

GRE

PROJECT ID:
WITH: N/A

4394-03-71

COUNTY:

KEWAUNEE

MAY 2018

ORDER OF SHEETS

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

TOTAL SHEETS = 104

STATE OF WISCONSIN

DEPARTMENT OF TRANSPORTATION

PLAN OF PROPOSED IMPROVEMENT

CTH E, CTH FF - BEARDSLEY ST

RECREATIONAL TRAIL BRIDGE & APPROACH

CTH E

KEWAUNEE COUNTY

STATE PROJECT NUMBER

4394-03-71

STATE PROJECT

4394-03-71

FEDERAL PROJECT

PROJECT

CONTRACT



PROJECT LOCATION



DESIGN DESIGNATION

A.A.D.T. 2018	=	430
A.A.D.T. 2038	=	520
D.H.V.	=	132
D.D.	=	59/41
T.	=	3.3%
DESIGN SPEED	=	30 MPH
ESALS	=	37,000

CONVENTIONAL SYMBOLS

PLAN
CORPORATE LIMITS
PROPERTY LINE
LOT LINE
LIMITED HIGHWAY EASEMENT
EXISTING RIGHT OF WAY
PROPOSED OR NEW R/W LINE

SLOPE INTERCEPT
REFERENCE LINE

EXISTING CULVERT
PROPOSED CULVERT
(Box or Pipe)

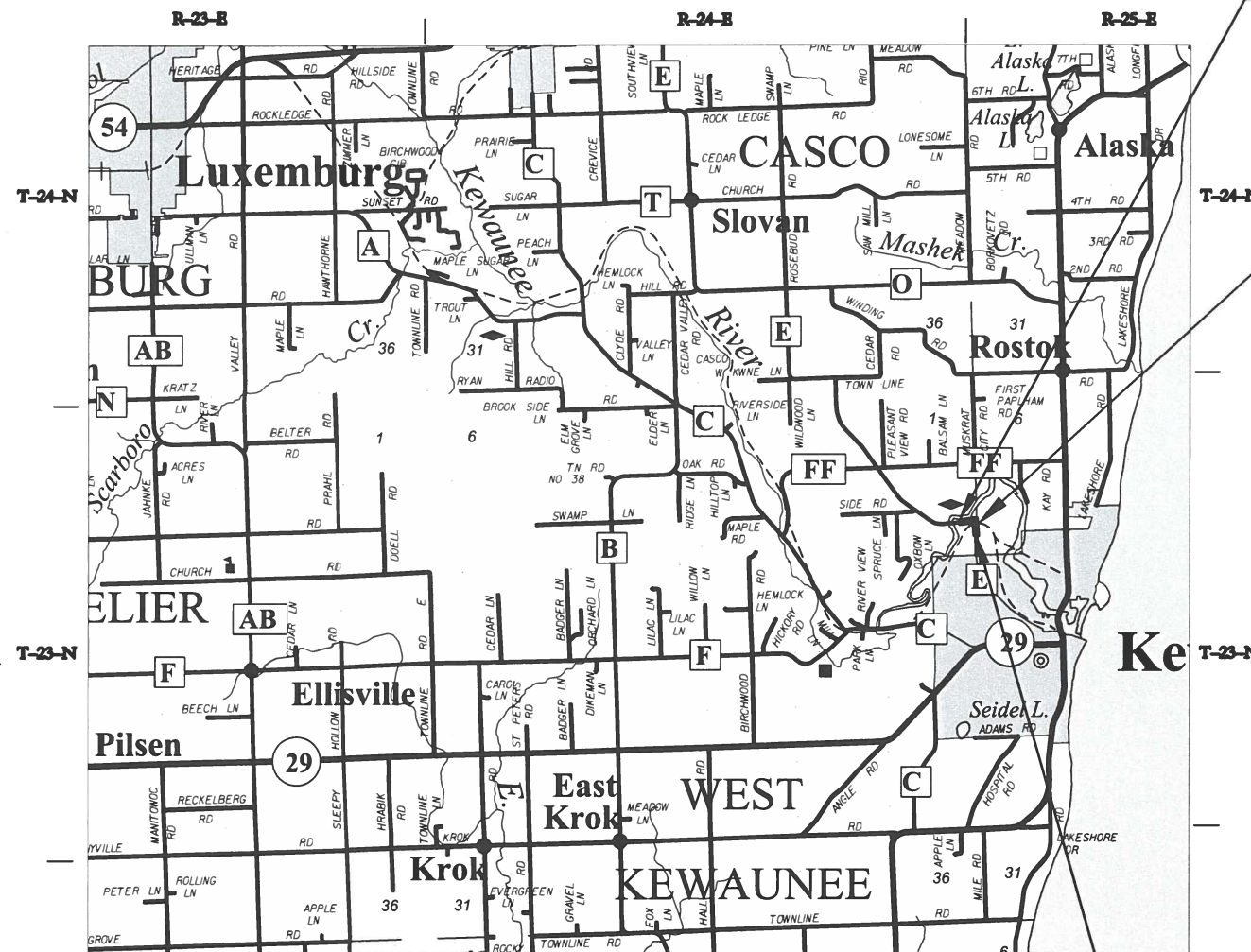
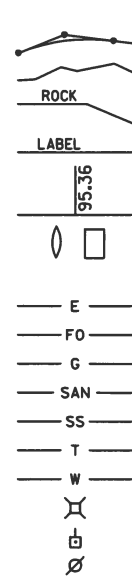
COMBUSTIBLE FLUIDS

WETLAND AREA

WOODED OR SHRUB AREA

PROFILE
GRADE LINE
ORIGINAL GROUND
MARSH OR ROCK PROFILE
(To be noted as such)
SPECIAL DITCH

GRADE ELEVATION
CULVERT (Profile View)
UTILITIES
ELECTRIC
FIBER OPTIC
GAS
SANITARY SEWER
STORM SEWER
TELEPHONE
WATER
UTILITY PEDESTAL
POWER POLE
TELEPHONE POLE



LAYOUT

SCALE 0 2 MI

TOTAL NET LENGTH OF CENTERLINE = 0.109 MILES

HORIZONTAL POSITIONS SHOWN ON THIS PLAN ARE WISCONSIN COUNTY COORDINATES, KEWAUNEE COUNTY, NAD88 (2011), IN U.S. SURVEY FEET. VALUES ARE GRID COORDINATES, GRID BEARINGS, AND GRID DISTANCES. GRID DISTANCES MAY BE USED AS GROUND DISTANCES.

END PROJECT 4394-03-71
STA 109+00.00

STRUCTURE B-31-99

BEGIN PROJECT 4394-03-71
STA 103+25.00

Y=441252.220
X=269413.434

ACCEPTED FOR
KEWAUNEE COUNTY

DATE: 1-19-18 *Todd Every*

(Signature)

ORIGINAL PLANS PREPARED BY

OMNI
ASSOCIATES



STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PREPARED BY

Surveyor OMNI ASSOCIATES

Designer OMNI ASSOCIATES



Management Consultant SHORT ELLIOTT
HENDRICKSON, INC.

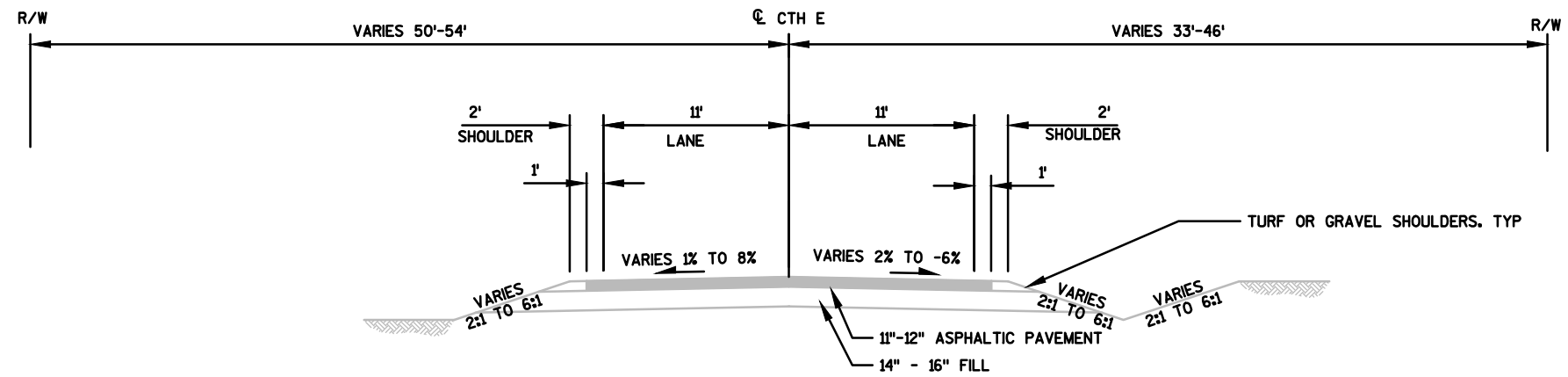
APPROVED FOR THE DEPARTMENT

DATE: 1/24/18 *[Signature]*

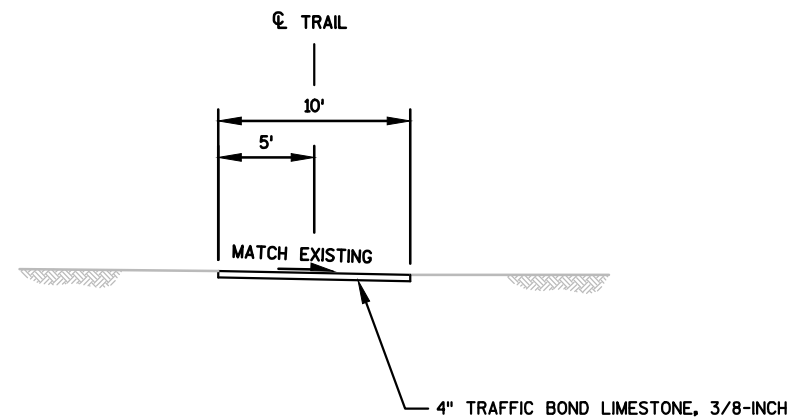
Management Consultant Signature

E

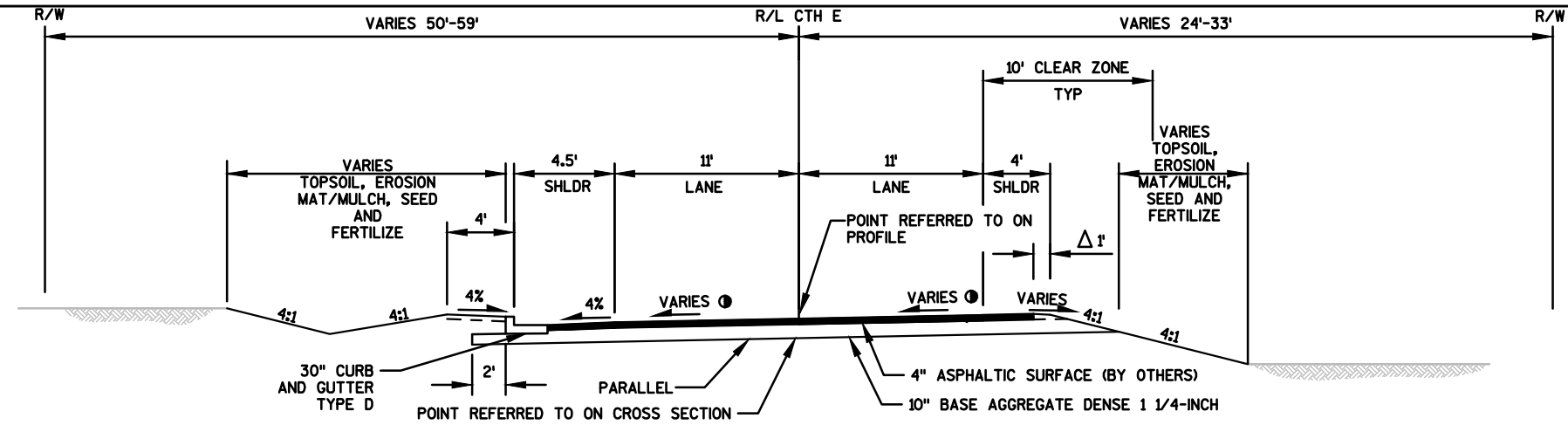
2	<div><div><div><h3>GENERAL NOTES</h3><p>THE LOCATIONS OF EXISTING AND PROPOSED UTILITY FACILITIES AS SHOWN ON THE PLANS ARE APPROXIMATE. THERE MAY BE OTHER UTILITY FACILITIES WITHIN THE PROJECT AREA THAT ARE NOT SHOWN.</p><p>FILL AS SHOWN ON THE PLANS PERTAINS TO EMBANKMENTS CONSTRUCTED FROM COMMON EXCAVATION. THE ALLOWANCE USED FOR EXPANDING THE FILLS TO COMPUTE THE VOLUME OF MATERIAL REQUIRED IS 25 PERCENT. ALL FILL VOLUMES SHOWN ARE THE ACTUAL VOLUMES.</p><p>NO TREES OR SHRUBS ARE TO BE REMOVED WITHOUT THE APPROVAL OF THE ENGINEER.</p><p>ALL DISTURBED AREAS NOT OTHERWISE SURFACED ARE TO BE TOPSOILED, FERTILIZED, SEEDED AND EROSION MATTED.</p><p>SILT FENCE AND TEMPORARY DITCH CHECKS SHALL BE PLACED AS SHOWN ON THE PLAN OR AS DIRECTED BY THE ENGINEER IN THE FIELD. SILT FENCE SHALL BE PLACED PRIOR TO CONSTRUCTION AND IN PLACE PRIOR TO STRUCTURE REMOVAL.</p><p>THE EXACT LOCATIONS OF ALL EROSION CONTROL ITEMS SHALL BE DETERMINED BY THE ENGINEER IN THE FIELD.</p><p>PLAN ELEVATIONS = USGS DATUM NAVD 88 (2011)</p><h3>EROSION CONTROL NOTES</h3><p>RUNOFF COEFFICIENTS FOR THIS PROJECT: EXISTING PAVEMENT 0.95, EXISTING SLOPES 0.30, NEW PAVEMENT 0.95, NEW SLOPES 0.30.</p><p>TOTAL PROJECT AREA = 1.54 ACRES TOTAL AREA EXPECTED TO BE DISTURBED BY CONSTRUCTION ACTIVITIES = 0.99 ACRES</p></div><div><div><h3>CONTACTS</h3><table><tr><td>ELECTRIC</td><td>WISCONSIN PUBLIC SERVICE CORPORATION 700 NORTH ADAMS STREET, PO BOX 19001 GREEN BAY, WI 54307-9001 ATTN: LORI BUTRY TELEPHONE: (920) 433-1703 EMAIL: LAButry@integrysgroup.com LOCAL CONTACT (ELECTRIC): BILL CHADA TELEPHONE: (920) 388-5807 CELL PHONE: (920) 493-1363 EMAIL: wcchada@wisconsinpublicservice.com</td></tr><tr><td>TELEPHONE</td><td>AT & T 205 S. JEFFERSON STREET GREEN BAY, WI 54301 ATTN: JOE KASSAB TELEPHONE: (920) 433-4200 CELL PHONE: (920) 202-4002 EMAIL: jk572k@att.com</td></tr><tr><td>KEWAUNEE COUNTY</td><td>TODD EVERY, HIGHWAY COMMISSIONER E4280 COUNTY ROAD F KEWANEE, WI 54216 TELEPHONE: (920) 388-3707 EMAIL: everyt@kewauneeeco.org</td></tr><tr><td>DNR LIAISON</td><td>MATT SCHAEVE DEPARTMENT OF NATURAL RESOURCES 2984 SHAWANO AVENUE GREEN BAY, WI 54313 TELEPHONE: (920) 366-1544 EMAIL: matthew.schaeve@wisconsin.gov</td></tr></table></div><div><div><p>Dial  or (800)242-8511 www.DiggersHotline.com</p><p>** DENOTES UTILITIES THAT ARE NOT DIGGERS HOTLINE MEMBERS</p></div></div></div></div><div><div>PROJECT NO: 4394-03-71</div><div>HWY: CTH E</div><div>COUNTY: KEWAUNEE</div><div>GENERAL NOTES</div><div>SHEET: 2</div><div>E 2.1</div></div></div>	ELECTRIC	WISCONSIN PUBLIC SERVICE CORPORATION 700 NORTH ADAMS STREET, PO BOX 19001 GREEN BAY, WI 54307-9001 ATTN: LORI BUTRY TELEPHONE: (920) 433-1703 EMAIL: LAButry@integrysgroup.com LOCAL CONTACT (ELECTRIC): BILL CHADA TELEPHONE: (920) 388-5807 CELL PHONE: (920) 493-1363 EMAIL: wcchada@wisconsinpublicservice.com	TELEPHONE	AT & T 205 S. JEFFERSON STREET GREEN BAY, WI 54301 ATTN: JOE KASSAB TELEPHONE: (920) 433-4200 CELL PHONE: (920) 202-4002 EMAIL: jk572k@att.com	KEWAUNEE COUNTY	TODD EVERY, HIGHWAY COMMISSIONER E4280 COUNTY ROAD F KEWANEE, WI 54216 TELEPHONE: (920) 388-3707 EMAIL: everyt@kewauneeeco.org	DNR LIAISON	MATT SCHAEVE DEPARTMENT OF NATURAL RESOURCES 2984 SHAWANO AVENUE GREEN BAY, WI 54313 TELEPHONE: (920) 366-1544 EMAIL: matthew.schaeve@wisconsin.gov	2
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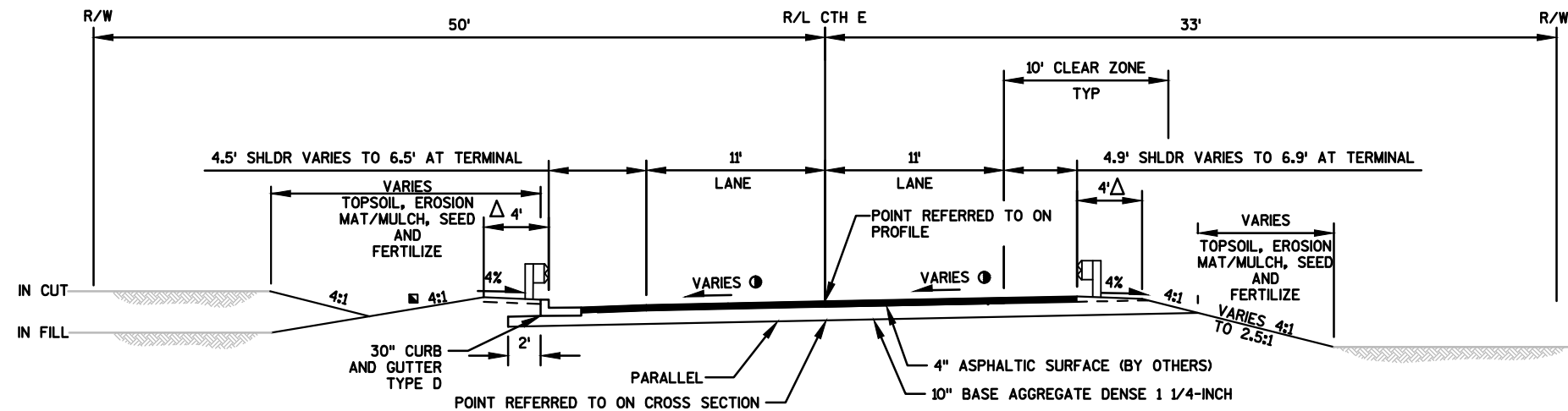
TYPICAL EXISTING SECTION - CTH E
STA 103+25 TO STA 109+00



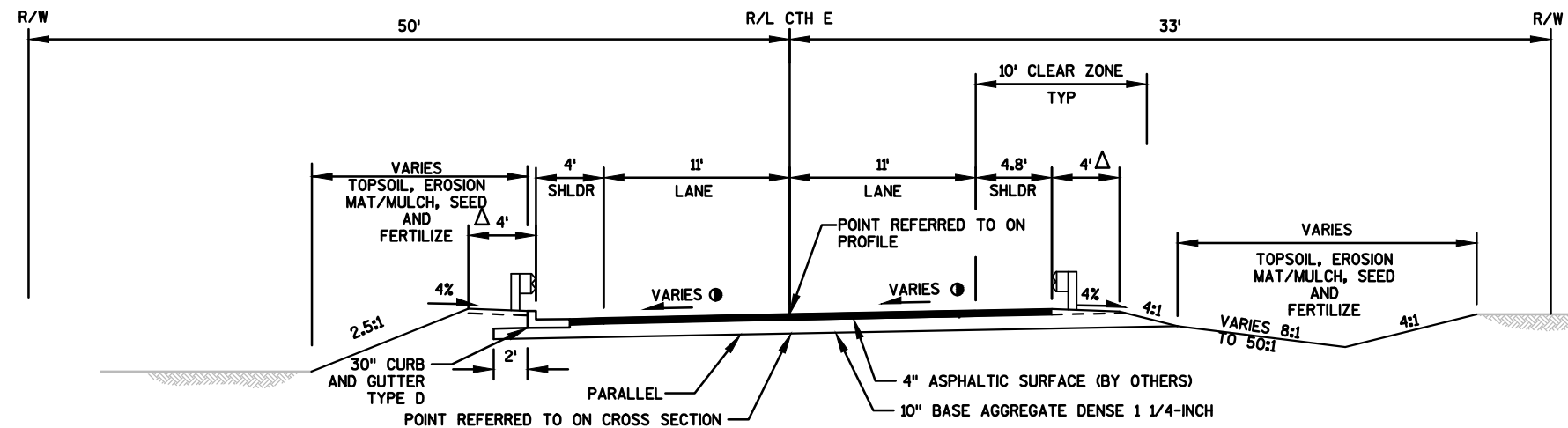
TYPICAL FINISHED SECTION - TRAIL
STA 12+00 TO STA 13+25



TYPICAL FINISHED SECTION - CTH E
STA 103+25 TO STA 104+70



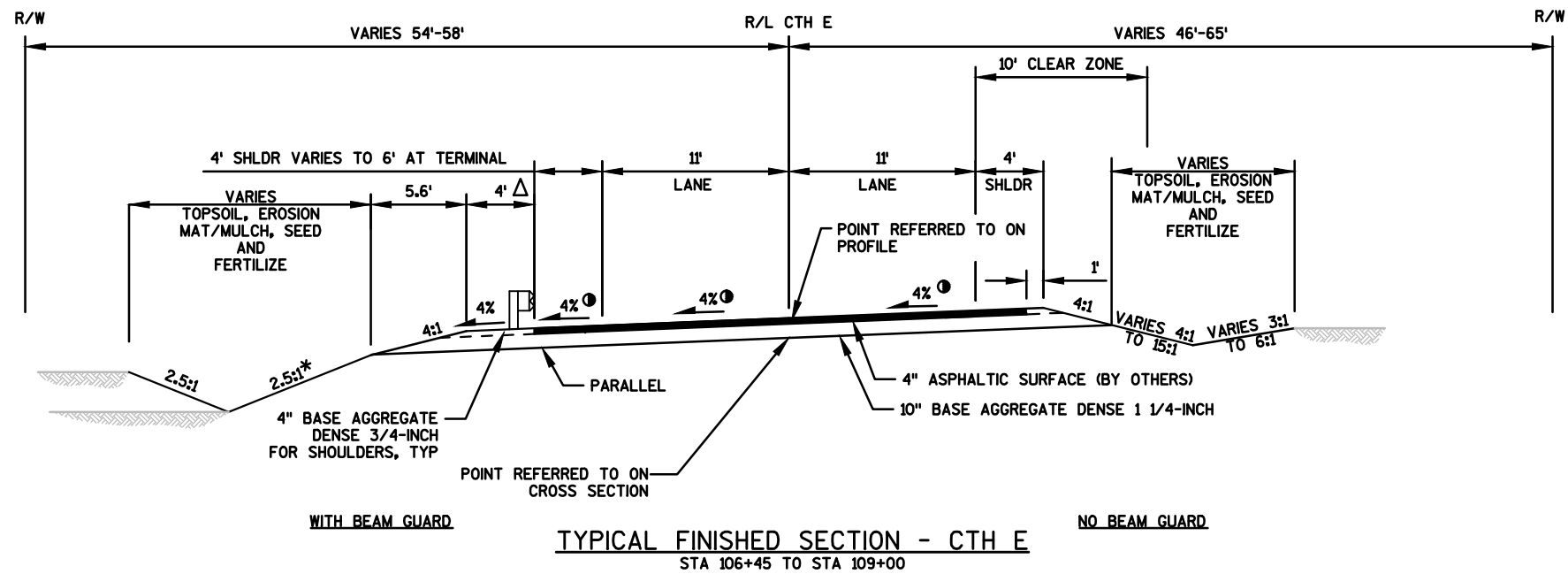
TYPICAL FINISHED SECTION - CTH E
STA 104+70 TO STA 105+72



TYPICAL FINISHED SECTION - CTH E
STA 106+08 TO STA 106+45

NOTES:

- △ INCREASE TO 6' AT POST NO. 1 OF ENERGY ABSORBING TERMINAL
- * 4:1 MAX IN 10-FOOT CLEAR ZONE WITHIN LIMITS OF EAT.
- SEE SUPER ELEVATION TABLE FOR TRANSITIONS
- VARIES 4:1 TO 2.5:1 IN FILL SECTION

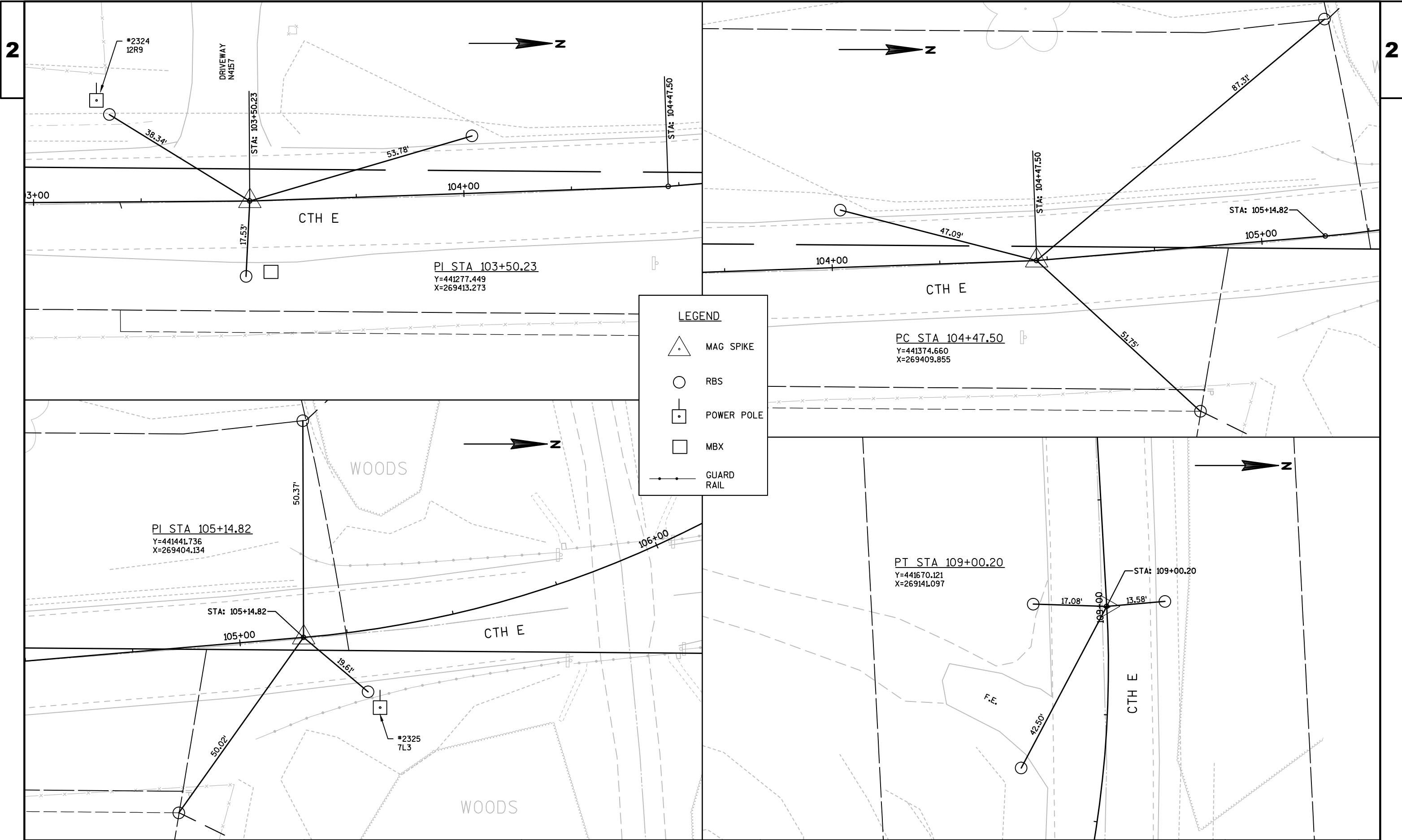


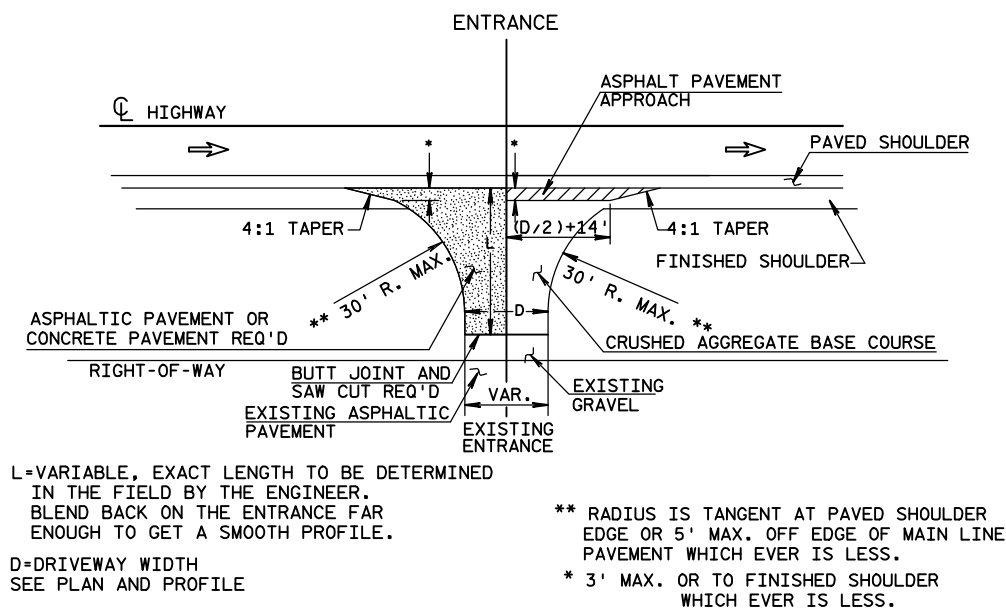
NOTES:

- Δ INCREASE TO 6' AT POST NO. 1 OF ENERGY ABSORBING TERMINAL
- * 4:1 MAX IN 10-FOOT CLEAR ZONE WITHIN LIMITS OF EAT.
- SEE SUPER ELEVATION TABLE FOR TRANSITIONS

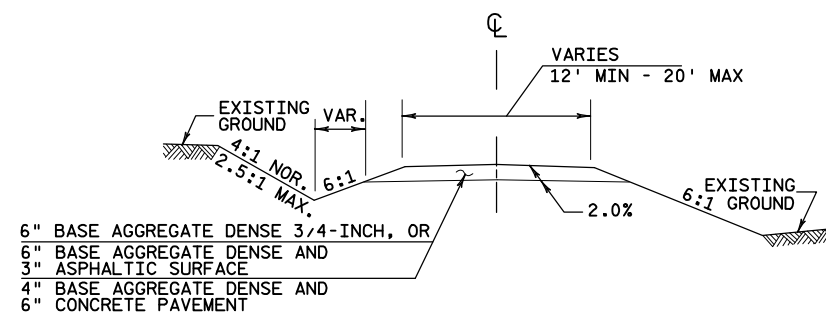
● SUPERELEVATION TRANSITION

STATION TO STATION	TRANSITION
103+25 TO 103+70	EXISTING TO NORMAL CROWN
103+70 TO 104+30	NORMAL CROWN
104+30 TO 104+66	NORMAL CROWN TO LEVEL HIGH SIDE
104+66 TO 105+03	LEVEL HIGH SIDE TO REVERSE CROWN
105+03 TO 105+39	REVERSE CROWN TO SUPERELEVATION 4.0%
105+39 TO 108+00	SUPERELEVATION 4.0% (INCLUDES BRIDGE)
108+00 TO 109+00	FULL SUPERELEVATION 4.0% TO EXISTING

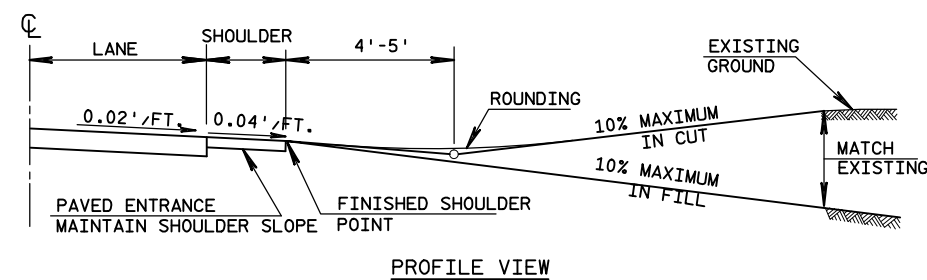




PLAN VIEW



TYPICAL CROSS SECTION

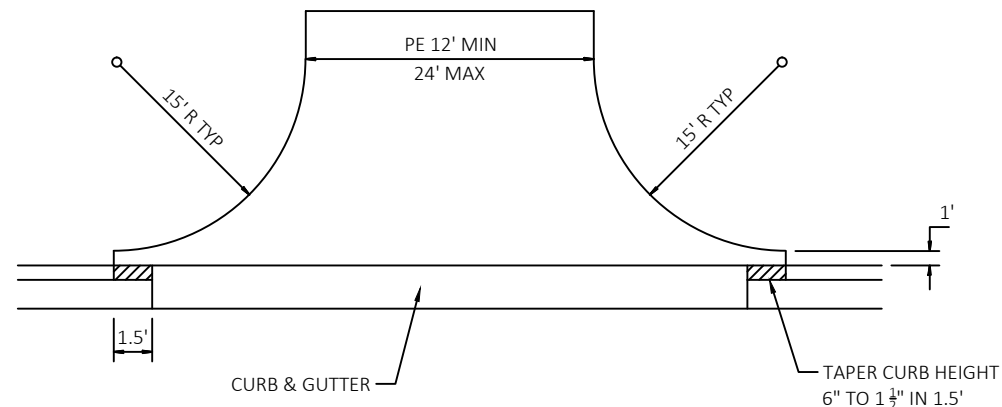


PROFILE VIEW

RURAL DRIVEWAY INTERSECTION DETAIL

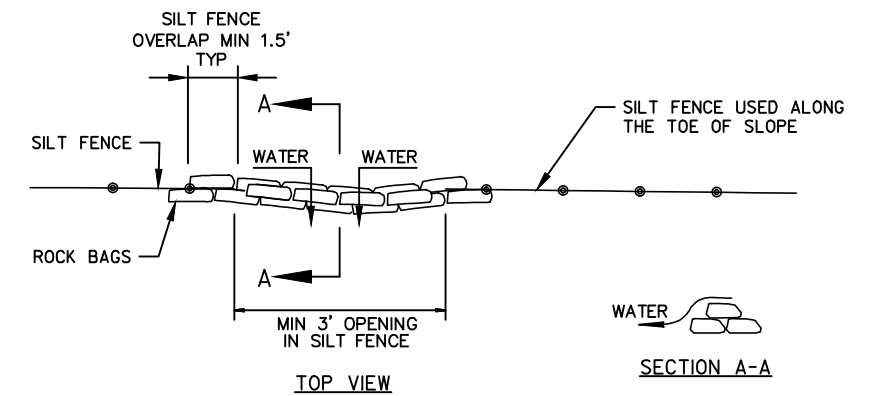
NOTES:

RESIDENTIAL ENTRANCE CONCRETE DRIVEWAYS SHALL CONSIST OF 4" BASE AGGREGATE DENSE AND 6" OF CONCRETE PAVEMENT.



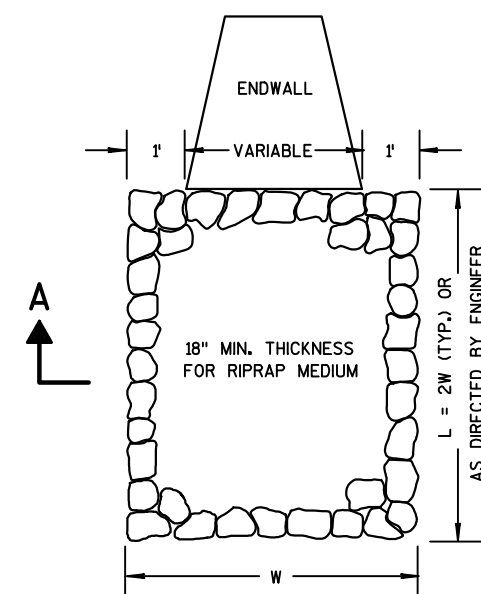
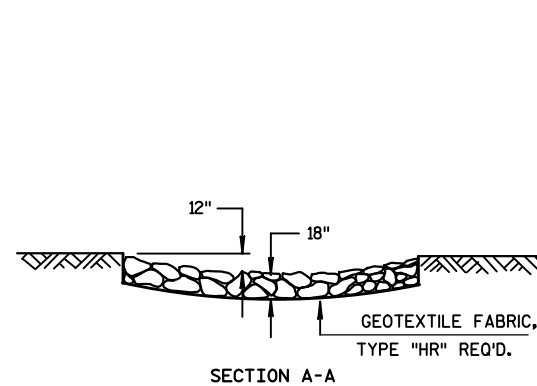
PRIVATE ENTRANCES

RURAL DRIVEWAYS WITH CURB & GUTTER

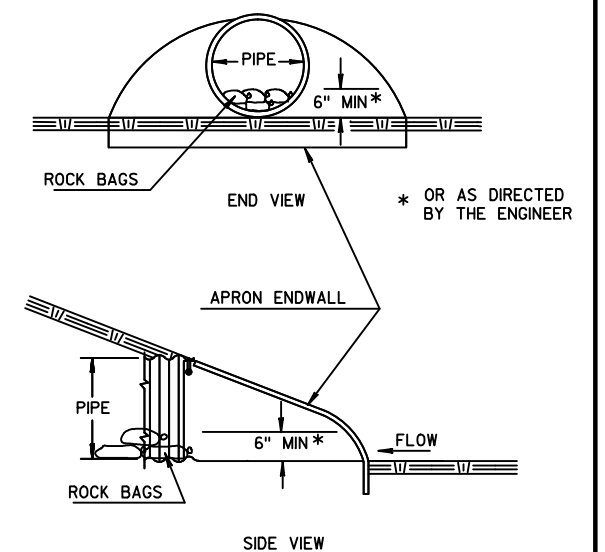


ROCK BAGS USED FOR SILT FENCE RELIEF DETAIL

PAID AS ROCK BAGS



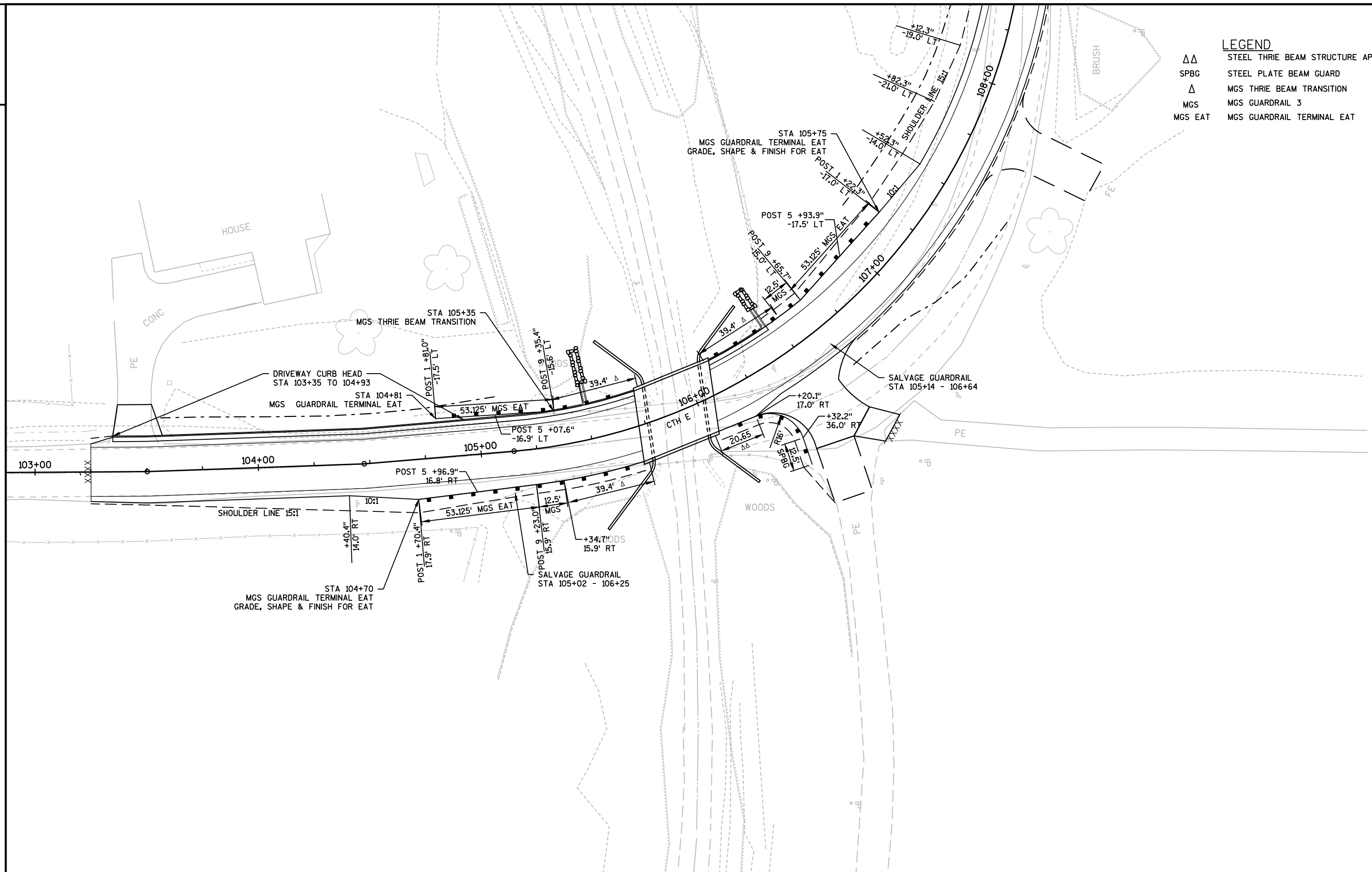
RIPRAP MEDIUM TREATMENT AT CULVERTS



CULVERT PIPE CHECK

2

2 |



LEGEND

△△	STEEL THRIE BEAM STRUCTURE APPROACH
SPBG	STEEL PLATE BEAM GUARD
△	MGS THRIE BEAM TRANSITION
MGS	MGS GUARDRAIL 3
MGS EAT	MGS GUARDRAIL TERMINAL EAT

PROJECT NO: 4394-03-71

HWY: CTH E

COUNTY: KEWAUNEE

CONSTRUCTION DETAILS

SHEET



FILE NAME : F:\TR\JOBS\E2189A15\CIVIL 3D 2014\SHEETSPLAN\43940371-021001-CD.DWG
431608-021003-cd

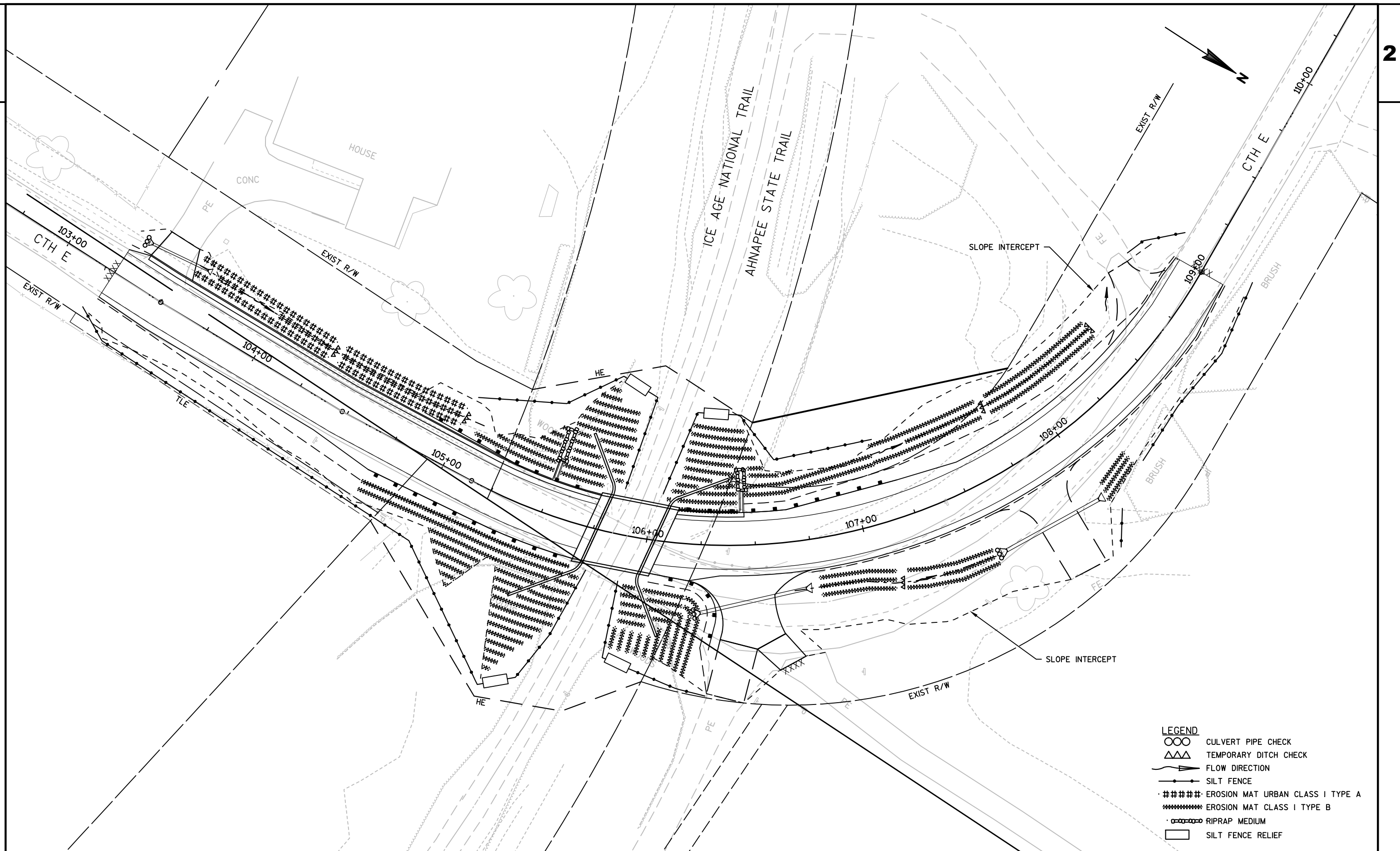
PLOT DATE : 2/1/2018 9:00 AM

PLOT BY : BRIAN EPLEY

PLOT NAME :

PLOT SCALE : #####

WISDOT/CADDS SHEET 42








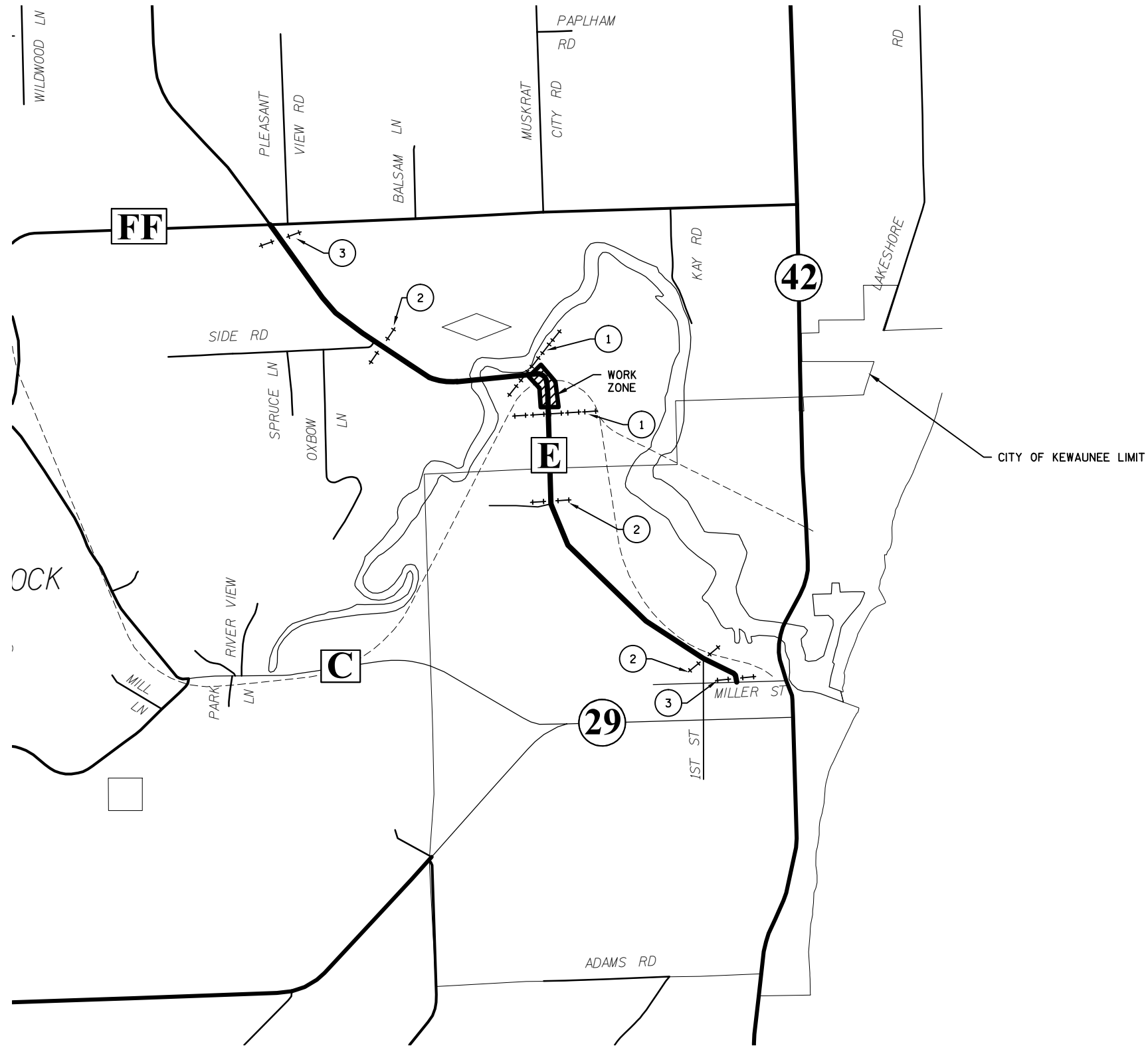
NOTE 1: USE SDD "BARRICADES AND SIGNS FOR MAINLINE CLOSURE" DETAIL D

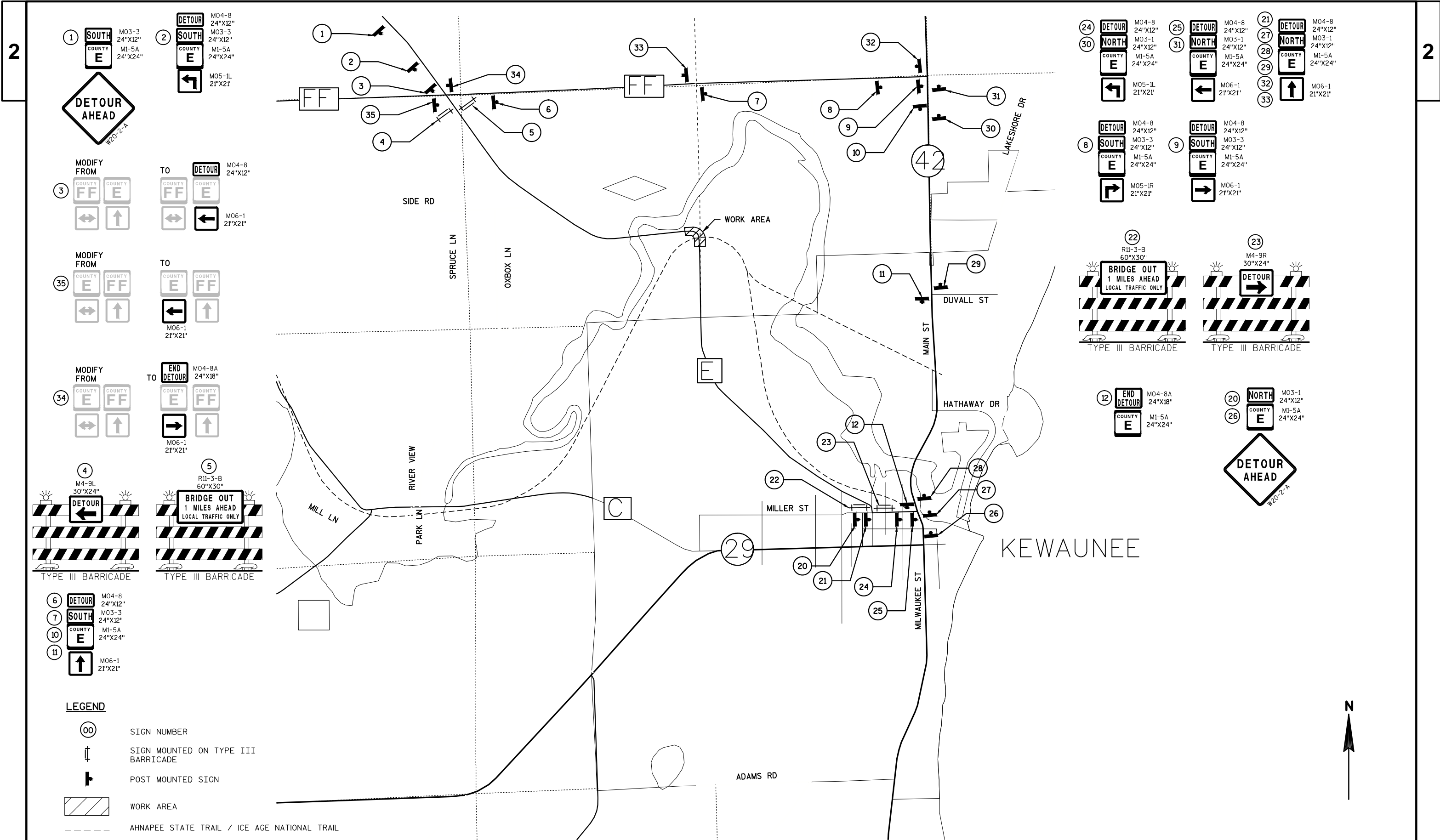
NOTE 2: USE SDD "BARRICADES AND SIGNS FOR SIDEROAD CLOSURES" DETAIL 3.

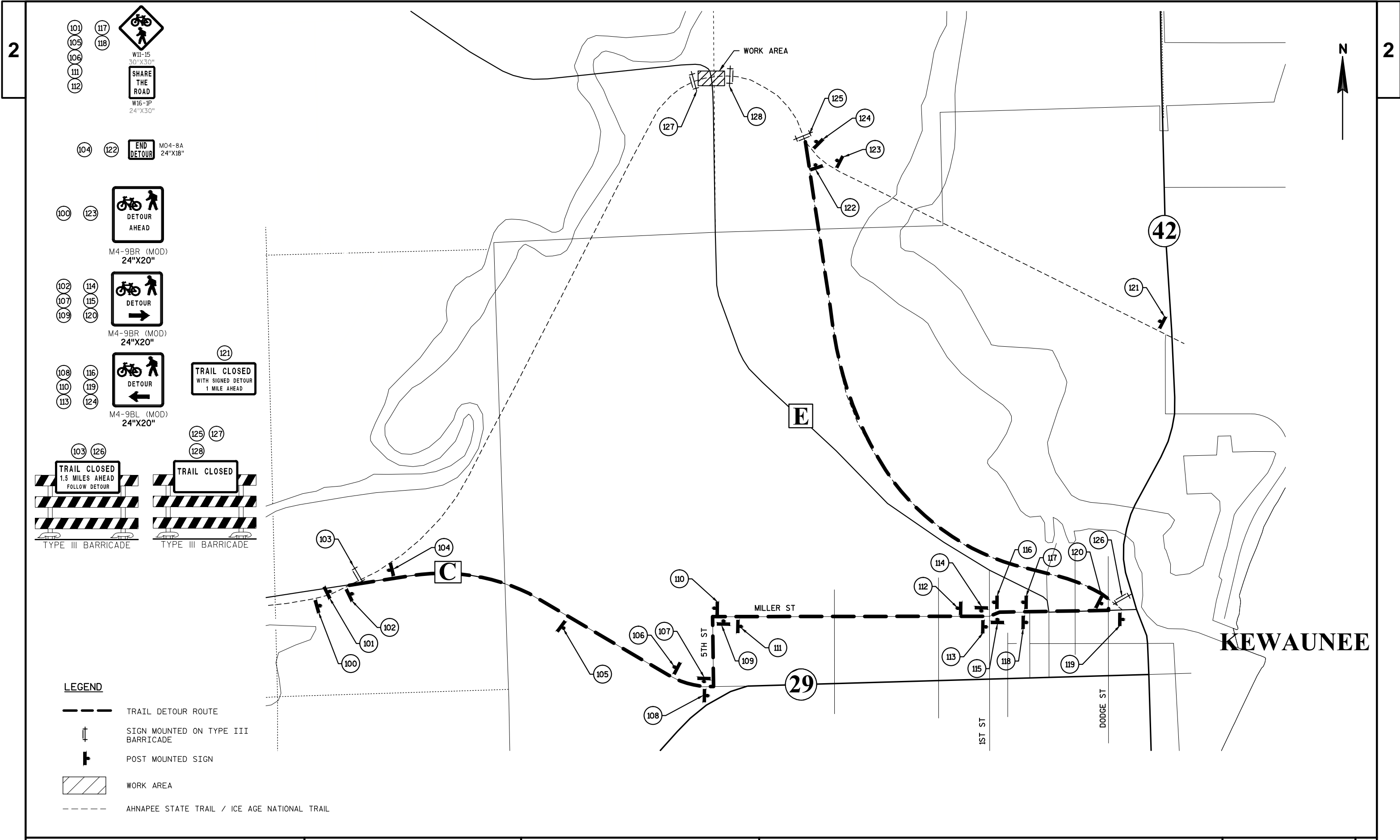
NOTE 3: USE SDD "BARRICADES AND SIGNS FOR MAINLINE CLOSURES" DETAIL A AND DETAIL E.

LEGEND

-  TYPE III BARRICADE
-  WORK AREA
-  AHNAPEE STATE TRAIL / ICE AGE NATIONAL TRAIL







Estimate Of Quantities

4394-03-71

Line	Item	Item Description	Unit	Total	Qty
0002	201.0105	Clearing	STA	2.000	2.000
0004	201.0205	Grubbing	STA	2.000	2.000
0006	203.0100	Removing Small Pipe Culverts	EACH	1.000	1.000
0008	203.0200	Removing Old Structure (station) 01. Sta. 105+90	LS	1.000	1.000
0010	205.0100	Excavation Common	CY	1,730.000	1,730.000
0012	211.0100	Prepare Foundation for Asphaltic Paving (project) 01. 4394-03-71	LS	1.000	1.000
0014	213.0100	Finishing Roadway (project) 01. 4394-03-71	EACH	1.000	1.000
0016	305.0110	Base Aggregate Dense 3/4-Inch	TON	120.000	120.000
0018	305.0120	Base Aggregate Dense 1 1/4-Inch	TON	1,451.000	1,451.000
0020	416.0160	Concrete Driveway 6-Inch	SY	47.000	47.000
0022	416.1010	Concrete Surface Drains	CY	2.000	2.000
0024	502.0100	Concrete Masonry Bridges	CY	102.000	102.000
0026	502.3200	Protective Surface Treatment	SY	124.000	124.000
0028	502.3210	Pigmented Surface Sealer	SY	30.000	30.000
0030	505.0600	Bar Steel Reinforcement HS Coated Structures	LB	16,050.000	16,050.000
0032	521.1015	Apron Endwalls for Culvert Pipe Steel 15-Inch	EACH	2.000	2.000
0034	521.1018	Apron Endwalls for Culvert Pipe Steel 18-Inch	EACH	4.000	4.000
0036	521.3115	Culvert Pipe Corrugated Steel 15-Inch	LF	28.000	28.000
0038	521.3118	Culvert Pipe Corrugated Steel 18-Inch	LF	98.000	98.000
0040	601.0411	Concrete Curb & Gutter 30-Inch Type D	LF	170.000	170.000
0042	606.0200	Riprap Medium	CY	5.000	5.000
0044	614.0150	Anchor Assemblies for Steel Plate Beam Guard	EACH	4.000	4.000
0046	614.0200	Steel Thrie Beam Structure Approach	LF	21.000	21.000
0048	614.0345	Steel Plate Beam Guard Short Radius	LF	25.000	25.000
0050	614.0390	Steel Plate Beam Guard Short Radius Terminal	EACH	1.000	1.000
0052	614.0920	Salvaged Rail	LF	293.000	293.000
0054	614.0925	Salvaged Guardrail End Treatments	EACH	4.000	4.000
0056	614.2300	MGS Guardrail 3	LF	25.000	25.000
0058	614.2500	MGS Thrie Beam Transition	LF	118.000	118.000
0060	614.2610	MGS Guardrail Terminal EAT	EACH	3.000	3.000
0062	619.1000	Mobilization	EACH	1.000	1.000
0064	624.0100	Water	MGAL	9.000	9.000
0066	625.0100	Topsoil	SY	3,090.000	3,090.000
0068	627.0200	Mulching	SY	1,350.000	1,350.000
0070	628.1504	Silt Fence	LF	900.000	900.000
0072	628.1520	Silt Fence Maintenance	LF	900.000	900.000
0074	628.1905	Mobilizations Erosion Control	EACH	4.000	4.000
0076	628.1910	Mobilizations Emergency Erosion Control	EACH	2.000	2.000
0078	628.2004	Erosion Mat Class I Type B	SY	1,270.000	1,270.000

Estimate Of Quantities

4394-03-71

Line	Item	Item Description	Unit	Total	Qty
0080	628.2006	Erosion Mat Urban Class I Type A	SY	470.000	470.000
0082	628.7504	Temporary Ditch Checks	LF	96.000	96.000
0084	628.7555	Culvert Pipe Checks	EACH	14.000	14.000
0086	628.7570	Rock Bags	EACH	82.000	82.000
0088	629.0210	Fertilizer Type B	CWT	2.000	2.000
0090	630.0130	Seeding Mixture No. 30	LB	50.000	50.000
0092	630.0140	Seeding Mixture No. 40	LB	10.000	10.000
0094	630.0200	Seeding Temporary	LB	45.000	45.000
0096	634.0614	Posts Wood 4x6-Inch X 14-FT	EACH	12.000	12.000
0098	634.0616	Posts Wood 4x6-Inch X 16-FT	EACH	1.000	1.000
0100	637.2230	Signs Type II Reflective F	SF	41.500	41.500
0102	638.2602	Removing Signs Type II	EACH	13.000	13.000
0104	638.3000	Removing Small Sign Supports	EACH	13.000	13.000
0106	642.5001	Field Office Type B	EACH	1.000	1.000
0108	643.0420	Traffic Control Barricades Type III	DAY	2,310.000	2,310.000
0110	643.0705	Traffic Control Warning Lights Type A	DAY	3,432.000	3,432.000
0112	643.0900	Traffic Control Signs	DAY	9,438.000	9,438.000
0114	643.5000	Traffic Control	EACH	1.000	1.000
0116	645.0120	Geotextile Type HR	SY	26.000	26.000
0118	646.1020	Marking Line Epoxy 4-Inch	LF	2,300.000	2,300.000
0120	650.4500	Construction Staking Subgrade	LF	539.000	539.000
0122	650.5000	Construction Staking Base	LF	539.000	539.000
0124	650.5500	Construction Staking Curb Gutter and Curb & Gutter	LF	170.000	170.000
0126	650.6500	Construction Staking Structure Layout (structure) 01. B-31-99	LS	1.000	1.000
0128	650.9910	Construction Staking Supplemental Control (project) 01. 4394-03-71	LS	1.000	1.000
0130	650.9920	Construction Staking Slope Stakes	LF	539.000	539.000
0132	690.0150	Sawing Asphalt	LF	50.000	50.000
0134	690.0250	Sawing Concrete	LF	35.000	35.000
0136	715.0502	Incentive Strength Concrete Structures	DOL	612.000	612.000
0138	SPV.0165	Special 01. Geosynthetic Reinforced Soil Abutment	SF	3,981.000	3,981.000
0140	SPV.0195	Special 01. Traffic Bond Limestone 3/8-inch	TON	36.000	36.000

EARTHWORK CATEGORY 0010								
Division	From/To Station	Location	205.0100 Common Excavation	Available Material	Unexpanded Fill	Expanded Fill	Mass Ordinate +/- (14)	Waste
			Cut			Factor 1.25		
Division 1								
	103+25/105+65	CTH E	374	374	282	352	22	22
	106+20/109+00	CTH E	1,359	1,359	177	221	1,138	1,138
Grand Total			1733	1733	458	573	1160	1160
Rounded Common Exc				1,730				

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 Division.

CLEARING & GRUBBING
CATEGORY 0010

STATION	DIR	LOCATION	201.0105 CLEARING STATION	201.0205 GRUBBING STA
105+00 - 106+00	RT & LT	CTH E	1	1
107+00 - 108+00	RT	CTH E	1	1
TOTALS			2	2

BASE AGGREGATE DENSE AND WATER
CATEGORY 0010

STATION TO STATION	LOCATION	305.0110 BASE AGGREGATE DENSE 3/4-INCH	305.0120 BASE AGGREGATE DENSE 1 1/4-INCH *	624.0100 WATER
		TON	TON	MGAL
103+25 - 105+72	CTH E	30	630	4
106+08 - 109+00	CTH E	90	740	5
TOTALS		120	1370 *	9

* ADDITIONAL QUANTITIES IN DRIVEWAY TABLE

CONCRETE SURFACE DRAINS
CATEGORY 0010

STATION	DIR	LOCATION	416.1010 CONCRETE SURFACE DRAINS
			CY
105+50	LT	CTH E	1
106+47	LT	CTH E	1

PROJECT TOTALS 2

PREPARING FOUNDATION
CATEGORY 0010

STATION	LOCATION	211.0100 PREPARING FOUNDATION FOR ASPHALTIC PAVING 4394-03-71
		LS
103+25 - 109+00	CTH E	1
TOTALS		1

ASPHALTIC ITEMS
CATEGORY 0010

STATION TO STATION	LOCATION	455.0605 ** TACK COAT	465.0105 ** ASPHALTIC SURFACE
		GAL	TON
103+25 - 105+72	CTH E	55	180
106+08 - 109+00	CTH E	65	210
TOTALS		120	390

** WORK BY OTHERS

DRIVEWAYS
CATEGORY 0010

STATION	DIR	LOCATION	305.0120 BASE AGGREGATE DENSE 1 1/4- INCH *	416.0160 CONCRETE DRIVEWAY 6-INCH	465.0120 ** ASPHALTIC SURFACE DRIVEWAY & FIELD ENTRANCES
			TON	SY	TON
103+45	LT	CTH E	7	29	---
106+45	RT	CTH E	25	18	14
107+80	RT	CTH E	36	---	---
108+80	LT	CTH E	14	---	---

PROJECT TOTALS 81 * 47 14

* ADDITIONAL QUANTITIES IN BASE AGGREGATE DENSE & WATER TABLE
** WORK BY OTHERS

CONCRETE CURB AND GUTTER

CATEGORY 0010

STATION TO STATION	DIR	LOCATION	601.0411 CONCRETE CURB & GUTTER 30-INCH TYPE D LF
103+35 - 104+75	LT	CTH E	140
106+13 - 106+42	LT	CTH E	30
PROJECT TOTALS			170

SALVAGED GUARDRAIL

CATEGORY 0010

STATION	DIR	LOCATION	614.0920 SALVAGED RAIL LF	614.0925 SALVAGED GUARDRAIL END TREATMENTS EACH
105+02 - 106+25	RT	CTH E	140	2
105+14 - 106+64	LT	CTH E	153	2
TOTALS			293	4

RIPRAP & GEOTEXTILE TYPE HR

CATEGORY 0010

STATION	DIR	LOCATION	606.0200 RIPRAP MEDIUM CY	645.0120 GEOTEXTILE TYPE HR SY
105+50	LT	CTH E	3	16
106+47	LT	CTH E	2	10
PROJECT TOTALS			5	26

CULVERT PIPES

CATEGORY 0010

STATION	DIR	LOCATION	203.0100 REMOVING SMALL PIPE CULVERTS EA	521.1015 APRON ENDWALLS FOR CULVERT PIPE STEEL 15-INCH EA	521.1018 APRON ENDWALLS FOR CULVERT PIPE STEEL 18-INCH EA	521.3115 CULVERT PIPE CORRUGATED STEEL 15-IN LF	521.3118 CULVERT PIPE CORRUGATED STEEL 18-INCH LF	STEEL THICKNESS	UP INVERT	DN INVERT
103+46	LT	CTH E	1	2	---	28	---	0.064	626.00	625.25
106+50	RT	CTH E	---	---	2	---	50	0.064	613.00	610.20
107+80	RT	CTH E	---	---	2	---	48	0.064	602.80	599.30
TOTALS			1	2	4	28	98			

STEEL PLATE BEAM GUARD

CATEGORY 0010

STATION	TO	STATION	LOCATION	614.0200 STEEL THRIE BEAM STRUCTURE APPROACH LF	614.0345 STEEL PLATE BEAM GUARD SHORT RADIUS LF	614.0390 STEEL PLATE BEAM GUARD SHORT RADIUS TERMINAL EACH	614.2300 MGS GUARDRAIL 3 LF	614.2500 MGS THRIE BEAM TRANSITION LF	614.2610 MGS GUARDRAIL TERMINAL EAT EACH
104+70	-	105+70	CTH E	---	---	---	12.5	39.4	1
104+81	-	105+75	CTH E	---	---	---	---	39.4	1
106+03	-	106+29	CTH E	20.65	25	1	---	---	---
106+13	-	107+22	CTH E	---	---	---	12.5	39.4	1
TOTALS				20.65	25	1	25	118.2	3
ROUNDED TOTALS				21	25	1	25	118	3

LANDSCAPING

CATEGORY 0010

STATION TO STATION	LOCATION	625.0100 TOPSOIL SY	627.0200 MULCHING SY	628.2004 EROSION MAT CLASS I TYPE B SY	628.2006 EROSION MAT URBAN CLASS I TYPE A SY	630.0130 SEED MIXTURE NO. 30 LB	630.0140 SEED MIXTURE NO. 40 LB	630.0200 SEEDING TEMPORARY LB	629.0210 FERTILIZER TYPE B CWT
103+25 - 105+75, LT	CTH E	580	0	190	390	3	7	8	0.36
103+25 - 105+75, RT	CTH E	500	220	280	---	9	---	7	0.32
106+08 - 109+00, LT	CTH E	610	260	350	---	11	---	8	0.39
106+08 - 109+00, RT	CTH E	880	640	240	---	16	---	12	0.56
UNDISTRIBUTED		520	230	210	80	11	3	10	0.38
TOTALS		3,090	1,350	1,270	470	50	10	45	2.00

EROSION CONTROL ITEMS
CATEGORY 0010

		628.1504 SILT FENCE LF	628.1520 SILT FENCE MAINTENANCE LF	628.1905 MOBILIZATIONS EROSION CONTROL EACH	628.1910 MOBILIZATIONS EMERGENCY EROSION CONTROL EACH	628.7504 TEMPORARY DITCH CHECKS LF	628.7555 CULVERT PIPE CHECKS EACH	628.7570 ROCK BAGS EACH
STATION TO STATION	LOCATION							
103+25 - 105+75, LT	CTH E	135	135	---	---	32	3	18
103+25 - 105+75, RT	CTH E	335	335	---	---	---	---	18
106+08 - 109+00, LT	CTH E	160	160	---	---	32	---	18
106+08 - 109+00, RT	CTH E	230	230	---	---	16	7	18
UNDISTRIBUTED	CTH E	40	40	4	2	16	4	10
TOTALS		900	900	4	2	96	14	82

SIGNS REFLECTIVE TYPE II & POSTS WOOD
CATEGORY 0010

STATION	LOCATION	CODE	SIGN SIZE HORIZ X VERT IN X IN	634.0614 POST WOOD 4X6-INCH X 14-FT EACH	634.0616 POSTS WOOD 4X6-INCH X 16-FT EACH	637.2230 SIGNS TYPE II RELFECTIVE F SF
104+45	RT	R12-1	24 X 30	1	---	5
105+70	RT	W5-52R	12 X 36	1	---	3
105+75	LT	W5-52L	12 X 36	---	1	3
106+02	RT	W5-52R	12 X 36	1	---	3
106+41	LT	W5-52L	12 X 36	1	---	3
106+25	RT	W1-6L	36 X 18	1	---	4.5
106+40	LT	R7-1	12 X 18	1	---	1.5
106+50	RT	R7-1	12 X 18	1	---	1.5
107+00	RT	W1-6R	36 X 18	1	---	4.5
107+50	LT	R12-1	24 X 30	1	---	5
107+50	RT	W1-6R	36 X 18	1	---	4.5
108+25	LT	R7-1	12 X 18	1	---	1.5
108+50	RT	R7-1	12 X 18	1	---	1.5
TOTALS				12	1	41.5

REMOVING SIGNS TYPE II AND REMOVING SMALL SIGN SUPPORTS
CATEGORY 0010

STATION	LOCATION	DESCRIPTION	638.2602 REMOVING SIGNS TYPE II EACH	638.3000 REMOVING SMALL SIGN SUPPORTS EACH
104+44	RT	WEIGHT LIMIT 10 TONS	1	1
105+72	RT	OBJECT MARKER	1	1
105+78	LT	OBJECT MARKER	1	1
105+95	RT	OBJECT MARKER	1	1
106+03	LT	OBJECT MARKER	1	1
106+08	RT	RT ARROW	1	1
106+36	LT	NO PARKING	1	1
106+50	RT	NO PARKING	1	1
106+87	RT	RT ARROW	1	1
107+38	RT	RT ARROW	1	1
107+40	LT	WEIGHT LIMIT 10 TONS	1	1
108+13	LT	NO PARKING	1	1
108+75	RT	NO PARKING	1	1
TOTALS			13	13

TRAFFIC CONTROL DETOUR SIGN SUMMARY CATEGORY 0010									
SIGN NO.	LOCATION	SIGN CODE	SIZE W X H	NUMBER IN SERVICE	APPROX. SERVICE PERIOD 66 DAYS	643.0900 TRAFFIC CONTROL SIGNS DAY	643.0420 TRAFFIC CONTROL BARRICADES TYPE III DAY	643.0705 TRAFFIC CONTROL WARNING LIGHTS TYPE A DAY	REMARKS
1	CTH E N. OF CTH FF	M03-3	24X12	1	66	66	---	---	
		M1-5A	24X24	1	66	66	---	---	
		W20-2A	48X48	1	66	66	---	---	
2	CTH E N. OF CTH FF	M04-8	24X12	1	66	66	---	---	
		M03-3	24X12	1	66	66	---	---	
		M1-5A	24X24	1	66	66	---	---	
		M05-1L	21X21	1	66	66	---	---	
3	CTH E N. OF CTH FF	M04-8	24X12	1	66	66	---	---	
		M06-1	21X21	1	66	66	---	---	
4	CTH E S. OF CTH FF	M4-9L	30X24	1	66	66	---	---	
5	CTH E S. OF CTH FF	R11-3-B	60X30	1	66	66	---	---	
6	CTH FF E. OF CTH E	M04-8	24X12	1	66	66	---	---	
7	CTH FF E. OF MUSKRAT CITY RD.	M04-8	24X12	1	66	66	66	132	
		M03-3	24X12	1	66	66	66	132	
		M1-5A	24X24	1	66	66	---	---	
		M06-1	21X21	1	66	66	---	---	
		M1-5A	24X24	1	66	66	---	---	
		M06-1	21X21	1	66	66	---	---	
8	CTH FF W. OF STH 42	M04-8	24X12	1	66	66	---	---	
		M03-3	24X12	1	66	66	---	---	
		M1-5A	24X24	1	66	66	---	---	
		M05-1R	21X21	1	66	66	---	---	
9	CTH FF E. OF STH 42	M04-8	24X12	1	66	66	---	---	
		M03-3	24X12	1	66	66	---	---	
		M1-5A	24X24	1	66	66	---	---	
		M06-1	21X21	1	66	66	---	---	
10	STH 42 S. OF CTH FF	M04-8	24X12	1	66	66	---	---	
		M03-3	24X12	1	66	66	---	---	
		M1-5A	24X24	1	66	66	---	---	
		M06-1	21X21	1	66	66	---	---	
11	STH 42 S. OF DUVALL ST.	M04-8	24X12	1	66	66	---	---	
		M03-3	24X12	1	66	66	---	---	
		M1-5A	24X24	1	66	66	---	---	
		M06-1	21X21	1	66	66	---	---	
12	STH 42 N. OF MILLER ST.	M04-8	24X12	1	66	66	---	---	
		M03-1	24X12	1	66	66	---	---	
		M1-5A	24X24	1	66	66	---	---	
		M06-1	21X21	1	66	66	---	---	
20	MILLER ST. W. OF SHELDON ST.	M03-1	24X12	1	66	66	---	---	
		M1-5A	24X24	1	66	66	---	---	
21	MILLER ST. E. OF BEARDSLEY ST.	M04-8	24X12	1	66	66	---	---	
		M03-1	24X12	1	66	66	---	---	
		M1-5A	24X24	1	66	66	---	---	
		M06-1	21X21	1	66	66	---	---	

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TRAFFIC CONTROL DETOUR SIGN SUMMARY CONTINUED
CATEGORY 0010

SIGN NO.	LOCATION	SIGN CODE	SIZE W X H	NUMBER IN SERVICE	APPROX. SERVICE PERIOD 66 DAYS	643.0900 TRAFFIC CONTROL SIGNS DAY	643.0420 TRAFFIC CONTROL BARRICADES TYPE III DAY	643.0705 TRAFFIC CONTROL WARNING LIGHTS TYPE A DAY	REMARKS
22	CTH E N. OF MILLER ST.	R11-3B	60X30	1	66	66	66	132	
23	CTH E N. OF MILLER ST.	M4-9R	30X24	1	66	66	66	132	
24	MILLER ST. W. OF DODGE ST.	M04-8	24X12	1	66	66	---	---	
		M03-1	24X12	1	66	66	---	---	
		M1-5A	24X24	1	66	66	---	---	
		M05-1L	21X21	1	66	66	---	---	
25	MILLER ST. W. OF MILWAUKEE ST.	M04-8	24X12	1	66	66	---	---	
		M03-1	24X12	1	66	66	---	---	
		M1-5A	24X24	1	66	66	---	---	
		M06-1	21X21	1	66	66	---	---	
26	MILWAUKEE ST. S. OF HARRISON ST.	M03-1	24X12	1	66	66	---	---	
		M1-5A	24X24	1	66	66	---	---	
		W20-2A	48X48	1	66	66	---	---	
27	MILWAUKEE ST. S. OF MILLER ST.	M04-8	24X12	1	66	66	---	---	
		M03-1	24X12	1	66	66	---	---	
		M1-5A	24X24	1	66	66	---	---	
		M06-1	21X21	1	66	66	---	---	
28	MILWAUKEE ST. N. OF MILLER ST.	M04-8	24X12	1	66	66	---	---	
		M03-1	24X12	1	66	66	---	---	
		M1-5A	24X24	1	66	66	---	---	
		M06-1	21X21	1	66	66	---	---	
29	MAIN ST. NORTH OF DUVALL ST.	M04-8	24X12	1	66	66	---	---	
		M03-1	24X12	1	66	66	---	---	
		M1-5A	24X24	1	66	66	---	---	
		M06-1	21X21	1	66	66	---	---	
30	MAIN ST. S. OF CTH FF	M04-8	24X12	1	66	66	---	---	
		M03-1	24X12	1	66	66	---	---	
		M1-5A	24X24	1	66	66	---	---	
		M05-1L	21X21	1	66	66	---	---	
31	MAIN ST. S. OF CTH FF	M04-8	24X12	1	66	66	---	---	
		M03-1	24X12	1	66	66	---	---	
		M1-5A	24X24	1	66	66	---	---	
		M06-1	21X21	1	66	66	---	---	
32	CTH FF W. OF MAIN ST.	M04-8	24X12	1	66	66	---	---	
		M03-1	24X12	1	66	66	---	---	
		M1-5A	24X24	1	66	66	---	---	
		M06-1	21X21	1	66	66	---	---	
33	CTH FF W. OF MUSKRAT CITY RD.	M04-8	24X12	1	66	66	---	---	
		M03-1	24X12	1	66	66	---	---	
		M1-5A	24X24	1	66	66	---	---	
		M06-1	21X21	1	66	66	---	---	
34	CTH FF E. OF CTH E	M04-8A	24X18	1	66	66	---	---	
		M06-1	21X21	1	66	66	---	---	
35	CTH FF W. OF CTH E	M06-1	21X21	1	66	66	---	---	

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TRAFFIC CONTROL DETOUR SIGN SUMMARY CONTINUED									
CATEGORY 0010									
SIGN NO.	LOCATION	SIGN CODE	SIZE W X H	NUMBER IN SERVICE	APPROX. SERVICE PERIOD 66 DAYS	643.0900 TRAFFIC CONTROL SIGNS DAY	643.0420 TRAFFIC CONTROL BARRICADES TYPE III DAY	643.0705 TRAFFIC CONTROL WARNING LIGHTS TYPE A DAY	REMARKS
PROJECT 7391-02-70									
100	AHNAPEE STATE TRAIL S. OF CTH C	M4-9BR (MOD)	24x20	1	66	66	---	---	
101	AHNAPEE STATE TRAIL S. OF CTH C	W11-15	30x30	1	66	66	---	---	
		W16-1P	24x30	1	66	66	---	---	
102	AHNAPEE STATE TRAIL S. OF CTH C	M4-9BR (MOD)	24x30	1	66	66	---	---	
103	AHNAPEE STATE TRAIL N. OF CTH C			1	66	66	66	---	
104	CTH C E. OF AHNAPEE STATE TRAIL	M04-8A	24x18	1	66	66	---	---	
105	CTH C W. OF 5TH ST.	W11-15	30x30	1	66	66	---	---	
		W16-1P	24x30	1	66	66	---	---	
106	CTH C. W. OF 5TH ST.	W11-15	30x30	1	66	66	---	---	
		W16-1P	24x30	1	66	66	---	---	
107	5TH ST. N. OF CTH C	M4-9BR (MOD)	24x20	1	66	66	---	---	
108	CTH C S. OF 5TH ST.	M4-9BR (MOD)	24x30	1	66	66	---	---	
109	5TH ST. S. OF MILLER ST.	M4-9BR (MOD)	24x30	1	66	66	---	---	
110	MILLER ST. E. OF 5TH ST.	M4-9BR (MOD)	24x30	1	66	66	---	---	
111	MILLER ST. E. OF 5TH ST.	W11-15	30x30	1	66	66	---	---	
		W16-1P	24x30	1	66	66	---	---	
112	MILLER ST. W OF 1ST ST.	W11-15	30x30	1	66	66	---	---	
		W16-1P	24x30	1	66	66	---	---	
113	MILLER ST. W OF 1ST ST.	M4-9BR (MOD)	24x20	1	66	66	---	---	
114	1ST ST. N. OF MILLER ST.	M4-9BR (MOD)	24x20	1	66	66	---	---	
115	1ST ST. S. OF MILLER ST.	M4-9BR (MOD)	24x20	1	66	66	---	---	
116	MILLER ST. E. OF 1ST ST.	M4-9BR (MOD)	24x20	1	66	66	---	---	
117	MILLER ST. N. OF SHELDON ST.	W11-15	30x30	1	66	66	---	---	
		W16-1P	24x30	1	66	66	---	---	
118	MILLER ST. W. OF SHELDON ST.	W11-15	30x30	1	66	66	---	---	
		W16-1P	24x30	1	66	66	---	---	
119	MILLER ST. E. OF DODGE ST.	M4-9BR (MOD)	24x20	1	66	66	---	---	
120	AHNAPEE STATE TRAIL W. OF DODGE ST.	M4-9BR (MOD)	24x20	1	66	66	---	---	
121	AHNAPEE STATE TRAIL W. OF STH 42			1	66	66	---	---	
122	AHNAPEE STATE TRAIL S. OF FORK	M04-8A	24x18	1	66	66	---	---	
123	AHNAPEE STATE TRAIL E. OF FORK	M4-9BR (MOD)	24x20	1	66	66	---	---	
124	AHNAPEE STATE TRAIL E. OF FORK	M4-9BR (MOD)	24x20	1	66	66	---	---	
125	AHNAPEE STATE TRAIL N. OF FORK			1	66	66	66	---	
126	AHNAPEE STATE TRAIL N. OF MILLER ST.			1	66	66	66	---	
127	AHNAPEE STATE TRAIL W. OF WORK AREA			1	66	66	66	---	
128	AHNAPEE STATE TRAIL E. OF WORK AREA			1	66	66	66	---	
PAGE SUBTOTALS						2,376	330	0	
ADDITIONAL QUANTITY LOCATED IN TRAFFIC CONTROL ROAD CLOSURE TABLE						TOTALS	8,184	594*	528*

TRAFFIC CONTROL ROAD CLOSURE

CATEGORY 0010							
LOCATION	APROX. SERVICE PERIOD	643.0420 TRAFFIC CONTROL BARRICADES TYPE III *		643.0705 TRAFFIC CONTROL WARNING LIGHTS TYPE A *		643.0900 TRAFFIC CONTROL SIGNS *	
		EACH		EACH		EACH	
		NO.	DAY	NO.	DAY	NO.	DAY
CTH E/MILLER ST.	66	2	132	4	264	1	66
CTH E/1ST ST.	66	4	264	8	528	5	330
CTH E	66	4	264	8	528	5	330
BEGIN PROJECT	66	5	330	6	396	1	66
END PROJECT	66	5	330	6	396	1	66
CTH E/SIDE RD.	66	4	264	8	528	5	330
CTH E/CTH FF	66	2	132	4	264	1	66
TOTALS			1,716*		2,904*		1,254*

MARKING LINE EPOXY
CATEGORY 0010

STATION	TO	STATION	LOCATION	646.1020	
				4-INCH YELLOW LF	4-INCH WHITE LF
				1,150	1,150
103+25	-	109+00	CTH E		
TOTAL				2,300	

CONSTRUCTION STAKING
CATEGORY 0010

STATION	TO	STATION	LOCATION	650.4500	650.5000	650.5500	CATEGORY 0020	650.9910	650.9920
				SUBGRADE	BASE	CURB GUTTER AND CURB & GUTTER	650.6500 STRUCTURE LAYOUT B-31-99	SUPPLEMENTAL CONTROL	SLOPE STAKES
				LF	LF	LF	LS	LS	LF
103+25	-	105+72	CTH E	247	247	140	---	---	247
STRUCTURE B-31-99				---	---	---	1	---	---
106+08	-	109+00	CTH E	292	292	30	---	---	292
TOTALS				539	539	170	1	1	539

SAWING ASPHALT
CATEGORY 0010

STATION	DIR	LOCATION	690.0150	690.0250
			SAWING ASPHALT LF	SAWING CONCRETE LF
			25	---
103+25	R/L	CTH E		
103+35	LT	CTH E	---	15
106+50	RT	CTH E	---	20
109+00	R/L	CTH E	25	---
TOTAL			50	35

TRAFFIC BOND LIMESTONE 3/8-INCH
CATEGORY 0010

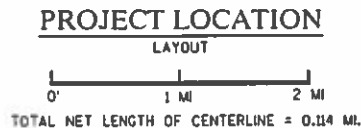
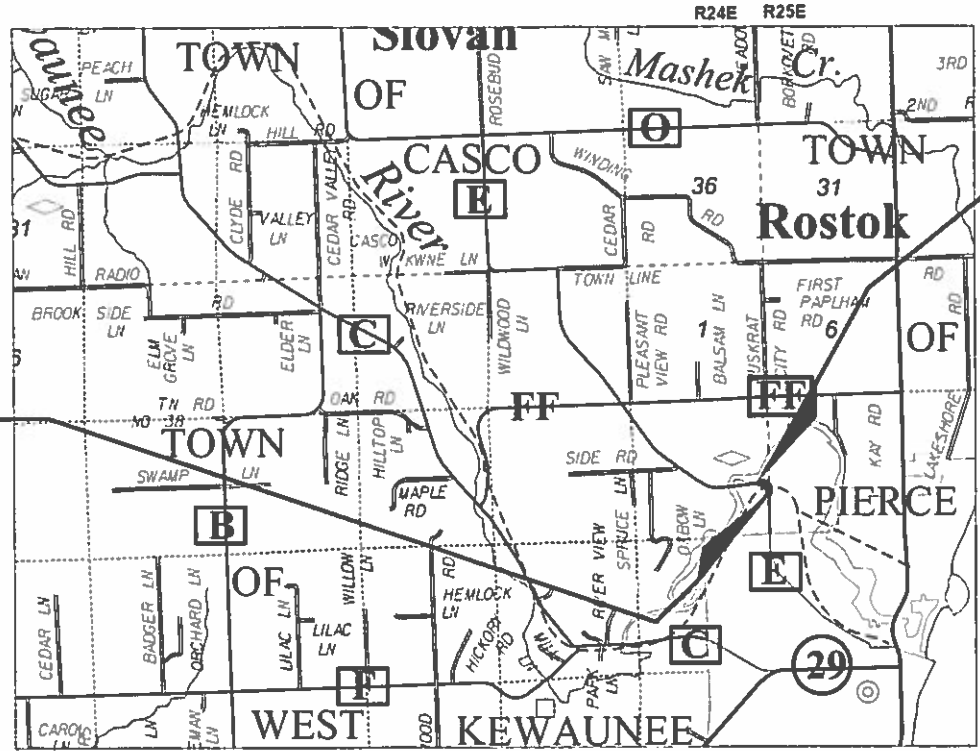
STATION TO STATION	LOCATION	SPV.0195.01 TRAFFIC BOND LIMESTONE 3/8-INCH TON
12+00 - 13+25	TRAIL	36
TOTALS		36

KEWAUNEE COUNTY

Conventional Signs and Abbreviations

	SECTION LINE	AC	ACRES
	QUARTER LINE	Δ	CENTRAL ANGLE
	TOWNSHIP AND RANGE LINE	C/L	CENTERLINE
	PROPOSED OR NEW CENTERLINE	COR.	CORNER
	PROPOSED OR NEW R/W LINE	CTH	COUNTY TRUNK HIGHWAY
	EXISTING R/W LINE	D	DEGREE OF CURVE
	LOT LINE	E	EAST
	PROPERTY LINE	L	LENGTH OF CURVE
	COUNTY LIMITS LINE	LC	LONG CHORD
	SLOPE INTERCEPTS	LCB	LONG CHORD BEARING
	EXISTING MONUMENTATION	M	MILE
	FENCE	N	NORTH
	SECTION OR QUARTER CORNER	N.T.S.	NOT TO SCALE
	TELEPHONE	PC	POINT OF CURVATURE
	GAS	PI	POINT OF INTERSECTION
	WATER	PT	POINT OF TANGENCY
	ELECTRIC	PLE	PERMANENT LIMITED EASEMENT
	FIBER OPTIC	P/L	PROPERTY LINE
	SANITARY	PC LINE	PRIVATE CLAIM LINE
	STORM SEWER	R	RADIUS
	NO ACCESS (BY ACQUISITION)	R/L	RANGE
	NO ACCESS (BY STATUTORY AUTHORITY)	R/W	RIGHT OF WAY
	NO ACCESS (BY PREVIOUS PROJECT)	1/4 LINE	QUARTER LINE
	TEMPORARY LIMITED EASEMENT	1/16 LINE	SIXTEENTH LINE
	PERMANENT LIMITED EASEMENT	S	SOUTH
	FEE TITLE	SEC	SECTION
	RIGHT-OF-WAY MONUMENTS SET AT NEWLY ACQUIRED R/W ANGLE POINTS	SEC LINE	SECTION LINE
	PARCEL NUMBER	STH	STATE TRUNK HIGHWAY
	UTILITY PARCEL NUMBER	SF	SQUARE FEET
	R/W POINT NUMBER	STA	STATION
	HE NUMBER	T	TOWN
	COMPENSABLE	TLE	TANGENT LENGTH OF CURVE
	NON-COMPENSABLE	TLE	TEMPORARY LIMITED EASEMENT
	POWER POLE	USH	UNITED STATES HIGHWAY
	TELEPHONE POLE	W	WEST
	TELEPHONE PEDESTAL		

BEGIN RELOCATION ORDER
STATION 103+00.00
1515.27' NORTH OF AND 19.92' EAST OF THE
SOUTHEAST CORNER OF SECTION 12, T23N, R24E,
TOWN OF WEST KEWAUNEE, KEWAUNEE COUNTY,
WISCONSIN.
Y: 441227.22
X: 269413.59



Notes:
POSITIONS SHOWN ON THIS PLAT ARE WISCONSIN COORDINATE REFERENCE SYSTEM COORDINATES (WISCRS), KEWAUNEE COUNTY, HAD 83 (2010) IN US SURVEY FEET. VALUES SHOWN ARE GRID COORDINATES, GRID BEARINGS, AND GRID DISTANCES. GRID DISTANCES MAY BE USED AS GROUND DISTANCES.
RIGHT OF WAY MONUMENTS ARE TYPE 2 MONUMENTS (TYPICALLY 3/4 X 24" REBAR) AND WILL BE PLACED PRIOR TO THE COMPLETION OF THE PROJECT.
RIGHT OF WAY BOUNDARIES ARE DEFINED WITH COURSES OF THE PERIMETER OF THE HIGHWAY LANDS REFERENCED TO THE U.S. PUBLIC LAND SURVEY SYSTEM OR OTHER SURVEYS OF PUBLIC RECORD.
PROPERTY LINES SHOWN ON THIS PLAT ARE DRAWN FROM DATA DERIVED FROM MAPS AND DOCUMENTS OF PUBLIC RECORD AND/ OR EXISTING OCCUPATION LINES. EXCLUDING RIGHT-OF-WAY LINES, THIS PLAT MAY NOT BE A TRUE REPRESENTATION OF EXISTING PROPERTY LINES AND SHOULD NOT BE USED AS A SUBSTITUTE FOR AN ACCURATE FIELD SURVEY.
DIMENSIONS FOR THE NEW RIGHT-OF-WAY ARE MEASURED ALONG AND PERPENDICULAR TO THE NEW REFERENCE LINES.
A TEMPORARY LIMITED EASEMENT (TLE) IS A RIGHT FOR CONSTRUCTION PURPOSES, AS DEFINED HEREIN, INCLUDING THE RIGHT TO OPERATE NECESSARY EQUIPMENT THEREON AND THE RIGHT OF INGRESS AND EGRESS, AS LONG AS REQUIRED FOR SUCH PUBLIC PURPOSE, INCLUDING THE RIGHT TO PRESERVE, PROTECT, REMOVE, OR PLANT THEREON ANY VEGETATION THAT THE HIGHWAY AUTHORITIES MAY DEEM NECESSARY OR DESIRABLE. ALL TLE'S EXPIRE AT THE COMPLETION OF THE CONSTRUCTION PROJECT FOR WHICH THIS INSTRUMENT IS GIVEN.
A HIGHWAY EASEMENT (HE) IS A EASEMENT FOR HIGHWAY PURPOSES, AS LONG AS SO USED, INCLUDING THE RIGHT TO PRESERVE, PROTECT, REMOVE OR PLANT THEREON ANY VEGETATION THE THE HIGHWAY AUTHORITIES MAY DEEM NECESSARY OR DESIRABLE.
EXISTING R/W OF CTH E WAS ESTABLISHED PER KEWAUNEE CSM NO. 1350, PLAT OF SURVEY BY TERRANCE MCNAULTY DATED 11-26-99, PLAT OF SURVEY BY BRIAN PEOT DATED 8-18-2009

REVISIONS	R/W PROJECT NUMBER 4394-03-00	SHEET NUMBER 4.01	TOTAL SHEETS 2
	FEDERAL PROJECT NUMBER *****		
	PLAT OF RIGHT-OF-WAY REQUIRED FOR CTH E CTH FF - BEARDSLEY ST CTH E KEWAUNEE COUNTY		
	CONSTRUCTION PROJECT NUMBER 4394-03-71		

END RELOCATION ORDER
STATION 109+00.20
3335.69' SOUTH OF AND 293.62' WEST OF THE
NORTHEAST CORNER OF SECTION 12, T23N, R24E,
TOWN OF WEST KEWAUNEE, KEWAUNEE COUNTY,
WISCONSIN.
Y: 441670.10
X: 269141.10



ACCEPTED FOR
KEWAUNEE COUNTY

10-11-17
(Date)

10-10-2017
(Date)

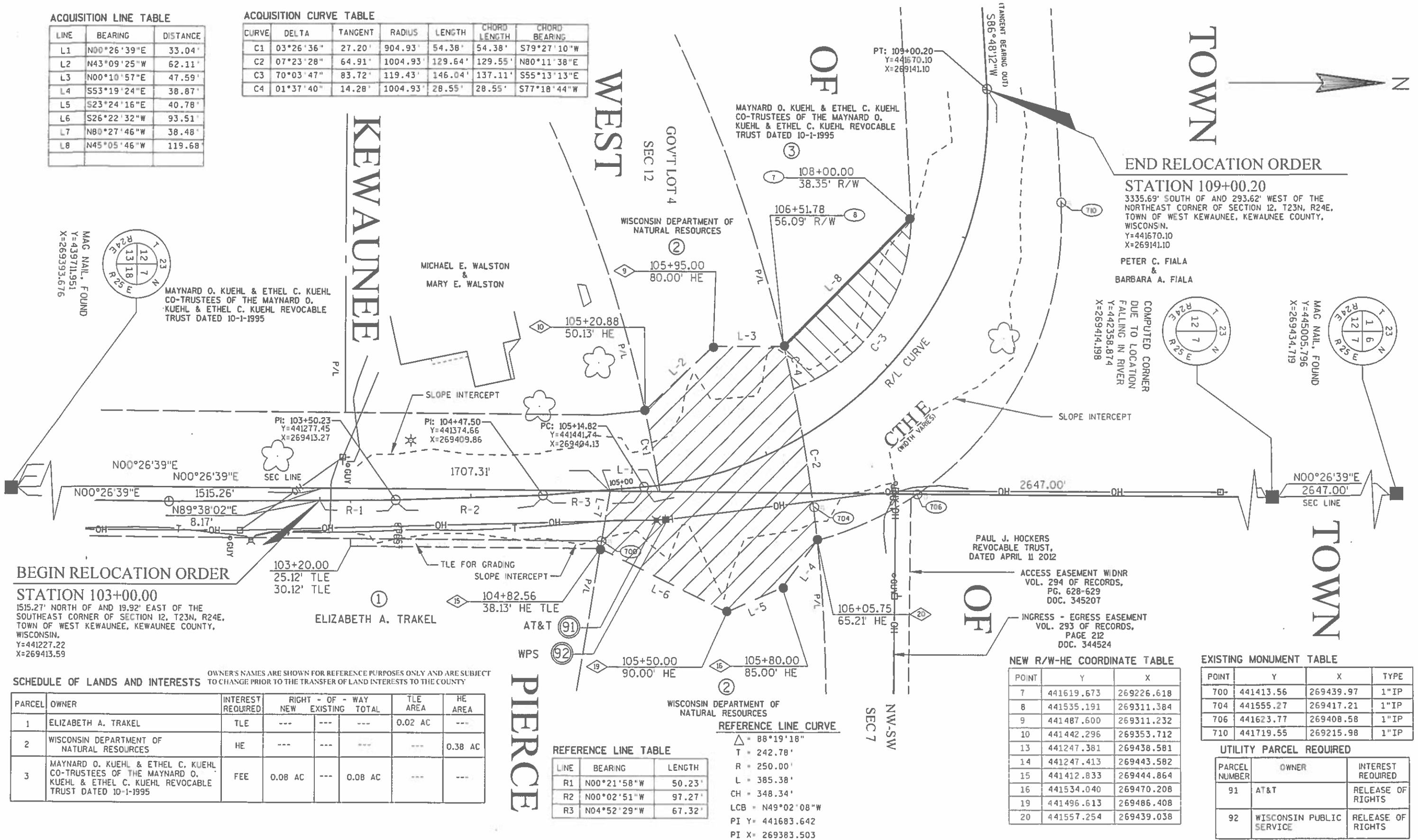
DAVID A. YURK
S-2648
OSHKOSH, WI
PROFESSIONAL LAND SURVEYOR

20

ACQUISITION LINE TABLE		
LINE	BEARING	DISTANCE
L1	N00°26'39"E	33.04'
L2	N43°09'25"W	62.11'
L3	N00°10'57"E	47.59'
L4	S53°19'24"E	38.87'
L5	S23°24'16"E	40.78'
L6	S26°22'32"W	93.51'
L7	N80°27'46"W	38.48'
L8	N45°05'46"W	119.68'

ACQUISITION CURVE TABLE						
CURVE	DELTA	TANGENT	RADIUS	LENGTH	CHORD LENGTH	CHORD BEARING
C1	03°26'36"	27.20'	904.93'	54.38'	54.38'	S79°27'10"W
C2	07°23'28"	64.91'	1004.93'	129.64'	129.55'	N80°11'38"E
C3	70°03'47"	83.72'	119.43'	146.04'	137.11'	S55°13'13"E
C4	01°37'40"	14.28'	1004.93'	28.55'	28.55'	S77°18'44"W

4



BEGIN RELOCATION ORDER

STATION 103+00.00

1515.27' NORTH OF AND 19.92' EAST OF THE SOUTHEAST CORNER OF SECTION 12, T23N, R24E, TOWN OF WEST KEWAUNEE, KEWAUNEE COUNTY, WISCONSIN.
Y=441227.22
X=269413.59

SCHEDULE OF LANDS AND INTERESTS

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

PARCEL	OWNER	INTEREST REQUIRED	RIGHT - OF - WAY	TLE AREA	HE AREA
			NEW EXISTING TOTAL		
1	ELIZABETH A. TRAKEL	TLE	---	---	0.02 AC
2	WISCONSIN DEPARTMENT OF NATURAL RESOURCES	HE	---	---	0.38 AC
3	MAYNARD O. KUEHL & ETHEL C. KUEHL CO-TRUSTEES OF THE MAYNARD O. KUEHL & ETHEL C. KUEHL REVOCABLE TRUST DATED 10-1-1995	FEE	0.08 AC	---	---

REFERENCE LINE TABLE

LINE	BEARING	LENGTH
R1	N00°21'58"W	50.23'
R2	N00°02'51"W	97.27'
R3	N04°52'29"W	67.32'

REFERENCE LINE CURVE

Δ = 88°19'18"
T = 242.78'
R = 250.00'
L = 385.38'
CH = 348.34'
LCB = N49°02'08"W
PI Y = 441683.642
PI X = 269383.503

NEW R/W-HE COORDINATE TABLE

POINT	Y	X
7	441619.673	269226.618
8	441535.191	269311.384
9	441487.600	269311.232
10	441442.296	269353.712
13	441247.381	269438.581
14	441247.413	269443.582
15	441412.833	269444.864
16	441534.040	269470.208
19	441496.613	269486.408
20	441557.254	269439.038

EXISTING MONUMENT TABLE

POINT	Y	X	TYPE
700	441413.56	269439.97	1"IP
704	441555.27	269417.21	1"IP
706	441623.77	269408.58	1"IP
710	441719.55	269215.98	1"IP

UTILITY PARCEL REQUIRED

PARCEL NUMBER	OWNER	INTEREST REQUIRED
91	AT&T	RELEASE OF RIGHTS
92	WISCONSIN PUBLIC SERVICE	RELEASE OF RIGHTS

REVISION	DATE	BY	APP

DATE 10/3/2017

GRID FACTOR N/A

SCALE, FEET



HWY: CTH E

COUNTY: KEWAUNEE

STATE R/W PROJECT NUMBER 4394-03-00

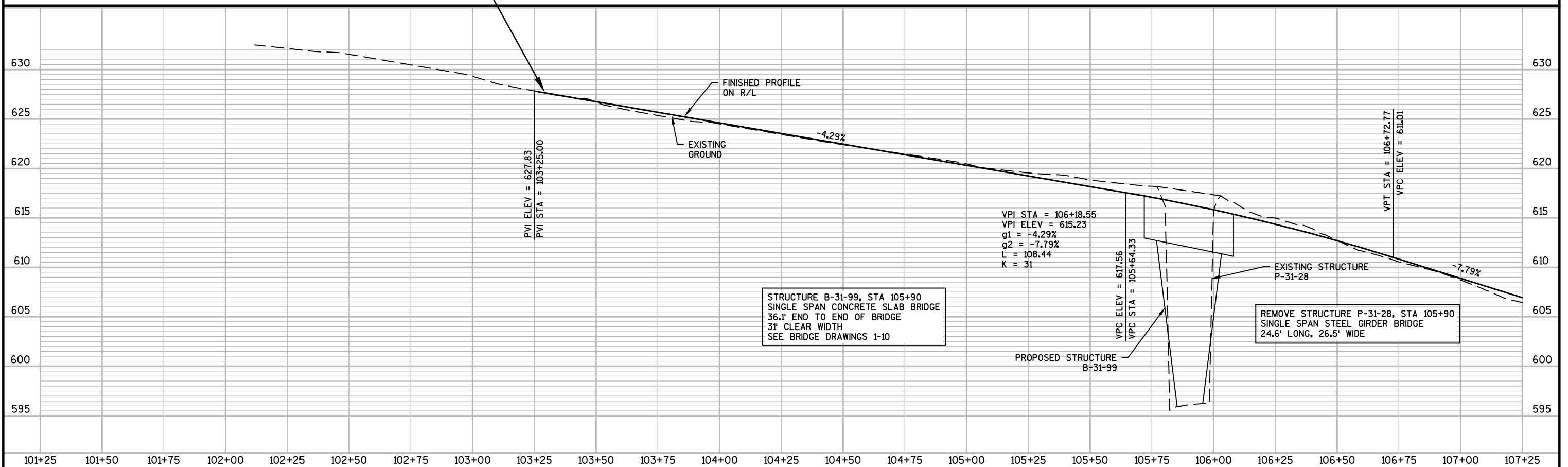
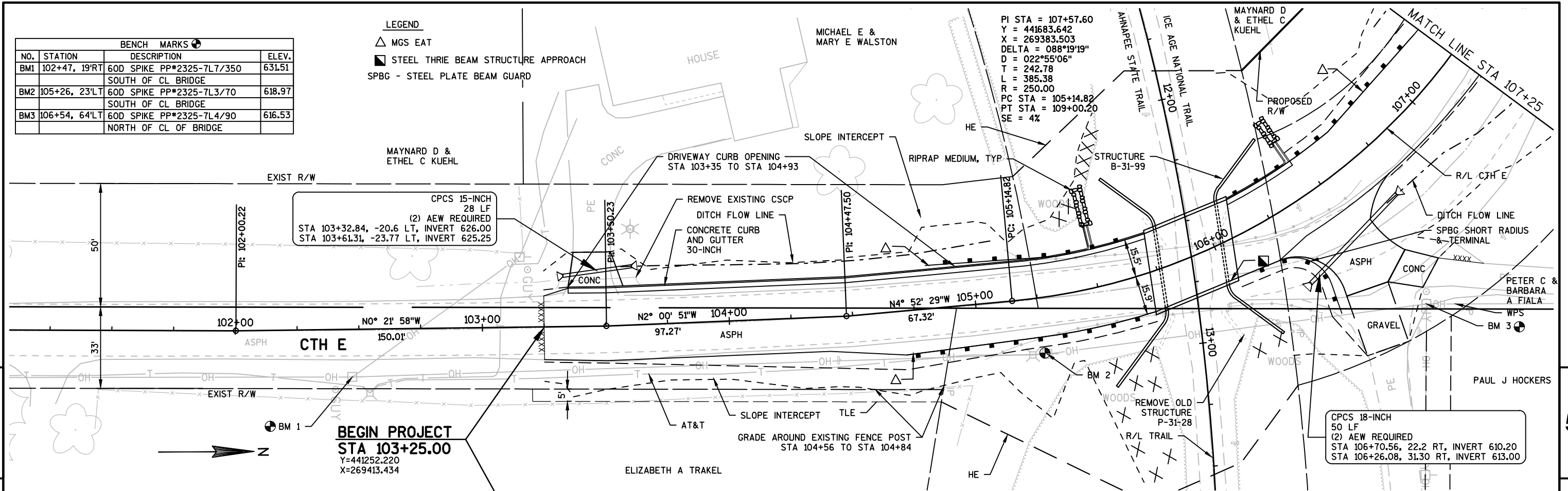
CONSTRUCTION PROJECT NUMBER 4394-03-71

PLAT SHEET 4.02

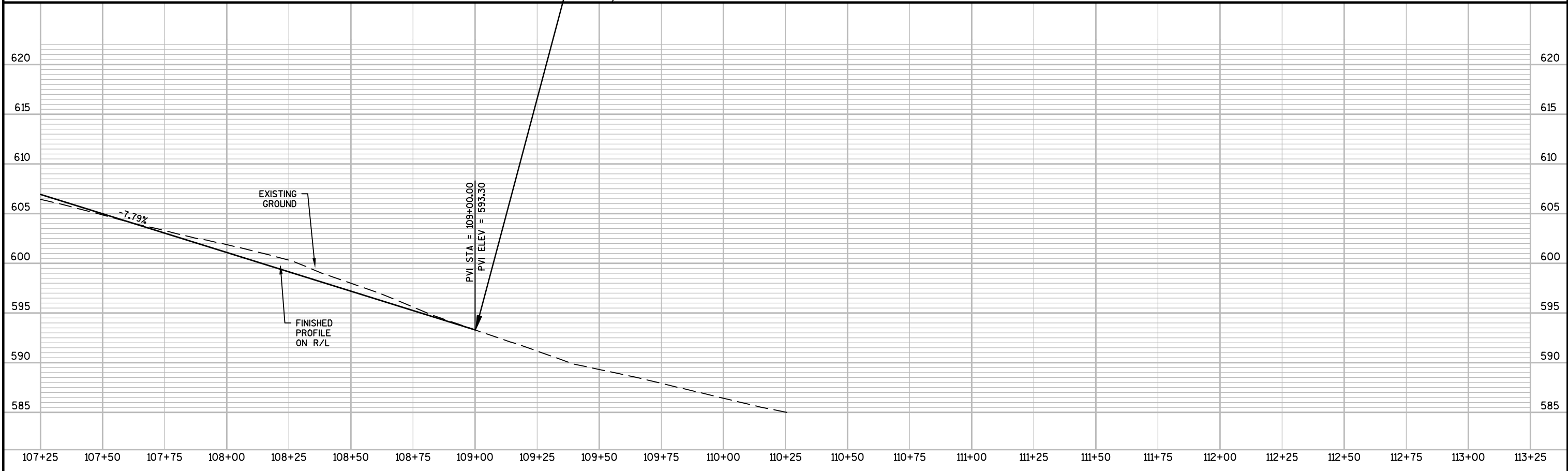
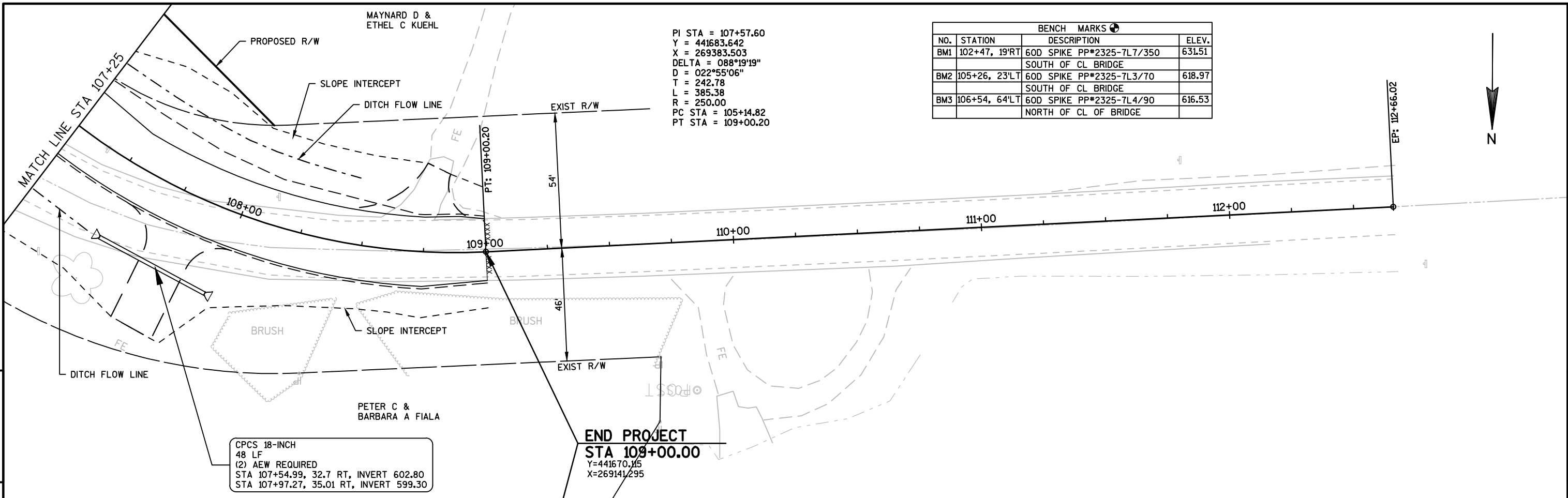
PS&E SHEET 21 E

BENCH MARKS			
NO.	STATION	DESCRIPTION	ELEV.
BM1	102+47, 19'RT	60D SPIKE PP*2325-7L7/350 SOUTH OF CL BRIDGE	631.51
BM2	105+26, 23'LT	60D SPIKE PP*2325-7L3/70 SOUTH OF CL BRIDGE	618.97
BM3	106+54, 64'LT	60D SPIKE PP*2325-7L4/90 NORTH OF CL OF BRIDGE	616.53

LEGEND
 △ MGS EAT
 ■ STEEL THRIE BEAM STRUCTURE APPROACH
 SPBG - STEEL PLATE BEAM GUARD

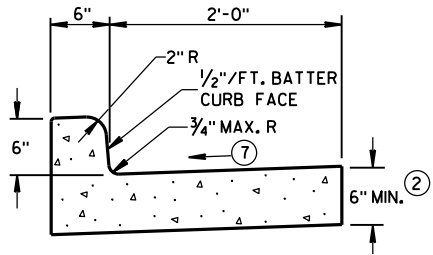


PROJECT NO: 4394-03-71 HWY: CTH E COUNTY: KEWAUNEE PLAN AND PROFILE: CTH E SHEET E

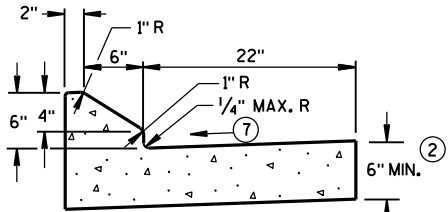


Standard Detail Drawing List

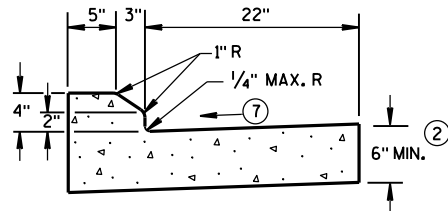
08D01-20A	CONCRETE CURB & GUTTER
08D01-20B	CONCRETE CURB, TIES AND CURB AND GUTTER APPLICATIONS
08D04-05	CONCRETE SURFACE DRAINS & ASPHALTIC FLUMES
08E08-03	TYPICAL INSTALLATIONS OF EROSION BALES / TEMPORARY DITCH CHECKS
08E09-06	SILT FENCE
08F01-11	APRON ENDWALLS FOR CULVERT PIPE
12A03-10	NAME PLATE (STRUCTURES)
14B20-11A	STEEL THRIE BEAM STRUCTURE APPROACH
14B20-11B	STEEL THRIE BEAM STRUCTURE APPROACH, CONNECTION TO SQUARE END PARAPETS
14B24-09A	STEEL PLATE BEAM GUARD ENERGY ABSORBING TERMINAL
14B24-09B	STEEL PLATE BEAM GUARD ENERGY ABSORBING TERMINAL
14B24-09C	STEEL PLATE BEAM GUARD ENERGY ABSORBING TERMINAL
14B27-01A	STEEL PLATE BEAM GUARD SHORT RADIUS TERMINAL
14B27-01B	STEEL PLATE BEAM GUARD SHORT RADIUS TERMINAL
14B27-01C	STEEL PLATE BEAM GUARD SHORT RADIUS TERMINAL
14B42-05A	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-05B	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-05C	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-05D	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B44-03A	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B44-03B	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B44-03C	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B45-04A	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-04B	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-04C	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-04D	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
15C02-06A	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C02-06B	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C02-06C	DETOUR SIGNING FOR MAINLINE CLOSURES
15C03-04	BARRICADES AND SIGNS FOR SIDEROAD CLOSURES
15C06-09	SIGNING & MARKING FOR TWO LANE BRIDGES
15C08-18A	LONGITUDINAL MARKING (MAINLINE)
15D38-02A	TEMPORARY TRAFFIC CONTROL SIGN MOUNTING
15D38-02B	ATTACHMENT OF SIGNS TO POSTS



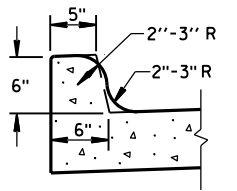
TYPES A^① & D



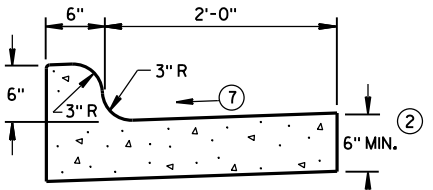
6" SLOPED CURB TYPES G^① & J



4" SLOPED CURB TYPES G^① & J

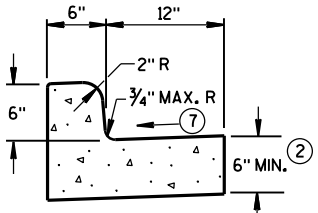


TYPES K^① & L
(OPTIONAL CURB SHAPE)



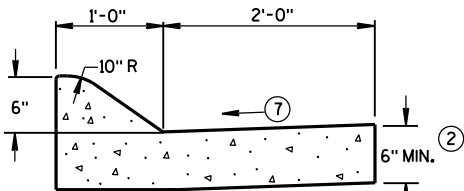
TYPES K^① & L

CONCRETE CURB & GUTTER 30"

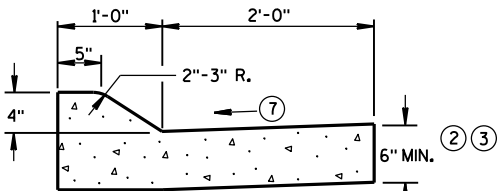


TYPES A^① & D

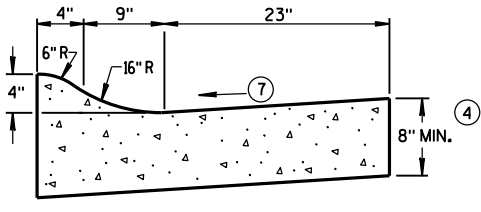
CONCRETE CURB & GUTTER 18"



6" SLOPED CURB TYPES A^① & D

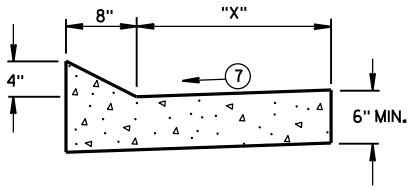


4" SLOPED CURB TYPES A^① & D



4" SLOPED CURB TYPES R^① & T^⑤

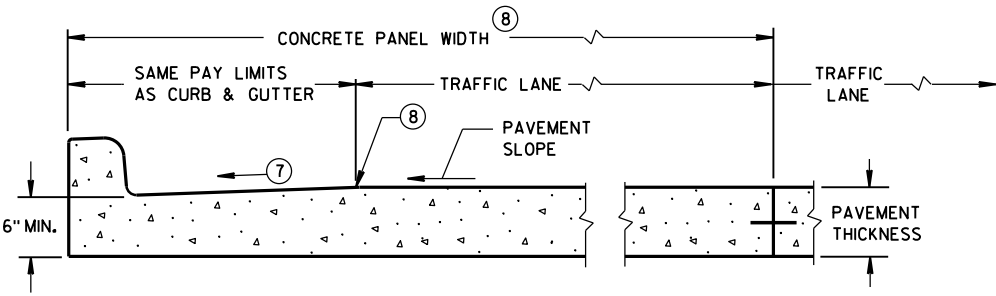
CONCRETE CURB & GUTTER 36"



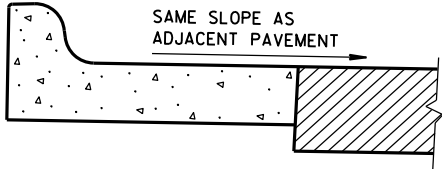
TYPES TBT & TBTT^①

CONCRETE CURB & GUTTER

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



PARTIAL SECTION OF PAVEMENT
WITH INTEGRAL CURB & GUTTER



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

GENERAL NOTES

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

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

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

WHERE THE TRANSVERSE JOINTS IN THE PAVEMENT ARE REQUIRED TO BE SEALED, THE JOINTS IN THE INTEGRAL CURB AND GUTTER SHALL BE SEALED TO THE FACE OF CURB WITH THE SAME TYPE OF SEALANT. THE COST OF FURNISHING AND INSTALLING THIS SEALANT SHALL BE INCIDENTAL TO THE ITEM CONCRETE CURB AND GUTTER.

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

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

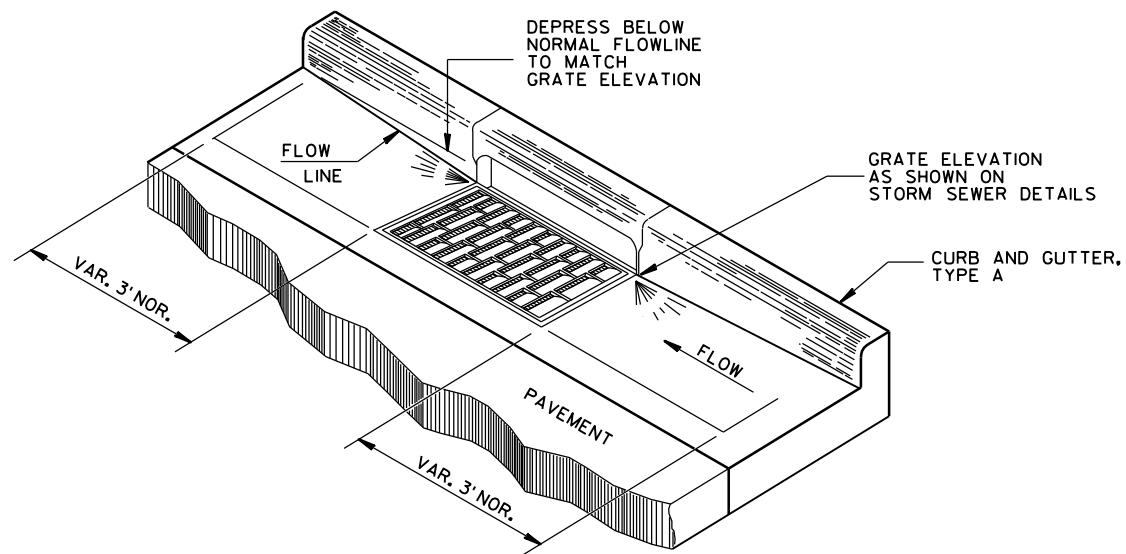
PAVEMENT THICKNESS
AND MAXIMUM CONCRETE
PANEL WIDTH TABLE

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

* BIKE LANE IS NOT SHOWN.

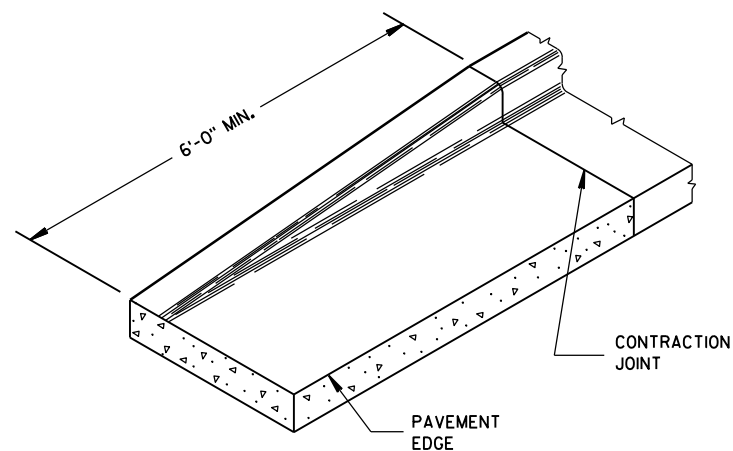
CONCRETE CURB & GUTTER

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

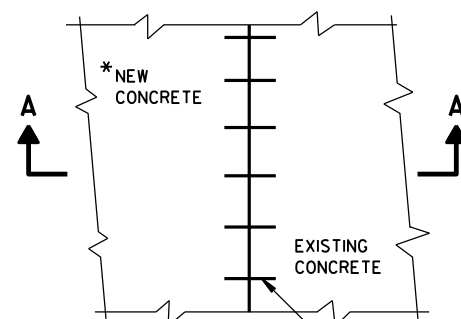


DETAIL OF CURB AND GUTTER AT INLETS

(TYPE H INLET COVER SHOWN)

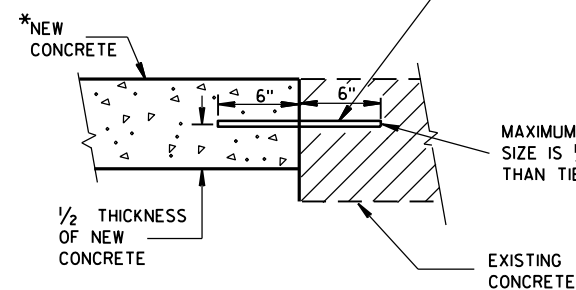


END SECTION CURB & GUTTER



PLAN VIEW

*NEW CURB & GUTTER, SURFACE DRAINS, CONCRETE PAVEMENT OR OTHER NEW CONCRETE.

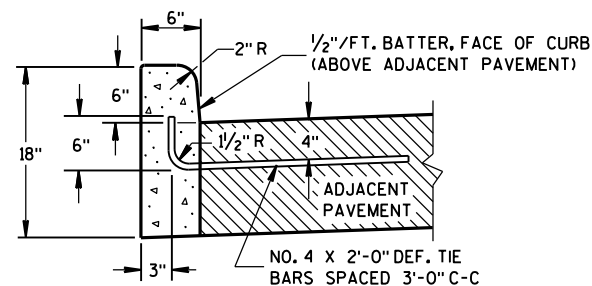


**SECTION A-A
TIE BARS DRILLED
INTO EXISTING PAVEMENT**

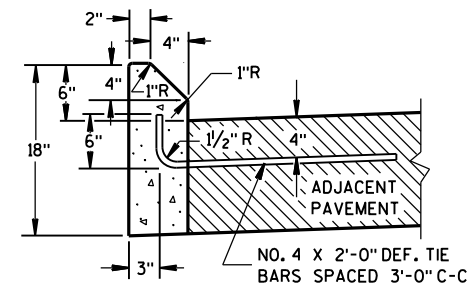
NO. 6 TIE BARS SPACED 2'-6" C-C, INSTALLED PERPENDICULAR TO THE LONGITUDINAL JOINT.

MAXIMUM DRILL HOLE SIZE IS 1/8" GREATER THAN TIE BAR DIAMETER

EXISTING CONCRETE



TYPES A^① & D



TYPES G^① & J

GENERAL NOTES

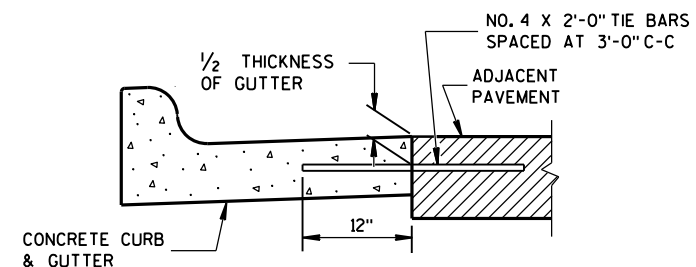
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE CONTRACT.

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

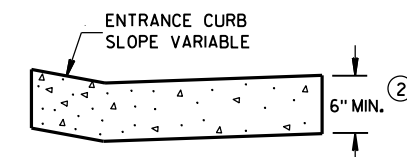
UNLESS OTHERWISE SHOWN ON THE TYPICAL CROSS SECTIONS, THE BASE AGGREGATE AND COMMON EXCAVATION LIMITS ARE 2'-0" BEHIND THE BACK OF CURBS.

- ① TIE BARS ARE REQUIRED FOR CURB AND GUTTER TYPES A, G, K, R AND TBTT.
- ② THE BOTTOM OF CURB AND GUTTER MAY BE CONSTRUCTED EITHER LEVEL OR PARALLEL TO THE SLOPE OF THE SUBGRADE OR BASE AGGREGATE PROVIDED A 6" MINIMUM GUTTER THICKNESS IS MAINTAINED.
- ⑨ REFER TO SDD 8D18 AND SDD 8D19 FOR ADDITIONAL DRIVEWAY ENTRANCE CURB DETAILS.

CONCRETE CURB



TYPICAL TIE BAR LOCATION^①



DRIVEWAY ENTRANCE CURB^⑨
(WHEN DIRECTED BY THE ENGINEER)

CONCRETE CURB, TIES AND CURB AND GUTTER APPLICATIONS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

June, 2017

DATE

FHWA

/S/ Rodney Taylor

ROADWAY STANDARDS DEVELOPMENT

UNIT SUPERVISOR

6



PLAN VIEW
FLUME AT CURB END

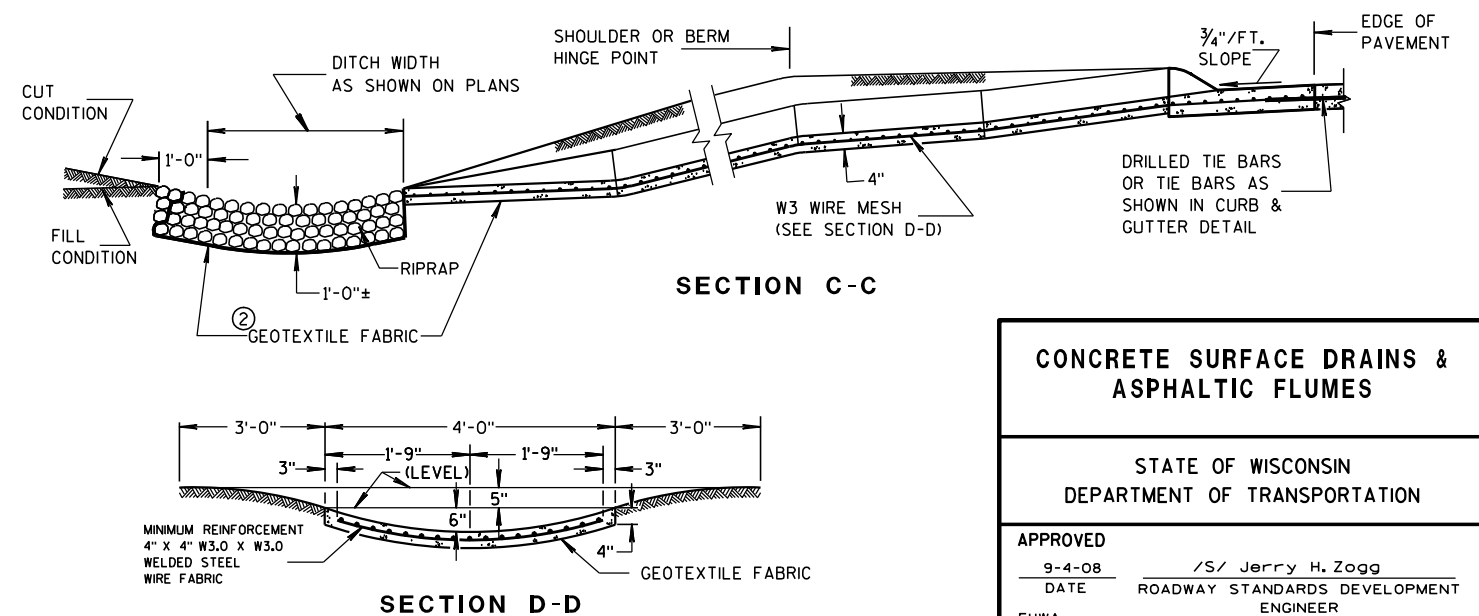


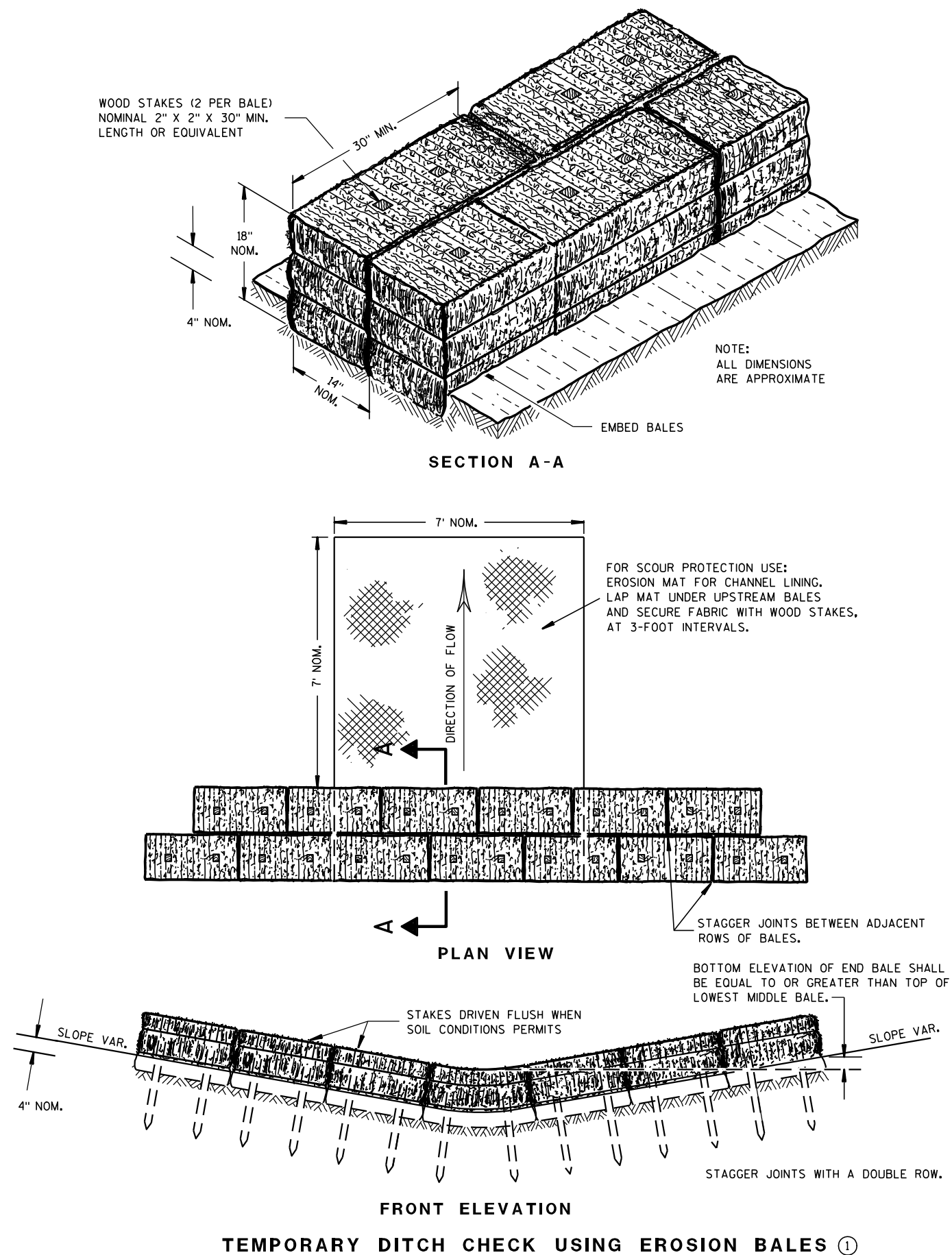
6

S.D.D. 8 D 4-5

③ CONCRETE SURFACE DRAIN WITHOUT CURB AND GUTTER MAY BE USED ON BACKSLOPES WHEN SPECIFIED

SECTION C-C

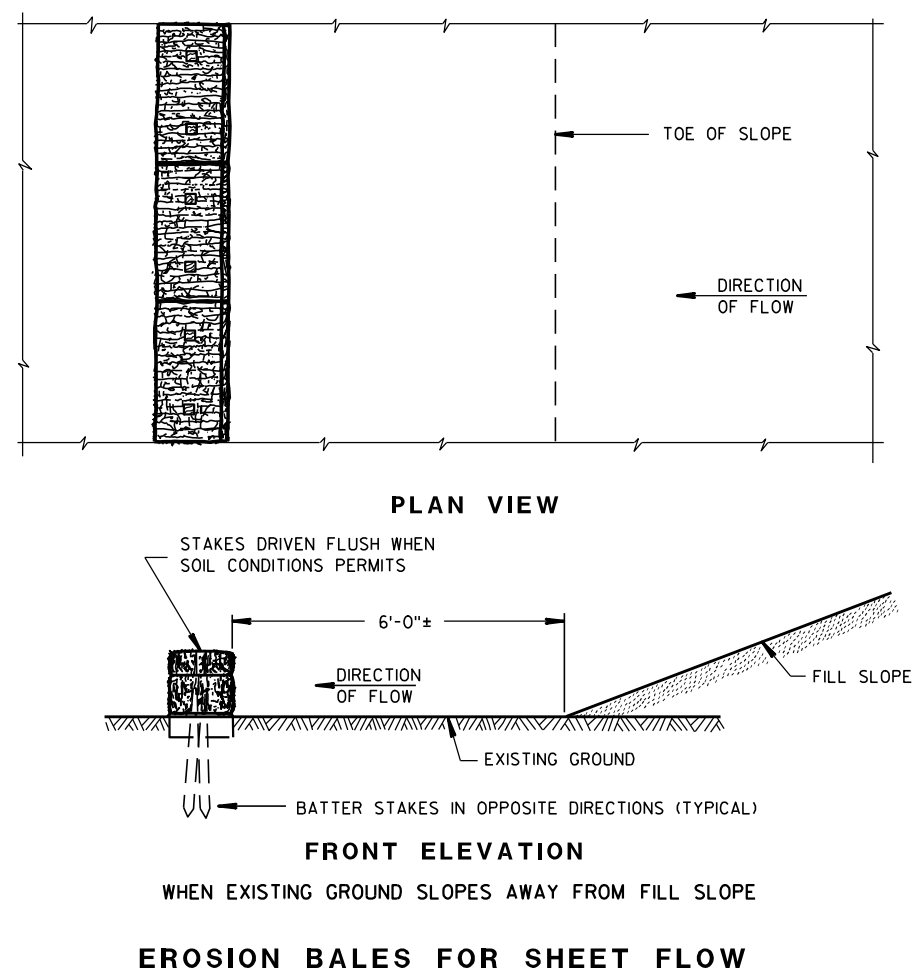
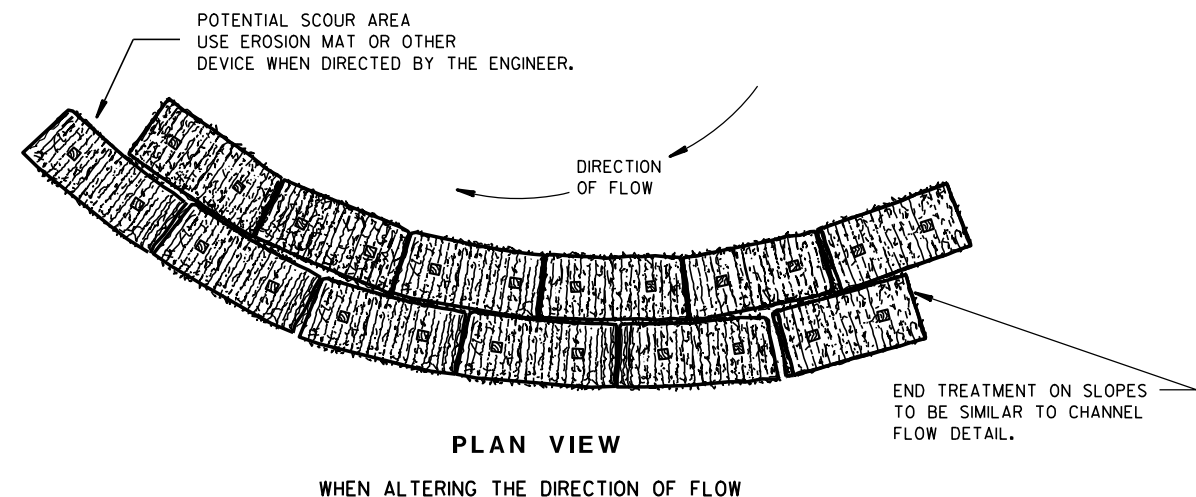




GENERAL NOTES

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.

TYPICAL INSTALLATIONS OF
EROSION BALES / TEMPORARY
DITCH CHECKS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

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

FHWA



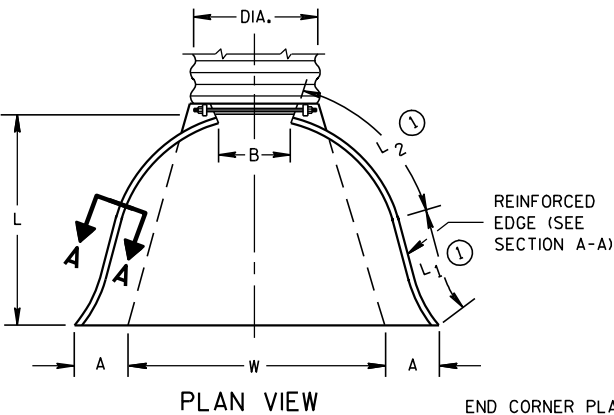
- ① HORIZONTAL BRACE REQUIRED WITH 2" X 4" WOODEN FRAME OR EQUIVALENT AT TOP OF POSTS.
- ② FOR MANUAL INSTALLATIONS THE TRENCH SHALL BE A MINIMUM OF 4" WIDE & 6" DEEP TO BURY AND ANCHOR THE GEOTEXTILE FABRIC. FOLD MATERIAL TO FIT TRENCH AND BACKFILL & COMPACT TRENCH WITH EXCAVATED SOIL.
- ③ WOOD POSTS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



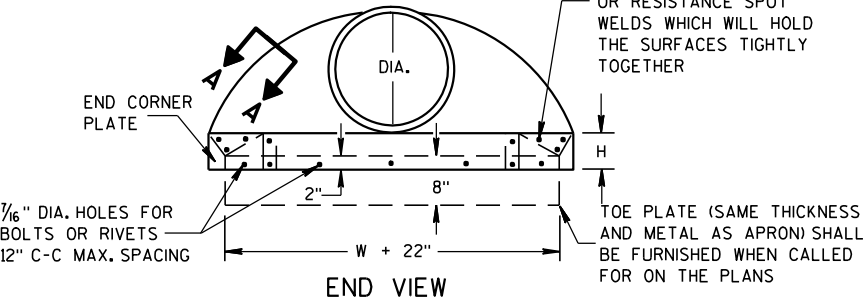
SILT FENCE	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED <u>4-29-05</u> DATE	<u>/S/ Beth Cannestra</u> CHIEF ROADWAY DEVELOPMENT ENGINEER

METAL APRON ENDWALLS												
PIPE DIA. (IN.)	MIN. THICK. (Inches)		DIMENSIONS (Inches)							APPROX. SLOPE	BODY	
	STEEL	ALUM.	A (±1")	B (MAX.)	H (±1")	L (±1½")	L ₁ ①	L ₂ ①	W (±2")			
12	.064	.060	6	6	6	21	12	17½	24	2½ to 1	1 Pc.	
15	.064	.060	7	8	6	26	14	21¾	30	2½ to 1	1 Pc.	
18	.064	.060	8	10	6	31	15	28¼	36	2½ to 1	1 Pc.	
21	.064	.060	9	12	6	36	18	29⅝	42	2½ to 1	1 Pc.	
24	.064	.075	10	13	6	41	18	37¼	48	2½ to 1	1 Pc.	
30	.079	.075	12	16	8	51	18	52¼	60	2½ to 1	1 Pc.	
36	.079	.105	14	19	9	60	24	59¾	72	2½ to 1	2 Pc.	
42	.109	.105	16	22	11	69	24	75⅝	84	2½ to 1	2 Pc.	
48	.109	.105	18	27	12	78	24	81	90	2¼ to 1	3 Pc.	
54	.109	.105	18	30	12	84	30	85½	102	2¼ to 1	3 Pc.	
60	.109x	.105x	18	33	12	87	—	—	114	2 to 1	3 Pc.	
66	.109x	.105x	18	36	12	87	—	—	120	2 to 1	3 Pc.	
72	.109x	.105x	18	39	12	87	—	—	126	2 to 1	3 Pc.	
78	.109x	.105x	18	42	12	87	—	—	132	1½ to 1	3 Pc.	
84	.109x	.105x	18	45	12	87	—	—	138	1½ to 1	3 Pc.	
90	.109x	.105x	18	37	12	87	—	—	144	1½ to 1	3 Pc.	
96	.109x	.105x	18	35	12	87	—	—	150	1½ to 1	3 Pc.	

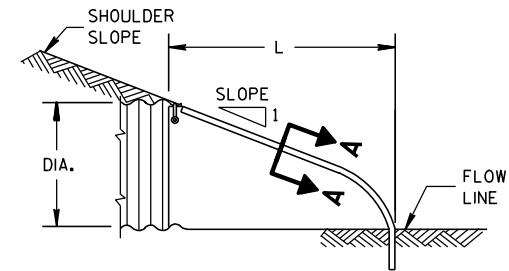
* EXCEPT CENTER PANEL
SEE GENERAL NOTES



REINFORCED
EDGE (SEE
SECTION A-A)



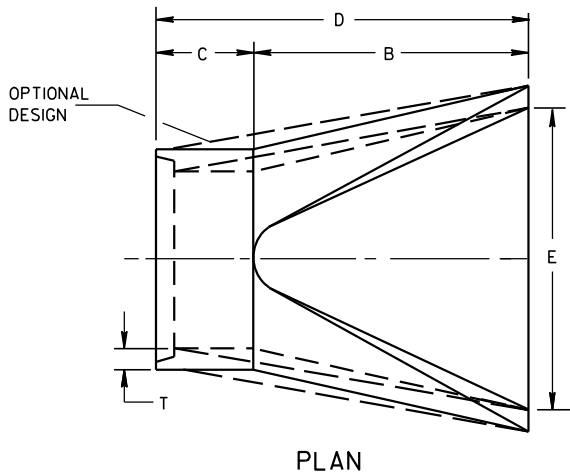
TOE PLATE (SAME THICKNESS
AND METAL AS APRON) SHALL
BE FURNISHED WHEN CALLED
FOR ON THE PLANS



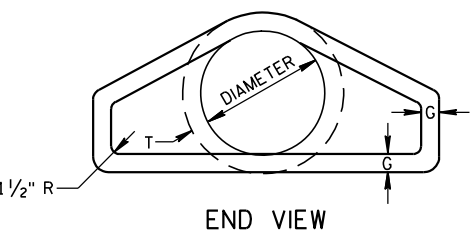
SIDE ELEVATION
METAL ENDWALLS

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

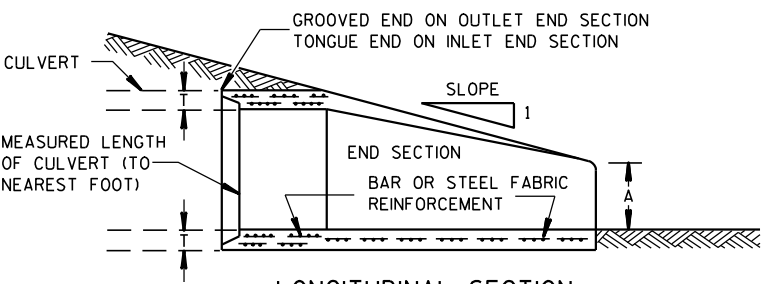
*MINIMUM
**MAXIMUM



PLAN

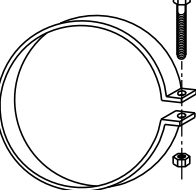


END VIEW

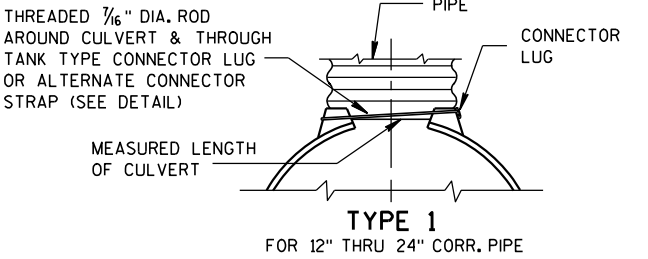


LONGITUDINAL SECTION
CONCRETE ENDWALLS

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

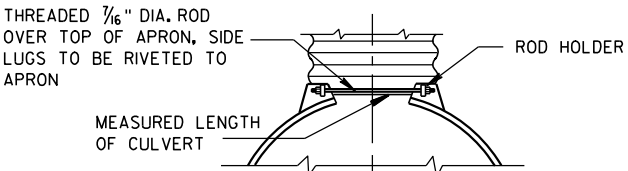


ALTERNATE FOR TYPE 1 CONNECTION
END SECTION CONNECTOR STRAP



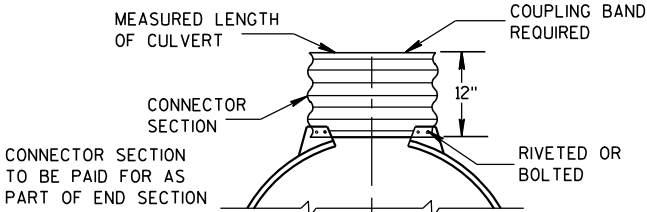
TYPE 1

FOR 12" THRU 24" CORR. PIPE



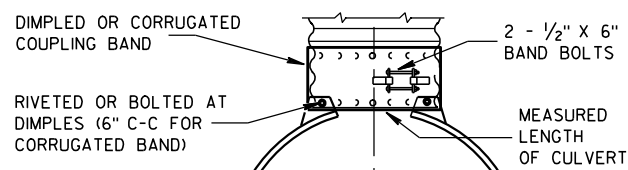
TYPE 2

FOR 30" THRU 96" CORR. PIPE



TYPE 3

FOR 42" THRU 96" CORR. PIPE



TYPE 5

ALTERNATE FOR:
ALL SIZES CORRUGATED CIRCULAR PIPE

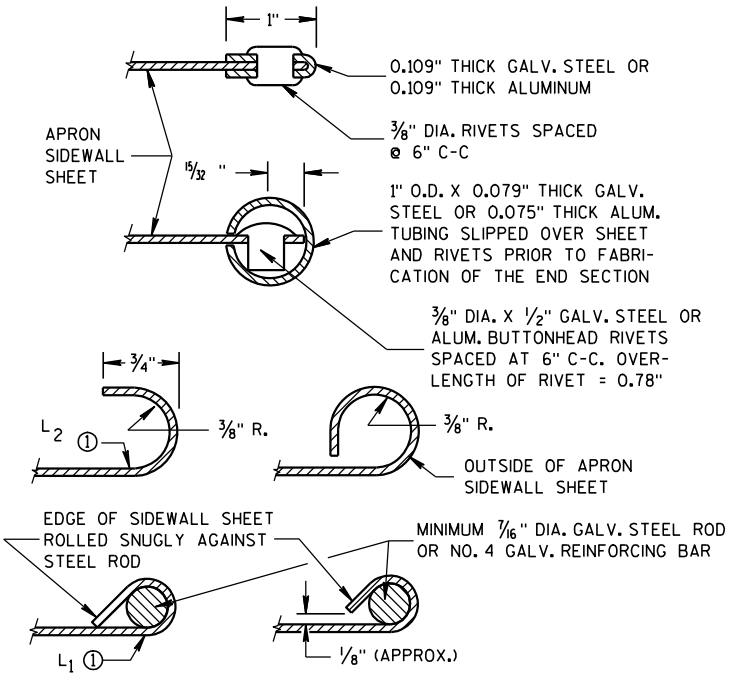
NOTE: DIMPLED BAND FITS OVER OUTSIDE OF ENDWALL,
AND CORRUGATED BAND FITS INSIDE ENDWALL.
DIMPLED BAND MAY BE USED WITH HELICALLY
CORRUGATED PIPE.

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

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

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

CONNECTION DETAILS



SECTION A-A

GENERAL NOTES

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

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

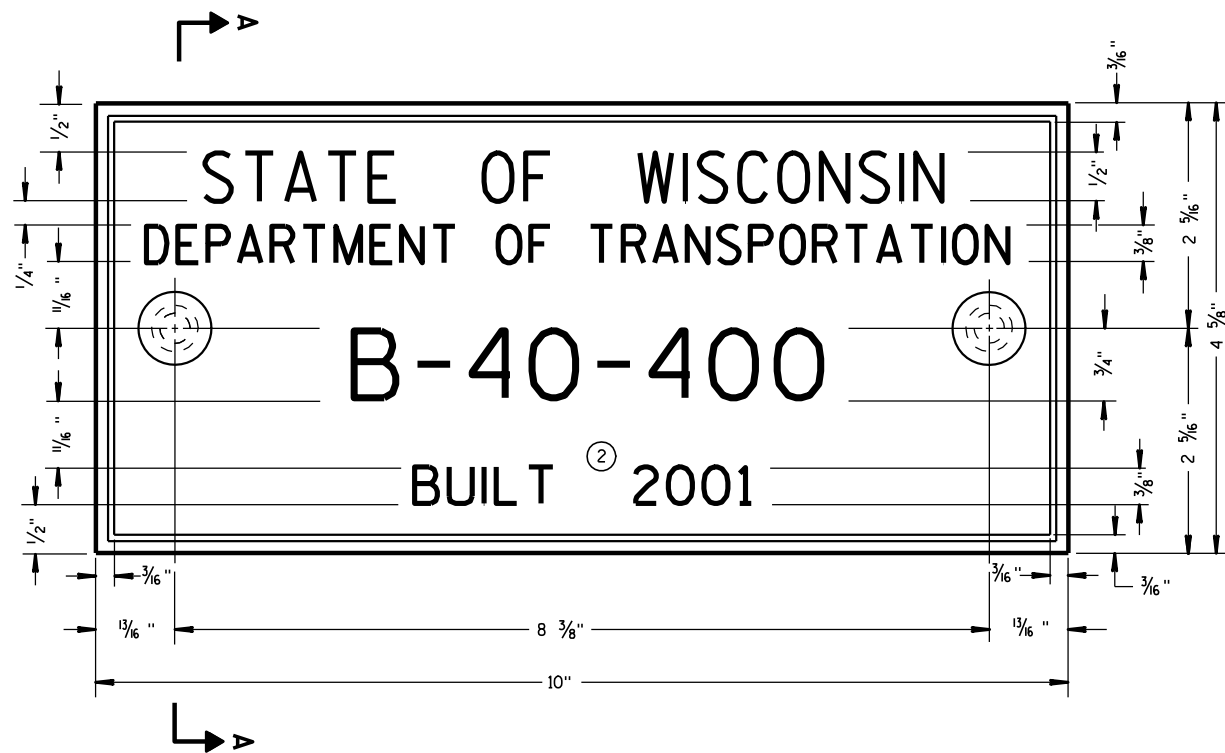
ALL THREE PIECE STEEL APRON ENDWALLS FOR 60" DIAMETER PIPE AND
LARGER SHALL HAVE 0.109" SIDES AND 0.138" CENTER PANELS. ALL
THREE PIECE ALUMINUM APRON ENDWALLS FOR 60" DIAMETER PIPE AND
LARGER SHALL HAVE 0.105" SIDES AND 0.134" CENTER PANELS. THE WIDTH
OF CENTER PANELS SHALL BE GREATER THAN 20 PERCENT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

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

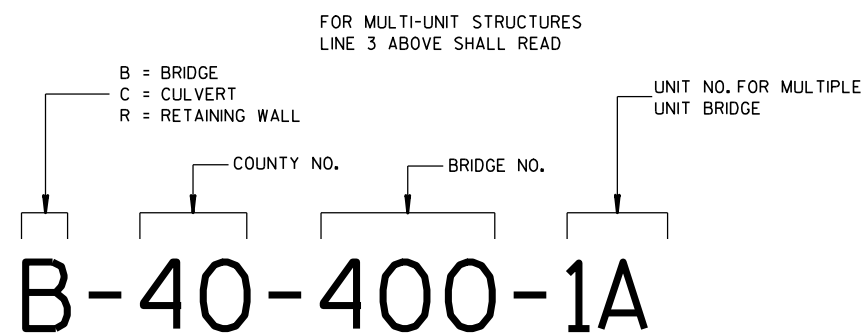
WHERE TWO OR MORE PIPES WITH APRON ENDWALLS ARE LAID ADJACENT
TO EACH OTHER, THEY SHALL BE SEPARATED BY A DISTANCE SUFFICIENT
TO PROVIDE A MINIMUM CLEARANCE OF 6 INCHES BETWEEN APRON ENDWALLS.

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

APRON ENDWALLS FOR CULVERT PIPE	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 11/30/94 DATE	/S/ Rory L. Rhinesmith CHIEF ROADWAY DEVELOPMENT ENGINEER
FHWA	



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



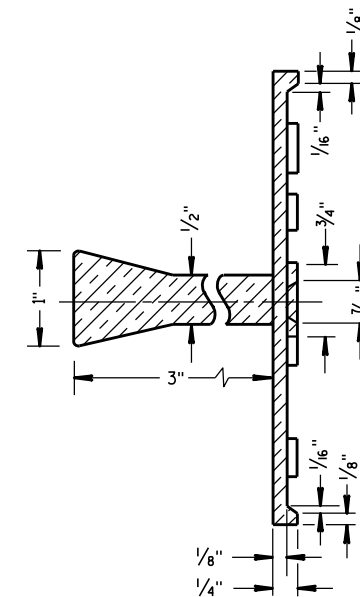
**NUMBERING DESIGNATION
MULTI-UNIT STRUCTURES**

GENERAL NOTES

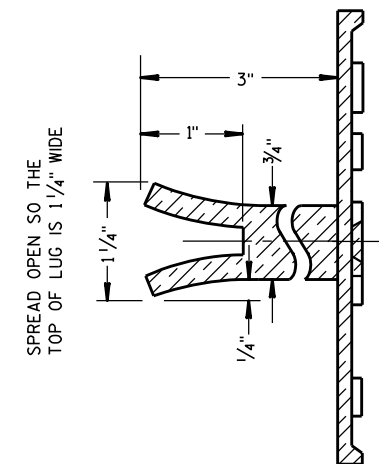
NAME PLATES TO BE INSTALLED ON BRIDGES, CULVERTS, AND RETAINING WALLS SHALL CONFORM TO THE REQUIREMENTS OF SECTION 502.3.11 OF THE STANDARD SPECIFICATIONS.

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

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



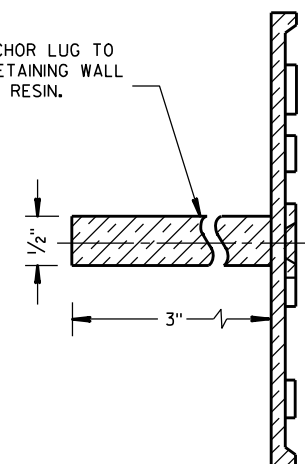
SECTION A-A



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

ALTERNATE LUG

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



ALTERNATE LUG
(FOR ATTACHMENT TO PRECAST STRUCTURES)

**NAME PLATE
(STRUCTURES)**

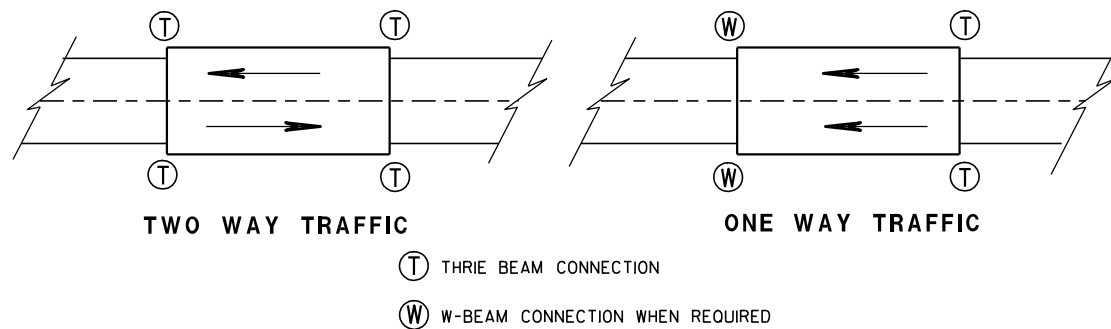
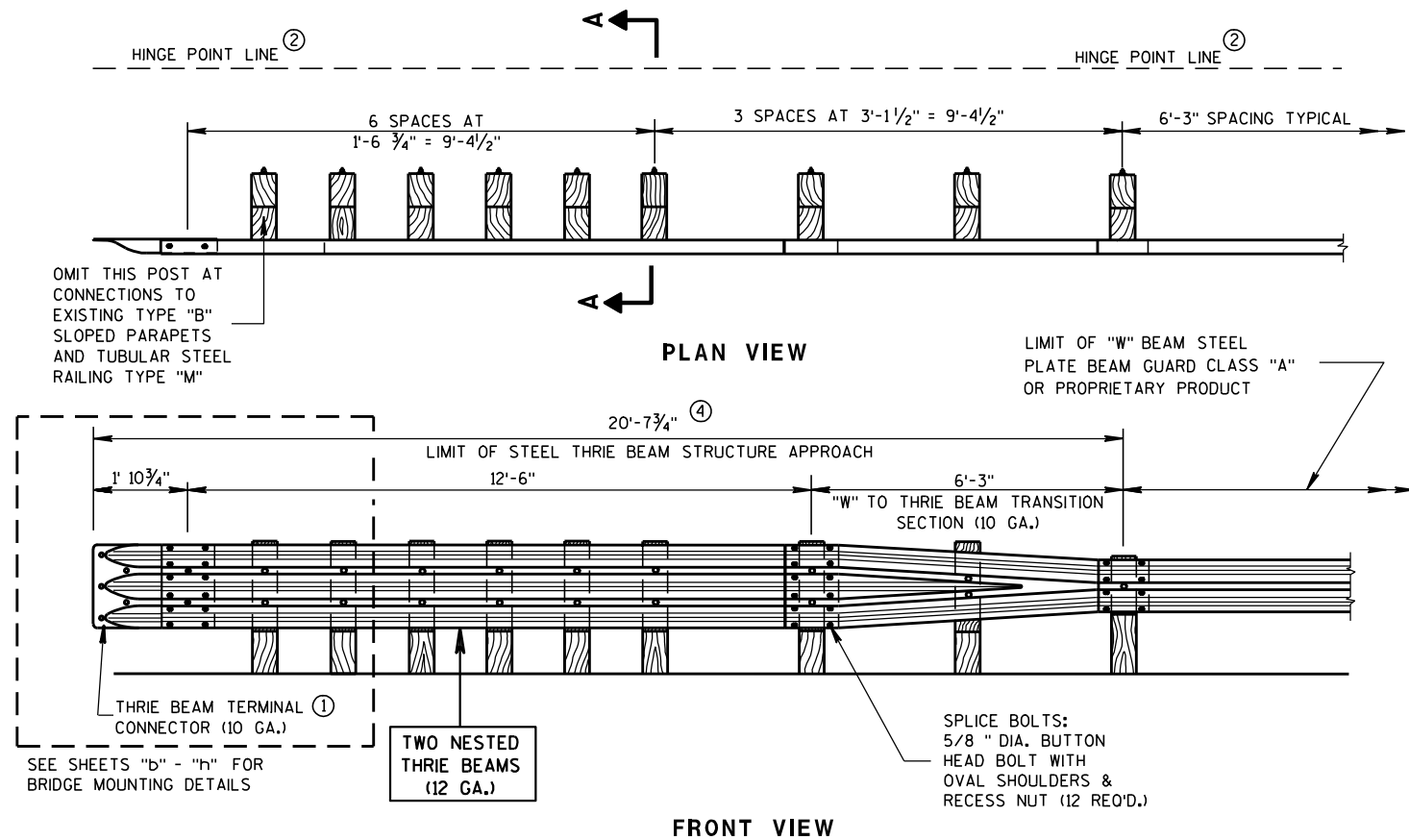
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

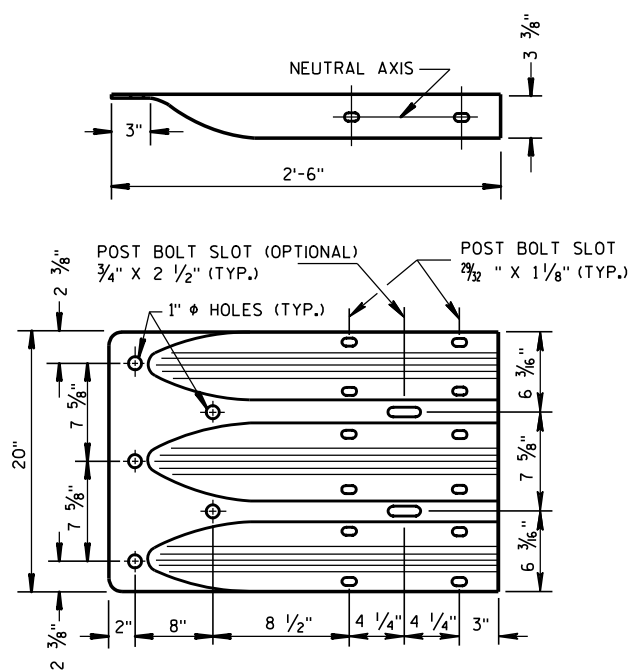
3/26/10
DATE

FHWA

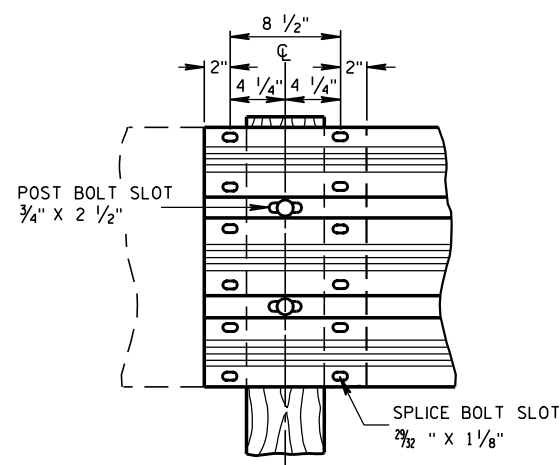
/S/ Scot Becker
CHIEF STRUCTURAL DEVELOPMENT ENGINEER



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



THRIE BEAM TERMINAL CONNECTOR



THRIE BEAM SPLICE

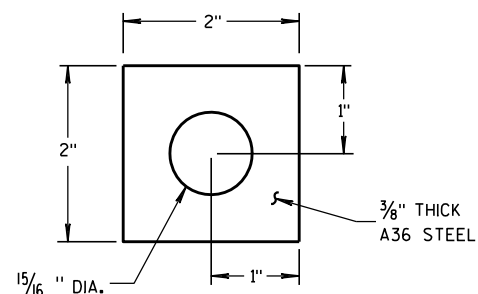
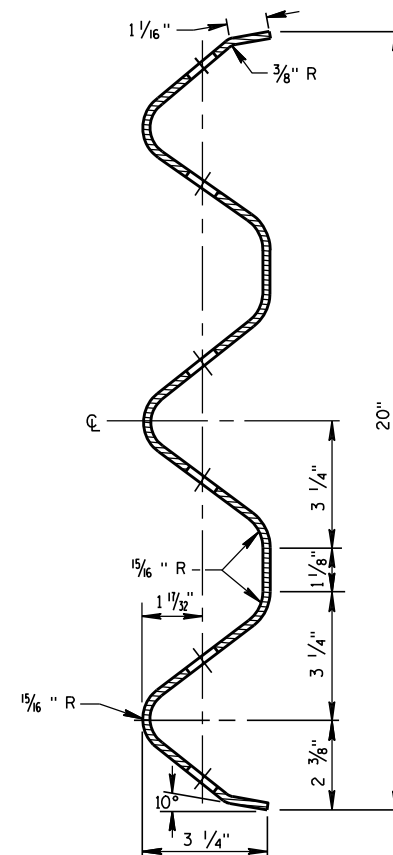


PLATE WASHER DETAIL



SECTION THRU THRIE BEAM RAIL ELEMENT

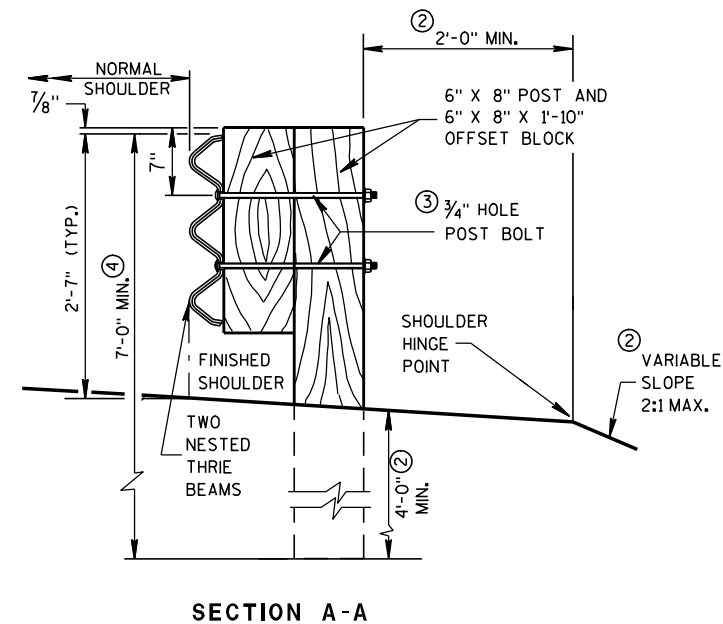
GENERAL NOTES

BOLT THE THRIE BEAM TO ALL POSTS AND BLOCKOUTS. DRILL OR PUNCH BOLT HOLES IN THE BEAM IF THE POST SPACING IS LESS THAN 6'-3".

DO NOT USE STEEL POSTS AND NOTCHED PLASTIC BLOCKOUTS IN THE STEEL THRIE BEAM STRUCTURAL APPROACH AND THE TRANSITION SECTION OF STEEL PLATE BEAM GUARD, CLASS "A" INSTALLATIONS.

IF ROCK IS ENCOUNTERED, REMOVE ROCK TO FULL DEPTH OF POST PLUS 2 1/2", AND 12" DIAMETER AROUND POST. SEE 14B15 FOR MORE DETAILS.

- ① BRIDGE RAILING TYPE "W" DOES NOT REQUIRE A TERMINAL CONNECTOR.
- ② MINIMUM EMBEDMENT SHALL BE 4'-0". WHERE EXISTING CONDITIONS DO NOT PERMIT THE APPROPRIATE EARTHWORK SHOWN ON THE PLAN TYPICAL SECTIONS OR DETAILS, THE ENGINEER MAY ALLOW THE REDUCTION OR ELIMINATION OF THE 2 FOOT DISTANCE TO THE HINGE POINT. OTHERWISE BUILD AS THE PLAN SHOWS OR AS THE ENGINEER DIRECTS. IF THE 2 FOOT DISTANCE TO THE HINGE POINT IS REDUCED OR ELIMINATED, INCREASE THE POST EMBEDMENT DEPTH TO 4'-6" OR MORE.
- ③ POST BOLTS ARE 5/8" DIAMETER ASTM A307 BUTTON HEAD BOLT. A POST BOLT REQUIRES A 5/8" DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX AND A 5/8" DIAMETER F844 FLAT WASHER. LENGTH OF POST BOLT MAY VARY.
- ④ ALL WOOD POSTS MUST BE 6" X 8" AND AT LEAST 7'-0" LONG.



STEEL THRIE BEAM STRUCTURE APPROACH

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

8/31/2012

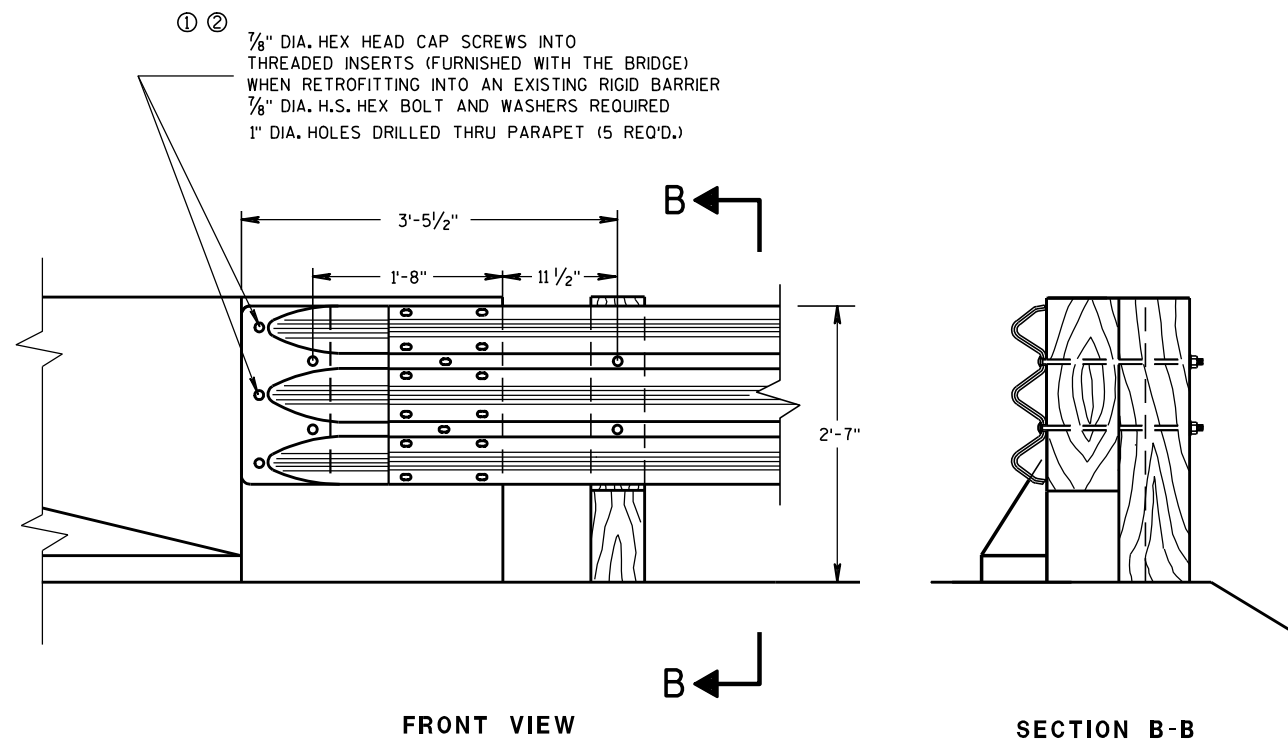
DATE

FHWA

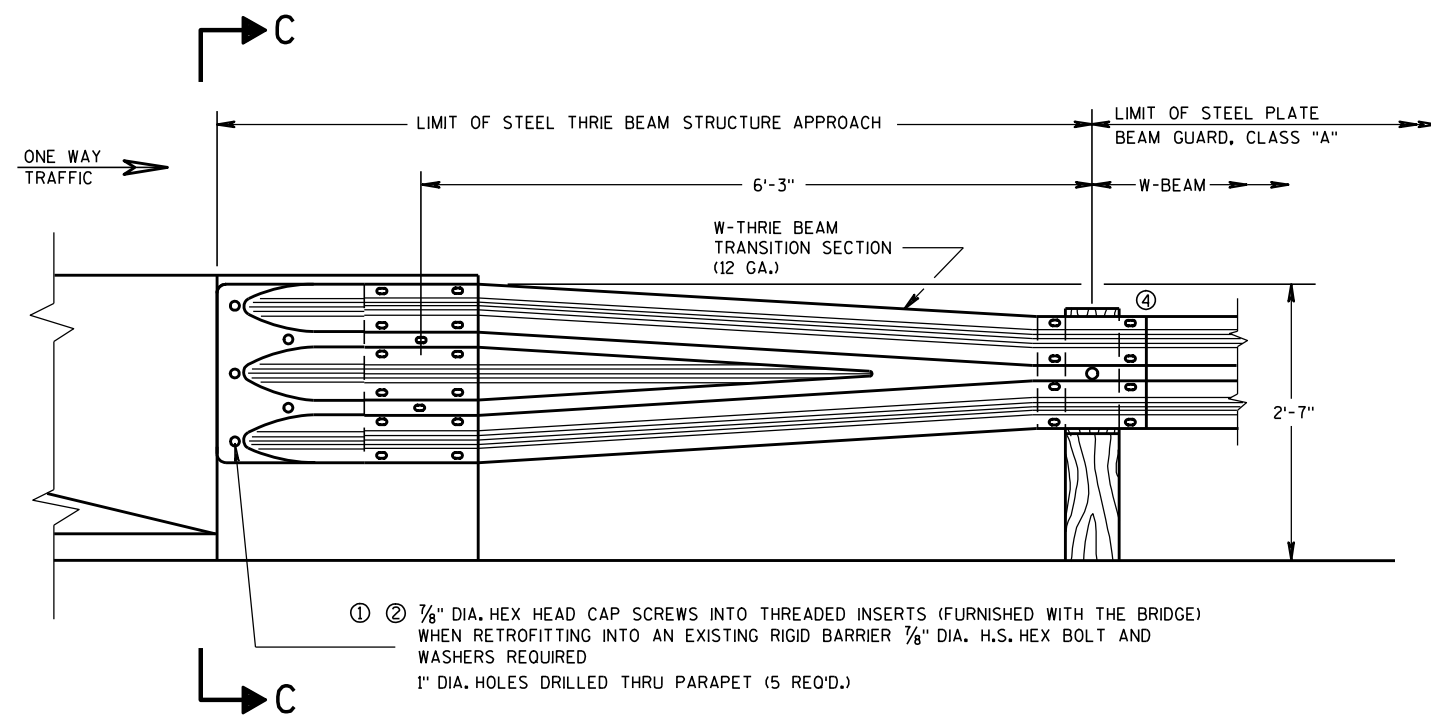
/s/ Jerry H. Zogg

ROADWAY STANDARDS DEVELOPMENT

ENGINEER



THRIE BEAM CONNECTION TO BRIDGE
PARAPET WITH SQUARE ENDS



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

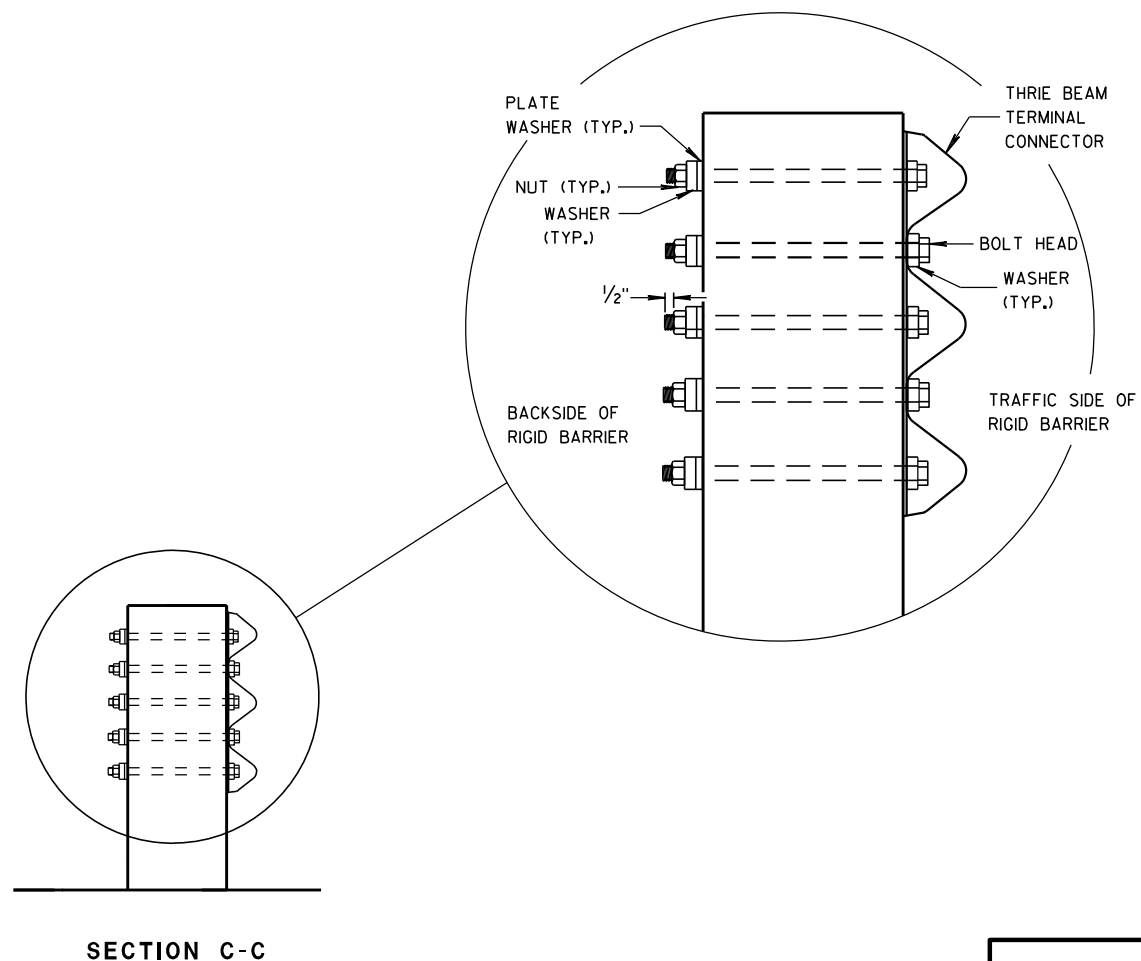
GENERAL NOTES

THESE ARE TYPICAL CONNECTION DETAILS. ADJUST THE POSITION OF CONNECTIONS TO EXISTING BRIDGES TO FIT THE ACTUAL BRIDGE AND SITE DIMENSIONS.

BOLTS, NUTS AND WASHERS SHALL CONFORM TO ASTM A325, A449 AND GALVANIZED PER STANDARD SPECIFICATIONS 614.

- ① DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.
- ② BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM TERMINAL CONNECTOR. BOLTS THAT EXTEND THROUGH THE PARAPET AND OUT THE BACK FACE REQUIRE A HARDENED ROUND STEEL WASHER THAT IS 2" O.D. X 5/8" THICK AND ONE PLATE WASHER. REPAIR ANY DAMAGED CONCRETE FROM BOLT INSTALLATION.
- ③ 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".
- ④ W6 X 9 OR W6 X 8.5 STEEL POSTS AND NOTCHED PLASTIC BLOCKOUTS ARE ACCEPTABLE ALTERNATIVES FOR 6" X 8" WOOD POST WITH WOOD OR PLASTIC BLOCKOUTS. USE APPROVED NOTCHED PLASTIC BLOCKOUTS WITH STEEL POSTS.

DO NOT USE STEEL POSTS AND NOTCHED PLASTIC BLOCKOUTS IN THE STEEL THRIE BEAM STRUCTURAL APPROACH AND THE TRANSITION SECTION OF STEEL PLATE BEAM GUARD, CLASS "A" INSTALLATIONS.



STEEL THRIE BEAM STRUCTURE APPROACH, CONNECTION TO SQUARE END PARAPETS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

8/31/2012
DATE

FHWA

/S/ Jerry H. Zogg
ROADWAY STANDARDS DEVELOPMENT
ENGINEER

BILL OF MATERIALS

NOTE NO.	DESCRIPTION
①	WOOD BREAKAWAY TERMINAL POST: 5 1/2" X 7 1/2" X 3'-9"
②	STEEL TUBE TS 8" X 6" X 0.188", 6'-0"
④	WOOD BREAKAWAY CRT POST: 6" X 8" X 6'-0"
⑤	WOOD OFFSET BLOCKS: 6' X 8" X 1'-2"
⑥	PIPE SLEEVE: 2" X 5 1/2" STANDARD PIPE
⑦	BEARING PLATE
⑧	BCT CABLE ASSEMBLY
⑨	CABLE ANCHOR BOX
⑩	STRUT & YOKE
⑪	STEEL PLATE BEAM, END PANEL 12 GA.
⑫	STEEL PLATE BEAM: 12 GA. 13'-6 1/2"
⑬	IMPACT HEAD
⑭	0.040" ALUMINUM SHEET WITH REFLECTIVE SHEETING TYPE F PER SECTION 637 OF THE STANDARD SPECIFICATIONS

GENERAL NOTES

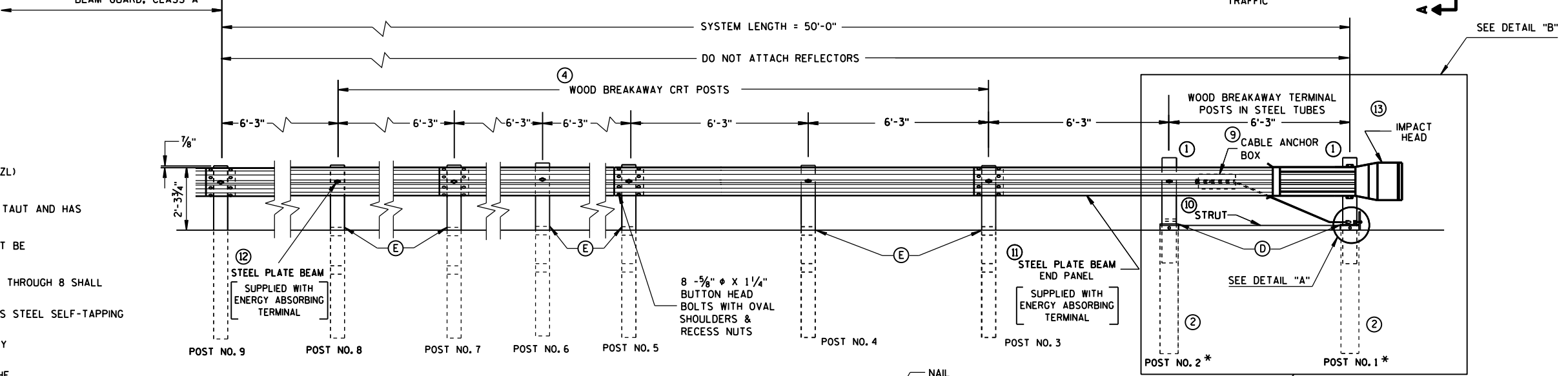
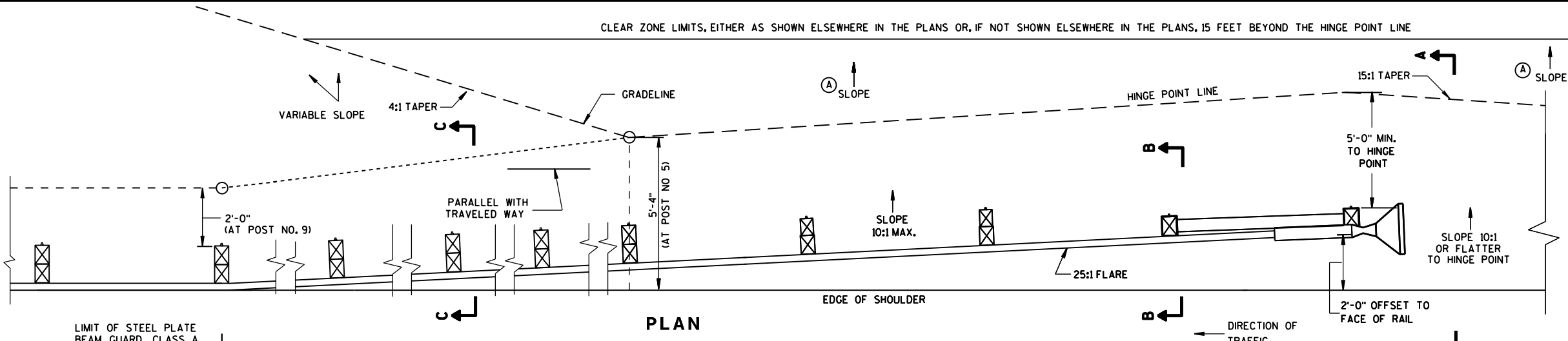
FOLLOW MANUFACTURE'S BOLTING RECOMMENDATIONS.

- (A) THE SLOPE IN THE AREA BOUNDED BY THE GRADELINE, THE HINGE POINT LINE (HPL), AND THE CLEAR ZONE LIMITS (CZL) SHALL BE 4:1 OR FLATTER.
- (B) AFTER FINAL ASSEMBLY, RECHECK CABLE TO BE SURE IT IS TAUT AND HAS NOT RELAXED.
- (D) THE TOP OF THE STEEL TUBE ON POSTS 1 AND 2 SHALL NOT BE MORE THAN 3" ABOVE THE FINISH GROUND ELEVATION.
- (E) THE CENTER OF THE UPPER 3 1/2" DIAMETER HOLE ON POST 3 THROUGH 8 SHALL BE 3/4" ABOVE THE FINISHED GROUND LINE.
- (F) ATTACH ALUMINUM SHEET TO E.A.T. HEAD USING 4 STAINLESS STEEL SELF-TAPPING SCREWS, ONE SCREW PER CORNER.

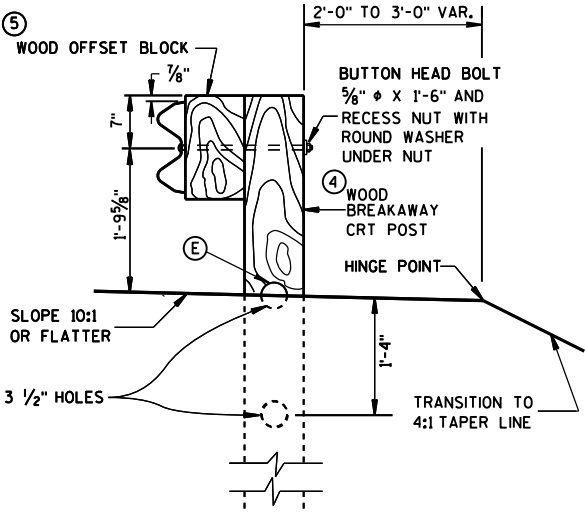
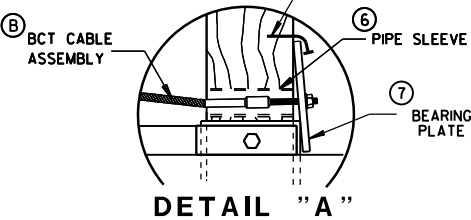
STEEL POSTS SHALL NOT BE ALLOWED FOR USE WITH ENERGY ABSORBING TERMINALS.

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

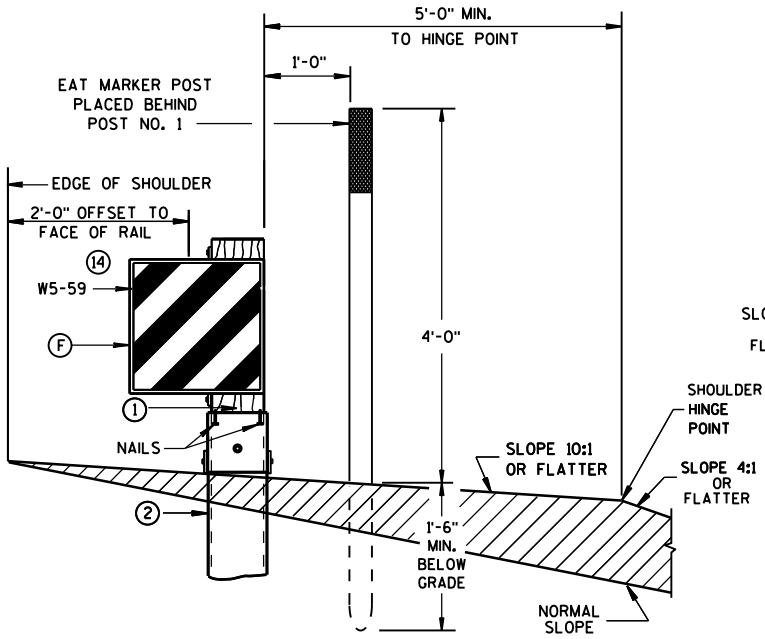
* DO NOT ATTACH BLOCKOUTS TO POSTS 1 AND 2.



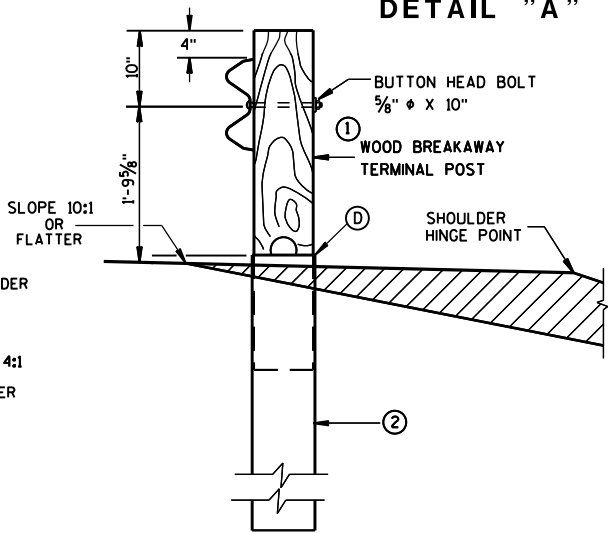
ELEVATION



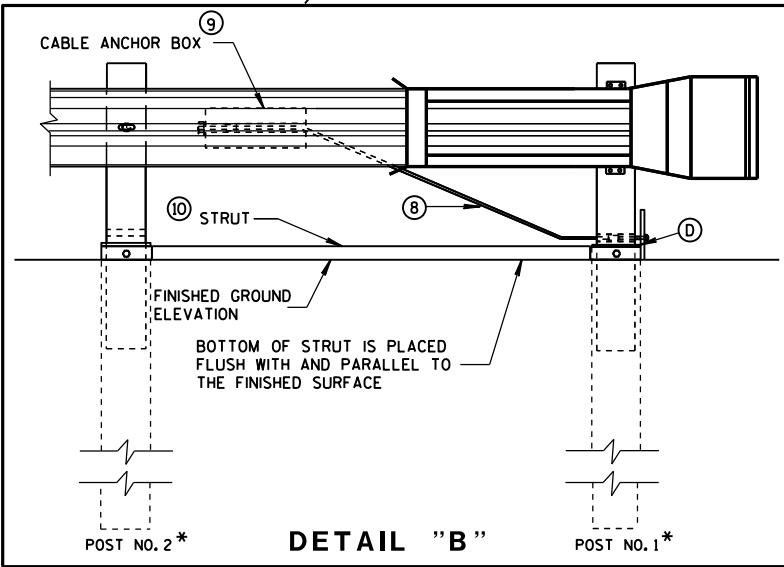
SECTION C-C
TYPICAL AT POST NOS. 6, 8



SECTION A-A
TYPICAL AT POST NO. 1*



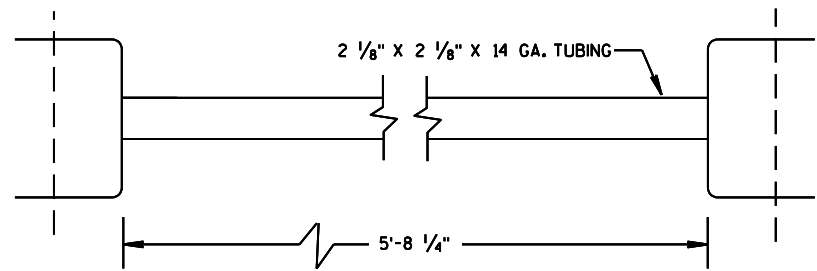
SECTION B-B
TYPICAL AT POST NO. 2*



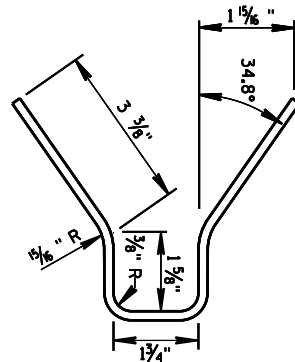
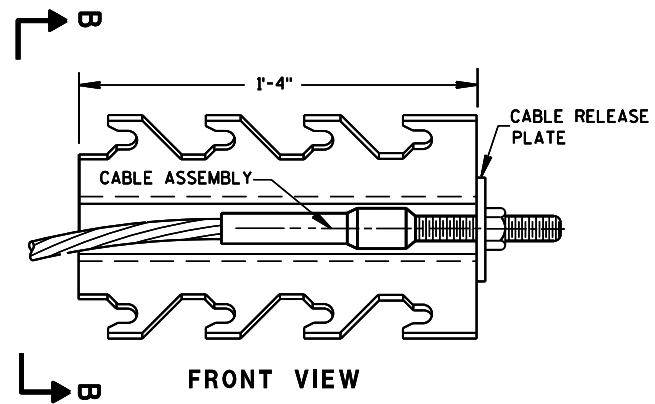
DETAIL "B"

STEEL PLATE BEAM GUARD
ENERGY ABSORBING TERMINAL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

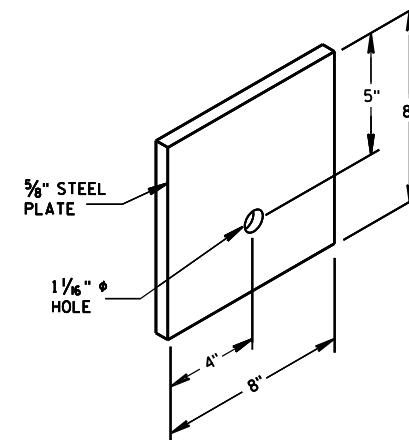


⑩ STRUT DETAIL

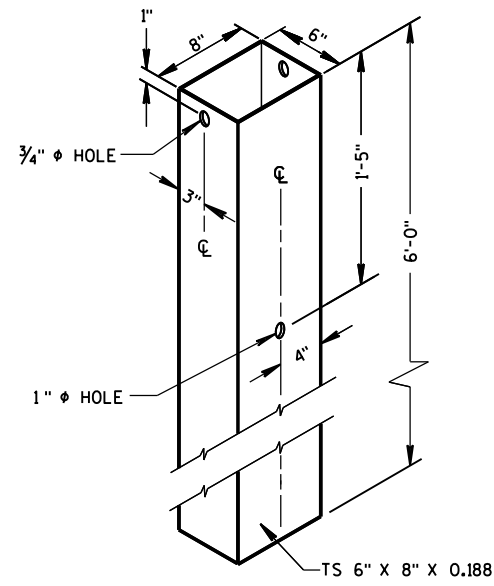


SECTION B-B

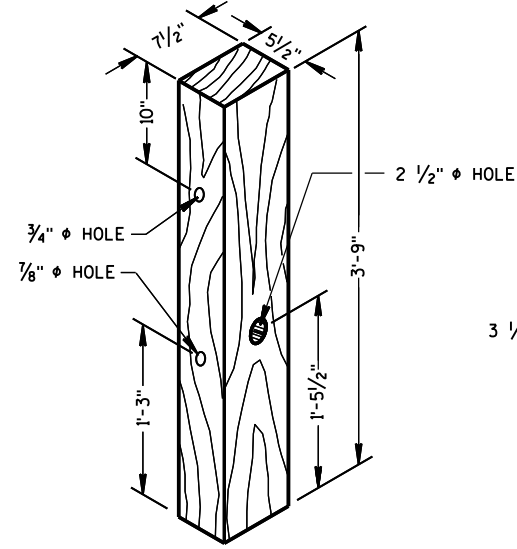
⑨ CABLE ANCHOR BOX



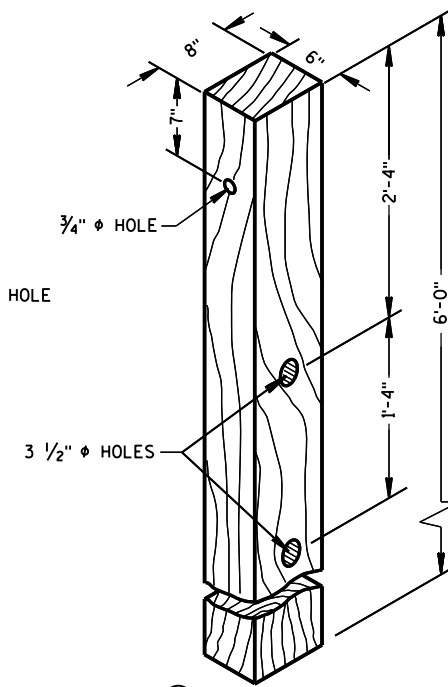
⑦ STEEL BEARING PLATE



② **72" STEEL TUBE**
(POSTS NO. 1-4)



① **TERMINAL POST**

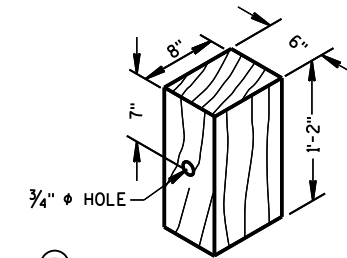


④ **CRT POST**
(POSTS NO'S 5-8)

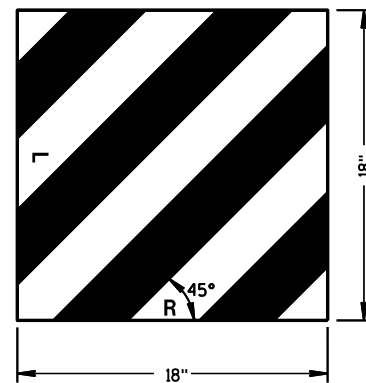
WOOD BREAKAWAY POSTS

GENERAL NOTES

WHEN ROCK IS ENCOUNTERED DURING EXCAVATION, A 12 INCH DIA. POST HOLE EXTENDING 20 INCHES DEEP INTO THE ROCK MAY BE USED IF APPROVED BY THE ENGINEER. GRANULAR MATERIAL SHALL BE PLACED IN THE BOTTOM OF THE HOLE APPROXIMATELY 2 1/2" INCHES DEEP TO PROVIDE DRAINAGE. THE SOIL TUBES SHALL BE FIELD CUT TO LENGTH, PLACED IN THE HOLE AND BACKFILLED WITH ADEQUATELY COMPACTED MATERIAL EXCAVATED FROM THE HOLE.



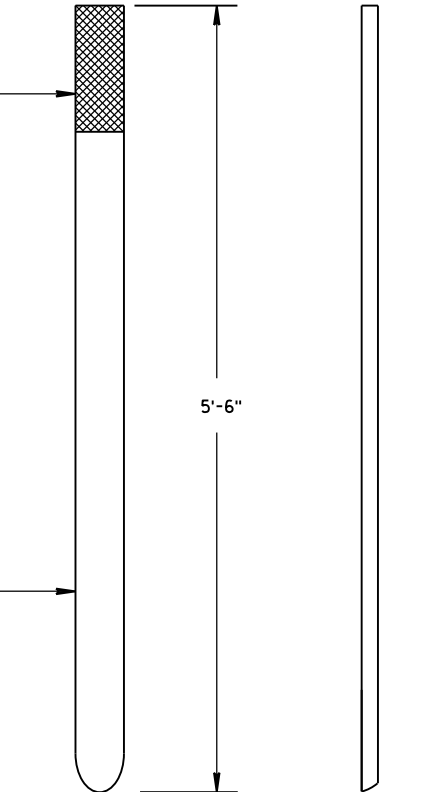
⑤ **WOOD OFFSET BLOCK**
REQ'D. AT ALL POSTS EXCEPT POST NO'S 1 & 2



⑭ **REFLECTIVE SHEETING DETAILS**

TYPE H
YELLOW REFLECTIVE
SHEETING 3" X 9".
SEE STANDARD
SPECIFICATION 637.

E.A.T. MARKER
POST (YELLOW)
SEE APPROVED
PRODUCTS LIST



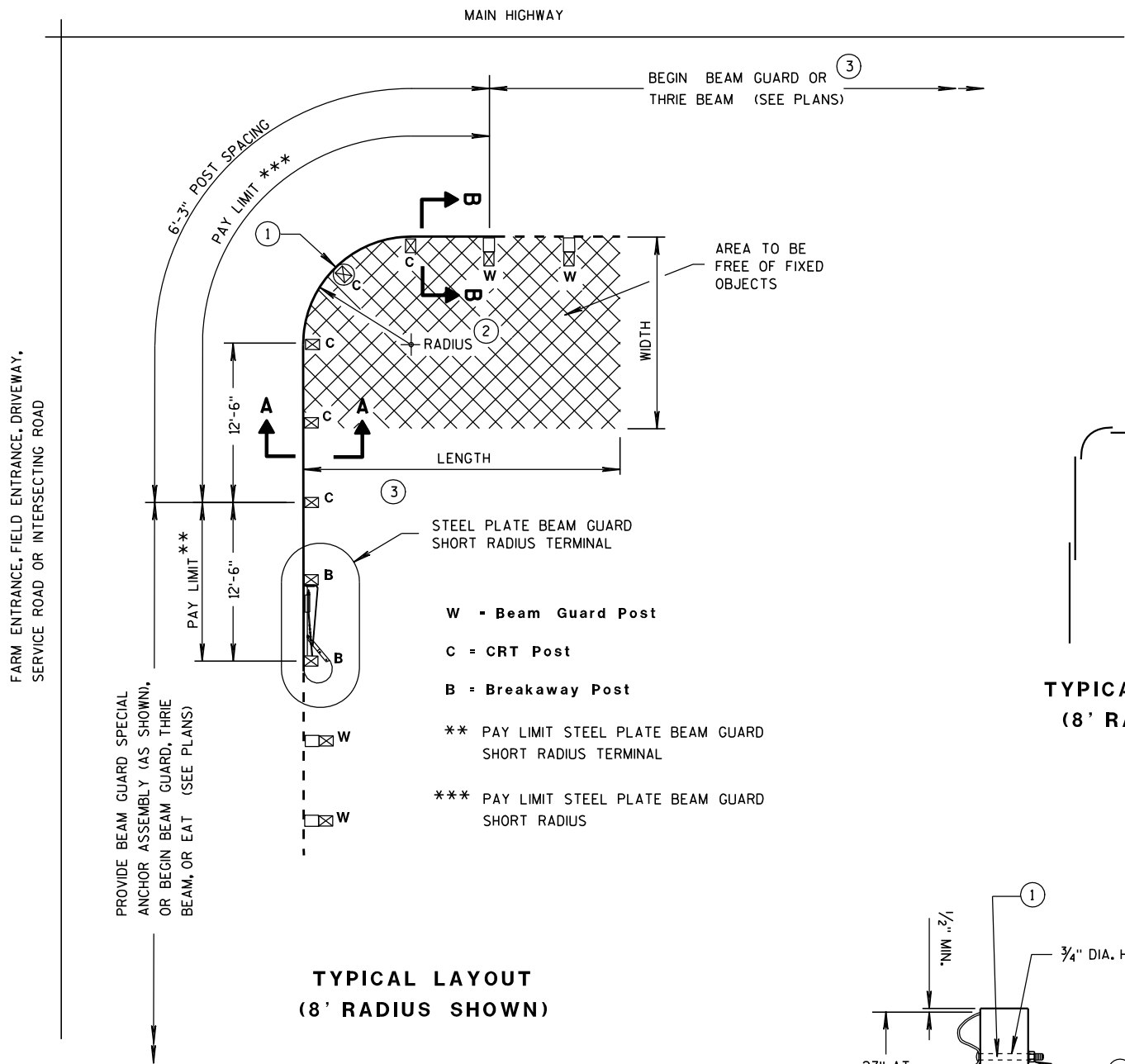
FRONT VIEW SIDE VIEW

E.A.T. MARKER POST

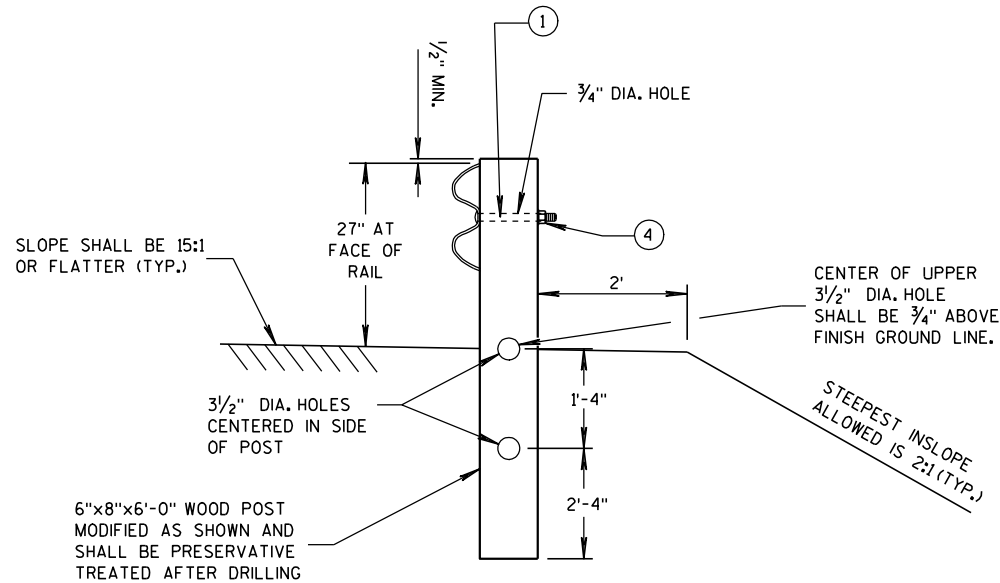
**STEEL PLATE BEAM GUARD
ENERGY ABSORBING TERMINAL**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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



TYPICAL LAYOUT
(8' RADIUS SHOWN)



SECTION A-A
(CRT POST)

TYPICAL LAP SPLICES
(8' RADIUS SHOWN)

GENERAL NOTES

ALL ANGLES, CHANNELS, AND PLATES SHALL CONFORM TO THE REQUIREMENTS OF ASTM A36 AND THE STRUCTURAL TUBING SHALL CONFORM TO ASTM A 500. WELDING SHALL MEET THE CURRENT REQUIREMENTS OF THE AMERICAN WELDING SOCIETY STRUCTURAL WELDING CODE ANSI/AWS D1.1. ALL STRUCTURAL STEEL SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A 123. PUNCHING, DRILLING, CUTTING, OR WELDING WILL NOT BE PERMITTED AFTER GALVANIZING. FURNISH AND INSTALL HARDWARE PER STANDARD SPECIFICATION 614.2, UNLESS NOTED OTHERWISE.

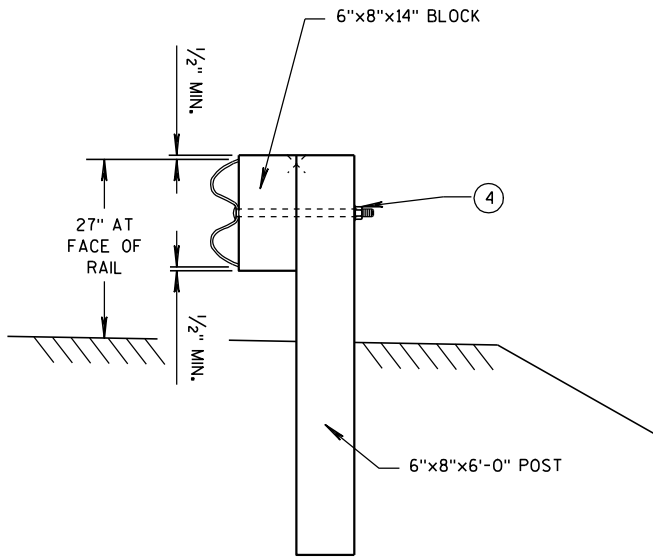
SHOP BEND CURVED RAIL SECTIONS.

SEE STANDARD DETAIL DRAWING 14 B 15 FOR OTHER DETAIL.

- ① ON THE 8 FOOT RADIUS INSTALLATION, DO NOT INSTALL BUTTON HEAD BOLT AT CENTER CRT POST.
- ② RADIUS FROM 8' - 36'. SEE PLAN.
- ③ HEIGHT TRANSITION MAY BE REQUIRED. SEE PLAN OR PROJECT ENGINEER.
- ④ 5/8" Ø X 1'-6" BUTTON HEAD BOLT AND RECESS NUT WITH ROUND WASHER UNDER NUT.

RADIUS	NUMBER OF CRT POSTS	*NUMBER AND LENGTH OF CURVED RAILS	REQUIRED AREA FREE OF FIXED OBJECTS (LENGTH x WIDTH)
8'	5	1 at 12.5'	25' x 15'
16'	7	1 at 25'	30' x 15'
24'	9	1 at 25' and 1 at 12.5'	40' x 20'
32'	11	2 at 25'	50' x 20'

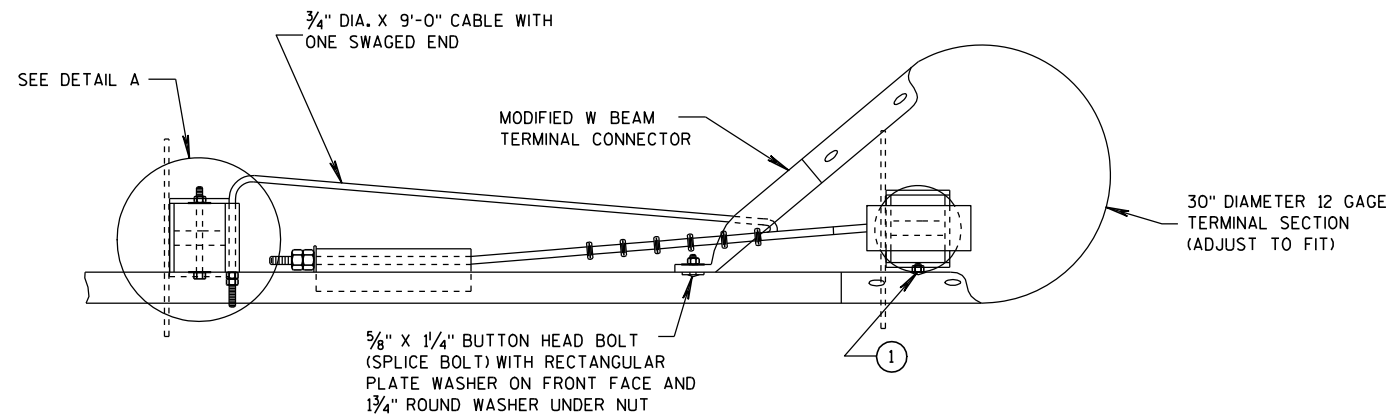
* THE NUMBER OF RAILS IS BASED ON A 90° INTERSECTION. SEE PLAN FOR NON 90° INSTALLATIONS.



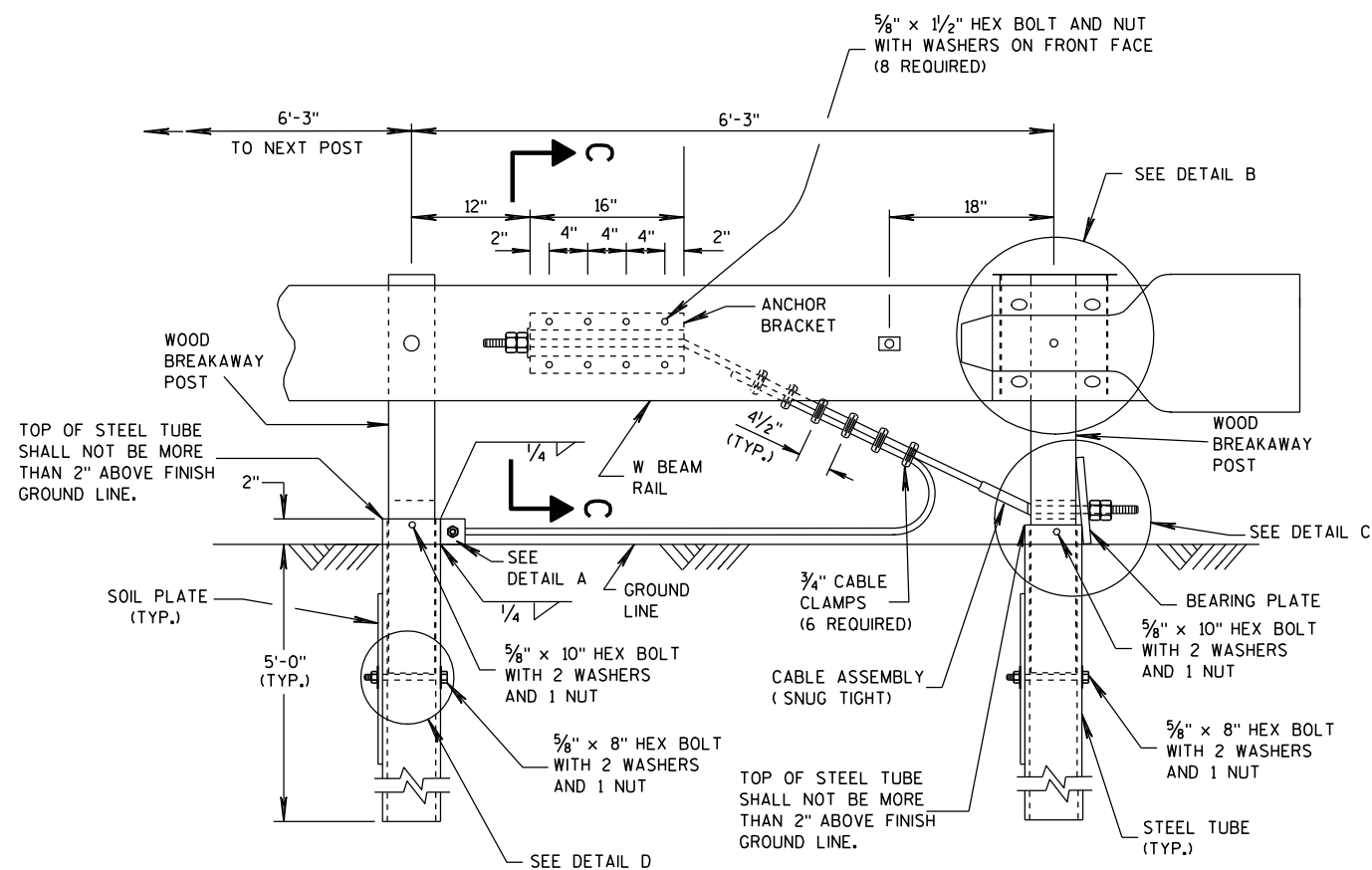
SECTION B-B
(BEAM GUARD POST)

STEEL PLATE BEAM GUARD
SHORT RADIUS TERMINAL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



PLAN VIEW

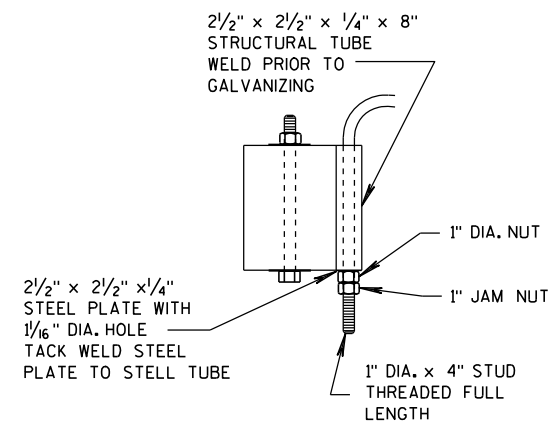


ELEVATION VIEW

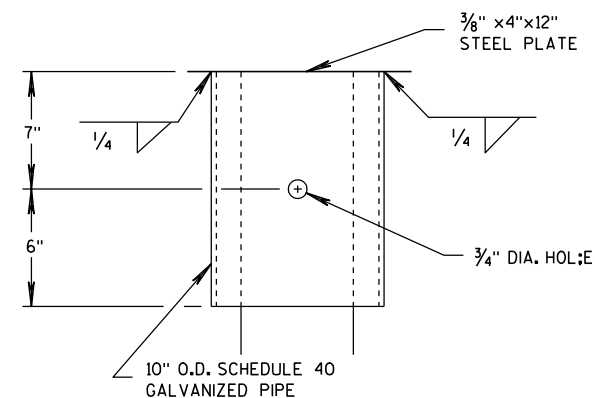
STEEL PLATE BEAM GUARD SHORT RADIUS TERMINAL

GENERAL NOTES

- ATTACH W BEAM RAIL TO THE STEEL PIPE WITH A $\frac{5}{8}$ " X 2" BUTTON HEAD BOLT WITH NO WASHER. CONNECTION TO THE POST IS NOT REQUIRED.
- INSTALL GALVANIZED $\frac{3}{4}$ " (6X19) PREFORMED WIRE OR INDEPENDENT WIRE ROPE CORE CONFORMING TO AASHTO M 30. MANUFACTURE WIRE ROPE OUT OF IMPROVED PLOW STEEL WITH A MINIMUM BREAKING STRENGTH OF 42,800 PSI.



DETAIL A

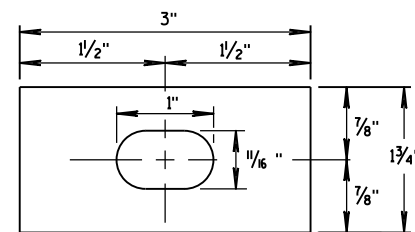


DETAIL B

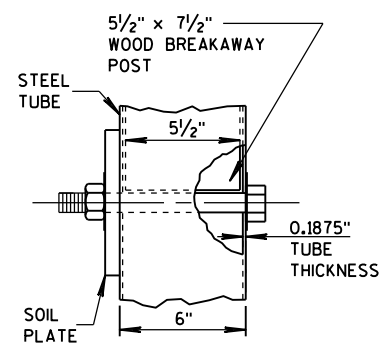
(BEAM GUARD AND TERMINAL SECTION NOT SHOWN)

STEEL PLATE BEAM GUARD
SHORT RADIUS TERMINAL

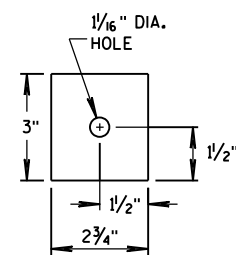
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



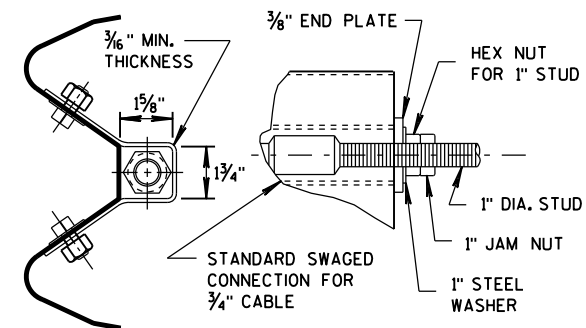
RECTANGULAR PLATE WASHER



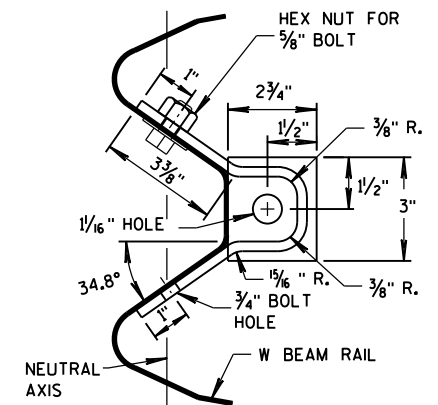
DETAIL D



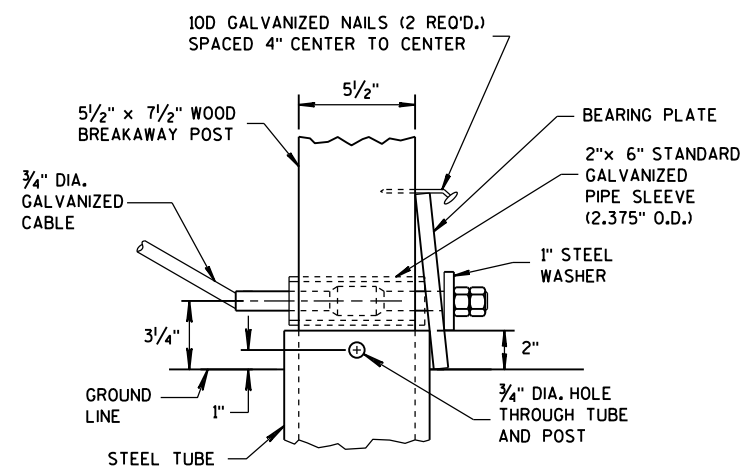
END PLATE



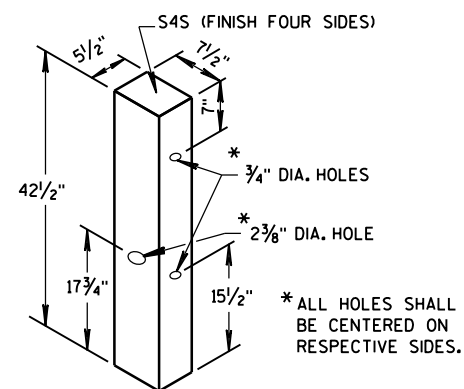
SECTION C-C
(END PLATE REMOVED)



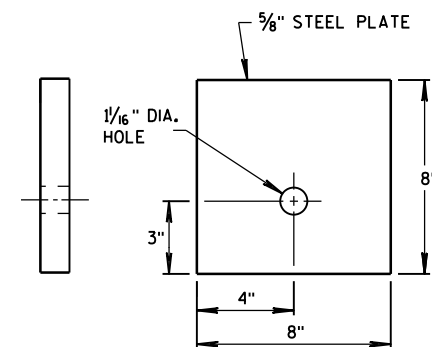
ANCHOR BRACKET



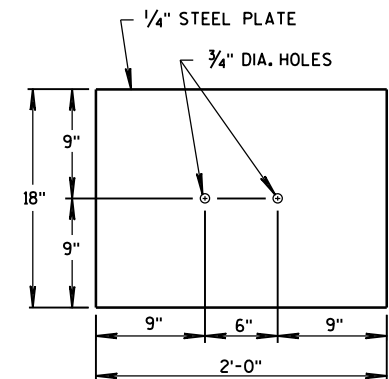
DETAIL C



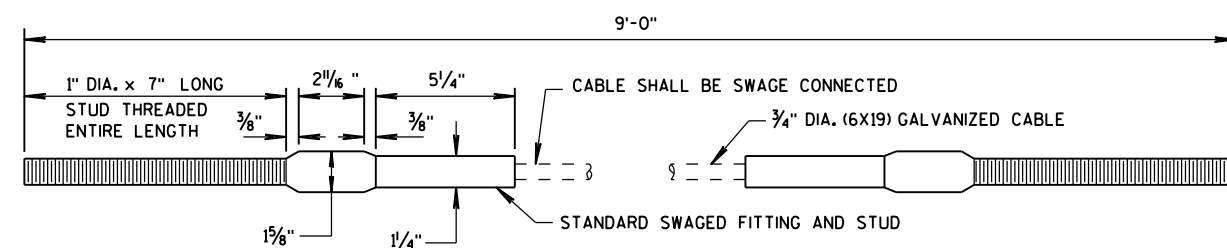
WOOD BREAKAWAY POST



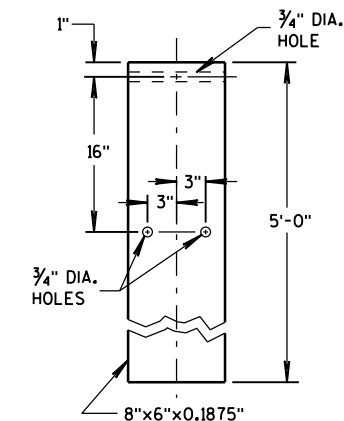
BEARING PLATE



SOIL PLATE



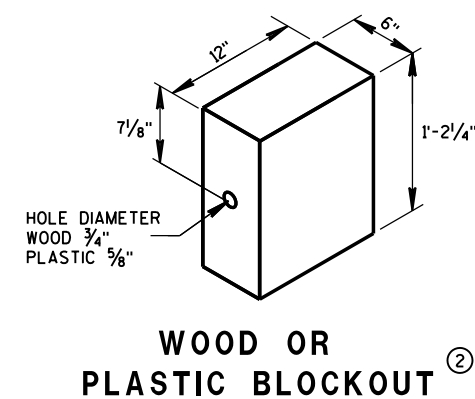
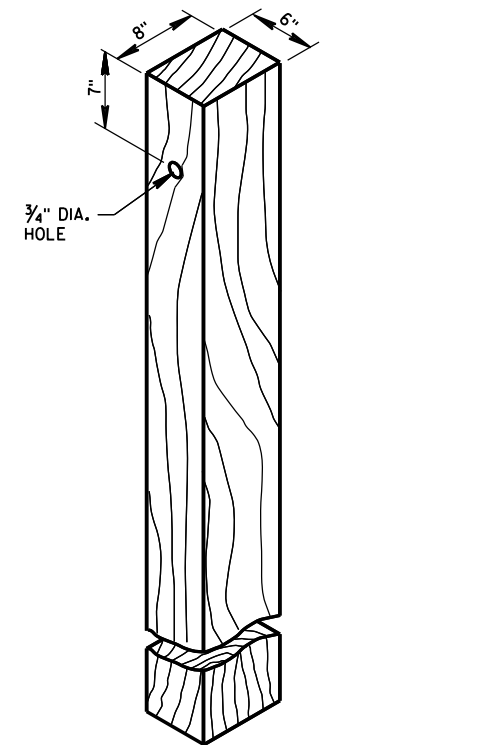
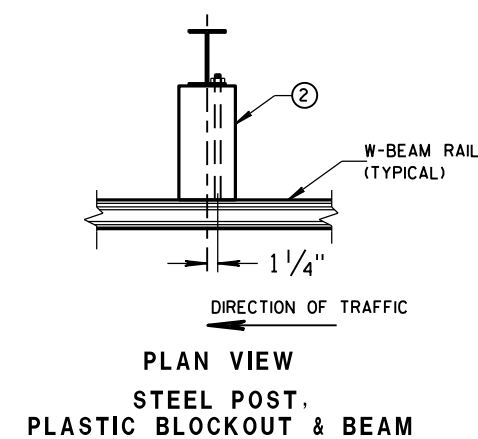
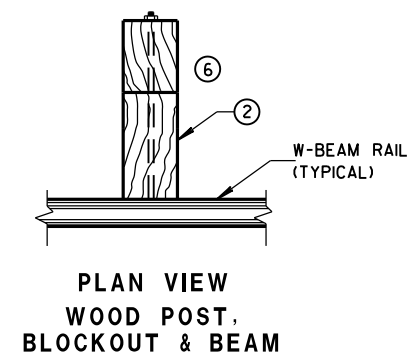
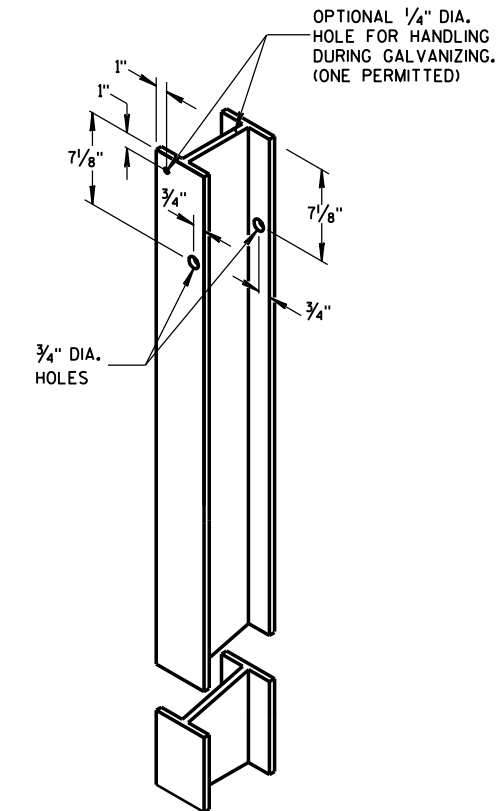
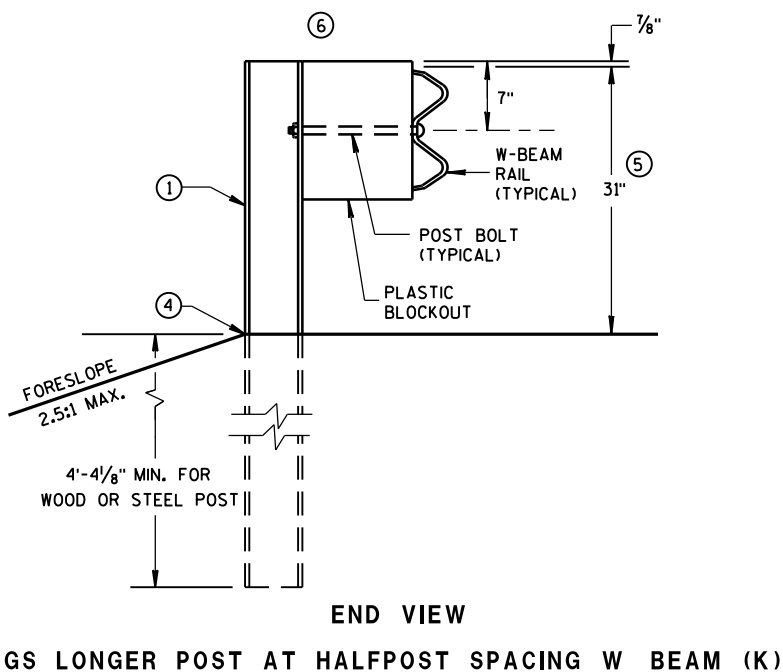
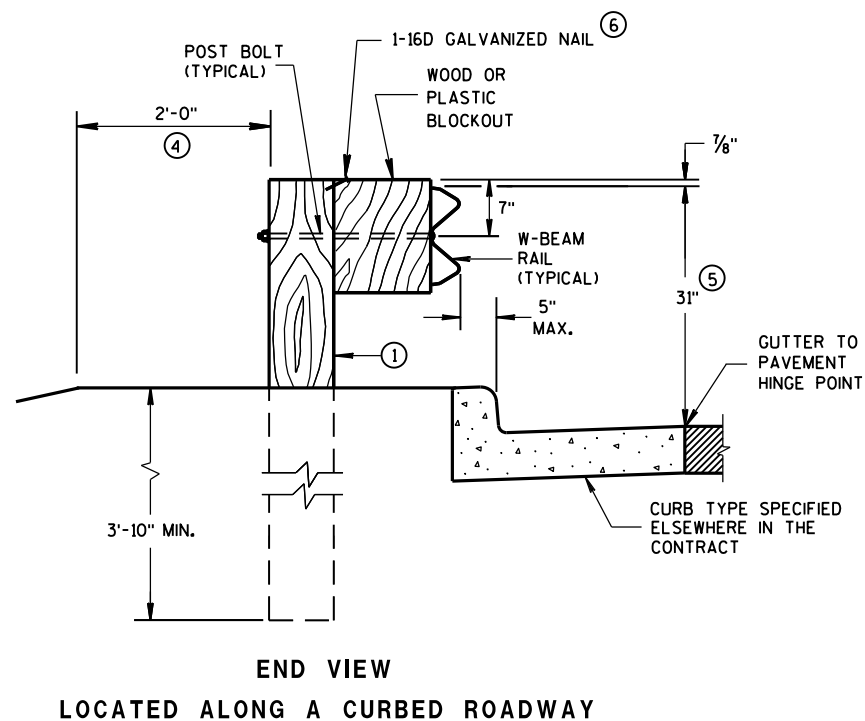
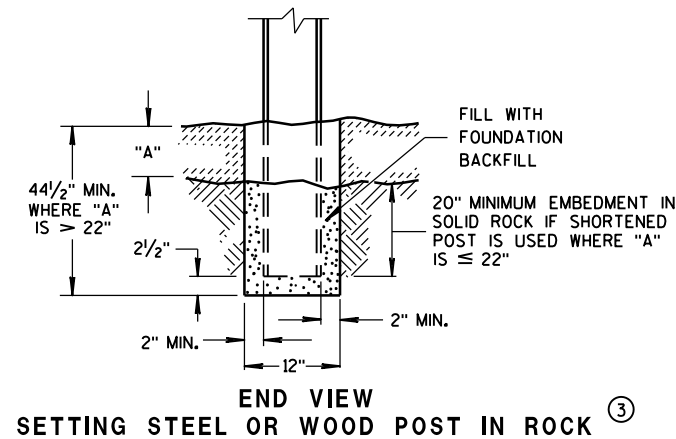
CABLE ASSEMBLY



STEEL TUBE

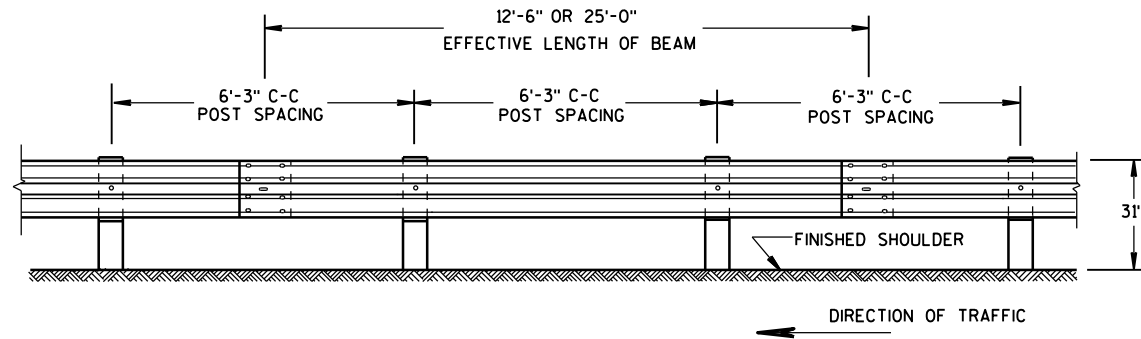
STEEL PLATE BEAM GUARD SHORT RADIUS TERMINAL	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 12/18/08 DATE	/S/ Jerry H. Zogg ROADWAY STANDARDS DEVELOPMENT ENGINEER
FHWA	

- ① WOOD OR STEEL POSTS (w6X9 OR w6X8.5) MAY BE USED. DO NOT INTERMIX WOOD AND STEEL POSTS. INSTALL STEEL POSTS WITH HOLES ON APPROACHING TRAFFIC SIDE.
- ② USE WOOD OR APPROVED PLASTIC BLOCKOUTS. WOOD BLOCKOUTS MAY BE CONSTRUCTED OUT OF TWO OR MORE WOOD BLOCKOUTS. SEE ALTERNATE WOOD BLOCKOUT DETAIL. DIMENSIONS OF APPROVED PLASTIC BLOCKOUTS MAY VARY.
- ③ IF ROCK IS ENCOUNTERED DURING EXCAVATION, PROVIDE A HOLE 12 INCHES IN DIAMETER EXTENDING 20 INCHES DEEP INTO THE ROCK. PLACE APPROXIMATELY 2 1/2 INCHES OF GRANULAR MATERIAL IN THE BOTTOM OF THE HOLE. CUT THE POSTS THE TO LENGTH AND INSTALL. BACKFILL WITH EXCAVATED MATERIAL AND COMPACT. BACKFILL IS TO BE FREE OF LARGE ROCKS.
- ④ WHEN THE DISTANCE FROM BACK OF POST TO SHOULDER HINGE POINT IS LESS THAN 2 FEET INSTALL LONGER POST AT HALF POST SPACING (K).
- ⑤ FOR NEW MGS INSTALLATION TOP OF W-BEAM RAIL TOLERANCE IS $\pm 1"$. FOR EXISTING MGS INSTALLATION TOP OF W-BEAM IS BETWEEN 27 3/4" TO 32".
- ⑥ WHEN USING STEEL POST AND WOOD BLOCKOUTS INSTALL FOUR 16D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.



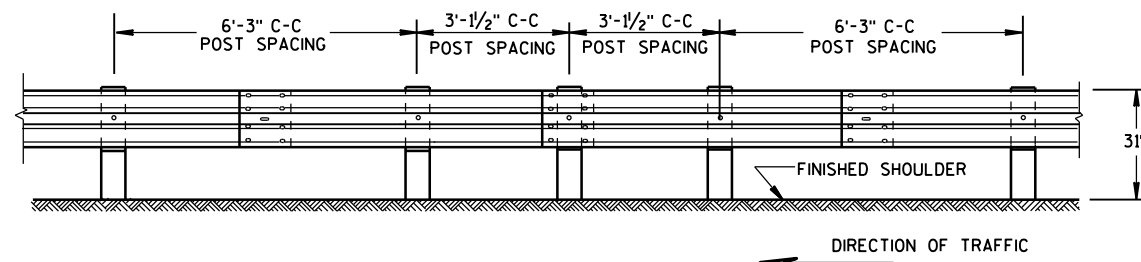
**MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL**

**STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION**



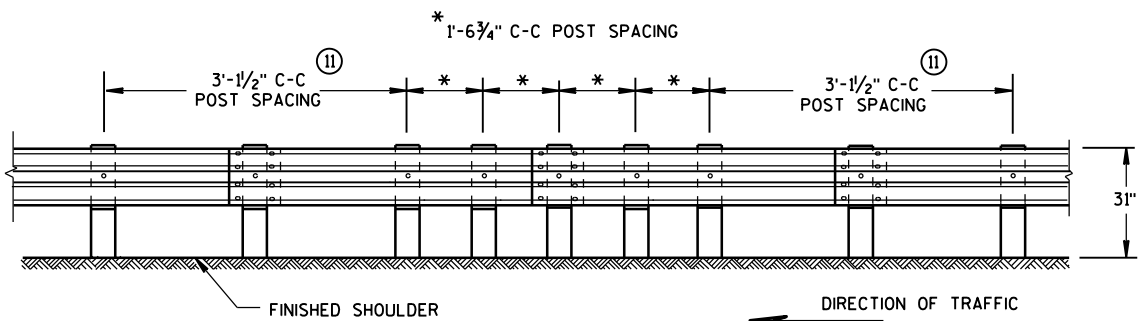
FRONT VIEW

POST SPACING STANDARD INSTALLATION



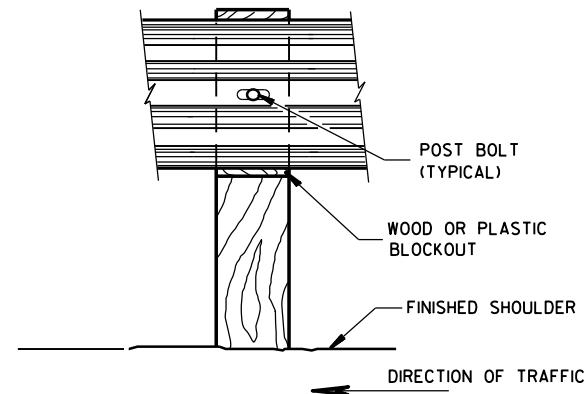
FRONT VIEW

HALF POST SPACING (HS) AND HALF POST SPACING WITH LONGER POSTS (K)

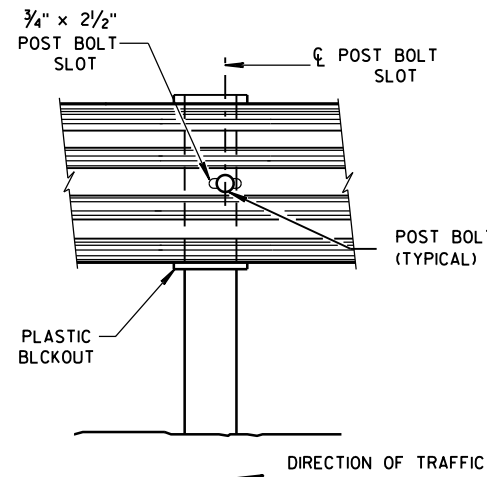


FRONT VIEW

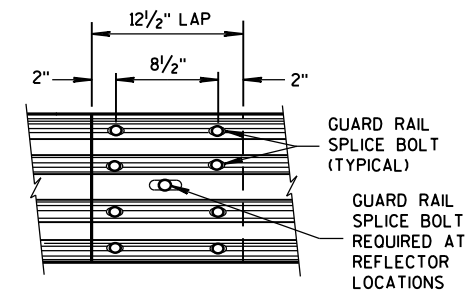
QUARTER POST SPACING (QS)



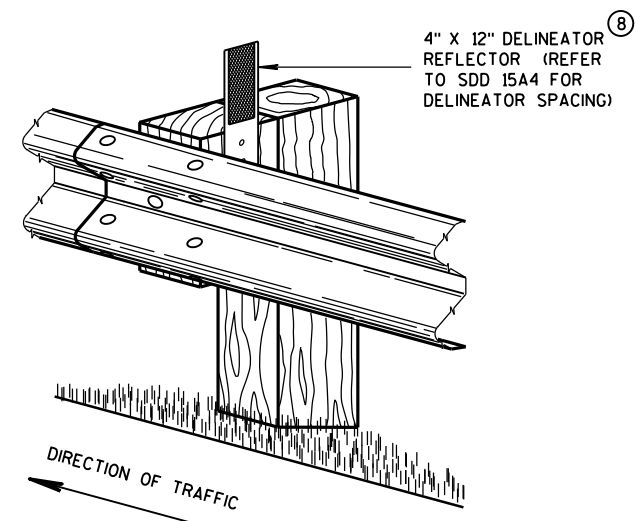
FRONT VIEW AT WOOD POST



FRONT VIEW AT STEEL POST



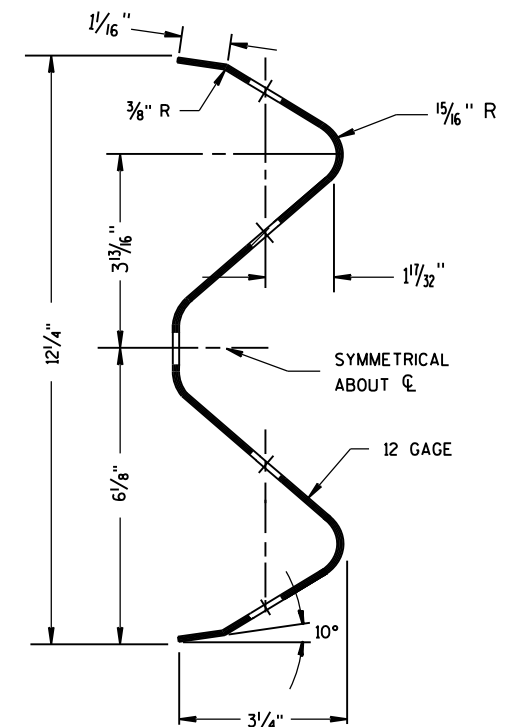
FRONT VIEW
MID-SPAN BEAM SPLICE



ONE SIDED REFLECTOR DETAIL AND TYPICAL INSTALLATION

GENERAL NOTES

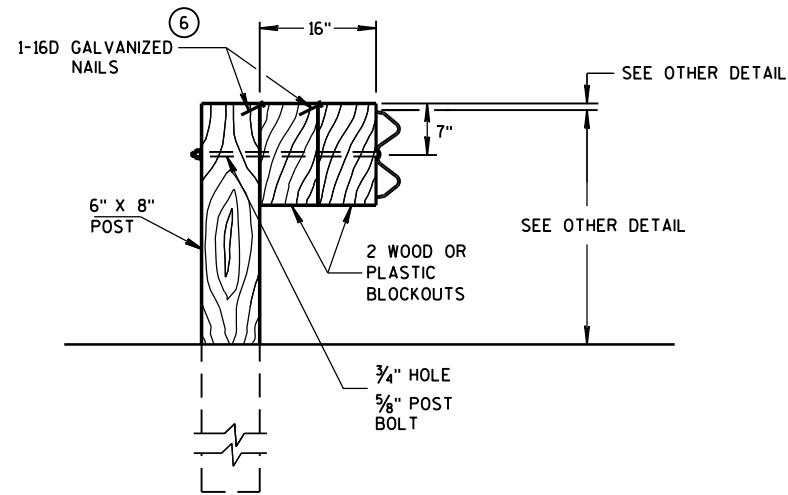
- ⑧ DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINAL. RAIL SPLICE LOCATIONS ARE THE ONLY ACCEPTABLE LOCATIONS FOR REFLECTORS.
 - ⑪ 25 FEET OF HALF POST SPACING IS REQUIRED ON APPROACH AND DEPARTURE ENDS OF QUARTER POST SPACING.
- POST BOLTS ARE A 5/8" DIAMETER ASTM A307 GUARDRAIL BOLT. A POST BOLT REQUIRES 5/8" 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 5/8" DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX NUT.



SECTION THRU W-BEAM RAIL

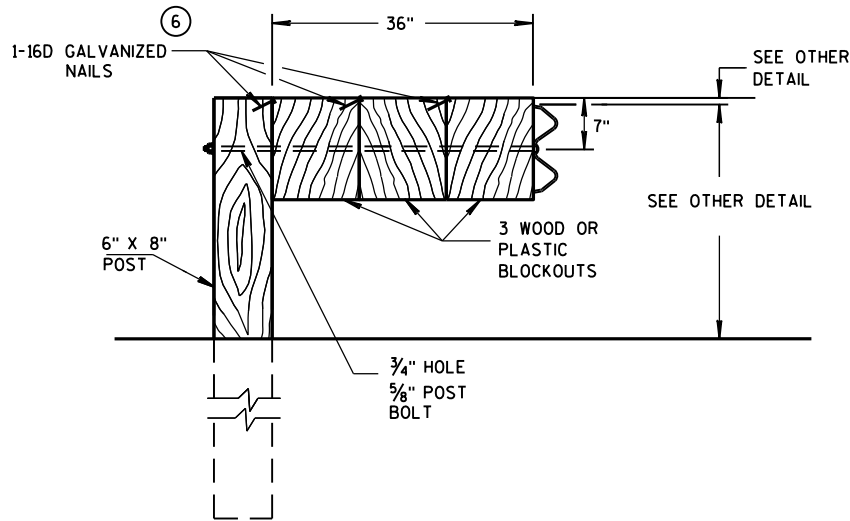
MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



DETAIL FOR 16" BLOCKOUT DEPTH

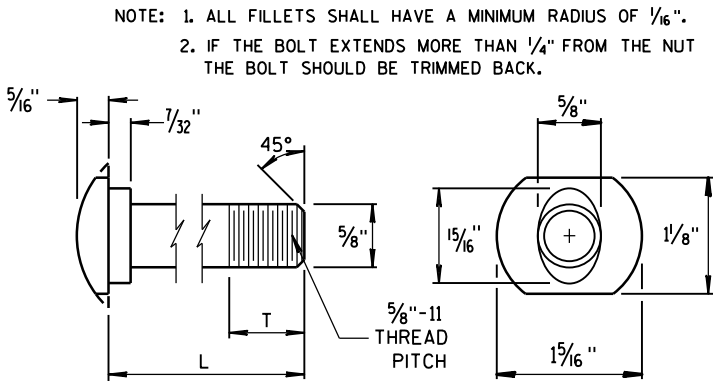
IT IS ACCEPTABLE TO USE BLOCKOUTS UP TO 16" DEEP TO INCREASE THE POST OFFSET TO AVOID UNDERGROUND OBSTACLES. THERE IS NO LIMIT TO THE NUMBER OF POSTS THAT CAN HAVE ADDITIONAL BLOCKOUTS UP TO 16" DEEP.



DETAIL FOR 36" BLOCKOUT DEPTH

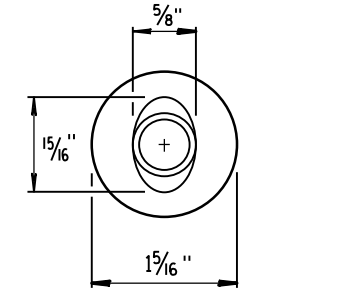
NOTES: UNDER SPECIAL CIRCUMSTANCES, SUCH AS AVOIDING OBSTACLES THAT ARE NOT RELOCATED, IT IS ACCEPTABLE TO INSTALL ADDITIONAL BLOCKOUTS TO OBTAIN UP TO 36" DEPTH FOR ONE OR TWO POSTS IN A SECTION OF GUARDRAIL.

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.

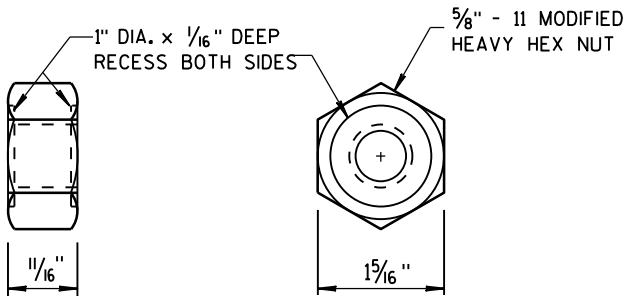


POST BOLT TABLE

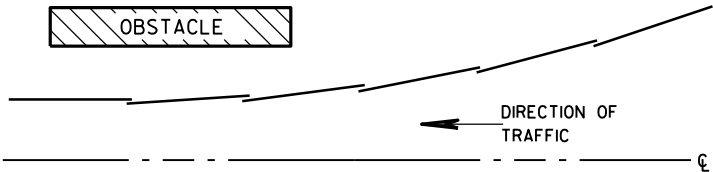
L	T (MIN.)
1 1/4"	1 1/8"
2"	1 3/4"
10"	4"
14"	4 1/16"
18"	4"
21"	4 1/16"
25"	4"



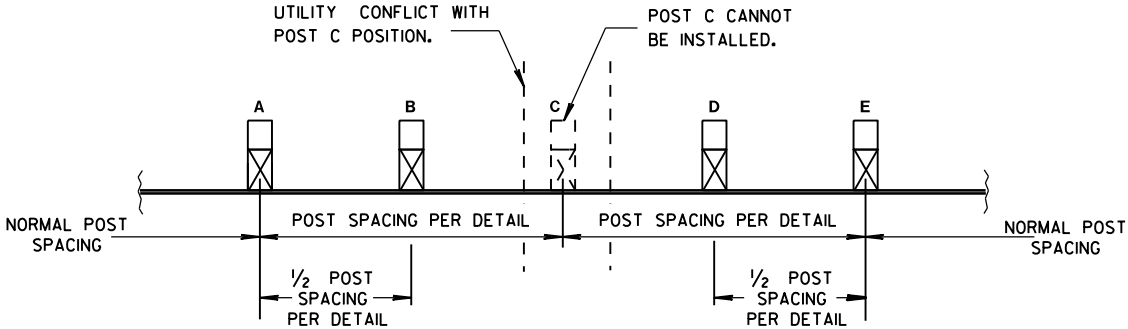
ALTERNATE BOLT HEAD



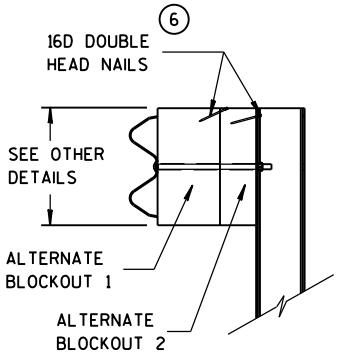
POST BOLT, SPLICE BOLT AND RECESS NUT



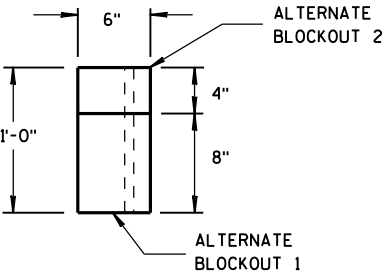
PLAN VIEW
BEAM LAPPING DETAIL



POST DRIVING FOR CONTINUOUS
UNDERGROUND OBSTRUCTION



SIDE VIEW

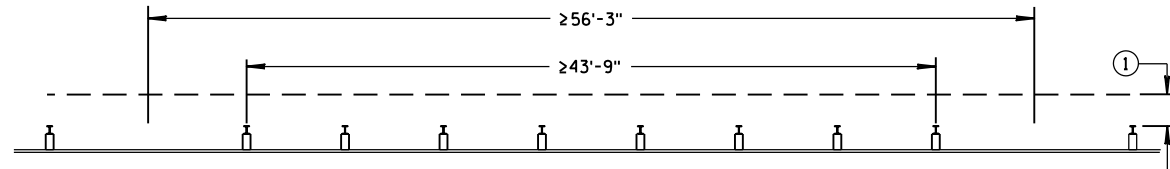


TOP VIEW

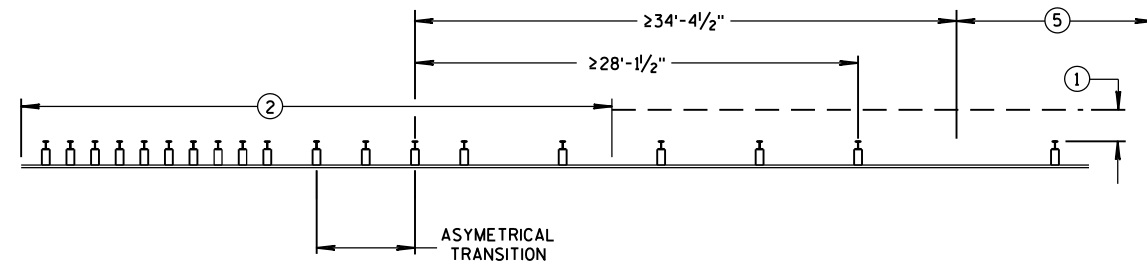
ALTERNATE WOOD
BLOCKOUT DETAIL

MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL

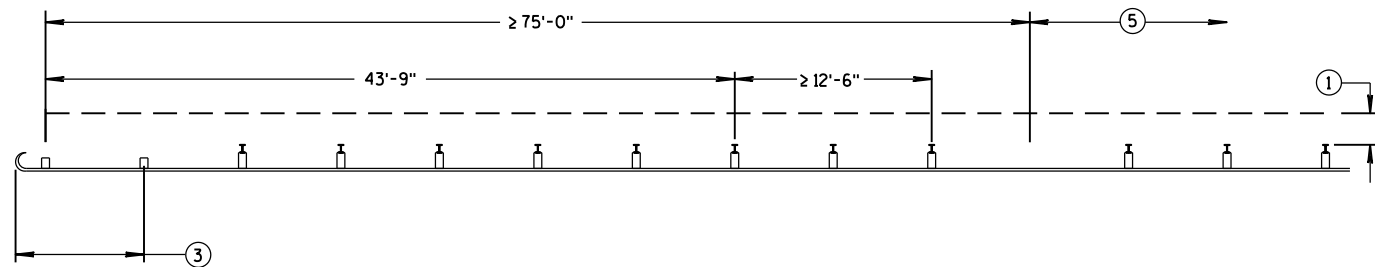
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



MISSING POST IN NORMAL BEAM GUARD RUN

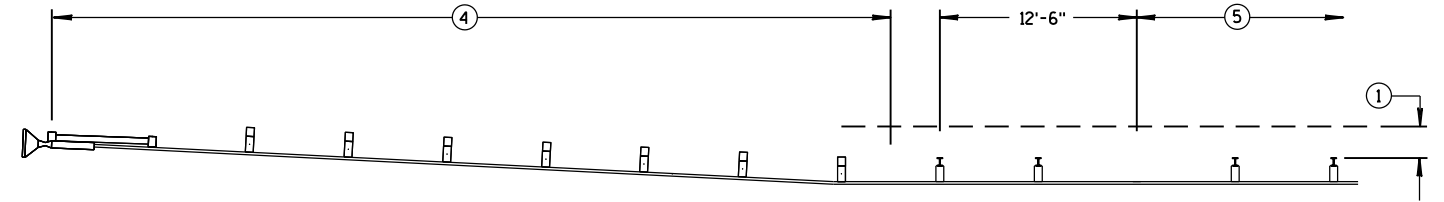


MISSING POST NEAR APPROACH THRIE BEAM TRANSITION

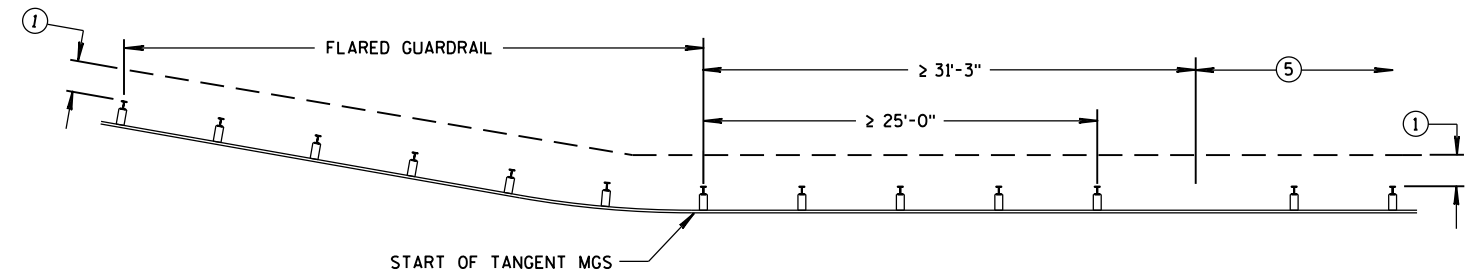


MISSING POST IN NORMAL BEAM GUARD RUN
NEAR TYPE 2 TERMINAL

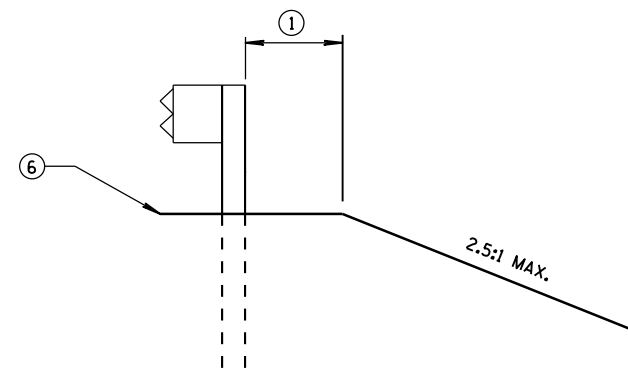
- ① MINIMUM OF 2 FEET OF GRADING BEHIND POST.
- ② SEE SDD 14B45 FOR MORE DETAILS.
- ③ SEE SDD 14B47 FOR MORE DETAILS.
- ④ SEE SDD 14B44 FOR MORE DETAILS.
- ⑤ SEE MISSING POST IN NORMAL BEAM GUARD RUN FOR DISTANCE TO NEXT MISSING POST AND AREA FOR WELL DRAINED, COMPACTED SOILS.
- ⑥ SEE PLAN FOR SHOULDER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



MISSING POST IN NORMAL BEAM GUARD RUN NEAR EAT



MISSING POST IN NORMAL BEAM GUARD RUN
NEAR FLARED BEAM GUARD



CROSS SECTION VIEW

MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

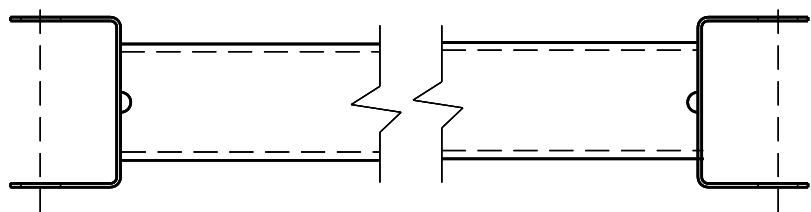
APPROVED
June 2017
DATE /S/ Rodney Taylor
ROADWAY STANDARDS DEVELOPMENT
UNIT SUPERVISOR
FHWA

6

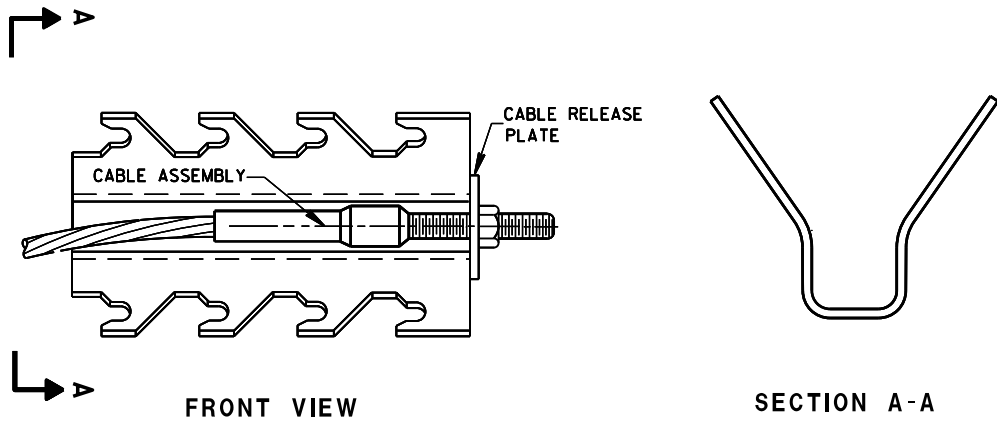
- S.D.D. 14 B 44-3a**

S.D.D. 14 B 44-3a



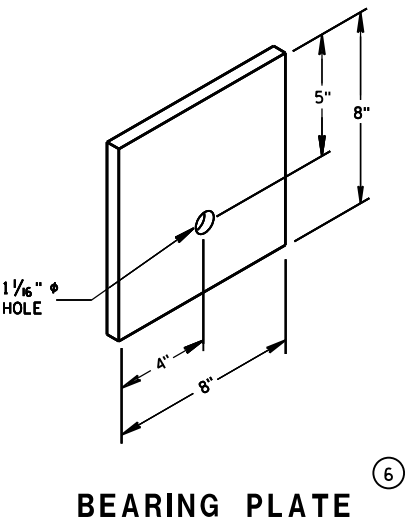


GENERIC GROUND STRUT (9) (H)

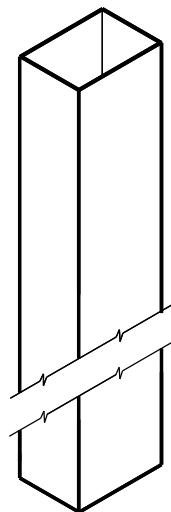


GENERIC ANCHOR CABLE BOX (8) (H)

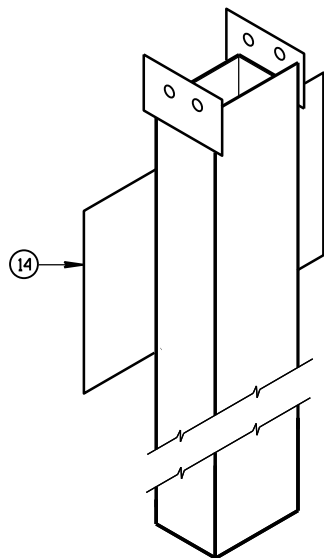
BILL OF MATERIALS	
PART NO.	DESCRIPTION
MATERIALS PROVIDED BY MGS EAT MANUFACTURER. SEE MANUFACTURER'S DETAILS FOR MORE INFORMATION.	
(1)	UPPER POST NO.1 6" X 6" TUBE
(2)	LOWER POST NO.1
(3)	WOOD CRT
(4)	WOOD BLOCKOUT
(5)	PIPE SLEEVE
(6)	BEARING PLATE
(7)	BCT CABLE ASSEMBLY
(8)	ANCHOR CABLE BOX
(9)	GROUND 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



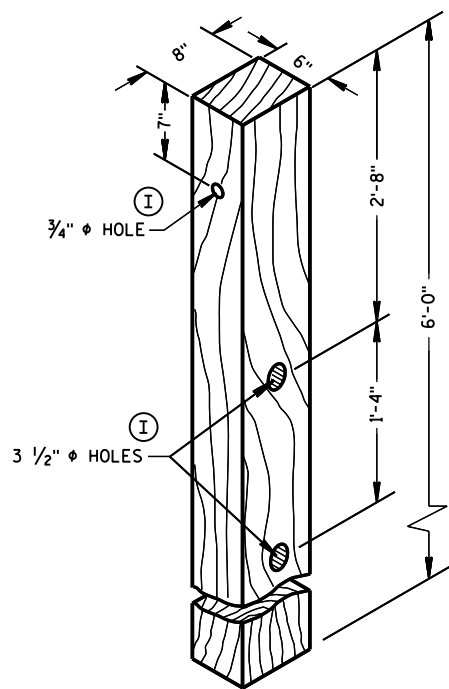
BEARING PLATE (6)



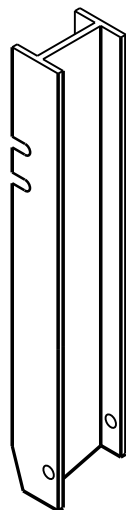
UPPER POST NO. 1⁽¹⁾



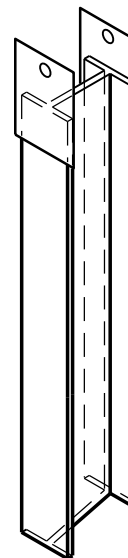
LOWER POST NO. 1⁽²⁾



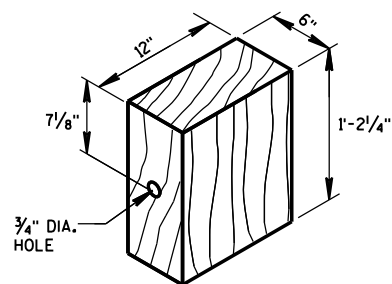
POSTS NUMBER 3-9
WOOD CRT POST⁽³⁾



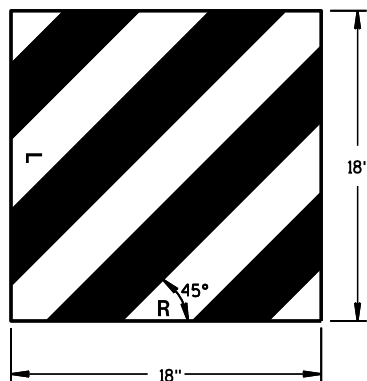
UPPER POST NO. 2⁽¹⁵⁾



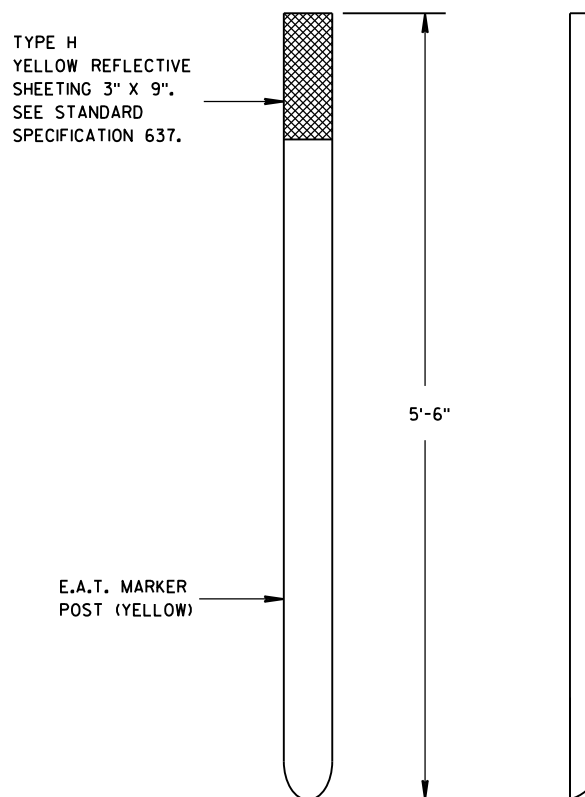
LOWER POST NO. 2⁽¹⁶⁾



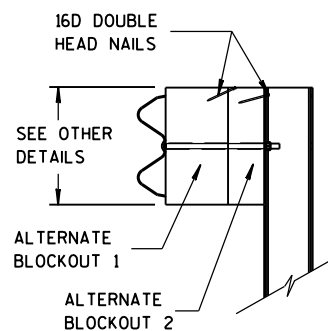
WOOD BLOCKOUT⁽⁴⁾
REQ'D. AT ALL POSTS EXCEPT POST NO'S 1 & 2



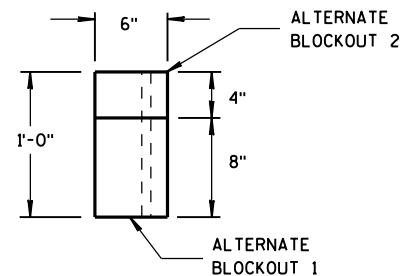
REFLECTIVE SHEETING DETAIL^(H)



FRONT VIEW
SIDE VIEW
E.A.T. MARKER POST⁽¹³⁾



SIDE VIEW



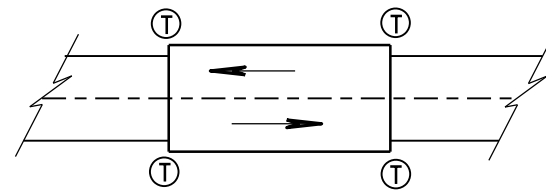
TOP VIEW

ALTERNATE WOOD
BLOCKOUT DETAIL

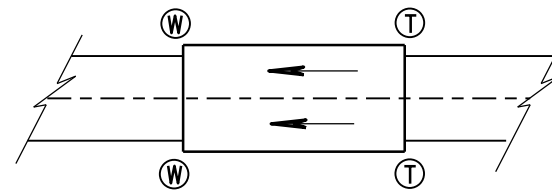
MIDWEST GUARDRAIL SYSTEM
ENERGY ABSORBING TERMINAL
(MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
DATE: June 2017
DATE: /S/ Rodney Taylor
DATE: ROADWAY STANDARDS DEVELOPMENT
DATE: UNIT SUPERVISOR



TWO WAY TRAFFIC



ONE WAY TRAFFIC

(T) THRIE BEAM CONNECTION

(W) W-BEAM CONNECTION WHEN REQUIRED

GENERAL NOTES

IF ROCK IS ENCOUNTERED, REMOVE ROCK TO FULL DEPTH OF POST PLUS 2½", AND 12" DIAMETER AROUND POST. SEE 14B42 FOR MORE DETAILS.

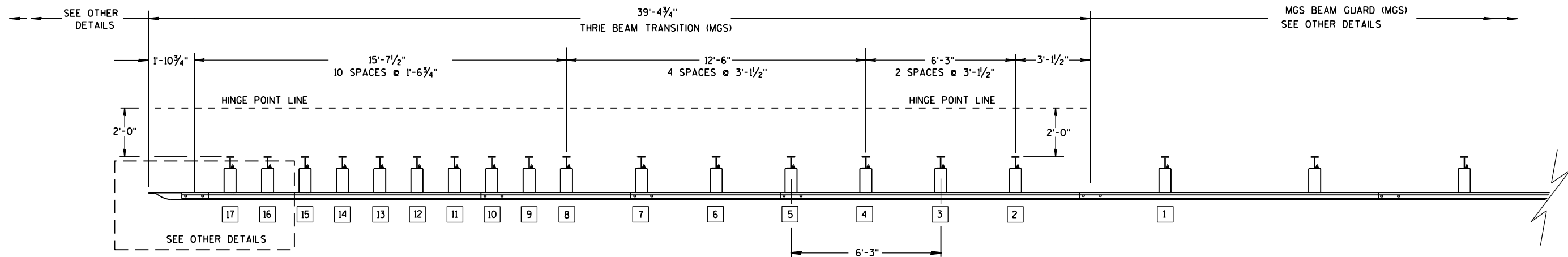
TRANSITION USES STEEL POSTS ONLY.

SEE STANDARD DETAIL DRAWING 14 B 42 FOR MORE INFORMATION.

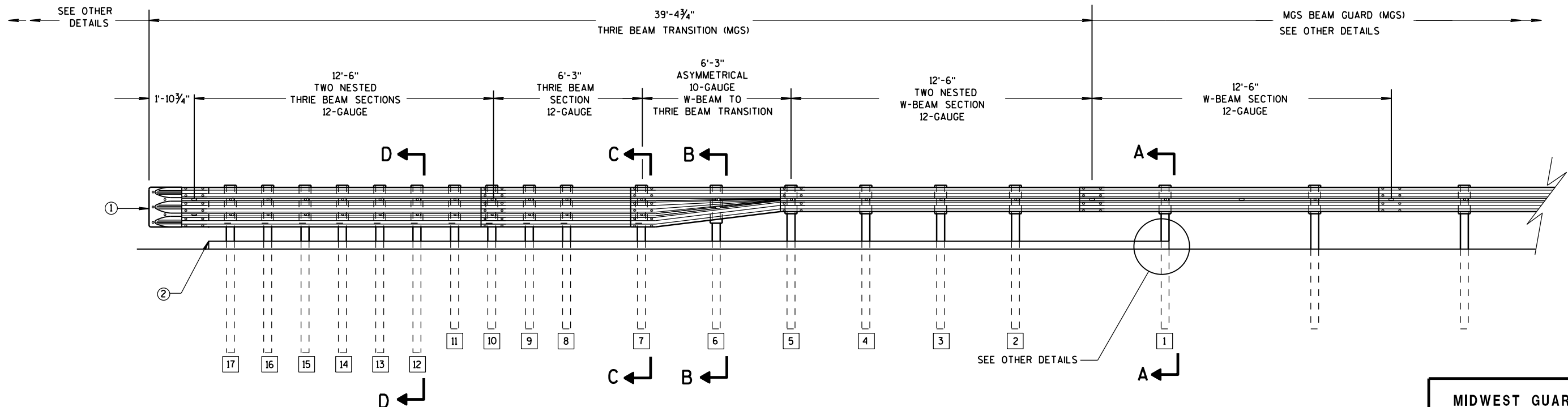
① BRIDGE RAILING TYPE "W" DOES NOT REQUIRE A TERMINAL CONNECTOR.

② OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.

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



PLAN VIEW



ELEVATION VIEW

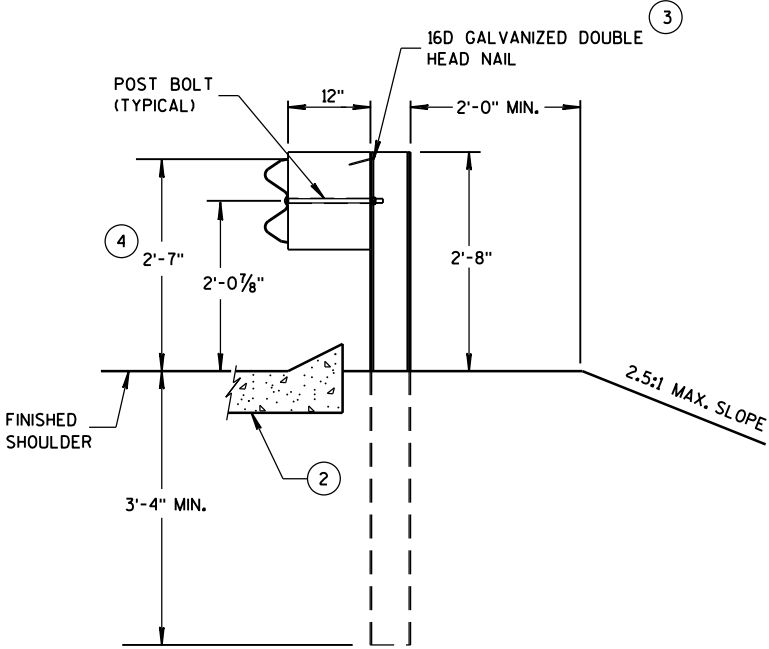
MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

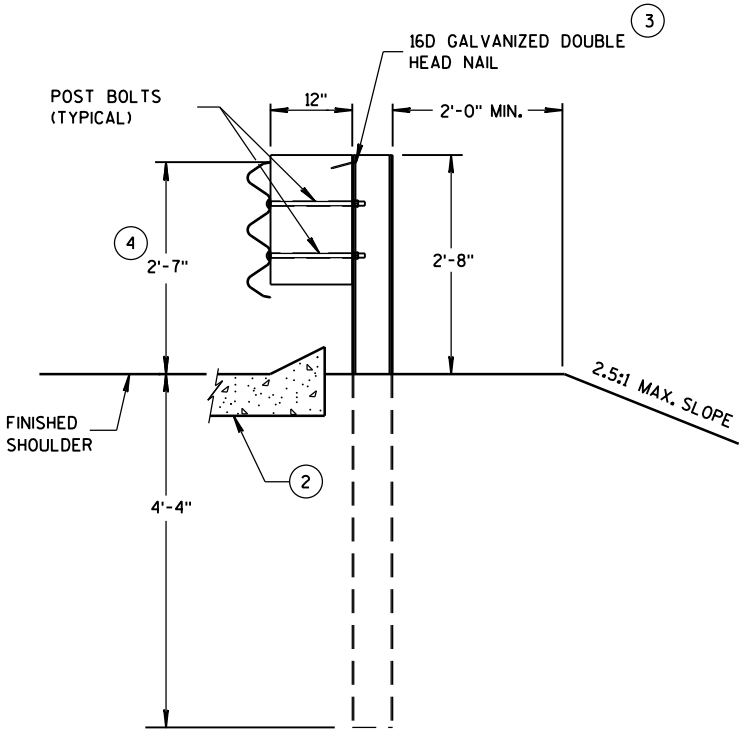
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

GENERAL NOTES

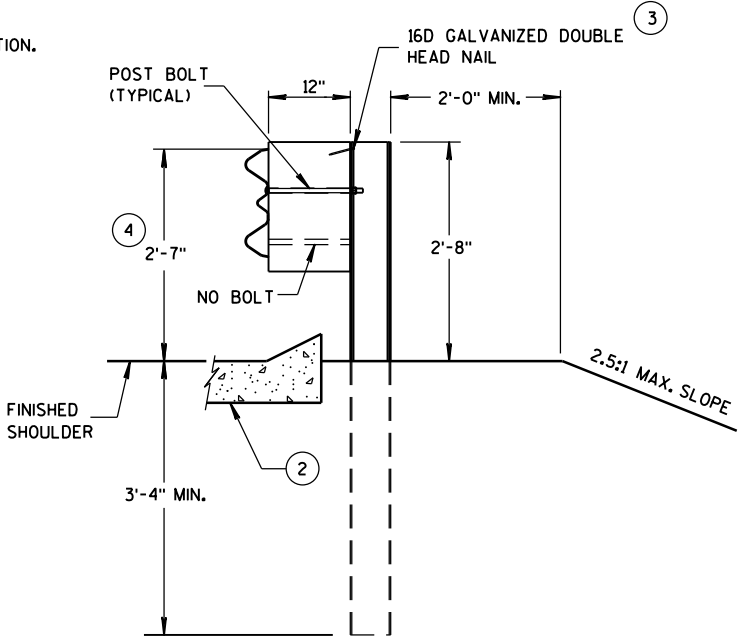
- 2 OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.
- 3 WHEN USING STEEL POSTS AND WOOD BLOCKOUTS INSTALL FOUR 10D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.
- 4 TOLERANCE FOR TOP OF W-BEAM RAIL IS ± 1".



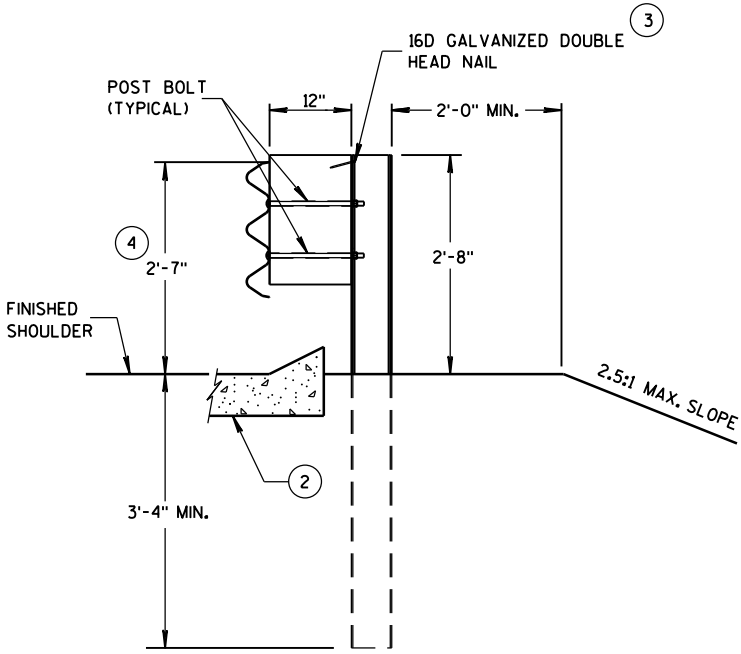
SECTION A-A
POSTS 1-5



SECTION D-D
POSTS 12-17



SECTION B-B
POST 6



SECTION C-C
POSTS 7-11

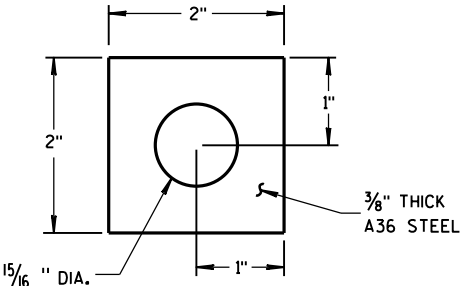
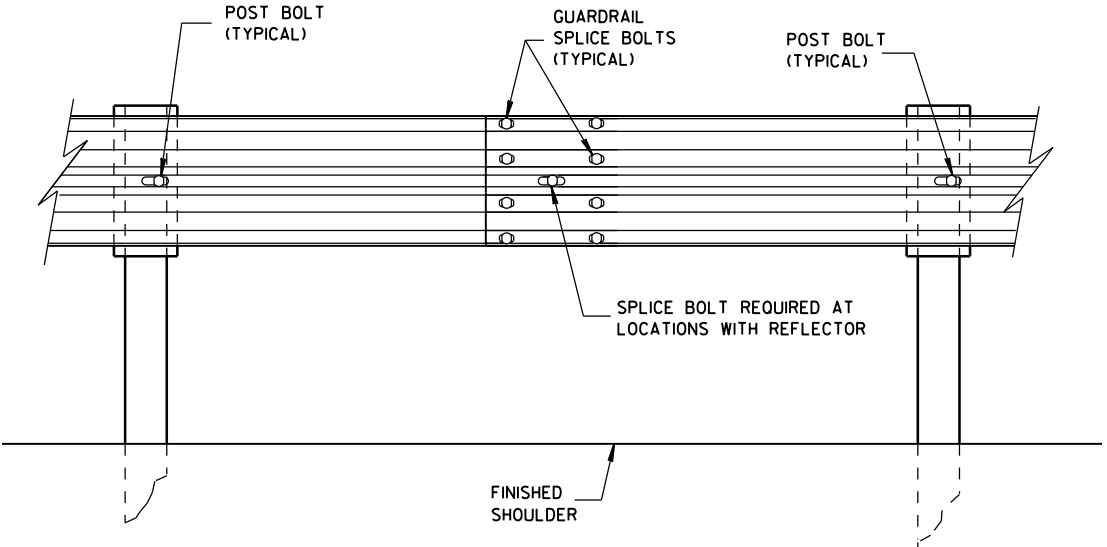
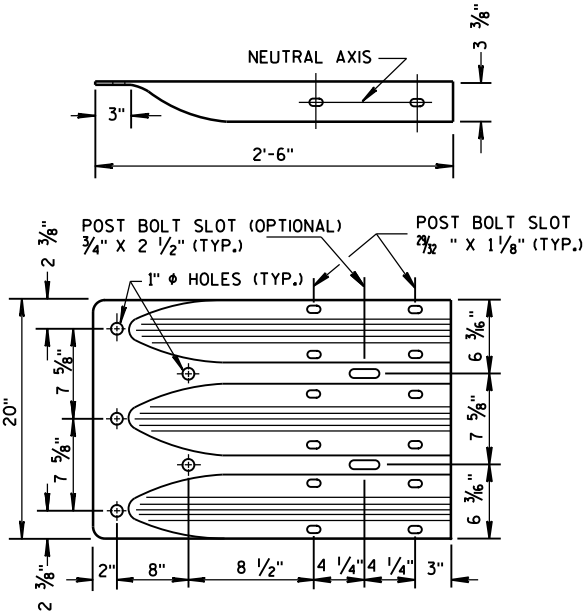


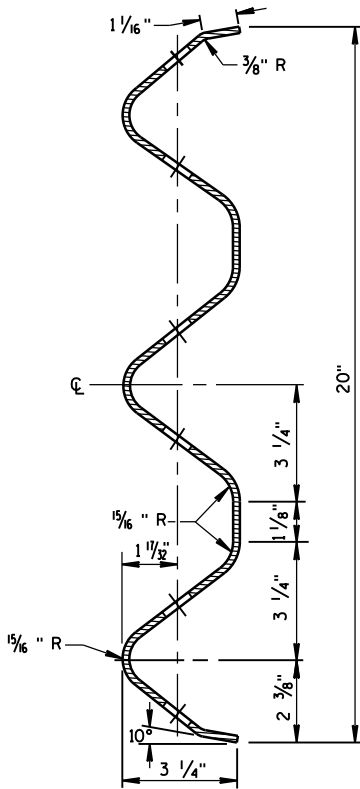
PLATE WASHER DETAIL



SPlice DETAIL



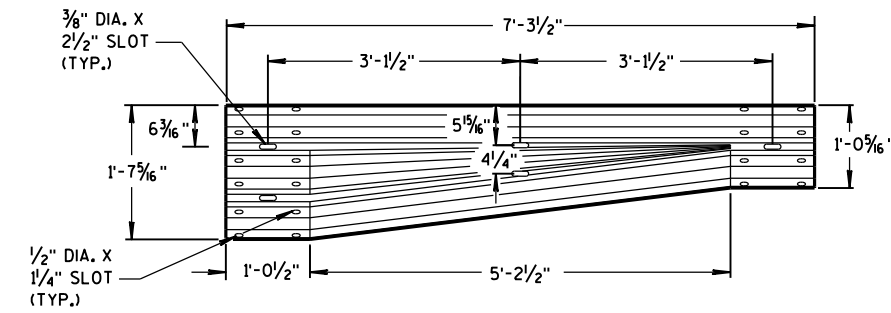
THRIE BEAM
TERMINAL CONNECTOR



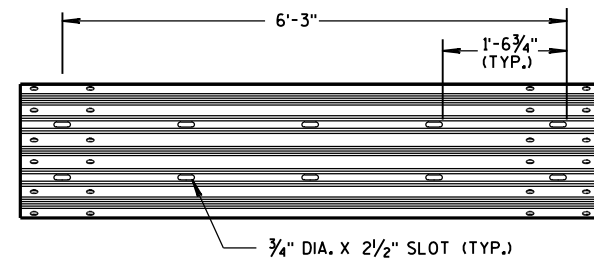
SECTION THRU THRIE
BEAM RAIL ELEMENT

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

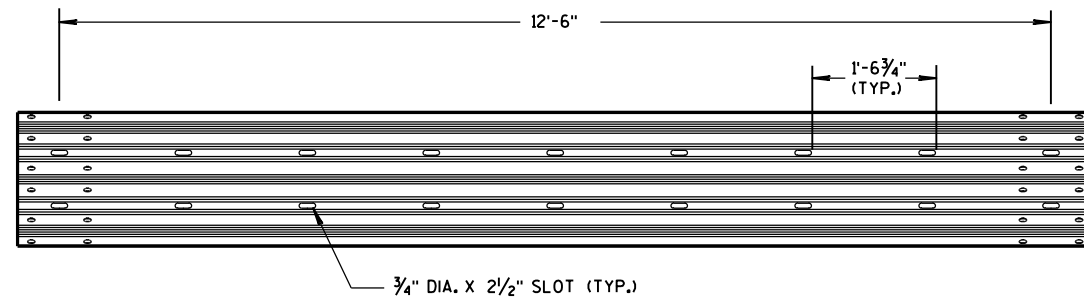
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



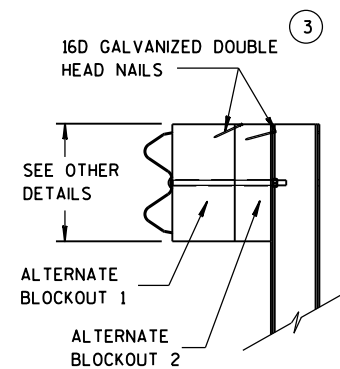
W-BEAM TO THRIE BEAM TRANSITION SECTION



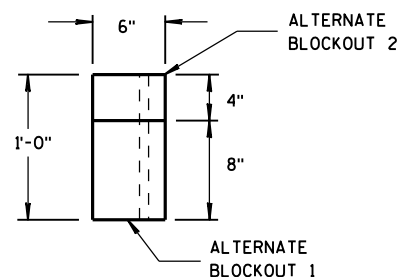
6'-3" THRIE BEAM SECTION



12'-6" THRIE BEAM SECTION

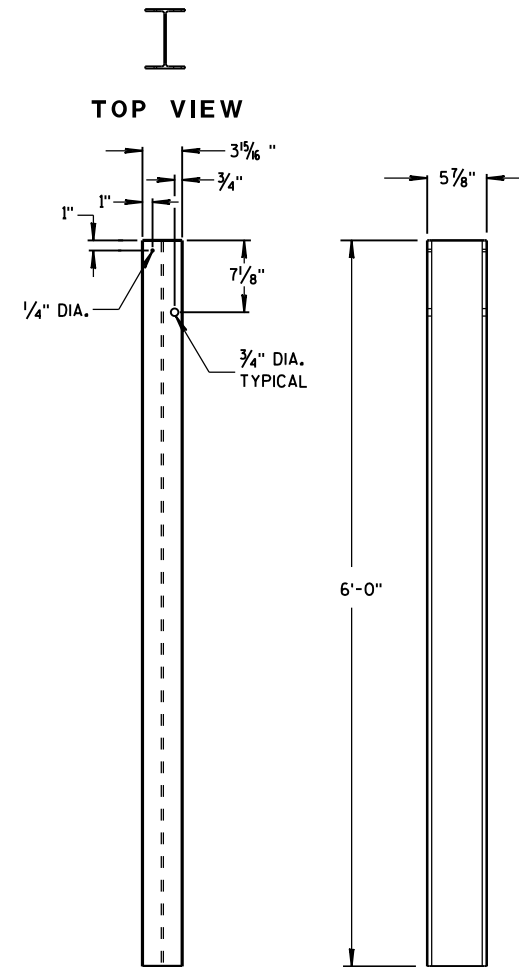


SIDE VIEW



TOP VIEW

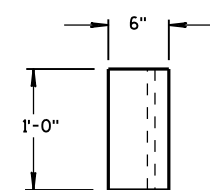
ALTERNATE WOOD BLOCKOUT DETAIL



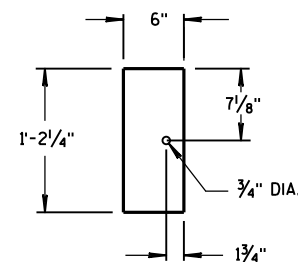
FRONT VIEW

SIDE VIEW

STEEL POSTS 1-5

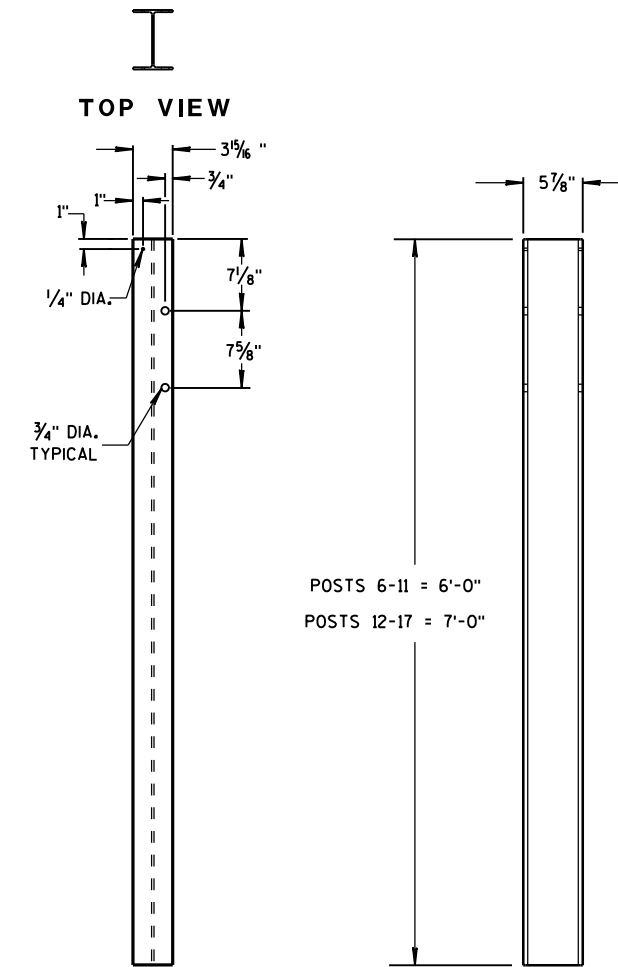


TOP VIEW



FRONT VIEW

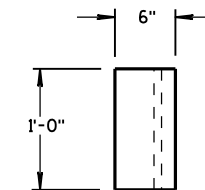
BLOCKOUT
POSTS 1-5



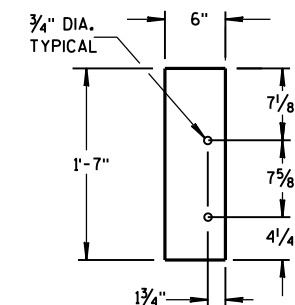
FRONT VIEW

SIDE VIEW

STEEL POSTS 6-17



TOP VIEW



FRONT VIEW

BLOCKOUT
POSTS 6-17

GENERAL NOTES

STEEL POSTS ARE W6X9 OR W6X8.5.

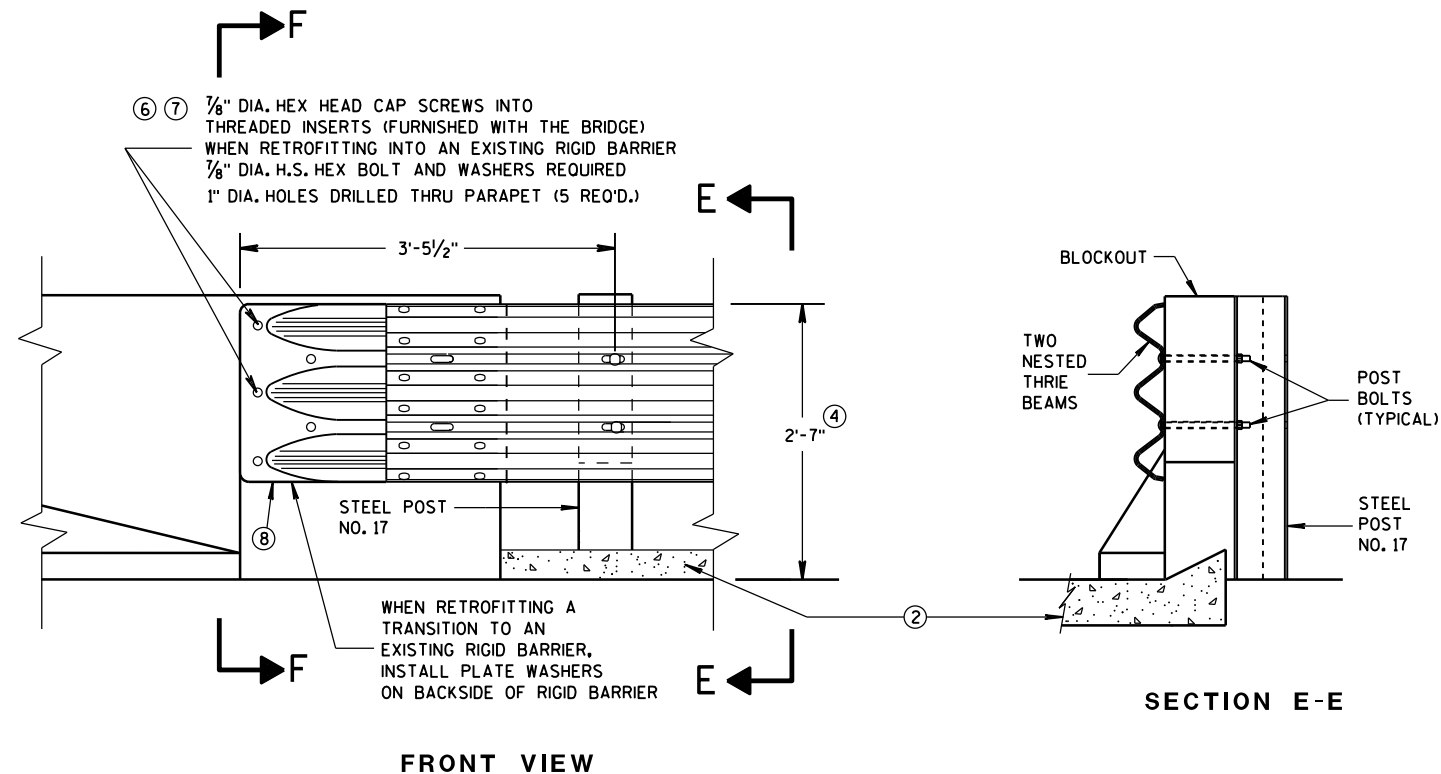
BOLT HOLES FOR POST ARE ON FRONT AND OF SIDE OF POST.

③ WHEN USING STEEL POSTS AND WOOD BLOCKOUTS INSTALL FOUR 16D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.

⑤ WOOD BLOCKS MAY BE CONSTRUCTED OUT OF 2 WOOD BLOCKS. SEE ALTERNATE WOOD BLOCK DETAIL.

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

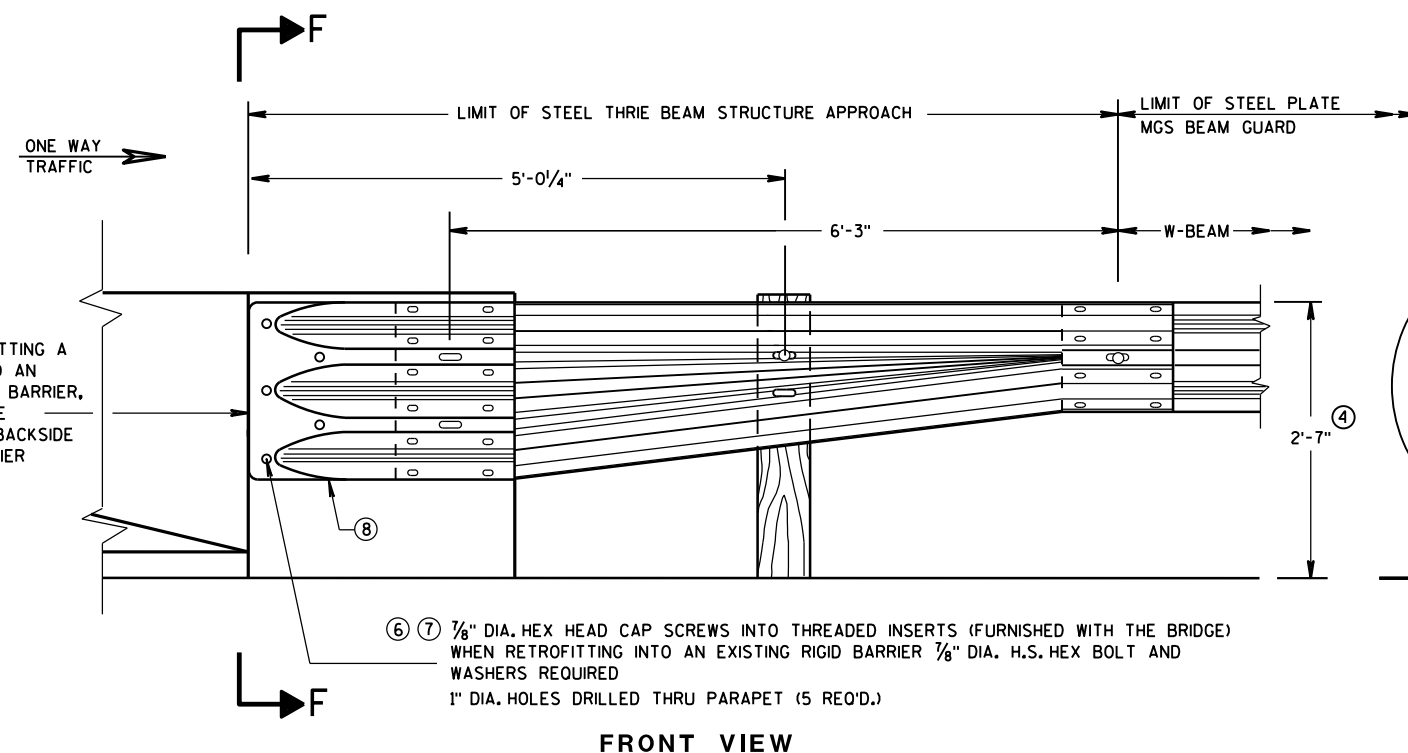
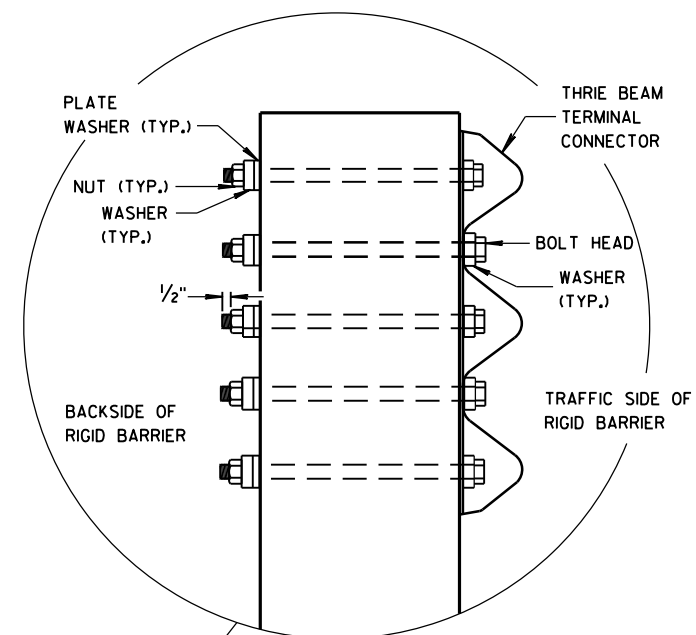
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



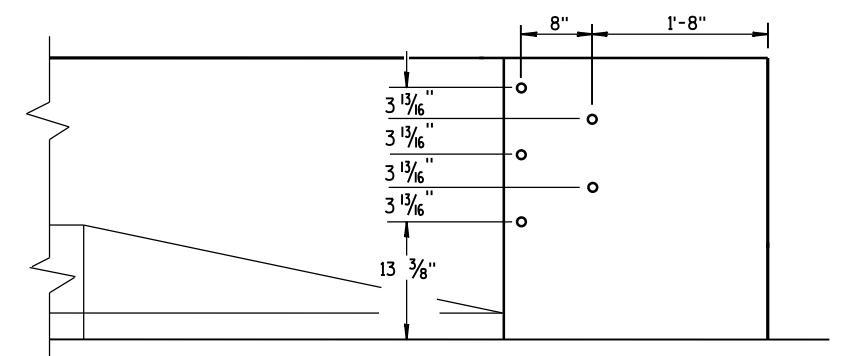
GENERAL NOTES

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 5/8" 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



DRILL HOLE LOCATION

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

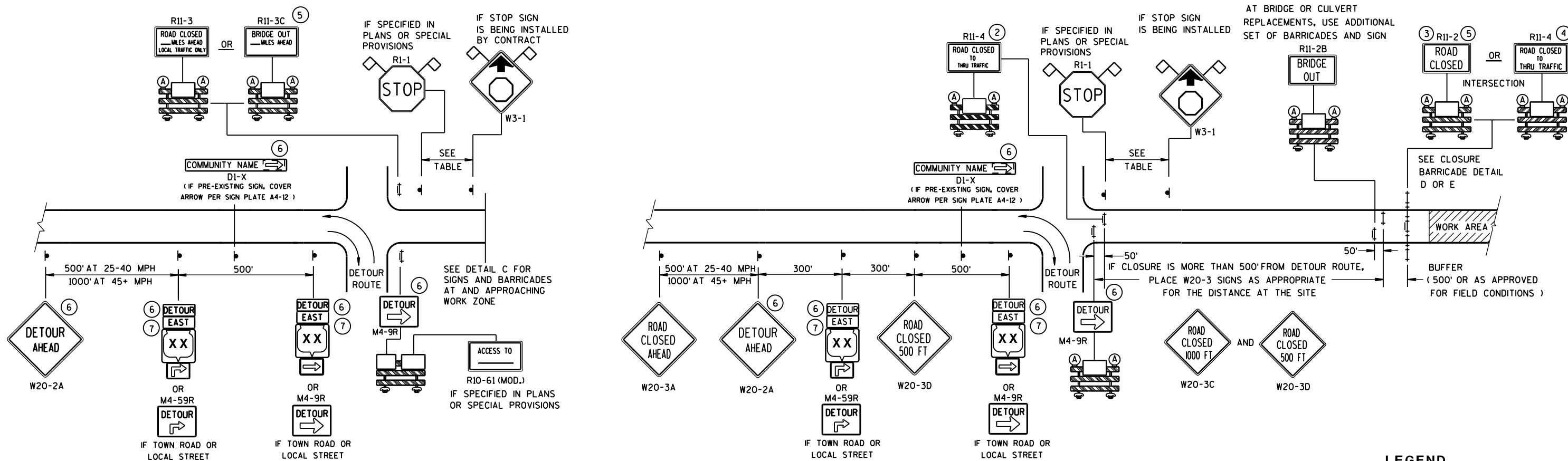
APPROVED
June, 2015

DATE

FHWA

/S/ Jerry H. Zogg

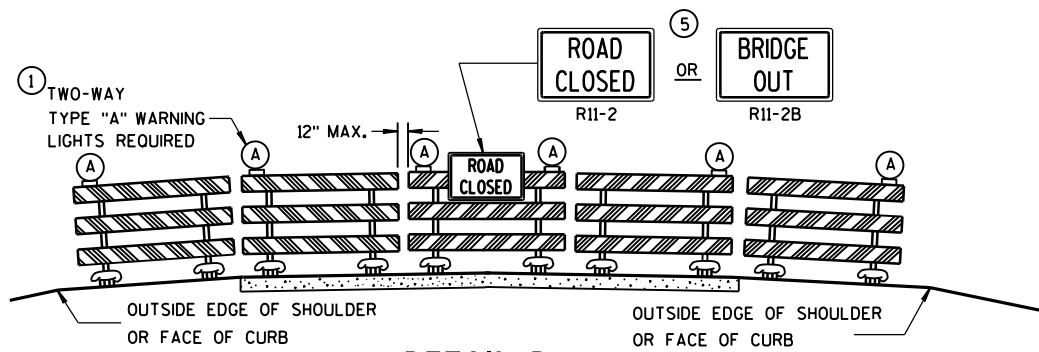
ROADWAY STANDARDS DEVELOPMENT
ENGINEER



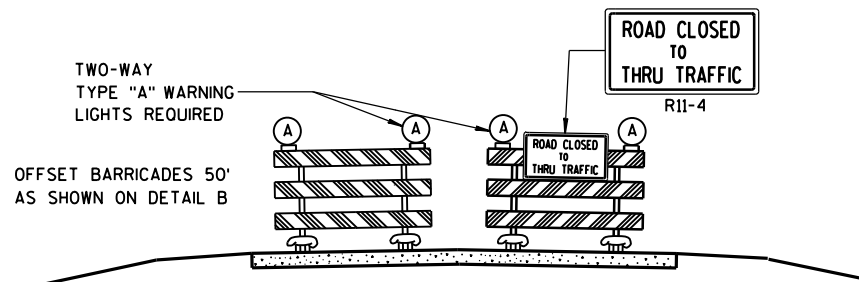
DETAIL C
MAINLINE CLOSURE, NO POSTED DETOUR

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	
Sept. 2015 DATE FHWA	/S/ Peter Amokobe Atepe STATEWIDE WORK ZONE TRAFFIC SAFETY ENGINEER



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 BARRICADES SHALL COVER NO MORE THAN THE TOP RAIL. THE SIGNS SHALL NOT COVER ANY PORTION OF THE MIDDLE 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, 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". (30" X 15" IF NEEDED TO MATCH EXISTING SIGNS.)

M1-4, M1-5A, AND M1-6 SHALL BE 24" X 24". (36" X 36" IF NEEDED TO MATCH EXISTING SIGNS.)

M05-1 AND M06-1 SHALL BE 21" X 21". (30" X 30" IF NEEDED TO MATCH EXISTING SIGNS.)

D1-X SHALL BE AS SHOWN ON SPECIFIC PROJECT SIGNING DETAIL SHEETS.

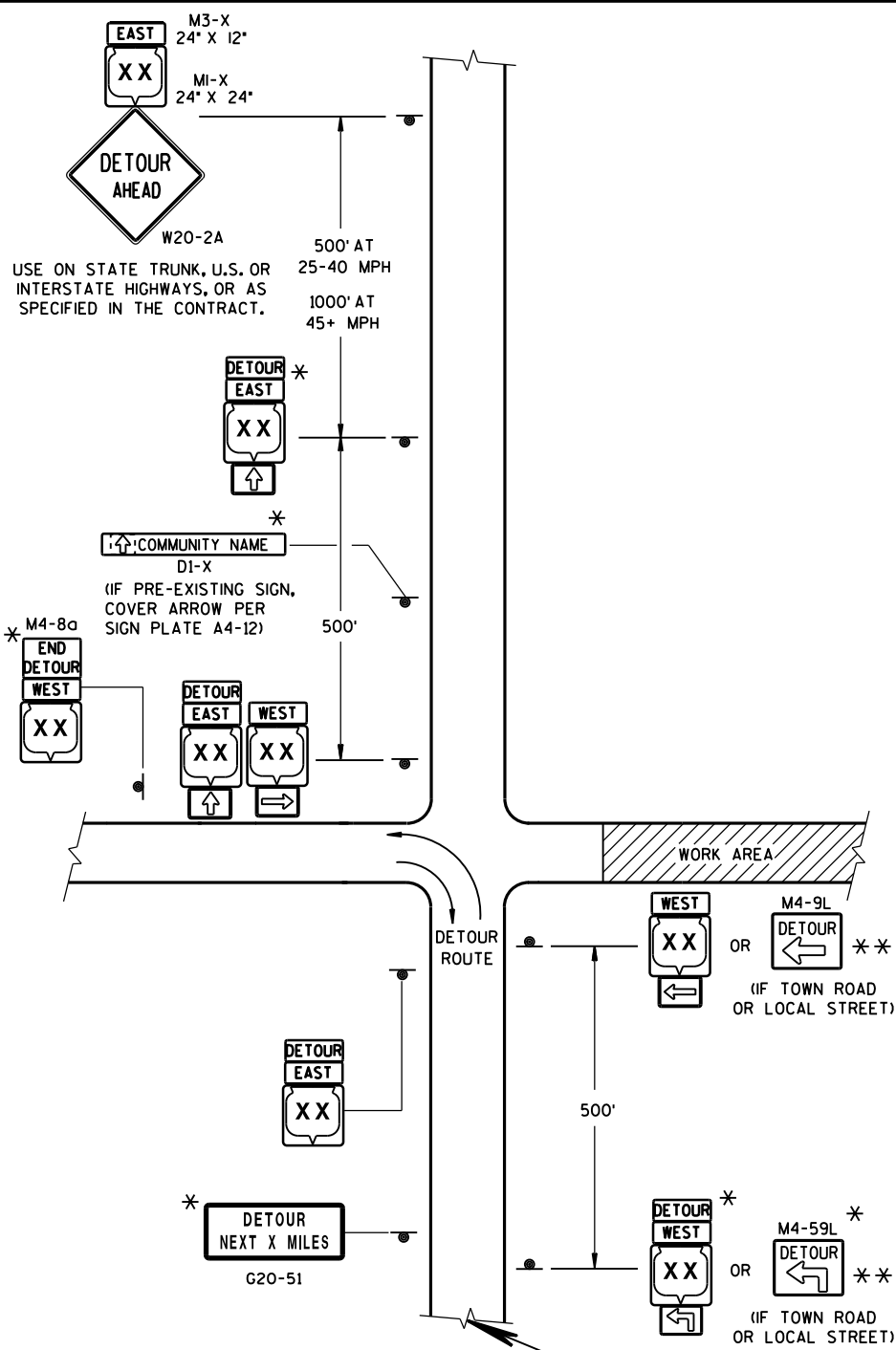
R1-1 SHALL BE 36" X 36".

- 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 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 LANE 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 MAINLINE CLOSURES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

Sept. 2015 /S/ Peter Amokobe Atepe
DATE STATEWIDE WORK ZONE TRAFFIC
FHWA SAFETY ENGINEER



LEGEND

SIGN ON PERMANENT SUPPORT

WORK AREA

M4-8
M3-X

COUNTY
MI-4 MI-5A MI-6

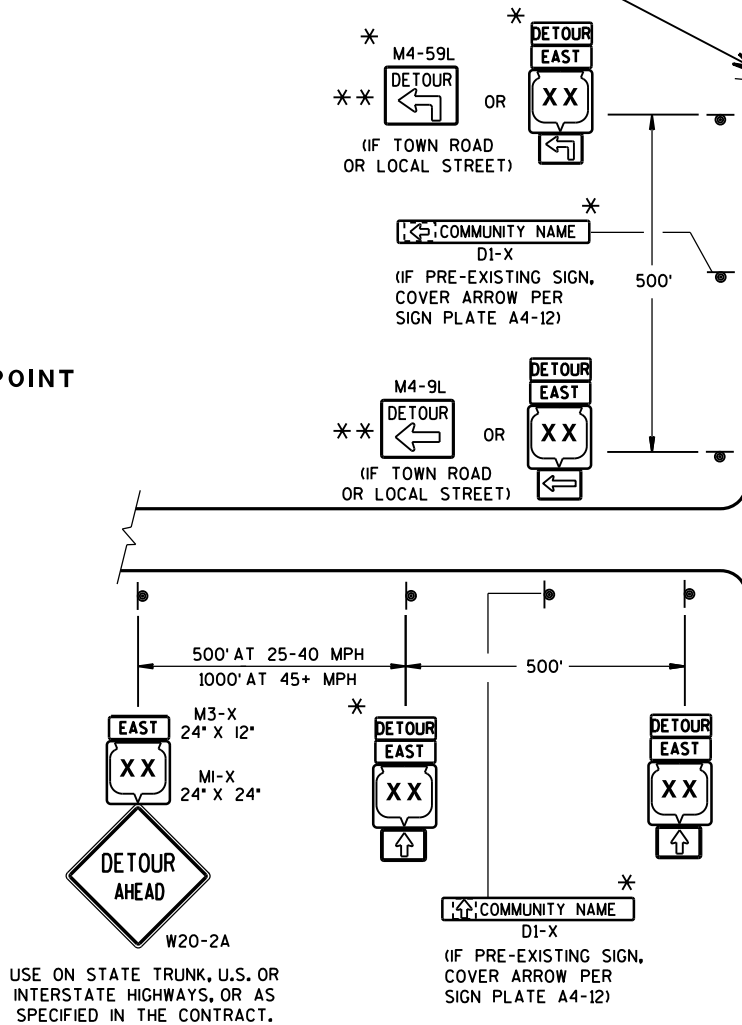
M05-1 M06-1 M06-1

SEE SPECIFIC PROJECT DETOUR
SIGNING DETAIL SHEETS AND
DETAIL A OR B ON SDD 15C2-SHEET "a"

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

MATCH POINT

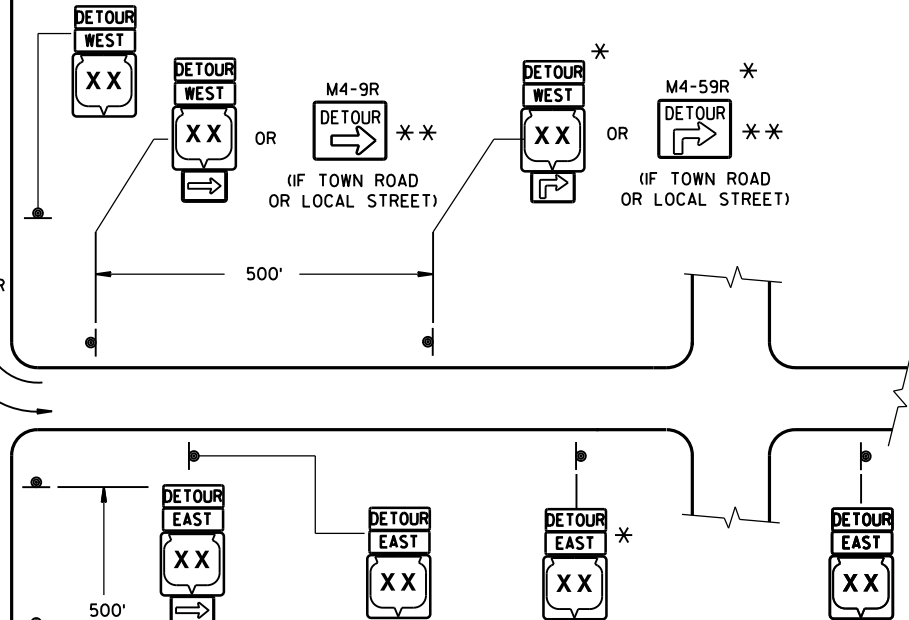
DETAIL F
DETOUR SIGNING



GENERAL NOTES

- THE EXACT NUMBER, LOCATION AND SPACING OF ALL SIGNS SHALL BE ADJUSTED TO FIT FIELD CONDITIONS AS APPROVED BY THE ENGINEER.
- IF THERE ARE EXISTING ROUTE MARKER ASSEMBLIES THAT WILL REMAIN IN PLACE, ADJUST THE LOCATION OF THE DETOUR ROUTE SIGNS TO CORRESPOND WITH THE EXISTING ASSEMBLIES. SEE SPECIFIC PROJECT DETOUR SIGNING DETAIL SHEETS, MODIFY EXISTING SIGNS WHERE POSSIBLE.
- THE SPACING BETWEEN TRAFFIC CONTROL AND DETOUR SIGNS SHOULD BE ADJUSTED TO NOT CONFLICT WITH AND TO PROVIDE A DESIRABLE MINIMUM OF 200 FEET CLEARANCE TO EXISTING SIGNS THAT WILL REMAIN IN PLACE.
- ANY SIGNS TEMPORARY OR EXISTING, WHICH CONFLICT WITH TRAFFIC CONTROL "IN USE", SHALL BE REMOVED OR COVERED AS NEEDED AND AS APPROVED BY THE ENGINEER.
- SIGNS THAT WILL BE IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS MAY BE MOUNTED ON PORTABLE SUPPORTS.
- "MO" SIGNS ARE THE SAME AS "M" SIGNS EXCEPT THE BACKGROUND IS ORANGE.
- SIGN SIZES SHALL BE AS FOLLOWS:
- M3-X SHALL BE 24" X 12". (36" X 18" IF NEEDED TO MATCH EXISTING SIGNS.)
 - M4-8 SHALL BE 24" X 12". (30" X 15" IF NEEDED TO MATCH EXISTING SIGNS.)
 - MI-4, MI-5A, AND MI-6 SHALL BE 24" X 24". (36" X 36" IF NEEDED TO MATCH EXISTING SIGNS.)
 - M05-1 AND M06-1 SHALL BE 21" X 21". (30" X 30" IF NEEDED TO MATCH EXISTING SIGNS.)
 - M4-9 SHALL BE 30" X 24".
 - M4-8a SHALL BE 24" X 18".
 - G20-51 SHALL BE 60" X 24".
 - W20-2 SHALL BE 48" X 48".
 - D1-X SHALL BE AS SHOWN ON SPECIFIC PROJECT SIGNING DETAIL SHEETS.

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

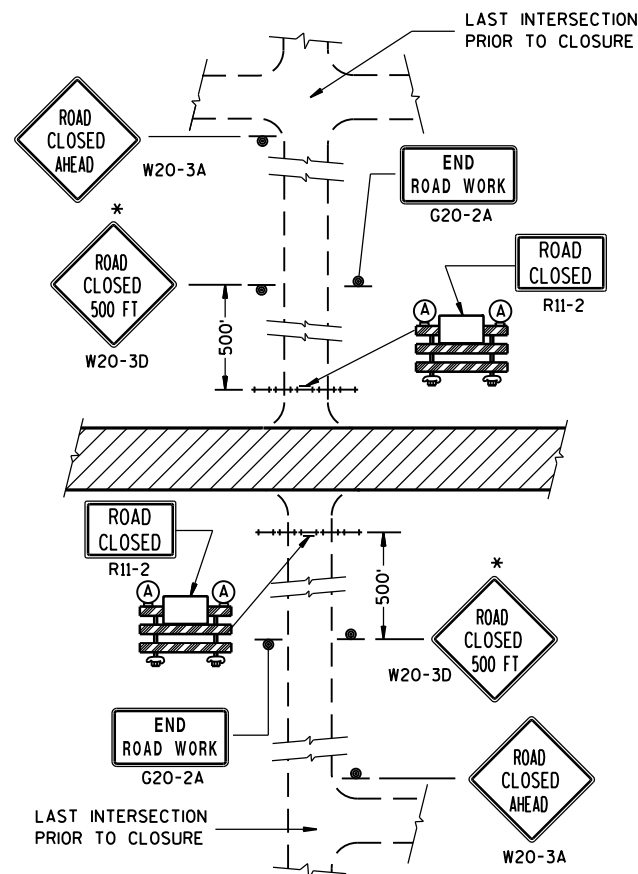


PLACE SIGNS BEYOND INTERSECTIONS WITH
STATE OR COUNTY TRUNK HIGHWAYS OR
AT 4 MILE MAXIMUM SPACING (4 BLOCKS IF
URBAN AREA.)

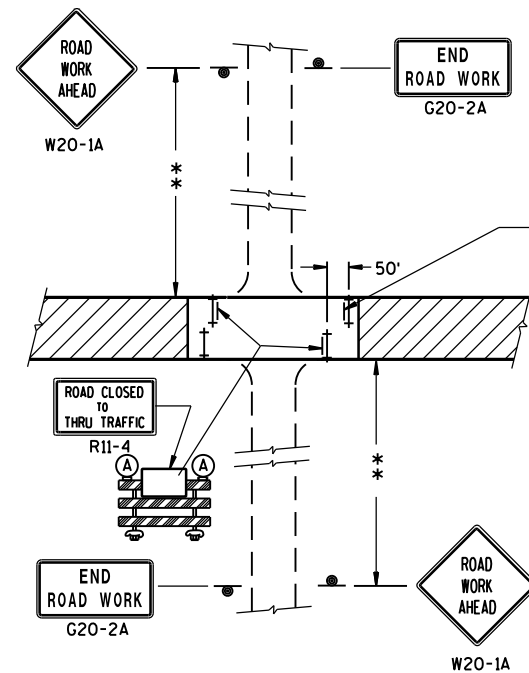
**DETOUR SIGNING FOR
MAINLINE CLOSURES**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

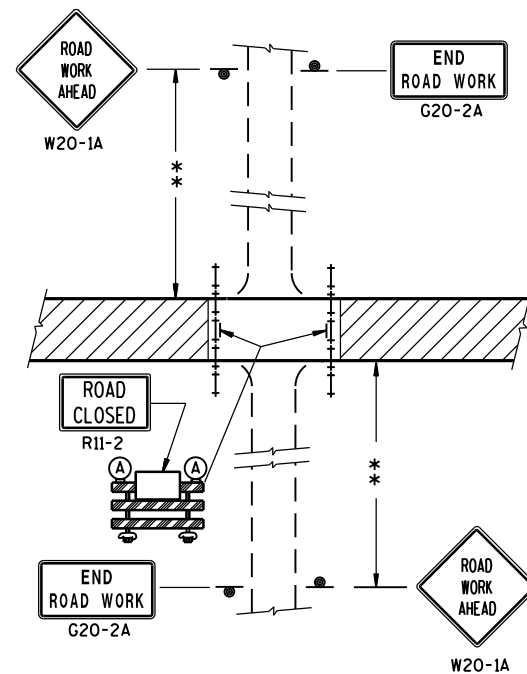
APPROVED
Sept. 2015 /S/ Peter Amakobe Atepe
DATE STATEWIDE WORK ZONE TRAFFIC
FHWA SAFETY ENGINEER



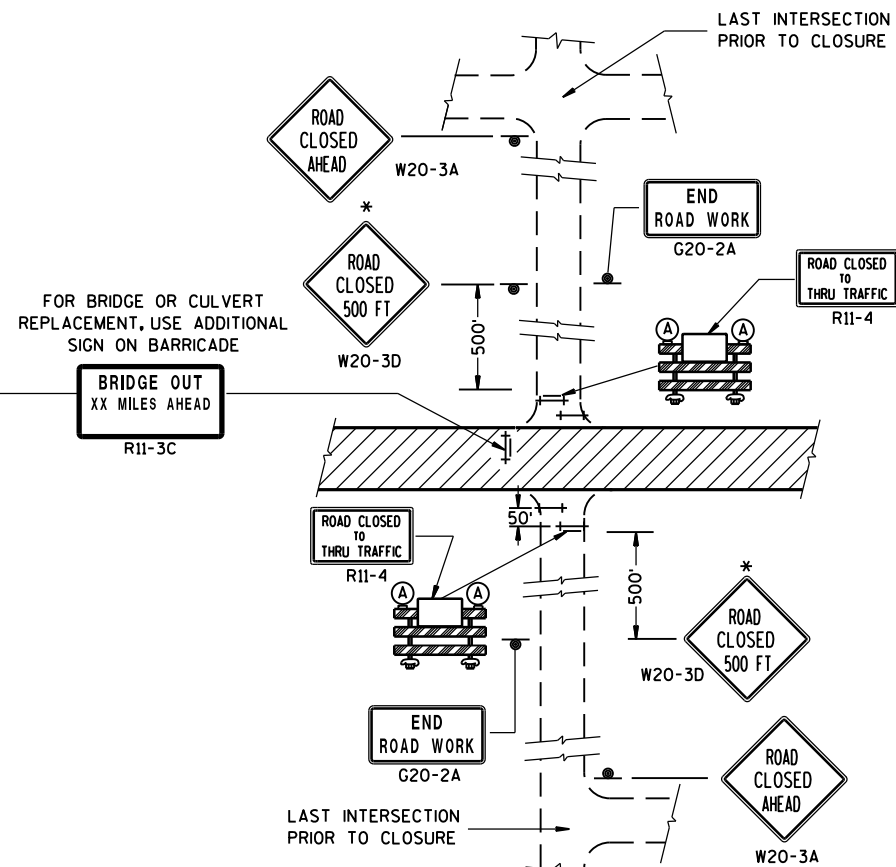
DETAIL 1
(NO ACCESS TO PROJECT)



DETAIL 3
(PUBLIC CROSS-TRAFFIC MAINTAINED. CONTRACTOR, LOCAL BUSINESS AND RESIDENT ACCESS).



DETAIL 2
(PUBLIC CROSS-TRAFFIC MAINTAINED.
NO ACCESS TO PROJECT).



DETAIL 4
(CONTRACTOR, LOCAL BUSINESS AND
RESIDENT ACCESS TO PROJECT)

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.

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 RE-ESTABLISHED.

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 AND R11-4 SIGNS PLACED ON BARRICADES SHALL COVER NO MORE THAN THE TOP RAIL. THE SIGNS SHALL NOT COVER ANY PORTION OF THE MIDDLE OR BOTTOM RAILS.

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

R11-2 SHALL BE 48" X 30".

R11-4 AND R11-3 SHALL BE 60" X 30".

*OMIT THE "ROAD CLOSED 500 FT." SIGN IF THE LAST INTERSECTION IS 500 FT. OR LESS FROM THE WORK ZONE.

**500' MAX. OR AT LAST INTERSECTION WHICHEVER IS CLOSER.

LEGEND

- ⊙ SIGN ON PERMANENT SUPPORT
- ⊥ TYPE III BARRICADE
- ⊥ TYPE III BARRICADE WITH ATTACHED SIGN
- (A) TYPE "A" WARNING LIGHT (FLASHING)
- ▨ WORK AREA

BARRICADES AND SIGNS FOR SIDEROAD CLOSURES

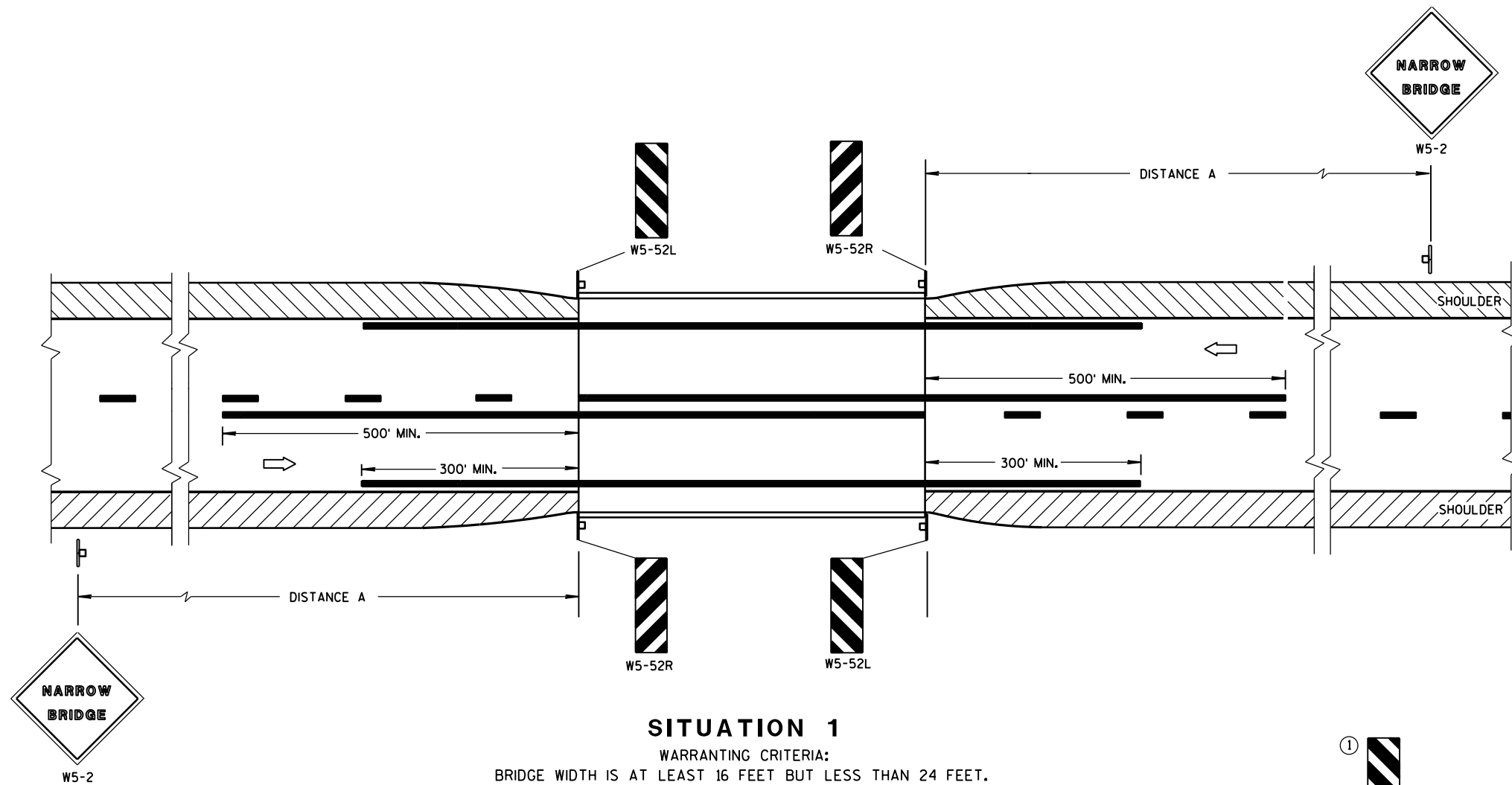
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

Sept. 2017
DATE

/S/ Andrew Heidtke
WORK ZONE ENGINEER

FHWA



DISTANCE TABLE

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

GENERAL NOTES

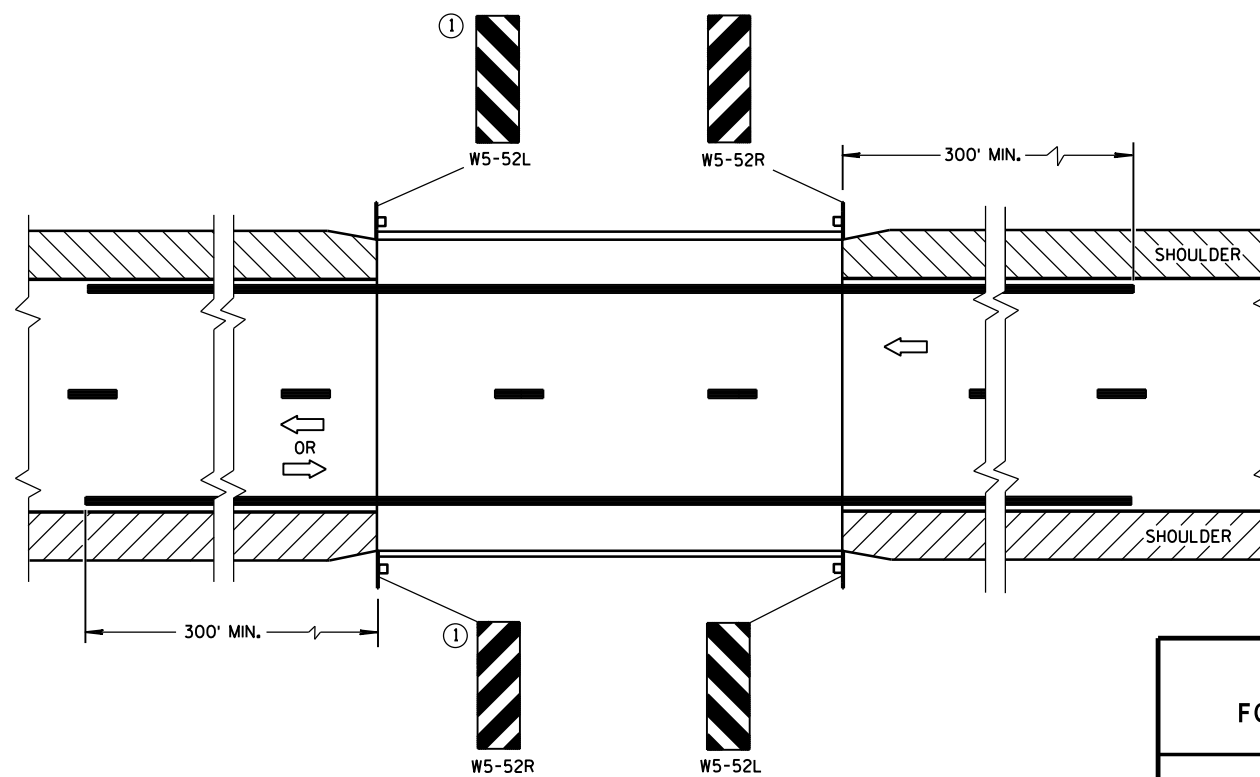
DETAILS OF TRAFFIC CONTROL DEVICES AND INSTALLATION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS, THE SPECIAL PROVISIONS, AND THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

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

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

① OMIT ON ONE-WAY TRAVELLED WAYS.

➡ DIRECTION OF TRAFFIC

SIGNING & MARKING
FOR TWO LANE BRIDGES

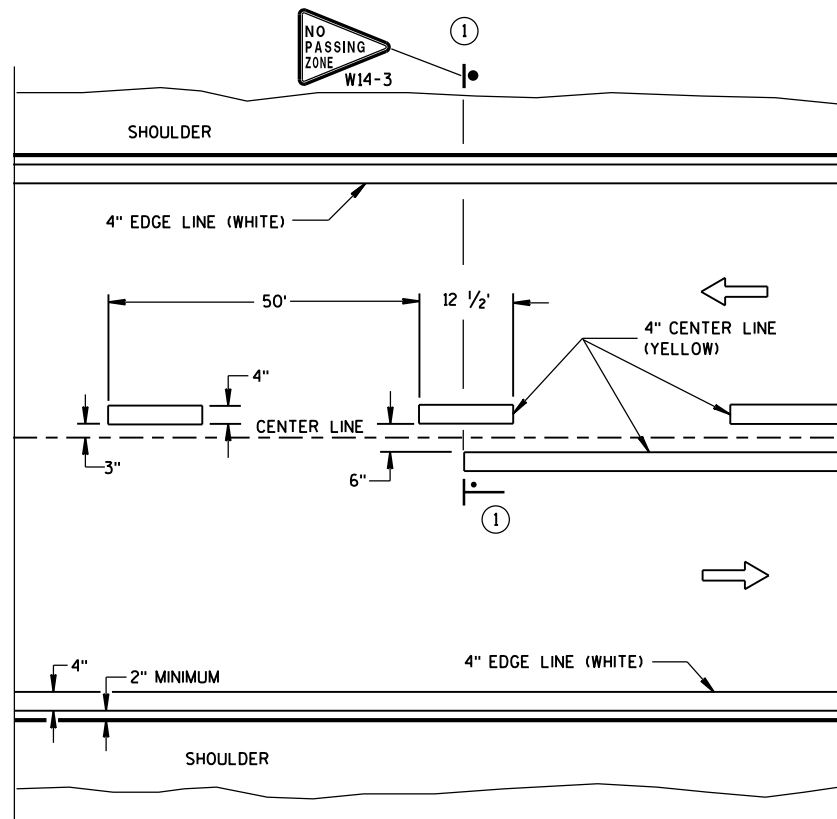
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

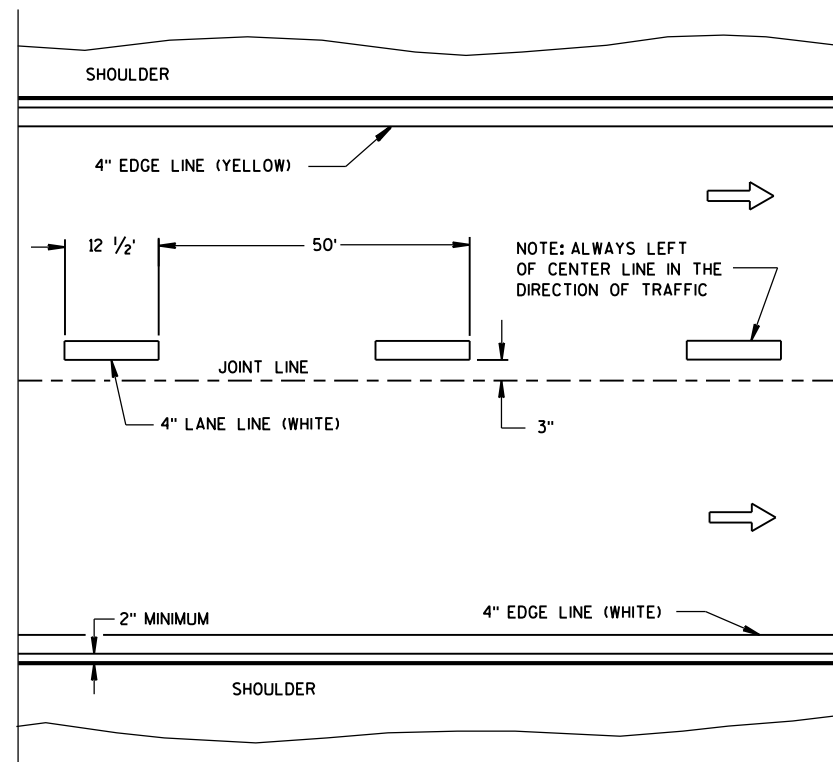
June 2017
DATE

/S/ Matthew R. Rauch
STATE SIGNING AND MARKING ENGINEER

FHWA

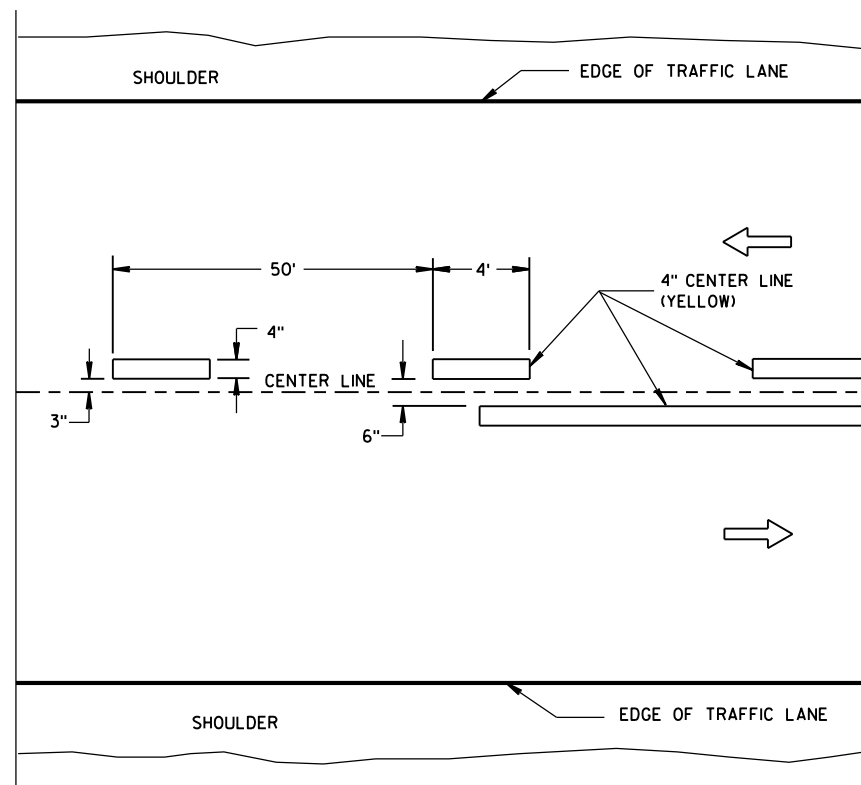


TWO WAY TRAFFIC

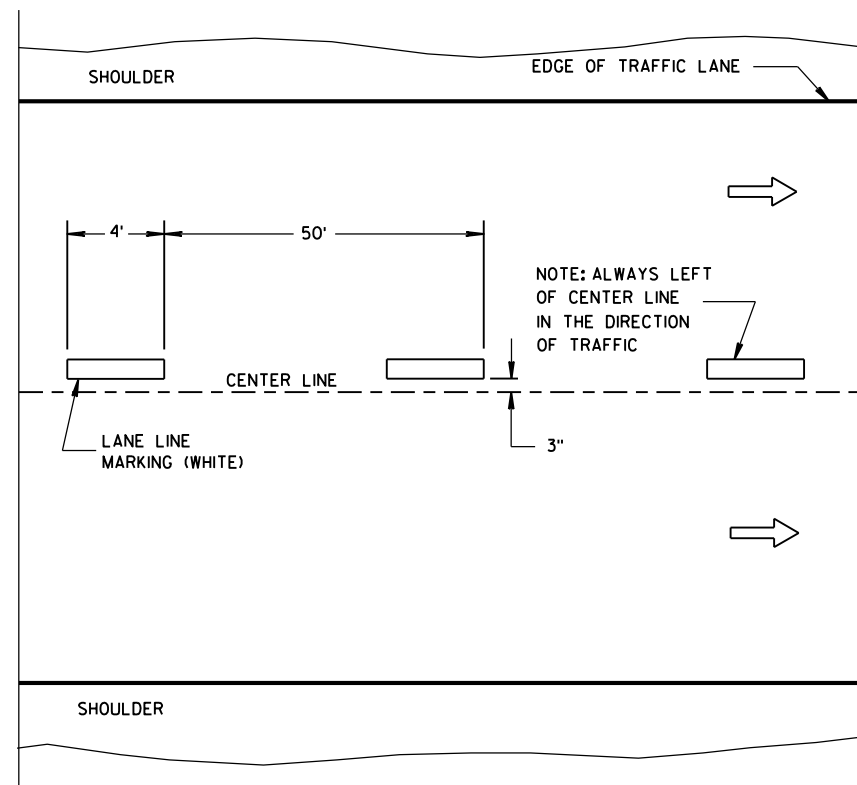


ONE WAY TRAFFIC

PERMANENT PAVEMENT MARKING



TWO WAY TRAFFIC



ONE WAY TRAFFIC

TEMPORARY PAVEMENT MARKING

GENERAL NOTES

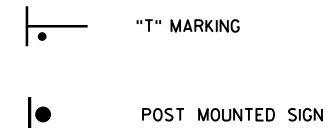
DETAILS OF CONSTRUCTION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO STANDARD SPECIFICATIONS AND SPECIAL PROVISIONS.

① LOCATE THE NO PASSING ZONE W14-3 SIGN WITHIN 50 FEET OF THE "T" MARKING.

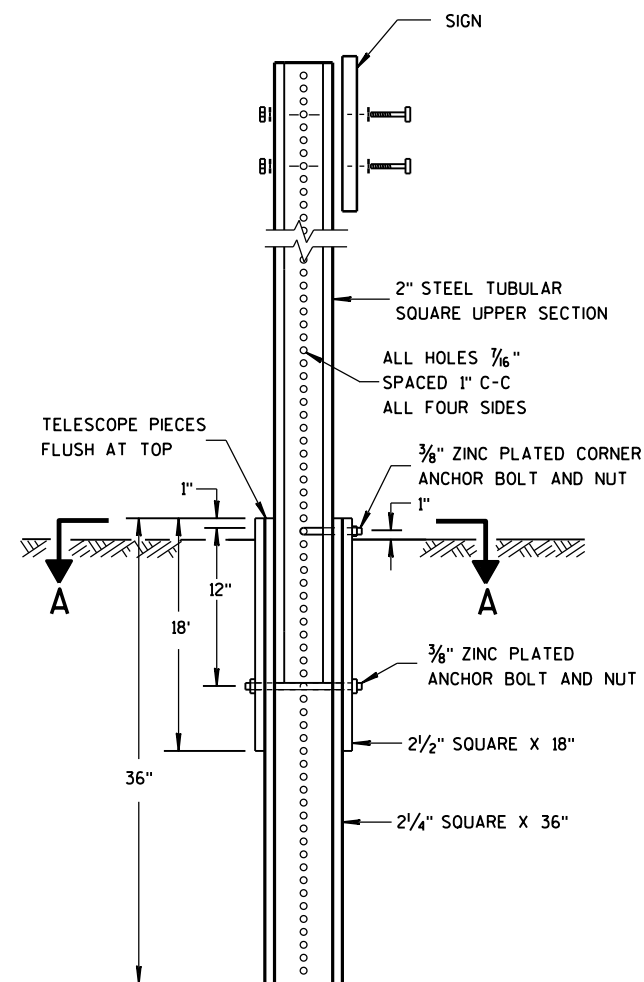
NOTE

ARROW SYMBOL () SHOWS DIRECTION OF TRAVEL

LEGEND



LONGITUDINAL MARKING (MAINLINE)	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED June 2017	<u>/S/ Matthew R. Rauch</u>
DATE	STATE SIGNING AND MARKING ENGINEER
FHWA	



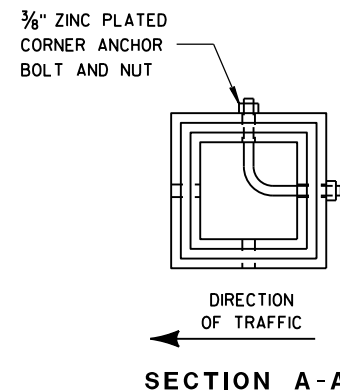
DETAIL OF TUBULAR
STEEL SIGN POST

TUBULAR STEEL POSTS

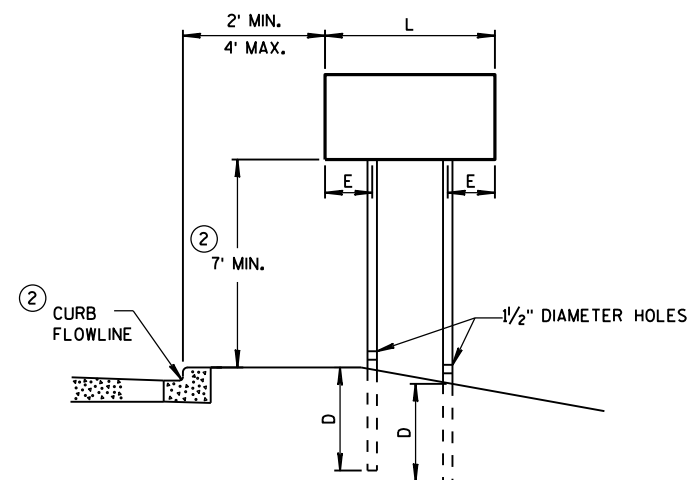
AREA OF SIGN INSTALLATION (SQ. FT.)	NUMBER OF REQUIRED TUBULAR STEEL POSTS
9 OR LESS	1
GREATER THAN 9 LESS THAN OR EQUAL TO 18	2
GREATER THAN 18 LESS THAN OR EQUAL TO 27	3

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

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



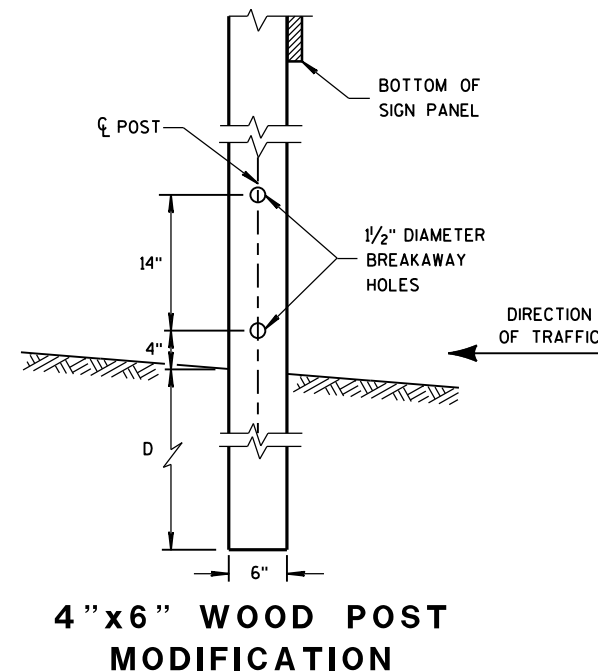
SECTION A-A



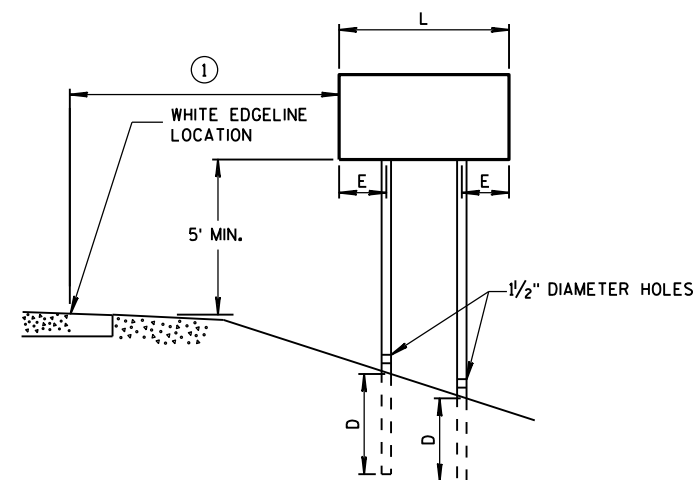
URBAN AREA

POST MOUNTING DETAIL FOR TEMPORARY TRAFFIC CONTROL FIXED MESSAGE SIGNS

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



4 "x6 " WOOD POST
MODIFICATION



RURAL AREA

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

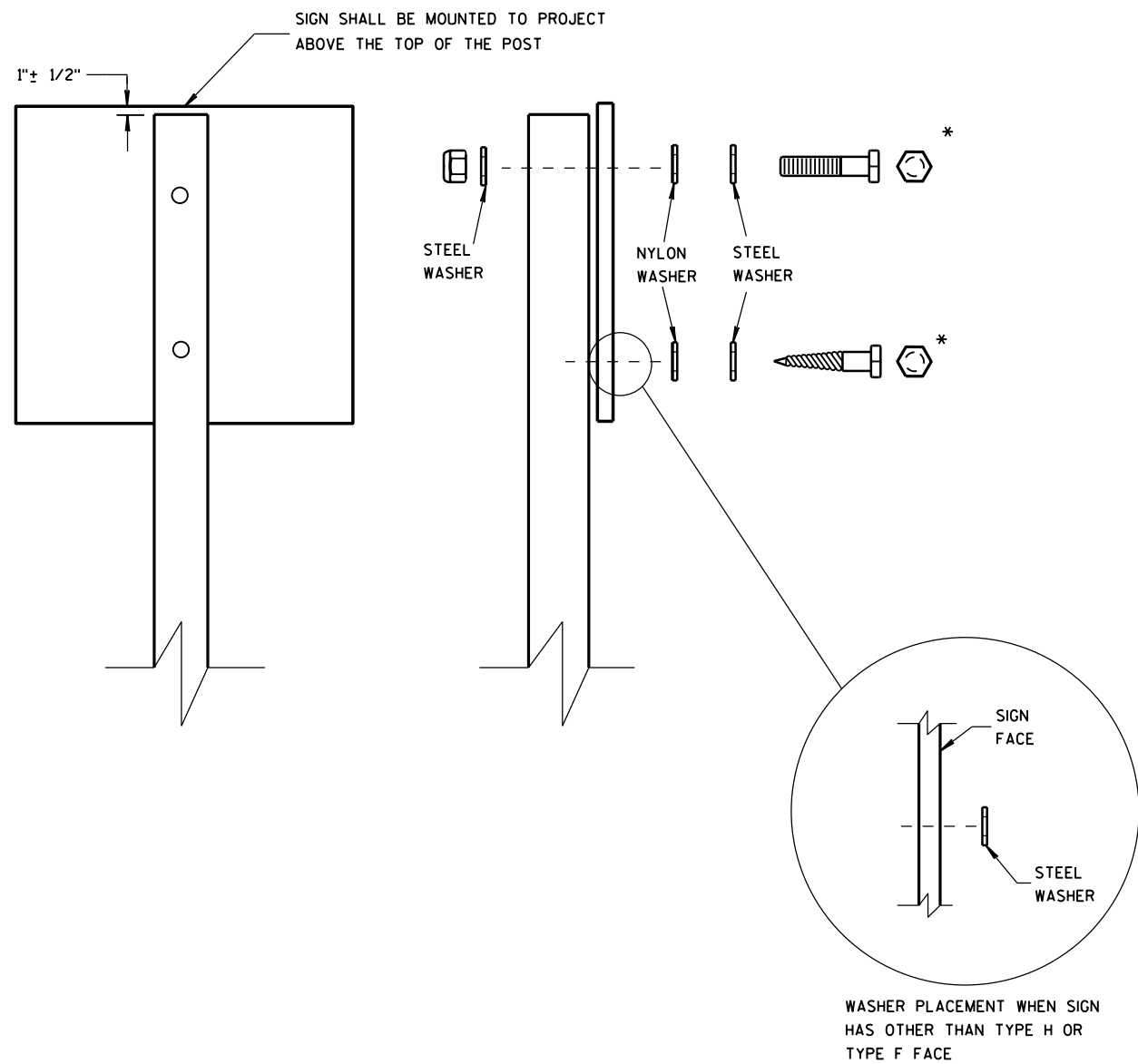
SEE NOTE ③

GENERAL NOTES

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

TEMPORARY TRAFFIC CONTROL
SIGN MOUNTING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



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

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

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

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

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

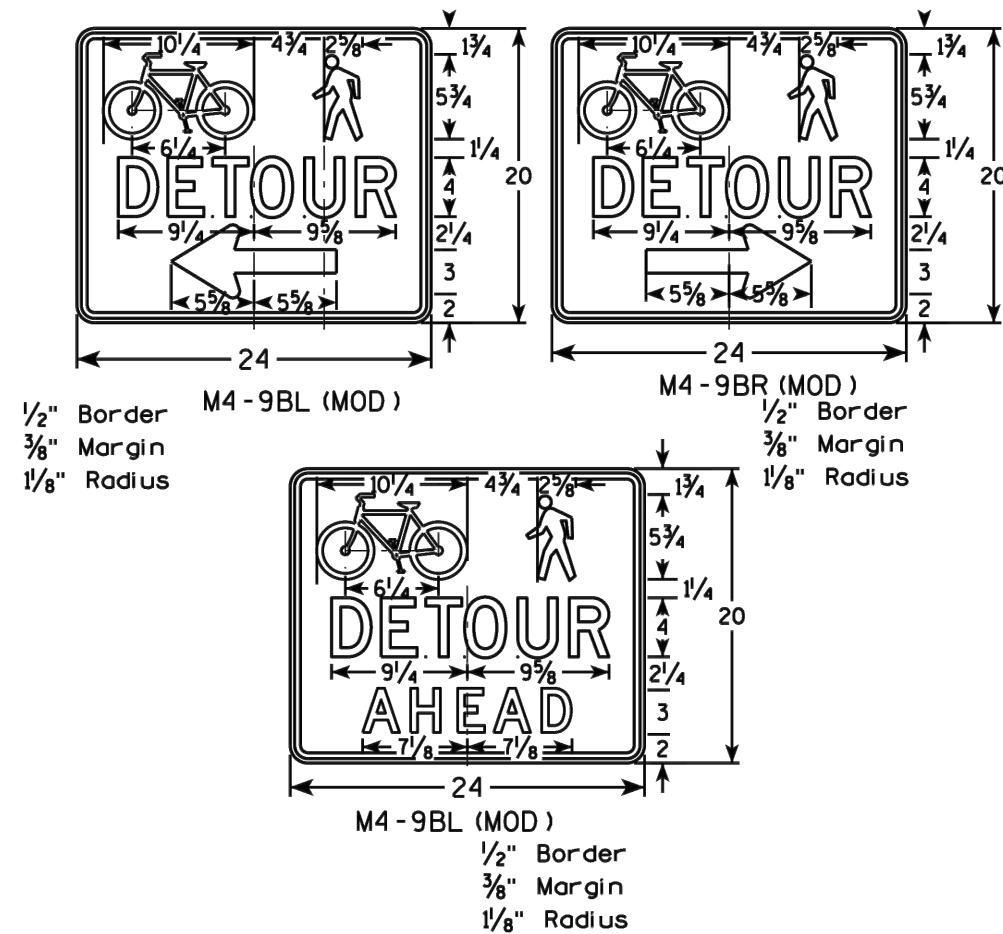
- WASHERS (ALL POSTS) -
- 1-1/4" O.D. X 3/8" I.D. X 1/16" STEEL
 - 1-1/4" O.D. X 3/8" I.D. X .080 NYLON FOR ALL TYPE H SIGNS

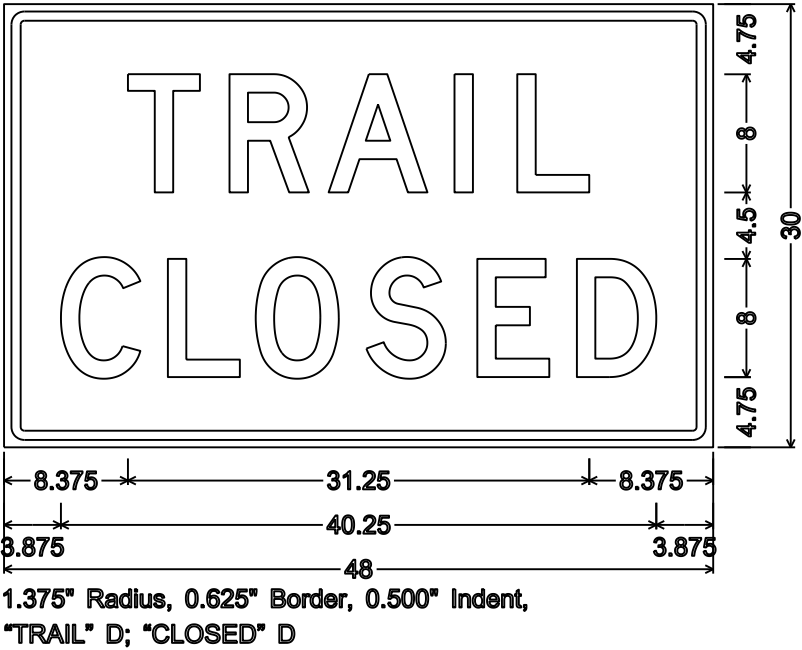
* TWO DIFFERENT FASTENING SYSTEMS ARE SHOWN FOR ILLUSTRATION PURPOSES. ON ANY INDIVIDUAL SIGN, EITHER ONE OR THE OTHER SYSTEM SHALL BE USED. ACTUAL NUMBER OF FASTENERS PER SIGN VARIES WITH THE SIGN AREA. FOR A SINGLE POST INSTALLATION, ALL SIGNS GREATER THAN 9 SQ. FT. REQUIRE THE USE OF 3 FASTENERS.

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

NOTES

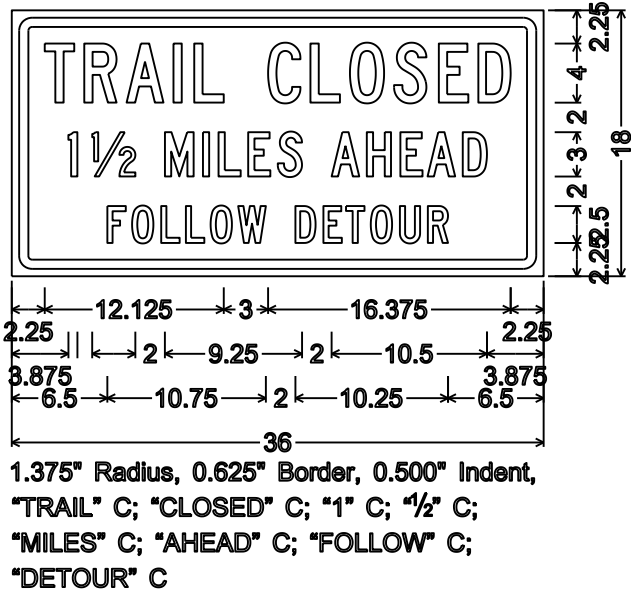
1. All Signs are Type II - Type F Reflective
2. Color:
Background - Orange
Message - Black
3. Message Series - D except as Shown



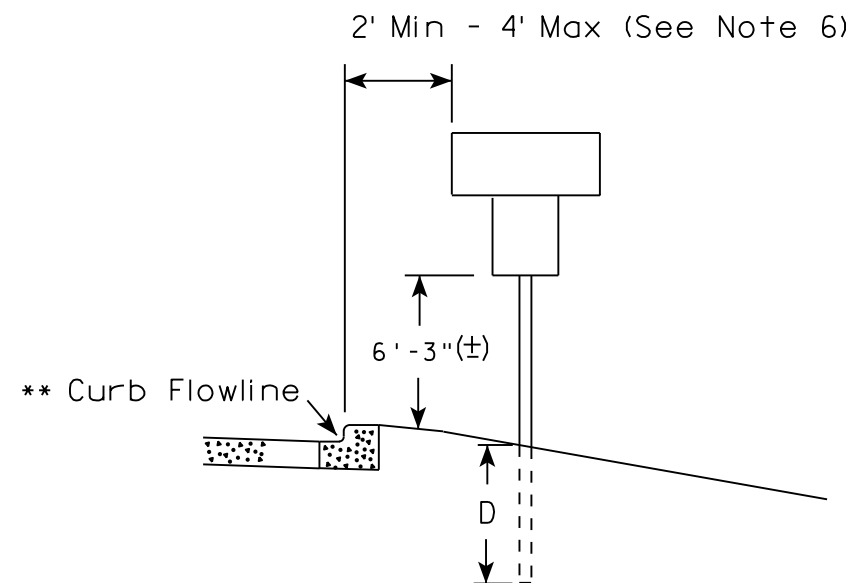
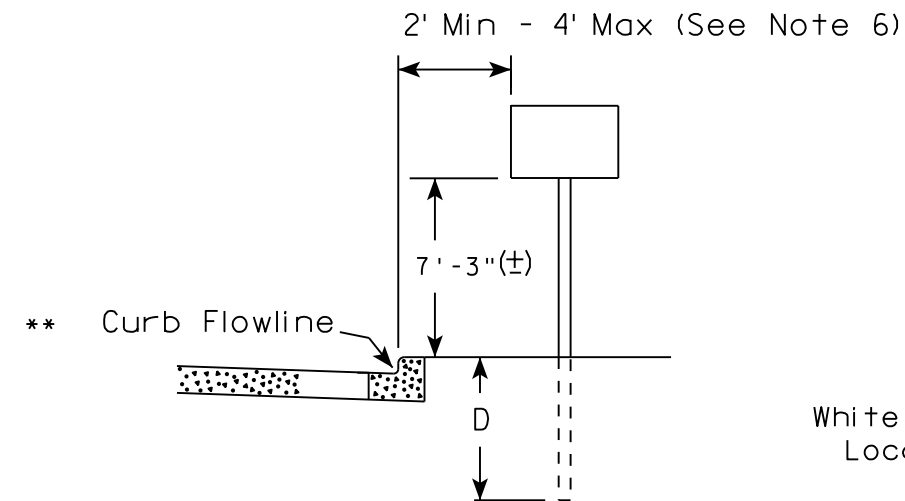


NOTES

1. Fixed Message Type II Signs - Type H Reflective
2. Color:
Background - White
Message - Black
3. Message Series - As noted

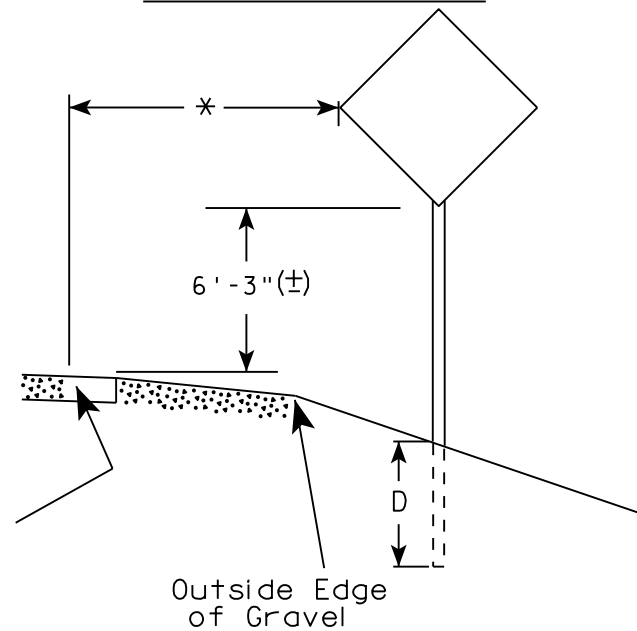


URBAN AREA

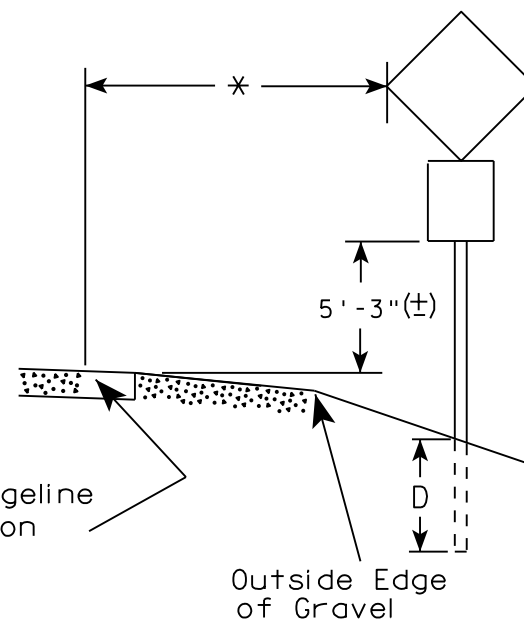


White Edgeline
Location

RURAL AREA (See Note 2)



White Edgeline
Location



Outside Edge
of Gravel

POST EMBEDMENT DEPTH

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

GENERAL NOTES

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

✱✱ 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.

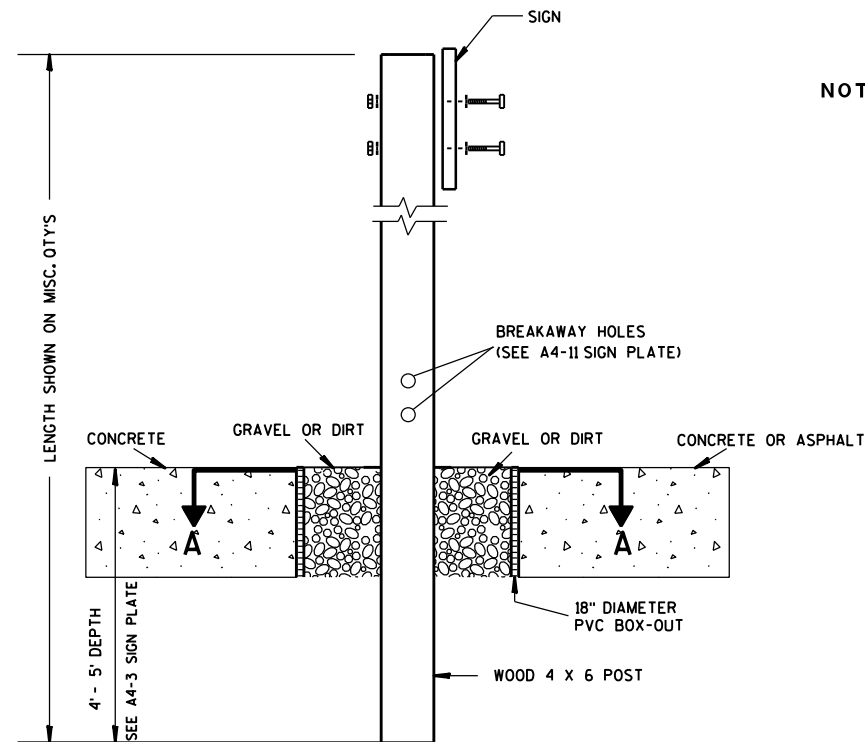
* 6 feet from edge of a paved shoulder or 12 feet from the edge of pavement (edge line location) or 2 feet from outside edge of gravel, whichever is greater unless directed by project engineer.

TYPICAL INSTALLATION
OF PERMANENT TYPE II
SIGNS ON SINGLE POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

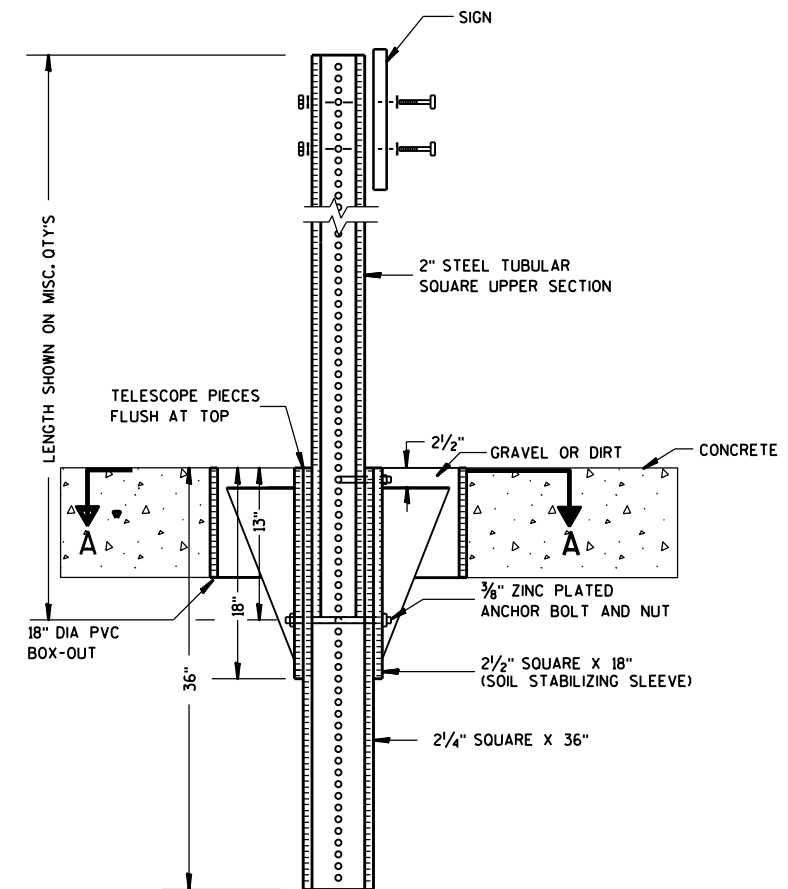
DATE 8/21/17 PLATE NO. A4-3.21



ELEVATION VIEW

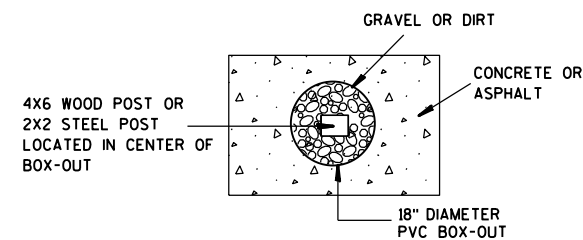
DETAIL OF WOOD 4 X 6 SIGN POST IN BOX-OUT

- 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

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 1/27/14 PLATE NO. A4-3B.1

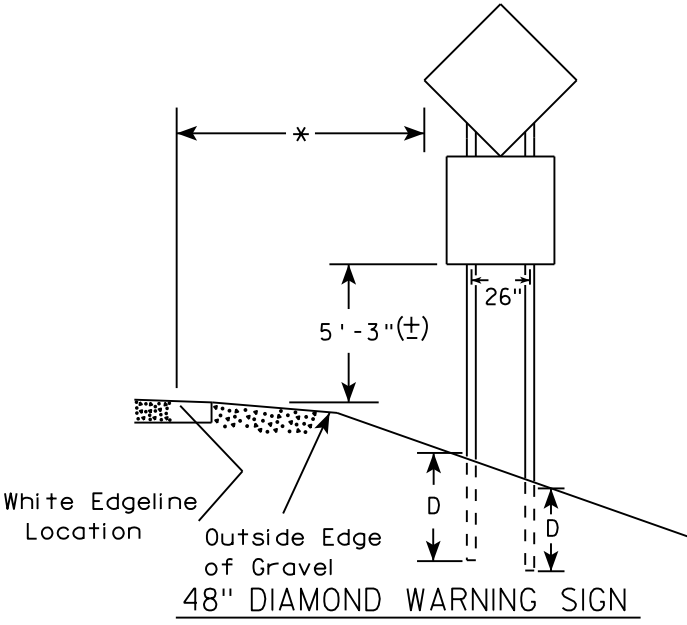
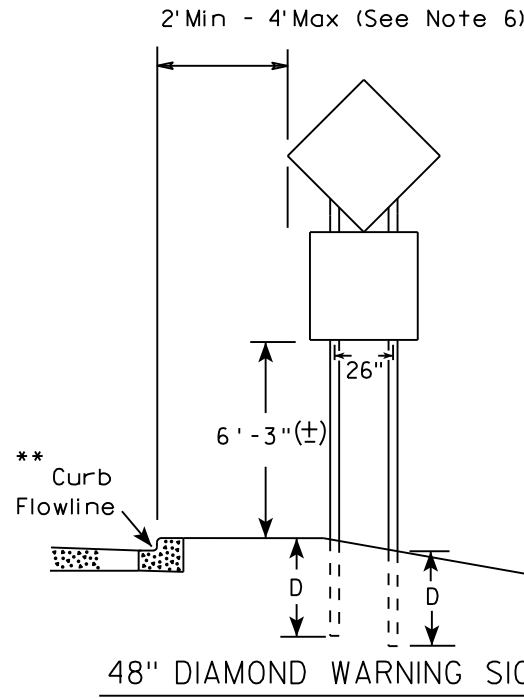
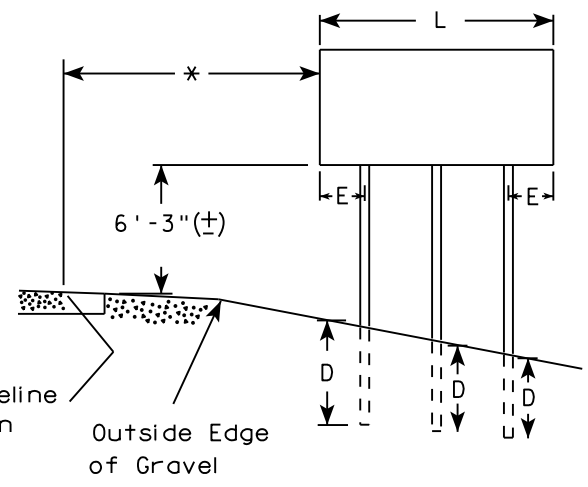
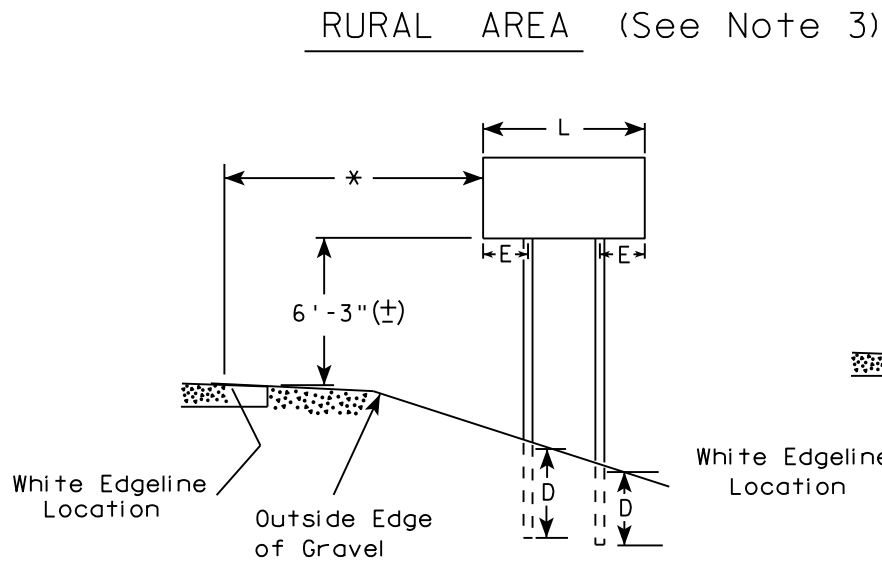
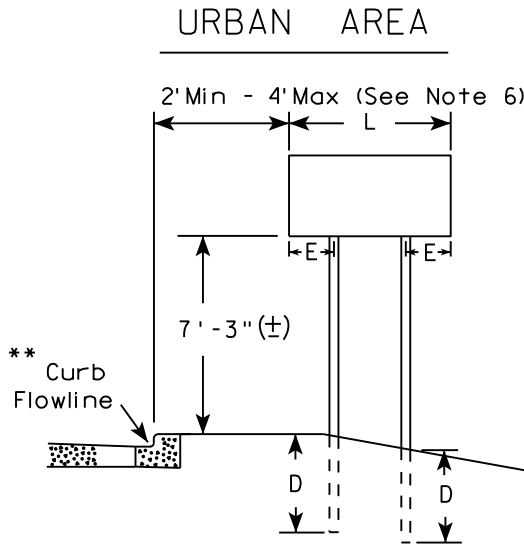
PROJECT NO:

HWY:

COUNTY:

SHEET NO:

E



- 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" (±).

* 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.

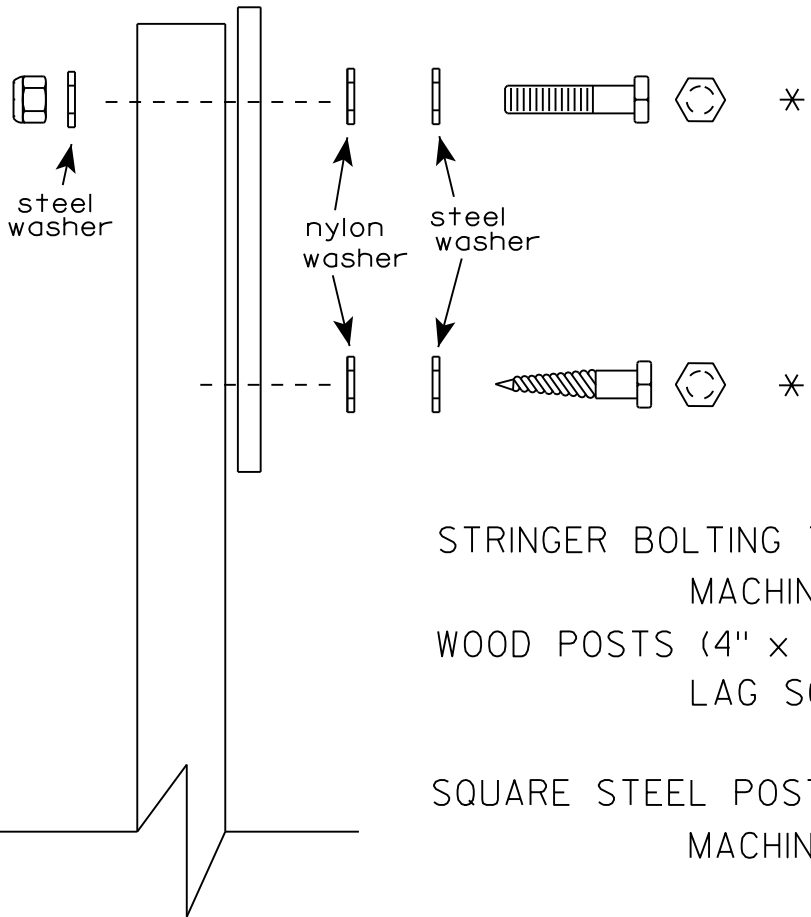
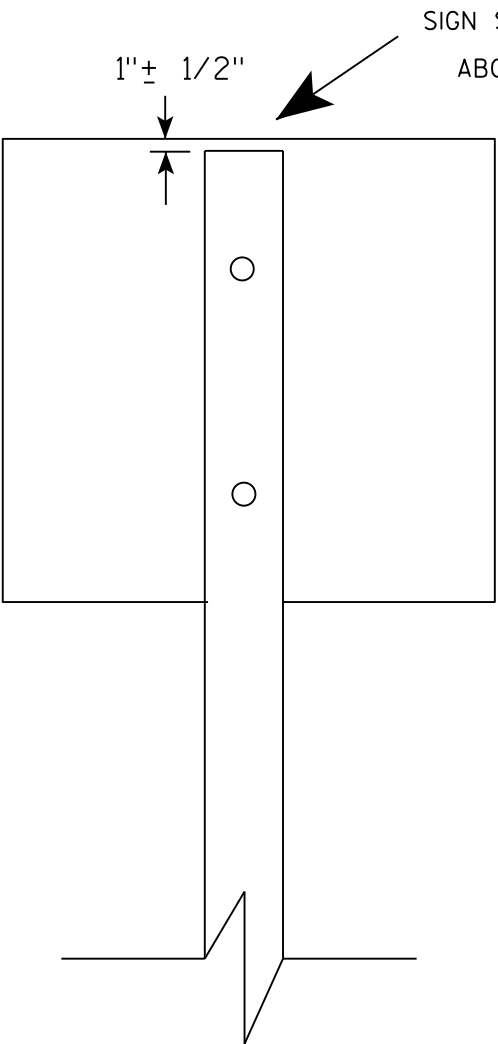
SIGN SHAPE OTHER THAN DIAMOND (TWO POSTS REQUIRED)	
L	E
Greater than 48" Less than 60"	12"
60" to 108"	L/5

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	<i>Matthew R. Rauch</i> for State Traffic Engineer
DATE 8/21/17	PLATE NO. A4-4.15



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

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

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

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

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

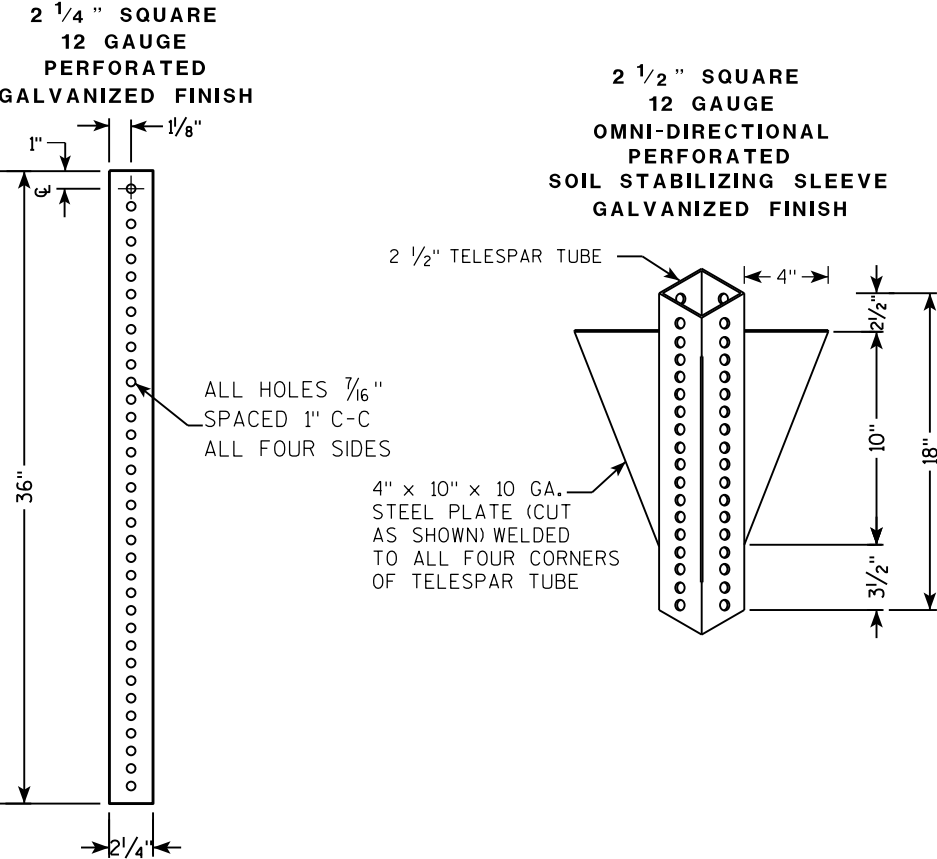
ATTACHMENT OF SIGNS
TO POSTS

WISCONSIN DEPT OF TRANSPORTATION

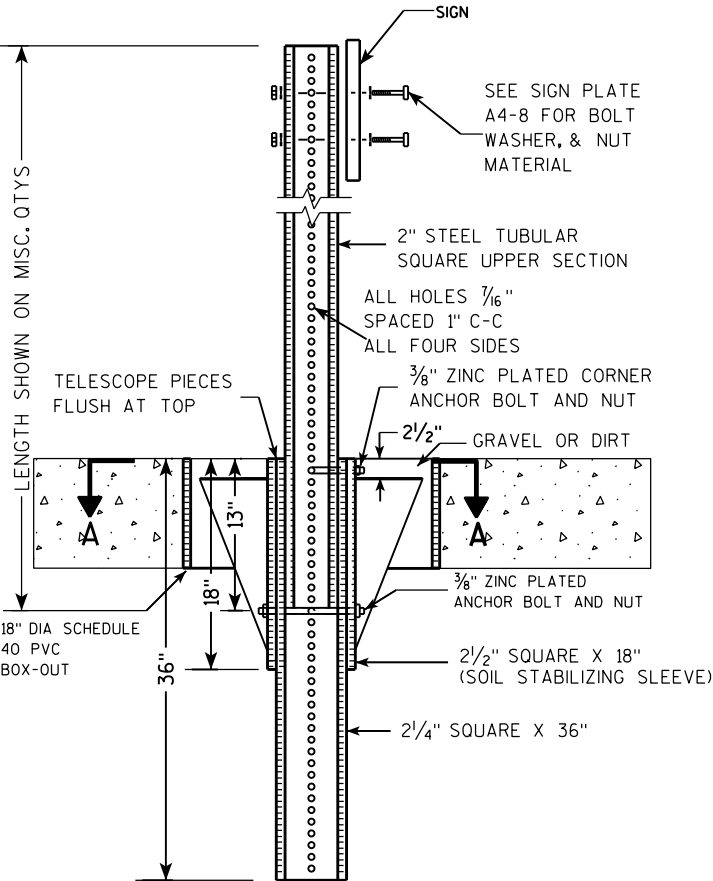
APPROVED *Matthew R. Rauch*
For State Traffic Engineer

DATE 8/11/16 PLATE NO. A4-8.8

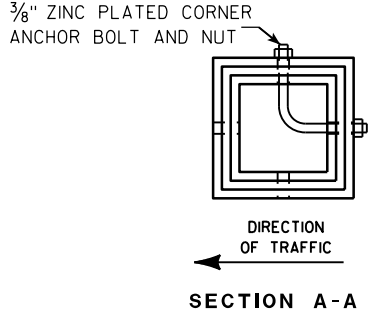
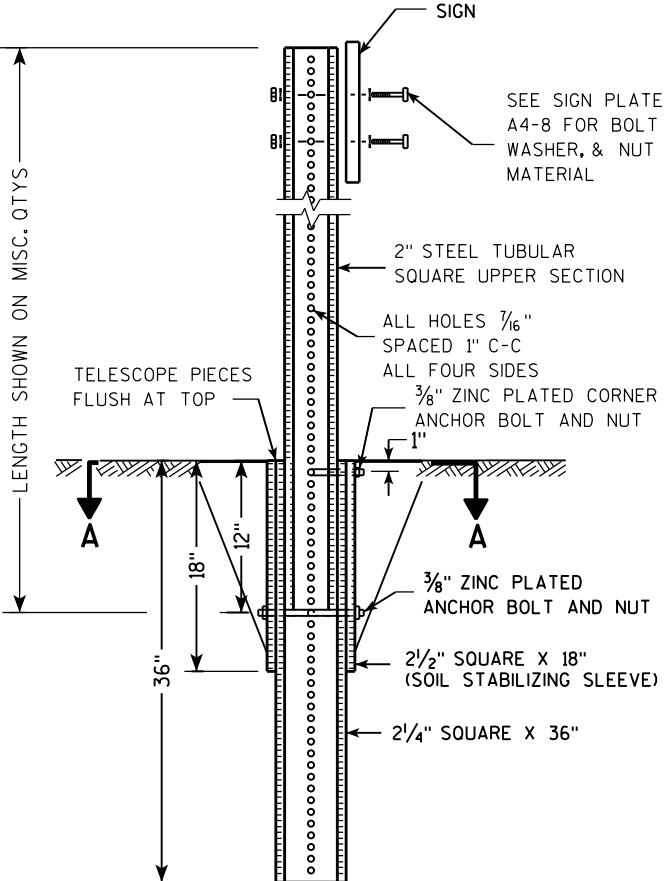
TELESCOPIC TUBING ANCHORS
TWO PIECE SYSTEM



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).

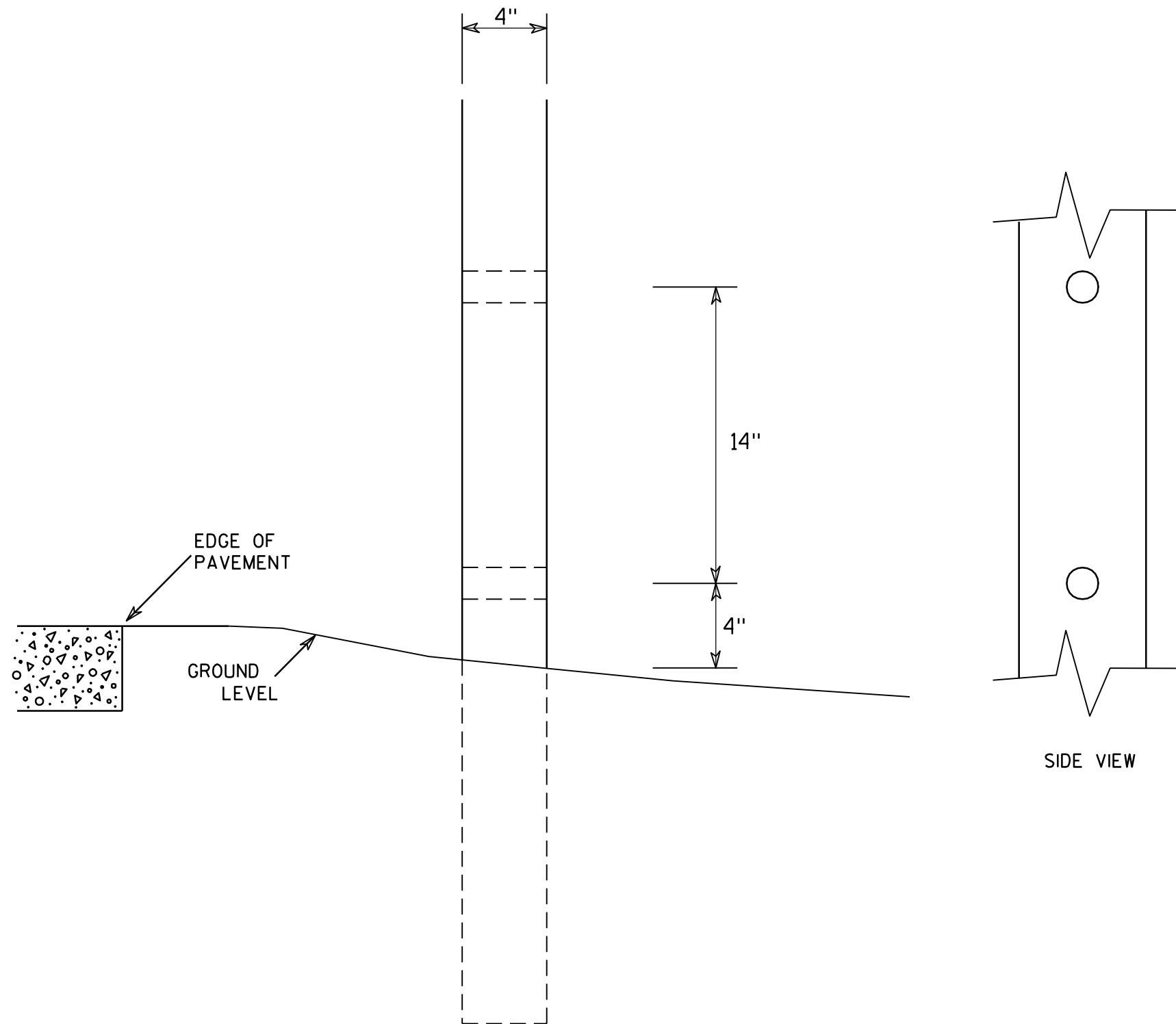
TUBULAR STEEL
SIGN POST
A4-9

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

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

7



GENERAL NOTES

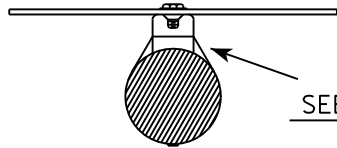
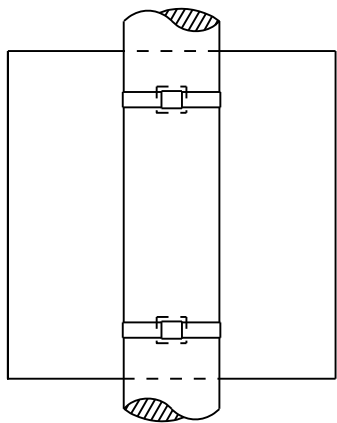
1. All 4 x 6 Wood Posts shall be modified by having two 1½" diameter holes drilled perpendicular to the roadway centerline.

7

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

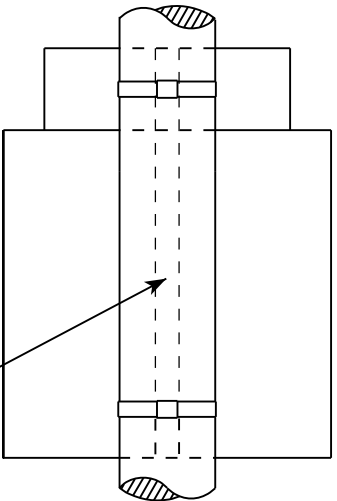
BANDING

SINGLE SIGN

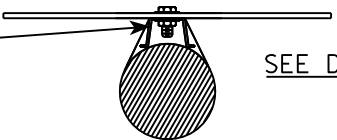


SEE DETAIL A

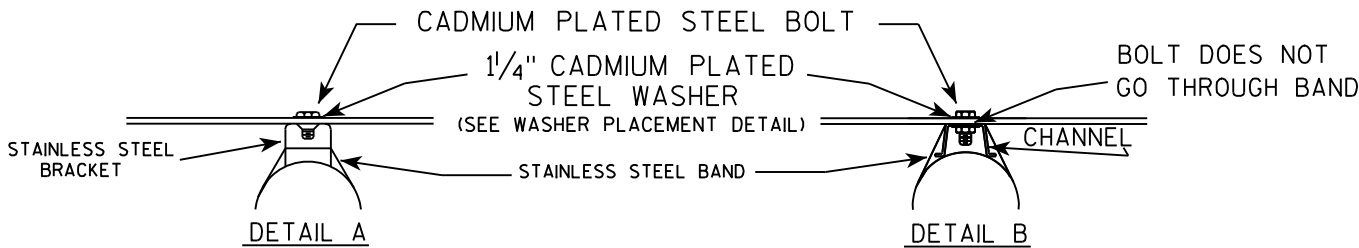
"J" ASSEMBLY



CHANNEL
SEE TYPICAL PANEL
INSTALLATION SHEET



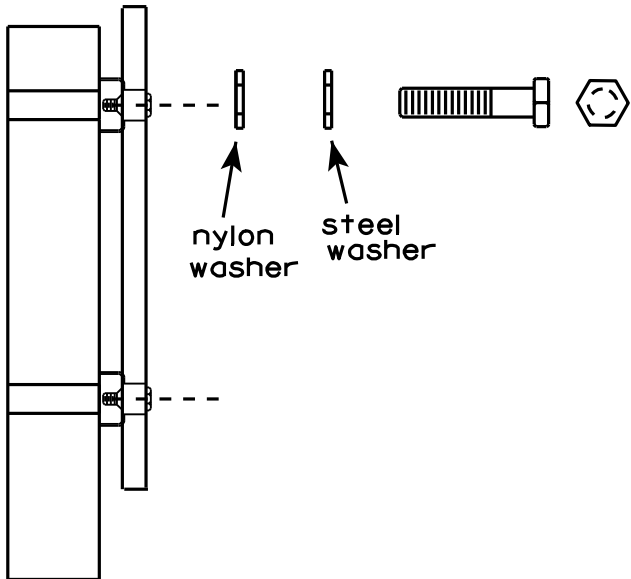
SEE DETAIL B



GENERAL NOTES

1. Any sign over 3 feet in width shall use the V-Block banding method. See A5-10 standard plate.
2. Signs 3 feet or greater in height shall have three bracket bands installed. Signs less than 3 feet in height shall have two bracket bands installed.
3. Banding and assembly bracket shall be stainless steel. All bands shall be $\frac{3}{4}$ " in width and 0.025" thickness.

WASHER PLACEMENT



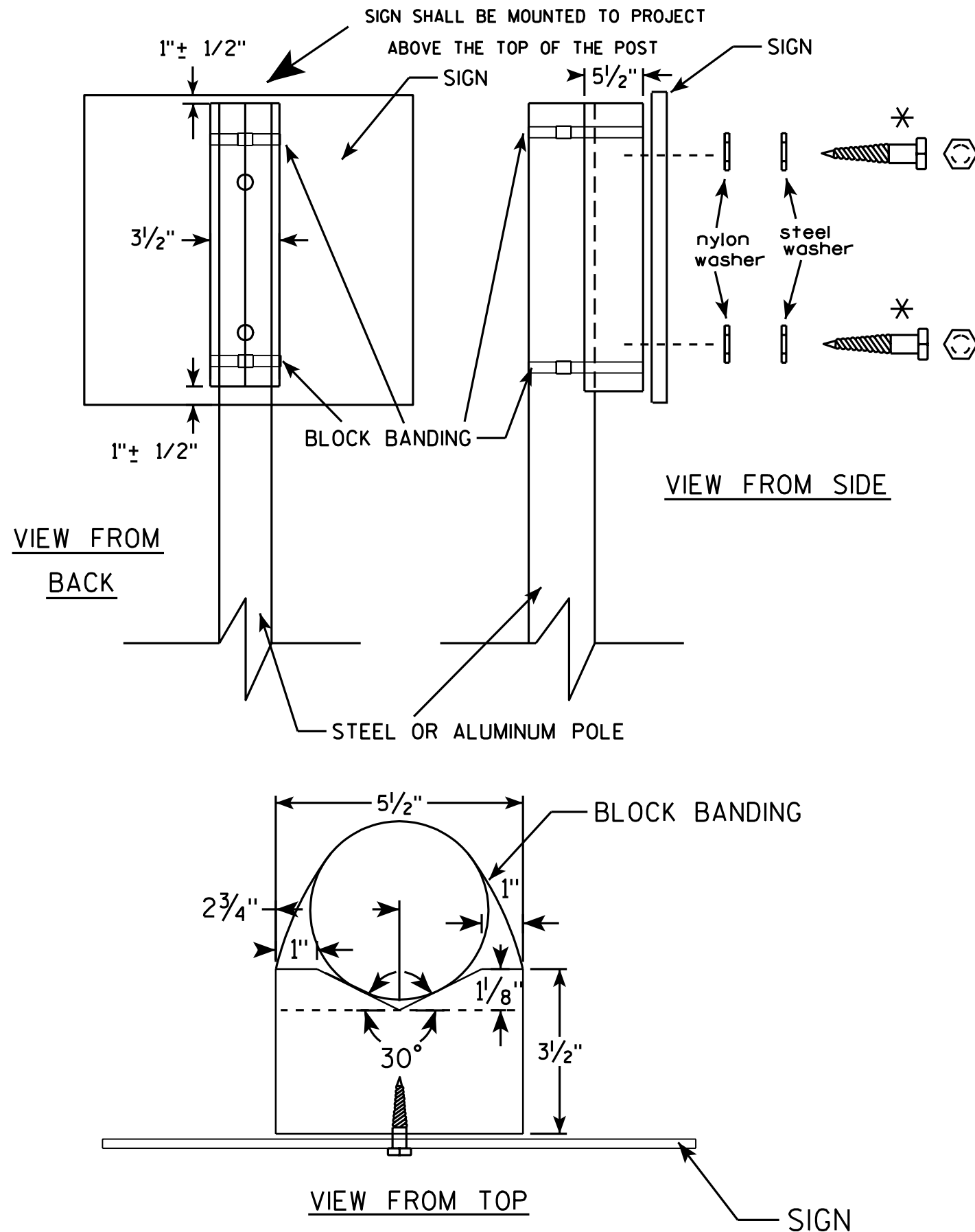
WASHERS (ALL POSTS) -
1-1/4" O.D. X $\frac{3}{8}$ " I.D. X $\frac{1}{16}$ " STEEL
1-1/4" O.D. X $\frac{3}{8}$ " I.D. X .080 NYLON
FOR ALL TYPE H SIGNS

STANDARD SIGN
SIGN BANDING DETAILS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 8/16/13 PLATE NO. A5-9.3



GENERAL NOTES

1. WOOD 4"x6" POST MATERIAL SHALL CONFORM TO 507.2.2 OF THE WISDOT STANDARD SPECIFICATIONS
2. BLOCK BANDING AND CLIPS SHALL BE STAINLESS STEEL, 3/4" WIDTH AND 0.025" THICKNESS
3. SIGNS 3' OR GREATER IN HEIGHT SHALL UTILIZE 3 BLOCK BANDS. SIGNS UNDER 3' IN HEIGHT SHALL UTILIZE 2 BLOCK BANDS
4. ACTUAL NUMBER OF FASTENERS PER SIGN VARIES WITH THE SIGN AREA, BUT NORMALLY THERE ARE TWO. FOR SIGNS GREATER THAN 9 S.F. 3 FASTENERS SHALL BE USED.
5. ALL SIGN MOUNTING BOLTS AND WASHERS SHALL BE EITHER:
 - a. Hot dip or mechanically galvanized in accordance with ASTM Designation: A 153, Class D, or
 - b. Cadmium plated in accordance with ASTM Designation : B 766 TYPE 3, Class 12, or
 - c. Electro-galvanized in accordance with ASTM Designation : B 633, TYPE III, SC 3.
6. ALL BOLTS SHALL HAVE HEXAGONAL HEADS.
7. STEEL WASHERS SHALL BE 1 1/4" O.D. X 3/8" I.D. X 1/16"
8. NYLON WASHERS SHALL BE 1 1/4" O.D. X 3/8" I.D. X .080 FOR TYPE H OR TYPE F FACE SIGN

✱ LAG BOLTS SHALL BE 3/8" X 2 1/2"

BLOCK BANDING DETAIL
(V-BLOCK OPTION)

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

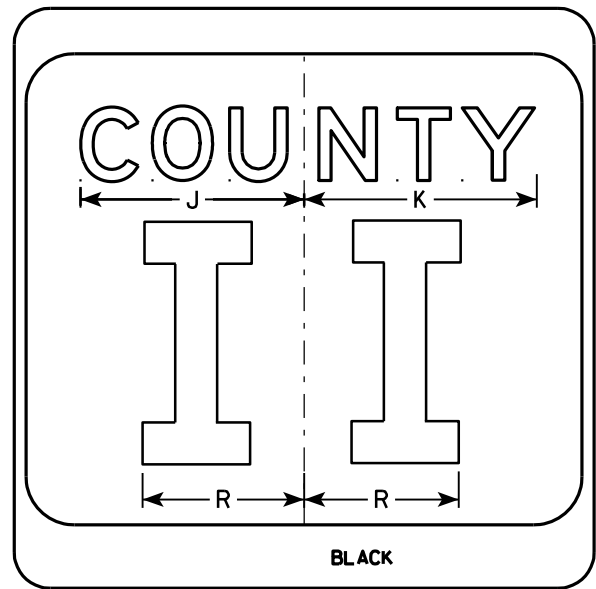
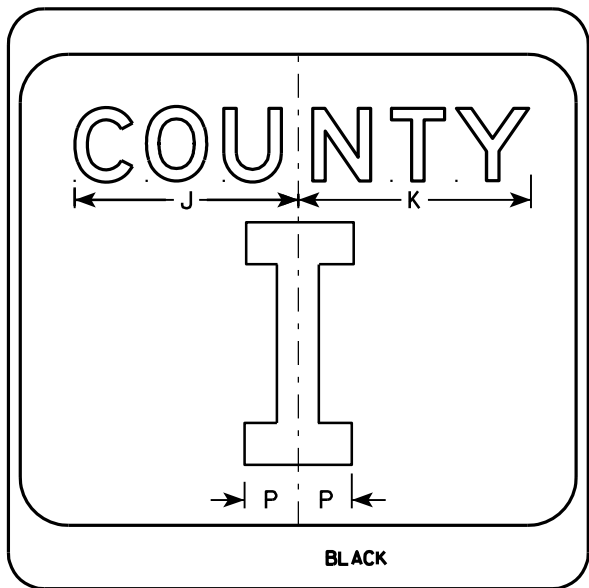
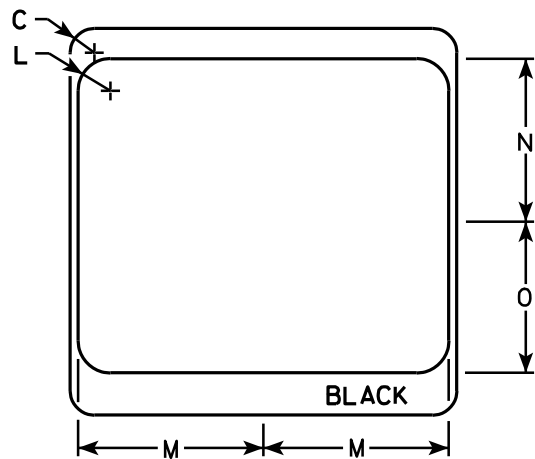
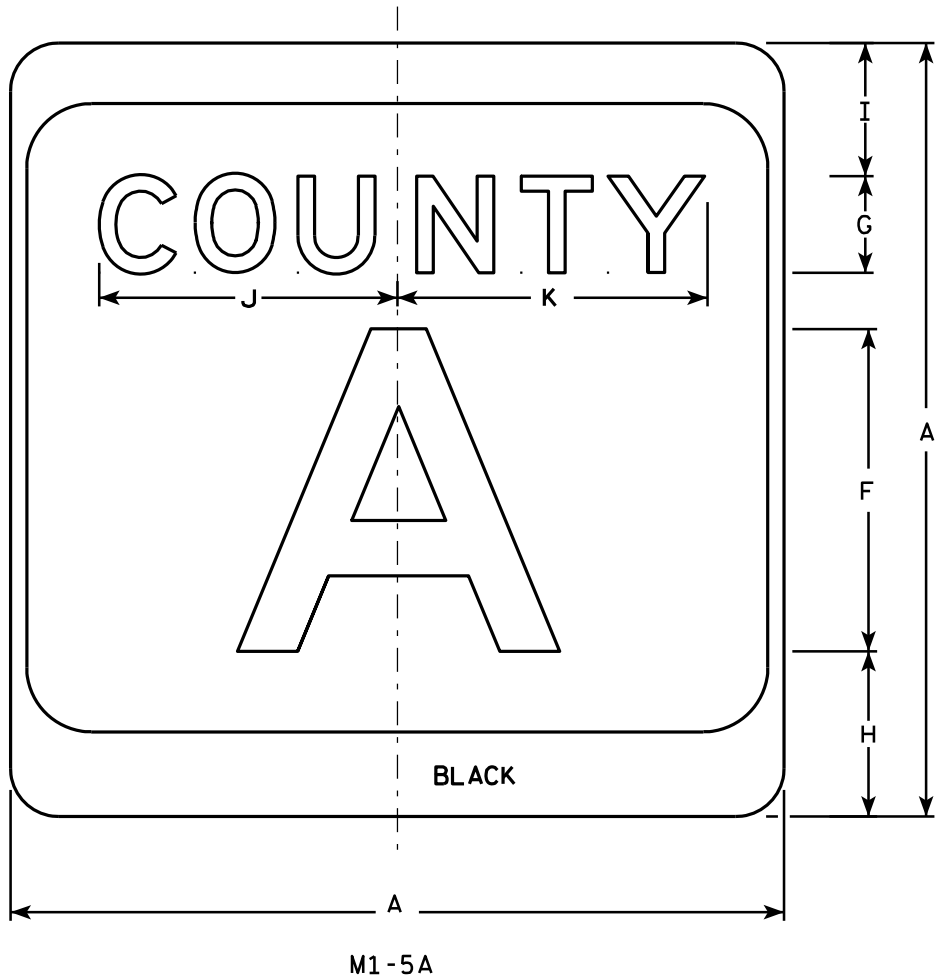
DATE 7/12/07 PLATE NO. A5-10.1

PROJECT NO:

SHEET NO:

E

7



NOTES

- Sign is Type II - see Note 7 - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
- Color:
Background - White & Black - See Note 7
Message - Black
- Message Series - see Note 5
- 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.
- Message Series E for 1 letter.
Message Series D for 2 letters unless message is too big then Series C.
Message Series C for 3 letters unless message is too big then Series B.
- Substitute appropriate letters & optically center to achieve proper balance.
- Permanent Signs
Background - Type H Reflective
Detour or temporary Signs
Background - Reflective

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2	24		1 1/2			10	3	5 1/8	4 1/8	9 1/4	9 5/8	2	11 1/2	10 1/8	9 3/8	2 1/4		6 5/8									4.0
3	36		2 1/4			16	4	7 5/8	5 5/8	12 1/4	12 7/8	3	17 1/8	15 1/4	14	3 3/8		10									9.0
4	36		2 1/4			16	4	7 5/8	5 5/8	12 1/4	12 7/8	3	17 1/8	15 1/4	14	3 3/8		10									9.0
5	36		2 1/4			16	4	7 5/8	5 5/8	12 1/4	12 7/8	3	17 1/8	15 1/4	14	3 3/8		10									9.0

PROJECT NO:

HWY:

COUNTY:

SHEET NO:

E

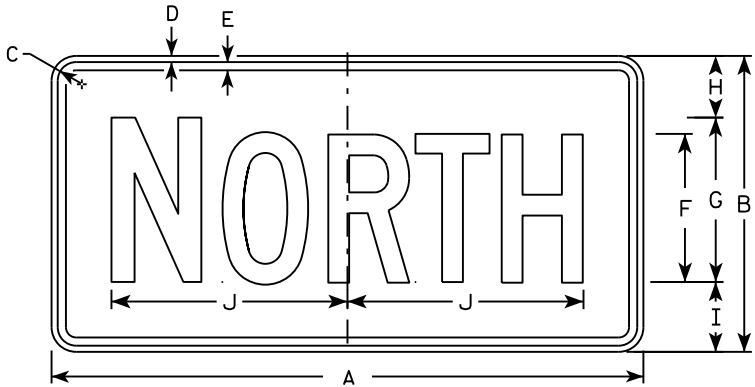
CTH MARKER

M1-5A FOR ASSEMBLIES

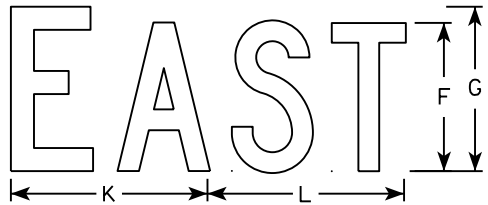
WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

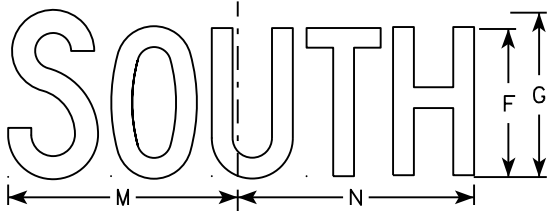
DATE 9/27/11 PLATE NO. M1-5A.8



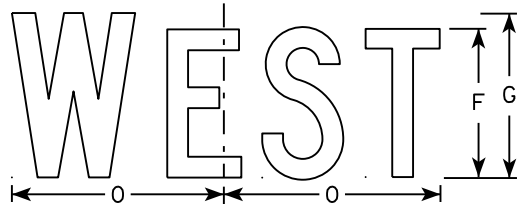
M3-1
MM3-1
MP3-1



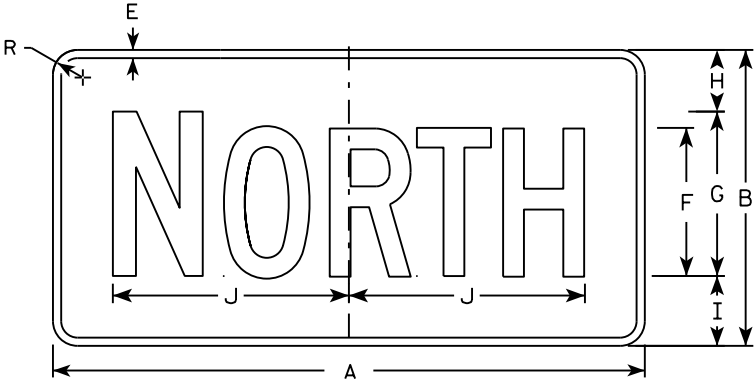
M3-2
MM3-2
MP3-2



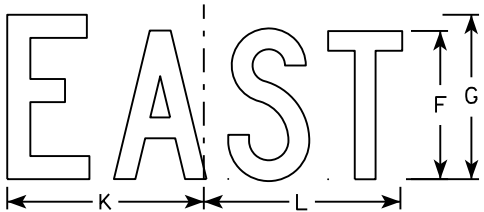
M3-3
MM3-3
MP3-3



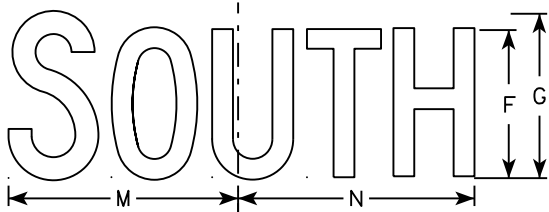
M3-4
MM3-4
MP3-4



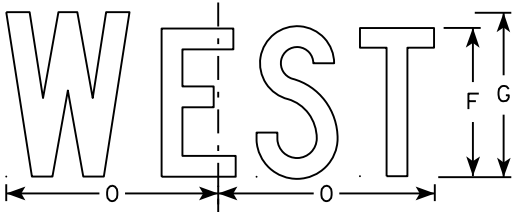
MB3-1
MK3-1
MN3-1



MB3-2
MK3-2
MN3-2



MB3-3
MK3-3
MN3-3



MB3-4
MK3-4
MN3-4

NOTES

1. All Signs Type II - Type H
2. Color:
Background - See note 5
Message - See note 5
3. Message Series - C
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. M3-1 thru M3-4 Background - White
Message - Black
MB3-1 thru MB3-4 Background - Blue
Message - White
MK3-1 thru MK3-4 Background - Green
Message - White
MM3-1 thru MM3-4 Background - White
Message - Green
MN3-1 thru MN3-4 Background - Brown
Message - White
MP3-1 thru MP3-4 Background - White
Message - Blue
6. Note the first letter of each direction is larger than the remainder of the message.

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2	24	12	1 1/8	3/8	3/8	6	7	2 1/4	2 3/4	10 1/4	7 7/8	8 3/8	10 1/4	9 3/4	8 3/4			1 1/2									2.00
3	36	18	1 1/8	3/8	1/2	9	10	3 3/4	4 1/4	14 3/8	12	12 1/8	14	14 1/8	13			1 1/2									4.5
4	36	18	1 1/8	3/8	1/2	9	10	3 3/4	4 1/4	14 3/8	12	12 1/8	14	14 1/8	13			1 1/2									4.5
5	36	18	1 1/8	3/8	1/2	9	10	3 3/4	4 1/4	14 3/8	12	12 1/8	14	14 1/8	13			1 1/2									4.5

STANDARD SIGNS
M3-1 thru M3-4
SERIES

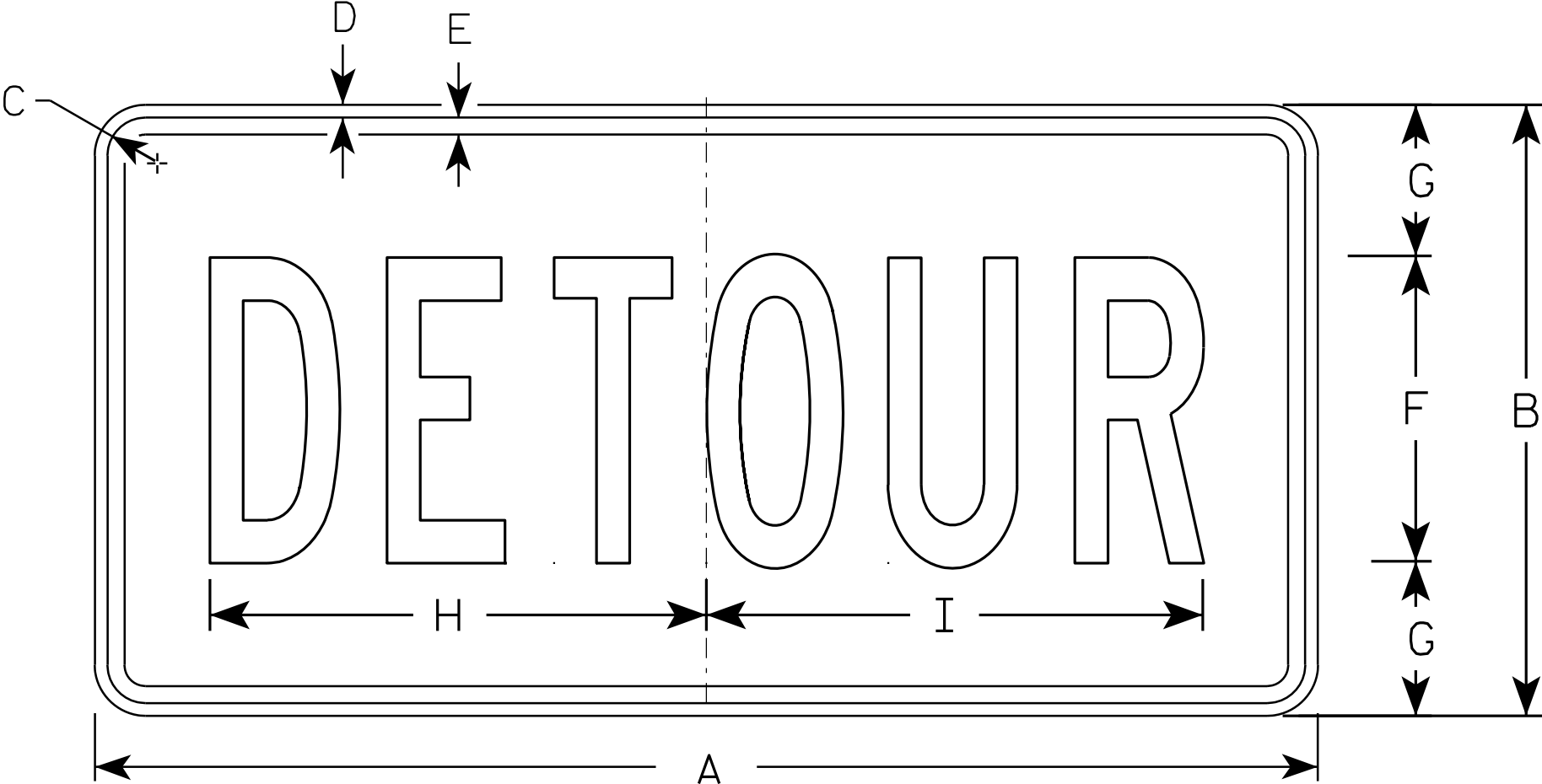
WISCONSIN DEPT OF TRANSPORTATION

APPROVED
Matthew R. Rauch
for State Traffic Engineer

DATE 10/15/15 PLATE NO. M3-1.14

NOTES

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



M4 - 8

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	Areg. sq. ft.
1																											
2	24	12	1 1/8	3/8	3/8	6	3	10	10 1/4																		2.0
3	36	18	1 1/8	3/8	1/2	9	4 1/2	14 5/8	14 1/2																		4.5
4																											
5																											

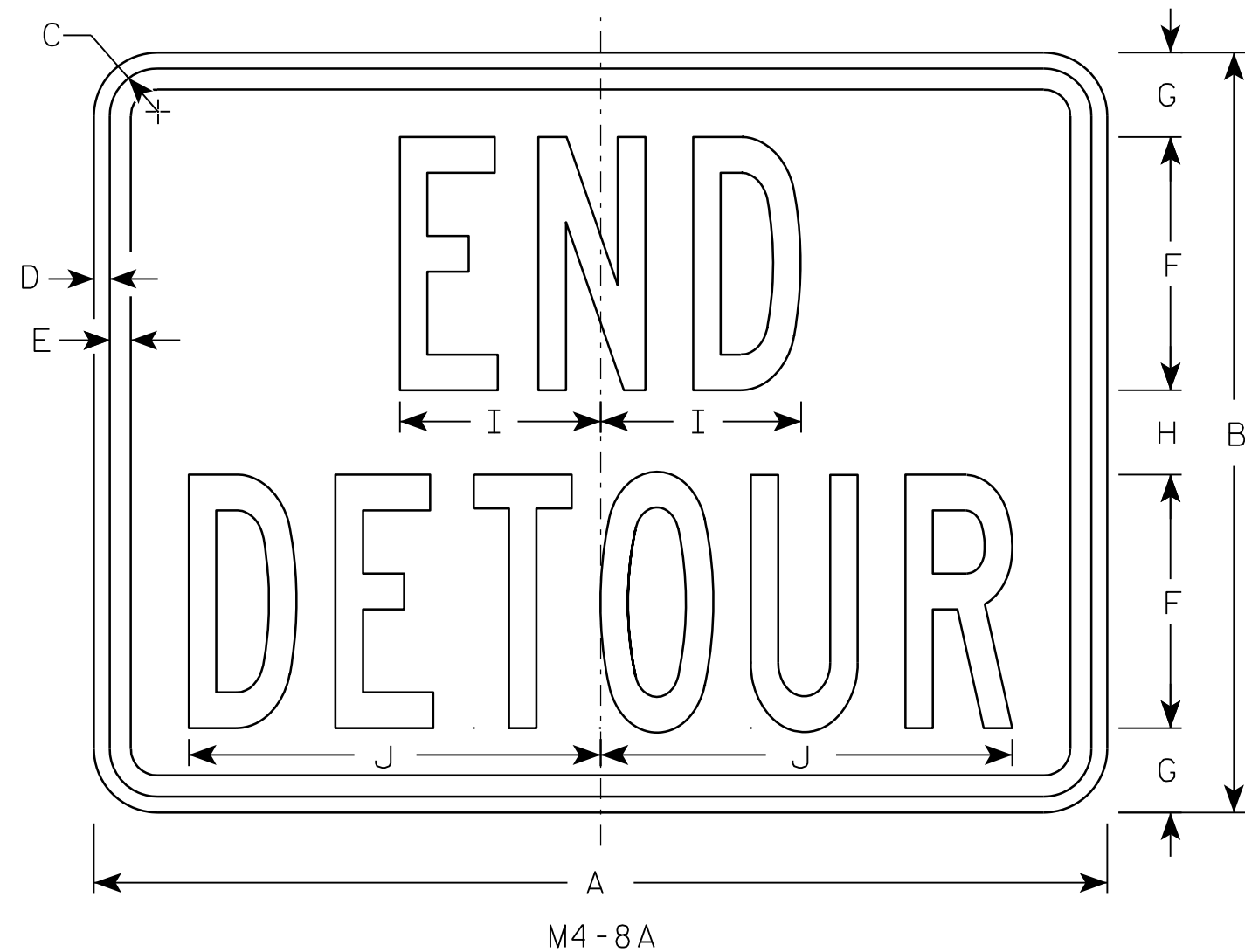
STANDARD SIGN
M4 - 8

WISCONSIN DEPT OF TRANSPORTATION

APPROVED
Matthew R. Rauch
for State Traffic Engineer

DATE 11/10/10 PLATE NO. M4-8.2

7



NOTES

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

7

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2	24	18	1 1/8	3/8	1/2	6	2	2	4 3/4	9 3/4																	3.0
3	30	24	1 1/8	3/8	1/2	8	2 1/2	3	6 3/4	13																	5.0
4																											
5																											

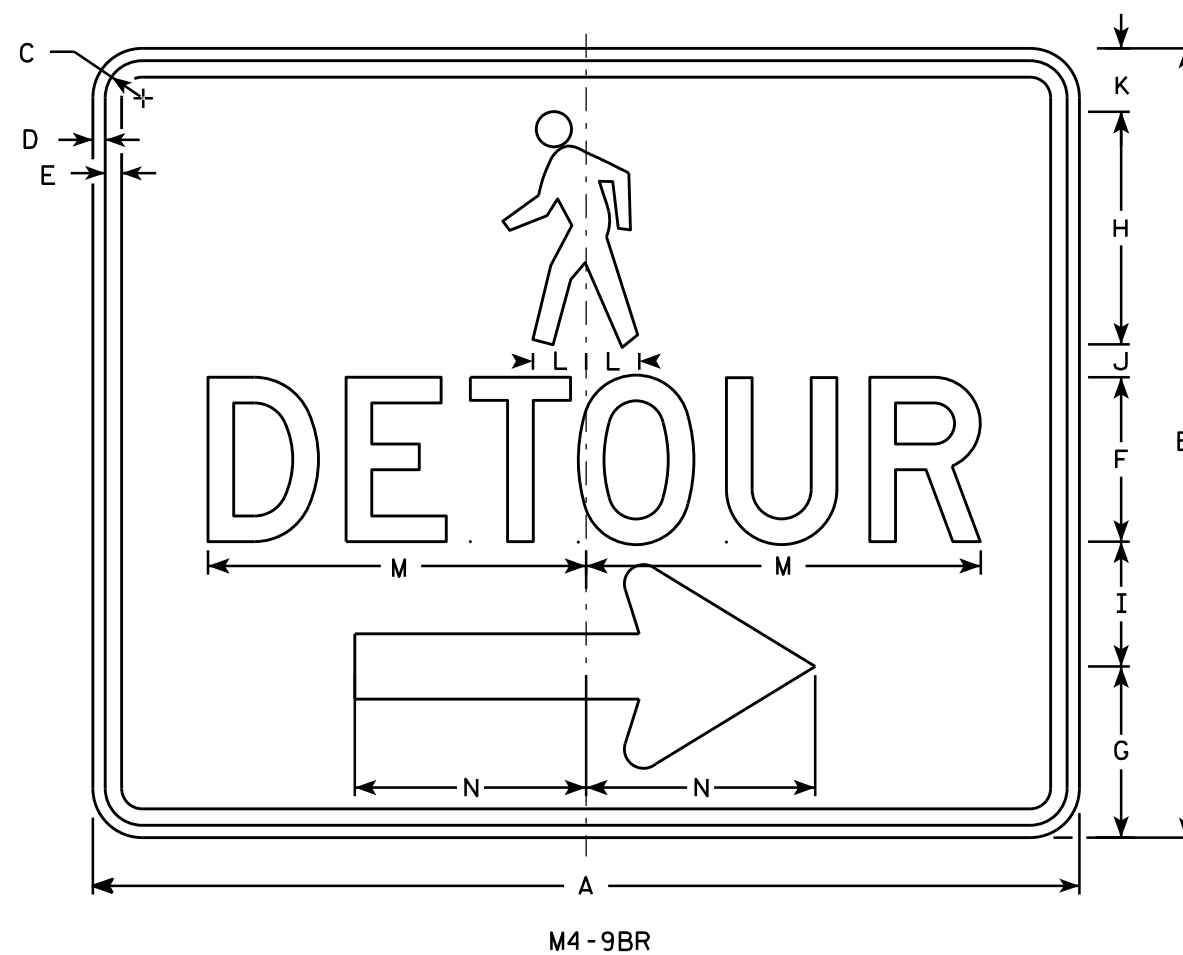
PROJECT NO:	HWY:	COUNTY:	SHEET NO:	E
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STANDARD SIGN
M4-8A

WISCONSIN DEPT OF TRANSPORTATION

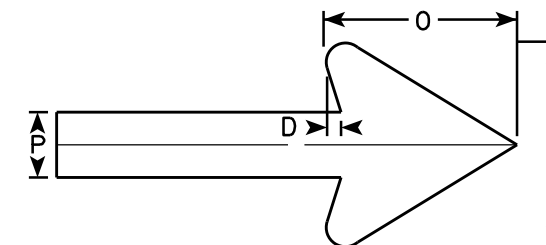
APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 3/9/11 PLATE NO. M4-8A.2



NOTES

1. Sign is Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
Background - Orange
Message - Black
3. Message Series - D
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. M4-9BL is the same as M4-9BR except the arrow is reversed.



Arrow Detail

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft
1																											
2	30	24	1 1/8	3/8	1/2	5	5 1/4	7 1/8	3 3/4	1	1 1/8	1 5/8	11 3/4	7	6	2											5.00
3																											
4																											
5																											

STANDARD SIGN M4-9B L&R

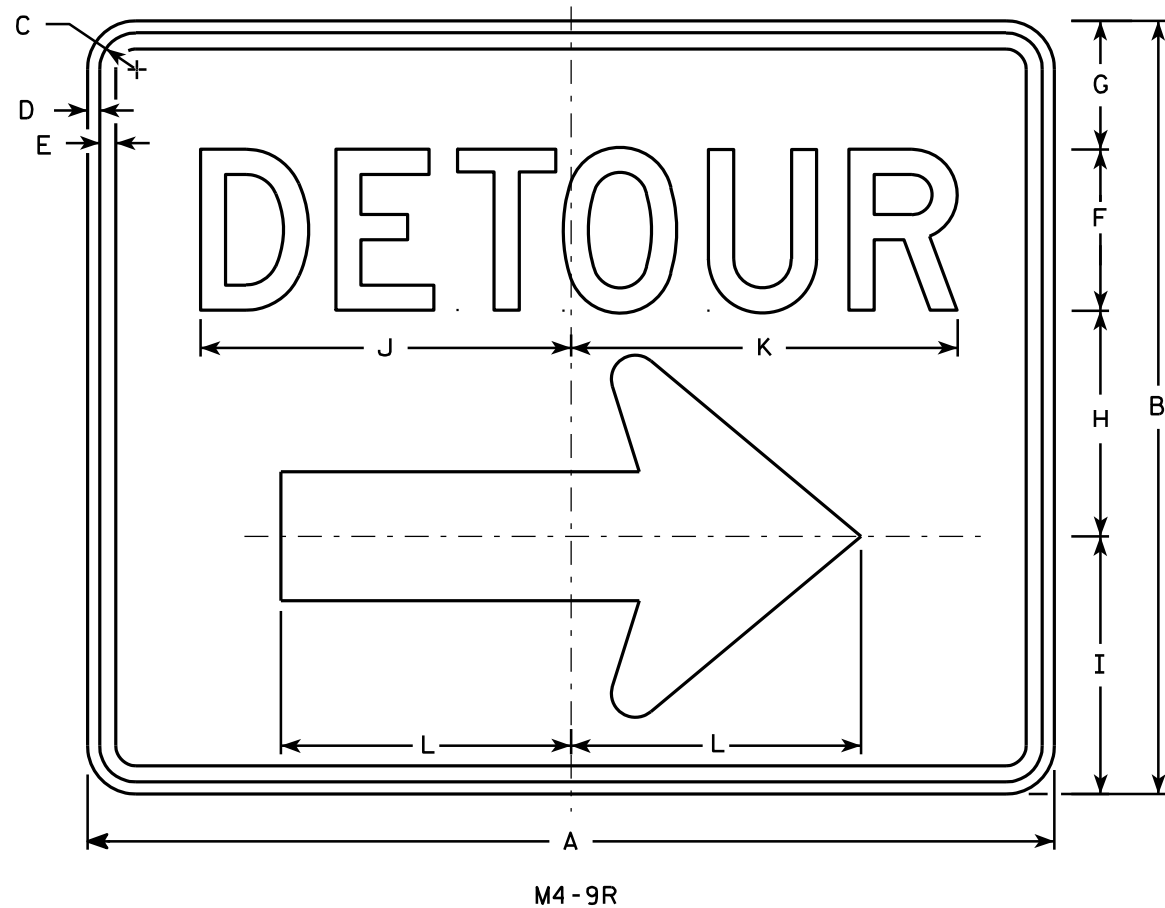
WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*

For State Traffic Engineer

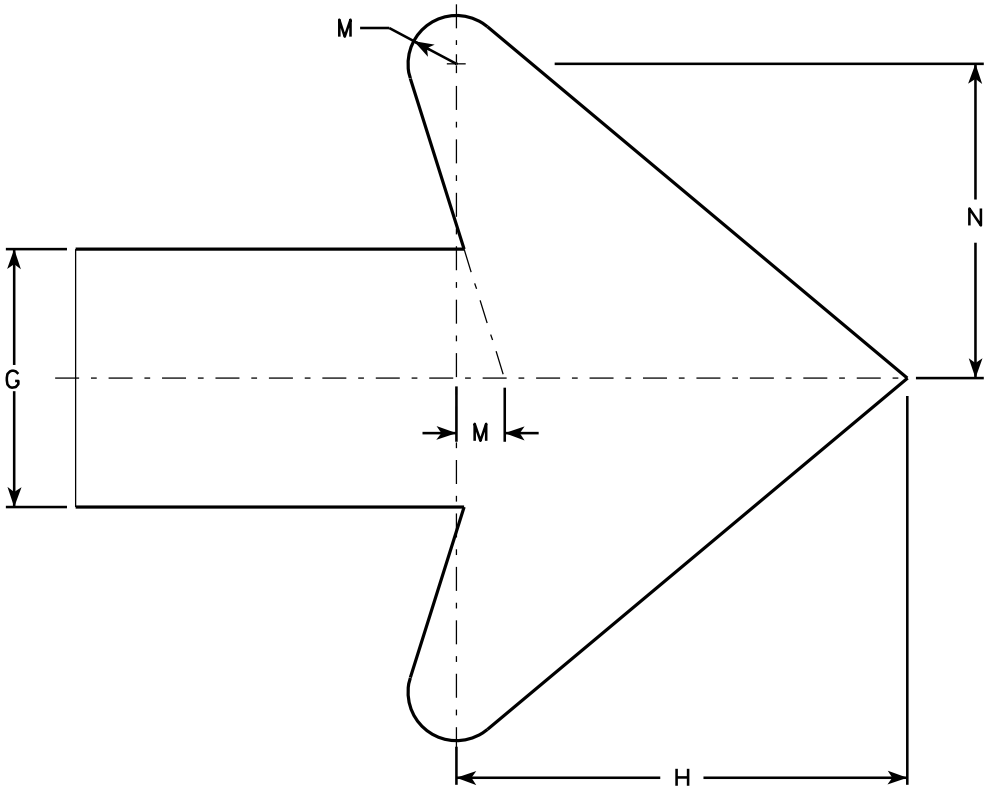
DATE 9/30/13 PLATE NO. M4-9B.1

PROJECT NO: HWY: COUNTY: SHEET NO: E



NOTES

- 1. Sign is Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
- 2. Color:
Background - Orange
Message - Black
- 3. Message Series - D
- 4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
- 5. M4-9L is the same as M4-9R except the arrow is reversed.



Arrow Detail

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2	30	24	1 1/8	3/8	1/2	5	4	7	8	11 1/2	12	9	3/4	4 7/8													5.00
3	30	24	1 1/8	3/8	1/2	5	4	7	8	11 1/2	12	9	3/4	4 7/8													5.00
4	48	36	1 3/8	1/2	5/8	8	6	10 1/2	11 5/8	20 5/8	20 1/2	13 1/4	1 1/8	6 7/8													12.0
5	48	36	1 3/8	1/2	5/8	8	6	10 1/2	11 5/8	20 5/8	20 1/2	13 1/4	1 1/8	6 7/8													12.0

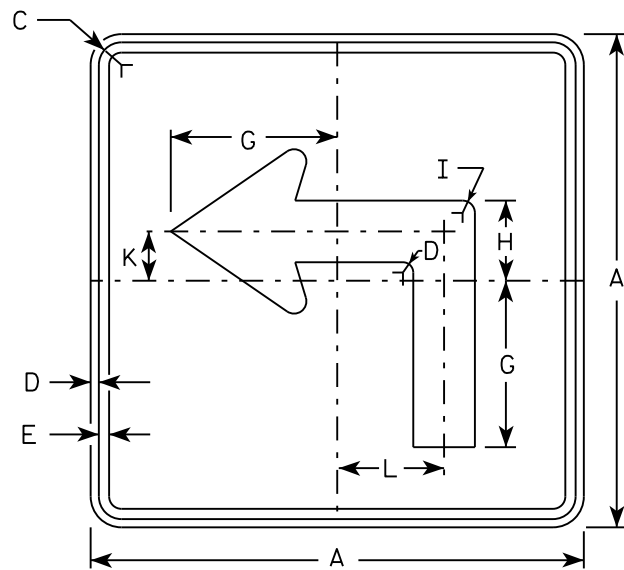
PROJECT NO:

HWY:

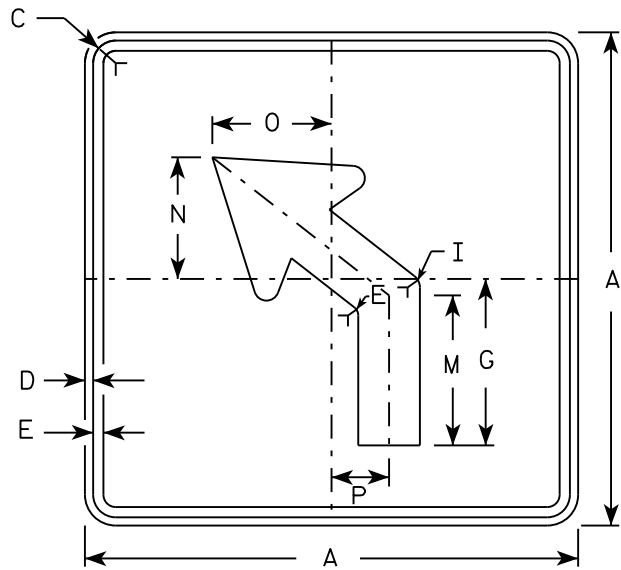
COUNTY:

SHEET NO:

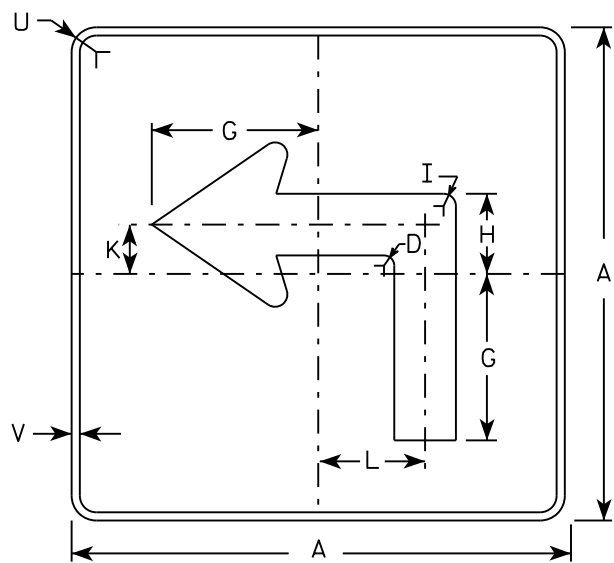
E



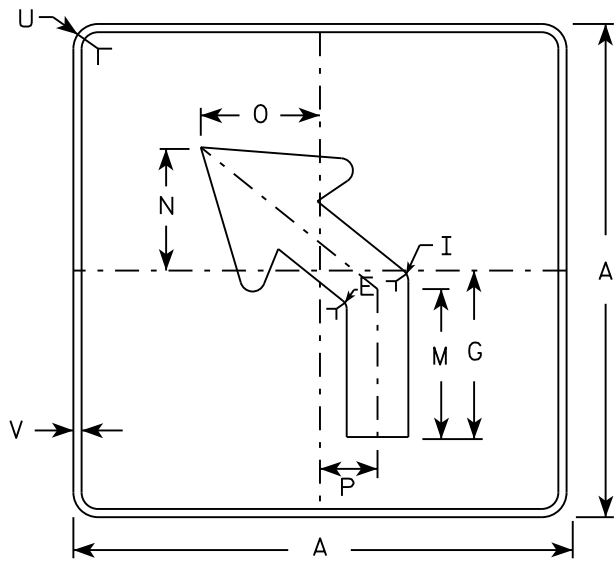
M5-1L
MM5-1L
M05-1L
MP5-1L



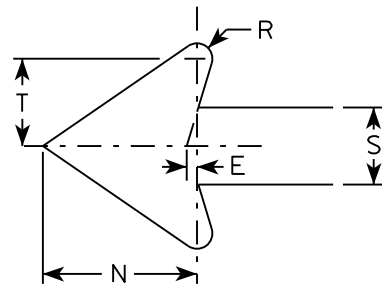
M5-2L
MM5-2L
M05-2L
MP5-2L



MB5-1L
MK5-1L
MN5-1L
MR5-1L



MB5-2L
MK5-2L
MN5-2L
MR5-2L



NOTES

- Signs are Type II - Type H reflective except as shown
- Color:
Background - See note 4
Message - See note 4
- Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
- | | |
|-----------------|---|
| M5-1 and M5-2 | Background - White |
| | Message - Black |
| MB5-1 and MB5-2 | Background - Blue |
| | Message - White |
| MK5-1 and MK5-2 | Background - Green |
| | Message - White |
| MM5-1 and MM5-2 | Background - White |
| | Message - Green |
| MN5-1 and MN5-2 | Background - Brown |
| | Message - White |
| M05-1 and M05-2 | Background - Orange - Type F Reflective |
| | Message - Black |
| MP5-1 and MP5-2 | Background - White - Type H Reflective |
| | Message - Blue |
| MR5-1 and MR5-2 | Background - Brown |
| | Message - Yellow |
- M5-1R same as M5-1L except arrow points right.
- M5-2R same as M5-2L except arrow tilts right.

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2	21		1 1/8	3/8	3/8		7	3 3/8	5/8		2 1/8	4 1/2	6 3/8	5 1/4	5	2 1/2		1/2	2 5/8	3	1 1/2	1/2					3.06
3	30		1 3/8	1/2	5/8		10 1/8	4 7/8	7/8		3	6 1/2	9 1/8	7 1/2	7 1/4	3 1/2		3/4	3 3/4	4 1/4	1 7/8	1/2					6.25
4	30		1 3/8	1/2	5/8		10 1/8	4 7/8	7/8		3	6 1/2	9 1/8	7 1/2	7 1/4	3 1/2		3/4	3 3/4	4 1/4	1 7/8	1/2					6.25
5	30		1 3/8	1/2	5/8		10 1/8	4 7/8	7/8		3	6 1/2	9 1/8	7 1/2	7 1/4	3 1/2		3/4	3 3/4	4 1/4	1 7/8	1/2					6.25

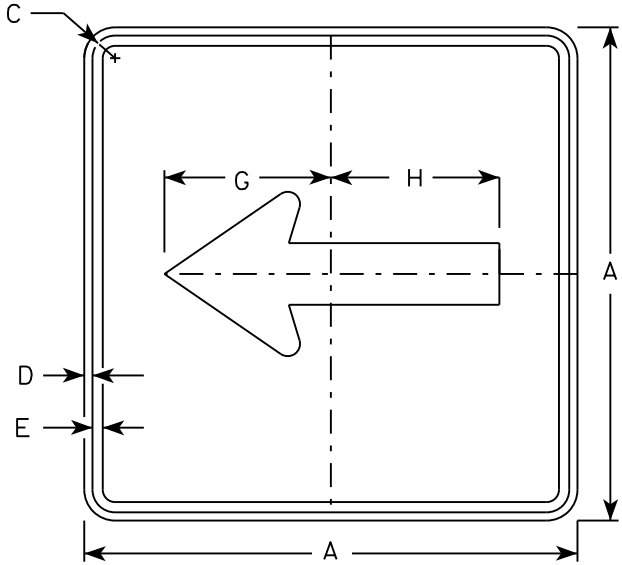
PROJECT NO:	HWY:	COUNTY:	SHEET NO:	E
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STANDARD SIGN
M5-1 & M5-2

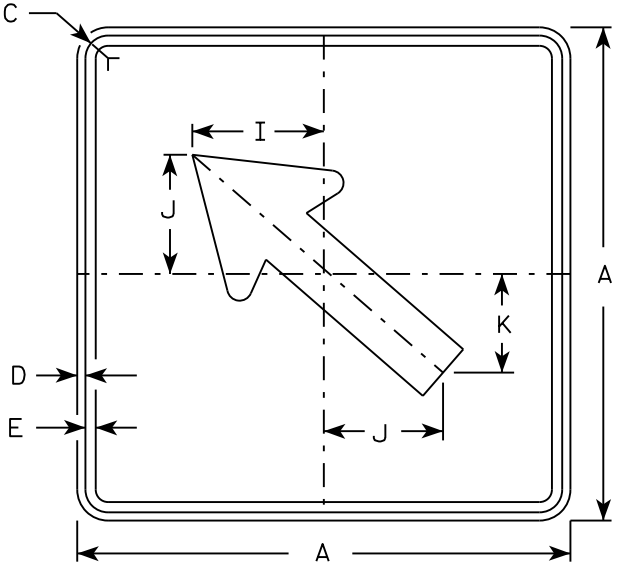
WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

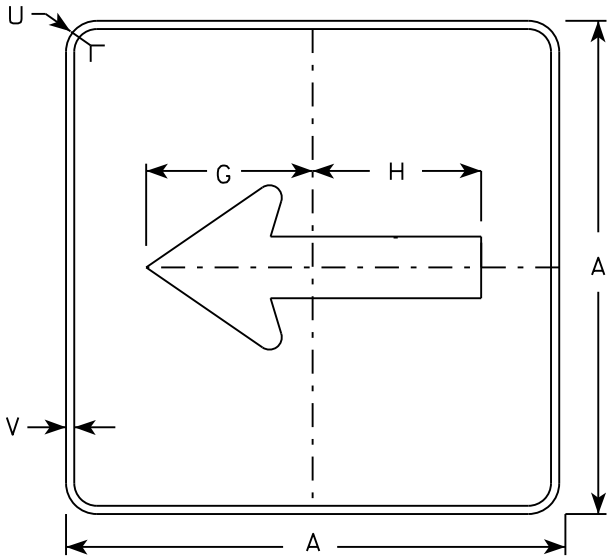
DATE 10/15/15 PLATE NO. M5-1.13



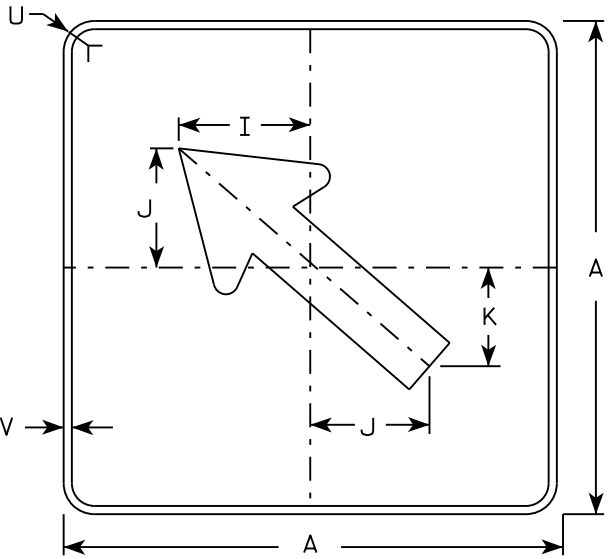
M6 - 1
MM6 - 1
M06 - 1
MP6 - 1



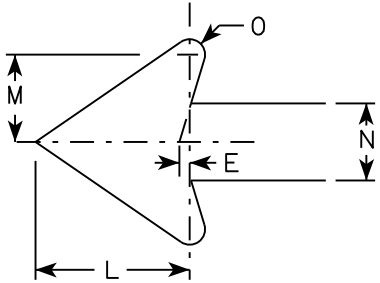
M6 - 2
MM6 - 2
M06 - 2
MP6 - 2



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



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



NOTES

- 1. Signs are Type II - Type H except as Shown
- 2. Color:
Background - See note 4
Message - See note 4
- 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. M6-1 and M6-2 Background - White
Message - Black
MB6-1 and MB6-2 Background - Blue
Message - White
MK6-1 and MK6-2 Background - Green
Message - White
MM6-1 and MM6-2 Background - White
Message - Green
MN6-1 and MN6-2 Background - Brown
Message - White
M06-1 and M06-2 Background - Orange - Type F Reflective
Message - Black
MP6-1 and MP6-2 Background - White
Message - Blue
MR6-1 and MR6-2 Background - Brown
Message - Yellow

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

PROJECT NO:

HWY:

COUNTY:

SHEET NO:

E

STANDARD SIGN
M6 - 1 & M6 - 2
SERIES

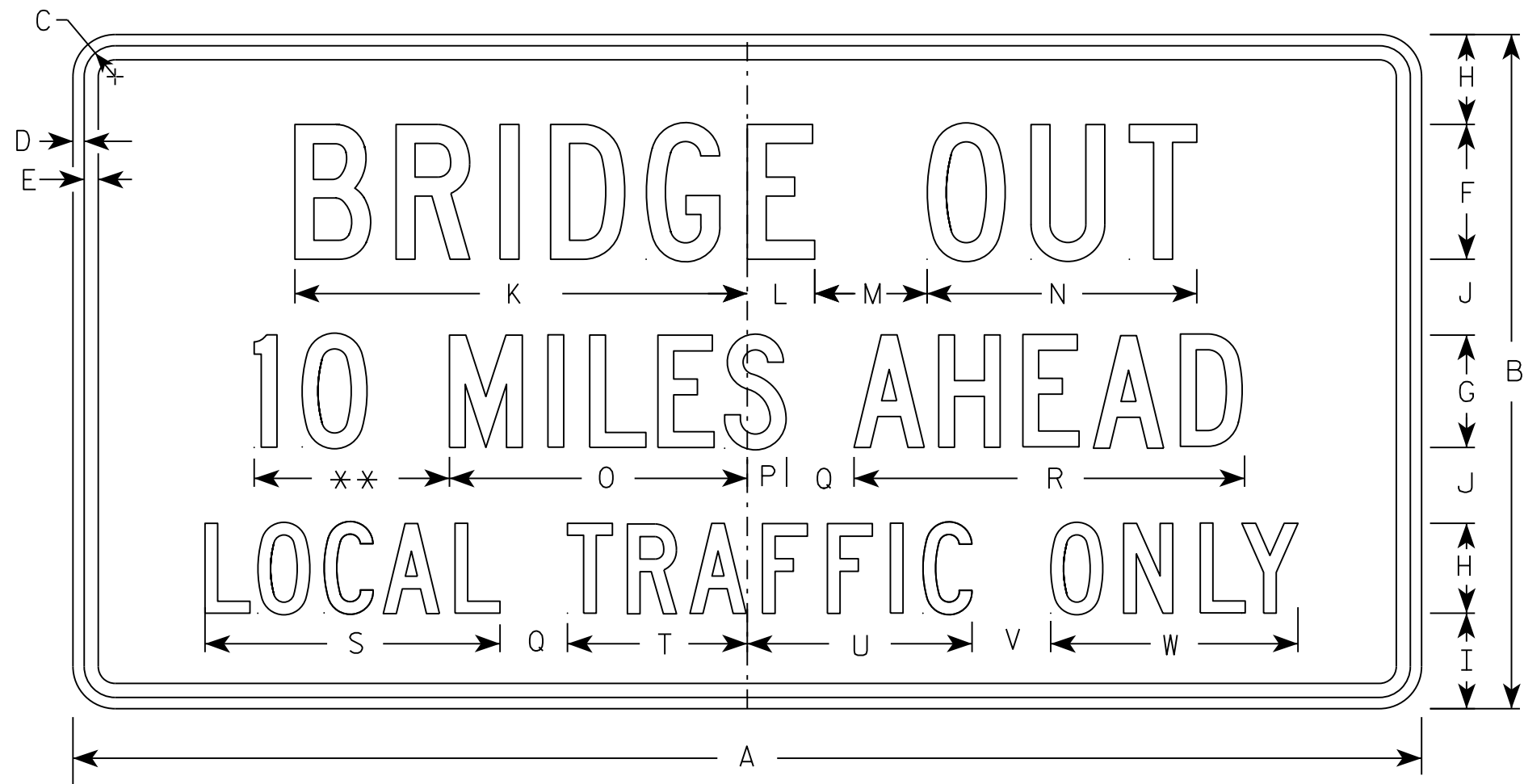
WISCONSIN DEPT OF TRANSPORTATION

APPROVED
Matthew R. Rauch
for State Traffic Engineer

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

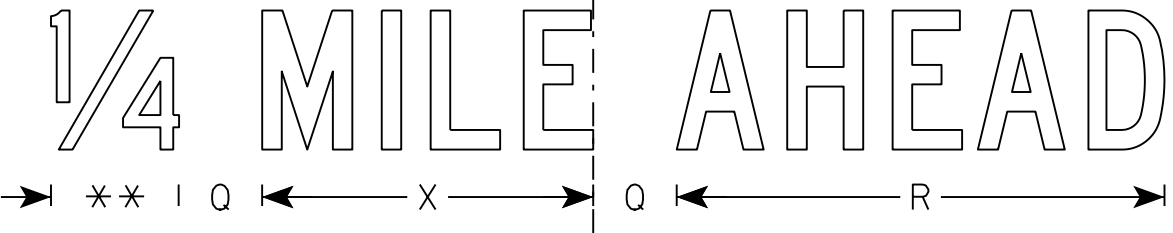
NOTES

- 1. Sign is Type II - Type H Reflective
- 2. Color:
 - Background - White
 - Message - Black
- 3. Message Series - C
- 4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
- 5. Substitute appropriate numerals to nearest quarter mile and optically adjust spacing to achieve proper balance.



** See Note 5

R11-3B



SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	36	18	1 3⁄8	1⁄2	5⁄8	4	3	2 1⁄2	2	2	13 1⁄4	2 1⁄4	3	8	8	1 1⁄2	2	10 3⁄4	8 3⁄8	4 3⁄4	6 1⁄2	2	6 3⁄4	7 1⁄8			4.5
2S	60	30	1 3⁄8	1⁄2	5⁄8	6	5	4	4 1⁄4	3 3⁄8	20 1⁄8	3	5	12	13 1⁄4	1 3⁄4	3	17 3⁄8	13 1⁄8	8	10	3 1⁄2	11	11 7⁄8			12.5
2M	60	30	1 3⁄8	1⁄2	5⁄8	6	5	4	4 1⁄4	3 3⁄8	20 1⁄8	3	5	12	13 1⁄4	1 3⁄4	3	17 3⁄8	13 1⁄8	8	10	3 1⁄2	11	11 7⁄8			12.5
3																											
4																											
5																											

PROJECT NO:

HWY:

COUNTY:

SHEET NO:

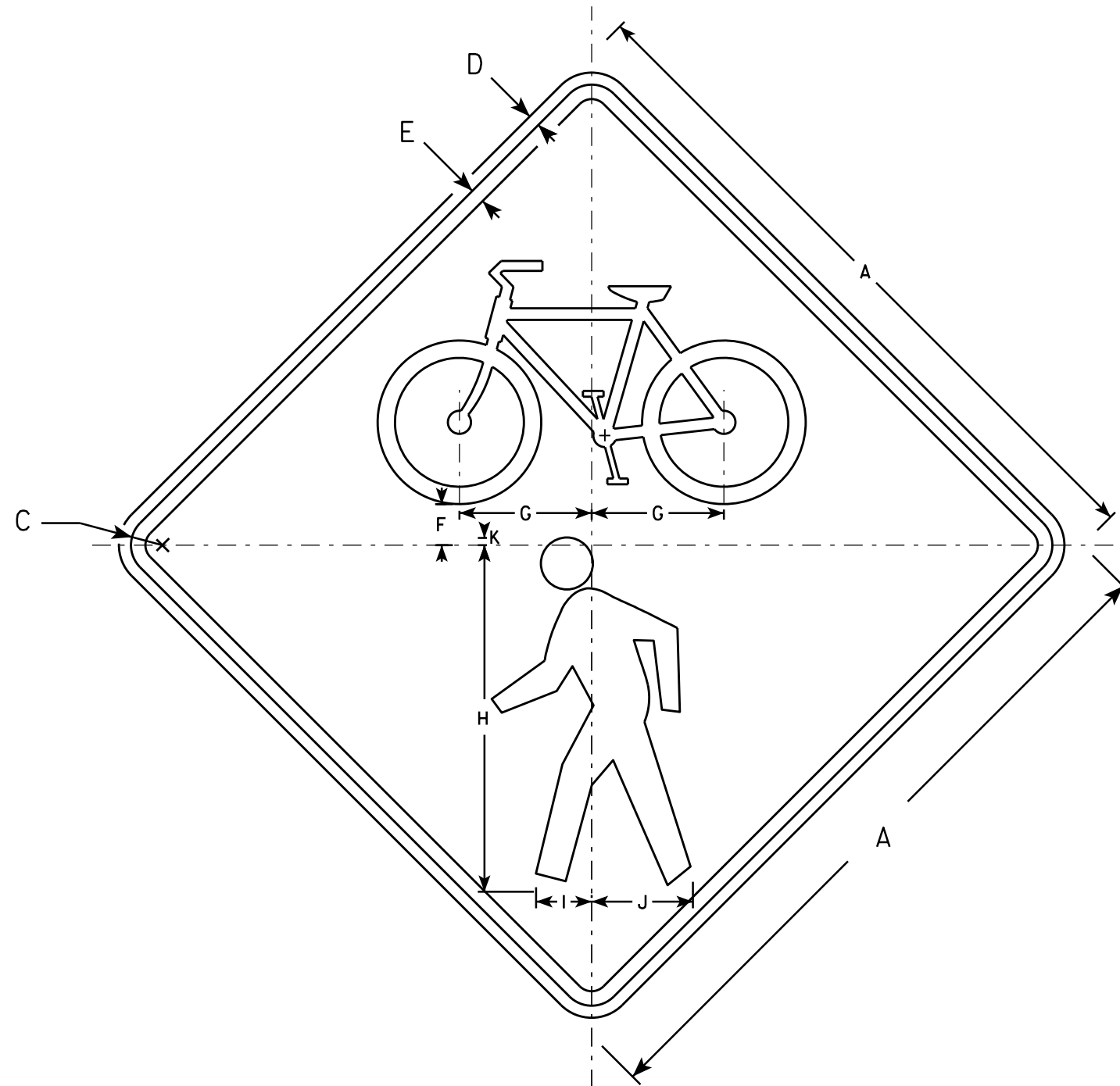
E

STANDARD SIGN
R11-3B

WISCONSIN DEPT OF TRANSPORTATION

APPROVED
Matthew R. Rauch
for State Traffic Engineer

DATE 3/21/17 PLATE NO. R11-3B.3



W11-15

NOTES

1. Sign is Type II - Type F Reflective
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.

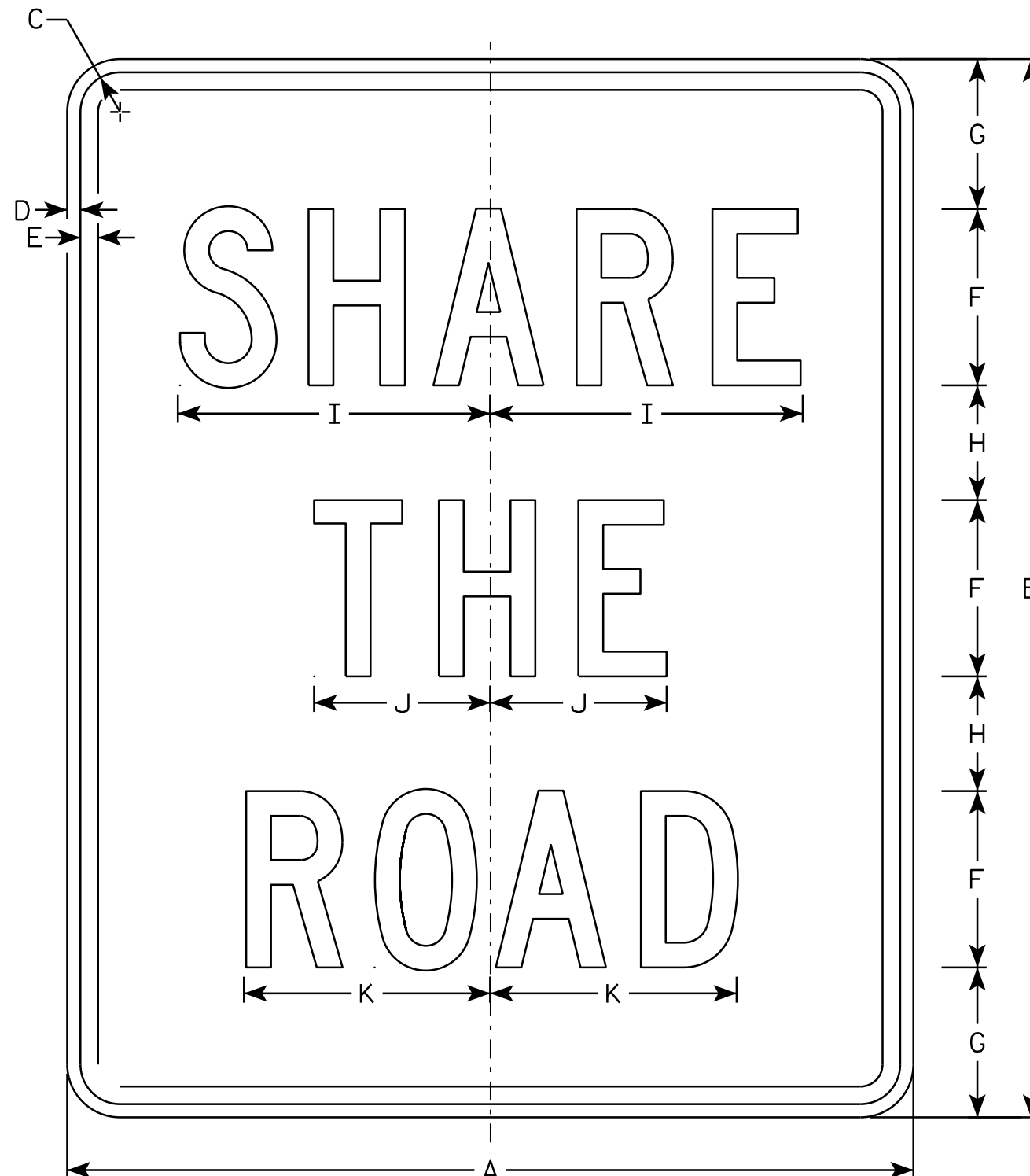
SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	24		1 1/8	3/8	1/2	1 3/8	4 5/8	12	1 7/8	3 1/2	1/4																4.0
2S	30		1 3/8	1/2	5/8	1 3/4	5 3/4	15	2 3/8	4 3/8	3/8																6.25
2M	36		1 5/8	5/8	3/4	2 1/8	6 7/8	18	2 7/8	5 1/4	3/8																9.0
3	36		1 5/8	5/8	3/4	2 1/8	6 7/8	18	2 7/8	5 1/4	3/8																16.0
4	48		2 1/4	3/4	1	2 7/8	9 1/8	24	3 7/8	7	1/2																16.0
5																											

STANDARD SIGN
W11-15

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 2/13/14 PLATE NO. W11-15.4



W16-1P

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. Message Series - C
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.

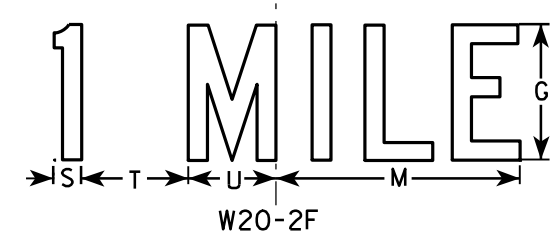
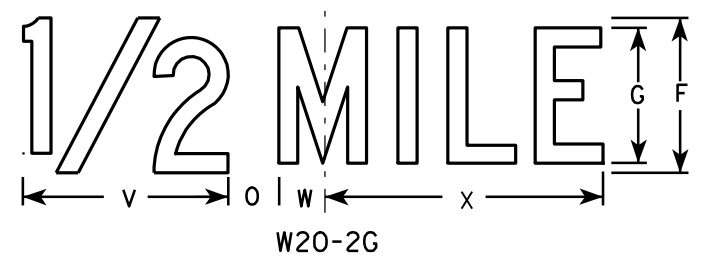
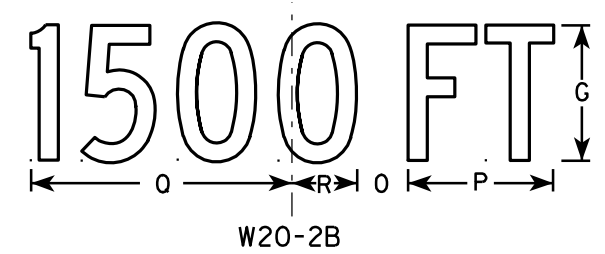
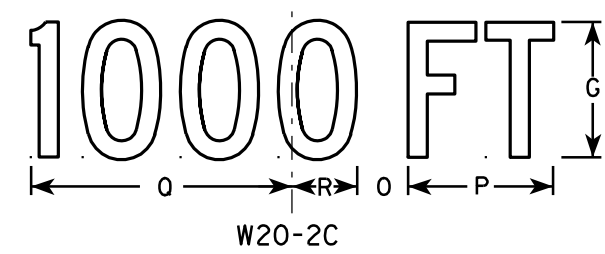
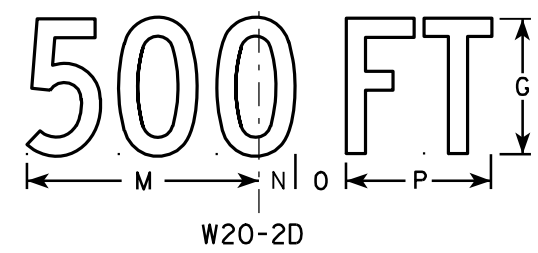
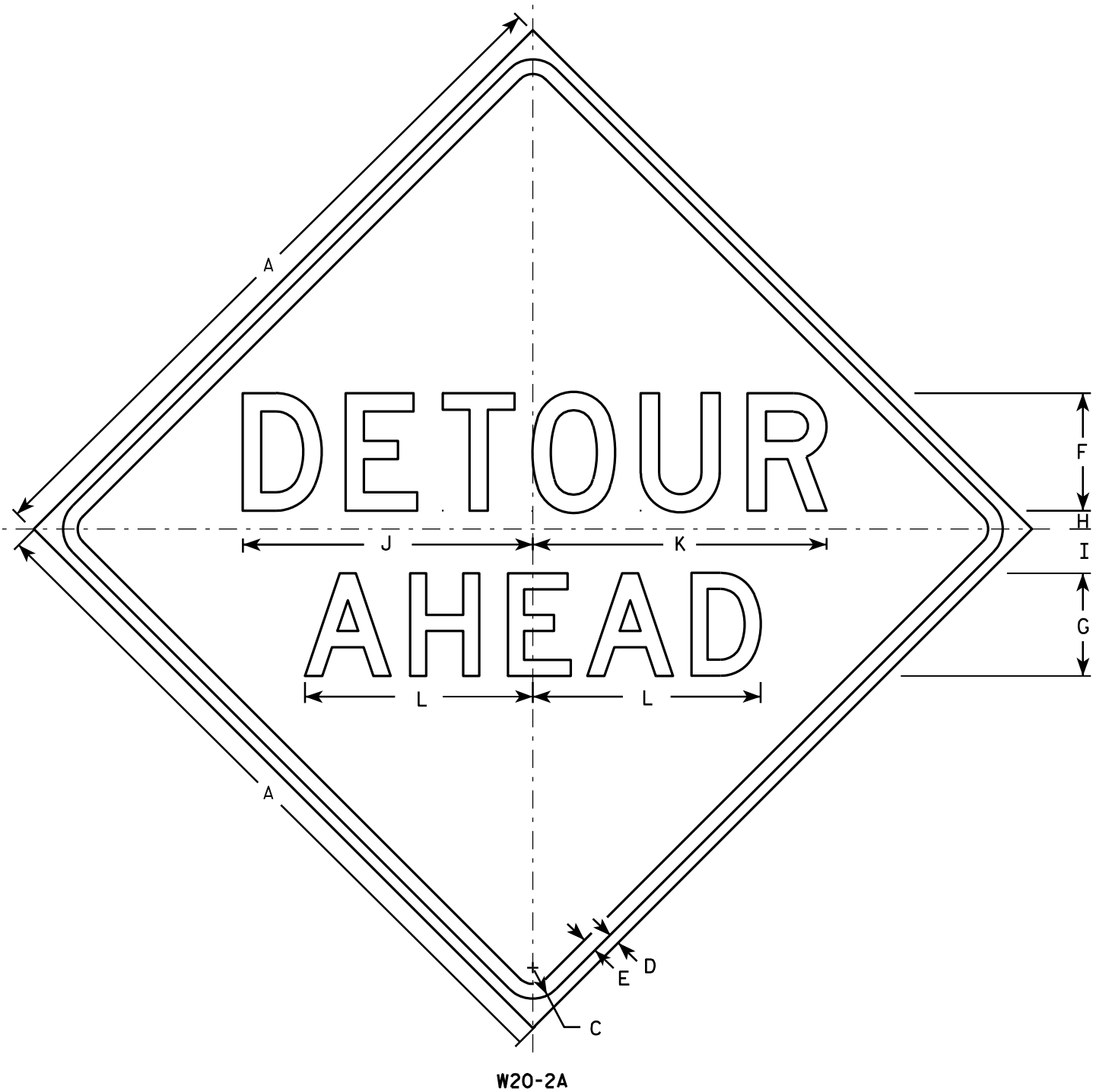
SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	18	24	1 1/8	3/8	1/2	4	3 3/8	2 5/8	6 5/8	3 3/4	5 3/8																3.0
2M	18	24	1 1/8	3/8	1/2	4	3 3/8	2 5/8	6 5/8	3 3/4	5 3/8																3.0
3	24	30	1 1/8	3/8	1/2	5	4 1/4	3 1/4	8 7/8	5	7																5.0
4	24	30	1 1/8	3/8	1/2	5	4 1/4	3 1/4	8 7/8	5	7																5.0
5																											

STANDARD SIGN
W16-1P

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 9/21/11 PLATE NO. W16-1P.2



NOTES

1. Sign is Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
Background - Orange
Message - Black
3. Message Series - See note 5
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. Line 1 is Series D.
Line 2 is Series D for AHEAD and Series C for all other distances.

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	36		1 5/8	5/8	3/4	6	5	1	2 1/4	14 3/4	15	11 5/8	9	1 3/8	1 7/8	5 5/8	10 1/8	2 1/2	1 1/8	4 1/2	3 1/2	8	1 3/4	10 3/4			9.0
2S	48		2 1/4	3/4	1	8	7	1 1/4	3	19 3/4	20	15 1/2	12	1 7/8	2 5/8	7 1/2	13 1/2	3 3/8	1 1/2	6	4 5/8	10 5/8	2 3/8	14 3/8			16.0
2M	48		2 1/4	3/4	1	8	7	1 1/4	3	19 3/4	20	15 1/2	12	1 7/8	2 5/8	7 1/2	13 1/2	3 3/8	1 1/2	6	4 5/8	10 5/8	2 3/8	14 3/8			16.0
3	48		2 1/4	3/4	1	8	7	1 1/4	3	19 3/4	20	15 1/2	12	1 7/8	2 5/8	7 1/2	13 1/2	3 3/8	1 1/2	6	4 5/8	10 5/8	2 3/8	14 3/8			16.0
4	48		2 1/4	3/4	1	8	7	1 1/4	3	19 3/4	20	15 1/2	12	1 7/8	2 5/8	7 1/2	13 1/2	3 3/8	1 1/2	6	4 5/8	10 5/8	2 3/8	14 3/8			16.0
5	48		2 1/4	3/4	1	8	7	1 1/4	3	19 3/4	20	15 1/2	12	1 7/8	2 5/8	7 1/2	13 1/2	3 3/8	1 1/2	6	4 5/8	10 5/8	2 3/8	14 3/8			16.0

STANDARD SIGN
W20-2A,B,C,D,F & G

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 3/18/11 PLATE NO. W20-2.6

PROJECT NO:

HWY:

COUNTY:

SHEET NO:

E

ADT = 430 (2018)
520 (2038)
RDS = 30 M.P.H.

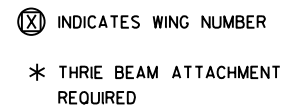
STRUCTURE IS DESIGNED FOR FUTURE WEARING
SURFACE OF 20^{sq}/SQ. FT.

DESIGN LOADING	HL-93
INVENTORY RATING FACTOR	RF = 1.06
OPERATING RATING FACTOR	RF = 1.44
MAX. STD. PERMIT VEHICLE LOAD	250 KIPS

CONCRETE MASONRY BRIDGES ——— $f'_c = 4,000$ PSI
HIGH STRENGTH BAR STEEL
REINFORCEMENT, GRADE 60 ——— $f_y = 60,000$ PSI

FACTORED BEARING RESISTANCE OF 12,000 PSF AT BOTTOM
OF REINFORCED SOIL FOUNDATION.


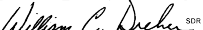
1. GENERAL PLAN
2. CROSS SECTION & QUANTITIES
3. SUBSURFACE EXPLORATION
4. SOUTH GRS-IBS ABUTMENT
5. SOUTH GRS-IBS ABUTMENT DETAILS
6. NORTH GRS-IBS ABUTMENT
7. NORTH GRS-IBS ABUTMENT DETAILS
8. SUPERSTRUCTURE
9. SUPERSTRUCTURE DETAILS
10. SINGLE SLOPE 32SS PARAPET



SINGLE SPAN CONCRETE FLAT SLAB BRIDGE



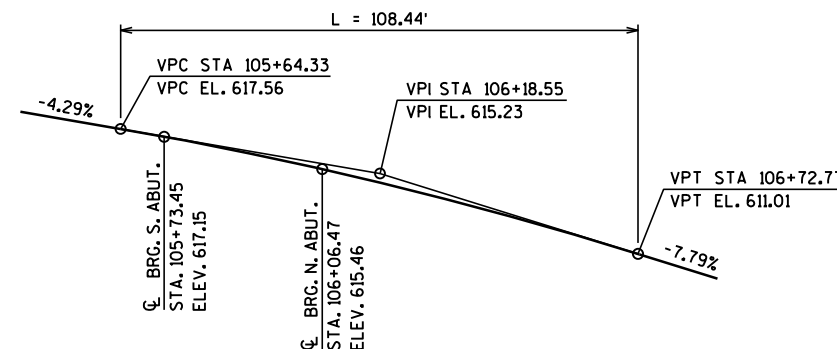
WILLIAM DREHER
(608) 266-8489

NO.	DATE	REVISION	BY
ORIGINAL PLANS PREPARED BY			
			
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
ACCEPTED			02/19/18
CHIEF STRUCTURES DESIGN ENGINEER		DATE	
STRUCTURE B-31-99			
CTH E OVER AHNAPEE STATE TRAIL			
COUNTY	KEAUWNEE	TOWN	WEST KEAUWNEE
DESIGN SPEC. AASHTO LRFD		BRIDGE DESIGN SPECIFICATIONS	LOAD HL-93
DESIGNED BY	BRE	DESIGN CK'D.	KRO
DRAWN BY		BRE	PLANS CK'D.
		KRO	
GENERAL PLAN			SHEET 1 OF 10

THE FOLLOWING WEBSITE IS AVAILABLE FOR ADDITIONAL
REFERENCE INFORMATION RELATED TO CONSTRUCTION OF
GEOSYNTHETIC REINFORCED SOIL WALLS:
www.fhwa.dot.gov/everydaycounts/technology/grs_ibs



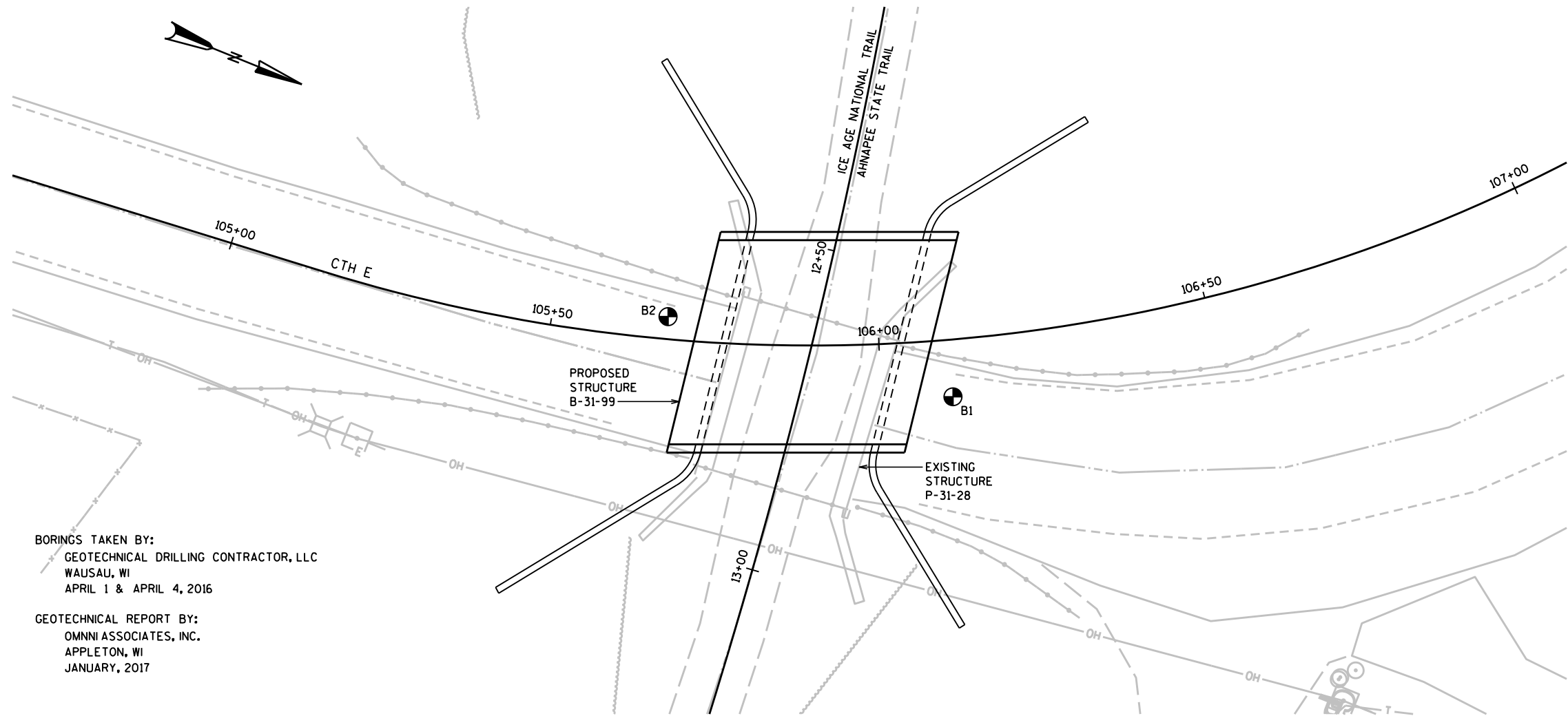
NO.	STATION	DESCRIPTION	ELEV.
BM 1	102+47 19' RT	60D SPIKE PP#2325-7L7/350 SOUTH OF \varnothing BRIDGE	631.51
BM 2	105+26 23' LT	60D SPIKE PP#2325-7L3/70 SOUTH OF \varnothing BRIDGE	618.97
BM 3	106+54 64' LT	60D SPIKE PP#2325-7L4/90 NORTH OF \varnothing BRIDGE	616.53



VPI STA 12+41.05	VPI STA 12+65.82	VPI STA 13+09.67
VPI EL. 595.98	VPI EL. 596.15	VPI EL. 596.21

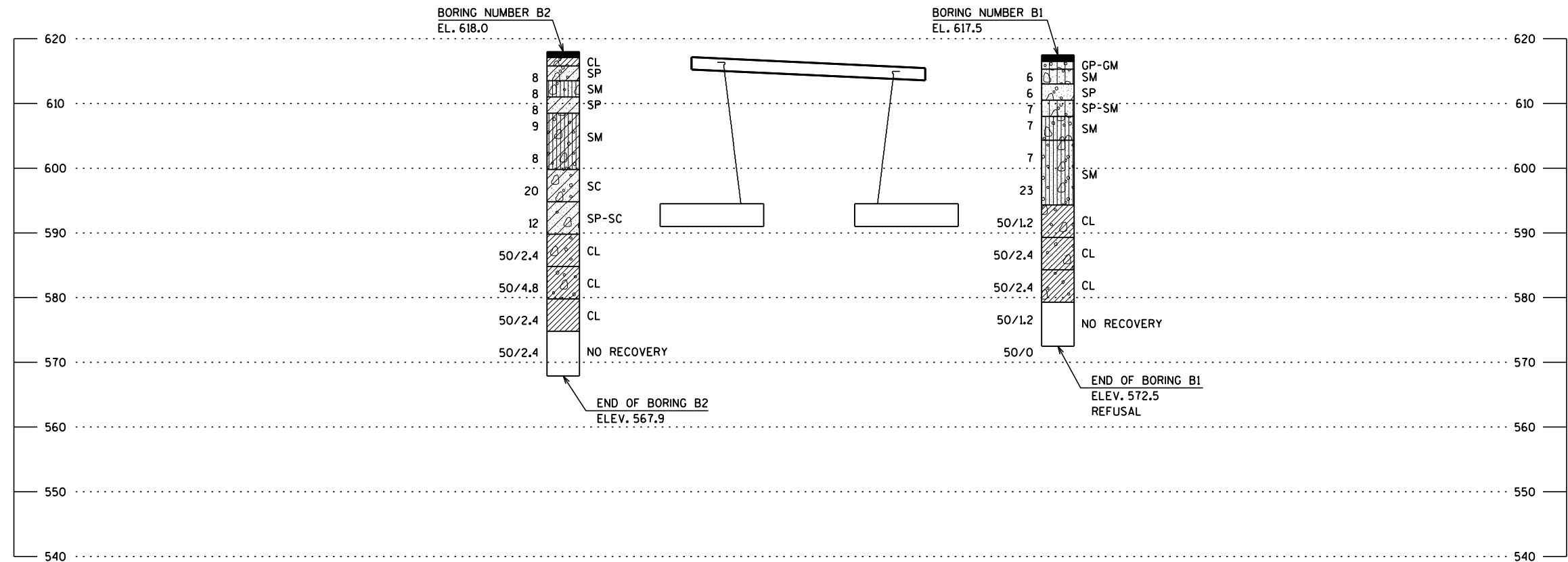
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-31-99			
DRAWN BY		BRE	PLANS CK'D. KRO
CROSS SECTION & QUANTITIES		SHEET 2 OF 10	

ITEM NO.	BID ITEMS	UNIT	SUPER.	SOUTH ABUT.	NORTH ABUT.	TOTALS
203.0200	REMOVING OLD STRUCTURE STA 105+90	LS	-----	-----	-----	1
502.0100	CONCRETE MASONRY BRIDGES	CY	102	-----	-----	102
502.3200	PROTECTIVE SURFACE TREATMENT	SY	124	-----	-----	124
502.3210	PIGMENTED SURFACE SEALER	SY	30	-----	-----	30
505.0600	BAR STEEL REINFORCEMENT HS COATED STRUCTURES	LB	16,050	-----	-----	16,050
614.0150	ANCHOR ASSEMBLIES FOR STEEL PLATE BEAM GUARD	EACH	4	-----	-----	4
SPV.0165	GEOSYNTHETIC REINFORCED SOIL ABUTMENT	SF	-----	2,156	1,825	3,981



BORINGS TAKEN BY:
GEOTECHNICAL DRILLING CONTRACTOR, LLC
WAUSAU, WI
APRIL 1 & APRIL 4, 2016

GEOTECHNICAL REPORT BY:
OMNI ASSOCIATES, INC.
APPLETON, WI
JANUARY, 2017



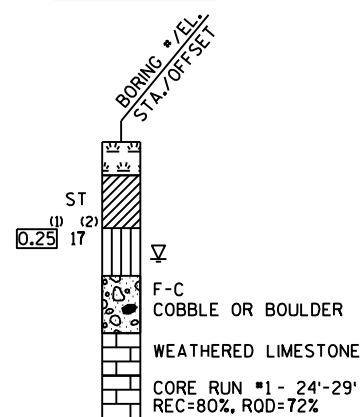
STATE PROJECT NUMBER

4394-03-71

MATERIAL SYMBOLS

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

LEGEND OF BORING



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

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

GROUND WATER ELEVATION

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

ABBREVIATIONS

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

SUBSURFACE EXPLORATION FOR FOUNDATION DESIGN AND BIDDERS INFORMATION

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

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-31-99			
DRAWN BY		BRE	PLANS CK'D. KRO
SUBSURFACE EXPLORATION		SHEET 3 OF 10	

NOTES:

ALL WALL STATIONING AND OFFSETS ARE GIVEN AT THE FRONT FACE OF THE 'KEYBLOCK'. SEE WALL SECTIONS FOR LOCATION OF THE 'KEYBLOCK'.

SEE WALL SECTIONS AND 'GRS ABUTMENT INFORMATION' TABLE FOR REQUIRED LENGTHS OF GEOSYNTHETIC REINFORCEMENT.

■ PROVIDE CORNER BLOCKS AND/OR DETAILS COMPATIBLE WITH THE SELECTED MODULAR BLOCKS SYSTEM. ROUNDED CORNERS ARE ALLOWABLE.

△ MAXIMUM ALLOWABLE WALL BATTER IS 8 VERTICAL TO 1 HORIZONTAL OR 7.1 DEGREES.

☆ WALL HEIGHT DOES NOT ACCOUNT FOR THICKNESS OF GEOTEXTILE BETWEEN BLOCKS. ADJUST BOTTOM OF WALL ELEVATION TO ACCOUNT FOR GEOTEXTILE SELECTED.

ⓧ INDICATES WING NUMBER

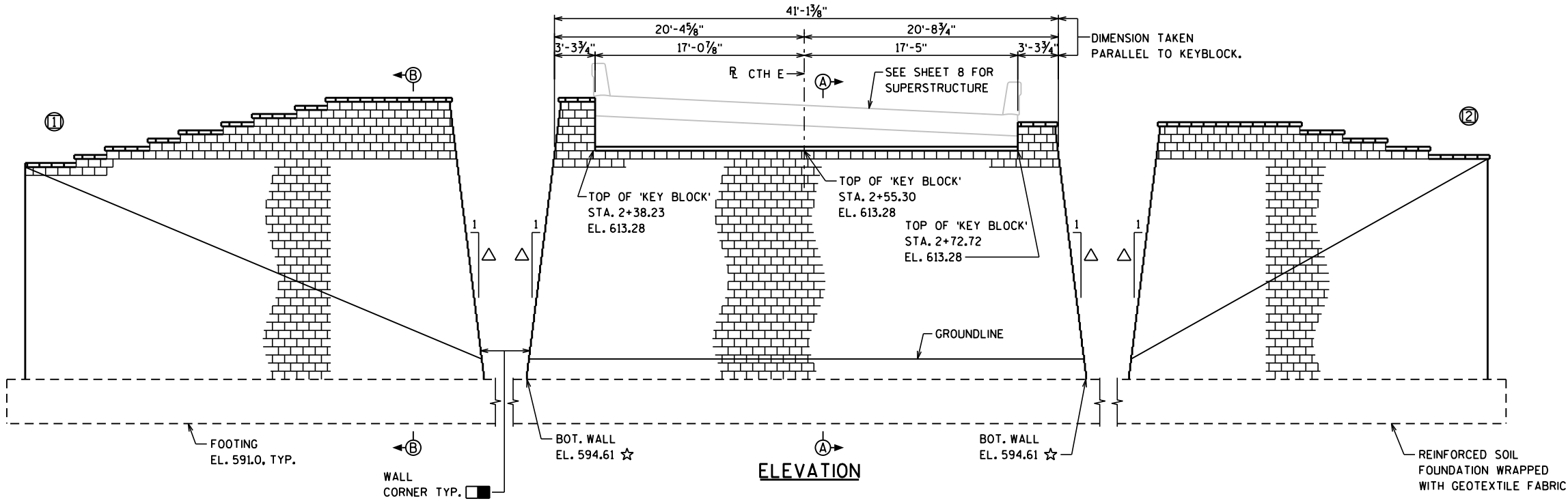
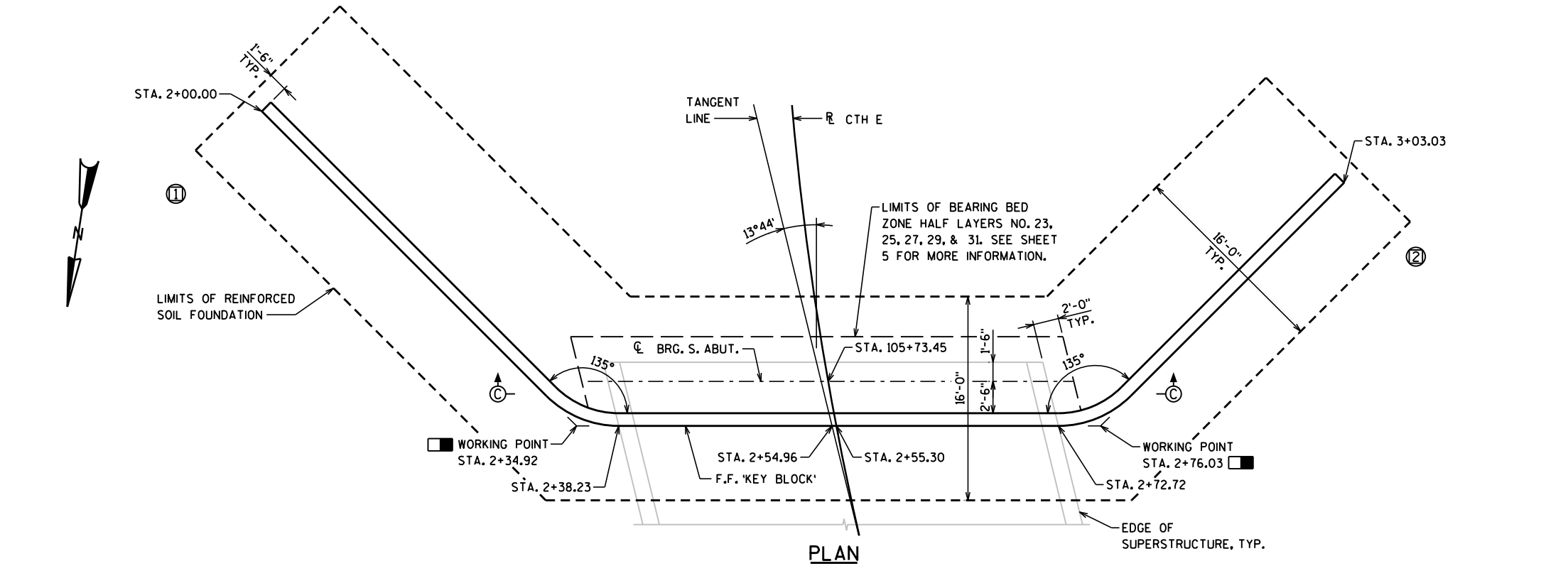


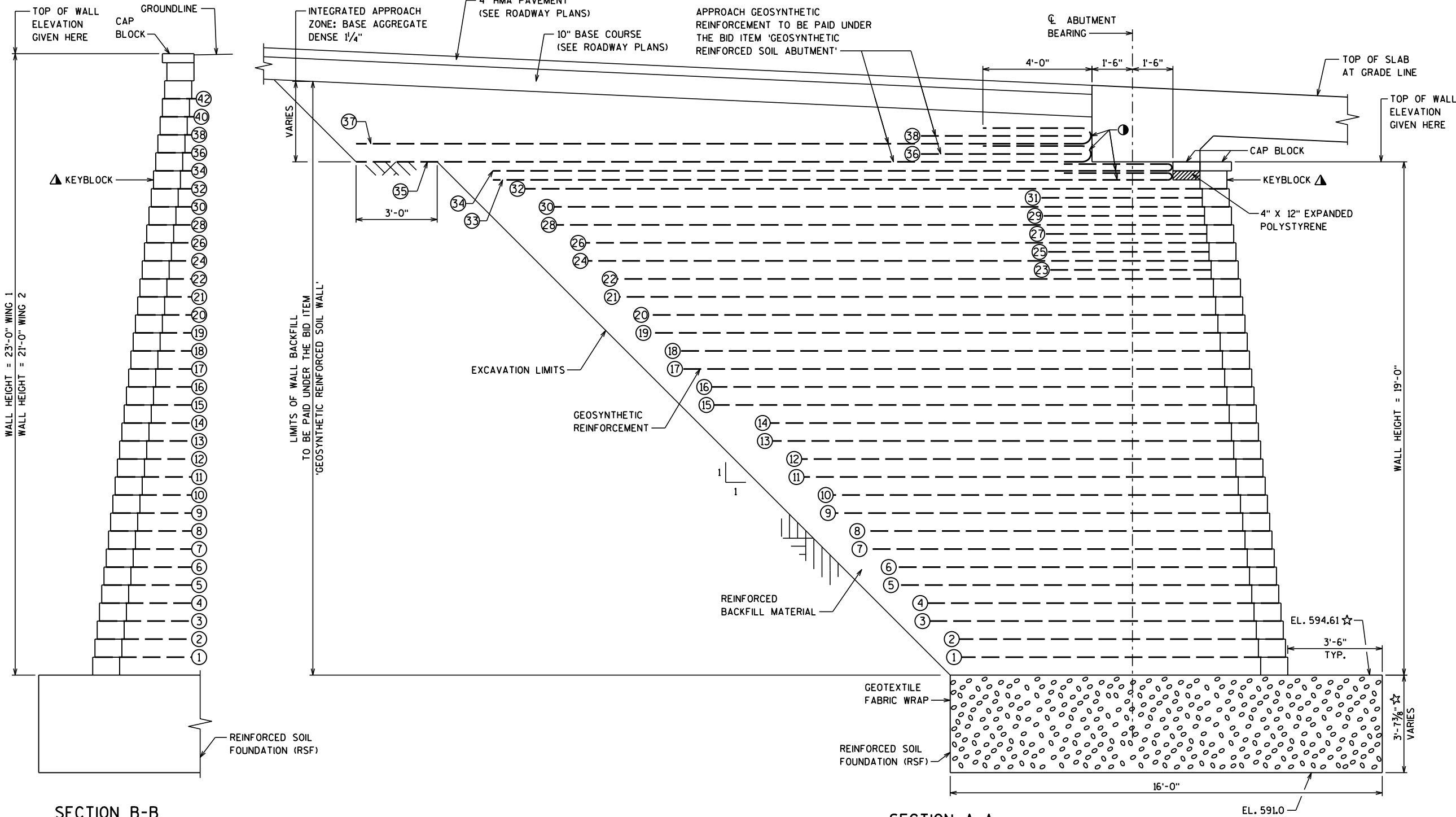
TABLE OF WALL ELEVATIONS

WALL STATION	ROADWAY ALIGN. STATION	ROADWAY STATION OFFSET (FT)	OFFSET DIRECTION	WALL HT. (FT) ☆	BOTTOM WALL EL.	FINISHED GROUND EL.	TOP WALL EL.
2+00.00	105+48.91	41.49	RT	17.67	594.61	611.94	612.28
2+34.92	105+73.47	20.05	RT	23.00	594.61	595.19	617.61
2+38.23	105+74.01	16.78	RT	19.00	594.61	595.19	613.61
2+55.30	105+77.00	0.00	- - -	19.00	594.61	595.19	613.61
2+72.72	105+80.51	17.09	LT	19.00	594.61	595.19	613.61
2+76.03	105+81.23	20.33	LT	21.00	594.61	595.19	615.61
3+03.03	105+63.39	42.39	LT	18.33	594.61	612.61	612.94

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-31-99			
DRAWN BY		BRE	PLANS CK'D. KRO
SOUTH GRS-IBS ABUTMENT		SHEET 4 OF 10	

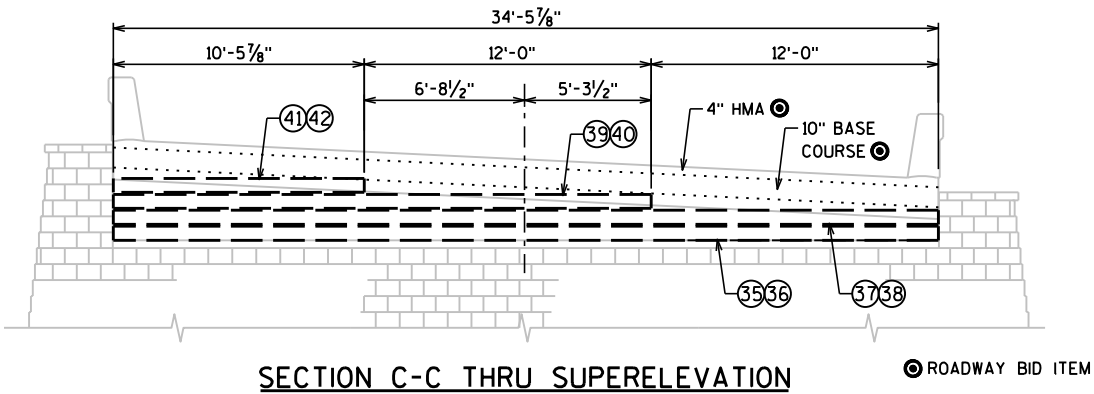
GRS ABUTMENT
INFORMATION

LAYER NUMBER	MIN. GEOTEXTILE LENGTH (FT.)	CL ELEV. ±
1	12	595.28
2	12	595.94
3	13	596.61
4	13	597.28
5	14	597.94
6	14	598.61
7	15	599.28
8	15	599.94
9	16	600.61
10	16	601.28
11	17	601.94
12	17	602.61
13	18	603.28
14	18	603.94
15	20	604.61
16	20	605.28
17	21	605.94
18	21	606.61
19	22	607.28
20	22	607.94
21	23	608.61
22	23	609.28
23	6	609.61
24	24	609.94
25	6	610.28
26	24	610.61
27	6	610.94
28	25	611.28
29	6	611.61
30	25	611.94
31	6	612.28
32	26	612.61
33	29	612.94
34	29	613.28
35	32	613.61
36	6	613.94
37	32	614.28
38	6	614.61
39	33	614.94
40	6	615.28
41	33	615.61
42	6	615.94

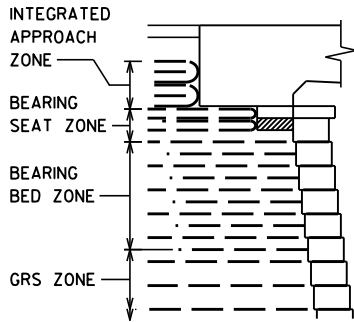


SECTION B-B

SECTION A-A



SECTION C-C THRU SUPERELEVATION



LAYER DESCRIPTIONS

NOTES:

- ▲ KEYBLOCK: FRONT FACE OF KEY BLOCK LOCATION TO BE HELD REGARDLESS OF MODULAR BLOCK SIZE OR BATTER.
- ⊗ INDICATES GEOSYNTHETIC REINFORCEMENT LAYER NUMBER, FOR LENGTHS, SEE 'GRS WALL INFORMATION' TABLE.
- 4'-0" WRAP
- LENGTH GIVEN IN 'GRS ABUTMENT INFORMATION' TABLE IS MEASURED FROM FRONT FACE OF MODULAR BLOCK TO END OF GEOTEXTILE FABRIC.
- ☆ WALL HEIGHT DOES NOT ACCOUNT FOR THICKNESS OF GEOTEXTILE BETWEEN BLOCKS. ADJUST BOTTOM OF WALL ELEVATION TO ACCOUNT FOR GEOTEXTILE SELECTED.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-31-99			
DRAWN BY		BRE	PLANS CK'D. KRO
SOUTH GRS-IBS ABUTMENT DETAILS		SHEET 5 OF 10	

NOTES:

ALL WALL STATIONING AND OFFSETS ARE GIVEN AT THE FRONT FACE OF THE 'KEYBLOCK'. SEE WALL SECTIONS FOR LOCATION OF THE 'KEYBLOCK'.

SEE WALL SECTIONS AND 'GRS ABUTMENT INFORMATION' TABLE FOR REQUIRED LENGTHS OF GEOSYNTHETIC REINFORCEMENT.

■ PROVIDE CORNER BLOCKS AND/OR DETAILS COMPATIBLE WITH THE SELECTED MODULAR BLOCKS SYSTEM. ROUNDED CORNERS ARE ALLOWABLE.

△ MAXIMUM ALLOWABLE WALL BATTER IS 8 VERTICAL TO 1 HORIZONTAL OR 7.1 DEGREES.

☆ WALL HEIGHT DOES NOT ACCOUNT FOR THICKNESS OF GEOTEXTILE BETWEEN BLOCKS. ADJUST BOTTOM OF WALL ELEVATION TO ACCOUNT FOR GEOTEXTILE SELECTED.

ⓧ INDICATES WING NUMBER

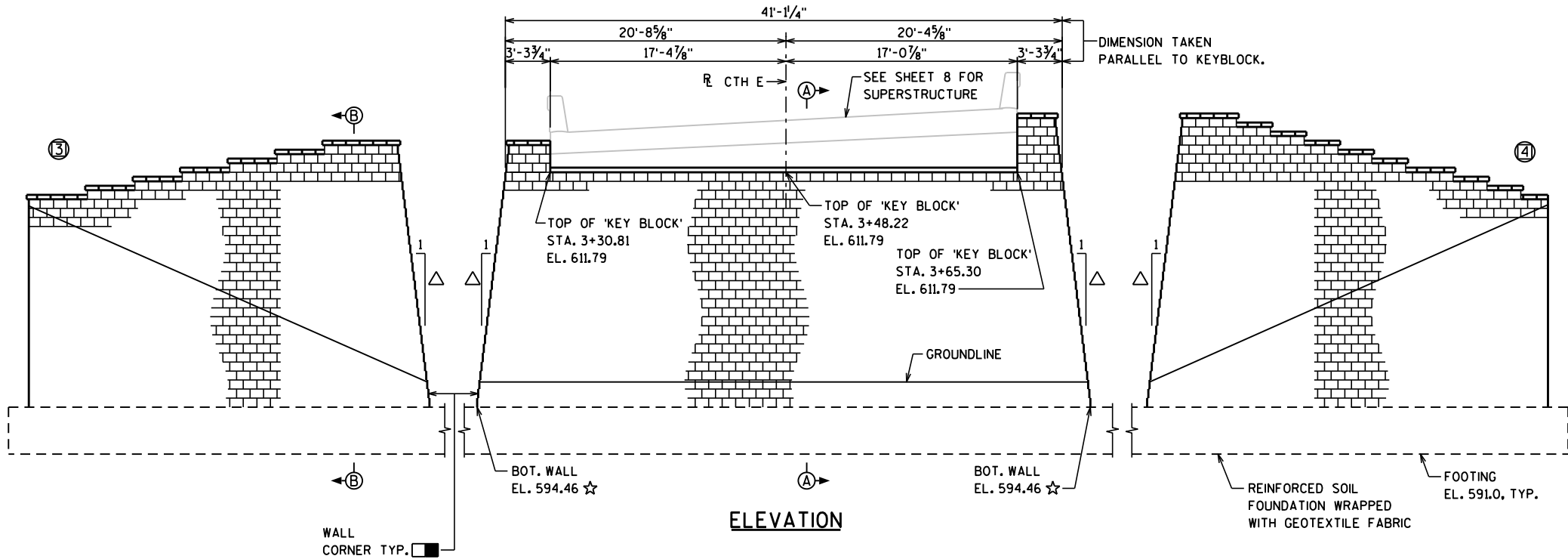
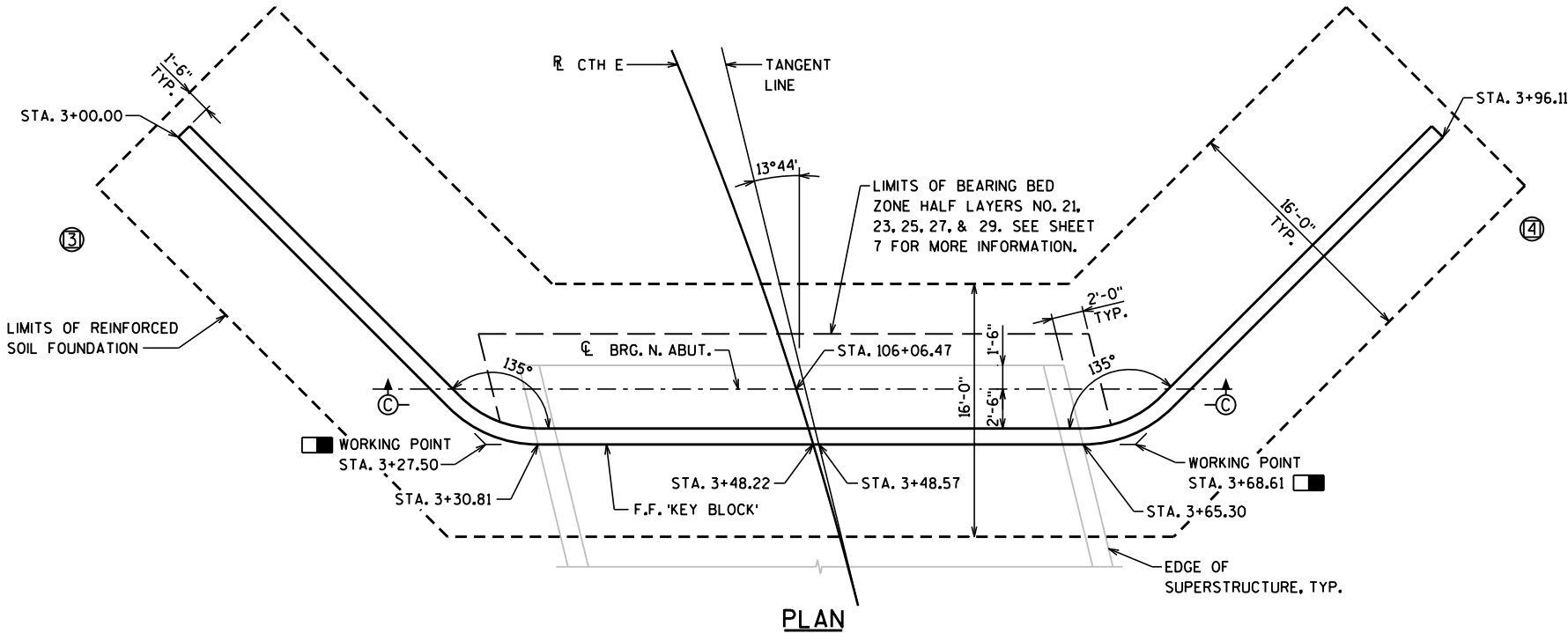


TABLE OF WALL ELEVATIONS

WALL STATION	ROADWAY ALIGN. STATION	ROADWAY STATION OFFSET (FT)	OFFSET DIRECTION	WALL HT. (FT) ☆	BOTTOM WALL EL.	FINISHED GROUND EL.	TOP WALL EL.
3+00.00	106+37.33	30.80	LT	15.66	594.46	609.3	610.12
3+27.50	106+09.28	19.77	LT	19.66	594.46	596.32	614.12
3+30.81	106+08.17	16.62	LT	17.66	594.46	596.32	612.12
3+48.22	106+02.81	0.00	- - -	17.66	594.46	596.32	612.12
3+65.30	105+98.21	16.40	RT	17.66	594.46	596.32	612.12
3+68.61	105+97.38	19.59	RT	21.66	594.46	596.32	616.12
3+96.11	106+08.92	43.83	RT	15.66	594.46	609.4	610.12

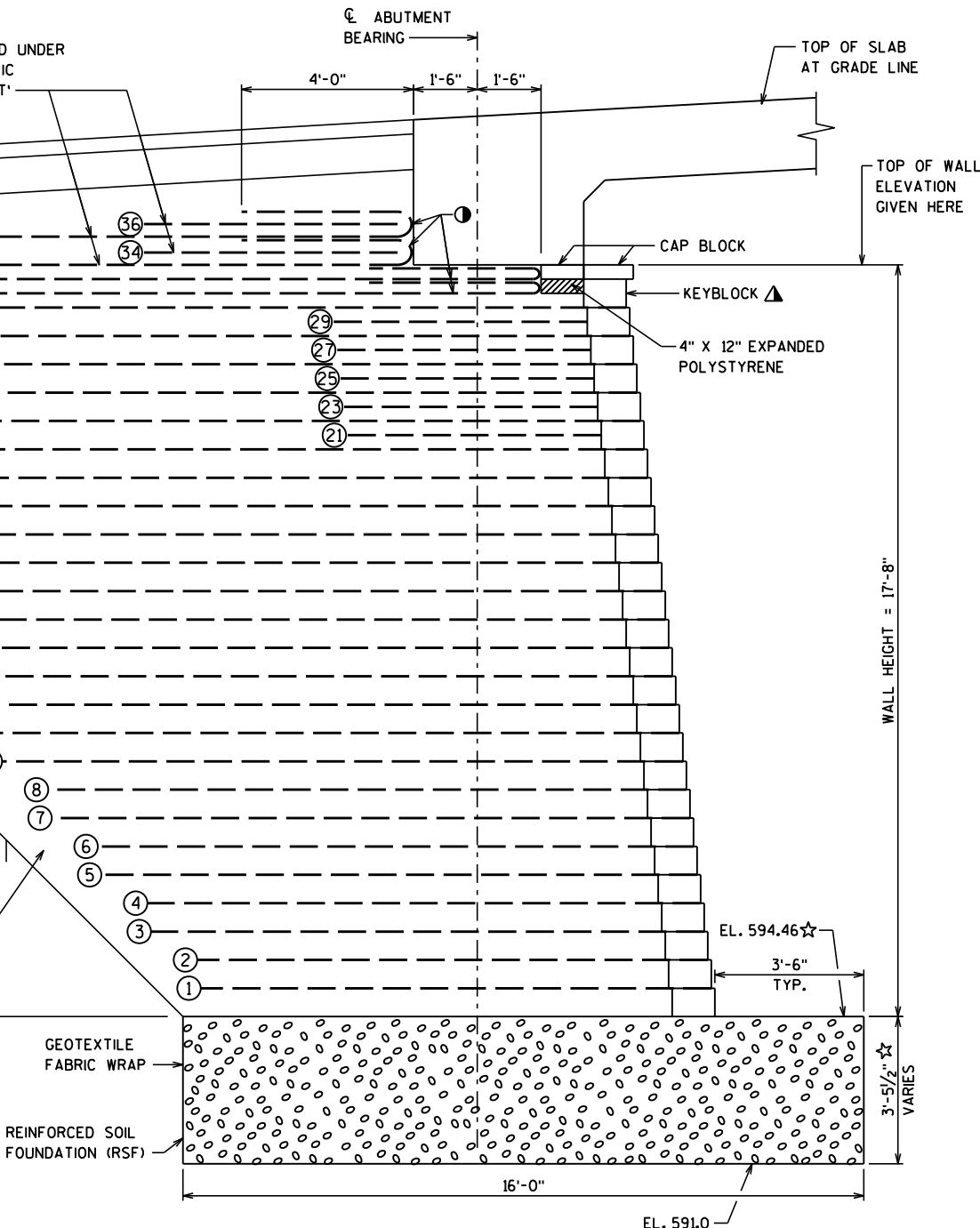
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-31-99			
DRAWN BY		BRE	PLANS CK'D. KRO
NORTH GRS-IBS ABUTMENT		SHEET 6 OF 10	

GRS ABUTMENT
INFORMATION

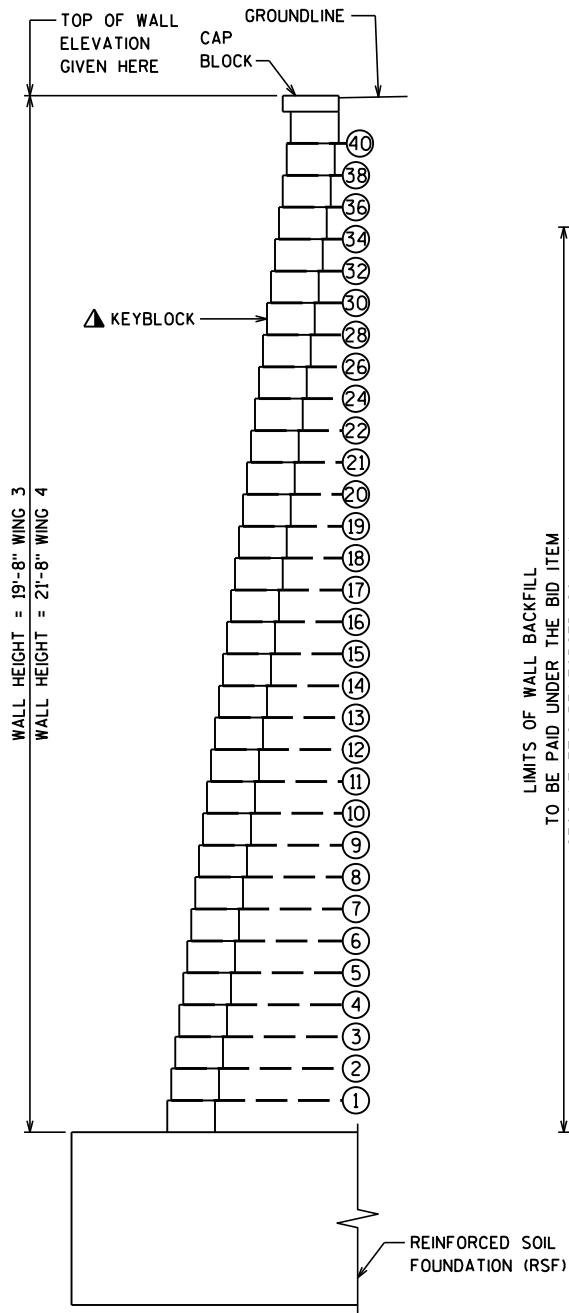
LAYER NUMBER	MIN. GEOTEXTILE LENGTH (FT.)	CL ELEV. ±
1	12	595.13
2	12	595.79
3	13	596.46
4	13	597.13
5	14	597.79
6	14	598.46
7	15	599.13
8	15	599.79
9	16	600.46
10	16	601.13
11	17	601.79
12	17	602.46
13	18	603.13
14	18	603.79
15	20	604.46
16	20	605.13
17	21	605.79
18	21	606.46
19	22	607.13
20	22	607.79
21	6	608.13
22	23	608.46
23	6	608.79
24	23	609.13
25	6	609.46
26	24	609.79
27	6	610.13
28	24	610.46
29	6	610.79
30	25	611.13
31	28	611.46
32	28	611.79
33	31	612.13
34	6	612.46
35	31	612.79
36	6	613.13
37	32	613.46
38	6	613.79
39	32	614.13
40	6	614.46

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-31-99			
DRAWN BY		BRE	PLANS CK'D. KRO
NORTH GRS-IBS ABUTMENT DETAILS		SHEET 7 OF 10	

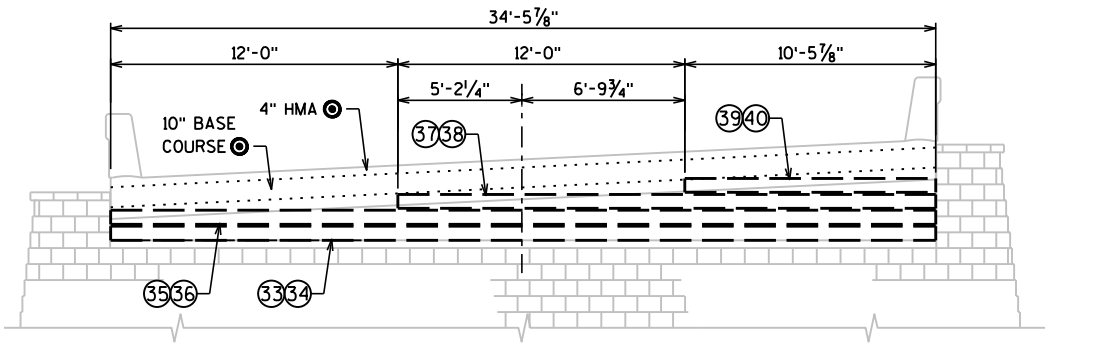
SECTION A-A



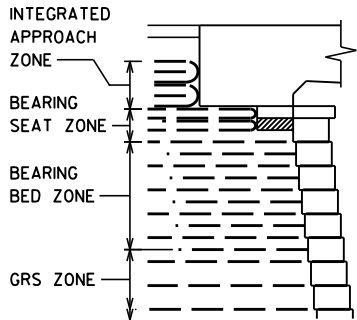
SECTION B-B



SECTION C-C THRU SUPERELEVATION

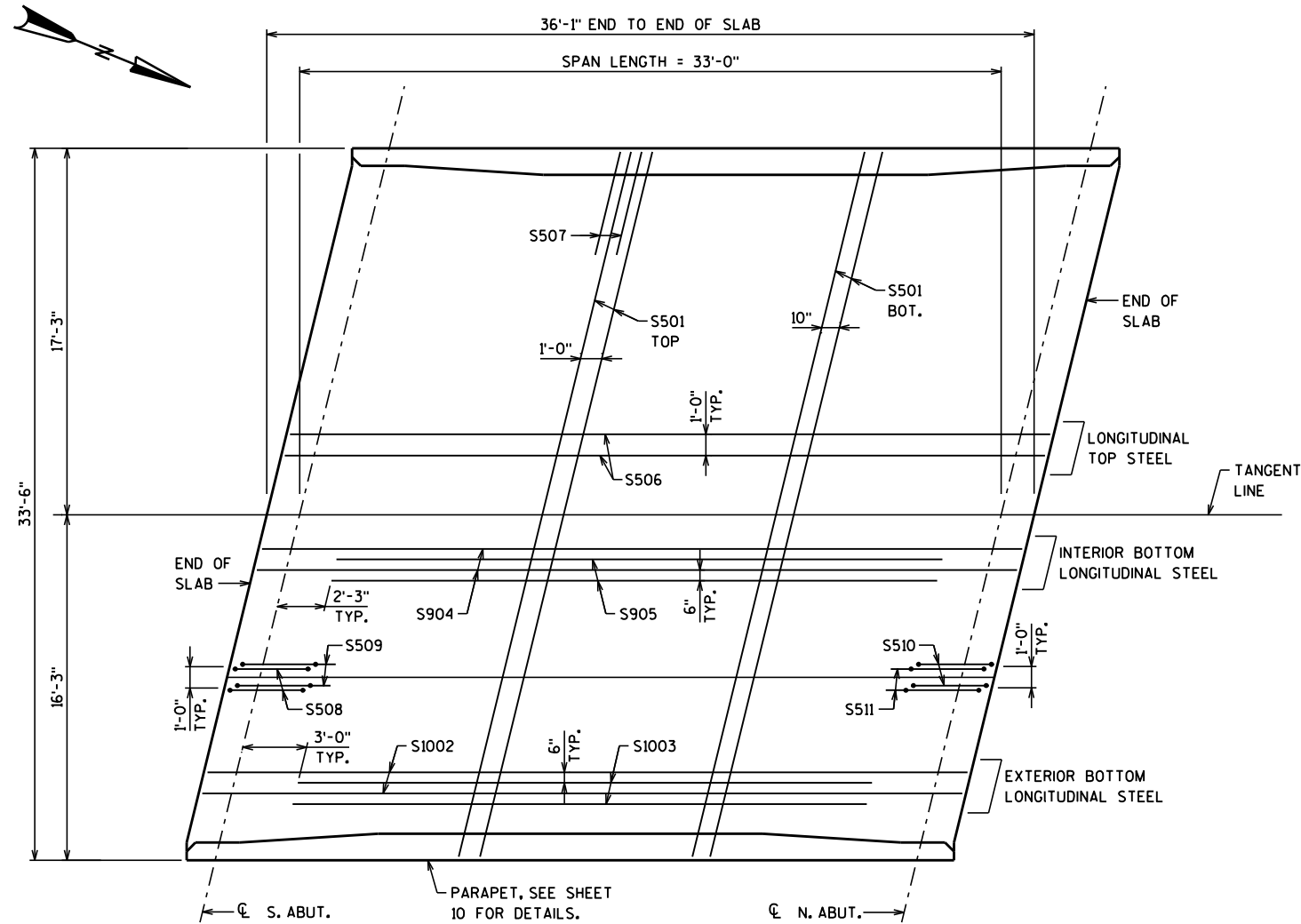


LAYER DESCRIPTIONS

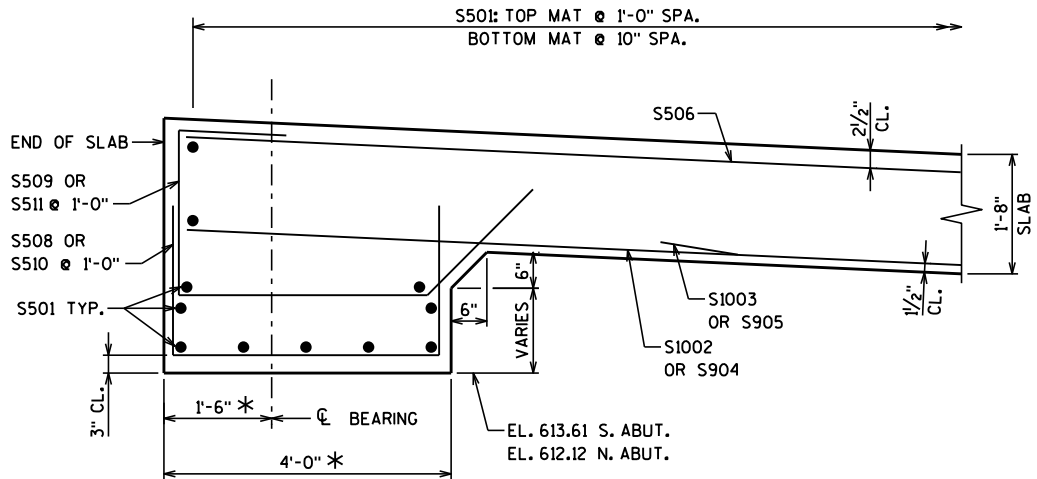


NOTES:

- ▲ KEYBLOCK: FRONT FACE OF KEY BLOCK LOCATION TO BE HELD REGARDLESS OF MODULAR BLOCK SIZE OR BATTER.
- ⊗ INDICATES GEOSYNTHETIC REINFORCEMENT LAYER NUMBER, FOR LENGTHS. SEE 'GRS WALL INFORMATION' TABLE.
- 4'-0" WRAP
- LENGTH GIVEN IN 'GRS ABUTMENT INFORMATION' TABLE IS MEASURED FROM FRONT FACE OF MODULAR BLOCK TO END OF GEOTEXTILE FABRIC.
- ☆ WALL HEIGHT DOES NOT ACCOUNT FOR THICKNESS OF GEOTEXTILE BETWEEN BLOCKS. ADJUST BOTTOM OF WALL ELEVATION TO ACCOUNT FOR GEOTEXTILE SELECTED.



PLAN



LONG. SECTION THRU RDWY.

* DIMENSION MEASURED
NORMAL TO CL OF BEARING

NOTES

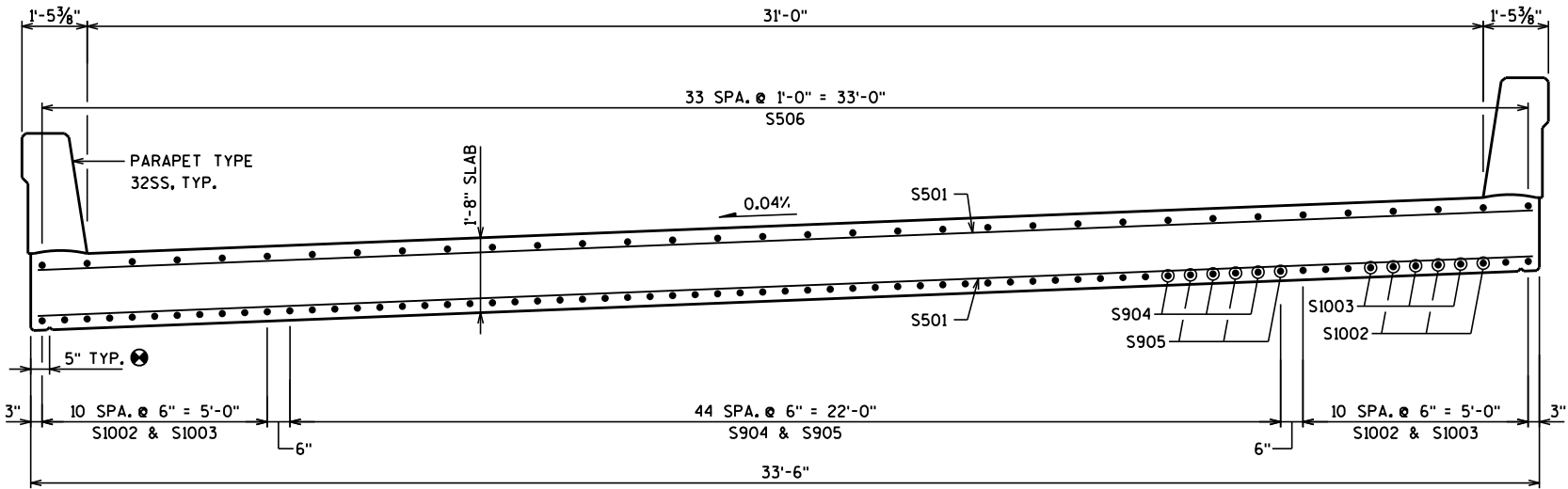
TOP TRANSVERSE BARS IN SLAB SHALL BE SUPPORTED BY INDIVIDUAL BAR CHAIRS AT APPROXIMATELY 3'-0" CENTERS EACH WAY. BOTTOM LONGITUDINAL BARS SHALL BE SUPPORTED BY CONTINUOUS BAR CHAIRS AT APPROXIMATELY 4'-0" CENTERS.

TRANSVERSE BARS SHALL BE PLACED PARALLEL TO THE CL OF BEARING.

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

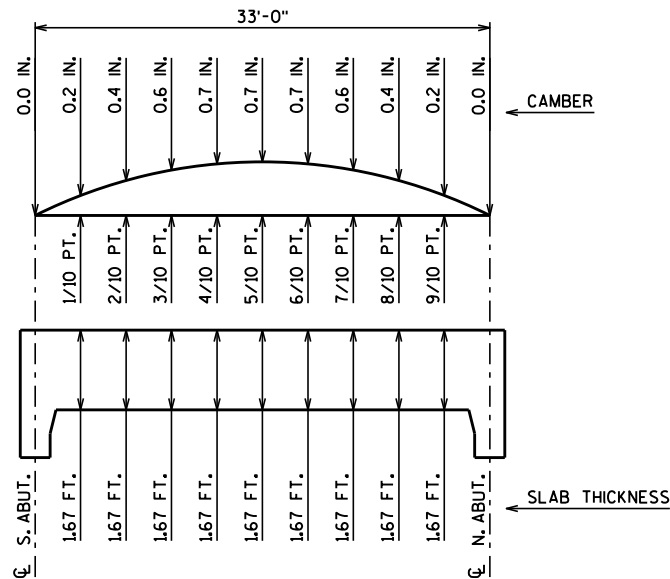
3/4" V-GROOVE, EXTEND V-GROOVE TO 2'-0" FROM FRONT FACE OF HAUNCH.

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

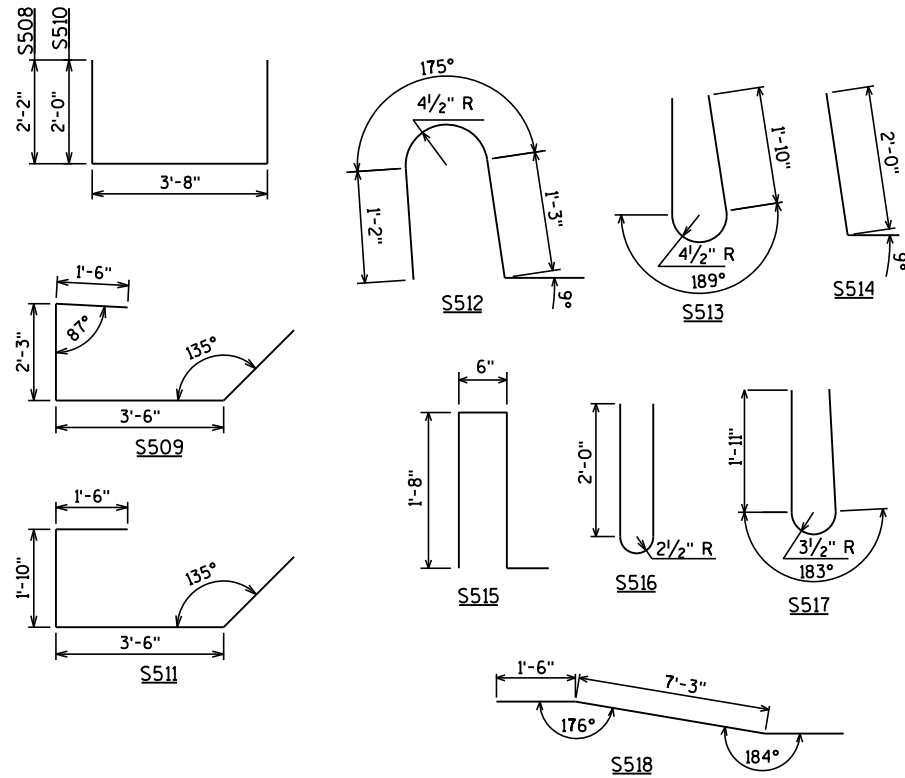


CROSS SECTION THRU ROADWAY

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-31-99			
DRAWN BY		BRE	PLANS CK'D. KRO
SUPERSTRUCTURE		SHEET 8 OF 10	

**CAMBER DIAGRAM**

CAMBER IS BASED ON 3 TIMES DEAD LOAD DEFLECTIONS.
CAMBER SPANS AS SHOWN TO PROVIDE FOR DEADLOAD
DEFLECTION AND FUTURE CREEP. CAMBER DOES NOT
INCLUDE ALLOWANCE FOR FORM SETTLEMENT.

**BAR BEND DIAGRAMS****BILL OF BARS**

BAR MARK	COAT	NO. REQ'D.	LENGTH	BENT	LOCATION
S501	X	99	34'-1"		TRANSVERSE TOP & BOT.
S1002	X	12	35'-9"		LONGITUDINAL BOTTOM
S1003	X	10	27'-0"		LONGITUDINAL BOTTOM
S904	X	22	35'-9"		LONGITUDINAL BOTTOM
S905	X	23	28'-6"		LONGITUDINAL BOTTOM
S506	X	34	35'-9"		LONGITUDINAL TOP
S507	X	72	5'-0"		TRANSVERSE TOP
S508	X	34	7'-9"	X	SOUTH END OF SLAB
S509	X	34	9'-0"	X	SOUTH END OF SLAB
S510	X	34	7'-5"	X	NORTH END OF SLAB
S511	X	34	8'-7"	X	NORTH END OF SLAB
S512	X	56	4'-5"	X	PARAPET VERTICAL
S513	X	56	5'-0"	X	PARAPET VERTICAL
S514	X	48	2'-9"	X	PARAPET VERTICAL
S515	X	68	4'-4"	X	PARAPET VERTICAL
S516	X	44	4'-9"	X	PARAPET VERTICAL
S517	X	24	4'-10"	X	PARAPET VERTICAL
S518	X	4	10'-5"	X	PARAPET HORIZONTAL
S519	X	20	10'-5"		PARAPET HORIZONTAL
S520	X	12	17'-11"		PARAPET HORIZONTAL

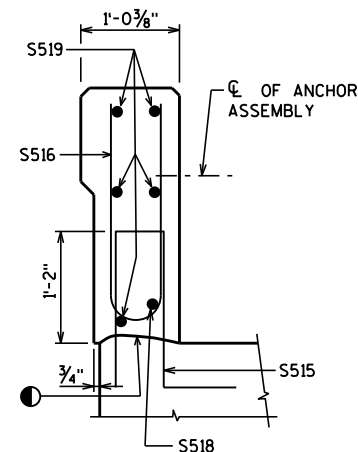
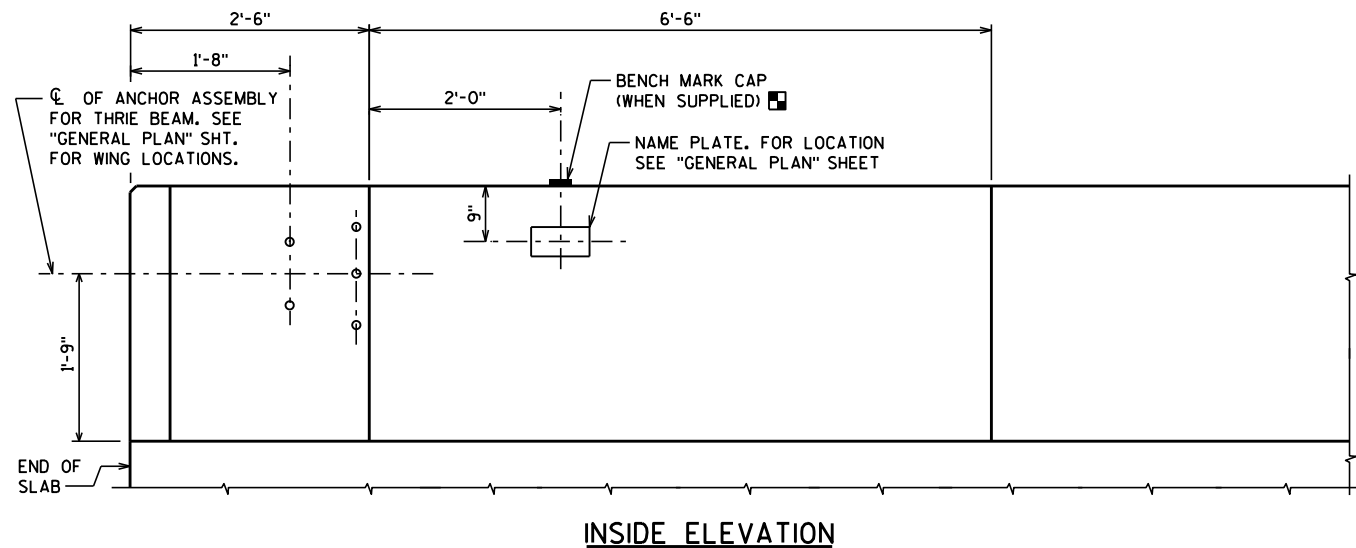
TOP OF DECK ELEVATIONS

LOCATION	S.ABUT.	1/10	2/10	3/10	4/10	5/10	6/10	7/10	8/10	9/10	N.ABUT.
W. EDGE	616.38	616.20	616.03	615.85	615.67	615.48	615.30	615.11	614.92	614.73	614.54
TANGENT	617.18	617.02	616.86	616.69	616.53	616.36	616.19	616.02	615.84	615.67	615.49
E. EDGE	617.91	617.76	617.61	617.46	617.30	617.15	616.99	616.83	616.67	616.51	616.35

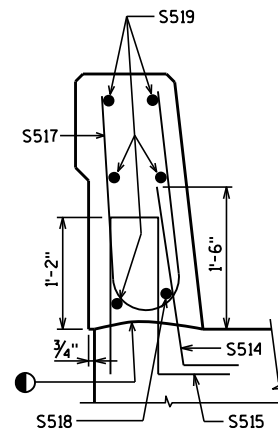
TABLE OF TENTH POINT OFFSETS FROM C_L CTH E

1/10 POINT	WEST EDGE OF DECK		TANGENT LINE		EAST EDGE OF DECK	
	STATION	OFFSET	STATION	OFFSET	STATION	OFFSET
S. ABUT.	105+76.64	-16.93	105+73.35	0.54	105+70.64	17.04
0.1	105+80.18	-17.08	105+76.64	0.35	105+73.73	16.80
0.2	105+83.72	-17.18	105+79.93	0.20	105+76.82	16.61
0.3	105+87.26	-17.24	105+83.23	0.09	105+79.91	16.46
0.4	105+90.81	-17.25	105+86.53	0.02	105+83.00	16.35
0.5	105+94.35	-17.21	105+89.83	0.00	105+86.10	16.28
0.6	105+97.90	-17.13	105+93.13	0.02	105+89.20	16.25
0.7	106+01.43	-17.00	105+96.43	0.09	105+92.30	16.26
0.8	106+04.97	-16.82	105+99.72	0.20	105+95.39	16.32
0.9	106+08.50	-16.60	106+03.01	0.35	105+98.49	16.41
N. ABUT.	106+12.02	-16.33	106+06.30	0.54	106+01.58	16.54

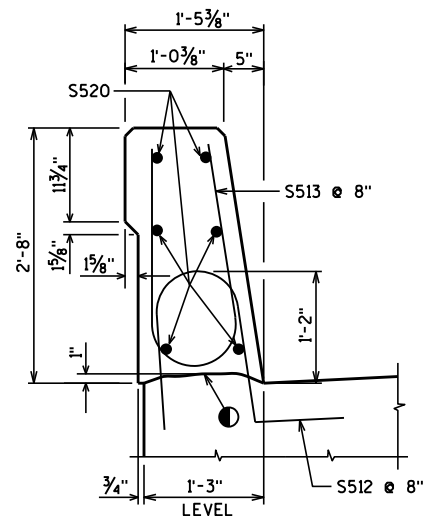
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-31-99			
DRAWN BY		BRE	PLANS CK'D. KRO
SUPERSTRUCTURE DETAILS		SHEET 9 OF 10	



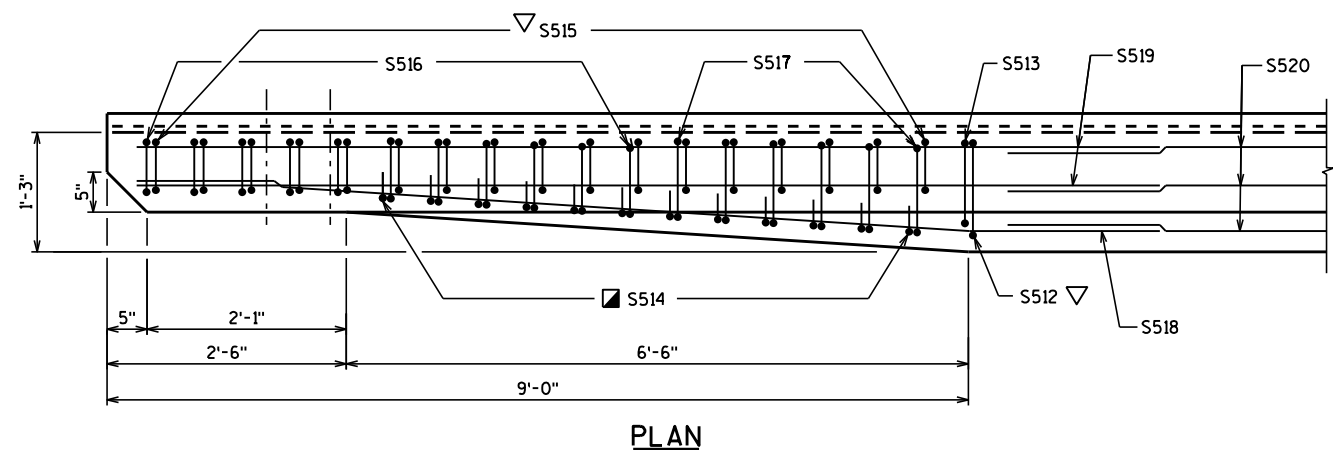
SECTION A



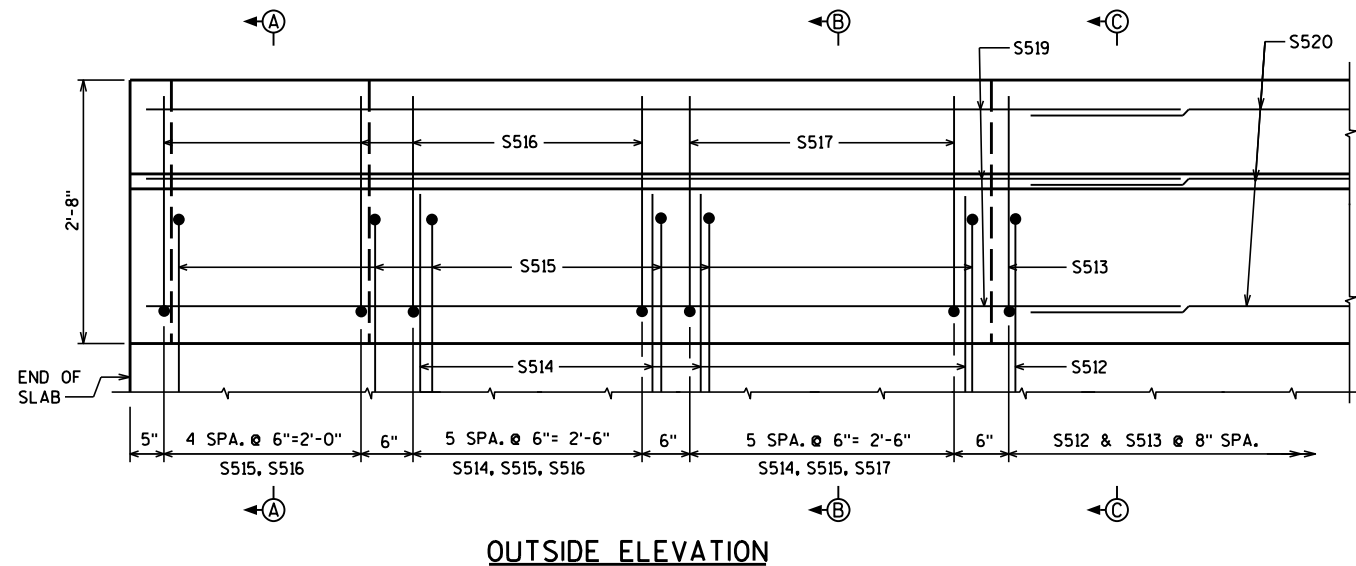
SECTION B



SECTION C



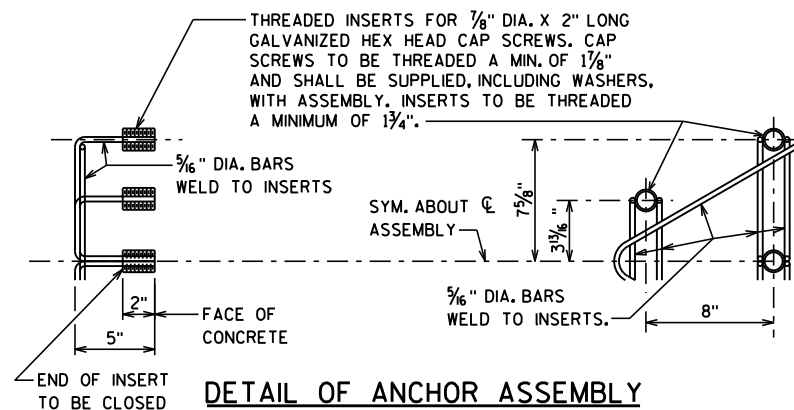
PLAN



OUTSIDE ELEVATION

LEGEND

- CONST. JOINT - STRIKE OFF AS SHOWN.
- S514 BARS MAY BE PLACED AFTER CONCRETE IS POURED BUT BEFORE INITIAL SET HAS TAKEN PLACE. USE CARE TO PLACE S514 BARS CORRECTLY ALONG TRANSITION OF PARAPET.
- ▽ S512 AND S515 BARS TO BE TIED TO SLAB STEEL BEFORE WING IS POURED.
- BENCH MARK CAP (WHEN SUPPLIED). AVOID PLACING A BENCH MARK CAP BELOW A RAIL OR FENCE SYSTEM THAT IS ATTACHED TO THE TOP OF THE PARAPET.

**DETAIL OF ANCHOR ASSEMBLY**

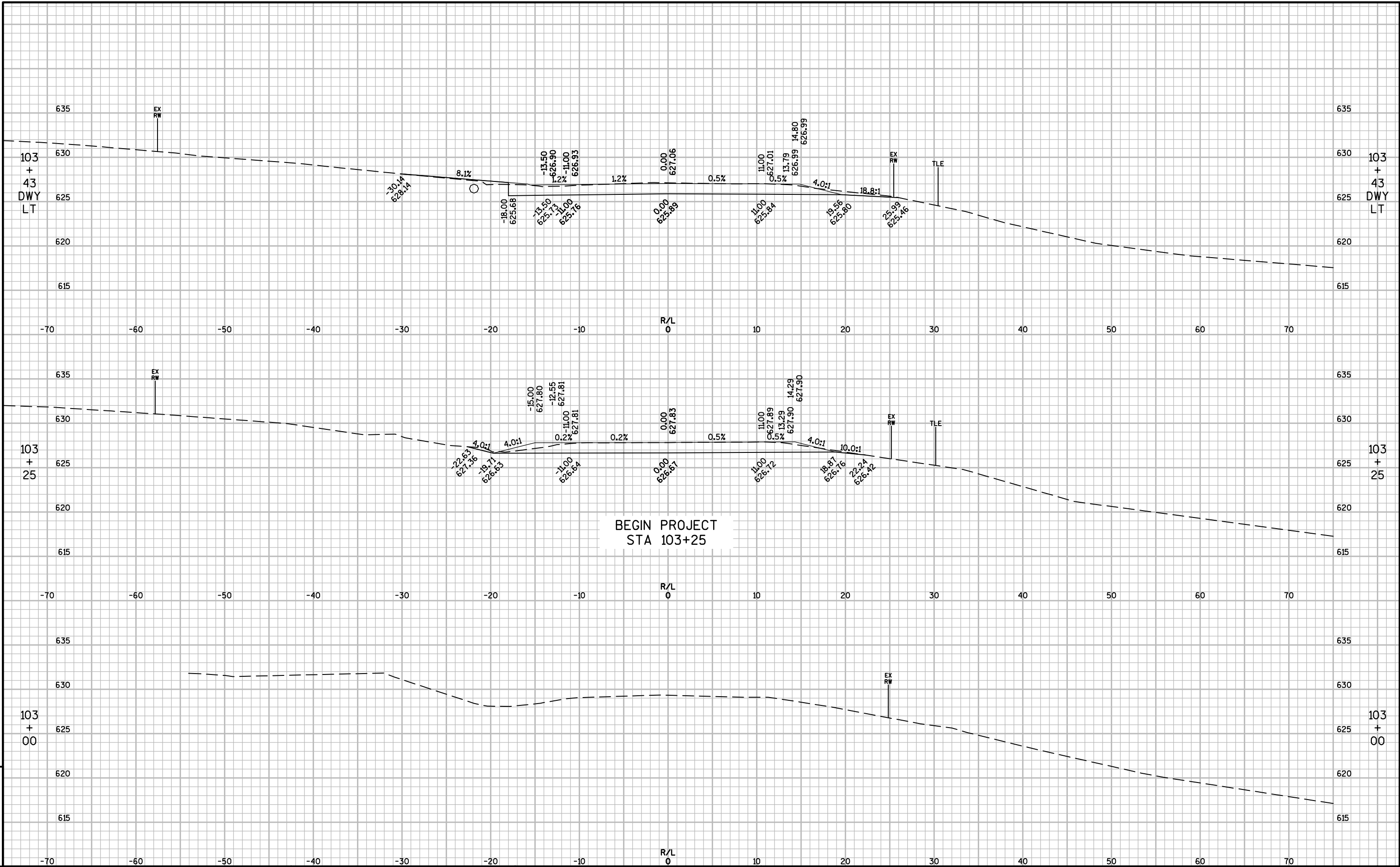
NOTE: HEX HEAD CAP SCREWS & WASHERS TO BE GALVANIZED IN ACCORDANCE WITH AASHTO M232 CLASS C.

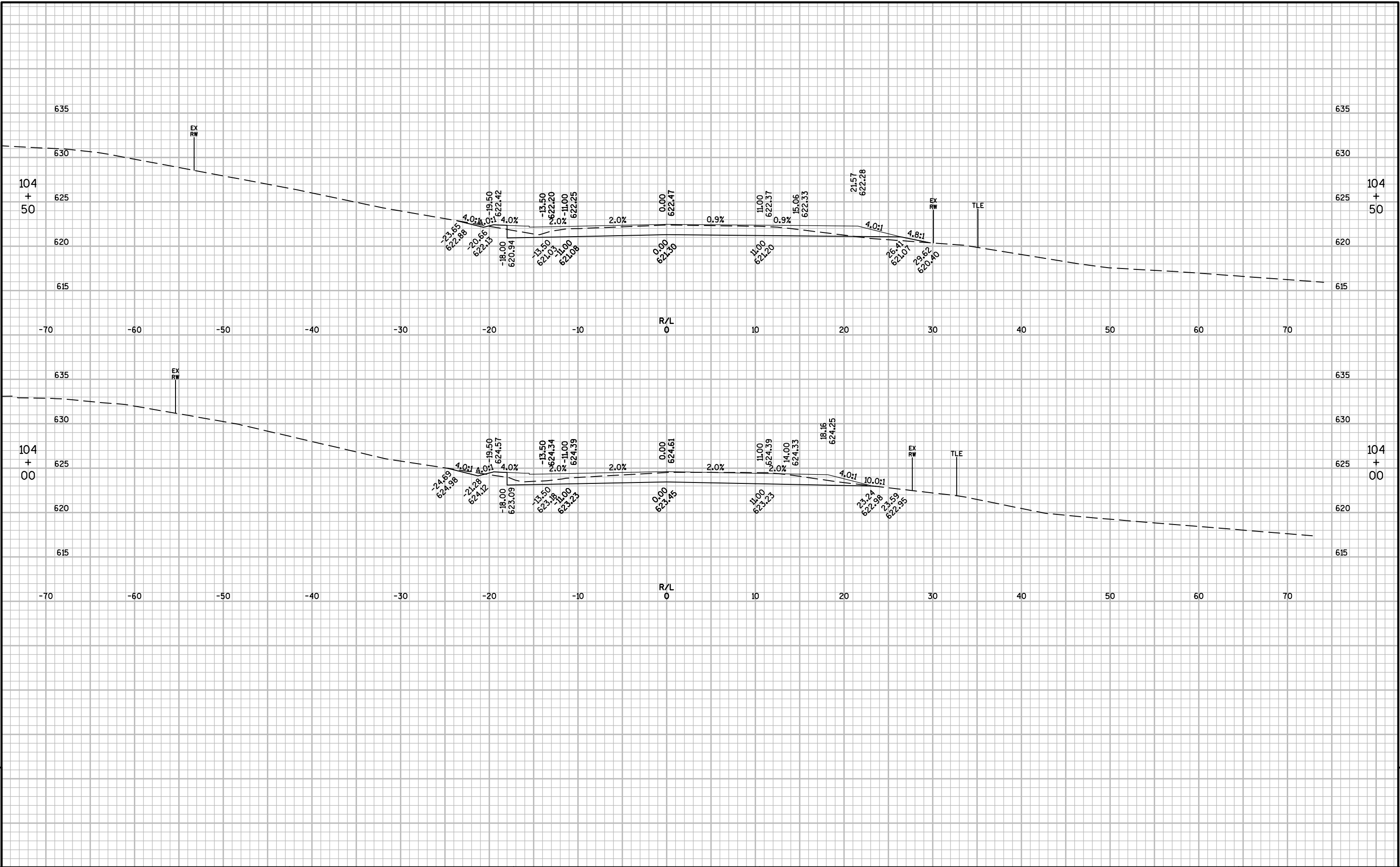
ASSEMBLY SHALL BE BID ITEM "ANCHOR ASSEMBLIES FOR STEEL PLATE BEAM GUARD", EACH.

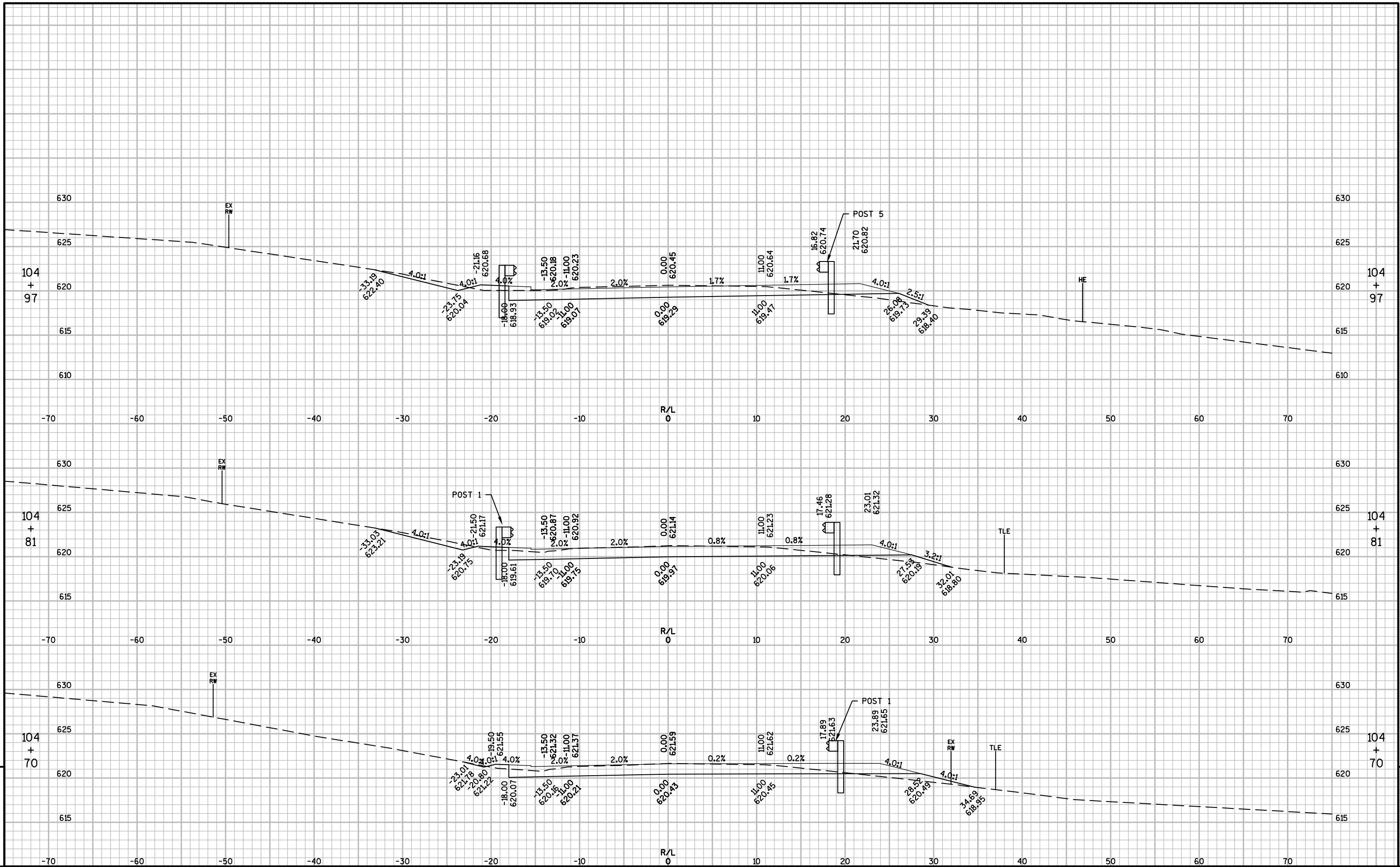
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-31-99			
DRAWN BY		BRE	PLANS CK'D. KRO
SINGLE SLOPE 32SS PARAPET			SHEET 10 OF 10

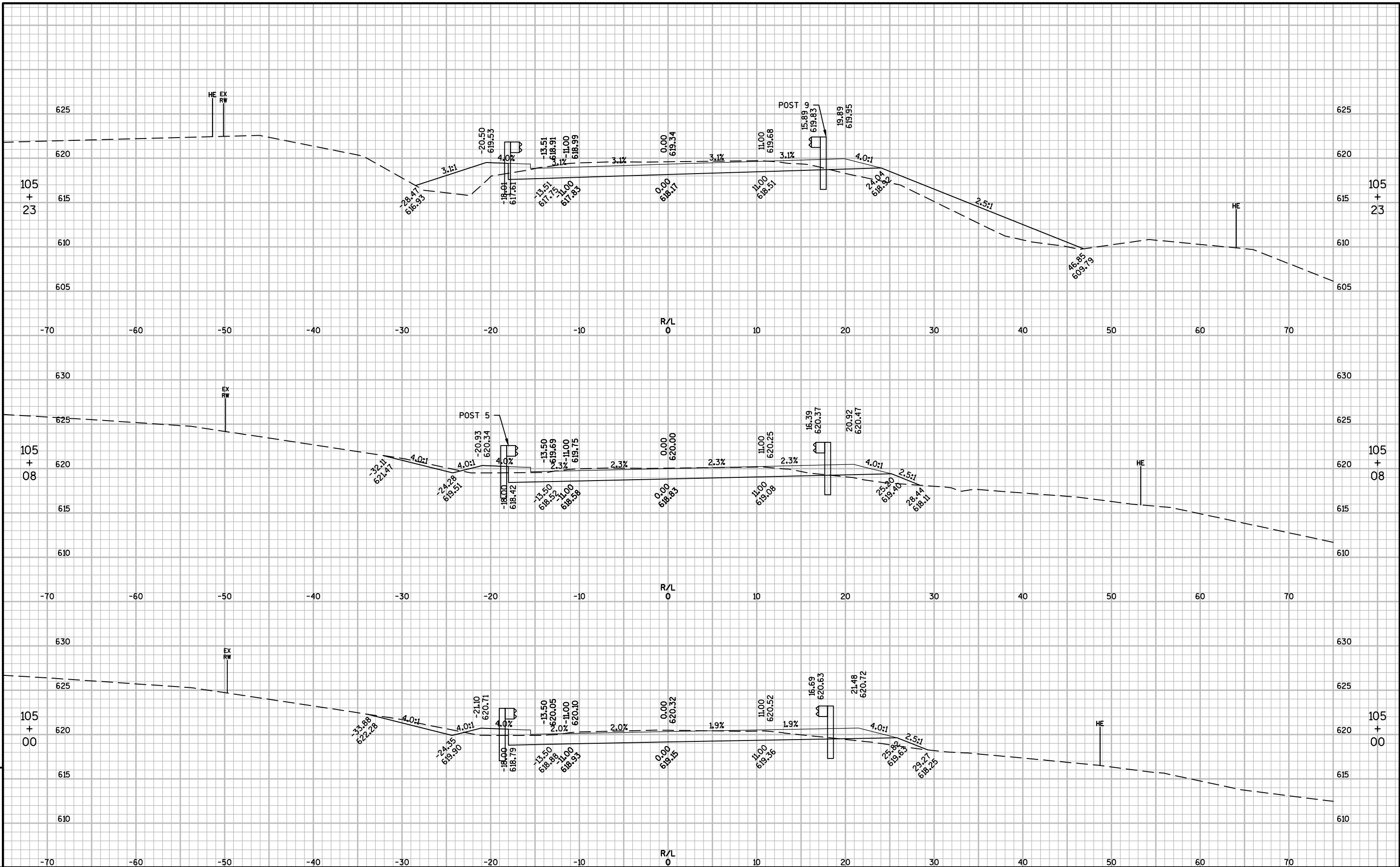
EARTHWORK

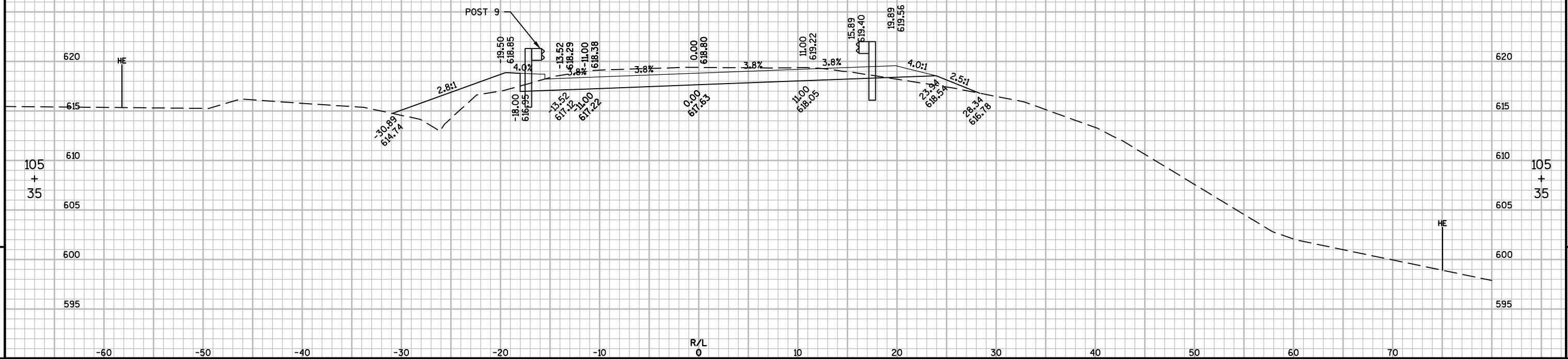
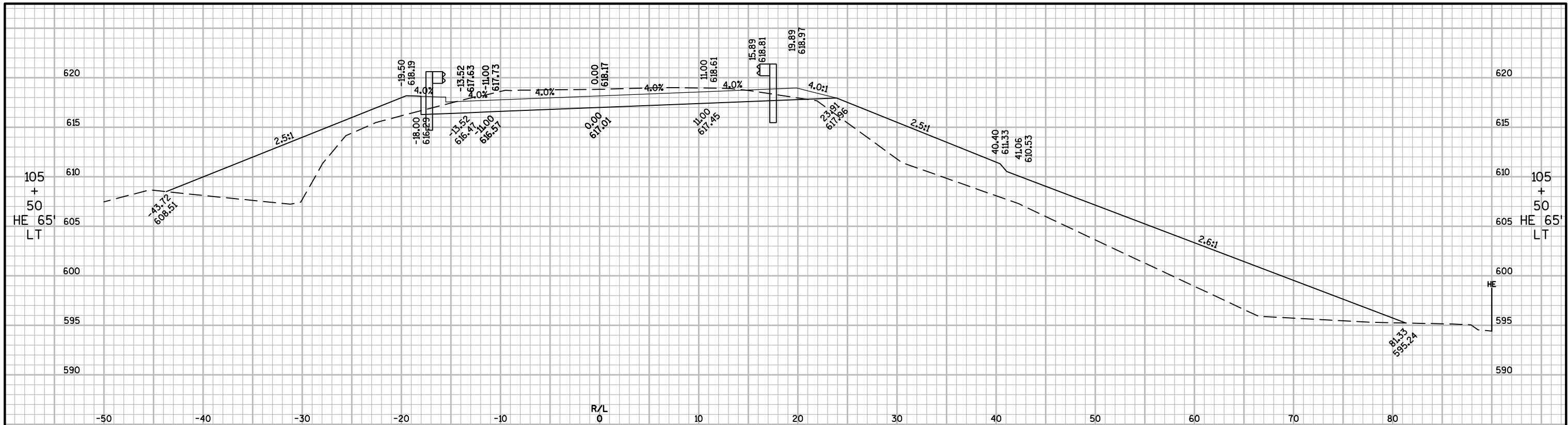
STATION	AREA (SF)		Incremental Vol (CY) (Unadjusted)		Cumulative Vol (CY)		Mass Ordinate
	Cut	Fill	Cut Note 1	Fill Note 3	Cut 1.00 Note 1	Expanded Fill 1.25	
103+25	0.00	0.00	0	0	0	0	0
103+43	42.45	1.51	14	1	14	1	14
104+00	35.91	1.97	83	4	97	5	92
104+50	34.68	3.58	65	5	162	12	151
104+70.36	37.44	7.47	27	4	189	17	173
104+81.01	45.01	7.23	16	3	206	20	185
104+96.91	44.81	7.04	26	4	232	26	206
105+00	43.10	7.54	5	1	237	27	210
105+07.55	39.11	8.71	12	2	249	30	219
105+22.95	45.24	55.35	24	18	273	52	220
105+35.4	51.65	26.58	22	19	295	76	219
105+50	57.41	268.65	29	80	325	176	149
105+65	120.94	238.70	50	141	374	352	22
STRUCTURE B-31-99							
106+20	149.98	125.86	0	0	374	352	22
106+25	125.11	146.54	25	25	400	383	16
106+50	87.72	66.38	99	99	498	507	-9
106+65.75	88.71	30.50	51	28	550	542	7
106+93.88	92.89	10.23	95	21	644	569	76
107+00	92.85	4.43	21	2	665	571	95
107+22.26	146.66	0.01	99	2	764	573	191
107+50	210.17	0.05	183	0	947	573	374
107+75	215.12	0.00	197	0	1,144	573	571
108+00	197.14	0.00	191	0	1,335	573	762
108+50	102.24	0.00	277	0	1,612	573	1,039
108+75	59.85	0.00	75	0	1,687	573	1,114
109+00	38.57	0.00	46	0	1,733	573	1,160

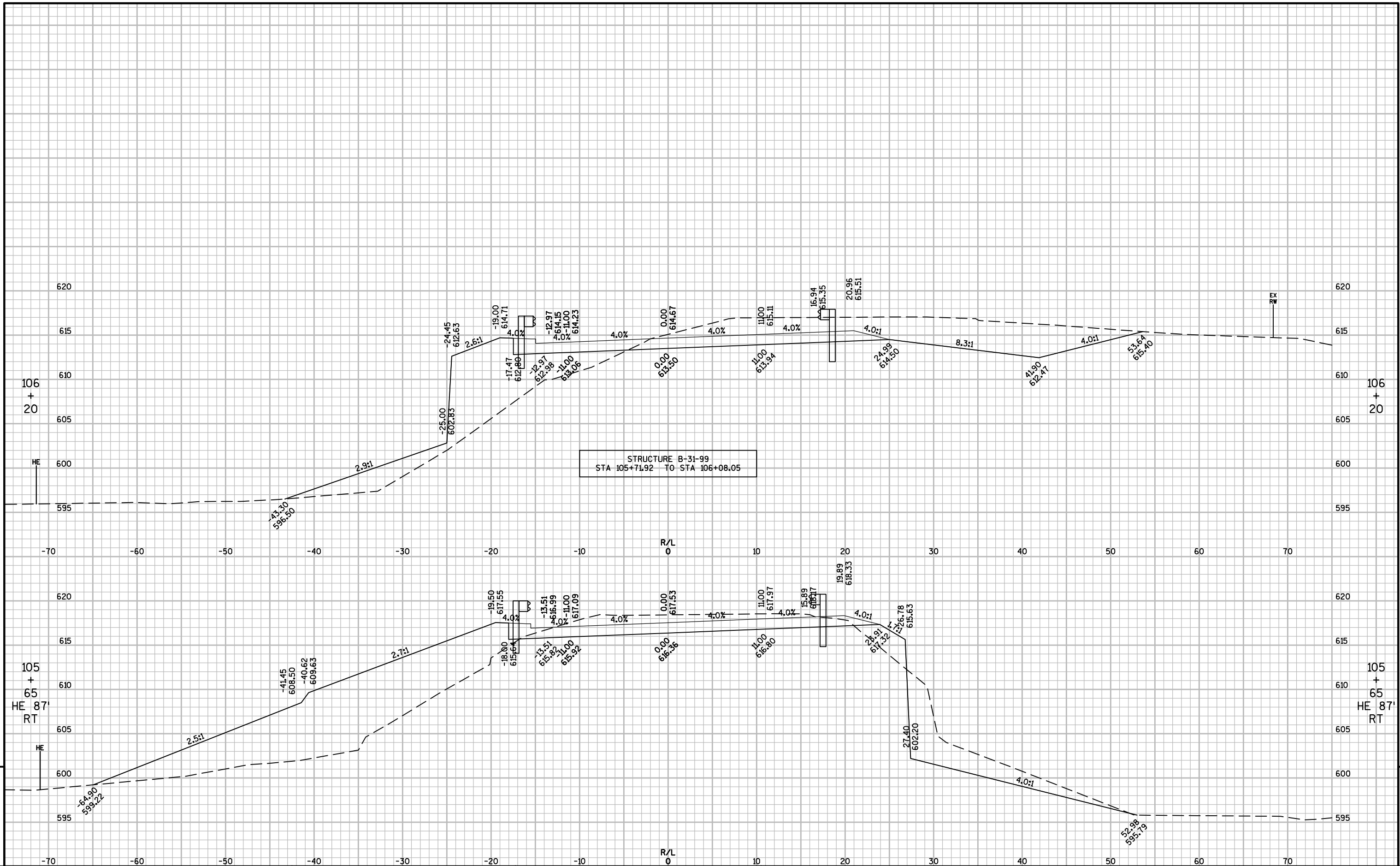


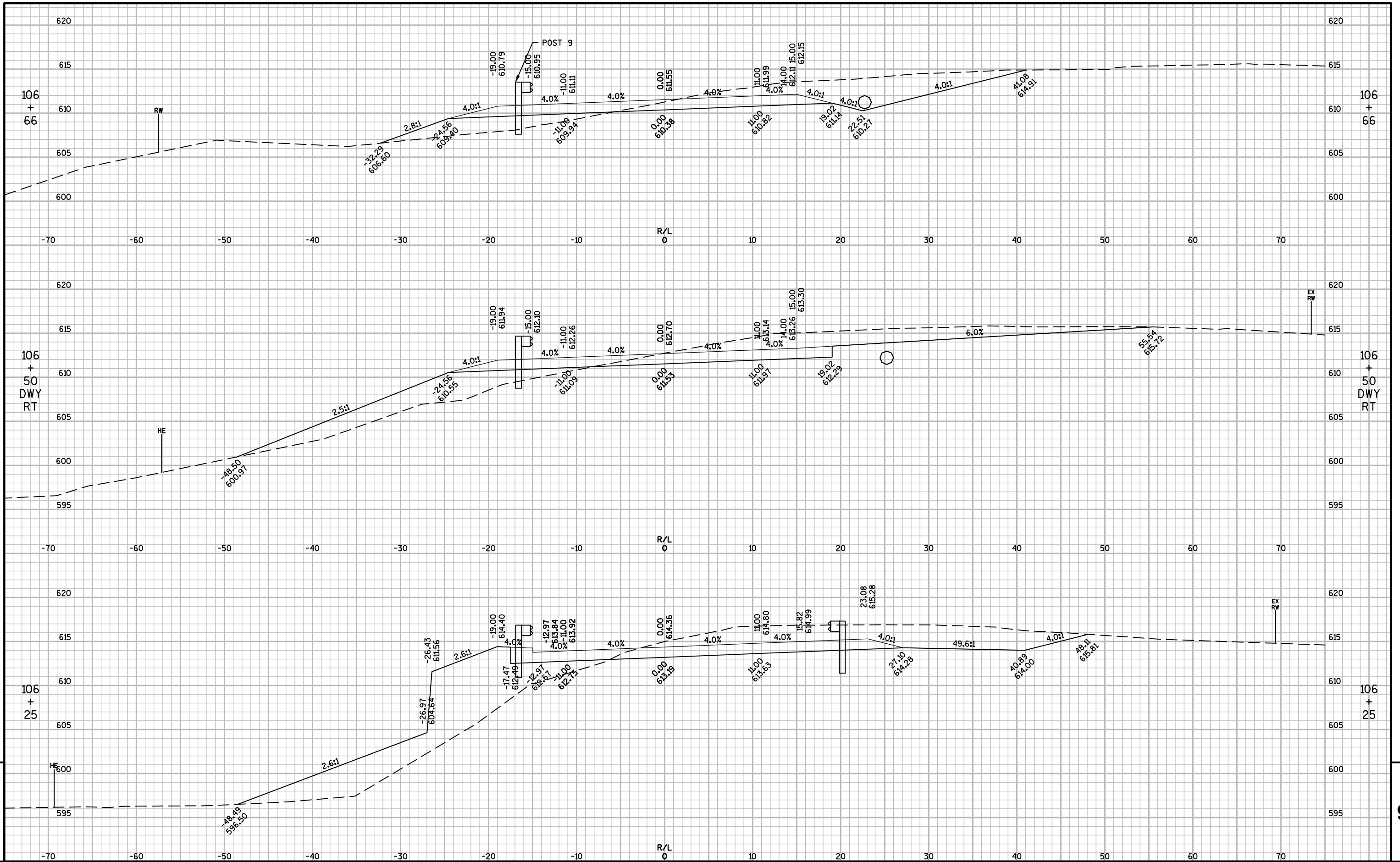


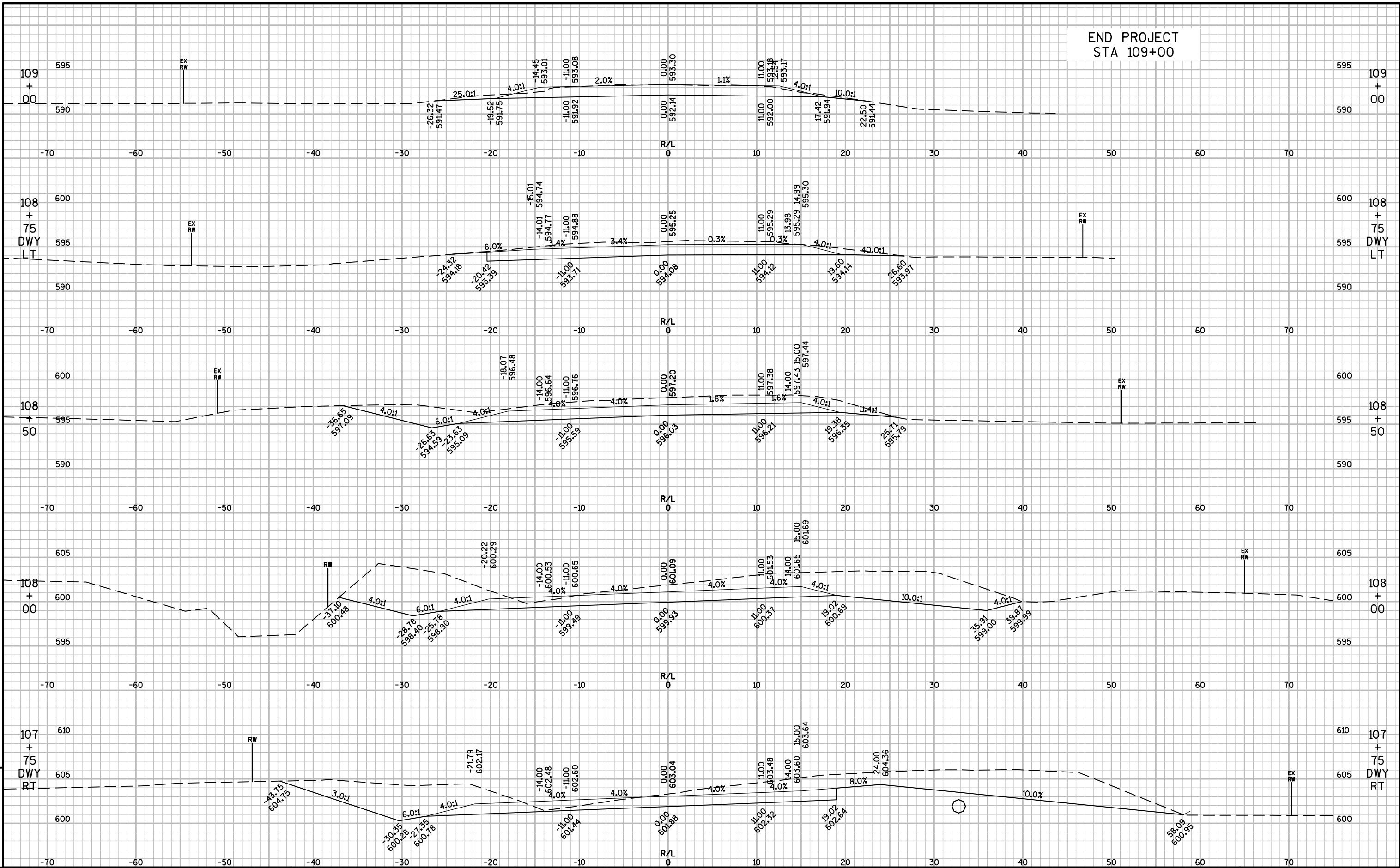


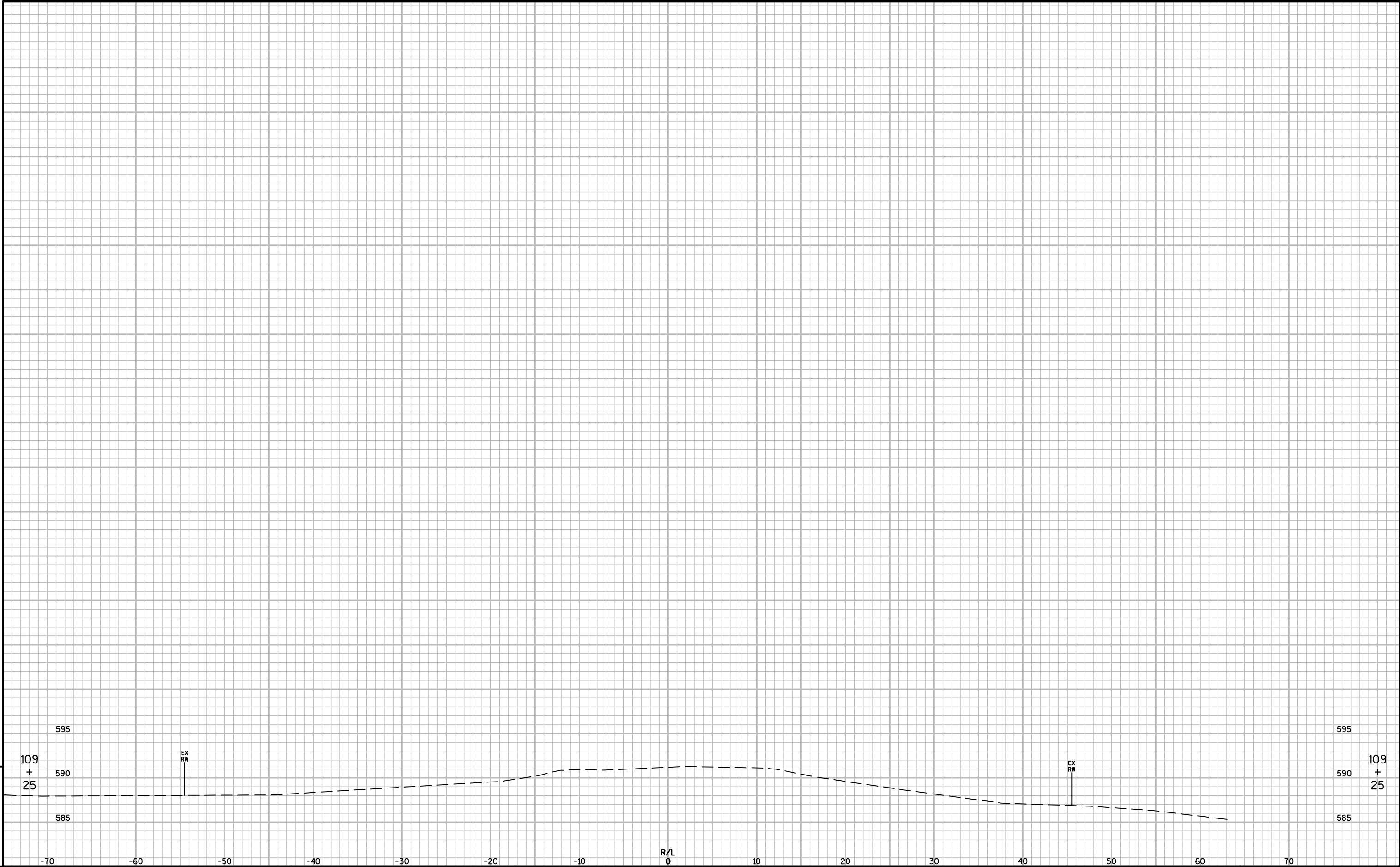








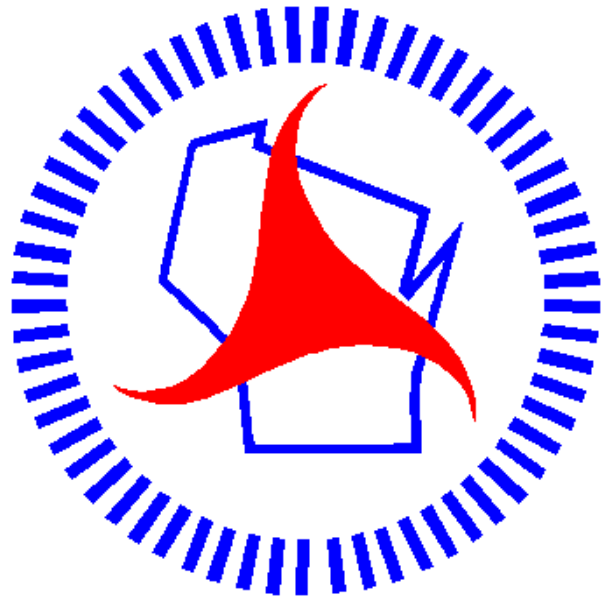




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PROJECT NO: 4394-03-71	HWY: CTH E	COUNTY: KEWAUNEE	CROSS SECTIONS: CTH E	SHEET 36	E
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