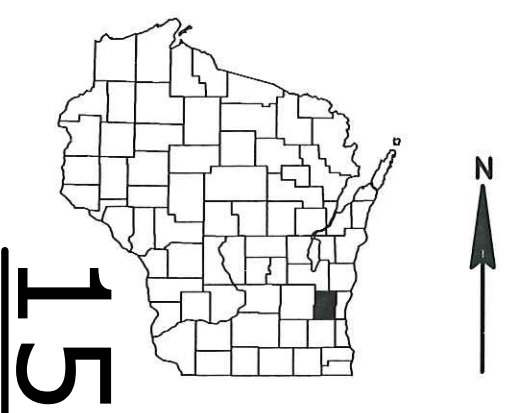


WKE
PROJECT ID: 2745-00-71
WITH: N/A
COUNTY: WASHINGTON

DECEMBER 2019
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 (Includes Erosion Control)
Section No.	6	Standard Detail Drawings
Section No.	7	Sign Plates
Section No.	8	Structure Plans
Section No.	9	Cross Sections

TOTAL SHEETS = 54



DESIGN DESIGNATION		
A.A.D.T.	2020	= 2200
A.A.D.T.	2040	= 2500
D.H.V.	2040	= 305
D.D.		= 60/40
T.		= 12.2
DESIGN SPEED		= 40 MPH
ESALS		= 680,000

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	

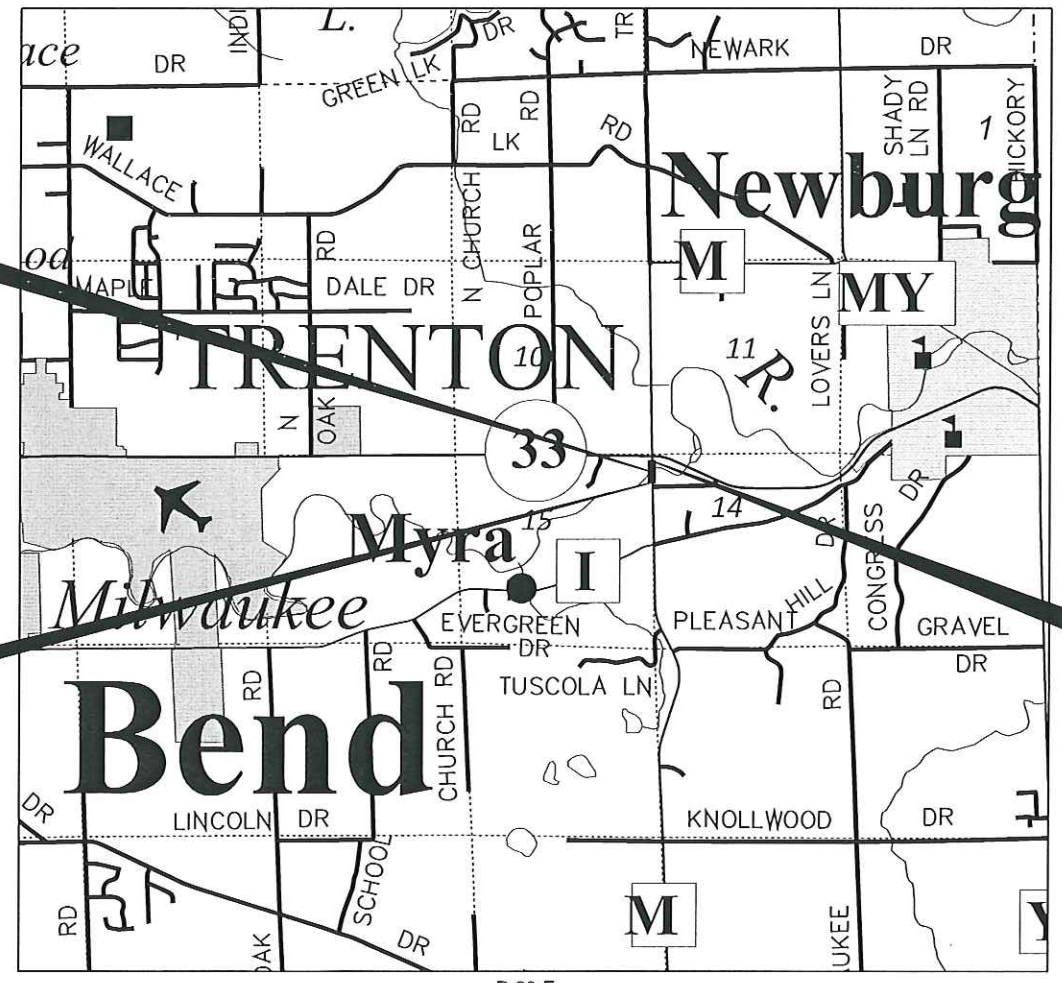
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
PLAN OF PROPOSED IMPROVEMENT

CTH M
(MILWAUKEE RIVER BRIDGE B-66-0945)
CTH M
WASHINGTON COUNTY

STATE PROJECT NUMBER
2745-00-71

STRUCTURE B-66-198

BEGIN PROJECT
STA. 8+00.00
Y = 524,908.12
X = 2,509,777.65



LAYOUT
SCALE 0 1 MI
TOTAL NET LENGTH OF CENTERLINE = 0.076 MI

HORIZONTAL POSITIONS SHOWN ON THIS PLAN ARE STATE PLANE COORDINATES, NAD27, IN U.S. SURVEY FEET. VALUES ARE GRID COORDINATES, GRID BEARINGS, AND GRID DISTANCES. GRID DISTANCES MAY BE USED AS GROUND DISTANCES.

STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
2745-00-71	WISC 2019741	1

ACCEPTED FOR
COUNTY of WASHINGTON

7/30/19 *Lowell McIntosh*
(Date) (Highway Commissioner)

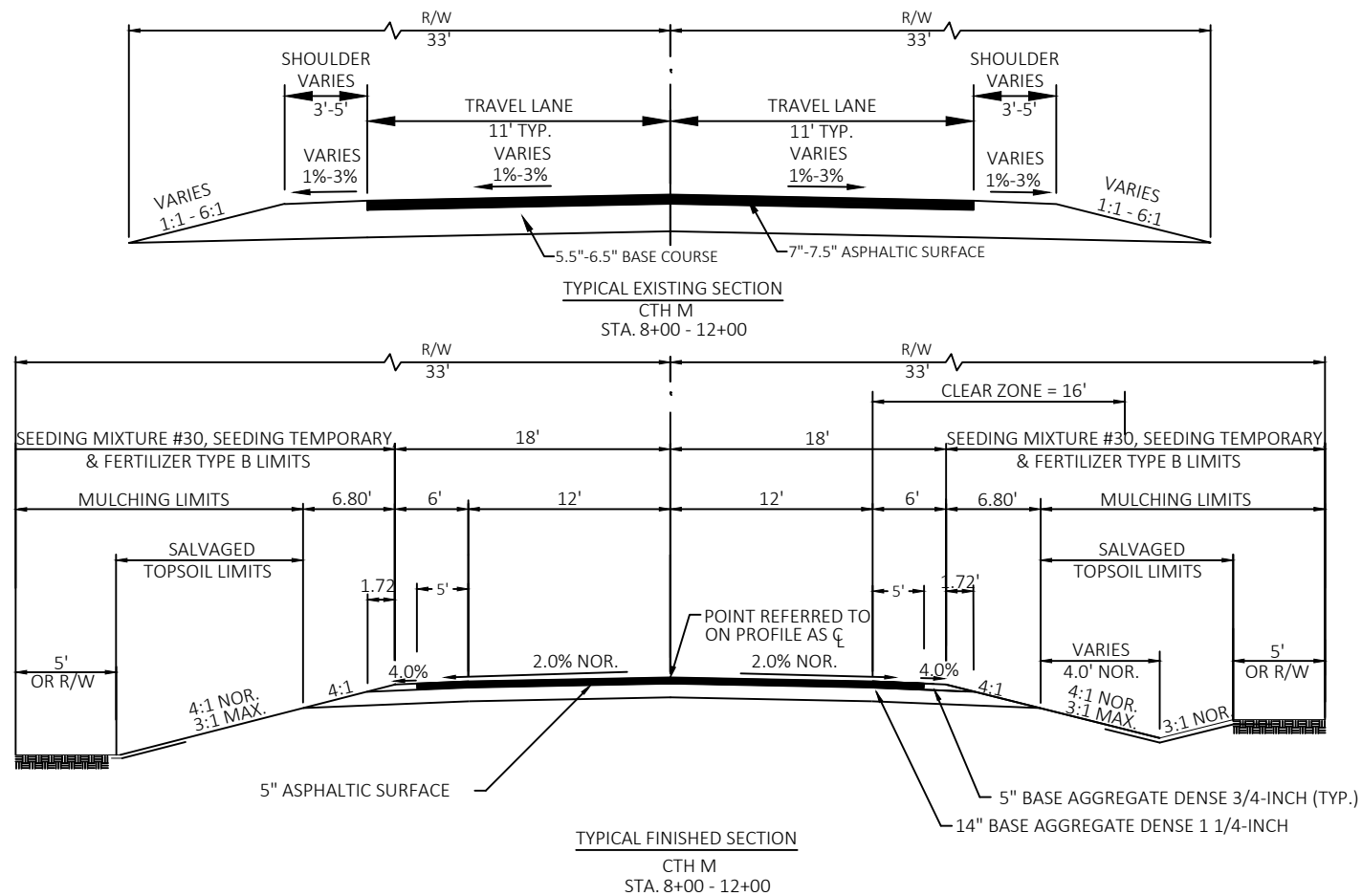
ORIGINAL PLANS PREPARED BY
MSA

WISCONSIN
MICHAEL J. STATZ
E-31249
MADISON
WI
PROFESSIONAL ENGINEER

7-25-19 *Michael J. Stutz*
(Date) (Professional Engineer)

STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
PREPARED BY	
Surveyor	MSA PROFESSIONAL SERVICES, INC.
Designer	MSA PROFESSIONAL SERVICES, INC.
Project Manager	Kathleen Kramer, WisDOT
Regional Examiner	WisDOT
Regional Supervisor	Jeff Bohlen, WisDOT

APPROVED FOR THE DEPARTMENT
DATE: 7/30/19 *K Kramer*
(Signature)



RUNOFF COEFFICIENT TABLE

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

TOTAL PROJECT AREA = 0.55 ACRES
TOTAL AREA EXPECTED TO BE DISTURBED BY CONSTRUCTION ACTIVITIES = 0.68 ACRES

GENERAL NOTES

DISTURBED AREAS WITHIN THE RIGHT-OF-WAY, EXCEPT THE AREAS WITHIN THE FINISHED SHOULDER POINTS SHALL BE FERTILIZED, SEEDED AND MULCHED AS DIRECTED BY THE ENGINEER. OVERSOW PERMANENT SEEDING AREAS WITH TEMPORARY SEED AT 1.5 LBS PER 1000 SQUARE FEET. DUE TO THE SENSITIVE NATURE OF THE WETLAND AND WATERWAY, TEMPORARY SEED OR PERMANENT RESTORATION SHALL OCCUR NO LATER THAN 24 HOURS AFTER ANY SOIL GRADING DISTURBANCE. ALL STOCK PILES SHALL BE SEEDED SAME DAY, OR COVERED WITH PLASTIC.

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

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

COORDINATES ON THIS PLAN ARE REFERENCED TO THE WISCONSIN STATE PLANE COORDINATE SYSTEM (WSPCS), NAD 27 SOUTH ZONE.

THE 5" ASPHALTIC SURFACE SHALL BE CONSTRUCTED USING A 3" LOWER LAYER OF 19 MM NOMINAL SIZE AGGREGATE AND A 2" UPPER LAYER OF 12.5 MM NOMINAL SIZE AGGREGATE.

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

WETLANDS EXIST FROM STA. 8+40 TO STA. 11+23, THE CONTRACTOR SHALL NOT DISTURB AREAS OUTSIDE THE SLOPE INTERCEPT IN THESE AREAS.

SLOPES STEEPER THAN 3:1 REQUIRE EROSION MAT.

ALL SIGNS WITHIN PROJECT LIMITS SHALL BE REMOVED, SALVAGED, AND REPLACED. STACK SIGNS AND POSTS IN A SECURE LOCATION AND NOTIFY AND COORDINATE WITH THE WASHINGTON COUNTY HIGHWAY DEPARTMENT FOR PICKUP.

DESIGN CONTACT

MSA PROFESSIONAL SERVICES, INC.
ATTN: MICHAEL J. STATZ, P.E.
2901 INTERNATIONAL LANE, SUITE 300
MADISON, WI 53704-3133
PHONE: (608) 242-7779
EMAIL: MSTATZ@MSA-PS.COM

WASHINGTON COUNTY HIGHWAY DEPARTMENT
ATTN: SCOTT SCHMIDT
WASHINGTON COUNTY HIGHWAY ENGINEER
900 LANG DRIVE
WEST BEND, WI 53090
PHONE: (262) 335-6881
EMAIL: SCOTT.SCHMIDT@CO.WASHINGTON.WI.US

DNR LIAISON

DEPARTMENT OF NATURAL RESOURCES
ATTN.: KRISTINA BETZOLD
2300 NORTH DR. MARTIN LUTHER KING JR DRIVE
MILWAUKEE, WI 53212
PHONE: (414) 507-4946
EMAIL: KRISTINA.BETZOLD@WISCONSIN.GOV

UTILITIES

COMMUNICATIONS:

AT&T
ATTN: JEFF OLDENBURG
2005 PEWAUKEE RD
WAUKESHA, WI 53188
PHONE: (262) 896-7522 (OFFICE)
(414) 412-7047 (MOBILE)
EMAIL: JO2376@ATT.COM

COMMUNICATIONS:

CHARTER COMMUNICATIONS
ATTN:RONALD MUELLER
1515 W. WASHINGTON ST.
WEST BEND, WI 53095
PHONE: (262) 429-8889 (OFFICE)
(414) 312-2652 (CELL)
EMAIL: RONALD.MUELLER@CHARTER.COM

ELECTRIC:

WE ENERGIES
ATTN: BRIGETTE BEAMON
WE ENERGIES PROJECTS SUPERVISOR
500 SOUTH 116TH
WEST ALLIS, WI 53214
PHONE: (414) 944-5721
EMAIL: BRIGETTE.BEAMON@WE-ENERGIES.COM

GAS:

WE ENERGIES
JACOB HULBERT
500 S 116TH ST
WEST ALLIS, WI 53214
PHONE: (414) 944-5575 (OFFICE)
(414) 651-1577 (MOBILE)
EMAIL: JACOB.HULBERT@WE-ENERGIES.COM

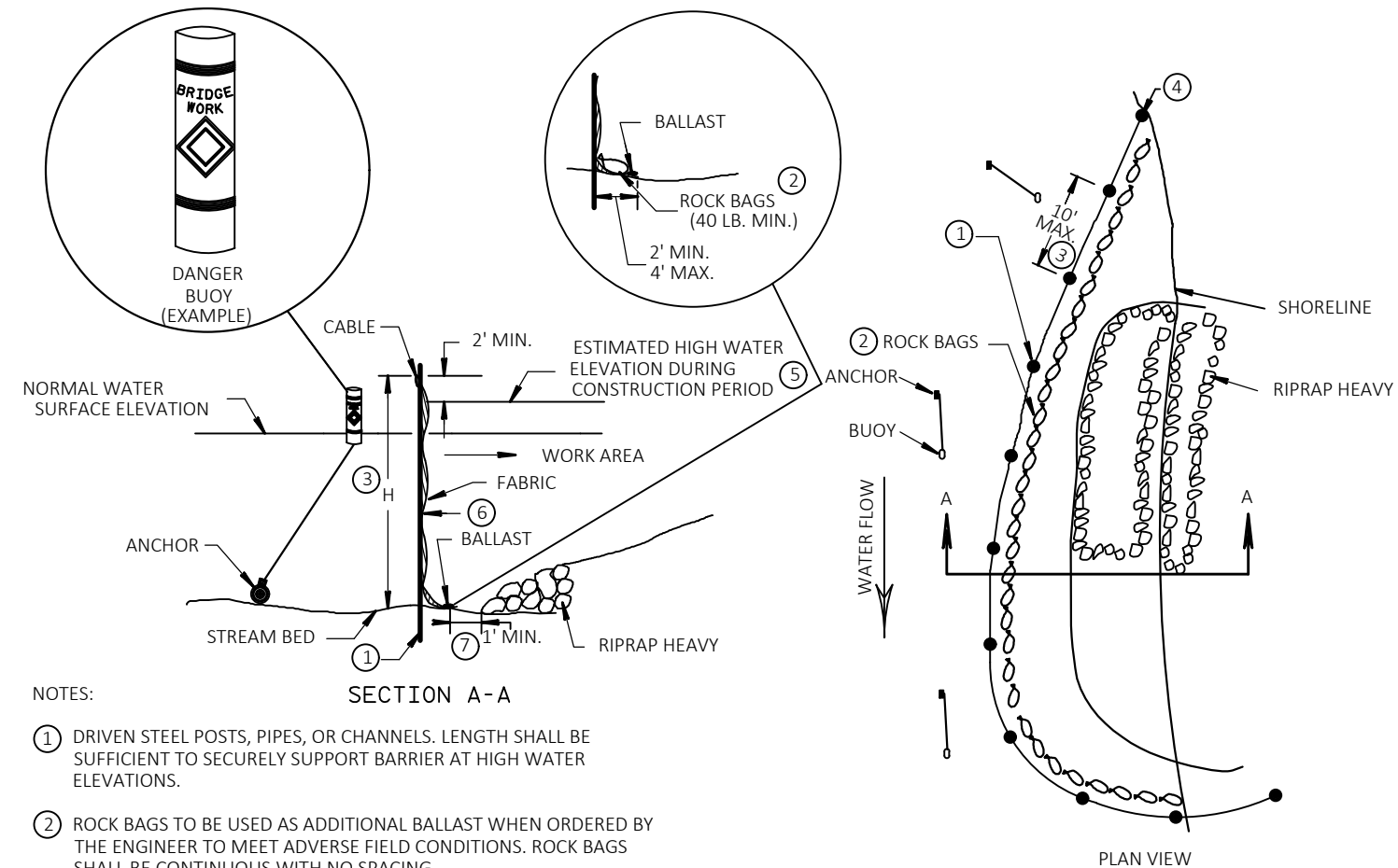
ELECTRIC:

WINDSTREAM
ATTN:MARY BETH FISHER
13935 BISHOPS DRIVE
BROOKFIELD, WI 53005
PHONE: (262) 792-7938
MARY.B.FISHER@WINDSTREAM.COM

**DENOTES UTILITIES THAT ARE NOT
DIGGERS HOTLINE MEMBERS

DIGGERS HOTLINE

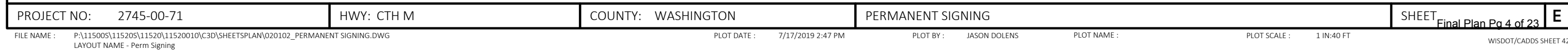
Dial **811** or (800) 242-8511
www.DiggersHotline.com

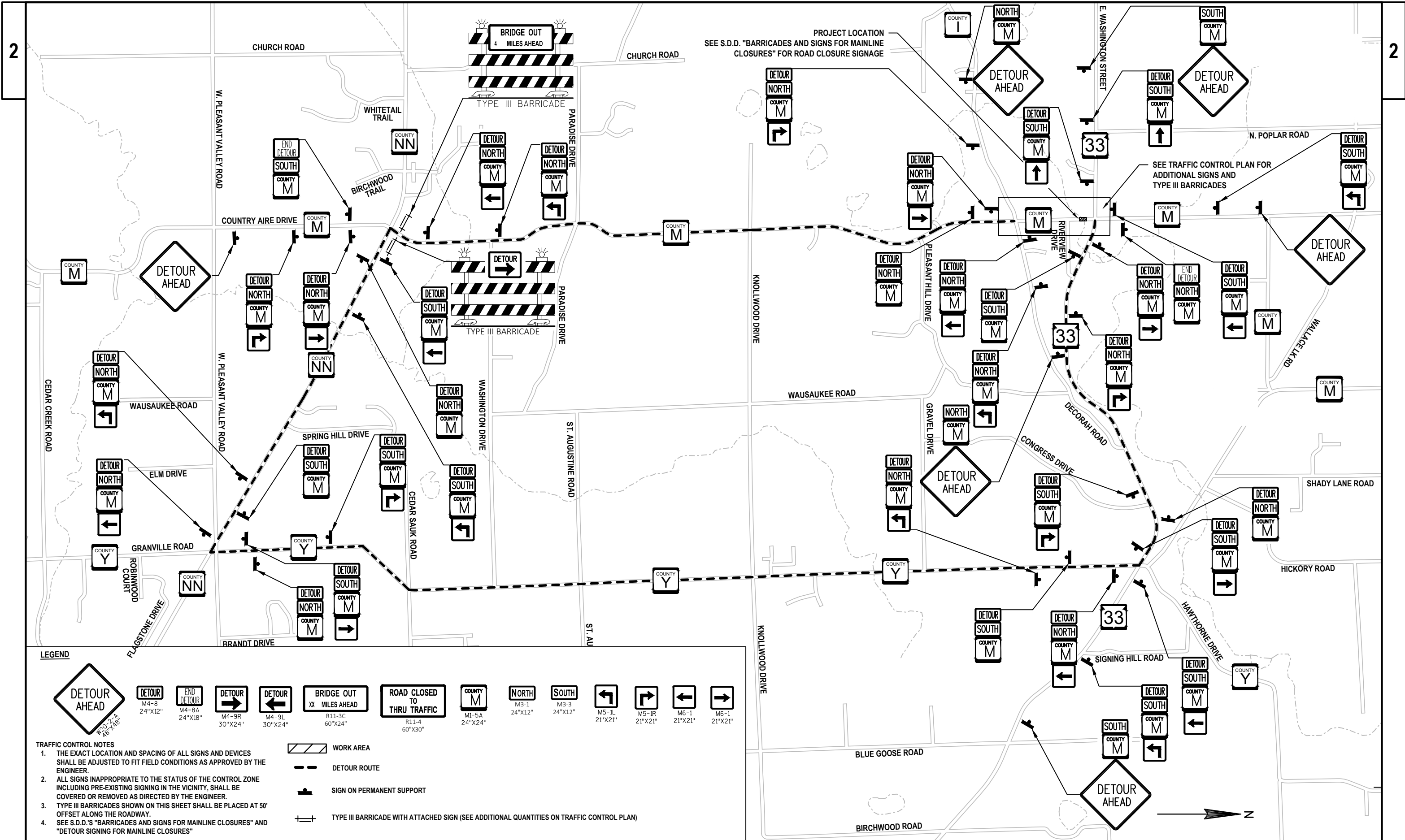


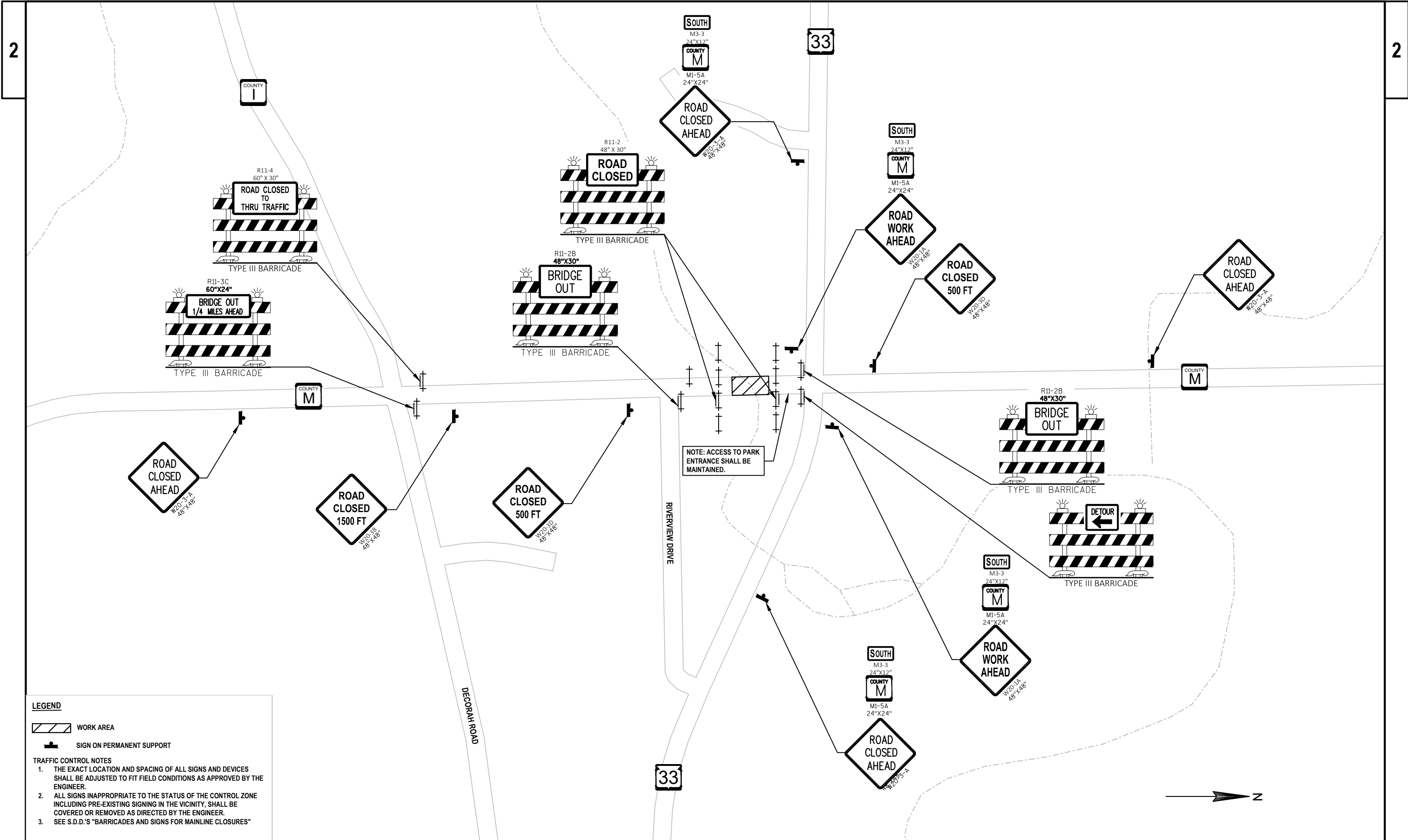
NOTES:

- ① DRIVEN STEEL POSTS, PIPES, OR CHANNELS. LENGTH SHALL BE SUFFICIENT TO SECURELY SUPPORT BARRIER AT HIGH WATER ELEVATIONS.
- ② ROCK BAGS TO BE USED AS ADDITIONAL BALLAST WHEN ORDERED BY THE ENGINEER TO MEET ADVERSE FIELD CONDITIONS. ROCK BAGS SHALL BE CONTINUOUS WITH NO SPACING.
- ③ WHEN BARRIER HEIGHT, H, EXCEEDS 8 FT., POST SPACING MAY NEED TO BE DECREASED.
- ④ IN WATERWAYS SUBJECT TO FLUCTUATING WATER ELECTIONS, PROVISIONS SHOULD BE MADE TO ALLOW THE WATER TO EQUALIZE ON EACH SIDE OF THE BARRIER. THIS MAY BE ACCOMPLISHED BY LEAVING A PORTION OF THE BARRIER OPEN ON THE UPSTREAM END.
- ⑤ ESTIMATED HIGH WATER ELEVATION DURING CONSTRUCTION PERIOD, MINIMUM BARRIER HEIGHT SHALL BE 2' GREATER THAN EITHER THE Q2 OR THE ESTIMATED HIGH WATER ELEVATION DURING CONSTRUCTION, WHICHEVER IS GREATER.
- ⑥ ALLOW SUFFICIENT SLACK VERTICALLY AND HORIZONTALLY SO THAT SEDIMENT BUILD UP WILL NOT SEPARATE OR LOWER THE TURBIDITY BARRIER.
- ⑦ INSTALL TURBIDITY BARRIER WITH THE BALLAST PLACED NO MORE THAN 1' AWAY FROM THE TOE OF THE RIPRAP.

ENHANCED TURBIDITY BARRIER DETAIL







LEGEND

WORK AREA

SIGN ON PERMANENT SUPPORT

TRAFFIC CONTROL NOTES

- THE EXACT LOCATION AND SPACING OF ALL SIGNS AND DEVICES SHALL BE ADJUSTED TO FIT FIELD CONDITIONS AS APPROVED BY THE ENGINEER.
- ALL SIGNS INAPPROPRIATE TO THE STATUS OF THE CONTROL ZONE INCLUDING PRE-EXISTING SIGNING IN THE VICINITY, SHALL BE COVERED OR REMOVED AS DIRECTED BY THE ENGINEER.
- SEE S.D.D.'S "BARRICADES AND SIGNS FOR MAINLINE CLOSURES"

Estimate Of Quantities

2745-00-71

Line	Item	Item Description	Unit	Total	Qty
0002	201.0105	Clearing	STA	4.000	4.000
0004	201.0205	Grubbing	STA	4.000	4.000
0006	203.0600.S	Removing Old Structure Over Waterway With Minimal Debris (station) 01. 10+00	LS	1.000	1.000
0008	205.0100	Excavation Common	CY	264.000	264.000
0010	206.1000	Excavation for Structures Bridges (structure) 01. B-66-198	LS	1.000	1.000
0012	206.5000	Cofferdams (structure) 01. B-66-198	LS	1.000	1.000
0014	208.0100	Borrow	CY	58.000	58.000
0016	210.1500	Backfill Structure Type A	TON	370.000	370.000
0018	213.0100	Finishing Roadway (project) 01. 2745-00-71	EACH	1.000	1.000
0020	305.0110	Base Aggregate Dense 3/4-Inch	TON	18.000	18.000
0022	305.0120	Base Aggregate Dense 1 1/4-Inch	TON	805.000	805.000
0024	311.0110	Breaker Run	TON	80.000	80.000
0026	415.0410	Concrete Pavement Approach Slab	SY	146.000	146.000
0028	455.0605	Tack Coat	GAL	34.000	34.000
0030	465.0105	Asphaltic Surface	TON	190.000	190.000
0032	502.0100	Concrete Masonry Bridges	CY	722.000	722.000
0034	502.3200	Protective Surface Treatment	SY	859.000	859.000
0036	505.0400	Bar Steel Reinforcement HS Structures	LB	9,560.000	9,560.000
0038	505.0600	Bar Steel Reinforcement HS Coated Structures	LB	87,910.000	87,910.000
0040	513.7084	Railing Steel Type NY4	LF	403.000	403.000
0042	516.0500	Rubberized Membrane Waterproofing	SY	20.000	20.000
0044	521.1018	Apron Endwalls for Culvert Pipe Steel 18-Inch	EACH	2.000	2.000
0046	530.0118	Culvert Pipe Corrugated Polyethylene 18-Inch	LF	113.000	113.000
0048	550.0500	Pile Points	EACH	36.000	36.000
0050	550.1100	Piling Steel HP 10-Inch X 42 Lb	LF	2,125.000	2,125.000
0052	606.0300	Riprap Heavy	CY	285.000	285.000
0054	612.0406	Pipe Underdrain Wrapped 6-Inch	LF	210.000	210.000
0056	618.0100	Maintenance And Repair of Haul Roads (project) 01. 2745-00-71	EACH	1.000	1.000
0058	619.1000	Mobilization	EACH	1.000	1.000
0060	624.0100	Water	MGAL	48.000	48.000
0062	625.0500	Salvaged Topsoil	SY	750.000	750.000
0064	627.0200	Mulching	SY	1,065.000	1,065.000
0066	628.1504	Silt Fence	LF	555.000	555.000
0068	628.1520	Silt Fence Maintenance	LF	555.000	555.000
0070	628.1905	Mobilizations Erosion Control	EACH	2.000	2.000
0072	628.1910	Mobilizations Emergency Erosion Control	EACH	2.000	2.000
0074	628.2008	Erosion Mat Urban Class I Type B	SY	50.000	50.000

Estimate Of Quantities

2745-00-71

Line	Item	Item Description	Unit	Total	Qty
0076	628.6005	Turbidity Barriers	SY	345.000	345.000
0078	628.7570	Rock Bags	EACH	218.000	218.000
0080	629.0210	Fertilizer Type B	CWT	0.900	0.900
0082	630.0130	Seeding Mixture No. 30	LB	27.000	27.000
0084	630.0200	Seeding Temporary	LB	38.000	38.000
0086	630.0500	Seed Water	MGAL	32.000	32.000
0088	633.5200	Markers Culvert End	EACH	2.000	2.000
0090	634.0612	Posts Wood 4x6-Inch X 12-FT	EACH	12.000	12.000
0092	637.2210	Signs Type II Reflective H	SF	44.000	44.000
0094	637.2230	Signs Type II Reflective F	SF	12.000	12.000
0096	638.2602	Removing Signs Type II	EACH	10.000	10.000
0098	638.3000	Removing Small Sign Supports	EACH	10.000	10.000
0100	642.5001	Field Office Type B	EACH	1.000	1.000
0102	643.0420	Traffic Control Barricades Type III	DAY	2,220.000	2,220.000
0104	643.0705	Traffic Control Warning Lights Type A	DAY	3,774.000	3,774.000
0106	643.0900	Traffic Control Signs	DAY	19,536.000	19,536.000
0108	643.5000	Traffic Control	EACH	1.000	1.000
0110	645.0111	Geotextile Type DF Schedule A	SY	76.000	76.000
0112	645.0120	Geotextile Type HR	SY	525.000	525.000
0114	646.1020	Marking Line Epoxy 4-Inch	LF	1,600.000	1,600.000
0116	650.4500	Construction Staking Subgrade	LF	228.000	228.000
0118	650.5000	Construction Staking Base	LF	228.000	228.000
0120	650.6000	Construction Staking Pipe Culverts	EACH	1.000	1.000
0122	650.6500	Construction Staking Structure Layout (structure) 01. B-66-198	LS	1.000	1.000
0124	650.7000	Construction Staking Concrete Pavement	LF	38.000	38.000
0126	650.9910	Construction Staking Supplemental Control (project) 01. 2745-00-71	LS	1.000	1.000
0128	650.9920	Construction Staking Slope Stakes	LF	228.000	228.000
0130	690.0150	Sawing Asphalt	LF	55.000	55.000
0132	715.0415	Incentive Strength Concrete Pavement	DOL	500.000	500.000
0134	715.0502	Incentive Strength Concrete Structures	DOL	4,332.000	4,332.000
0136	999.1500.S	Crack and Damage Survey	LS	1.000	1.000
0138	ASP.1T0A	On-the-Job Training Apprentice at \$5.00/HR	HRS	900.000	900.000
0140	ASP.1T0G	On-the-Job Training Graduate at \$5.00/HR	HRS	850.000	850.000

CLEARING & GRUBBING					
CATEGORY	STATION	TO STATION	LOCATION	(201.0105)	(201.0205)
				CLEARING STA	GRUBBING STA
0010	8+00	12+00	LT & RT	4	4
PROJECT TOTALS				4	4

CONCRETE PAVEMENT APPROACH SLAB			
CATEGORY	STATION	TO STATION	(415.0410)
			SY
0010	8+95.00	9+20.50	73
	10+79.50	11+05.00	73
PROJECT TOTAL			146

BASE AGGREGATE DENSE					
CATEGORY	STATION	TO STATION	(305.0110)	(305.0120)	(624.0100)
			3/4-INCH TON	1 1/4-INCH TON	WATER MGAL
0010	8+00.00	8+95.00	11	395	8
	10+86.33	12+00.00	7	410	8
PROJECT TOTALS			18	805	16

ASPHALTIC SURFACE				
CATEGORY	STATION	TO STATION	(455.0605)	(465.0105)
			TACK COAT GAL	ASPHALTIC SURFACE TON
0010	8+00.00	8+95.00	17	95
	10+86.33	12+00.00	17	95
PROJECT TOTALS			34	190

EARTHWORK PROJECT I.D. 2745-00-71

Division	From/To Station	Location	Common Excavation (item # 205.0100) (1)		Salvaged /Unusable Pavement Material (4)	Available Material (5)	Unexpanded Fill	Expanded Fill (6)	Mass Ordinate +/- (7)	Waste	Select Borrow (item #208.1100)	Comment:
			Cut (2)	EBS Excavation (3)				Factor				
1	8+00 to 8+95	South CTH M	196	0	0	196	209	272	-76	-76	76	
2	11+05 to 11+50	North CTH M	68	0	0	68	38	50	19	19	-19	
	STRUCTURE B-66-0198		0	0	0	0	0	0	0	0	0	
	UNDISTRIBUTED EBS		0	0	0	0	0	0	0	0	0	
Grand Total			264	0	0	264	248	322	-58	-58	58	
			264									

- 1) Common Excavation is the sum of the Cut and EBS Excavation columns. Item number 205.0100
- 2) Salvaged/Unusable Pavement Material is included in Cut.
- 3) EBS Excavation to be backfilled with Breaker Run material.
- 4) Salvaged/Unusable Pavement Material
- 5) Available Material = Cut - Salvaged/Unusable Pavement Material
- 6) Expanded Fill. Factor = 1.25
- 7) The Mass Ordinate + or - Qty calculated for the Division. Plus quantity indicates an excess of material within the Division. Minus indicates a shortage of material within the Division.

CULVERT PIPE					
CATEGORY	STATION	LOCATION	(530.0118) CULVERT PIPE CORRUGATED POLYETHYLENE 18-INCH LF	(521.1018) APRON ENDWALLS FOR CULVERT PIPE STEEL 18-INCH EACH	(650.6000) CONSTRUCTION STAKING CULVERT PIPES EACH
			LF	EACH	EACH
0010	11+36	LT	113	2	1
PROJECT TOTALS			113	2	1

MAINTENANCE AND REPAIR OF HAUL ROADS		
CATEGORY	DESCRIPTION	(618.0100) EACH
		EACH
0030	PROJECT 2745-00-71	1
PROJECT TOTAL		1

FINISHING ITEMS										
CATEGORY	STATION	TO STATION	LOCATION	(625.0500)	(627.0200)	(629.0210)	(630.0130)	(630.0200)	(630.0500)	(628.2008)
				SALVAGED TOPSOIL SY	MULCHING SY	FERTILIZER TYPE B CWT	SEEDING MIXTURE NO. 30 LB	SEEDING TEMPORARY LB	SEED WATER MGAL	EROSION MAT URBAN CLASS I TYPE B SY
0010	8+00	9+10	RT	165	240	0.20	6	9	7	-
	8+00	8+95	LT	190	245	0.20	6	9	7	-
	11+05	12+00	RT	75	130	0.15	4	6	5	-
	10+90	12+00	LT	170	250	0.20	6	9	7	-
	UNDISTRIBUTED			150	200	0.15	5	5	6	50
PROJECT TOTALS				750	1,065	0.90	27	38	32	50

SILT FENCE					
CATEGORY	STATION	TO STATION	LOCATION	(628.1504)	(628.1520)
				LF	MAINTENANCE LF
0010	8+00	9+50	RT	155	155
	8+00	8+85	LT	95	95
	10+90	12+00	RT	50	50
	10+60	12+00	LT	150	150
	UNDISTRIBUTED			105	105
PROJECT TOTALS				555	555

MOBILIZATIONS EROSION CONTROL			
CATEGORY	DESCRIPTION	(628.1905) EACH	(628.1910) EMERGENCY EACH
		EACH	EACH
0010	PROJECT 2745-00-71	2	2
PROJECT TOTALS		2	2

TURBIDITY BARRIERS		
CATEGORY	LOCATION	(628.6005) SY
		SY
0010	SOUTH ABUT	170
	NORTH ABUT	150
	UNDISTRIBUTED	25
PROJECT TOTAL		345

ROCK BAGS		
CATEGORY	LOCATION	(628.7570) EACH
		EACH
0010	SOUTH ABUT	112
	NORTH ABUT	106
	PROJECT TOTAL	218

MARKERS CULVERT END			
CATEGORY	STATION	LOCATION	(633.5200) EACH
			EACH
0010	10+80	27.5' LT	1
	11+93	27.8' LT	1
	PROJECT TOTAL		2

PERMANENT SIGNING										
CATEGORY	STATION	LOCATION	SIGN CODE	SIZE	(637.2210)	(637.2230)	(634.0612)	#	(638.3000)	NOTES
					SIGNS TYPE II REFLECTIVE H	SIGNS TYPE II REFLECTIVE F	POSTS WOOD 4X6-INCH X 12-FT	REMOVING SIGNS TYPE II	REMOVING SMALL SIGN SUPPORTS	
					SF	SF	EACH	EACH	EACH	
0010	8+15	RT	D1-2	30" X 72"	15.00	-	2	-	-	WEST BEND/SAUKVILLE DIRECTIONAL
	8+54	RT	-	-	-	-	-	1	1	WEST BEND/SAUKVILLE DIRECTIONAL
	8+93	LT	W5-52L	12" X 36"	-	3.00	1	-	-	BRIDGE HASH MARKS
	9+04	RT	-	-	-	-	-	1	1	MILWAUKEE RIVER
	8+60	RT	I3-1	24" X 60"	10.00	-	2	-	-	MILWAUKEE RIVER
	9+06	LT	-	-	-	-	-	1	1	EXISTING BRIDGE HASH MARKS
	9+07	RT	W5-52R	12" X 36"	-	3.00	1	-	-	BRIDGE HASH MARKS
	9+16	RT	-	-	-	-	-	1	1	EXISTING BRIDGE HASH MARKS
	10+85	LT	-	-	-	-	-	1	1	EXISTING BRIDGE HASH MARKS
	10+93	LT	W5-52R	12" X 36"	-	3.00	1	-	-	BRIDGE HASH MARKS
	10+95	RT	-	-	-	-	-	1	1	EXISTING BRIDGE HASH MARKS
	10+95	LT	-	-	-	-	-	1	1	MILWAUKEE RIVER
	11+07	RT	W5-52L	12" X 36"	-	3.00	1	-	-	BRIDGE HASH MARKS
	11+35	LT	-	-	-	-	-	1	1	CTH M
	11+35	LT	I3-1	24" X 60"	10.00	-	2	-	-	MILWAUKEE RIVER
	11+75	LT	M1-5A	24" X 24"	4.00	-	1	-	-	CTH M
	11+81	LT	-	-	-	-	-	1	1	SPEED LIMIT 35 MPH
	12+50	LT	R2-1	24" X 30"	5.00	-	1	-	-	SPEED LIMIT 35 MPH
	12+69	LT	-	-	-	-	-	1	1	NARROW BRIDGE
PROJECT TOTALS					44.00	12.00	12	10	10	

COORDINATE WITH WASHINGTON COUNTY TO PICK UP SIGNS AFTER REMOVAL

DETOUR ROUTE								
			*		*		*	
			TRAFFIC CONTROL	(643.0420)		(643.0705)		(643.0900)
			BARRICADES	TRAFFIC CONTROL	WARNING	TRAFFIC CONTROL	TRAFFIC	TRAFFIC
			TYPE III	BARRICADES	LIGHTS	WARNING LIGHTS	CONTROL	CONTROL
			NO. DEVICES	TYPE III	TYPE A	TYPE A	SIGNS	SIGNS
CATEGORY	LOCATION	DAYS	NO. DEVICES	DAYS	NO. DEVICES	DAYS	NO. DEVICES	DAYS
0010	PROJECT 2745-00-71	-	-	-	-	-	-	-
	CTH M	111	14	1,554	22	2,442	12	1,332
	WIS 33	111	-	-	-	-	12	1,332
	UNDISTRUBUTED	111	2	222	4	444	2	222
PROJECT TOTALS				1,776		2,886		2,886

*ADDITIONAL QUANTITIES FOUND ESLEWHERE

TRAFFIC CONTROL									
CATEGORY	LOCATION	PROJECT DURATION DAYS	(643.5000) TRAFFIC CONTROL		(643.0420) TRAFFIC CONTROL BARRICADES TYPE III		(643.0705) WARNING LIGHTS TYPE A		(643.0900) TRAFFIC CONTROL SIGNS
			EACH		NO. DEVICES		NO. DEVICES		NO. DEVICES
0010	PROJECT 3849-00-72	-	1		-		-		-
	CTH M	111	-		2		4		38
	WIS 33	111	-		-		-		47
	CTH I/DECORAH ROAD	111	-		-		-		19
	CTH Y	111	-		-		-		22
	CTH NN	111	-		-		-		22
	UNDISTRUBUTED	111	-		2		4		2
PROJECT TOTALS			1		444		888		16,650

*ADDITIONAL QUANTITIES FOUND ESLEWHERE

PROJECT NO: 2745-00-71

HWY: CTH M

COUNTY: WASHINGTON

MISCELLANEOUS QUANTITIES

SHEET

E

MARKING LINE EPOXY 4-INCH					
(646.1020)					
CATEGORY	STATION	TO STATION	(YELLOW) LF	(WHITE) LF	NOTES
0010	8+00	12+00	800	800	SOLID DOUBLE YELLOW CENTERLINE & EDGELINES
PROJECT TOTAL			1,600		

CONSTRUCTION STAKING							
		(650.4500) SUBGRADE	(650.5000) BASE	(650.7000) CONCRETE PAVEMENT	(650.9910.01) SUPPLEMENTAL CONTROL	(650.9920) SLOPE STAKES	
CATEGORY	STATION	TO STATION	LF	LF	LF	LS	LF
0010	8+00.00	8+95.00	95	95	-	-	95
	8+95.00	9+13.67	19	19	19	-	19
	10+86.34	11+05.00	19	19	19	-	19
	11+05.00	12+00.00	95	95	-	-	95
PROJECT 2745-00-71			-	-	-	1	-
PROJECT TOTALS			228	228	38	1	228

SAWING ASPHALT		
(690.0150)		
CATEGORY	STATION	LF
0010	8+00	23
	12+00	32
PROJECT TOTAL		55

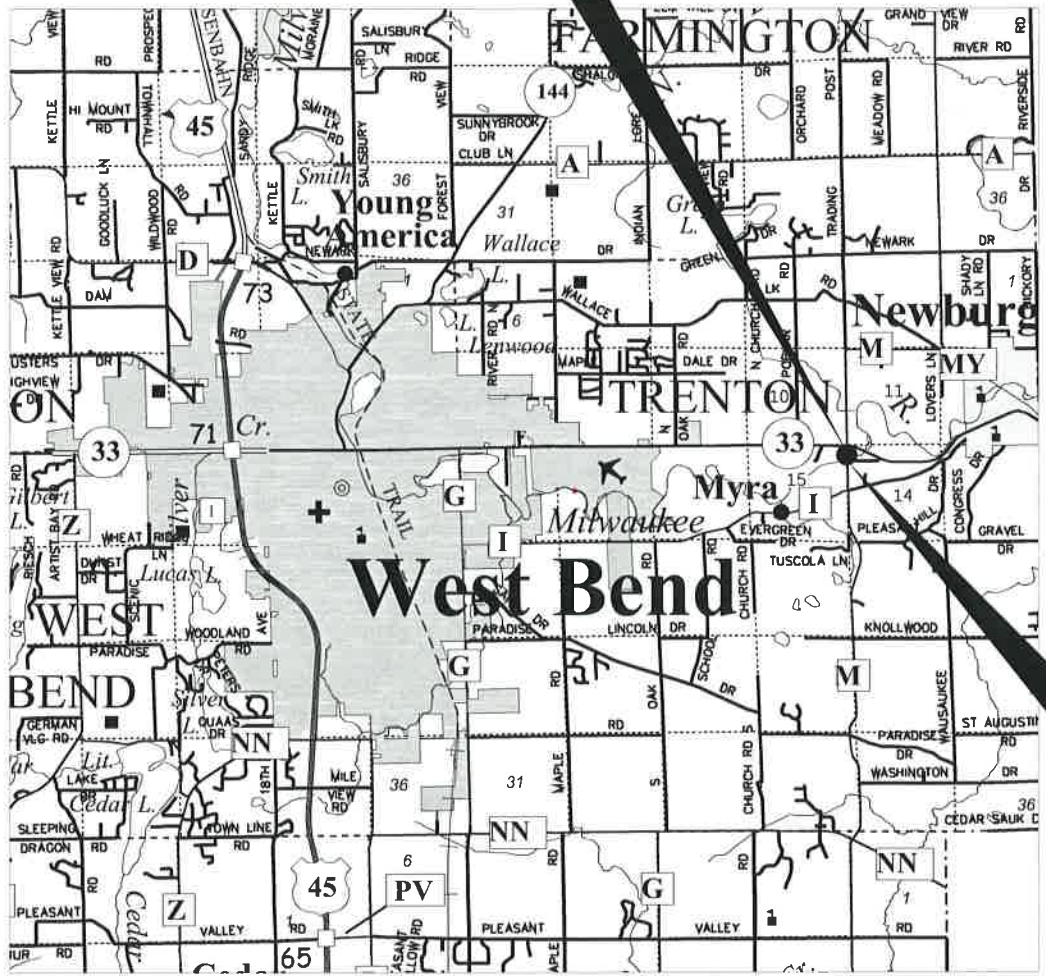
CONVENTIONAL SYMBOLS			
SECTION LINE		PARCEL NUMBER	
QUARTER LINE		UTILITY NUMBER	
SIXTEENTH LINE			
NEW REFERENCE LINE		SECTION CORNER	
NEW R/W LINE			
EXISTING R/W LINE		NOTATION FOR COMBUSTIBLE FLUIDS	
PROPERTY LINE			
LOT, TIE, AND OTHER MINOR LINES		NOTATION FOR HIGH VOLTAGE TRANSMISSION LINES	
SLOPE INTERCEPT			
CORPORATE LIMITS			
UNDERGROUND FACILITY (COMMUNICATIONS, ELECTRIC, ETC.)			
FEE ACQUISITION AREA (HATCHING VARIES BY OWNER)			
TEMP. LIMITED EASEMENT AREA			
EASEMENT AREA (HIGHWAY, PERMANENT LIMITED, OR RESTRICTED DEVELOPMENT)			
TRANSMISSION STRUCTURES			
BUILDING			
BUILDING (TO BE REMOVED)			
BRIDGE			

CONVENTIONAL UTILITY SYMBOLS		
WATER	W	
GAS	G	
TELEPHONE	T	
OVERHEAD TRANSMISSION LINES	OH	
ELECTRIC	E	
CABLE TELEVISION	TV	
FIBER OPTIC	FO	
SANITARY SEWER	SAN	
STORM SEWER	SS	
ELECTRIC TOWER		
POWER POLE	NON-COMPENSABLE	COMPENSABLE
TELEPHONE POLE		
TELEPHONE PEDESTAL		

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

END RELOCATION
ORDER STA.12+00.00
Y = 525,307.909
X = 2,509,764.783

APPROXIMATELY 190 FEET SOUTH OF AND 6 FEET EAST OF THE NORTHEAST CORNER OF SECTION 15, T-11-N, R-20-E, TOWN OF TRENTON, WASHINGTON COUNTY, WI.



BEGIN RELOCATION
ORDER STA.8+00.00
Y = 524,908.117
X = 2,509,777.654
APPROXIMATELY 590 FEET SOUTH OF AND 19 FEET EAST OF THE NORTHEAST CORNER OF SECTION 15, T-11-N, R-20-E, TOWN OF TRENTON, WASHINGTON COUNTY, WI.

LAYOUT
SCALE 0 2 MI
TOTAL NET LENGTH OF CENTERLINE = 0.076

RECEIVED
DEC 13 2018
Washington County Clerk

R/W PROJECT NUMBER	SHEET NUMBER	TOTAL SHEETS
2745-00-01	4.01	2
PLAT OF RIGHT OF WAY REQUIRED FOR CTH M MILWAUKEE RIVER BRIDGE (B-66-0945) CTH M WASHINGTON COUNTY CONSTRUCTION NUMBER: 2745-00-71		

CAUTION:
THIS PLAT IS FOR ILLUSTRATIVE PURPOSES ONLY. DEEDS MUST BE CHECKED TO DETERMINE PROPERTY BOUNDARIES.

NOTES:
POSITIONS SHOWN ON THIS PLAT ARE STATE PLANE COORDINATES, SOUTH ZONE, NAD27 IN US SURVEY FEET. VALUES SHOWN ARE GRID COORDINATES, GRID BEARINGS, AND GRID DISTANCES. GRID DISTANCES MAY BE CONVERTED TO GROUND DISTANCES WITH A SCALE FACTOR OF 1.0003698.

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

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

PROPERTY LINES SHOWN ON THIS PLAT ARE DRAWN FROM DATA DERIVED FROM MAPS AND DOCUMENTS OF PUBLIC RECORD AND/OR EXISTING OCCUPATIONAL LINES. THIS PLAT MAY NOT BE A TRUE REPRESENTATION OF EXISTING PROPERTY LINES, EXCLUDING RIGHT-OF-WAY, AND SHOULD NOT BE USED AS A SUBSTITUTE FOR AN ACCURATE FIELD SURVEY.

EXISTING RIGHT-OF-WAY SHOWN HEREIN IS BASED ON THE FOLLOWING POINTS OF REFERENCE:
EXISTING RIGHT-OF-WAY FOR CTH M IS ESTABLISHED BY CSM #3646, SCHMITZ PLAT OF SURVEY, WEIS PLAT OF SURVEY, PREVIOUS PROJECT T029-1[20] AND PREVIOUS PROJECT 1413-3-21.

A TEMPORARY LIMITED EASEMENT (TLE) IS A RIGHT FOR CONSTRUCTION PURPOSES, AS DEFINED HEREIN, INCLUDING THE RIGHT TO OPERATE NECESSARY EQUIPMENT THEREON, THE RIGHT OF INGRESS AND EGRESS, AS LONG AS REQUIRED FOR SUCH PUBLIC PURPOSE, INCLUDING THE RIGHT TO PRESERVE, PROTECT, REMOVE, OR PLANT THEREON ANY VEGETATION THAT THE HIGHWAY AUTHORITIES MAY DEEM DESIRABLE. ALL (TLEs) ON THIS PLAT EXPIRE AT THE COMPLETION OF THE CONSTRUCTION PROJECT FOR WHICH THIS INSTRUMENT IS GIVEN.

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

ORIGINAL PLAT PREPARED BY

2901 International Lane, Suite 300 Madison, WI 53704-3133
608-242-7779 1-800-446-0679 Fax: 608-242-5864

WISCONSIN
BRADLEY L. TISDALE
S-2824
WAUNAKEE
WI
LAND SURVEYOR

11/06/2018
(DATE)

(BRADLEY L. TISDALE, PLS S-2824)

REVISION DATE	WASHINGTON COUNTY
APPROVED FOR WASHINGTON COUNTY DATE: 12/14/18 Final Plat	Final Plat

SCHEDULE OF LANDS & INTERESTS REQUIRED

OWNER'S NAMES ARE SHOWN FOR REFERENCE PURPOSES ONLY AND ARE SUBJECT TO CHANGE PRIOR TO THE TRANSFER OF LAND INTERESTS TO WASHINGTON COUNTY.

PARCEL NUMBER	OWNER(S)	INTEREST REQUIRED	FEE ACRES REQUIRED			TLE ACRES REQUIRED
			NEW	EXISTING	TOTAL	
1	FREDERICK B. AND AMY F. KAFTAN	TLE	--	--	--	0.03
2	JEFFREY J. AND BARBARA A. MUTZ	TLE	--	--	--	0.02
3	WASHINGTON COUNTY	TLE	--	--	--	0.01
4	JOSEPH STEFFES	TLE	--	--	--	0.04

RW POINT	STATION	OFFSET	Y	X
1	8+00.00	33.54 L	524,906.992	2,509,744.131
2	12+00.00	33.14 L	525,307.038	2,509,731.659
3	12+00.00	32.86 R	525,308.773	2,509,797.637
4	8+00.00	32.46 R	524,909.205	2,509,810.094

TLE POINT	STATION	OFFSET
T1	8+00.00	50.00 L
T2	8+83.46	50.00 L
T3	8+87.10	48.27 L
T4	8+90.64	40.81 L
T5	8+90.62	33.35 L
T6	10+97.30	32.99 L
T7	10+99.45	55.00 L
T8	11+50.00	37.00 L
T9	11+82.46	33.05 L
T10	11+53.12	33.09 R
T11	10+94.30	49.52 R
T12	10+82.93	32.99 R
T13	9+19.93	32.70 R
T14	9+22.14	41.00 R
T15	9+00.00	50.00 R
T16	8+00.00	45.00 R

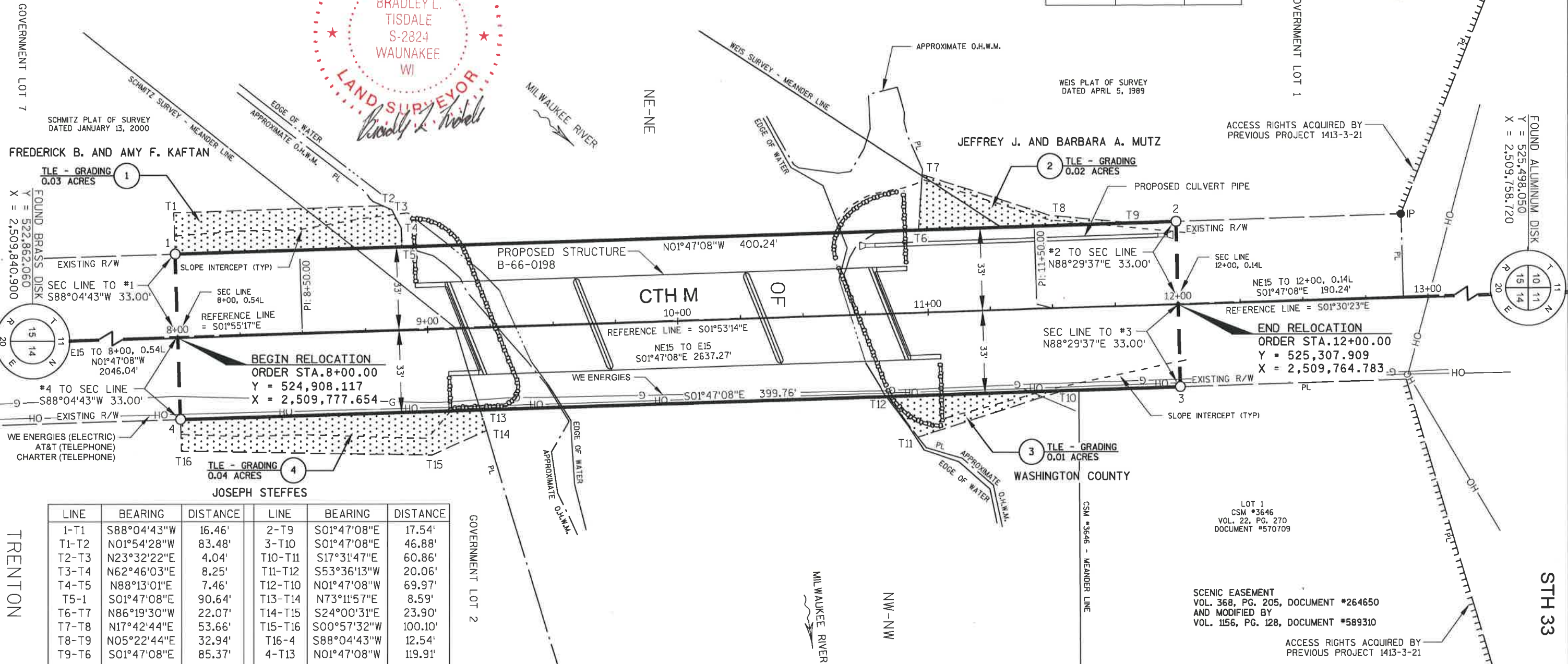
ALIGNMENT INFORMATION

PI = STA 8+00
Y = 524,908.117
X = 2,509,777.654
DA = N01°55'17"W
PI = STA 8+50.00
Y = 524,958.090
X = 2,509,775.978
DA = N01°53'14"W
PI = STA 11+50.00
Y = 525,257.926
X = 2,509,766.098
DA = N01°30'23"W
PI = STA 12+00.00
Y = 525,307.909
X = 2,509,764.783

RECEIVED

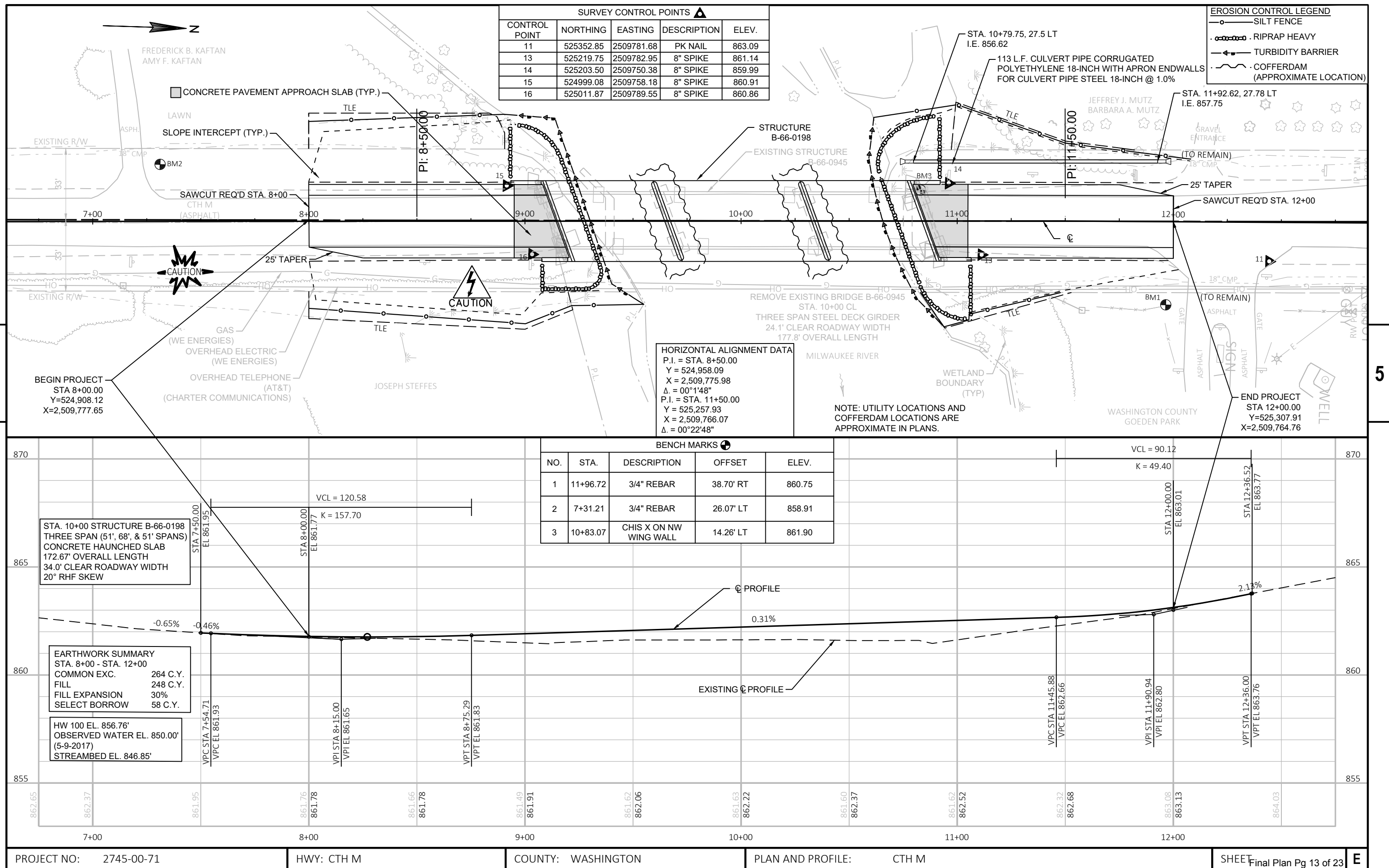
DEC 18 2018

Washington County Clerk



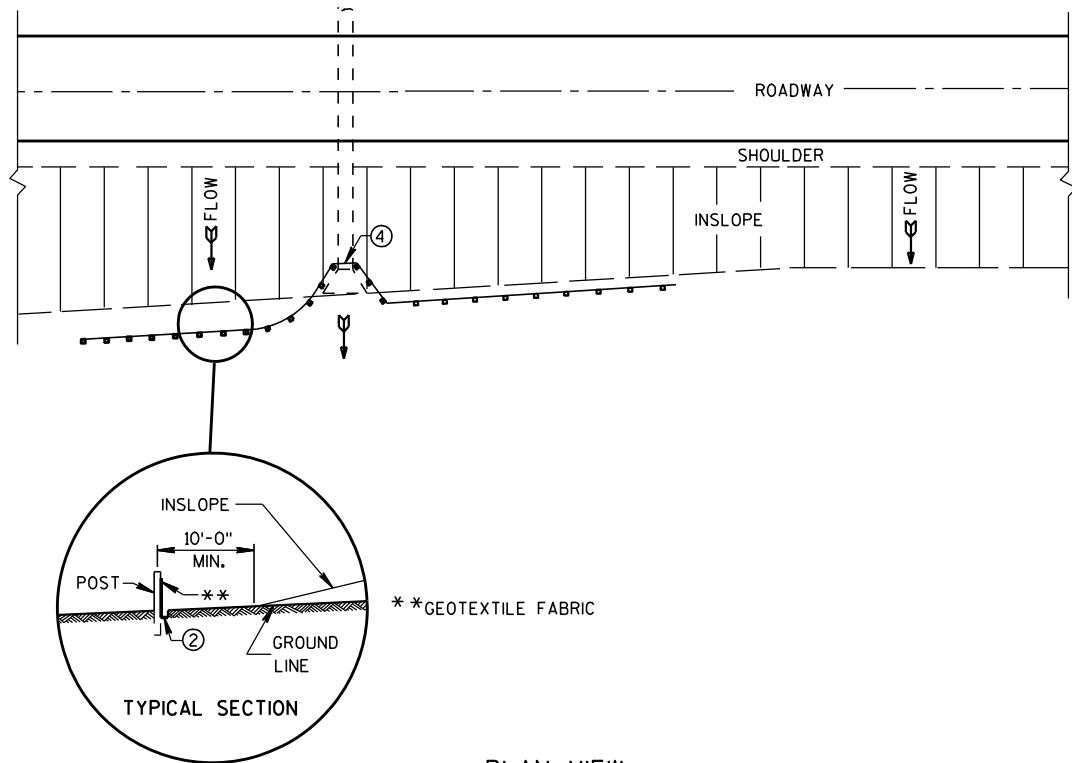
LINE	BEARING	DISTANCE	LINE	BEARING	DISTANCE
1-T1	S88°04'43\"W	16.46'	2-T9	S01°47'08\"E	17.54'
T1-T2	N01°54'28\"W	83.48'	3-T10	S01°47'08\"E	46.88'
T2-T3	N23°32'22\"E	4.04'	T10-T11	S17°31'47\"E	60.86'
T3-T4	N62°46'03\"E	8.25'	T11-T12	S53°36'13\"W	20.06'
T4-T5	N88°13'01\"E	7.46'	T12-T10	N01°47'08\"W	69.97'
T5-T1	S01°47'08\"E	90.64'	T13-T14	N73°11'57\"E	8.59'
T6-T7	N86°19'30\"W	22.07'	T14-T15	S24°00'31\"E	23.90'
T7-T8	N17°42'44\"E	53.66'	T15-T16	S00°57'32\"W	100.10'
T8-T9	N05°22'44\"E	32.94'	T16-4	S88°04'43\"W	12.54'
T9-T6	S01°47'08\"E	85.37'	4-T13	N01°47'08\"W	119.91'

REVISION DATE	DATE 11/06/2018	SCALE, FEET	HWY: CTH M	R/W PROJECT NUMBER 2745-00-01	PLAT SHEET 4.02
	GRID FACTOR 1.00003698	0 20 40	COUNTY: WASHINGTON	CONSTRUCTION PROJECT NUMBER 2745-00-71	PS&E SHEET Final Plan Pg 12 of 23

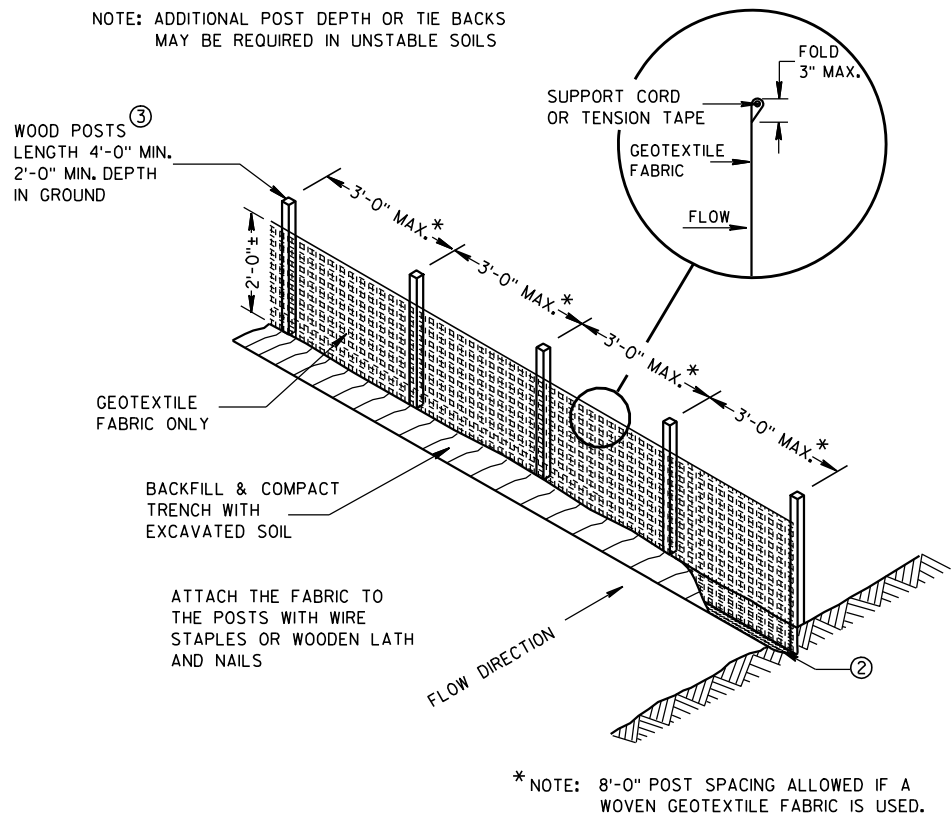


Standard Detail Drawing List

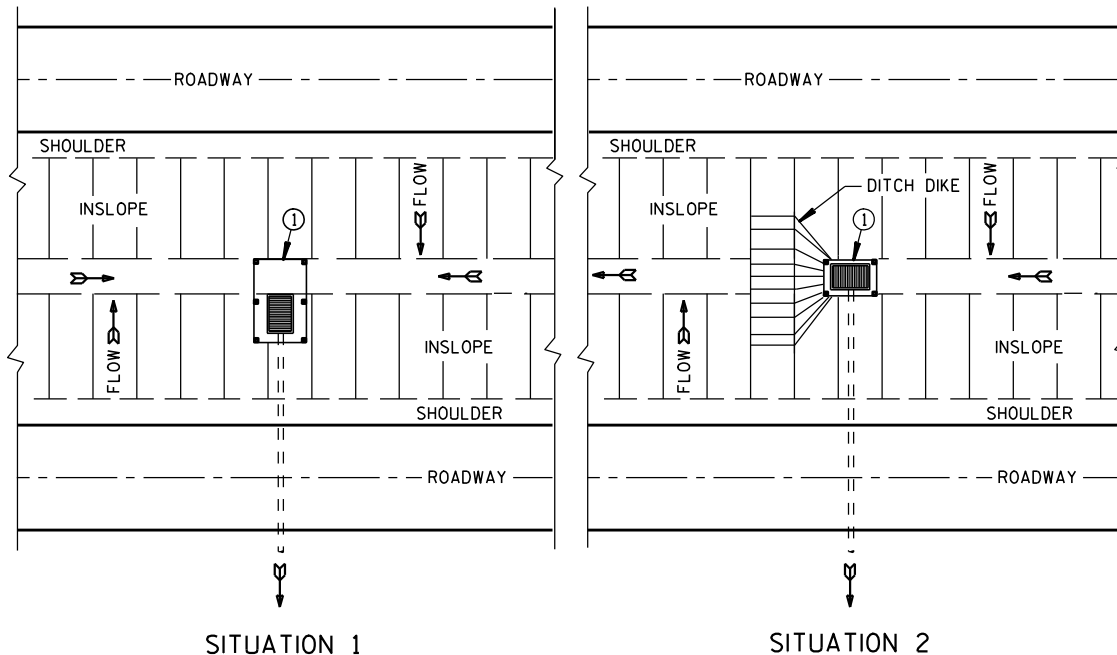
08E09-06	SILT FENCE
08E11-02	TURBIDITY BARRIER
08F07-05	STEEL APRON ENDWALLS FOR CULVERT PIPE AND PIPE ARCH SLOPED SIDE DRAINS
12A03-10	NAME PLATE (STRUCTURES)
13B02-09A	CONCRETE PAVEMENT APPROACH SLAB
15A03-02A	FLEXIBLE MARKER POST FOR CULVERT END
15A03-02B	FLEXIBLE MARKER POST FOR CULVERT END
15C02-07A	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C02-07C	DETOUR SIGNING FOR MAINLINE CLOSURES
15C06-09	SIGNING & MARKING FOR TWO LANE BRIDGES
15C08-19A	LONGITUDINAL MARKING (MAINLINE)
15C11-07B	CHANNELIZING DEVICES DRUMS, CONES, BARRICADES AND VERTICAL PANELS
15D38-02A	TEMPORARY TRAFFIC CONTROL SIGN MOUNTING
15D38-02B	ATTACHMENT OF SIGNS TO POSTS



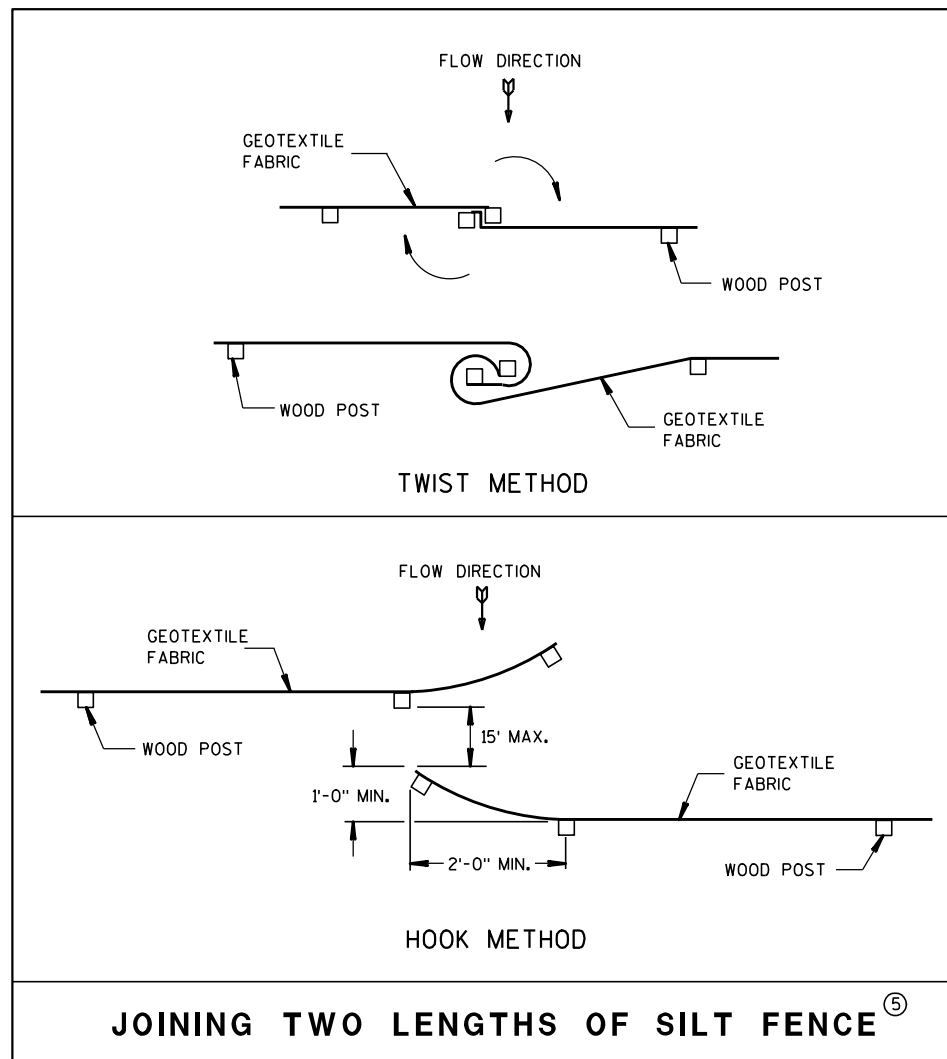
PLAN VIEW
TYPICAL APPLICATION OF SILT FENCE



SILT FENCE



PLAN VIEW
SILT FENCE AT MEDIAN SURFACE DRAINS

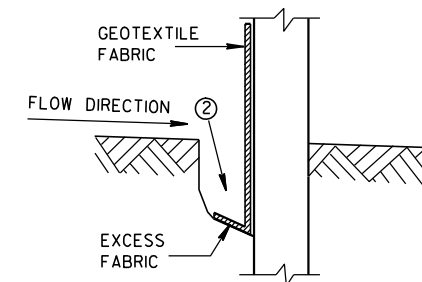


JOINING TWO LENGTHS OF SILT FENCE (5)

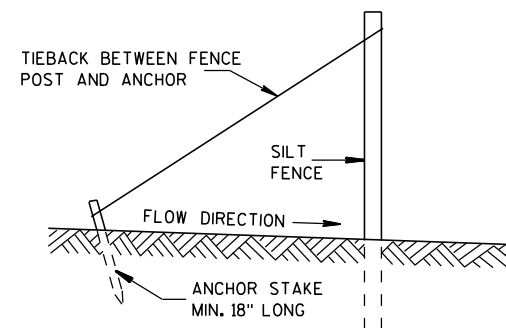
GENERAL NOTES

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

- ① HORIZONTAL BRACE REQUIRED WITH 2" X 4" WOODEN FRAME OR EQUIVALENT AT TOP OF POSTS.
- ② FOR MANUAL INSTALLATIONS THE TRENCH SHALL BE A MINIMUM OF 4" WIDE & 6" DEEP TO BURY AND ANCHOR THE GEOTEXTILE FABRIC. FOLD MATERIAL TO FIT TRENCH AND BACKFILL & COMPACT TRENCH WITH EXCAVATED SOIL.
- ③ WOOD POSTS SHALL BE A MINIMUM SIZE OF 1 1/8" X 1 1/8" OF OAK OR HICKORY.
- ④ SILT FENCE TO EXTEND ACROSS THE TOP OF THE PIPE.
- ⑤ CONSTRUCT SILT FENCE FROM A CONTINUOUS ROLL IF POSSIBLE BY CUTTING LENGTHS TO AVOID JOINTS. IF A JOINT IS NECESSARY USE ONE OF THE FOLLOWING TWO METHODS; A) OVERLAP THE END POSTS AND TWIST, OR ROTATE, AT LEAST 180 DEGREES, B) HOOK THE END OF EACH SILT FENCE LENGTH.



TRENCH DETAIL

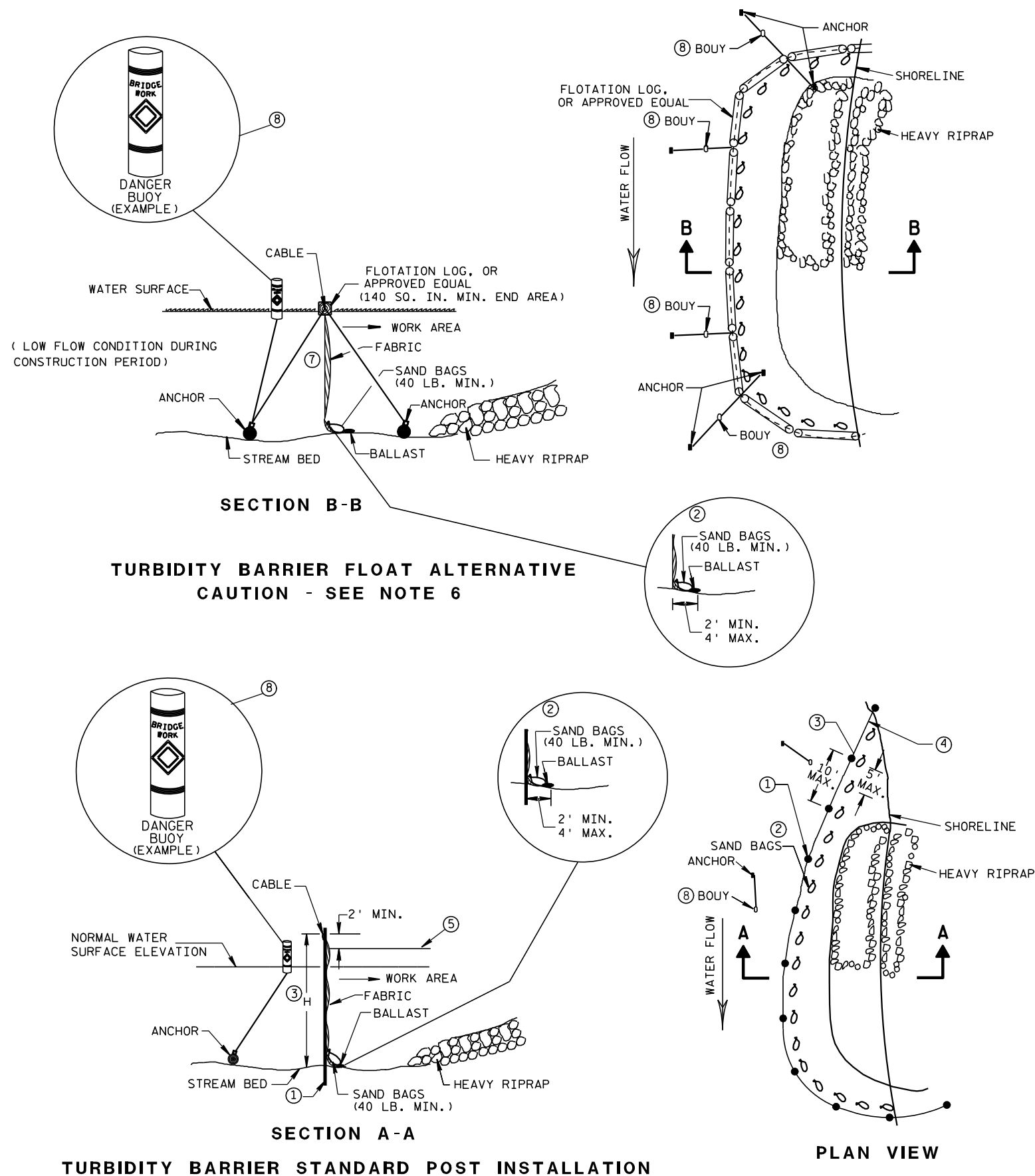


SILT FENCE TIE BACK
(WHEN REQUIRED BY THE ENGINEER)

SILT FENCE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

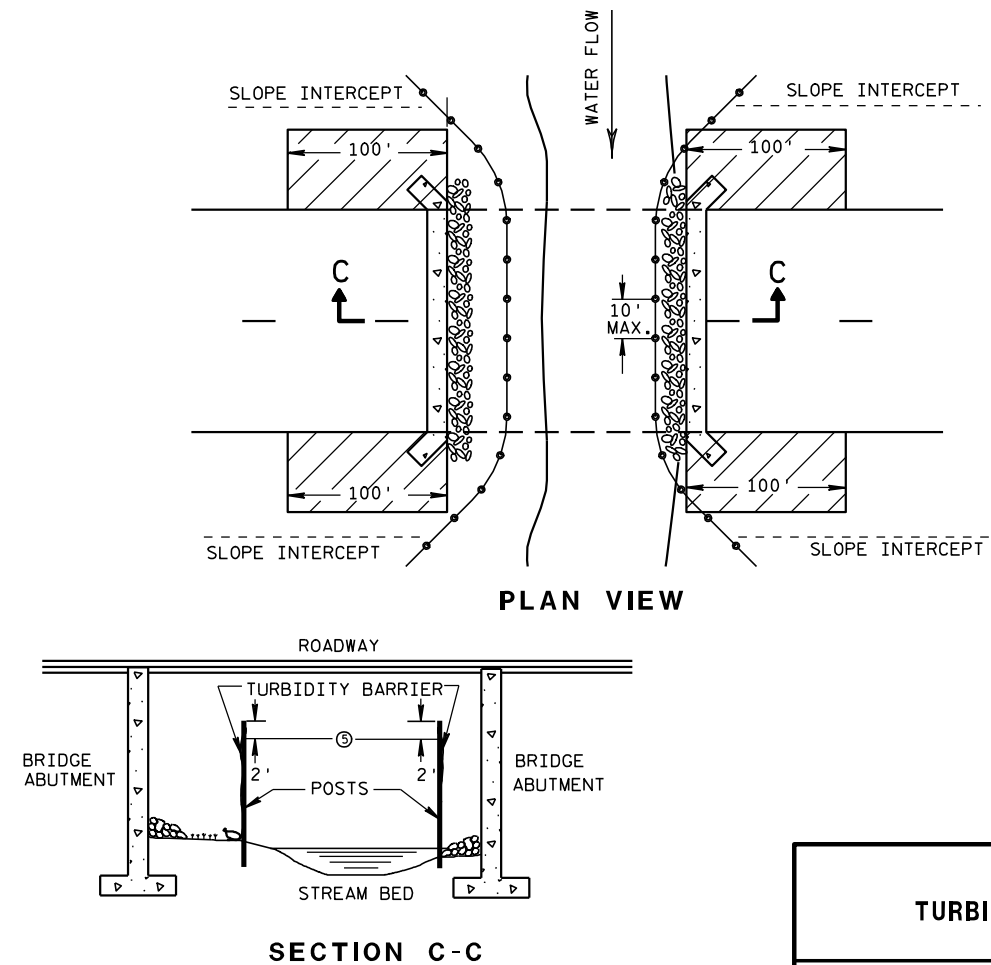


GENERAL NOTES

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

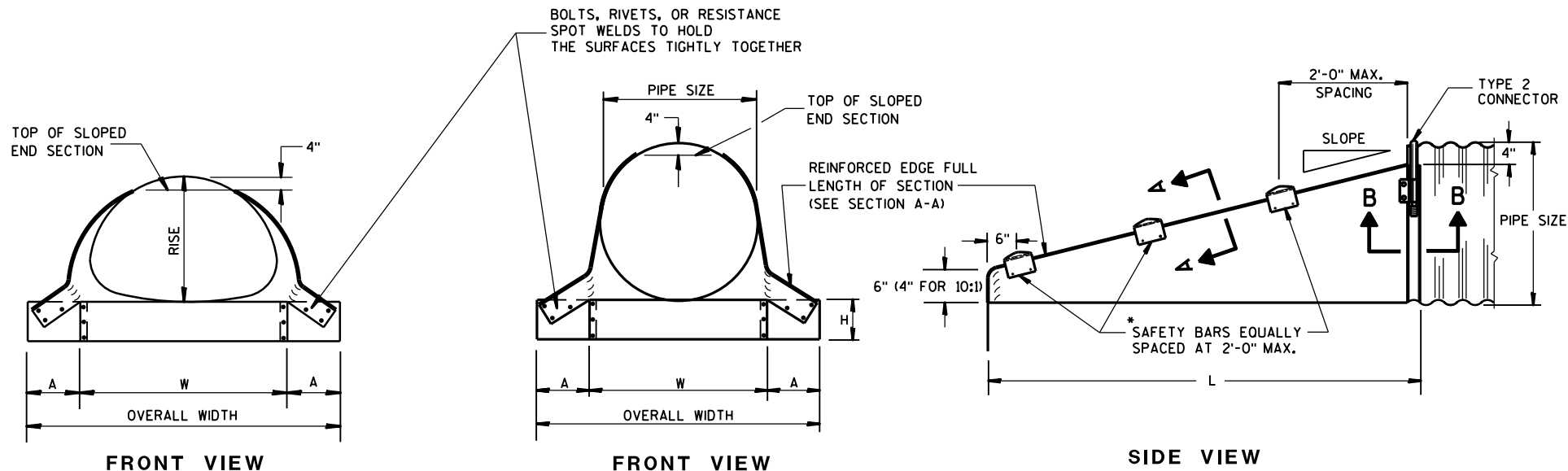
APPROVED

6/04/02

DATE

FHWA

/S/ Beth Canestra
CHIEF ROADWAY DEVELOPMENT ENGINEER



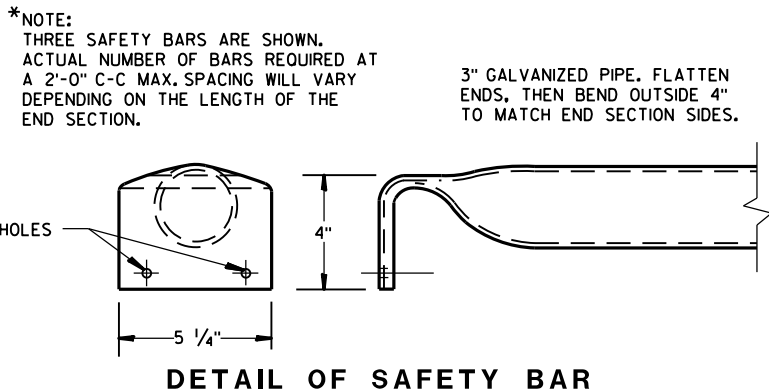
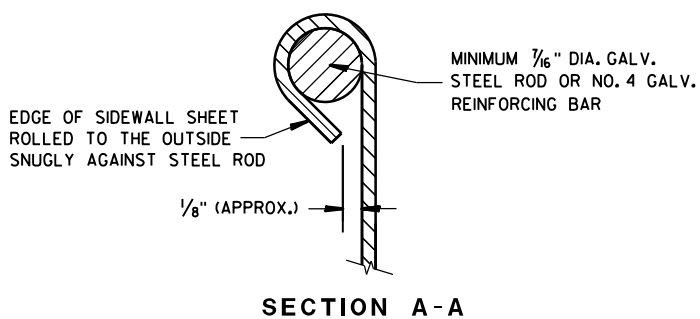
GENERAL NOTES

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.

SLOPED END SECTIONS SHALL CONFORM TO THE REQUIREMENTS OF THE STANDARD SPECIFICATIONS, SECTION 521 FOR STEEL APRON ENDWALLS.

SAFETY BARS SHALL BE FABRICATED FROM GALVANIZED STEEL PIPE MEETING THE REQUIREMENTS OF ASTM A-53, GRADE B, SCHEDULE 40 OR APPROVED EQUAL.

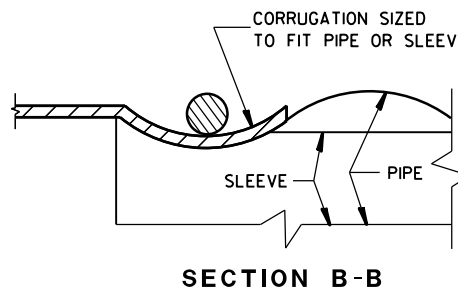
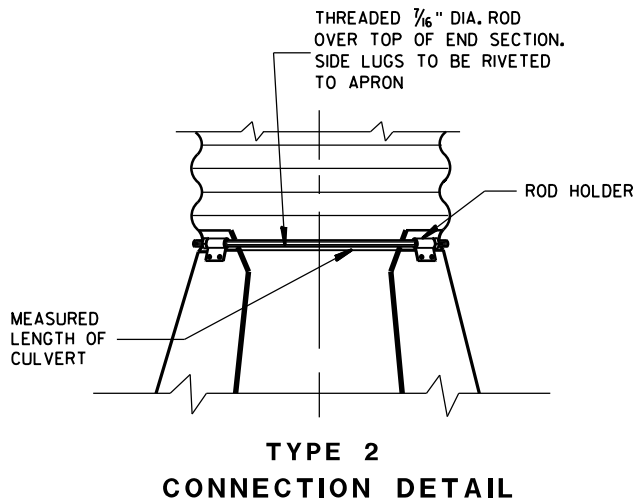
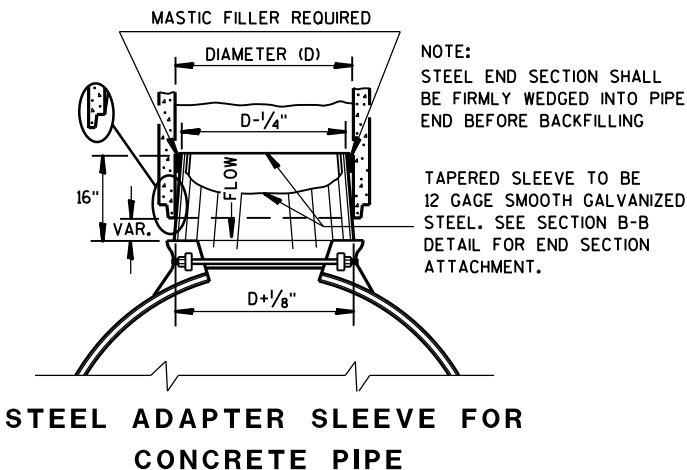
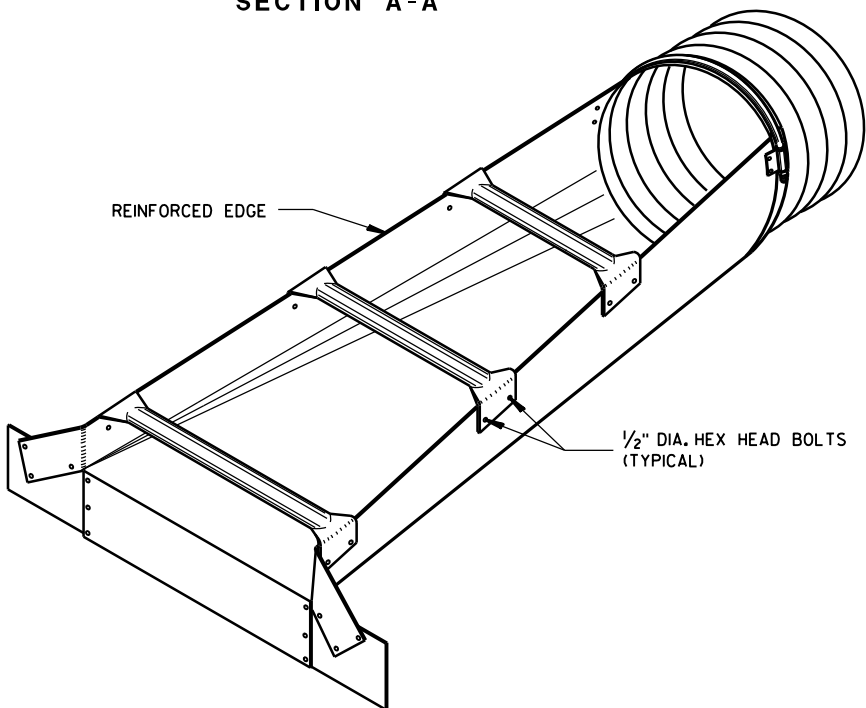
STEEL APRON ENDWALLS FOR CULVERT PIPE SLOPED SIDE DRAINS											
PIPE DIA. (IN.)	MIN. THICK. (Inches)	DIMENSIONS (Inches)				L DIMENSIONS					
		A	H	W	OVERALL WIDTH	SLOPE	LENGTH INCHES	SLOPE	LENGTH INCHES	SLOPE	LENGTH INCHES
15	.064	8	6	21	37	4:1	20	6:1	30	10:1	70
18	.064	8	6	24	40	4:1	32	6:1	48	10:1	100
21	.064	8	6	27	43	4:1	44	6:1	66	10:1	130
24	.064	8	6	30	46	4:1	56	6:1	84	10:1	160
30	.109	12	9	36	60	4:1	80	6:1	120	10:1	220
36	.109	12	9	42	66	4:1	104	6:1	156	10:1	280
42	.109	16	12	48	80	4:1	128	6:1	192	—	—
48	.109	16	12	54	86	4:1	152	6:1	228	—	—
54	.109	16	12	60	92	4:1	176	6:1	264	—	—
60	.109	16	12	66	98	4:1	200	6:1	300	—	—



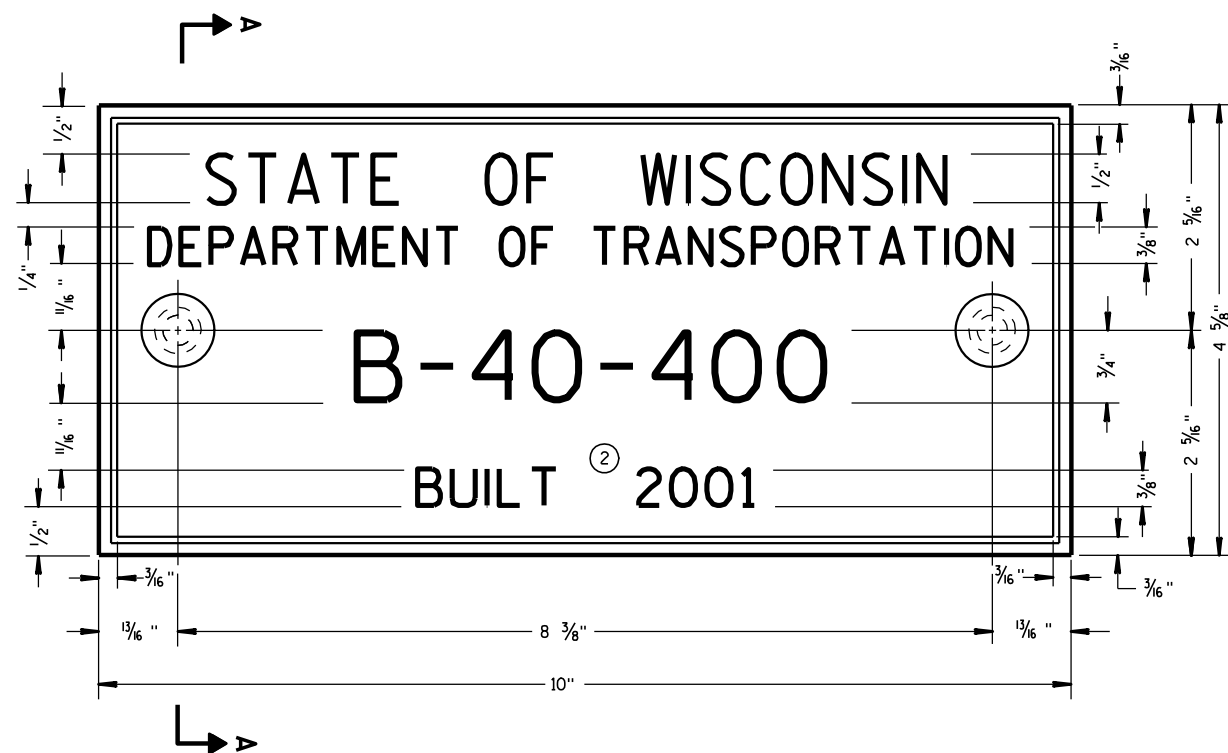
STEEL APRON ENDWALLS FOR PIPE ARCH SLOPED SIDE DRAINS													
EQUIV. DIA. (inches)	(inches)		MIN. THICK. (inches) ①	DIMENSIONS (inches)				L DIMENSIONS					
	SPAN	RISE		A	H	W	OVERALL WIDTH	SLOPE	LENGTH INCHES	SLOPE	LENGTH INCHES	SLOPE	LENGTH INCHES
15	17	13	.064 *	7	6	30	44	4:1	19	6:1	30	10:1 ②	70
18	21	15	.064 *	8	6	27	43	4:1	20	6:1	30	10:1	70
21	24	18	.064 *	8	6	30	46	4:1	32	6:1	48	10:1	100
24	28	20	.064 *	8	6	34	50	4:1	40	6:1	60	10:1	120
30	35	24	.079 *	12	9	41	65	4:1	56	6:1	84	10:1	160
36	42	29	.109 *	12	9	48	72	4:1	76	6:1	114	10:1	210
42	49	33	.109	16	12	55	87	4:1	92	6:1	138	—	—
48	57	38	.109	16	12	63	95	4:1	112	6:1	168	—	—
54	64	43	.109	16	12	70	102	4:1	132	6:1	198	—	—

① * MINIMUM THICKNESS OF ALL 10:1 SLOPED SIDE DRAINS IS 0.109".

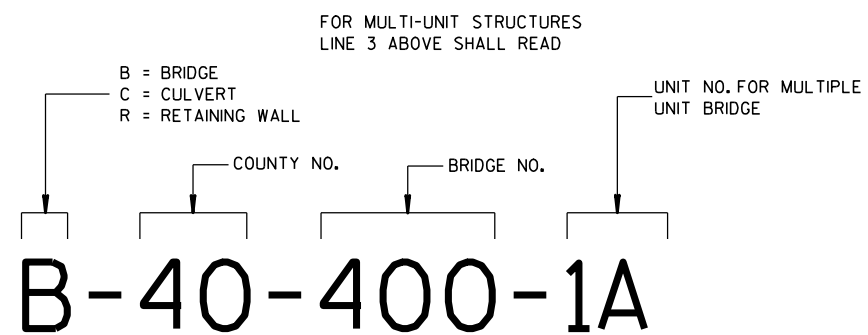
② ACTUAL SLOPE GREATER THAN 10:1.



STEEL APRON ENDWALLS FOR CULVERT PIPE AND PIPE ARCH SLOPED SIDE DRAINS	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 9/14/2012 DATE	/S/ Jerry H. Zogg ROADWAY STANDARDS DEVELOPMENT ENGINEER
FHWA	



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



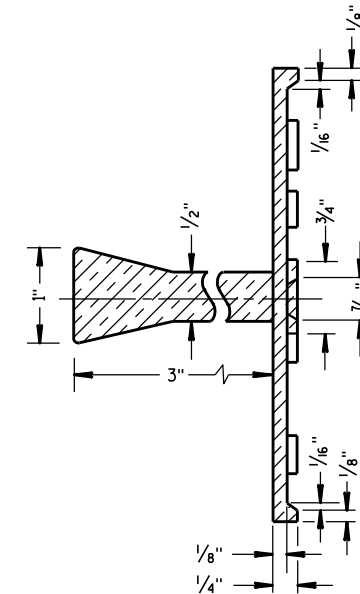
**NUMBERING DESIGNATION
MULTI-UNIT STRUCTURES**

GENERAL NOTES

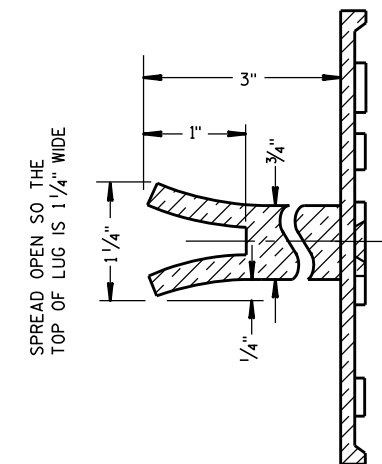
NAME PLATES TO BE INSTALLED ON BRIDGES, CULVERTS, AND RETAINING WALLS SHALL CONFORM TO THE REQUIREMENTS OF SECTION 502.3.11 OF THE STANDARD SPECIFICATIONS.

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

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

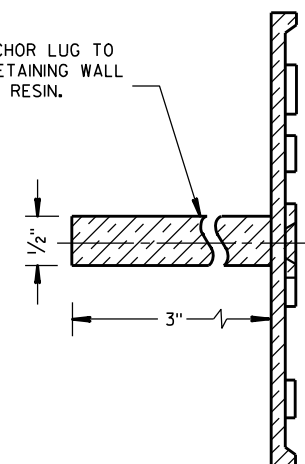


SECTION A-A



ALTERNATE LUG

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



ALTERNATE LUG
(FOR ATTACHMENT TO PRECAST STRUCTURES)

**NAME PLATE
(STRUCTURES)**

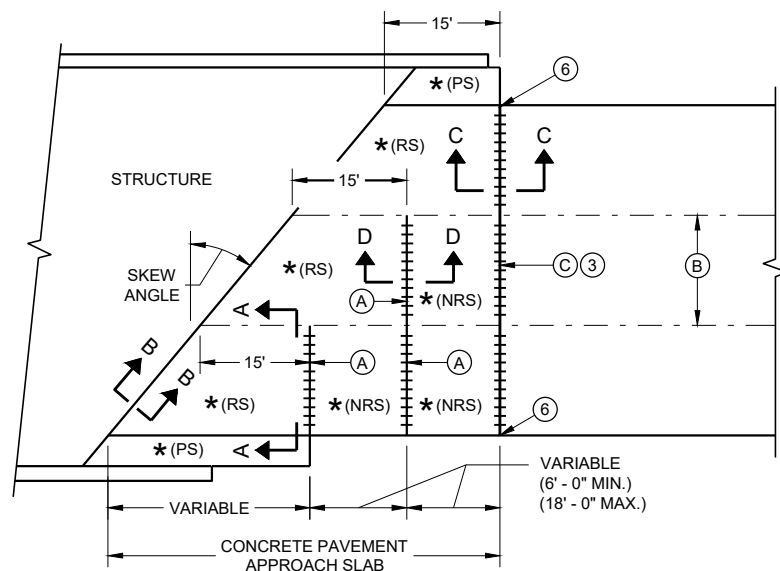
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

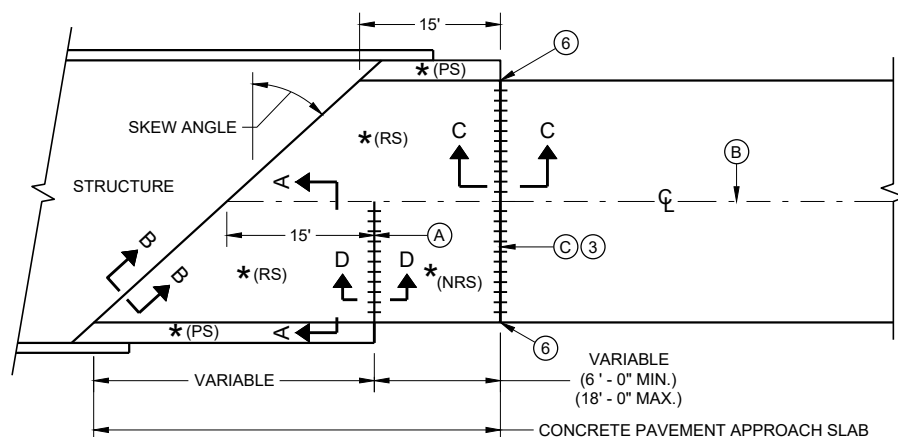
3/26/10
DATE

FHWA

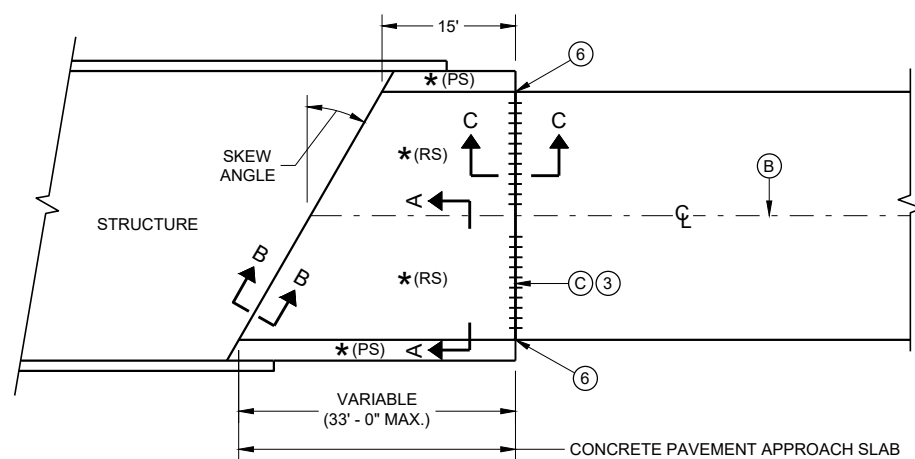
/S/ Scot Becker
CHIEF STRUCTURAL DEVELOPMENT ENGINEER



**SKewed APPROACH
(PAVEMENT MORE THAN TWO LANES)**



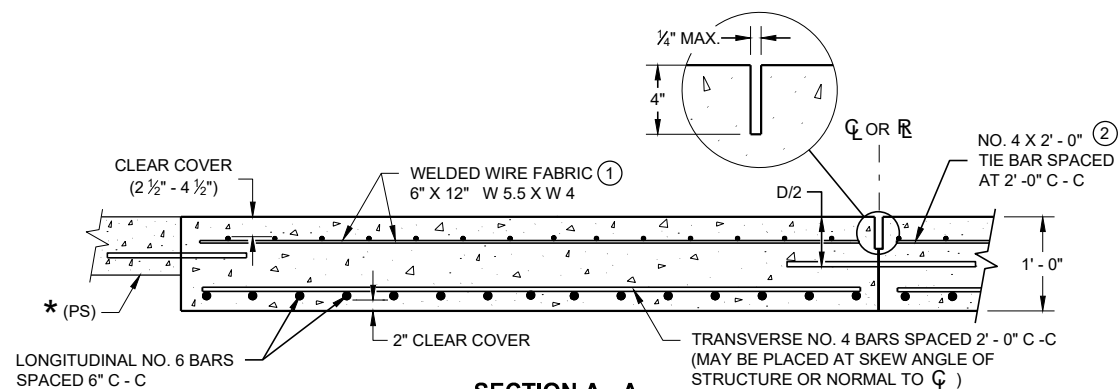
**SKews > 20°
(PAVEMENT WIDTH ≤ 30')**



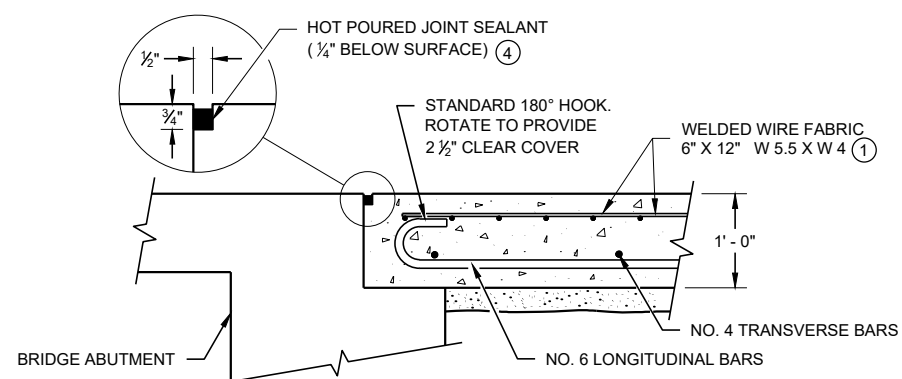
**SKews ≤ 20°
(PAVEMENT WIDTH ≤ 30')**

APPROACH SLAB AND ADJACENT PAVEMENT

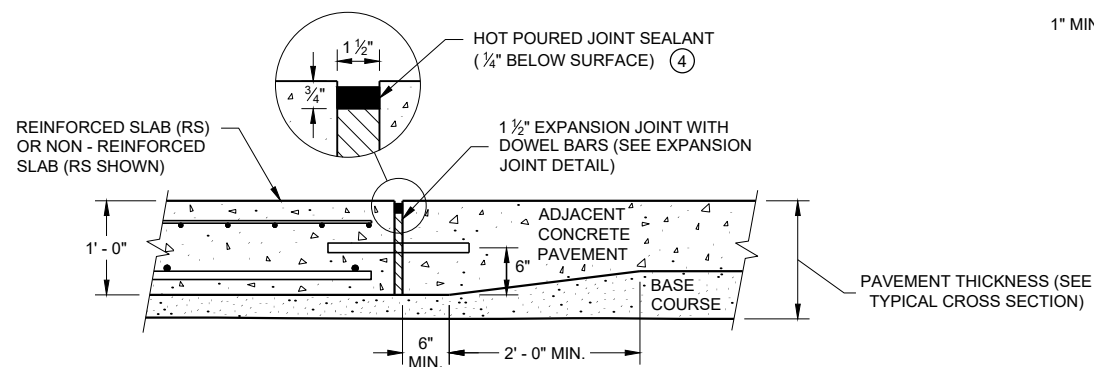
- * (RS) = REINFORCED CONCRETE SLAB
- * (PS) = PAVED CONCRETE SHOULDER OR CONCRETE DRAINAGE SLAB
- * (NRS) - NON - REINFORCED CONCRETE SLAB
- *** STANDARD DOWEL BAR DIAMETER (SEE SDD 13C11 AND SDD 13C13)



**SECTION A - A
REINFORCEMENT POSITIONING DETAIL**



**SECTION B - B
BEND DETAIL
BOTTOM REINFORCEMENT**



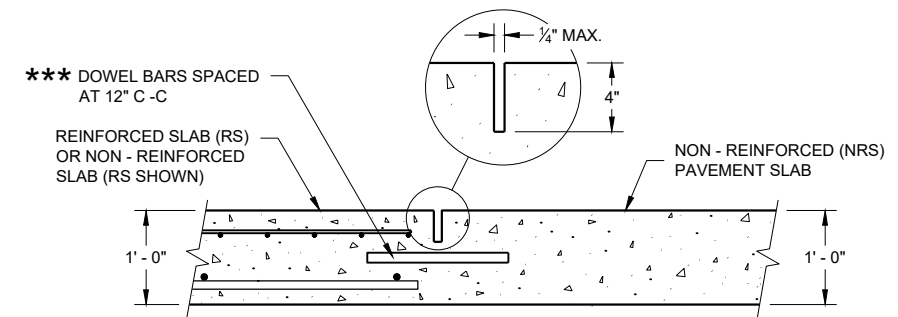
**SECTION C - C
TRANSITION DETAIL
APPROACH SLAB TO ADJACENT PAVEMENT**

GENERAL NOTES

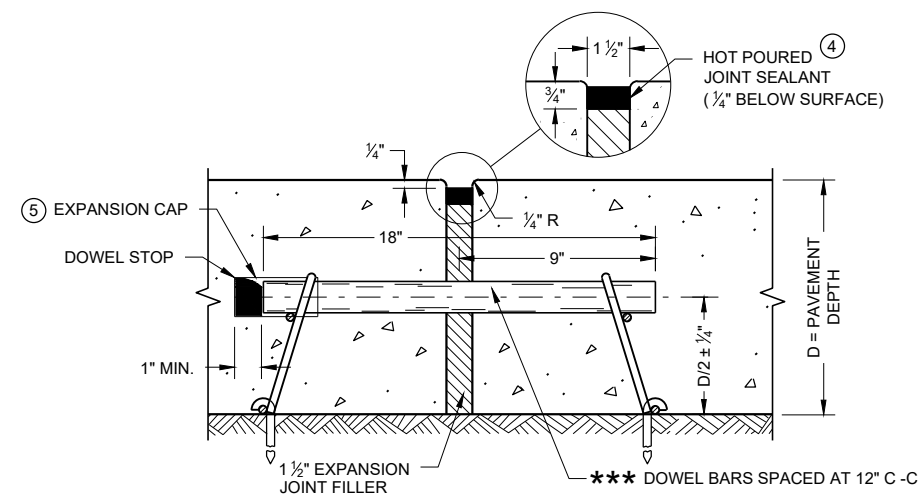
THE CONTRACTOR MAY SPLICE NO. 6 BARS IN THE APPROACH SLAB FOR SKEWED STRUCTURES ONLY. STAGGER SPLICES WITH A MAXIMUM OF ONE SPLICE PER BAR. THE LENGTH OF LAP IS 20 INCHES.

TACK WELD DOWEL BARS TO THE BASKETS ON ALTERNATE ENDS.

- ① THE CONTRACTOR MAY USE NO. 4 BARS SPACED AT 2' - 0" C - C IN BOTH THE LONGITUDINAL AND TRANSVERSE DIRECTIONS FOR TOP REINFORCEMENT AS AN ALTERNATIVE TO THE WELDED WIRE FABRIC.
- ② THE CONTRACTOR MAY OMIT THE BARS BETWEEN REINFORCED SLABS WHERE SLAB REINFORCEMENT BARS EXTEND ACROSS THE CENTERLINE OR REFERENCE LINE.
- ③ DO NOT CONSTRUCT AN EXPANSION JOINT OR INSTALL DOWEL BARS WHEN ABUTTING AN HMA PAVEMENT.
- ④ USE A JOINT SEALANT MEETING THE REQUIREMENTS OF ASTM D6690.
- ⑤ PLACE EXPANSION CAP ON THE END OF THE DOWEL THAT IS NOT TACK WELDED TO THE BASKET. DO NOT FORCE DOWEL BAR PAST THE DOWEL STOP.
- ⑥ EXTEND EXPANSION JOINT THROUGH ANY ADJACENT TIED CONCRETE.
- (A) STANDARD CONTRACTION JOINT NORMAL TO $\overline{C}$ OR $\overline{R}$.
- (B) STANDARD LONGITUDINAL JOINT WITH TIE BARS.
- (C) 1 1/2" EXPANSION JOINT WITH DOWEL BARS NORMAL TO $\overline{C}$ OR $\overline{R}$.



**SECTION D - D
CONTRACTION JOINT**

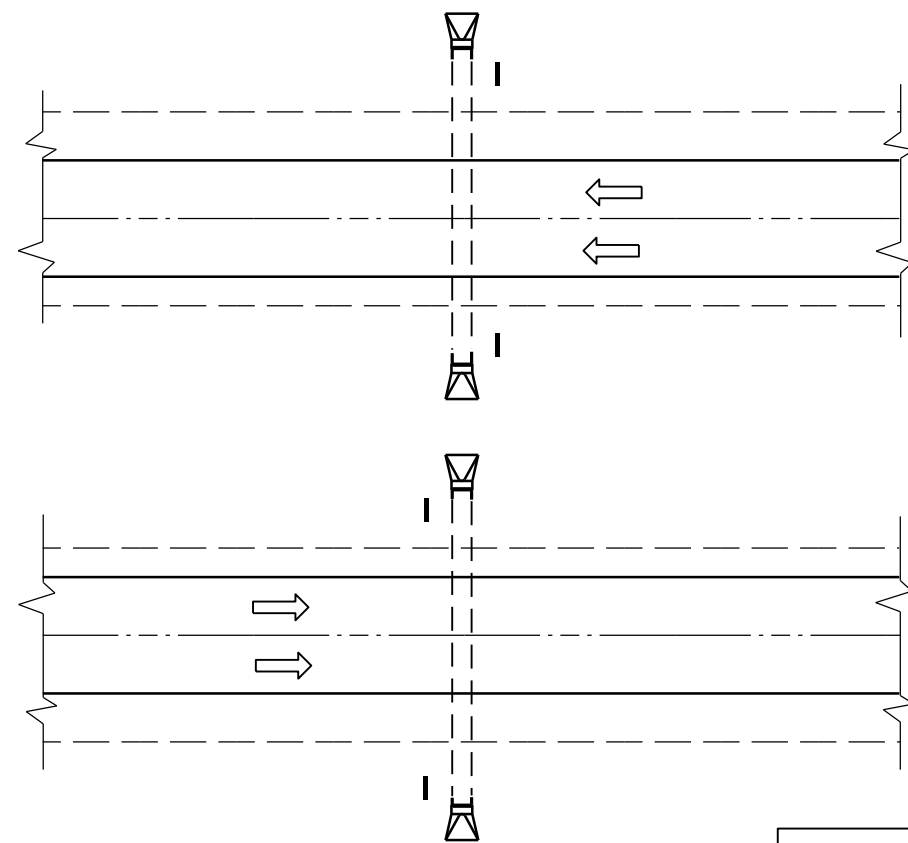


EXPANSION JOINT DETAIL

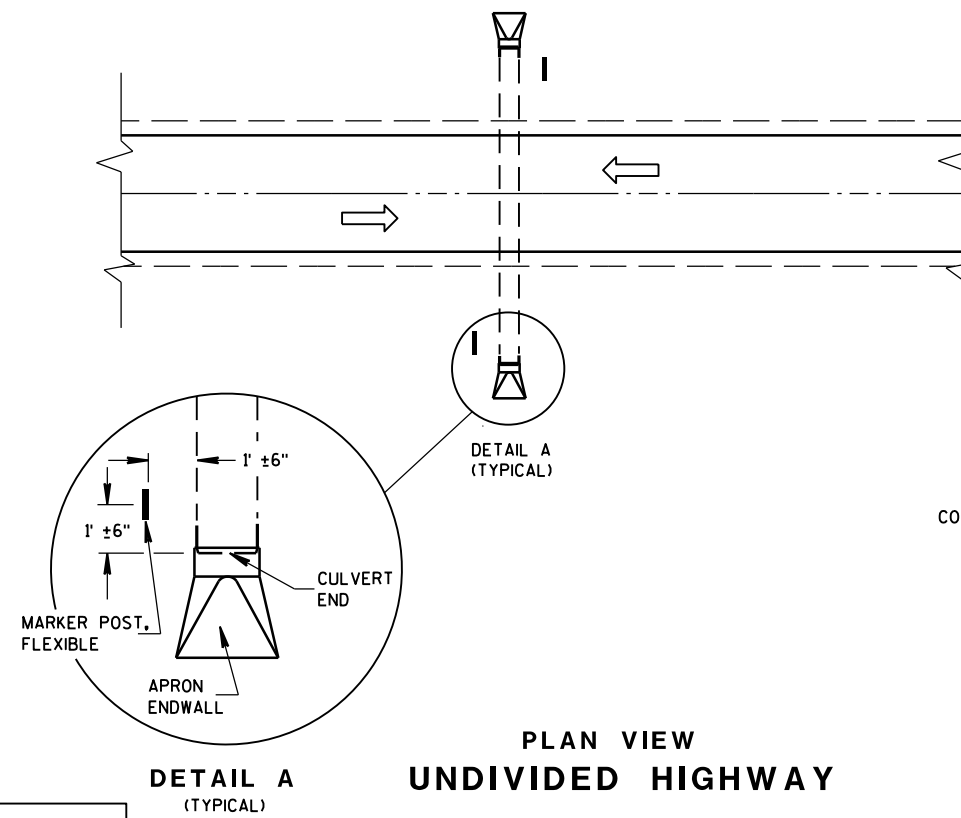
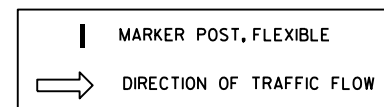
CONCRETE PAVEMENT APPROACH SLAB

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
November 2018 /S/ Peter Kemp P.E.
DATE PAVEMENT SUPERVISOR
FHWA



PLAN VIEW
DIVIDED HIGHWAY

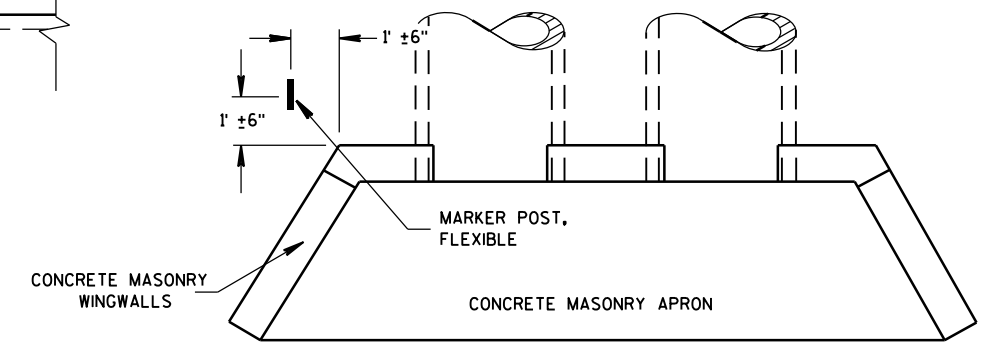


PLAN VIEW
UNDIVIDED HIGHWAY

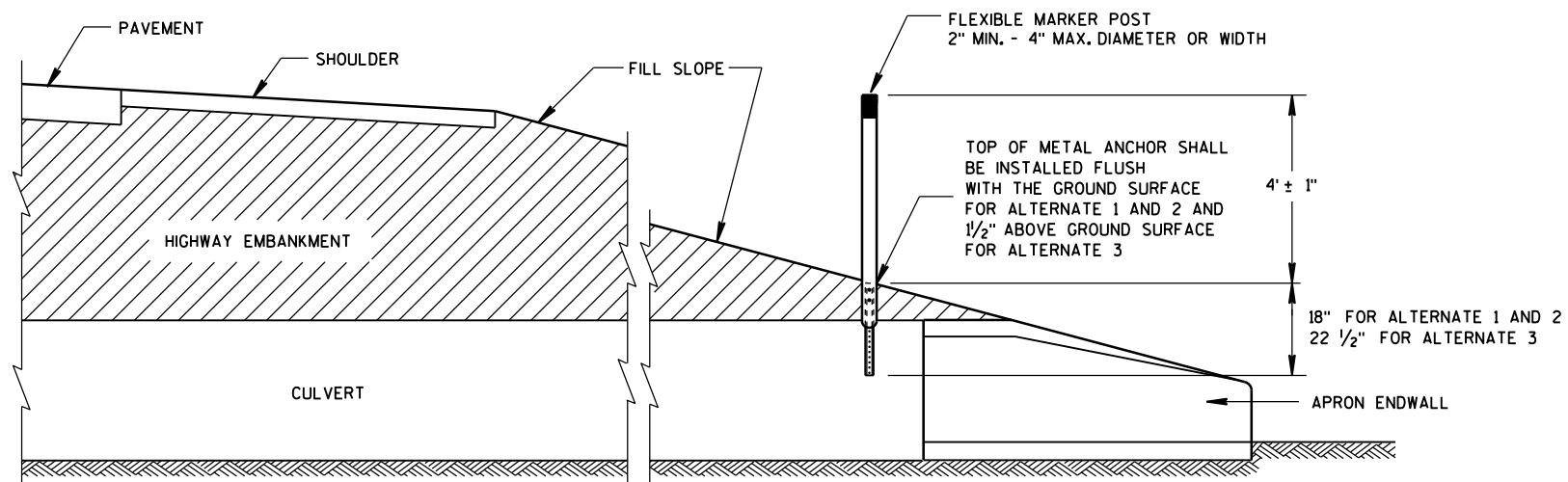
FLEXIBLE MARKER POST LOCATION

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.



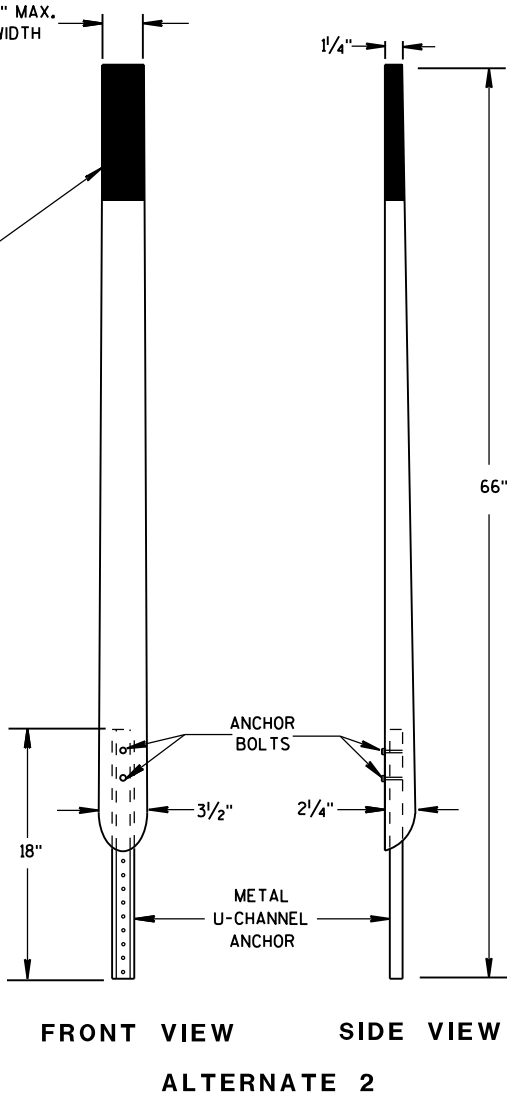
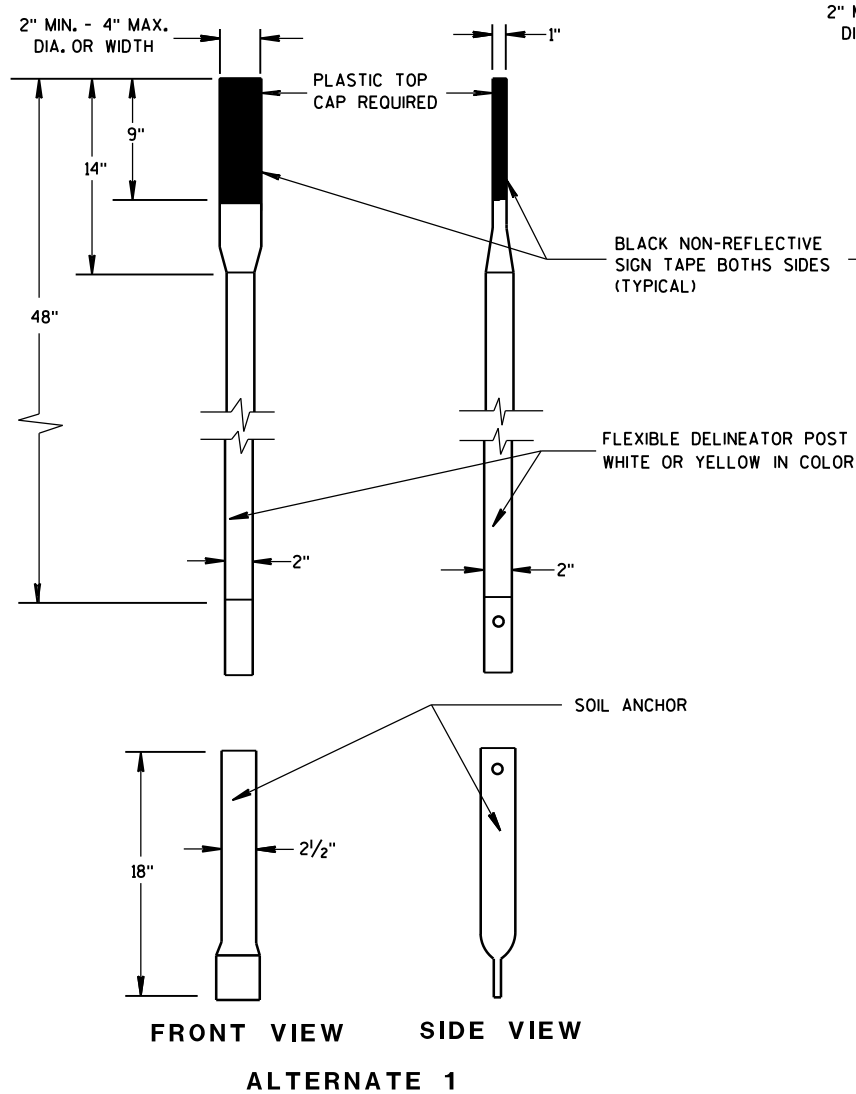
PLAN VIEW
CONCRETE MASONRY ENDWALLS FOR
CULVERT PIPE AND PIPE ARCH



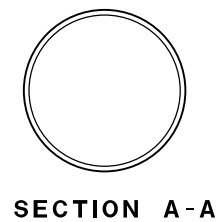
CROSS SECTION
FLEXIBLE MARKER POST

FLEXIBLE MARKER POST
FOR CULVERT END

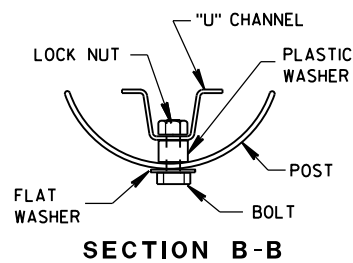
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



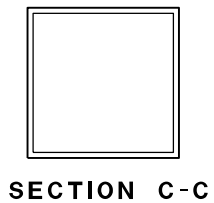
FLEXIBLE MARKER POSTS



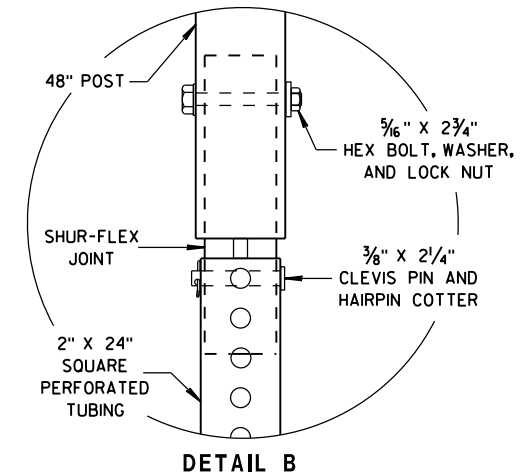
SECTION A-A



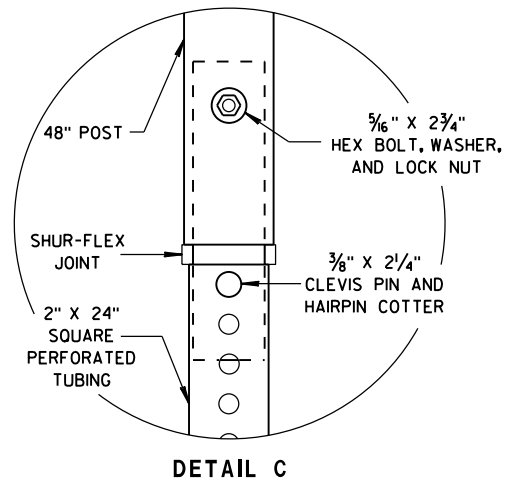
SECTION B-B



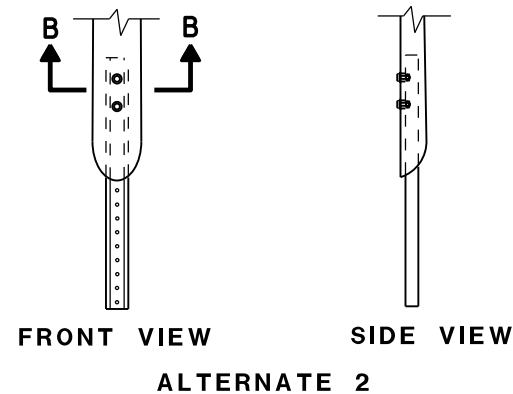
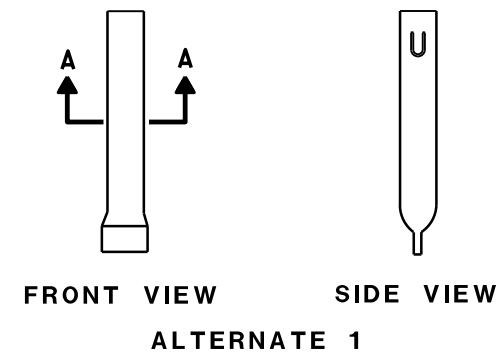
SECTION C-C



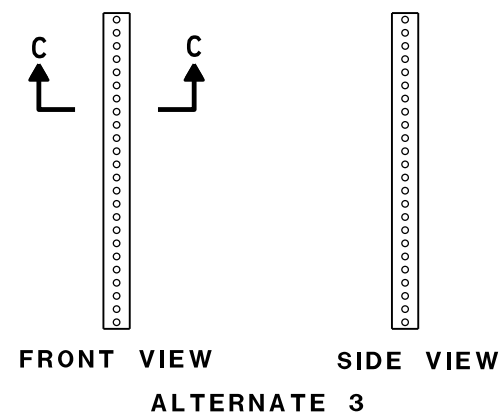
DETAIL B



DETAIL C



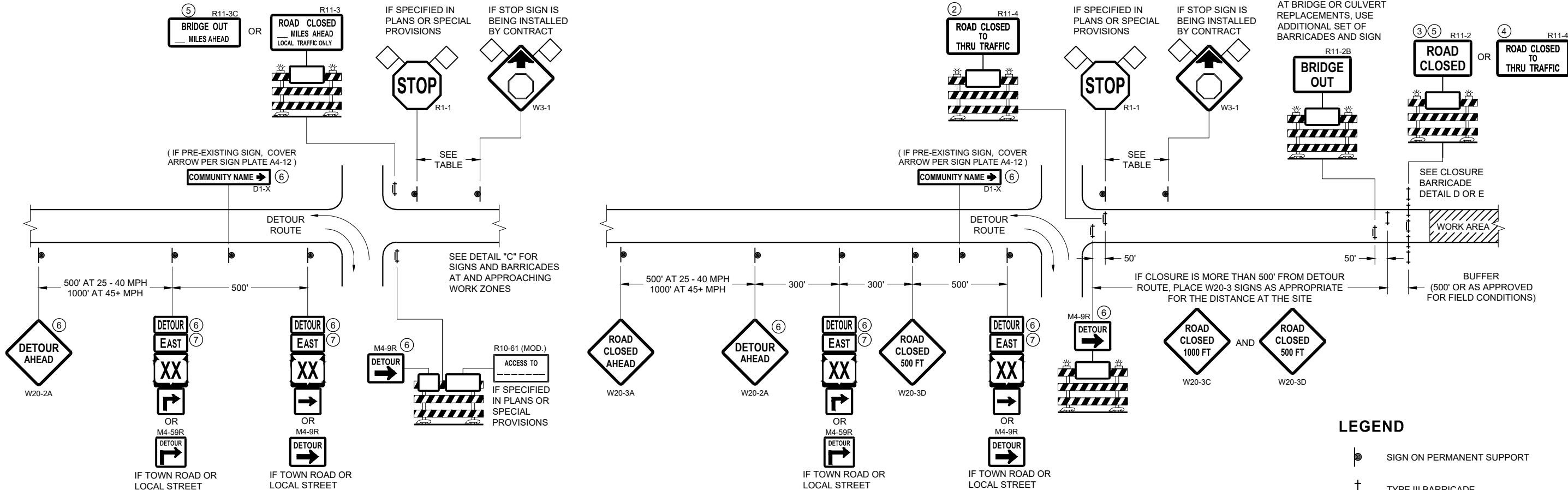
FLEXIBLE MARKER POST ANCHORS



FRONT VIEW SIDE VIEW

ALTERNATE 3

FLEXIBLE MARKER POST FOR CULVERT END	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 10/1/2012 DATE	/S/ Travis Feltes STATE TRAFFIC ENGINEER OF DESIGN
FHWA	



LEGEND

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

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

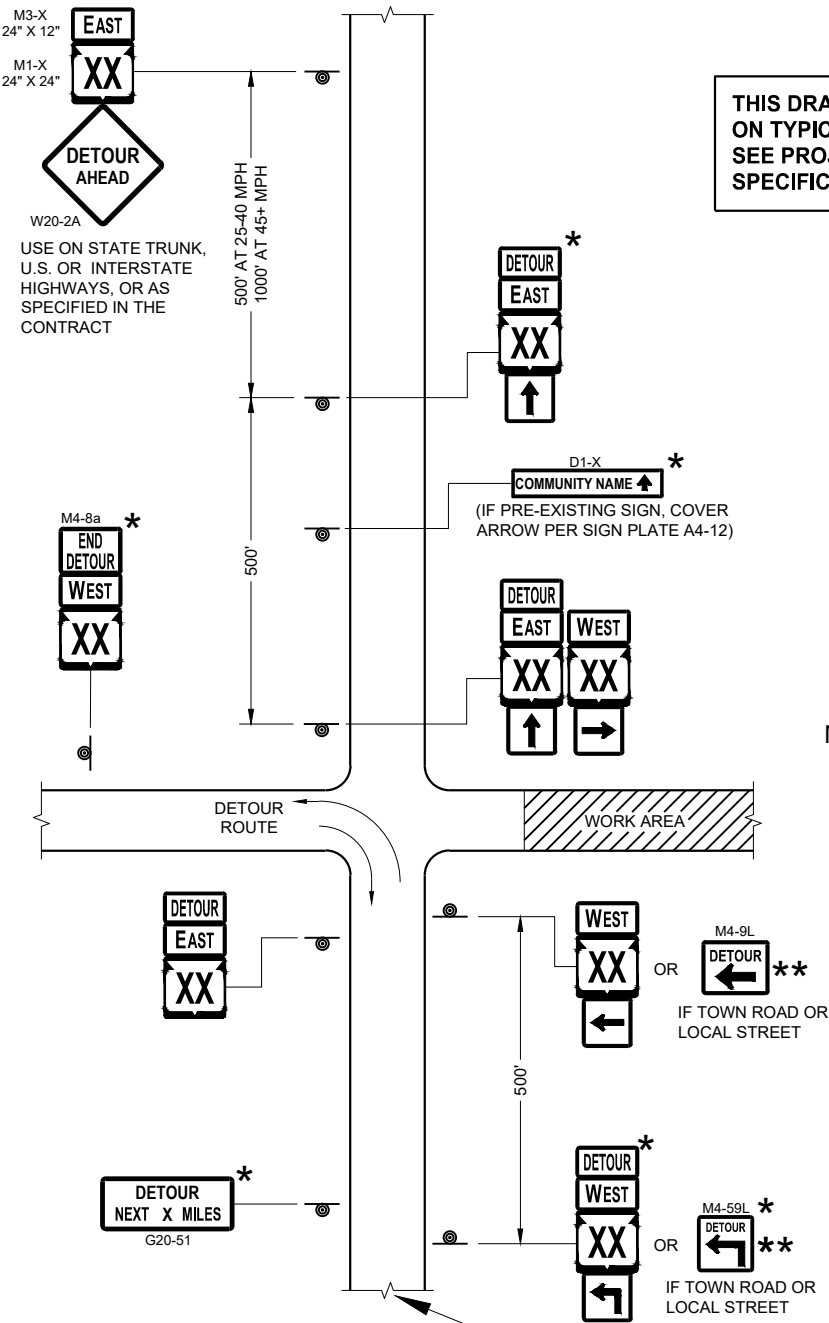
SEE SDD 15C2-SHEET "b" FOR GENERAL NOTES AND FOOTNOTES ① THROUGH ⑦

BARRICADES AND SIGNS FOR MAINLINE CLOSURES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
November 2018 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER

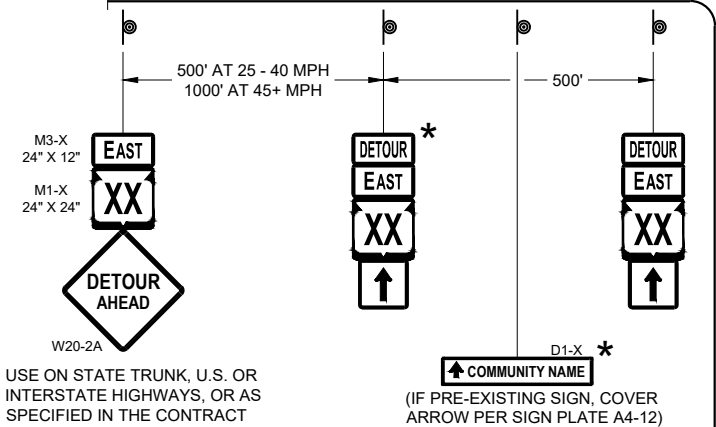
FHWA



SEE SPECIFIC PROJECT DETOUR
SIGNING DETAIL SHEETS AND
DETAIL A OR B ON SDD SHEET 15C02 - SHEET "a"

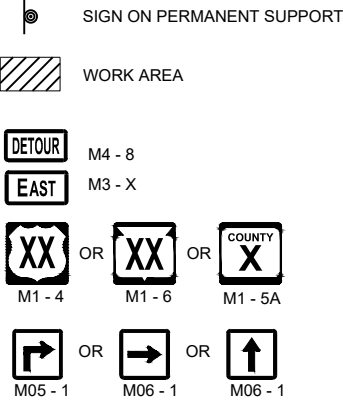
THIS DRAWING PROVIDES GENERAL GUIDANCE
ON TYPICAL DETOUR SIGN LAYOUT AND SPACING.
SEE PROJECT DETOUR SIGNING SHEETS FOR
SPECIFIC DETAILS FOR EACH PROJECT.

MATCH POINT



DETAIL F
DETOUR SIGNING

LEGEND



GENERAL NOTES

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

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. SEE SPECIFIC PROJECT DETOUR SIGNING DETAIL SHEETS. MODIFY EXISTING SIGNS WHERE POSSIBLE.

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

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.

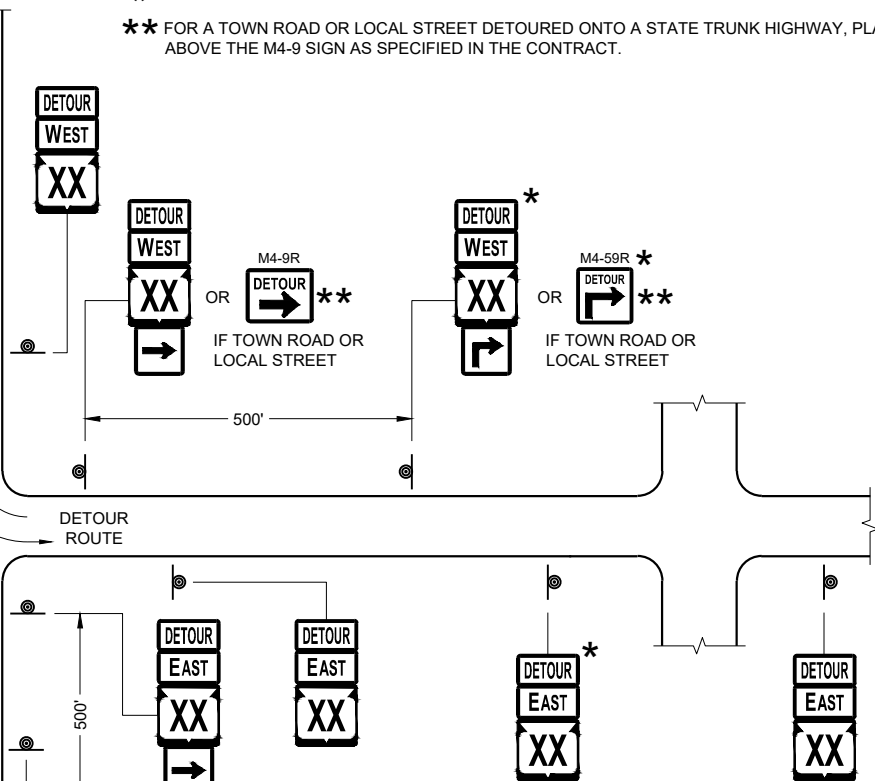
SIGNS THAT WILL BE IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS MAY BE MOUNTED ON PORTABLE SUPPORTS.

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

SIGN SIZES SHALL BE AS FOLLOWS:

- 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" (30" X 30" IF NEEDED TO MATCH EXISTING SIGNS)
- M05-1 AND M06-1 SHALL BE 21" X 21" (30" X 30" IF NEEDED TO MATCH EXISTING SIGNS)
- M4-9 AND M4-59 SHALL BE 30" X 24"
- M4-8a SHALL BE 24" X 18"
- G20-51 SHALL BE 60" X 24"
- W20-2A SHALL BE 48" X 48"
- D1-X SHALL BE AS SHOWN ON SPECIFIC PROJECT SIGNING DETAIL SHEETS.

- * OPTIONAL SIGNS. SEE SPECIFIC PROJECT DETOUR SIGNING DETAIL SHEETS.
- ** FOR A TOWN ROAD OR LOCAL STREET DETOURED ONTO A STATE TRUNK HIGHWAY, PLACE A ROAD NAME PLAQUE ABOVE THE M4-9 SIGN AS SPECIFIED IN THE CONTRACT.

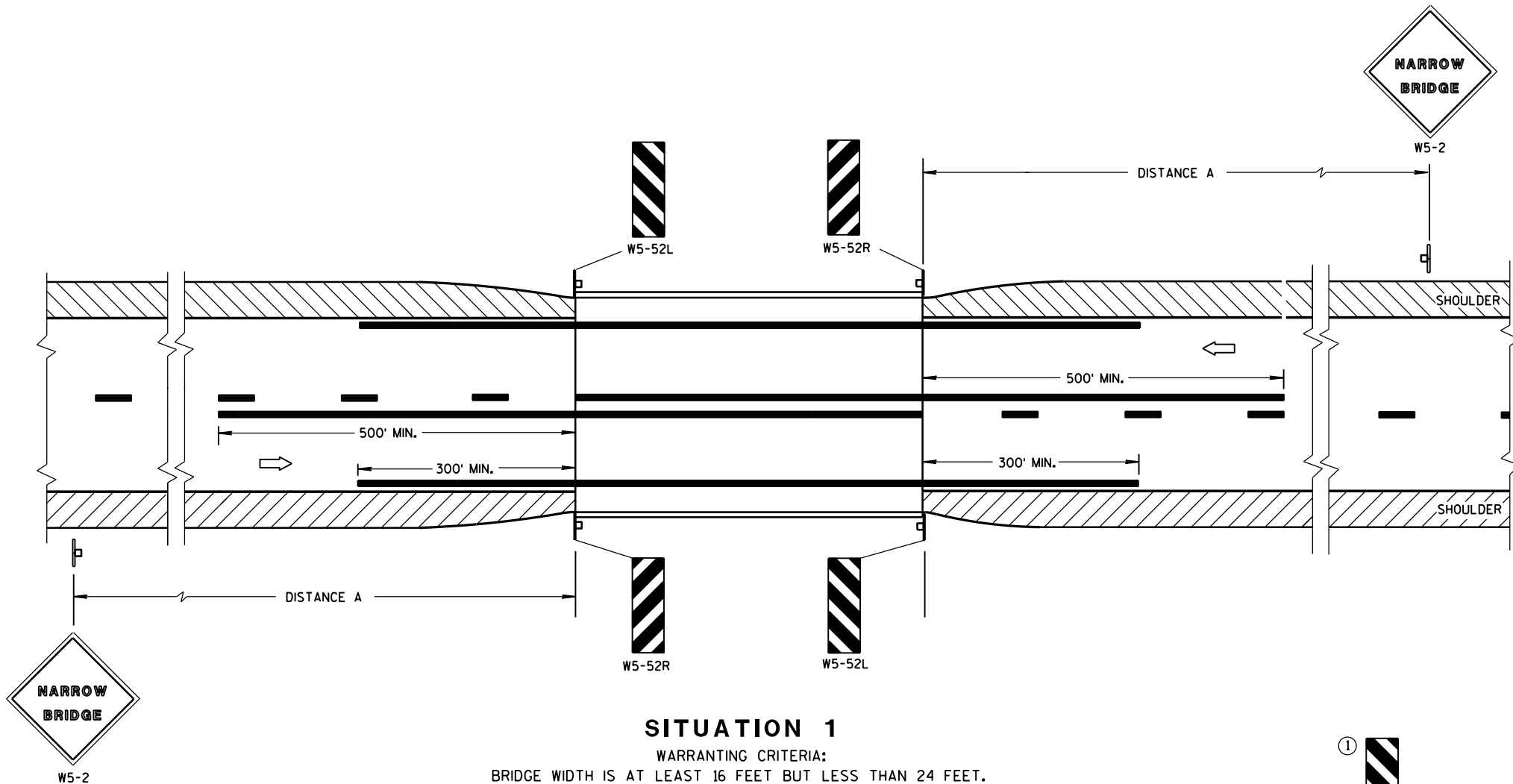


PLACE SIGNS BEYOND INTERSECTIONS
WITH STATE OR COUNTY TRUNK
HIGHWAYS OR AT 4 MILE MAXIMUM
SPACING (4 BLOCKS IF URBAN AREA)

DETOUR SIGNING
FOR MAINLINE CLOSURES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
November 2018 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER
FHWA

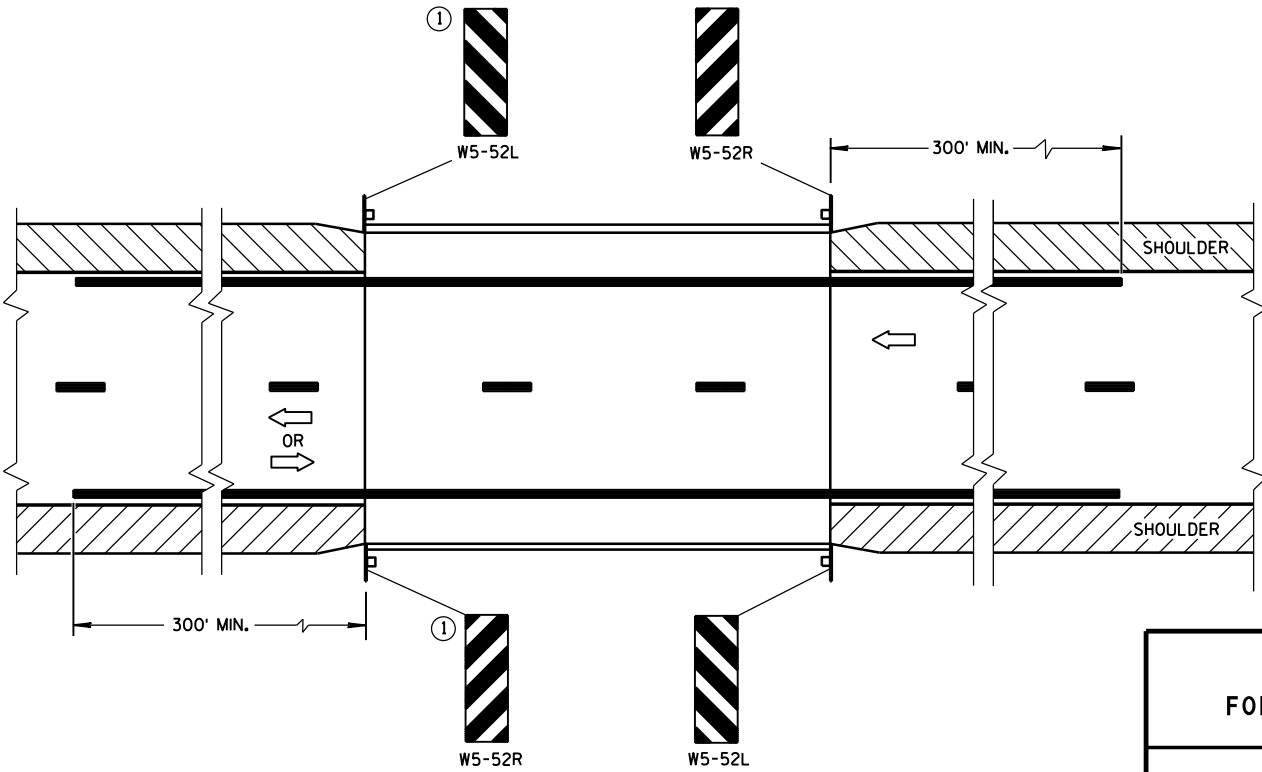


SITUATION 1

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'



SITUATION 2

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

GENERAL NOTES

DETAILS OF TRAFFIC CONTROL DEVICES AND INSTALLATION NOT SHOWN ON 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.

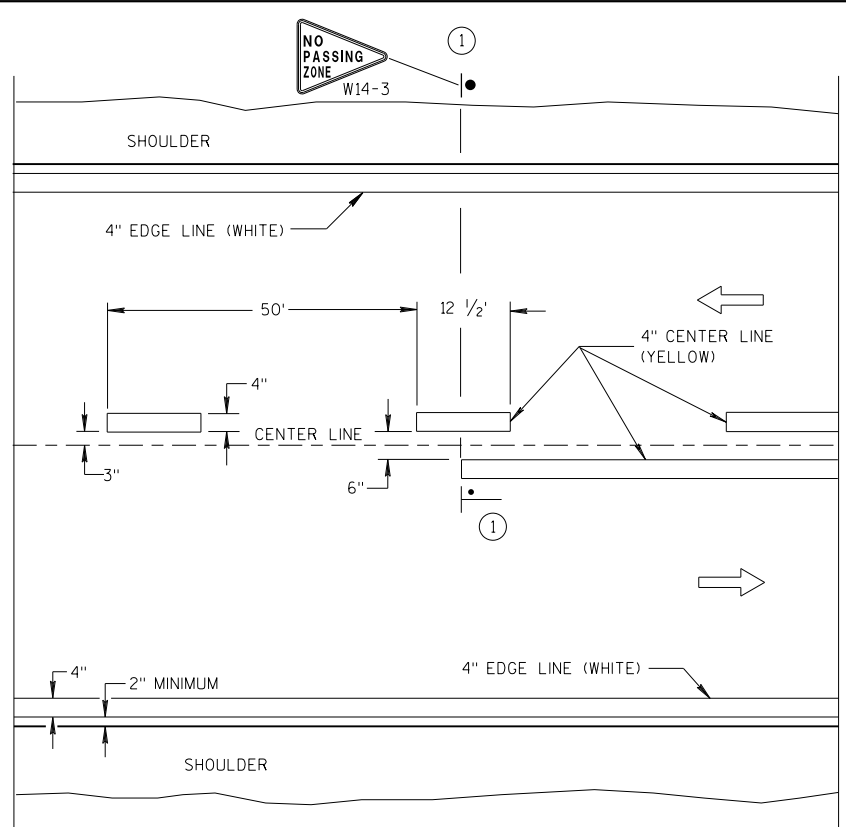
① OMIT ON ONE-WAY TRAVELLED WAYS.

➡ DIRECTION OF TRAFFIC

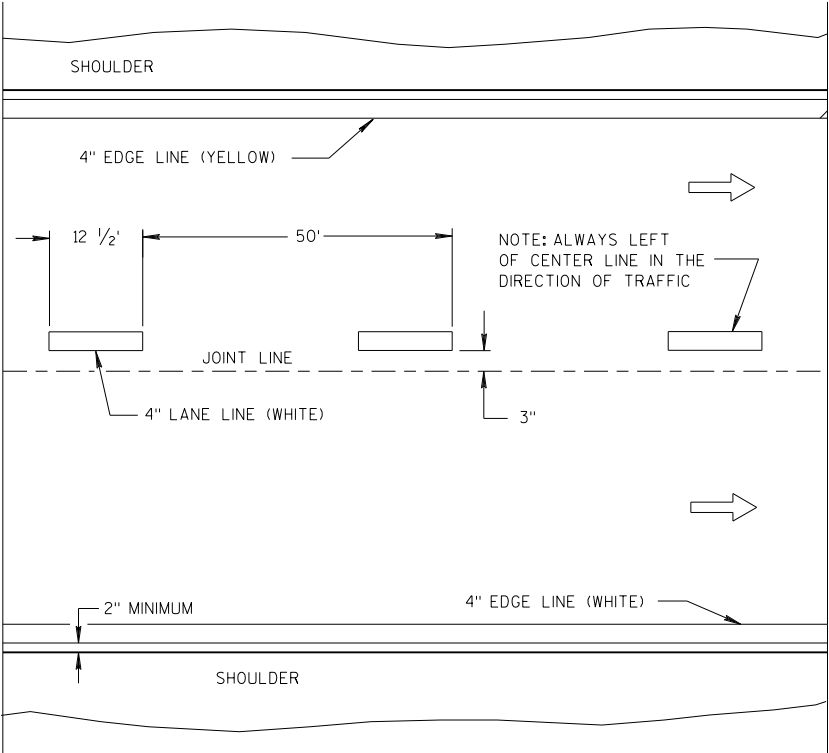
**SIGNING & MARKING
FOR TWO LANE BRIDGES**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

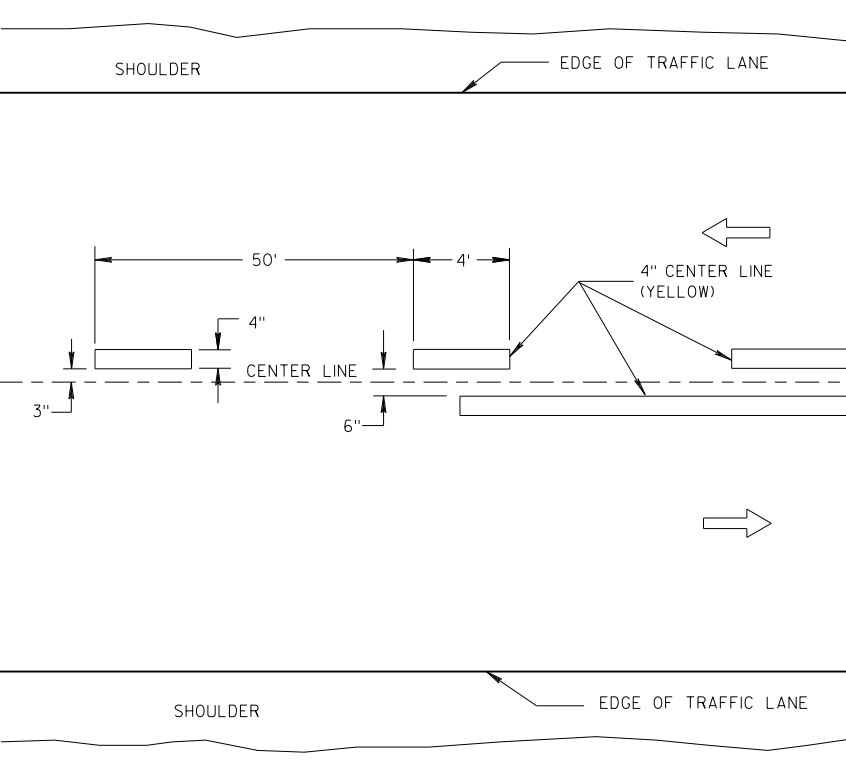


TWO WAY TRAFFIC

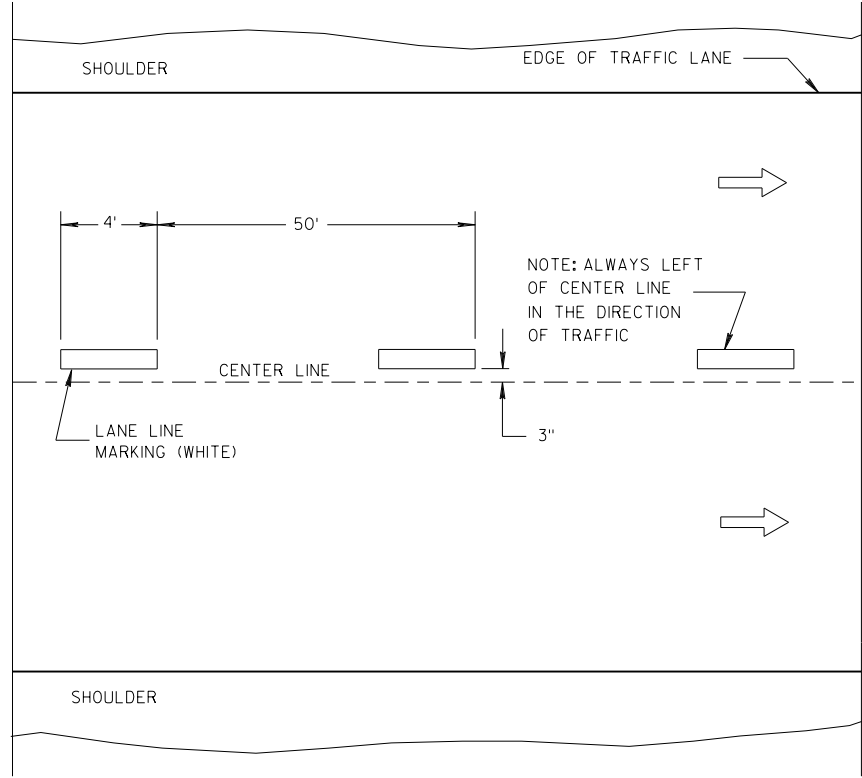


ONE WAY TRAFFIC

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 WITHIN 50 FEET OF THE "T" MARKING.

NOTE

ARROW SYMBOL (➡) SHOWS DIRECTION OF TRAVEL

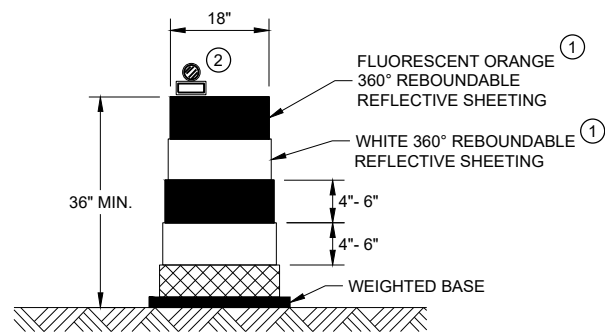
LEGEND

- "T" MARKING
- POST MOUNTED SIGN

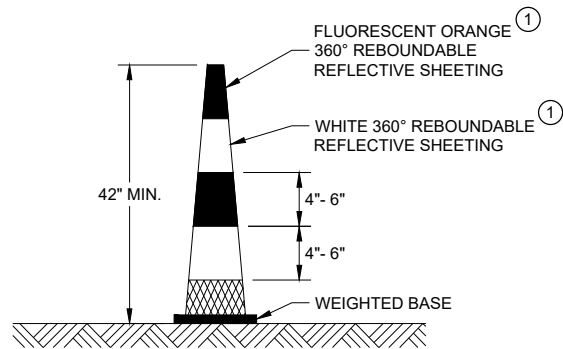
LONGITUDINAL MARKING (MAINLINE)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
7/2018 /S/ Matthew R. Rauch
DATE STATE SIGNING AND MARKING ENGINEER
FHWA

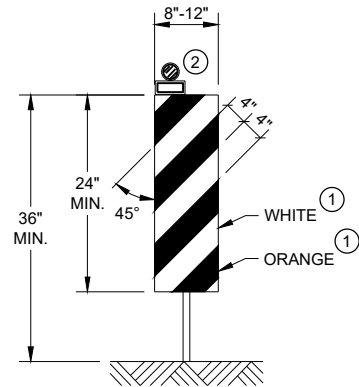


DRUM



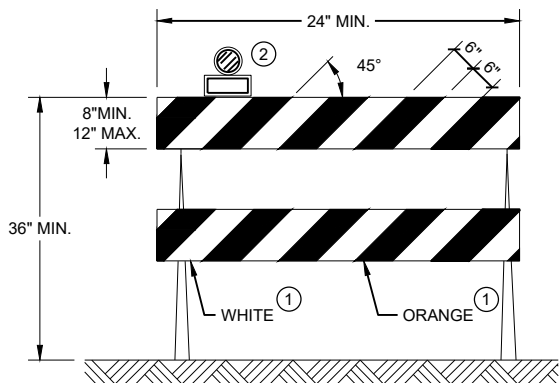
42" CONE

DO NOT USE IN TAPERS
½ SPACING OF DRUMS



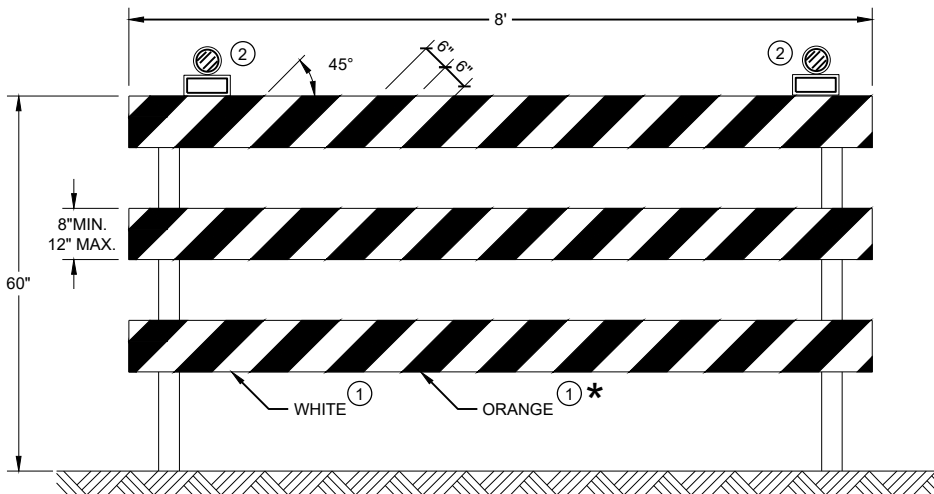
VERTICAL PANEL

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



TYPE II BARRICADE

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



TYPE III BARRICADE

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

* IF USED FOR A PERMANENT APPLICATION USE RED SHEETING.

GENERAL NOTES

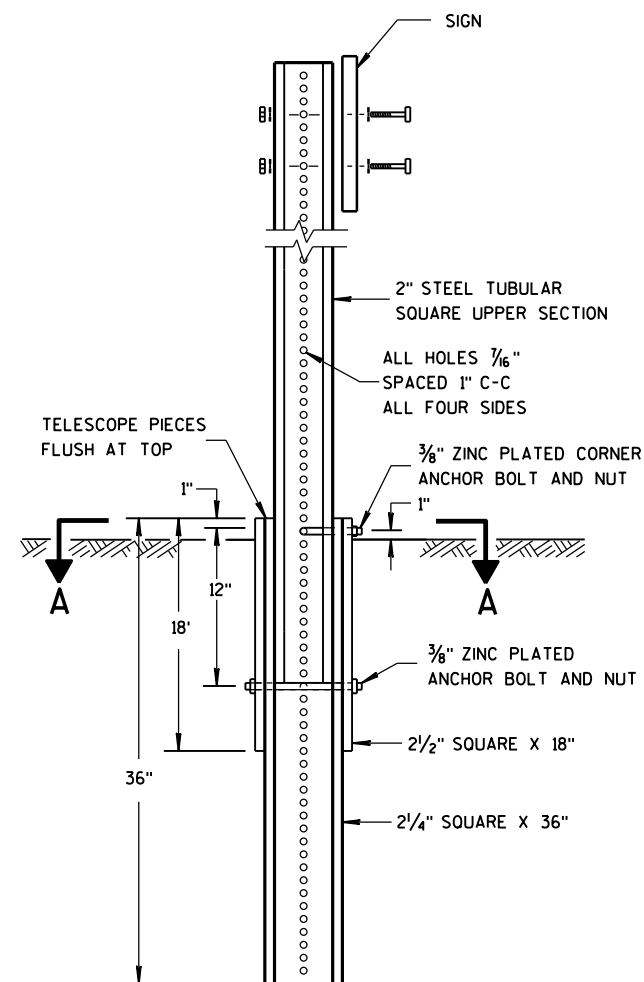
- ① REFLECTIVE SHEETING SHALL FOLLOW THE REQUIREMENTS IN THE APPROVED PRODUCTS LISTING FOR SIGN SHEETING.
- ② LOCATION OF WARNING LIGHTS WHEN SHOWN ON THE PLAN.

CHANNELIZING DEVICES
DRUMS, CONES, BARRICADES
AND VERTICAL PANELS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

FHWA

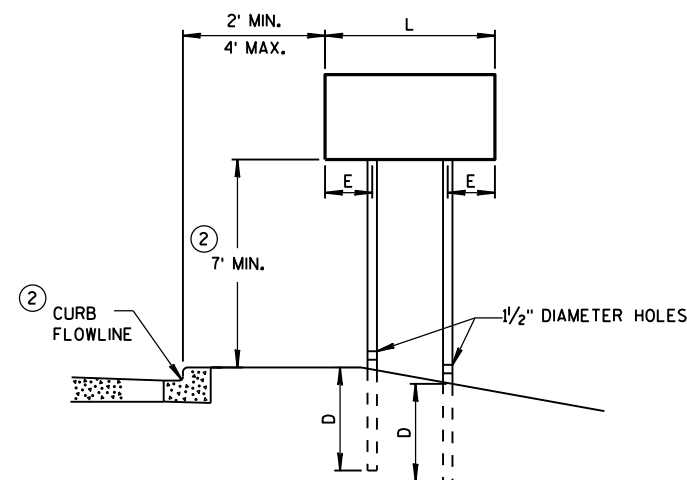
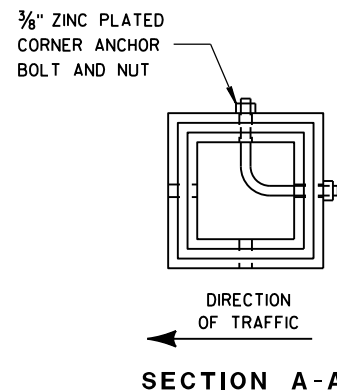


DETAIL OF TUBULAR STEEL SIGN POST

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.

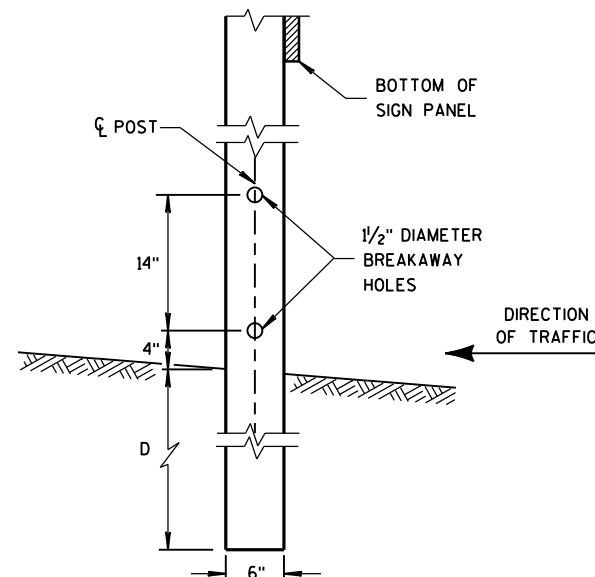


URBAN AREA

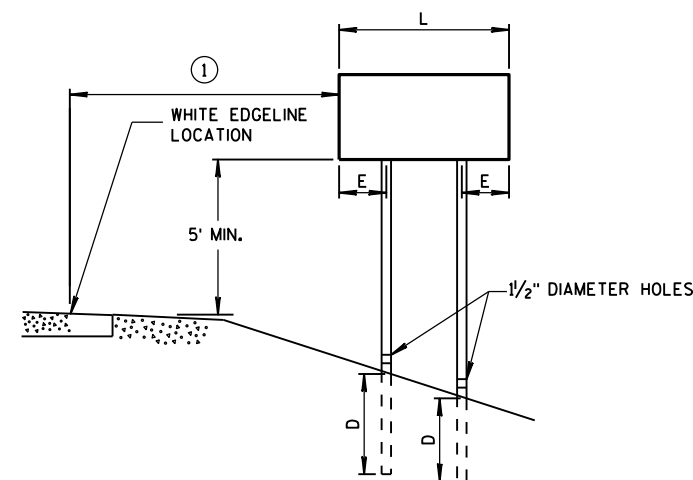
POST MOUNTING DETAIL FOR TEMPORARY TRAFFIC CONTROL FIXED MESSAGE SIGNS

WOOD POST EMBEDMENT DEPTH

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



4"x6" WOOD POST MODIFICATION



RURAL AREA

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

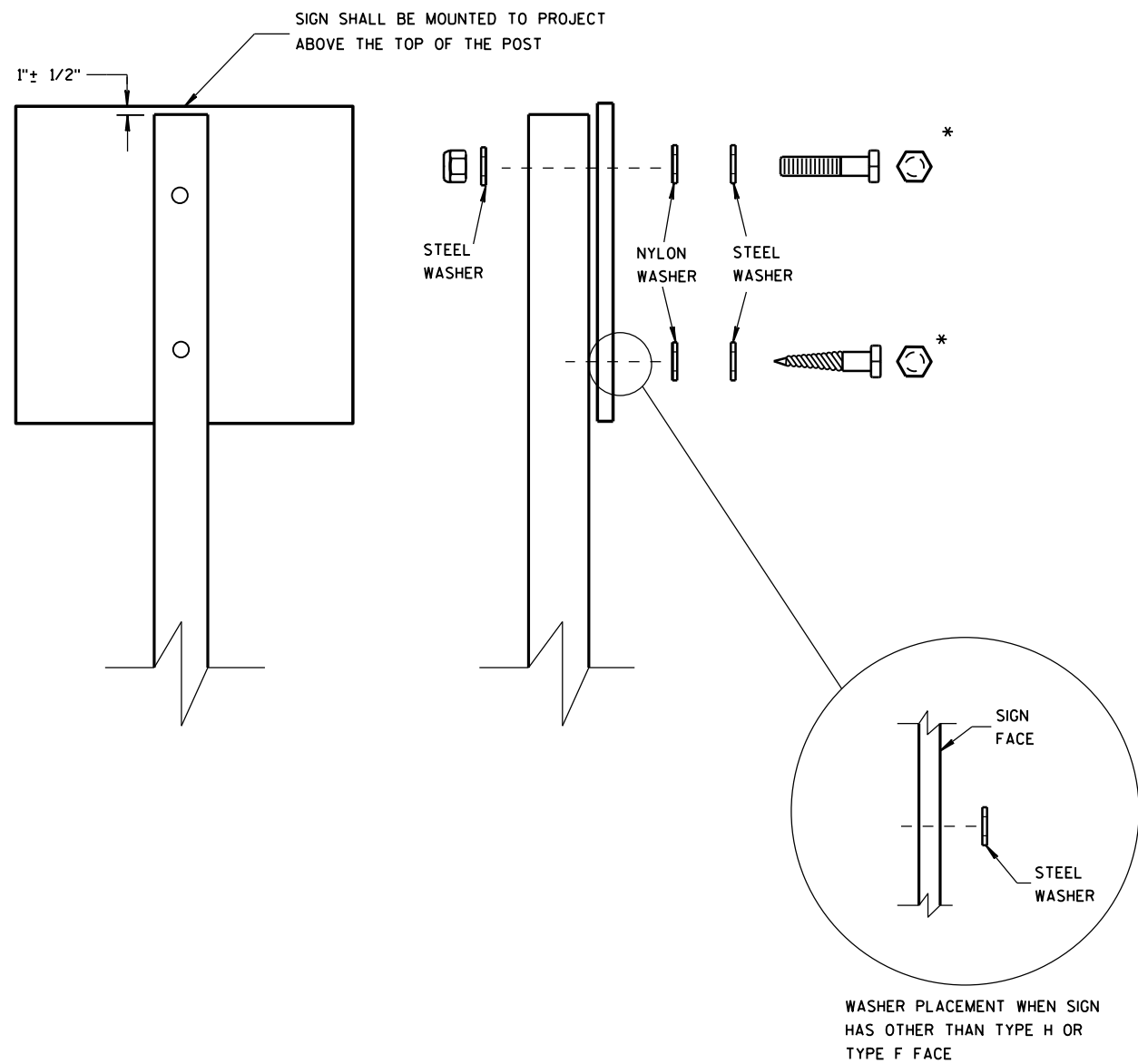
SEE NOTE ③

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.

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

- SQUARE STEEL POSTS (2" x 2")
- MACHINE BOLTS - 3/8" X 3-1/4" LENGTH W/ NUTS
 - RIVETS - 9/32" (6605-9-6) BULB-TITE, TRI-FOLD, ALUMINUM BODY/MANDREL O.D. FLANGE .720-.765 INCH, GRIP RANGE .042-.375 INCH

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

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

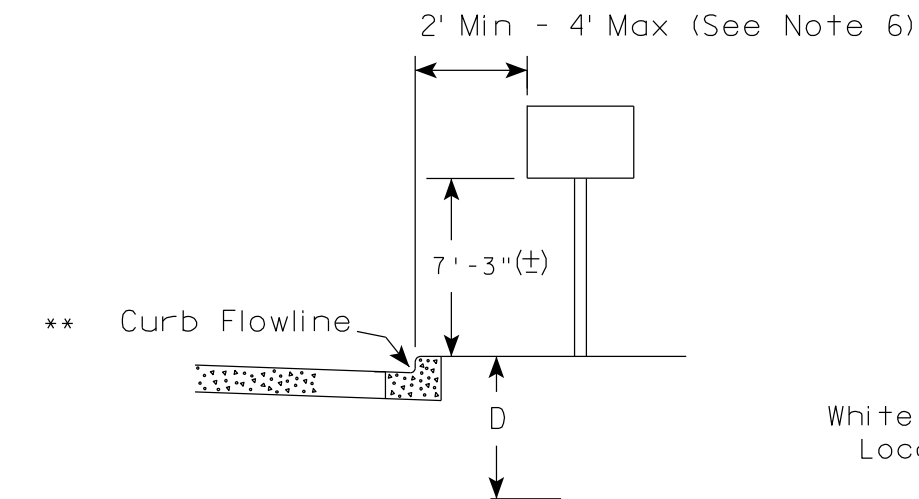
ATTACHMENT OF SIGNS TO POSTS	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED June 2017 DATE	/S/ Andrew Heidtke WORK ZONE ENGINEER
FHWA	

URBAN AREA

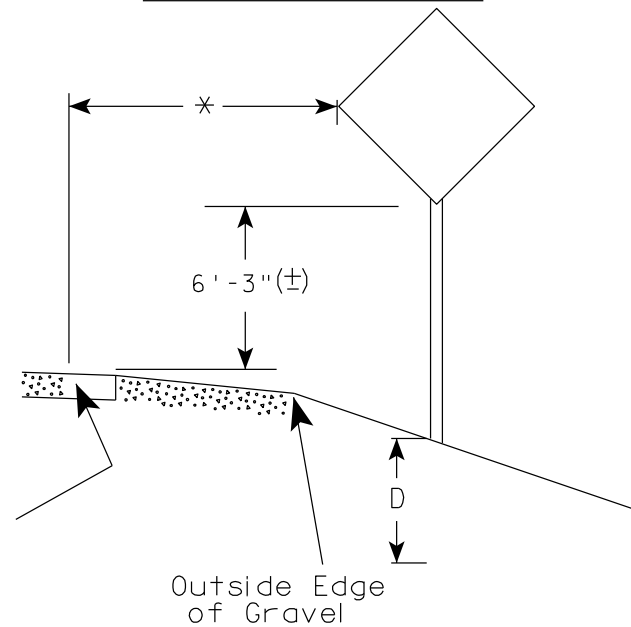
RURAL AREA (See Note 2)

GENERAL NOTES

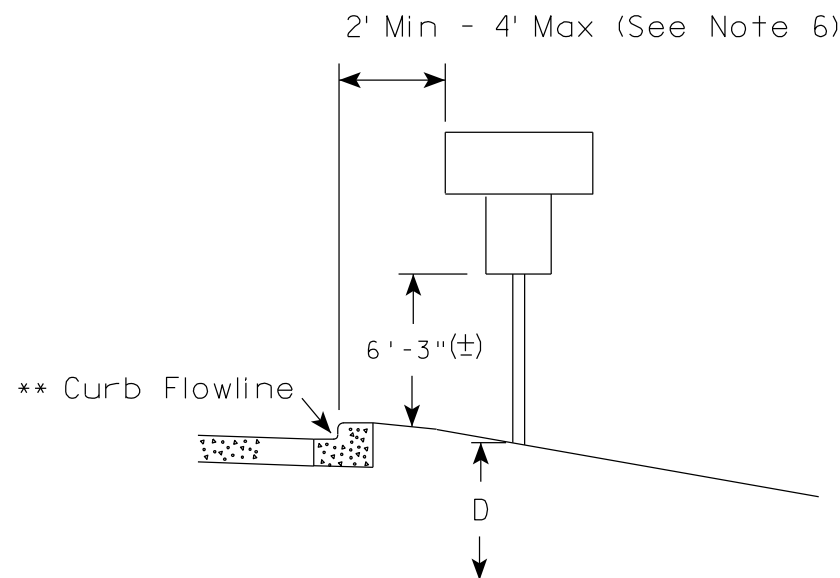
1. Signs wider than 4 feet or 20 sq.ft or larger, shall be mounted on multiple posts. Refer to plate A4-4.
2. If signs are mounted on barrier wall, see A4-10 sign plate.
3. For expressways and freeways, mounting height is 7'-3" (±) or 6'-3" (±) depending upon existence of a sub-sign.
4. Minimum mounting height for J assemblies (A2-1S) is 7'-3" (±) or 6'-3" (±) per urban or rural detail respectively.
5. Minimum mounting height for signs mounted on traffic signal poles is 5'-3" (±).
6. Offset distance shall be consistent with existing signs or consistent throughout length of project.
7. The (±) tolerance for mounting height is 3 inches.
8. Folding signs shall be mounted at a height of 5'-3" (±) or as directed by the Engineer.
9. The Double Arrow sign (W12-1) shall be mounted at a height of 2'-3" (±). The Chevron sign (W1-8), Roundabout Chevron panel (R6-4B), Enhanced Reference Markers, Clearance Markers (W5-52), Mile Markers (D10 series), In Road Object Markers (W5-54) & End of Road Markers (W5-56) shall be mounted at a height of 4'-3" (±).



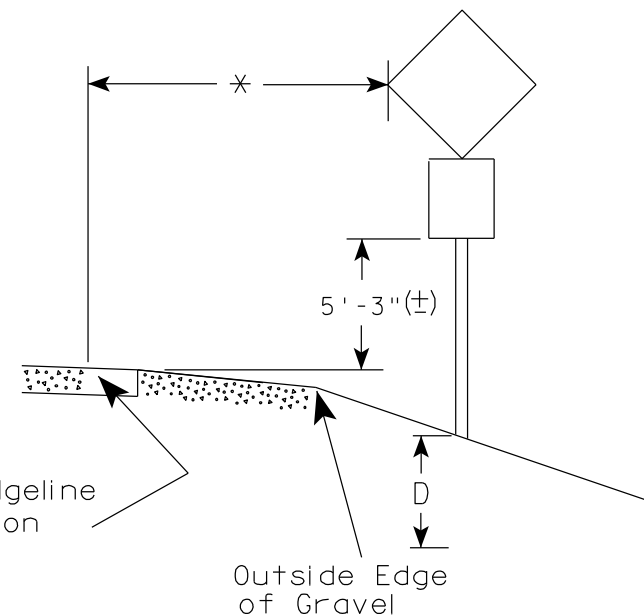
White Edgeline Location



Outside Edge of Gravel



White Edgeline Location



Outside Edge of Gravel

POST EMBEDMENT DEPTH

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

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

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

TYPICAL INSTALLATION
OF PERMANENT TYPE II
SIGNS ON SINGLE POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

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

PROJECT NO: 2745-00-71

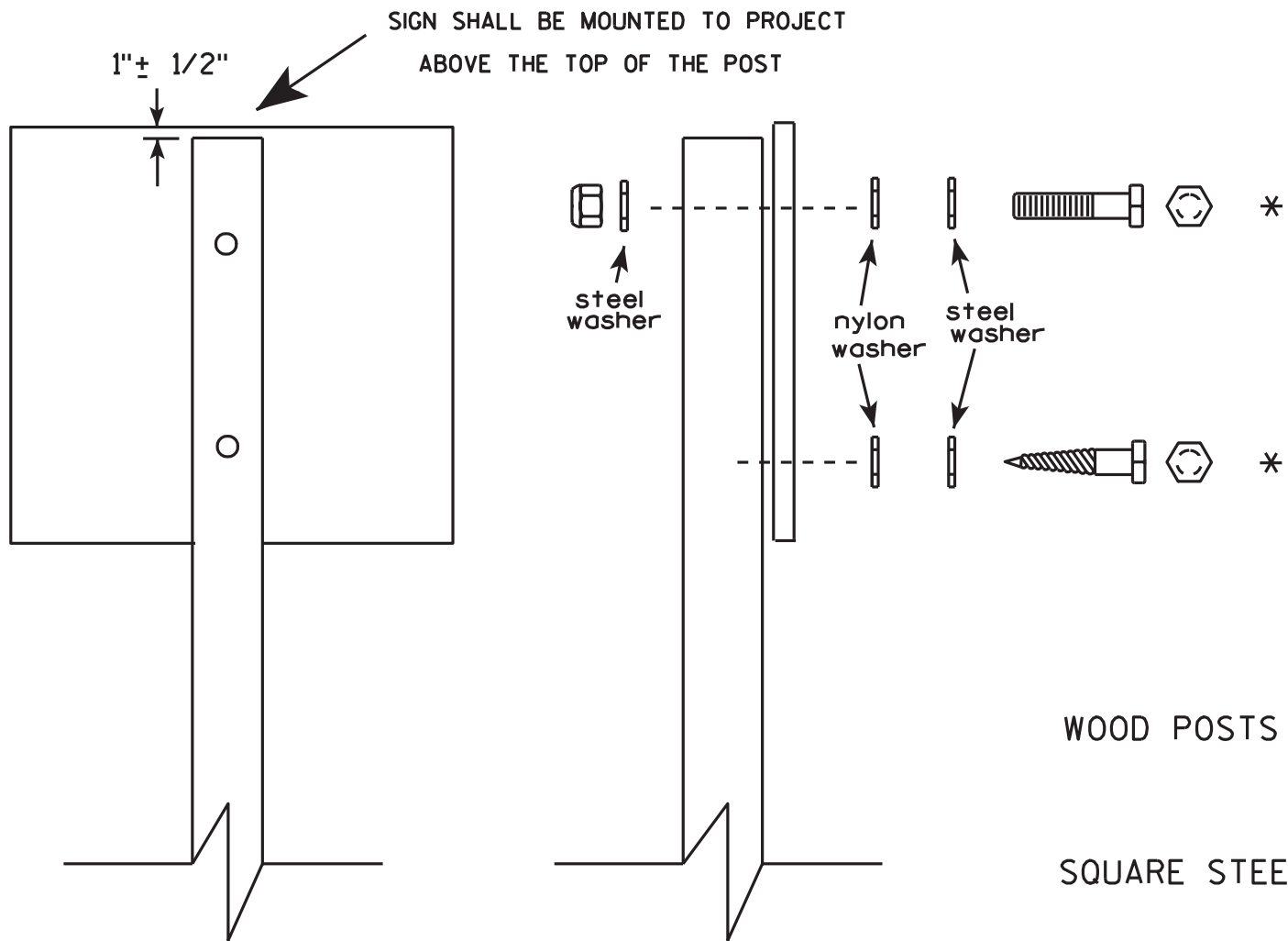
HWY: CTH M

COUNTY: WASHINGTON

SIGN PLATE DETAILS

SHEET NO. 14 of 23 E

7

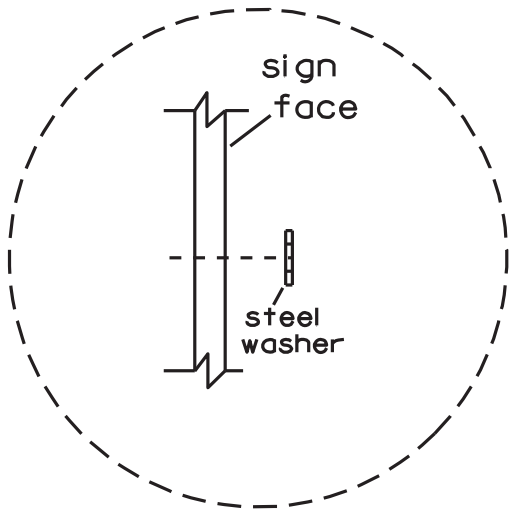


Nuts, bolts and lags used for mounting signs shall have hexagonal heads and shall be either :

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

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

- WOOD POSTS (4" x 4" or 4" x 6")
- LAG SCREWS - $\frac{3}{8}$ " X 3"
- MACHINE BOLTS - $\frac{5}{16}$ " X 6-1/2" or 7" Length w/ nuts
- SQUARE STEEL POSTS (2" x 2")
- MACHINE BOLTS - $\frac{3}{8}$ " X 3-1/4" Length w/ nuts
- 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 for all Type H signs.

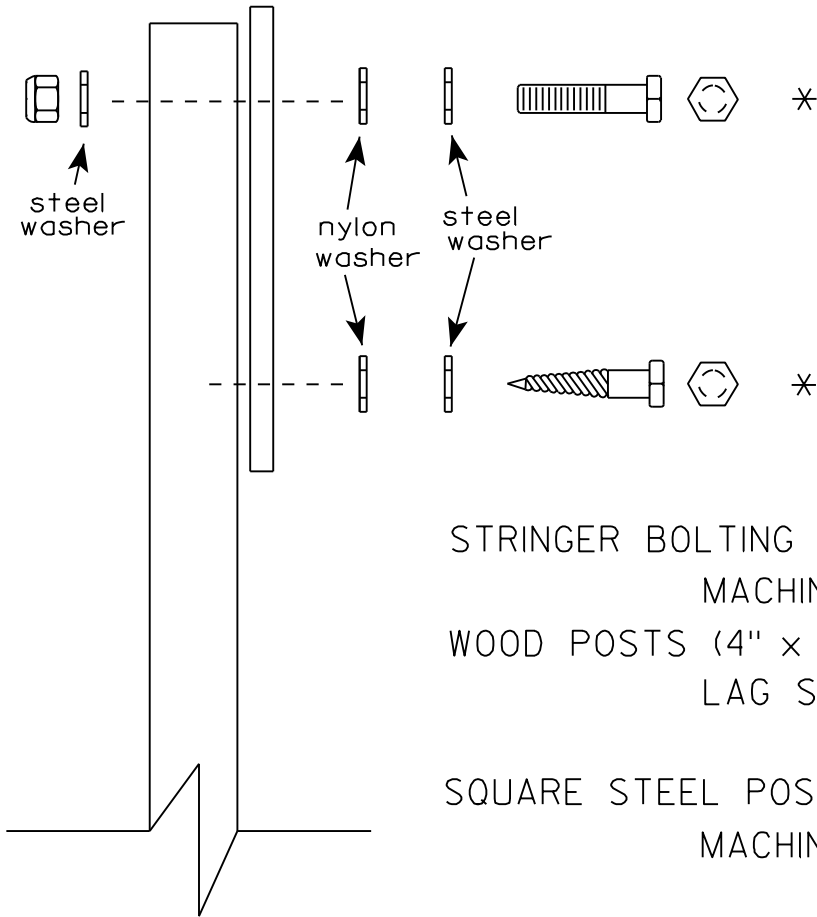
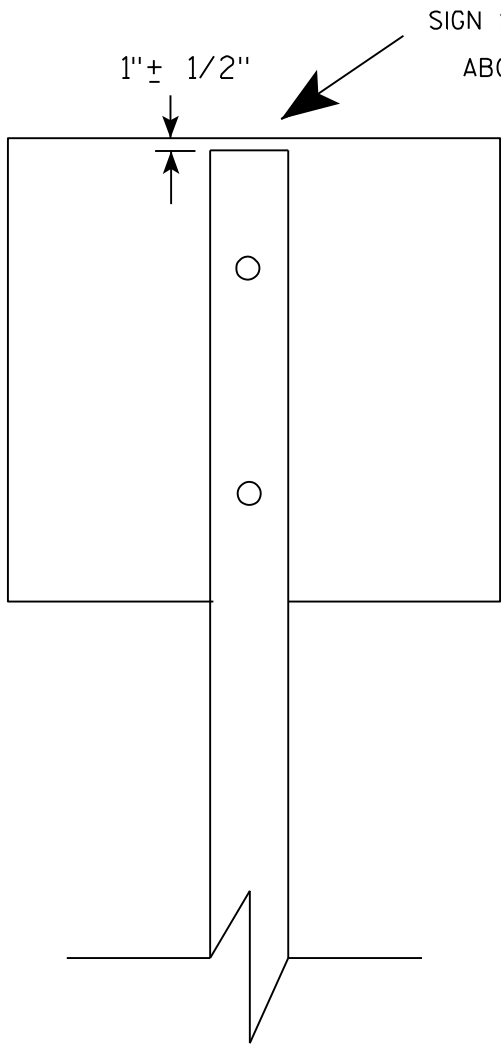


Washer Placement when Sign Has Other Than Type H or Type F Face

* 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 3/23/10	PLATE NO. A4-8.7

7



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 4" or 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

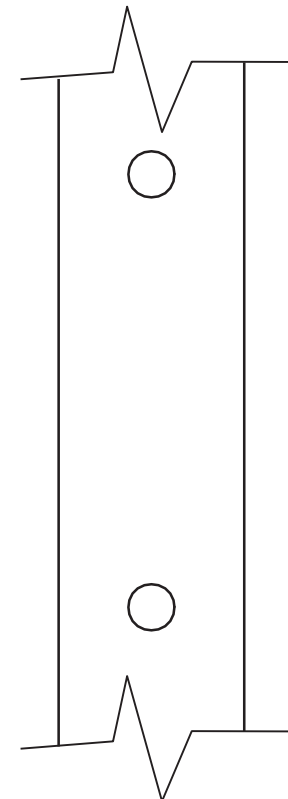
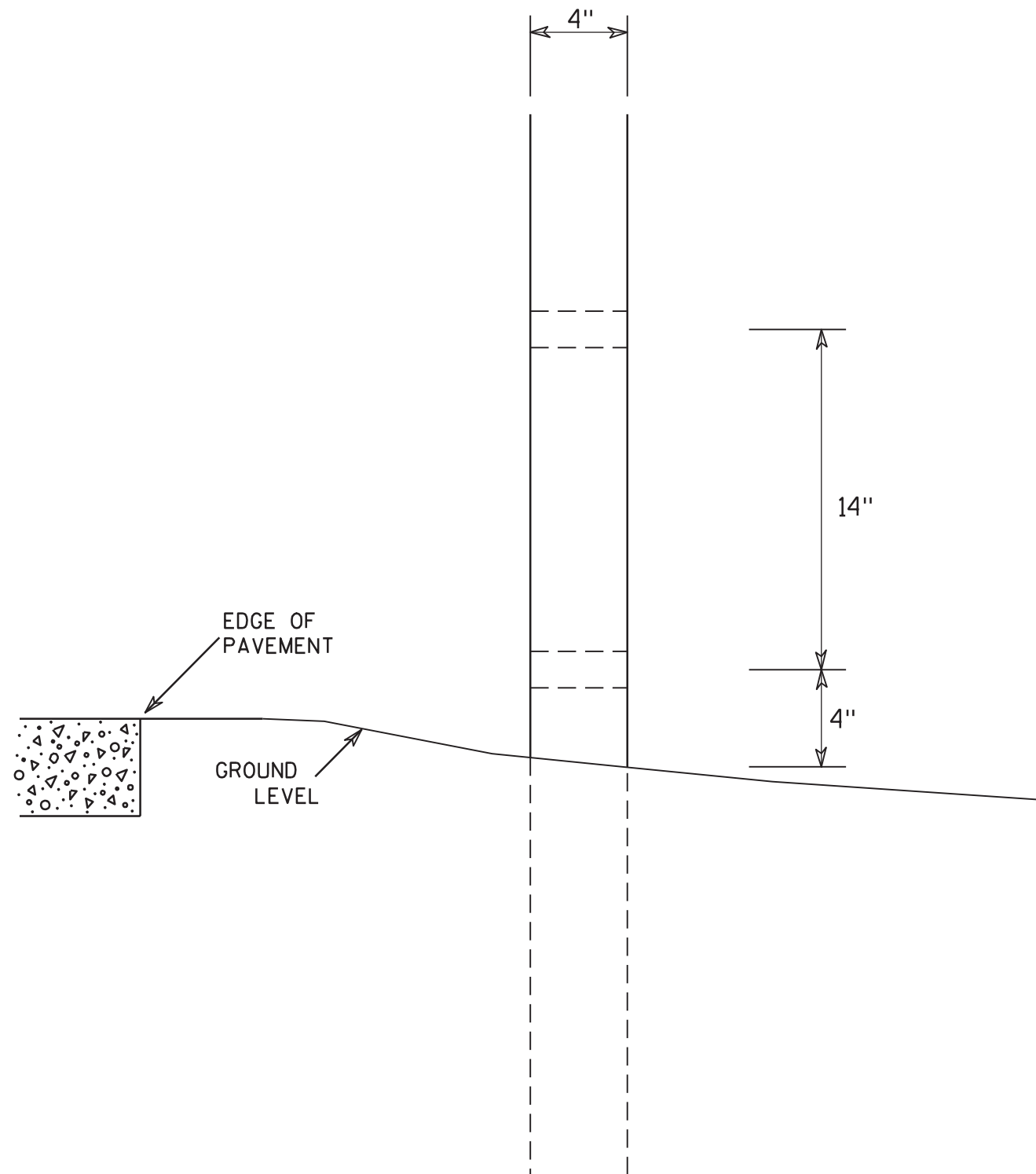
* Two different fastening systems are shown for illustration purposes. On any individual sign, either one or the other system shall be used. Actual number of fasteners per sign varies with the sign area, but normally there are two. For a single post installation, all signs greater than 9 sq. ft. require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

ATTACHMENT OF SIGNS
TO POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
For State Traffic Engineer

DATE 8/11/16 PLATE NO. A4-8.8
Final Plan Pg 16 of 23



SIDE VIEW

GENERAL NOTES

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

4 X 6 WOOD POST MODIFICATIONS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED

Chester J. Spang
for State Traffic Engineer

DATE 3/27/97

PLATE NO. A4-11.2

PROJECT NO: 2745-00-71

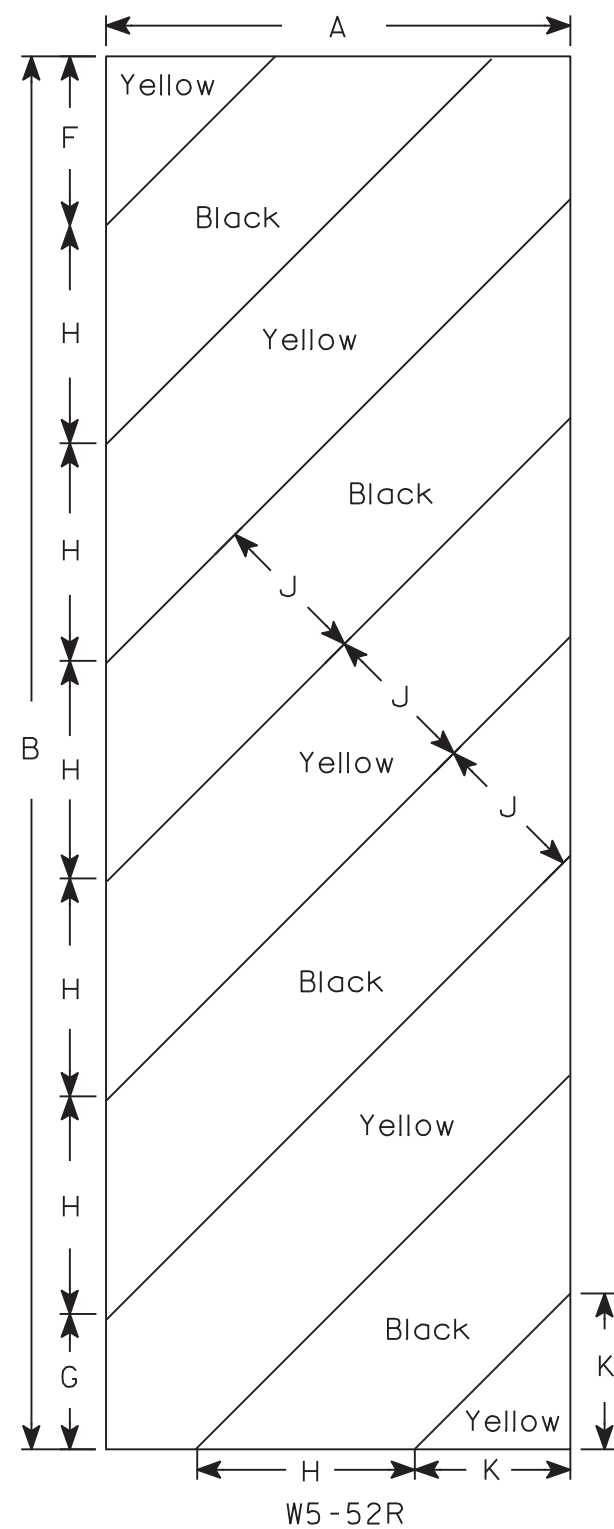
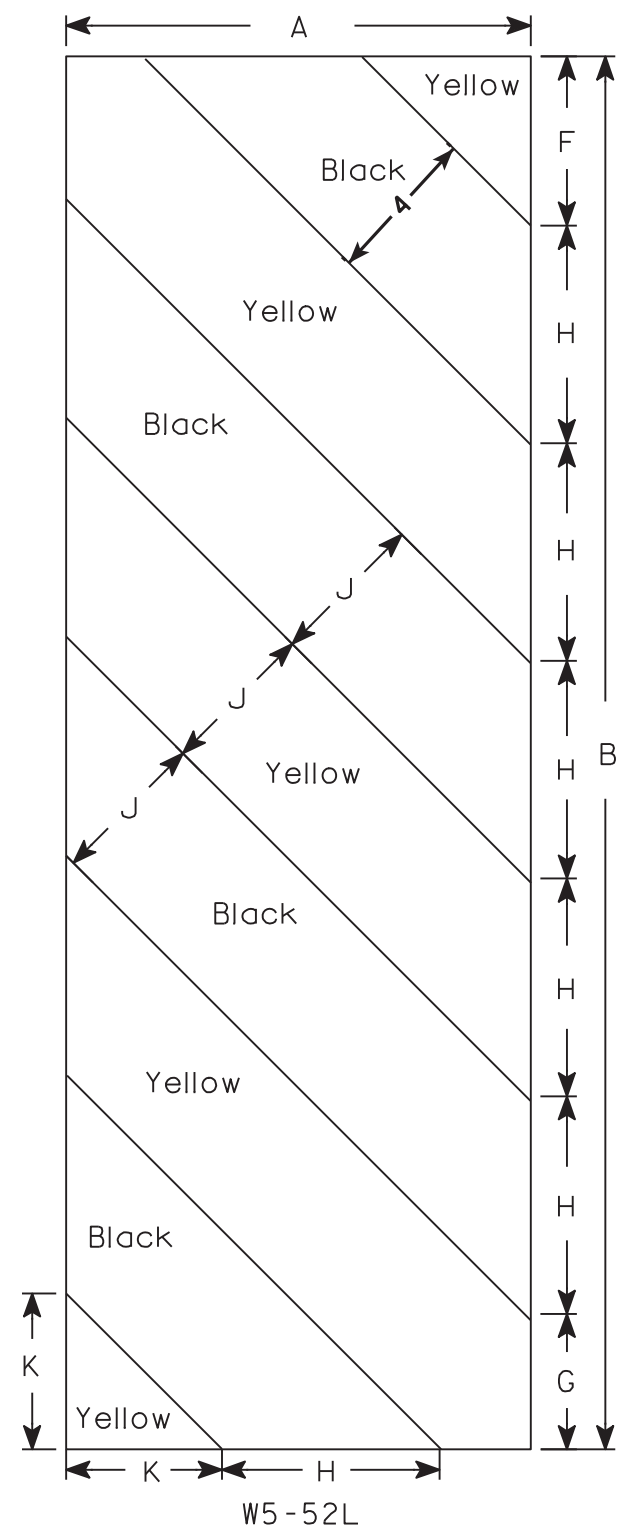
HWY: CTH M

COUNTY: WASHINGTON

SIGN PLATE DETAILS

SHEET NO. 17 of 23

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 5⁄16																6.75
4																											
5																											

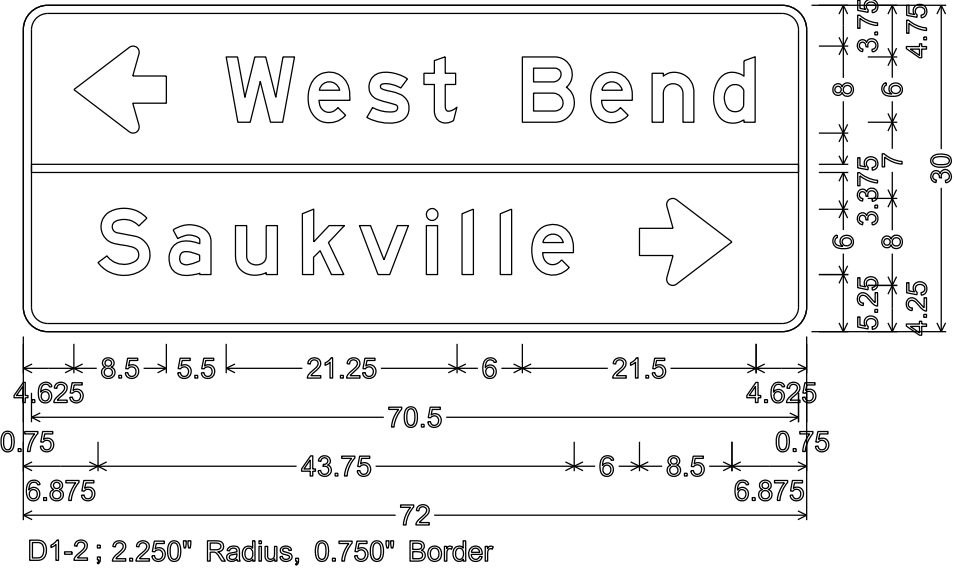
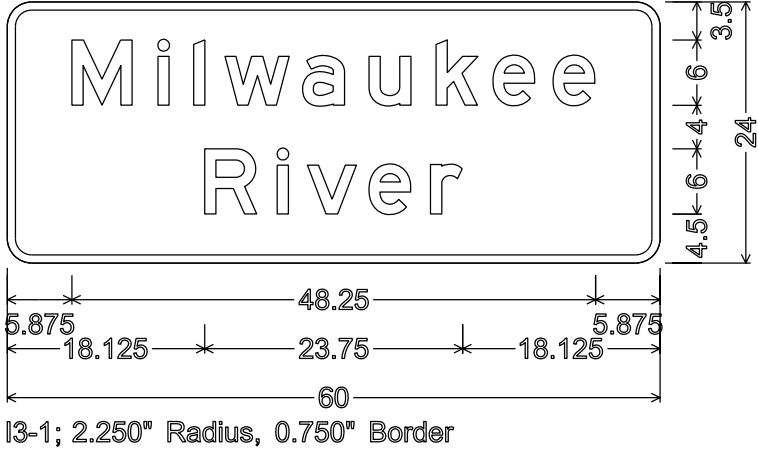
STANDARD SIGN
W5-52L & W5-52R

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

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

7



NOTES

- 1. All Signs Type II - Type H Reflective
- 2. Color:
 - Background - Green
 - Message - White
- 3. Message Series - E

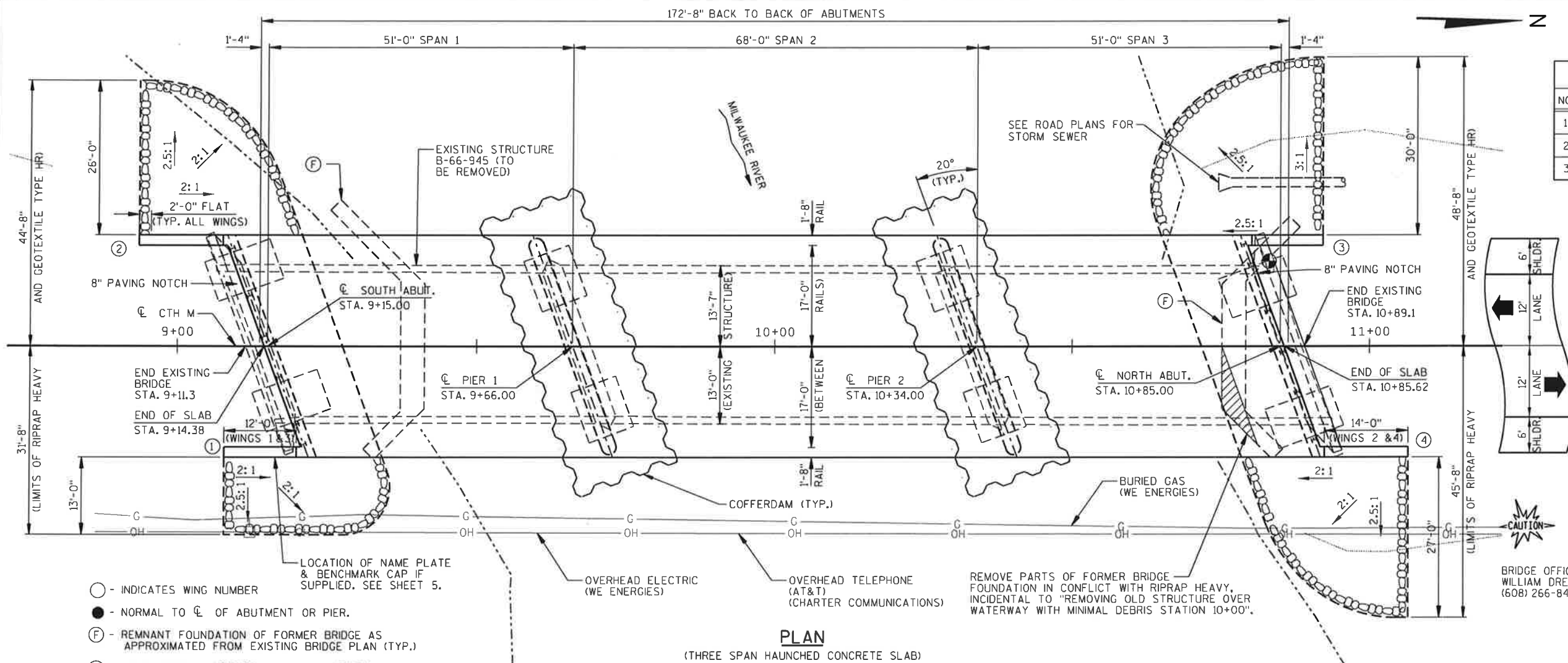
7

NO.	STA./OFFSET	DESCRIPTION	ELEV.
1	11+96.72, 38.70' RT.	¾" REBAR	860.75
2	7+31.21, 26.07' LT.	¾" REBAR	858.91
3	10+83.07, 14.26' LT.	CHIS X ON NW WING WALL	861.90



BRIDGE OFFICE CONTACT:
WILLIAM DREHER
(608) 266-8489

CONSULTANT DESIGN CONTACT:
JOSHUA SWENO
(608) 355-8852

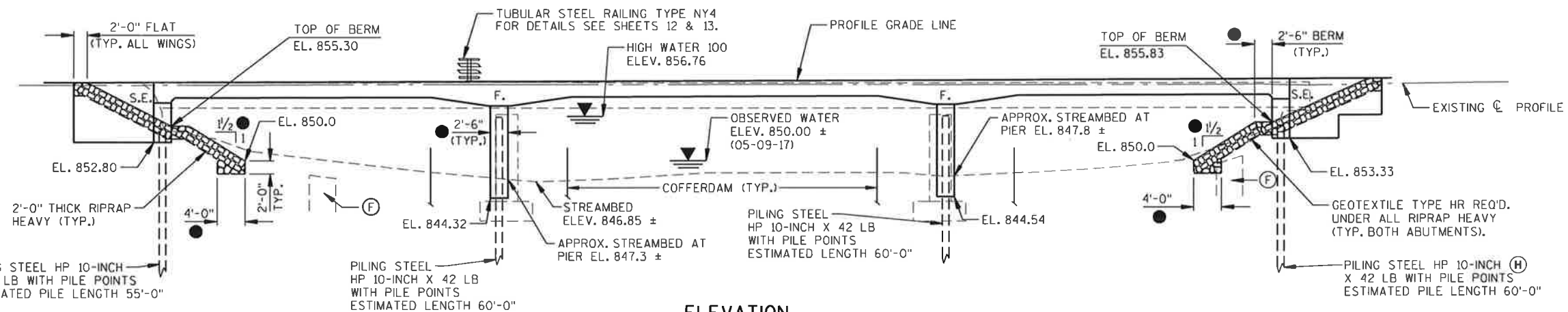


PLAN

(THREE SPAN HAUNCHED CONCRETE SLAB)

LIST OF DRAWINGS

1. GENERAL PLAN
2. CROSS SECTION, QUANTITIES & NOTES
3. SUBSURFACE EXPLORATION
4. SOUTH ABUTMENT
5. SOUTH ABUTMENT DETAILS
6. NORTH ABUTMENT
7. NORTH ABUTMENT DETAILS
8. PIER 1
9. PIER 2
10. SUPERSTRUCTURE
11. SUPERSTRUCTURE SECTIONS & DETAILS
12. TUBULAR STEEL RAILING TYPE NY4
13. END POST DETAILS FOR TUBULAR STEEL RAILING TYPE NY4



ELEVATION

(LOOKING WEST)

DESIGN DATA

LIVE LOAD:

DESIGN LOADING : HL-93
INVENTORY RATING FACTOR : 1.05
OPERATIONAL RATING FACTOR : 1.36
WISCONSIN STANDARD PERMIT VEHICLE (WIS-SPV) = 250 KIPS.
STRUCTURE IS DESIGNED FOR A FUTURE WEARING SURFACE OF 20 POUNDS PER SQUARE FOOT.

TRAFFIC DATA:

A.A.D.T. (2020) = 2,200
A.A.D.T. (2040) = 2,500
R.D.S. = 40 MPH

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.

FOUNDATION DATA:

ABUTMENTS AND PIERS TO BE SUPPORTED ON PILING STEEL HP 10-INCH X 42 LB WITH PILE POINTS. DRIVE ABUTMENT PILES TO A REQUIRED DRIVING RESISTANCE OF 140 TONS * PER PILE. DRIVE PIER PILES TO A REQUIRED DRIVING RESISTANCE OF 170 TONS * PER PILE. REQUIRED DRIVING RESISTANCE IS DETERMINED BY THE MODIFIED GATES DYNAMIC FORMULA. ESTIMATED PILE LENGTHS ARE 55'-0" AT THE SOUTH ABUTMENT, 60'-0" AT PIER 1, 60'-0" AT PIER 2, AND 60'-0" AT THE NORTH ABUTMENT.

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

HYDRAULIC DATA:

100 YEAR FREQUENCY

DRAINAGE AREA — 251 SQ. MI.
 Q_{100} — 5,800 C.F.S.
VELOCITY — 5.42 F.P.S.
WATERWAY AREA — 1070 SQ. FT.
HIGH WATER 100 ELEVATION — 856.76
ROADWAY OVERFLOW DESIGN FREQUENCY — > 100 YEARS
SCOUR CRITICAL CODE — 5
 Q_2 — 2,880 C.F.S.
HIGH WATER 2 ELEVATION — 853.88
VELOCITY 2 — 4.32 F.P.S.

NO.	DATE	REVISION	BY
-----	------	----------	----



STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
ACCEPTED *William C. Dreher* **08/29/19**
CHIEF STRUCTURES DESIGN ENGINEER DATE

STRUCTURE B-66-198

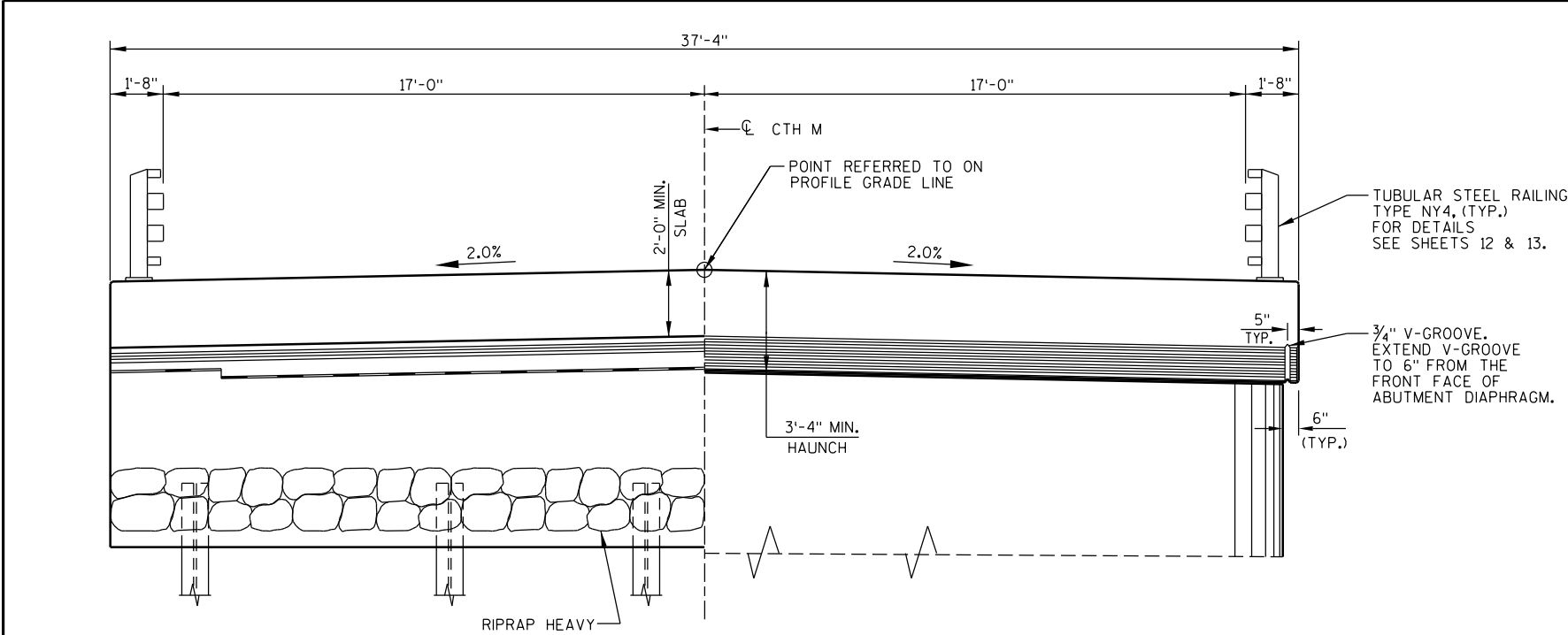
CTH M OVER MILWAUKEE RIVER

COUNTY WASHINGTON TOWN/CITY/VILLAGE TRENTON

DESIGN SPEC. AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS

DESIGNED BY DHW CK'D. JAS DRAWN BY RLR PLANS CK'D. JRS

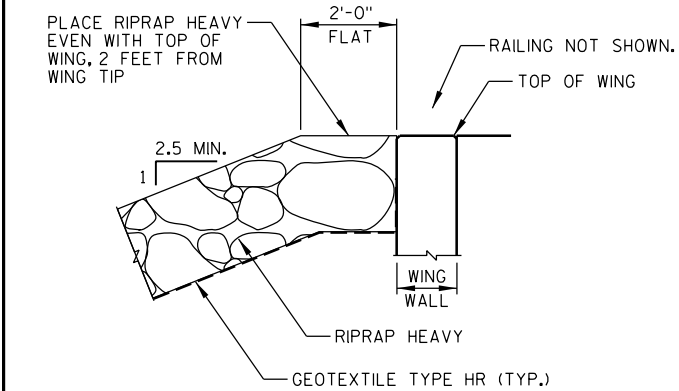
GENERAL PLAN SHEET 1 OF 13



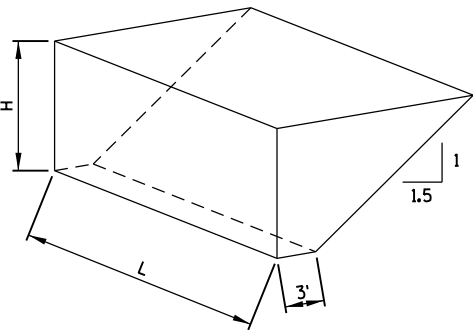
AT ABUTMENTS

AT PIERS
(PILING NOT SHOWN)

CROSS SECTION THRU BRIDGE
(LOOKING NORTH)



TYPICAL FILL SECTION AT WING TIPS



ABUTMENT BACKFILL DIAGRAM

L = OUT-TO-OUT OF ABUTMENT
H = AVERAGE ABUTMENT FILL HEIGHT
 $V_{CF} = (L)(3.0')(H) + (L)(0.5')(1.5H)(H)$
 $V_{TON} = V_{CF} (2.0)/27$

TOTAL ESTIMATED QUANTITIES

ITEM NUMBER	BID ITEM	UNIT	SOUTH ABUT.	PIER 1	PIER 2	NORTH ABUT.	SUPER	TOTAL
203.0600.S	REMOVING OLD STRUCTURE OVER WATERWAY WITH MINIMAL DEBRIS STATION 10+00	LS	-	-	-	-	-	1
206.1000.01	EXCAVATION FOR STRUCTURES BRIDGES B-66-198	LS	-	-	-	-	-	1
206.5000.01	COFFERDAMS B-66-198	LS	-	-	-	-	-	1
210.1500	BACKFILL STRUCTURE TYPE A	TON	185	-	-	185	-	370
311.0110	BREAKER RUN	TON	-	40	40	-	-	80
502.0100	CONCRETE MASONRY BRIDGES	CY	43	50	50	43	536	722
502.3200	PROTECTIVE SURFACE TREATMENT	SY	12	-	-	12	835	859
505.0400	BAR STEEL REINFORCEMENT HS STRUCTURES	LB	2390	2390	2390	2390	-	9560
505.0600	BAR STEEL REINFORCEMENT HS COATED STRUCTURES	LB	1670	80	80	1670	84410	87910
513.7084.01	RAILING STEEL TYPE NY4 B-66-198	LF	-	-	-	-	403	403
516.0500	RUBBERIZED MEMBRANE WATERPROOFING	SY	10	-	-	10	-	20
550.0500	PILE POINTS	EACH	7	11	11	7	-	36
550.1100	PILING STEEL HP 10-INCH X 42 LB	LF	385	660	660	420	-	2125
606.0300	RIPRAP HEAVY	CY	120	-	-	165	-	285
612.0406	PIPE UNDERDRAIN WRAPPED 6-INCH	LF	105	-	-	105	-	210
645.0111	GEOTEXTILE TYPE DF SCHEDULE A	SY	38	-	-	38	-	76
645.0120	GEOTEXTILE TYPE HR	SY	230	-	-	295	-	525
NON-BID ITEMS								
PREFORMED 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 MARK AND THE FIRST TWO DIGITS OF A FOUR DIGIT BAR MARK SIGNIFY THE BAR SIZE.

THE SLOPE OF THE FILL IN FRONT OF THE ABUTMENTS SHALL BE COVERED WITH RIPRAP HEAVY AND GEOTEXTILE TYPE HR TO THE LIMITS SHOWN ON SHEET 1 AND ON THE ABUTMENT SHEETS OR AS DIRECTED BY THE ENGINEER.

THE EXISTING GROUNDLINE SHALL BE THE UPPER LIMITS OF "EXCAVATION FOR STRUCTURES" FOR THE ABUTMENTS. THE EXISTING STREAMBED ELEVATION 846.85± SHALL BE THE UPPER LIMITS OF "EXCAVATION FOR STRUCTURES" FOR THE PIERS.

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

THIS STRUCTURE WILL REPLACE THE EXISTING STRUCTURE, B-66-945, A 177.8 FT. LONG, 26.6 FT. WIDE, THREE SPAN STEEL DECK GIRDER BRIDGE ON OPEN CONCRETE ABUTMENTS AND CONCRETE FRAMED PIERS WITH TWO COLUMNS EACH.

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

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.

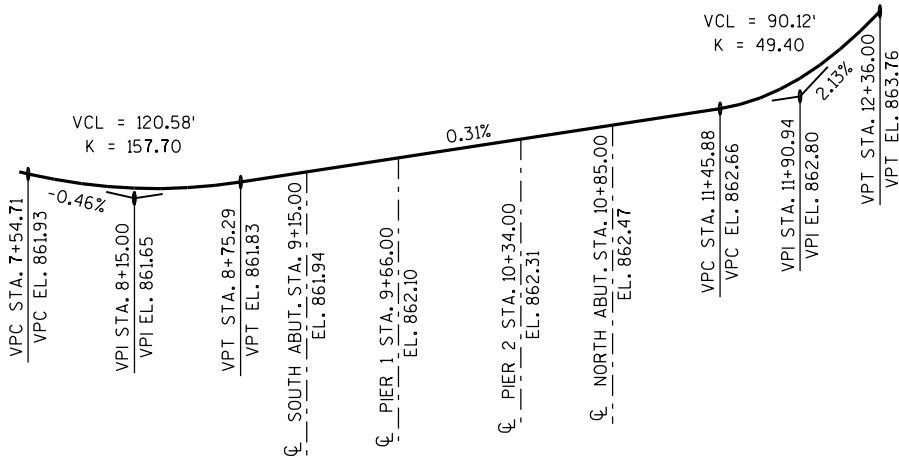
PROTECTIVE SURFACE TREATMENT SHALL BE APPLIED TO THE TOP AND EDGES OF SLAB, TO THE OUTSIDE 1'-0" OF THE UNDERSIDE OF SLAB, TO THE TOPS OF WINGS, TO THE EXPOSED FRONT FACES OF WINGS, AND TO THE END 1'-0" OF THE FRONT FACE OF ABUTMENTS.

ELEVATIONS SHOWN ON THIS PLAN ARE REFERENCED TO USGS NGVD 29. BENCHMARK REFERENCES AT THE PROJECT SITE WERE SET BY THE CONSULTANT USING GPS TECHNOLOGY.

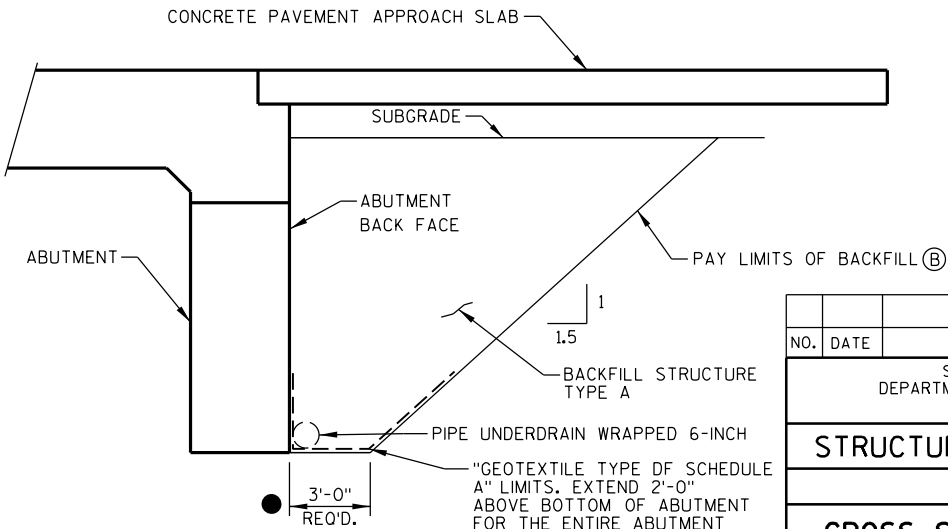
EXCAVATION BELOW THE ABUTMENT AND ABUTMENT BEDDING MATERIALS REQUIRES ENGINEER APPROVAL. GEOTEXTILE SHALL BE SET AT THE BOTTOM OF EXCAVATION AND EXTEND 2'-0" ABOVE BOTTOM OF ABUTMENT.

DURING SUBSTRUCTURE REMOVAL, REMOVE ALL ABUTMENT, PIER AND FOOTING CONCRETE THAT IS IN CONFLICT WITH THE PROPOSED PILING. COFFERDAMS, IF USED AT THE ABUTMENTS AND ANY OTHER WORK NECESSARY TO FACILITATE THE DRIVING OF PILING, ARE INCLUDED WITH "REMOVING OLD STRUCTURE OVER WATERWAY WITH MINIMAL DEBRIS".

THE VOIDS LEFT FROM THE REMOVAL OF THE EXISTING PIER FOOTINGS SHALL BE BACKFILLED WITH BREAKER RUN TO THE PROPOSED BOTTOM OF PIER ELEVATIONS.



PROFILE GRADE LINE - CTH M

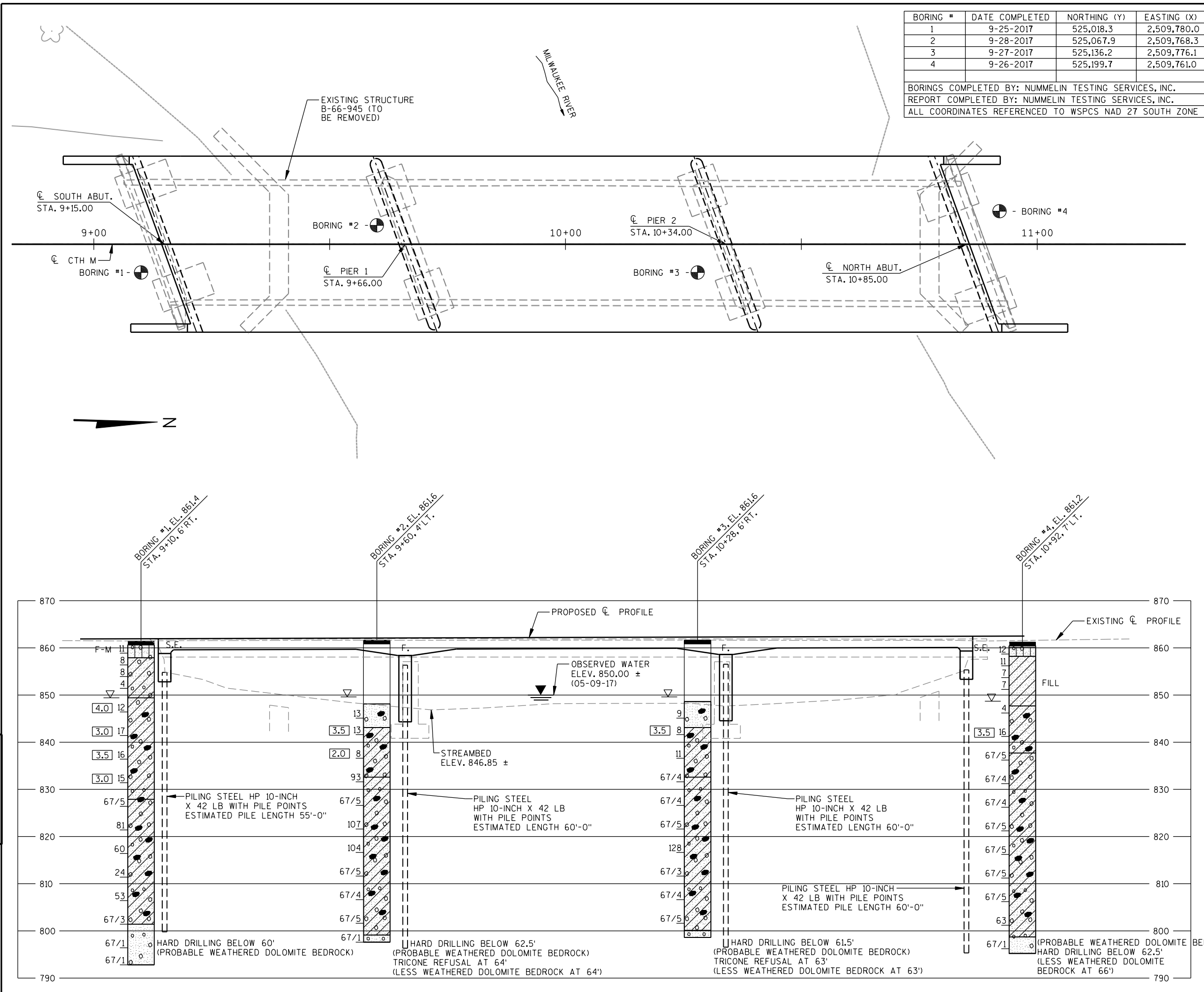


STRUCTURE BACKFILL DETAIL

● - NORMAL TO C. OF SUBSTRUCTURE

STATE PROJECT NUMBER
2745-00-71

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE		B-66-198	
DRAWN BY		CAR	PLANS CK'D. JRS
CROSS SECTION, QUANTITIES & NOTES		SHEET 2 OF 13	



BORING #	DATE COMPLETED	NORTHING (Y)	EASTING (X)
1	9-25-2017	525,018.3	2,509,780.0
2	9-28-2017	525,067.9	2,509,768.3
3	9-27-2017	525,136.2	2,509,776.1
4	9-26-2017	525,199.7	2,509,761.0

BORINGS COMPLETED BY: NUMMELIN TESTING SERVICES, INC.

REPORT COMPLETED BY: NUMMELIN TESTING SERVICES, INC.

ALL COORDINATES REFERENCED TO WSPCS NAD 27 SOUTH ZONE

STATE PROJECT NUMBER

2745-00-71

MATERIAL SYMBOLS

ASPHALT

CONCRETE

SAND

BOULDERS OR COBBLES

SHALE

TOPSOIL

FILL

CLAY

LIMESTONE

SANDSTONE

PEAT

GRAVEL

SILT

BEDROCK (UNKNOWN)

IGNEOUS/META

LEGEND OF BORING

BORING # EL. STA./OFF-SET

ST

0.25

17

F-C

COBBLE OR BOULDER

WEATHERED LIMESTONE

CORE RUN #1 - 24'-29'

REC=80%, ROD=72%

(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

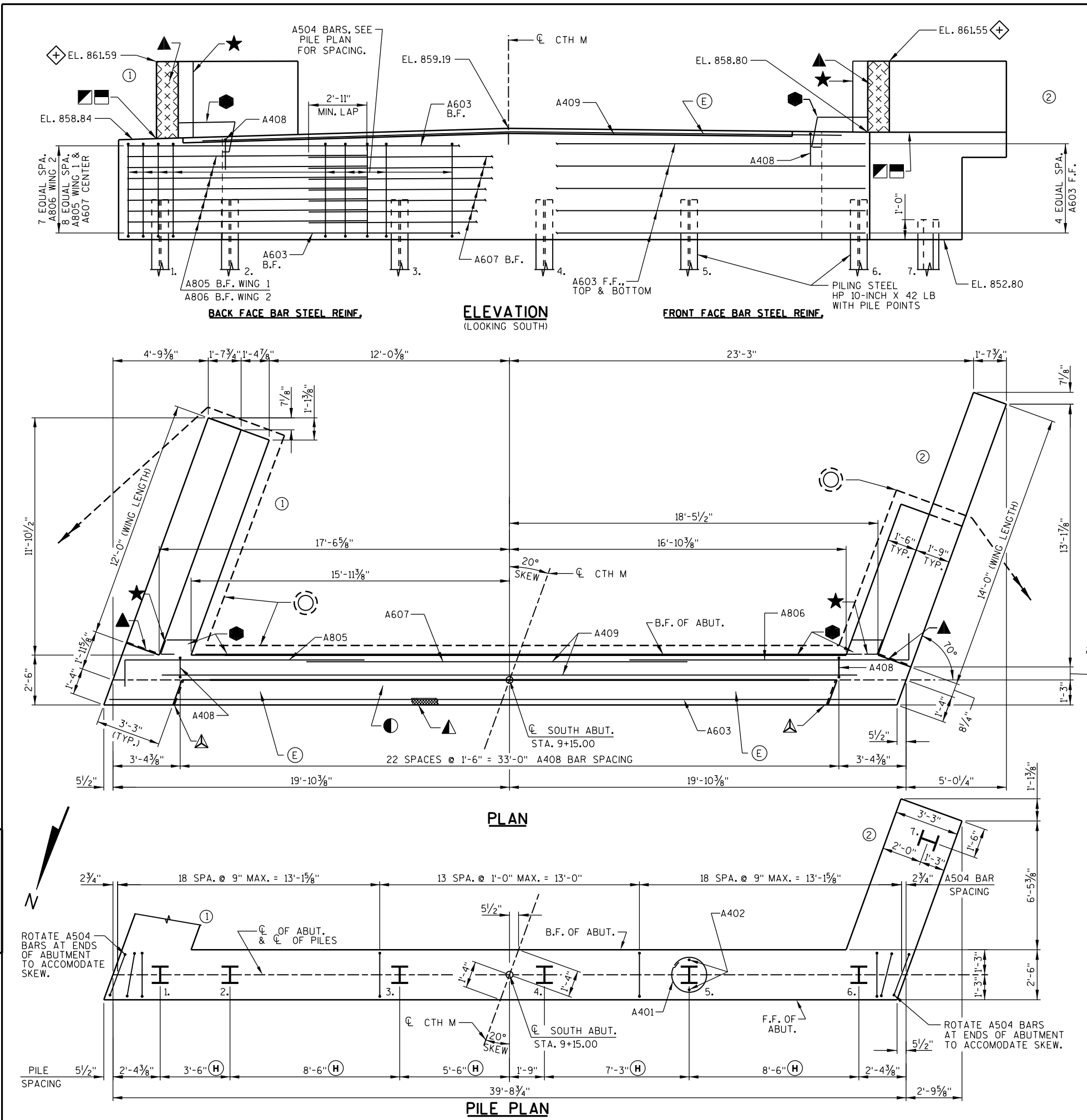
SUBSURFACE EXPLORATION FOR FOUNDATION DESIGN AND BIDDERS INFORMATION

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

8

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-66-198			
DRAWN BY		CAR	PLANS CK'D. JRS
SUBSURFACE EXPLORATION		SHEET 3 OF 13	



NOTES:

FOR WING DETAILS SEE SHEET 5.

ELEVATIONS ARE GIVEN AT THE B.F. OF THE ABUTMENT.

STATE PROJECT NUMBER

2745-00-71

2'-6"

1'-3"

1'-3"

CL OF ABUTMENT

3/4" BEVEL

3" TYP. F.F.

A603

2'-6" BERM

TOP OF BERM EL. 855.30

RIPRAP HEAVY

1 1/2

1

2'-0" (TYP.)

GEOTEXTILE TYPE HR (TYP.)

A603

2'-0"

4 EQUAL SPACES FRONT FACE

7 OR 8 EQUAL SPA. BACK FACE

VARIES 6'-0" @ WING 2 TO 6'-0 1/2"

@ WING 1 TO 6'-4 5/8" @ CL CTH M

EXCAVATE TO THIS LINE BEFORE DRIVING PILING

SOUTH ABUTMENT TO BE SUPPORTED ON PILING STEEL HP 10-INCH X 42 LB WITH PILE POINTS. PILES TO BE DRIVEN TO A REQUIRED DRIVING RESISTANCE OF 140 TONS PER PILE. ESTIMATED PILE LENGTHS ARE 55'-0". FOR PILE SPLICE DETAILS SEE SHEET 5.

TYPICAL SECTION THRU ABUTMENT

LEGEND

- - INDICATES WING NUMBER.
- ◻ - OPTIONAL KEYED CONST. JOINT ON WING FORMED BY BEVELED 2x6. IF JOINT IS USED POUR CONCRETE ABOVE THIS JOINT AFTER DECK IS IN PLACE AND PLACE ON B.F. OF WING.
- ◻ - 3/4" "V" GROOVE ON FRONT FACE OF WING WALL, REQ'D. ONLY WHERE CONST. JOINT IS USED.
- ▲ - 1/2" FILLER EXTEND AS SHOWN. SEAL ALL EXPOSED HORIZ. & VERT. SURFACES OF FILLER WITH NON-STAINING GRAY, NON-BITUMINOUS JOINT SEALER. (1" DEEP & HOLD 1/8" BELOW SURFACE OF CONCRETE).
- ▲ - 4" x 3/4" FILLER, EXTEND FULL LENGTH OF ABUTMENT BETWEEN EDGES OF SLAB.
- ★ - VERTICAL 18" WIDE RUBBERIZED MEMBRANE WATERPROOFING. EXTEND FROM 9" BELOW BRIDGE SEAT TO TOP OF WINGS.
- - HORIZONTAL 18" WIDE RUBBERIZED MEMBRANE WATERPROOFING. EXTEND BETWEEN WINGS. PLACE BOTTOM HALF HORIZONTAL AT HAUNCHED AREA OF WINGS AT CONSTRUCTION JOINT.
- - PIPE UNDERDRAIN WRAPPED 6-INCH. EXTEND THRU GEOTEXTILE TYPE HR AT FACE OF RIPRAP HEAVY. SLOPE 0.5% MIN. TO DRAIN. PROVIDE RODENT PROTECTION AT EXPOSED ENDS OF PIPE. FOR RODENT SHIELD DETAILS, SEE SHEET 7.
- ⓔ - SEMI-EXPANSION STEP, CONSTRUCT 3" DEEPER THAN ABUTMENT BACKWALL.
- - STEEL TROWEL TOP SURFACE OF ABUTMENT. PLACE MULTIPLE LAYERS OF POLYETHYLENE SHEETS OVER ENTIRE ABUTMENT TOP BEFORE PLACING SUPERSTRUCTURE. TOTAL THICKNESS OF SHEETS SHALL BE AT LEAST 0.03 INCHES.
- ▲ - 3/4" CORK FILLER (SIDE VERTICAL FACES ONLY).

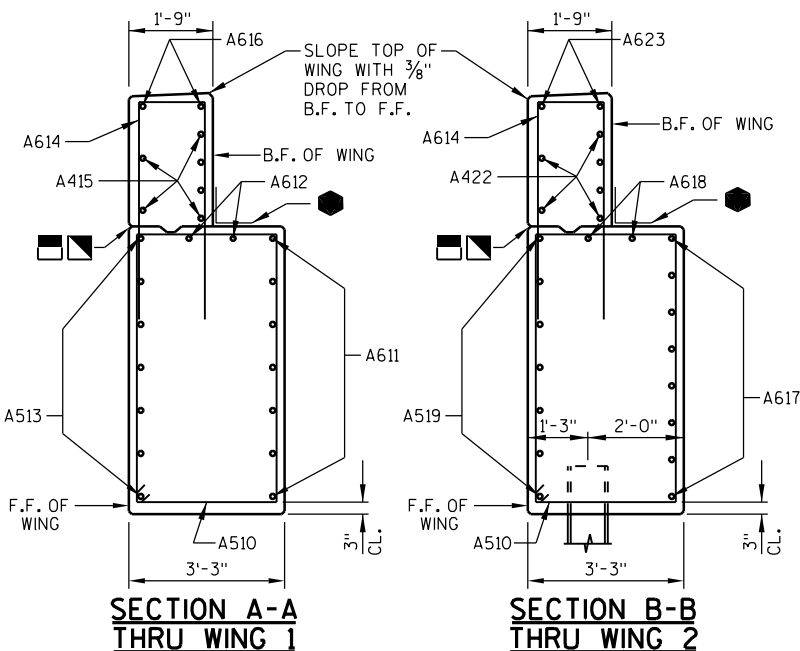
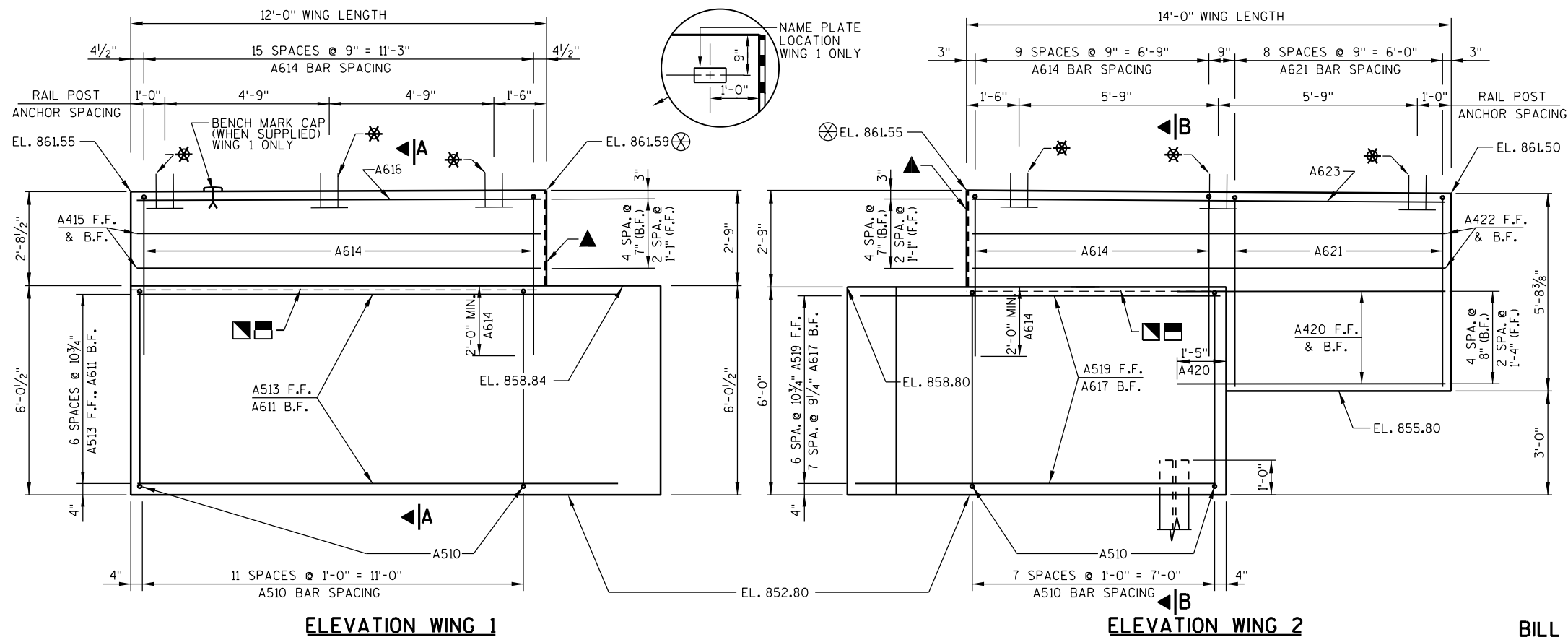
F.F. - FRONT FACE
B.F. - BACK FACE
CL. - CLEAR

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-66-198			
DRAWN BY RLR		PLANS CK'D. JRS	
SOUTH ABUTMENT		SHEET 4 OF 13	

⑨ - FIELD VERIFY LOCATION OF EXISTING FOOTINGS BEFORE DRIVING PILES. ADJUST PILE SPACING AS NECESSARY TO AVOID EXISTING ABUTMENT FOOTING. 9'-0" MAXIMUM PILE SPACING ALLOWED.

⊗ - ELEVATIONS ARE GIVEN AT THE FRONT FACE OF WING.

★ - FOR RAIL POST ANCHOR DETAILS SEE SHEET 12.

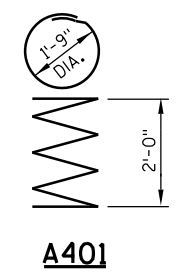
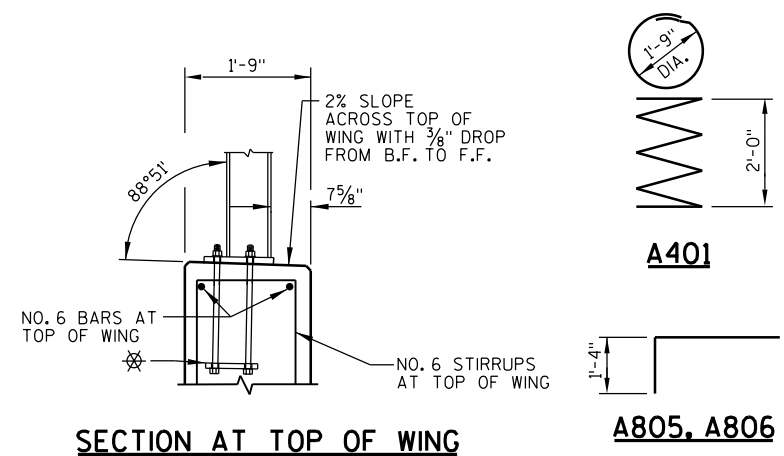
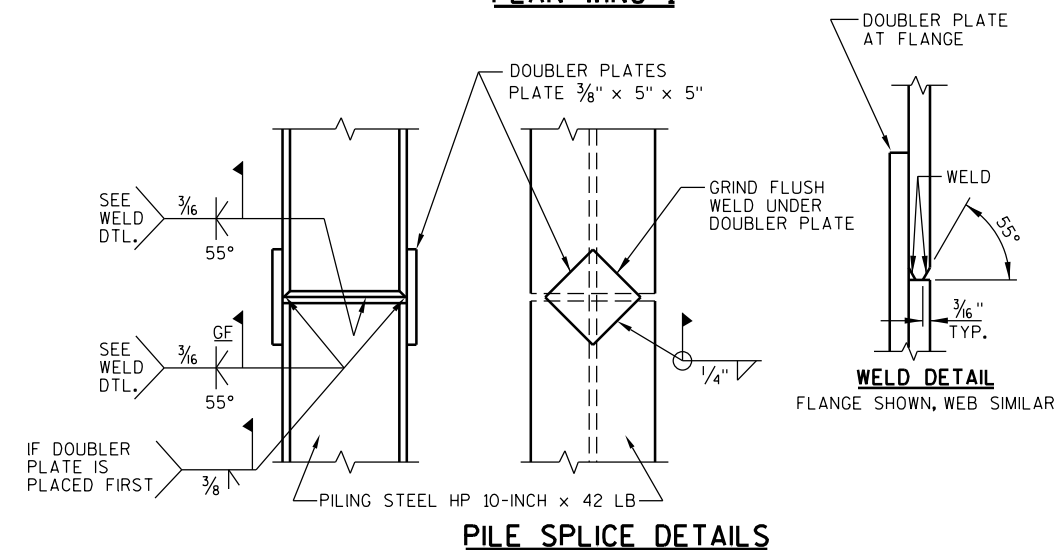
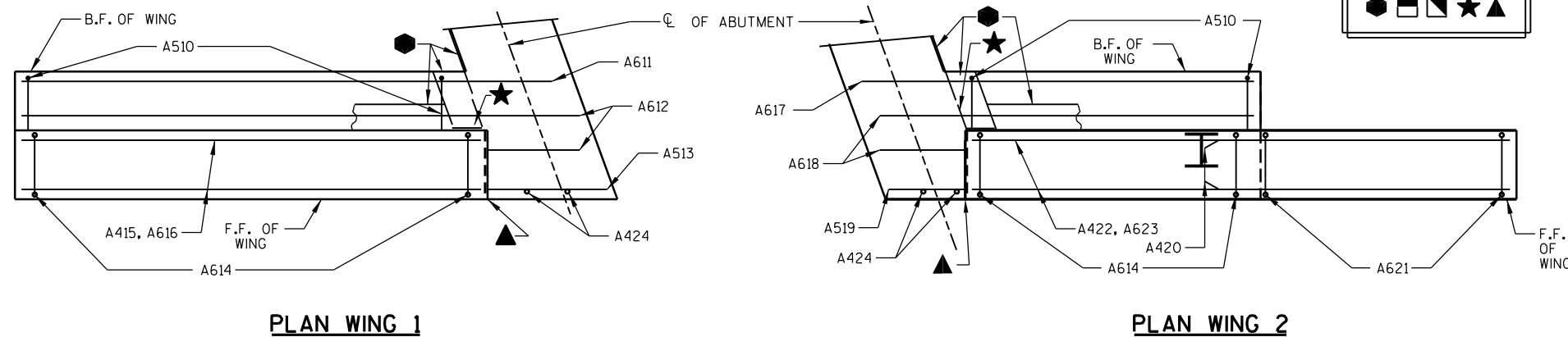


**BILL OF BARS
(SOUTH ABUT.)**

**COATED 1670 LBS.
UNCOATED 2390 LBS.**

MARK	NUMBER REQUIRED COATED	UNCOATED	LENGTH	BENT	LOCATION
A401	-	6	28'-0"	X	ABUT. BODY PILES - 1 SPIRAL WRAP @ EACH PILE
A402	-	12	2'-3"		ABUT. BODY PILES - 2 @ EACH PILE - VERT.
A603	-	11	39'-4"		ABUT. BODY - F.F., TOP & BOTTOM - HORIZ.
A504	-	50	15'-8"	X	ABUT. BODY - STIRRUPS - VERT.
A805	-	7	13'-2"	X	ABUT. BODY - B.F. AT WING 1 - HORIZ.
A806	-	6	15'-2"	X	ABUT. BODY - B.F. AT WING 2 - HORIZ.
A607	-	7	19'-2"		ABUT. BODY - B.F. CENTER - HORIZ.
A408	-	23	3'-9"	X	ABUT. BODY - TOP - S.E. BACKWALL STIRRUP - VERT.
A409	-	2	34'-10"		ABUT. BODY - TOP - S.E. BACKWALL - HORIZ.
A510	20	-	17'-8"	X	WINGS - BASE - STIRRUP - VERT.
A611	7	-	13'-5"		WING 1 - BASE - B.F. - HORIZ.
A612	2	-	14'-2"		WING 1 - BASE - TOP - HORIZ.
A513	7	-	14'-10"		WING 1 - BASE - F.F. - HORIZ.
A614	26	-	10'-5"	X	WINGS - TOP - STIRRUP - VERT.
A415	6	-	11'-7"		WING 1 - TOP - F.F. & B.F. - HORIZ.
A616	2	-	11'-7"		WING 1 - TOP - F.F. & B.F. - HORIZ.
A617	8	-	10'-0"		WING 2 - BASE - B.F. - HORIZ.
A618	2	-	9'-6"		WING 2 - BASE - TOP - HORIZ.
A519	7	-	9'-3"		WING 2 - BASE - F.F. - HORIZ.
A420	8	-	7'-9"		WING 2 - TIP - F.F. & B.F. - HORIZ.
A621	9	-	11'-9"	X	WING 2 - TIP - STIRRUP - VERT.
A422	6	-	13'-7"		WING 2 - TOP - F.F. & B.F. - HORIZ.
A623	2	-	13'-7"		WING 2 - TOP - F.F. & B.F. - HORIZ.
A424	4	-	5'-7"		ABUT. BODY - ENDS @ WINGS - VERT.

DIMENSIONS IN BENDING DETAILS ARE OUT TO OUT OF BAR.



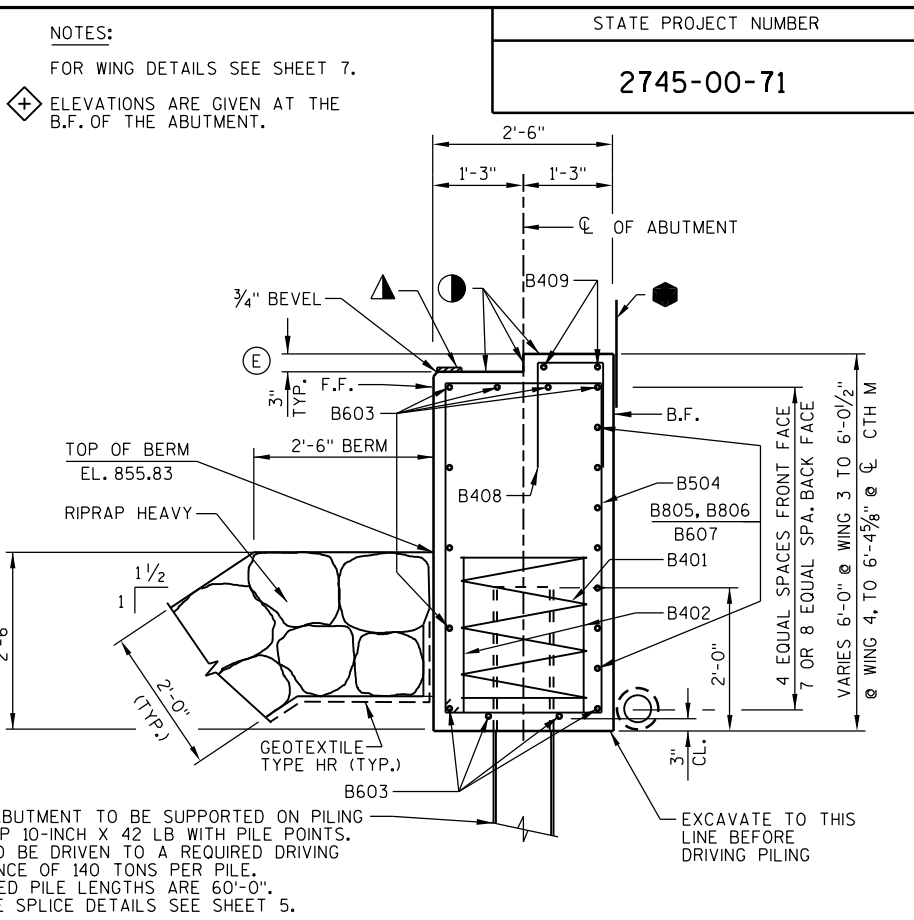
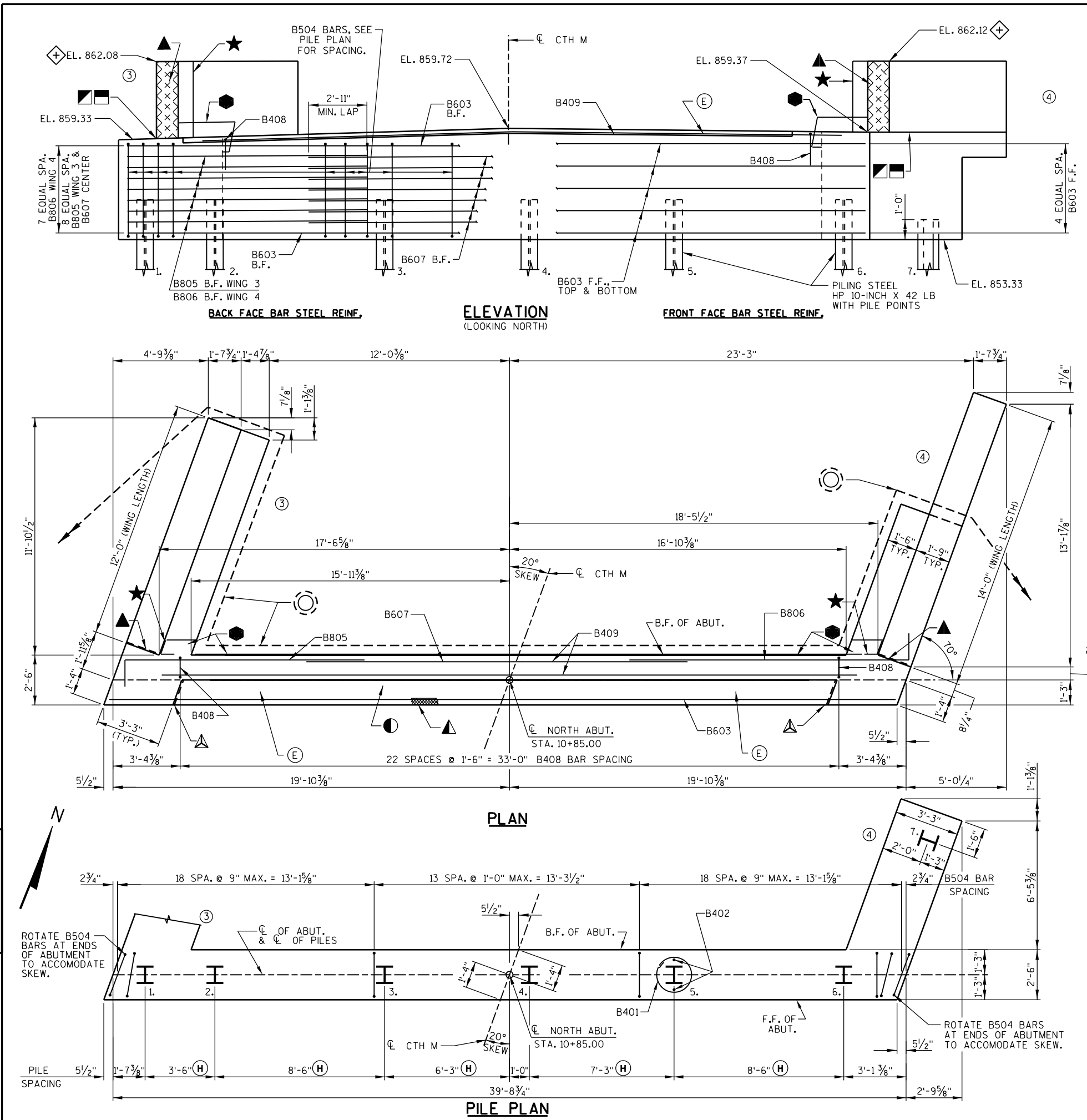
A805, A806

MARK	A	B
A504	5'-4"	2'-2"
A510	5'-7"	2'-11"

MARK	C	D
A408	1'-6"	11"
A614	4'-8"	1'-5"
A621	5'-4"	1'-5"

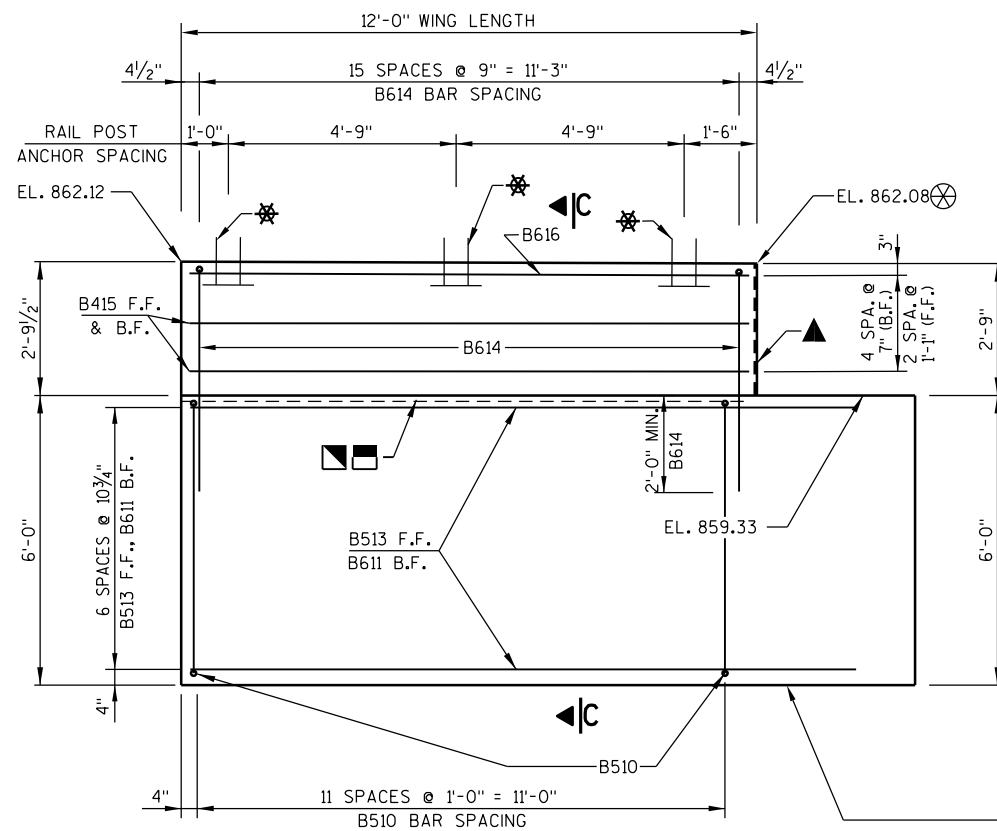
NO.	DATE	REVISION	BY

STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
STRUCTURE B-66-198	
DRAWN BY RLR	PLANS CK'D. JRS
SOUTH ABUTMENT DETAILS	
SHEET 5 OF 13	

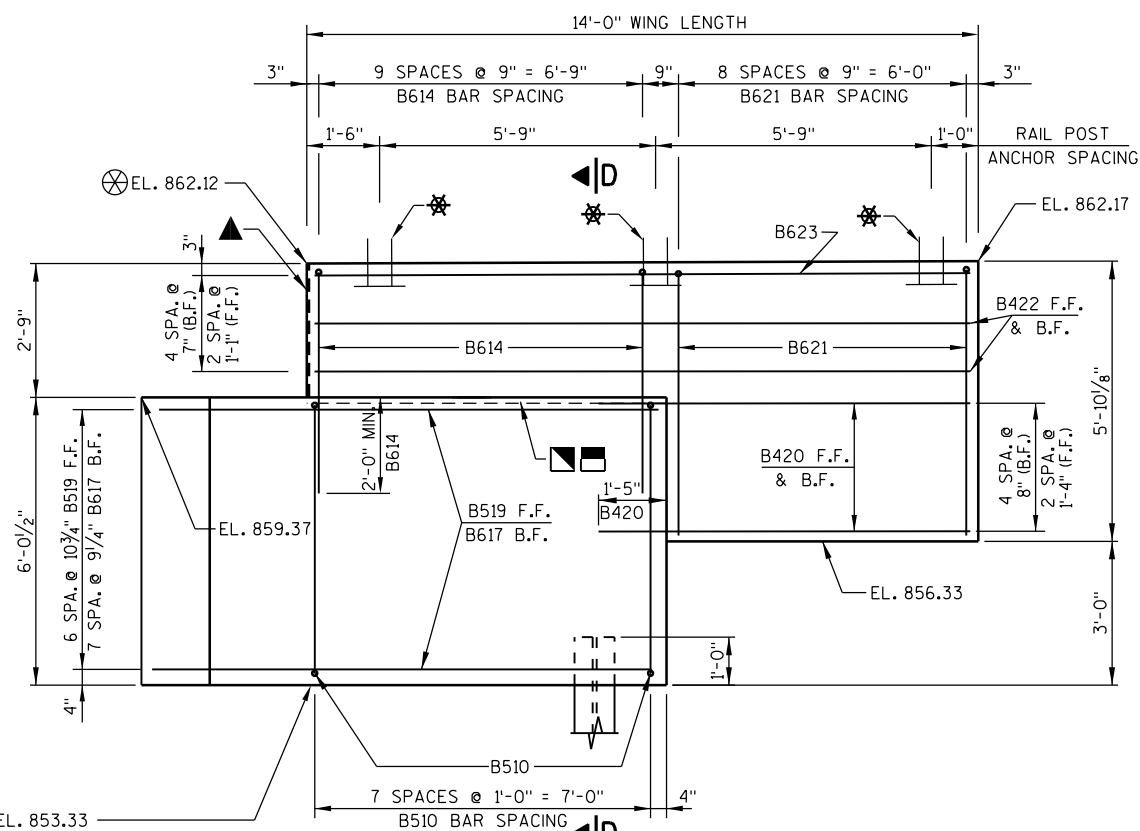


⊗ - ELEVATIONS ARE GIVEN AT THE FRONT FACE OF WING.

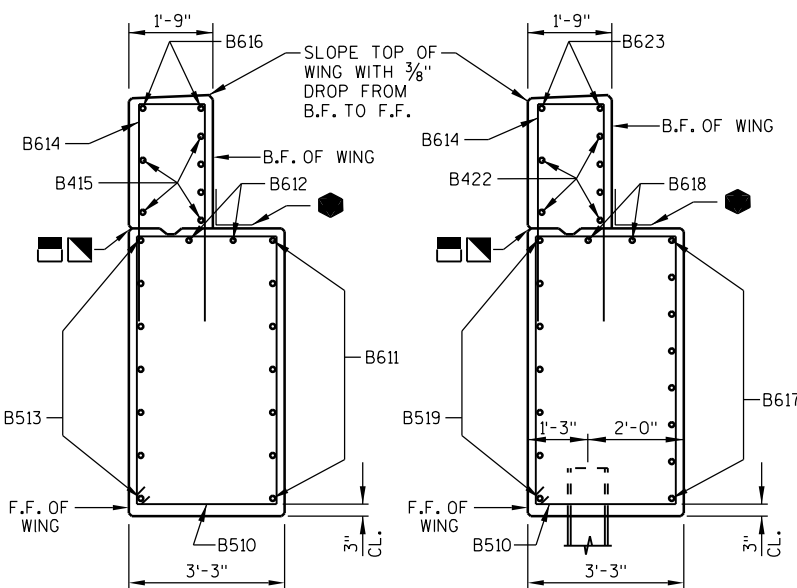
★ - FOR RAIL POST ANCHOR DETAILS SEE SHEET 12.



ELEVATION WING 3



ELEVATION WING 4

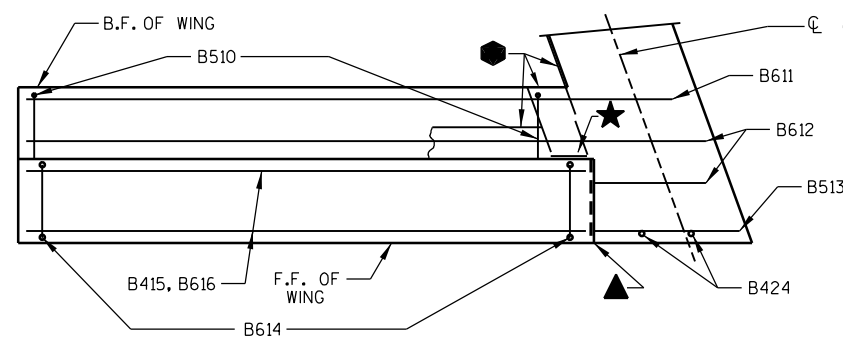
SECTION C-C
THRU WING 3SECTION D-D
THRU WING 4

BILL OF BARS (NORTH ABUT.)

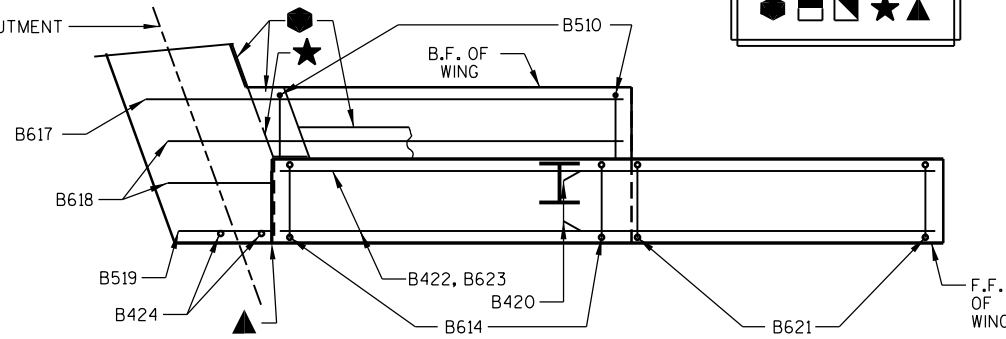
COATED 1670 LBS.
UNCOATED 2390 LBS.

MARK	NUMBER REQUIRED COATED	UNCOATED	LENGTH	BENT	LOCATION
B401	-	6	28'-0"	X	ABUT. BODY PILES - 1 SPIRAL WRAP @ EACH PILE
B402	-	12	2'-3"		ABUT. BODY PILES - 2 @ EACH PILE - VERT.
B603	-	11	39'-4"		ABUT. BODY - F.F., TOP & BOTTOM - HORIZ.
B504	-	50	15'-8"	X	ABUT. BODY - STIRRUPS - VERT.
B805	-	7	13'-2"	X	ABUT. BODY - B.F. AT WING 3 - HORIZ.
B806	-	6	15'-2"	X	ABUT. BODY - B.F. AT WING 4 - HORIZ.
B607	-	7	19'-2"		ABUT. BODY - B.F. CENTER - HORIZ.
B408	-	23	3'-9"	X	ABUT. BODY - TOP - S.E. BACKWALL STIRRUP - VERT.
B409	-	2	34'-10"		ABUT. BODY - TOP - S.E. BACKWALL - HORIZ.
B510	20	-	17'-8"	X	WINGS - BASE - STIRRUP - VERT.
B611	7	-	13'-5"		WING 3 - BASE - B.F. - HORIZ.
B612	2	-	14'-2"		WING 3 - BASE - TOP - HORIZ.
B513	7	-	14'-10"		WING 3 - BASE - F.F. - HORIZ.
B614	26	-	10'-5"	X	WINGS - TOP - STIRRUP - VERT.
B415	6	-	11'-7"		WING 3 - TOP - F.F. & B.F. - HORIZ.
B616	2	-	11'-7"		WING 3 - TOP - F.F. & B.F. - HORIZ.
B617	8	-	10'-0"		WING 4 - BASE - B.F. - HORIZ.
B618	2	-	9'-6"		WING 4 - BASE - TOP - HORIZ.
B519	7	-	9'-3"		WING 4 - BASE - F.F. - HORIZ.
B420	8	-	7'-9"		WING 4 - TIP - F.F. & B.F. - HORIZ.
B621	9	-	11'-9"	X	WING 4 - TIP - STIRRUP - VERT.
B422	6	-	13'-7"		WING 4 - TOP - F.F. & B.F. - HORIZ.
B623	2	-	13'-7"		WING 4 - TOP - F.F. & B.F. - HORIZ.
B424	4	-	5'-7"		ABUT. BODY - ENDS @ WINGS - VERT.

DIMENSIONS IN BENDING DETAILS ARE OUT TO OUT OF BAR.

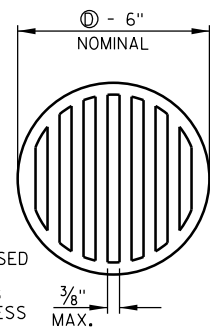


PLAN WING 3



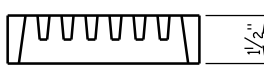
PLAN WING 4

SEE SHEET 6 LEGEND
FOR DESCRIPTION OF

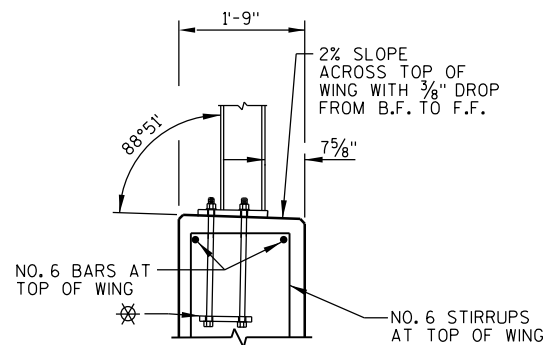


RODENT SHIELD

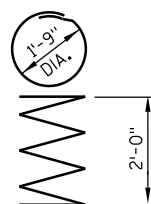
Ⓢ - DIMENSIONS ARE APPROXIMATE. THE GRATE IS SIZED TO FIT INTO A PIPE COUPLING.



SECTION RS-RS

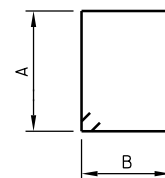


SECTION AT TOP OF WING

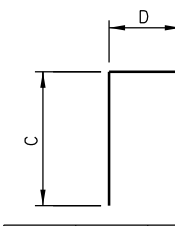


B401

B805, B806



MARK	A	B
B504	5'-4"	2'-2"
B510	5'-7"	2'-11"



MARK	C	D
B408	1'-6"	11"
B614	4'-8"	1'-5"
B621	5'-4"	1'-5"

RODENT SHIELD NOTES:

ORIENT SHIELD SO SLOTS ARE VERTICAL.

THE RODENT SHIELD SHALL BE A PVC GRATE SIMILAR TO THIS DETAIL. THE GRATE IS COMMERCIALY AVAILABLE AS A FLOOR STRAINER.

A PIPE COUPLING IS REQUIRED FOR THE ATTACHMENT OF THIS SHIELD TO THE EXPOSED END OF THE PIPE UNDERDRAIN. THE SHIELD SHALL BE FASTENED TO THE PIPE COUPLING WITH TWO OR MORE NO. 10 x 1-INCH STAINLESS STEEL SHEET METAL SCREWS. THE RODENT SHIELD, PIPE COUPLING AND SCREWS, SHALL BE INCLUDED IN THE BID ITEM "PIPE UNDERDRAIN WRAPPED 6-INCH".

COATED	80 LBS.
UNCOATED	2390 LBS.

DIMENSIONS IN BENDING DETAILS ARE OUT TO OUT OF BAR
EXCEPT AS NOTED.



TYPICAL SECTION THRU PIER

NO.	DATE	REVISION	BY
-----	------	----------	----

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-66-198

DRAWN BY RLR	PLANS CHK'D. JRS
------------------------	----------------------------

SHEET 8 OF 13

PIER 1	SHEET 9 OF 15

LEGEND

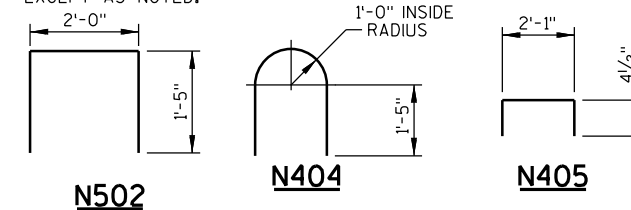
▲ - 4" x 3/4" FILLER, TYPICAL
ALL AROUND TOP EDGES
OF PIER.

⊖ - 2" x 6" BEVELED KEYWAY.

- - ADJACENT TO EACH
PILE ONE SIDE ONLY.

BILL OF BARS
PIER 2COATED 80 LBS.
UNCOATED 2390 LBS.

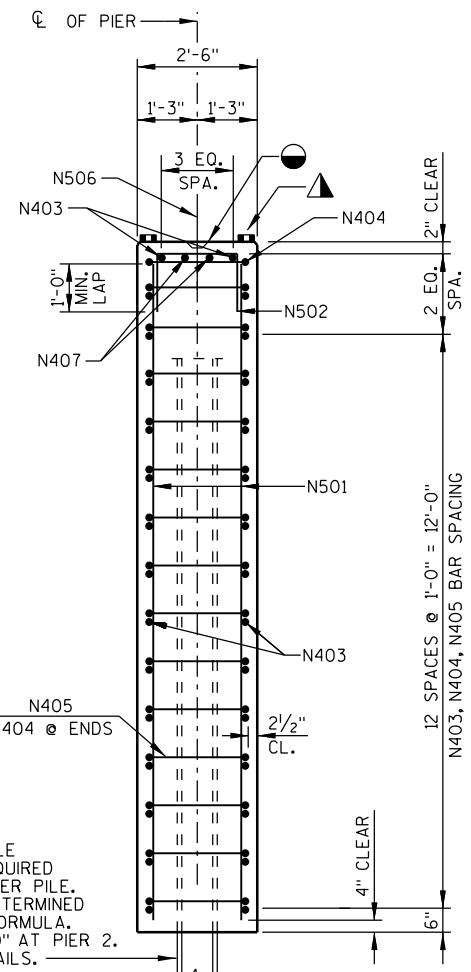
MARK	NUMBER REQUIRED COATED UNCOATED	LENGTH	BENT	LOCATION
N501	- 80	13'-6"		PIER - VERT.
N502	- 19	4'-7"	X	PIER - STIRRUPS - TOP - VERT.
N403	- 30	36'-0"		PIER - TOP & SIDES - HORIZ.
N404	- 30	6'-1"	X	PIER - AT ENDS - HORIZ.
N405	- 154	2'-8"	X	PIER - TIES - HORIZ.
N506	37 -	2'-0"		PIER - DOWELS @ TOP - VERT.
N407	- 2	37'-10"		PIER - TOP - HORIZ.

DIMENSIONS IN BENDING DETAILS ARE OUT TO OUT OF BAR
EXCEPT AS NOTED.

N502

N404

N405



TYPICAL SECTION THRU PIER

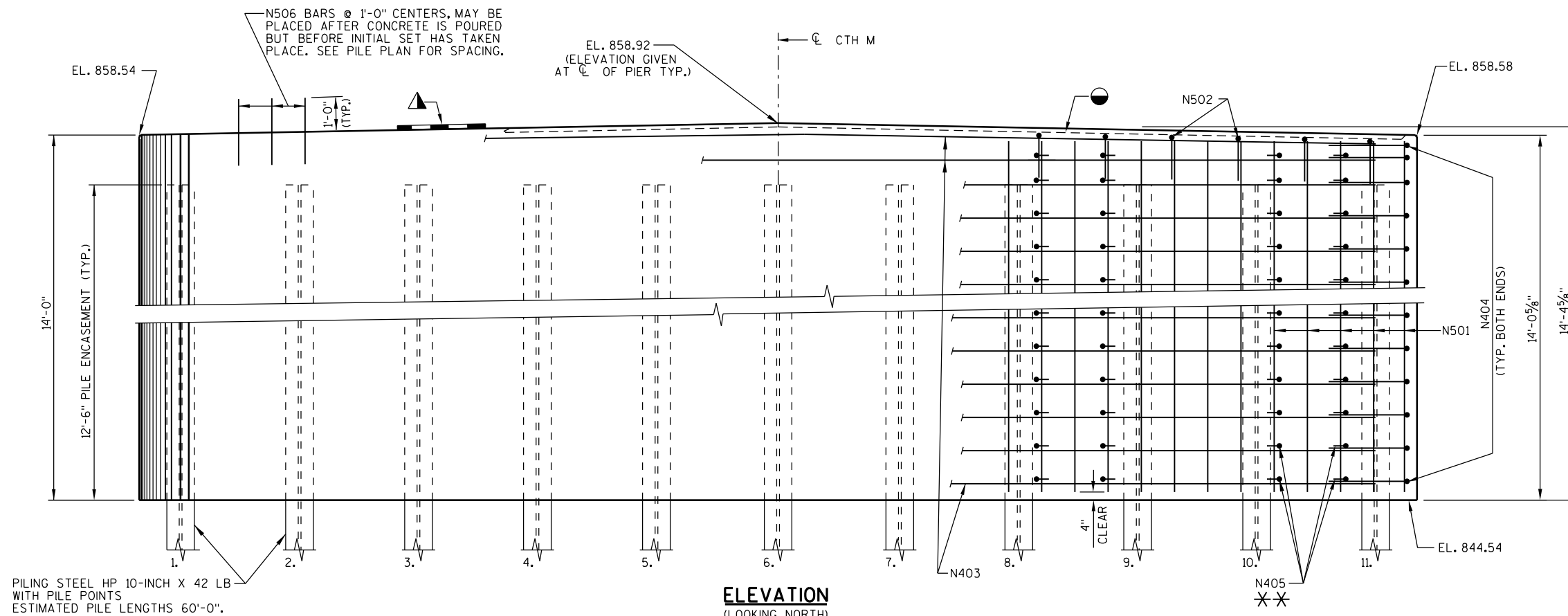
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE		B-66-198	
DRAWN BY		RLR	PLANS CK'D. JRS
PIER 2		SHEET 9 OF 13	

LEGEND

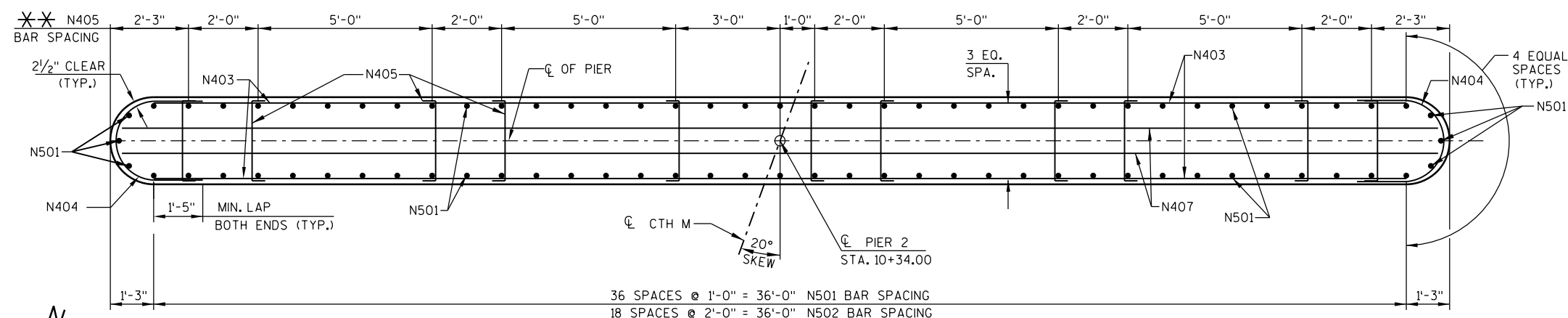
▲ - 4" x 3/4" FILLER, TYPICAL
ALL AROUND TOP EDGES
OF PIER.

● - 2" x 6" BEVELED KEYWAY.

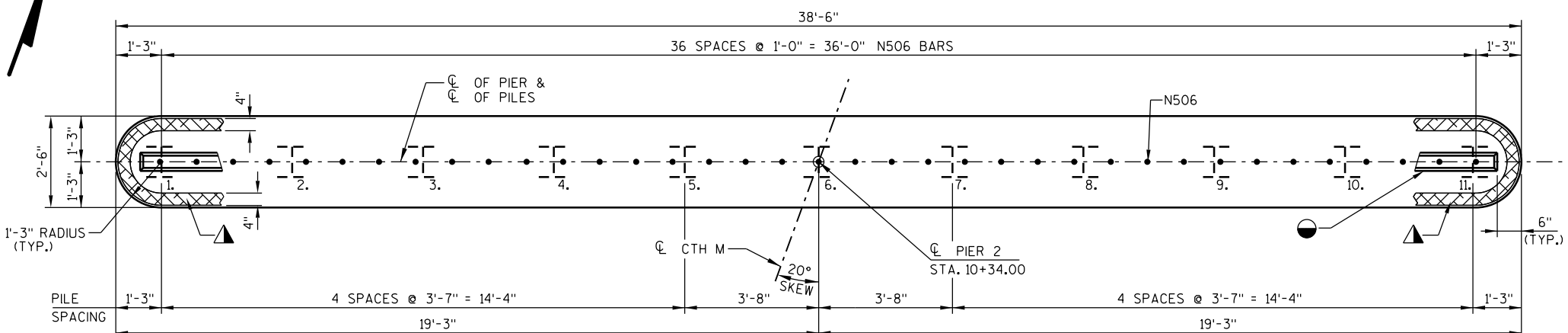
✕✕ - ADJACENT TO EACH
PILE ONE SIDE ONLY.

ELEVATION
(LOOKING NORTH)

PIILING STEEL HP 10-INCH X 42 LB
WITH PILE POINTS
ESTIMATED PILE LENGTHS 60'-0".



PLAN



PILE PLAN

PIER TO BE SUPPORTED ON PILING
STEEL HP 10-INCH X 42 LB WITH PILE
POINTS. DRIVE PIER PILES TO A REQUIRED
DRIVING RESISTANCE OF 170 TONS PER PILE.
REQUIRED DRIVING RESISTANCE IS DETERMINED
BY THE MODIFIED GATES DYNAMIC FORMULA.
ESTIMATED PILE LENGTHS ARE 60'-0" AT PIER 2.
SEE SHEET 5 FOR PILE SPLICE DETAILS.



NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE		B-66-198	
		DRAWN BY	PLANS CK'D.
		RLR	JRS
SUPERSTRUCTURE		SHEET 10 OF 13	

NOTES

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

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 TRANSVERSE BARS SHALL BE PLACED ON THE SKEW.

BILL OF BARS

COATED 84,410 LBS.

MARK	NUMBER REQUIRED	LENGTH	BENT	LOCATION
S501	62	3'-8"	X	S.E. POCKET - VERT.
S502	4	32'-5"		S.E. POCKET - TRANS.
S503	76	7'-7"	X	DIAPHRAGM @ ABUTS. - VERT.
S504	76	3'-9"	X	DIAPHRAGM @ ABUTS. - VERT.
S905	76	44'-5"		SLAB BOTTOM - SPANS 1 & 3 - LONGIT.
S906	74	33'-0"		SLAB BOTTOM - SPANS 1 & 3 - LONGIT.
S707	76	25'-10"	X	SLAB BOTTOM - OVER PIERS - LONGIT.
S908	38	52'-6"		SLAB BOTTOM - SPAN 2 - LONGIT.
S909	37	37'-0"		SLAB BOTTOM - SPAN 2 - LONGIT.
S510	338	39'-4"		SLAB TOP & BOTTOM - TRANS.
S511	76	21'-9"		SLAB TOP @ ABUTS. - LONGIT.
S912	76	48'-5"		SLAB TOP @ PIERS & SPANS 1 & 3 - LONGIT.
S1013	74	50'-1"		SLAB TOP @ PIERS & SPAN 2 - LONGIT.
S514	37	11'-10"		SLAB TOP SPAN 2 - LONGIT.
S515	2	42'-6"		SLAB TOP SPAN 2 @ EDGE - LONGIT.
S616	92	12'-0"	X	SLAB @ RAIL POST, TWO PER POST
S617	168	6'-0"		SLAB @ RAIL POST, FOUR PER POST
S618	16	6'-0"	X	SLAB @ RAIL CORNER POSTS AS NOTED

SURVEY TOP OF SLAB ELEVATIONS

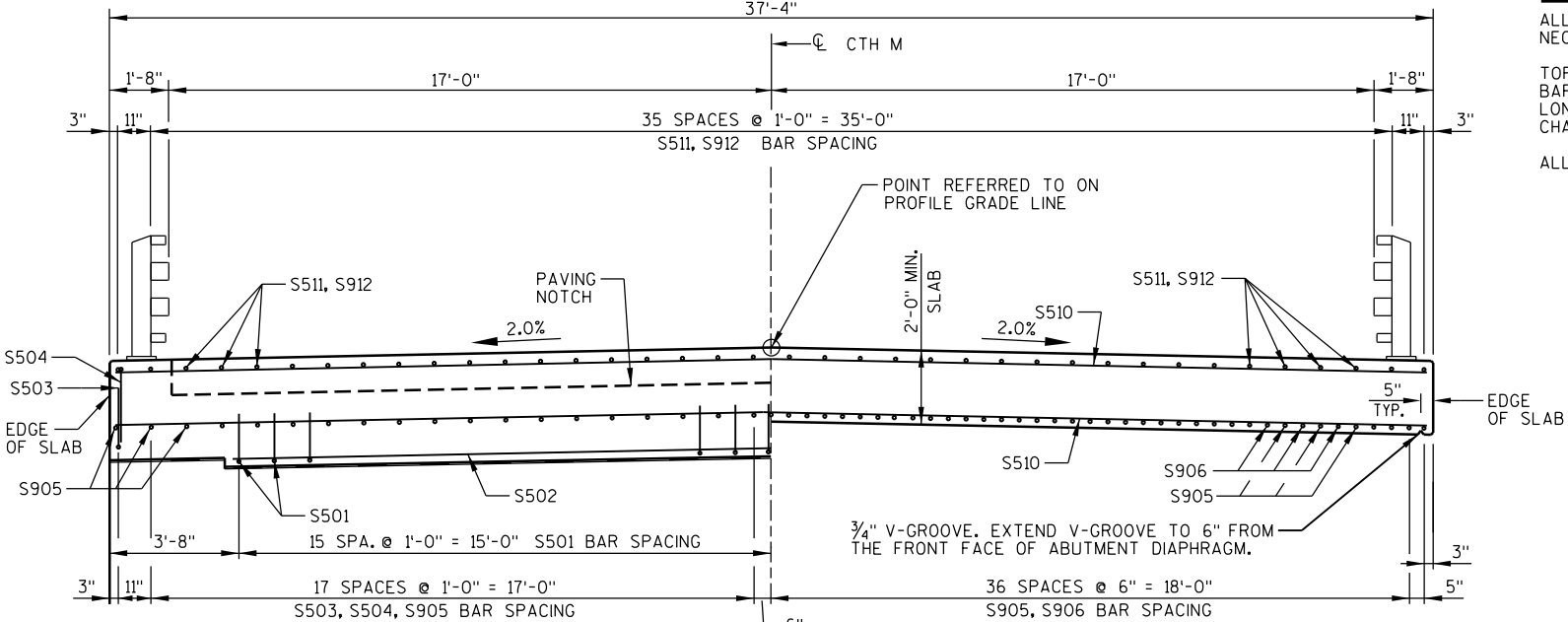
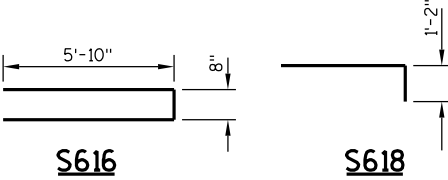
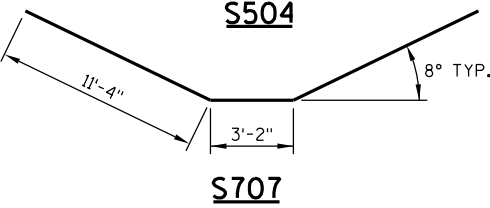
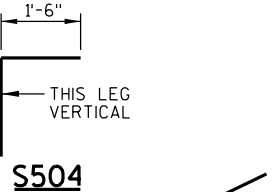
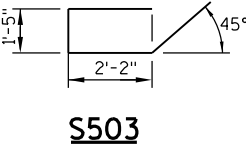
LOCATION	EAST SLAB EDGE	CL CTH M	WEST SLAB EDGE
SOUTH ABUT.			
SPAN 1 - 5/10			
PIER 1			
SPAN 2 - 5/10			
PIER 2			
SPAN 3 - 5/10			
NORTH ABUT.			

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

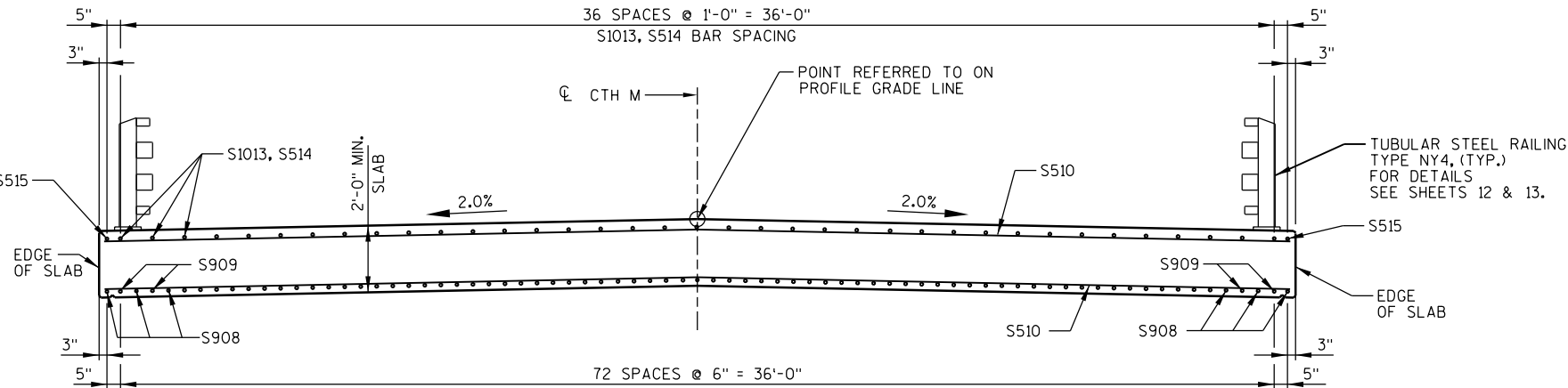
TOP OF SLAB ELEVATIONS AND CAMBER VALUES

LOCATION	E. EDGE SLAB ELEV.	CL CTH M	W. EDGE SLAB ELEV.	CAMBER VALUE (INCHES)
S. ABUT.	861.59	861.94	861.55	0.0
1/10	861.61	861.96	861.57	0.3
2/10	861.62	861.98	861.58	0.6
3/10	861.64	861.99	861.60	0.7
4/10	861.66	862.01	861.61	0.7
5/10	861.67	862.02	861.63	0.7
6/10	861.69	862.04	861.65	0.5
7/10	861.70	862.06	861.66	0.3
8/10	861.72	862.07	861.68	0.1
9/10	861.73	862.09	861.69	0.0
PIER 1	861.75	862.10	861.71	0.0
1/10	861.77	862.12	861.73	0.1
2/10	861.79	862.14	861.75	0.4
3/10	861.81	862.17	861.77	0.7
4/10	861.83	862.19	861.79	1.0
5/10	861.86	862.21	861.81	1.1
6/10	861.88	862.23	861.83	1.0
7/10	861.90	862.25	861.86	0.7
8/10	861.92	862.27	861.88	0.4
9/10	861.94	862.29	861.90	0.1
PIER 2	861.96	862.31	861.92	0.0
1/10	861.98	862.33	861.93	0.0
2/10	861.99	862.35	861.95	0.1
3/10	862.01	862.36	861.97	0.3
4/10	862.02	862.38	861.98	0.5
5/10	862.04	862.39	862.00	0.7
6/10	862.06	862.41	862.01	0.7
7/10	862.07	862.42	862.03	0.7
8/10	862.09	862.44	862.05	0.6
9/10	862.10	862.46	862.06	0.3
N. ABUT.	862.12	862.47	862.08	0.0

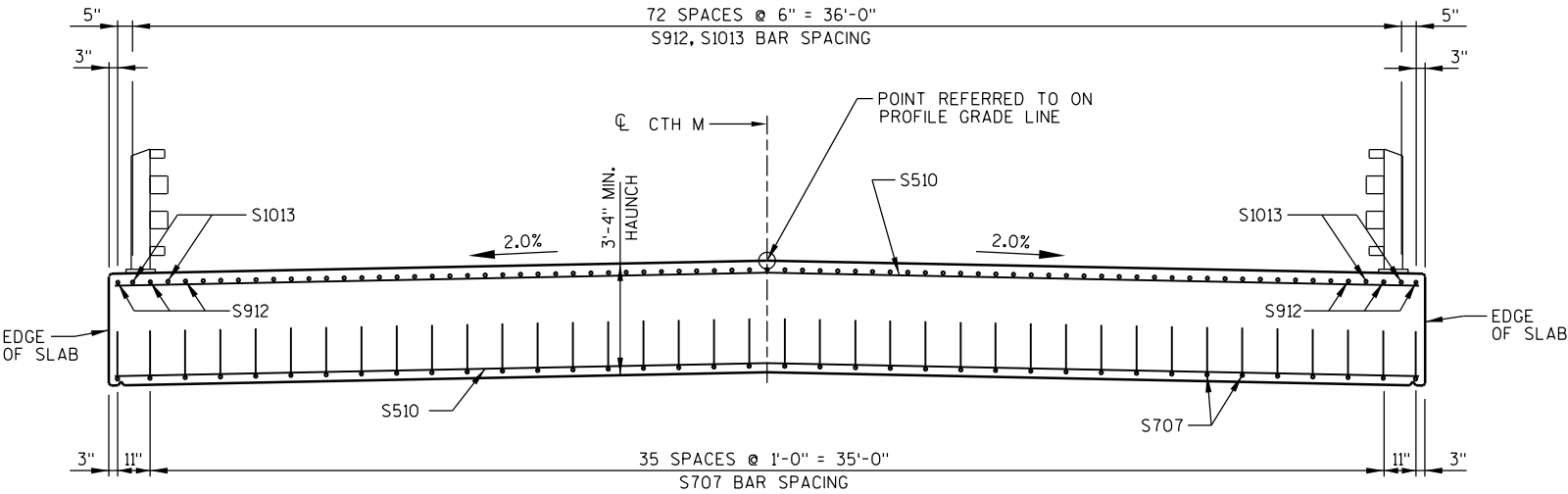
EPOXY COAT ALL SUPERSTRUCTURE BAR STEEL. DIMENSIONS IN BENDING DETAILS ARE OUT TO OUT OF BAR.



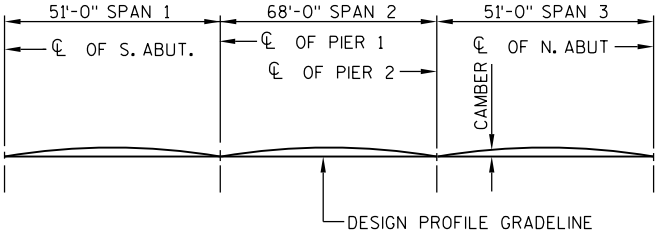
AT ABUTMENTS IN SPAN
CROSS SECTION THRU BRIDGE - SPANS 1 & 3
(LOOKING NORTH)



CROSS SECTION THRU BRIDGE - SPAN 2
(LOOKING NORTH)



CROSS SECTION THRU BRIDGE - AT PIERS
(LOOKING NORTH)



CAMBER DIAGRAM

CAMBER SPANS AS SHOWN ABOVE AND IN THE TABLE OF VALUES TO PROVIDE FOR DEAD LOAD DEFLECTION AND FUTURE CREEP. CAMBER DOES NOT INCLUDE ALLOWANCE FOR FORM SETTLEMENT. DEAD LOAD DEFLECTION APPROXIMATES 1/3 OF CAMBER VALUES SHOWN.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-66-198			
DRAWN BY RLR		PLANS CK'D. JRS	
SUPERSTRUCTURE SECTIONS & DETAILS			SHEET 11 OF 13

LEGEND

- ① W6 X 25 WITH 1/8" X 1 3/4" HORIZONTAL SLOTTED HOLES ON EACH SIDE OF POST FOR BOLT NO. 6 AT TOP TWO RAILS. USE 1" DIA. HOLES FOR BOLTS NO. 6 AT BOTTOM NO. 5A & FOR BOLT NO. 6A AT NO. 7. CUT BOTTOM OF POST TO MATCH CROSS SLOPE OF ROADWAY. PLACE POST VERTICAL. PLACE POSTS NORMAL TO GRADE LINE.
- ② PLATE 1/4" X 10" X 1'-2" WITH 1/8" X 1 1/2" SLOTTED HOLES FOR ANCHOR BOLTS NO. 3. WELD TO NO. 1 AS SHOWN. SLOTS PARALLEL TO SHORT SIDE OF PLATE.
- ③ ASTM A449 - 1" DIA. ANCHOR BOLTS WITH HEAVY HEX NUT AND 2" O.D. HARDENED WASHER (ALL GALVANIZED). 4 REQUIRED PER POST. THREAD 3" AND PLACE NORMAL TO PLATE NO. 2. CHAMFER TOP OF BOLTS BEFORE THREADING. USE 1'-3" LONG BOLT FOR CONCRETE SLABS. USE 1'-9" LONG IN ABUTMENT WINGS. (AN EQUIVALENT THREADED ROD WITH HEAVY HEX NUTS AND HARDENED WASHERS MAY BE SUBSTITUTED FOR ANCHOR BOLTS IN WINGS IF REQUIRED FOR CONSTRUCTIBILITY.)
- ④ 3/8" X 10" X 1'-2" ANCHOR PLATE (GALVANIZED) WITH 1/16" DIA. HOLES FOR ANCHOR BOLTS NO. 3.
- ⑤ TS 6 X 6 X 3/16" STRUCTURAL TUBING. USE 1" DIA. HOLES FOR BOLT NO. 6 (FRONT & BACK) & 7/8" DIA. HOLES FOR BOLT NO. 6A (TOP & BOTTOM).
- ⑤A TS 5 X 3 X 1/4" STRUCTURAL TUBING. USE 1" DIA. HOLES FOR BOLT NO. 6 IN TOP RAIL (FRONT & BACK). USE 1/8" X 1 3/8" HORIZONTAL SLOTTED HOLES FOR BOLT NO. 6 IN BOTTOM RAIL (FRONT & BACK) AND A 2" O.D. WASHER UNDER BOLT HEAD.
- ⑥ 7/8" DIA. A325 SLOTTED ROUND HEAD BOLT WITH HEX NUT, 3/8" X 1 3/4" X 1 3/4" WASHER, AND SPRING LOCK WASHER (2 REQUIRED AT RAIL TO POST LOCATIONS SHOWN).
- ⑥A 3/4" DIA. A325 BOLT WITH HEX NUT AND SPRING LOCK WASHER (1 REQUIRED AT RAIL TO ANGLE AND 2 REQUIRED AT ANGLE TO POST LOCATIONS SHOWN WITH 3/8" X 1 3/4" X 1 3/4" WASHER).
- ⑦ L 5 X 5 X 5/8" STRUCTURAL ANGLE. ATTACH TO NO. 1 AND NO. 5 AS SHOWN.
- ⑧ TS 5 X 5 X 5/16" X 2'-4" LONG SPLICE TUBE. 1 PER RAIL. USED IN NO. 5.
- ⑧A 4/4" X 2/8" X 2'-4" LONG SPLICE BAR. 1 PER RAIL. USED IN NO. 5A.
- ⑨ 3/4" DIA. A325 FULLY THREADED BOLTS, 7/2" LONG, WITH 2 WASHERS AND HEAVY HEX NUT ON EACH BOLT. NUT TO BE FINGER TIGHT. (4 REQUIRED PER SPLICE). USE 1" X 4" SLOTTED HOLES IN TOP AND BOTTOM OF NO. 5.
- ⑨A 3/4" DIA. A325 FULLY THREADED BOLTS, 4/2" LONG, WITH 2 WASHERS AND HEAVY HEX NUT ON EACH BOLT. NUT TO BE FINGER TIGHT. (4 REQUIRED PER SPLICE). USE 1" X 4" SLOTTED HOLES IN TOP AND BOTTOM OF NO. 5A.
- ⑩ SPLICE SLEEVE FABRICATED FROM 1/4" PLATE. PROVIDE "SLIDING FIT".
- ▲ PROTRUSIONS CAUSED BY WELDING OR GALVANIZING ARE NOT PERMITTED ON THE ADJOINING SURFACES OF THE RAILS, SPLICE TUBES AND FILL PLATES.

NOTES

BID ITEM SHALL BE "RAILING STEEL TYPE NY4 B-66-198", WHICH INCLUDES ALL ITEMS SHOWN.

RAILING SHALL BE CONTINUOUS OVER A MINIMUM OF THREE (3) POSTS WITHOUT SPLICES WHERE POSSIBLE.

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.

ALL MATERIAL SHALL BE GALVANIZED AFTER FABRICATION. PRIOR TO GALVANIZING, ALL STEEL RAILING POSTS, ANGLES, SPLICE TUBES, SPLICE BARS AND STEEL TUBING SHALL BE GIVEN A NO. 6 BLAST CLEANING PER SSPC SPECIFICATIONS.

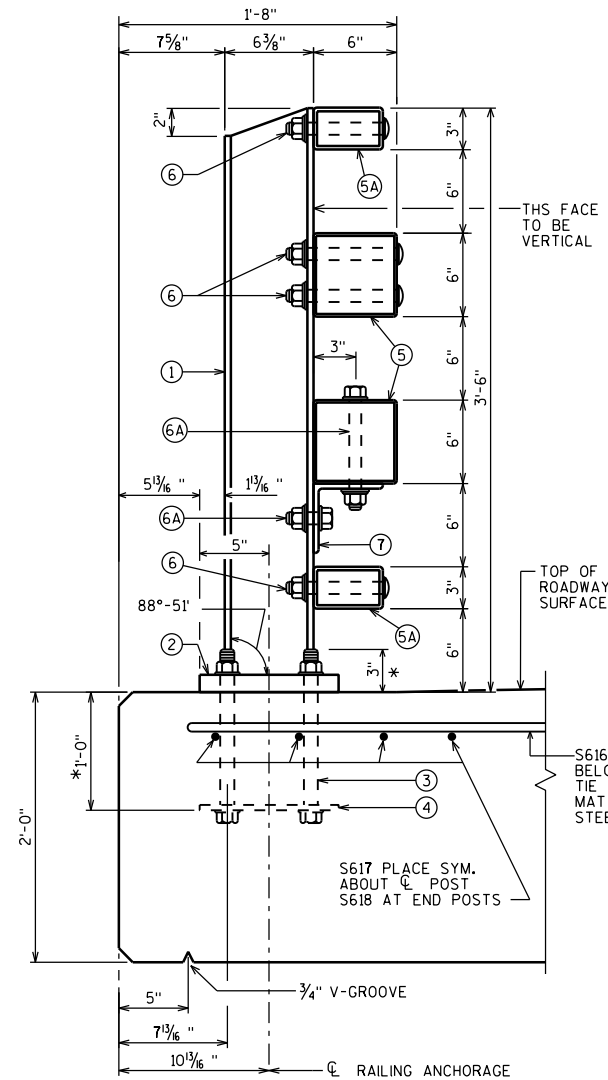
RAIL POST, BASE PLATES, SPLICE BAR, ANGLES AND SPLICE PLATES SHALL CONFORM TO THE REQUIREMENTS OF ASTM A709 GRADE 50. STRUCTURAL TUBING SHALL CONFORM TO THE REQUIREMENTS OF ASTM A500 GRADE B OR C WITH A CERTIFIED $f_y \geq 50$ KSI. ANCHOR PLATES & SHIMS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A709 GRADE 36.

THE NUT SECURING THE POST BASE PLATE TO THE CONCRETE SHALL BE TIGHTENED TO A SNUG FIT AND GIVEN AN ADDITIONAL 1/6 TURN.

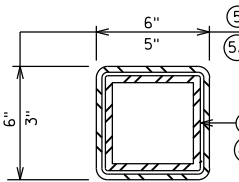
FILL BOLT SLOT OPENINGS IN POST SHIMS AND PLATE NO. 2 WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. CAULK AROUND PERIMETER OF NO. 2 WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER.

STEEL SHIMS SHALL BE PROVIDED & USED UNDER PLATE NO. 2 WHERE REQUIRED FOR ALIGNMENT, AND SHALL BE GALVANIZED.

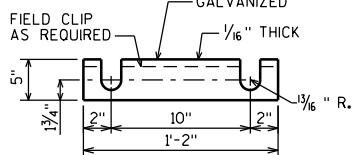
THIS RAILING MEETS NCHRP REPORT 350 EVALUATION CRITERIA FOR TEST LEVEL 4 (TL-4).



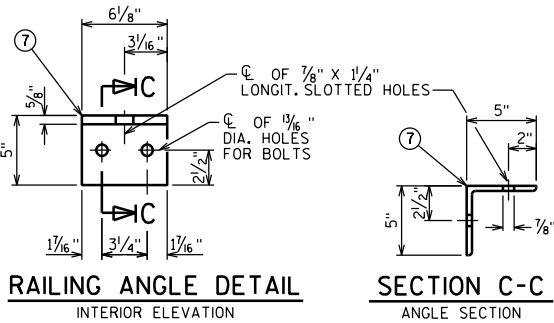
SECTION THRU RAILING ON SLAB
*NORMAL TO BASE PLATE



SECTION D-D

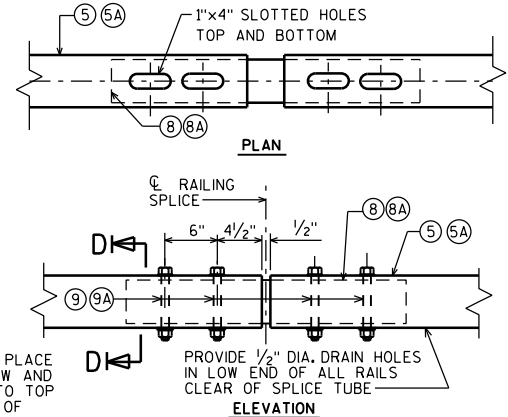


POST SHIM DETAIL

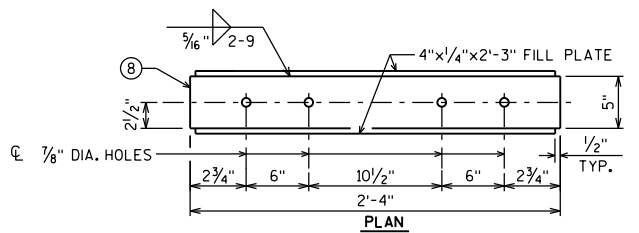


RAILING ANGLE DETAIL
INTERIOR ELEVATION

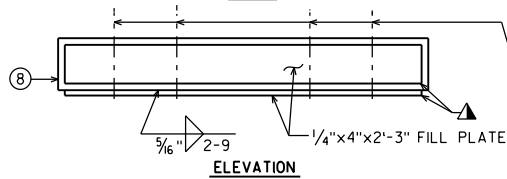
SECTION C-C
ANGLE SECTION



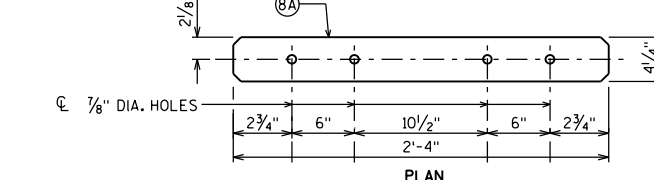
FIELD ERECTION JOINT DETAIL



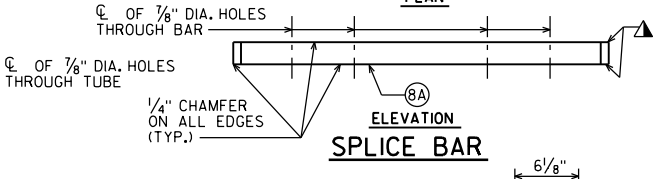
SPLICE TUBE



SECTION A-A
BASE PLATE DETAIL

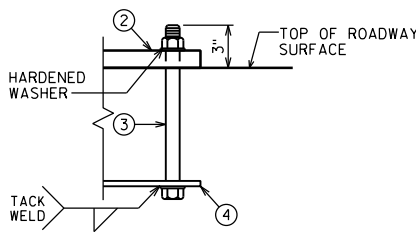


SPLICE BAR



ANCHOR BOLTS

FOR ANCHOR BOLTS IN WINGS, TACK WELD MAY BE USED IN FIELD AFTER ANCHOR PLATE IS IN POSITION IF REQ'D. FOR CONSTRUCTIBILITY.



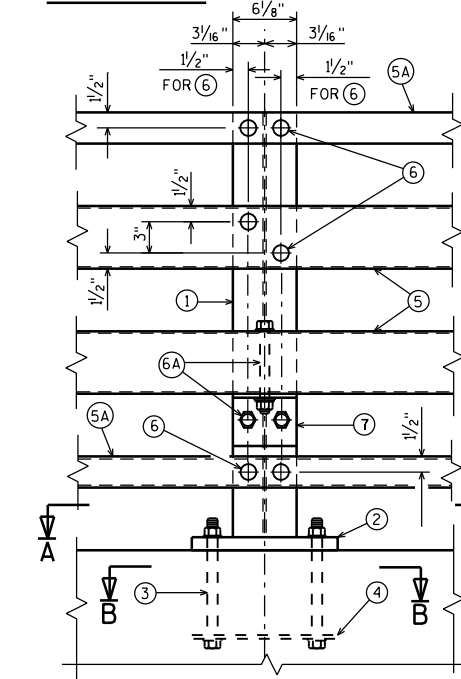
SHOP RAIL SPLICE DETAIL

(LOCATION MUST BE SHOWN ON SHOP DRAWINGS)

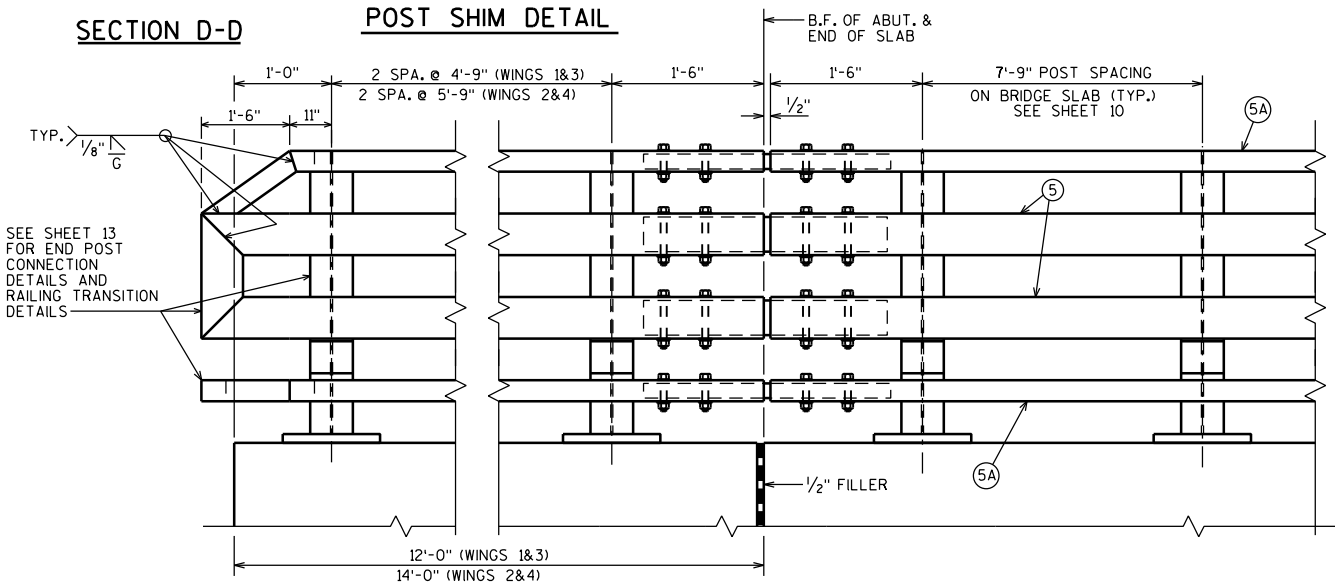
SECTION B-B
ANCHOR PLATE DETAIL

EDGE OF SLAB

PART ELEVATION OF RAILING AT POST
INTERIOR ELEVATION



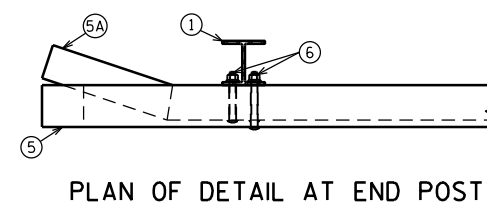
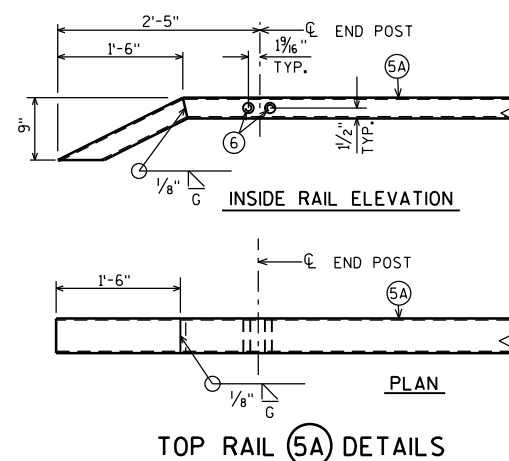
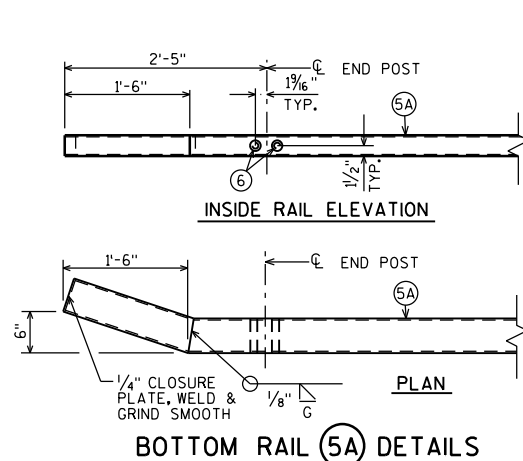
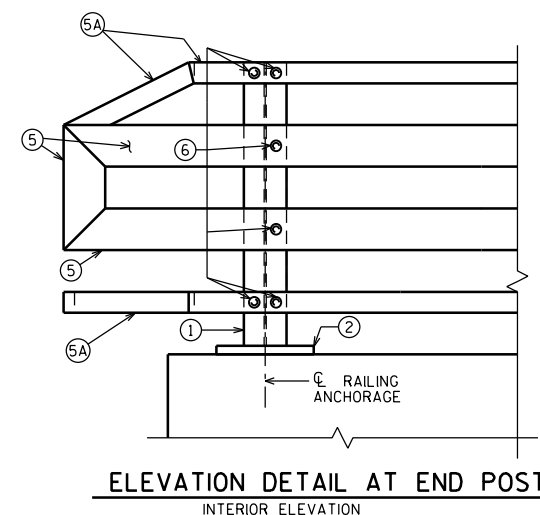
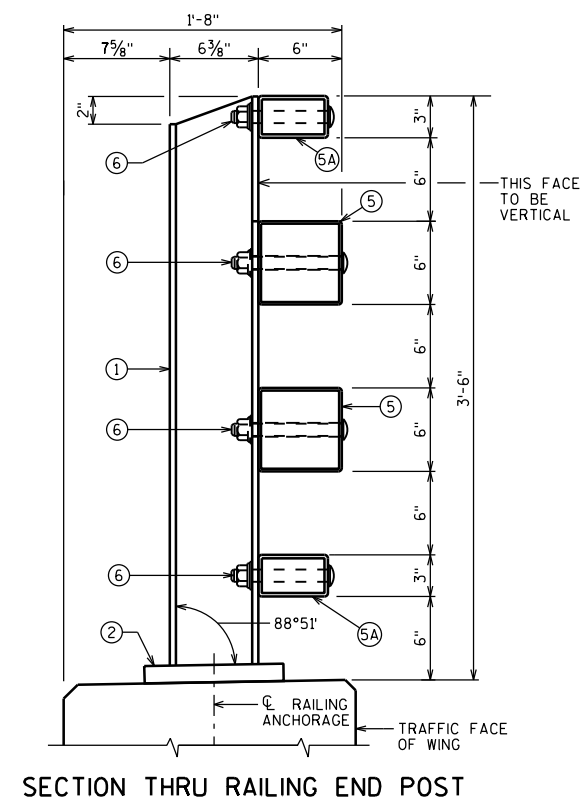
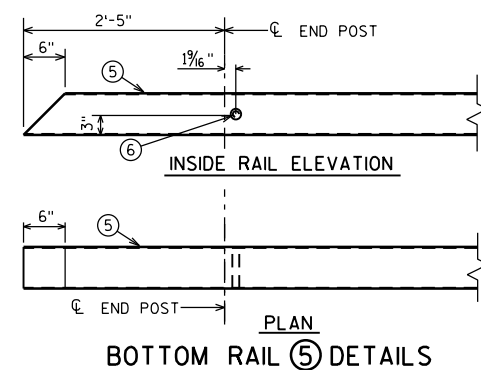
PART ELEVATION OF RAILING
INTERIOR ELEVATION



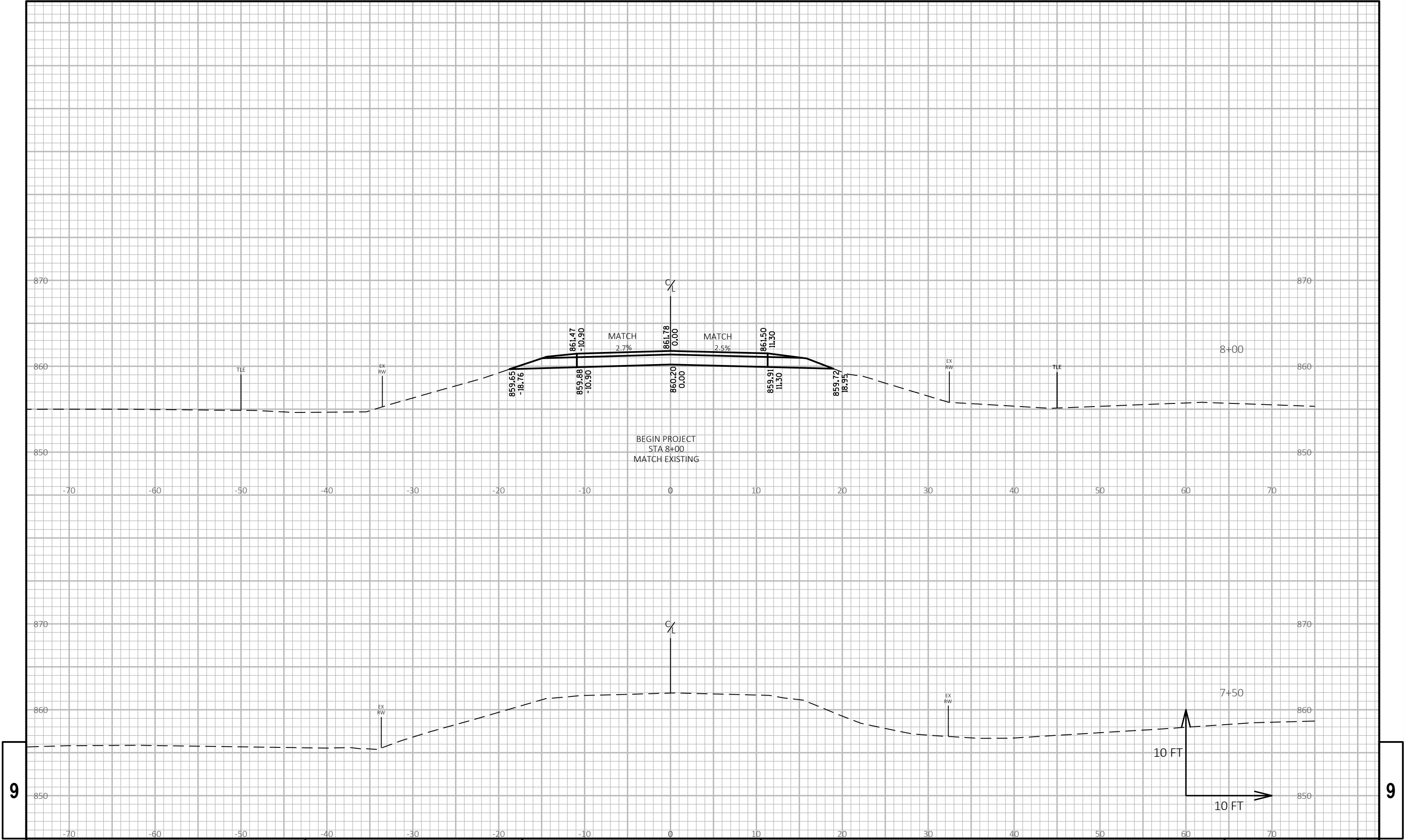
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE		B-66-198	
DRAWN BY		RLR	PLANS CK'D. JRS
TUBULAR STEEL RAILING TYPE NY4		SHEET 12 OF 13	

- ① W6 X 25 WITH 1/8" X 1 3/8" HORIZONTAL SLOTTED HOLES ON SIDE OF POST FOR BOLT NO. 6 AT NO. 5 & AT TOP RAIL NO. 5A. USE 1" DIA. HOLE FOR BOLT NO. 6 AT NO. 5A BOTTOM RAIL. CUT BOTTOM OF POST TO MATCH CROSS SLOPE OF ROADWAY. PLACE POST VERTICAL. "PLATE POSTS NORMAL TO GRADE LINE.
- ② PLATE 1/4" X 10" X 1/2". SEE SHEET "TUBULAR STEEL RAILING NY4" (SHEET 12 FOR MORE INFORMATION.
- ⑤ TS 6 X 6 X 3/8" STRUCTURAL TUBING. USE 1" DIA. HOLES IN FRONT AND BACK OF RAILS FOR BOLT NO. 6 AS SHOWN IN ELEVATION DETAILS.
- ⑤A TS 5 X 3 X 1/4" STRUCTURAL TUBING. USE 1" DIA. HOLES FOR TOP RAIL NO. 5A (FRONT & BACK). USE 1/8" X 1 3/8" HORIZONTAL SLOTTED HOLES FOR BOLT NO. 6 IN BOTTOM RAIL (FRONT & BACK) AND A 2" O.D. WASHER UNDER BOLT HEAD.
- ⑥ 3/8" DIA. A325 SLOTTED ROUND HEAD BOLT WITH HEX NUT, 3/8" X 1 3/4" X 1 3/4" WASHER, AND SPRING LOCK WASHER (1 REQUIRED AT RAIL NO. 5 TO POST NO. 1 CONNECTION LOCATIONS SHOWN. 2 REQUIRED AT RAIL NO. 5A TO POST NO. 1 CONNECTION LOCATIONS SHOWN).

STRUCTURAL TUBING SHALL CONFORM TO THE REQUIREMENTS OF ASTM A500 GRADE B OR C WITH A CERTIFIED $f_y=50$ KSI. STRUCTURAL ANGLE SHALL CONFORM TO THE REQUIREMENTS OF ASTM A709 GRADE 50.

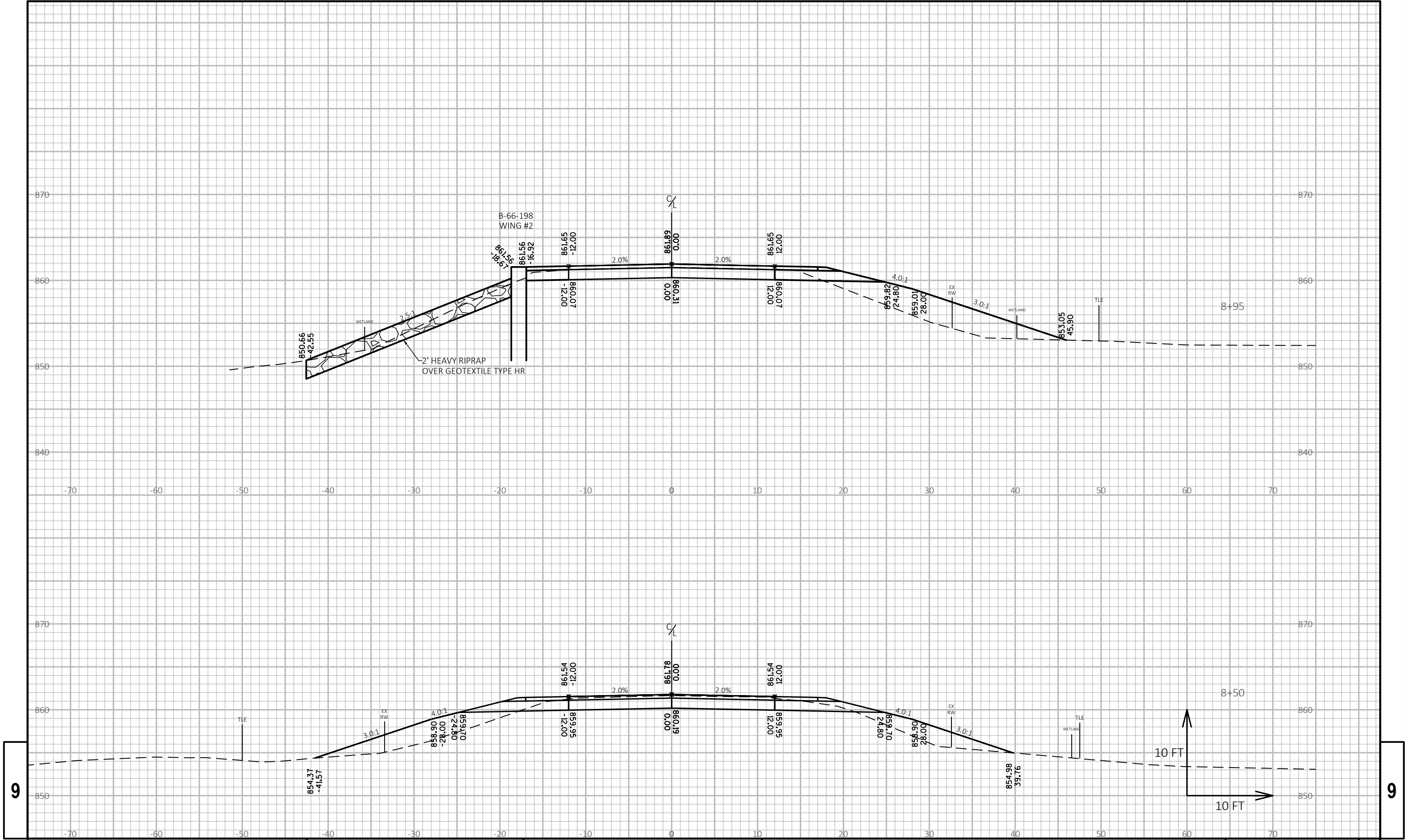


NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE		B-66-198	
		DRAWN BY	PLANS CK'D.
		RLR	JRS
END POST DETAILS FOR TUBULAR STEEL RAILING TYPE NY4		SHEET 13 OF 13	



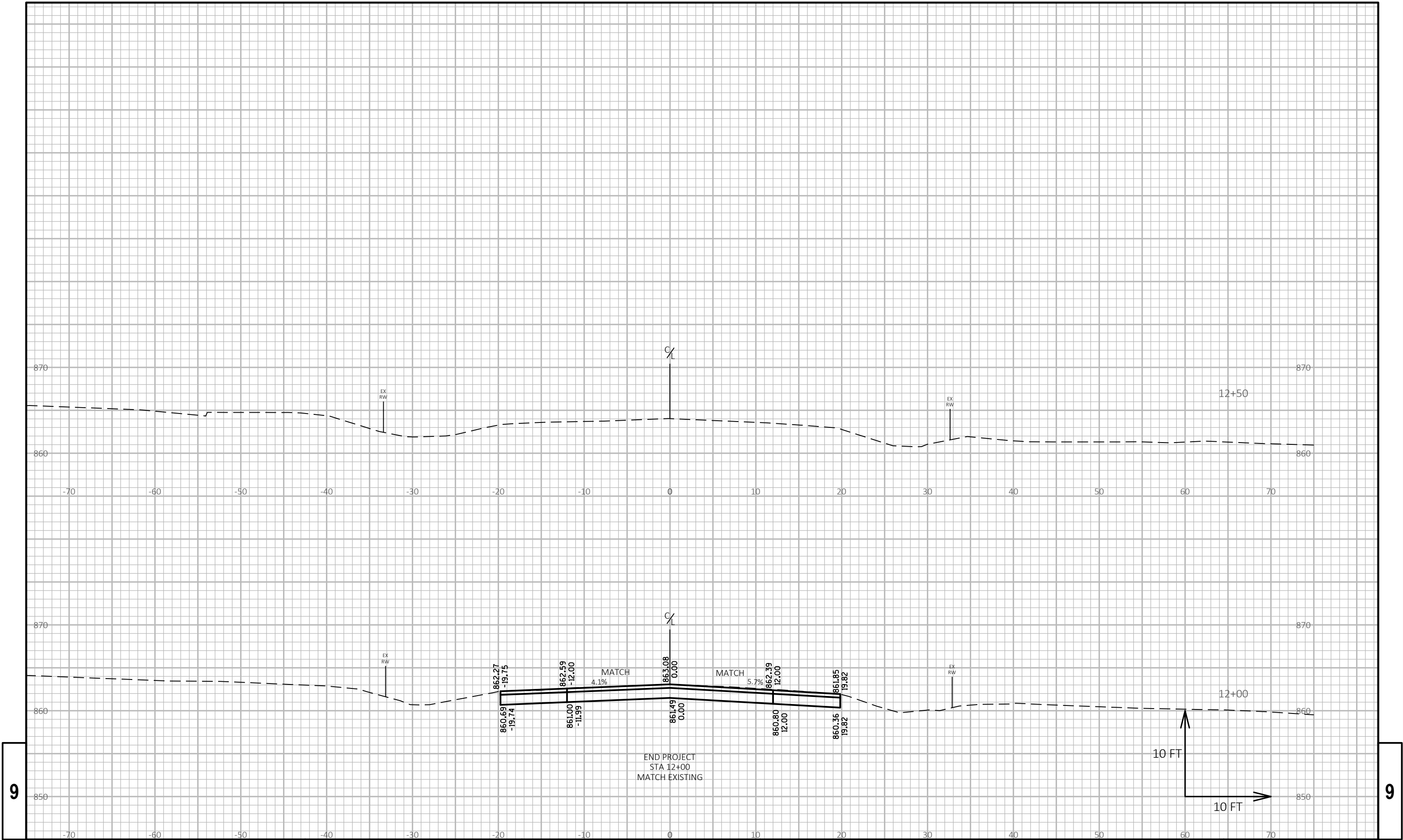
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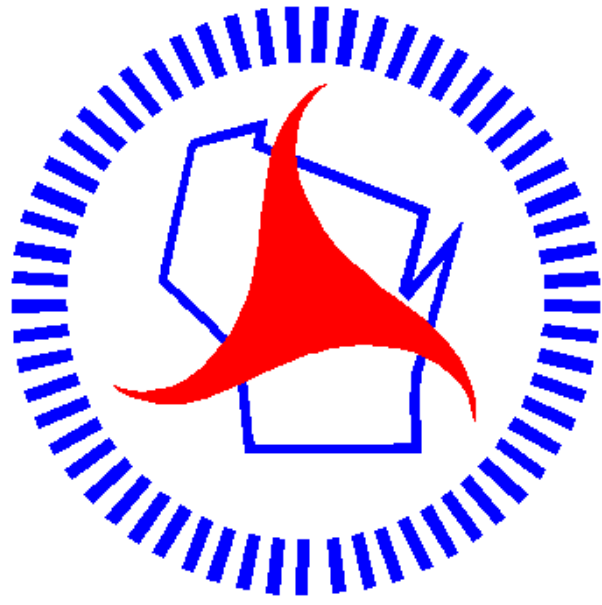
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