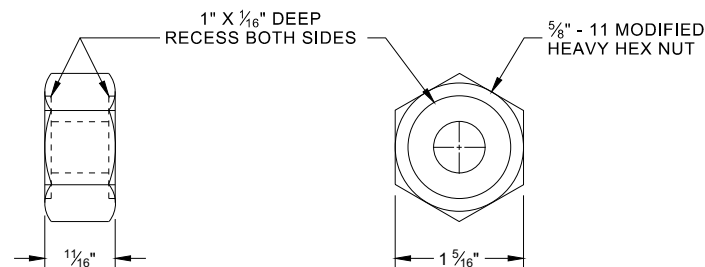


POST BOLT TABLE

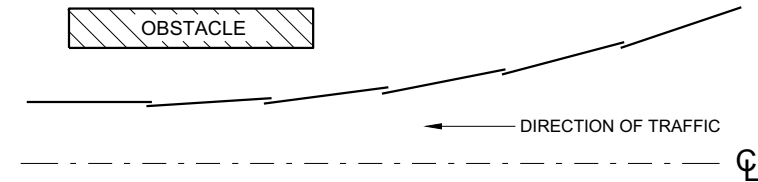
L	T (MIN.)
1 1/4"	1 1/8"
2"	1 3/4"
10"	4"
14"	4 1/16"
18"	4"
21"	4 1/16"
25"	4"



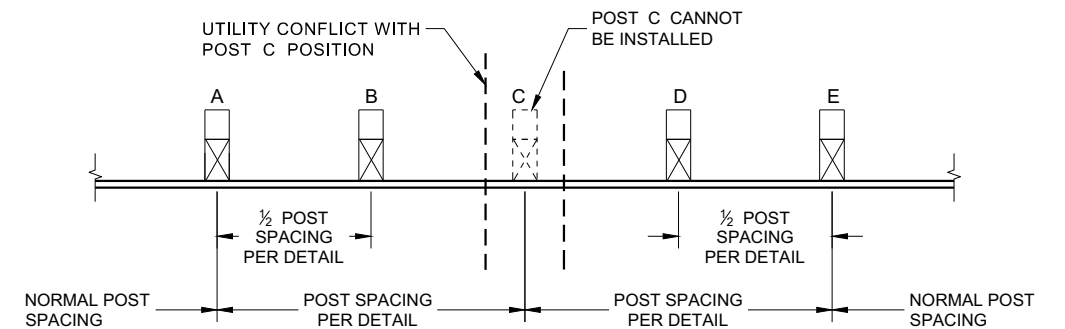
ALTERNATE BOLT HEAD



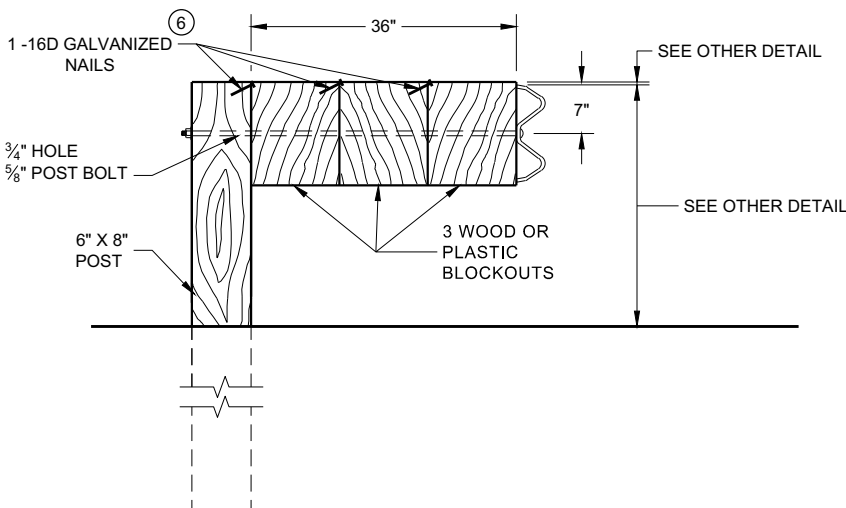
POST BOLT, SPLICE BOLT AND RECESS NUT



PLAN VIEW
BEAM LAPPING DETAIL



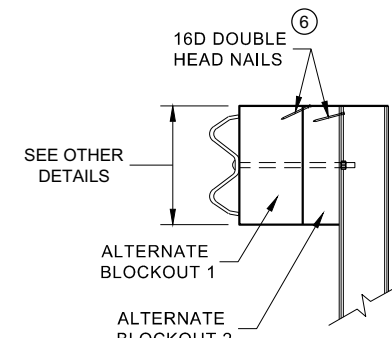
POST DRIVING FOR CONTINUOUS
UNDERGROUND OBSTRUCTION



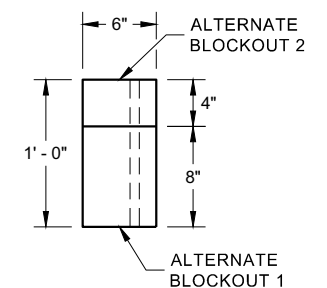
DETAIL FOR 36" BLOCKOUT DEPTH

- 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.

- 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.



SIDE VIEW

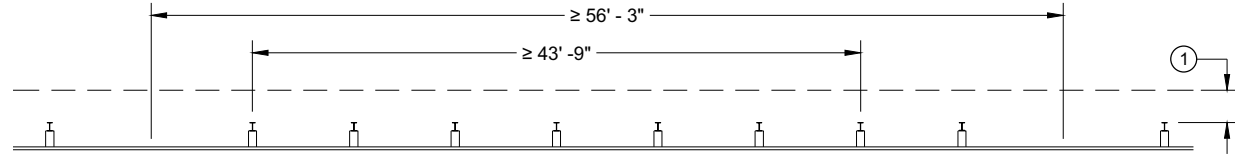


PLAN VIEW

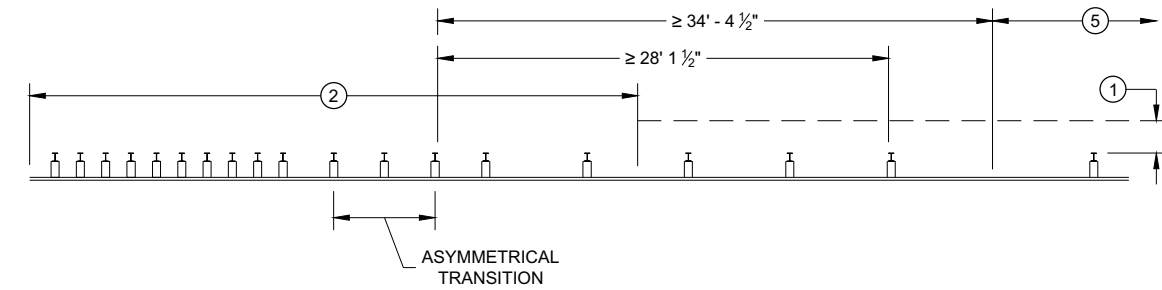
ALTERNATE WOOD
BLOCKOUT DETAIL

MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL

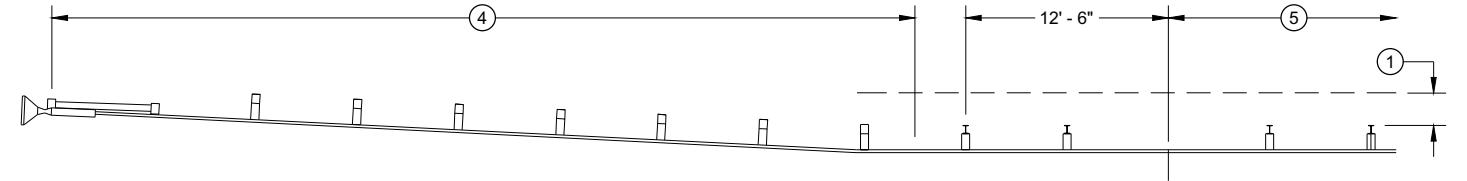
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



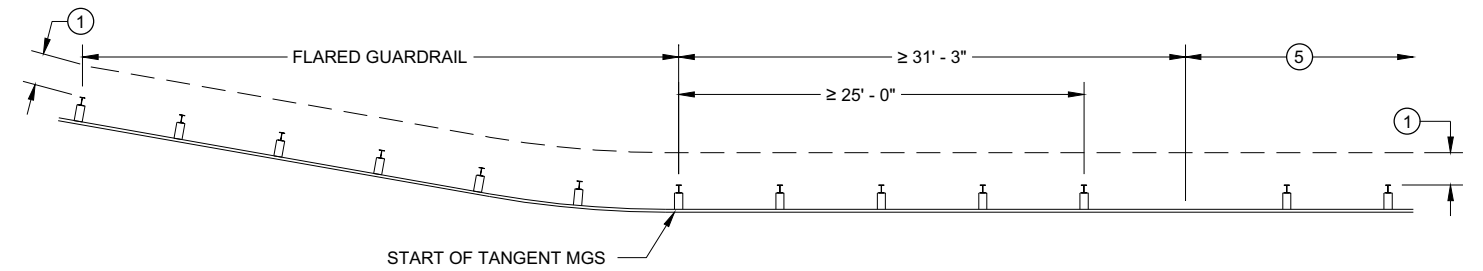
MISSING POST IN NORMAL BEAM GUARD RUN



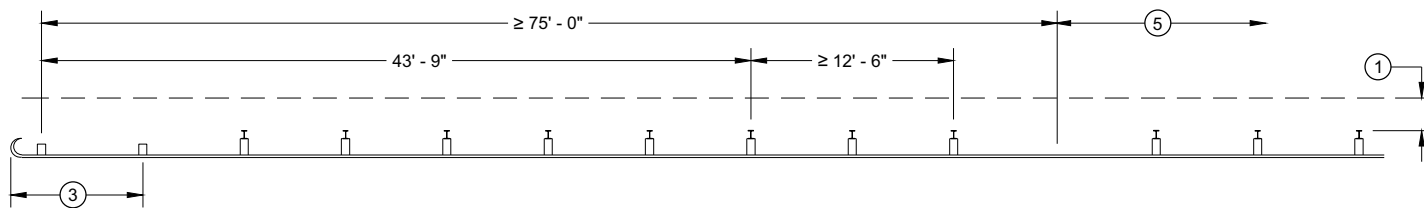
MISSING POST NEAR APPROACH THRIE BEAM TRANSITION



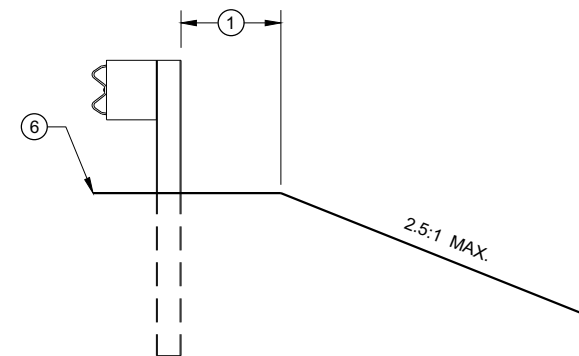
MISSING POST IN NORMAL BEAM GUARD RUN NEAR EAT



MISSING POST IN NORMAL BEAM GUARD RUN
NEAR FLARED BEAM GUARD



MISSING POST IN NORMAL BEAM GUARD RUN
NEAR TYPE 2 TERMINAL



CROSS SECTION VIEW

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

**MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

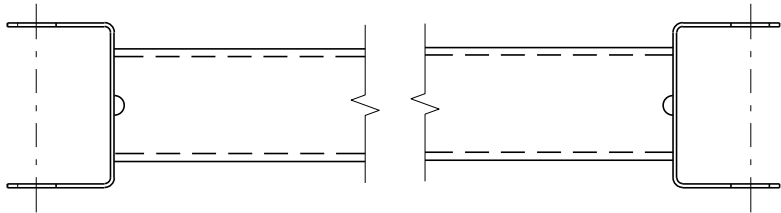
- (A) THE SLOPE IN THE AREA BOUNDED BY THE GRADELINE, THE HINGE POINT LINE (HPL) AND THE CLEAR ZONE LIMITS (CZL) SHALL BE 4:1 OR FLATTER.
- (B) AFTER FINAL ASSEMBLY, RECHECK CABLE TO BE SURE IT IS TAUT AND HAS NOT RELAXED
- (C) DIFFERENT MANUFACTURERS REQUIRE DIFFERENT PERFORATED W - BEAM RAIL END PANELS.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

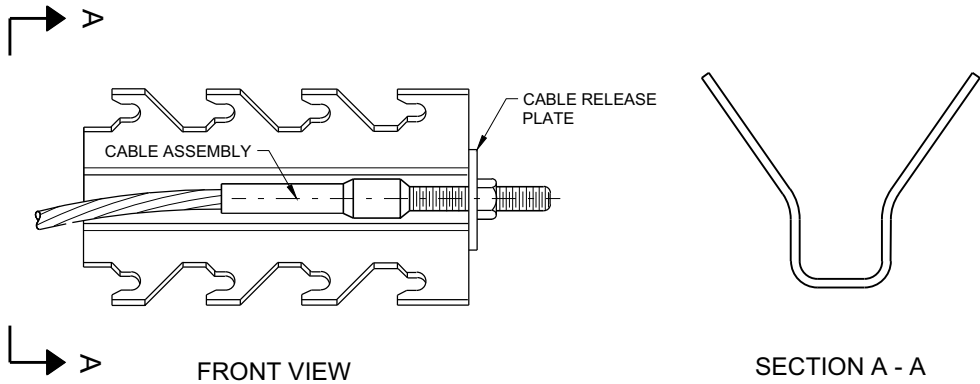


STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

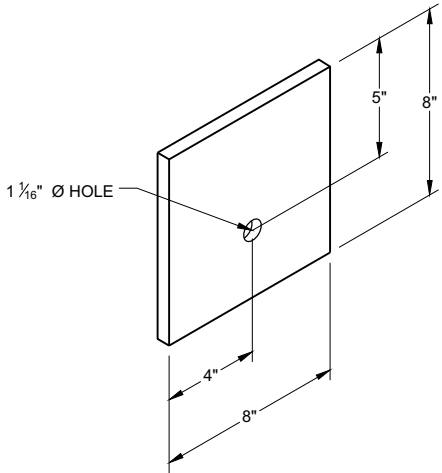


GENERIC GROUND STRUT⁹ ^E

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



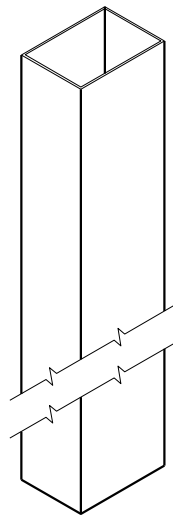
GENERIC ANCHOR CABLE BOX⁹ ^E



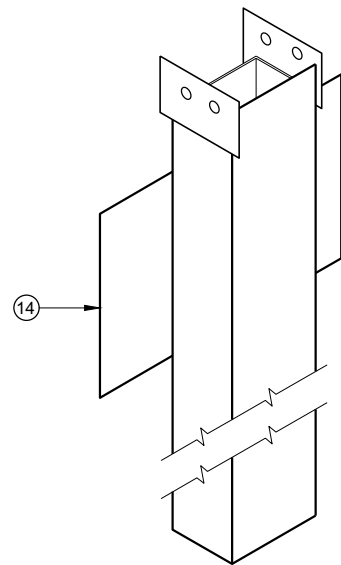
BEARING PLATE⁶ ^E

MIDWEST GUARDRAIL SYSTEM
ENERGY ABSORBING TERMINAL
(MGS)

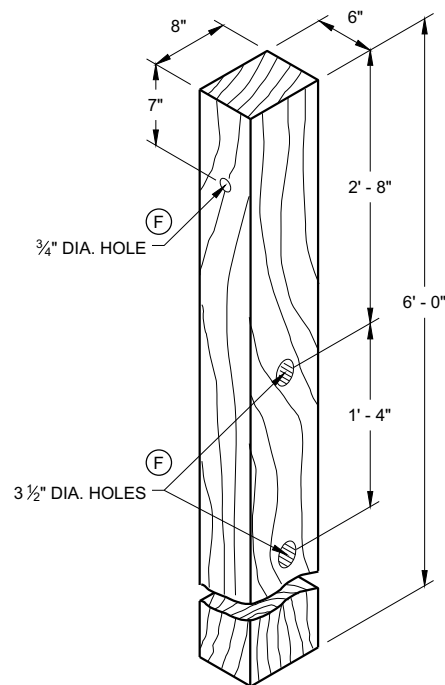
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



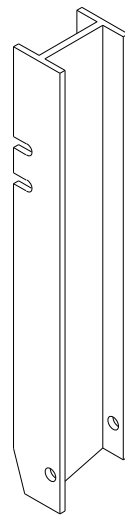
UPPER POST NO. 1 ⁽¹⁾ (E)



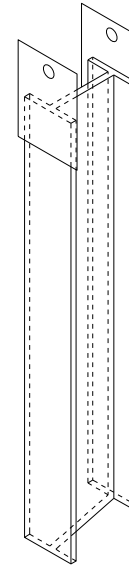
LOWER POST NO. 1 ⁽²⁾ (E)



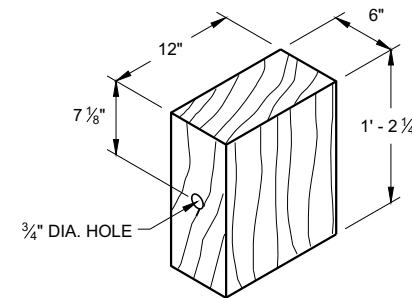
WOOD CRT POST ⁽³⁾ (E)
POSTS NUMBER 3-9



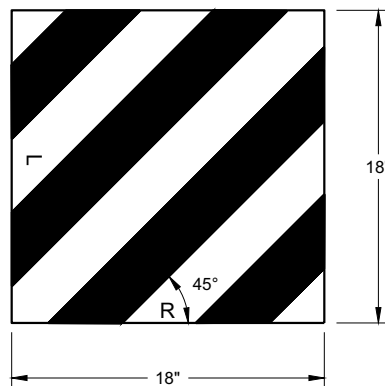
UPPER POST NO. 2 ⁽¹⁵⁾ (E)



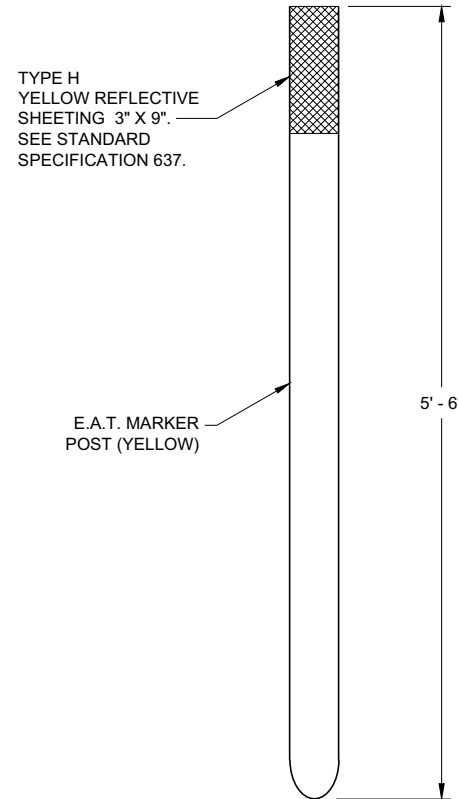
LOWER POST NO. 2 ⁽¹⁶⁾ (E)



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



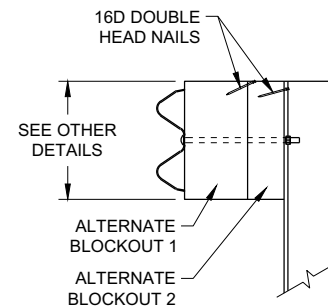
REFLECTIVE SHEETING DETAIL ^(E)



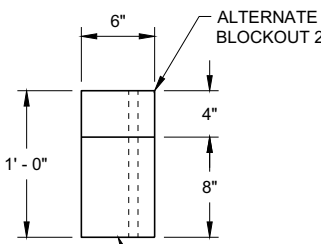
FRONT VIEW

SIDE VIEW

E.A.T. MARKER POST ⁽¹³⁾



SIDE VIEW



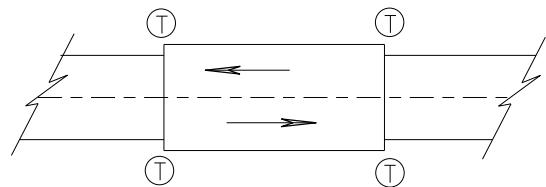
TOP VIEW

ALTERNATE WOOD
BLOCKOUT DETAIL

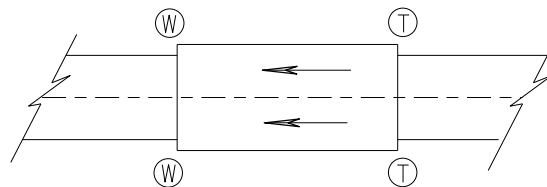
**MIDWEST GUARDRAIL SYSTEM
ENERGY ABSORBING TERMINAL
(MGS)**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
7/2018 DATE /S/ Rodney Taylor
ROADWAY STANDARDS 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

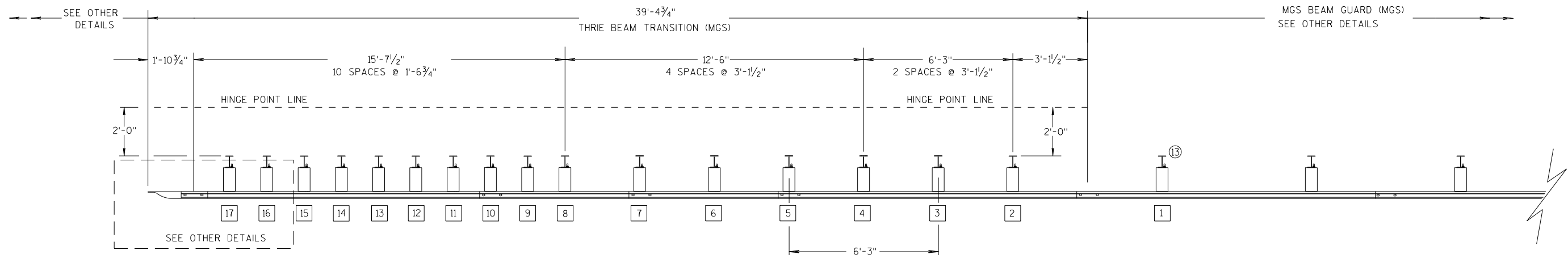
IF ROCK IS ENCOUNTERED, REMOVE ROCK TO FULL DEPTH OF POST PLUS 2 1/2", AND 12" DIAMETER AROUND POST. SEE 14B42 FOR MORE DETAILS.

TRANSITION USES STEEL POSTS ONLY.

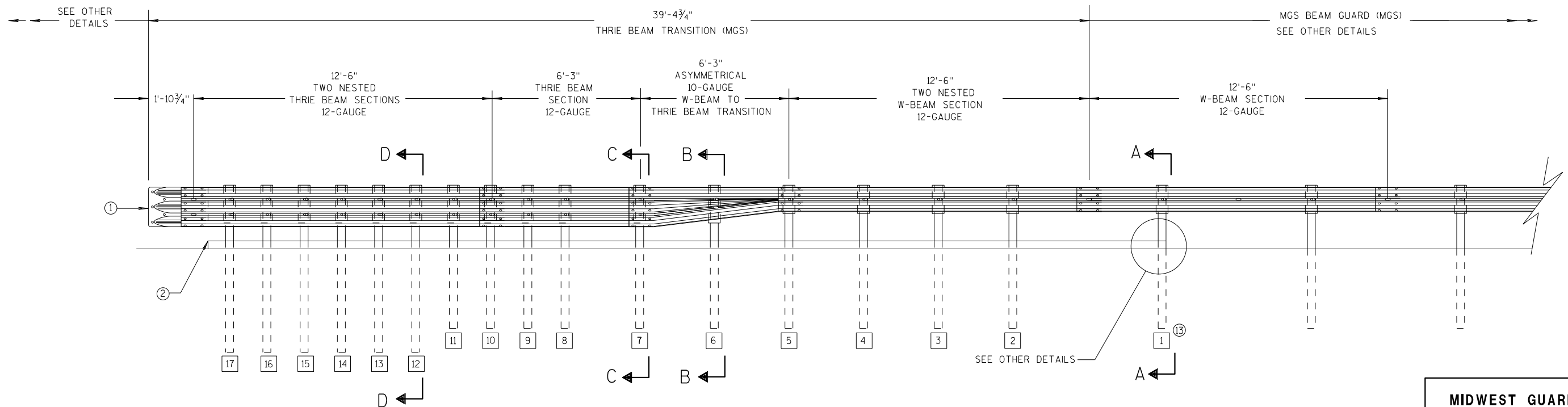
SEE STANDARD DETAIL DRAWING 14 B 42 FOR MORE INFORMATION.

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

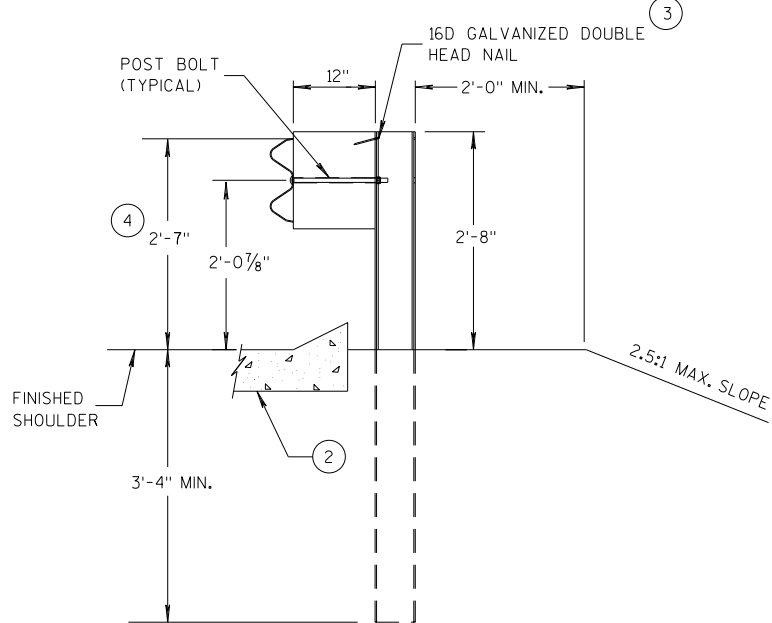
MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION

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

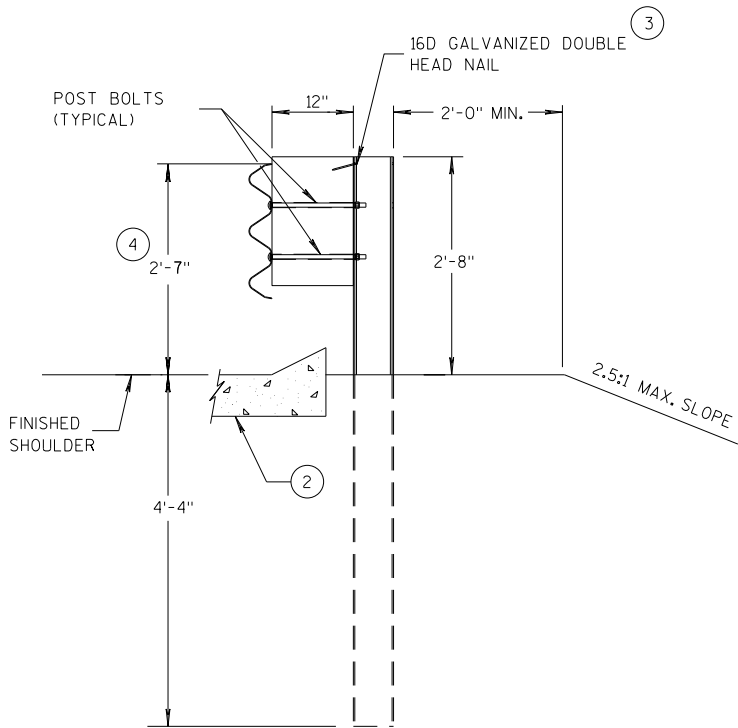
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

GENERAL NOTES

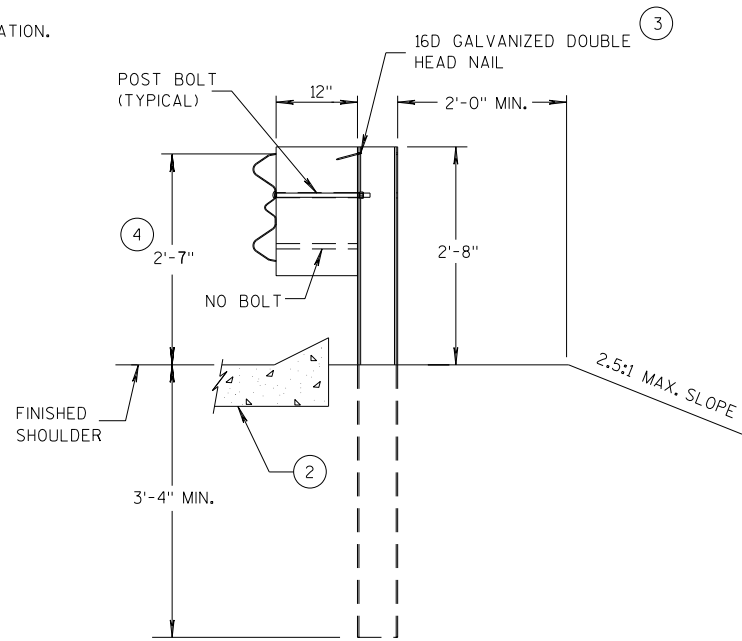
- 2 OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.
- 3 WHEN USING STEEL POSTS AND WOOD BLOCKOUTS INSTALL FOUR 10D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.
- 4 TOLERANCE FOR TOP OF W-BEAM RAIL IS $\pm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



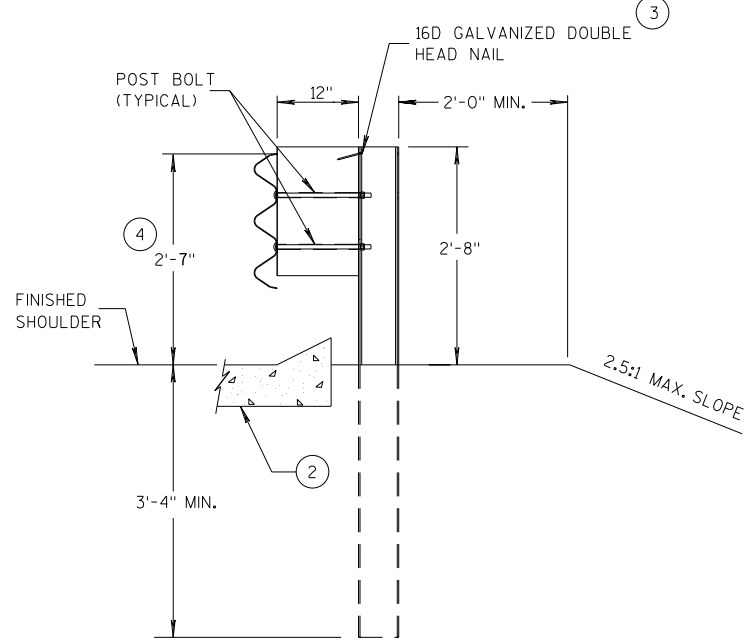
SECTION A-A
POSTS 1-5



SECTION D-D
POSTS 12-17



SECTION B-B
POST 6



SECTION C-C
POSTS 7-11

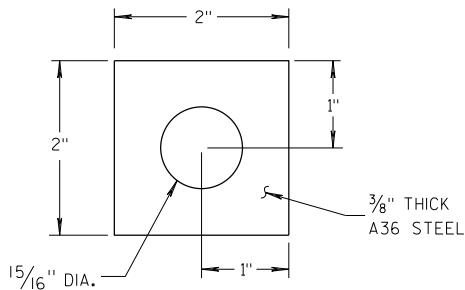
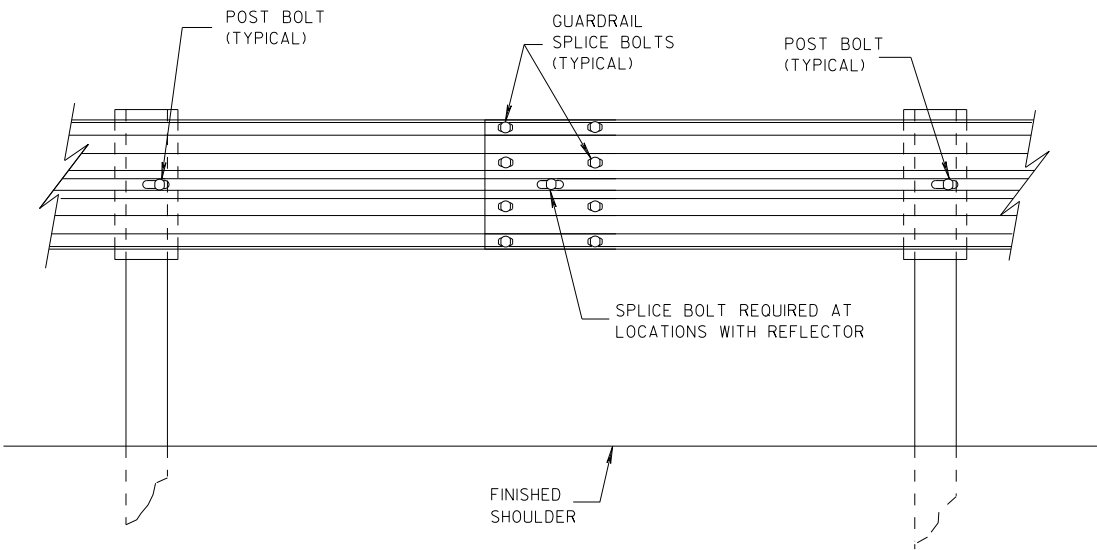
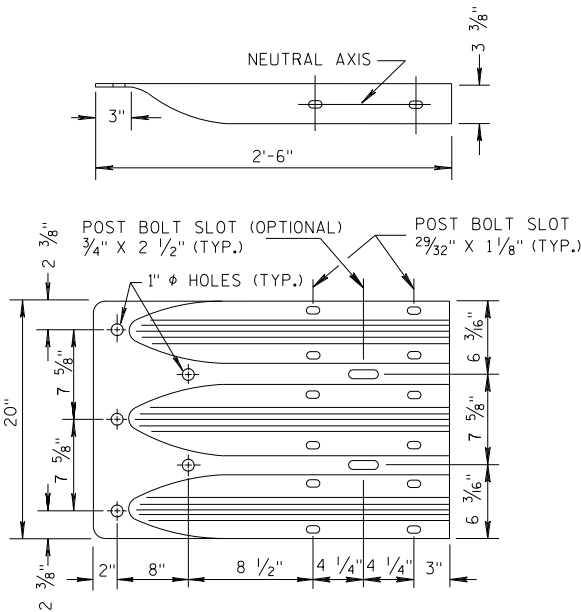


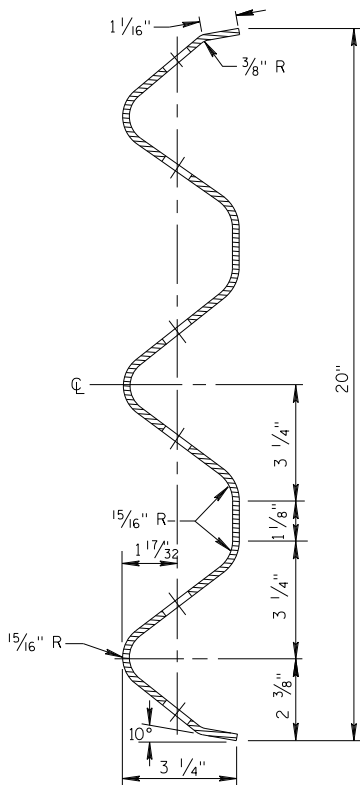
PLATE WASHER DETAIL



SPLICE DETAIL



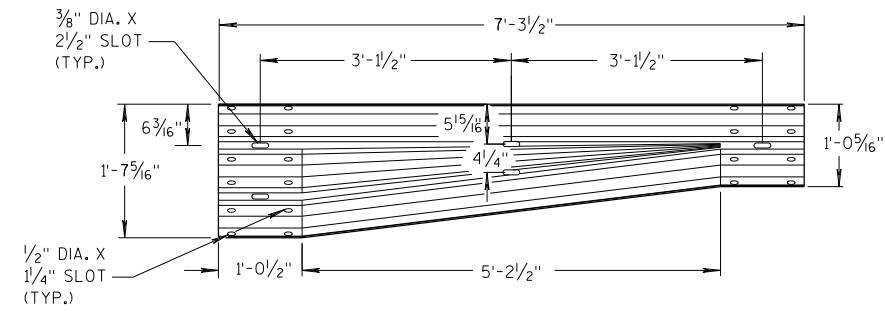
THRIE BEAM
TERMINAL CONNECTOR



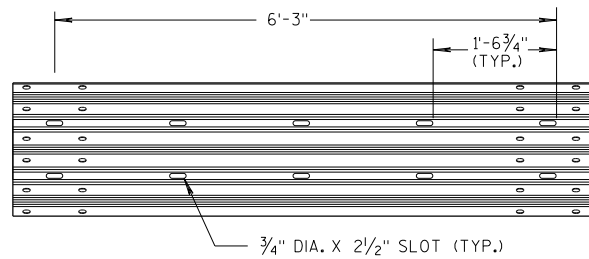
SECTION THRU THRIE
BEAM RAIL ELEMENT

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

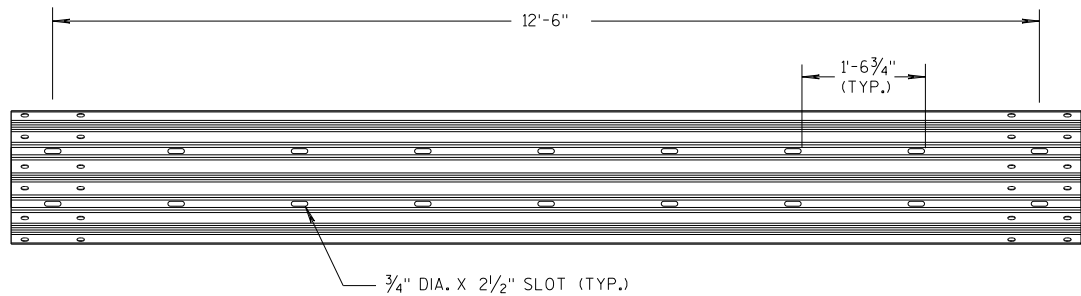
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



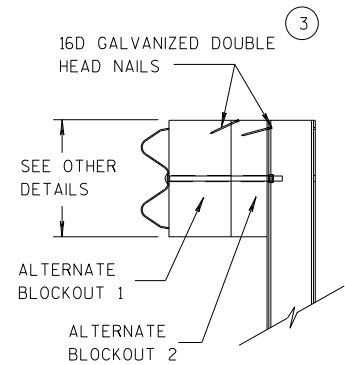
W-BEAM TO THRIE BEAM TRANSITION SECTION



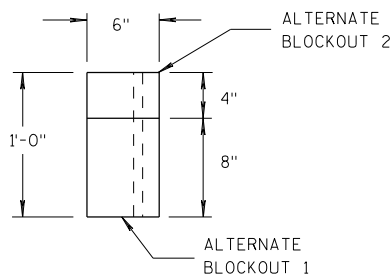
6'-3" THRIE BEAM SECTION



12'-6" THRIE BEAM SECTION

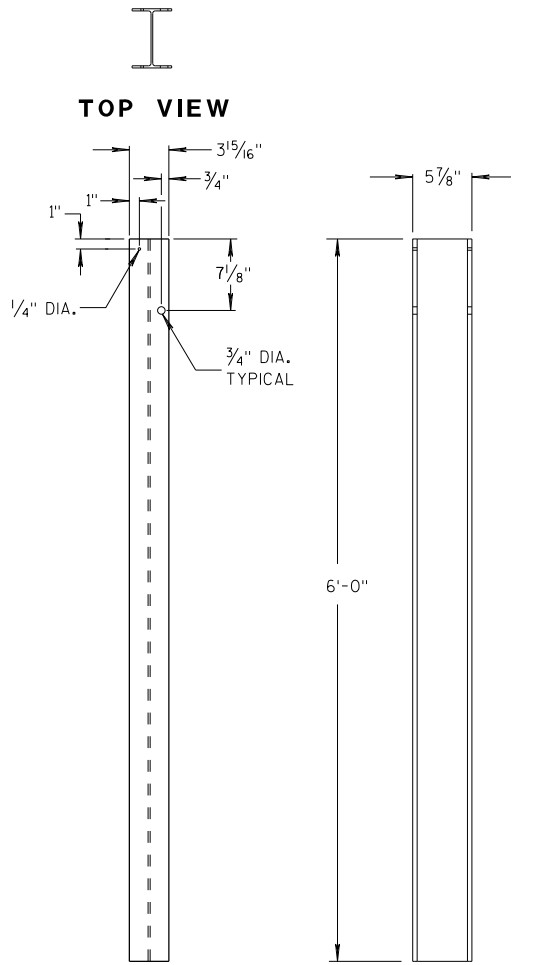


SIDE VIEW



TOP VIEW

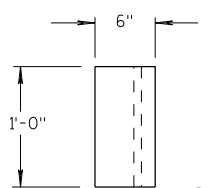
ALTERNATE WOOD BLOCKOUT DETAIL



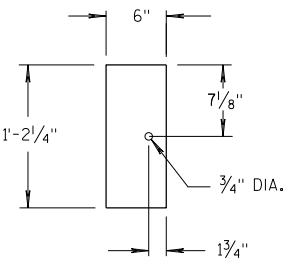
FRONT VIEW

SIDE VIEW

STEEL POSTS 1-5

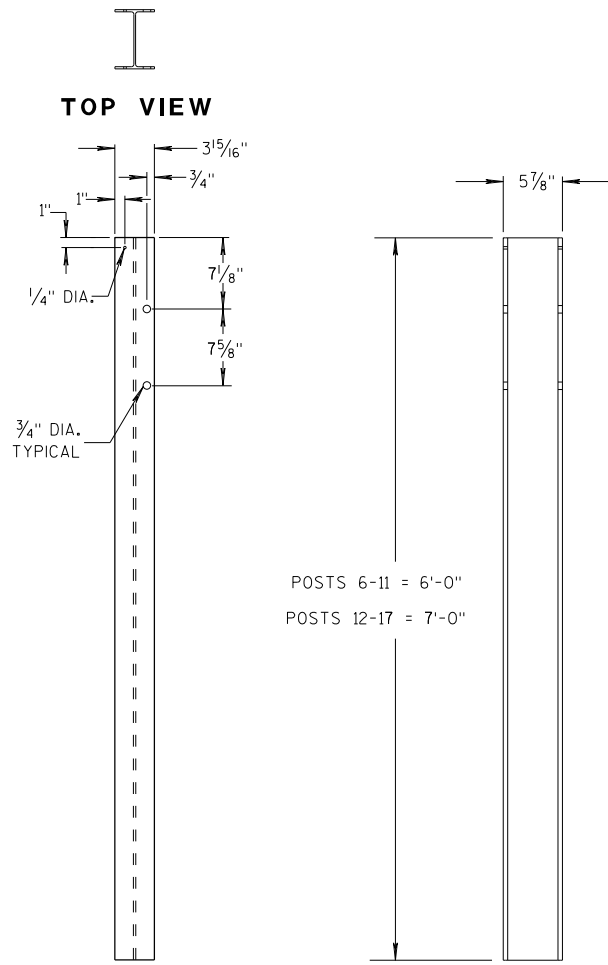


TOP VIEW



FRONT VIEW

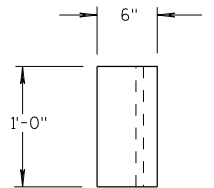
BLOCKOUT POSTS 1-5



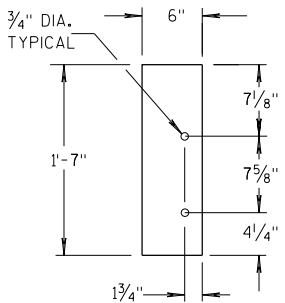
FRONT VIEW

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.

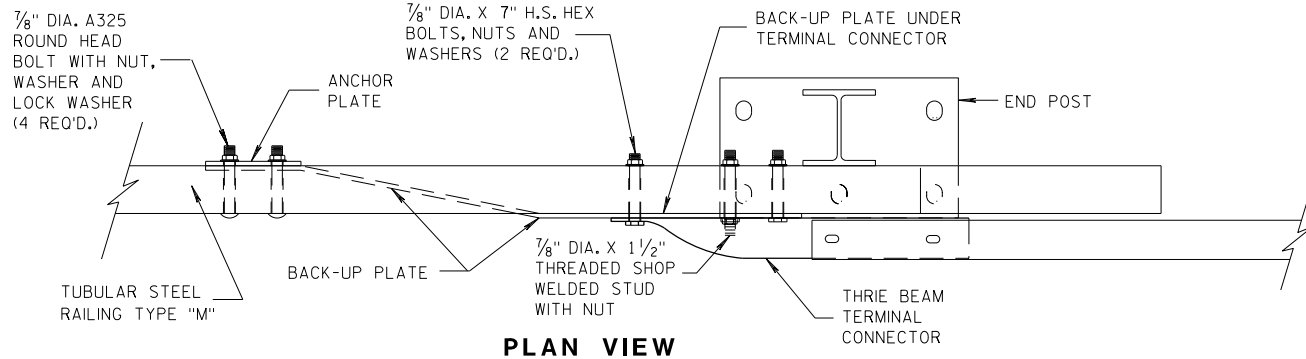
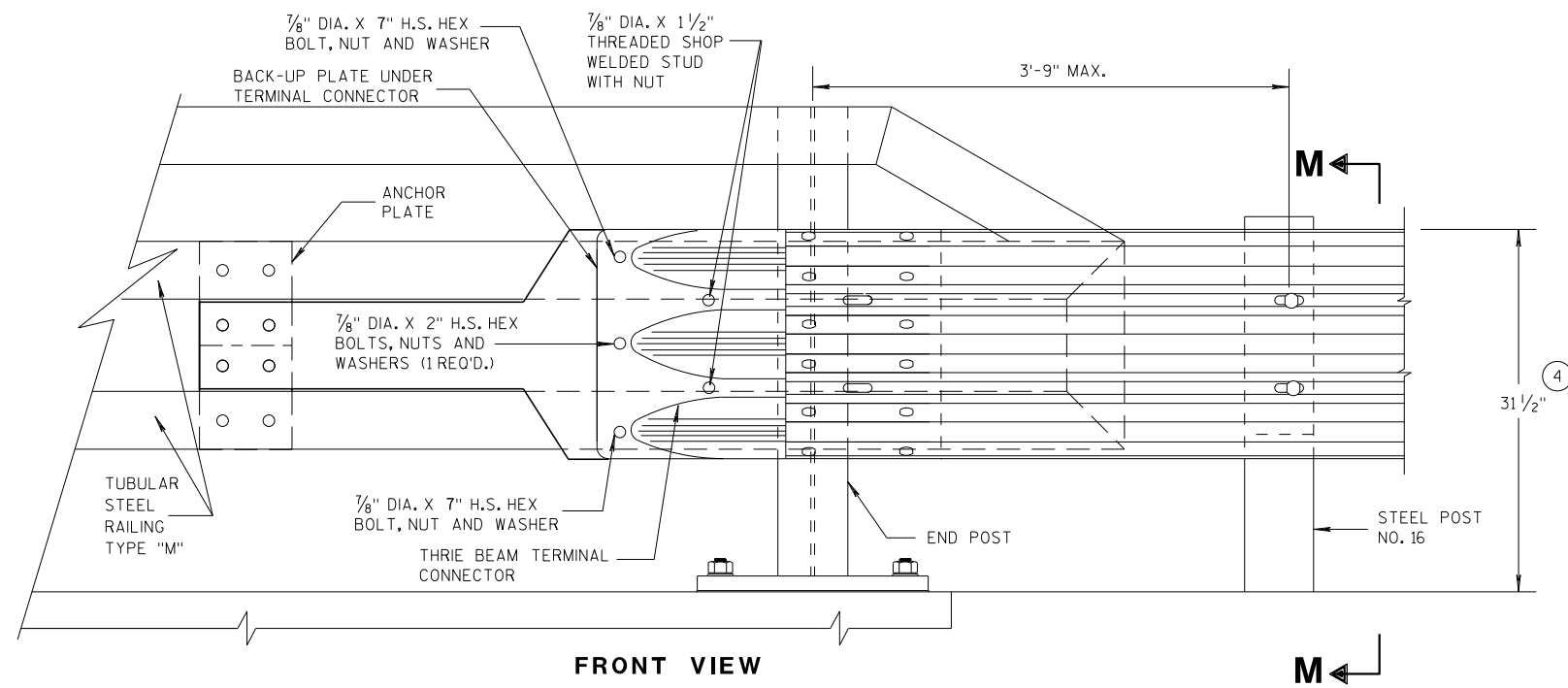
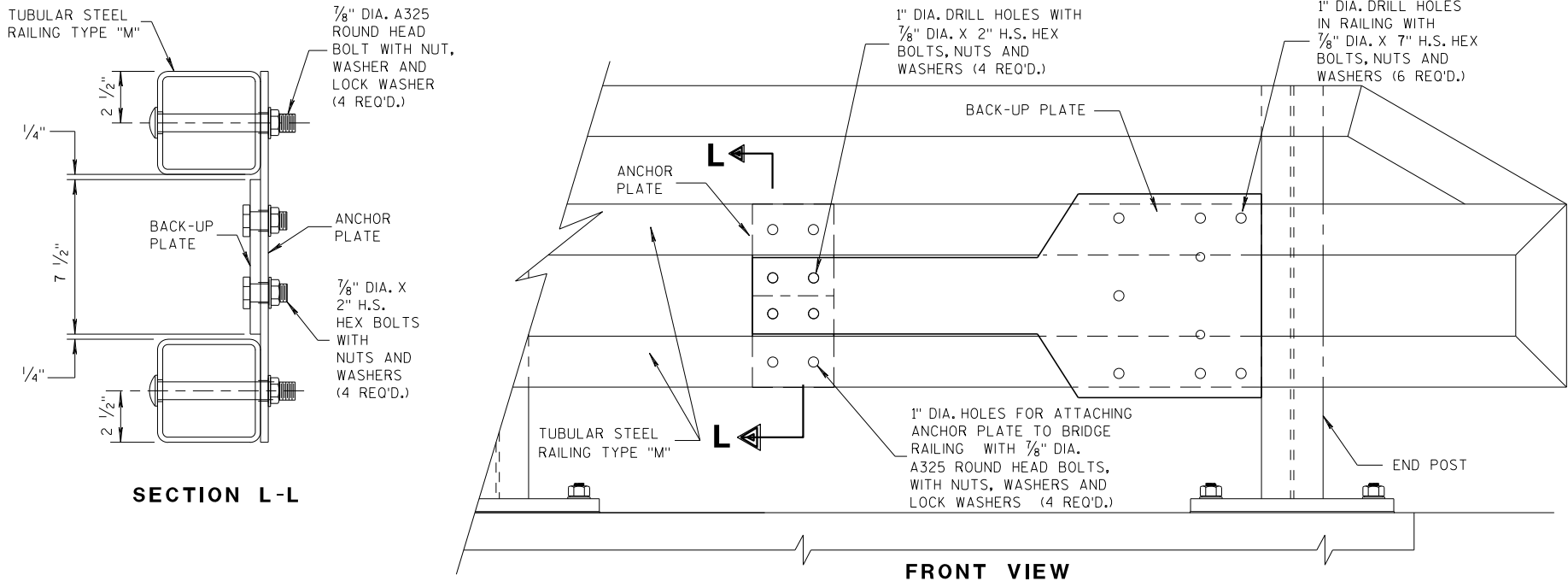
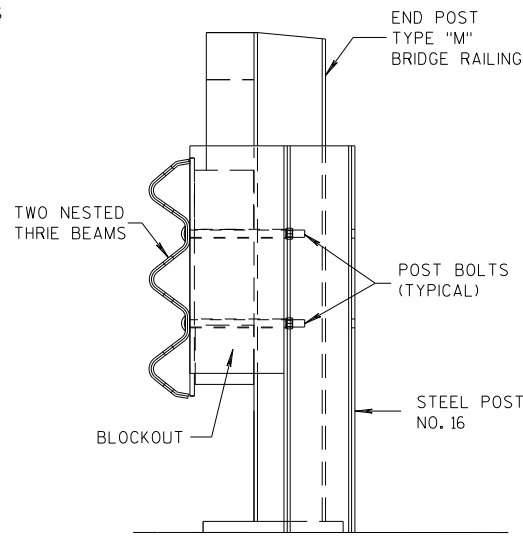
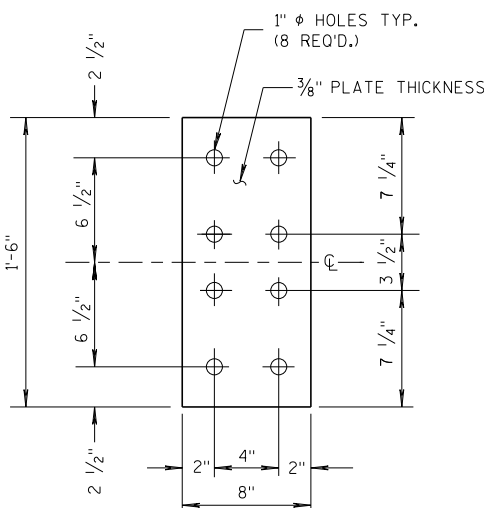
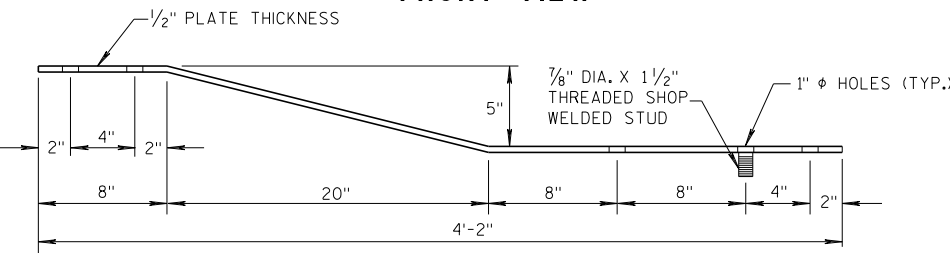
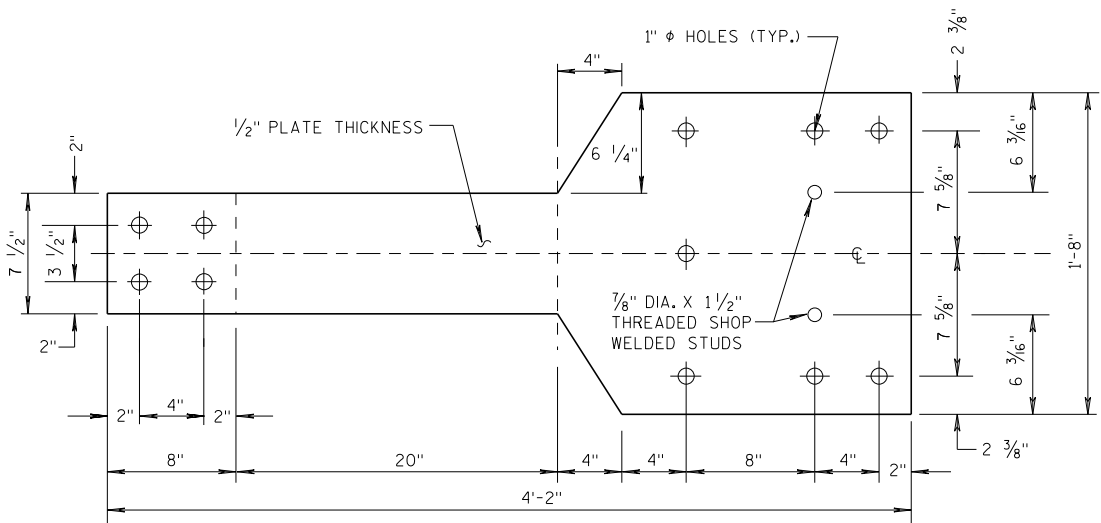
⑬ STEEL OR WOOD POST IS ACCEPTABLE AT POST 1. SEE SDD 14B42.

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

GENERAL NOTES

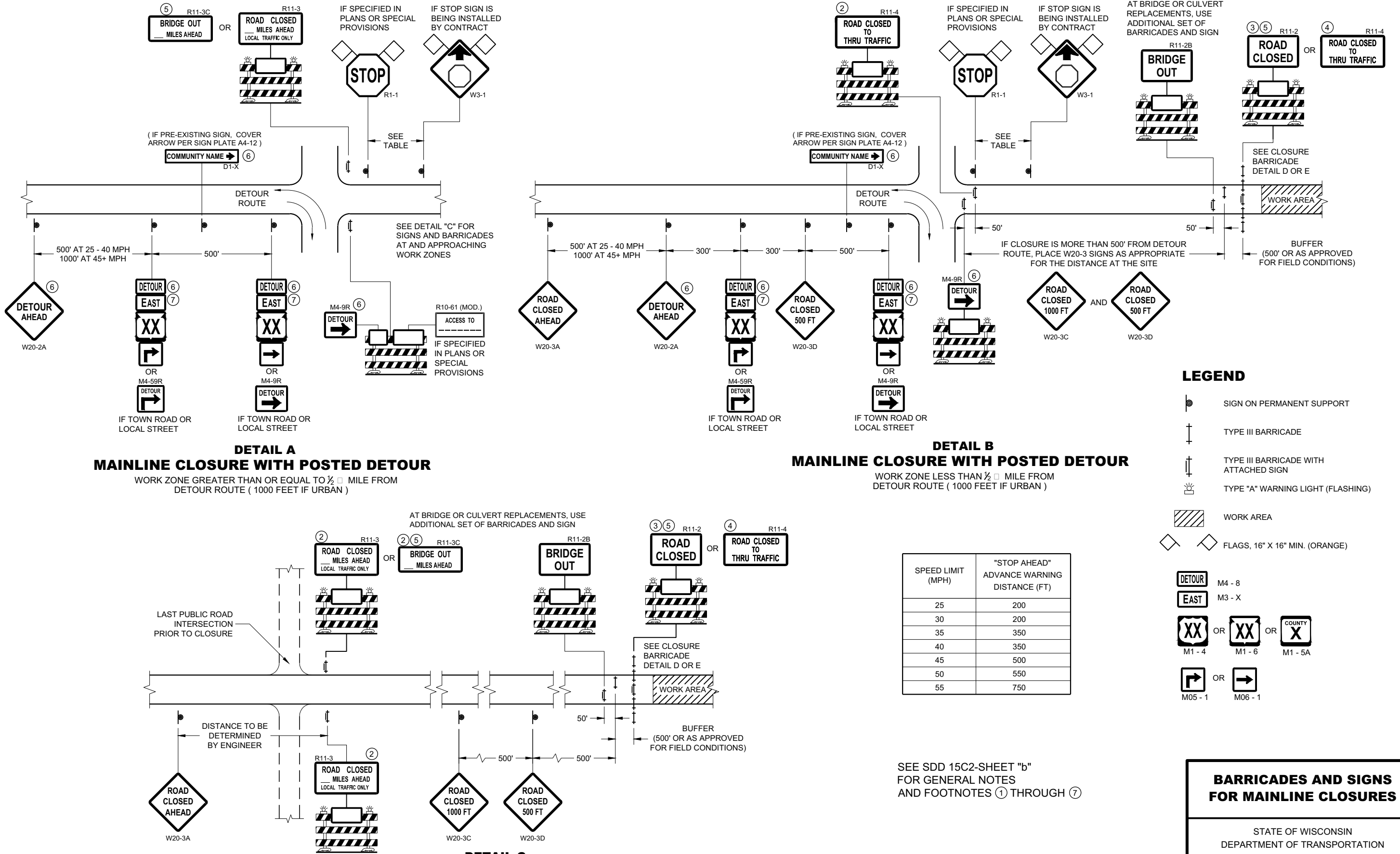
④ TOLERANCE FOR TOP OF W-BEAM RAIL IS $\pm 1"$.



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

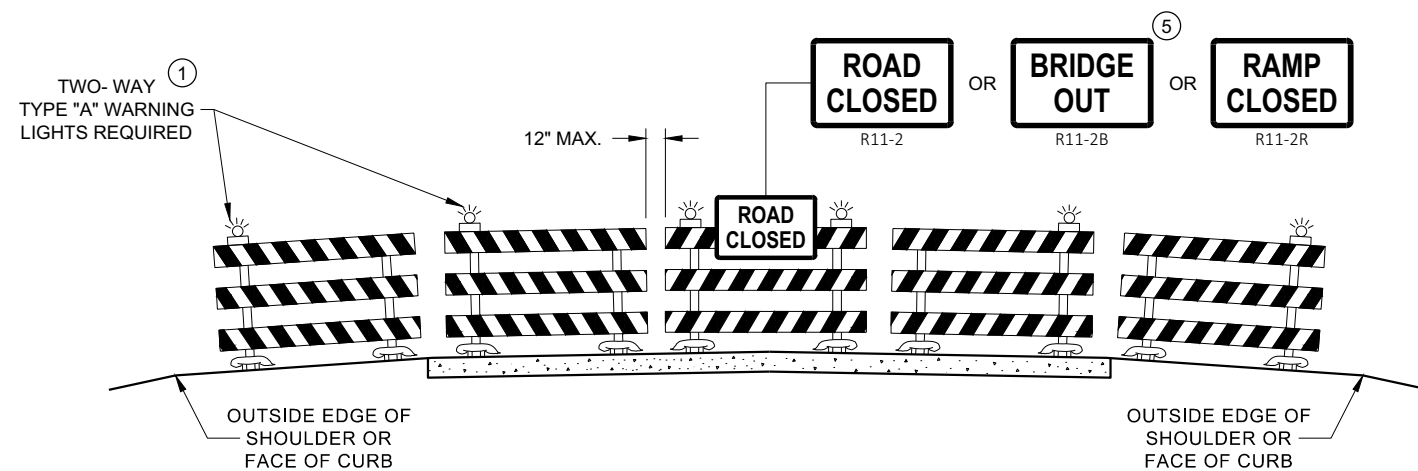


BARRICADES AND SIGNS FOR MAINLINE CLOSURES

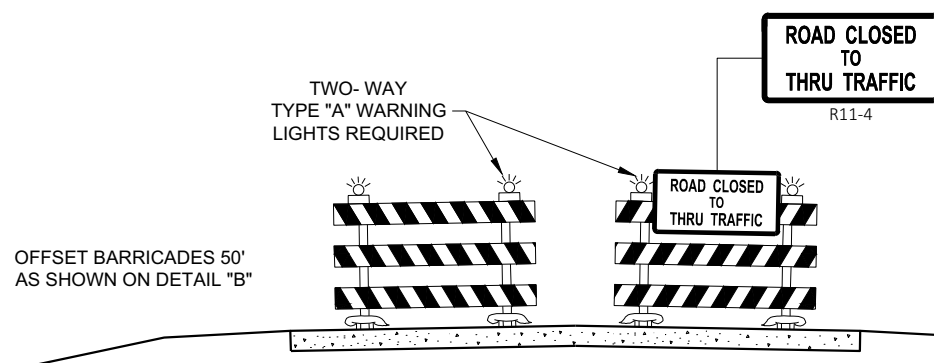
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
February 2020 /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:

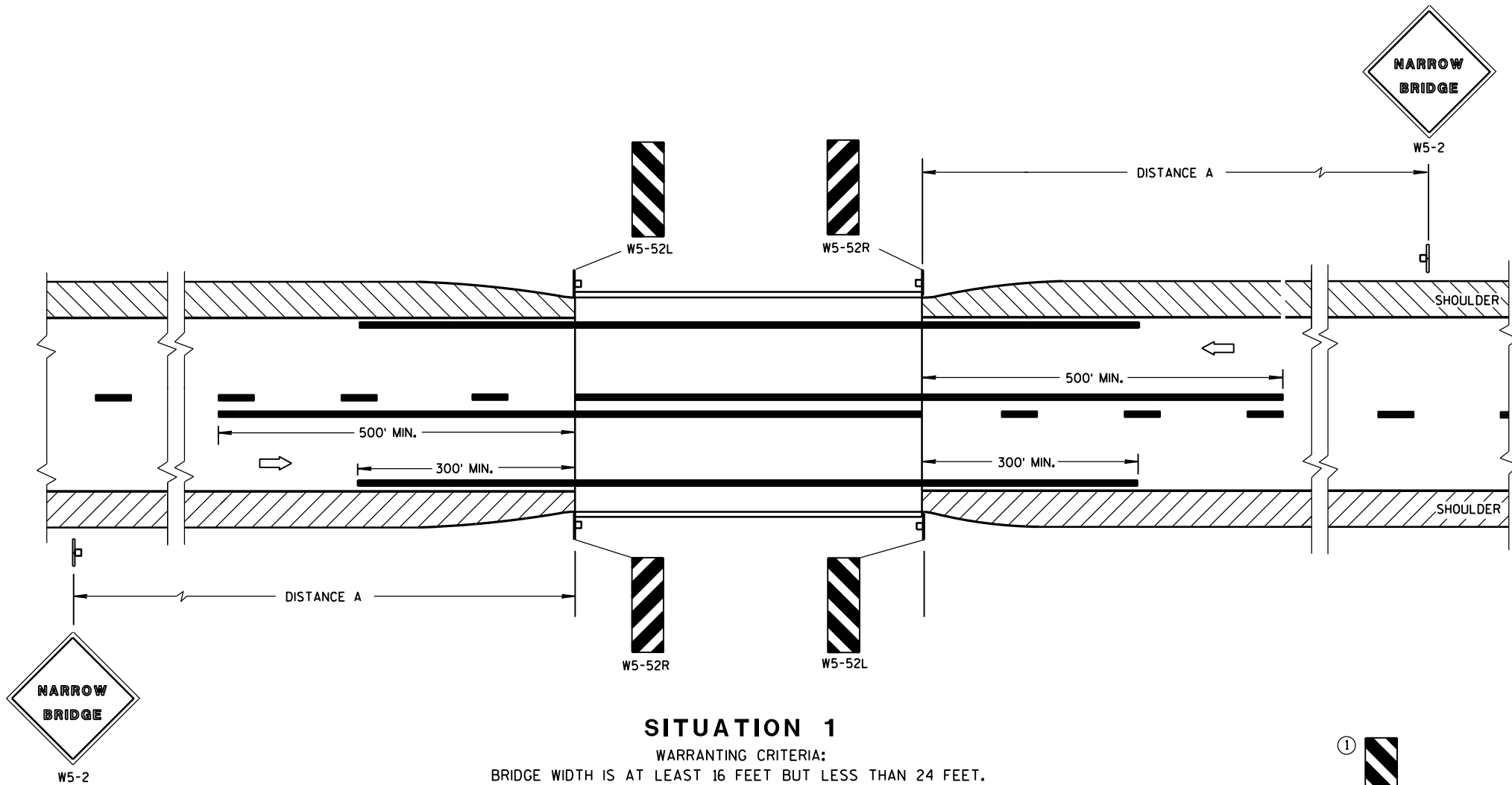
- R11 - 2 SHALL BE 48" X 30"
- R11 - 3 SHALL, R11 - 4 AND R10 - 61 SHALL BE 60 " X 30"
- M4 - 9 SHALL BE 30" X 24"
- M3 - X SHALL BE 24" X 12" (36" X 18" IF NEEDED TO MATCH EXISTING SIGNS)
- M4 - 8 SHALL BE 24" X 12" (36" X 18" IF NEEDED TO MATCH EXISTING SIGNS)
- M1 - 4, M1 - 5A AND M1 - 6 SHALL BE 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
February 2020 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER
FHWA



SITUATION 1

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

DISTANCE TABLE

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

GENERAL NOTES

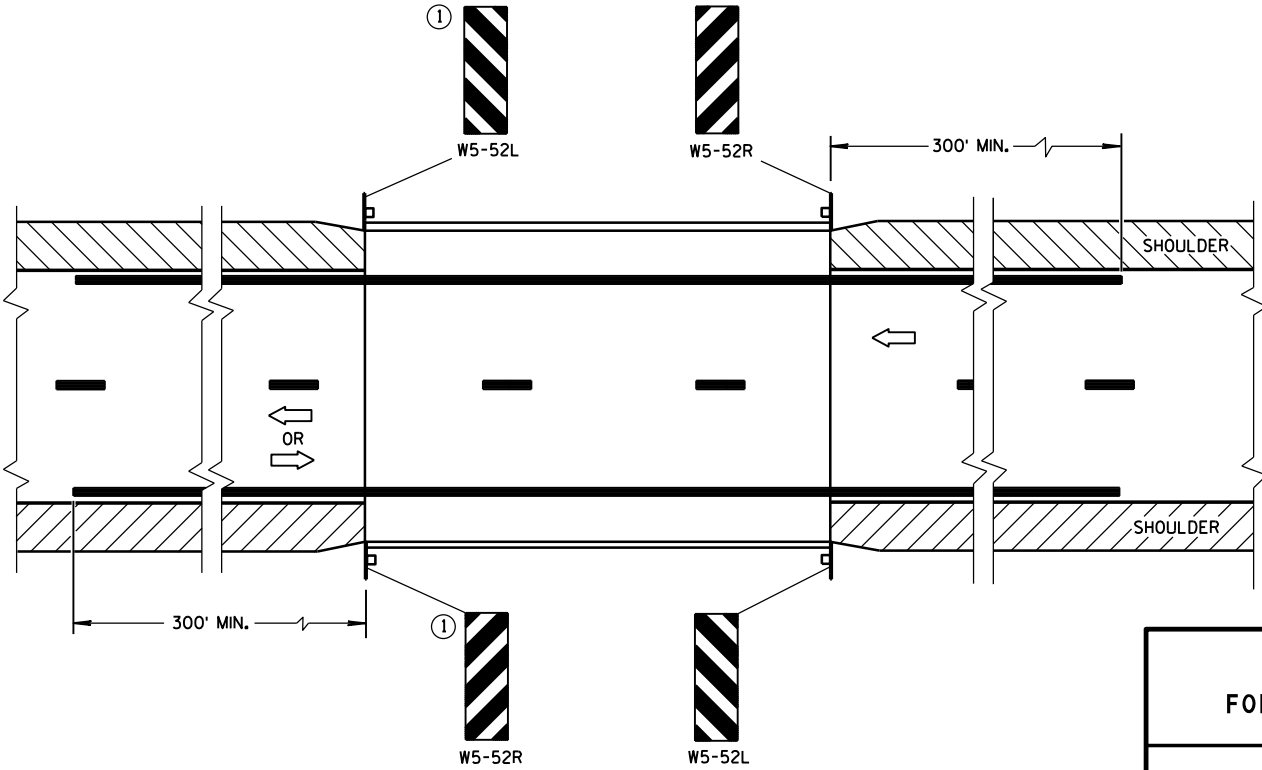
DETAILS OF TRAFFIC CONTROL DEVICES AND INSTALLATION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS, THE SPECIAL PROVISIONS, AND THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

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

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

① OMIT ON ONE-WAY TRAVELLED WAYS.

➡ DIRECTION OF TRAFFIC



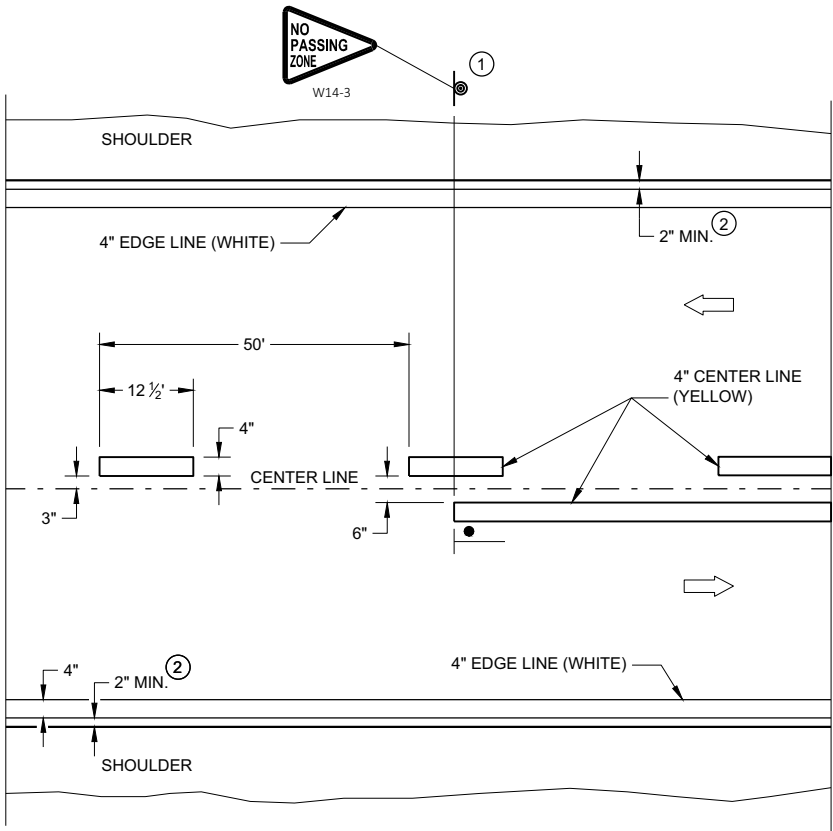
SITUATION 2

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

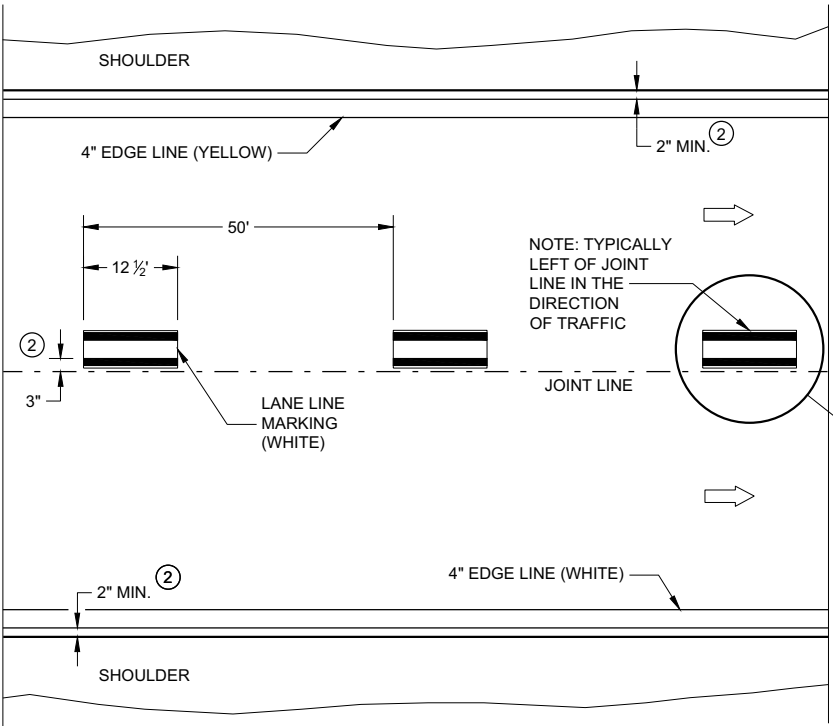
**SIGNING & MARKING
FOR TWO LANE BRIDGES**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June 2017 /S/ Matthew R. Rauch
DATE STATE SIGNING AND MARKING ENGINEER
FHWA

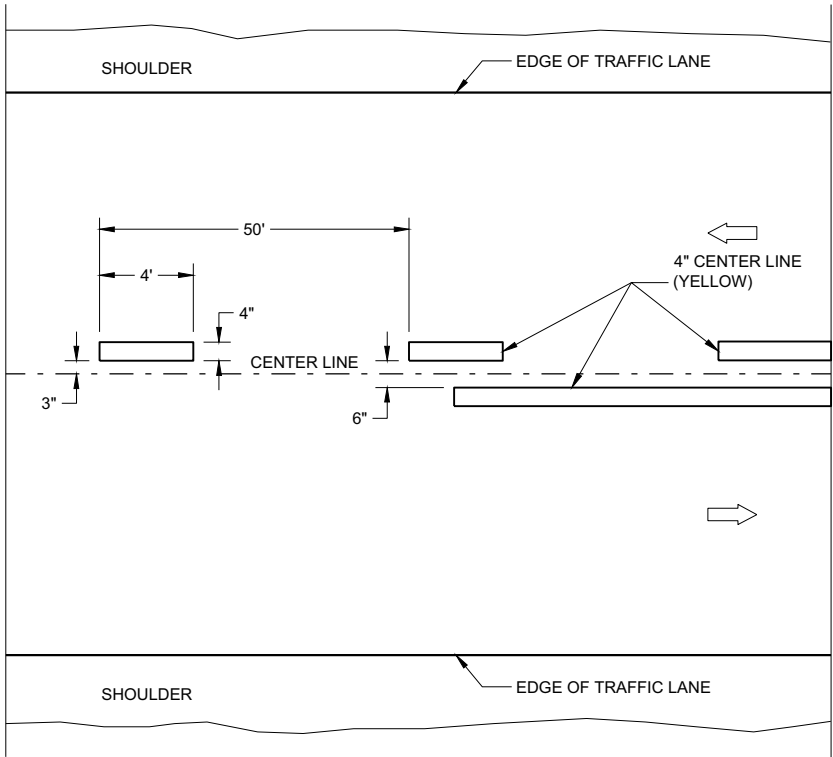


TWO WAY TRAFFIC

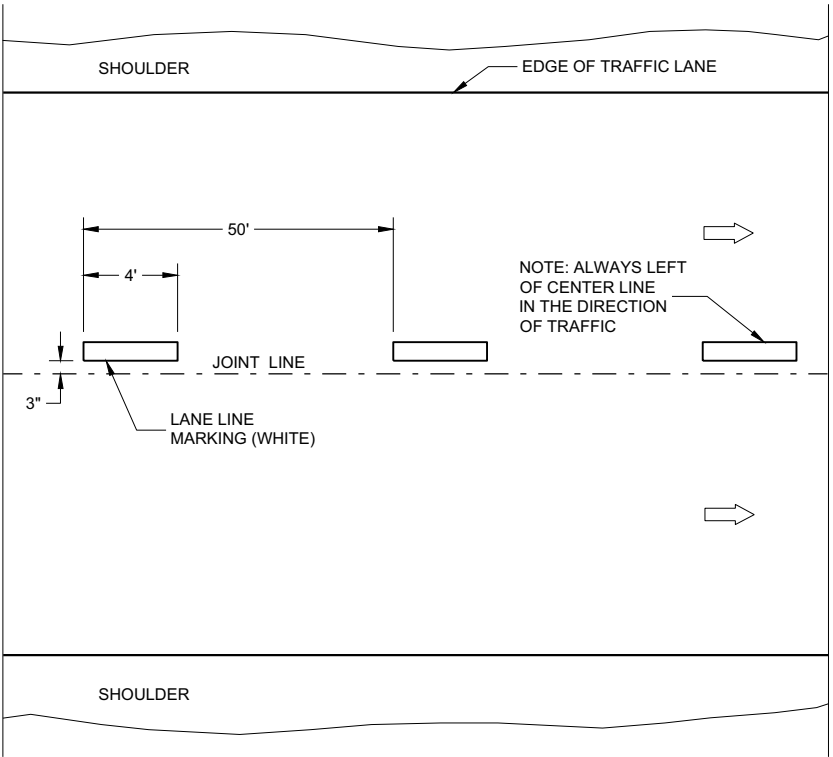


ONE WAY TRAFFIC

PERMANENT PAVEMENT MARKING



TWO WAY TRAFFIC



ONE WAY TRAFFIC

TEMPORARY PAVEMENT MARKING

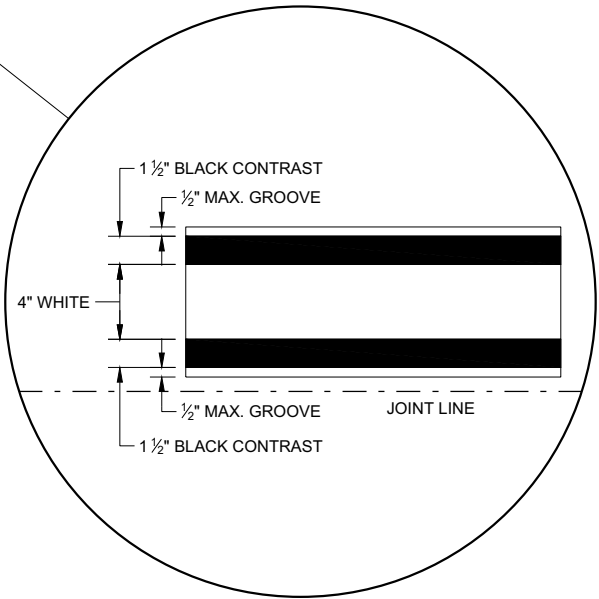
GENERAL NOTES

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

- ① LOCATE THE NO PASSING ZONE W14-3 SIGN WITH 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



LONGITUDINAL MARKING (MAINLINE)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
February 2020
DATE
/S/ Matthew Rauch
STATEWIDE SIGNING AND MARKING
ENGINEER
FHWA

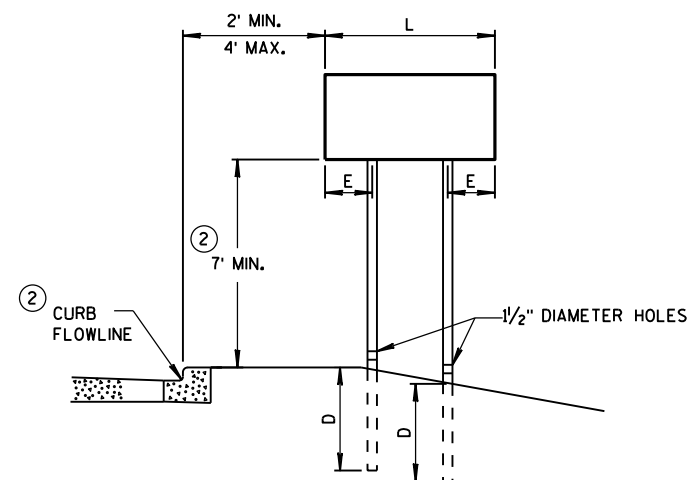
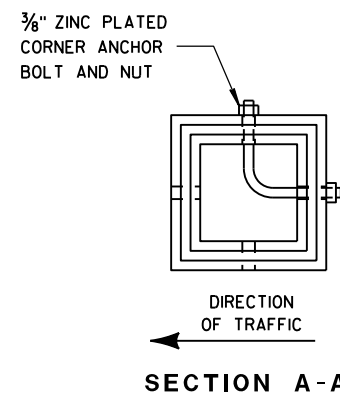


TUBULAR STEEL POSTS

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

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

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

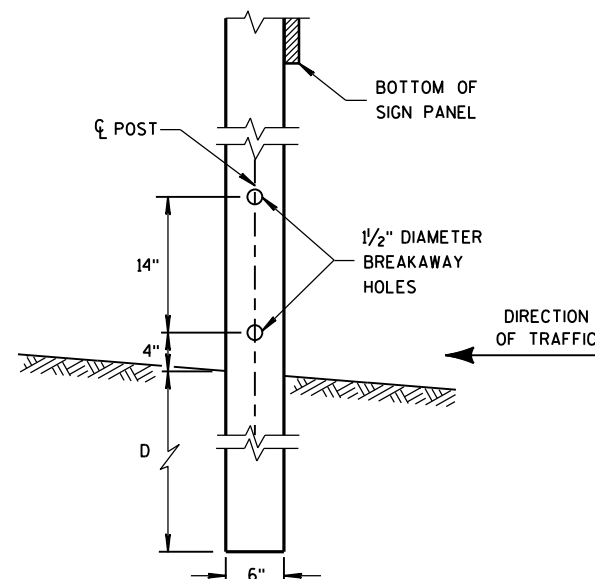


URBAN AREA

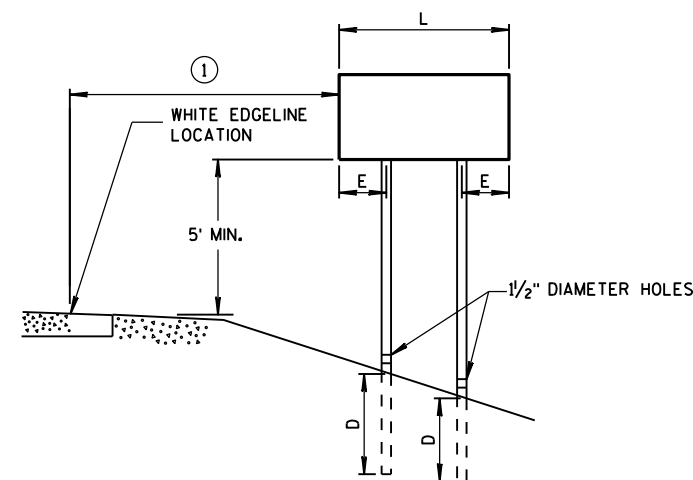
POST MOUNTING DETAIL FOR TEMPORARY TRAFFIC CONTROL FIXED MESSAGE SIGNS

WOOD POST
EMBEDMENT DEPTH

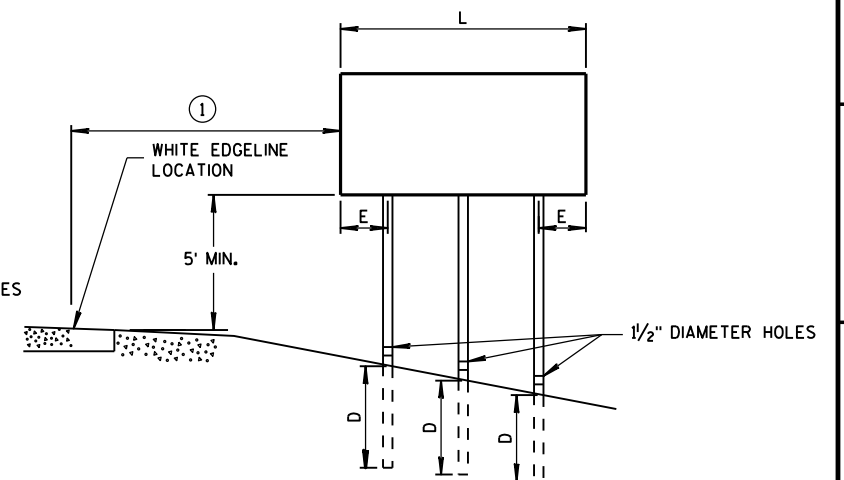
AREA OF SIGN INSTALLATION (SQ. FT.)	D (MIN)
20 OR LESS	4'
GREATER THAN 20	5'



4" x 6" WOOD POST MODIFICATION



RURAL AREA



GENERAL NOTES

- ① 6 FEET FROM THE EDGE OF PAVEMENT (EDGE LINE LOCATION) UNLESS OTHERWISE DIRECTED BY THE PROJECT ENGINEER. LATERAL OFFSET SHOULD BE ADJUSTED TO AVOID THE DITCH FLOWLINE.
- ② THE EXISTENCE OF CURB AND GUTTER DOES NOT IN ITSELF MANDATE THE VERTICAL CLEARANCE ILLUSTRATED. THAT HEIGHT IS TYPICALLY MEASURED WHERE THERE IS SIDEWALK ADJACENT TO THE ROADWAY OR PARKING IS PERMITTED. IN THE ABSENCE OF SIDEWALK, VERTICAL CLEARANCE IS MEASURED FROM THE TOP OF THE CURB. IF NO SIDEWALK AND NO PARKING, VERTICAL CLEARANCE MAY BE REDUCED TO 5 FOOT MINIMUM. OFFSET OF SIGNS IS MEASURED FROM THE CURB FLOWLINE.
- ③ FOR SIGNS REQUIRING 4 POSTS, SPACE INTERMEDIATE POSTS EVENLY.

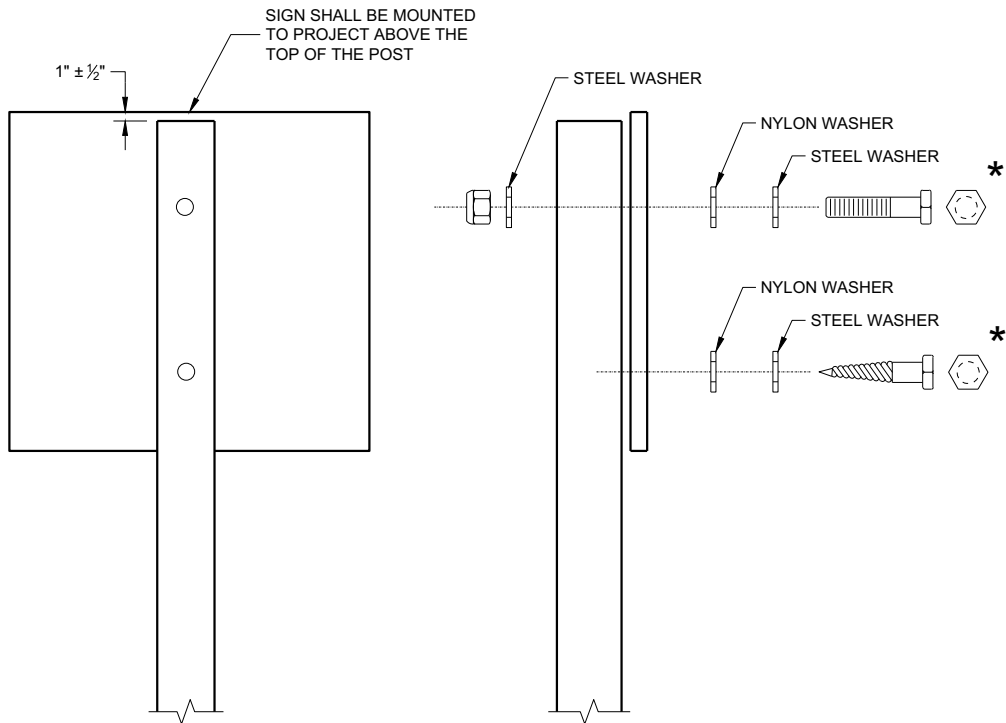
4" X 6" WOOD POST

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

SEE NOTE (3)

TEMPORARY TRAFFIC CONTROL SIGN MOUNTING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



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

- A. HOT DIP GALVANIZED IN ACCORDANCE WITH ASTM
DESIGNATION: A 153, CLASS D, OR SC 3
- B. ELECTRO-GALVANIZED IN ACCORDANCE WITH ASTM
DESIGNATION: B 633, TYPE III, SC 3

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

WOOD POST (4" x 6")
LAG SCREWS - 3/8" x 3"
MACHINE BOLTS - 5/16" x 6 1/2" OR 7" LENGTH W/NUTS

SQUARE STEEL POST (2" x 2")
MACHINE BOLTS - 3/8" x 3 1/4" LENGTH W/NUTS
RIVETS - 3/32" (6605-9-6) BULB-TITE, TRI-FOLD, ALUMINUM
BODY/MANDREL O.D. FLANGE 0.720 - 0.765 INCH,
GRIP RANGE 0.042 - 0.375 INCH

WASHERS (ALL POSTS) -
1 1/4" O.D. x 3/8" I.D. x 1/16" STEEL
1 1/4" O.D. x 3/8" I.D. x 0.080 NYLON

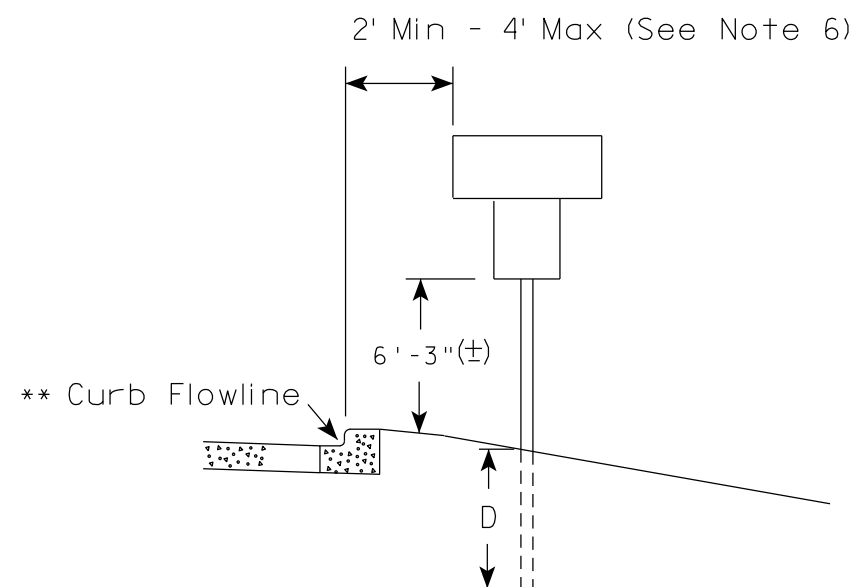
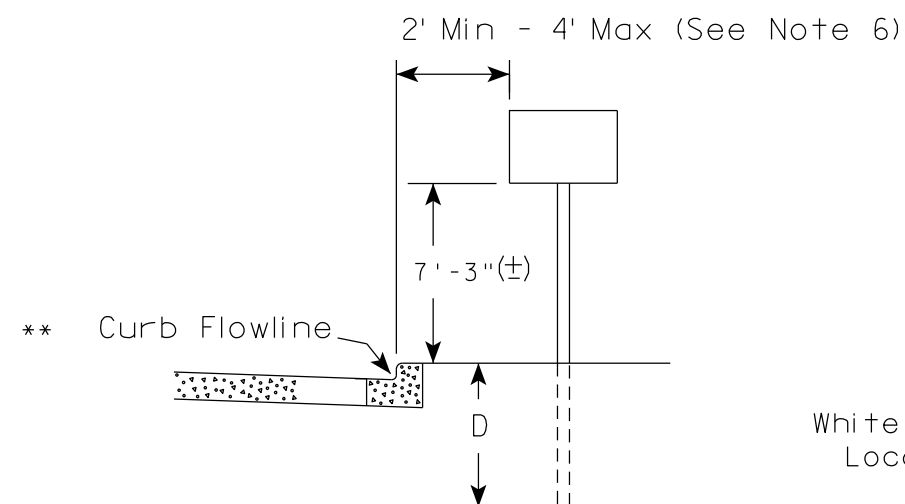
* TWO DIFFERENT FASTENING SYSTEMS ARE SHOWN FOR ILLUSTRATION
PURPOSES. ON ANY INDIVIDUAL SIGN, EITHER ONE OR THE OTHER SYSTEM
SHALL BE USED. ACTUAL NUMBER OF FASTENERS PER SIGN VARIES WITH
THE SIGN AREA. FOR A SINGLE POST INSTALLATION, ALL SIGNS GREATER
THAN 9 SQ. FT. REQUIRE THE USE OF 3 FASTENERS.

ATTACHMENT OF SIGNS
TO POSTS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

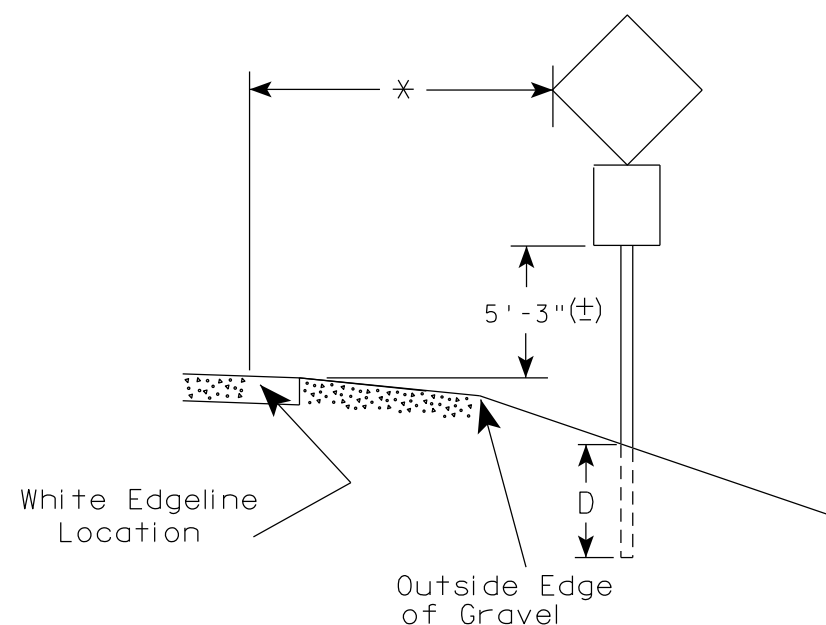
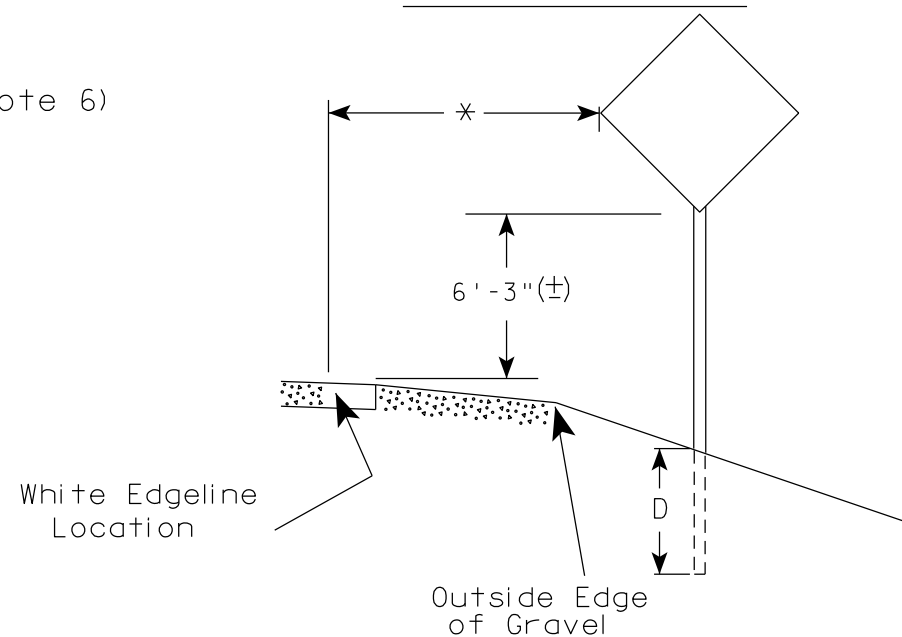
APPROVED
June 2017 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER
FHWA

URBAN AREA



✱✱ 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.

RURAL AREA (See Note 2)



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

POST EMBEDMENT DEPTH

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

GENERAL NOTES

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

TYPICAL INSTALLATION
OF PERMANENT TYPE II
SIGNS ON SINGLE POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

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

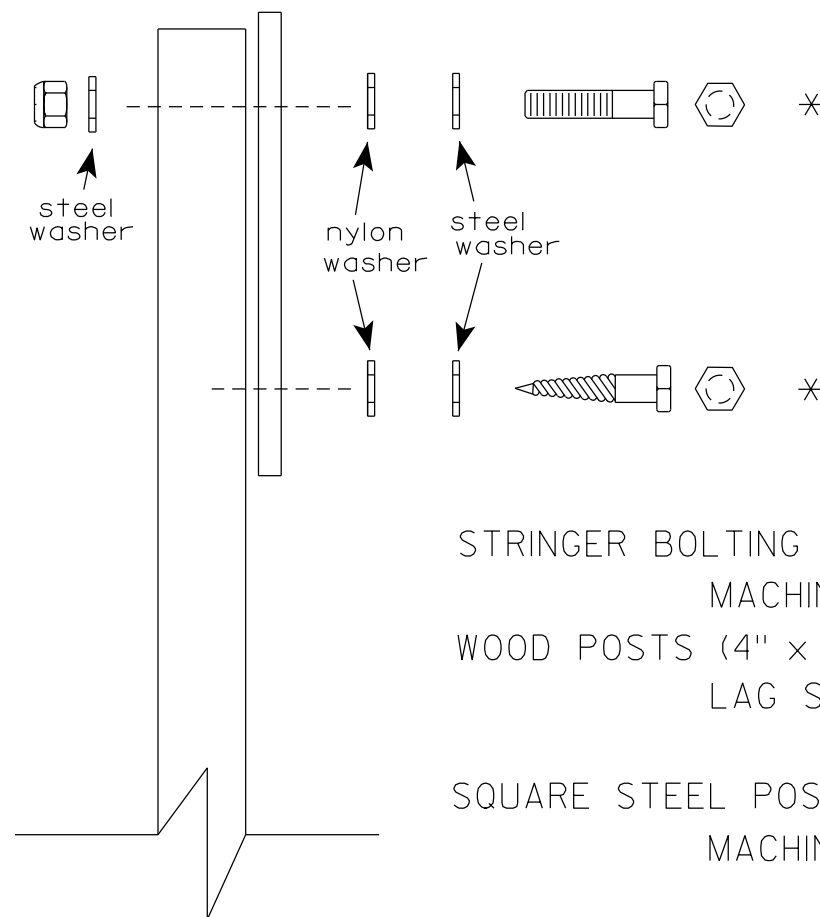
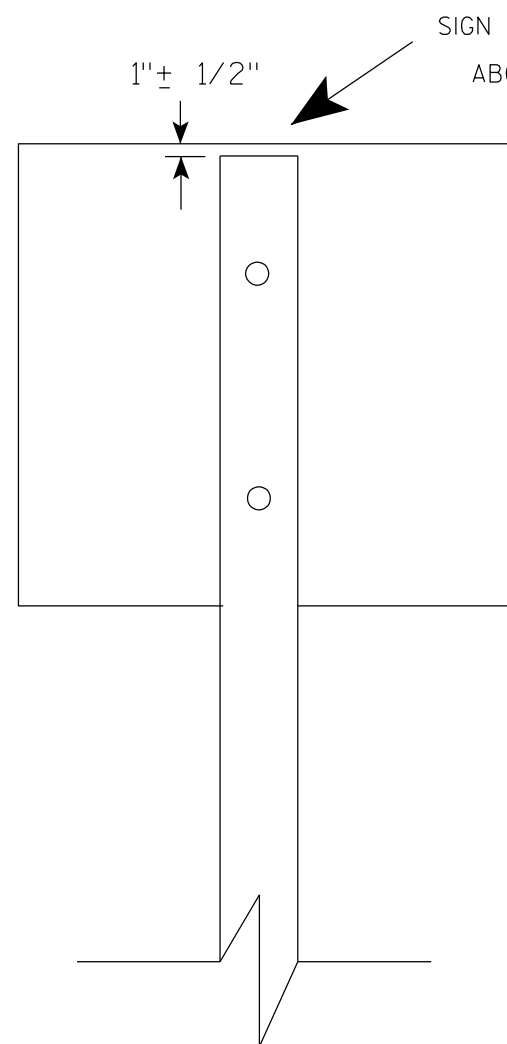
PROJECT NO:

HWY:

COUNTY:

SHEET NO:

E



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

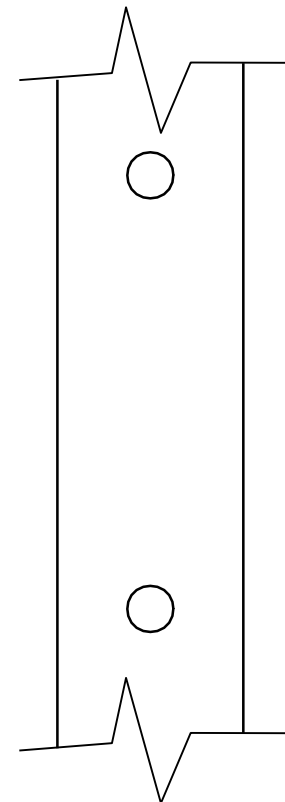
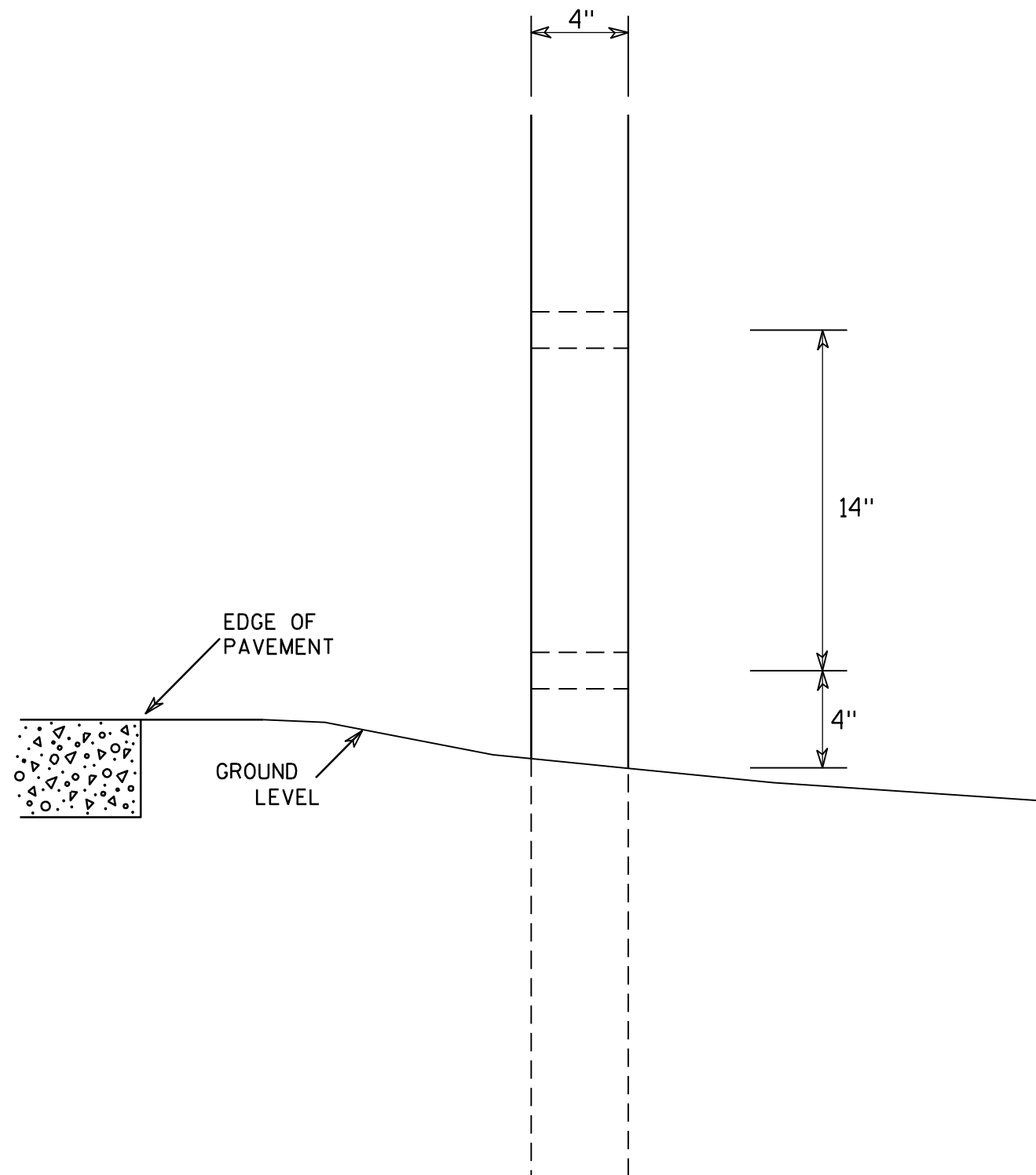
- a. Hot dip galvanized in accordance with ASTM Designation: A 153, Class D, or SC 3
- b. Electro-galvanized in accordance with ASTM Designation : B 633, TYPE III, SC 3.

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



SIDE VIEW

GENERAL NOTES

1. All 4 x 6 Wood Posts shall be modified by having two 1 1/2" diameter holes drilled perpendicular to the roadway centerline.

4 X 6 WOOD POST MODIFICATIONS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED

Chester J. Spang
for State Traffic Engineer

DATE 3/27/97

PLATE NO. A4-11.2

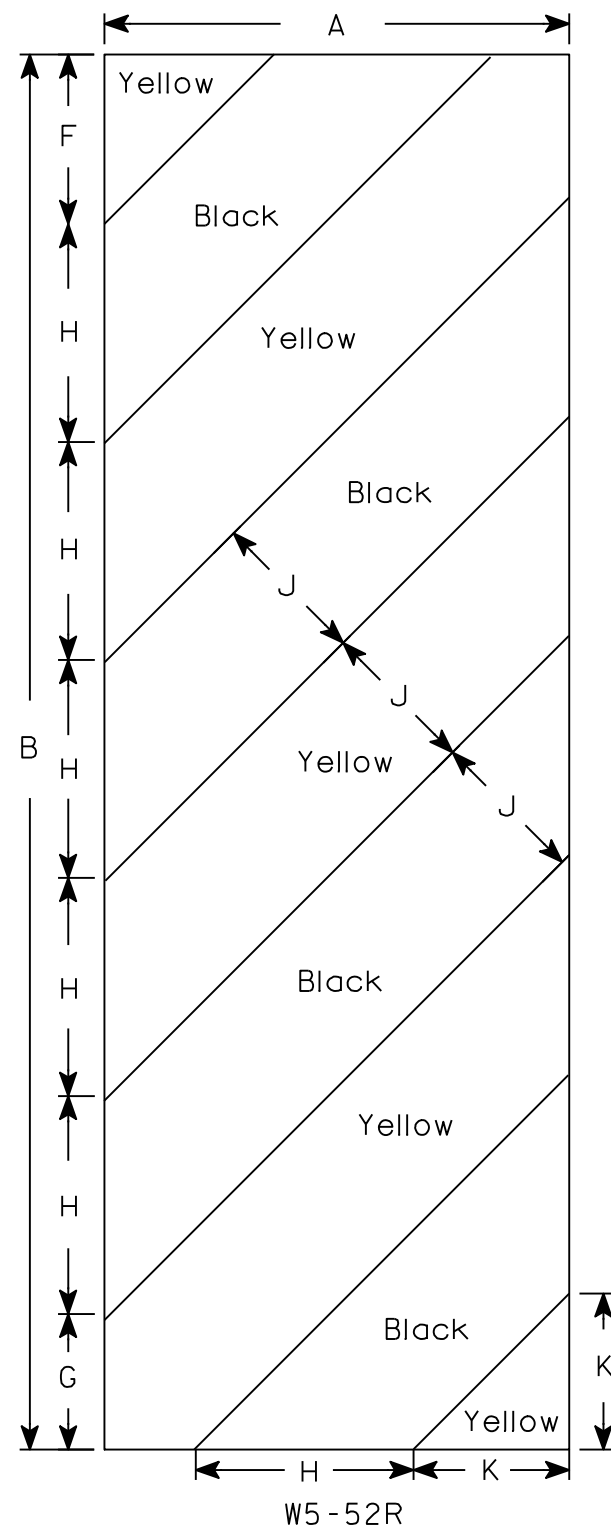
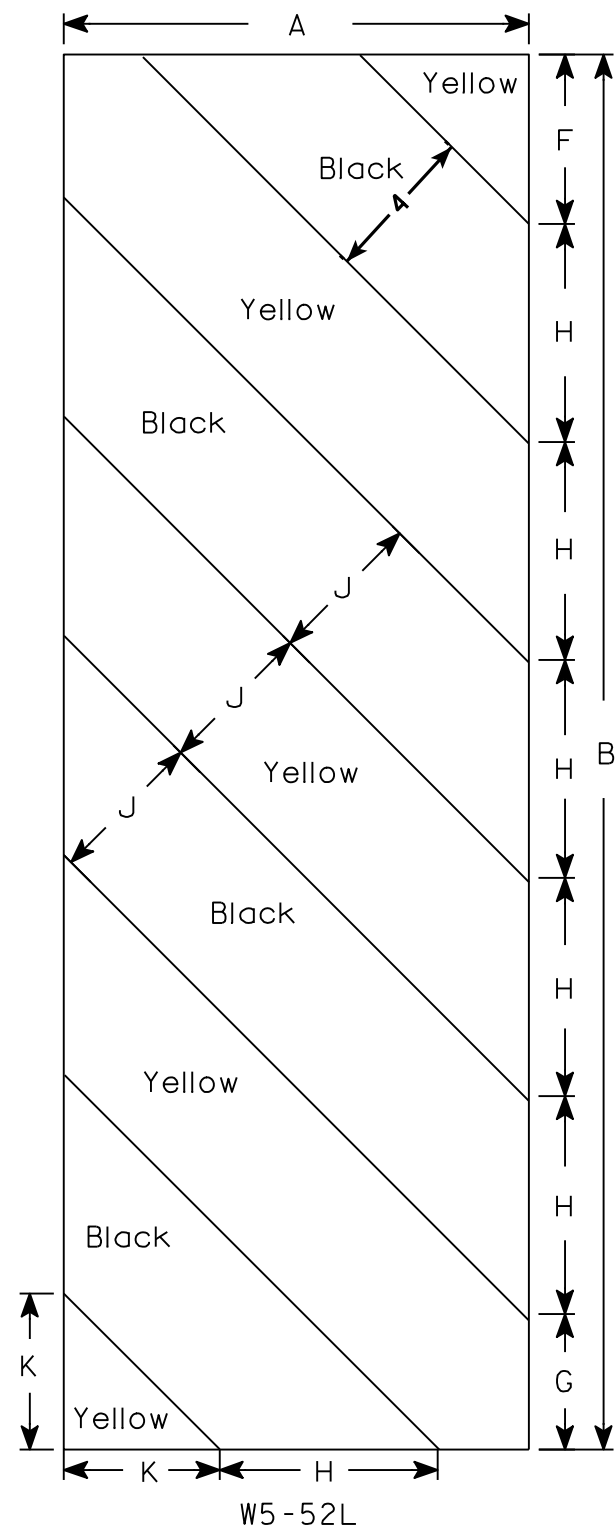
PROJECT NO: 5126-00-72

HWY: CTH M

COUNTY: MONROE

SHEET NO:

E



NOTES

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

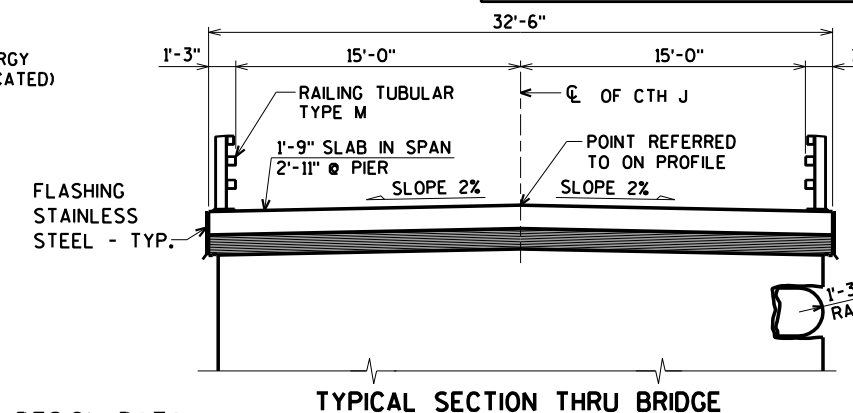
SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	12	36				4 3⁄8	3 1⁄2	5 5⁄8	45°	4	4																3.0
2M	12	36				4 3⁄8	3 1⁄2	5 5⁄8	45°	4	4																3.0
3	18	54				6	5 1⁄2	8 1⁄2	45°	6	6 9⁄16																6.75
4																											
5																											

STANDARD SIGN
W5-52L & W5-52R

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

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



LIVE LOAD:

DESIGN LOADING: HL-93
INVENTORY RATING FACTOR: 1.09
OPERATING RATING FACTOR: 1.42
WISCONSIN STANDARD PERMIT VEHICLE (WIS-SPV) = 250 KIPS

STRUCTURE IS DESIGNED FOR A FUTURE WEARING
SURFACE OF 20 "S.F.

MATERIAL PROPERTIES:

CONCRETE MASONRY	SUPERSTRUCTURE _____	f'_c =	4,000 p.s.i.
	ALL OTHER _____	f'_c =	3,500 p.s.i.
HIGH STRENGTH BAR STEEL REINFORCEMENT (GRADE 60)	_____	f_y =	60,000 p.s.i.

HYDRAULIC DATA:

100 YEAR FREQUENCY

$$Q_{100} = 13,769 \text{ c.f.s.} \begin{cases} \text{BRIDGE} = 13,286 \text{ c.f.s.} \\ \text{OVERFLOW} = 483 \text{ c.f.s.} \end{cases}$$

VEL. = 9.5 f.p.s.
HW₁₀₀ = EL. 814.28

2 YEAR FREQUENCY

O₂ = 5,000 c.f.s.
VEL. = 5.3 f.p.s.
HW₂ = EL. 808.60

WATERWAY AREA = 1,400 sq. ft.
DRAINAGE AREA = 221.1 sq. mi.
SCOUR CRITICAL CODE = 5
DATUM = NAVD88 (2012)

ROAD OVERTOPPING FREQUENCY

FREQUENCY = 23 YEARS
 $O_{23} = 9,730$ c.f.s.
 $HW_{23} = 812.70$

FOUNDATION DATA:

ABUTMENTS TO BE SUPPORTED ON HP 10 x 42 STEEL PILING (WITH PILE POINTS)
DRIVEN TO A REQUIRED DRIVING RESISTANCE OF 140 TONS ± PER PILE AS DETERMINED
BY THE MODIFIED GATES DYNAMIC FORMULA. ESTIMATED LENGTH 25'.

PIERS TO BE SUPPORTED ON HP 10 x 42 STEEL PILING (WITH PILE POINTS) DRIVEN TO A REQUIRED DRIVING RESISTANCE OF 180 TONS * PER PILE AS DETERMINED BY THE MODIFIED GATES DYNAMIC FORMULA. ESTIMATED LENGTH 26'. PRE-BORE PILING 10'-0".

*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.

TRAFFIC DATA:

A.A.D.T. = 600 (2022)
A.A.D.T. = 1,000 (2042)
R.D.S. = 35 M.P.H.



BENCH MARK:
BRASS SPIKE IN NE WING
STA. 10+67.0±, 16' RT.
EL. 818.41

LIST OF DRAWINGS


1. GENERAL PLAN
2. QUANTITIES AND NOTES
3. SUBSURFACE EXPLORATION
4. SOUTH ABUTMENT
5. SOUTH ABUTMENT WINGS 1 & 2 DETAILS
6. SOUTH ABUTMENT DETAILS & BILL OF BARS
7. NORTH ABUTMENT
8. NORTH ABUTMENT WINGS 3 & 4 DETAILS
9. NORTH ABUTMENT DETAILS & BILL OF BARS
10. PIER 1
11. PIER 2
12. SUPERSTRUCTURE
13. SUPERSTRUCTURE PLAN
14. SUPERSTRUCTURE DETAILS
15. TUBULAR STEEL RAILING TYPE 'M'



04/29/2021

BRIDGE OFFICE CONTACT:
AARON BONK
(608)-261-0261

CONSULTANT CONTACT:
DAN SYDOW
(715)-834-3161

NO.	DATE	REVISION	BY
<p>ORIGINAL PLANS PREPARED BY</p> <p>AYRES 3433 Oakwood Hills Parkway Eau Claire, WI 54701 www.AyresAssociates.com</p>			
<p>STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION</p>			
ACCEPTED	 SDR		05/05/2
CHIEF STRUCTURES DESIGN ENGINEER		DATE	
<p>STRUCTURE B-53-386</p>			
<p>CTH J OVER TURTLE CREEK</p>			
COUNTY	ROCK	TOWN/CITY/VILLAGE	TURTLE
<p>DESIGN SPEC.</p> <p>AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS</p>			
DESIGNED BY	ZSS	DESIGN CK'D.	JLB
DRAWN BY	ZSS	PLANS CK'D.	DN
<p>GENERAL PLAN</p>			<p>SHEET 1 OF</p>

TOTAL ESTIMATED QUANTITIES

STATE PROJECT NUMBER

3653-00-70

BID ITEM NUMBER	BID ITEMS	UNIT	S. ABUT.	PIER 1	PIER 2	N. ABUT.	SUPER.	TOTAL
203.0600.S	REMOVING OLD STRUCTURE OVER WATERWAY WITH MINIMAL DEBRIS STATION 10+00	LS	-----	-----	-----	-----	-----	1
206.1000	EXCAVATION FOR STRUCTURES BRIDGES B-53-386	LS	-----	-----	-----	-----	-----	1
206.5000	COFFERDAMS (B-53-0386)	LS	-----	-----	-----	-----	-----	1
210.1500	BACKFILL STRUCTURE TYPE A	TON	110	-----	-----	110	-----	220
502.0100	CONCRETE MASONRY BRIDGES	CY	31	55	55	31	357	529
502.3200	PROTECTIVE SURFACE TREATMENT	SY	-----	-----	-----	-----	635	635
505.0400	BAR STEEL REINFORCEMENT HS STRUCTURES	LB	2,030	2,650	2,570	2,030	-----	9,280
505.0600	BAR STEEL REINFORCEMENT HS COATED STRUCTURES	LB	1,310	60	60	1,300	63,290	66,020
513.4061	RAILING TUBULAR TYPE M	LF	22.5	-----	-----	22.5	297	342
516.0500	RUBBERIZED MEMBRANE WATERPROOFING	SY	10	-----	-----	10	-----	20
550.0020	PRE-BORING ROCK OR CONSOLIDATED MATERIALS	LF	-----	100	100	-----	-----	200
550.0500	PILE POINTS	EACH	5	10	10	5	-----	30
550.1100	PILING STEEL HP 10-INCH x 42 LB	LF	125	260	260	125	-----	770
606.0300	RIPRAP HEAVY	CY	140	-----	-----	185	-----	325
612.0406	PIPE UNDERDRAIN WRAPPED 6-INCH	LF	70	-----	-----	70	-----	140
645.0111	GEOTEXTILE TYPE DF SCHEDULE A	SY	25	-----	-----	25	-----	50
645.0120	GEOTEXTILE TYPE HR	SY	245	-----	-----	325	-----	570
999.1000.S	SEISMOGRAPH	LS	-----	-----	-----	-----	-----	1
999.1500.S	CRACK AND DAMAGE SURVEY	LS	-----	-----	-----	-----	-----	1
SPV.0090.01	FLASHING STAINLESS STEEL	LF	-----	-----	-----	-----	297	297
	NON-BID ITEMS							
	FILLER	SIZE	-----	-----	-----	-----	-----	1/2" & 3/4"

GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.

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

THE FIRST DIGIT OF A THREE DIGIT BAR NO. AND THE FIRST TWO DIGITS OF A FOUR DIGIT BAR NO. SIGNIFIES THE BAR SIZE. JOINT FILLER SHALL CONFORM TO THE REQUIREMENTS OF A.A.S.H.T.O. DESIGNATION M 153, TYPE I, II OR III OR A.A.S.H.T.O. DESIGNATION M 213.

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

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

THE UPPER LIMITS OF "EXCAVATION FOR STRUCTURES BRIDGES B-53-386" SHALL BE THE EXISTING GROUNDLINE.

THE EXISTING STRUCTURE, B-53-11, TO BE REMOVED, IS A 127.6-FOOT LONG THREE SPAN STEEL DECK GIRDER BRIDGE ON OPEN CONCRETE ABUTMENTS AND CONCRETE RECTANGULAR COLUMN BENT PIERS WITH A 24 FT. CLEAR ROADWAY WIDTH.

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.

PROTECTIVE SURFACE TREATMENT IS TO BE APPLIED AS SHOWN IN DETAIL ON THIS SHEET.

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

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.

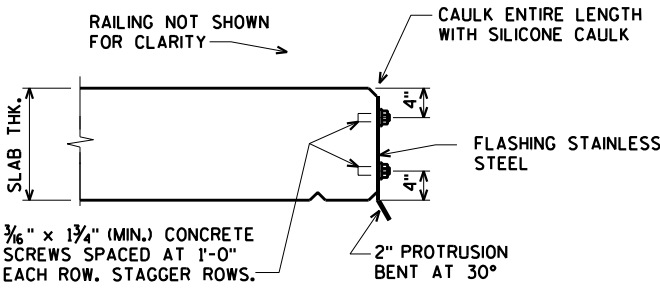
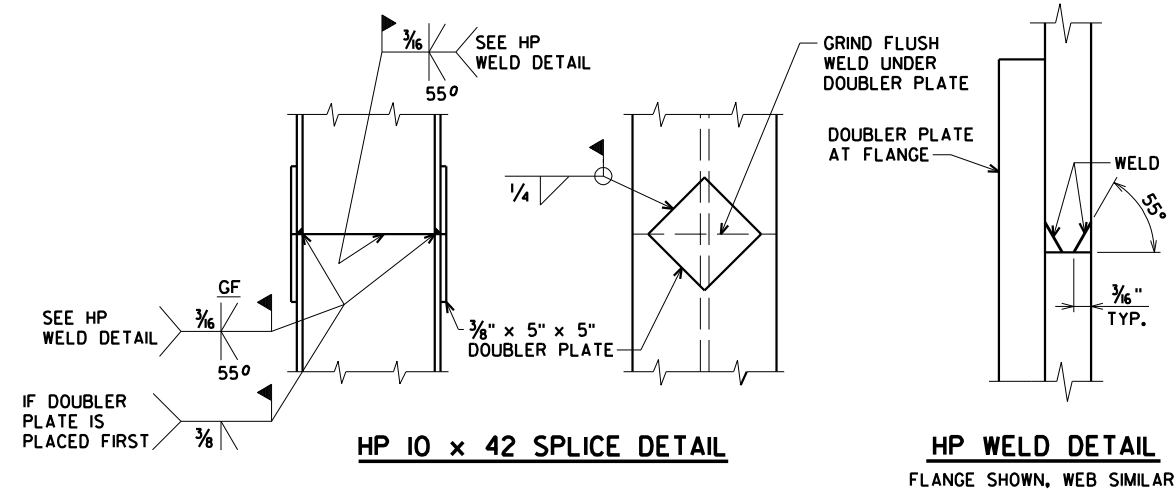
CONCRETE POURED UNDERWATER WILL BE ALLOWED AND SHALL BE DONE IN ACCORDANCE WITH SECTION 502.3.5.2 OF THE STANDARD SPECIFICATIONS. CONCRETE POURED UNDERWATER SHALL NOT EXCEED 10.0 FEET IN DEPTH, UNLESS APPROVED OTHERWISE.

EXTENT OF BELOW GRADE SUBSTRUCTURES ARE SHOWN ON PLAN. REMOVE EXISTING SUBSTRUCTURES AS NEEDED TO BUILD NEW SUBSTRUCTURES. COST OF SUBSTRUCTURE REMOVAL IS CONSIDERED INCIDENTAL TO "REMOVING OLD STRUCTURE" BID ITEM.

CASING REQUIRED DURING PRE-BORING OPERATIONS.

PILES PLACED IN PRE-BORED HOLES CORED INTO ROCK DO NOT REQUIRE DRIVING.

AT THE BACK FACE OF ABUTMENTS AND AT EXISTING ABUTMENT REMOVALS, ALL VOLUME WHICH CANNOT BE PLACED BEFORE ABUTMENT CONSTRUCTION AND IS NOT OCCUPIED BY THE NEW STRUCTURE SHALL BE BACKFILLED WITH BACKFILL STRUCTURE TYPE A.



FLASHING DETAIL FOR NEW BRIDGES WITH OPEN RAILING

THE BID ITEM "FLASHING STAINLESS STEEL" SHALL INCLUDE PROVIDING AND INSTALLING THE STAINLESS STEEL FLASHING, SILICONE CAULK, 3/16" CONCRETE SCREWS AND CLEANING THE EDGE OF THE SLAB PRIOR TO ATTACHMENT OF THE FLASHING.

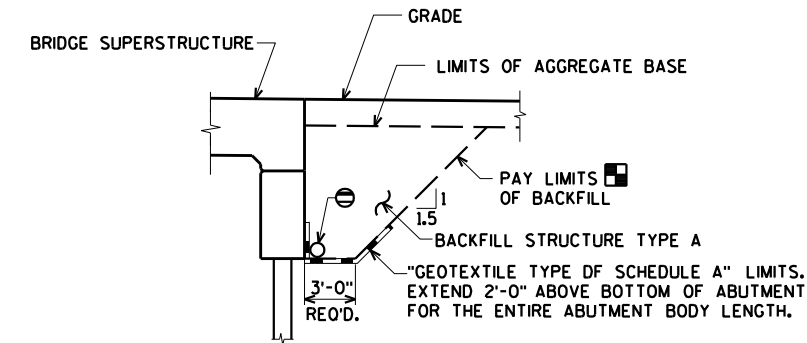
FLASHING TO BE INSTALLED AFTER PROTECTIVE SURFACE TREATMENT APPLICATION.

CONCRETE SCREWS SHALL BE 410 STAINLESS STEEL.

EXTEND FLASHING TO BACK FACE OF ABUTMENT.

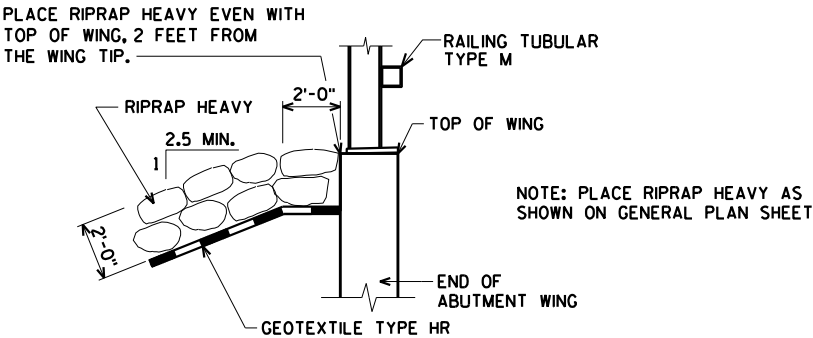
TOP OF FLASHING TO BEGIN APPROX. 1-INCH BELOW TOP OF SLAB SURFACE.

THE FLASHING IS TO BE A CONSTANT HEIGHT BASED ON THE THINNEST SLAB DEPTH OVER THE BRIDGE LENGTH.

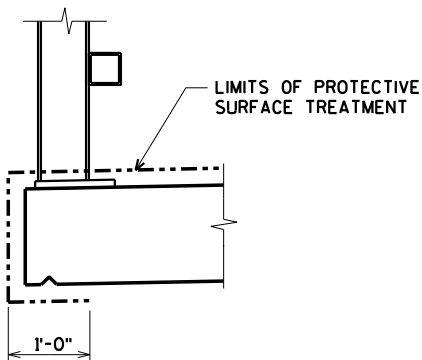


BACKFILL STRUCTURE LIMITS THRU ABUTMENT

- BACKFILL PAY LIMITS. BACKFILL BEYOND BACKFILL PAY LIMITS SHALL BE INCIDENTAL TO EXCAVATION FOR STRUCTURES. LIMITS OF EXCAVATION SHALL BE DETERMINED BY THE CONTRACTOR.
- PIPE UNDERDRAIN WRAPPED 6-INCH. SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. ATTACH RODENT SHIELD AT ENDS OF PIPE UNDERDRAIN AS DETAILED ON SHEET 6.



TYPICAL FILL SECTION AT WING TIPS



PROTECTIVE SURFACE TREATMENT DETAIL

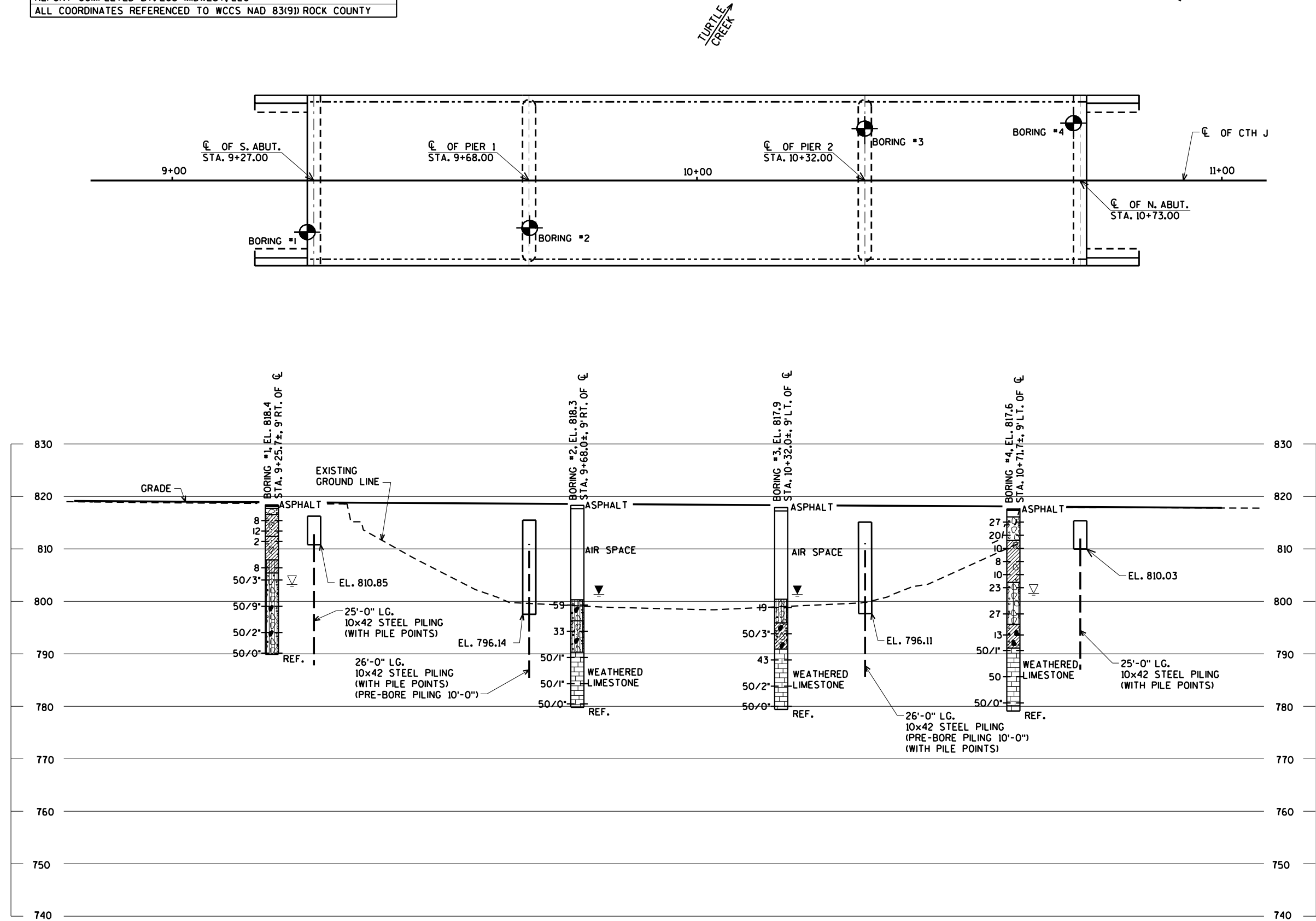
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-53-386			
DRAWN BY ZSS		PLANS CK'D. JLB	
QUANTITIES AND NOTES		SHEET 2 OF 15	

ORIGINAL PLANS PREPARED BY
AYRES
3433 Oakwood Hills Parkway
Eau Claire, WI 54701
www.AyresAssociates.com

2/11/2021
PENTABLE:BRedu_shd_util.tbl

8

BORING #	DATE COMPLETED	NORTHING (Y)	EASTING (X)
1	SEPTEMBER 16, 2020	2253923.2	210677.5
2	SEPTEMBER 17, 2020	2253909.0	210720.1
3	SEPTEMBER 17, 2020	2253876.1	210773.0
4	SEPTEMBER 17, 2020	2253864.4	210811.4
BORINGS COMPLETED BY: ECS MIDWEST, LLC			
REPORT COMPLETED BY: ECS MIDWEST, LLC			
ALL COORDINATES REFERENCED TO WCCS NAD 83(9) ROCK COUNTY			



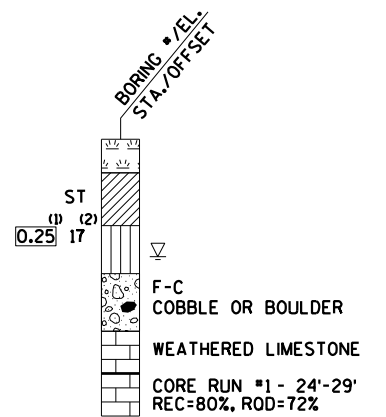
STATE PROJECT NUMBER

3653-00-70

MATERIAL SYMBOLS

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

LEGEND OF BORING



(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.

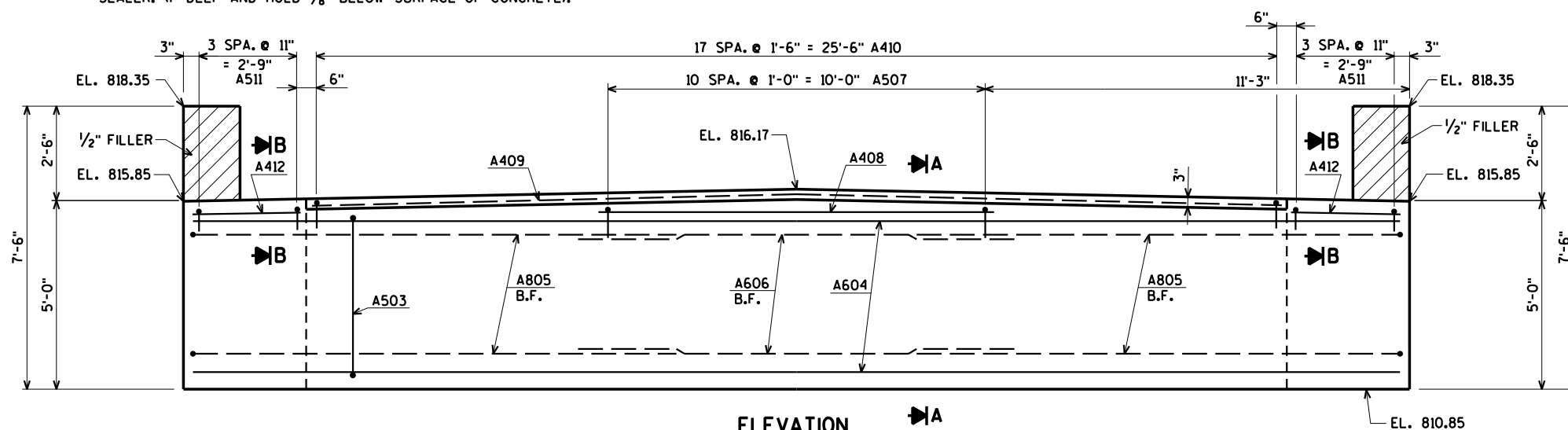
8

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-53-386			
DRAWN BY		ZSS	PLANS CK'D. JLB
SUBSURFACE EXPLORATION		SHEET 3 OF 15	

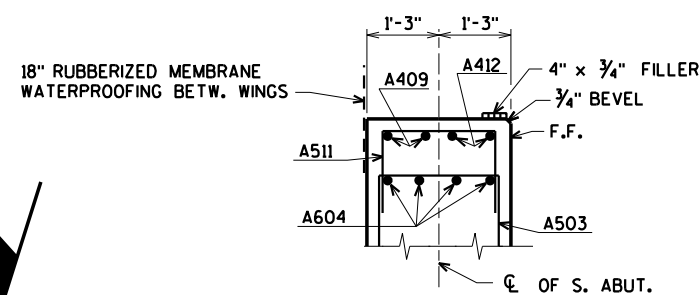
NOTE: SEAL ALL EXPOSED HORIZONTAL AND VERTICAL SURFACES OF
1/2" FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT
SEALER. (1" DEEP AND HOLD 1/8" BELOW SURFACE OF CONCRETE).

STATE PROJECT NUMBER

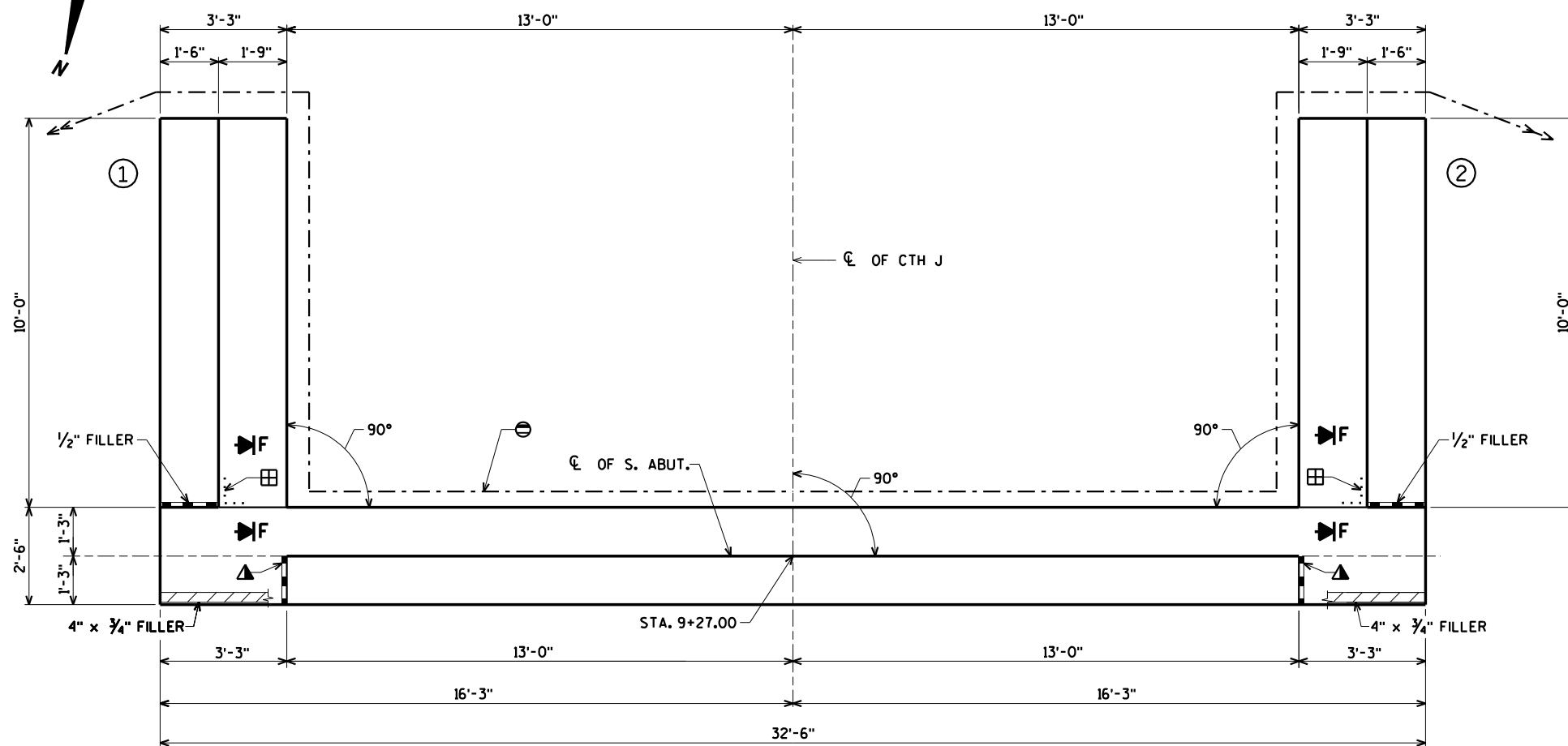
3653-00-70



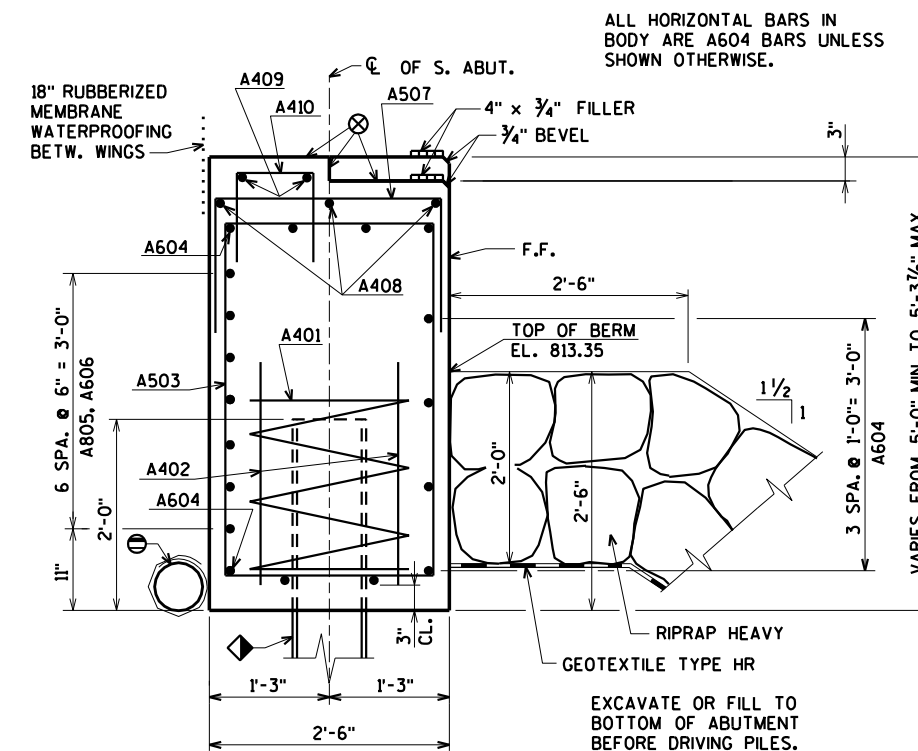
ELEVATION
(LOOKING SOUTH)



SECTION B



PLAN



SECTION A

ABUTMENT TO BE SUPPORTED ON
HP 10 x 42 STEEL PILING (WITH PILE
POINTS) DRIVEN TO A REQ'D. DRIVING
RESISTANCE OF 140 TONS PER PILE.
ESTIMATED LENGTH 25'-0".

3/4" CORK FILLER ON VERTICAL
FACE ONLY.

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

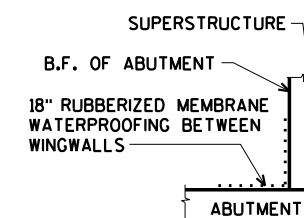
PIPE UNDERDRAIN WRAPPED 6-INCH. SLOPE 0.5%
MIN. TO SUITABLE DRAINAGE. ATTACH RODENT
SHIELD AT ENDS OF PIPE UNDERDRAIN AS DETAILED
ON SHEET 6. RODENT SHIELD TO BE INCIDENTAL TO
BID PRICE OF "PIPE UNDERDRAIN WRAPPED 6-INCH".

VERTICAL 18" RUBBERIZED MEMBRANE
WATERPROOFING TO EXTEND FROM
BRIDGE SEAT TO TOP OF WINGWALL.

FOR PILE SPLICE DETAIL SEE SHEET 2.

B.F. DENOTES BACK FACE

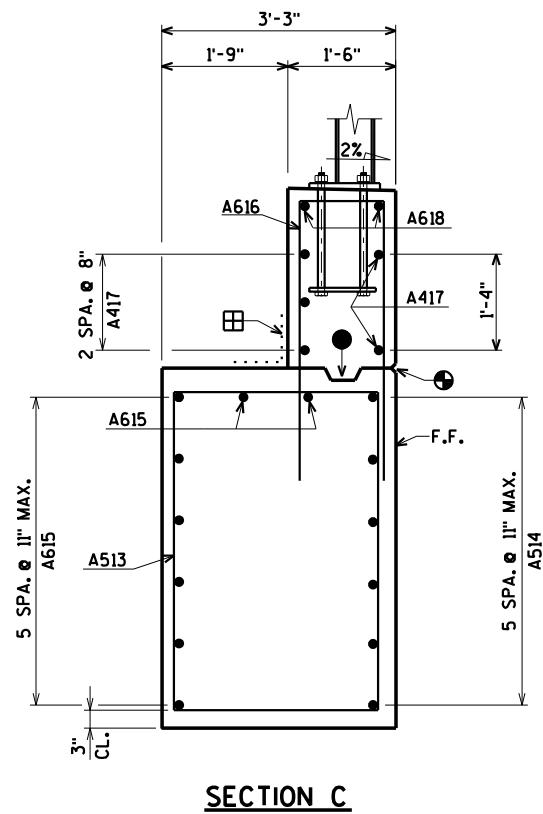
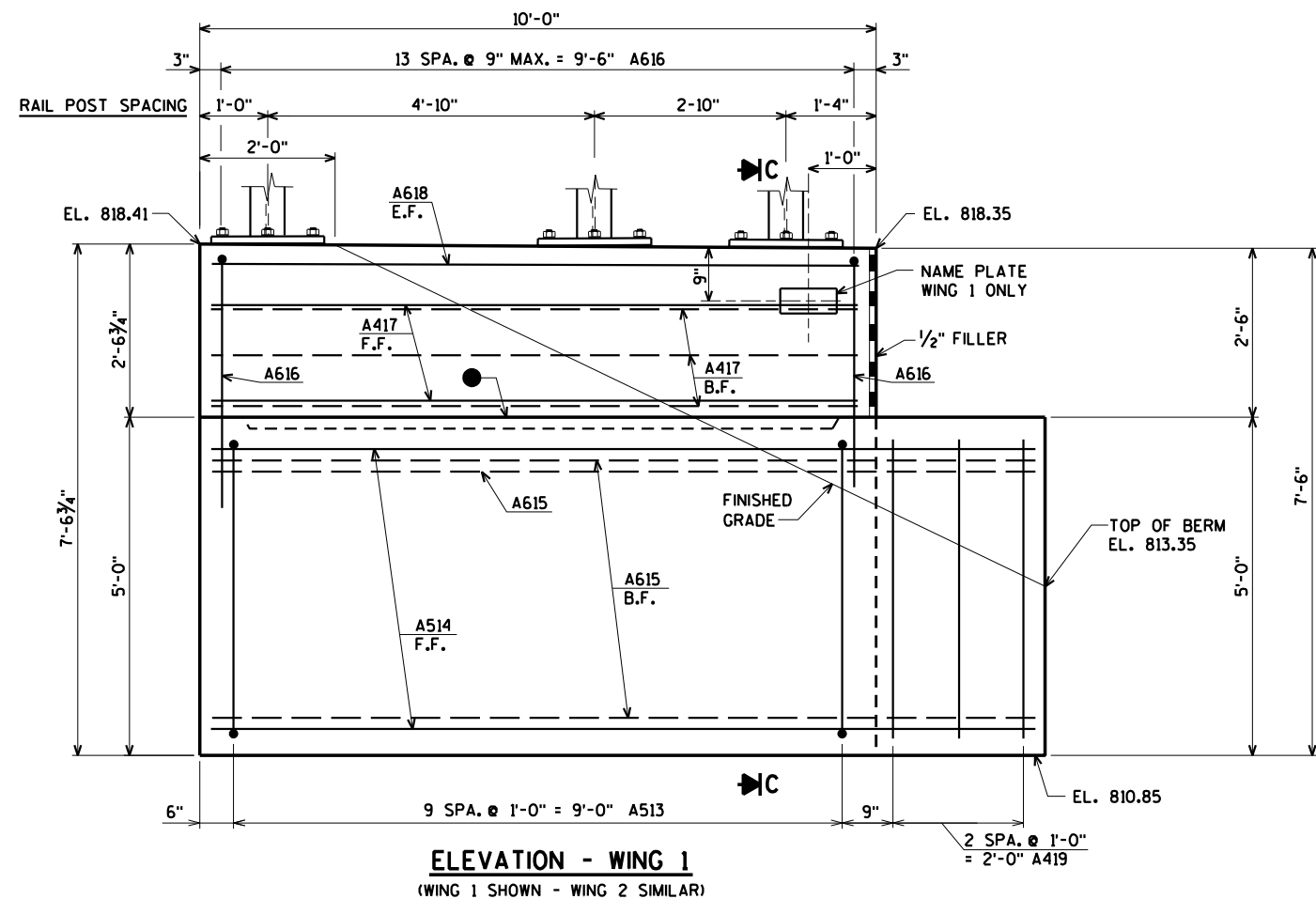
F.F. DENOTES FRONT FACE



SECTION F

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-53-386			
DRAWN BY		CLP	PLANS CK'D. JLB
SOUTH ABUTMENT		SHEET 4 OF 15	

ORIGINAL PLANS PREPARED BY
AYRES 3433 Oakwood Hills Parkway
Eau Claire, WI 54701
www.AyresAssociates.com



3/4" "V" GROOVE ON FRONT FACE OF WINGWALL. ONLY REQUIRED IF OPTIONAL CONSTRUCTION JOINT IS USED.

OPT. CONST. JOINT FORMED BY A BEVELED 2" x 6" KEYWAY WITH MEMBRANE ON BACKFACE.

18" RUBBERIZED MEMBRANE WATERPROOFING. SEAL ALL HOIRZONTAL AND VERTICAL JOINTS ON BACKFACE.

B.F. DENOTES BACK FACE.

F.F. DENOTES FRONT FACE.

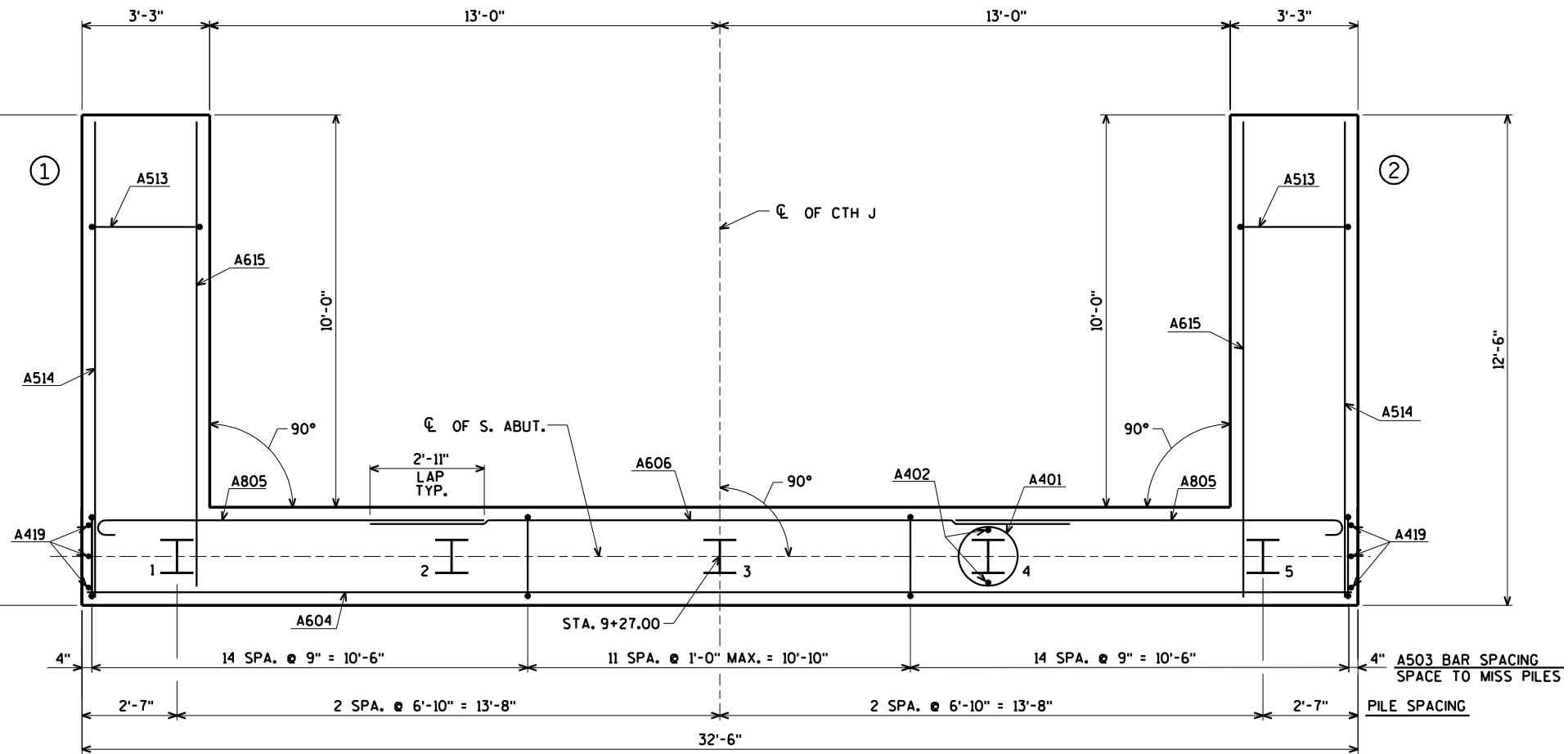
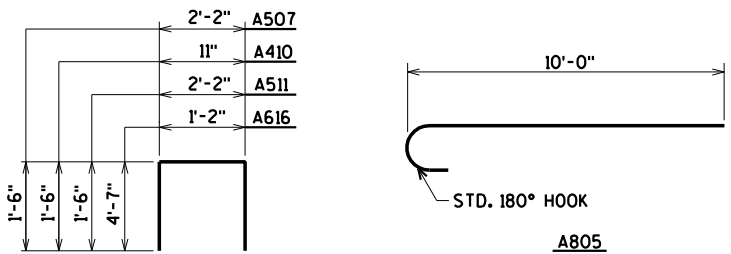
E.F. DENOTES EACH FACE.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-53-386			
DRAWN BY	CLP	PLANS CK'D.	JLB
SOUTH ABUTMENT WINGS 1 & 2 DETAILS			SHEET 5 OF 15

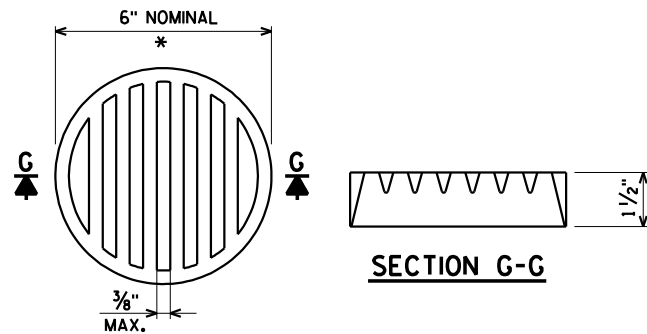
ORIGINAL PLANS PREPARED BY
AYRES
3433 Oakwood Hills Parkway
Eau Claire, WI 54701
www.AyresAssociates.com

BAR NO.	COATED BAR	NO. REQ'D.	LENGTH	BENT BAR	BUNDLED	BAR SERIES	1,310" COATED 2,030" UNCOATED
							LOCATION
A401		5	28-0	X			BODY @ PILES
A402		10	2-3				BODY @ PILES
A503		40	13-6	X			BODY VERT.
A604		11	32-2				BODY HORIZ.
A805		14	10-11	X			BODY HORIZ. @ WING B.F.
A606		7	18-0				BODY HORIZ. BETW. WINGS B.F.
A507		11	4-11	X			BODY VERT. TOP
A408		3	10-4				BODY HORIZ. TOP
A409		2	32-2				BODY HORIZ. TOP
A410		18	3-9	X			BODY VERT. TOP
A511		8	4-11	X			BODY VERT. TOP AT ENDS
A412		4	2-11				BODY HORIZ. TOP AT ENDS
A513	X	20	15-8	X			WINGS 1 & 2 VERT.
A514	X	12	12-2				WINGS 1 & 2 HORIZ. F.F.
A615	X	16	12-2				WINGS 1 & 2 HORIZ. B.F. & TOP
A616	X	28	10-0	X			WINGS 1 & 2 VERT.
A417	X	10	9-8				WINGS 1 & 2 HORIZ. E.F.
A618	X	4	9-8				WINGS 1 & 2 HORIZ. E.F.
A419		6	4-7				BODY VERT. END @ WINGS 1 & 2

Technical drawing of a bolt and nut assembly. The bolt (A401) has a total length of 2'-0", a threaded section of 1'-9", and a hex head with a height of 6". The nut (A503) has a height of 2'-2" and a threaded section of 2'-11". The nut is shown with a 5 1/2" dimension indicating a specific feature.



PILE LAYOUT



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

RODENT SHIELD DETAIL

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-53-386			
		DRAWN BY	CLP PLANS CK'D. JLB
SOUTH ABUTMENT DETAILS & BILL OF BARS		SHEET 6 OF 15	

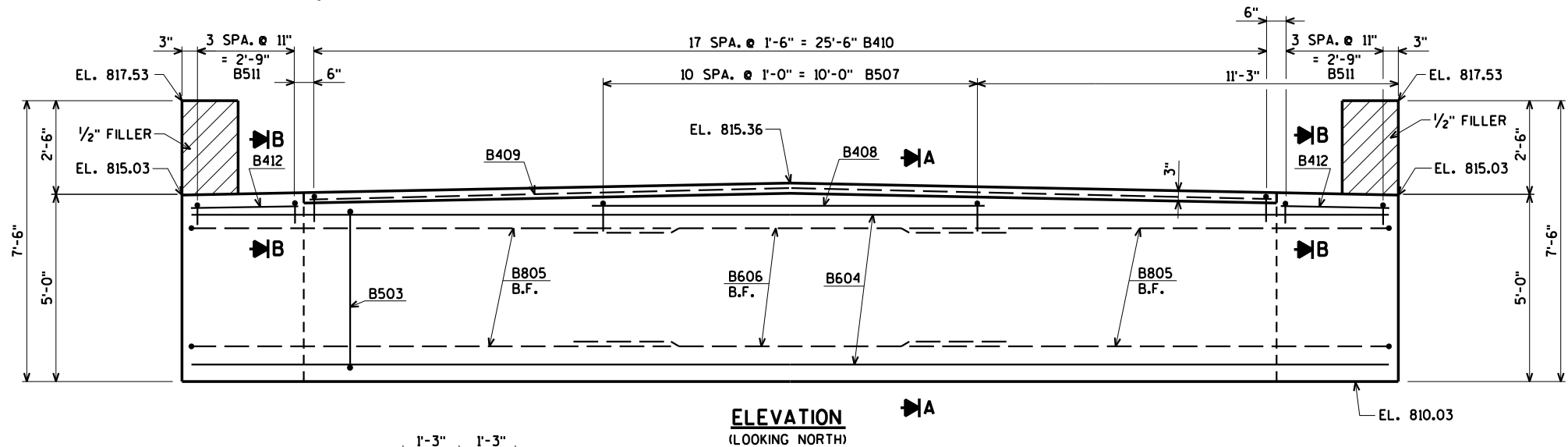
ORIGINAL PLANS PREPARED BY

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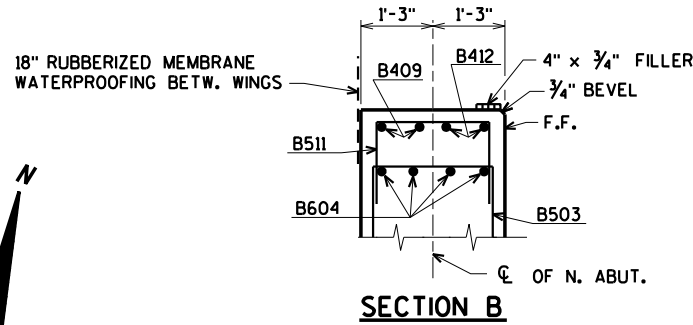
NOTE: SEAL ALL EXPOSED HORIZONTAL AND VERTICAL SURFACES OF 1/2" FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. (1" DEEP AND HOLD 1/8" BELOW SURFACE OF CONCRETE).

STATE PROJECT NUMBER

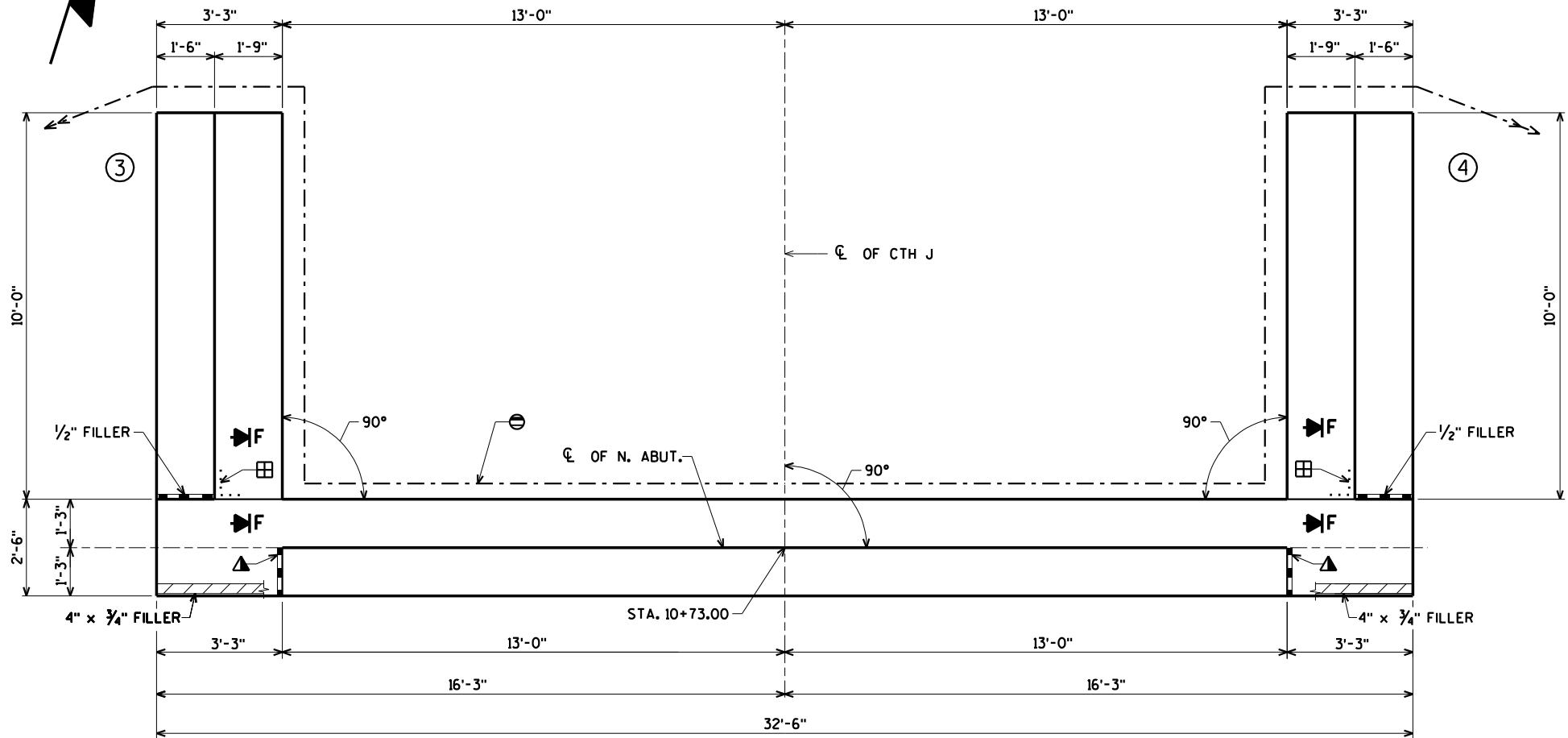
3653-00-70



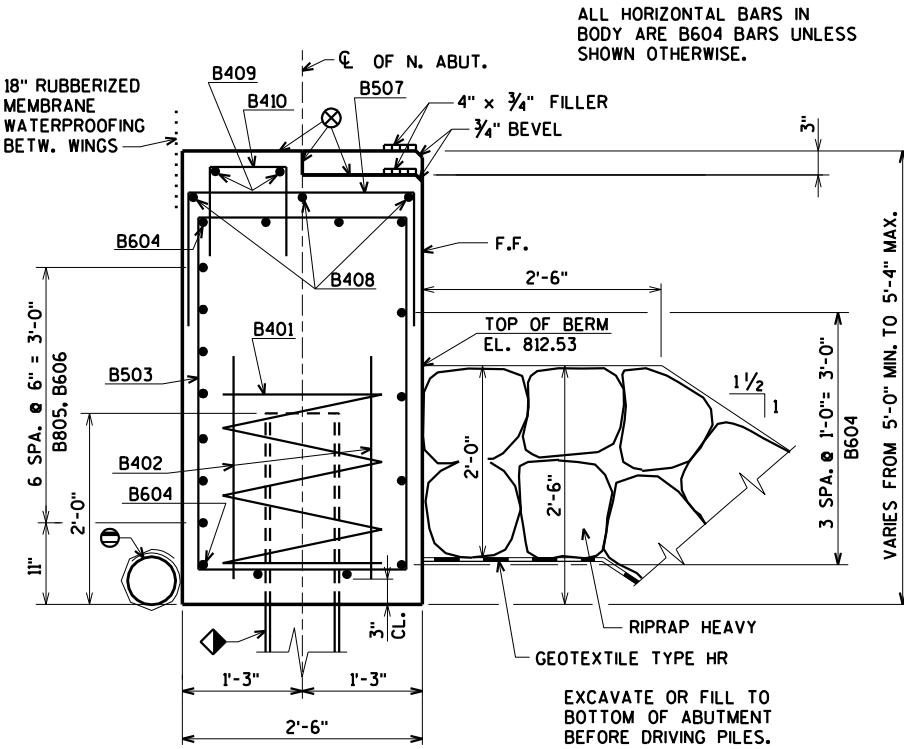
ELEVATION
(LOOKING NORTH)



SECTION B



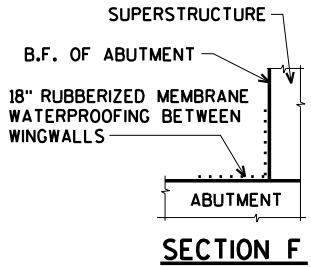
PLAN



SECTION A

ABUTMENT TO BE SUPPORTED ON HP 10 x 42 STEEL PILING (WITH PILE POINTS) DRIVEN TO A REQ'D. DRIVING RESISTANCE OF 140 TONS PER PILE. ESTIMATED LENGTH 25'-0".

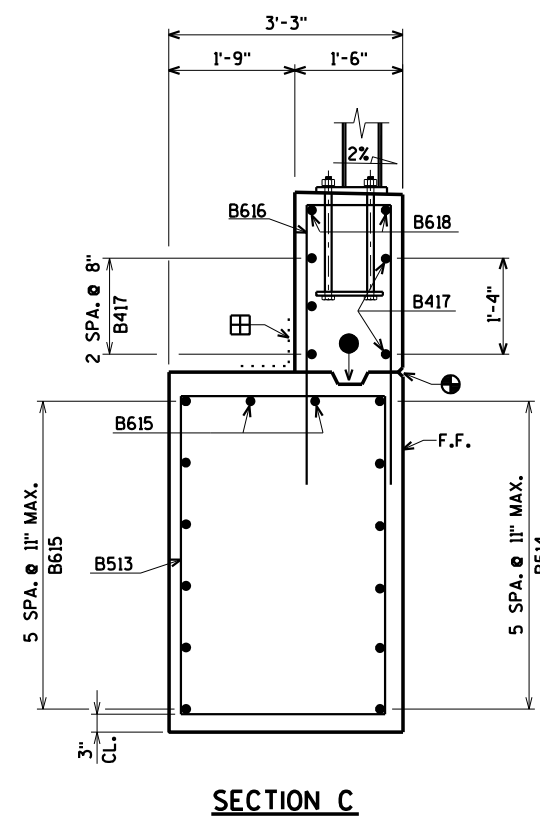
- 3/4" CORK FILLER ON VERTICAL FACE ONLY.
 - STEEL TROWEL TOP SURFACE OF ABUTMENT. PLACE MULTIPLE LAYERS OF POLYETHYLENE SHEETS OVER ENTIRE ABUTMENT TOP BEFORE PLACING FILLER AND SUPERSTRUCTURE. TOTAL THICKNESS OF SHEETS SHALL BE AT LEAST 0.03".
 - PIPE UNDERDRAIN WRAPPED 6-INCH. SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. ATTACH RODENT SHIELD AT ENDS OF PIPE UNDERDRAIN AS DETAILED ON SHEET 6. RODENT SHIELD TO BE INCIDENTAL TO BID PRICE OF "PIPE UNDERDRAIN WRAPPED 6-INCH".
 - VERTICAL 18" RUBBERIZED MEMBRANE WATERPROOFING TO EXTEND FROM BRIDGE SEAT TO TOP OF WINGWALL.
- FOR PILE SPLICE DETAIL SEE SHEET 2.
- B.F. DENOTES BACK FACE
- F.F. DENOTES FRONT FACE



SECTION F

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-53-386			
DRAWN BY		CLP	PLANS CK'D. JLB
NORTH ABUTMENT		SHEET 7 OF 15	

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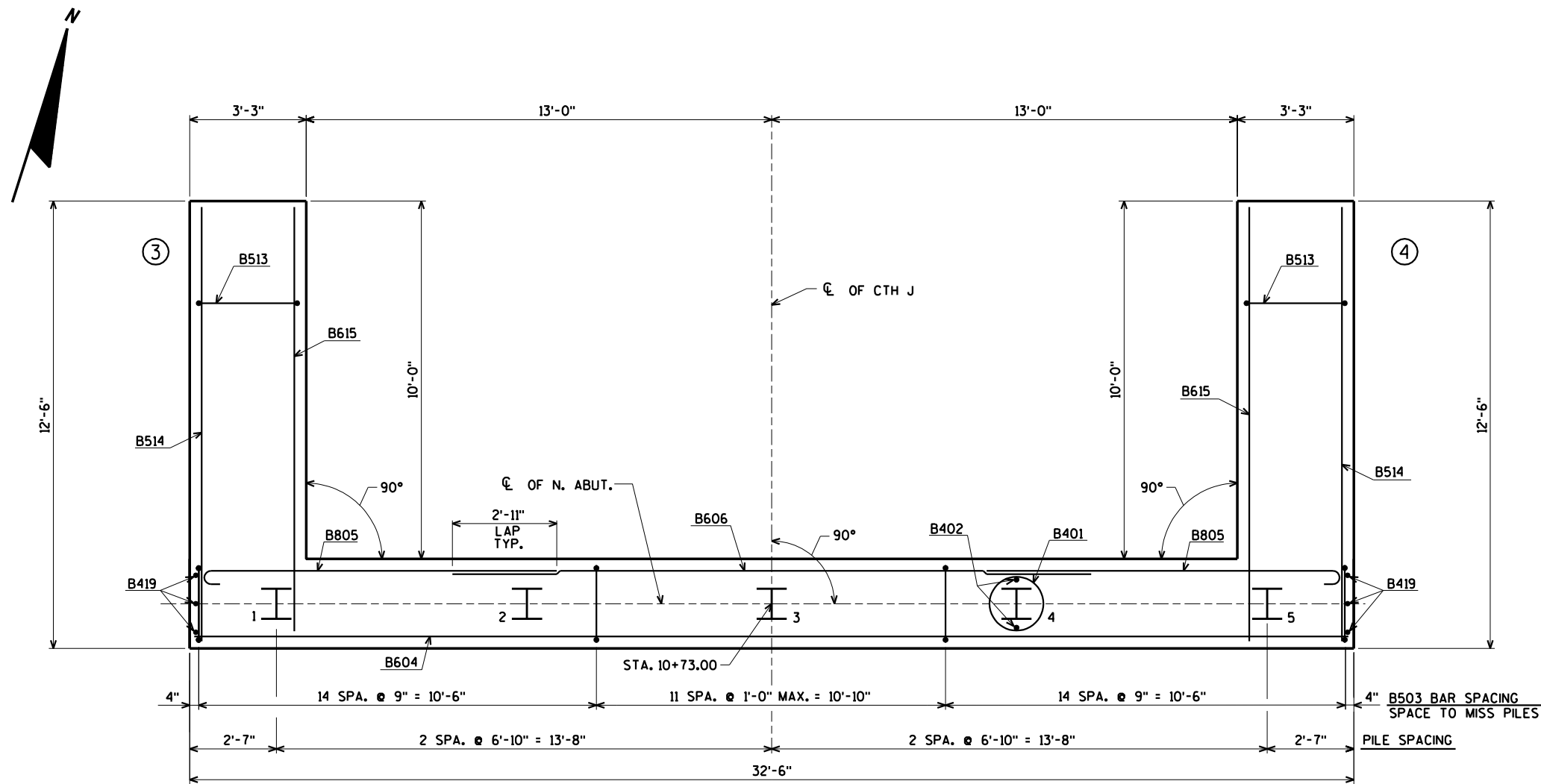


- ④ ¾" "V" GROOVE ON FRONT FACE OF JOINT WALL. ONLY REQUIRED IF OPTIONAL CONSTRUCTION JOINT IS USED.
 - OPT. CONST. JOINT FORMED BY A BEVELED 2" x 6" KEYWAY WITH MEMBRANE ON BACKFACE.
 - ⊞ 18" RUBBERIZED MEMBRANE WATERPROOFING. SEAL ALL HORIZONTAL AND VERTICAL JOINTS ON BACKFACE.
- B.F. DENOTES BACK FACE.
- F.F. DENOTES FRONT FACE.
- E.F. DENOTES EACH FACE.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-53-386			
	DRAWN BY	CLP	PLANS CK'D. JLB
NORTH ABUTMENT WINGS 3 & 4 DETAILS		SHEET 8 OF	

2/11/2021
PENTABLE:BReau_shd_util.tbl

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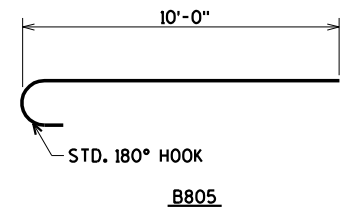
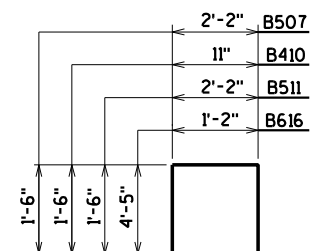
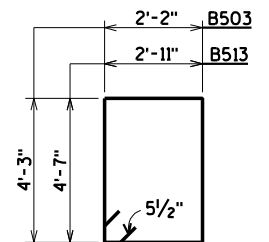
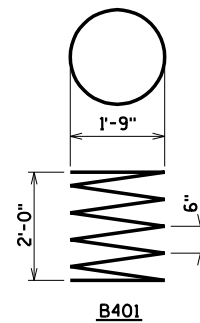


PILE LAYOUT

BILL OF BARS

BAR NO.	COATED BAR	NO. REQ'D.	LENGTH	BENT BAR	BUNDLED	BAR SERIES	1,300# COATED 2,030# UNCOATED
							LOCATION
B401		5	28-0	X			BODY @ PILES
B402		10	2-3				BODY @ PILES
B503		40	13-6	X			BODY VERT.
B604		11	32-2				BODY HORIZ.
B805		14	10-11	X			BODY HORIZ. @ WING B.F.
B606		7	18-0				BODY HORIZ. BETW. WINGS B.F.
B507		11	4-11	X			BODY VERT. TOP
B408		3	10-4				BODY HORIZ. TOP
B409		2	32-2				BODY HORIZ. TOP
B410		18	3-9	X			BODY VERT. TOP
B511		8	4-11	X			BODY VERT. TOP AT ENDS
B412		4	2-11				BODY HORIZ. TOP AT ENDS
B513	X	20	15-8	X			WINGS 3 & 4 VERT.
B514	X	12	12-2				WINGS 3 & 4 HORIZ. F.F.
B615	X	16	12-2				WINGS 3 & 4 HORIZ. B.F. & TOP
B616	X	28	9-8	X			WINGS 3 & 4 VERT.
B417	X	10	9-8				WINGS 3 & 4 HORIZ. E.F.
B618	X	4	9-8				WINGS 3 & 4 HORIZ. E.F.
B419		6	4-7				BODY VERT. END @ WINGS 3 & 4

BENDING DIMENSIONS ARE OUT TO OUT OF BARS.



FOR PILE SPLICE DETAIL SEE SHEET 2.

B.F. DENOTES BACK FACE

E.F. DENOTES EACH FACE

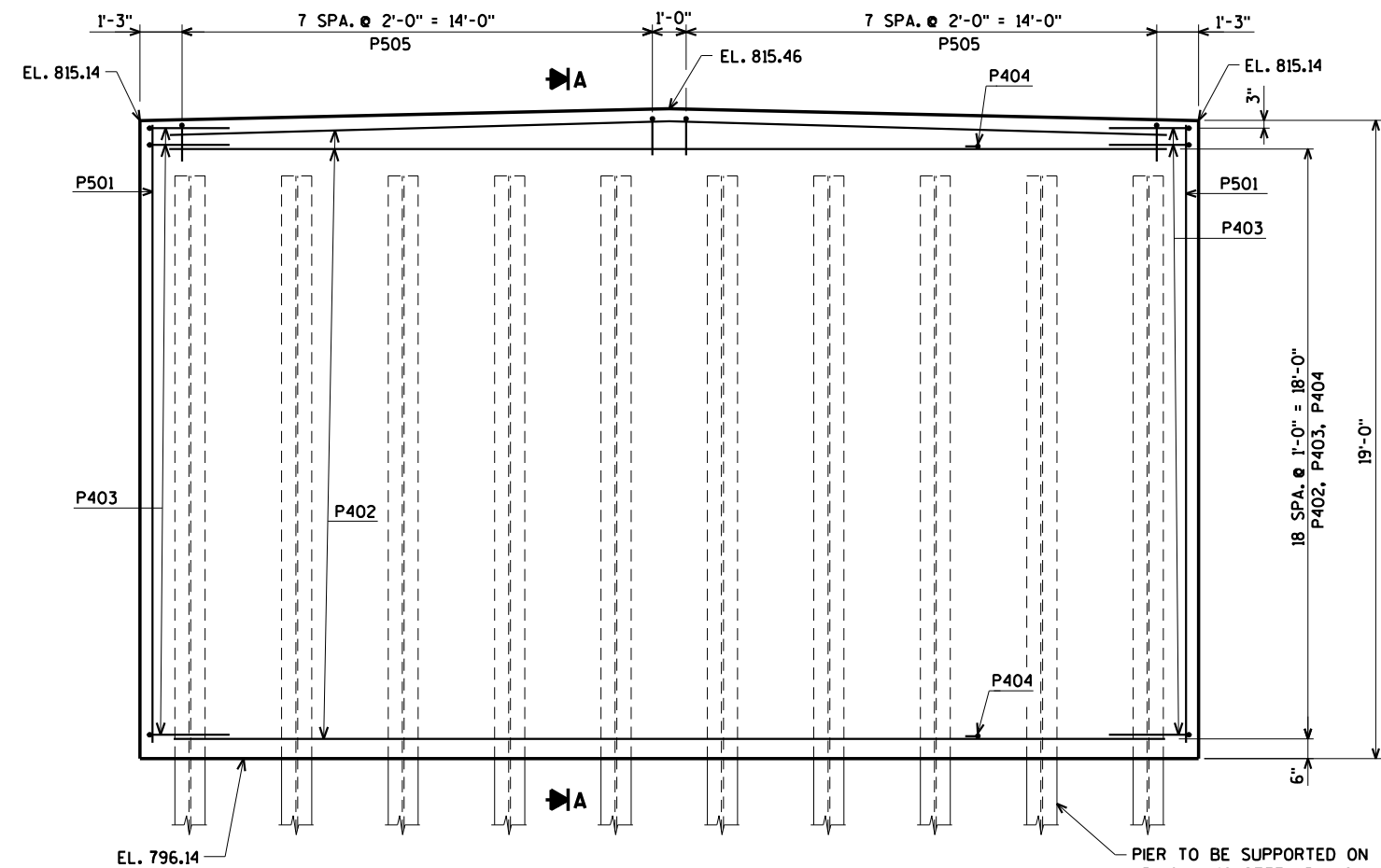
F.F. DENOTES FRONT FACE

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NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-53-386			
DRAWN BY CLP		PLANS CK'D. JLB	
NORTH ABUTMENT DETAILS & BILL OF BARS			SHEET 9 OF 15

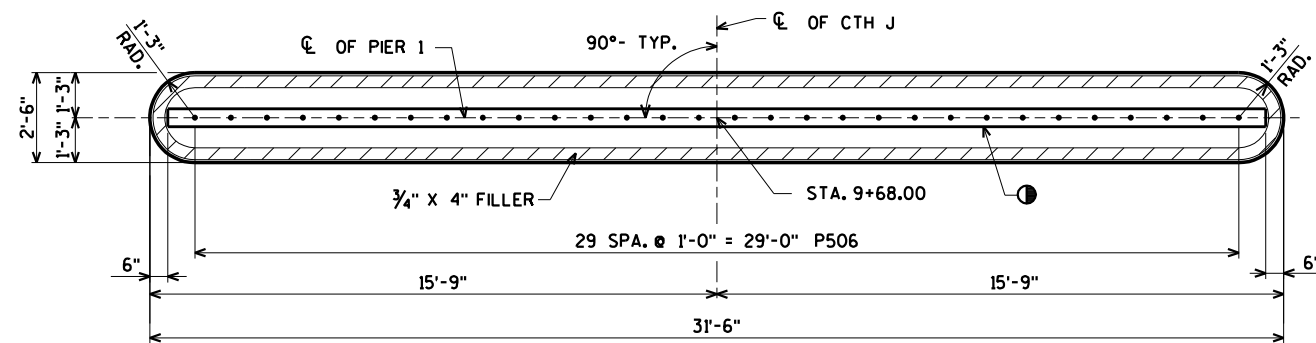
2/11/2021
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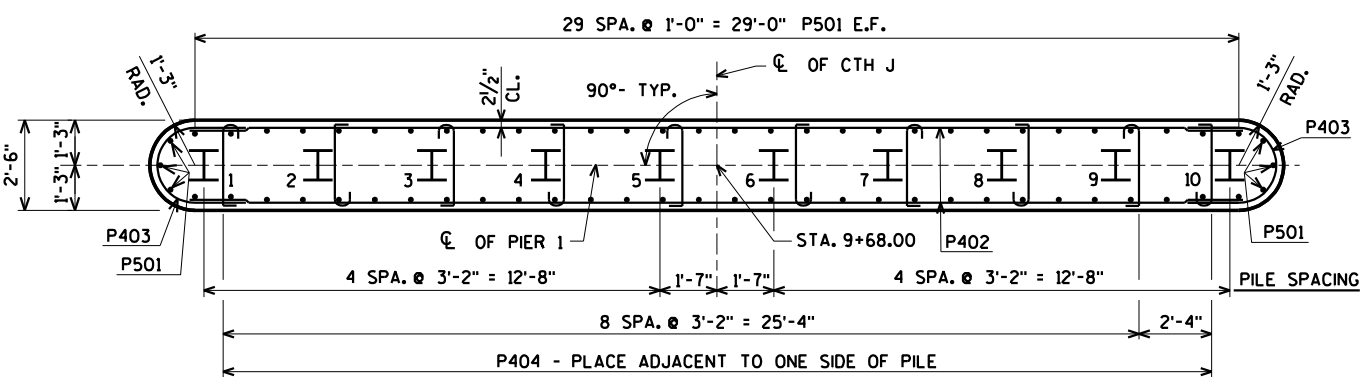


ELEVATION
(LOOKING NORTH)

PIER TO BE SUPPORTED ON
HP 10 x 42 STEEL PILING (WITH PILE
POINTS) DRIVEN TO A REQ'D. DRIVING
RESISTANCE OF 180 TONS PER PILE
ESTIMATED LENGTH 26'-0".
PRE-BORE PILING 10'-0".

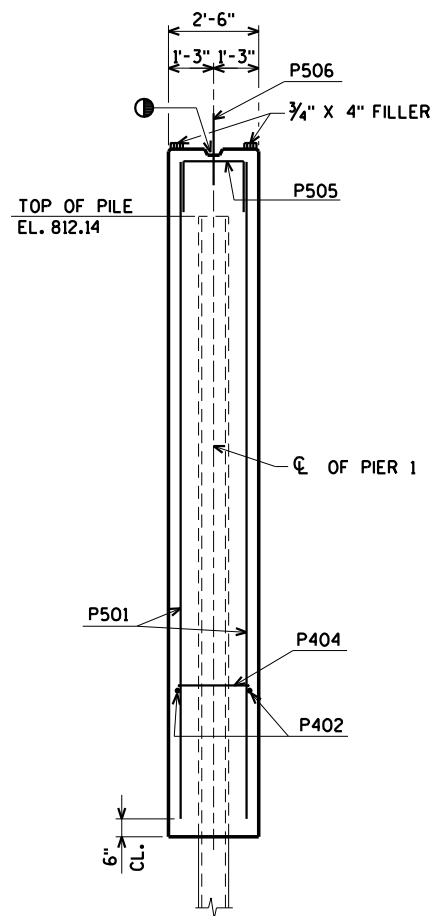


PLAN



PILE LAYOUT

P404 - PLACE ADJACENT TO ONE SIDE OF PILE
ALTERNATE THE POSITION OF THE 90°
AND 180° HOOKS AT EACH VERTICAL LAYER OF TIES

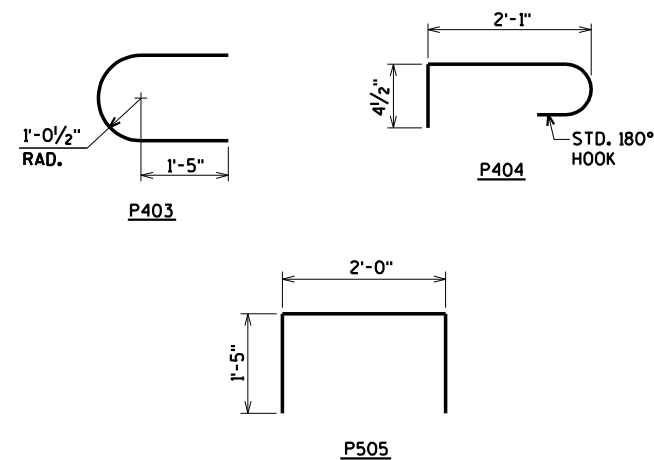


SECTION A

P506 BARS MAY BE
PLACED AFTER PIER
IS POURED BUT BEFORE
CONC. HAS SET. IMBED
BARS 1'-0".

BILL OF BARS						60# COATED 2,650# UNCOATED
BAR NO.	COATED BAR	NO. REQ'D.	LENGTH	BENT BAR	BUNDLED	BAR SERIES
P501		66	18-4			COLUMN VERT.
P402		40	29-0			COLUMN HORIZ.
P403		40	6-1	X		COLUMN HORIZ.
P404		200	2-10	X		COLUMN TIES
P505		16	4-7	X		COLUMN TOP
P506	X	30	2-0			COLUMN DOWELS

BENDING DIMENSIONS ARE OUT TO OUT OF BARS.



KEYED CONST. JOINT - FORMED
BY A BEVELED 2" x 6".

FOR PILE SPLICE DETAIL SEE SHEET 2.

E.F. DENOTES EACH FACE

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NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-53-386			
DRAWN BY		CLP	PLANS CK'D. JLB
PIER 1			SHEET 10 OF 15

2/11/2021
PENTABLE:BReou_shd_util.tbl

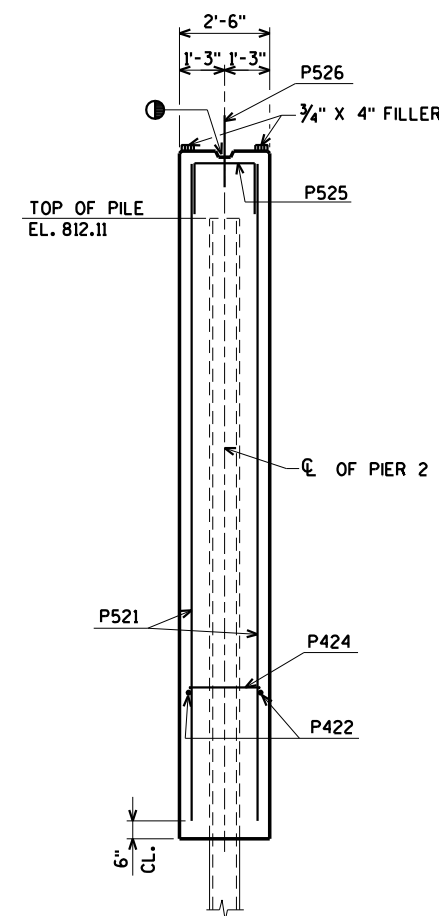
STATE PROJECT NUMBER

3653-00-70

BILL OF BARS

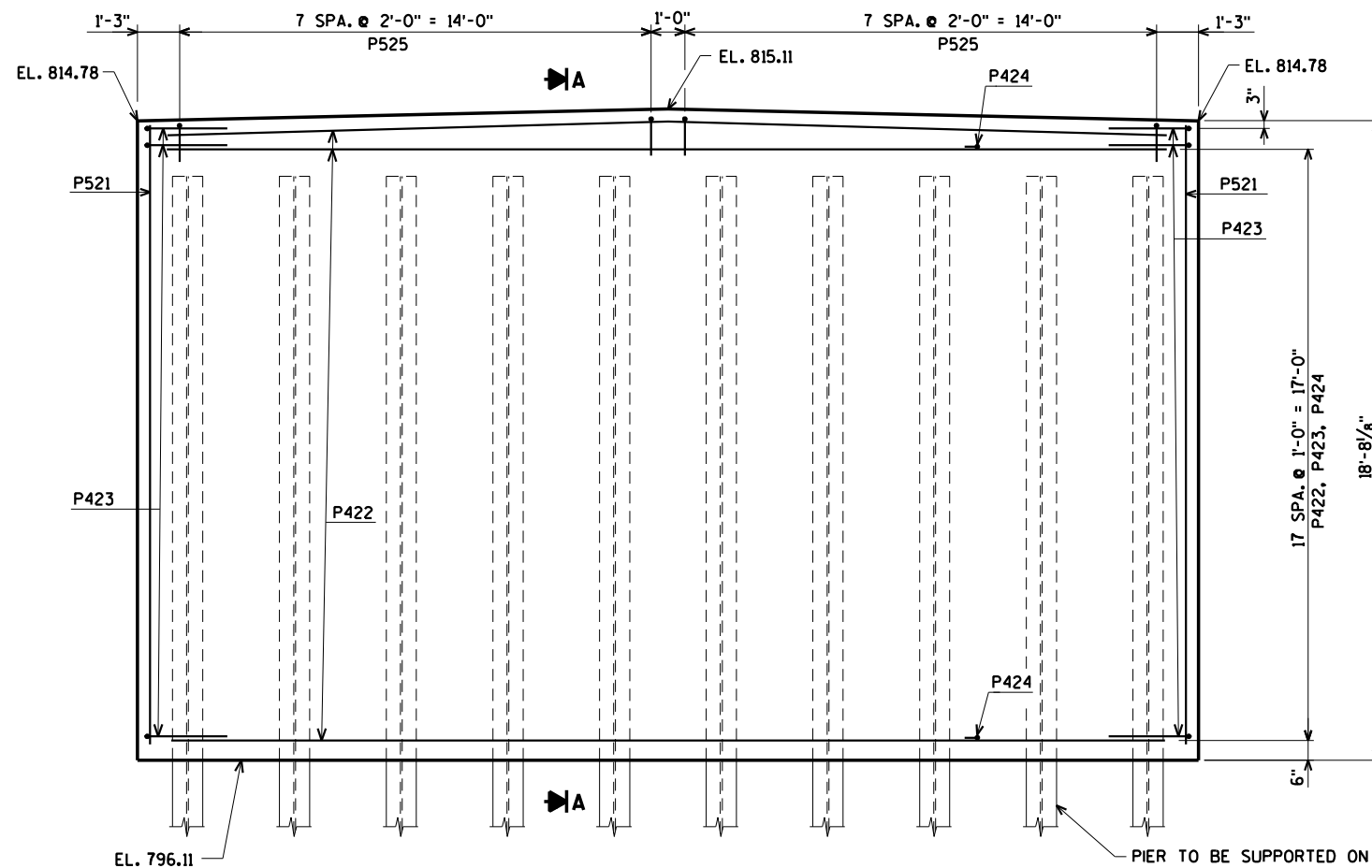
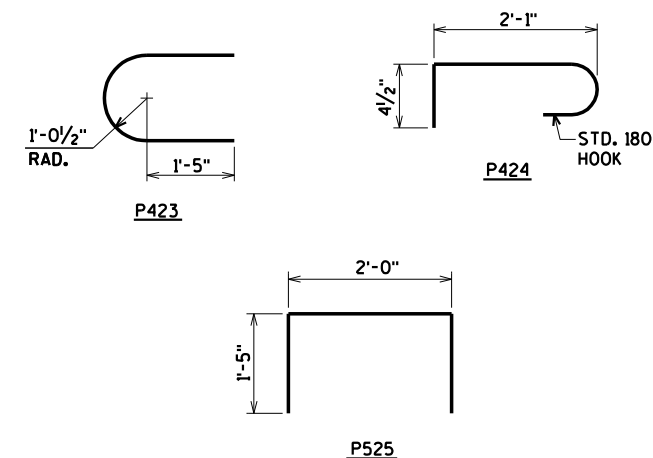
BAR NO.	COATED BAR	NO. REQ'D.	LENGTH	BENT BAR	BUNDLED	BAR SERIES	60# COATED 2,570# UNCOATED
							LOCATION
P521		66	18-0				COLUMN VERT.
P422		38	29-0				COLUMN HORIZ.
P423		38	6-1	X			COLUMN HORIZ.
P424		190	2-10	X			COLUMN TIES
P525		16	4-7	X			COLUMN TOP
P526	X	30	2-0				COLUMN DOWELS

BENDING DIMENSIONS ARE OUT TO OUT OF BARS.



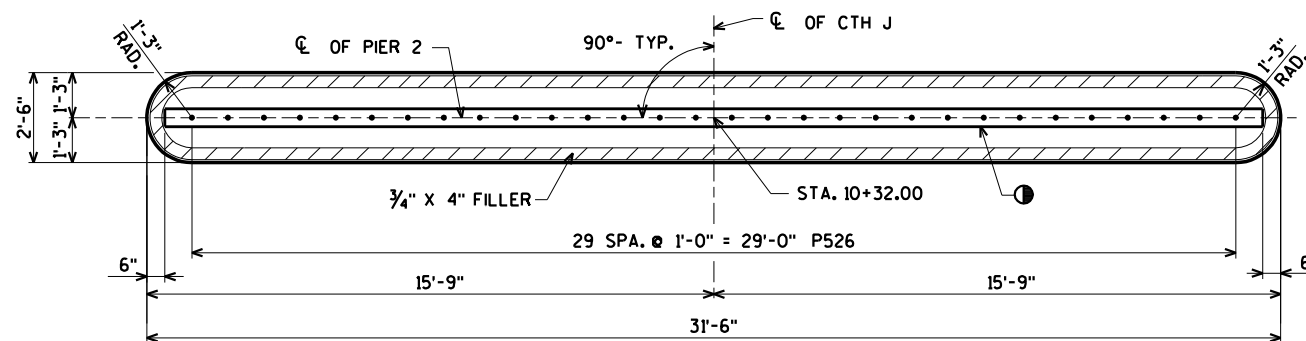
SECTION A

P526 BARS MAY BE PLACED AFTER PIER IS POURED BUT BEFORE CONC. HAS SET. IMBED BARS 1'-0".

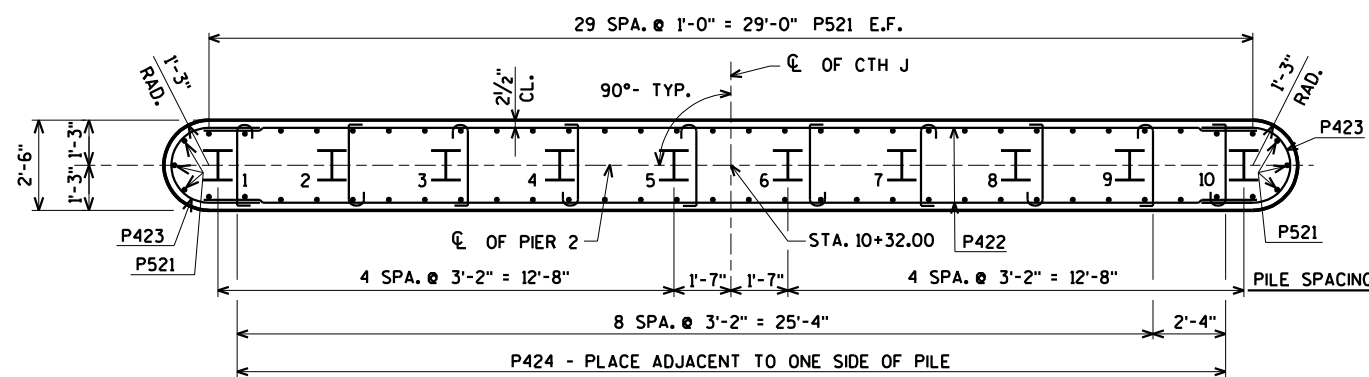


ELEVATION (LOOKING NORTH)

PIER TO BE SUPPORTED ON HP 10 x 42 STEEL PILING (WITH PILE POINTS) DRIVEN TO A REQ'D. DRIVING RESISTANCE OF 180 TONS PER PILE ESTIMATED LENGTH 26'-0". PRE-BORE PILING 10'-0".



PLAN



PILE LAYOUT

P424 - PLACE ADJACENT TO ONE SIDE OF PILE
ALTERNATE THE POSITION OF THE 90°
AND 180° HOOKS AT EACH VERTICAL LAYER OF TIES

KEYED CONST. JOINT - FORMED BY A BEVELED 2" x 6".

FOR PILE SPLICE DETAIL SEE SHEET 2.

E.F. DENOTES EACH FACE

ORIGINAL PLANS PREPARED BY

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STRUCTURE B-53-386			
DRAWN BY		CLP	PLANS CK'D. JLB
PIER 2			SHEET 11 OF 15

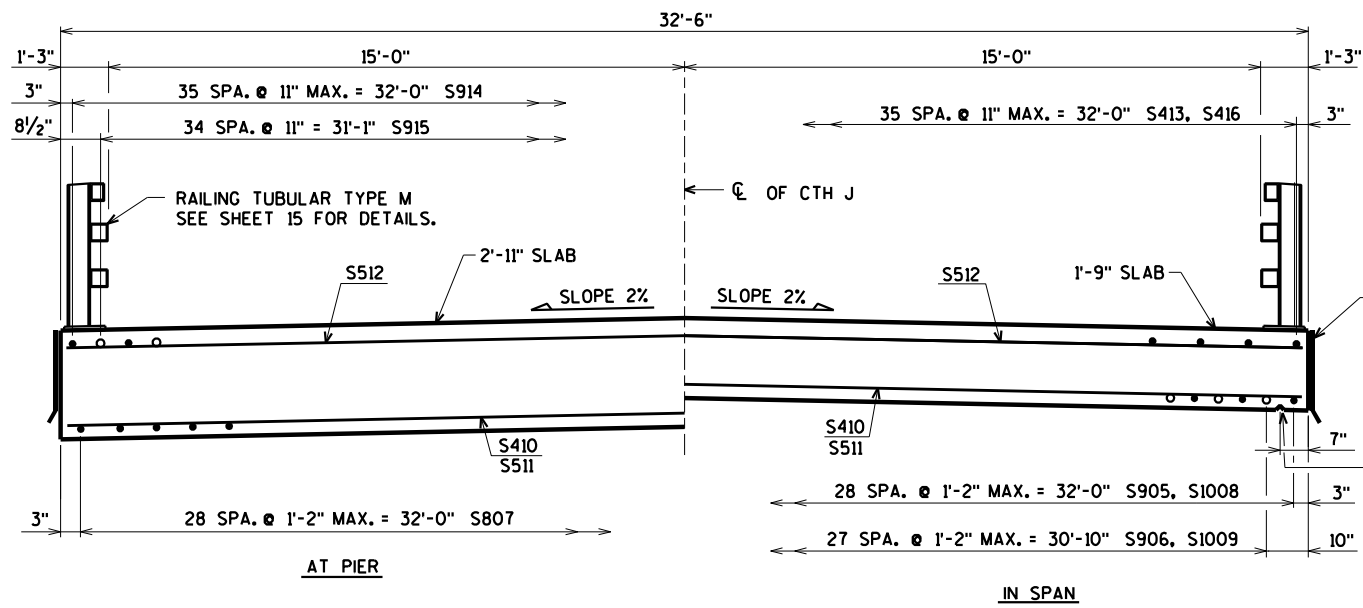
BAR NO.	COATED BAR	NO. REQ'D.	LENGTH	BENT BAR	BUNDLED	BAR SERIES	63,290" COATED
							LOCATION
S401	X	52	3-3	X			SLAB @ ABUT. NOTCH
S402	X	4	25-8				SLAB @ ABUT. NOTCH
S503	X	66	6-3	X			SLAB @ ABUT.
S504	X	66	3-6	X			SLAB @ ABUT.
S905	X	58	34-2				SLAB LONG. BOT. SPANS 1 & 3
S906	X	56	23-10				SLAB LONG. BOT. SPANS 1 & 3
S807	X	58	25-9	X			SLAB LONG. BOT. @ PIER
S1008	X	29	48-2				SLAB LONG. BOT. SPAN 2
S1009	X	28	34-2				SLAB LONG. BOT. SPAN 2
S410	X	54	32-2				SLAB TRANS. BOT.
S511	X	97	32-2				SLAB TRANS. BOT.
S512	X	149	32-2				SLAB TRANS. TOP
S413	X	72	6-3				SLAB LONG. TOP SPANS 1 & 3
S914	X	72	52-9				SLAB LONG. TOP @ PIER
S915	X	70	44-5				SLAB LONG. TOP @ PIER
S416	X	36	16-0				SLAB LONG. TOP SPAN 2
S617	X	96	12-0	X			SLAB @ RAIL POSTS
S618	X	176	6-0				SLAB @ INT. RAIL POSTS
S619	X	16	6-0	X			SLAB @ END RAIL POSTS

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

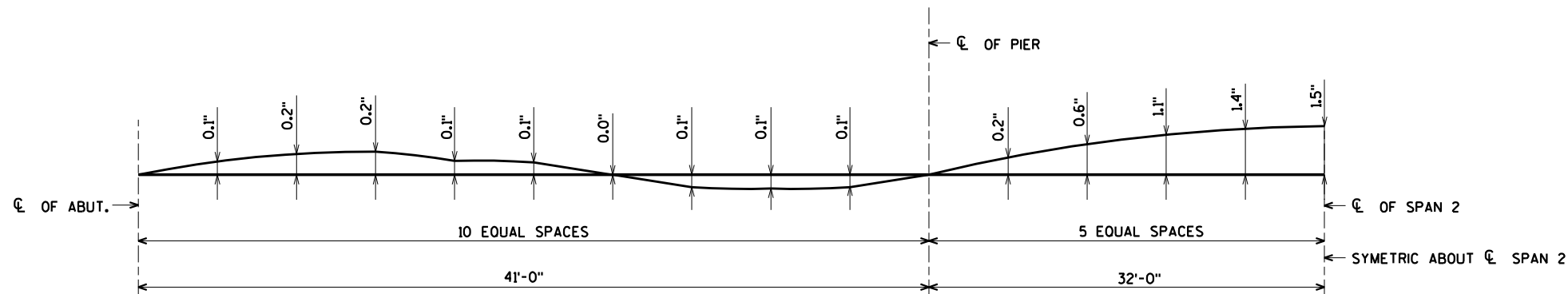
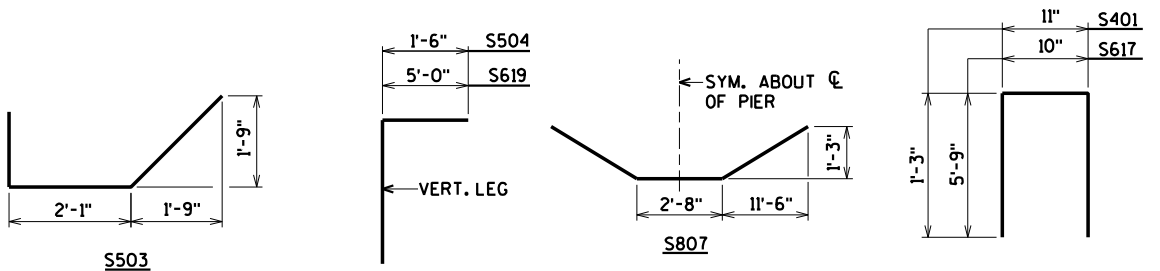
ALL SLAB THICKNESS DIMENSIONS ARE MINIMUM.
ANY TOLERANCES NECESSARY TO CORRECT
CONSTRUCTION DISCREPANCIES ARE TO BE PLUS (+).

FLASHING STAINLESS STEEL - TYP.
SEE SHEET 2 FOR DETAILS.

3/4" V-GROOVE. EXTEND
V-GROOVE TO 6" FROM FRONT
FACE OF ABUTMENTS - TYP.



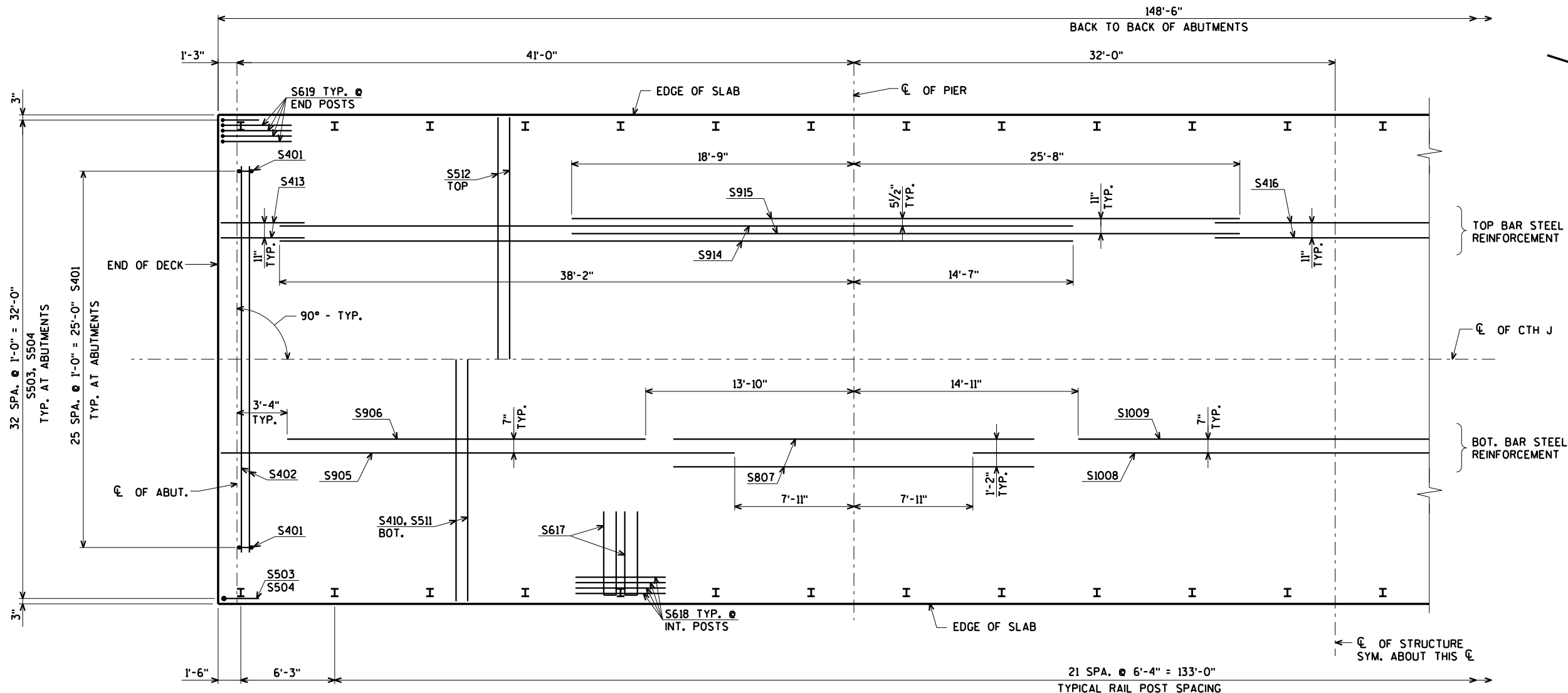
TYPICAL SECTION THRU BRIDGE



CAMBER DIAGRAM

CAMBER SPANS AS SHOWN TO PROVIDE
FOR DEAD LOAD DEFLECTION & FUTURE
CREEP. CAMBER DOES NOT INCLUDE
ALLOWANCE FOR FORM SETTLEMENT.

NO.	DATE	REVISION	BY
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STRUCTURE B-53-386			
DRAWN BY		CLP	PLANS CK'D. JLB
SUPERSTRUCTURE		SHEET 12 OF 15	



PART PLAN

TOP OF DECK ELEVATIONS

ELEVATIONS SHOWN ARE FINISHED DECK AND DO NOT INCLUDE ALLOWANCES OF DEAD LOAD DEFLECTION AND FUTURE CREEP.

LOCATION	CL OF S. ABUT.	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	CL OF PIER 1	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	CL OF PIER 2
W. EDGE OF SLAB	818.35	818.33	818.30	818.28	818.26	818.23	818.21	818.19	818.17	818.14	818.12	818.08	818.05	818.01	817.98	817.94	817.90	817.87	817.83	817.80	817.76
CL OF STRUCTURE	818.67	818.65	818.63	818.61	818.58	818.56	818.54	818.51	818.49	818.47	818.44	818.41	818.37	818.34	818.30	818.27	818.23	818.19	818.16	818.12	818.09
E. EDGE OF SLAB	818.35	818.33	818.30	818.28	818.26	818.23	818.21	818.19	818.17	818.14	818.12	818.08	818.05	818.01	817.98	817.94	817.90	817.87	817.83	817.80	817.76

LOCATION	CL OF PIER 2	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	CL OF N. ABUT.
W. EDGE OF SLAB	817.76	817.74	817.71	817.69	817.67	817.65	817.62	817.60	817.58	817.55	817.53
CL OF STRUCTURE	818.09	818.06	818.04	818.02	817.99	817.97	817.95	817.92	817.90	817.88	817.86
E. EDGE OF SLAB	817.76	817.74	817.71	817.69	817.67	817.65	817.62	817.60	817.58	817.55	817.53

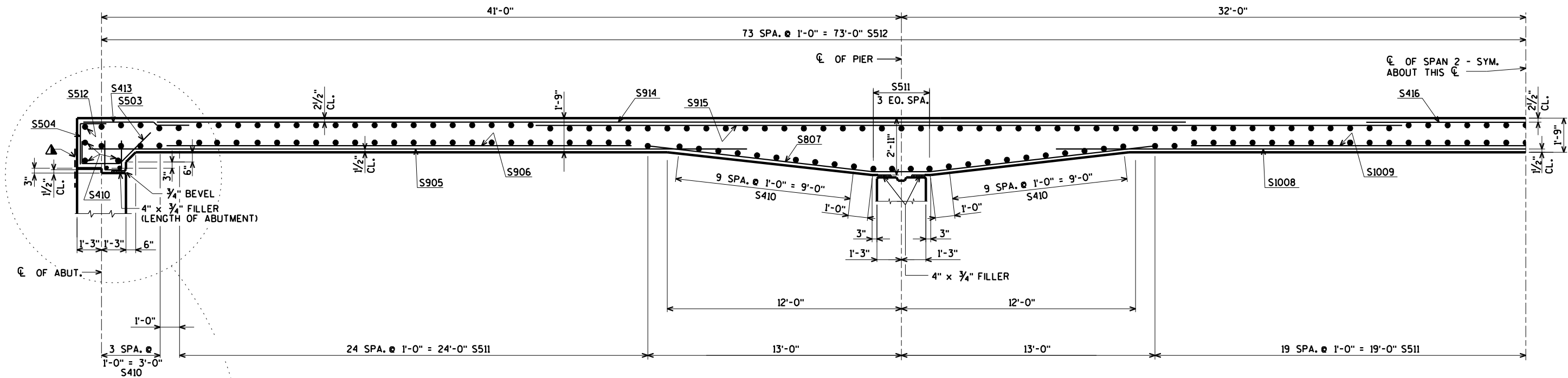
SURVEY TOP OF SLAB ELEVATIONS

LOCATION	CL OF S. ABUT.	5/10 PT.	CL OF PIER 1	5/10 PT.	CL OF PIER 2	5/10 PT.	CL OF N. ABUT.
W. GUTTER							
CL OF STRUCTURE							
E. GUTTER							

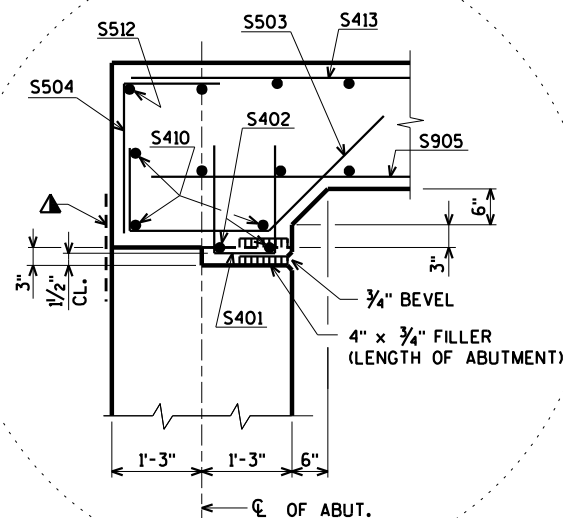
PRIOR TO RELEASING SLAB FALSEWORK, TAKE TOP OF DECK ELEVATIONS AT THE CL OF ABUTMENTS AND AT 5/10 PTS. TO VERIFY CAMBER. TAKE ELEVATIONS ALONG GUTTER LINES AND CROWN OR CL. RECORD THE ELEVATIONS IN THE ABOVE TABLE FOR THE "AS BUILT" PLANS.

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NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-53-386			
DRAWN BY		CLP	PLANS CK'D. JLB
SUPERSTRUCTURE PLAN			SHEET 13 OF 15



PART LONGITUDINAL SECTION



▲ 18" RUBBERIZED MEMBRANE WATERPROOFING

2/11/2021
PENTABLE:BReau_shd_util.tbl

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-53-386			
DRAWN BY		CLP	PLANS CK'D. JLB
SUPERSTRUCTURE DETAILS			SHEET 14 OF 15

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LEGEND

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

GENERAL NOTES

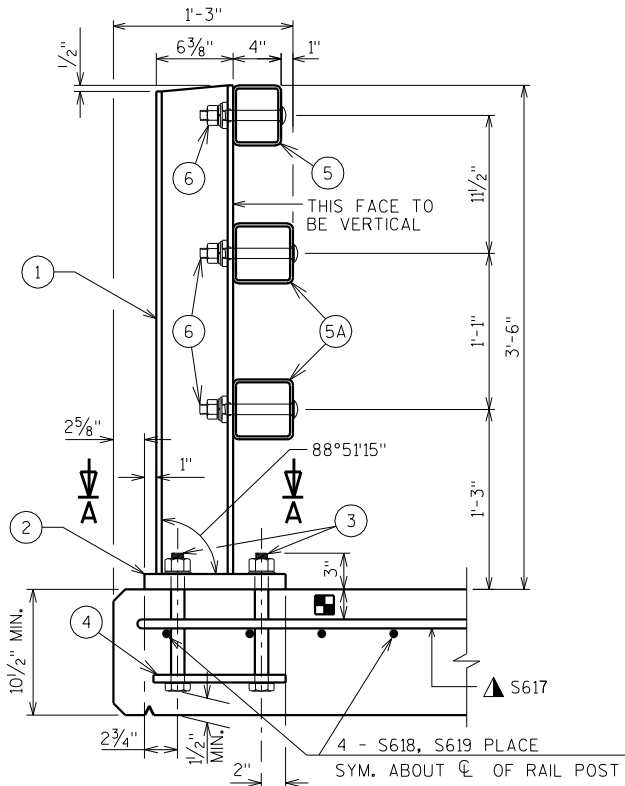
1. BID ITEM SHALL BE "RAILING TUBULAR TYPE M" WHICH INCLUDES ALL ITEMS SHOWN.
2. RAIL POST AND BASE PLATES SHALL CONFORM TO THE REQUIREMENTS OF ASTM A709 GRADE 50. HOLLOW RAILING STRUCTURAL TUBING SHALL CONFORM TO THE REQUIREMENTS OF ASTM A500 GRADE B OR C WITH A CERTIFIED FY = 50 KSI. ANCHOR PLATES,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

▲ TIE TO TOP MAT OF STEEL.

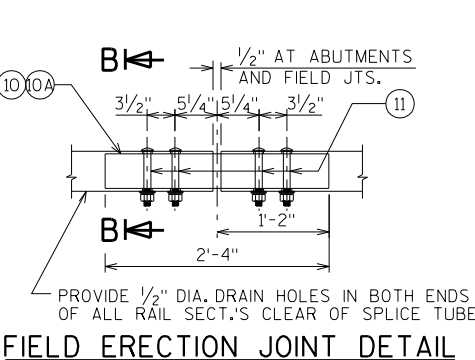
* ANCHOR BOLT ASSEMBLY MAY BE TACK WELDED, EITHER IN THE SHOP, OR IN THE FIELD AFTER THE ANCHOR PLATE IS PLACED.

ORIGINAL PLANS PREPARED BY
AYRES 3433 Oakwood Hills Parkway
Eau Claire, WI 54701
www.AyresAssociates.com

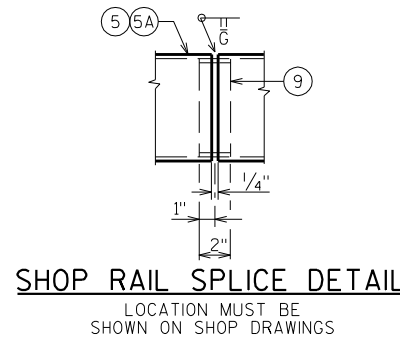
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-53-386			
DRAWN BY		CLP	PLANS CK'D. JLB
TUBULAR STEEL RAILING TYPE 'M'			SHEET 15 OF 15



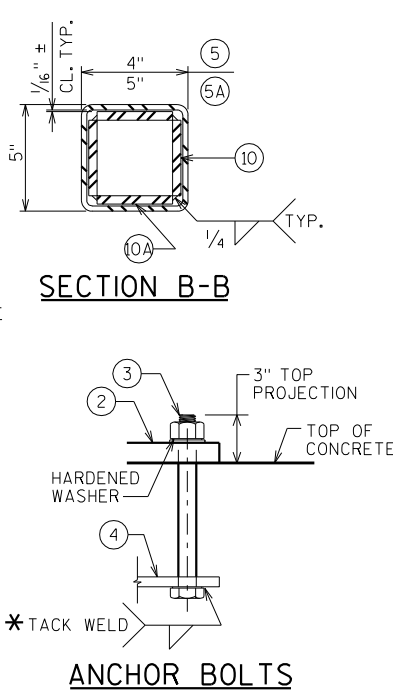
SECTION THRU RAILING ON DECK



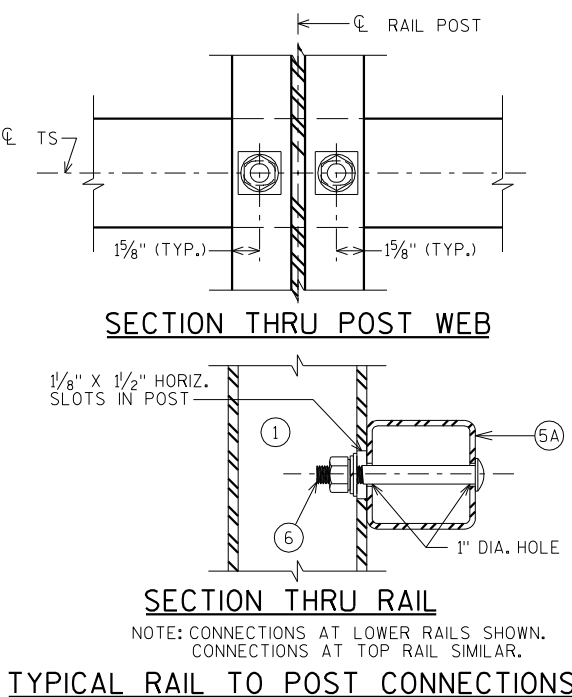
FIELD ERECTION JOINT DETAIL



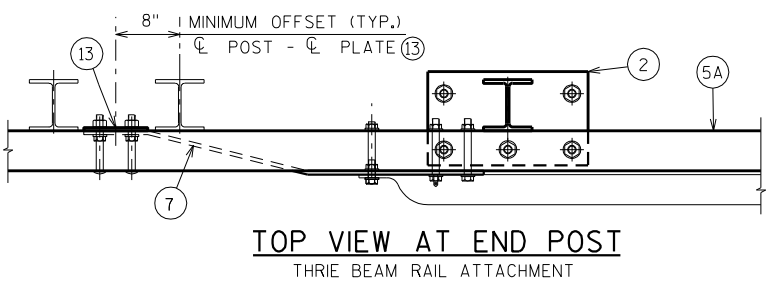
SHOP RAIL SPLICE DETAIL



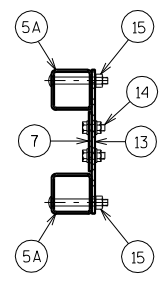
ANCHOR BOLTS



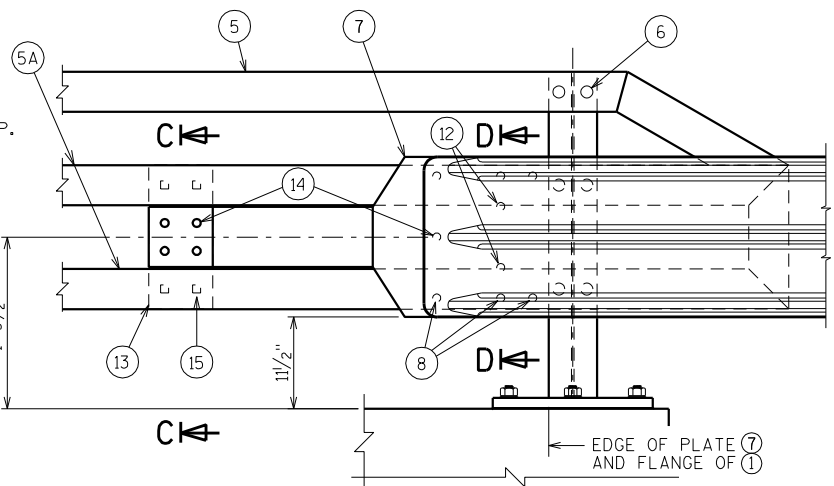
SECTION THRU POST WEB



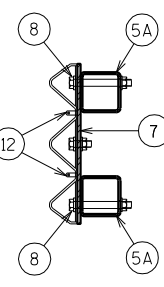
TOP VIEW AT END POST
THRIE BEAM RAIL ATTACHMENT



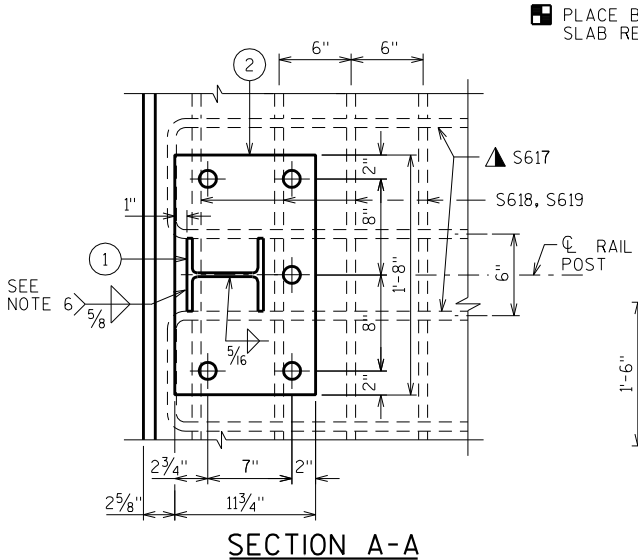
SECTION C-C



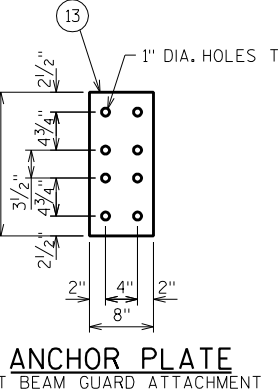
DETAIL AT END POST
THRIE BEAM RAIL ATTACHMENT



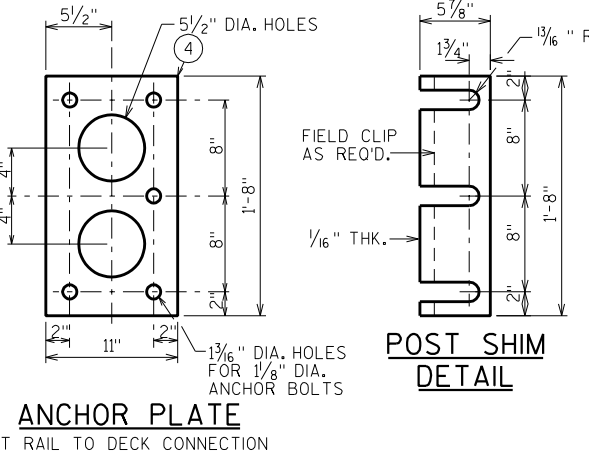
SECTION D-D



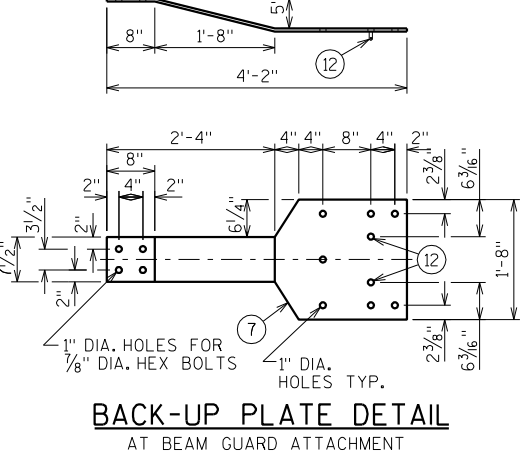
SECTION A-A



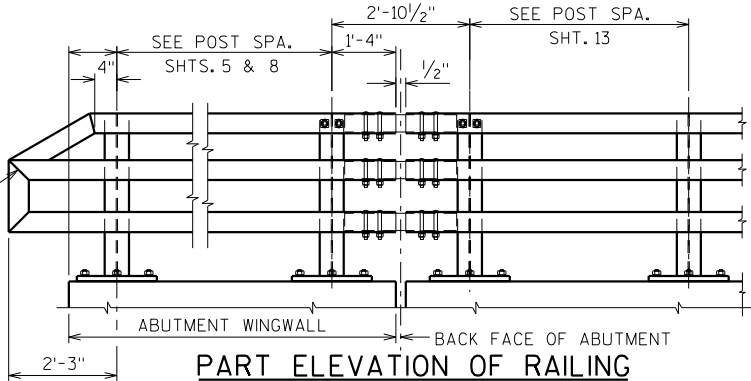
ANCHOR PLATE
AT BEAM GUARD ATTACHMENT



ANCHOR PLATE
AT RAIL TO DECK CONNECTION



BACK-UP PLATE DETAIL
AT BEAM GUARD ATTACHMENT



PART ELEVATION OF RAILING

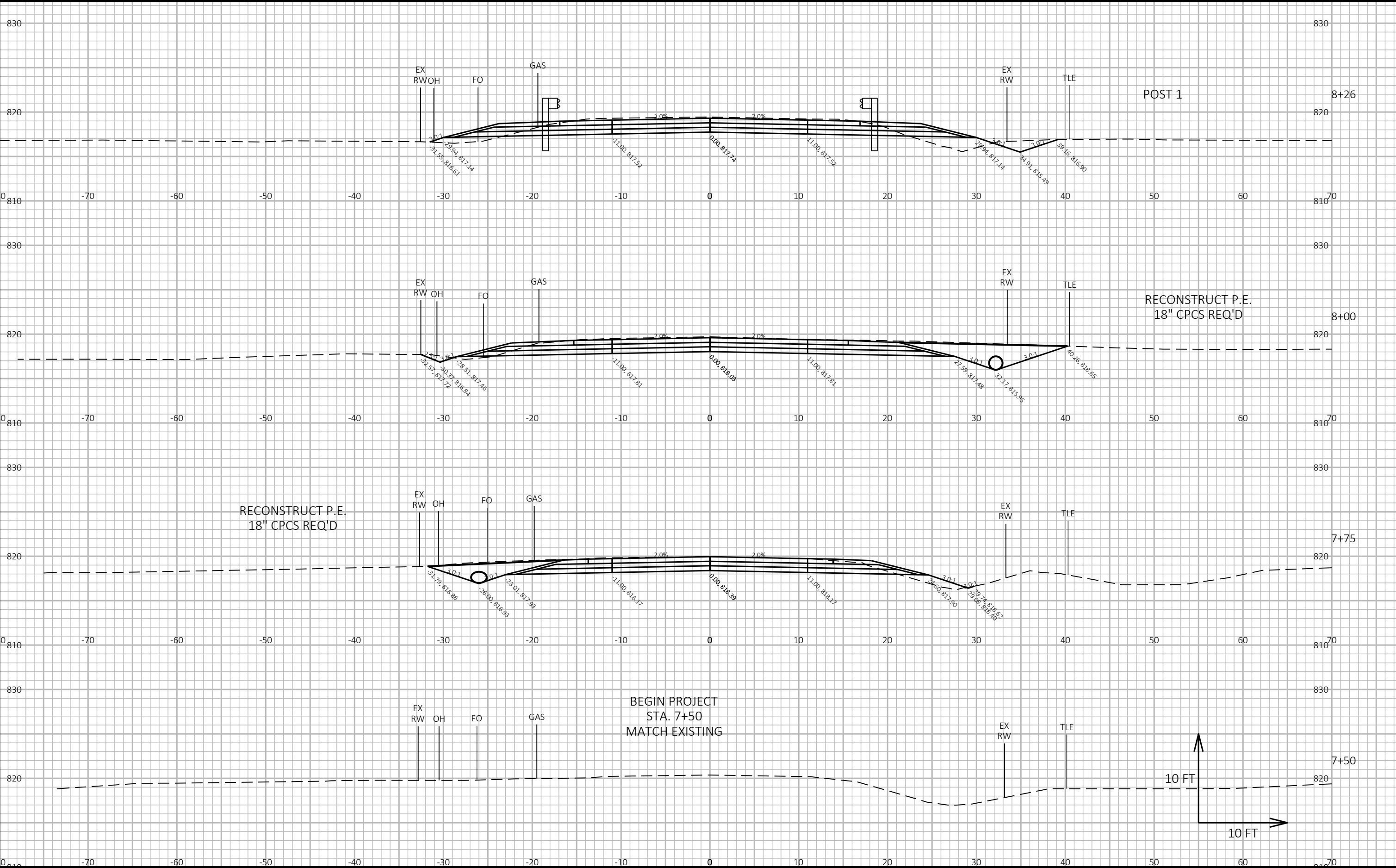
CTH J - SOUTH OF BRIDGE

Station	Distance	Area (SF)		Incremental Vol (CY) (Unadjusted)		Cumulative Vol (CY)		Mass Ordinate
		Cut	Fill	Cut	Fill	Expanded		
						Cut	Fill	
Note 1	Note 2	Note 1	Note 3					
7+50		82.8	2.1					
7+75	25	77.4	4.5	74	3	74	4	70
8+00	25	103.3	0.9	84	3	158	7	151
8+25	25	71.7	12.0	81	6	239	15	224
8+50	25	65.5	15.6	64	13	302	32	271
8+75	25	64.0	7.3	60	11	362	45	317
9+00	25	58.2	7.8	57	7	419	55	364
9+25	25	53.2	11.2	52	9	470	66	405
				470	51			

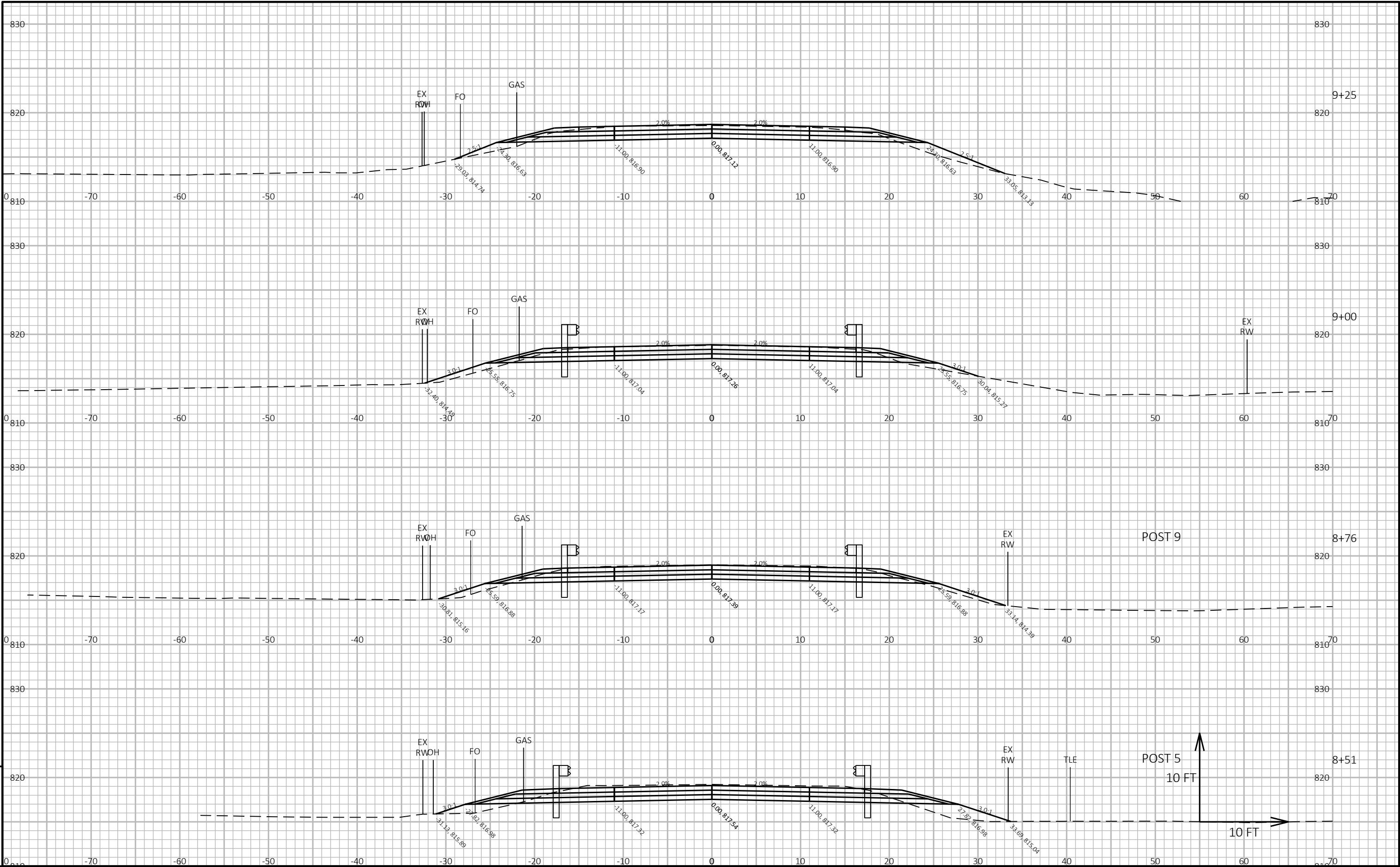
CTH J - NORTH OF BRIDGE

Station	Distance	Area (SF)		Incremental Vol (CY) (Unadjusted)		Cumulative Vol (CY)		Mass Ordinate
		Cut	Fill	Cut	Fill	Expanded		
						Cut	Fill	
				Note 1	Note 2	Note 1		Note 3
10+75		55.0	65.9					
11+00	25	70.8	65.3	58	61	58	79	-21
11+25	25	77.0	49.2	68	53	127	148	-21
11+50	25	81.1	49.3	73	46	200	207	-7
11+75	25	74.4	60.2	72	51	272	273	-1
12+00	25	71.3	29.0	67	41	339	327	13
12+20	20	71.8	24.8	53	20	392	352	40
				392	271			

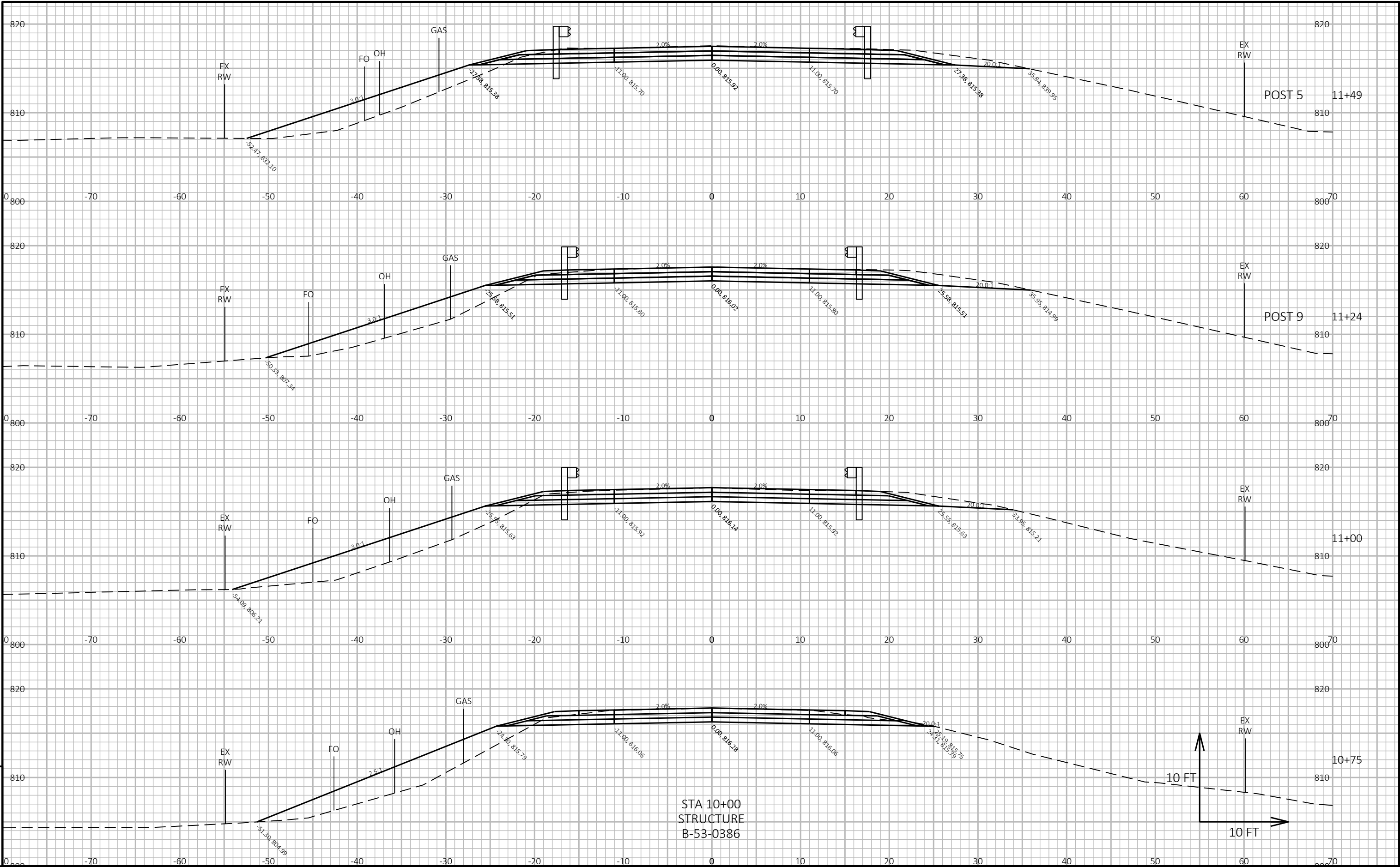
Note 1 - Cut	Cut includes existing asphalt pavement. Assumed to be reused as fill outside the 1:1 road core.
Note 2 - Fill	Volume needed to be filled.
Note 3 - Mass Ordinate	(Cut) - (Fill * 1.30)



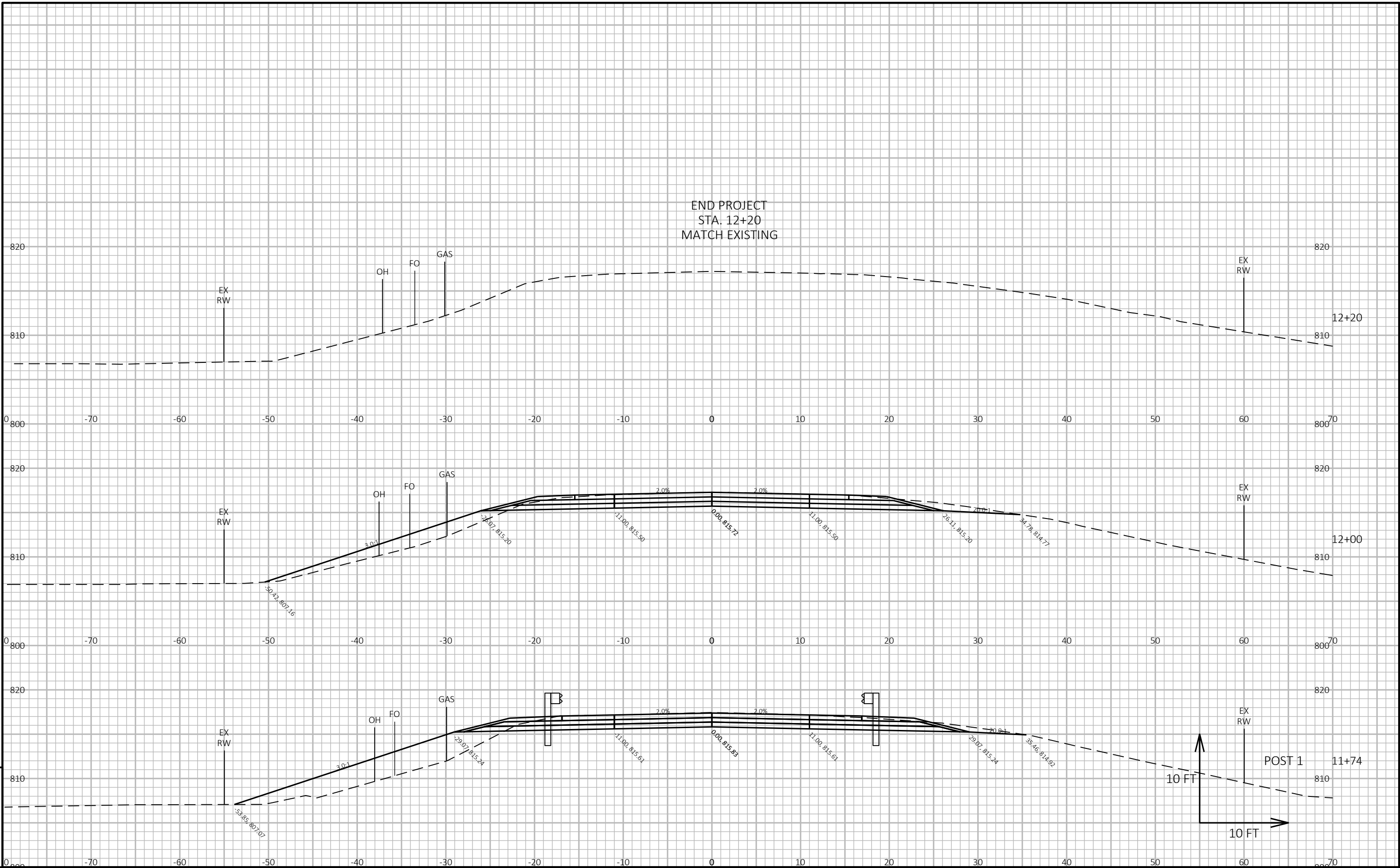
PROJECT NO: 3653-00-70	HWY: CTH J	COUNTY: ROCK	CROSS SECTIONS: CTH J OVER TURTLE CREEK	SHEET	E
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PROJECT NO: 3653-00-70	HWY: CTH J	COUNTY: ROCK	CROSS SECTIONS: CTH J OVER TURTLE CREEK	SHEET E
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PROJECT NO: 3653-00-70	HWY: CTH J	COUNTY: ROCK	CROSS SECTIONS: CTH J OVER TURTLE CREEK	SHEET E
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Notes



Wisconsin Department of Transportation

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