

EAU
PROJECT ID: 7313-00-70

FEBRUARY 2022

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 Plan
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 = 58



DESIGN DESIGNATION 7313-00-70

A.A.D.T.	2022	=	415
A.A.D.T.	2042	=	459
D.H.V.		=	57
D.D.		=	60/40
T		=	10%
DESIGN SPEED		=	55 MPH
ESALS		=	95,000

CONVENTIONAL SYMBOLS

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PLAN OF PROPOSED IMPROVEMENT

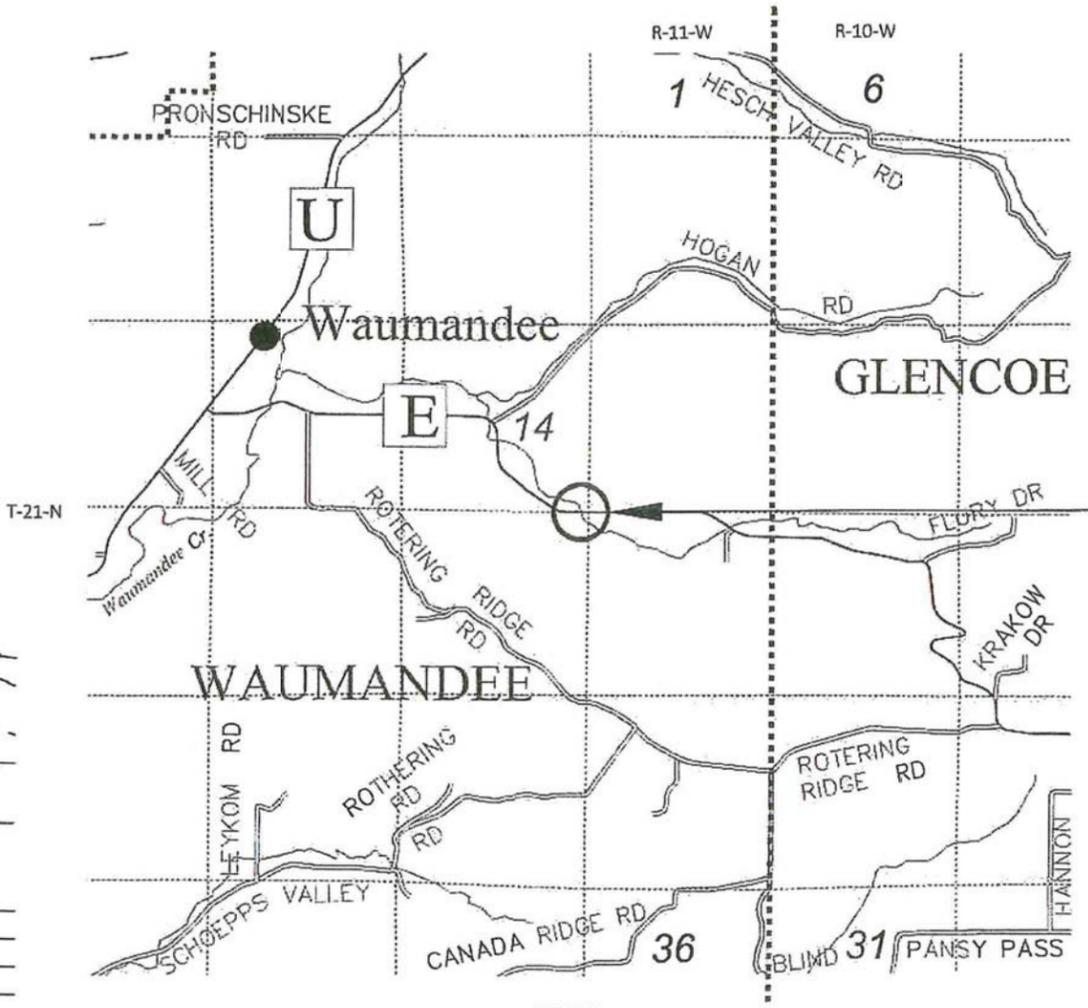
STH 88 - STH 95

BR WAUMANDEE CR BR B-06-0208

CTH E

BUFFALO COUNTY

STATE PROJECT NUMBER
7313-00-70



BEGIN CONSTRUCTION
STA 7+63.27

BEGIN PROJECT
STA 9+30.00
Y = 294808.7485
X = 608000.2120

STRUCTURE B-06-0208
STA 10+00.00

END PROJECT
STA 10+70.00
Y = 294806.3570
X = 608140.1915

END CONSTRUCTION
STA 12+67.14

STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
7313-00-70		

ACCEPTED FOR
COUNTY OF
BUFFALO
DATE: 10/27/21
Bl Platt
(Signature)
HW Commissioner
(Title)

ORIGINAL PLANS PREPARED BY
Cedar
corporation
MENOMONIE - MADISON - GREEN BAY - CEDARBURG
www.cedarcorp.com
800-472-7372

WISCONSIN
PROFESSIONAL ENGINEER
TROY L. PETERSON
E-31102
MENOMONIE
WI
10-26-21

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
PREPARED BY
Surveyor CEDAR CORPORATION
Designer CEDAR CORPORATION
Project Manager MATTHEW J. THORNSEN, P.E.
Regional Examiner TONY YANG, P.E.
Regional Supervisor TYLER RONGSTAD, P.E.

APPROVED FOR THE DEPARTMENT
DATE: 10/28/2021
[Signature]
(Signature)

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.

NO TREES OR SHRUBS ARE TO BE REMOVED UNLESS SUCH TREES OR SHRUBS HAVE FIRST BEEN INDICATED FOR REMOVAL BY THE ENGINEER IN THE FIELD.

THE 4" OF ASPHALTIC SURFACE SHALL BE CONSTRUCTED WITH A 2.0" LOWER LAYER AND A 2.0" UPPER LAYER.

BEARINGS REFERENCED TO THE WISCONSIN COUNTY COORDINATE SYSTEM (WCCS), BUFFALO COUNTY.

DISTURBED AREAS WITHIN THE RIGHT OF WAY ARE TO BE SALVAGED TOPSOIL, FERTILIZED, TEMPORARY SEEDED, AND COVERED WITH EROSION MAT.

WETLANDS ARE PRESENT WITHIN THE PROJECT LIMITS. DO NOT OPERATE EQUIPMENT OUTSIDE OF THE SLOPE INTERCEPTS. DO NOT STORE OR STOCKPILE MATERIALS IN WETLANDS

WHEN THE QUANTITY OF ITEM BASE LAYER OR SURFACE LAYER IS MEASURED FOR PAYMENT BY THE TON, THE THICKNESS OF THE MATERIAL THAT IS SHOWN ON THE PLANS IS APPROXIMATE AND THE ACTUAL THICKNESS WILL DEPEND ON THE DISTRIBUTION OF MATERIAL AS DIRECTED BY THE ENGINEER.

THE WISCONSIN DEPARTMENT OF TRANSPORTATION WILL FURNISH THE CONTRACTOR A MONUMENT WHICH SHALL BE SET IN THE STRUCTURE AS DESIGNATED BY ENGINEER.

STANDARD ABBREVIATIONS

ABUT	ABUTMENT	OFF	OFFSET
AGG	AGGREGATE	PC	POINT OF CURVATURE
ET AL	AND OTHERS	PI	POINT OF INTERSECTION
AADT	ANNUAL AVERAGE DAILY TRAFFIC	PT	POINT OF TANGENCY
BF	BACK FACE	POL	POINT ON LINE
BM	BENCHMARK	PE	PRIVATE ENTRANCE
C/L OR E	CENTERLINE	PL	PROPERTY LINE
Δ	CENTRAL ANGLE OR DELTA	PSI	POUNDS/SQUARE INCH
CLR	CLEAR	PROP	PROPOSED
CONC	CONCRETE	R	RADIUS
CONST	CONSTRUCTION	RR	RAILROAD
COR	CORNER	REBAR	REINFORCEMENT BAR
CMP	CORRUGATED METAL PIPE	REQ'D	REQUIRED
CTH	COUNTY TRUNK HIGHWAY	RT	RIGHT
CR	CREEK	RHF	RIGHT-HAND FORWARD
CFS	CUBIC FEET/SECOND	R/W	RIGHT-OF-WAY
CULV	CULVERT	RD	ROAD
D	DEGREE OF CURVE	SEC	SECTION
DHV	DESIGN HOUR VOLUME	S	SOUTH
DIA	DIAMETER	SE	SOUTHEAST
E	EAST	SW	SOUTHWEST
EL	ELEVATION	STH	STATE TRUNK HIGHWAY
EST	ESTIMATED	STA	STATION
FPS	FEET PER SECOND	SE	SUPER ELEVATION
FE	FIELD ENTRANCE	T	TANGENT
FT	FOOT (FEET)	TEL	TELEPHONE
FTG	FOOTING	TEMP	TEMPORARY
FDN	FOUNDATION	TI	TEMPORARY INTEREST
FF	FRONT FACE	TLE	TEMPORARY LIMITED EASEMENT
IP	IRON PIN	TL OR T/L	TRANSIT LINE
LT	LEFT	T	TRUCKS
LHF	LEFT-HAND FORWARD	TYP	TYPICAL
L	LENGTH OF CURVE	U/G	UNDERGROUND
LF	LINEAR FOOT	USH	UNITED STATES HIGHWAY
MAX	MAXIMUM	VAR	VARIABLE
MI	MILE	V	VELOCITY
MIN	MINIMUM	VPC	VERTICAL POINT OF CURVATURE
NC	NORMAL CROWN	VPI	VERTICAL POINT OF INTERSECTION
N	NORTH	VPT	VERTICAL POINT OF TANGENCY
NE	NORTHEAST	W	WEST
NW	NORTHWEST	YB	YARD
NO	NUMBER		

DNR CONTACT

DNR WEST CENTRAL REGION HEADQUARTERS
 1300 WEST CLAIREMONT AVENUE
 EAU CLAIRE, WI 54701-5108
 ATTN: AMY L. LESIK
 PH: (715) 836-6571
 EMAIL: AmyL.Lesik@wisconsin.gov

DESIGN CONSULTANT CONTACT

CEDAR CORPORATION
 604 WILSON AVENUE
 MENOMONIE, WI 54751
 ATTN: TROY L. PETERSON, P.E.
 PH: (715) 235-9081
 EMAIL: troy.peterson@cedarcorp.com

MUNICIPALITY

BUFFALO COUNTY HIGHWAY DEPARTMENT
 51677 STH 37
 ALMA, WI 54610
 ATTN: BOB PLATTETER, HIGHWAY COMMISSIONER
 PH: (608) 685-6226
 EMAIL: bob.platteter@co.buffalo.wi.us

UTILITY CONTACTS

COMMUNICATION
 LUMEN (CENTURYLINK)
 333 N. FRONT ST. / P.O. BOX 4800
 LA CROSSE, WI 54601
 ATTN: BRIAN STEPLUGH
 PH: (608) 780-1238
 EMAIL: brian.stelplugh@lumen.com

ELECTRIC
 XCEL ENERGY
 320 HELLER ROAD
 MENOMONIE, WI 54751
 ATTN: MEGAN BOLDIG, DESIGNER
 PH: (715) 232-7412
 EMAIL: megan.m.boldig@xcelenergy.com



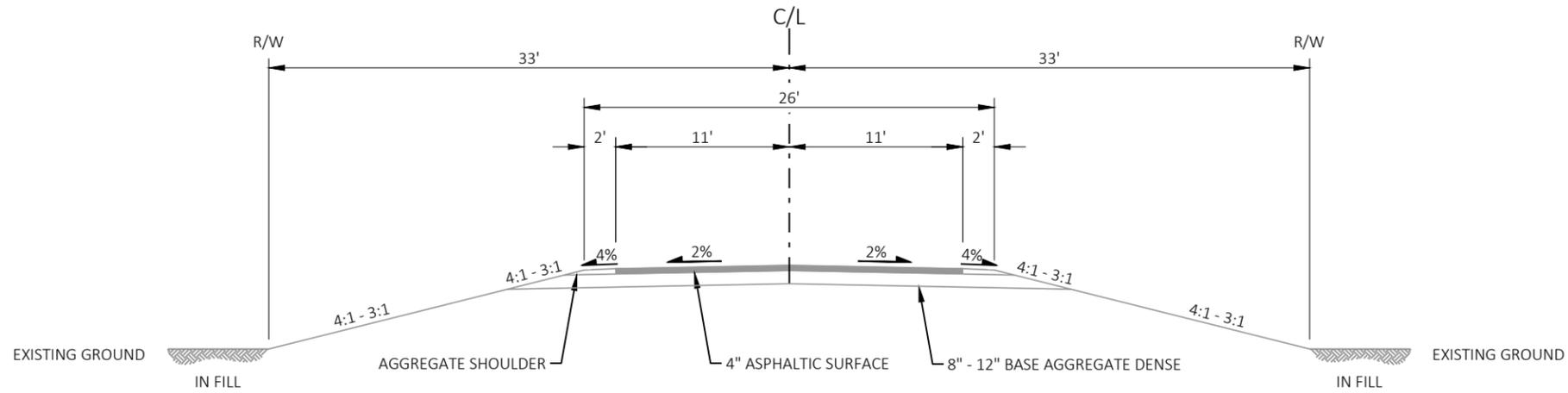
RUNOFF COEFFICIENT TABLE

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

TOTAL PROJECT AREA = 0.77 ACRES
 TOTAL AREA EXPECTED TO BE DISTURBED BY CONSTRUCTION ACTIVITIES = 0.58 ACRES

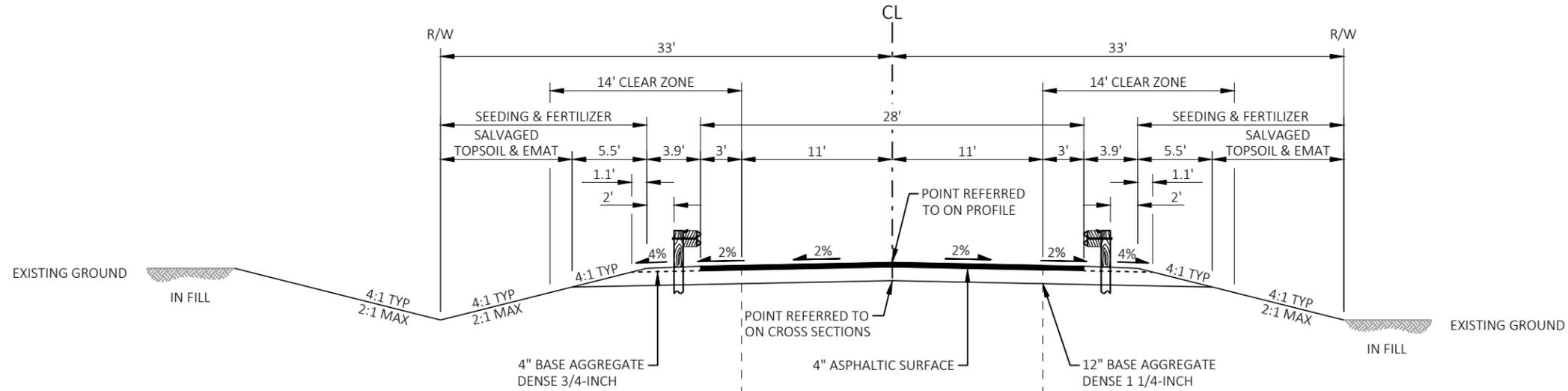
LEGEND

-  EXISTING ASPHALTIC SURFACE
-  EXISTING BASE AGGREGATE DENSE
-  EXISTING GROUND
-  PROPOSED ASPHALTIC SURFACE
-  PROPOSED BASE AGGREGATE DENSE 3/4-INCH



EXISTING TYPICAL SECTION - CTH E

STA 9+30.00 TO STA 10+70.00



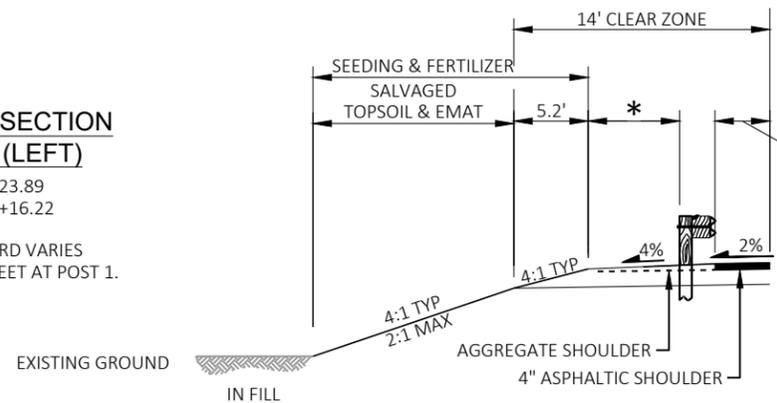
PROPOSED TYPICAL SECTION - CTH E

STA 9+30.00 TO STA 9+78.67
STA 10+21.33 TO STA 10+70.00

PROPOSED TYPICAL SECTION AT TERMINAL END (LEFT)

STA 8+74.01 TO STA 9+23.89
STA 10+66.22 TO STA 11+16.22

* SHOULDER BEHIND BEAM GUARD VARIES FROM 2 FEET AT POST 9 TO 5 FEET AT POST 1.



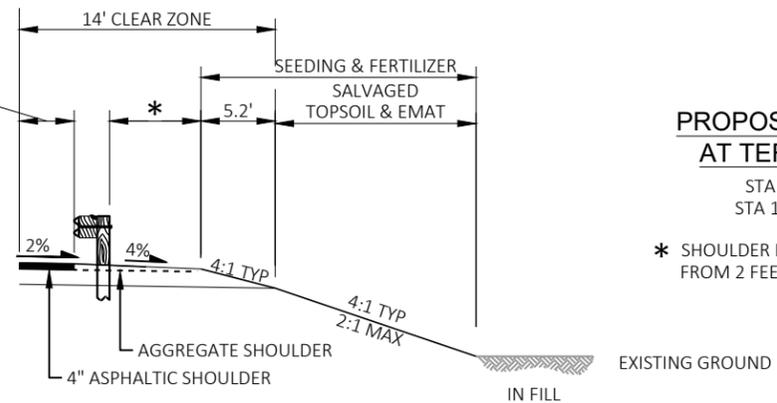
PAVED SHOULDER VARIES FROM 3' AT EAT TO 5' AT TERMINAL END

PAVED SHOULDER VARIES FROM 3' AT EAT TO 5' AT TERMINAL END

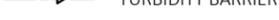
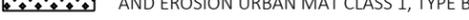
PROPOSED TYPICAL SECTION AT TERMINAL END (RIGHT)

STA 8+83.53 TO STA 9+33.72
STA 10+76.23 TO STA 11+26.23

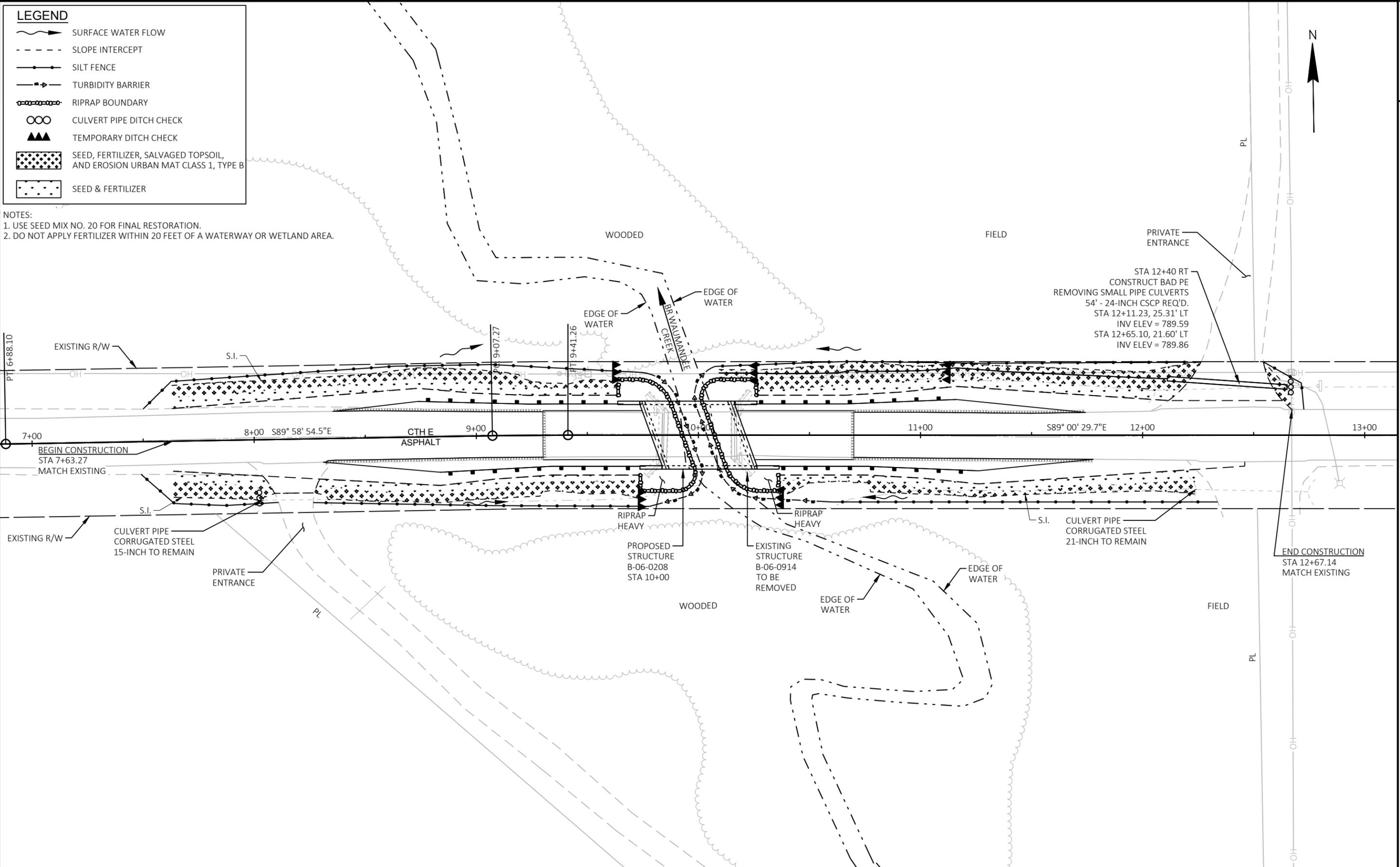
* SHOULDER BEHIND BEAM GUARD VARIES FROM 2 FEET AT POST 9 TO 5 FEET AT POST 1.



LEGEND

-  SURFACE WATER FLOW
-  SLOPE INTERCEPT
-  SILT FENCE
-  TURBIDITY BARRIER
-  RIPRAP BOUNDARY
-  CULVERT PIPE DITCH CHECK
-  TEMPORARY DITCH CHECK
-  SEED, FERTILIZER, SALVAGED TOPSOIL, AND EROSION URBAN MAT CLASS 1, TYPE B
-  SEED & FERTILIZER

NOTES:
 1. USE SEED MIX NO. 20 FOR FINAL RESTORATION.
 2. DO NOT APPLY FERTILIZER WITHIN 20 FEET OF A WATERWAY OR WETLAND AREA.



Estimate Of Quantities

7313-00-70

Line	Item	Item Description	Unit	Total	Qty
0002	203.0100	Removing Small Pipe Culverts	EACH	1.000	1.000
0004	203.0260	Removing Structure Over Waterway Minimal Debris (structure) 01. B-06-0941	EACH	1.000	1.000
0006	205.0100	Excavation Common	CY	286.000	286.000
0008	206.1000	Excavation for Structures Bridges (structure) 01. B-06-0208	LS	1.000	1.000
0010	210.1500	Backfill Structure Type A	TON	240.000	240.000
0012	213.0100	Finishing Roadway (project) 01. 7313-00-70	EACH	1.000	1.000
0014	305.0110	Base Aggregate Dense 3/4-Inch	TON	106.000	106.000
0016	305.0120	Base Aggregate Dense 1 1/4-Inch	TON	597.000	597.000
0018	455.0605	Tack Coat	GAL	33.000	33.000
0020	465.0105	Asphaltic Surface	TON	109.000	109.000
0022	502.0100	Concrete Masonry Bridges	CY	154.000	154.000
0024	502.3200	Protective Surface Treatment	SY	187.000	187.000
0026	505.0400	Bar Steel Reinforcement HS Structures	LB	3,540.000	3,540.000
0028	505.0600	Bar Steel Reinforcement HS Coated Structures	LB	19,950.000	19,950.000
0030	513.4061	Railing Tubular Type M	LF	130.000	130.000
0032	516.0500	Rubberized Membrane Waterproofing	SY	18.000	18.000
0034	521.3124	Culvert Pipe Corrugated Steel 24-Inch	LF	54.000	54.000
0036	550.1100	Piling Steel HP 10-Inch X 42 Lb	LF	500.000	500.000
0038	606.0300	Riprap Heavy	CY	140.000	140.000
0040	612.0406	Pipe Underdrain Wrapped 6-Inch	LF	170.000	170.000
0042	614.2500	MGS Thrie Beam Transition	LF	157.600	157.600
0044	614.2610	MGS Guardrail Terminal EAT	EACH	4.000	4.000
0046	618.0100	Maintenance And Repair of Haul Roads (project) 01. 7313-00-70	EACH	1.000	1.000
0048	619.1000	Mobilization	EACH	1.000	1.000
0050	624.0100	Water	MGAL	11.000	11.000
0052	625.0500	Salvaged Topsoil	SY	494.000	494.000
0054	628.1504	Silt Fence	LF	957.000	957.000
0056	628.1520	Silt Fence Maintenance	LF	957.000	957.000
0058	628.1905	Mobilizations Erosion Control	EACH	3.000	3.000
0060	628.1910	Mobilizations Emergency Erosion Control	EACH	3.000	3.000
0062	628.2008	Erosion Mat Urban Class I Type B	SY	494.000	494.000
0064	628.6005	Turbidity Barriers	SY	235.000	235.000
0066	628.7504	Temporary Ditch Checks	LF	70.000	70.000
0068	628.7555	Culvert Pipe Checks	EACH	21.000	21.000
0070	629.0210	Fertilizer Type B	CWT	0.560	0.560
0072	630.0120	Seeding Mixture No. 20	LB	24.000	24.000
0074	630.0200	Seeding Temporary	LB	24.000	24.000
0076	630.0500	Seed Water	MGAL	10.000	10.000
0078	634.0612	Posts Wood 4x6-Inch X 12-FT	EACH	4.000	4.000
0080	637.2230	Signs Type II Reflective F	SF	12.000	12.000
0082	638.2602	Removing Signs Type II	EACH	4.000	4.000
0084	638.3000	Removing Small Sign Supports	EACH	4.000	4.000
0086	642.5001	Field Office Type B	EACH	1.000	1.000
0088	643.0420	Traffic Control Barricades Type III	DAY	1,008.000	1,008.000
0090	643.0705	Traffic Control Warning Lights Type A	DAY	1,568.000	1,568.000
0092	643.0900	Traffic Control Signs	DAY	910.000	910.000
0094	643.5000	Traffic Control	EACH	1.000	1.000
0096	645.0111	Geotextile Type DF Schedule A	SY	62.000	62.000
0098	645.0120	Geotextile Type HR	SY	260.000	260.000

Estimate Of Quantities

7313-00-70

Line	Item	Item Description	Unit	Total	Qty
0100	650.4500	Construction Staking Subgrade	LF	100.000	100.000
0102	650.5000	Construction Staking Base	LF	100.000	100.000
0104	650.6500	Construction Staking Structure Layout (structure) 01. B-06-0208	LS	1.000	1.000
0106	650.9910	Construction Staking Supplemental Control (project) 01. 7313-00-70	LS	1.000	1.000
0108	650.9920	Construction Staking Slope Stakes	LF	451.000	451.000
0110	690.0150	Sawing Asphalt	LF	445.000	445.000
0112	715.0502	Incentive Strength Concrete Structures	DOL	920.000	920.000
0114	999.2000.S	Installing and Maintaining Bird Deterrent System (station) 01. 10+00	EACH	1.000	1.000
0116	SPV.0090	Special 01. Flashing Stainless Steel	LF	85.000	85.000

3

3

CULVERTS

CATEGORY	STATION	TO	STATION	LOCATION	203.0100	521.3124	REMARKS
					REMOVING SMALL PIPE CULVERTS EACH	CULVERT PIPE CORRUGATED STEEL 24-INCH LF	
0010	12+11.23, 25.31' LT	-	12+65.10, 21.60' LT	PRIVATE ENTRANCE	1	54	
TOTAL 0010					1	54	

DIVISION	FROM/TO STATION	LOCATION	205.0100 COMMON EXCAVATION (1)		AVAILABLE MATERIAL (5)	UNEXPANDED FILL	EXPANDED FILL (13)	MASS ORDINATE +/- (14)	WASTE (15)
			CUT (2)	EBS EXCAVATION (3)			FACTOR X1.25		
DIVISION 1									
	7+63.27 - 9+73.67	CTH E (West)	141	0	141	66	83	59	59
	10+26.33 - 12+62.99	CTH E (East)	145	0	145	42	53	93	93
DIVISION 1 SUBTOTAL			286	0	286	108	135	151	
GRAND TOTAL			286	0	286	108	135	151	151
TOTAL COMMON EXC			286						

NOTES:

- (1) COMMON EXCAVATION IS THE SUM OF THE CUT AND EBS EXCAVATION COLUMNS. ITEM NUMBER 205.0100
- (2) SALVAGED/UNSUALE PAVEMENT MATERIAL IS INCLUDED IN CUT.
- (5) AVAILABLE MATERIAL = CUT - SALVAGED/UNUSUALE PAVEMENT MATERIAL
- (13) EXPANDED FILL FACTOR = 1.25
- (14) 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 D
- (15) FACTORS USED TO COMPUTE ANTICIPATED WASTE AND THE COMPUTED WASTE VOLUME IDENTIFIED ARE FOR GENERAL INFORMATION ONLY.

BASE AGGREGATES

CATEGORY	STATION	TO	STATION	LOCATION	305.0110	305.0120	624.0100
					BASE AGGREGATE DENSE 3/4-INCH TON	BASE AGGREGATE DENSE 1 1/4- INCH TON	WATER MGAL
0010	7+63.27	-	9+30	LT & RT SHOULDER	45	169	3
0010	9+30	-	9+83.67	MAINLINE & SHOULDERS	7	98	2
0010	10+16.33	-	10+70	MAINLINE & SHOULDERS	7	97	2
0010	10+70	-	12+67.14	LT & RT SHOULDERS	47	181	3
0010			12+40	LT DRIVEWAY	0	52	1
TOTAL 0010					106	597	11

PROJECT NO: 7313-00-70

HWY: CTH E

COUNTY: BUFFALO

MISCELLANEOUS QUANTITIES

SHEET

E

ASPHALTIC SURFACE

CATEGORY	STATION	TO	STATION	LOCATION	455.0605 TACK COAT GAL	465.0105 ASPHALTIC SURFACE TON	690.0150 SAWING ASPHALT LF
0010	8+32	-	9+30	RT SHOULDER	3	11	98
0010	8+36	-	9+30	LT SHOULDER	2	8	95
0010	9+30	-	9+30	CTH E MATCH	-	-	20
0010	9+30	-	9+84	MAINLINE	11	35	-
0010	10+16	-	10+70	MAINLINE	11	35	-
0010	10+70	-	10+70	CTH E MATCH	-	-	20
0010	10+70	-	11+74	LT SHOULDER	3	10	104
0010	10+70	-	11+78	RT SHOULDER	3	10	108
TOTAL 0010					33	109	445

GUARDRAIL

CATEGORY	STATION	TO	STATION	LOCATION	614.2500 MGS THRIE BEAM TRANSITION LF	614.2610 MGS GUARDRAIL TERMINAL EAT EACH
0010	8+74	-	9+66	LT	39.4	1
0010	8+84	-	9+76	RT	39.4	1
0010	10+24	-	11+16	LT	39.4	1
0010	10+34	-	11+26	RT	39.4	1
TOTAL 0010					157.6	4

RESTORATION

CATEGORY	STATION	TO	STATION	LOCATION	625.0500 SALVAGED TOPSOIL SY	628.2008 EROSION MAT URBAN CLASS I TYPE B SY	629.0210 FERTILIZER TYPE B CWT	630.0120 SEEDING MIXTURE NO. 20 LB	630.0200 SEEDING TEMPORARY LB	630.0500 SEED WATER MGAL
0010	7+63.27	-	9+73.67	CTH E	206	206	0.19	8	8	3
0010	10+09.26	-	12+67.14	CTH E	243	243	0.26	11	11	5
0010				UNDISTRIBUTED	45	45	0.11	5	5	2
TOTAL 0010					494	494	0.56	24	24	10

EROSION CONTROL

CATEGORY	STATION	TO	STATION	LOCATION	628.1504 SILT FENCE LF	628.1520 SILT FENCE MAINTENANCE LF	628.1905 EROSION CONTROL EACH	628.1910 MOBILIZATIONS EROSION CONTROL EACH	628.6005 TURBIDITY BARRIERS SY	628.7504 TEMPORARY DITCH CHECKS LF	628.7555 CULVERT PIPE CHECKS EACH
0010	7+63.27	-	10+00	CTH E	446	446	1	1	106	20	7
0010	10+00	-	12+67.14	CTH E	424	424	1	1	129	30	7
0010				UNDISTRIBUTED	87	87	1	1	-	20	7
TOTAL 0010					957	957	3	3	235	70	21

3

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TYPE II SIGNS

REMOVING SIGNS

CATEGORY	STATION	LOCATION	SIGN NUMBER	SIGN CODE	SIZE	634.0612 POSTS WOOD 4X6-INCH X 12- FT		REMARKS	CATEGORY	STATION	LOCATION	SIGN NUMBER	638.2602 REMOVING SIGNS TYPE II		638.3000 REMOVING SMALL SIGN SUPPORTS		REMARKS
						EACH	SF						EACH	EACH			
0010	9+64	LT	1	W5-52L	12X36	1	3.0	BRIDGE HASH MARKS	0010	9+82	LT	1R	1	1		BRIDGE HASH MARKS	
0010	9+74	RT	2	W5-52R	12X36	1	3.0	BRIDGE HASH MARKS	0010	9+83	RT	2R	1	1		BRIDGE HASH MARKS	
0010	10+26	LT	3	W5-52R	12X36	1	3.0	BRIDGE HASH MARKS	0010	10+18	RT	3R	1	1		BRIDGE HASH MARKS	
0010	10+36	RT	4	W5-52L	12X36	1	3.0	BRIDGE HASH MARKS	0010	10+18	LT	4R	1	1		BRIDGE HASH MARKS	
TOTAL 0010						4	12.0		TOTAL 0010						4	4	

TRAFFIC CONTROL

CATEGORY	LOCATION	643.0420 TRAFFIC CONTROL BARRICADES TYPE III		643.0705 TRAFFIC CONTROL WARNING LIGHTS TYPE A		643.0900 TRAFFIC CONTROL SIGNS		643.5000 TRAFFIC CONTROL		REMARKS
		DAY	DAY	DAY	DAY	EACH	EACH			
0010	7-DAY ADVANCED WARNING	-	-	14	-	(2) G20-57 - CTH E, ROAD WORK, BEGINS XXX-XX				
0010	PROJECT	1,008	1,568	896	1					
TOTAL 0010		1,008	1,568	910	1					

STAKING

CATEGORY	STATION	TO	STATION	LOCATION	650.4500 CONSTRUCTION STAKING SUBGRADE		650.5000 CONSTRUCTION STAKING BASE		650.6500.01 CONSTRUCTION STAKING STRUCTURE LAYOUT (STRUCTURE) (01. B-06-0208)		650.9910.01 CONSTRUCTION STAKING SUPPLEMENTAL CONTROL (PROJECT) (01. 7313-00-70)		650.9920 CONSTRUCTION STAKING SLOPE STAKES	
					LF	LF	LS	LS	LF	LF				
0010	7+63.27	-	9+73.67	CTH E	50	50	-	-	-	-	-	-	-	210
0010	10+26.33	-	12+67.14	CTH E	50	50	-	-	-	-	-	-	-	241
0010				PROJECT							1			
TOTAL 0010					100	100	0	1	1	1	1	1	1	451
0020				B-06-0208	-	-	-	-	1	-	-	-	-	-
TOTAL 0020					0	0	0	0	1	0	0	0	0	0
PROJECT TOTAL					100	100	0	1	1	1	1	1	1	451

PROJECT NO: 7313-00-70

HWY: CTH E

COUNTY: BUFFALO

MISCELLANEOUS QUANTITIES

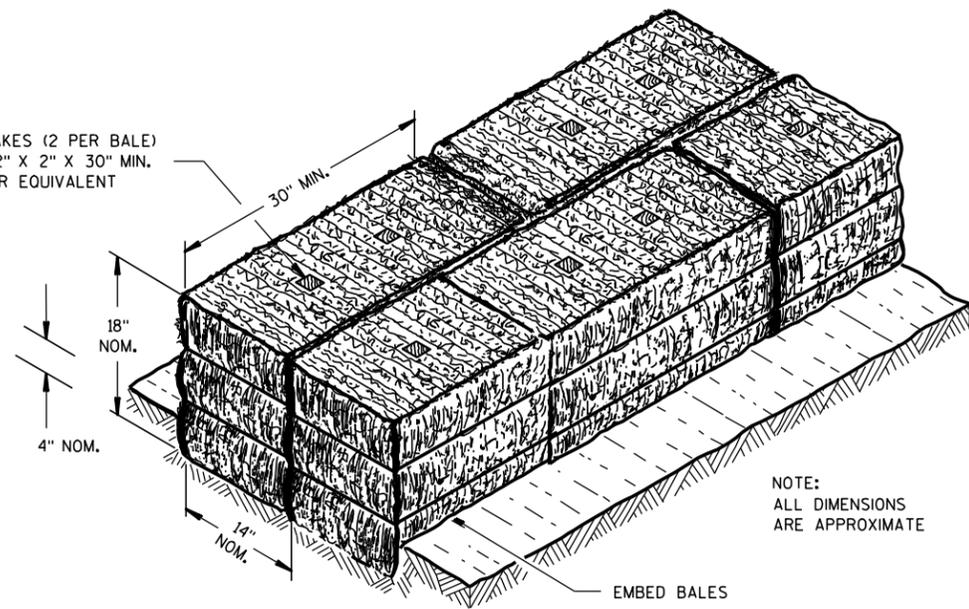
SHEET

E

Standard Detail Drawing List

08E08-03	TYPICAL INSTALLATIONS OF EROSION BALES / TEMPORARY DITCH CHECKS
08E09-06	SILT FENCE
08E11-02	TURBIDITY BARRIER
08E15-01	CULVERT PIPE CHECK
12A03-10	NAME PLATE (STRUCTURES)
14B42-07A	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-07B	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-07C	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-07D	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B44-04A	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B44-04B	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B44-04C	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B45-05A	MIDWEST GUARDRAIL SYSTEM THREE BEAM TRANSITION (MGS)
14B45-05B	MIDWEST GUARDRAIL SYSTEM THREE BEAM TRANSITION (MGS)
14B45-05C	MIDWEST GUARDRAIL SYSTEM THREE BEAM TRANSITION (MGS)
14B45-05D	MIDWEST GUARDRAIL SYSTEM THREE BEAM TRANSITION (MGS)
15C02-08A	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C02-08B	BARRICADES AND SIGNS FOR VARIOUS CLOSURES
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

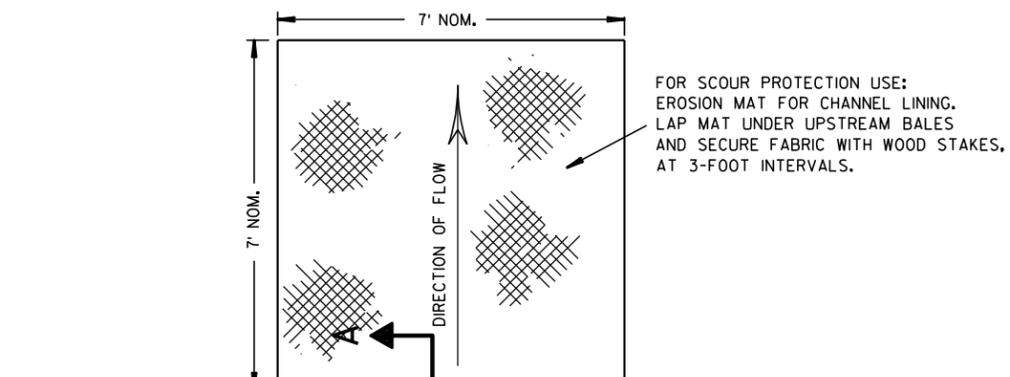
WOOD STAKES (2 PER BALE)
NOMINAL 2" X 2" X 30" MIN.
LENGTH OR EQUIVALENT



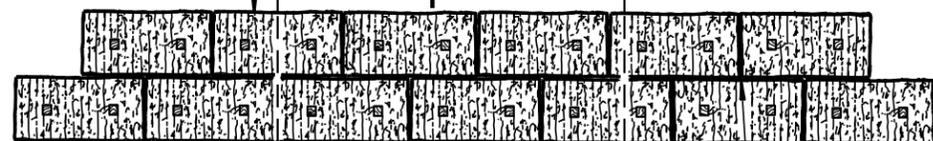
NOTE:
ALL DIMENSIONS
ARE APPROXIMATE

EMBED BALES

SECTION A-A



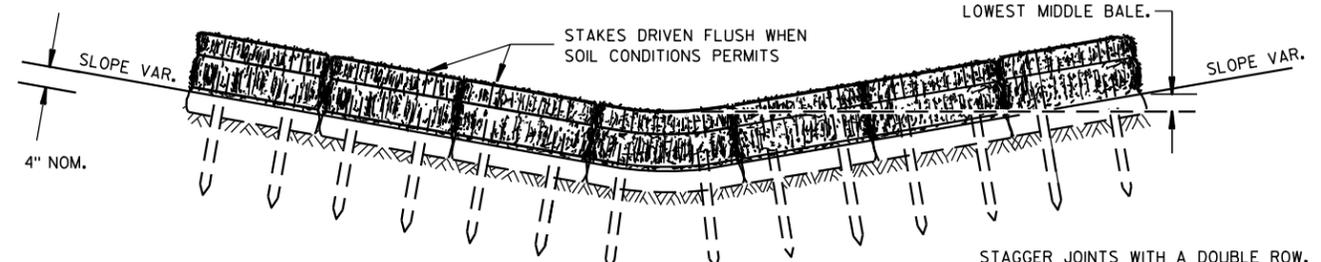
FOR SCOUR PROTECTION USE:
EROSION MAT FOR CHANNEL LINING.
LAP MAT UNDER UPSTREAM BALES
AND SECURE FABRIC WITH WOOD STAKES,
AT 3-FOOT INTERVALS.



STAGGER JOINTS BETWEEN ADJACENT
ROWS OF BALES.

PLAN VIEW

BOTTOM ELEVATION OF END BALE SHALL
BE EQUAL TO OR GREATER THAN TOP OF
LOWEST MIDDLE BALE.



FRONT ELEVATION

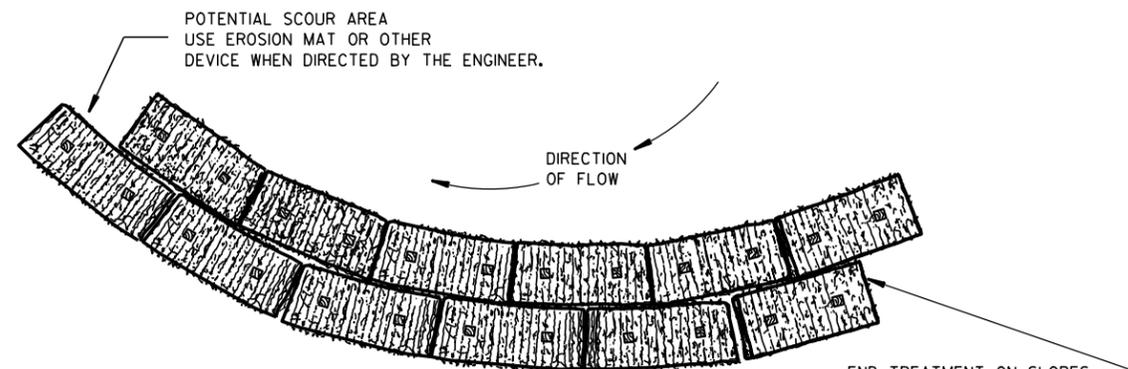
STAGGER JOINTS WITH A DOUBLE ROW.

TEMPORARY DITCH CHECK USING EROSION BALES ①

GENERAL NOTES

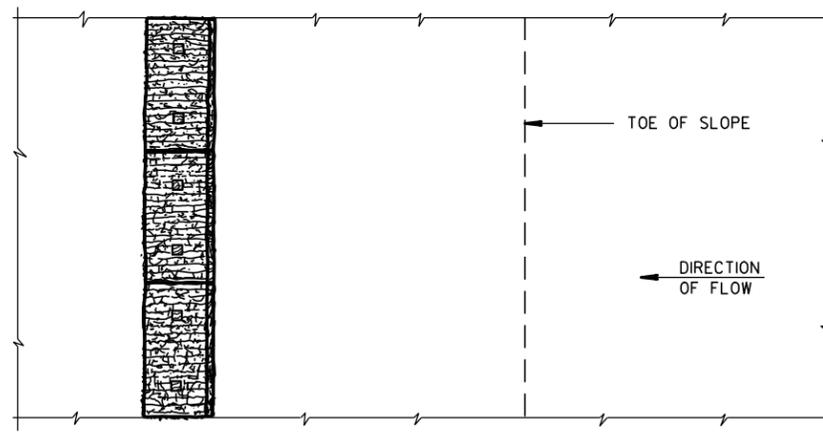
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

- ① TEMPORARY DITCH CHECKS EITHER EROSION BALES OR MANUFACTURED SHALL BE PAID FOR UNDER THE BID ITEM OF TEMPORARY DITCH CHECK. THE DEPARTMENT WILL NOT PAY FOR TEMPORARY DITCH CHECKS CONSTRUCTED OF A SINGLE ROW OF EROSION BALES.

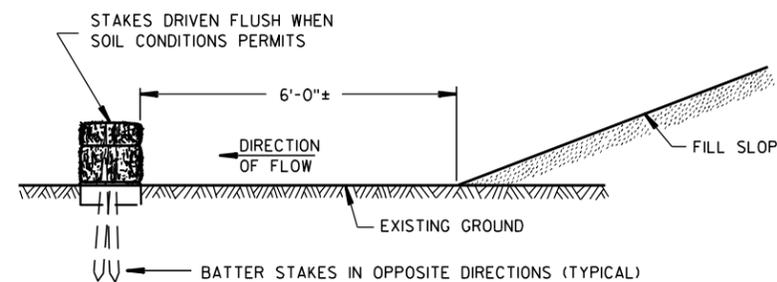


PLAN VIEW

WHEN ALTERING THE DIRECTION OF FLOW



PLAN VIEW



FRONT ELEVATION

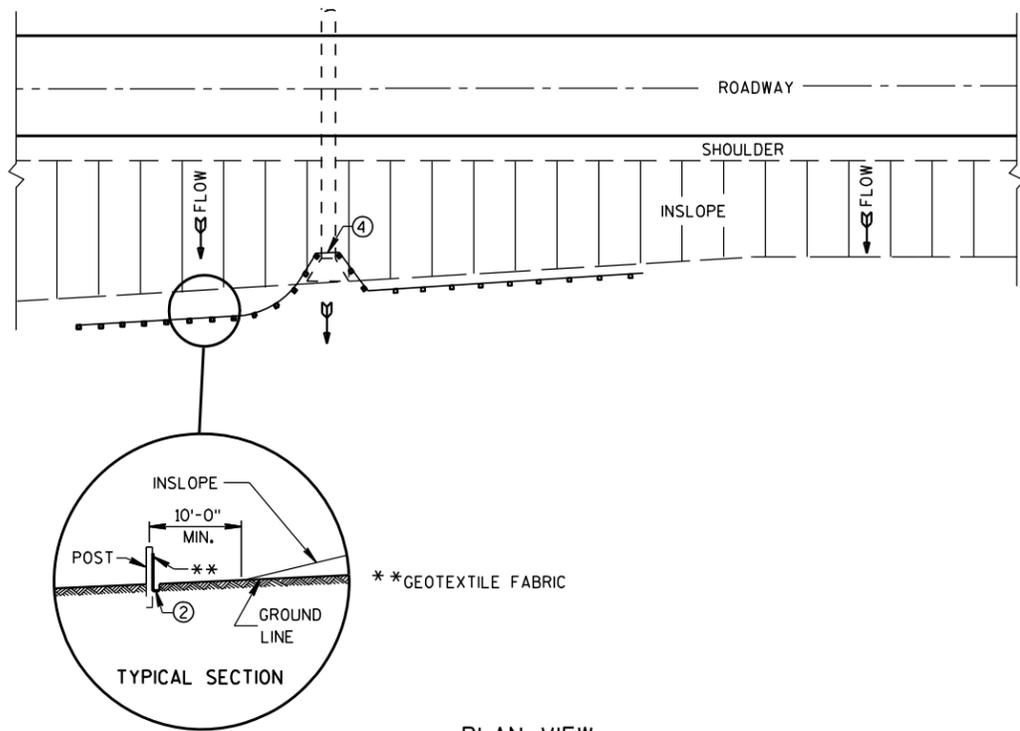
WHEN EXISTING GROUND SLOPES AWAY FROM FILL SLOPE

EROSION BALES FOR SHEET FLOW

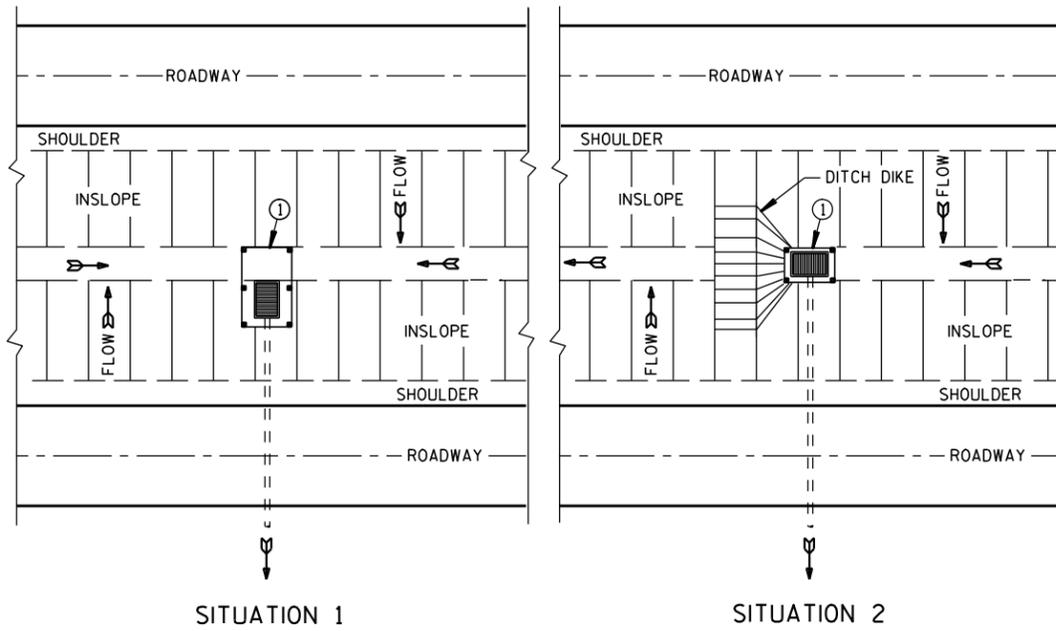
TYPICAL INSTALLATIONS OF
EROSION BALES / TEMPORARY
DITCH CHECKS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
 6/04/02 /S/ Beth Canestra
 DATE CHIEF ROADWAY DEVELOPMENT ENGINEER
 FHWA



PLAN VIEW
TYPICAL APPLICATION OF SILT FENCE

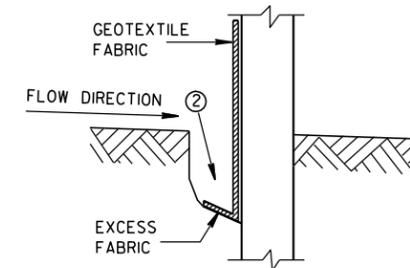


SITUATION 1 SITUATION 2
PLAN VIEW
SILT FENCE AT MEDIAN SURFACE DRAINS

GENERAL NOTES

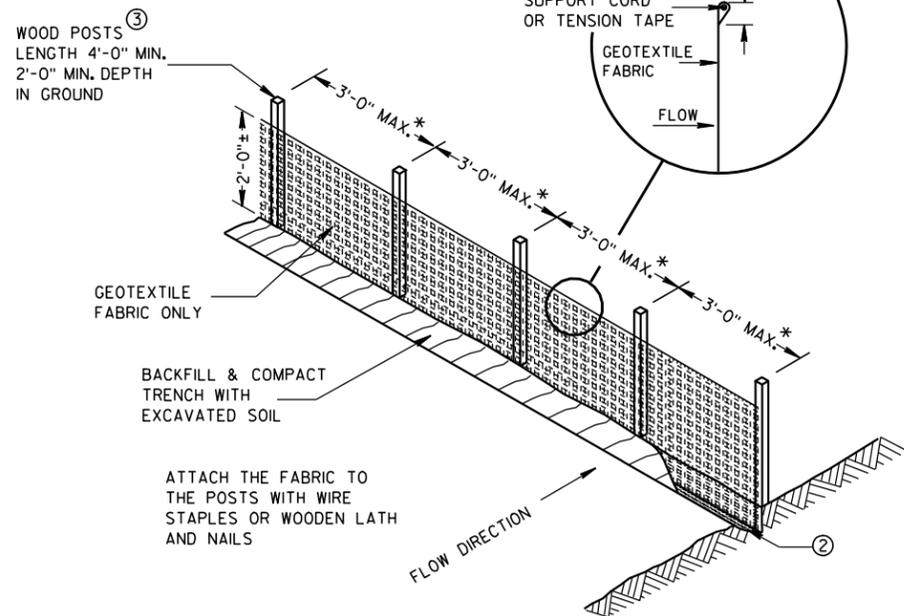
DETAILS OF CONSTRUCTION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.

- 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.



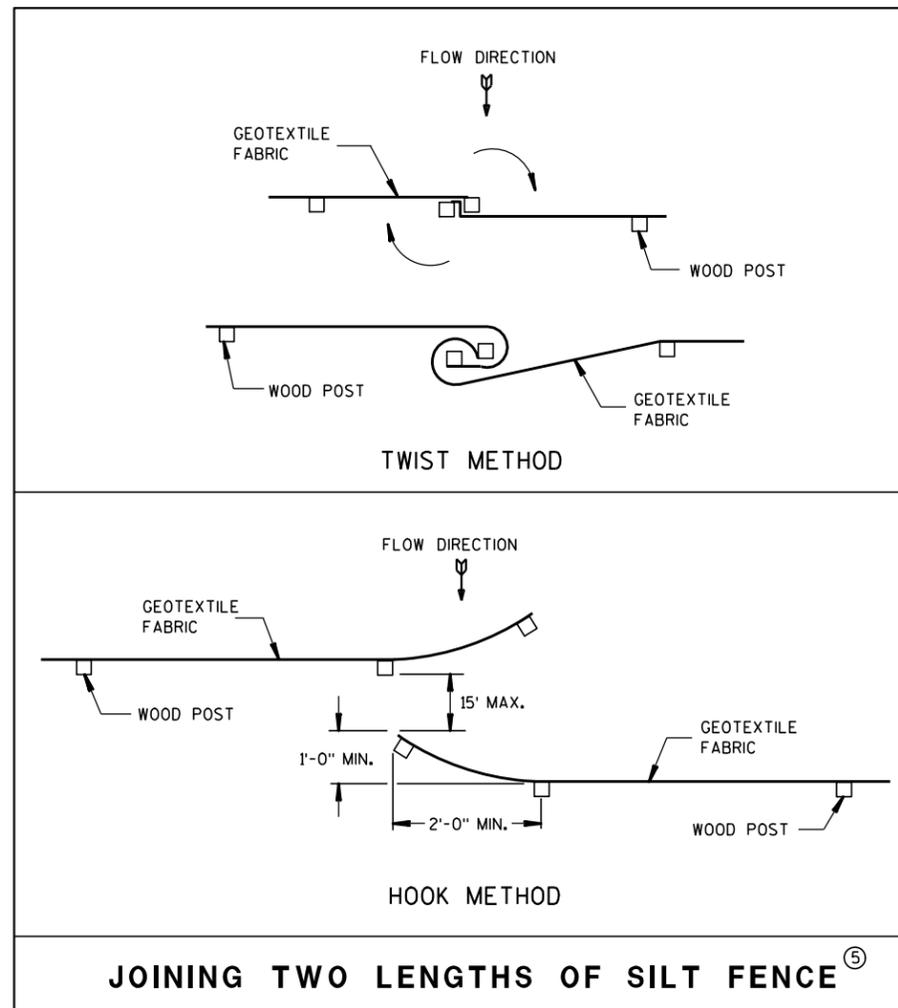
TRENCH DETAIL

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

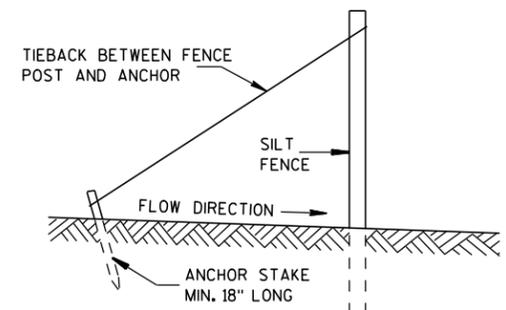


SILT FENCE

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



JOINING TWO LENGTHS OF SILT FENCE ⑤

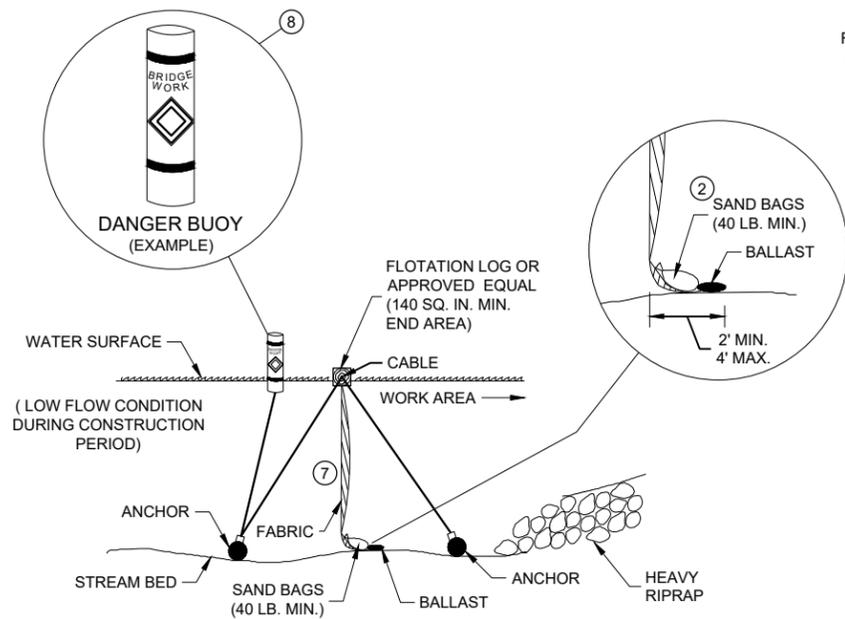


SILT FENCE TIE BACK
(WHEN REQUIRED BY THE ENGINEER)

SILT FENCE

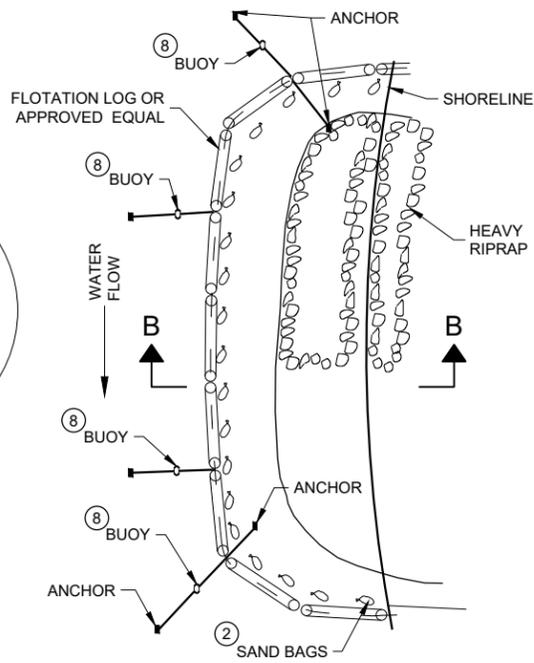
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

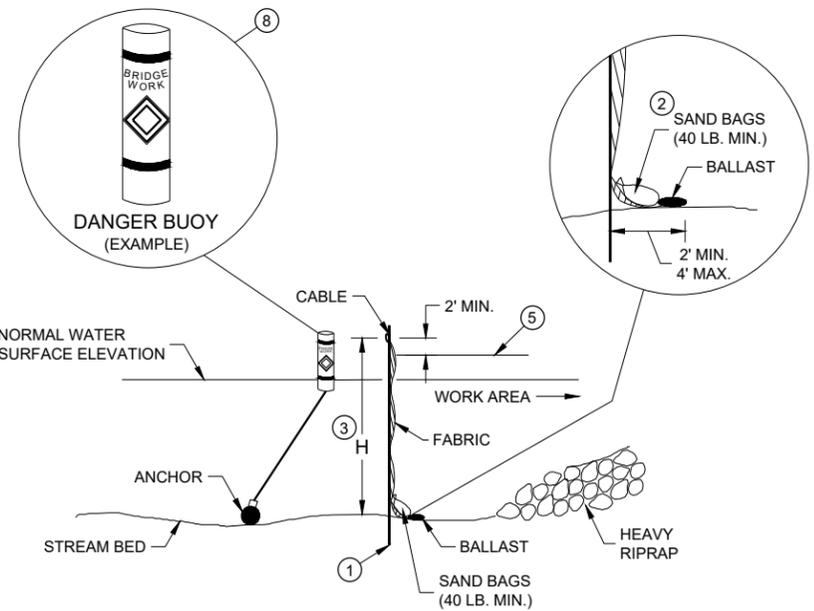


SECTION B - B

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

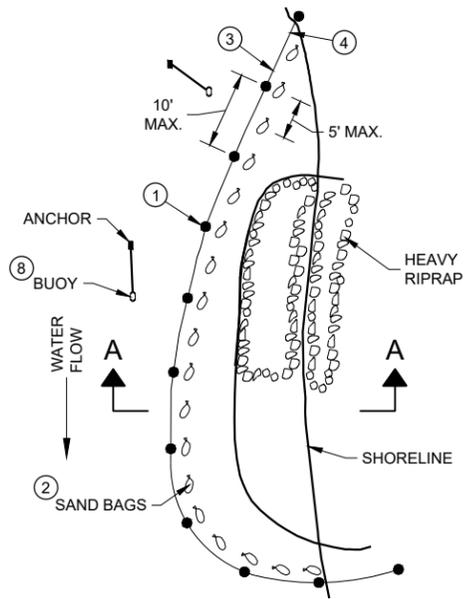


PLAN VIEW



SECTION A - A

TURBIDITY BARRIER - STANDARD POST INSTALLATION



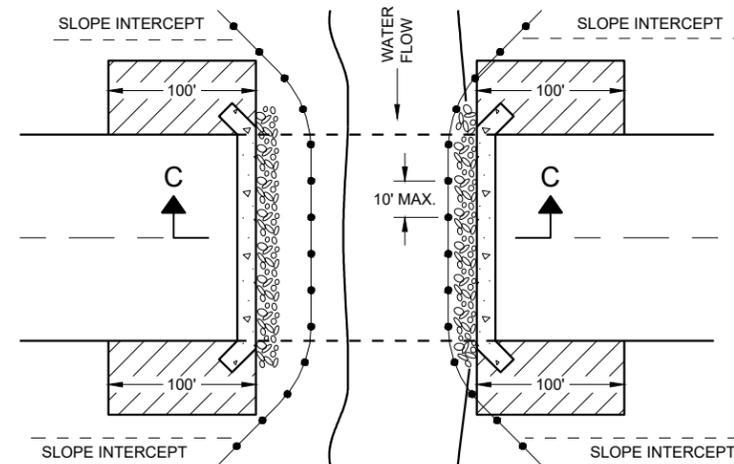
PLAN VIEW

GENERAL NOTES

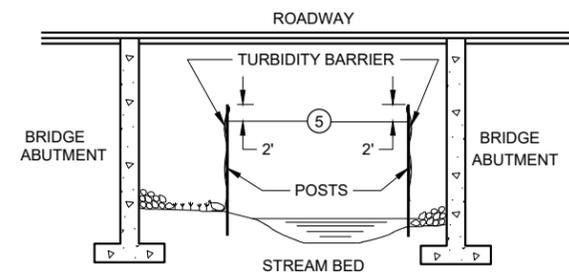
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

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

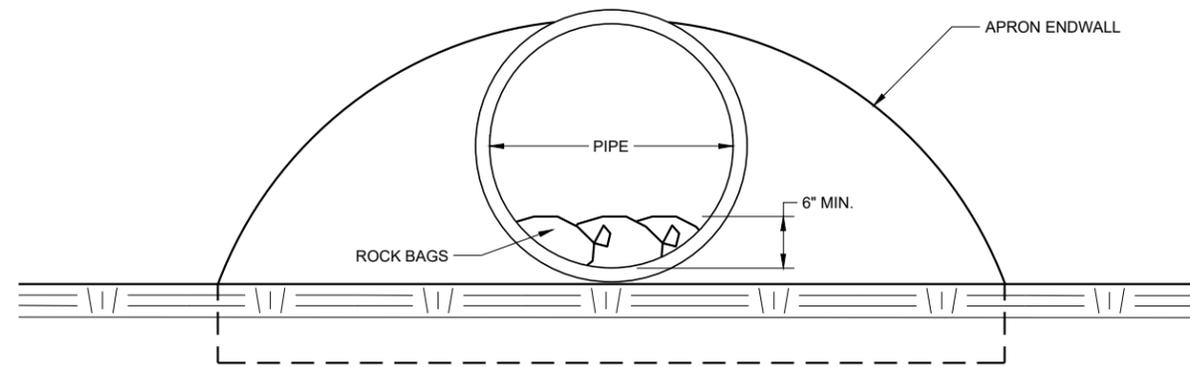
**TURBIDITY BARRIER DETAIL SHOWING
TYPICAL PLACEMENT AT STRUCTURES**

TURBIDITY BARRIER

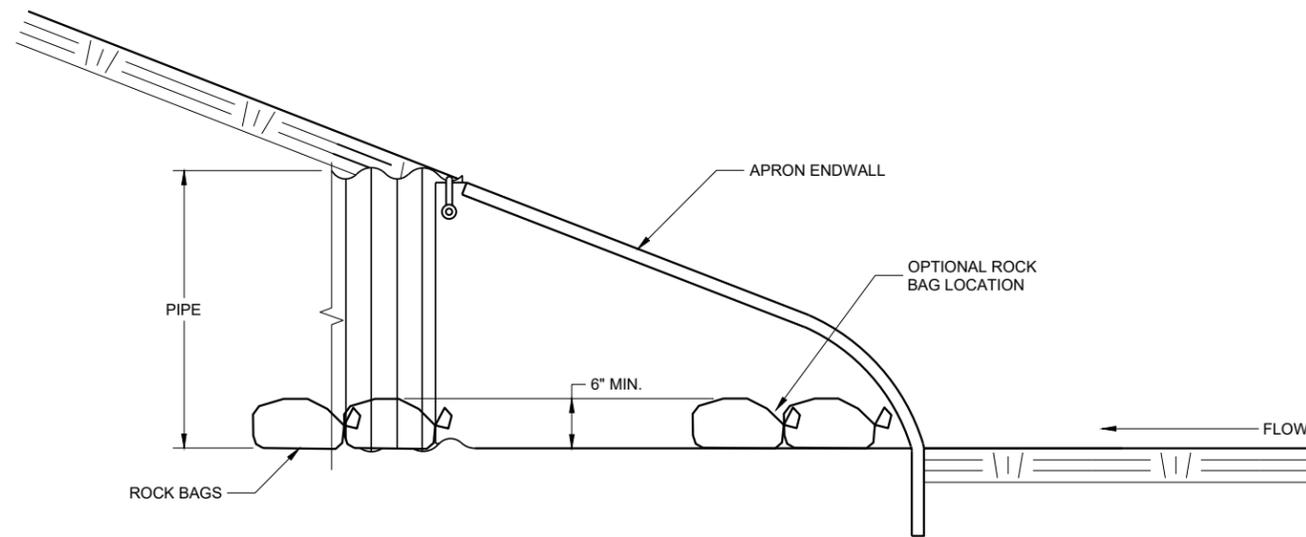
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

FHWA



END VIEW



SIDE VIEW

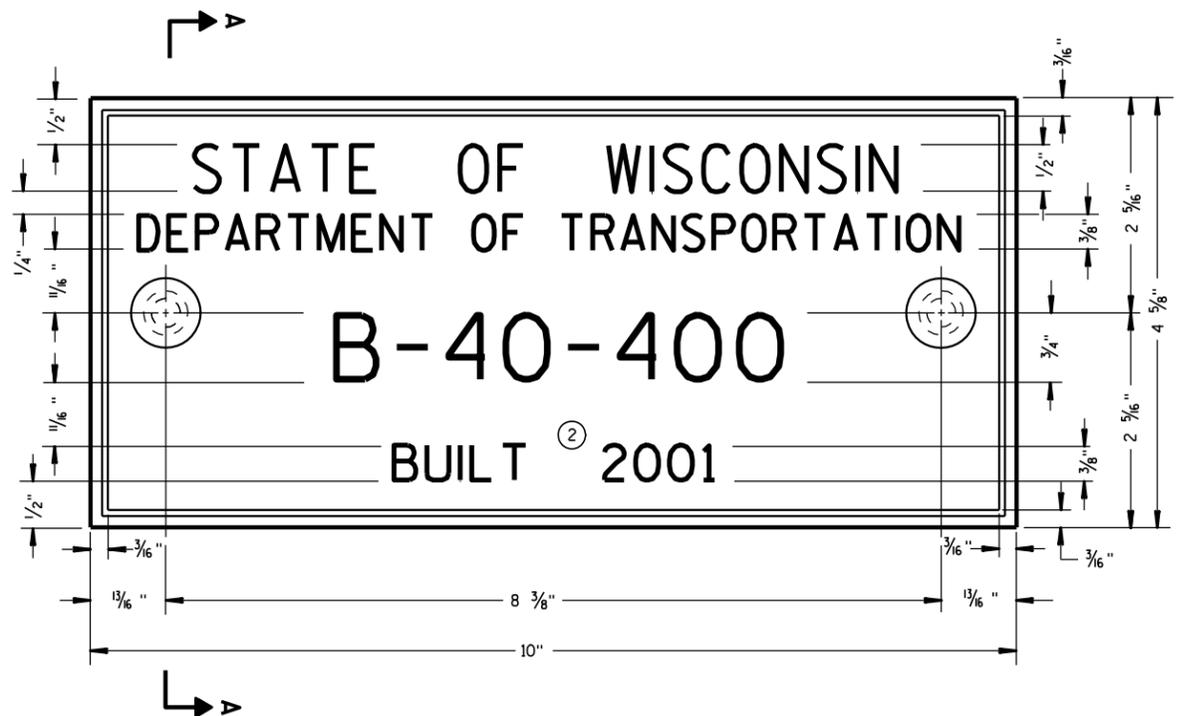
CULVERT PIPE CHECK
(INSTALL ON INLET END ONLY)

CULVERT PIPE CHECK

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
May 2019 /S/ Daniel Schave
DATE EROSION CONTROL ENGINEER

FHWA



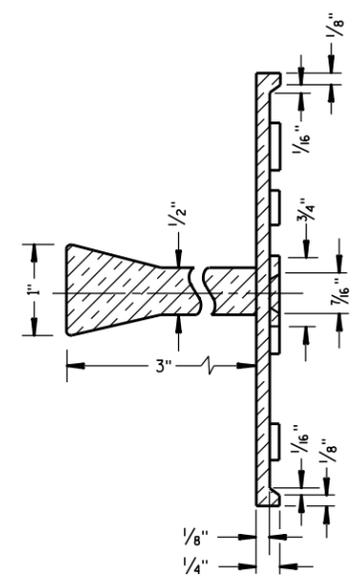
TYPICAL NAME PLATE
(BRIDGES, CULVERTS, AND RETAINING WALLS)

GENERAL NOTES

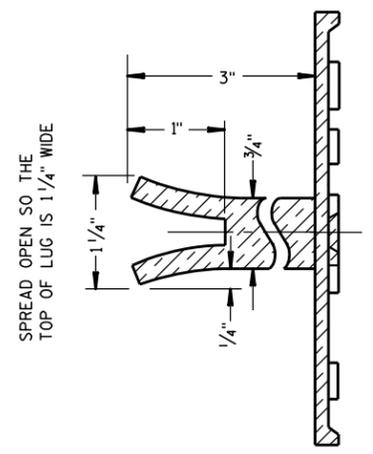
NAME PLATES TO BE INSTALLED ON BRIDGES, CULVERTS, AND RETAINING WALLS SHALL CONFORM TO THE REQUIREMENTS OF SECTION 502.3.11 OF THE STANDARD SPECIFICATIONS.

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

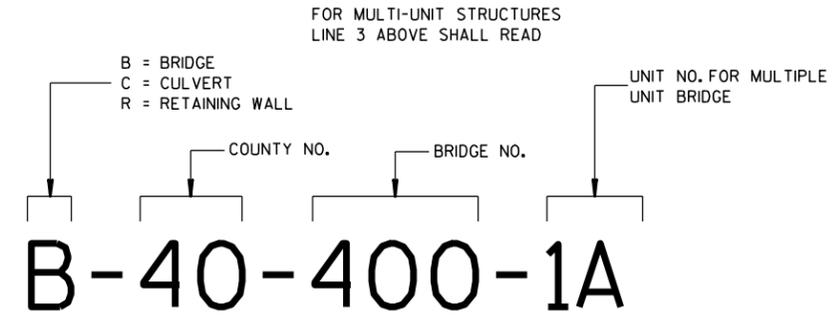
- ① EPOXY RESIN SHALL BE FROM AN APPROVED MANUFACTURER AND USED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
- ② REHABILITATION OF AN EXISTING STRUCTURE SHOULD USE THE DATE OF ORIGINAL STRUCTURE CONSTRUCTION.



SECTION A-A

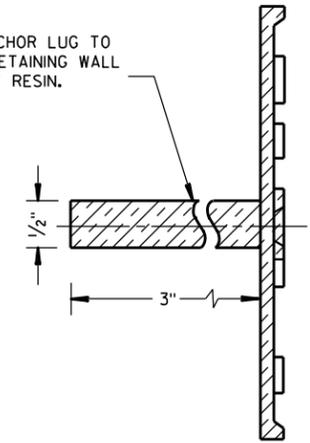


ALTERNATE LUG



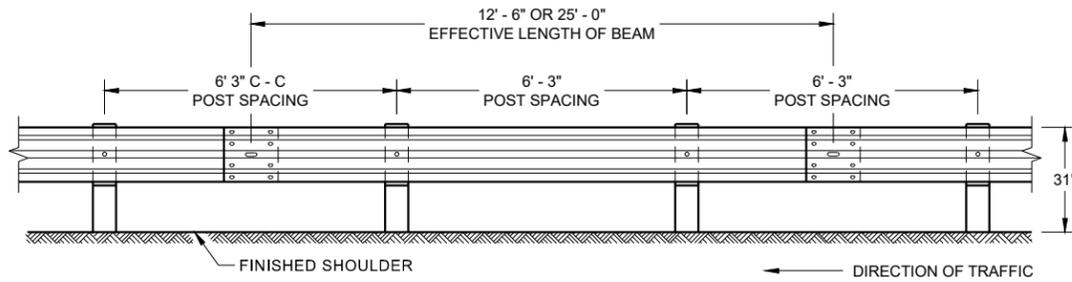
**NUMBERING DESIGNATION
MULTI-UNIT STRUCTURES**

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

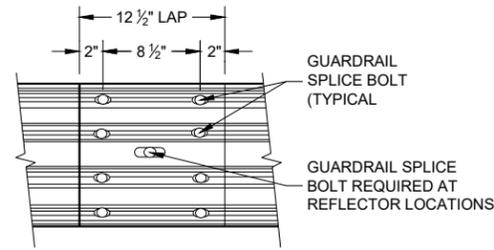


**ALTERNATE LUG
(FOR ATTACHMENT TO PRECAST STRUCTURES)**

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



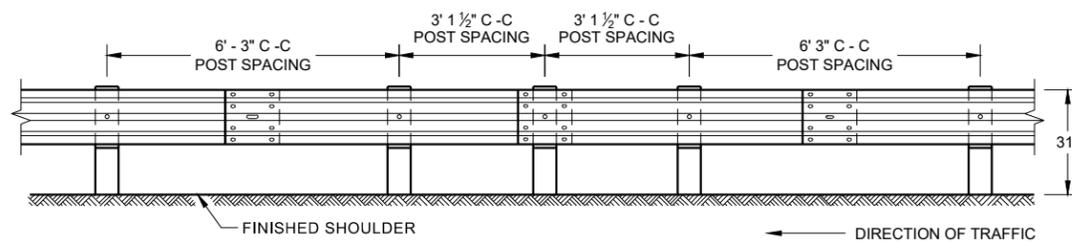
**FRONT VIEW
POST SPACING STANDARD INSTALLATION**



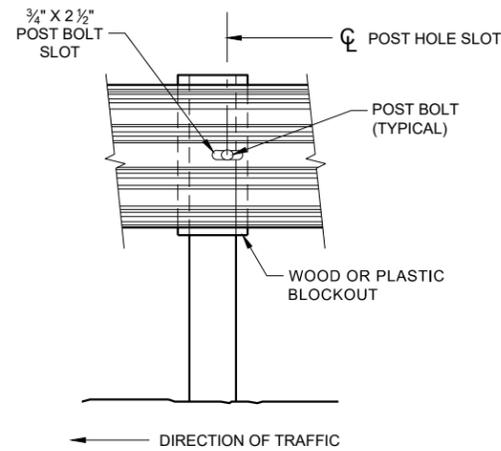
**FRONT VIEW
MID-SPAN BEAM SPLICE**

GENERAL NOTES

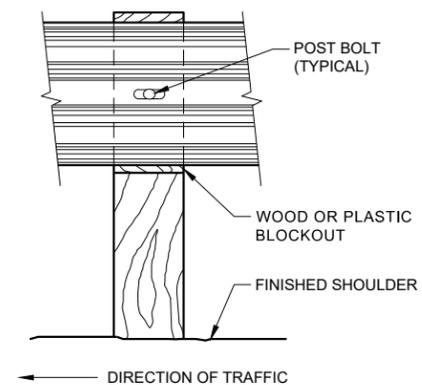
- ⑧ DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINAL.
 - ⑨ 25 FEET OF HALF POST SPACING IS REQUIRED ON APPROACH AND DEPARTURE ENDS OF QUARTER POST SPACING.
- POST BOLTS ARE A 5/8" DIAMETER ASTM A307 GUARDRAIL BOLT. A POST BOLT REQUIRES 3/4" DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX NUT AND 5/8" DIAMETER F844 FLAT WASHER. POST BOLTS MAY BE LONGER IF MULTIPLE BLOCKOUTS ARE BEING USED.
- GUARD RAIL SPLICE BOLTS ARE A 5/8" DIAMETER ASTM A307 GUARDRAIL HEAD BOLT. A GUARDRAIL SPLICE BOLT REQUIRES 3/4" DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX NUT.



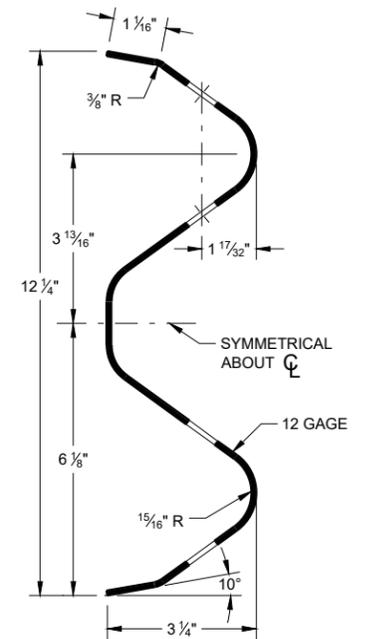
**FRONT VIEW
HALF POST SPACING (HS) AND
HALF POST SPACING WITH LONGER POSTS (K)**



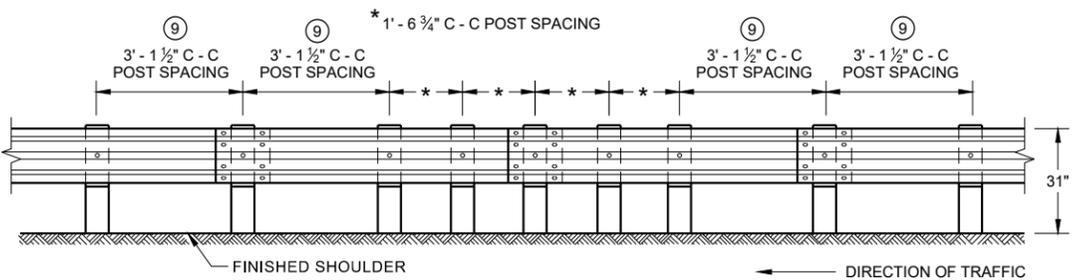
FRONT VIEW AT STEEL POST



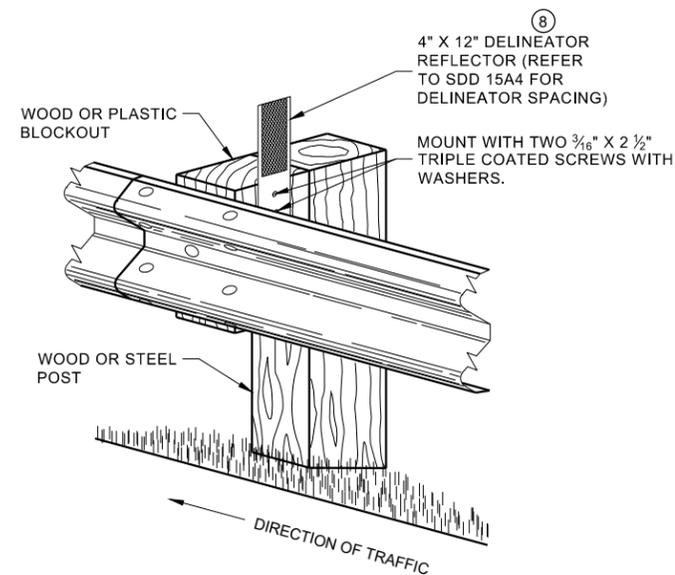
FRONT VIEW AT WOOD POST



SECTION THRU W-BEAM RAIL



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



**ONE SIDED REFLECTOR DETAIL
AND TYPICAL INSTALLATION**

**MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL**

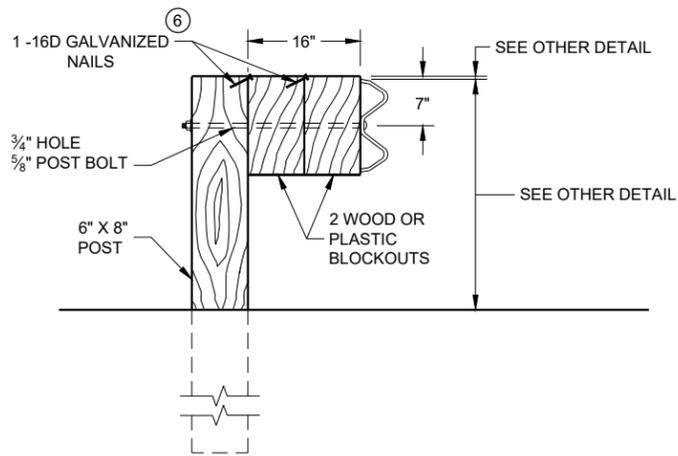
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6

6

SDD 14B42 - 07b

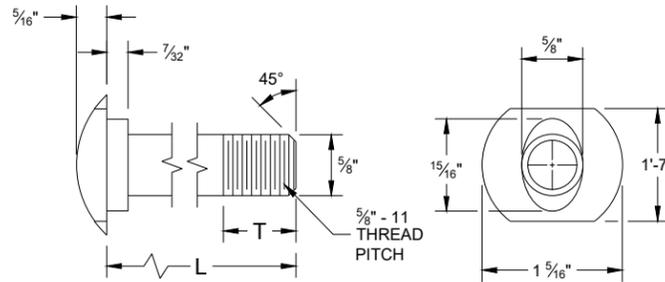
SDD 14B42 - 07b



DETAIL FOR 16" BLOCKOUT DEPTH

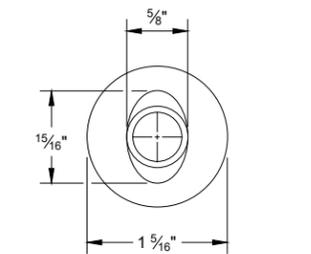
IT IS ACCEPTABLE TO USE BLOCKOUTS UP TO 16" DEEP TO INCREASE THE POST OFFSET TO AVOID UNDERGROUND OBSTACLES. THERE IS NO LIMIT TO THE NUMBER OF POSTS THAT CAN HAVE ADDITIONAL BLOCKOUTS UP TO 16" DEEP.

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

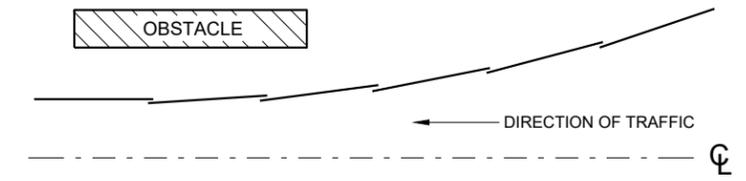


POST BOLT TABLE

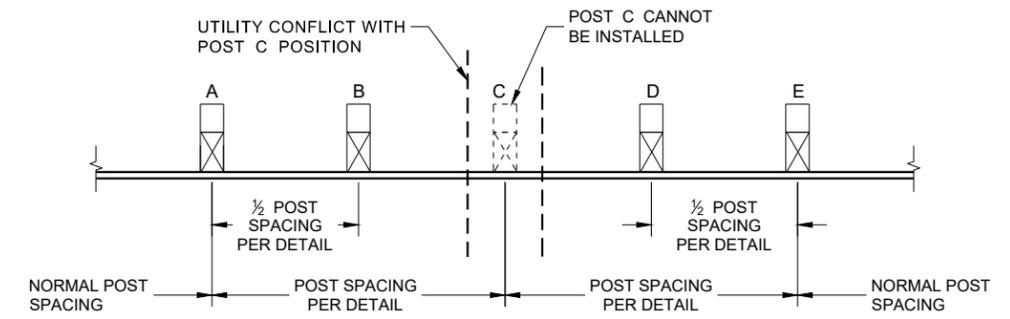
L	T (MIN.)
1 1/4"	1 1/8"
2"	1 3/4"
10"	4"
14"	4 1/16"
18"	4"
21"	4 1/16"
25"	4"



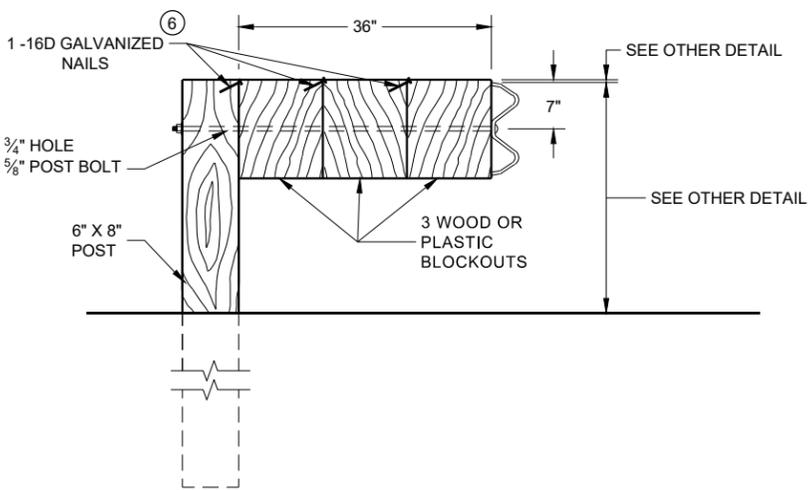
ALTERNATE BOLT HEAD



**PLAN VIEW
BEAM LAPPING DETAIL**

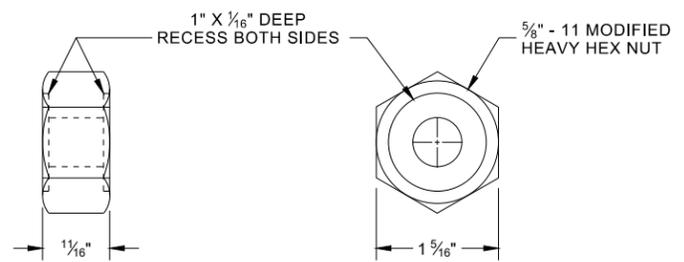


**POST DRIVING FOR CONTINUOUS
UNDERGROUND OBSTRUCTION**

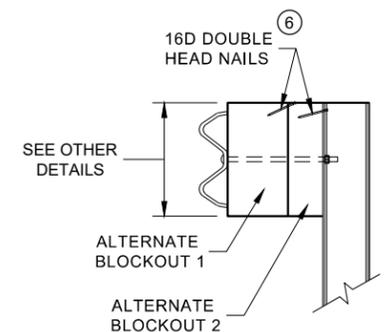


DETAIL FOR 36" BLOCKOUT DEPTH

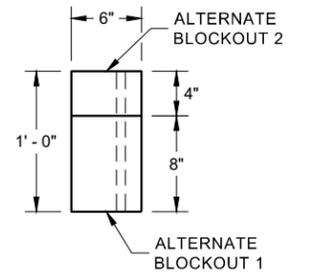
NOTES: UNDER SPECIAL CIRCUMSTANCES, SUCH AS AVOIDING OBSTACLES THAT ARE NOT RELOCATED, IT IS ACCEPTABLE TO INSTALL ADDITIONAL BLOCKOUTS TO OBTAIN UP TO 36" DEPTH FOR ONE OR TWO POSTS IN A SECTION OF GUARDRAIL.
DO NOT USE 16" OR 36" BLOCKOUTS IF IT CAUSES THE POST TO BE DRIVEN BEYOND SHOULDER HINGE POINT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



**POST BOLT, SPLICE BOLT
AND RECESS NUT**



SIDE VIEW



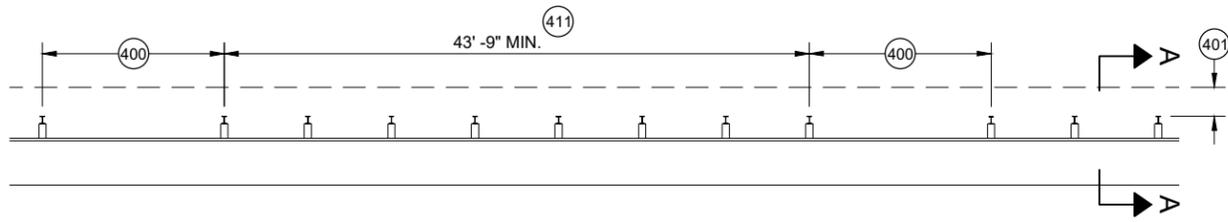
PLAN VIEW

**ALTERNATE WOOD
BLOCKOUT DETAIL**

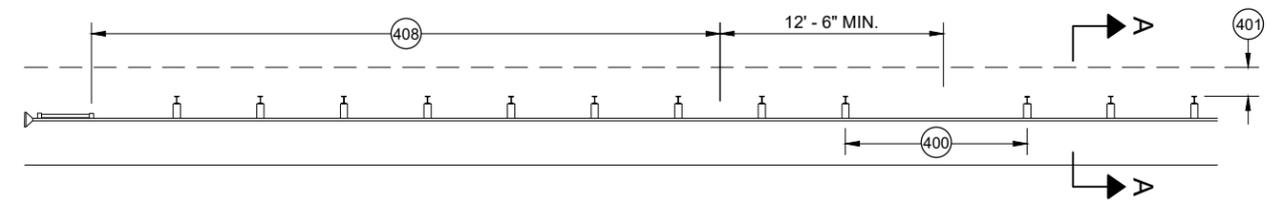
6 WHEN USING STEEL POST AND WOOD BLOCKOUTS, INSTALL FOUR 16D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.

**MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL**

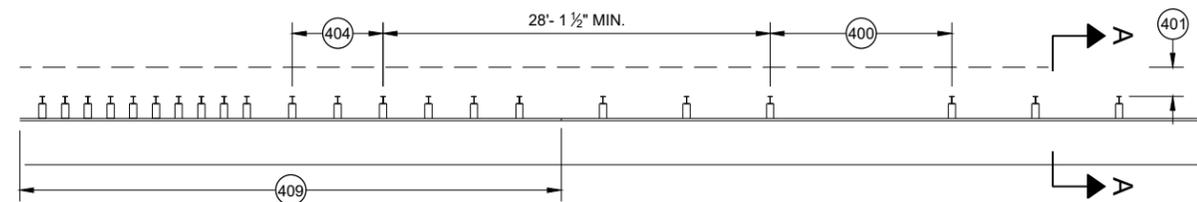
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



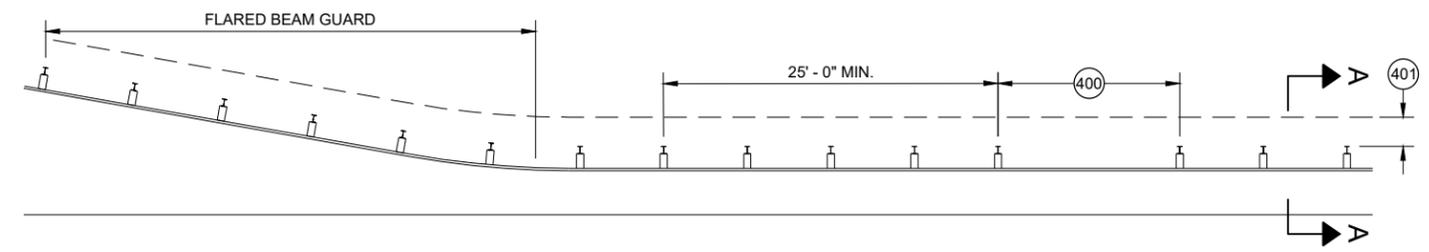
MISSING POST IN MGS GUARDRAIL



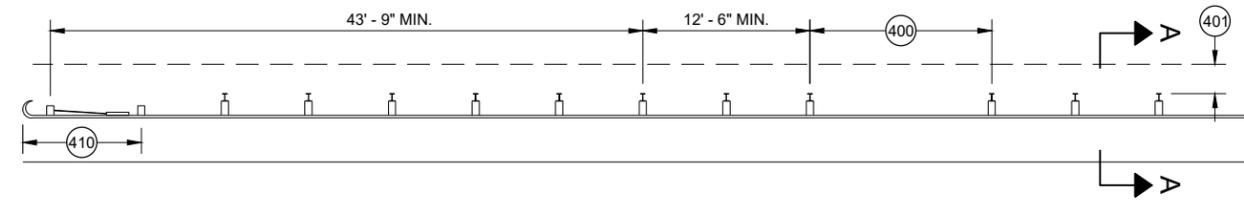
MISSING POST IN MGS GUARDRAIL NEAR EAT



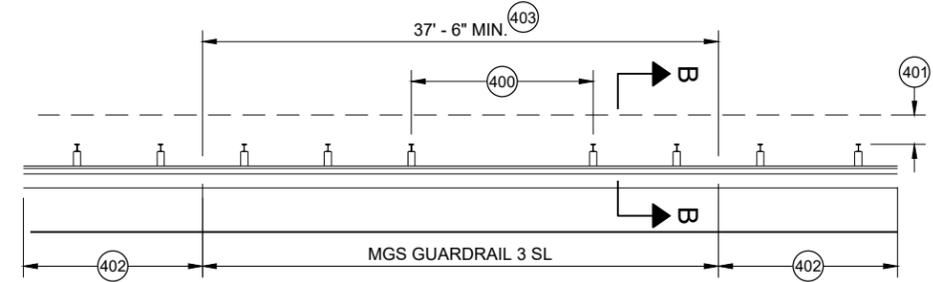
MISSING POST IN MGS GUARDRAIL NEAR AN APPROACH TRANSITION



MISSING POST IN MGS GUARDRAIL NEAR FLARED BEAM GUARD

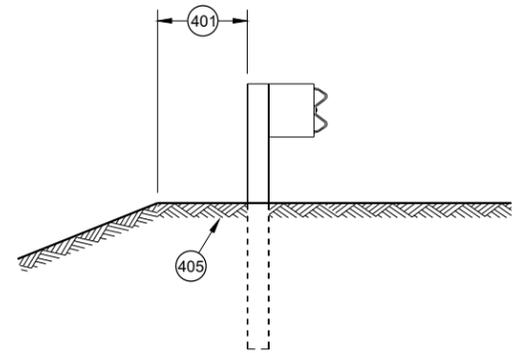


MISSING POST IN MGS GUARDRAIL NEAR A TYPE 2 END TERMINAL

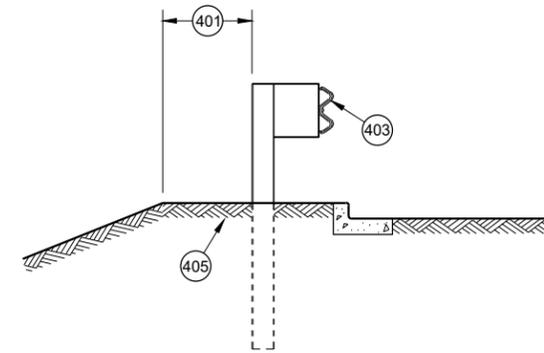


MISSING POST IN SHORT SPAN MGS GUARDRAIL NEAR CURB (SL)

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



SECTION A - A



SECTION B - B

MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED May 2021 DATE	/S/ Rodney Taylor ROADWAY STANDARDS DEVELOPMENT UNIT SUPERVISOR
<small>FHWA</small>	

GENERAL NOTES

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

SEE SDD 14B42 FOR MORE INFORMATION.

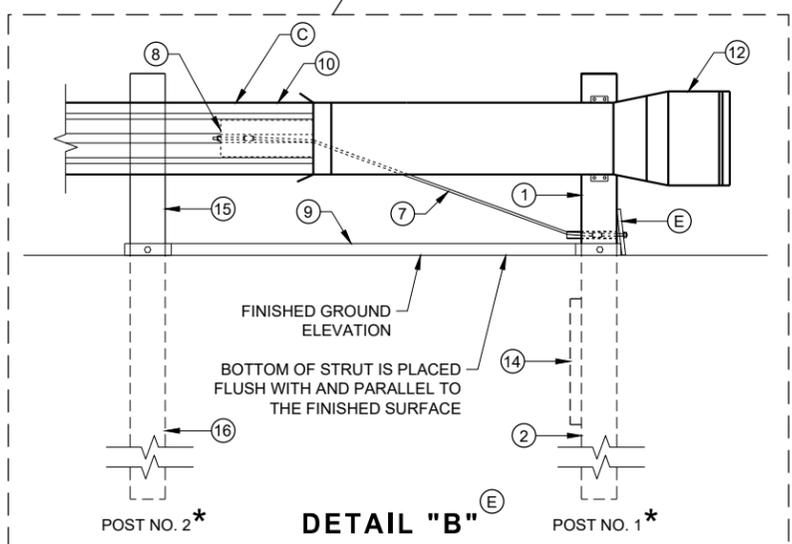
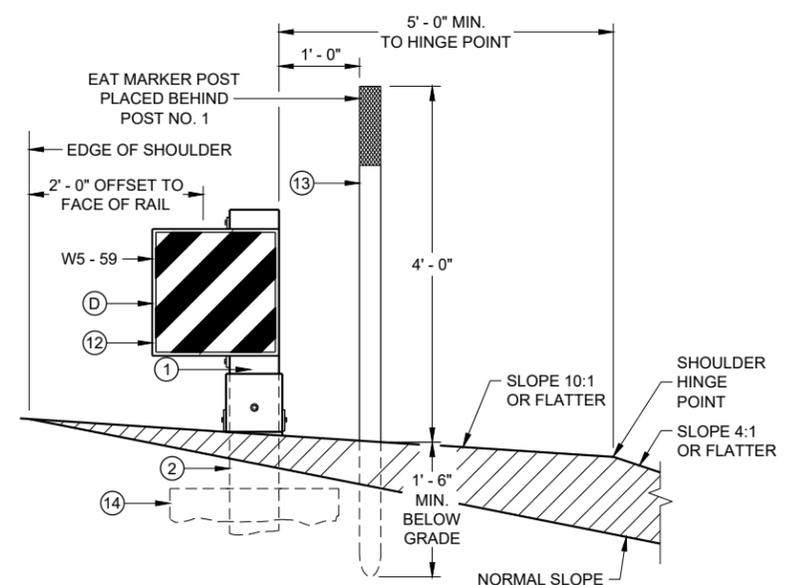
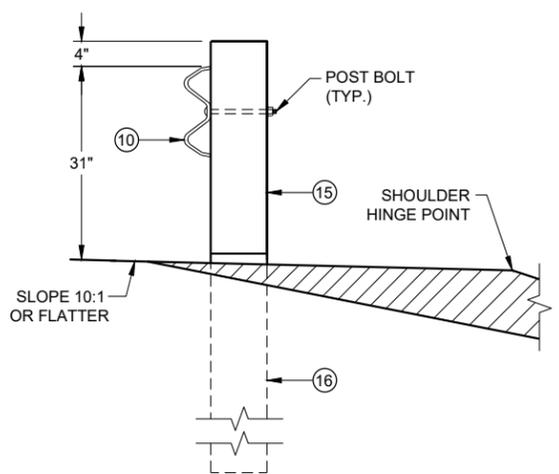
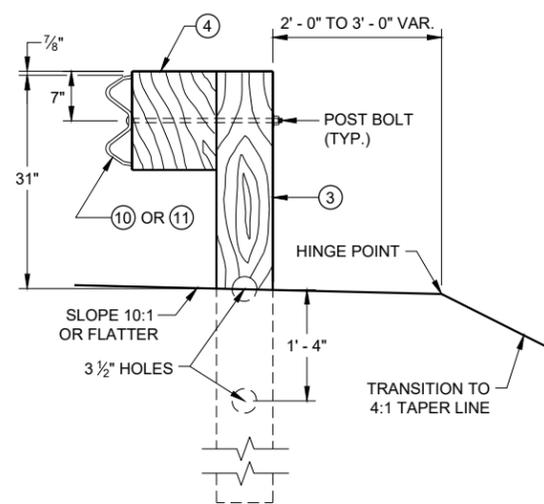
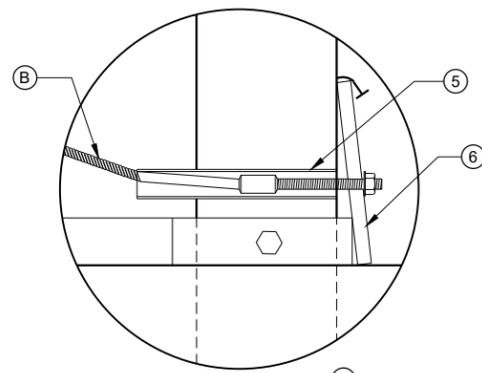
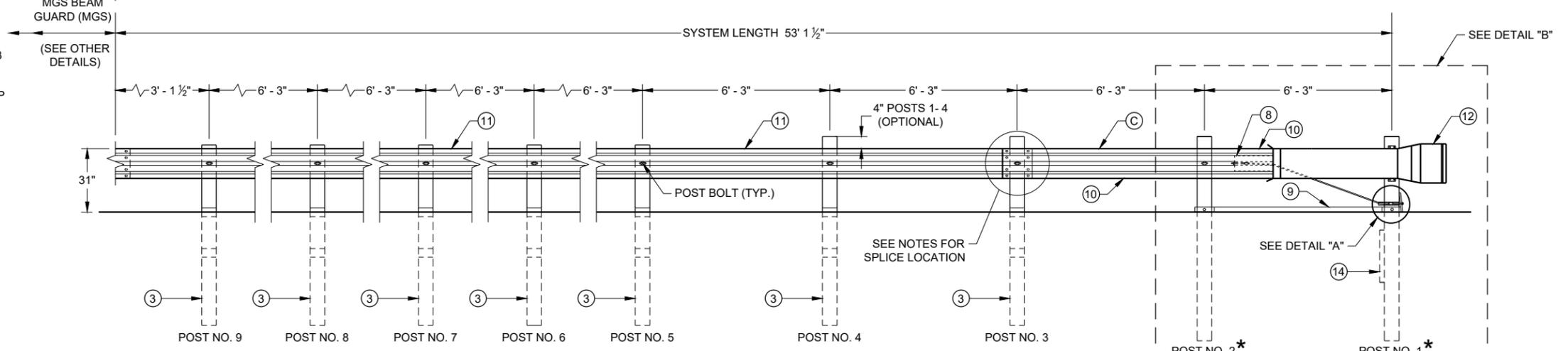
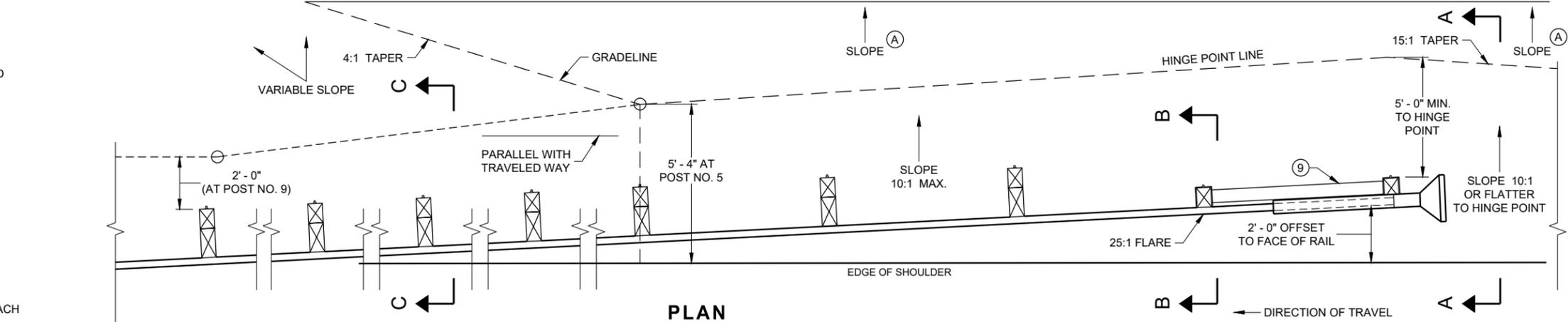
* DO NOT ATTACH BLOCKOUTS TO POST 1 AND 2.

DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINAL.

SEE MANUFACTURER'S DRAWING FOR SPLICE LOCATION, HARDWARE DIMENSIONS AND INSTALLATION INSTRUCTIONS.

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

CLEAR ZONE LIMITS, EITHER AS SHOWN ELSEWHERE IN THE PLANS OR, IF NOT SHOWN ELSEWHERE IN THE PLANS, 15 FEET BEYOND THE HINGE POINT LINE



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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6

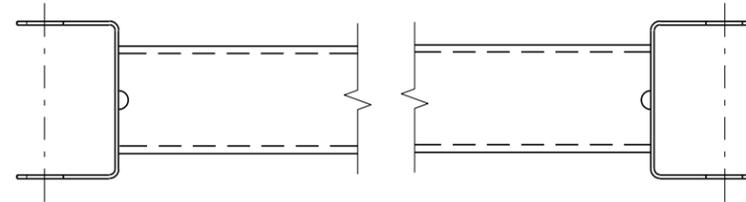
6

SDD 14B44 - 04a

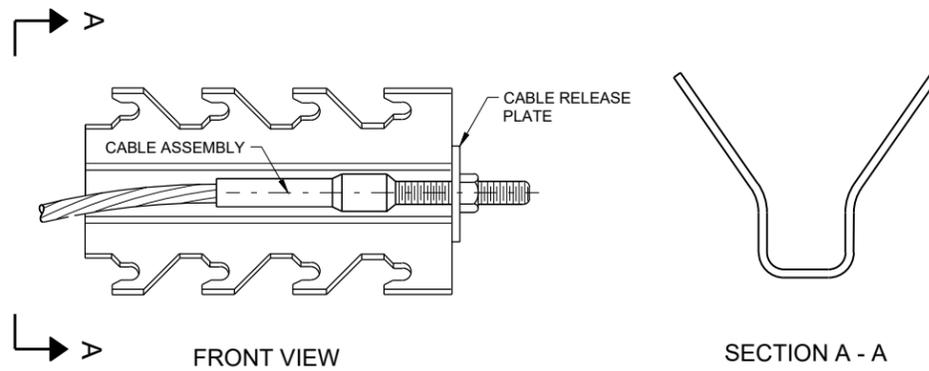
SDD 14B44 - 04a

BILL OF MATERIALS

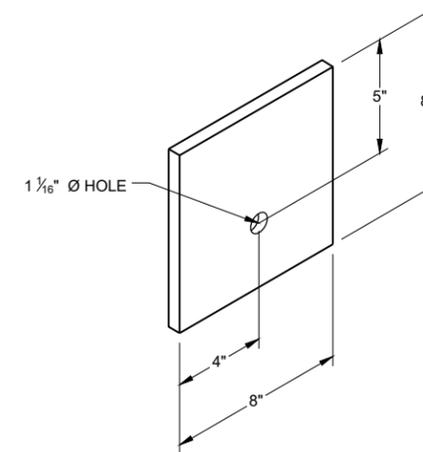
PART NO.	DESCRIPTION MATERIALS PROVIDED BY MGS EAT MANUFACTURER. SEE MANUFACTURER'S DETAILS FOR MORE INFORMATION.
①	UPPER POST NO. 1 6" X 6" TUBE
②	LOWER POST NO. 1
③	WOOD CRT
④	WOOD BLOCKOUT
⑤	PIPE SLEEVE
⑥	BEARING PLATE
⑦	BCT CABLE ASSEMBLY
⑧	ANCHOR CABLE BOX
⑨	GROUND STRUT
⑩	PERFORATED W-BEAM RAIL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



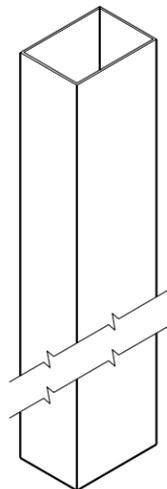
GENERIC GROUND STRUT ⑨ ⑤



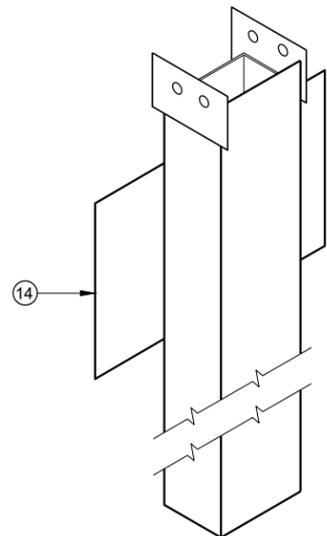
GENERIC ANCHOR CABLE BOX ⑨ ⑤



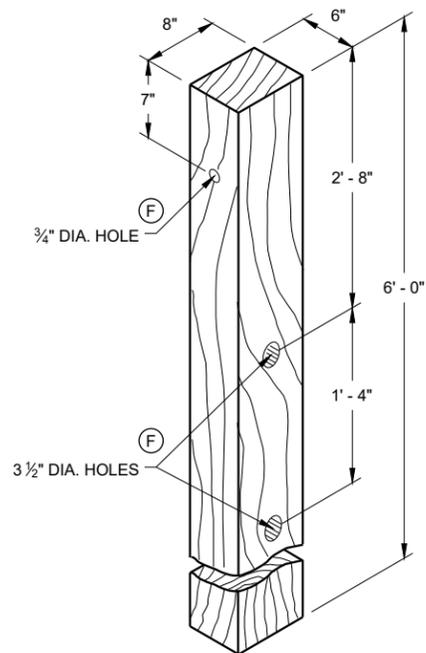
BEARING PLATE ⑥ ⑤



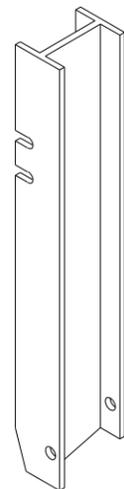
UPPER POST NO. 1 ⁽¹⁾ (E)



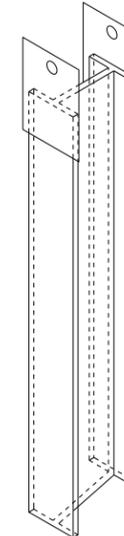
LOWER POST NO. 1 ⁽²⁾ (E)



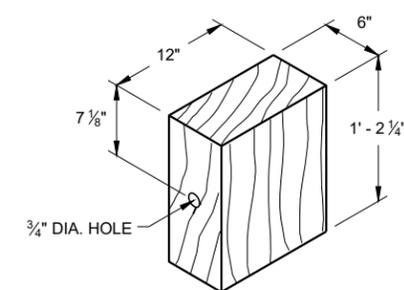
WOOD CRT POST ⁽³⁾ (E)
POSTS NUMBER 3-9



UPPER POST NO. 2 ⁽¹⁵⁾ (E)

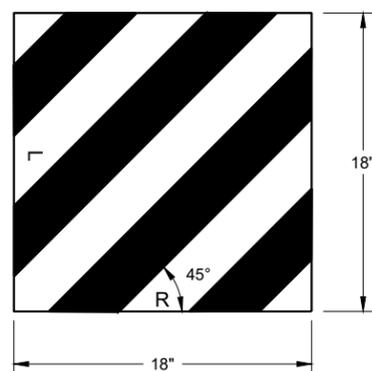


LOWER POST NO. 2 ⁽¹⁶⁾ (E)

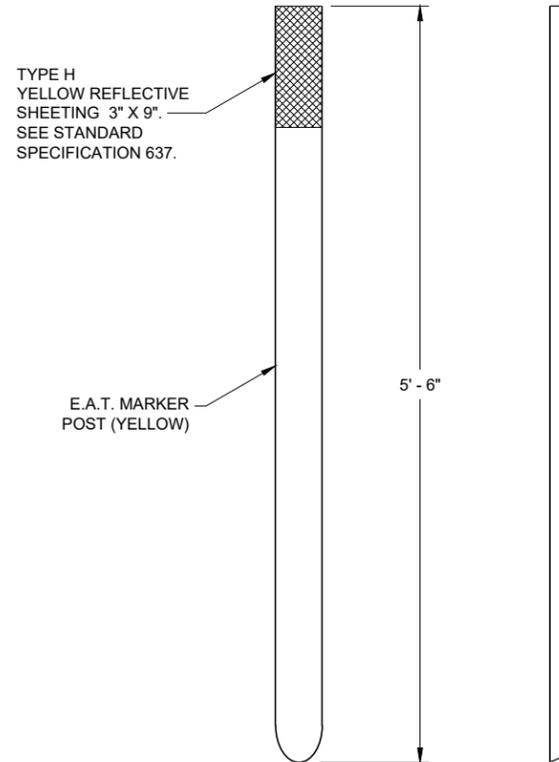


WOOD BLOCKOUT ⁽⁴⁾
REQ'D. AT ALL POSTS EXCEPT POST NO'S 1 & 2

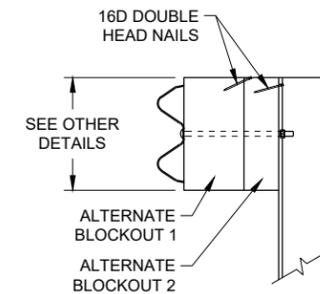
6



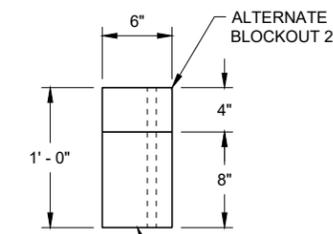
W5 - 59
REFLECTIVE SHEETING DETAIL ^(E)



E.A.T. MARKER POST ⁽¹³⁾



SIDE VIEW



TOP VIEW

ALTERNATE WOOD
BLOCKOUT DETAIL

6

SDD 14B44 - 04c

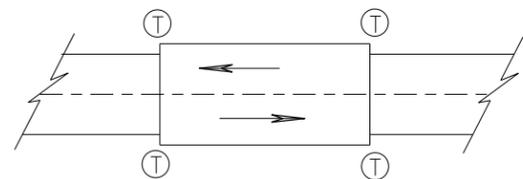
SDD 14B44 - 04c

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

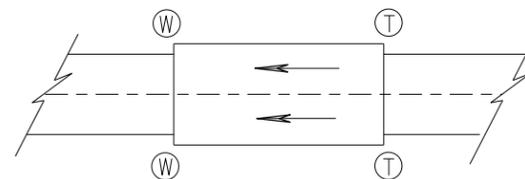
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

FHWA



TWO WAY TRAFFIC



ONE WAY TRAFFIC

(T) THRIE BEAM CONNECTION

(W) W-BEAM CONNECTION WHEN REQUIRED

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

GENERAL NOTES

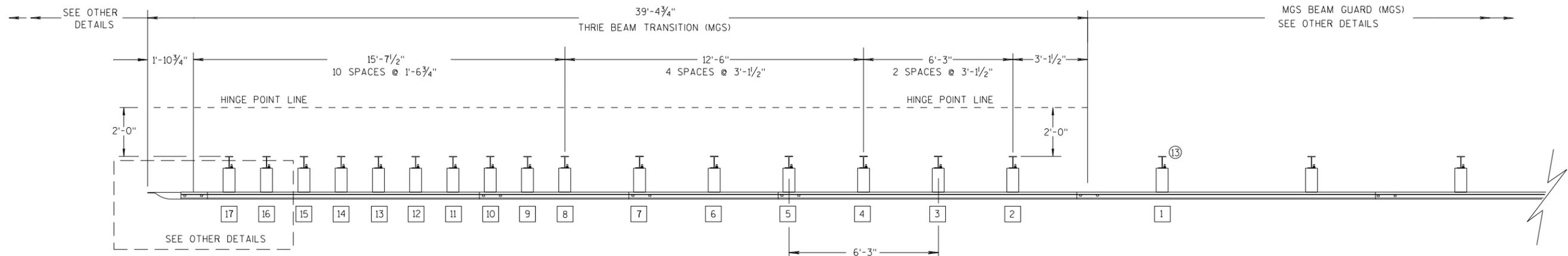
IF ROCK IS ENCOUNTERED, REMOVE ROCK TO FULL DEPTH OF POST PLUS 2 1/2", AND 12" DIAMETER AROUND POST. SEE 14B42 FOR MORE DETAILS.

TRANSITION USES STEEL POSTS ONLY.

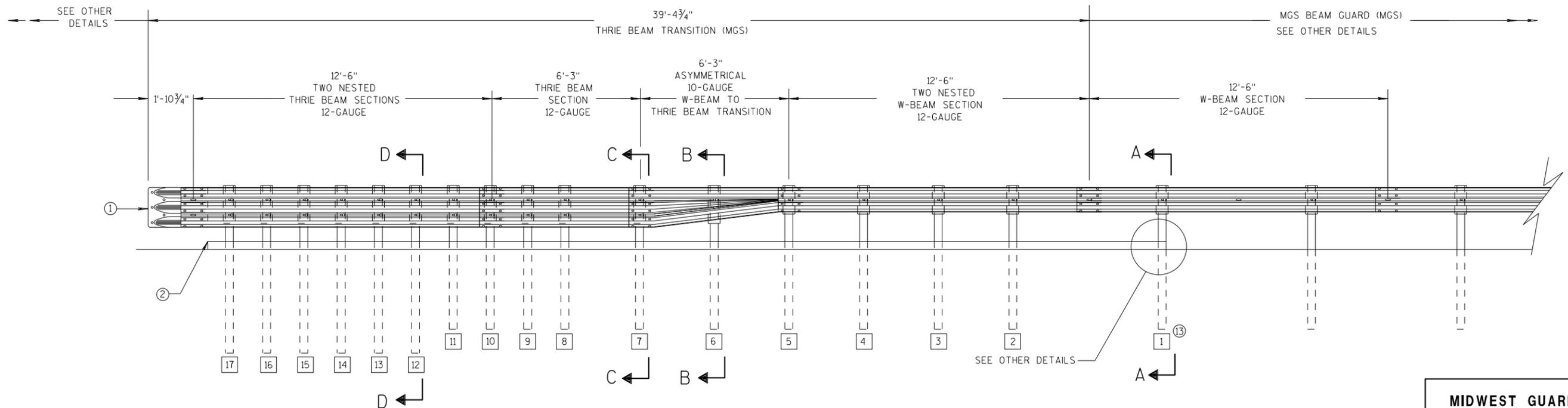
SEE STANDARD DETAIL DRAWING 14 B 42 FOR MORE INFORMATION.

POST 2 THROUGH 17 USES STEEL POST ONLY

- ① BRIDGE RAILING TYPE "W" DOES NOT REQUIRE A TERMINAL CONNECTOR.
- ② OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.
- ⑬ STEEL OR WOOD POST IS ACCEPTABLE AT POST 1. SEE SDD14B42



PLAN VIEW



ELEVATION VIEW

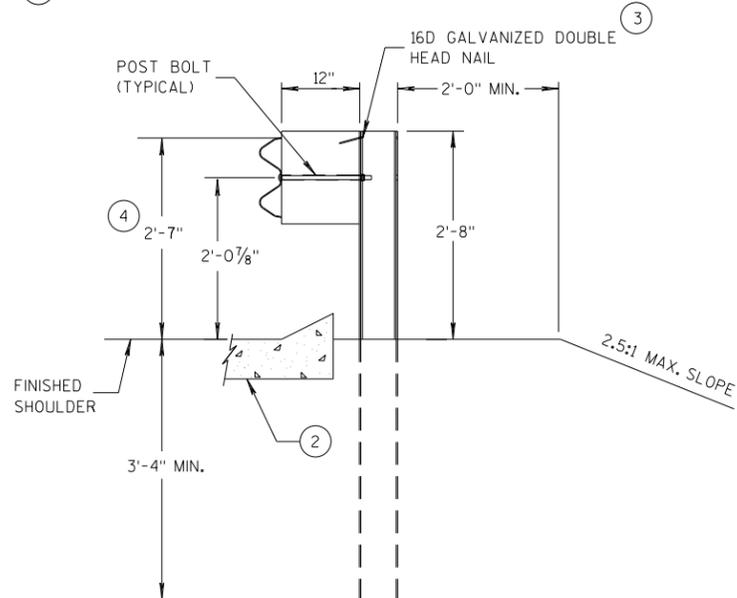
MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION

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

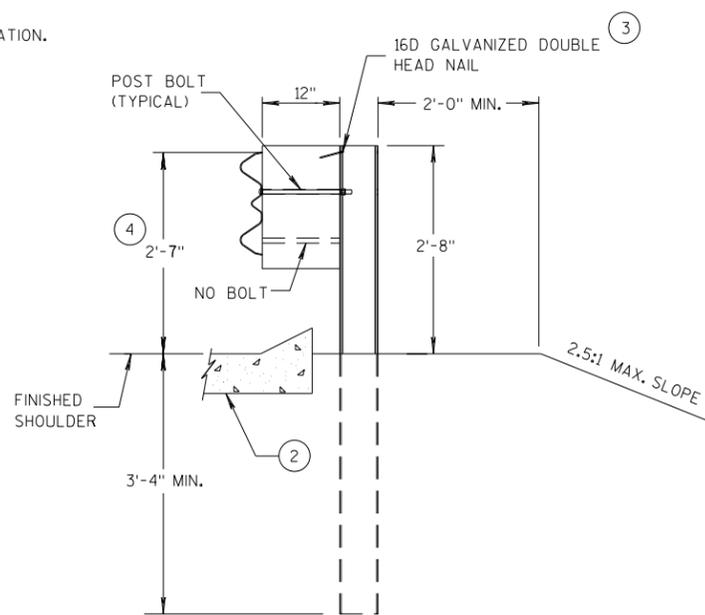
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

GENERAL NOTES

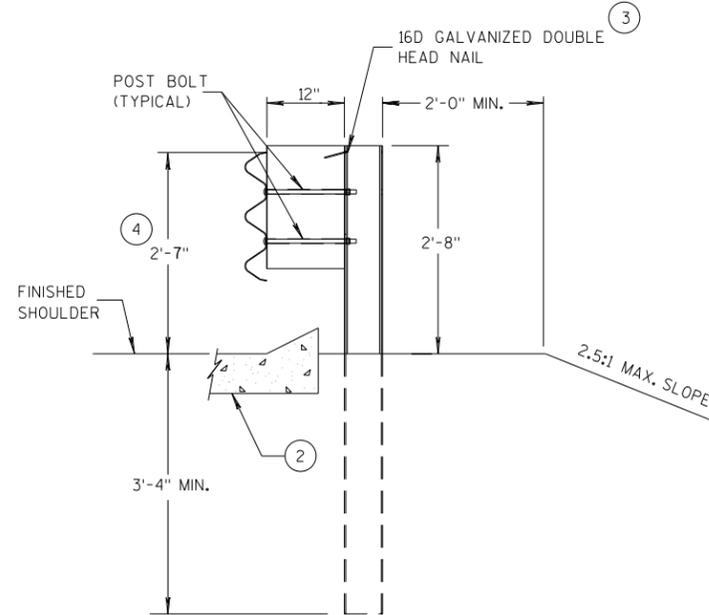
- ② OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.
- ③ WHEN USING STEEL POSTS AND WOOD BLOCKOUTS INSTALL FOUR 10D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.
- ④ TOLERANCE FOR TOP OF W-BEAM RAIL IS ± 1".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



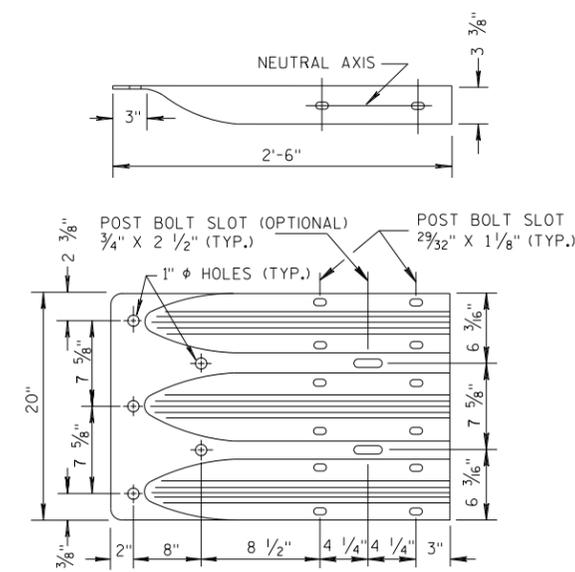
**SECTION A-A
POSTS 1-5**



**SECTION B-B
POST 6**



**SECTION C-C
POSTS 7-11**



**THRIE BEAM
TERMINAL CONNECTOR**

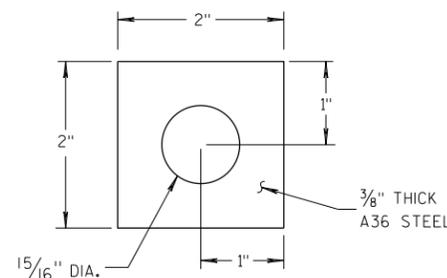
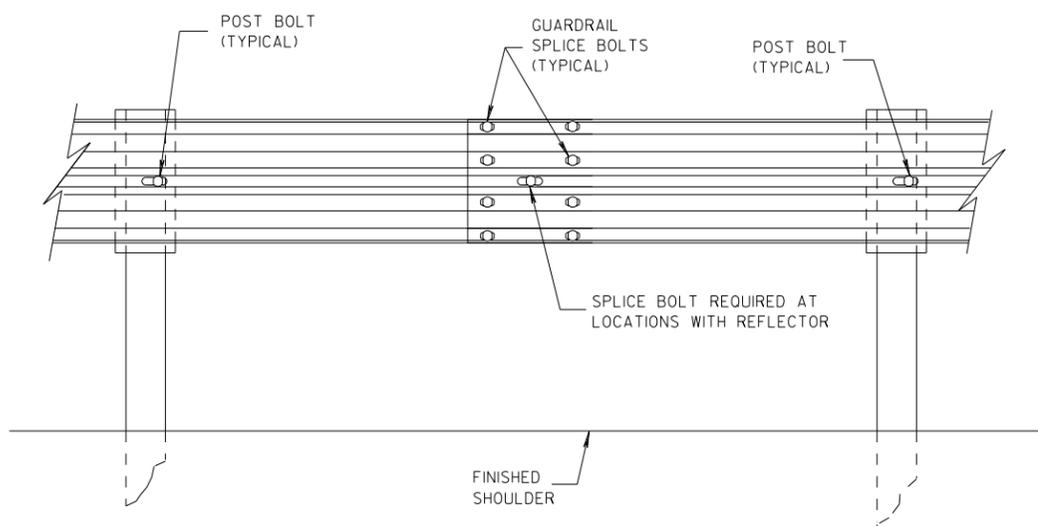
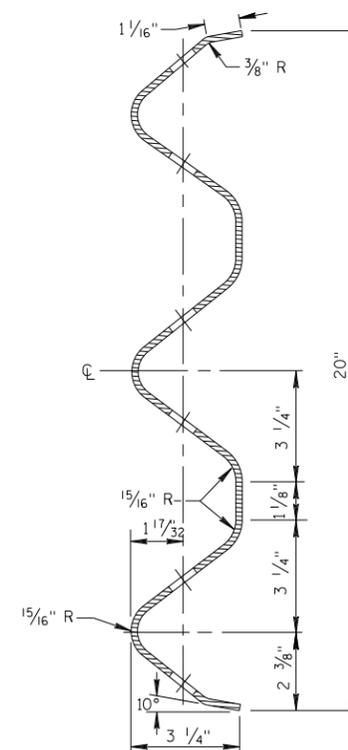


PLATE WASHER DETAIL



SPLICE DETAIL

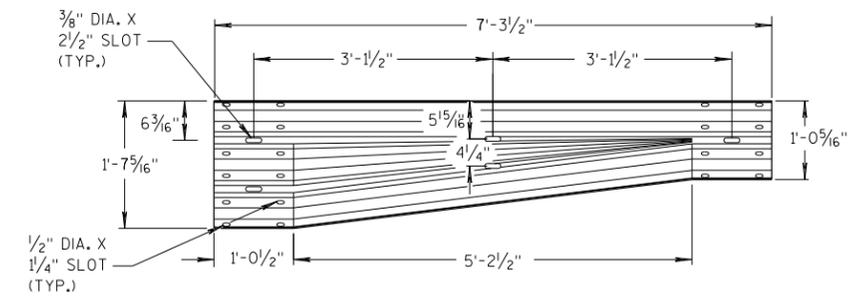


**SECTION THRU THRIE
BEAM RAIL ELEMENT**

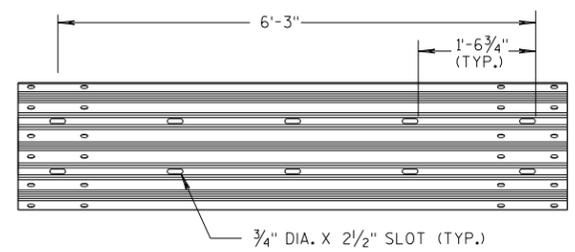
**MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

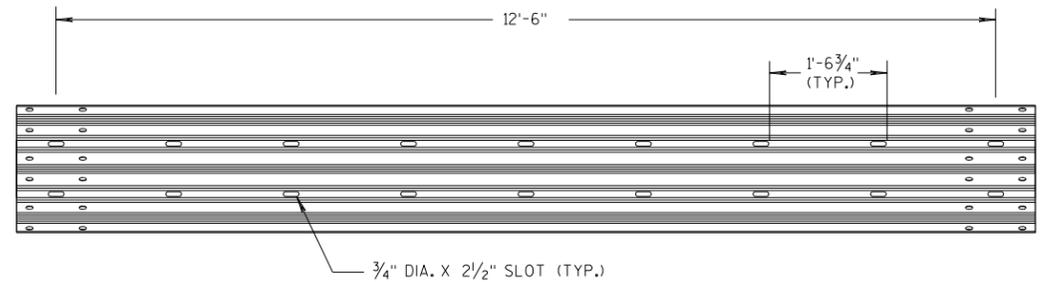
**SECTION D-D
POSTS 12-17**



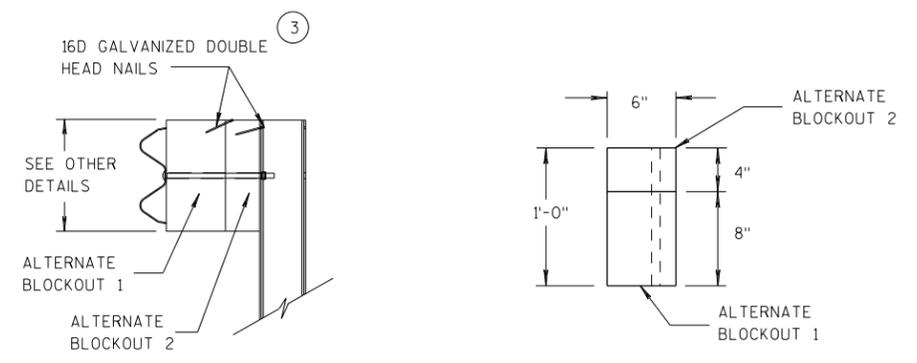
W-BEAM TO THRIE BEAM TRANSITION SECTION



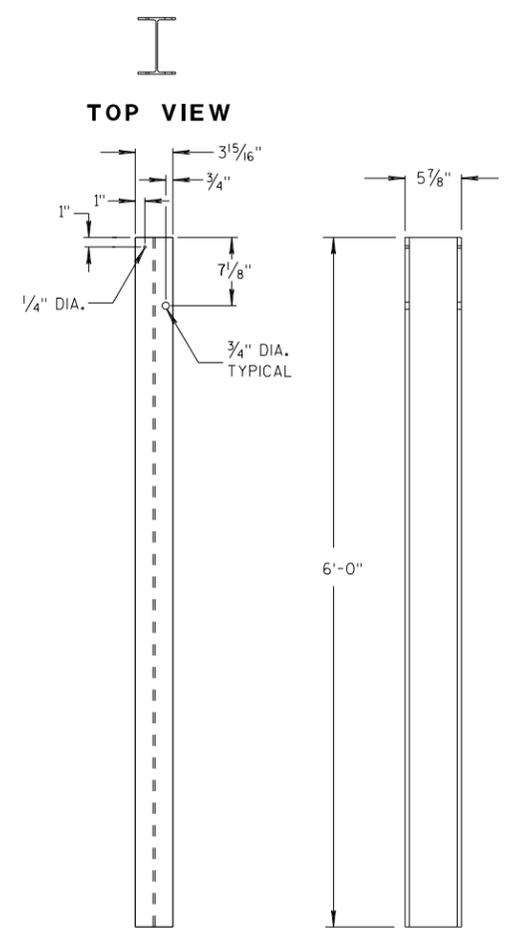
6'-3" THRIE BEAM SECTION



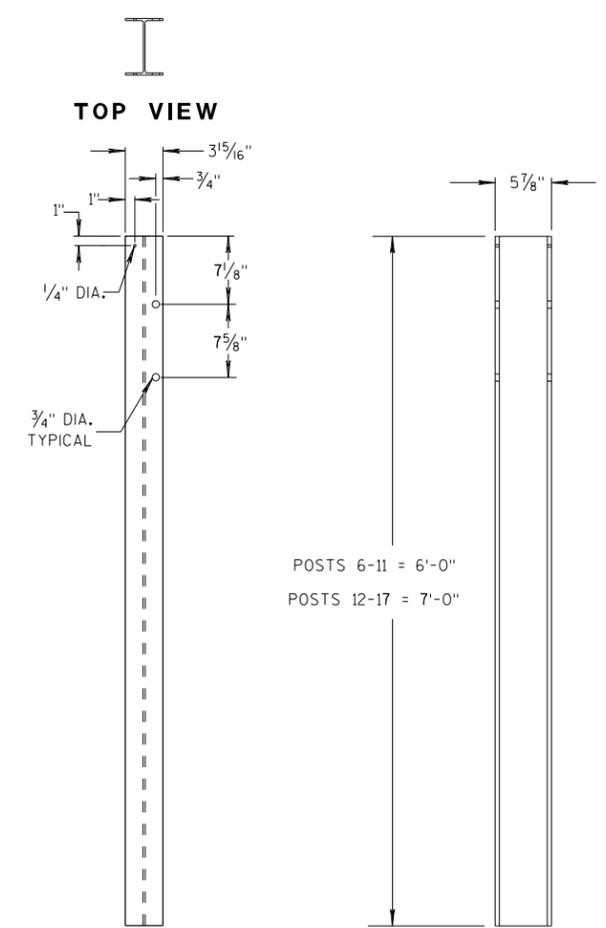
12'-6" THRIE BEAM SECTION



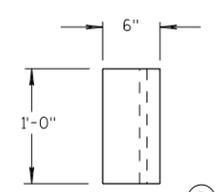
ALTERNATE WOOD BLOCKOUT DETAIL



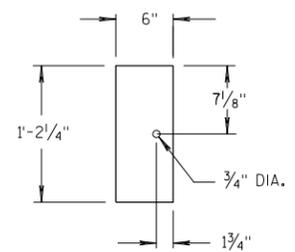
STEEL POSTS 1-5



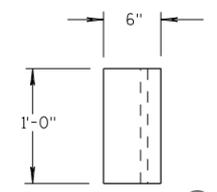
STEEL POSTS 6-17



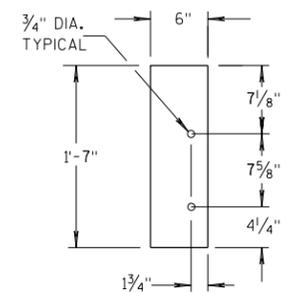
TOP VIEW



**FRONT VIEW
BLOCKOUT
POSTS 1-5**



TOP VIEW



**FRONT VIEW
BLOCKOUT
POSTS 6-17**

GENERAL NOTES

- STEEL POSTS ARE W6X9 OR W6X8.5.
- BOLT HOLES FOR POST ARE ON FRONT AND OF SIDE OF POST.
- (3) WHEN USING STEEL POSTS AND WOOD BLOCKOUTS INSTALL FOUR 16D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.
- (5) WOOD BLOCKS MAY BE CONSTRUCTED OUT OF 2 WOOD BLOCKS. SEE ALTERNATE WOOD BLOCK DETAIL.
- (13) STEEL OR WOOD POST IS ACCEPTABLE AT POST 1. SEE SDD 14B42.

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

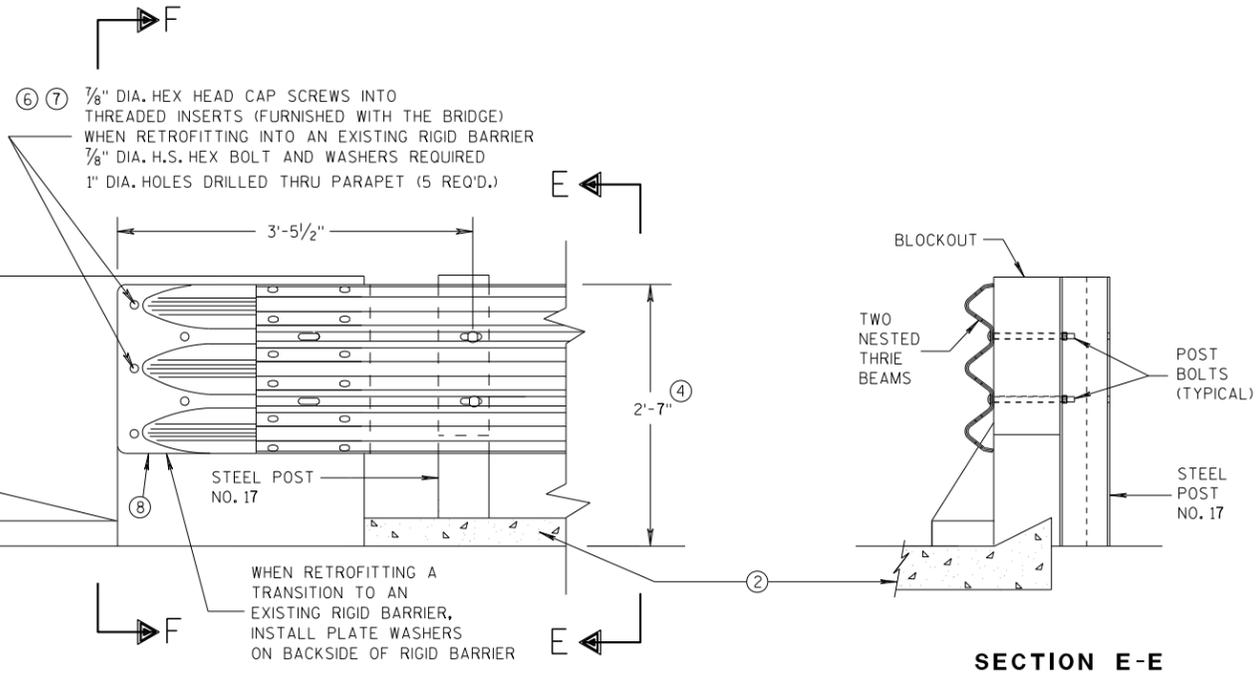
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6

6

S.D.D. 14 B 45-5c

S.D.D. 14 B 45-5c



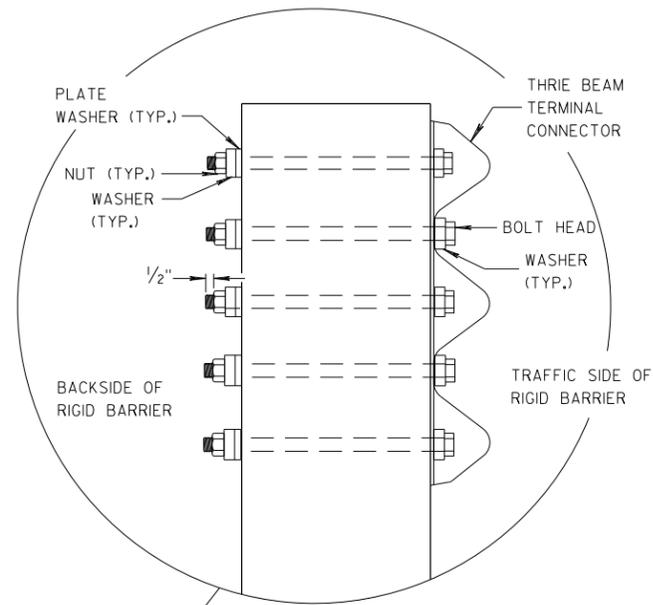
FRONT VIEW

THRIE BEAM CONNECTION TO BRIDGE PARAPET WITH SQUARE ENDS

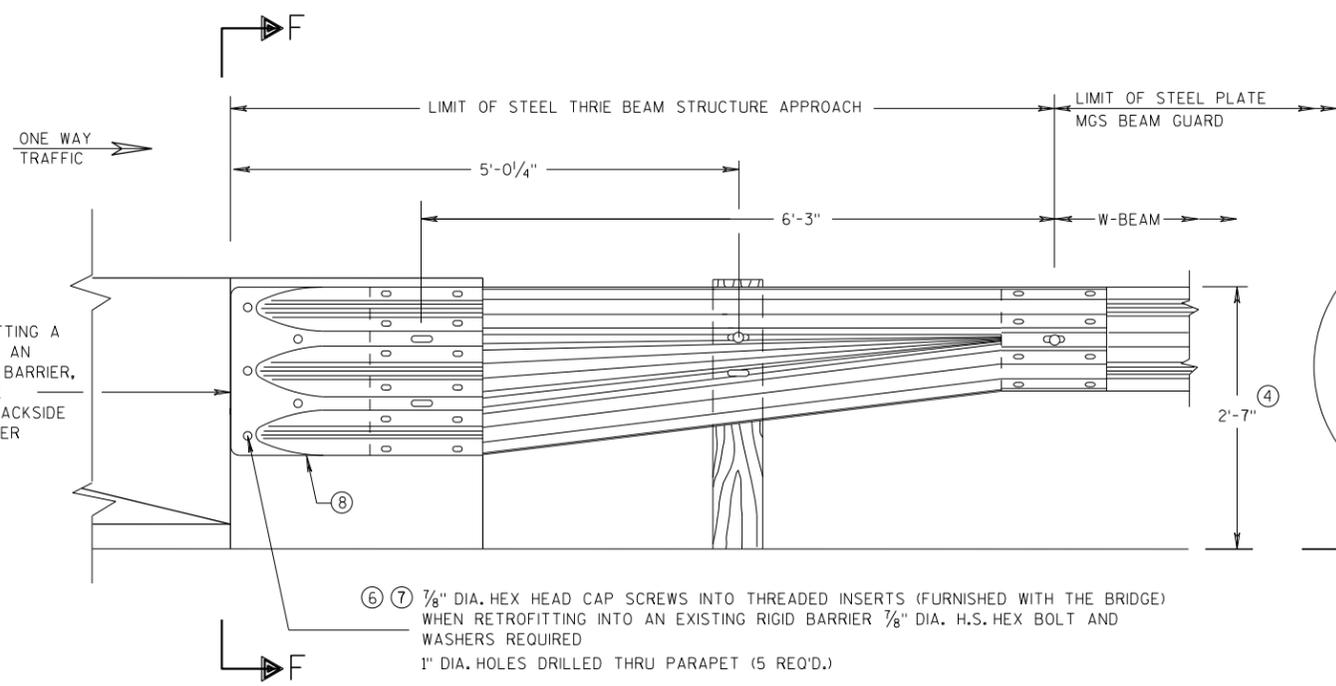
SECTION E-E

GENERAL NOTES

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

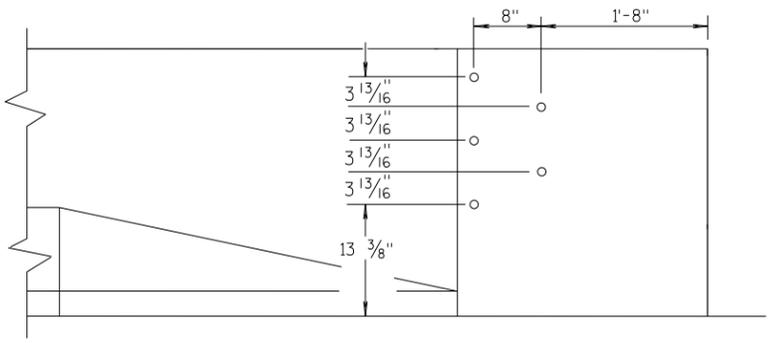


SECTION F-F



FRONT VIEW

**W BEAM TRANSITION AND CONNECTION TO BRIDGE PARAPETS WITH SQUARE ENDS
(USE ONLY ON THE TRAFFIC EXIT END OF ONE WAY BRIDGES)**

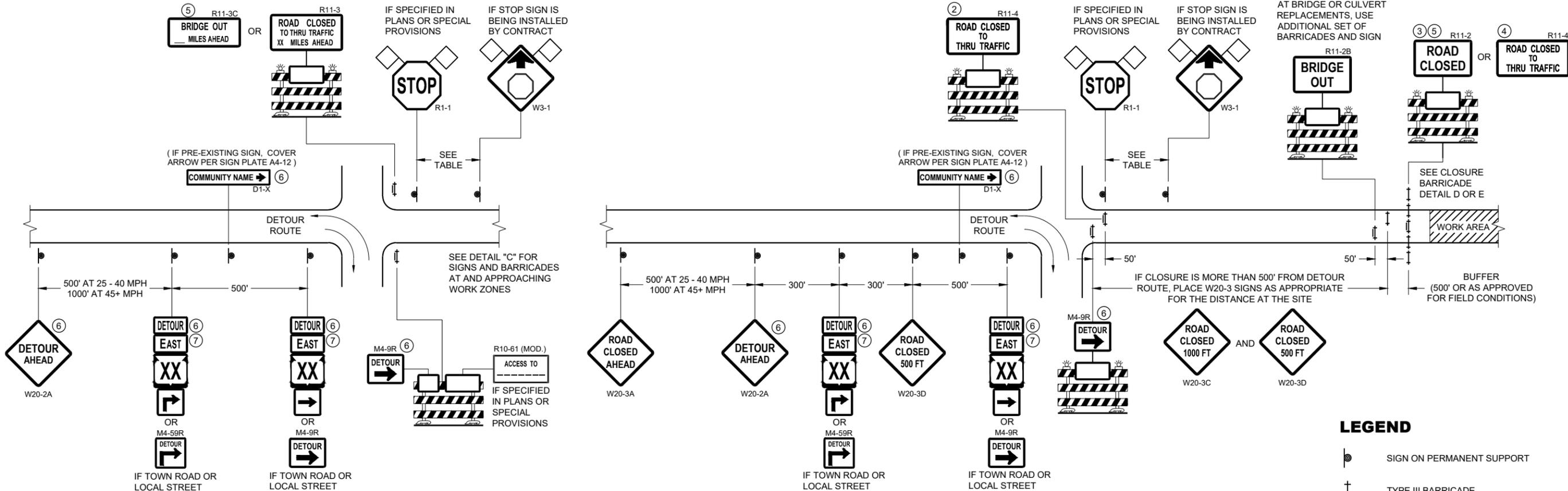


DRILL HOLE LOCATION

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
DATE 07/2018
DATE /S/ Rodney Taylor
ROADWAY STANDARDS DEVELOPMENT
UNIT SUPERVISOR
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**

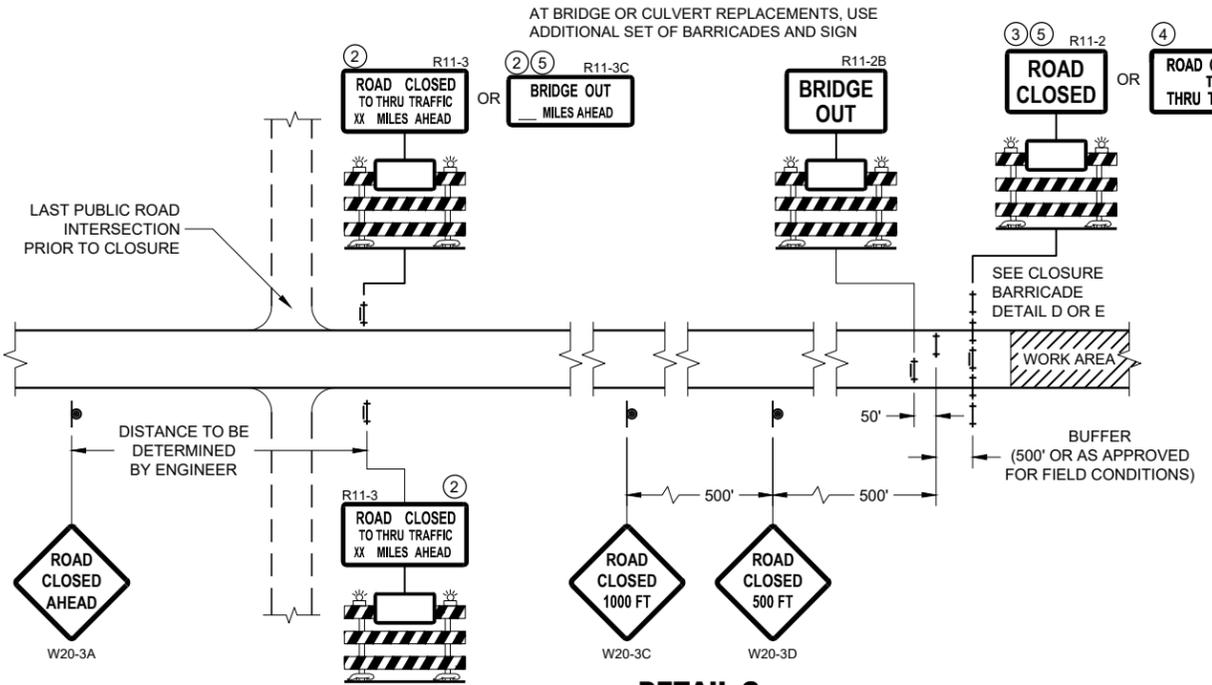
WORK ZONE LESS THAN 1/2 MILE FROM
DETOUR ROUTE (1000 FEET IF URBAN)

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



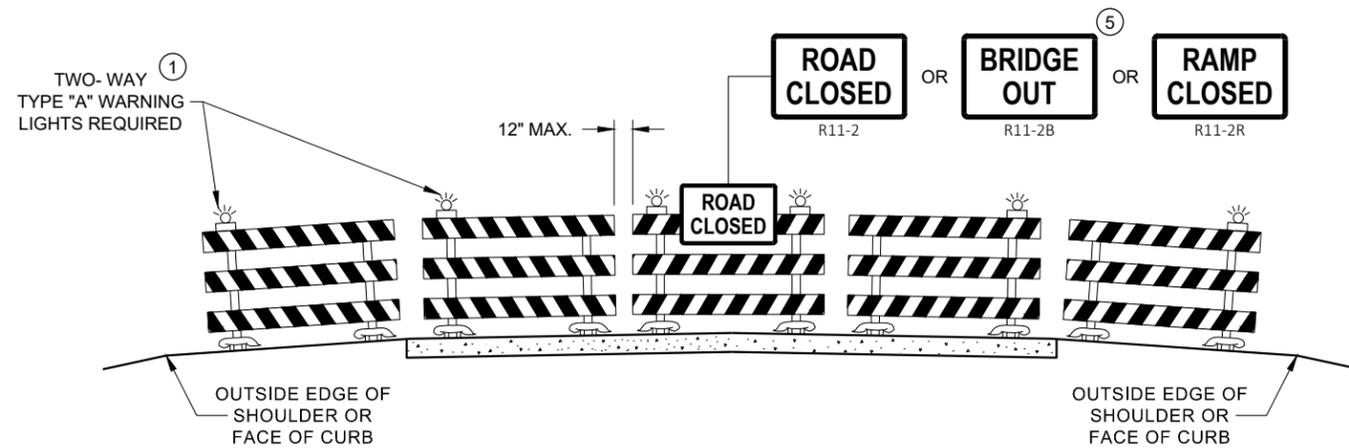
**DETAIL C
MAINLINE CLOSURE, NO POSTED DETOUR**

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

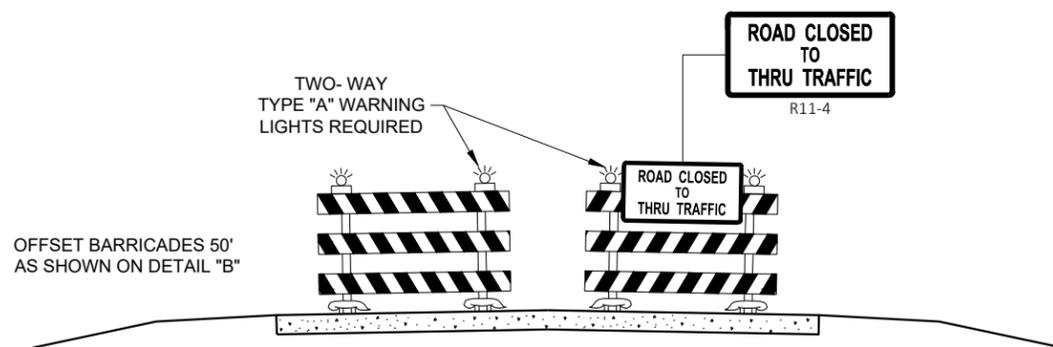
**BARRICADES AND SIGNS
FOR MAINLINE CLOSURES**

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

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.

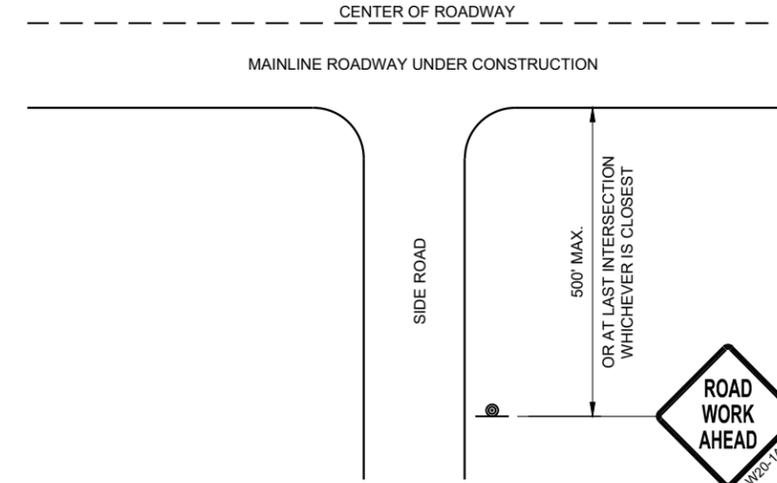
SIGNS THAT WILL BE IN PLACE LESS THAN SEVEN CONTINUOUS DAYS AND NIGHTS MAY BE MOUNTED ON PORTABLE SUPPORTS.

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.

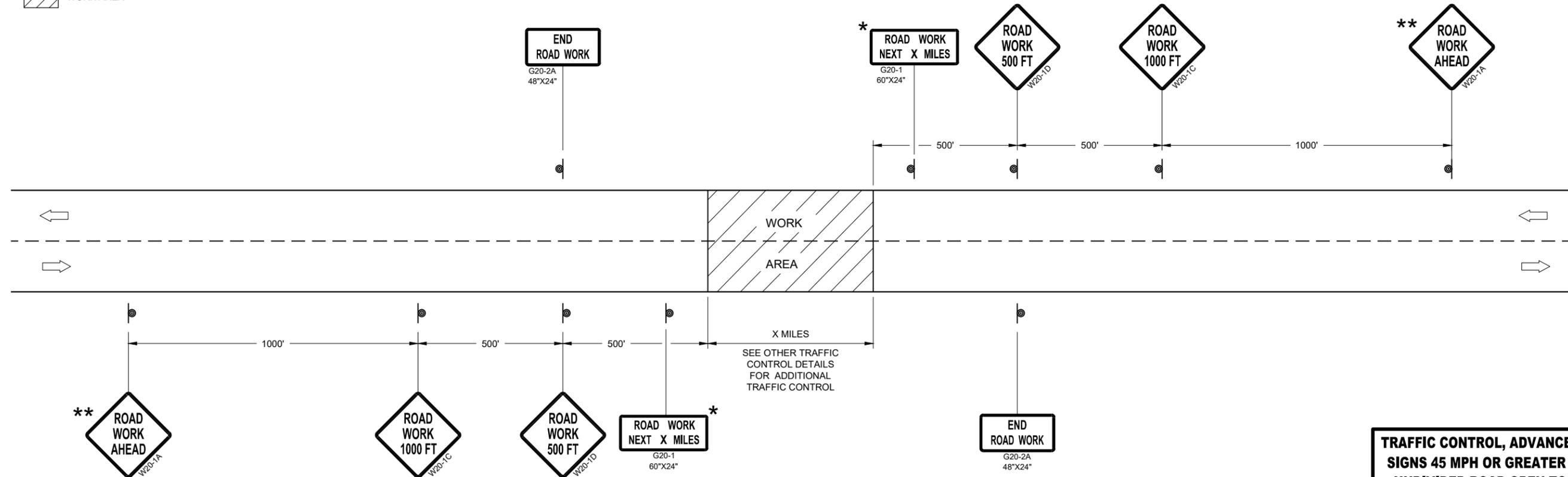
- * OMIT G20-1 SIGNS IF LENGTH OF WORK AREA IS 2 MILES OR LESS
- ** PLACE AN ADDITIONAL W20-1A "ROAD WORK AHEAD" SIGN IF WORK AREA WITHIN THE PROJECT IS SEPARATED BY MORE THAN 2 MILES FROM PREVIOUS WORK AREA.

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

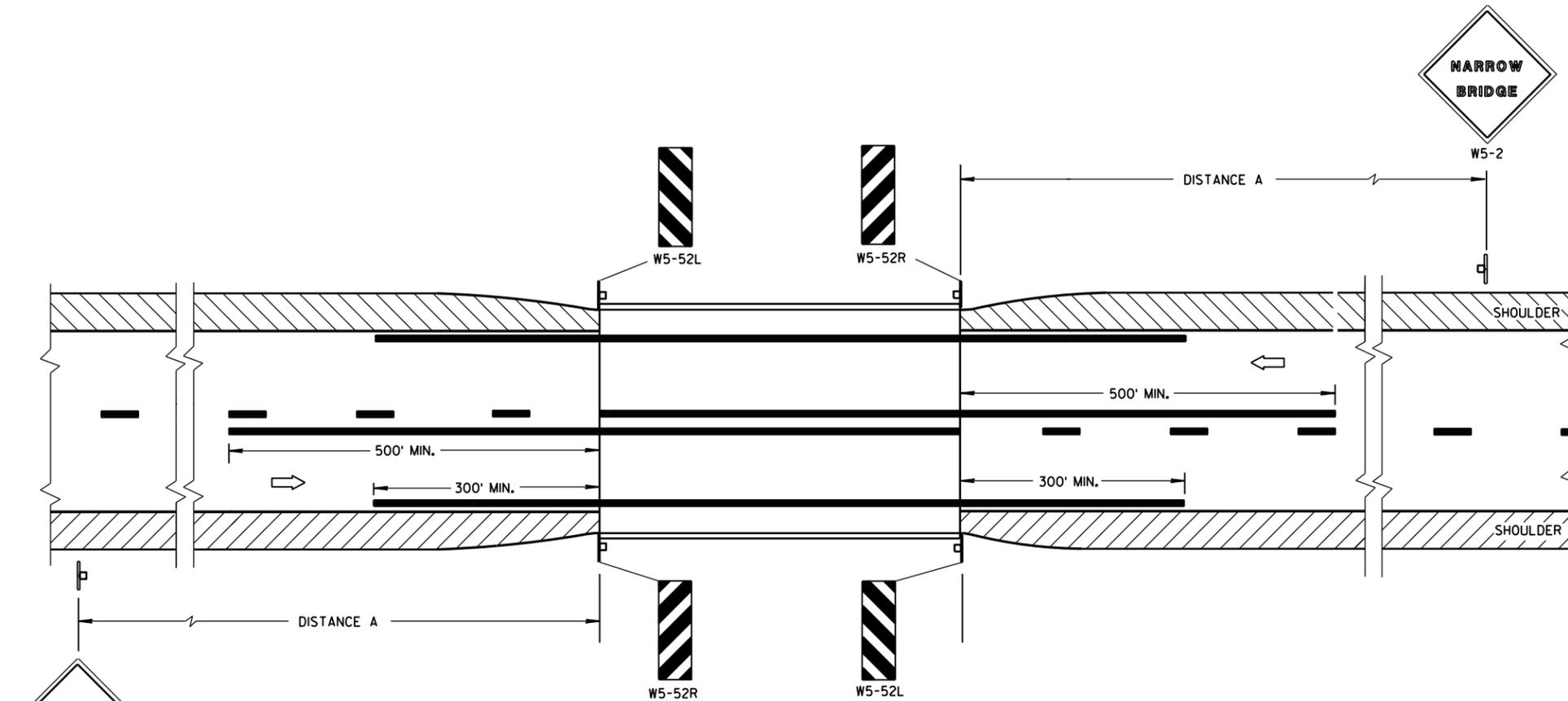
DETAILS OF TRAFFIC CONTROL DEVICES AND INSTALLATION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS, THE SPECIAL PROVISIONS, AND THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

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.

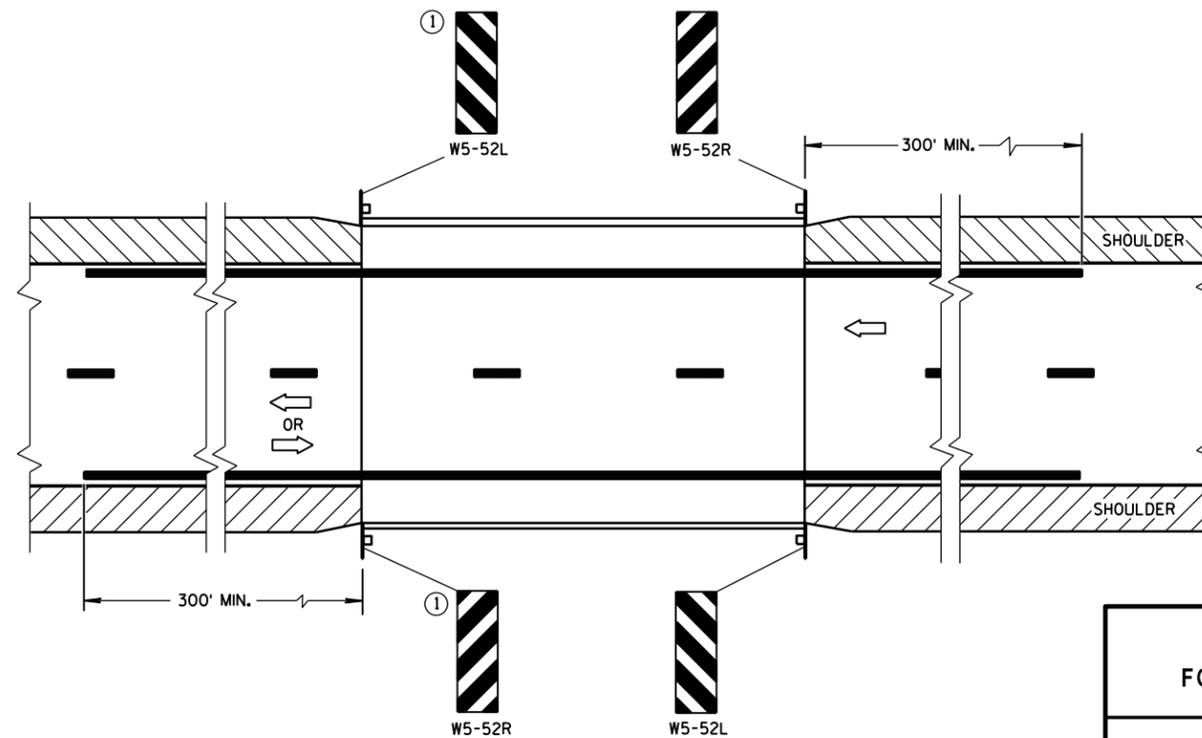
① OMIT ON ONE-WAY TRAVELLED WAYS.

➡ 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

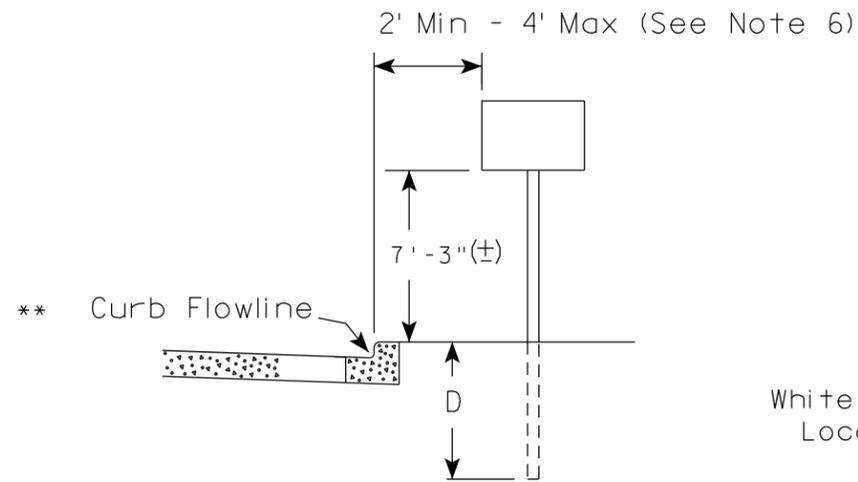
POSTED OR 85th PERCENTILE SPEED	DISTANCE "A"
25	150'
30	200'
35	250'
40	300'
45	400'
50	550'
55	750'

SIGNING & MARKING FOR TWO LANE BRIDGES

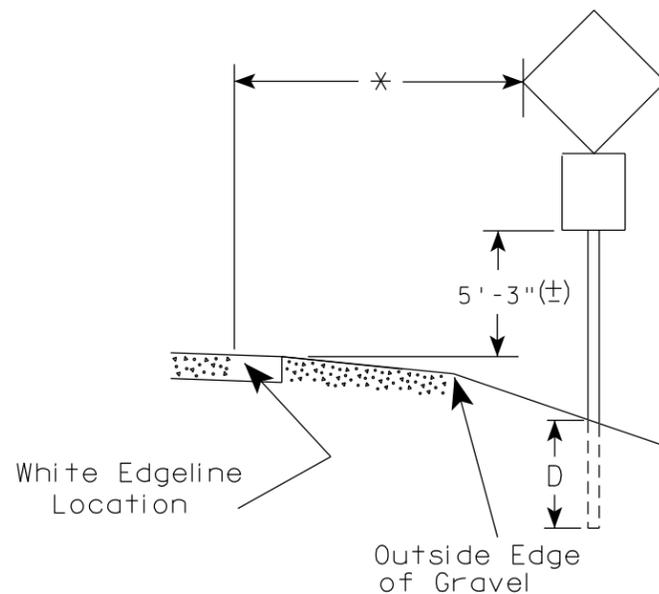
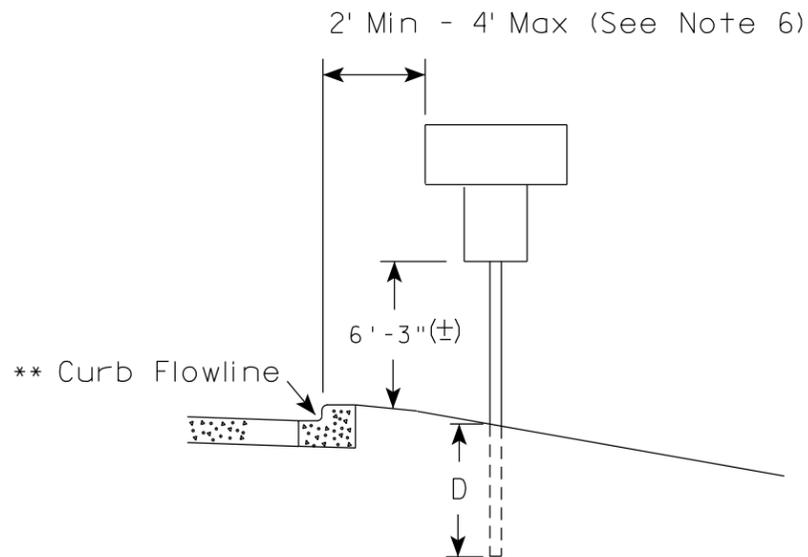
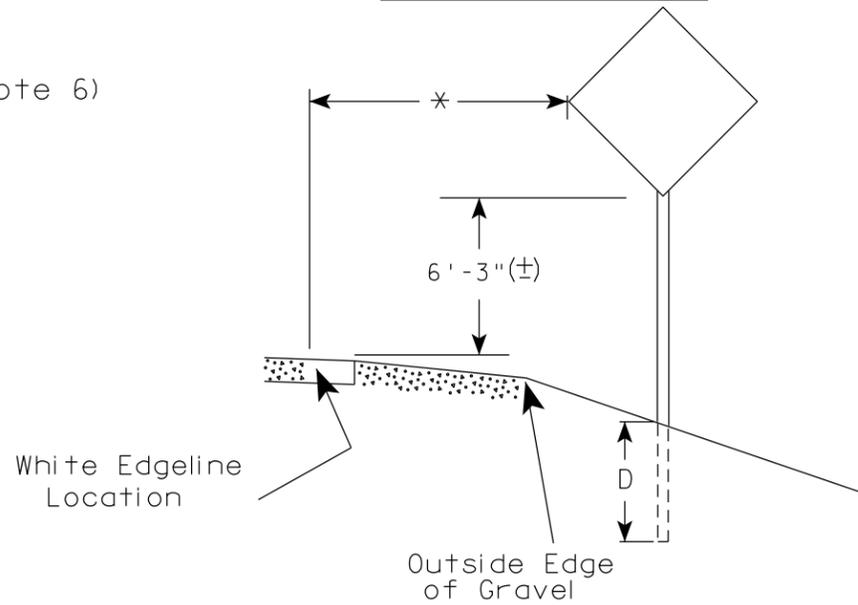
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

URBAN AREA



RURAL AREA (See Note 2)



GENERAL NOTES

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

POST EMBEDMENT DEPTH

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

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

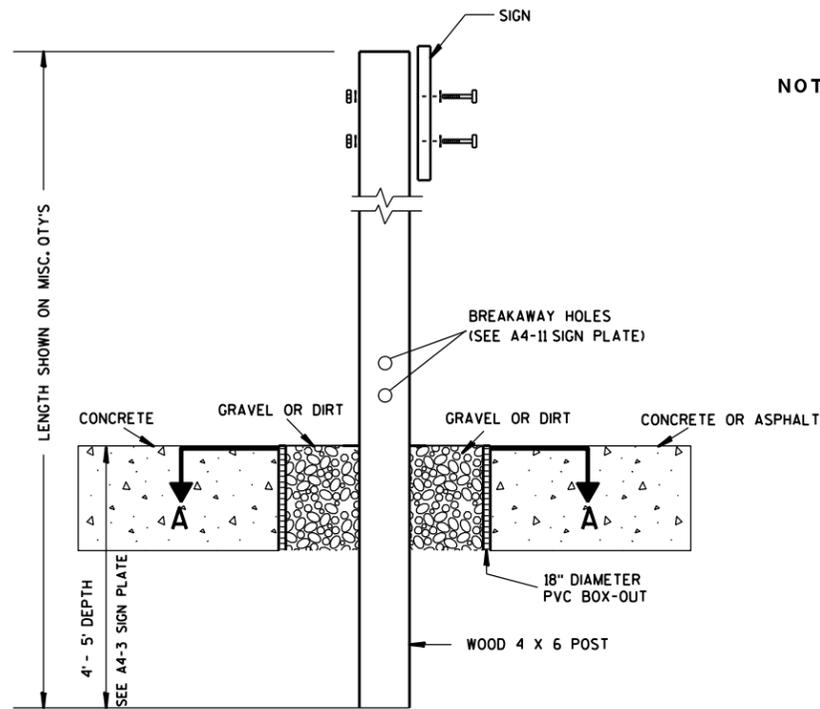
* 6 feet from edge of a paved shoulder or 12 feet from the edge of pavement (edge line location) or 2 feet from outside edge of gravel, whichever is greater unless directed by project engineer.

TYPICAL INSTALLATION OF PERMANENT TYPE II SIGNS ON SINGLE POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

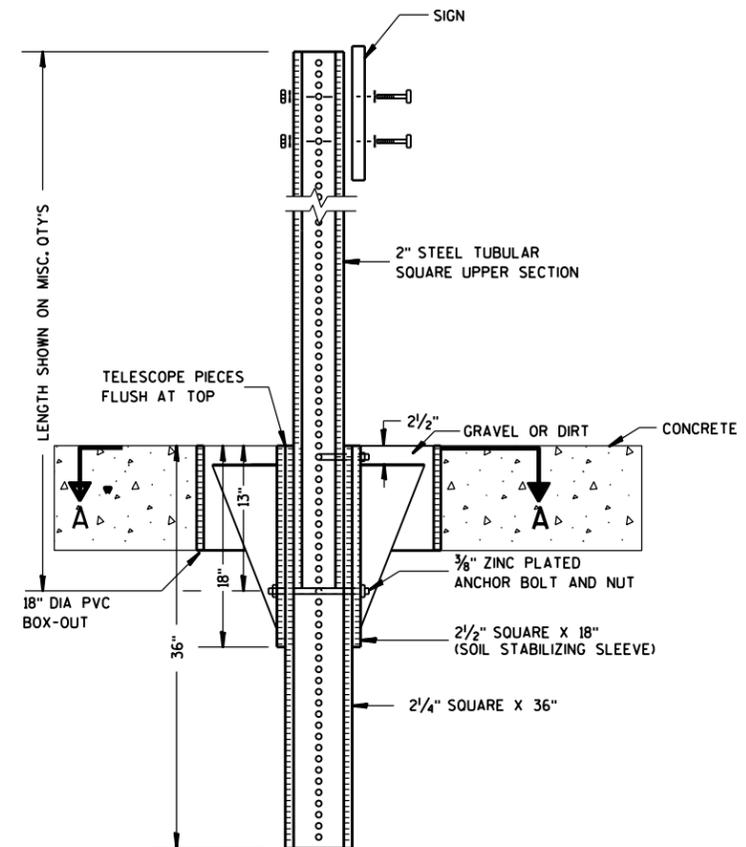
DATE 5/13/2020 PLATE NO. A4-3.22



ELEVATION VIEW

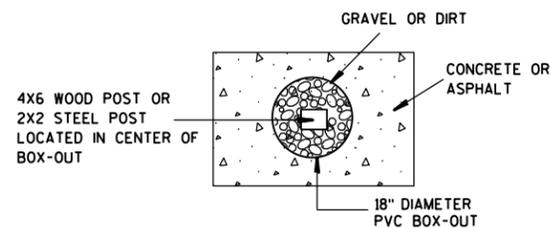
DETAIL OF WOOD 4 X 6 SIGN POST IN BOX-OUT

- 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

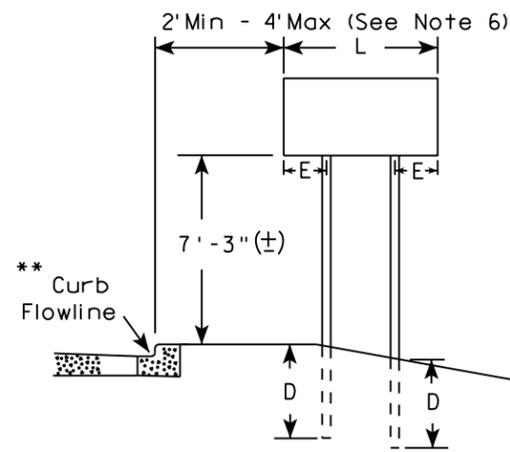
FOR NEW CONCRETE/ ASPHALT INSTALLATIONS

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>

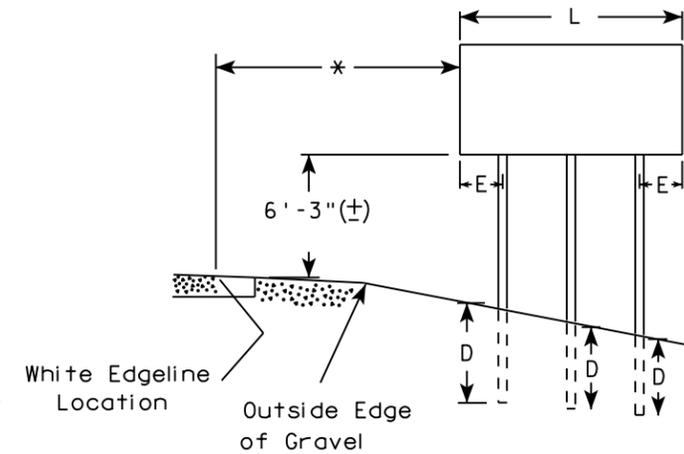
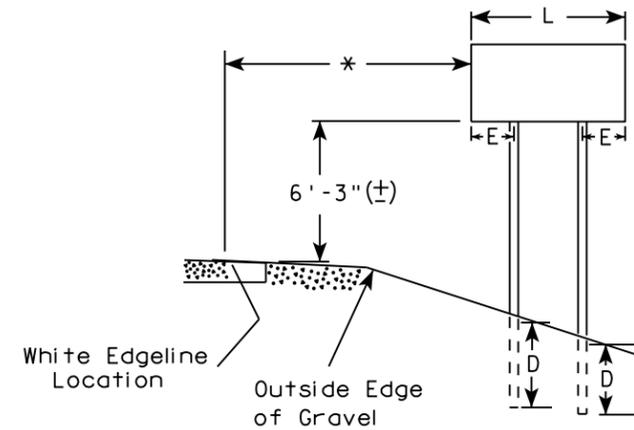
GENERAL NOTES

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" (±).

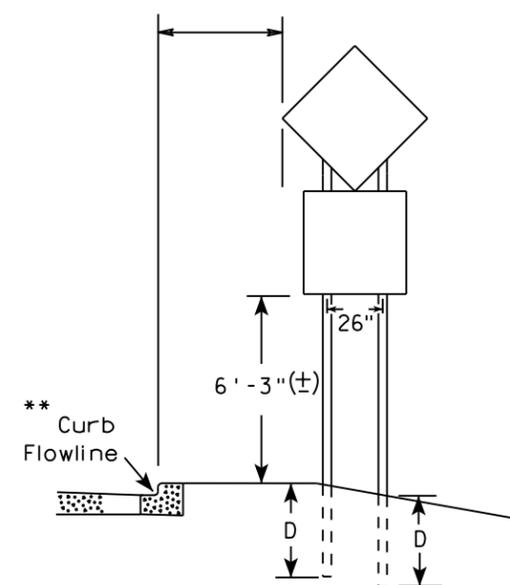
URBAN AREA



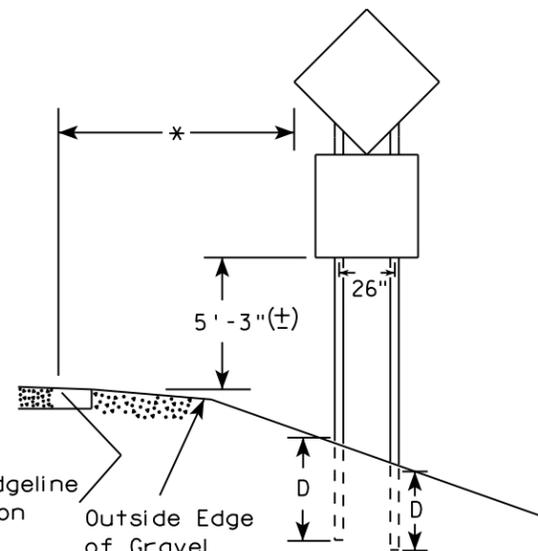
RURAL AREA (See Note 3)



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

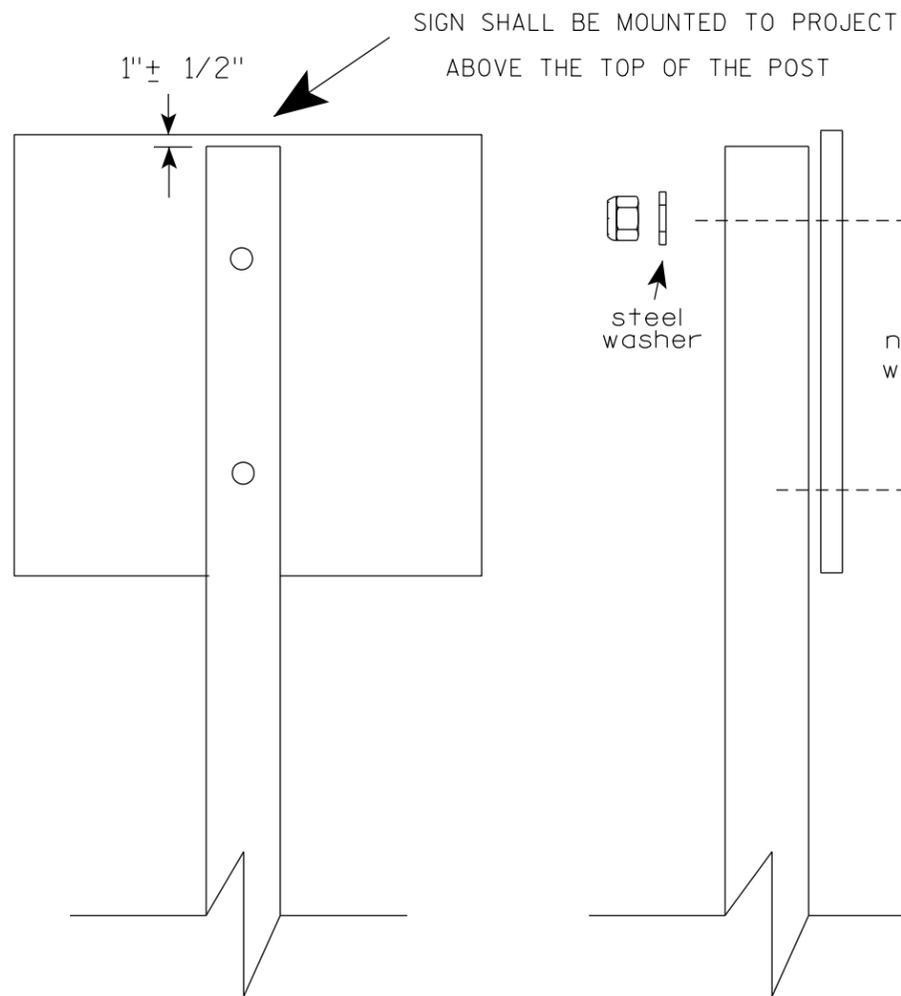
SIGN SHAPE OTHER THAN DIAMOND (THREE POSTS REQUIRED)	
L	E
Greater than 108" to 144"	12"

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



SIGN SHALL BE MOUNTED TO PROJECT
ABOVE THE TOP OF THE POST

1"± 1/2"

steel washer

nylon washer

steel washer

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

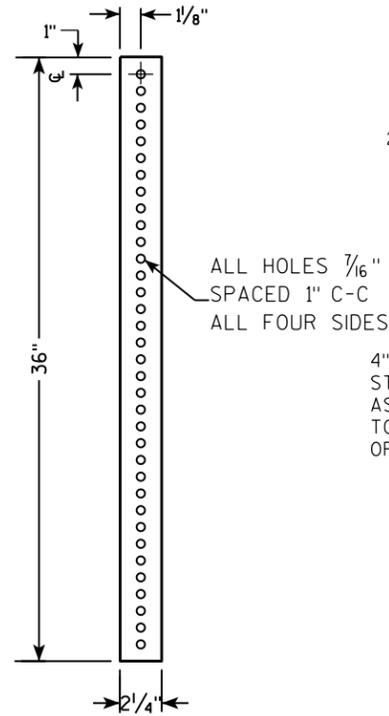
WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R Rauch*
For State Traffic Engineer

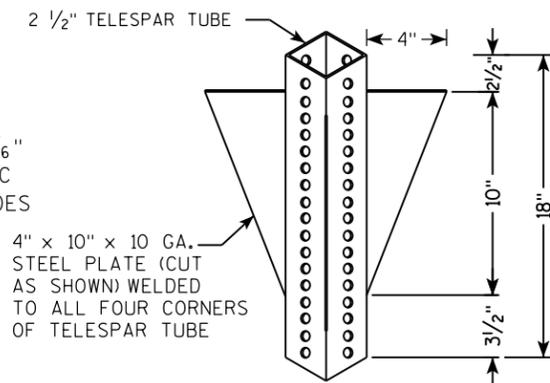
DATE 4/1/2020 PLATE NO. A4-8.9

**TELESCOPIC TUBING ANCHORS
TWO PIECE SYSTEM**

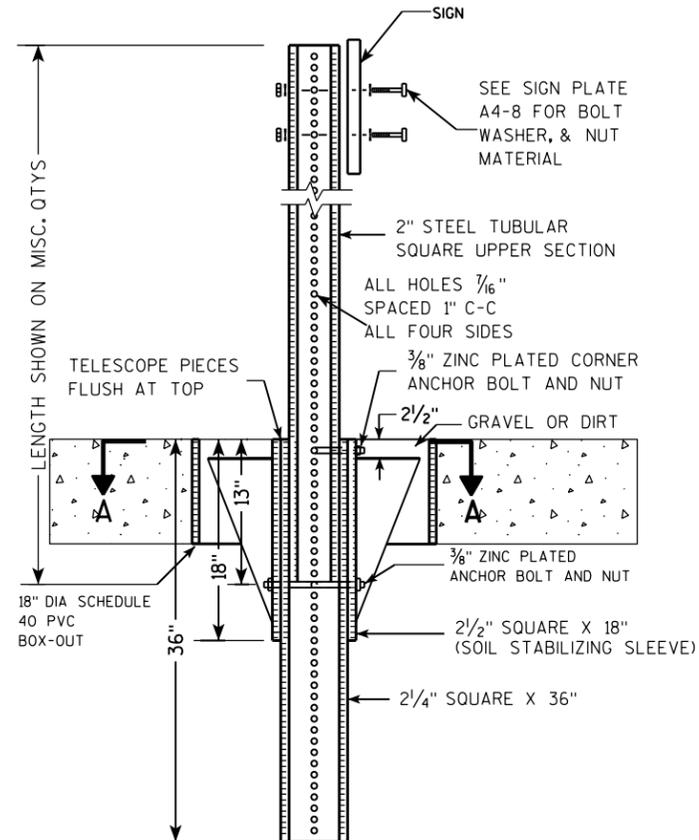
2 1/4" SQUARE
12 GAUGE
PERFORATED
GALVANIZED FINISH



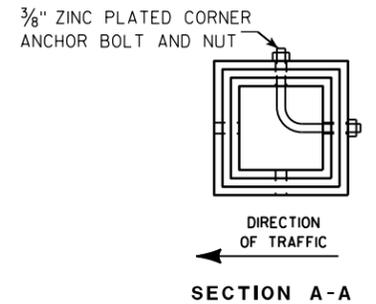
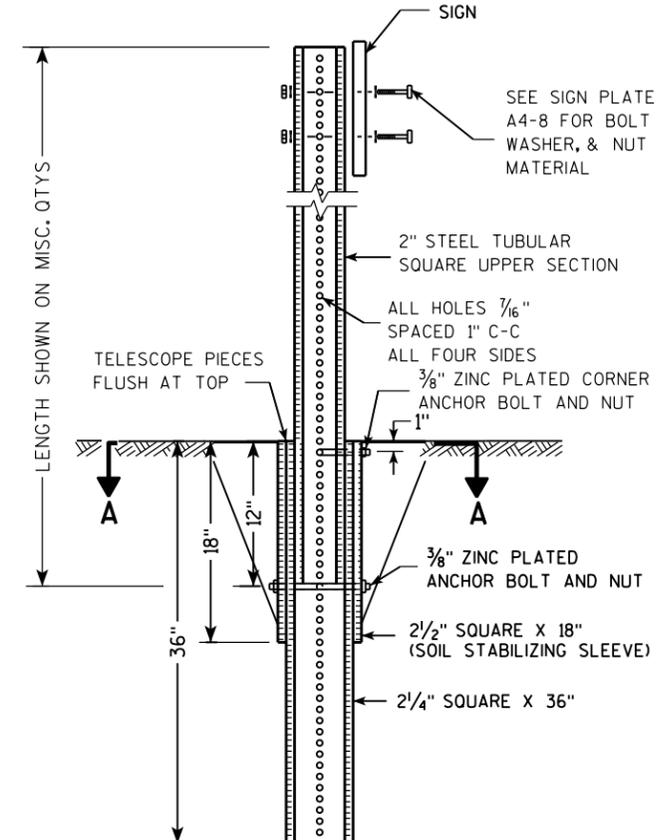
2 1/2" SQUARE
12 GAUGE
OMNI-DIRECTIONAL
PERFORATED
SOIL STABILIZING SLEEVE
GALVANIZED FINISH



**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

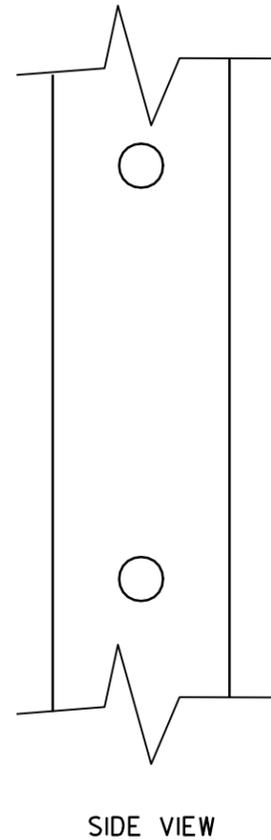
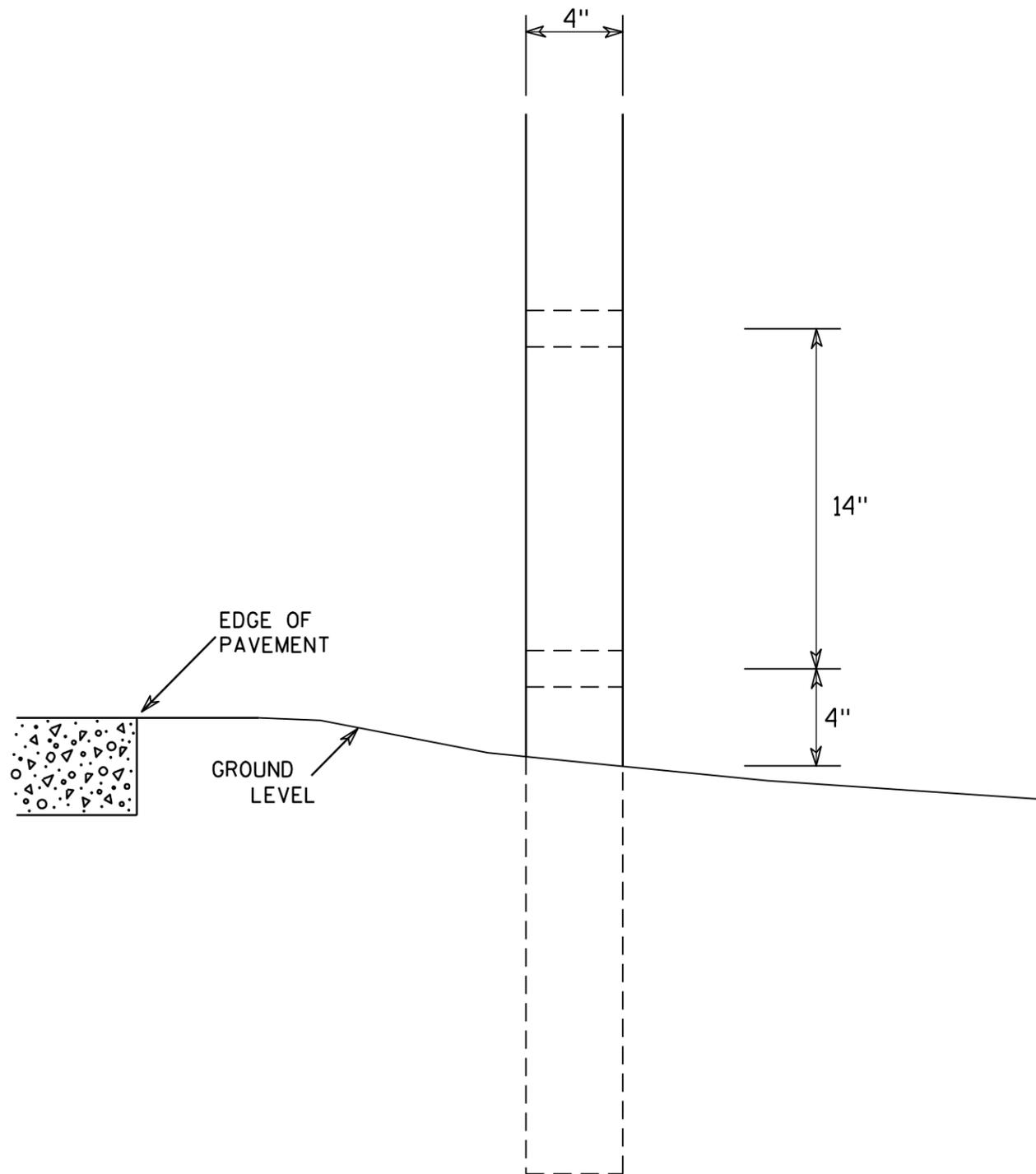
PROJECT NO:

HWY:

COUNTY:

SHEET NO:

E



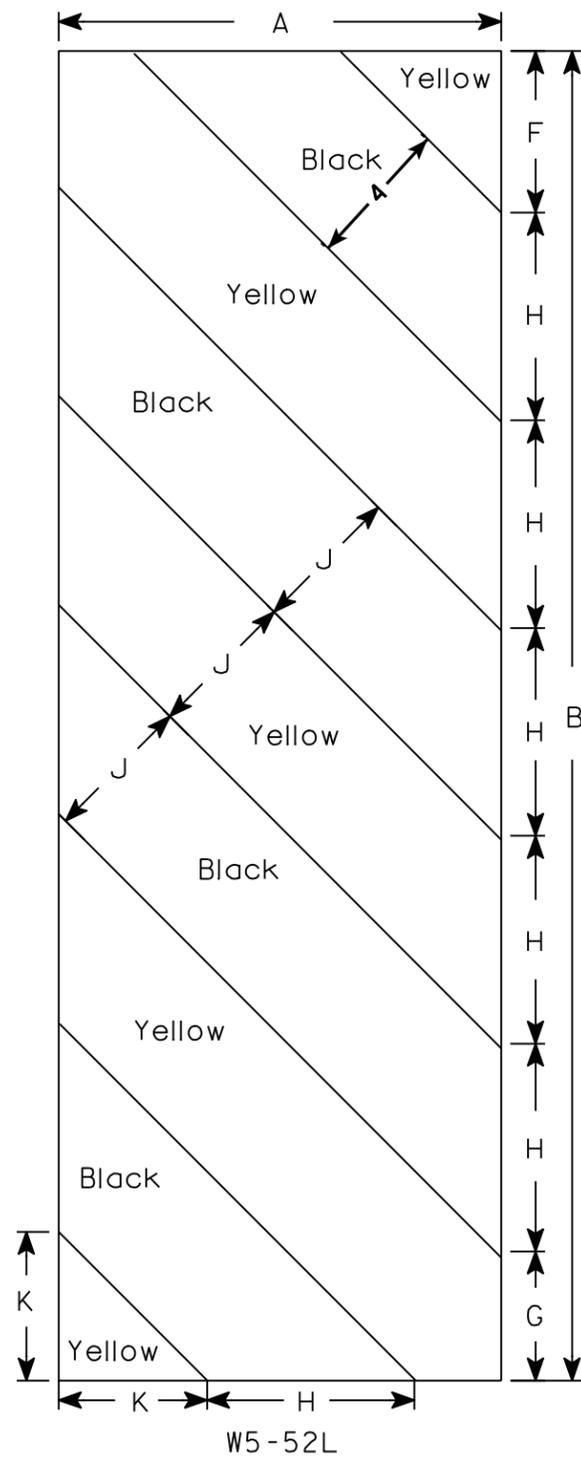
GENERAL NOTES

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

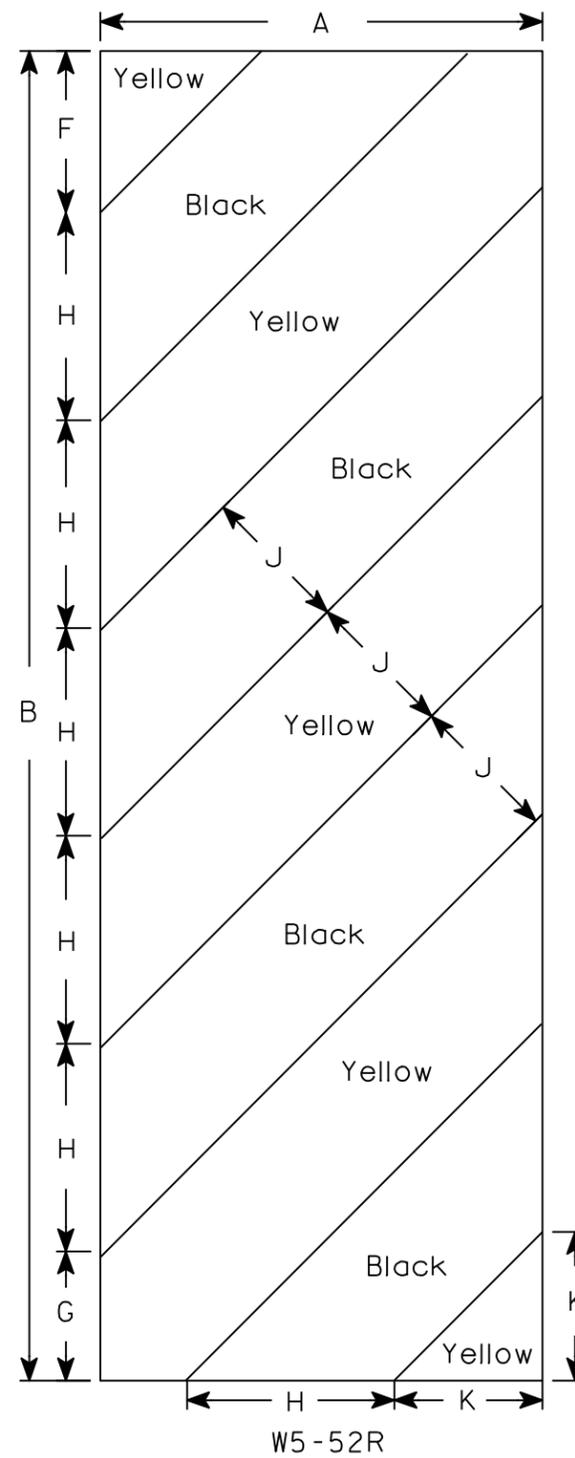
7

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>



W5-52L



W5-52R

NOTES

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

7

7

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

STANDARD SIGN
W5-52L & W5-52R

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

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

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

DESIGN DATA

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

LIVE LOAD:

DESIGN LOADING _____ HL = 93
 INVENTORY RATING FACTOR _____ RF = 1.14
 OPERATING RATING FACTOR _____ RF = 1.47
 WISCONSIN STANDARD PERMIT VEHICLE (WIS-SPV) _____ 250 KIPS

MATERIAL PROPERTIES:

CONCRETE MASONRY
 SLAB _____ Fc = 4,000 PSI
 ALL OTHER _____ Fc = 3,500 PSI
 BAR STEEL REINFORCEMENT, GRADE 60 _____ fy = 60,000 PSI
 (INCLUDES STAINLESS STEEL REINFORCEMENT)

HYDRAULIC DATA

100 YEAR FREQUENCY

Q₁₀₀ _____ 1500 C.F.S.
 Q_{BRIDGE} _____ 1315 C.F.S.
 VEL. _____ 7.01 F.P.S.
 HW₁₀₀ _____ EL. 793.40
 WATERWAY AREA _____ 187.66 SQ. FT.
 DRAINAGE AREA _____ 7.33 SQ. MI.

SCOUR CRITICAL CODE _____ 8

2 YEAR FREQUENCY

Q₂ TOTAL _____ 235 C.F.S.
 VEL. _____ 3.00 F.P.S.
 HW₂ _____ EL. 789.23

ROADWAY OVERTOPPING FREQUENCY

FREQUENCY _____ 47 YEARS.
 Q₄₇ _____ 1156 C.F.S.
 HW₄₇ _____ EL. 792.88

TRAFFIC DATA

AADT (2022) _____ 415
 AADT (2042) _____ 459
 DESIGN SPEED _____ 55 MPH

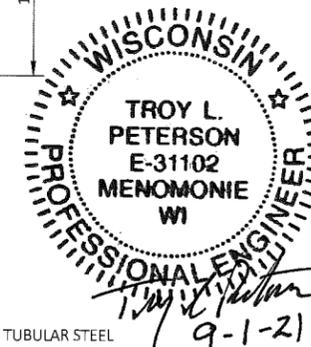
FOUNDATION DATA

ABUTMENTS TO BE SUPPORTED ON PILING STEEL HP 10x42, WITH A REQUIRED DRIVING RESISTANCE OF 130 TONS ± PER PILE AS DETERMINED BY THE MODIFIED GATES DYNAMIC EQUATION.

ESTIMATED LENGTH 50'-0" WEST ABUTMENT
 ESTIMATED LENGTH 50'-0" EAST ABUTMENT

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

BENCHMARKS			
NO	STA	DESCRIPTION	ELEV
1	9+50±	COTTON SPINDLE IN POWER POLE, 27.3' LT. OF C/L	791.71'
2	12+67±	COTTON SPINDLE IN POWER POLE, 28.2' LT. OF C/L	792.91'
3	10+16±	CHISELED 'X' IN NE WING WALL, 12.1' LT. OF C/L	794.04'
4	9+86±	CHISELED 'X' IN SW WING WALL, 10.5' RT. OF C/L	791.59'



LIST OF DRAWINGS

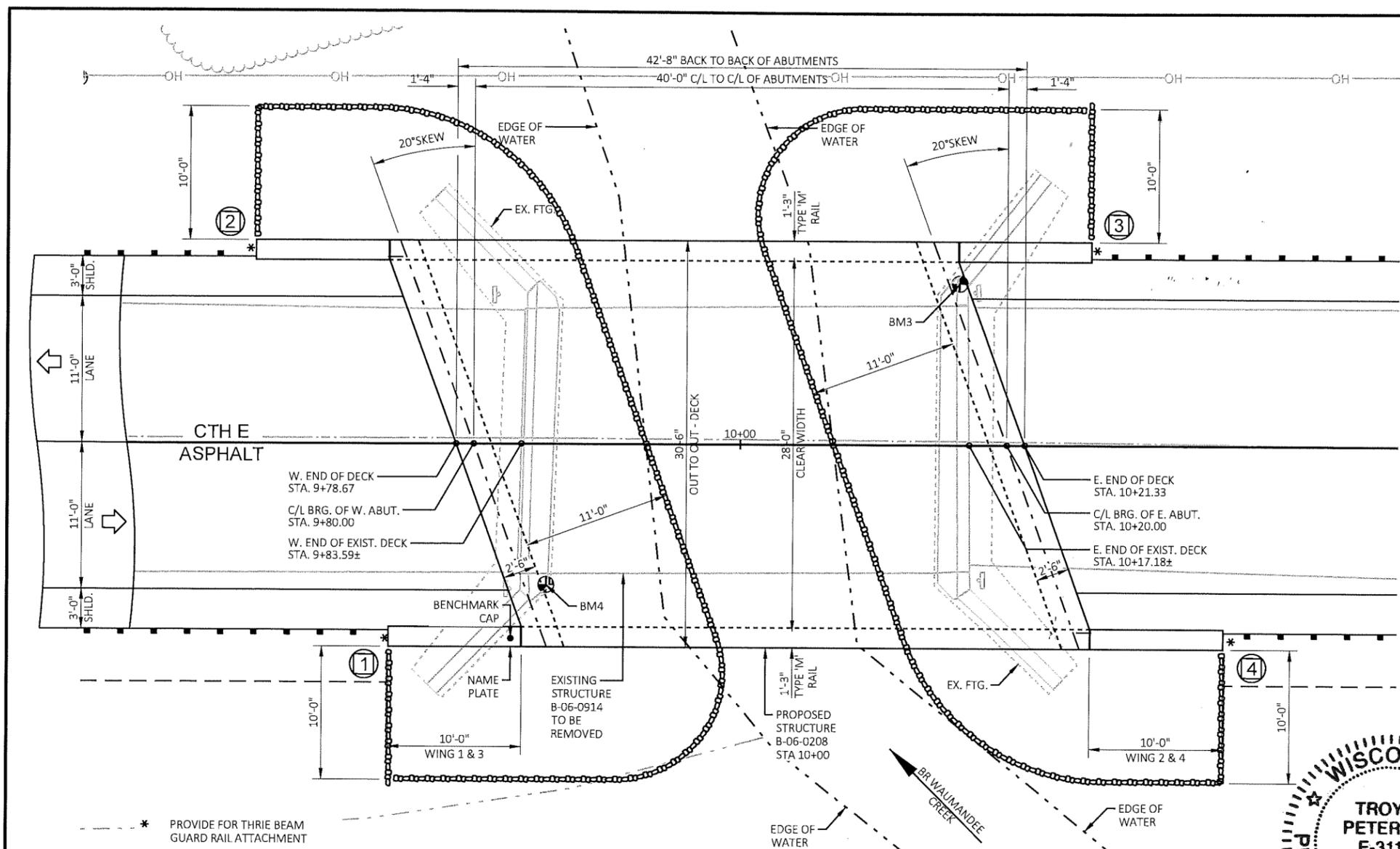
1. GENERAL PLAN
2. CROSS SECTION, QUANTITIES, & NOTES
3. SUBSURFACE EXPLORATION
4. WEST ABUTMENT
5. EAST ABUTMENT
6. ABUTMENT DETAILS
7. SUPERSTRUCTURE
8. SUPERSTRUCTURE DETAILS
9. RAILING TUBULAR TYPE M

BRIDGE OFFICE CONTACT

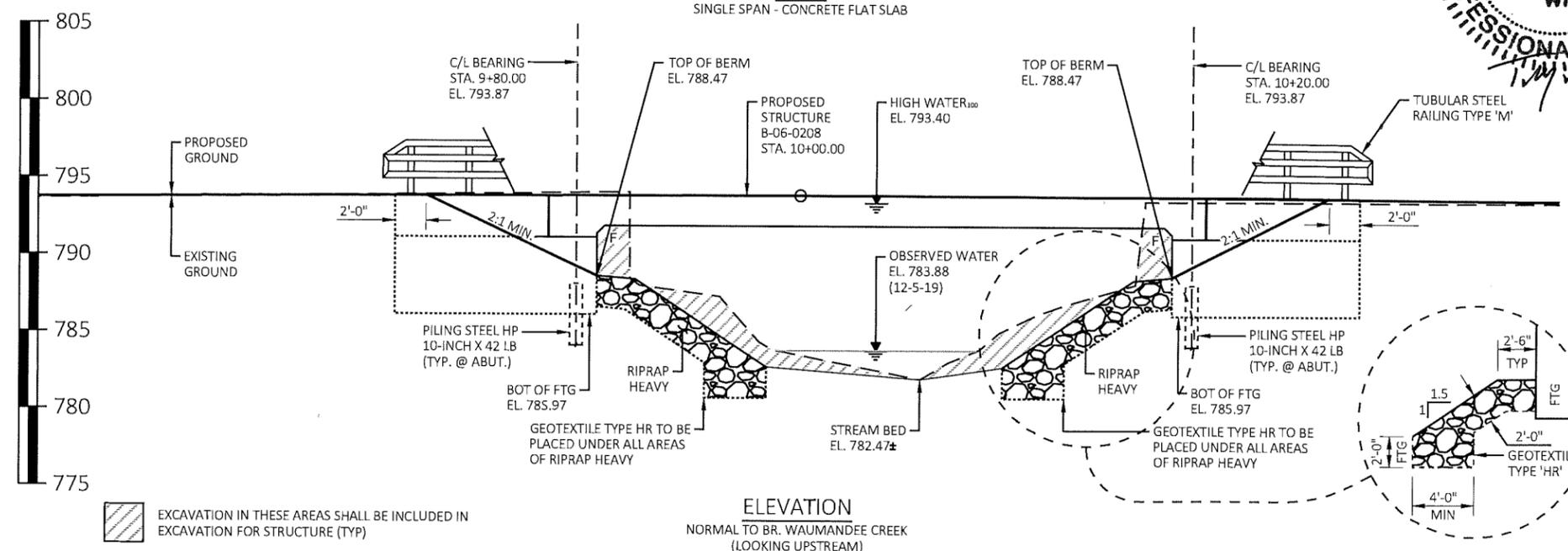
AARON M. BONK
 (608) 261-0261

CONSULTANT CONTACT

TROY L. PETERSON
 (715) 235-9081



PLAN
 SINGLE SPAN - CONCRETE FLAT SLAB



ELEVATION
 NORMAL TO BR. WAUMANDEE CREEK
 (LOOKING UPSTREAM)

NO.	DATE	REVISION	BY

ORIGINAL PLANS PREPARED BY
Cedar corporation
 www.cedarcorp.com 800-472-7372

ACCEPTED _____ SDR 11/09/21
 CHIEF STRUCTURES DESIGN ENGINEER DATE

STRUCTURE B-06-0208

CTH E BRIDGE OVER BR. WAUMANDEE CREEK

COUNTY BUFFALO TOWN/CITY/VILLAGE WAUMANDEE

DESIGN SPEC. AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS

DESIGNED BY TLP	DESIGN CK'D. DWM	DRAWN BY NJT	PLANS CK'D. TLP
-----------------	------------------	--------------	-----------------

GENERAL PLAN SHEET 1 OF 9

GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.

ALL STATIONS AND ALL ELEVATIONS ARE IN FEET.

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

ALL REINFORCING BARS ARE ENGLISH. THE FIRST DIGIT OF A THREE-DIGIT BAR MARK OR THE FIRST TWO DIGITS OF A FOUR-DIGIT BAR MARK SIGNIFIES THE BAR SIZE.

JOINT FILLER SHALL CONFORM TO THE REQUIREMENTS OF A.A.S.H.T.O. DESIGNATION M 153, TYPE I, II OR III OR A.A.S.H.T.O. DESIGNATION M 213.

THE SLOPE OF THE FILL IN FRONT OF THE ABUTMENTS SHALL BE COVERED WITH RIPRAP HEAVY AND GEOTEXTILE TYPE 'HR' TO THE EXTENT SHOWN ON SHEETS 1 AND 2 AND IN THE ABUTMENT DETAILS.

THE EXISTING STRUCTURE (B-06-0914) IS A 33.0' LONG BY 20.0' WIDTH SINGLE SPAN STEEL DECK GIRDER BRIDGE.

THE UPPER LIMITS OF "EXCAVATION FOR STRUCTURES BRIDGES B-06-0208" SHALL BE THE EXISTING GRADE LINE.

AT THE BACK FACE OF ABUTMENT ALL VOLUME WHICH CANNOT BE IN PLACE BEFORE ABUTMENT CONSTRUCTION AND NOT OCCUPIED BY THE NEW STRUCTURE SHALL BE BACKFILLED WITH BACKFILL STRUCTURE.

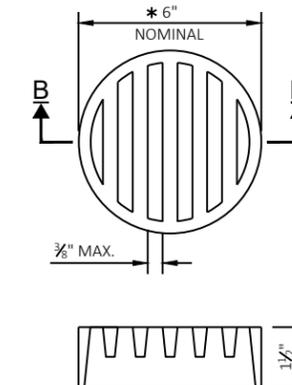
AT ABUTMENTS, CONCRETE POURED UNDERWATER WILL BE ALLOWED AND SHALL BE DONE IN ACCORDANCE WITH SECTION 502.3.5.3 OF THE STANDARD SPECIFICATIONS.

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

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

■ PIPE UNDERDRAIN WRAPPED (6-INCH). SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. ATTACH RODENT SHIELD AT ENDS OF PIPE UNDERDRAIN.

* APPLY PROTECTIVE SURFACE TREATMENT TO THE TOP OF DECK, EDGES OF DECK, AND BOTTOM 1' OUTSIDE EDGE OF DECK. APPLY TO TOP OF WINGS AND EXTERIOR EXPOSED FACE OF WINGS AND THE END 1' OF THE FRONT FACE OF ABUTMENTS.

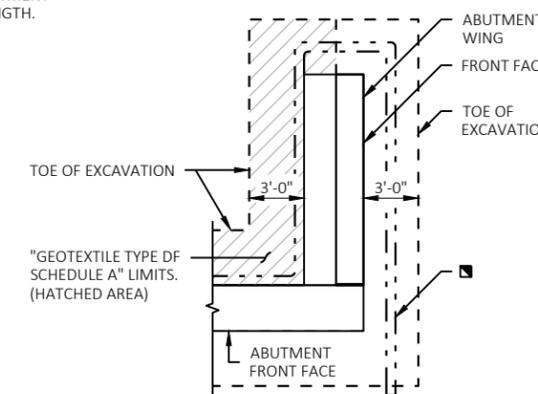


RODENT SHIELD DETAIL

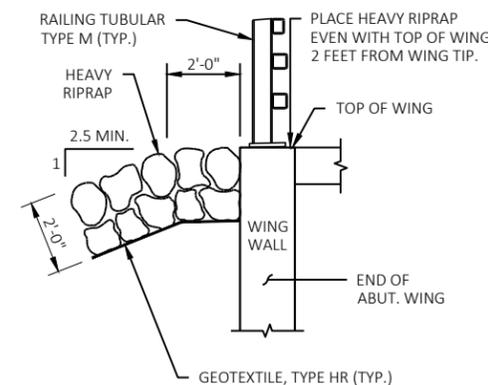
* DIMENSION IS APPROXIMATE. THE GRATE IS SIZED TO FIT INTO A PIPE COUPLING. ORIENT SO SLOTS ARE VERTICAL.

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

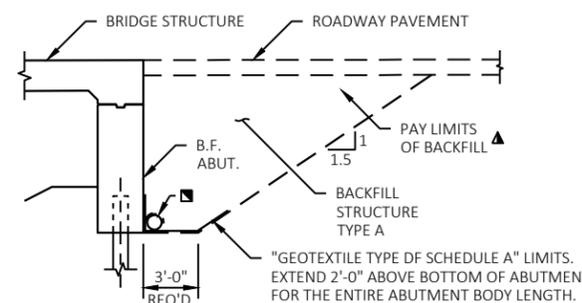
THE RODENT SHIELD SHALL BE A PVC GRATE SIMILAR TO THIS DETAIL. THE GRATE IS COMMERCIALY AVAILABLE AS A FLOOR STRAINER. A PIPE COUPLING IS REQUIRED FOR THE ATTACHMENT OF THIS SHIELD TO THE EXPOSED END OF THE PIPE UNDERDRAIN. THE SHIELD SHALL BE FASTENED TO THE PIPE COUPLING WITH TWO OR MORE NO. 10 X 1-INCH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



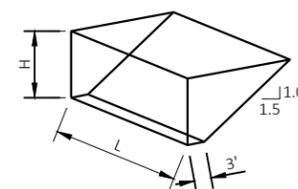
ABUTMENT PLAN WITH WING



TYPICAL FILL SECTION AT WING TIPS

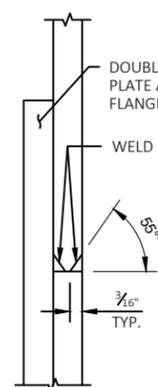


STRUCTURE BACKFILL & LIMITS

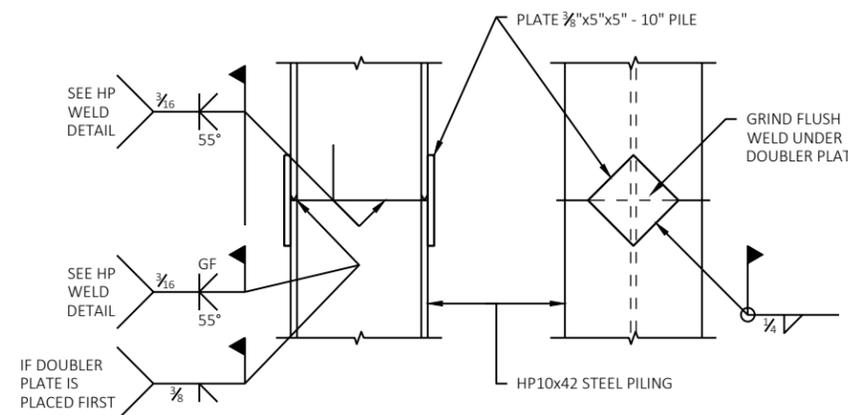


ABUTMENT BACKFILL DIAGRAM FOR WINGS PARALLEL TO ROADWAY

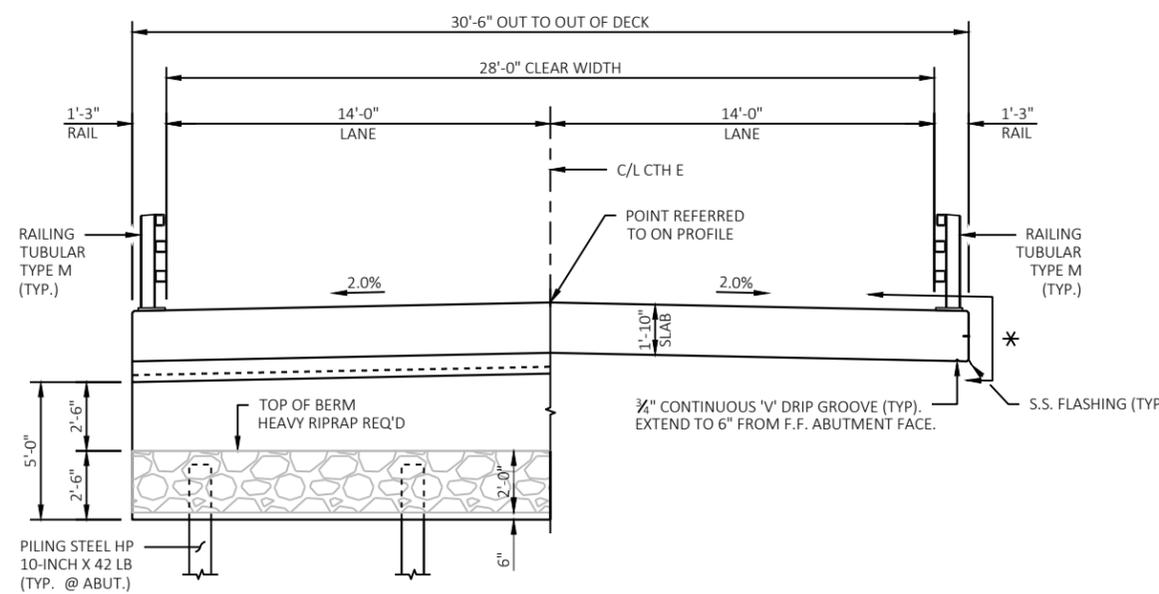
L = OUT TO OUT OF ABUTMENT, INCLUDING WINGS (FT)
 H = AVERAGE ABUTMENT FILL HEIGHT (FT)
 EF = EXPANSION FACTOR (1.20 FOR CY BID ITEMS & 1.00 FOR TON BID ITEMS)
 $V_{CF} = (L)(3.0')(H) + (L)(0.5')(1.5H)(H)$
 $V_{CY} = V_{CF} (EF) / 27$
 $V_{TON} = V_{CY} (2.0)$



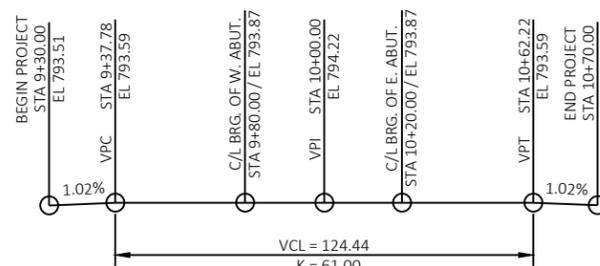
HP WELD DETAIL
 FLANGE SHOWN, WEB SIMILAR



PILE SPLICE DETAILS



CROSS SECTION THRU STRUCTURE
 (LOOKING EAST)



PROPOSED GRADE ON CTH E

TOTAL ESTIMATED QUANTITIES

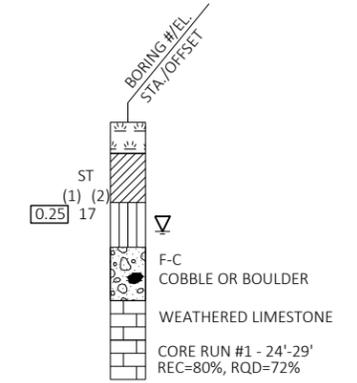
ITEM NUMBER	BID ITEMS	UNIT	WEST ABUT.	EAST ABUT.	SUPER.	TOTALS
203.0260.01	REMOVING STRUCTURE OVER WATERWAY MINIMAL DEBRIS (B-06-0914)	EACH	-	-	-	1
206.1000.01	EXCAVATION FOR STRUCTURES BRIDGES B-06-0208	LS	-	-	-	1
210.1500	BACKFILL STRUCTURE TYPE A	TON	120.0	120.0	-	240
502.0100	CONCRETE MASONRY BRIDGES	CY	30.4	30.4	93.2	154
502.3200	PROTECTIVE SURFACE TREATMENT	SY	8.4	8.4	170.2	187
505.0400	BAR STEEL REINFORCEMENT HS STRUCTURES	LB	1770	1770	-	3540
505.0600	BAR STEEL REINFORCEMENT HS COATED STRUCTURES	LB	1410	1410	17130	19950
513.4061	RAILING TUBULAR TYPE M	LF	-	-	130	130
516.0500	RUBBERIZED MEMBRANE WATERPROOFING	SY	9.0	9.0	-	18.0
550.1100	PILING STEEL HP 10-INCH X 42 LB	LF	250	250	-	500
606.0300	RIPRAP HEAVY	CY	70.0	70.0	-	140
612.0406	PIPE UNDERDRAIN WRAPPED 6-INCH	LF	85.0	85.0	-	170
645.0111	GEOTEXTILE TYPE DF SCHEDULE A	SY	31.0	31.0	-	62
645.0120	GEOTEXTILE TYPE HR	SY	130.0	130.0	-	260
SPV.0090.01	FLASHING STAINLESS STEEL	LF	-	-	85	85
	NON-BID ITEMS					
	FILLER	SIZE	-	-	-	1/2" X 3/4"

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-06-0208			
DRAWN BY NJT		PLANS CK'D. TLP	
CROSS SECTION, QUANTITIES, & NOTES			SHEET 2 OF 9

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

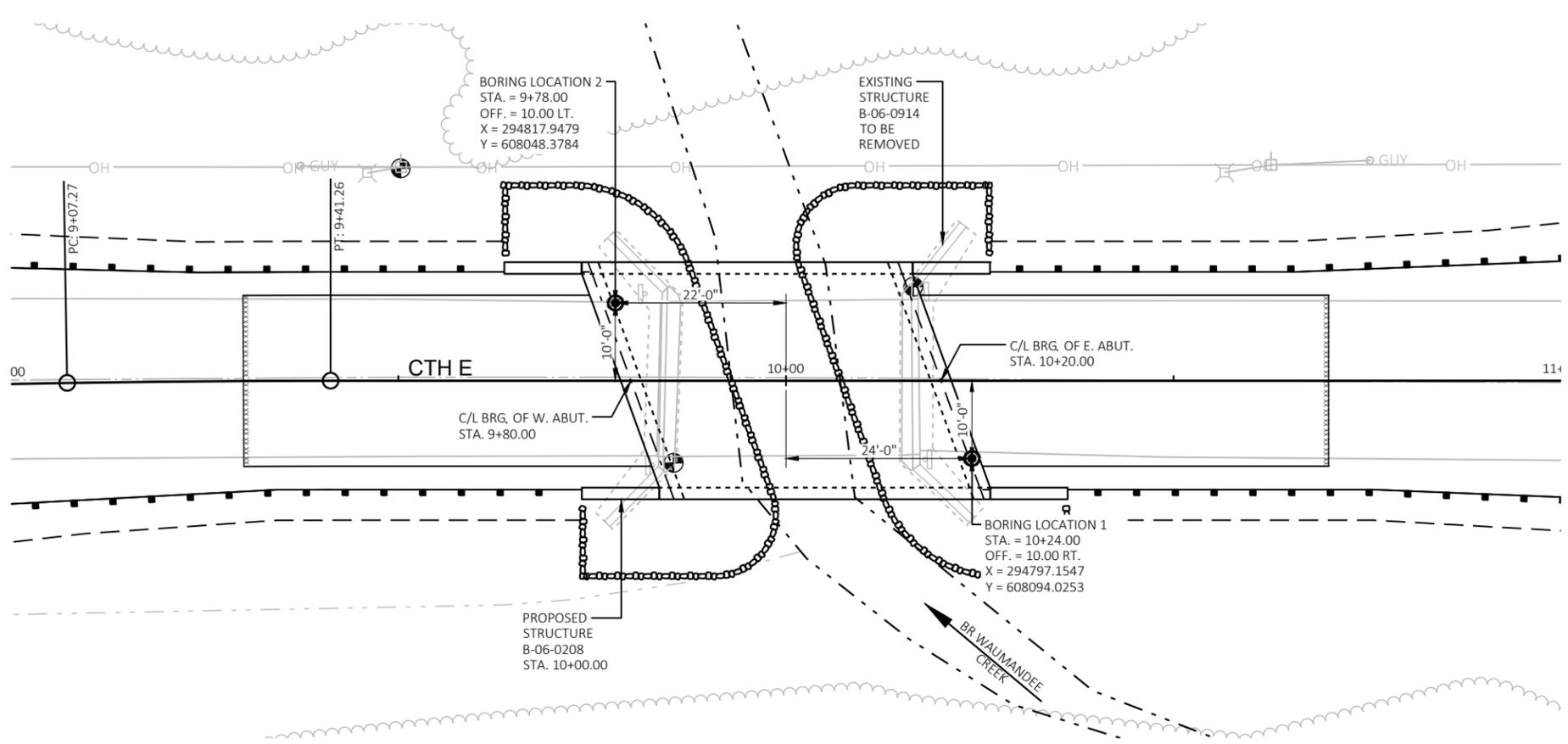
- ▽ AT TIME OF DRILLING
- ▼ END OF DRILLING
- ▼ AFTER DRILLING

ABBREVIATIONS

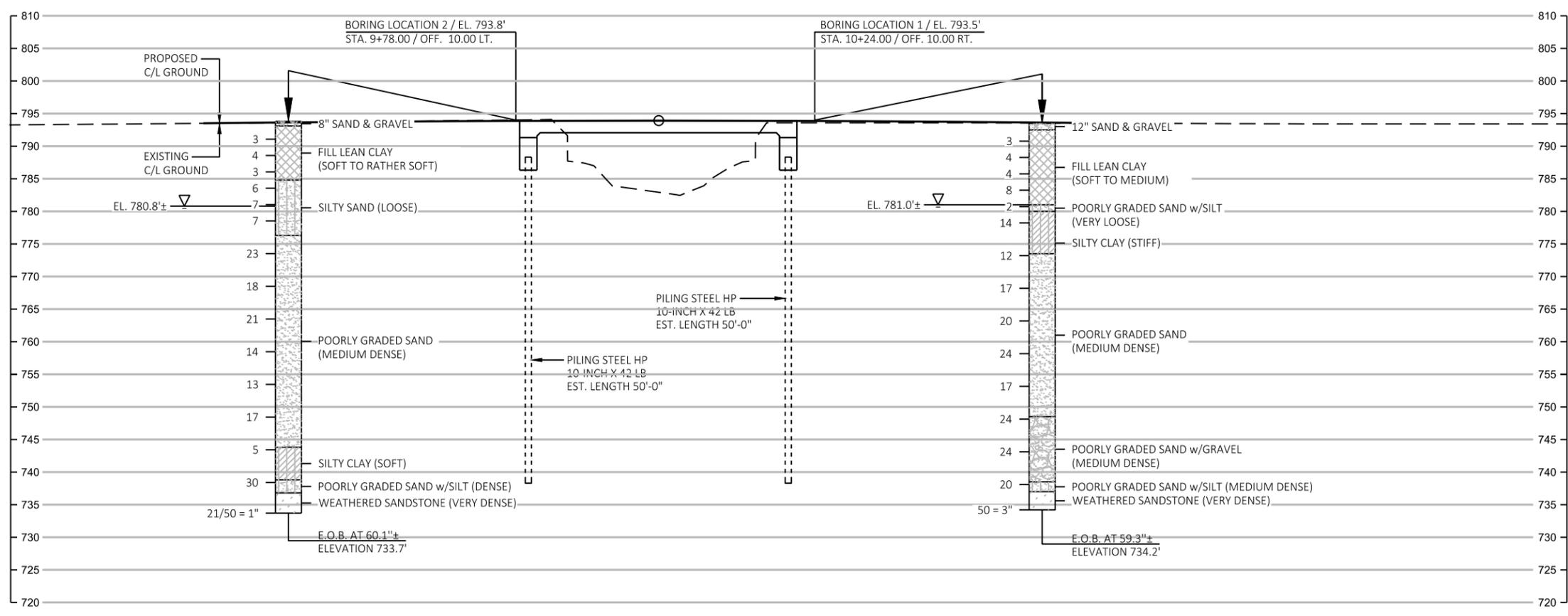
F-Fine M-Medium C-Coarse st-shelby tube

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.



PLAN



ELEVATION

SUBSURFACE NOTES

THE SUBSURFACE INFORMATION PRESENTED HEREIN IS AN ABBREVIATED VERSION OF THE INFORMATION PRESENTED IN THE GEOTECHNICAL ENGINEERING REPORT. REVIEW THE APPROPRIATE GEOTECHNICAL REPORT AND SOIL BORING LOGS FOR ADDITIONAL SUBSURFACE INFORMATION.

BORINGS & REPORT COMPLETED BY:

CHOSEN VALLEY TESTING, INC.
 1019 SECOND AVENUE SW
 ONALASKA, WI 54650
 (608) 782-5505

BORINGS PERFORMED ON:
 5/6/2020 - B1
 5/6/2020 - B2

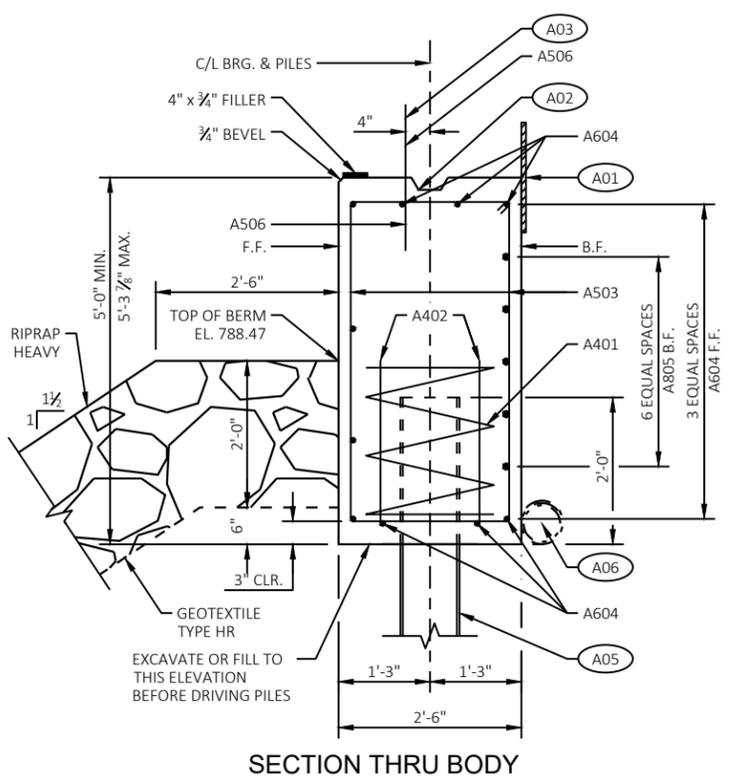
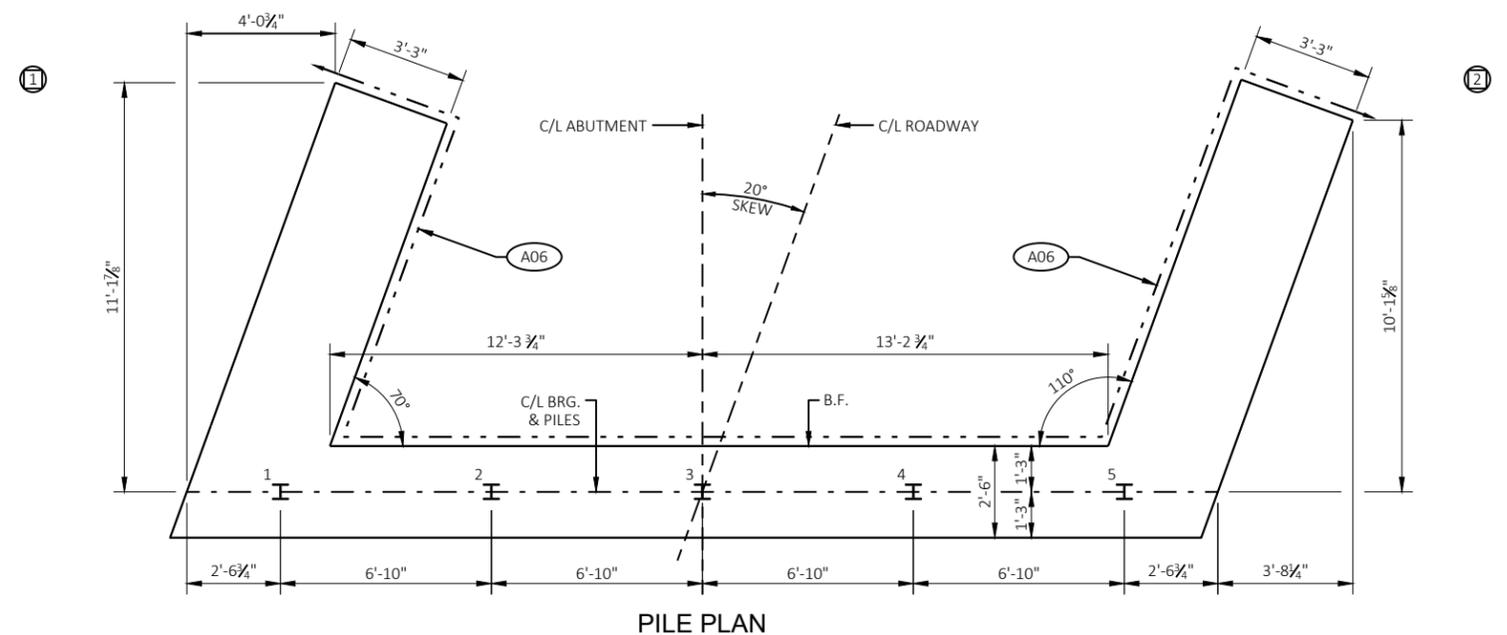
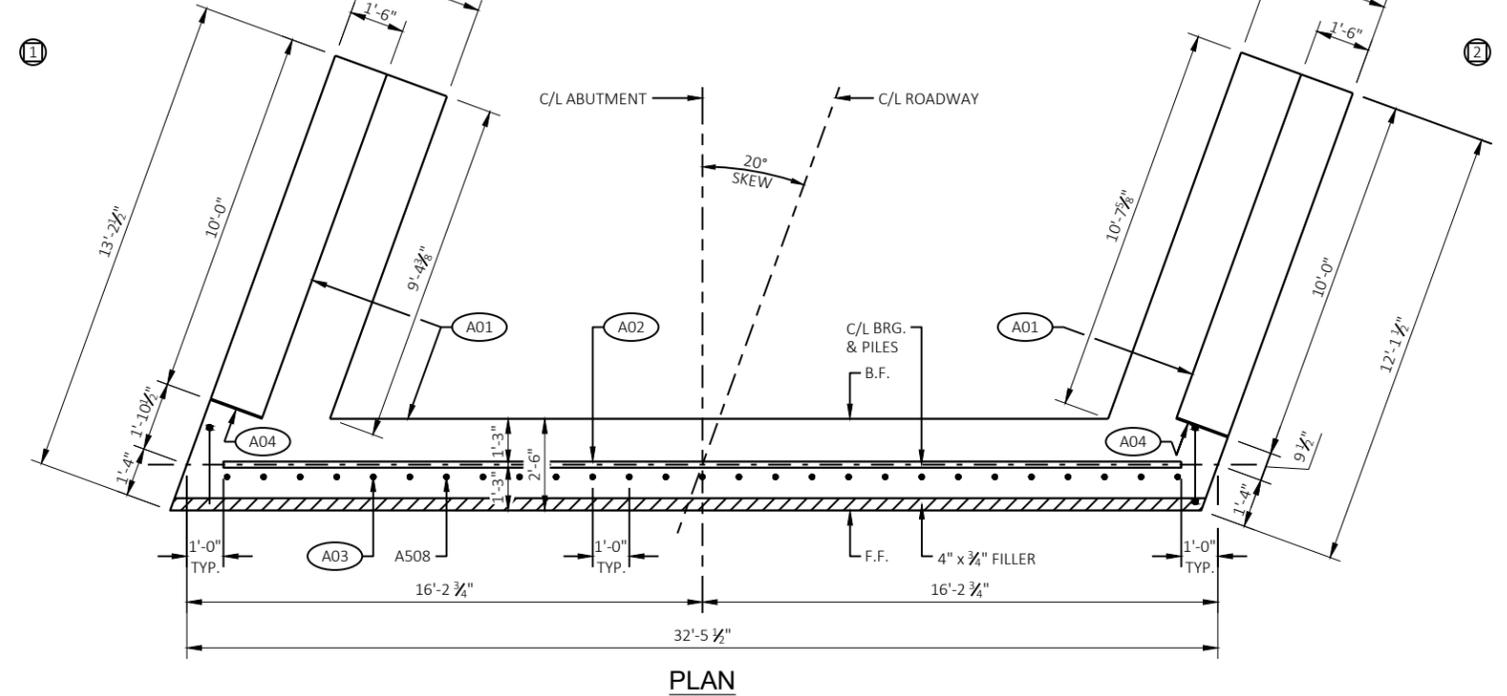
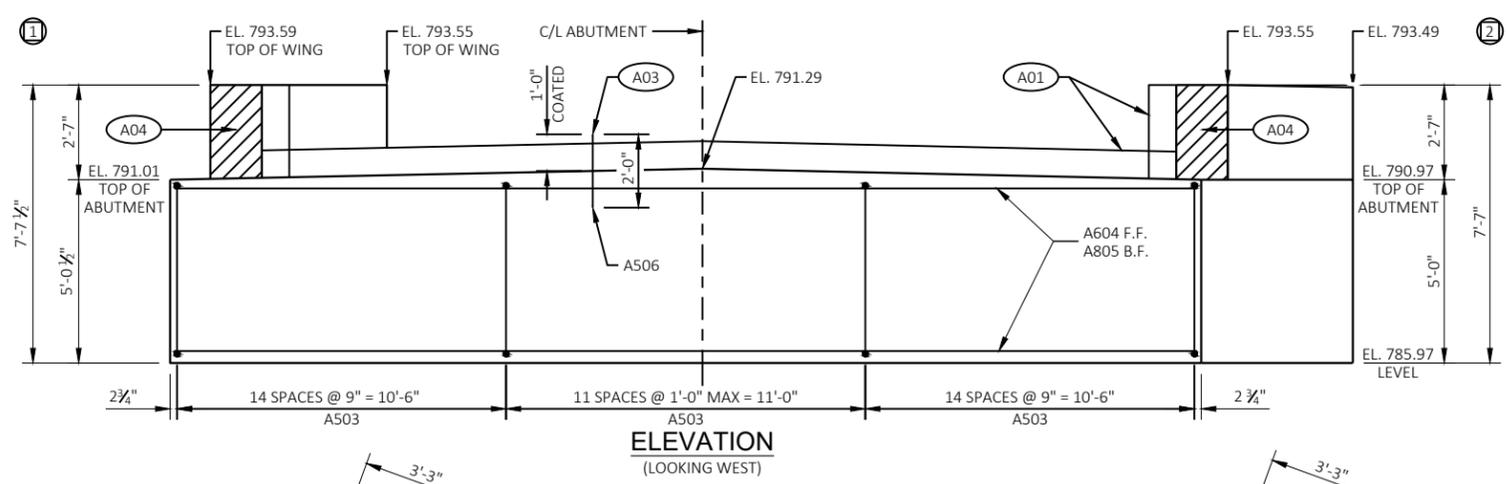
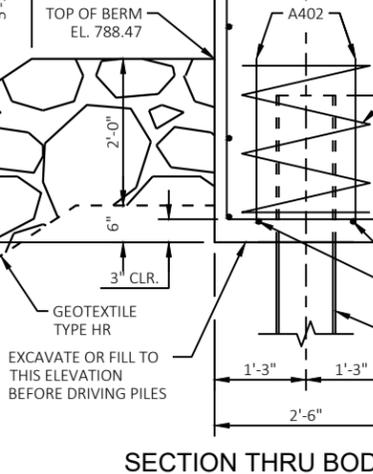
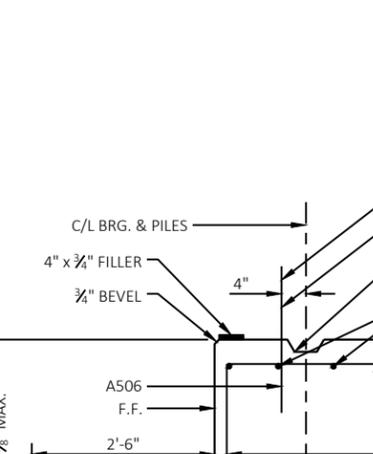
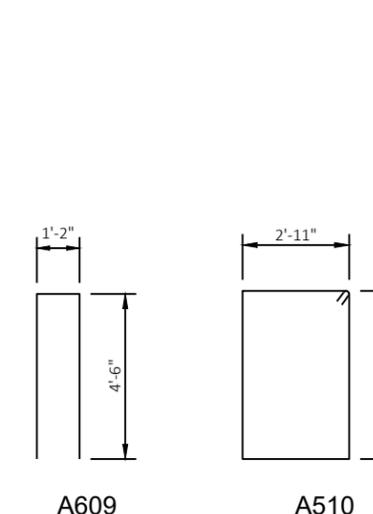
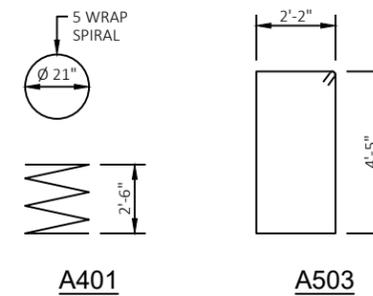


NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-06-0208			
DRAWN BY NJT		PLANS CK'D. TLP	
SUBSURFACE EXPLORATION			SHEET 3 OF 9

BILL OF BARS

BAR MARK	COAT	NO. REQ'D	LENGTH	BENT	BAR SERIES	LOCATION
A401		5	28'-0"	X		BODY - ONE PER PILE
A402		10	2'-3"			BODY - TWO PER PILE
A503		40	13'-10"	X		BODY - STIRRUPS
A604		10	32'-1"			BODY - HORIZ.
A805		7	32'-1"			BODY - HORIZ. B.F.
A506	X	31	2'-0"			BODY - VERT. DOWELS
A607	X	4	9'-8"			WING 1 & 2 - HORIZ. TOP
A408	X	12	9'-8"			WING 1 & 2 - HORIZ.
A609	X	28	9'-10"	X		WING 1 & 2 - VERT. TOP
A510	X	22	15'-8"	X		WING 1 & 2 - VERT. BASE
A511	X	6	12'-2"			WING 1 BASE HORIZ. F.F.
A512	X	6	11'-1"			WING 2 BASE HORIZ. F.F.
A613	X	6	11'-3"			WING 1 BASE HORIZ. B.F.
A614	X	6	12'-6"			WING 2 BASE HORIZ. B.F.
A615	X	2	12'-1"			WING 1 BASE HORIZ. TOP
A616	X	2	12'-1"			WING 2 BASE HORIZ. TOP

NOTE: BAR DIMENSIONS ARE OUT TO OUT OF BAR. THE FIRST DIGIT OF A THREE-DIGIT BAR MARK OR THE FIRST TWO DIGITS OF A FOUR-DIGIT BAR MARK SIGNIFIES THE BAR SIZE.



LEGEND

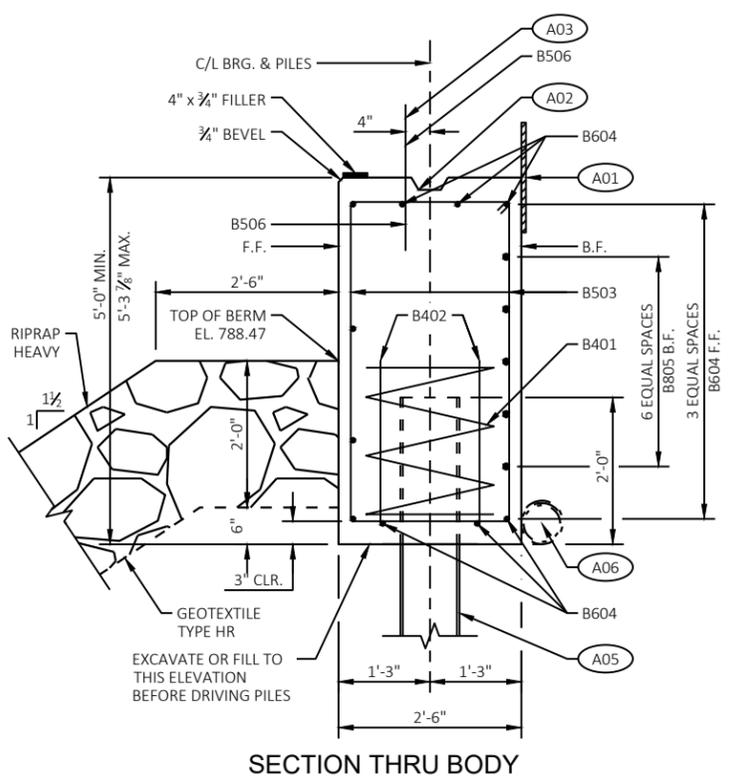
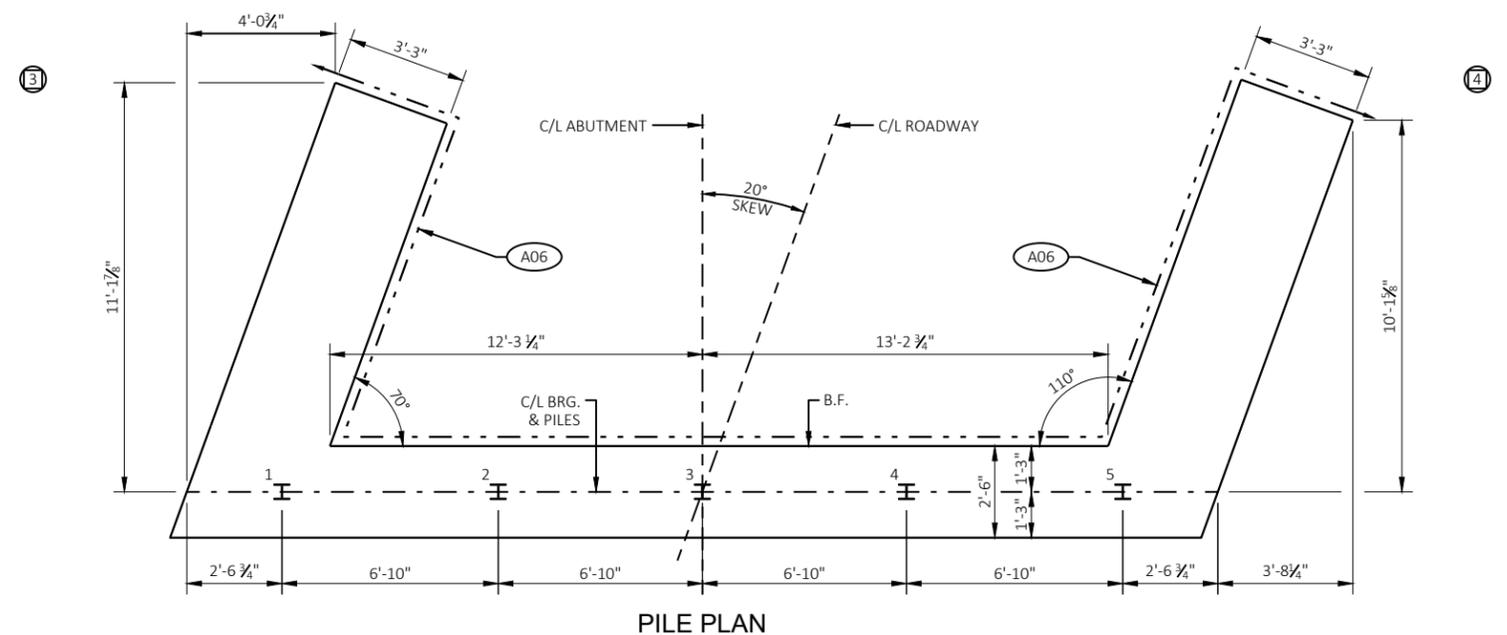
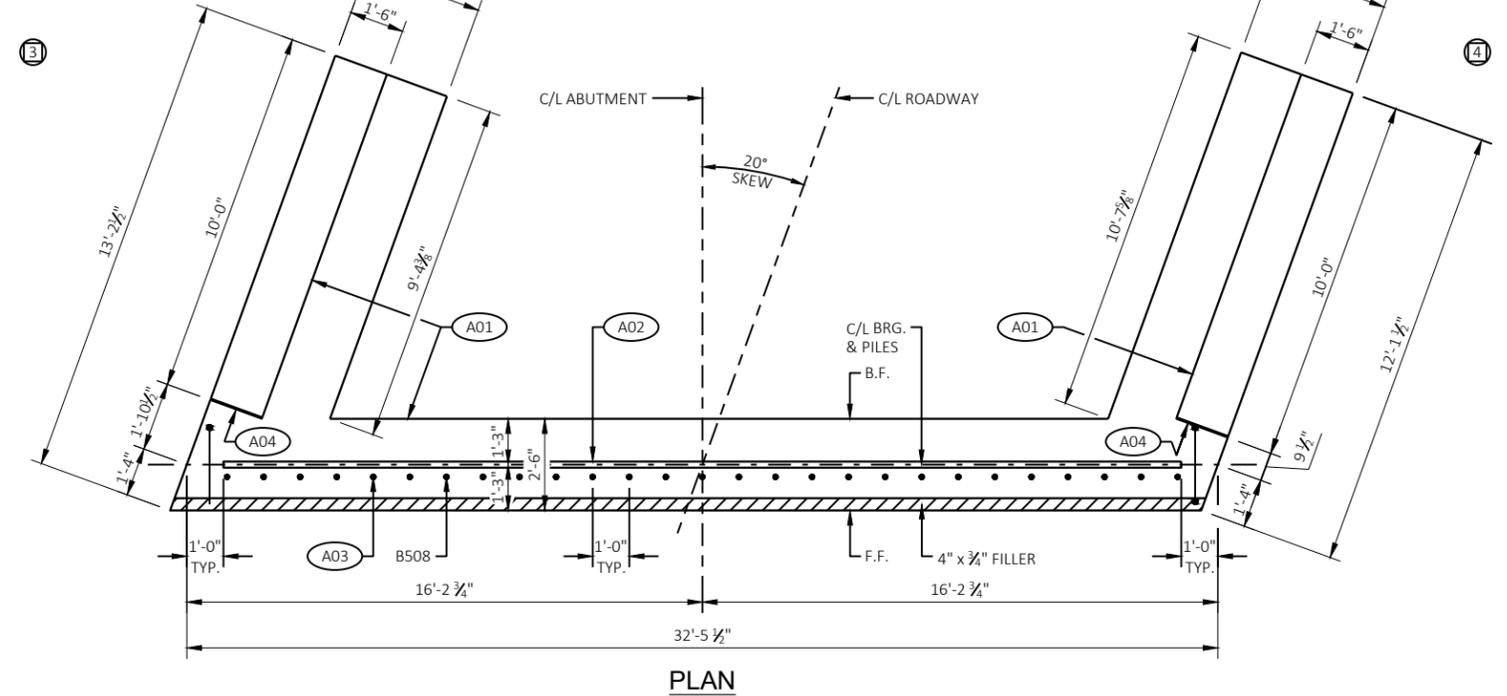
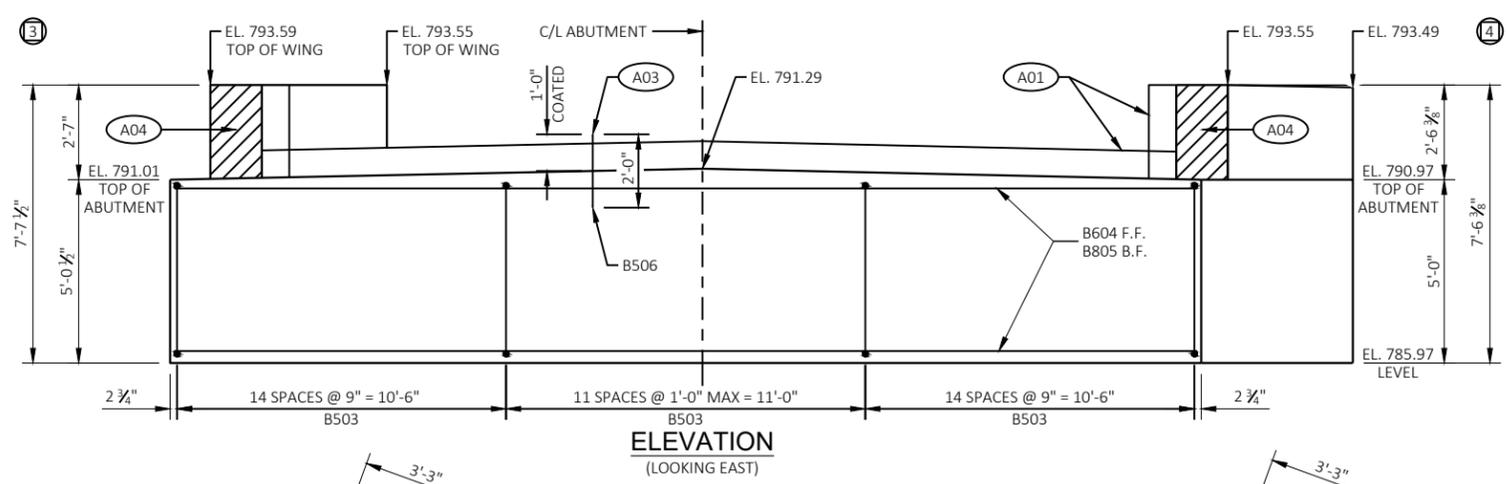
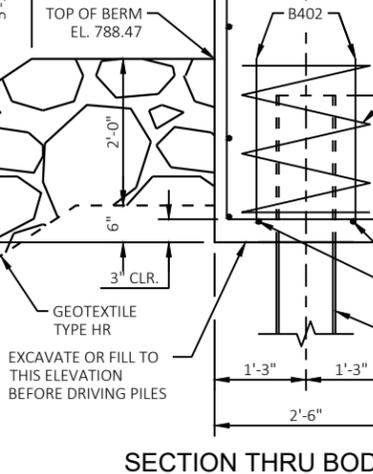
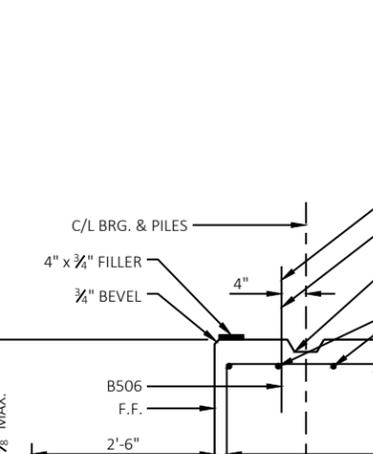
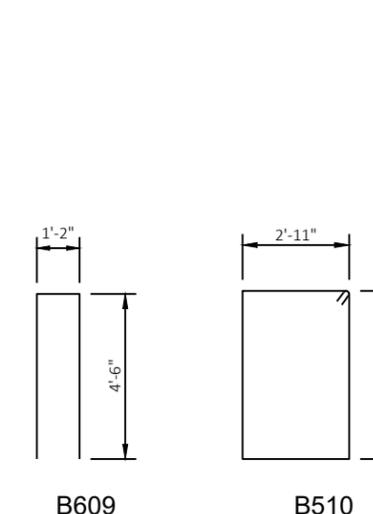
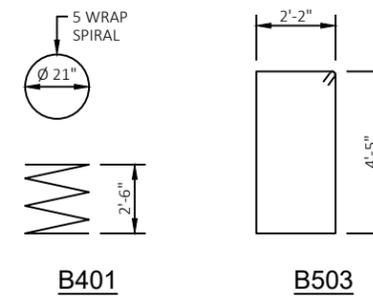
- Ⓜ INDICATES WING NUMBER
- Ⓜ A01 18" RUBBERIZED MEMBRANE WATERPROOFING (R.M.W). SEAL ALL HORIZONTAL AND VERTICAL JOINTS ON BACK FACE.
- Ⓜ A02 KEYED CONSTRUCTION JOINT FORMED BY A BEVELED 2 X 6.
- Ⓜ A03 BARS MAY BE PLACED AFTER CONCRETE IS POURED, BUT BEFORE INITIAL SET HAS TAKEN PLACE.
- Ⓜ A04 SEAL 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). EXTEND SEALER 3" BELOW GUTTER LINE AT INSIDE FACE.
- Ⓜ A05 STEEL PILING HP 10 X 42 WITH A REQUIRED DRIVING RESISTANCE OF 130 TONS PER PILE AS DETERMINED BY THE MODIFIED GATES DYNAMIC FORMULA. FORMULA ESTIMATED LENGTH 50'-0".
- Ⓜ A06 PIPE UNDERDRAIN WRAPPED 6-INCH. SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. ATTACH RODENT SHIELD AT ENDS OF PIPE UNDERDRAIN. RODENT SHIELD TO BE INCLUDED IN BID PRICE OF "PIPE UNDERDRAIN WRAPPED 6-INCH".

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-06-0208			
DRAWN BY NJT		PLANS CK'D. TLP	
WEST ABUTMENT		SHEET 4 OF 9	

BILL OF BARS

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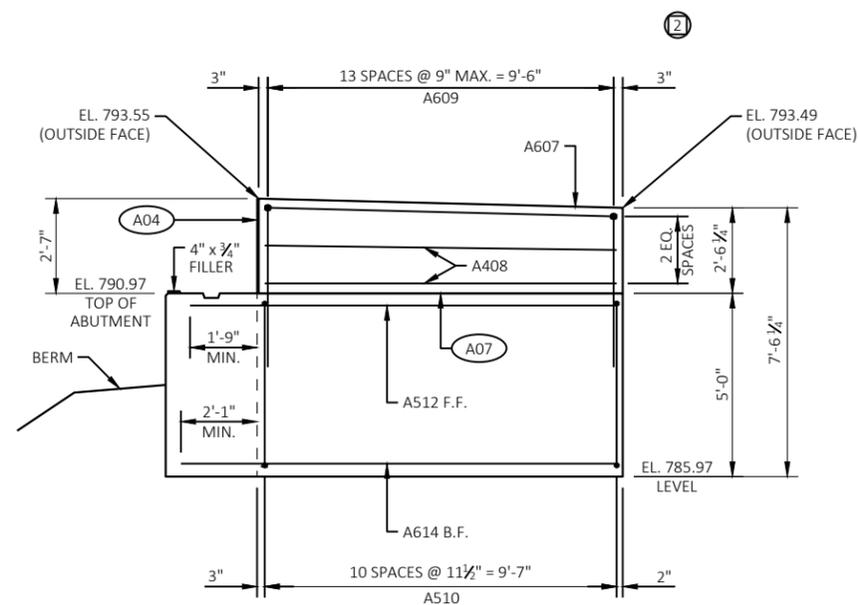
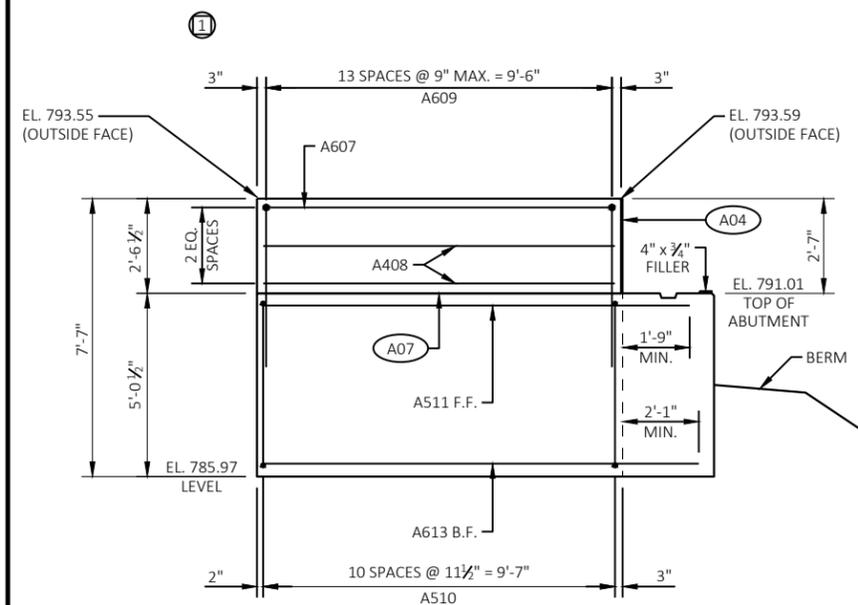
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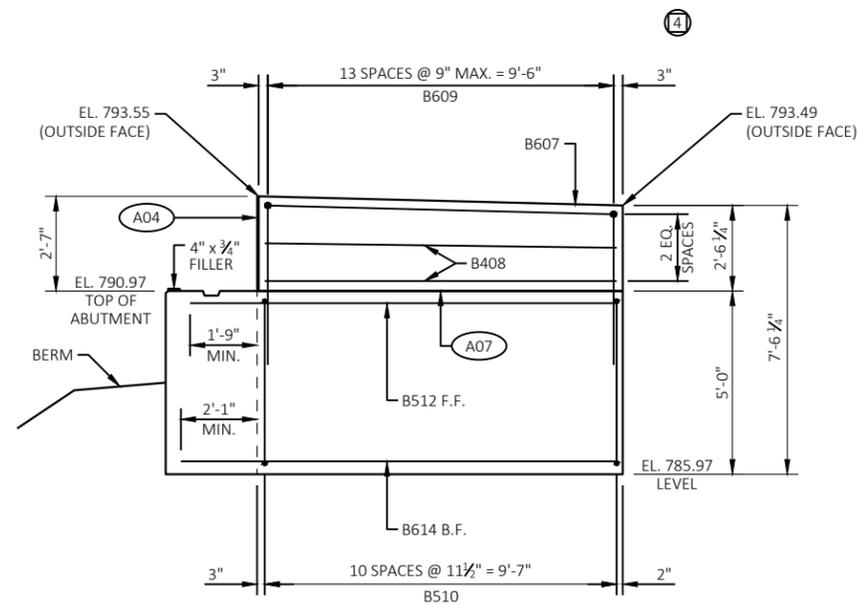
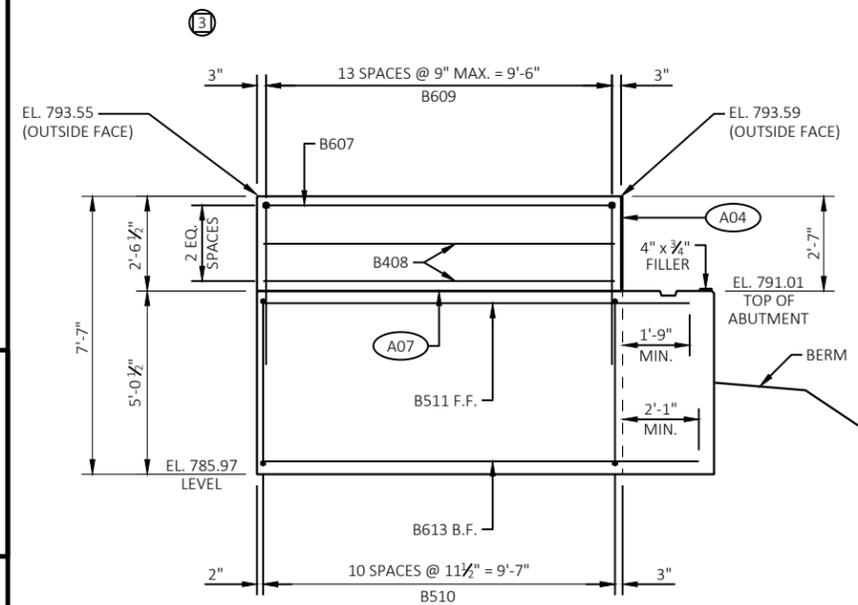
LEGEND

- Ⓜ INDICATES WING NUMBER
- Ⓜ A01 18" RUBBERIZED MEMBRANE WATERPROOFING (R.M.W). SEAL ALL HORIZONTAL AND VERTICAL JOINTS ON BACK FACE.
- Ⓜ A02 KEYED CONSTRUCTION JOINT FORMED BY A BEVELED 2 X 6.
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- Ⓜ A05 STEEL PILING HP 10 X 42 WITH A REQUIRED DRIVING RESISTANCE OF 130 TONS PER PILE AS DETERMINED BY THE MODIFIED GATES DYNAMIC FORMULA. FORMULA ESTIMATED LENGTH 50'-0".
- Ⓜ A06 PIPE UNDERDRAIN WRAPPED 6-INCH. SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. ATTACH RODENT SHIELD AT ENDS OF PIPE UNDERDRAIN. RODENT SHIELD TO BE INCLUDED IN BID PRICE OF "PIPE UNDERDRAIN WRAPPED 6-INCH".

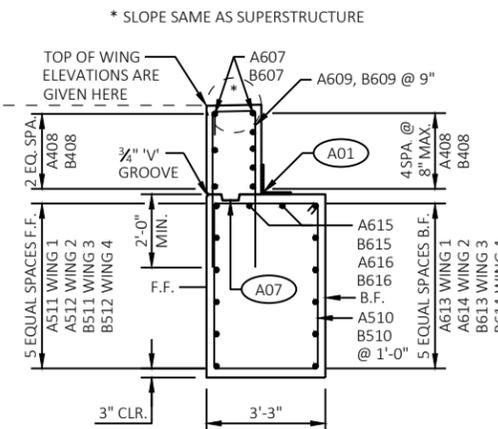
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-06-0208			
DRAWN BY NJT		PLANS CK'D. TLP	
EAST ABUTMENT		SHEET 5 OF 9	



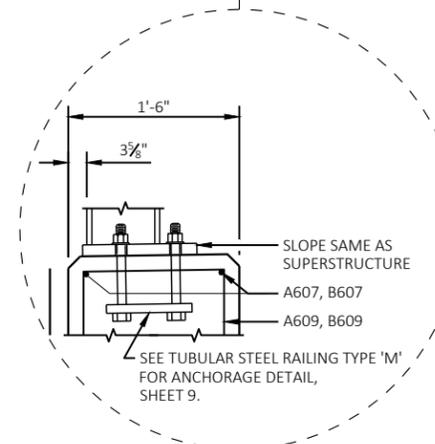
WEST ABUTMENT WINGS



EAST ABUTMENT WINGS



TYPICAL SECTION THRU WINGS



SECTION AT TOP OF WING

* SPACE A607 & B607 BARS TO MISS ANCHORS FOR RAIL POSTS

NOTE: B.F. = BACK FACE
F.F. = FRONT FACE

LEGEND

- Ⓢ INDICATES WING NUMBER
- ⓐ01 18" RUBBERIZED MEMBRANE WATERPROOFING (R.M.W.). SEAL ALL HORIZONTAL AND VERTICAL JOINTS ON BACK FACE.
- ⓐ04 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). EXTEND SEALER 3" BELOW GUTTER LINE AT INSIDE FACE.
- ⓐ07 OPTIONAL KEYED CONSTRUCTION JOINT FORMED BY BEVELED 2 X 6. (18" R.M.W. AT B.F. AND 3/4" V" GROOVE AT F.F. OF WING WALL IF JOINT IS USED).

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-06-0208

DRAWN BY NJT PLANS CK'D. TLP

ABUTMENT DETAILS SHEET 6 OF 9

8

8

SCALE = 1:1

BILL OF BARS

17130# COATED

BAR MARK	COMT	NO. REQ'D	LENGTH	BENT	BAR SERIES	LOCATION
S501	X	66	7'-9"	X		AT END OF DECK
S502	X	50	32'-1"			SLAB, TOP, TRANSVERSE
S503	X	58	32'-1"			SLAB, BOTTOM, TRANSVERSE
S404	X	37	42'-3"			SLAB, TOP, LONGITUDINAL
S1005	X	67	37'-8"			SLAB, BOTTOM, LONGITUDINAL
S606	X	32	11'-2"	X		AT RAIL POSTS
S607	X	16	4'-8"	X		AT END RAIL POSTS
S608	X	48	6'-0"	X		AT INTERIOR RAIL POSTS

NOTE: BAR DIMENSIONS ARE OUT TO OUT OF BAR. THE FIRST DIGIT OF A THREE-DIGIT BAR MARK OR THE FIRST TWO DIGITS OF A FOUR-DIGIT BAR MARK SIGNIFIES THE BAR SIZE.

GENERAL NOTES

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

TRANSVERSE BARS SHALL BE PLACED PARALLEL TO THE C/L OF SUBSTRUCTURE UNITS.

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

CAMBER SPAN AS SHOWN TO PROVIDE FOR DEAD LOAD DEFLECTION & FUTURE CREEP. CAMBER DOES NOT INCLUDE ALLOWANCE FOR FORM SETTLEMENT. DEAD LOAD DEFLECTIONS ONLY EQUAL APPROXIMATELY 1/3 OF CAMBER VALUES SHOWN.

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

DECK FLASHING NOTES

THE BID ITEM "FLASHING STAINLESS STEEL" SHALL INCLUDE PROVIDING AND INSTALLING THE STAINLESS STEEL FLASHING, CAULK, 3/8" CONCRETE SCREWS AND CLEANING THE EDGE OF DECK PRIOR TO ATTACHMENT OF THE FLASHING.

FLASHING SHALL BE INSTALLED AFTER PROTECTIVE SURFACE TREATMENT APPLICATION.

CONCRETE SCREWS SHALL BE 410 STAINLESS STEEL.

EXTEND FLASHING TO BACK FACE OF ABUTMENT DIAPHRAGM.

TOP OF FLASHING TO BEING APPROXIMATELY 1-INCH BELOW TOP OF DECK/SLAB SURFACE.

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

PROVIDE 2" MINIMUM FLASHING OVERLAP. FASTEN WITH 3/8"x2"(MIN.) CONCRETE SCREWS. CAULK SHALL BE NON-STAINING, GRAY NON-BITUMINOUS JOINT SEALER.

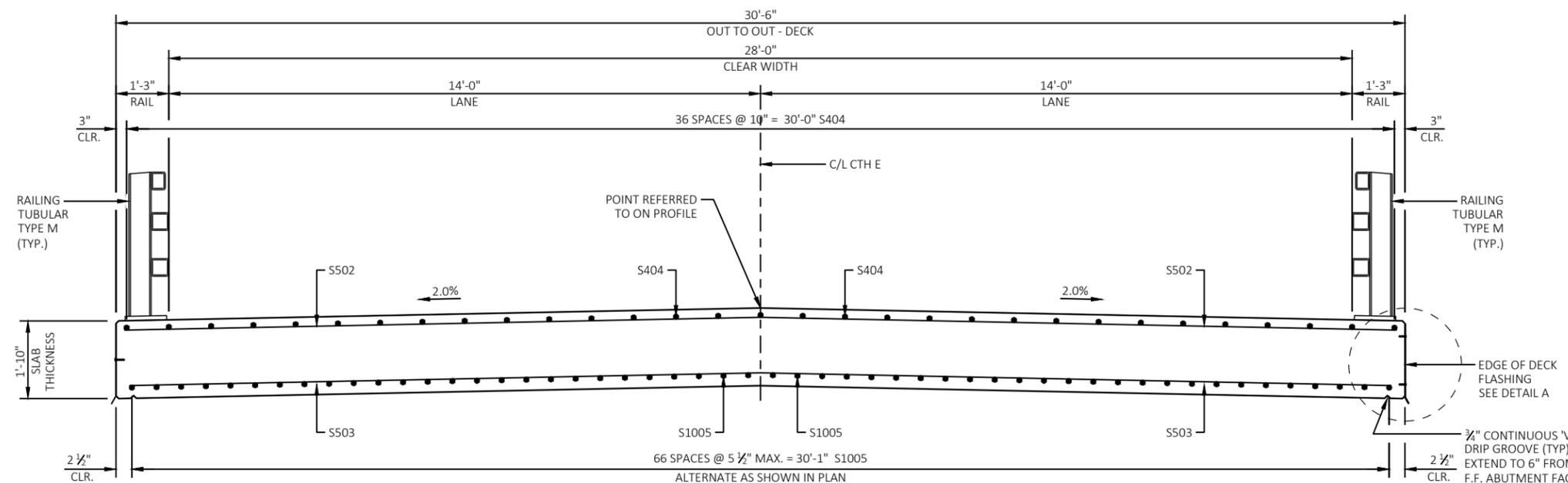
NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

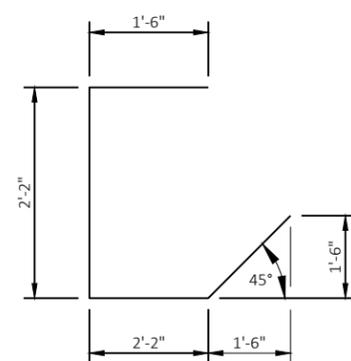
STRUCTURE B-06-0208

DRAWN BY NJT PLANS CK'D. TLP

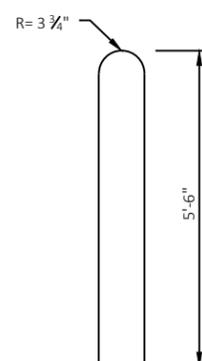
SUPERSTRUCTURE SHEET 7 OF 9



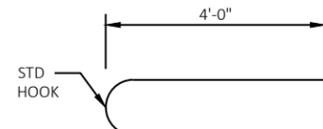
CROSS SECTION THRU ROADWAY



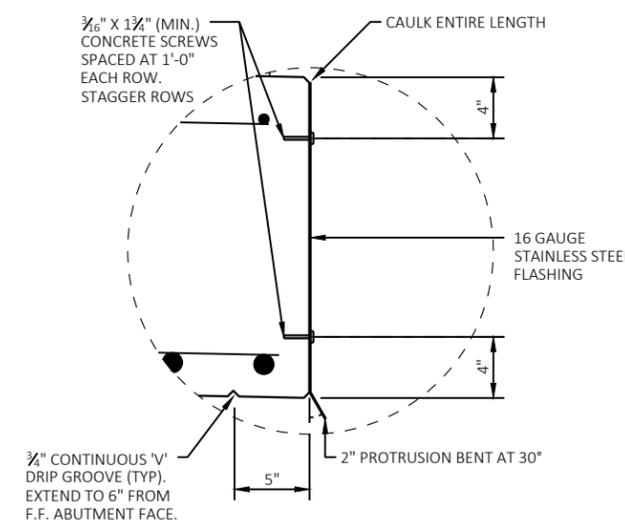
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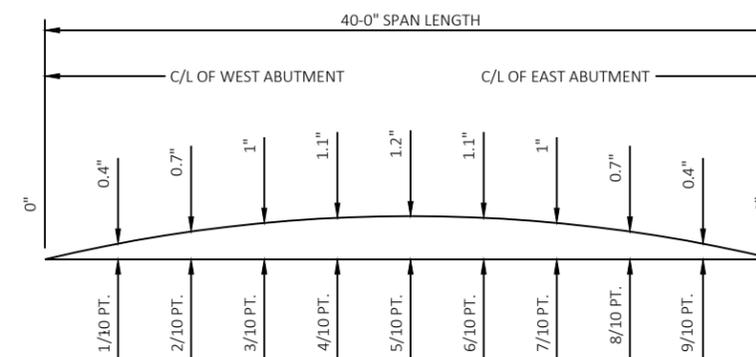
S606



S607



DETAIL A
RAILING NOT SHOWN FOR CLARITY



CAMBER DIAGRAM

TOP OF DECK ELEVATIONS

LOCATION	WEST ABUT.	1/10	2/10	3/10	4/10	5/10	6/10	7/10	8/10	9/10	EAST ABUT.
NORTH EDGE OF DECK	793.55	793.56	793.58	793.59	793.60	793.60	793.60	793.60	793.60	793.59	793.59
C/L OF BRIDGE DECK	793.87	793.88	793.89	793.90	793.90	793.90	793.90	793.90	793.89	793.88	793.87
SOUTH EDGE OF DECK	793.59	793.59	793.60	793.60	793.60	793.60	793.60	793.59	793.58	793.56	793.55

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

SURVEY TOP OF SLAB ELEVATIONS

LOCATION	C/L BRG. WEST ABUT.	5/10 PT.	C/L BRG. EAST ABUT.
NORTH GUTTER			
CENTERLINE			
SOUTH GUTTER			

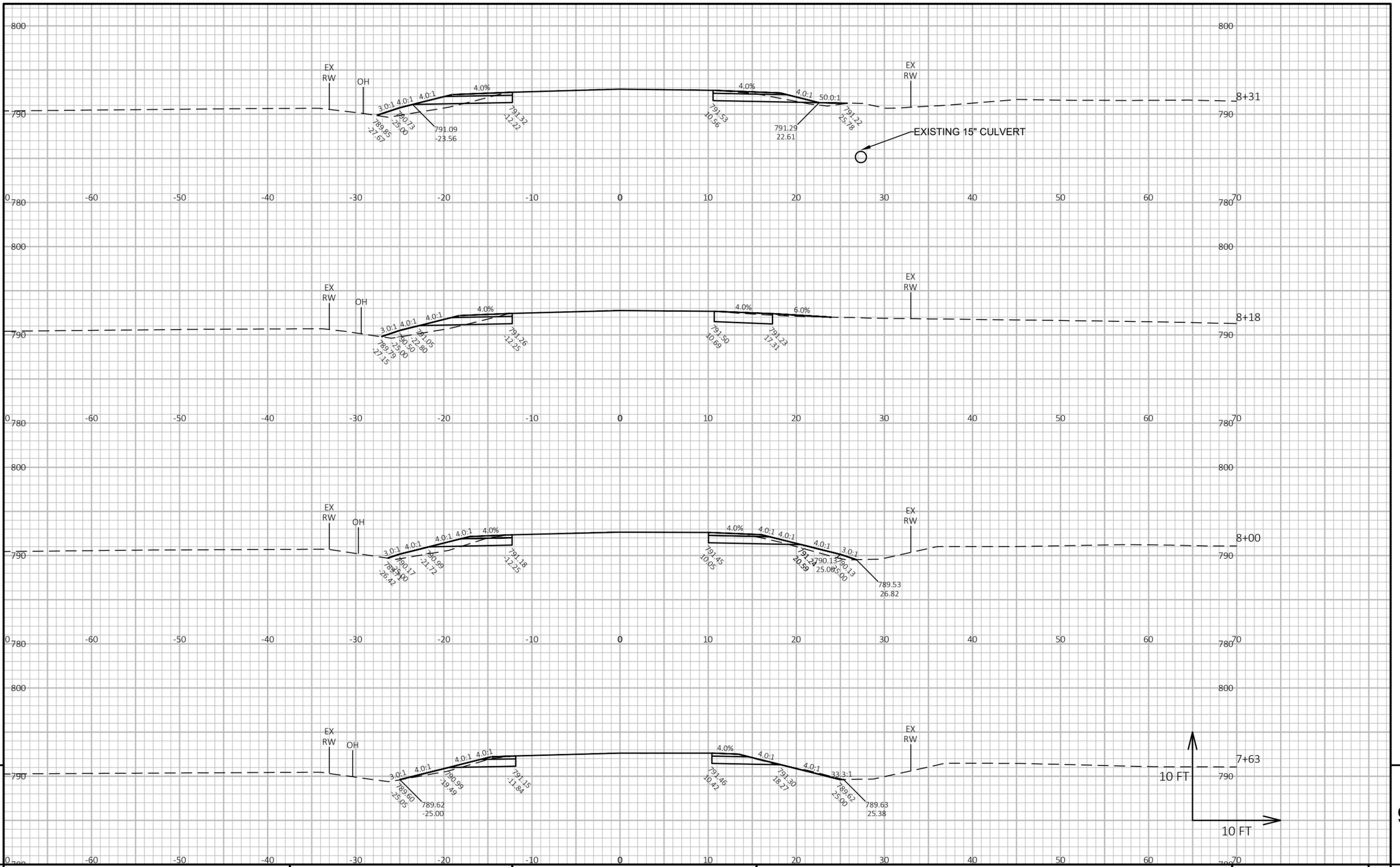
DIVISION -1- CTH E

STATION	REAL STATION	DISTANCE	AREA (SF)				INCREMENTAL VOL (CY) (UNADJUSTED)				CUMULATIVE VOL (CY)				
			CUT	SALVAGED/UNUSABLE PAVEMENT MATERIAL	FILL	EBS	CUT	SALVAGED/UNUSABLE PAVEMENT MATERIAL	FILL	EBS	CUT	EXPANDED FILL	MASS ORDINATE		
														NOTE 1	NOTE 2
07+63.27	763.27	0.00	10.92	0.00	1.44	0.00	0	0	0	0	0	0	0	0	
08+00	800.00	36.73	11.42	0.00	7.05	0.00	15	0	6	0	15	8	8	8	
08+50	850.00	50.00	10.68	0.00	13.36	0.00	20	0	19	0	35	31	4	4	
09+00	900.00	50.00	11.39	0.00	14.49	0.00	20	0	26	0	55	64	-9	-9	
09+30	930.00	30.00	36.57	0.00	2.18	0.00	27	0	9	0	82	75	7	7	
09+50	950.00	20.00	40.41	0.00	3.37	0.00	29	0	2	0	111	78	34	34	
09+63.67	963.67	13.67	36.51	0.00	3.37	0.00	19	0	2	0	130	80	50	50	
09+73.67	973.67	10.00	20.60	0.00	7.60	0.00	11	0	2	0	141	83	59	59	
									Total		66				

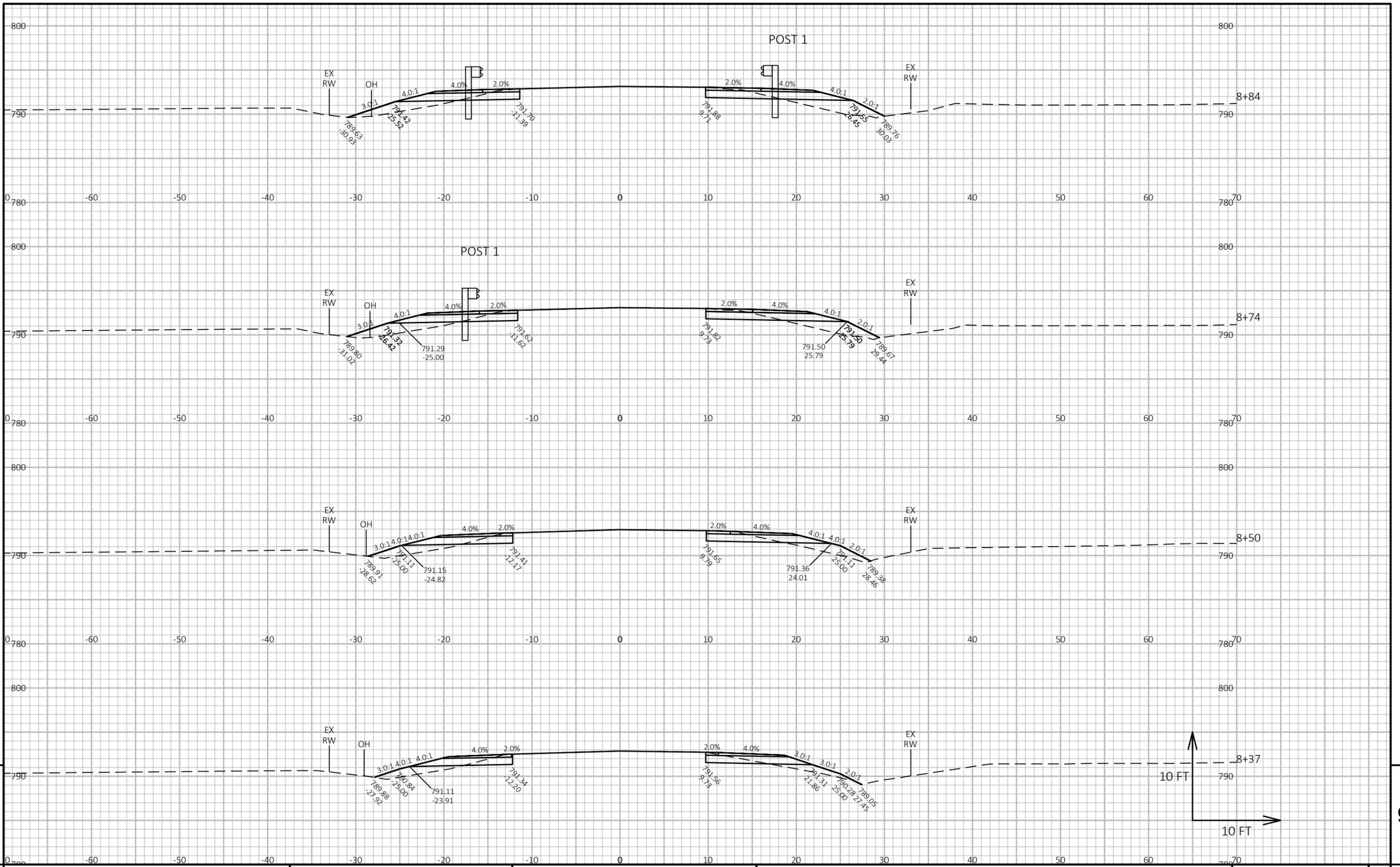
DIVISION -1- CTH E

STATION	REAL STATION	DISTANCE	AREA (SF)				INCREMENTAL VOL (CY) (UNADJUSTED)				CUMULATIVE VOL (CY)				
			CUT	SALVAGED/UNUSABLE PAVEMENT MATERIAL	FILL	EBS	CUT	SALVAGED/UNUSABLE PAVEMENT MATERIAL	FILL	EBS	CUT	EXPANDED FILL	MASS ORDINATE		
														NOTE 1	NOTE 2
10+26.33	1026.33	0.00	16.76	0.00	5.16	0.00	0	0	0	0	0	0	0	0	
10+36.33	1036.33	10.00	18.69	0.00	1.35	0.00	7	0	1	0	7	1	6	6	
10+50	1050.00	13.67	38.97	0.00	1.29	0.00	15	0	1	0	22	3	20	20	
10+70	1070.00	20.00	17.19	0.00	0.54	0.00	21	0	1	0	43	4	39	39	
11+00	1100.00	30.00	13.08	0.00	8.62	0.00	17	0	5	0	60	10	50	50	
11+50	1150.00	50.00	14.22	0.00	8.33	0.00	25	0	16	0	85	30	55	55	
12+00	1200.00	50.00	11.95	0.00	5.32	0.00	24	0	13	0	109	46	63	63	
12+50	1250.00	50.00	20.62	0.00	0.00	0.00	30	0	5	0	139	53	87	87	
12+62.99	1262.99	12.99	4.51	0.00	0.00	0.00	6	0	0	0	145	53	93	93	
									Total		42				

Notes:	
1 - CUT	CUT INCLUDES SALVAGED/UNUSABLE PAVEMENT MATERIAL
2 - SALVAGED/UNUSABLE PAVEMENT MATERIAL	THIS DOES NOT SHOW UP IN CROSS SECTIONS
3 - FILL	DOES NOT INCLUDE UNUSABLE PAVEMENT EXC VOLUME
8 - MASS ORDINATE	IF MARSH AND EBS TO BE BACKFILLED WITH GRANULAR: [(CUT - SALVAGED PAVT - (FILL - EXPANDED ROCK) * FILL FACTOR)]
	NOTE 8 - SELECT ONE BASED ON MASS HAUL INPUT DIALOG SELECTION. EBS AND MARSH EXC USED OUTSIDE 1:1 IN FILL SLOPES
	EBS AND MARSH EXC USED OUTSIDE 1:1 IN FILL SLOPES
	MARSH AND EBS ARE NOT USABLE OUTSIDE THE 1:1 SLOPES
	MARSH AND EBS ARE NOT USABLE OUTSIDE THE 1:1 SLOPES



PROJECT NO: 7313-00-70	HWY: CTH E	COUNTY: BUFFALO	CROSS SECTIONS: CTH E	SHEET E
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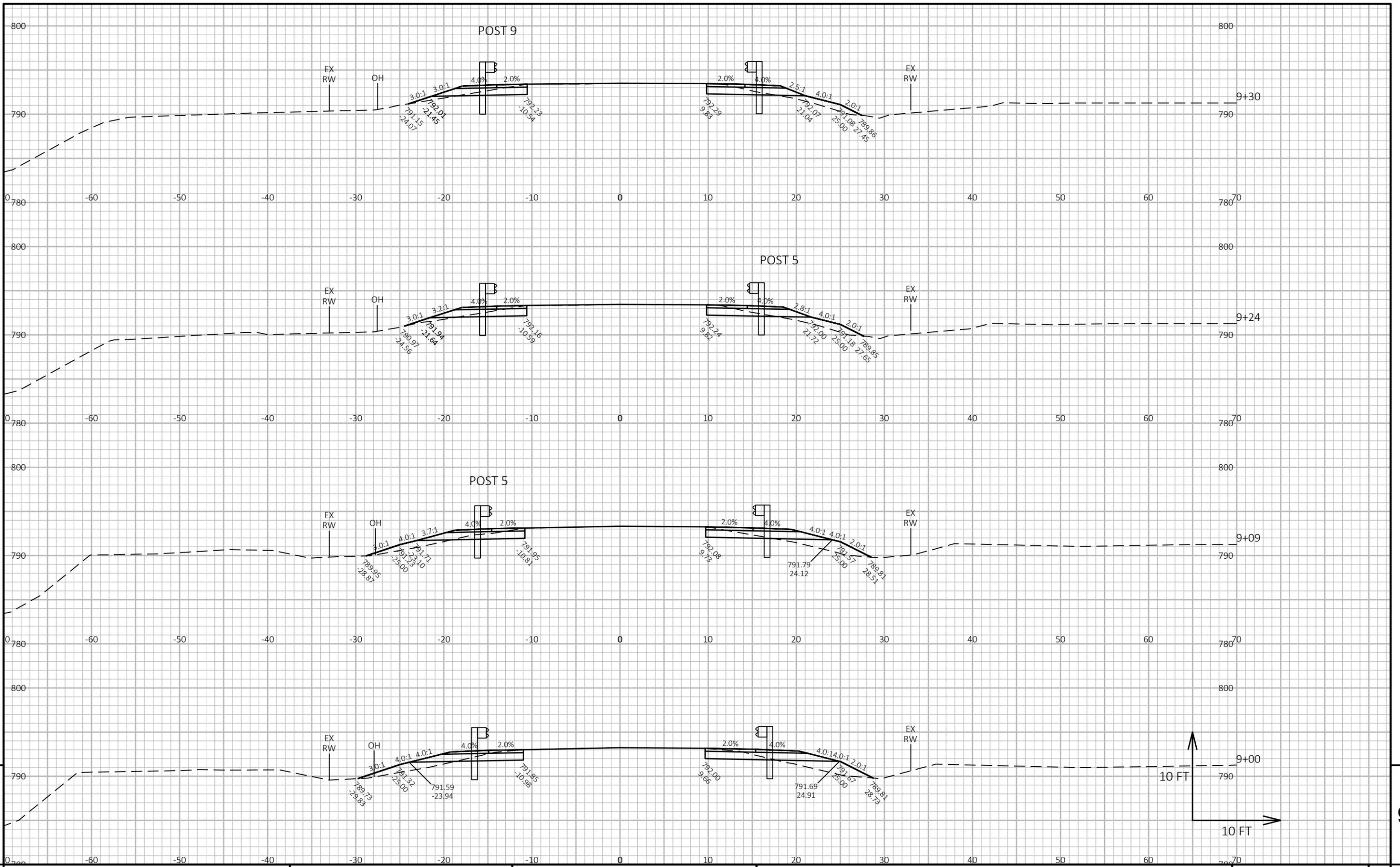
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PROJECT NO: 7313-00-70 HWY: CTH E COUNTY: BUFFALO CROSS SECTIONS: CTH E SHEET E

FILE NAME : I:\CLIENTS-MENOW\W3900 WDOT NW REGION - EAU CLAIRE\025 7313-00-00 5TH 88 - 5TH 95 BR WAUANDEE CR BR B-06-0914 BUFFALO CO\73130000\SHEETSPLAN\090201-XS.DWG PLOT DATE : 10/14/2021 1:24 PM PLOT BY : MIKE LAPEAN PLOT NAME : PLOT SCALE : 1 IN:10 FT HORZ. / 1 IN:10 FT VERT. WISDOT/CADD SHEET 49

LAYOUT NAME - xs-2



PROJECT NO: 7313-00-70

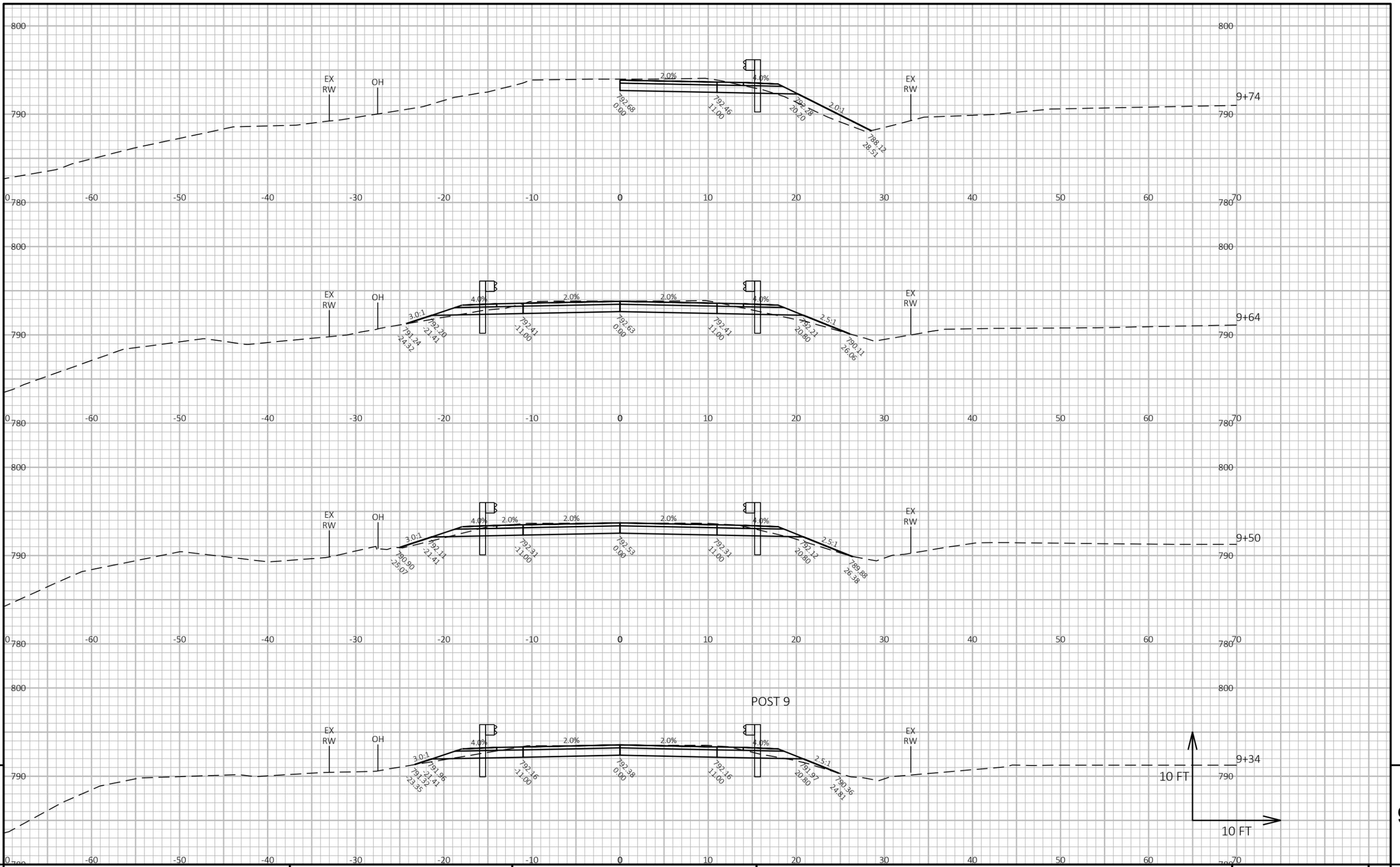
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COUNTY: BUFFALO

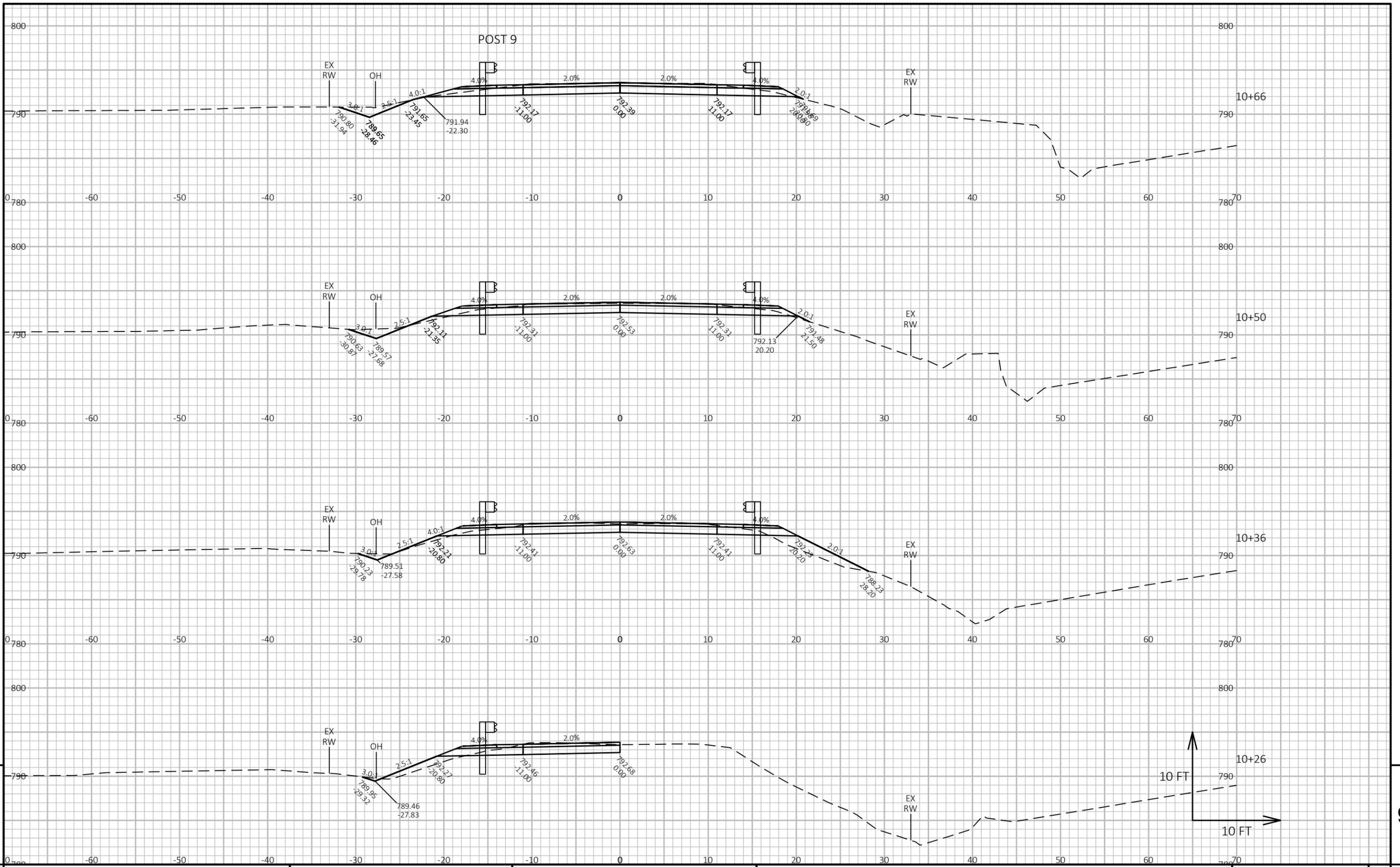
CROSS SECTIONS: CTH E

SHEET

E



PROJECT NO: 7313-00-70 HWY: CTH E COUNTY: BUFFALO CROSS SECTIONS: CTH E SHEET 9



PROJECT NO: 7313-00-70

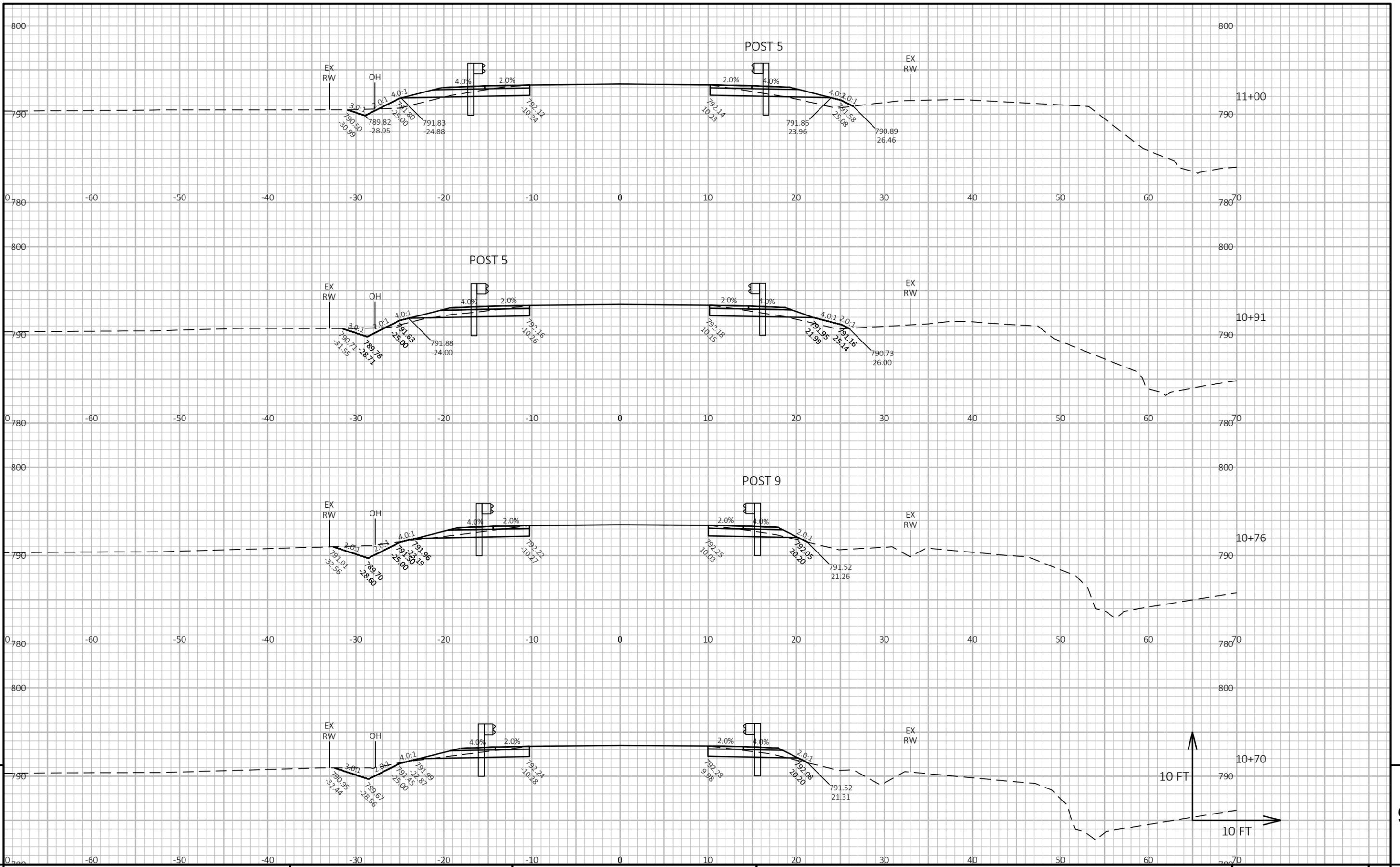
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COUNTY: BUFFALO

CROSS SECTIONS: CTH E

SHEET

E



PROJECT NO: 7313-00-70

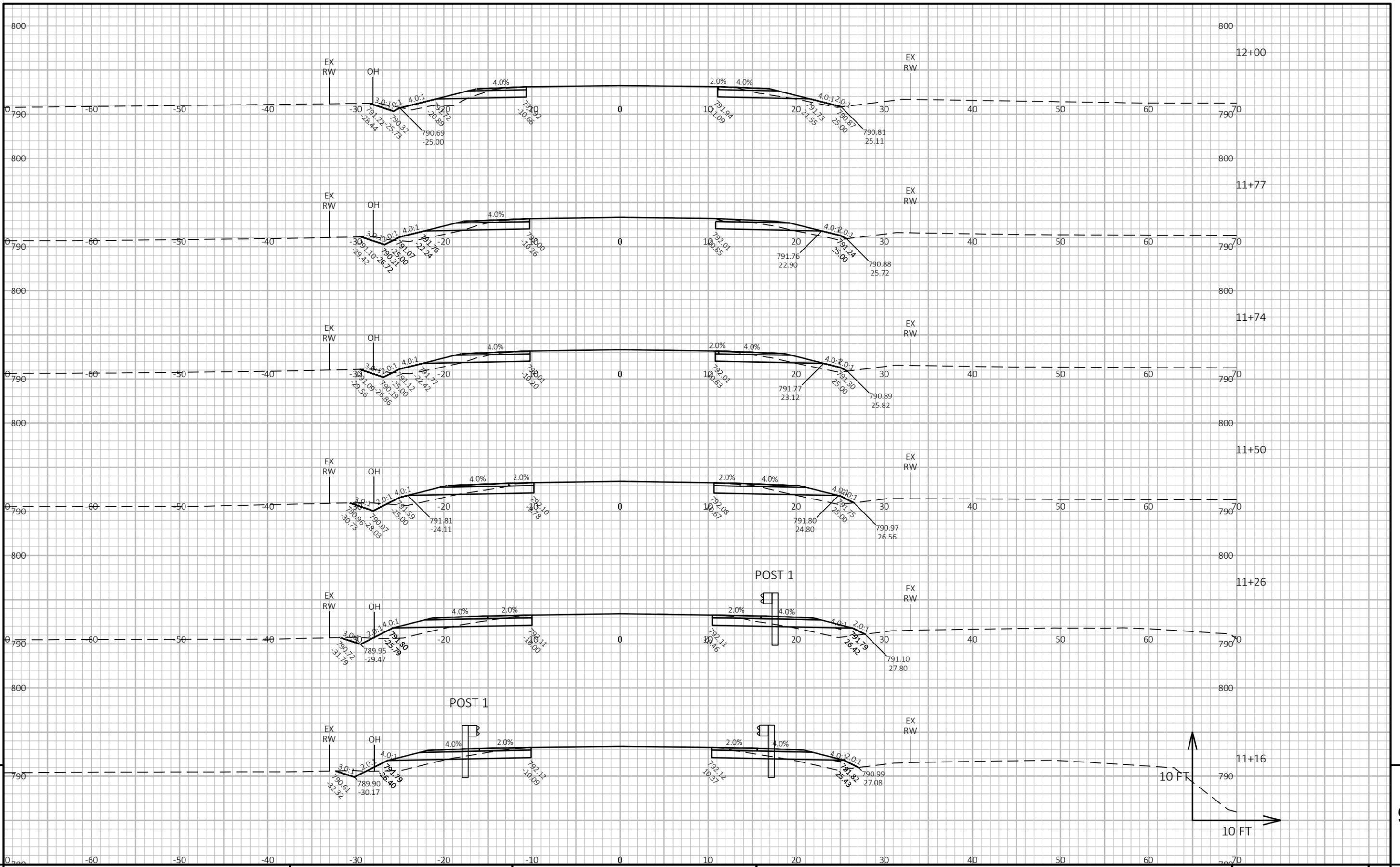
HWY: CTH E

COUNTY: BUFFALO

CROSS SECTIONS: CTH E

SHEET

E



PROJECT NO: 7313-00-70

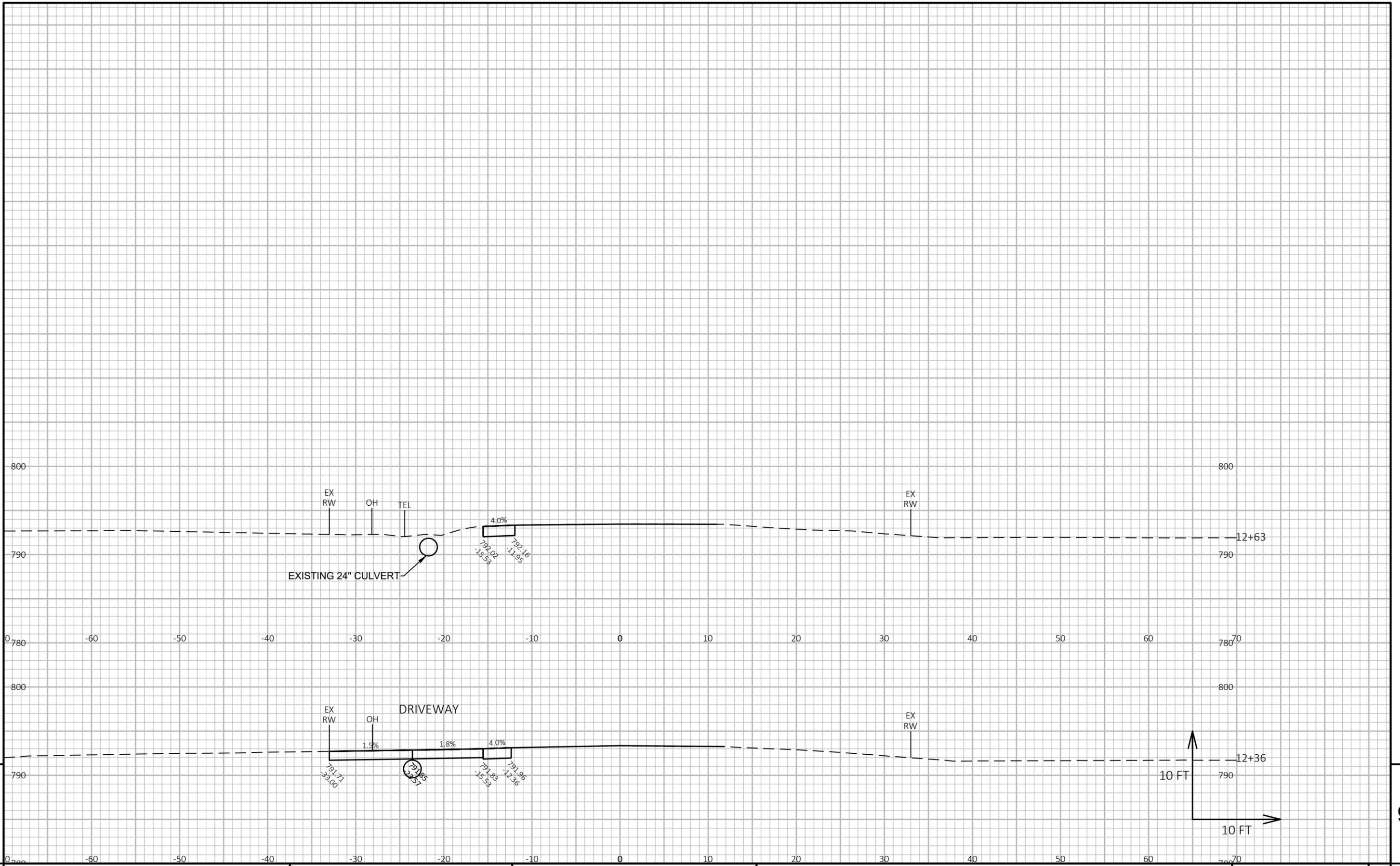
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COUNTY: BUFFALO

CROSS SECTIONS: CTH E

SHEET

E

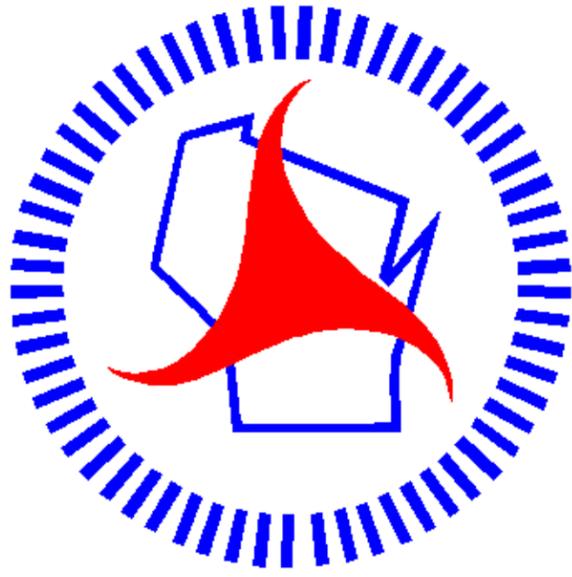


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PROJECT NO: 7313-00-70	HWY: CTH E	COUNTY: BUFFALO	CROSS SECTIONS: CTH E	SHEET E
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Notes



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