

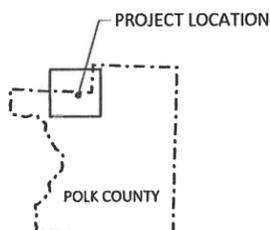
ORDER OF SHEETS

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 Plot
Section No.	5	Plan and Profile
Section No.	6	Standard Detail Drawings
Section No.	7	Sign Plates
Section No.	8	Structure Plans
Section No.	9	Computer Earthwork Data
Section No.	9	Cross Sections

TOTAL SHEETS = 38



40



STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION

PLAN OF PROPOSED IMPROVEMENT

STH 87 - CTH Z

TRADE RIVER BRIDGE B-48-0058

CTH B POLK COUNTY

STATE PROJECT NUMBER
8857-00-70

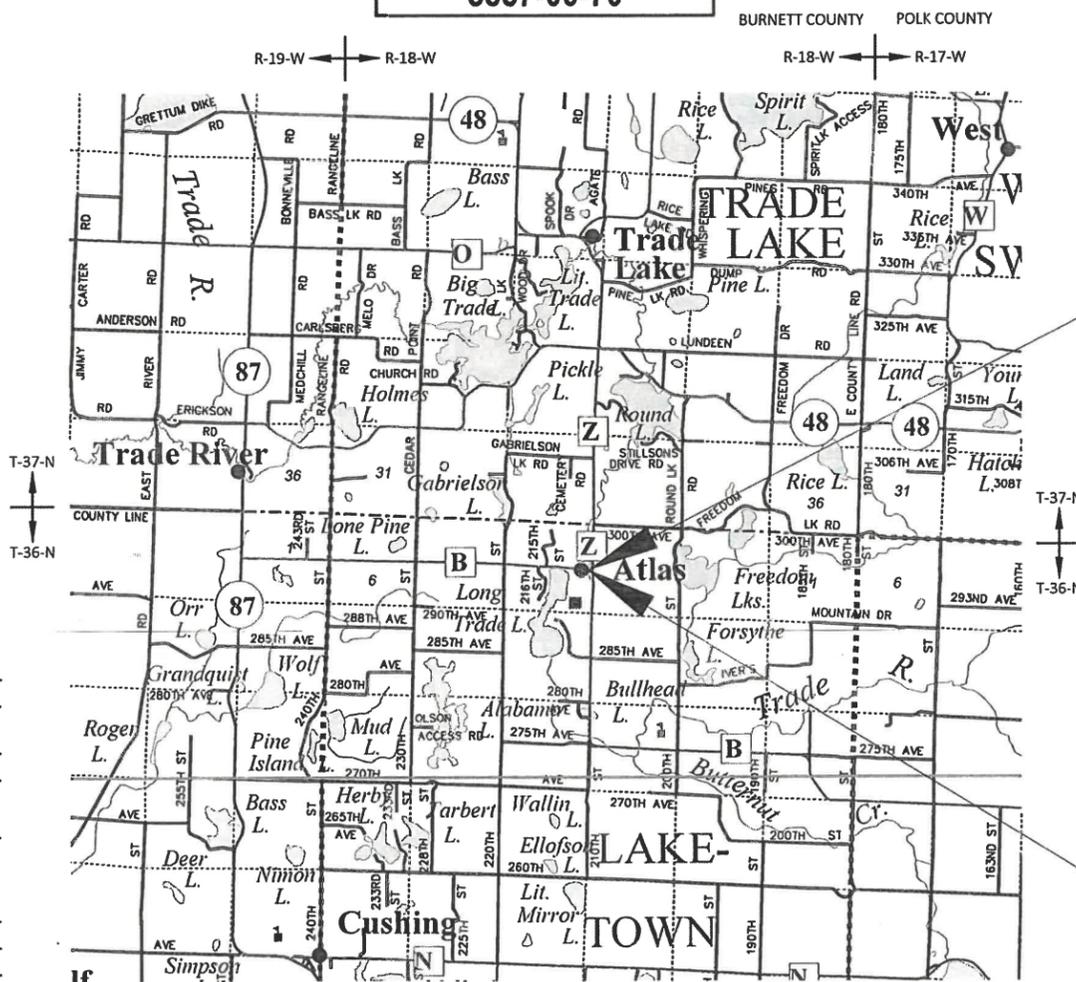
STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
8857-00-70	WISC 2023122	1

DESIGN DESIGNATION 8857-00-00

A.A.D.T.	2015	=	411
A.A.D.T.	2035	=	452
D.H.V.		=	N/A
D.D.		=	50/50
T.		=	23%
DESIGN SPEED		=	35 MPH
ESALS		=	250,000

CONVENTIONAL SYMBOLS

PLAN	PROFILE
CORPORATE LIMITS	GRADE LINE
PROPERTY LINE	ORIGINAL GROUND
LOT LINE	MARSH OR ROCK PROFILE (To be noted as such)
LIMITED HIGHWAY EASEMENT	SPECIAL DITCH
EXISTING RIGHT OF WAY	GRADE ELEVATION
PROPOSED OR NEW R/W LINE	CULVERT (Profile View)
SLOPE INTERCEPT	UTILITIES
REFERENCE LINE	ELECTRIC
EXISTING CULVERT	FIBER OPTIC
PROPOSED CULVERT (Box or Pipe)	GAS
COMBUSTIBLE FLUIDS	SANITARY SEWER
MARSH AREA	STORM SEWER
WOODED OR SHRUB AREA	TELEPHONE
	WATER
	UTILITY PEDESTAL
	POWER POLE
	TELEPHONE POLE



END PROJECT
STA 10+65
Y = 355,242.50
X = 475,711.70

BEGIN PROJECT
STA 9+35
Y = 355,248.39
X = 475,581.84

LAYOUT
SCALE 0 2 MI
TOTAL NET LENGTH OF CENTERLINE = 0.025 MILES

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

ACCEPTED FOR
POLK COUNTY
Date: 7/28/22
Highways Commissioner
(Signature and title of Official)

ORIGINAL PLANS PREPARED BY
COOPER ENGINEERING
WISCONSIN PROFESSIONAL ENGINEER
JACOB A. FRIBERG
E-43328
RICE LAKE
WI
DATE: 7/28/22
(Professional Engineer Signature)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
PREPARED BY
Surveyor: COOPER ENGINEERING
Designer: COOPER ENGINEERING
Project Manager: PAULA GROOM, PE
Regional Examiner: TOU YANG, PE
Regional Supervisor: TYLER RONGSTAD, PE

APPROVED FOR THE DEPARTMENT
DATE: 07/28/22
Paula Groom
(Signature)

E

LIST OF STANDARD ABBREVIATIONS

ABUT	ABUTMENT	LT.	LEFT
AC	ACRES	LS	LUMP SUM
AGG	AGGREGATE	MH	MANHOLE
AH	AHEAD	N	NORTH
ADT	AVERAGE DAILY TRAFFIC	NC	NORMAL CROWN
AVG.	AVERAGE	PAVT	PAVEMENT
ASPH	ASPHALTIC	PC	POINT OF CURVATURE
BK.	BACK	PE	PRIVATE ENTRANCE
BM	BENCHMARK	PI	POINT OF INTERSECTION
Δ	CENTRAL ANGLE OR DELTA	PL	PROPERTY LINE
℄, C/L	CENTERLINE	PP	POWER POLE
C & G	CURB AND GUTTER	PT	POINT OF TANGENCY
CABC	CRUSHED AGGREGATE BASE COURSE	R	RANGE, RADIUS
CONC.	CONCRETE	RCCP	REINFORCED CONCRETE CULVERT PIPE
COR	CORNER	RD	ROAD
CORR	CORRUGATED	REBAR	REINFORCEMENT BAR
CSCP	CORRUGATED STEEL CULVERT PIPE	REQD	REQUIRED
CSPA	CORRUGATED STEEL PIPE ARCH	RDWY	ROADWAY
CTH	COUNTY TRUNK HIGHWAY	RHF	RIGHT HAND FORWARD
CP.	CULVERT PIPE	RL, R/L	REFERENCE LINE
CY	CUBIC YARD	RR	RAILROAD
CWT.	HUNDREDWEIGHT	RT.	RIGHT
DIA	DIAMETER	R/W	RIGHT-OF-WAY
D	DEGREE OF CURVE	S	SOUTH
DHV	DESIGN HOURLY VOLUME	SAN S	SANITARY SEWER
DWY	DRIVEWAY	SDD	STANDARD DETAIL DRAWING
EBS	EXC. BELOW SUB GRADE	SE	SUPER ELEVATION
ELEV., EL	ELEVATION	SF.	SQUARE FEET
ELEC.	ELECTRIC	SHLDR	SHOULDER
EXC	EXCAVATION	SPECS	SPECIFICATIONS
EXIST	EXISTING	SQ.	SQUARE
E	EAST	SS.	STORM SEWER
FE	FIELD ENTRANCE	SY.	SQUARE YARD
FF.	FACE TO FACE	STH	STATE TRUNK HIGHWAY
FL, F/L	FLOW LINE	ST.	STREET
FS	FULL SUPERELEVATION	STA.	STATION
G	GARAGE	SW	SIDEWALK
GN	GRID NORTH	T	TANGENT
H	HOUSE	TC	TOP OF CURB
HYD	HYDRANT	℄, T/L	TRANSIT LINE
I	INTERSECTION ANGLE	TEL	TELEPHONE
INTERS	INTERSECTION	TEMP	TEMPORARY
INV.	INVERT	TLE	TEMPORARY LIMITED EASEMENT
IP	IRON PIN OR PIPE	TYP	TYPICAL
LC	LONG CHORD OF CURVE	USH	UNITED STATES HIGHWAY
LF	LINEAR FOOT	UG	UNDERGROUND
LHF	LEFT HAND FORWARD	V	DESIGN SPEED
L	LENGTH OF CURVE	VAR.	VARIABLE
		VERT	VERTICAL
		YD	YARD

UTILITY CONTACTS

ELECTRIC

NORTHWESTERN WISCONSIN ELECTRIC COMPANY
DENISE STRAIT
104 SOUTH PINE STREET, P.O. BOX 9
GRANTSBURG, WI 54840
PHONE: (715) 463-1978
EMAIL: denise@nweco.com

COMMUNICATIONS

LAKELAND COMMUNICATIONS
MARK MAYER
825 INNOVATION AVE., P.O. BOX 40
MILLTOWN, WI 54858
PHONE: (715) 825-2171
EMAIL: markm@lakelandteam.com

ALL UTILITIES LISTED ARE MEMBERS OF DIGGERS HOTLINE



OTHER CONTACTS

DESIGN CONSULTANT

COOPER ENGINEERING
JACOB FRIBERG
2600 COLLEGE DRIVE
RICE LAKE, WI 54868
PHONE: (715) 234-7008
EMAIL: jfriberg@cooperengineering.net

POLK COUNTY

HIGHWAY COMMISSIONER
EMIL "MOE" NORBY
900 PHEASANT LANE, PO BOX 248
BALSAM LAKE, WI 54810
PHONE: (715) 485-8723
EMAIL: emil.norby@co.polk.wi.us

WDNR REGIONAL CONTACT

WDNR/WISDOT LIAISON
AMY CRONK
810 W. MAPLE STREET
SPOONER, WI 54801
PHONE: (715) 635-4229
EMAIL: amy.cronk@wisconsin.gov

GENERAL NOTES:

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

ACCESS TO ALL RESIDENCES & SIDE ROADS SHALL BE MAINTAINED DURING CONSTRUCTION.

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

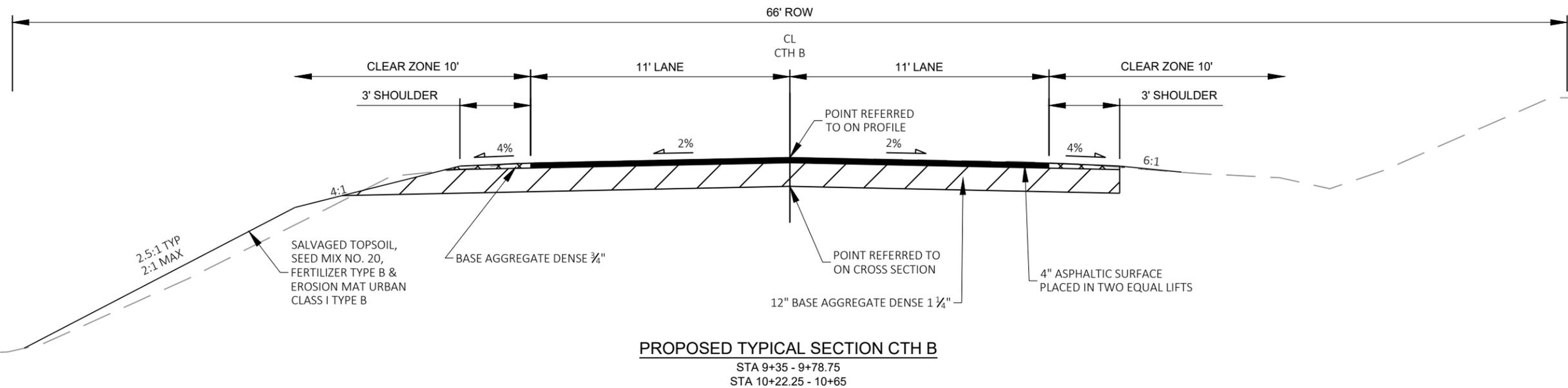
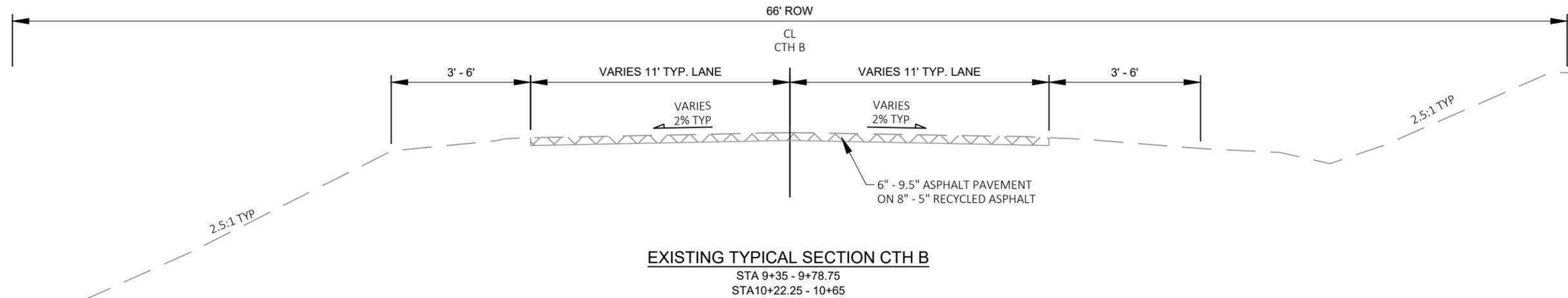
THE CONTRACTOR SHALL NOTIFY DIGGERS HOTLINE AND AFFECTED UTILITIES PRIOR TO THE START OF WORK. ANY UTILITY WHICH IS NOT A MEMBER OF THE DIGGERS HOTLINE MUST BE CONTACTED SEPARATELY.

CTH B WILL BE CLOSED DURING CONSTRUCTION AND A SIGNED DETOUR ROUTE WILL BE MARKED.

RUNOFF COEFFICIENT TABLE

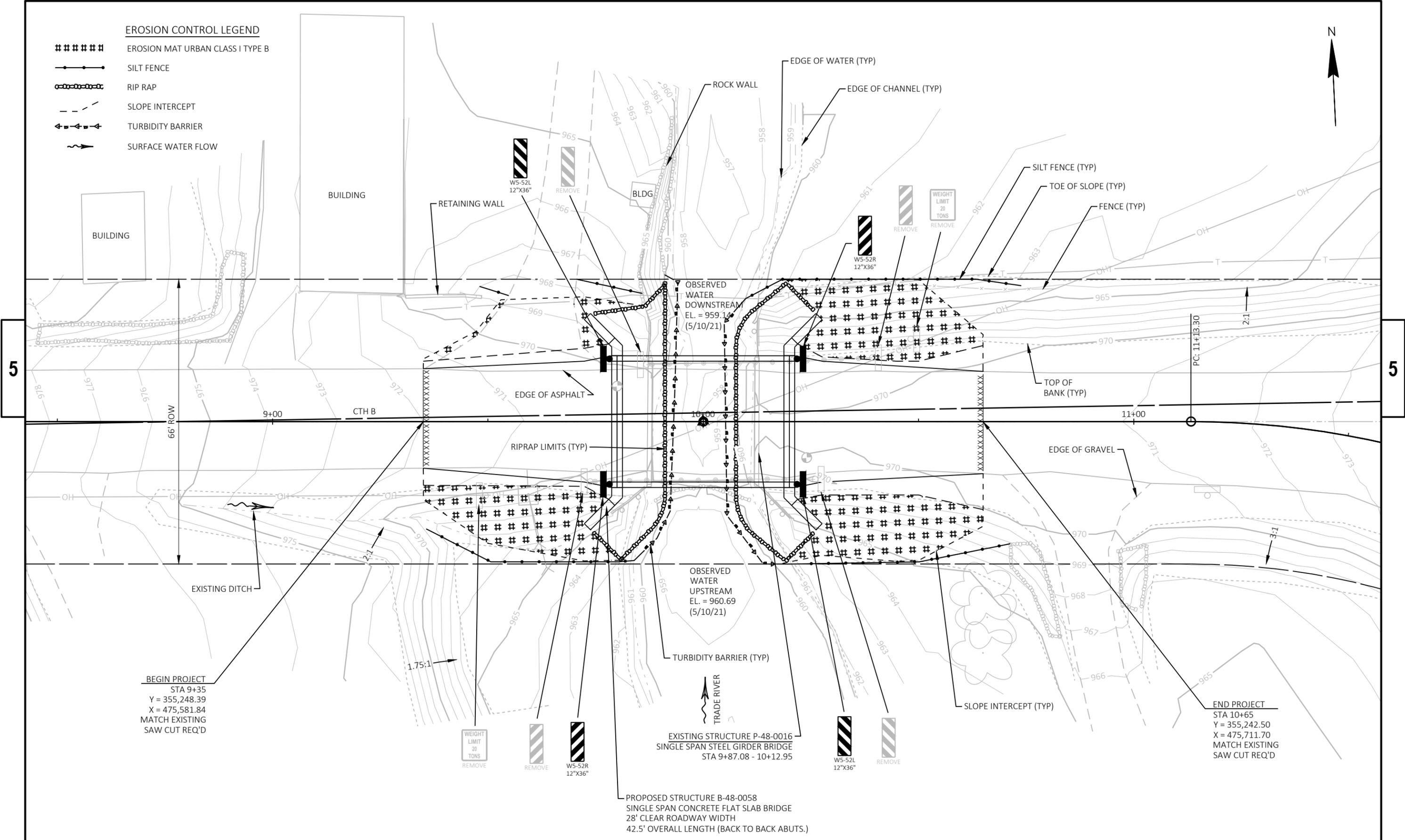
	HYDROLOGIC SOIL GROUP								
	A			B			C		
	SLOPE RANGE (%)			SLOPE RANGE (%)			SLOPE RANGE (%)		
LAND USE:	0-2	2-6	6 & OVER	0-2	2-6	6 & OVER	0-2	2-6	6 & OVER
ROW CROPS	.08 .22	.16 .30	.22 .38	.12 .26	.20 .34	.27 .44	.15 .30	.24 .37	.33 .50
MEDIAN STRIP-TURF	.19 .24	.20 .26	.24 .30	.19 .25	.22 .28	.26 .33	.20 .26	.23 .30	.30 .37
SIDE SLOPE-TURF			.25 .32			.27 .34			.28 .36
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 = 0.20 ACRES
TOTAL AREA EXPECTED TO BE DISTURBED BY CONSTRUCTION ACTIVITIES = 0.15 ACRES



EROSION CONTROL LEGEND

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



BEGIN PROJECT
 STA 9+35
 Y = 355,248.39
 X = 475,581.84
 MATCH EXISTING
 SAW CUT REQ'D

END PROJECT
 STA 10+65
 Y = 355,242.50
 X = 475,711.70
 MATCH EXISTING
 SAW CUT REQ'D

PROPOSED STRUCTURE B-48-0058
 SINGLE SPAN CONCRETE FLAT SLAB BRIDGE
 28' CLEAR ROADWAY WIDTH
 42.5' OVERALL LENGTH (BACK TO BACK ABUTS.)

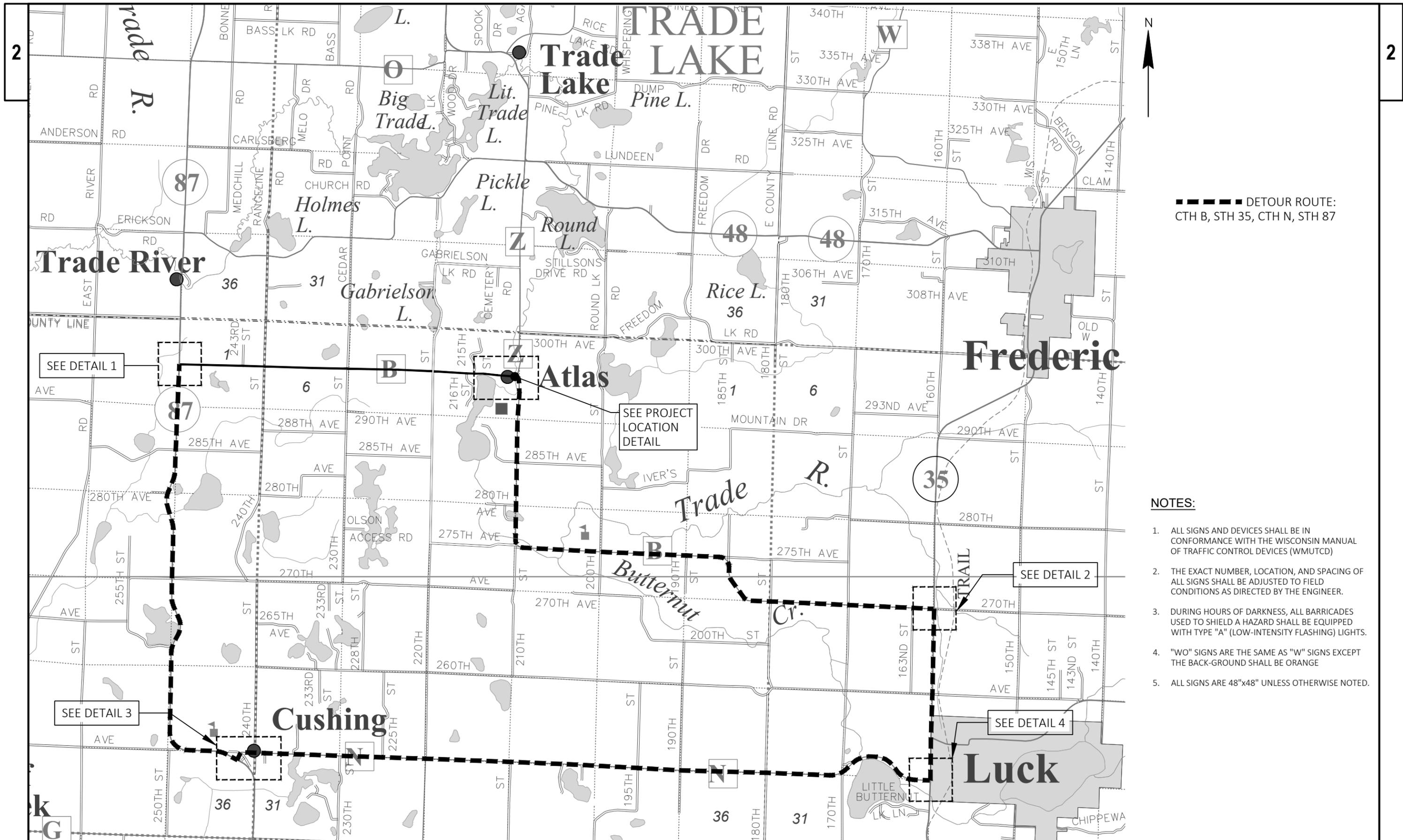
EXISTING STRUCTURE P-48-0016
 SINGLE SPAN STEEL GIRDER BRIDGE
 STA 9+87.08 - 10+12.95

WEIGHT LIMIT 20 TONS REMOVE

WEIGHT LIMIT 20 TONS REMOVE

REMOVE W5-52R 12"x36"

REMOVE W5-52L 12"x36"



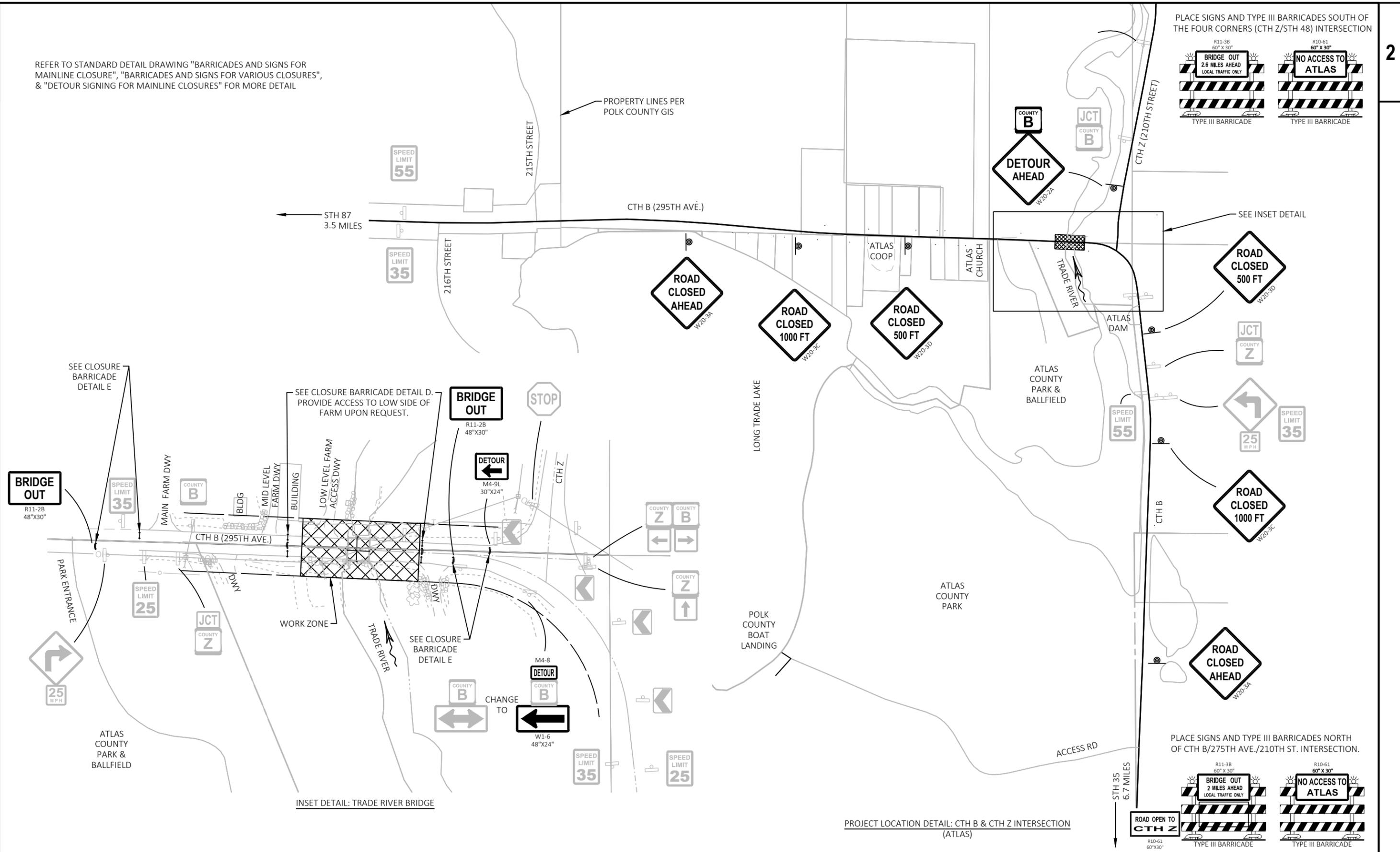
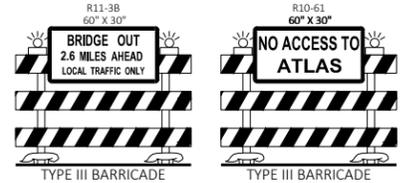
— — — — — DETOUR ROUTE:
 CTH B, STH 35, CTH N, STH 87

NOTES:

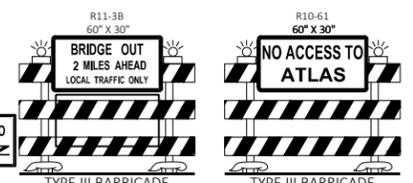
1. ALL SIGNS AND DEVICES SHALL BE IN CONFORMANCE WITH THE WISCONSIN MANUAL OF TRAFFIC CONTROL DEVICES (WMUTCD)
2. THE EXACT NUMBER, LOCATION, AND SPACING OF ALL SIGNS SHALL BE ADJUSTED TO FIELD CONDITIONS AS DIRECTED BY THE ENGINEER.
3. DURING HOURS OF DARKNESS, ALL BARRICADES USED TO SHIELD A HAZARD SHALL BE EQUIPPED WITH TYPE "A" (LOW-INTENSITY FLASHING) LIGHTS.
4. "WO" SIGNS ARE THE SAME AS "W" SIGNS EXCEPT THE BACK-GROUND SHALL BE ORANGE
5. ALL SIGNS ARE 48"x48" UNLESS OTHERWISE NOTED.

REFER TO STANDARD DETAIL DRAWING "BARRICADES AND SIGNS FOR MAINLINE CLOSURE", "BARRICADES AND SIGNS FOR VARIOUS CLOSURES", & "DETOUR SIGNING FOR MAINLINE CLOSURES" FOR MORE DETAIL

PLACE SIGNS AND TYPE III BARRICADES SOUTH OF THE FOUR CORNERS (CTH Z/STH 48) INTERSECTION



PLACE SIGNS AND TYPE III BARRICADES NORTH OF CTH B/275TH AVE./210TH ST. INTERSECTION.



Estimate Of Quantities

8857-00-70

Line	Item	Item Description	Unit	Total	Qty
0002	203.0260	Removing Structure Over Waterway Minimal Debris (structure) 01. P-48-16	EACH	1.000	1.000
0004	205.0100	Excavation Common	CY	150.000	150.000
0006	206.1001	Excavation for Structures Bridges (structure) 01. B-48-58	EACH	1.000	1.000
0008	210.1500	Backfill Structure Type A	TON	320.000	320.000
0010	213.0100	Finishing Roadway (project) 01. 8857-00-70	EACH	1.000	1.000
0012	305.0110	Base Aggregate Dense 3/4-Inch	TON	25.000	25.000
0014	305.0120	Base Aggregate Dense 1 1/4-Inch	TON	230.000	230.000
0016	455.0605	Tack Coat	GAL	20.000	20.000
0018	465.0105	Asphaltic Surface	TON	60.000	60.000
0020	502.0100	Concrete Masonry Bridges	CY	146.000	146.000
0022	502.3200	Protective Surface Treatment	SY	197.000	197.000
0024	505.0400	Bar Steel Reinforcement HS Structures	LB	4,420.000	4,420.000
0026	505.0600	Bar Steel Reinforcement HS Coated Structures	LB	19,840.000	19,840.000
0028	513.4061	Railing Tubular Type M	LF	90.000	90.000
0030	516.0500	Rubberized Membrane Waterproofing	SY	12.000	12.000
0032	550.2106	Piling CIP Concrete 10 3/4 X 0.365-Inch	LF	525.000	525.000
0034	606.0300	Riprap Heavy	CY	100.000	100.000
0036	612.0406	Pipe Underdrain Wrapped 6-Inch	LF	150.000	150.000
0038	618.0100	Maintenance And Repair of Haul Roads (project) 01. 8857-00-70	EACH	1.000	1.000
0040	619.1000	Mobilization	EACH	1.000	1.000
0042	624.0100	Water	MGAL	3.000	3.000
0044	625.0500	Salvaged Topsoil	SY	275.000	275.000
0046	628.1504	Silt Fence	LF	225.000	225.000
0048	628.1520	Silt Fence Maintenance	LF	225.000	225.000
0050	628.1905	Mobilizations Erosion Control	EACH	3.000	3.000
0052	628.1910	Mobilizations Emergency Erosion Control	EACH	2.000	2.000
0054	628.2008	Erosion Mat Urban Class I Type B	SY	275.000	275.000
0056	628.6005	Turbidity Barriers	SY	100.000	100.000
0058	629.0210	Fertilizer Type B	CWT	0.200	0.200
0060	630.0120	Seeding Mixture No. 20	LB	10.000	10.000
0062	630.0500	Seed Water	MGAL	10.000	10.000
0064	634.0612	Posts Wood 4x6-Inch X 12-FT	EACH	4.000	4.000
0066	637.2230	Signs Type II Reflective F	SF	12.000	12.000
0068	638.2602	Removing Signs Type II	EACH	6.000	6.000
0070	638.3000	Removing Small Sign Supports	EACH	6.000	6.000
0072	642.5001	Field Office Type B	EACH	1.000	1.000
0074	643.0420	Traffic Control Barricades Type III	DAY	1,140.000	1,140.000
0076	643.0705	Traffic Control Warning Lights Type A	DAY	2,040.000	2,040.000
0078	643.0900	Traffic Control Signs	DAY	4,740.000	4,740.000
0080	643.5000	Traffic Control	EACH	1.000	1.000
0082	645.0111	Geotextile Type DF Schedule A	SY	60.000	60.000
0084	645.0120	Geotextile Type HR	SY	150.000	150.000
0086	646.1020	Marking Line Epoxy 4-Inch	LF	520.000	520.000
0088	650.4500	Construction Staking Subgrade	LF	87.000	87.000
0090	650.5000	Construction Staking Base	LF	87.000	87.000
0092	650.6501	Construction Staking Structure Layout (structure) 01. B-48-58	EACH	1.000	1.000
0094	650.9911	Construction Staking Supplemental Control (project) 01. 8857-00-70	EACH	1.000	1.000
0096	650.9920	Construction Staking Slope Stakes	LF	87.000	87.000
0098	690.0150	Sawing Asphalt	LF	47.000	47.000

Estimate Of Quantities

8857-00-70

Line	Item	Item Description	Unit	Total	Qty
0100	715.0502	Incentive Strength Concrete Structures	DOL	1,460.000	1,460.000
0102	ASP.1T0A	On-the-Job Training Apprentice at \$5.00/HR	HRS	300.000	300.000
0104	ASP.1T0G	On-the-Job Training Graduate at \$5.00/HR	HRS	300.000	300.000
0106	SPV.0090	Special 01. Flashing Stainless Steel	LF	75.000	75.000

3

CATEGORY	STATION TO STATION	SIDE	SALVAGED/ UNUSEABLE		EXPANDED		EXPANDED FILL (FACTOR = 1.25)	MASS ORDINATE +/-
			EXCAVATION COMMON	PAVEMENT MATERIAL	AVAILABLE MATERIAL	UNEXPANDED FILL		
0010	9+35 - 9+79	LT/RT	70	25	45	8	10	35
0010	10+21 - 10+65	LT/RT	80	25	55	24	30	25
TOTAL 0010			150	50	100	32	40	60

3

CATEGORY	STATION TO STATION	SIDE	THICKNESS (IN)	LAYERS	BASE AGGREGATE		BASE AGGREGATE		ASPHALTIC		SAWING	
					DENSE 3/4-INCH	DENSE 1 1/4-INCH	TACK COAT	SURFACE	WATER	ASPHALT		
0010	9+35 - 9+79	LT/RT	4	2	12	113	10	30	1.5	23		
0010	10+21 - 10+65	LT/RT	4	2	13	117	10	30	1.5	24		
TOTAL 0010					25	230	20	60	3	47		

CATEGORY	LOCATION	EROSION MAT		SEEDING		
		SALVAGED TOPSOIL	URBAN CLASS I TYPE B	FERTILIZER TYPE B	MIX NO. 20	SEED WATER
0010	B-48-0058 NW	30	30	0.02	2	2
0010	B-48-0058 SW	60	60	0.04	2	2
0010	B-48-0058 NE	70	70	0.05	2	2
0010	B-48-0058 SE	60	60	0.04	2	2
0010	UNDISTRIBUTED	55	55	0.05	2	2
TOTAL 0010		275	275	0.2	10	10

CATEGORY	LOCATION	SILT FENCE	
		SILT FENCE 628.1504	MAINTENANCE 628.1520
0010	B-48-0058 NW	15	15
0010	B-48-0058 SW	50	50
0010	B-48-0058 NE	65	65
0010	B-48-0058 SE	50	50
0010	UNDISTRIBUTED	45	45
TOTAL 0010		225	225

CATEGORY	LOCATION	TURBIDITY BARRIER		REMARKS
		628.6005	SY	
0010	B-48-0058 WEST	50		75' LONG X 6' HIGH
0010	B-48-0058 EAST	50		75' LONG X 6' HIGH
TOTAL 0010		100		

CATEGORY	LOCATION	POSTS		SIGNS		REMARKS
		WOOD 4x6-INCH x 12 FT	REFLECTIVE F	REMOVING SIGN TYPE II	REMOVING SMALL SIGN SUPPORTS	
0010	B-48-0058 NW	1	3	1	1	W5-52R
0010	B-48-0058 SW	1	3	2	2	W5-52L
0010	B-48-0058 NE	1	3	2	2	W5-52L
0010	B-48-0058 SE	1	3	1	1	W5-52R
TOTAL 0010		4	12	6	6	

PROJECT NO: 8857-00-70

HWY: CTH B

COUNTY: POLK

MISCELLANEOUS QUANTITIES

SHEET

E

3

3

CATEGORY	DAYS	TRAFFIC CONTROL BARRICADES		TRAFFIC CONTROL WARNING LIGHTS		TRAFFIC CONTROL SIGNS		REMARKS
		TYPE III		TYPE A		643.0900		
		#	DAYS	#	DAYS	#	DAYS	
0010	60	3	180	4	240	1	60	ROAD CLOSED DETAIL D WEST SIDE
0010	60	3	180	4	240	1	60	ROAD CLOSED DETAIL D EAST SIDE
0010	60	2	120	4	240	4	240	ADVANCED ROAD CLOSED DETAIL C WEST SIDE
0010	60	2	120	4	240	4	240	ADVANCED ROAD CLOSED DETAIL C EAST SIDE
0010	60	9	540	18	1,080	69	4,140	DETOUR
TOTAL 0010			1,140		2,040		4,740	

CATEGORY	STATION TO	STATION	SIDE	MARKING LINE EPOXY 4-INCH		MARKING LINE EPOXY 4-INCH, YELLOW		MARKING LINE EPOXY 4-INCH, WHITE		REMARKS
				646.1020		*		*		
				LF	LF	LF	LF	LF	LF	
0010	9+35	- 10+65	CL	260	260	-	-	-	DOUBLE YELLOW CENTERLINE	
0010	9+35	- 10+65	LT	130	-	-	130	130	LT WHITE EDGELINE	
0010	9+35	- 10+65	RT	130	-	-	130	130	RT WHITE EDGELINE	
TOTAL 0010				520	260	260	260	260		

*FOR INFORMATION ONLY

CATEGORY	STATION TO	STATION	CONSTRUCTION STAKING SUBGRADE		CONSTRUCTION STAKING BASE		CONSTRUCTION STAKING SLOPE STAKES	
			650.4500		650.5000		650.9920	
			LF	LF	LF	LF	LF	LF
0010	9+35	- 9+78	43	43	43	43	43	
0010	10+21	- 10+65	44	44	44	44	44	
TOTAL 0010			87	87	87	87	87	

PROJECT NO: 8857-00-70

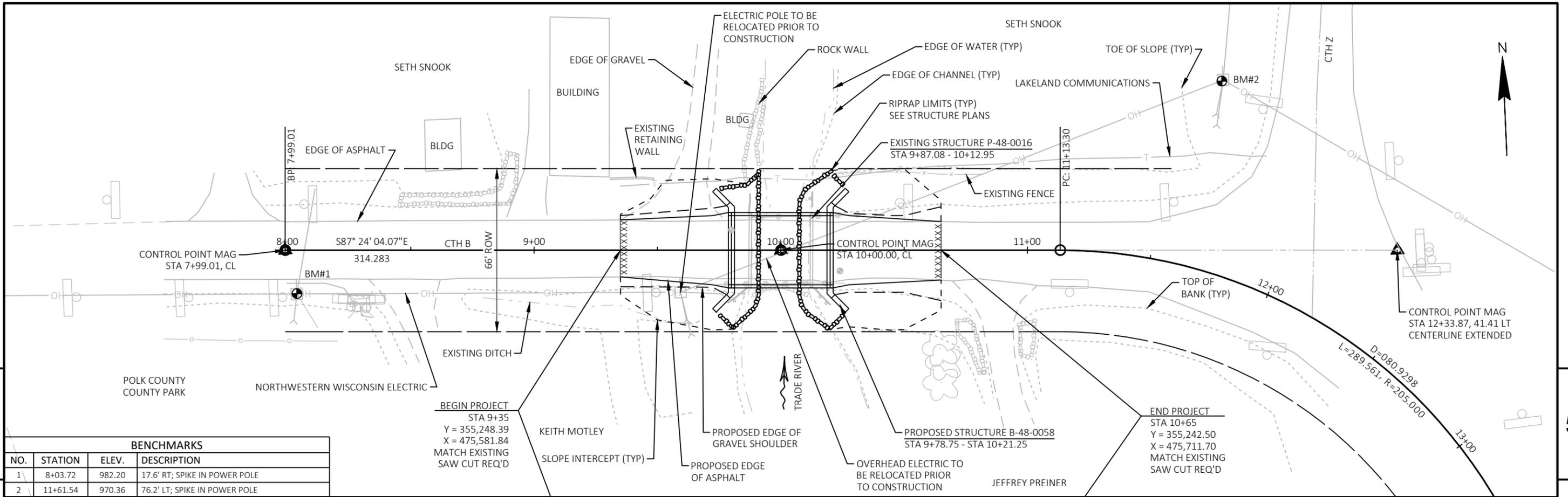
HWY: CTH B

COUNTY: POLK

MISCELLANEOUS QUANTITIES

SHEET

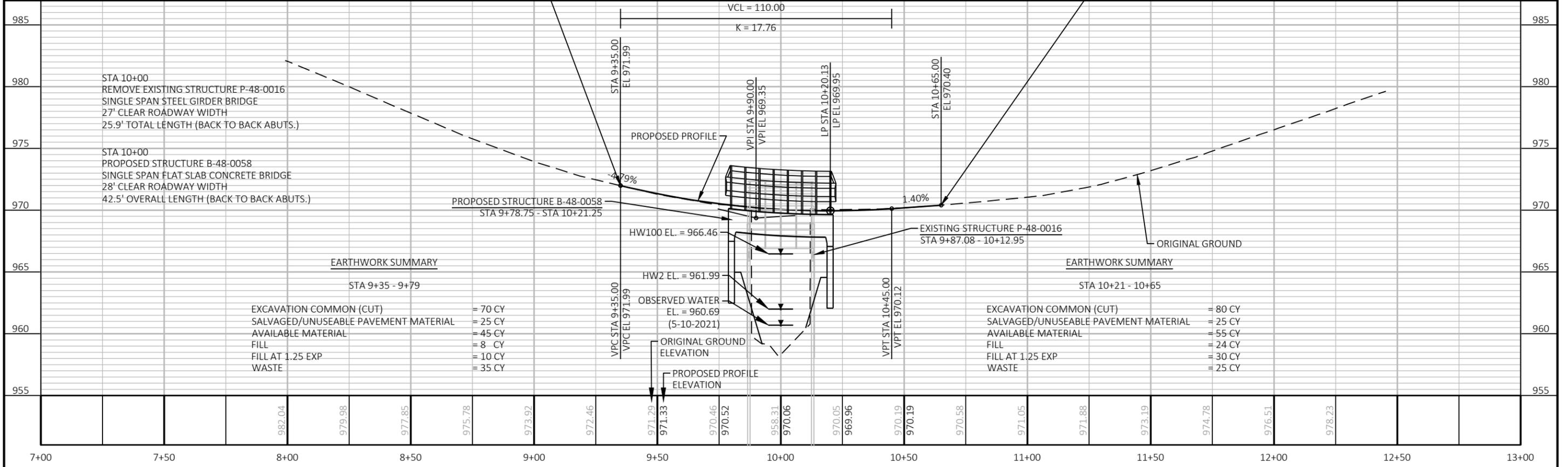
E



5

5

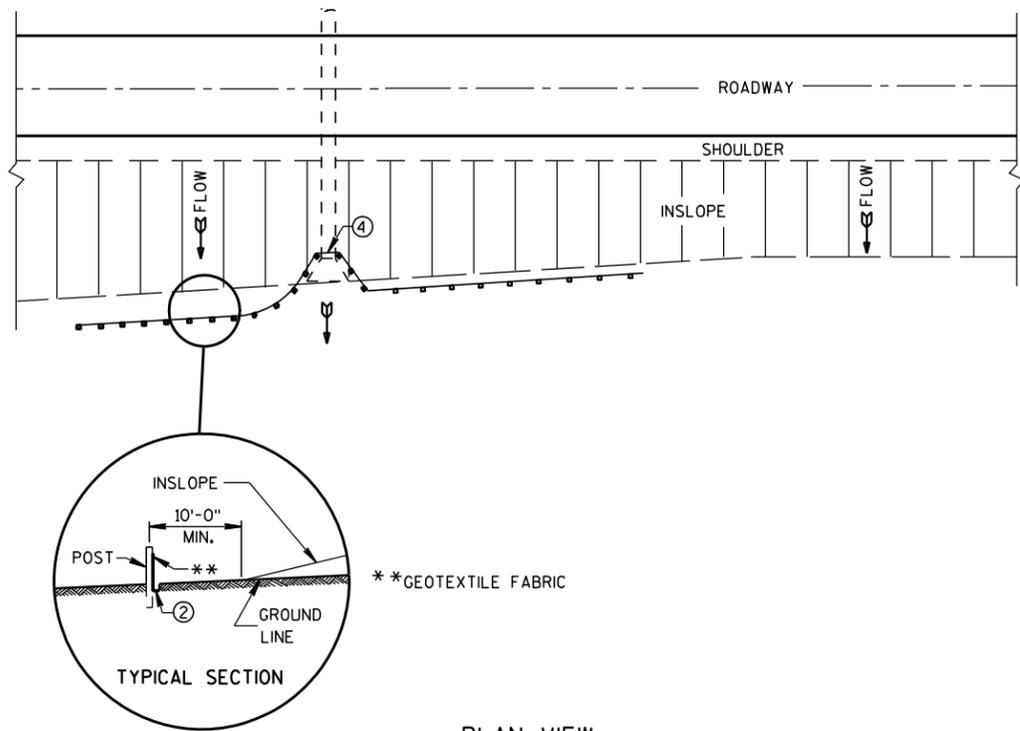
BENCHMARKS			
NO.	STATION	ELEV.	DESCRIPTION
1	8+03.72	982.20	17.6' RT; SPIKE IN POWER POLE
2	11+61.54	970.36	76.2' LT; SPIKE IN POWER POLE



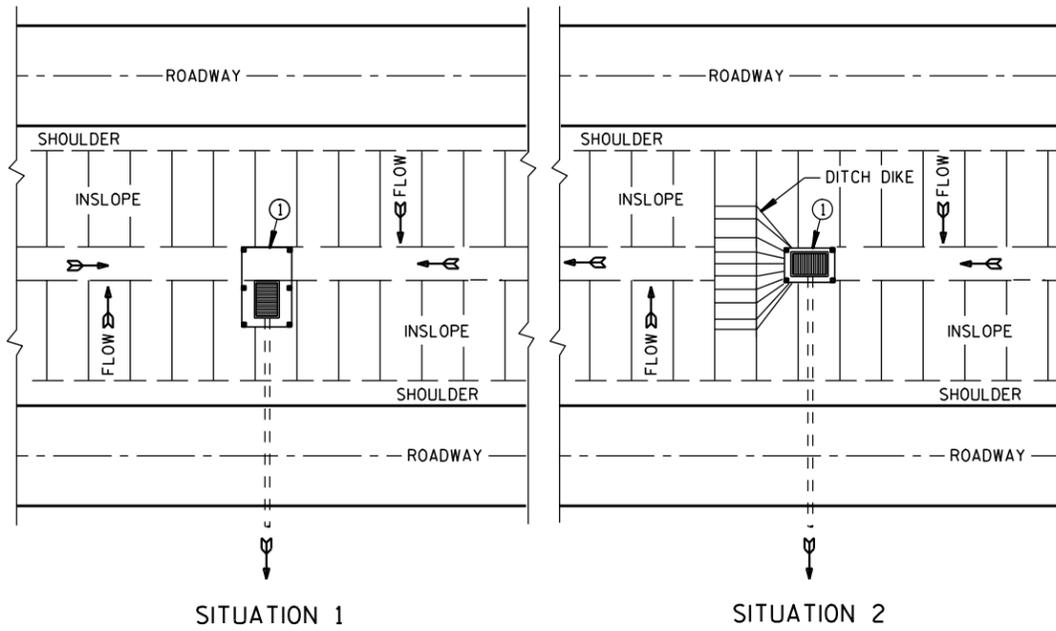
PROJECT NO: 8857-00-70	HWY: CTH B	COUNTY: POLK	PLAN AND PROFILE: CTH B	SHEET	E
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Standard Detail Drawing List

08E09-06	SILT FENCE
08E11-02	TURBIDITY BARRIER
12A03-10	NAME PLATE (STRUCTURES)
15C02-08A	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C02-08B	BARRICADES AND SIGNS FOR VARIOUS CLOSURES
15C02-08C	DETOUR SIGNING FOR MAINLINE CLOSURES
15C06-10	SIGNING & MARKING FOR TWO LANE BRIDGES
15C08-21A	LONGITUDINAL MARKING (MAINLINE)
15C11-09B	CHANNELIZING DEVICES DRUMS, CONES, BARRICADES AND VERTICAL PANELS



PLAN VIEW
TYPICAL APPLICATION OF SILT FENCE

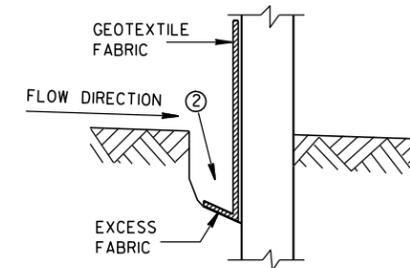


SITUATION 1 SITUATION 2
PLAN VIEW
SILT FENCE AT MEDIAN SURFACE DRAINS

GENERAL NOTES

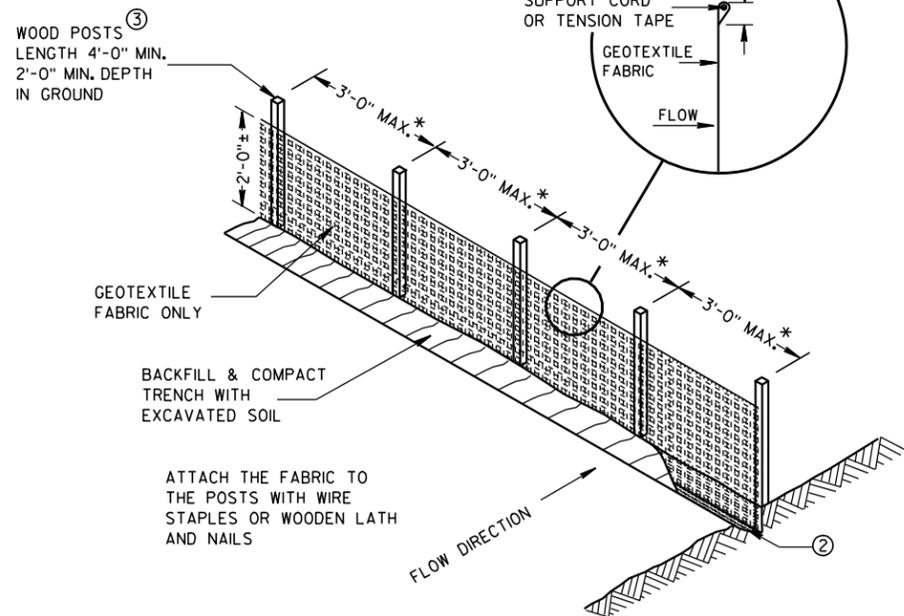
DETAILS OF CONSTRUCTION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.

- ① HORIZONTAL BRACE REQUIRED WITH 2" X 4" WOODEN FRAME OR EQUIVALENT AT TOP OF POSTS.
- ② FOR MANUAL INSTALLATIONS THE TRENCH SHALL BE A MINIMUM OF 4" WIDE & 6" DEEP TO BURY AND ANCHOR THE GEOTEXTILE FABRIC. FOLD MATERIAL TO FIT TRENCH AND BACKFILL & COMPACT TRENCH WITH EXCAVATED SOIL.
- ③ WOOD POSTS SHALL BE A MINIMUM SIZE OF 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.



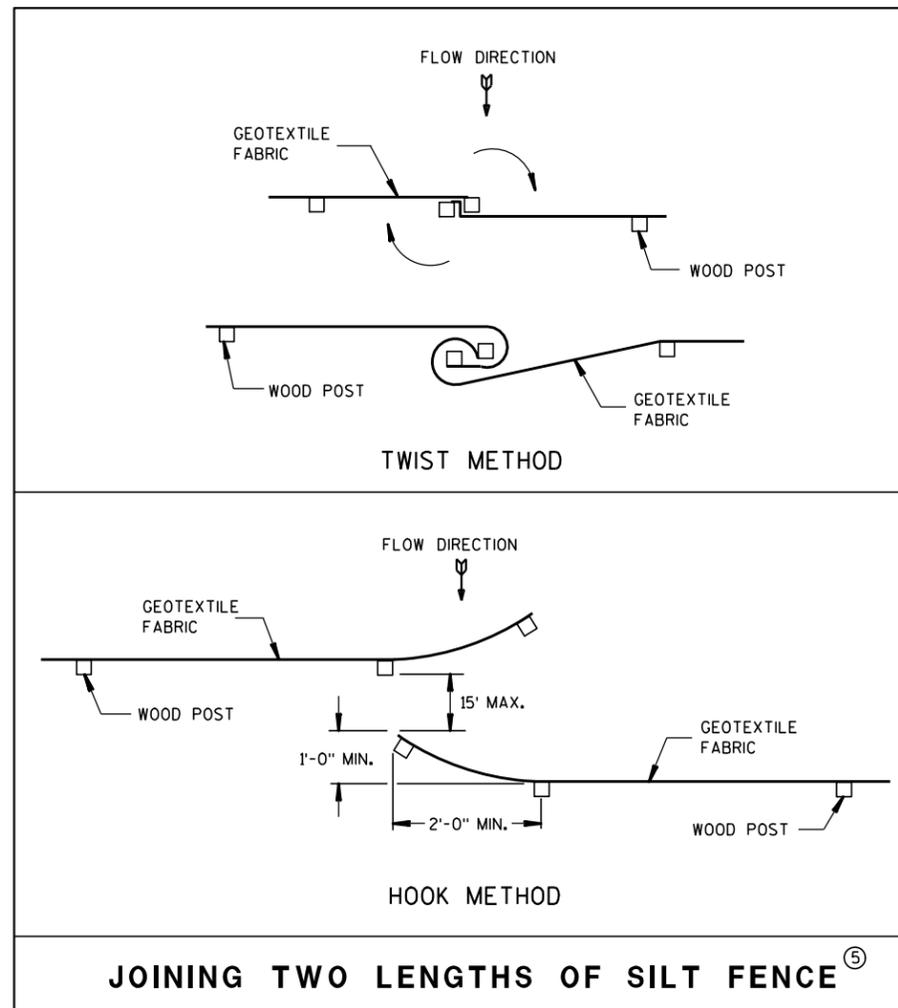
TRENCH DETAIL

NOTE: ADDITIONAL POST DEPTH OR TIE BACKS MAY BE REQUIRED IN UNSTABLE SOILS

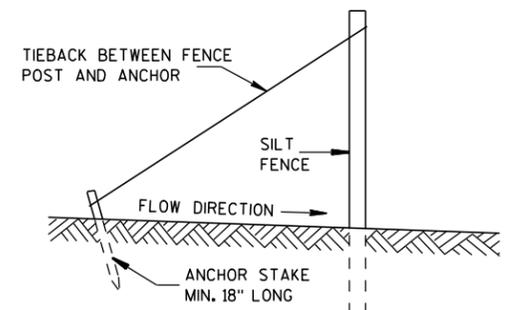


SILT FENCE

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



JOINING TWO LENGTHS OF SILT FENCE ⑤

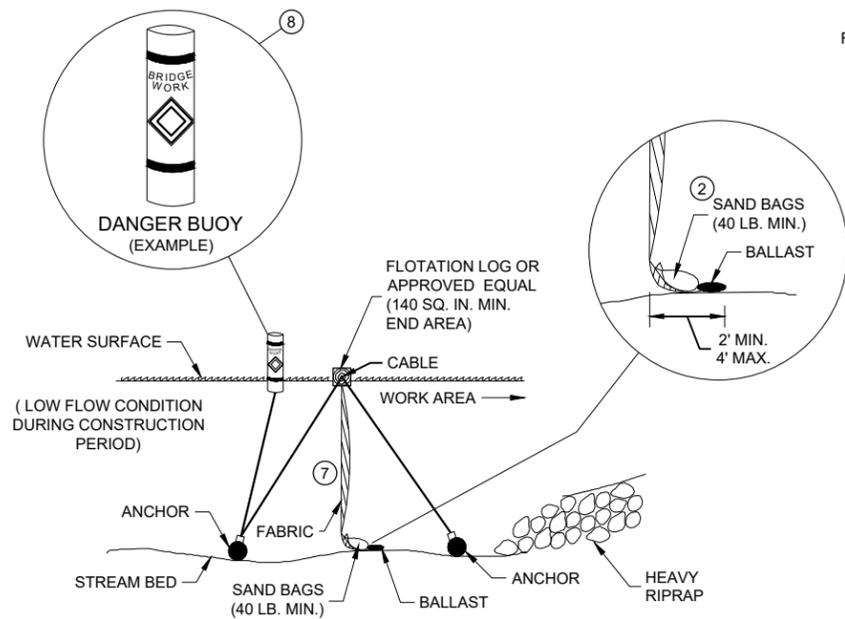


SILT FENCE TIE BACK
(WHEN REQUIRED BY THE ENGINEER)

SILT FENCE

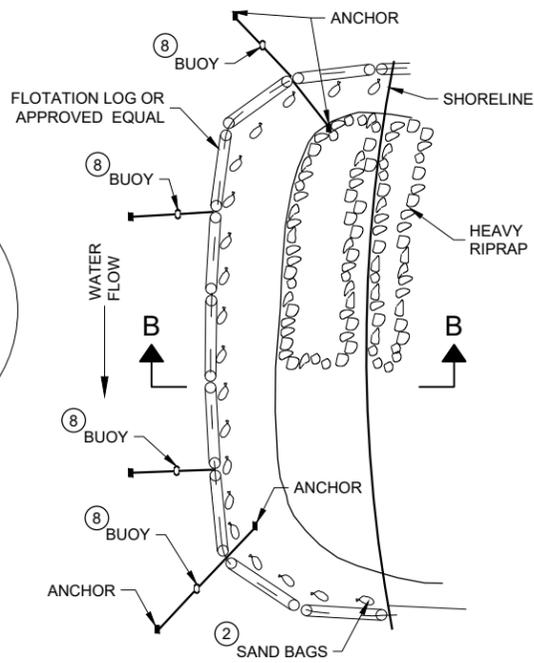
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

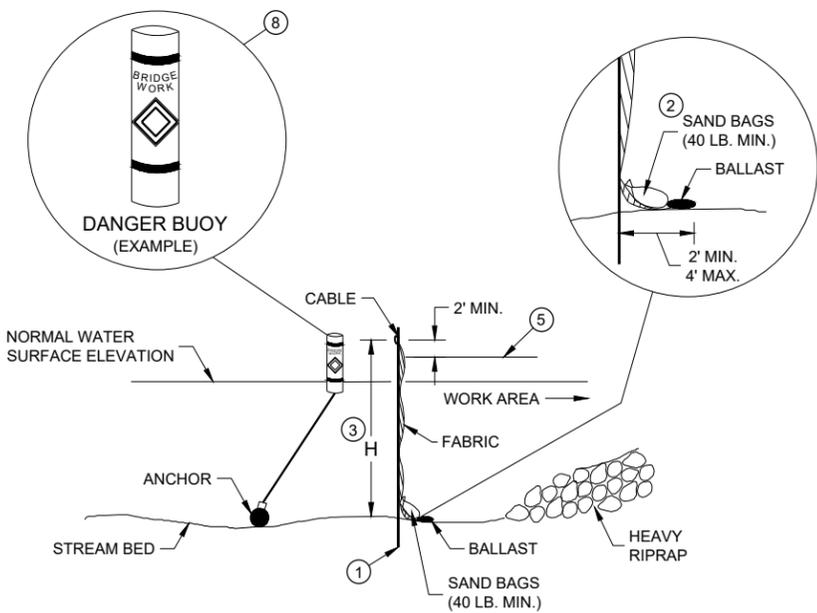


SECTION B - B

**TURBIDITY BARRIER - FLOAT ALTERNATIVE
CAUTION - SEE NOTE 6**

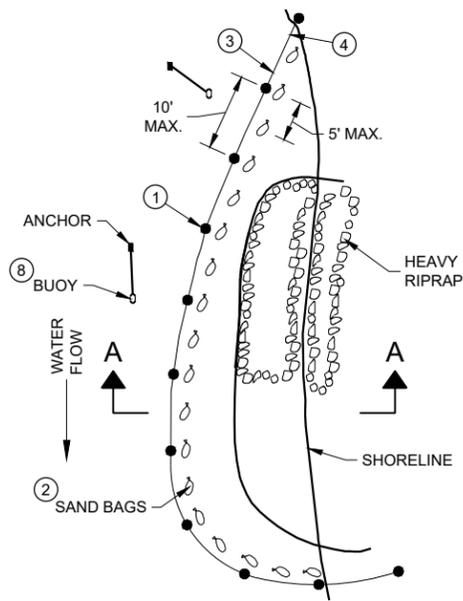


PLAN VIEW



SECTION A - A

TURBIDITY BARRIER - STANDARD POST INSTALLATION



PLAN VIEW

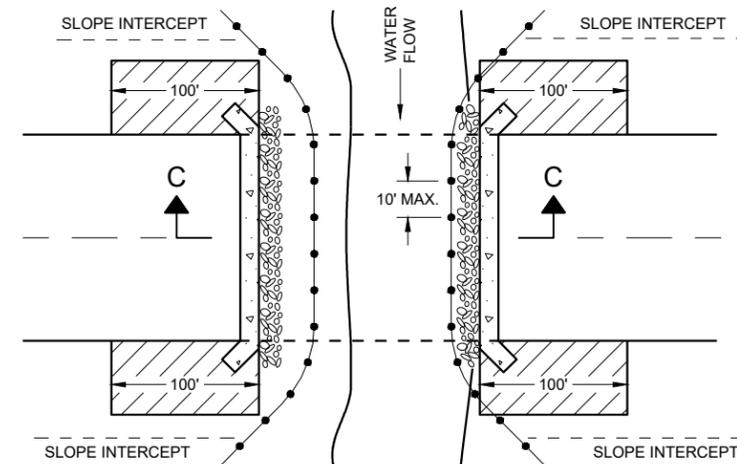
TURBIDITY BARRIER PLACEMENT DETAILS

GENERAL NOTES

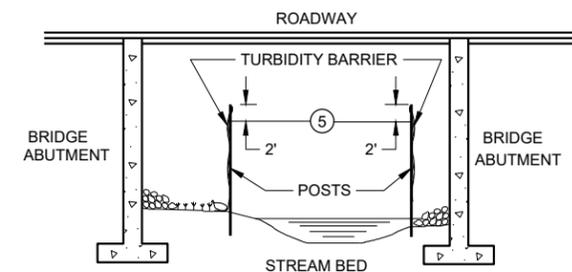
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

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

- ① DRIVEN STEEL POSTS, PIPES, OR CHANNELS. LENGTH SHALL BE SUFFICIENT TO SECURELY SUPPORT BARRIER AT HIGH WATER ELEVATIONS.
- ② SAND BAGS TO BE USED AS ADDITIONAL BALLAST WHEN ORDERED BY THE ENGINEER TO MEET ADVERSE FIELD CONDITIONS. SPACE AS APPROPRIATE FOR SITE CONDITIONS.
- ③ WHEN BARRIER HEIGHT "H" EXCEEDS 8 FEET, POST SPACING MAY NEED TO BE DECREASED.
- ④ IN WATERWAYS SUBJECT TO FLUCTUATING WATER ELEVATIONS, PROVISIONS SHOULD BE MADE TO ALLOW THE WATER TO EQUALIZE ON EACH SIDE OF THE BARRIER. THIS MAY BE ACCOMPLISHED BY LEAVING A PORTION OF THE BARRIER OPEN ON THE UPSTREAM END.
- ⑤ ESTIMATED HIGH WATER ELEVATION DURING CONSTRUCTION PERIOD. MINIMUM BARRIER HEIGHT SHALL BE 2' GREATER THAN EITHER THE Q2 ELEVATION OR THE ESTIMATED HIGH WATER ELEVATION DURING CONSTRUCTION, WHICHEVER IS GREATER.
- ⑥ FLOAT ALTERNATIVE WILL ONLY BE ALLOWED WITH WRITTEN APPROVAL OF THE ENGINEER, AND IS MEANT FOR LOCATIONS WHERE BEDROCK PREVENTS THE INSTALLATION OF POSTS.
- ⑦ ALLOW SUFFICIENT SLACK VERTICALLY AND HORIZONTALLY SO THAT SEDIMENT BUILD UP WILL NOT SEPARATE OR LOWER THE TURBIDITY BARRIER.
- ⑧ USE AS DIRECTED BY COAST GUARD OR DNR PERMIT WHEN WORKING IN NAVIGABLE WATERWAYS.



PLAN VIEW



SECTION C - C

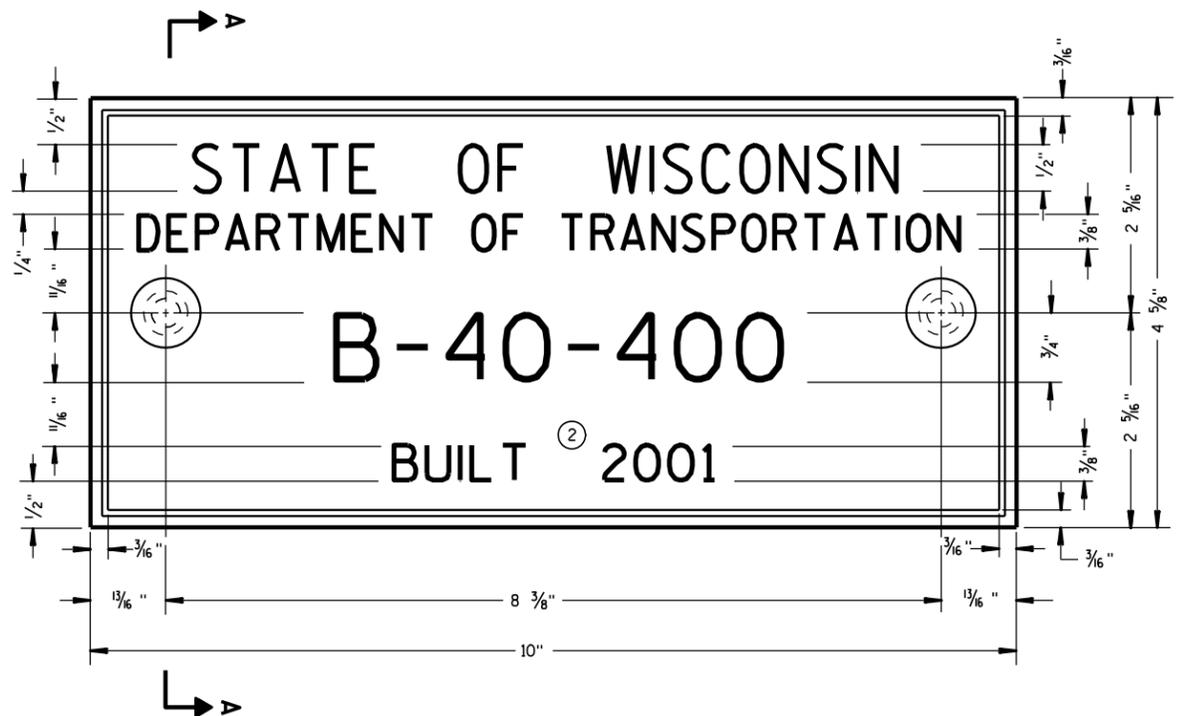
**TURBIDITY BARRIER DETAIL SHOWING
TYPICAL PLACEMENT AT STRUCTURES**

TURBIDITY BARRIER

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

FHWA



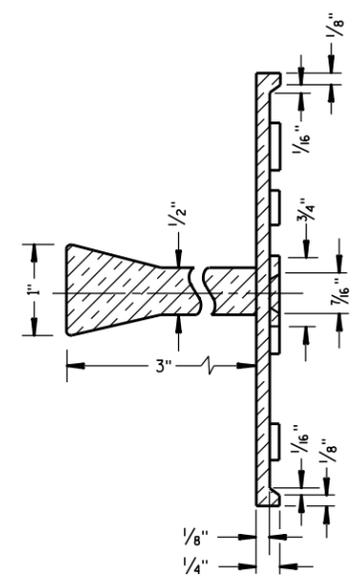
TYPICAL NAME PLATE
(BRIDGES, CULVERTS, AND RETAINING WALLS)

GENERAL NOTES

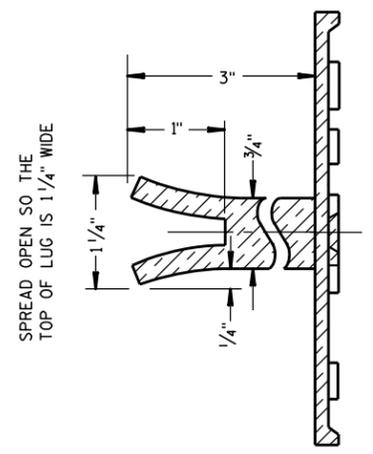
NAME PLATES TO BE INSTALLED ON BRIDGES, CULVERTS, AND RETAINING WALLS SHALL CONFORM TO THE REQUIREMENTS OF SECTION 502.3.11 OF THE STANDARD SPECIFICATIONS.

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

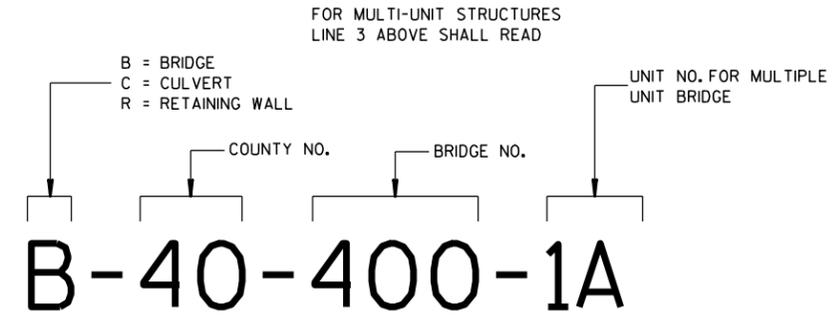
- ① EPOXY RESIN SHALL BE FROM AN APPROVED MANUFACTURER AND USED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
- ② REHABILITATION OF AN EXISTING STRUCTURE SHOULD USE THE DATE OF ORIGINAL STRUCTURE CONSTRUCTION.



SECTION A-A

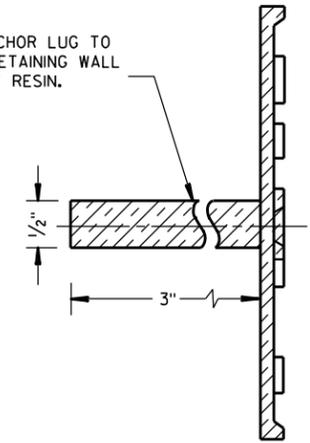


ALTERNATE LUG



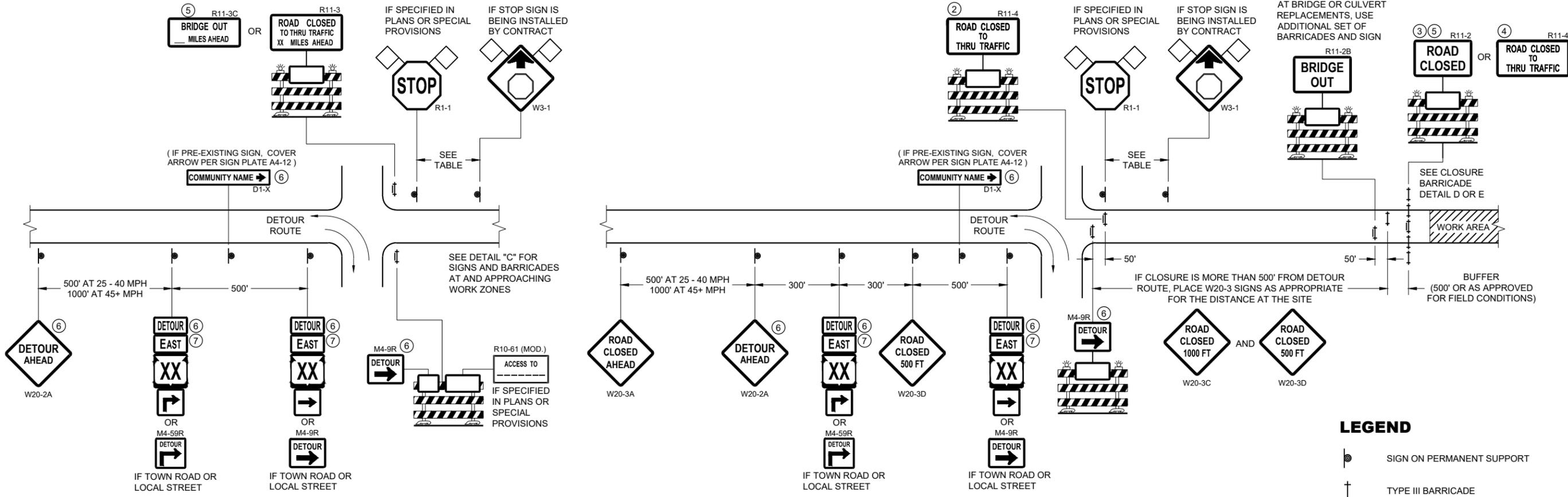
**NUMBERING DESIGNATION
MULTI-UNIT STRUCTURES**

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



**DETAIL A
MAINLINE CLOSURE WITH POSTED DETOUR**

WORK ZONE GREATER THAN OR EQUAL TO 1/2 MILE FROM
DETOUR ROUTE (1000 FEET IF URBAN)

**DETAIL B
MAINLINE CLOSURE WITH POSTED DETOUR**

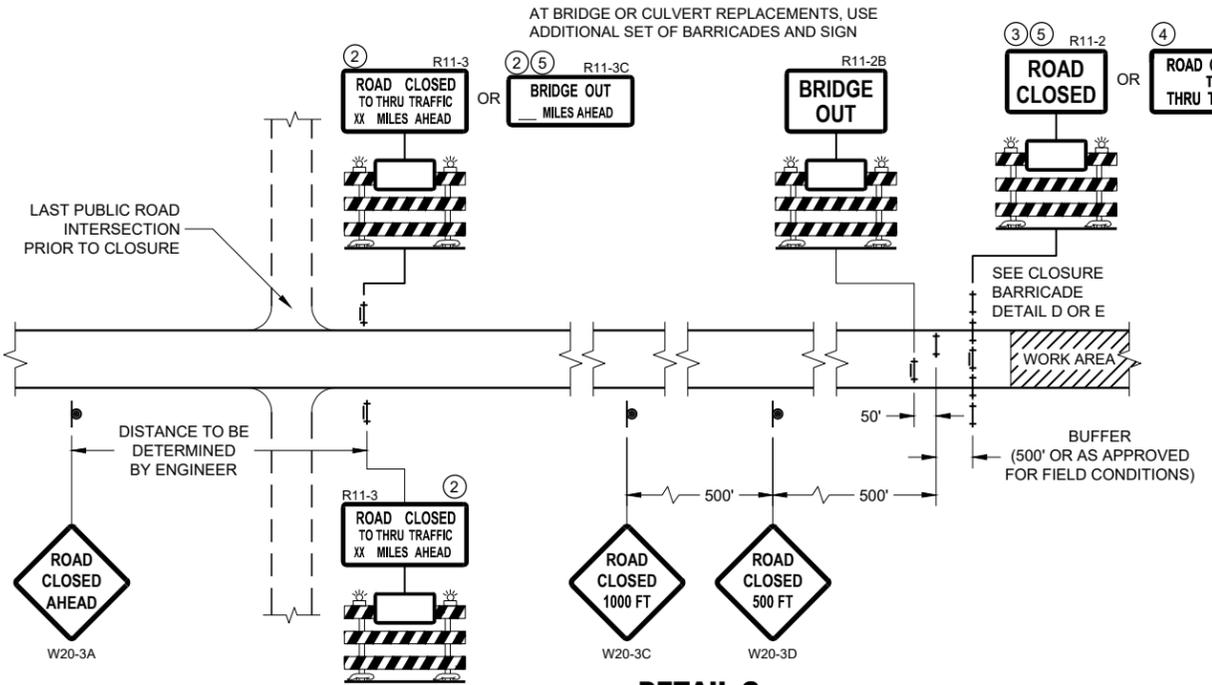
WORK ZONE LESS THAN 1/2 MILE FROM
DETOUR ROUTE (1000 FEET IF URBAN)

LEGEND

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

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

- M4 - 8
- M3 - X
- M1 - 4
- M1 - 6
- M1 - 5A
- M05 - 1
- M06 - 1



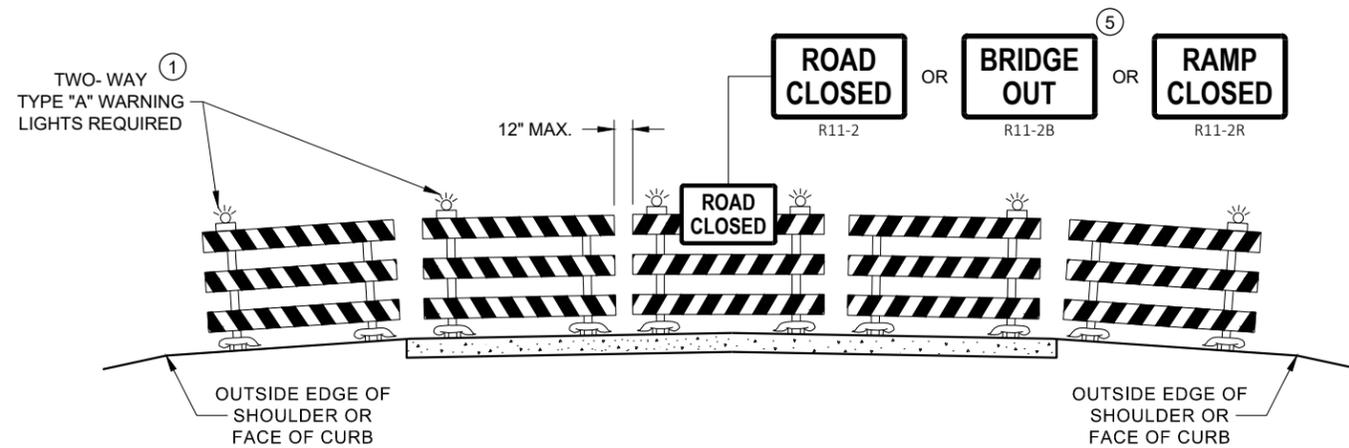
**DETAIL C
MAINLINE CLOSURE, NO POSTED DETOUR**

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

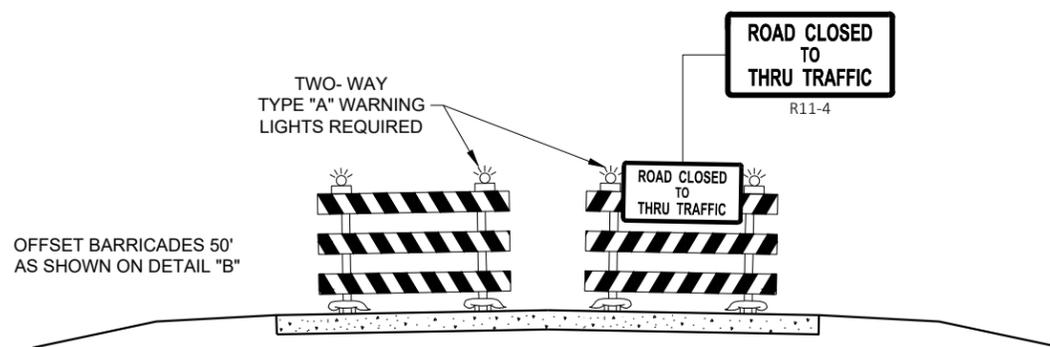
**BARRICADES AND SIGNS
FOR MAINLINE CLOSURES**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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



**DETAIL D
ROAD CLOSURE BARRICADE DETAIL
APPROACH VIEW**



**DETAIL E
LANE CLOSURE BARRICADE DETAIL
APPROACH VIEW**

SEE SDD 15C2 - SHEET "a" FOR LEGEND

GENERAL NOTES

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

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

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

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

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

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

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

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

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

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

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

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

**BARRICADES AND SIGNS
FOR
VARIOUS CLOSURES**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

LEGEND

- SIGN ON PERMANENT SUPPORT
- WORK AREA
- DETOUR M4 - 8
- EAST M3 - X
- XX OR XX OR COUNTY X M1 - 4 M1 - 6 M1 - 5A
- M05 - 1 OR M06 - 1 OR M06 - 1

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.

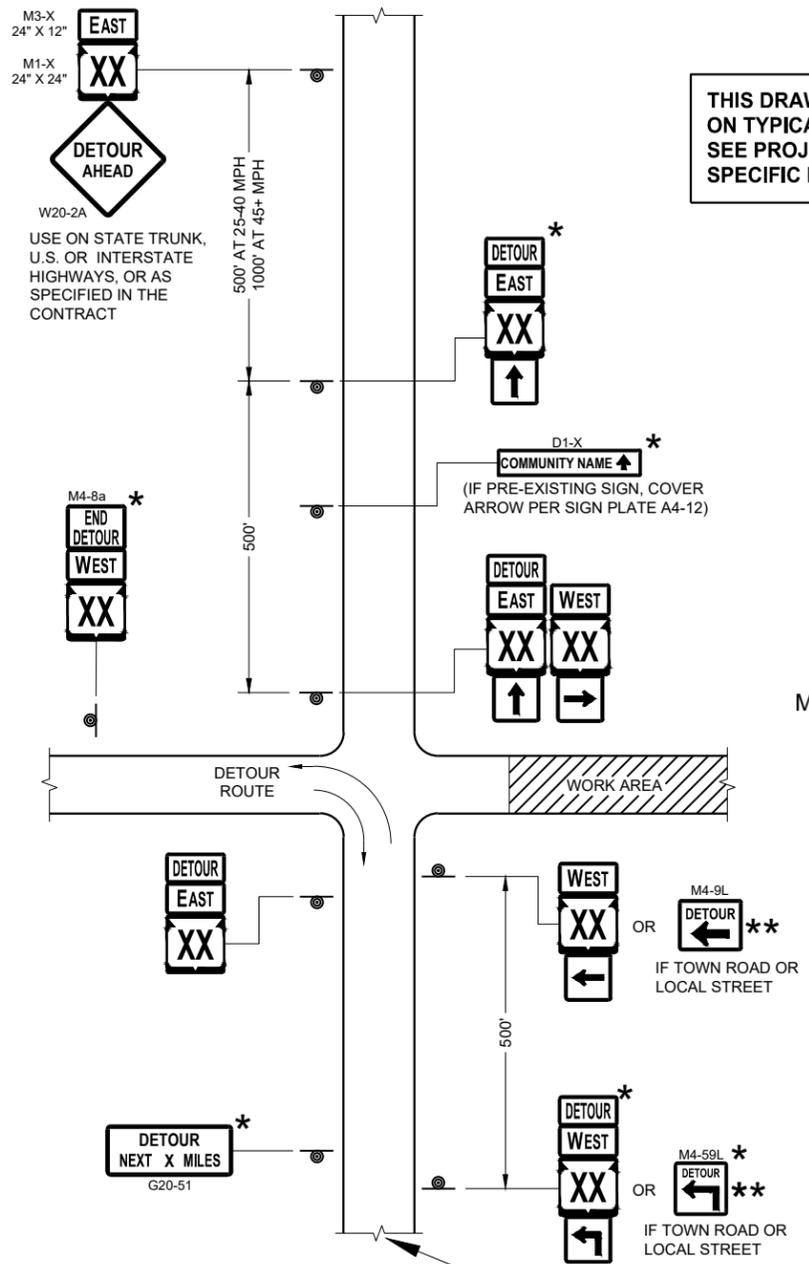
"MO" SIGNS ARE THE SAME AS "M" SIGNS EXCEPT THE BACKGROUND IS ORANGE.

SIGN SIZES SHALL BE AS FOLLOWS:

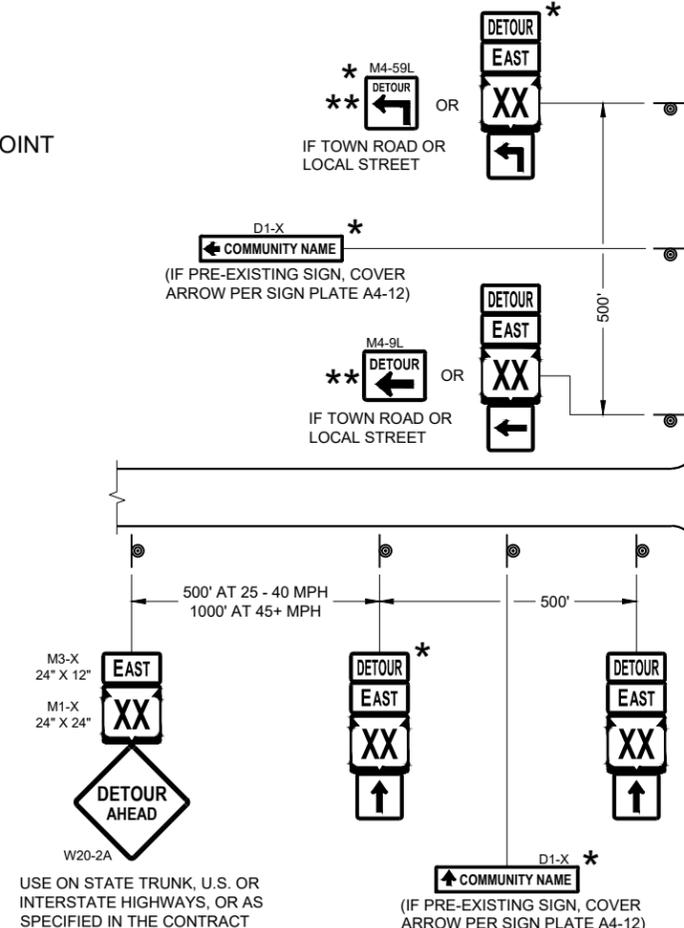
- M3-X SHALL BE 24" X 12" (36" X 18" IF NEEDED TO MATCH EXISTING SIGNS)
- M4-8 SHALL BE 24" X 12" (36" X 18" IF NEEDED TO MATCH EXISTING SIGNS)
- M1-4, M1-5A AND M1-6 SHALL BE 24" X 24" (36" X 36" IF NEEDED TO MATCH EXISTING SIGNS)
- M05-1 AND M06-1 SHALL BE 21" X 21" (30" X 30" IF NEEDED TO MATCH EXISTING SIGNS)
- 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.

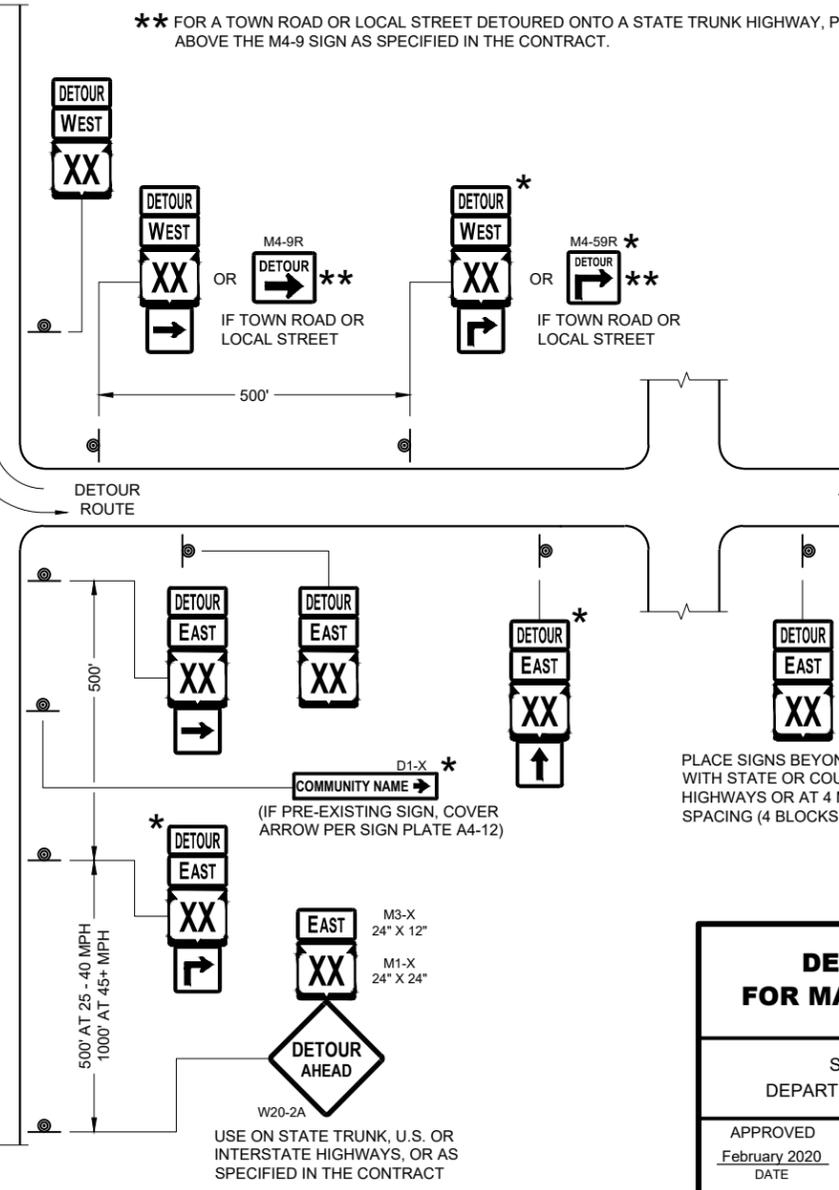
THIS DRAWING PROVIDES GENERAL GUIDANCE ON TYPICAL DETOUR SIGN LAYOUT AND SPACING. SEE PROJECT DETOUR SIGNING SHEETS FOR SPECIFIC DETAILS FOR EACH PROJECT.



MATCH POINT



DETAIL F
DETOUR SIGNING



**DETOUR SIGNING
FOR MAINLINE CLOSURES**

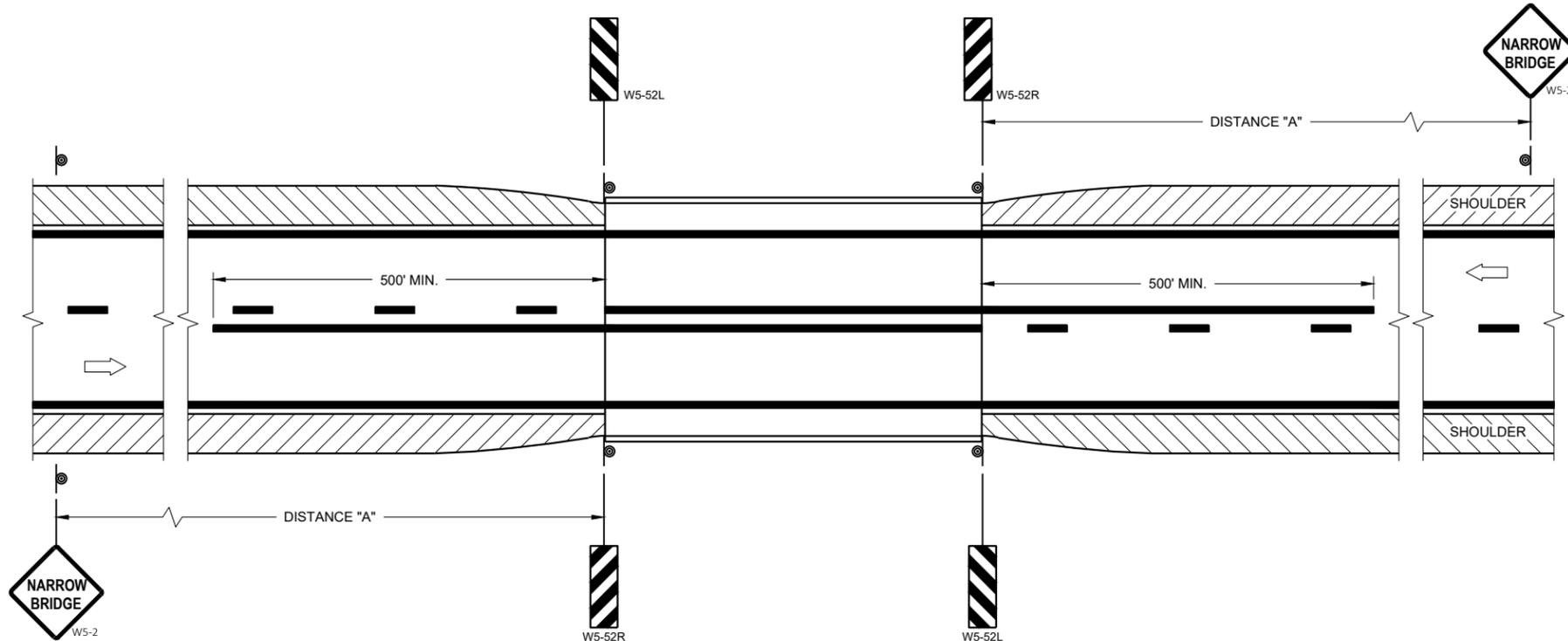
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

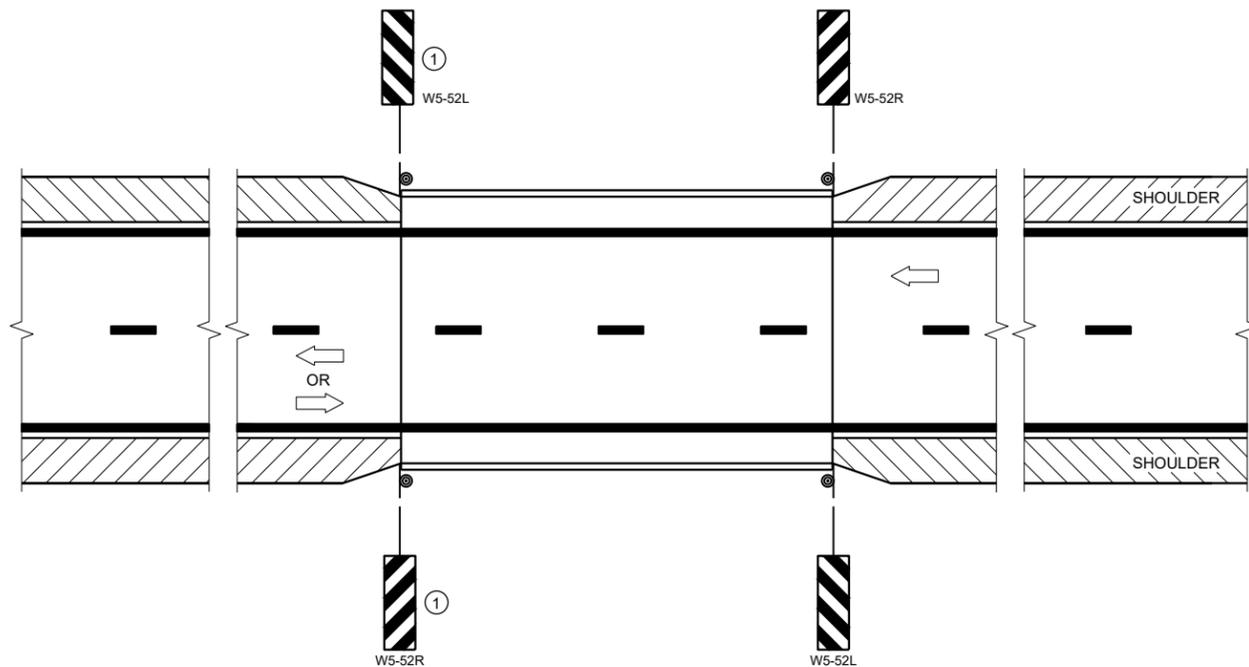
FHWA

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

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



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



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

GENERAL NOTES

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

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

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

ON BRIDGE ONLY PROJECTS, PLACE 300 FEET OF EDGELINE.

OMIT EDGELINES ON ROADWAYS WITHOUT EXISTING EDGELINES.

① OMIT ON ONE-WAY TRAVELED WAYS.

LEGEND

⊙ SIGN ON PERMANENT SUPPORT

➡ DIRECTION OF TRAFFIC

DISTANCE TABLE

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

6

6

SIGNING AND MARKING FOR TWO LANE BRIDGES

STATE OF WISCONSIN
 DEPARTMENT OF TRANSPORTATION

APPROVED
 May 2022 /S/ Jeannie Silver
 DATE STATE SIGNING AND MARKING ENGINEER

FHWA

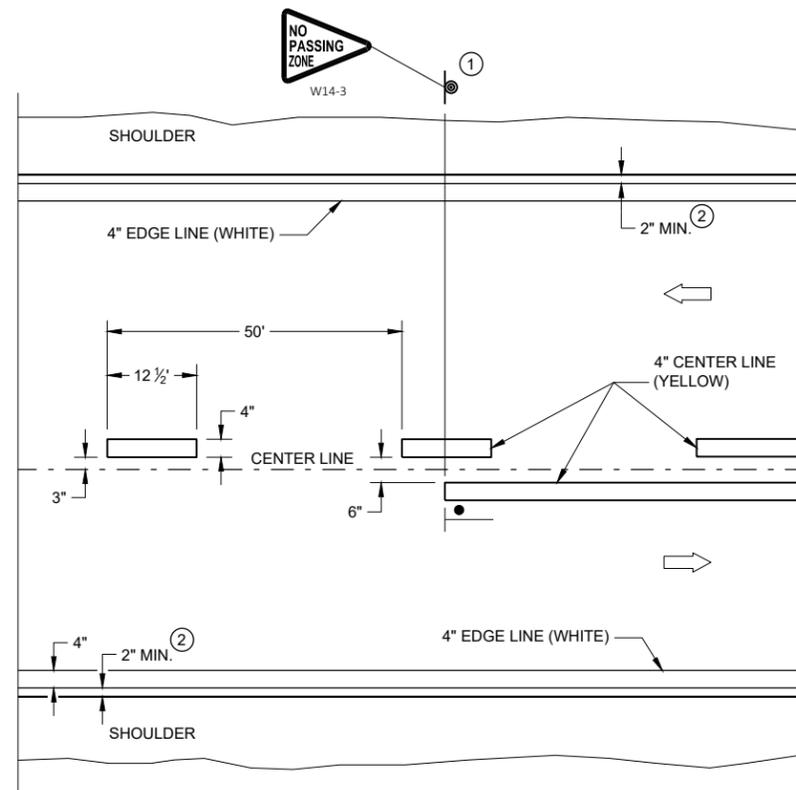
GENERAL NOTES

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

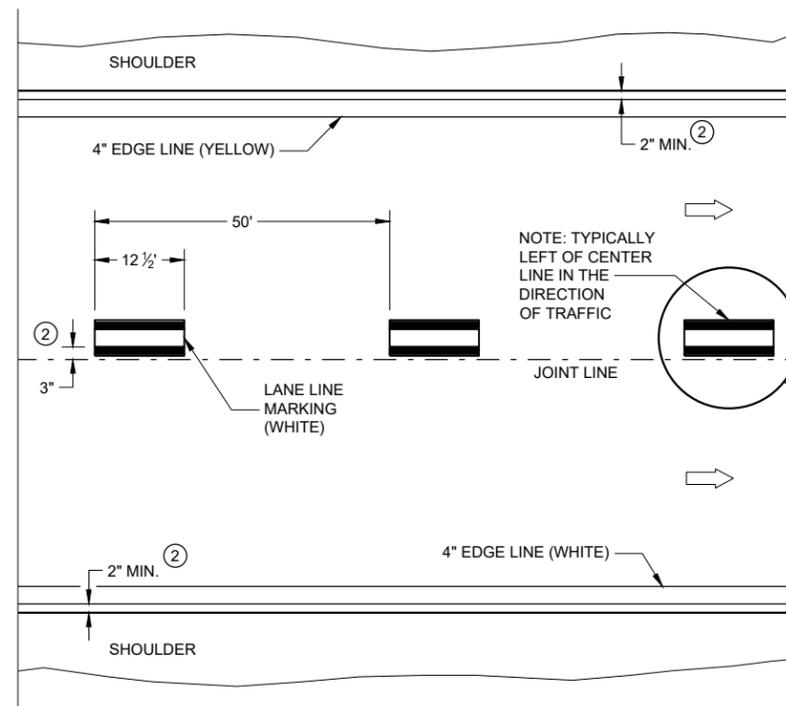
- ① LOCATE THE NO PASSING ZONE W14-3 SIGN WITHIN 50 FEET OF THE "T" MARKING
- ② MEASURE FROM EDGE OF MARKING TO JOINT LINE. THIS DOES NOT INCLUDE SPACE NEEDED FOR GROOVING OPERATIONS.

LEGEND

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

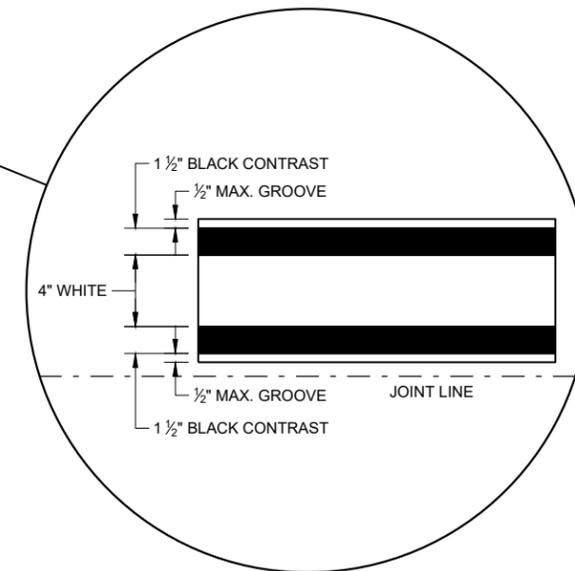


TWO WAY TRAFFIC



ONE WAY TRAFFIC

PERMANENT PAVEMENT MARKING



6

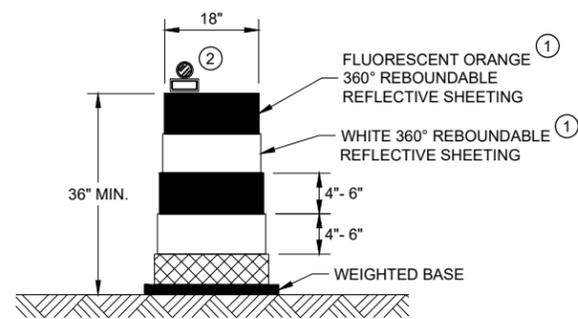
6

PERMANENT LONGITUDINAL PAVEMENT MARKINGS

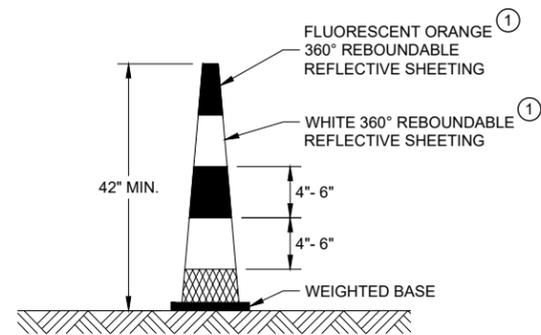
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
DATE: May 2022 /S/ Jeannie Silver
STATEWIDE SIGNING AND MARKING ENGINEER

FHWA



DRUM

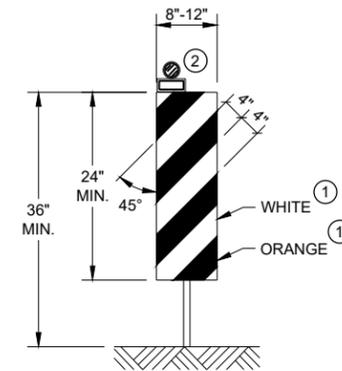


42" CONE

DO NOT USE IN TAPERS
1/2 SPACING OF DRUMS

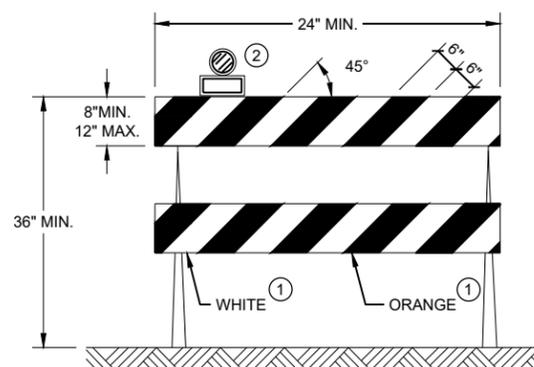
GENERAL NOTES

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



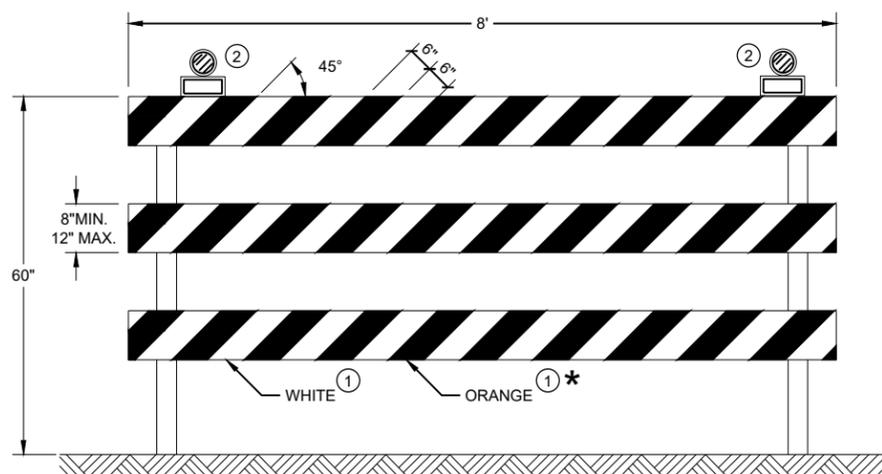
VERTICAL PANEL

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



TYPE II BARRICADE

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



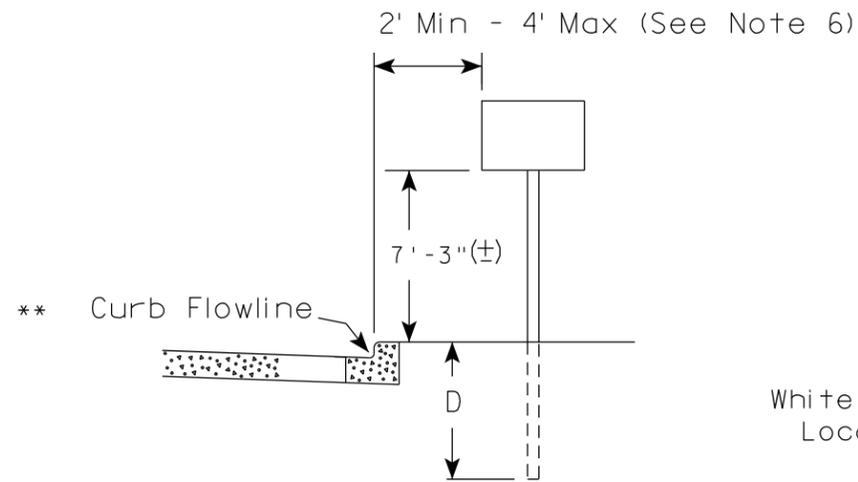
TYPE III BARRICADE

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

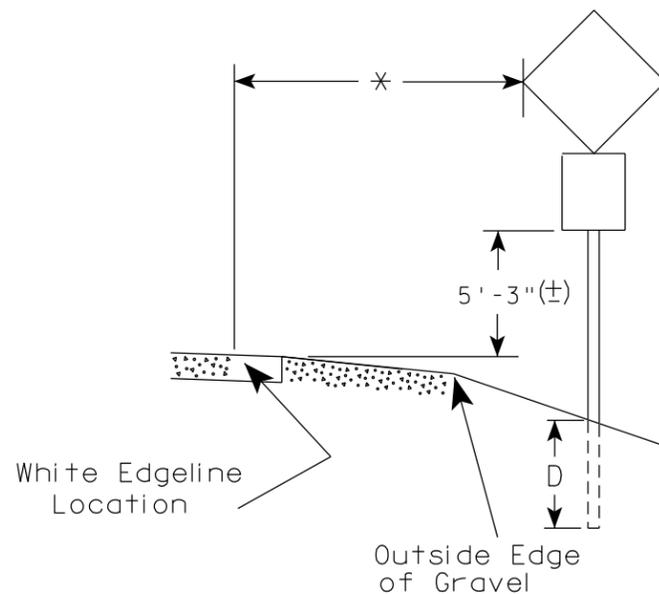
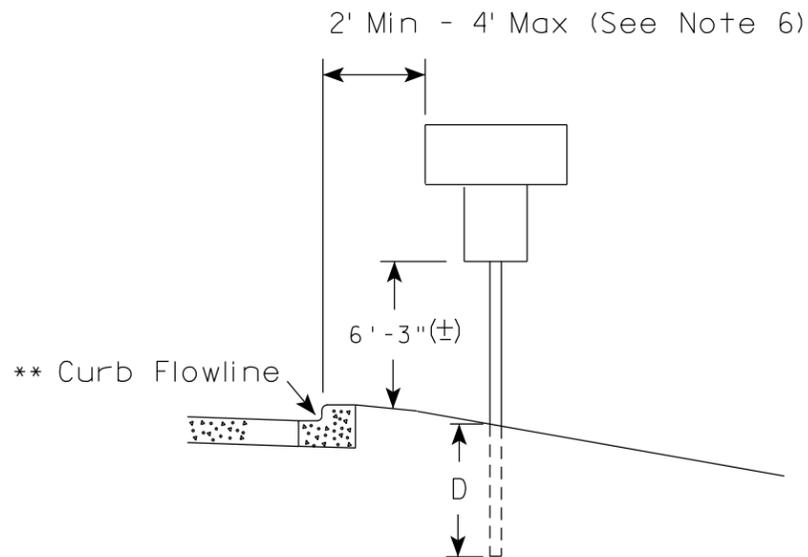
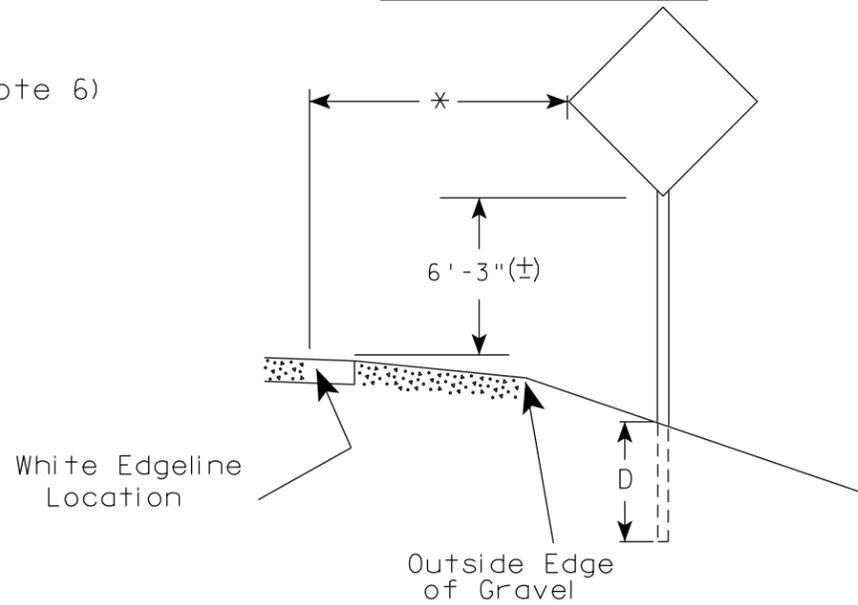
* IF USED FOR A PERMANENT APPLICATION USE RED SHEETING.

CHANNELIZING DEVICES DRUMS, CONES, BARRICADES AND VERTICAL PANELS	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED May 2021 DATE	/S/ Andrew Heidtke WORK ZONE ENGINEER
<small>FHWA</small>	

URBAN AREA



RURAL AREA (See Note 2)



GENERAL NOTES

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

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.

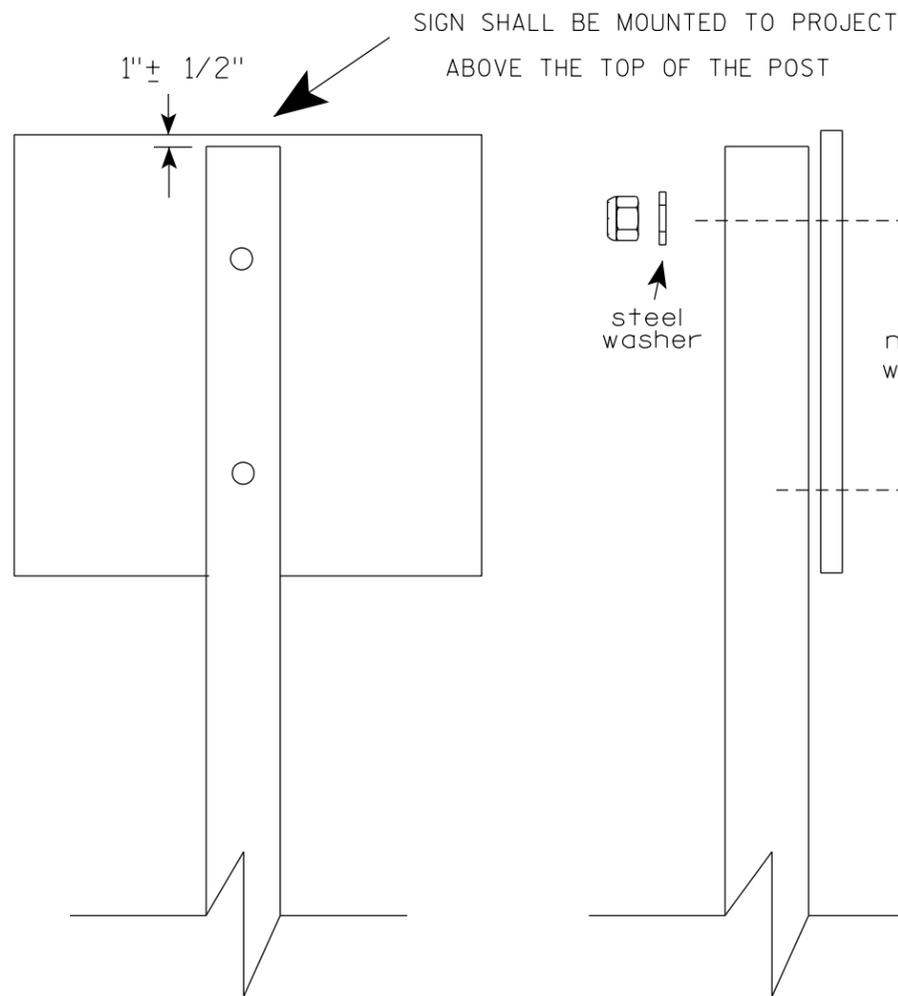
* 6 feet from edge of a paved shoulder or 12 feet from the edge of pavement (edge line location) or 2 feet from outside edge of gravel, whichever is greater unless directed by project engineer.

TYPICAL INSTALLATION OF PERMANENT TYPE II SIGNS ON SINGLE POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

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



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

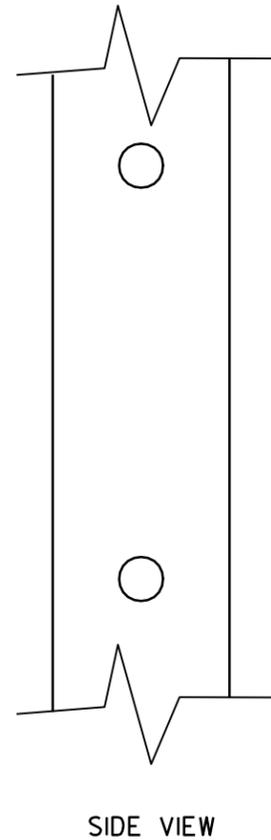
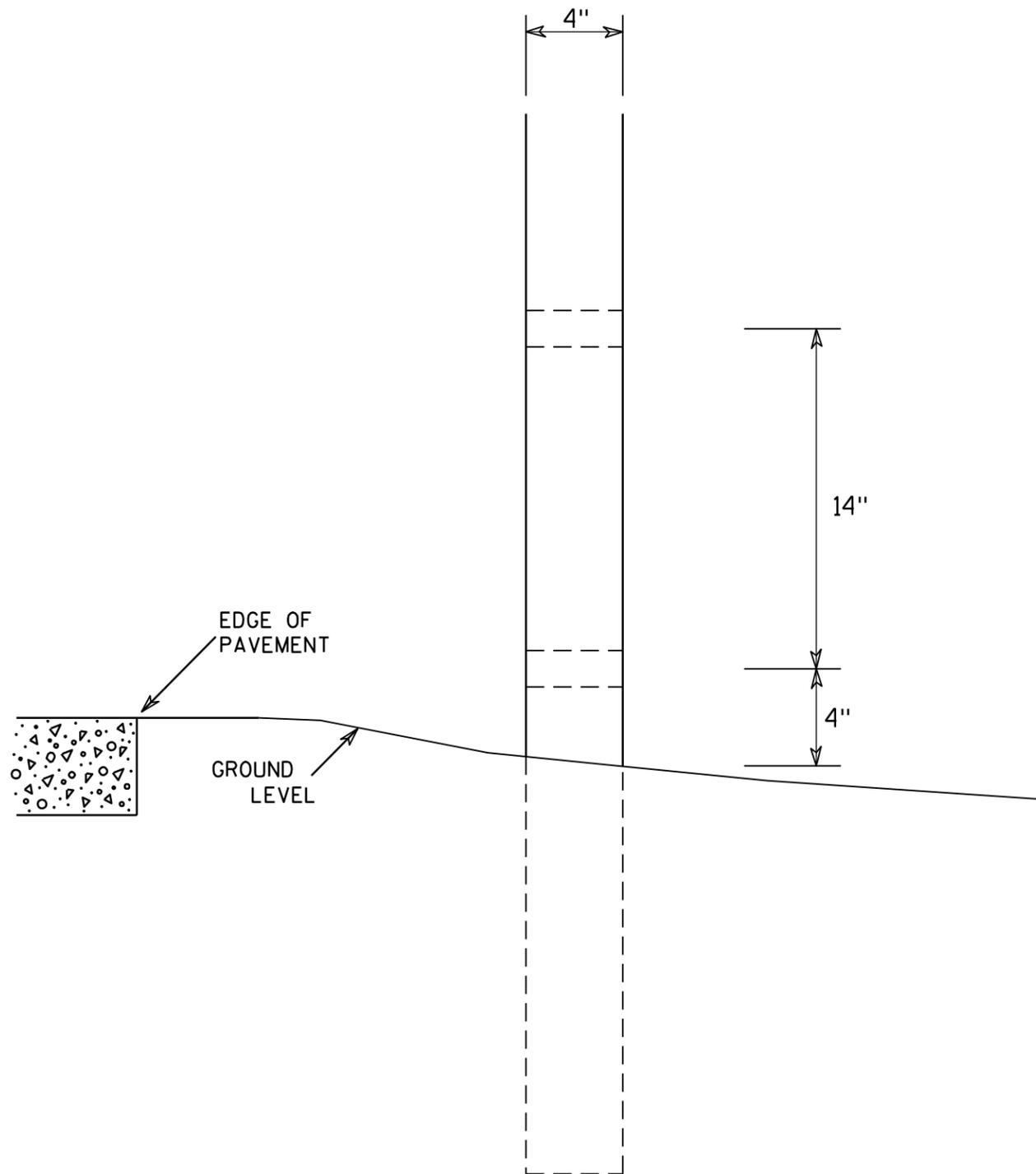
- Hot dip galvanized in accordance with ASTM Designation: A 153, Class D, or SC 3
- Electro-galvanized in accordance with ASTM Designation : B 633, TYPE III, SC 3.

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

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

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

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



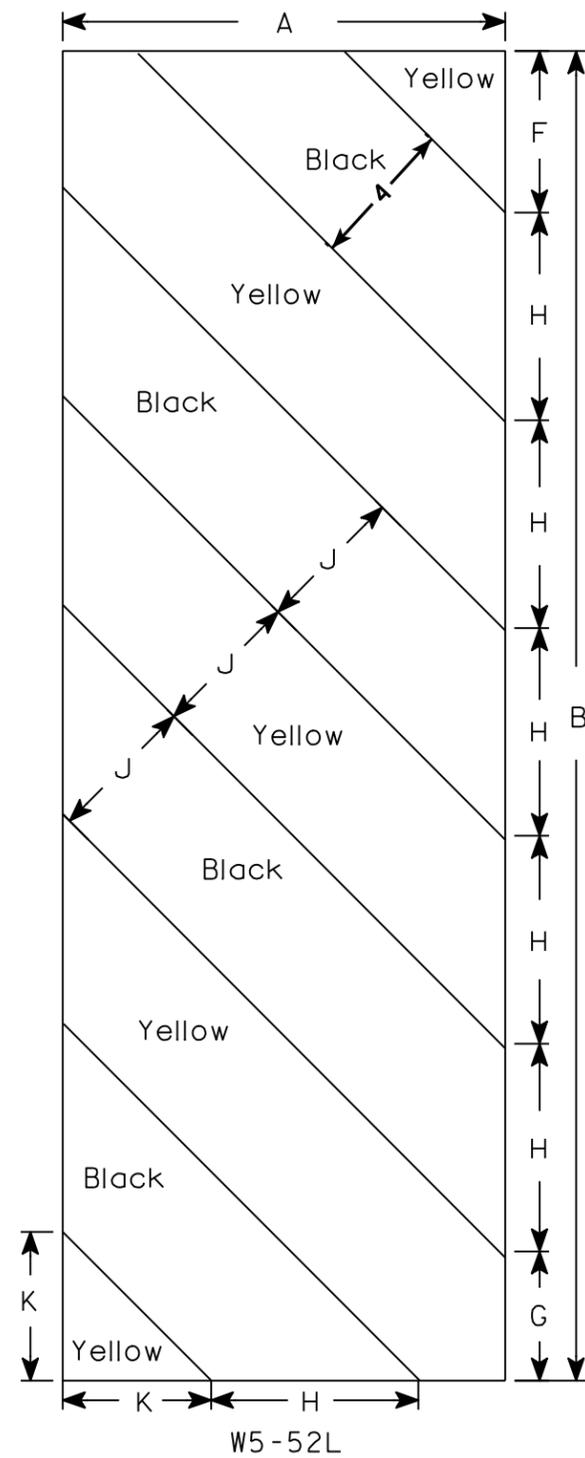
GENERAL NOTES

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

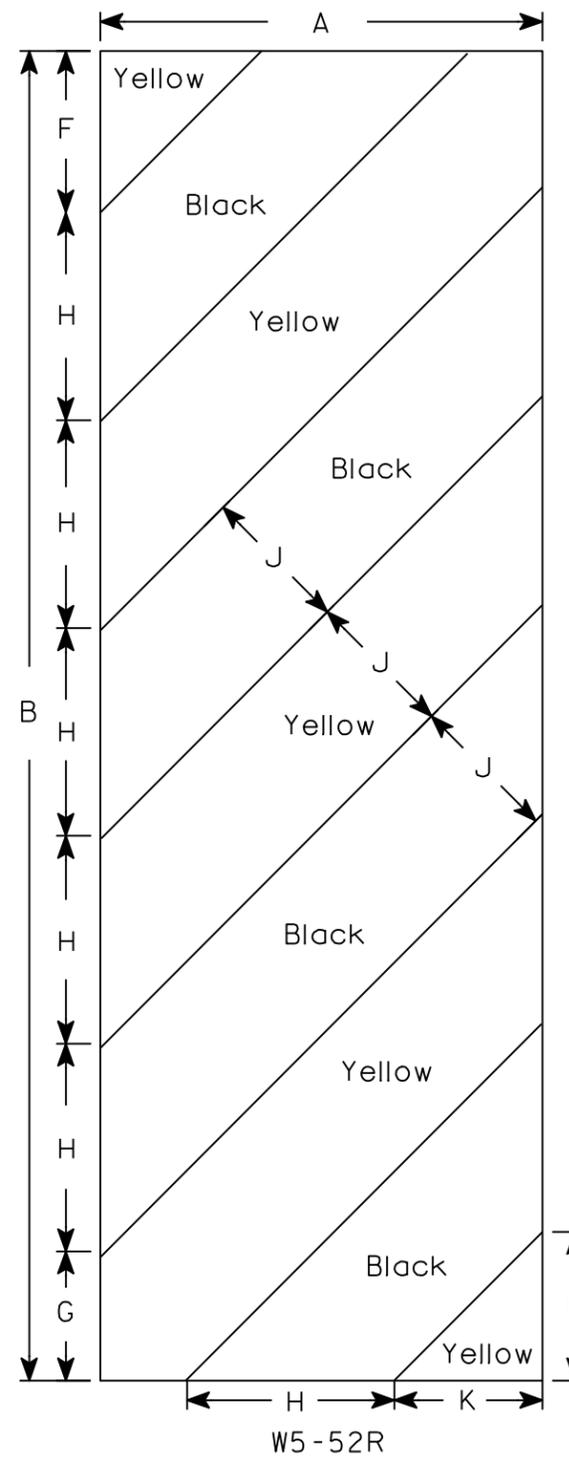
7

7

4 X 6 WOOD POST MODIFICATIONS	
WISCONSIN DEPT OF TRANSPORTATION	
APPROVED	<i>Chester J. Spang</i> for State Traffic Engineer
DATE 3/27/97	PLATE NO. A4-11.2



W5-52L



W5-52R

NOTES

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

7

7

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

STANDARD SIGN
W5-52L & W5-52R

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

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

PROJECT NO: _____ HWY: _____ COUNTY: _____ SHEET NO: _____ E

DESIGN DATA

LIVE LOADS:
 DESIGN LOADING = HL-93
 INVENTORY RATING FACTOR = 1.11
 OPERATING RATING FACTOR = 1.45
 MAX. STD. PERMIT VEHICLE LOAD = 250 KIPS

STRUCTURE IS DESIGNED FOR FUTURE WEARING SURFACE OF 20 POUNDS PER SQUARE FOOT

MATERIAL PROPERTIES:

CONCRETE MASONRY SLAB ----- F'C = 4,000 PSI
 BAR STEEL REINFORCEMENT (GRADE 60) ----- F_y = 60,000 PSI
 CONCRETE MASONRY OTHER ----- F'C = 3,500 PSI

FOUNDATION DATA

ABUTMENTS TO BE SUPPORTED ON PILING CIP CONCRETE 10 3/4 X 0.365-INCH DRIVEN TO A REQUIRED DRIVING RESISTANCE OF 130 TONS* (MIN) PER PILE AS DETERMINED BY THE MODIFIED GATES DYNAMIC FORMULA.

ESTIMATED 35'-0" LONG FOR THE WEST ABUTMENT.
 ESTIMATED 40'-0" LONG FOR THE EAST ABUTMENT.

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

HYDRAULIC DATA

100 YEAR FREQUENCY
 Q100 = 1190 CFS
 VEL. = 10.98 FPS
 HW100 ELEV. = 966.46
 WATERWAY AREA = 108 SF
 DRAINAGE AREA = 43 SQ.MI.
 ROADWAY OVERTOPPING = N/A
 SCOUR CODE = 5

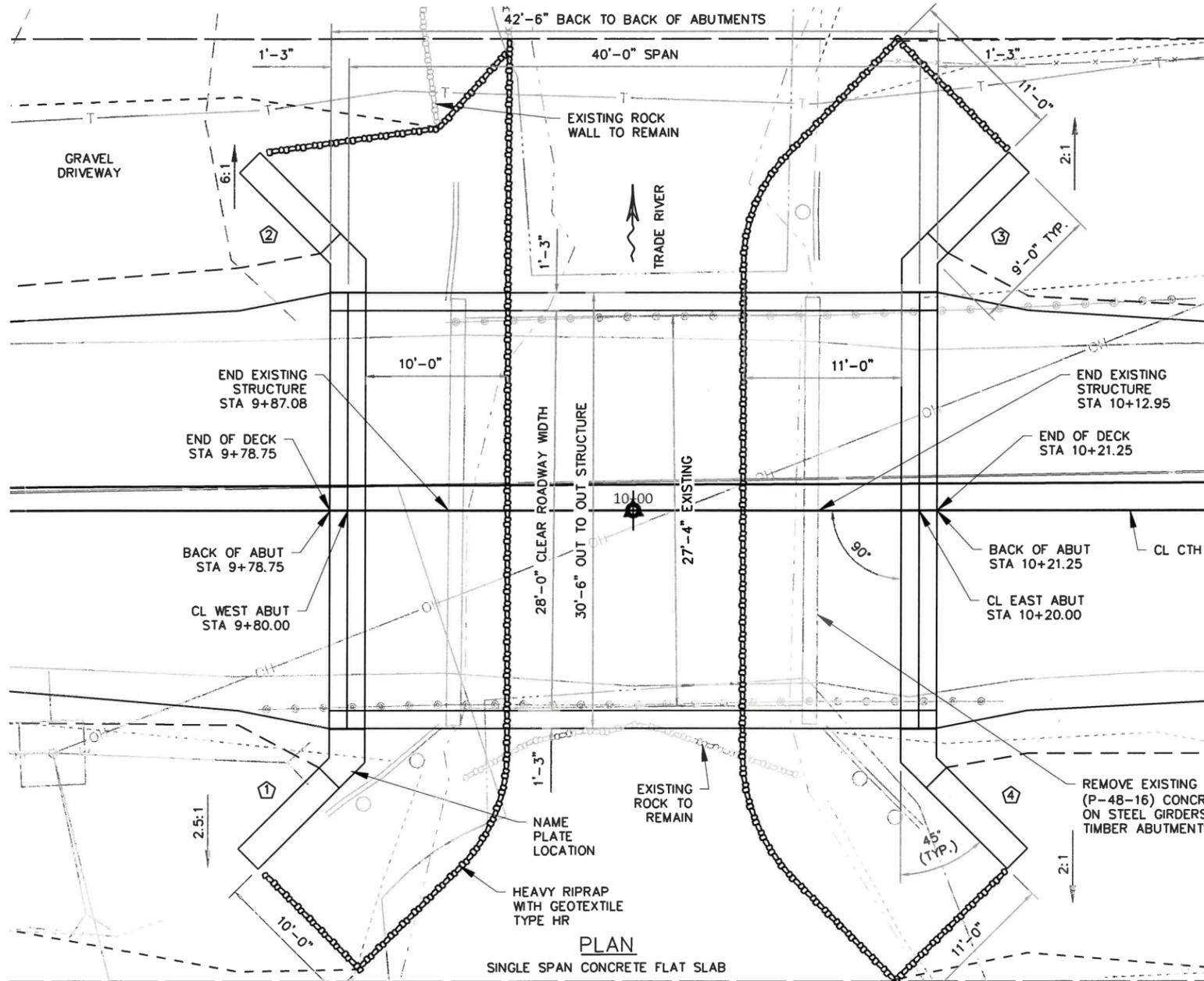
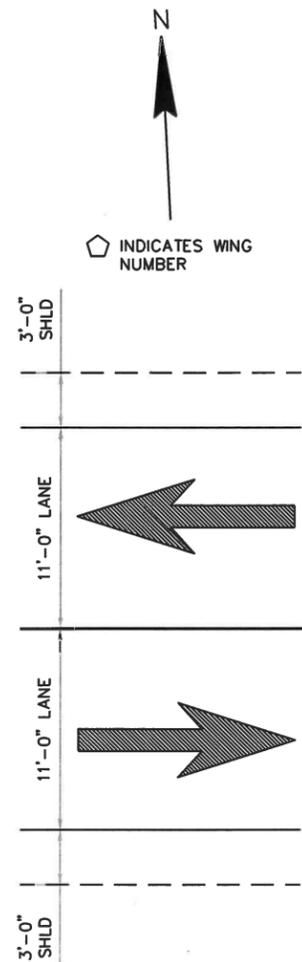
2 YEAR FREQUENCY

Q2 = 215 CFS
 VEL. = 7.1 FPS
 HW2 ELEV. = 961.99

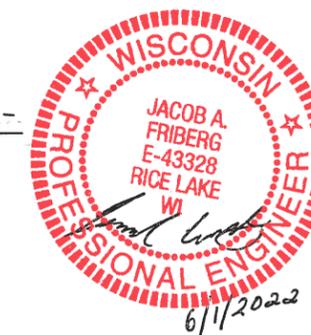
TRAFFIC DATA

A.D.T. (2015) = 411
 A.D.T. (2035) = 452
 R.D.S. = 35 MPH

BENCHMARKS			
NO.	STATION	ELEV.	DESCRIPTION
1	8+03.72	982.20	17.6' RT; SPIKE IN POWER POLE
2	11+61.54	970.36	76.2' LT; SPIKE IN POWER POLE



PLAN
 SINGLE SPAN CONCRETE FLAT SLAB



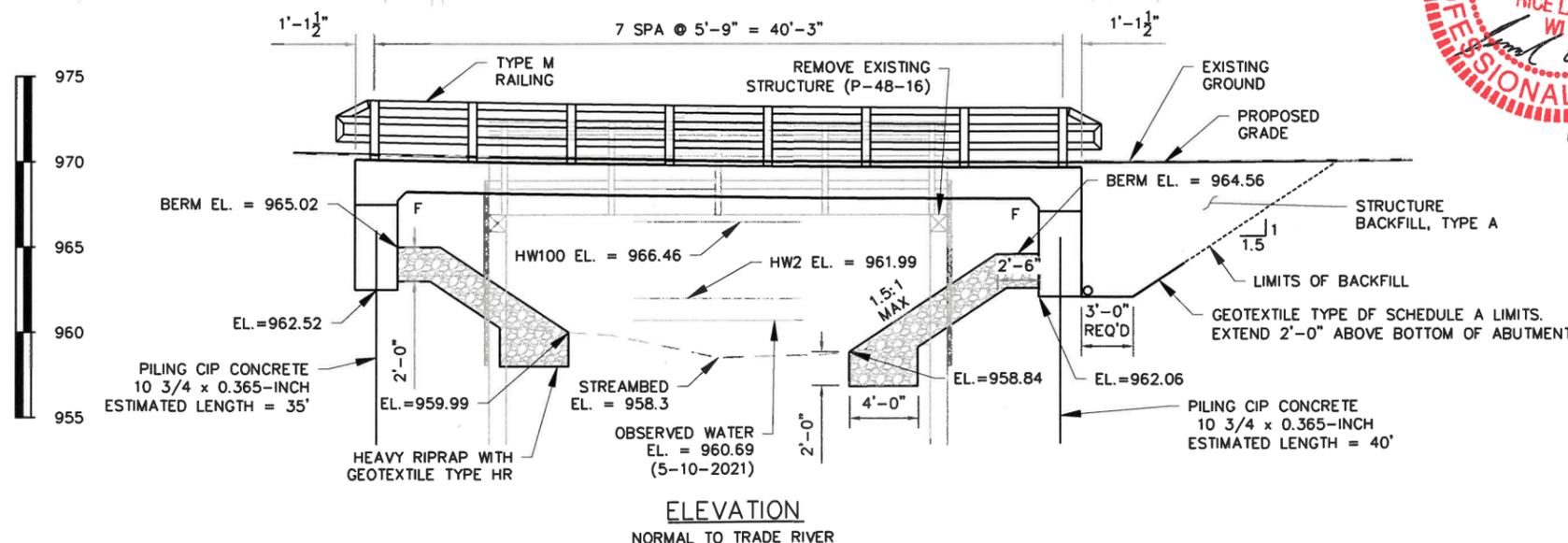
CONTACTS

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

CONSULTANT:
 CONTACT: COOPER ENGINEERING
 PHONE: (715) 234-7008

LIST OF DRAWINGS

1. GENERAL PLAN
2. CROSS SECTION & QUANTITIES
3. SUBSURFACE EXPLORATION
4. WEST ABUTMENT
5. WEST ABUTMENT WING DETAILS
6. EAST ABUTMENT
7. EAST ABUTMENT WING DETAILS
8. SUPERSTRUCTURE
9. TUBULAR STEEL RAILING TYPE "M"



ELEVATION
 NORMAL TO TRADE RIVER

NO.	DATE	REVISION	BY

2600 COLLEGE DRIVE, P.O. BOX 230
 RICE LAKE, WISCONSIN 54868-0230
 TELEPHONE (715) 234-7008
 FAX (715) 234-1025

STATE OF WISCONSIN
 DEPARTMENT OF TRANSPORTATION

ACCEPTED: SDR 09/15/22
 CHIEF STRUCTURES DESIGN ENGINEER DATE

STRUCTURE B-48-58

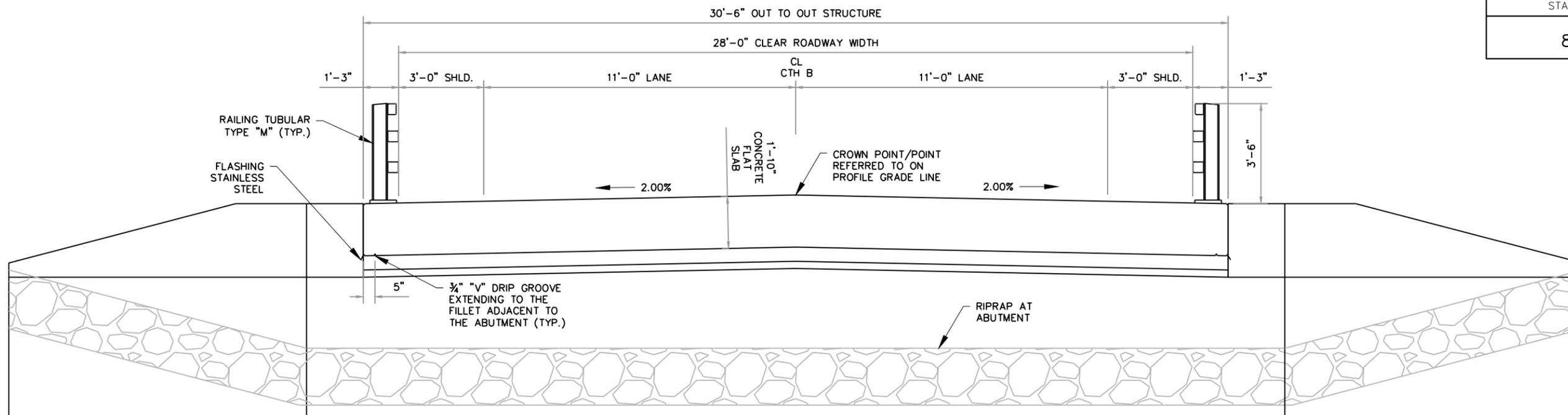
CTH B OVER TRADE RIVER

COUNTY: POLK TOWN/CITY/VILLAGE: LAKETOWN

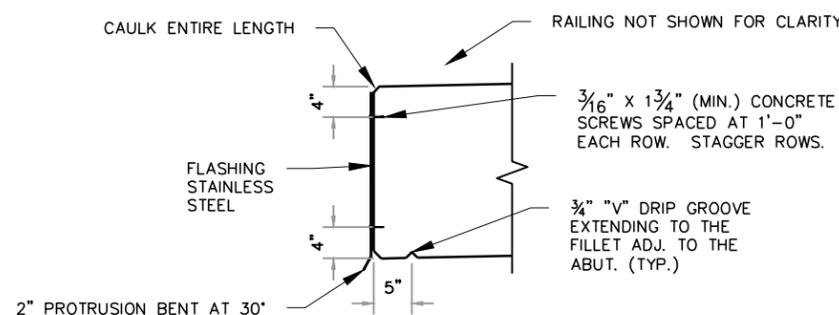
DESIGN SPEC. AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS

DESIGNED BY: JF CK'D. SP DRAWN BY: JF CK'D. SP

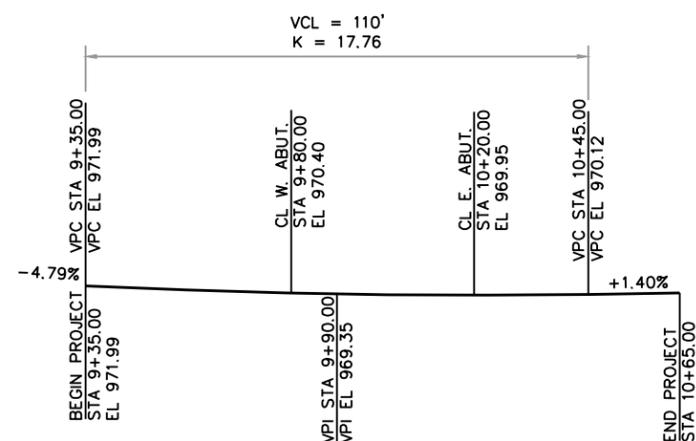
GENERAL PLAN SHEET 1 OF 9



PROPOSED CROSS SECTION THRU BRIDGE



EDGE OF DECK FLASHING DETAIL



PROFILE GRADE LINE

GENERAL NOTES

- DRAWINGS SHALL NOT BE SCALED.
- BAR STEEL REINFORCEMENT SHALL BE EMBEDDED 2" CLEAR UNLESS OTHERWISE SHOWN OR NOTED.
- SLAB FALSEWORK SHALL BE SUPPORTED ON PILES OR THE SUBSTRUCTURE, UNLESS AN ALTERNATE METHOD IS APPROVED BY THE ENGINEER.
- THE FIRST OR FIRST TWO DIGITS OF THE BAR MARK SIGNIFIES THE BAR SIZE.
- THE SLOPE OF FILL IN FRONT OF THE ABUTMENTS SHALL BE COVERED WITH HEAVY RIPRAP AND GEOTEXTILE TYPE 'HR' TO THE EXTENT SHOWN ON SHEET 1 AND THE ABUTMENT DETAILS.
- THE UPPER LIMITS OF "EXCAVATION FOR STRUCTURES BRIDGES B-48-58" SHALL BE THE EXISTING GROUNDLINE.
- BACKFILL PAY LIMITS. BACKFILL BEYOND PAY LIMITS SHALL BE INCIDENTAL TO EXCAVATION FOR STRUCTURES. LIMITS OF EXCAVATION SHALL BE DETERMINED BY THE CONTRACTOR.
- AT THE BACKFACE OF THE ABUTMENT ALL VOLUME WHICH CANNOT BE PLACED BEFORE ABUTMENT CONSTRUCTION AND IS NOT OCCUPIED BY THE NEW STRUCTURE SHALL BE BACKFILLED WITH STRUCTURAL BACKFILL.
- 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.
- PROTECTIVE SURFACE TREATMENT SHALL BE APPLIED TO THE TOP SURFACE OF THE SLAB, THE EXTERIOR EDGE OF THE SLAB, AND THE FIRST 1'-0" OF THE UNDERSIDE OF THE SLAB.
- PROTECTIVE SURFACE TREATMENT TO BE APPLIED TO THE TOP AND EXTERIOR EXPOSED FACE OF THE WINGS, AND THE END 1'-0" OF THE FRONT FACE OF ABUTMENT.
- ALL STATIONS AND ELEVATIONS ARE IN FEET.
- ELEVATIONS SHOWN ON THE PLANS ARE REFERENCES TO THE NORTH AMERICAN VERTICAL DATUM 1988 (NAVD88).
- THE COORDINATE SYSTEM FOR THIS PROJECT IS WISCONSIN COUNTY COORDINATE SYSTEM (WCCS) - POLK COUNTY.

NOTES

- THE BID ITEM "FLASHING STAINLESS STEEL" SHALL INCLUDE PROVIDING AND INSTALLING THE STAINLESS STEEL FLASHING, CAULK, AND 3/16" CONCRETE SCREWS AND CLEANING THE EDGE OF THE DECK PRIOR TO ATTACHMENT OF THE FLASHING
- FLASHING TO BE INSTALLED AFTER PROTECTIVE SURFACE TREATMENT APPLICATION.
- CONCRETE SCREWS SHALL BE 410 STAINLESS STEEL.
- EXTEND FLASHING TO B.F. ABUTMENT DIAPHRAGM.
- TOP OF FLASHING TO BEGIN APPROX. 1-INCH BELOW TOP OF DECK/SLAB SURFACE.
- THE FLASHING IS TO BE CONSTANT HEIGHT BASED ON THE THINNEST SLAB DEPTH OVER THE BRIDGE LENGTH.
- PROVIDE 2" MINIMUM FLASHING OVERLAP, FASTEN WITH 3/8" X 2" (MIN.) CONCRETE SCREWS.
- CAULK SHALL BE NON-STAINING, GRAY NON-BITUMINOUS JOINT SEALER.

TOTAL ESTIMATED QUANTITIES

BID ITEM NO.	BID ITEMS	UNIT	W. ABUT.	E. ABUT.	SUPER.	TOTAL
203.0260	REMOVING STRUCTURE OVER WATERWAY WITH MINIMAL DEBRIS (P-48-16)	EACH	-	-	-	1
206.1001	EXCAVATION FOR STRUCTURES BRIDGES (B-48-58)	EACH	-	-	-	1
210.1500	BACKFILL STRUCTURE TYPE A	CUM	160	160	-	320
502.0100	CONCRETE MASONRY BRIDGES	CY	26.3	26.6	30.5	146
502.3200	PROTECTIVE SURFACE TREATMENT	SY	14	15	168	197
505.0400	BAR STEEL REINFORCEMENT HS STRUCTURES	LB	2,210	2,210	-	4,420
505.0600	BAR STEEL REINFORCEMENT HS COATED STRUCTURES	LB	1,420	1,400	17,020	19,840
513.4061	RAILING TUBULAR TYPE M	LF	-	-	90	90
516.0500	RUBBERIZED MEMBRANE WATERPROOFING	SY	6	6	-	12
550.2106	PILING CIP CONCRETE 13.75 X 0.365-INCH	LF	245	280	-	525
606.0300	RIPRAP HEAVY	CY	45	55	-	100
612.0406	PIPE UNDERDRAIN WRAPPED 6-INCH	LF	75	75	-	150
645.0111	GEOTEXTILE TYPE DF SCHEDULE A	SY	30	30	-	60
645.0120	GEOTEXTILE TYPE HR	SY	70	80	-	150
SPV.0090.01	FLASHING STAINLESS STEEL	LF	-	-	75	75
NON-BID ITEM	4" X 3/4" PERFORMED JOINT FILLER	LF	30.5	30.5	-	61

8

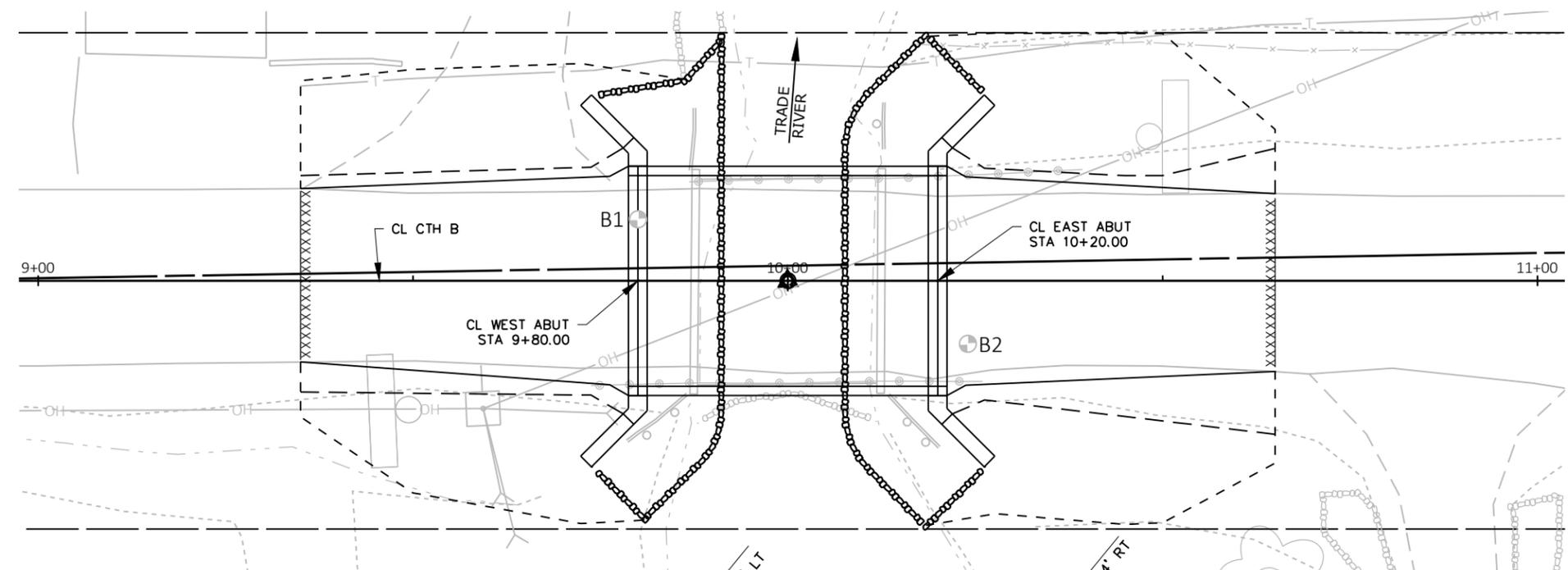
8

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-48-58			
		DRAWN BY JF	PLANS CK'D. SP
CROSS SECTION & QUANTITIES			SHEET 2

BORING#	DATE COMPLETED	NORTHING (Y)	EASTING (X)
1	JUNE 29, 2021	355254.53	475627.16
2	JUNE 29, 2021	355235.99	475670.37

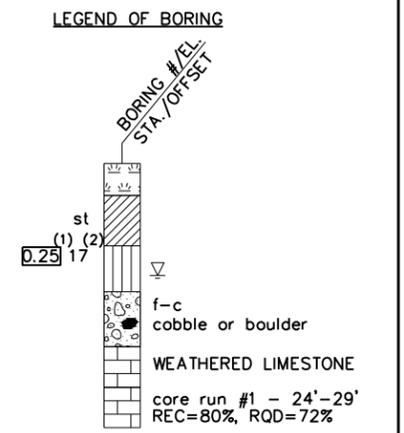
BORINGS COMPLETED BY: AMERICAN ENGINEERING TESTING, INC.
 REPORT COMPLETED BY: AMERICAN ENGINEERING TESTING, INC.
 ALL COORDINATES REFERENCED TO WCCS NAD 83(2011) POLK CO.

STATE PROJECT NUMBER
8857-00-70



MATERIAL SYMBOLS

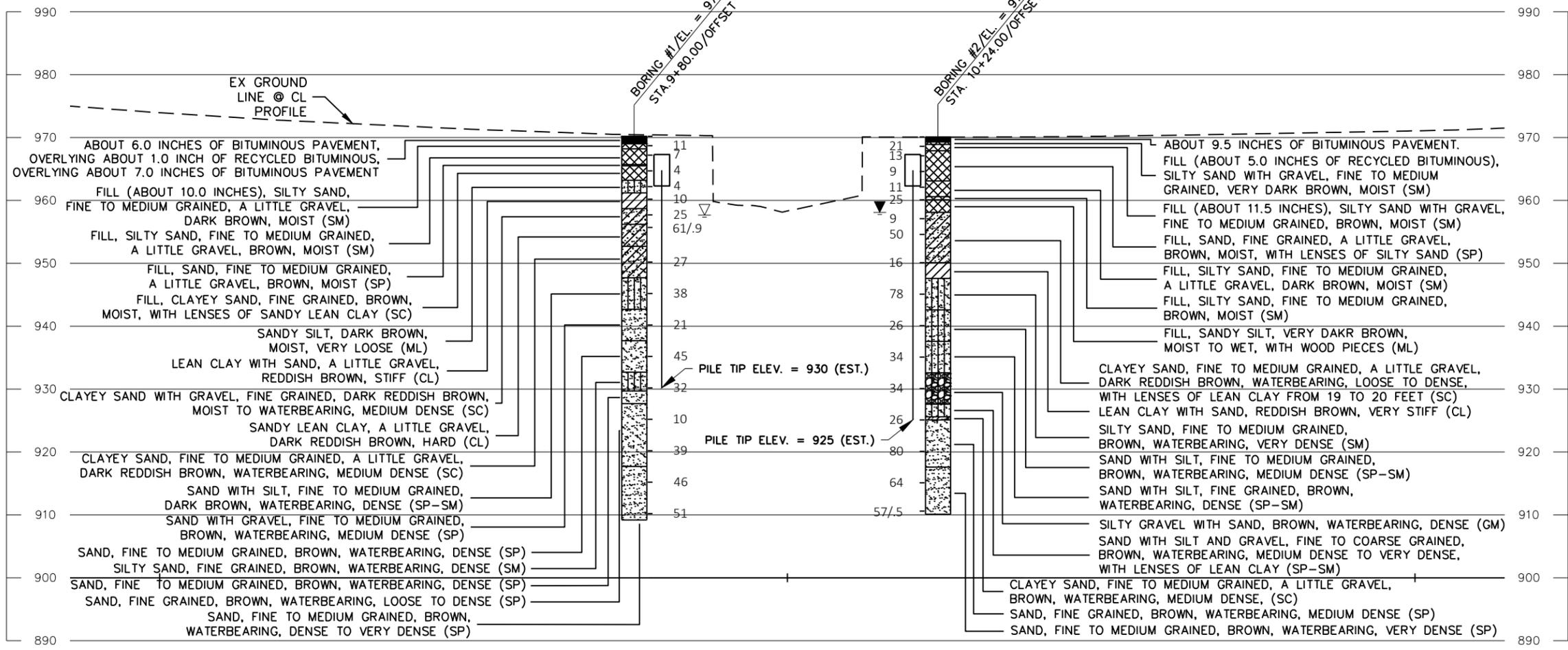
	ASPHALT		TOPSOIL		PEAT
	CONCRETE		FILL		GRAVEL
	SAND		CLAY		SILT
	boulders or cobbles		LIMESTONE		BEDROCK (unknown)
	shale		SANDSTONE		IGNEOUS/meta



(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

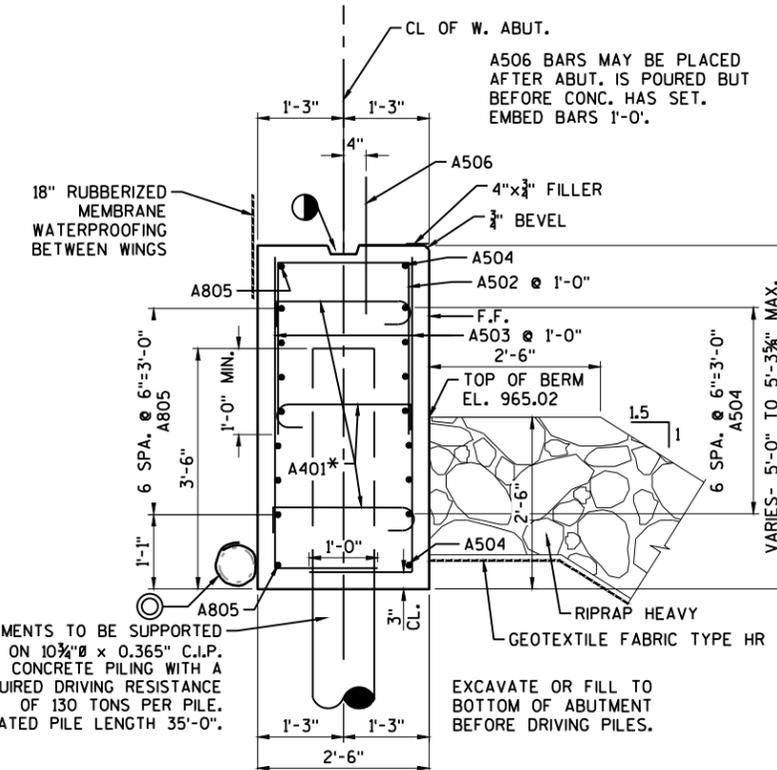
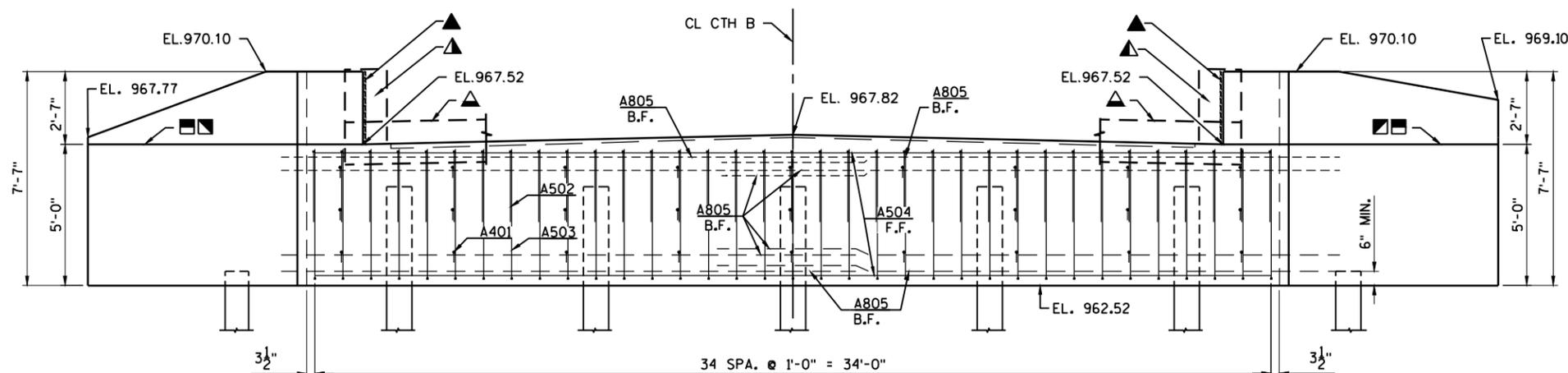
Borings were completed at points approximately as indicated on this drawing to obtain information concerning the character of subsurface materials found at the site. Because the investigated depths are limited and the area of the borings is very small in relation to the entire site, WE DO not warrant similar subsurface conditions below, between, or beyond these borings. Variations in soil conditions should be expected and fluctuations in groundwater levels may occur.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-48-58			
DRAWN BY: JF		PLANS CK'D: SP	
SUBSURFACE EXPLORATION			SHEET 3

8

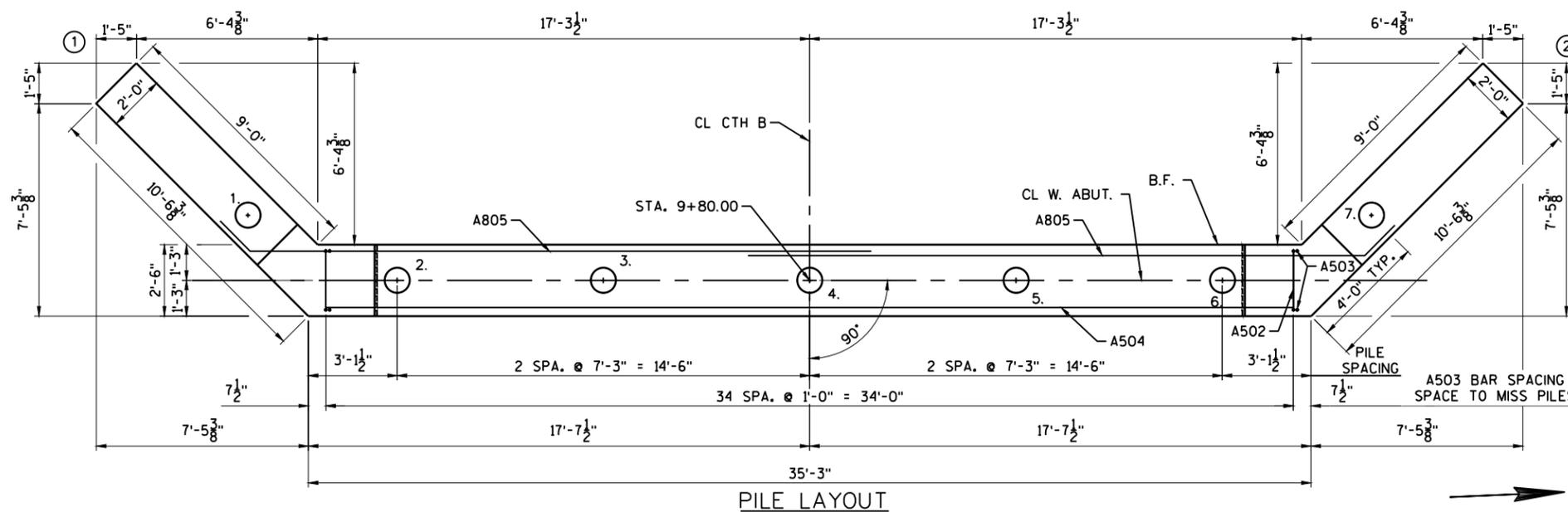
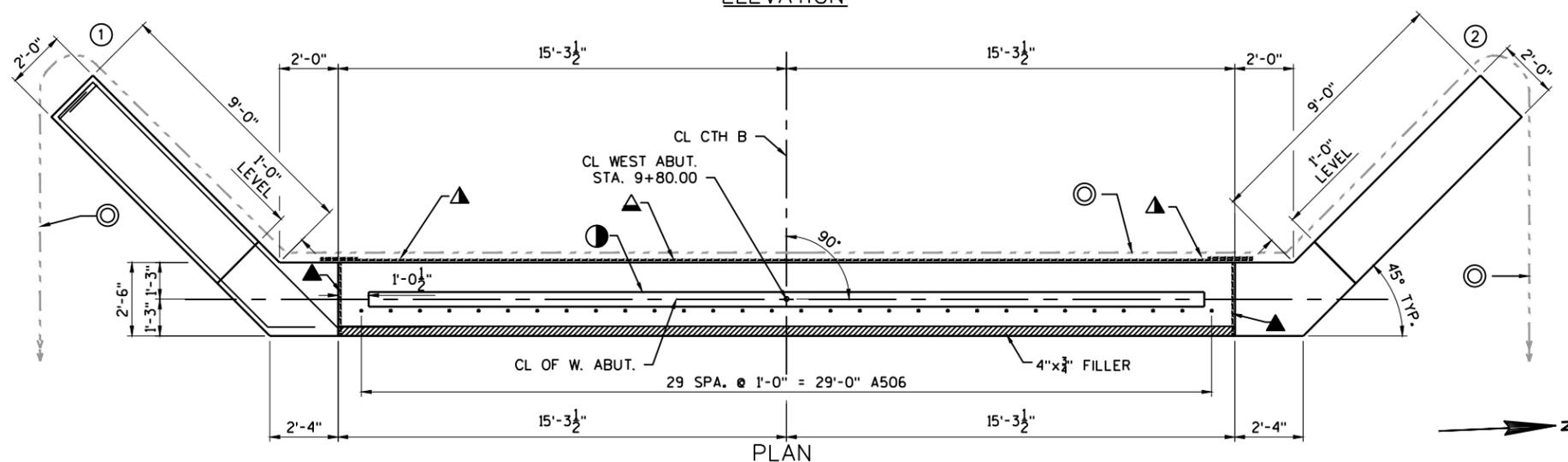
8

*(3) A401 TIE BARS AT 4'-0" HORIZ. SPA.
ALTERNATE THE POSITION OF THE 90° AND
180° HOOKS AT EACH VERTICAL LAYER OF TIES.

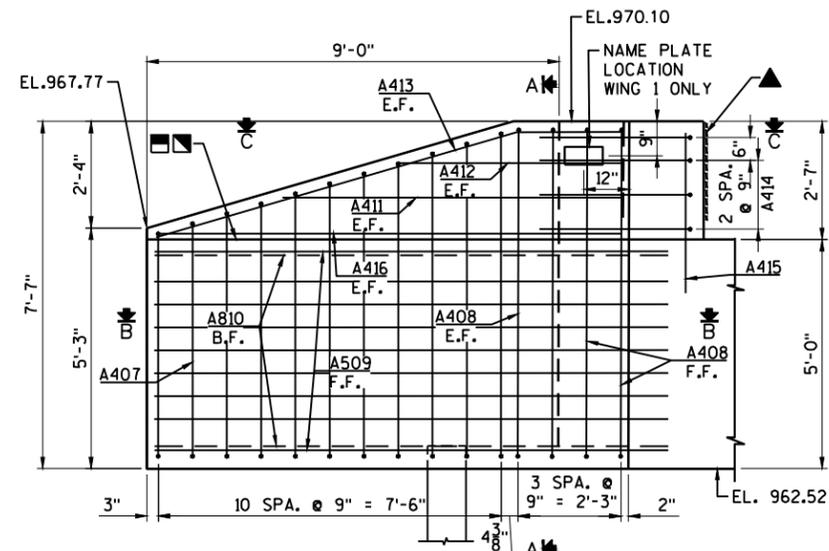


TYP. SECTION THRU ABUTMENT BODY
LEGEND

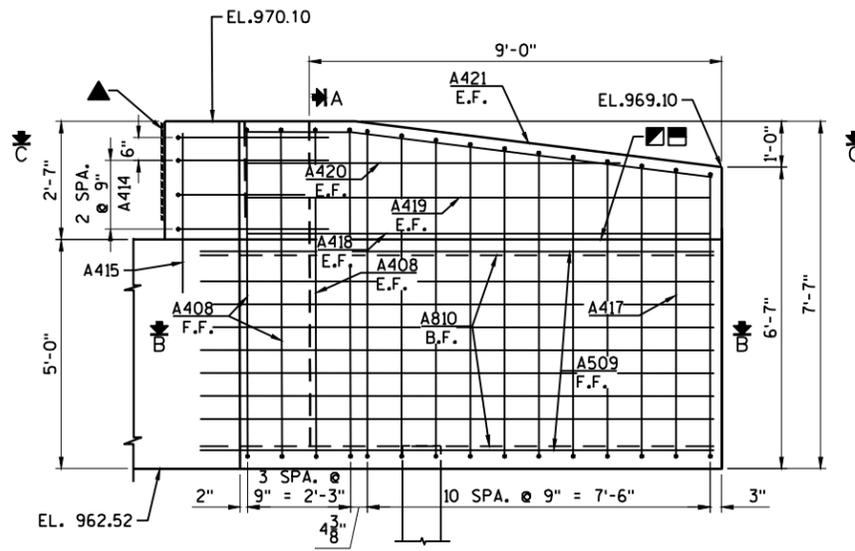
- ① INDICATES WING NUMBER
 - ⊙ PIPE UNDERDRAIN WRAPPED 6-INCH. EXTEND THRU GEOTEXTILE FABRIC AT FACE OF RIPRAP HEAVY. SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. PROVIDE RODENT PROTECTION AT ENDS OF PIPE.
 - ▲ 1/2" FILLER EXTEND AS SHOWN. SEAL ALL EXPOSED HORIZ. AND VERT. SURFACES OF FILLER WITH NON-STAINING GRAY, NON-BITUMINOUS JOINT SEALER. (1" DEEP AND HOLD 1/8" BELOW SURFACE OF CONCRETE.
 - ▲ VERT. 18" WIDE RUBBERIZED MEMBRANE WATERPROOFING (RMW), EXTEND FROM 9" BELOW BRIDGE SEAT TO TOP OF WINGS.
 - ▲ HORIZ. 18" WIDE RUBBERIZED MEMBRANE WATERPROOFING (RMW), EXTEND BETWEEN WINGS.
 - OPTIONAL KEYED CONST. JOINT ON WING FORMED BY BEVELED 2x6. IF JOINT IS USED, POUR CONCRETE ABOVE JOINT AFTER DECK IS IN PLACE AND PLACE 18" RMW ON BACK FACE OF WING. COST OF RMW INCLUDED IN BID ITEM "CONCRETE MASONRY BRIDGES".
 - 3/4" "V" GROOVE ON FRONT FACE OF WING WALL, REQUIRED ONLY WHERE CONSTRUCTION JOINT IS USED.
 - KEYED CONSTRUCTION JOINT FORMED BY BEVELED 2x6.
- F.F. = FRONT FACE B.F. = BACK FACE CL. = CLEAR



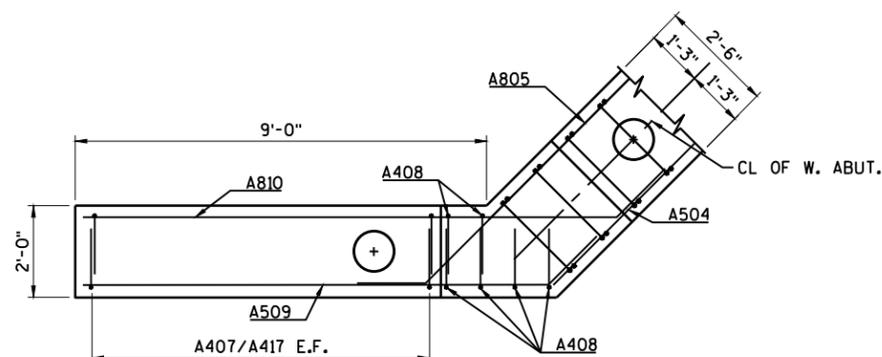
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-48-58			
DRAWN BY JMM		PLANS CK'D. JAF	
WEST ABUTMENT			SHEET 4



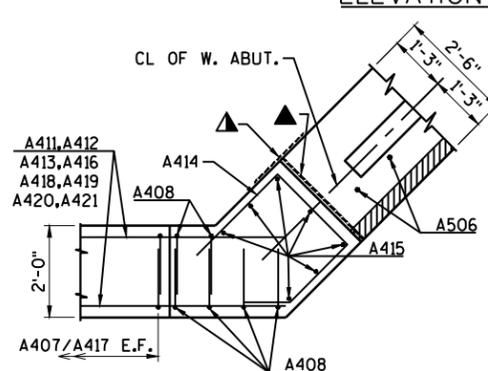
ELEVATION WING 1



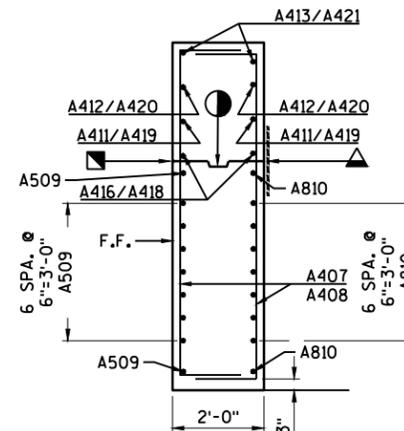
ELEVATION WING 2



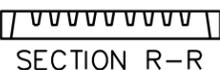
SECTION B



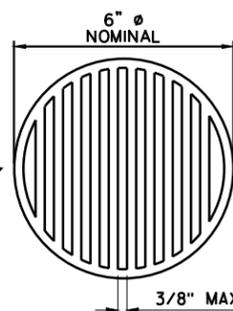
SECTION C



SECTION A



SECTION R-R



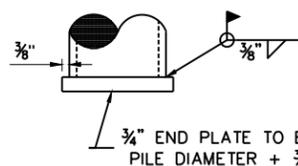
RODENT SHIELD

DIMENSIONS ARE APPROX. THE GRATE IS SIZED TO FIT INTO PIPE COUPLING.

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 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 SHALL BE INCLUDED IN THE BID ITEM "PIPE UNDERDRAIN WRAPPED 6-INCH".

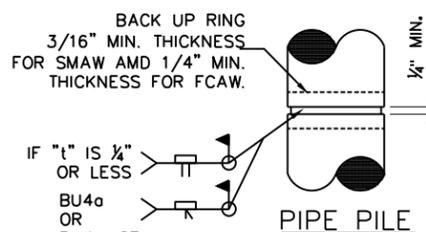


END PLATE DETAIL FOR CIP PILING

BAR SERIES TABLE

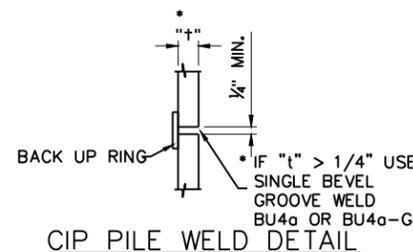
MARK	NO. REQ'D.	LENGTH
A407	2 SERIES OF 11	7'-4" TO 9'-6"
A417	2 SERIES OF 11	8'-8" TO 9'-6"

BUNDLE AND TAG EACH SERIES SEPARATELY

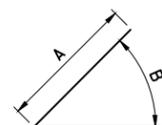


CIP PILE SPLICE DETAIL

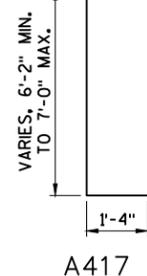
CAST IN PLACE PILE SHELL MATERIAL SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS. GRINDING MAY BE USED IN LIEU OF BACK GOUGING



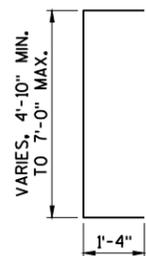
CIP PILE WELD DETAIL



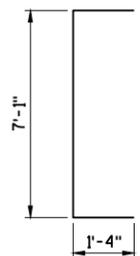
MARK	A	B
A805	1'-6"	45"
A509	10'-2"	45"
A810	11'-8"	45"
A413	8'-2"	16"
A421	7'-11"	7"



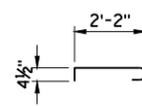
A417



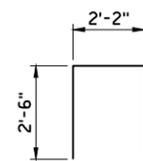
A407



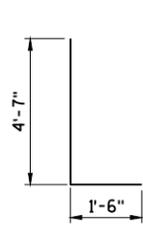
A408



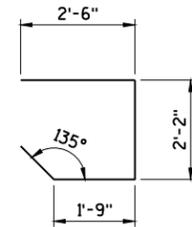
A401



A502



A503



A414

BILL OF BARS

BAR MARK	COAT	NO. REQ'D	LENGTH	BENT	BAR SERIES	LOCATION
A401		27	3'-0"	X		ABUT. BODY TIE BARS
A502		35	6'-11"	X		ABUT. BODY HORIZ. TOP
A503		70	6'-1"	X		ABUT. BODY VERT.
A504		9	34'-0"			ABUT. BODY HORIZ. F.F.
A805		18	23'-8"	X		ABUT. BODY HORIZ. B.F.
A506	X	30	2'-0"			ABUT. BODY - TOP DOWEL VERT.
A407	X	22	8'-5"	X	X	WING 1 VERT. E.F.
A408	X	12	9'-7"	X		WINGS 1 & 2 VERT. E.F.
A509	X	18	11'-8"	X		WINGS 1 & 2 HORIZ. F.F.
A810	X	18	13'-2"	X		WINGS 1 & 2 HORIZ. B.F.
A411	X	2	7'-5"			WING 1 HORIZ. E.F.
A412	X	2	4'-10"			WING 1 HORIZ. E.F.
A413	X	2	10'-6"	X		WING 1 DIAGONAL E.F.
A414	X	8	8'-5"	X		WINGS 1 & 2 HORIZ.
A415	X	14	3'-6"			WINGS 1 & 2 VERT.
A416	X	2	10'-1"			WING 1 HORIZ. E.F.
A417	X	22	9'-1"	X	X	WING 2 VERT. E.F.
A418	X	2	10'-1"			WING 2 HORIZ. E.F.
A419	X	2	10'-1"			WING 2 HORIZ. E.F.
A420	X	2	8'-2"			WING 2 HORIZ. E.F.
A421	X	2	10'-3"	X		WING 2 DIAGONAL E.F.

NOTES:

1. BAR TABLE APPLIES TO SOUTH ABUTMENT ONLY.
2. THE FIRST OR FIRST TWO DIGITS OF A BAR MARK SIGNIFIES THE BAR SIZE. BAR DIMENSIONS ARE OUT TO OUT OF BAR.

LENGTH SHOWN IS AN AVERAGE LENGTH TO BE USED FOR BAR WEIGHT CALCULATIONS. SEE BAR SERIES TABLE FOR ACTUAL LENGTHS.

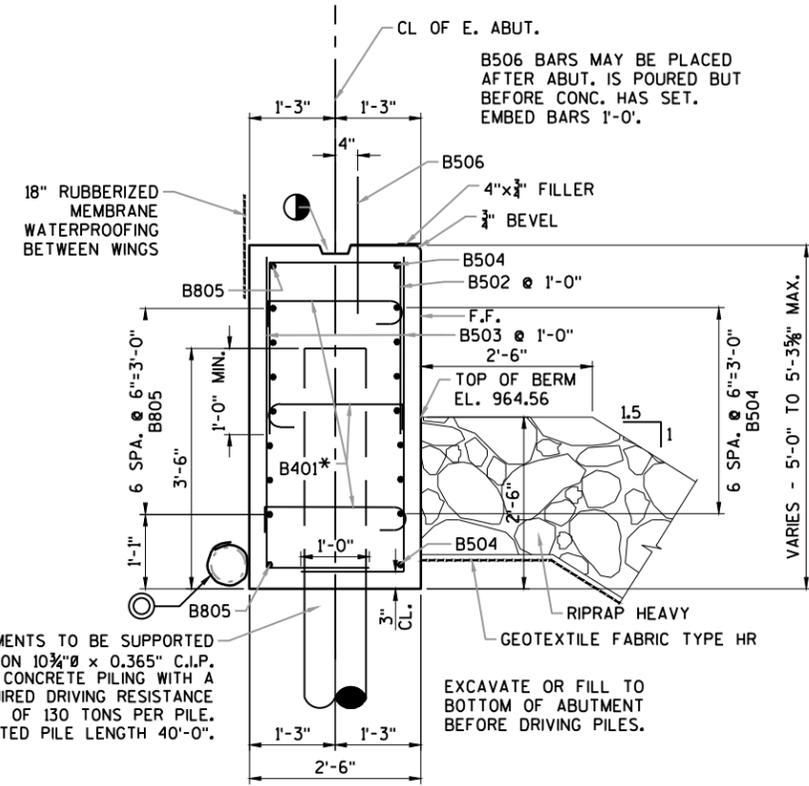
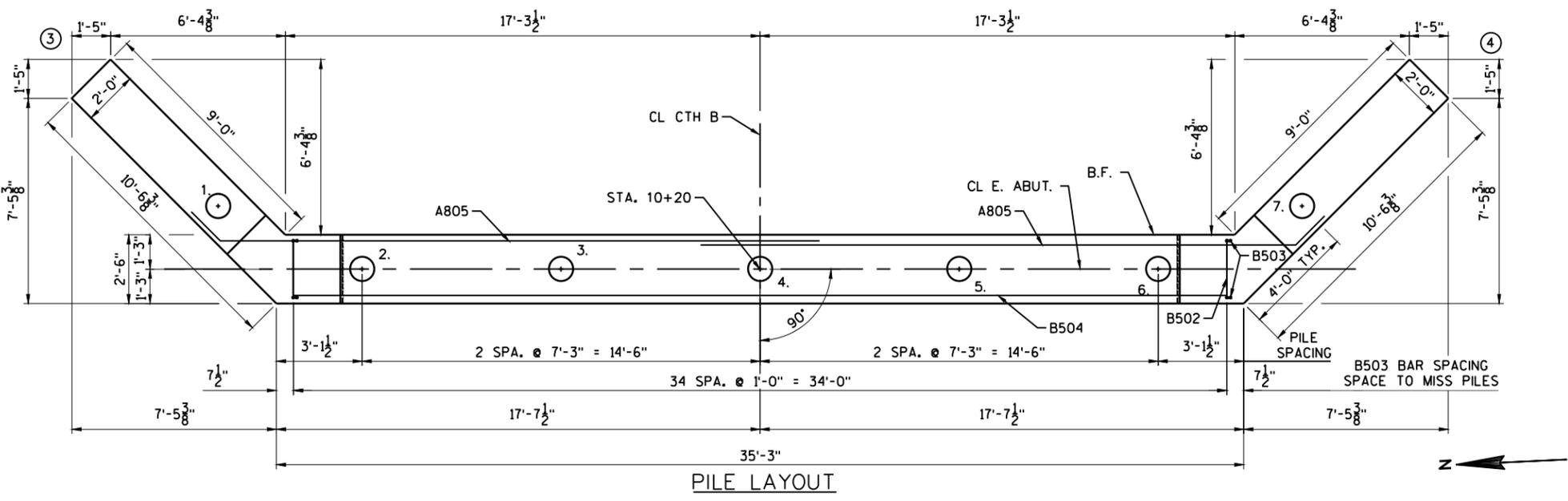
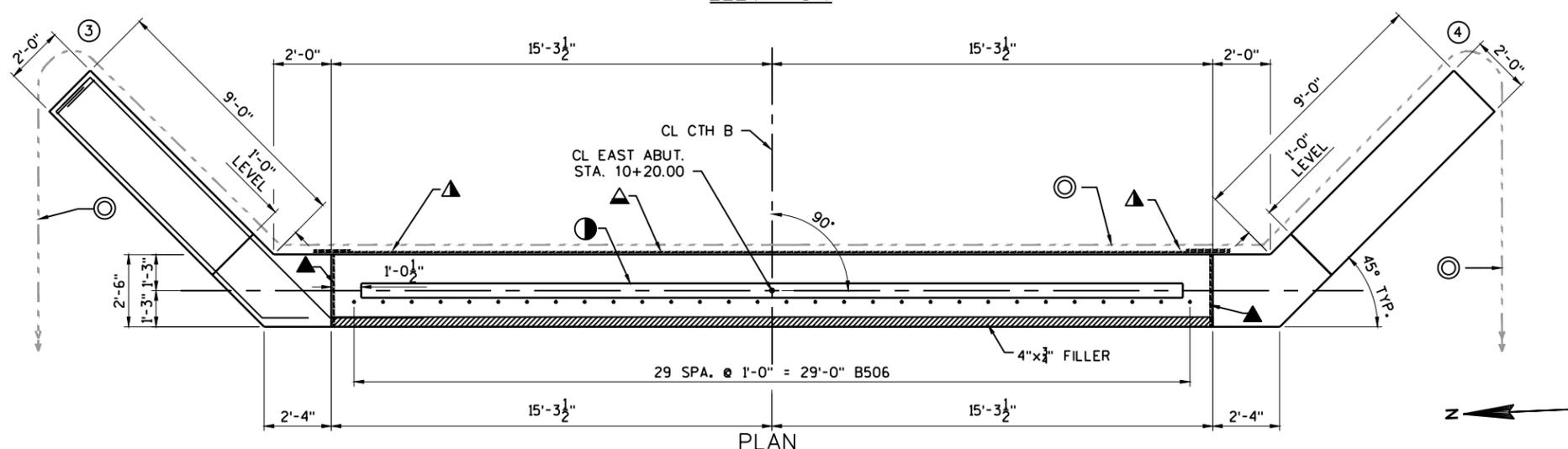
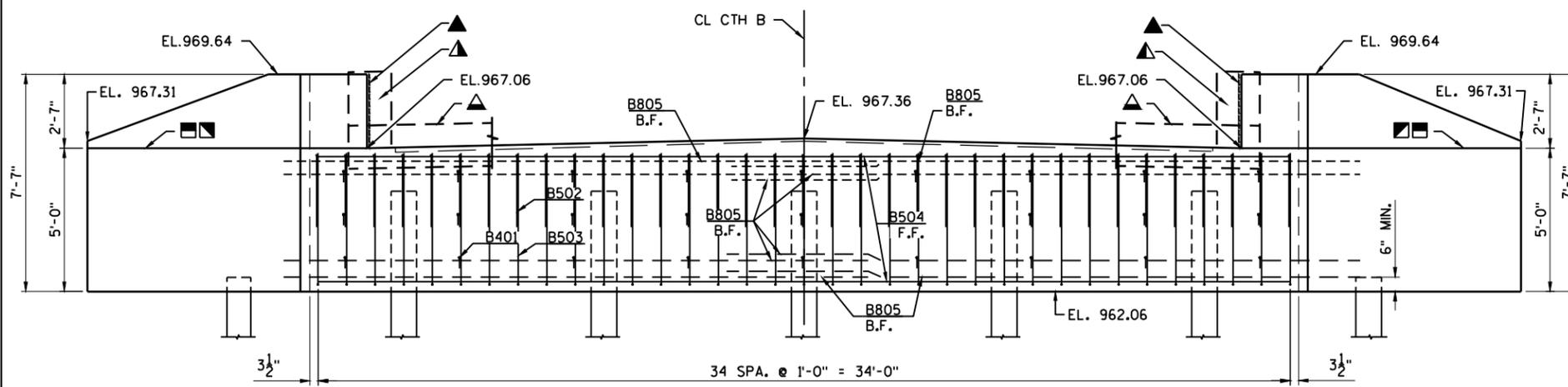
LEGEND

- ① INDICATES WING NUMBER
- KEYED CONSTRUCTION JOINT FORMED BY BEVELED 2X6.
- ⊙ PIPE UNDERDRAIN WRAPPED 6-INCH. EXTEND THRU GEOTEXTILE FABRIC AT FACE OF RIPRAP HEAVY. SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. PROVIDE RODENT PROTECTION AT ENDS OF PIPE.
- ▲ 1/2" FILLER EXTEND AS SHOWN. SEAL ALL EXPOSED HORIZ. AND VERT. SURFACES OF FILLER WITH NON-STAINING GRAY, NON-BITUMINOUS JOINT SEALER. 1" DEEP AND HOLD 1/8" BELOW SURFACE OF CONCRETE.
- ▲ VERT. 18" WIDE RUBBERIZED MEMBRANE WATERPROOFING (RMW), EXTEND FROM 9" BELOW BRIDGE SEAT TO TOP OF WINGS.
- ▲ HORIZ. 18" WIDE RUBBERIZED MEMBRANE WATERPROOFING (RMW), EXTEND BETWEEN WINGS.
- OPTIONAL KEYED CONST. JOINT ON WING FORMED BY BEVELED 2x6. IF JOINT IS USED, POUR CONCRETE ABOVE JOINT AFTER DECK IS IN PLACE AND PLACE 18" RMW ON BACK FACE OF WING. COST OF RMW INCLUDED IN BID ITEM "CONCRETE MASONRY BRIDGES".
- 3/4" "V" GROOVE ON FRONT FACE OF WING WALL, REQUIRED ONLY WHERE CONSTRUCTION JOINT IS USED.

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

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-48-58			
DRAWN BY JMM		PLANS CK'D. JAF	
WEST ABUTMENT WING DETAILS			SHEET 5

*(3) B401 TIE BARS AT 4'-0" HORIZ. SPA.
ALTERNATE THE POSITION OF THE 90° AND
180° HOOKS AT EACH VERTICAL LAYER OF TIES.



TYP. SECTION THRU ABUTMENT BODY

LEGEND

- ① INDICATES WING NUMBER
- ⊙ PIPE UNDERDRAIN WRAPPED 6-INCH. EXTEND THRU GEOTEXTILE FABRIC AT FACE OF RIPRAP HEAVY. SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. PROVIDE RODENT PROTECTION AT ENDS OF PIPE.
- ▲ 1/2" FILLER EXTEND AS SHOWN. SEAL ALL EXPOSED HORIZ. AND VERT. SURFACES OF FILLER WITH NON-STAINING GRAY, NON-BITUMINOUS JOINT SEALER. (1" DEEP AND HOLD 1/8" BELOW SURFACE OF CONCRETE.
- ▲ VERT. 18" WIDE RUBBERIZED MEMBRANE WATERPROOFING (RMW), EXTEND FROM 9" BELOW BRIDGE SEAT TO TOP OF WINGS.
- ▲ HORIZ. 18" WIDE RUBBERIZED MEMBRANE WATERPROOFING (RMW), EXTEND BETWEEN WINGS.
- OPTIONAL KEYED CONST. JOINT ON WING FORMED BY BEVELED 2x6. IF JOINT IS USED, POUR CONCRETE ABOVE JOINT AFTER DECK IS IN PLACE AND PLACE 18" RMW ON BACK FACE OF WING. COST OF RMW INCLUDED IN BID ITEM "CONCRETE MASONRY BRIDGES".
- ▣ 3/4" "V" GROOVE ON FRONT FACE OF WING WALL, REQUIRED ONLY WHERE CONSTRUCTION JOINT IS USED.
- KEYED CONSTRUCTION JOINT FORMED BY BEVELED 2x6.
- F.F. = FRONT FACE B.F. = BACK FACE CL. = CLEAR

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-48-58			
DRAWN BY JMM		PLANS CK'D. JAF	
EAST ABUTMENT			SHEET 6

BILL OF BARS

BAR MARK	COAT	NO. REQ'D	LENGTH	BENT	BAR SERIES	LOCATION
B401		27	3'-0"	X		ABUT. BODY TIE BARS
B502		35	6'-11"	X		ABUT. BODY HORIZ. TOP
B503		70	6'-1"	X		ABUT. BODY VERT.
B504		9	34'-0"			ABUT. BODY HORIZ. F.F.
B805		18	23'-8"			ABUT. BODY HORIZ. B.F.
B506	X	30	2'-0"			ABUT. BODY - TOP DOWEL VERT.
B407	X	44	8'-5"	X	X	WINGS 3 & 4 VERT. E.F.
B408	X	12	9'-7"	X		WINGS 3 & 4 VERT. E.F.
B509	X	18	11'-8"	X		WINGS 3 & 4 HORIZ. F.F.
B810	X	18	13'-2"	X		WINGS 3 & 4 HORIZ. B.F.
B411	X	4	7'-5"			WINGS 3 & 4 HORIZ. E.F.
B412	X	4	4'-10"			WINGS 3 & 4 HORIZ. E.F.
B413	X	4	10'-6"	X		WINGS 3 & 4 DIAGONAL E.F.
B414	X	8	8'-5"	X		WINGS 3 & 4 HORIZ. B.F.
B415	X	14	3'-6"			WINGS 3 & 4 VERT.
B416	X	4	10'-1"			WINGS 3 & 4 HORIZ. E.F.

NOTES:

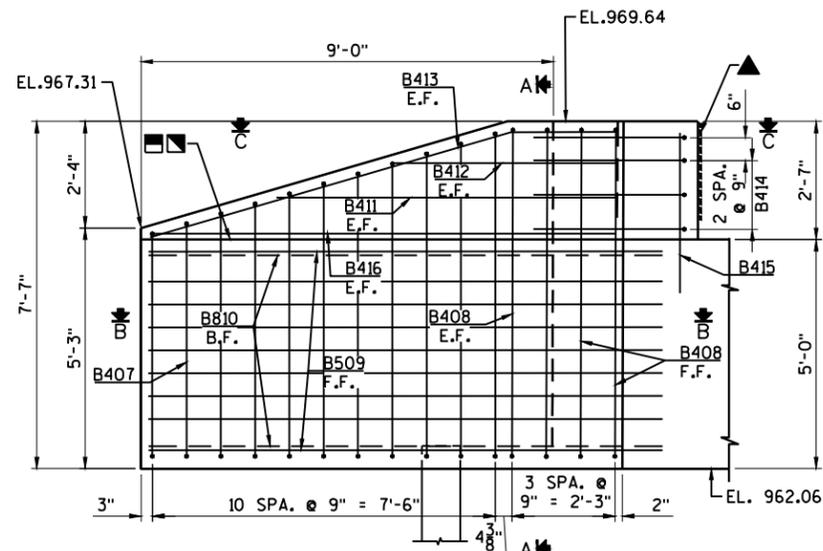
1. BAR TABLE APPLIES TO NORTH ABUTMENT ONLY.
2. THE FIRST OR FIRST TWO DIGITS OF A BAR MARK SIGNIFIES THE BAR SIZE. BAR DIMENSIONS ARE OUT TO OUT OF BAR.

■ LENGTH SHOWN IS AN AVERAGE LENGTH TO BE USED FOR BAR WEIGHT CALCULATIONS. SEE BAR SERIES TABLE FOR ACTUAL LENGTHS.

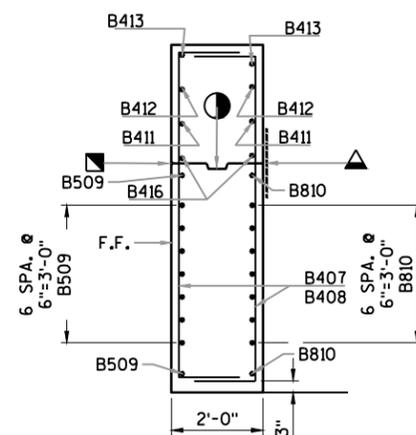
LEGEND

- ① INDICATES WING NUMBER
- KEYED CONSTRUCTION JOINT FORMED BY BEVELED 2x6.
- PIPE UNDERDRAIN WRAPPED 6-INCH. EXTEND THRU GEOTEXTILE FABRIC AT FACE OF RIPRAP HEAVY. SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. PROVIDE RODENT PROTECTION AT ENDS OF PIPE.
- ▲ 1/2" FILLER EXTEND AS SHOWN. SEAL ALL EXPOSED HORIZ. AND VERT. SURFACES OF FILLER WITH NON-STAINING GRAY, NON-BITUMINOUS JOINT SEALER. (1" DEEP AND HOLD 1/8" BELOW SURFACE OF CONCRETE.
- ▲ VERT. 18" WIDE RUBBERIZED MEMBRANE WATERPROOFING (RMW), EXTEND FROM 9" BELOW BRIDGE SEAT TO TOP OF WINGS.
- ▲ HORIZ. 18" WIDE RUBBERIZED MEMBRANE WATERPROOFING (RMW), EXTEND BETWEEN WINGS.
- OPTIONAL KEYED CONST. JOINT ON WING FORMED BY BEVELED 2x6. IF JOINT IS USED, POUR CONCRETE ABOVE JOINT AFTER DECK IS IN PLACE AND PLACE 18" RMW ON BACK FACE OF WING. COST OF RMW INCLUDED IN BID ITEM "CONCRETE MASONRY BRIDGES".
- 3/4" "V" GROOVE ON FRONT FACE OF WING WALL, REQUIRED ONLY WHERE CONSTRUCTION JOINT IS USED.

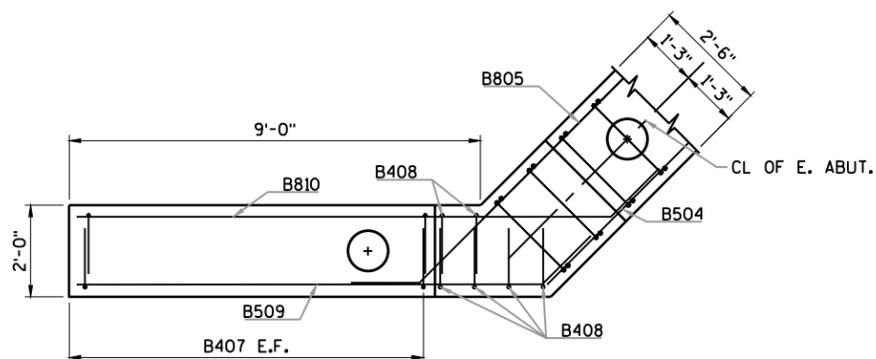
F.F. = FRONT FACE B.F. = BACK FACE CL. = CLEAR



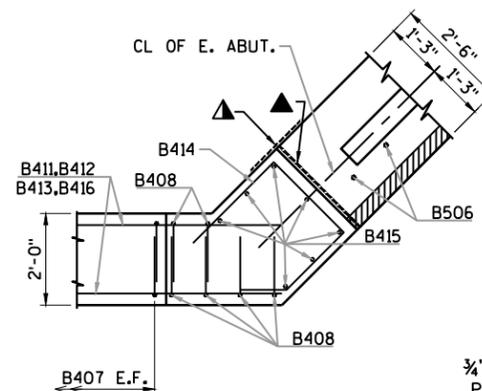
ELEVATION WING 3
WING 4 SIMILAR



SECTION A

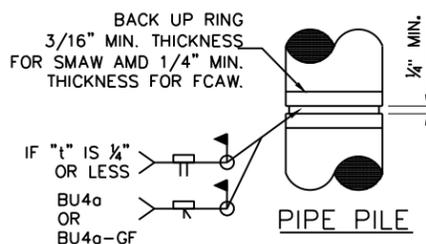
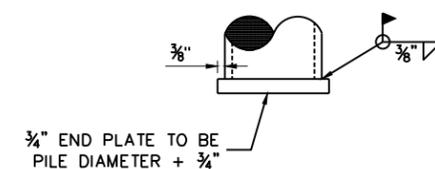


SECTION B

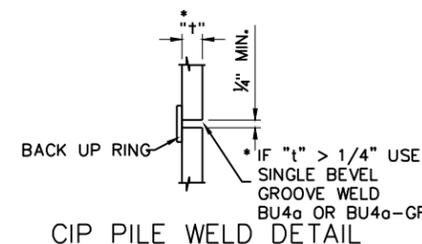


SECTION C

END PLATE DETAIL FOR CIP PILING

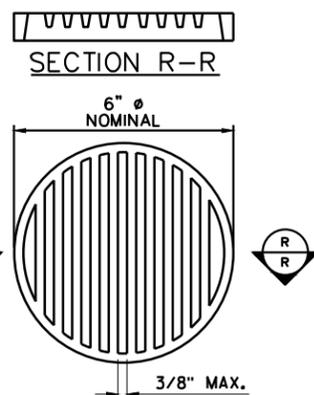


PIPE PILE



CIP PILE WELD DETAIL

CIP PILE SPLICE DETAIL
CAST IN PLACE PILE SHELL MATERIAL SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS. GRINDING MAY BE USED IN LIEU OF BACK GOUGING



RODENT SHIELD

DIMENSIONS ARE APPROX. THE GRATE IS SIZED TO FIT INTO PIPE COUPLING.

RODENT SHIELD NOTES:

ORIENT SHIELD SO SLOTS ARE VERTICAL.

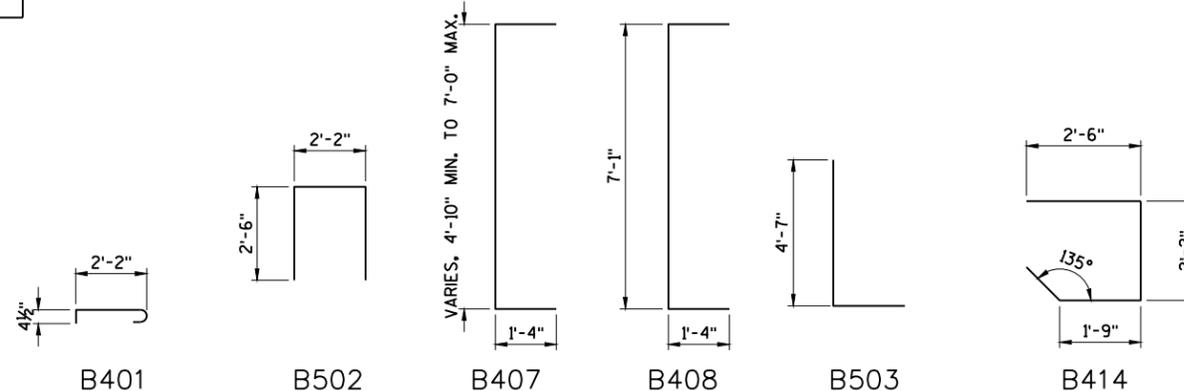
THE RODENT SHIELD SHALL BE A PVC GRATE SIMILAR TO THIS DETAIL. THE GRATE IS COMMERCIALY AVAILABLE AS A FLOOR STRAINER. A PIPE COUPLING IS REQUIRED FOR THE ATTACHMENT OF THIS SHIELD TO THE PIPE UNDERDRAIN. THE SHIELD SHALL BE FASTENED TO THE PIPE COUPLING WITH TWO OR MORE NO.10 x 1-INCH STAINLESS STEEL SHEET METAL SCREWS. THE RODENT SHIELD SHALL BE INCLUDED IN THE BID ITEM "PIPE UNDERDRAIN WRAPPED 6-INCH".

BAR SERIES TABLE

MARK	NO. REQ'D.	LENGTH
B407	4 SERIES OF 11	7'-4" TO 9'-6"

BUNDLE AND TAG EACH SERIES SEPARATELY

MARK	A	B
B805	1'-6"	45'
B509	10'-2"	45'
B810	11'-8"	45'
B413	8'-2"	16'



NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-48-58			
DRAWN BY JMM		PLANS CK'D. JAF	
EAST ABUTMENT WING DETAILS			SHEET 7

GENERAL NOTES

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.

TRANSVERSE BARS SHALL BE PLACED PARALLEL TO THE 1/4 OF SUBSTRUCTURE UNITS.

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

PRIOR TO RELEASING SLAB FALSEWORK, TAKE TOP OF SLAB ELEVATIONS AT THE C/L OF ABUTMENTS, AND AT 5/10 PTS. TO VERIFY CAMBER. TAKE ELEVATIONS ALONG GUTTER LINES AND CROWN OR C/L. RECORD THE ELEVATIONS ON AS BUILT PLANS.

SURVEY TOP OF SLAB ELEVATIONS

	CL BRG. WEST ABUTMENT	5/10 PT.	CL BRG. EAST ABUTMENT
NORTH GUTTER			
CROWN			
SOUTH GUTTER			

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

TOP OF DECK ELEVATIONS

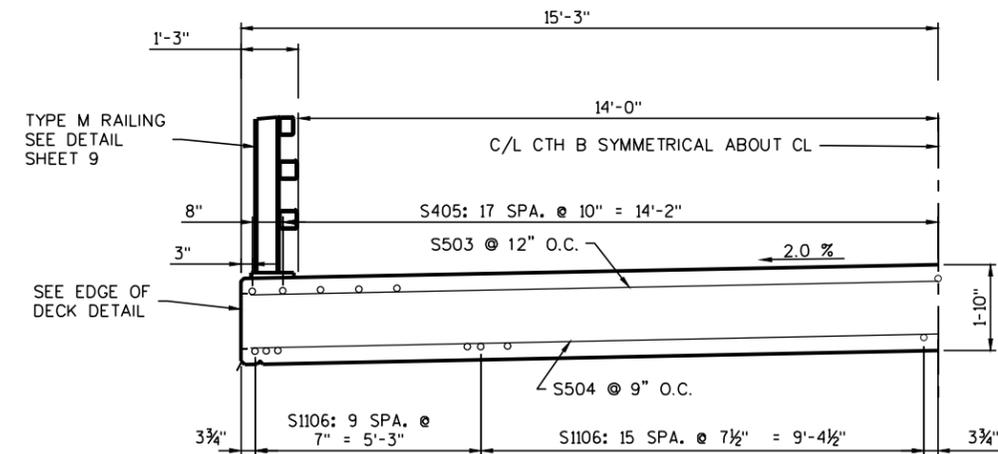
	C/L BRG. W. ABUT.	1/10	2/10	3/10	4/10	5/10	6/10	7/10	8/10	9/10	C/L BRG. E. ABUT.
N. EDGE OF DECK	970.10	970.01	969.94	969.87	969.81	969.76	969.72	969.69	969.67	969.65	969.65
CROWN OR CL	970.40	970.32	970.24	970.17	970.12	970.07	970.02	969.99	969.97	969.96	969.95
S. EDGE OF DECK	970.10	970.01	969.94	969.87	969.81	969.76	969.72	969.69	969.67	969.65	969.65

TO DETERMINE FALSEWORK ELEVATION AT EDGE OF SLAB, CROWN OR REFERENCE LINE FOLLOW THIS PROCEDURE:
 TOP OF SLAB ELEVATION AT FINAL GRADE
 MINUS SLAB THICKNESS
 PLUS CAMBER
 PLUS FORM SETTLEMENT/DEFLECTION DUE TO PLACEMENT OF SLAB CONCRETE. (TO BE COMPUTED BY THE CONTRACTOR)
 EQUALS TOP OF SLAB FALSEWORK ELEVATION.

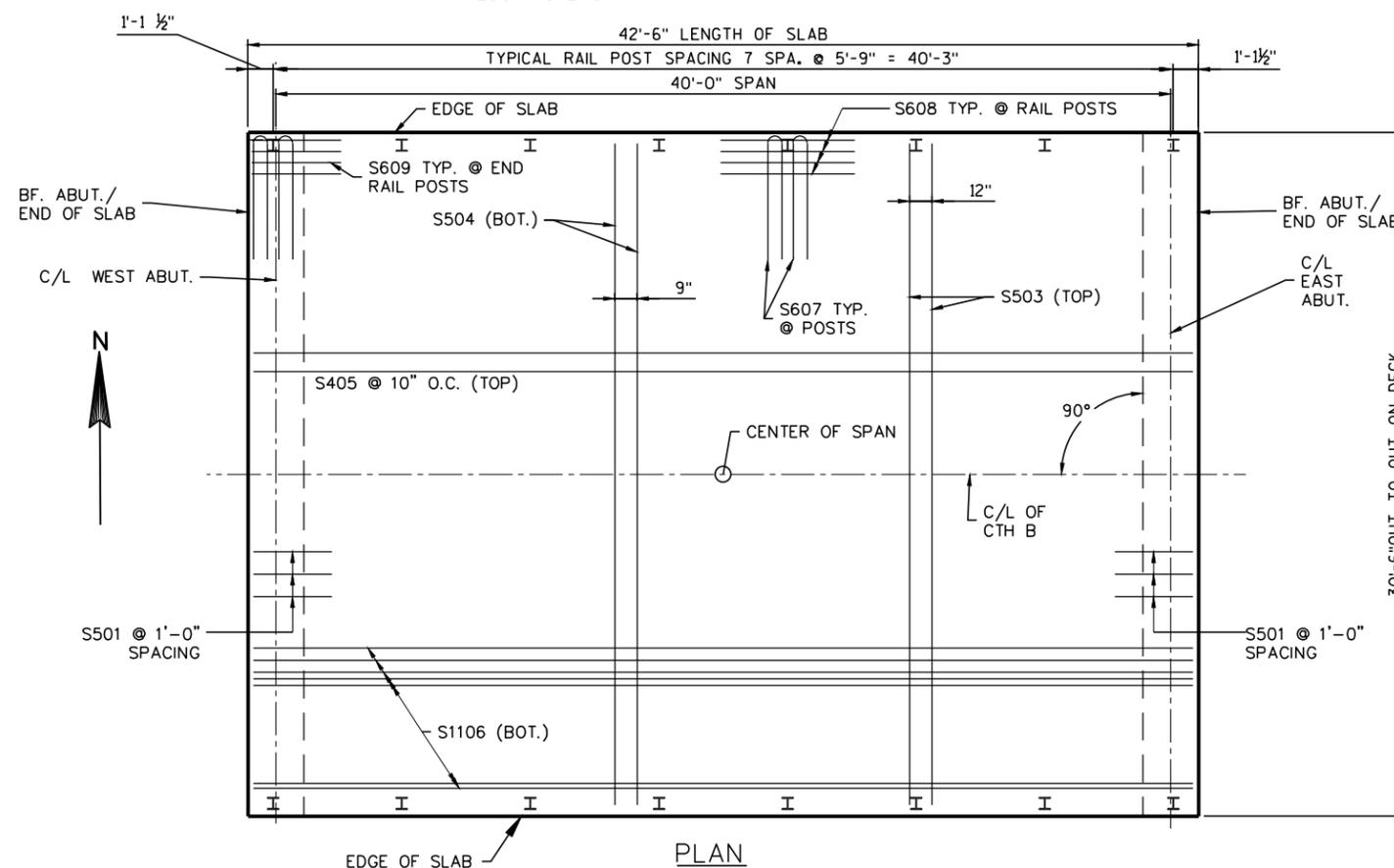
BILL OF BARS

BAR MARK	COAT	NO. REQ'D	LENGTH	BENT	LOCATION
S501	X	62	7'-3"	X	DIAPHRAGM @ ABUTS. - LONGIT.
S502	X	4	30'-0"		DIAPHRAGM @ ABUTS. - TRANS.
S503	X	43	30'-0"		SLAB, TOP, TRANSVERSE
S504	X	57	30'-0"		SLAB, BOTTOM, TRANSVERSE
S405	X	37	42'-0"		SLAB, TOP, LONGIT.
S1106	X	50	42'-0"		SLAB, BOTTOM, LONGIT.
S607	X	32	11'-6"	X	SLAB, TRANS., 2 PER RAIL POST
S608	X	48	6'-0"		SLAB, LONG., 4 PER RAIL POST
S609	X	16	4'-8"	X	SLAB, LONG., 4 PER END RAIL POST

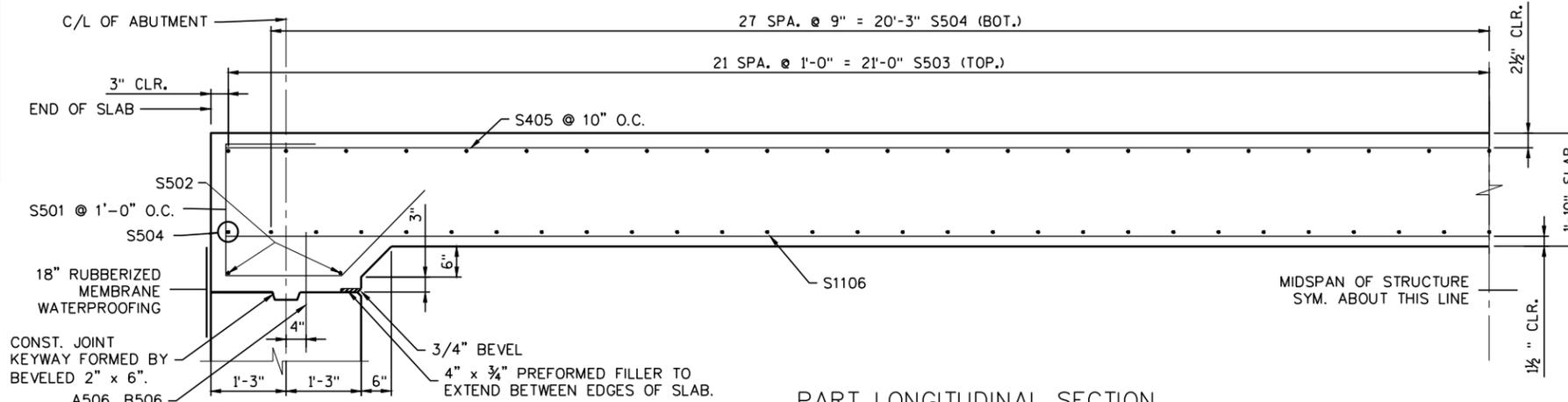
NOTES:
 -THE FIRST OR FIRST TWO DIGITS THE OF A BAR MARK SIGNIFIES BAR SIZE.
 -DIMENSIONS IN BENDING DETAILS ARE OUT TO OUT OF BAR.
 -EPOXY COAT ALL SUPERSTRUCTURE BAR STEEL REINFORCEMENT.



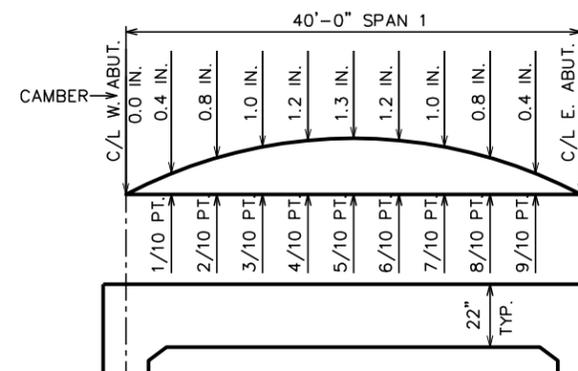
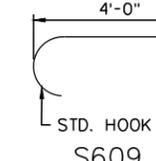
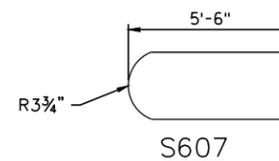
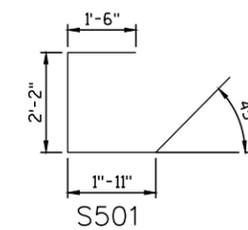
**CROSS SECTION THRU BRIDGE
LOOKING EAST**



PLAN



PART LONGITUDINAL SECTION

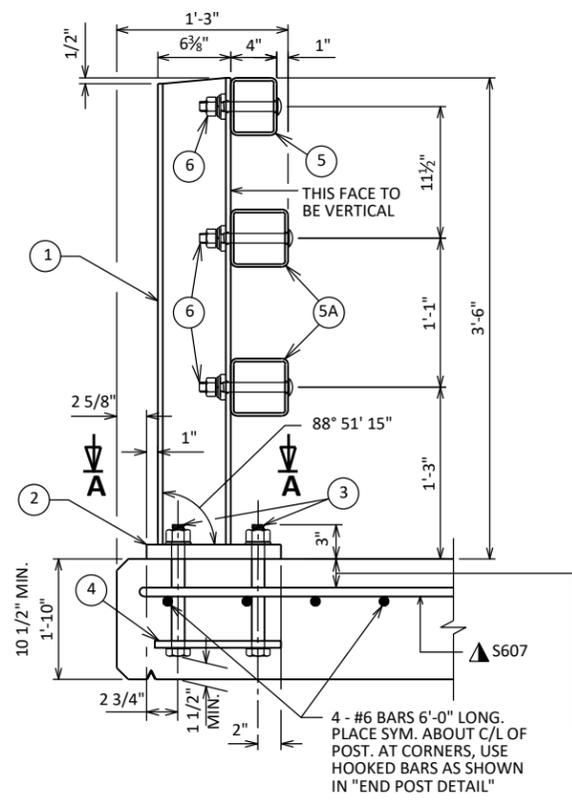


CAMBER AND SLAB THICKNESS DIAGRAM
CAMBER SHOWN IS BASED ON 3 TIMES DEAD LOAD DEFLECTION

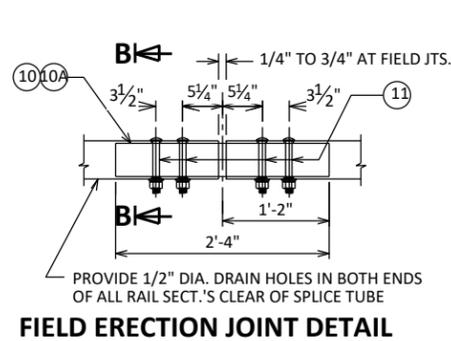
CAMBER SPANS AS SHOWN TO PROVIDE FOR DEAD LOAD DEFLECTION AND FUTURE CREEP. CAMBER DOES NOT INCLUDE ALLOWANCE FOR FORM SETTLEMENT.

PARAPETS, SIDEWALKS AND MEDIANS PLACED ON TOP OF THE SLAB SHALL BE POURED AFTER FALSEWORK HAS BEEN RELEASED, EXCEPT FOR STAGED CONSTRUCTION

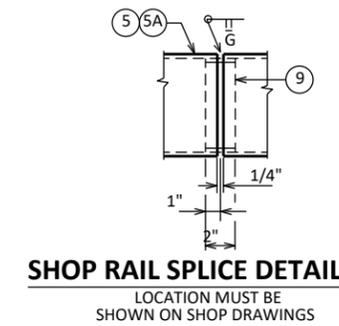
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-48-58			
DRAWN BY BW		PLANS CK'D. JAF	
SUPERSTRUCTURE			SHEET 8



SECTION THRU RAILING ON DECK

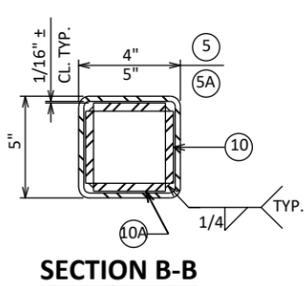


FIELD ERECTION JOINT DETAIL

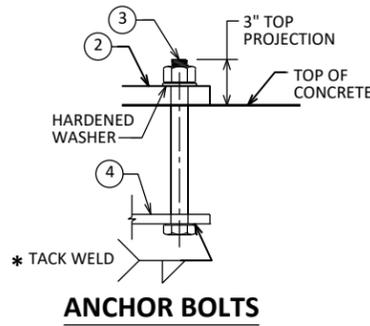


SHOP RAIL SPLICE DETAIL

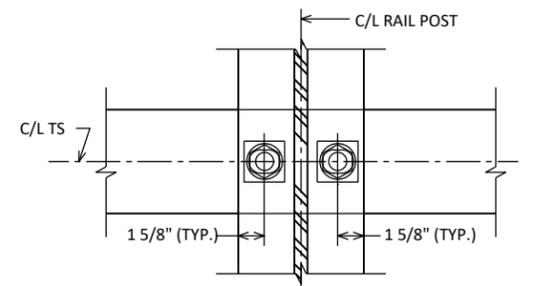
2 1/2" FOR SLABS ON GIRDERS; FOR OTHER STRUCTURES, PLACE BELOW TOP MAT SLAB REINFORCEMENT.



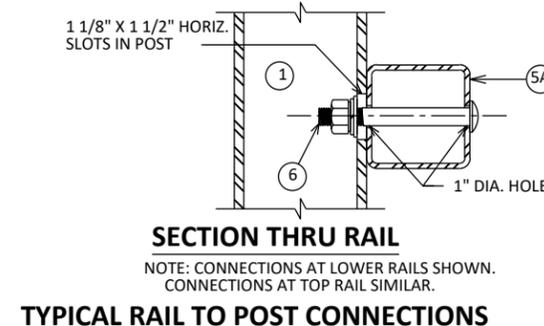
SECTION B-B



ANCHOR BOLTS



SECTION THRU POST WEB



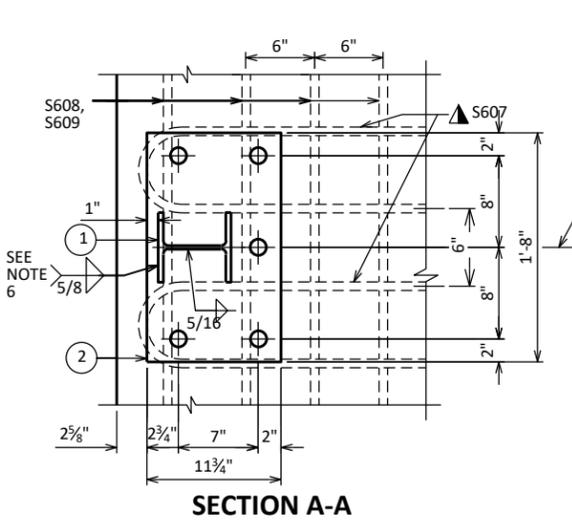
TYPICAL RAIL TO POST CONNECTIONS

LEGEND

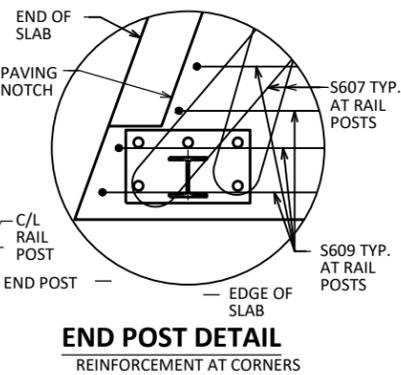
- ① W6 X 25 WITH 1 1/8" X 1 1/2" HORIZ. SLOTS ON EACH SIDE OF POST FOR BOLT NO. 6. CUT BOTTOM OF POST TO MATCH CROSS SLOPE OF ROADWAY. PLACE POST VERTICAL. PLACE POSTS NORMAL TO GRADE LINE.
- ② PLATE 1 1/4" X 11 3/4" X 1-8" WITH 1 7/16" DIA. OVERSIZED HOLES FOR ANCHOR BOLTS NO. 3. WELD TO NO. 1 AS SHOWN.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

GENERAL NOTES

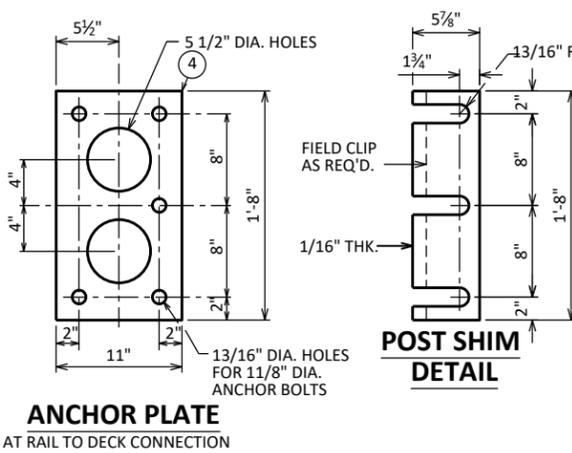
- 1. BID ITEM SHALL BE "RAILING TUBULAR TYPE M" WHICH INCLUDES ALL ITEMS SHOWN.
- 2. RAIL POST AND BASE PLATES SHALL CONFORM TO THE REQUIREMENTS OF ASTM A709 GRADE 50. HOLLOW RAILING STRUCTURAL TUBING SHALL CONFORM TO THE REQUIREMENTS OF ASTM A500 GRADE B OR C WITH A CERTIFIED FY = 50 KSI. ANCHOR PLATES,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



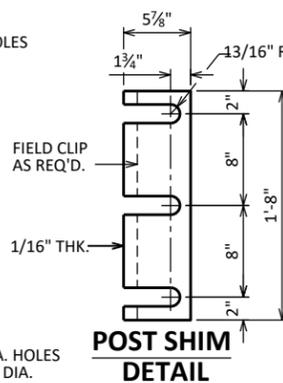
SECTION A-A



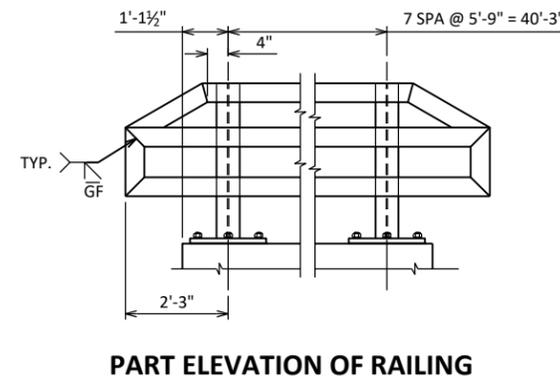
END POST DETAIL
REINFORCEMENT AT CORNERS



ANCHOR PLATE
AT RAIL TO DECK CONNECTION



POST SHIM
DETAIL



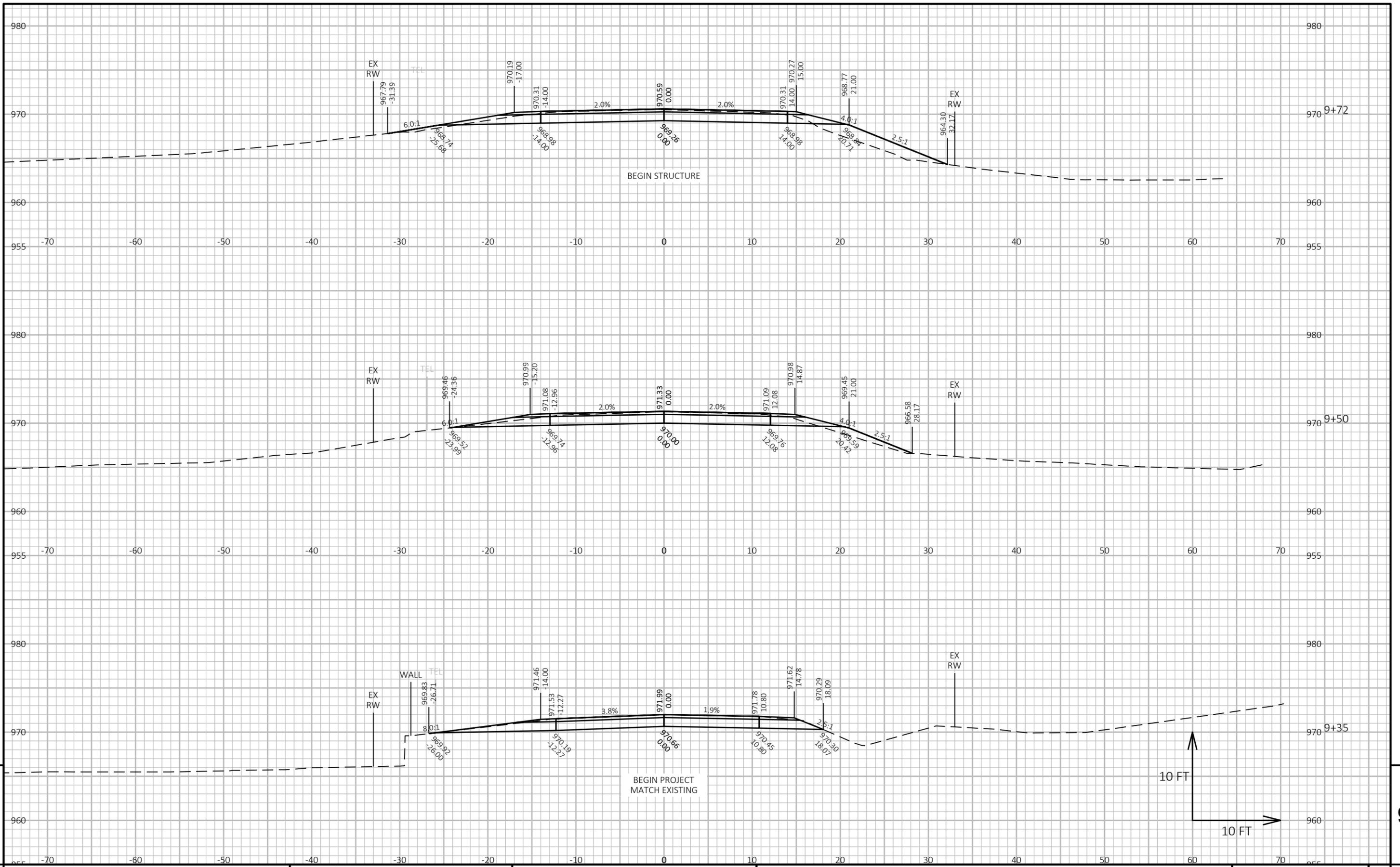
PART ELEVATION OF RAILING

▲ TIE TO TOP MAT OF STEEL.

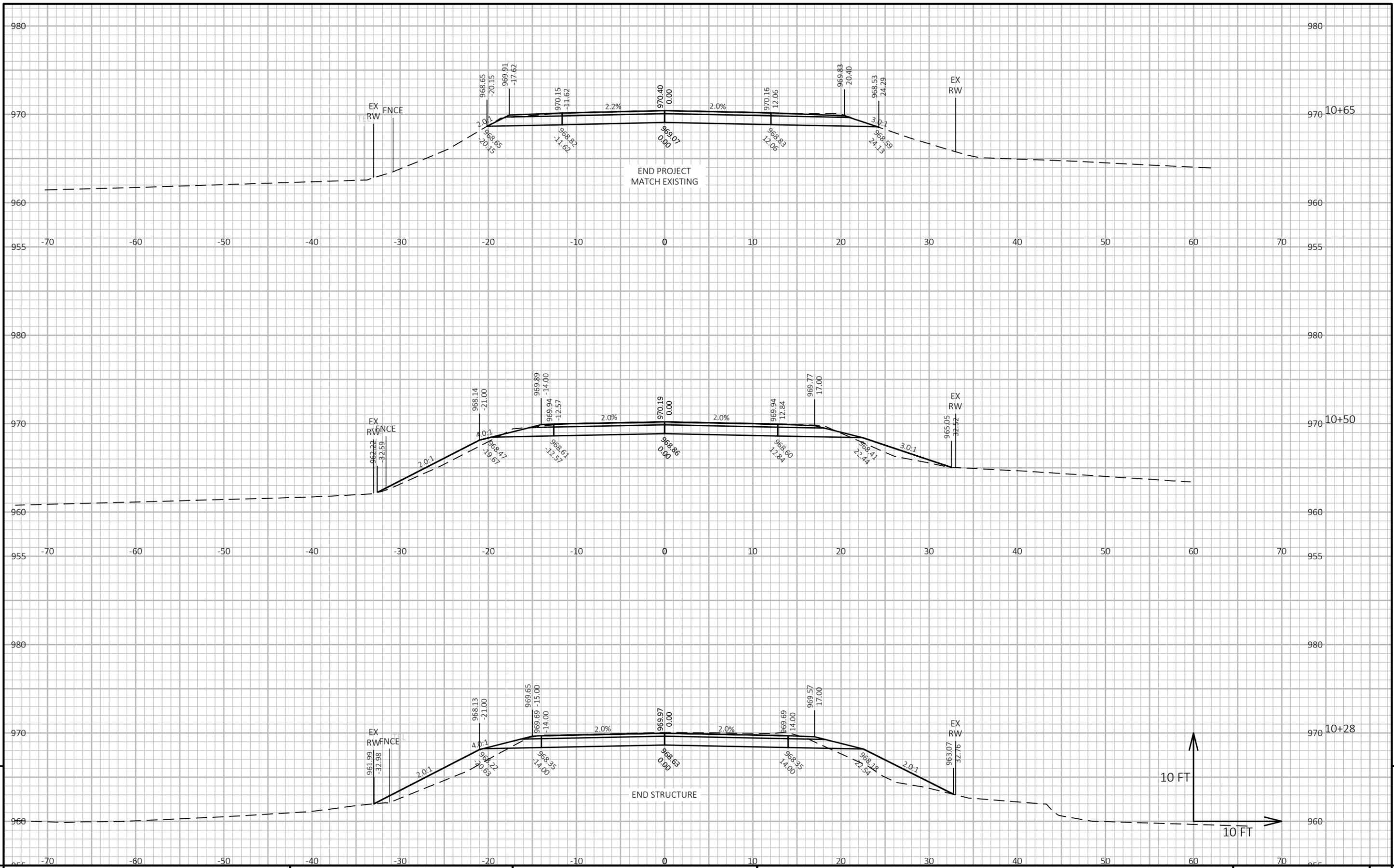
* ANCHOR BOLT ASSEMBLY MAY BE TACK WELDED, EITHER IN THE SHOP, OR IN THE FIELD AFTER THE ANCHOR PLATE IS PLACED.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-48-58			
DRAWN BY		JAF	PLANS CK'D SKP
TUBULAR STEEL RAILING TYPE 'M'			SHEET 9

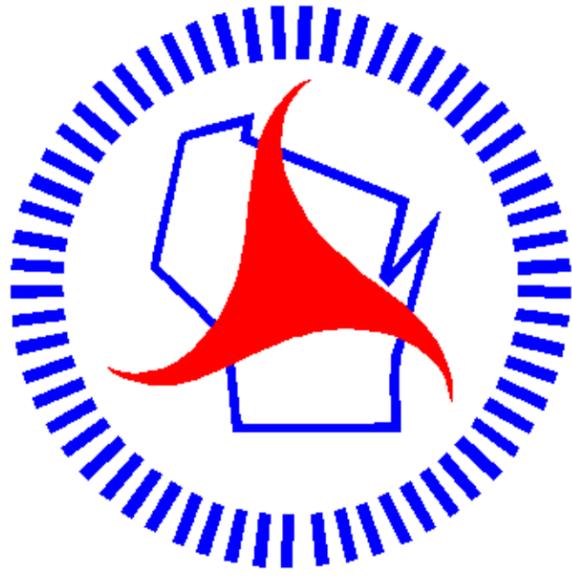
SCALE =



PROJECT NO: 8857-00-70	HWY: CTH B	COUNTY: POLK	CROSS SECTIONS: CTH B	SHEET E
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PROJECT NO: 8857-00-70 HWY: CTH B COUNTY: POLK CROSS SECTIONS: CTH B SHEET 9



Wisconsin Department of Transportation

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