

STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
8915-00-70	_____	_____

STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION

PLAN OF PROPOSED IMPROVEMENT

STH 178 - CTH K

CHIPPEWA RIVER BRIDGE B-09-0387

CTH TT

CHIPPEWA COUNTY

STATE PROJECT NUMBER
8915-00-70

ORDER OF SHEETS

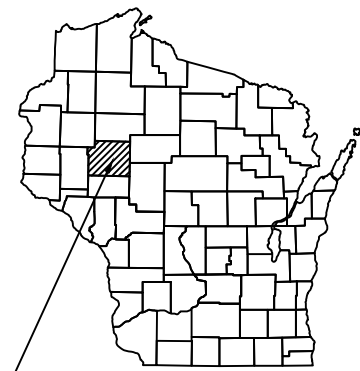
Section No. 1	Title
Section No. 2	Typical Sections and Details
Section No. 3	Estimate of Quantities
Section No. 3	Miscellaneous Quantities
Section No. 4	Right of Way Plat
Section No. 5	Plan and Profile
Section No. 6	Standard Detail Drawings
Section No. 7	Sign Plates
Section No. 8	Structure Plans
Section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

TOTAL SHEETS = 182

PROJECT ID: 8915-00-70

48

COUNTY: CHIPPEWA



PROJECT LOCATION

DESIGN DESIGNATION 8915-00-70

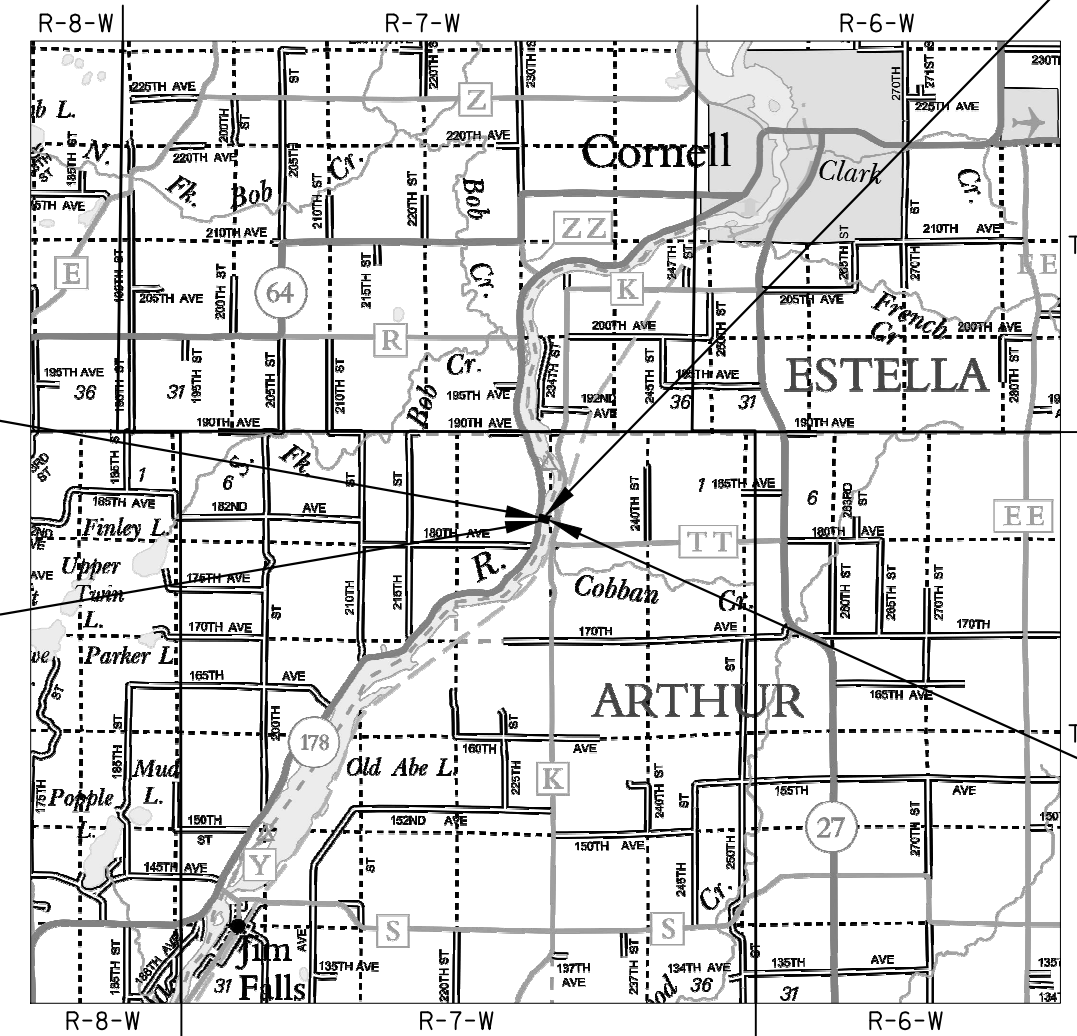
A.A.D.T. (2022)	=	280
A.A.D.T. (2042)	=	340
D.H.V.	=	66
D.D.	=	60-40
T.	=	4.8%
DESIGN SPEED	=	40 MPH
ESALS	=	29,900

BEGIN PROJECT 8915-00-70
STA 7+14.00
Y=191,802.290
X=218,950.242

STRUCTURE R-09-0016

STRUCTURE B-09-0387

END PROJECT 8915-00-70
STA 13+35.00



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	
OVERHEAD UTILITY	
FIBER OPTIC	
GAS	
SANITARY SEWER	
STORM SEWER	
TELEPHONE	
WATER	
UTILITY PEDESTAL	
POWER POLE	
TELEPHONE POLE	

LAYOUT
SCALE 0 1 MILE

TOTAL NET LENGTH OF CENTERLINE = 0.118 MILES

COORDINATES ON THIS PLAN ARE REFERENCED TO THE WISCONSIN COUNTY COORDINATE SYSTEM (WCCS), CHIPPEWA COUNTY NAD 83 (2011).

ELEVATIONS ON THIS PLAN ARE REFERENCED TO THE NATIONAL GEODETIC VERTICAL DATUM OF 1988 (NAVD 88).

ACCEPTED FOR
COUNTY of CHIPPEWA
Brian M. Kelley
Digitally signed by Brian M. Kelley
Date: 2021.07.12 06:58:57 -05'00'
Date HIGHWAY COMMISSIONER

ORIGINAL PLANS PREPARED BY

AECOM



7/12/21 *Michelle Guoin*
(Date) (Signature)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PREPARED BY

Surveyor	AECOM Technical Services
Designer	AECOM Technical Services
Regional Local Program Examiner	TOU YANG, PE
Regional Local Program Supervisor	TYLER RONGSTAD, PE
Project Manager	MATTHEW THORNSEN, PE

APPROVED FOR THE DEPARTMENT
DATE: 7/12/2021
Matthew Thorsen P.E.
Reason: I am approving this document
Date: 2021.07.12 10:31:23+0000
(Signature)

E

GENERAL NOTES

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

WHEN THE QUANTITY OF THE ITEM OF BASE OR HMA PAVEMENT IS MEASURED FOR PAYMENT BY THE TON. THE DEPTH OR THICKNESS OF THE COURSE SHOWN ON THE PLANS IS APPROXIMATE AND THE ACTUAL THICKNESS WILL DEPEND ON THE DISTRIBUTION OF MATERIAL AS DIRECTED BY THE ENGINEER.

HMA PAVEMENT SHALL BE CONSTRUCTED IN TWO (2) LAYERS. REFER TO TYPICAL FINISHED SECTIONS FOR HMA PAVEMENT TYPE AND LAYER THICKNESSES.

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

EXCAVATION BELOW SUBGRADE (EBS) IS NOT USED TO BALANCE YARDAGE AND IS NOT SHOWN ON THE CROSS SECTIONS. IF EBS IS REQUIRED, IT SHALL BE MEASURED AND PAID FOR AS EXCAVATION COMMON. LOCATION FOR EBS WILL BE DETERMINED BY THE ENGINEER.

EROSION CONTROL FEATURES AS SHOWN ON THE PLANS ARE SUGGESTED LOCATIONS. EXACT LOCATIONS WILL BE DETERMINED BY THE ENGINEER IN THE FIELD.

DISTANCES SHOWN ON THIS PLAN ARE GROUND DISTANCES.

WETLANDS ARE PRESENT WITHIN THE PROJECT LIMITS. DO NOT OPERATE EQUIPMENT OUTSIDE THE SLOPE INTERCEPTS.

THE WISCONSIN DEPARTMENT OF TRANSPORTATION WILL FURNISH THE CONTRACTOR AN ALUMINUM MONUMENT TO SET IN THE STRUCTURE AS DESIGNATED BY THE ENGINEER.

UTILITY CONTACT

CENTURYLINK
COMMUNICATION
BRIAN HUHNS
P.O. BOX 78
HAWKINS, WI, 54530
(608) 615-7347 (OFFICE)
(608) 563-8294 (CELL)
BRIAN.HUHNS@CENTURYLINK.COM

CHIPPEWA VALLEY
ELECTRIC COOPERATIVE
ELECTRIC
NICHOLAS ALBERSON
317 S. 8TH ST.
CORNELL, WI 54732
(715)239-6800 (OFFICE)
(715)202-0823 (CELL)
NALBERSON@CVC.COOP

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

DESIGN CONTACT

AECOM TECHNICAL SERVICES (CONSULTANT)
KEVIN HAGEN, P.E.
200 INDIANA AVENUE
STEVENS POINT, WI 54481
715-342-3053
KEVIN.HAGEN@AECOM.COM

CHIPPEWA COUNTY HIGHWAY DEPARTMENT
FRED ANDERSON, P.E.
801 EAST GRAND AVENUE
CHIPPEWA FALLS, WI 54729
715-738-2610
FANDERSON@CO.CHIPPEWA.WI.US

AGENCY CONTACT

WISCONSIN DEPT. OF NATURAL RESOURCES (WDNR)
LEAH NICOL
1300 WEST CLAIREMONT AVENUE
EAU CLAIRE, WI 54701
715-934-9014
LEAH.NICOL@WISCONSIN.GOV

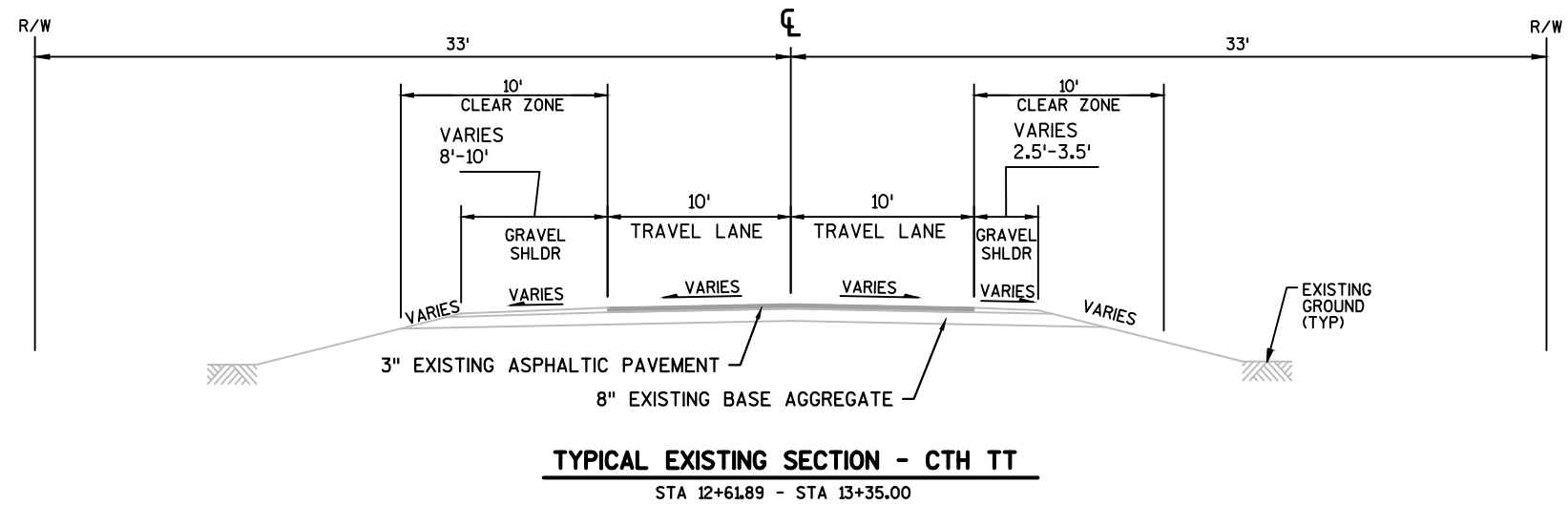
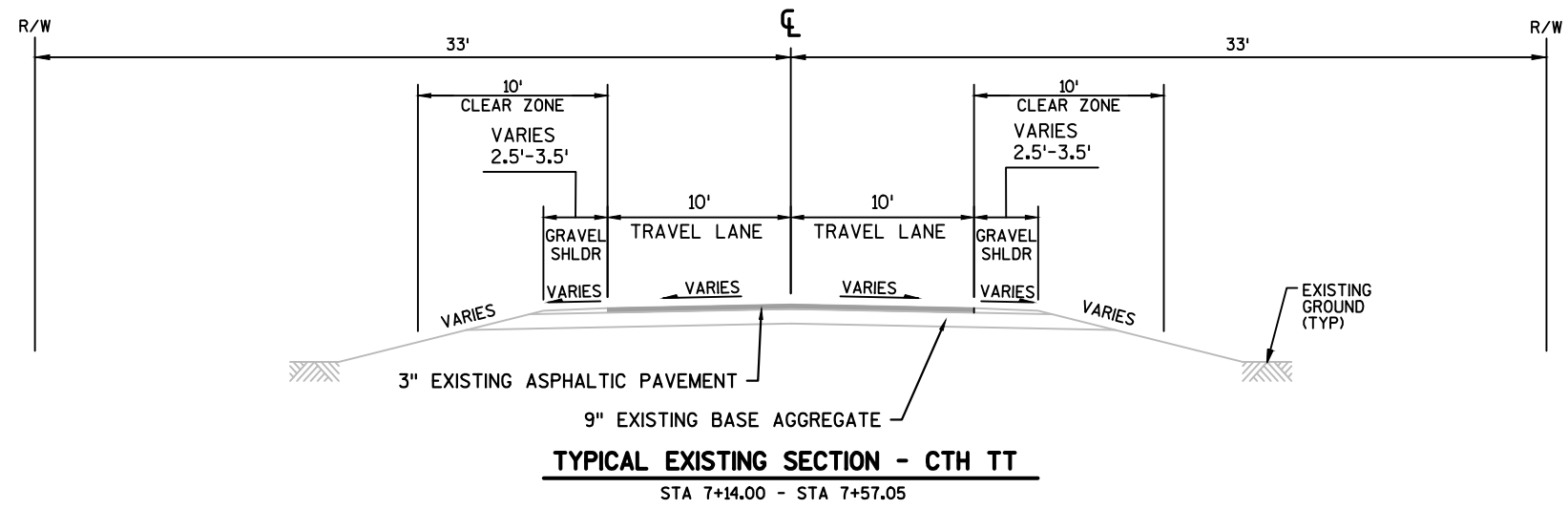
RUNOFF COEFFICIENT TABLE

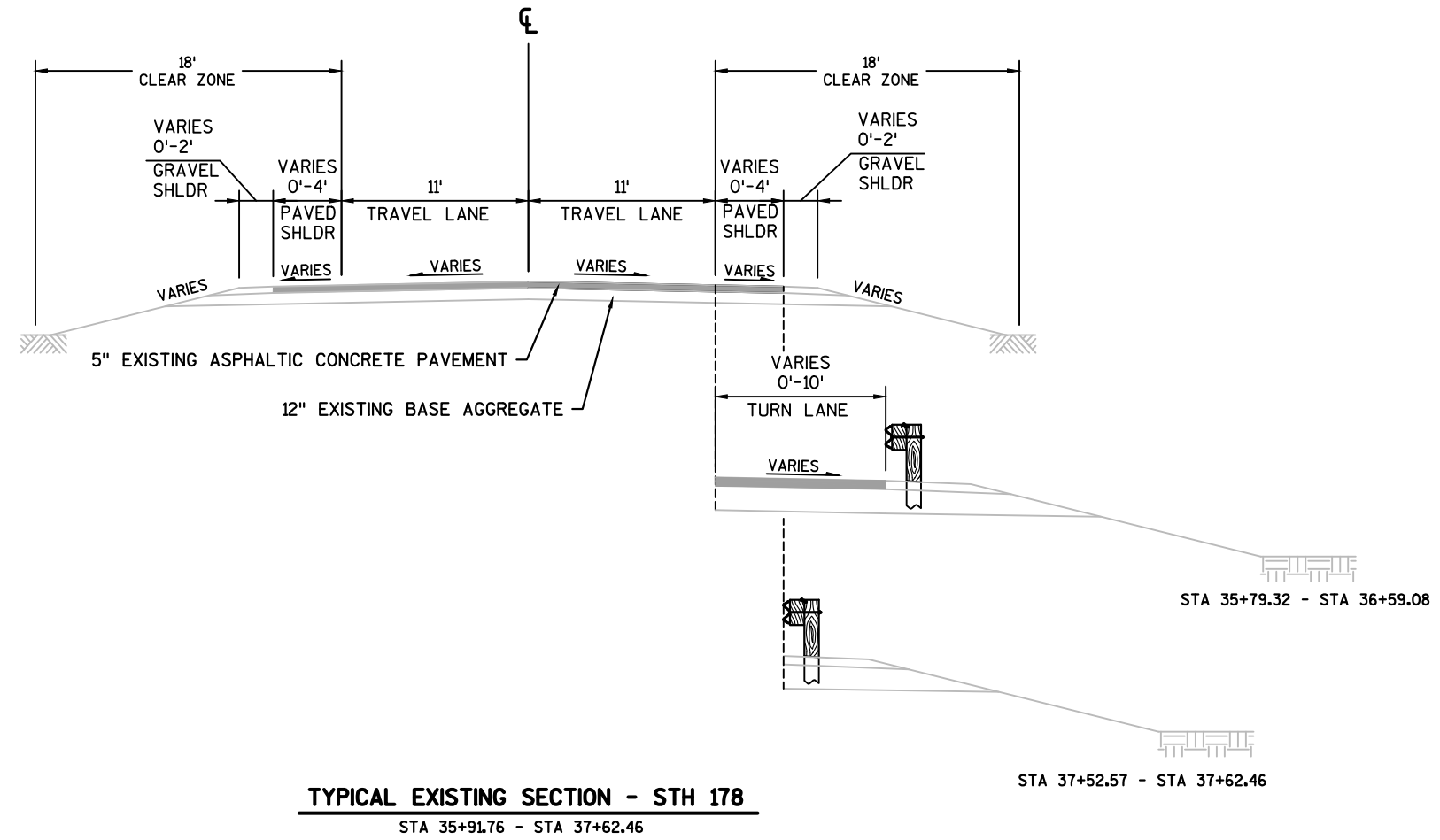
LAND USE:	HYDROLOGIC SOIL GROUP											
	A			B			C			D		
	SLOPE RANGE (PERCENT)			SLOPE RANGE (PERCENT)			SLOPE RANGE (PERCENT)			SLOPE RANGE (PERCENT)		
	0-2	2-6	6 & OVER	0-2	2-6	6 & OVER	0-2	2-6	6 & OVER	0-2	2-6	6 & OVER
ROW CROPS	.08 .22	.16 .30	.22 .38	.12 .26	.20 .34	.27 .44	.15 .30	.24 .37	.33 .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 = 2.02 ACRES
TOTAL AREA EXPECTED TO BE DISTURBED BY CONSTRUCTION ACTIVITIES = 0.85 ACRES



PROJECT NO: 8915-00-70	HWY: CTH TT	COUNTY: CHIPPEWA	PROJECT OVERVIEW	SHEET	E
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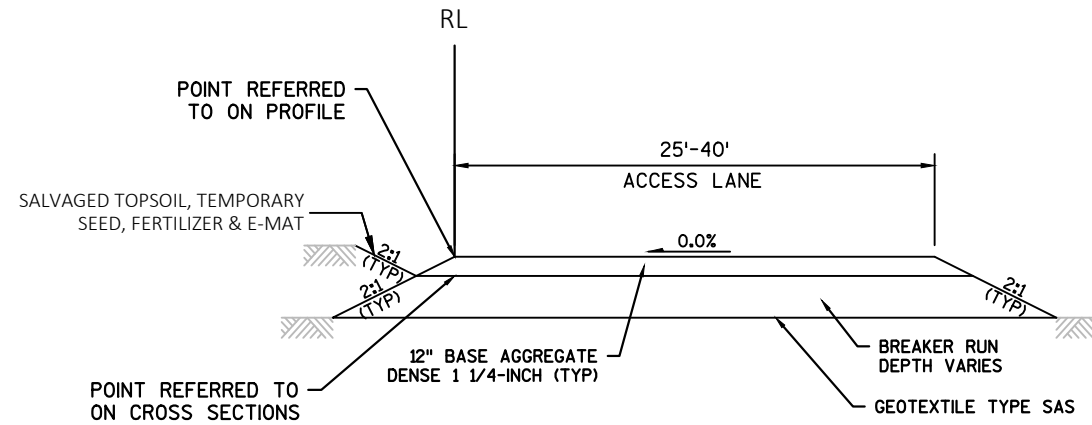


CONSTRUCTION STAGING DEFINITIONS FOR GRADING

STAGE 1: CONSTRUCT TEMPORARY CONSTRUCTION ACCESS; REMOVE EXISTING BRIDGE; DREDGING; CONSTRUCT NEW BRIDGE AND RETAINING WALL

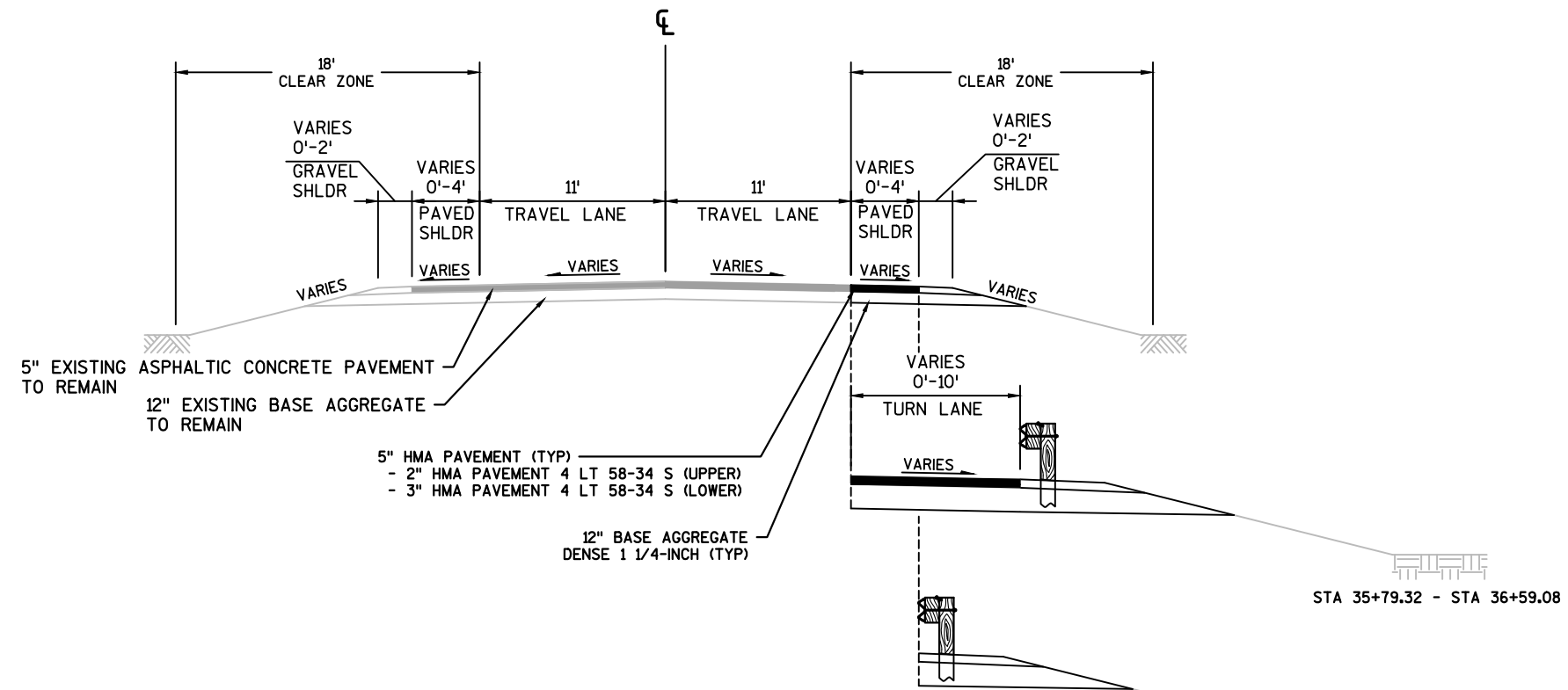
STAGE 2: REMOVE TEMPORARY CONSTRUCTION ACCESS

STAGE 3: ROADWAY CONSTRUCTION/FINAL GRADING OF CTH TT AND STH 178



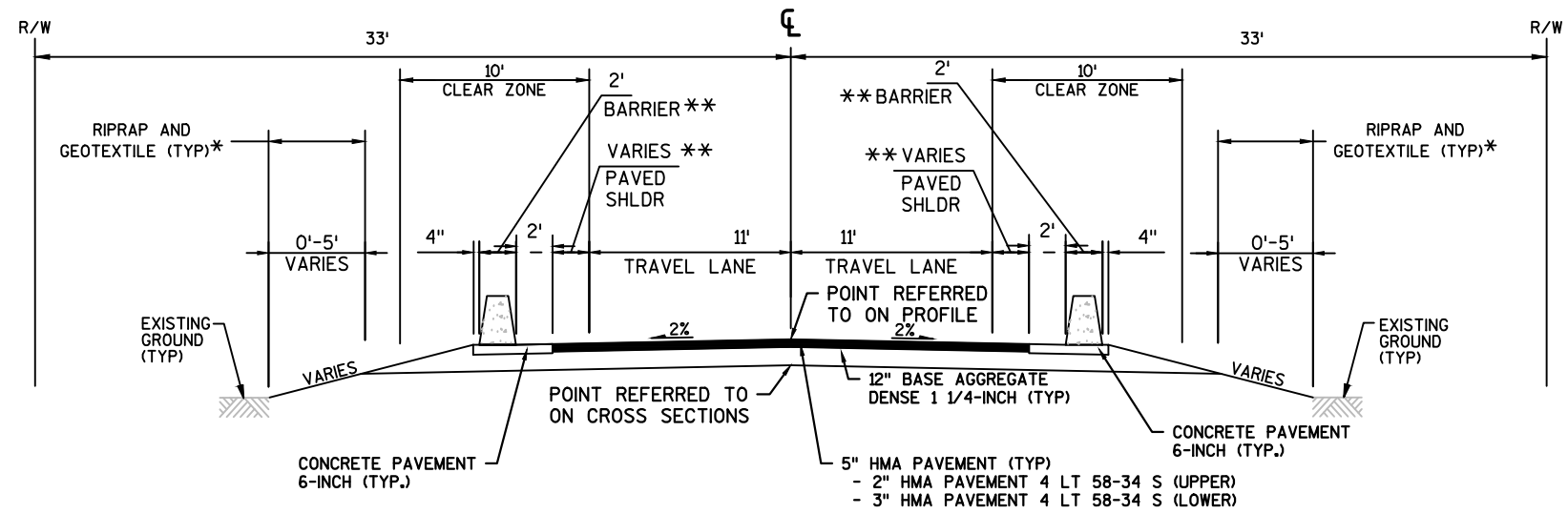
TYPICAL FINISHED SECTION - TEMPORARY CONSTRUCTION ACCESS - STAGE 1

STA 100+00.00 - STA 101+70.00



TYPICAL FINISHED SECTION - STH 178 - STAGE 3

STA 35+91.76 - STA 37+62.46

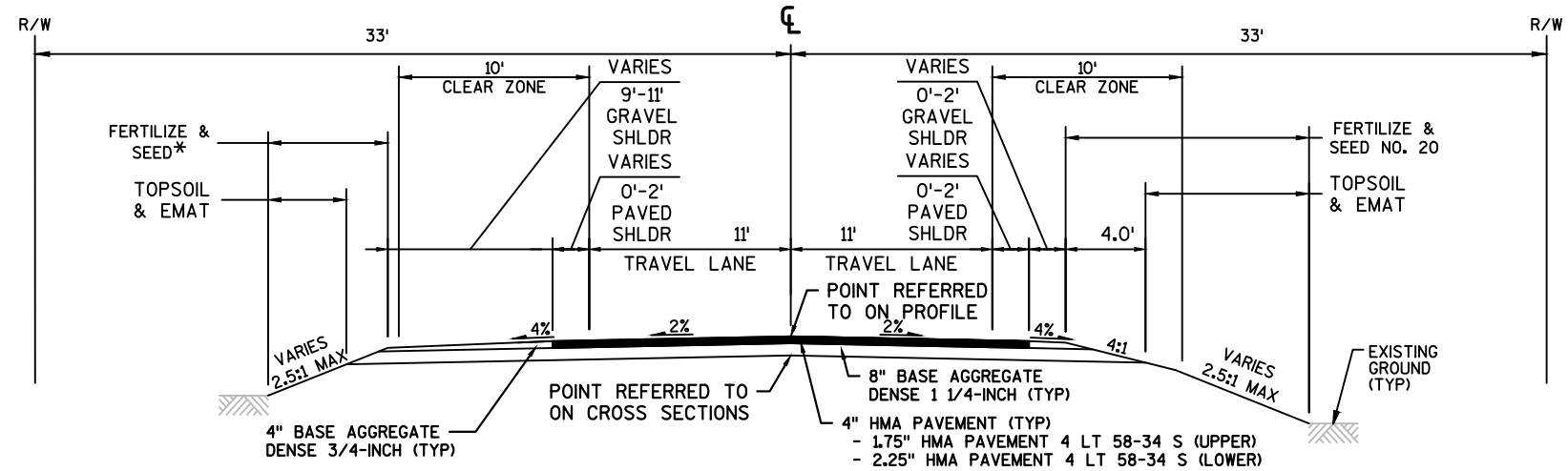


TYPICAL FINISHED SECTION - CTH TT - STAGE 3

STA 7+14.00 - STA 7+57.95

NOTES:

- * REFERENCE EROSION CONTROL PLAN FOR MORE INFORMATION ON E-MAT AND RIPRAP LOCATIONS.
- ** REFERENCE PLAN DETAIL - INTERSECTION - STH 178 AND CTH TT FOR MORE INFORMATION ON CONCRETE BARRIER TYPE AND LAYOUT AND FOR PAVED SHOULDER WIDTHS.

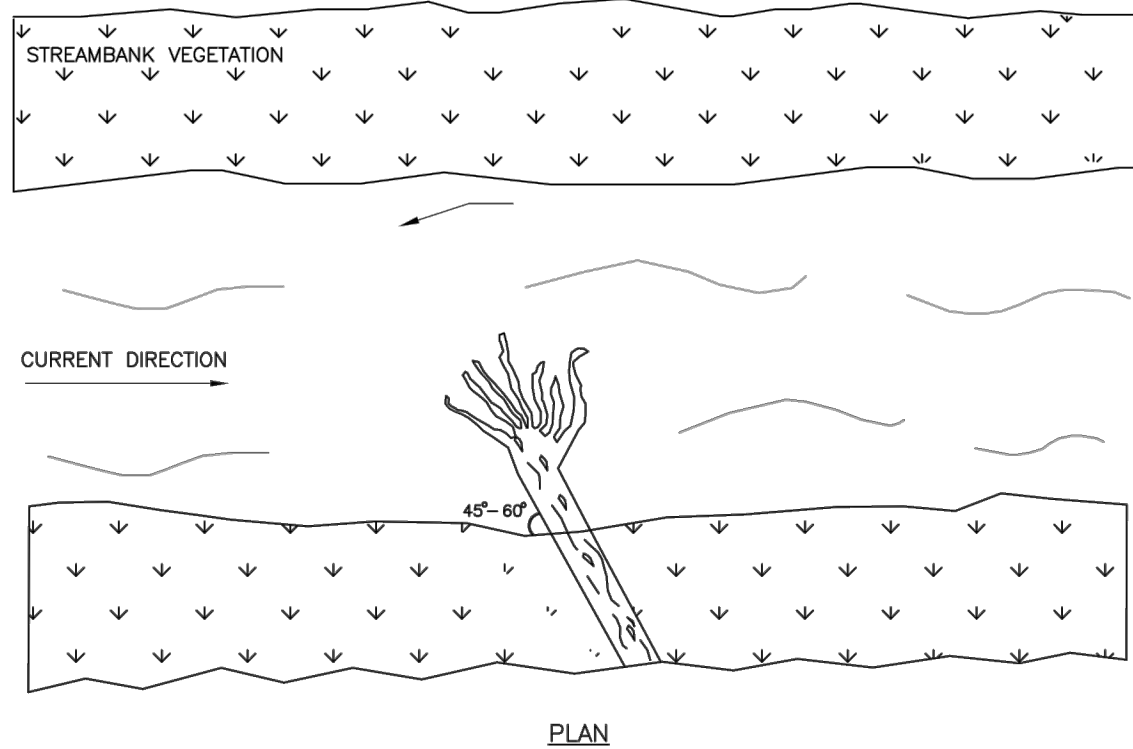


TYPICAL FINISHED SECTION - CTH TT - STAGE 3

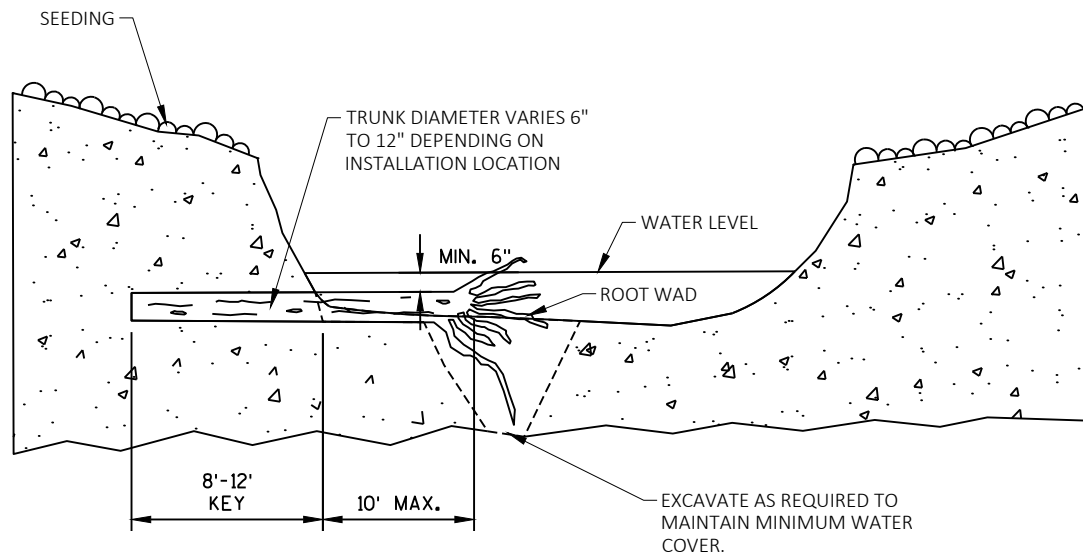
STA 12+58.45 - STA 13+35.00

*REFER TO EROSION CONTROL PLAN TO DETERMINE SEED TYPE BY LOCATION

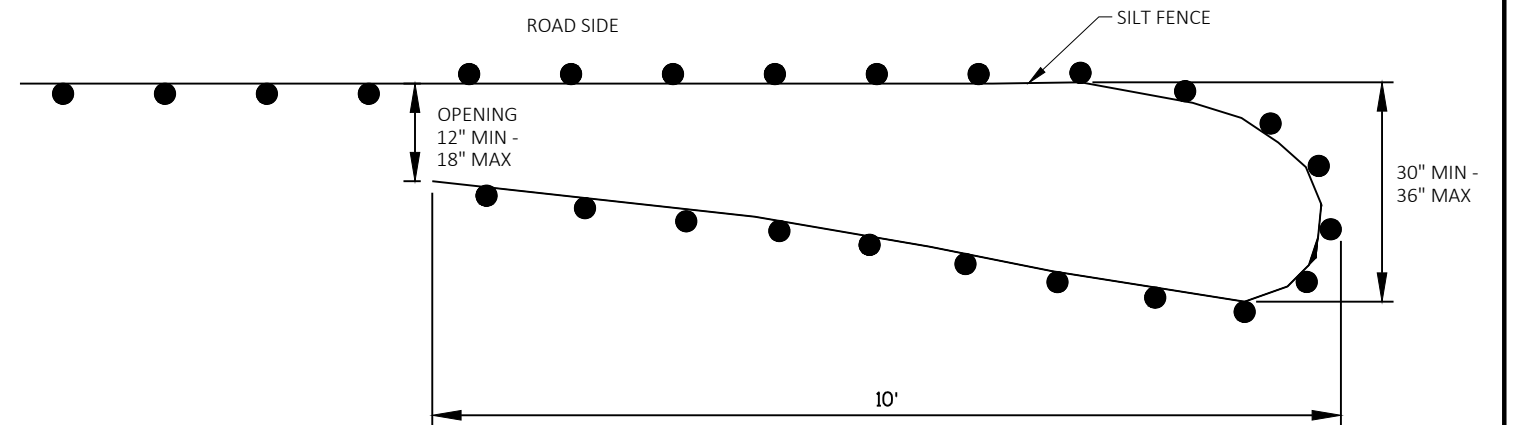
ROOT WAD



PLAN



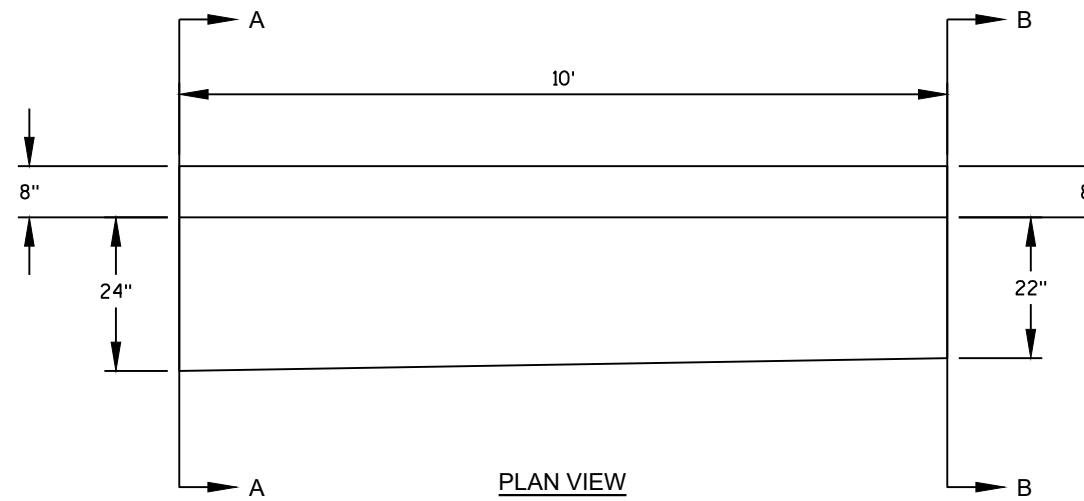
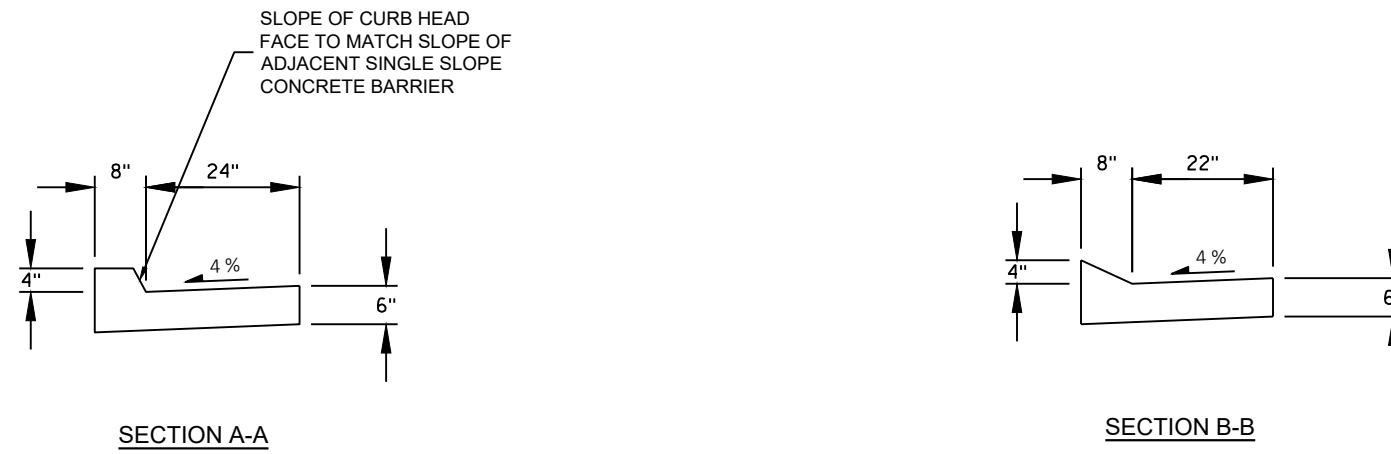
CROSS SECTION



PLAN VIEW

GENERAL NOTES:
 SILT FENCE POSTS FOR THE TURN-AROUND SHOULD BE ON THE OUTSIDE OF THE TURN-AROUND. AND TRENCHED IN ACCORDING TO SILT FENCE REQUIREMENTS.
 SEE PLANS FOR SILT FENCE LOCATIONS. INSTALL TURN-AROUND AT END OF SHOWN FENCING.
 ROADSIDE OFFSETS DEPENDENT ON LOCATION.

TEMPORARY SMALL ANIMAL TURN-AROUND

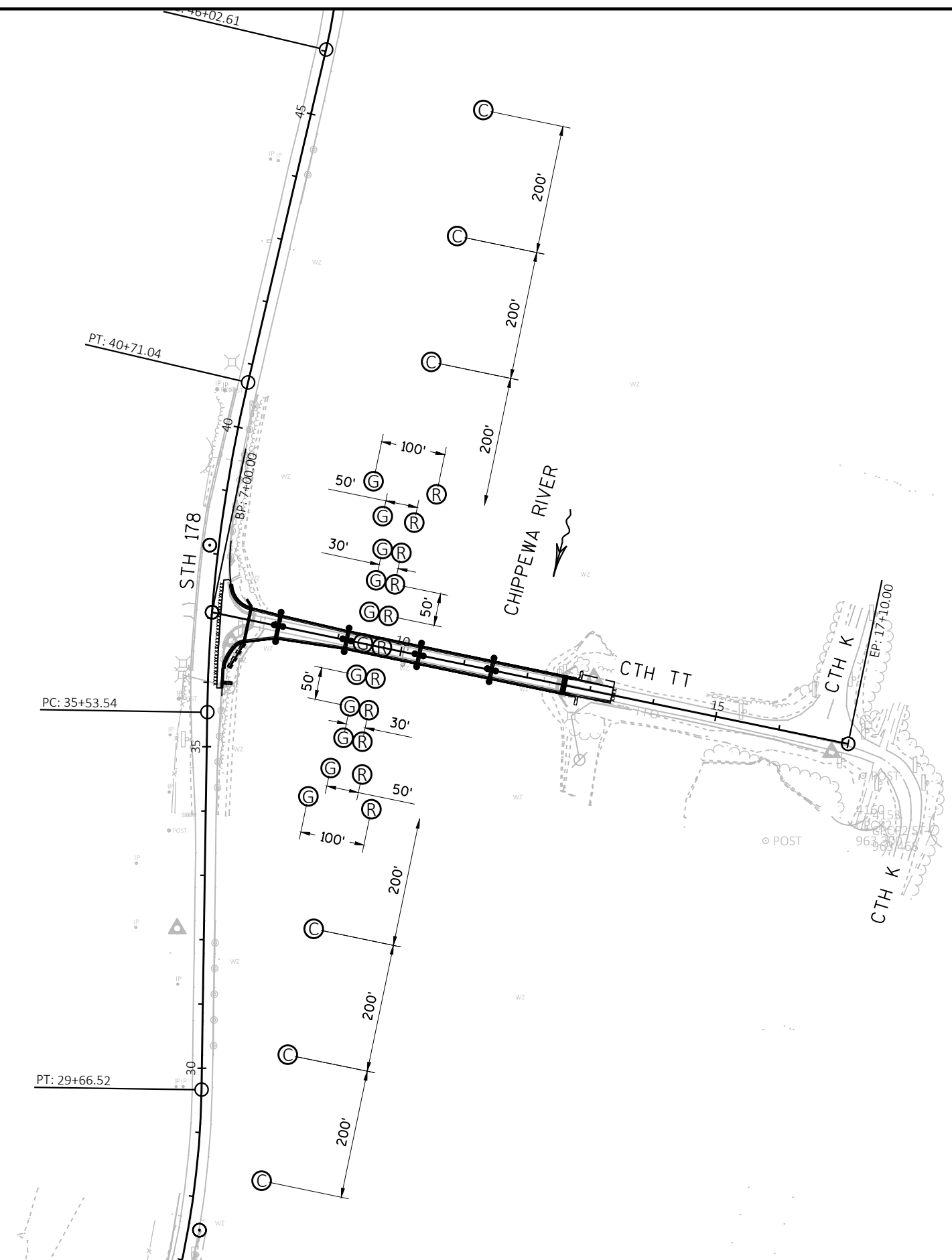


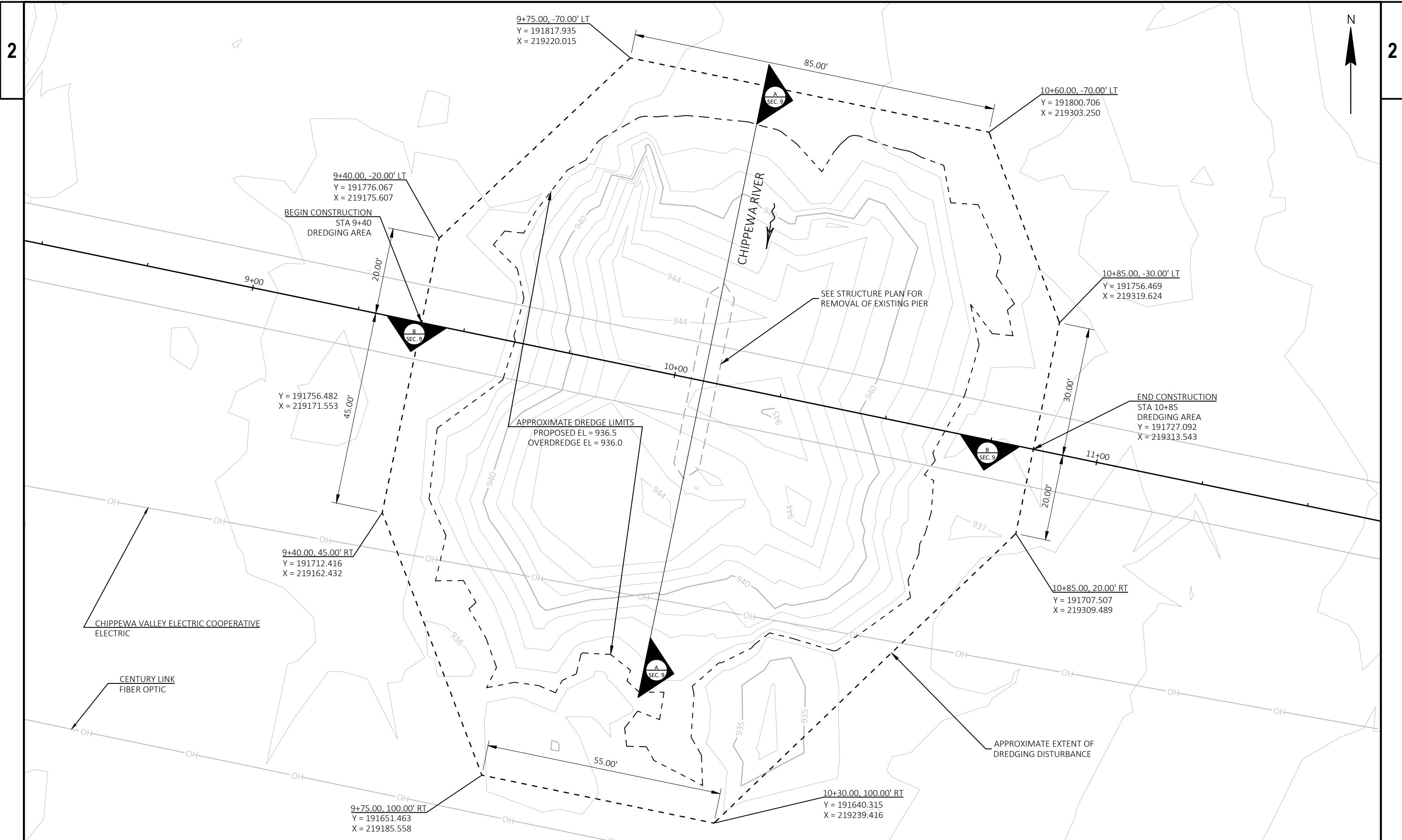
NOTE: PAYMENT FOR CURB & GUTTER
TRANSITION IS INCIDENTAL TO THE
CURB & GUTTER 4-INCH SLOPED
30-INCH TYPE TBT BID ITEM

CURB & GUTTER TRANSITION

LEGEND

- Ⓡ RED BUOY (MARKS RIGHT SIDE OF CHANNEL)
- Ⓞ GREEN BUOY (MARKS LEFT SIDE OF CHANNEL)
- Ⓢ "CONSTRUCTION AHEAD" BUOY
- DANGER BUOY
- Ⓢ DISPLAY "BRIDGE WORK" ON BUOY





PROJECT NO: 8915-00-70

HWY: CTH TT

COUNTY: CHIPPEWA

PLAN DETAIL - DREDGING

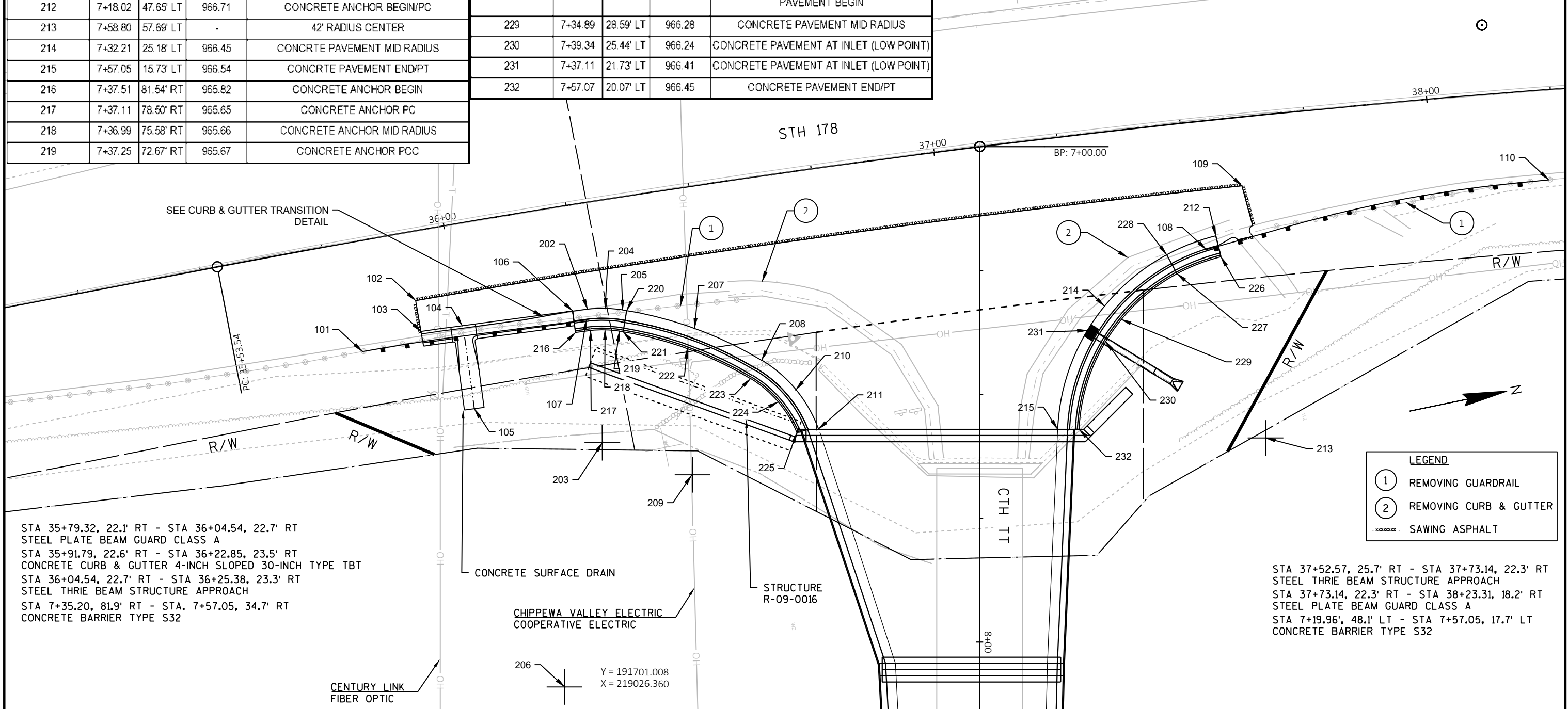
SHEET

E

POINTS REFERENCED TO CTH TT ALIGNMENT				
POINT NUMBER	STATION	OFFSET	ELEVATION	NOTES
202	7+32.82	79.12' RT	965.82	CONCRETE ANCHOR PC
203	7+59.76	76.14' RT	-	27' RADIUS CENTER
204	7+32.66	75.56' RT	965.83	CONCRETE ANCHOR MID RAD
205	7+32.97	72.01' RT	965.84	CONCRETE ANCHOR PCC
206	8+09.06	83.75' RT	-	77' RADIUS CENTER
207	7+36.67	57.51' RT	965.90	CONCRETE PAVEMENT MID RADIUS
208	7+43.12	37.08' RT	966.02	CONCRETE PAVEMENT PCC
209	7+66.24	57.94' RT	-	27' RADIUS CENTER
210	7+49.10	37.08' RT	966.14	CONCRTE PAVEMENT MID RADIUS
211	7+57.05	32.55' RT	966.20	CONCRTE PAVEMENT END/PT
212	7+18.02	47.65' LT	966.71	CONCRETE ANCHOR BEGIN/PC
213	7+58.80	57.69' LT	-	42' RADIUS CENTER
214	7+32.21	25.18' LT	966.45	CONCRTE PAVEMENT MID RADIUS
215	7+57.05	15.73' LT	966.54	CONCRTE PAVEMENT END/PT
216	7+37.51	81.54' RT	965.82	CONCRETE ANCHOR BEGIN
217	7+37.11	78.50' RT	965.65	CONCRETE ANCHOR PC
218	7+36.99	75.58' RT	965.66	CONCRETE ANCHOR MID RADIUS
219	7+37.25	72.67' RT	965.67	CONCRETE ANCHOR PCC

220	7+33.09	71.23' RT	965.85	CONCRETE ANCHOR END/ CONCRETE PAVEMENT BEGIN
221	7+37.37	71.94' RT	965.74	CONCRETE ANCHOR END/ CONCRETE PAVEMENT BEGIN
222	7+40.75	58.99' RT	965.73	CONCRETE PAVEMENT MID RADIUS
223	7+46.83	46.24' RT	965.85	CONCRETE PAVEMENT PCC
224	7+51.56	40.67' RT	965.97	CONCRETE PAVEMENT MID RADIUS
225	7+57.81	36.90' RT	966.11	CONCRETE PAVEMENT END/PT
226	7+22.23	48.69' LT	966.54	CONCRETE ANCHOR BEGIN/PC
227	7+25.65	39.82' LT	966.57	CONCRETE ANCHOR END/ CONCRETE PAVEMENT BEGIN
228	7+21.85	37.74' LT	966.62	CONCRETE ANCHOR END/ CONCRETE PAVEMENT BEGIN
229	7+34.89	28.59' LT	966.28	CONCRETE PAVEMENT MID RADIUS
230	7+39.34	25.44' LT	966.24	CONCRETE PAVEMENT AT INLET (LOW POINT)
231	7+37.11	21.73' LT	966.41	CONCRETE PAVEMENT AT INLET (LOW POINT)
232	7+57.07	20.07' LT	966.45	CONCRETE PAVEMENT END/PT

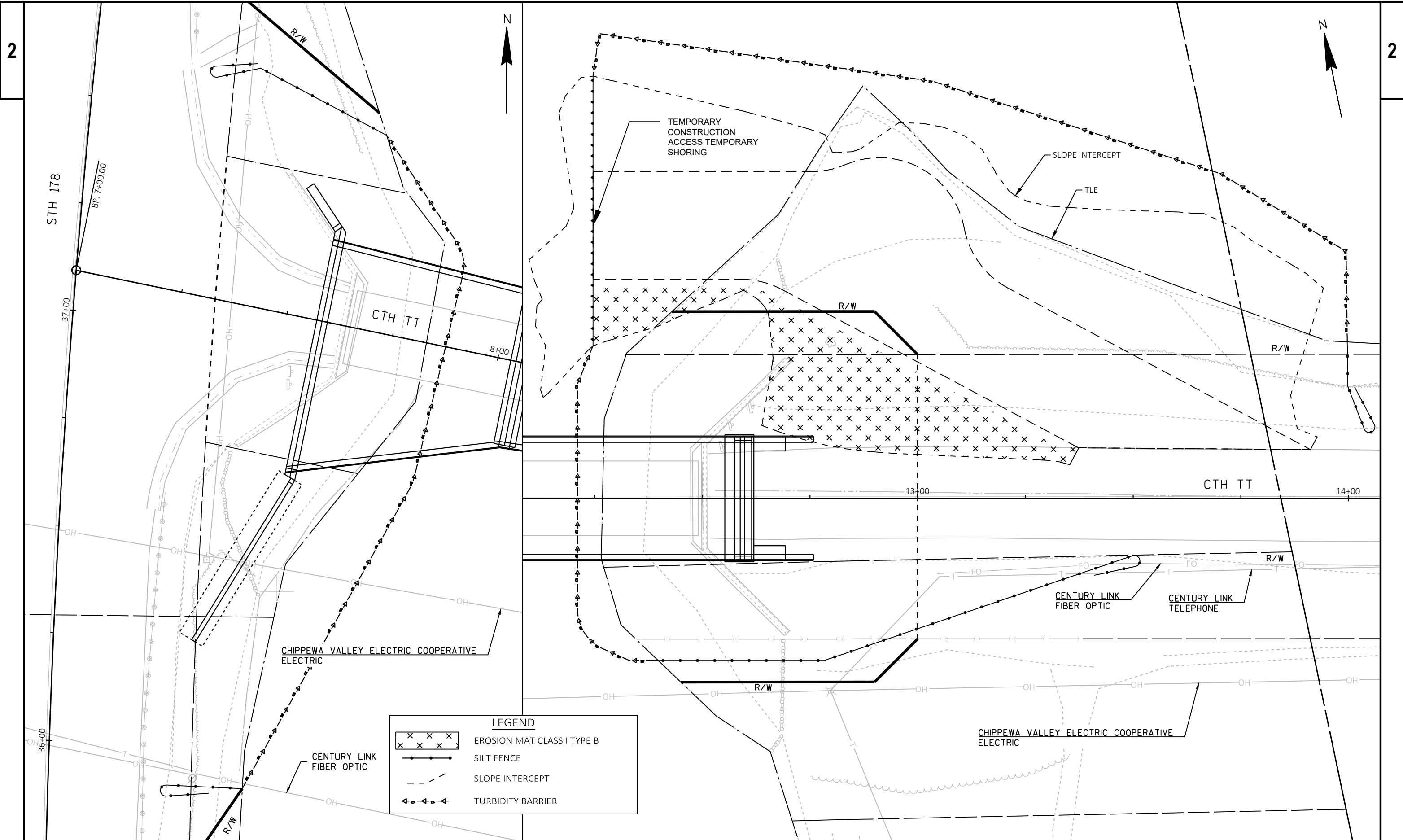
POINTS REFERENCED TO STH 178 ALIGNMENT				
POINT NUMBER	STATION	OFFSET	ELEVATION	NOTES
101	35+79.32	22.14' RT	-	CONNECT TO EXISTING GUARDRAIL, FIELD VERIFY LOCATION
102	35+91.79	13.89' RT	MATCH EX.	SAW CUT LIMIT
103	35+91.79	22.56' RT	965.72	BEGIN CURB & GUTTER FLANGE LINE
104	36+00.42	20.49' RT	965.70	CENTER OF CONCRETE SURFACE DRAIN AT CURB & GUTTER FLANGE LINE
105	35+99.91	37.43' RT	960.17	CENTER OF CONCRETE SURFACE DRAIN
106	36+22.85	23.53' RT	965.82	END CURB & GUTTER FLANGE LINE; BEGIN CONCRETE ANCHOR
107	36+25.37	23.46' RT	-	CONNECT THRIE BEAM TO NEW CONCRETE BARRIER
108	37+52.58	25.89' RT	-	CONNECT THRIE BEAM TO NEW CONCRETE BARRIER
109	37+61.11	13.84' RT	MATCH EX.	SAW CUT LIMIT
110	38+23.31	18.17 RT	-	CONNECT TO EXISTING GUARDRAIL, FIELD VERIFY LOCATION



STA 35+79.32, 22.1' RT - STA 36+04.54, 22.7' RT
 STEEL PLATE BEAM GUARD CLASS A
 STA 35+91.79, 22.6' RT - STA 36+22.85, 23.5' RT
 CONCRETE CURB & GUTTER 4-INCH SLOPED 30-INCH TYPE TBT
 STA 36+04.54, 22.7' RT - STA 36+25.38, 23.3' RT
 STEEL THRIE BEAM STRUCTURE APPROACH
 STA 7+35.20, 81.9' RT - STA. 7+57.05, 34.7' RT
 CONCRETE BARRIER TYPE S32

STA 37+52.57, 25.7' RT - STA 37+73.14, 22.3' RT
 STEEL THRIE BEAM STRUCTURE APPROACH
 STA 37+73.14, 22.3' RT - STA 38+23.31, 18.2' RT
 STEEL PLATE BEAM GUARD CLASS A
 STA 7+19.96', 48.1' LT - STA 7+57.05, 17.7' LT
 CONCRETE BARRIER TYPE S32

Y = 191701.008
 X = 219026.360



LEGEND	
	EROSION MAT CLASS I TYPE B
	SILT FENCE
	SLOPE INTERCEPT
	TURBIDITY BARRIER

PROJECT NO: 8915-00-70

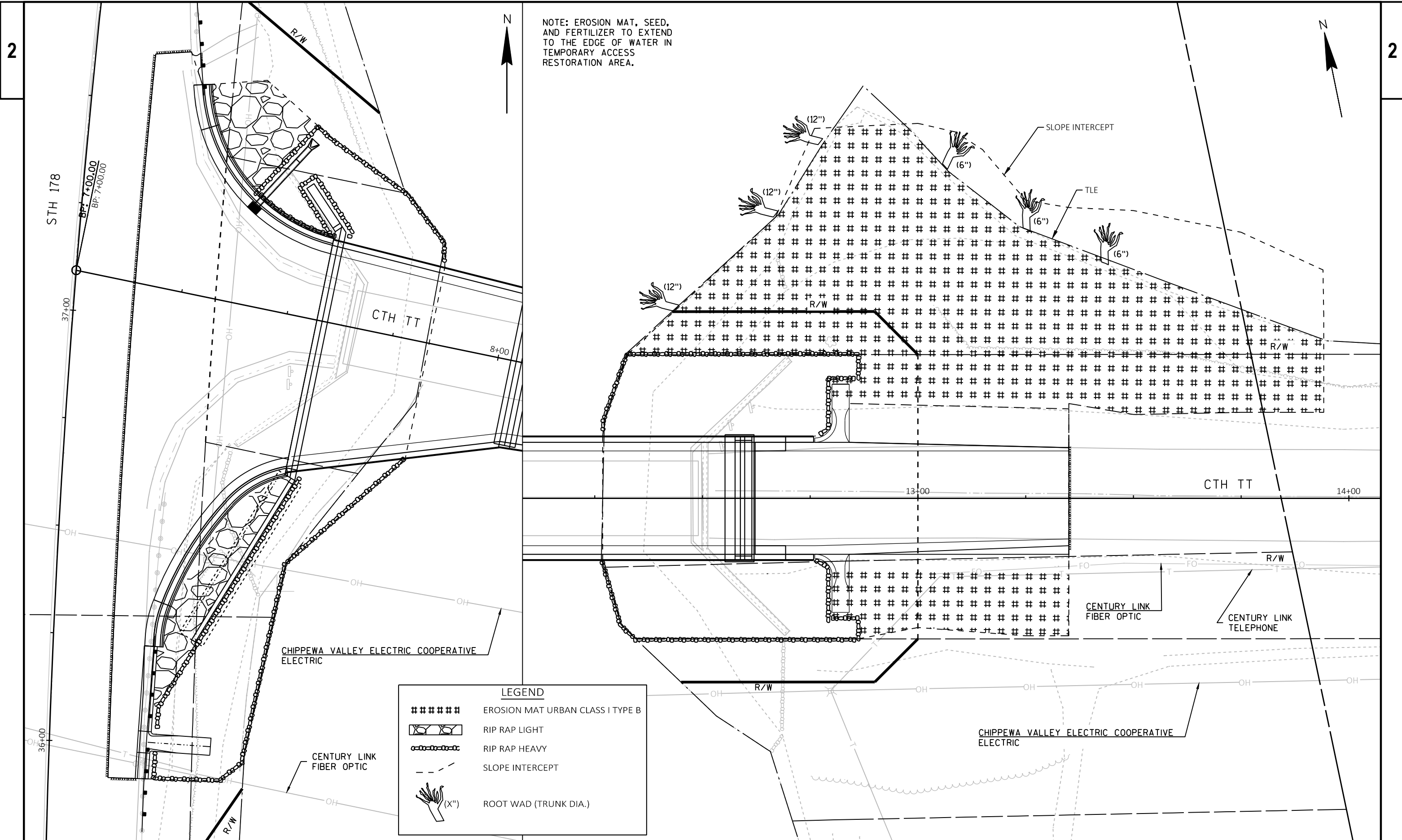
HWY: CTH TT

COUNTY: CHIPPEWA

EROSION CONTROL - STAGE 1

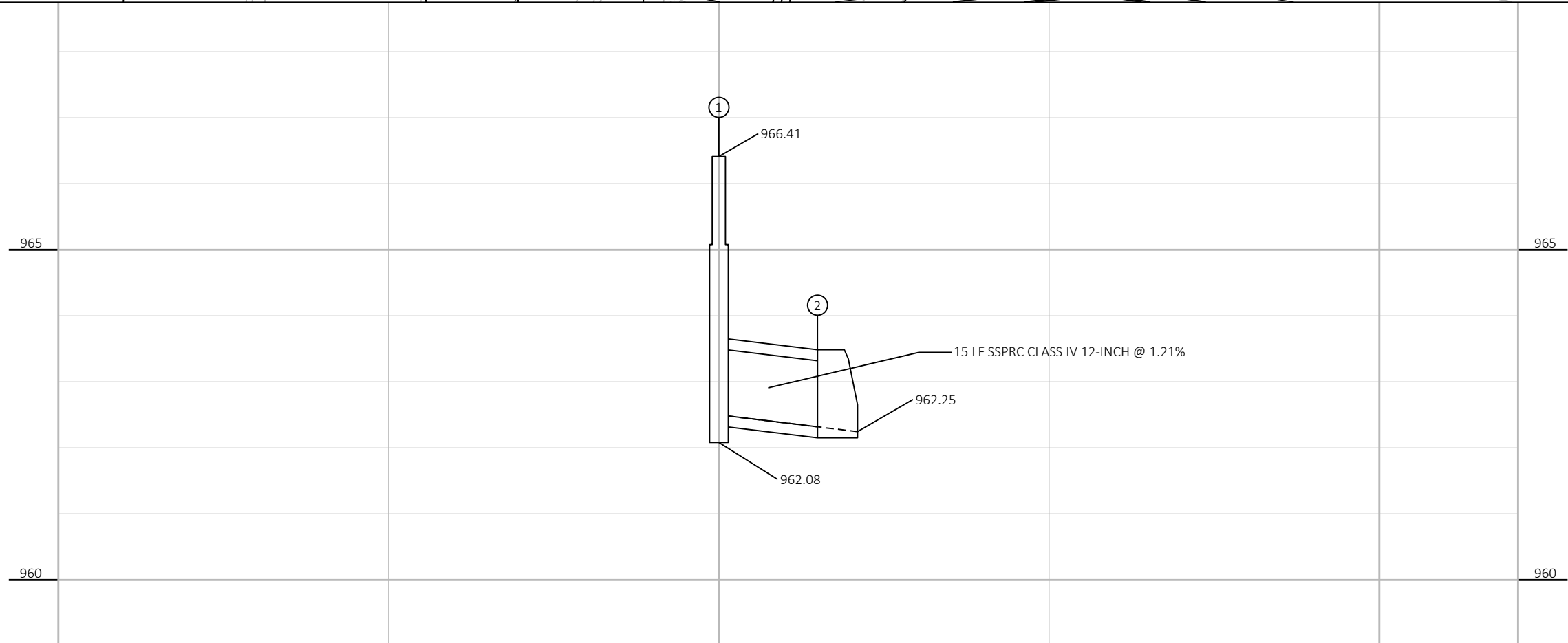
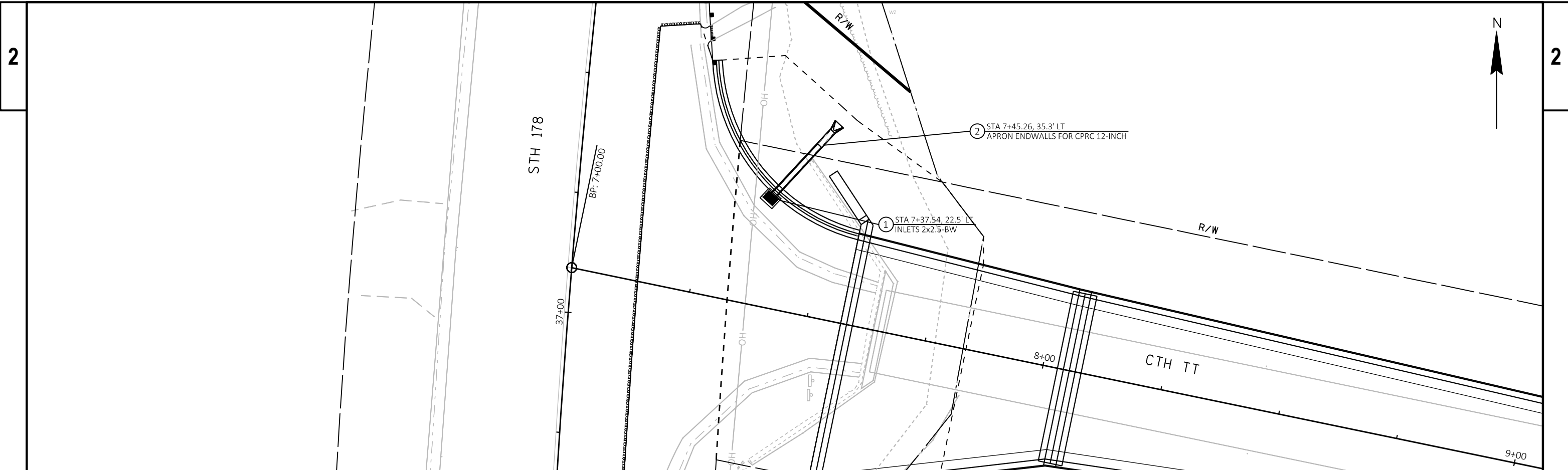
SHEET

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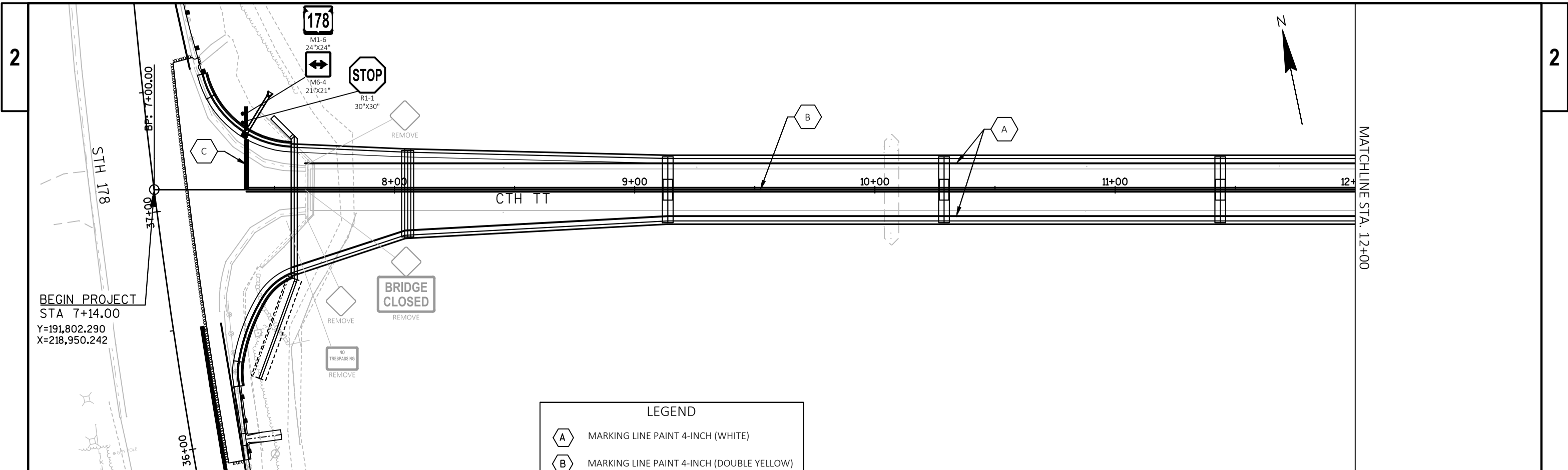


NOTE: EROSION MAT, SEED, AND FERTILIZER TO EXTEND TO THE EDGE OF WATER IN TEMPORARY ACCESS RESTORATION AREA.

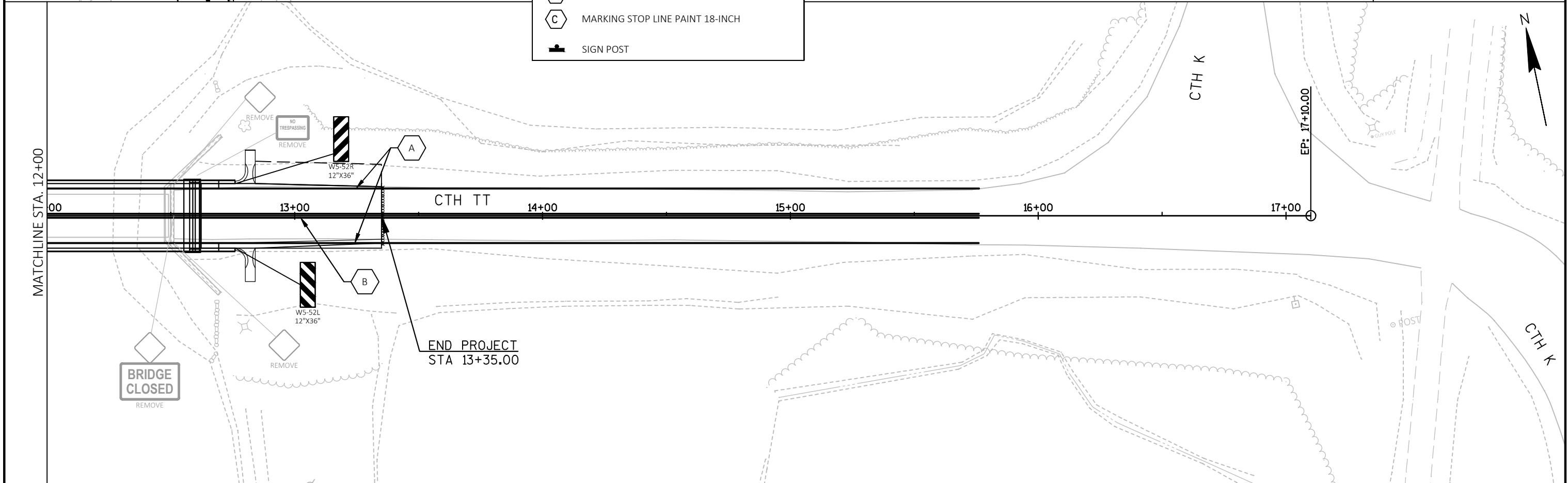
LEGEND	
#####	EROSION MAT URBAN CLASS I TYPE B
	RIP RAP LIGHT
	RIP RAP HEAVY
	SLOPE INTERCEPT
	ROOT WAD (TRUNK DIA.)



PROJECT NO: 8915-00-70	HWY: CTH TT	COUNTY: CHIPPEWA	STORM SEWER	SHEET	E
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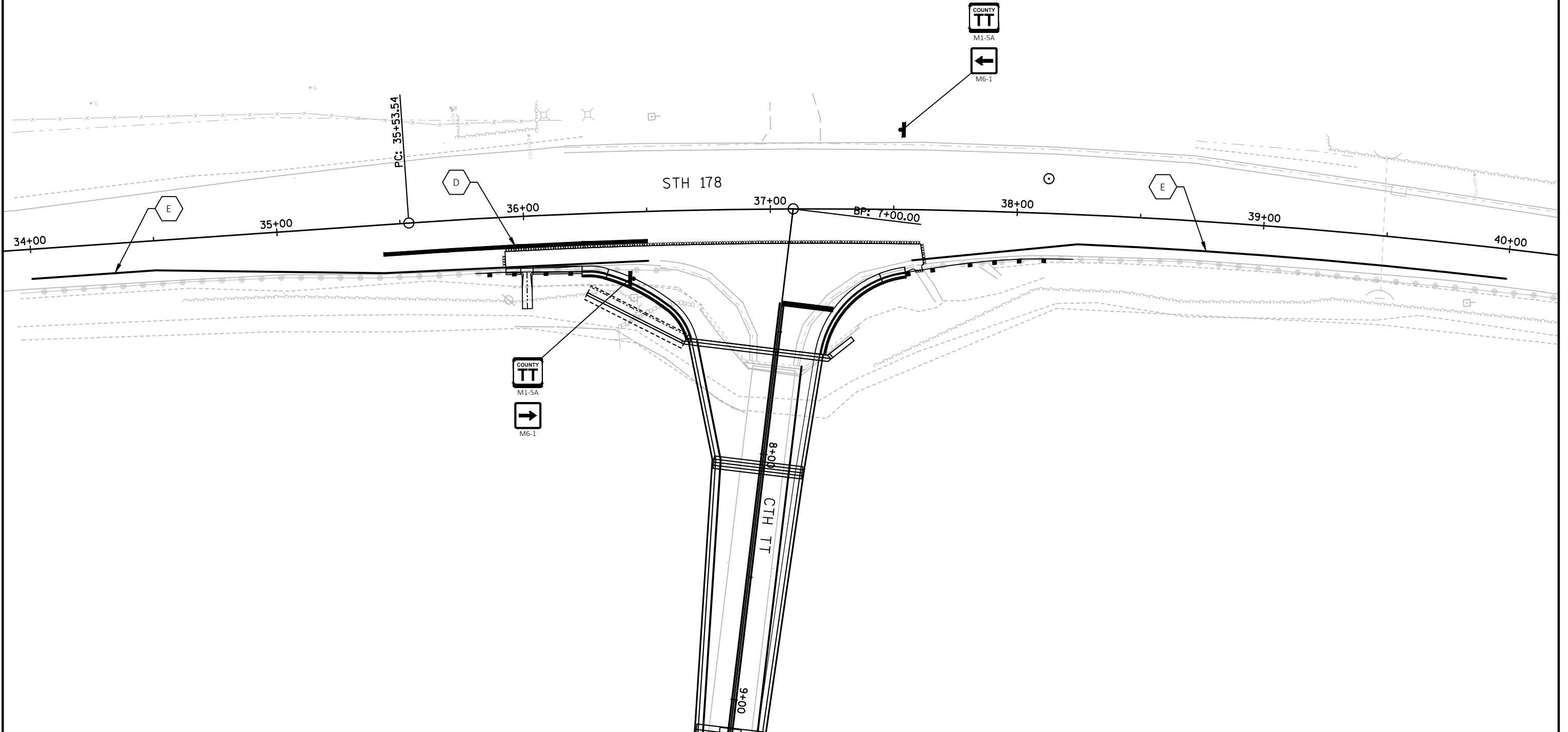
LEGEND	
	MARKING LINE PAINT 4-INCH (WHITE)
	MARKING LINE PAINT 4-INCH (DOUBLE YELLOW)
	MARKING STOP LINE PAINT 18-INCH
	SIGN POST



PROJECT NO: 8915-00-70	HWY: CTH TT	COUNTY: CHIPPEWA	PERMANENT SIGNING AND PAVEMENT MARKING	SHEET	E
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LEGEND

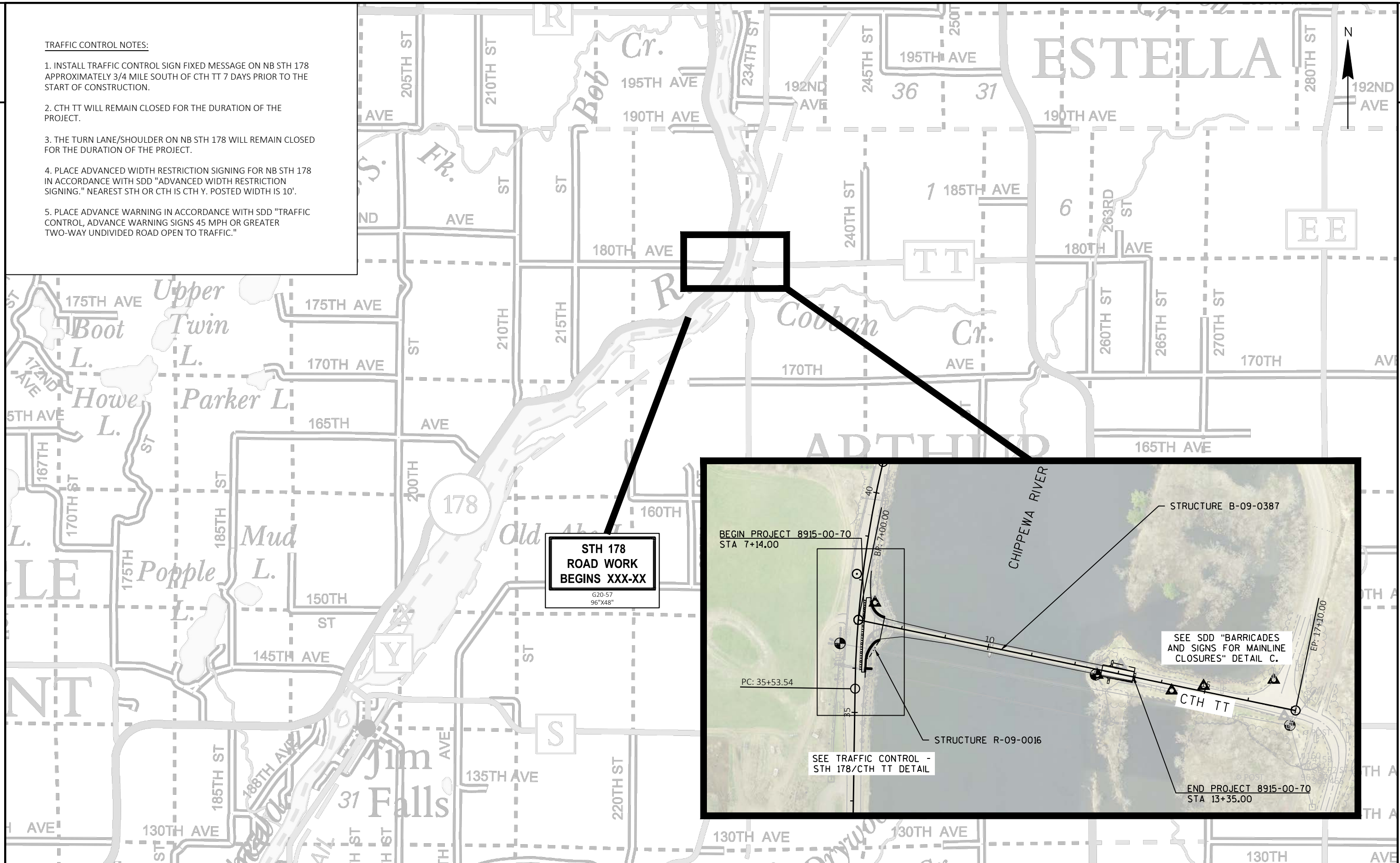
-  MARKING LINE EPOXY 8-INCH (WHITE)
-  MARKING LINE EPOXY 4-INCH (WHITE)
-  SIGN POST



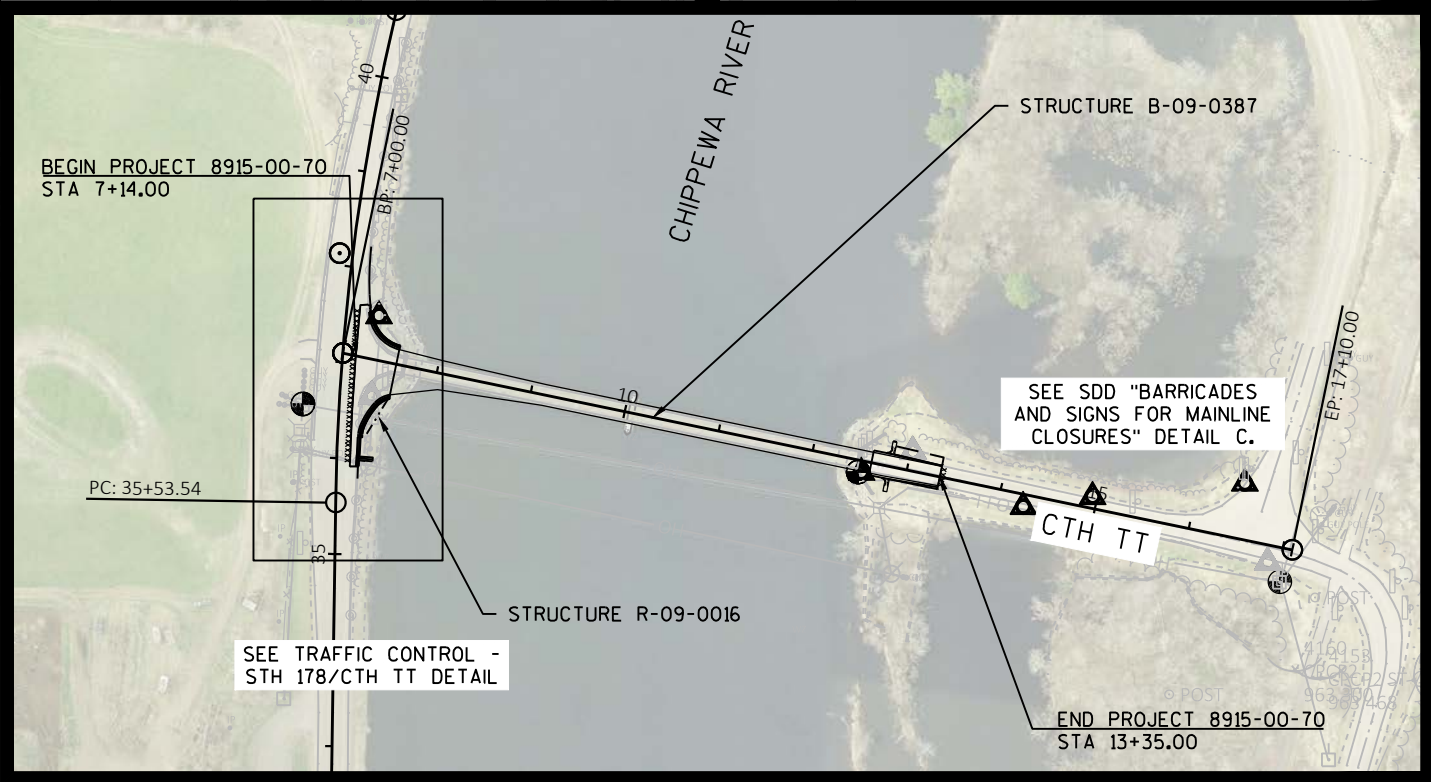
PROJECT NO: 8915-00-70	HWY: CTH TT	COUNTY: CHIPPEWA	PERMANENT SIGNING AND PAVEMENT MARKING	SHEET	E
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TRAFFIC CONTROL NOTES:

- 1. INSTALL TRAFFIC CONTROL SIGN FIXED MESSAGE ON NB STH 178 APPROXIMATELY 3/4 MILE SOUTH OF CTH TT 7 DAYS PRIOR TO THE START OF CONSTRUCTION.
- 2. CTH TT WILL REMAIN CLOSED FOR THE DURATION OF THE PROJECT.
- 3. THE TURN LANE/SHOULDER ON NB STH 178 WILL REMAIN CLOSED FOR THE DURATION OF THE PROJECT.
- 4. PLACE ADVANCED WIDTH RESTRICTION SIGNING FOR NB STH 178 IN ACCORDANCE WITH SDD "ADVANCED WIDTH RESTRICTION SIGNING." NEAREST STH OR CTH IS CTH Y. POSTED WIDTH IS 10'.
- 5. PLACE ADVANCE WARNING IN ACCORDANCE WITH SDD "TRAFFIC CONTROL, ADVANCE WARNING SIGNS 45 MPH OR GREATER TWO-WAY UNDIVIDED ROAD OPEN TO TRAFFIC."



**STH 178
ROAD WORK
BEGINS XXX-XX**
G20-57
96"x48"

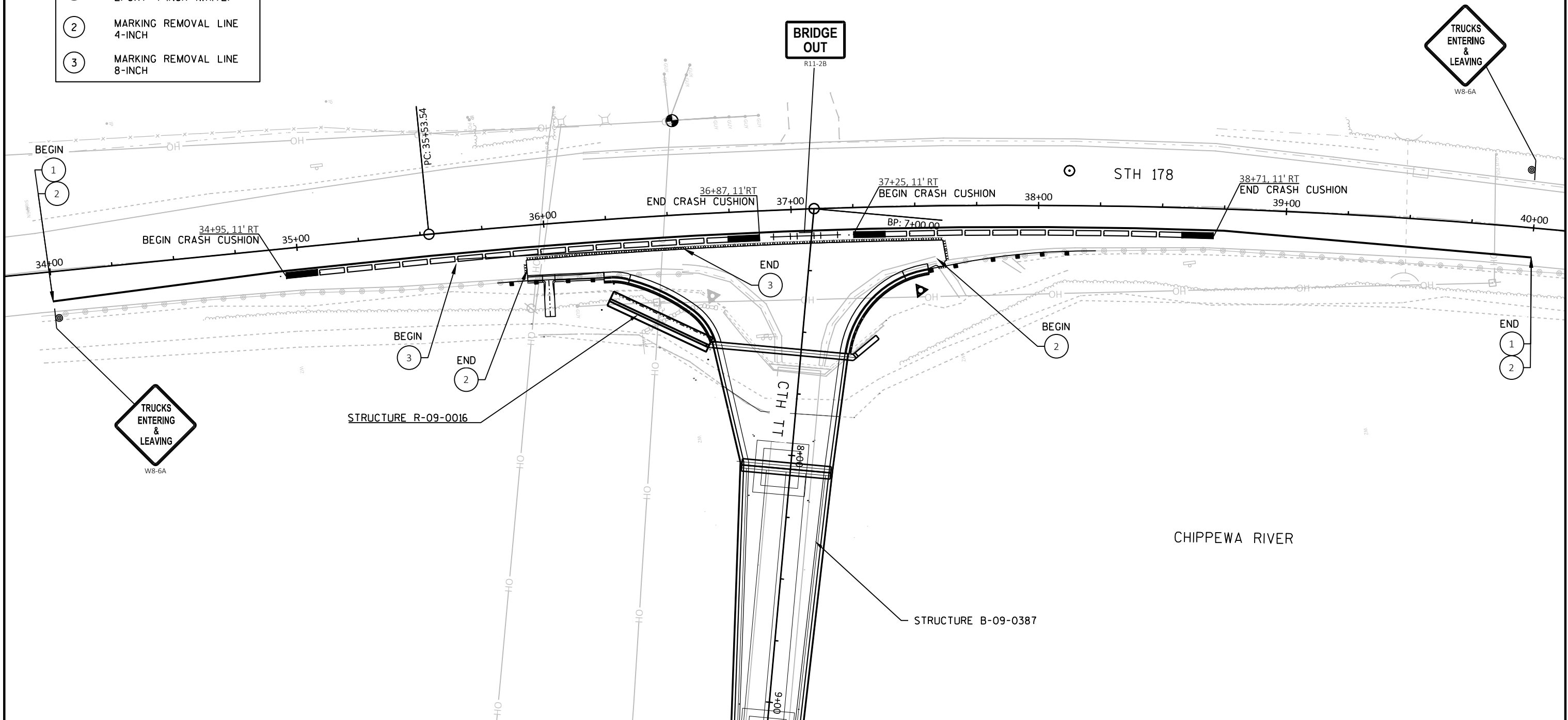




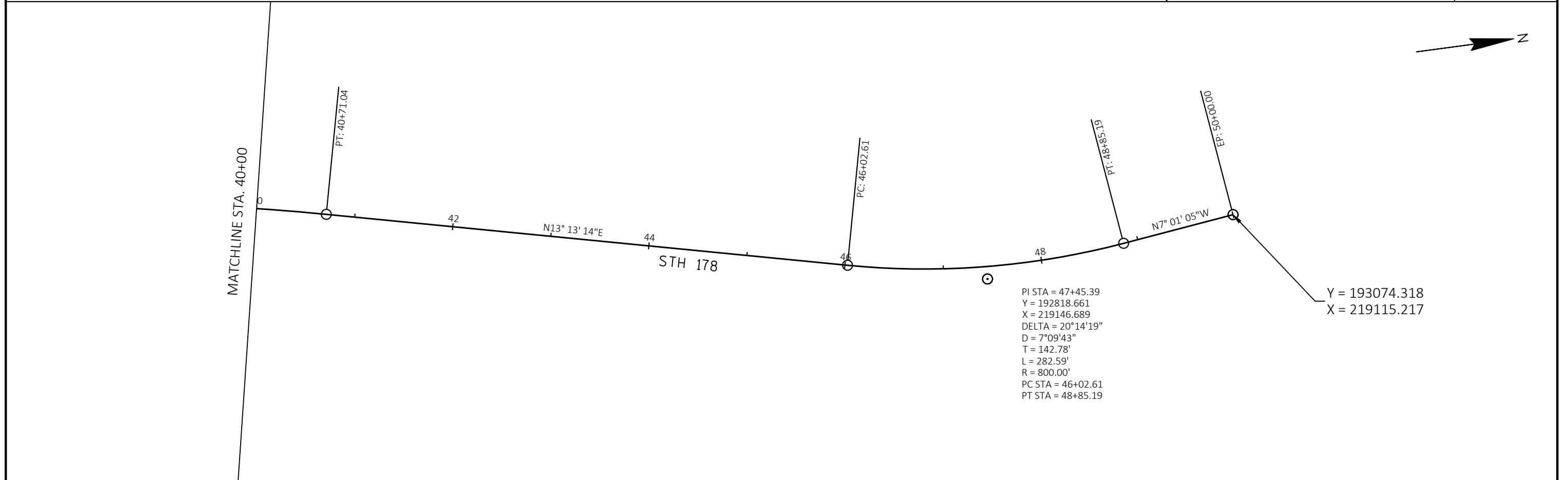
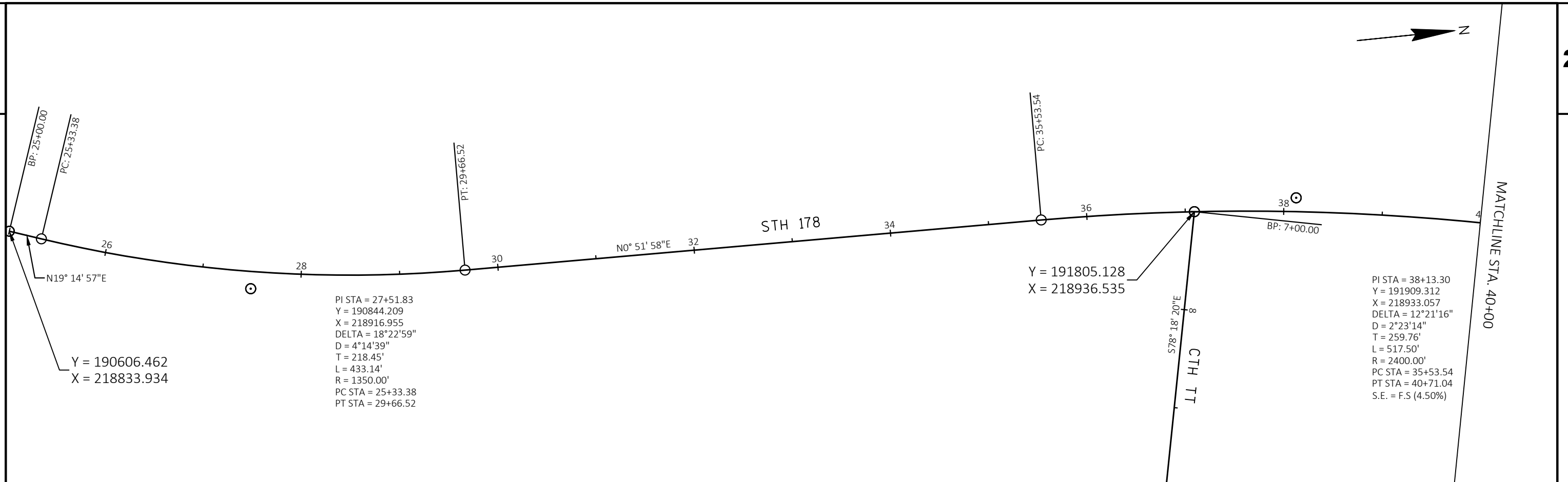
LEGEND

	TYPE III BARRICADE
	TYPE III BARRICADE WITH ATTACHED SIGN
	TRAFFIC CONTROL SIGN ON POST
	CONCRETE BARRIER
	TEMPORARY PRECAST
	CRASH CUSHIONS
	TEMPORARY
	TEMPORARY MARKING LINE EPOXY 4-INCH (WHITE)
	MARKING REMOVAL LINE 4-INCH
	MARKING REMOVAL LINE 8-INCH

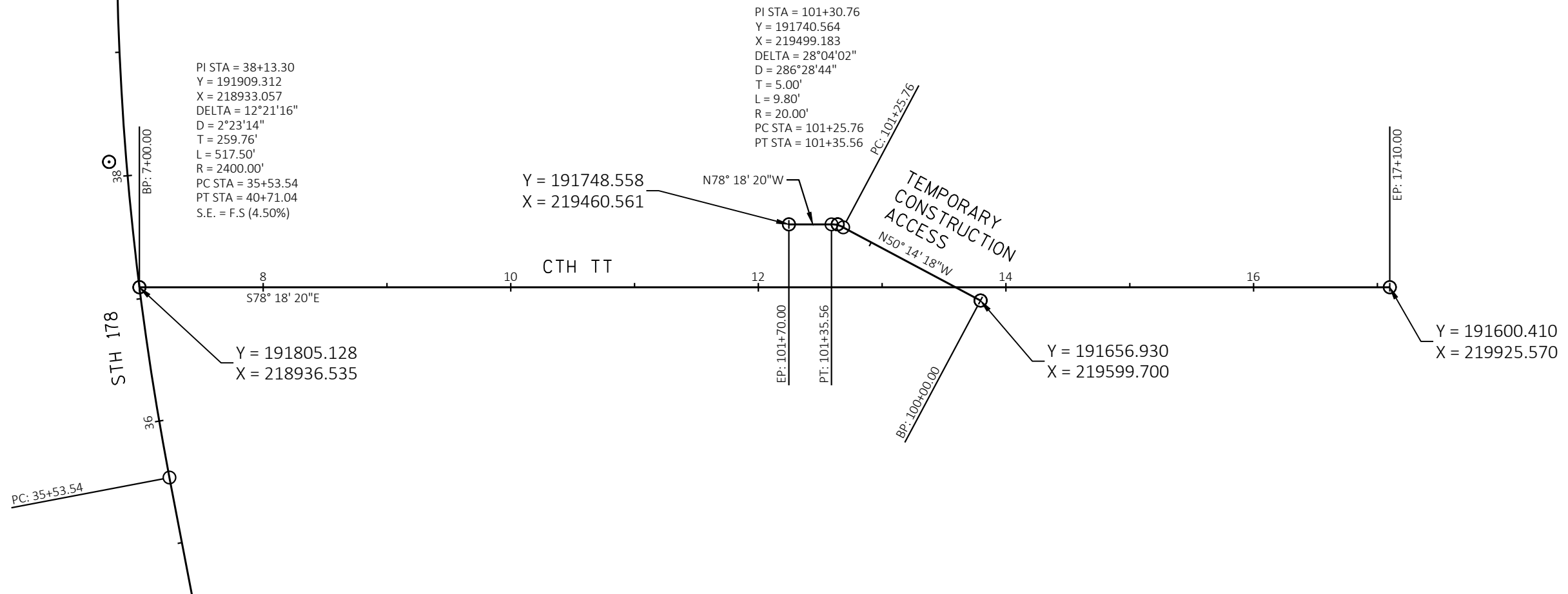
NOTE: BEGIN AND END LOCATIONS OF CRASH CUSHIONS ARE BASED ON AN ASSUMED LENGTH OF 12.5'. FIELD ADJUST BASED ON ACTUAL LENGTH.



PROJECT NO: 8915-00-70	HWY: CTH TT	COUNTY: CHIPPEWA	TRAFFIC CONTROL - STH 178/CTH TT DETAIL	SHEET	E
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PROJECT NO: 8915-00-70	HWY: CTH TT	COUNTY: CHIPPEWA	ALIGNMENT DETAILS	SHEET	E
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Estimate Of Quantities

8915-00-70

Line	Item	Item Description	Unit	Total	Qty
0002	201.0105	Clearing	STA	4.000	4.000
0004	201.0205	Grubbing	STA	2.000	2.000
0006	203.0260	Removing Structure Over Waterway Minimal Debris (structure) 01. B-09-0965	EACH	1.000	1.000
0008	204.0150	Removing Curb & Gutter	LF	129.000	129.000
0010	204.0165	Removing Guardrail	LF	139.000	139.000
0012	205.0100	Excavation Common	CY	2,670.000	2,670.000
0014	206.1000	Excavation for Structures Bridges (structure) 01. B-09-0387	LS	1.000	1.000
0016	206.3000	Excavation for Structures Retaining Walls (structure) 01. R-09-0016	LS	1.000	1.000
0018	206.5000	Cofferdams (structure) 01. B-09-0387	LS	1.000	1.000
0020	208.0100	Borrow	CY	208.000	208.000
0022	210.1500	Backfill Structure Type A	TON	1,180.000	1,180.000
0024	213.0100	Finishing Roadway (project) 01. 8915-00-70	EACH	1.000	1.000
0026	305.0110	Base Aggregate Dense 3/4-Inch	TON	30.000	30.000
0028	305.0120	Base Aggregate Dense 1 1/4-Inch	TON	904.000	904.000
0030	311.0110	Breaker Run	TON	400.000	400.000
0032	415.0060	Concrete Pavement 6-Inch	SY	42.000	42.000
0034	416.1010	Concrete Surface Drains	CY	2.000	2.000
0036	450.4000	HMA Cold Weather Paving	TON	170.000	170.000
0038	455.0605	Tack Coat	GAL	44.000	44.000
0040	460.2000	Incentive Density HMA Pavement	DOL	110.000	110.000
0042	460.5244	HMA Pavement 4 LT 58-34 S	TON	170.000	170.000
0044	465.0315	Asphaltic Flumes	SY	16.000	16.000
0046	502.0100	Concrete Masonry Bridges	CY	1,464.000	1,464.000
0048	502.1100	Concrete Masonry Seal	CY	1,211.000	1,211.000
0050	502.3101	Expansion Device	LF	61.000	61.000
0052	502.3200	Protective Surface Treatment	SY	1,600.000	1,600.000
0054	502.3210	Pigmented Surface Sealer	SY	520.000	520.000
0056	503.0146	Prestressed Girder Type I 45W-Inch	LF	2,265.000	2,265.000
0058	504.0500	Concrete Masonry Retaining Walls	CY	44.000	44.000
0060	505.0400	Bar Steel Reinforcement HS Structures	LB	35,580.000	35,580.000
0062	505.0600	Bar Steel Reinforcement HS Coated Structures	LB	274,810.000	274,810.000
0064	506.2605	Bearing Pads Elastomeric Non-Laminated	EACH	30.000	30.000
0066	506.2610	Bearing Pads Elastomeric Laminated	EACH	5.000	5.000
0068	506.4000	Steel Diaphragms (structure) 01. B-09-0387	EACH	32.000	32.000
0070	511.1100	Temporary Shoring	SF	1,070.000	1,070.000
0072	511.1200	Temporary Shoring (structure) 01. R-09-0016	SF	1,150.000	1,150.000
0074	516.0500	Rubberized Membrane Waterproofing	SY	23.000	23.000
0076	522.1012	Apron Endwalls for Culvert Pipe Reinforced Concrete 12-Inch	EACH	1.000	1.000
0078	550.0500	Pile Points	EACH	125.000	125.000
0080	550.1120	Piling Steel HP 12-Inch X 53 Lb	LF	4,400.000	4,400.000
0082	601.0584	Concrete Curb & Gutter 4-Inch Sloped 30-Inch Type TBT	LF	31.000	31.000
0084	603.1132	Concrete Barrier Type S32	LF	105.000	105.000
0086	603.8000	Concrete Barrier Temporary Precast Delivered	LF	300.000	300.000
0088	603.8125	Concrete Barrier Temporary Precast Installed	LF	300.000	300.000
0090	606.0100	Riprap Light	CY	31.000	31.000
0092	606.0300	Riprap Heavy	CY	580.000	580.000
0094	608.0412	Storm Sewer Pipe Reinforced Concrete Class IV 12-Inch	LF	15.000	15.000
0096	611.0610	Inlet Covers Type BW	EACH	1.000	1.000
0098	611.3225	Inlets 2x2.5-FT	EACH	1.000	1.000

Estimate Of Quantities

8915-00-70

Line	Item	Item Description	Unit	Total	Qty
0100	612.0406	Pipe Underdrain Wrapped 6-Inch	LF	175.000	175.000
0102	614.0150	Anchor Assemblies for Steel Plate Beam Guard	EACH	2.000	2.000
0104	614.0200	Steel Thrie Beam Structure Approach	LF	41.300	41.300
0106	614.0305	Steel Plate Beam Guard Class A	LF	75.000	75.000
0108	614.0905	Crash Cushions Temporary	EACH	4.000	4.000
0110	616.0204	Fence Chain Link 4-FT	LF	44.000	44.000
0112	618.0100	Maintenance And Repair of Haul Roads (project) 01. 8915-00-70	EACH	1.000	1.000
0114	619.1000	Mobilization	EACH	1.000	1.000
0116	624.0100	Water	MGAL	9.500	9.500
0118	625.0100	Topsoil	SY	917.000	917.000
0120	625.0500	Salvaged Topsoil	SY	190.000	190.000
0122	628.1504	Silt Fence	LF	235.000	235.000
0124	628.1520	Silt Fence Maintenance	LF	235.000	235.000
0126	628.1905	Mobilizations Erosion Control	EACH	15.000	15.000
0128	628.1910	Mobilizations Emergency Erosion Control	EACH	15.000	15.000
0130	628.2004	Erosion Mat Class I Type B	SY	190.000	190.000
0132	628.2008	Erosion Mat Urban Class I Type B	SY	917.000	917.000
0134	628.6005	Turbidity Barriers	SY	395.000	395.000
0136	628.7005	Inlet Protection Type A	EACH	1.000	1.000
0138	628.7010	Inlet Protection Type B	EACH	1.000	1.000
0140	628.7570	Rock Bags	EACH	50.000	50.000
0142	629.0210	Fertilizer Type B	CWT	0.900	0.900
0144	630.0120	Seeding Mixture No. 20	LB	8.000	8.000
0146	630.0160	Seeding Mixture No. 60	LB	18.000	18.000
0148	630.0200	Seeding Temporary	LB	6.000	6.000
0150	630.0500	Seed Water	MGAL	27.000	27.000
0152	634.0614	Posts Wood 4x6-Inch X 14-FT	EACH	1.000	1.000
0154	634.0616	Posts Wood 4x6-Inch X 16-FT	EACH	3.000	3.000
0156	634.0814	Posts Tubular Steel 2x2-Inch X 14-FT	EACH	2.000	2.000
0158	637.2210	Signs Type II Reflective H	SF	26.370	26.370
0160	637.2230	Signs Type II Reflective F	SF	6.000	6.000
0162	638.2602	Removing Signs Type II	EACH	10.000	10.000
0164	642.5201	Field Office Type C	EACH	1.000	1.000
0166	643.0300	Traffic Control Drums	DAY	1,000.000	1,000.000
0168	643.0420	Traffic Control Barricades Type III	DAY	6,420.000	6,420.000
0170	643.0705	Traffic Control Warning Lights Type A	DAY	8,560.000	8,560.000
0172	643.0900	Traffic Control Signs	DAY	12,305.000	12,305.000
0174	643.1000	Traffic Control Signs Fixed Message	SF	32.000	32.000
0176	643.5000	Traffic Control	EACH	1.000	1.000
0178	645.0111	Geotextile Type DF Schedule A	SY	68.000	68.000
0180	645.0120	Geotextile Type HR	SY	1,140.000	1,140.000
0182	645.0130	Geotextile Type R	SY	116.000	116.000
0184	645.0140	Geotextile Type SAS	SY	950.000	950.000
0186	646.1005	Marking Line Paint 4-Inch	LF	3,310.000	3,310.000
0188	646.1020	Marking Line Epoxy 4-Inch	LF	468.000	468.000
0190	646.3020	Marking Line Epoxy 8-Inch	LF	151.000	151.000
0192	646.6105	Marking Stop Line Paint 18-Inch	LF	21.000	21.000
0194	646.9000	Marking Removal Line 4-Inch	LF	437.000	437.000
0196	646.9100	Marking Removal Line 8-Inch	LF	151.000	151.000

Estimate Of Quantities

8915-00-70

Line	Item	Item Description	Unit	Total	Qty
0198	649.0120	Temporary Marking Line Epoxy 4-Inch	LF	600.000	600.000
0200	650.4000	Construction Staking Storm Sewer	EACH	2.000	2.000
0202	650.4500	Construction Staking Subgrade	LF	175.000	175.000
0204	650.5000	Construction Staking Base	LF	175.000	175.000
0206	650.6500	Construction Staking Structure Layout (structure) 01. B-09-0387	LS	1.000	1.000
0208	650.6500	Construction Staking Structure Layout (structure) 02. R-09-0016	LS	1.000	1.000
0210	650.7000	Construction Staking Concrete Pavement	LF	92.000	92.000
0212	650.7500	Construction Staking Concrete Barrier	LF	112.000	112.000
0214	650.8500	Construction Staking Electrical Installations (project) 01. 8915-00-70	LS	1.000	1.000
0216	650.9910	Construction Staking Supplemental Control (project) 01. 8915-00-70	LS	1.000	1.000
0218	650.9920	Construction Staking Slope Stakes	LF	175.000	175.000
0220	652.0130	Conduit Rigid Metallic 2 1/2-Inch	LF	108.000	108.000
0222	652.0230	Conduit Rigid Nonmetallic Schedule 40 2 1/2-Inch	LF	3,276.000	3,276.000
0224	653.0164	Pull Boxes Non-Conductive 24x42-Inch	EACH	4.000	4.000
0226	653.0220	Junction Boxes 18x6x6-Inch	EACH	8.000	8.000
0228	653.0222	Junction Boxes 18x12x6-Inch	EACH	8.000	8.000
0230	690.0150	Sawing Asphalt	LF	205.000	205.000
0232	715.0502	Incentive Strength Concrete Structures	DOL	9,048.000	9,048.000
0234	715.0720	Incentive Compressive Strength Concrete Pavement	DOL	500.000	500.000
0236	999.2000.S	Installing and Maintaining Bird Deterrent System (station) 01. 10+00	EACH	1.000	1.000
0238	SPV.0060	Special 01. Bearing Pads Elastomeric Laminated Anchored	EACH	5.000	5.000
0240	SPV.0060	Special 02. Root Wad	EACH	6.000	6.000
0242	SPV.0195	Special 01. Management of Contaminated Sediment	TON	1,768.000	1,768.000

3

CLEARING & GRUBBING

STATION	-	STATION	CATEGORY	201.0105 CLEARING STA	201.0205 GRUBBING STA
100+00	-	101+70	0050	2	---
35+92	-	37+61	0010	2	2
PROJECT TOTAL				4	2

REMOVING CURB & GUTTER

STATION	-	STATION	OFFSET	204.0150 REMOVING CURB & GUTTER LF
7+17	-	7+63	LT	68
7+30	-	7+63	RT	61
PROJECT TOTAL				129

REMOVING GUARDRAIL

STATION	-	STATION	OFFSET	204.0165 REMOVING GUARDRAIL LF
35+79	-	36+59	STH 178, RT	79
37+63	-	38+23	STH 178, RT	60
PROJECT TOTAL				139

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BASE AGGREGATE DENSE

STATION	-	STATION	CATEGORY	LOCATION	305.0110 3/4-INCH TON	305.0120 1 1/4-INCH TON	624.0100 WATER MGAL
7+14	-	7+57	0010	CTH TT, MAINLINE	---	340	3.4
12+60	-	13+35	0010	CTH TT, MAINLINE	---	114	1.2
12+83	-	13+94	0010	CTH TT, SHOULDERS LT	26	---	0.3
12+83	-	13+35	0010	CTH TT, SHOULDERS RT	3	---	0.1
				UNDISTRIBUTED	1	100	1.0
CATEGORY 0010 SUBTOTAL					30	554	6.0
100+00	-	101+70	0050	TEMORARY CONSTRUCTION ACCESS	---	350	3.5
CATEGORY 0050 SUBTOTAL					0	350	3.5
PROJECT TOTAL					30	904	9.5

BREAKER RUN

STATION	-	STATION	CATEGORY	LOCATION	311.0110 BREAKER RUN TON
100+00	-	101+70	0050	TEMORARY CONSTRUCTION ACCESS	400
PROJECT TOTAL					400

CONCRETE PAVEMENT

STATION	-	STATION	LOCATION	415.0060 CONCRETE PAVEMENT 6-INCH SY
7+22	-	7+57	CTH TT, LT	20
7+33	-	7+57	CTH TT, RT	22
PROJECT TOTAL				42

CONCRETE SURFACE DRAINS

STATION	LOCATION	416.1010 CONCRETE SURFACE DRAINS CY
36+00	STH 178, RT	2
PROJECT TOTAL		2

ALL ITEMS ARE CATEGORY 0010 UNLESS NOTED OTHERWISE

DIVISION	FROM/TO STATION	LOCATION	205.0100 COMMON EXCAVATION (1)	SALVAGED/UNUSABLE PAVEMENT MATERIAL (3)	AVAILABLE MATERIAL (4)	UNEXPANDED FILL	EXPANDED FILL (5)	MASS ORDINATE +/- (6)	WASTE	208.0100 BORROW (7)
			CUT (2)				FACTOR 1.25			
DIVISION 1										
STAGE 3	7+15 TO 13+35	CTH TT	409	43	366	84	105	261	261	0
STAGE 3	35+92 TO 37+61	STH 178	148	25	123	27	34	89	89	0
CATEGORY 0010 SUBTOTAL			557	68	489	112	140	350	350	0
STAGE 1	9+00 TO 11+00	DREDGING	948	0	948	0	0	948	948	0
CATEGORY 0040 SUBTOTAL			948	0	948	0	0	948	948	0
STAGE 1	100+00 TO 101+70	TEMPORARY CONSTRUCTION ACCESS	369	0	369	462	577	-208	0	208
STAGE 2	100+00 TO 101+70	TEMPORARY CONSTRUCTION ACCESS REMOVAL	795	0	795	287	359	436	436	0
CATEGORY 0050 SUBTOTAL			1,165	0	1,165	749	936	228	436	208
TOTAL			2,670	68	2,602	860	1,076	1,526	1,734	208
TOTAL COMMON EXC			2,670							

NOTES:

(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) SALVAGED/UNUSABLE PAVEMENT MATERIAL

(4) AVAILABLE MATERIAL = CUT - SALVAGED/UNUSABLE PAVEMENT MATERIAL

(5) EXPANDED FILL FACTOR = 1.25

EXPANDED FILL = (UNEXPANDED FILL) * FILL FACTOR

(6) 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.

(7) QUANTITY INCLUDES ITEM 311.0110 BREAKER RUN FOR TEMPORARY CONSTRUCTION ACCESS.

ALL ITEMS ARE CATEGORY 0010 UNLESS NOTED OTHERWISE

3

ASPHALTIC ITEMS

STATION - STATION	LOCATION	450.4000 HMA COLD WEATHER PAVING	TON	455.0605 TACK COAT	GAL	460.5244 HMA PAVEMENT 4 LT 58-34 S	TON
7+14 - 7+57	STH 178 / CTH TT		122		29		122
12+60 - 13+35	CTH TT		48		15		48
PROJECT TOTAL			170		44		170

ASPHALTIC FLUMES

STATION	LOCATION	465.0315 ASPHALTIC FLUMES	SY
12+80	CTH TT, RT		8
12+80	CTH TT, LT		8
PROJECT TOTAL			16

TEMPORARY SHORING

STATION - STATION	LOCATION	511.1100 TEMPORARY SHORING SF
CATEGORY 0010		
7+30 - 7+65	CTH TT RT	350
CATEGORY 0010 SUBTOTAL		350
CATEGORY 0050		
101+70	TEMP. CONSTRUCTION ACCESS	720
CATEGORY 0050 SUBTOTAL		720
PROJECT TOTAL		1,070

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CONCRETE CURB & GUTTER

STATION - STATION	LOCATION	601.0584 CONCRETE CURB & GUTTER 4-INCH SLOPED 30-INCH TYPE TBT	LF
35+92 - 36+23	RT		31
PROJECT TOTAL			31

CONCRETE BARRIER

STATION - STATION	LOCATION	603.1132 CONCRETE BARRIER TYPE S32	LF	603.8000 CONCRETE BARRIER TEMPORARY PRECAST DELIVERED	LF	603.8125 CONCRETE BARRIER TEMPORARY PRECAST INSTALLED	LF
7+20 - 7+57	CTH TT, LT		51		---		---
7+35 - 7+57	CTH TT, RT		54		---		---
35+16 - 36+66	STH 178, RT		---		150		150
37+48 - 38+48	STH 178, RT		---		100		100
PROJECT TOTAL			105		250		250

STORM SEWER

STRUCTURE NUMBER	STATION	OFFSET	LOCATION	FROM STRUCTURE NUMBER	TO STRUCTURE NUMBER	INVERT ELEVATION	DISCHARGE ELEVATION	RIM OR FLANGE LINE ELEVATION	STRUCTURE LOWEST INVERT ELEVATION	DEPTH IN FEET	522.1012 AE FOR CULV PIPE RC 12-INCH EACH	608.0412 STORM SEWER PIPE CLASS IV 12-INCH LF	611.0610 INLET COVERS TYPE BW EACH	611.3225 INLETS 2X2.5-FT EACH
1.0	7+37.5	22.4	LT	1.0	2.0	962.50	962.32	966.41	962.08	4.33	---	15	1	1
2.0	7+44.8	34.6	LT	2.0	---	---	---	---	---	---	1	---	---	---
PROJECT TOTAL											1	15	1	1

ALL ITEMS ARE CATEGORY 0010 UNLESS NOTED OTHERWISE

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RIPRAP & GEOTEXTILE

STATION	-	STATION	LOCATION	CATEGORY	606.0100 RIPRAP LIGHT CY	645.0130 GEOTEXTILE TYPE R SY	645.0135 GEOTEXTILE TYPE SAS SY
36+09	-	36+65	RT	0010	17	63	---
37+31	-	37+55	RT	0010	14	53	---
100+00	-	101+70	RT/LT	0050	---	---	950
PROJECT TOTAL					31	116	950

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GUARDRAIL

STATION	-	STATION	OFFSET	614.0200 STEEL THRIE BEAM STRUCTURE APPROACH LF	614.0305 STEEL PLATE BEAM GUARD CLASS A LF
35+79	-	36+05	RT	---	25
36+05	-	36+25	RT	20.65	---
37+53	-	37+73	RT	20.65	---
37+73	-	38+23	RT	---	50
PROJECT TOTAL				41.30	75

CRASH CUSHION

STATION*	LOCATION	614.0905 CRASH CUSHION TEMPORARY EACH	BACK WIDTH (FT)	OBJECT MARKING PATTERN	CRASH TEST LEVEL	TRAFFIC DIRECTION	TRAFFIC LOCATION	CRASH CUSHION SHIELDS
34+95	STH 178, RT	1	2	OM-3R (WO5-58R)	TL-3	UNIDIRECTIONAL	LT	TEMP BARRIER
36+87	STH 178, RT	1	2	OM-3L (WO5-58L)	TL-3	UNIDIRECTIONAL	RT	TEMP BARRIER
37+25	STH 178, RT	1	2	OM-3R (WO5-58R)	TL-3	UNIDIRECTIONAL	LT	TEMP BARRIER
38+71	STH 178, RT	1	2	OM-3L (WO5-58L)	TL-3	UNIDIRECTIONAL	RT	TEMP BARRIER
PROJECT TOTAL		4						

* STATION TO BE FIELD VERIFIED - MAY VARY DEPENDING ON PRODUCT USED

ALL ITEMS ARE CATEGORY 0010 UNLESS NOTED OTHERWISE

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LANDSCAPING

STATION	-	STATION	LOCATION	CATEGORY	625.0100 TOPSOIL SY	625.0500 SALVAGED TOPSOIL SY	628.2004 EROSION MAT CLASS I TYPE B SY	628.2008 EROSION MAT URBAN CLASS I TYPE B SY	629.0210 FERTILIZER TYPE B CWT	630.0120 SEEDING MIXTURE NO. 20 LB	630.0160 SEEDING MIXTURE NO. 60 LB	630.0200 SEEDING TEMPORARY LB	630.0500 SEED WATER MGAL	NOTES
12+76	-	13+35	RT	0010	97	---	---	97	0.1	3	---	---	3	(2)
CATEGORY 0010 TOTAL					97	0	0	97	0.1	3	0	0	3	
100+00	-	101+70	LT/RT	0050	---	190	190	---	0.2	---	---	6	5	(1)
100+00	-	101+70	LT/RT	0050	820	---	---	820	0.6	5	18	---	19	(2), (3)
CATEGORY 0050 TOTAL					820	190	190	820	0.8	5	18	6	24	
PROJECT TOTAL					917	190	190	917	0.9	8	18	6	27	

NOTES

- (1) TEMPORARY RESTORATION
- (2) FINAL RESTORATION
- (3) USE SEEDING MIXTURE NO. 60 IN WETLAND AREAS AND SEEDING MIXTURE NO. 20 OUTSIDE OF WETLAND BOUNDARY

EROSION CONTROL

STATION	-	STATION	OFFSET	628.1504 SILT FENCE LF	628.1520 SILT FENCE MAINTENANCE LF	628.6005 TURBIDITY BARRIERS SY	628.7005 INLET PROTECTION TYPE A EACH	628.7010 INLET PROTECTION TYPE B EACH	628.7570 ROCK BAGS EACH
35+94	-	37+47	RT	---	---	125	---	---	---
12+21	-	12+40	RT/LT	---	---	80	---	---	---
12+25	-	14+00	LT	---	---	190	---	---	---
7+22	-	7+64	LT	35	35	---	---	---	---
		7+38	LT	---	---	---	1	1	---
7+43	-	7+62	RT	35	35	---	---	---	---
12+33	-	13+52	RT	130	130	---	---	---	---
14+00	-	14+06	LT	35	35	---	---	---	---
UNDISTRIBUTED			---	---	---	---	---	---	50
PROJECT TOTAL				235	235	395	1	1	50

ALL ITEMS ARE CATEGORY 0010 UNLESS NOTED OTHERWISE

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TRAFFIC CONTROL

LOCATION	DAYS IN SERVICE	643.0300 TRAFFIC CONTROL DRUMS		643.0420 TRAFFIC CONTROL BARRICADES TYPE III		643.0705 TRAFFIC CONTROL WARNING LIGHTS TYPE A		643.0900 TRAFFIC CONTROL SIGNS		643.1000 TRAFFIC CONTROL SIGNS FIXED MESSAGE
		NO.	DAY	NO.	DAY	NO.	DAY	NO.	DAY	SF
STH 178 ADVANCE WARNING SIGNS	535	---	---	---	---	---	---	4	2,140	32
STH 178 ADVANCED WIDTH RESTRICTION SIGNING	535	---	---	---	---	---	---	9	4,815	---
STH 178/CTH TT INTERSECTION	535	---	---	3	1,605	4	2,140	3	1,605	---
CTH TT/CTH K INTERSECTION	535	---	---	9	4,815	12	6,420	7	3,745	---
UNDISTRIBUTED	200	5	1,000	---	---	---	---	---	---	---
PROJECT TOTAL			1,000		6,420		8,560		12,305	32

EROSION CONTROL MOBILIZATION

CATEGORY	628.1905 MOBILIZATIONS EROSION CONTROL	628.1910 MOBILIZATION EMERGENCY EROSION CONTROL
	EACH	EACH
0010	10	10
0050	5	5
PROJECT TOTAL	15	15

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PERMANENT SIGNING

STATION	OFFSET	SIGN CODE	SIGN SIZE			634.0614 POSTS WOOD 4X6-INCH 14-FT	634.0616 POSTS WOOD 4X6-INCH 16-FT	634.0814 POSTS TUBULAR STEEL 2x2-INCH 14-FT	637.2210 SIGNS TYPE II REFLECTIVE H	637.2230 SIGNS TYPE II REFLECTIVE F	638.2602 REMOVING SIGNS TYPE II	DESCRIPTION
			IN	X	IN	EACH	EACH	EACH	SF	SF	EACH	
7+37	LT	M1-6	24	X	24	---	1	---	4.00	---	---	MOUNT ON SAME POST AS M1-6
7+37	LT	M6-4	21	X	21	---	---	---	3.06	---	---	
7+37	LT	R1-1	30	X	30	1	---	---	5.18	---	---	
7+55	RT	---	---	X	---	---	---	---	---	---	1	MOUNT ON SAME POST AS M1-5A
7+65	LT/RT	---	---	X	---	---	---	---	---	---	4	
12+50	LT/RT	---	---	X	---	---	---	---	---	---	4	
12+50	LT	---	---	X	---	---	---	---	---	---	1	MOUNT ON SAME POST AS M1-5A
12+76	LT	W5-52R	12	X	36	---	---	1	---	3.00	---	
12+76	RT	W5-52L	12	X	36	---	---	1	---	3.00	---	
36+15	RT	M1-5A	24	X	24	---	1	---	4.00	---	---	MOUNT ON SAME POST AS M1-5A
36+15	RT	M6-1	21	X	21	---	---	---	3.06	---	---	
37+50	LT	M1-5A	24	X	24	---	1	---	4.00	---	---	
37+50	LT	M6-1	21	X	21	---	---	---	3.06	---	---	MOUNT ON SAME POST AS M1-5A
PROJECT TOTAL						1	3	2	26.37	6.00	10	

BIRD DETERRENT SYSTEM (CAT. 0020)

LOCATION	999.2000.S INSTALLING AND MAINTAINING BIRD DETERRENT SYSTEM
	EACH
B-09-0965	1
PROJECT TOTAL	1

ALL ITEMS ARE CATEGORY 0010 UNLESS NOTED OTHERWISE

PAVEMENT MARKING ITEMS

STATION	- STATION	OFFSET	TYPE	646.1005 MARKING LINE PAINT 4-INCH YELLOW		646.1020 MARKING LINE EPOXY 4-INCH YELLOW		646.3020 MARKING LINE EPOXY 8-INCH WHITE		646.6005 MARKING STOP LINE PAINT 12-INCH		646.9000 MARKING REMOVAL LINE 4-INCH		646.9100 MARKING REMOVAL LINE 8-INCH		649.0120 TEMPORARY MARKING LINE EPOXY 4-INCH YELLOW		WHITE	
				LF	WHITE	LF	WHITE	LF	WHITE	LF	WHITE	LF	WHITE	LF	WHITE	LF	WHITE	LF	WHITE
	7+38	LT	STOP BAR	---	---	---	---	---	---	21	---	---	---	---	---	---	---	---	---
7+38	- 15+76	CTR	CENTERLINE (DOUBLE SOLID)	1,676	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
7+58	- 15+76	RT	EDGE LINE (SOLID)	---	821	---	---	---	---	---	---	---	---	---	---	---	---	---	
7+63	- 15+76	LT	EDGE LINE (SOLID)	---	813	---	---	---	---	---	---	---	---	---	---	---	---	---	
34+00	- 35+92	RT	EDGE LINE (SOLID)	---	---	---	---	---	---	---	---	192	---	---	---	---	---	---	
34+00	- 36+23	RT	EDGE LINE (SOLID)	---	---	---	223	---	---	---	---	---	---	---	---	---	---	---	
34+00	- 40+00	RT	EDGE LINE (SOLID)	---	---	---	---	---	---	---	---	---	---	---	600	---	---	---	
35+64	- 36+23	RT	TURN LANE LINE (SOLID)	---	---	---	---	59	---	---	---	---	59	---	---	---	---	---	
35+64	- 36+56	RT	TURN LANE LINE (SOLID)	---	---	---	---	92	---	---	---	---	92	---	---	---	---	---	
37+55	- 40+00	RT	EDGE LINE (SOLID)	---	---	---	245	---	---	---	---	245	---	---	---	---	---	---	
PROJECT TOTAL				3,310		468		151		21		437		151		600			

CONSTRUCTION STAKING

STATION	- STATION	LOCATION	650.4000 CONSTRUCTION STAKING STORM SEWER		650.4500 CONSTRUCTION STAKING SUBGRADE		650.5000 CONSTRUCTION STAKING BASE		650.7000 CONSTRUCTION STAKING CONCRETE PAVEMENT		650.7500 CONSTRUCTION STAKING CONCRETE BARRIER		650.8500 CONSTRUCTION STAKING ELECTRICAL INSTALLATIONS 8915-00-70		650.9910 CONSTRUCTION STAKING SUPPLEMENTAL CONTROL 8915-00-70		650.9920 CONSTRUCTION STAKING SLOPE STAKES	
			EACH	LF	LF	LF	LF	LF	LS	LS	LF							
---	-	---	PROJECT	---	---	---	---	---	---	---	1	---	1	---	---	---	---	
35+92	- 36+23	STH 178, RT	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
7+14	- 7+57	CTH TT, LT/RT	---	43	---	43	---	---	---	---	---	---	---	---	---	---	43	
7+18	- 7+57	CTH TT, LT	---	---	---	---	---	---	---	54	---	---	---	---	---	---	---	
7+22	- 7+57	CTH TT, LT	---	---	---	---	---	44	---	---	---	---	---	---	---	---	---	
7+33	- 7+57	CTH TT, RT	---	---	---	---	---	---	---	58	---	---	---	---	---	---	---	
7+33	- 7+57	CTH TT, RT	---	---	---	---	---	48	---	---	---	---	---	---	---	---	---	
7+38	- 7+57	CTH TT, LT	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
7+47	- 7+57	CTH TT, LT	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
12+62	- 13+94	CTH TT, LT/RT	---	132	---	132	---	---	---	---	---	---	---	---	---	---	132	
PROJECT TOTAL			2	175	175	92	112	1	1	175								

ALL ITEMS ARE CATEGORY 0010 UNLESS NOTED OTHERWISE

3

CONDUIT

652.0230
CONDUIT RIGID
NONMETALLIC
SCHEDULE 40
2 1/2-INCH

STATION	-	STATION	OFFSET	LOCATION	LF	REMARKS
7+34	-	7+57	LT	CTH TT	75	3 CONDUIT RUNS
7+50	-	7+57	RT	CTH TT	33	3 CONDUIT RUNS
12+76	-	12+91	LT	CTH TT	45	3 CONDUIT RUNS
12+76	-	12+91	RT	CTH TT	45	3 CONDUIT RUNS
PROJECT TOTAL					198	

PULL BOXES

653.0164
PULL BOXES
NON-CONDUCTIVE
24X42-INCH

STATION	OFFSET	LOCATION	EACH
7+33	35.5' LT	CTH TT	1
7+49	48.0' RT	CTH TT	1
12+92	17.1' LT	CTH TT	1
12+92	17.4' RT	CTH TT	1
PROJECT TOTAL			4

SAWNG

690.0150
SAWING
ASPHALT

STATION	-	STATION	OFFSET	LOCATION	LF
35+92	-	37+62	RT	STH 178	183
		13+35	LT/RT	CTH TT	22
PROJECT TOTAL					205

3

ROOT WAD

SPV.0060.02
ROOT
WAD

STATION *	OFFSET	EACH	NOTES
12+45	LT	1	12" DIA.
12+65	LT	1	12" DIA.
12+80	LT	1	12" DIA.
13+05	LT	1	6" DIA.
13+25	LT	1	6" DIA.
13+45	LT	1	6" DIA.

PROJECT TOTAL **6**

* STATION LOCATION IS APPROXIMATE.

DREDGING

SPV.0195.01
MANAGEMENT
OF CONTAMINATED
SEDIMENT

STATION	-	STATION	LOCATION	CATEGORY	TON	REMARKS
9+40	-	10+85	LT/RT	0040	1750	PIER DREDGING *
101+70	-	101+85	LT/RT	0050	18	TEMP ACCESS DREDGING

PROJECT TOTAL **1768**

* SEE EARTHWORK MISCELLANEOUS QUANTITIES TABLE FOR DREDGING PAID AS EXCAVATION COMMON

ALL ITEMS ARE CATEGORY 0010 UNLESS NOTED OTHERWISE

R/W PROJECT NUMBER 8915-01-01	SHEET NUMBER 4.01	TOTAL SHEETS 2
CONSTRUCTION PROJECT NUMBER 8915-00-70		
PLAT OF RIGHT OF WAY REQUIRED FOR STH 178 - CTH K Chippewa River Bridge B-09-0387		
CTH TT	CHIPPEWA	

NOTES:

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

ALL NEW RIGHT-OF-WAY MONUMENTS WILL BE TYPE 2 (TYPICALLY 3/4"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.

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

A TEMPORARY LIMITED EASEMENT (T.E) 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 (T.E)s ON THIS PLAT EXPIRE AT THE COMPLETION OF THE CONSTRUCTION PROJECT FOR WHICH THIS INSTRUMENT IS GIVEN.

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.

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

CONVENTIONAL SYMBOLS

SECTION LINE	-----	PARCEL NUMBER	(25)	UTILITY NUMBER	(40)
QUARTER LINE	-----	SECTION CORNER	(13 24 16 15)	R/W MONUMENT	●
SIXTEENTH LINE	-----			NON MONUMENTED R/W POINT	○
NEW REFERENCE LINE	-----	R/W BOUNDARY POINT	(300)	FOUND IRON PIN	IP
NEW R/W LINE	-----	TL E BOUNDARY POINT	(501)	VALVE (GAS, WATER, ETC.)	(TYPE)
EXISTING R/W LINE	-----			SIGN	SIGN
PROPERTY LINE	-----			OFF PREMISE SIGN	(SIGN)
LOT, TIE, AND OTHER MINOR LINES	-----				
SLOPE INTERCEPT	-----				
CORPORATE LIMITS	-----				
UNDERGROUND FACILITY (COMMUNICATIONS, ELECTRIC, ETC.)	-----				
FEE ACQUISITION AREA (HATCHING VARIES BY OWNER)	-----				
TEMP. LIMITED EASEMENT AREA	-----	ACCESS CONTROLLED BY ACQUISITION	-----		
EASEMENT AREA (HIGHWAY, PERMANENT LIMITED, OR RESTRICTED DEVELOPMENT)	-----	NO ACCESS (BY STATUTORY AUTHORITY)	-----		
TRANSMISSION STRUCTURES	-----	ACCESS RESTRICTED (BY PREVIOUS PROJECT OR CONTROL)	-----		
BUILDING	-----	NO ACCESS (NEW HIGHWAY)	-----		
BUILDING (TO BE REMOVED)	-----	NATIONAL GEODETIC SURVEY MONUMENT	-----		
BRIDGE	-----	SIXTEENTH CORNER MONUMENT	-----		
		PARALLEL OFFSETS	-----		

CONVENTIONAL UTILITY SYMBOLS

WATER	-----	NON COMPENSABLE	-----
GAS	-----	COMPENSABLE	-----
TELEPHONE	-----		
OVERHEAD TRANSMISSION LINES	-----		
ELECTRIC	-----		
CABLE TELEVISION	-----		
FIBER OPTIC	-----		
SANITARY SEWER	-----		
STORM SEWER	-----		
ELECTRIC TOWER	-----		
POWER POLE	-----		
TELEPHONE POLE	-----		
TELEPHONE PEDESTAL	-----		

CURVE DATA ABBREVIATIONS

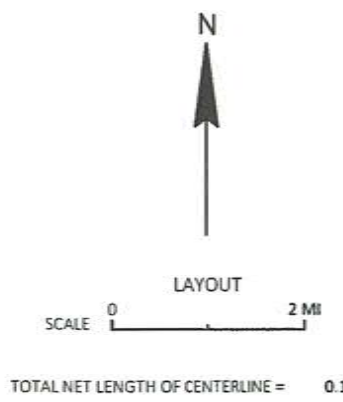
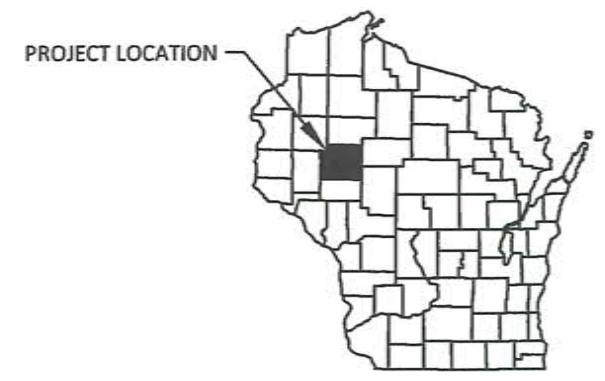
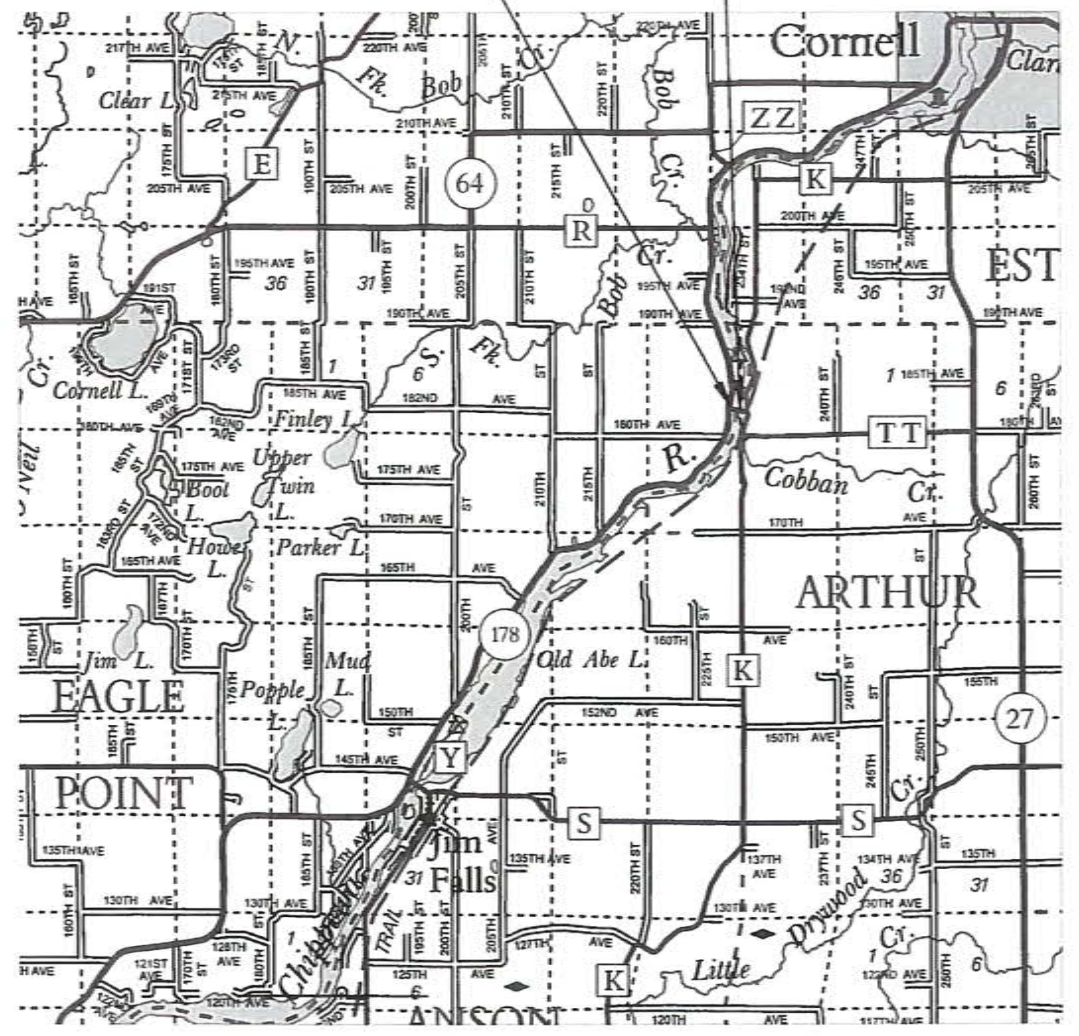
LONG CHORD	LCH
LONG CHORD BEARING	LCB
RADIUS	R
DEGREE OF CURVE	D
CENTRAL ANGLE	Δ/DELTA
LENGTH OF CURVE	L
TANGENT	T
DIRECTION AHEAD	DA
DIRECTION BACK	DB

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

BEGIN RELOCATION ORDER
STA 7+25.03
1575.94' NORTH AND 649.18' WEST OF THE SOUTHEAST CORNER OF SECTION 3, T30N, R7W.

END RELOCATION ORDER
STA 14+00.00
1439.13' NORTH AND 11.78' EAST OF THE SOUTHEAST CORNER OF SECTION 3, T30N, R7W.



ORIGINAL PLAT PREPARED BY
AECOM

DONALD J. BUZA
S-2338
CUSTER
WI

Donald J. Buza
DONALD J. BUZA, PLS-2338

DATE 10/13/2020

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

CHIPPEWA COUNTY

APPROVED FOR THE HIGHWAY DEPARTMENT
DATE 10-26-2020 *Emily*
(Signature)

NOTES: PROJECT REFERENCE LINE AND RIGHT-OF-WAY CENTERLINE ARE NOT THE SAME LINE.
 EXISTING RIGHT-OF-WAY FOR CTH TT ESTABLISHED FROM STATE PROJECT 8915-01-70.
 EXISTING RIGHT-OF-WAY FOR STH 178 ESTABLISHED FROM STATE PROJECT 8600-02-2L

Point	Station	Offset
500	12+67.66	65.89'
501	12+87.29	95.74'
502	13+07.06	75.86'
503	13+23.55	63.05'
504	13+94.87	36.56'
505	14+00.00	36.27'
506	14+00.00	33.41'

FROM-TO	BEARING	DISTANCE
419-500	N59°17'29"E	33.47'
500-501	N45°00'58"E	35.72'
501-502	S33°09'44"E	28.04'
502-503	S40°28'08"E	20.87'
503-504	S57°55'30"E	76.08'
504-505	S75°04'12"E	5.14'
505-506	S11°41'40"W	2.85'
506-422	N78°20'25"W	100.00'

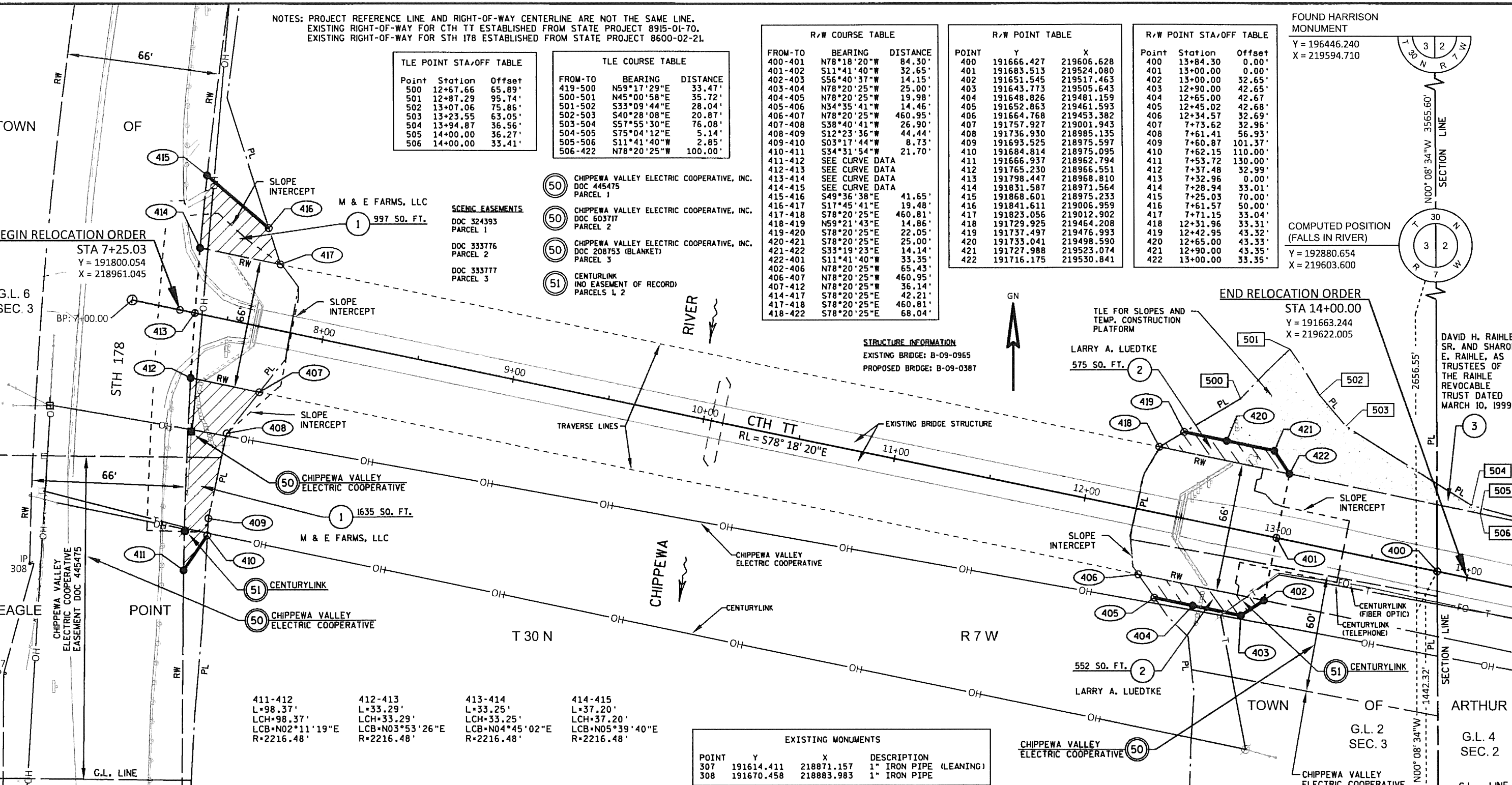
FROM-TO	BEARING	DISTANCE
400-401	N78°18'20"W	84.30'
401-402	S11°41'40"W	32.65'
402-403	S56°40'37"W	14.15'
403-404	N78°20'25"W	25.00'
404-405	N78°20'25"W	19.98'
405-406	N34°35'41"W	14.46'
406-407	N78°20'25"W	460.95'
407-408	S38°40'41"W	26.90'
408-409	S12°23'36"W	44.44'
409-410	S03°17'44"W	8.73'
410-411	S34°31'54"W	21.70'
411-412	SEE CURVE DATA	
412-413	SEE CURVE DATA	
413-414	SEE CURVE DATA	
414-415	SEE CURVE DATA	
415-416	S49°36'38"E	41.65'
416-417	S17°45'41"E	19.48'
417-418	S78°20'25"E	460.81'
418-419	N58°21'43"E	14.86'
419-420	S78°20'25"E	22.05'
420-421	S78°20'25"E	25.00'
421-422	S33°19'23"E	14.14'
422-401	S11°41'40"W	33.35'
402-406	N78°20'25"W	65.43'
406-407	N78°20'25"W	460.95'
407-412	N78°20'25"W	36.14'
414-417	S78°20'25"E	42.21'
417-418	S78°20'25"E	460.81'
418-422	S78°20'25"E	68.04'

POINT	Y	X
400	191666.427	219606.628
401	191683.513	219524.080
402	191651.545	219517.463
403	191643.773	219505.643
404	191648.826	219481.159
405	191652.863	219461.593
406	191664.768	219453.382
407	191757.927	219001.943
408	191736.930	218985.135
409	191693.525	218975.597
410	191684.814	218975.095
411	191666.937	218962.794
412	191765.230	218966.551
413	191798.447	218968.810
414	191831.587	218971.564
415	191868.601	218975.233
416	191841.611	219006.959
417	191823.056	219012.902
418	191729.925	219464.208
419	191737.497	219476.993
420	191733.041	219498.590
421	191727.988	219423.074
422	191716.175	219530.841

Point	Station	Offset
400	13+84.30	0.00'
401	13+00.00	0.00'
402	13+00.00	32.65'
403	12+90.00	42.65'
404	12+65.00	42.67'
405	12+45.02	42.68'
406	12+34.57	32.69'
407	7+73.62	32.96'
408	7+61.41	56.93'
409	7+60.87	101.37'
410	7+62.15	110.00'
411	7+53.72	130.00'
412	7+37.48	32.99'
413	7+32.96	0.00'
414	7+28.94	33.01'
415	7+25.03	70.00'
416	7+61.57	50.00'
417	7+71.15	33.04'
418	12+31.96	33.31'
419	12+42.95	43.32'
420	12+65.00	43.33'
421	12+90.00	43.35'
422	13+00.00	33.35'

FOUND HARRISON MONUMENT
 Y = 196446.240
 X = 219594.710

COMPUTED POSITION (FALLS IN RIVER)
 Y = 192880.654
 X = 219603.600



SCENIC EASEMENTS

- DOC 324393 PARCEL 1
- DOC 333776 PARCEL 2
- DOC 333777 PARCEL 3

- 50 CHIPPEWA VALLEY ELECTRIC COOPERATIVE, INC. DOC 445475 PARCEL 1
- 50 CHIPPEWA VALLEY ELECTRIC COOPERATIVE, INC. DOC 603717 PARCEL 2
- 50 CHIPPEWA VALLEY ELECTRIC COOPERATIVE, INC. DOC 208753 (BLANKET) PARCEL 3
- 51 CENTURYLINK (NO EASEMENT OF RECORD) PARCELS 1 & 2

STRUCTURE INFORMATION
 EXISTING BRIDGE: B-09-0965
 PROPOSED BRIDGE: B-09-0387

Point	Station	Offset
411-412	L=98.37'	LCH=98.37'
412-413	L=33.29'	LCH=33.29'
413-414	L=33.25'	LCH=33.25'
414-415	L=37.20'	LCH=37.20'
	LCB=N02°11'19"E	LCB=N03°53'26"E
	R=2216.48'	R=2216.48'
	LCB=N04°45'02"E	LCB=N05°39'40"E
	R=2216.48'	R=2216.48'

POINT	Y	X	DESCRIPTION
307	191614.411	218871.157	1" IRON PIPE (LEANING)
308	191670.458	218883.983	1" IRON PIPE

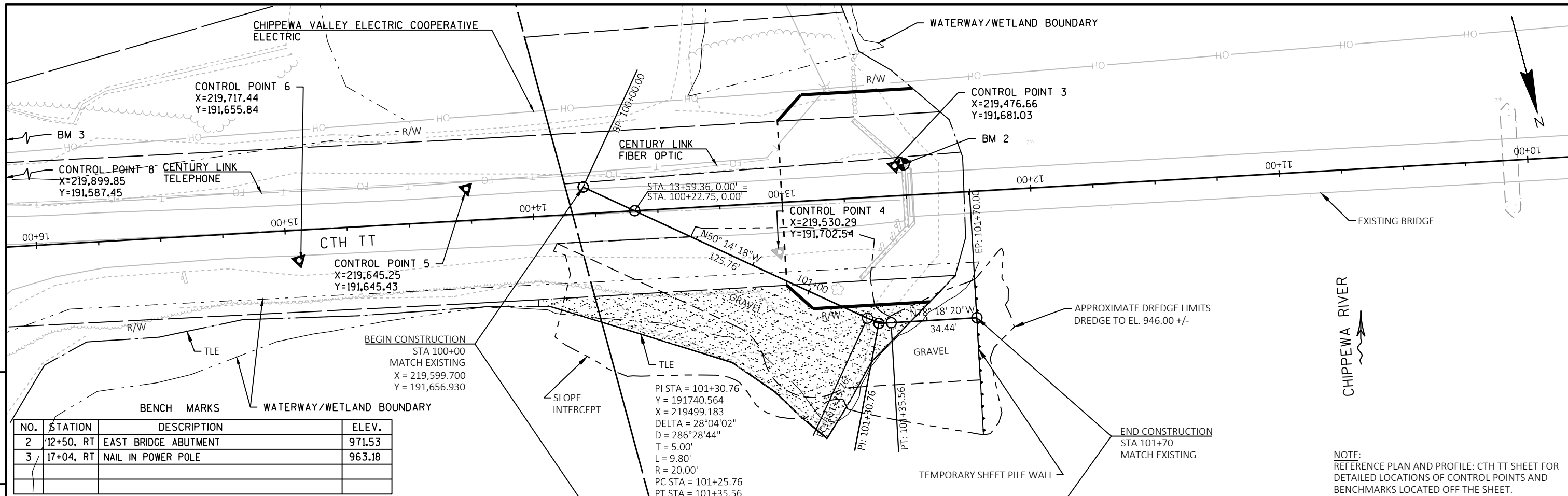
SCHEDULE OF LANDS & INTERESTS REQUIRED

PARCEL NUMBER	OWNER(S)	INTEREST REQUIRED	R/W SO. FT. REQUIRED			TLE SO. FT.
			NEW	EXISTING	TOTAL	
1	M & E FARMS, LLC	FEE	2632	3150	5782	----
2	LARRY A. LUEDTKE	FEE, TLE	1127	4736	5863	3617
3	DAVID H. RAIHLE SR. AND SHARON E. RAIHLE, AS TRUSTEES OF THE RAIHLE REVOCABLE TRUST DATED MARCH 10, 1999	TLE	----	----	----	139

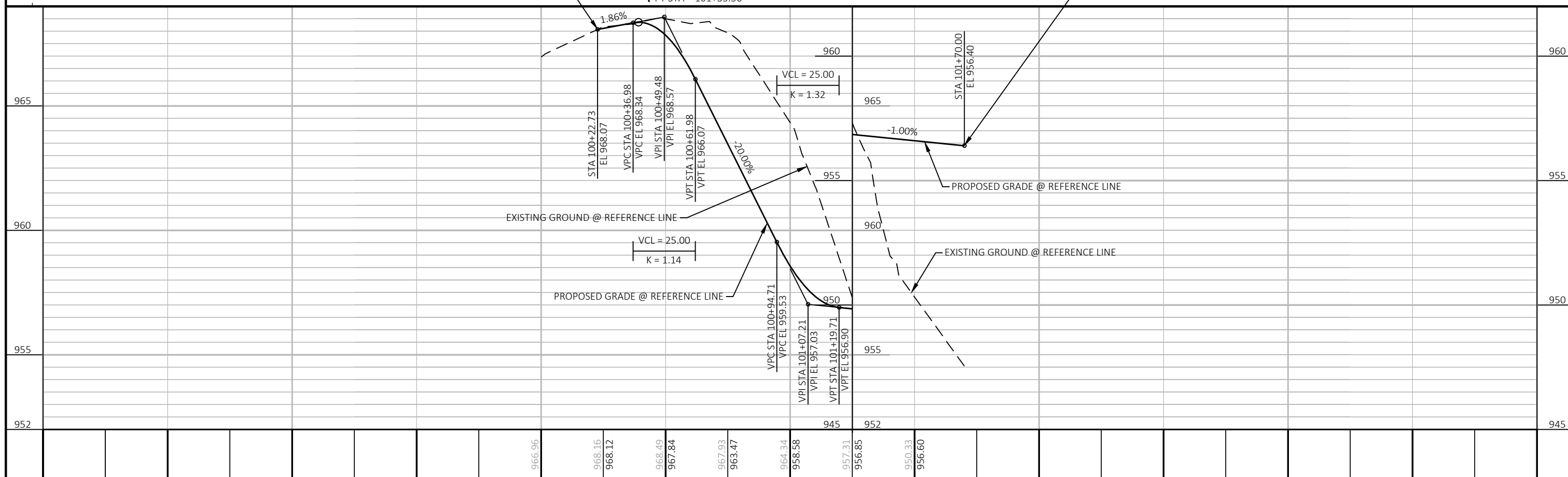
UTILITY INTERESTS REQUIRED

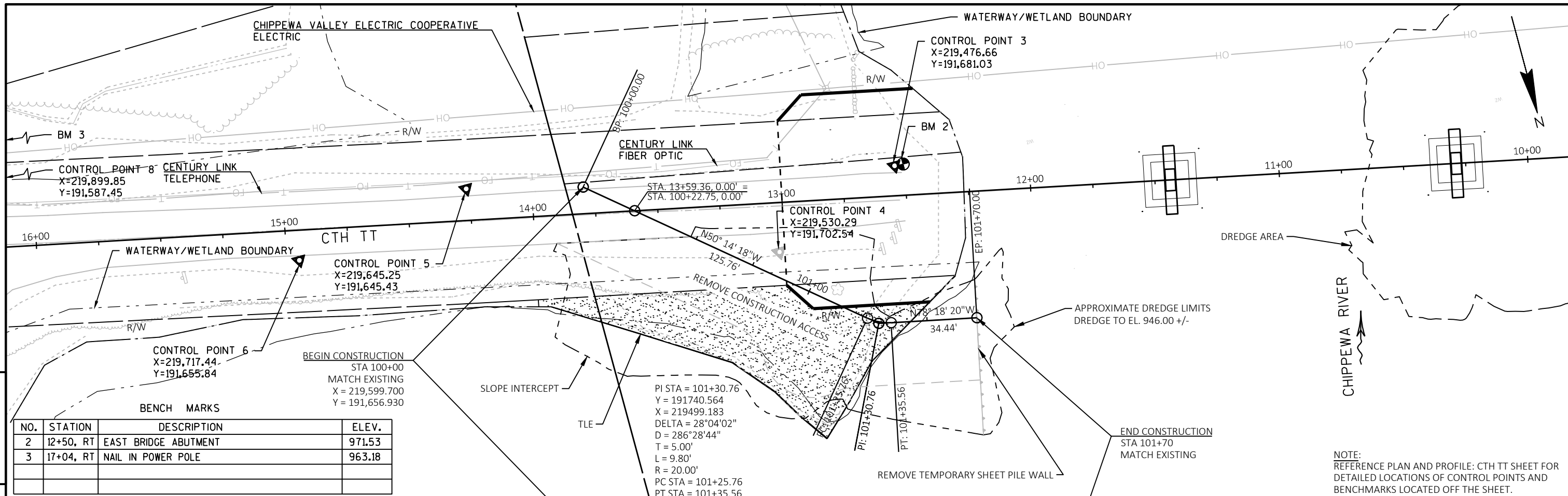
UTILITY NUMBER	OWNER(S)	INTEREST REQUIRED
50	CHIPPEWA VALLEY ELECTRIC COOPERATIVE, INC.	RELEASE OF RIGHTS
51	CENTURYLINK	RELEASE OF RIGHTS

REVISION DATE	DATE 10/13/2020	SCALE, FEET	HWY: CTH TT	STATE R/W PROJECT NUMBER	8915-01-01	PLAT SHEET	4.02
	GRID FACTOR N/A	0 25 50	COUNTY: CHIPPEWA	CONSTRUCTION PROJECT NUMBER	8915-00-70	PS&E SHEET	E



NO.	STATION	DESCRIPTION	ELEV.
2	12+50, RT	EAST BRIDGE ABUTMENT	971.53
3	17+04, RT	NAIL IN POWER POLE	963.18





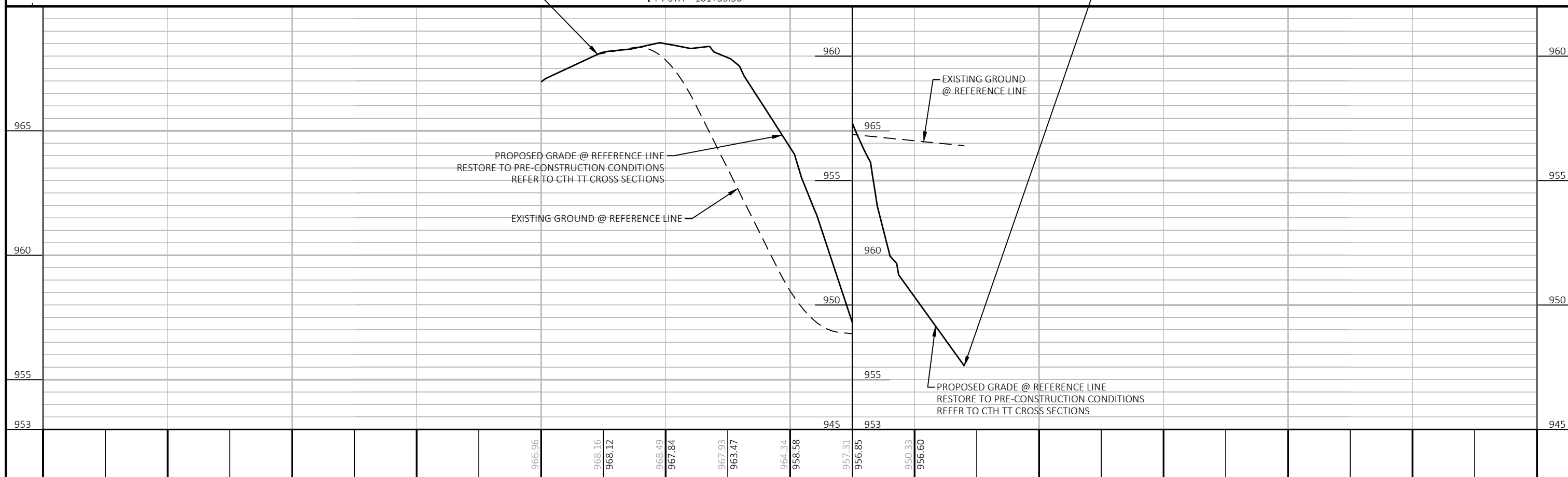
BENCH MARKS

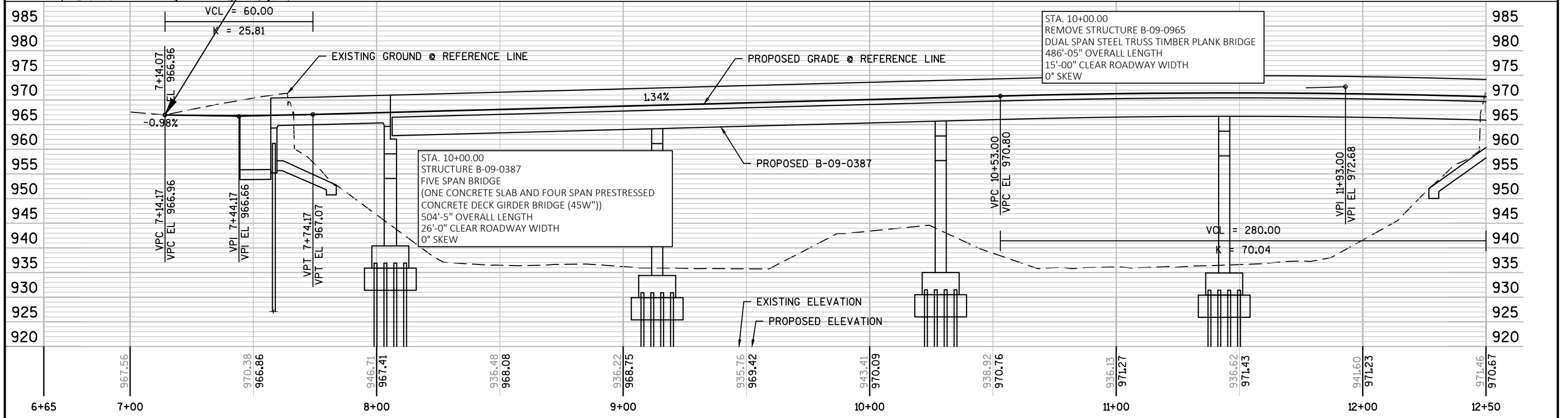
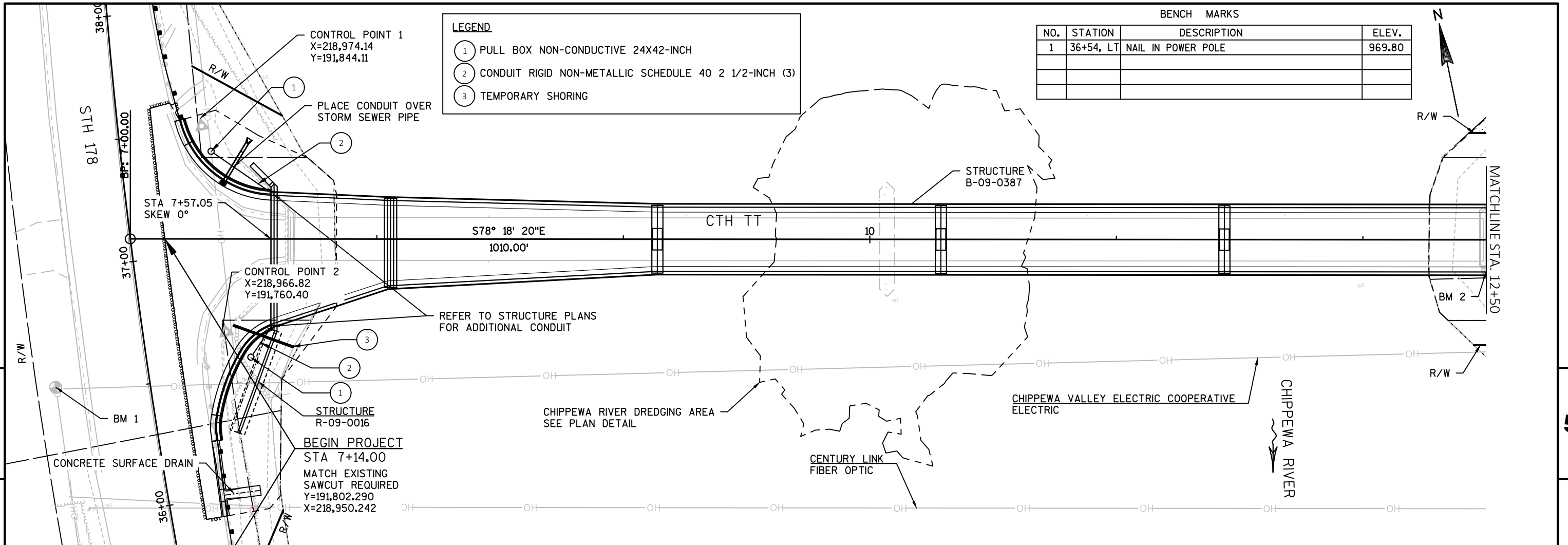
NO.	STATION	DESCRIPTION	ELEV.
2	12+50, RT	EAST BRIDGE ABUTMENT	971.53
3	17+04, RT	NAIL IN POWER POLE	963.18

BEGIN CONSTRUCTION
STA 100+00
MATCH EXISTING
X = 219,599.700
Y = 191,656.930

END CONSTRUCTION
STA 101+70
MATCH EXISTING

NOTE:
REFERENCE PLAN AND PROFILE: CTH TT SHEET FOR
DETAILED LOCATIONS OF CONTROL POINTS AND
BENCHMARKS LOCATED OFF THE SHEET.





PROJECT NO: 8915-00-70 HWY: CTH TT COUNTY: CHIPPEWA PLAN AND PROFILE: CTH TT SHEET **E**

BENCH MARKS			
NO.	STATION	DESCRIPTION	ELEV.
2	12+50, RT	EAST BRIDGE ABUTMENT	971.53
3	17+04, RT	NAIL IN POWER POLE	963.18

CONTROL POINT 7
X=219,876.06
Y=191,669.76

CONTROL POINT 6
X=219,717.44
Y=191,655.84

CONTROL POINT 5
X=219,645.25
Y=191,645.43

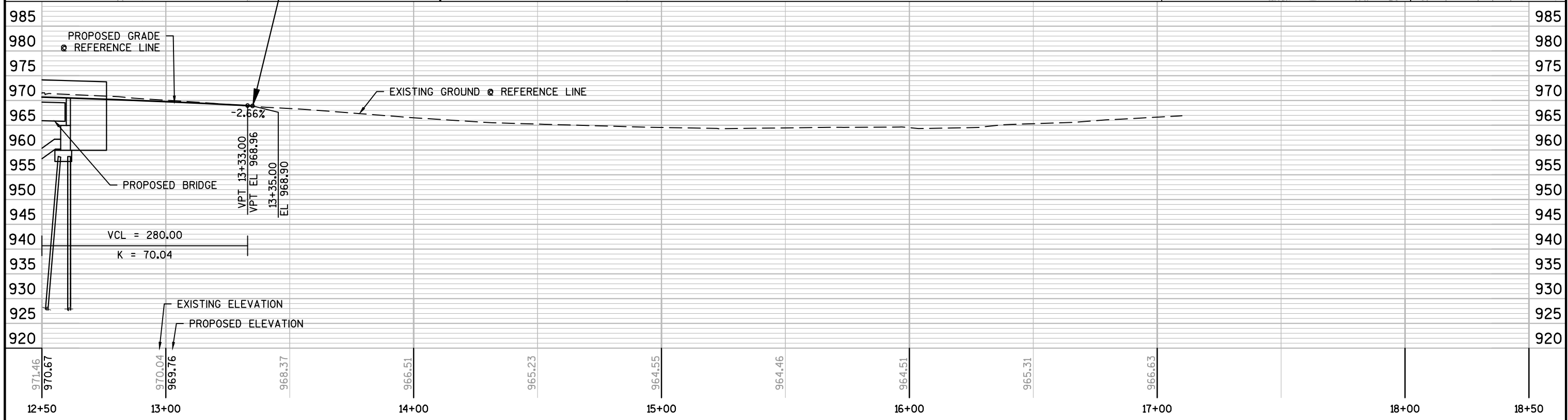
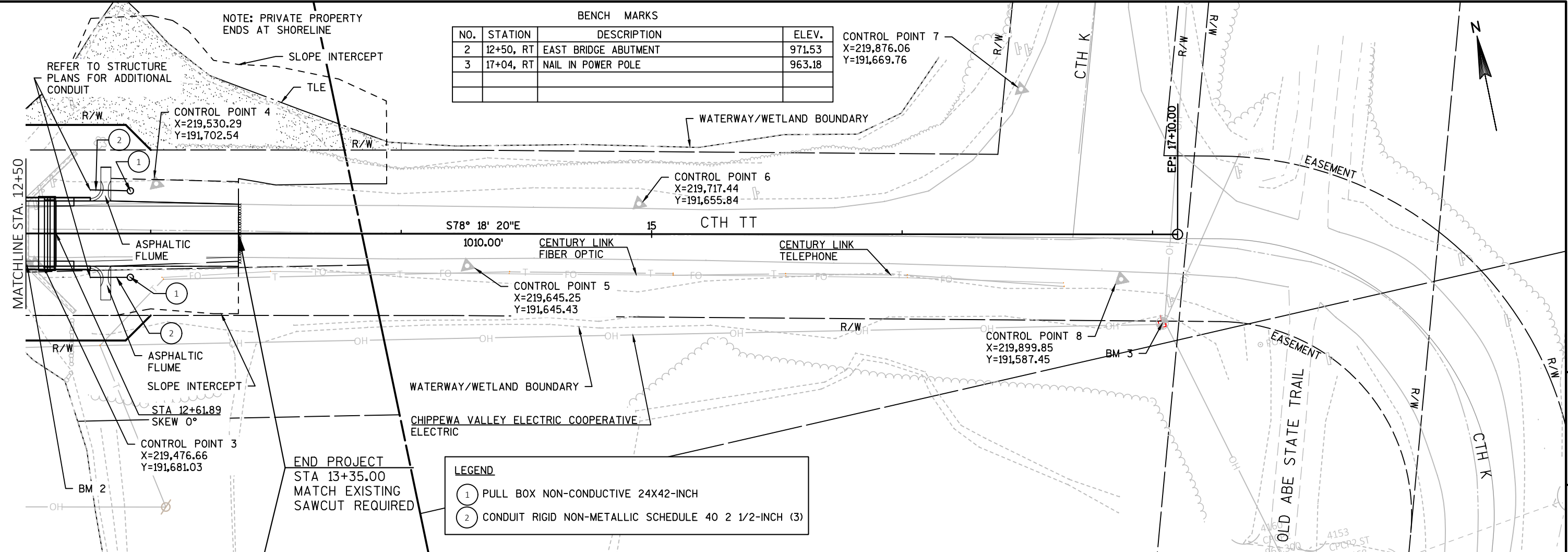
CONTROL POINT 8
X=219,899.85
Y=191,587.45

CONTROL POINT 4
X=219,530.29
Y=191,702.54

CONTROL POINT 3
X=219,476.66
Y=191,681.03

LEGEND	
①	PULL BOX NON-CONDUCTIVE 24X42-INCH
②	CONDUIT RIGID NON-METALLIC SCHEDULE 40 2 1/2-INCH (3)

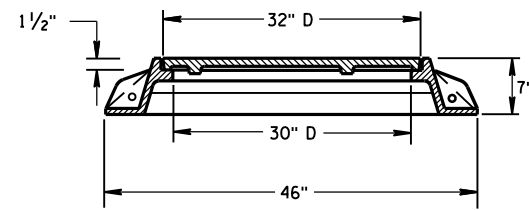
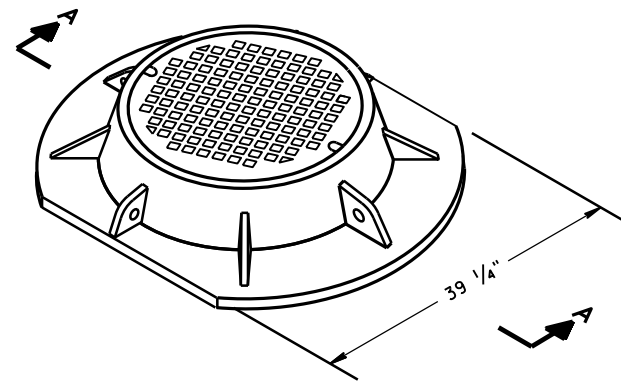
S78° 18' 20"E
1010.00'



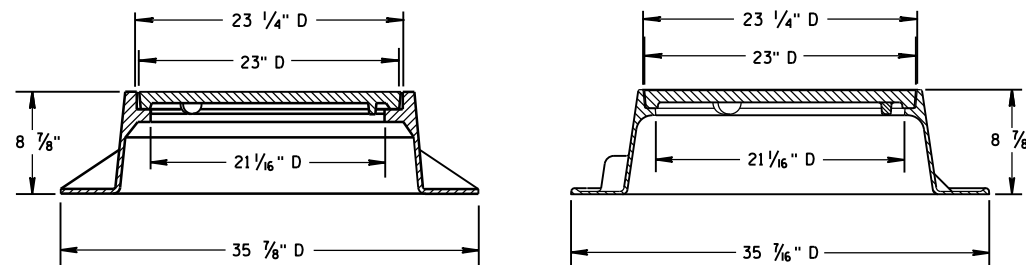
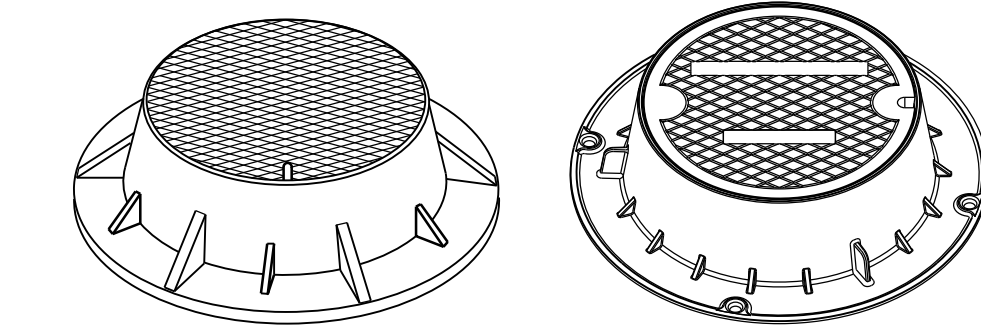
PROJECT NO: 8915-00-70 HWY: CTH TT COUNTY: CHIPPEWA PLAN AND PROFILE: CTH TT SHEET E

Standard Detail Drawing List

08A05-19D	INLET COVER TYPE BW, MANHOLE COVERS, TYPE K, J, J-S, L & M
08C07-02	INLETS 2X2-FT, 2X2.5-FT, 2X3-FT AND 2.5X3-FT
08D01-22A	CONCRETE CURB & GUTTER
08D04-05	CONCRETE SURFACE DRAINS & ASPHALTIC FLUMES
08E09-06	SILT FENCE
08E10-02	INLET PROTECTION TYPE A, B, C AND D
08E11-02	TURBIDITY BARRIER
08F01-11	APRON ENDWALLS FOR CULVERT PIPE
08F04-07	JOINT TIES FOR CONCRETE PIPE AND CONCRETE COLLAR DETAIL
09B02-10	CONDUIT
09B16-01	PULL BOX NON-CONDUCTIVE
12A03-10	NAME PLATE (STRUCTURES)
13A03-06	CONCRETE PAVEMENT SHOULDERS
14B07-15A	CONCRETE BARRIER TEMPORARY PRECAST, 12' -6"
14B07-15B	CONCRETE BARRIER TEMPORARY PRECAST, 12' -6"
14B07-15C	CONCRETE BARRIER TEMPORARY PRECAST, 12' -6"
14B07-15D	CONCRETE BARRIER TEMPORARY PRECAST, 12' -6"
14B07-15E	CONCRETE BARRIER TEMPORARY PRECAST, 12' -6"
14B07-15F	CONCRETE BARRIER TEMPORARY PRECAST, 12' -6"
14B07-15G	CONCRETE BARRIER TEMPORARY PRECAST, 12' -6"
14B07-15H	CONCRETE BARRIER TEMPORARY PRECAST, 12' -6"
14B07-15I	CONCRETE BARRIER TEMPORARY PRECAST, 12' -6"
14B08-02A	CRASH CUSHION/SAND BARREL ARRAY AND OTHER TEMPORARY BARRIER LAYOUT DETAILS
14B08-02B	CRASH CUSHION/SAND BARREL ARRAY AND OTHER TEMPORARY BARRIER LAYOUT DETAILS
14B08-02C	CRASH CUSHION/SAND BARREL ARRAY AND OTHER TEMPORARY BARRIER LAYOUT DETAILS
14B08-02D	CRASH CUSHION/SAND BARREL ARRAY AND OTHER TEMPORARY BARRIER LAYOUT DETAILS
14B08-02E	CRASH CUSHION/SAND BARREL ARRAY AND OTHER TEMPORARY BARRIER LAYOUT DETAILS
14B15-11A	STEEL PLATE BEAM GUARD, CLASS "A" INSTALLATION & ELEMENTS
14B15-11B	STEEL PLATE BEAM GUARD, CLASS "A" INSTALLATION & ELEMENTS
14B15-11C	STEEL PLATE BEAM GUARD, CLASS "A", INSTALLATION & ELEMENTS
14B20-11A	STEEL THREE BEAM STRUCTURE APPROACH
14B20-11G	STEEL THREE BEAM STRUCTURE APPROACH, CONNECTOR PLATE DETAIL
14B20-11H	STEEL THREE BEAM STRUCTURE APPROACH, SINGLE SLOPE ATTACHMENT
14B32-08A	CONCRETE BARRIER SINGLE SLOPE (CBSS)
14B32-08B	CONCRETE BARRIER SINGLE SLOPE (CBSS)
14B32-08F	CONCRETE BARRIER SINGLE SLOPE (CBSS)
14B33-02A	CONCRETE BARRIER SINGLE SLOPE 32" THREE BEAM ANCHOR
14B33-02B	CONCRETE BARRIER SINGLE SLOPE 32" THREE BEAM ANCHOR
14B33-02C	CONCRETE BARRIER SINGLE SLOPE 32" THREE BEAM ANCHOR
15C02-08A	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C02-08B	BARRICADES AND SIGNS FOR VARIOUS CLOSURES
15C02-08F	ADVANCED WIDTH RESTRICTION SIGNING
15C04-05	TRAFFIC CONTROL, ADVANCE WARNING SIGNS 45 M. P. H. OR GREATER TWO-WAY UNDIVIDED ROAD OPEN TO TRAFFIC
15C06-09	SIGNING & MARKING FOR TWO LANE BRIDGES
15C08-20A	LONGITUDINAL MARKING (MAINLINE)
15C11-09B	CHANNELIZING DEVICES DRUMS, CONES, BARRICADES AND VERTICAL PANELS
15C12-07	TRAFFIC CONTROL FOR LANE CLOSURE WITH FLAGGING OPERATION
15D28-04	TRAFFIC CONTROL, WORK ON SHOULDER OR PARKING LANE, UNDIVIDED ROADWAY
15D29-06	TRAFFIC CONTROL, VEHICLE ENTRANCE/EXIT OR HAUL ROAD



SECTION A-A
TYPE "K"



TYPE "J"

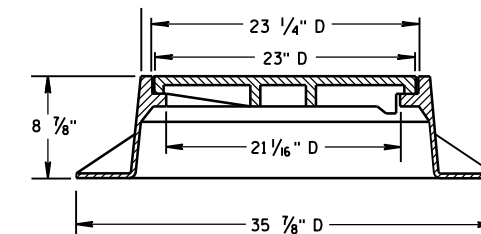
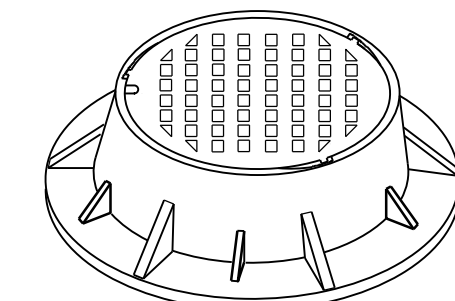
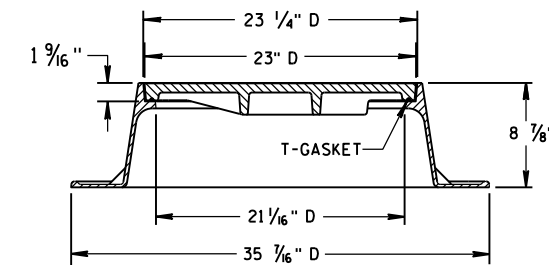
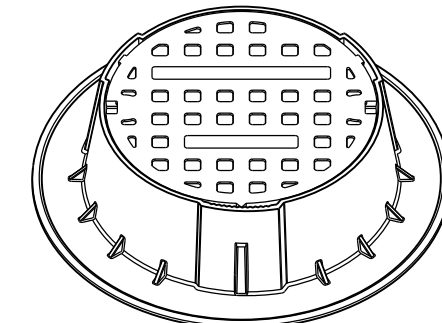
NOTE: EITHER CASTING IS ACCEPTABLE

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.

DETAIL DRAWINGS FOR PROPOSED ALTERNATE DESIGNS FOR MANHOLE COVERS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PROVIDING THAT SUCH ALTERNATE DESIGNS MAKE PROVISION FOR EQUIVALENT CAPACITY AND STRENGTH.

ROUND FRAMES AND COVERS SHALL HAVE CONTINUOUSLY MACHINED BEARING SURFACES TO PREVENT ROCKING AND RATTLING.



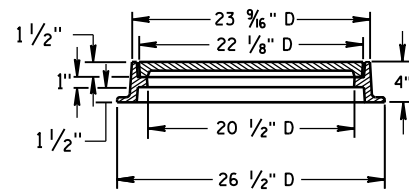
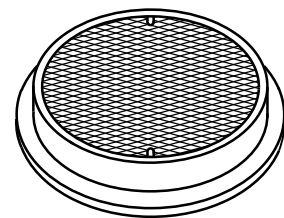
TYPE "J" SPECIAL

TYPE "B" NON-ROCKING SELF-SEAL LID

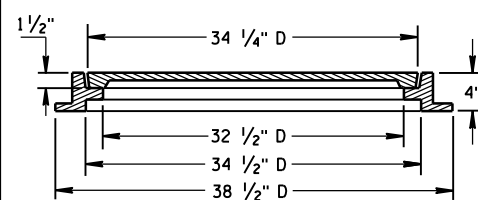
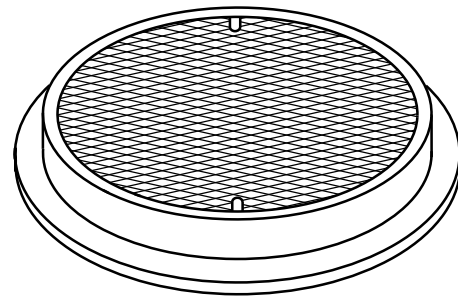
(NOTED AS TYPE J-S ON THE DRAINAGE TABLE)

NOTE: EITHER CASTING IS ACCEPTABLE

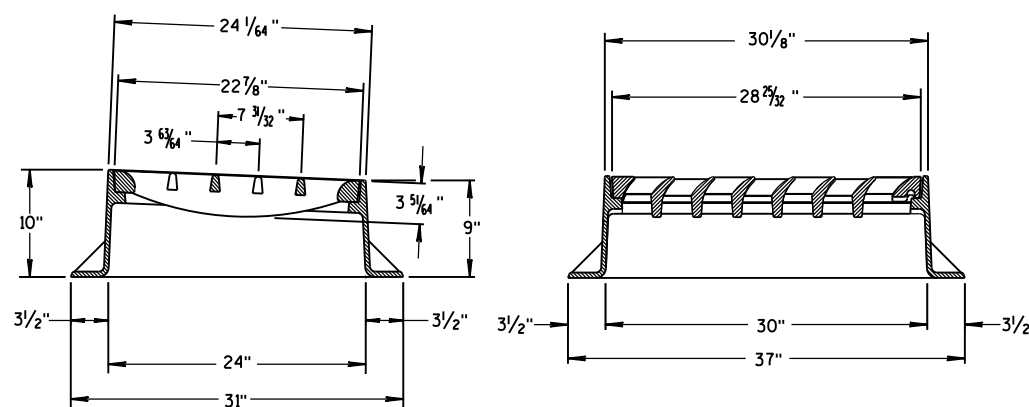
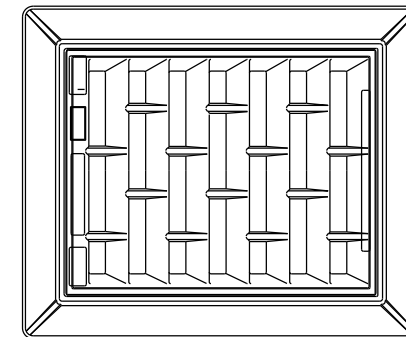
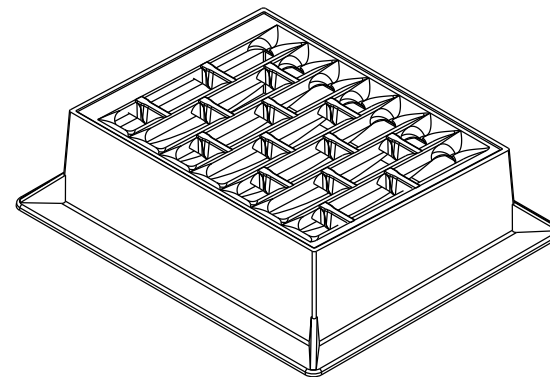
6



TYPE "L"



TYPE "M"



INLET COVER TYPE "BW"

6

S.D.D. 8 A 5-19d

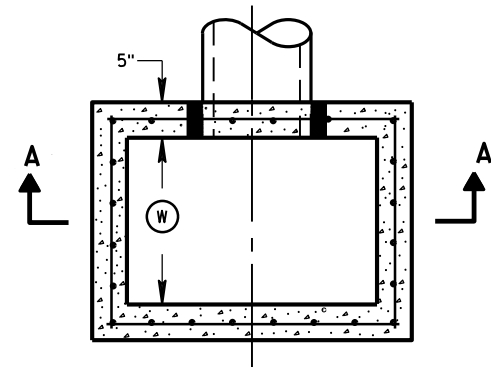
S.D.D. 8 A 5-19d

INLET COVER TYPE BW
MANHOLE COVERS, TYPE K,
J, J-S, L & M

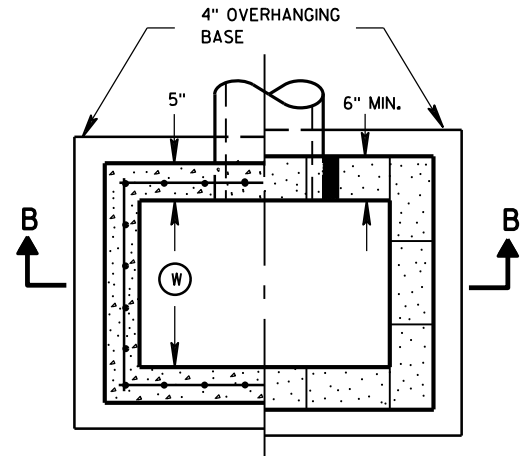
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
11/27/2013
DATE
FHWA

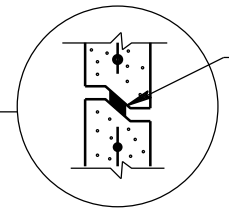
/s/ Jerry H. Zogg
ROADWAY STANDARDS DEVELOPMENT
ENGINEER



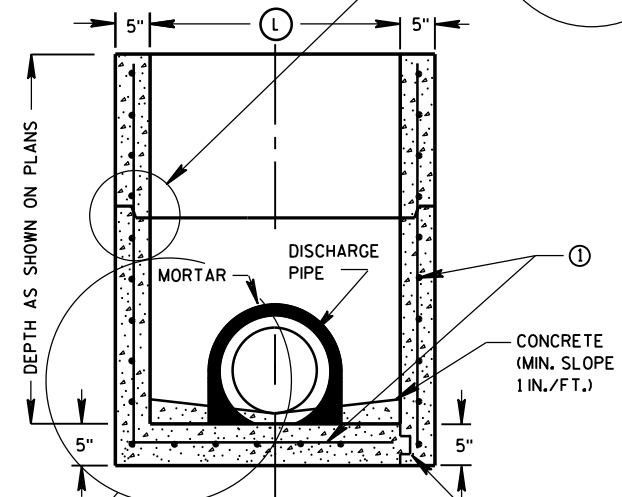
PLAN VIEW



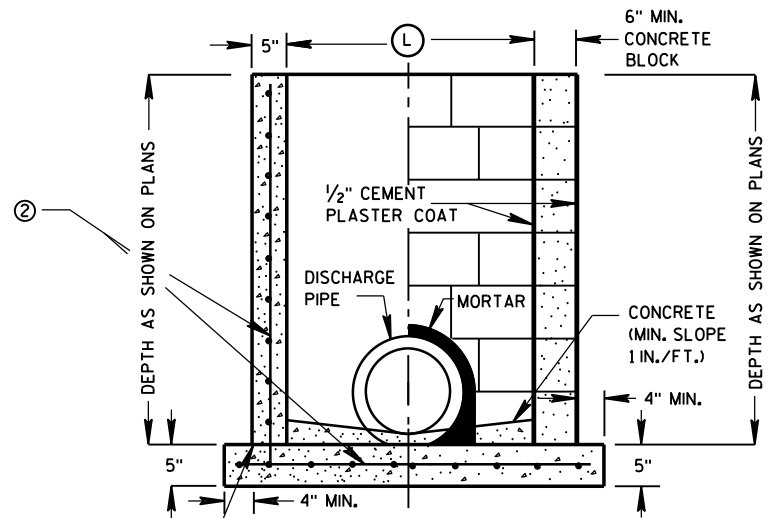
PLAN VIEW



RISER JOINTS TO BE SEALED WITH A BUTYL RUBBER SEAL PER SEALANT MANUFACTURERS RECOMMENDATIONS CONFORMING TO ASTM C 990 (TYP)



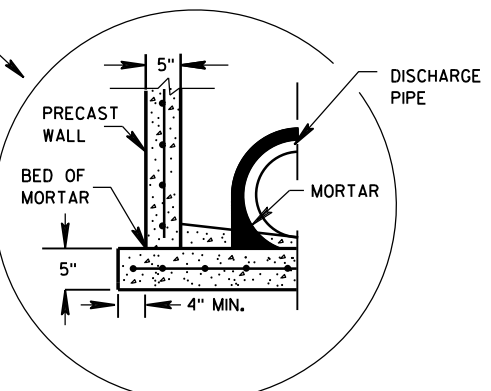
SECTION A-A



SECTION B-B

PRECAST REINFORCED CONCRETE WITH MONOLITHIC BASE
 PRECAST REINFORCED CONCRETE WITH INTEGRAL BASE
 KEYWAY

CAST-IN-PLACE REINFORCED CONCRETE
 CONCRETE BLOCK WITH CAST-IN-PLACE OR PRECAST REINFORCED CONCRETE BASE ①



SEPARATE PRECAST REINFORCED CONCRETE BASE OPTION

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.

UNLESS OTHERWISE AUTHORIZED IN WRITING BY THE ENGINEER, THE CONTRACTOR SHALL NOT ORDER AND DELIVER PRECAST INLET UNITS REQUIRED FOR THE PROJECT UNTIL A LIST OF SIZES IS FURNISHED BY THE ENGINEER.

DETAILED DRAWINGS FOR PROPOSED ALTERNATE DESIGNS FOR UNDERGROUND DRAINAGE STRUCTURES SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PROVIDING THAT SUCH ALTERNATE DESIGNS MAKE PROVISION FOR EQUIVALENT CAPACITY AND STRENGTH.

ALL PRECAST INLET UNITS SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF ASTM C 913.

ALL DRAINAGE STRUCTURES ARE DESIGNATED ON THE PLANS AS "MANHOLES 3X3-L", "CATCH BASINS 4-B", "INLETS 2X3-H", ETC. THE FIRST NUMBERS DESIGNATES THE SIZE OF THE STRUCTURE, AND THE FOLLOWING LETTER DESIGNATES THE TYPE OF COVER TO BE USED TO COMPRISE THE COMPLETE UNIT.

BASES SHALL BE PLACED ON A BED OF MATERIAL AT LEAST 6 INCHES IN DEPTH, WHICH MEETS THE REQUIREMENTS OF FOUNDATION BACKFILL. THIS BEDDING SHALL BE COMPACTED AND PROVIDE UNIFORM SUPPORT FOR THE ENTIRE AREA OF THE BASE.

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

PRECAST REINFORCED RISERS SHALL HAVE A TONGUE AND GROOVE JOINT WITH TONGUE UP OR DOWN.

4" OVERHANGING BASES ARE REQUIRED FOR CAST-IN-PLACE REINFORCED CONCRETE AND CONCRETE BLOCK INSTALLATIONS. 4" OVERHANG IS REQUIRED WHEN SEPARATE PRECAST BASE IS PROVIDED. OVERHANG IS NOT REQUIRED ON PRECAST STRUCTURES WITH AN INTEGRAL OR MONOLITHIC BASE.

MAXIMUM INSIDE PIPE DIAMETER DETERMINED BY 3 INCH CLEARANCE ON EACH SIDE OF THE OUTSIDE WALL OF THE PIPE. SEE DETAIL "A". ASSUMES PIPE ENTERS PERPENDICULAR TO THE STRUCTURE.

① FOR PRECAST INLETS PROVIDE REINFORCING STEEL IN ACCORDANCE TO ASTM C 913.

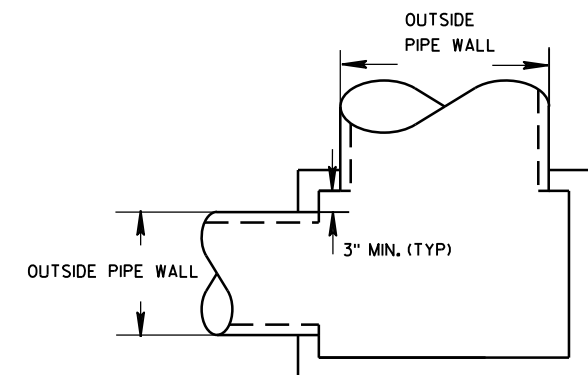
② CONTRACTOR TO PROVIDE DRAWING(S) STAMPED BY A PROFESSIONAL ENGINEER FOR STEEL REINFORCING DESIGN FOR CAST-IN-PLACE STRUCTURES.

INLET COVER MATRIX

INLET SIZE	INLET COVER TYPE		ALL A'S	ALL B'S	BW	F	ALL H'S	S	T	V	WM
	WIDTH (W) (FT)	LENGTH (L) (FT)									
2X2-FT	2	2	X	X				X		X	
2X2.5-FT	2	2.5			X			X	X	X	X
2X3-FT	2	3					X				
2.5X3-FT	2.5	3				X					

PIPE MATRIX

INLET SIZE	MAXIMUM INSIDE PIPE DIAMETER	
	WIDTH (IN)	LENGTH (IN)
2X2-FT	12	12
2X2.5-FT	12	18
2X3-FT	12	24
2.5X3-FT	18	24



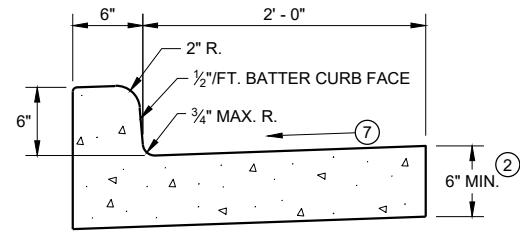
DETAIL "A"

INLETS 2X2-FT, 2X2.5-FT, 2X3-FT AND 2.5X3-FT

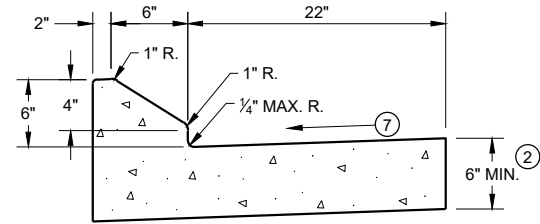
INLETS 2X2-FT, 2X2.5-FT, 2X3-FT AND 2.5X3-FT

STATE OF WISCONSIN
 DEPARTMENT OF TRANSPORTATION

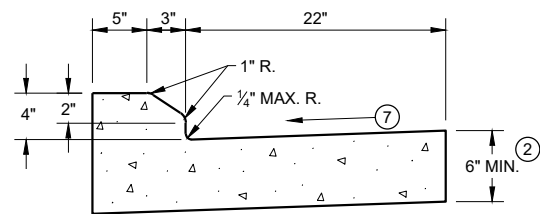
APPROVED
 Sept., 2016 /S/ Rodney Taylor
 DATE ROADWAY STANDARDS DEVELOPMENT
 FHWA UNIT SUPERVISOR



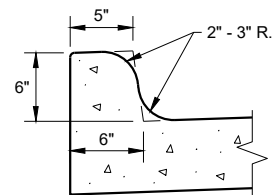
TYPES A^① & D



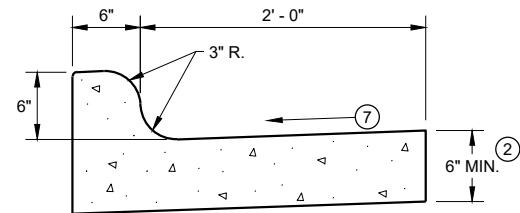
6" SLOPED CURB TYPES G^① & J



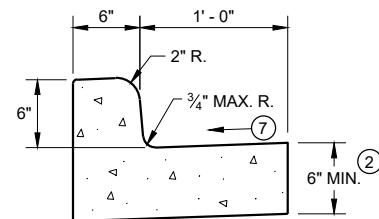
4" SLOPED CURB TYPES G^① & J



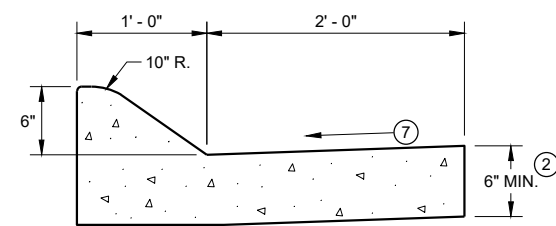
TYPES K^① & L
(OPTIONAL CURB SHAPE)



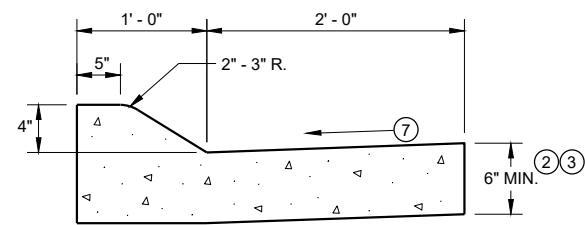
TYPES K^① & L
CONCRETE CURB AND GUTTER 30"



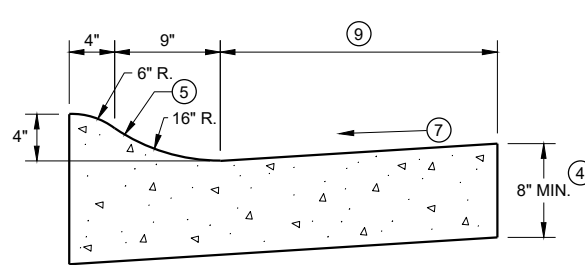
TYPES A^① & D
CONCRETE CURB AND GUTTER 18"



6" SLOPED CURB TYPES A^① & D

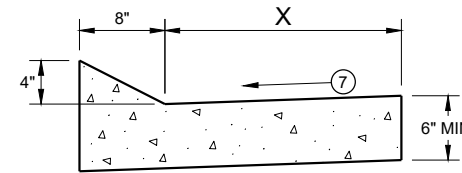


4" SLOPED CURB TYPES A^① & D
CONCRETE CURB AND GUTTER 36"



4" SLOPED CURB TYPES R^① & T

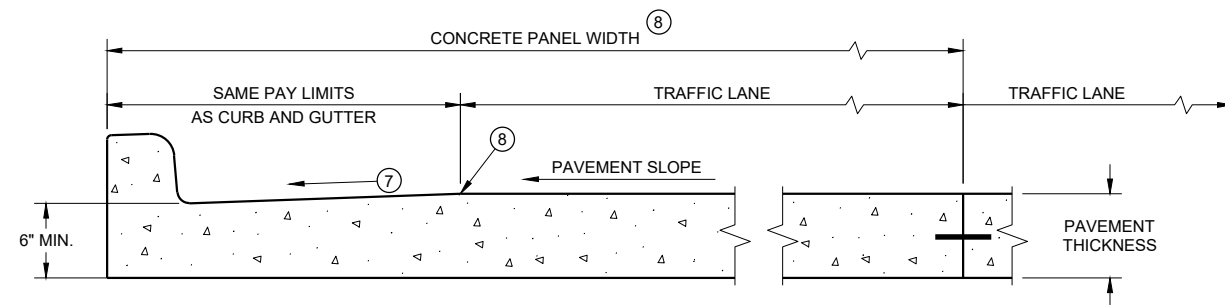
TBT & TBTT	X
30"	22"
36"	28"



TYPES TBT & TBTT^①
CONCRETE CURB AND GUTTER

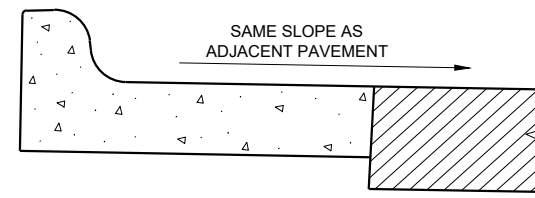
PAVEMENT THICKNESS
AND MAXIMUM CONCRETE
PANEL WIDTH TABLE

PAVEMENT THICKNESS	MAXIMUM PANEL WIDTH
LESS THAN 10"	12'
10" & ABOVE	15'



PARTIAL SECTION OF PAVEMENT *
WITH INTEGRAL CURB AND GUTTER

* BIKE LANE IS NOT SHOWN



REVERSE SLOPE GUTTER^⑥
(TYPICAL FOR ALL CURB & GUTTER TYPES)

GENERAL NOTES

DETAILS OF CONSTRUCTION AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE CONTRACT.

PAVEMENT TIES AND TIE BARS SHALL BE EPOXY COATED IN CONFORMANCE WITH SUBSECTION 505.2.6.2 OF THE STANDARD SPECIFICATIONS.

INTEGRAL CURB AND GUTTER SHALL CONFORM TO THE DETAILS SHOWN FOR CONCRETE CURB AND GUTTER INCLUDING THE TRANSVERSE GUTTER SLOPE.

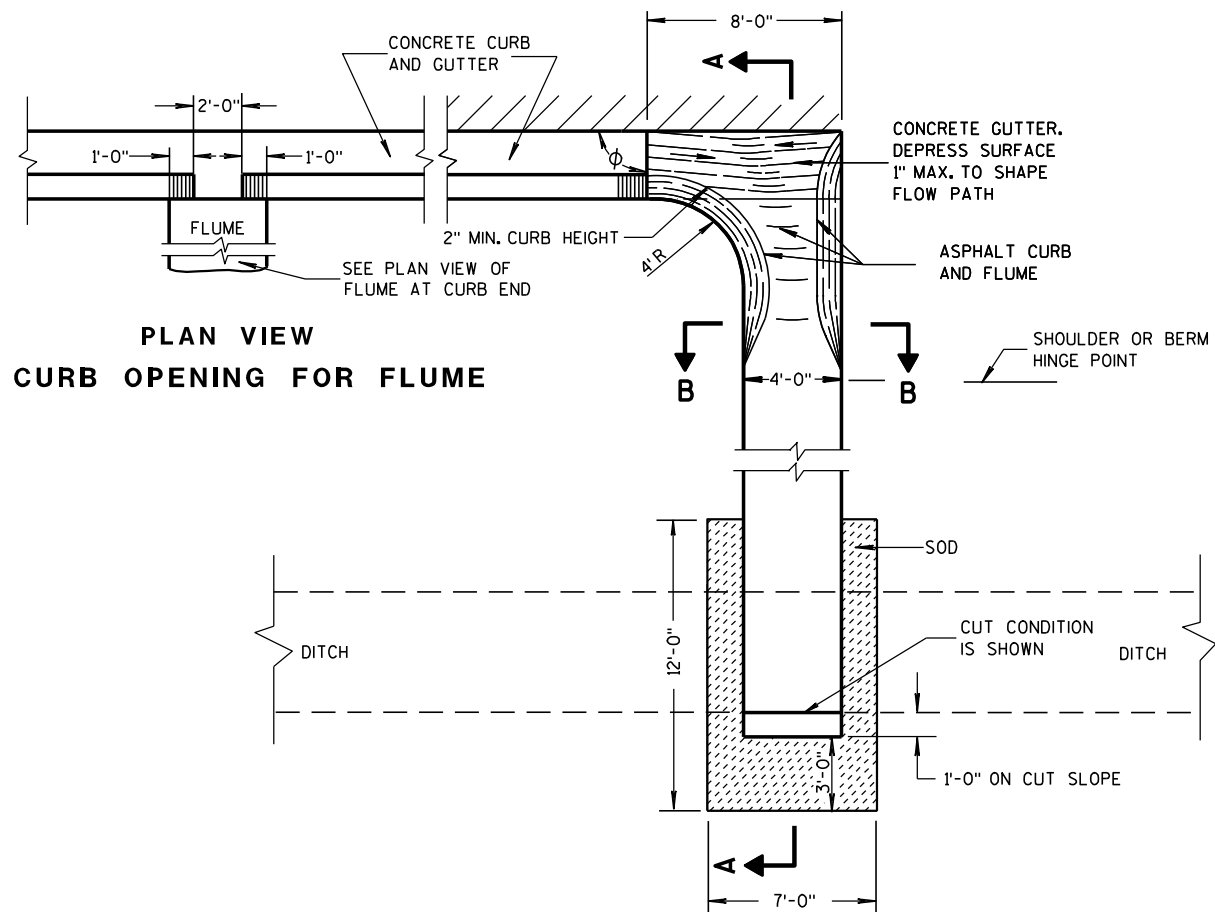
UNLESS OTHERWISE SHOWN ON THE TYPICAL CROSS SECTIONS, THE BASE AGGREGATE AND COMMON EXCAVATION LIMITS ARE 2' - 0" BEHIND THE BACK OF CURBS.

- ① TIE BARS ARE REQUIRED FOR CURB AND GUTTERS TYPES A, G, K, R, AND TBTT.
- ② THE BOTTOM OF CURB AND GUTTER MAY BE CONSTRUCTED EITHER LEVEL OR PARALLEL TO THE SLOPE OF THE SUBGRADE OR BASE AGGREGATE PROVIDED A 6" MINIMUM GUTTER THICKNESS IS MAINTAINED.
- ③ USE 8" MINIMUM GUTTER THICKNESS WHEN USED WITH AN ADJACENT CONCRETE TRUCK APRON PLACED BEHIND BACK OF CURB.
- ④ THE BOTTOM OF CURB AND GUTTER MAY BE CONSTRUCTED EITHER LEVEL OR PARALLEL TO THE SLOPE OF THE SUBGRADE OR BASE AGGREGATE PROVIDED A 8" MINIMUM GUTTER THICKNESS IS MAINTAINED.
- ⑤ UNLESS OTHERWISE NOTED, FOR STAKING PURPOSES THE FACE OF CURB IS 6" FROM THE BACK OF CURB.
- ⑥ WHEN REVERSE SLOPE GUTTER IS REQUIRED, THE LOCATION(S) WILL BE SHOWN ELSEWHERE IN THE PLAN.
- ⑦ USE 4% GUTTER CROSS SLOPE UNLESS OTHERWISE NOTED IN THE PLANS.
- ⑧ INCLUDE LONGITUDINAL JOINT AND TIE BARS ALONG LANE EDGE WHEN CONCRETE PANEL WIDTH EXCEEDS THE MAXIMUM WIDTH PER TABLE BELOW. LONGITUDINAL JOINT(S) ARE NOT ALLOWED WITHIN TRAFFIC LANES AND BIKE LANES. LONGITUDINAL JOINT MAY BE SAWED.
- ⑨ CONCRETE CURB AND GUTTER 4-INCH SLOPED 30-INCH TYPE "R" AND "T" = 17 INCHES
CONCRETE CURB AND GUTTER 4-INCH SLOPED 36-INCH TYPE "R" AND "T" = 23 INCHES

ASPHALTIC FLUME

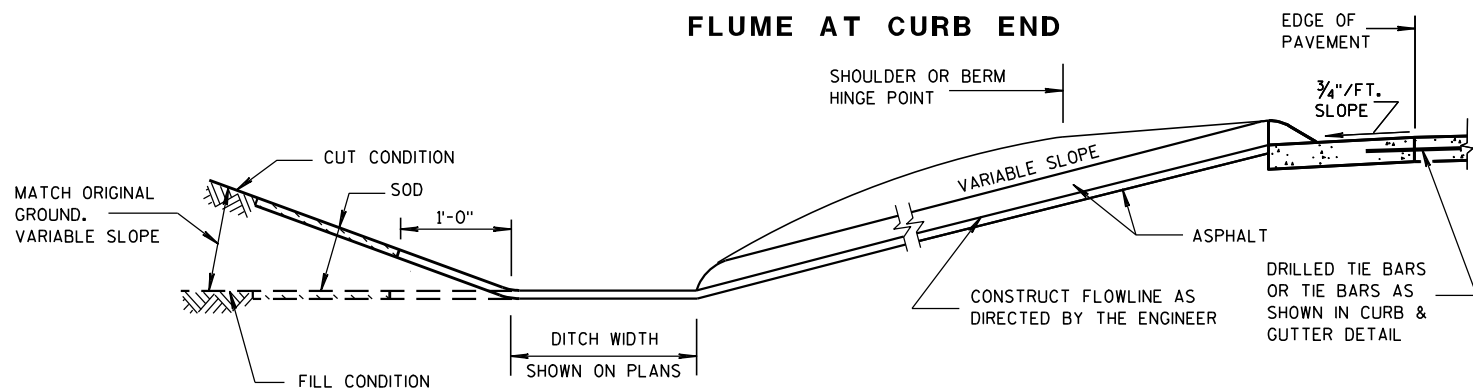
NOTE: TAPER CURB ENDS TO GUTTER IN 1'-0"

INCREASE ϕ FROM RIGHT ANGLE TO BEST FIT FIELD CONDITIONS

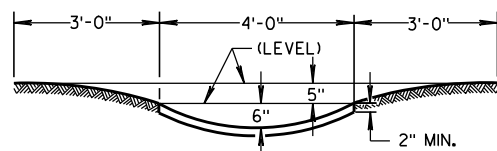


PLAN VIEW CURB OPENING FOR FLUME

PLAN VIEW FLUME AT CURB END



SECTION A-A



SECTION B-B

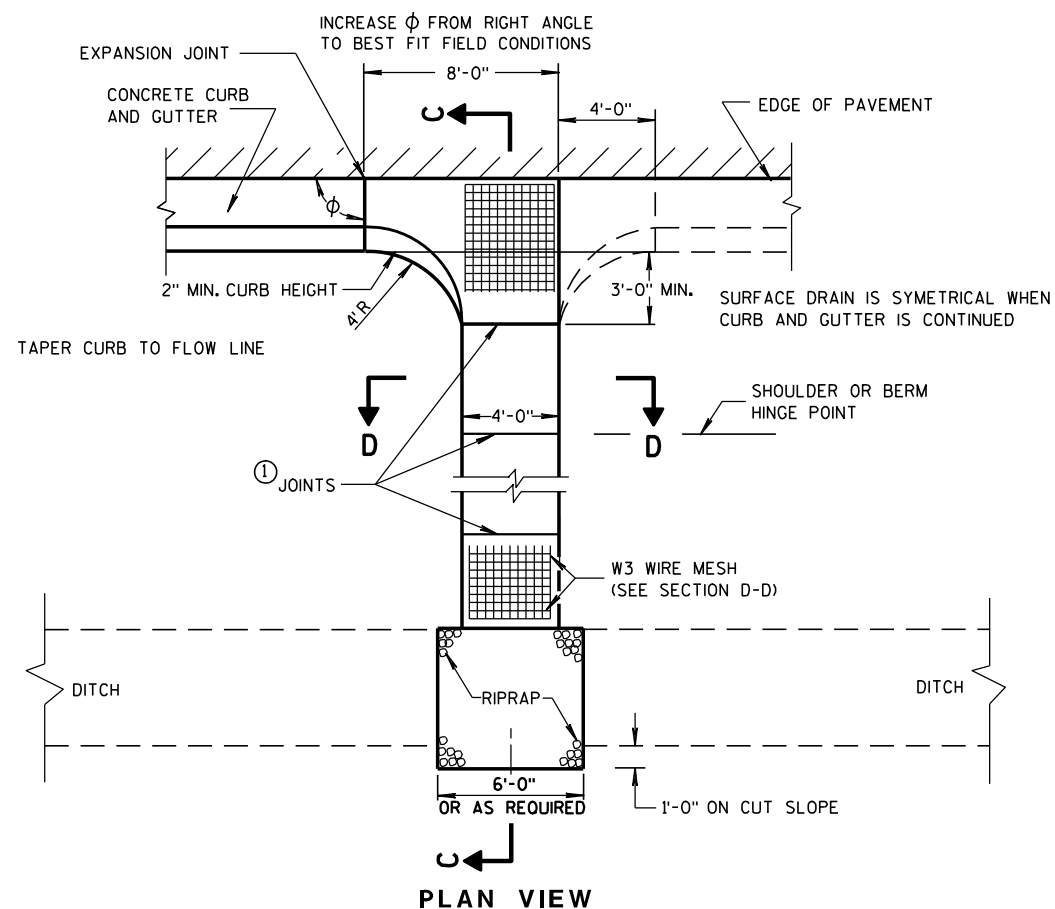
GENERAL NOTES

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

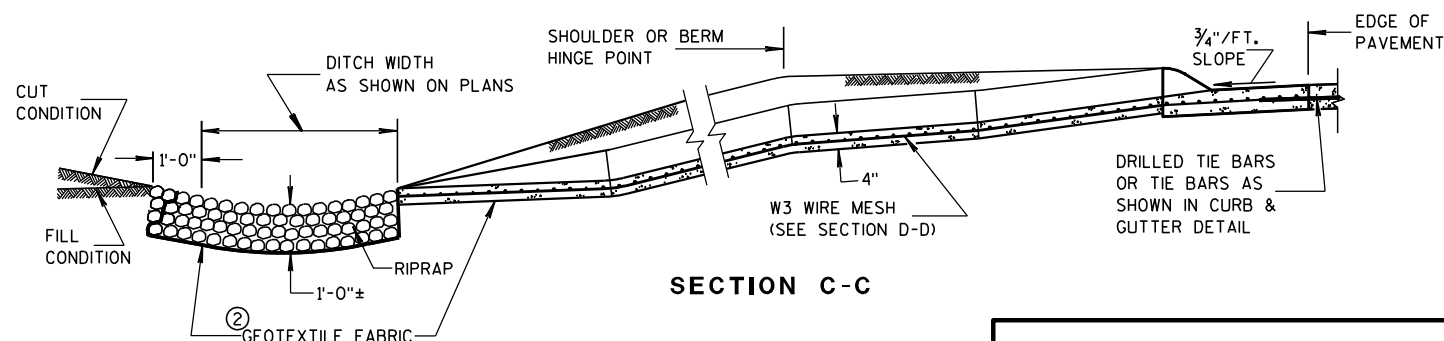
WELDED STEEL WIRE FABRIC SHALL BE IN ACCORDANCE WITH AASHTO SPECIFICATION M55.

- ① JOINTS SHALL BE 1/8 TO 1/4 INCH WIDE BY 1 1/2 INCHES DEEP AND SPACED AT UNIFORM INTERVALS OF APPROXIMATELY 4 FEET.
- ② GEOTEXTILE FABRIC TYPE "R" SHALL UNDERLAY THE FULL LENGTH AND WIDTH OF THE CONCRETE SURFACE DRAIN AND RIPRAP.
- ③ CONCRETE SURFACE DRAIN WITHOUT CURB AND GUTTER MAY BE USED ON BACKSLOPES WHEN SPECIFIED

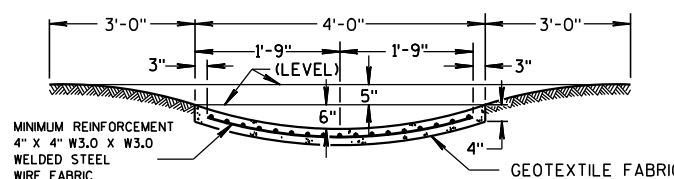
③ CONCRETE SURFACE DRAIN



PLAN VIEW



SECTION C-C

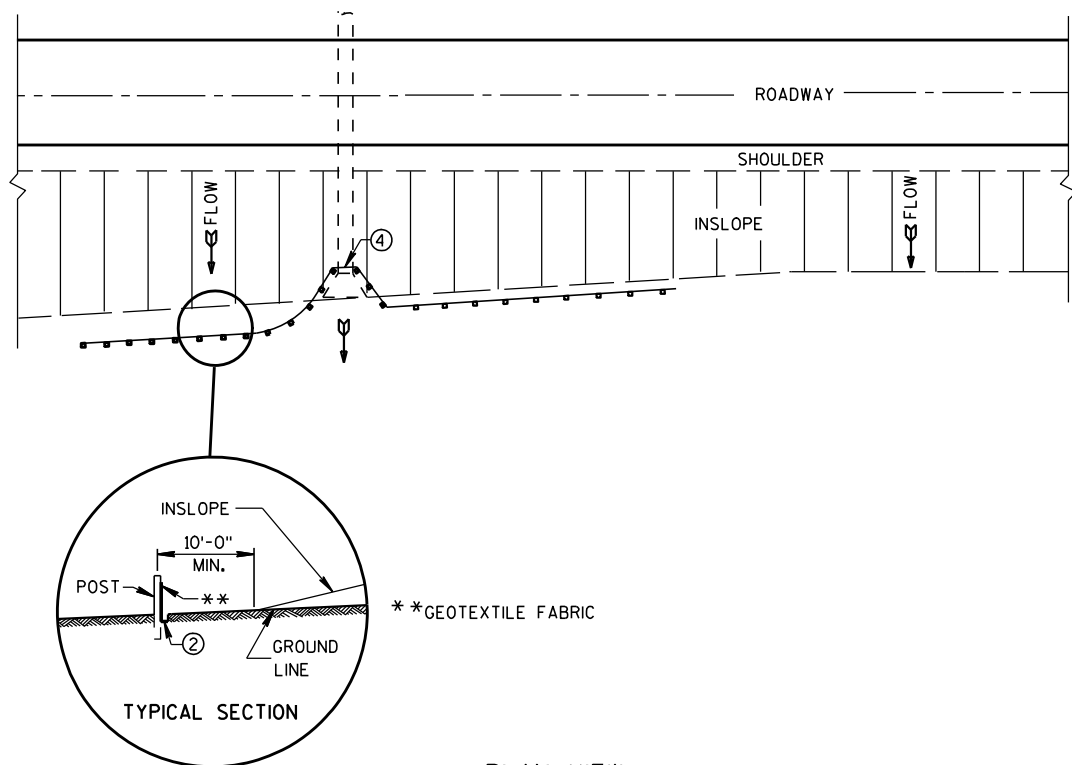


SECTION D-D

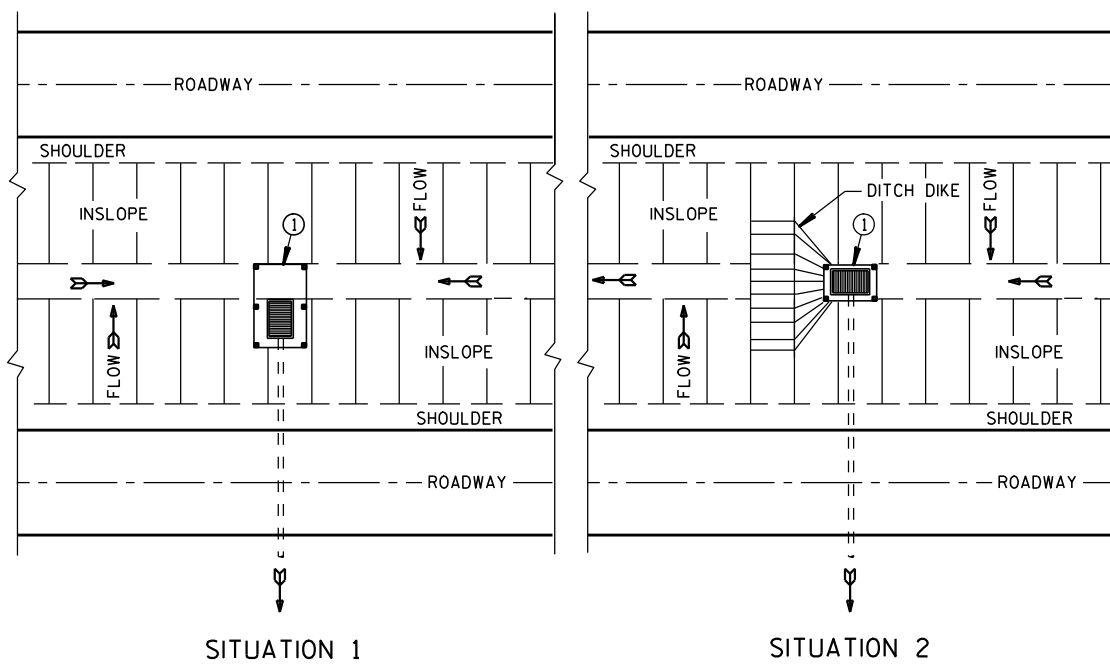
CONCRETE SURFACE DRAINS & ASPHALTIC FLUMES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
9-4-08 /S/ Jerry H. Zogg
DATE ROADWAY STANDARDS DEVELOPMENT
ENGINEER
FHWA



PLAN VIEW
TYPICAL APPLICATION OF SILT FENCE

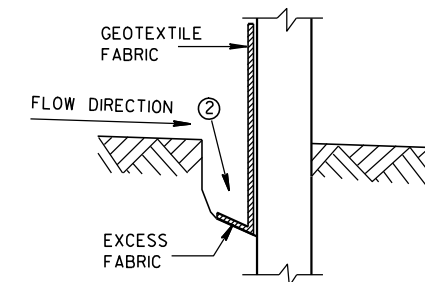


SITUATION 1 SITUATION 2
PLAN VIEW
SILT FENCE AT MEDIAN SURFACE DRAINS

GENERAL NOTES

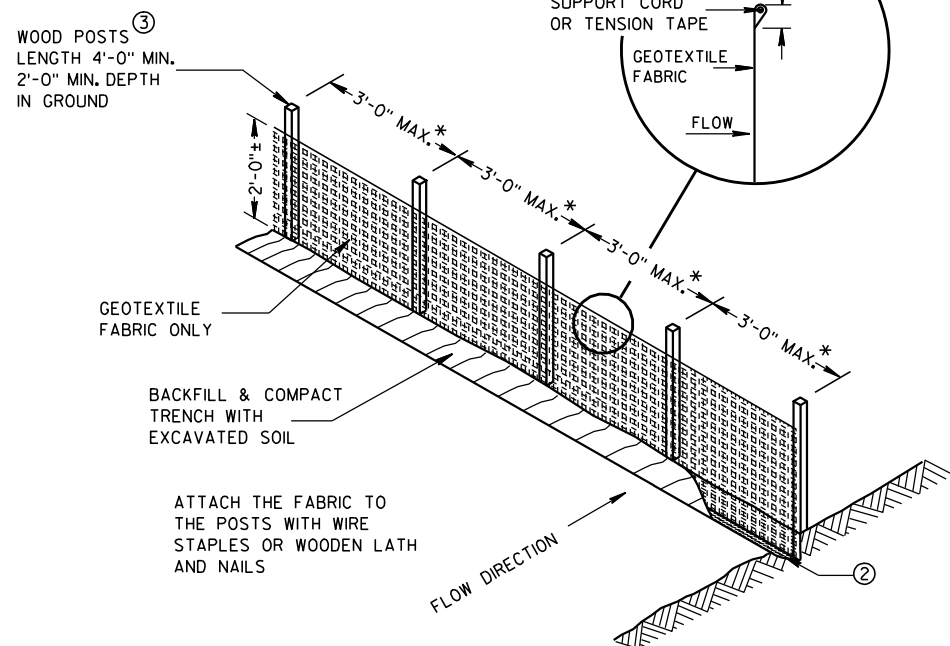
DETAILS OF CONSTRUCTION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.

- 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.



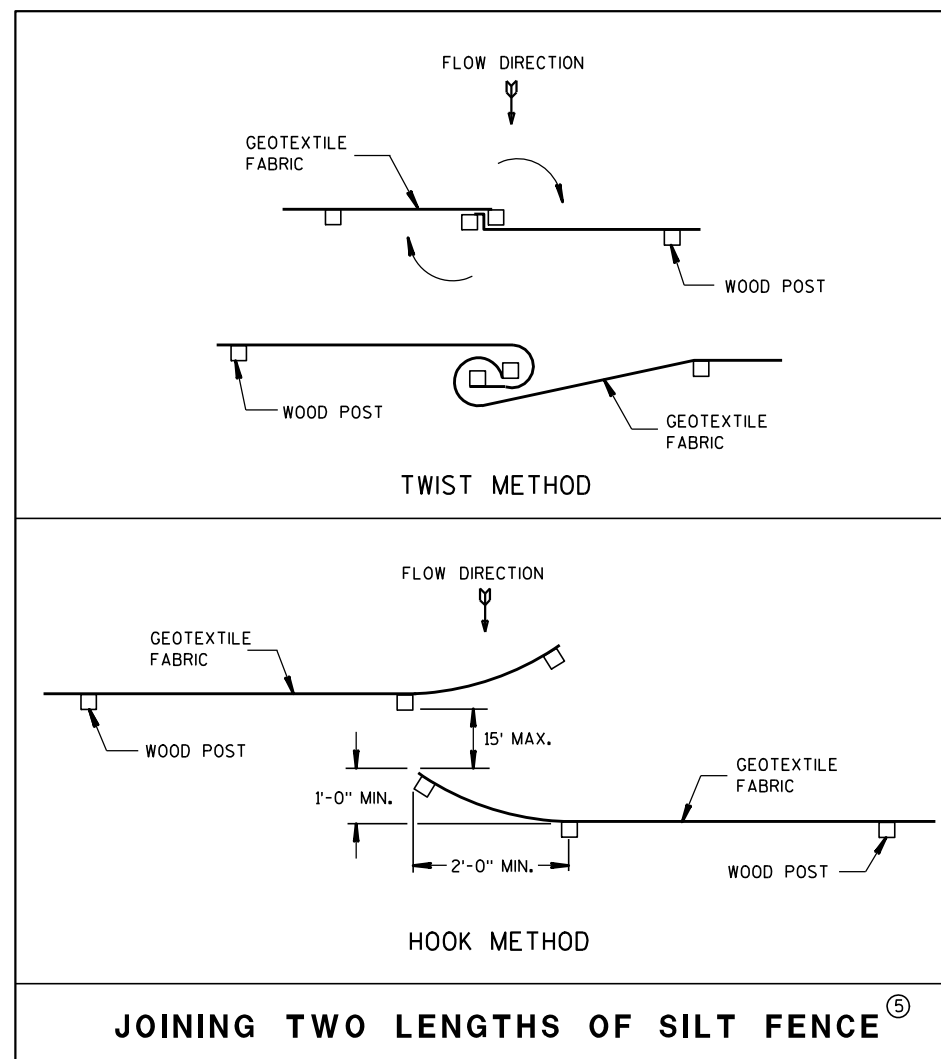
TRENCH DETAIL

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

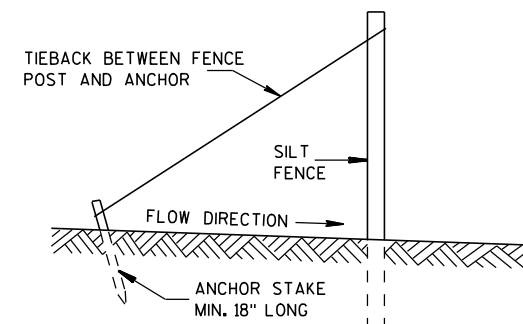


SILT FENCE

* 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

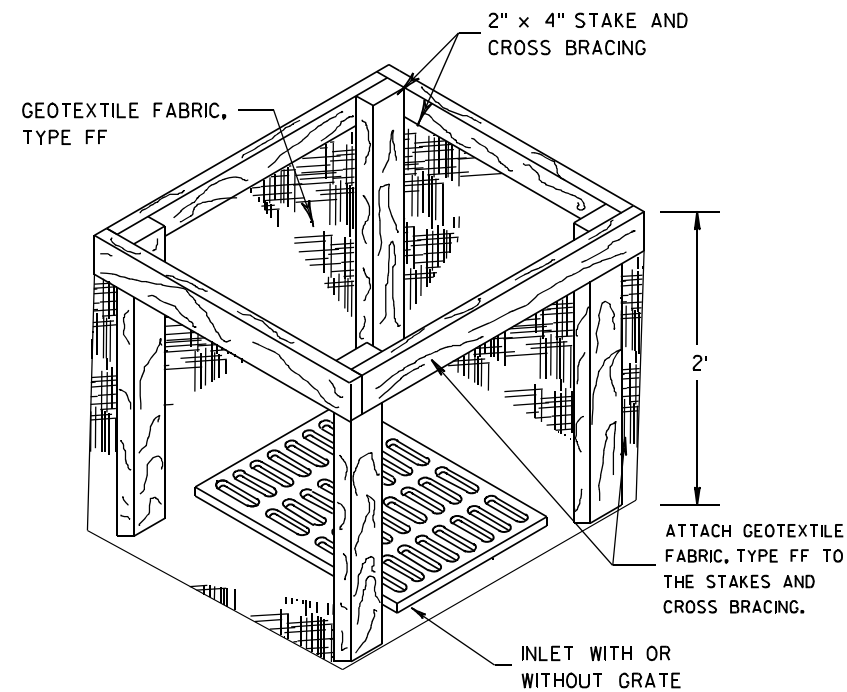
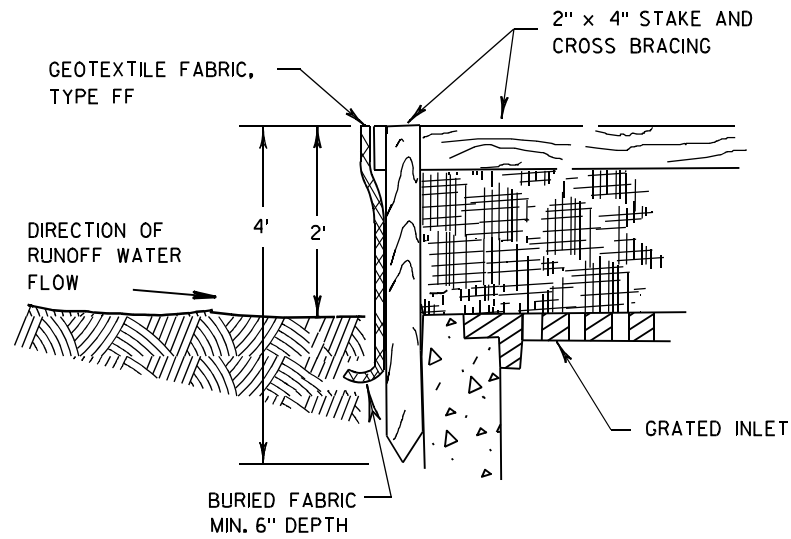
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

4-29-05
DATE

FHWA

/S/ Beth Cannestra
CHIEF ROADWAY DEVELOPMENT ENGINEER



INLET PROTECTION, TYPE A

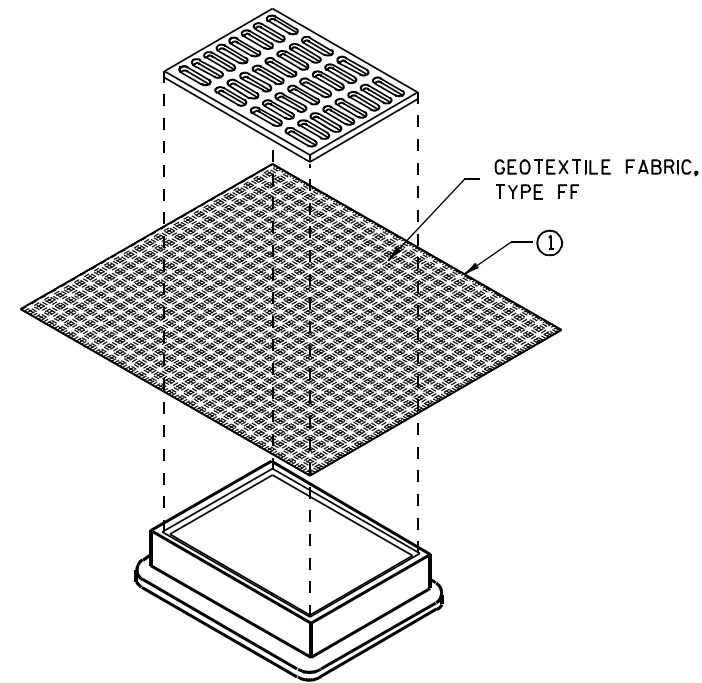
GENERAL NOTES

INLET PROTECTION DEVICES SHALL BE MAINTAINED OR REPLACED AT THE DIRECTION OF THE ENGINEER.

MANUFACTURED ALTERNATIVES APPROVED AND LISTED ON THE DEPARTMENT'S EROSION CONTROL PRODUCT ACCEPTABILITY LIST MAY BE SUBSTITUTED.

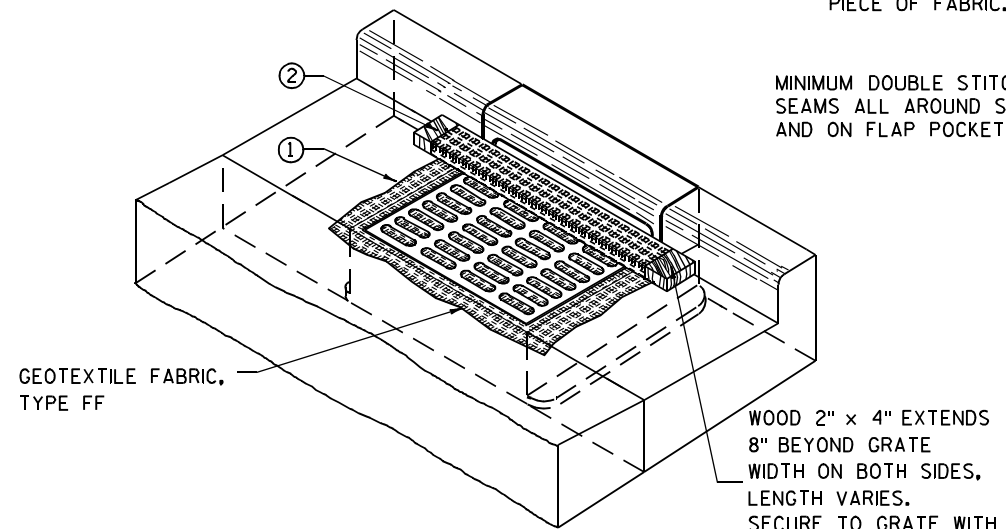
WHEN REMOVING OR MAINTAINING INLET PROTECTION, CARE SHALL BE TAKEN SO THAT THE SEDIMENT TRAPPED ON THE GEOTEXTILE FABRIC DOES NOT FALL INTO THE INLET. ANY MATERIAL FALLING INTO THE INLET SHALL BE REMOVED IMMEDIATELY.

- ① FINISHED SIZE, INCLUDING FLAP POCKETS WHERE REQUIRED, SHALL EXTEND A MINIMUM OF 10" AROUND THE PERIMETER TO FACILITATE MAINTENANCE OR REMOVAL.
- ② FOR INLET PROTECTION, TYPE C (WITH CURB BOX), AN ADDITIONAL 18" OF FABRIC IS WRAPPED AROUND THE WOOD AND SECURED WITH STAPLES. THE WOOD SHALL NOT BLOCK THE ENTIRE HEIGHT OF THE CURB BOX OPENING.
- ③ FLAP POCKETS SHALL BE LARGE ENOUGH TO ACCEPT WOOD 2X4.



**INLET PROTECTION, TYPE B
(WITHOUT CURB BOX)**

(CAN BE INSTALLED IN ANY INLET WITHOUT A CURB BOX)



INLET PROTECTION, TYPE C (WITH CURB BOX)

INSTALLATION NOTES

TYPE B & C

TRIM EXCESS FABRIC IN THE FLOW LINE TO WITHIN 3" OF THE GRATE.

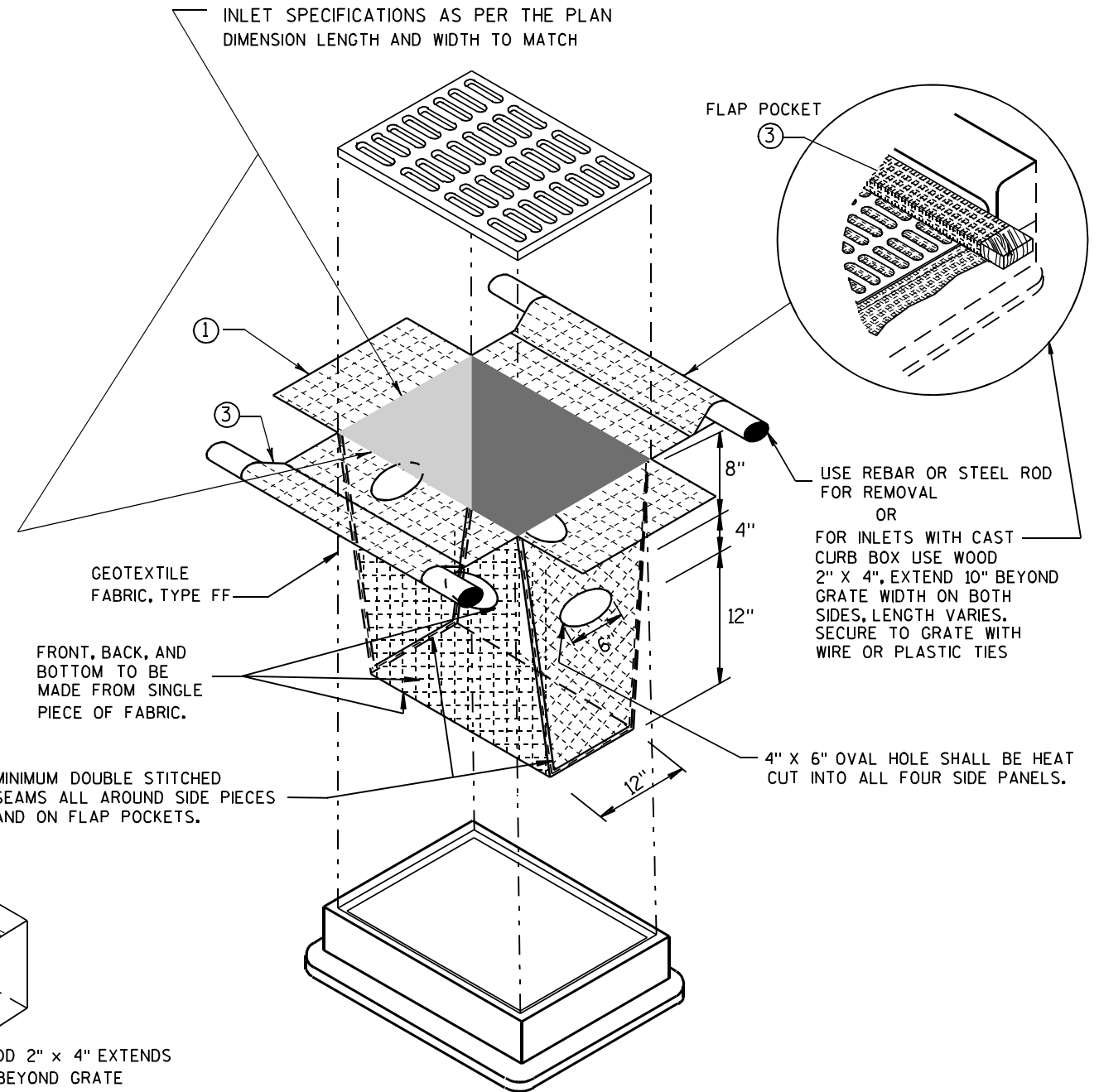
THE CONTRACTOR SHALL DEMONSTRATE A METHOD OF MAINTENANCE, USING A SEWN FLAP, HAND HOLDS OR OTHER METHOD TO PREVENT ACCUMULATED SEDIMENT FROM ENTERING THE INLET.

TYPE D

DO NOT INSTALL INLET PROTECTION TYPE D IN INLETS SHALLOWER THAN 30", MEASURED FROM THE BOTTOM OF THE INLET TO THE TOP OF THE GRATE.

TRIM EXCESS FABRIC IN THE FLOW LINE TO WITHIN 3" OF THE GRATE.

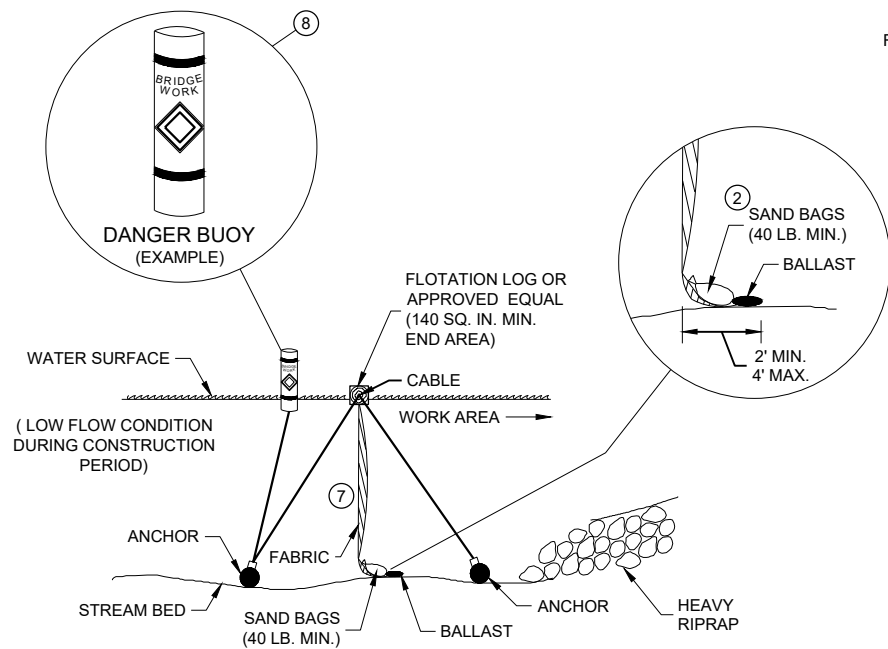
THE INSTALLED BAG SHALL HAVE A MINIMUM SIDE CLEARANCE, BETWEEN THE INLET WALLS AND THE BAG, MEASURED AT THE BOTTOM OF THE OVERFLOW HOLES, OF 3". WHERE NECESSARY THE CONTRACTOR SHALL CINCH THE BAG, USING PLASTIC ZIP TIES, TO ACHIEVE THE 3" CLEARANCE. THE TIES SHALL BE PLACED AT A MAXIMUM OF 4" FROM THE BOTTOM OF THE BAG.



INLET PROTECTION, TYPE D

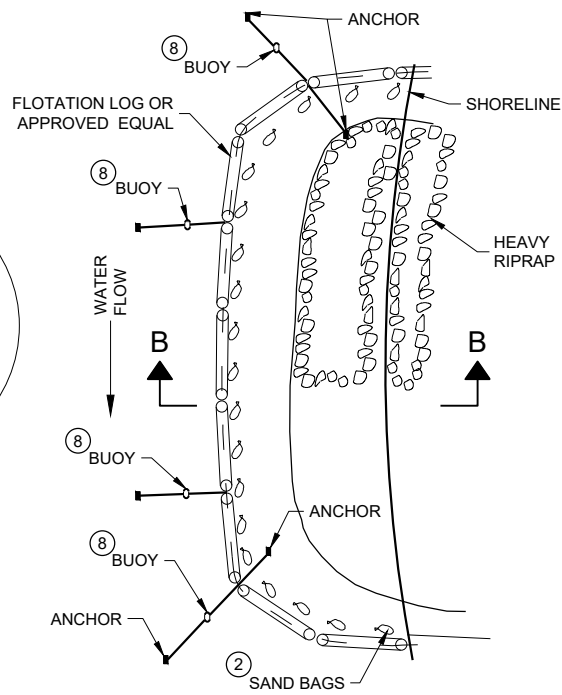
(CAN BE INSTALLED IN ANY INLET TYPE WITH OR WITHOUT A CURB BOX AS PER NOTE ②)

INLET PROTECTION TYPE A, B, C, AND D	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 10/16/02 DATE	/s/ Beth Conestra CHIEF ROADWAY DEVELOPMENT ENGINEER
FHWA	

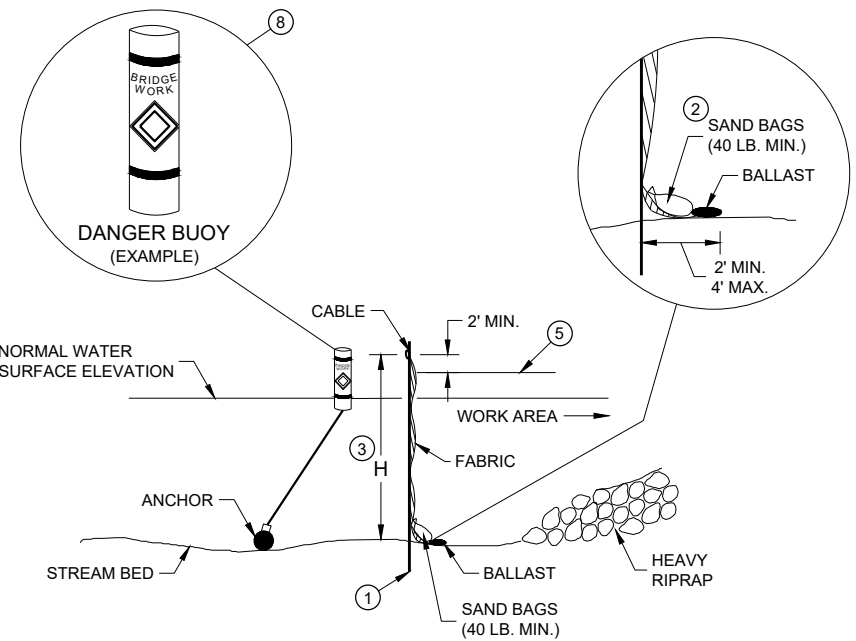


SECTION B - B

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

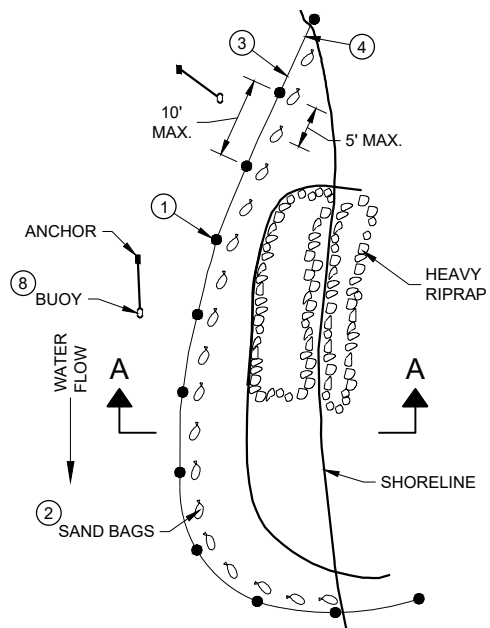


PLAN VIEW



SECTION A - A

TURBIDITY BARRIER - STANDARD POST INSTALLATION



PLAN VIEW

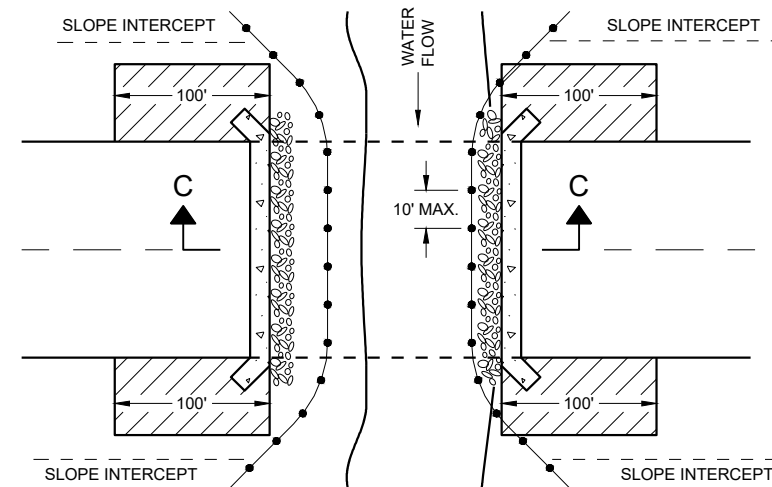
TURBIDITY BARRIER PLACEMENT DETAILS

GENERAL NOTES

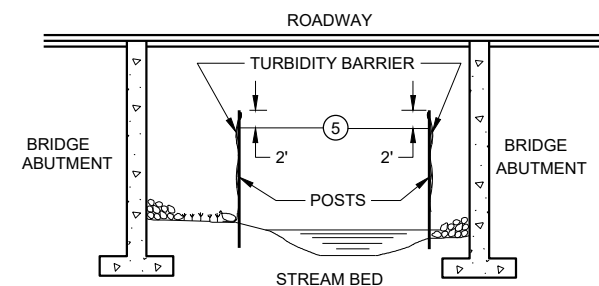
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

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

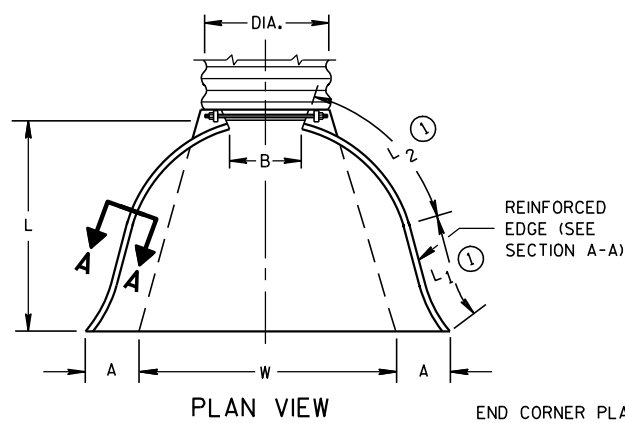
FHWA

METAL APRON ENDWALLS											
PIPE DIA. (IN.)	MIN. THICK. (Inches)		DIMENSIONS (Inches)							APPROX. SLOPE	BODY
	STEEL	ALUM.	A (±1")	B (MAX.)	H (±1")	L (±1 1/2")	L1 (1)	L2 (1)	W (±2")		
12	.064	.060	6	6	6	21	12	17 1/2	24	2 1/2 to 1	1 Pc.
15	.064	.060	7	8	6	26	14	21 3/4	30	2 1/2 to 1	1 Pc.
18	.064	.060	8	10	6	31	15	28 1/4	36	2 1/2 to 1	1 Pc.
21	.064	.060	9	12	6	36	18	29 5/8	42	2 1/2 to 1	1 Pc.
24	.064	.075	10	13	6	41	18	37 1/4	48	2 1/2 to 1	1 Pc.
30	.079	.075	12	16	8	51	18	52 1/4	60	2 1/2 to 1	1 Pc.
36	.079	.105	14	19	9	60	24	59 3/4	72	2 1/2 to 1	2 Pc.
42	.109	.105	16	22	11	69	24	75 5/8	84	2 1/2 to 1	2 Pc.
48	.109	.105	18	27	12	78	24	81	90	2 1/4 to 1	3 Pc.
54	.109	.105	18	30	12	84	30	85 1/2	102	2 1/4 to 1	3 Pc.
60	.109x	.105x	18	33	12	87	—	—	114	2 to 1	3 Pc.
66	.109x	.105x	18	36	12	87	—	—	120	2 to 1	3 Pc.
72	.109x	.105x	18	39	12	87	—	—	126	2 to 1	3 Pc.
78	.109x	.105x	18	42	12	87	—	—	132	1 1/2 to 1	3 Pc.
84	.109x	.105x	18	45	12	87	—	—	138	1 1/2 to 1	3 Pc.
90	.109x	.105x	18	37	12	87	—	—	144	1 1/2 to 1	3 Pc.
96	.109x	.105x	18	35	12	87	—	—	150	1 1/2 to 1	3 Pc.

* EXCEPT CENTER PANEL SEE GENERAL NOTES

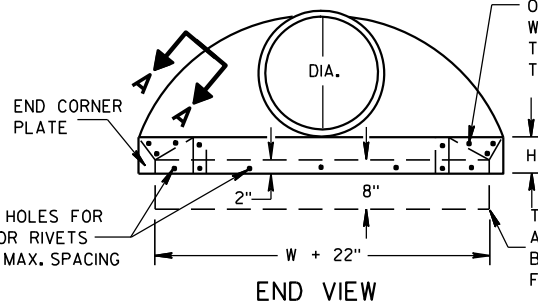
REINFORCED CONCRETE APRON ENDWALLS									
PIPE DIA. (IN.)	DIMENSIONS (Inches)							APPROX. SLOPE	
	T	A	B	C	D	E	G		
12	2	4	24	48 1/8	72 1/8	24	2	3 to 1	
15	2 1/4	6	27	46	73	30	2 1/4	3 to 1	
18	2 1/2	9	27	46	73	36	2 1/2	3 to 1	
21	2 3/4	9	36	37 1/2	73 1/2	42	2 3/4	3 to 1	
24	3	9 1/2	43 1/2	30	73 1/2	48	3	3 to 1	
27	3 1/4	10 1/2	49 1/2	24	73 1/2	54	3 1/4	3 to 1	
30	3 1/2	12	54	19 3/4	73 1/2	60	3 1/2	3 to 1	
36	4	15	63	34 3/4	97 3/4	72	4	3 to 1	
42	4 1/2	21	63	35	98	78	4 1/2	3 to 1	
48	5	24	72	26	98	84	5	3 to 1	
54	5 1/2	27	65	33 1/4-35	98 1/4-100	90	5 1/2	2 1/2 to 1	
60	6	30-35	60	39	99	96	5	2 to 1	
66	6 1/2	24-30	72-78	21-27	99	102	5 1/2	2 to 1	
72	7	24-36	78	21	99	108	6	2 to 1	
78	7 1/2	24-36	78	21	99	114	6 1/2	2 to 1	
84	8	36	90 1/2	21	111 1/2	120	6 1/2	1 1/2 to 1	
90	8 1/2	41	87 1/2	24	111 1/2	132	6 1/2	1 1/2 to 1	

* MINIMUM
** MAXIMUM

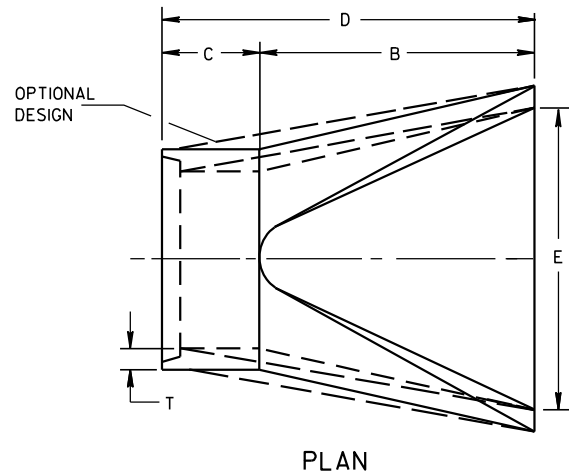


END CORNER PLATES MAY BE FASTENED TO APRON PROPER BY BOLTS, RIVETS, OR RESISTANCE SPOT WELDS WHICH WILL HOLD THE SURFACES TIGHTLY TOGETHER

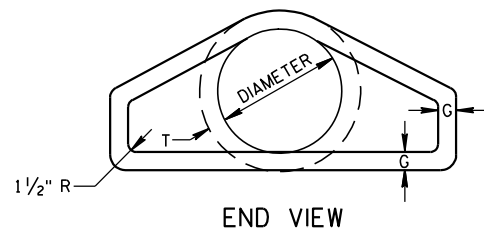
TOE PLATE (SAME THICKNESS AND METAL AS APRON) SHALL BE FURNISHED WHEN CALLED FOR ON THE PLANS



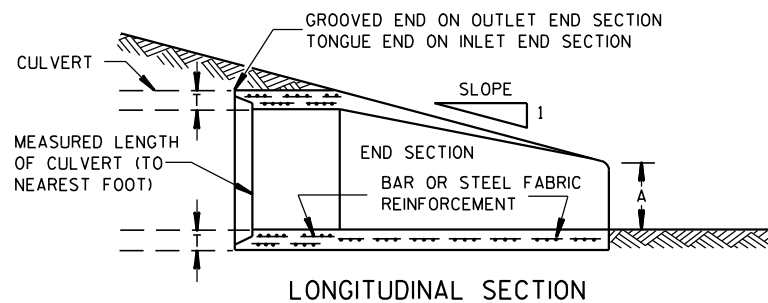
SIDE ELEVATION
METAL ENDWALLS



PLAN

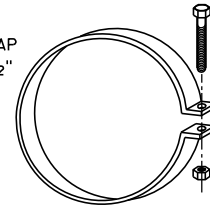


END VIEW

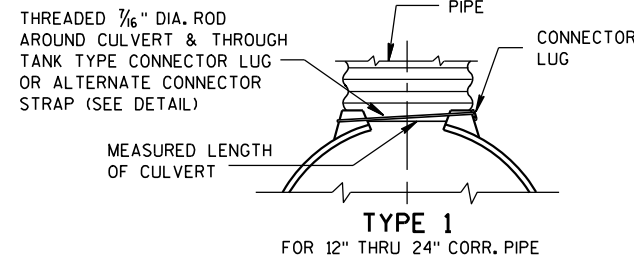


LONGITUDINAL SECTION
CONCRETE ENDWALLS

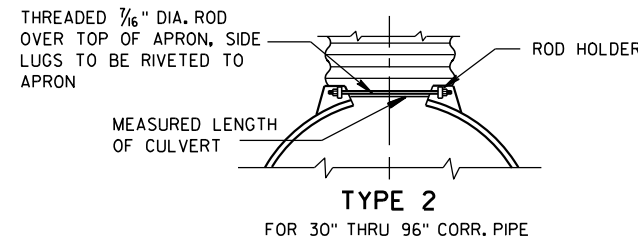
1" WIDE, 12 GA. (0.109" THICK) GALVANIZED STRAP WITH STANDARD 6" X 1/2" BAND BOLT AND NUT



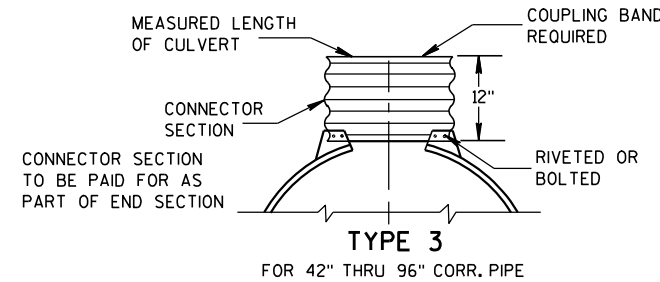
ALTERNATE FOR TYPE 1 CONNECTION
END SECTION CONNECTOR STRAP



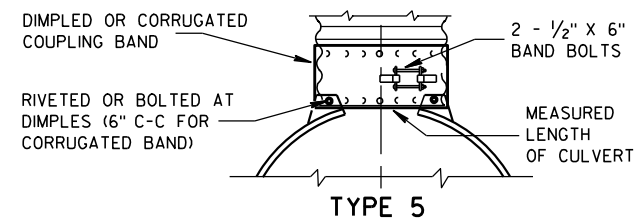
TYPE 1
FOR 12" THRU 24" CORR. PIPE



TYPE 2
FOR 30" THRU 96" CORR. PIPE



TYPE 3
FOR 42" THRU 96" CORR. PIPE



TYPE 5
ALTERNATE FOR:
ALL SIZES CORRUGATED CIRCULAR PIPE

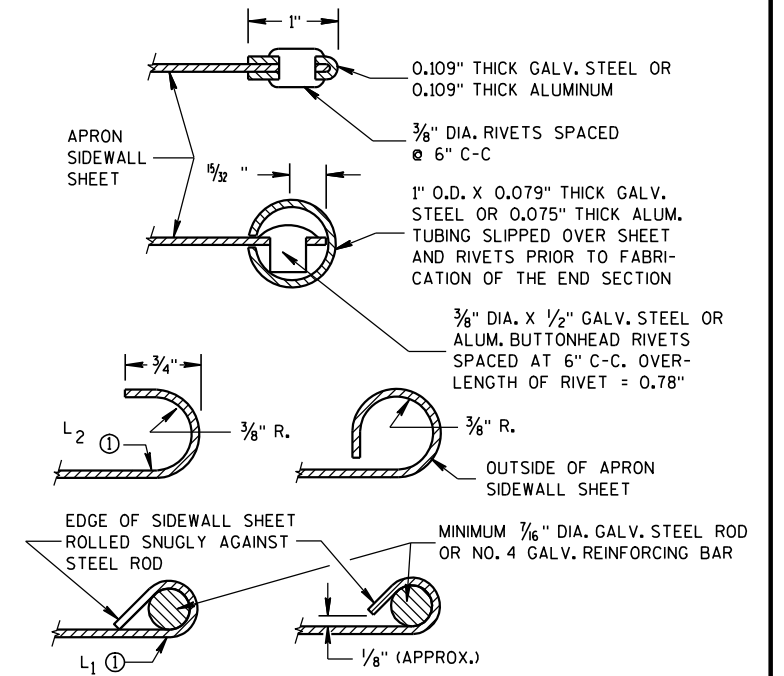
NOTE: DIMPLED BAND FITS OVER OUTSIDE OF ENDWALL, AND CORRUGATED BAND FITS INSIDE ENDWALL. DIMPLED BAND MAY BE USED WITH HELICALLY CORRUGATED PIPE.

FOR CIRCUMFERENTIALLY CORRUGATED PIPE USE ENDWALL CONNECTION DETAILS 1, 2, 3 OR 5 AS APPLICABLE.

FOR HELICALLY CORRUGATED PIPE USE ENDWALL CONNECTION DETAILS 1, 2 OR 5.

FOR HELICALLY CORRUGATED PIPES WITH TWO CIRCUMFERENTIAL CORRUGATIONS AT EACH END USE ENDWALL CONNECTION DETAILS 1, 2 OR 3.

CONNECTION DETAILS



SECTION A-A

GENERAL NOTES

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

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

ALL THREE PIECE STEEL APRON ENDWALLS FOR 60" DIAMETER PIPE AND LARGER SHALL HAVE 0.109" SIDES AND 0.138" CENTER PANELS. ALL THREE PIECE ALUMINUM APRON ENDWALLS FOR 60" DIAMETER PIPE AND LARGER SHALL HAVE 0.105" SIDES AND 0.134" CENTER PANELS. THE WIDTH OF CENTER PANELS SHALL BE GREATER THAN 20 PERCENT OF THE PIPE PERIMETER.

LAP SEAMS SHALL BE TIGHTLY JOINED BY GALVANIZED RIVETS OR BOLTS FOR STEEL UNITS AND ALUMINUM RIVETS AND BOLTS FOR ALUMINUM UNITS. FOR THE 60" THROUGH 96" DIAMETER APRON ENDWALL SIZES, THE REINFORCED EDGES AND CENTER PANEL SEAMS SHALL BE FURTHER REINFORCED WITH GALVANIZED STEEL OR ALUMINUM STIFFENER ANGLES. THE ANGLES SHALL BE ATTACHED BY GALVANIZED NUTS AND BOLTS FOR STEEL UNITS AND ALUMINUM NUTS AND BOLTS FOR ALUMINUM UNITS.

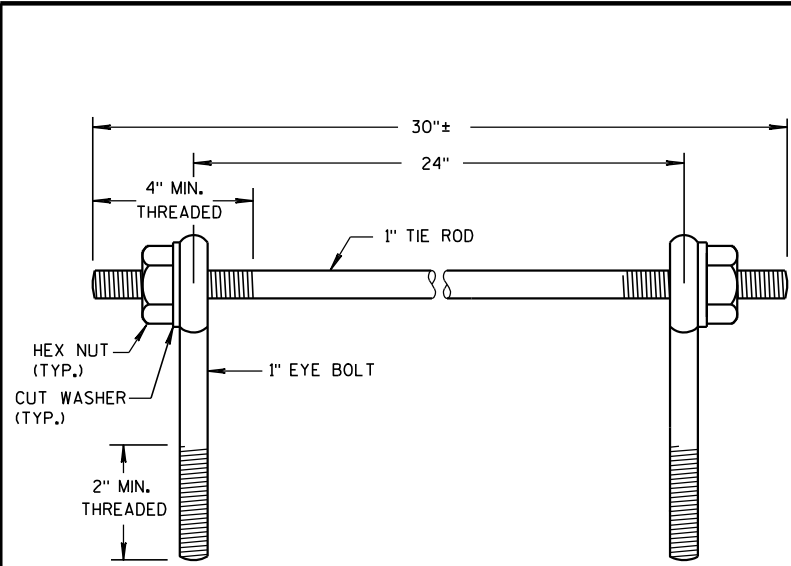
WHERE TWO OR MORE PIPES WITH APRON ENDWALLS ARE LAID ADJACENT TO EACH OTHER, THEY SHALL BE SEPARATED BY A DISTANCE SUFFICIENT TO PROVIDE A MINIMUM CLEARANCE OF 6 INCHES BETWEEN APRON ENDWALLS.

① FOR PIPE SIZES UP TO 60" DIAMETER, A 180° ROLLED EDGE MAY BE USED INSTEAD OF STEEL ROD REINFORCEMENT. SEE SECTION A-A.

APRON ENDWALLS FOR
CULVERT PIPE

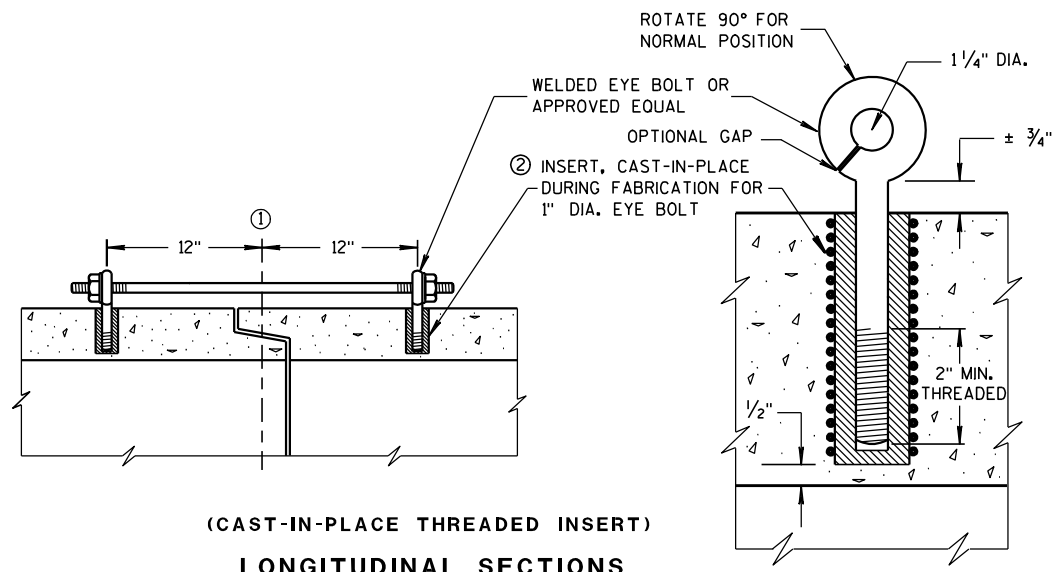
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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



EYE BOLTS AND TIE ROD

EYE BOLT AND TIE ROD ASSEMBLY (ALTERNATE NO. 1)



(CAST-IN-PLACE THREADED INSERT)
LONGITUDINAL SECTIONS

GENERAL NOTES

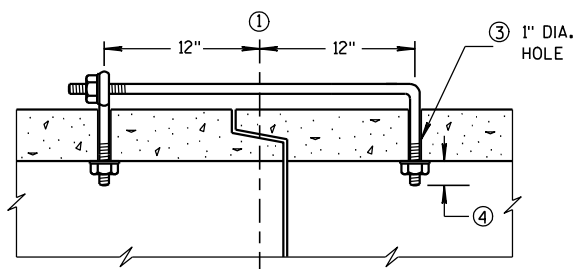
DETAILS OF CONSTRUCTION, MATERIALS, AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.

CONCRETE CULVERT AND STORM SEWER PIPE SHALL BE TIED TOGETHER IN THE MANNER ILLUSTRATED BY THIS DETAIL AT LOCATIONS DESIGNATED IN THE STANDARD SPECIFICATIONS AND THE PLAN. THE CONTRACTOR MAY USE EITHER ALTERNATE 1, 2 OR 3 FOR DRAINAGE STRUCTURES. ONLY ALTERNATE 1 AND 3 MAY BE USED FOR CATTLE PASSES, UNLESS OTHERWISE STATED IN THE CONTRACT. THE MATERIALS, FABRICATION AND WORK NECESSARY TO TIE THE PIPE BY THIS DETAIL WILL BE CONSIDERED INCIDENTAL TO THE PIPE AND APRON ENDWALLS IF REQUIRED.

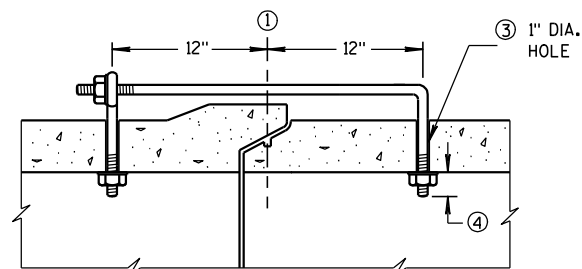
DETAILED DRAWINGS FOR PROPOSED ALTERNATE DESIGNS FOR JOINT TIES SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL.

JOINT TIES TO BE HOT-DIP GALVANIZED PER ASTM A 153.

- ① ϕ OF TONGUE AND GROOVE OR BELL AND SPIGOT JOINTS.
- ② THE INSIDE OF THE THREADED INSERTS SHALL BE CLEAN TO ALLOW THE INSERTION OF THREADED EYE BOLTS.
- ③ HOLES SHALL BE CAST-IN-PLACE OR DRILLED 12 INCHES FROM ϕ OF TONGUE AND GROOVE.
- ④ BOLT PROJECTION INSIDE OF PIPE SHALL NOT EXCEED 2 INCHES.
- ⑤ OPENING TO BE ROD DIAMETER PLUS 1 INCH.
- ⑥ LENGTH ADEQUATE TO EXTEND TO WITHIN $\frac{1}{2}$ INCH OF THE INNER SURFACE OF THE PIPE.



(TONGUE & GROOVE PIPE)



(MODIFIED BELL PIPE)
LONGITUDINAL SECTION

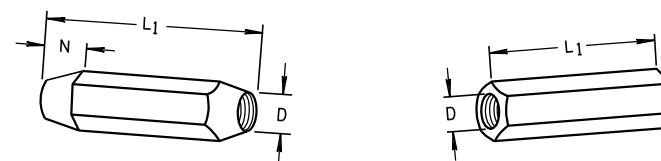
EYE BOLT DIMENSION TABLE

PIPE SIZE	L = LENGTH	
	TONGUE & GROOVE PIPE	MODIFIED BELL PIPE
18" TO 24"	4 1/2"	6 1/4"
30"	5"	7"
36"	5 1/2"	7"
42"	6"	
48"	6 1/2"	
60"	7 1/2"	
66"	8"	

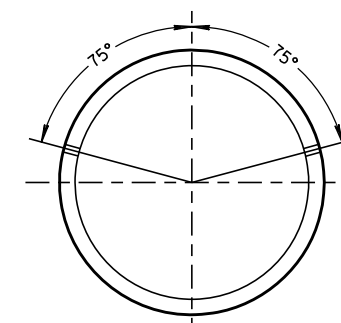
ADJUSTABLE TIE ROD TABLE

PIPE DIAMETER	TIE ROD DIAMETER	D	L ₁	N
12-60	5/8	5/8	5	1/2
66-84	3/4	3/4	5	1/2
90-108	1	1	7	1 1/6

DIMENSIONS SHOWN ARE IN INCHES

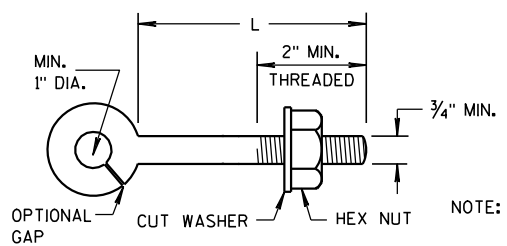


TAPERED PLAIN
RIGHT AND LEFT THREADS
SLEEVE NUTS



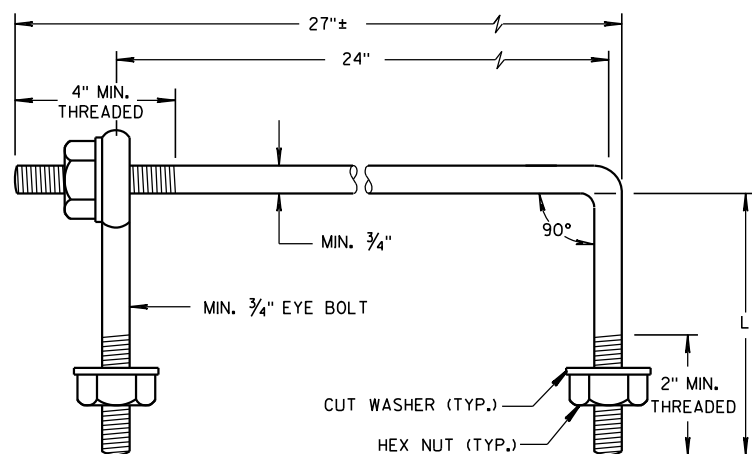
PLACEMENT OF (2) CAST-IN-PLACE
INSERTS OR HOLES DURING FABRICATION
FOR PIPE SECTIONS REQUIRING TIE RODS

TRANSVERSE SECTION



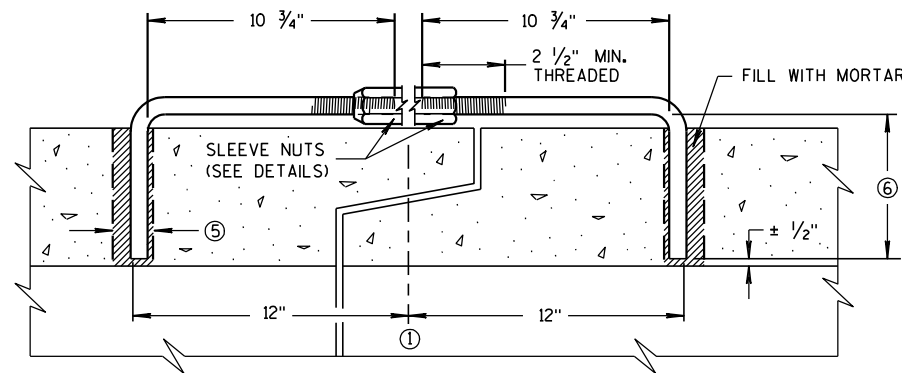
EYE BOLT

NOTE: TWO EYE BOLTS MAY BE USED WITH A 30" LONG THREADED ROD IN LIEU OF THE 90° BENT TIE ROD.



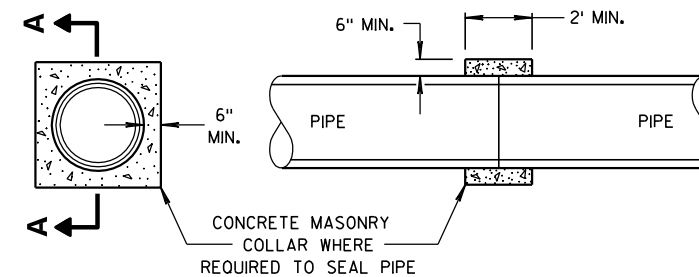
EYE BOLT AND TIE ROD

(JOINT TIES FOR 18" TO 66" DIA. CONCRETE PIPE)
EYE BOLT AND TIE ROD ASSEMBLY (ALTERNATE NO. 2)



LONGITUDINAL SECTION

(JOINT TIES FOR 12" TO 108" DIA. CONCRETE PIPE)
ADJUSTABLE TIE ROD (ALTERNATE NO. 3)



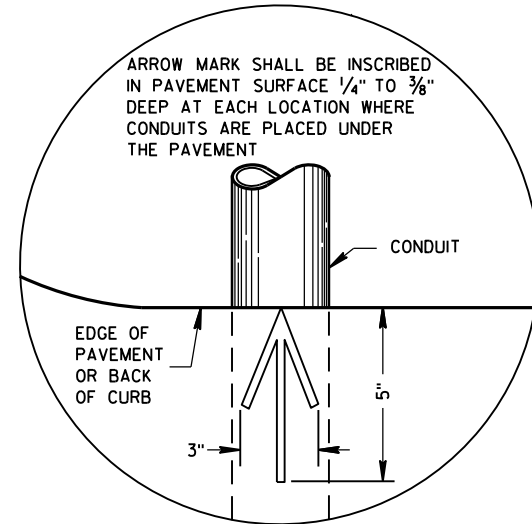
SECTION A-A

CONCRETE COLLAR DETAIL

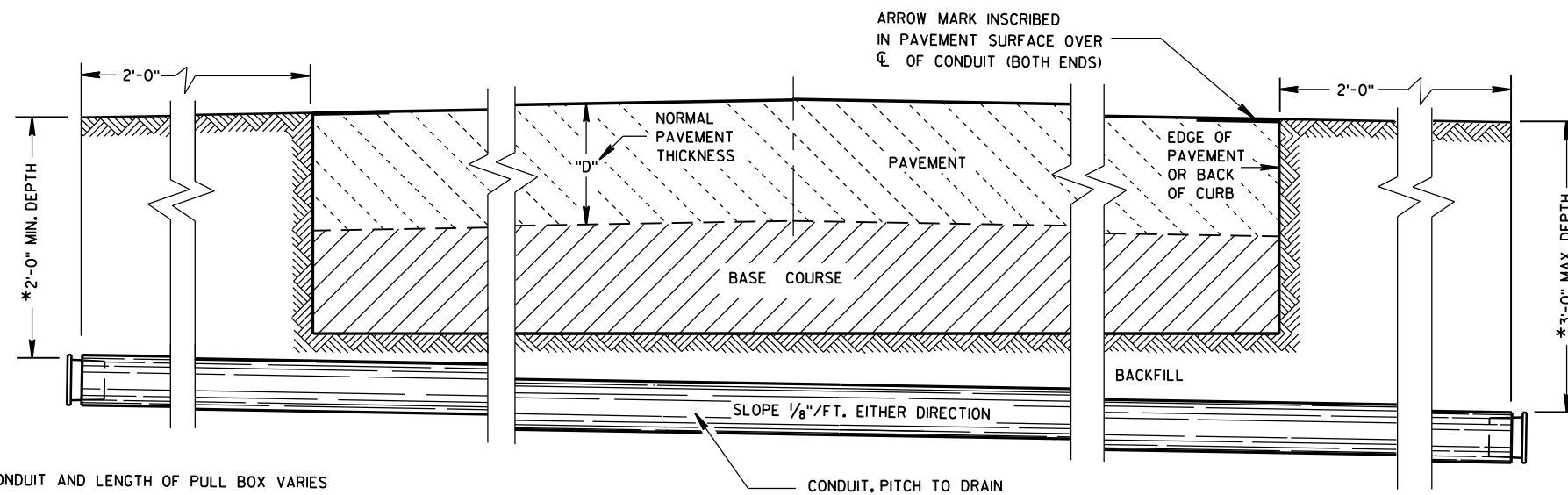
JOINT TIES FOR CONCRETE
PIPE AND CONCRETE
COLLAR DETAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
6/5/2012 /S/ Jerry H. Zogg
DATE ROADWAY STANDARDS DEVELOPMENT
ENGINEER
FHWA



**PLAN VIEW
ARROW MARK**



**SIDE ELEVATION
DETAIL FOR CONDUIT UNDER PAVED HIGHWAYS**

*DEPTH OF CONDUIT AND LENGTH OF PULL BOX VARIES WITH HEIGHT OF CURB USED. ALSO SEE PULL BOX S.D.D. 9B4

GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE CONTRACT.

METALLIC (STANDARD SPECIFICATION 652.2.2) OR NONMETALLIC (STANDARD SPECIFICATION 652.2.3) CONDUIT SHALL BE FURNISHED AND PLACED AS SHOWN.

DEPTH OF CONDUIT INSTALLED BELOW THE TRAVELED WAY SHALL BE 24 INCHES MINIMUM AND 36 INCHES MAXIMUM.

DEPTH OF CONDUIT INSTALLED THAT IS NOT BELOW THE TRAVELED WAY SHALL BE 18 INCHES MINIMUM AND 36 INCHES MAXIMUM.

ANY EXCEPTION TO THE MAXIMUM DEPTH SHALL BE ONLY WITH THE WRITTEN APPROVAL OF THE ENGINEER.

THE TRENCH SHALL NOT BE BACKFILLED PRIOR TO INSPECTION OF THE CONDUIT.

ALL METALLIC CONDUIT RACEWAY ENDS SHALL BE REAMED AND THREADED.

ALL METALLIC CONDUIT IN WHICH WIRE OR CABLE IS TO BE INSTALLED SHALL BE BUSHED WITH APPROVED THREADED BUSHINGS BEFORE INSTALLATION OF THE WIRE OR CABLE.

ALL METALLIC CONDUITS IN WHICH WIRE OR CABLE IS NOT TO BE INSTALLED SHALL BE CAPPED WITH THREADED PROTECTIVE CAPS, AS APPROVED BY THE ENGINEER.

ALL NONMETALLIC CONDUIT SHALL BE CAPPED OR PLUGGED IMMEDIATELY AFTER INSTALLATION AND SHALL REMAIN CAPPED OR PLUGGED UNTIL WIRE/CABLES ARE INSTALLED.

NONMETALLIC CONDUITS IN WHICH WIRE OR CABLE IS NOT BEING INSTALLED SHALL REMAIN CAPPED OR PLUGGED.

BENDING OF PVC ELECTRICAL CONDUIT SHALL BE ACCOMPLISHED BY USING A BLANKET OR EMERSION TYPE TANK DESIGNED FOR THE PURPOSE OF BENDING PVC ELECTRICAL CONDUIT.

ALL CUT ENDS SHALL BE TRIMMED INSIDE AND OUTSIDE TO REMOVE ALL ROUGH EDGES ON NONMETALLIC CONDUIT. (SEE NEC 347.5)

WHEN REQUIRED TO CONNECT NONMETALLIC CONDUIT TO METALLIC CONDUIT, ONLY U.L. LISTED ADAPTER FITTINGS SHALL BE USED.

PRIOR TO CONDUIT ACCEPTANCE, CONDUIT CAPS OR PLUGS SHALL BE REMOVED, AND THE CAPS, PLUGS AND CONDUIT ENDS SHALL BE THOROUGHLY CLEANED AND THEN THE CAPS OR PLUGS REINSTALLED TO ENSURE THAT THE CAPS OR PLUGS CAN BE EASILY REMOVED IN THE FUTURE.

ALL CONDUIT BEING FURNISHED AND INSTALLED SHALL HAVE THE U.L. LABEL FIRMLY ATTACHED.

CONDUIT RUNS SHALL BE THE SAME SIZE OF CONDUIT FROM ONE END TO THE OTHER (FROM PULL BOX TO PULL BOX-OR-JUNCTION BOX TO JUNCTION BOX-OR-BASE TO BASE, ETC.).

TRACER WIRE SHALL BE INSTALLED AS STATED IN THE STANDARD SPECIFICATION, ITEM 652.3.1.1.

ALL CONDUIT RUNS SHALL BE STRAIGHT (WITHOUT BENDS) FROM PULL BOX TO PULL BOX, PULL BOX TO BASE AND BASE TO BASE AS SHOWN ON THE PLANS.

6

6

S.D.D. 9 B 2-10

S.D.D. 9 B 2-10

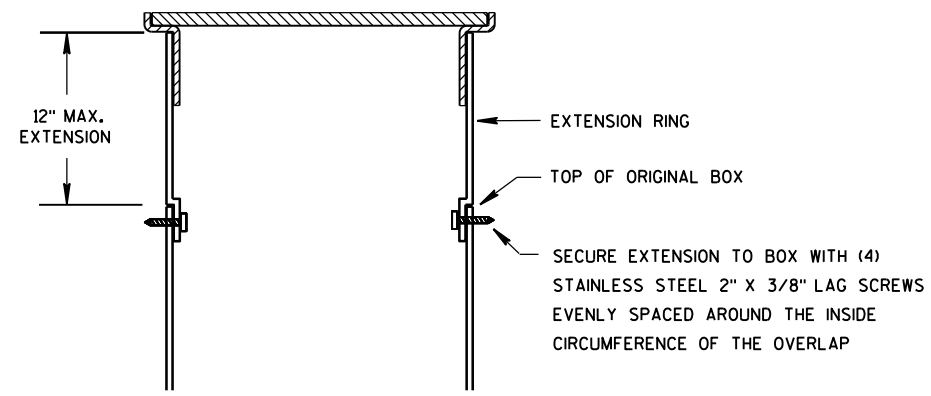
CONDUIT	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED March, 2017 DATE	/S/ Ahmet Demirbilek STATE ELECTRICAL ENGINEER
FHWA	

TABLE OF NOMINAL DIMENSIONS AND WEIGHTS

DIMENSION IN INCHES		NON-CONDUCTIVE PULL BOX	
BOX DIAMETER ** (INSIDE)	A	24	24
BOX OVERALL OUTSIDE DIAMETER	B	27	27
BOX LENGTH	C	36	42
FRAME OPENING	D	22 1/2	22 1/2
WEIGHT IN POUNDS *			
COVER		50	50
BOX ONLY		75	85

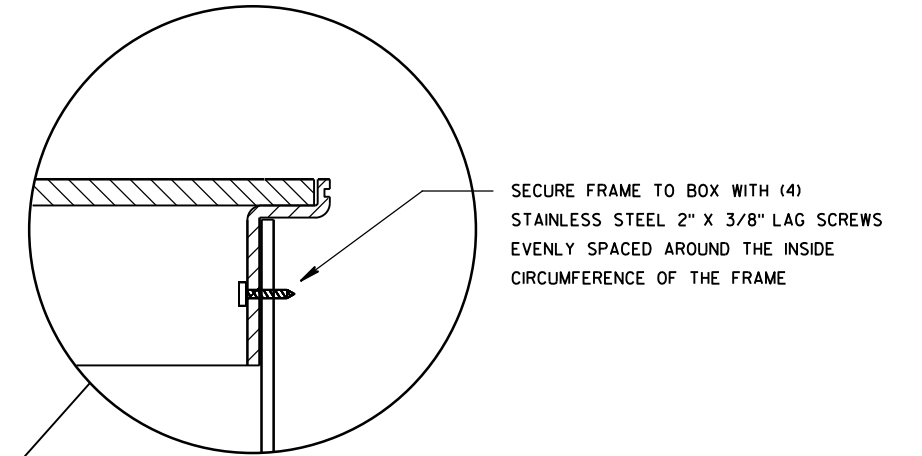
* THE ACTUAL WEIGHT OF THE COVER OR BOX ONLY MAY VARY NOT TO EXCEED 100 LBS INDIVIDUALLY.

** DIAMETER VARIES FROM TOP TO BOTTOM WITH THE DIAMETER LARGER AT THE BOTTOM TO PREVENT FROST HEAVE

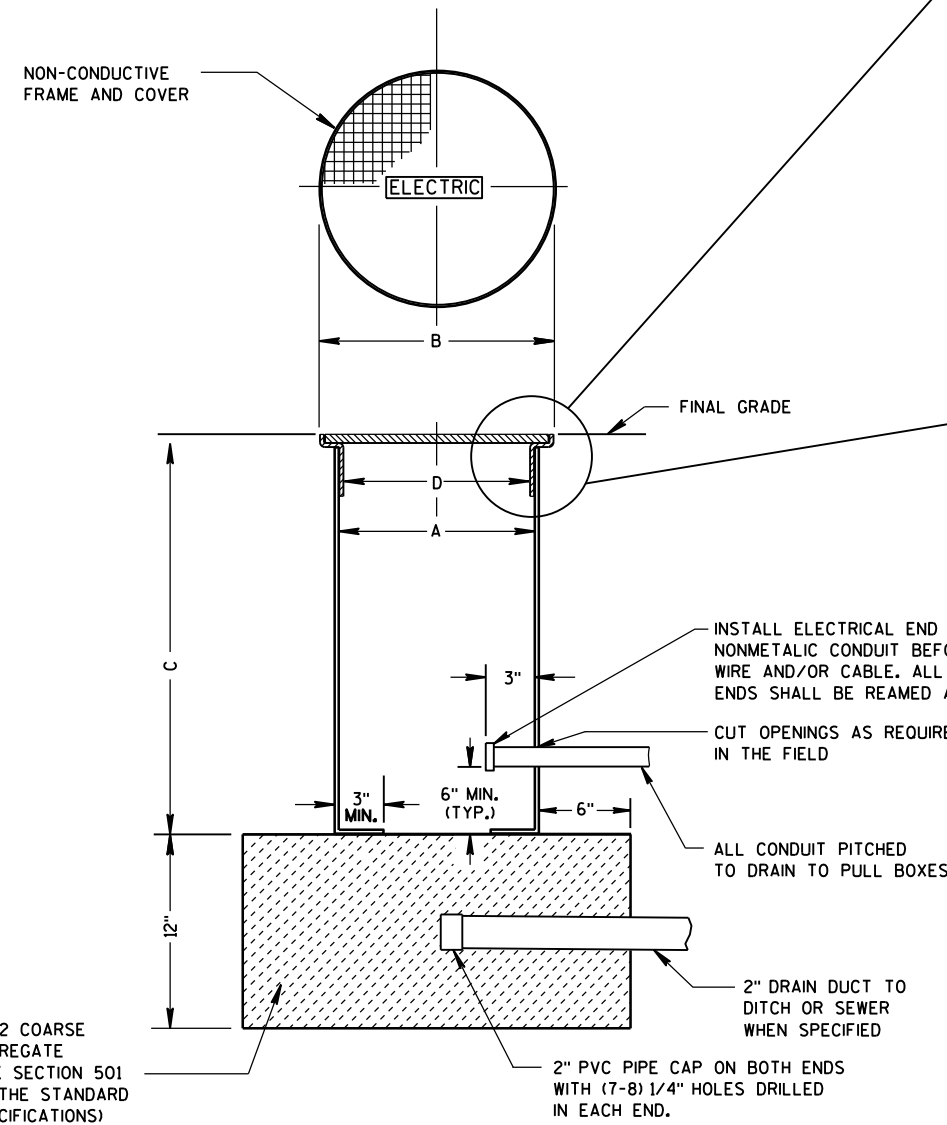
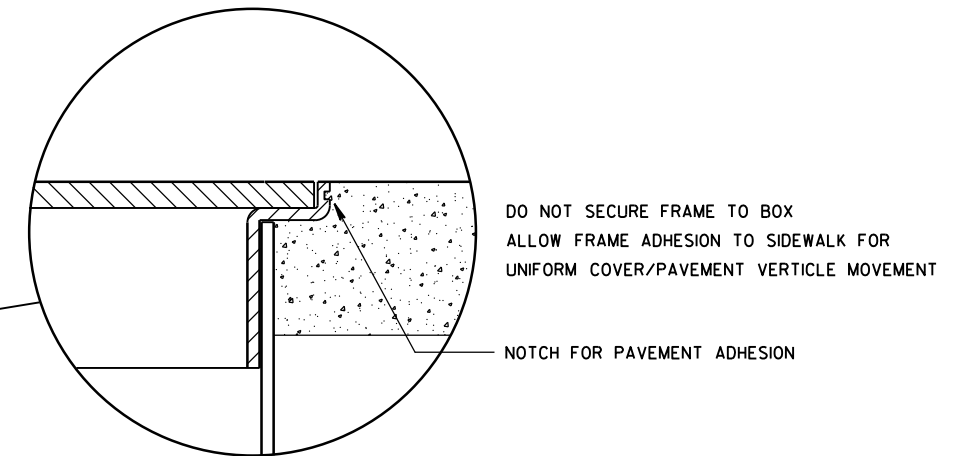


BOX EXTENSION

INSTALLED IN SOD OR CRUSHED AGGREGATE



INSTALLED IN SIDEWALK



NON-CONDUCTIVE PULL BOX

GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE CONTRACT.

ALL BOXES, FRAMES AND COVERS SHALL BE SUITABLE FOR TIER 15 LOADING AS SPECIFIED IN ANSI/SCTE 77.

PROVIDE AN OPENING FOR TOOL ASSISTED COVER REMOVAL NOT LARGE ENOUGH TO PERMIT PASSAGE OF A SPHERE MORE THAN 1/2" DIAMETER

ENSURE COVER SURFACE IS SKID RESISTANT WITH A COEFFICIENT OF FRICTION OF AT LEAST 0.5 AND VERTICAL SURFACE DISCONTINUITIES LESS THAN 1/4".

COVER SHALL BE MAGNETICALLY LOCATABLE.

BOXES AND EXTENSIONS ARE TRIMMABLE FOR CUSTOM LENGTHS. TRIMMED PIECES SHALL MAINTAIN A UNIFORM LENGTH.

ENTRANCE HOLES INTO PULL BOXES SHALL BE CUT WITH A CIRCULAR HOLE SAW OR HYDRAULIC CONDUIT PUNCH. HOLE SIZE SHALL BE THE OUTSIDE DIAMETER OF THE CONDUIT THAT IS TO FIT IN THE OPENING PLUS NO MORE THAN 1/4".

THE CONTRACTOR SHALL NOT INSTALL WIRE IN ANY PULL BOX UNTIL ITS INSTALLATION HAS BEEN INSPECTED AND ACCEPTED BY THE ENGINEER.

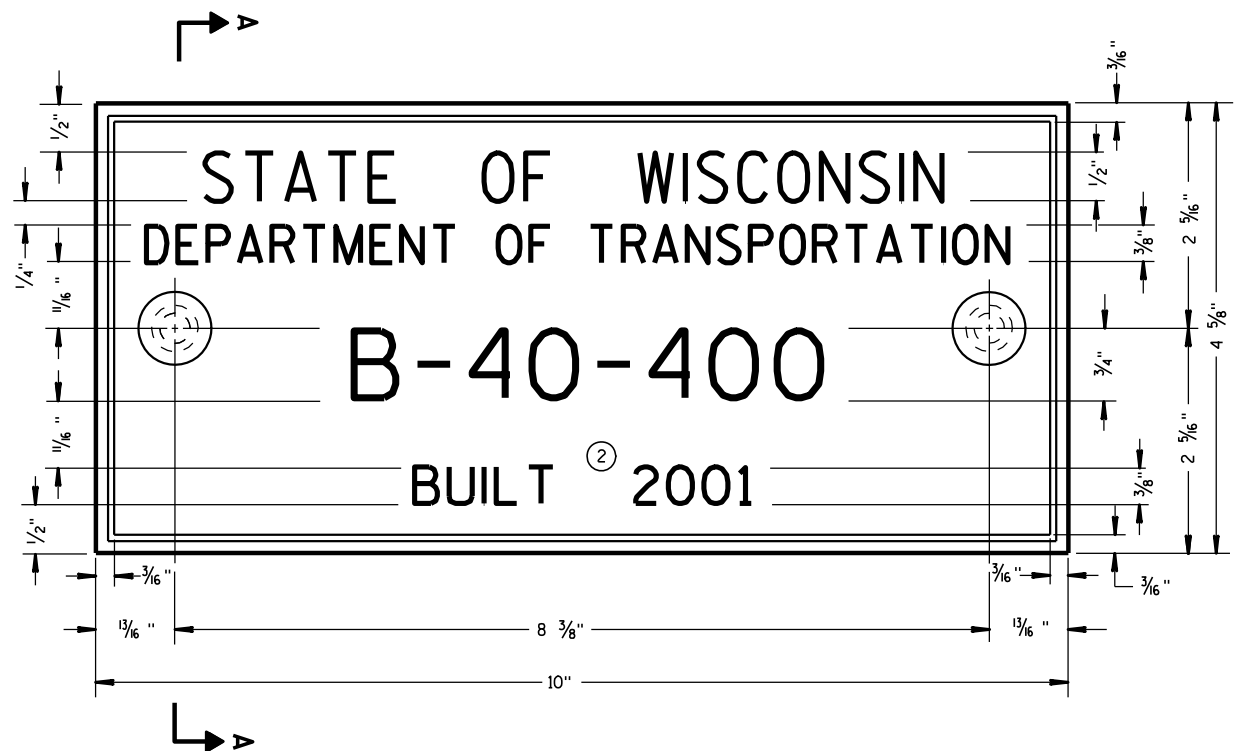
ALL METALLIC CONDUIT IN WHICH WIRE AND/OR CABLE IS TO BE INSTALLED, SHALL BE BUSHED BEFORE INSTALLATION OF THE WIRE AND/OR CABLE.

ENTIRE BOX MUST BE CONSTRUCTED OF NON-CONDUCTIVE MATERIALS WITH THE EXCEPTION OF STAINLESS STEEL FASTENERS AND MAGNETIC LOCATABLE DEVICE.

WHEN A PULL BOX IS INSTALLED IN CRUSHED AGGREGATE SHOULDERS, PLACE IT 2-3 INCHES BELOW GRADE AND COVER IT WITH 2-3 INCHES OF CRUSHED AGGREGATE

LABEL ON COVER SHALL READ "ELECTRIC" FOR SIGNAL AND LIGHTING SYSTEMS, "WISDOT ITS" FOR COMMUNICATIONS AND ITS EQUIPMENT SYSTEMS.

PULL BOX NON-CONDUCTIVE	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED DATE FHWA	/S/ Ahmet Demirbilek STATE ELECTRICAL ENGINEER



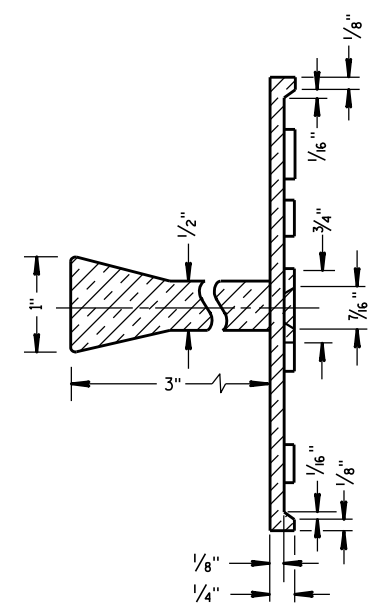
TYPICAL NAME PLATE
(BRIDGES, CULVERTS, AND RETAINING WALLS)

GENERAL NOTES

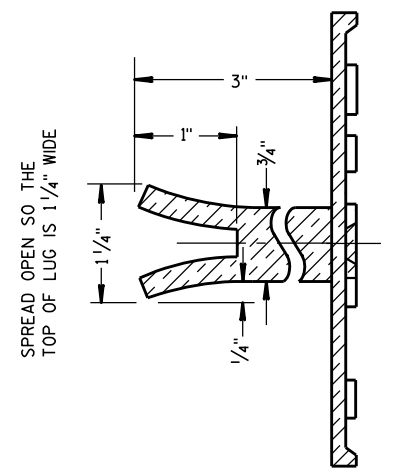
NAME PLATES TO BE INSTALLED ON BRIDGES, CULVERTS, AND RETAINING WALLS SHALL CONFORM TO THE REQUIREMENTS OF SECTION 502.3.11 OF THE STANDARD SPECIFICATIONS.

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

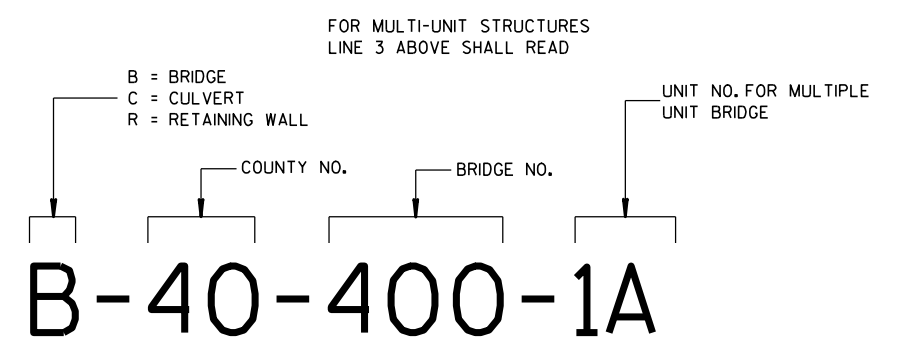


SPREAD OPEN SO THE TOP OF LUG IS 1 1/4" WIDE

ALTERNATE LUG

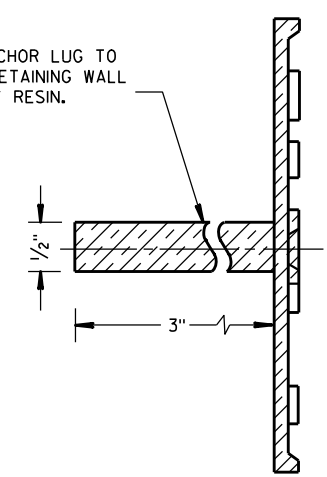
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**NUMBERING DESIGNATION
MULTI-UNIT STRUCTURES**

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

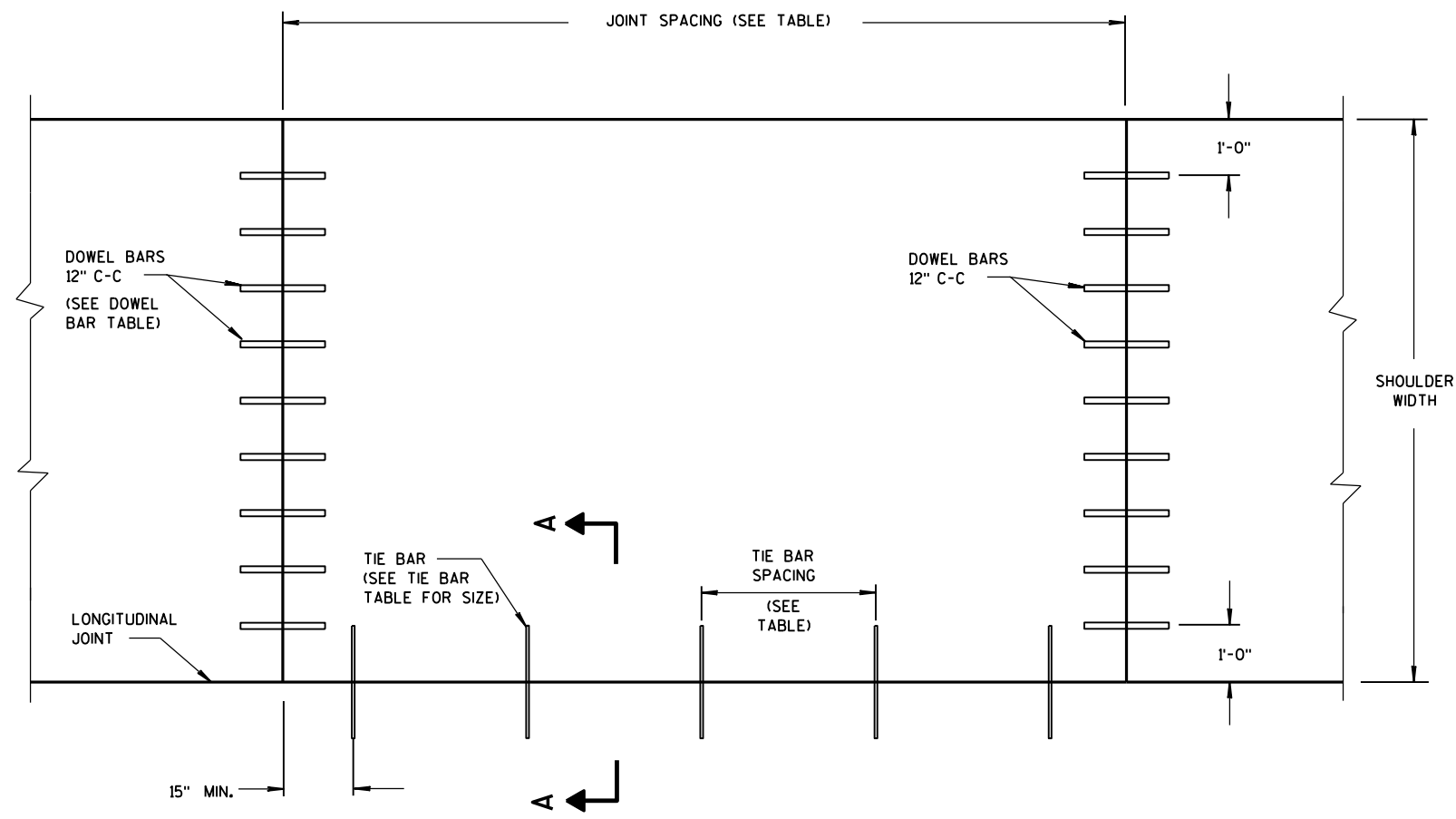


ALTERNATE LUG
(FOR ATTACHMENT TO PRECAST STRUCTURES)

NAME PLATE (STRUCTURES)	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED DATE 3/26/10	/S/ Scot Becker CHIEF STRUCTURAL DEVELOPMENT ENGINEER
FHWA	

S.D.D. 12 A 3-10

S.D.D. 12 A 3-10



PLAN VIEW
CONCRETE PAVEMENT SHOULDER

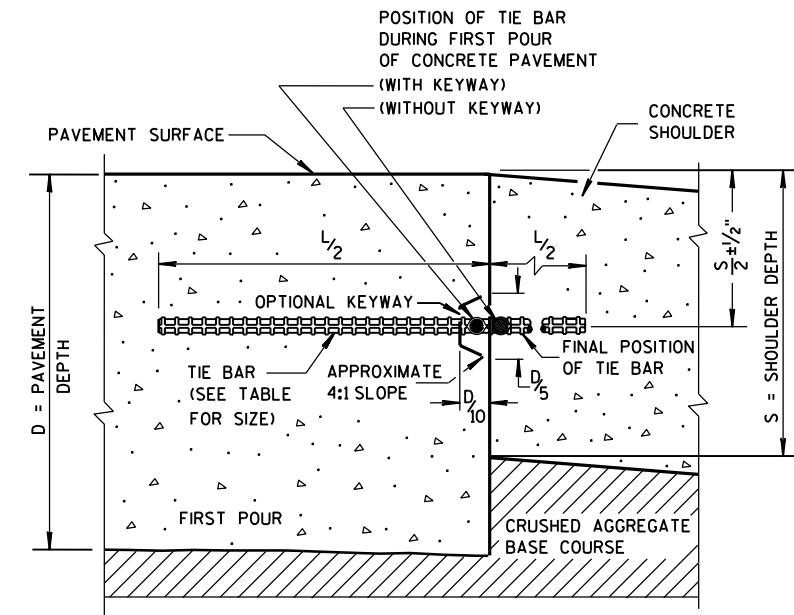
GENERAL NOTES

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.

TRANSVERSE JOINT DETAILS ARE SHOWN ELSEWHERE IN THE PLAN.

FINISH THE SHOULDER PAVEMENT CONFORMING TO SUBSECTION 415.3.8 OF THE STANDARD SPECIFICATIONS.

TIE BARS SHALL CONFORM TO SUBSECTION 505.2.4 OF THE STANDARD SPECIFICATIONS.



SECTION A-A
LONGITUDINAL CONSTRUCTION JOINT

TIE BAR TABLE

PAVEMENT DEPTH (D)	TIE BAR SIZE	TIE BAR LENGTH (L)	MAX. TIE BAR SPACING
< 10 1/2"	NO. 4	30"	36"
≥ 10 1/2"	NO. 5	36"	36"
	NO. 4*	30"	24" **

* SUBSTITUTE BENT BARS AT LONGITUDINAL JOINTS WHEN EQUIPMENT LIMITATIONS DURING CONSTRUCTION WARRANT (e.g. AUXILIARY LANES OR TURN LANES)

** CONFORM TO 15" MINIMUM SPACING FROM TRANSVERSE JOINTS; SPACING BETWEEN TIE BARS WILL BE 30" AT TRANSVERSE JOINTS.

PAVEMENT DEPTH, DOWEL BAR SIZE AND JOINT SPACING TABLE

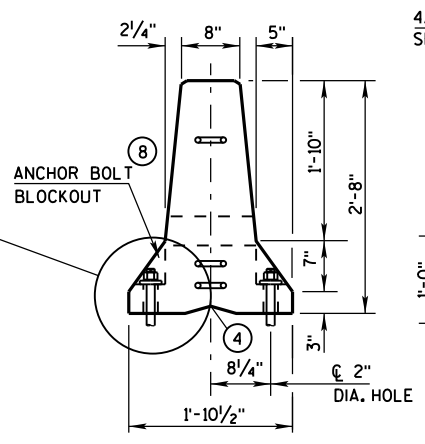
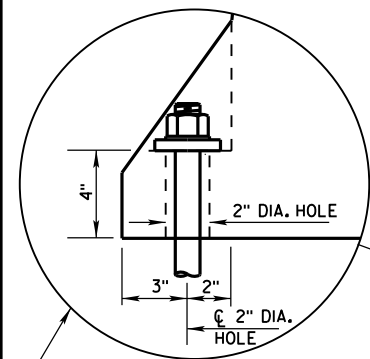
PAVEMENT DEPTH (D)	DOWEL BAR DIAMETER***	CONTRACTION JOINT SPACING
5 1/2", 6", 6 1/2"	NONE	12'
7", 7 1/2"	1"	14'
8", 8 1/2"	1 1/4"	15'
9", 9 1/2"	1 1/4"	15'
10" & ABOVE	1 1/2"	15'

*** FOR DOWELED CONCRETE SHOULDERS WITH TRAPEZOIDAL CROSS SECTIONS, CHOSE THE APPROPRIATE DOWEL BAR DIAMETER BASED ON THE SMALLER PAVEMENT DEPTH (LIKELY THE OUTSIDE EDGE OF THE SHOULDER). IF USING BASKETS, USE BASKETS FOR THE AVERAGE THICKNESS OF THE CROSS SECTION.

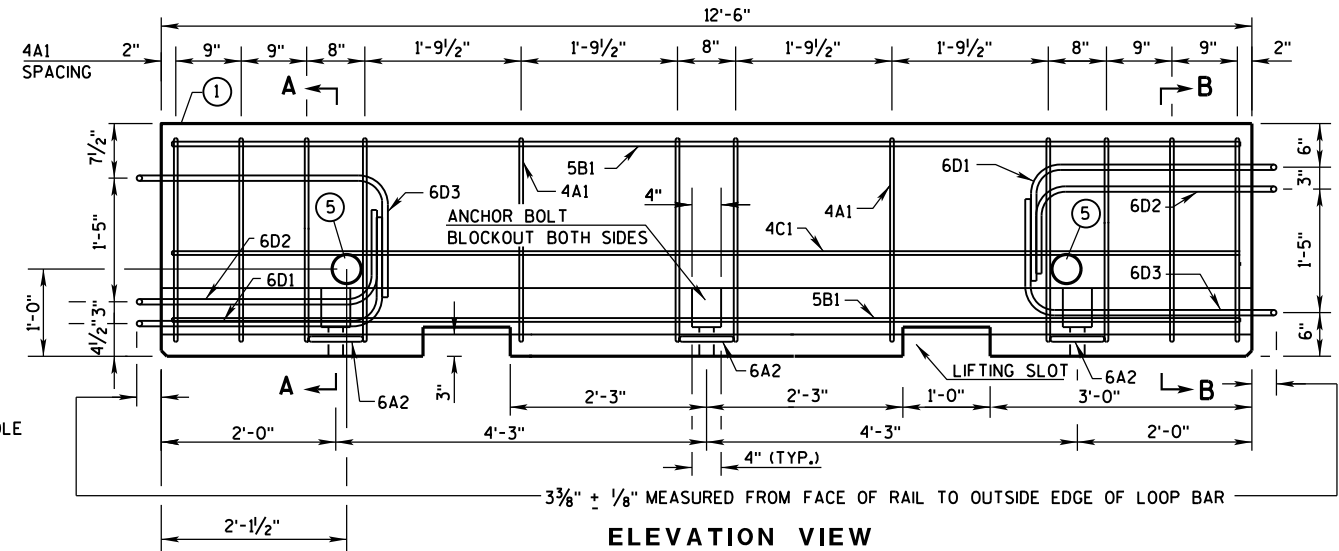
CONCRETE PAVEMENT SHOULDERS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

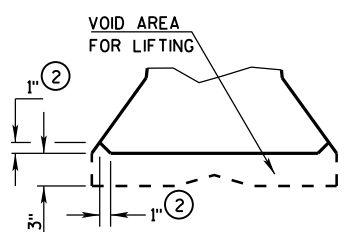
APPROVED
June, 2015 /S/ Peter Kemp, P.E.
DATE PAVEMENT SUPERVISOR
FHWA



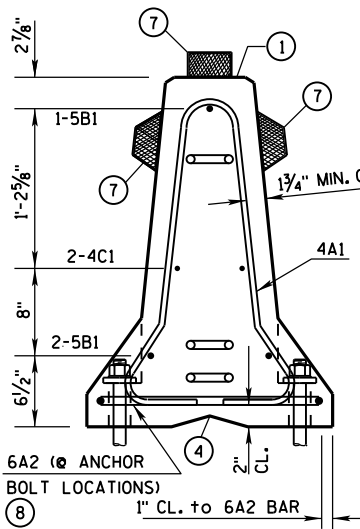
END VIEW



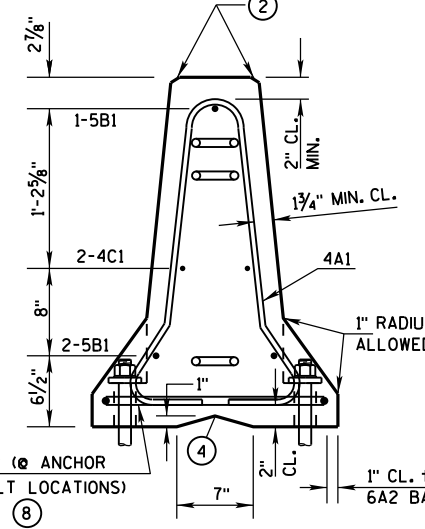
ELEVATION VIEW



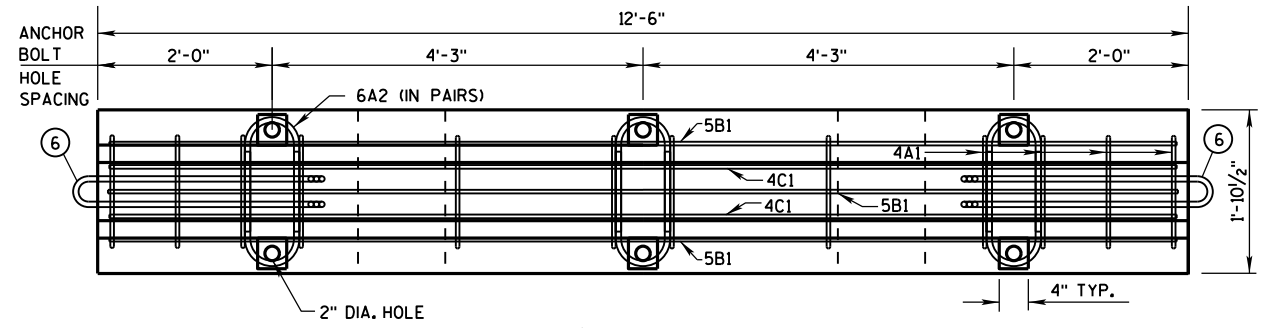
DETAIL "B"
LIFTING SLOT DETAIL



SECTION A-A
(STIRRUP PLACEMENT)



SECTION B-B
(STIRRUP PLACEMENT)



PLAN VIEW

DETAILS OF BARRIER SECTION

GENERAL NOTES

THESE GENERAL NOTES APPLY TO SHEETS 14B7-15(d) THRU 14B7-15(i).

DO NOT INTERMIX CONCRETE BARRIER TEMPORARY PRECAST, 12'-6" (CBTP12.5) WITH OTHER TEMPORARY CONCRETE BARRIERS.

USE ASTM A-615, GRADE 60, DEFORMED STEEL BARS FOR BARS 4A1, 6A2, 5B1 AND 4C1 IN THE BARRIER SECTION AND FOR 4V1, 4V2, 4V3, 4V4, 4V5, 4V6, 4F1, 4F2 AND 5F3 IN THE BARRIER TAPER SECTION.

LOOP BARS 6D1, 6D2 AND 6D3 SHALL BE 3/4" SMOOTH STEEL BARS WITH A MINIMUM YIELD STRENGTH OF 60 KSI, A TENSILE STRENGTH OF NOT LESS THAN 1.25 TIMES THE YIELD STRENGTH BUT A MINIMUM OF 80 KSI, A MINIMUM 14% ELONGATION IN 8 INCHES AND PASSING A 180 DEGREE BEND TEST USING A 3-1/2" PIN BEND DIAMETER FOR BEND TESTS. THE LOOPS SHALL BE INSTALLED WITHIN 1/8" OF THE PLAN DIMENSION.

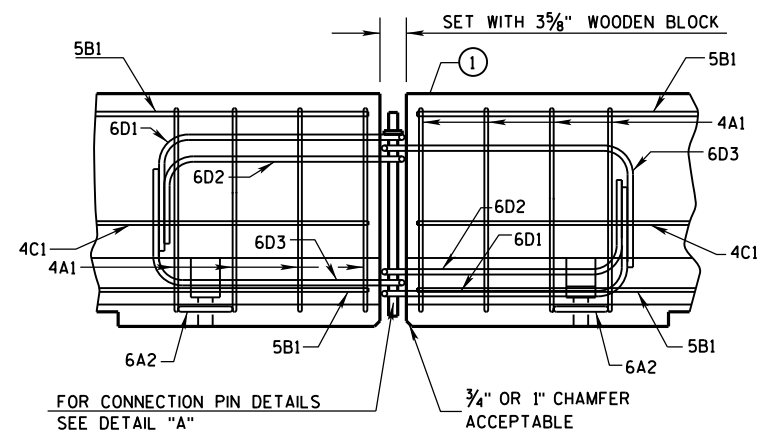
CONSTRUCT LIFTING SLOTS AS SPECIFIED ON THE PLANS TO FACILITATE THE DRAINAGE OF WATER AFTER INSTALLATION.

PLACE BARRIER ON A PAVED SURFACE. REMOVE ALL LOOSE DIRT AND SAND FROM THE ROADWAY SURFACE PRIOR TO PLACEMENT OF THE BARRIER.

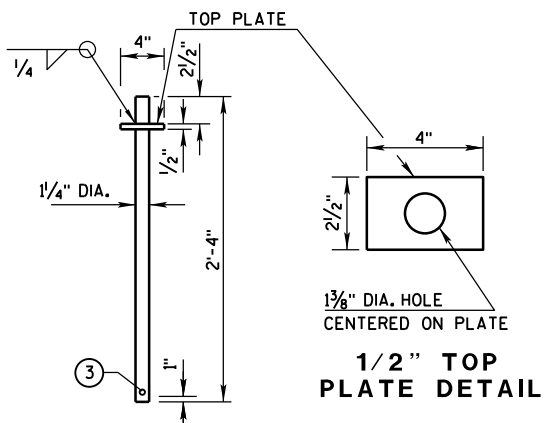
INSTALL MECHANICAL OR ADHESIVE ANCHORS PER MANUFACTURER'S RECOMMENDATIONS. PROVIDE MANUFACTURER'S INFORMATION TO PROJECT ENGINEER.

- ① MARK ONE END OF EACH BARRIER PERMANENTLY BY FORMING INTO THE BARRIER THE FOLLOWING INFORMATION:
 - a. TYPE: WICBTP
 - b. MANUFACTURER
 - c. DATE MANUFACTURED (MONTH AND YEAR)
- ② 1" CHAMFER TO PREVENT SPALLING.
- ③ A 3/8" HOLE IN THE CONNECTION PIN, AT THE LOCATION SHOWN, IS ACCEPTABLE, BUT NOT REQUIRED..
- ④ "V" NOTCH IS OPTIONAL.
- ⑤ THE 4" DIAMETER, 11 GAUGE STEEL, ROUND MECHANICAL TUBING SLEEVE FOR LIFTING (OPTIONAL).
- ⑥ NEVER USE LOOP BARS (6D1, 6D2 OR 6D3) TO LIFT, MOVE OR REPOSITION THE BARRIER.
- ⑦ USE DELINEATORS CONFORMING TO SECTION 633 OF THE STANDARD SPECIFICATIONS. CONTRACTOR MAY USE ALTERNATE SHAPES AND HOUSING. INSTALL DELINEATORS ACCORDING TO MANUFACTURERS INSTRUCTION. INSTALL YELLOW REFLECTORS WHEN BARRIER IS LOCATED TO THE LEFT OF TRAFFIC AND WHITE REFLECTORS WHEN BARRIER IS LOCATED TO THE RIGHT OF TRAFFIC. SPACE DELINEATORS A MAXIMUM OF 25 FEET APART. PROVIDE TOP MOUNTED DELINEATORS IN ADDITION TO THE SIDE MOUNTED DELINEATORS ON ALL BARRIER INSTALLATIONS LOCATED ON A CURVED ALIGNMENT LONGER THAN 200 FEET AND ON BARRIERS USED TO SEPARATE OPPOSING TRAFFIC.
- ⑧ SEE SHEET D FOR HOW TO ANCHOR BARRIER. SEE SHEET E FOR WHEN TO ANCHOR BARRIER.
- ⑨ 1" CHAMFER OPTIONAL.

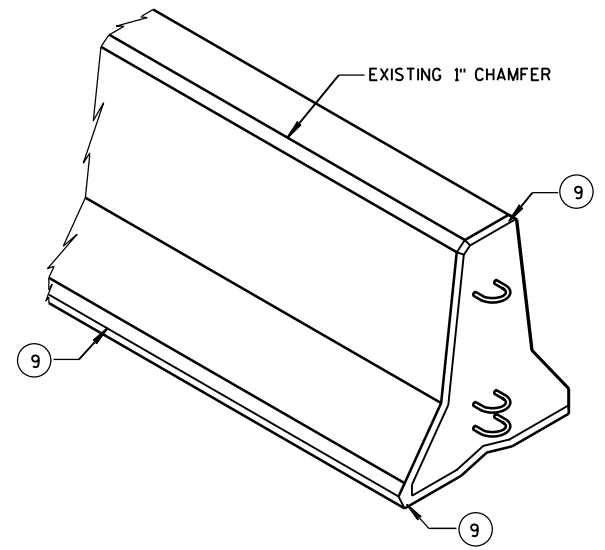
f'c = 4,000 psi



DETAILS OF BARRIER CONNECTION



DETAIL "A"
CONNECTION PIN
(A36 STEEL (10.9 LB EACH))



CONCRETE BARRIER
TEMPORARY PRECAST, 12'-6"

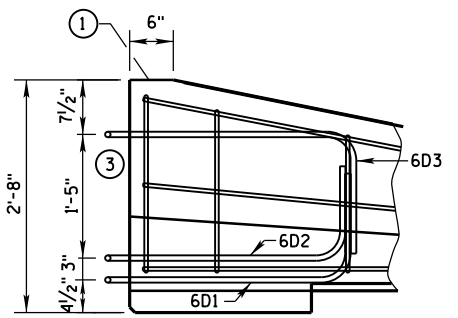
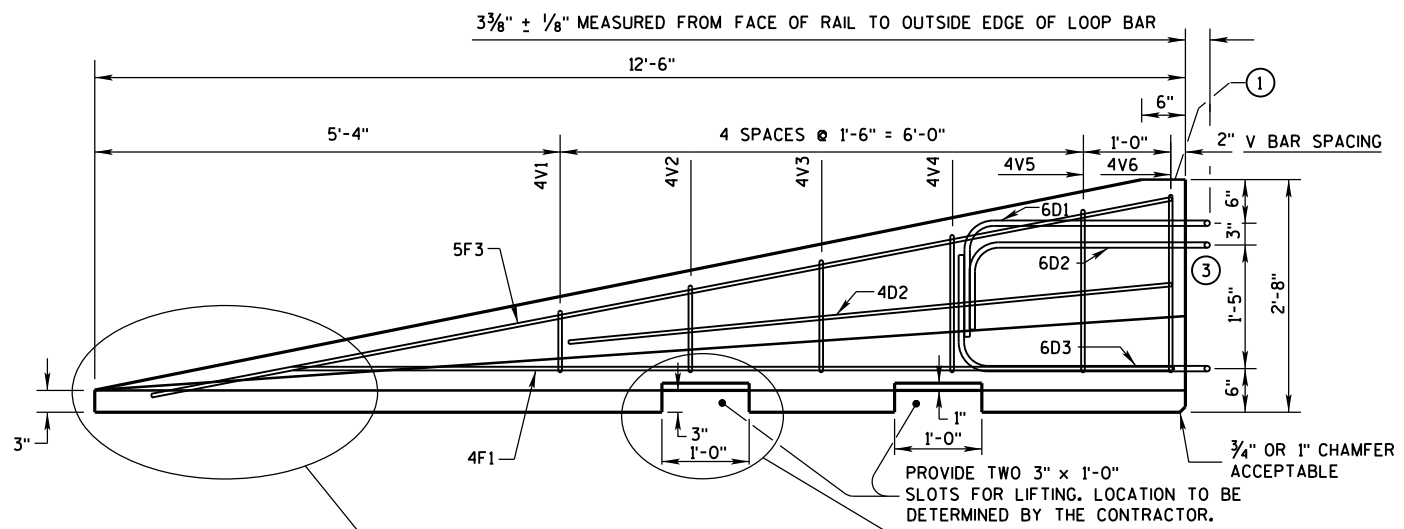
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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S.D.D. 14 B 7-15a

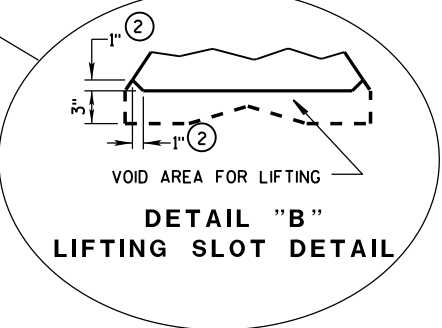
S.D.D. 14 B 7-15a



GENERAL NOTES

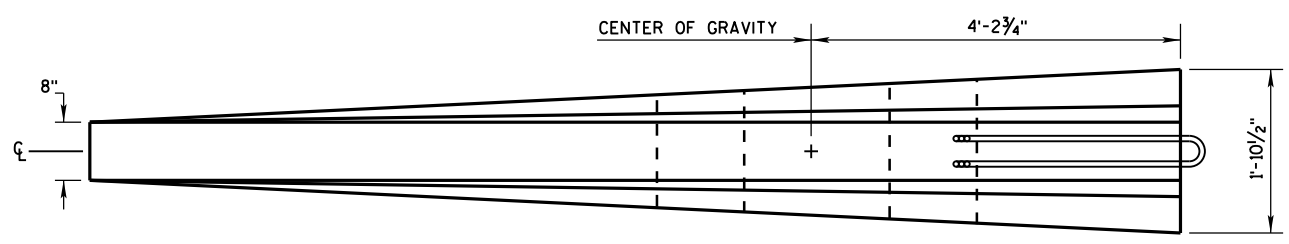
- ① MARK ONE END OF EACH BARRIER PERMANENTLY BY FORMING INTO THE BARRIER THE FOLLOWING INFORMATION:
 - a. TYPE WICBTP
 - b. MANUFACTURER
 - c. DATE MANUFACTURED (MONTH AND YEAR)
- ② 1" CHAMFER TO PREVENT SPALLING.
- ③ NEVER USE LOOP BARS (6D1, 6D2 OR 6D3) TO LIFT, MOVE OR REPOSITION THE BARRIER.

SIDE ELEVATION
 LOOP BAR ASSEMBLY INVERTED FOR OPPOSITE END.
 (FOR CONNECTION TO RIGHT END OF BARRIER)

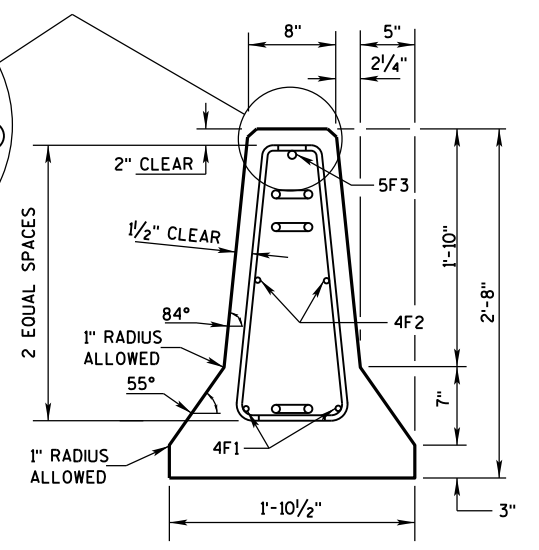
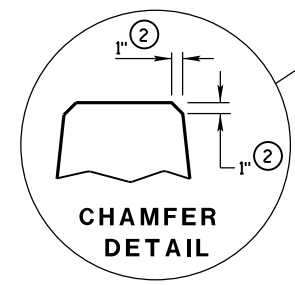


SIDE ELEVATION
 (FOR CONNECTION TO LEFT END OF BARRIER)

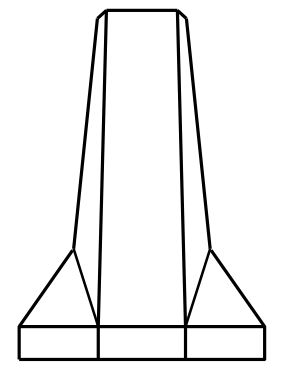
SEE DETAIL "C", BENT BAR DETAIL



PLAN VIEW

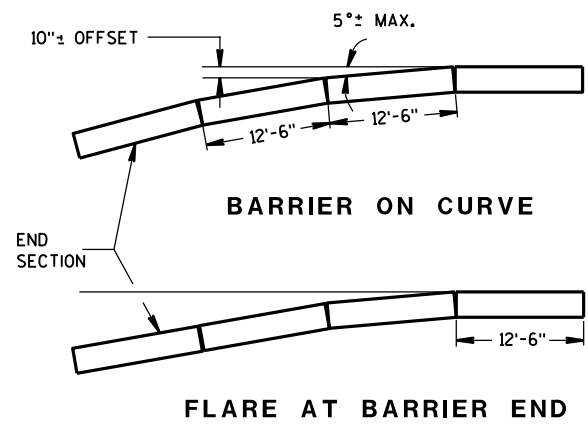


END SECTION



FRONT ELEVATION

DETAILS OF BARRIER TAPER SECTION



POSTED SPEED, (MPH)	FLARE RATE
40 OR LESS	6:1
45 OR GREATER	8:1

**CONCRETE BARRIER
 TEMPORARY PRECAST, 12'-6"**

STATE OF WISCONSIN
 DEPARTMENT OF TRANSPORTATION

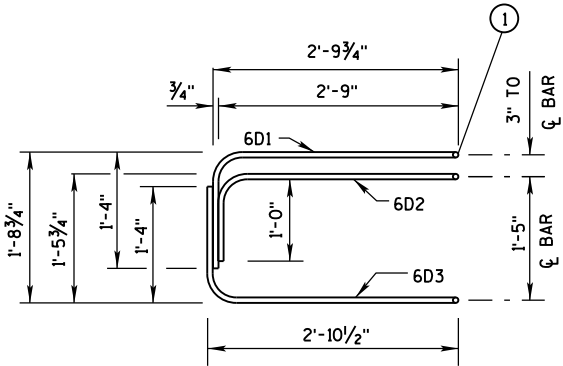
GENERAL NOTES

① NEVER USE LOOP BARS (6D1, 6D2 OR 6D3) TO LIFT, MOVE OR REPOSITION THE BARRIER.

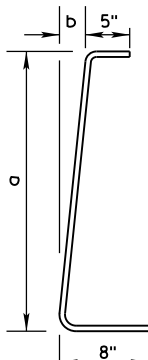
**BARRIER TAPER SECTION
BILL OF MATERIALS**
(PER 12'-6" BARRIER TAPER SECTION)

BAR	BAR SIZE	NO. OF BARS	LENGTH FT.
4V1	4	2	1'-11"
4V2	4	2	2'-2"
4V3	4	2	2'-6"
4V4	4	2	2'-9"
4V5	4	2	3'-2"
4V6	4	2	3'-4"
4F1	4	2	12'-0"
4F2	4	2	7'-6"
5F3	5	1	11'-9"

LOOP ASSEMBLY			
6D1	6	1	8'-5"
6D2	6	1	7'-7"
6D3	6	1	8'-6"

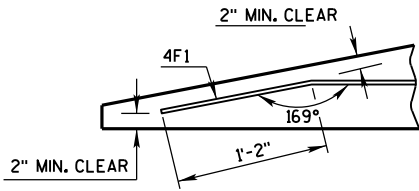


**ELEVATION
LOOP BAR ASSEMBLY**



BAR	a	b
V1	10"	1"
V2	1'-1"	1 1/4"
V3	1'-5"	1 5/8"
V4	1'-8"	1 7/8"
V5	2'-0 1/2"	2 3/8"
V6	2'-3"	2 3/4"

4V BARS
2 AT EACH SIZE REQUIRED
FOR STIRRUP ASSEMBLY



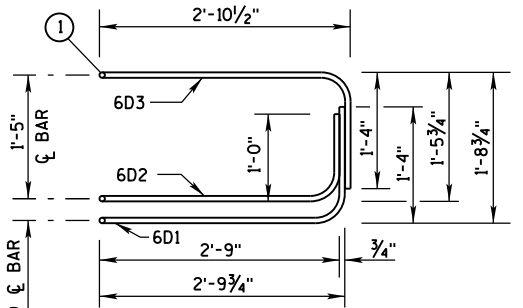
**DETAIL "C"
BENT BAR DETAIL**

TAPER BARRIER SECTION

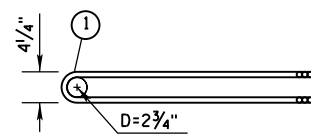
**BARRIER SECTION
BILL OF MATERIALS**
(PER 12'-6" BARRIER SECTION)

BAR	BAR SIZE	NO. OF BARS	LENGTH FT.
4A1	4	12	6'-0"
6A2	6	6	2'-11"
5B1	5	3	12'-2"
4C1	4	2	12'-2"

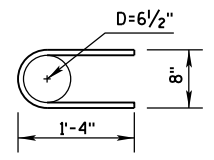
LOOP ASSEMBLY			
6D1	6	2	8'-5"
6D2	6	2	7'-7"
6D3	6	2	8'-6"



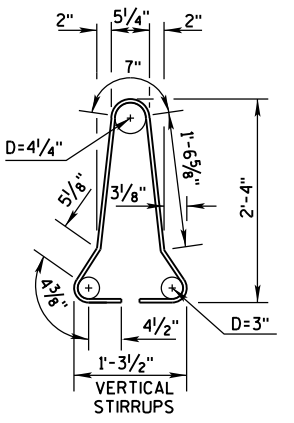
ELEVATION VIEW



**PLAN VIEW
LOOP BAR ASSEMBLY**
(MARKED END SHOWN, INVERT FOR OTHER END)



6A2

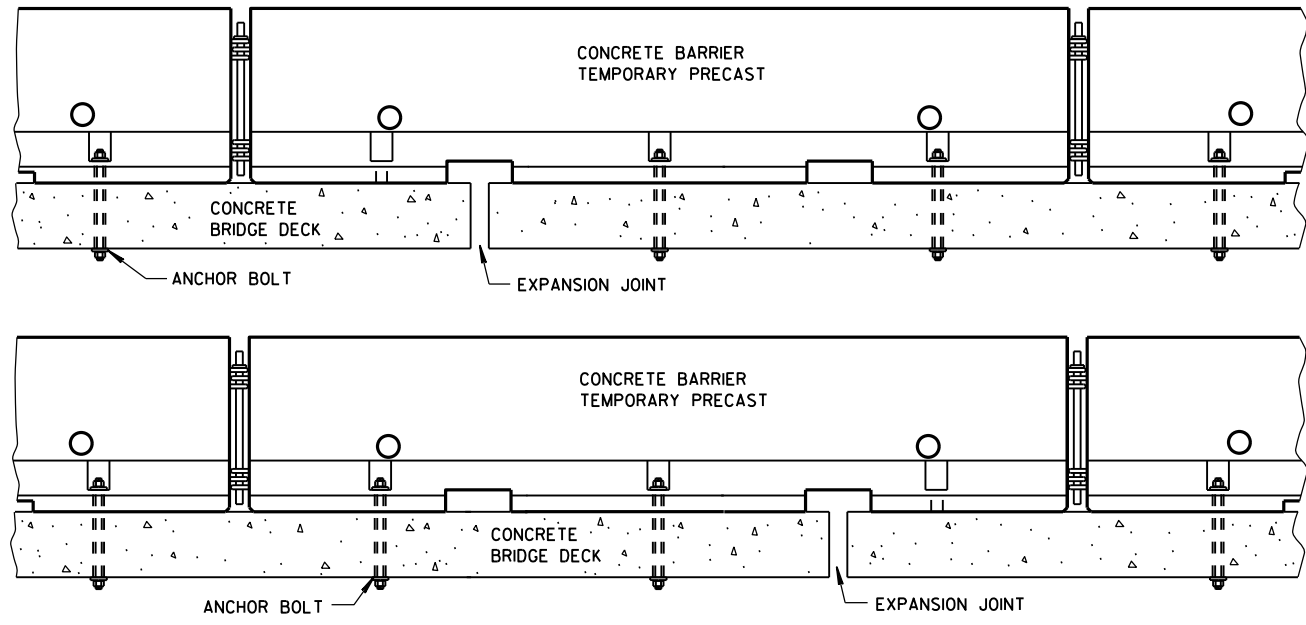


4A1

BARRIER SECTION

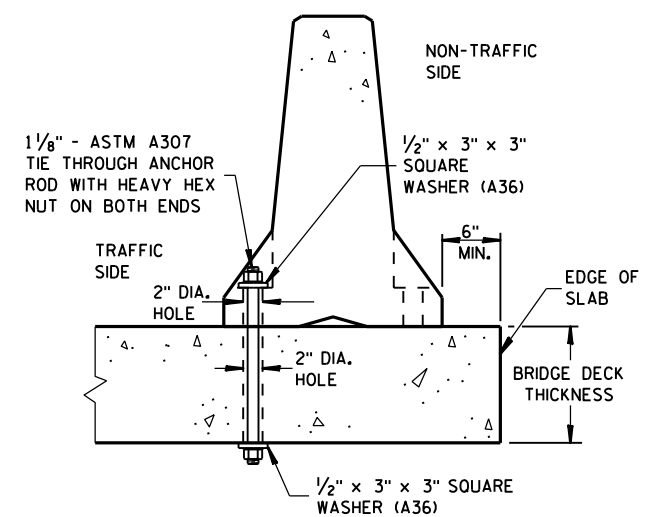
CONCRETE BARRIER
TEMPORARY PRECAST, 12'-6"

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



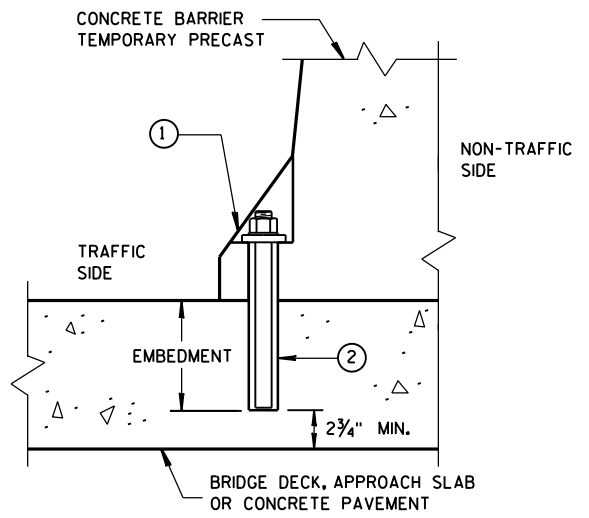
TREATMENT AT BRIDGE DECK EXPANSION JOINTS

(NO SINGLE CONCRETE BARRIER SECTION SHALL BE ANCHORED TO BOTH THE BRIDGE DECK AND THE APPROACH SLAB. ALL ANCHOR BOLT LOCATIONS SHALL BE ANCHORED TO THE DECK IN ACCORDANCE WITH THE DETAIL. NO MORE THAN ONE ANCHOR BOLT SHALL BE ELIMINATED FROM A BARRIER SECTION WHEN SPANNING AN EXPANSION JOINT.)



THROUGH BOLTED ANCHOR INSTALLATION ON BRIDGE DECK

(DO NOT USE ON CONCRETE BRIDGE DECK WITH ASPHALT OVERLAY)



REMOVABLE ADHESIVE ANCHOR INSTALLATION ON CONCRETE BRIDGE DECK, CONCRETE APPROACH SLAB, OR CONCRETE PAVEMENT

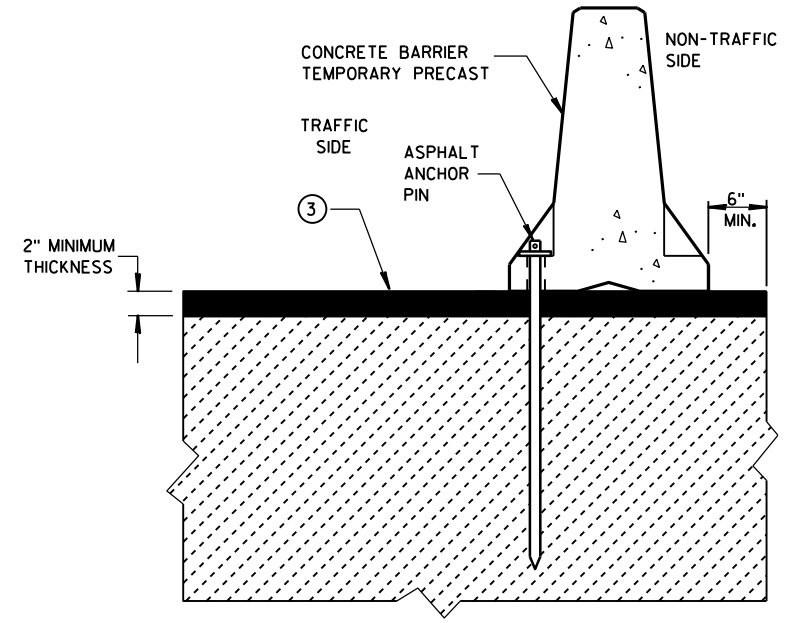
(DO NOT USE ON CONCRETE WITH AN ASPHALTIC OVERLAY)

GENERAL NOTES

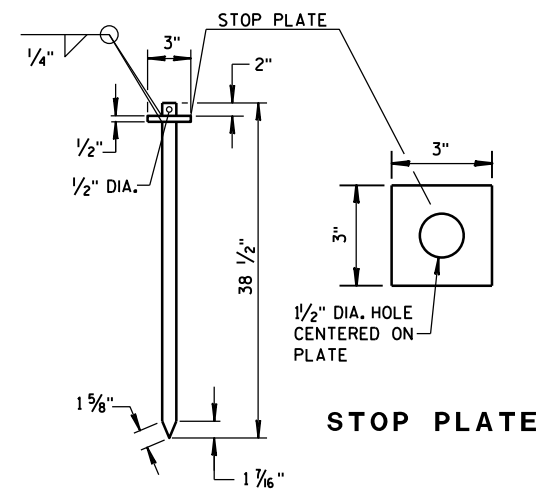
SEE SHEET E FOR WHEN TO ANCHOR. OTHER PARTS OF THE PLAN MAY SHOW ADDITIONAL LOCATIONS REQUIRING ANCHORING.

REMOVE ALL ANCHORS WHEN NO LONGER NEEDED. FILL CONCRETE PAVEMENTS, DECKS AND APPROACH SLABS WITH NON-SHRINK COMMERCIAL GROUT FROM THE APPROVED PRODUCT LIST. FILL ASPHALT PAVEMENTS WITH ASTM D6690 TYPE II RUBBERIZED CRACK FILLER.

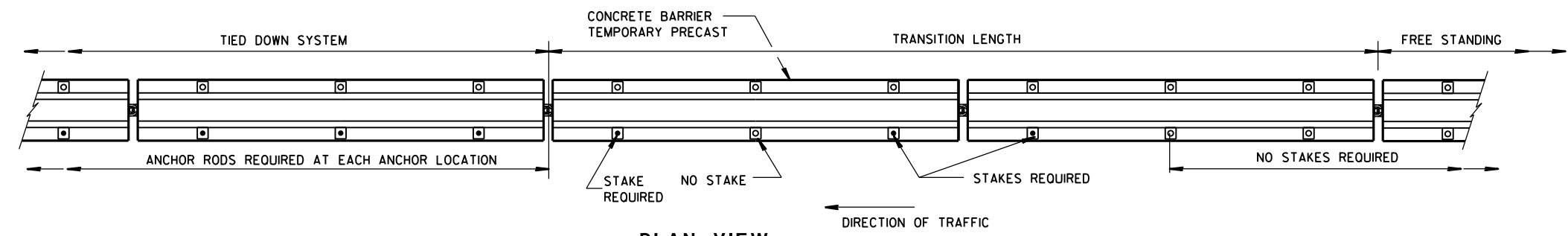
- ① 1/8" DIAMETER A307 THREADED ROD, 1/2" X 3" X 3" SQUARE PLATE WASHER WITH ASTM A36 STEEL, ASTM A563A HEAVY HEX NUT.
- ② ADHESIVE ANCHORS WITH A MINIMUM BOND STRENGTH OF 1,800 PSI AND 5/4" EMBEDMENT. SEE 603.2 AND 603.3.1.2 OF THE WISCONSIN STANDARD SPECIFICATIONS FOR MORE INFORMATION ON ADHESIVE ANCHORS.
- ③ ASPHALT SURFACE SHOWN. CONTRACTOR MAY DRILL THROUGH CONCRETE PAVEMENT AND THEN DRIVE ASPHALT ANCHOR PIN.



STAKE DOWN INSTALLATION FOR ASPHALTIC SURFACE



ASPHALT ANCHOR PIN
(ASTM A36 STEEL)



FREE STANDING TRANSITION TO TIED-DOWN SYSTEM

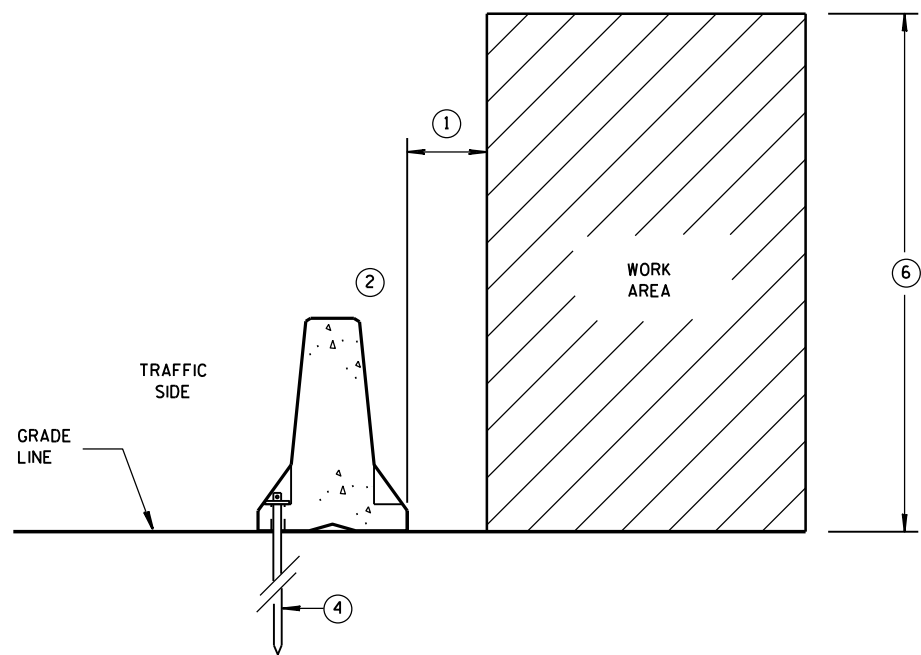
(PLACE TRANSITION IN A TANGENT SECTION OF BARRIER PARALLEL TO THE ROADWAY. IF TRANSITION OCCURS ON STRUCTURAL SLAB, ANCHOR AS SHOWN.)

CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"

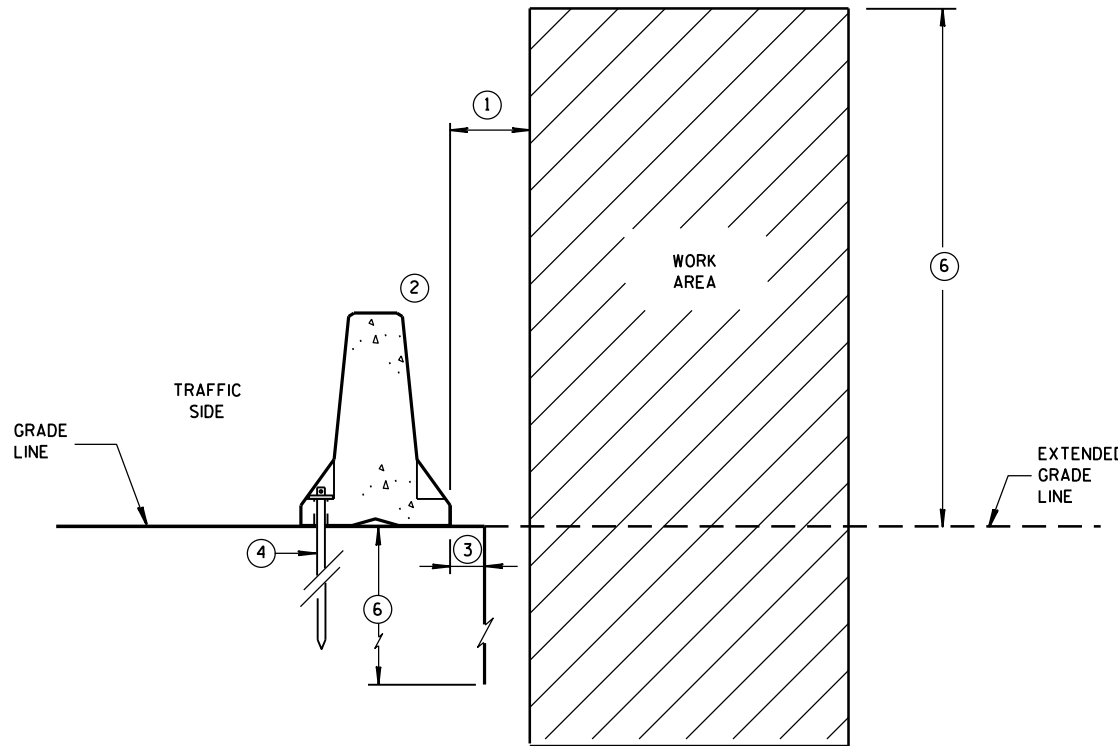
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION

GENERAL NOTES

- ① WHEN OBJECTS EXTEND ABOVE THE GRADE, A MINIMUM OF 1 FOOT IS REQUIRED FROM BACK OF BARRIER TO OBJECT. SEE OTHER DETAILS FOR THE MINIMUM OFFSET FROM BACK OF BARRIER TO SLOPES OR VERTICAL DROPS.
- ② OBJECTS ARE NOT TO BE PLACED ON, MOUNTED TO, OR LEANED AGAINST THE BARRIER WITHOUT PERMISSION OF THE PROJECT ENGINEER.
- ③ SEE OTHER DETAIL ON SHEET "D" FOR SPACE REQUIREMENTS.
- ④ SEE BOLT THROUGH DECK, REMOVABLE ADHESIVE ANCHOR, OR A STAKE DOWN FOR ASPHALTIC SURFACE TREATMENT DETAILS. ASPHALTIC ANCHOR SHOWN.
- ⑤ DEPTH OF 3 FEET OR MORE.
- ⑥ Y = 6'-6".

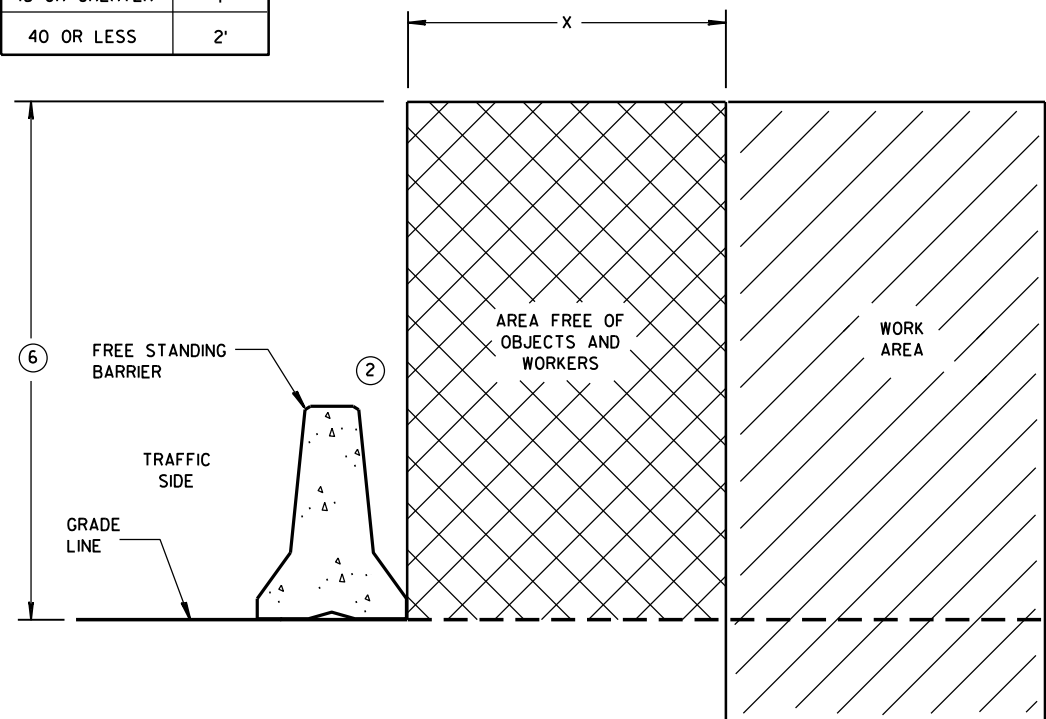


ANCHORED BARRIER SPACE REQUIREMENTS FOR HAZARDS EXTENDED ABOVE THE GRADE LINE

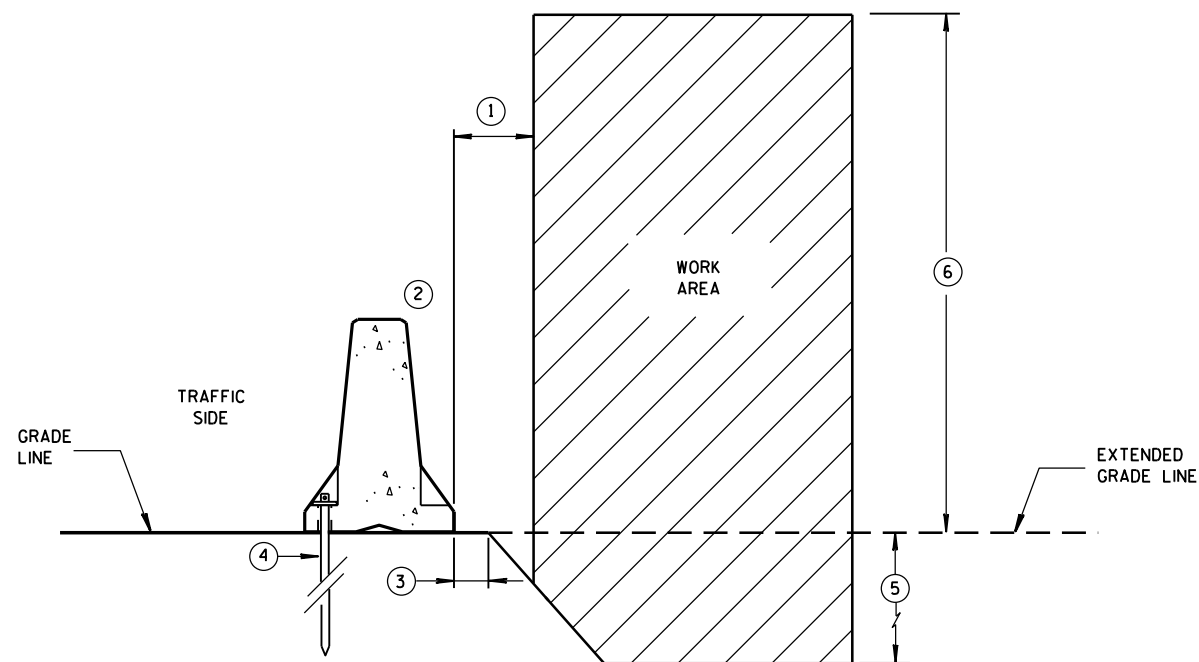


ANCHORED BARRIER SPACE REQUIREMENTS ON VERTICAL DROP OFFS

POSTED SPEED MPH	X
45 OR GREATER	4'
40 OR LESS	2'



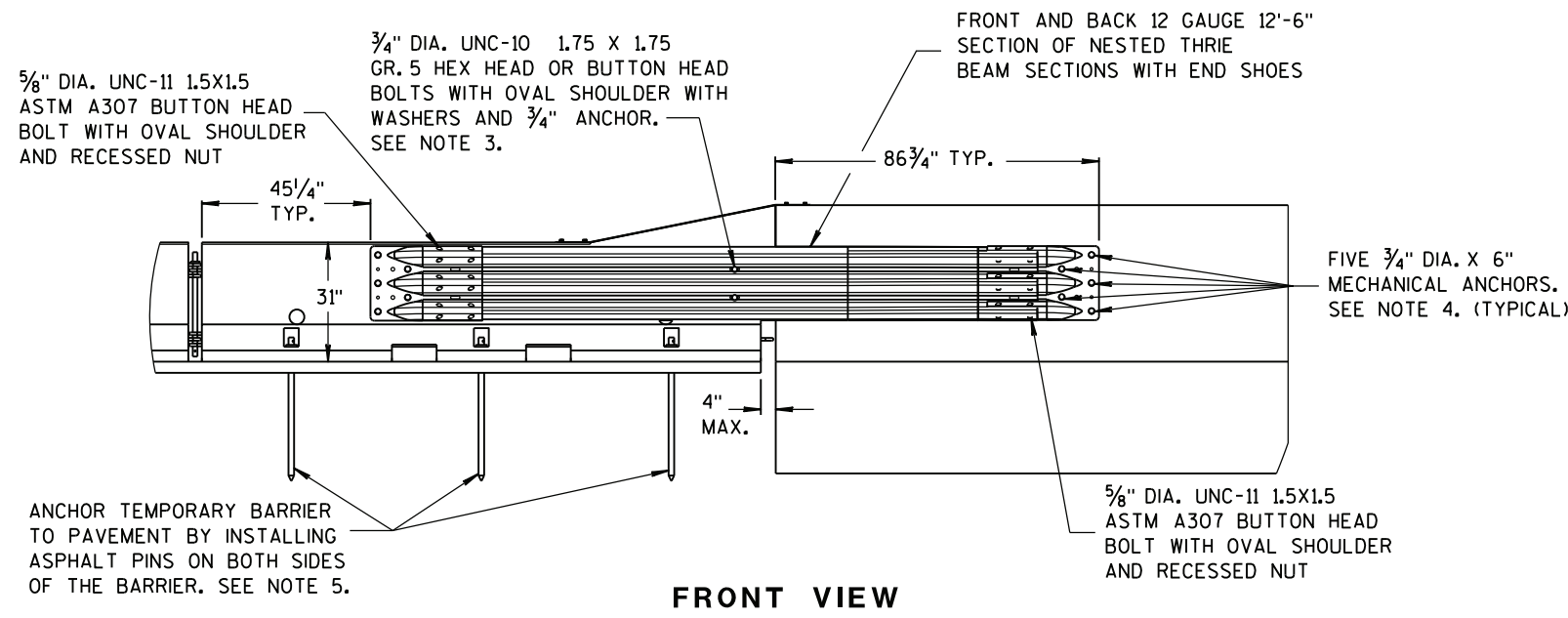
FREE STANDING BARRIER SPACE REQUIREMENTS



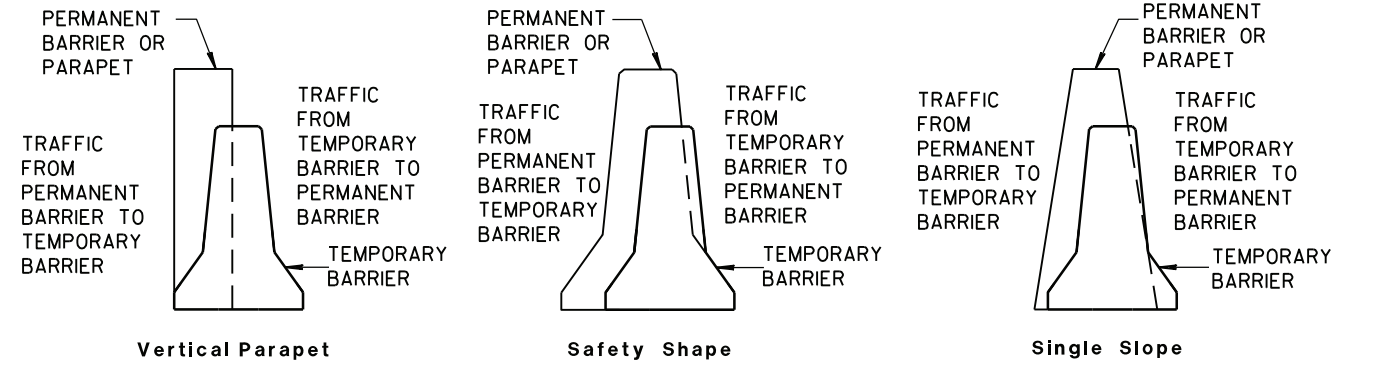
ANCHORED BARRIER SPACE REQUIREMENTS ON SLOPES

**CONCRETE BARRIER
TEMPORARY PRECAST, 12'-6"**

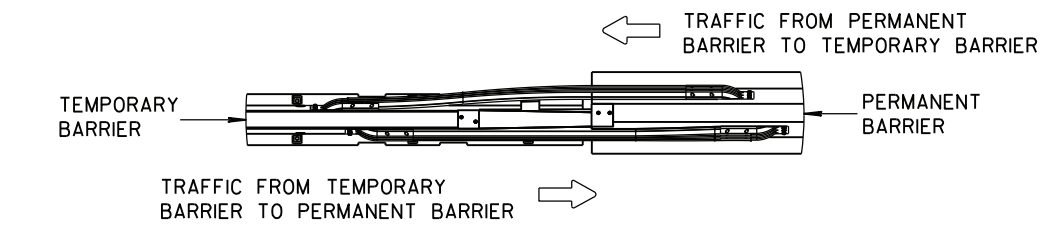
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



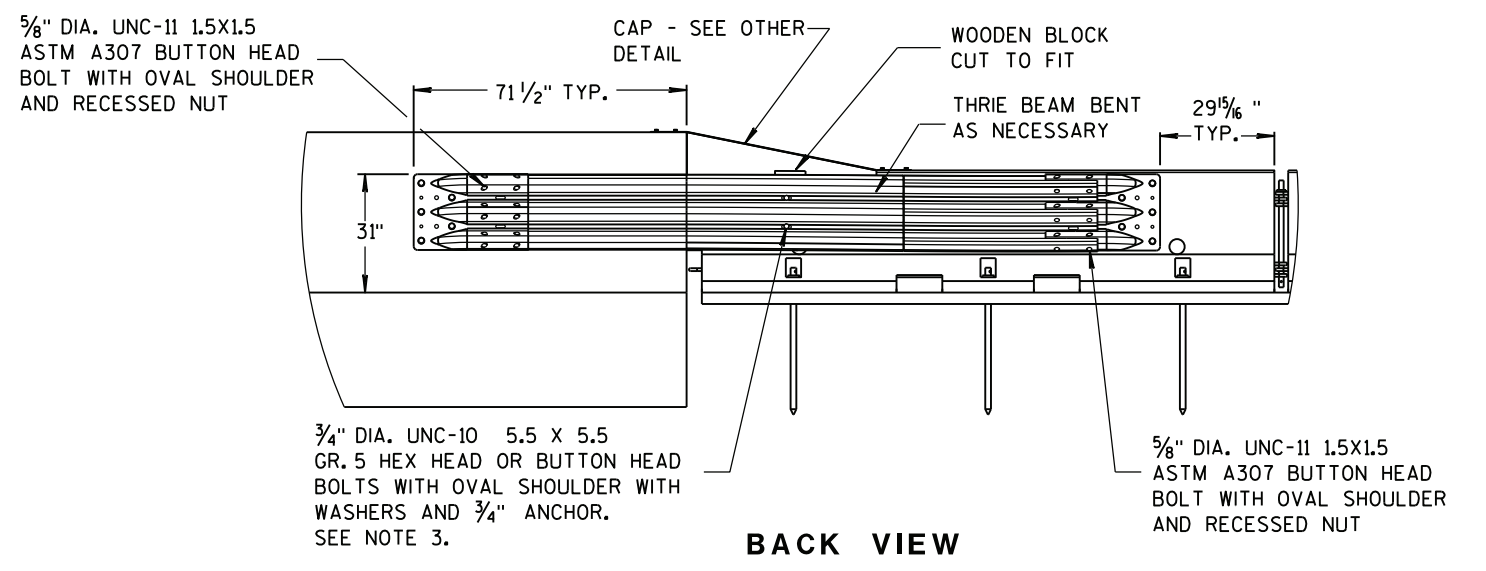
FRONT VIEW



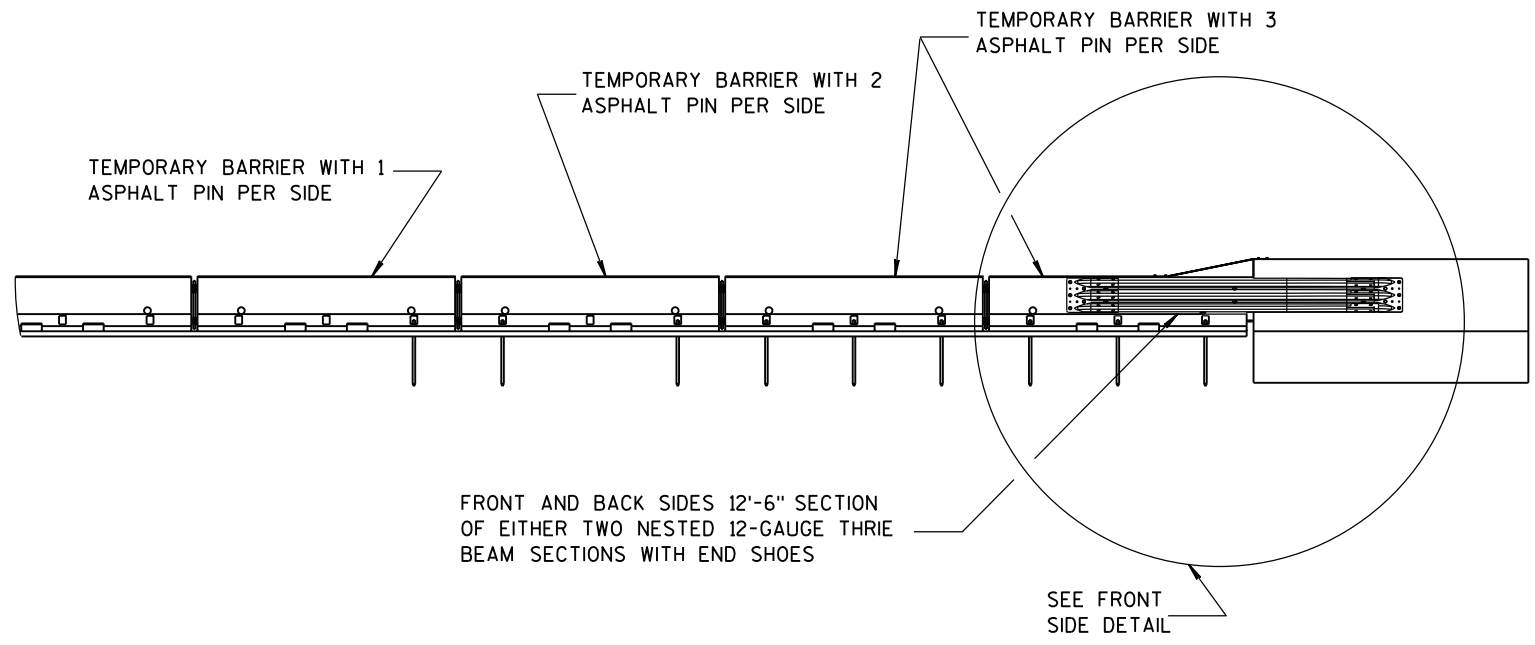
TEMPORARY BARRIER PLACEMENT FOR TRANSITION TO TIED DOWN SYSTEM



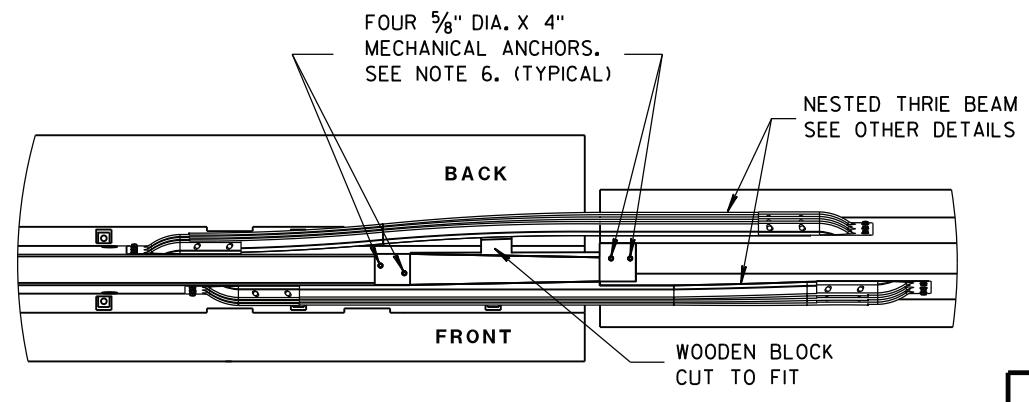
- NOTES**
1. CAP END PLATE PLACED FLUSH WITH UPSTREAM END OF PERMANENT BARRIER OR PARAPET.
 2. THRIE BEAM PIECES ARE OFFSET 15 1/4" TO PREVENT INTERFERENCE FROM THE ANCHORS ON OPPOSING SIDES.
 3. MINIMUM MECHANICAL OR ADHESIVE ANCHOR STRENGTH REQUIREMENTS: ULTIMATE TENSILE LOAD 9.48 KIPS AND ULTIMATE SHEAR LOAD 10.48 KIPS.
 4. MINIMUM MECHANICAL OR ADHESIVE ANCHOR STRENGTH REQUIREMENTS: ULTIMATE TENSILE LOAD 17.9 KIPS AND ULTIMATE SHEAR LOAD 21.96 KIPS.
 5. MAY BE USED ON CONCRETE OR ASPHALT PAVEMENTS. ASPHALT OPTION SHOWN. FOR CONCRETE OPTION SEE OTHER DETAILS.
 6. MINIMUM MECHANICAL OR ADHESIVE ANCHOR STRENGTH REQUIREMENTS: ULTIMATE TENSILE LOAD 12.14 KIPS AND ULTIMATE SHEAR LOAD 17.5 KIPS.



BACK VIEW



FRONT VIEW

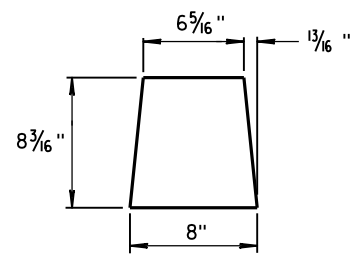


PLAN VIEW

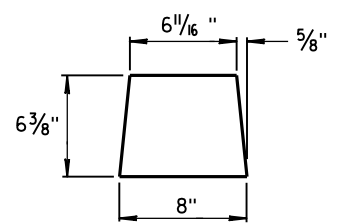
TRANSITION TO TIED DOWN SYSTEM

**CONCRETE BARRIER
TEMPORARY PRECAST, 12'-6"**

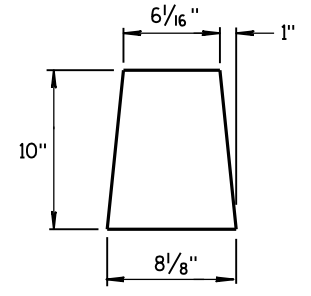
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



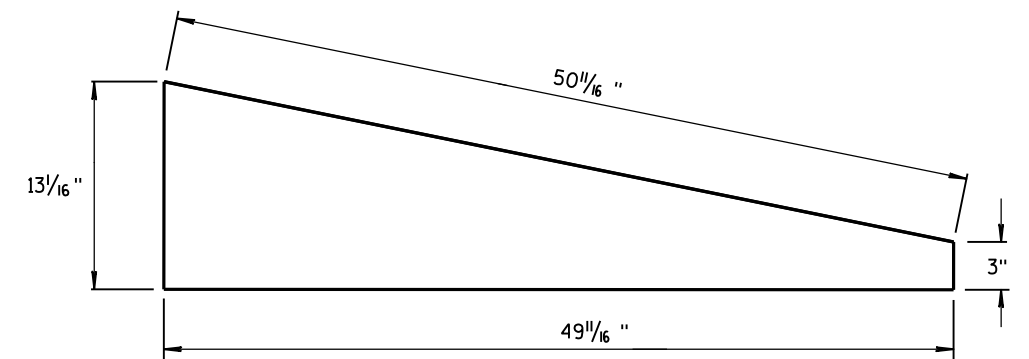
GUSSET 1



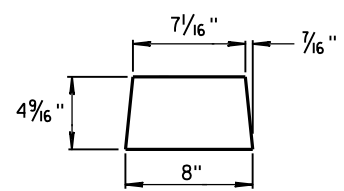
GUSSET 2



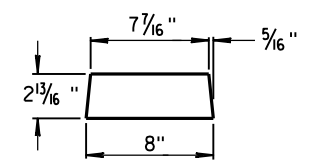
END PLATE



SIDE PLATE

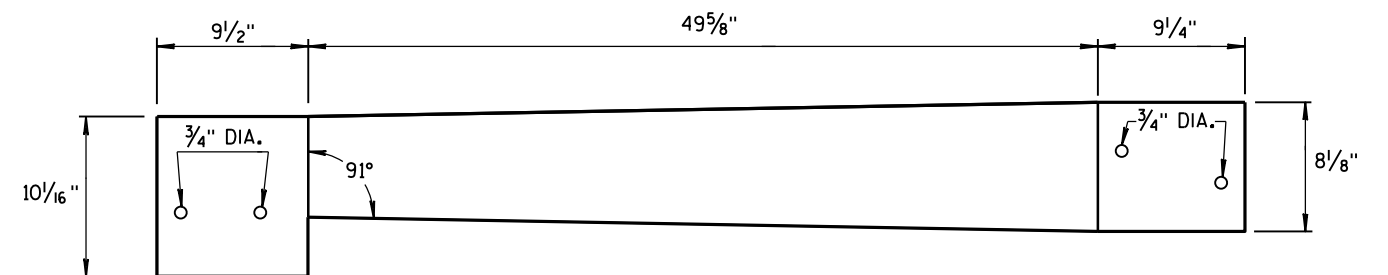


GUSSET 3

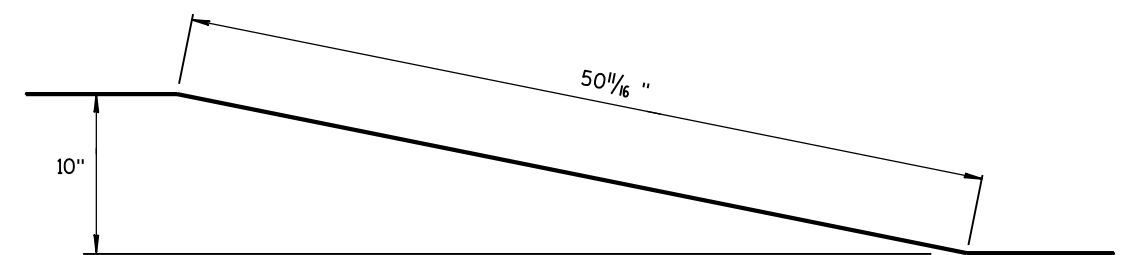


GUSSET 4

GUSSETS

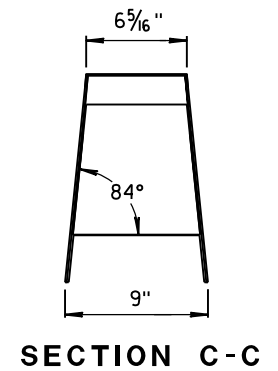
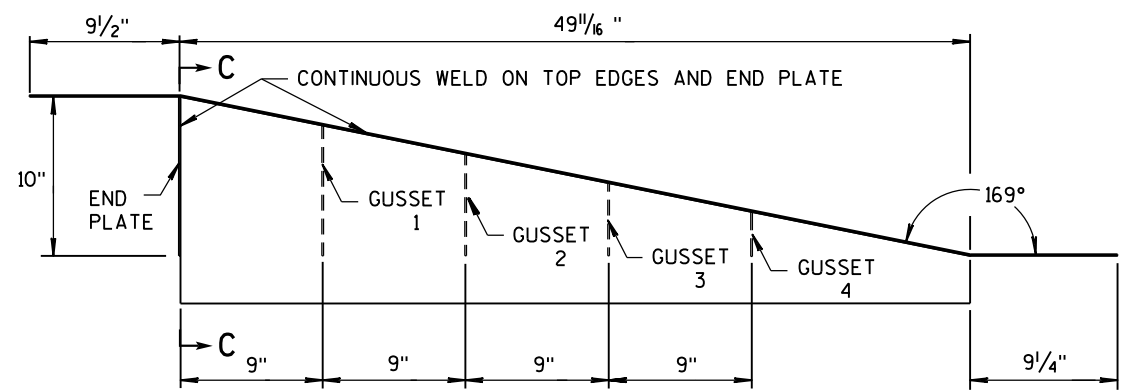
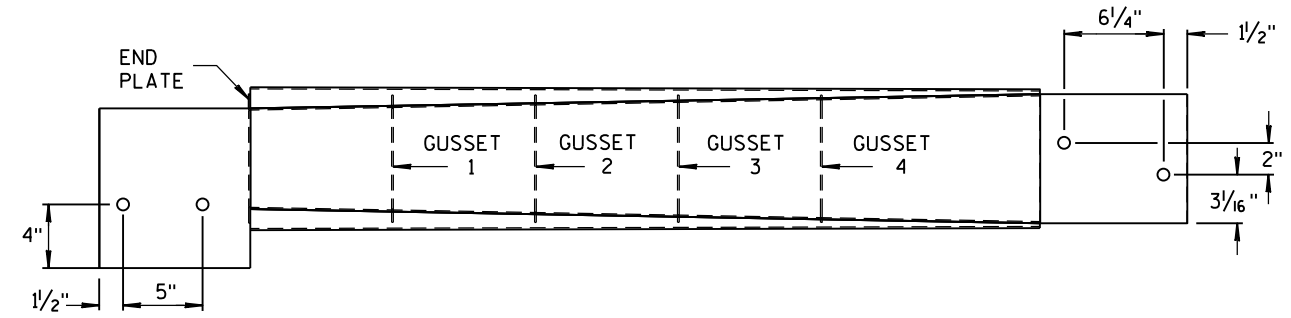


TOP PLATE



SIDE, TOP AND END PLATES FOR CAP FROM TEMPORARY CONCRETE BARRIER TO 42" PERMANENT CONCRETE BARRIER

SIDE PLATES, TOP PLATE, END PLATE AND GUSSETS ARE 12 GAUGE ASTM A36 GALVANIZED STEEL.



SECTION C-C

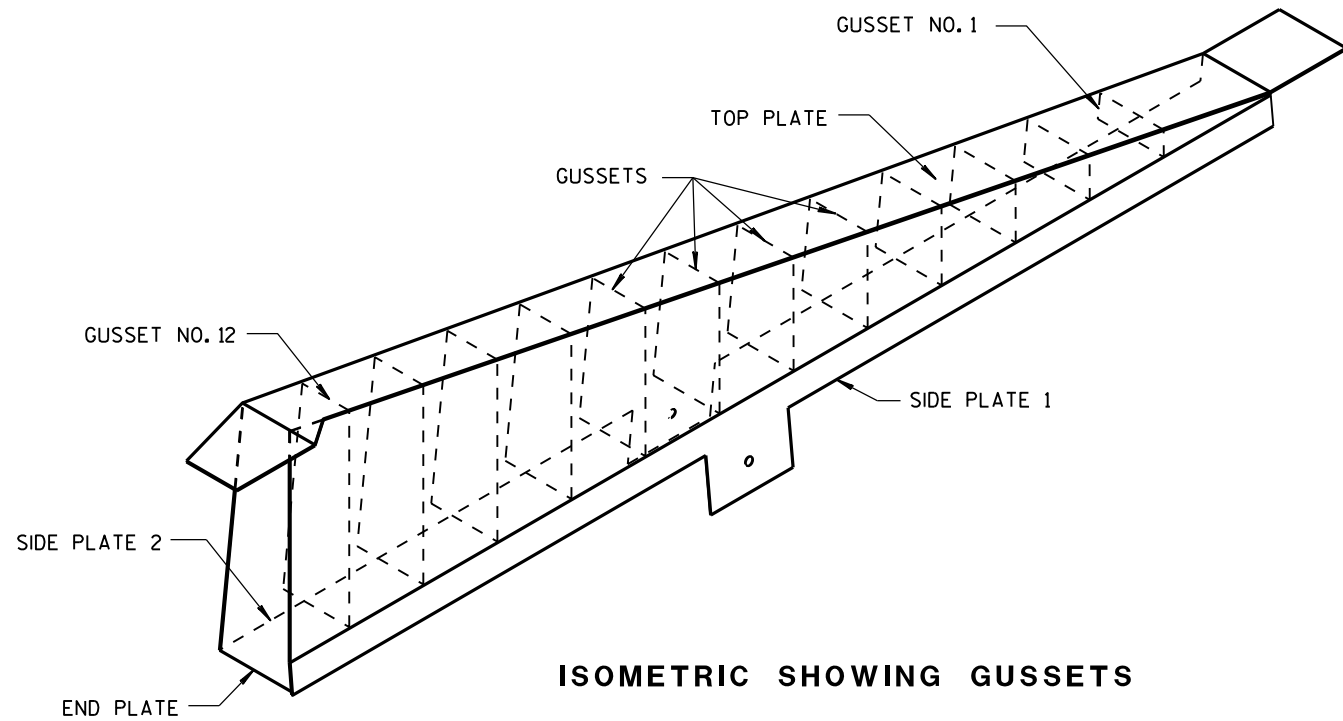
NOTES

- FOUR GUSSETS AND END PLATE ARE STITCH WELDED ON THREE SIDES.
- TWO TRIANGULAR SIDE PLATES ARE STITCH WELDED TO TOP PLATE, END PLATE, AND GUSSETS.

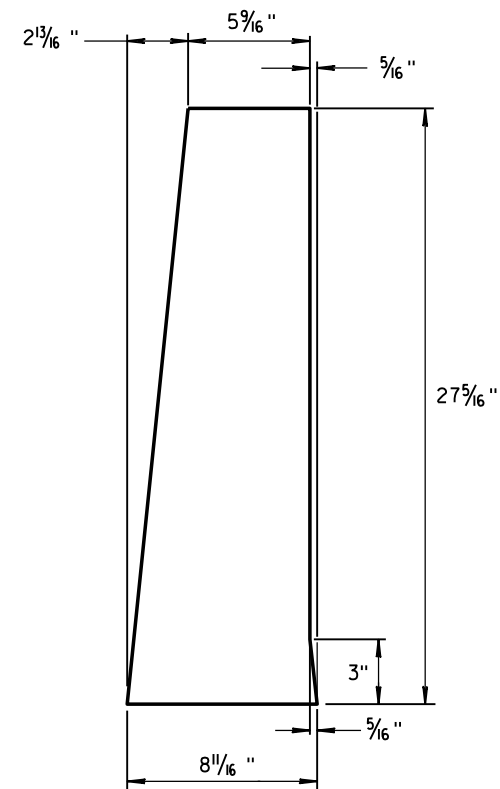
CAP DETAILS FOR TEMPORARY CONCRETE BARRIER TO 42" PERMANENT CONCRETE BARRIER

CONCRETE BARRIER
TEMPORARY PRECAST, 12'-6"

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

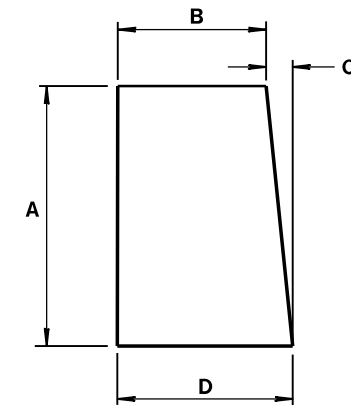


ISOMETRIC SHOWING GUSSETS



END PLATE

1/8" STEEL PLATE



GUSSETS 1 - 12

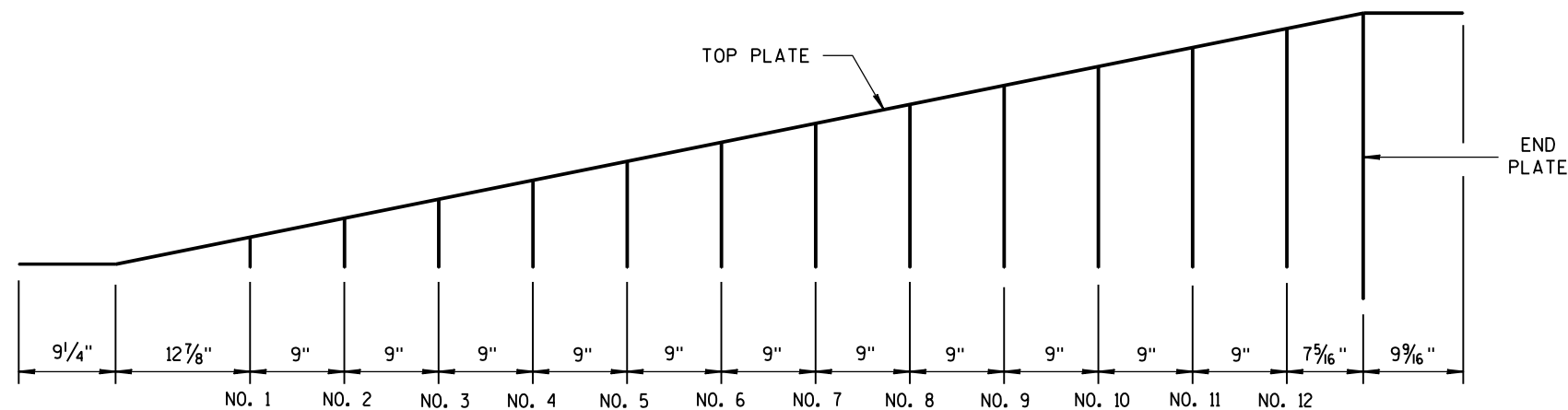
ALL GUSSETS 1/8" STEEL PLATE

GUSSET DIMENSIONS

GUSSET NO.	A	B	C	D
1	2 7/8"	7 3/4"	1/4"	8
2	4 1/16"	7 7/16"	1/2"	8
3	6 1/2"	7 3/8"	1 1/16"	8 1/16"
4	8 5/16"	7 3/16"	7/8"	8 1/16"
5	10 1/8"	7"	1 1/16"	8 1/16"
6	11 5/16"	6 13/16"	1 1/4"	8 1/16"
7	13 3/4"	6 5/8"	1 7/16"	8 1/16"
8	15 3/16"	6 7/16"	1 9/16"	8 1/16"
9	17 3/8"	6 1/4"	1 13/16"	8 1/16"
10	19 3/16"	6 1/16"	1 15/16"	8 1/16"
11	21"	5 7/8"	2 3/16"	8 1/16"
12	22 13/16"	5 11/16"	2 5/16"	8 1/16"

SIDE PLATES, TOP PLATE, END PLATE AND GUSSETS ARE 12 GAUGE ASTM A36 STEEL AND GALVANIZED.

GUSSETS AND END PLATE ARE STITCH WELDED ON 3 SIDES. TWO TRIANGULAR SIDE PLATES ARE STITCH WELDED TO TOP PLATE, END PLATE AND GUSSETS.

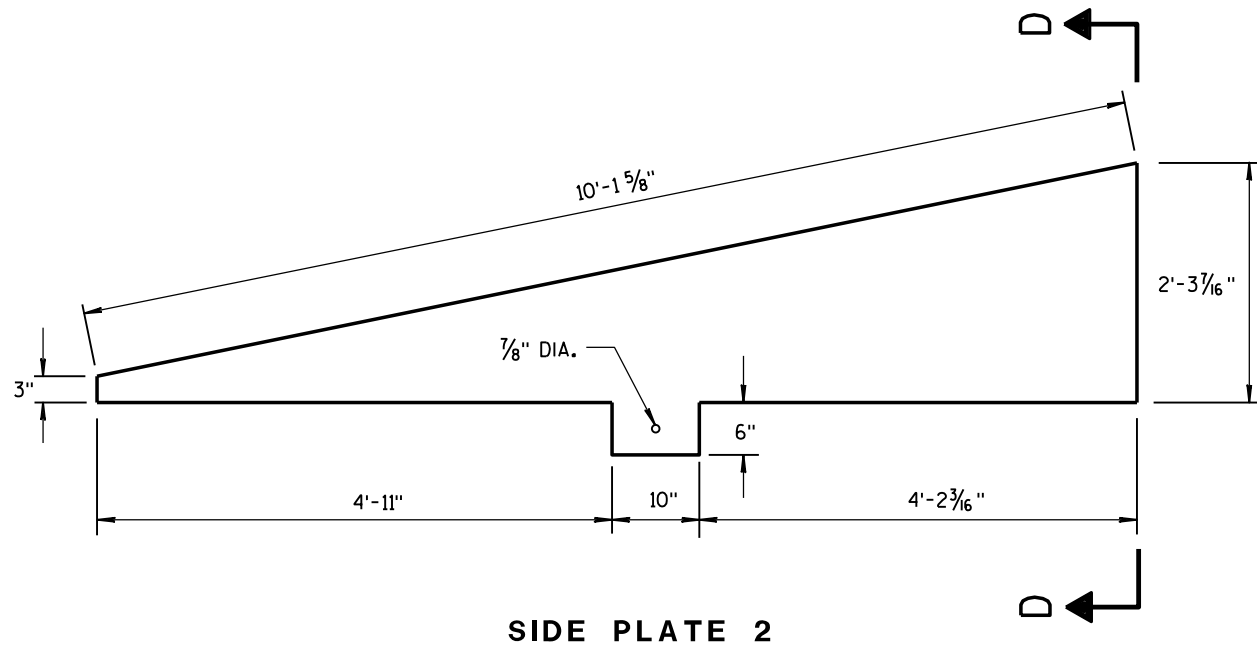


GUSSET LOCATION

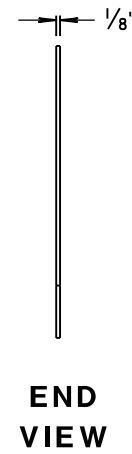
CAP DETAILS FOR TEMPORARY CONCRETE BARRIER TO 56" PERMANENT CONCRETE BARRIER

CONCRETE BARRIER
TEMPORARY PRECAST, 12'-6"

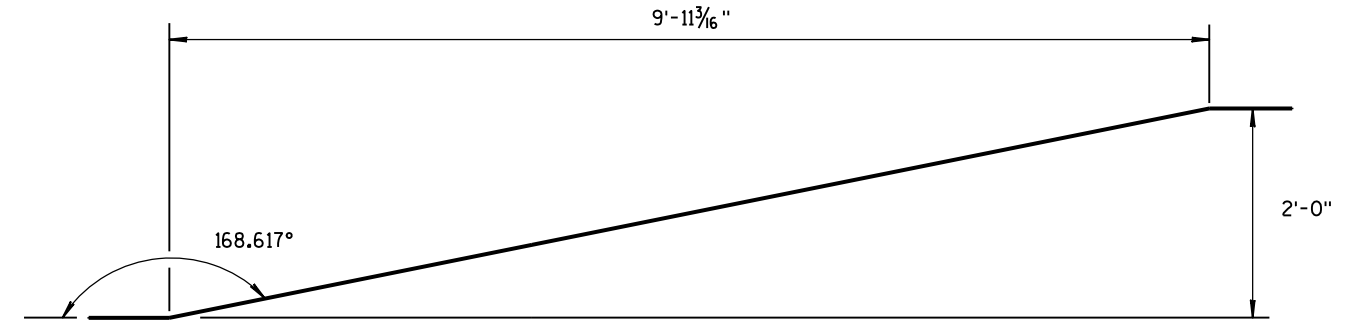
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



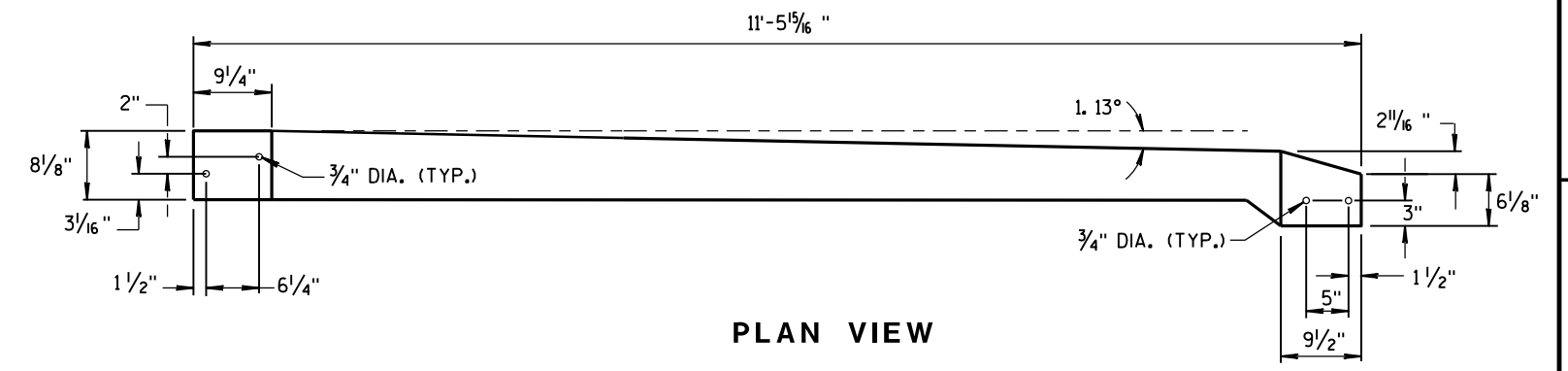
SIDE PLATE 2



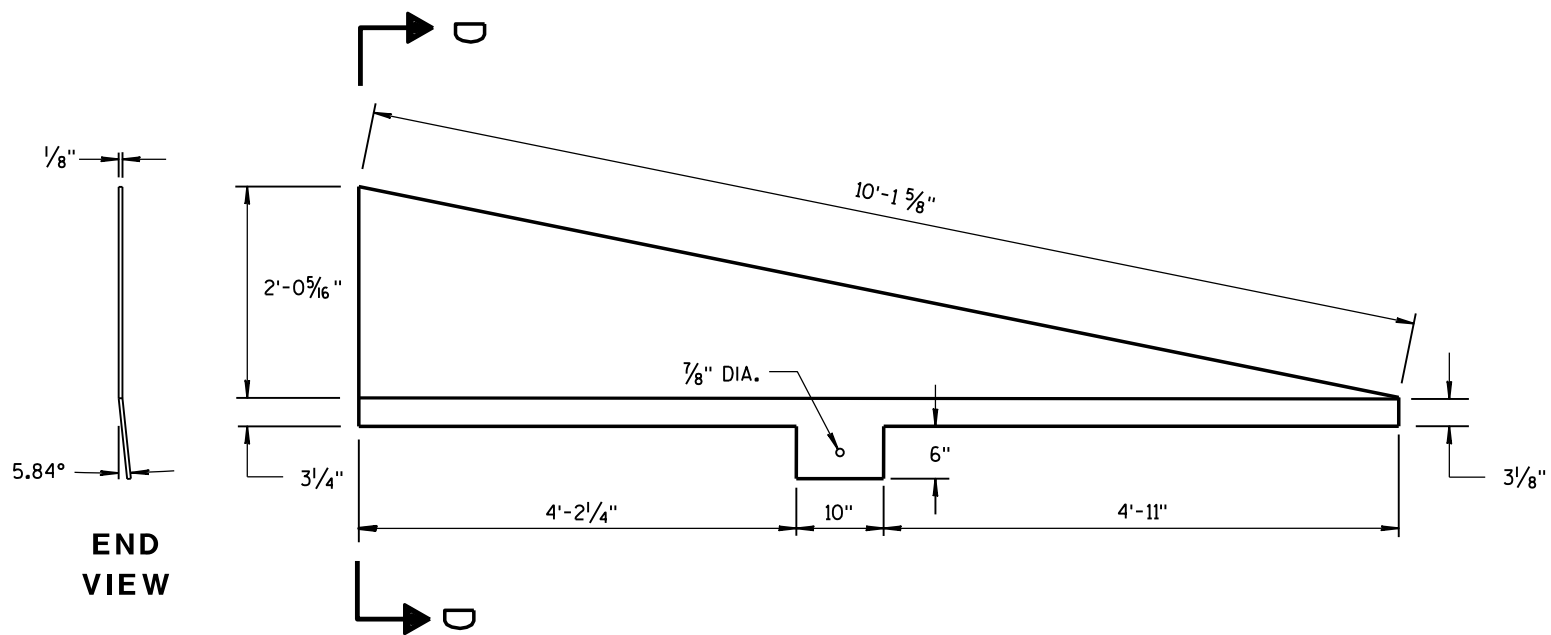
END VIEW



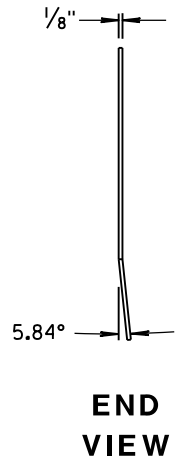
**SIDE VIEW
TOP PLATE**



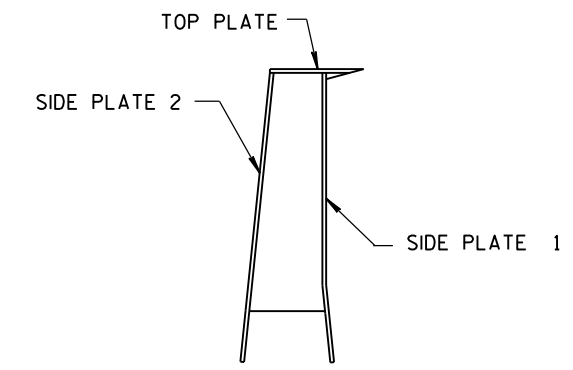
**PLAN VIEW
TOP PLATE**



SIDE PLATE 1



END VIEW



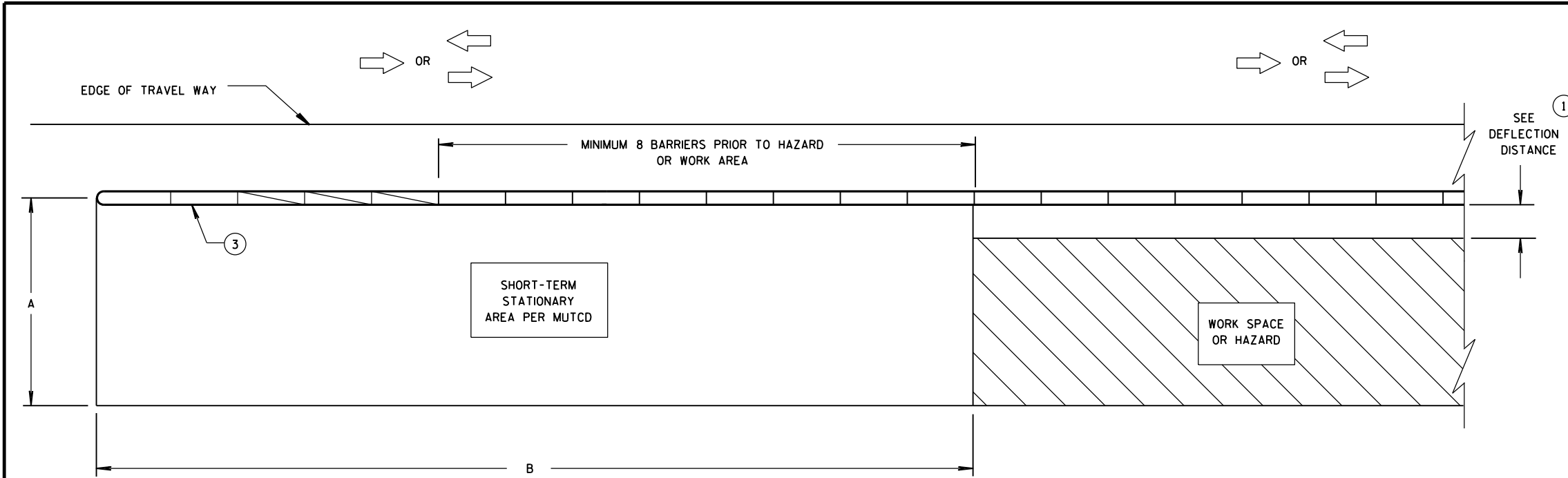
SECTION D-D

CAP DETAILS FOR TEMPORARY CONCRETE BARRIER TO 56" PERMANENT CONCRETE BARRIER

**CONCRETE BARRIER
TEMPORARY PRECAST, 12'-6"**

**STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION**

APPROVED
June 2017 /S/ Rodney Taylor
DATE ROADWAY STANDARD DEVELOPMENT
FHWA UNIT SUPERVISOR



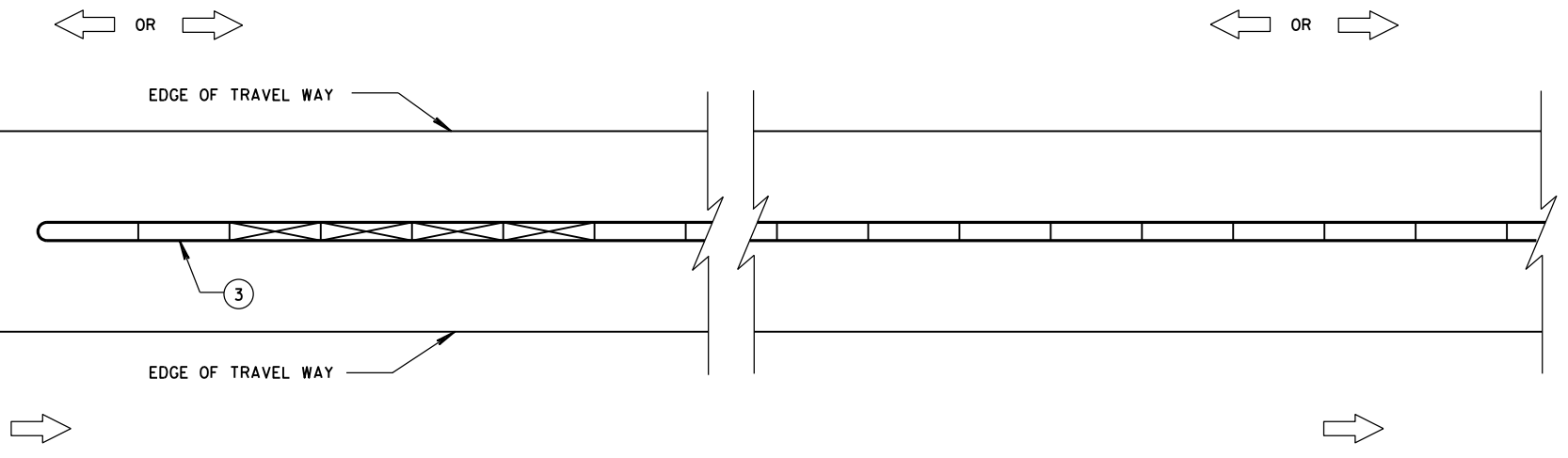
DIMENSION A TABLE ⁽²⁾

FACILITY	POSTED SPEED MPH	DIMENSION A	
		MIN. FT	MAX. FT
FREEWAY/EXPRESSWAY	ALL	15	20
NON-FREEWAY/EXPRESSWAY	GREATER THAN OR EQUAL TO 45	10	15
NON-FREEWAY/EXPRESSWAY	LESS THAN 45	8	10
AADT LESS THAN 1,500	ALL	8	10

**CRASH CUSHION/SAND BARREL ARRAY AND TEMPORARY BARRIER
INSTALLATION FOR TRAFFIC ON ONE SIDE OF BARRIER**

DIMENSION B TABLE ⁽²⁾

POSTED SPEEDS MPH	DIMENSION B FT
20	115
25	155
30	200
35	250
40	305
45	360
50	425
55	495
60	570
65	645



**CRASH CUSHION/SAND BARREL ARRAY AND TEMPORARY BARRIER
INSTALLATION FOR TRAFFIC ON BOTH SIDES OF BARRIER**

LEGEND

- DIRECTION OF TRAVEL
- CRASH CUSHION OR SAND BARREL ARRAY
- SEE FREE STANDING TRANSITION TO TIED-DOWN SYSTEM DETAILS
- SEE BI-DIRECTIONAL TRANSITION TO TIED-DOWN SYSTEM DETAILS
- 3 PINS PLACED ON TRAFFIC SIDE OF BARRIER
- PERMANENT CONCRETE BARRIER OR CONCRETE PARAPET
- FREE STANDING TEMPORARY BARRIER

GENERAL NOTES

SEE STANDARD DETAIL DRAWING 14B7 FOR MORE INFORMATION.

DETAILS PROVIDE A GENERAL LAYOUT OF TEMPORARY CONCRETE BARRIER, CRASH CUSHIONS, SAND BARREL ARRAYS AND TIE DOWN TRANSITIONS. DETAILS PROVIDED MAY NOT FIT ALL POSSIBLE SITUATIONS OR SITE CONDITIONS. SEE OTHER SECTIONS OF THE CONTRACT OR PROJECT ENGINEER FOR MORE DETAILS.

ADDITIONAL TEMPORARY BARRIER MAY BE REQUIRED TO PROTECT TRAVELING PUBLIC FROM HAZARDS, CONTRACTOR'S OPERATIONS OR TO CONTROL TRAFFIC.

TEMPORARY BARRIER MAY BE REQUIRED TO BE ANCHORED TO PAVEMENT OR BRIDGE DECK.

- FOR DETAILS ON CRASH CUSHION OR SAND BARREL ARRAYS SEE OTHER SECTIONS OF THE PLAN AND MANUFACTURE'S DETAILS.
- SLOPES LEADING TO TEMPORARY BARRIER, CRASH CUSHION OR SAND BARREL ARRAY ARE 10:1 OR LESS.
- ⁽¹⁾ FOR DEFLECTION INFORMATION SEE STANDARD DETAIL DRAWING 14B7.
- ⁽²⁾ VALUES PROVIDED MAY NOT FIT ALL POSSIBLE SITUATIONS OR SITE CONDITIONS. SEE OTHER SECTIONS OF THE CONTRACT OR PROJECT ENGINEER FOR MORE DETAILS.
- ⁽³⁾ ANCHOR TEMPORARY BARRIER ACCORDING TO CRASH CUSHION OR SAND BARREL MANUFACTURER'S RECOMMENDATIONS. IF MANUFACTURER'S RECOMMENDATIONS ARE NOT PROVIDED, ANCHOR 3 PINS ON TRAFFIC SIDE.

**CRASH CUSHION/SAND BARREL
ARRAY AND OTHER TEMPORARY
BARRIER LAYOUT DETAILS**

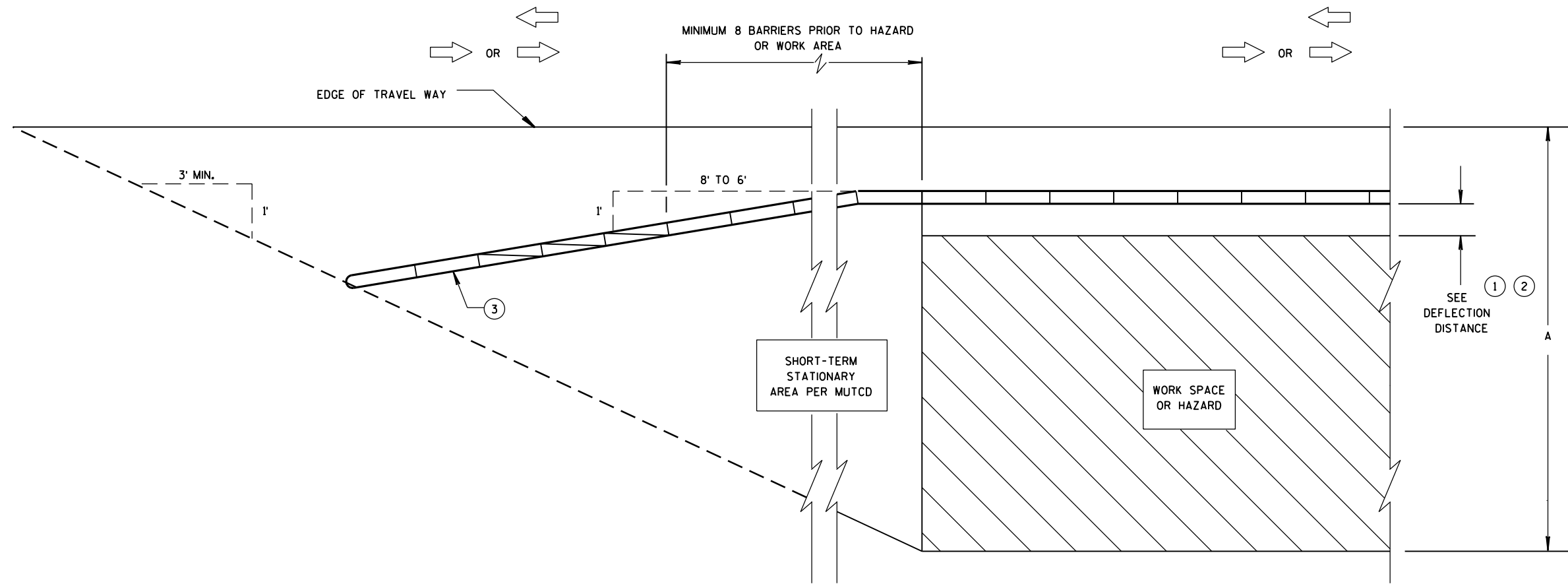
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6

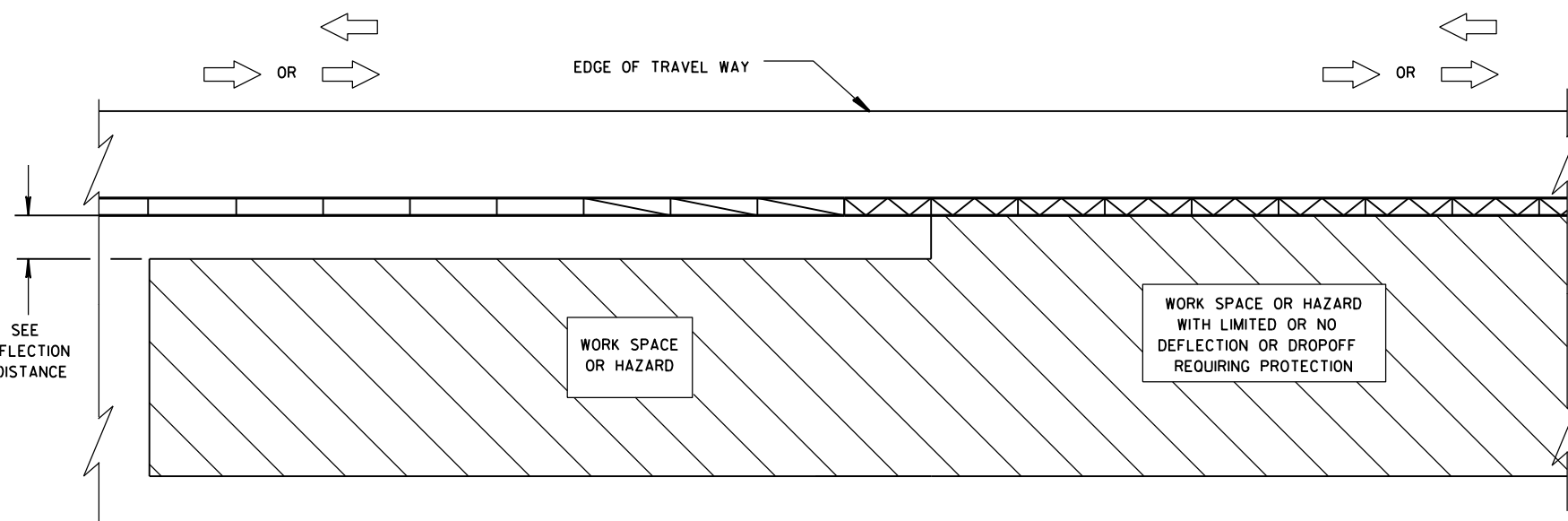
6

S.D.D. 14 B 8-2a

S.D.D. 14 B 8-2a



**CRASH CUSHION/SAND BARREL ARRAY AND TEMPORARY BARRIER
INSTALLATION FOR TRAFFIC ON ONE SIDE - FLARED INSTALLATION**



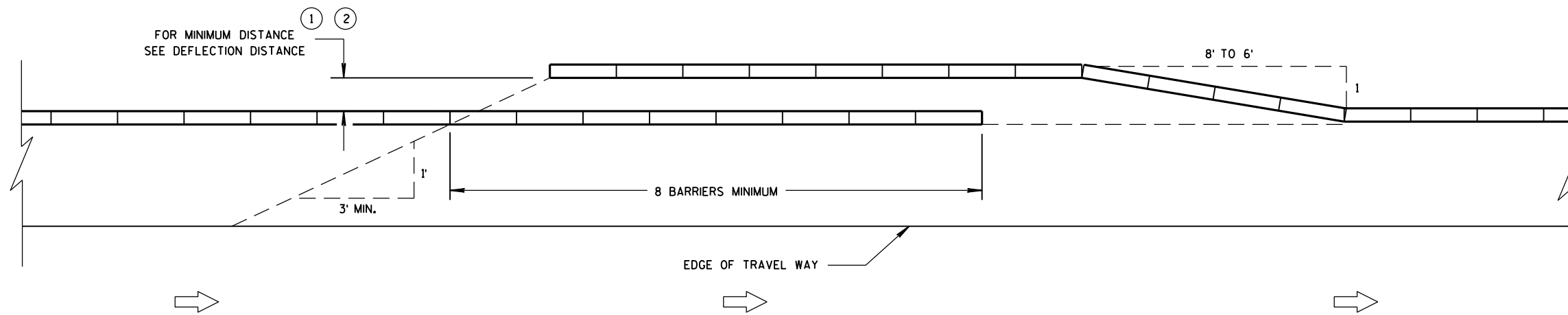
**TRANSITION FROM FREE STANDING TEMPORARY BARRIER
TO ANCHORED BARRIER**

LEGEND

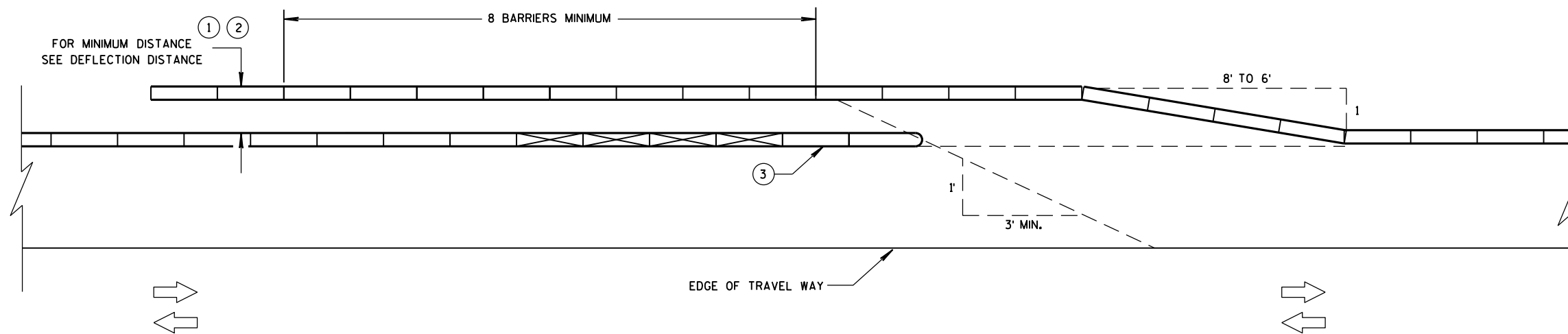
- DIRECTION OF TRAVEL
- CRASH CUSHION OR SAND BARREL ARRAY
- SEE FREE STANDING TRANSITION TO TIED-DOWN SYSTEM DETAILS
- SEE BI-DIRECTIONAL TRANSITION TO TIED-DOWN SYSTEM DETAILS
- 3 PINS PLACED ON TRAFFIC SIDE OF BARRIER
- PERMANENT CONCRETE BARRIER OR CONCRETE PARAPET
- FREE STANDING TEMPORARY BARRIER

**CRASH CUSHION/SAND BARREL
ARRAY AND OTHER TEMPORARY
BARRIER LAYOUT DETAILS**

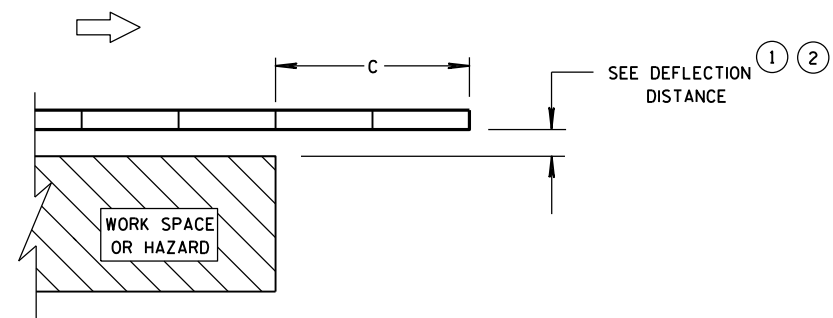
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



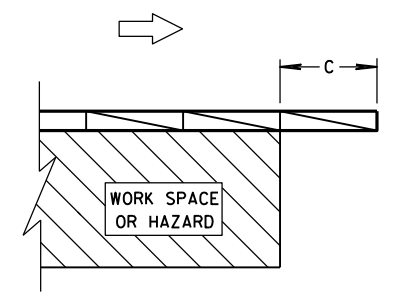
TEMPORARY BARRIER OVERLAP - ONE-WAY TRAFFIC



TEMPORARY BARRIER OVERLAP - TWO-WAY TRAFFIC



**ENDING TEMPORARY BARRIER
DOWNSTREAM - UNANCHORED**



**ENDING TEMPORARY BARRIER
DOWNSTREAM - ANCHORED**

LEGEND

- DIRECTION OF TRAVEL
- CRASH CUSHION OR SAND BARREL ARRAY
- SEE FREE STANDING TRANSITION TO TIED-DOWN SYSTEM DETAILS
- SEE BI-DIRECTIONAL TRANSITION TO TIED-DOWN SYSTEM DETAILS
- 3 PINS PLACED ON TRAFFIC SIDE OF BARRIER
- PERMANENT CONCRETE BARRIER OR CONCRETE PARAPET
- FREE STANDING TEMPORARY BARRIER

**CRASH CUSHION/SAND BARREL
ARRAY AND OTHER TEMPORARY
BARRIER LAYOUT DETAILS**

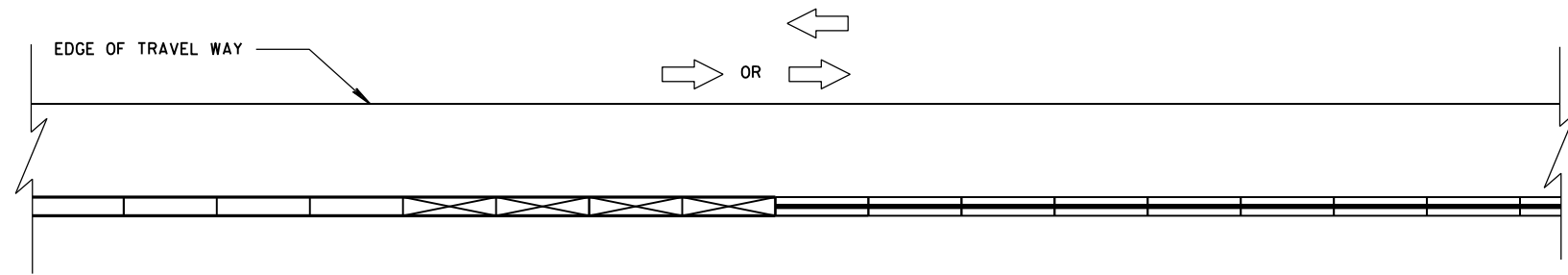
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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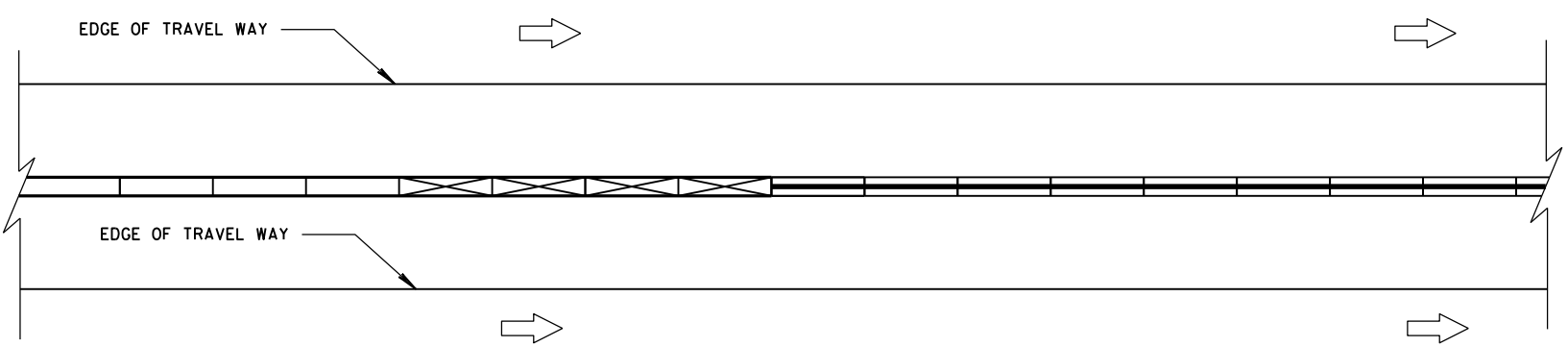
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S.D.D. 14 B 8-2c

S.D.D. 14 B 8-2c



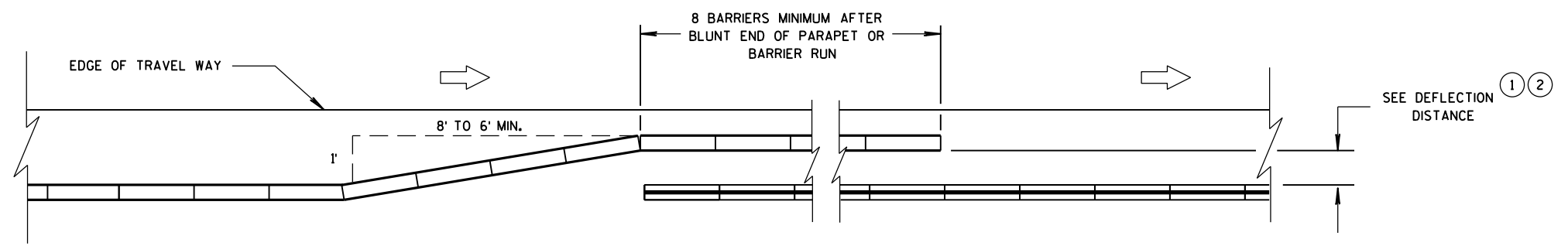
CONNECTING TEMPORARY BARRIER TO PERMANENT CONCRETE BARRIER-TRAFFIC ON ONE SIDE



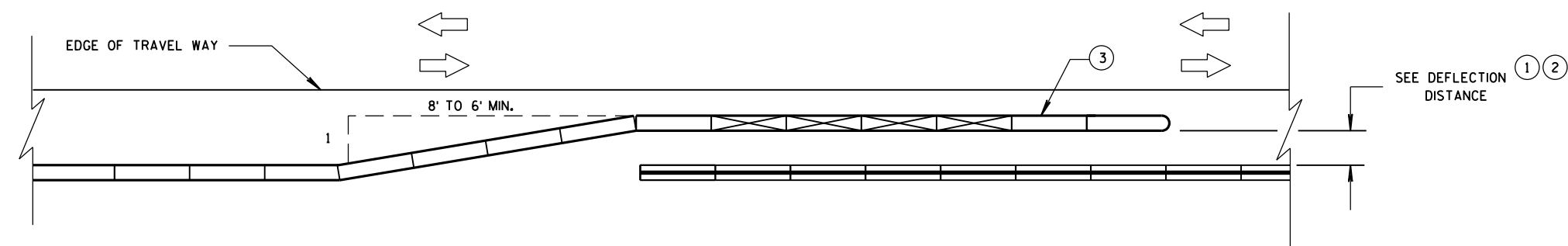
CONNECTING TEMPORARY BARRIER TO PERMANENT CONCRETE BARRIER-TRAFFIC ON BOTH SIDES

LEGEND

- DIRECTION OF TRAVEL
- CRASH CUSHION OR SAND BARREL ARRAY
- SEE FREE STANDING TRANSITION TO TIED-DOWN SYSTEM DETAILS
- SEE BI-DIRECTIONAL TRANSITION TO TIED-DOWN SYSTEM DETAILS
- 3 PINS PLACED ON TRAFFIC SIDE OF BARRIER
- PERMANENT CONCRETE BARRIER OR CONCRETE PARAPET
- FREE STANDING TEMPORARY BARRIER



OVERLAPPING TEMPORARY BARRIER AND PERMANENT BARRIER - ONE WAY TRAFFIC



OVERLAPPING TEMPORARY BARRIER AND PERMANENT BARRIER - TWO WAY TRAFFIC

CRASH CUSHION/SAND BARREL ARRAY AND OTHER TEMPORARY BARRIER LAYOUT DETAILS

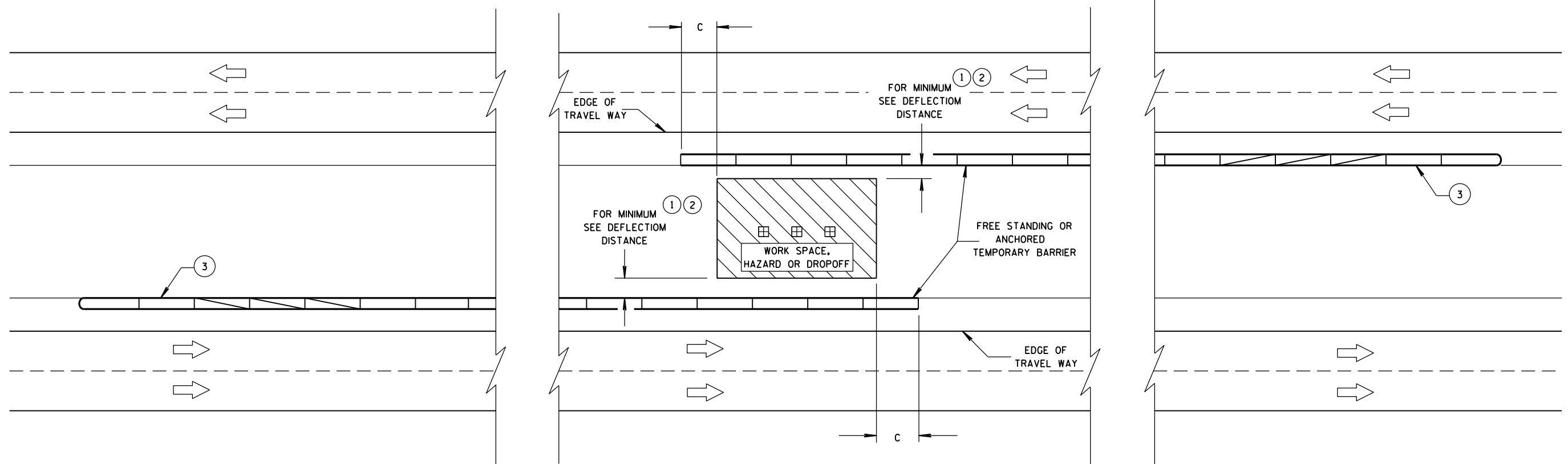
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

LEGEND

- DIRECTION OF TRAVEL
- CRASH CUSHION OR SAND BARREL ARRAY
- SEE FREE STANDING TRANSITION TO TIED-DOWN SYSTEM DETAILS
- SEE BI-DIRECTIONAL TRANSITION TO TIED-DOWN SYSTEM DETAILS
- 3 PINS PLACED ON TRAFFIC SIDE OF BARRIER
- PERMANENT CONCRETE BARRIER OR CONCRETE PARAPET
- FREE STANDING TEMPORARY BARRIER

DIMENSION C TABLE ²

AVAILABLE DEFLECTION DISTANCE	MINIMUM LENGTH OF BARRIER BEYOND HAZARD FT
GREATER THAN 8'	12.5
LESS THAN OR EQUAL TO 8' BUT GREATER THAN 4'	50
LESS THAN OR EQUAL TO 4'	100



6

6

S.D.D. 14 B 8-2e

S.D.D. 14 B 8-2e

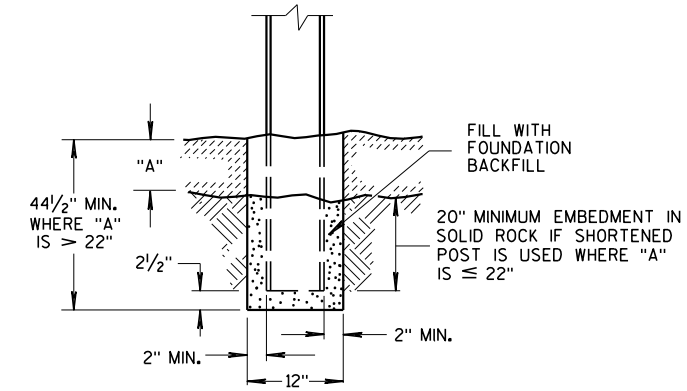
CRASH CUSHION/SAND BARREL ARRAY AND OTHER TEMPORARY BARRIER LAYOUT DETAILS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

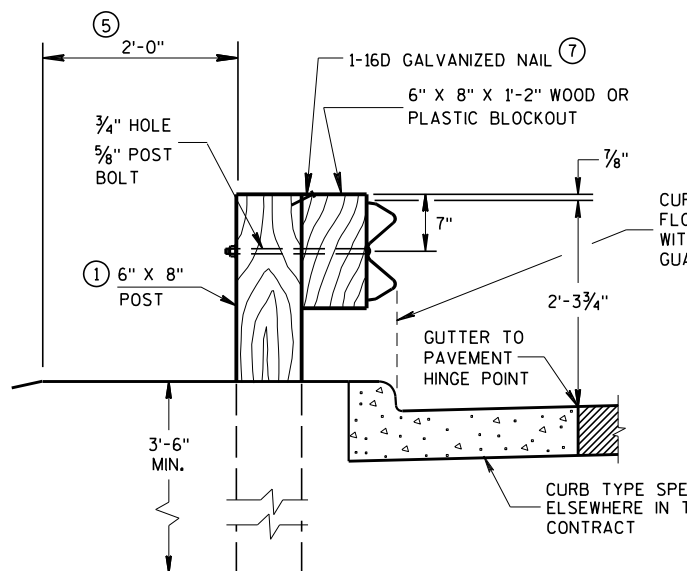
APPROVED
June, 2015 DATE /S/ Jerry H. Zogg
FHWA ROADWAY STANDARDS DEVELOPMENT ENGINEER

GENERAL NOTES

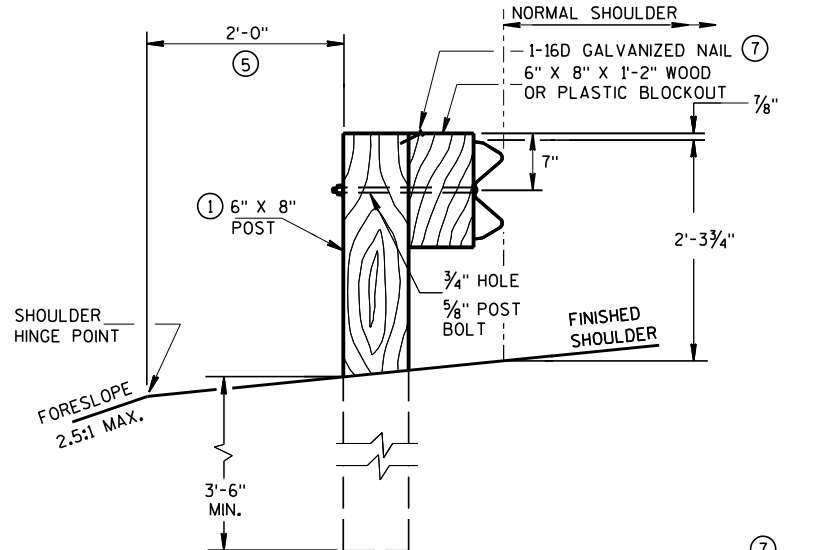
- ① W6 X 9 OR W6 X 8.5 STEEL POSTS AND NOTCHED PLASTIC BLOCKOUTS ARE ACCEPTABLE ALTERNATIVES FOR 6" X 8" WOOD POSTS WITH WOOD OR PLASTIC BLOCKOUTS. USE APPROVED NOTCHED PLASTIC BLOCKOUTS WITH STEEL POSTS. APPROVED PLASTIC BLOCKOUT DESIGNS MAY VARY FROM THIS TYPICAL DETAIL WHEN USED IN CONJUNCTION WITH STEEL POSTS. DO NOT MIX STEEL POSTS AND WOOD POSTS IN A SINGLE INSTALLATION.
 - ② USE STRUCTURAL STEEL POSTS CONFORMING TO ASTM A 36. GALVANIZED POSTS ACCORDING TO AASHTO M 111. EITHER SET THE POSTS IN DRILLED HOLES OR DRIVE TO GRADE. REMOVE MUSHROOMING CAUSED BY DRIVING AND REPAIR DAMAGED SPELTER COATING ON GALVANIZED POSTS.
 - ③ INSTALL STEEL POSTS WITH HOLES ON APPROACHING TRAFFIC SIDE.
 - ④ USE EITHER WOOD OR APPROVED PLASTIC BLOCKOUTS ON WOOD POSTS.
 - ⑤ IF THE DISTANCE FROM BACK OF POST TO SHOULDER HINGE POINT IS LESS THAN 2 FEET INSTALL LONGER POST AT HALF POST SPACING, W BEAM (LHW).
 - ⑥ IF ROCK IS ENCOUNTERED DURING EXCAVATION, THE ENGINEER MAY APPROVE USING A 12 INCH DIAMETER POST HOLE EXTENDING 20 INCHES DEEP INTO THE ROCK. PLACE GRANULAR MATERIAL IN THE BOTTOM OF THE HOLE APPROXIMATELY 2 1/2 INCHES DEEP. CUT THE POSTS TO LENGTH AND PLACE IN THE HOLE. BACKFILL WITH MATERIAL EXCAVATED FROM THE HOLE AND COMPACT ADEQUATELY.
 - ⑦ WHEN USING STEEL POSTS AND WOOD BLOCKOUTS INSTALL FOUR 16D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.
- INSTALL BEAM GUARD SECTIONS AND ALL NECESSARY HARDWARE ACCORDING TO THE APPLICABLE PLAN AND CURRENT STANDARD AND SUPPLEMENTAL SPECIFICATIONS. ALL DIMENSIONS ARE SUBJECT TO MANUFACTURER'S TOLERANCES EXCEPT WHERE ALLOWABLE TOLERANCES ARE SHOWN.



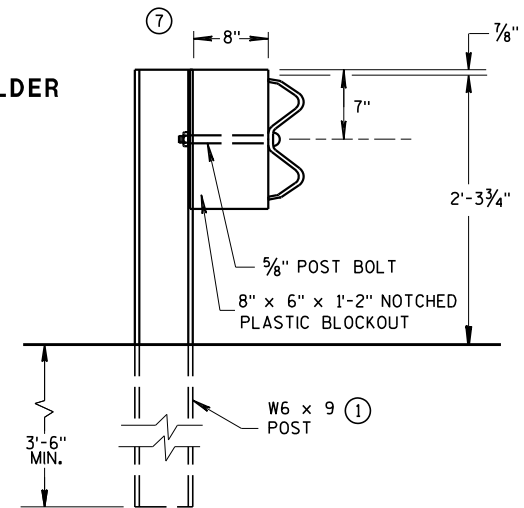
END VIEW SETTING STEEL OR WOOD POST IN ROCK ⑥



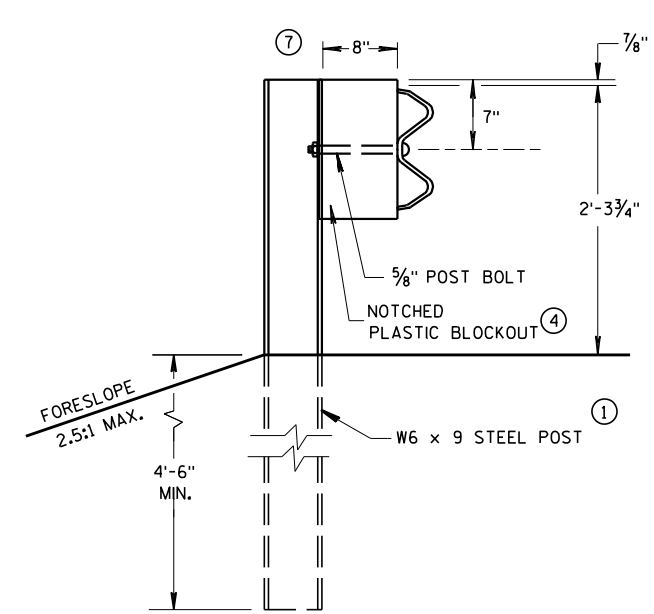
END VIEW LOCATED ALONG A CURBED ROADWAY



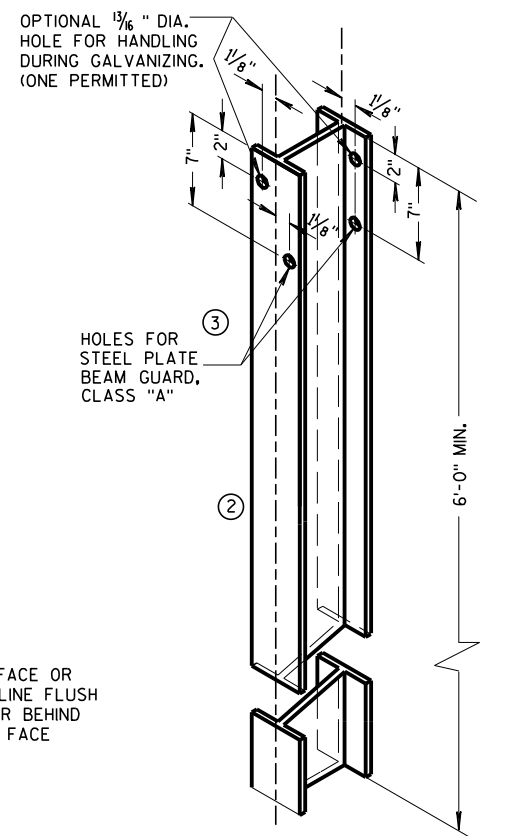
END VIEW LOCATED ALONG A ROADWAY SHOULDER STANDARD INSTALLATION



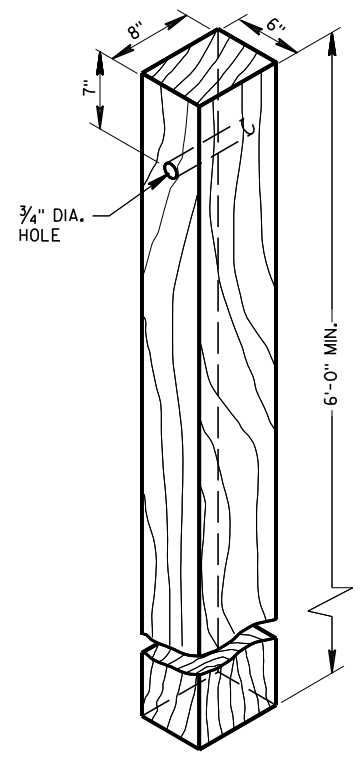
END VIEW STEEL POST & NOTCHED PLASTIC BLOCKOUT ALTERNATIVE STANDARD INSTALLATION



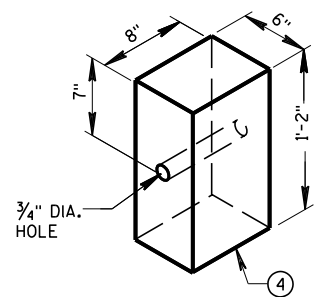
END VIEW LONGER POST AT HALF POST SPACING W BEAM (LHW)



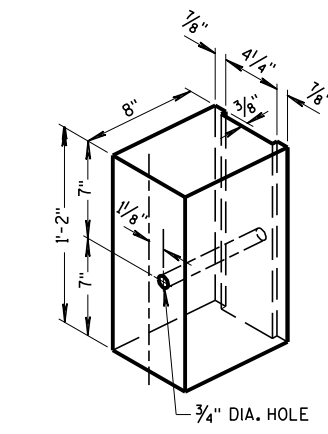
STEEL POST & HOLE PUNCHING DETAIL (W6 X 9) ①
ALL HOLES 1/8" DIAMETER EXCEPT AS NOTED



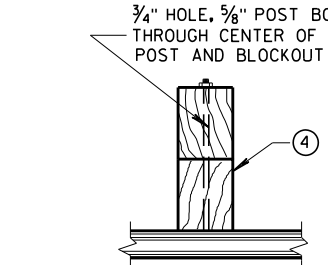
WOOD POST (6" X 8") NOMINAL



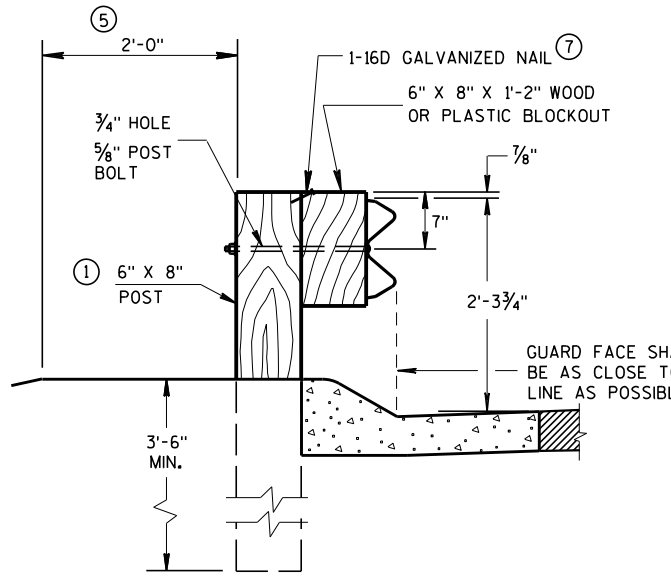
WOOD OR PLASTIC BLOCKOUT FOR WOOD POSTS



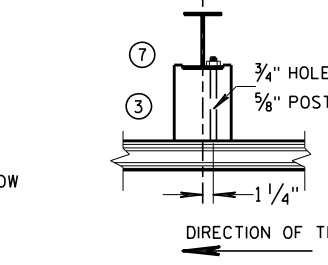
TYPICAL NOTCHED PLASTIC BLOCKOUT FOR STEEL POSTS ①



PLAN VIEW WOOD POST, BLOCKOUT & BEAM



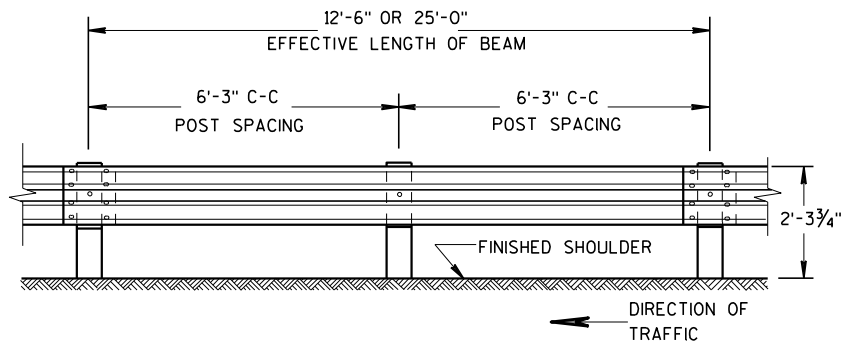
END VIEW LOCATED ALONG A MOUNTABLE CURBED ROADWAY



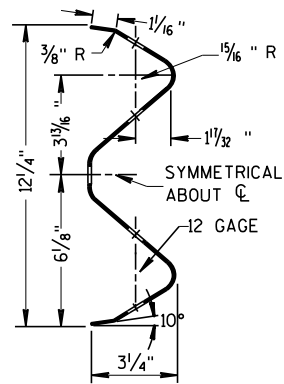
PLAN VIEW STEEL POST, NOTCHED PLASTIC BLOCKOUT & BEAM

STEEL PLATE BEAM GUARD, CLASS "A" INSTALLATION & ELEMENTS

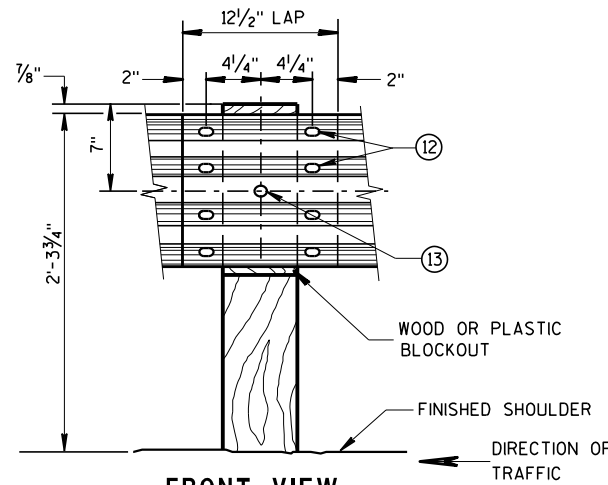
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



**FRONT VIEW
POST SPACING STANDARD INSTALLATION**



SECTION THRU W BEAM

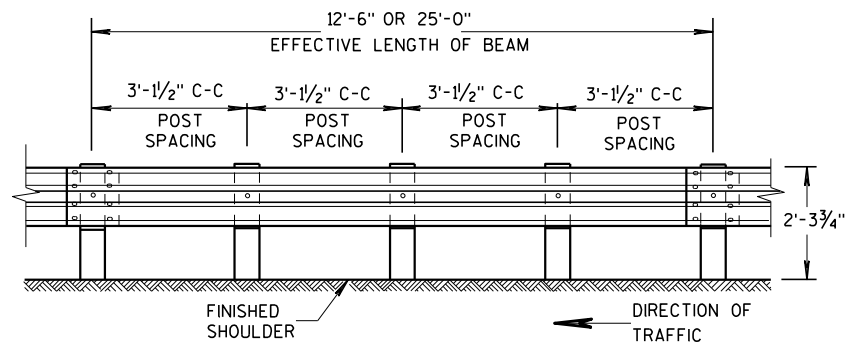


**FRONT VIEW
BEAM SPLICE AT WOOD POST
AND POST MOUNTING DETAIL**

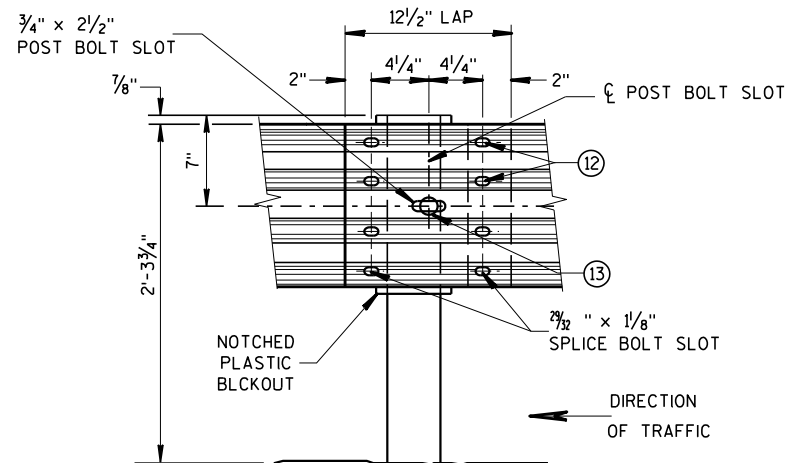
GENERAL NOTES

FURNISH GUARDRAIL DEFLECTORS FROM APPROVED PRODUCTS LIST.

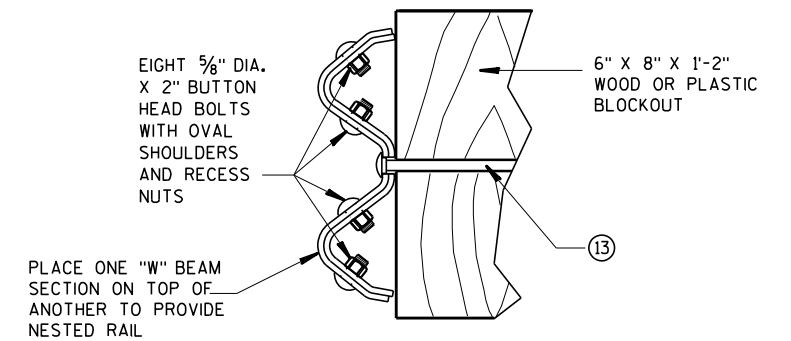
- ⑨ DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINA. START REFLECTORS AT POST #9 AND SPACE EVENLY EVERY 100 FEET (MAX.) TO THE END OF GUARDRAIL RUN, USING A MINIMUM OF 3 REFLECTORS.
- ⑫ 8 - 5/8" ϕ X 2" BUTTON HEAD BOLTS WITH OVAL SHOULDERS & RECESS NUTS.
- ⑬ 5/8" DIA. BUTTON HEAD BOLT AND RECESS NUT WITH 5/8" DIA. F844 FLAT WASHER UNDER NUT.



**FRONT VIEW
POST SPACING FOR LONGER POST
AT HALF POST SPACING W BEAM (LHW)**

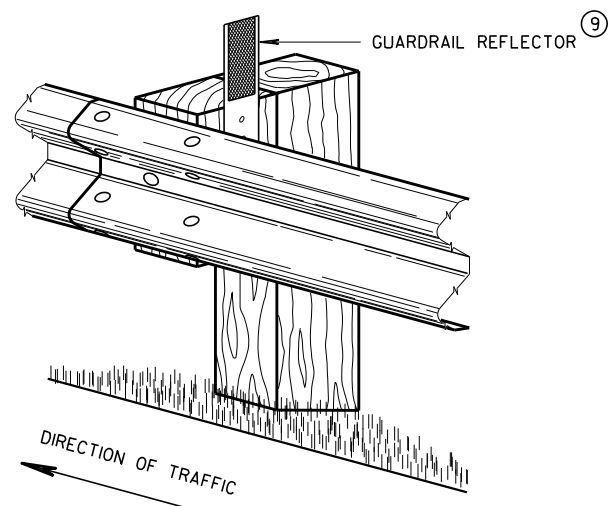


**FRONT VIEW
BEAM SPLICE AT STEEL POST
TYPICAL SPLICING DETAILS
OF STEEL PLATE BEAM GUARD**

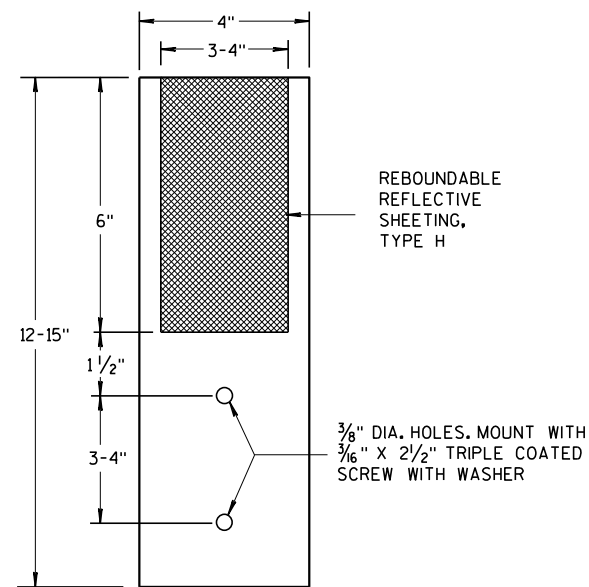


NESTED W BEAM (NW)
USE ALL OTHER STANDARD BEAM GUARD DETAILS FOR
CONSTRUCTING NESTED W BEAM (NW)

* USE DOUBLE SIDED WHITE GUARDRAIL REFLECTORS ON ROADWAYS WITH BI-DIRECTIONAL TRAFFIC (NO MEDIAN). USE SINGLE SIDED WHITE (RIGHT SIDE) AND SINGLE SIDED YELLOW (LEFT SIDE) ON ROADWAYS WITH MEDIAN SEPARATION.



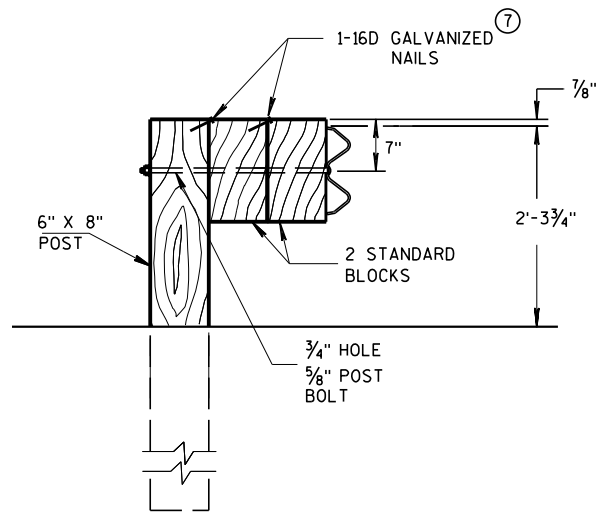
**4" X 12" GUARDRAIL REFLECTOR DETAIL
AND TYPICAL INSTALLATION ***



4" x 12" GUARDRAIL REFLECTOR

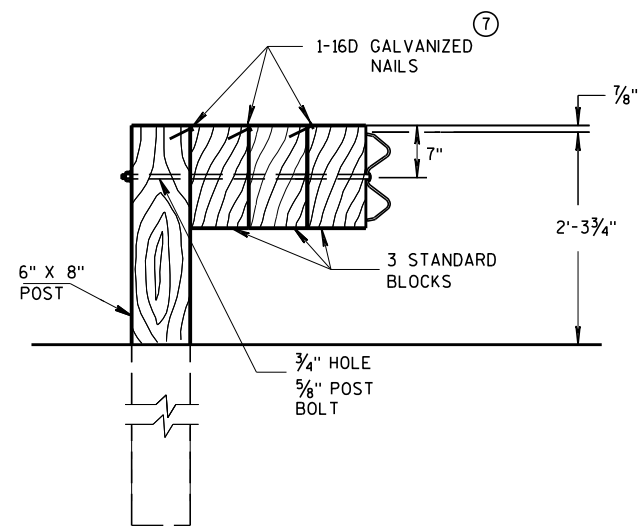
**STEEL PLATE BEAM GUARD,
CLASS "A",
INSTALLATION & ELEMENTS**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



DETAIL FOR DOUBLE BLOCKS

THE NUMBER OF DOUBLE BLOCK POSTS WITHIN A BARRIER RUN IS UNLIMITED

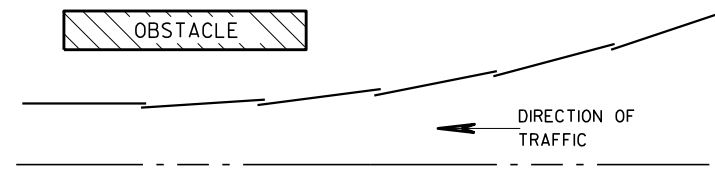


DETAIL FOR TRIPLE BLOCKS

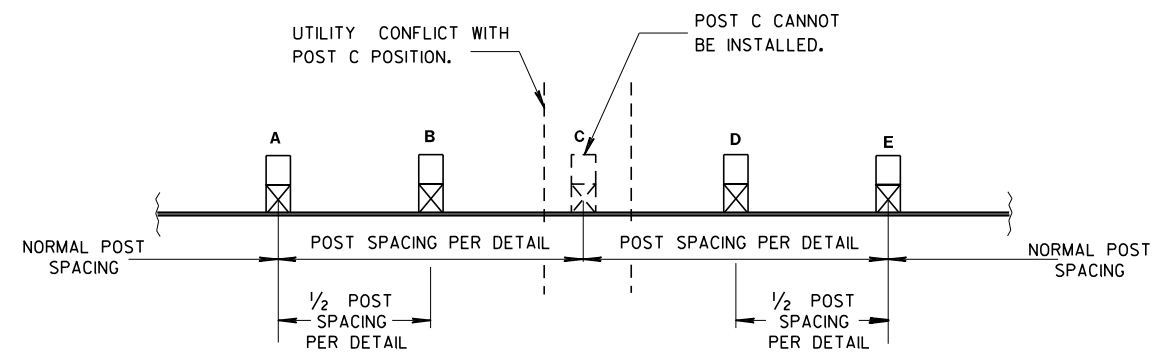
TRIPLE BLOCK DETAIL IS LIMITED TO ONE LOCATION WITHIN A BEAM GUARD RUN.

NOTES: USE DOUBLE OR TRIPLE BLOCKS WHEN UNDERGROUND OBSTACLES PREVENT THE POST FROM BEING INSTALLED.

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



**PLAN VIEW
BEAM LAPPING DETAIL**



**POST DRIVING FOR CONTINUOUS
UNDERGROUND OBSTRUCTION**

STEEL PLATE BEAM GUARD, CLASS "A", INSTALLATION & ELEMENTS	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED June 2017	/s/ Rodney Taylor
DATE	ROADWAY STANDARDS DEVELOPMENT UNIT SUPERVISOR
FHWA	

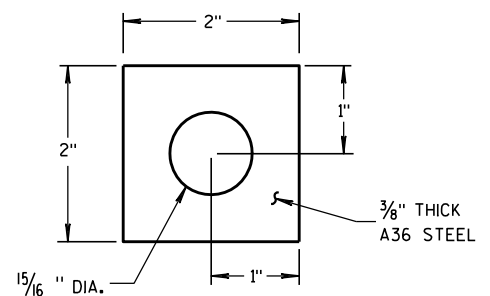
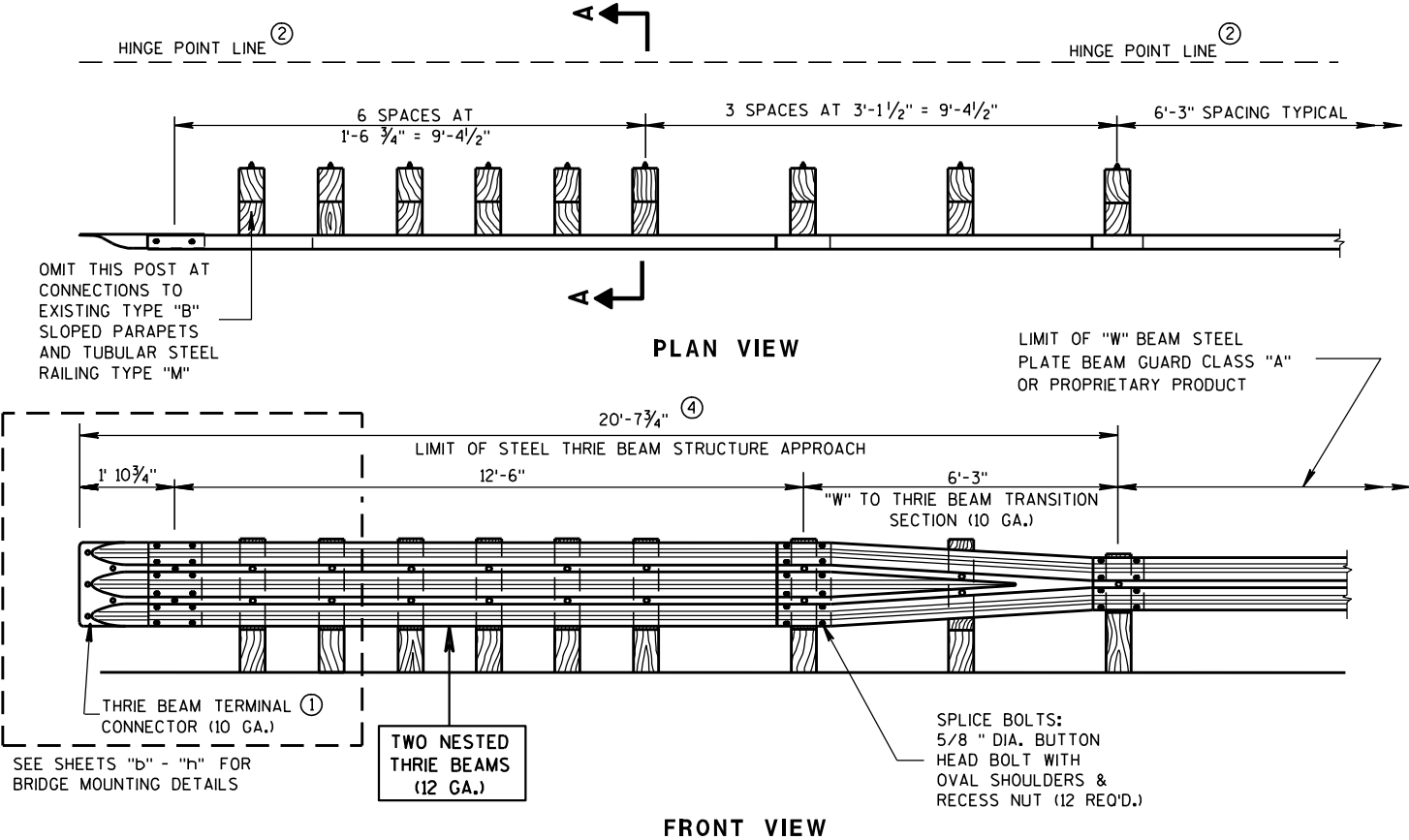
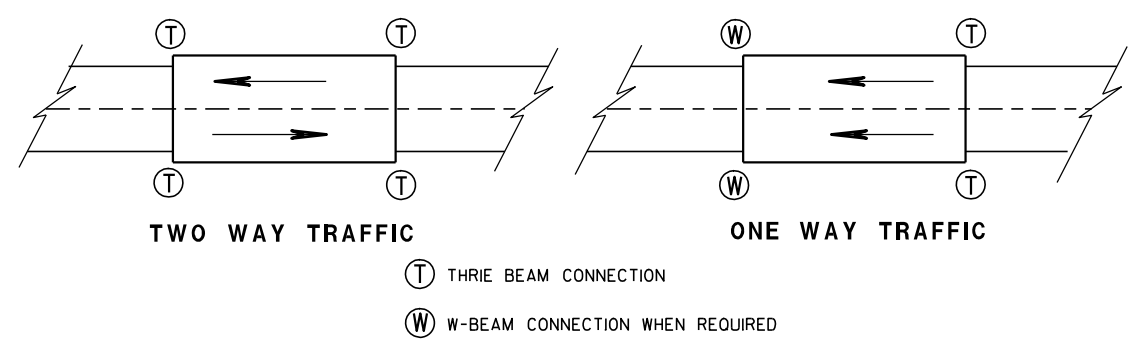


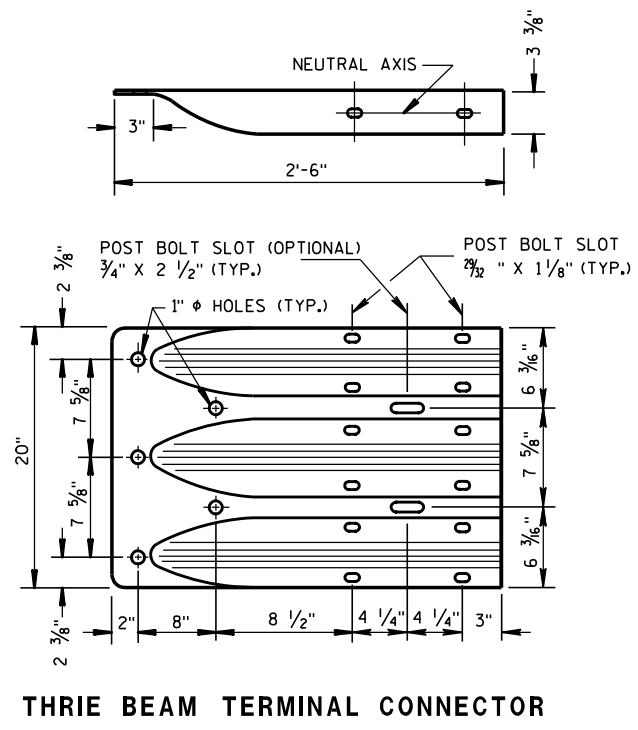
PLATE WASHER DETAIL

GENERAL NOTES

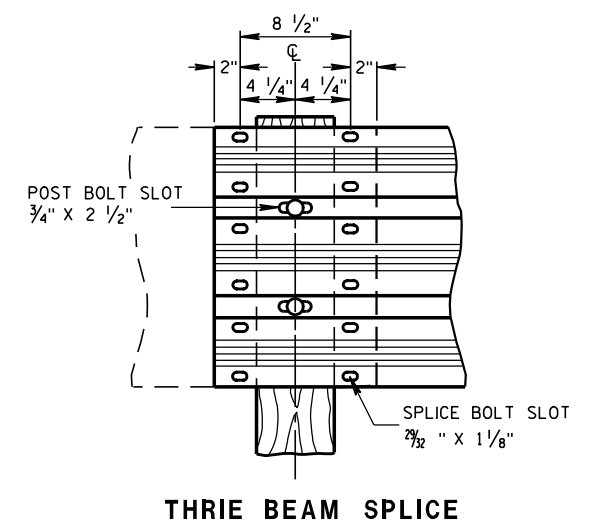
- BOLT THE THRIE BEAM TO ALL POSTS AND BLOCKOUTS, DRILL OR PUNCH BOLT HOLES IN THE BEAM IF THE POST SPACING IS LESS THAN 6'-3".
- DO NOT USE STEEL POSTS AND NOTCHED PLASTIC BLOCKOUTS IN THE STEEL THRIE BEAM STRUCTURAL APPROACH AND THE TRANSITION SECTION OF STEEL PLATE BEAM GUARD, CLASS "A" INSTALLATIONS.
- IF ROCK IS ENCOUNTERED, REMOVE ROCK TO FULL DEPTH OF POST PLUS 2 1/2", AND 12" DIAMETER AROUND POST. SEE 14B15 FOR MORE DETAILS.
- ① BRIDGE RAILING TYPE "W" DOES NOT REQUIRE A TERMINAL CONNECTOR.
- ② MINIMUM EMBEDMENT SHALL BE 4'-0". WHERE EXISTING CONDITIONS DO NOT PERMIT THE APPROPRIATE EARTHWORK SHOWN ON THE PLAN TYPICAL SECTIONS OR DETAILS, THE ENGINEER MAY ALLOW THE REDUCTION OR ELIMINATION OF THE 2 FOOT DISTANCE TO THE HINGE POINT. OTHERWISE BUILD AS THE PLAN SHOWS OR AS THE ENGINEER DIRECTS. IF THE 2 FOOT DISTANCE TO THE HINGE POINT IS REDUCED OR ELIMINATED, INCREASE THE POST EMBEDMENT DEPTH TO 4'-6" OR MORE.
- ③ POST BOLTS ARE 5/8" DIAMETER ASTM A307 BUTTON HEAD BOLT. A POST BOLT REQUIRES A 5/8" DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX AND A 5/8" DIAMETER F844 FLAT WASHER. LENGTH OF POST BOLT MAY VARY.
- ④ ALL WOOD POSTS MUST BE 6" X 8" AND AT LEAST 7'-0" LONG.



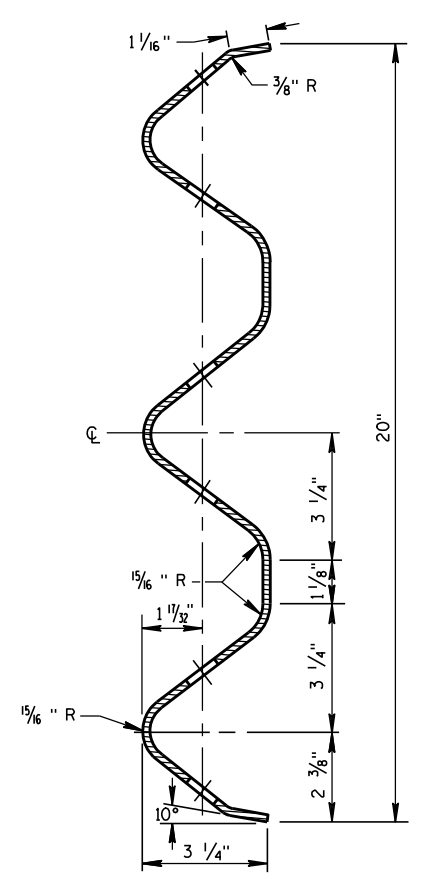
TYPICAL LOCATIONS OF THRIE BEAM AND W-BEAM CONNECTIONS TO BRIDGE



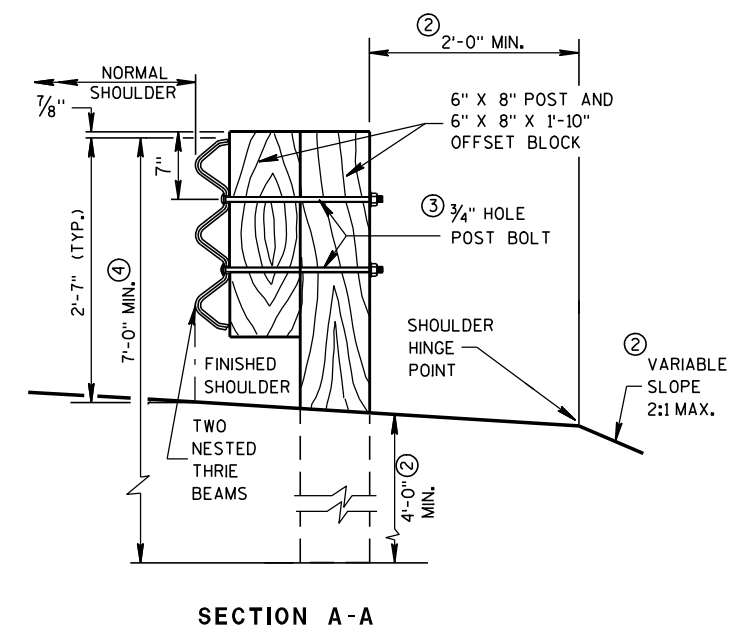
THRIE BEAM TERMINAL CONNECTOR



THRIE BEAM SPLICE



SECTION THRU THRIE BEAM RAIL ELEMENT



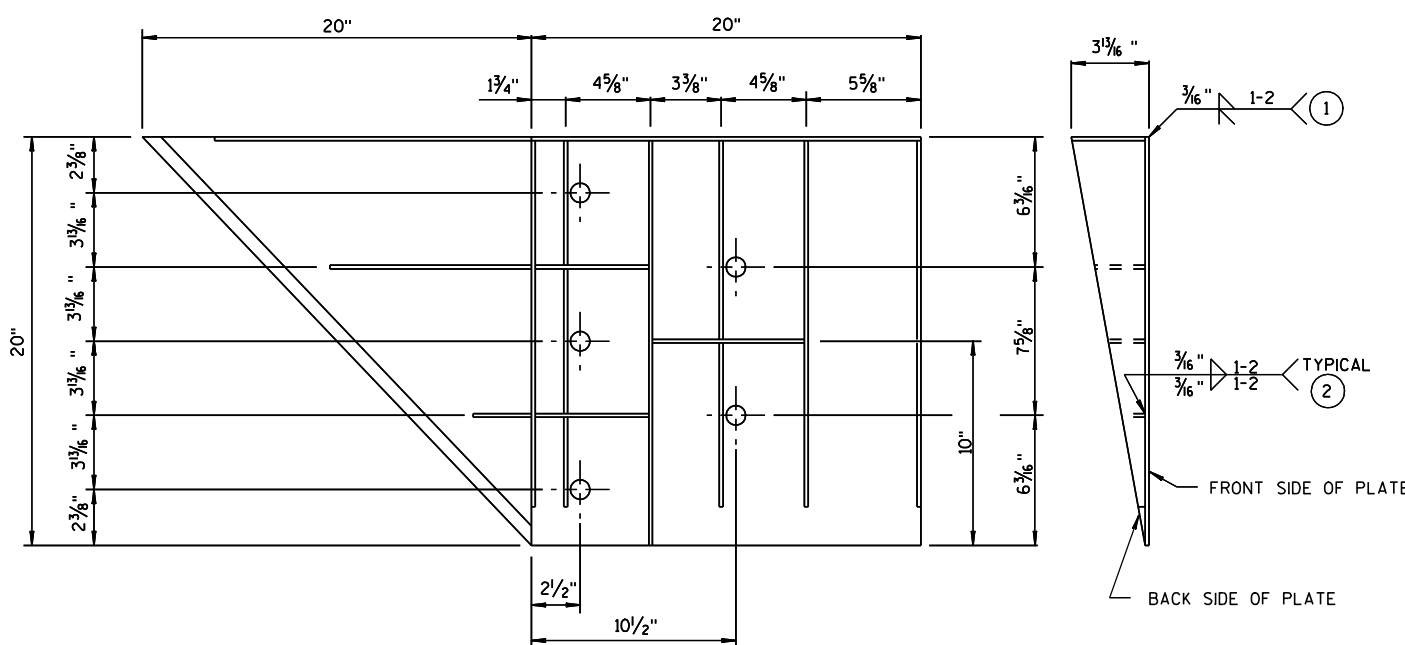
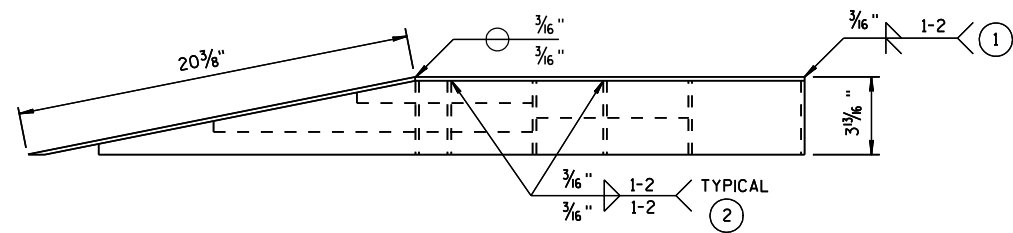
SECTION A-A

STEEL THRIE BEAM STRUCTURE APPROACH	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 8/31/2012 DATE	/s/ Jerry H. Zogg ROADWAY STANDARDS DEVELOPMENT ENGINEER
FHWA	

GENERAL NOTES

- COVER PLATE PANELS ARE 3/16" THICK.
- ALL STIFFENERS ARE 1/4" THICK.
- CONNECTOR PLATE SHALL BE FABRICATED FROM ASTM GRADE A36 STEEL AND GALVANIZED.
- FOR GALVANIZED REQUIREMENTS, SEE SECTION 614 OF THE STANDARD SPECIFICATIONS.
- ALL HOLE DIAMETERS SHALL BE 1".
- FOR OPPOSITE SIDE INSTALLATION MIRROR DRAWINGS.

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



WELDING INSTRUCTION
(VIEWED FROM BACK SIDE OF PLATE)

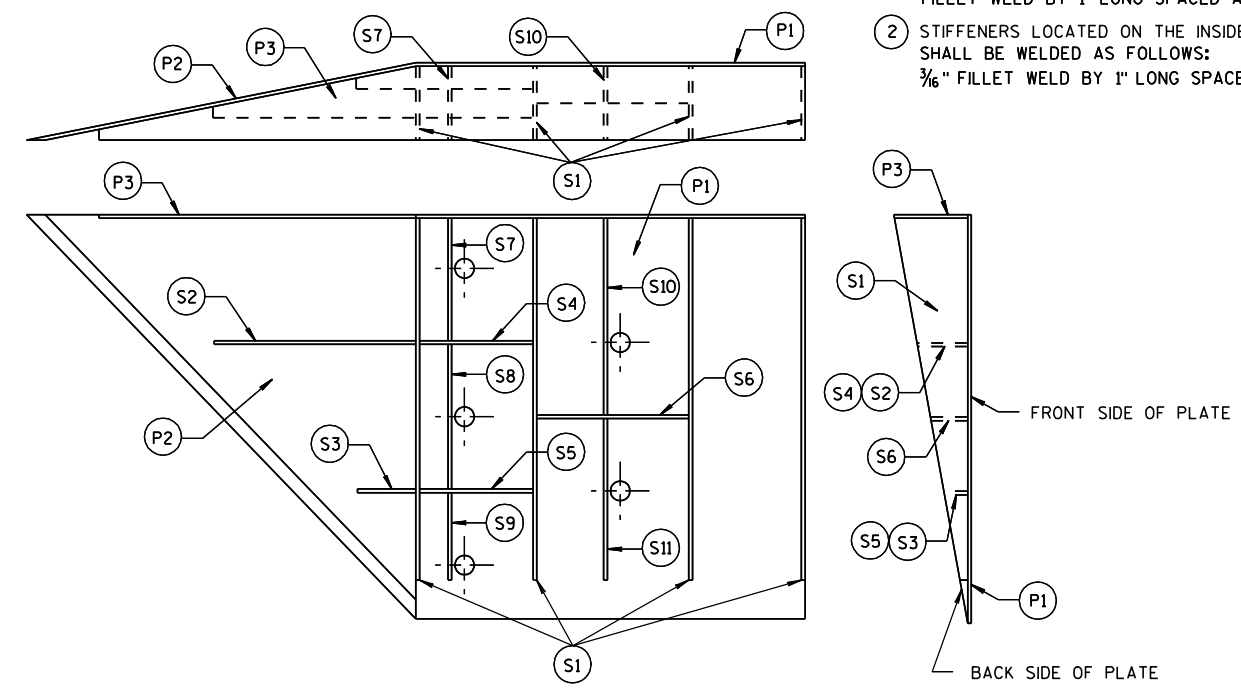


PLATE AND STIFFENER IDENTIFICATION
(VIEWED FROM BACK SIDE OF PLATE)

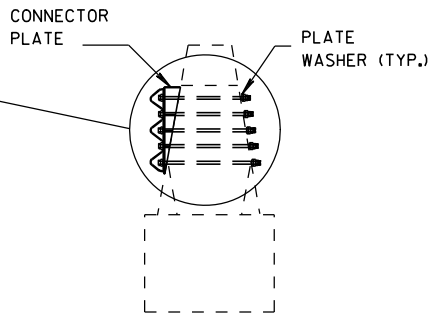
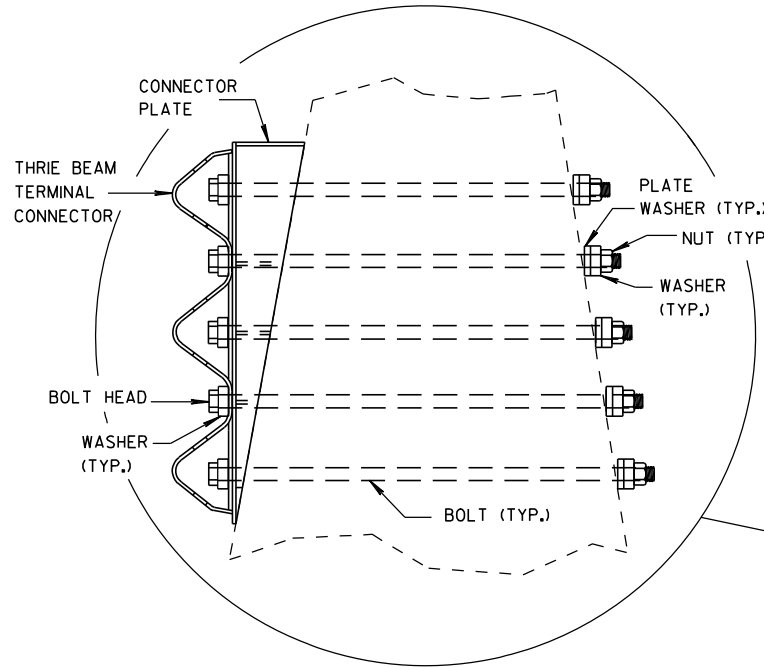
CONNECTOR PLATE DIMENSION (PER ASSEMBLY)				
PLATE	QUANTITY	SHAPE	SIZE (A x B x C x D)	THICKNESS
P1	1		20" x 20"	3/16"
P2	1		20" x 20" x 28 3/16"	3/16"
P3	1		39" x 3 5/8" x 20" x 19 5/16"	3/16"
S1	4		18 7/16" x 3 5/8" x 18 3/4"	1/4"
S2	1		10 1/4" x 2 7/16" x 10 3/8" x 1/2"	1/4"
S3	1		3" x 1 1/16" x 3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

STEEL THRIE BEAM STRUCTURE APPROACH

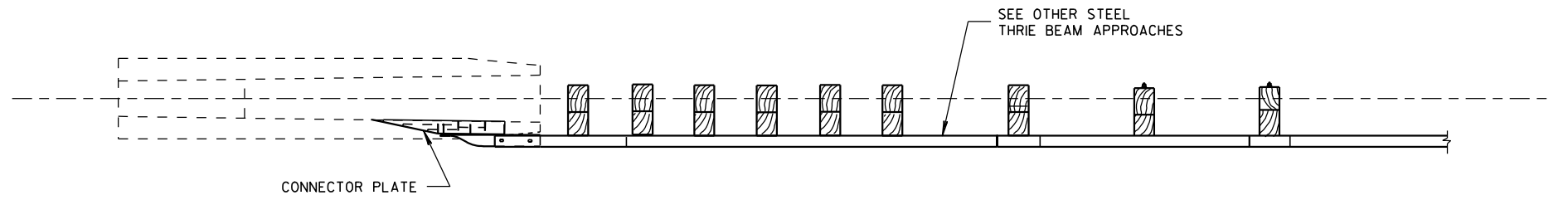
**STEEL THRIE BEAM
STRUCTURE APPROACH,
CONNECTOR PLATE DETAIL**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

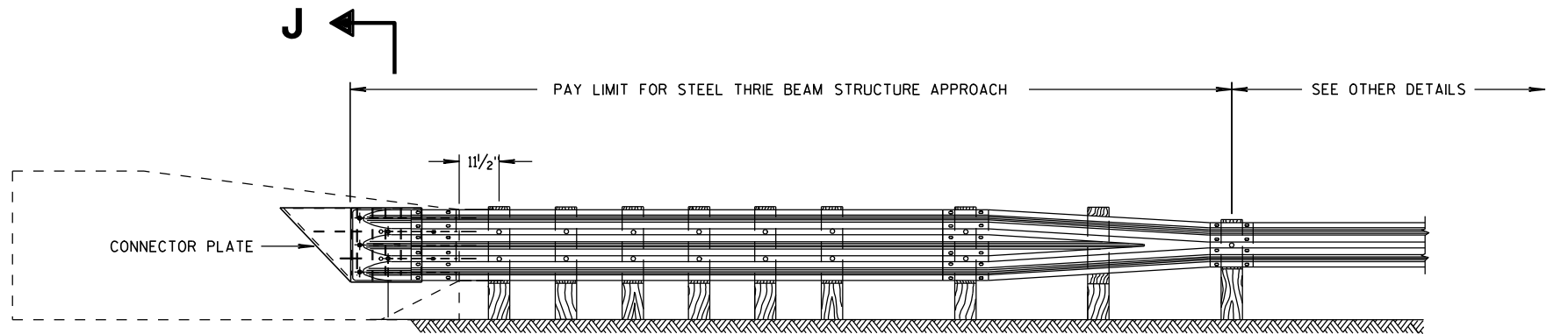
APPROVED
8/31/2012 DATE /S/ Jerry H. Zogg
DATE ROADWAY STANDARDS DEVELOPMENT
ENGINEER
FHWA



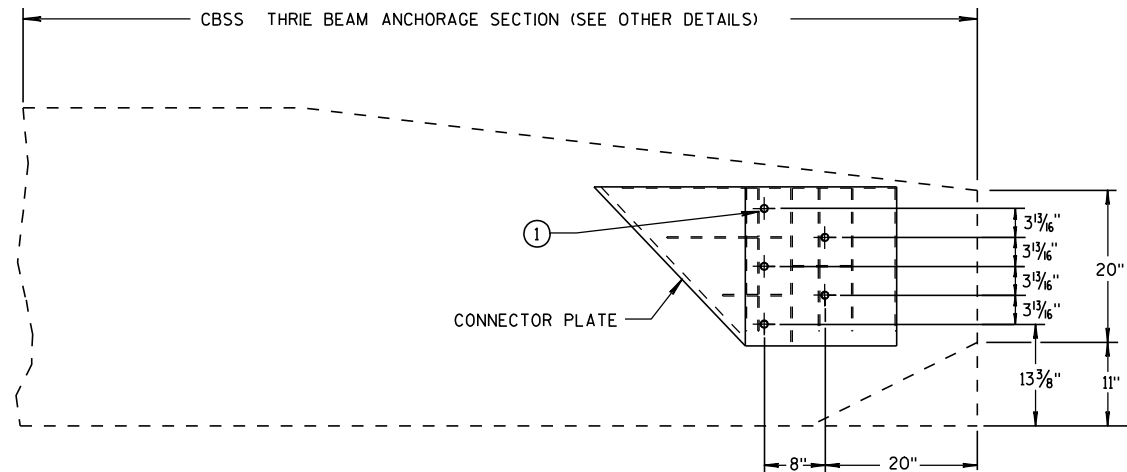
SECTION J-J



PLAN VIEW



FRONT VIEW



CONNECTOR PLATE LOCATION

STEEL THRIE BEAM STRUCTURE APPROACH

GENERAL NOTES

CONSTRUCT PER STANDARD SPECIFICATION 614.

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

- ① BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM TERMINAL CONNECTOR. BOLTS THAT EXTEND THROUGH THE PARAPET AND OUT THE BACK FACE REQUIRE A HARDENED ROUND STEEL WASHER THAT IS 2" O.D. X 5/8" THICK AND ONE PLATE WASHER. REPAIR ANY DAMAGED CONCRETE FROM BOLT INSTALLATION.

STEEL THRIE BEAM
STRUCTURE APPROACH.
SINGLE SLOPE ATTACHMENT

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

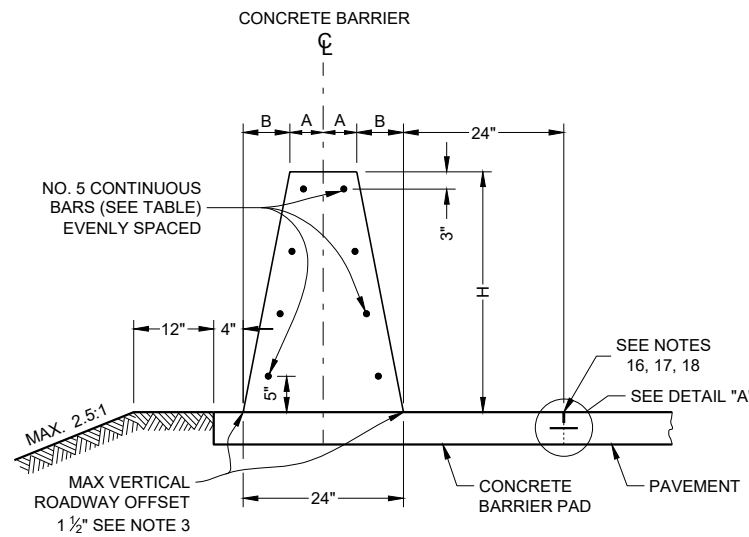
APPROVED

8/31/2012

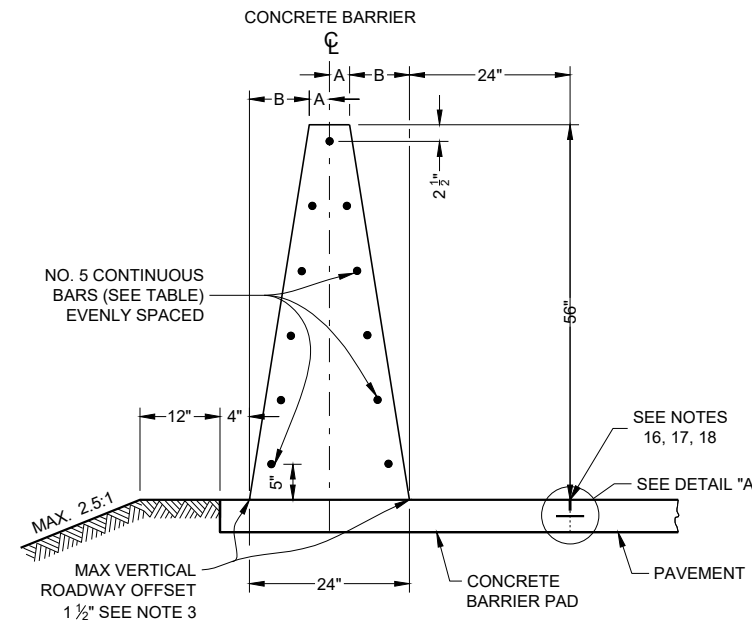
DATE

FHWA

/s/ Jerry H. Zogg
ROADWAY STANDARDS DEVELOPMENT
ENGINEER



**32 - INCH, 36 - INCH OR 42 - INCH
SINGLE SLOPE CONCRETE BARRIER
(TYPE S32, TYPE S36, TYPE S42)**



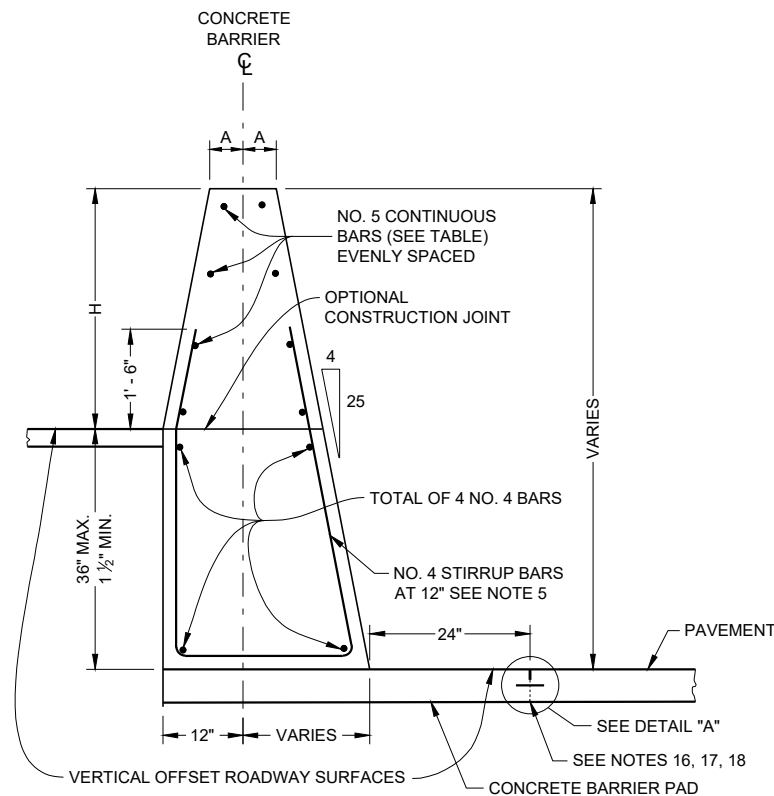
**56 - INCH SINGLE
SLOPE CONCRETE BARRIER
(TYPE S56)**

GENERAL NOTES

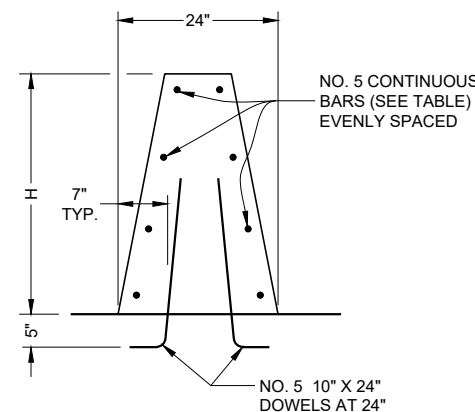
- WHERE THE CONCRETE BARRIER IS ADDED TO THE FACE OF EXISTING CONCRETE STRUCTURE, MATCH EXISTING WEEP HOLES.
- EXPANSION JOINTS IN CONCRETE BARRIER SHALL BE LOCATED AT ALL DECK AND PRINCIPAL WALL JOINTS. EXPANSION JOINT FILLER MATERIAL SHALL BE THE SAME SIZE AS JOINT OF 1/2" MINIMUM.
- WHERE VERTICAL ROADWAY OFFSET IS GREATER THAN 1", USE TYPE A.
- PLACE BARRIER PERPENDICULAR TO SHOULDER GRADE, UNLESS INDICATED IN PLAN.
- EXCEPT IN ANCHORS, VERTICAL REINFORCING STIRRUP NOT REQUIRED FOR ROADWAY OFFSETS LESS THAN 1' - 0".
- FOR TYPE S32, TYPE S36, TYPE S42 AND TYPE S56 MONOLITHIC FOOTING OR DOWELED FOOTING 2 - #8 X 8" @ 2' - 0".
- STAGGER LAPPING OF LONGITUDINAL STEEL. MINIMUM OVERLAP OF STEEL 2 FEET. BARS AT LAPS TO BE FIRMLY TIED OR CONNECTED.
- 4000 PSI CONCRETE AIR ENTRAINMENT PER STANDARD SPECIFICATION 501.
- WHEN SWITCHING BETWEEN SLIP FORM AND CAST-IN-PLACE OPERATIONS, EXTEND LONGITUDINAL STEEL 3 FEET BEYOND SLIP FORMING CUT-OFF POINT. EXPOSED STEEL INTO NEXT POURS REINFORCEMENT. LAPS TO BE FIRMLY TIED.
- USE 3/4" BEVEL OR 1" RADIUS ON ALL EXPOSED SHARP EDGES UNLESS OTHERWISE NOTED.
- 2" CLEAR COVER TYPICAL
- COLD-JOINTS MAY BE USED BETWEEN ANCHOR INSTALLATIONS. WHEN A COLD JOINT IS NEEDED, 3 FEET OF LAP OF LONGITUDINAL STEEL IS REQUIRED. LAPS TO BE FIRMLY TIED.
- ~~IN TYPE S32, TYPE S36, TYPE S42 AND TYPE S56 NO ADDITIONAL VERTICAL STEEL IS NEEDED. IN TYPE S32A, TYPE S36A, TYPE S42A AND TYPE S56A REQUIRES VERTICAL STEEL. SEE OTHER DETAIL.~~
- ~~IN TYPE S32, TYPE S36, TYPE S42 AND TYPE S56 DEPTH OF FOOTING 10". IN TYPE S32A, TYPE S36A, TYPE S42A AND TYPE S56A MATCH TOTAL HEIGHT OF SINGLE SLOPE BARRIER RETAINING WALL.~~
- FOR ALL BARRIER TYPES SHOWN, ANCHOR IS REQUIRED AT CONCRETE BARRIER ENDS AND AT INTERRUPTIONS IN CONCRETE BARRIER. ANCHOR MAY BE AS SHOWN ON DRAWING OR DETAILS SHOWN ON SDD 14B33. ANCHORS INCIDENTAL TO CBSS.
- CONCRETE BARRIER PAD UNDER CBSS MAY BE PLACED SEPARATELY OR PLACED WITH CONCRETE SHOULDER AND SAWED 1/2" DEPTH. CONCRETE BARRIER PAD AND SAWING OF CONCRETE SHOULDER IS INCIDENTAL TO CONCRETE BARRIER BID ITEM. CONCRETE BARRIER PAD MINIMUM DEPTH IS 6 INCHES, OR EQUAL TO THE DEPTH OF THE CONCRETE SHOULDER.
- CONSTRUCTION JOINTS MAY BE ELIMINATED WHEN CONCRETE SHOULDER IS LESS THAN 10'.
- SEE SDD 13C1 FOR DETAILS TYING CONCRETE BARRIER PAD TO ADJACENT CONCRETE.
- PROVIDE A 1" DEEP CONTRACTION JOINT IN BARRIER PAD AND BARRIER. JOINT IS TO MATCH ADJACENT CONCRETE JOINTS. NO DOWEL BARS ARE REQUIRED FOR BARRIER PAD. IF ADJACENT TO ASPHALT, CONTRACTION JOINT IS REQUIRED EVERY 15'.

ADDENDUM 8/4/2021:
DELETE GENERAL
NOTES 13 AND 14

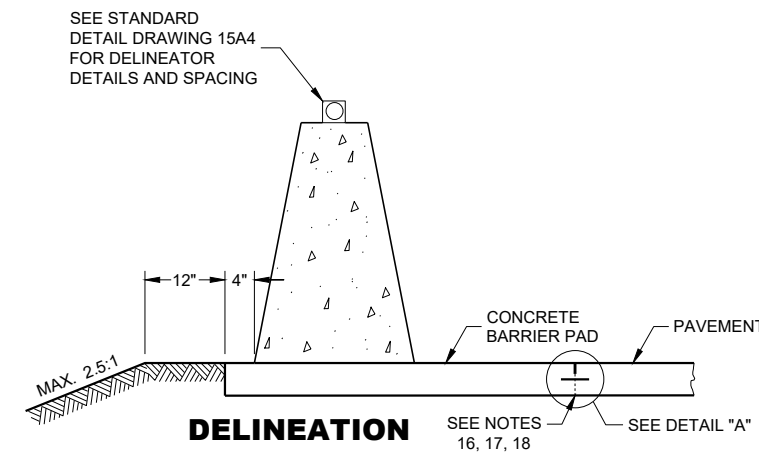
BARRIER HEIGHT H INCHES	A INCHES	B INCHES	NUMBER OF NO. 5 BARS EACH
32	7	5	8
36	6 1/4	5 3/4	8
42	5 1/4	6 3/4	10
56	3	9	11



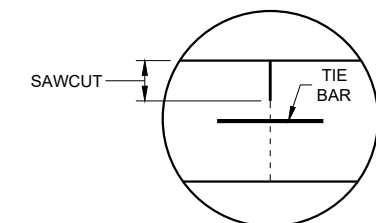
**SINGLE SLOPE CONCRETE
BARRIER AND RETAINING WALL
(TYPE S32A, TYPE S36A, TYPE S42A, TYPE S56A)
(BETWEEN ADJACENT ROADWAYS)**



**SINGLE SLOPE
CONCRETE BARRIER ON BRIDGE
(NON OUTER PARAPET APPLICATION)**



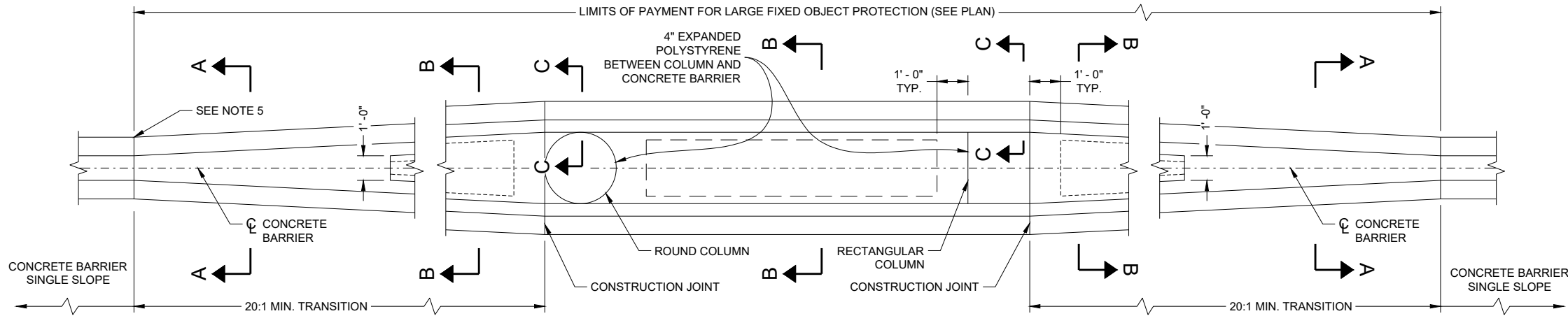
DELINEATION



DETAIL "A"

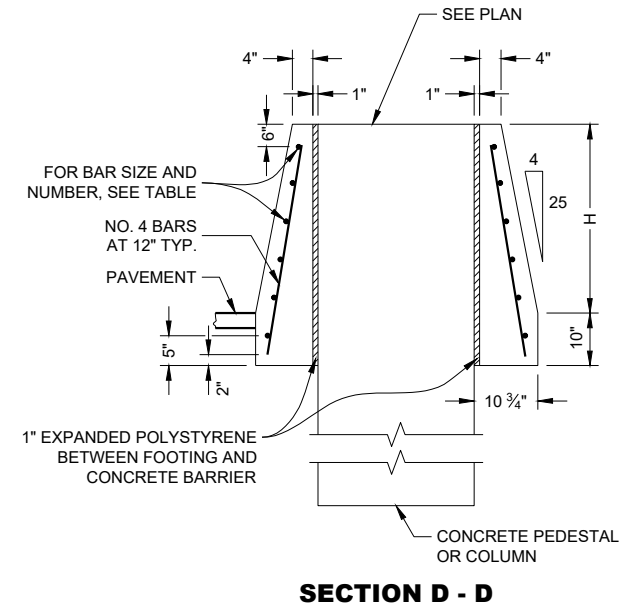
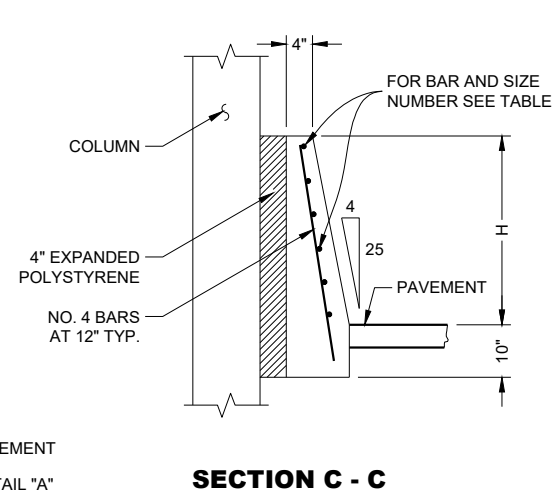
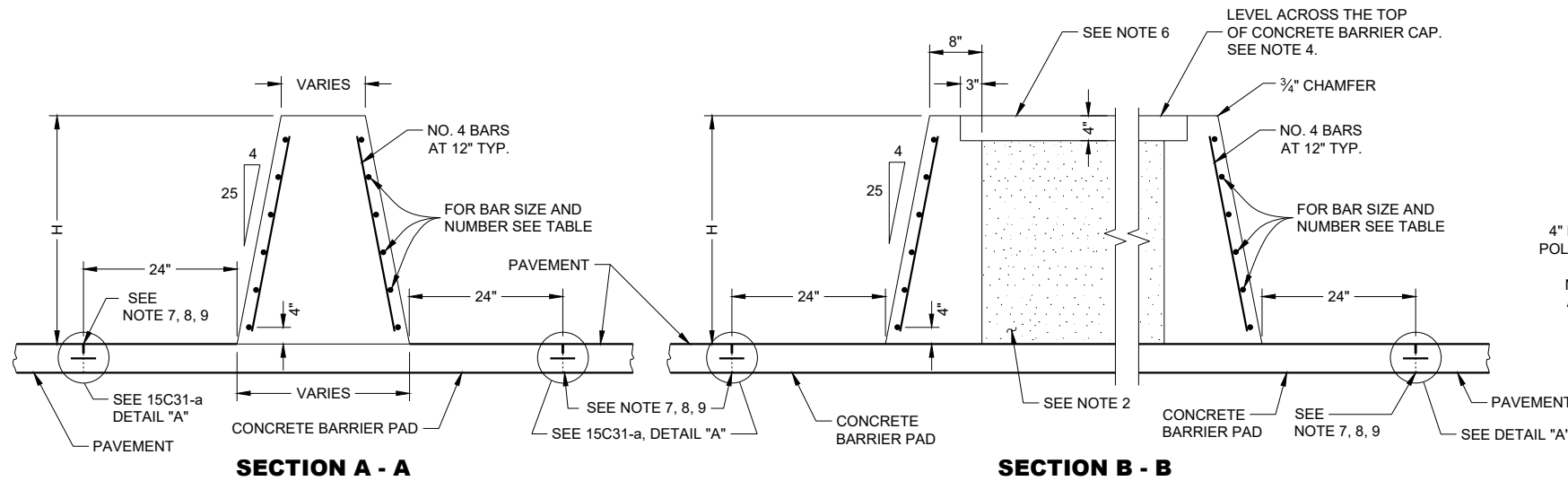
**CONCRETE BARRIER
SINGLE SLOPE (CBSS)**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



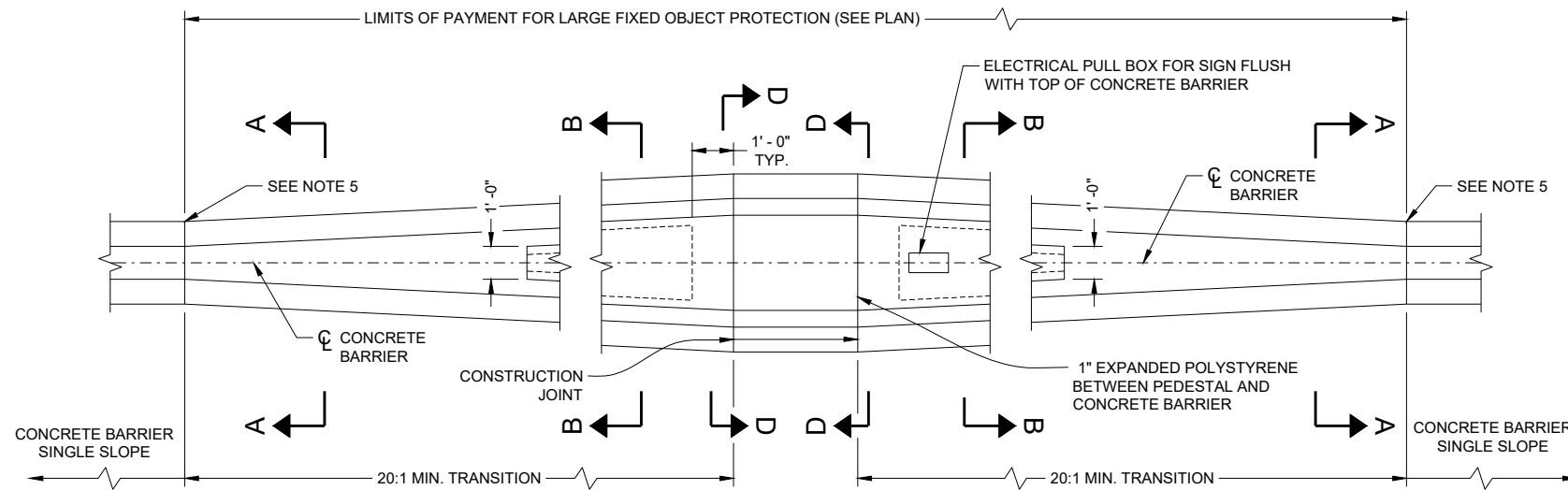
**LARGE FIXED OBJECTS PROTECTION
(TYPE S32, TYPE S36, TYPE S42, TYPE S56)**

BARRIER HEIGHT H INCHES	BAR SIZE	NUMBER OF BARS EACH
32	4	6
36	4	6
42	5	6
56	5	6



GENERAL NOTES

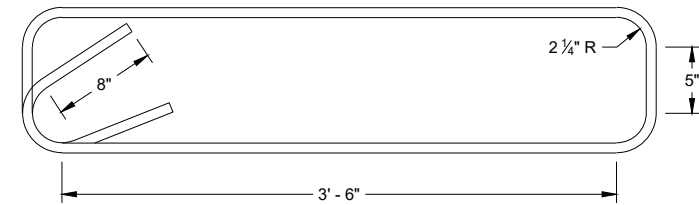
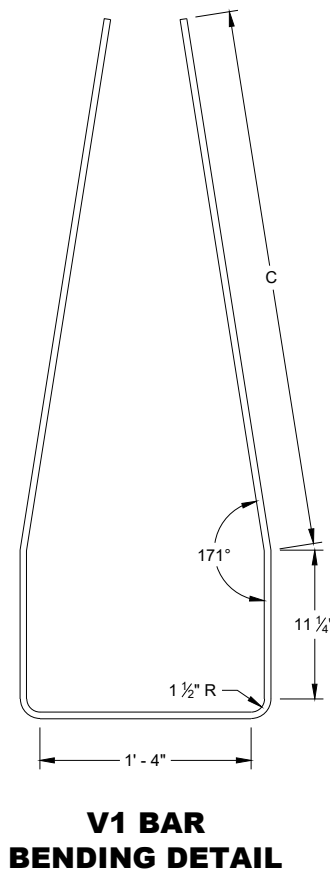
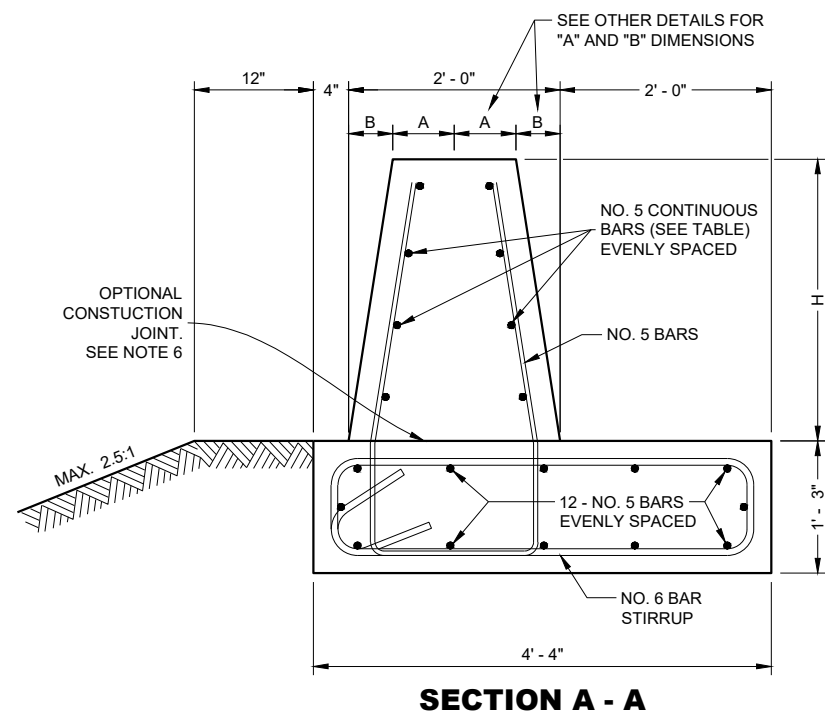
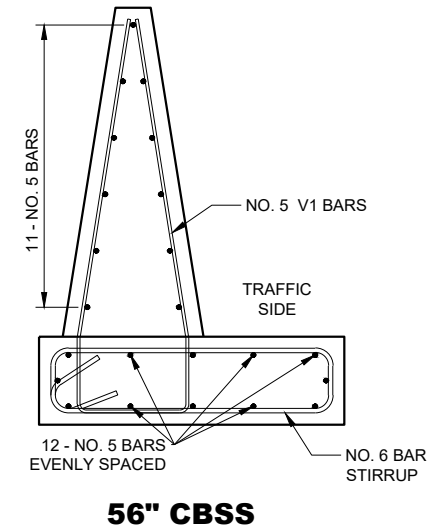
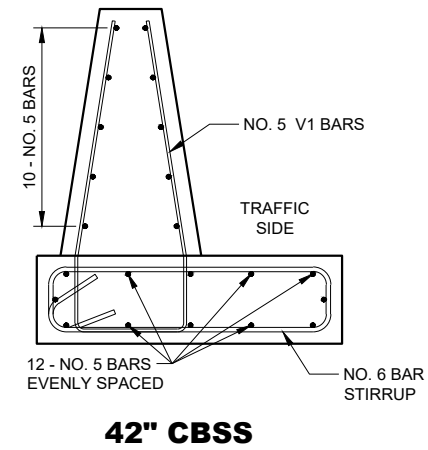
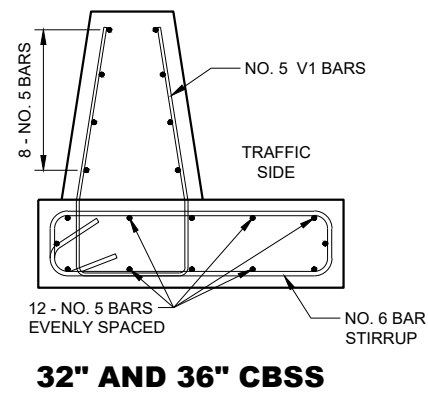
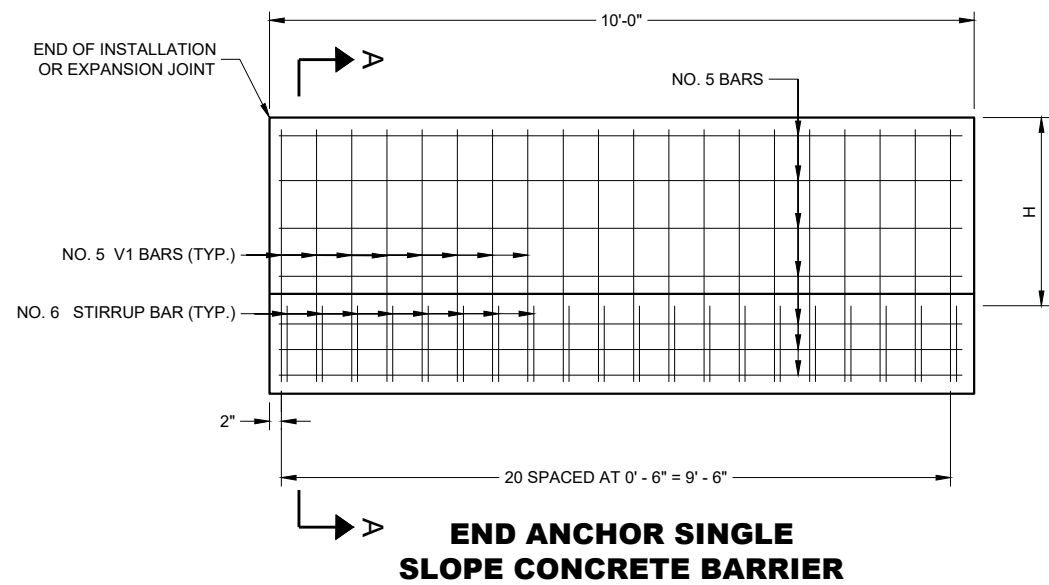
- INSTALL 1 INCH DIAMETER DRAIN PIPE EVERY 20 FEET OF CROSS SECTION B-B. MINIMUM ONE DRAIN CAVITY.
- BETWEEN CONCRETE BARRIER WALLS FILL WITH FOUNDATION BACKFILL.
- REINFORCING STEEL SHALL EXTEND CONTINUOUS THROUGH CONSTRUCTION JOINTS.
- ADJUST HEIGHT OF CONCRETE BARRIER WALL ON LOW SIDE OF OFFSET OR SUPERELEVATED ROADWAYS TO PROVIDE LEVEL GRADE ACROSS TOP OF CONCRETE CAP.
- IF FIXED OBJECT PROTECTION IS INSTALLED FIRST, USE COLD JOINTS. IF CBSS PLACED FIRST, USE EXPANSION JOINT.
- USE NO. 3 BAR SPACED 12 INCHES CENTER TO CENTER (PLACED IN EACH DIRECTION) OR EQUIVALENT WIRE MESH.
- CONCRETE BARRIER PAD UNDER CBSS MAY BE PLACED SEPARATELY OR PLACED WITH CONCRETE SHOULDER AND SAWED 1/2 DEPTH. CONCRETE BARRIER PAD AND SAWING OF CONCRETE SHOULDER IS INCIDENTAL TO CONCRETE BARRIER BID ITEM. CONCRETE BARRIER PAD MINIMUM DEPTH IS 6 INCHES, OR EQUAL TO THE DEPTH OF THE CONCRETE SHOULDER.
- CONSTRUCTION JOINTS MAY BE ELIMINATED WHEN CONCRETE SHOULDER IS LESS THAN 10'.
- SEE SDD 13C1 FOR DETAILS TYING CONCRETE BARRIER PAD TO ADJACENT CONCRETE.



**SMALL FIXED OBJECTS PROTECTION
(TYPE S32, TYPE S36, TYPE S42, TYPE S56)**

**CONCRETE BARRIER
SINGLE SLOPE (CBSS)**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

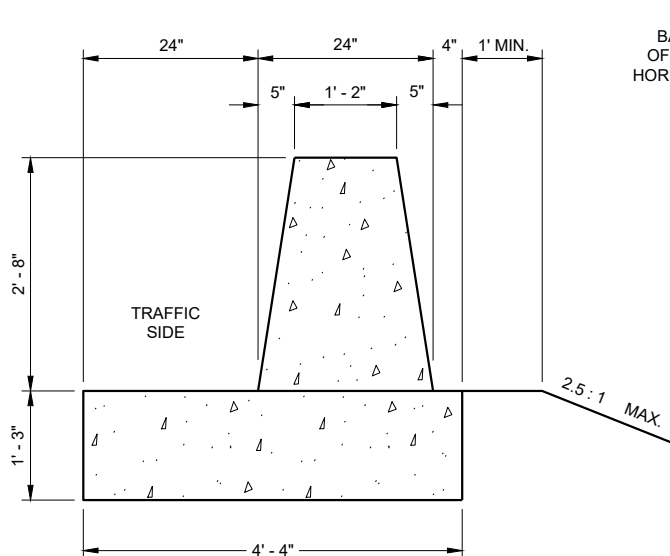


BARRIER HEIGHT H INCHES	C INCHES
32	2' - 6"
36	2' - 11"
42	3' - 4"
56	4' - 6 1/2"

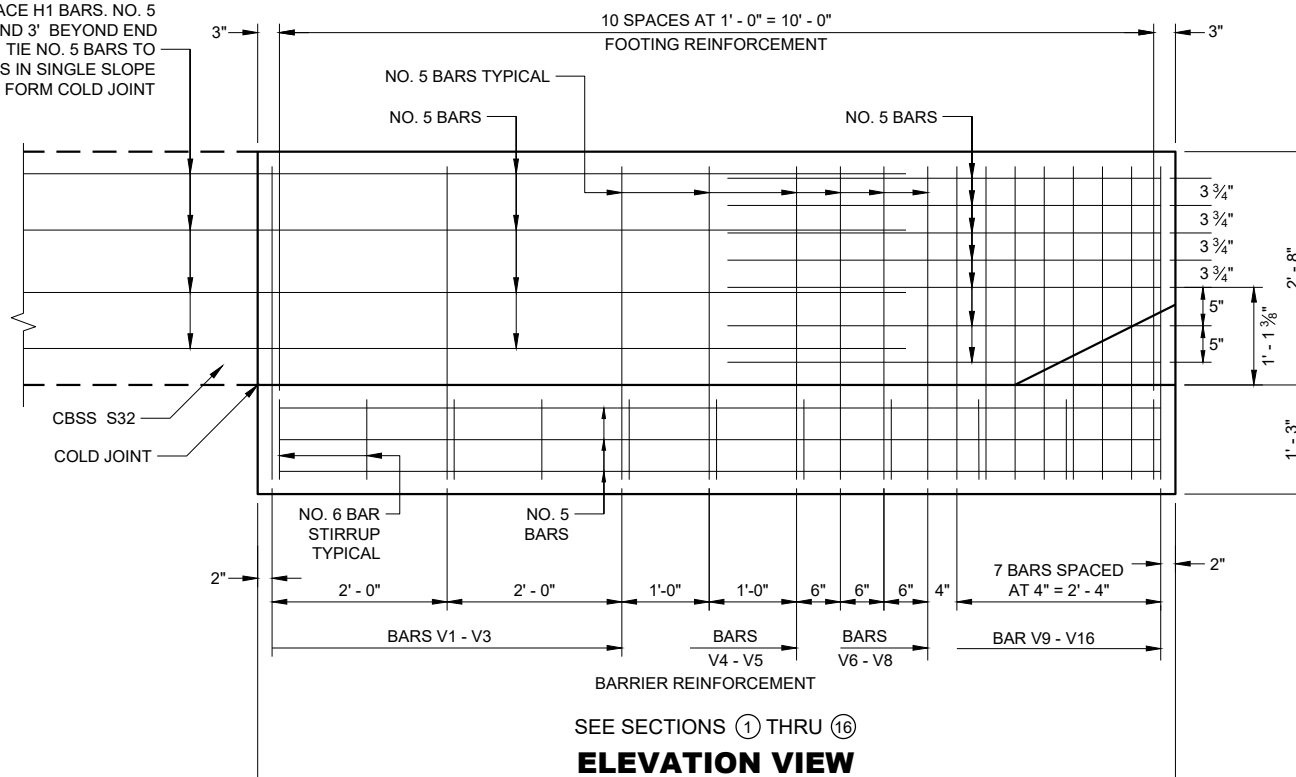
**CONCRETE BARRIER
SINGLE SLOPE (CBSS)**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

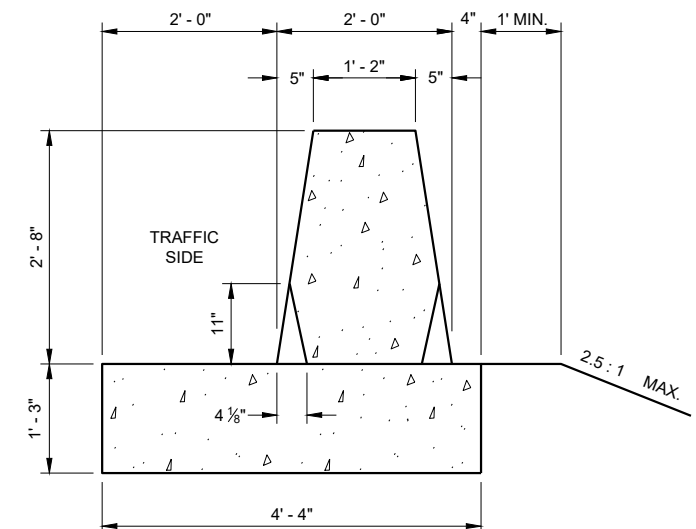
APPROVED
May 2021 DATE /S/ Rodney Taylor
ROADWAY STANDARDS DEVELOPMENT
UNIT SUPERVISOR



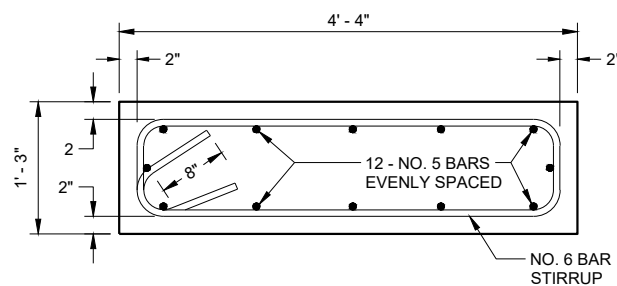
EVENLY SPACE H1 BARS. NO. 5 BARS TO EXTEND 3' BEYOND END OF TRANSITION. TIE NO. 5 BARS TO HORIZONTAL BARS IN SINGLE SLOPE BARRIER TO FORM COLD JOINT



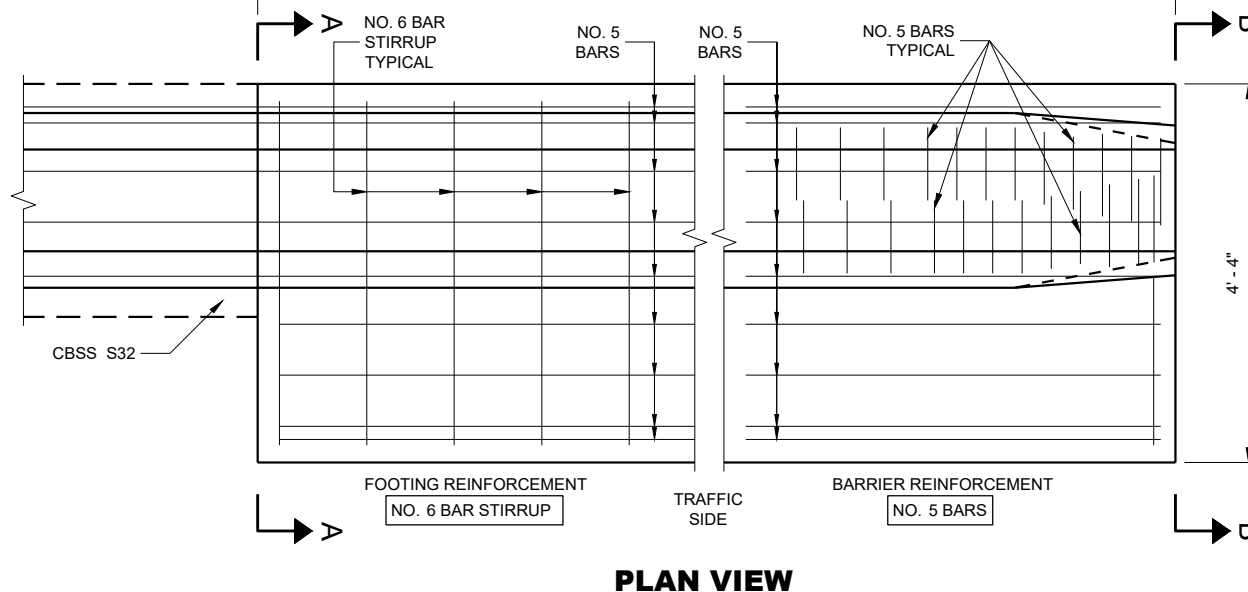
SEE SECTIONS ① THRU ⑯
ELEVATION VIEW



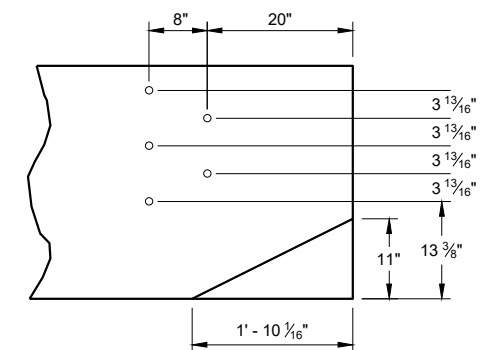
SECTION B - B



TYPICAL FOOTING



PLAN VIEW



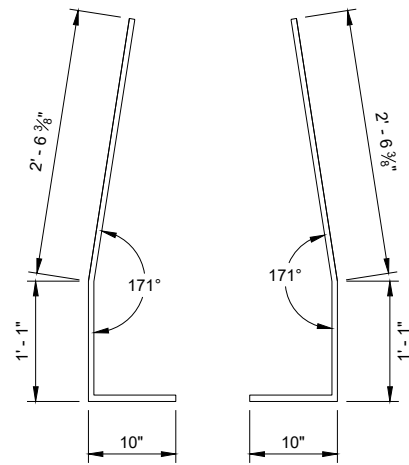
PVC PIPE LOCATIONS

GENERAL NOTES

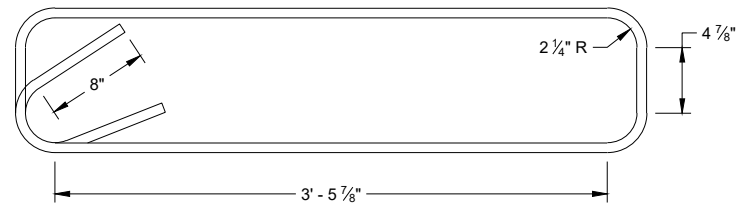
- CONSTRUCT PER STANDARD SPECIFICATION 603.
- SPLICES OF LONGITUDINAL BARS TO BE 2' LONG AND FIRMLY TIED AND FASTENED TOGETHER UNLESS OTHERWISE NOTED.
- 4000 PSI CONCRETE AIR ENTRAINMENT PER STANDARD SPECIFICATIONS SECTION 501.
- USE 3/4" BEVEL OR 1" RADIUS ON ALL EXPOSED SHARP EDGES UNLESS OTHERWISE NOTED.
- THRIE BEAM ANCHOR INCIDENTAL TO CONCRETE BARRIER ITEM.
- INSTALL SCHEDULE 40 PVC PIPE 1" DIAMETER AT LOCATIONS INDICATED.
- EXTEND PVC PIPE COMPLETELY THROUGH BARRIER.
- CUT ENDS OF PVC PIPE FLUSH WITH FINISHED FACE OF BARRIER.
- THE NUMBER IN BAR DESIGNATION REPRESENTS THE BARS LOCATION.
- 2" CLEAR COVER TYPICAL.

**CONCRETE BARRIER
SINGLE SLOPE 32"
THRIE BEAM ANCHOR**

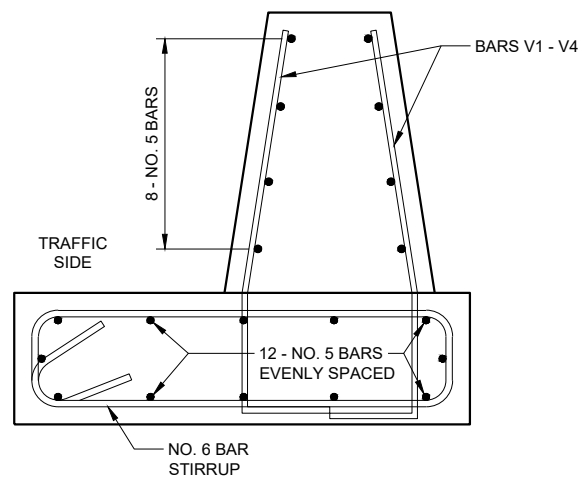
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



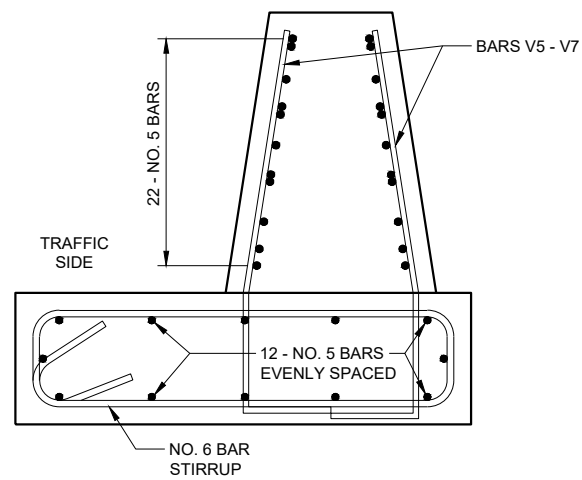
**BAR BENDING DETAIL
BARS 1 - 11**



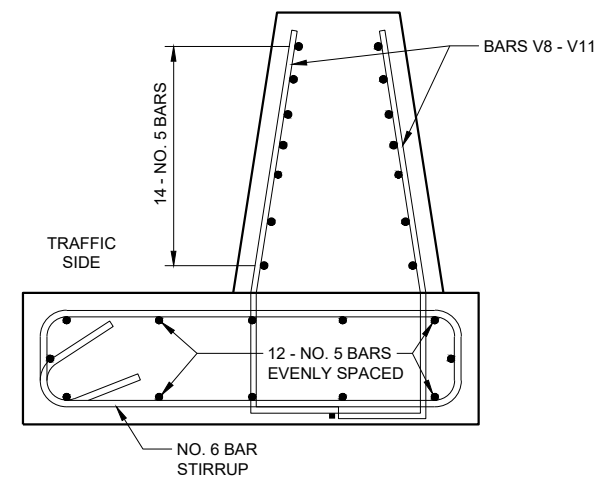
**STIRRUP BAR
BENDING DETAIL**



**BAR DETAIL
SECTIONS 1 - 4**



**BAR DETAIL
SECTIONS 5 - 7**



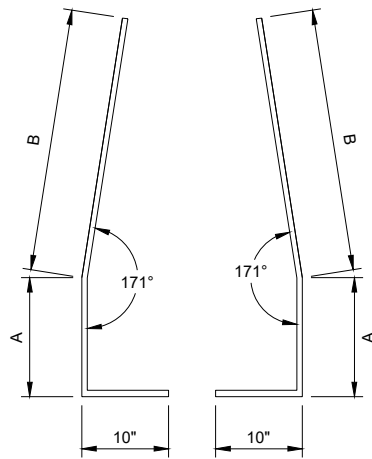
**BAR DETAIL
SECTIONS 8 - 11**

**CONCRETE BARRIER
SINGLE SLOPE 32"
THREE BEAM ANCHOR**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

**BAR CHART
BAR POSITIONS
12 - 13**

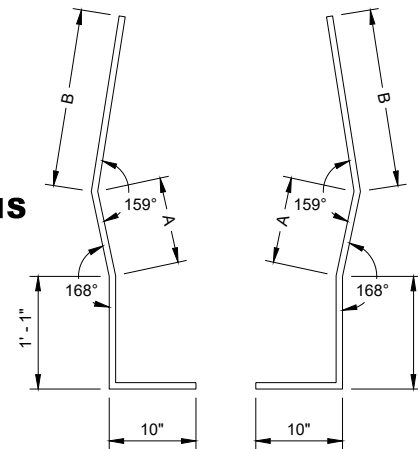
BAR	A	B
V12	1' - 3"	2' - 6"
V13	1' - 8"	2' - 1 1/2"



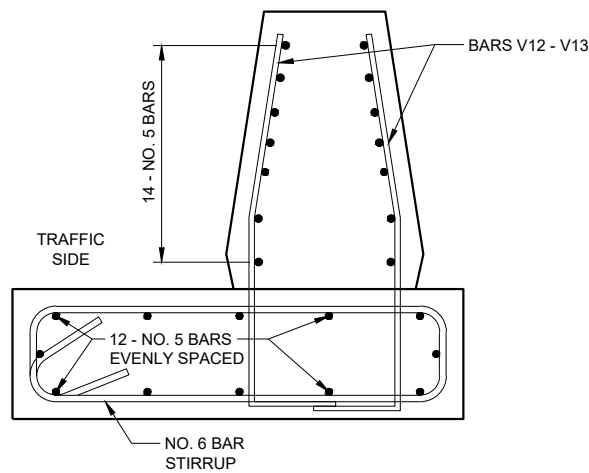
**BAR BENDING DETAIL
SECTIONS V12- V13**

**BAR CHART
BAR POSITIONS
14 - 16**

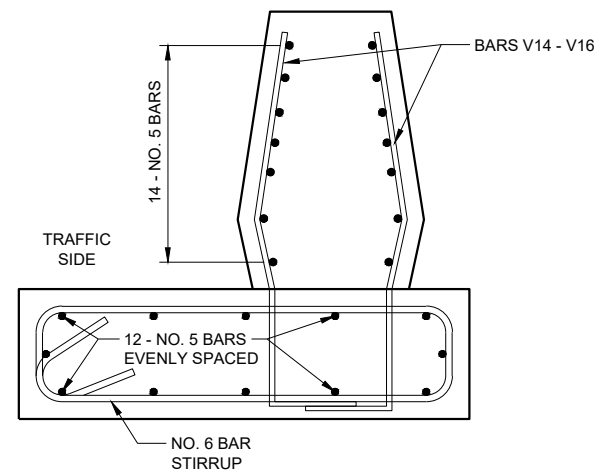
BAR	A	B
V14	6"	2' - 1"
V15	8"	1' - 11"
V16	10"	1' - 8 1/2"



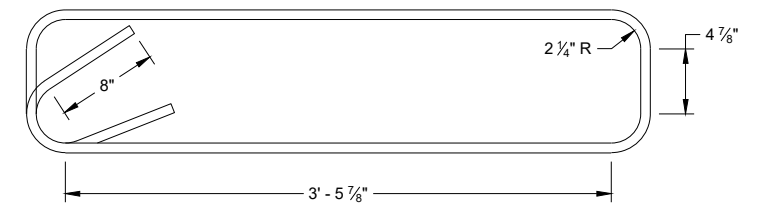
**BAR BENDING DETAIL
SECTIONS V14 - V16**



**BAR DETAIL
SECTIONS 12 - 13**



**BAR DETAIL
SECTIONS 14 - 16**



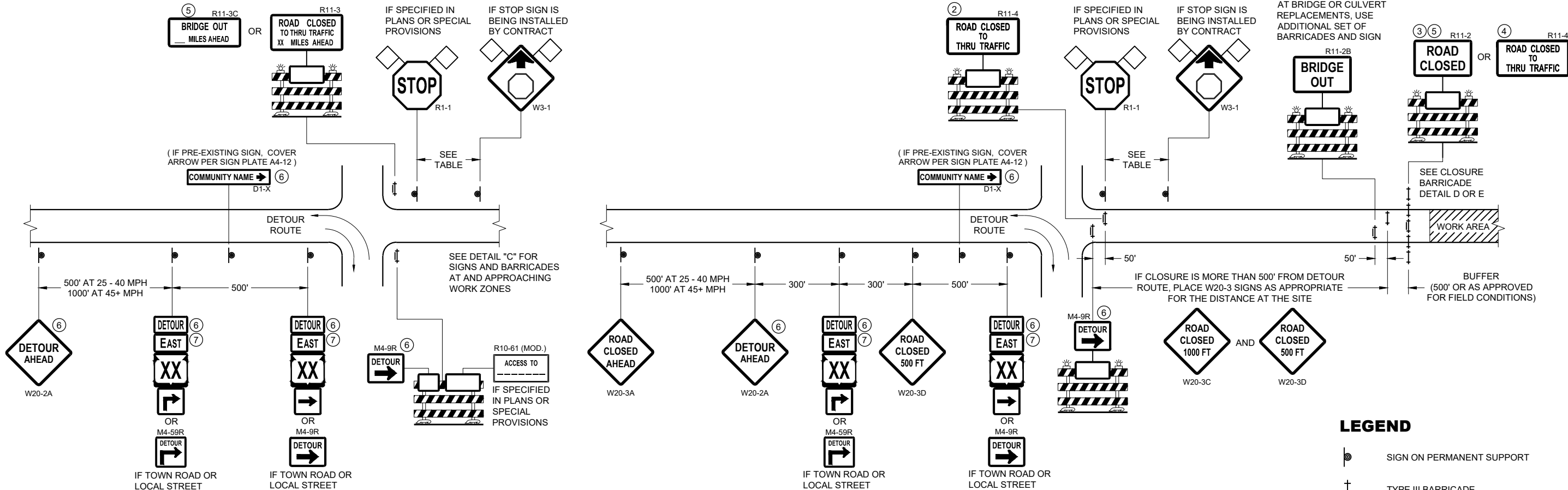
**STIRRUP BAR
BENDING DETAIL**

**CONCRETE BARRIER
SINGLE SLOPE 32"
THREE BEAM ANCHOR**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
February 2020 /S/ Rodney Taylor
DATE ROADWAY STANDARDS 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**

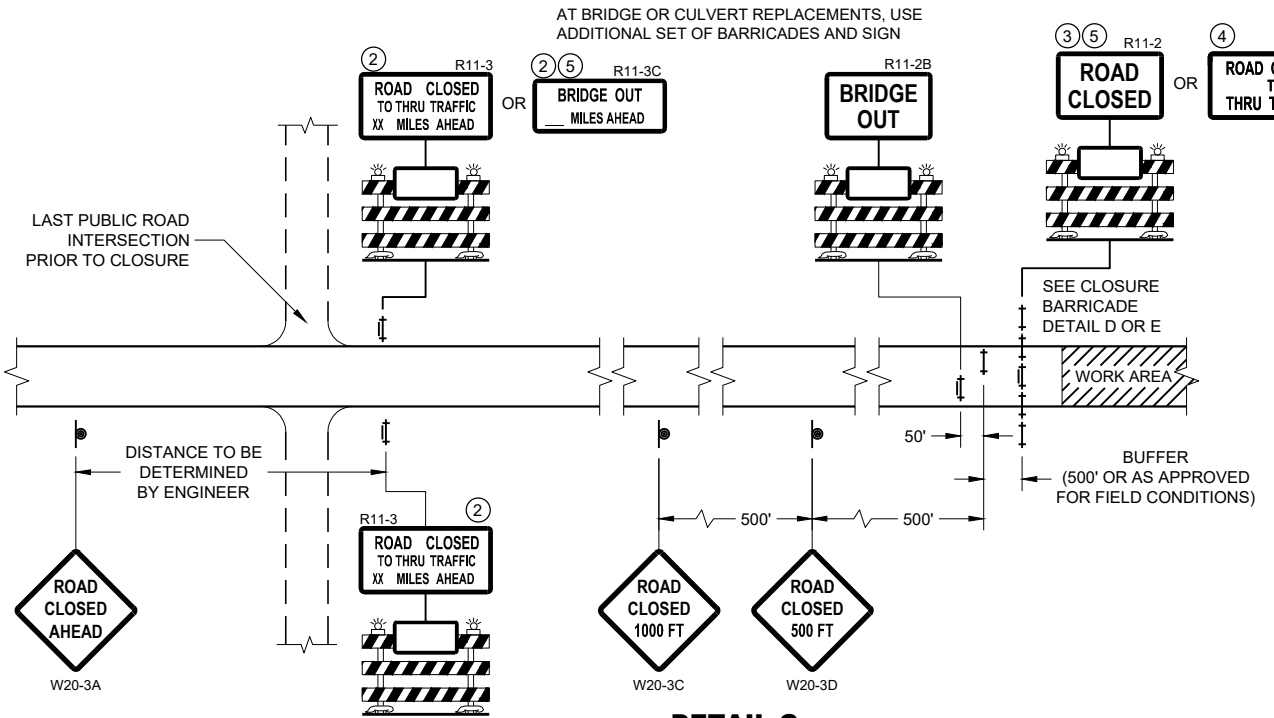
WORK ZONE LESS THAN 1/2 MILE FROM
DETOUR ROUTE (1000 FEET IF URBAN)

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



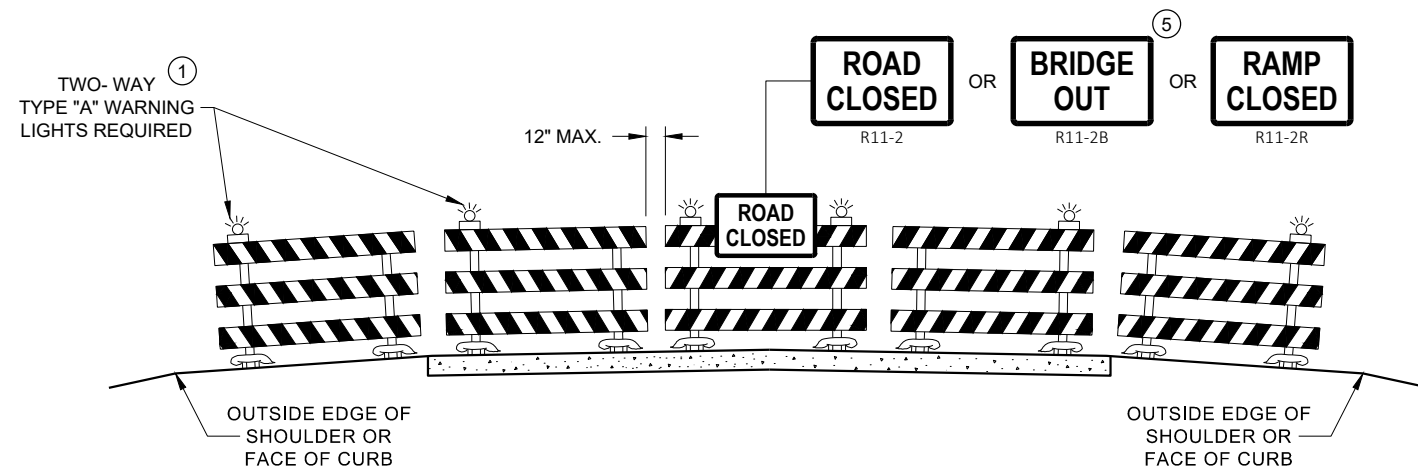
**DETAIL C
MAINLINE CLOSURE, NO POSTED DETOUR**

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

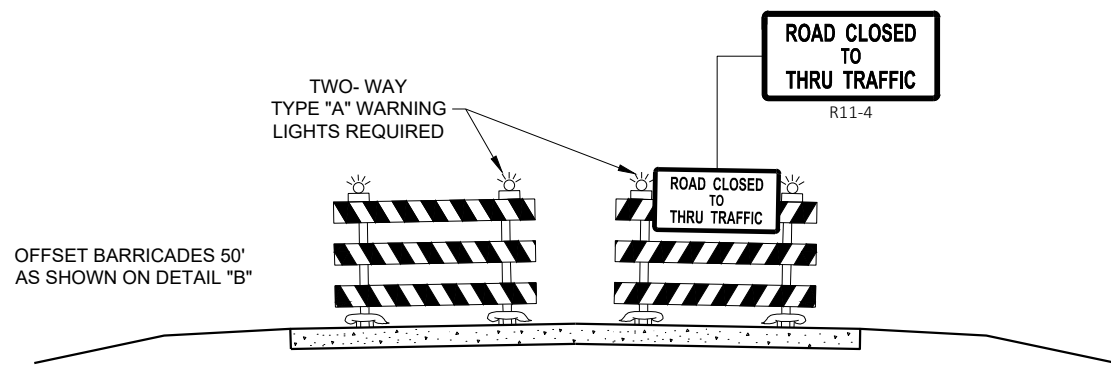
**BARRICADES AND SIGNS
FOR MAINLINE CLOSURES**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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



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



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

SEE SDD 15C2 - SHEET "a" FOR LEGEND

GENERAL NOTES

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

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

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

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

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

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

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

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

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

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

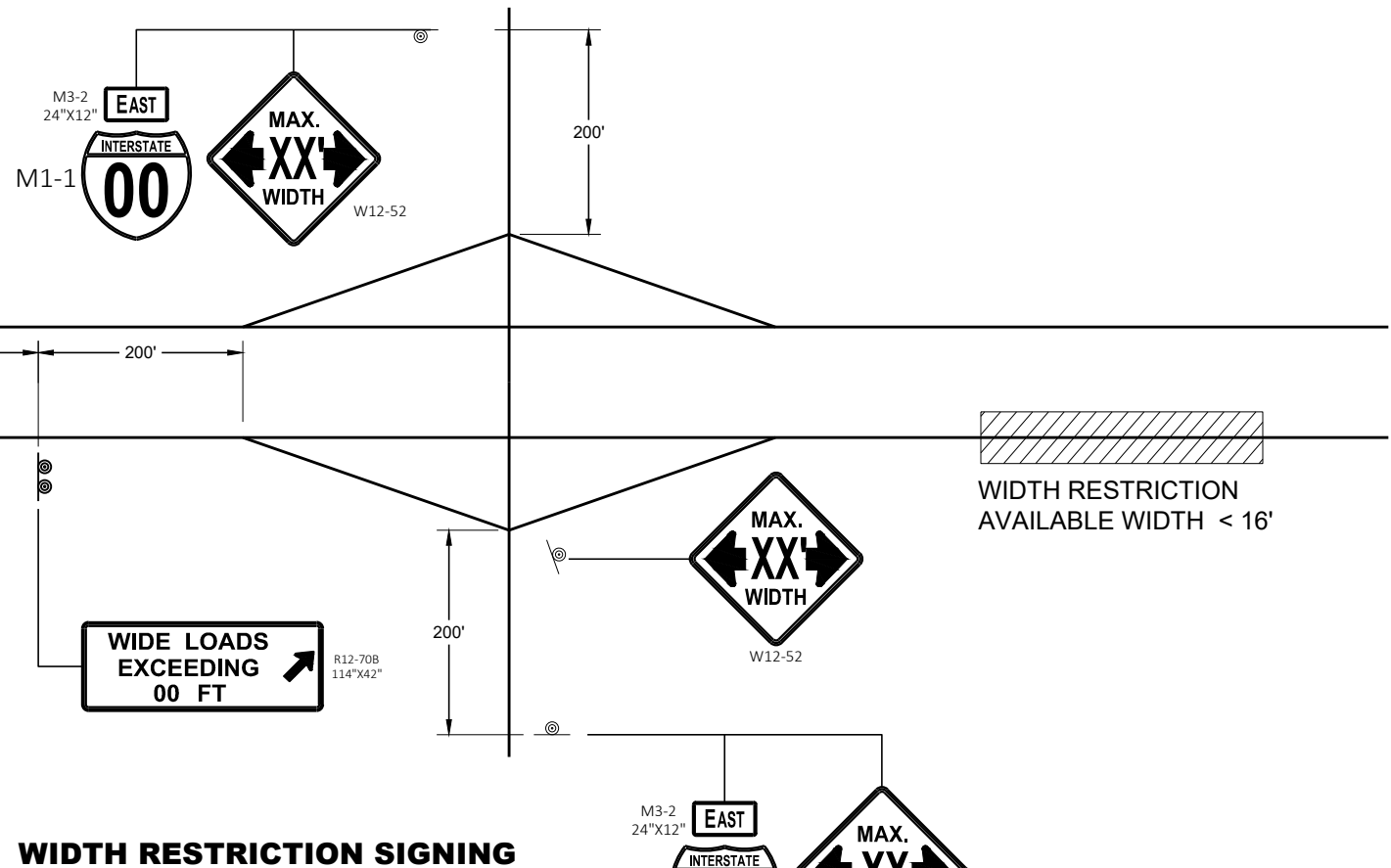
- R11 - 2 SHALL BE 48" X 30"
- R11 - 3 SHALL, R11 - 4 AND R10 - 61 SHALL BE 60" X 30"
- M4 - 9 SHALL BE 30" X 24"
- M3 - X SHALL BE 24" X 12" (36" X 18" IF NEEDED TO MATCH EXISTING SIGNS)
- M4 - 8 SHALL BE 24" X 12" (36" X 18" IF NEEDED TO MATCH EXISTING SIGNS)
- M1 - 4, M1 - 5A AND M1 - 6 SHALL BE 24"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

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

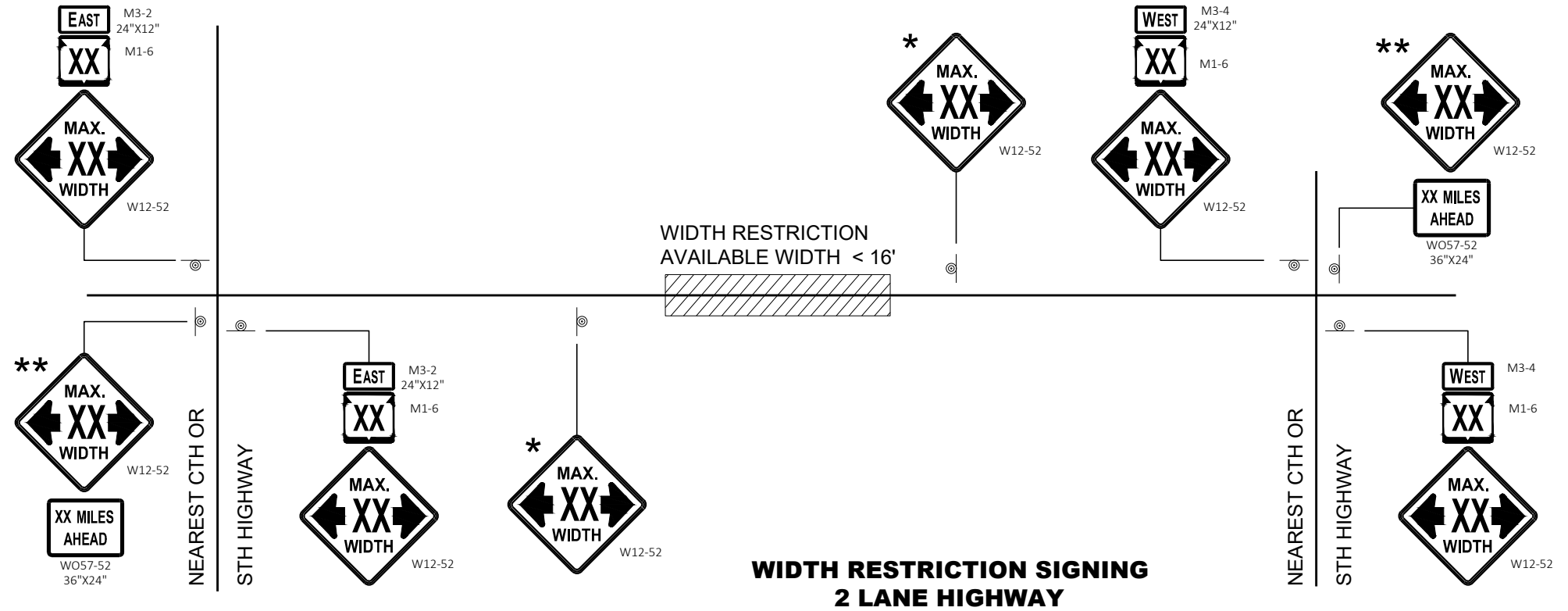
**BARRICADES AND SIGNS
FOR
VARIOUS CLOSURES**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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



WIDTH RESTRICTION SIGNING



**WIDTH RESTRICTION SIGNING
2 LANE HIGHWAY**

LEGEND

⊙ SIGN ON PERMANENT SUPPORT

GENERAL NOTES

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

THE SPACING BETWEEN 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.

ALL SIGNS ARE 48" X 48" UNLESS OTHERWISE NOTED.

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

WIDTH ON SIGN TO BE APPROXIMATELY ONE FOOT LESS THAN AVAILABLE WIDTH.

* PLACE 500 FEET AFTER THE W20 - 1A AND 500 FEET BEFORE ADDITIONAL SIGNS FOR ROADWAYS WITH A PRE - CONSTRUCTION SPEED LIMIT OF 45 MPH OR MORE. FOR 35-40 MPH, USE 350 FOOT TYPICAL SPACING. FOR 25-30 MPH, USE 200 FOOT TYPICAL SPACING.

** SIGN SHALL BE VISIBLE FROM ROADWAY.

*** ADDITIONAL SIGNS NEEDED IF THERE IS AN ON RAMP BETWEEN SIGNS.



WIDTH ON SIGN TO BE APPROX. 1 - FOOT LESS THAN AVAILABLE WIDTH

ADVANCED WIDTH RESTRICTION SIGNING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

GENERAL NOTES

THE EXACT NUMBER, LOCATION, AND SPACING OF ALL SIGNS AND DEVICES SHALL BE ADJUSTED TO FIT FIELD CONDITIONS.

THE SPACING BETWEEN TRAFFIC CONTROL SIGNS SHOULD BE ADJUSTED TO NOT CONFLICT WITH AND SHOULD PROVIDE A MINIMUM OF 200 FEET (500 FEET DESIRABLE) CLEARANCE TO EXISTING SIGNS THAT WILL REMAIN IN PLACE.




ALL SIGNS ARE 48" X 48" UNLESS OTHERWISE NOTED.

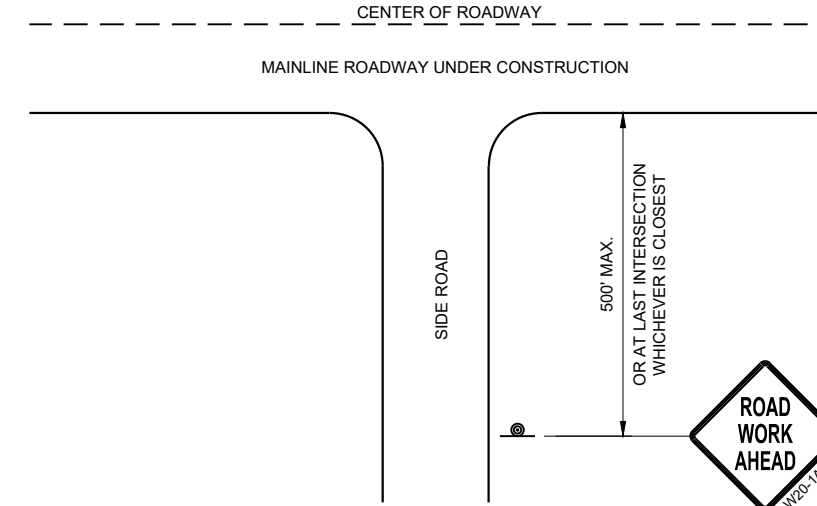
SIGNS THAT WILL BE IN PLACE LESS THAN SEVEN CONTINUOUS DAYS AND NIGHTS MAY BE MOUNTED ON PORTABLE SUPPORTS.

IF A "STOP" SIGN MUST BE REMOVED FOR A WORK OPERATION, A TEMPORARY "STOP" SIGN SHALL BE PLACED PRIOR TO THE SIGN REMOVAL, OR A FLAGGER SHALL BE PROVIDED UNTIL THE SIGN IS REESTABLISHED.

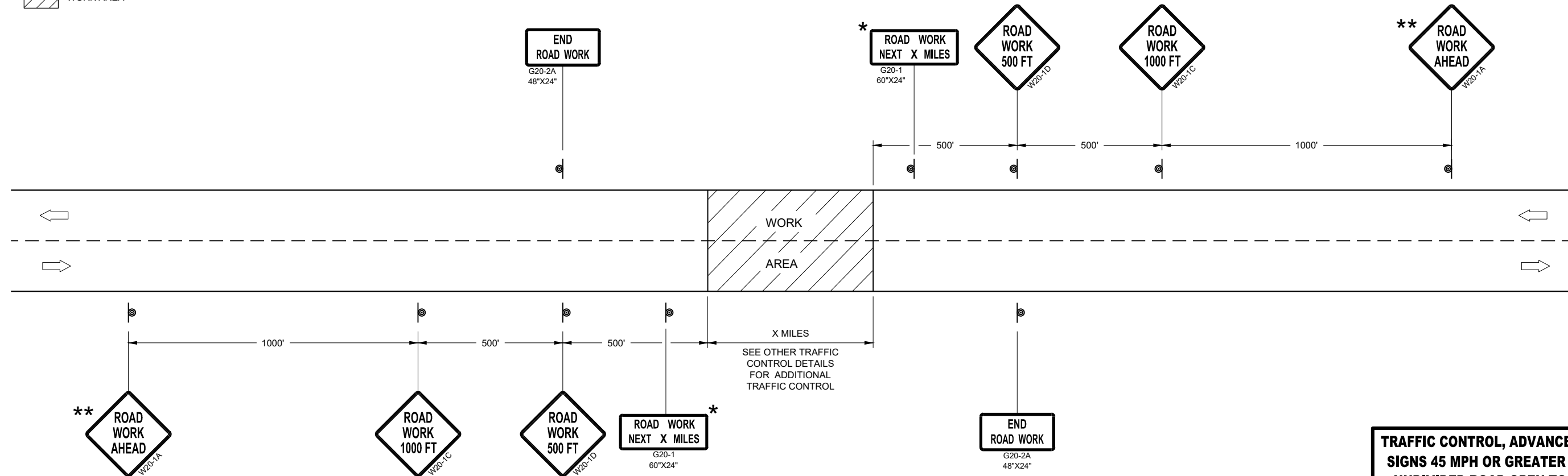
- * OMIT G20-1 SIGNS IF LENGTH OF WORK AREA IS 2 MILES OR LESS
- ** PLACE AN ADDITIONAL W20-1A "ROAD WORK AHEAD" SIGN IF WORK AREA WITHIN THE PROJECT IS SEPARATED BY MORE THAN 2 MILES FROM PREVIOUS WORK AREA.

LEGEND

-  SIGN ON PERMANENT SUPPORT
-  DIRECTION OF TRAFFIC
-  WORK AREA



**TYPICAL SIDE ROAD APPROACH
WARNING SIGN DETAIL**



TRAFFIC CONTROL, ADVANCE WARNING SIGNS 45MPH OR GREATER

**TRAFFIC CONTROL, ADVANCE WARNING
SIGNS 45 MPH OR GREATER TWO-WAY
UNDIVIDED ROAD OPEN TO TRAFFIC**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED _____ /S/ Andrew Heidtke
DATE July 2018 WORK ZONE ENGINEER

FHWA

GENERAL NOTES

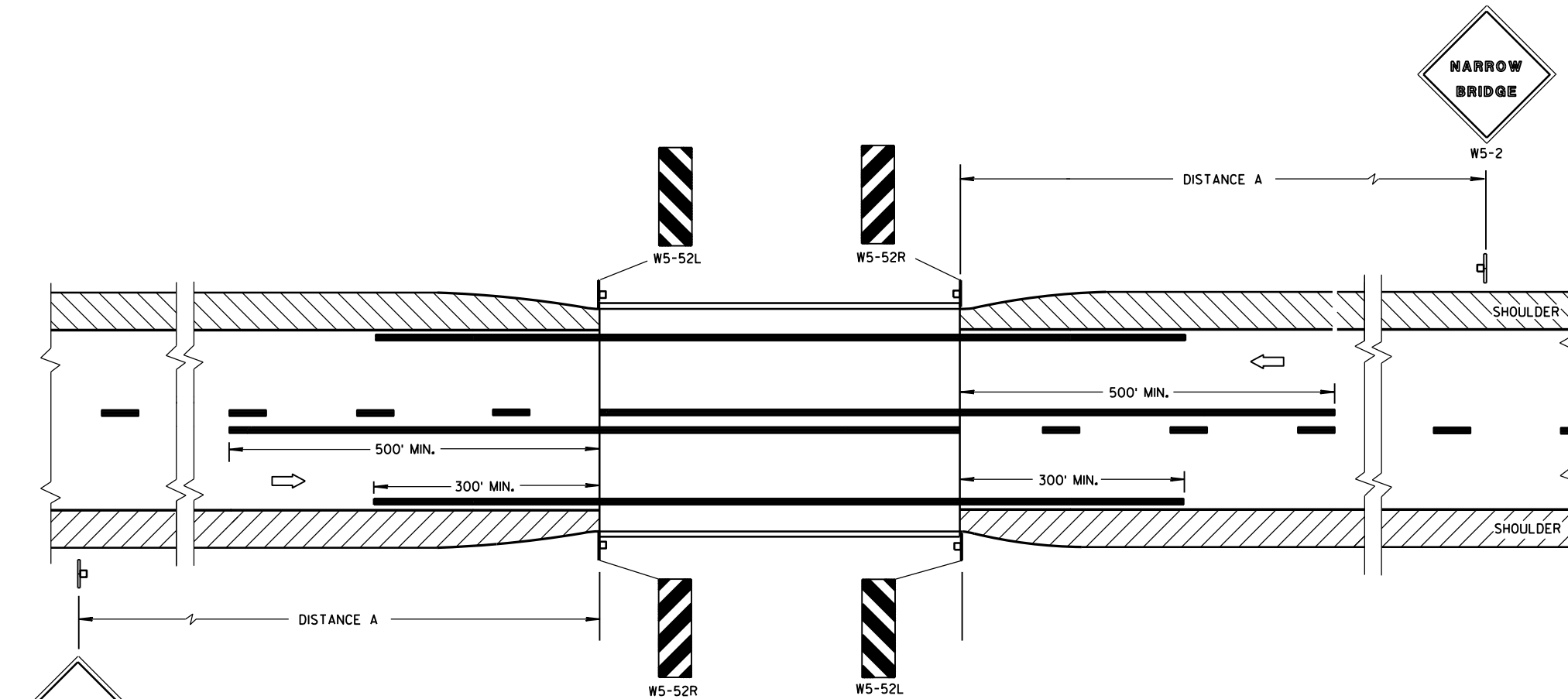
DETAILS OF TRAFFIC CONTROL DEVICES AND INSTALLATION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS, THE SPECIAL PROVISIONS, AND THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

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

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

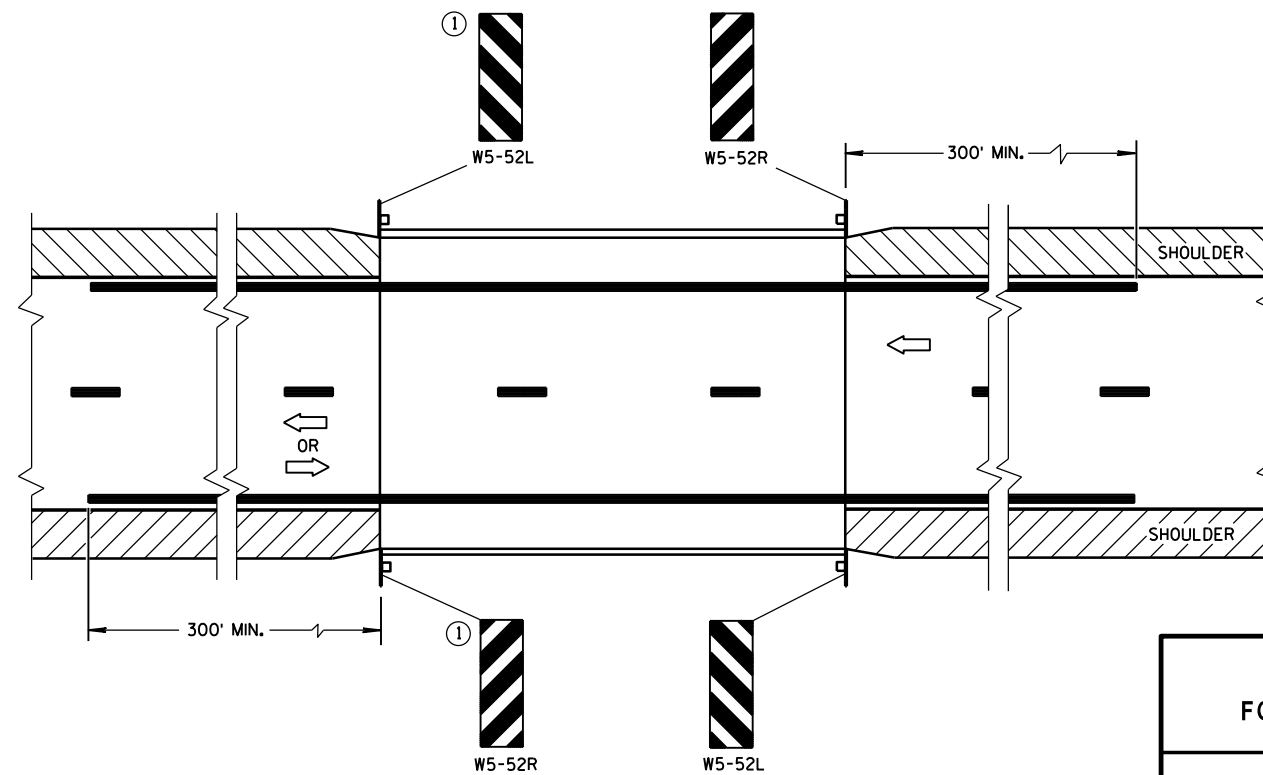
① OMIT ON ONE-WAY TRAVELLED WAYS.

➡ DIRECTION OF TRAFFIC



SITUATION 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.

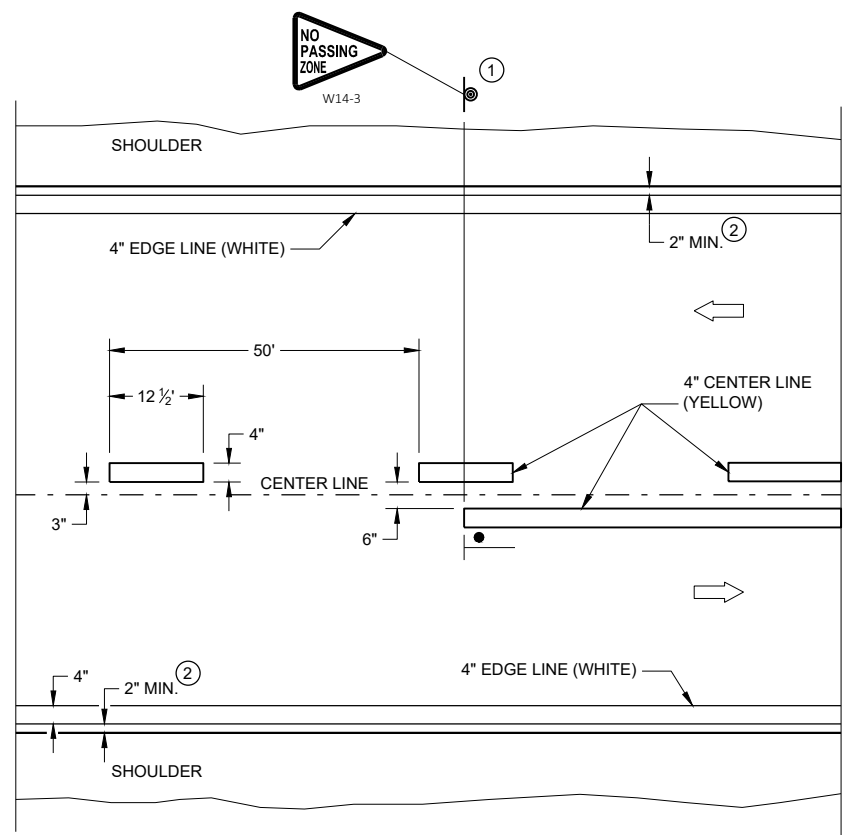
DISTANCE TABLE

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

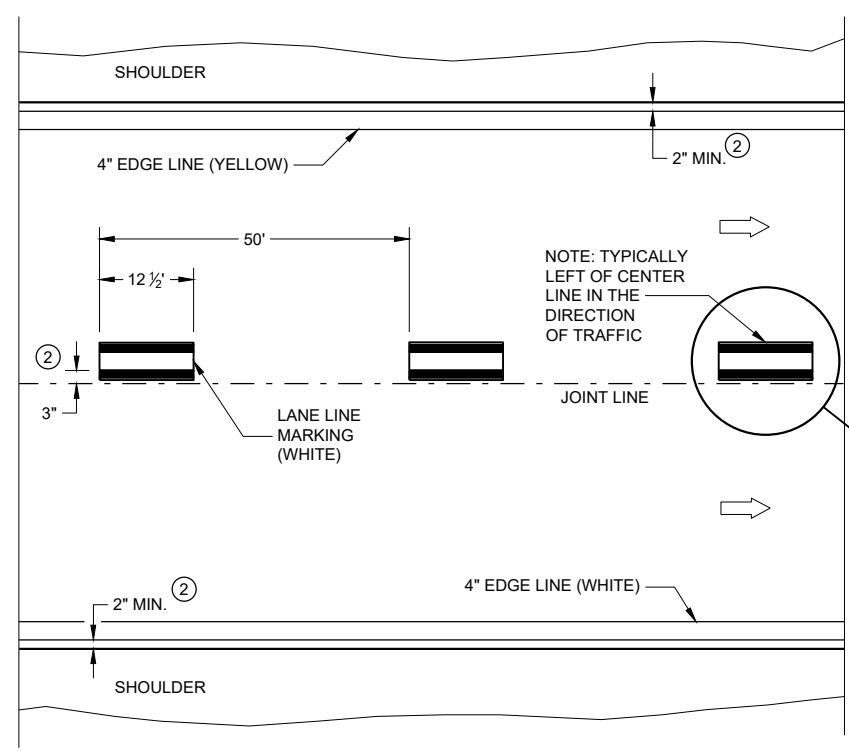
SIGNING & MARKING FOR TWO LANE BRIDGES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

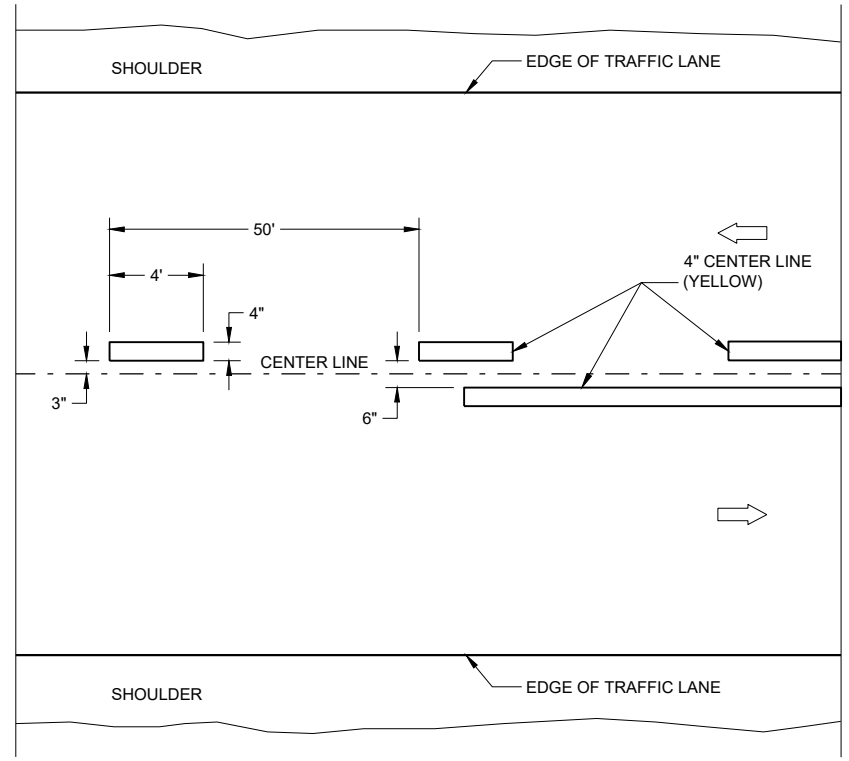


TWO WAY TRAFFIC

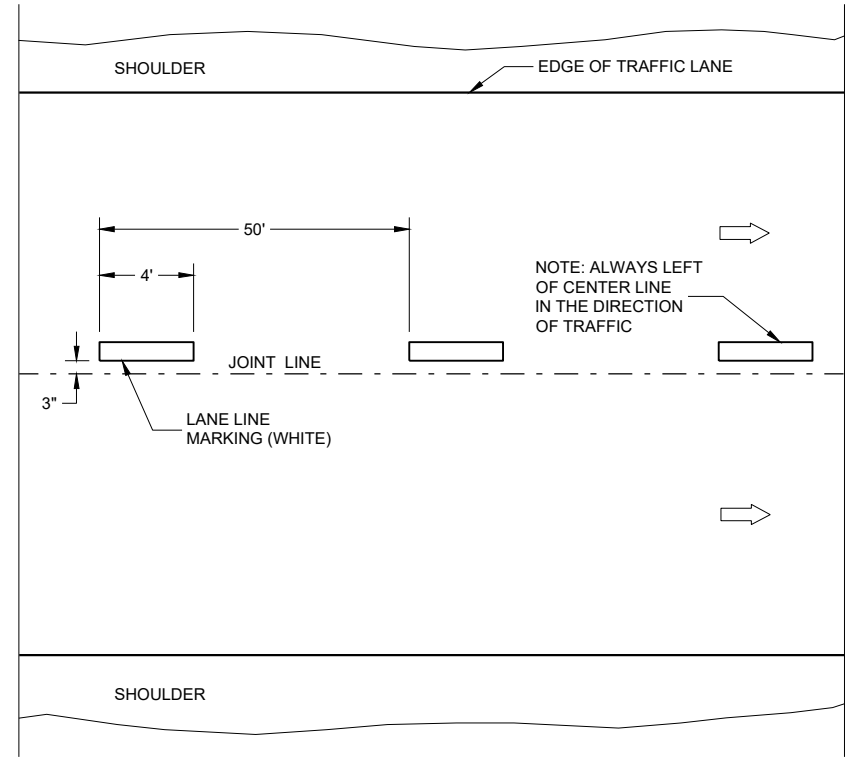


ONE WAY TRAFFIC

PERMANENT PAVEMENT MARKING



TWO WAY TRAFFIC



ONE WAY TRAFFIC

TEMPORARY PAVEMENT MARKING

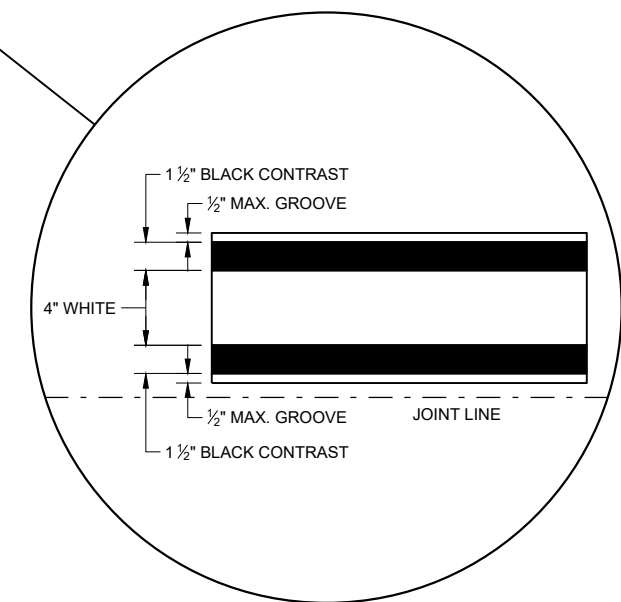
GENERAL NOTES

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

LEGEND

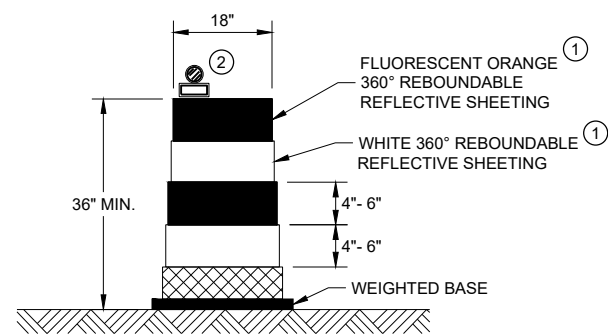
- |• "T" MARKING
- ⊙ SIGN ON PERMANENT SUPPORT
- DIRECTION OF TRAFFIC



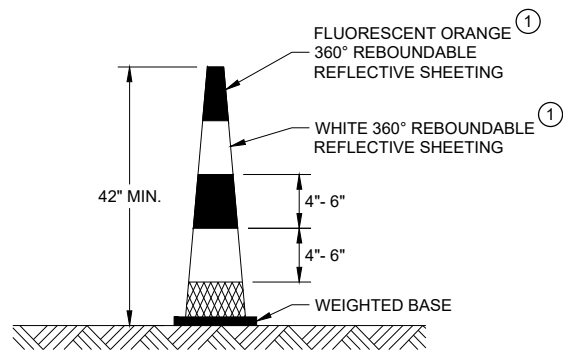
LONGITUDINAL MARKING (MAINLINE)

STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION

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

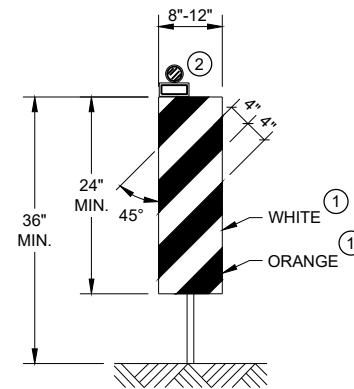


DRUM



42" CONE

DO NOT USE IN TAPERS
½ SPACING OF DRUMS

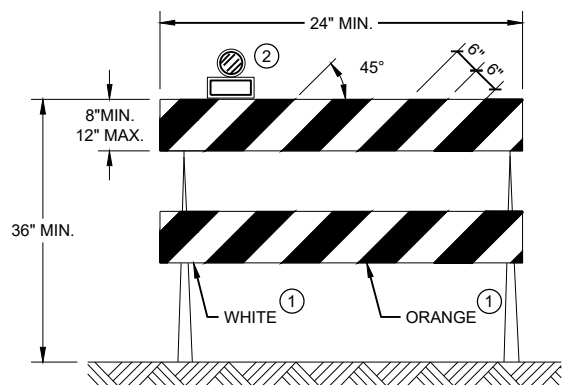


VERTICAL PANEL

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

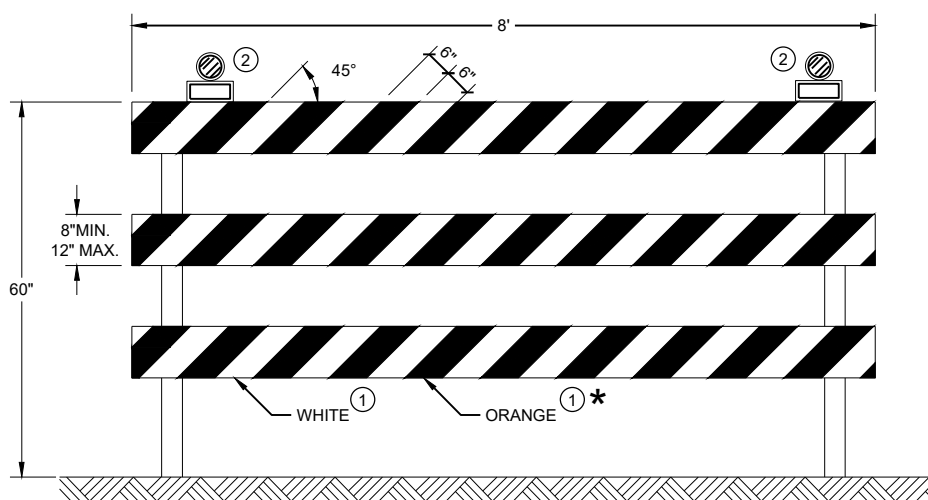
GENERAL NOTES

- 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.



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 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER

LEGEND

-  SIGN ON PORTABLE OR PERMANENT SUPPORT
-  TEMPORARY PORTABLE RUMBLE STRIP ARRAY
-  DIRECTION OF TRAFFIC
-  WORK AREA
-  FLAGGER, EQUIPPED WITH STOP/SLOW PADDLE FASTENED ON SUPPORT STAFF

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.

ALL SIGNS ARE 48" X 48" UNLESS OTHERWISE NOTED.

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

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

THE FIRST ADVANCE WARNING SIGN SHOULD TYPICALLY BE LOCATED IN ADVANCE OF THE ANTICIPATED TRAFFIC BACKUP OR QUEUE.

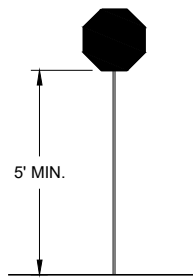
WHEN A SIDE ROAD OR RAMP INTERSECTS THE FACILITY ON WHICH THE WORK IS BEING PERFORMED, ADDITIONAL TRAFFIC CONTROLS SHALL BE PROVIDED AS SPECIFIED IN THE PLANS AND/OR THE SPECIAL PROVISIONS OR AS APPROVED BY THE ENGINEER.

FLAGGING

- FLAGGERS SHALL BE IN SIGHT OF EACH OTHER OR IN DIRECT COMMUNICATION AT ALL TIMES. THEY SHALL BE EQUIPPED WITH STOP/SLOW PADDLES FASTENED ON SUPPORT STAFFS. WHEN THE FLAGGING OPERATION IS NOT IN EFFECT REMOVE TEMPORARY PORTABLE RUMBLE STRIPS PRIOR TO COVERING OR REMOVING ALL ADVANCE SIGNING.
- ① FOR MOVING WORK OPERATIONS, POST ADDITIONAL W20-7A FLAGGER SIGNS AT APPROXIMATELY 3,500' INTERVALS IN THE MOVING WORK OPERATION OR AS APPROVED BY THE ENGINEER.
 - ② SIGN NOT REQUIRED IF FLAGGING OPERATION OCCURS WITHIN A SIGNED ROAD WORK ZONE AREA.
- WHEN THE DISTANCE BETWEEN FLAGGERS EXCEEDS 2 MILES, A PILOT CAR IS REQUIRED. WHEN CURVES REDUCE SIGHT DISTANCE BELOW 400', A PILOT CAR IS REQUIRED.

TEMPORARY PORTABLE RUMBLE STRIPS

- UTILIZE TEMPORARY PORTABLE RUMBLE STRIPS ON ALL FLAGGING OPERATIONS.
- ③ EACH TEMPORARY PORTABLE RUMBLE STRIP ARRAY CONSISTS OF THREE RUMBLE STRIPS SPACED ACCORDING TO MANUFACTURER'S RECOMMENDATION, PLACED TRANSVERSE ACROSS THE LANE AT LOCATIONS SHOWN.
- ONLY USE TEMPORARY PORTABLE RUMBLE STRIPS FOR THE APPROVED PRODUCTS LIST.
- INSTALL TEMPORARY RUMBLE STRIPS PER MANUFACTURER'S RECOMMENDATIONS.
- PLACE ADVANCE SIGNING PRIOR TO INSTALLING TEMPORARY RUMBLE STRIPS.
- DO NOT INSTALL TEMPORARY PORTABLE RUMBLE STRIPS ON GRAVEL, MILLED SURFACES, OR ASPHALT THAT HAS BEEN PAVED LESS THAN 12 HOURS.



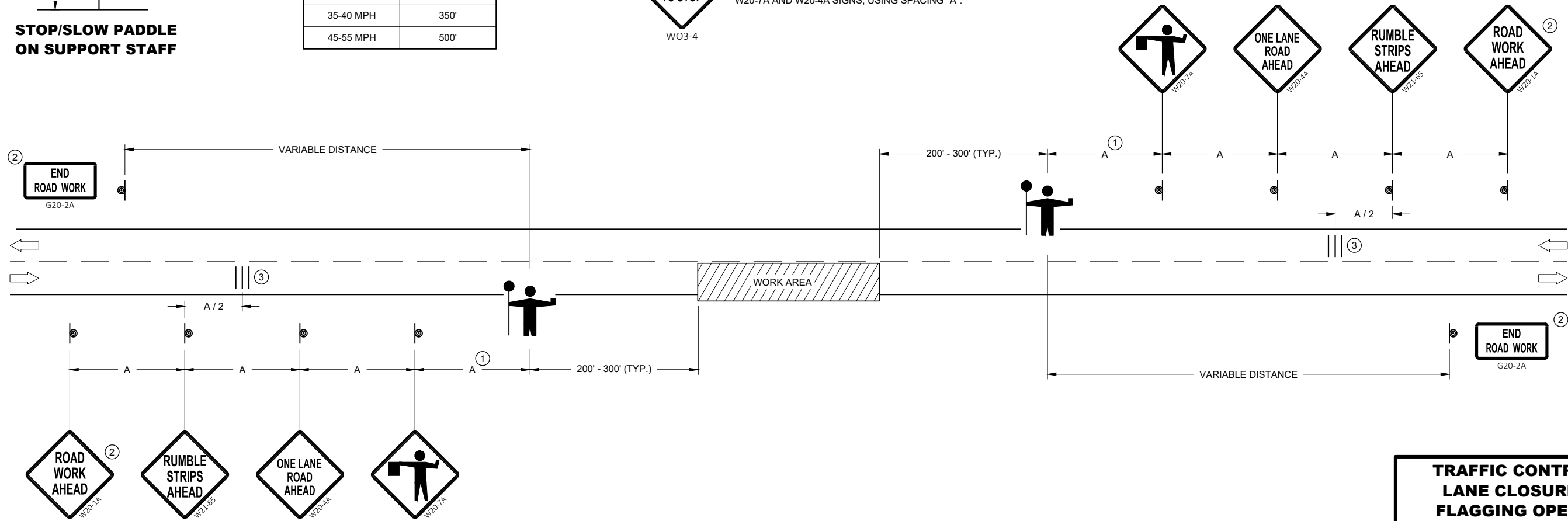
STOP/SLOW PADDLE ON SUPPORT STAFF

SIGN AND TEMPORARY RUMBLE STRIP ARRAY SPACING TABLE

SPEED LIMIT	SPACING "A"
25-30 MPH	200'
35-40 MPH	350'
45-55 MPH	500'



USE OF W03-4 SIGN IS OPTIONAL. WHEN USED, THIS SIGN SHALL BE LOCATED BETWEEN THE W20-7A AND W20-4A SIGNS, USING SPACING "A".



TRAFFIC CONTROL FOR LANE CLOSURE WITH FLAGGING OPERATION





TRAFFIC CONTROL FOR LANE CLOSURE WITH FLAGGING OPERATION

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
DATE: May 2019 /S/ Andrew Heidtke
WORK ZONE ENGINEER

FHWA

LEGEND

-  SIGN ON PERMANENT SUPPORT
-  TRAFFIC CONTROL DRUM
-  DIRECTION OF TRAFFIC
-  WORK ZONE

GENERAL NOTES

ALL SIGNS ARE 48"X48" UNLESS OTHERWISE NOTED. IF NECESSARY DUE TO SPACE CONSTRAINTS IN URBAN AREAS, 36" X 36" SIGNS MAY BE USED IF APPROVED BY THE REGIONAL TRAFFIC UNIT.

"WO" SIGN IS THE SAME AS "W" SIGN EXCEPT THE BACKGROUND IS ORANGE.

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

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

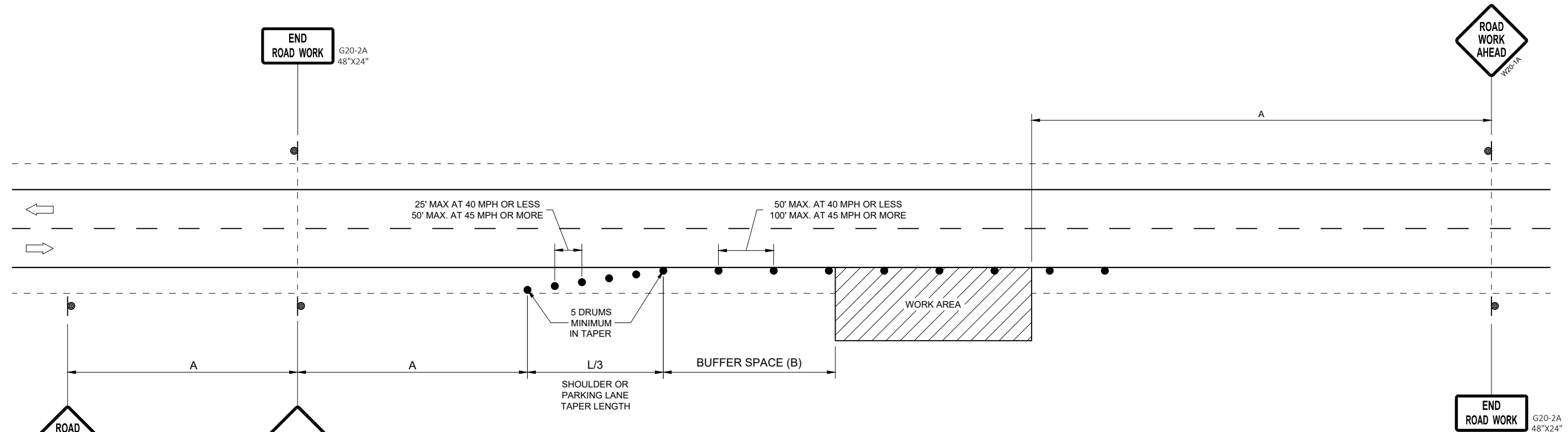
CHANNELIZING DEVICES PLACED ADJACENT TO WORK AREA SHALL BE PULLED BACK FROM THE TRAVEL LANE WHEN WORK IS NOT IN PROGRESS.

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

W20-1A AND G20-2A SIGNS ARE NOT REQUIRED IF THE WORK AREA IS WITHIN A LARGER WORK ZONE WHERE THESE SIGNS ARE ALREADY PRESENT. G20-2A SIGNS MAY ALSO BE OMITTED IF DURATION OF WORK IS LESS THAN 7 CONTINUOUS DAYS AND NIGHTS.

6

6



POSTED SPEED LIMIT PRIOR TO WORK STARTING (MPH)	ADVANCE WARNING SIGN SPACING (A) FEET	SHOULDER TAPER L / 3 W, LATERAL OFFSET (FT)						BUFFER SPACE (B) FEET
		3	4	5	6	7	8	
25	200'	10	14	17	21	24	28	55
30	200'	15	20	25	30	35	40	85
35	350'	20	27	34	40	47	54	120
40	350'	26	35	44	53	62	70	170
45	500'	45	59	74	89	104	119	220
50	500'	50	66	83	99	116	132	280
55	500'	54	73	91	109	127	145	335'

SDD 15D28 - 04

SDD 15D28 - 04








TRAFFIC CONTROL, WORK ON SHOULDER OR PARKING LANE, UNDIVIDED ROADWAY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
May 2020 /S/ Andrew Heidtke
DATE STATEWIDE WORK ZONE TRAFFIC SAFETY ENGINEER

FHWA

LEGEND

-  SIGN ON TEMPORARY SUPPORT
-  SIGN ON PERMANENT SUPPORT
-  TYPE III BARRICADE
-  TYPE III BARRICADE WITH ATTACHED SIGN
-  TYPE "A" WARNING LIGHT (FLASHING)
-  DIRECTION OF TRAFFIC
-  FLAGGER, EQUIPPED WITH STOP/SLOW PADDLE FASTENED ON SUPPORT STAFF

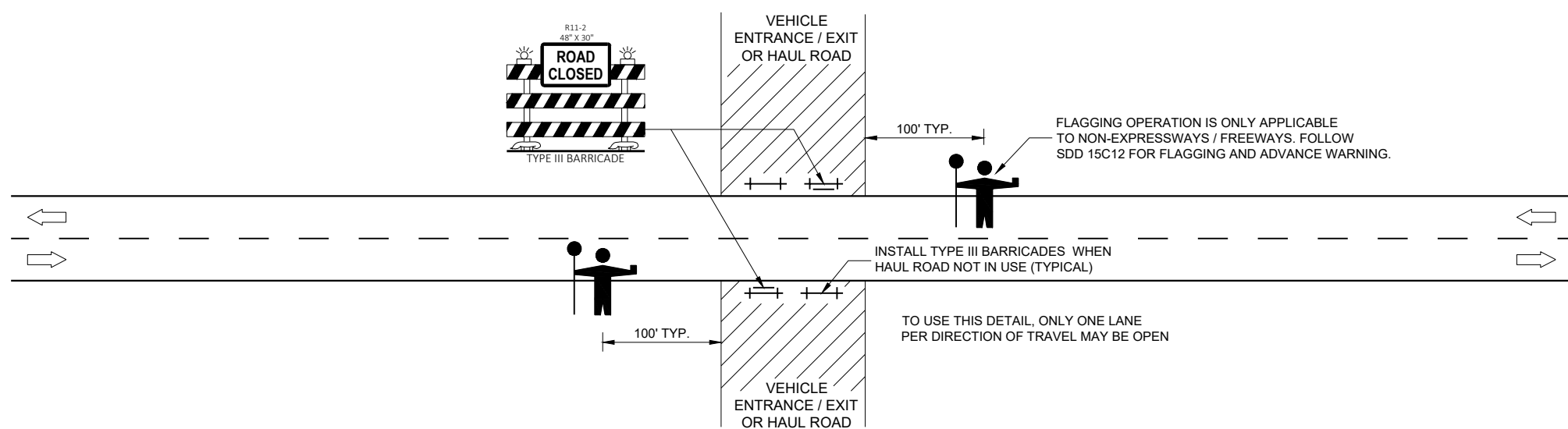
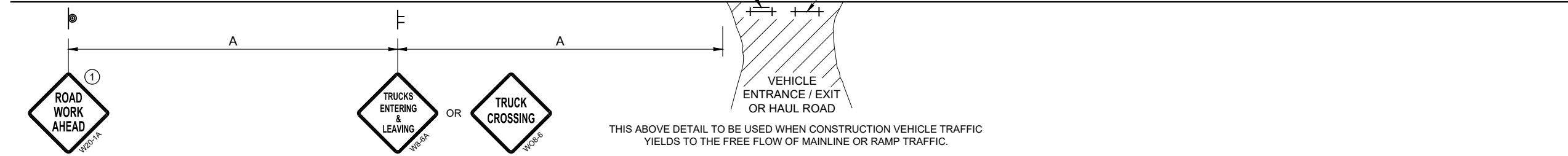
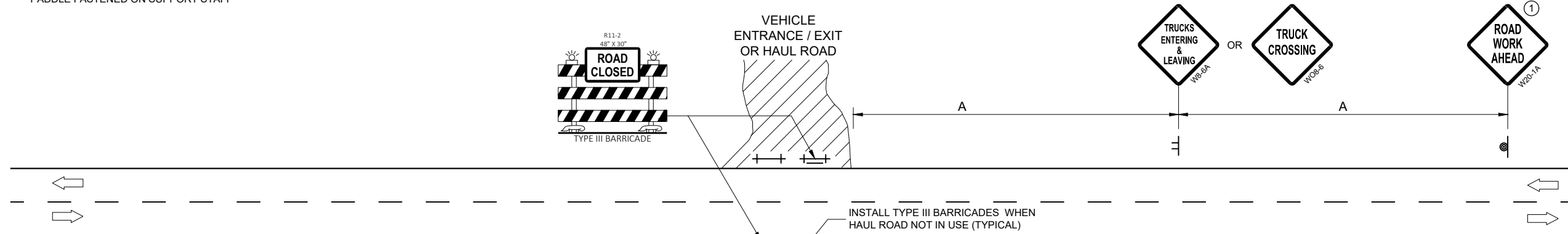
POSTED SPEED LIMIT PRIOR TO WORK STARTING (MPH)	ADVANCE WARNING SIGN SPACING (A) FEET
0-30	200'
35-40	350'
45-55	500'

GENERAL NOTES

- ALL SIGNS ARE 48"X48" UNLESS OTHERWISE NOTED.
- "WO" SIGN IS THE SAME AS "W" SIGN EXCEPT THE BACKGROUND IS ORANGE.
- THE EXACT NUMBER, LOCATION, AND SPACING OF ALL SIGNS AND DEVICES SHALL BE ADJUSTED TO FIT FIELD CONDITIONS AS APPROVED BY THE ENGINEER.
- WARNING SIGNS THAT WILL BE IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS MAY BE MOUNTED ON PORTABLE SUPPORTS.
- WHEN ACTIVITY REFLECTED BY THE SIGN IS NOT CURRENTLY TAKING PLACE, THE HIGHWAY SHALL BE RESTORED TO NORMAL CONDITION AND THE SIGNS SHALL BE REMOVED, COVERED OR TURNED AWAY FROM TRAFFIC.
- WHEN A SIDE ROAD OR RAMP INTERSECTS WITHIN THE ADVANCE SIGNING AREA, ADDITIONAL TRAFFIC CONTROLS SHALL BE PROVIDED AS SPECIFIED IN THE PLANS AND / OR THE SPECIAL PROVISIONS OR AS APPROVED BY THE ENGINEER.
- PLACE SIGNS ON BOTH SIDES IF USED ON DIVIDED HIGHWAY.
- ① THESE SIGNS ARE TO BE USED ONLY WHEN VEHICLE ENTRANCE / EXIT CONDITIONS ARE SEPARATED BY MORE THAN TWO MILES FROM PREVIOUS WORK AREA OR SIGNING OR AS DIRECTED BY THE ENGINEER.

6

6



THIS DETAIL TO BE USED WHEN CONSTRUCTION WORK INCLUDING TRUCKING ACTIVITY REQUIRES MAINLINE TRAFFIC TO BE TEMPORARILY STOPPED IN ONE OR BOTH DIRECTIONS. DELAY TO HIGHWAY TRAFFIC SHALL BE MINIMIZED.

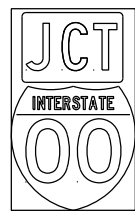
FLAGGING OPERATION IS ONLY APPLICABLE TO NON-EXPRESSWAYS / FREEWAYS. FOLLOW SDD 15C12 FOR FLAGGING AND ADVANCE WARNING.

SDD 15D29 - 06

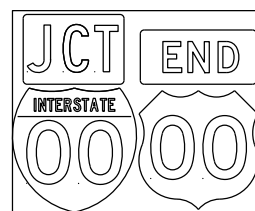
SDD 15D29 - 06

TRAFFIC CONTROL, VEHICLE ENTRANCE/EXIT OR HAUL ROAD	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED May 2020 DATE	/S/ Andrew Heidtke WORK ZONE ENGINEER
FHWA	

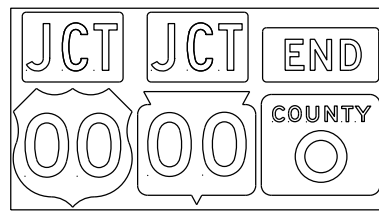
TYPICAL ASSEMBLIES



J1-1



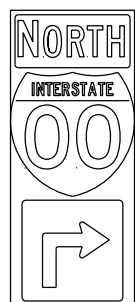
J1-2



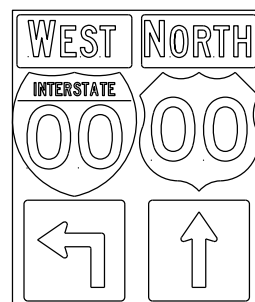
J1-3



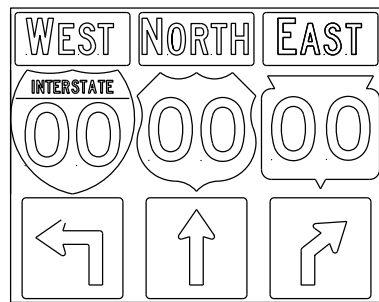
JR1-1



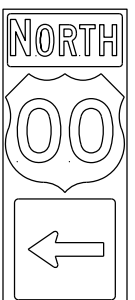
J2-1



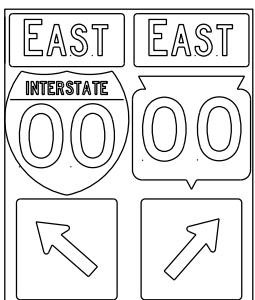
J2-2



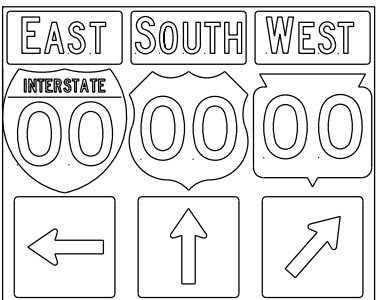
J2-3



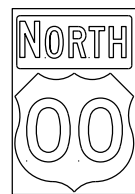
J3-1



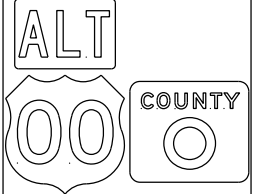
J3-2



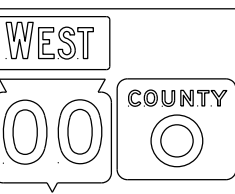
J3-3



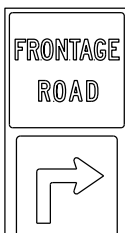
J4-1



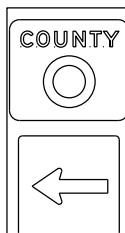
J4-2



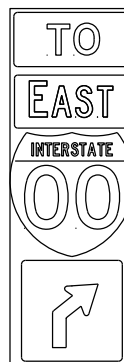
J4-2



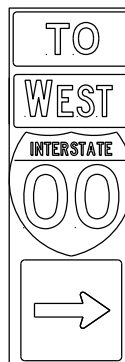
J12-1



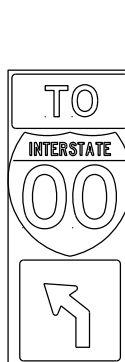
J13-1



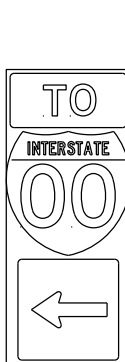
J32-1



J33-1



J22-1



J23-1



JR13-1



JR23-1

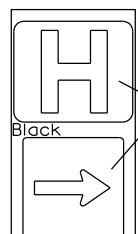


JR99-1



JV

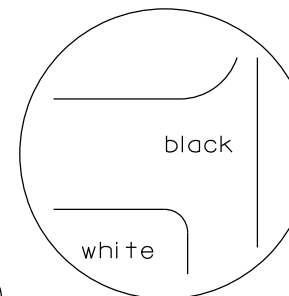
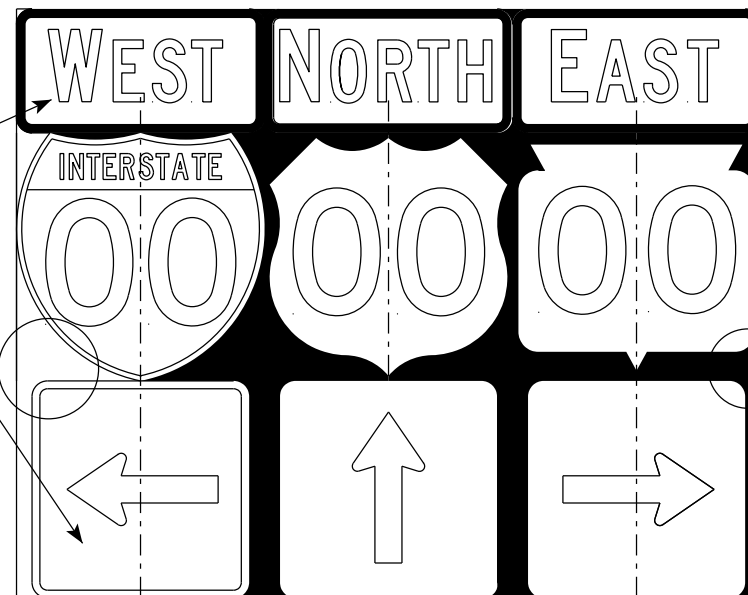
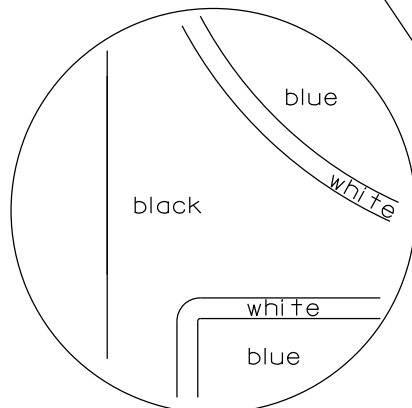
(Typical Vertical J-Assembly See Note 10 and 11)



JH-1

Blue Background

blue background with interstate



black background

NOTES

- Signs are Type II - Type H Reflective
- Color:
 - Background - Black Non-reflective
 - Message - see Note 5
- Message Series - See Note 5
- Corners shall be square or rounded if base material is plywood. If base material is metal the corners shall be rounded.
- The colors and message spacing on each marker shall be according to the applicable route marker panel specifications.
- Certain marker heads require the component pieces to be the same color. As an example, all the components used with an MI-1 Interstate marker shall be blue.
- Single panel j-assemblies shall only be used with route marker shields that are same size. If the route marker shields are different size use multiple piece component.
- Route assemblies that have 24 inch route shields and have dimensions greater than 48 inches (both vertical and horizontal) shall have one horizontal splice between the arrows and route shields. Vertical splices shall not be used on route assemblies with a horizontal dimension of 144 inches or less. The contractor shall not use more than one vertical joint per sign and the joint shall be between route shields.
- Route assemblies that have 36 inch shields and have dimensions greater than 48 inches (both vertical and horizontal) shall have two horizontal splices. One horizontal splice shall be between the cardinal direction and route shields and the other horizontal splice shall be between the arrows and route shields. Vertical splices shall not be used on route assemblies with a horizontal dimension of 144 or less. The contractor shall not use more than one vertical joint per sign and the joint shall be between route shields.
- All Vertical J Assemblies are given a Sign Code of JV
- For JV Assemblies that have a mixture of Interstate and non Interstate shields, arrows and cardinals shall be white on blue.

ROUTE MARKERS & COMPONENTS IN TYPICAL ASSEMBLIES

WISCONSIN DEPT OF TRANSPORTATION

APPROVED

Matthew R. Rauch
for State Traffic Engineer

DATE 3/18/21

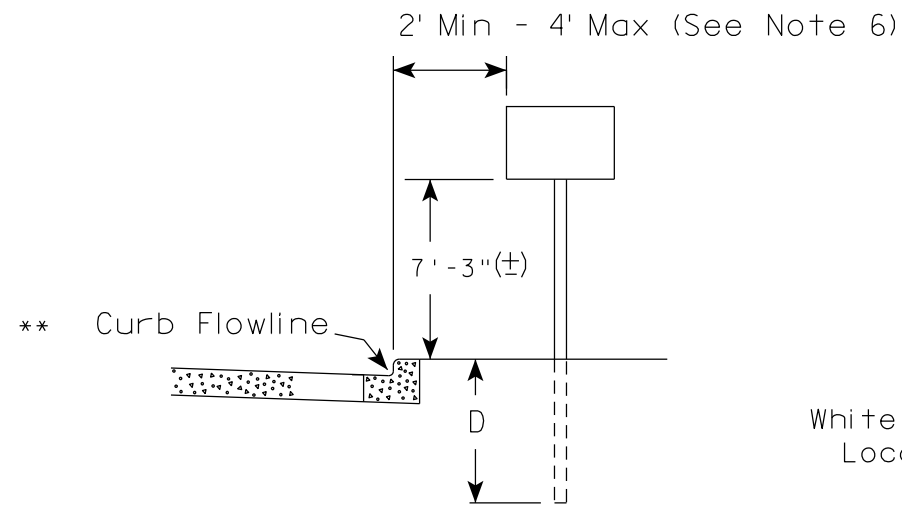
PLATE NO. A2-1S.9

PROJECT NO:

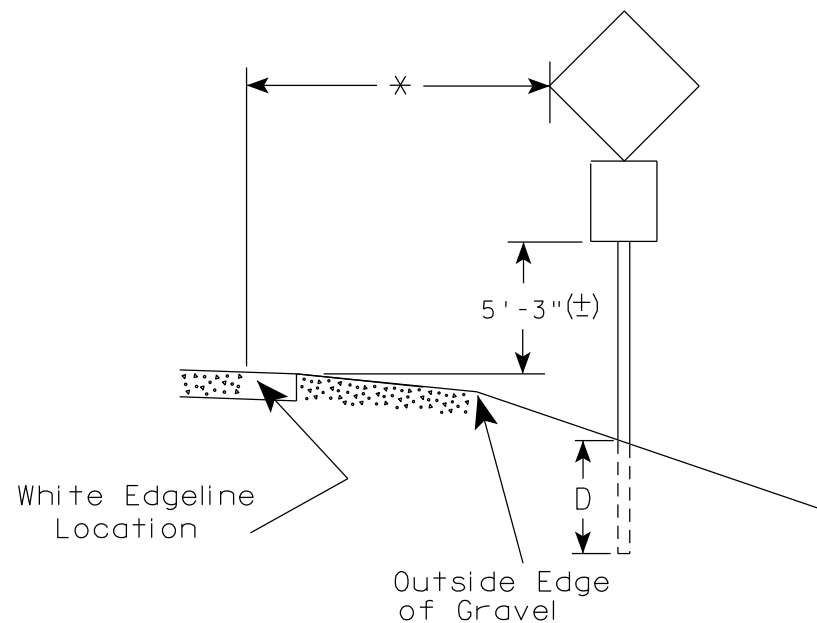
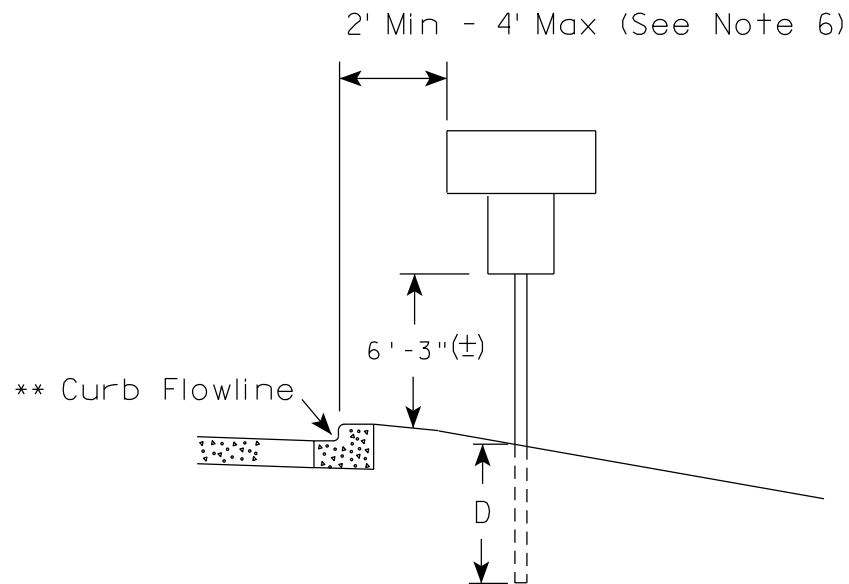
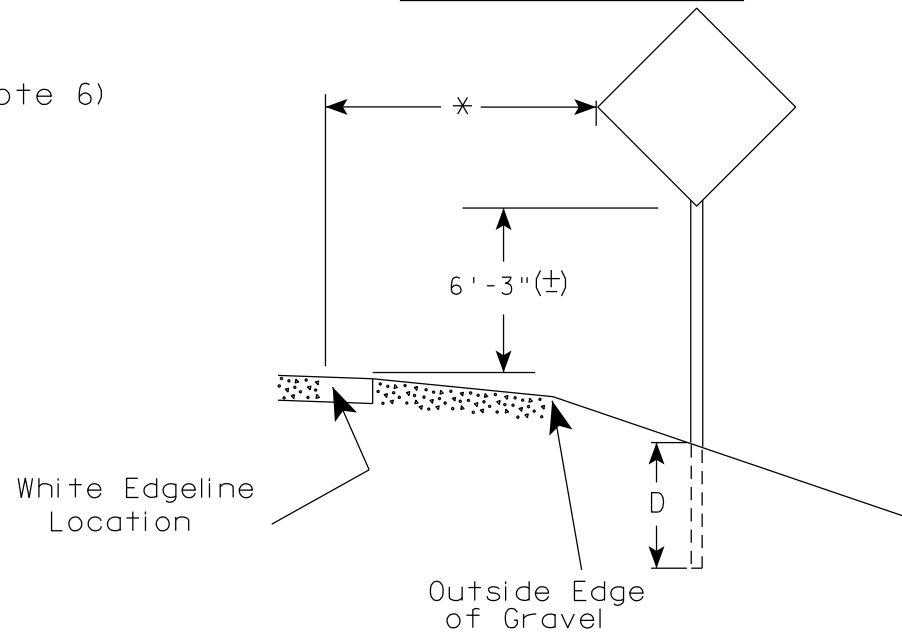
SHEET NO:

E

URBAN AREA



RURAL AREA (See Note 2)



POST EMBEDMENT DEPTH

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

GENERAL NOTES

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

* * 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.

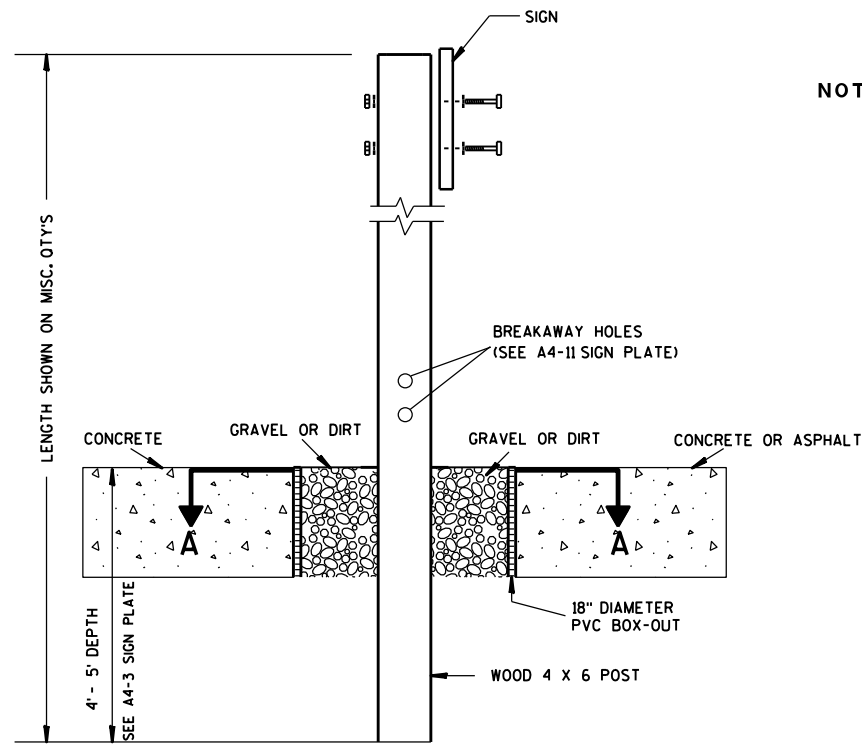
* 6 feet from edge of a paved shoulder or 12 feet from the edge of pavement (edge line location) or 2 feet from outside edge of gravel, whichever is greater unless directed by project engineer.

TYPICAL INSTALLATION OF PERMANENT TYPE II SIGNS ON SINGLE POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

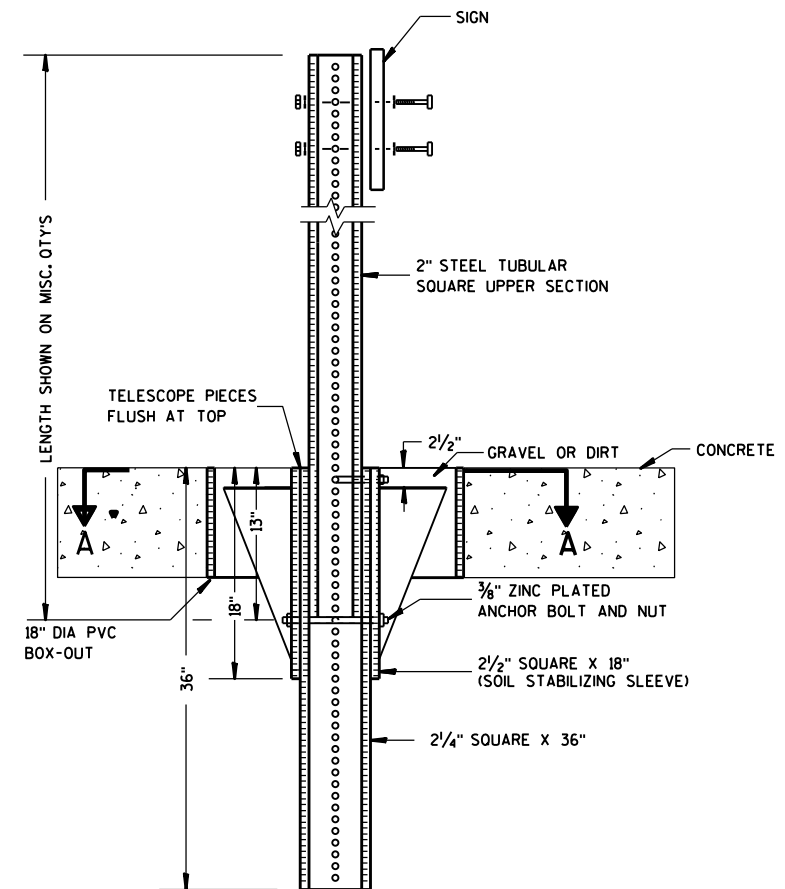
DATE 5/13/2020 PLATE NO. A4-3.22



ELEVATION VIEW

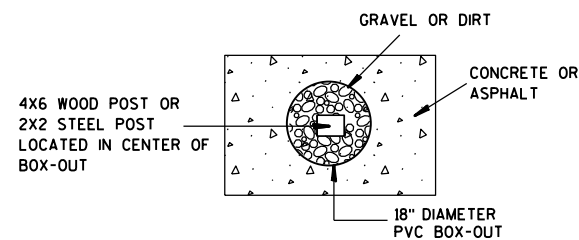
DETAIL OF WOOD 4 X 6 SIGN POST IN BOX-OUT

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



ELEVATION VIEW

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



PLAN VIEW

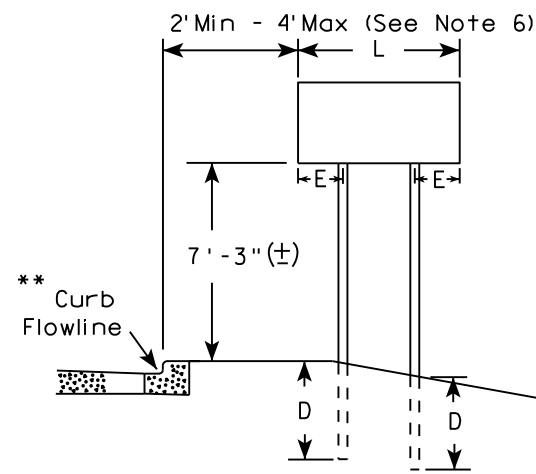
FOR NEW CONCRETE/ASPHALT INSTALLATIONS

SIGN POST BOX-OUTS A4-3B	
<small>WISCONSIN DEPT OF TRANSPORTATION</small>	
APPROVED <i>Matthew R. Rauch</i> <small>for State Traffic Engineer</small>	
<small>DATE 1/27/14</small>	<small>PLATE NO. A4-3B.1</small>

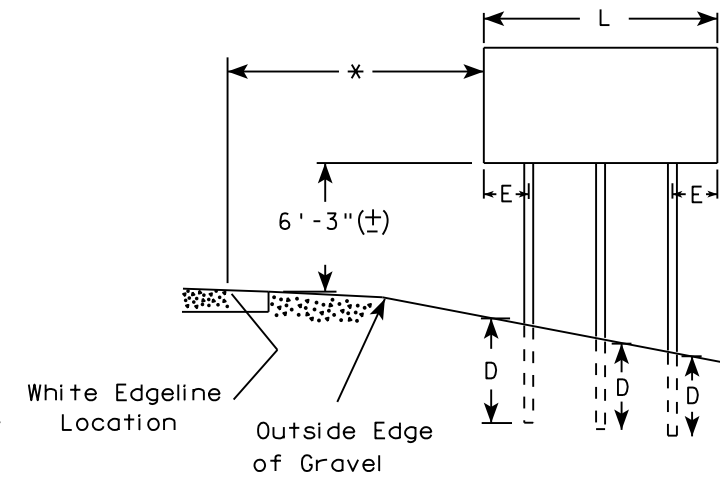
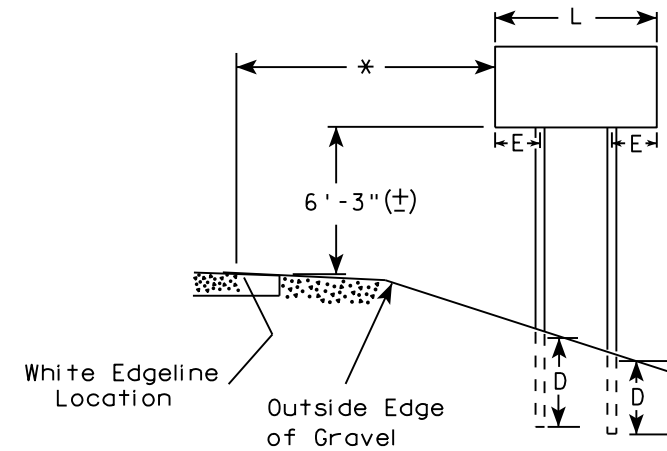
GENERAL NOTES

1. For 3 or 4 post installations, individual post spacing shall be greater than 3'-6".
2. See tables below for required number of posts.
3. For expressways and freeways, mounting height is 7'-3" (±) or 6'-3" (±) depending upon existence of sub-sign.
4. The (±) tolerance for mounting height is 3 inches.
5. J-Assemblies are considered to be one sign for mounting height.
6. Offset distance shall be consistent with existing signs or consistent throughout length of project.
7. Folding signs shall be mounted at a height of 5'-3" (±) or as directed by the engineer.
8. 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), 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" (±).

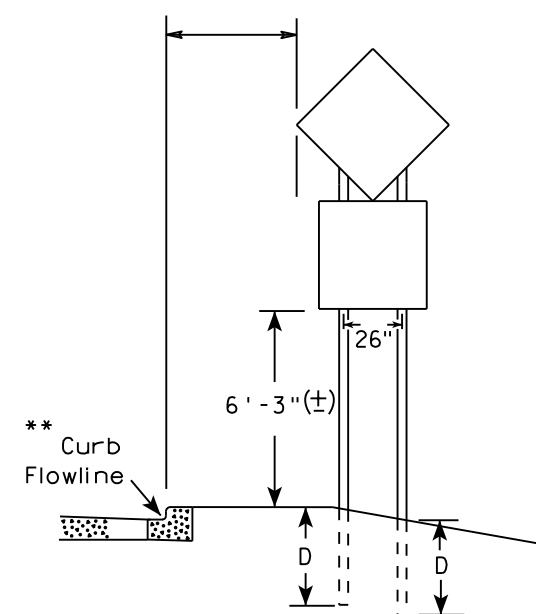
URBAN AREA



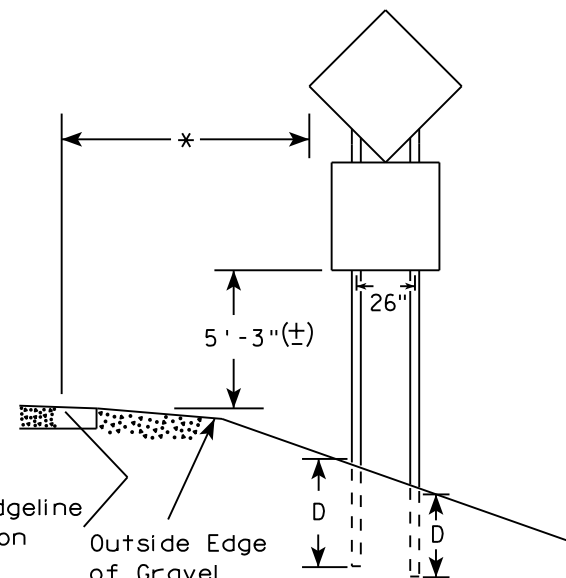
RURAL AREA (See Note 3)



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



48" DIAMOND WARNING SIGN



48" DIAMOND WARNING SIGN

* 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.

** 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.

*** See A4-3 sign plate for signs 4' or less in width and less than 20 S.F. in area.

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

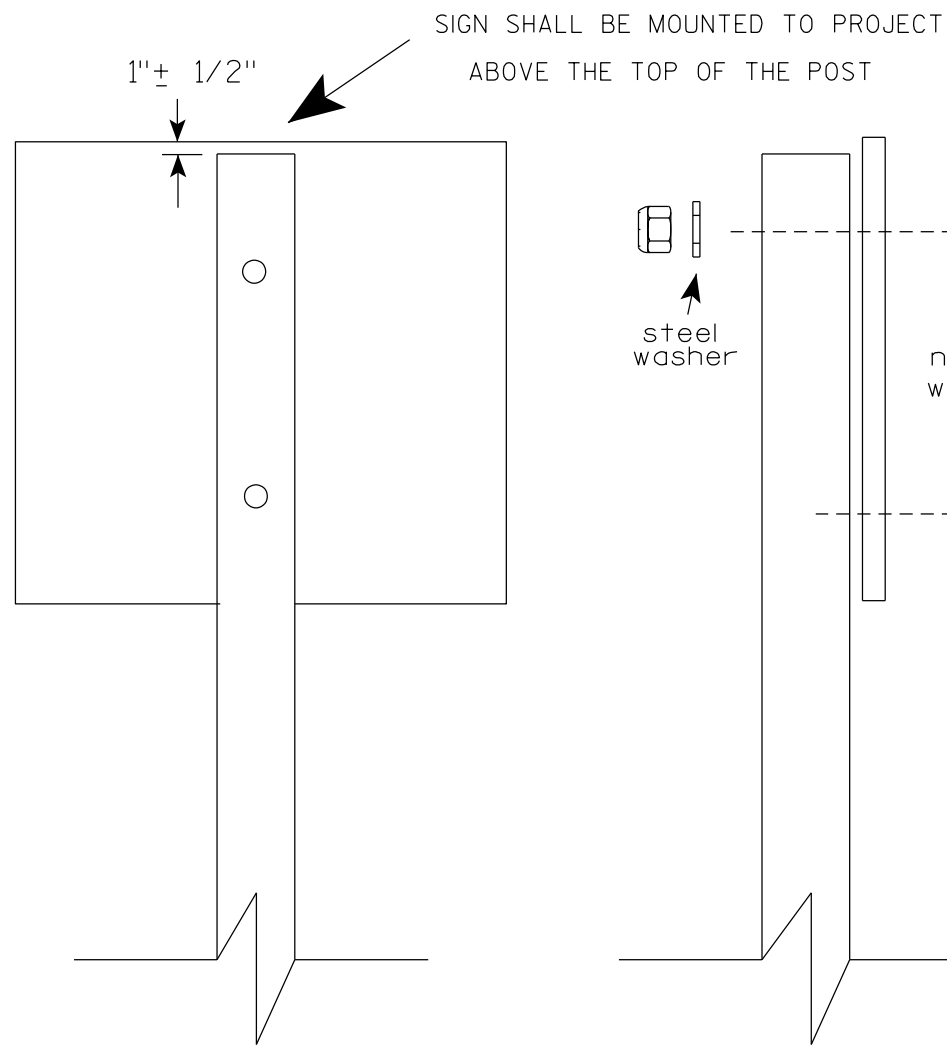
SIGN SHAPE OTHER THAN DIAMOND (THREE POSTS REQUIRED)	
L	E
Greater than 108" to 144"	12"

POST EMBEDMENT DEPTH

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

TYPICAL INSTALLATION OF TYPE II SIGNS ON MULTIPLE POSTS

WISCONSIN DEPT OF TRANSPORTATION
 APPROVED *Matthew R. Rauch*
 For State Traffic Engineer
 DATE 8/21/17 PLATE NO. A4-4.15



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

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

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

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

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

WOOD POSTS (4" x 6")

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

SQUARE STEEL POSTS (2" x 2")

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

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

WASHERS (ALL POSTS) -

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

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

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

ATTACHMENT OF SIGNS
TO POSTS

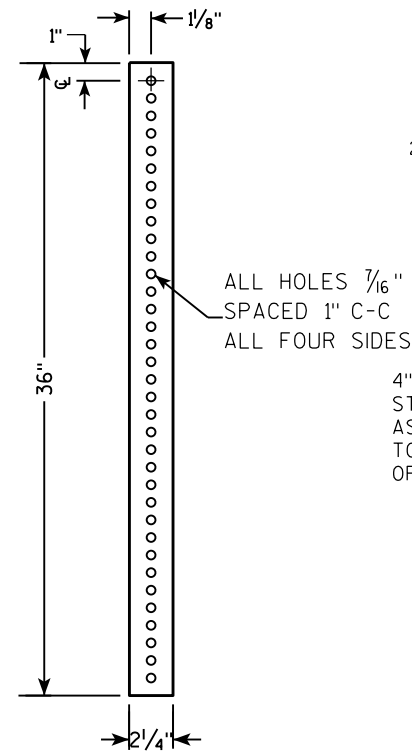
WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R Rauch*
For State Traffic Engineer

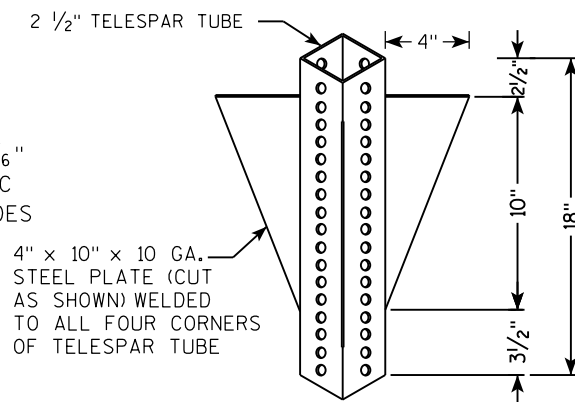
DATE 4/1/2020 PLATE NO. A4-8.9

**TELESCOPIC TUBING ANCHORS
TWO PIECE SYSTEM**

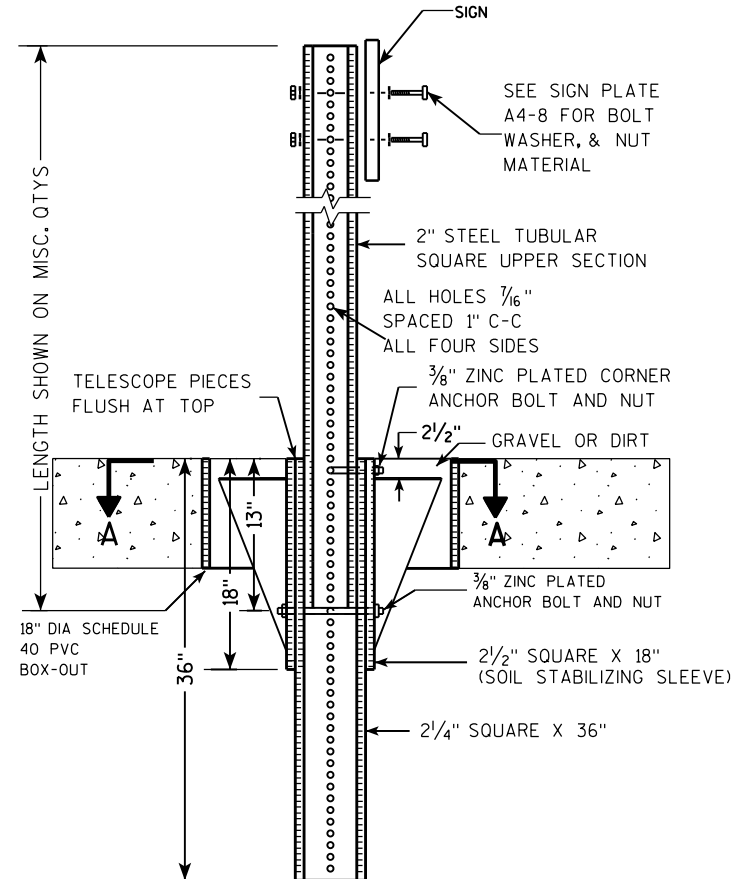
2 1/4" SQUARE
12 GAUGE
PERFORATED
GALVANIZED FINISH



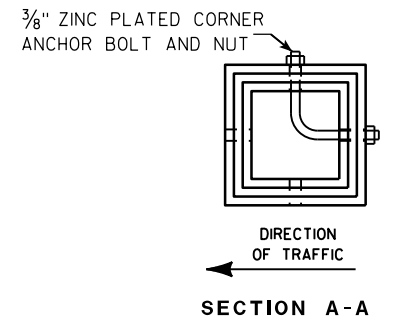
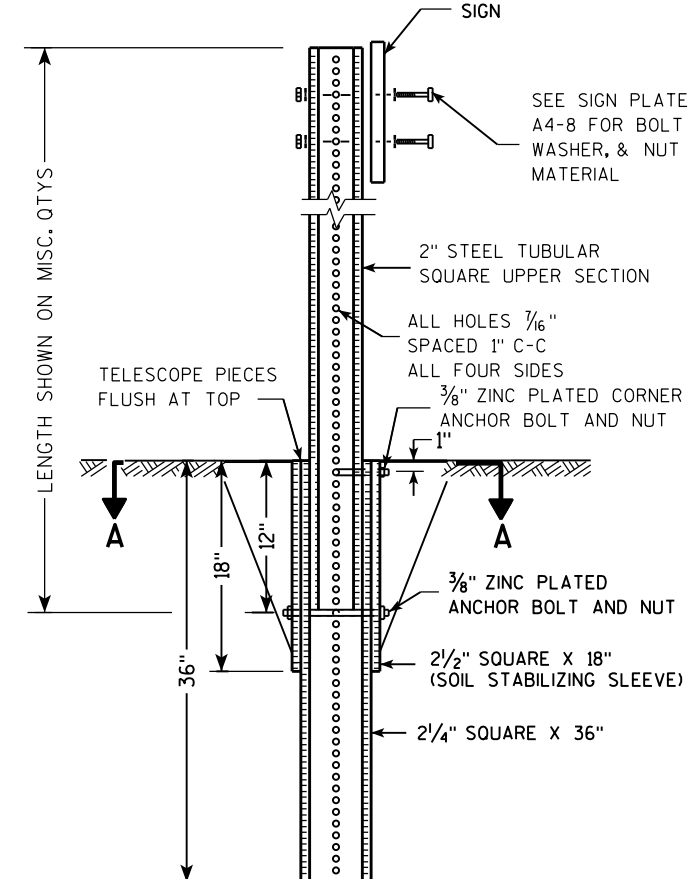
2 1/2" SQUARE
12 GAUGE
OMNI-DIRECTIONAL
PERFORATED
SOIL STABILIZING SLEEVE
GALVANIZED FINISH



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



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



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

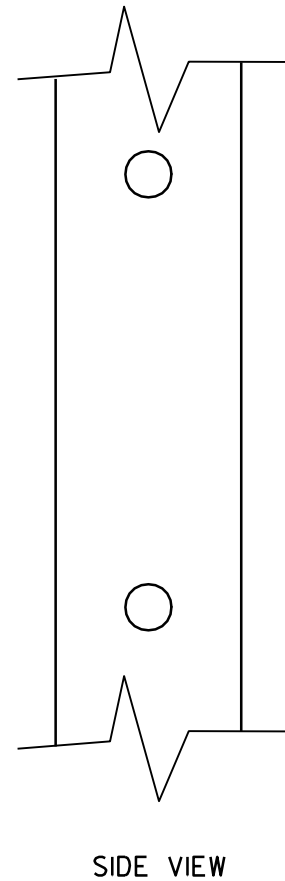
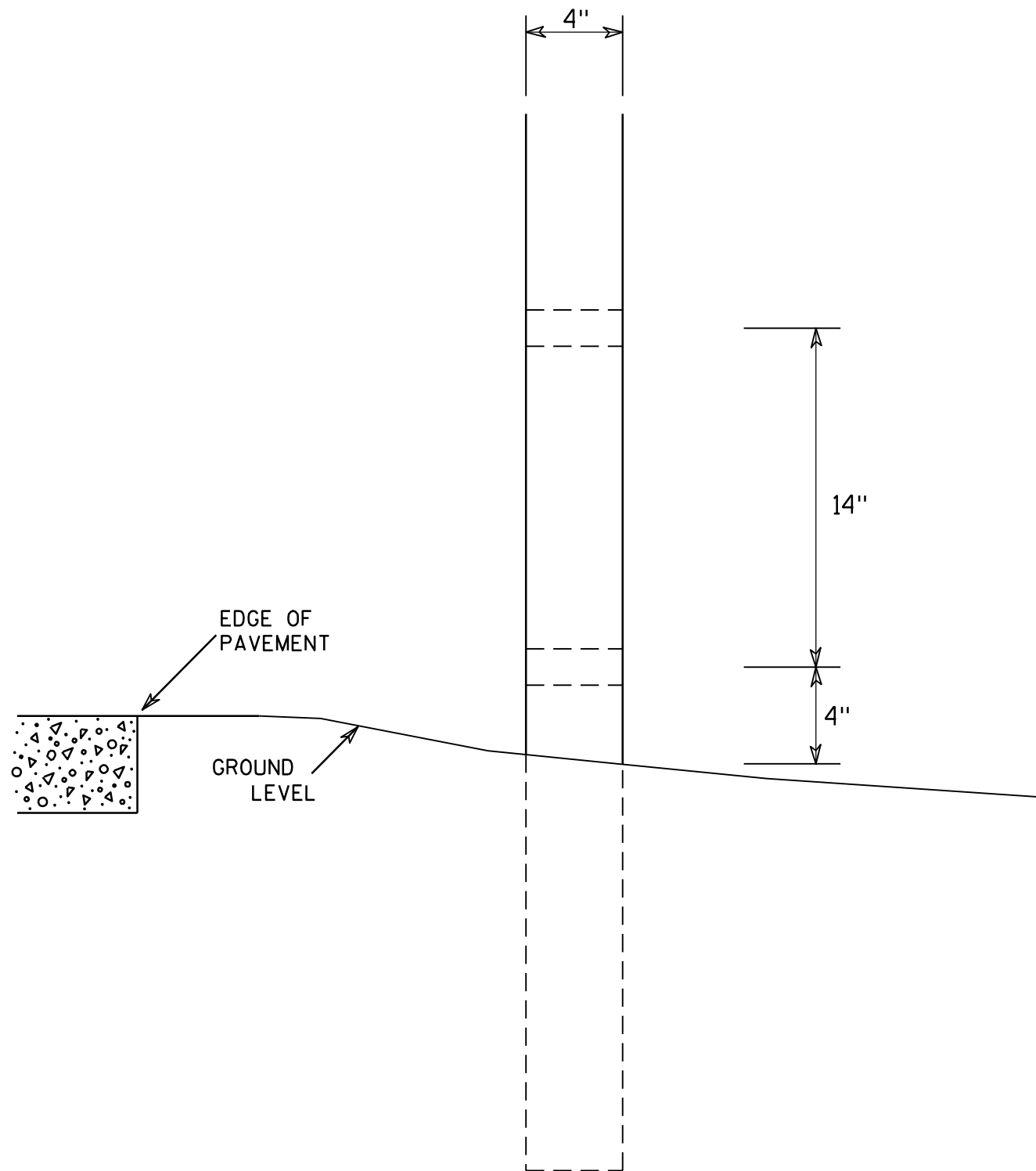
Signs wider than 3 feet or larger than 9 sq. ft shall be mounted on multiple posts (see above table).

**TUBULAR STEEL
SIGN POST
A4-9**

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

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



GENERAL NOTES

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

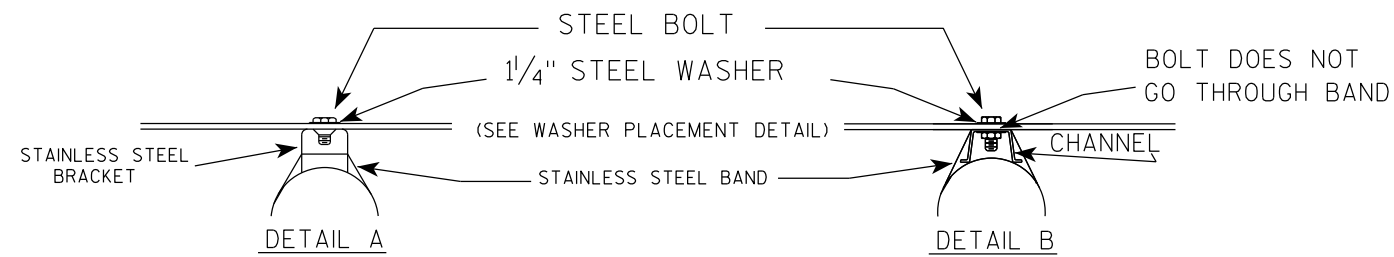
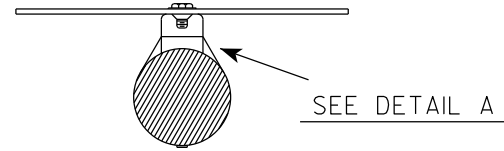
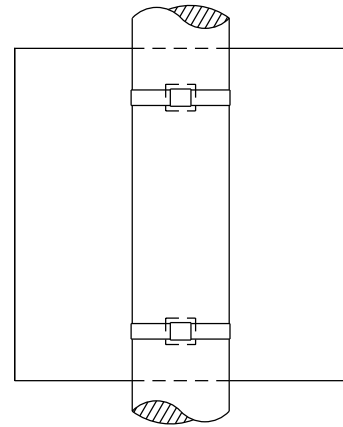
7

7

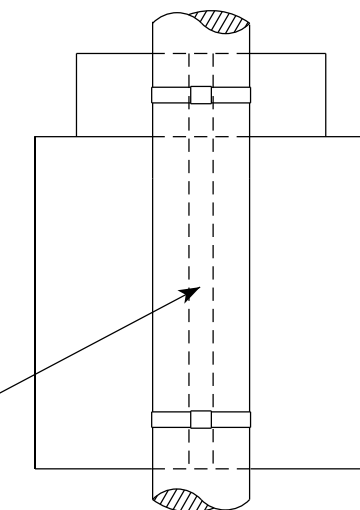
4 X 6 WOOD POST MODIFICATIONS	
<i>WISCONSIN DEPT OF TRANSPORTATION</i>	
APPROVED	<i>Chester J Spang</i> for State Traffic Engineer
DATE <u>3/27/97</u>	PLATE NO. <u>A4-11.2</u>

BANDING

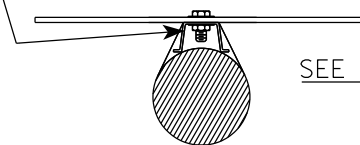
SINGLE SIGN



"J" ASSEMBLY

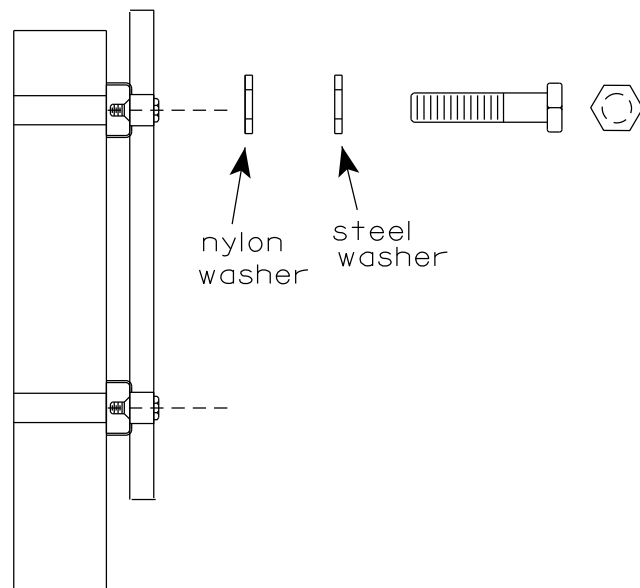


CHANNEL
SEE TYPICAL PANEL
INSTALLATION SHEET



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

WASHER PLACEMENT



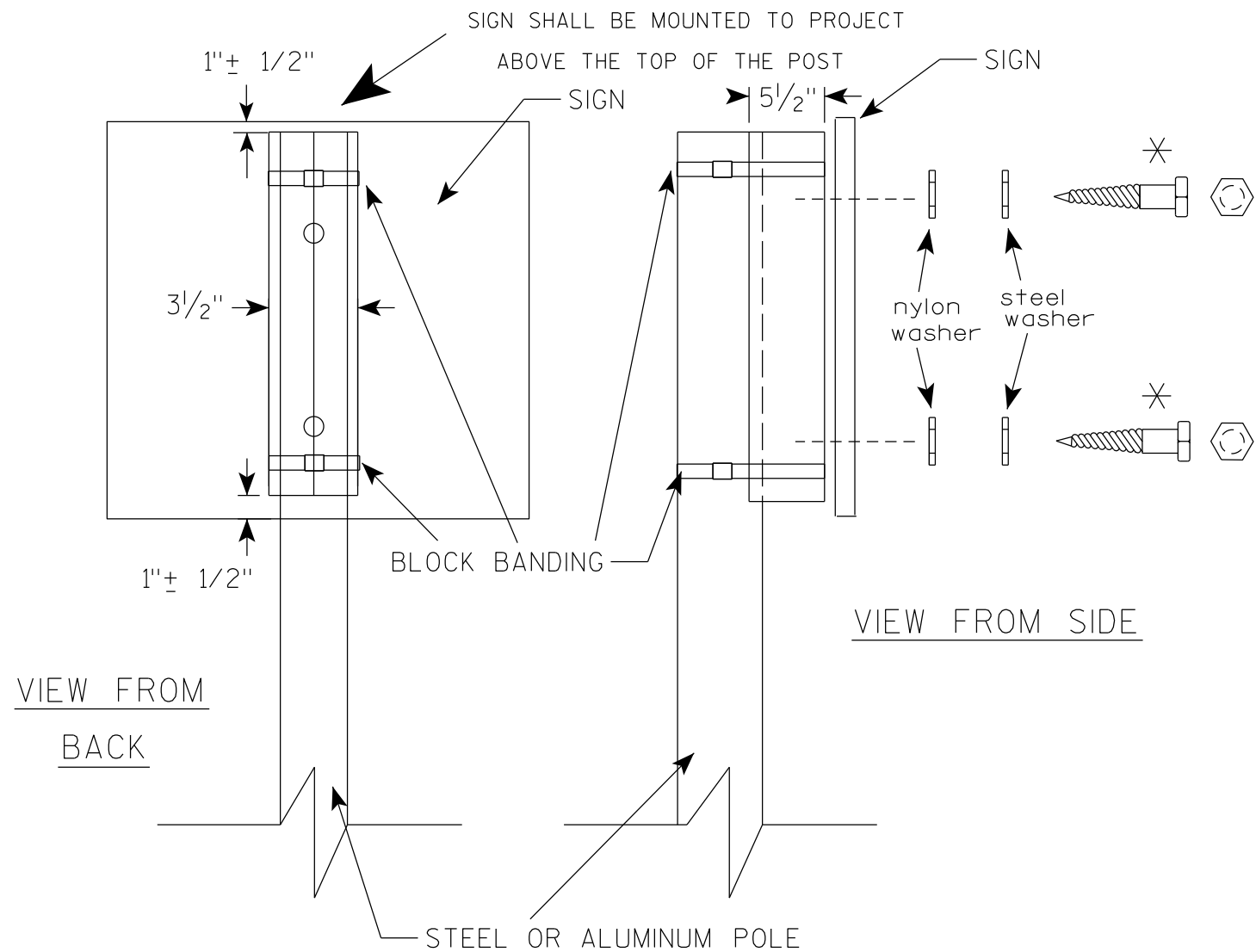
WASHERS (ALL POSTS) -
 1-1/4" O.D. X 3/8" I.D. X 1/16" STEEL
 1-1/4" O.D. X 3/8" I.D. X .080 NYLON
 FOR ALL TYPE H SIGNS

STANDARD SIGN
SIGN BANDING DETAILS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

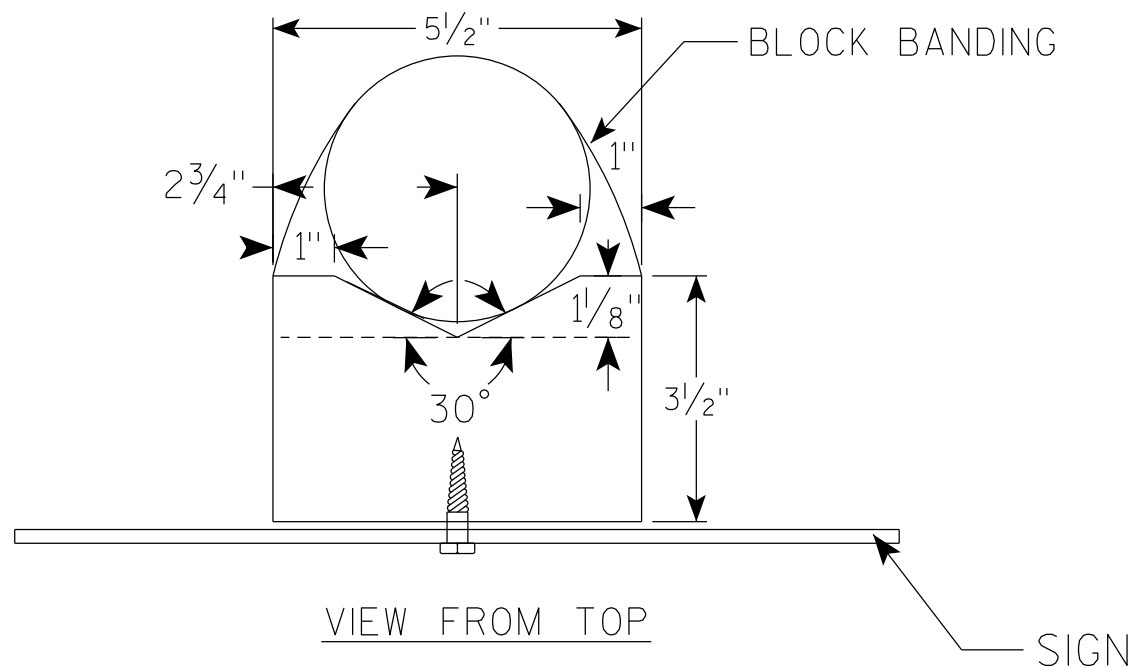
DATE 6/10/19 PLATE NO. A5-9.4



GENERAL NOTES

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

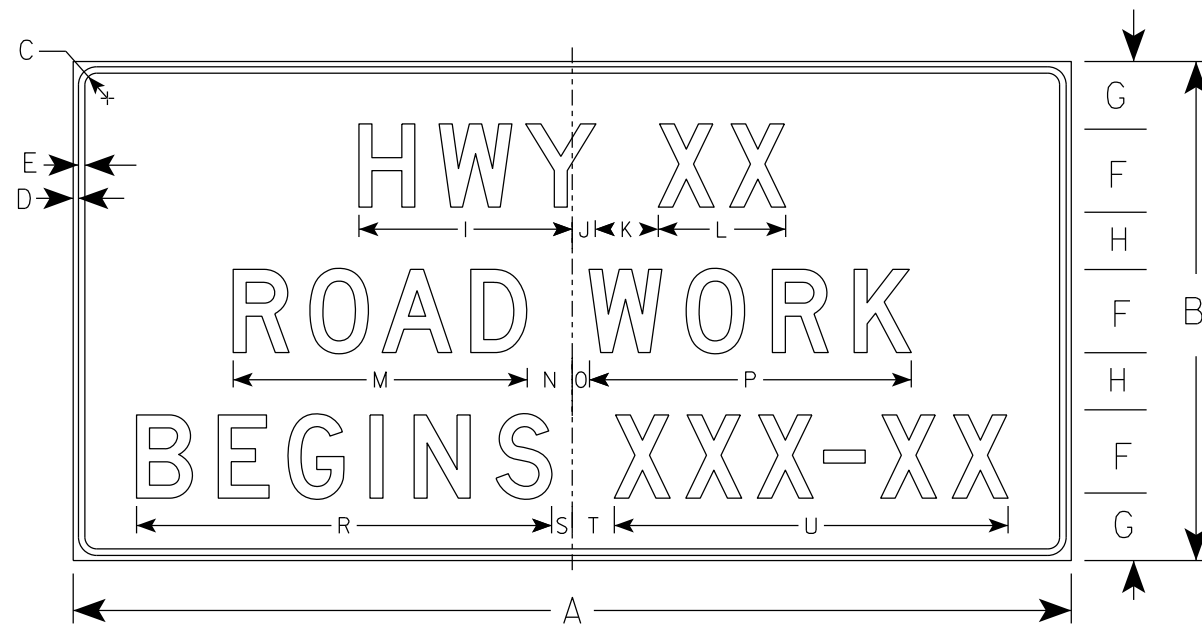
✱ LAG BOLTS SHALL BE 3/8" X 2 1/2"



BLOCK BANDING DETAIL (V-BLOCK OPTION)	
WISCONSIN DEPT OF TRANSPORTATION	
APPROVED	<i>Matthew R Rauch</i> for State Traffic Engineer
DATE 6/10/19	PLATE NO. A5-10.2

NOTES

1. Sign is Type II - Type F Reflective
2. Color:
Background - Orange
Message - Black
3. Message Series - D
4. Substitute appropriate numeral and adjust spacing to achieve proper balance.



G20-57

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																											
2																											
3	72	36	1 1/8	1/2	5/8	6	5	4	15 5/8	1 5/8	5	9 1/4	21 1/4	3 1/2	1 1/2	23 1/4		29 7/8	1 3/4	3 1/4	28 1/2					18.0	
4	96	48	2 1/4	3/4	1	8	6 1/2	5 1/2	20 5/8	2 1/4	6	12 1/4	28 1/4	4 3/8	1 5/8	31		39 1/4	2	4	37 7/8					32.0	
5																											

STANDARD SIGN
G20-57

WISCONSIN DEPT OF TRANSPORTATION

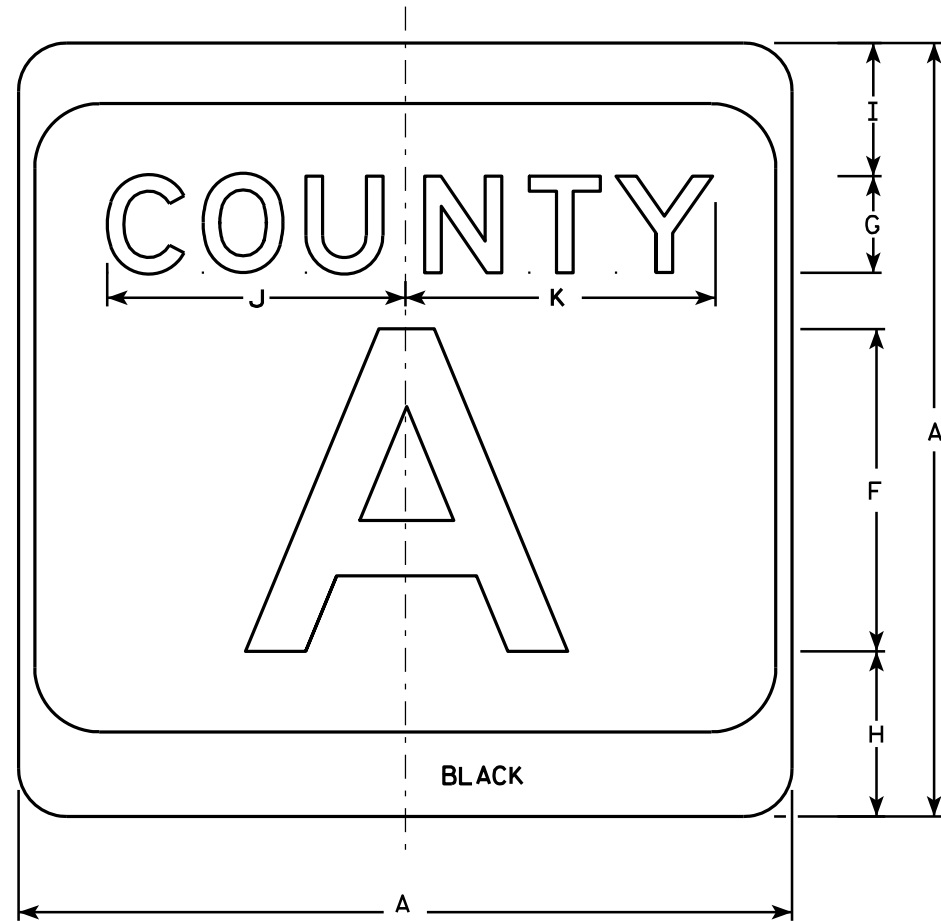
APPROVED *Matthew R Rauch*
For State Traffic Engineer

DATE 1/22/19 PLATE NO. G20-57.3

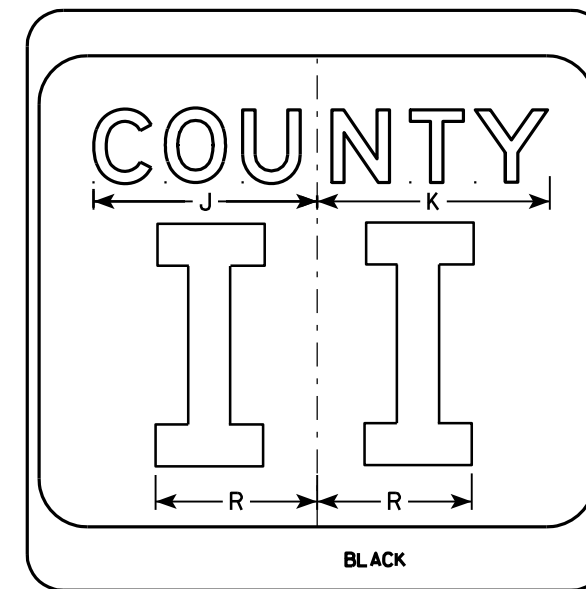
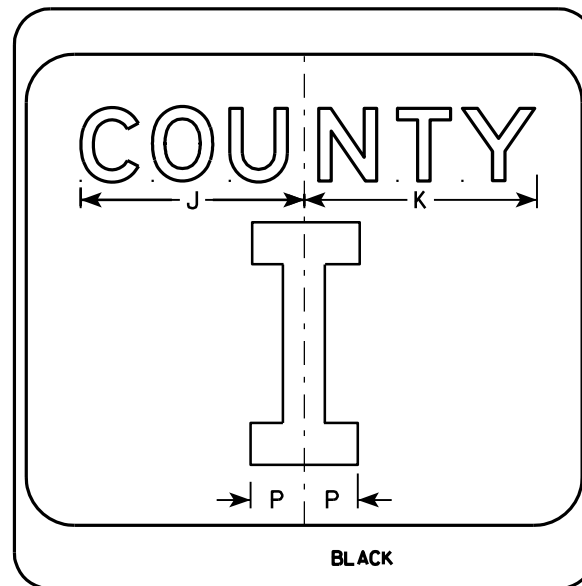
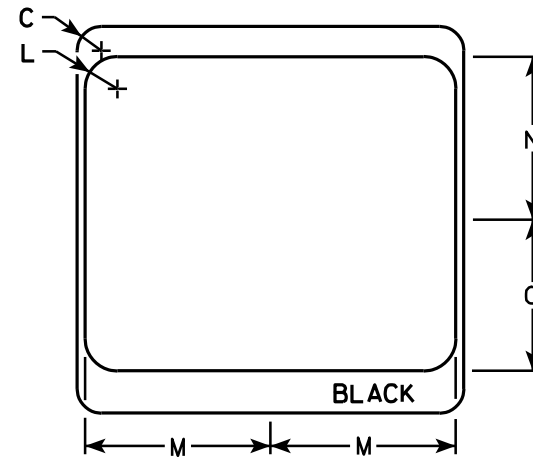
PROJECT NO: _____ HWY: _____ COUNTY: _____ SHEET NO: **E**

NOTES

1. Sign is Type II - see Note 7 - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
Background - White & Black - See Note 7
Message - Black
3. Message Series - see Note 5
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. Message Series E for 1 letter.
Message Series D for 2 letters unless message is too big then Series C.
Message Series C for 3 letters unless message is too big then Series B.
6. Substitute appropriate letters & optically center to achieve proper balance.
7. Permanent Signs
Background - Type H Reflective
Detour or temporary Signs
Background - Reflective



M1-5A



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

CTH MARKER
M1-5A FOR ASSEMBLIES

WISCONSIN DEPT OF TRANSPORTATION

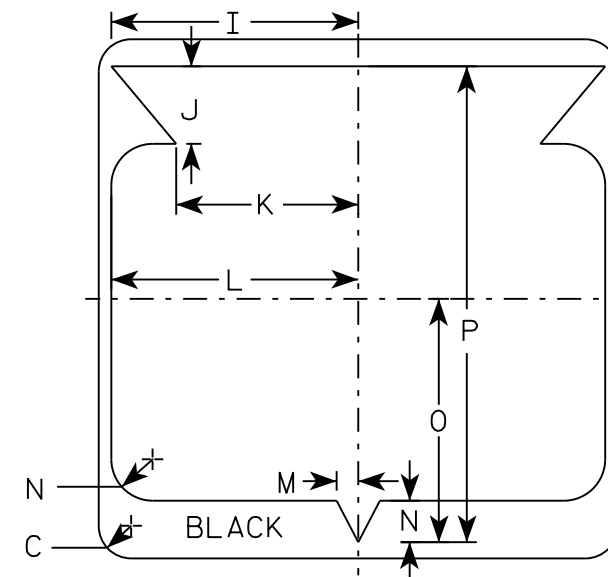
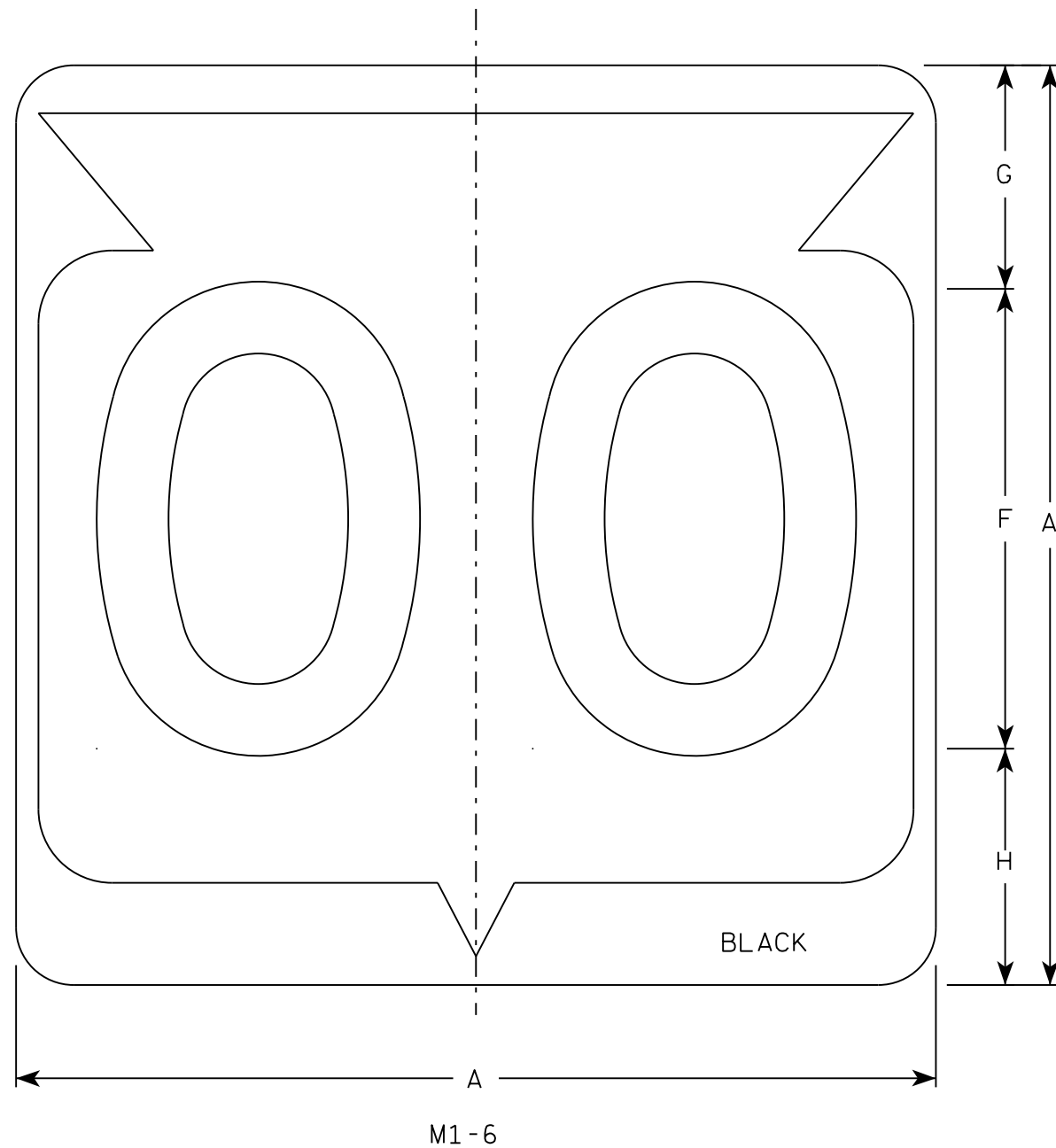
APPROVED *Matthew R. Rauch*
For State Traffic Engineer

DATE 9/27/11 PLATE NO. MI-5A.8

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

NOTES

1. Sign is Type II - Type H Reflective
2. Color:
Background - White
Message - Black
3. Message Series - D except 3 number signs Series C
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.



SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2	24		1 1/2			12	5 1/2	6 1/2	10 1/4	2 1/2	8 7/8	11 1/2	1	1 7/8	11 1/4	21 7/8											4.0
3	36		2 1/4			18	8 3/4	9 1/4	15 3/8	5 3/8	12 5/8	17 1/8	1 1/2	2 7/8	16 7/8	33											9.0
4	36		2 1/4			18	8 3/4	9 1/4	15 3/8	5 3/8	12 5/8	17 1/8	1 1/2	2 7/8	16 7/8	33											9.0
5	36		2 1/4			18	8 3/4	9 1/4	15 3/8	5 3/8	12 5/8	17 1/8	1 1/2	2 7/8	16 7/8	33											9.0

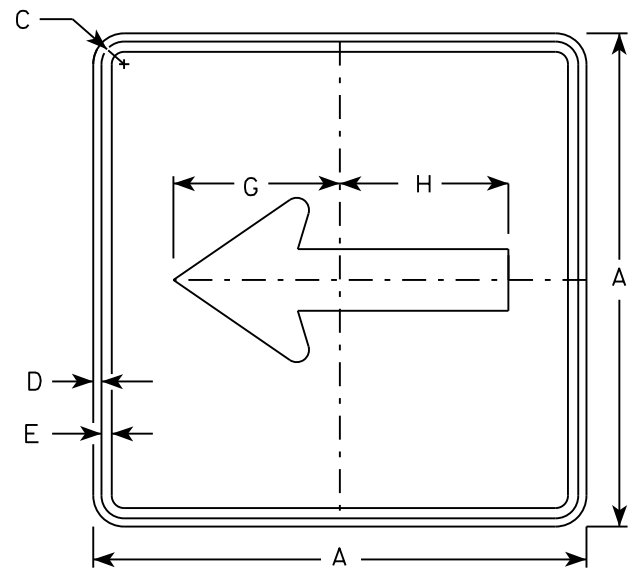
STATE ROUTE MARKER
M1-6 FOR ASSEMBLIES

WISCONSIN DEPT OF TRANSPORTATION

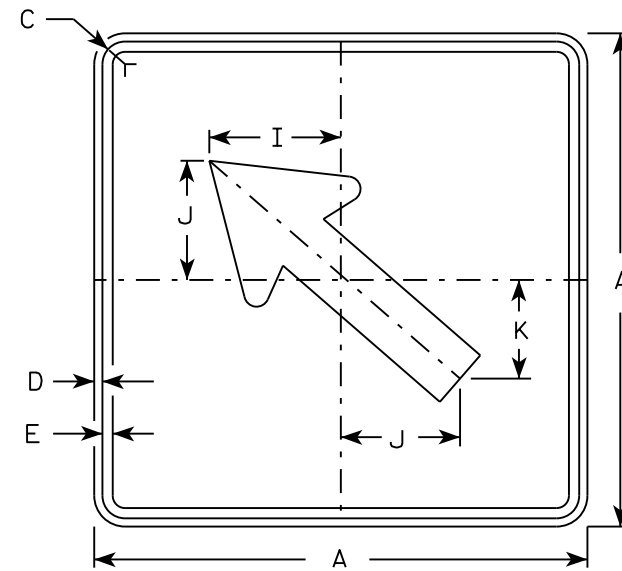
APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 3/16/18 PLATE NO. M1-6.10

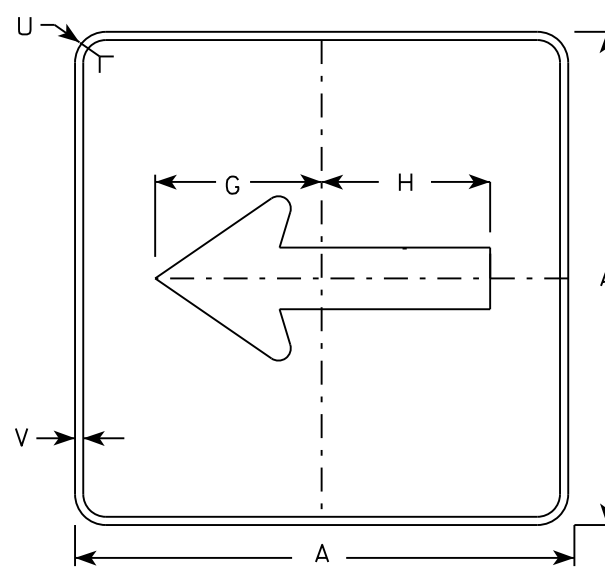
PROJECT NO: _____ HWY: _____ COUNTY: _____ SHEET NO: _____ E



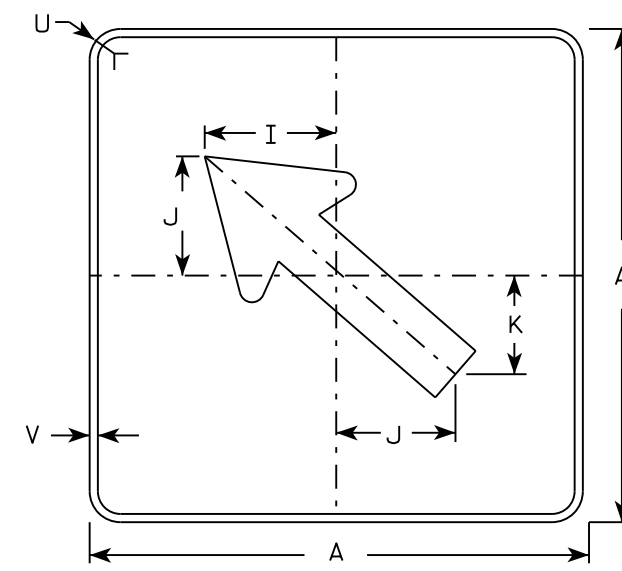
M6-1
MM6-1
M06-1
MP6-1



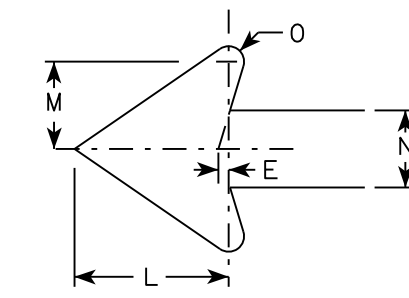
M6-2
MM6-2
M06-2
MP6-2



MB6-1
MK6-1
MN6-1
MR6-1



MB6-2
MK6-2
MN6-2
MR6-2



NOTES

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

7

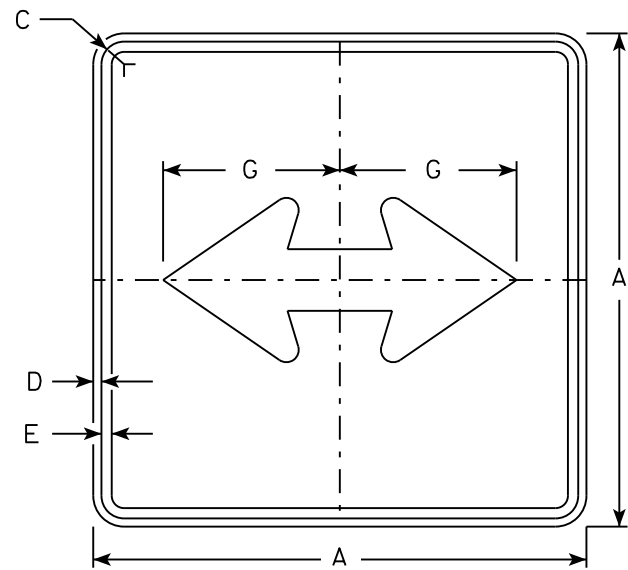
SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2	21		1 1/8	3/8	3/8		7 1/2	7 1/8	5 5/8	5	4 1/4	5 1/4	3	2 5/8	1/2						1 1/2	1/2					3.06
3	30		1 3/8	1/2	5/8		10 3/4	10 1/4	8	7 1/4	6	7 1/2	4 1/4	3 3/4	3/4						1 7/8	1/2					6.25
4	30		1 3/8	1/2	5/8		10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

STANDARD SIGN
M6-1 & M6-2
SERIES

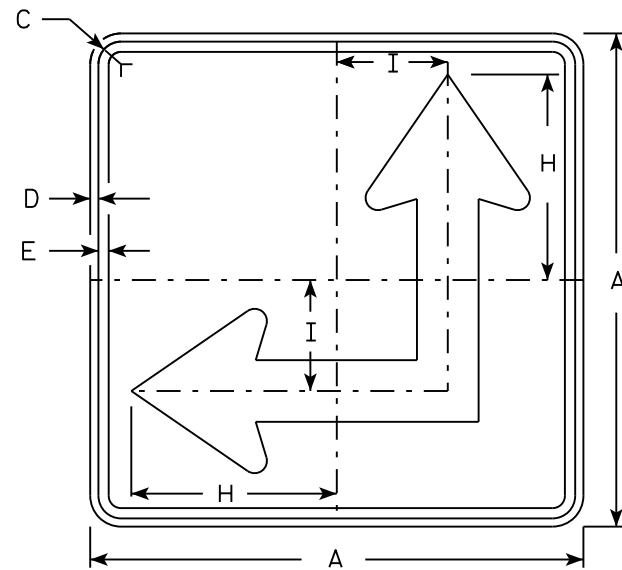
WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

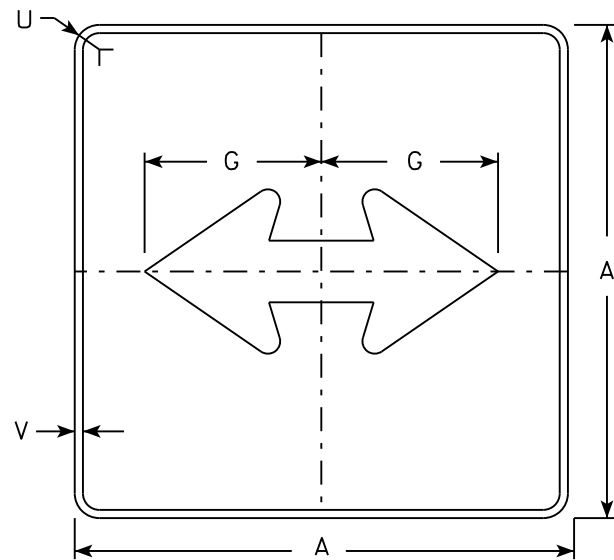
DATE 10/15/15 PLATE NO. M6-1.15



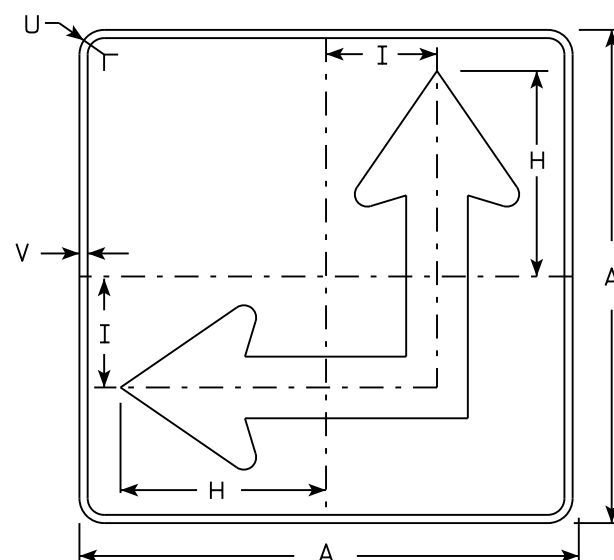
M6-4
MM6-4
M06-4
MP6-4



M6-6
MM6-6
M06-6
MP6-6



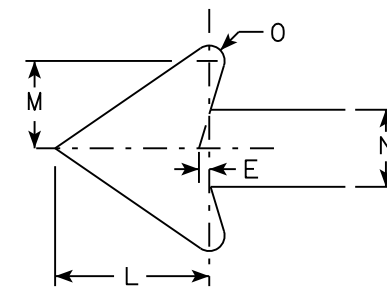
MB6-4
MK6-4
MN6-4
MR6-4



MB6-6
MK6-6
MN6-6
MR6-6

NOTES

- Signs are Type II - Type H except as Shown
- Color:
Background - See Note 4
Message - See Note 4
- Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
- M6-4 and M6-6 Background - White
Message - Black
MB6-4 and MB6-6 Background - Blue
Message - White
MK6-4 and MK6-6 Background - Green
Message - White
MM6-4 and MM6-6 Background - White
Message - Green
MN6-4 and MN6-6 Background - Brown
Message - White
M06-4 and M06-6 Background - Orange - Type F Reflective
Message - Black
MP6-4 and MP6-6 Background - White
Message - Blue
MR6-4 and MR6-6 Background - Brown
Message - Yellow
- M6-6R same as M6-6L except arrow points ahead and right.



7

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2	21		1 1/8	3/8	3/8		7 1/2	8 3/4	4 1/4			5 1/4	3	2 5/8	1/2						1 1/2	1/2					3.06
3	30		1 3/8	1/2	5/8		10 3/4	12 1/2	6 3/4			7 1/2	4 1/4	3 3/4	3/4						1 7/8	1/2					6.25
4	30		1 3/8	1/2	5/8		10 3/4	12 1/2	6 3/4			7 1/2	4 1/4	3 3/4	3/4						1 7/8	1/2					6.25
5	30		1 3/8	1/2	5/8		10 3/4	12 1/2	6 3/4			7 1/2	4 1/4	3 3/4	3/4						1 7/8	1/2					6.25

STANDARD SIGN
M6-4 & M6-6
SERIES

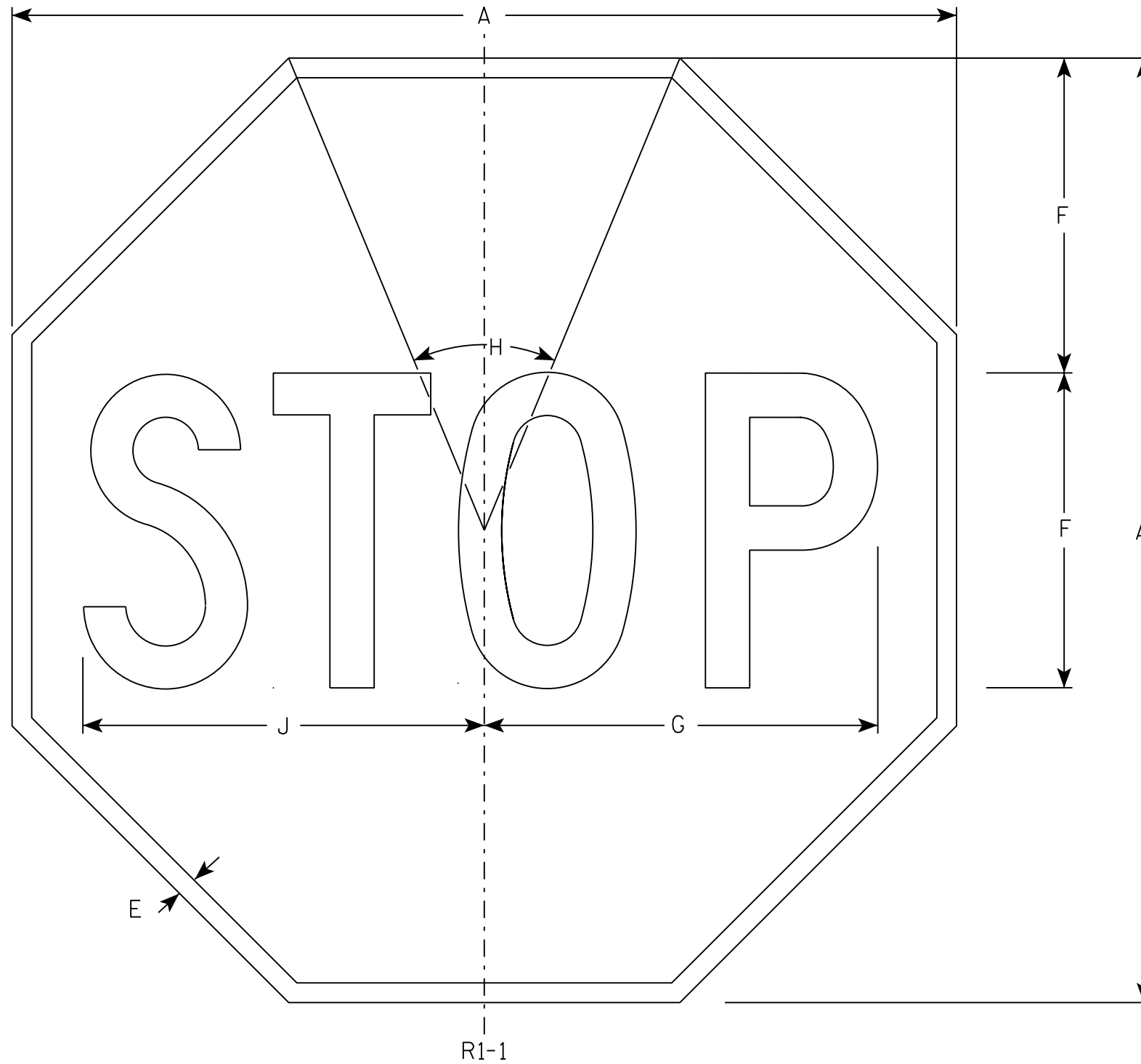
WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 10/15/15 PLATE NO. M6-4.10

NOTES

1. Sign is Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
Background - Red
Message - White
3. Message Series - C



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	30				5/8	10	12 1/2	45°		12 3/4																	5.18
2S	30				5/8	10	12 1/2	45°		12 3/4																	5.18
2M	36				3/4	12	15	45°		15 3/8																	7.46
3	36				3/4	12	15	45°		15 3/8																	7.46
4	48				1	16	20	45°		20 1/2																	13.25
5	48				1	16	20	45°		20 1/2																	13.25
6	18				3/8	6	7 3/4	45°		7 3/4																	1.86
7	12				1/4	4	5	45°		5 1/8																	0.78

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

STANDARD SIGN
R1-1

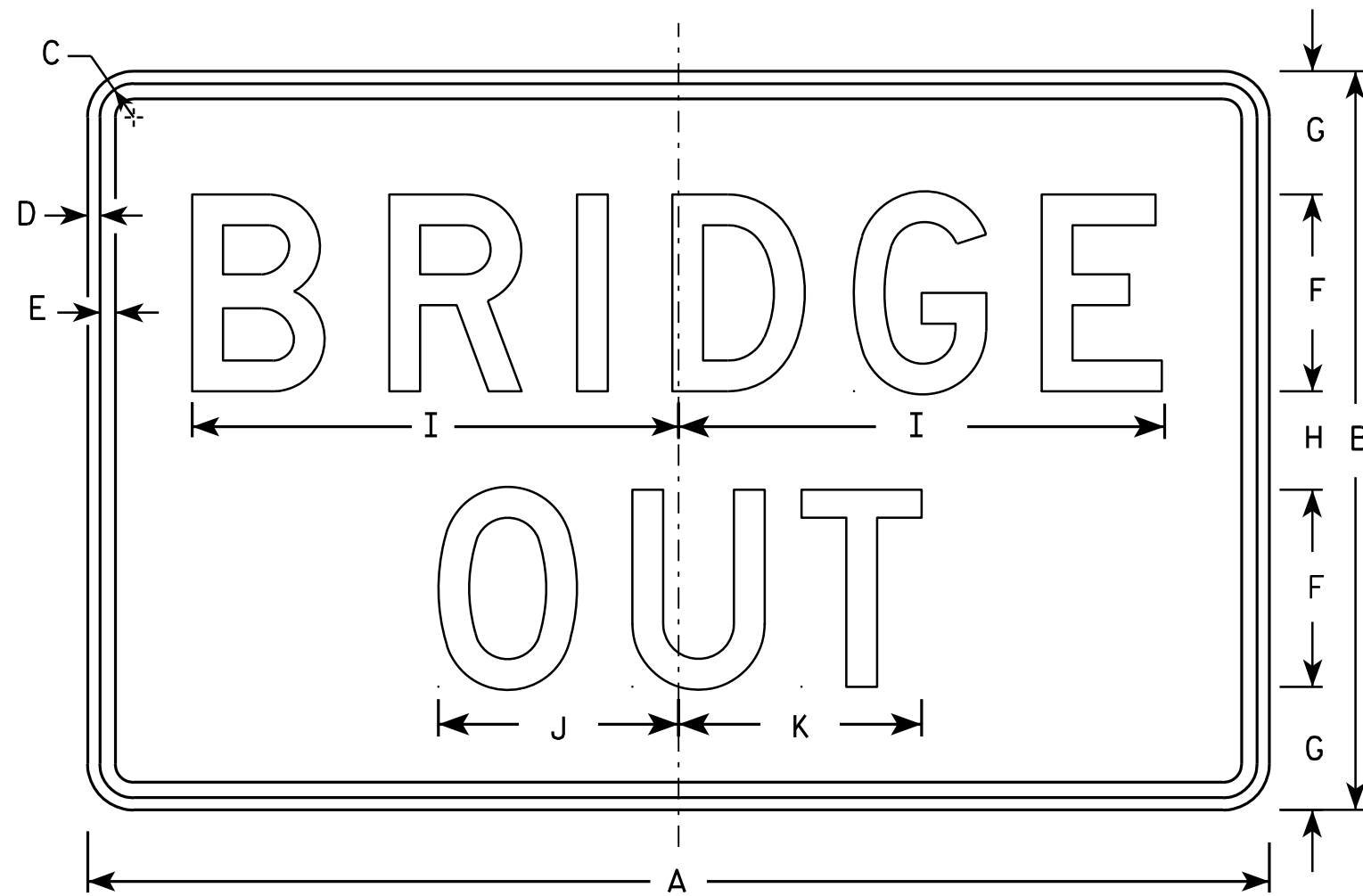
WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 11/12/15 PLATE NO. R1-1.13

NOTES

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



R11-2B

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	48	30	1 3/8	1/2	5/8	8	5	4	19 3/4	9 3/4	9 7/8																10.0
2M	48	30	1 3/8	1/2	5/8	8	5	4	19 3/4	9 3/4	9 7/8																10.0
3	48	30	1 3/8	1/2	5/8	8	5	4	19 3/4	9 3/4	9 7/8																10.0
4	48	30	1 3/8	1/2	5/8	8	5	4	19 3/4	9 3/4	9 7/8																10.0
5	48	30	1 3/8	1/2	5/8	8	5	4	19 3/4	9 3/4	9 7/8																10.0

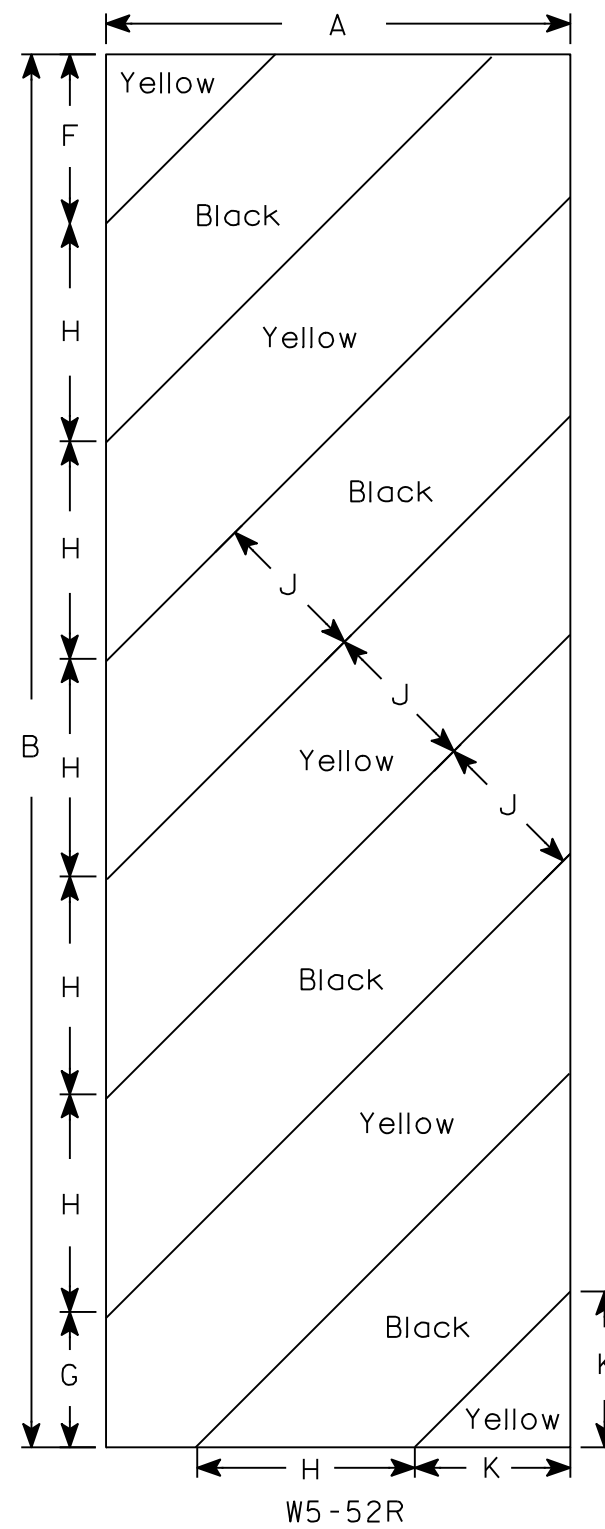
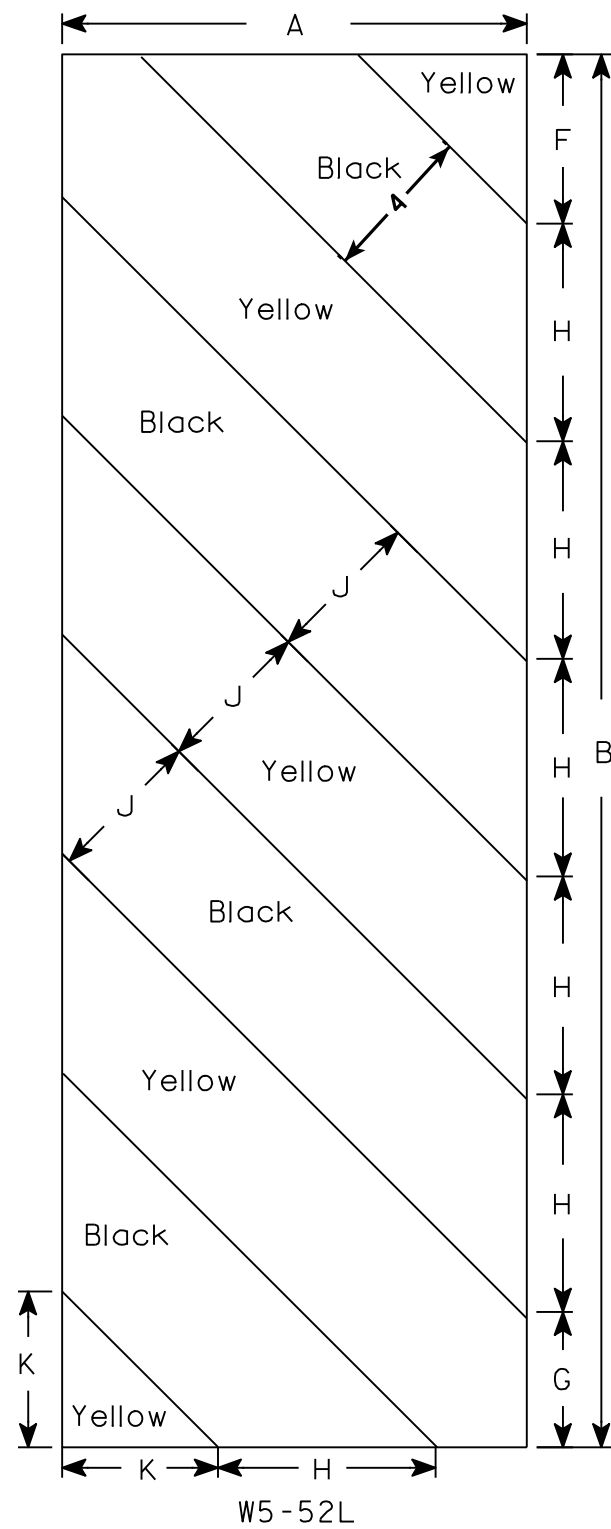
STANDARD SIGN
R11-2B

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
For State Traffic Engineer

DATE 4/1/11 PLATE NO. R11-2B.2

PROJECT NO: _____ SHEET NO: _____ E



NOTES

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

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																											

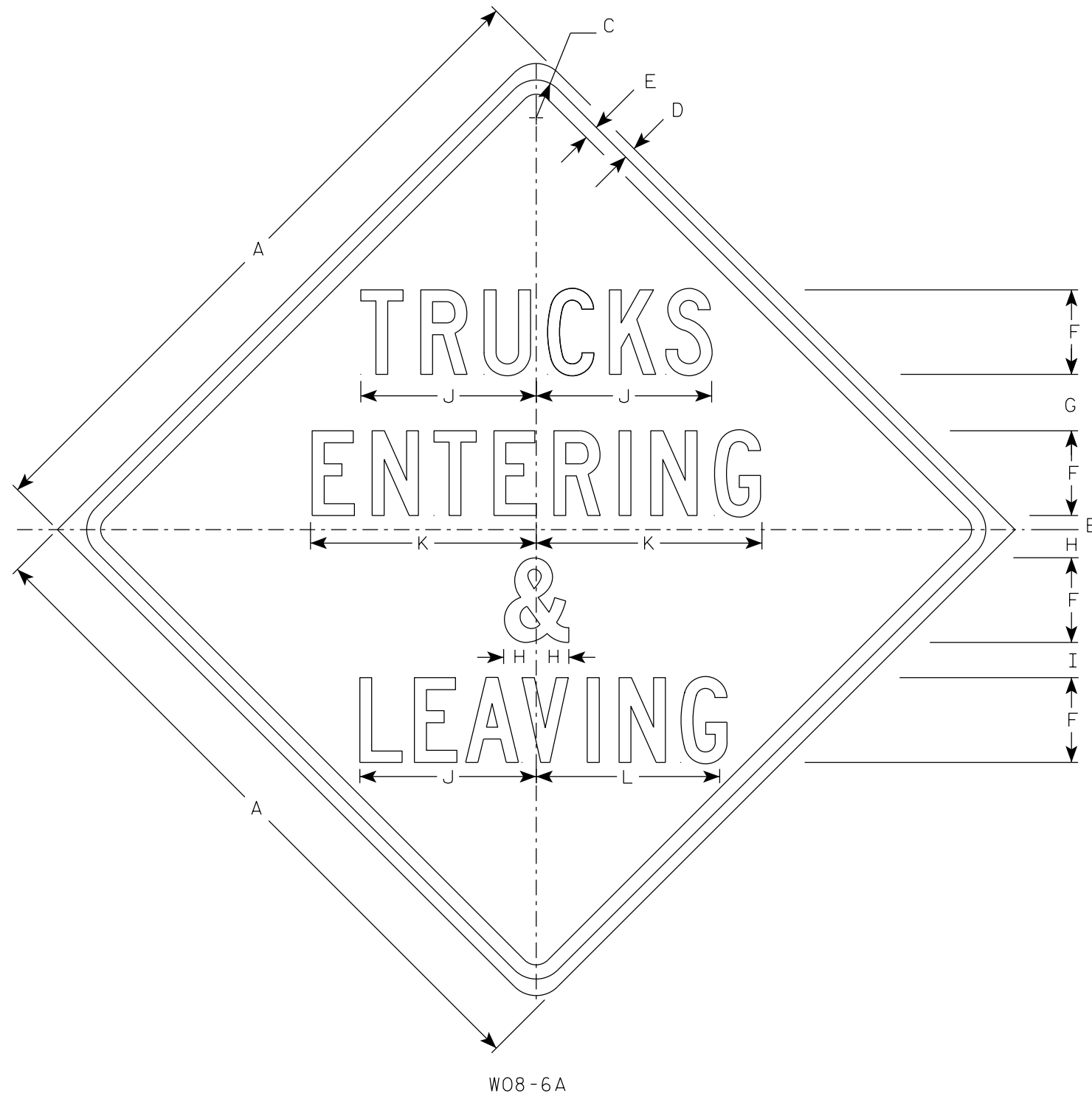
STANDARD SIGN
W5-52L & W5-52R

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



NOTES

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

W08-6A

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	36		1 3/8	1/2	5/8	4 1/2	3	1 1/2	1 7/8	9 3/8	12	9 3/4															9
2S	48		2 1/4	3/4	1	6	4	2	2 1/2	12 1/2	16	13															16
2M	48		2 1/4	3/4	1	6	4	2	2 1/2	12 1/2	16	13															16
3	48		2 1/4	3/4	1	6	4	2	2 1/2	12 1/2	16	13															16
4	48		2 1/4	3/4	1	6	4	2	2 1/2	12 1/2	16	13															16
5	48		2 1/4	3/4	1	6	4	2	2 1/2	12 1/2	16	13															16

STANDARD SIGN
W08-6A

WISCONSIN DEPT OF TRANSPORTATION

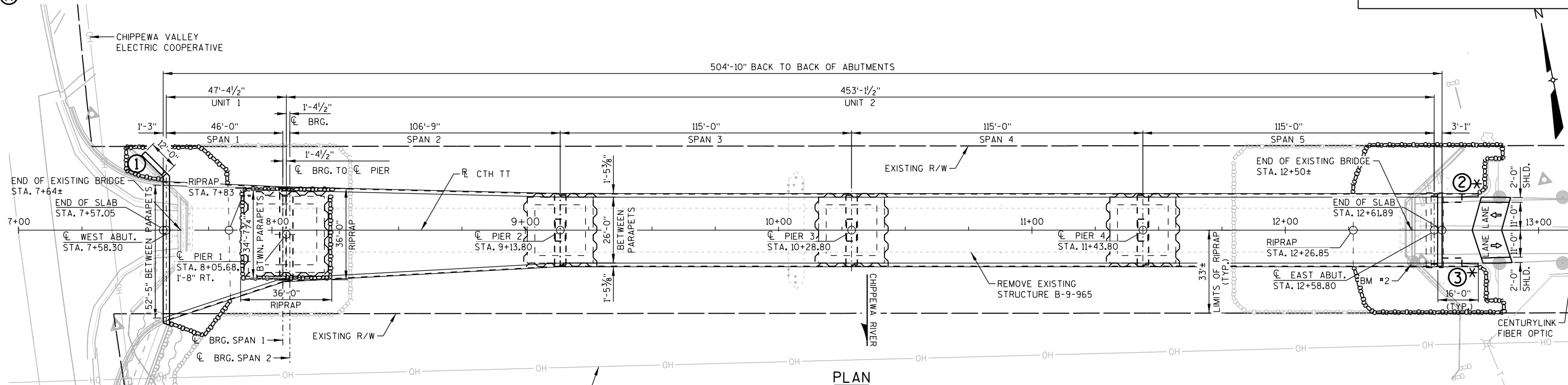
APPROVED *Matthew R Rauch*
for State Traffic Engineer

DATE 4/15/2020 PLATE NO. W08-6A.1

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

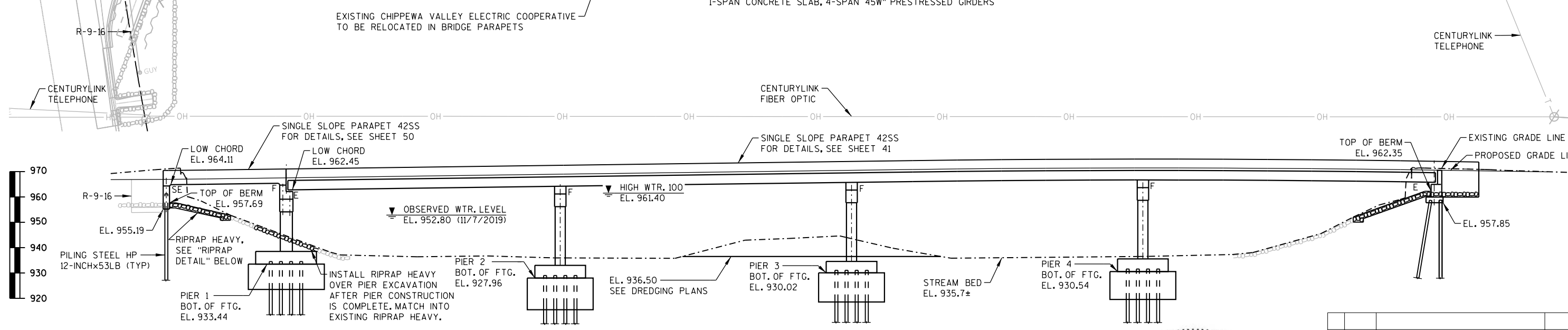
* PROVIDE FOR THREE BEAM GUARDRAIL ATTACHMENT.

(X) INDICATES WING NUMBER



PLAN

1-SPAN CONCRETE SLAB, 4-SPAN 45" PRESTRESSED GIRDERS

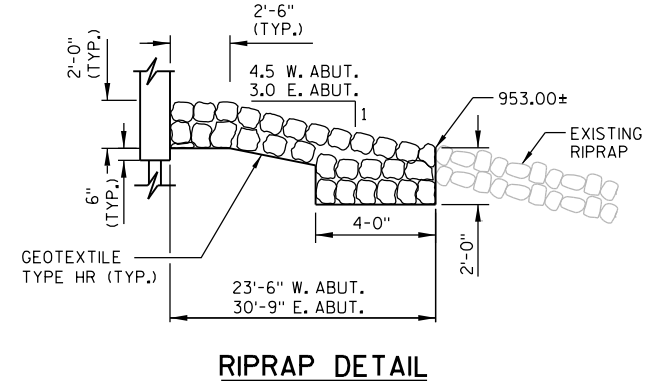


ELEVATION

LOOKING UPSTREAM

LIST OF DRAWINGS

- 1. GENERAL PLAN
- 2. NOTES & CONSTRUCTION DETAILS
- 3. PIER 1 CROSS SECTIONS
- 4. PIERS 2-4 CROSS SECTION
- 5. QUANTITIES & PROFILE
- 6. SUBSURFACE EXPLORATION-1
- 7. SUBSURFACE EXPLORATION-2
- 8. SUBSURFACE EXPLORATION-3
- 9. WEST ABUTMENT-1
- 10. WEST ABUTMENT-2
- 11. WING 1
- 12. WEST ABUTMENT DETAILS
- 13. EAST ABUTMENT-1
- 14. EAST ABUTMENT-2
- 15. WINGS 2 & 3
- 16. EAST ABUTMENT DETAILS
- 17. PIER 1 LAYOUT DETAILS
- 18. PIER 2, 3, 4 LAYOUT DETAILS
- 19. PIER 1 FOOTING DETAILS
- 20. PIER 1 SHAFT DETAILS
- 21. PIER 1 CAP DETAILS
- 22. PIER 1 BAR DETAILS
- 23. PIER 2 FOOTING DETAILS
- 24. PIER 2 SHAFT DETAILS
- 25. PIER 2 CAP DETAILS
- 26. PIER 2 BAR DETAILS
- 27. PIER 3 FOOTING DETAILS
- 28. PIER 3 SHAFT DETAILS
- 29. PIER 3 CAP DETAILS
- 30. PIER 3 BAR DETAILS
- 31. PIER 4 FOOTING DETAILS
- 32. PIER 4 SHAFT DETAILS
- 33. PIER 4 CAP DETAILS
- 34. PIER 4 BAR DETAILS
- 35. ELASTOMERIC BEARINGS
- 36. 45" PRESTRESSED GIRDER DETAILS-1
- 37. 45" PRESTRESSED GIRDER DETAILS-2
- 38. STEEL DIAPHRAGMS
- 39. SUPERSTRUCTURE-1
- 40. SUPERSTRUCTURE-2
- 41. SUPERSTRUCTURE-3
- 42. SUPERSTRUCTURE-4
- 43. SUPERSTRUCTURE-5
- 44. SUPERSTRUCTURE-6
- 45. SUPERSTRUCTURE-7
- 46. SUPERSTRUCTURE-8
- 47. EXPANSION DEVICE - PIER 1
- 48. EXPANSION DEVICE - EAST ABUTMENT
- 49. COVER PLATE DETAILS
- 50. SINGLE SLOPE PARAPET 42SS - WEST SLAB
- 51. SINGLE SLOPE PARAPET 42SS
- 52. ELECTRICAL DETAILS AT PARAPET
- 53. ELECTRICAL DETAILS AT WEST ABUTMENT
- 54. ELECTRICAL DETAILS AT EAST ABUTMENT



RIPRAP DETAIL

BENCH MARK TABLE

NO.	STATION	DESCRIPTION	ELEVATION
2	12+50 RT	EAST BRIDGE ABUTMENT	971.53



STRUCTURES DESIGN CONTACTS

BRIDGE OFFICE:
AARON BONK (608) 261-0261
CONSULTANT:
TONY CASTLE (414) 944-6143

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
ACCEPTED		SDR	11/02/21
		CHIEF STRUCTURES DESIGN ENGINEER	DATE
STRUCTURE B-9-387			
CTH TT OVER CHIPPEWA RIVER			
COUNTY	CHIPPEWA	TOWN/CITY/VILLAGE	ARTHUR & EAGLE POINT
DESIGN SPEC. AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS			
DESIGNED BY	AJC	DESIGN CK'D.	CAB
DRAWN BY	MES/KAM	PLANS CK'D.	AJC
GENERAL PLAN			SHEET 1 OF 54

PRINTER DRIVER: C:\MP\CLIENT\AMER-USA-WI-WisDOT\dev\WisDOT\Bridges\VerA\Plotdrv\AE.PDF.11 x 17.plt
 PEN TABLE: C:\MP\CLIENT\AMER-USA-WI-WisDOT\dev\WisDOT\Bridges\VerA\Pen Tables\AE.WisDOT_Structure.tbl
 FILE NAME: C:\Unedrive\AECOM\Directory\60616990 - Cobban Bridge - 0_Records\400_Technical\4381_Bridge\06_Dgn\01_B-09-387.gemplan.dgn
 PLOT DATE: 10/31/2021 PLOT TIME: 2:44:06 PM

GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.

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

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

THE FIRST DIGIT OF A THREE DIGIT BAR MARK AND THE FIRST TWO DIGITS OF A FOUR DIGIT BAR MARK SIGNIFIES THE BAR SIZE.

ELASTOMERIC BEARING PADS NEED NOT BE INDIVIDUALLY MOLDED PROVIDED THE CUT EDGES ARE SMOOTH AND TRUE.

THE EXISTING STRUCTURE (B-9-965) IS A STEEL TRUSS BRIDGE, 486.4' LONG x 18' WIDE, TO BE REMOVED.

ALL REQUIRED REMOVAL OF THE EXISTING SUBSTRUCTURES IS INCLUDED IN THE BID ITEM "REMOVING STRUCTURE OVER WATERWAY MINIMAL DEBRIS B-9-965".

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

EXCAVATION REQUIRED UNDER THE BID ITEM "EXCAVATION FOR STRUCTURES BRIDGES B-9-387" IS NOT USED TO BALANCE THE EARTHWORK.

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

THE HAUNCH CONCRETE QUANTITY IS BASED ON THE AVERAGE HAUNCH SHOWN ON THE PRESTRESSED GIRDER DETAILS SHEET.

APPLY BRIDGE SEAT PROTECTION, AS PER SECTION 502.3.12 OF THE STANDARD SPECIFICATIONS, TO THE TOP SURFACES OF ALL ABUTMENTS AND PIERS BELOW EXPANSION DEVICES.

THE EXISTING STREAM BED SHALL BE USED AS THE UPPER LIMITS OF EXCAVATION AT THE PIERS.

THE HW2 ELEVATION OF 955.16 WAS USED TO DETERMINE THE CONCRETE SEAL THICKNESS AT THE PIERS.

DESIGN DATA

LIVE LOAD:

DESIGN LOADING: HL-93

INVENTORY RATING FACTOR = 1.18

OPERATIONAL RATING FACTOR = 1.61

WISCONSIN STANDARD PERMIT VEHICLE (WIS-SPV) = 250 KIPS

STRUCTURE IS DESIGNED FOR A FUTURE WEARING SURFACE OF 20 PSF.

MATERIAL PROPERTIES:

CONCRETE MASONRY -

SLAB _____ f'c = 4,000 P.S.I.

ALL OTHER _____ f'c = 3,500 P.S.I.

BAR STEEL REINFORCEMENT, GRADE 60 _____ fy = 60,000 P.S.I.

45W" PRESTRESSED GIRDS _____ f'c = 8,000 P.S.I.

CONCRETE MASONRY _____ f'c = 8,000 P.S.I.

STRANDS: 0.6" DIA. WITH ULTIMATE TENSILE STRENGTH OF 270,000 P.S.I.

FOUNDATION DATA

WEST ABUTMENT TO BE SUPPORTED ON PILING STEEL HP 12-INCH x 53 LB TO A REQUIRED DRIVING RESISTANCE OF 160 TONS** PER PILE AS DETERMINED BY THE MODIFIED GATES DYNAMIC FORMULA, ESTIMATED 50'-0" LONG.

PIER 1 - 4 TO BE SUPPORTED ON PILING STEEL HP 12-INCH x 53 LB TO A REQUIRED DRIVING RESISTANCE OF 220 TONS** PER PILE AS DETERMINED BY THE MODIFIED GATES DYNAMIC FORMULA.
ESTIMATED 30'-0" LONG AT PIER 1.
ESTIMATED 25'-0" LONG AT PIER 2.
ESTIMATED 25'-0" LONG AT PIER 3.
ESTIMATED 30'-0" LONG AT PIER 4.

EAST ABUTMENT TO BE SUPPORTED ON PILING STEEL HP 12-INCH x 53 LB TO A REQUIRED DRIVING RESISTANCE OF 220 TONS** PER PILE AS DETERMINED BY THE MODIFIED GATES DYNAMIC FORMULA, ESTIMATED 55'-0" LONG.

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

HYDRAULIC DATA

100 YEAR FREQUENCY

Q100 _____ 94,900 CFS

VELOCITY _____ 9.8 FPS

HIGH WATER ELEVATION _____ 961.40

WATERWAY AREA _____ 9681.4 SQ. FT.

DRAINAGE AREA _____ 4870 SQ. MI.

ROAD OVERTOPPING _____ NA

SCOUR CRITICAL CODE _____ 5

2 YEAR FREQUENCY

Q2 _____ 37,000 CFS

VELOCITY _____ 5.2 FPS

HIGH WATER ELEVATION _____ 955.16

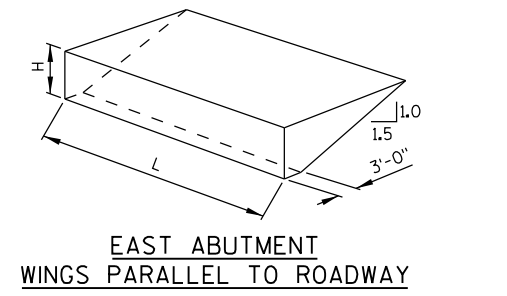
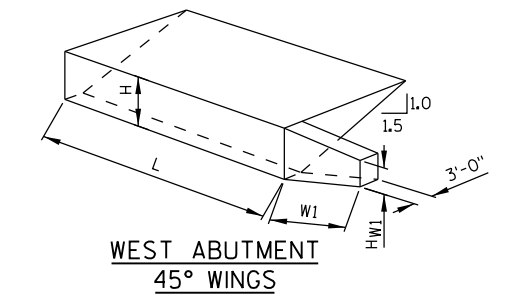
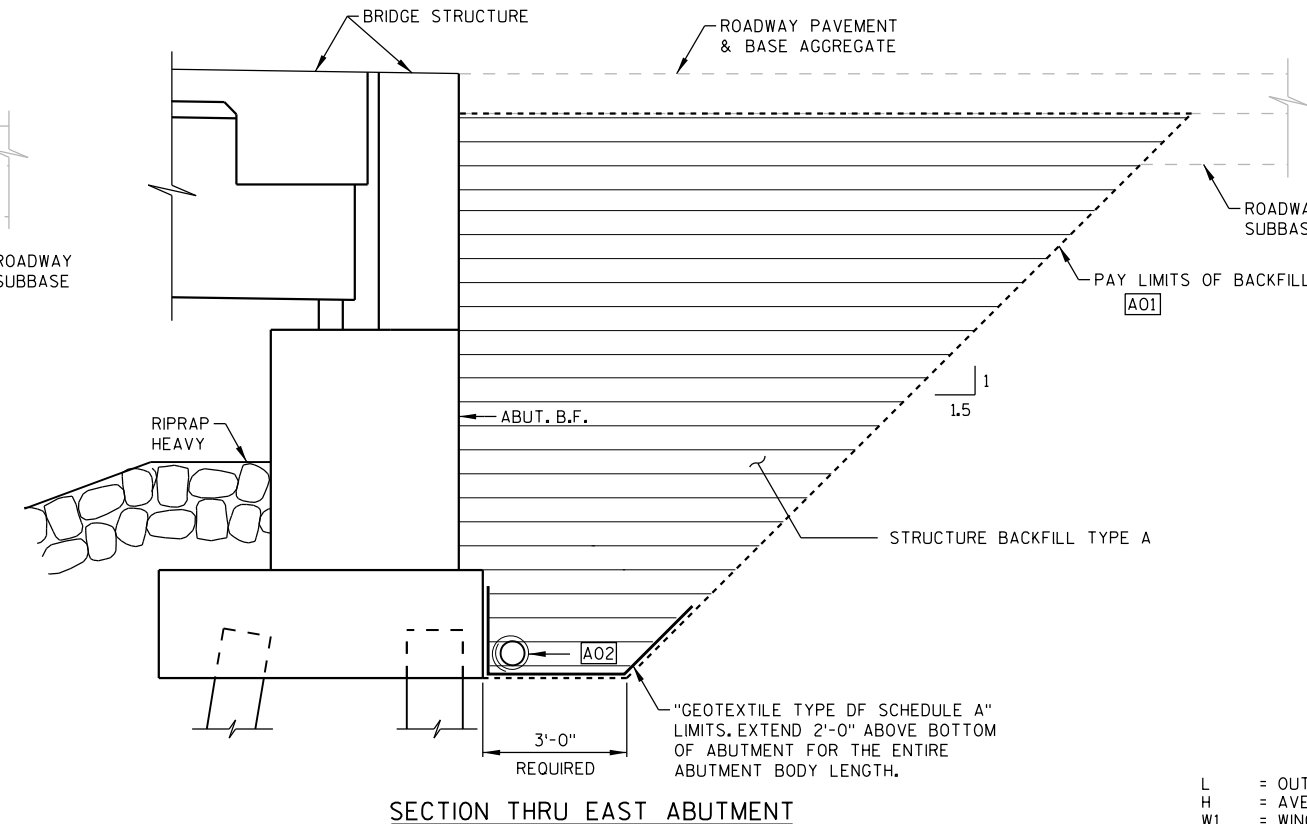
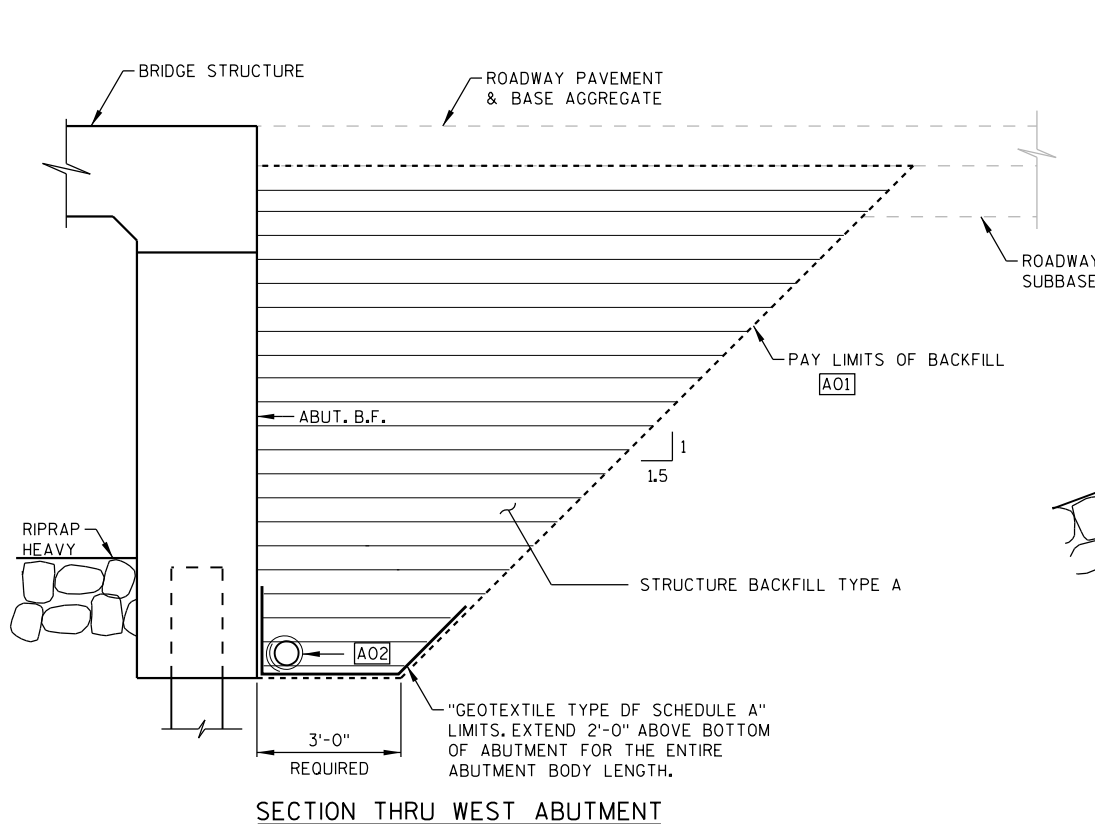
TRAFFIC VOLUME

CTH TT

A.D.T. (2022) = 280

A.D.T. (2042) = 340

DESIGN SPEED = 40 MPH



ABUTMENT BACKFILL DIAGRAM

- L = OUT TO OUT OF ABUTMENT BODY, INCLUDING WING 3 (FT)
- H = AVERAGE ABUTMENT FILL HEIGHT (FT)
- W1 = WING 1 LENGTH (FT)
- EF = EXPANSION FACTOR (1.20 FOR CY BID ITEMS, AND 1.00 FOR TON BID ITEMS)
- Vcf = (L)(3.0)(H) + (L)(0.5)(1.5H)(H) + (3.0)(0.5)(W1)(H+Hw1)
- Vcy = Vcf (EF)/27
- Vton = Vcf (2.0)

BACKFILL STRUCTURE LIMITS

THE UPPER LIMITS OF "EXCAVATION FOR STRUCTURES BRIDGES B-9-387" SHALL BE THE EXISTING GROUNDLINE.
A01 BACKFILL PAY LIMITS. BACKFILL BEYOND BACKFILL PAY LIMITS SHALL BE INCIDENTAL TO EXCAVATION FOR STRUCTURES. LIMITS OF EXCAVATION SHALL BE DETERMINED BY THE CONTRACTOR.

AT THE BACKFACE OF ABUTMENT ALL VOLUME WHICH CANNOT BE PLACED BEFORE ABUTMENT CONSTRUCTION AND IS NOT OCCUPIED BY THE NEW STRUCTURE SHALL BE BACKFILLED WITH STRUCTURE BACKFILL.

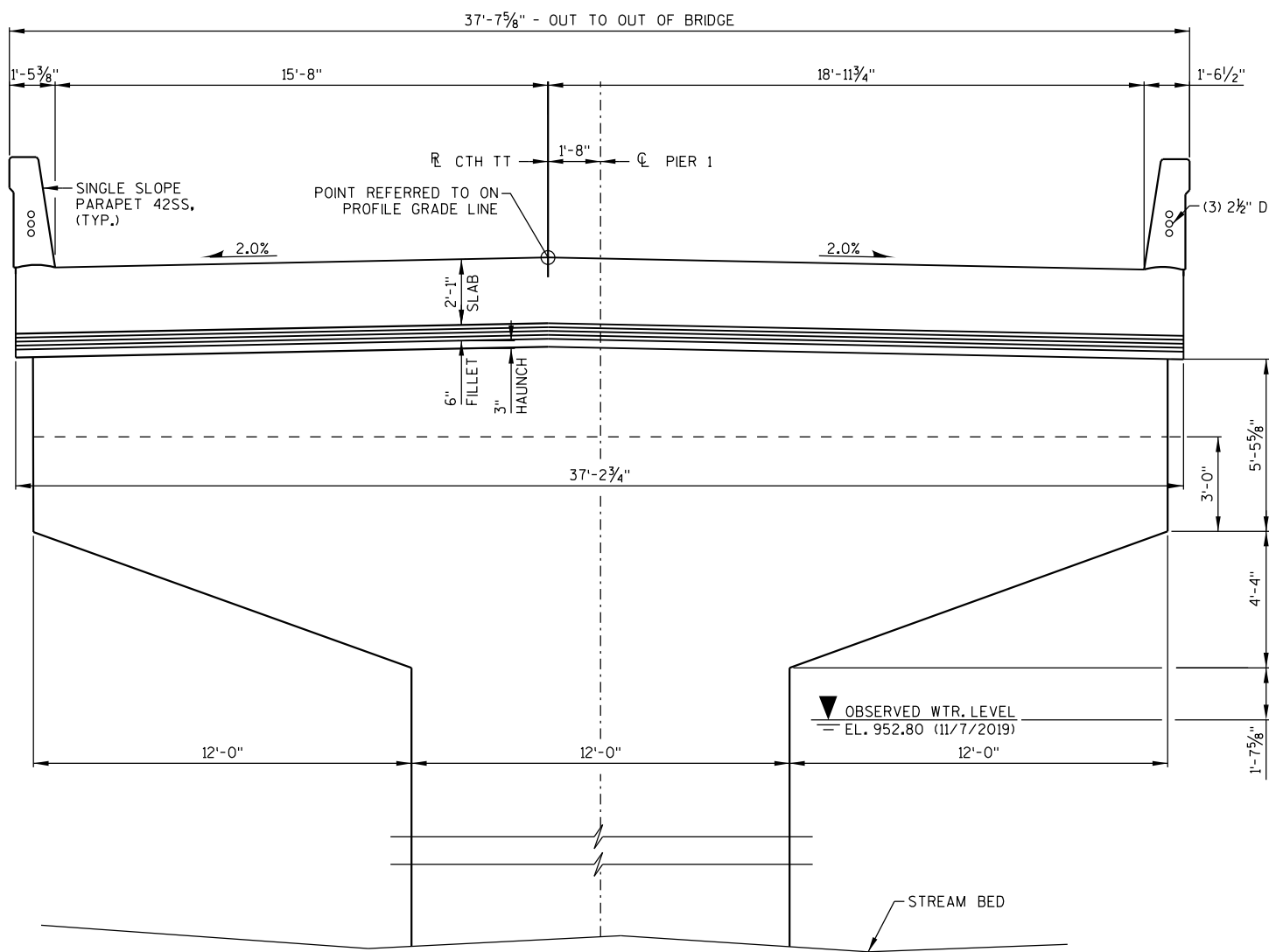
EXCAVATION BELOW THE ABUTMENT AND ABUTMENT BEDDING MATERIALS REQUIRES ENGINEER APPROVAL. GEOTEXTILE SHALL BE SET AT THE BOTTOM OF EXCAVATION AND EXTEND 2'-0" ABOVE THE BOTTOM OF THE ABUTMENT.
A02 PIPE UNDERDRAIN WRAPPED (6-INCH). SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. ATTACH RODENT SHIELD AT ENDS OF PIPE UNDERDRAIN. SEE DETAIL SHEET 4.

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.

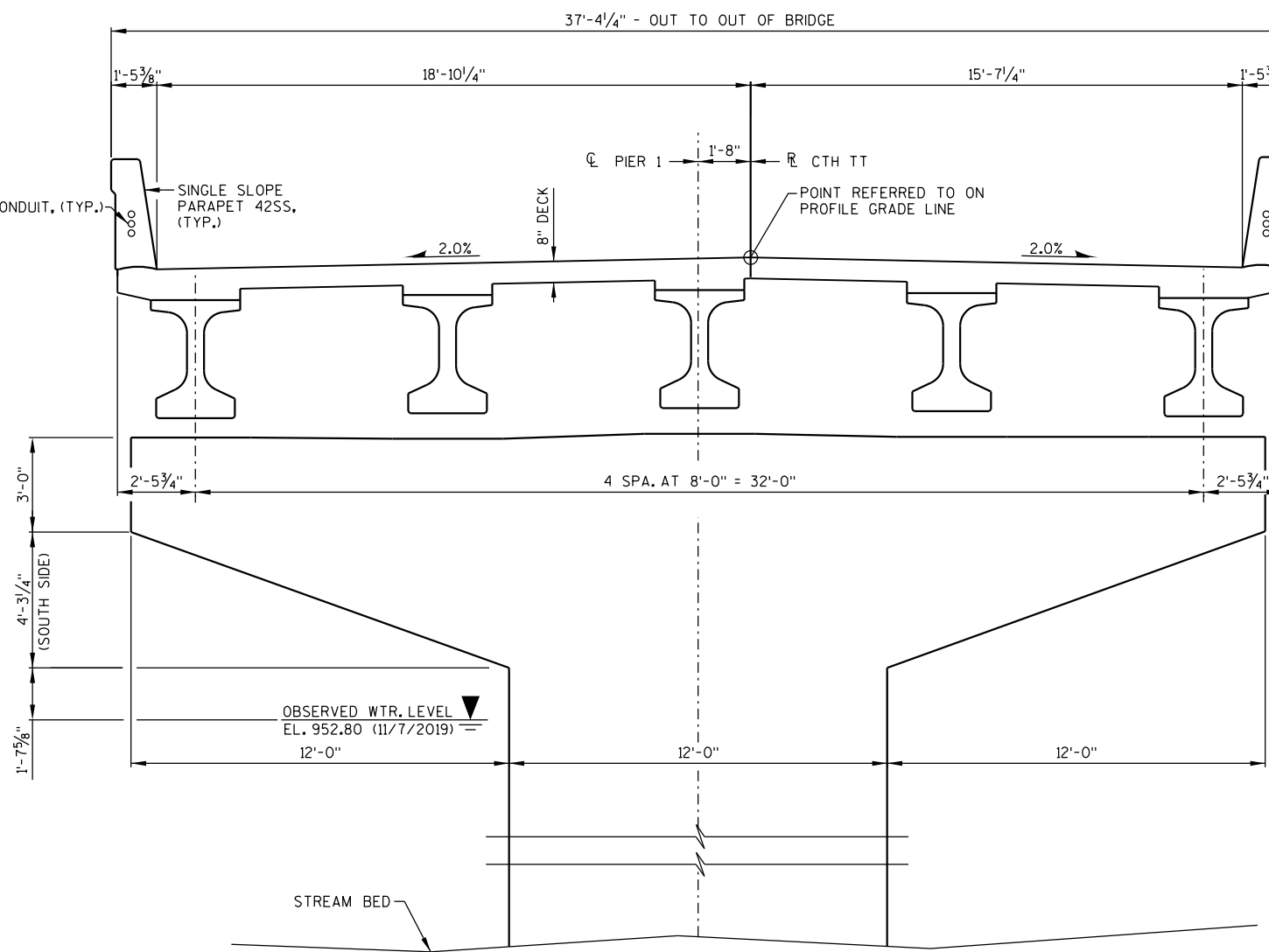
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PLOT DATE: 10/31/2021 PLOT TIME: 2:44:09 PM BATCH PRINT SHEET 2 OF 54

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-9-387			
DRAWN BY KAM MES		PLANS CKD. AJC	
NOTES & CONSTRUCTION DETAILS			SHEET 2 OF 54

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 BATCH PRINT SHEET 3 OF 54
 PLOT TIME: 10/31/2021 2:44:10 PM



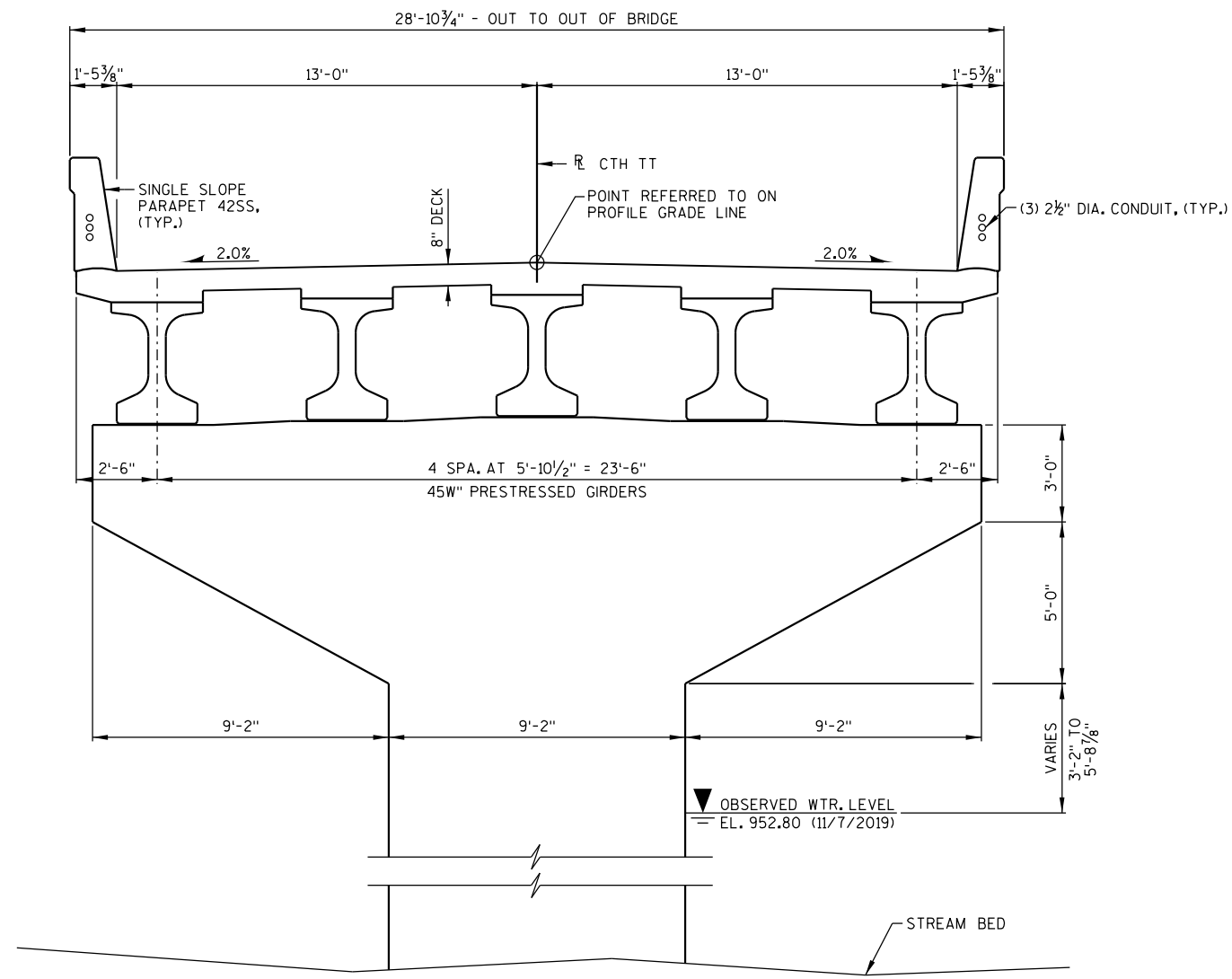
CROSS SECTION THRU ROADWAY, PIER 1
(LOOKING EAST)
NOTE: DIMENSIONS MEASURED ALONG C/L BEARING SPAN 1



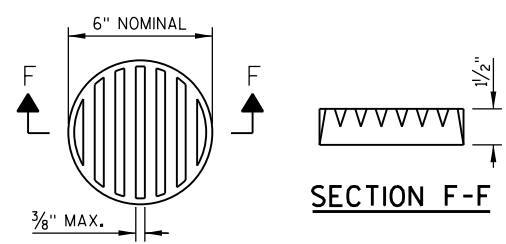
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(LOOKING WEST)
NOTE: DIMENSIONS MEASURED ALONG C/L BEARING SPAN 1

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-9-387			
DRAWN BY KAM MES		PLANS CK'D. AJC	
PIER 1 CROSS SECTIONS			SHEET 3 OF 54

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 PLOT DATE: 10/31/2021 PLOT TIME: 2:44:11 PM BATCH PRINT SHEET 4 OF 54



CROSS SECTION THRU ROADWAY, PIERS 2-4
(LOOKING EAST)



RODENT SHIELD DETAIL

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

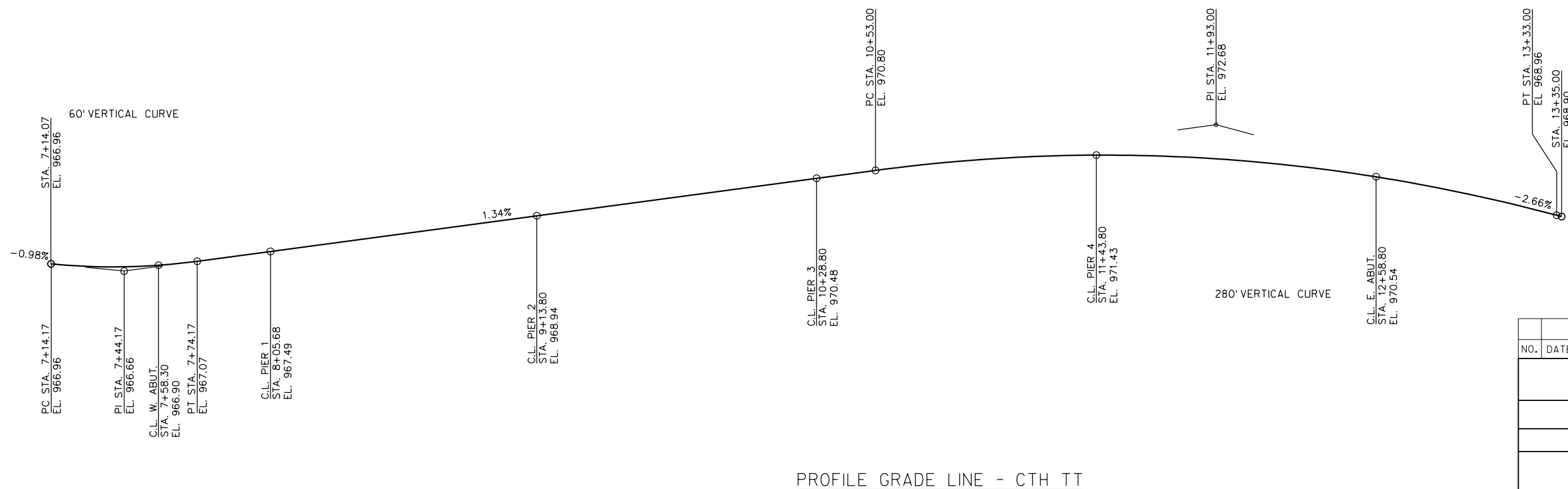
THE RODENT SHIELD, PIPE COUPLING AND SCREWS SHALL BE CONSIDERED INCIDENTAL TO THE BID ITEM "PIPE UNDERDRAIN WRAPPED 6-INCH".

THE RODENT SHIELD SHALL BE A PVC GRATE SIMILAR TO THIS DETAIL. THE GRATE IS 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.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-9-387			
DRAWN BY: KAM MES		PLANS CK'D: AJC	
PIERS 2-4 CROSS SECTION			SHEET 4 OF 54

TOTAL ESTIMATED QUANTITIES

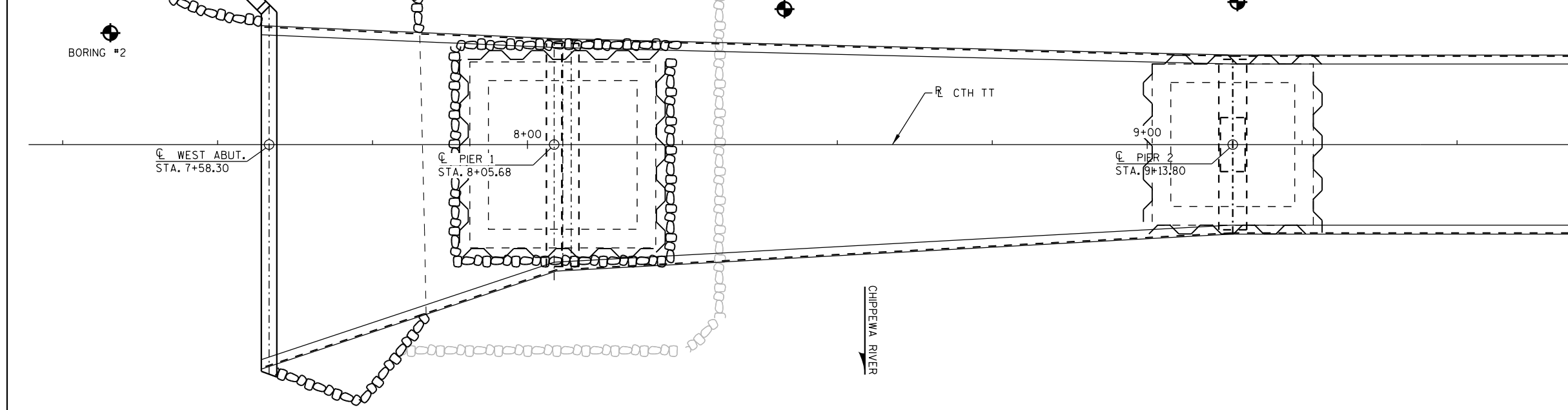
BID ITEM NUMBER	BID ITEM	UNIT	WEST ABUTMENT	PIER 1	PIER 2	PIER 3	PIER 4	EAST ABUTMENT	SUPER.	TOTALS
203.0260	REMOVING STRUCTURE OVER WATERWAY MINIMAL DEBRIS B-9-965	EACH	---	---	---	---	---	---	---	1
206.1000	EXCAVATION FOR STRUCTURES BRIDGES B-9-387	LS	---	---	---	---	---	---	---	1
206.5000	COFFERDAMS B-9-387	LS	---	---	---	---	---	---	---	1
210.1500	BACKFILL STRUCTURE TYPE A	TON	540	---	---	---	---	320	---	860
502.0100	CONCRETE MASONRY BRIDGES	CY	57	189	132	125	132	69	760	1,464
502.1100	CONCRETE MASONRY SEAL	CY	---	334	313	288	276	---	---	1,211
502.3101	EXPANSION DEVICE	LF	---	---	---	---	---	---	61	61
502.3200	PROTECTIVE SURFACE TREATMENT	SY	---	---	---	---	---	---	1,600	1,600
502.3210	PIGMENTED SURFACE SEALER	SY	---	---	---	---	---	---	520	520
503.0146	PRESTRESSED GIRDER TYPE I 45W-INCH	LF	---	---	---	---	---	---	2,265	2,265
505.0400	BAR STEEL REINFORCEMENT HS STRUCTURES	LB	4,250	7,680	6,720	5,310	6,720	2,520	---	33,200
505.0600	BAR STEEL REINFORCEMENT HS COATED STRUCTURES	LB	980	15,940	12,620	12,550	12,620	3,590	213,070	271,370
506.2605	BEARING PADS ELASTOMERIC NON-LAMINATED	EACH	---	---	---	---	---	---	30	30
506.2610	BEARING PADS ELASTOMERIC LAMINATED	EACH	---	---	---	---	---	---	5	5
506.4000	STEEL DIAPHRAGMS B-9-387	EACH	---	---	---	---	---	---	32	32
516.0500	RUBBERIZED MEMBRANE WATERPROOFING	SY	12	---	---	---	---	7	---	19
550.0500	PILE POINTS	EACH	9	22	20	20	20	16	---	107
550.1120	PILING STEEL HP 12-INCH X 53 LB	LF	450	660	500	500	600	880	---	3,590
606.0300	RIPRAP HEAVY	CY	140	100	---	---	---	240	---	480
612.0406	PIPE UNDERDRAIN WRAPPED 6-INCH	LF	70	---	---	---	---	50	---	120
614.0150	ANCHOR ASSEMBLIES FOR STEEL PLATE BEAM GUARD	EACH	---	---	---	---	---	2	---	2
645.0111	GEOTEXTILE TYPE DF SCHEDULE A	SY	45	---	---	---	---	23	---	68
645.0120	GEOTEXTILE TYPE HR	SY	270	220	---	---	---	430	---	920
652.0130	CONDUIT RIGID METALLIC 2 1/2-INCH	LF	36	36	---	---	---	---	36	108
652.0230	CONDUIT RIGID NONMETALLIC SCHEDULE 40 2 1/2-INCH	LF	---	---	---	---	---	114	2,964	3,078
653.0220	JUNCTION BOXES 18X6X6-INCH	EACH	---	---	---	---	---	---	8	8
653.0222	JUNCTION BOXES 18X12X6-INCH	EACH	---	---	---	---	---	---	8	8
SPV.0060.01	BEARING PADS ELASTOMERIC LAMINATED ANCHORED	EACH	---	---	---	---	---	---	5	5
	NON-BID ITEMS									
	FILLER	SIZE	---	---	---	---	---	---	---	1/2" & 3/4"



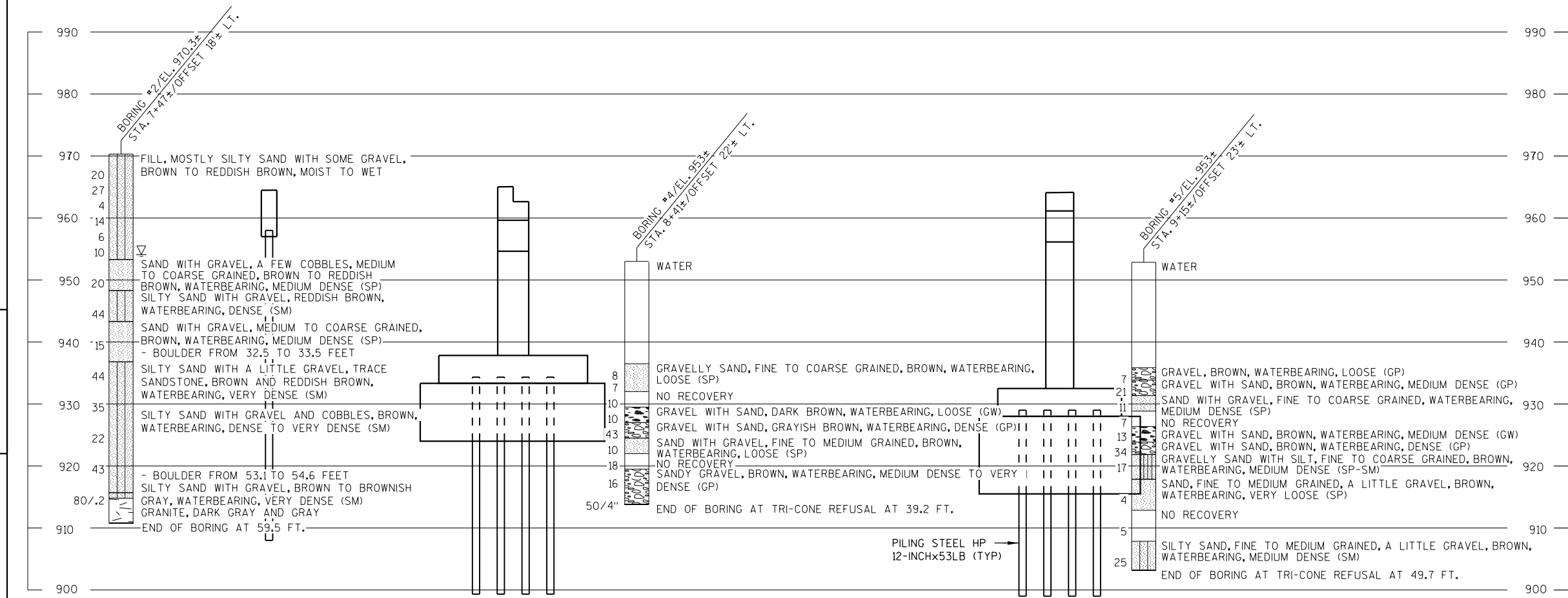
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-9-387			
DRAWN BY KAM MES		PLANS CK'D. AJC	
QUANTITIES & PROFILE			SHEET 5 OF 54

BORING #	DATE COMPLETED	NORTHING (Y)	EASTING (X)
2	8-18-1994	191813.5±	218986.3±
4	5-13-2020	191797.9±	219079.5±
5	5-12-2020	191784.2±	219151.3±

BORING 2 COMPLETED BY: HUNTINGDON ENGINEERING & ENVIRONMENTAL
BORINGS 4 & 5 COMPLETED BY: SUBSURFACE EXPLORATION SERVICES, LLC
REPORT COMPLETED BY: AMERICAN ENGINEERING & TESTING, INC.
ALL COORDINATES REFERENCED TO WCCS NAD 83(91) CHIPPEWA COUNTY



PLAN



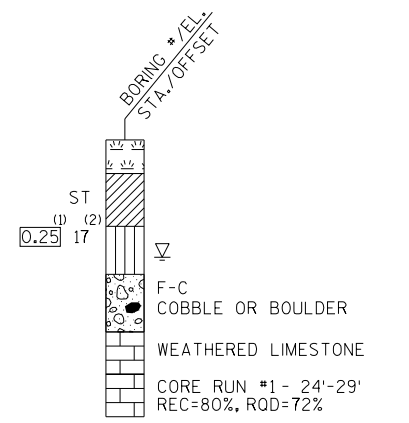
STATE PROJECT NUMBER

8915-00-70

MATERIAL SYMBOLS

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

LEGEND OF BORING



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

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

GROUND WATER ELEVATION

- AT TIME OF DRILLING
- END OF DRILLING
- AFTER DRILLING

ABBREVIATIONS

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

SUBSURFACE EXPLORATION FOR FOUNDATION DESIGN AND BIDDERS INFORMATION

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

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-9-387			
DRAWN BY		MES	PLANS KRH
SHEET 6 OF 54		SUBSURFACE EXPLORATION-1	

BORING #	DATE COMPLETED	NORTHING (Y)	EASTING (X)
3	9-7-1994	191745.0±	219227.1±
8	5-20-2020	191767.8±	219223.1±
9	5-15-2020	191761.3±	219257.5±

BORING 3 COMPLETED BY: HUNTINGDON ENGINEERING & ENVIRONMENTAL
BORINGS 8 & 9 COMPLETED BY: SUBSURFACE EXPLORATION SERVICES, LLC
REPORT COMPLETED BY: AMERICAN ENGINEERING & TESTING, INC.
ALL COORDINATES REFERENCED TO WCCS NAD 83(91) CHIPPEWA COUNTY



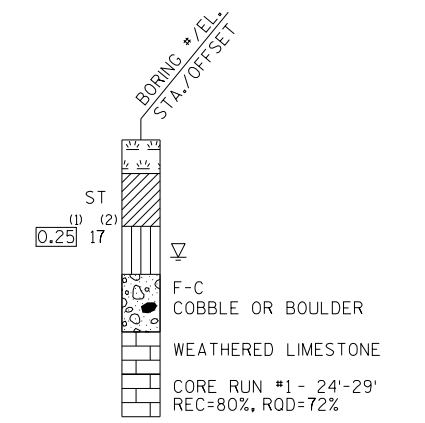
STATE PROJECT NUMBER

8915-00-70

MATERIAL SYMBOLS

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

LEGEND OF BORING



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GROUND WATER ELEVATION

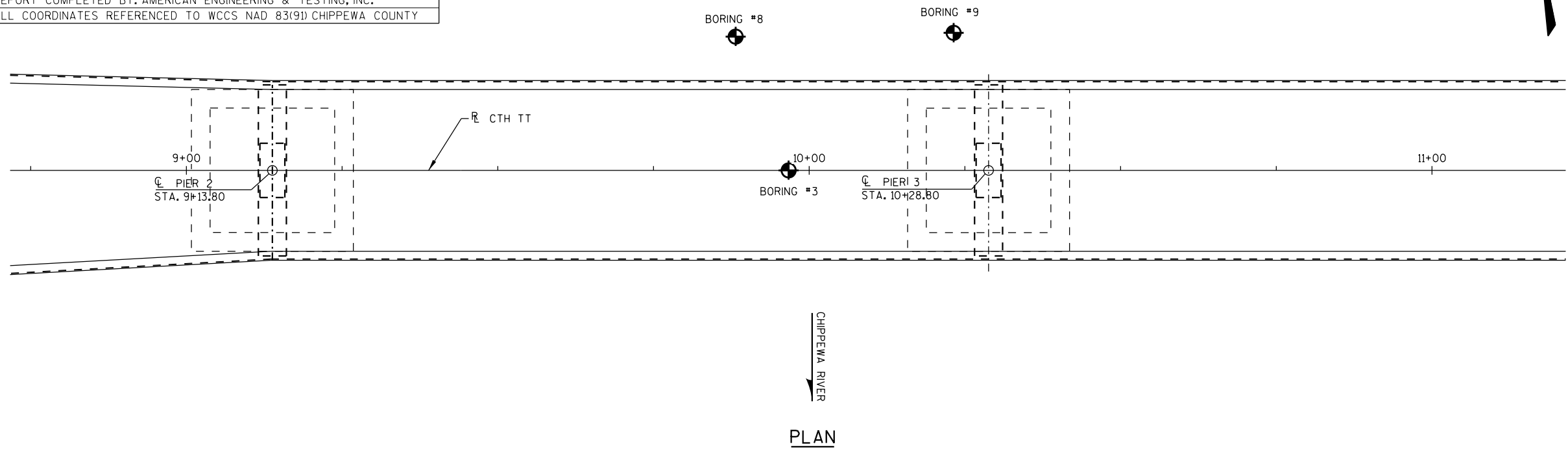
- AT TIME OF DRILLING
- END OF DRILLING
- AFTER DRILLING

ABBREVIATIONS

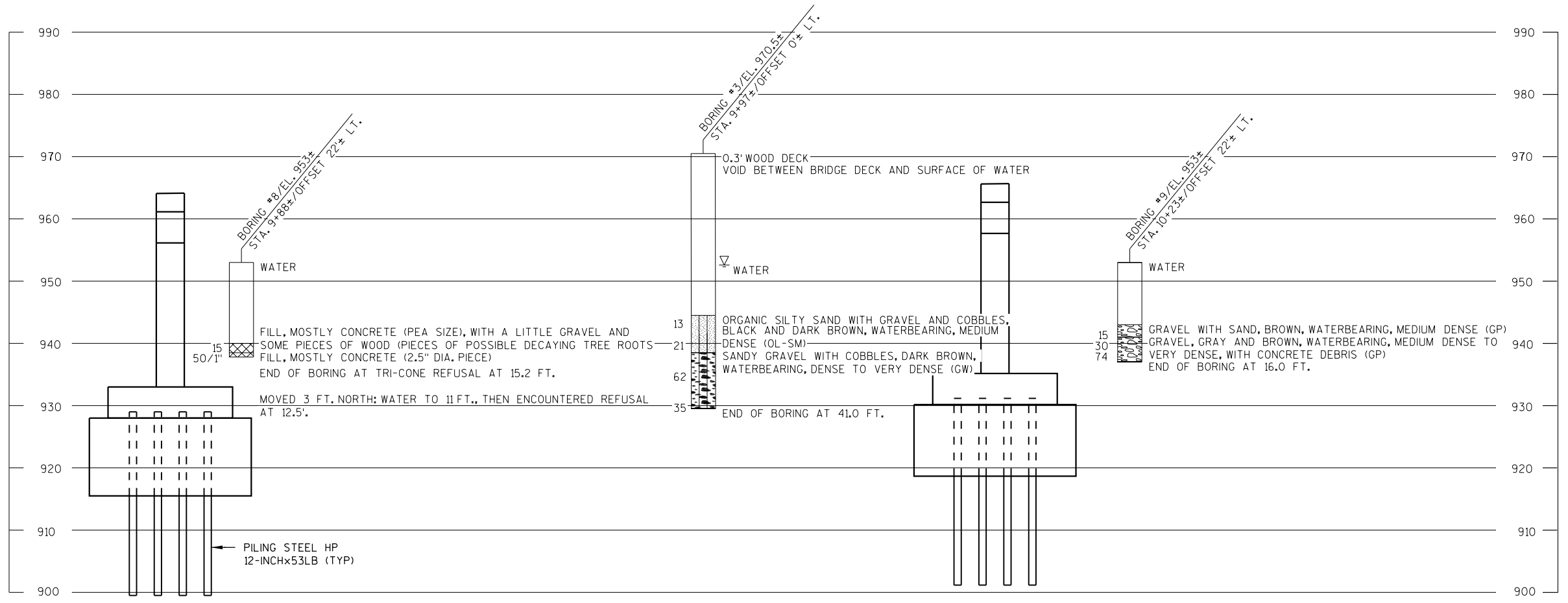
F-FINE M-MEDIUM C-COARSE ST-SHELBY TUBE

SUBSURFACE EXPLORATION FOR FOUNDATION DESIGN AND BIDDERS INFORMATION

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PLAN



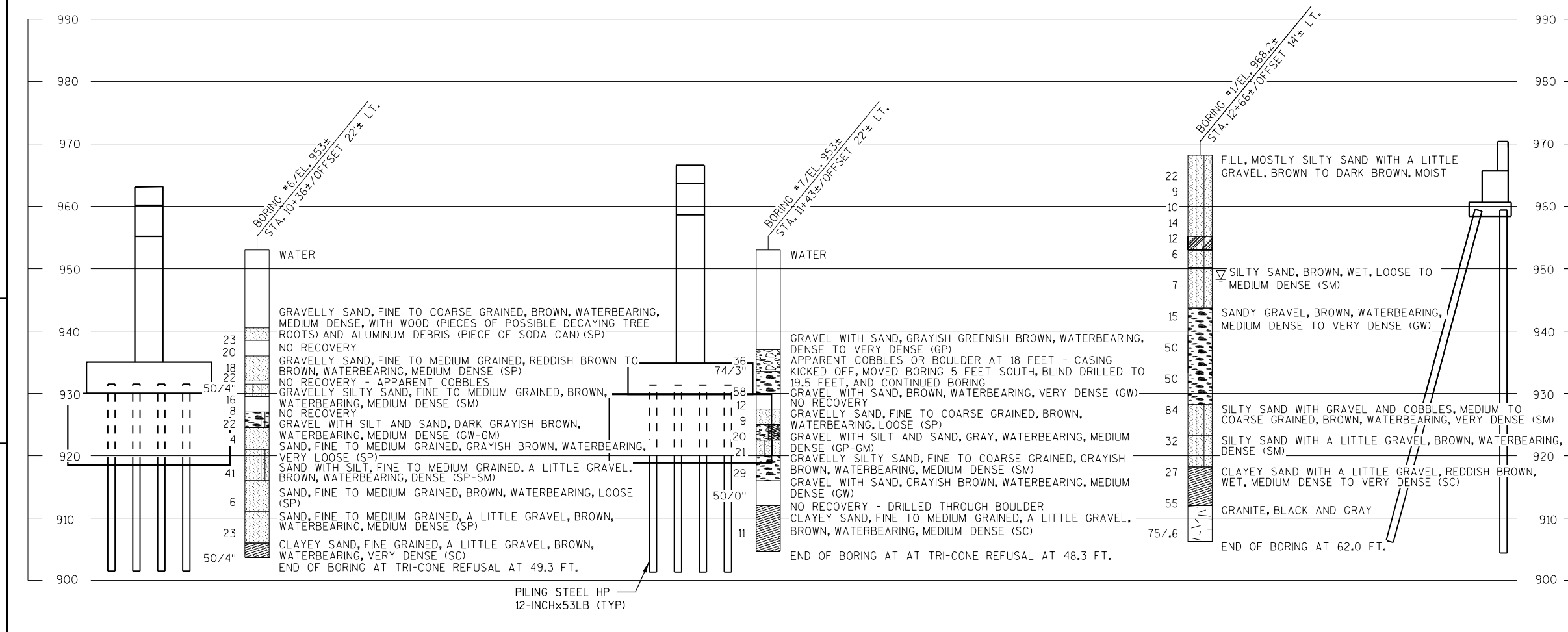
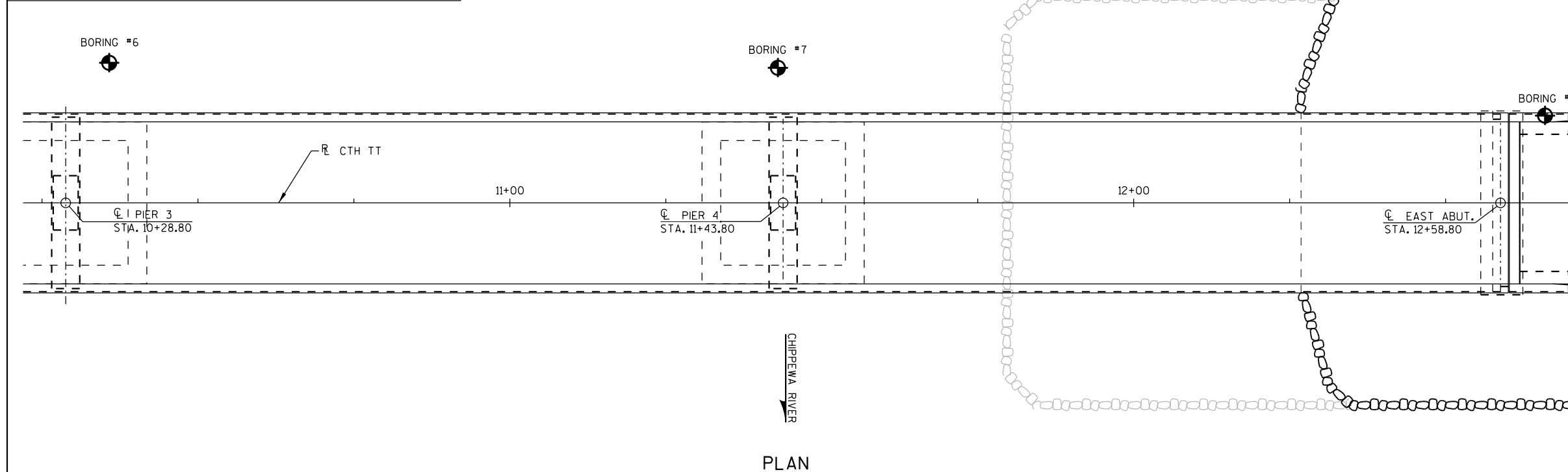
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8

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-9-387			
DRAWN BY		MES	PLANS Ckd. KRH
SUBSURFACE EXPLORATION-2			SHEET 7 OF 54

BORING #	DATE COMPLETED	NORTHING (Y)	EASTING (X)
1	8-15-1994	191704.2±	219493.6±
6	5-14-2020	191759.1±	219269.9±
7	5-19-2020	191736.6±	219374.7±

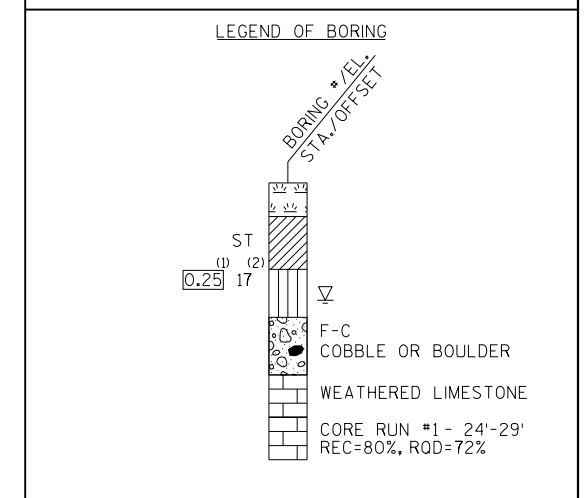
BORING 1 COMPLETED BY: HUNTINGDON ENGINEERING & ENVIRONMENTAL
BORINGS 6 & 7 COMPLETED BY: SUBSURFACE EXPLORATION SERVICES, LLC
REPORT COMPLETED BY: AMERICAN ENGINEERING TESTING, INC.
ALL COORDINATES REFERENCED TO WCCS NAD 83(91) CHIPPEWA COUNTY



STATE PROJECT NUMBER
8915-00-70

MATERIAL SYMBOLS

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



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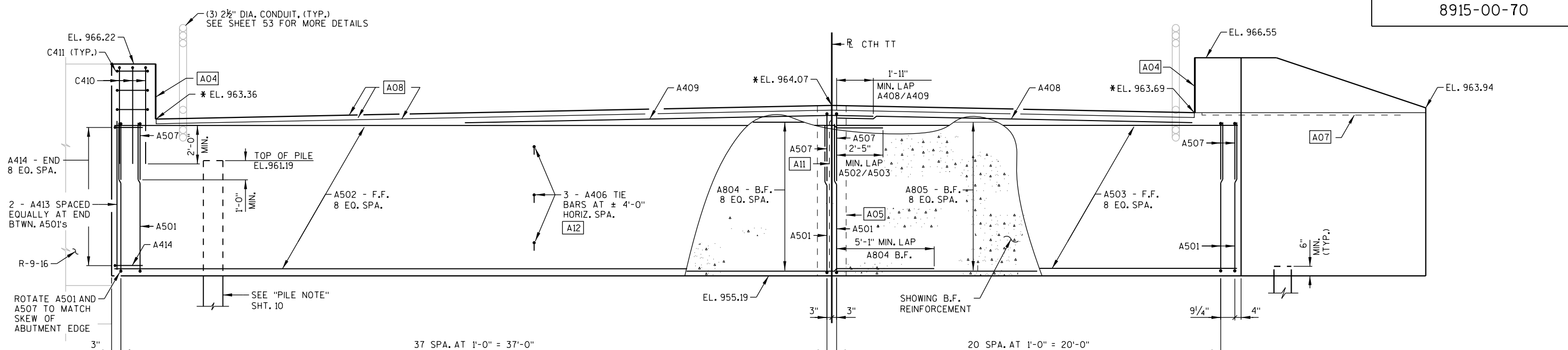
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F-FINE M-MEDIUM C-COARSE ST-SHELBY TUBE

SUBSURFACE EXPLORATION FOR FOUNDATION DESIGN AND BIDDERS INFORMATION

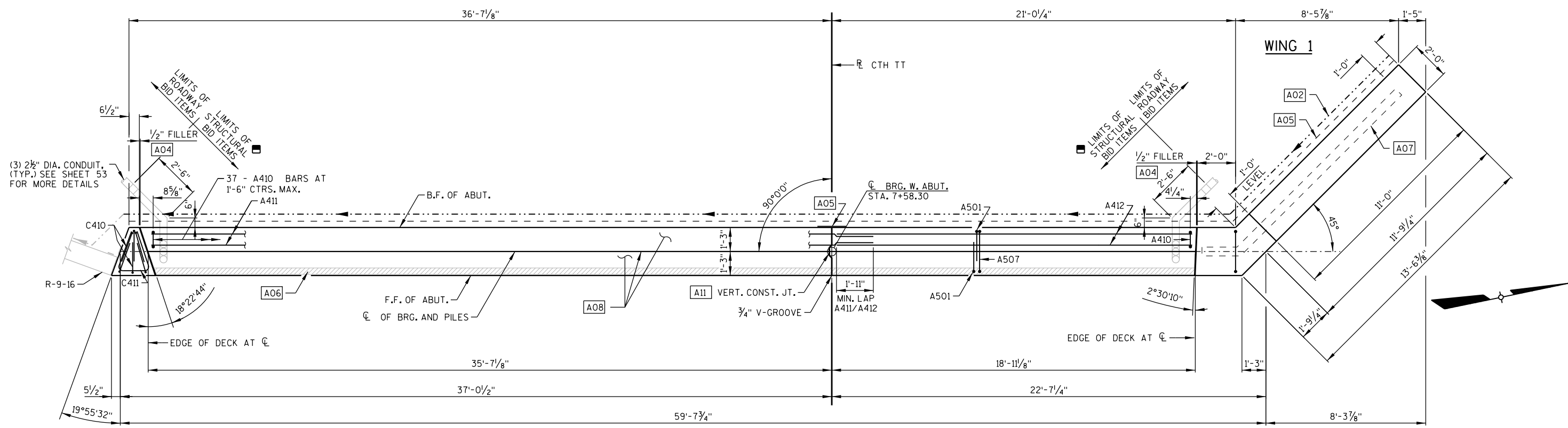
BORINGS WERE COMPLETED AT POINTS APPROXIMATELY AS INDICATED ON THIS DRAWING TO OBTAIN INFORMATION CONCERNING THE CHARACTER OF SUBSURFACE MATERIALS FOUND AT THE SITE. BECAUSE THE INVESTIGATED DEPTHS ARE LIMITED AND THE AREA OF THE BORINGS IS VERY SMALL IN RELATION TO THE ENTIRE SITE, THE WISCONSIN DEPARTMENT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

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-9-387			
DRAWN BY: MES		PLANS C/KD: KRH	
SUBSURFACE EXPLORATION-3			SHEET 8 OF 54



ELEVATION (LOOKING WEST)

* ELEVATIONS ARE GIVEN AT TOP OF CONCRETE, C OF BEARING



PLAN

NOTES

- FOR WING DETAILS AND ELEVATIONS SEE SHEET 11.
- SPACE A501, A507 TO MISS PILING.
- DO NOT PLACE FILL ABOVE 3'-0" FROM BOTTOM OF ABUTMENT UNTIL SUPERSTRUCTURE IS IN PLACE.
- FOR SYMBOL DESCRIPTIONS, SEE LEGEND ON SHEET 10.
- 2 1/2" DIA. RIGID METALLIC CONDUIT (RMC). PROVIDE 3'-0" PAST B.F. OF ABUTMENT.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-9-387			
DRAWN BY KAM		PLANS CKD.	
WEST ABUTMENT-1			SHEET 9 OF 54

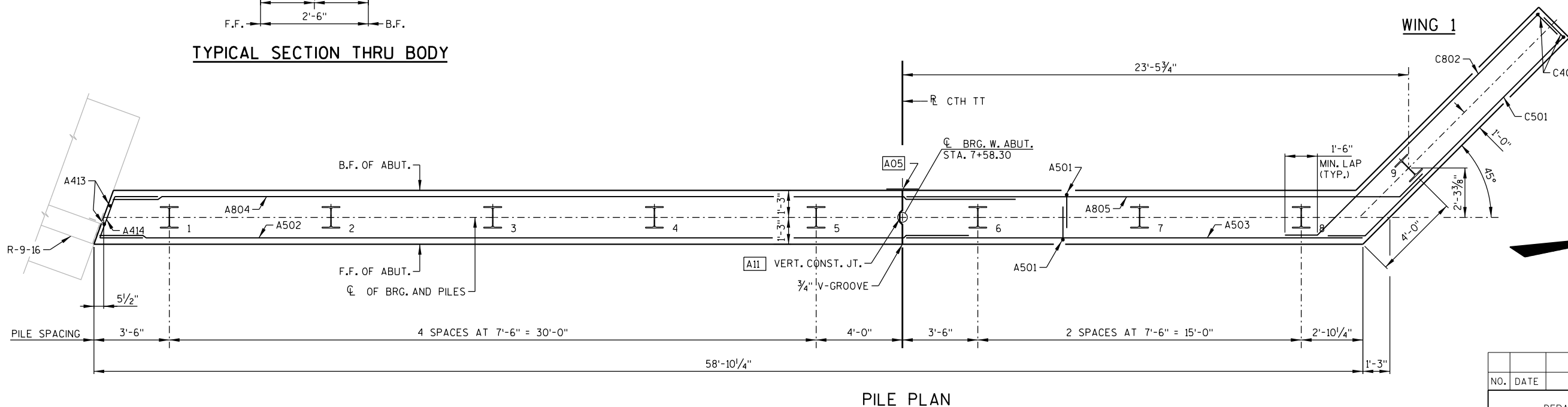
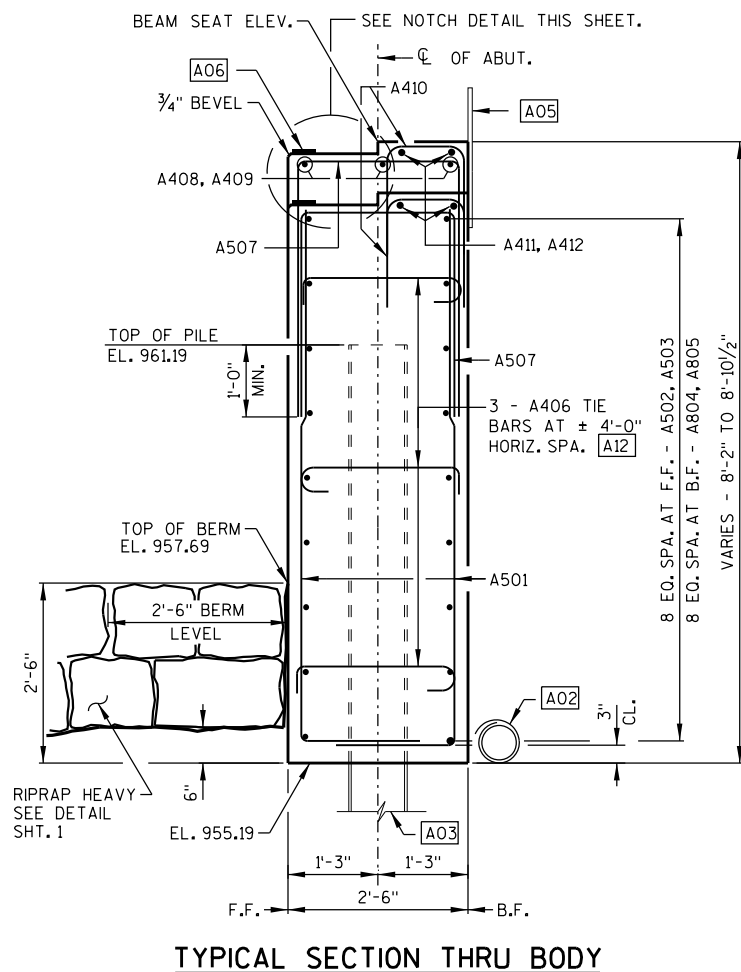
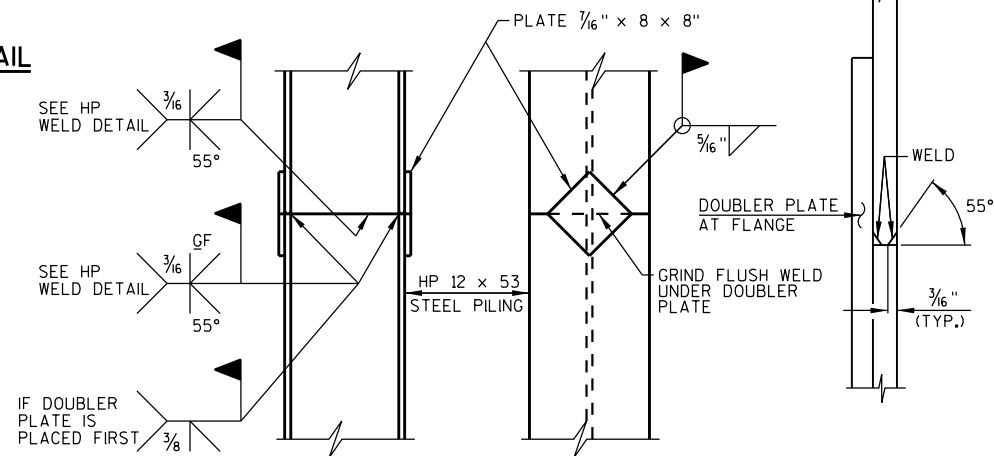
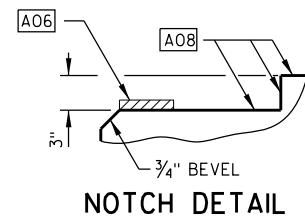
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 PLOT DATE: 11/11/2021
 PLOT TIME: 12:31:00 PM
 BATCH PRINT SHEET 1 OF 1

8

8

LEGEND

- A02 PIPE UNDERDRAIN WRAPPED (6-INCH). SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. DRAIN BOTH ABUTMENTS TO DOWNSTREAM SIDE OF BRIDGE, AT WEST ABUT. CONNECT PIPE UNDERDRAIN TO R-9-16 PIPE UNDERDRAIN. ATTACH RODENT SHIELD AT ENDS OF PIPE. SEE SHT. 4.
- A03 SUPPORT ABUTMENTS ON PILING STEEL HP 12-INCH x 53 LB. SEE PILE SPLICE DETAIL ON THIS SHT.
- A04 1/2" FILLER TO EXTEND AS SHOWN. SEAL ALL EXPOSED HORIZONTAL AND VERTICAL SURFACES OF 1/2" FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. (1" DEEP AND HOLD 1/8" BELOW SURFACE OF CONCRETE.)
- A05 18" RUBBERIZED MEMBRANE WATERPROOFING. SEAL ALL HORIZONTAL AND VERTICAL JOINTS ON BACK FACE.
- A06 4"x3/4" FILLER - TO EXTEND BETWEEN EDGES OF SLAB AT ABUTMENTS.
- A07 OPTIONAL CONSTRUCTION JOINT KEYWAY FORMED BY A BEVELED 2"x6", WITH RUBBERIZED MEMBRANE WATERPROOFING ON BACKFACE. (COST INCIDENTAL TO BID ITEM "CONCRETE MASONRY BRIDGES")
- A08 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".
- A09 PLACE BOTTOM HALF OF RUBBERIZED MEMBRANE WATERPROOFING, HORIZONTAL IN THIS AREA.
- A10 KEYED CONSTRUCTION JOINT FORMED BY BEVELED 2" x 6".
- A11 VERTICAL CONSTRUCTION JOINT KEYWAY FORMED BY BEVELED 2" x 8".
- A12 ALTERNATE THE POSITION OF THE 90° AND 180° HOOKS AT EACH VERTICAL LAYER OF TIES.



PILE NOTE

WEST ABUTMENT TO BE SUPPORTED ON PILING STEEL HP 12-INCH x 53 LB TO A REQUIRED DRIVING RESISTANCE OF 160 TONS PER PILE AS DETERMINED BY THE MODIFIED GATES DYNAMIC FORMULA. ESTIMATED 50'-0" LONG.

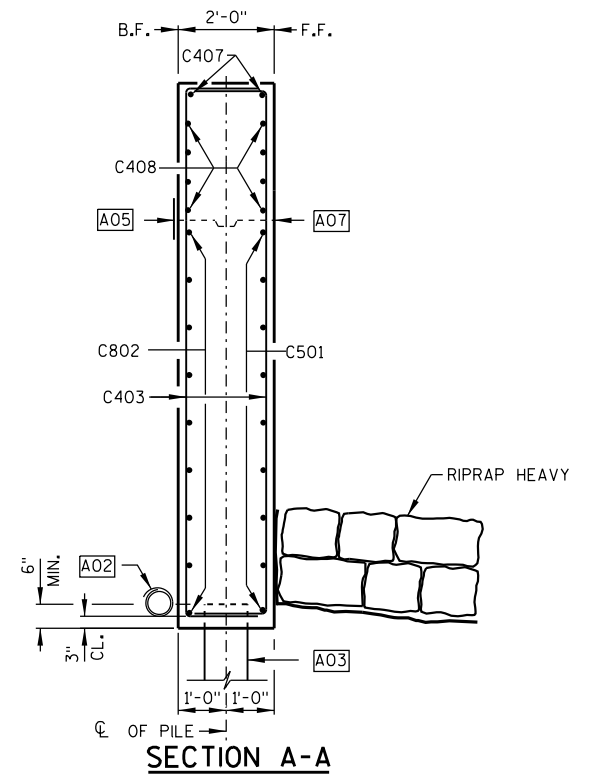
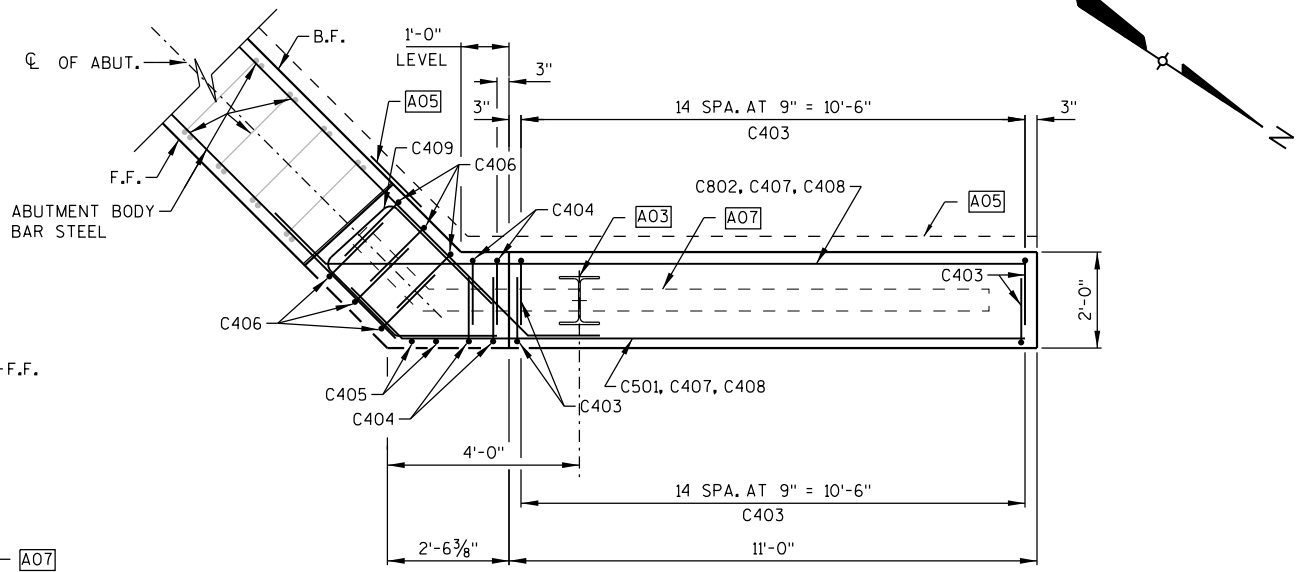
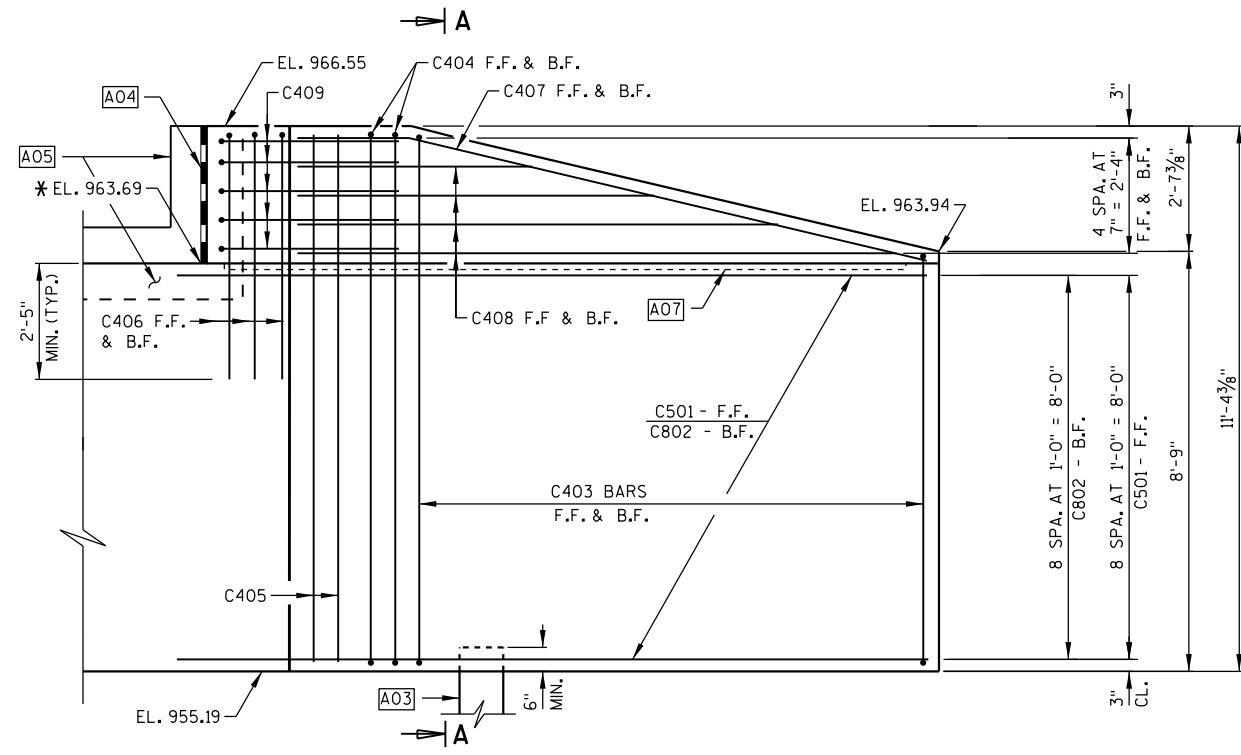
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-9-387			
DRAWN BY KAM		PLANS CK'D.	
WEST ABUTMENT-2			SHEET 10 OF 54

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8

8

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NOTE
 ADJUST C403 BARS TO MISS PILING.

LEGEND
 FOR SYMBOL DESCRIPTIONS SEE SHT. 10.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-9-387			
		DRAWN BY KAM	PLANS CK'D.
WING 1			SHEET 11 OF 54

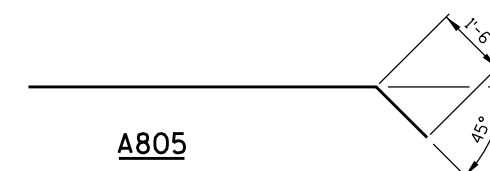
BILL OF BARS

DIMENSIONS IN BENDING DETAILS ARE OUT TO OUT OF BAR.
 ▲ LENGTH SHOWN FOR BAR IS AN AVG. LENGTH AND SHOULD ONLY BE USED FOR BAR WEIGHT CALCULATIONS. SEE BAR SERIES TABLE FOR ACTUAL LENGTHS.

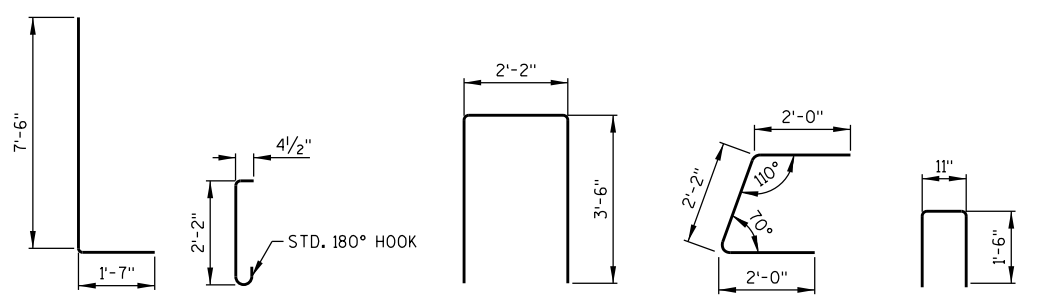
MARK	NO. REQ'D	COATED	LENGTH	BENT	BAR SERIES	LOCATION
TOTAL WEIGHT = 4,250 LBS						
A501	120		9-0	X		ABUT. - BODY F.F. AND B.F. VERT.
A502	9		39-11			ABUT. - BODY F.F. HORIZ.
A503	9		21-0			ABUT. - BODY F.F. HORIZ.
A804	9		41-8			ABUT. - BODY B.F. HORIZ.
A805	9		24-8	X		ABUT. - BODY B.F. HORIZ.
A406	48		3-0	X		ABUT. - BODY TIE HORIZ.
A507	60		8-11	X		ABUT. - BODY TOP VERT.
A408	3		18-9			ABUT. - BODY TOP HORIZ.
A409	3		21-1			ABUT. - BODY TOP HORIZ.
A410	37		3-9	X		ABUT. - BODY TOP VERT.
A411	2		37-11			ABUT. - BODY TOP HORIZ.
A412	2		18-8			ABUT. - BODY TOP HORIZ.
A413	2		7-9			ABUT. - BODY SOUTH END VERT.
A414	9		6-0	X		ABUT. - BODY SOUTH END HORIZ.
TOTAL WEIGHT = 980 LBS						
C501	9	X	14-7	X		WING 1 - F.F. HORIZ.
C802	9	X	16-3	X		WING 1 - B.F. HORIZ.
C403	30	X	12-0	X	▲	WING 1 - F.F. & B.F. VERT.
C404	4	X	13-5	X		WING 1 - F.F. & B.F. VERT.
C405	2	X	10-11			WING 1 - F.F. VERT.
C406	6	X	6-9	X		WING 1 - F.F. & B.F. VERT.
C407	2	X	13-5	X		WING 1 - TOP F.F. & B.F. HORIZ.
C408	8	X	8-7		▲	WING 1 - TOP F.F. & B.F. HORIZ.
C409	5	X	9-1	X		WING 1 - TOP HORIZ.
C410	6	X	6-10	X		ABUT. - BODY TOP SOUTH END VERT.
C411	3	X	5-10	X		ABUT. - BODY TOP SOUTH END HORIZ.

BAR SERIES

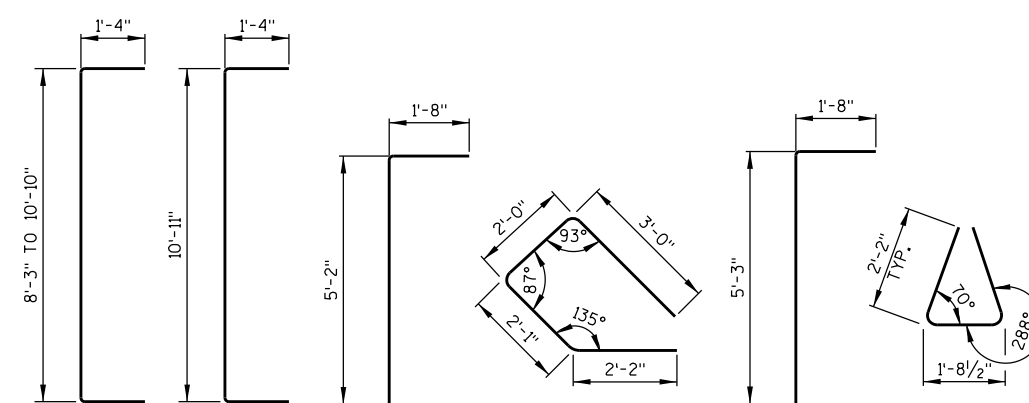
MARK	NO. REQ'D	LENGTH
C403	2 SETS OF 15	10'-9" TO 13'-4"
C408	2 SETS OF 4	4'-9" TO 12'-4"



A805



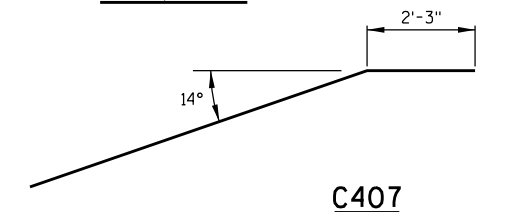
A501 A406 A507 A414 A410



C403 C404 C406 C409 C410 C411



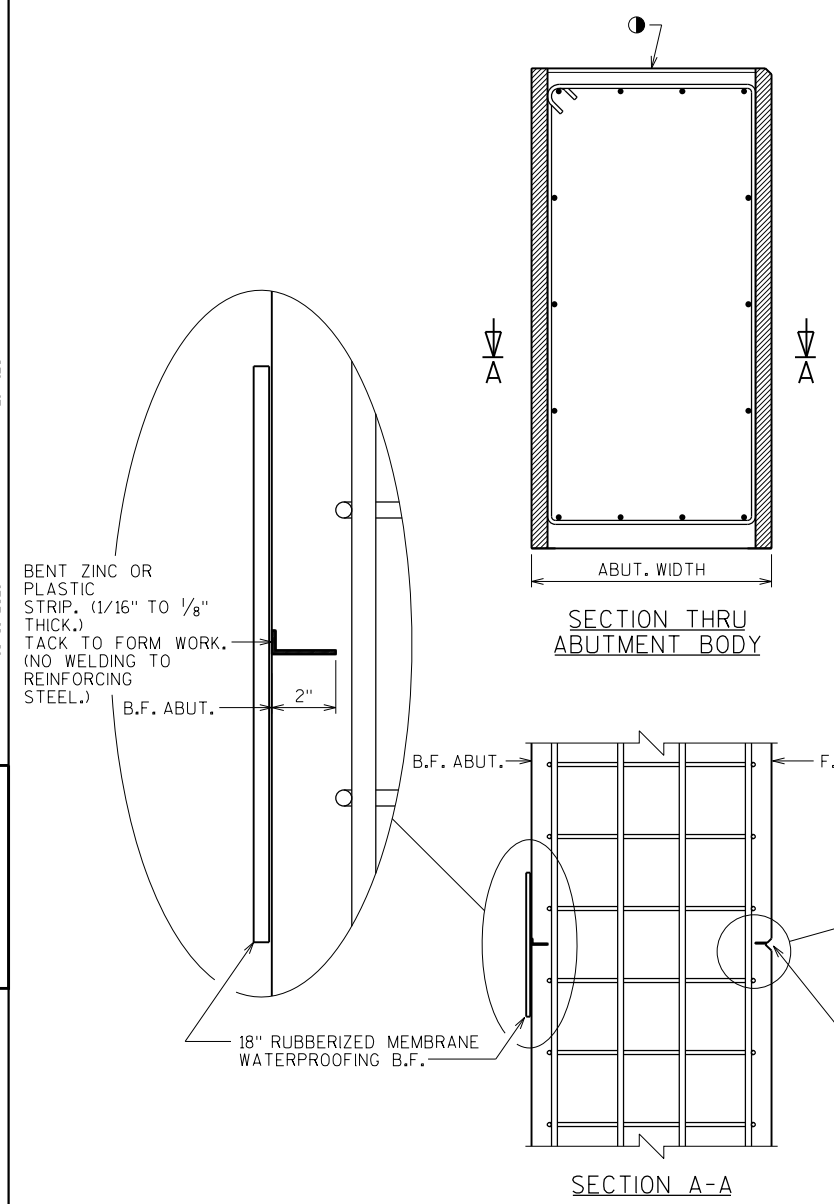
C501, C802



C407

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 PLOT DATE: 10/31/2021 PLOT TIME: 2:44:20 PM BATCH PRINT SHEET 12 OF 54

8



SECTION THRU ABUTMENT BODY

SECTION A-A

ALTERNATE CONSTRUCTION JOINT AT ABUTMENT

BENT ZINC OR PLASTIC STRIP. (1/16" TO 1/8" THICK.) TACK TO FORM WORK. NO WELDING TO REINFORCING STEEL. REMOVE OR TRIM AFTER FORM REMOVAL.

FILL WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER AFTER TRIMMING OR REMOVING STRIP.

NOTES

PARTIAL ZINC OR PLASTIC BULKHEAD MAY BE USED AS ALTERNATE CONSTRUCTION JOINT, WITH THE PERMISSION OF THE ENGINEER, AT THE CONTRACTOR'S EXPENSE.

VERTICAL CONSTRUCTION JOINT KEYWAY IS NOT REQUIRED WHEN USING ALTERNATE CONSTRUCTION JOINT.

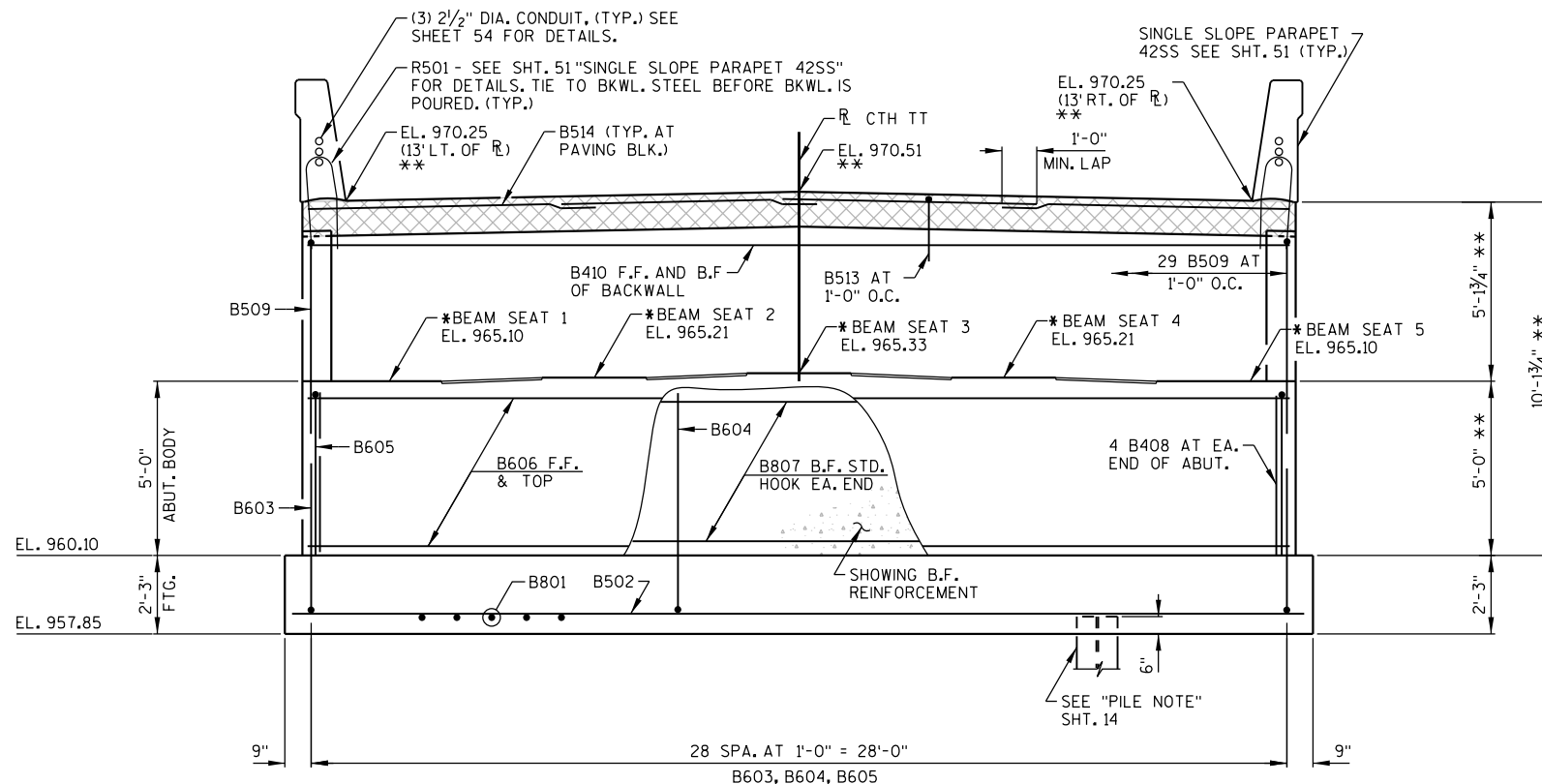
CARE IS TO BE USED IN CASTING CONCRETE AROUND BULKHEAD TO PREVENT DISLOCATION OR MISALIGNMENT OF THE BULKHEAD.

SAW CUTTING JOINT IS NOT ALLOWED.

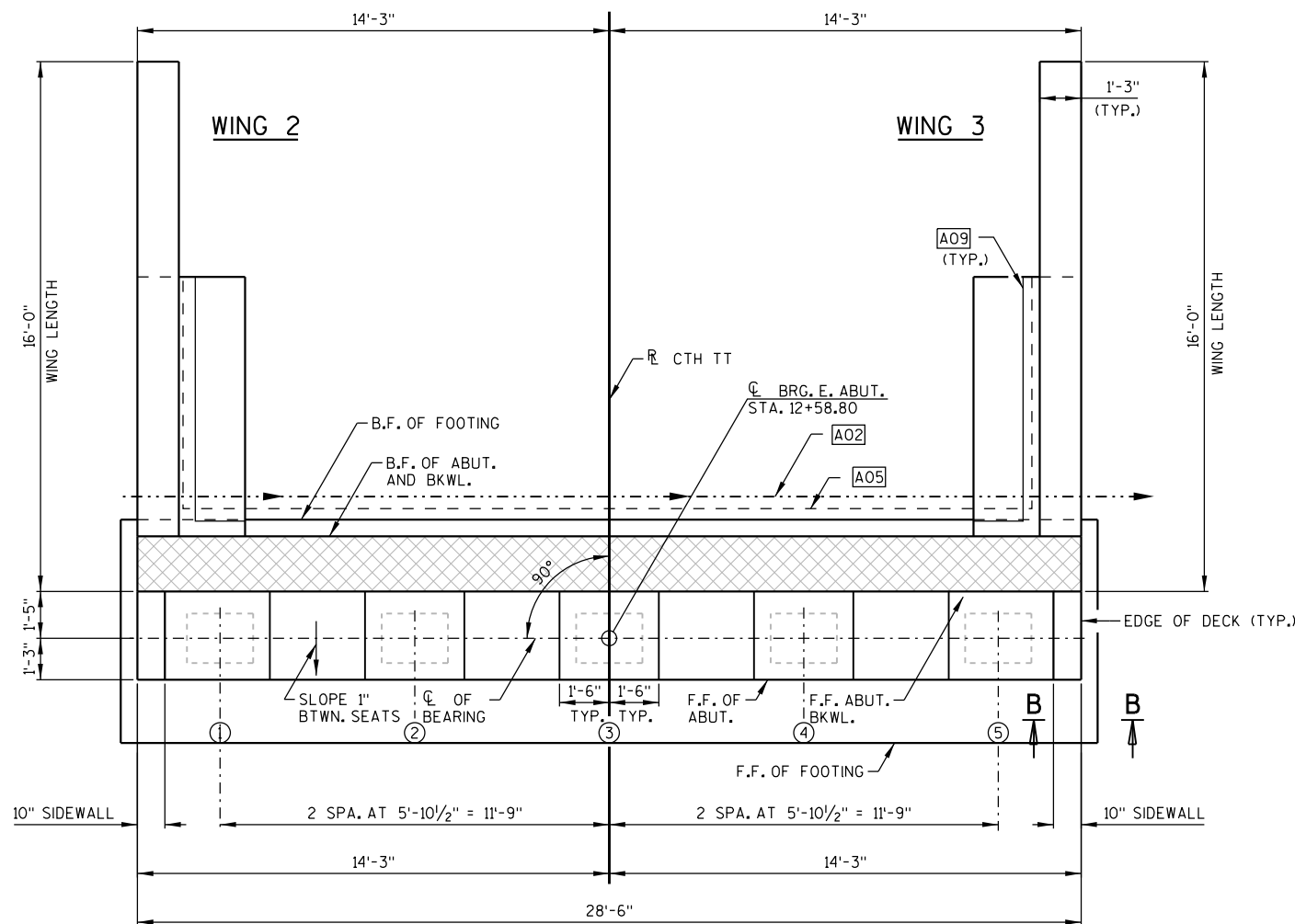
● USE A JOINT TOOL TO CONSTRUCT A CONTRACTION JOINT APPROXIMATELY 1/2" DEEP.

8

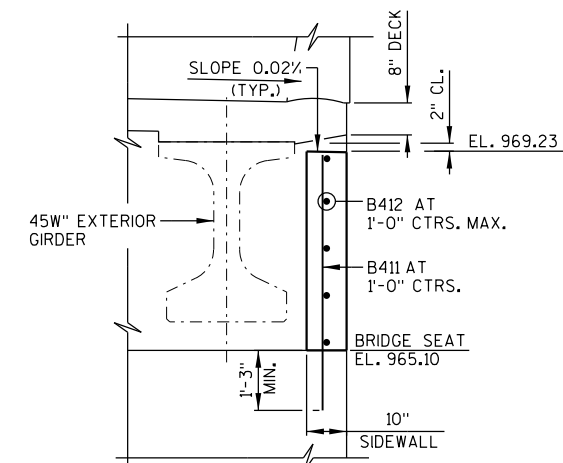
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-9-387			
		DRAWN BY KAM	PLANS CK'D.
WEST ABUTMENT DETAILS			SHEET 12 OF 54



ELEVATION
(LOOKING EAST)



PLAN



SECTION B-B

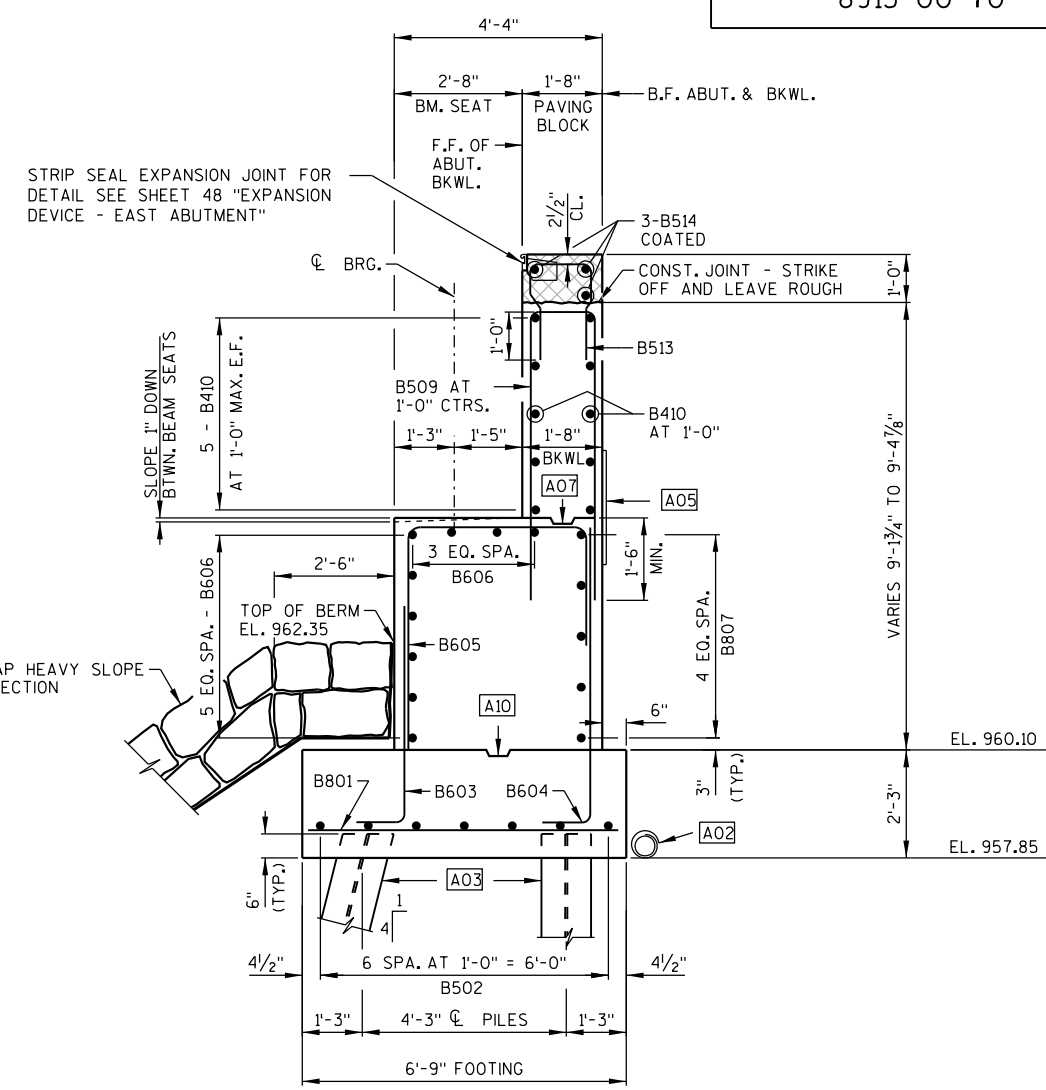
NOTES

FOR WING DETAILS AND ELEVATIONS SEE SHEET 15.
FOR SYMBOL DESCRIPTIONS, SEE LEGEND ON SHEETS 10 AND 14.

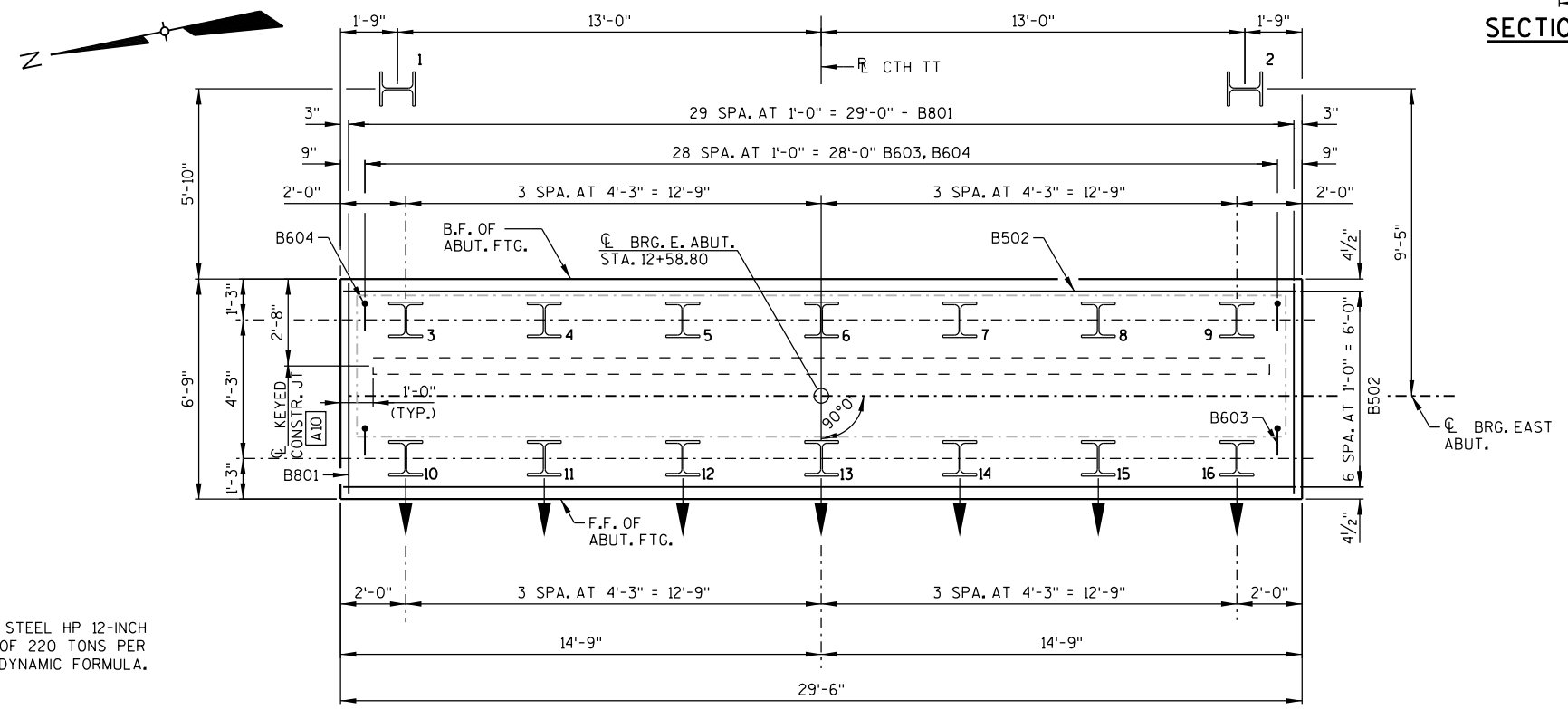
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PLOT DATE: 11/17/2021
PLOT TIME: 3:29:45 PM
BATCH PRINT SHEET 1 OF 1

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-9-387			
DRAWN BY KAM		PLANS CK'D.	
EAST ABUTMENT-1			SHEET 13 OF 54

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SECTION THRU EAST ABUT. BODY



FOOTING AND PILES PLAN

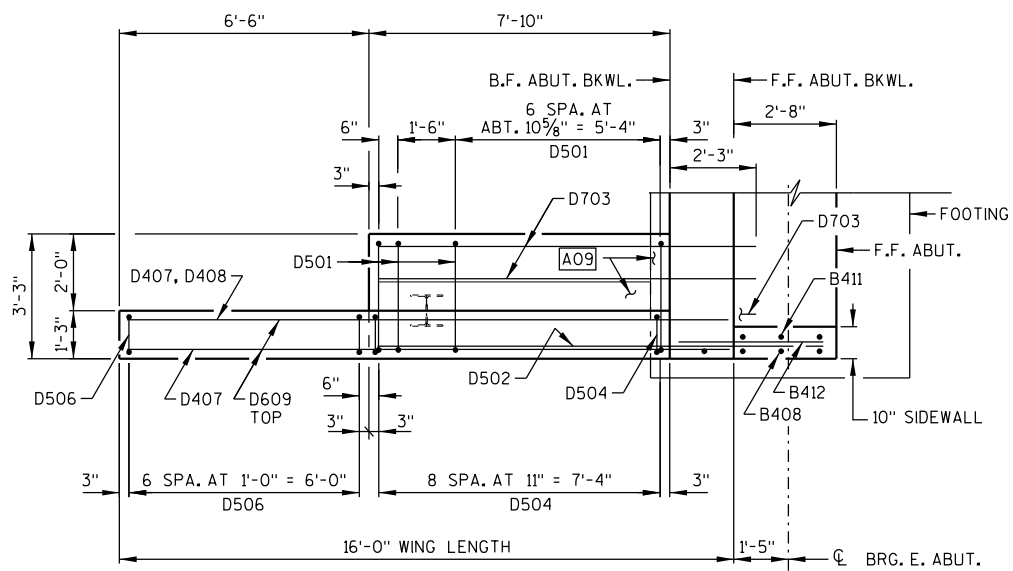
PILE NOTE
 EAST ABUTMENT TO BE SUPPORTED ON PILING STEEL HP 12-INCH x 53 LB TO A REQUIRED DRIVING RESISTANCE OF 220 TONS PER PILE AS DETERMINED BY THE MODIFIED GATES DYNAMIC FORMULA. ESTIMATED 55'-0" LONG.
 FOR PILE SPLICE DETAILS SEE SHT. 10

LEGEND

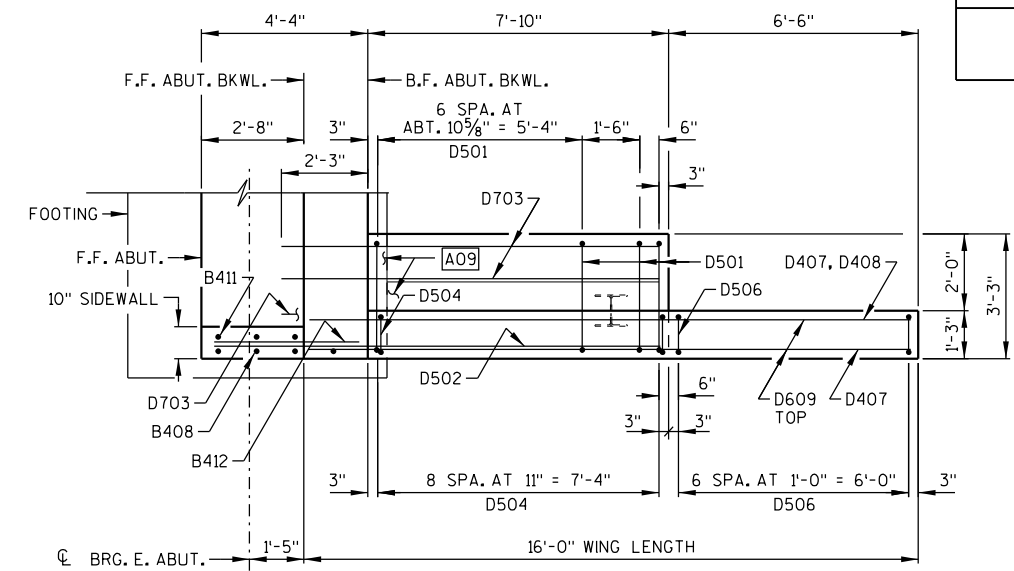
- XX INDICATES PILE NUMBER.
 - ▼ BATTERED PILE - PILES ARE BATTERED AT 4V : 1H.
 - * ELEVATIONS GIVEN ARE AT TOP OF CONCRETE C OF BEARING.
 - ** DIMENSIONS AND ELEVATIONS ARE GIVEN AT THE F.F OF ABUTMENT BACKWALL.
 - INDICATES CONCRETE (HPC) AREA TO BE POURED AFTER SUPERSTRUCTURE CONCRETE IS IN PLACE.
- FOR ADDITIONAL SYMBOL DESCRIPTIONS SEE SHT. 10.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-9-387			
DRAWN BY KAM		PLANS CKD.	
EAST ABUTMENT-2			SHEET 14 OF 54

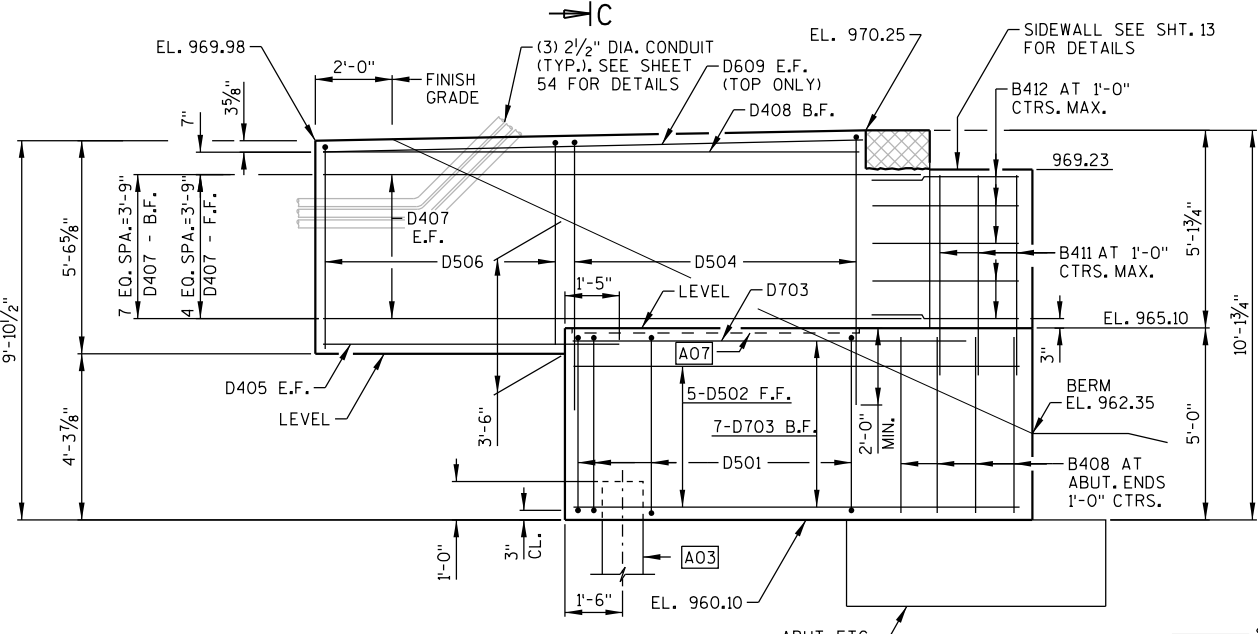
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PLOT DATE: 11/11/2021
PLOT TIME: 3:16:11 PM
BATCH PRINT SHEET 1 OF 1



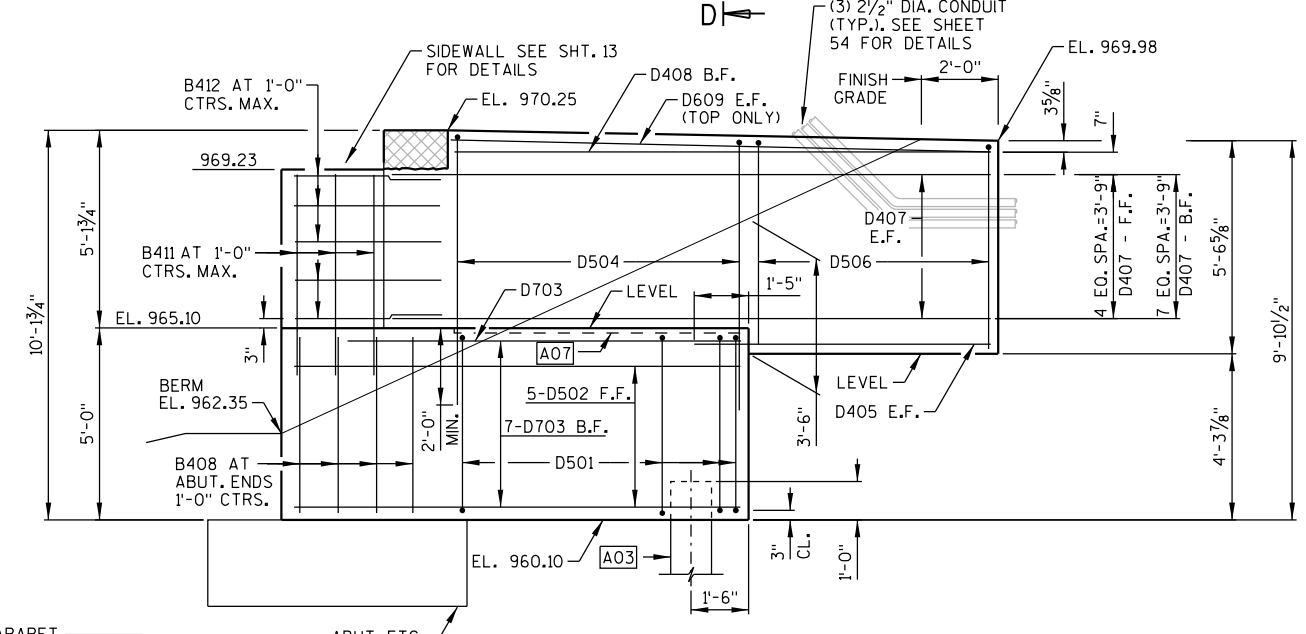
PLAN WING 2



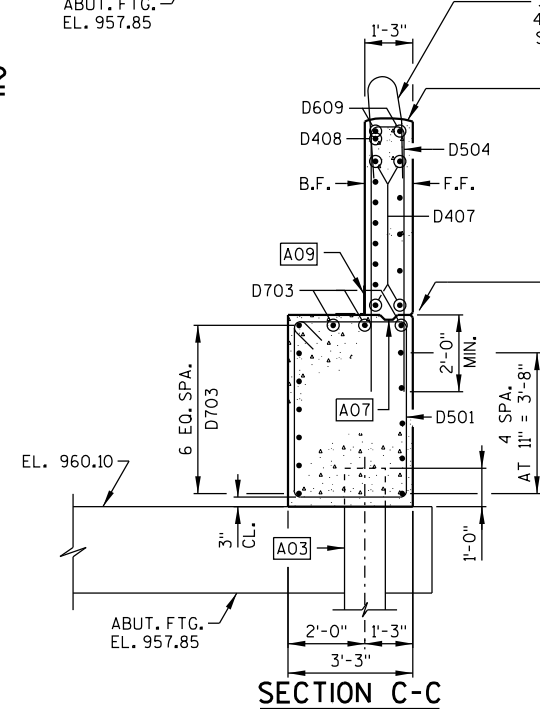
PLAN WING 3



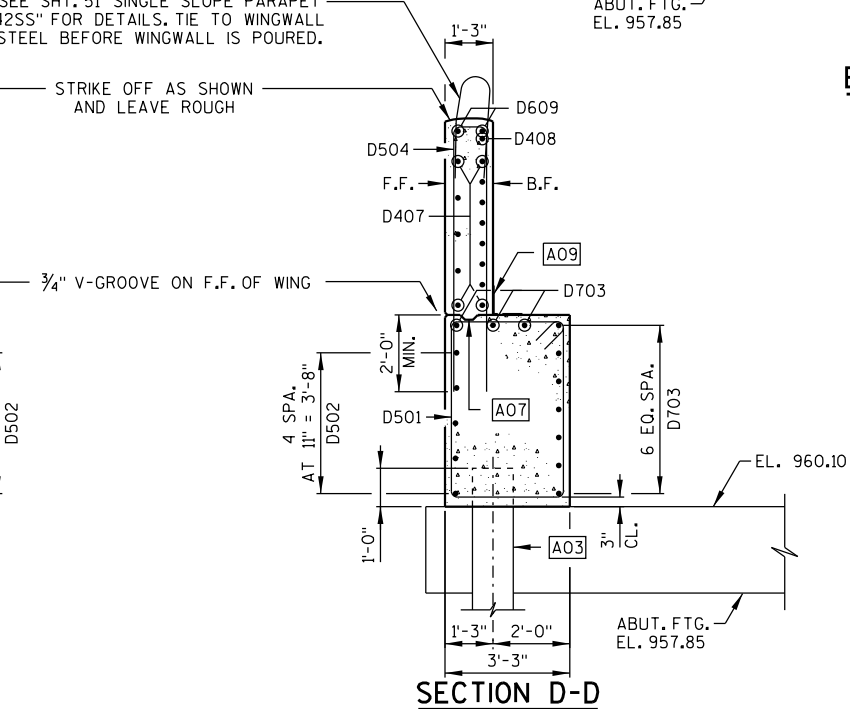
ELEVATION WING 2



ELEVATION WING 3



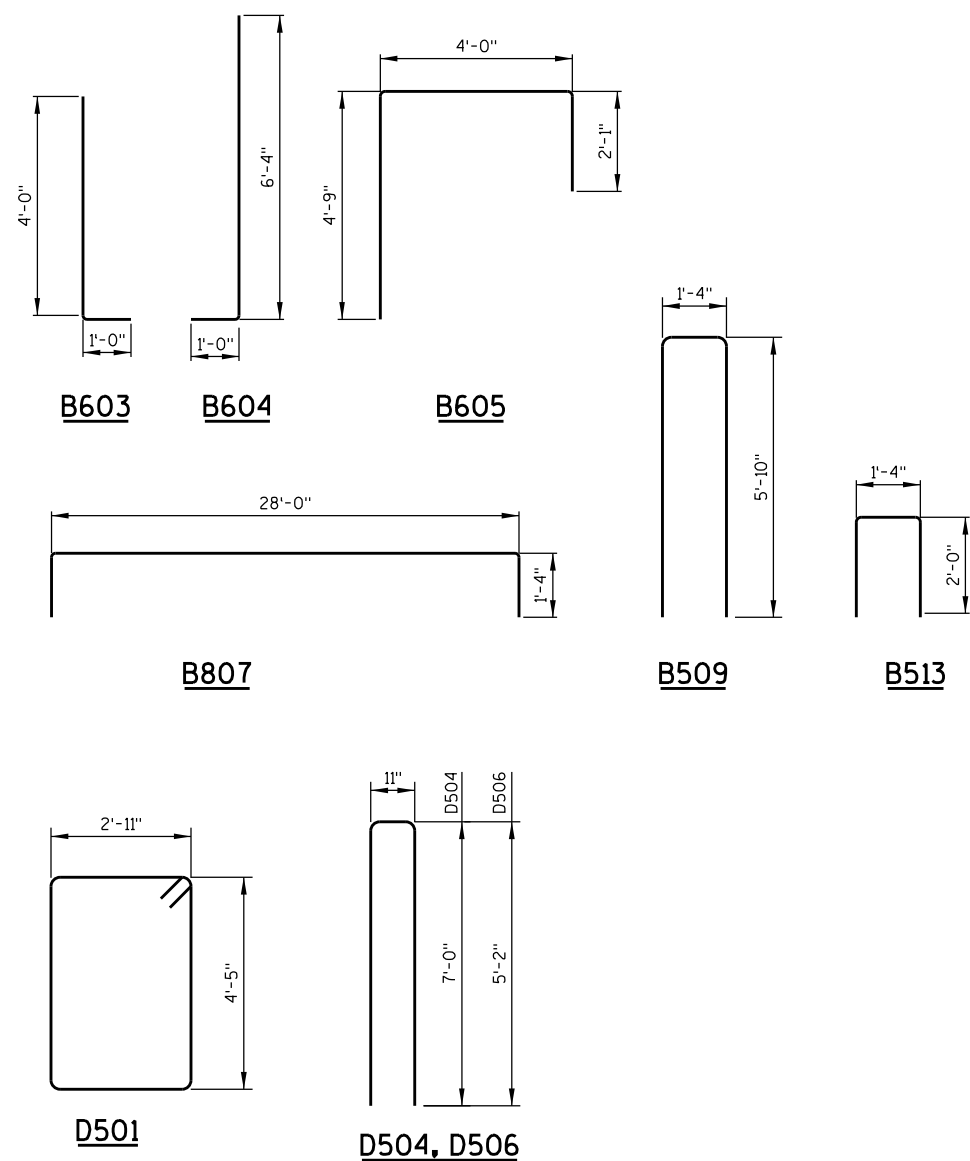
SECTION C-C



SECTION D-D

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-9-387			
DRAWN BY KAM		PLANS CK'D.	
WINGS 2 & 3			SHEET 15 OF 54

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 BATCH PRINT SHEET 16 OF 54
 PLOT DATE: 10/31/2021 PLOT TIME: 2:44:24 PM



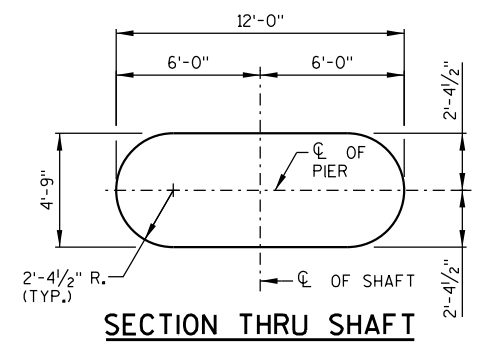
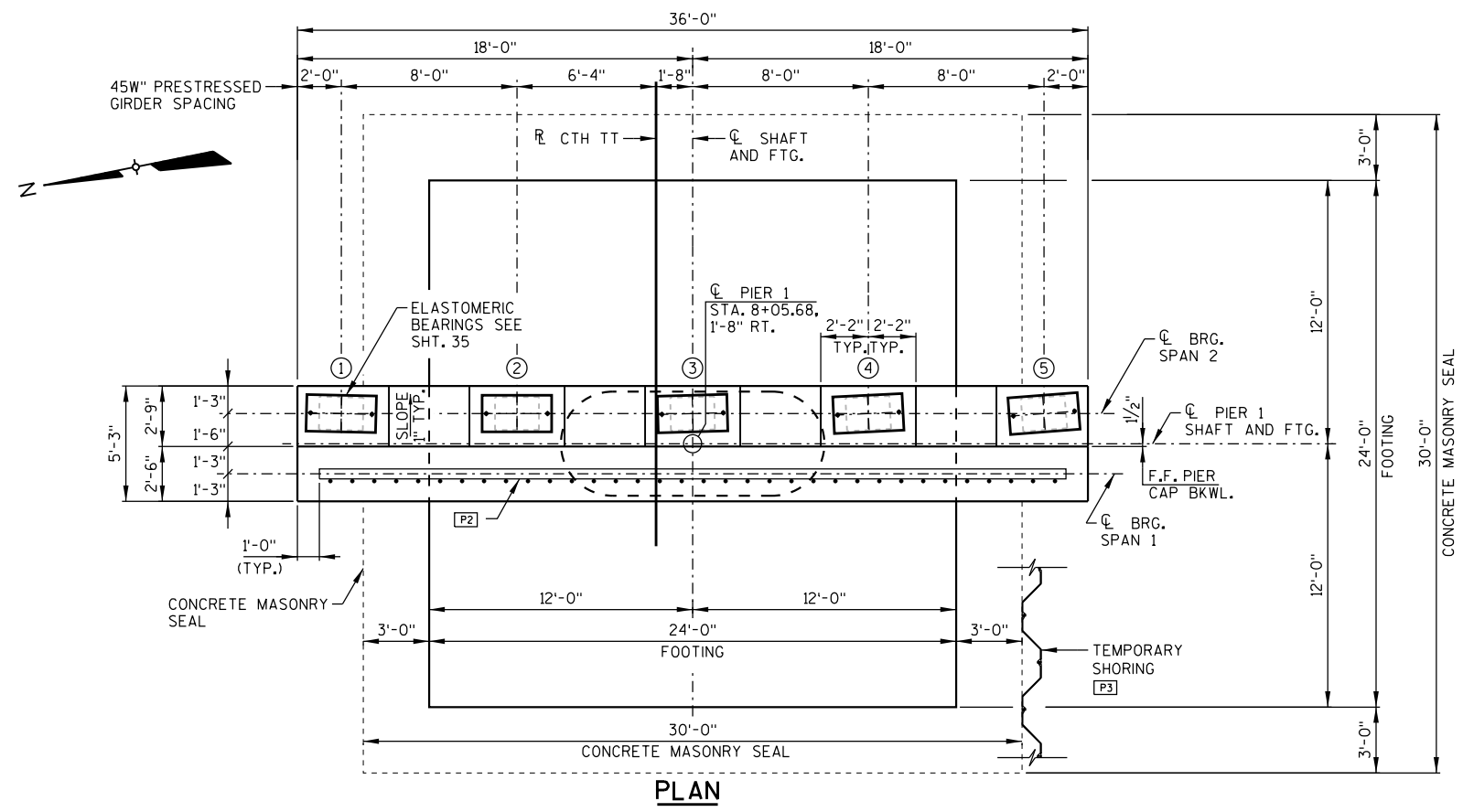
BILL OF BARS

DIMENSIONS IN BENDING DETAILS ARE OUT TO OUT OF BAR.

MARK	NO. REQ'D	COATED	LENGTH	BENT	BAR SERIES	LOCATION
TOTAL WEIGHT = 2,520 LBS						
B801	30		6-5			FOOTING HORIZ.
B502	7		29-2			FOOTING HORIZ.
B603	29		4-10	X		FOOTING - F.F. ABUTMENT BODY VERT.
B604	29		7-2	X		FOOTING - B.F. ABUTMENT BODY VERT.
B605	29		10-6	X		ABUTMENT VERT.
B606	9		28-2			ABUTMENT BODY - F.F. & TOP HORIZ.
B807	5		30-3	X		ABUTMENT BODY - B.F. HORIZ.
B408	8		4-8			ABUTMENT BODY - ENDS VERT.
TOTAL WEIGHT = 2,550 LBS						
B509	29	X	12-10	X		ABUTMENT BACKWALL VERT.
B410	10	X	28-2			ABUTMENT BACKWALL - F.F. & B.F. HORIZ.
B411	6	X	5-5			ABUTMENT SIDEWALLS VERT.
B412	10	X	4-0			ABUTMENT SIDEWALLS HORIZ.
B513	29	X	5-1	X		ABUTMENT PAVING BLOCK VERT.
B514	12	X	7-10			ABUTMENT PAVING BLOCK HORIZ.
TOTAL WEIGHT = 2,550 LBS						
D501	18	X	15-4	X		WING 2 & 3 - STIRRUP VERT.
D502	10	X	12-2			WING 2 & 3 - F.F. HORIZ.
D703	20	X	10-3			WING 2 & 3 - B.F. HORIZ.
D504	18	X	14-8	X		WING 2 & 3 - TOP VERT.
D405	4	X	7-9			WING 2 & 3 HORIZ.
D506	14	X	11-0	X		WING 2 & 3 - TOP VERT.
D407	26	X	15-8			WING 2 & 3 - TOP F.F. & B.F. HORIZ.
D408	2	X	14-0			WING 2 & 3 - B.F. HORIZ.
D609	4	X	14-0			WING 2 & 3 - TOP F.F. & B.F. HORIZ.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-9-387			
DRAWN BY KAM		PLANS CK'D.	
EAST ABUTMENT DETAILS			SHEET 16 OF 54

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PLOT DATE: 10/31/2021 PLOT TIME: 2:44:25 PM BATCH PRINT SHEET 17 OF 54



PILE NOTE

PIER 1 TO BE SUPPORTED ON PILING STEEL HP 12-INCH x 53 LB TO A REQUIRED DRIVING RESISTANCE OF 220 TONS PER PILE AS DETERMINED BY THE MODIFIED GATES DYNAMIC FORMULA.

ESTIMATED PILE LENGTH:
PIER 1 = 30 FEET

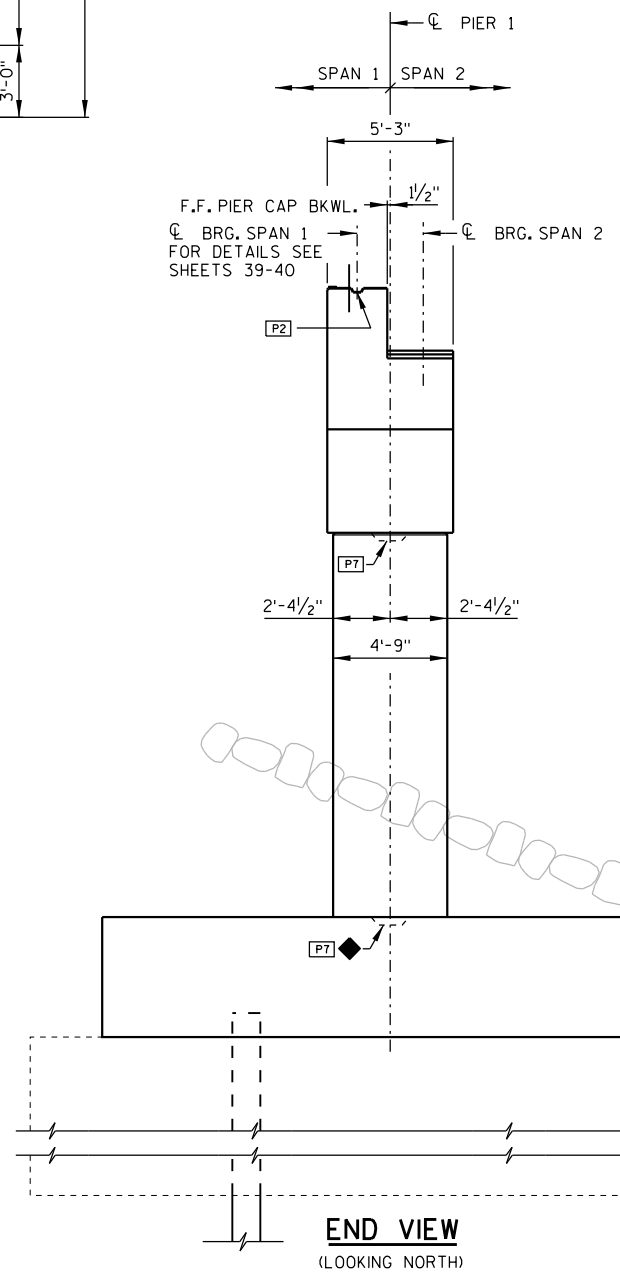
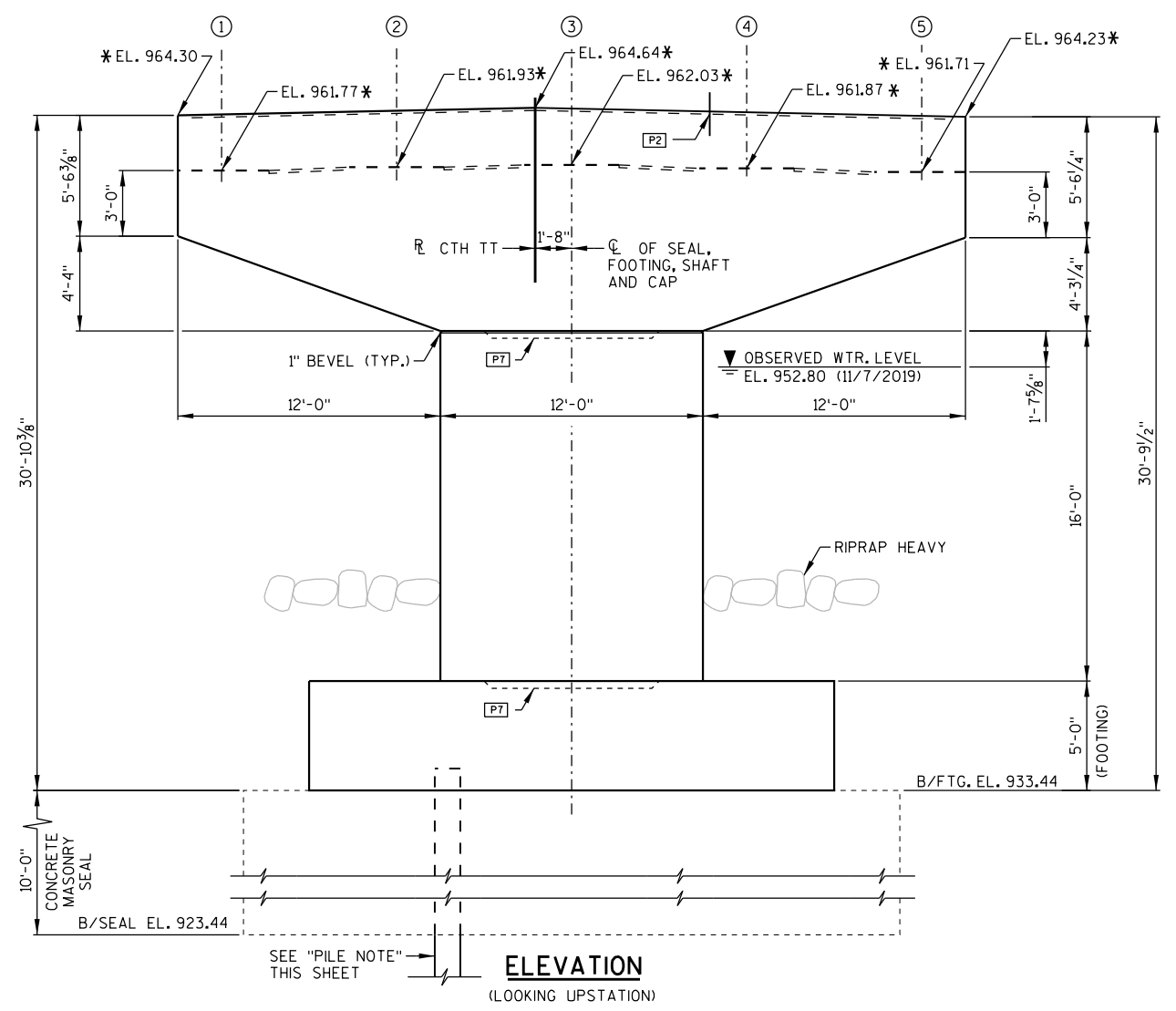
SEE SHT. 19 "PIER 1 FOOTING DETAILS" FOR PILE LAYOUT.
FOR PILE SPLICE DETAIL SEE SHT. 10.

LEGEND

- P2** KEYED CONSTRUCTION JOINT FORMED BY BEVELED 2"x6", W/. PA524 BARS AT 1'-0" CTRS. BARS MAY BE PLACED AFTER CONCRETE IS POURED BUT BEFORE INITIAL SET HAS TAKEN PLACE.
- P3** CONCRETE MASONRY SEAL MAY BE POURED AGAINST TEMPORARY SHORING. THE COST OF CONCRETE THAT FILLS THE STEEL SHEETING VOIDS IS INCIDENTAL TO THE COST FOR TEMPORARY SHORING AND WILL NOT BE PAID FOR UNDER THE CONCRETE MASONRY BID ITEM.
- P7** KEYED CONSTRUCTION JOINT FORMED BY BEVELED 4"x1'-7"x8'-0".
- * ELEVATIONS ARE GIVEN AT THE TOP OF PIER CAP CONCRETE AT THE CL OF BEARING.

NOTES

FOR BAR STEEL REINFORCEMENT DETAILS, SEE SHT. 22.
FOR FOOTING LAYOUT DETAILS, SEE SHT. 19 "PIER 1 FOOTING DETAILS".
SEE SHT. 44 "SUPERSTRUCTURE-6" FOR DETAILS OF BEARING PADS AND PREFORM FILLER.



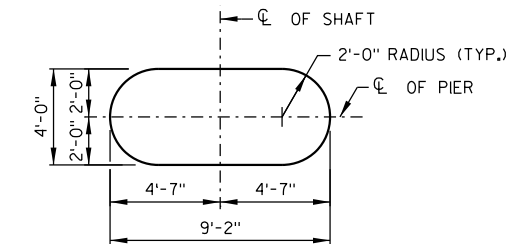
8

8

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-9-387			
DRAWN BY KAM		PLANS CKD. AJC	
PIER 1 LAYOUT DETAILS			SHEET 17 OF 54

PIER LAYOUT TABLE

	CL PIER STATION	BSS	*ELEVATION GIRDER 1	*ELEVATION GIRDER 2	*ELEVATION GIRDER 3	*ELEVATION GIRDER 4	*ELEVATION GIRDER 5	DIM. 'SH'	DIM. 'HT'	DIM. 'WE'	BOTTOM FTG. ELEVATION	BOTTOM SEAL ELEVATION
PIER 2	9+13.80	+1.36%	963.96	964.08	964.19	964.08	963.96	23'-0"	36'-0"	3'-2"	927.96	915.46
PIER 3	10+28.80	+1.13%	965.52	965.64	965.76	965.64	965.52	23'-0"	35'-6"	4'-8 5/8"	930.02	918.52
PIER 4	11+43.80	0.00%	966.54	966.66	966.78	966.66	966.54	23'-0"	36'-0"	5'-8 7/8"	930.54	919.54



SECTION THRU SHAFT

PILE NOTE

PIERS 2, 3, 4 TO BE SUPPORTED ON PILING STEEL HP 12-INCH x 53 LB TO A REQUIRED DRIVING RESISTANCE OF 220 TONS PER PILE AS DETERMINED BY THE MODIFIED GATES DYNAMIC FORMULA.

ESTIMATED PILE LENGTH:

- PIER 2 = 25 FEET
- PIER 3 = 25 FEET
- PIER 4 = 30 FEET

FOR PILE LAYOUT DETAILS, SEE SHEETS 23, 27, 31

FOR PILE SPLICE DETAIL SEE SHT. 10.

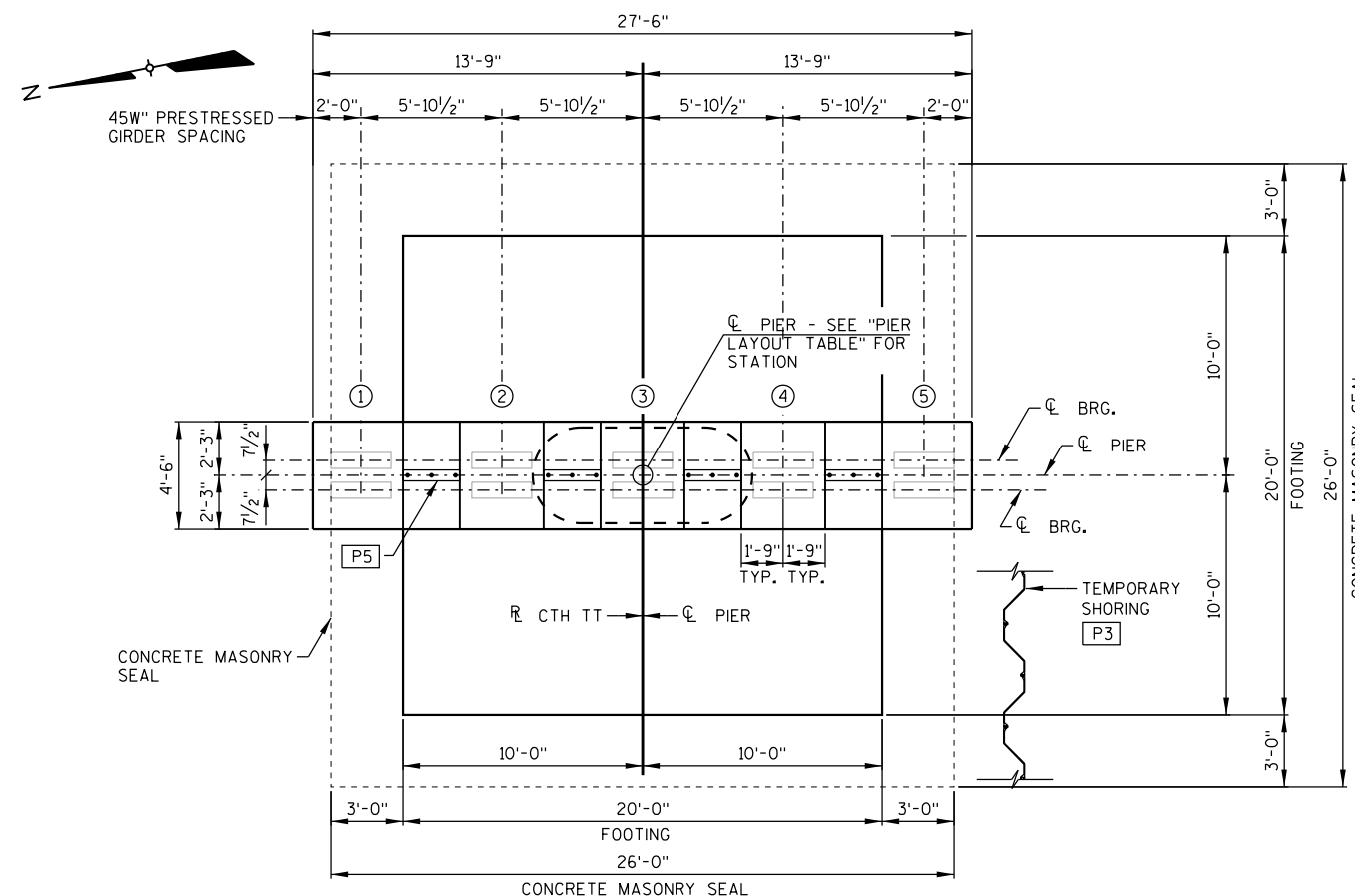
LEGEND

- P3** CONCRETE MASONRY SEAL MAY BE POURED AGAINST TEMPORARY SHORING. THE COST OF CONCRETE THAT FILLS THE STEEL SHEETING VOIDS IS INCIDENTAL TO THE COST FOR TEMPORARY SHORING AND WILL NOT BE PAID FOR UNDER THE CONCRETE MASONRY BID ITEM.
- P4** KEYED CONSTRUCTION JOINT FORMED BY BEVELED 4"x1'-4"x5'-2".
- P5** KEYED CONSTRUCTION JOINT BETWEEN GIRDERS FORMED BY BEVELED 2"x6", W/. (3) PB521, PC521 OR PD521 AT 1'-0" CTRS. BARS MAY BE PLACE AFTER CONCRETE IS POURED BUT BEFORE INITIAL SET HAS TAKEN PLACE.

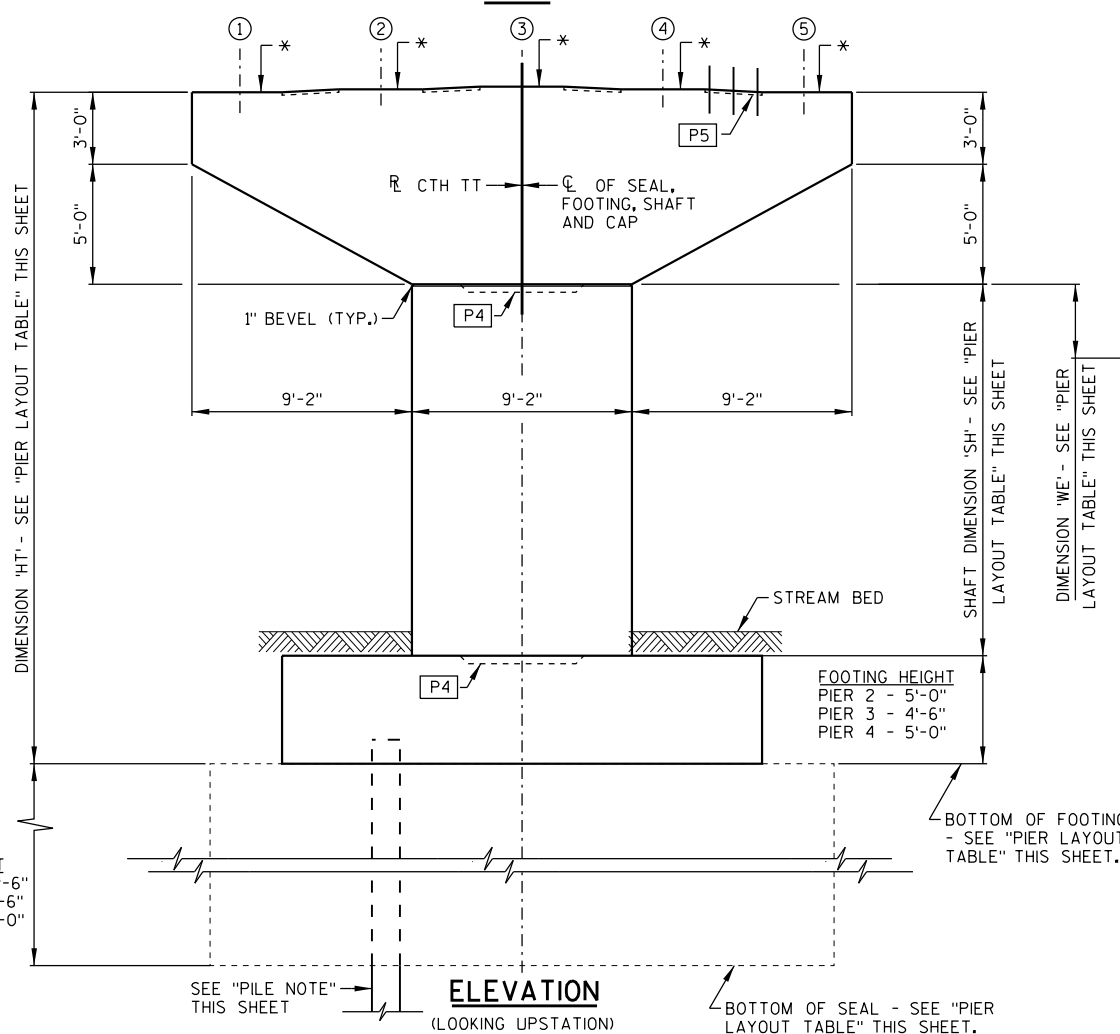
* ELEVATIONS ARE GIVEN AT THE TOP OF PIER CAP CONCRETE AT THE CL OF PIER.

NOTES

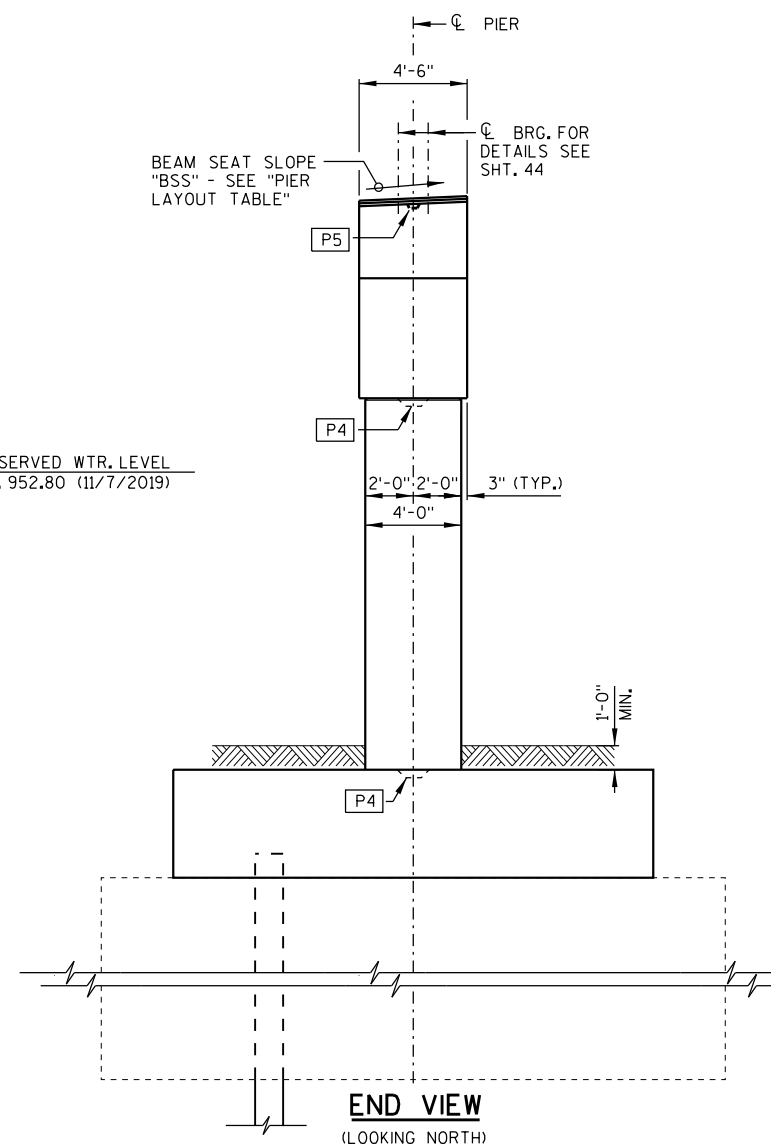
SEE SHT. 44 "SUPERSTRUCTURE-6 " FOR DETAILS OF BEARING PADS AND PREFORM FILLER.



PLAN



ELEVATION (LOOKING UPSTATION)

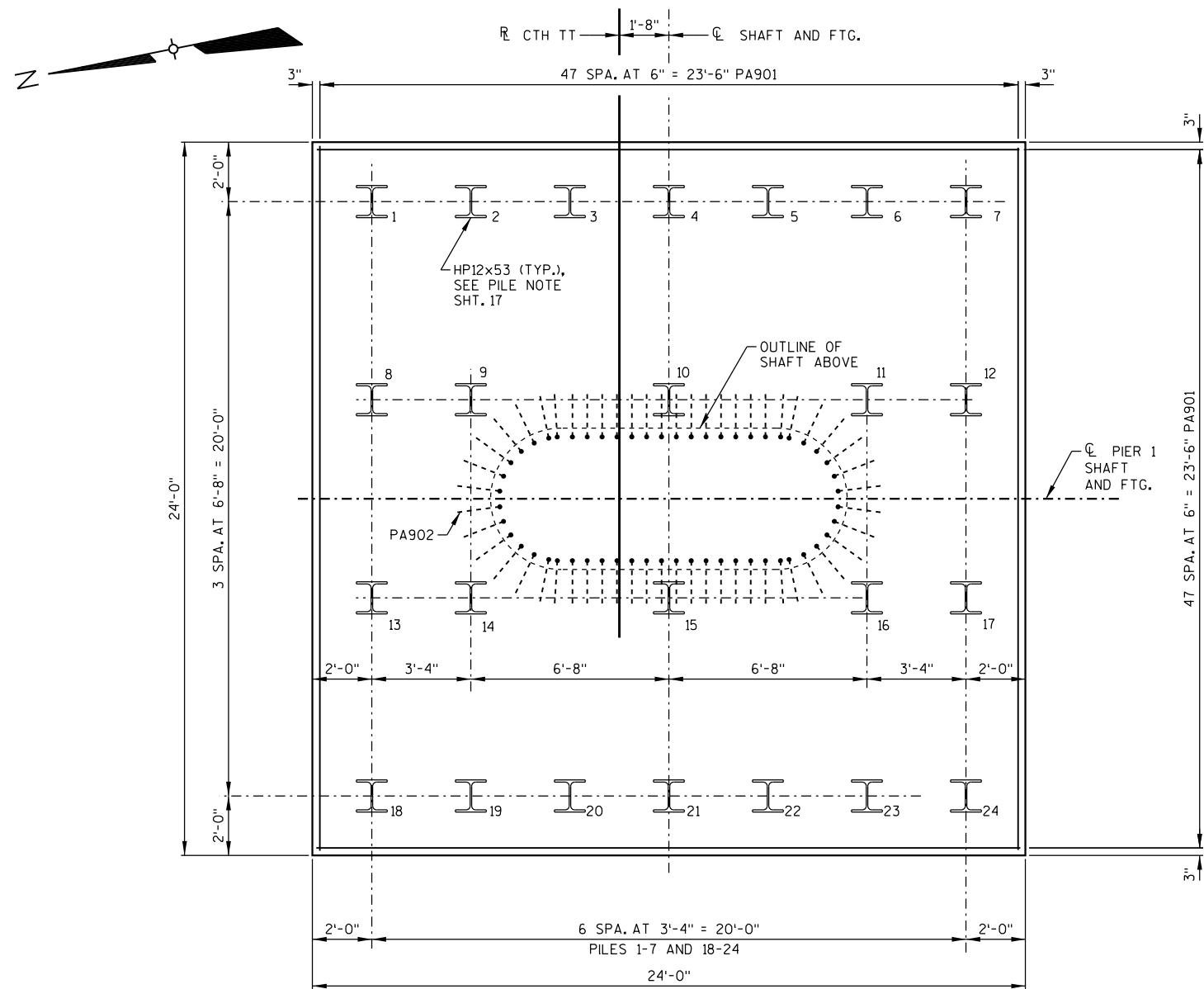


END VIEW (LOOKING NORTH)

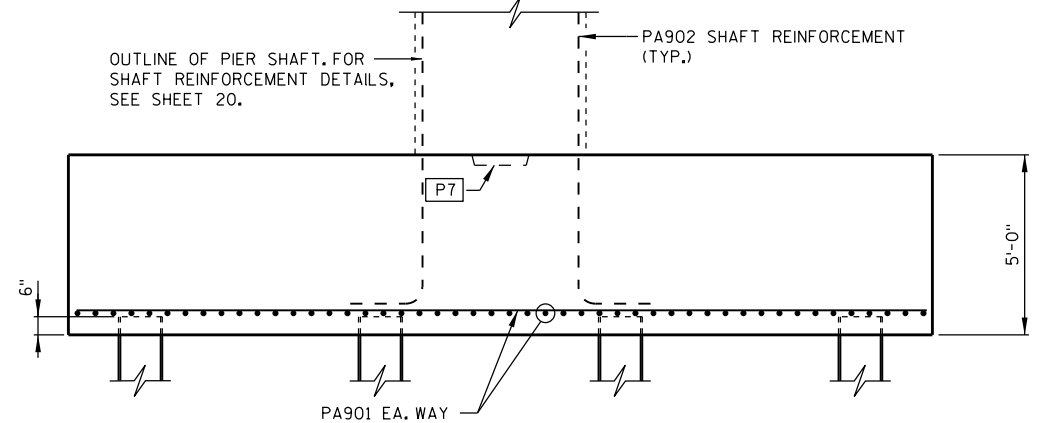
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-9-387			
DRAWN BY KAM		PLANS CK'D. AJC	
PIER 2, 3, 4 LAYOUT DETAILS			SHEET 18 OF 54

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 PLOT DATE: 10/31/2021 PLOT TIME: 2:44:25 PM
 BATCH PRINT SHEET 18 OF 54

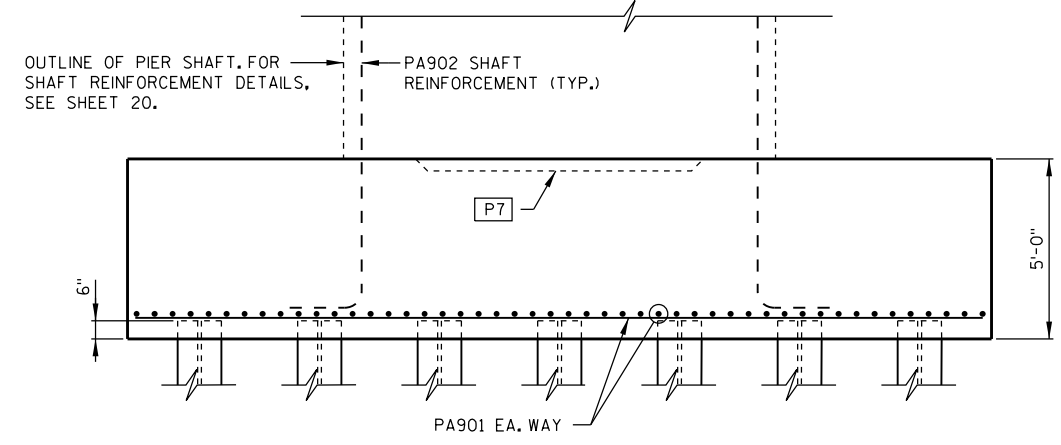
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 PLOT DATE: 10/31/2021 PLOT TIME: 2:44:26 PM BATCH PRINT SHEET 19 OF 54



FOOTING PLAN - PIER 1



FOOTING SIDE ELEVATION - PIER 1



FOOTING ELEVATION - PIER 1
(LOOKING UPSTATION)

PA503 AND PA404 NOT SHOWN,
SEE SHT. 20 "PIER 1 DETAILS"

LEGEND

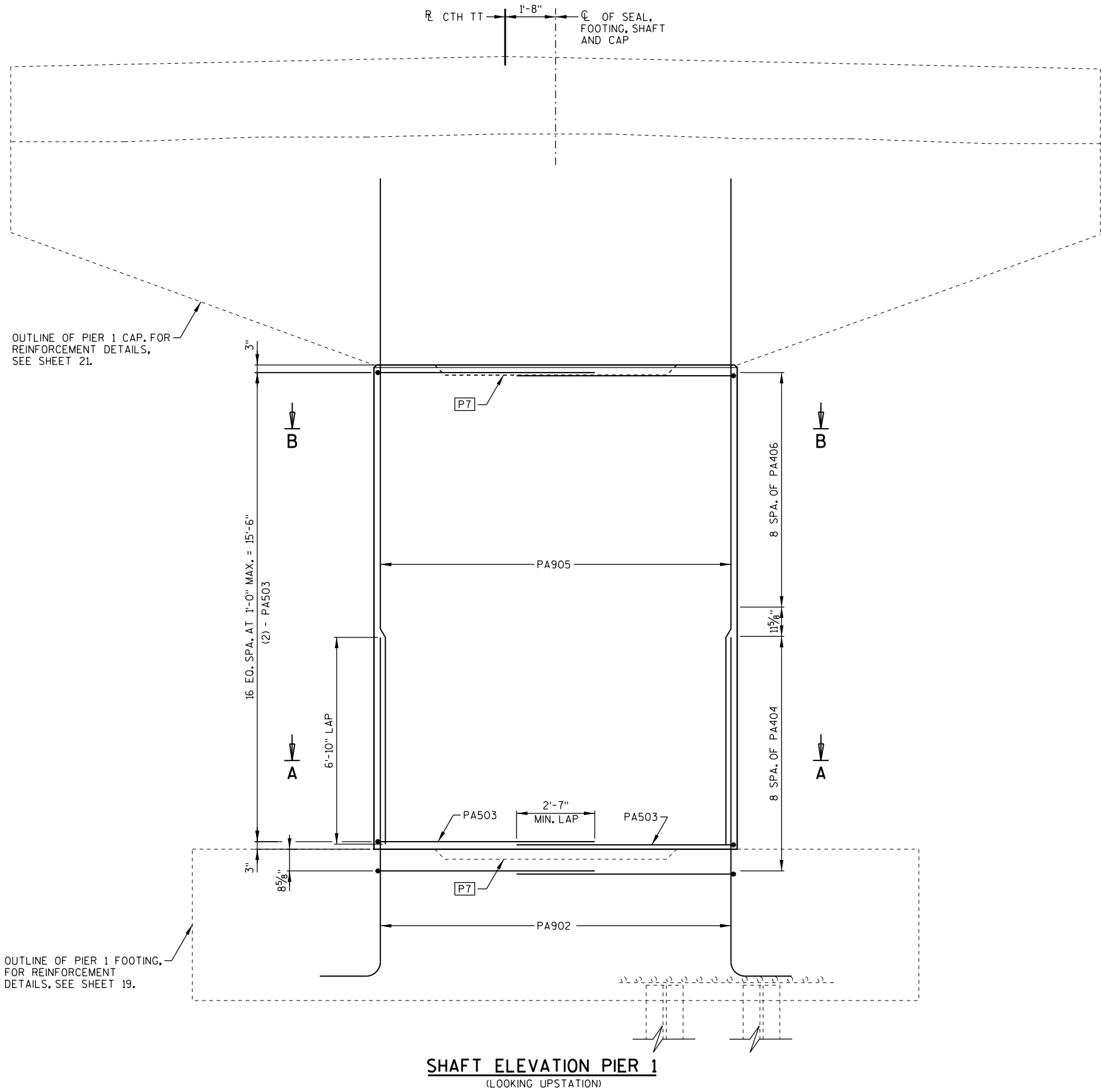
P7 KEYED CONSTRUCTION JOINT FORMED BY BEVELED 4"x1'-7"x8'-0".

NOTE

FOR PIER BILL OF BARS, SEE SHEET 22.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-9-387			
DRAWN BY KAM		PLANS CK'D. AJC	
PIER 1 FOOTING DETAILS			SHEET 19 OF 54

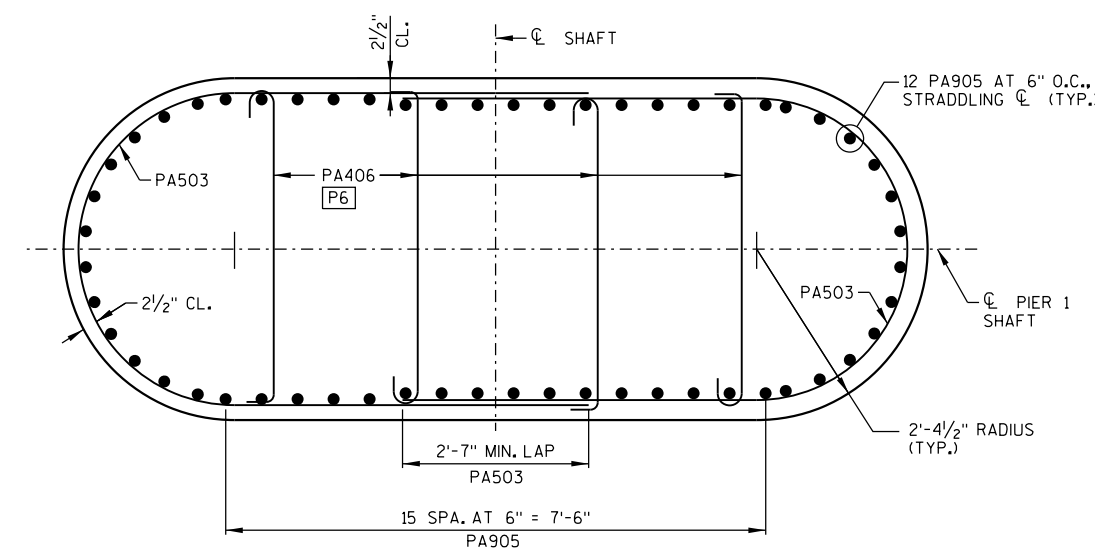
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 PLOT DATE: 10/31/2021 PLOT TIME: 2:44:27 PM BATCH PRINT SHEET 20 OF 54



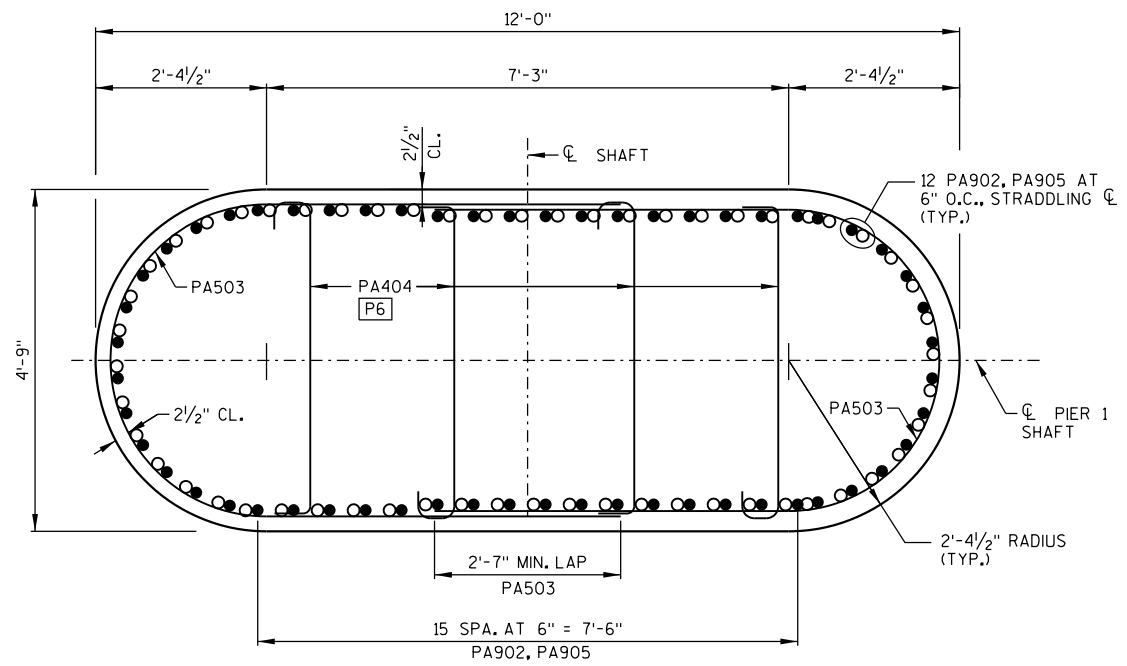
OUTLINE OF PIER 1 CAP, FOR REINFORCEMENT DETAILS, SEE SHEET 21.

OUTLINE OF PIER 1 FOOTING, FOR REINFORCEMENT DETAILS, SEE SHEET 19.

SHAFT ELEVATION PIER 1
(LOOKING UPSTATION)



SECTION B-B



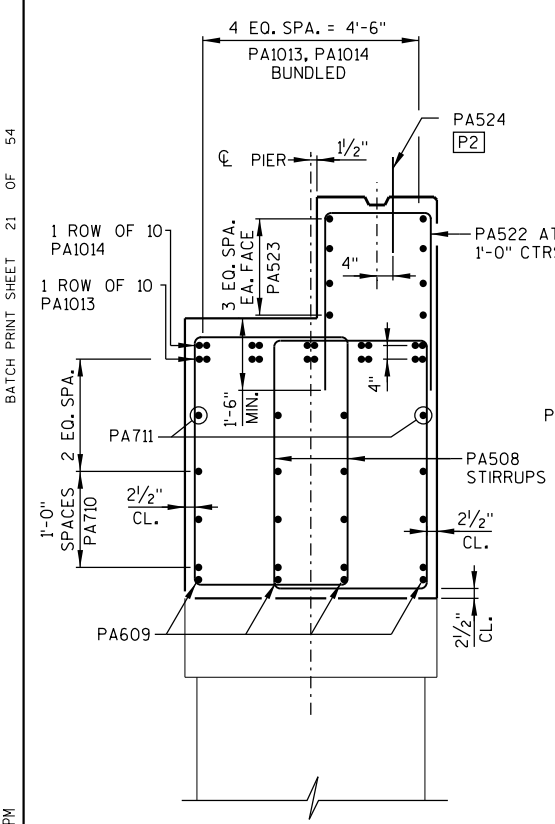
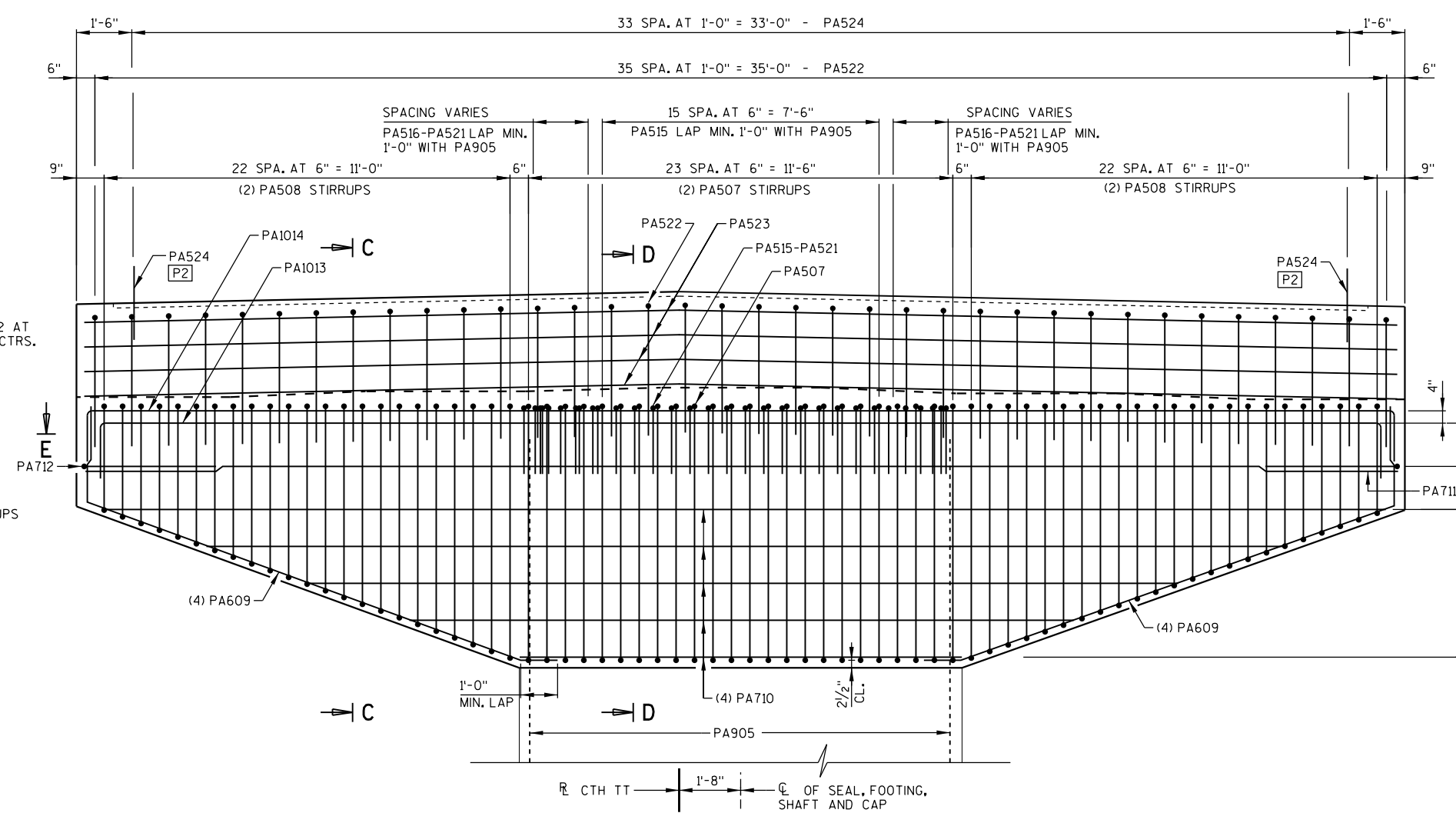
SECTION A-A

LEGEND

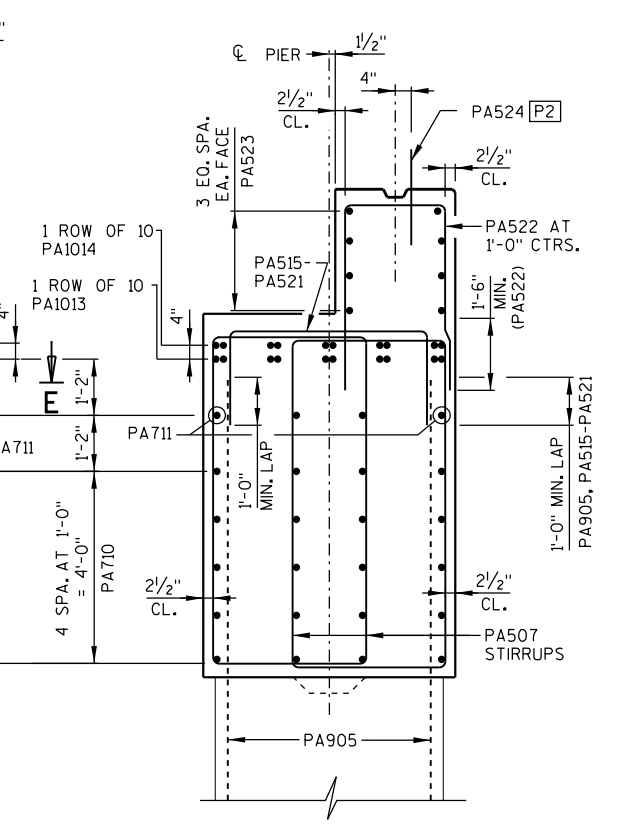
- P6 ALTERNATE THE POSITION OF THE 90° AND 180° HOOKS AT EACH VERTICAL LAYER OF TIES.
- P7 KEYED CONSTRUCTION JOINT FORMED BY BEVELED 4"x1'-7"x8'-0".

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-9-387			
DRAWN BY KAM		PLANS CK'D. AJC	
PIER 1 SHAFT DETAILS			SHEET 20 OF 54

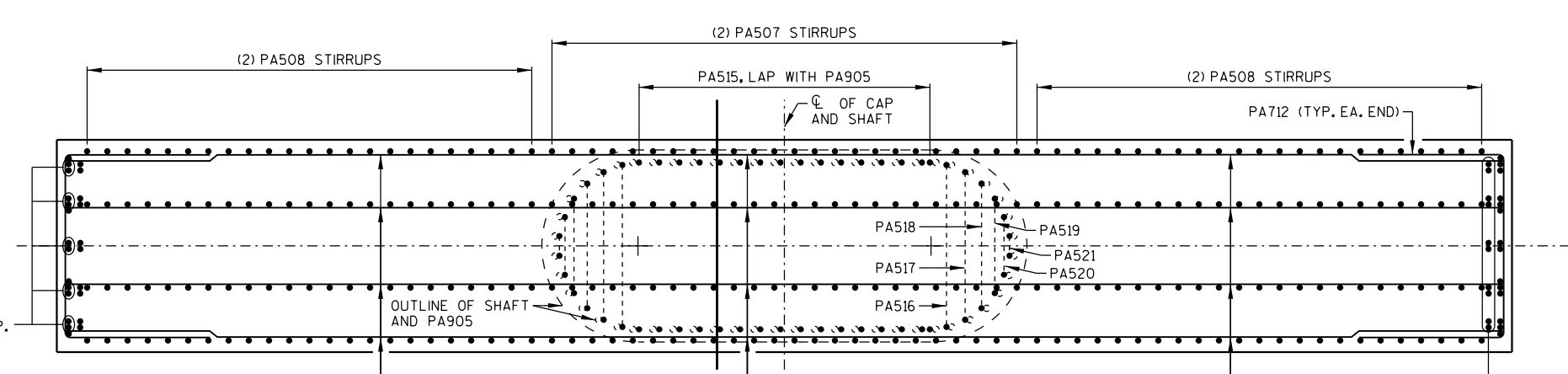
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 BATCH PRINT SHEET 21 OF 54
 PLOT DATE: 10/31/2021
 PLOT TIME: 2:44:28 PM



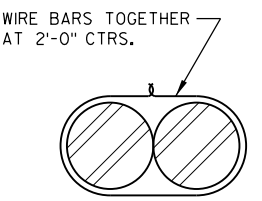
SECTION C-C



SECTION D-D



SECTION E-E



BAR BUNDLING DETAIL
(PA1013 & PA1014 BARS)

LEGEND
 P2 KEYED CONSTRUCTION JOINT FORMED BY BEVELED 2"x6", W/ PA524 BARS AT 1'-0" CTRS. BARS MAY BE PLACED AFTER CONCRETE IS POURED BUT BEFORE INITIAL SET HAS TAKEN PLACE.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-9-387			
DRAWN BY KAM		PLANS CK'D. AJC	
PIER 1 CAP DETAILS			SHEET 21 OF 54

8

8

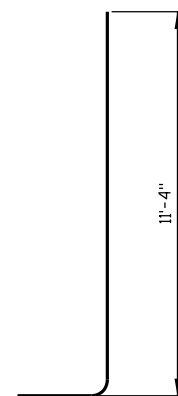
BILL OF BARS

DIMENSIONS IN BENDING DETAILS ARE OUT TO OUT OF BAR.
 ▲ LENGTH SHOWN FOR BAR IS AN AVG. LENGTH AND SHOULD ONLY BE USED FOR BAR WEIGHT CALCULATIONS. SEE BAR SERIES TABLE FOR ACTUAL LENGTHS.

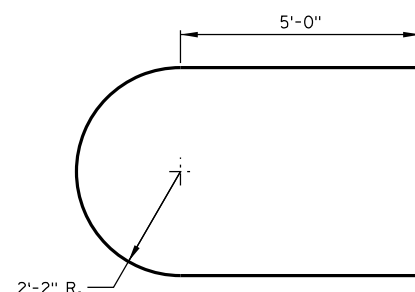
MARK	NO. REQ'D	COATED	LENGTH	BENT	BAR SERIES	LOCATION	
NON-COATED BARS							TOTAL WEIGHT = 7,680 LBS
PA901	96		23-6			FOOTING - BOTTOM	HORIZ.
COATED BARS							TOTAL WEIGHT = 15,940 LBS
PA902	56	X	12-8	X		FOOTING/SHAFT	VERT.
PA503	36	X	16-10	X		FOOTING/SHAFT	HORIZ.
PA404	36	X	5-3	X		SHAFT	HORIZ.
PA905	56	X	22-3			SHAFT	VERT.
PA406	36	X	5-2	X		SHAFT	HORIZ.
PA507	48	X	21-0	X		CAP, STIRRUP CENTER	VERT.
PA508	92	X	16-11	X	Δ	CAP, STIRRUP EA. ENDS	VERT.
PA609	8	X	16-0	X		CAP, BOTTOM AT ENDS	HORIZ.
PA710	20	X	23-5		Δ	CAP	HORIZ.
PA711	4	X	35-6			CAP	HORIZ.
PA712	2	X	13-9	X		CAP, ENDS	HORIZ.
PA1013	10	X	38-1	X		CAP, TOP	HORIZ.
PA1014	10	X	38-7	X		CAP, TOP	HORIZ.
PA515	16	X	7-11	X		CAP, TOP ABOVE SHAFT	HORIZ.
PA516	2	X	7-9	X		CAP, TOP ABOVE SHAFT	HORIZ.
PA517	2	X	7-4	X		CAP, TOP ABOVE SHAFT	HORIZ.
PA518	2	X	6-10	X		CAP, TOP ABOVE SHAFT	HORIZ.
PA519	2	X	6-1	X		CAP, TOP ABOVE SHAFT	HORIZ.
PA520	2	X	5-2	X		CAP, TOP ABOVE SHAFT	HORIZ.
PA521	2	X	4-3	X		CAP, TOP ABOVE SHAFT	HORIZ.
PA522	36	X	9-5	X		CAP, TOP	VERT.
PA523	8	X	35-6			CAP, TOP	HORIZ.
PA524	34	X	2-0			CAP, DOWELS ON TOP	VERT.

BAR SERIES

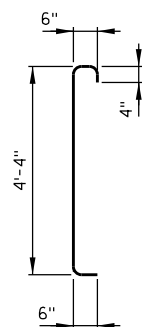
MARK	NO. REQ'D	LENGTH
PA508	4 SETS OF 23	13'-0" TO 20'-10"
PA710	4 SETS OF 5	12'-0" TO 34'-9"



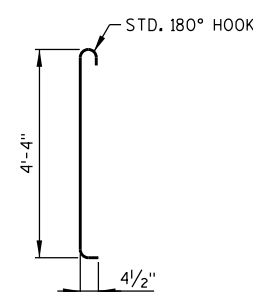
PA902



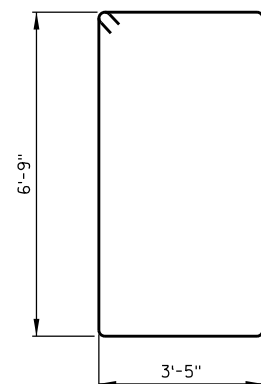
PA503



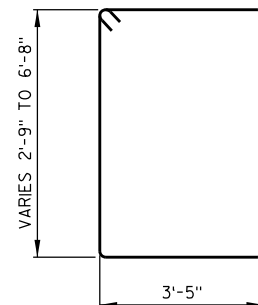
PA404



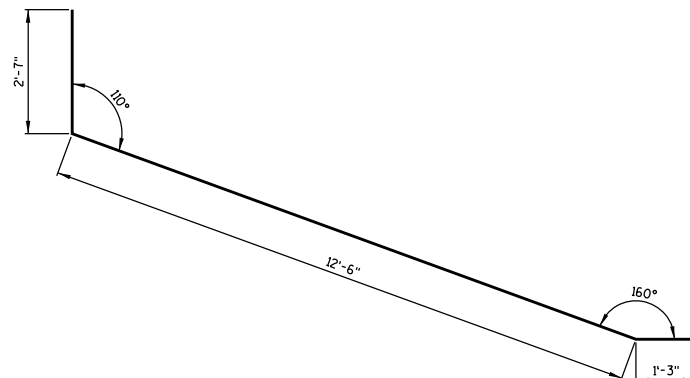
PA406



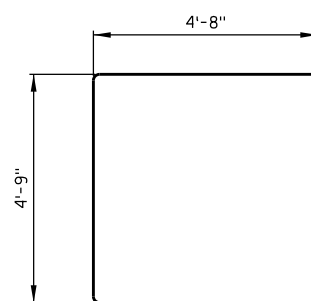
PA507



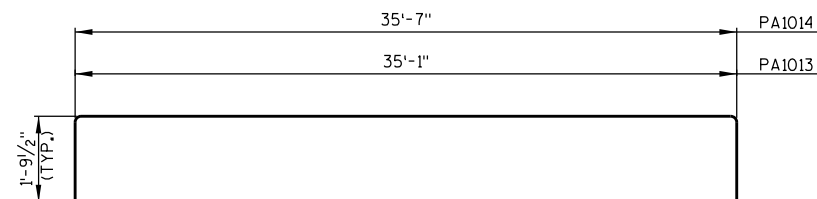
PA508



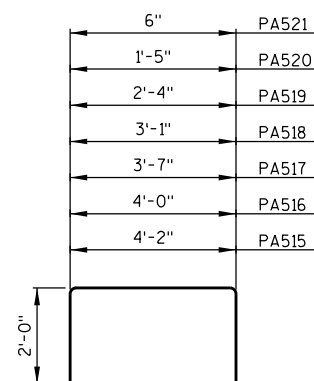
PA609



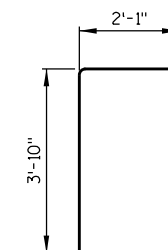
PA712



PA1013, PA1014



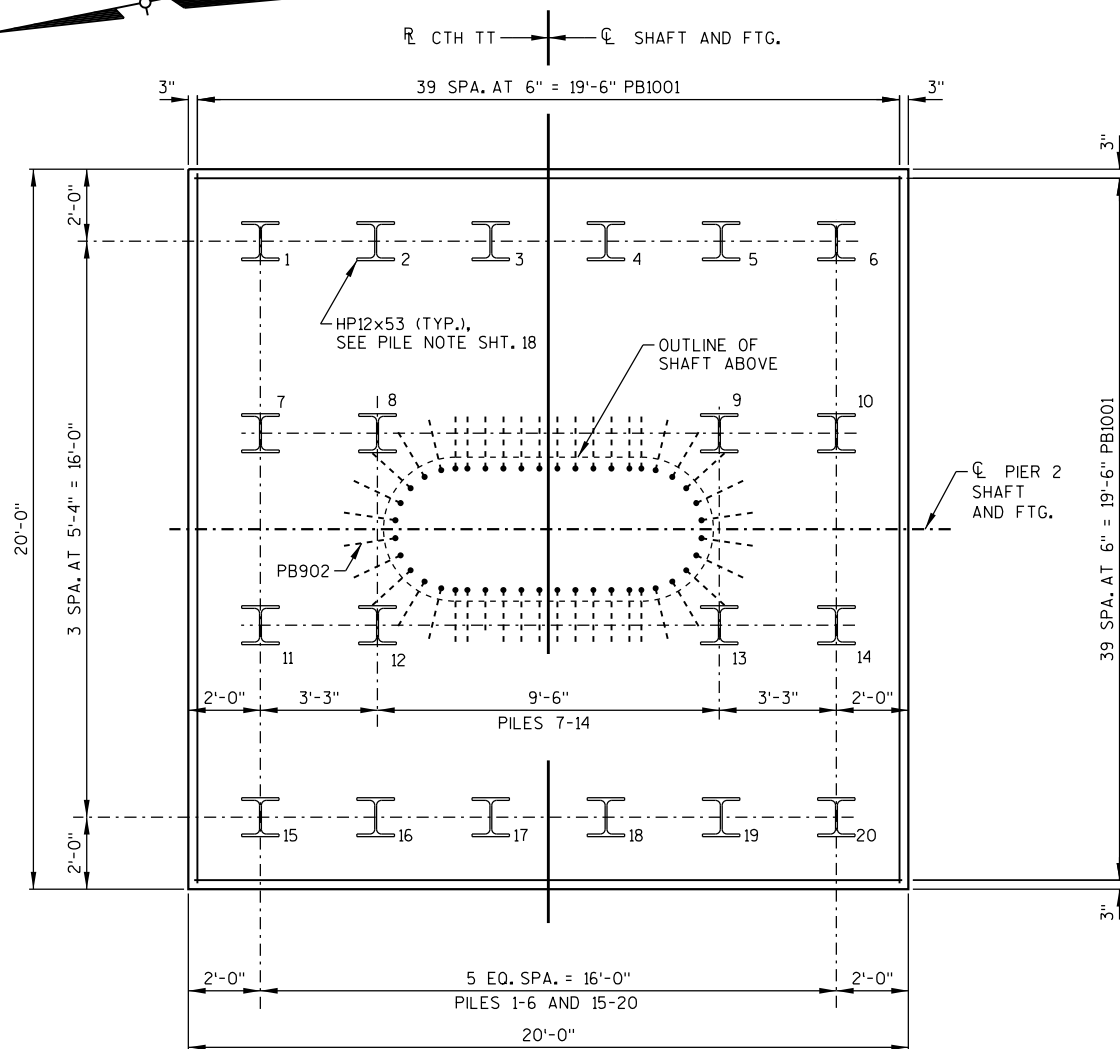
PA515, PA516, PA517, PA518, PA519, PA520, PA521



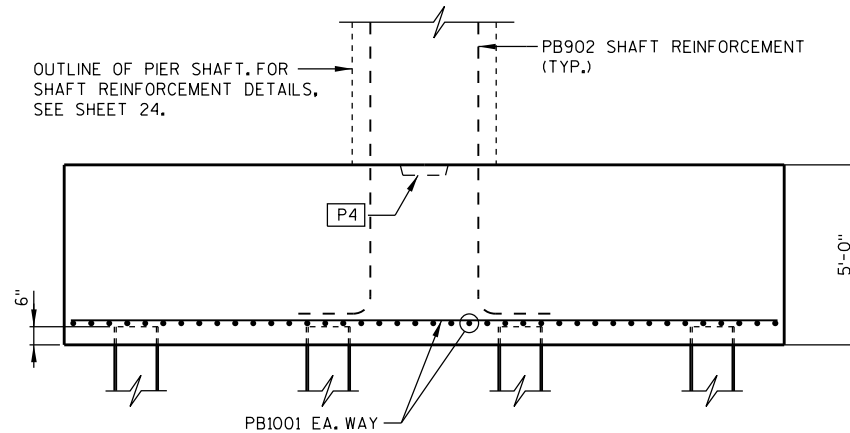
PA522

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 PLOT DATE: 10/31/2021 PLOT TIME: 2:44:29 PM BATCH PRINT SHEET 22 OF 54

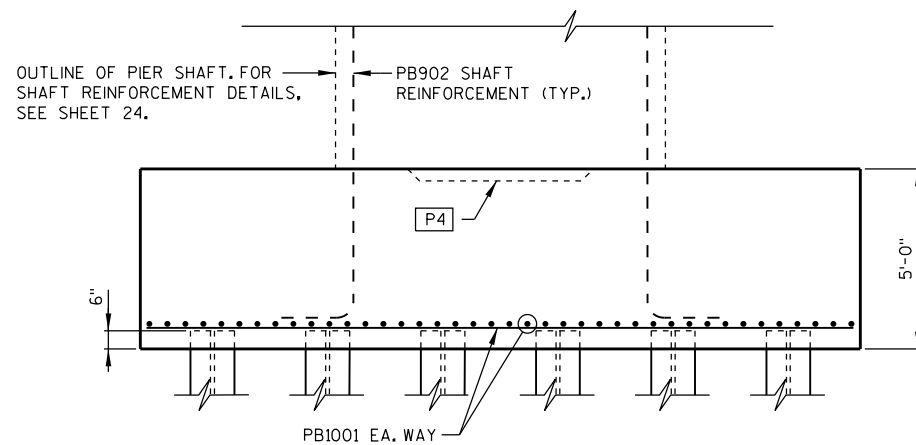
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-9-387			
DRAWN BY KAM		PLANS CK'D. AJC	
PIER 1 BAR DETAILS			SHEET 22 OF 54



FOOTING PLAN - PIER 2



FOOTING SIDE ELEVATION - PIER 2



FOOTING ELEVATION - PIER 2
(LOOKING UPSTATION)

PB503 AND PB404 NOT SHOWN,
SEE SHT. 24 "PIER 2 DETAILS"

LEGEND

P4 KEYED CONSTRUCTION JOINT FORMED BY BEVELED 4"x1'-4"x5'-2".

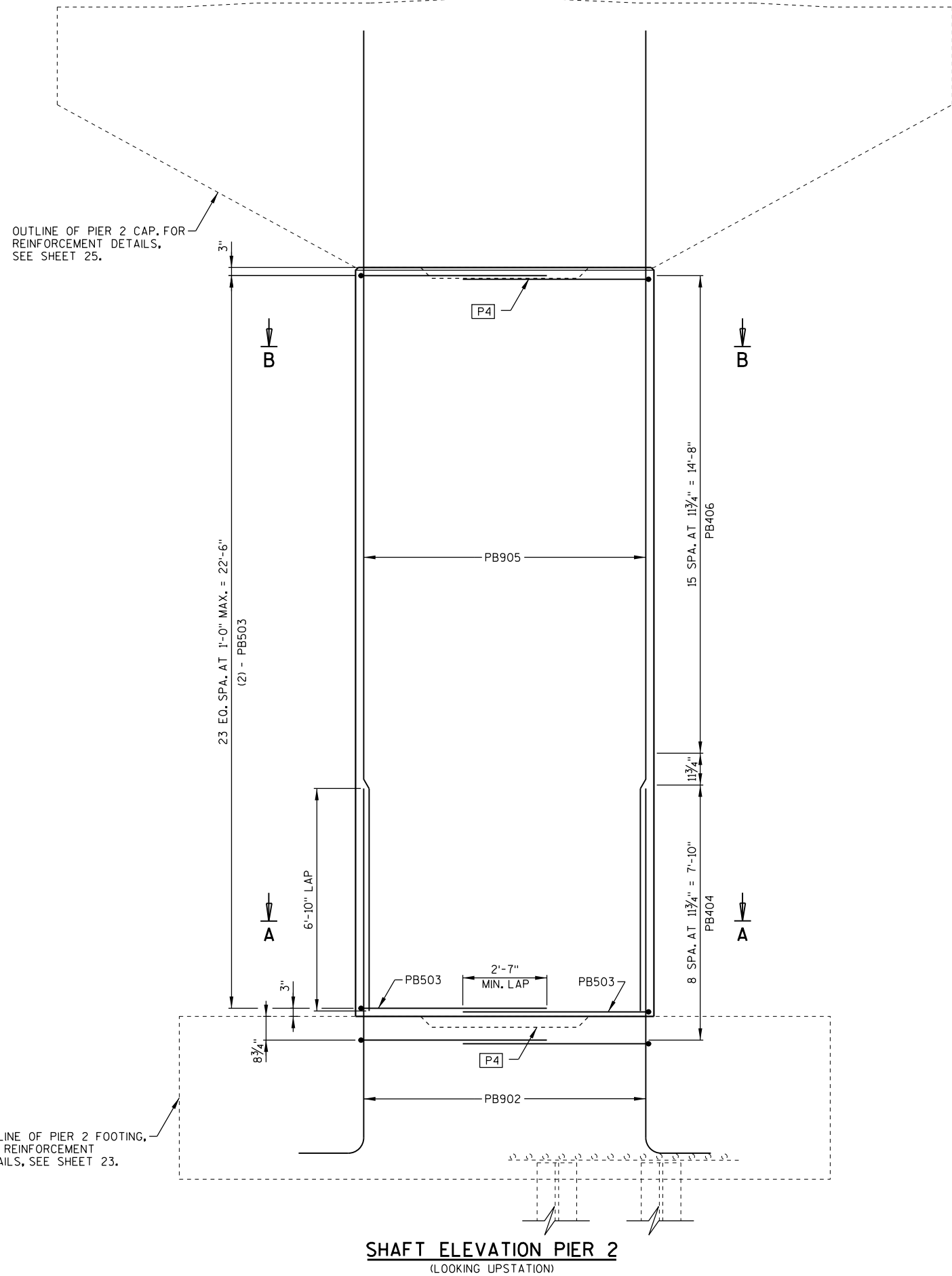
NOTE

FOR PIER 2 BILL OF BARS, SEE SHEET 26.

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 PLOT DATE: 10/31/2021 PLOT TIME: 2:44:30 PM BATCH PRINT SHEET 23 OF 54

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-9-387			
DRAWN BY KAM		PLANS CK'D. AJC	
PIER 2 FOOTING DETAILS			SHEET 23 OF 54

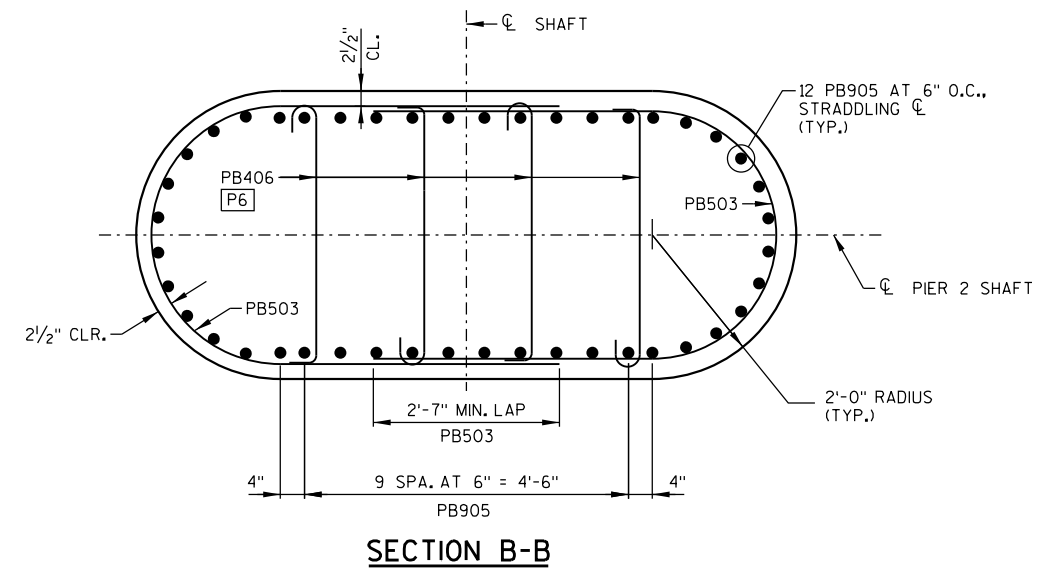
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 PLOT DATE: 10/31/2021 PLOT TIME: 2:44:31 PM BATCH PRINT SHEET 24 OF 54



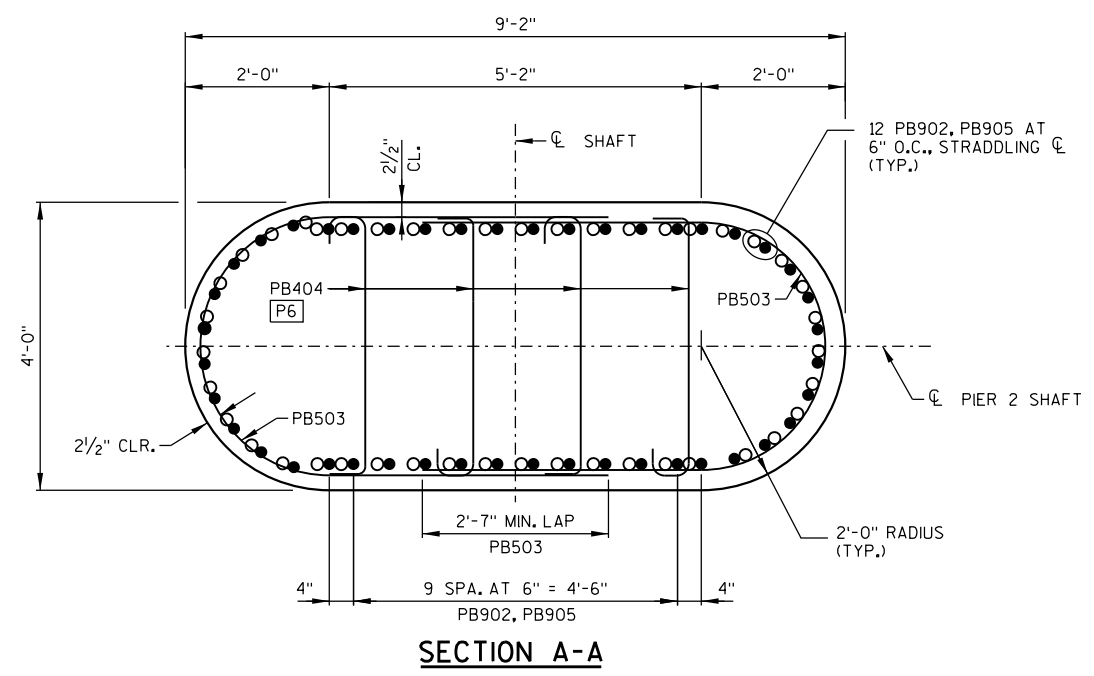
OUTLINE OF PIER 2 CAP, FOR REINFORCEMENT DETAILS, SEE SHEET 25.

OUTLINE OF PIER 2 FOOTING, FOR REINFORCEMENT DETAILS, SEE SHEET 23.

SHAFT ELEVATION PIER 2
(LOOKING UPSTATION)



SECTION B-B



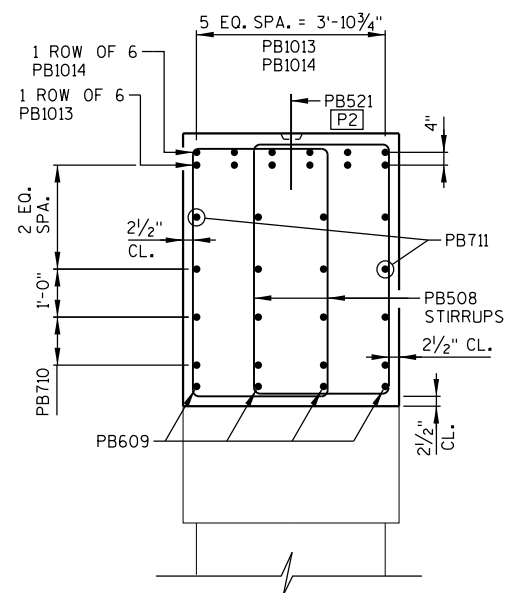
SECTION A-A

LEGEND

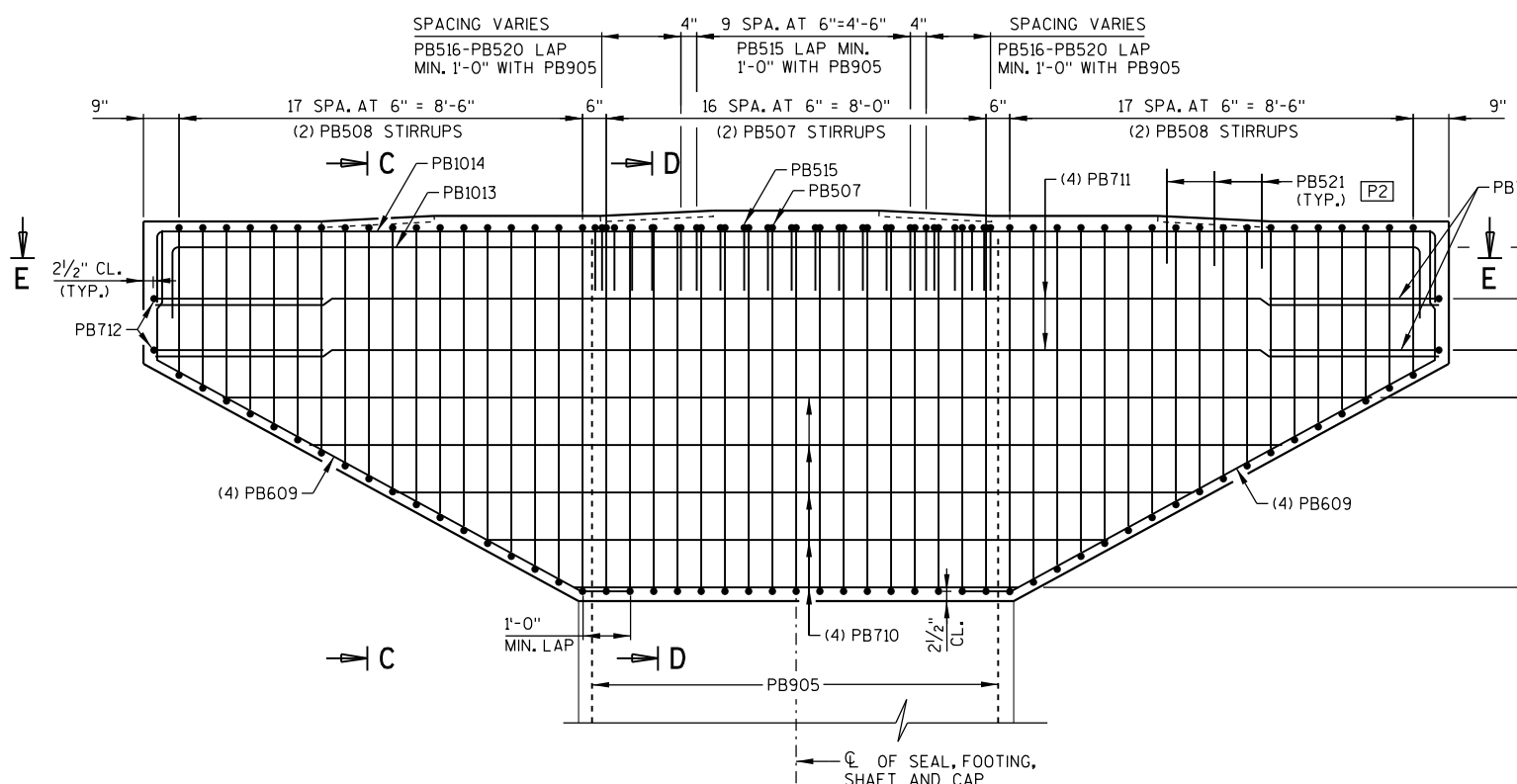
- P4** KEYED CONSTRUCTION JOINT FORMED BY BEVELED 4"x1'-4"x5'-2".
- P6** ALTERNATE THE POSITION OF THE 90° AND 180° HOOKS AT EACH VERTICAL LAYER OF TIES.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-9-387			
DRAWN BY KAM		PLANS CK'D. AJC	
PIER 2 SHAFT DETAILS			SHEET 24 OF 54

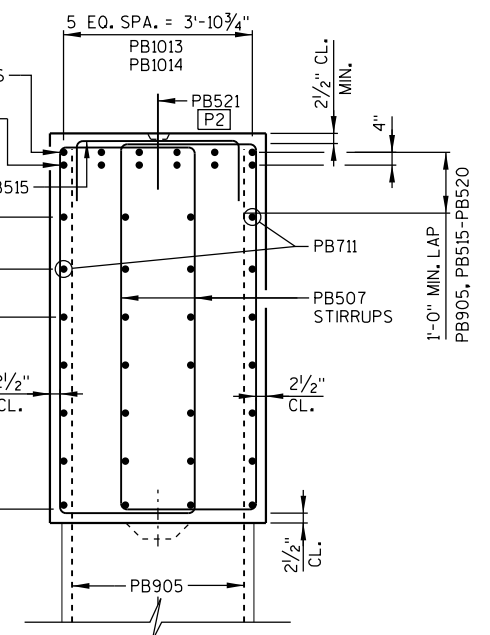
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 BATCH PRINT SHEET 25 OF 54
 PLOT DATE: 10/31/2021
 PLOT TIME: 2:44:31 PM



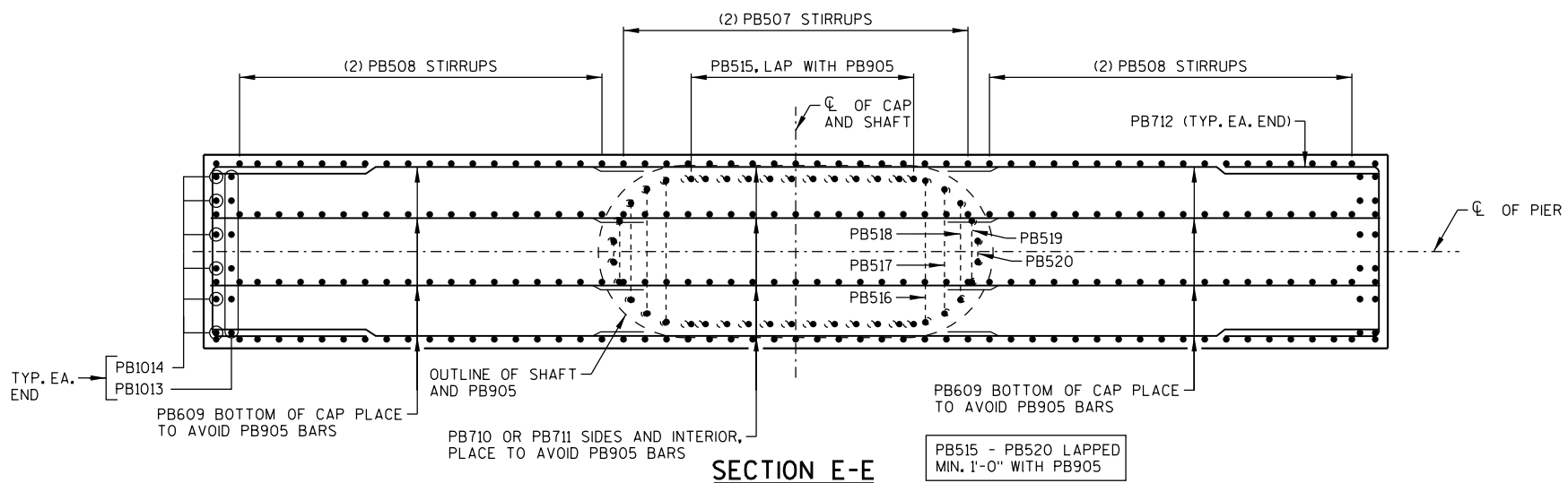
SECTION C-C



ELEVATION - PIER 2 CAP



SECTION D-D



SECTION E-E

LEGEND

P2 KEYED CONSTRUCTION JOINT FORMED BY BEVELED 2"x6", W/. PB521 BARS AT 1'-0" CTRS. BARS MAY BE PLACED AFTER CONCRETE IS POURED BUT BEFORE INITIAL SET HAS TAKEN PLACE.

NOTES

FOR BAR STEEL REINFORCEMENT DETAILS, SEE SHT. 26.
 SEE SHT. 44 "SUPERSTRUCTURE-6" FOR DETAILS OF BEARING PADS AND PREFORM FILLER.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-9-387			
DRAWN BY KAM		PLANS CK'D. AJC	
PIER 2 CAP DETAILS			SHEET 25 OF 54

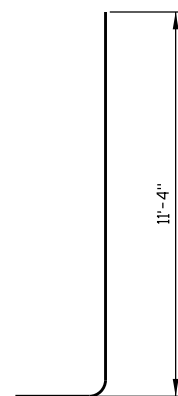
BILL OF BARS

DIMENSIONS IN BENDING DETAILS ARE OUT TO OUT OF BAR.
 Δ LENGTH SHOWN FOR BAR IS AN AVG. LENGTH AND SHOULD ONLY BE USED FOR BAR WEIGHT CALCULATIONS. SEE BAR SERIES TABLE FOR ACTUAL LENGTHS.

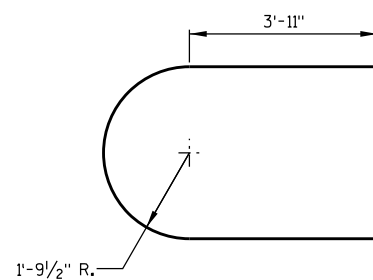
MARK	NO. REQ'D	COATED	LENGTH	BENT	BAR SERIES	LOCATION
NON-COATED BARS						TOTAL WEIGHT = 6,720 LBS
PB1001	80		19-6			FOOTING - BOTTOM HORIZ.
COATED BARS						TOTAL WEIGHT = 12,620 LBS
PB902	44	X	12-8	X		FOOTING/SHAFT VERT.
PB503	50	X	13-6	X		FOOTING/SHAFT HORIZ.
PB404	36	X	4-6	X		SHAFT HORIZ.
PB905	44	X	30-9			SHAFT VERT.
PB406	64	X	4-5	X		SHAFT HORIZ.
PB507	34	X	21-8	X		CAP, STIRRUP CENTER VERT.
PB508	72	X	17-0	X	Δ	CAP, STIRRUP EA. ENDS VERT.
PB609	8	X	13-8	X		CAP, BOTTOM AT ENDS HORIZ.
PB710	20	X	16-8		Δ	CAP HORIZ.
PB711	8	X	27-1			CAP HORIZ.
PB712	4	X	13-0	X		CAP, ENDS HORIZ.
PB1013	6	X	29-7	X		CAP, TOP HORIZ.
PB1014	6	X	30-1	X		CAP, TOP HORIZ.
PB515	12	X	5-8	X		CAP, TOP ABOVE SHAFT HORIZ.
PB516	2	X	5-6	X		CAP, TOP ABOVE SHAFT HORIZ.
PB517	2	X	5-1	X		CAP, TOP ABOVE SHAFT HORIZ.
PB518	2	X	4-6	X		CAP, TOP ABOVE SHAFT HORIZ.
PB519	2	X	3-8	X		CAP, TOP ABOVE SHAFT HORIZ.
PB520	2	X	2-9	X		CAP, TOP ABOVE SHAFT HORIZ.
PB521	12	X	2-0			CAP, DOWELS ON TOP VERT.

BAR SERIES

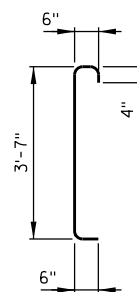
MARK	NO. REQ'D	LENGTH
PB508	4 SETS OF 18	12'-4" TO 21'-8"
PB710	4 SETS OF 5	9'-4" TO 24'-0"



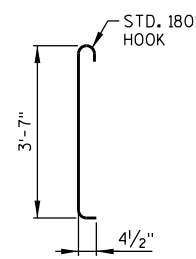
PB902



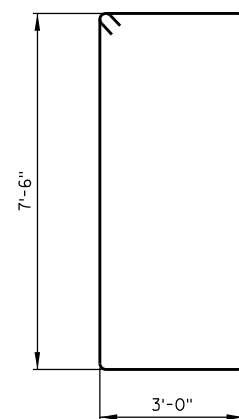
PB503



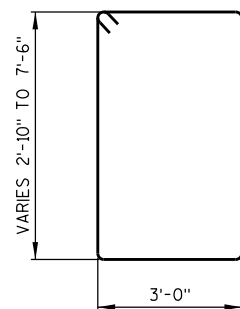
PB404



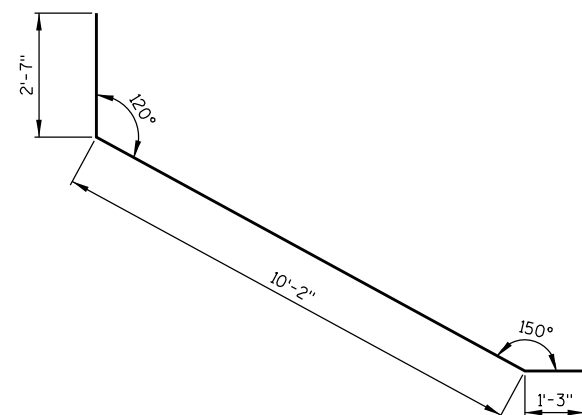
PB406



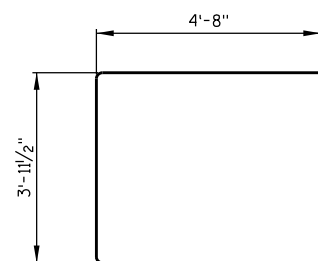
PB507



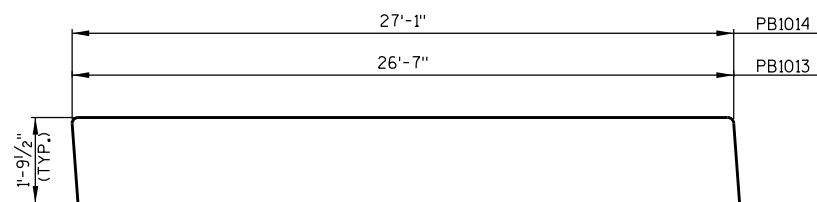
PB508



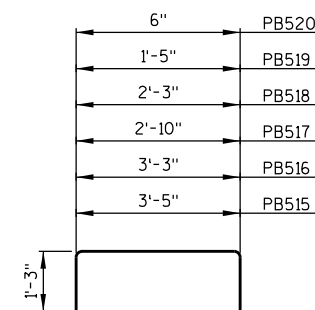
PB609



PB712



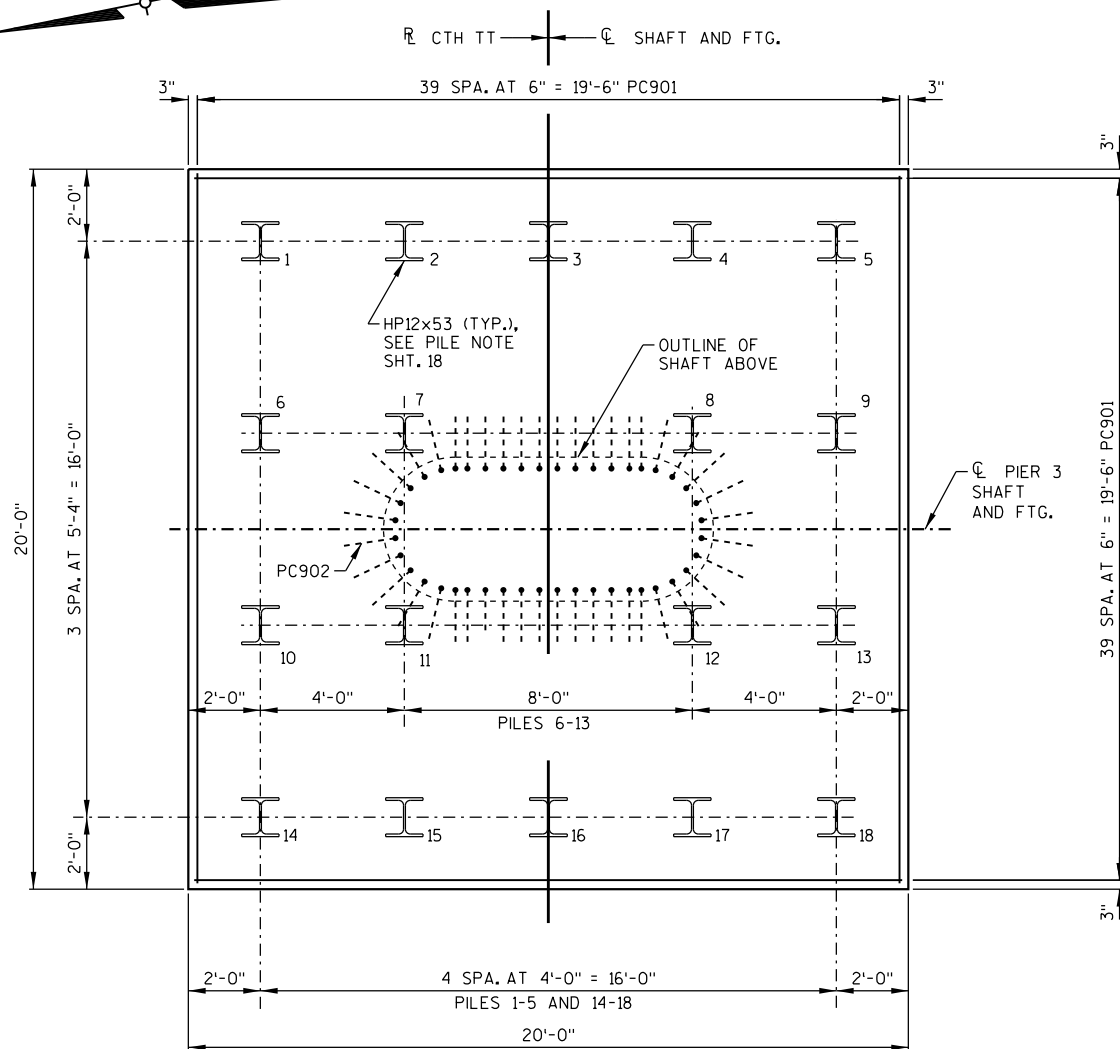
PB1013, PB1014



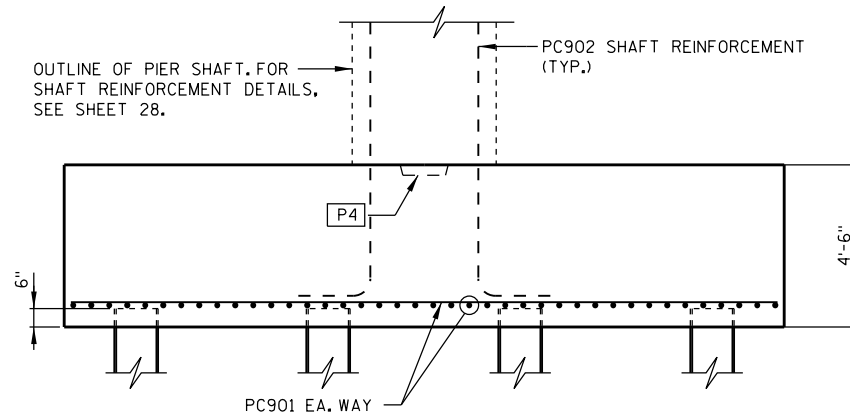
PB515, PB516, PB517, PB518, PB519, PB520

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 PLOT DATE: 10/31/2021 PLOT TIME: 2:44:32 PM BATCH PRINT SHEET 26 OF 54

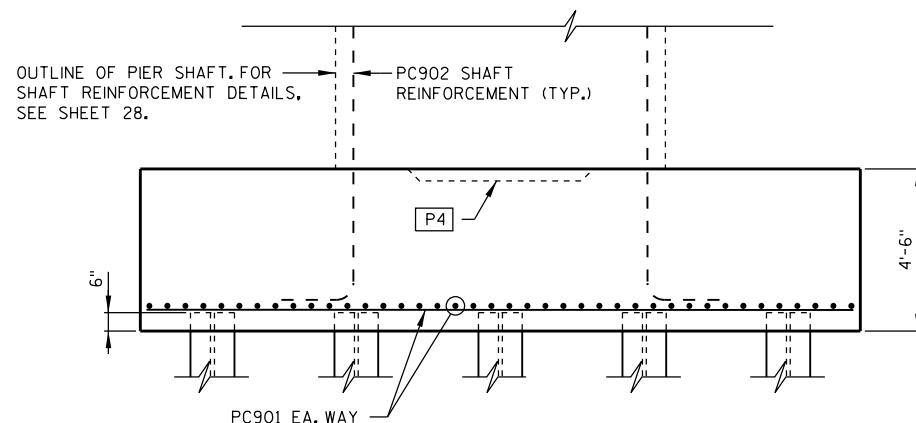
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-9-387			
DRAWN BY KAM		PLANS CK'D. AJC	
PIER 2 BAR DETAILS			SHEET 26 OF 54



FOOTING PLAN - PIER 3



FOOTING SIDE ELEVATION - PIER 3



FOOTING ELEVATION - PIER 3
(LOOKING UPSTATION)

PC503 AND PC404 NOT SHOWN,
SEE SHT. 28 "PIER 3 DETAILS"

LEGEND

P4 KEYED CONSTRUCTION JOINT FORMED BY BEVELED 4"x1'-4"x5'-2".

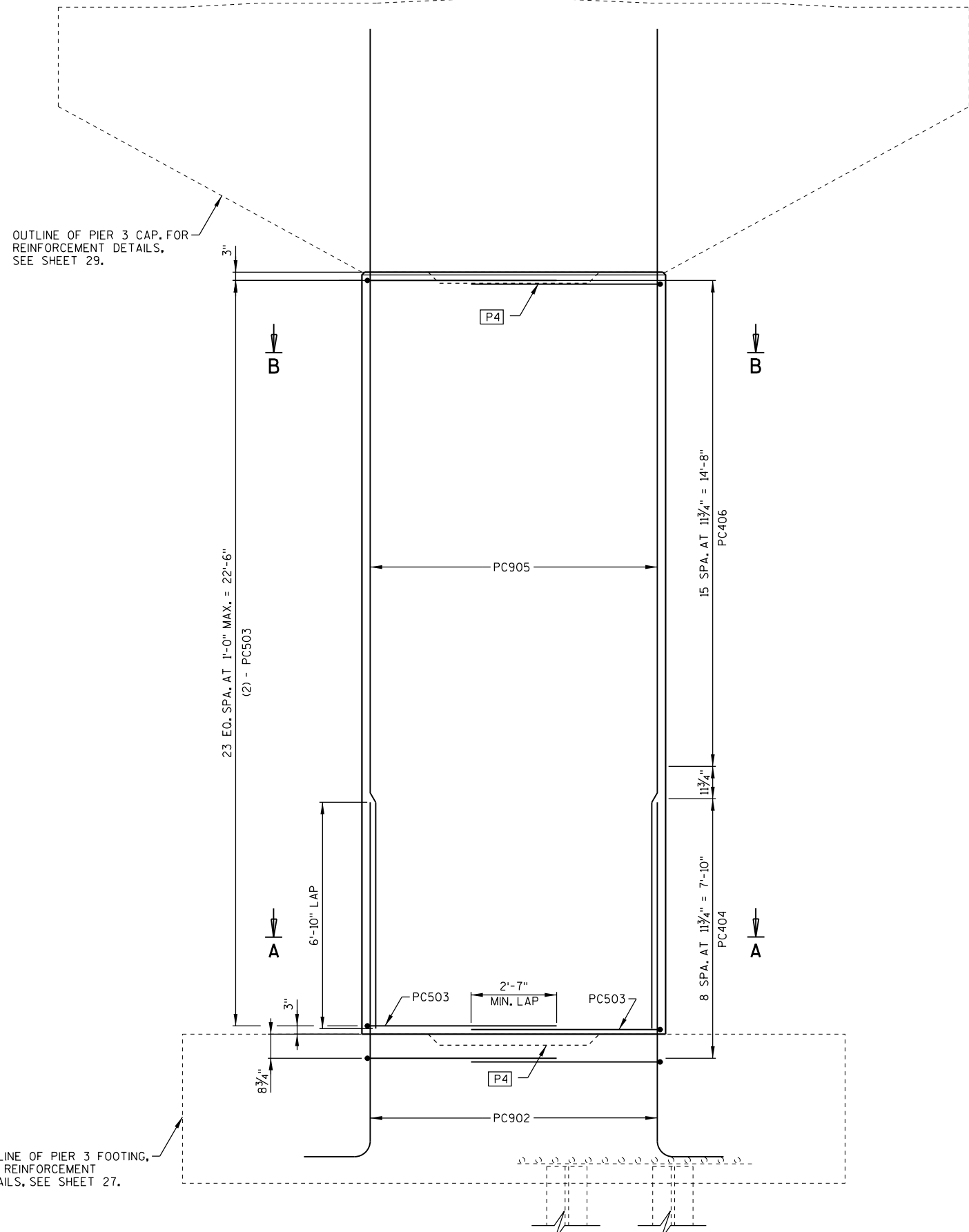
NOTE

FOR PIER 3 BILL OF BARS, SEE SHEET 30.

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 PLOT DATE: 10/31/2021 PLOT TIME: 2:44:33 PM BATCH PRINT SHEET 27 OF 54

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-9-387			
DRAWN BY KAM		PLANS CK'D. AJC	
PIER 3 FOOTING DETAILS			SHEET 27 OF 54

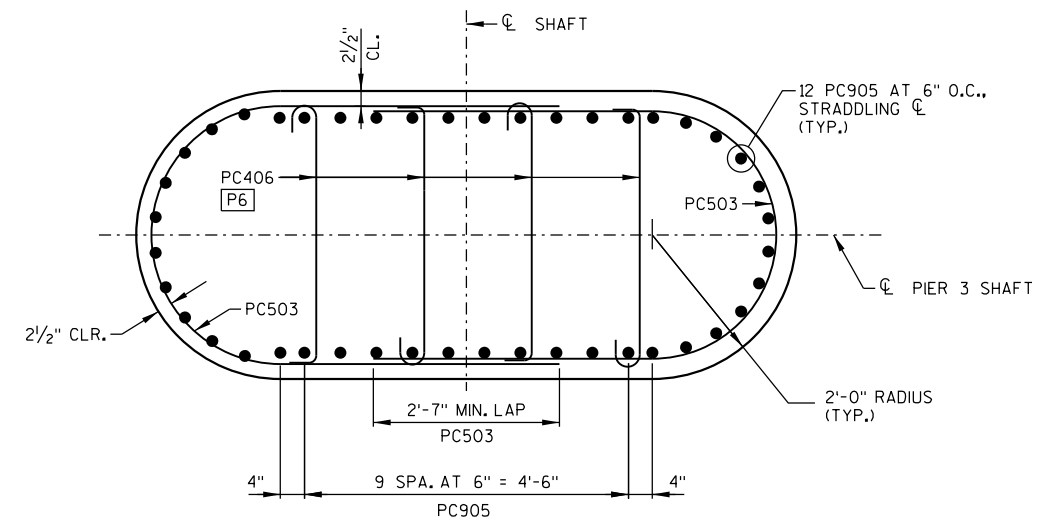
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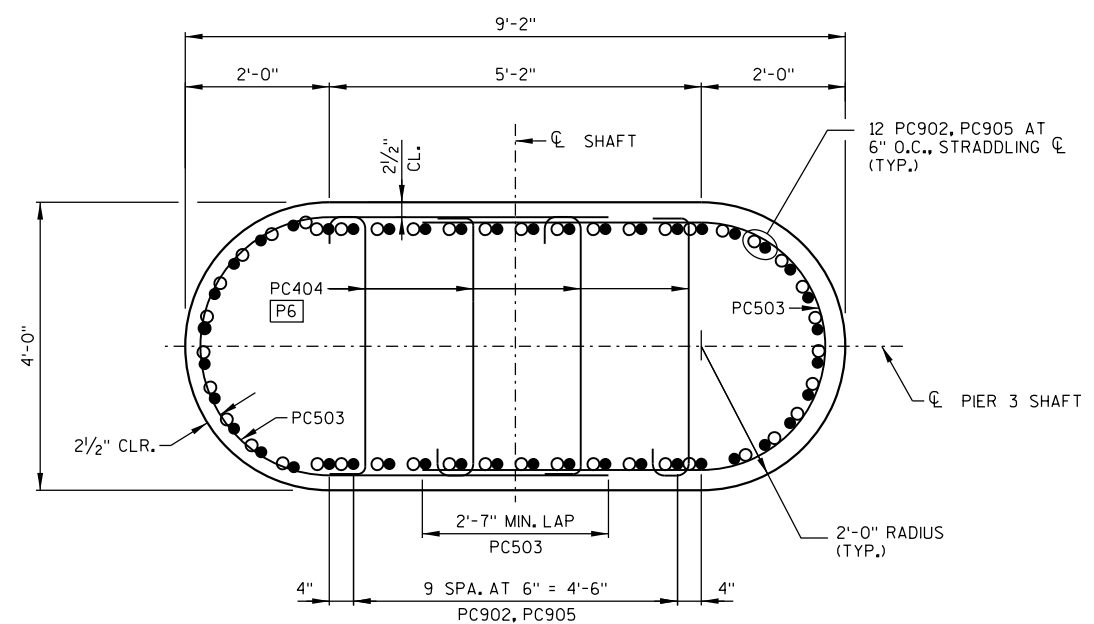
OUTLINE OF PIER 3 CAP, FOR REINFORCEMENT DETAILS, SEE SHEET 29.

OUTLINE OF PIER 3 FOOTING, FOR REINFORCEMENT DETAILS, SEE SHEET 27.

SHAFT ELEVATION PIER 3
(LOOKING UPSTATION)



SECTION B-B



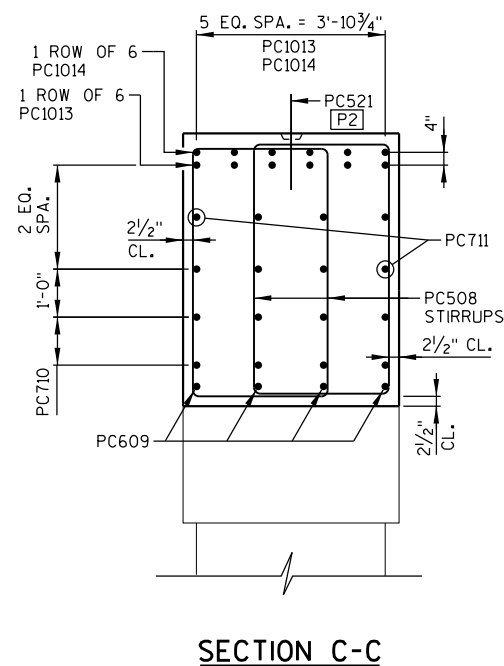
SECTION A-A

LEGEND

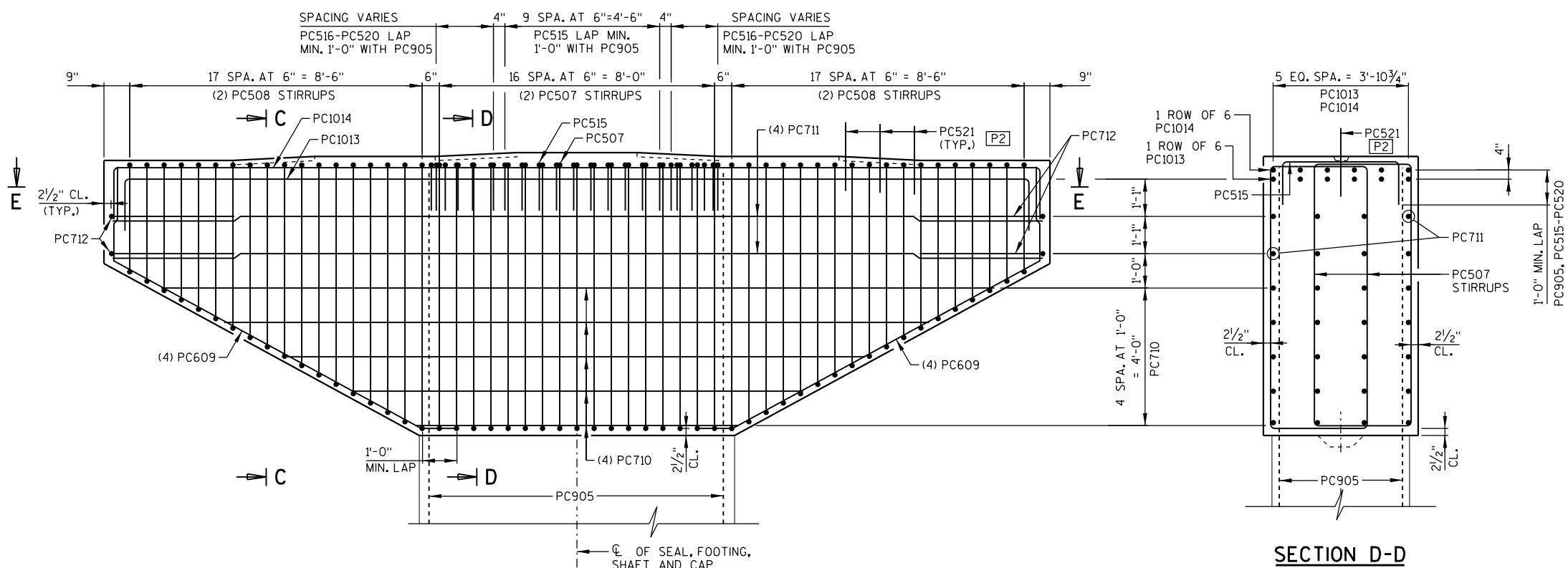
- P4 KEYED CONSTRUCTION JOINT FORMED BY BEVELED 4"x1'-4"x5'-2".
- P6 ALTERNATE THE POSITION OF THE 90° AND 180° HOOKS AT EACH VERTICAL LAYER OF TIES.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-9-387			
DRAWN BY KAM		PLANS CK'D. AJC	
PIER 3 SHAFT DETAILS			SHEET 28 OF 54

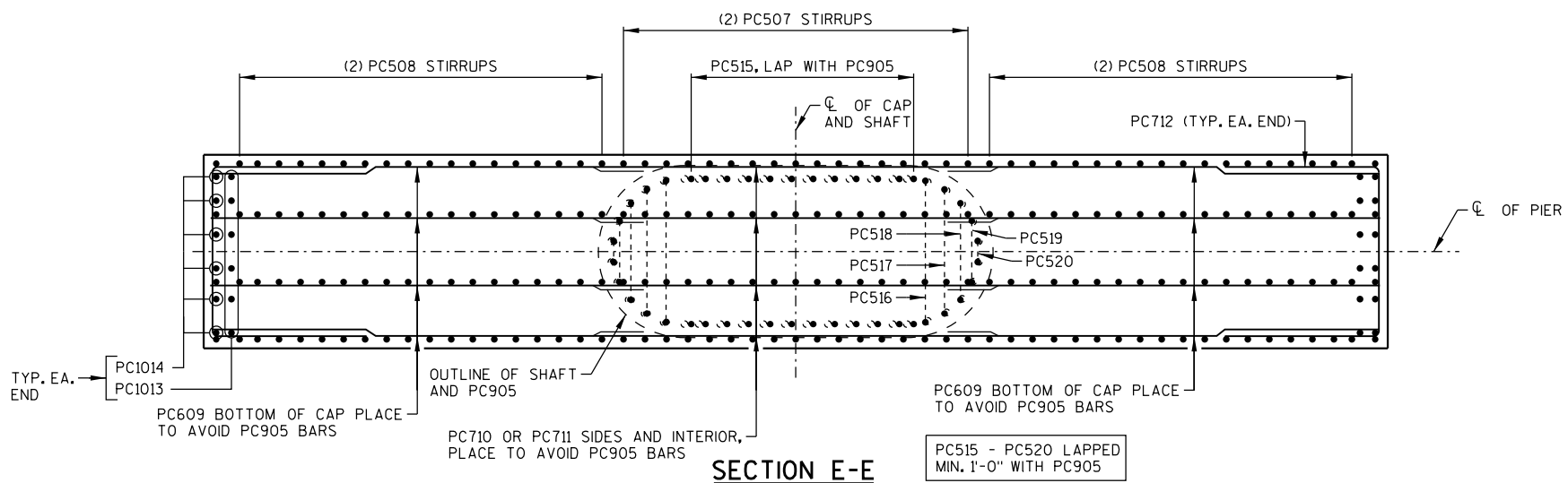
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 BATCH PRINT SHEET 29 OF 54
 PLOT DATE: 10/31/2021
 PLOT TIME: 2:44:36 PM



SECTION C-C



ELEVATION - PIER 3 CAP



SECTION E-E

LEGEND
 P2 KEYED CONSTRUCTION JOINT FORMED BY BEVELED 2"x6", W/. PC521 BARS AT 1'-0" CTRS. BARS MAY BE PLACED AFTER CONCRETE IS POURED BUT BEFORE INITIAL SET HAS TAKEN PLACE.

NOTES
 FOR BAR STEEL REINFORCEMENT DETAILS, SEE SHT. 30.
 SEE SHT. 44 "SUPERSTRUCTURE-6" FOR DETAILS OF BEARING PADS AND PREFORM FILLER.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-9-387			
DRAWN BY KAM		PLANS CK'D. AJC	
PIER 3 CAP DETAILS			SHEET 29 OF 54

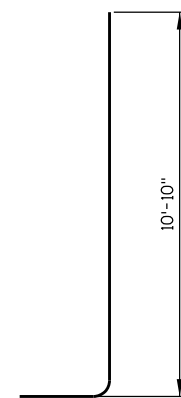
BILL OF BARS

DIMENSIONS IN BENDING DETAILS ARE OUT TO OUT OF BAR.
 Δ LENGTH SHOWN FOR BAR IS AN AVG. LENGTH AND SHOULD ONLY BE USED FOR BAR WEIGHT CALCULATIONS. SEE BAR SERIES TABLE FOR ACTUAL LENGTHS.

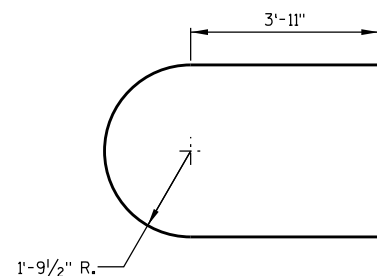
MARK	NO. REQ'D	COATED	LENGTH	BENT	BAR SERIES	LOCATION
NON-COATED BARS						TOTAL WEIGHT = 5,310 LBS
PC901	80		19-6			FOOTING - BOTTOM HORIZ.
COATED BARS						TOTAL WEIGHT = 12,550 LBS
PC902	44	X	12-2	X		FOOTING/SHAFT VERT.
PC503	50	X	13-6	X		FOOTING/SHAFT HORIZ.
PC404	36	X	4-6	X		SHAFT HORIZ.
PC905	44	X	30-9			SHAFT VERT.
PC406	64	X	4-5	X		SHAFT HORIZ.
PC507	34	X	21-8	X		CAP, STIRRUP CENTER VERT.
PC508	72	X	17-0	X	Δ	CAP, STIRRUP EA. ENDS VERT.
PC609	8	X	13-8	X		CAP, BOTTOM AT ENDS HORIZ.
PC710	20	X	16-8		Δ	CAP HORIZ.
PC711	8	X	27-1			CAP HORIZ.
PC712	4	X	13-0	X		CAP, ENDS HORIZ.
PC1013	6	X	29-7	X		CAP, TOP HORIZ.
PC1014	6	X	30-1	X		CAP, TOP HORIZ.
PC515	12	X	5-8	X		CAP, TOP ABOVE SHAFT HORIZ.
PC516	2	X	5-6	X		CAP, TOP ABOVE SHAFT HORIZ.
PC517	2	X	5-1	X		CAP, TOP ABOVE SHAFT HORIZ.
PC518	2	X	4-6	X		CAP, TOP ABOVE SHAFT HORIZ.
PC519	2	X	3-8	X		CAP, TOP ABOVE SHAFT HORIZ.
PC520	2	X	2-9	X		CAP, TOP ABOVE SHAFT HORIZ.
PC521	12	X	2-0			CAP, DOWELS ON TOP VERT.

BAR SERIES

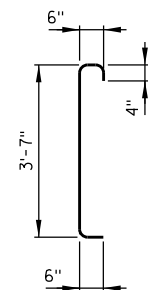
MARK	NO. REQ'D	LENGTH
PC508	4 SETS OF 18	12'-4" TO 21'-8"
PC710	4 SETS OF 5	9'-4" TO 24'-0"



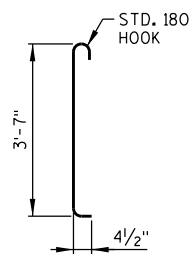
PC902



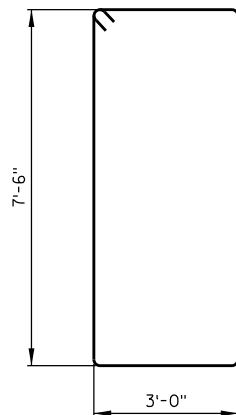
PC503



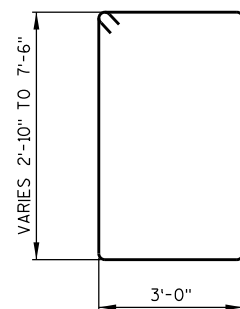
PC404



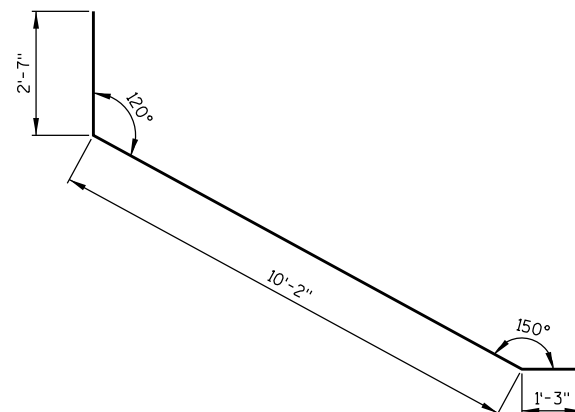
PC406



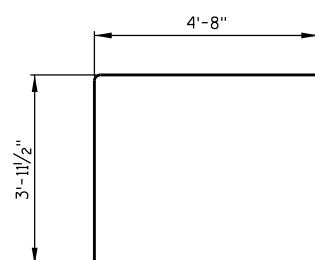
PC507



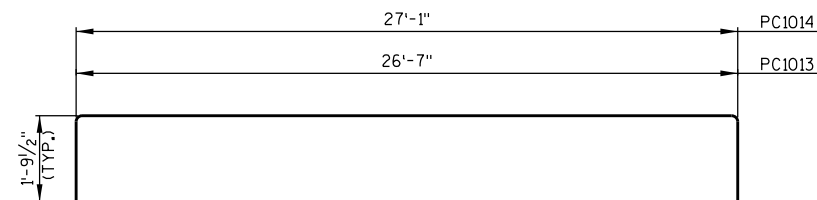
PC508



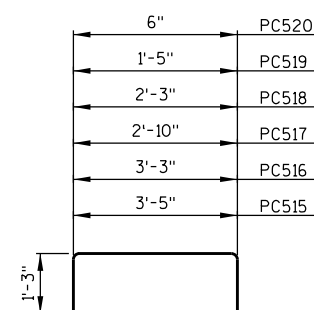
PC609



PC712



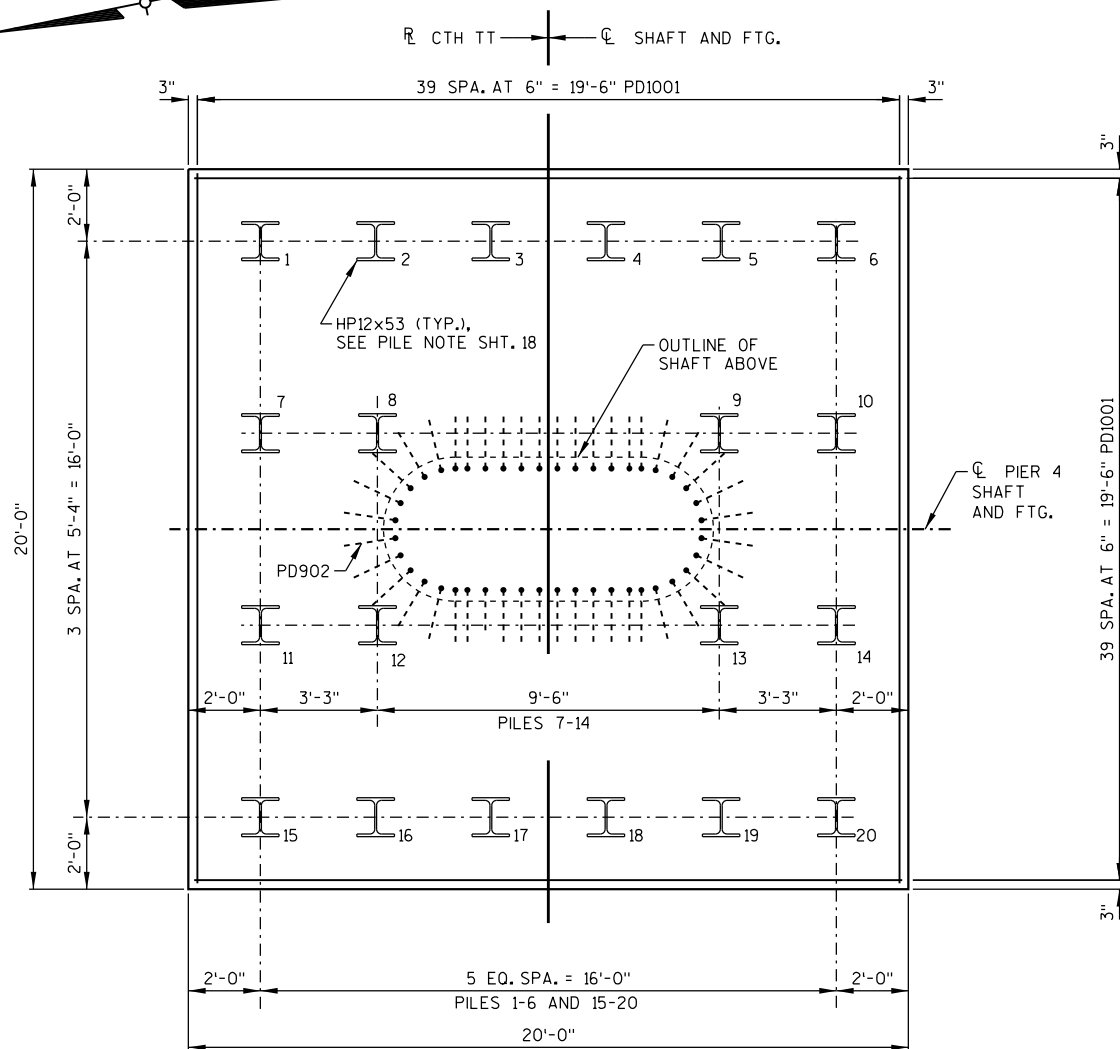
PC1013, PC1014



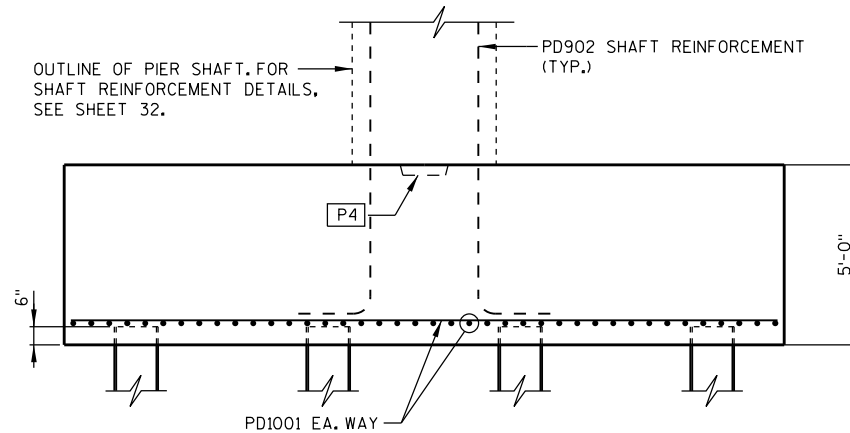
PC515, PC516, PC517, PC518, PC519, PC520

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 PEN TABLE: G:\MP\CLIENT\AMER-USA-WI-WISDOT\dev\WisDOT\Bridges\VerA\Pen Tables\AE.WisDOT_Structure.tbl
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 PLOT DATE: 10/31/2021
 PLOT TIME: 2:44:37 PM

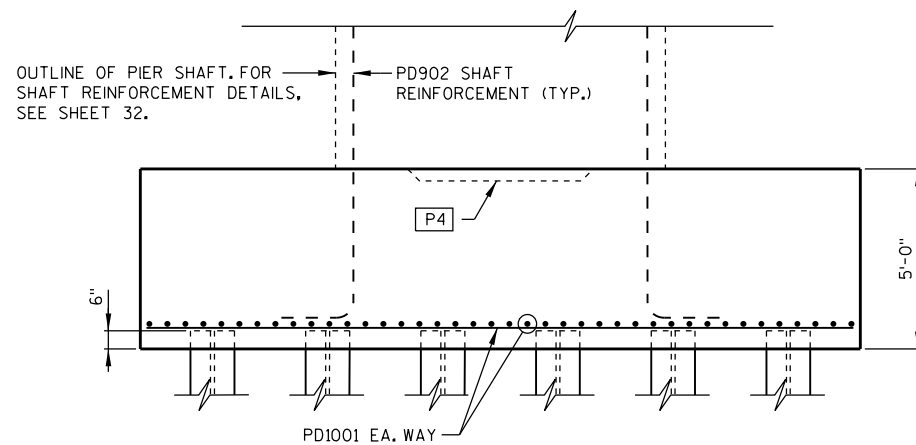
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-9-387			
DRAWN BY KAM		PLANS CK'D. AJC	
PIER 3 BAR DETAILS			SHEET 30 OF 54



FOOTING PLAN - PIER 4



FOOTING SIDE ELEVATION - PIER 4



FOOTING ELEVATION - PIER 4
(LOOKING UPSTATION)

PD503 AND PD404 NOT SHOWN,
SEE SHT. 32 "PIER 4 DETAILS"

LEGEND

P4 KEYED CONSTRUCTION JOINT FORMED BY BEVELED 4"x1'-4"x5'-2".

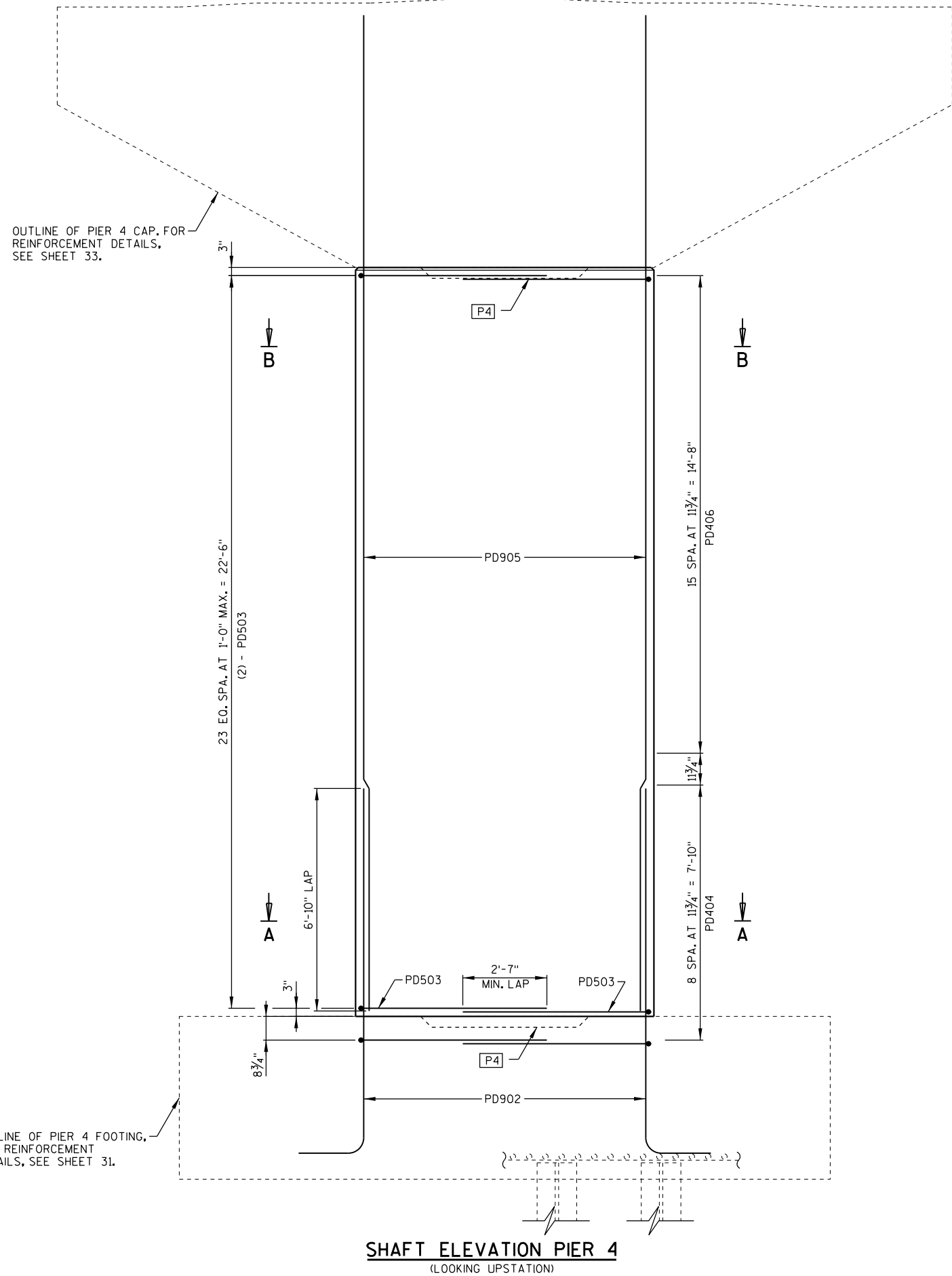
NOTE

FOR PIER 4 BILL OF BARS, SEE SHEET 34.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-9-387			
DRAWN BY KAM		PLANS CK'D. AJC	
PIER 4 FOOTING DETAILS			SHEET 31 OF 54

PRINTER DRIVER: G:\MP\CLIENT\AMER-USA-WI-WisDOT\dev\WisDOT\Bridg\Ver\A\Plot\dr\AE.PDF.11 x 17.plt
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 PLOT DATE: 10/31/2021 PLOT TIME: 2:44:37 PM BATCH PRINT SHEET 31 OF 54

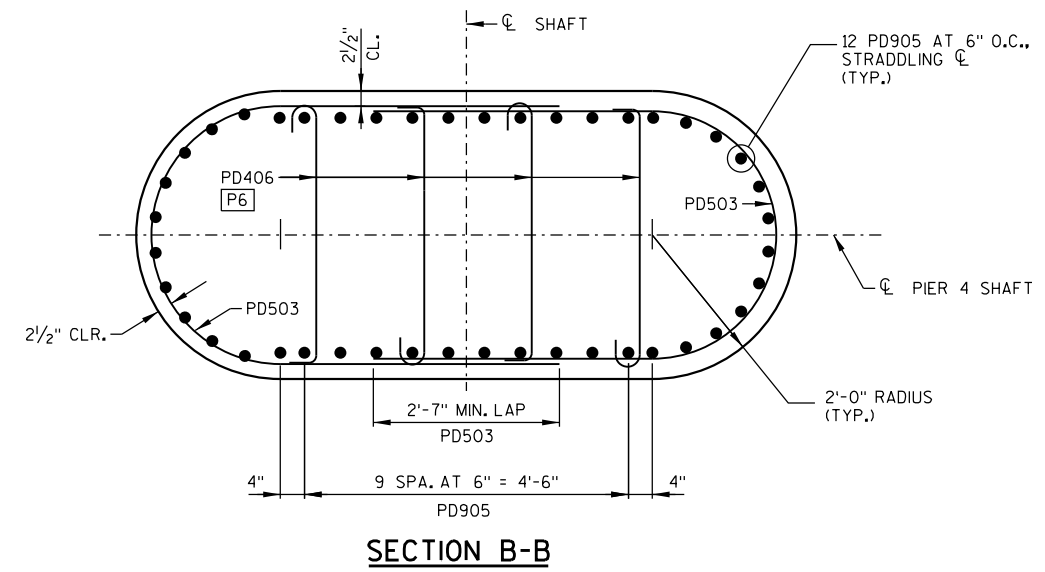
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 PLOT DATE: 10/31/2021 PLOT TIME: 2:44:38 PM BATCH PRINT SHEET 32 OF 54



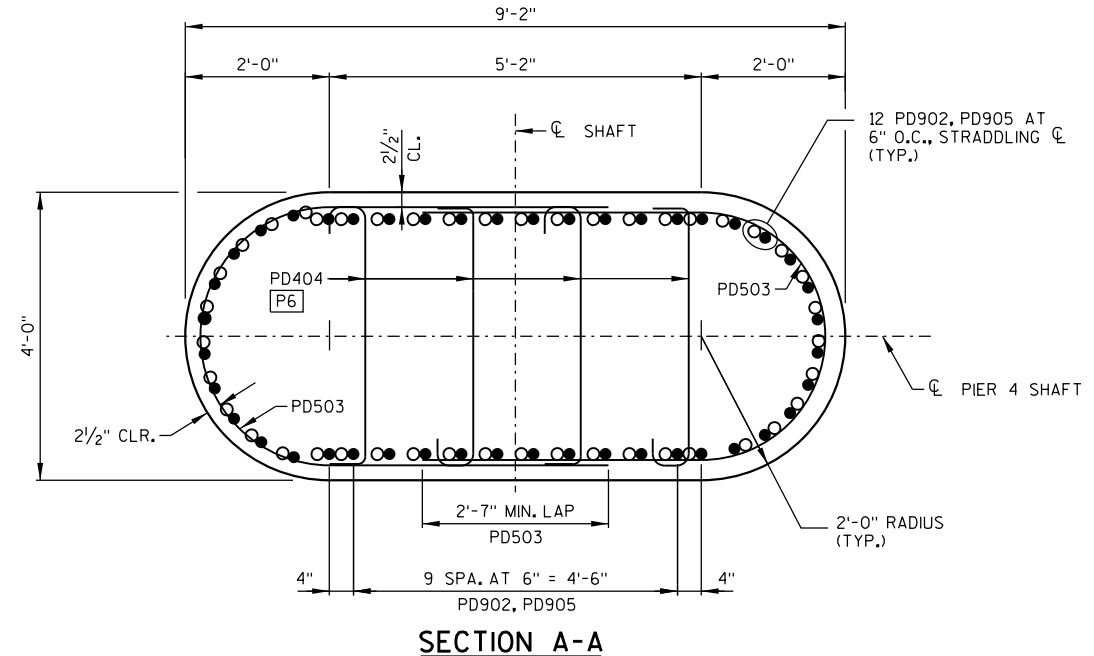
OUTLINE OF PIER 4 CAP, FOR REINFORCEMENT DETAILS, SEE SHEET 33.

OUTLINE OF PIER 4 FOOTING, FOR REINFORCEMENT DETAILS, SEE SHEET 31.

SHAFT ELEVATION PIER 4
(LOOKING UPSTATION)



SECTION B-B



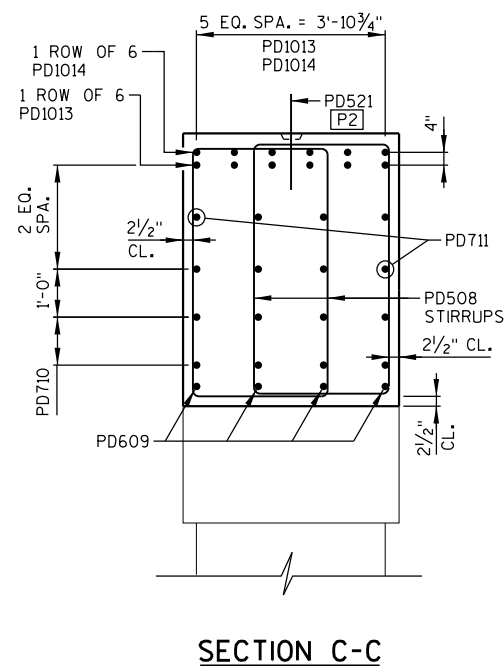
SECTION A-A

LEGEND

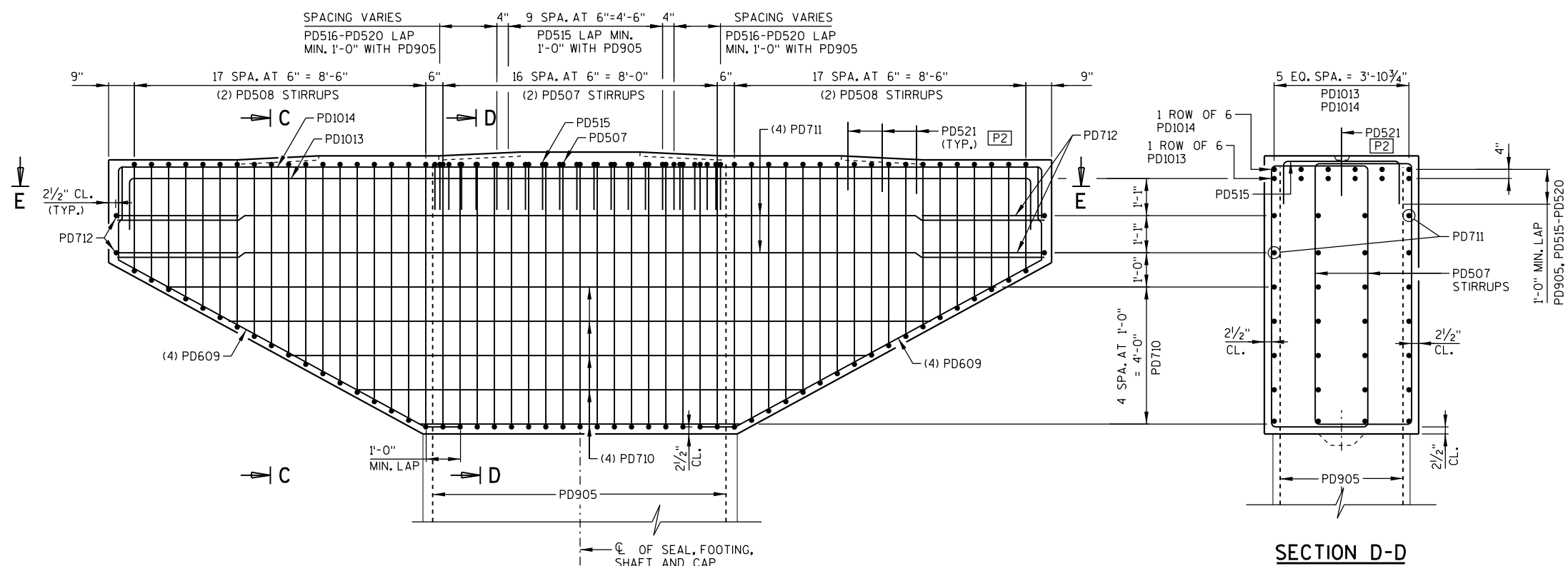
- P4 KEYED CONSTRUCTION JOINT FORMED BY BEVELED 4"x1'-4"x5'-2\".
- P6 ALTERNATE THE POSITION OF THE 90° AND 180° HOOKS AT EACH VERTICAL LAYER OF TIES.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-9-387			
		DRAWN BY KAM	PLANS CK'D. AJC
PIER 4 SHAFT DETAILS			SHEET 32 OF 54

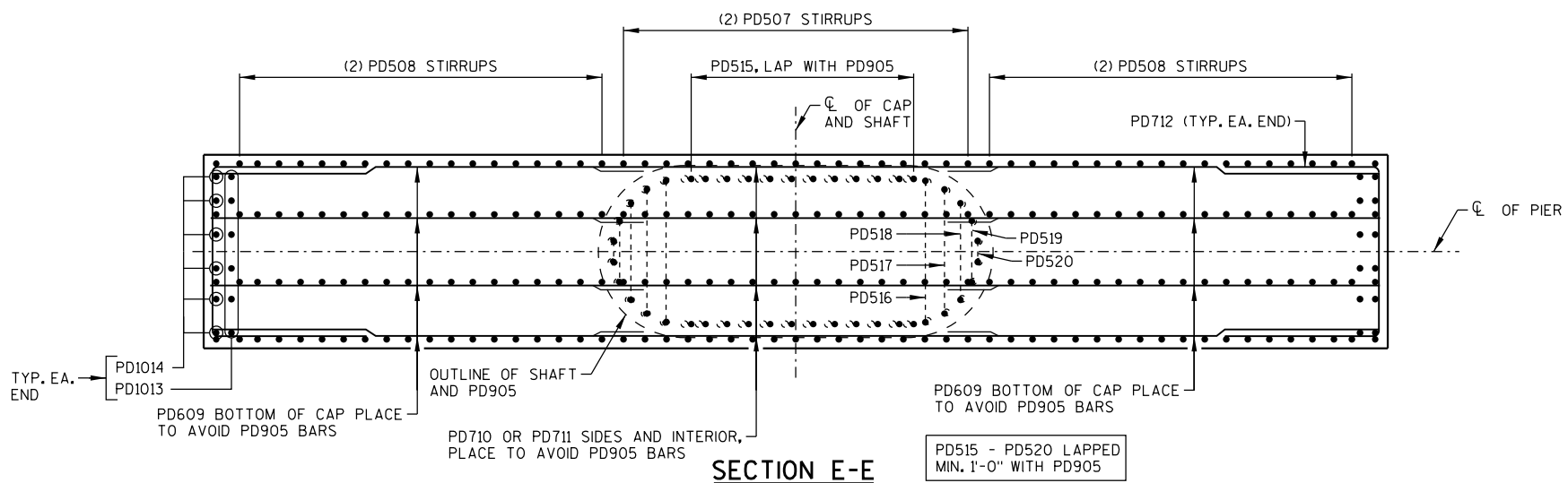
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 BATCH PRINT SHEET 33 OF 54
 PLOT DATE: 10/31/2021
 PLOT TIME: 2:44:39 PM



SECTION C-C



ELEVATION - PIER 4 CAP

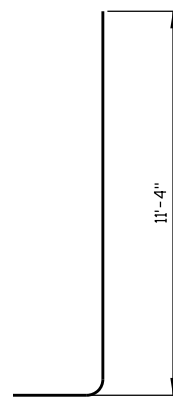


SECTION E-E

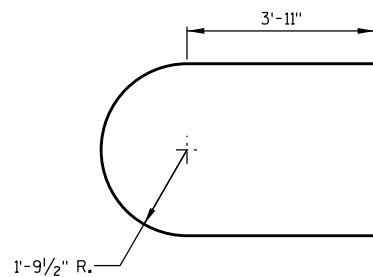
LEGEND
 P2 KEYED CONSTRUCTION JOINT FORMED BY BEVELED 2"x6", W/L PD521 BARS AT 1'-0" CTRS. BARS MAY BE PLACED AFTER CONCRETE IS POURED BUT BEFORE INITIAL SET HAS TAKEN PLACE.

NOTES
 FOR BAR STEEL REINFORCEMENT DETAILS, SEE SHT. 34.
 SEE SHT. 44 "SUPERSTRUCTURE-6" FOR DETAILS OF BEARING PADS AND PREFORM FILLER.

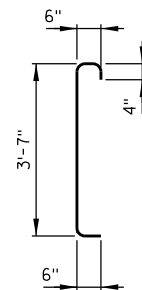
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-9-387			
DRAWN BY KAM		PLANS CK'D. AJC	
PIER 4 CAP DETAILS			SHEET 33 OF 54



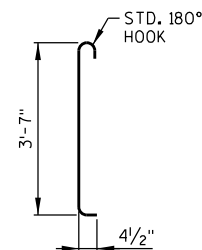
PD902



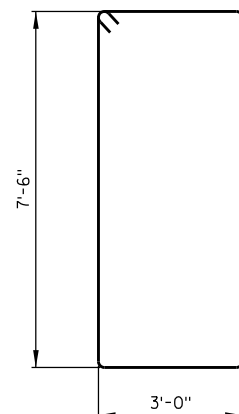
PD503



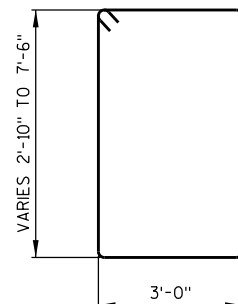
PD404



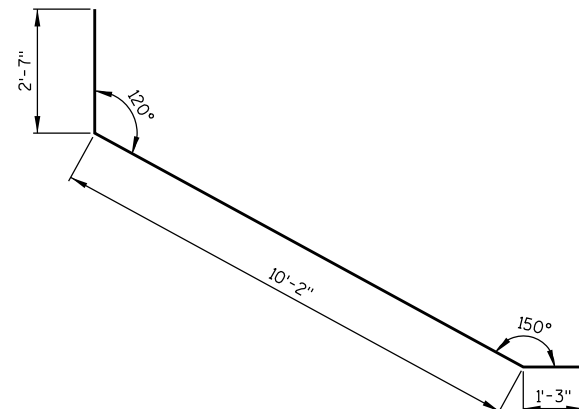
PD406



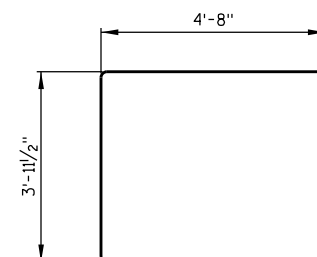
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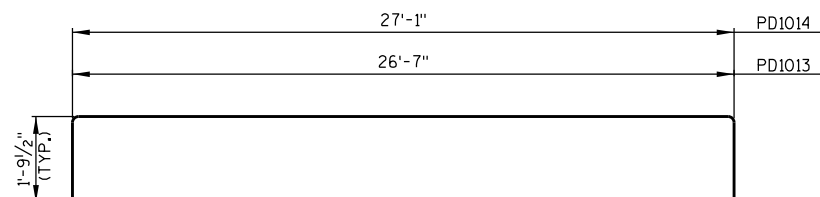
PD508



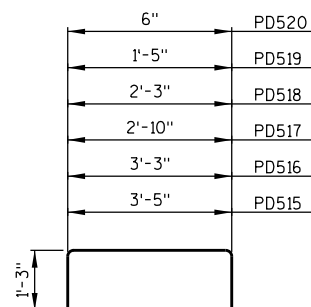
PD609



PD712



PD1013, PD1014



PD515, PD516, PD517, PD518, PD519, PD520

BILL OF BARS

DIMENSIONS IN BENDING DETAILS ARE OUT TO OUT OF BAR.
 △ LENGTH SHOWN FOR BAR IS AN AVG. LENGTH AND SHOULD ONLY BE USED FOR BAR WEIGHT CALCULATIONS. SEE BAR SERIES TABLE FOR ACTUAL LENGTHS.

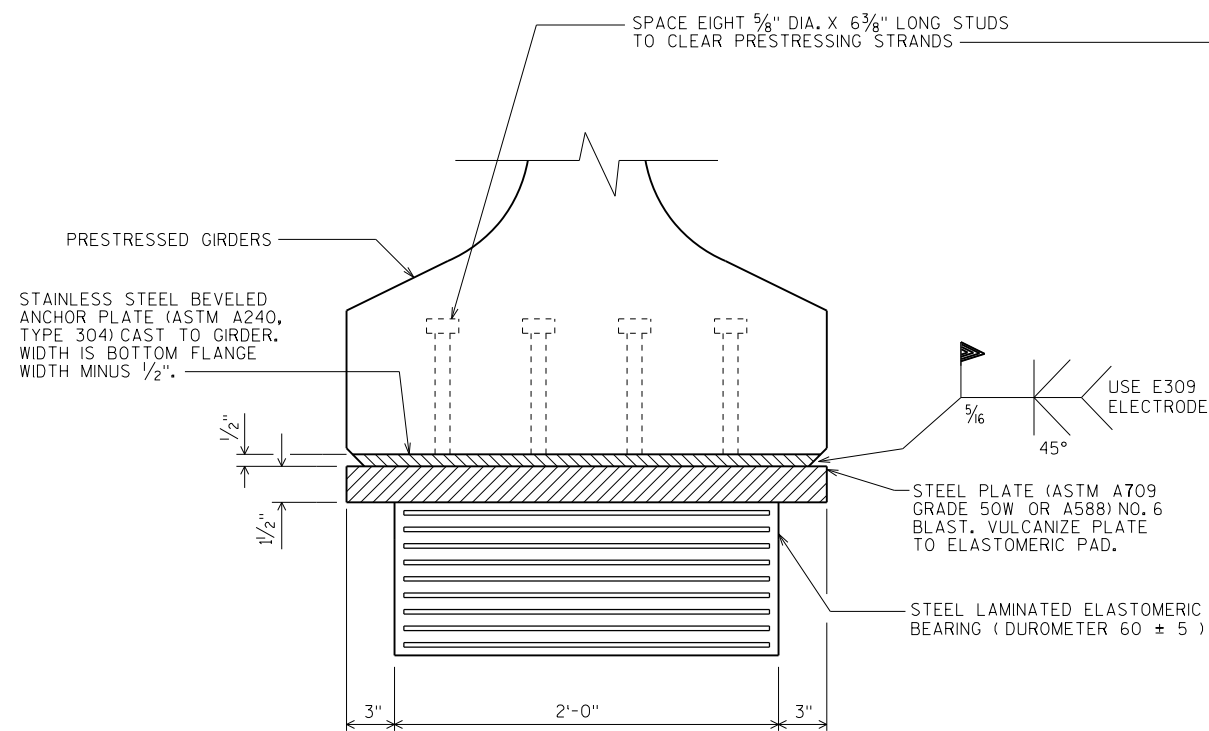
MARK	NO. REQ'D	COATED	LENGTH	BENT	BAR SERIES	LOCATION	
NON-COATED BARS							TOTAL WEIGHT = 6,720 LBS
PD1001	80		19-6			FOOTING - BOTTOM	HORIZ.
COATED BARS							TOTAL WEIGHT = 12,620 LBS
PD902	44	X	12-8	X		FOOTING/SHAFT	VERT.
PD503	50	X	13-6	X		FOOTING/SHAFT	HORIZ.
PD404	36	X	4-6	X		SHAFT	HORIZ.
PD905	44	X	30-9			SHAFT	VERT.
PD406	64	X	4-5	X		SHAFT	HORIZ.
PD507	34	X	21-8	X		CAP, STIRRUP CENTER	VERT.
PD508	72	X	17-0	X	△	CAP, STIRRUP EA. ENDS	VERT.
PD609	8	X	13-8	X		CAP, BOTTOM AT ENDS	HORIZ.
PD710	20	X	16-8		△	CAP	HORIZ.
PD711	8	X	27-1			CAP	HORIZ.
PD712	4	X	13-0	X		CAP, ENDS	HORIZ.
PD1013	6	X	29-7	X		CAP, TOP	HORIZ.
PD1014	6	X	30-1	X		CAP, TOP	HORIZ.
PD515	12	X	5-8	X		CAP, TOP ABOVE SHAFT	HORIZ.
PD516	2	X	5-6	X		CAP, TOP ABOVE SHAFT	HORIZ.
PD517	2	X	5-1	X		CAP, TOP ABOVE SHAFT	HORIZ.
PD518	2	X	4-6	X		CAP, TOP ABOVE SHAFT	HORIZ.
PD519	2	X	3-8	X		CAP, TOP ABOVE SHAFT	HORIZ.
PD520	2	X	2-9	X		CAP, TOP ABOVE SHAFT	HORIZ.
PD521	12	X	2-0			CAP, DOWELS ON TOP	VERT.

BAR SERIES

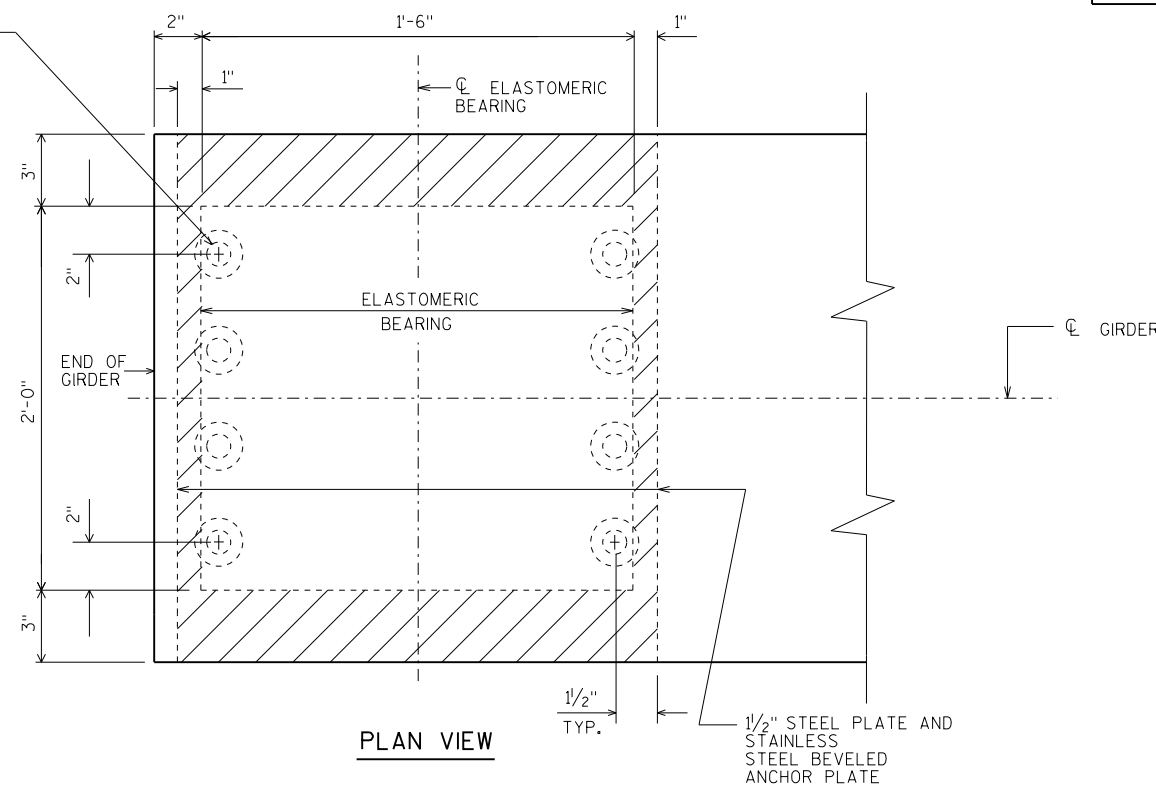
MARK	NO. REQ'D	LENGTH
PD508	4 SETS OF 18	12'-4" TO 21'-8"
PD710	4 SETS OF 5	9'-4" TO 24'-0"

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 PLOT DATE: 10/31/2021 PLOT TIME: 2:44:40 PM
 BATCH PRINT SHEET 34 OF 54

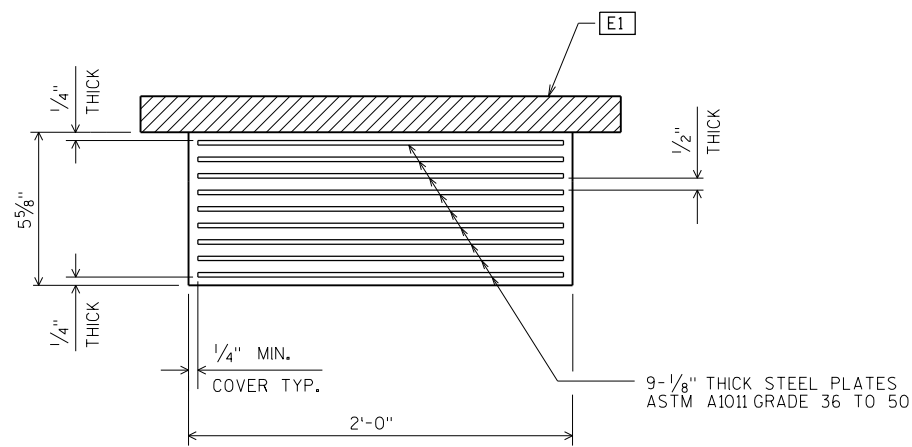
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-9-387			
DRAWN BY KAM		PLANS CK'D. AJC	
PIER 4 BAR DETAILS			SHEET 34 OF 54



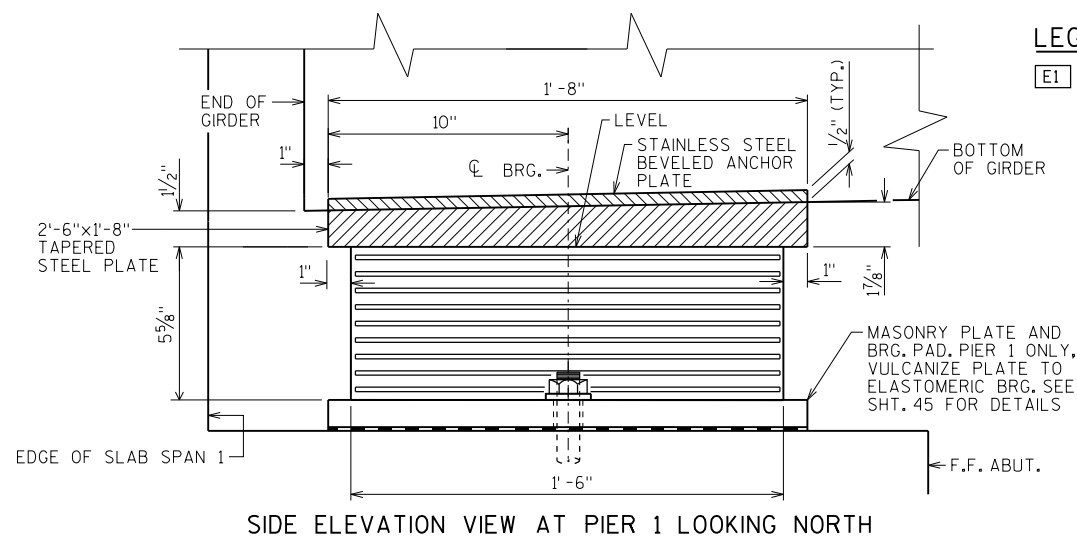
END VIEW



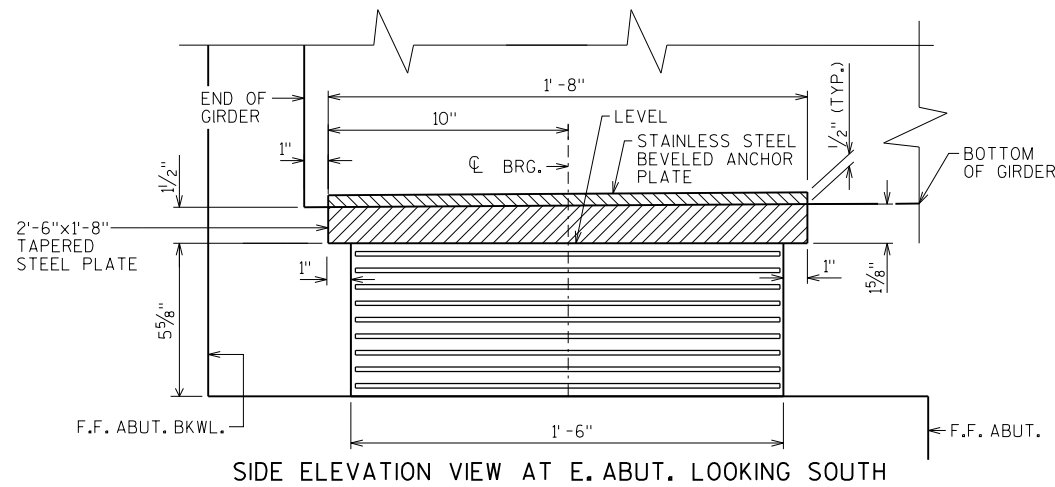
PLAN VIEW



SECTION THRU ELASTOMERIC BEARING



SIDE ELEVATION VIEW AT PIER 1 LOOKING NORTH



SIDE ELEVATION VIEW AT E. ABUT. LOOKING SOUTH

LEGEND

- E1** EAST ABUTMENT
2'-6"x1'-8" PLATE ASTM A709 GRADE 50W OR A588.
NOTE: PLATE TO BE TAPERED 1/2" TO 1 1/8".
- PIER 1**
2'-6"x1'-8" PLATE ASTM A709 GRADE 50W OR A588.
NOTE: PLATE TO BE TAPERED 1/2" TO 1 1/8".

NOTES

- BEARINGS SHALL NOT BE PLACED AT A TEMPERATURE GREATER THAN 85° F.
- ALL MATERIAL USED FOR BEARINGS SHALL BE PAID FOR AT THE UNIT PRICE BID FOR "BEARING PADS ELASTOMERIC LAMINATED", EACH.
- ALL STRUCTURAL STEEL BEARING PLATES SHALL BE FLAT ROLLED WITH ALL SURFACES SMOOTH AND FREE FROM WARP AND ALL EDGES SMOOTH, STRAIGHT AND VERTICAL.
- ALL PLATE CUTS SHALL BE MACHINE OR MACHINE FLAME CUTS.

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 BATCH PRINT SHEET 35 OF 54
 PLOT TIME: 10/31/2021 2:44:41 PM

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-9-387			
DRAWN BY KAM		PLANS CK'D. AJC	
ELASTOMERIC BEARINGS			SHEET 35 OF 54

NOTES

TOP OF GIRDER TO BE ROUGH FLOATED AND BROOMED TRANSVERSELY, EXCEPT THE OUTSIDE 8" OF GIRDER, WHICH SHALL RECEIVE A SMOOTH FINISH. AN APPROVED CONCRETE SEALER SHALL BE APPLIED TO ALL SMOOTH SURFACES INCLUDING THE OUTSIDE 8" OF THE TOP FLANGE.

DO NOT APPLY CONCRETE SEALER OR EPOXY TO SURFACES RECEIVING APPLICATION OF CONCRETE STAINING.

THE GIRDERS SHALL BE PROVIDED WITH A SUITABLE LIFTING DEVICE FOR HANDLING AND ERECTING THE GIRDERS. SEE SECT. 503.3.3 OF STANDARD SPECIFICATIONS FOR GUIDANCE.

STRANDS SHALL BE FLUSH WITH END OF GIRDER. FOR GIRDER ENDS EMBEDDED COMPLETELY IN CONCRETE, END OF STRANDS SHALL BE COATED WITH NON-BITUMINOUS JOINT SEALER. FOR GIRDER ENDS THAT ARE FINALLY EXPOSED, COAT THE GIRDER ENDS, EXPOSED STRAND ENDS AND ALL NON-BONDING SURFACES WITHIN 2 FEET OF THE GIRDER ENDS WITH A NON-PIGMENTED EPOXY CONFORMING TO AASHTO M-235 TYPE III, GRADE 2, CLASS B OR C. THE EPOXY SHALL BE APPLIED AT LEAST 3 DAYS AFTER MOIST CURING HAS CEASED AND PRIOR TO THE APPLICATION OF THE SEALER.

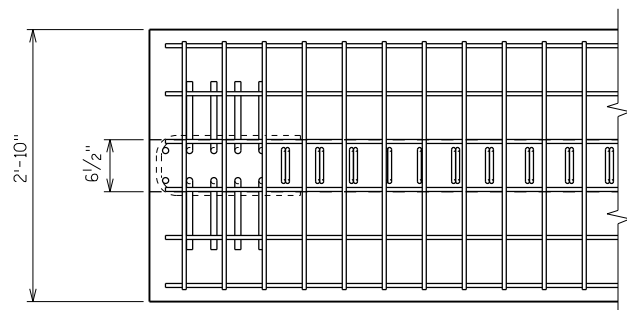
ALL GIRDERS SHALL BE CAST FULL LENGTH AS SHOWN.

SPACING SHOWN FOR #4 STIRRUPS IS FOR GRADE 60 REINFORCEMENT.

AN EQUIVALENT OF WELDED WIRE FABRIC (WWF) ASTM A1064 MAY BE SUBSTITUTED FOR THE STIRRUP REINFORCEMENT SHOWN, UPON APPROVAL OF THE STRUCTURES MAINTENANCE SECTION. IF USED, WWF SUBSTITUTION DETAILS SHALL BE SUBMITTED ELECTRONICALLY TO THE WISDOT FABRICATION LIBRARY AND ACCEPTED PRIOR TO SHOP DRAWING SUBMITTAL.

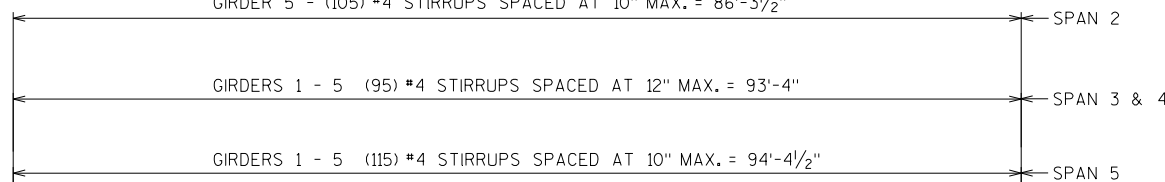
PRESTRESSING STRANDS SHALL BE (.06" DIA.)-7 WIRE LOW-RELAXATION STRANDS WITH AN ULTIMATE STRENGTH OF 270,000 PSI.

FOR DIAPHRAGM INSERT & CONNECTION DETAILS SEE "STEEL DIAPHRAGMS" SHEET.



TOP FLANGE

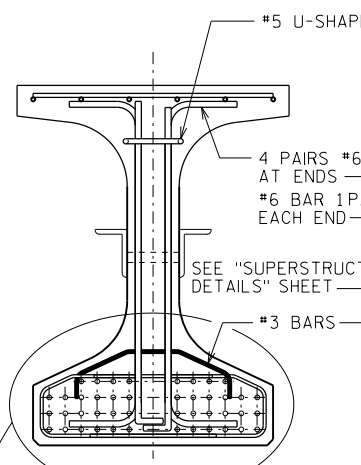
- GIRDER 1 - (105) #4 STIRRUPS SPACED AT 10" MAX. = 86'-1 7/8"
- GIRDER 2 - (105) #4 STIRRUPS SPACED AT 10" MAX. = 86'-1 1/2"
- GIRDER 3 - (105) #4 STIRRUPS SPACED AT 10" MAX. = 86'-1 5/8"
- GIRDER 4 - (105) #4 STIRRUPS SPACED AT 10" MAX. = 86'-2 1/4"
- GIRDER 5 - (105) #4 STIRRUPS SPACED AT 10" MAX. = 86'-3 1/2"



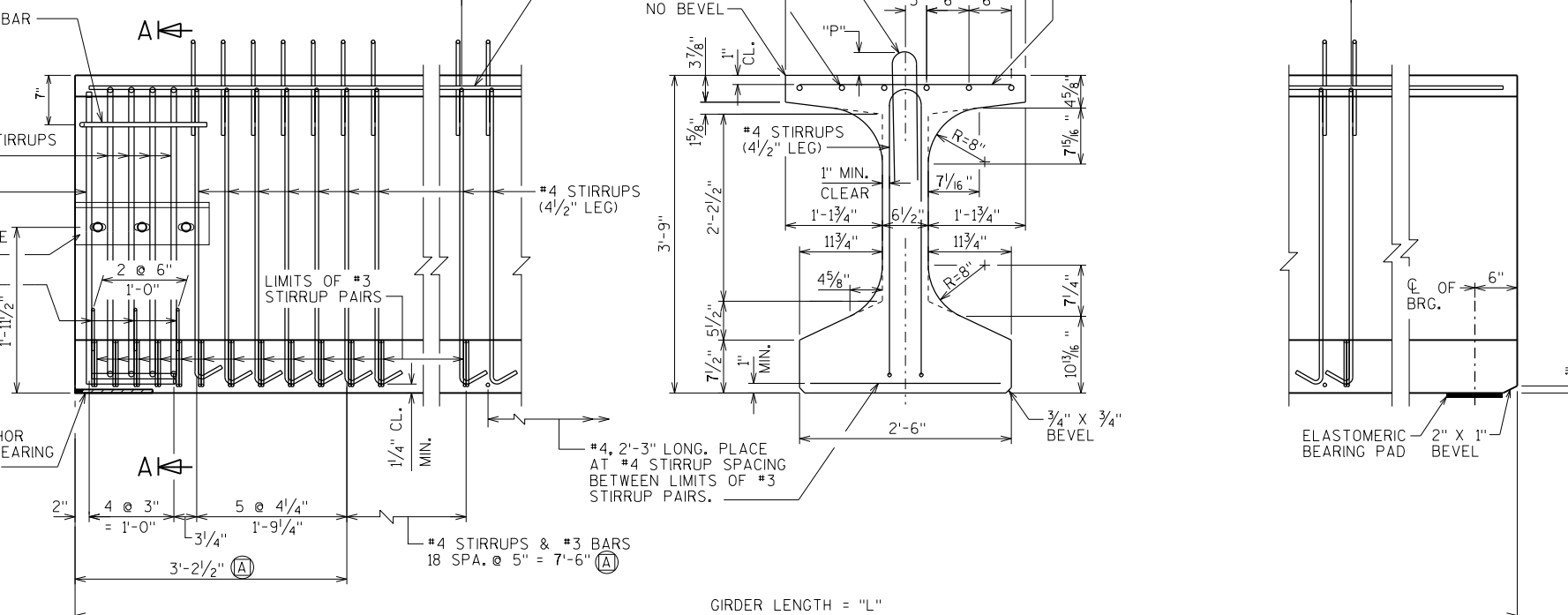
- GIRDERS 1 - 5 (95) #4 STIRRUPS SPACED AT 12" MAX. = 93'-4"
- GIRDERS 1 - 5 (115) #4 STIRRUPS SPACED AT 10" MAX. = 94'-4 1/2"

#4 BAR, EPOXY COATED. PLACE @ STIRRUP SPACING. EMBED INTO GIRDER 1'-3".

#4 @ 5" FOR 15'-0" EACH END, #4 @ 1'-0" BETWEEN. 2'-7" LONG



SECTION A-A

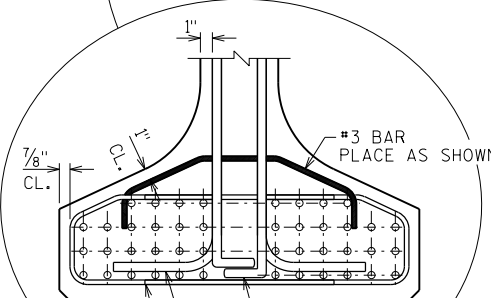
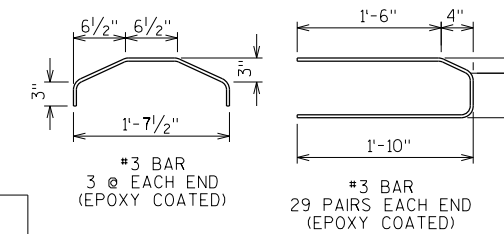
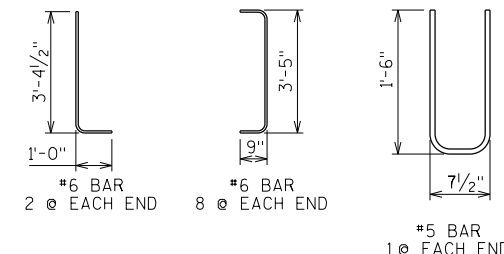


SIDE VIEW & TYPICAL SECTION IN SPAN

- (A) DETAIL TYP. AT EACH END
- (B) 6 #4 BARS, FULL LENGTH, MIN. LAP = 2'-4"

SUPPORT WITH LAMINATED ELASTOMERIC BRGS.

SUPPORT WITH 1/2" ELASTOMERIC BEARING PAD



BOTTOM FLANGE

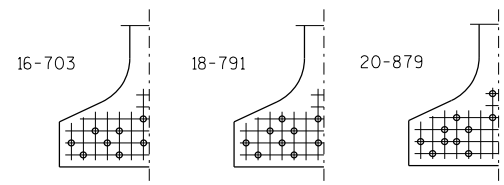
* MINIMUM CYLINDER STRENGTH OF CONCRETE @ TIME OF TRANSFER OF PRESTRESS FORCE.

GIRDER DATA

SPAN	GIRDER	GIRDER LENGTH "L" (FEET)	DEAD LOAD DEFL. (IN.)									CONC. STRGTH. f'c (P.S.I.)	"P" (IN.)			DIA. OF STRAND (IN.)	TOTAL NO. OF STRANDS	DRAPED PATTERN				UNDRAPED PATTERN		
			1/10	2/10	3/10	4/10	5/10	6/10	7/10	8/10	9/10		1ST 1/3 OF GIRDER	MID 1/3 OF GIRDER	END 1/3 OF GIRDER			f'ci (P.S.I.) * X	"A"	"B" MIN.	"B" MAX.	"C"	TOTAL NO. OF STRANDS	f'ci (P.S.I.) *
2	1	107'-6 7/8"	0.60	1.18	1.63	1.91	2.00	1.89	1.59	1.14	0.57	8,000	7	7	7	0.6	32	6,800	40	13.75	16.75	5		
2	2	107'-6 1/2"	0.66	1.30	1.79	2.10	2.19	2.07	1.75	1.25	0.63	8,000	7	7	7	0.6	32	6,800	40	13.75	16.75	5		
2	3	107'-6 5/8"	0.66	1.30	1.79	2.10	2.19	2.07	1.75	1.25	0.63	8,000	7	7	7	0.6	32	6,800	40	13.75	16.75	5		
2	4	107'-7 1/4"	0.66	1.30	1.79	2.10	2.19	2.07	1.75	1.25	0.63	8,000	7	7	7	0.6	32	6,800	40	13.75	16.75	5		
2	5	107'-8 1/2"	0.60	1.18	1.63	1.91	2.00	1.89	1.59	1.14	0.57	8,000	7	7	7	0.6	32	6,800	40	13.75	16.75	5		
3	1-5	114'-9"	0.71	1.38	1.92	2.26	2.38	2.27	1.93	1.39	0.71	8,000	7	7	7	0.6	32	6,800	40	13.75	16.75	5		
4	1-5	114'-9"	0.71	1.38	1.91	2.25	2.37	2.24	1.90	1.37	0.70	8,000	8	8.5	7.5	0.6	32	6,800	40	13.75	16.75	5		
5	1-5	115'-9 1/2"	0.74	1.46	2.04	2.42	2.55	2.44	2.08	1.51	0.77	8,000	7	7.5	7	0.6	36	6,800	40	13.75	16.75	5		

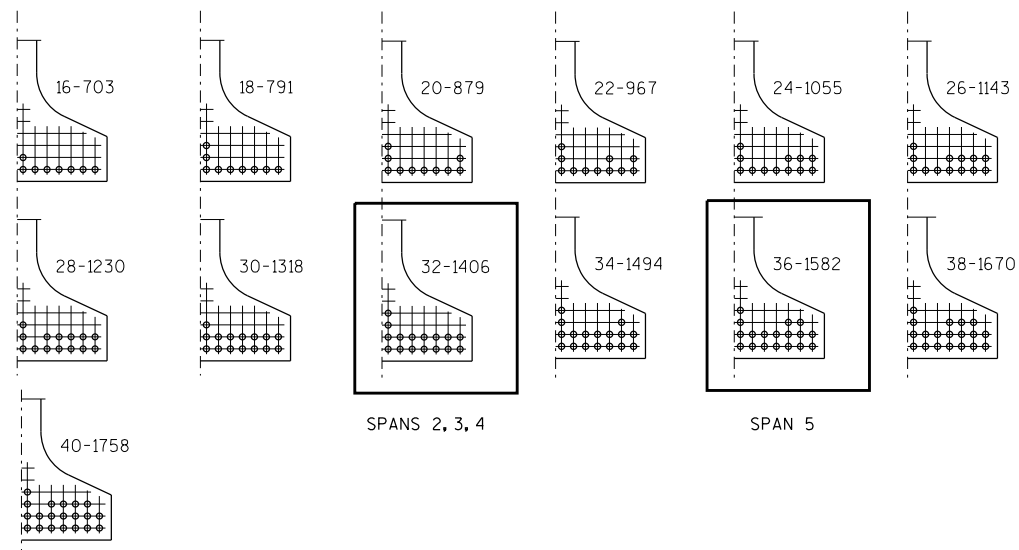
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-9-387			
DRAWN BY KAM		PLANS CK'D. AJC	
45W" PRESTRESSED GIRDER DETAILS-1			SHEET 36 OF 54

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 PLOT DATE: 10/31/2021 PLOT TIME: 2:44:41 PM BATCH PRINT SHEET 36 OF 54



STANDARD ARRANGEMENTS TO RAISE CENTER OF GRAVITY TO AVOID DRAPING OF STRANDS

0.6" DIA. STRANDS

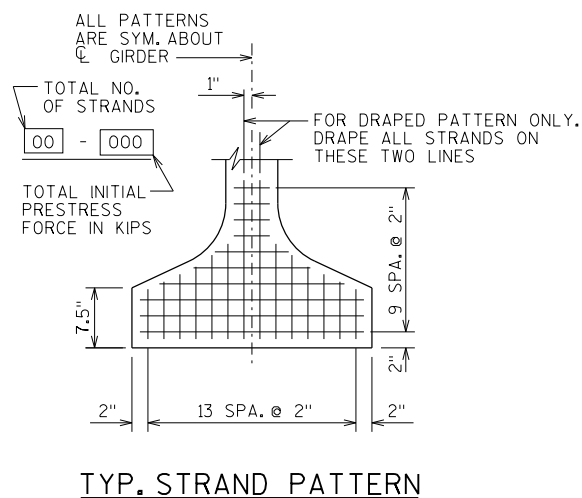


SPANS 2, 3, 4

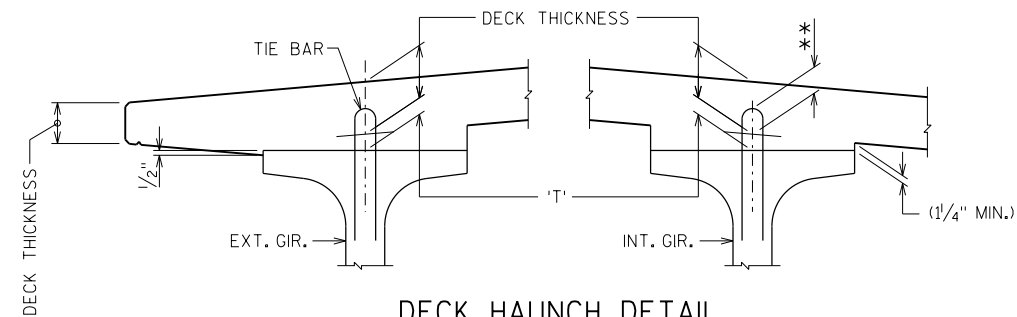
SPAN 5

ARRANGEMENT AT \bar{C} SPAN - FOR GIRDERS WITH DRAPED STRANDS

0.6" DIA. STRANDS



TYP. STRAND PATTERN



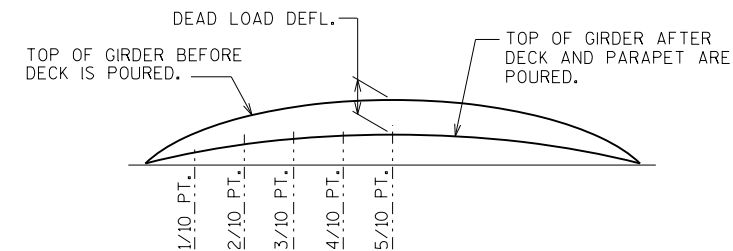
DECK HAUNCH DETAIL

IF 1/4" MINIMUM HAUNCH HEIGHT AT EDGE OF GIRDER CANNOT BE MAINTAINED, THE GRADE LINE MAY BE REVISED BY THE ENGINEER AT THE OPTION OF THE CONTRACTOR, THE PLAN DECK THICKNESS SHALL BE HELD. NOTIFY THE STRUCTURES SECTION IF THE GRADE LINE IS RAISED FROM THE PLAN PROFILE BY MORE THAN 1/2" OR, ** IF 3" MINIMUM DECK EMBEDMENT OF TIE BAR CANNOT BE OBTAINED.

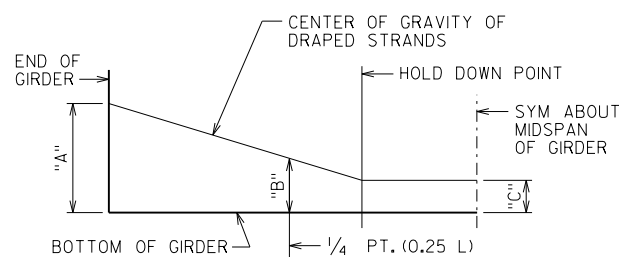
TO DETERMINE 'T', ELEV. OF TOP OF GIR'S. AT \bar{C} OF SUBSTRUCTURE UNITS & AT 1/10 POINTS OF EACH SPAN SHALL BE TAKEN. THEN FOLLOW THIS PROCESS:

$$\begin{aligned} & \text{TOP OF DECK ELEV. AT FINAL GRADE} \\ & - \text{TOP OF GIRDER ELEVATION} \\ & + \text{DEAD LOAD DEFLECTION} \\ & - \text{DECK THICKNESS} \\ & = \text{HAUNCH HEIGHT 'T'} \end{aligned}$$

NOTE: AN AVERAGE HAUNCH ('T') OF 3" WAS USED IN THE QUANTITY "CONCRETE MASONRY BRIDGES".



DEAD LOAD DEFLECTION DIAGRAM



DRAPED STRAND PROFILE

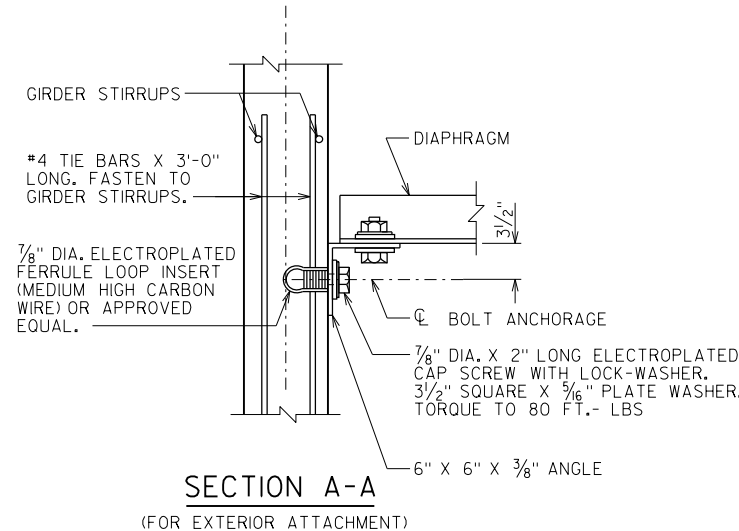
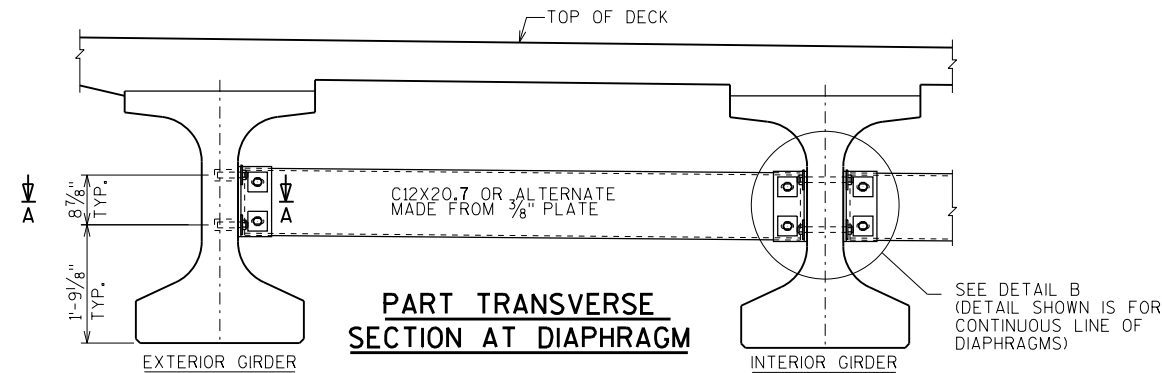
* THE THEORETICAL INITIAL CAMBER VALUE AT THE TIME OF STRAND RELEASE AT MIDSPAN MULTIPLIED BY A FACTOR OF 1.4 TO ACCOUNT FOR CAMBER GROWTH FROM THE TIME OF STRAND RELEASE TO JOBSITE PLACEMENT.

SPAN	CAMBER (IN.) *
2	3.32
3	3.28
4	3.28
5	4.06

THESE VALUES ARE NOT TO BE USED IN DETERMINING 'T'. USE ACTUAL GIRDER SHOTS. THESE VALUES ARE FOR INFORMATIONAL PURPOSES ONLY.

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NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-9-387			
DRAWN BY KAM		PLANS CK'D. AJC	
45W" PRESTRESSED GIRDER DETAILS-2			SHEET 37 OF 54



NOTES

ALL DIAPHRAGM MATERIAL NOT EMBEDDED IN THE CONCRETE GIRDER SHALL BE PAID FOR AT THE UNIT PRICE BID FOR "STEEL DIAPHRAGMS B-9-387", EACH.

EACH DIAPHRAGM BETWEEN GIRDERS SHALL CONSTITUTE ONE UNIT.

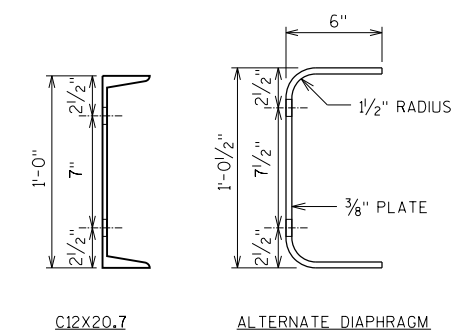
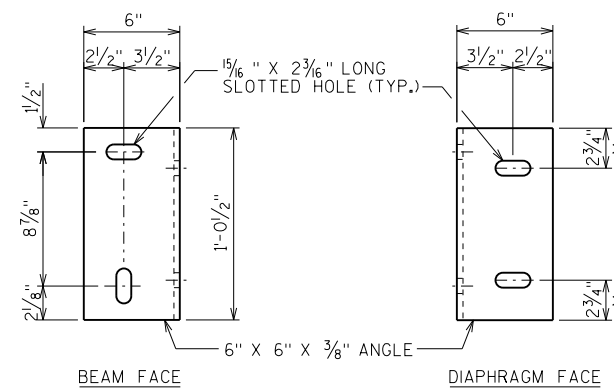
ALL DIAPHRAGM STRUCTURAL STEEL SHALL BE ASTM A709 GRADE 36.

ALL DIAPHRAGM MATERIAL INCLUDING BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED AFTER FABRICATION.

STEEL DIAPHRAGM TO CONCRETE WEB CONNECTION SHALL BE SNUG-TIGHT PLUS 1/4 TURN, UNLESS NOTED OTHERWISE. HIGH STRENGTH BOLTS FOR WEB CONNECTION SHALL MEET THE REQUIREMENTS FOR ASTM A325 OR ASTM A449.

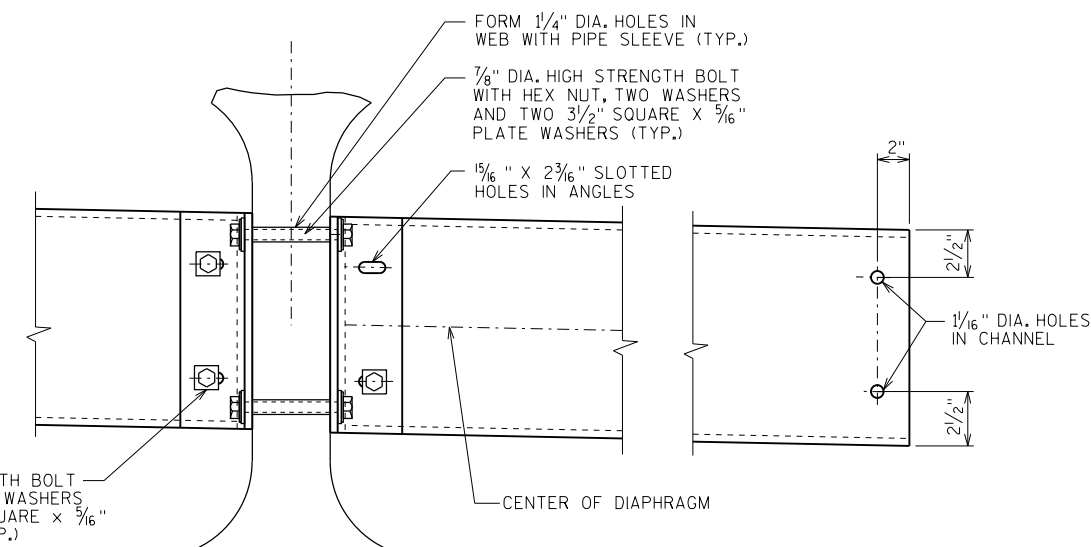
GIRDER LENGTH "L" (TYP.) - SEE SHEET 36

GIRDER	SPAN 2	SPAN 3	SPAN 4	SPAN 5
GIRDER 1	36'-4 1/8"	35'-8 1/8"	35'-6 5/8"	
	38'-2 1/2"	38'-4"	38'-2 1/2"	
	38'-2 1/2"	38'-4"	39'-3"	
GIRDER 2	36'-4"	35'-8"	35'-6 1/2"	
	38'-2 1/2"	38'-4"	38'-2 1/2"	
	38'-2 1/2"	38'-4"	39'-3"	
GIRDER 3	36'-4 1/8"	35'-8"	35'-6 1/2"	
	38'-2 1/2"	38'-4"	38'-2 1/2"	
	38'-2 1/2"	38'-4"	39'-3"	
GIRDER 4	36'-4 3/8"	35'-8 1/4"	35'-6 5/8"	
	38'-2 1/2"	38'-4"	38'-2 1/2"	
	38'-2 1/2"	38'-4"	39'-3"	
GIRDER 5	36'-4 3/4"	35'-8 5/8"	35'-7 1/8"	
	38'-2 1/2"	38'-4"	38'-2 1/2"	
	38'-2 1/2"	38'-4"	39'-3"	



DIAPHRAGM SUPPORT

* 2 1/2" FOR ALTERNATE PLATE DIAPHRAGM



DETAIL B

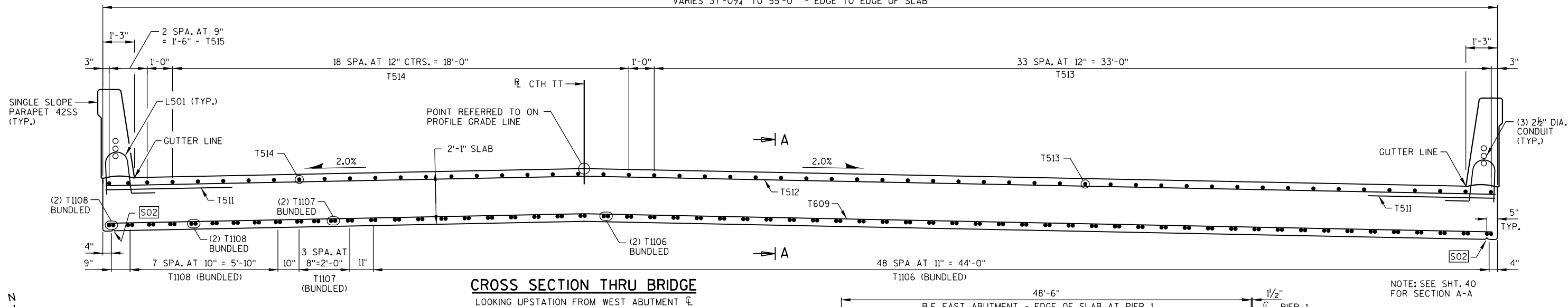
(FOR CONTINUOUS LINE OF DIAPHRAGMS)

DIAPHRAGM CONNECTION SPACING

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-9-387			
DRAWN BY KAM		PLANS CK'D. AJC	
STEEL DIAPHRAGMS			SHEET 38 OF 54

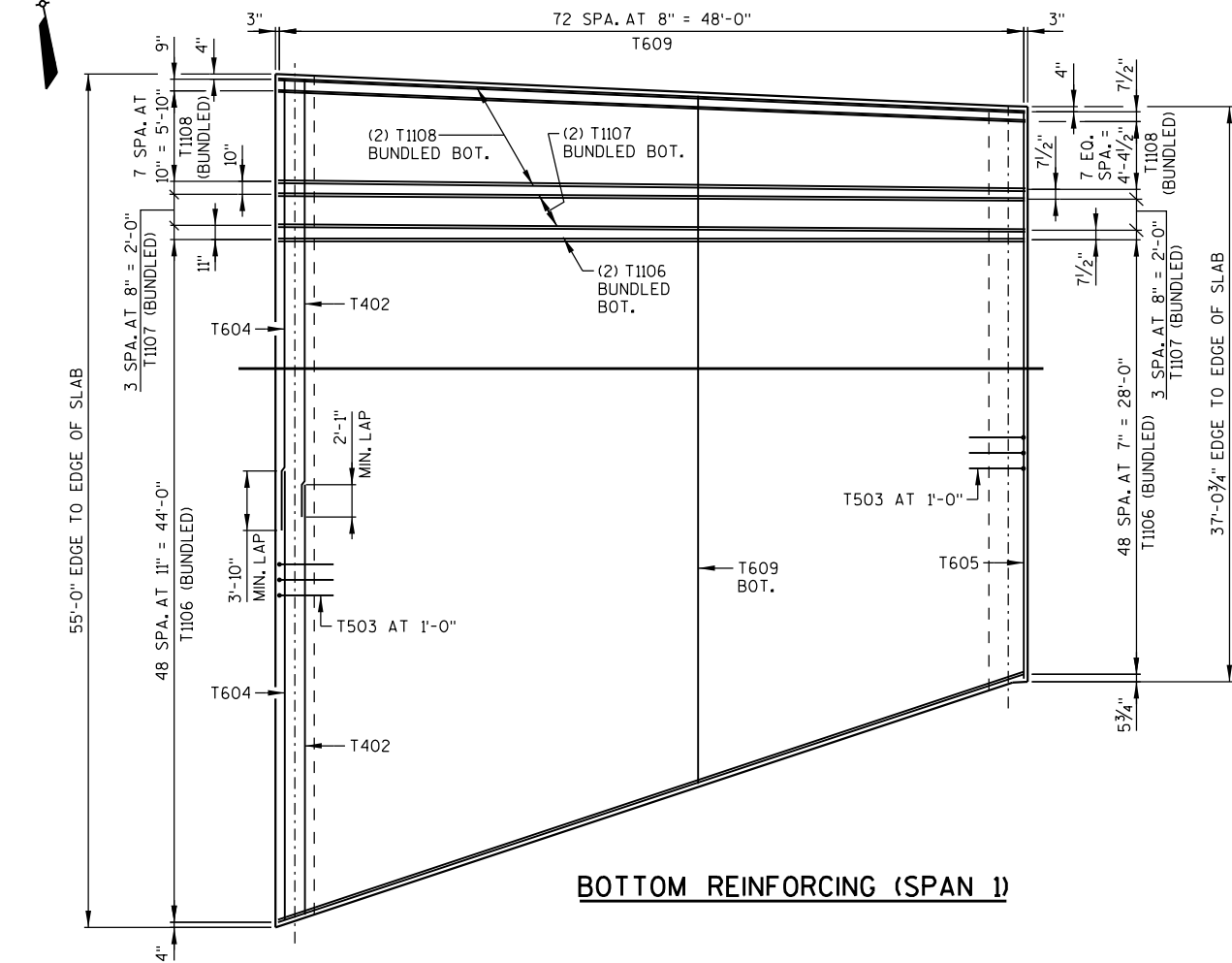
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 PLOT DATE: 10/31/2021 PLOT TIME: 2:44:43 PM
 BATCH PRINT SHEET 38 OF 54

VARIES 37'-0 3/4" TO 55'-0" - EDGE TO EDGE OF SLAB

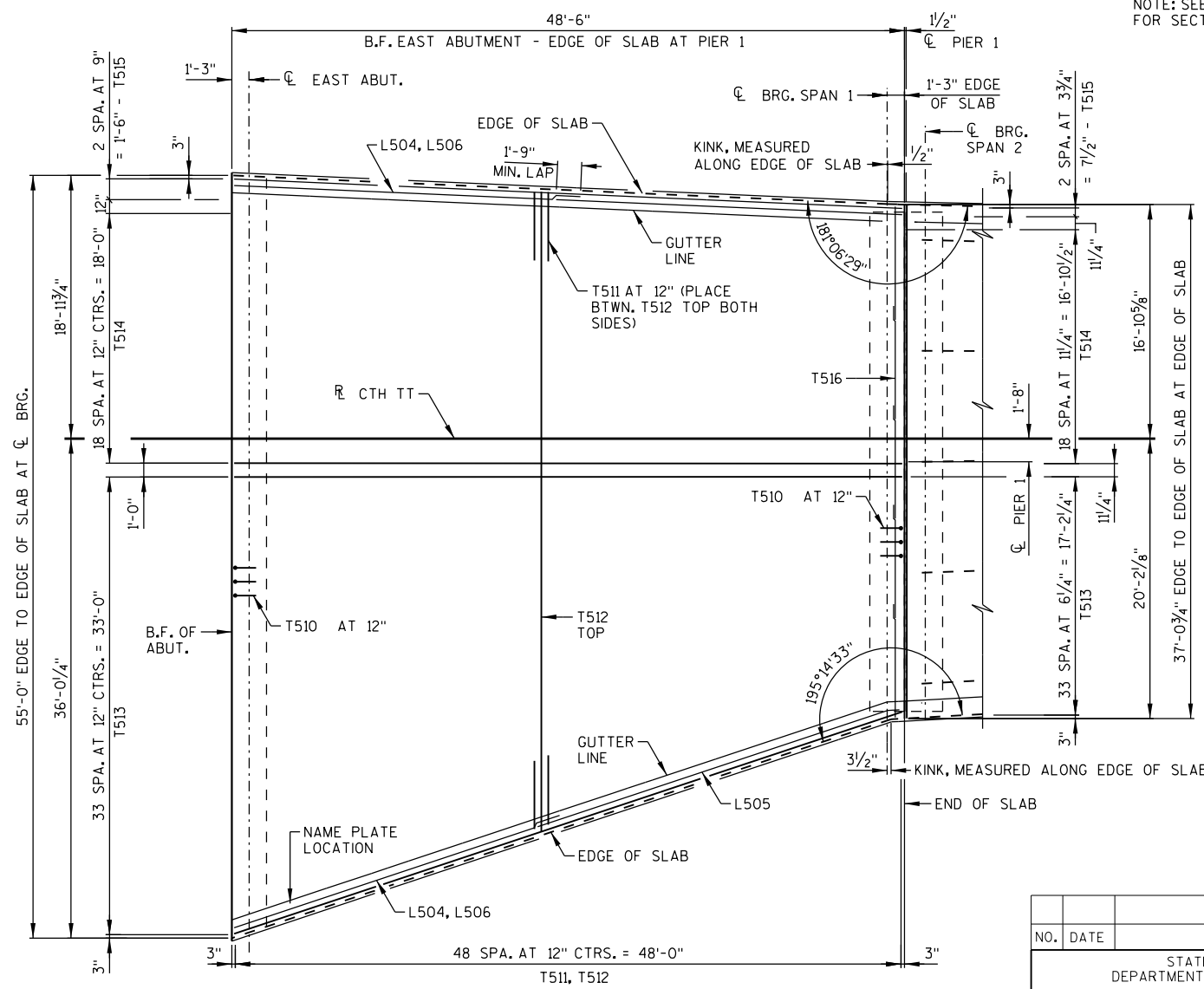


CROSS SECTION THRU BRIDGE
LOOKING UPSTATION FROM WEST ABUTMENT

NOTE: SEE SHT. 40 FOR SECTION A-A



BOTTOM REINFORCING (SPAN 1)



TOP REINFORCING (SPAN 1)

TOP OF DECK ELEVATIONS - SPAN 1

	CL BRG. W. ABUT.	1/10 PT.	2/10 PT.	3/10 PT.	4/10 PT.	5/10 PT.	6/10 PT.	7/10 PT.	8/10 PT.	9/10 PT.	CL BRG. PIER 1
N Edge of Deck	966.55	966.59	966.64	966.70	966.76	966.83	966.89	966.96	967.03	967.09	967.16
PGL	966.90	966.94	966.99	967.04	967.10	967.16	967.22	967.29	967.35	967.41	967.47
S Edge of Deck	966.22	966.29	966.36	966.45	966.54	966.63	966.72	966.81	966.91	967.00	967.09

NOTE: EDGE OF DECK ELEVATIONS ARE CALCULATED ASSUMING CROSS SLOPE CONTINUES TO EDGE.
ELEVATIONS SHOWN ARE FINISHED GRADE AND DO NOT INCLUDE ALLOWANCES FOR DEAD LOAD DEFLECTION AND FUTURE CREEP.

FOR PARAPET REINFORCING ON WEST SLAB SEE SHEET 50 "SINGLE SLOPE PARAPET 42SS - WEST SLAB"

FOR STRIP SEAL EXPANSION DETAILS, SEE SHEET 47 "EXPANSION DEVICE - PIER 1"

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-9-387			
DRAWN BY KAM		PLANS CKD. AJC	
SUPERSTRUCTURE-1			SHEET 39 OF 54

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 BATCH PRINT SHEET 39 OF 54
 PLOT DATE: 10/31/2021
 PLOT TIME: 2:44:45 PM

8

8

BILL OF BARS

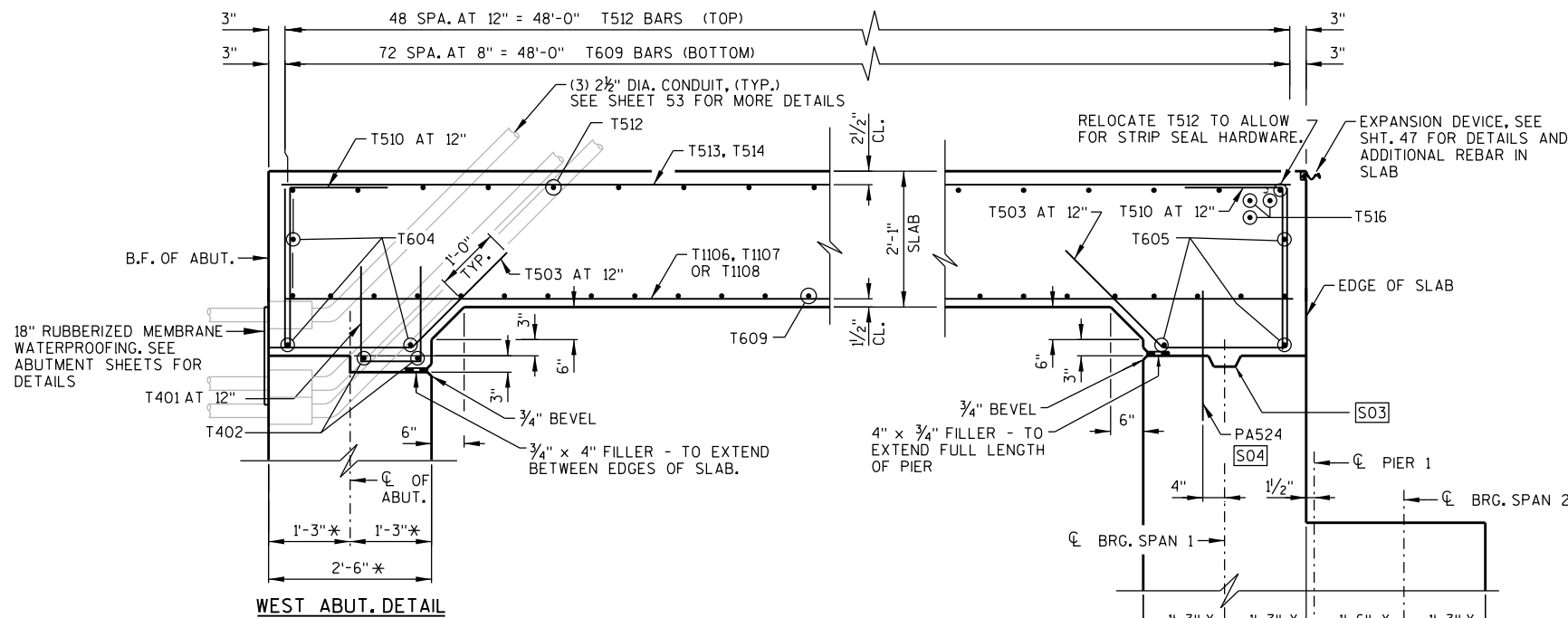
DIMENSIONS IN BENDING DETAILS ARE OUT TO OUT OF BAR.
 Δ LENGTH SHOWN FOR BAR IS AN AVG. LENGTH AND SHOULD ONLY BE USED FOR BAR WEIGHT CALCULATIONS. SEE BAR SERIES TABLE FOR ACTUAL LENGTHS.

MARK	NO. REQ'D	COATED	LENGTH	BENT	BAR SERIES	LOCATION	
							TOTAL WEIGHT = 44,770 LBS
T401	56	X	3-9	X		SLAB - BOTTOM AT W. ABUT.	VERT.
T402	4	X	28-3			SLAB - BOTTOM AT W. ABUT.	HORIZ.
T503	94	X	6-3	X		SLAB - BOTTOM AT W. ABUT. AND PIER 1	VERT.
T604	6	X	29-3			SLAB - W. ABUT.	TRANS.
T605	3	X	36-8			SLAB - PIER 1	TRANS.
T1106	98	X	49-4		Δ	SLAB - BOTTOM	LONGIT.
T1107	8	X	48-0			SLAB - BOTTOM	LONGIT.
T1108	18	X	48-1			SLAB - BOTTOM	LONGIT.
T609	73	X	45-6		Δ	SLAB - BOTTOM	TRANS.
T510	94	X	3-11	X		SLAB - ENDS W. ABUT AND PIER 1	VERT.
T511	96	X	5-0			SLAB - TOP AT PARAPETS	TRANS.
T512	49	X	45-6		Δ	SLAB - TOP	TRANS.
T513	34	X	49-5		Δ	SLAB - TOP	LONGIT.
T514	19	X	48-0			SLAB - TOP	LONGIT.
T515	3	X	48-1			SLAB - TOP	LONGIT.
T516	15	X	8-2			SLAB - AT PIER 1 STRIP SEAL	TRANS.

BAR SERIES

MARK	NO. REQ'D	LENGTH
T1106	2 SETS OF 49	48'-0" TO 50'-7"
T609	1 SET OF 73	36'-7" TO 54'-6"
T512	1 SET OF 49	36'-7" TO 54'-6"
T513	1 SET OF 34	48'-0" TO 50'-9"

BUNDLE & TAG EACH SERIES SEPARATELY.

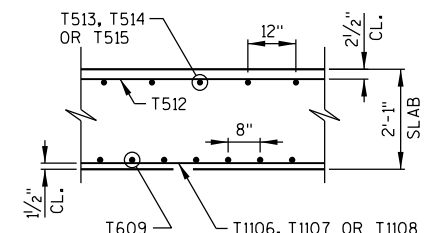


PARTIAL LONGITUDINAL SECTION

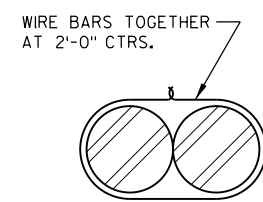
* DIMENSION TAKEN NORMAL TO SUBSTRUCTURE UNITS



PIER 1 DETAIL

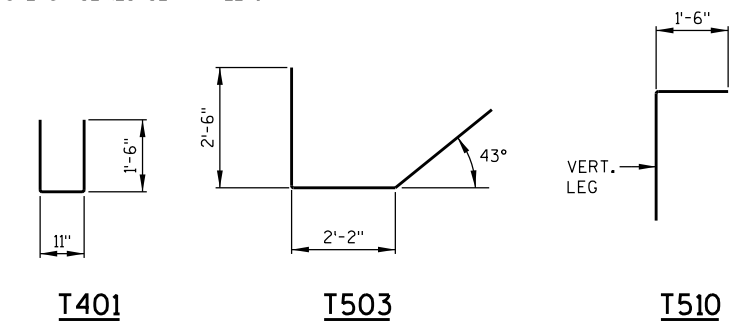


SECTION A - A



BAR BUNDLING DETAIL

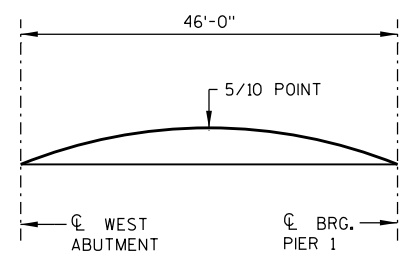
(T1106, T1107 & T1108)



T401

T503

T510

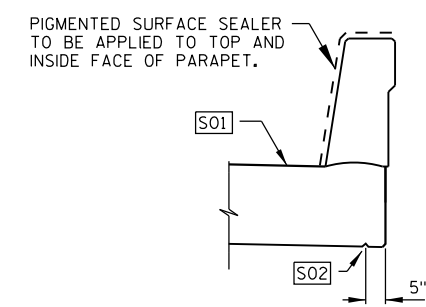


CAMBER DIAGRAM

CAMBER (IN.)	CL. BRG. W. ABUT.	1/10 PT.	2/10 PT.	3/10 PT.	4/10 PT.	5/10 PT.	6/10 PT.	7/10 PT.	8/10 PT.	9/10 PT.	CL. BRG. PIER 1
0.0	0.0	0.6	1.1	1.5	1.8	1.9	1.8	1.5	1.1	0.6	0.0

CAMBER SPAN AS SHOWN TO PROVIDE FOR DEADLOAD DEFLECTION AND FUTURE CREEP. CAMBER DOES NOT INCLUDE ALLOWANCE FOR FORM SETTLEMENT.

PRIOR TO RELEASING SLAB FALSEWORK, TAKE TOP OF SLAB ELEVATIONS AT THE CL. OF ABUTMENT, THE CL. OF PIER BRG. (SPAN 1) AND AT 5/10 PTS. TO VERIFY CAMBER. TAKE ELEVATIONS ALONG GUTTER LINES AND CROWN.



SURFACE PROTECTION DETAIL

LEGEND

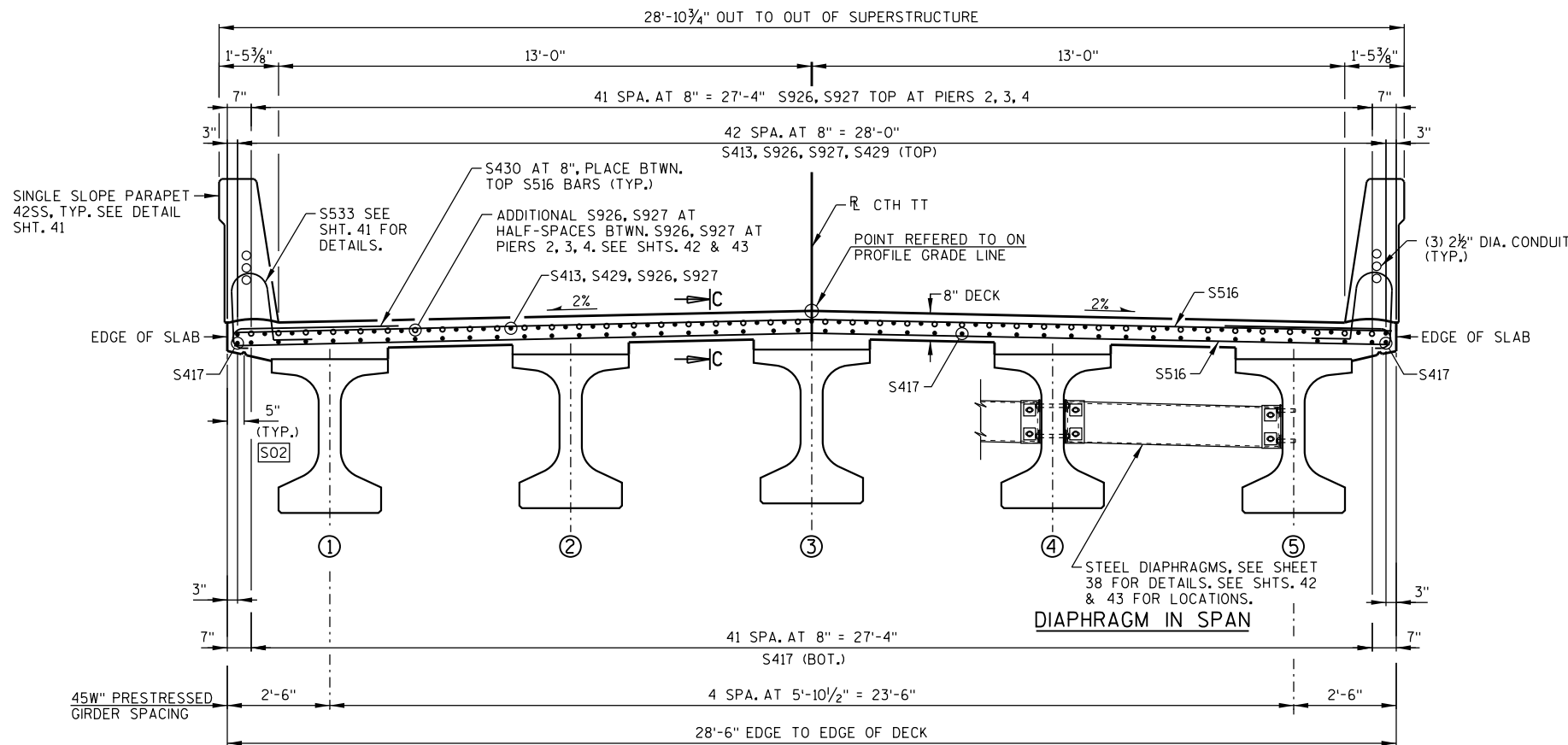
- [S01] COAT WITH "PROTECTIVE SURFACE TREATMENT" AS PER THE STANDARD SPECIFICATIONS.
- [S02] 3/4" V-GROOVE REQUIRED, EXTEND TO 2'-0" FROM F.F. EAST ABUT. AND EAST FACE PIER 1, EXTEND TO 6" FROM F.F. OF W. ABUT. AND PIERS 2-4 DIAPHRAGMS.
- [S03] KEYED CONSTRUCTION JOINT FORMED BY BEVELED 2"x6".
- [S04] PA524 SPACED 1'-0", COATED, BARS MAY BE PLACED AFTER CONCRETE HAS BEEN POURED BUT PRIOR TO ITS INITIAL SET EMBED 1'-0".

NOTES

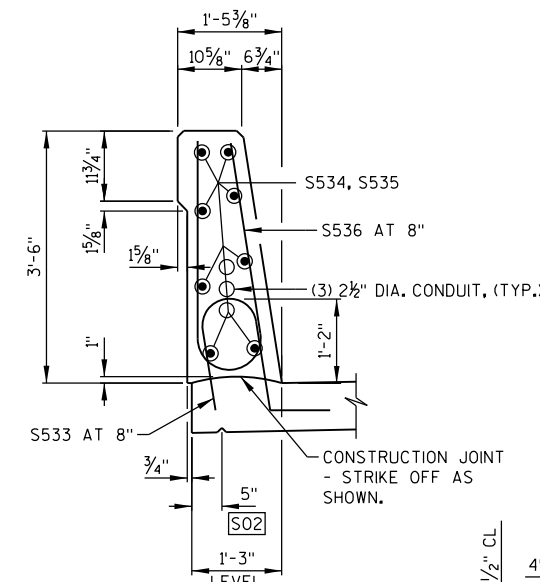
- ALL SLAB THICKNESS DIMENSIONS ARE MINIMUM. ANY TOLERANCES NECESSARY TO CORRECT CONSTRUCTION DISCREPANCIES ARE TO BE PLUS (+).
- CAMBER SPAN AS SHOWN TO PROVIDE FOR DEADLOAD DEFLECTION AND FUTURE CREEP. CAMBER DOES NOT INCLUDE ALLOWANCE FOR FORM SETTLEMENT.
- TOP TRANSVERSE BARS IN SLAB SHALL BE SUPPORTED 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.
- PARAPETS PLACED ON TOP OF THE SLAB SHALL BE POURED AFTER FALSEWORK HAS BEEN RELEASED.

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 BATCH PRINT SHEET 40 OF 54
 PLOT DATE: 10/31/2021
 PLOT TIME: 2:44:46 PM

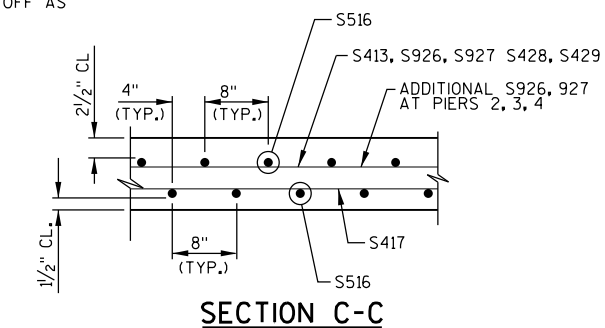
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-9-387			
		DRAWN BY KAM	PLANS CKD. AJC
SUPERSTRUCTURE-2			SHEET 40 OF 54



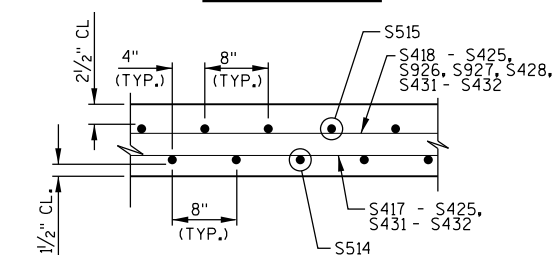
**CROSS SECTION THRU ROADWAY
SPAN 3 THRU SPAN 5
(LOOKING EAST)**



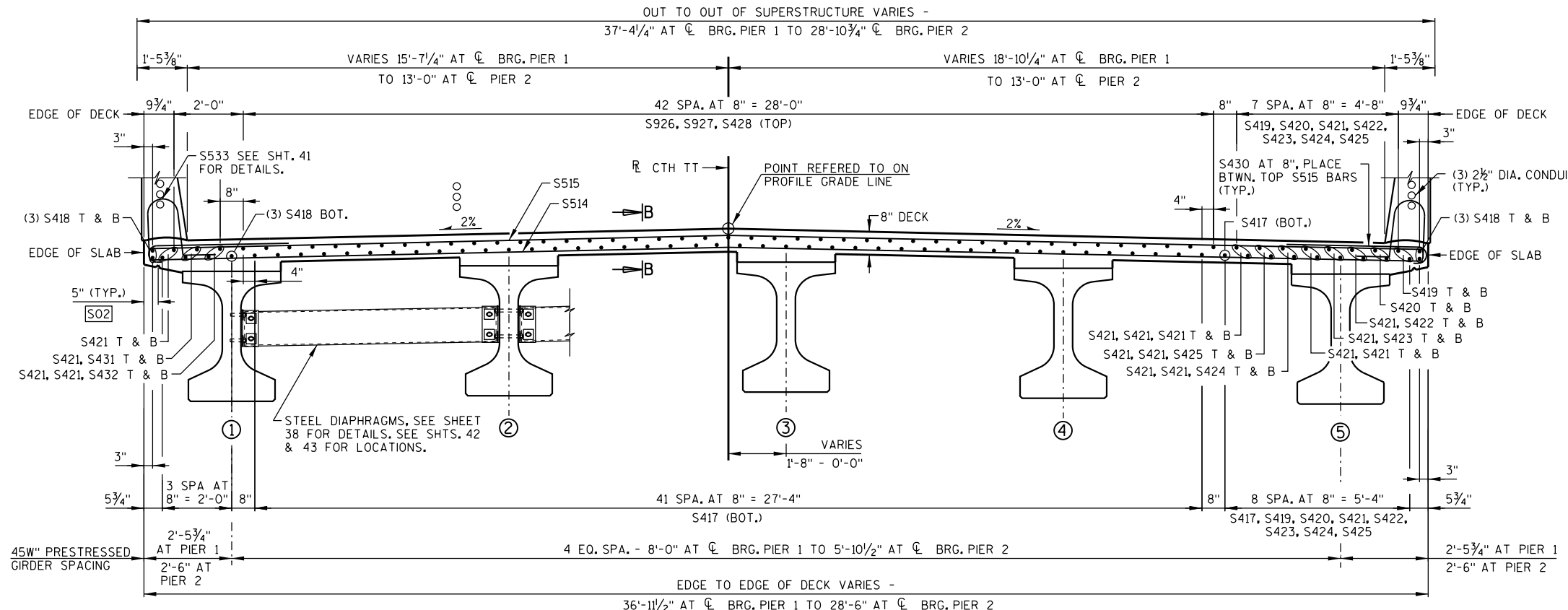
**SINGLE SLOPE
PARAPET 42SS
ON SUPERSTRUCTURE**



SECTION C-C



SECTION B-B



**CROSS SECTION THRU ROADWAY
SPAN 2
(LOOKING EAST)**

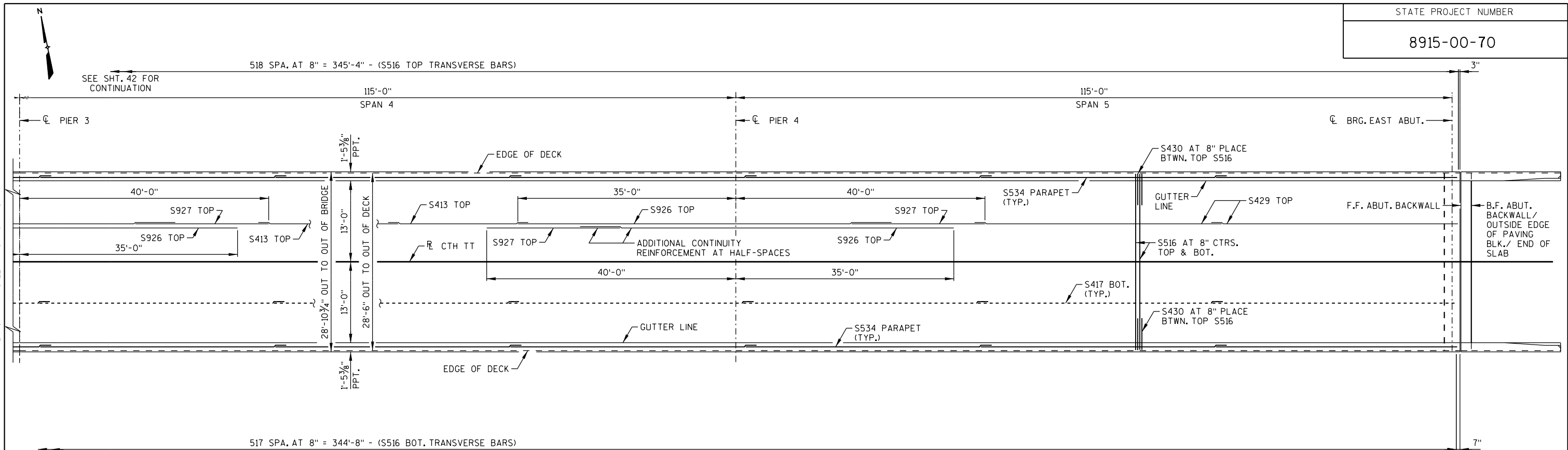
NOTES

- LAP LONGITUDINAL NO. 4 BARS 1'-8" MIN.
- LAP LONGITUDINAL NO. 9 BARS 8'-0" MIN.
- LAP HORIZONTAL NO. 5 BARS 1'-9" IN THE PARAPET.
- SEE SHEET 46 "SUPERSTRUCTURE-8" FOR BAR BILL.
- FOR PARTIAL LONGITUDINAL SECTIONS AT EXPANSION JOINTS SEE SHEET 44 "SUPERSTRUCTURE-6".
- THE TOP LONGITUDINAL BAR STEEL REINFORCEMENT SHALL BE SUPPORTED BY CONTINUOUS BAR CHAIRS IN THE TRANSVERSE DIRECTION ON 4'-0" CENTERS.
- THE BOTTOM TRANSVERSE BAR STEEL REINFORCEMENT SHALL BE SUPPORTED BY CONTINUOUS BAR CHAIRS WITH A CENTER TO CENTER SPACING NOT TO EXCEED 4'-0". ONE LINE OF CONTINUOUS BAR CHAIRS SHALL BE PLACED NEAR EACH EDGE OF DECK TO SUPPORT THE ENDS OF THE BOTTOM TRANSVERSE BAR STEEL.
- ALL TRANSVERSE BAR STEEL REINFORCEMENT SHALL BE PLACED PERPENDICULAR TO R CTH TT.

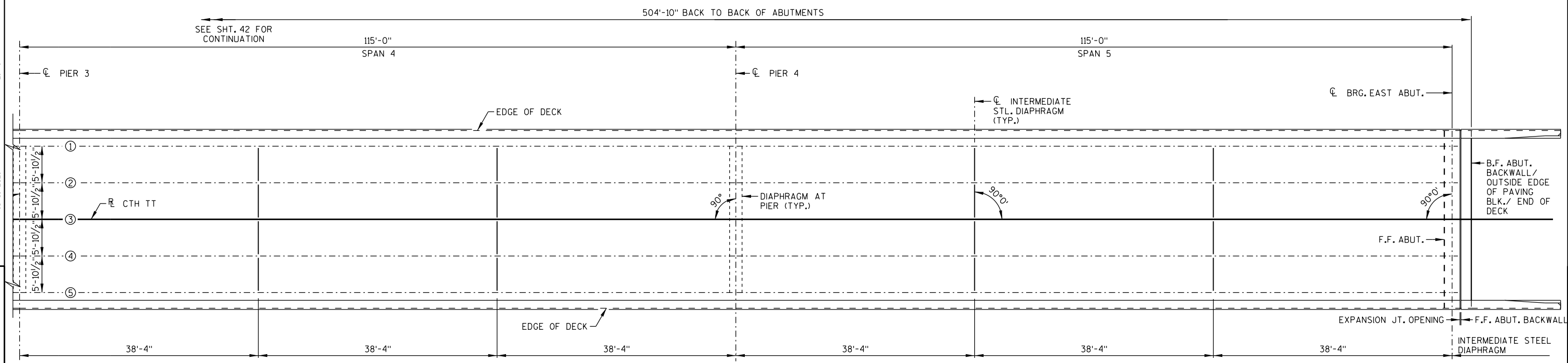
NOTE: DIMENSIONS ARE ALONG C OF BRG.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-9-387			
DRAWN BY KAM		PLANS CKD. AJC	
SUPERSTRUCTURE-3			SHEET 41 OF 54

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 PLOT DATE: 10/31/2021 PLOT TIME: 2:44:47 PM



DECK REINFORCING PLAN (SPANS 4 & 5)



FRAMING PLAN (SPANS 4 & 5)

TOP OF DECK ELEVATIONS - SPAN 4

	CL BRG. PIER 3	1/10 PT.	2/10 PT.	3/10 PT.	4/10 PT.	5/10 PT.	6/10 PT.	7/10 PT.	8/10 PT.	9/10 PT.	CL BRG. PIER 4
N Edge of Deck	970.22	970.38	970.53	970.67	970.80	970.91	971.00	971.07	971.12	971.16	971.17
BEAM 1	970.25	970.40	970.56	970.70	970.82	970.93	971.02	971.10	971.15	971.18	971.20
BEAM 2	970.37	970.52	970.67	970.81	970.94	971.05	971.14	971.21	971.27	971.30	971.31
BEAM 3 / PGL	970.48	970.64	970.79	970.93	971.06	971.17	971.26	971.33	971.38	971.42	971.43
BEAM 4	970.37	970.52	970.67	970.81	970.94	971.05	971.14	971.21	971.27	971.30	971.31
BEAM 5	970.25	970.40	970.56	970.70	970.82	970.93	971.02	971.10	971.15	971.18	971.20
S Edge of Deck	970.22	970.38	970.53	970.67	970.80	970.91	971.00	971.07	971.12	971.16	971.17

TOP OF DECK ELEVATIONS - SPAN 5

	CL BRG. PIER 4	1/10 PT.	2/10 PT.	3/10 PT.	4/10 PT.	5/10 PT.	6/10 PT.	7/10 PT.	8/10 PT.	9/10 PT.	CL BRG. E. ABUT.
N Edge of Deck	971.17	971.17	971.14	971.10	971.04	970.96	970.86	970.74	970.61	970.45	970.28
BEAM 1	971.20	971.19	971.17	971.13	971.06	970.98	970.89	970.77	970.63	970.48	970.30
BEAM 2	971.31	971.31	971.29	971.24	971.18	971.10	971.00	970.89	970.75	970.59	970.42
BEAM 3 / PGL	971.43	971.43	971.40	971.36	971.30	971.22	971.12	971.00	970.87	970.71	970.54
BEAM 4	971.31	971.31	971.29	971.24	971.18	971.10	971.00	970.89	970.75	970.59	970.42
BEAM 5	971.20	971.19	971.17	971.13	971.06	970.98	970.89	970.77	970.63	970.48	970.30
S Edge of Deck	971.17	971.17	971.14	971.10	971.04	970.96	970.86	970.74	970.61	970.45	970.28

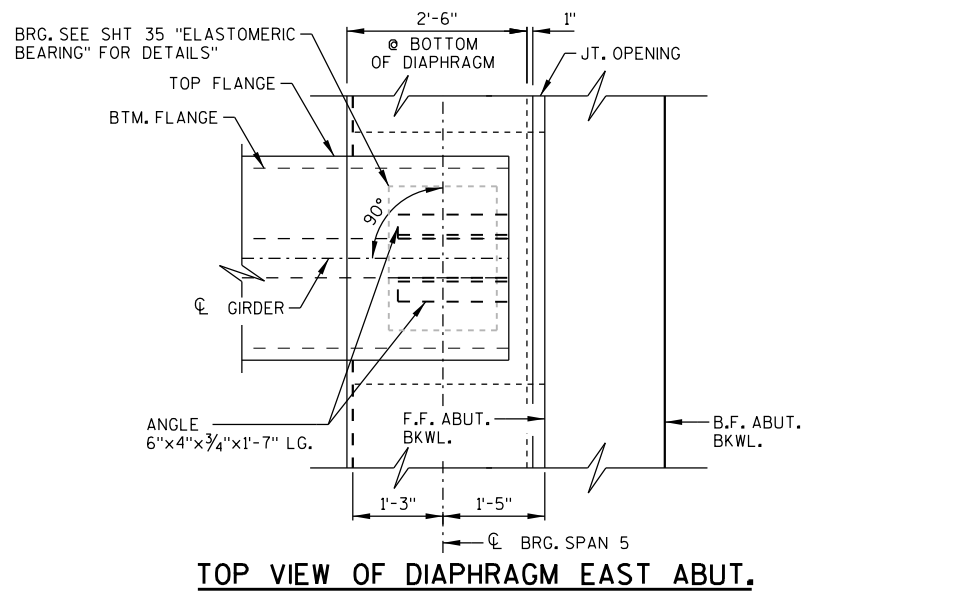
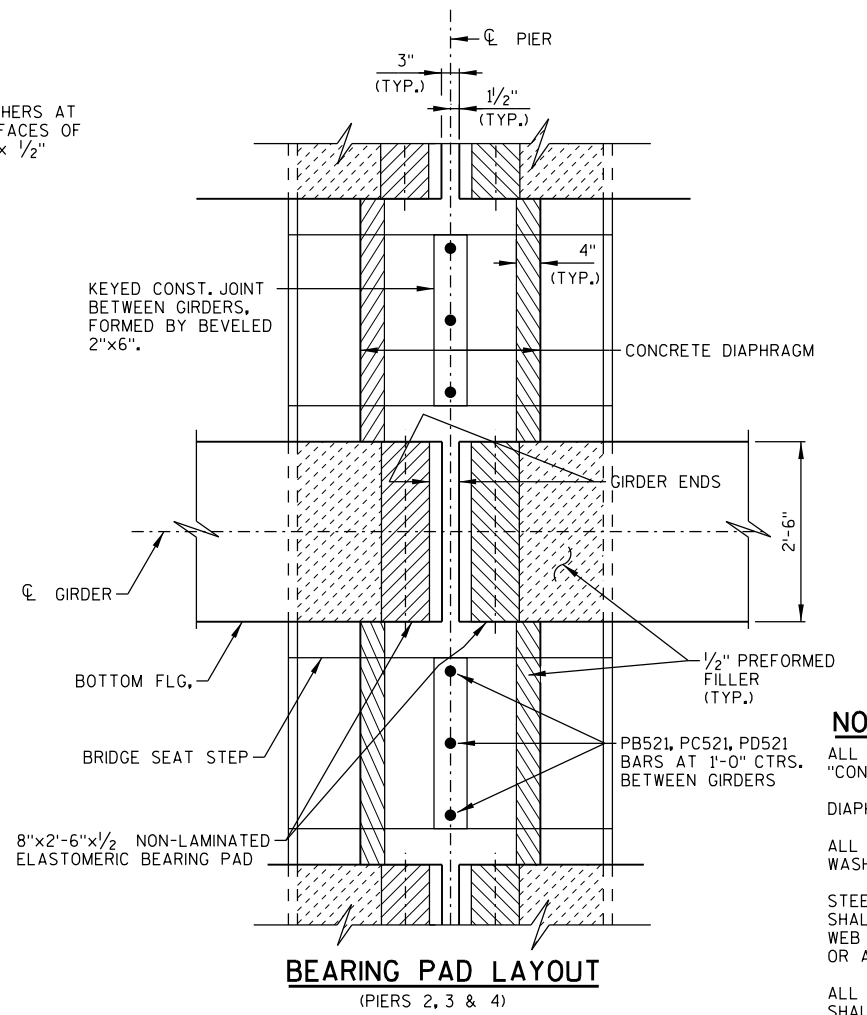
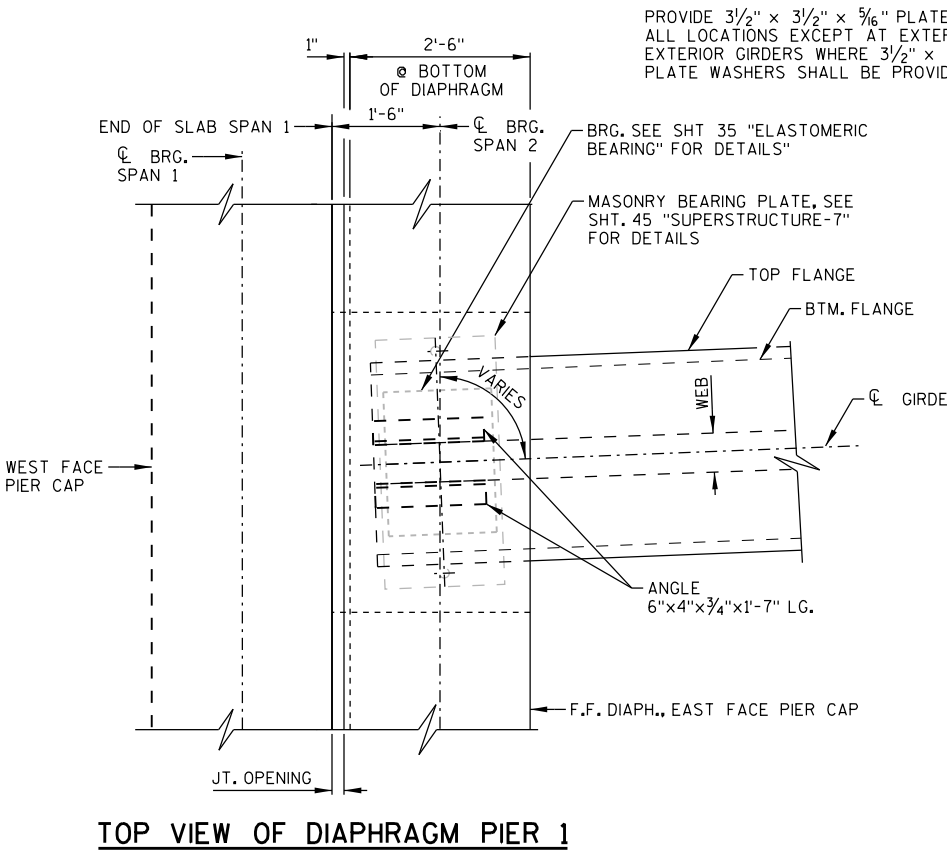
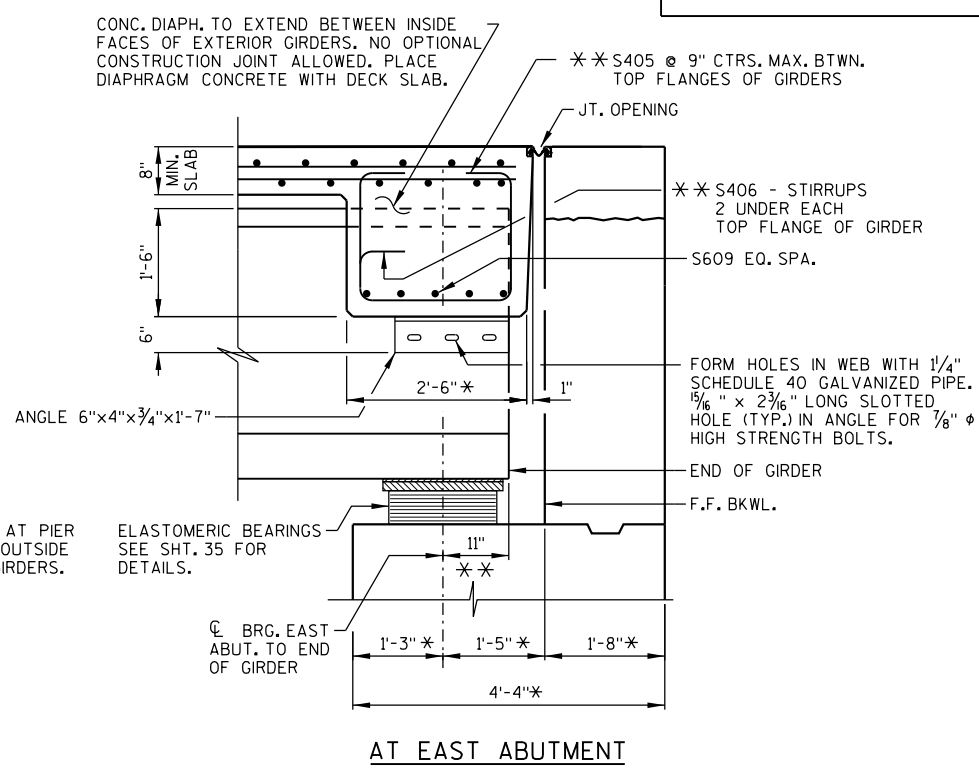
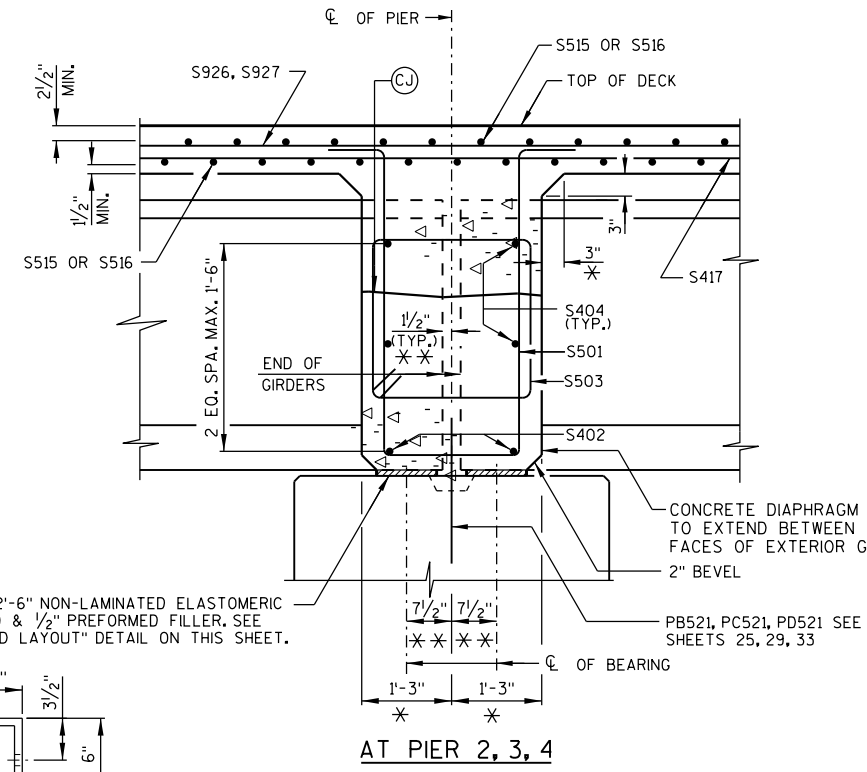
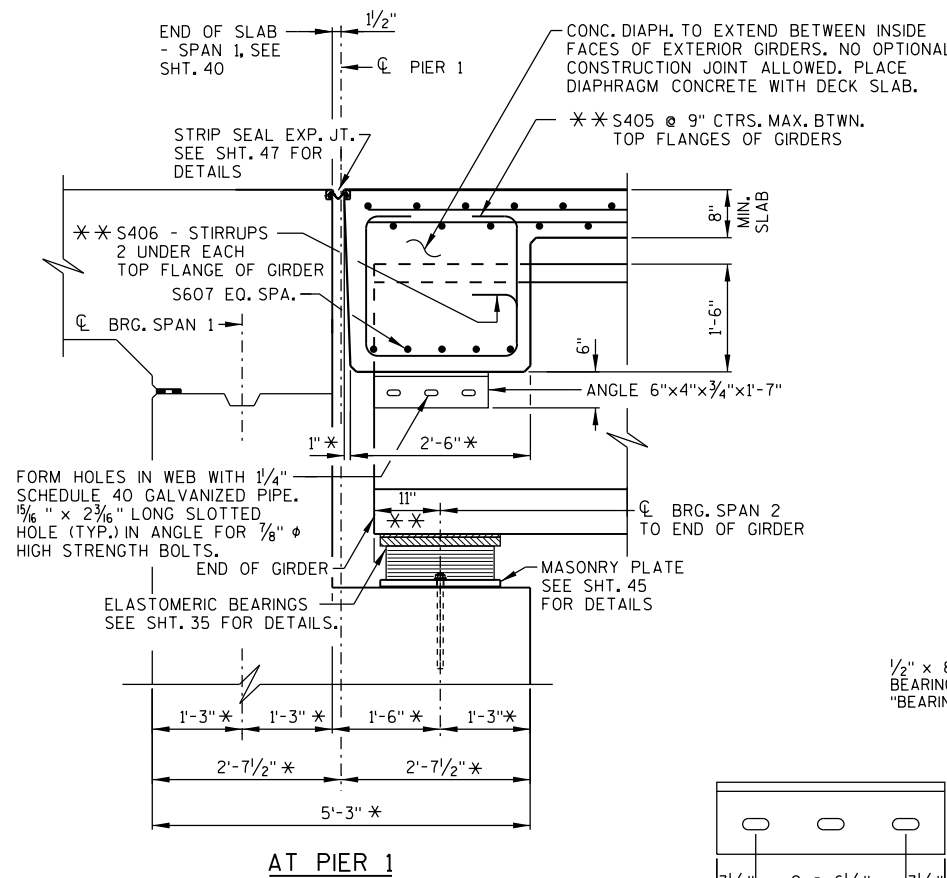
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-9-387			
DRAWN BY KAM		PLANS CKD. AJC	
SUPERSTRUCTURE-5			SHEET 43 OF 54

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 PLOT DATE: 10/31/2021
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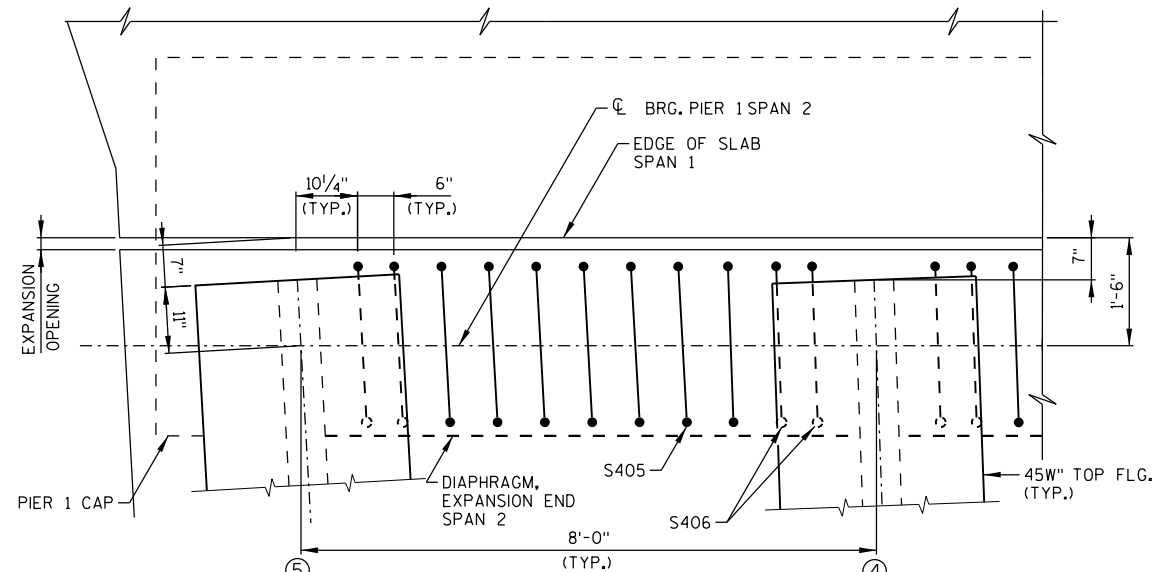
LEGEND

- * DIMENSIONS ARE GIVEN NORMAL TO ϕ OF SUBSTRUCTURE UNITS.
- ** DIMENSIONS ARE GIVEN PARALLEL TO THE GIRDER ϕ .
- (C) OPTIONAL CONSTRUCTION JOINT 1'-2" BELOW TOP OF GIRDER. IF USED, DECK POUR MUST BE WITHIN 2 WEEKS FROM THE TIME OF THE DIAPHRAGM POUR.

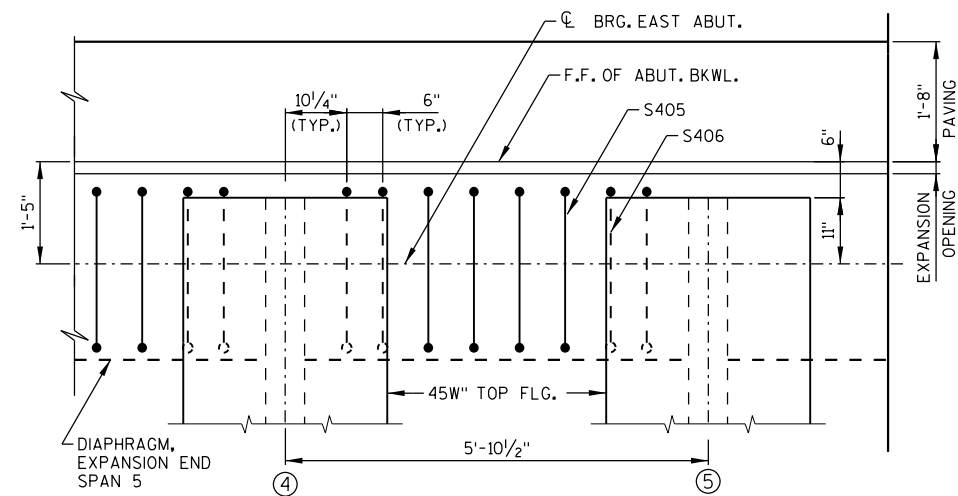
NOTES

- ALL DIAPHRAGM SUPPORT HARDWARE SHALL BE INCIDENTAL TO "CONCRETE MASONRY BRIDGES".
- DIAPHRAGM SUPPORT ANGLES SHALL BE ASTM A709 GRADE 36.
- ALL DIAPHRAGM SUPPORT HARDWARE INCLUDING BOLTS, NUTS, AND WASHERS SHALL BE GALVANIZED AFTER FABRICATION.
- STEEL DIAPHRAGM SUPPORT ANGLE TO CONCRETE WEB CONNECTION SHALL BE SNUG-TIGHT PLUS 1/4 TURN. HIGH STRENGTH BOLTS FOR WEB CONNECTION SHALL MEET THE REQUIREMENTS FOR ASTM A325 OR ASTM A449.
- ALL VERTICAL BAR STEEL REINFORCEMENT IN CONCRETE DIAPHRAGMS SHALL BE SPACED AND PLACED PARALLEL TO GIRDERS.

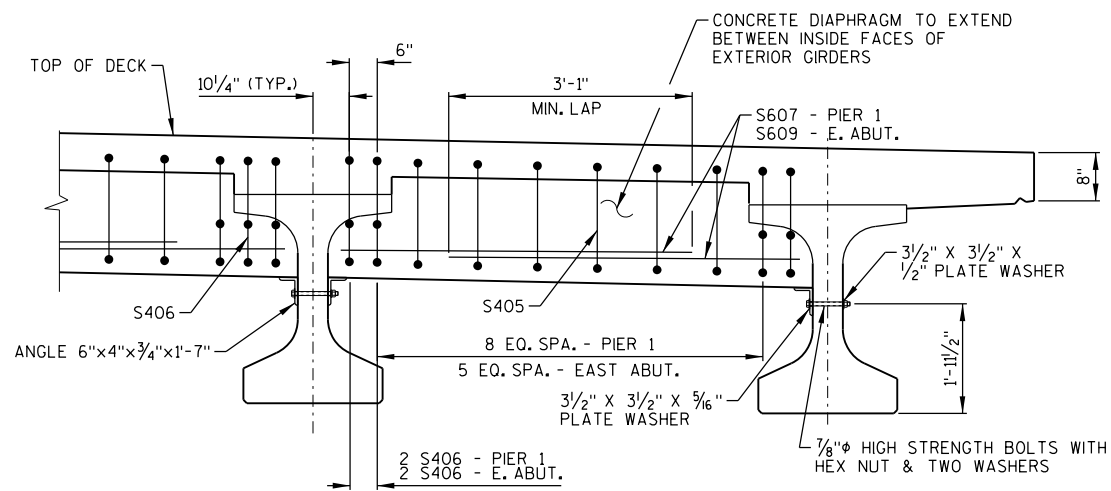
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-9-387			
DRAWN BY KAM		PLANS CKD. AJC	
SUPERSTRUCTURE-6			SHEET 44 OF 54



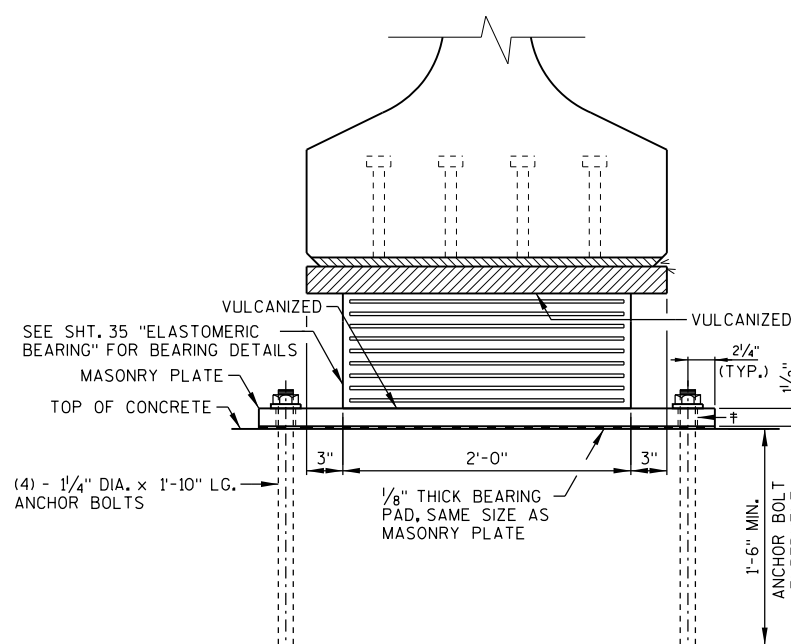
PARTIAL EXPANSION DIAPHRAGM PLAN AT PIER 1



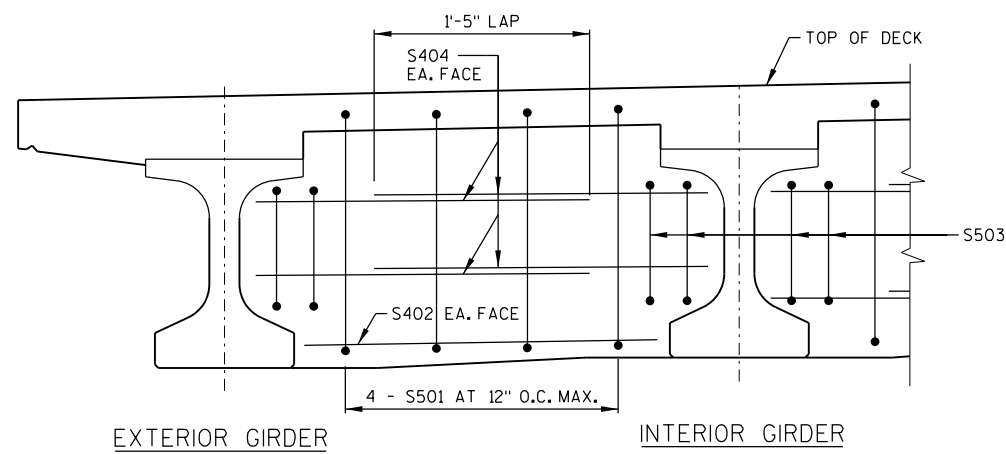
PARTIAL EXPANSION DIAPHRAGM PLAN AT EAST ABUT.



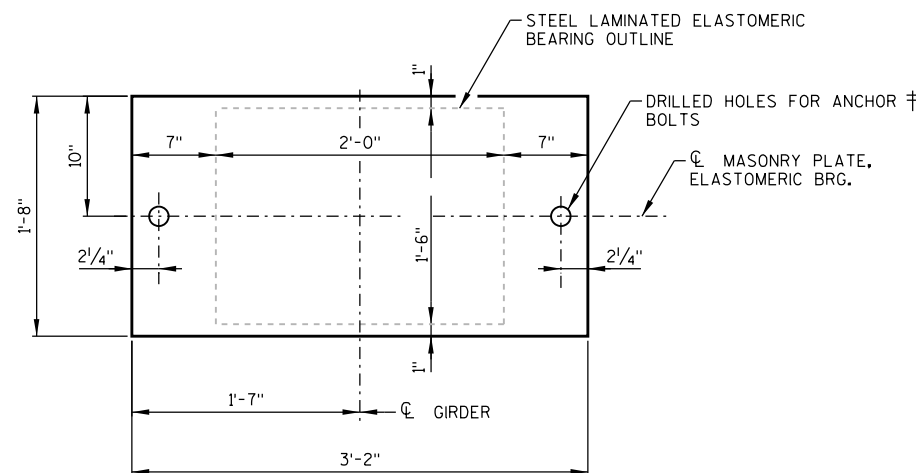
PART. TRANSVERSE SECTION AT DIAPHRAGM EXPANSION ENDS
(PIER 1 & EAST ABUTMENT)



ELEVATION



SECTION AT FULL DEPTH DIAPHRAGM AT PIERS 2, 3 & 4



MASONRY BEARING PLATE - AT PIER 1

NOTES

ANCHOR BOLTS, NUTS AND WASHERS SHALL CONFORM TO ASTM F1554 GRADE 50, OR MATERIAL OF EQUIVALENT YIELD STRENGTH AND ELONGATION.

ALL STRUCTURAL STEEL BEARING PLATES SHALL BE FLAT ROLLED STEEL PLATES WITH ALL SURFACES SMOOTH AND FREE FROM WARP AND ALL EDGES SMOOTH, STRAIGHT, AND VERTICAL.

ALL PLATE CUTS SHALL BE MACHINE OR MACHINE FLAME CUTS.

ALL FINISHED SURFACES SHALL BE MACHINE FINISHED BY AN AUTOMATIC PROCESS.

ANCHOR BOLTS SHALL BE THREADED 3". PROVIDE ONE STANDARD WROUGHT WASHER AND ONE HEX NUT PER BOLT. PROJECT ANCHOR BOLTS, MASONRY PLATE THICKNESS + 2/4", ABOVE TOP OF CONCRETE.

CHAMFER ANCHOR BOLTS PRIOR TO THREADING.

MASONRY PLATE, ANCHOR BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153, CLASS "C".

† DRILLED HOLES FOR ANCHOR BOLTS IN MASONRY PLATE SHALL HAVE A DIAMETER 3/8" LARGER THAN ANCHOR BOLT.

CONSTRUCT TOP BEARING SURFACE OF CONCRETE IN STRICT ACCORDANCE WITH AASHTO CONSTRUCTION SPECIFICATIONS, SECTION 8.10.5. THE CONTRACTOR WILL CORRECT ANY VARIANCE FROM THE CONSTRUCTION SPECIFICATION AT THE DIRECTION OF THE ENGINEER.

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 BATCH PRINT SHEET 45 OF 54

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-9-387			
DRAWN BY KAM		PLANS CK'D. AJC	
SUPERSTRUCTURE-7			SHEET 45 OF 54

BILL OF BARS

DIMENSIONS IN BENDING DETAILS ARE OUT TO OUT OF BAR.
 Δ LENGTH SHOWN FOR BAR IS AN AVG. LENGTH AND SHOULD ONLY BE USED FOR BAR WEIGHT CALCULATIONS. SEE BAR SERIES TABLE FOR ACTUAL LENGTHS.

MARK	NO. REQ'D	COATED	LENGTH	BENT	BAR SERIES	LOCATION
TOTAL WEIGHT = 165,530 LBS						
S501	48	X	11 - 8	X		DIAPHRAGM - PIERS 2, 3, 4 VERT.
S402	24	X	3 - 0			DIAPHRAGM - PIERS 2, 3, 4 HORIZ.
S503	48	X	9 - 4	X		DIAPHRAGM - PIERS 2, 3, 4 VERT.
S404	96	X	3 - 3			DIAPHRAGM - PIERS 2, 3, 4 HORIZ.
S405	44	X	7 - 2	X		DIAPHRAGM - PIER 1, EAST ABUT. VERT.
S406	32	X	6 - 0	X		DIAPHRAGM - PIER 1, EAST ABUT. VERT.
S607	40	X	5 - 1			DIAPHRAGM - PIER 1 HORIZ.
S408	8	X	7 - 0			DIAPHRAGM - PIER 1 AT EXPANSION DEVICE HORIZ.
S609	40	X	4 - 0			DIAPHRAGM - EAST ABUT. HORIZ.
S410	8	X	4 - 10			DIAPHRAGM - EAST ABUT. HORIZ.
S511	32	X	3 - 2			PARAPET - JUNCTION BOXES VERT.
S_12		X	#####			NOT USED
S413	172	X	22 - 6			SUPERSTRUCTURE - TOP SPAN 3 & 4 LONGIT.
S514	163	X	32 - 4		Δ	SUPERSTRUCTURE - BOT. SPAN 2 TRANS.
S515	162	X	32 - 4		Δ	SUPERSTRUCTURE - TOP SPAN 2 TRANS.
S516	1037	X	28 - 2			SUPERSTRUCTURE - TOP & BOT. SPANS 3, 4, 5 TRANS.
S417	525	X	39 - 6			SUPERSTRUCTURE - BOT. SPANS 2 - 5 LONGIT.
S418	15	X	37 - 2			SUPERSTRUCTURE - TOP & BOT. SPAN 2 LONGIT.
S419	2	X	12 - 0			SUPERSTRUCTURE - TOP & BOT. SPAN 2 LONGIT.
S420	2	X	24 - 3			SUPERSTRUCTURE - TOP & BOT. SPAN 2 LONGIT.
S421	30	X	31 - 0			SUPERSTRUCTURE - TOP & BOT. SPAN 2 LONGIT.
S422	2	X	7 - 0			SUPERSTRUCTURE - TOP & BOT. SPAN 2 LONGIT.
S423	2	X	19 - 4			SUPERSTRUCTURE - TOP & BOT. SPAN 2 LONGIT.
S424	2	X	14 - 3			SUPERSTRUCTURE - TOP & BOT. SPAN 2 LONGIT.
S425	2	X	26 - 5			SUPERSTRUCTURE - TOP & BOT. SPAN 2 LONGIT.
S926	255	X	60 - 0			SUPERSTRUCTURE - TOP AT PIERS 2 - 4 LONGIT.
S927	255	X	23 - 1			SUPERSTRUCTURE - TOP AT PIERS 2 - 4 LONGIT.
S428	86	X	38 - 1			SUPERSTRUCTURE - TOP SPAN 2 LONGIT.
S429	86	X	39 - 8			SUPERSTRUCTURE - TOP SPAN 5 LONGIT.
S430	1364	X	4 - 6	X		SUPERSTRUCTURE - TOP AT PARAPETS TRANS.
S431	2	X	27 - 3			SUPERSTRUCTURE - TOP & BOT. SPAN 2 LONGIT.
S432	2	X	25 - 4			SUPERSTRUCTURE - TOP & BOT. SPAN 2 LONGIT.
S533	1396	X	4 - 5	X		PARAPET VERT.
S534	176	X	39 - 6			PARAPET LONGIT.
S535	8	X	39 - 6	X		PARAPET - SPAN 2 LONGIT.
S536	1364	X	6 - 8	X		PARAPET VERT.

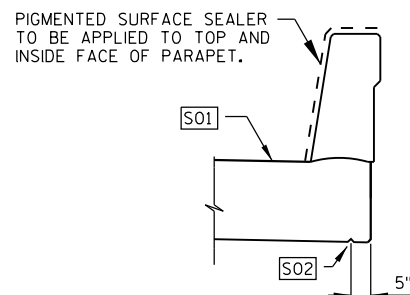
BAR S_12 NOT USED

BAR SERIES

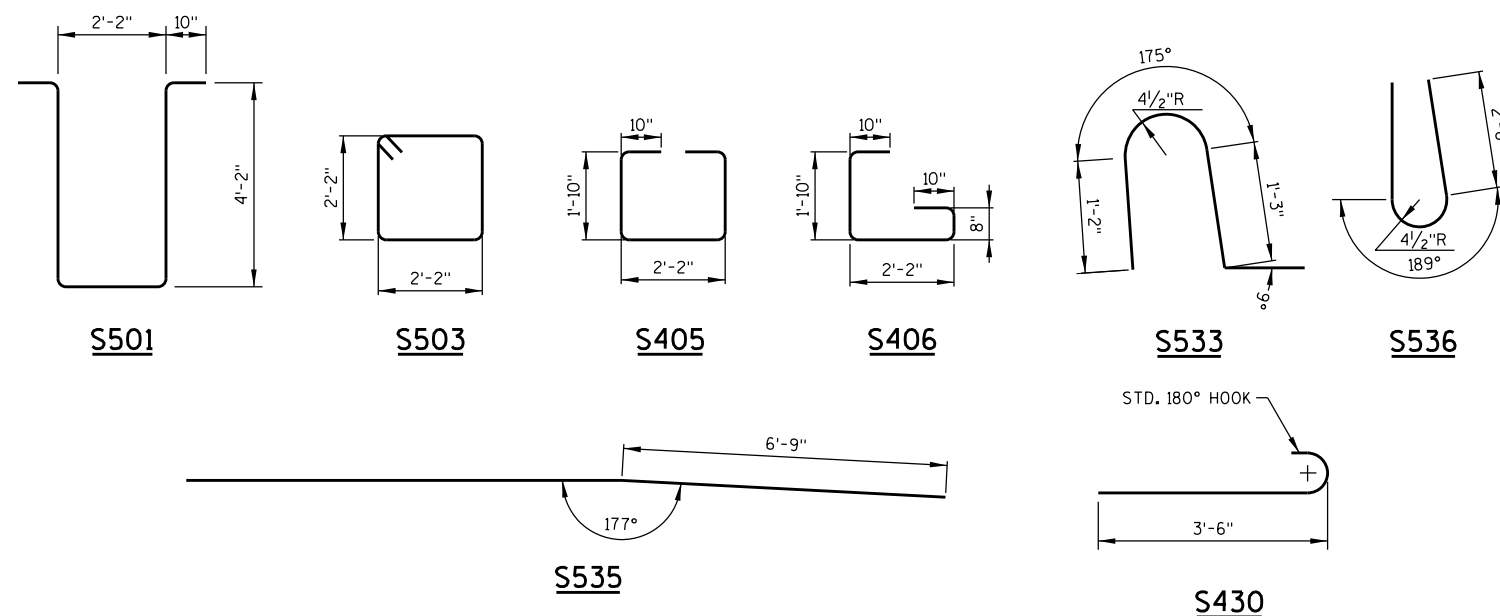
MARK	NO. REQ'D	LENGTH
S514	1 SET OF 163	28'-2" TO 36'-7"
S515	1 SET OF 162	28'-2" TO 36'-7"

BUNDLE & TAG EACH SERIES SEPARATELY.

- LEGEND**
- [S01] COAT WITH "PROTECTIVE SURFACE TREATMENT" AS PER THE STANDARD SPECIFICATIONS.
 - [S02] 3/4" V-GROOVE REQUIRED, EXTEND 2'-0" FROM F.F. EAST ABUT. AND EAST FACE PIER 1. EXTEND TO 6" FROM F.F. WEST ABUT. AND PIERS 2-4 DIAPHRAGMS.



SURFACE PROTECTION DETAIL



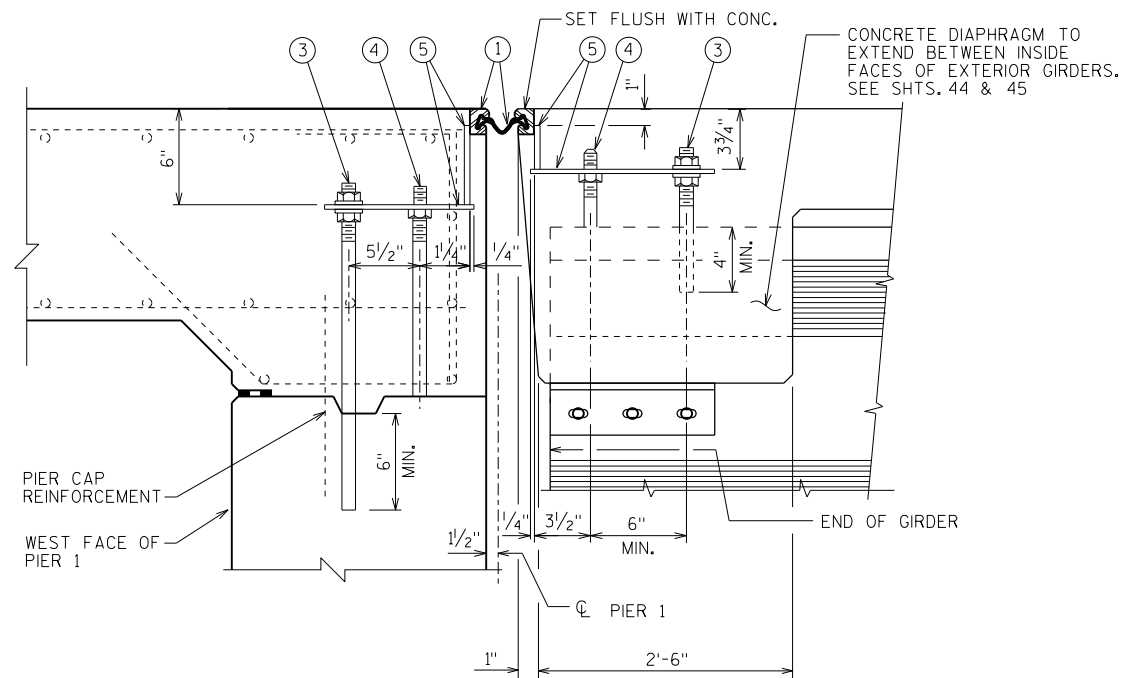
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NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-9-387			
DRAWN BY KAM		PLANS CK'D. AJC	
SUPERSTRUCTURE-8			SHEET 46 OF 54

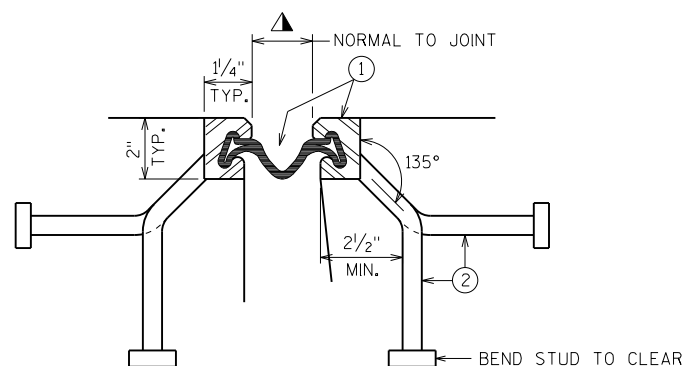
LEGEND

- ① NEOPRENE STRIP SEAL (4 - INCH) AND STEEL EXTRUSIONS. JOINT OPENING GIVEN NORMAL TO JOINT.
- ② STUDS 5/8" DIA. X 6 3/8" LONG AT 6" ALTERNATE CENTERS. WELD TO EXTRUSIONS AND BEND AS SHOWN AFTER WELDING.
- ②A 1/2" THICK ANCHOR PLATE WITH 5/8" DIA. ROD (OR ALTERNATE STRIP SEAL ANCHOR). WELD ROD TO ANCHOR PLATE, WELD ANCHOR PLATE TO NO. 1 AT 1'-6" CENTERS BETWEEN GIRDERS.
- ③ 3/4" DIA. THREADED ROD WITH 2 NUTS AND PLATE WASHERS. GROUT THREADED ROD INTO FIELD DRILLED HOLES ON ϕ OF GIRDER, ON PIER CAP (WEST OF PIER ϕ) GROUT THREADED ROD INTO FIELD DRILLED HOLES IN PIER CAP AS SHOWN.
- ④ 3/4" DIA. THREADED ROD WITH NUT. TACK WELD NUT TO NO. 5.
- ⑤ FABRICATE SUPPORT FROM 3" X 1/2" BAR AS SHOWN OR EQUIVALENT, ONE PER GIRDER PER SIDE, SHOP OR FIELD WELD TO NO. 1. IF FIELD WELDED, COVER WELDED AREAS WITH EPOXY-COATING MATERIAL. PROVIDE 1 1/2" DIA. HOLE FOR NO. 3 AND 1" DIA. HOLE FOR NO. 4.
- ⑥ GALVANIZED PLATE 3/8" X 10" X 2'-2" LONG WITH HOLES FOR NO. 7.
- ⑦ 3/4" DIA. X 1 1/2" STAINLESS STEEL SOCKET FLAT HEAD SCREWS WITH ANTI-SEIZE LUBRICANT. PLACE IN COUNTERSUNK HOLE. RECESS 1/16" BELOW PLATE SURFACE.
- ⑧ 3/4" DIA. X 4" GALVANIZED HEX HEAD BOLT. BEND 45°.
- ⑨ 3/4" DIA. X 2 1/4" GALVANIZED THREADED COUPLING.
- ⑩ 1" X 5" SLOTTED COUNTERSUNK HOLE FOR NO. 7. PLACE SLOT PARALLEL TO DIRECTION OF MOVEMENT.

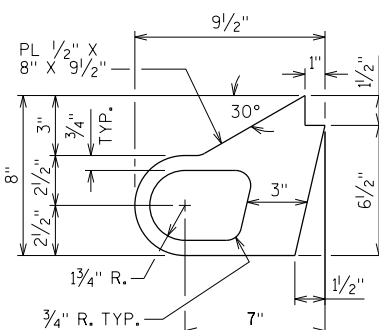
SEE SHT. 49 FOR DETAILS



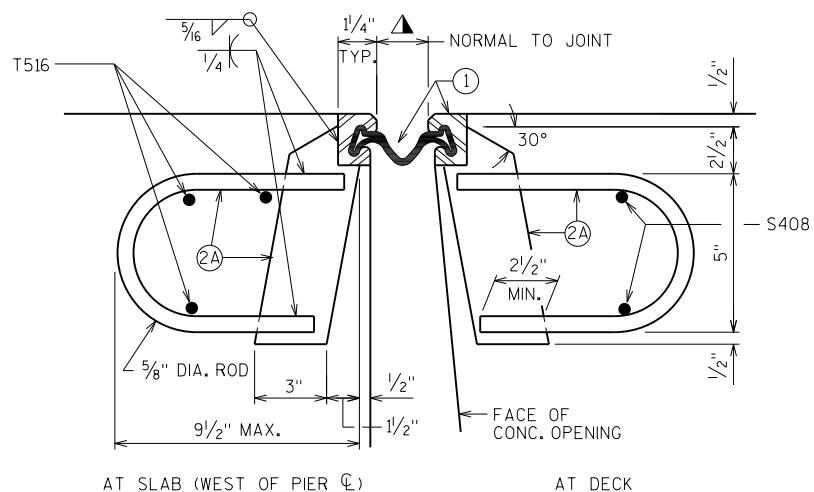
SECTION THRU JOINT AT PIER 1
NORMAL TO ϕ SUBSTRUCTURE



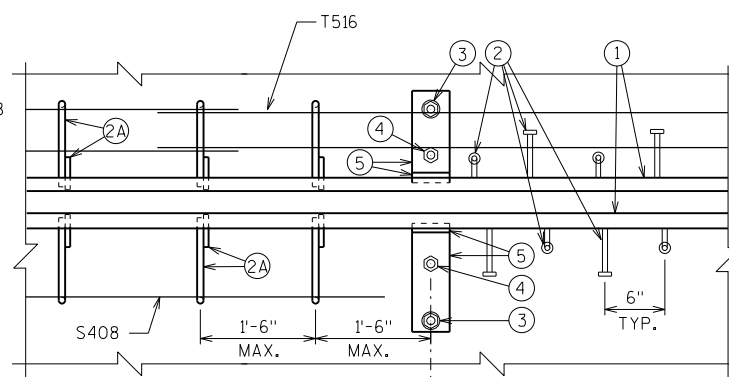
SECTION THRU JOINT
EXTERIOR GIRDER TO EDGE OF DECK AND AT PARAPETS



ALTERNATE STRIP SEAL ANCHOR



SECTION THRU JOINT
ROADWAY TRAFFIC AREA BETWEEN EXTERIOR GIRDERS.



PART PLAN

NOTES

ONE FIELD SPLICE PERMITTED IN STEEL EXTRUSIONS, UNLESS MORE ARE REQUIRED FOR STAGED CONSTRUCTION, HANDLING OR GALVANIZING REQUIREMENTS. IF USED, ANCHOR PLATES SHALL BE PROVIDED 3" FROM EACH SIDE OF THE FIELD SPLICE. DETAILS SHALL BE SUBMITTED FOR APPROVAL. NO SPLICING PERMITTED IN NEOPRENE STRIP SEAL.

AFTER FABRICATION, BUT BEFORE SHIPMENT, STRAIGHTEN STEEL EXTRUSIONS SUCH THAT THEY SHALL BE FREE FROM WARP, TWIST AND SWEEP.

FABRICATOR SHALL PROVIDE MEANS OF KEEPING GALVANIZED EXTRUSIONS CLEAN AND SMOOTH DURING SHIPMENT AND PRIOR TO APPLYING LUBRICANT ADHESIVE FOR NEOPRENE GLAND INSTALLATION.

SANDBLAST PLATES, SUPPORTS AND EXTRUSIONS AFTER FABRICATION IN ACCORDANCE WITH SSPC SP. #6 "COMMERCIAL BLAST CLEANING". AFTER BLAST CLEANING, THE PLATES, SUPPORTS AND EXTRUSIONS SHALL BE HOT DIPPED GALVANIZED.

ANCHOR SYSTEM NO. 8 AND NO. 9 SHALL CONFORM TO ASTM A307 AND SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153 CLASS C AND D.

ALL MATERIAL IN THE EXPANSION JOINT ASSEMBLY, INCLUDING ANCHOR STUDS AND HARDWARE SHALL BE PAID AT THE UNIT PRICE BID FOR "EXPANSION DEVICE B-9-387", LF.

TEMPERATURE TABLE

SHADED UNDERSIDE DECK TEMP. (°F)	JOINT OPENING (NORMAL TO JT.)
85°	1 1/2
75°	1 5/8
65°	1 7/8
55°	2
45°	2 1/8
35°	2 3/8
25°	2 1/2
15°	2 3/4
5°	2 7/8

A SMALL JOINT OPENING DUE TO A HIGH TEMPERATURE AT TIME OF CONSTRUCTION MAY REQUIRE NEOPRENE STRIP SEAL INSTALLATION INTO STEEL EXTRUSIONS PRIOR TO SETTING THE EXPANSION JOINT.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-9-387			
		DRAWN BY KAM	PLANS CK'D. AJC
EXPANSION DEVICE - PIER 1			SHEET 47 OF 54

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 BATCH PRINT SHEET 47 OF 54
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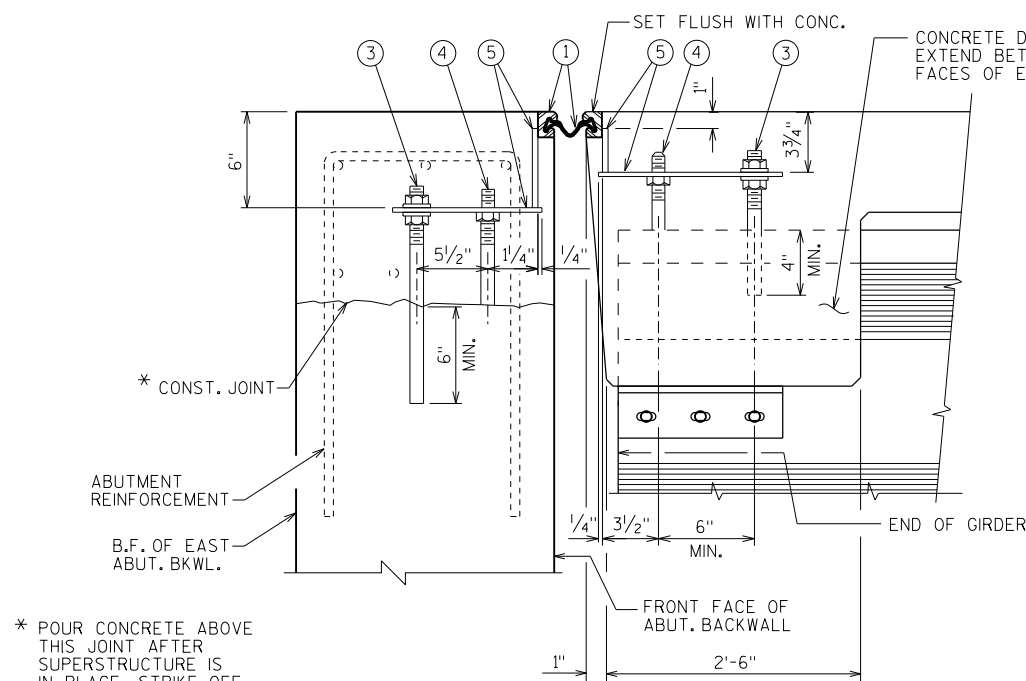
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8

LEGEND

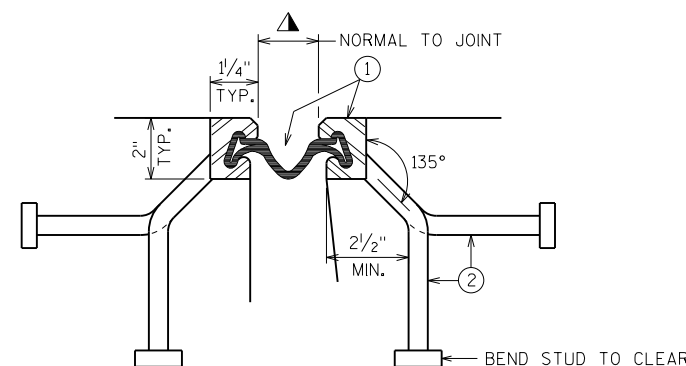
- ① NEOPRENE STRIP SEAL (4 - INCH) AND STEEL EXTRUSIONS. JOINT OPENING GIVEN NORMAL TO JOINT.
- ② STUDS 5/8" DIA. X 6 3/8" LONG AT 6" ALTERNATE CENTERS. WELD TO EXTRUSIONS AND BEND AS SHOWN AFTER WELDING.
- ②A 1/2" THICK ANCHOR PLATE WITH 5/8" DIA. ROD (OR ALTERNATE STRIP SEAL ANCHOR). WELD ROD TO ANCHOR PLATE, WELD ANCHOR PLATE TO NO. 1 AT 1'-6" CENTERS BETWEEN GIRDERS.
- ③ 3/4" DIA. THREADED ROD WITH 2 NUTS AND PLATE WASHERS. GROUT THREADED ROD INTO FIELD DRILLED HOLES ON ϕ OF GIRDER, ON ABUTMENT SIDE GROUT THREADED ROD INTO FIELD DRILLED HOLES IN ABUTMENT BACKWALL AS SHOWN.
- ④ 3/4" DIA. THREADED ROD WITH NUT. TACK WELD NUT TO NO. 5.
- ⑤ FABRICATE SUPPORT FROM 3" X 1/2" BAR AS SHOWN OR EQUIVALENT, ONE PER GIRDER PER SIDE, SHOP OR FIELD WELD TO NO. 1. IF FIELD WELDED, COVER WELDED AREAS WITH EPOXY-COATING MATERIAL. PROVIDE 1 1/2" DIA. HOLE FOR NO. 3 AND 1" DIA. HOLE FOR NO. 4.
- ⑥ GALVANIZED PLATE 3/8" X 10" X 2'-2" LONG WITH HOLES FOR NO. 7.
- ⑦ 3/4" DIA. X 1 1/2" STAINLESS STEEL SOCKET FLAT HEAD SCREWS WITH ANTI-SEIZE LUBRICANT. PLACE IN COUNTERSUNK HOLE. RECESS 1/16" BELOW PLATE SURFACE.
- ⑧ 3/4" DIA. X 4" GALVANIZED HEX HEAD BOLT. BEND 45°.
- ⑨ 3/4" DIA. X 2 1/4" GALVANIZED THREADED COUPLING.
- ⑩ 1" X 5" SLOTTED COUNTERSUNK HOLE FOR NO. 7. PLACE SLOT PARALLEL TO DIRECTION OF MOVEMENT.

SEE SHT. 49 FOR DETAILS



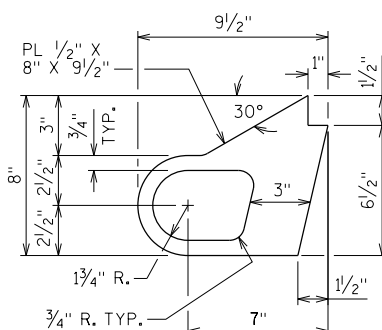
SECTION THRU JOINT AT EAST ABUTMENT

NORMAL TO ϕ SUBSTRUCTURE

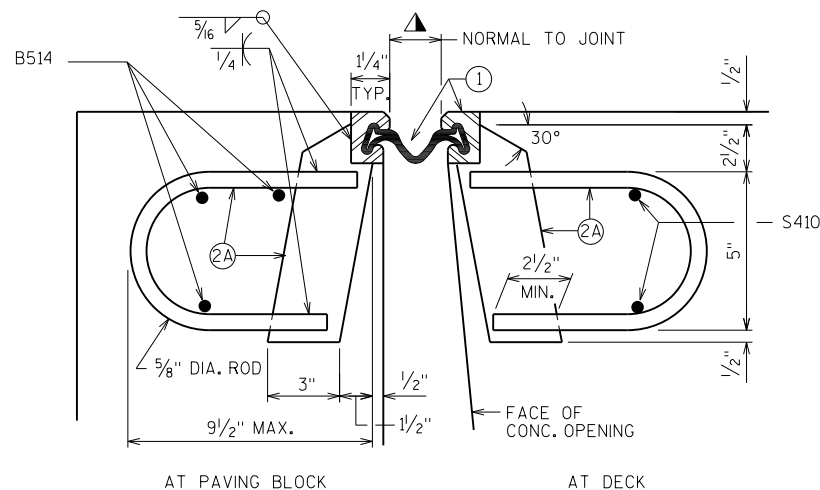


SECTION THRU JOINT

EXTERIOR GIRDER TO EDGE OF DECK AND AT PARAPETS

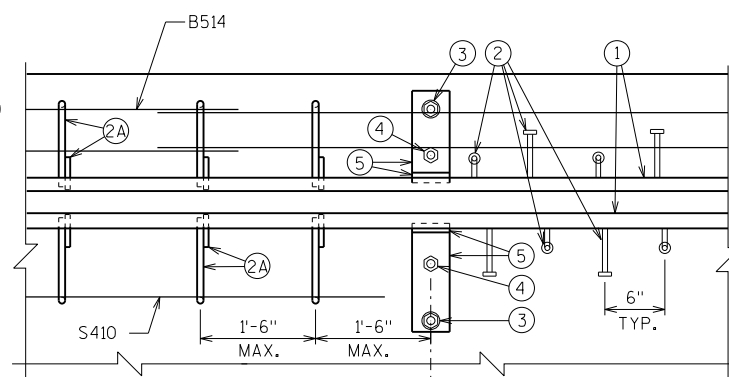


ALTERNATE STRIP SEAL ANCHOR



SECTION THRU JOINT

ROADWAY TRAFFIC AREA BETWEEN EXTERIOR GIRDERS.



PART PLAN

NOTES

ONE FIELD SPLICE PERMITTED IN STEEL EXTRUSIONS, UNLESS MORE ARE REQUIRED FOR STAGED CONSTRUCTION, HANDLING OR GALVANIZING REQUIREMENTS. IF USED, ANCHOR PLATES SHALL BE PROVIDED 3" FROM EACH SIDE OF THE FIELD SPLICE. DETAILS SHALL BE SUBMITTED FOR APPROVAL. NO SPLICING PERMITTED IN NEOPRENE STRIP SEAL.

AFTER FABRICATION, BUT BEFORE SHIPMENT, STRAIGHTEN STEEL EXTRUSIONS SUCH THAT THEY SHALL BE FREE FROM WARP, TWIST AND SWEEP.

FABRICATOR SHALL PROVIDE MEANS OF KEEPING GALVANIZED EXTRUSIONS CLEAN AND SMOOTH DURING SHIPMENT AND PRIOR TO APPLYING LUBRICANT ADHESIVE FOR NEOPRENE GLAND INSTALLATION.

SANDBLAST PLATES, SUPPORTS AND EXTRUSIONS AFTER FABRICATION IN ACCORDANCE WITH SSPC SP. #6 "COMMERCIAL BLAST CLEANING". AFTER BLAST CLEANING, THE PLATES, SUPPORTS AND EXTRUSIONS SHALL BE HOT DIPPED GALVANIZED.

ANCHOR SYSTEM NO. 8 AND NO. 9 SHALL CONFORM TO ASTM A307 AND SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153 CLASS C AND D.

ALL MATERIAL IN THE EXPANSION JOINT ASSEMBLY, INCLUDING ANCHOR STUDS AND HARDWARE SHALL BE PAID AT THE UNIT PRICE BID FOR "EXPANSION DEVICE B-9-387", LF.

TEMPERATURE TABLE

SHADED UNDERSIDE DECK TEMP. (°F)	JOINT OPENING (NORMAL TO JT.)
85°	1 1/2"
75°	1 5/8"
65°	1 7/8"
55°	2"
45°	2 1/4"
35°	2 3/8"
25°	2 1/2"
15°	2 3/4"
5°	2 7/8"

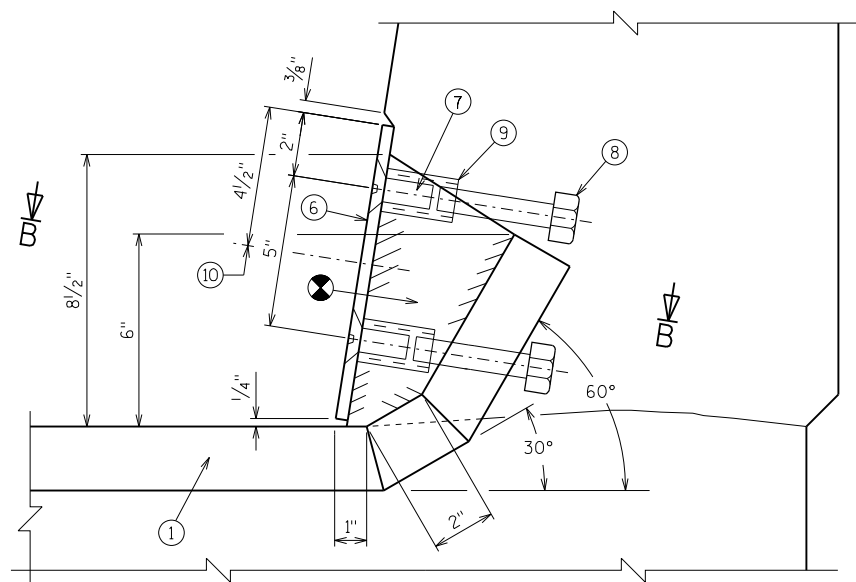
A SMALL JOINT OPENING DUE TO A HIGH TEMPERATURE AT TIME OF CONSTRUCTION MAY REQUIRE NEOPRENE STRIP SEAL INSTALLATION INTO STEEL EXTRUSIONS PRIOR TO SETTING THE EXPANSION JOINT.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-9-387			
DRAWN BY KAM		PLANS CKD. AJC	
EXPANSION DEVICE - EAST ABUTMENT			SHEET 48 OF 54

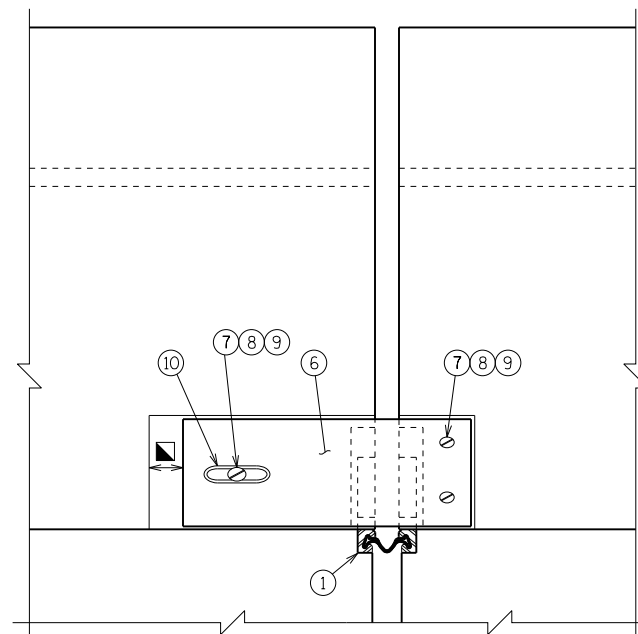
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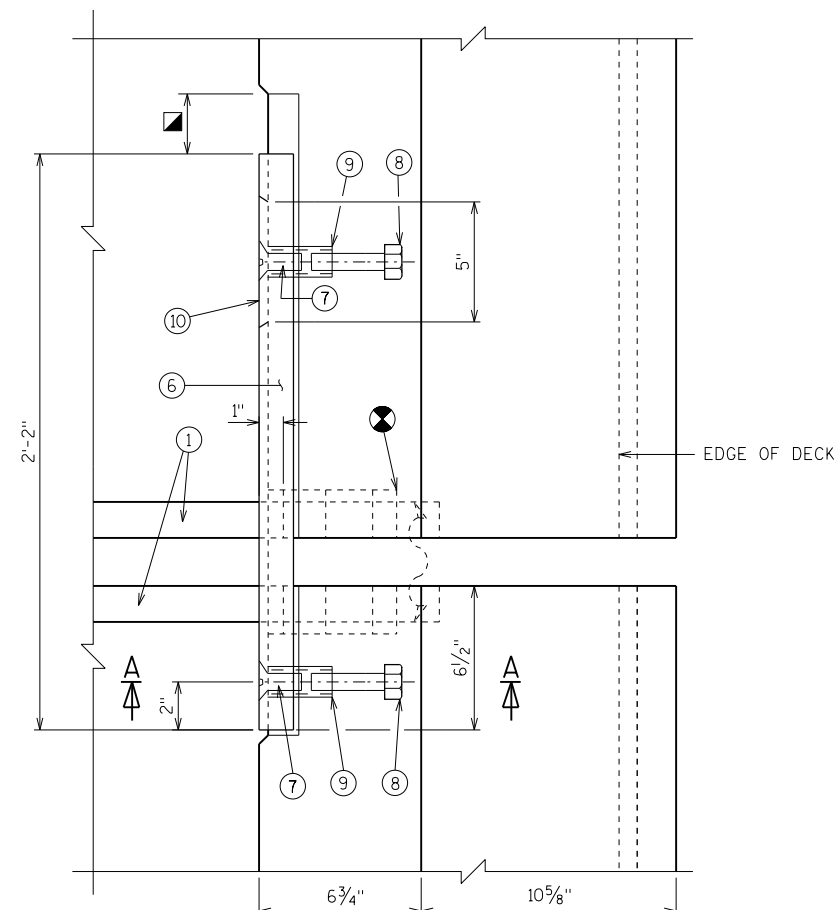
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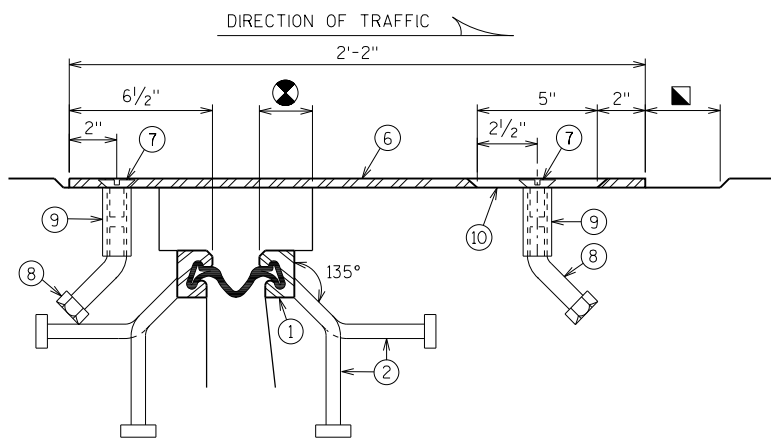
SECTION A-A



VIEW OF PARAPET PLATE FROM ROADWAY



PLAN



SECTION B-B

- ⊗ BLOCK OUT CONCRETE 2" EACH SIDE OF JOINT OPENING.
- ◼ JOINT OPENING DIMENSION ALONG SKEW PLUS 1/2".

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-9-387			
DRAWN BY KAM		PLANS CK'D. AJC	
COVER PLATE DETAILS			SHEET 49 OF 54

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BILL OF BARS

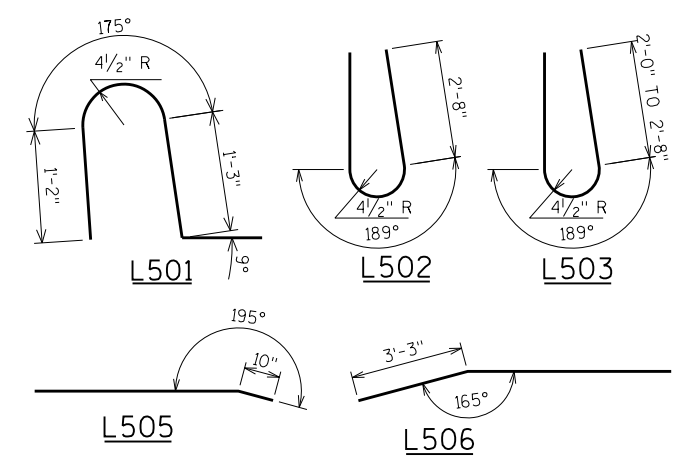
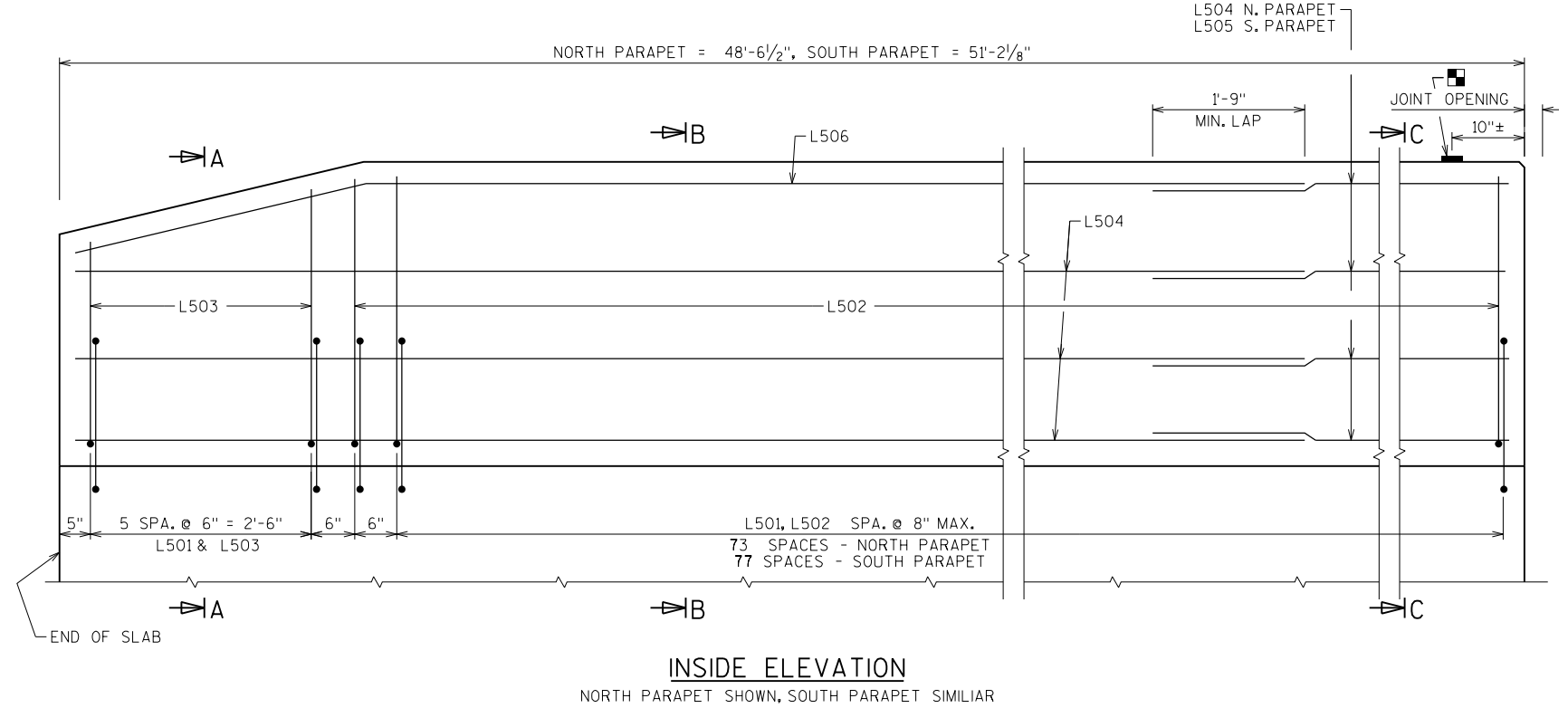
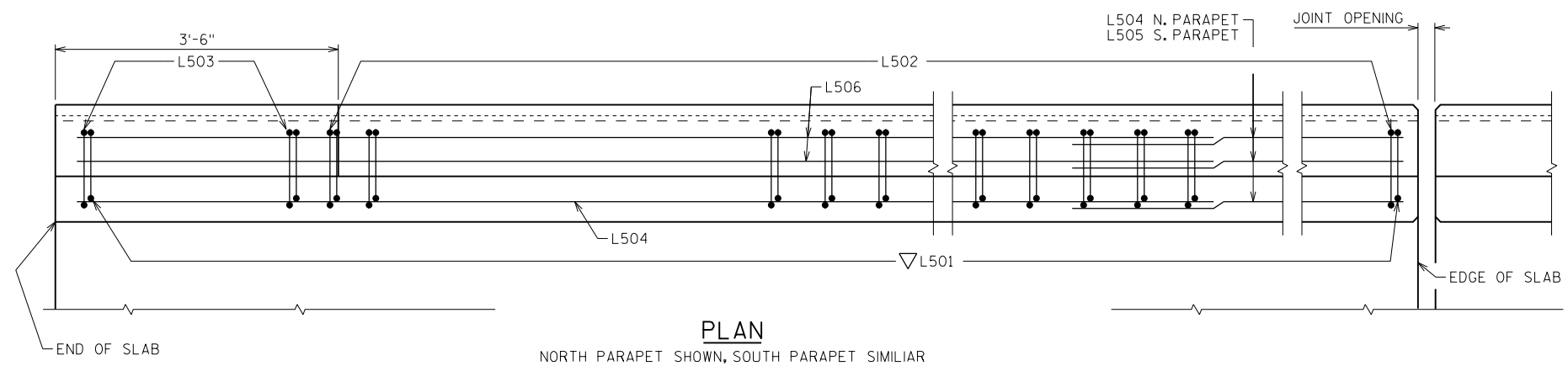
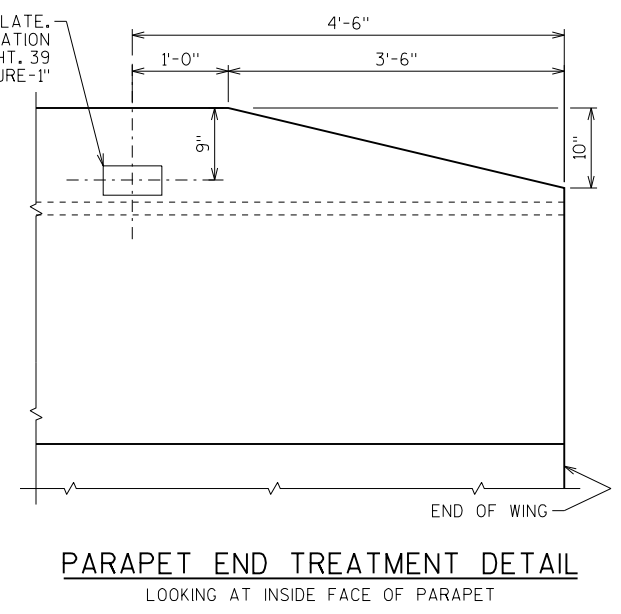
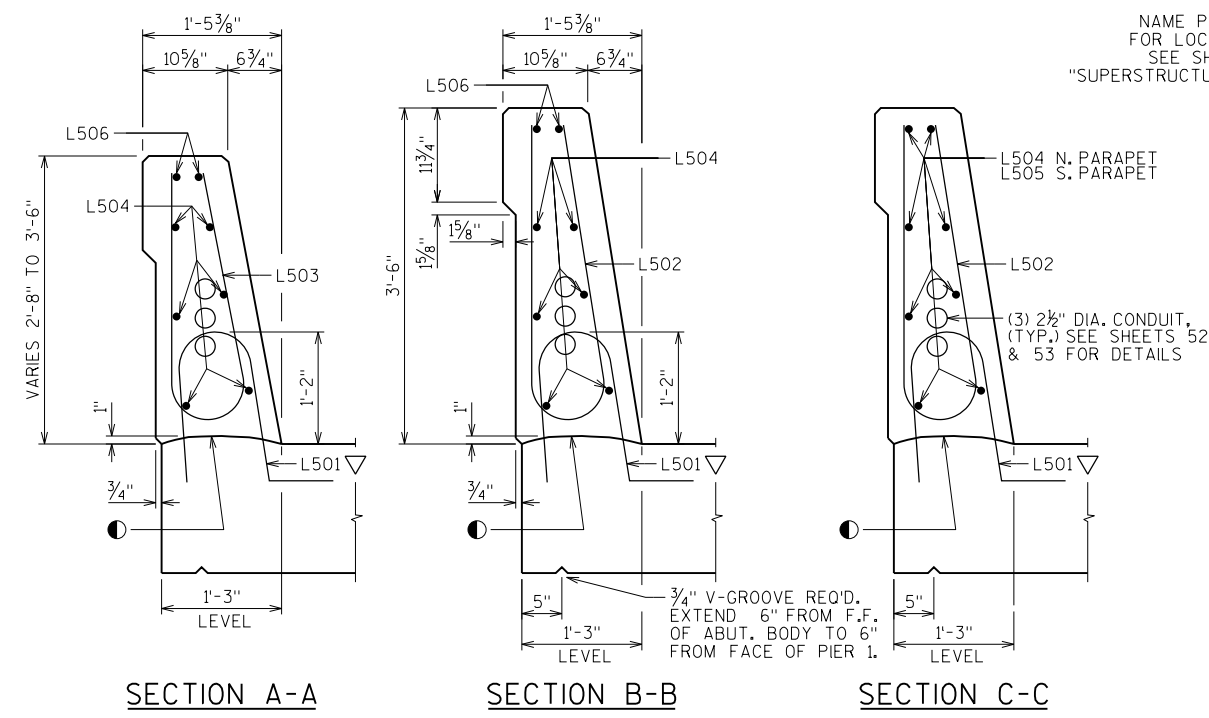
DIMENSIONS IN BENDING DETAILS ARE OUT TO OUT OF BAR.
 ▲ LENGTH SHOWN FOR BAR IS AN AVG. LENGTH AND SHOULD ONLY BE USED FOR BAR WEIGHT CALCULATIONS. SEE BAR SERIES TABLE FOR ACTUAL LENGTHS.

MARK	NO. REQ'D	COATED	LENGTH	BENT	BAR SERIES	LOCATION	
							TOTAL WEIGHT = 2,770 LBS
L501	166	X	4-5	X		N. & S. PARAPET	VERT.
L502	154	X	6-8	X		N. & S. PARAPET TOP	VERT.
L503	12	X	6-0	X	▲	N. & S. PARAPET	VERT.
L504	20	X	25-0			N. & S. PARAPET	HORIZ.
L505	8	X	27-6	X		SOUTH PARAPET	HORIZ.
L506	4	X	25-3	X		N. & S. PARAPET TOP	HORIZ.

BAR SERIES TABLE

BAR MARK	NO. REQ'D	LENGTH
L503	2 SERIES OF 6	4'-9" TO 6'-1"

BUNDLE AND TAG EACH SERIES SEPARATELY.



■ BENCH MARK CAP (WHEN SUPPLIED). AVOID PLACING A BENCH MARK CAP BELOW A RAIL OR FENCE SYSTEM THAT IS ATTACHED TO THE TOP OF THE PARAPET.

- CONST. JOINT - STRIKE OFF AS SHOWN
- ▽ L501 BARS TO BE TIED TO SLAB STEEL BEFORE SLAB IS POURED.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-9-387			
DRAWN BY KAM		PLANS CK'D. AJC	
SINGLE SLOPE PARAPET 42SS - WEST SLAB			SHEET 50 OF 54

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 BATCH PRINT SHEET 1 OF 1

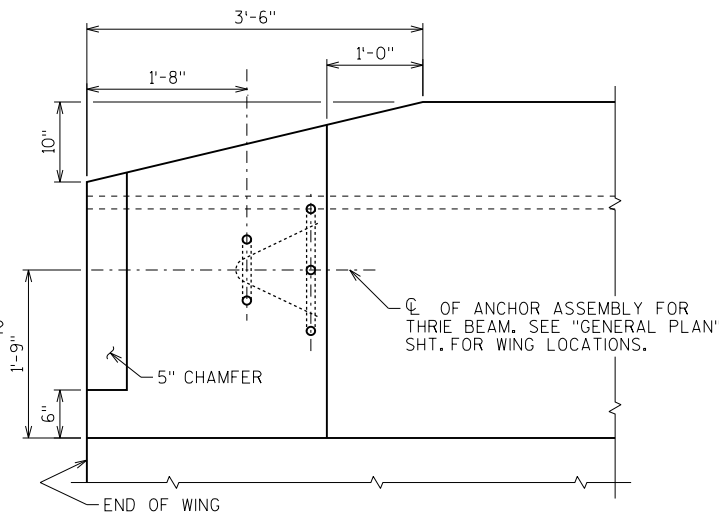
BILL OF BARS

DIMENSIONS IN BENDING DETAILS ARE OUT TO OUT OF BAR.
 LENGTH SHOWN FOR BAR IS AN AVG. LENGTH AND SHOULD ONLY BE USED FOR BAR WEIGHT
 CALCULATIONS. SEE BAR SERIES TABLE FOR ACTUAL LENGTHS.

MARK	NO. REQ'D	COATED	LENGTH	BENT	BAR SERIES	LOCATION
TOTAL WEIGHT = 1,040 LBS						
R501	22	X	5-10	X		PARAPET AT WINGS 2 & 3 VERT.
R502	22	X	6-8	X		PARAPET AT WINGS 2 & 3 VERT.
R503	24	X	3-0	X		PARAPET AT WINGS 2 & 3 VERT.
R504	34	X	5-7	X		PARAPET AT WINGS 2 & 3 VERT.
R505	10	X	6-5	X		PARAPET AT WINGS 2 & 3 VERT.
R506	12	X	6-6	X		PARAPET AT WINGS 2 & 3 VERT.
R507	2	X	15-6	X		PARAPET AT WINGS 2 & 3 HORIZ.
R508	10	X	15-6			PARAPET AT WINGS 2 & 3 HORIZ.
R509	12	X	5-5	X	Δ	PARAPET AT WINGS 2 & 3 VERT.
R510	4	X	15-6	X		PARAPET AT WINGS 2 & 3 HORIZ.

PARAPET END TREATMENT DETAIL

LOOKING AT INSIDE FACE OF PARAPET

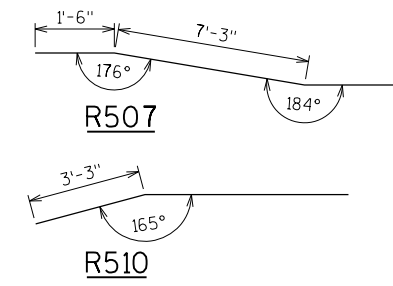
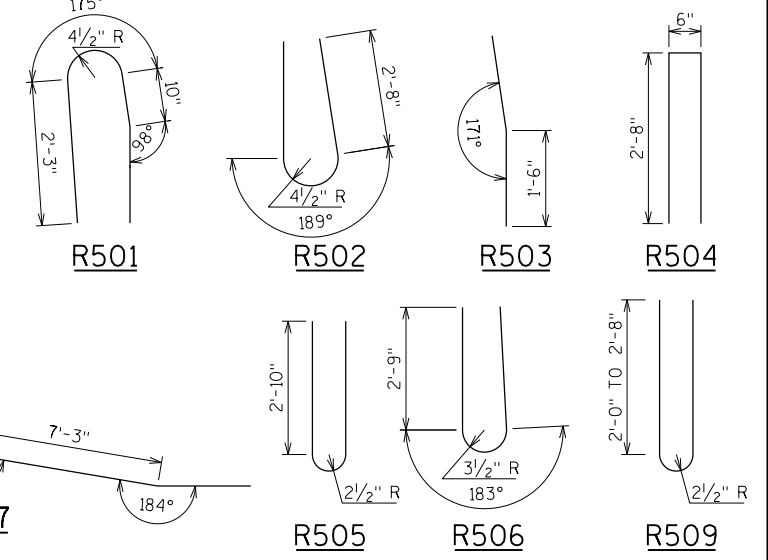


OPTIONAL CONSTRUCTION JOINTS IN THE PARAPETS MAY BE USED. RUN BAR REINF. THRU THE JOINT. LAP LONGIT. BARS A MIN. OF 1'-9". MIN. JOINT SPACING OF 80'-0". DEFINE CONST. JOINT WITH A 3/4" - 'V' GROOVE.

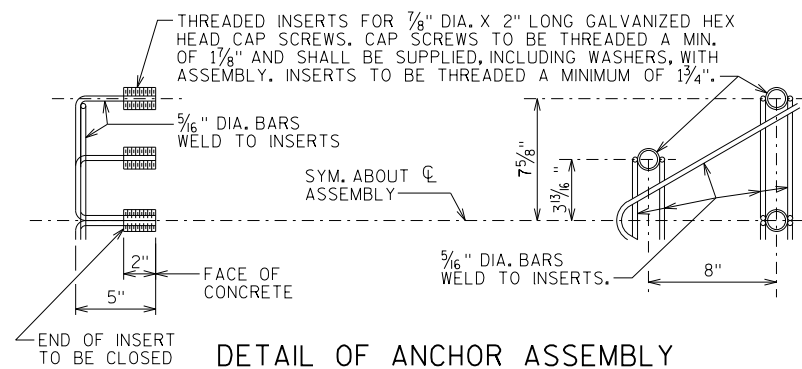
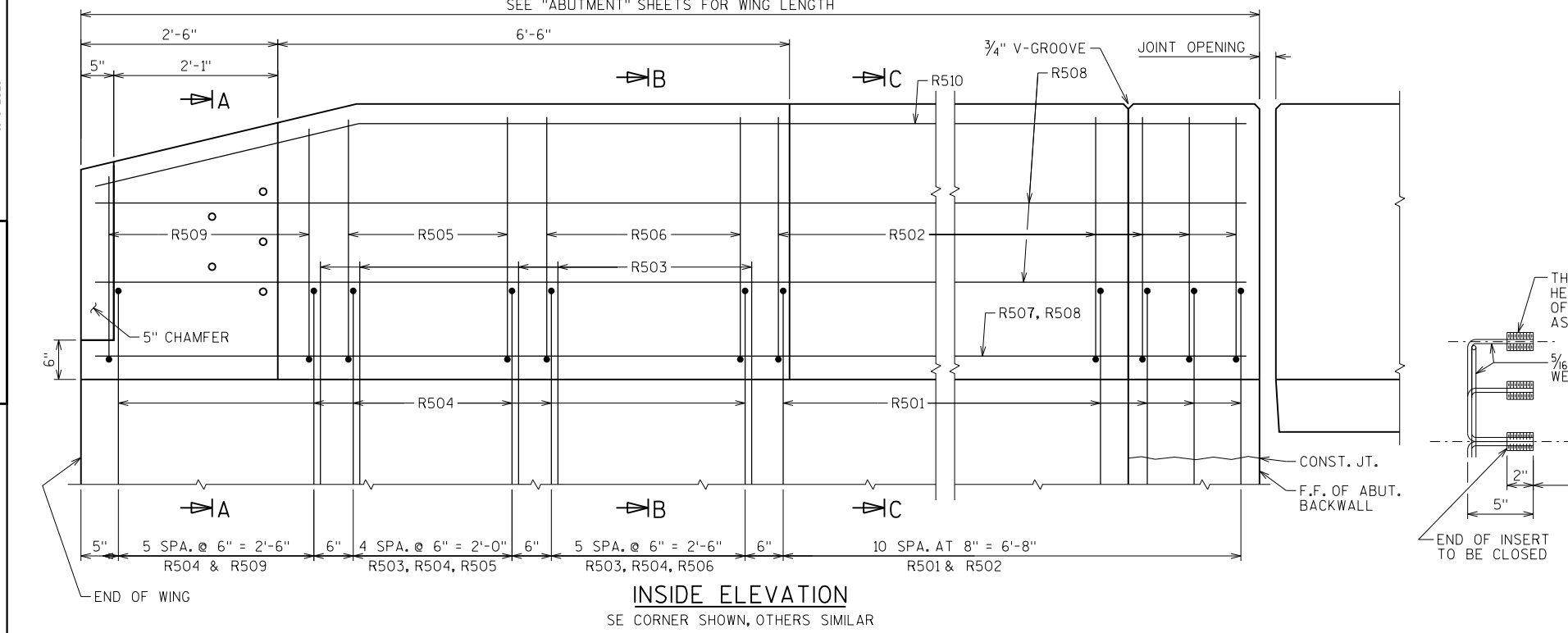
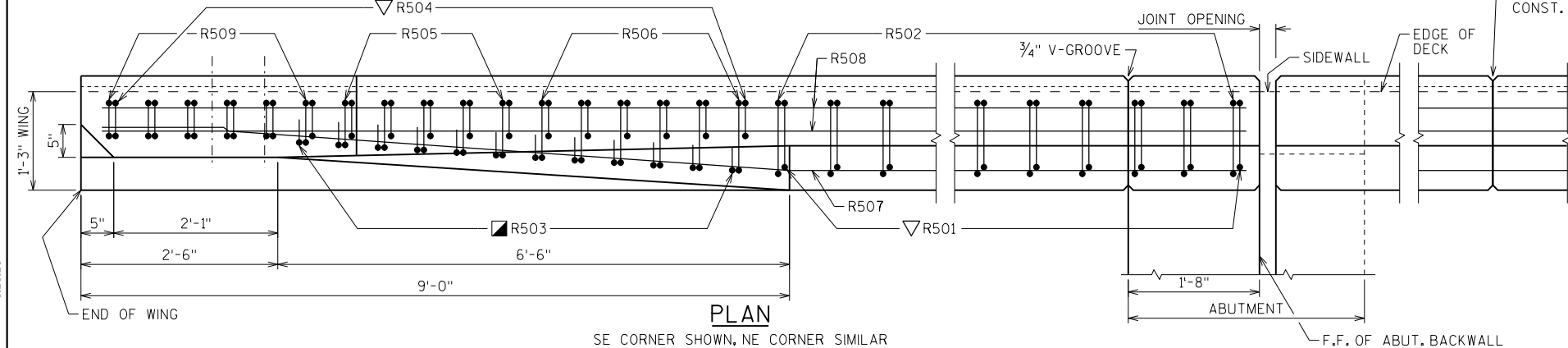
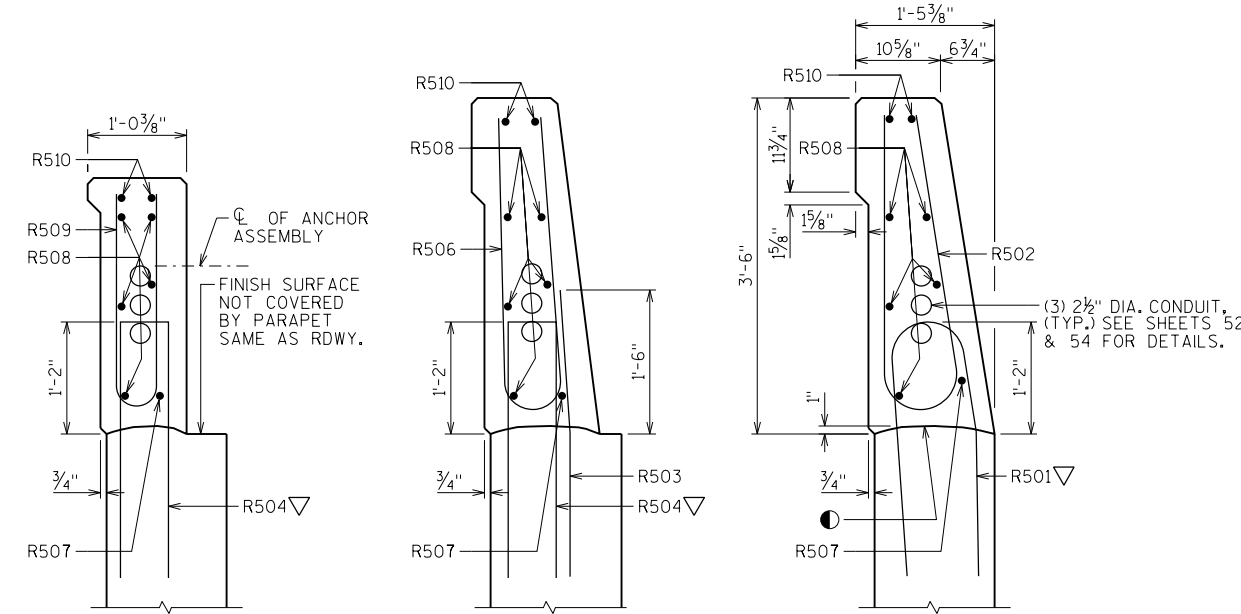
BAR SERIES TABLE

BAR MARK	NO. REQ'D	LENGTH
R509	2 SERIES OF 6	4'-9" TO 6'-1"

BUNDLE AND TAG EACH SERIES SEPARATELY.



- CONST. JOINT - STRIKE OFF AS SHOWN
- R503 BARS MAY BE PLACED AFTER CONCRETE IS POURED BUT BEFORE INITIAL SET HAS TAKEN PLACE. USE CARE TO PLACE R503 BARS CORRECTLY ALONG TRANSITION OF PARAPET.
- ▽ R501 AND R504 BARS TO BE TIED TO WING STEEL BEFORE WING IS POURED.



NOTE: HEX HEAD CAP SCREWS & WASHERS TO BE GALVANIZED IN ACCORDANCE WITH AASHTO M232 CLASS C.
 ASSEMBLY SHALL BE BID ITEM "ANCHOR ASSEMBLIES FOR STEEL PLATE BEAM GUARD", EACH.

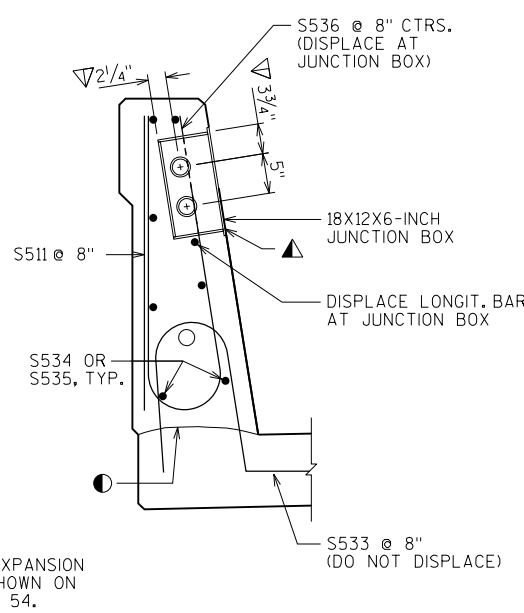
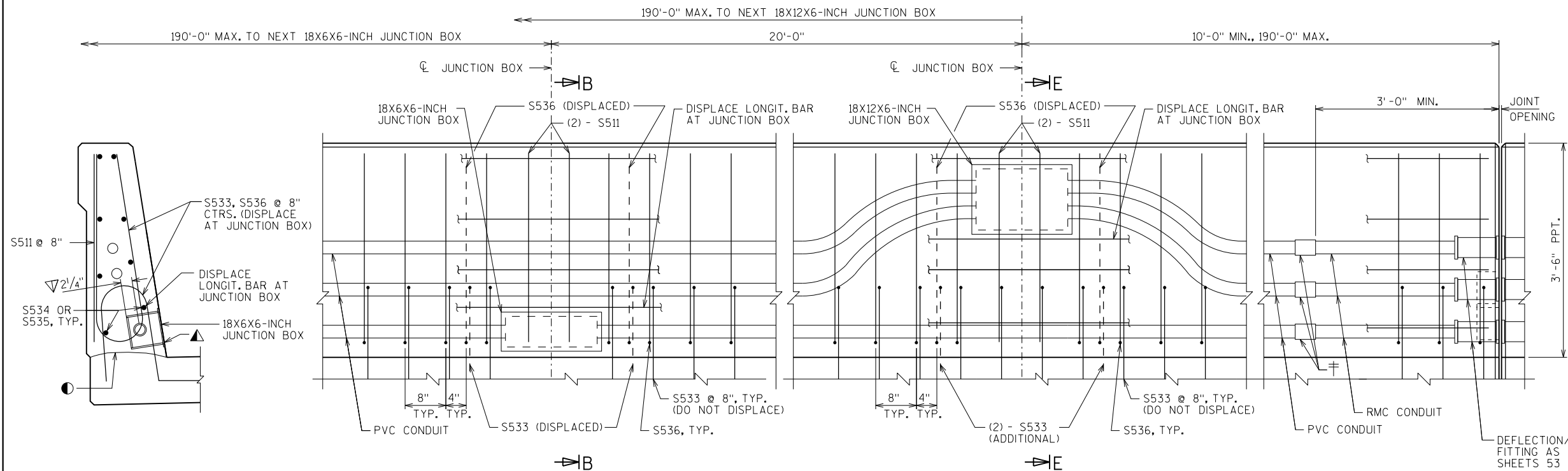
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-9-387			
DRAWN BY KAM		PLANS CKD. AJC	
SINGLE SLOPE PARAPET 42SS			SHEET 51 OF 54

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 BATCH PRINT SHEET 52 OF 54
 PLOT DATE: 10/31/2021 PLOT TIME: 2:44:59 PM

8

8



SECTION B-B

INSIDE ELEVATION AT JUNCTION BOXES
(DECK STEEL NOT SHOWN FOR CLARITY)

SECTION E-E

NOTES

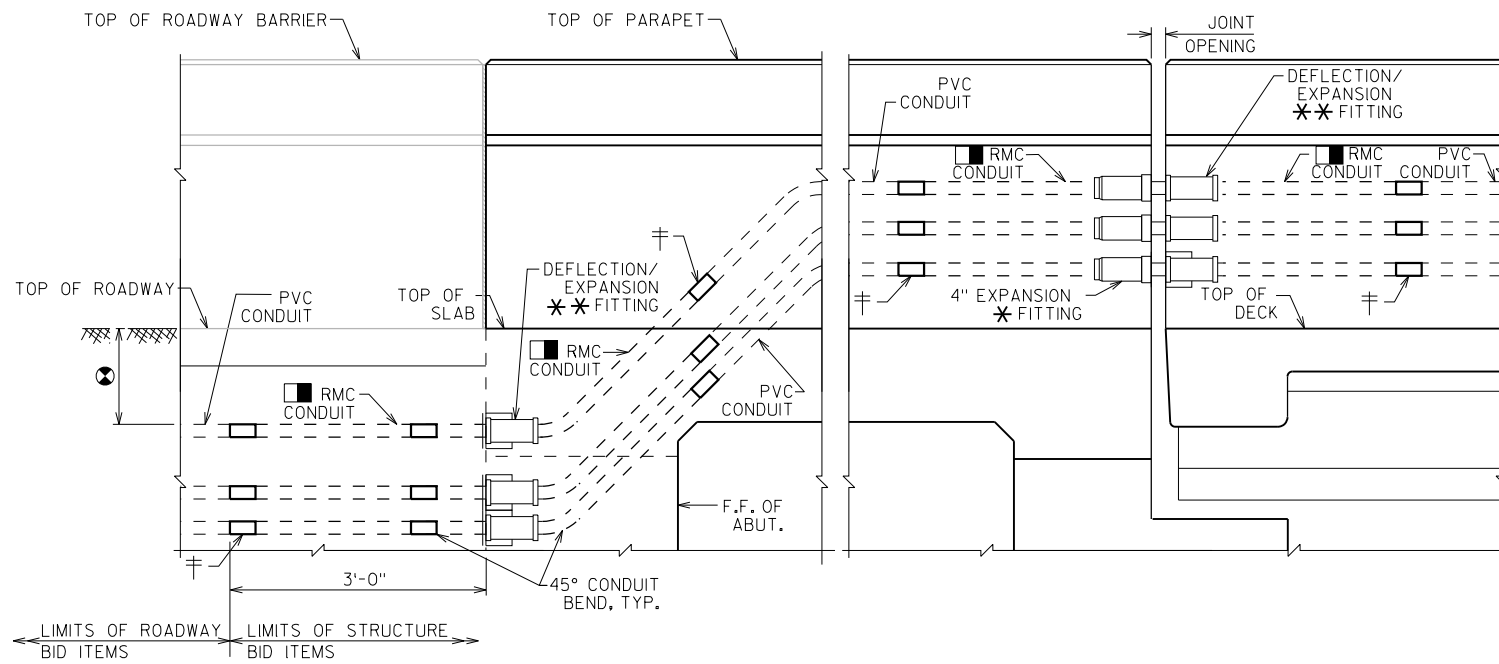
- CONDUIT SHALL BE EMBEDDED 2" CLEAR.
- USE 2 1/2" DIA. RIGID NONMETALLIC CONDUIT (PVC) UNLESS NOTED OTHERWISE.
- CONDUIT FITTINGS, CONDUIT BENDS, AND ADAPTER FITTINGS INCIDENTAL TO CONDUIT WORK.
- PROVIDE JUNCTION BOXES FROM THE APPROVED PRODUCTS LIST.
- SEE SHEETS 53 & 54 FOR ADDITIONAL INFORMATION.

LEGEND

- CONSTRUCTION JOINT, STRIKE OFF AS SHOWN.
- ▲ CUT OUT ± 1" OF GASKET AT BOTTOM OF JUNCTION BOX COVER TO ALLOW FOR DRAINAGE.
- ▽ LOCATION OF CONDUIT IS MEASURED FROM OUTSIDE EDGE OF JUNCTION BOX.
- † NONMETALLIC CONDUIT TO METALLIC CONDUIT ADAPTER FITTING (UL OR NRTL LISTED FOR ELECTRICAL USE SHALL BE USED).

PVC = POLYVINYL CHLORIDE (RIGID NONMETALLIC) CONDUIT
 RMC = RIGID METALLIC CONDUIT

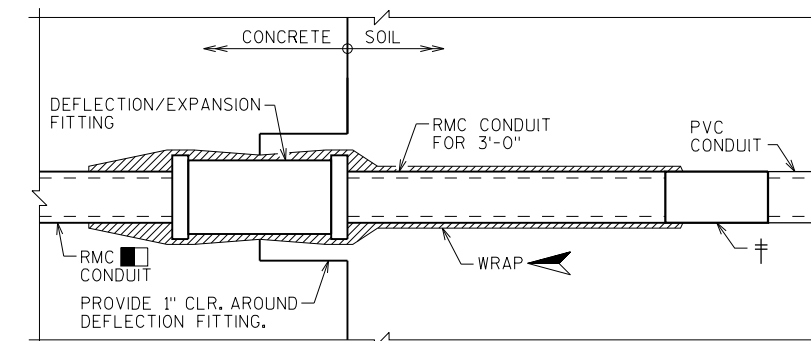
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-9-387			
DRAWN BY		MES	PLANS CK'D. AJC
ELECTRICAL DETAILS AT PARAPET			SHEET 52 OF 54



AT WEST ABUTMENT

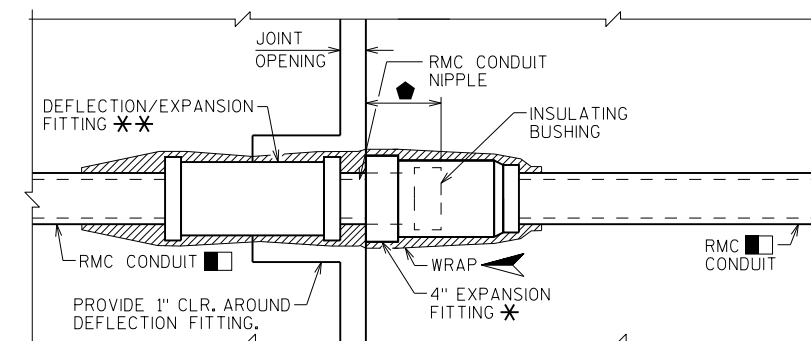
AT PIER 1

OUTSIDE ELEVATION OF PARAPET



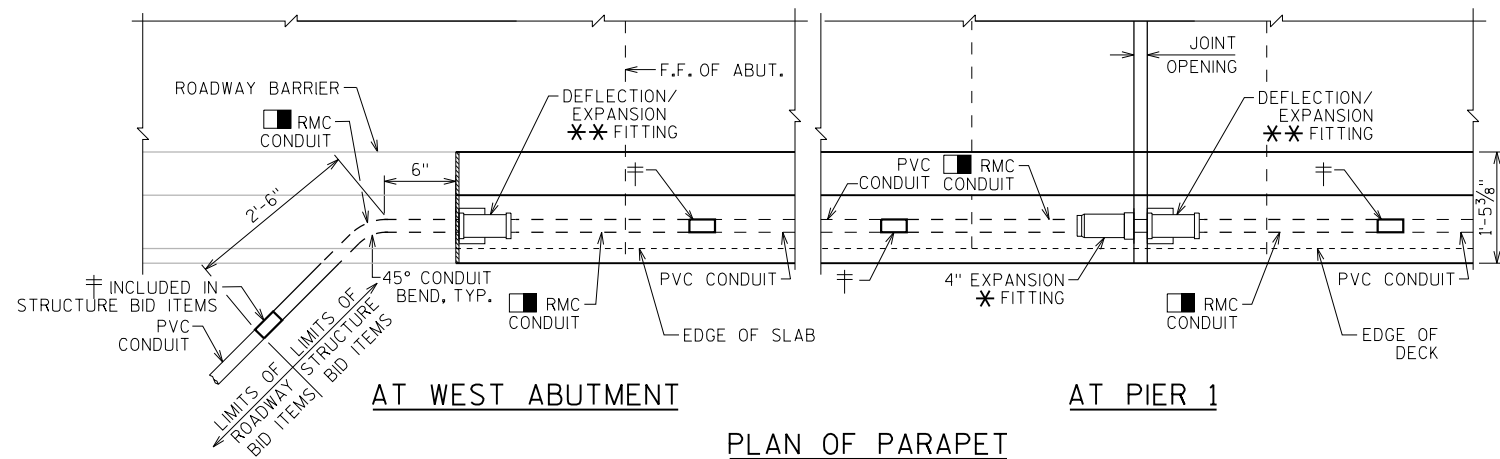
DEFLECTION/EXPANSION FITTING AT WEST ABUTMENT

THIS DETAIL ACCOMMODATES A MAXIMUM OF 3/4" TOTAL MOVEMENT AND UP TO 30 DEGREES OF ANGULAR MISALIGNMENT IN ANY DIRECTION. BOND JUMPER NOT SHOWN FOR CLARITY (CONCRETE TO SOIL FITTING)



DEFLECTION/EXPANSION AND 4" EXPANSION FITTING AT PIER 1

THIS DETAIL ACCOMMODATES A MAXIMUM OF 4" TOTAL MOVEMENT AND UP TO 30 DEGREES OF ANGULAR MISALIGNMENT IN ANY DIRECTION. BOND JUMPER NOT SHOWN FOR CLARITY



AT WEST ABUTMENT

AT PIER 1

PLAN OF PARAPET

LEGEND

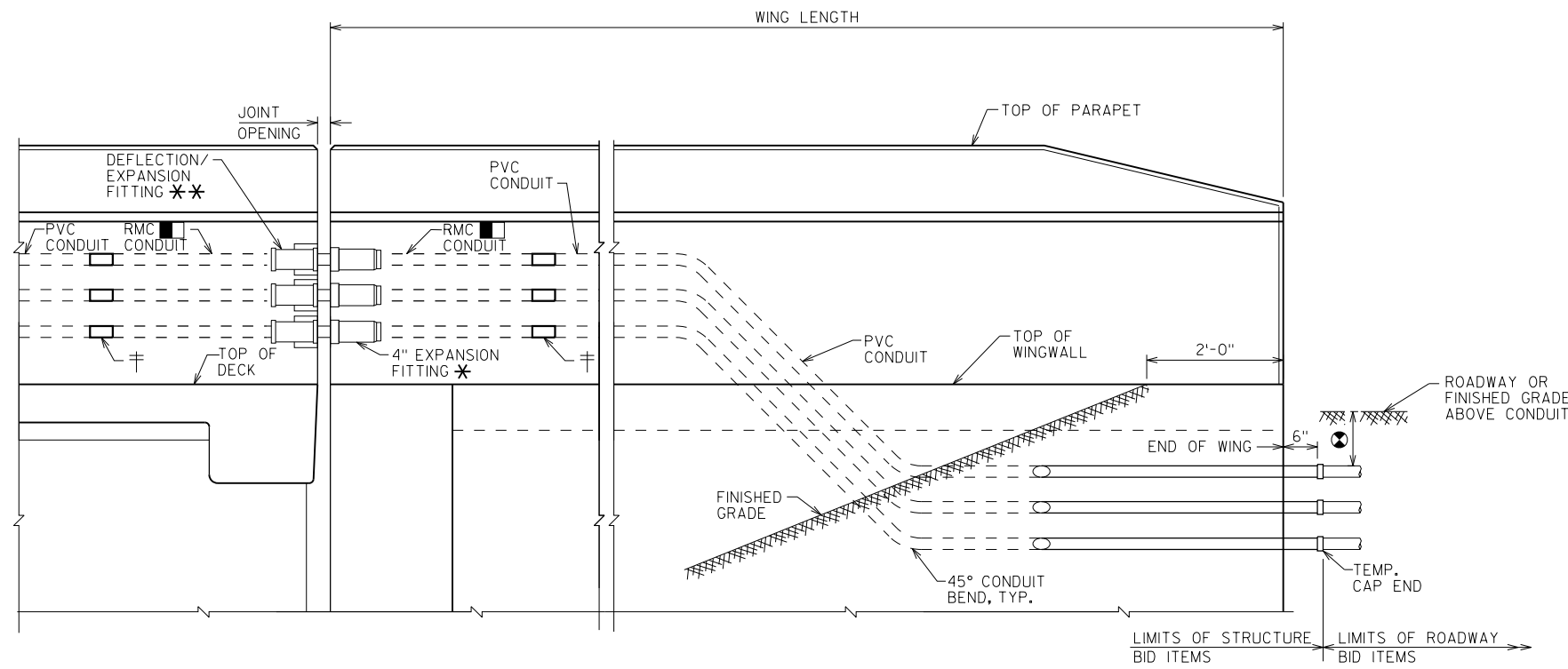
- USE 2 1/2" DIA. RIGID METALLIC (RMC) CONDUIT AT FITTINGS. PROVIDE RMC FOR 3'-0" MIN. ON EACH SIDE OF JOINT OPENINGS UNLESS NOTED OTHERWISE.
- † NONMETALLIC CONDUIT TO METALLIC CONDUIT ADAPTER FITTING (UL OR NRTL LISTED FOR ELECTRICAL USE SHALL BE USED).
- ◀ SPONGE RUBBER WRAP TO BE AASHTO M153, TYPE 10R EQUIVALENT - 1/4" MINIMUM THICKNESS. PROVIDE WRAP FOR THE ENTIRE LENGTH OF THE FITTING OR AS SHOWN. SPONGE RUBBER WRAP INCIDENTAL TO "CONDUIT RIGID METALLIC 2 1/2-INCH".
- ◆ POSITION MOVABLE END OF CONDUIT INSIDE EXPANSION FITTING, SUCH THAT IT WILL HAVE THE SAME ALLOWANCE FOR MOVEMENT (EXPANSION/CONTRACTION) AS THE EXPANSION DEVICE SET IN PLACE IN THE DECK BELOW IT. TAKE CARE TO INSTALL EXPANSION FITTING AND CONDUIT EXACTLY PARALLEL TO BRIDGE MOVEMENT.
- 2'-0" MIN. CONDUIT COVER UNDER ROADWAYS, 1'-6" OTHERWISE. CONDUIT COVER SHOULD NOT EXCEED 3'-0".
- * EXPANSION FITTING REQUIREMENTS:
 - 4" TOTAL MOVEMENT WITH BONDING JUMPER
- ** DEFLECTION/EXPANSION FITTING REQUIREMENTS:
 - UP TO 3/4" CONDUIT CONTRACTION OR EXPANSION AND UP TO 30° OF ANGULAR MISALIGNMENT IN ANY DIRECTION WITH BONDING JUMPER

NOTES

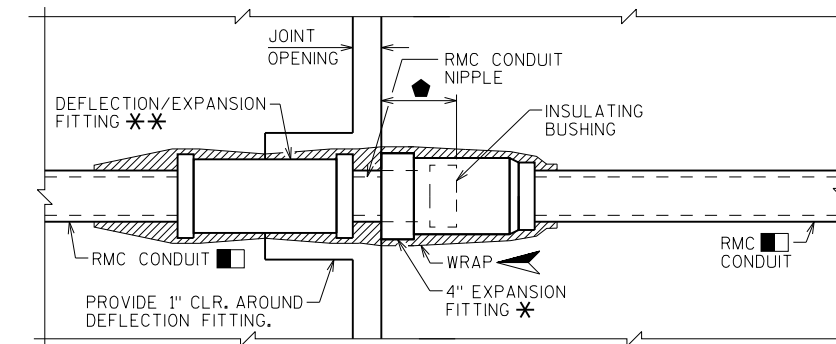
- CONDUIT SHALL BE EMBEDDED 2" CLEAR.
- USE 2 1/2" DIA. RIGID NONMETALLIC CONDUIT (PVC) UNLESS NOTED OTHERWISE.
- CONDUIT FITTINGS, CONDUIT BENDS, AND ADAPTER FITTINGS INCIDENTAL TO CONDUIT WORK.
- CONDUIT BENDS SHALL CONFORM TO THE NATIONAL ELECTRIC CODE.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-9-387			
DRAWN BY		MES	PLANS CK'D. AJC
ELECTRICAL DETAILS AT WEST ABUTMENT			SHEET 53 OF 54

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 BATCH PRINT SHEET 53 OF 54
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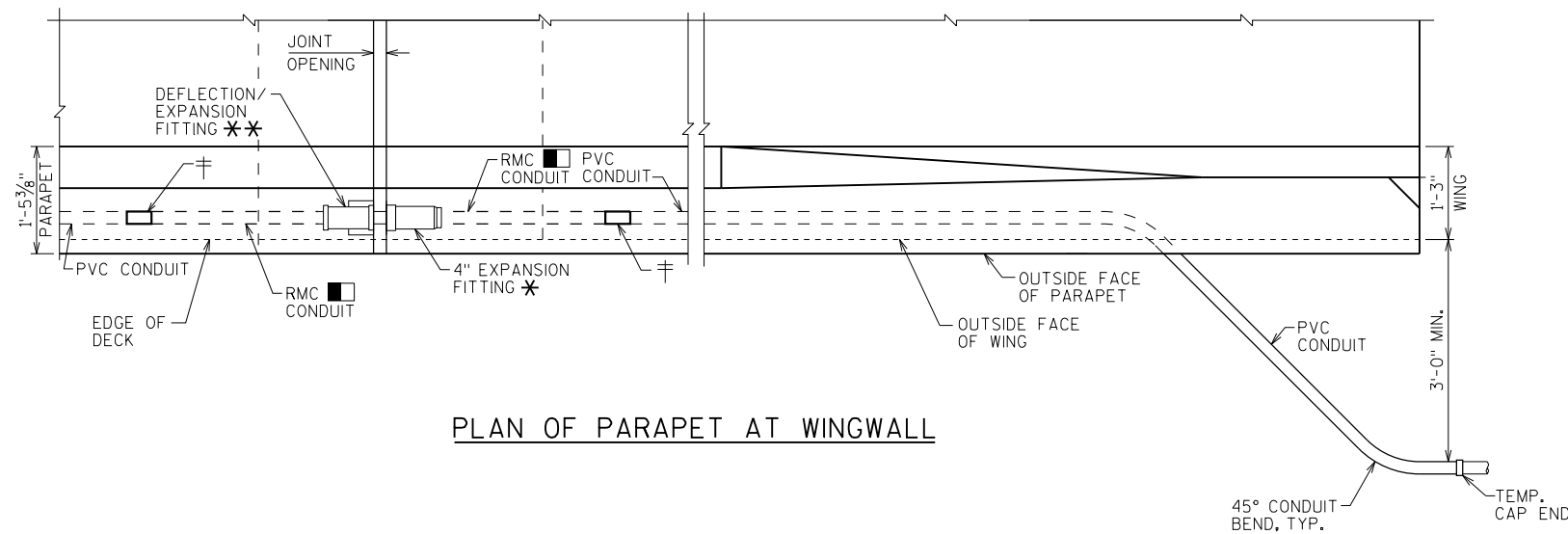


OUTSIDE ELEVATION OF PARAPET AT WINGWALL



DEFLECTION/EXPANSION AND 4" EXPANSION FITTING AT EAST ABUTMENT

THIS DETAIL ACCOMMODATES A MAXIMUM OF 4" TOTAL MOVEMENT AND UP TO 30 DEGREES OF ANGULAR MISALIGNMENT IN ANY DIRECTION. BOND JUMPER NOT SHOWN FOR CLARITY



PLAN OF PARAPET AT WINGWALL

LEGEND

- USE 2½" DIA. RIGID METALLIC (RMC) CONDUIT AT FITTINGS. PROVIDE RMC FOR 3'-0" MIN. ON EACH SIDE OF JOINT OPENINGS UNLESS NOTED OTHERWISE.
- † NONMETALLIC CONDUIT TO METALLIC CONDUIT ADAPTER FITTING (UL OR NRTL LISTED FOR ELECTRICAL USE SHALL BE USED).
- ◀ SPONGE RUBBER WRAP TO BE AASHTO M153, TYPE 1 OR EQUIVALENT - ¼" MINIMUM THICKNESS. PROVIDE WRAP FOR THE ENTIRE LENGTH OF THE FITTING OR AS SHOWN. SPONGE RUBBER WRAP INCIDENTAL TO "CONDUIT RIGID METALLIC 2½-INCH".
- ◆ POSITION MOVABLE END OF CONDUIT INSIDE EXPANSION FITTING, SUCH THAT IT WILL HAVE THE SAME ALLOWANCE FOR MOVEMENT (EXPANSION/CONTRACTION) AS THE EXPANSION DEVICE SET IN PLACE IN THE DECK BELOW IT. TAKE CARE TO INSTALL EXPANSION FITTING AND CONDUIT EXACTLY PARALLEL TO BRIDGE MOVEMENT.
- ⊙ 2'-0" MIN. CONDUIT COVER UNDER ROADWAYS, 1'-6" OTHERWISE. CONDUIT COVER SHOULD NOT EXCEED 3'-0".
- * EXPANSION FITTING REQUIREMENTS:
 - 4" TOTAL MOVEMENT WITH BONDING JUMPER
- ** DEFLECTION/EXPANSION FITTING REQUIREMENTS:
 - UP TO ¾" CONDUIT CONTRACTION OR EXPANSION AND UP TO 30° OF ANGULAR MISALIGNMENT IN ANY DIRECTION WITH BONDING JUMPER

NOTES

- CONDUIT SHALL BE EMBEDDED 2" CLEAR.
- USE 2½" DIA. RIGID NONMETALLIC CONDUIT (PVC) UNLESS NOTED OTHERWISE.
- CONDUIT FITTINGS, CONDUIT BENDS, AND ADAPTER FITTINGS INCIDENTAL TO CONDUIT WORK.
- CONDUIT BENDS SHALL CONFORM TO THE NATIONAL ELECTRIC CODE.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-9-387			
DRAWN BY		MES	PLANS CKD. AJC
ELECTRICAL DETAILS AT EAST ABUTMENT			SHEET 54 OF 54

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 BATCH PRINT SHEET 54 OF 54
 PLOT DATE: 10/31/2021
 PLOT TIME: 2:45:00 PM

DESIGN DATA

LIVE LOAD

RETAINING WALL IS DESIGNED FOR A LIVE LOAD SURCHARGE OF 240 P.S.F.

MATERIAL PROPERTIES

CONCRETE MASONRY $f'c = 3,500$ P.S.I.

HIGH STRENGTH BAR STEEL

REINFORCEMENT, GRADE 60 $f_y = 60,000$ P.S.I.

FOUNDATION DATA

RETAINING WALL TO BE SUPPORTED ON PILING STEEL HP 12-INCH x 53 LB. ESTIMATED 45'-0" LONG DRIVEN TO A REQUIRED DRIVING RESISTANCE OF 220 TONS** PER PILE AS DETERMINED BY THE MODIFIED GATES DYNAMIC FORMULA. PILE POINTS REQUIRED.

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

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 MARK AND THE FIRST TWO DIGITS OF A FOUR DIGIT BAR MARK SIGNIFIES THE BAR SIZE.

THE SLOPE OF THE FILL IN FRONT OF THE RETAINING WALL SHALL BE COVERED WITH HEAVY RIPRAP AND GEOTEXTILE TYPE 'HR' TO THE EXTENT SHOWN ON THIS SHEET AND IN THE RIPRAP DETAIL ON SHEET 2.

THE EXISTING GROUND LINE SHALL BE USED AS THE UPPER LIMITS OF "EXCAVATION FOR STRUCTURES RETAINING WALLS R-9-16".

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

A NAME PLATE SHALL BE PLACED AS DIRECTED BY THE ENGINEER. LOCATE NAME PLATE 9" BELOW THE TOP OF WALL.

PLACE TEMPORARY SHORING TO AVOID CONFLICT WITH BATTERED PILES.

B.F. = BACK FACE
F.F. = FRONT FACE

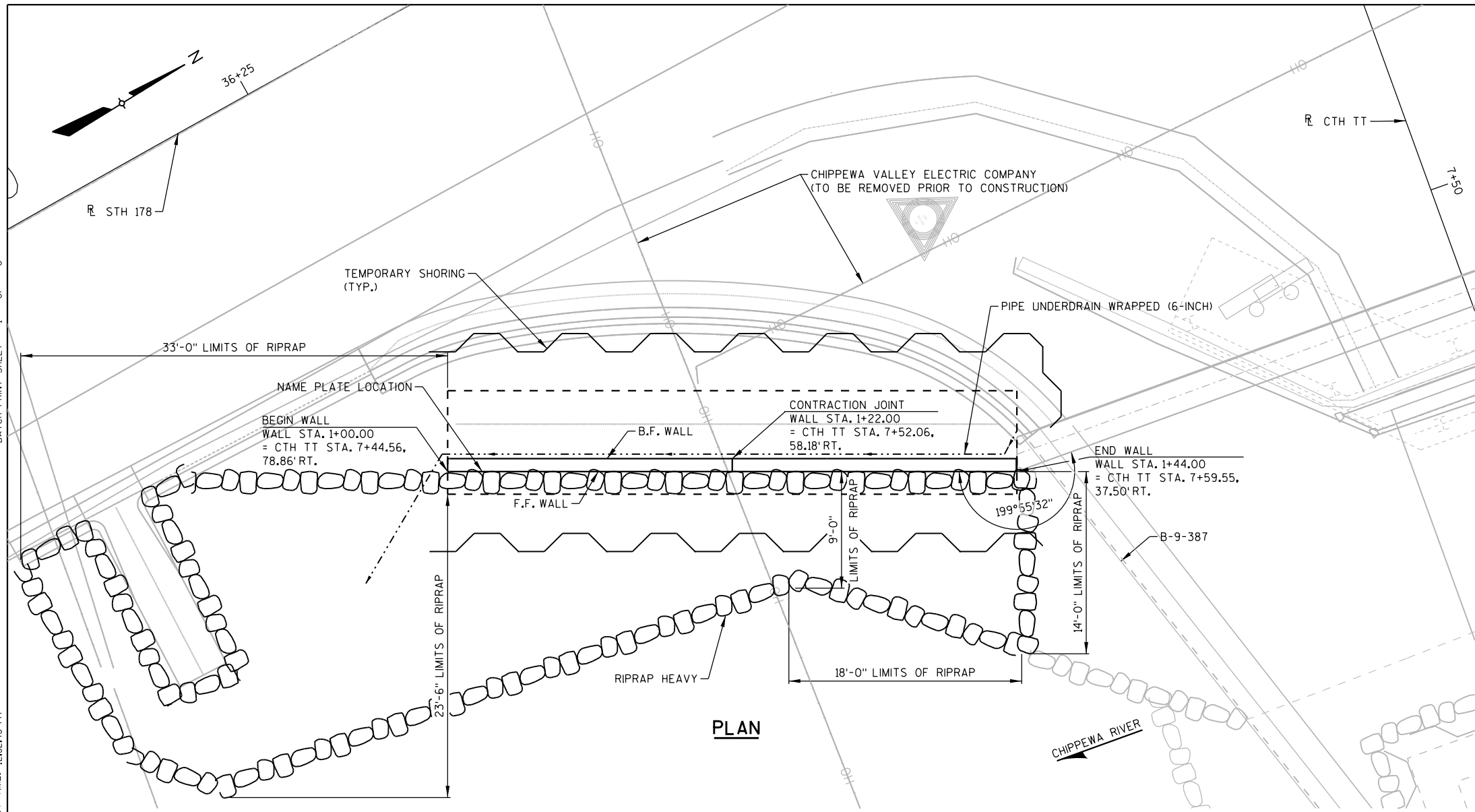
(C) = CONTRACTION JOINT. SEE SHEET 5 FOR DETAILS.

LIST OF DRAWINGS

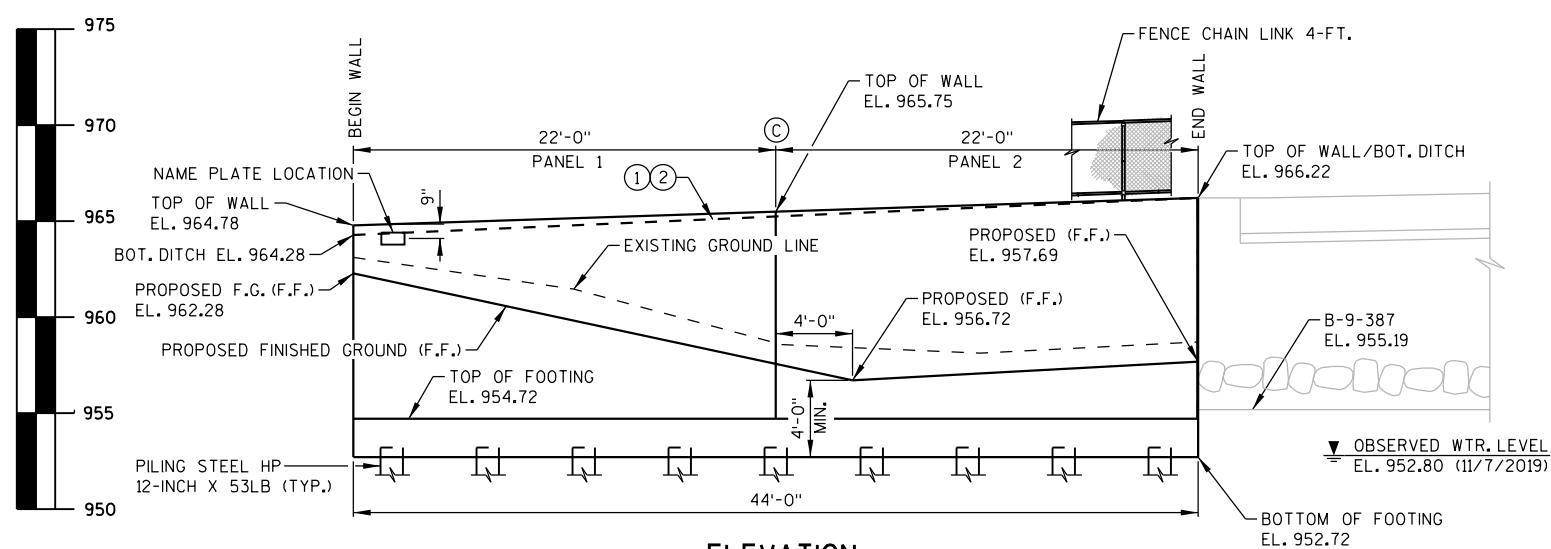
1. GENERAL PLAN
2. CROSS SECTIONS & QUANTITIES
3. SUBSURFACE EXPLORATION
4. WALL ELEVATION & FOOTING DETAILS
5. WALL DETAILS
6. CHAIN LINK FENCE DETAILS

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 PLOT TIME: 12:52:45 PM
 BATCH PRINT SHEET 1 OF 6

8



PLAN



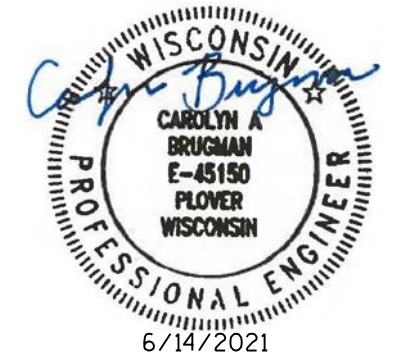
ELEVATION

LOOKING AT FRONT FACE OF WALL

BENCH MARK TABLE

NO.	STATION	DESCRIPTION	ELEVATION
1	36+54 LT	NAIL IN POWER POLE	969.80
2	12+50 RT	EAST BRIDGE ABUTMENT	971.53

- 1 PROVIDE DITCH BEHIND WALL (SLOPE DITCH DOWNWARD FROM STA. 1+44.00 TO STA. 1+00.00.)
- 2 UNIFORMLY SLOPE BOTTOM OF DITCH FROM STA. 1+44 TOP OF WALL EL. 966.22 TO STA. 1+00 EL. 964.28.

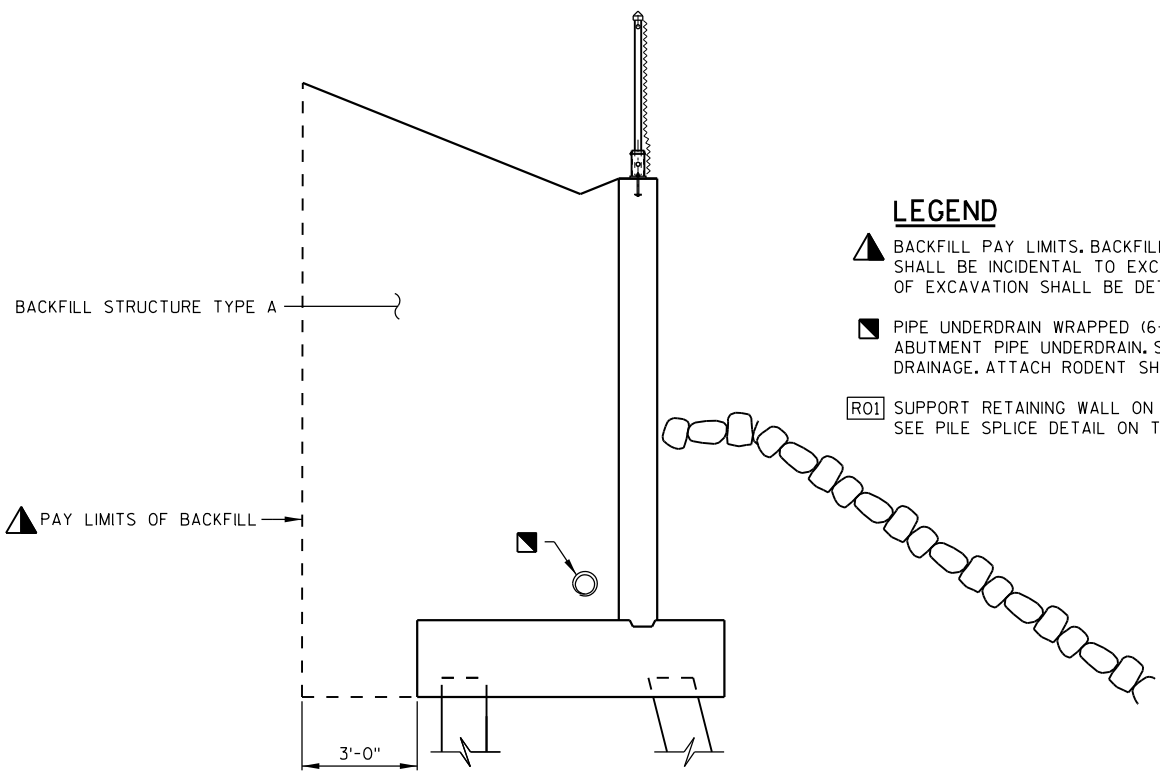


STRUCTURES DESIGN CONTACTS

BRIDGE OFFICE:
AARON BONK (608) 261-0261
CONSULTANT:
CAROLYN BRUGMAN (715) 342-3075

NO.	DATE	REVISION	BY
AECOM			
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
ACCEPTED	SDR 10/13/21		DATE
STRUCTURE R-9-16			
SW WINGWALL FOR B-9-387			
COUNTY	CHIPPewa	TOWN/CITY/VILLAGE	EAGLE POINT
DESIGN SPEC. AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS			
DESIGNED BY	IGG	DESIGN CK'D.	CAB
DRAWN BY	MES	PLANS CK'D.	CAB
GENERAL PLAN			SHEET 1 OF 6

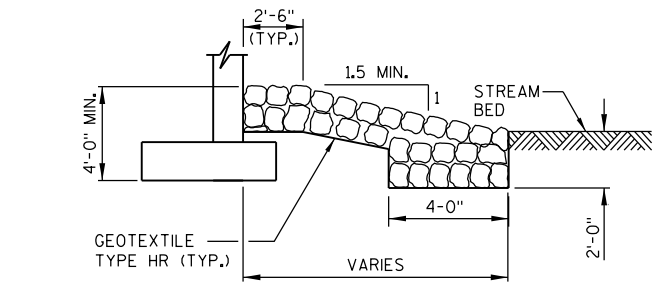
8



LEGEND

- ▲ BACKFILL PAY LIMITS. BACKFILL BEYOND BACKFILL PAY LIMITS SHALL BE INCIDENTAL TO EXCAVATION FOR STRUCTURES. LIMITS OF EXCAVATION SHALL BE DETERMINED BY THE CONTRACTOR.
- PIPE UNDERDRAIN WRAPPED (6-INCH), CONNECT TO B-9-387 W. ABUTMENT PIPE UNDERDRAIN. SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. ATTACH RODENT SHIELD AT END OF PIPE UNDERDRAIN.
- [R01] SUPPORT RETAINING WALL ON PILING STEEL HP 12-INCH X 53LB. SEE PILE SPLICE DETAIL ON THIS SHEET.

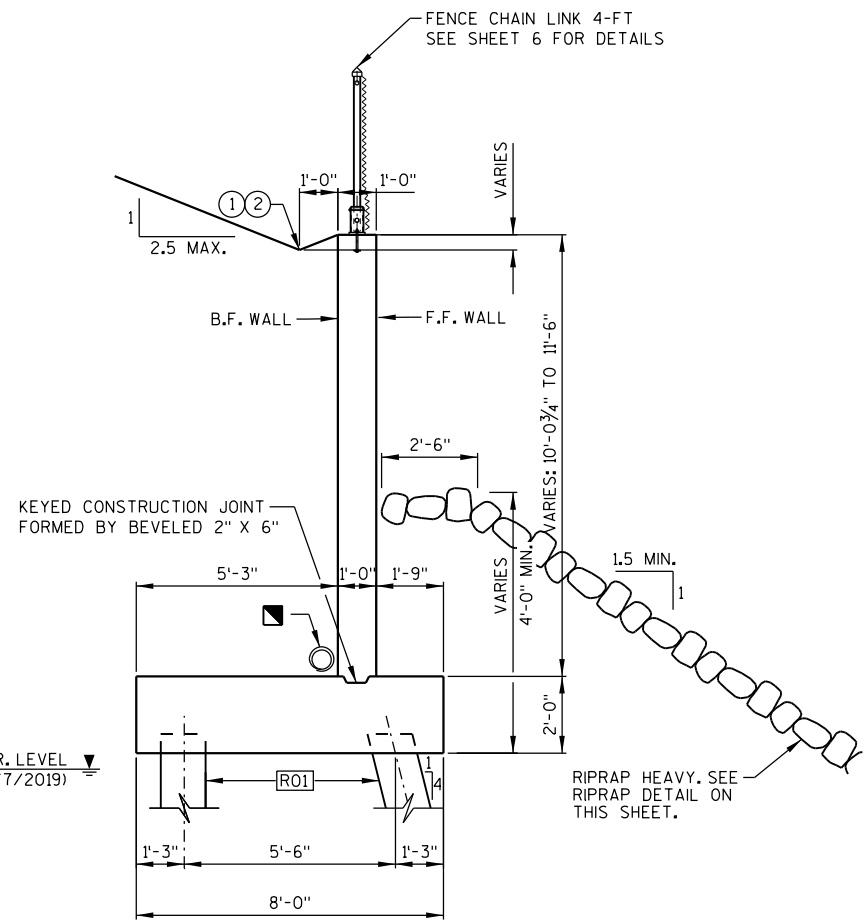
STRUCTURE BACKFILL LIMITS



RIPRAP DETAIL

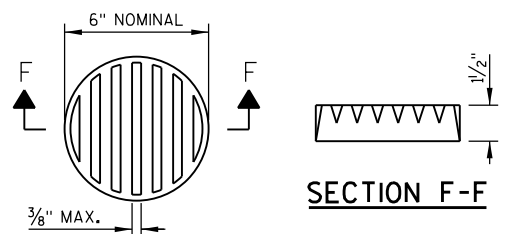
TOTAL ESTIMATED QUANTITIES

BID ITEM NUMBER	BID ITEM	UNIT	TOTALS
206.3000	EXCAVATION FOR STRUCTURES RETAINING WALLS R-9-16	LS	1
210.1500	BACKFILL STRUCTURE TYPE A	TON	320
504.0500	CONCRETE MASONRY RETAINING WALLS	CY	44
505.0400	BAR STEEL REINFORCEMENT HS STRUCTURES	LB	2,380
505.0600	BAR STEEL REINFORCEMENT HS COATED STRUCTURES	LB	3,440
511.1200	TEMPORARY SHORING R-9-16	SF	1,150
516.0500	RUBBERIZED MEMBRANE WATERPROOFING	SY	4
550.0500	PILE POINTS	EACH	18
550.1120	PILING STEEL HP 12-INCH X 53 LB	LF	810
606.0300	RIPRAP HEAVY	CY	100
612.0406	PIPE UNDERDRAIN WRAPPED 6-INCH	LF	55
616.0204	FENCE CHAIN LINK 4-FT	LF	44
645.0120	GEOTEXTILE TYPE HR	SY	220
NON-BID ITEMS			
	FILLER	SIZE	1/2"



TYPICAL SECTION THRU RETAINING WALL

① ② SEE SHEET 1 FOR DESCRIPTION.

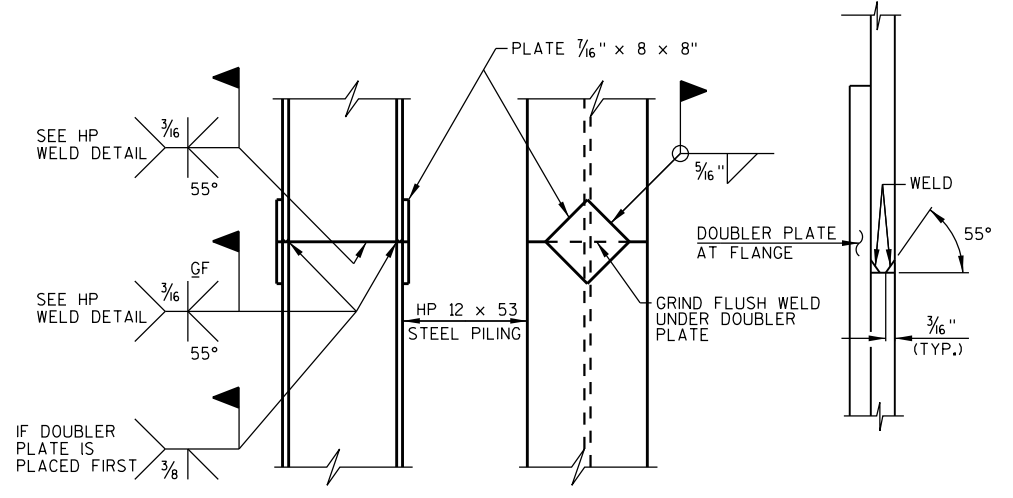


RODENT SHIELD DETAIL

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

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

THE RODENT SHIELD SHALL BE A PVC GRATE SIMILAR TO THIS DETAIL. THE GRATE IS 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.



PILE SPLICE DETAIL

HP WELD DETAIL

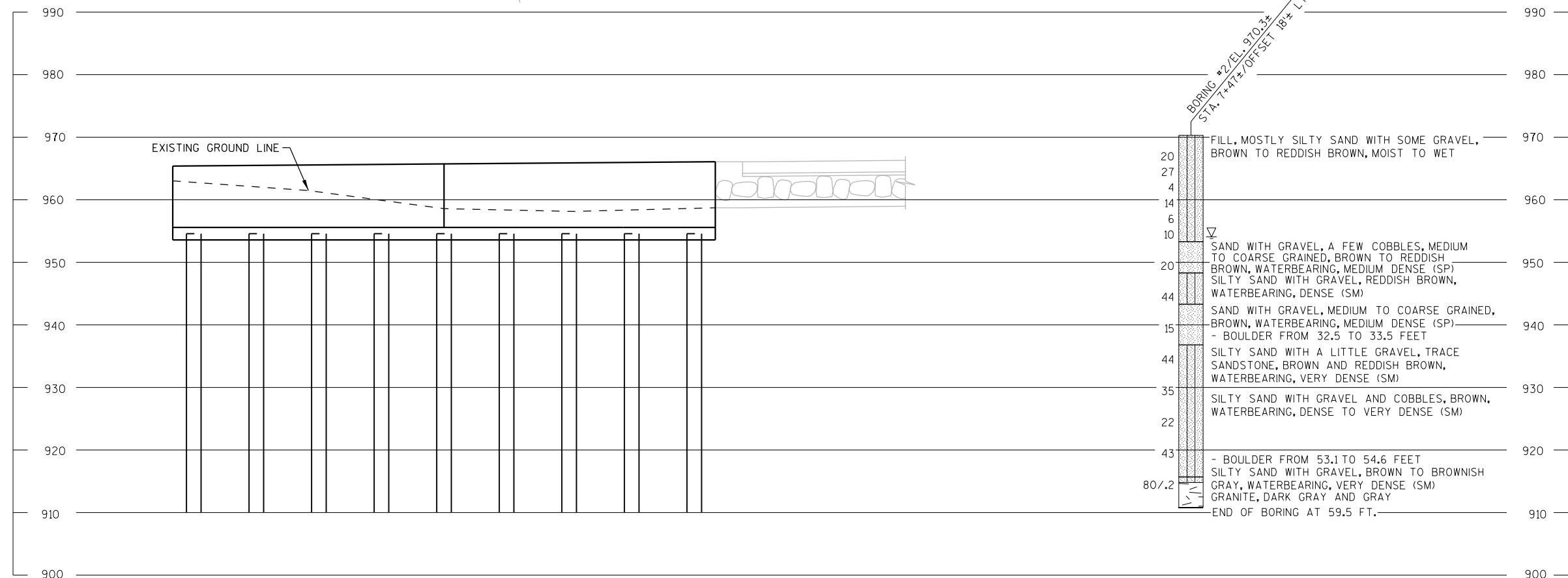
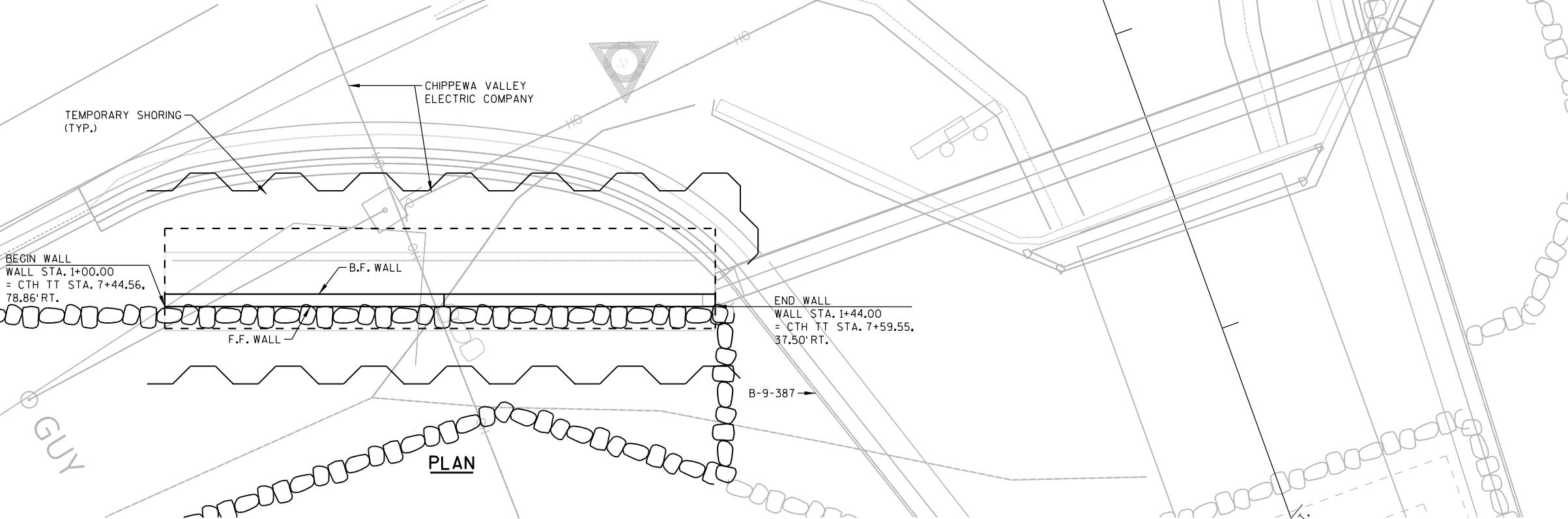
(FLANGE SHOWN, WEB SIMILAR)

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE R-9-16			
DRAWN BY		MES	PLANS CK'D. CAB
CROSS SECTIONS & QUANTITIES			SHEET 2 OF 6

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 PLOT DATE: 6/14/2021
 PLOT TIME: 12:52:47 PM
 BATCH PRINT SHEET 2 OF 6

BORING #	DATE COMPLETED	NORTHING (Y)	EASTING (X)
2	8-18-1994	191813.5±	218986.3±

BORINGS COMPLETED BY: HUNTINGDON ENGINEERING & ENVIRONMENTAL
 REPORT COMPLETED BY: AMERICAN ENGINEERING & TESTING, INC.
 ALL COORDINATES REFERENCED TO WCCS NAD 83(91) CHIPPEWA COUNTY



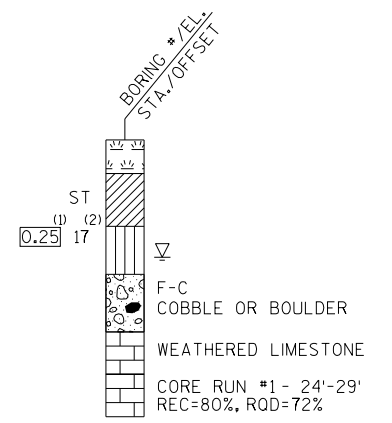
STATE PROJECT NUMBER

8915-00-70

MATERIAL SYMBOLS

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

LEGEND OF BORING



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

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

GROUND WATER ELEVATION

- ▽ AT TIME OF DRILLING
- ▼ END OF DRILLING
- ▼ AFTER DRILLING

ABBREVIATIONS

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

SUBSURFACE EXPLORATION FOR FOUNDATION DESIGN AND BIDDERS INFORMATION

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

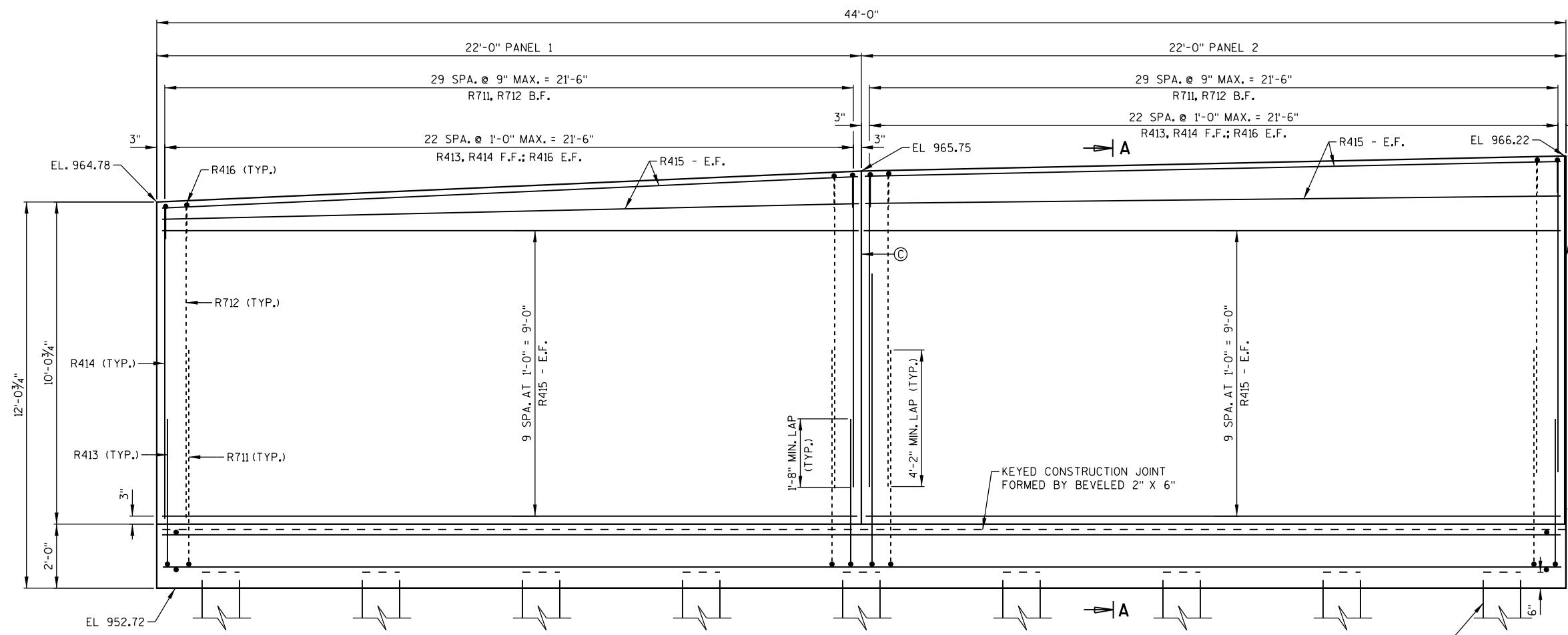
NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE R-9-16

DRAWN BY	MES	PLANS CK'D.	CAB
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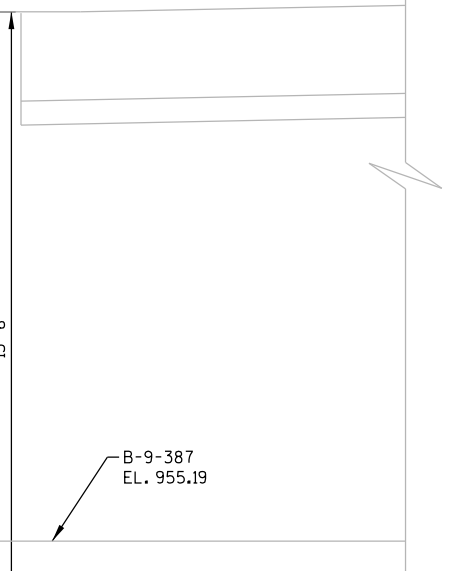
SUBSURFACE EXPLORATION SHEET 3 OF 6



WALL ELEVATION

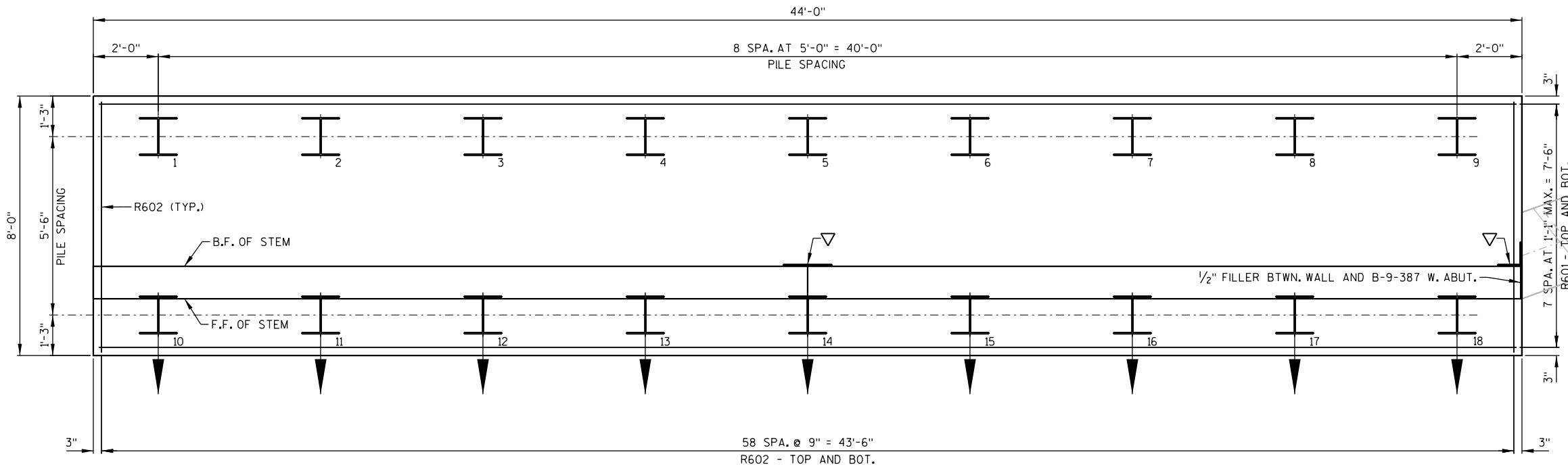
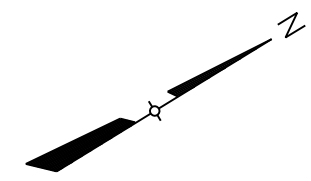
(LOOKING AT FRONT FACE OF WALL)
NOTE: FENCE NOT SHOWN IN ELEVATION VIEW FOR CLARITY. FOR DETAILS, SEE SHEET 6.

1/2" FILLER - EXTEND TO B-9-387 BOTTOM OF WEST ABUTMENT ELEVATION. SEAL ALL EXPOSED SURFACES OF 1/2" FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER (1" DEEP AND HOLD 1/8" BELOW SURFACE OF CONCRETE).



LEGEND

- ⊙ = CONTRACTION JOINT, SEE SHEET 5 FOR DETAILS.
- X INDICATES PILE NUMBER
- ▼ BATTERED PILES - PILES ARE BATTERED AT 4V:1H.
- ▽ RUBBERIZED MEMBRANE WATERPROOFING TO EXTEND FROM TOP OF FOOTING TO TOP OF WALL AT BACKFACE.



FOOTING PLAN VIEW

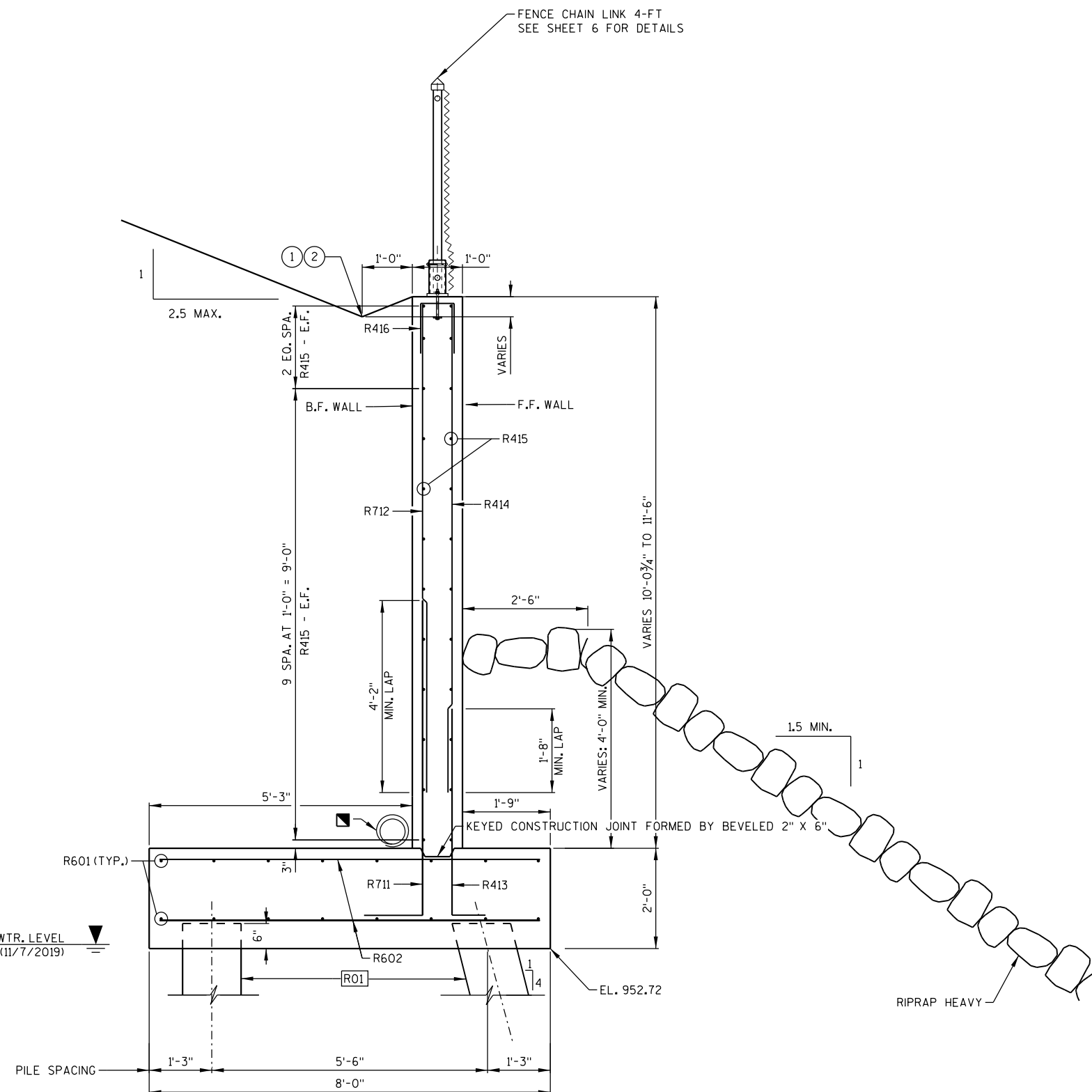
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE R-9-16			
DRAWN BY		MES	PLANS CKD. CAB
WALL ELEVATION & FOOTING DETAILS			SHEET 4 OF 6

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 BATCH PRINT SHEET 4 OF 6

8

8

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SECTION A-A

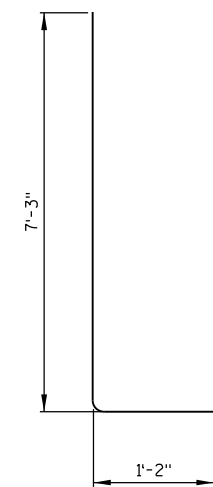
(PANEL 2 SHOWN, PANEL 1 SIMILAR)
 SEE SHEET 1 FOR DESCRIPTIONS.

- PIPE UNDERDRAIN WRAPPED (6-INCH). CONNECT TO B-9-387 W. ABUTMENT PIPE UNDERDRAIN. SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. ATTACH RODENT SHIELD AT END OF PIPE UNDERDRAIN.
- [R01] SUPPORT RETAINING WALL ON PILING STEEL HP 12-INCH X 53LB. SEE PILE SPLICE DETAIL ON SHEET 2

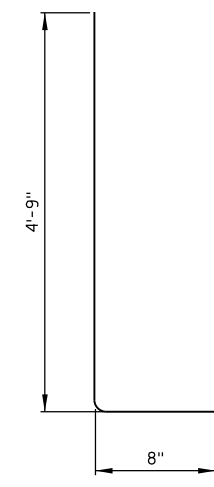
BILL OF BARS

DIMENSIONS IN BENDING DETAILS ARE OUT TO OUT OF BAR.

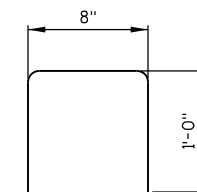
MARK	NO. REQ'D	LENGTH	BENT	BAR SERIES	LOCATION	
NON-COATED BARS						TOTAL WEIGHT = 2,380 LBS
R601	16	43 - 6			FOOTING - TOP AND BOTTOM	LONGIT.
R602	118	7 - 6			FOOTING - TOP AND BOTTOM	TRANS.
COATED BARS						TOTAL WEIGHT = 3,440 LBS
R711	60	8 - 3	X		RETAINING WALL DOWELS B.F. - PANELS 1 & 2	VERTICAL
R712	60	9 - 9			RETAINING WALL B.F. - PANELS 1 & 2	VERTICAL
R413	46	5 - 4	X		RETAINING WALL DOWELS F.F. - PANELS 1 & 2	VERTICAL
R414	46	9 - 9			RETAINING WALL F.F. - PANELS 1 & 2	VERTICAL
R415	48	21 - 6			RETAINING WALL B.F. AND F.F. - PANELS 1 & 2	HORIZONTAL
R416	46	2 - 6	X		RETAINING WALL TOP - PANELS 1 & 2	VERTICAL



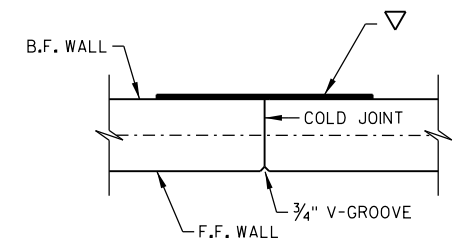
R711



R413



R416



© CONTRACTION JOINT - PLAN

DO NOT RUN ANY BAR STEEL THRU JOINT

▽ RUBBERIZED MEMBRANE WATERPROOFING TO EXTEND FROM TOP OF FOOTING TO TOP OF WALL AT BACKFACE.

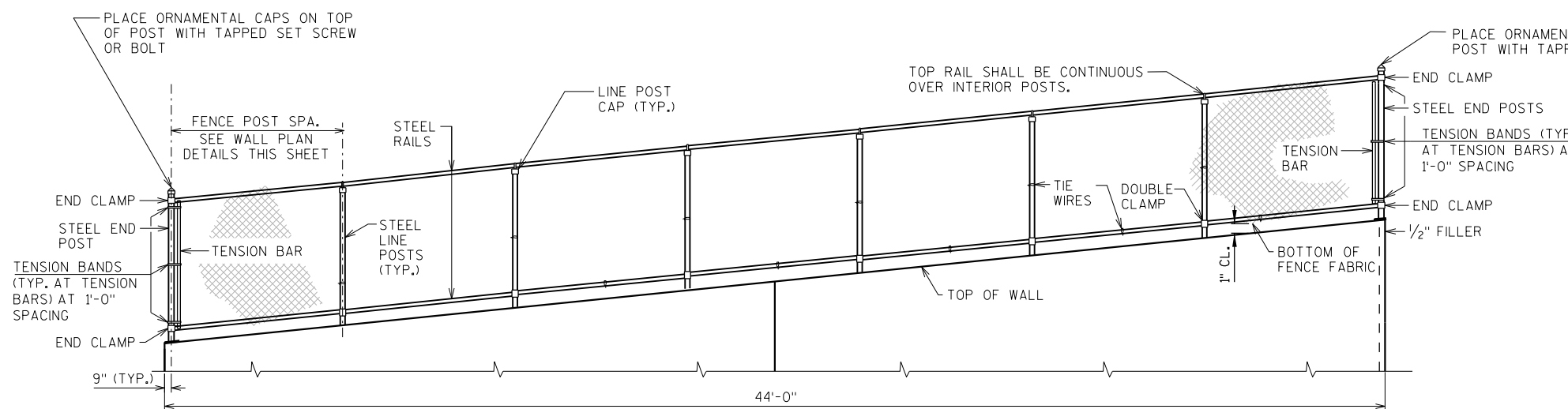
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE R-9-16			
DRAWN BY		MES	PLANS CK'D. CAB
WALL DETAILS			SHEET 5 OF 6

NOTES

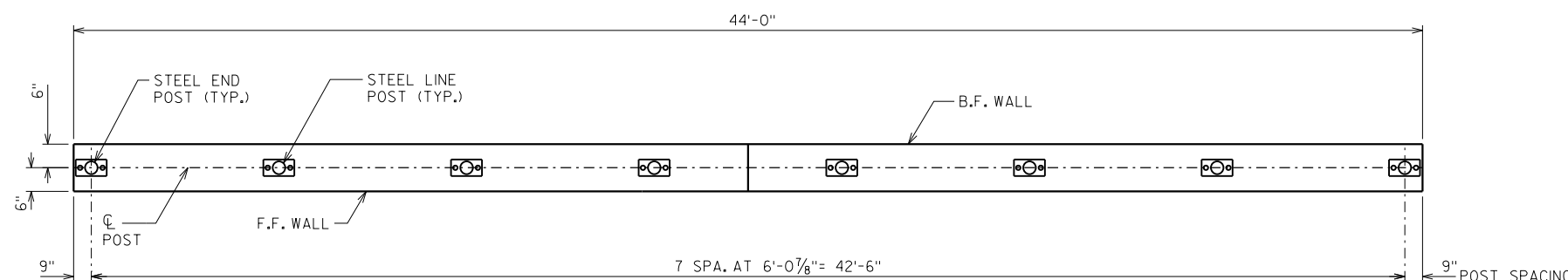
- POSTS ARE TO BE SET VERTICAL.
- ALL FENCE COMPONENTS SHALL BE GALVANIZED STEEL, EXCEPT THE FENCE FABRIC WHICH MAY BE ALUMINUM-COATED STEEL OR GALVANIZED STEEL.
- FABRIC SHALL CONFORM TO ASTM A491 OR A392, CLASS 2. STEEL RAILS, POSTS AND POST SLEEVES SHALL CONFORM TO ASTM F1083, STANDARD WEIGHT PIPE (SCHEDULE 40). FITTINGS SHALL CONFORM TO ASTM F626.
- THE BID ITEM SHALL BE "FENCE CHAIN LINK 4- FT."
- COMPLETE ANY REQUIRED WELDING OF COMPONENTS BEFORE GALVANIZING.
- 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.
- BASE PLATES, ANCHOR PLATES AND SHIMS SHALL BE ASTM A709, GRADE 36.
- ALL POST SPACINGS ARE MEASURED HORIZONTALLY ALONG THE C/L OF THE POST.
- CAULK AROUND PERIMETER OF BASE PLATE AND FILL PORTION OF SLOTTED HOLE AROUND ANCHOR BOLT IN SHIM WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER.
- ALTERNATE TO DOUBLE CLAMP: USE LINE RAIL CLAMP (BOULEVARD) OR 180° BRACE BAND, WHICH MAY BE USED WHEN THE POSTS ARE EITHER BOLTED TO THE POST SLEEVES OR DIRECTLY WELDED TO THE BASE PLATE.
- 1/2" DIA. X 6 7/8" LONG GALVANIZED HEX BOLT WITH NUT & WASHER.
- ALTERNATIVE ANCHORAGE: CONCRETE ADHESIVE ANCHORS 1/2-INCH. EMBED 7" IN CONCRETE. ADHESIVE ANCHORS SHALL CONFORM TO SECTIONS 502.2.12 AND 502.3.14 OF THE STANDARD SPECIFICATIONS.
- ATTACH FABRIC TO RAILS, AND TO POSTS WITHOUT TENSION BANDS, WITH TIE WIRES (ROUND, 9-GAGE) SPACED AT 1'-0".
- MINIMUM LENGTH OF TOP RAIL BETWEEN SPLICES SHALL BE 20'-0". LOCATE SPLICES NEAR 1/4 POINT OF POST SPACING.

FENCE MEMBER SIZE & WEIGHT

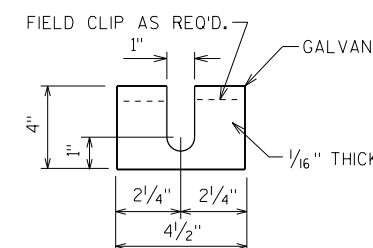
STEEL FENCE MEMBER	OUTSIDE DIAMETER (INCHES)	WEIGHT (LB/FT)
RAILS	1.660	2.27
END POST	2.875	5.80
LINE POST	2.375	3.65
POST SLEEVE	4.000	9.12



PARTIAL ELEVATION OF WALL AND FENCE

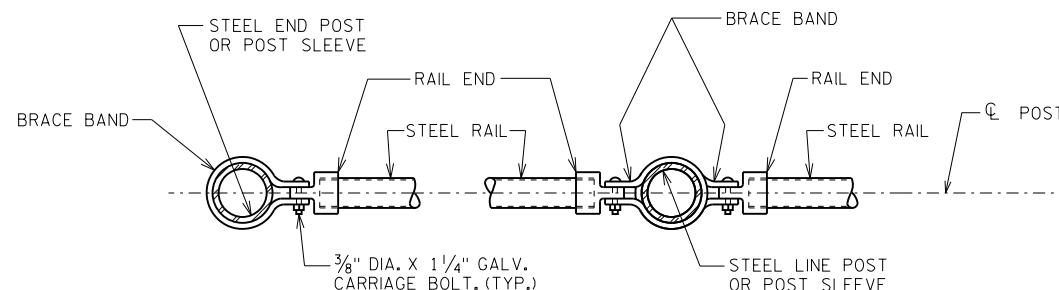


WALL PLAN



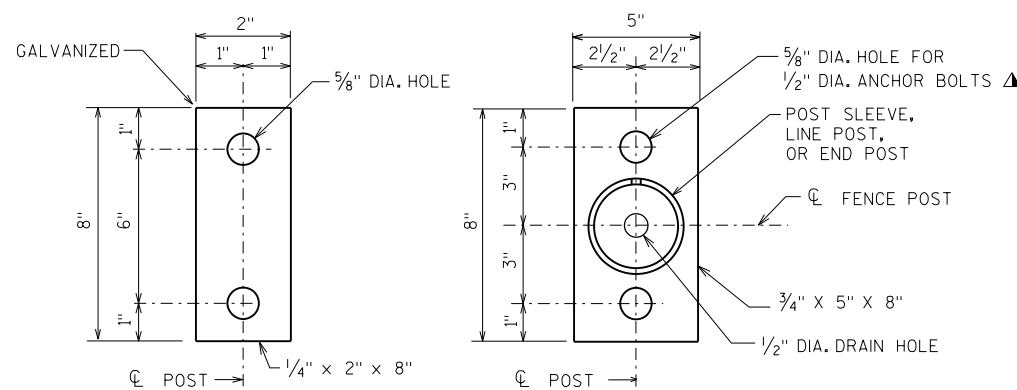
POST SHIM DETAILS

SHIMS REQUIRED ONLY WHEN END POSTS AND LINE POSTS ARE WELDED TO BASE PLATES. PROVIDE 4 SHIMS PER POST. USE WHERE REQUIRED FOR ALIGNMENT.



PARTIAL PLAN OF FENCE

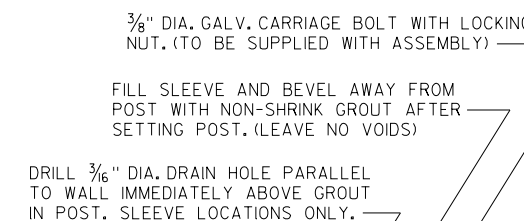
NOTE: PLACE ALL BOLT HEADS ON SIDE OF FENCE ADJACENT TO WALL B.F.



ANCHOR PLATE

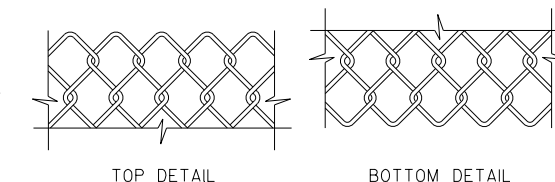
BASE PLATE

NOTE: ANCHOR PLATE NOT REQUIRED WHEN ADHESIVE ANCHORS ARE USED.



DETAIL 'A'

UNIT SHALL BE GALVANIZED AFTER FABRICATION
NOTE: IN LIEU OF USING THE POST SLEEVE, THE FENCE POST MAY BE WELDED TO THE BASE PLATE.



FENCE FABRIC

FENCE FABRIC WOVEN OF 9-GAGE WIRE IN 2" DIAMOND PATTERN MESH WITH BOTH THE TOP AND BOTTOM SELVAGES KNUCKLED.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE R-9-16			
DRAWN BY		MES	PLANS CAB
CHAIN LINK FENCE DETAILS		SHEET 6 OF 6	

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 BATCH PRINT SHEET 6 OF 6

STAGE 1 - TEMPORARY CONSTRUCTION ACCESS - CONSTRUCT

STATION	REAL STATION	DISTANCE	AREA (SF)			INCREMENTAL VOL (CY) (UNADJUSTED)			CUMULATIVE VOL (CY)		
			CUT	SALVAGED/UNUSABLE PAVEMENT MATERIAL	FILL	CUT	SALVAGED/UNUSABLE PAVEMENT MATERIAL	FILL	CUT 1.00	EXPANDED FILL 1.25	MASS ORDINATE
100+00.00	10000		0.0	0.0	0.0	0	0	0	0	0	0
100+25.00	10025	25	21.0	0.0	4.1	10	0	2	10	2	7
100+50.00	10050	25	16.7	0.0	152.5	17	0	72	27	93	-66
100+75.00	10075	25	101.7	0.0	98.0	55	0	116	82	238	-156
100+79.52	10080	5	125.4	0.0	74.9	19	0	14	101	256	-155
100+95.15	10095	16	199.6	0.0	14.2	94	0	26	195	288	-93
101+00.00	10100	5	212.0	0.0	8.9	37	0	2	232	291	-59
101+02.08	10102	2	212.3	0.0	6.8	16	0	1	248	292	-43
101+10.74	10111	9	181.0	0.0	2.7	63	0	2	311	293	18
101+19.41	10119	9	76.3	0.0	2.2	41	0	1	353	294	58
101+25.00	10125	6	31.0	0.0	6.7	11	0	1	364	296	68
101+27.14	10127	2	15.0	0.0	15.8	2	0	1	366	297	69
101+28.62	10129	1	5.5	0.0	39.5	1	0	2	366	299	68
101+50.00	10150	21	0.0	0.0	263.1	2	0	120	368	448	-80
101+70.00	10170	20	2.0	0.0	14.9	1	0	103	369	577	-208
Column totals						369	0	462			

STAGE 1 - DREDGING

STATION	REAL STATION	DISTANCE	AREA (SF)			INCREMENTAL VOL (CY) (UNADJUSTED)			CUMULATIVE VOL (CY)		
			CUT	SALVAGED/UNUSABLE PAVEMENT MATERIAL	FILL	CUT	SALVAGED/UNUSABLE PAVEMENT MATERIAL	FILL	CUT 1.00	EXPANDED FILL 1.25	MASS ORDINATE
09+00.00	900		0.0	0.0	0.0	0	0	0	0	0	0
09+25.00	925	25	0.0	0.0	0.0	0	0	0	0	0	0
09+50.00	950	25	1.7	0.0	0.0	1	0	0	1	0	1
09+75.00	975	25	506.5	0.0	0.0	235	0	0	236	0	236
10+00.00	1000	25	656.2	0.0	0.0	538	0	0	774	0	774
10+25.00	1025	25	625.1	0.0	0.0	593	0	0	1368	0	1368
10+50.00	1050	25	314.4	0.0	0.0	435	0	0	1803	0	1803
10+75.00	1075	25	0.0	0.0	0.0	146	0	0	1948	0	1948
11+00.00	1100	25	0.0	0.0	0.0	0	0	0	1948	0	1948
Column totals*						1948	0	0			

*1000 CY TO BE INCLUDED UNDER ITEM SPV.0195.01 MANAGEMENT OF CONTAMINATED SEDIMENT;
REMAINDER OF QUANTITY CONSIDERED EXCAVATION COMMON

STAGE 2 - TEMPORARY CONSTRUCTION ACCESS - REMOVAL

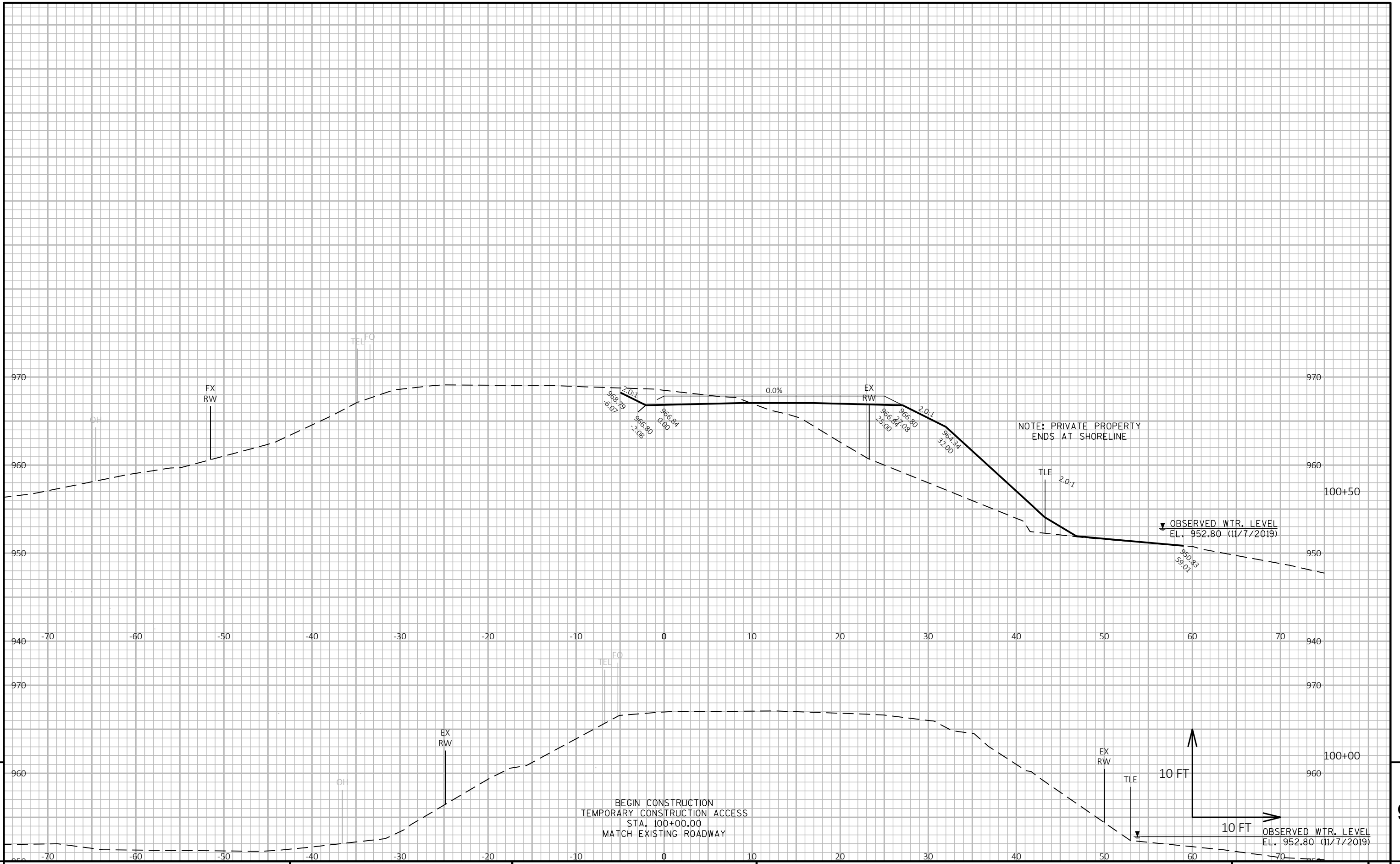
STATION	REAL STATION	DISTANCE	AREA (SF)			INCREMENTAL VOL (CY) (UNADJUSTED)			CUMULATIVE VOL (CY)		
			CUT	SALVAGED/UNUSABLE PAVEMENT MATERIAL	FILL	CUT	SALVAGED/UNUSABLE PAVEMENT MATERIAL	FILL	CUT 1.00	EXPANDED FILL 1.25	MASS ORDINATE
100+00.00	10000		0.0	0.0	0.0	0	0	0	0	0	0
100+25.00	10025	25	135.5	0.0	1.5	63	0	1	63	1	62
100+50.00	10050	25	241.2	0.0	9.3	174	0	5	237	7	230
100+75.00	10075	25	110.1	0.0	86.8	163	0	44	400	63	337
100+79.52	10080	5	85.2	0.0	108.7	16	0	16	416	83	333
100+95.15	10095	16	72.2	0.0	174.6	46	0	82	462	186	276
101+00.00	10100	5	82.6	0.0	180.4	14	0	32	476	226	250
101+02.08	10102	2	78.6	0.0	178.9	6	0	14	482	243	239
101+10.74	10111	9	58.3	0.0	147.7	22	0	52	504	308	195
101+19.41	10119	9	44.6	0.0	49.0	17	0	32	520	348	172
101+25.00	10125	6	43.0	0.0	10.9	9	0	6	529	356	174
101+27.14	10127	2	49.4	0.0	4.6	4	0	1	533	356	177
101+28.62	10129	1	78.1	0.0	2.9	3	0	0	537	357	180
101+50.00	10150	21	290.2	0.0	0.0	146	0	1	682	358	324
101+70.00	10170	20	14.9	0.0	2.0	113	0	1	795	359	436
Column totals						795	0	287			

STAGE 3 - CTH TT

STATION	REAL STATION	DISTANCE	AREA (SF)			INCREMENTAL VOL (CY) (UNADJUSTED)			CUMULATIVE VOL (CY)		
			CUT	SALVAGED/UNUSABLE PAVEMENT MATERIAL	FILL	CUT	SALVAGED/UNUSABLE PAVEMENT MATERIAL	FILL	CUT 1.00	EXPANDED FILL 1.25	MASS ORDINATE
07+15.00	715		0.0	10.0	0.0	0	0	0	0	0	0
07+20.00	720	5	37.5	10.0	0.0	3	2	0	3	0	2
07+25.00	725	5	89.1	10.0	0.0	12	2	0	15	0	11
07+30.00	730	5	155.9	10.0	0.0	23	2	0	38	0	32
07+35.00	735	5	231.3	10.0	0.0	36	2	0	74	0	66
07+40.00	740	5	271.9	10.0	0.0	47	2	0	120	0	111
07+45.00	745	5	268.1	10.0	25.5	50	2	2	170	3	156
07+50.00	750	5	252.8	10.0	130.1	48	2	14	219	21	185
07+55.00	755	5	232.2	10.0	161.8	45	2	27	263	55	194
07+57.00	757	2	214.4	10.0	176.4	17	1	13	280	70	194
12+62.00	1262		0.0	10.0	0.0	0	0	0	280	70	194
12+76.00	1276	14	48.1	10.0	0.0	12	5	0	292	70	201
13+00.00	1300	24	67.2	10.0	5.4	51	9	2	344	73	241
13+25.00	1325	25	41.7	10.0	31.0	50	9	17	394	94	261
13+35.00	1335	10	36.7	10.0	15.5	15	4	9	409	105	261
Column totals						409	43	84			

STAGE 3 - STH 178

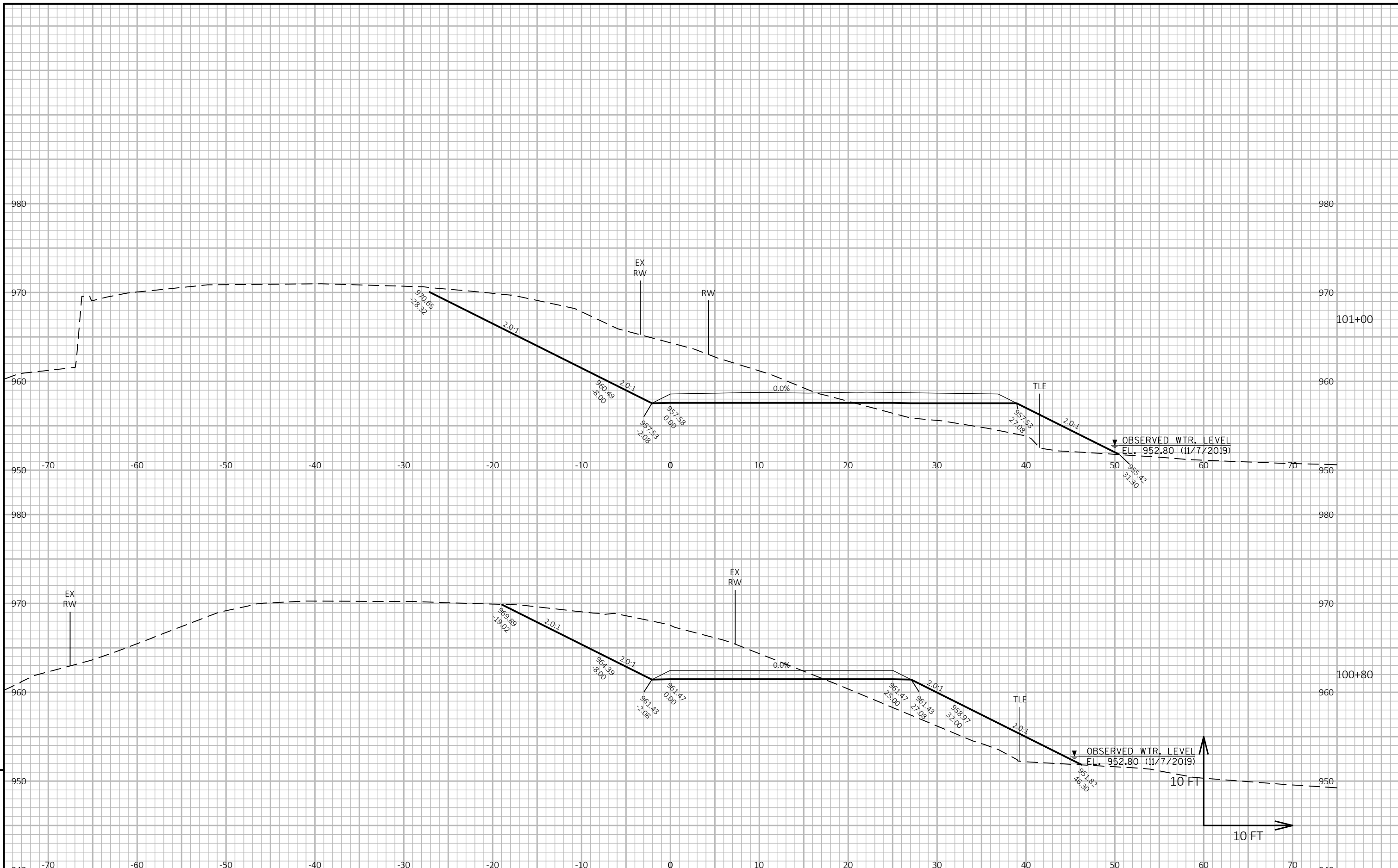
STATION	REAL STATION	DISTANCE	AREA (SF)			INCREMENTAL VOL (CY) (UNADJUSTED)			CUMULATIVE VOL (CY)		
			CUT	SALVAGED/UNUSABLE PAVEMENT MATERIAL	FILL	CUT	SALVAGED/UNUSABLE PAVEMENT MATERIAL	FILL	CUT 1.00	EXPANDED FILL 1.25	MASS ORDINATE
35+91.79	3592		0.0	4.2	0.0	0	0	0	0	0	0
36+00.00	3600	8	15.8	4.2	21.3	2	1	3	2	4	-3
36+22.83	3623	23	22.8	4.2	3.0	16	4	10	19	17	-3
36+25.00	3625	2	23.8	4.2	6.1	2	0	0	21	17	-2
36+30.00	3630	5	19.2	4.2	12.6	4	1	2	25	20	-1
36+35.00	3635	5	19.9	4.2	21.4	4	1	3	28	24	-2
36+40.00	3640	5	21.5	4.2	21.5	4	1	4	32	28	-4
36+45.00	3645	5	22.3	4.2	12.9	4	1	3	36	32	-5
36+50.00	3650	5	24.3	4.2	1.6	4	1	1	40	34	-3
36+55.00	3655	5	28.9	4.2	0.0	5	1	0	45	34	1
36+60.00	3660		34.2	4.2	0.0	0	0	0	45	34	1
36+65.00	3665	5	35.5	4.2	0.0	6	1	0	52	34	7
36+70.00	3670	5	33.5	4.2	0.0	6	1	0	58	34	13
36+75.00	3675	5	29.4	4.2	0.0	6	1	0	64	34	18
36+80.00	3680	5	23.7	4.2	0.0	5	1	0	69	34	22
36+85.00	3685	5	18.3	4.2	0.0	4	1	0	73	34	25
36+90.00	3690	5	13.0	4.2	0.0	3	1	0	76	34	27
36+95.00	3695	5	8.5	4.2	0.0	2	1	0	78	34	28
37+00.00	3700	5	4.6	4.2	0.0	1	1	0	79	34	29
37+05.00	3705	5	1.4	4.2	0.0	1	1	0	79	34	28
37+10.00	3710	5	4.1	4.2	0.0	1	1	0	80	34	28
37+15.00	3715	5	14.8	4.2	0.0	2	1	0	82	34	29
37+20.00	3720	5	28.9	4.2	0.0	4	1	0	86	34	32
37+25.00	3725	5	45.8	4.2	0.0	7	1	0	93	34	39
37+30.00	3730	5	62.1	4.2	0.0	10	1	0	103	34	48
37+35.00	3735	5	63.8	4.2	0.0	12	1	0	114	34	59
37+40.00	3740	5	56.5	4.2	0.0	11	1	0	125	34	69
37+45.00	3745	5	46.0	4.2	0.0	9	1	0	135	34	78
37+50.00	3750	5	36.3	4.2	0.0	8	1	0	143	34	85
37+55.00	3755	5	12.8	4.2	0.0	5	1	0	147	34	88
37+55.06	3755	0	12.1	4.2	0.0	0	0	0	147	34	88
37+61.11	3761	6	0.0	4.2	0.0	1	1	0	148	34	89
Column totals						148	25	27			



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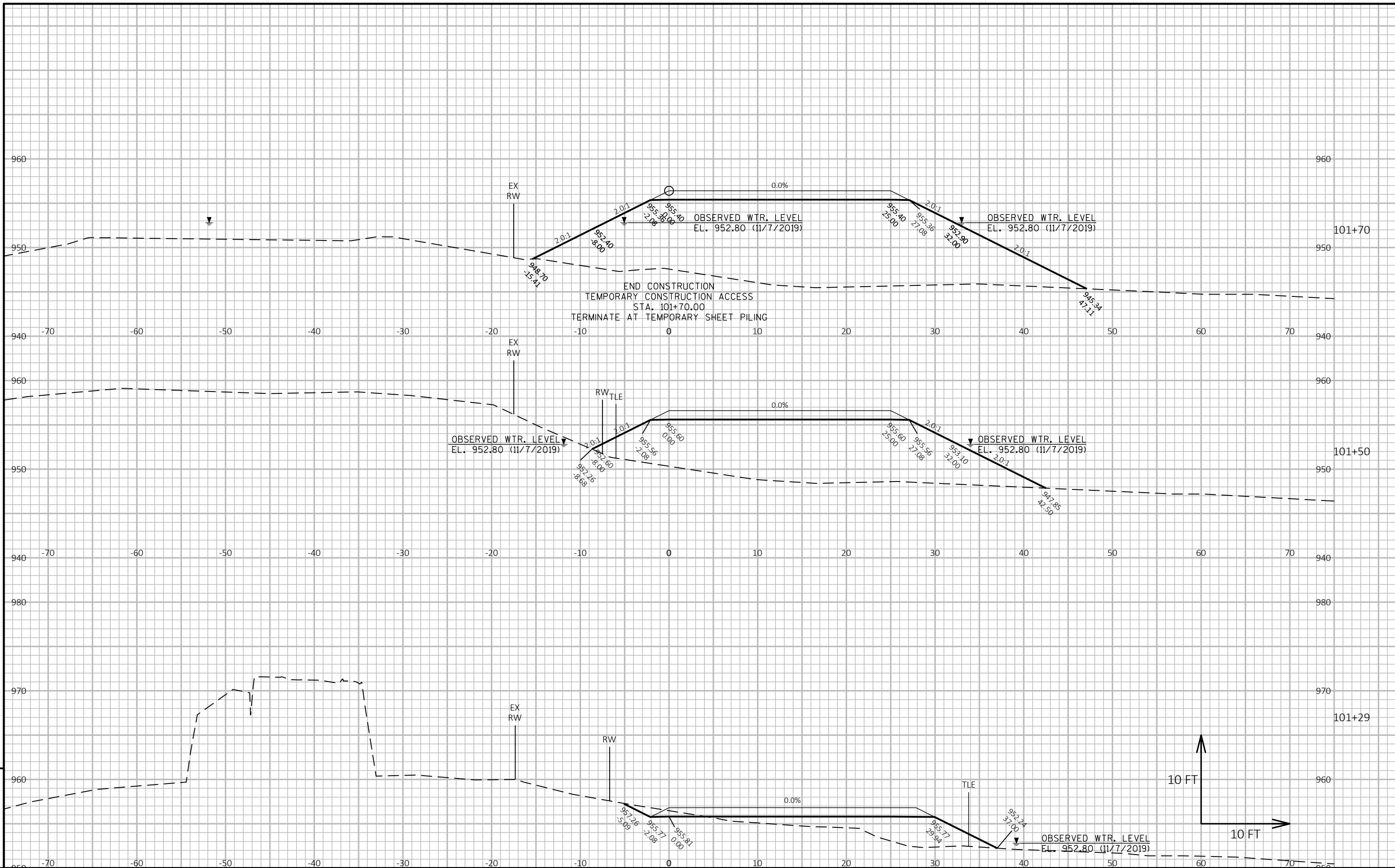
PROJECT NO: 8915-00-70	HWY: CTH TT	COUNTY: CHIPPEWA	CROSS SECTIONS: TEMPORARY CONSTRUCTION ACCESS - STAGE 1	SHEET	E
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PROJECT NO: 8915-00-70	HWY: CTH TT	COUNTY: CHIPPEWA	CROSS SECTIONS: TEMPORARY CONSTRUCTION ACCESS - STAGE 1	SHEET	E
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PROJECT NO: 8915-00-70

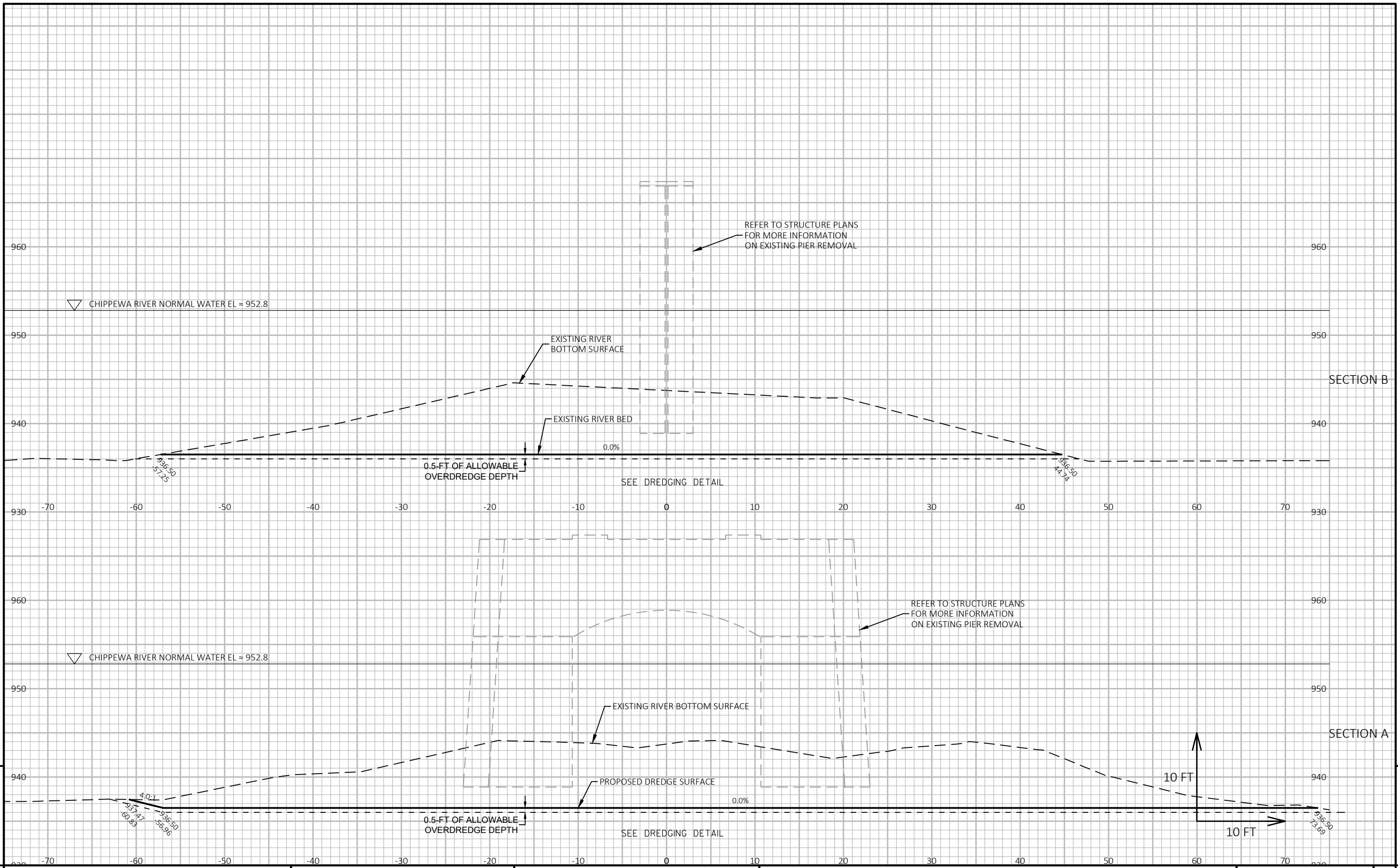
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COUNTY: CHIPPEWA

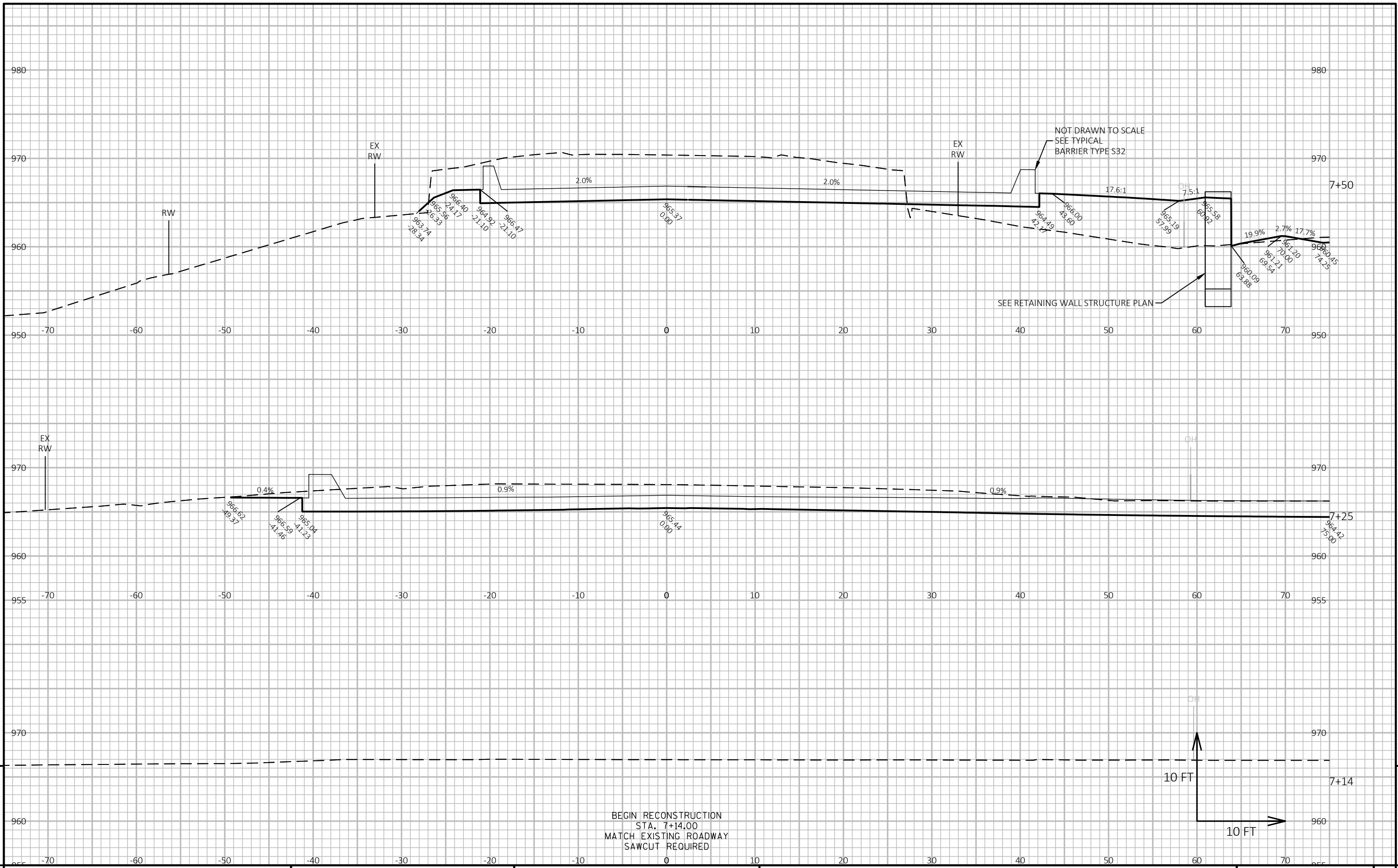
CROSS SECTIONS: TEMPORARY CONSTRUCTION ACCESS - STAGE 1

SHEET

E



PROJECT NO: 8915-00-70 HWY: CTH TT COUNTY: CHIPPEWA CROSS SECTIONS: CHIPPEWA RIVER DREDGING - STAGE 1 SHEET **9**



PROJECT NO: 8915-00-70

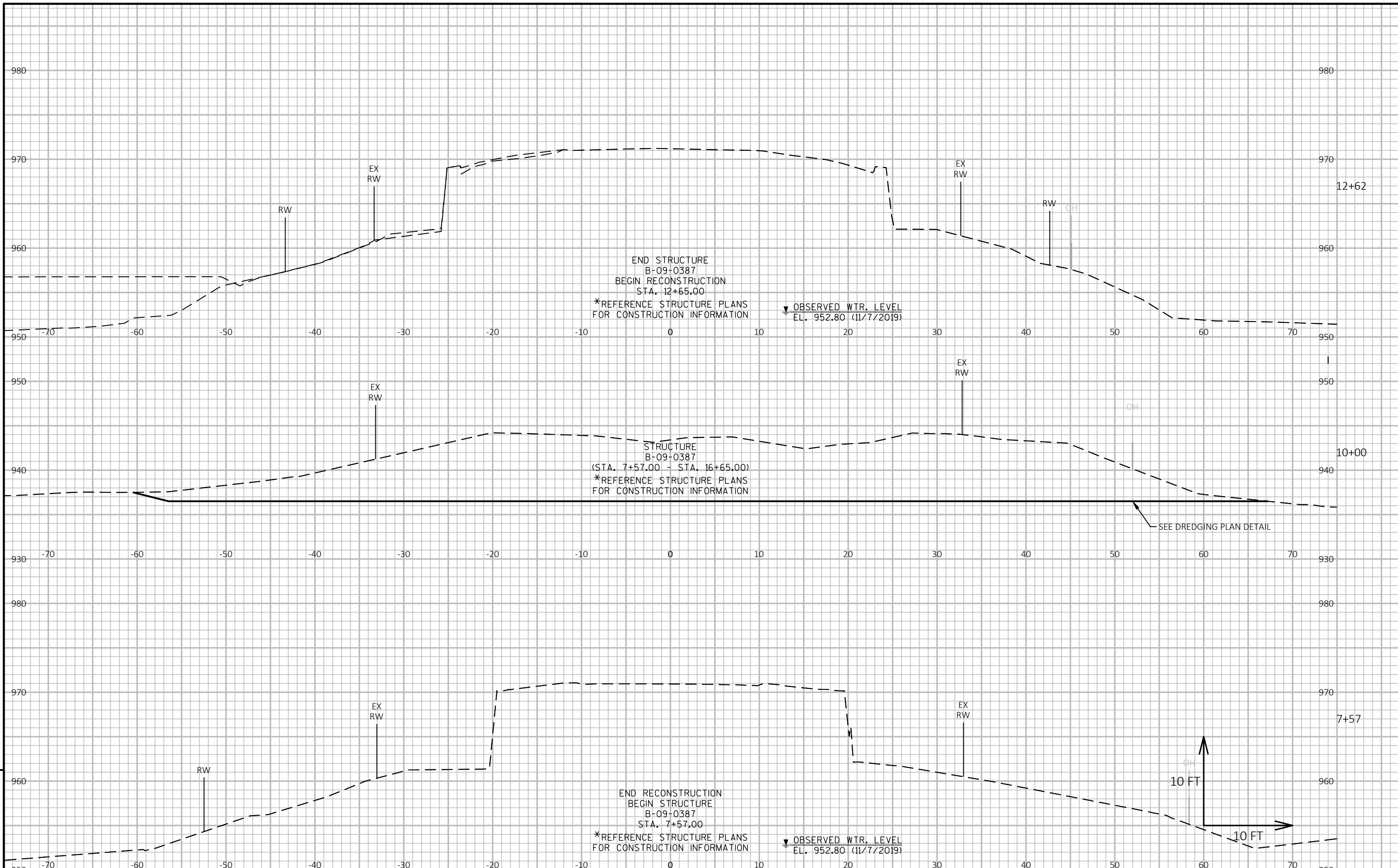
HWY: CTH TT

COUNTY: CHIPPEWA

CROSS SECTIONS: CTH TT (MAINLINE) - STAGE 3

SHEET

E

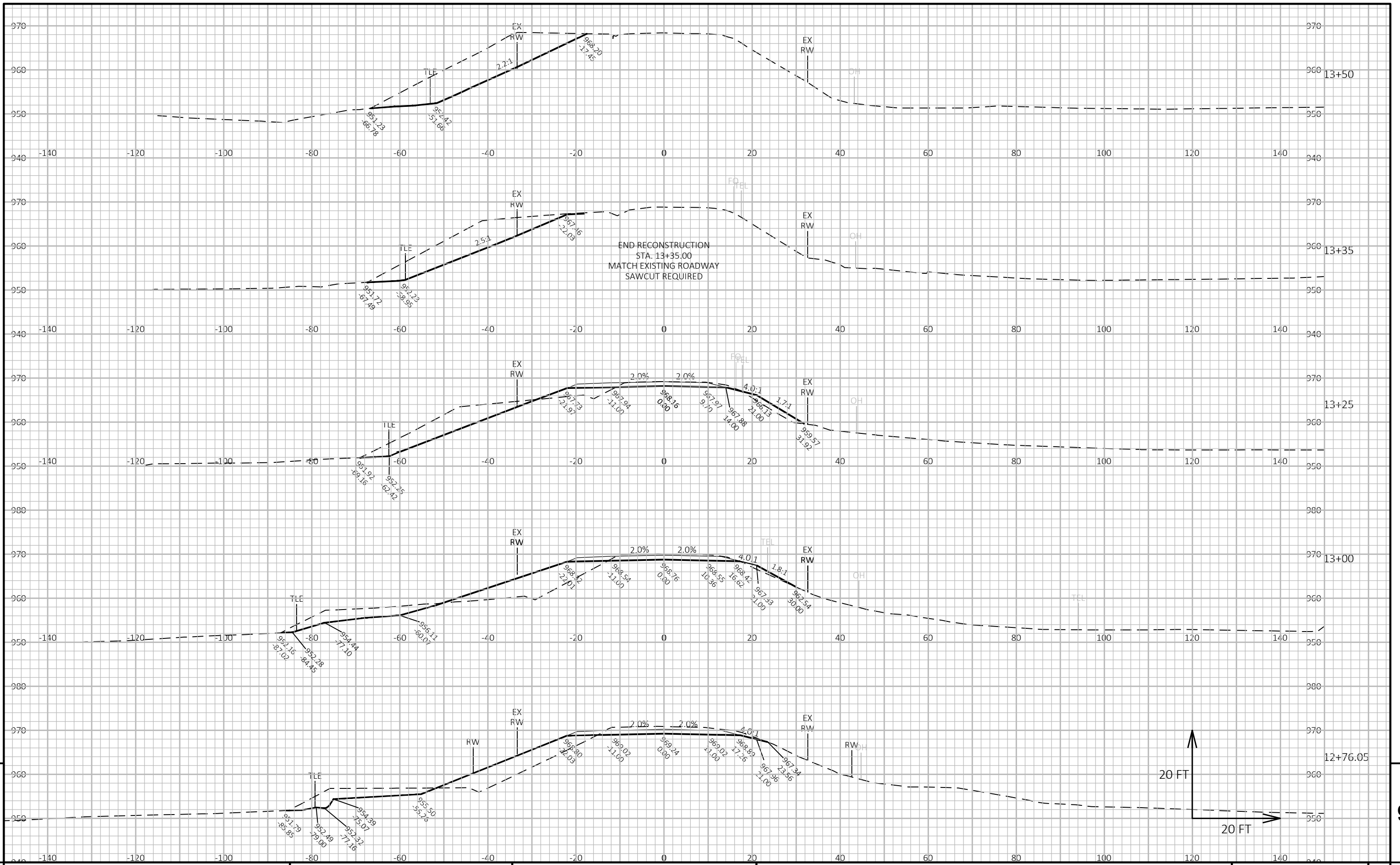


PROJECT NO: 8915-00-70	HWY: CTH TT	COUNTY: CHIPPEWA	CROSS SECTIONS: CTH TT (MAINLINE) - STAGE 3	SHEET
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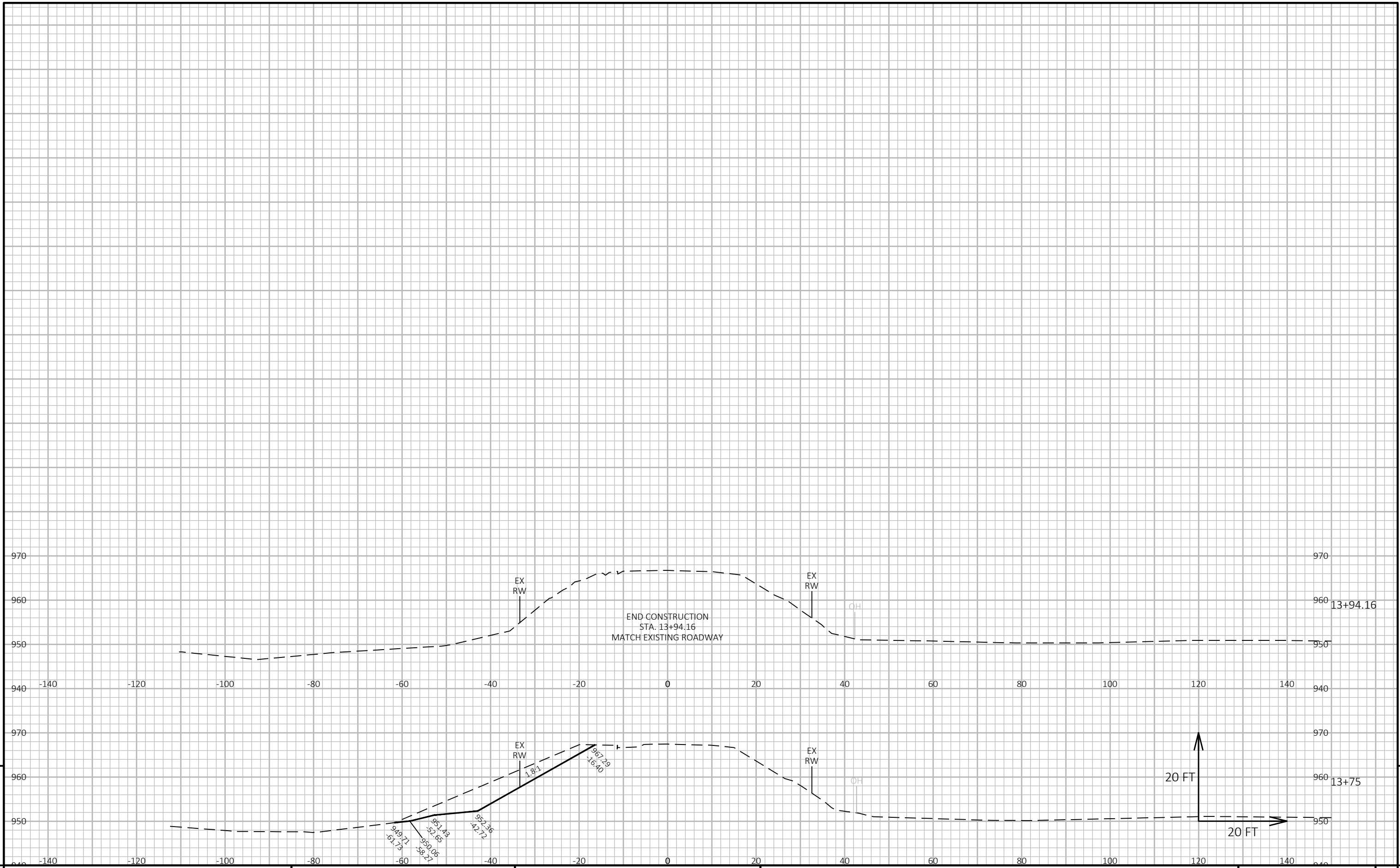
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E



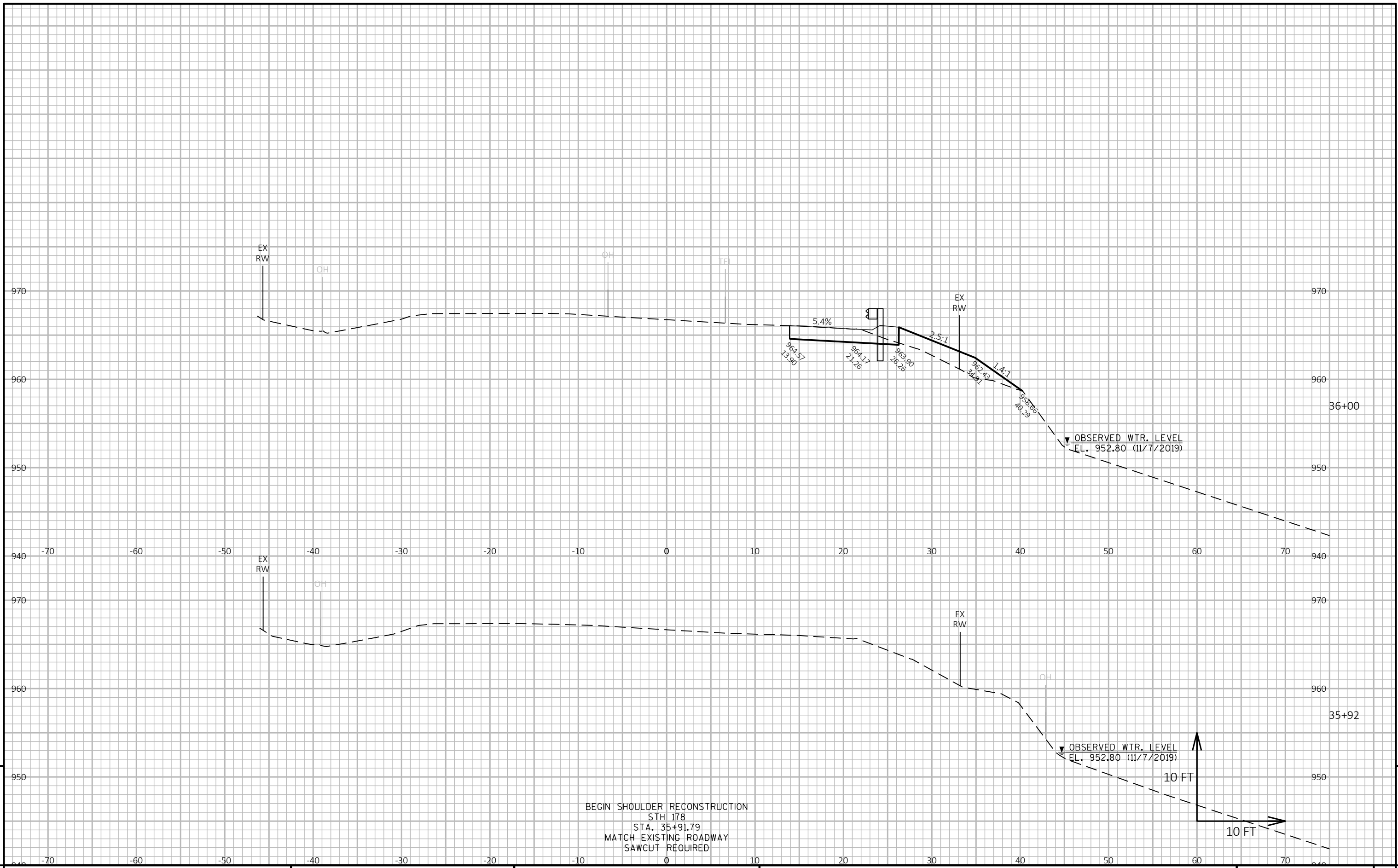
PROJECT NO: 8915-00-70 HWY: CTH TT COUNTY: CHIPPEWA CROSS SECTIONS: CTH TT (MAINLINE) - STAGES 2&3 SHEET 9



9

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PROJECT NO: 8915-00-70	HWY: CTH TT	COUNTY: CHIPPEWA	CROSS SECTIONS: CTH TT (MAINLINE) - STAGES 2&3	SHEET	E
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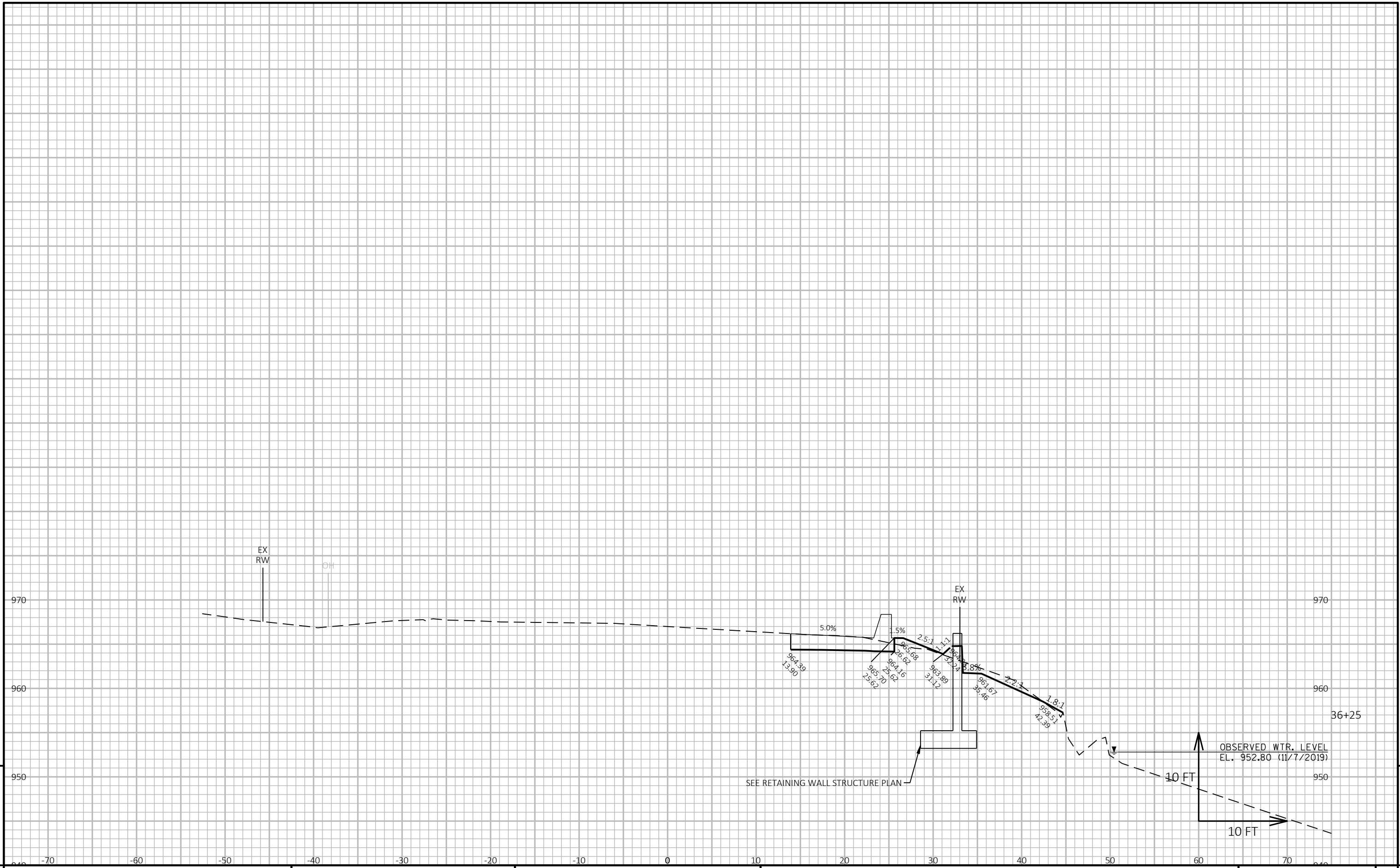


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PROJECT NO: 8915-00-70 HWY: CTH TT COUNTY: CHIPPEWA CROSS SECTIONS: STH 178 - STAGE 3 SHEET E

FILE NAME : C:\ONEDRIVE\AECOM DIRECTORY\60616990 - COBBAN BRIDGE - 0_RECORDS\900_CAD_GIS\910_CAD\89150101\SHEETS\PLAN\0902-XS-S3.DWG PLOT DATE : 5/28/2021 12:48 PM PLOT BY : DAY, JOHN PLOT NAME : PLOT SCALE : 1 IN:10 FT HORZ. / 1 IN:10 FT VERT. WISDOT/CADD SHEET 49



9

9

PROJECT NO: 8915-00-70 HWY: CTH TT COUNTY: CHIPPEWA CROSS SECTIONS: STH 178 - STAGE 3 SHEET E

FILE NAME: C:\ONEDRIVE\AECOM DIRECTORY\60616990 - COBBAN BRIDGE - 0_RECORDS\900_CAD_GIS\910_CAD\89150101\SHEETS\PLAN\0902-XS-S3.DWG PLOT DATE: 5/28/2021 12:48 PM PLOT BY: DAY, JOHN PLOT NAME: PLOT SCALE: 1 IN:10 FT HORZ. / 1 IN:10 FT VERT. WISDOT/CADD SHEET 49

LAYOUT NAME - 090210-xs



Wisconsin Department of Transportation

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