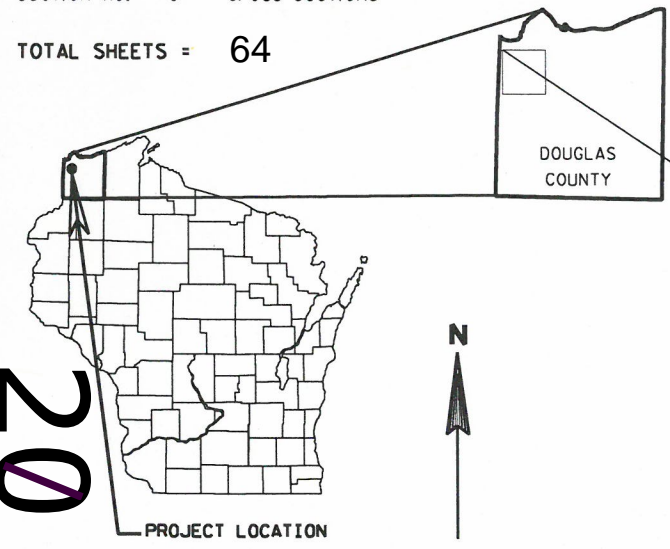


NWL
PROJECT ID: 8747-00-70
WITH: N/A

FEB 2017
ORDER OF SHEETS

Section No.	1	Title
Section No.	2	Typical Sections and Details (Includes Erosion Control Plans)
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 = 64



STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION

PLAN OF PROPOSED IMPROVEMENT CTH W - STH 35 BALSAM CREEK BRIDGE B160141 CTH B DOUGLAS COUNTY

STATE PROJECT NUMBER
8747-00-70

STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
8747-00-70	WISC 2016504	1

DESIGN DESIGNATION

A.D.T. (2017)	=	140
A.D.T. (2037)	=	190
D.H.V.	=	10
D.	=	50/50
T.	=	5%
DESIGN SPEED	=	30 MPH
ESALS	=	36,500

**CONVENTIONAL SYMBOLS
PLAN**

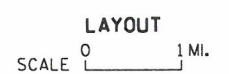
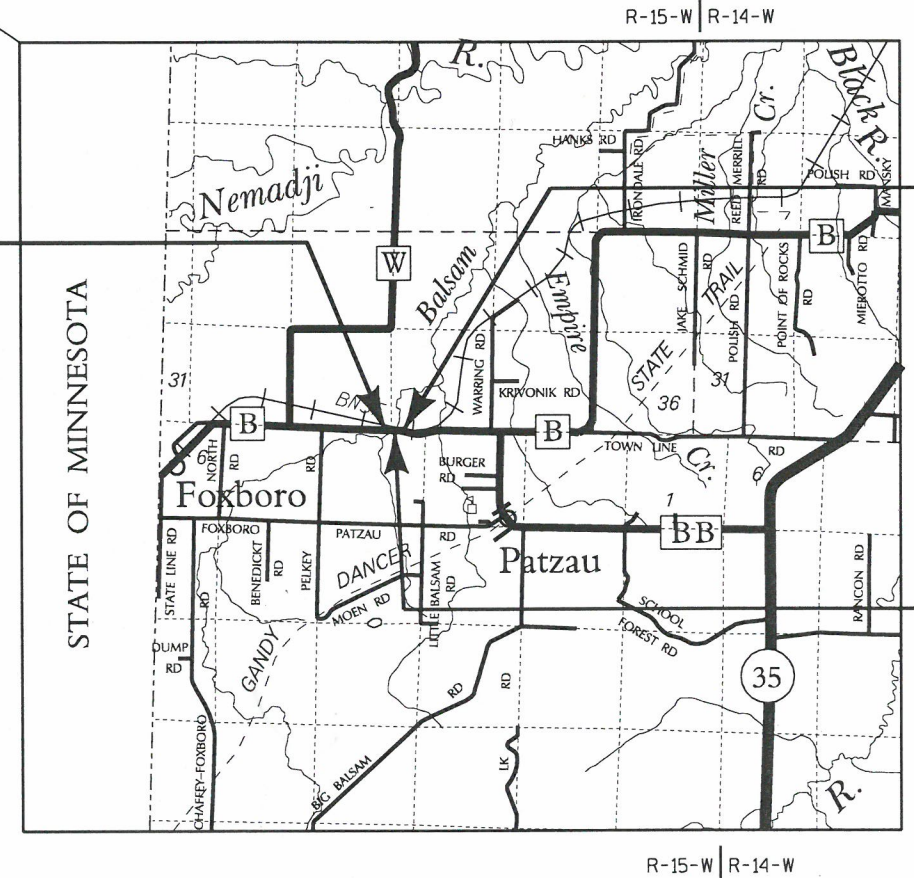
CORPORATE LIMITS	
PROPERTY LINE	
LOT LINE	
LIMITED HIGHWAY EASEMENT	
EXISTING RIGHT OF WAY	
PROPOSED OR NEW R/W LINE	
SLOPE INTERCEPT	
REFERENCE LINE	
EXISTING CULVERT	
PROPOSED CULVERT (Box or Pipe)	
COMBUSTIBLE FLUIDS	
HIGH VOLTAGE	
MARSH AREA	
WOODED OR SHRUB AREA	

PROFILE

GRADE LINE	
ORIGINAL GROUND	
MARSH OR ROCK PROFILE (To be noted as such)	
SPECIAL DITCH	
GRADE ELEVATION	
CULVERT (Profile View)	
UTILITIES	
OVERHEAD	
ELECTRIC	
FIBER OPTIC	
GAS	
SANITARY SEWER	
STORM SEWER	
TELEPHONE	
WATER	
UTILITY PEDESTAL	
POWER POLE	
TELEPHONE POLE	

**BEGIN PROJECT
STA. 8+00**
Y = 226377.75
X = 111402.59

**END PROJECT
STA. 12+50**
Y = 226375.35
X = 111852.59



TOTAL NET LENGTH OF CENTERLINE = 0.085 MI.

T-47-N
T-46-N

STRUCTURE B-16-141

COORDINATES ON THIS PLAN ARE REFERENCED TO THE WISCONSIN COUNTY COORDINATE SYSTEM (WCCS), DOUGLAS COUNTY

ACCEPTED FOR
County of Douglas
6/28/2016
Date
Jason J. Jackson
Highway Commissioner

ORIGINAL PLANS PREPARED BY
AYRES ASSOCIATES
3433 Oakwood Hills Parkway
Eau Claire, WI 54701
www.AyresAssociates.com



DATE 6/27/2016

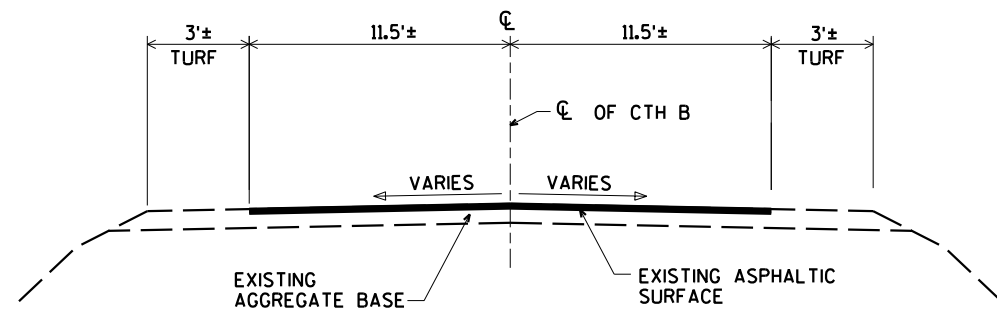
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PREPARED BY
Surveyor AYRES ASSOCIATES INC
Designer AYRES ASSOCIATES INC

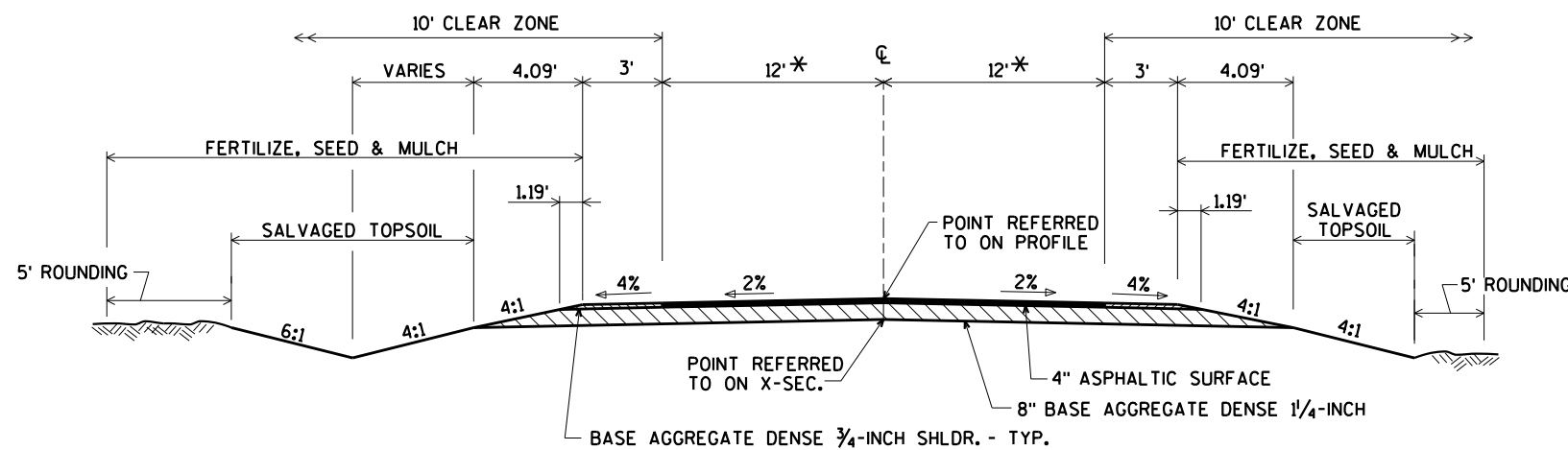
Management Consultant KNIGHT E/A INC.
C.O. Examiner

APPROVED FOR THE DEPARTMENT
DATE: 7/25/16
Ryan B. McLean
Management Consultant Signature

E



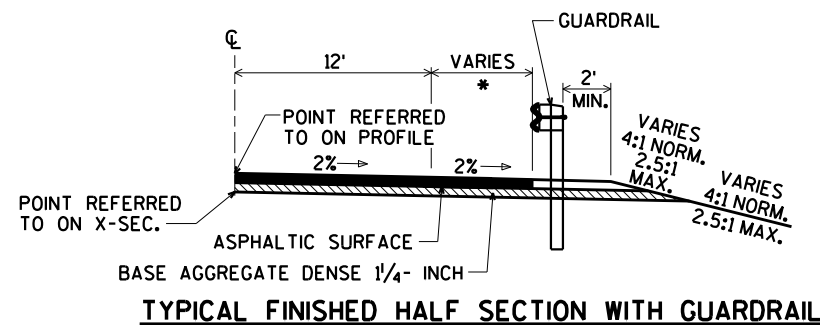
TYPICAL EXISTING SECTION



TYPICAL FINISHED SECTION

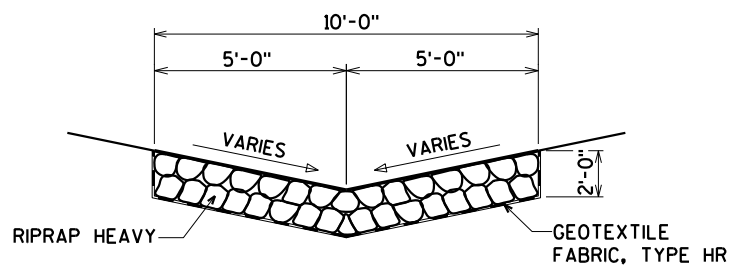
STA. 8+00 TO STA. 9+47.73
STA. 10+42.27 TO STA. 12+50

* ASPHALTIC SURFACE SHALL BE PLACED 30' WIDE AT ENDS OF THE BRIDGE AND FOLLOW THE GUARDRAIL AND TAPER TO 24' WIDE WITHIN THE PROJECT LENGTH



TYPICAL FINISHED HALF SECTION WITH GUARDRAIL

* 3' NORMAL
3' MIN. (AT END OF BRIDGE)
5' MAX. (AT END TERMINAL)



RIPRAP DITCH DETAIL

GENERAL NOTES

EROSION CONTROL ITEMS TO BE PLACED AS SHOWN ON THE PLAN OR AS DIRECTED BY THE ENGINEER.

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

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

THE CONTRACTOR IS RESPONSIBLE FOR CONTACTING AND FIELD LOCATING ALL UTILITIES.

DISTURBED AREAS WITHIN THE RIGHT-OF-WAY, EXCLUSIVE OF THE ROADBED, SHALL BE FERTILIZED, SEED, AND MULCHED AS DIRECTED BY THE ENGINEER.

SEED MIXTURE NO. 20 AND SEEDING TEMPORARY SHALL BE USED IN THE PROJECT AND SHALL BE PLACED AS SHOWN IN THE PLANS AND/OR AS DIRECTED BY THE ENGINEER.

ELEVATIONS SHOWN ON THIS PLAN ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM (NAVD) 1988.

ASPHALTIC SURFACE SHALL BE CONSTRUCTED WITH A 2" UPPER LAYER AND A 2" LOWER LAYER. ASPHALTIC SURFACE SHALL USE 12.5 mm NOMINAL AGGREGATE SIZE.

EROSION MAT IS REQUIRED ON SLOPES STEEPER THAN 3:1.

UTILITIES

CENTURYLINK
9228 E. EVERGREEN AVE.
SOLON SPRINGS, WI 54873
ATTN: ALAN NICKELL
715-378-2131
alan.nickelle@centurylink.com

** DENOTES UTILITIES THAT ARE NOT DIGGERS HOTLINE MEMBERS



Dial 811 or (800)242-8511

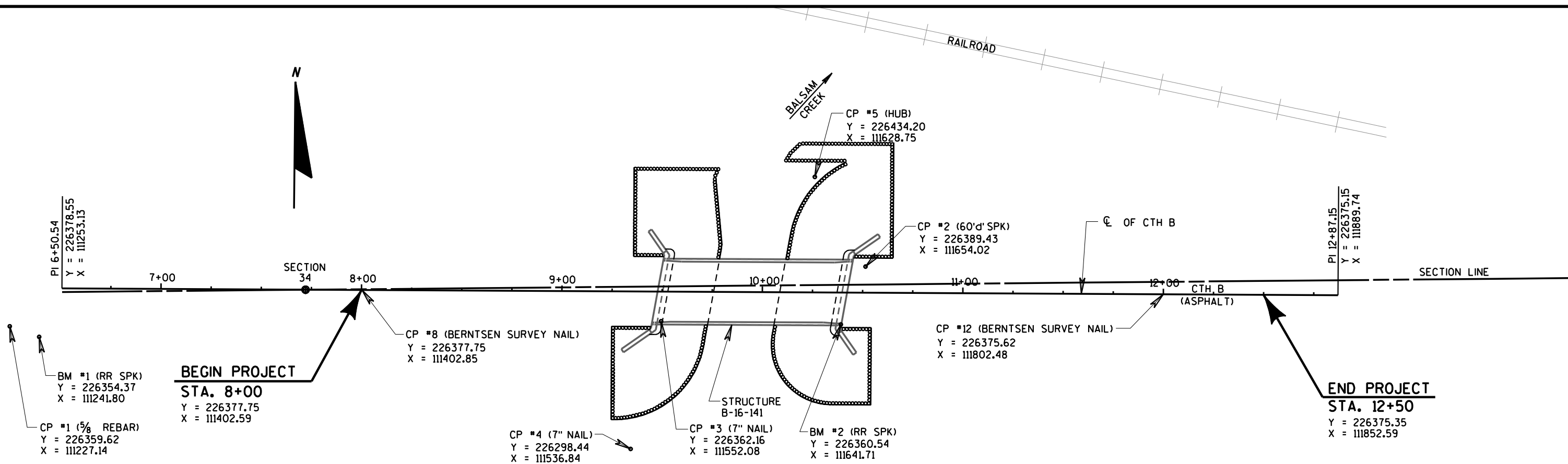
www.DiggersHotline.com

WISCONSIN DEPARTMENT OF NATURAL RESOURCES CONTACT:

AMY CRONK
810 WEST MAPLE ST.
SPOONER, WI. 54801
715-635-4229
amy.cronk@wisconsin.gov

DESIGNER

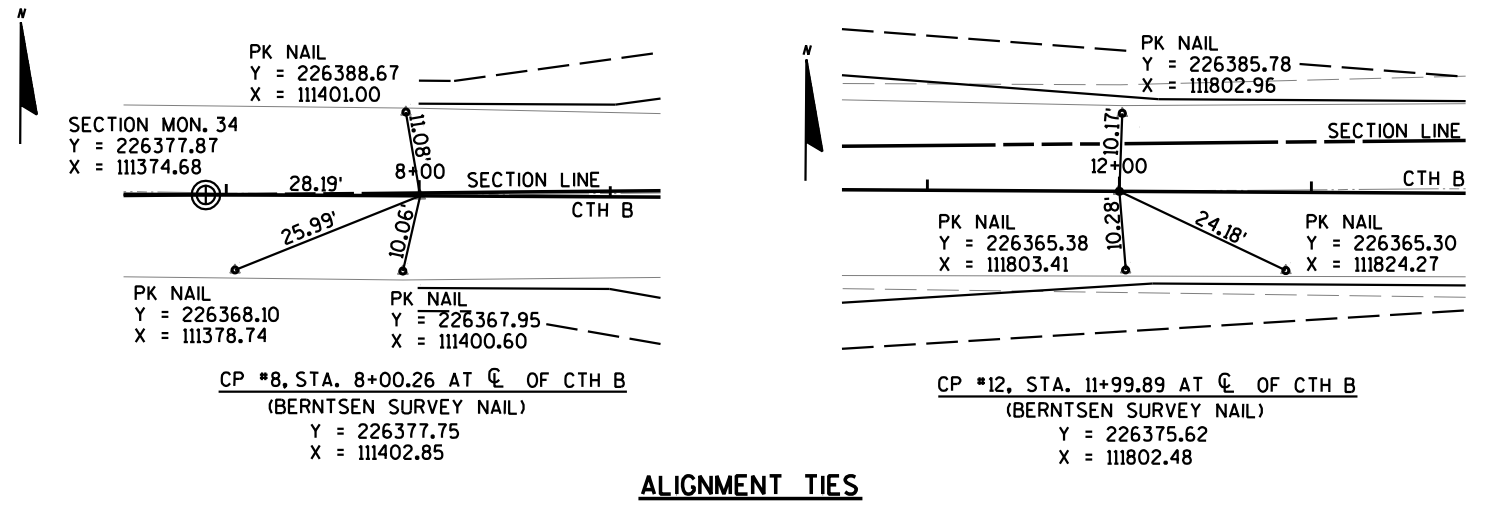
AYRES ASSOCIATES
3433 OAKWOOD HILLS PARKWAY
EAU CLAIRE, WI 54701
ATTN: DANIEL N. SYDOW
715-834-3161
sydowd@AyresAssociates.com

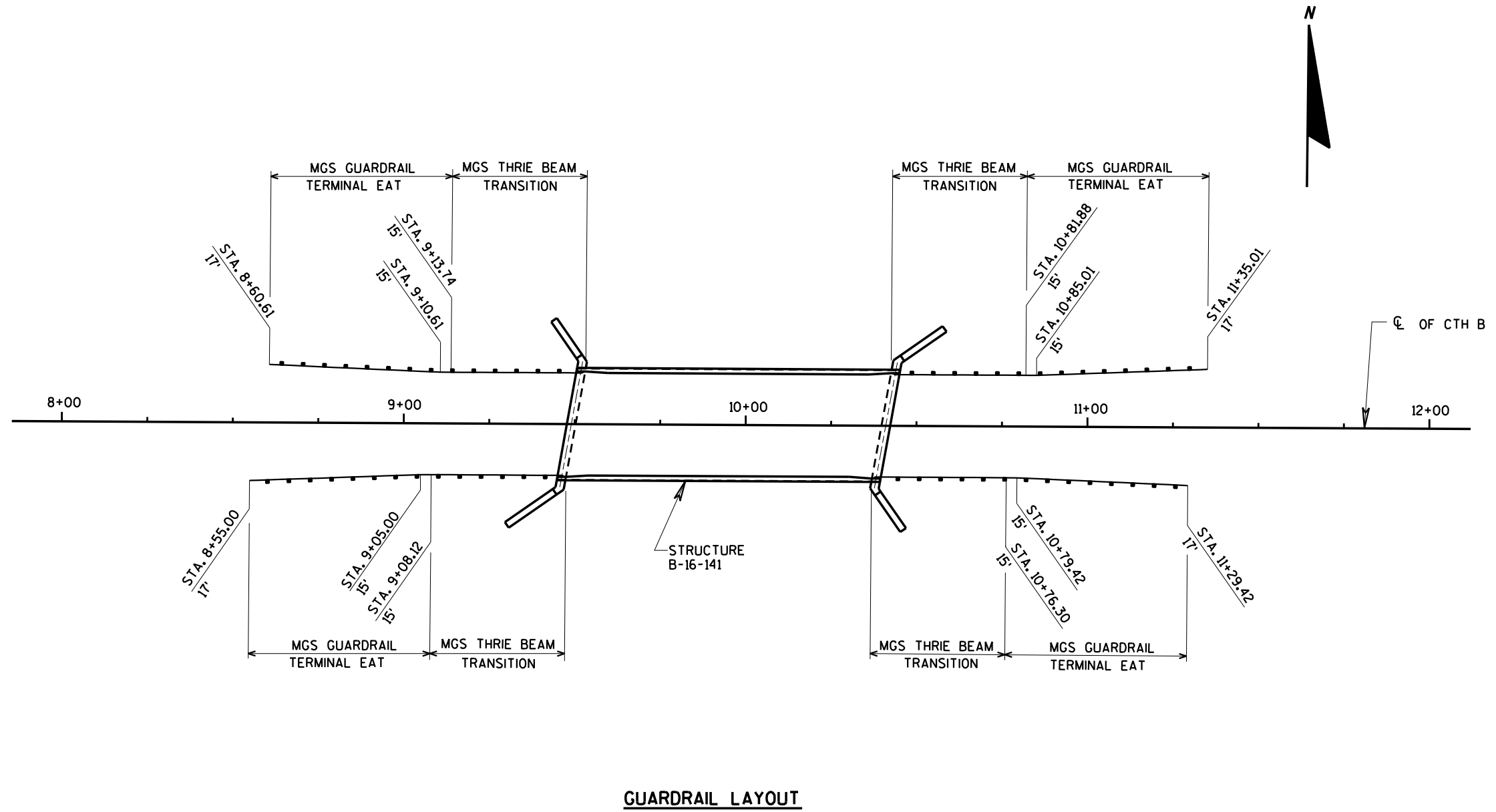


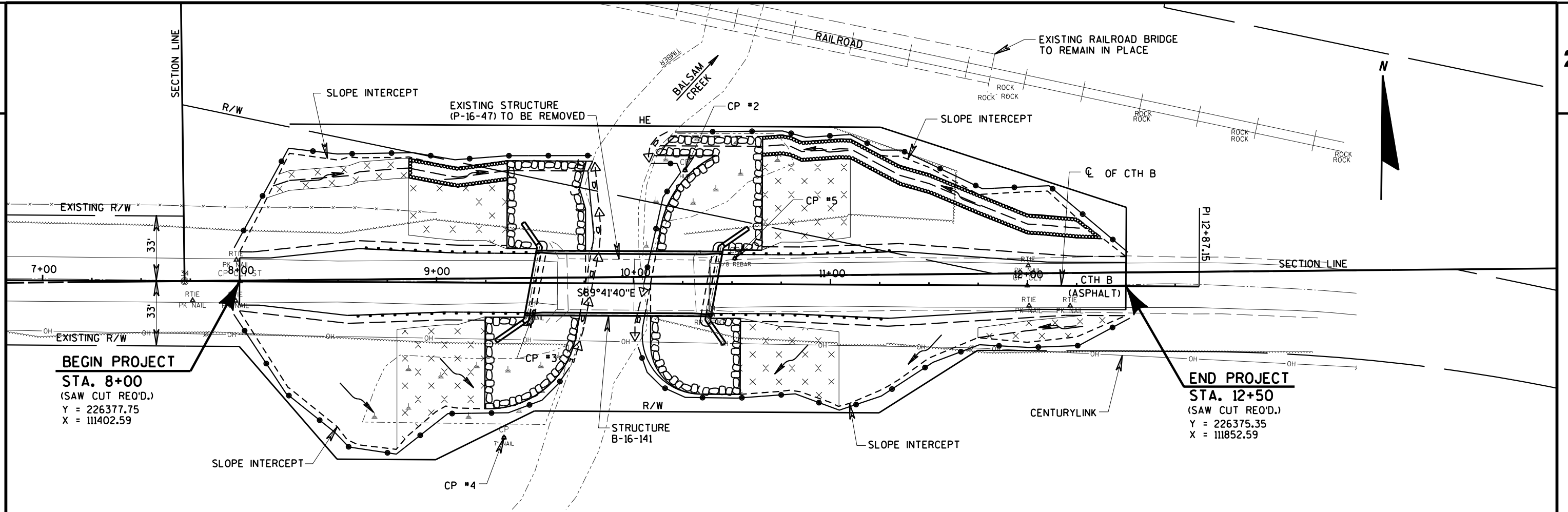
BEGIN PROJECT
STA. 8+00
 Y = 226377.75
 X = 111402.59

END PROJECT
STA. 12+50
 Y = 226375.35
 X = 111852.59

ALIGNMENT CONTROLS







BEGIN PROJECT
STA. 8+00
 (SAW CUT REQ'D.)
 Y = 226377.75
 X = 111402.59

END PROJECT
STA. 12+50
 (SAW CUT REQ'D.)
 Y = 226375.35
 X = 111852.59

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

HIGH WATER 2 EL. 825.6

- LEGEND**
- EROSION MAT CLASS II TYPE C
 - TEMPORARY DITCH CHECKS (UNDISTRIBUTED)
 - SILT FENCE
 - RIPRAP HEAVY (STRUCTURE)
 - RIPRAP HEAVY (ROADWAY)
 - TURBIDITY BARRIERS
 - FLOW DIRECTION

TOTAL PROJECT AREA = 1.39 ACRES
 TOTAL AREA EXPECTED TO BE DISTURBED BY CONSTRUCTION ACTIVITIES = 1.04 ACRES

DATE 11OCT16

ESTIMATE OF QUANTITIES

LINE NUMBER	ITEM	ITEM DESCRIPTION	UNIT	TOTAL	8747-00-70 QUANTITY
0010	201.0105	Clearing	STA	5.000	5.000
0020	201.0205	Grubbing	STA	5.000	5.000
0030	203.0600.S	Removing Old Structure Over Waterway With Minimal Debris (Station) 01. 9+95	LS	1.000	1.000
0040	205.0100	Excavation Common	CY	130.000	130.000
0050	206.1000	Excavation for Structures Bridges (structure) 01. B-16-141	LS	1.000	1.000
0060	208.0100	Borrow	CY	5,321.000	5,321.000
0070	210.1100	Backfill Structure Type A	CY	950.000	950.000
0080	213.0100	Finishing Roadway (project) 01. 8747-00-70	EACH	1.000	1.000
0090	305.0110	Base Aggregate Dense 3/4-Inch	TON	81.000	81.000
0100	305.0120	Base Aggregate Dense 1 1/4-Inch	TON	718.000	718.000
0110	455.0605	Tack Coat	GAL	57.000	57.000
0120	465.0105	Asphaltic Surface	TON	264.000	264.000
0130	502.0100	Concrete Masonry Bridges	CY	285.000	285.000
0140	502.3200	Protective Surface Treatment	SY	315.000	315.000
0150	502.3210	Pigmented Surface Sealer	SY	80.000	80.000
0160	503.0146	Prestressed Girder Type I 45W-Inch	LF	372.000	372.000
0170	505.0400	Bar Steel Reinforcement HS Structures	LB	5,590.000	5,590.000
0180	505.0600	Bar Steel Reinforcement HS Coated Structures	LB	30,530.000	30,530.000
0190	506.2605	Bearing Pads Elastomeric Non-Laminated	EACH	8.000	8.000
0200	506.4000	Steel Diaphragms (structure) 01. B-16-141	EACH	6.000	6.000
0210	514.0450	Floor Drains Type WF	EACH	2.000	2.000
0220	514.2608	Downspout 8-Inch	LF	8.000	8.000
0230	516.0500	Rubberized Membrane Waterproofing	SY	28.000	28.000
0240	550.0500	Pile Points	EACH	18.000	18.000
0250	550.1100	Piling Steel HP 10-Inch X 42 Lb	LF	990.000	990.000
0260	606.0300	Riprap Heavy	CY	996.000	996.000
0270	612.0406	Pipe Underdrain Wrapped 6-Inch	LF	210.000	210.000
0280	614.0150	Anchor Assemblies for Steel Plate Beam Guard	EACH	4.000	4.000
0290	614.2500	MGS Thrie Beam Transition	LF	160.000	160.000
0300	614.2610	MGS Guardrail Terminal EAT	EACH	4.000	4.000
0310	619.1000	Mobilization	EACH	1.000	1.000
0320	624.0100	Water	MGAL	22.000	22.000
0330	625.0500	Salvaged Topsoil	SY	2,060.000	2,060.000
0340	627.0200	Mulching	SY	4,990.000	4,990.000
0350	628.1504	Silt Fence	LF	1,305.000	1,305.000
0360	628.1520	Silt Fence Maintenance	LF	2,610.000	2,610.000
0370	628.1905	Mobilizations Erosion Control	EACH	4.000	4.000
0380	628.1910	Mobilizations Emergency Erosion Control	EACH	2.000	2.000
0390	628.2027	Erosion Mat Class II Type C	SY	1,290.000	1,290.000
0400	628.6005	Turbidity Barriers	SY	180.000	180.000
0410	628.7504	Temporary Ditch Checks	LF	50.000	50.000
0420	629.0210	Fertilizer Type B	CWT	4.300	4.300
0430	630.0120	Seeding Mixture No. 20	LB	90.000	90.000
0440	630.0200	Seeding Temporary	LB	45.000	45.000
0450	630.0300	Seeding Borrow Pit	LB	45.000	45.000
0460	634.0612	Posts Wood 4x6-Inch X 12-FT	EACH	4.000	4.000
0470	637.2230	Signs Type II Reflective F	SF	12.000	12.000
0480	638.2602	Removing Signs Type II	EACH	4.000	4.000
0490	638.3000	Removing Small Sign Supports	EACH	4.000	4.000

DATE 11OCT16

E S T I M A T E O F Q U A N T I T I E S

LINE NUMBER	ITEM	ITEM DESCRIPTION	UNIT	TOTAL	8747-00-70 QUANTITY
0500	642.5001	Field Office Type B	EACH	1.000	1.000
0510	643.0100	Traffic Control (project) 01. 8747-00-70	EACH	1.000	1.000
0520	645.0120	Geotextile Type HR	SY	1,789.000	1,789.000
0530	646.0106	Pavement Marking Epoxy 4-Inch	LF	1,800.000	1,800.000
0540	650.4500	Construction Staking Subgrade	LF	356.000	356.000
0550	650.5000	Construction Staking Base	LF	356.000	356.000
0560	650.6500	Construction Staking Structure Layout (structure) 01. B-16-141	LS	1.000	1.000
0570	650.9910	Construction Staking Supplemental Control (project) 01. 8747-00-70	LS	1.000	1.000
0580	650.9920	Construction Staking Slope Stakes	LF	356.000	356.000
0590	690.0150	Sawing Asphalt	LF	46.000	46.000
0600	715.0502	Incentive Strength Concrete Structures	DOL	1,710.000	1,710.000
0610	ASP.1TOA	On-the-Job Training Apprentice at \$5.00/HR 01. 8747-00-70	HRS	1,200.000	1,200.000
0620	ASP.1TOG	On-the-Job Training Graduate at \$5.00/HR 01. 8747-00-70	HRS	300.000	300.000
0630	SPV.0105	Special 01. INSTALL CULVERT PIPE	LS	1.000	1.000

3

3

EARTHWORK SUMMARY (CATEGORY 0010)

DIVISION	STATION TO STATION	LOCATION	205.0100	SALVAGED/ UNUSABLE	PAVEMENT AVAILABLE	UNEXPANDED FILL (3) CY	EXPANDED FILL (5) CY	MASS ORDINATE ±(6) CY	WASTE CY	208.0100	COMMENTS:
			EXCAVATION COMMON CUT (1) CY	MATERIAL (2) CY	MATERIAL (4) CY					BORROW CY	
1	8+00 TO 9+50	CTH B	54	0	54	2,268	2,948	-2,894	0	2894	
	10+39 TO 12+50	CTH B	76	0	76	1,925	2,503	-2,427	0	2427	
GRANDTOTAL			130	0	130	4,193	5,451	-5,321	0	5,321	
TOTAL EXCAVATION COMMON			130 CY							TOTAL BORROW 5,321 CY	

NOTES:

- 1) EXCAVATION COMMON IS THE SUM OF THE CUT COLUMN. ITEM NUMBER 205.0100
- 2) SALVAGED/UNUSABLE PAVEMENT MATERIAL IS INCLUDED IN CUT.
- 3) DOES NOT INCLUDE UNUSABLE PAVEMENT EXCAVATION VOLUME.
- 4) AVAILABLE MATERIAL = CUT - SALVAGED/UNUSABLE PAVEMENT MATERIAL
- 5) EXPANDED FILL FACTOR = 1.30
EXPANDED FILL = UNEXPANDED FILL * FILL FACTOR
- 6) THE MASS ORDINATE ± QTY CALCUTATED FOR THE DIVISION.
PLUS (+) QUANTITY INDICATES AN EXCESS OF MATERIAL WITHIN THE DIVISION.
MINUS (-) QUANTITY INDICATES A SHORTAGE OF MATERIAL WITHIN THE DIVISION.

CLEARING AND GRUBBING (CATEGORY 0010)

STATION TO STATION	201.0105 CLEARING STA	201.0205 GRUBBING STA
Sta. 8+00 to Sta. 12+50	5	5
TOTAL	5	5

BASE AGGREGATE DENSE (CATEGORY 0010)

STATION TO STATION	ROADWAY	305.0110 3/4-INCH TON	305.0120 1 1/4-INCH TON
Sta. 8+00 to Sta. 9+50	CTH B	34	309
Sta. 10+39 to Sta. 12+50	CTH B	47	409
TOTALS		81	718

455.0605 TACK COAT (CATEGORY 0010)

STATION TO STATION	ROADWAY	GAL
Sta. 8+00 to Sta. 9+50	CTH B	25
Sta. 10+39 to Sta. 12+50	CTH B	32
TOTAL		57

465.0105 ASPHALTIC SURFACE (CATEGORY 0010)

STATION TO STATION	ROADWAY	TON
Sta. 8+00 to Sta. 9+50	CTH B	112
Sta. 10+39 to Sta. 12+50	CTH B	152
TOTAL		264

213.0100 FINISHING ROADWAY (CATEGORY 0010)

LOCATION	EACH
PROJECT 8747-00-70	1

606.0300 RIPRAP HEAVY (CATEGORY 0010)

STATION TO STATION	ROADWAY	LOCATION	CY
Sta. 8+86 to Sta. 9+36	CTH B	LT	39
Sta. 10+65 to Sta. 12+30	CTH B	LT	127
TOTAL			166

624.0100 WATER (CATEGORY 0010)

PURPOSE	MGAL	
COMPACTION	8	
DUST CONTROL	14	
TOTAL		22

BEAM GUARD (CATEGORY 0010)

STATION TO STATION	LOCATION	614.2500	614.2610
		MGS THRIE BEAM TRANSITION LF	MGS GUARDRAIL TERMINAL EAT EACH
Sta. 9+13.74 to Sta. 9+53.13	LT	40	---
Sta. 9+08.12 to Sta. 9+47.51	RT	40	---
Sta. 10+42.47 to Sta. 10+81.88	LT	40	---
Sta. 10+36.86 to Sta. 10+76.30	RT	40	---
<hr/>			
Sta. 8+60.61 to Sta. 9+13.74	LT	---	1
Sta. 8+55.00 to Sta. 9+08.12	RT	---	1
Sta. 10+81.88 to Sta. 11+35.01	LT	---	1
Sta. 10+76.30 to Sta. 11+29.42	RT	---	1
<hr/>			
TOTALS		160	4

SALVAGED TOPSOIL, MULCHING, FERTILIZER, SEED, TEMP. SEED, BORROW PIT SEED (CATEGORY 0010)

STATION TO STATION	LOCATION	625.0500	627.0200	629.0210	630.0120	630.0200	630.0300
		SALVAGED TOPSOIL SY	MULCHING SY	FERTILIZER TYPE B CWT	SEEDING NO. 20 LB	SEEDING TEMPORARY LB	SEEDING BORROW PIT LB
Sta. 8+00 to Sta. 12+50	CTH B	2,060	1,330	1.7	71	36	---
BORROW PIT		---	2,660	1.7	---	---	36
UNDISTRIBUTED		---	1,000	0.9	19	9	9
TOTALS		2,060	4,990	4.3	90	45	45

SILT FENCE & SILT FENCE MAINTENANCE (CATEGORY 0010)

STATION TO STATION	LOCATION	628.1504	628.1520
		LF	MAINTENANCE LF
Sta. 8+00 to Sta. 9+68	RT	220	440
Sta. 8+00 to Sta. 9+78	LT	215	430
Sta. 10+02 to Sta. 12+50	RT	280	560
Sta. 10+05 to Sta. 10+24	LT	80	160
Sta. 10+22 to Sta. 12+50	LT	250	500
UNDISTRIBUTED		260	520
TOTALS		1,305	2,610

619.1000 MOBILIZATION

LOCATION	EACH
PROJECT 8747-00-70 (CATEGORY 0010)	0.3
PROJECT 8747-00-70 (CATEGORY 0020)	0.7
<hr/>	
TOTAL	1

MOBILIZATIONS EROSION CONTROL & EMERGENCY EROSION CONTROL (CATEGORY 0010)

LOCATION	628.1905 MOBILIZATIONS EROSION CONTROL EACH	628.1910 MOBILIZATIONS EMERGENCY EROSION CONTROL EACH
PROJECT 8747-00-70	4	2

628.2027 EROSION MAT CLASS II TYPE C (CATEGORY 0010)

STATION TO STATION	LOCATION	SY
Sta. 8+13 to Sta. 8+85	LT	85
Sta. 8+80 to Sta. 9+25	RT	255
Sta. 8+85 to Sta. 9+36	LT	175
Sta. 10+54 to Sta. 11+04	RT	210
Sta. 10+65 to Sta. 11+10	LT	230
Sta. 11+75 to Sta. 12+50	RT	75
UNDISTRIBUTED		260
TOTAL		1,290

628.6005 TURBIDITY BARRIER (CATEGORY 0010)

LOCATION	SY
STA. 9+78	94
STA. 10+04	47
UNDISTRIBUTED	39
TOTAL	180

628.7504 TEMPORARY DITCH CHECKS (CATEGORY 0010)

LOCATION	LF
UNDISTRIBUTED	50
TOTAL	50

634.0612 WOOD POSTS 4X6 INCH X 12 FT (CATEGORY 0010)

STATION	LOCATION	EACH
Sta. 9+45	RT (Object Marker)	1
Sta. 9+50	LT (Object Marker)	1
Sta. 10+40	RT (Object Marker)	1
Sta. 10+45	LT (Object Marker)	1
TOTAL		4

637.2230 SIGNS TYPE II REFLECTIVE F (CATEGORY 0010)

STATION	LOCATION	SY	SF
Sta. 9+45	RT (Object Marker)	W5-52R	3
Sta. 9+50	LT (Object Marker)	W5-52L	3
Sta. 10+40	RT (Object Marker)	W5-52L	3
Sta. 10+45	LT (Object Marker)	W5-52R	3
TOTAL			12

638.2602 REMOVING SIGNS TYPE II (CATEGORY 0010)

STATION	LOCATION	DESCRIPTION	EACH
Sta. 9+62	LT	BRIDGE HASH MARKER W5-52L	1
Sta. 9+62	RT	BRIDGE HASH MARKER W5-52R	1
Sta. 10+39	LT	BRIDGE HASH MARKER W5-52R	1
Sta. 10+39	RT	BRIDGE HASH MARKER W5-52L	1
TOTAL			4

638.3000 REMOVING SMALL SIGN SUPPORTS (CATEGORY 0010)

STATION	LOCATION	DESCRIPTION	EACH
Sta. 9+62	LT	BRIDGE HASH MARKER W5-52L	1
Sta. 9+62	RT	BRIDGE HASH MARKER W5-52R	1
Sta. 10+39	LT	BRIDGE HASH MARKER W5-52R	1
Sta. 10+39	RT	BRIDGE HASH MARKER W5-52L	1
TOTAL			4

642.5001 FIELD OFFICE TYPE B (CATEGORY 0010)

LOCATION	EACH
PROJECT 8747-00-70	1

643.0100 TRAFFIC CONTROL (CATEGORY 0010)

LOCATION	EACH
PROJECT 8747-00-70	1

645.0120 GEOTEXTILE TYPE HR (CATEGORY 0010)

STATION TO STATION	LOCATION	SY
Sta. 8+86 to Sta. 9+36	LT	84
Sta. 10+65 to Sta. 12+30	LT	275
TOTAL		359

646.0106 PAVEMENT MARKING EPOXY 4-INCH (CATEGORY 0010)

STATION		LF
Sta. 8+00 to Sta 12+50	YELLOW DOUBLE CENTERLINE	900
Sta. 8+00 to Sta 12+50, RT	WHITE EDGELINE	450
Sta. 8+00 to Sta 12+50, LT	WHITE EDGELINE	450
TOTAL		1800

CONSTRUCTION STAKING

CATEGORY	LOCATION	650.4500	650.5000	650.6500	650.9910	650.9920
		SUBGRADE LF	BASE LF	STRUCTURE LAYOUT LS	SUPPLEMENTARY CONTROL LS	SLOPE STAKES LF
0010	Sta. 8+00 to Sta. 12+50	356	356	---	1	356
0020	B-16-141	---	---	1	---	---
TOTALS		356	356	1	1	356

690.0150 SAWING ASPHALT (CATEGORY 0010)

STATION	LOCATION	LF
Sta. 8+00	CTH B	23
Sta. 12+50	CTH B	23
TOTAL		46

SPV.0105 INSTALL CULVERT PIPE (CATEGORY 0010)

STATION	LOCATION	LS
Sta. 11+55	37' RT.	1

TRANSPORTATION PROJECT PLAT NO: 8747-00-00 4.01

THAT PART OF THE NORTHWEST 1/4 OF THE NORTHEAST 1/4 OF SECTION 4, TOWNSHIP 46 NORTH, RANGE 15 WEST, ALSO PART OF THE SOUTHWEST 1/4 OF THE SOUTHWEST 1/4 OF SECTION 34, TOWNSHIP 47 NORTH, RANGE 15 WEST, TOWN OF SUMMIT, DOUGLAS COUNTY WISCONSIN.

RELOCATION ORDER CTH B, CTH W TO STH 35 (BALSAM CREEK BRIDGE B160141)

TO PROPERLY ESTABLISH, LAY OUT, WIDEN, ENLARGE, EXTEND, CONSTRUCT, RECONSTRUCT, IMPROVE, OR MAINTAIN A PORTION OF THE HIGHWAY DESIGNATED ABOVE, DOUGLAS COUNTY DEEMS IT NECESSARY TO RELOCATE OR CHANGE SAID HIGHWAY AND ACQUIRE CERTAIN LANDS AND INTERESTS OR RIGHTS IN LANDS FOR THE ABOVE PROJECT.

TO EFFECT THIS CHANGE, PURSUANT TO AUTHORITY GRANTED UNDER SECTION 83.07(3) AND 83.08(1a)(1b), WISCONSIN STATUTES, DOUGLAS COUNTY HEREBY ORDERS THAT:

1. THAT PORTION OF SAID HIGHWAY AS SHOWN ON THIS PLAT IS LAID OUT AND ESTABLISHED TO THE LINES AND WIDTHS AS SO SHOWN FOR THE ABOVE PROJECT.
2. THE LANDS OR INTERESTS OR RIGHTS IN LANDS AS SHOWN ON THIS PLAT ARE REQUIRED BY THE COUNTY FOR THE ABOVE PROJECT AND SHALL BE ACQUIRED IN THE NAME OF DOUGLAS COUNTY, PURSUANT TO THE PROVISIONS OF SECTION 83.08 (1a) OR (1b), WISCONSIN STATUTES.

SCHEDULE OF LANDS AND INTERESTS REQUIRED

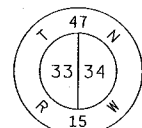
PARCEL NO.	OWNERSHIP	INTEREST REQUIRED	R/W (ACRES)		
			NEW	EXISTING	TOTAL
1	BRUCE L. & MARIANNE M. TRENNEPOHL	FEE	0.30	0.31	0.61
2	PAUL T. & DAWN J. ANDERSON	FEE	0.18	0.24	0.42
3	BNSF RAILWAY COMPANY	H.E.	0.37 H.E.	---	0.37 H.E.

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

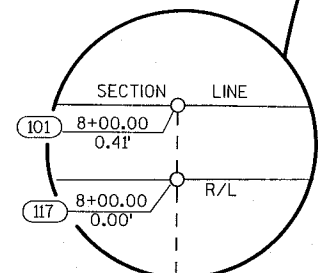
Filed in Vol. 2 pg 17

RESERVED FOR REGISTER OF DEEDS
PROJECT NUMBER 8747-00-00 - 4.01

IRON BAR
POSITION COMPUTED
FROM RECORD SURVEY
Y = 228982.430
X = 111340.891



GIN SPIKE
Y=226377.900
X=111374.685



NW-NE
SECTION 4
T46N-R15W

NE-NE
SECTION 4
T46N-R15W

CONVENTIONAL SYMBOLS

- FOUND IRON PIPE/PIN I.P.
- R/W MONUMENT
- R/W STANDARD
- SIGN
- SECTION CORNER MONUMENT
- SECTION CORNER SYMBOL
- FEE (HATCH VARIES)
- TEMPORARY LIMITED EASEMENT
- HIGHWAY EASEMENT
- R/W BOUNDARY POINT
- PARCEL NUMBER
- UTILITY PARCEL NUMBER
- SIGN NUMBER (OFF PREMISE)
- BUILDING

CONVENTIONAL UTILITY SYMBOLS

- W - WATER
- G - GAS
- T - TELEPHONE
- OH - OVERHEAD
- TRANSMISSION LINES
- E - ELECTRIC
- CABLE TELEVISION - TV
- FIBER OPTIC - FO
- W - SANITARY SEWER
- G - STORM SEWER
- T - TELEPHONE POLE
- OH - TELEPHONE PEDESTAL
- COMPENSABLE
- COMPENSABLE
- COMPENSABLE

CONVENTIONAL ABBREVIATIONS

- AP - ACCESS POINT/ DRIVEWAY CONNECTION
- AR - ACCESS RIGHTS
- AC - ACRES
- ET.AL - AND OTHERS
- BLDG - BUILDING
- C/L - CENTERLINE
- CSM - CERTIFIED SURVEY MAP
- COR. - CORNER
- DOC. - DOCUMENT
- EASE. - EASEMENT
- F.I.E. - FIELD ENTRANCE
- H.E. - HIGHWAY EASEMENT
- MON. - MONUMENT
- P. - PAGE
- PLE - PERMANENT LIMITED EASEMENT
- PL - PROPERTY LINE
- RECORDER AS REFERENCE LINE
- RELEASE OF RIGHTS REMAINING
- RIGHT-OF-WAY SECTION
- STATION
- TEMPORARY LIMITED EASEMENT VOLUME
- CURVE DATA
- LONG CHORD
- LONG CHORD BEARING
- RADIUS
- DEGREE OF CURVE
- CENTRAL ANGLE OR DELTA
- LENGTH OF CURVE
- TANGENT

NOTES:

POSITIONS SHOWN ON THIS PLAT ARE WISCONSIN COUNTY COORDINATES, DOUGLAS COUNTY ZONE, NAD83 (2011), IN U.S. SURVEY FEET. VALUES ARE GRID COORDINATES, GRID BEARINGS, AND GRID DISTANCES. GRID DISTANCES MAY BE USED AS GROUND DISTANCES.

ALL NEW RIGHT-OF-WAY MONUMENTS WILL BE TYPE 2 (TYPICALLY 3/4" X 24" REBARS), UNLESS OTHERWISE NOTED, AND WILL BE PLACED PRIOR TO THE COMPLETION OF THE PROJECT.

ALL RIGHT-OF-WAY LINES DEPICTED IN THE NON-ACQUISITION AREAS ARE INTENDED TO RE-ESTABLISH EXISTING RIGHT-OF-WAY LINES AS DETERMINED FROM PREVIOUS PROJECTS, OTHER RECORDED DOCUMENTS, OR FROM CENTERLINE OF EXISTING PAVEMENTS.

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

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

PARCEL IDENTIFICATION NUMBERS MAY NOT POINT TO ALL AREAS OF ACQUISITION, AS NOTED ON THE SCHEDULE OF LANDS & INTERESTS REQUIRED.

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

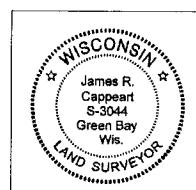
EXISTING HIGHWAY RIGHT-OF-WAY FOR CTH B SHOWN HEREIN IS BASED ON A PRESUMED 66' WIDTH CENTERED ON THE CENTER LINE OF THE TRAVELED ROADWAY PER STATE STATUTE 82.31 (2) EXCEPT LANDS ACQUIRED FOR RAILROAD RIGHT-OF-WAY BY WARRANTY DEED RECORDED MARCH 28, 1889 AND RECORDED IN VOL. 9, PAGE 197, AS DOC #A26554.

A HIGHWAY EASEMENT (HE) IS AN EASEMENT FOR HIGHWAY PURPOSES, AS LONG AS SO USED, INCLUDING THE RIGHT TO PRESERVE, PROTECT, REMOVE, OR PLANT THEREON ANY VEGETATION THAT THE HIGHWAY AUTHORITIES MAY DEEM NECESSARY OR DESIRABLE.

SUMMIT

COURSE	BEARING	DISTANCE
100-102	N0°44'36"W	33.01'
102-103	N0°44'36"W	56.56'
103-104	S78°14'09"E	48.06'
104-105	S89°41'40"E	307.45'
105-106	S71°56'59"E	131.24'
106-107	S00°18'20"W	33.03'
107-108	S89°28'13"W	67.32'
108-109	S89°28'13"W	7.69'
109-110	S00°18'20"W	5.87'

COURSE	BEARING	DISTANCE
110-111	S00°18'20"W	33.00'
111-112	S57°41'07"W	59.36'
112-113	N89°41'40"W	175.00'
113-114	S63°44'26"W	55.90'
114-115	N89°41'40"W	50.00'
115-116	N40°57'03"W	75.82'
116-117	N00°18'20"E	33.00'
117-101	N00°18'20"E	0.41'
101-100	S89°28'13"W	27.91'



I, JAMES R. CAPPEART, PROFESSIONAL LAND SURVEYOR, HEREBY CERTIFY THAT IN FULL COMPLIANCE WITH THE PROVISIONS OF SECTION 84.095 OF THE WISCONSIN STATUTES AND UNDER THE DIRECTION OF DOUGLAS COUNTY, I HAVE MAPPED THIS TRANSPORTATION PROJECT PLAT 8747-00-00-4.01 AND THAT SUCH PLAT CORRECTLY REPRESENTS ALL EXTERIOR BOUNDARIES OF THE SURVEYED LAND.

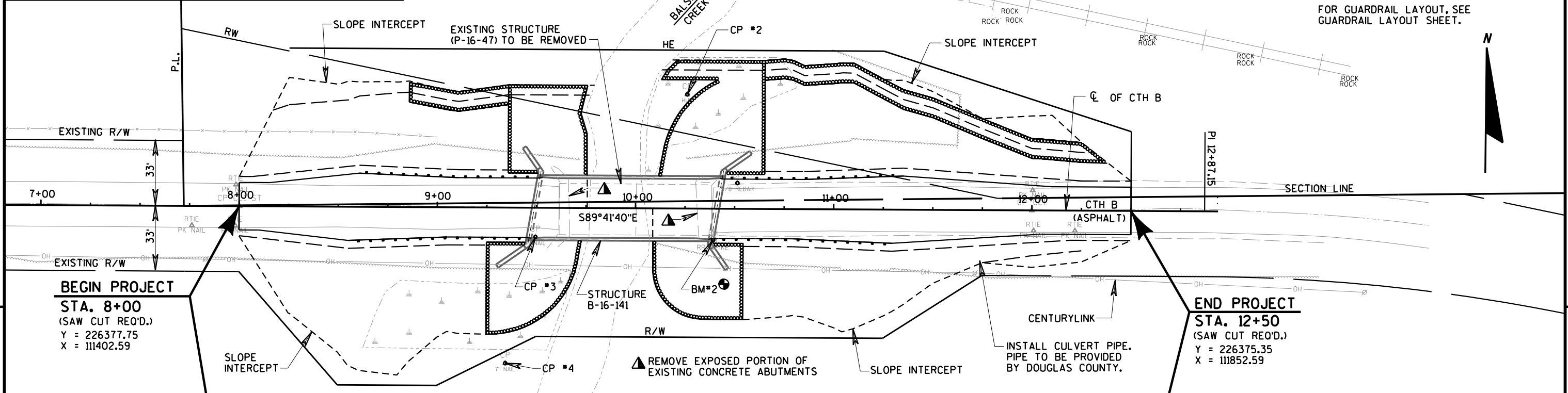
James R. Cappeart
JAMES R. CAPPEART
REGISTRATION NUMBER: S-3044
DATE: 4/05/2016

THIS PLAT AND RELOCATION ORDER IS APPROVED FOR DOUGLAS COUNTY
Jason J. Jackson
HIGHWAY COMMISSIONER
DATE: 4/11/2016



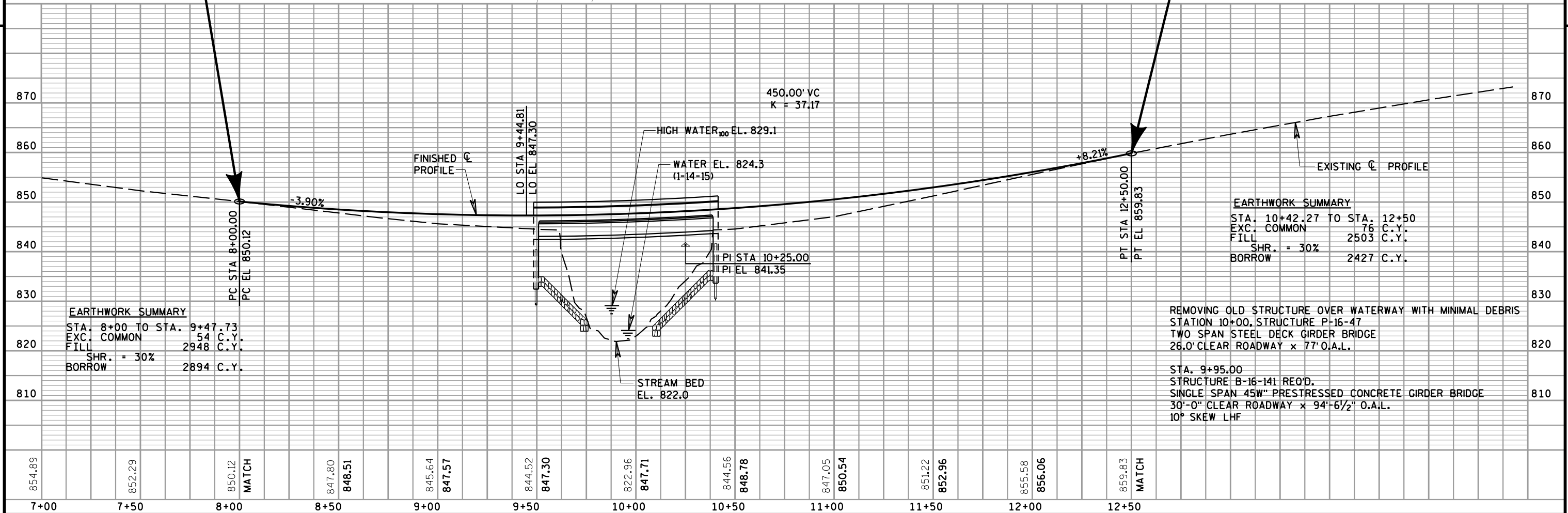
BENCH MARKS			
NO.	STA.	DESCRIPTION	ELEV.
1	6+39	RR SPK IN UTILITY POLE, 24' RT.	856.74
2	10+39	RR SPK IN SE WING OF BRIDGE, 16' RT.	842.64

NOTES:
 FOR ALIGNMENT CONTROLS AND TIES, SEE ALIGNMENT CONTROLS & TIES SHEET.
 FOR GUARDRAIL LAYOUT, SEE GUARDRAIL LAYOUT SHEET.



BEGIN PROJECT
 STA. 8+00
 (SAW CUT REQ'D.)
 Y = 226377.75
 X = 111402.59

END PROJECT
 STA. 12+50
 (SAW CUT REQ'D.)
 Y = 226375.35
 X = 111852.59



EARTHWORK SUMMARY

STA. 8+00 TO STA. 9+47.73	
EXC. COMMON	54 C.Y.
FILL	2948 C.Y.
SHR. = 30%	
BORROW	2894 C.Y.

EARTHWORK SUMMARY

STA. 10+42.27 TO STA. 12+50	
EXC. COMMON	76 C.Y.
FILL	2503 C.Y.
SHR. = 30%	
BORROW	2427 C.Y.

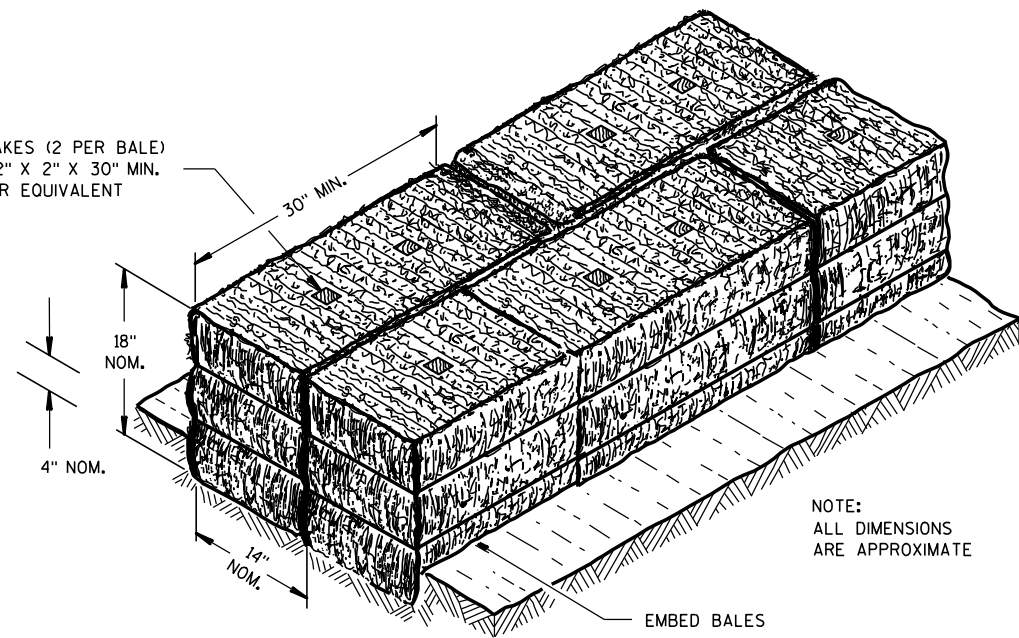
REMOVING OLD STRUCTURE OVER WATERWAY WITH MINIMAL DEBRIS
 STATION 10+00, STRUCTURE P-16-47
 TWO SPAN STEEL DECK GIRDER BRIDGE
 26.0' CLEAR ROADWAY x 77' O.A.L.

STA. 9+95.00
 STRUCTURE B-16-141 REQ'D.
 SINGLE SPAN 45W" PRESTRESSED CONCRETE GIRDER BRIDGE
 30'-0" CLEAR ROADWAY x 94'-6 1/2" O.A.L.
 10° SKEW LHF

Standard Detail Drawing List

08E08-03	TYPICAL INSTALLATIONS OF EROSION BALES / TEMPORARY DITCH CHECKS
08E09-06	SILT FENCE
08E11-02	TURBIDITY BARRIER
12A03-10	NAME PLATE (STRUCTURES)
14B42-03A	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-03B	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-03C	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B44-02A	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B44-02B	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B44-02C	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B45-04A	MIDWEST GUARDRAIL SYSTEM THREE BEAM TRANSITION (MGS)
14B45-04B	MIDWEST GUARDRAIL SYSTEM THREE BEAM TRANSITION (MGS)
14B45-04C	MIDWEST GUARDRAIL SYSTEM THREE BEAM TRANSITION (MGS)
15C02-06A	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C02-06B	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C06-07	SIGNING & MARKING FOR TWO LANE BRIDGES
15C08-16A	PAVEMENT MARKING (MAINLINE)

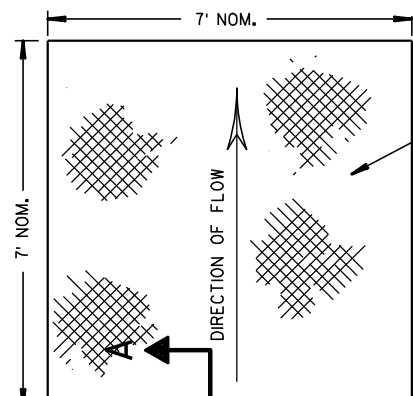
WOOD STAKES (2 PER BALE)
NOMINAL 2" X 2" X 30" MIN.
LENGTH OR EQUIVALENT



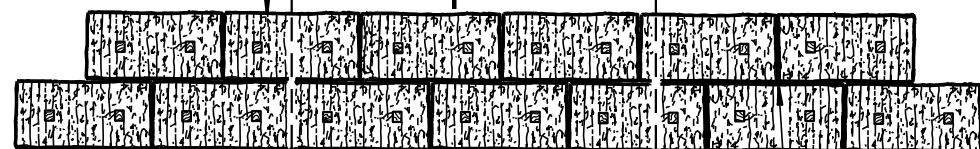
NOTE:
ALL DIMENSIONS
ARE APPROXIMATE

EMBED BALES

SECTION A-A



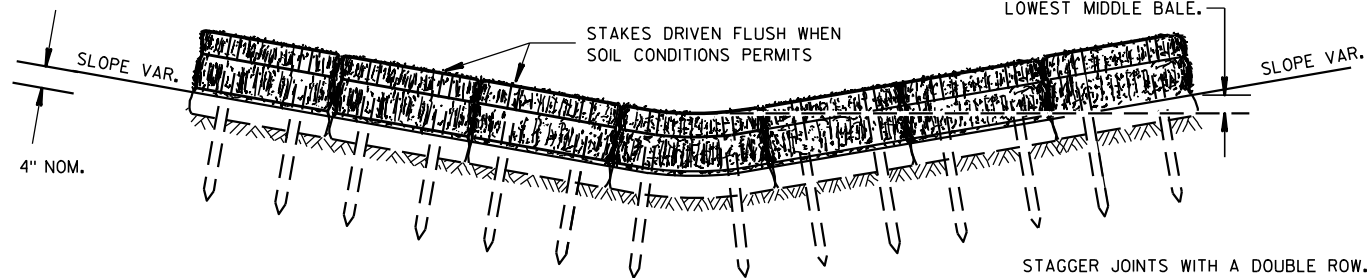
FOR SCOUR PROTECTION USE:
EROSION MAT FOR CHANNEL LINING.
LAP MAT UNDER UPSTREAM BALES
AND SECURE FABRIC WITH WOOD STAKES,
AT 3-FOOT INTERVALS.



STAGGER JOINTS BETWEEN ADJACENT
ROWS OF BALES.

PLAN VIEW

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



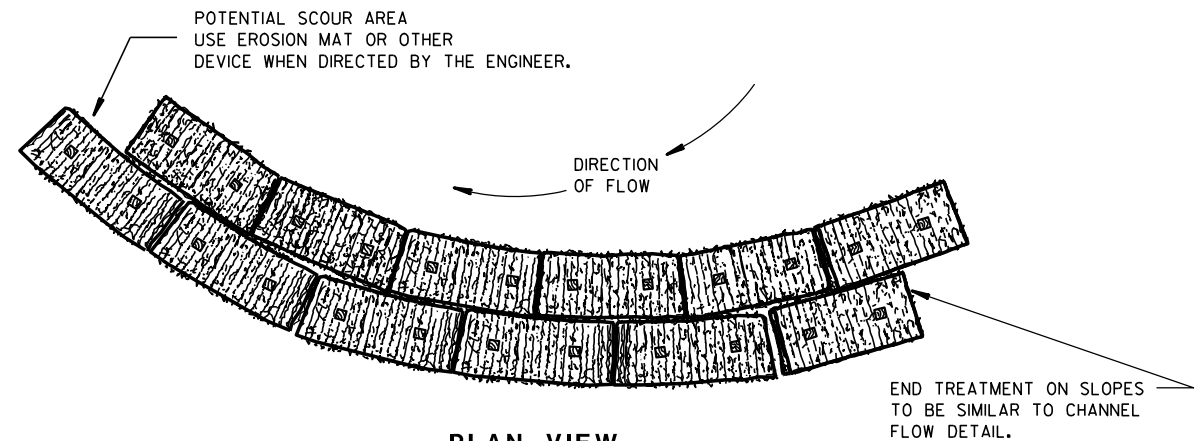
FRONT ELEVATION

TEMPORARY DITCH CHECK USING EROSION BALES ①

GENERAL NOTES

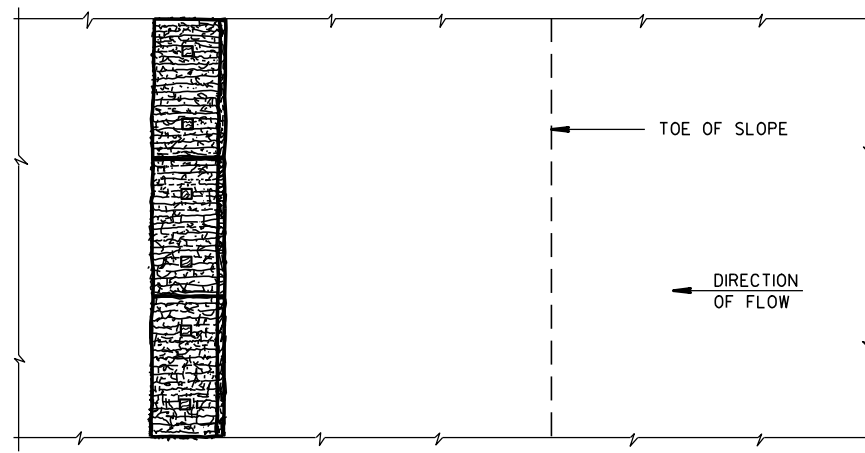
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

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

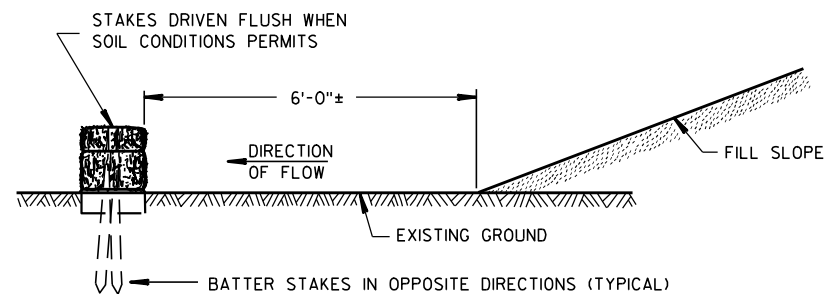


PLAN VIEW

WHEN ALTERING THE DIRECTION OF FLOW



PLAN VIEW



FRONT ELEVATION

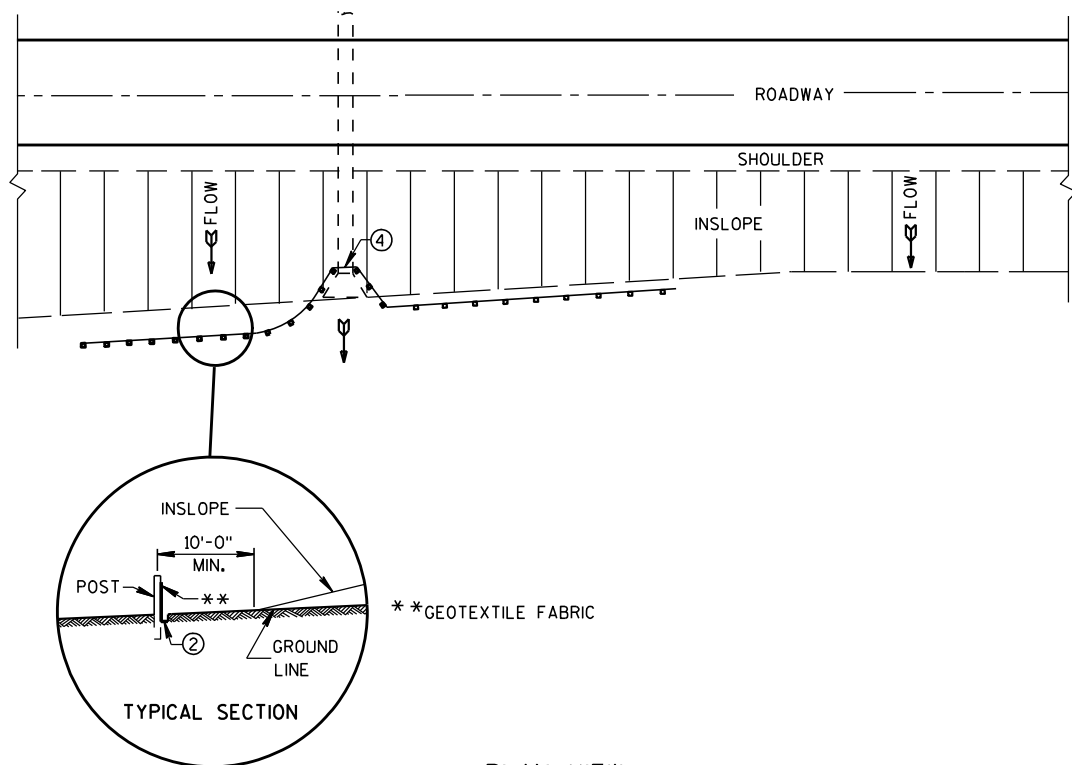
WHEN EXISTING GROUND SLOPES AWAY FROM FILL SLOPE

EROSION BALES FOR SHEET FLOW

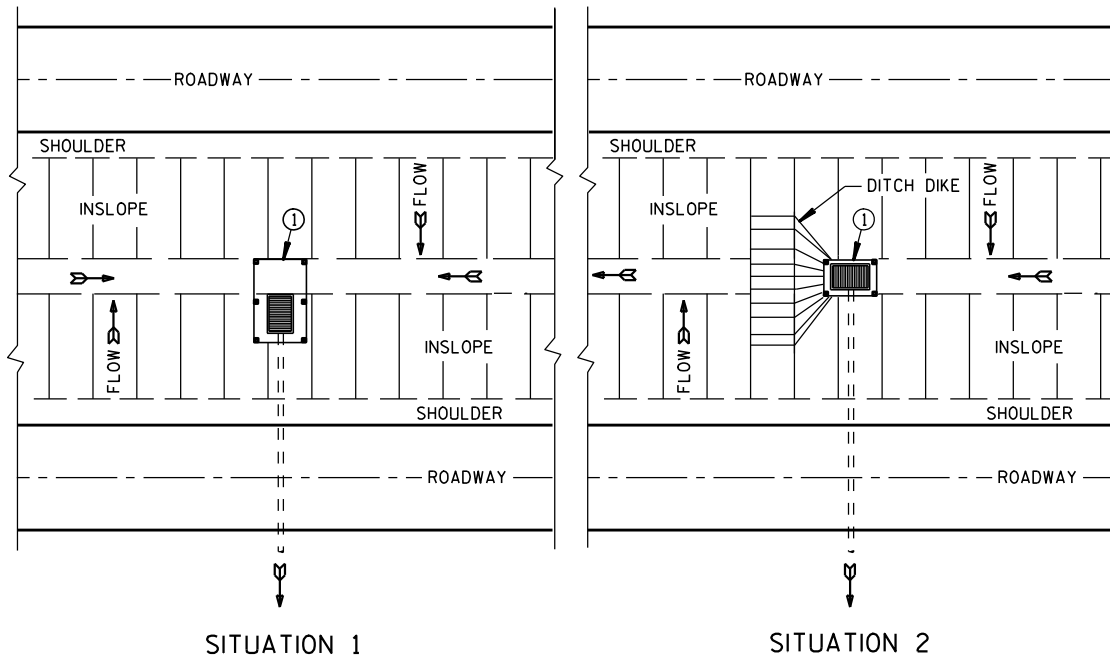
TYPICAL INSTALLATIONS OF
EROSION BALES / TEMPORARY
DITCH CHECKS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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



PLAN VIEW
TYPICAL APPLICATION OF SILT FENCE

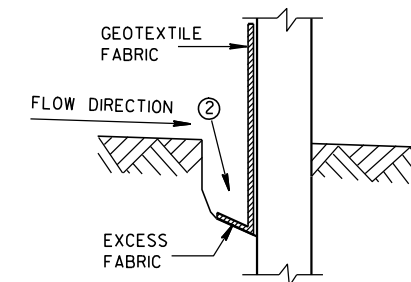


SITUATION 1 SITUATION 2
PLAN VIEW
SILT FENCE AT MEDIAN SURFACE DRAINS

GENERAL NOTES

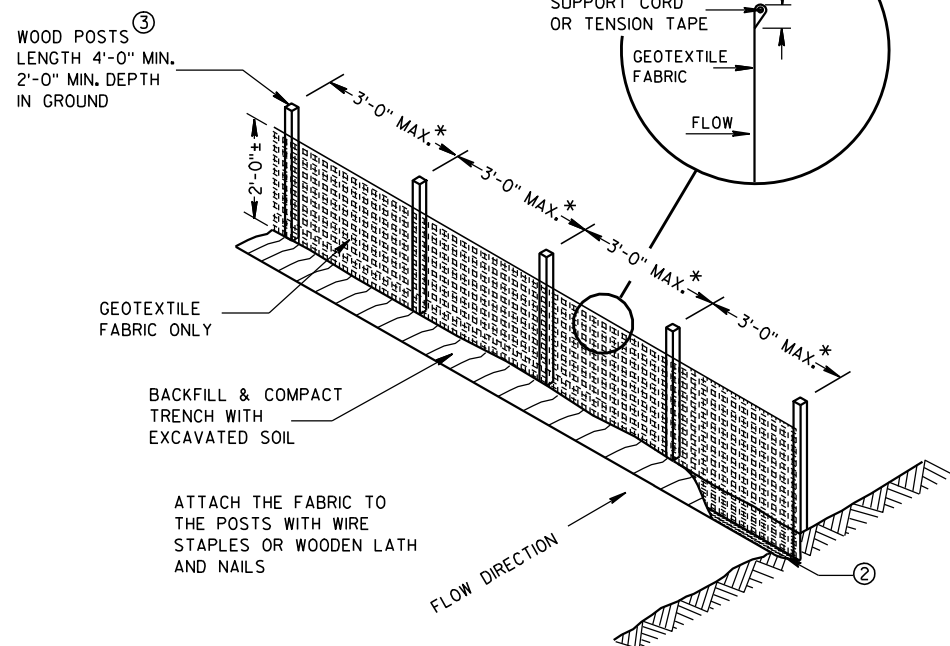
DETAILS OF CONSTRUCTION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.

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



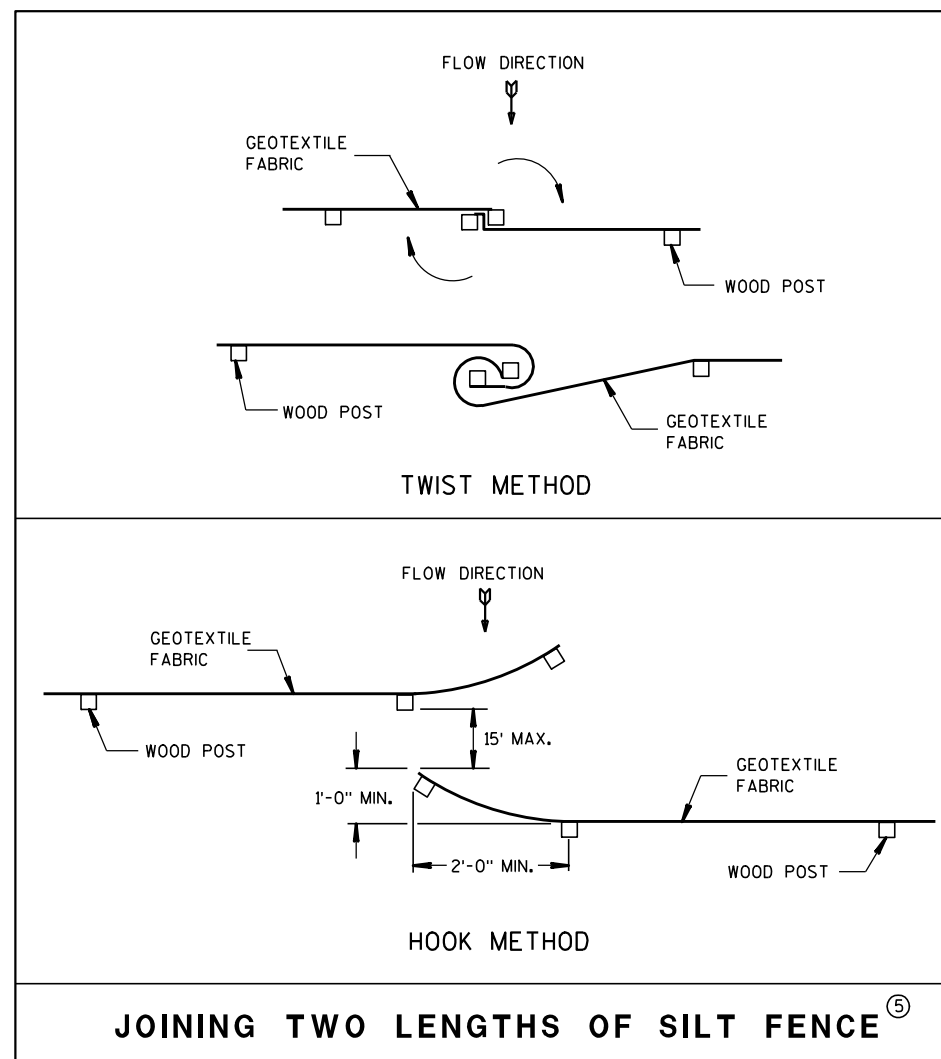
TRENCH DETAIL

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

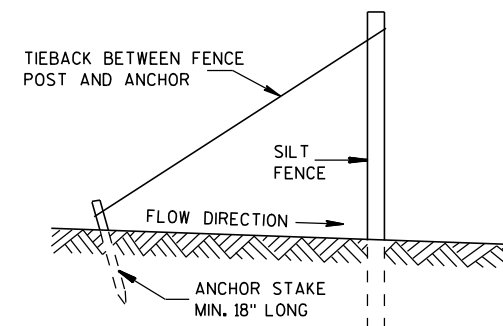


SILT FENCE

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



JOINING TWO LENGTHS OF SILT FENCE ⑤

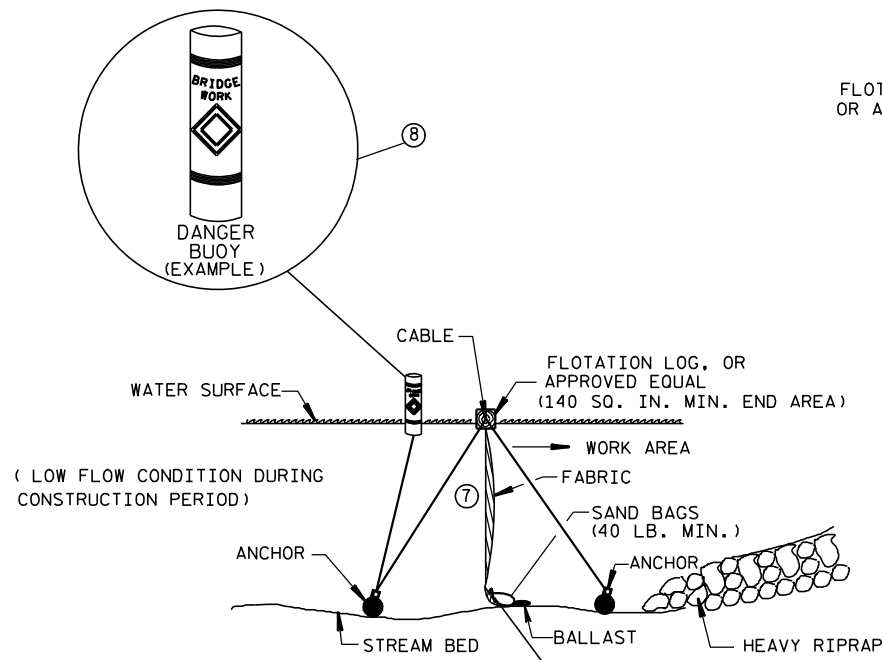


SILT FENCE TIE BACK
(WHEN REQUIRED BY THE ENGINEER)

SILT FENCE

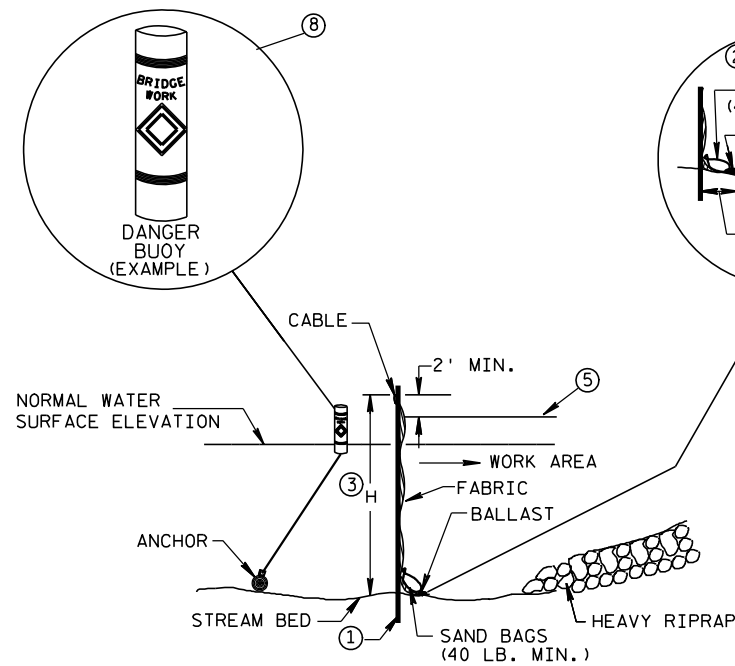
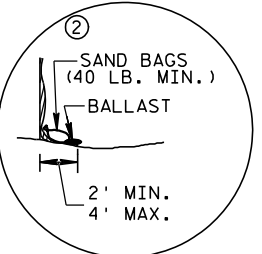
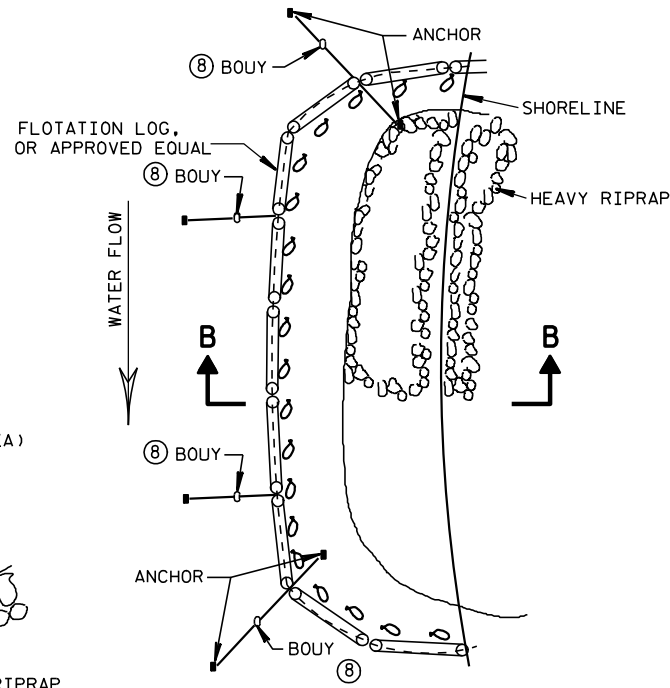
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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



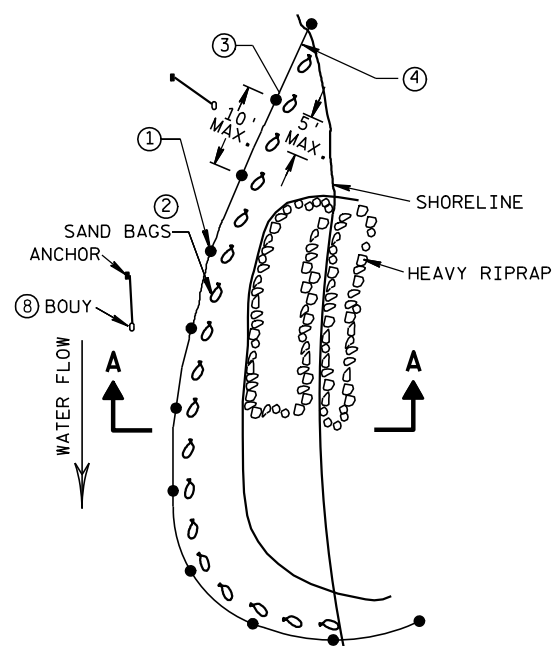
SECTION B-B

TURBIDITY BARRIER FLOAT ALTERNATIVE
CAUTION - SEE NOTE 6



SECTION A-A

TURBIDITY BARRIER STANDARD POST INSTALLATION



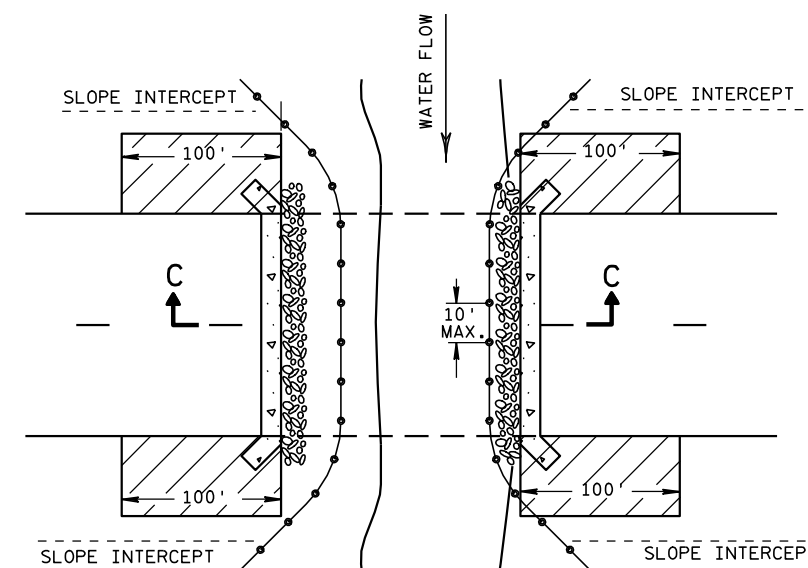
PLAN VIEW

GENERAL NOTES

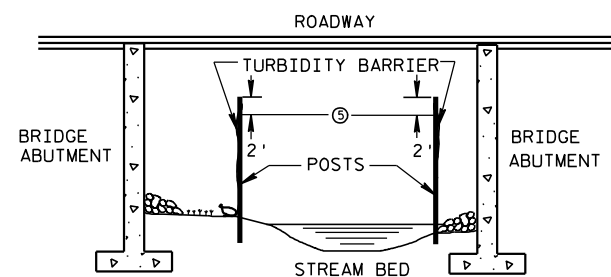
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

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

- ① DRIVEN STEEL POSTS, PIPES, OR CHANNELS. LENGTH SHALL BE SUFFICIENT TO SECURELY SUPPORT BARRIER AT HIGH WATER ELEVATIONS.
- ② SANDBAGS TO BE USED AS ADDITIONAL BALLAST WHEN ORDERED BY THE ENGINEER TO MEET ADVERSE FIELD CONDITIONS. SPACE AS APPROPRIATE FOR SITE CONDITIONS.
- ③ WHEN BARRIER HEIGHT, H, EXCEEDS 8 FT., POST SPACING MAY NEED TO BE DECREASED.
- ④ IN WATERWAYS SUBJECT TO FLUCTUATING WATER ELEVATIONS, PROVISIONS SHOULD BE MADE TO ALLOW THE WATER TO EQUALIZE ON EACH SIDE OF THE BARRIER. THIS MAY BE ACCOMPLISHED BY LEAVING A PORTION OF THE BARRIER OPEN ON THE UPSTREAM END.
- ⑤ ESTIMATED HIGH WATER ELEVATION DURING CONSTRUCTION PERIOD. MINIMUM BARRIER HEIGHT SHALL BE 2' GREATER THAN EITHER THE O2 ELEVATION OR THE ESTIMATED HIGH WATER ELEVATION DURING CONSTRUCTION, WHICHEVER IS GREATER.
- ⑥ FLOAT ALTERNATIVE WILL ONLY BE ALLOWED WITH WRITTEN APPROVAL OF THE ENGINEER, AND IS MEANT FOR LOCATIONS WHERE BED ROCK PREVENTS THE INSTALLATION OF POSTS.
- ⑦ ALLOW SUFFICIENT SLACK VERTICALLY AND HORIZONTALLY SO THAT SEDIMENT BUILD UP WILL NOT SEPARATE OR LOWER THE TURBIDITY BARRIER.
- ⑧ USE AS DIRECTED BY COAST GUARD OR DNR PERMIT WHEN WORKING IN NAVIGABLE WATERWAYS.



PLAN VIEW



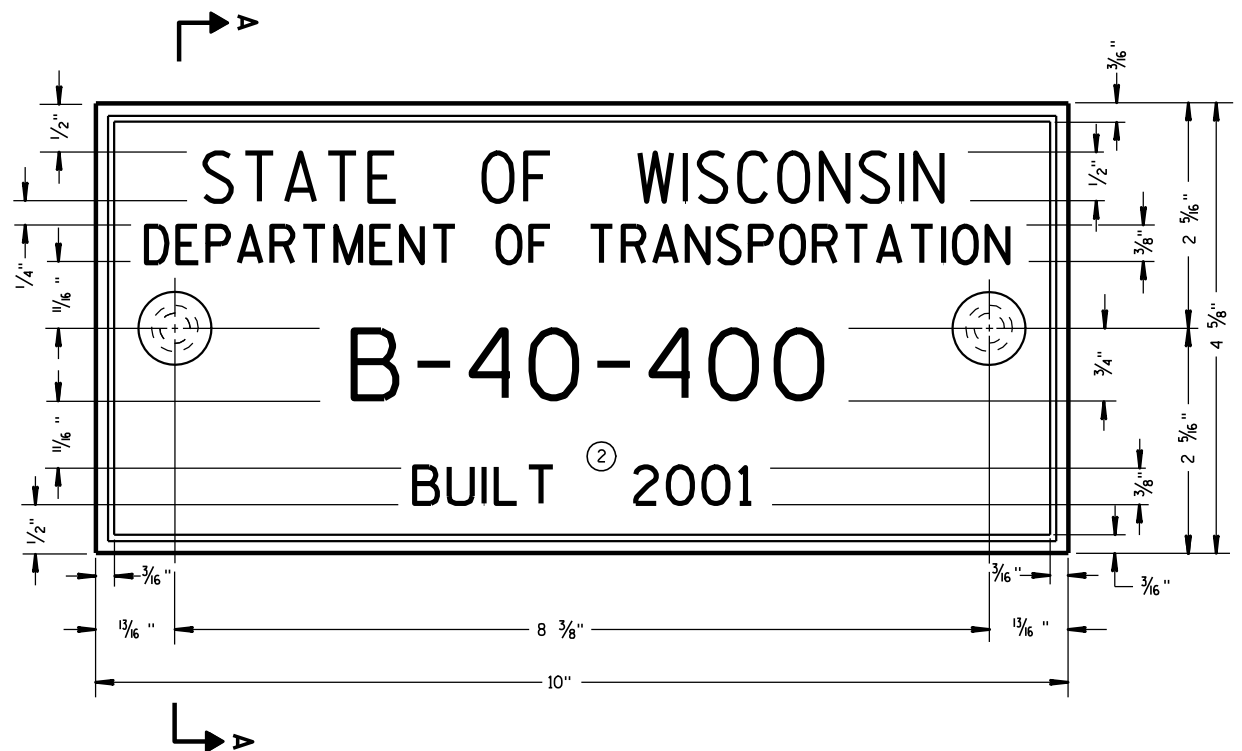
SECTION C-C

TURBIDITY BARRIER DETAIL SHOWING
TYPICAL PLACEMENT AT STRUCTURES

TURBIDITY BARRIER

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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



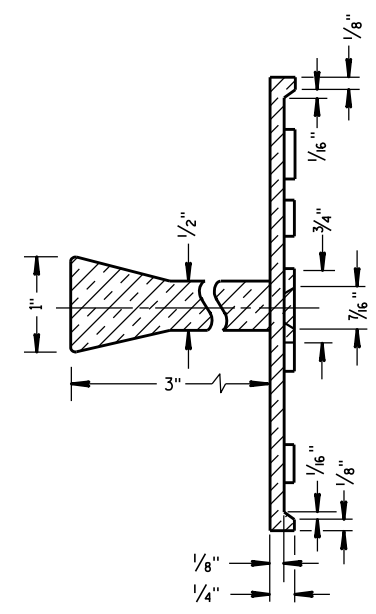
TYPICAL NAME PLATE
(BRIDGES, CULVERTS, AND RETAINING WALLS)

GENERAL NOTES

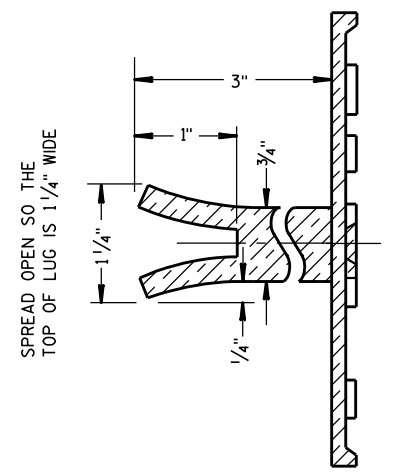
NAME PLATES TO BE INSTALLED ON BRIDGES, CULVERTS, AND RETAINING WALLS SHALL CONFORM TO THE REQUIREMENTS OF SECTION 502.3.11 OF THE STANDARD SPECIFICATIONS.

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

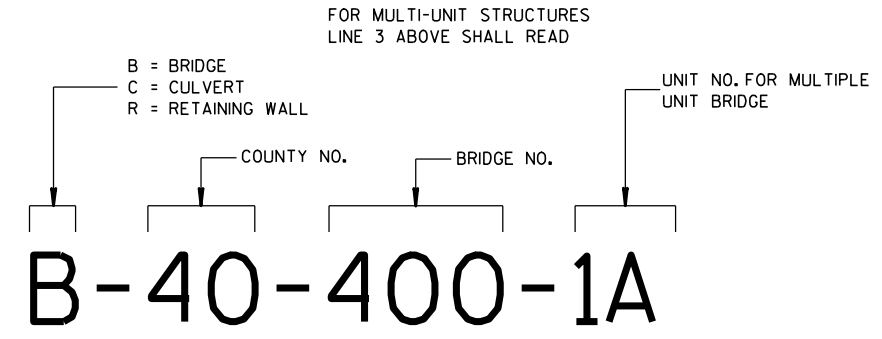
- ① EPOXY RESIN SHALL BE FROM AN APPROVED MANUFACTURER AND USED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
- ② REHABILITATION OF AN EXISTING STRUCTURE SHOULD USE THE DATE OF ORIGINAL STRUCTURE CONSTRUCTION.



SECTION A-A

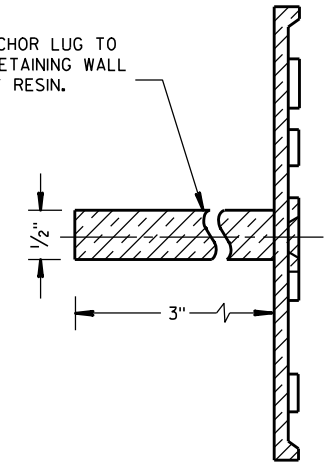


ALTERNATE LUG



**NUMBERING DESIGNATION
MULTI-UNIT STRUCTURES**

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

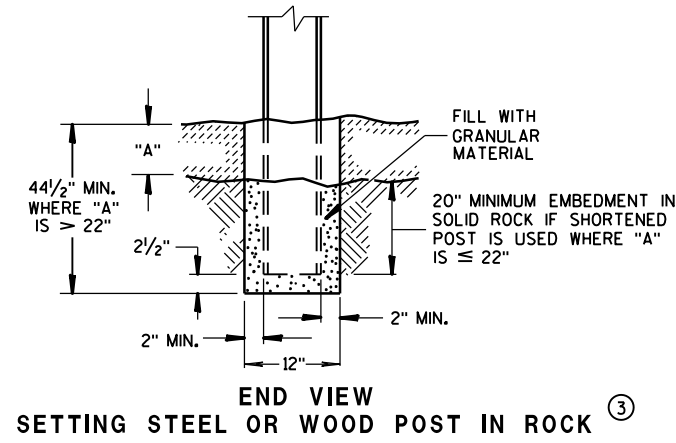


ALTERNATE LUG
(FOR ATTACHMENT TO PRECAST STRUCTURES)

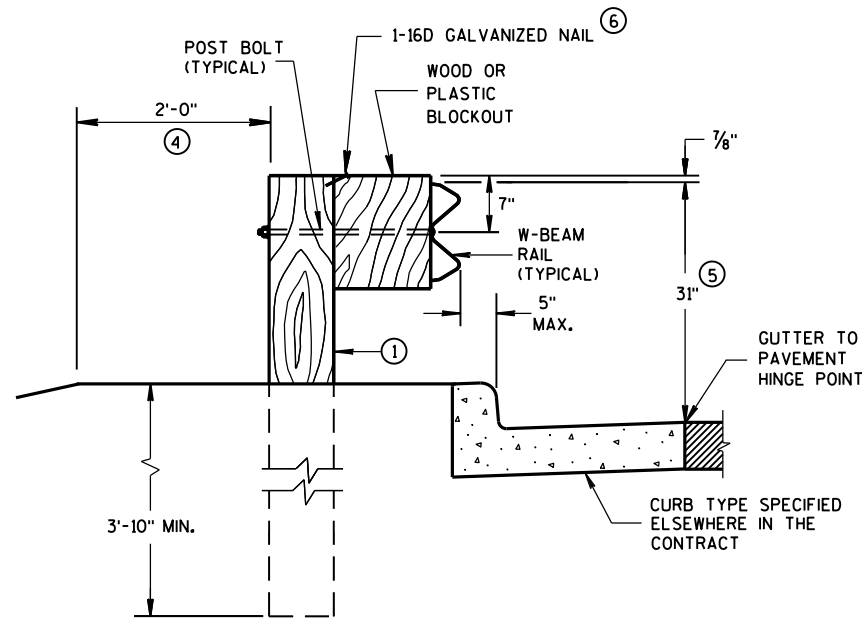
NAME PLATE (STRUCTURES)	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED DATE 3/26/10	/S/ Scot Becker CHIEF STRUCTURAL DEVELOPMENT ENGINEER
FHWA	

GENERAL NOTES

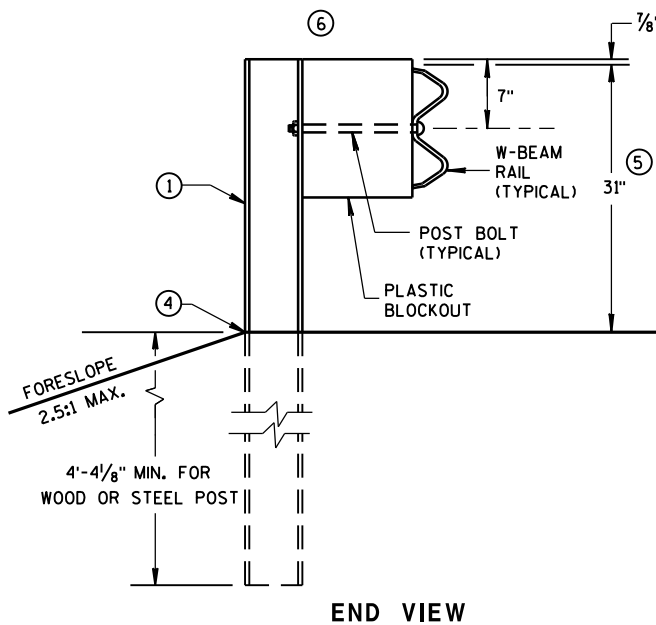
- ① WOOD OR STEEL POSTS (w6X9 OR w6X8.5) MAY BE USED. DO NOT INTERMIX WOOD AND STEEL POSTS. INSTALL STEEL POSTS WITH HOLES ON APPROACHING TRAFFIC SIDE.
- ② USE WOOD OR APPROVED PLASTIC BLOCKOUTS. WOOD BLOCKOUTS MAY BE CONSTRUCTED OUT OF TWO OR MORE WOOD BLOCKOUTS. SEE ALTERNATE WOOD BLOCKOUT DETAIL. 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 ± 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.



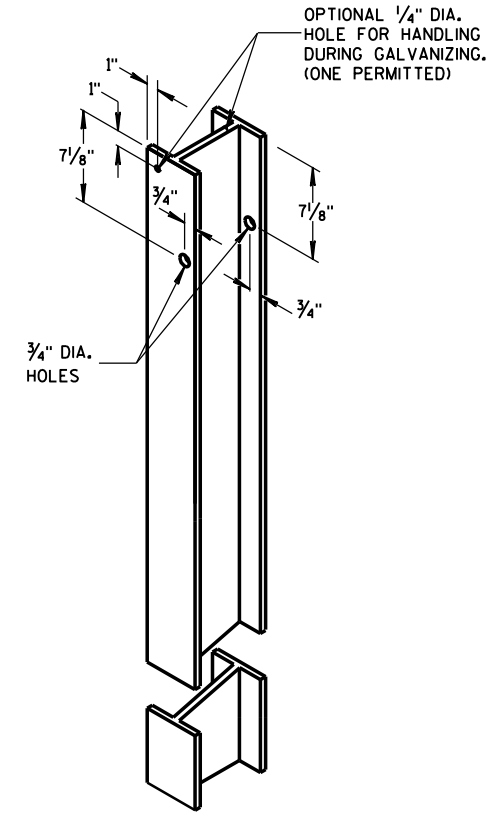
END VIEW SETTING STEEL OR WOOD POST IN ROCK ③



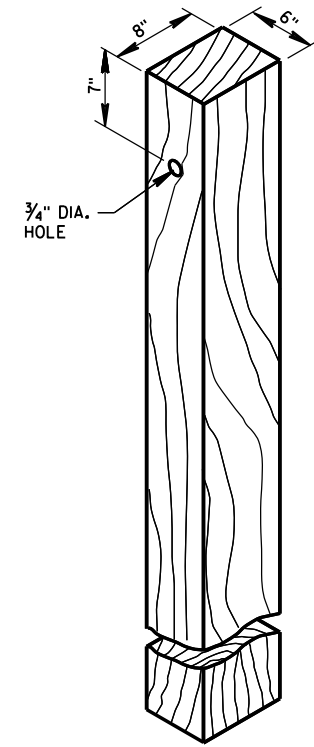
END VIEW LOCATED ALONG A CURBED ROADWAY



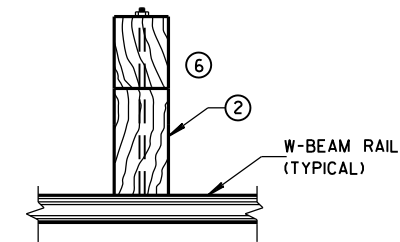
END VIEW MGS LONGER POST AT HALFPOST SPACING W BEAM (K)



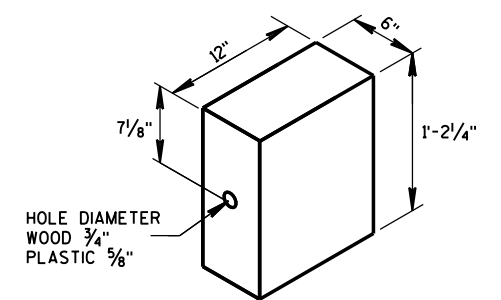
STEEL POST & HOLE PUNCHING DETAIL (w6X9) ①



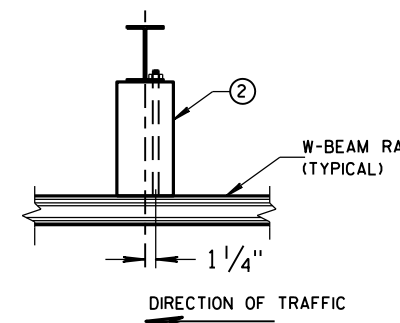
WOOD POST (6" X 8") NOMINAL ①



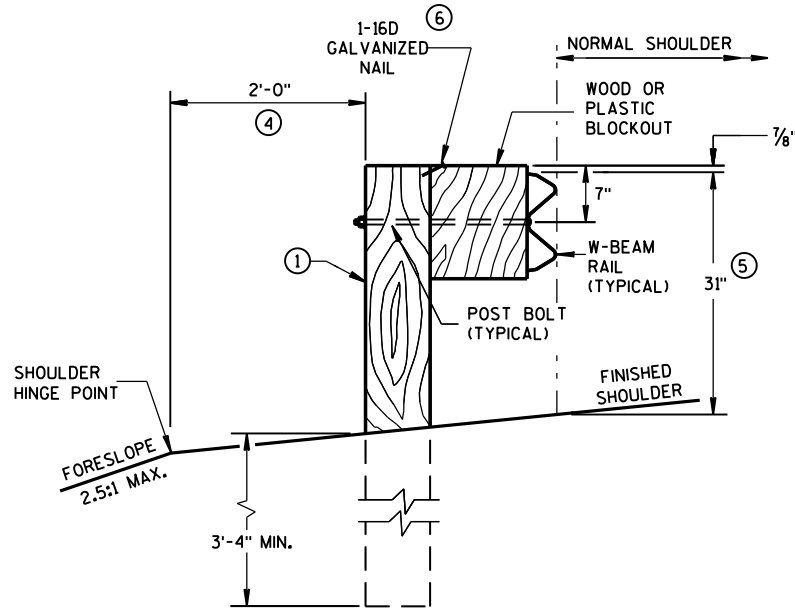
PLAN VIEW WOOD POST, BLOCKOUT & BEAM



WOOD OR PLASTIC BLOCKOUT ②



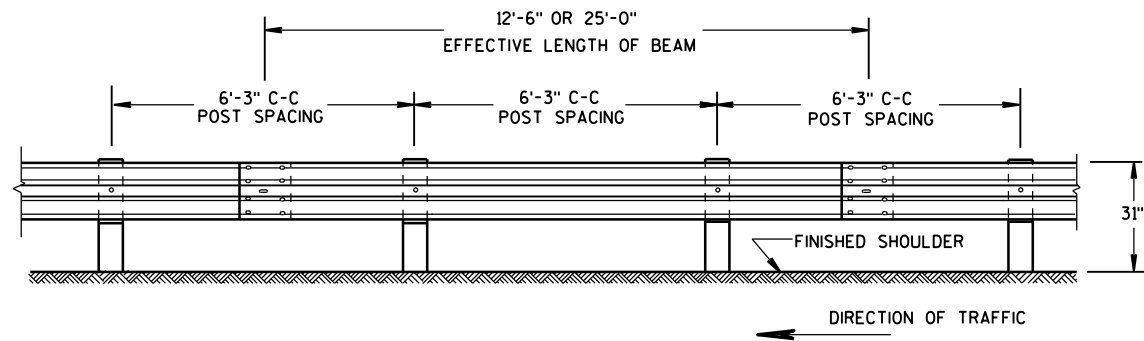
PLAN VIEW STEEL POST, PLASTIC BLOCKOUT & BEAM



END VIEW LOCATED ALONG A ROADWAY SHOULDER STANDARD INSTALLATION

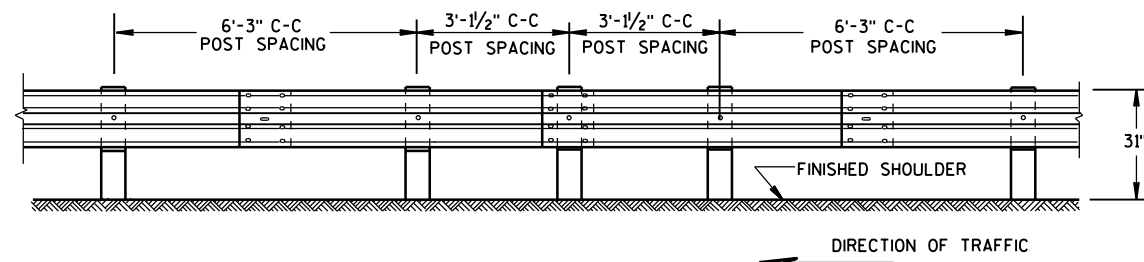
6

6



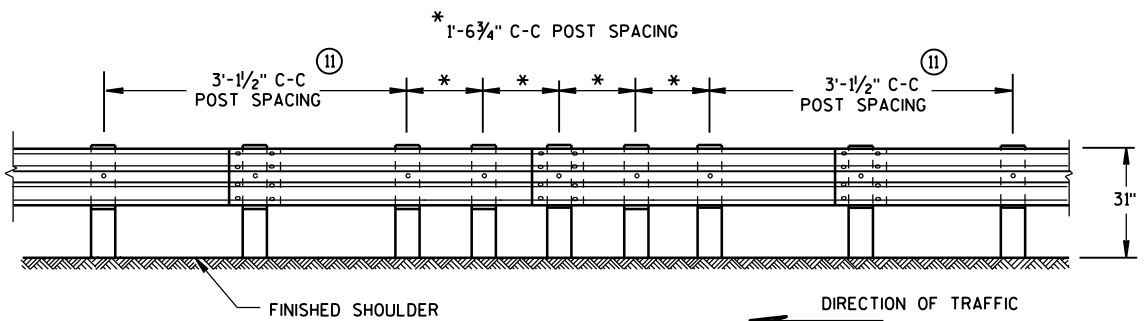
FRONT VIEW

POST SPACING STANDARD INSTALLATION



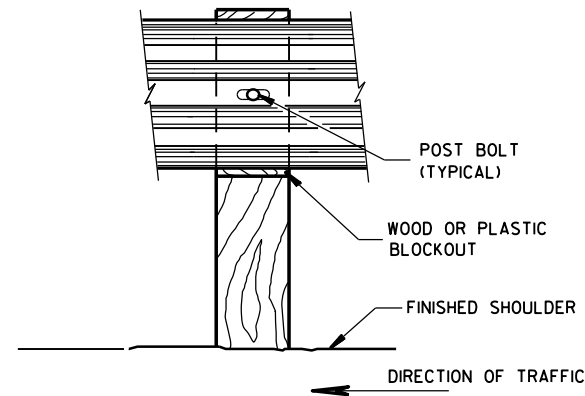
FRONT VIEW

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

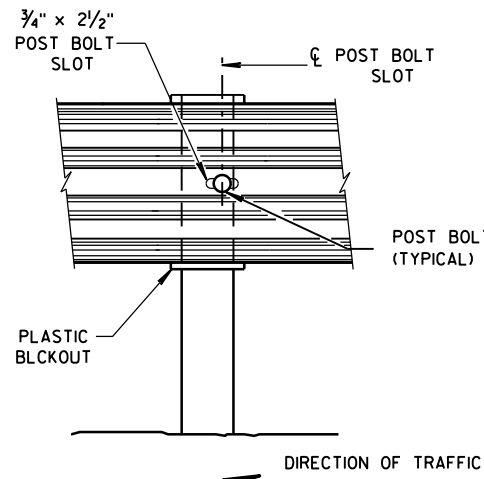


FRONT VIEW

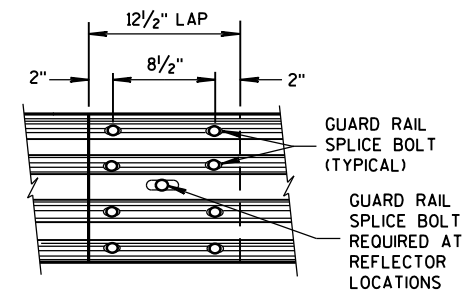
QUARTER POST SPACING (QS)



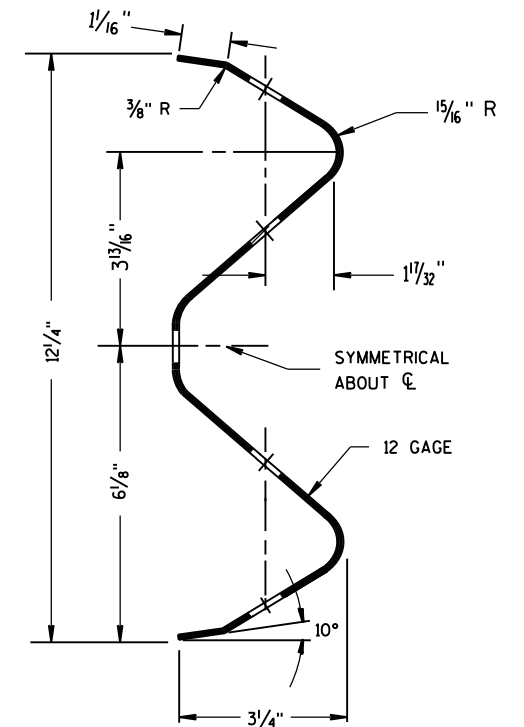
FRONT VIEW AT WOOD POST



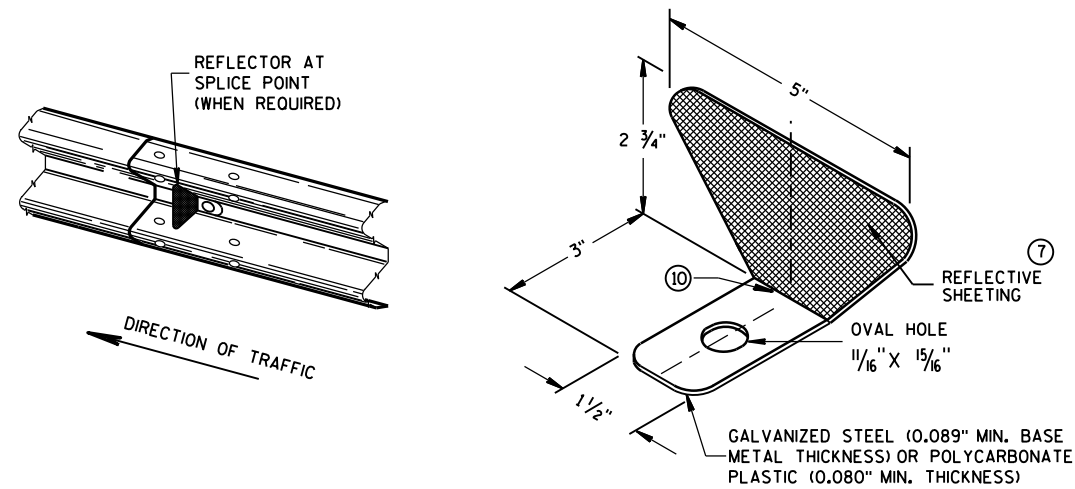
FRONT VIEW AT STEEL POST



FRONT VIEW
MID-SPAN BEAM SPLICE



SECTION THRU W-BEAM RAIL



ONE SIDED REFLECTOR DETAIL AND TYPICAL INSTALLATION

GENERAL NOTES

- ⑦ PROVIDE SILVER REFLECTIVE SHEETING ON ALL REFLECTORS EXCEPT THOSE LOCATED ALONG THE LEFT EDGE OF ONE-WAY ROADWAYS, WHICH SHALL BE PROVIDED WITH YELLOW REFLECTIVE SHEETING. SHEETING IS TYPE H. SEE STANDARD SPECIFICATION 637.
- 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.
- ⑨ REVERSE EVERY OTHER REFLECTOR FOR 2-WAY VISIBILITY. THE CONTRACTOR MAY FURNISH TWO-SIDED REFLECTORS IN LIEU OF ONE-SIDED REFLECTORS.
- ⑩ PROVIDE AN ANGLE OF BEND OF $90^\circ \pm 1^\circ$ FOR TWO-SIDED REFLECTORS.
- ⑪ 25 FEET OF HALF POST SPACING IS REQUIRED ON APPROACH AND DEPARTURE ENDS OF QUARTER POST SPACING.

POST BOLTS ARE A $\frac{5}{8}$ " DIAMETER ASTM A307 GUARDRAIL BOLT. A POST BOLT REQUIRES $\frac{5}{8}$ " DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX NUT AND $\frac{5}{8}$ " DIAMETER F844 FLAT WASHER. POST BOLTS MAY BE LONGER IF MULTIPLE BLOCKOUTS ARE BEING USED.

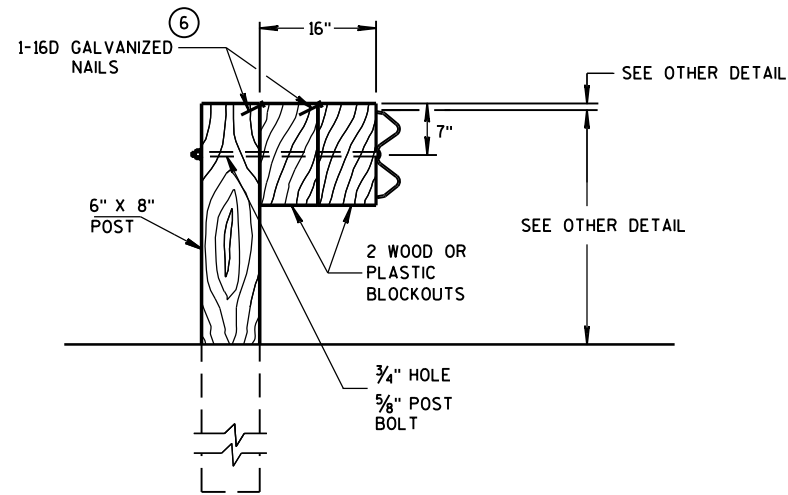
GUARD RAIL SPLICE BOLTS ARE A $\frac{5}{8}$ " DIAMETER ASTM A307 GUARDRAIL HEAD BOLT. A GUARDRAIL SPLICE BOLT REQUIRES $\frac{5}{8}$ " DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX NUT.

REFLECTOR SPACING

	BEAM GUARD RAIL LENGTH	REFLECTOR SPACING	NO. SURFACES REFLECTORIZED	MIN. NO. REFLECTORS
ONE WAY TRAFFIC	< 200'	50' C-C	1	3
	> 200'	100' C-C	1	
TWO WAY TRAFFIC	< 200'	25' C-C	1 ⑨	6
	> 200'	50' C-C	1	
TWO WAY TRAFFIC	< 200'	50' C-C	2 ⑩	3
	> 200'	100' C-C	2	

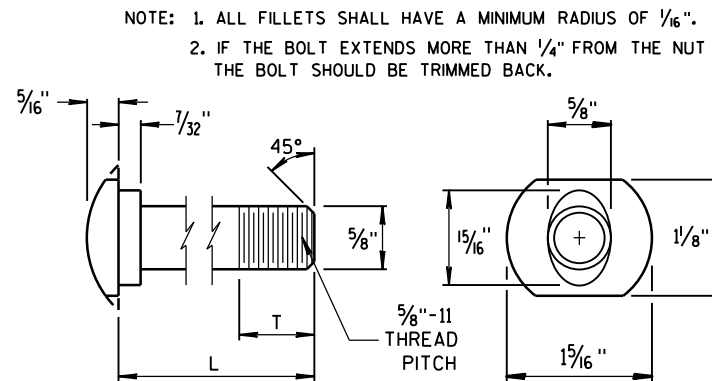
MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



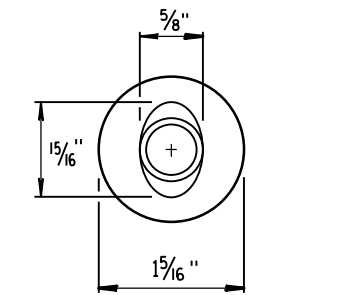
DETAIL FOR 16" BLOCKOUT DEPTH

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.

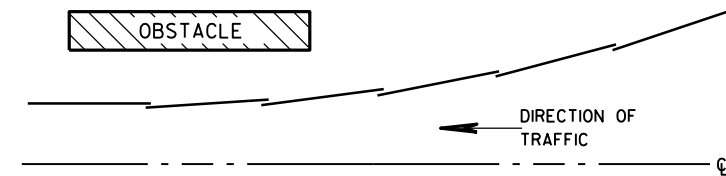


POST BOLT TABLE

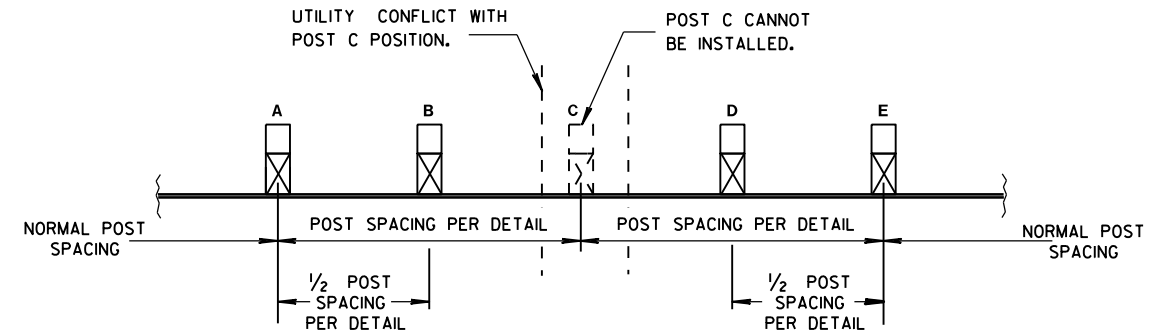
L	T (MIN.)
1/4"	1/8"
2"	1 3/4"
10"	4"
14"	4 1/16"
18"	4"
21"	4 1/16"
25"	4"



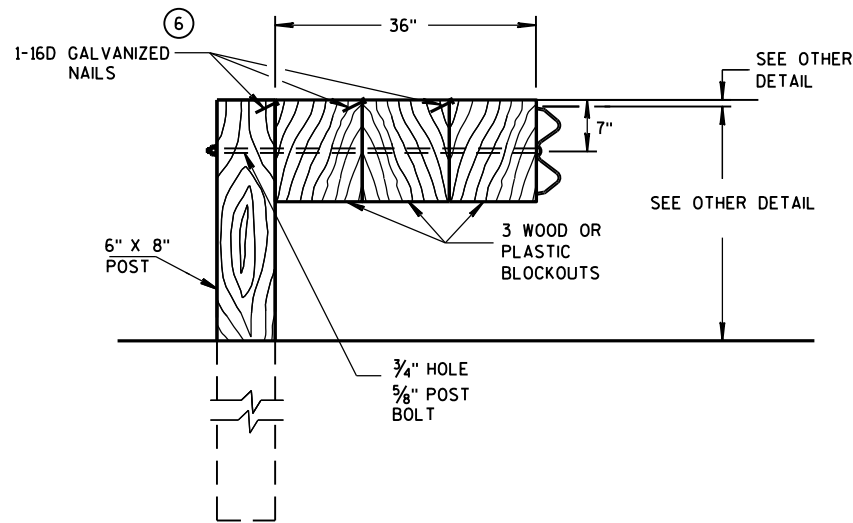
ALTERNATE BOLT HEAD



**PLAN VIEW
BEAM LAPPING DETAIL**



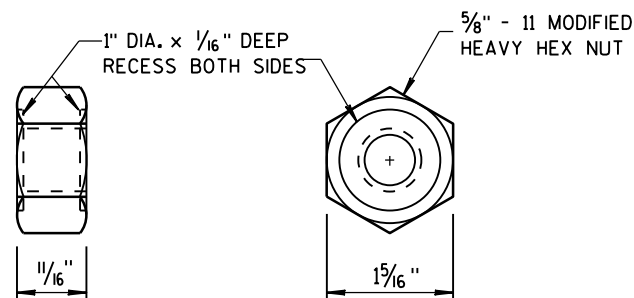
**POST DRIVING FOR CONTINUOUS
UNDERGROUND OBSTRUCTION**



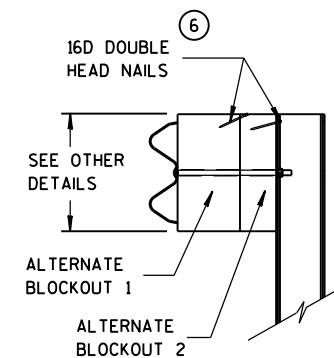
DETAIL FOR 36" BLOCKOUT DEPTH

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

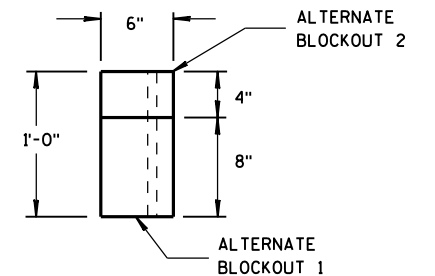
DO NOT USE 16" OR 36" BLOCKOUTS IF IT CAUSES THE POST TO BE DRIVEN BEYOND SHOULDER HINGE POINT OR CAUSES A FIXED OBJECT TO BE WITHIN THE DEFLECTION DISTANCE OF THE BARRIER.



**POST BOLT
AND RECESS NUT**



SIDE VIEW



TOP VIEW

**ALTERNATE WOOD
BLOCKOUT DETAIL**

**MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

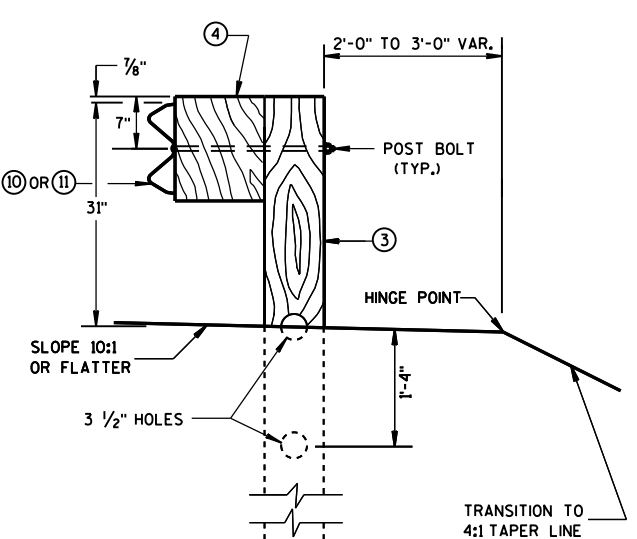
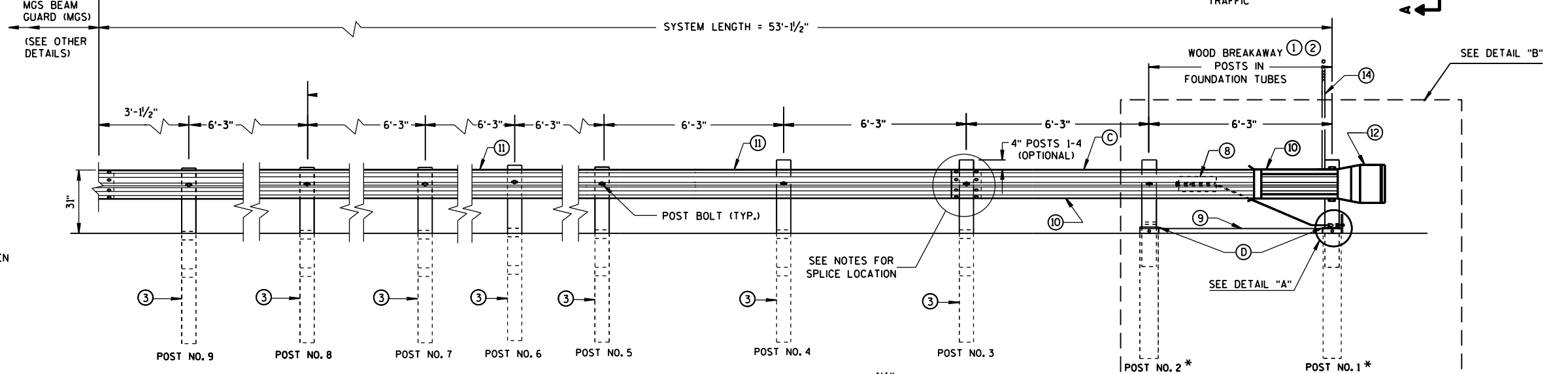
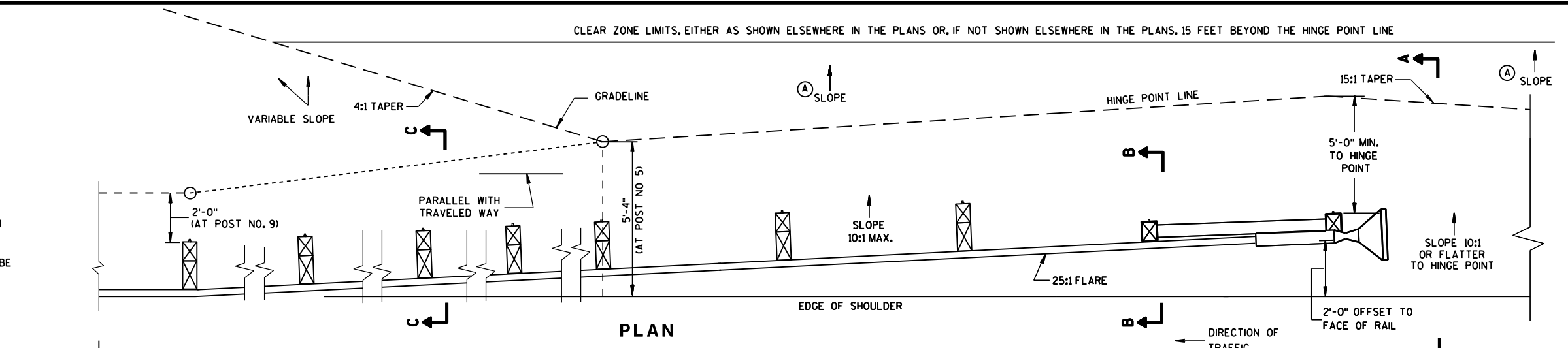
APPROVED
June 2014 /S/ Jerry H. Zogg
DATE ROADWAY STANDARDS DEVELOPMENT
FHWA ENGINEER

GENERAL NOTES

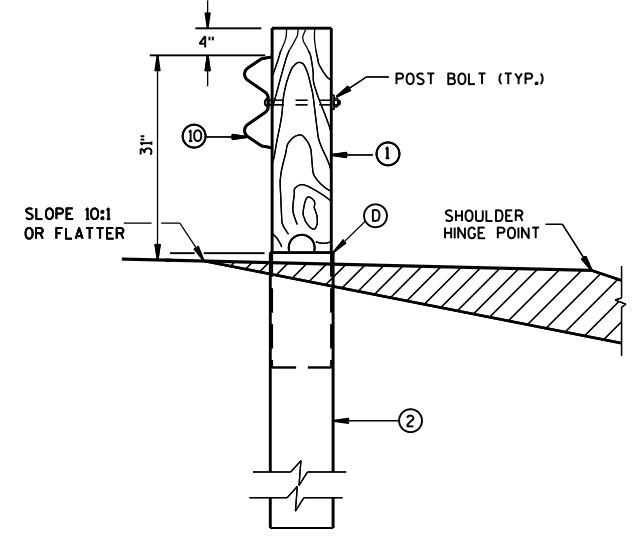
- (A) THE SLOPE IN THE AREA BOUNDED BY THE GRADELINE, THE HINGE POINT LINE (HPL), AND THE CLEAR ZONE LIMITS (CZL) SHALL BE 4:1 OR FLATTER.
- (B) AFTER FINAL ASSEMBLY, RECHECK CABLE TO BE SURE IT IS TAUT AND HAS NOT RELAXED.
- (C) DIFFERENT MANUFACTURES REQUIRE DIFFERENT PERFORATED W-BEAM RAIL END PANELS. SEE MANUFACTURE'S INFORMATION.
- (D) THE TOP OF THE STEEL TUBE ON POST 1 AND POST 2 SHALL NOT BE MORE THAN 3" ABOVE THE FINISH GROUND ELEVATION.
- (E) ATTACH ALUMINUM SHEET TO E.A.T. HEAD USING 4 STAINLESS STEEL SELF-TAPPING SCREWS, ONE SCREW PER CORNER.
- (F) 1/2" DIAMETER X 3" LONG LAG BOLT AND WASHER.
- (G) HARDWARE VARIES BETWEEN DIFFERENT MANUFACTURES. SEE MANUFACTURE'S DRAWING FOR INFORMATION.
- (H) DIMENSIONS MAY VARY. SEE MANUFACTURE'S INFORMATION.

SEE SDD 14B42 FOR MORE INFORMATION.
 * DO NOT ATTACH BLOCKOUTS TO POSTS 1 AND 2.
 DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINAL.
 W-BEAM RAIL SPLICES ARE LOCATED AT POST NUMBER 3, AND BETWEEN POST 5 AND 6, BETWEEN POSTS 7 AND 8, AND MIDDLE OF THE SPAN AFTER POST 9.
 THE CENTER OF THE UPPER 3/2" DIAMETER HOLE ON POST NUMBER 3 THROUGH POST 9 IS TO BE FLUSH WITH THE GROUND LINE UP TO A MAXIMUM OF 2" ABOVE GROUND LINE.

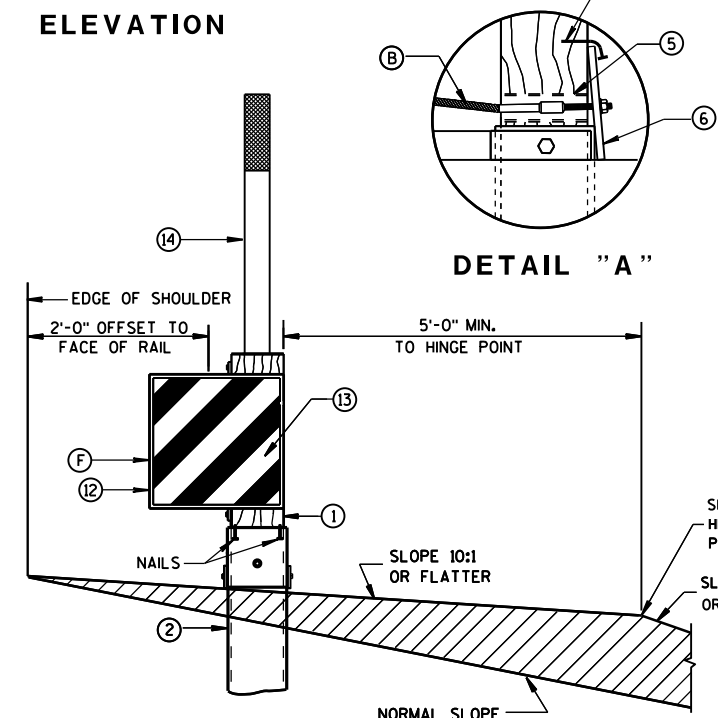
CLEAR ZONE LIMITS, EITHER AS SHOWN ELSEWHERE IN THE PLANS OR, IF NOT SHOWN ELSEWHERE IN THE PLANS, 15 FEET BEYOND THE HINGE POINT LINE



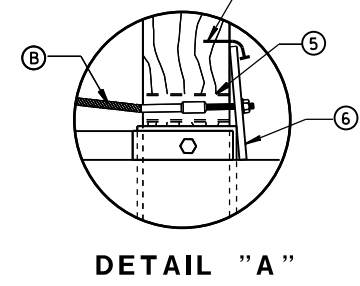
SECTION C-C
TYPICAL AT POST NOS. 3-9



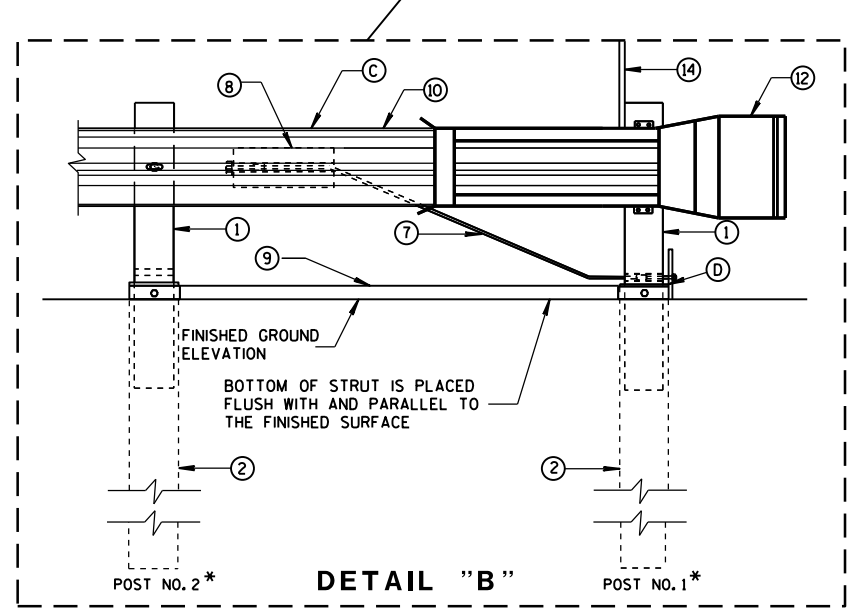
SECTION B-B
TYPICAL AT POST NO. 2*



SECTION A-A
TYPICAL AT POST NO. 1*



DETAIL "A"



DETAIL "B"

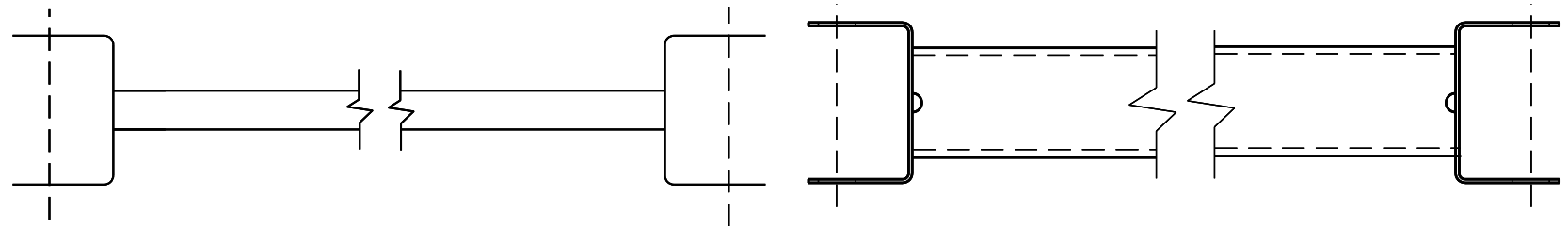
**MIDWEST GUARDRAIL SYSTEM
 ENERGY ABSORBING TERMINAL
 (MGS)**
 STATE OF WISCONSIN
 DEPARTMENT OF TRANSPORTATION

6

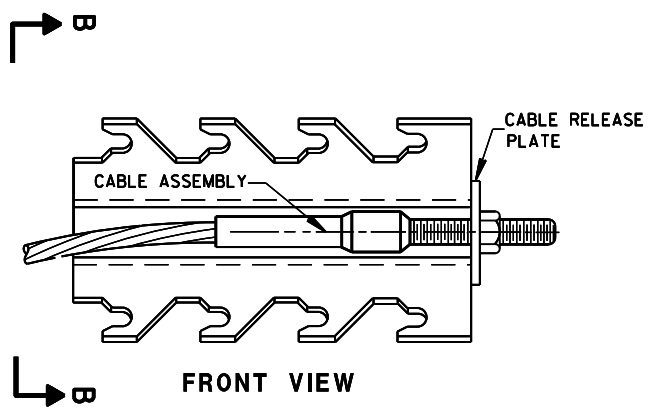
6

S.D.D. 14 B 44-2a

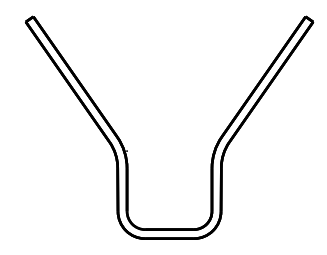
S.D.D. 14 B 44-2a



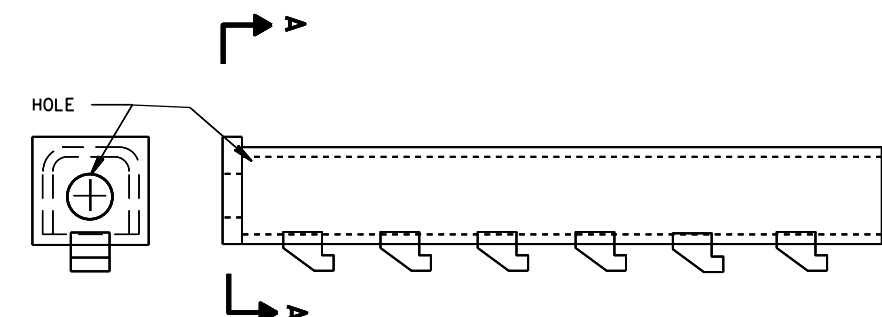
GENERIC GROUND STRUT (9) (H)



FRONT VIEW



SECTION B-B



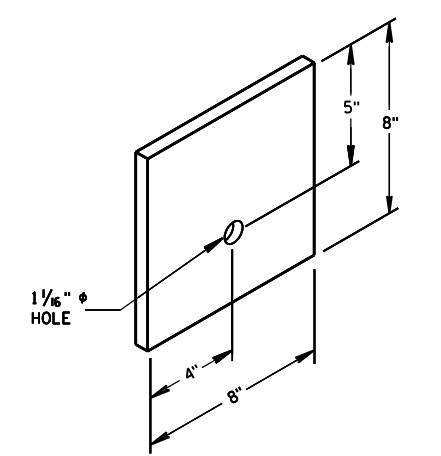
SECTION A-A

PLAN VIEW

GENERIC ANCHOR CABLE BOX (8) (H)

BILL OF MATERIALS

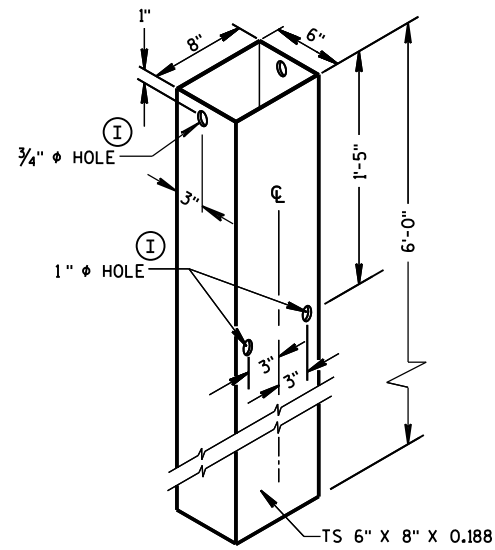
PART NO.	DESCRIPTION
MATERIALS PROVIDED BY MGS EAT MANUFACTURER. SEE MANUFACTURER'S DETAILS FOR MORE INFORMATION.	
(1)	WOOD BREAKAWAY POST
(2)	6" X 8" X 0.188", 6'-0" LONG FOUNDATION TUBE AT POSTS 1 AND 2
(3)	WOOD CRT
(4)	WOOD BLOCKOUT
(5)	PIPE SLEEVE
(6)	BEARING PLATE
(7)	BCT CABLE ASSEMBLY
(8)	ANCHOR 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)	END SECTION EAT
(13)	0.040" ALUMINUM SHEET WITH REFLECTIVE SHEETING TYPE F PER SECTION 637 OF THE STANDARD SPECIFICATIONS
(14)	EAT MARKER POST - YELLOW (SEE APPROVED PRODUCTS LIST)



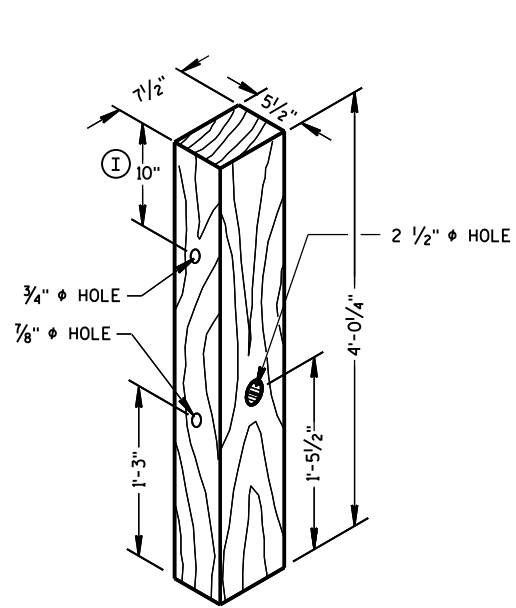
BEARING PLATE (6)

6

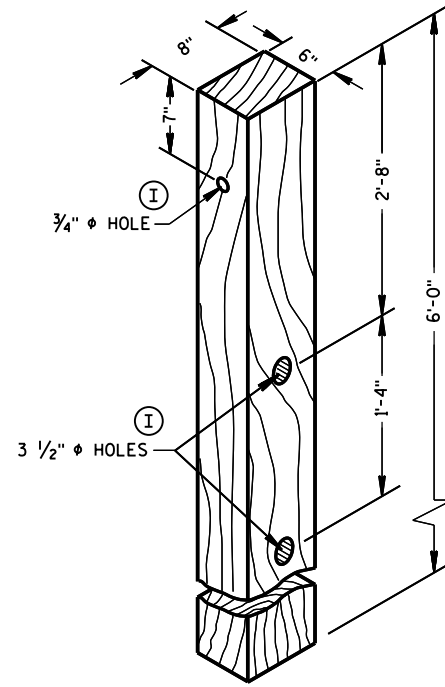
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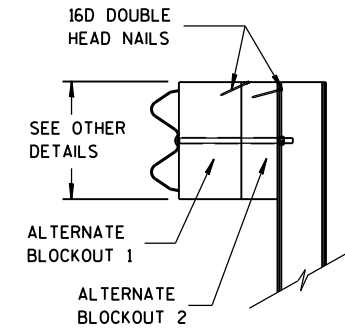
FOUNDATION TUBE ②



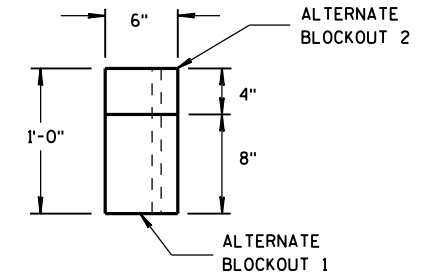
POSTS NUMBER 1 AND 2
WOOD BREAKAWAY POST ①



POSTS NUMBER 3-9
WOOD CRT POST ③

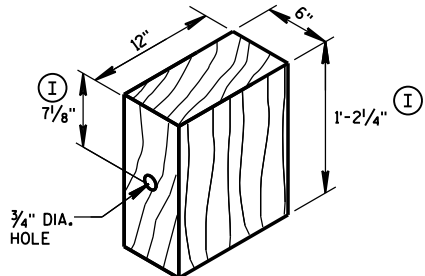


SIDE VIEW



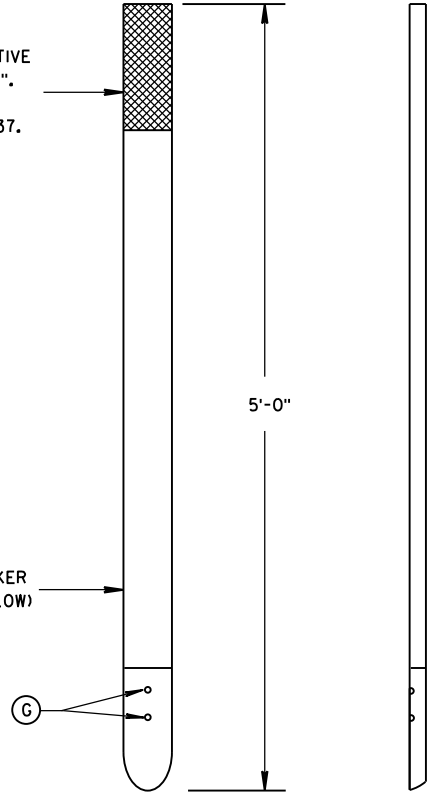
TOP VIEW

ALTERNATE WOOD BLOCKOUT DETAIL



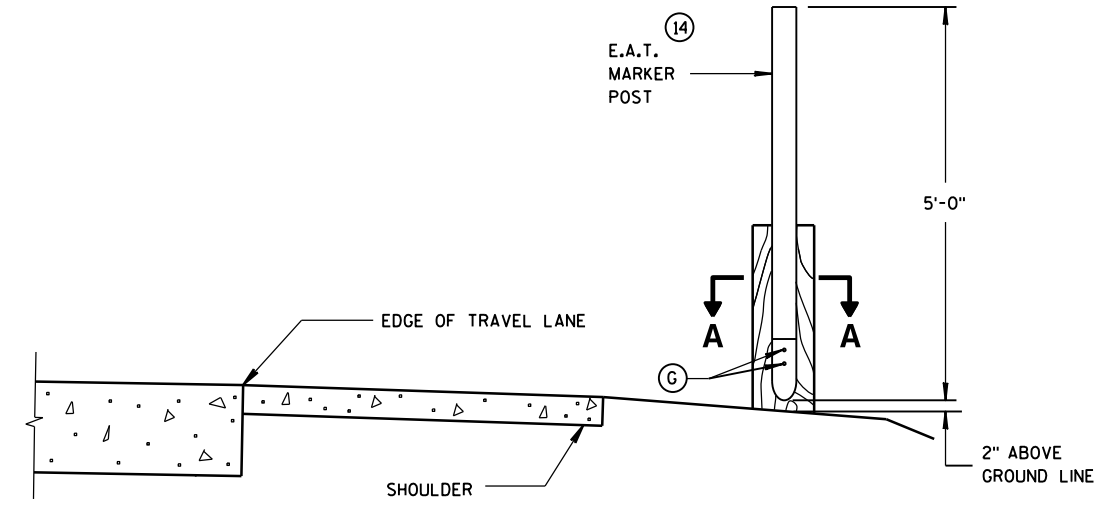
WOOD BLOCKOUT ④
REQ'D. AT ALL POSTS EXCEPT POST NO'S 1 & 2

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

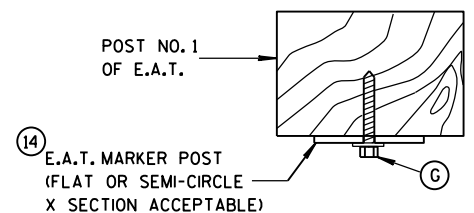


FRONT VIEW **SIDE VIEW**

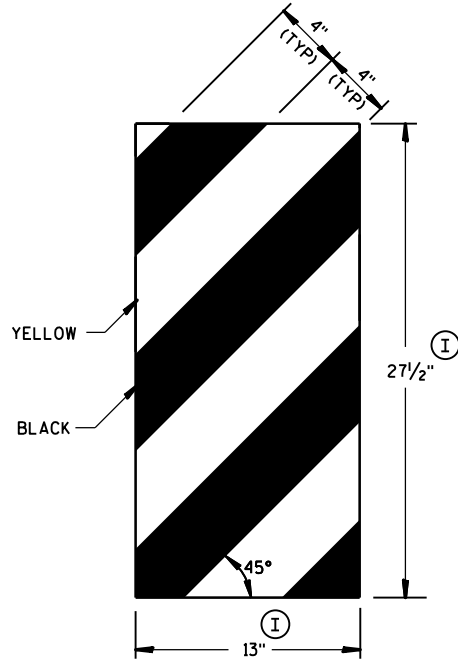
E.A.T. MARKER POST ⑭



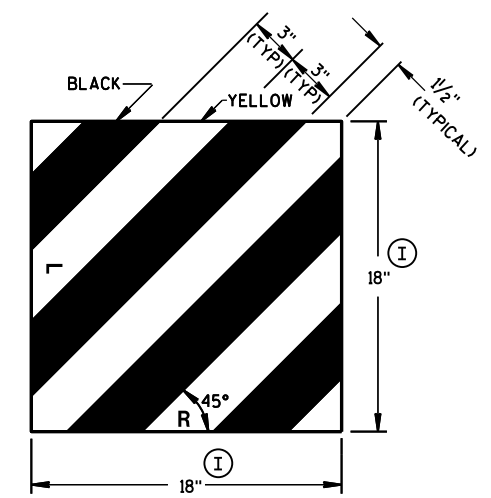
TYPICAL INSTALLATION OF E.A.T. MARKER POST BACKSIDE OF POST NO. 1
(E.A.T. AND RAIL REMOVED FOR CLARITY)



SECTION A-A



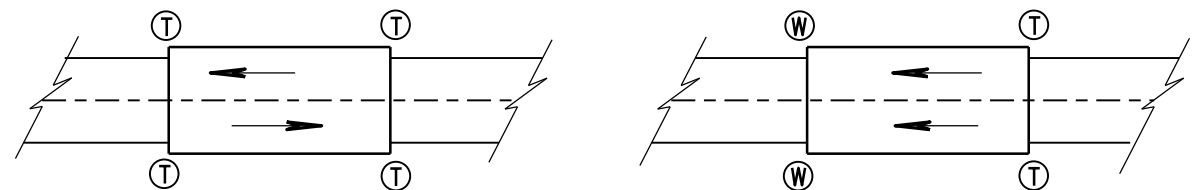
GENERIC REFLECTIVE SHEETING ⑬ ①



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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June 2014 /S/ Jerry H. Zogg
DATE ROADWAY STANDARDS DEVELOPMENT
FHWA ENGINEER



TWO WAY TRAFFIC

ONE WAY TRAFFIC

Ⓣ THRIE BEAM CONNECTION

Ⓦ W-BEAM CONNECTION WHEN REQUIRED

GENERAL NOTES

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

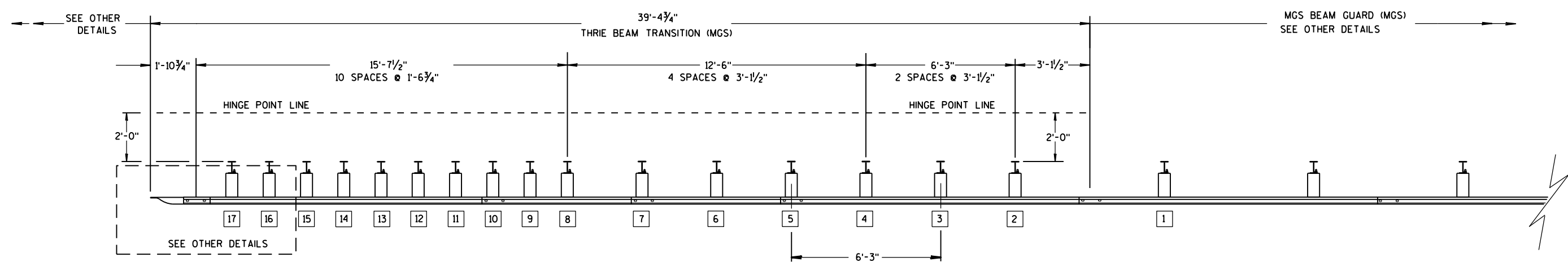
TRANSITION USES STEEL POSTS ONLY.

SEE STANDARD DETAIL DRAWING 14 B 42 FOR MORE INFORMATION.

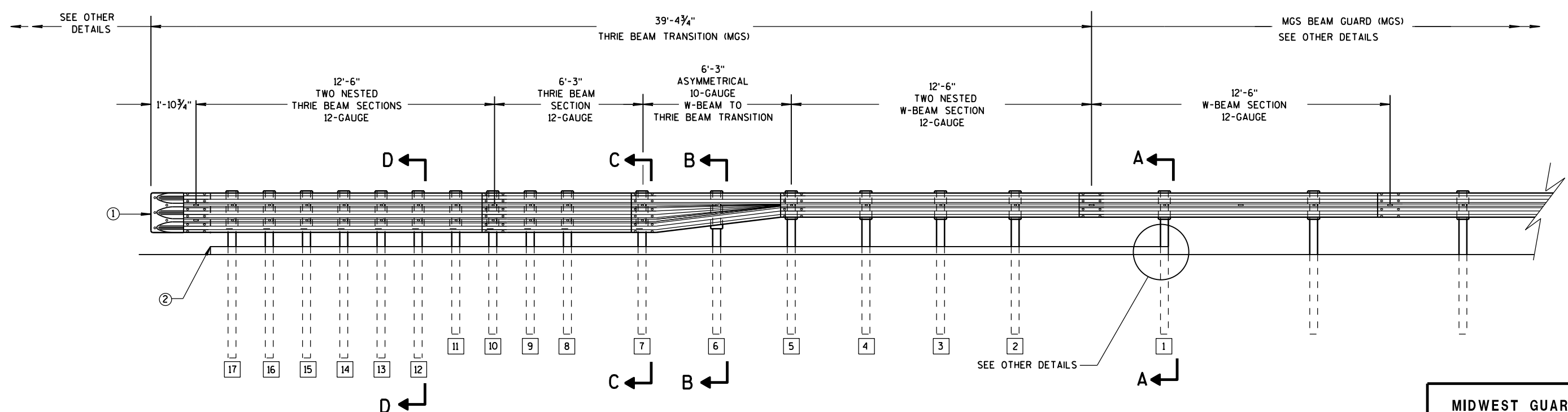
① BRIDGE RAILING TYPE "W" DOES NOT REQUIRE A TERMINAL CONNECTOR.

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

6

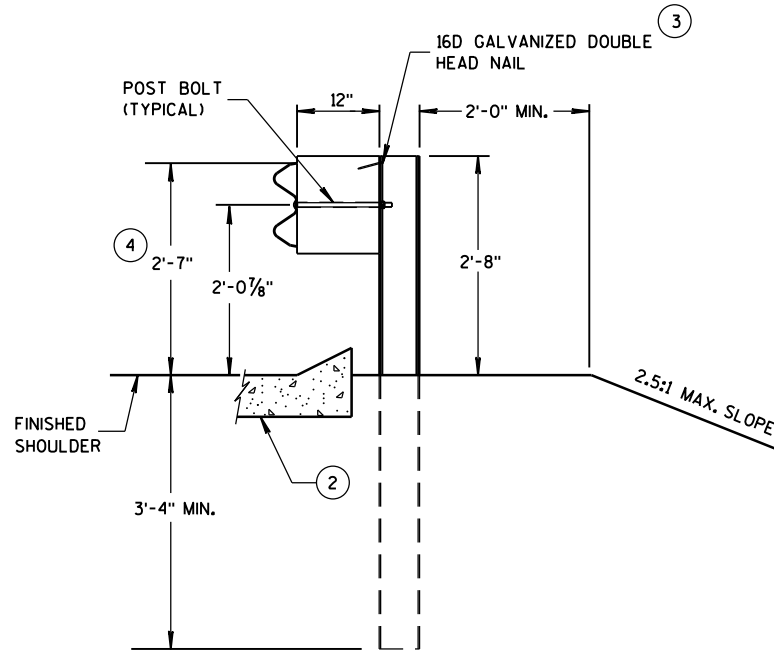
6

S.D.D. 14 B 45-4a

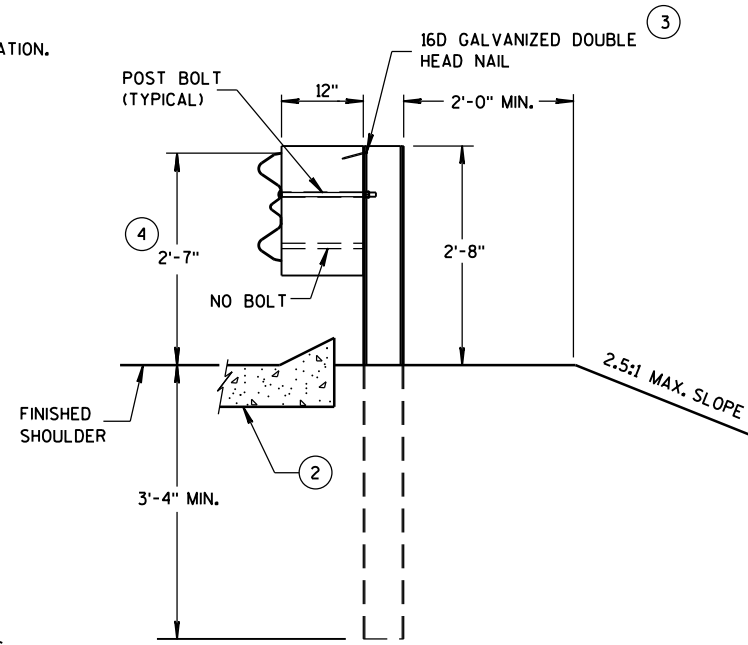
S.D.D. 14 B 45-4a

GENERAL NOTES

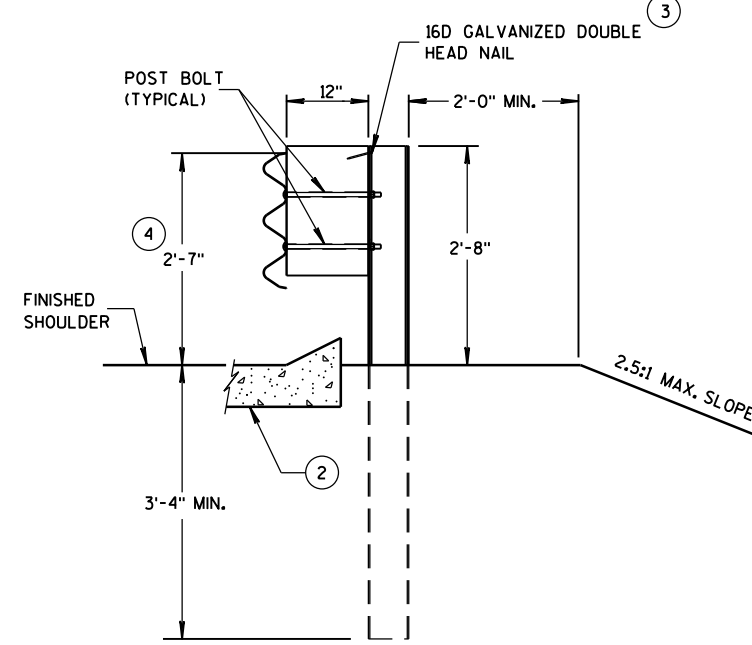
- ② OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.
- ③ WHEN USING STEEL POSTS AND WOOD BLOCKOUTS INSTALL FOUR 10D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.
- ④ TOLERANCE FOR TOP OF W-BEAM RAIL IS ± 1".



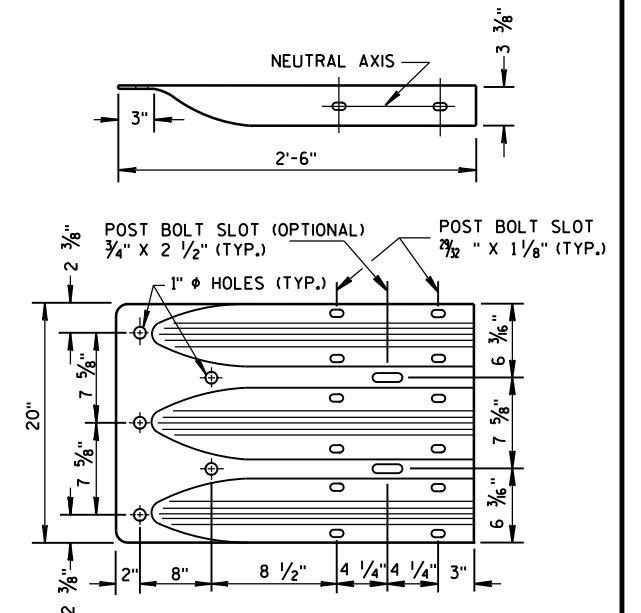
**SECTION A-A
POSTS 1-5**



**SECTION B-B
POST 6**



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



**THRIE BEAM
TERMINAL CONNECTOR**

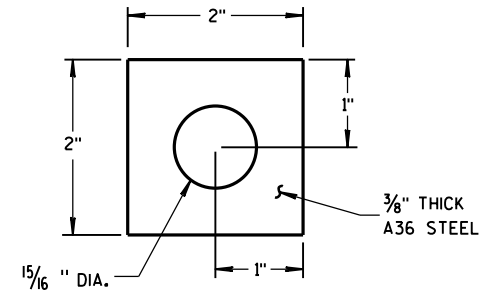
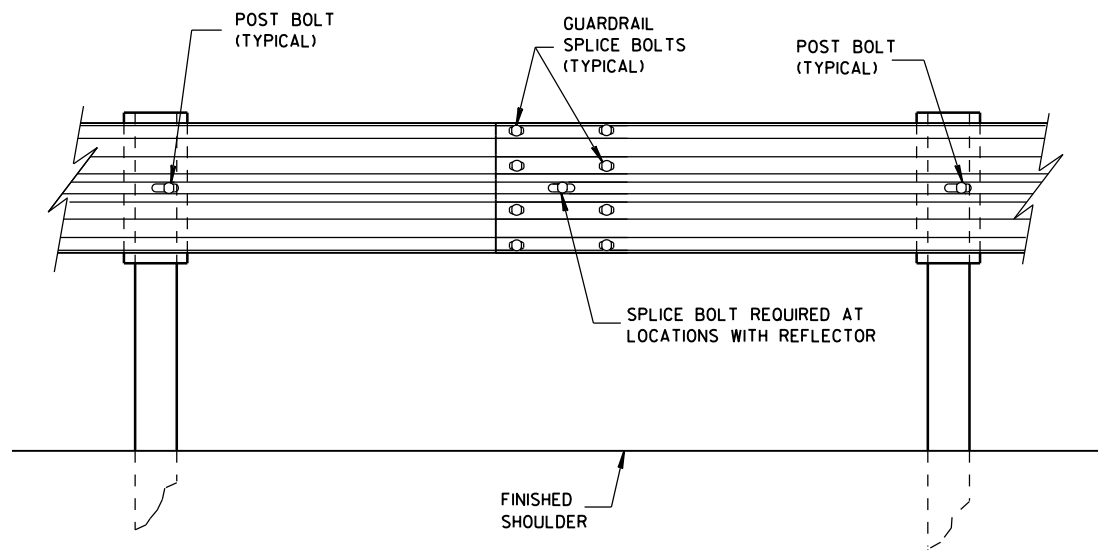
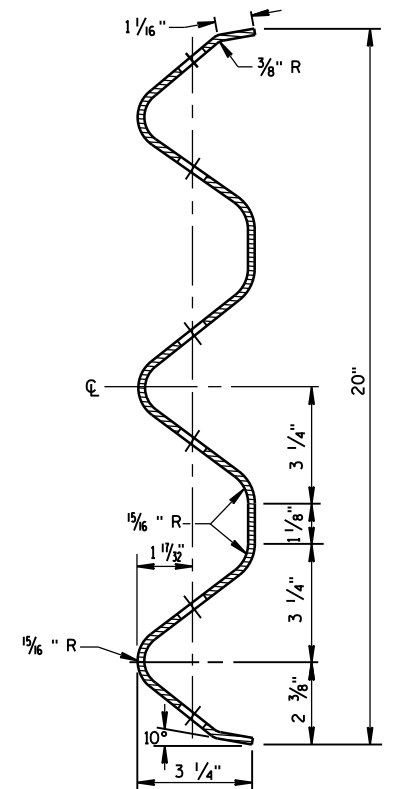


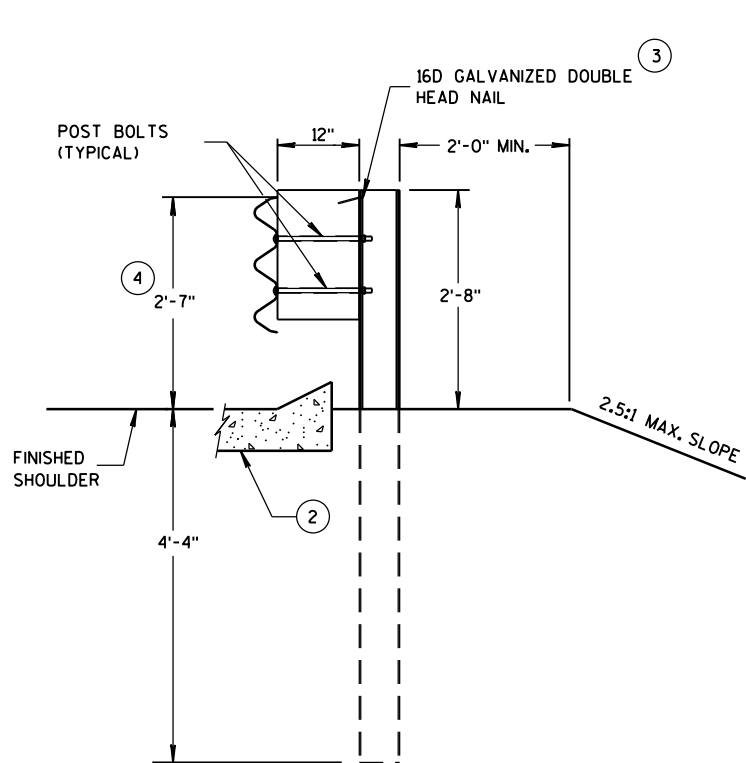
PLATE WASHER DETAIL



SPLICE DETAIL

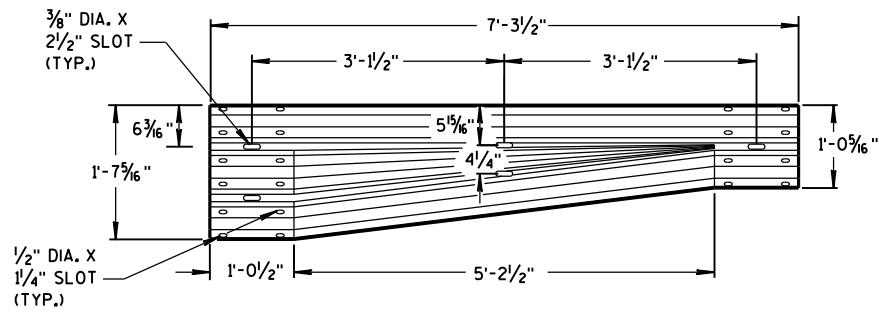


**SECTION THRU THRIE
BEAM RAIL ELEMENT**

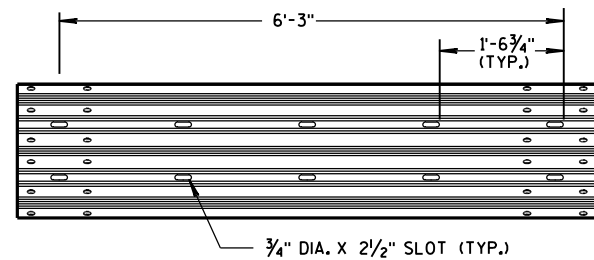


**SECTION D-D
POSTS 12-17**

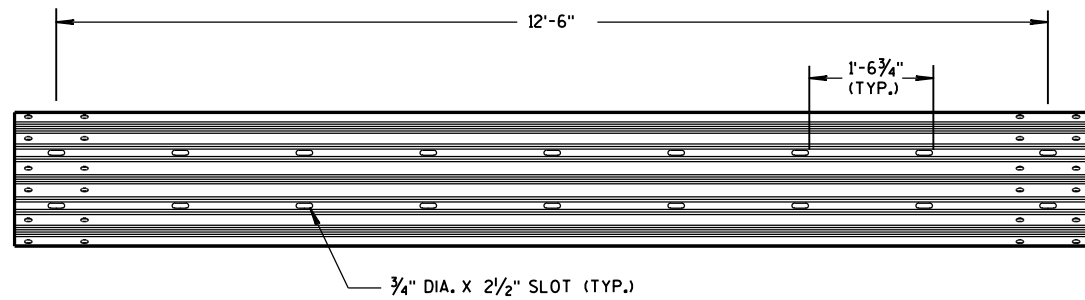
MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



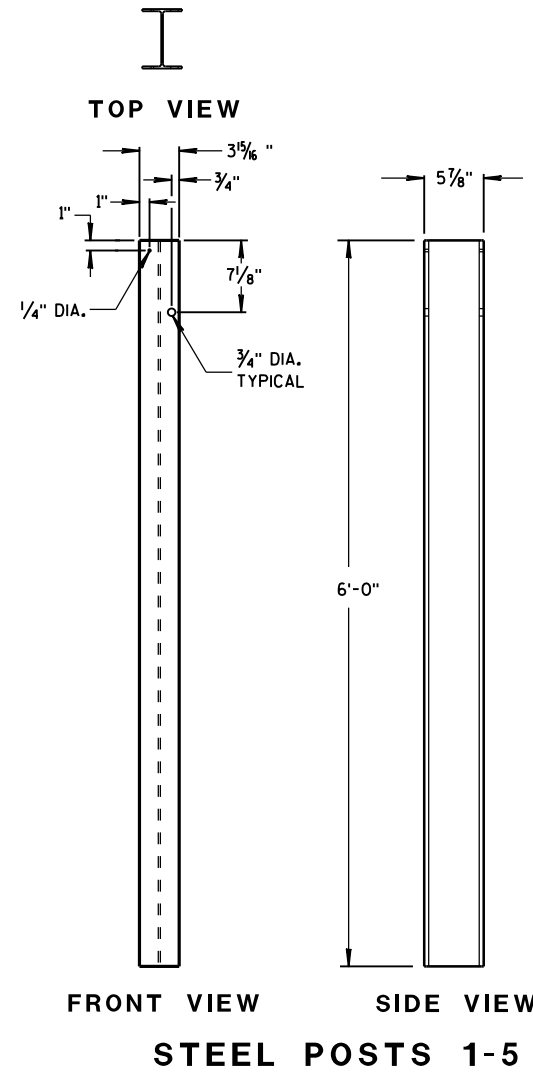
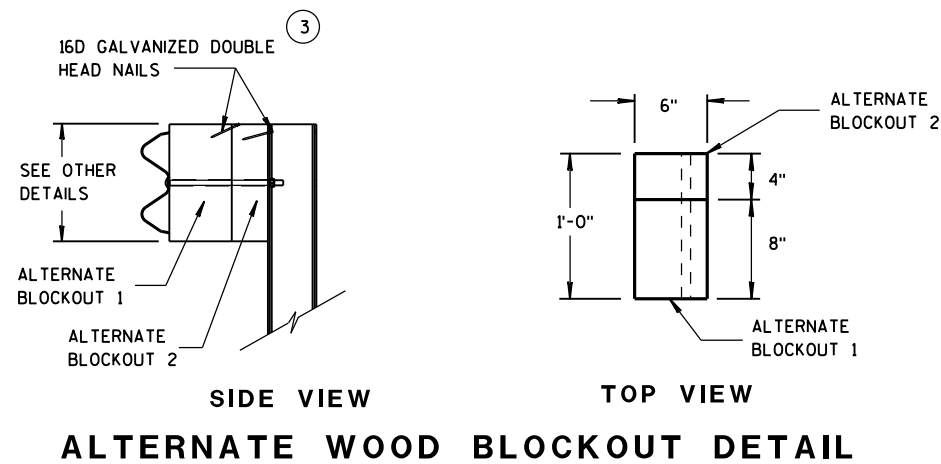
W-BEAM TO THRIE BEAM TRANSITION SECTION



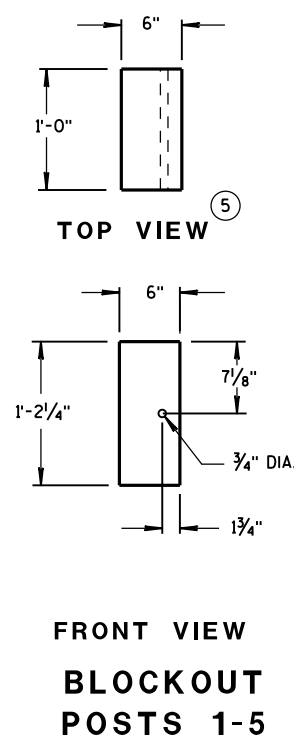
6'-3" THRIE BEAM SECTION



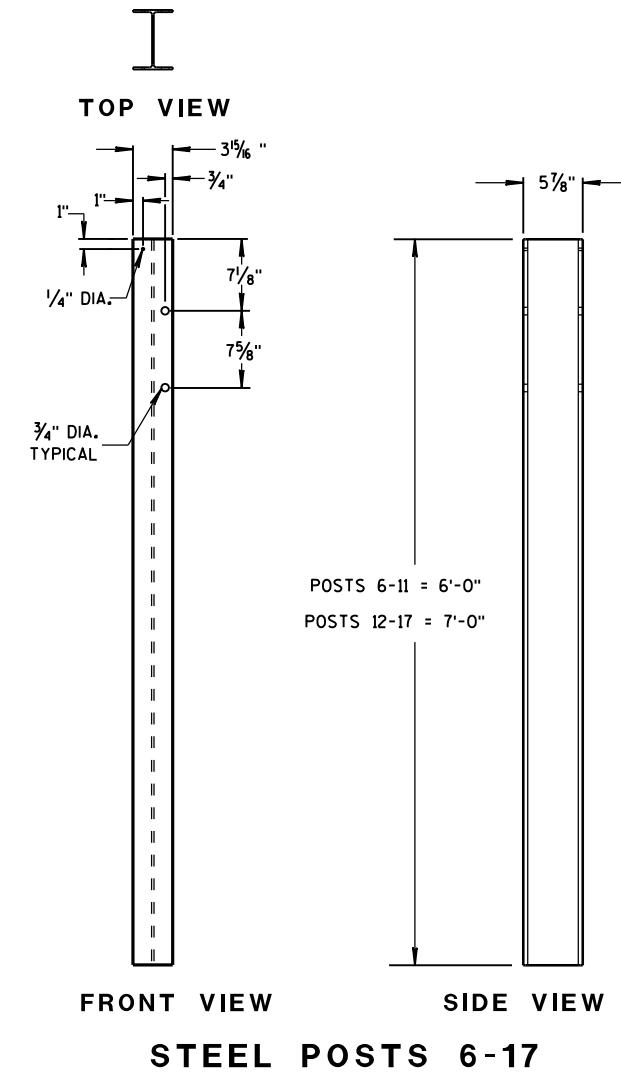
12'-6" THRIE BEAM SECTION



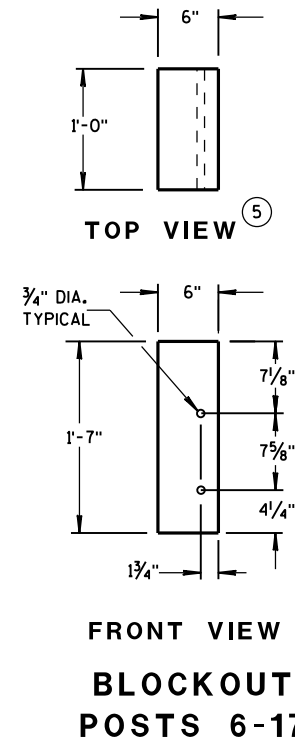
STEEL POSTS 1-5



BLOCKOUT POSTS 1-5



STEEL POSTS 6-17



BLOCKOUT POSTS 6-17

GENERAL NOTES

STEEL POSTS ARE W6X9 OR W6X8.5.

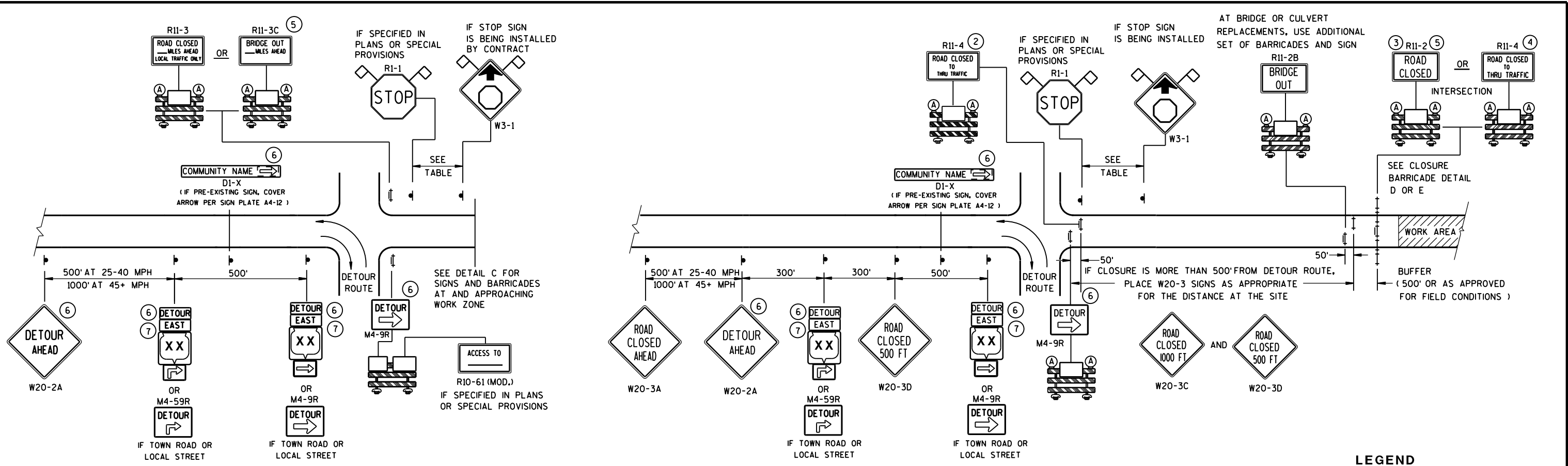
BOLT HOLES FOR POST ARE ON FRONT AND OF SIDE OF POST.

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.

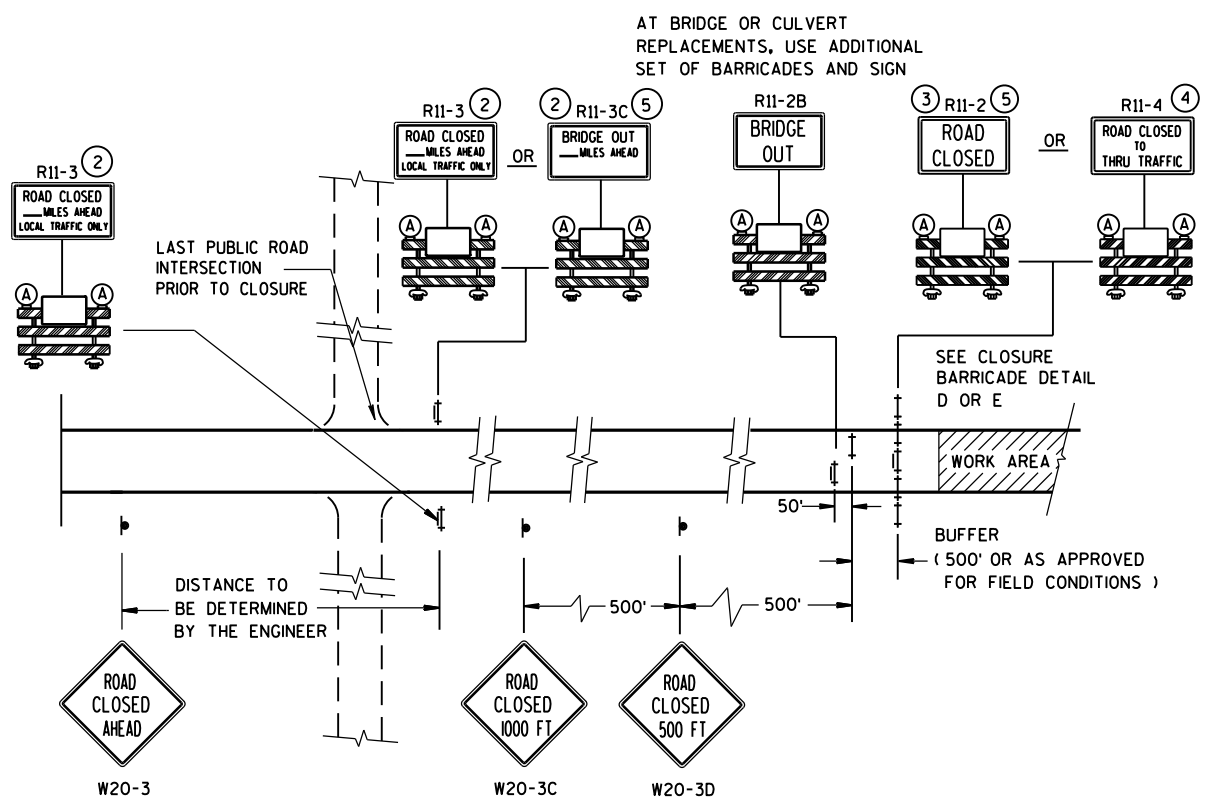
**MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



DETAIL A
MAINLINE CLOSURE WITH POSTED DETOUR
 WORK ZONE GREATER THAN 1/2 MILE FROM DETOUR ROUTE (1000 FEET IF URBAN)

DETAIL B
MAINLINE CLOSURE WITH POSTED DETOUR
 WORK ZONE LESS THAN 1/2 MILE FROM DETOUR ROUTE (1000 FEET IF URBAN)



DETAIL C
MAINLINE CLOSURE, NO POSTED DETOUR

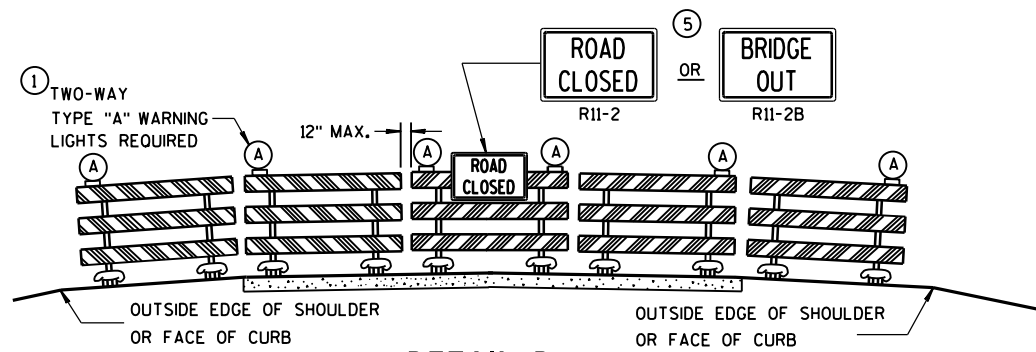
SPEED LIMIT (MPH)	"STOP AHEAD" ADVANCE WARNING DISTANCE (FT)
25	200
30	200
35	350
40	350
45	500
50	550
55	750

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

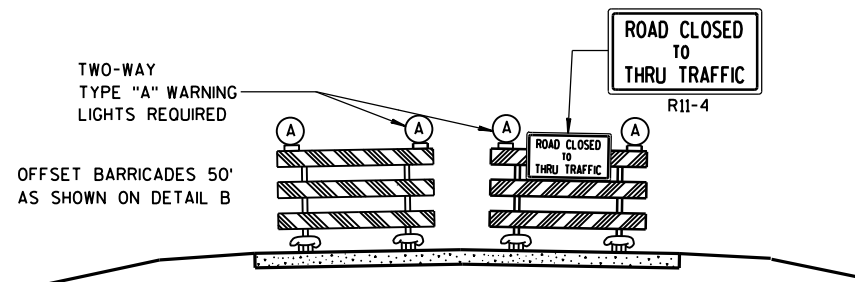
BARRICADES AND SIGNS FOR MAINLINE CLOSURES

STATE OF WISCONSIN
 DEPARTMENT OF TRANSPORTATION

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



DETAIL D
ROAD CLOSURE BARRICADE DETAIL
 APPROACH VIEW



DETAIL E
LANE CLOSURE BARRICADE DETAIL
 APPROACH VIEW

SEE SDD 15C2-SHEET "a" FOR LEGEND

GENERAL NOTES

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

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

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

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

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

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

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

THE R11-2, R11-3, M4-9, R11-4 AND R10-61 SIGNS PLACED ON 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.

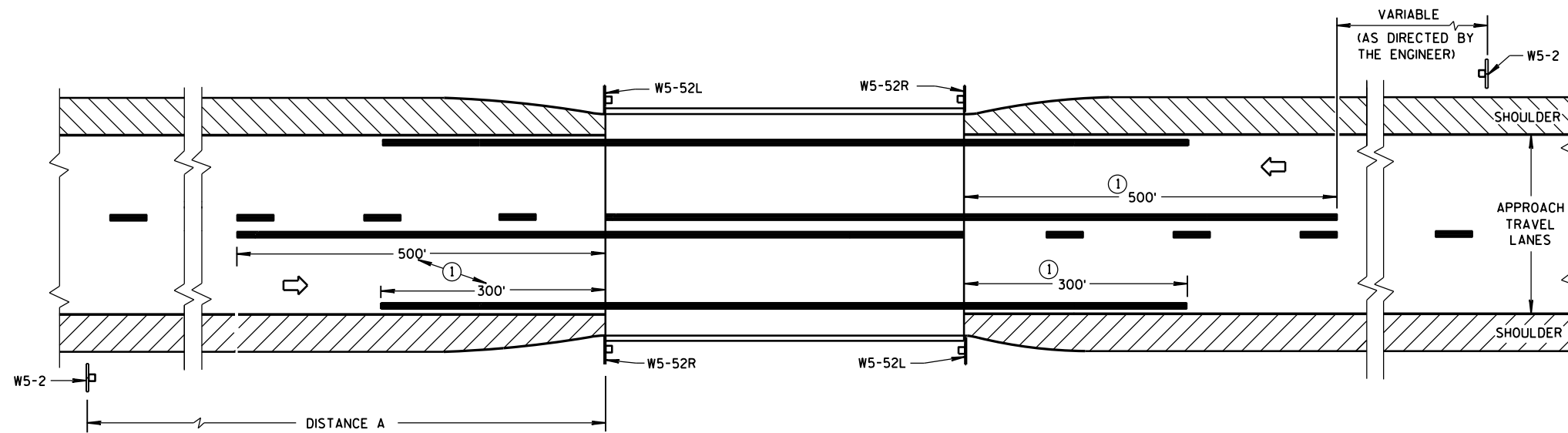
BARRICADES AND SIGNS FOR MAINLINE CLOSURES	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
Sept. 2015 DATE	/S/ Peter Amokobe Atepe STATEWIDE WORK ZONE TRAFFIC SAFETY ENGINEER
FHWA	

GENERAL NOTES

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

PAVEMENT MARKING SHOWN ON THIS DRAWING IS NOT REQUIRED UNLESS OTHERWISE SPECIFIED IN THE CONTRACT. WHEN SPECIFIED, PAVEMENT MARKING SHALL CONFORM TO THIS DRAWING AND OTHER CONTRACT REQUIREMENTS.

- ① MINIMUM DISTANCE UNLESS OTHERWISE SHOWN ON THE PLAN.
- ② FACE OF OBJECT MARKERS W5-52R, AND W5-52L SHALL BE COVERED WITH TYPE F REFLECTIVE SHEETING.
- ③ LOCATE OBJECT MARKER POST(S) BEHIND GUARDRAIL WHEN PRESENT.



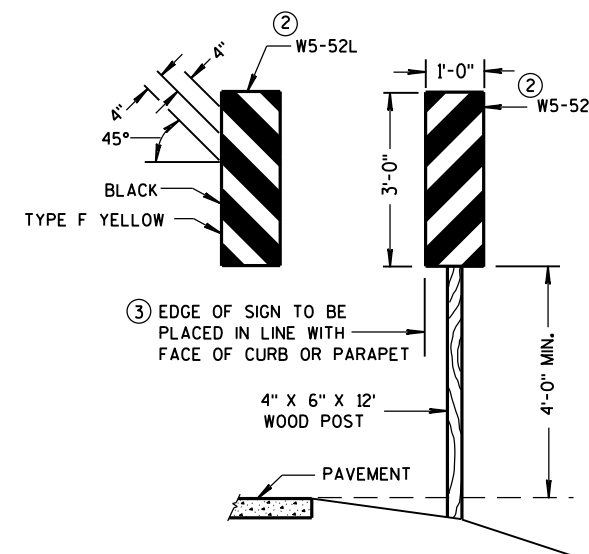
SITUATION 1

WARRANTING CRITERIA:

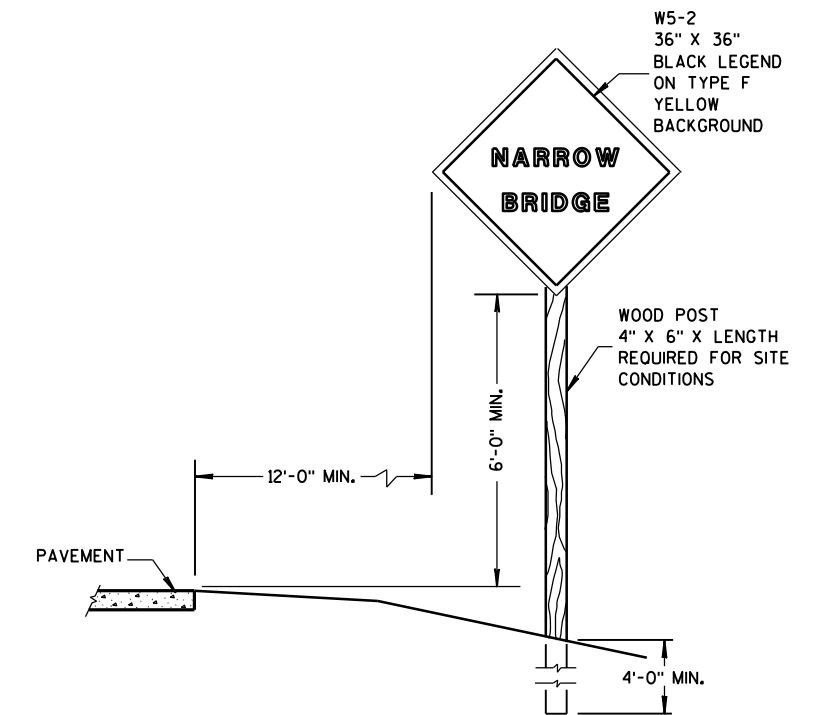
BRIDGE WIDTH IS AT LEAST 16 FEET BUT LESS THAN 24 FEET

DISTANCE TABLE

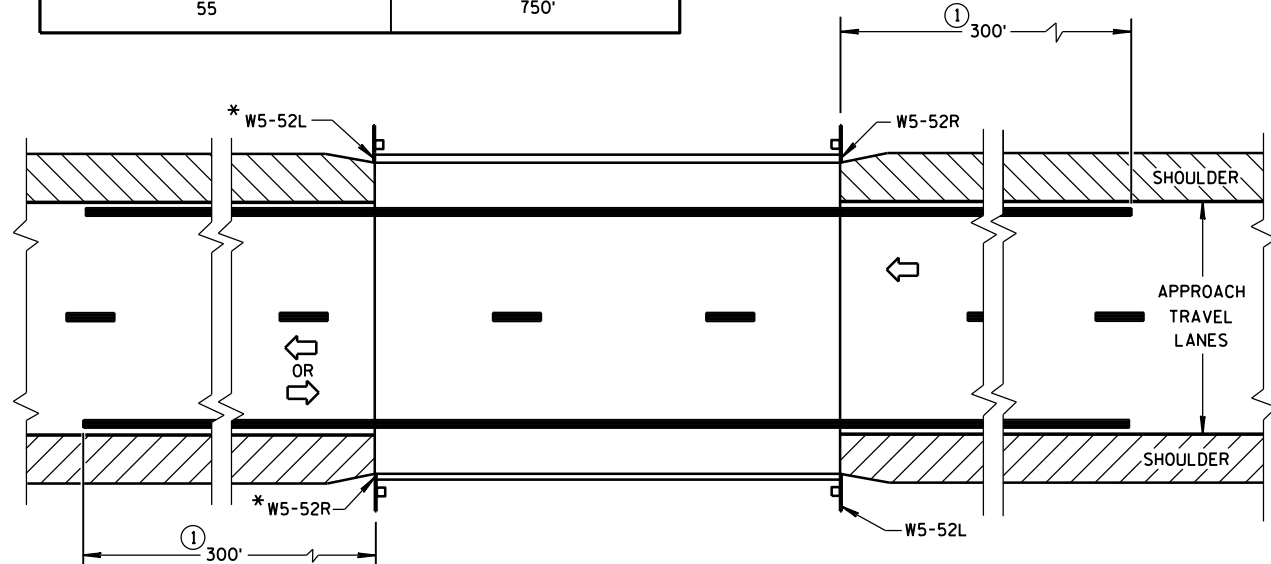
POSTED OR 85th PERCENTILE SPEED	DISTANCE "A"
25	150'
30	200'
35	250'
40	300'
45	400'
50	550'
55	750'



OBJECT MARKER PLACEMENT



SIGN PLACEMENT



*OMIT ON ONE-WAY TRAVELLED WAYS

SITUATION 2

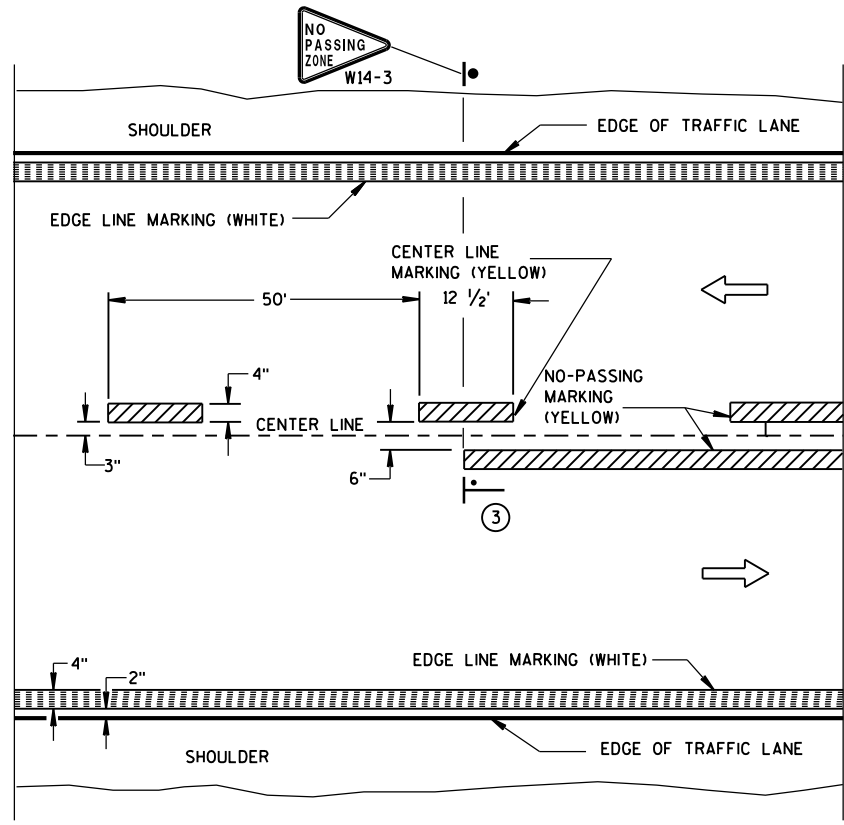
WARRANTING CRITERIA:

- 1. BRIDGE WIDTH IS AT LEAST 24 FEET AND
- 2. BRIDGE IS LESS THAN 6 FEET WIDER (ON EACH SIDE) THAN APPROACH TRAVEL LANES.

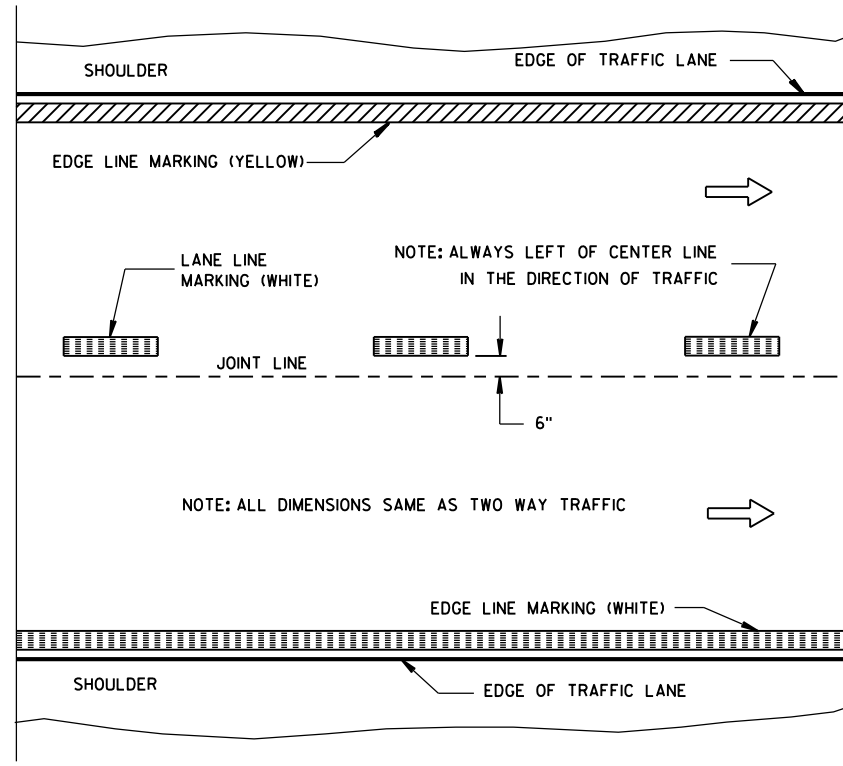
SIGNING & MARKING FOR TWO LANE BRIDGES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
DATE 3-2014 /S/ Travis Feltes
STATE TRAFFIC ENGINEER OF DESIGN
FHWA



TWO WAY TRAFFIC



ONE WAY TRAFFIC

PERMANENT PAVEMENT MARKING

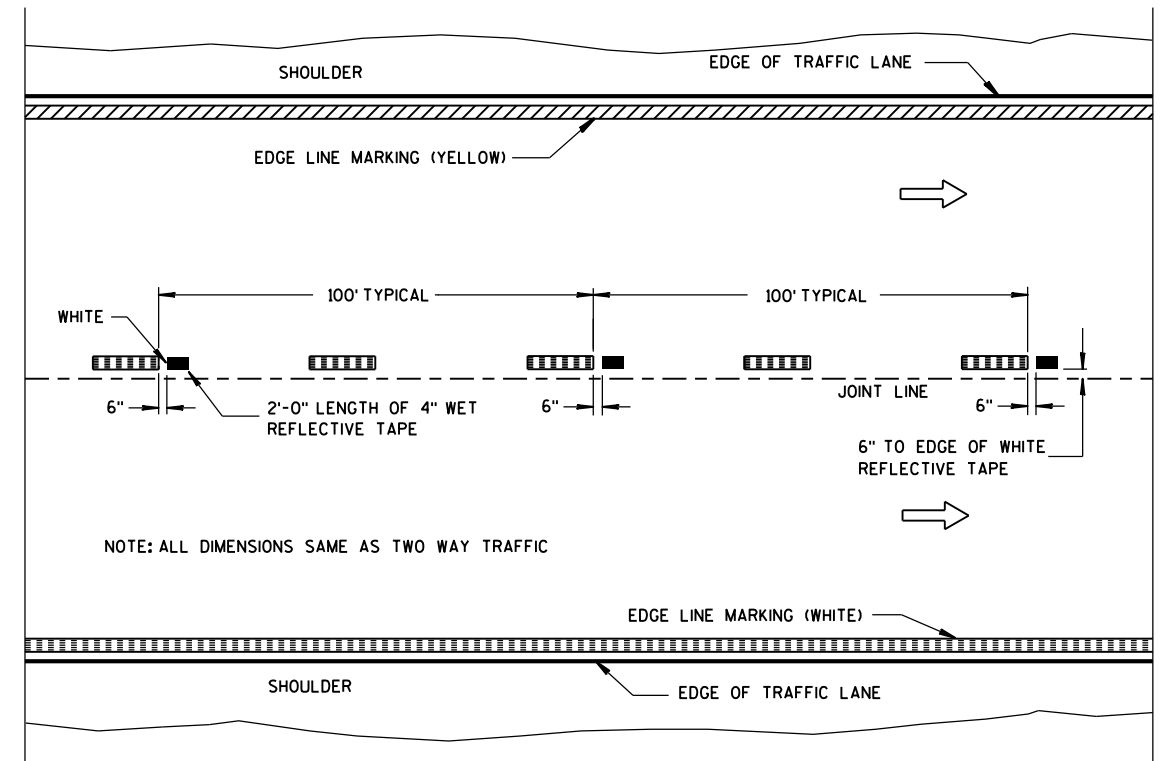
GENERAL NOTES

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

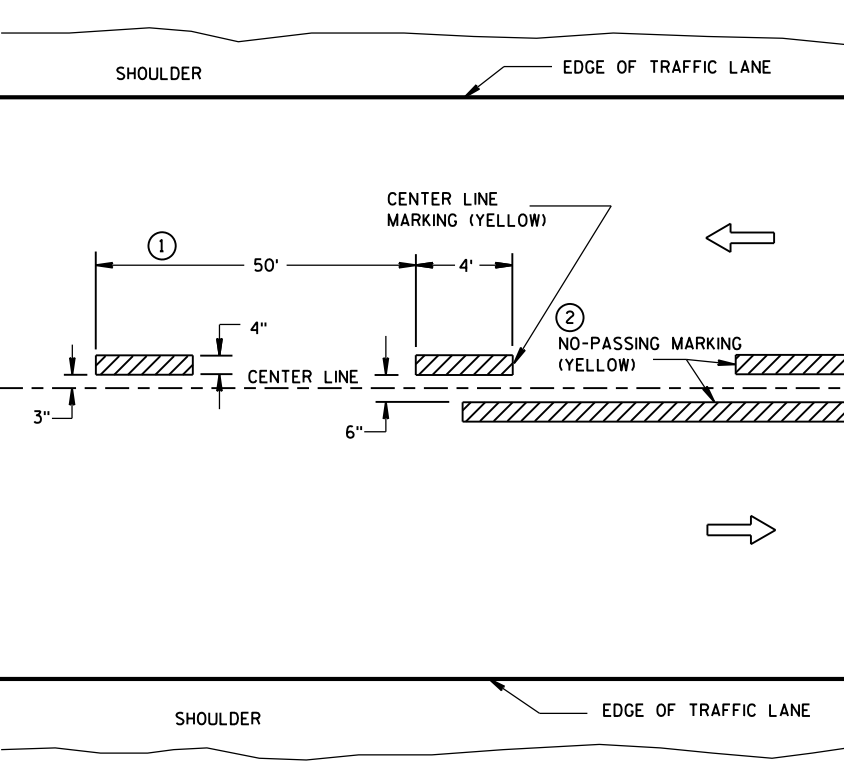
- ① HALF CYCLE LENGTHS (25'±) WITH 2' MINIMUM STRIPE LENGTHS SHALL BE PROVIDED ON ROADWAYS (INCLUDING TEMPORARY TRAVELED WAYS) WITH REVERSE CURVATURE, CURVATURE OF OVER 5 DEGREES OR WHEN DIRECTED BY THE ENGINEER TO MARK UNUSUAL ALIGNMENT OF THE TRAVELED WAY.
- ② NO PASSING ZONE TEMPORARY PAVEMENT MARKING IS REQUIRED TO BE PLACED, WHERE APPROPRIATE, ALONG WITH CENTERLINE TEMPORARY PAVEMENT MARKING WHEN A SAME DAY PERMANENT PAVEMENT MARKING ITEM IS INCLUDED IN THE CONTRACT.
- ③ NO PASSING ZONE MARKINGS ARE PLACED ACCORDING TO "T" MARKINGS. IF EXISTING NO PASSING ZONE W14-3 SIGNS ARE BEYOND 50 FEET IN EITHER DIRECTION, THE SIGNS SHALL BE MOVED TO THE "T" MARKINGS.
- ④ CONCRETE ONLY.

NOTE

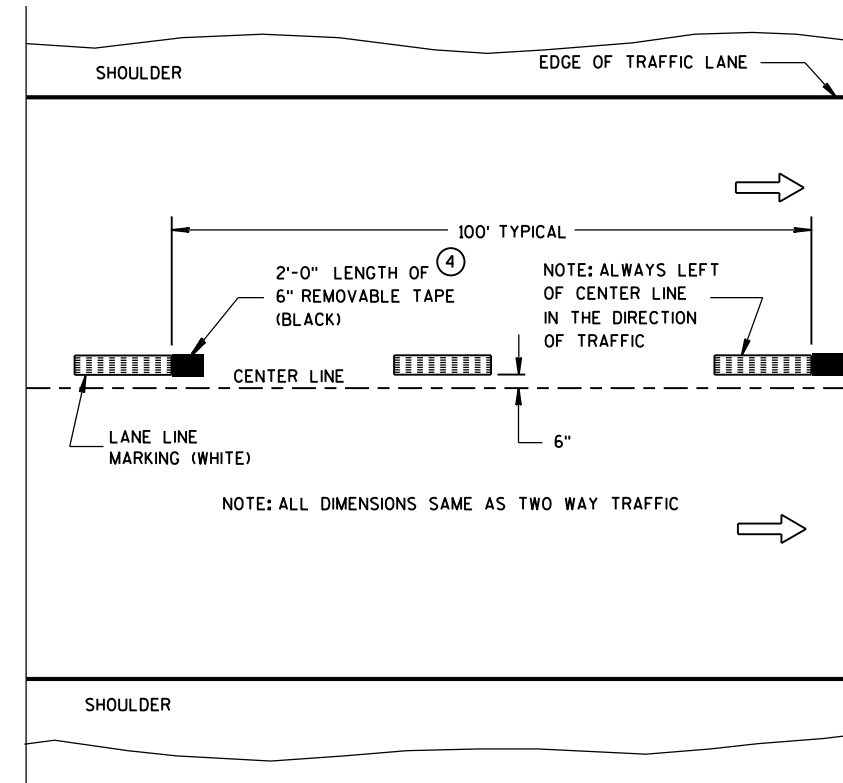
ARROW SYMBOL (→) SHOWS DIRECTION OF TRAVEL



WET REFLECTIVE TAPE SUPPLEMENT TO SPRAYED OR NON WET REFLECTIVE TAPE LANE LINE



TWO WAY TRAFFIC



ONE WAY TRAFFIC

TEMPORARY (INTERMEDIATE) PAVEMENT MARKING
(SHOWS CYCLE FOR TEMPORARY CENTER LINE OR TEMPORARY LANE LINE MARKING)

LEGEND

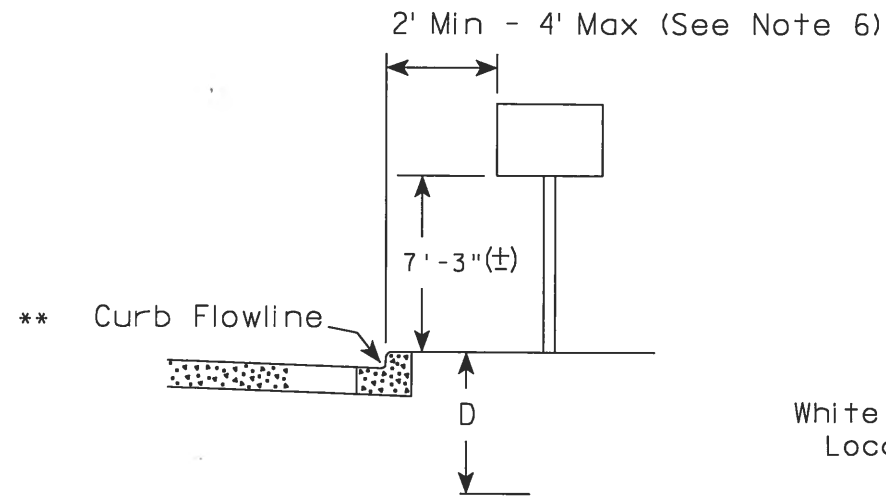
- "T" MARKING
- POST MOUNTED SIGN

PAVEMENT MARKING (MAINLINE)

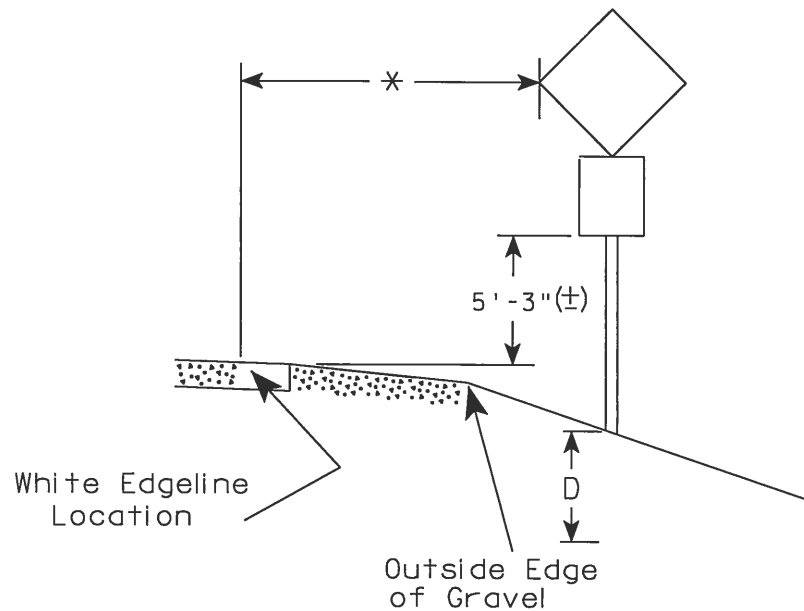
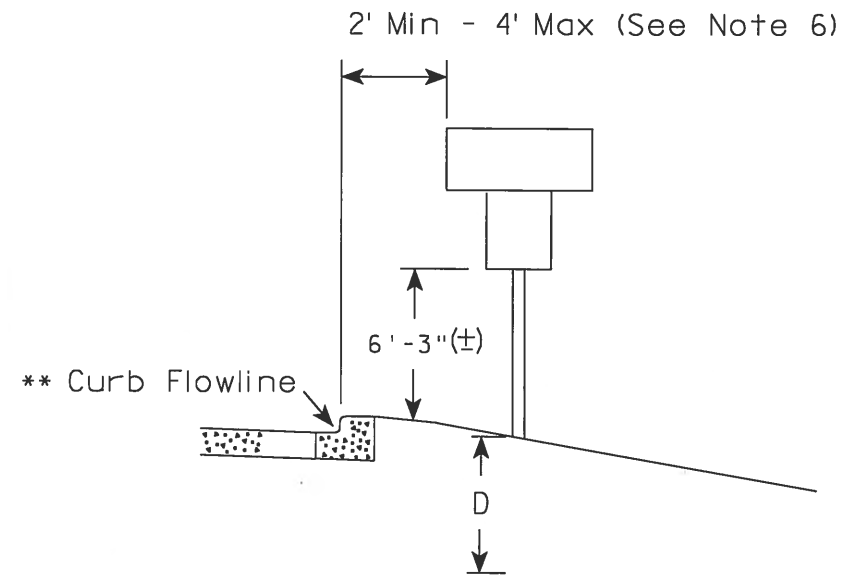
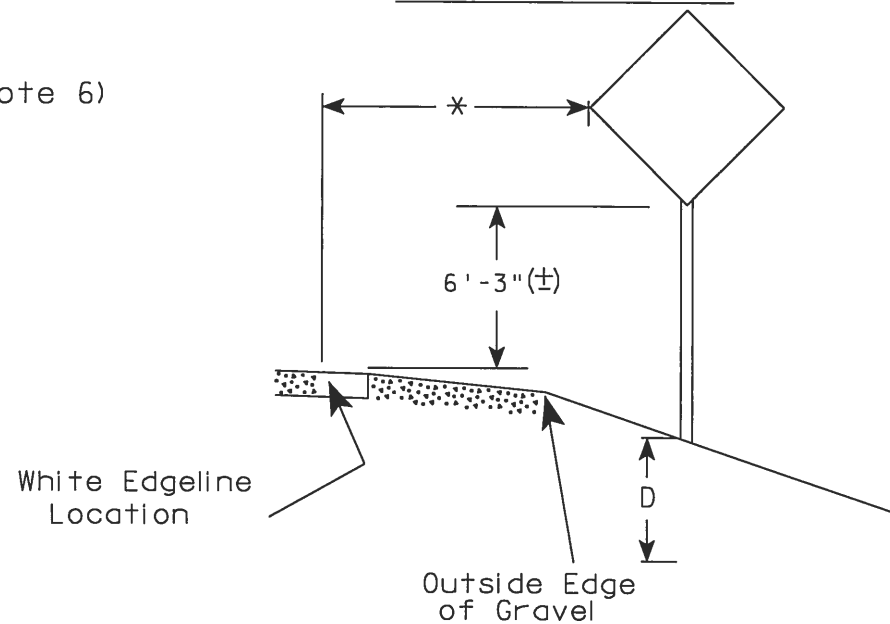
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
5-13-2013 /S/ Travis Feltes
DATE STATE TRAFFIC ENGINEER
FHWA

URBAN AREA



RURAL AREA (See Note 2)



GENERAL NOTES

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

POST EMBEDMENT DEPTH

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

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

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

TYPICAL INSTALLATION OF PERMANENT TYPE II SIGNS ON SINGLE POSTS

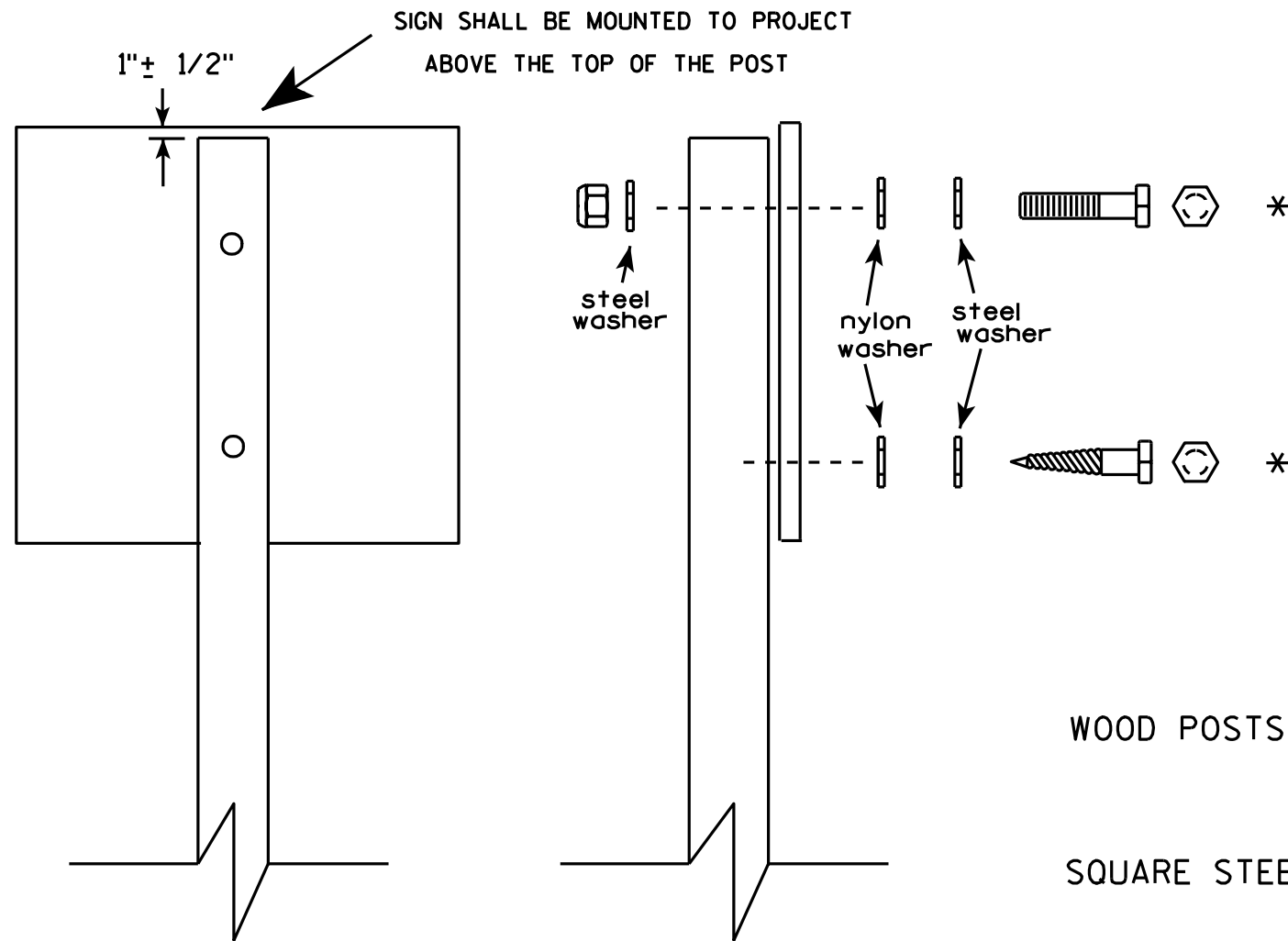
WISCONSIN DEPT OF TRANSPORTATION

APPROVED

Matthew R. Rauch
for State Traffic Engineer

DATE 7/23/15

PLATE NO. A4-3.20



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

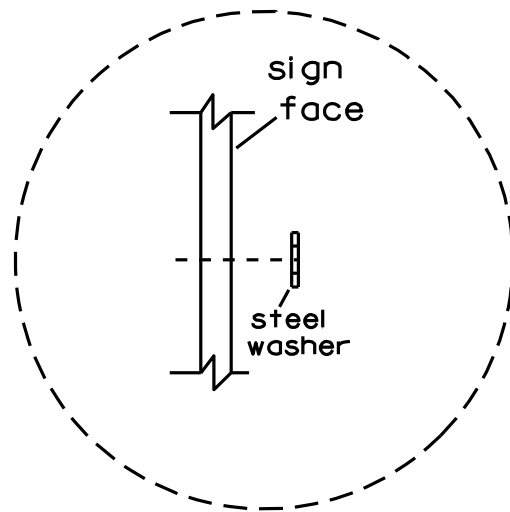
RIVETS - 9/32" (6605-9-6) BULB-TITE, TRI-FOLD, ALUMINUM BODY/MANDREL

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.



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

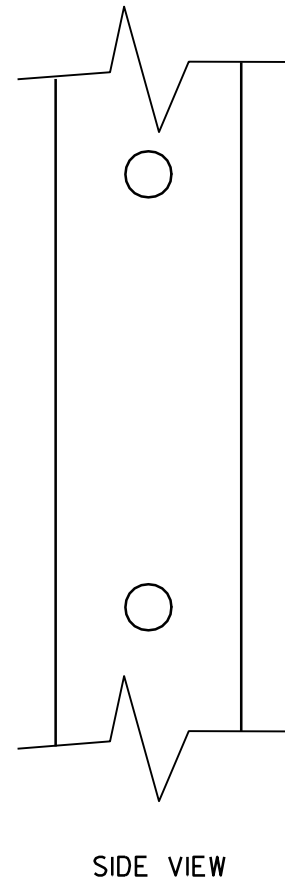
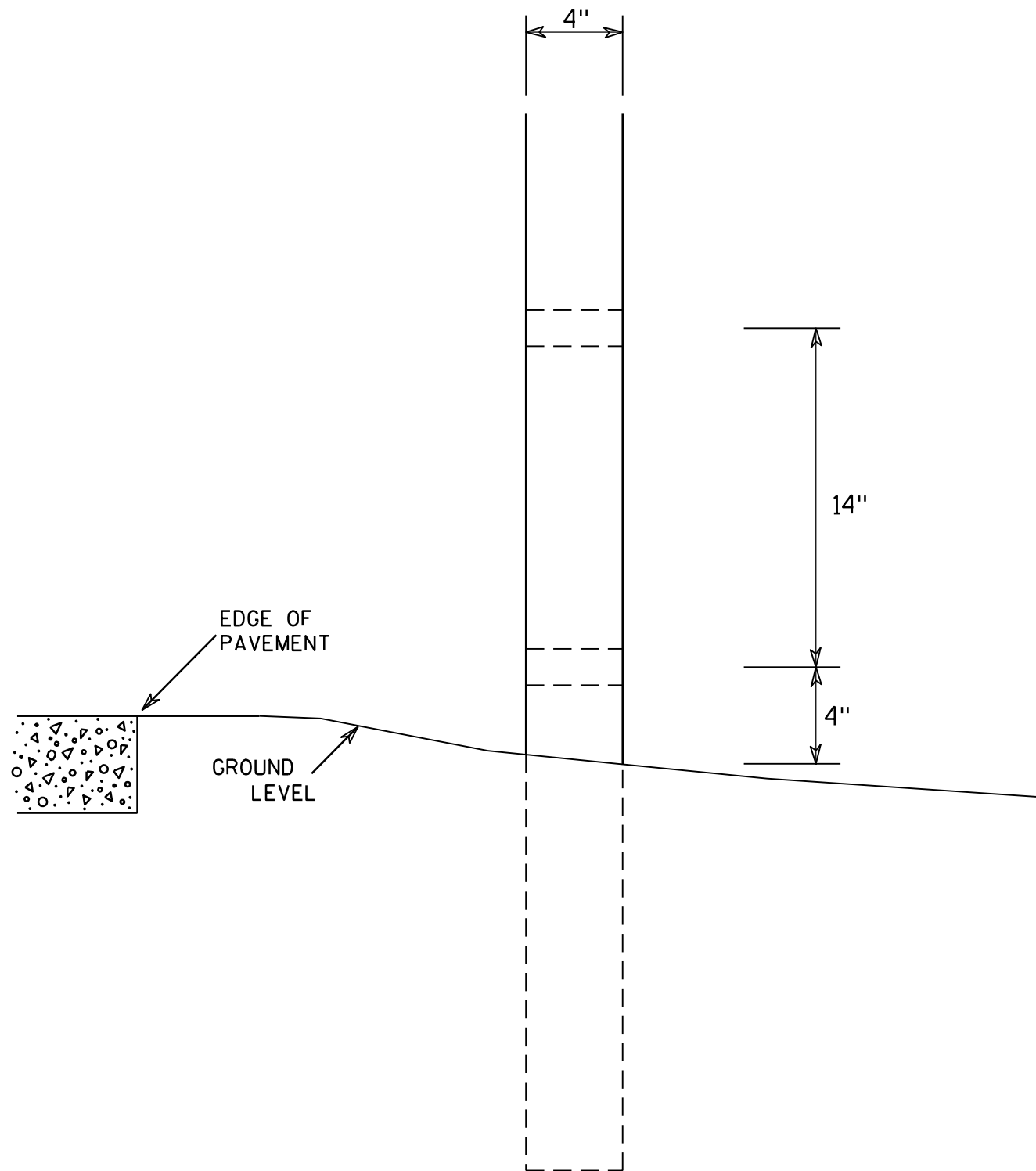
* Two different fastening systems are shown for illustration purposes. On any individual sign, either one or the other system shall be used. Actual number of fasteners per sign varies with the sign area, but normally there are two. For a single post installation, all signs greater than 9 sq. ft. require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

ATTACHMENT OF SIGNS TO POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R Rauch*
For State Traffic Engineer

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




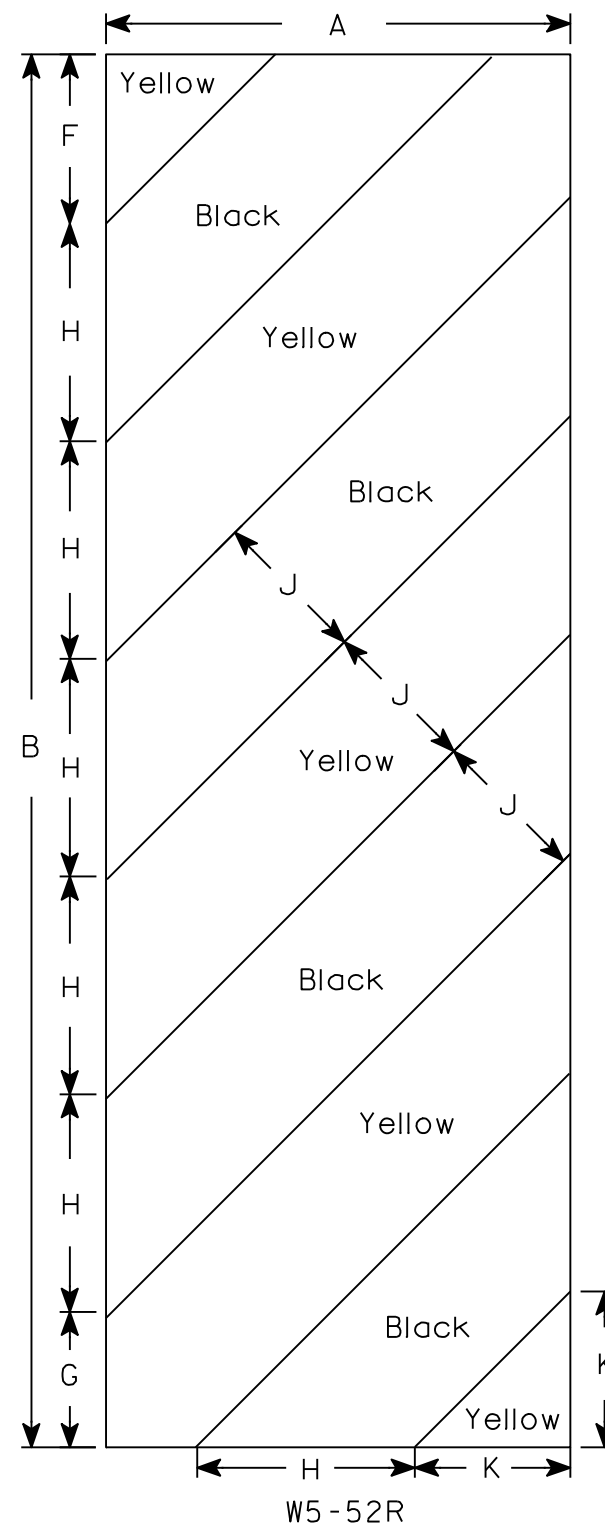
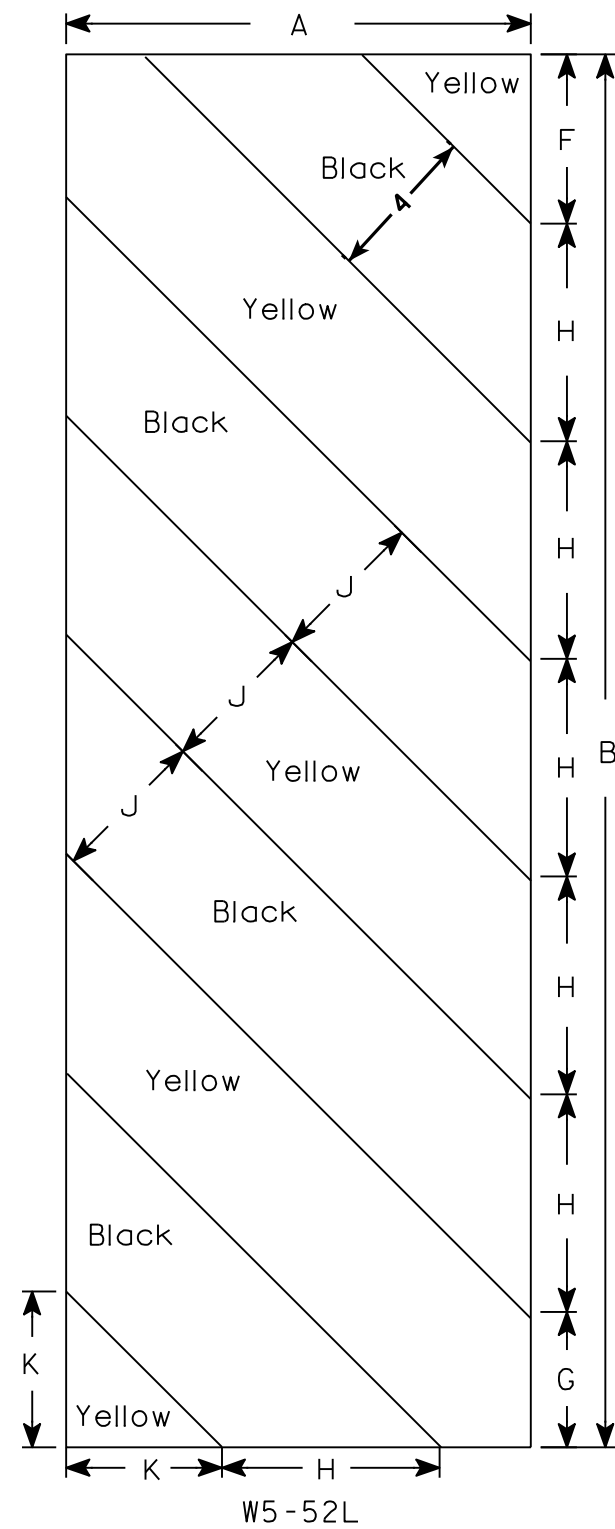
GENERAL NOTES

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

7

7

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



NOTES

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

7

7

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

STANDARD SIGN
W5-52L & W5-52R

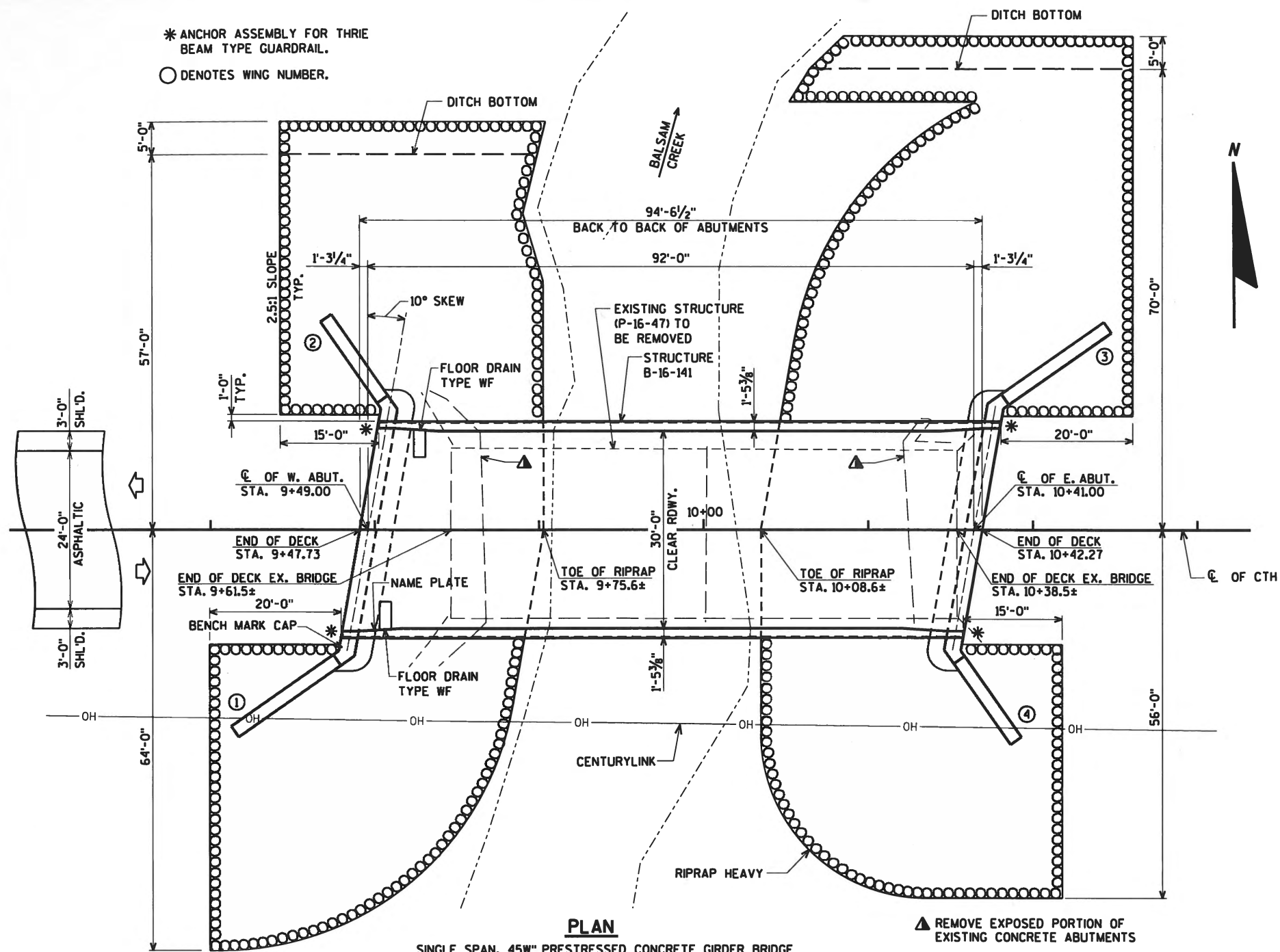
WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

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

* ANCHOR ASSEMBLY FOR THRIE BEAM TYPE GUARDRAIL.

○ DENOTES WING NUMBER.



PLAN
SINGLE SPAN, 45" PRESTRESSED CONCRETE GIRDER BRIDGE
▲ REMOVE EXPOSED PORTION OF EXISTING CONCRETE ABUTMENTS

DESIGN DATA

LIVE LOAD:

DESIGN LOADING: HL-93
INVENTORY RATING FACTOR: 1.17
OPERATING RATING FACTOR: 2.01
WISCONSIN STANDARD PERMIT VEHICLE (WIS-SPV) = 250 KIPS

STRUCTURE IS DESIGNED FOR A FUTURE WEARING SURFACE OF 20 #/S.F.

MATERIAL PROPERTIES:

CONCRETE MASONRY { SUPERSTRUCTURE f'c = 4,000 p.s.i.
ALL OTHER f'c = 3,500 p.s.i.
HIGH STRENGTH BAR STEEL REINFORCEMENT (GRADE 60) fy = 60,000 p.s.i.
45W" PRESTRESSED GIRDER
CONCRETE MASONRY f'c = 8,000 p.s.i.
STRANDS - 0.6" DIA. WITH ULTIMATE TENSILE STRENGTH OF = 270,000 p.s.i.

HYDRAULIC DATA:

100 YEAR FLOOD
DRAINAGE AREA = 11.3 sq. mi.
WATERWAY AREA = 181 sq. ft.
V = 4.4 f.p.s.
Q₁₀₀ = 800 c.f.s.
HIGH WATER₁₀₀ EL. 829.1
HIGH WATER₂ EL. 825.6
RDWY. OVERFLOW = N/A
SCOUR CRITICAL CODE = 8
NAVD 88 DATUM

FOUNDATION DATA:

ABUTMENTS TO BE SUPPORTED ON HP 10 x 42 STEEL PILING (WITH PILE POINTS) DRIVEN TO A REQUIRED DRIVING RESISTANCE OF 180 TONS ± PER PILE AS DETERMINED BY THE MODIFIED GATES DYNAMIC FORMULA. ESTIMATED LENGTH 50'-0" FOR THE WEST ABUT. & 60'-0" FOR THE EAST ABUT.

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

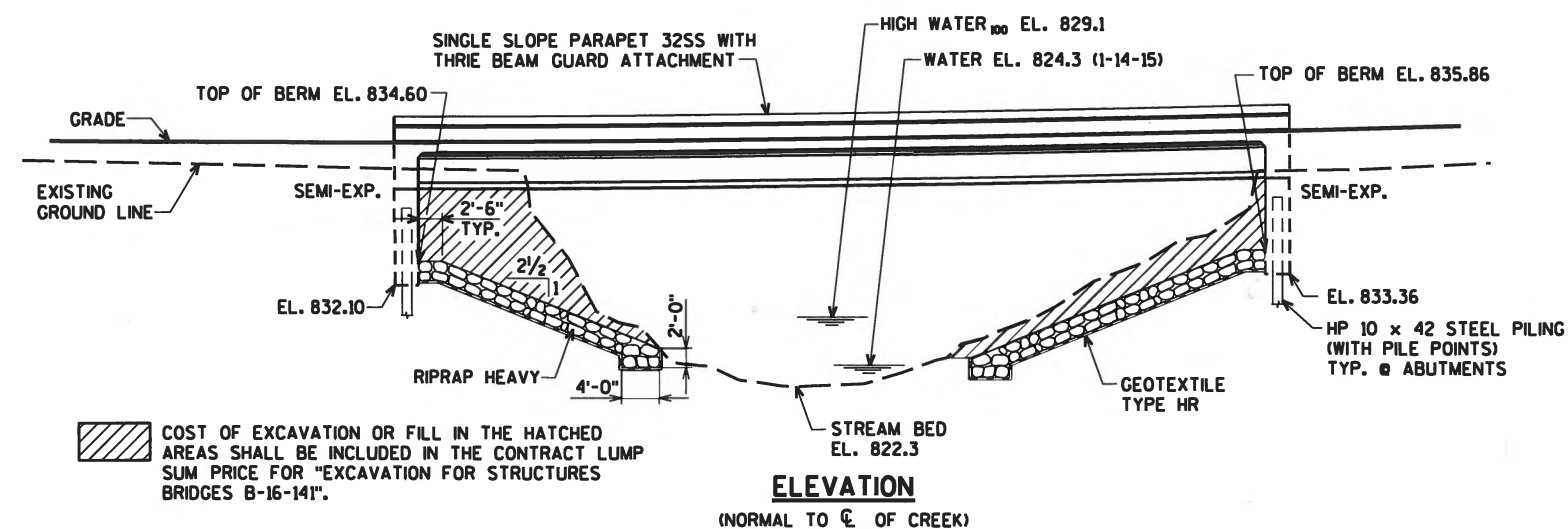
TRAFFIC DATA:

A.D.T. = 140 (2017)
A.D.T. = 190 (2037)
R.D.S. = 30 M.P.H.

LIST OF DRAWINGS

1. GENERAL PLAN
2. QUANTITIES AND NOTES
3. SUBSURFACE EXPLORATION
4. WEST ABUTMENT
5. WEST ABUTMENT DETAILS
6. WEST ABUTMENT WING 1 DETAILS
7. WEST ABUTMENT WING 2 DETAILS
8. EAST ABUTMENT
9. EAST ABUTMENT DETAILS
10. EAST ABUTMENT WING 3 DETAILS
11. EAST ABUTMENT WING 4 DETAILS
12. ABUTMENT BILL OF BARS
13. INTERM. STEEL DIAPHS. DETAILS
14. 45W" PRESTRESSED GIRDER DETAILS
15. 45W" PRESTRESSED GIRDER DETAILS
16. SUPERSTRUCTURE
17. SUPERSTRUCTURE PLAN
18. SINGLE SLOPE PARAPET 32SS
19. FLOOR DRAIN TYPE WF

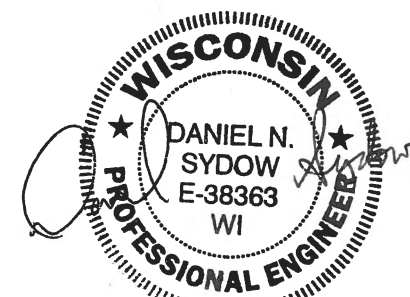
FOR GENERAL NOTES AND CROSS SECTION SEE SHEET 2



ELEVATION
(NORMAL TO C. OF CREEK)

DATE: DATE: DATE:
CHECKED BY: BACK CHECKED BY: CORRECTED BY:
\$PRFNAMES U:\42-0974.00 - Douglas Co. CTH B+BRIDGE+420974 gp.dgn

8



7/13/2016

BRIDGE OFFICE CONTACT:
WILLIAM DREHER
(608)-266-8489
CONSULTANT CONTACT:
DAN SYDOW
(715)-834-3161

NO.	DATE	REVISION	BY
ORIGINAL PLANS PREPARED BY			
AYRES ASSOCIATES 3433 Oakwood Hills Parkway Eau Claire, WI 54701 www.AyresAssociates.com			
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
ACCEPTED <i>William C. Dreher</i> SR			08/09/16
CHIEF STRUCTURES DESIGN ENGINEER			DATE
STRUCTURE B-16-141			
CTH B OVER BALSAM CREEK			
COUNTY	DOUGLAS	TOWN/CITY/VILLAGE	SUMMIT
DESIGN SPEC. AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS			
DESIGNED BY	CJM	DESIGN CK'D.	JWZ
DRAWN BY	CJM/CLS	PLANS CK'D.	BNS
GENERAL PLAN			SHEET 1 OF 19

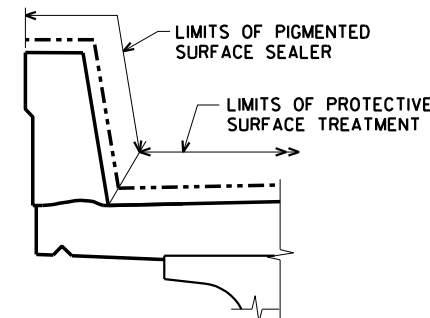
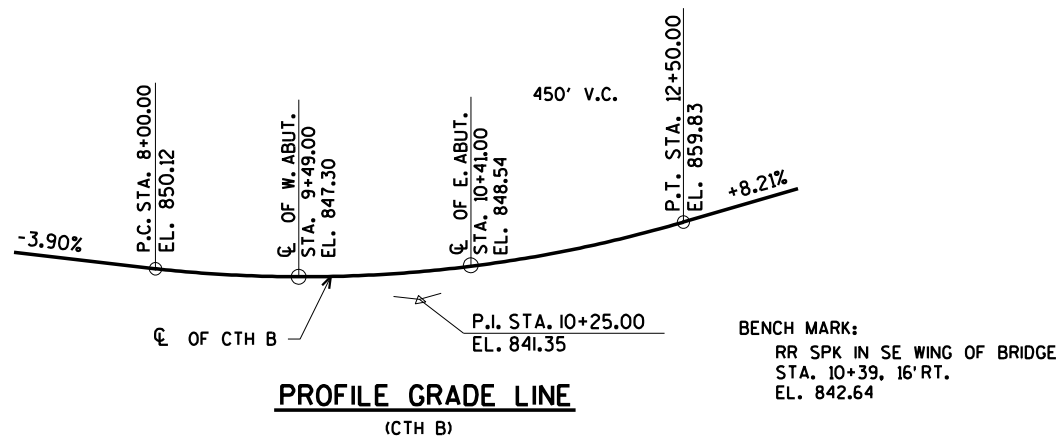
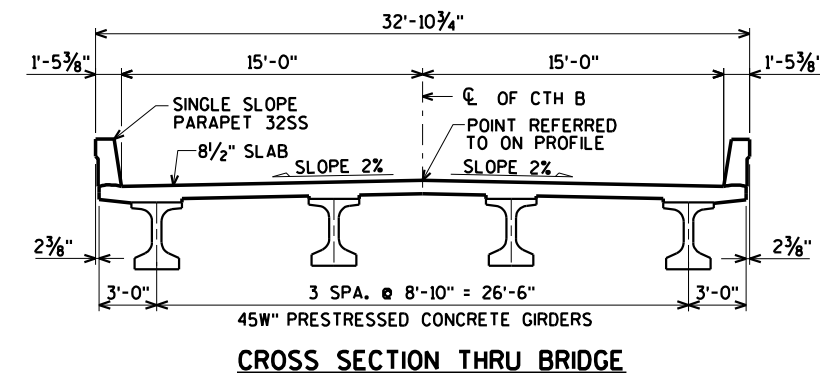
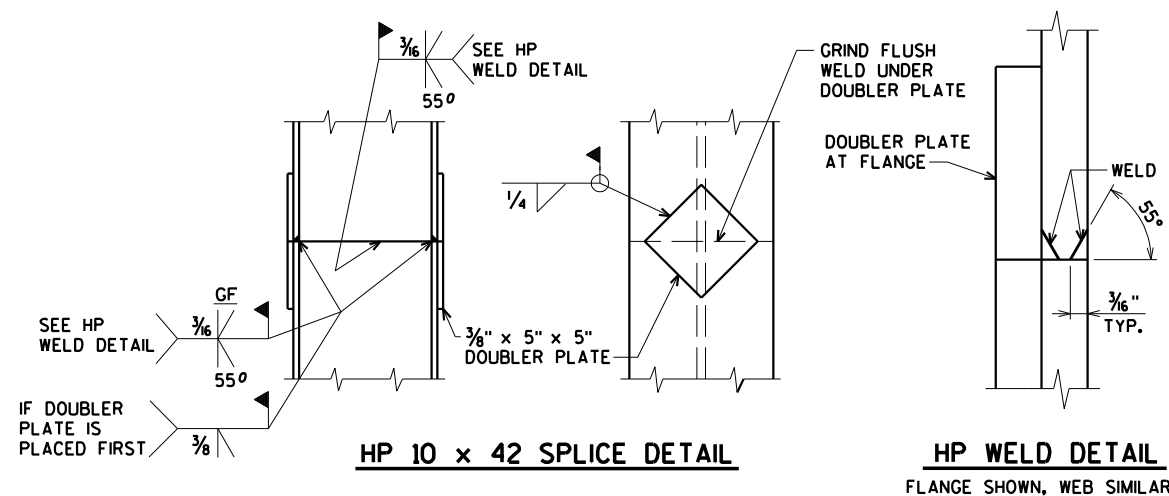
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TOTAL ESTIMATED QUANTITIES

BID ITEM NUMBER	BID ITEMS	UNIT	W. ABUT.	E. ABUT.	SUPER.	TOTAL
203.0600.S	REMOVING OLD STRUCTURE OVER WATERWAY WITH MINIMAL DEBRIS STATION 9+95	LS	-----	-----	-----	1
206.1000	EXCAVATION FOR STRUCTURES BRIDGES B-16-141	LS	-----	-----	-----	1
210.1100	BACKFILL STRUCTURE TYPE A	CY	475	475	-----	950
502.0100	CONCRETE MASONRY BRIDGES	CY	70	70	145	285
502.3200	PROTECTIVE SURFACE TREATMENT	SY	-----	-----	315	315
502.3210	PIGMENTED SURFACE SEALER	SY	-----	-----	80	80
503.0146	PRESTRESSED GIRDER TYPE I 45W-INCH	LF	-----	-----	372	372
505.0400	BAR STEEL REINFORCEMENT HS STRUCTURES	LB	2,800	2,790	-----	5,590
505.0600	BAR STEEL REINFORCEMENT HS COATED STRUCTURES	LB	3,530	3,530	23,470	30,530
506.2605	BEARING PADS ELASTOMERIC NON-LAMINATED	EACH	4	4	-----	8
506.4000	STEEL DIAPHRAGMS B-16-141	EACH	-----	-----	6	6
514.0450	FLOOR DRAIN TYPE WF	EACH	-----	-----	2	2
514.2608	DOWNSPOUT 8-INCH	LF	-----	-----	8	8
516.0500	RUBBERIZED MEMBRANE WATERPROOFING	SY	14	14	-----	28
550.0500	PILE POINTS	EACH	9	9	-----	18
550.1100	PILING STEEL HP 10-INCH x 42 LB	LF	450	540	-----	990
606.0300	RIPRAP HEAVY	CY	390	440	-----	830
612.0406	PIPE UNDERDRAIN WRAPPED 6-INCH	LF	105	105	-----	210
614.0150	ANCHOR ASSEMBLIES FOR STEEL PLATE BEAM GUARD	EACH	2	2	-----	4
645.0120	GEOTEXTILE TYPE HR	SY	670	760	-----	1,430
NON-BID ITEMS						
	FILLER	SIZE	-----	-----	-----	1/2" & 3/4"

GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.
 BAR STEEL REINFORCEMENT SHALL BE EMBEDDED 2" CLEAR UNLESS SHOWN OR NOTED OTHERWISE.
 THE FIRST DIGIT OF A THREE DIGIT BAR NO. AND THE FIRST TWO DIGITS OF A FOUR DIGIT BAR NO. SIGNIFIES THE BAR SIZE.
 JOINT FILLER SHALL CONFORM TO THE REQUIREMENTS OF A.A.S.H.T.O. DESIGNATION M 153, TYPE I, II OR III OR A.A.S.H.T.O. DESIGNATION M 213.
 THE SLOPE OF THE FILL IN FRONT OF THE ABUTMENTS SHALL BE COVERED WITH RIPRAP HEAVY AND GEOTEXTILE TYPE HR TO THE EXTENT SHOWN ON THE GENERAL PLAN SHEET AND IN THE ABUTMENT DETAILS.
 PROTECTIVE SURFACE TREATMENT AND PIGMENTED SURFACE SEALER IS TO BE APPLIED AS SHOWN IN DETAIL ON THIS SHEET.
 ELASTOMERIC BEARING PADS NEED NOT BE INDIVIDUALLY MOLDED PROVIDED THE CUT EDGES ARE SMOOTH AND TRUE.
 THE EXISTING GROUNDLINE SHALL BE THE UPPER LIMIT FOR EXCAVATION FOR STRUCTURES.
 THE EXISTING STRUCTURE, P-16-47, TO BE REMOVED, IS A TWO SPAN STEEL DECK GIRDER BRIDGE, 77 FT. LONG WITH A 26 FT. CLEAR ROADWAY WIDTH ON TIMBER ABUTMENTS AND PIER.
 AT BACKFACE OF ABUTMENTS ALL EXCAVATED VOLUME NOT OCCUPIED BY THE NEW STRUCTURE SHALL BE BACKFILLED WITH BACKFILL STRUCTURE TYPE A.
 THE HAUNCH CONCRETE QUANTITY IS BASED ON AN AVERAGE HAUNCH DEPTH SHOWN ON THE PRESTRESSED GIRDER DETAILS SHEETS, WHICH IS THE MAXIMUM HAUNCH QUANTITY FOR WHICH THE CONTRACTOR WILL BE PAID.
 REMOVING OLD STRUCTURE OVER WATERWAY WITH MINIMAL DEBRIS INCLUDES REMOVAL OF THE EXPOSED PORTION OF EXISTING CONCRETE ABUTMENTS.
 THE QUANTITY OF BACKFILL STRUCTURE TYPE A, BID ITEM 210.1100, IS CALCULATED BASED ON APPLICABLE FIGURES 12.6-1 AND 12.6-2 IN THE WISCONSIN DEPARTMENT OF TRANSPORTATION BRIDGE MANUAL.

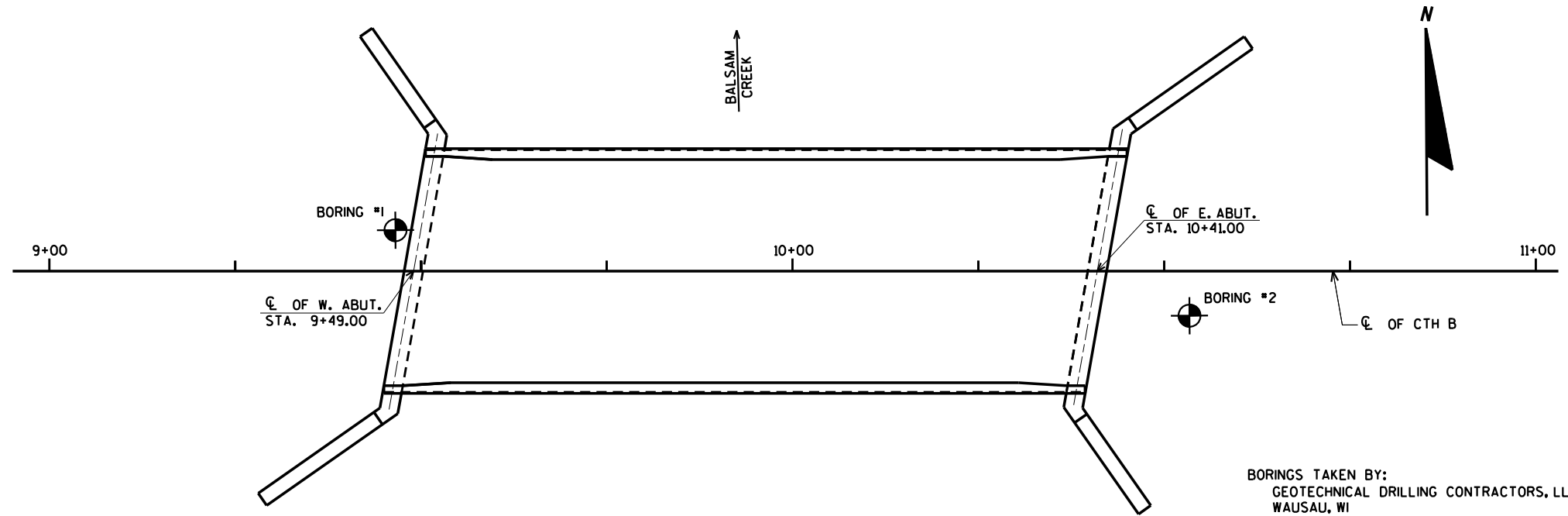


NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-16-141			
DRAWN BY CJM/CLS		PLANS CK'D. CJM	
QUANTITIES AND NOTES			SHEET 2 OF 19

ORIGINAL PLANS PREPARED BY
AVRES ASSOCIATES
 3433 Oakwood Hills Parkway
 Eau Claire, WI 54701
 www.AyresAssociates.com

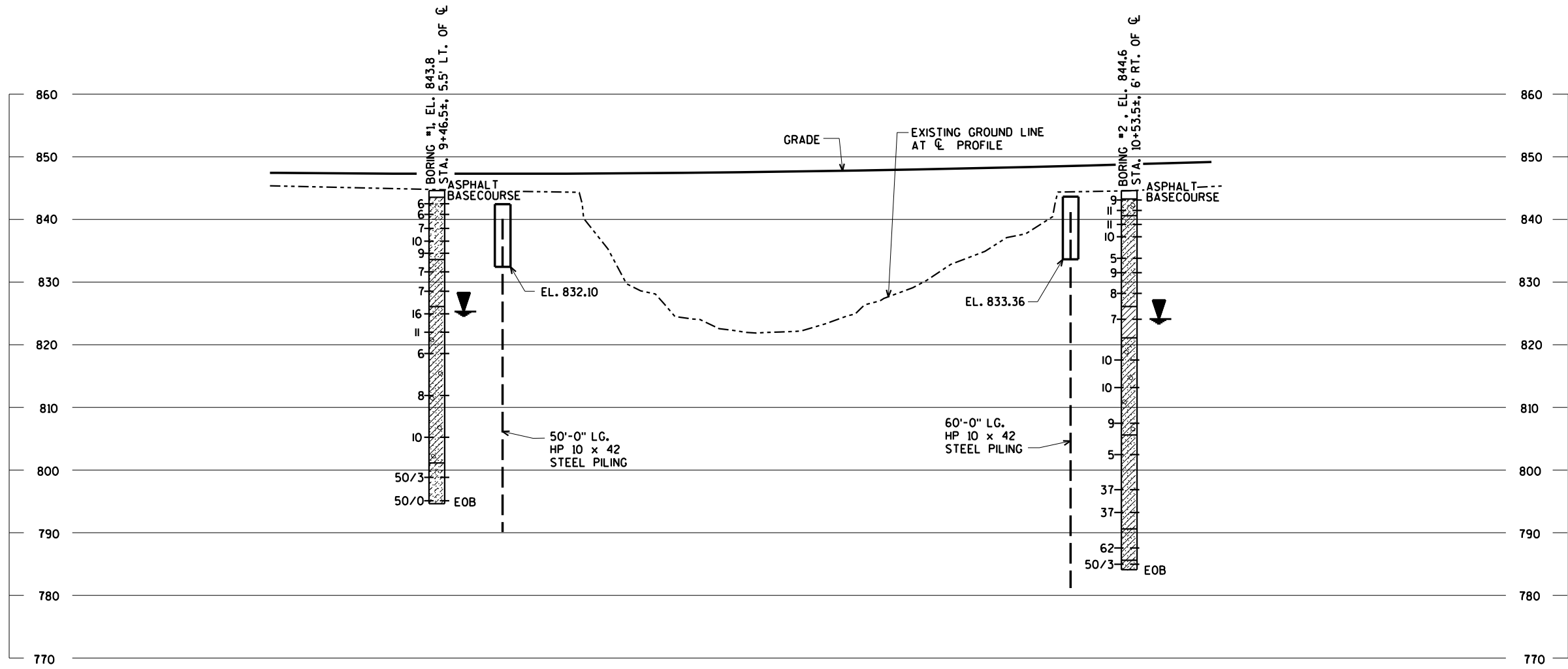
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\$PRNAME\$ U:\42-09174.00 - Douglas Co, CTH B+BRIDGE+420974 soils.dgn

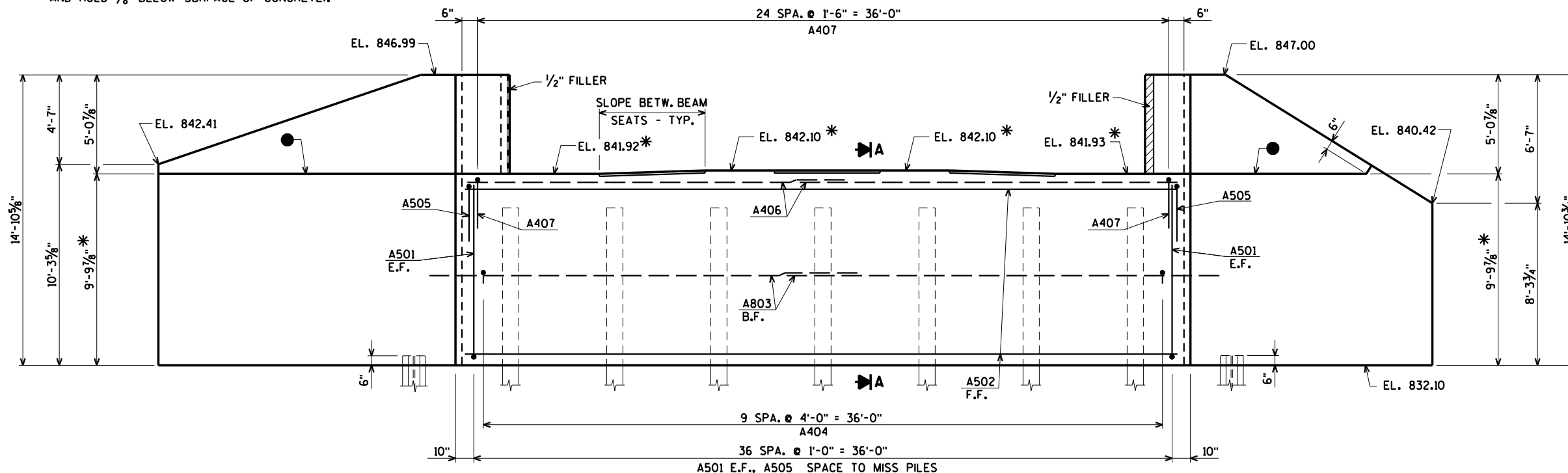


BORINGS TAKEN BY:
 GEOTECHNICAL DRILLING CONTRACTORS, LLC
 WAUSAU, WI
 MAY 28, 2015

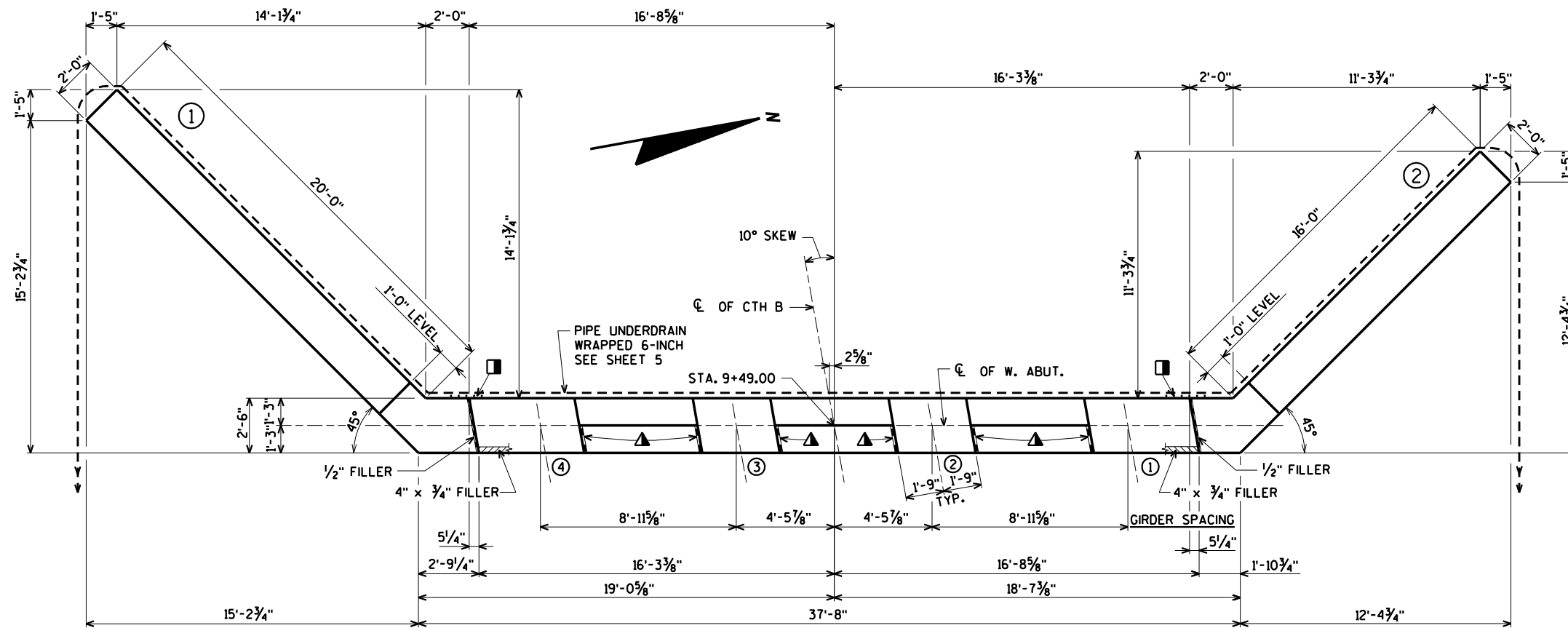
GEOTECHNICAL REPORT BY:
 RIVER VALLEY TESTING CORP.
 NEENAH, WI
 JULY 9, 2015



NOTE:
SEAL ALL EXPOSED HORIZONTAL AND VERTICAL SURFACES OF 1/2" FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. (1" DEEP AND HOLD 1/8" BELOW SURFACE OF CONCRETE).



ELEVATION
(LOOKING WEST)



PLAN

* ELEVATIONS AND DIMENSIONS TAKEN AT C. OF ABUT.

● OPT. KEYED CONST. JOINT - FORMED BY A BEVELED 2' x 6'.

FOR SECTION A SEE SHEET 5.

■ 18" RUBBERIZED MEMBRANE WATERPROOFING TO EXTEND FROM BRIDGE SEAT TO TOP OF WING.

▲ 3/4" CORK FILLER ON VERTICAL FACE ONLY.

FOR PILE SPLICE DETAIL SEE SHEET 2.

F.F. DENOTES FRONT FACE

B.F. DENOTES BACK FACE

E.F. DENOTES EACH FACE

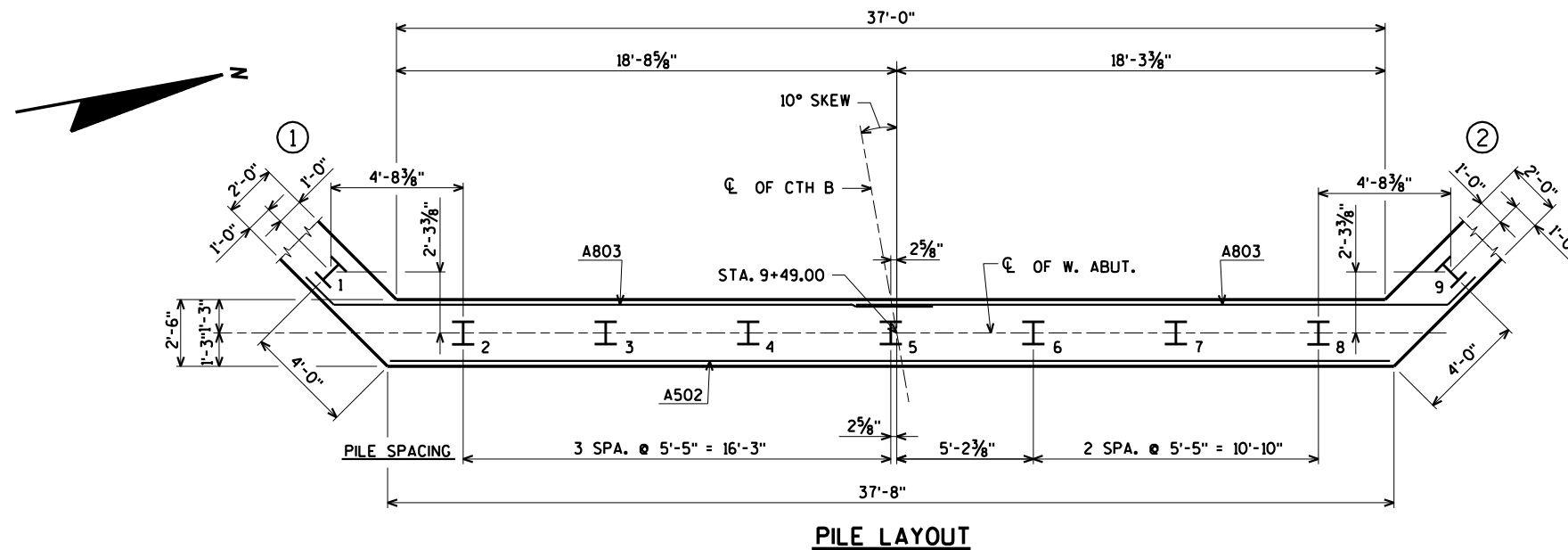
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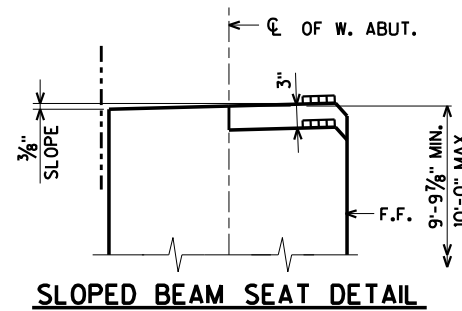
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-16-141			
DRAWN BY		CLS	PLANS CK'D. CJM
WEST ABUTMENT			SHEET 4 OF 19

ORIGINAL PLANS PREPARED BY
AYRES ASSOCIATES
3433 Oakwood Hills Parkway
Eau Claire, WI 54701
www.AyresAssociates.com

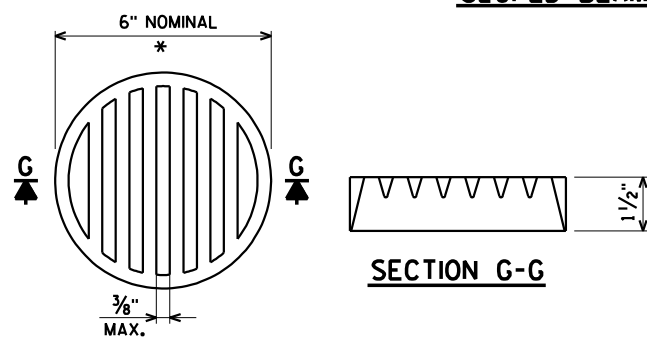


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SLOPED BEAM SEAT DETAIL

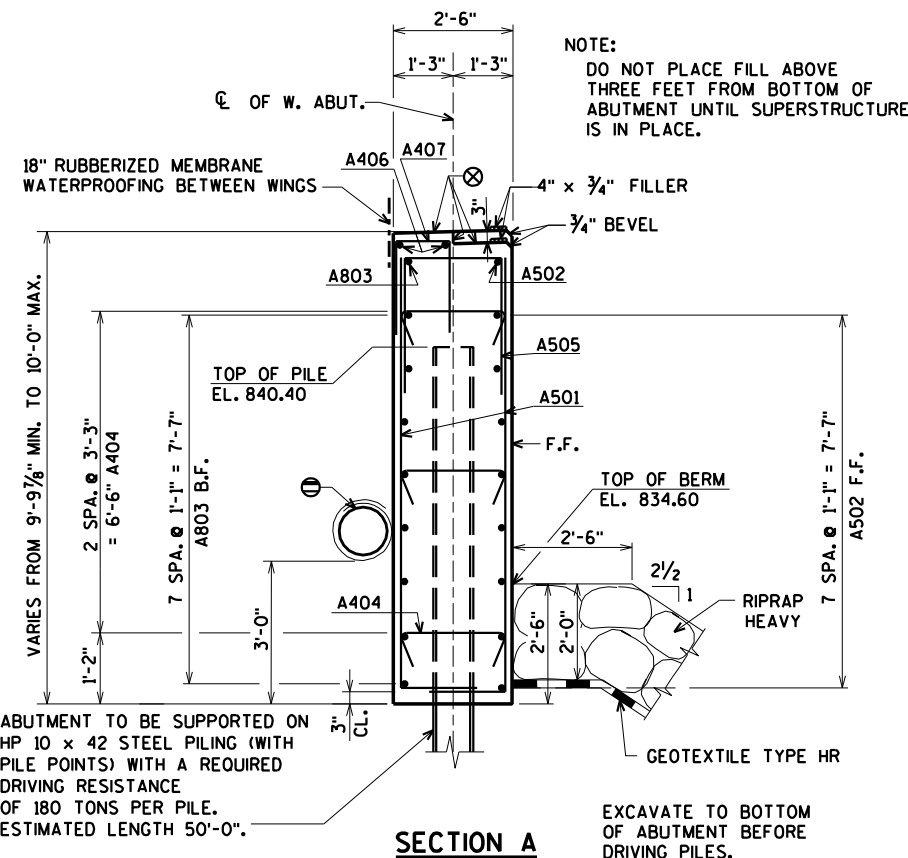


* DIMENSIONS ARE APPROXIMATE. THE GRATE IS SIZED TO FIT INTO A PIPE COUPLING. ORIENT SO SLOTS ARE VERTICAL.

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

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

RODENT SHIELD DETAIL



SECTION A

NOTE:
DO NOT PLACE FILL ABOVE THREE FEET FROM BOTTOM OF ABUTMENT UNTIL SUPERSTRUCTURE IS IN PLACE.

⊖ PIPE UNDERDRAIN WRAPPED 6-INCH. SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. ATTACH RODENT SHIELD AT ENDS OF PIPE UNDERDRAIN. SEE DETAIL ON THIS SHEET.

⊗ STEEL TROWEL TOP SURFACE OF ABUTMENT. PLACE MULTIPLE LAYERS OF POLYETHYLENE SHEETS OVER ENTIRE ABUTMENT TOP BEFORE PLACING BEARING PADS AND SUPERSTRUCTURE. TOTAL THICKNESS OF SHEETS SHALL BE AT LEAST 0.03".

FOR PILE SPLICE DETAIL SEE SHEET 2.

FOR LOCATION OF SECTION A SEE SHEET 4.

F.F. DENOTES FRONT FACE.

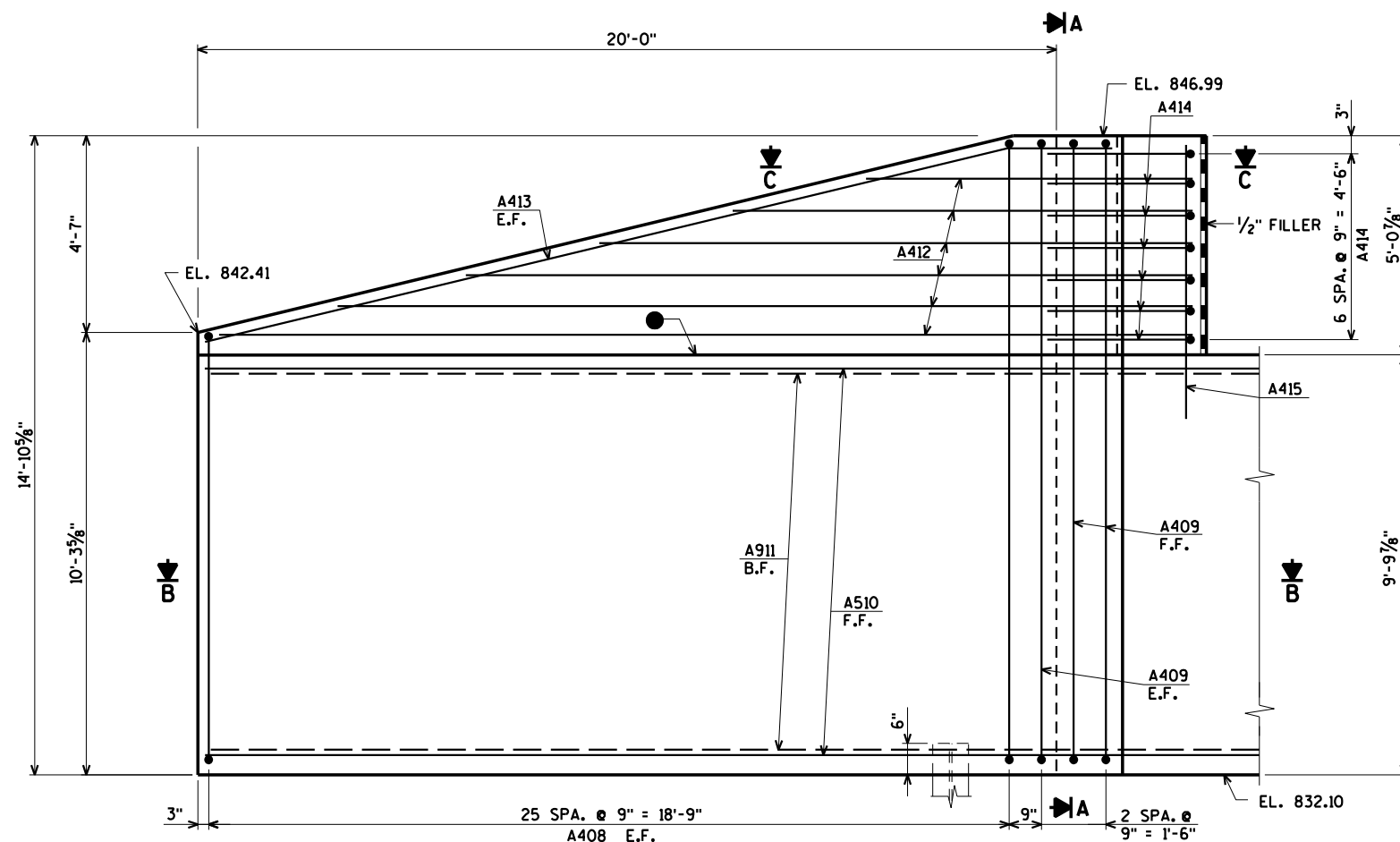
B.F. DENOTES BACK FACE.

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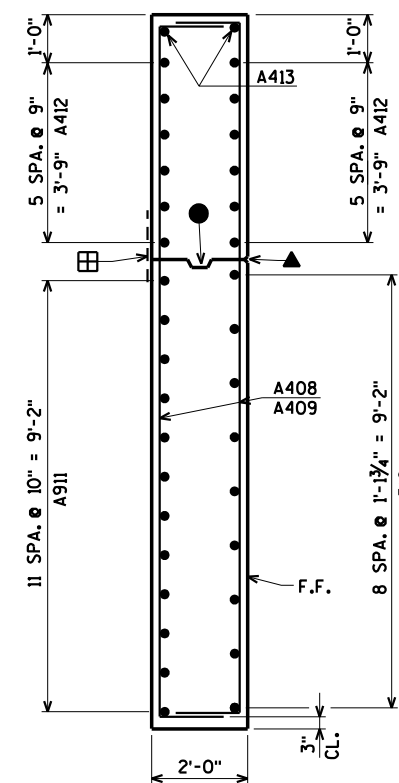
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-16-141			
DRAWN BY		CLS	PLANS CK'D. CJM
WEST ABUTMENT DETAILS			SHEET 5 OF 19

ORIGINAL PLANS PREPARED BY
AYRES ASSOCIATES
3433 Oakwood Hills Parkway
Eau Claire, WI 54701
www.AyresAssociates.com

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U:\42-0974\00 - Douglas Co, CTH B+BRIDGE\420974_wa.dgn



ELEVATION - WING I



SECTION A

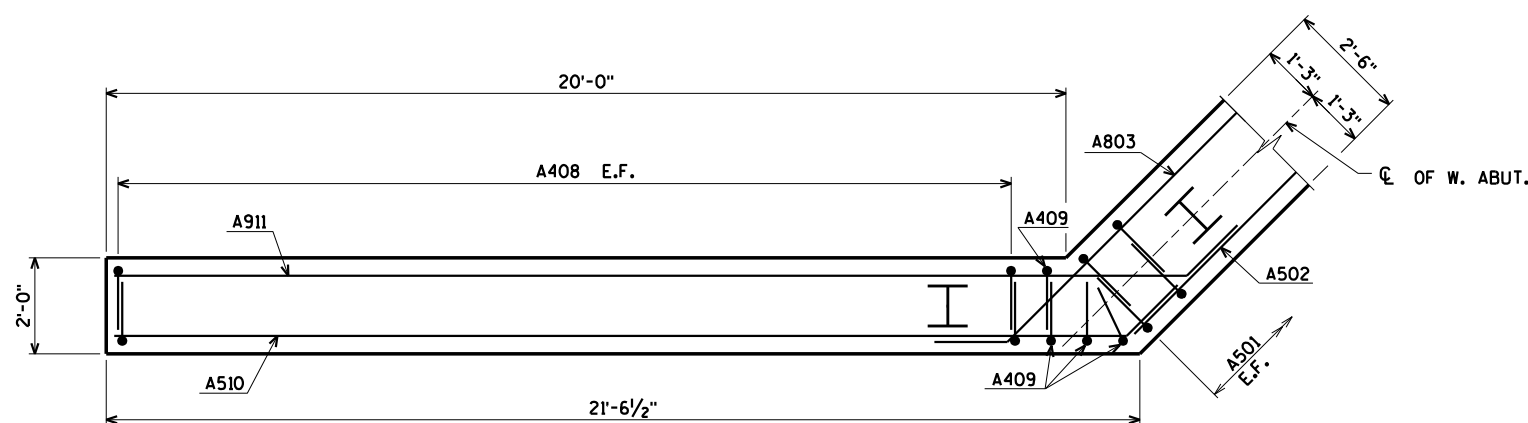
- ▲ 3/4" 'V' GROOVE ON F.F. OF WING WALL - NOT REQUIRED IF CONST. JT. IS NOT USED.
- OPT. KEYED CONST. JOINT - FORMED BY A BEVELED 2" x 6".
- ▲ 18" RUBBERIZED MEMBRANE WATERPROOFING TO EXTEND FROM BEAM SEAT TO TOP OF WINGWALL.
- ⊠ 18" RUBBERIZED MEMBRANE WATERPROOFING ON BACK FACE. NOT REQUIRED IF CONST. JT. IS NOT USED.

FOR PILE SPLICE DETAIL SEE SHEET 2.

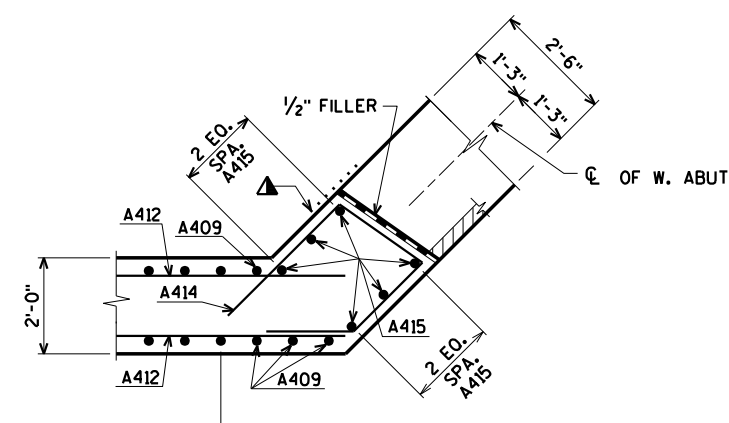
F.F. DENOTES FRONT FACE.

B.F. DENOTES BACK FACE.

E.F. DENOTES EACH FACE



SECTION B



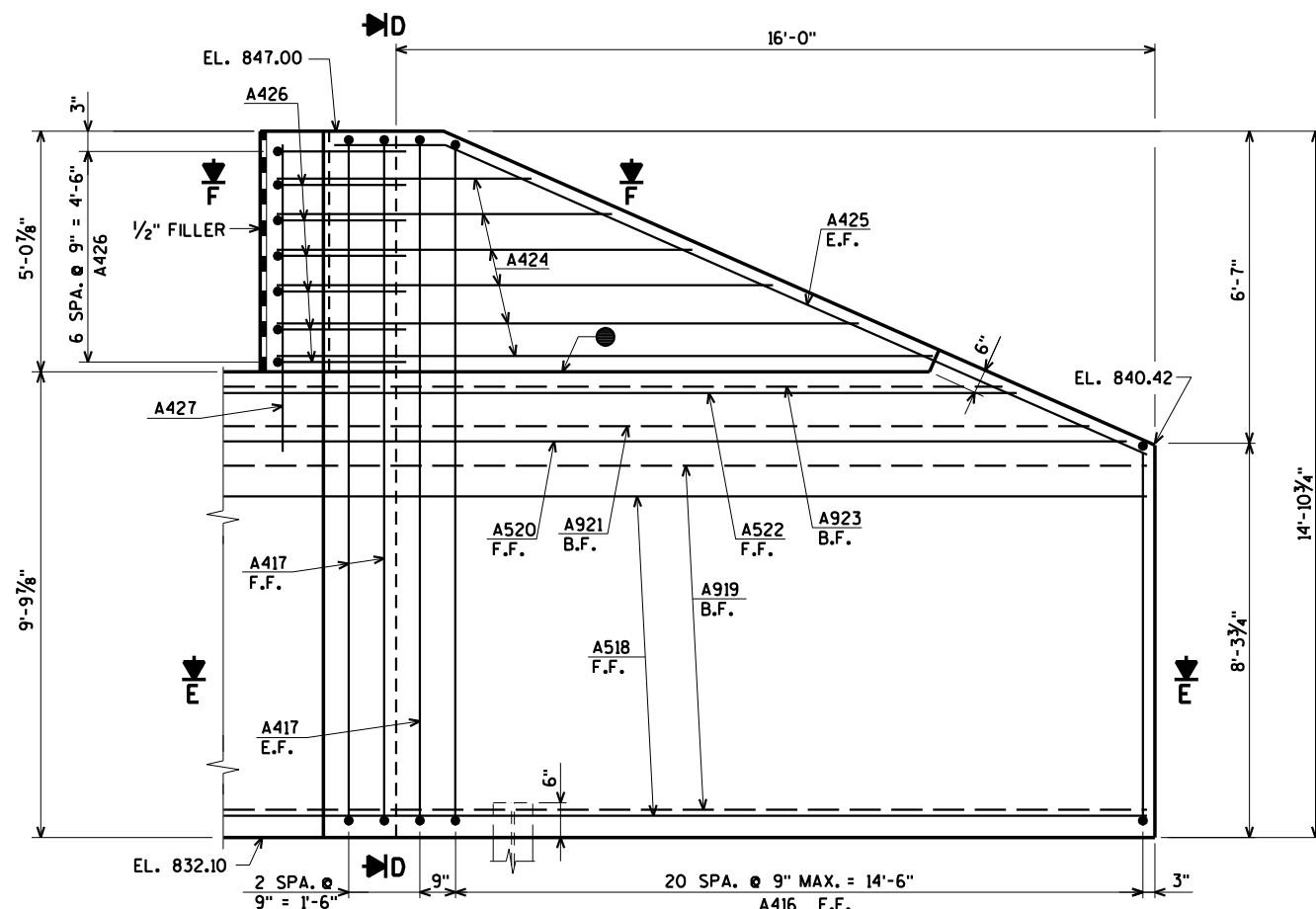
SECTION C

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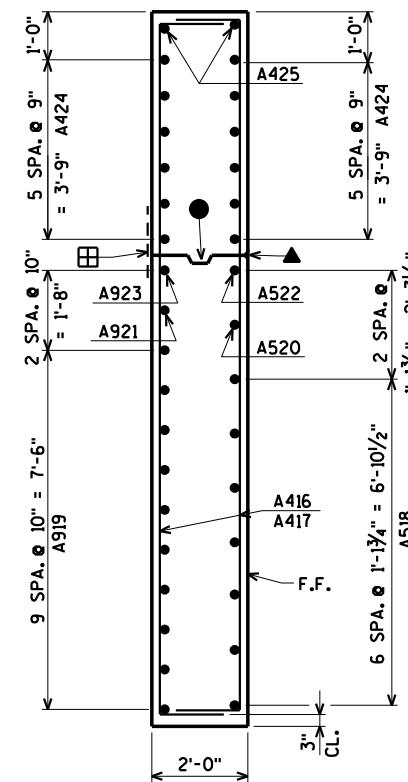
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NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-16-141			
DRAWN BY		CLS	PLANS CK'D. CJM
WEST ABUTMENT WING 1 DETAILS			SHEET 6 OF 19

ORIGINAL PLANS PREPARED BY
AYRES ASSOCIATES
3433 Oakwood Hills Parkway
Equ Claire, WI 54701
www.AyresAssociates.com



ELEVATION - WING 2



SECTION D

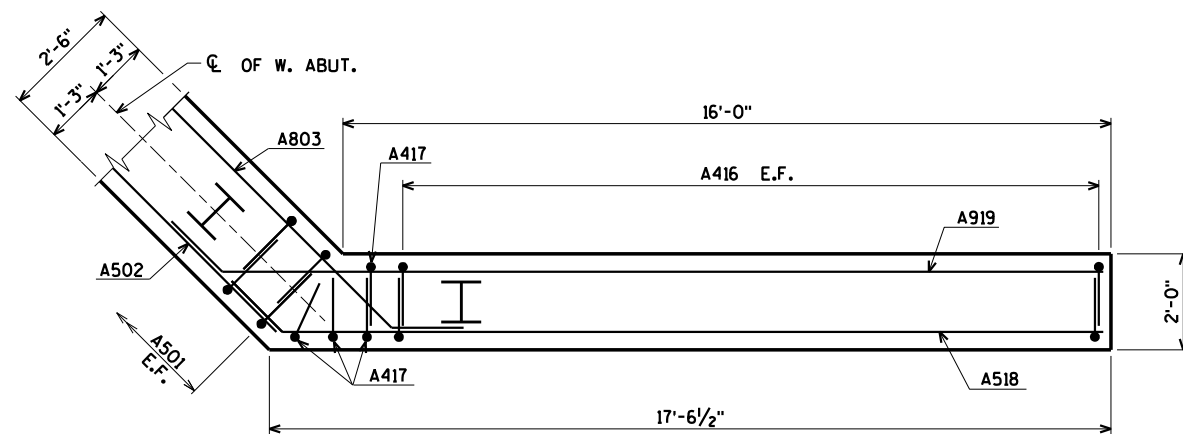
- ▲ 3/4" 'V' GROOVE ON F.F. OF WING WALL - NOT REQUIRED IF CONST. JT. IS NOT USED.
- OPT. KEYED CONST. JOINT - FORMED BY A BEVELED 2" x 6".
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- ▣ 18" RUBBERIZED MEMBRANE WATERPROOFING ON BACK FACE. NOT REQUIRED IF CONST. JT. IS NOT USED.

FOR PILE SPLICE DETAIL SEE SHEET 2.

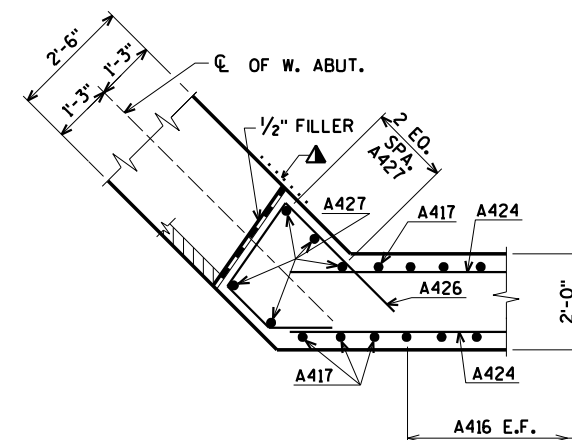
F.F. DENOTES FRONT FACE.

B.F. DENOTES BACK FACE.

E.F. DENOTES EACH FACE



SECTION E



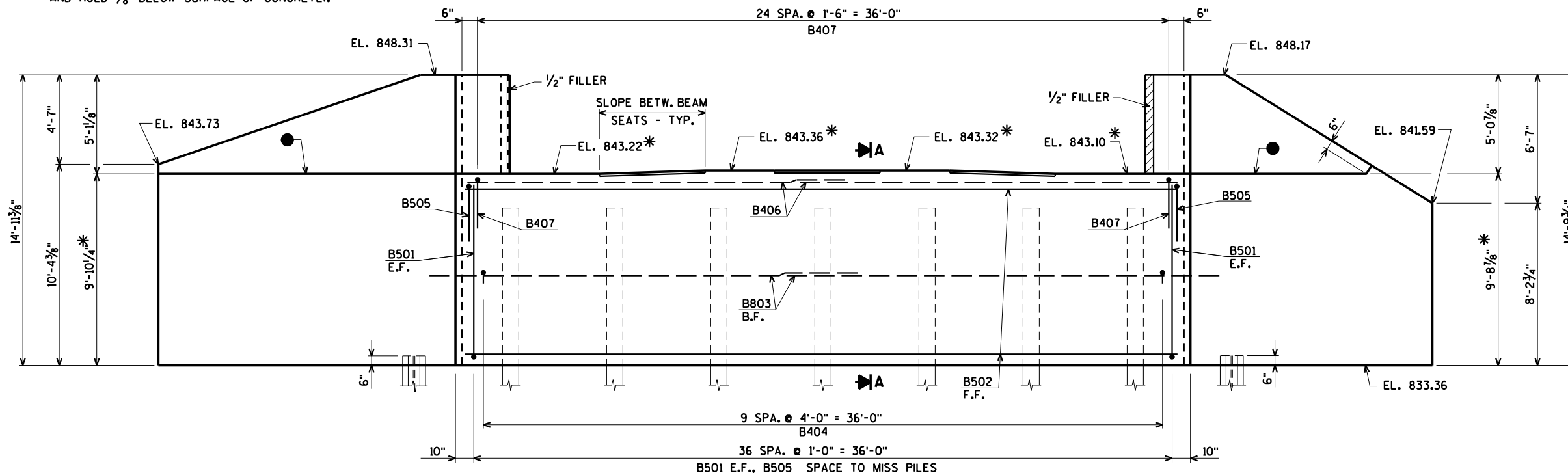
SECTION F

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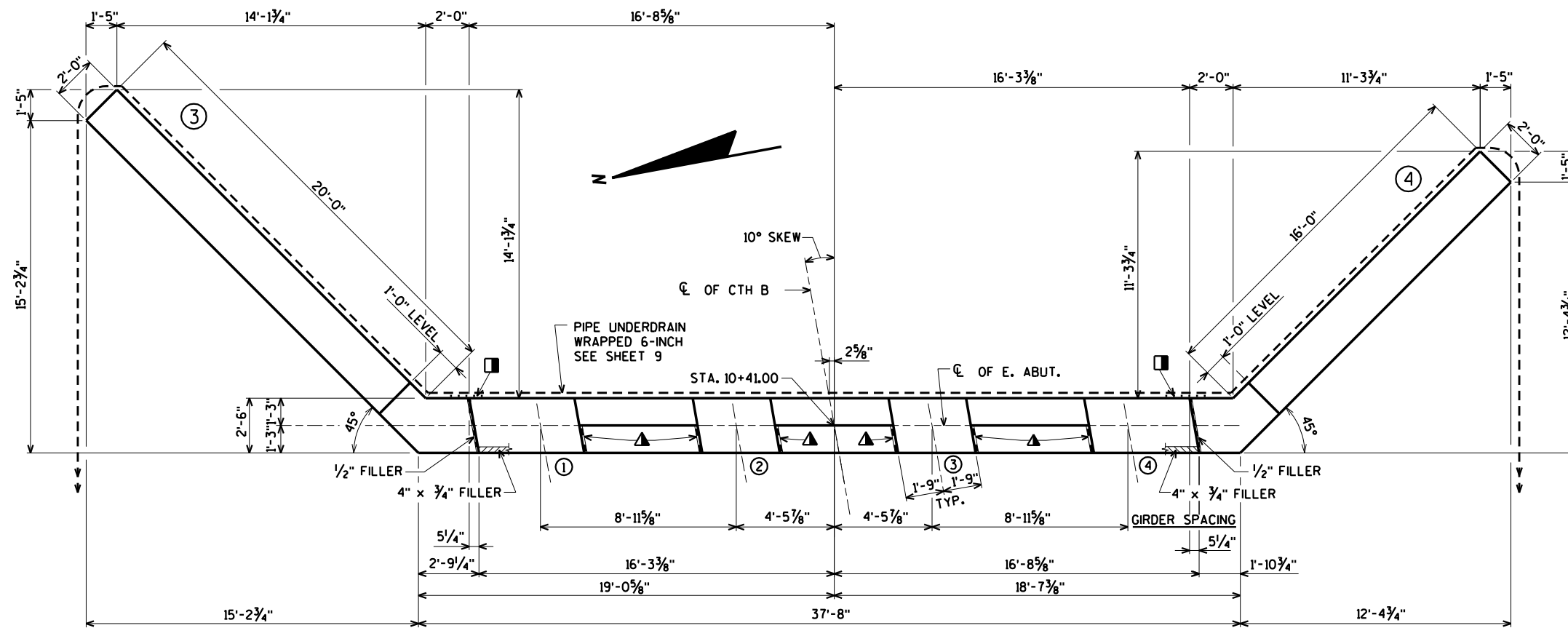
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STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-16-141			
DRAWN BY		CLS	PLANS CK'D. CJM
WEST ABUTMENT WING 2 DETAILS			SHEET 7 OF 19

ORIGINAL PLANS PREPARED BY
AYRES ASSOCIATES
 3433 Oakwood Hills Parkway
 Eau Claire, WI 54701
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NOTE:
SEAL ALL EXPOSED HORIZONTAL AND VERTICAL SURFACES OF 1/2" FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. (1" DEEP AND HOLD 1/8" BELOW SURFACE OF CONCRETE).



ELEVATION
(LOOKING EAST)



PLAN

* ELEVATIONS AND DIMENSIONS TAKEN AT CL OF ABUT.

● OPT. KEYED CONST. JOINT - FORMED BY A BEVELED 2' x 6'.

FOR SECTION A SEE SHEET 9.

■ 18" RUBBERIZED MEMBRANE WATERPROOFING TO EXTEND FROM BRIDGE SEAT TO TOP OF WING.

▲ 3/4" CORK FILLER ON VERTICAL FACE ONLY.

FOR PILE SPLICE DETAIL SEE SHEET 2.

F.F. DENOTES FRONT FACE

B.F. DENOTES BACK FACE

E.F. DENOTES EACH FACE

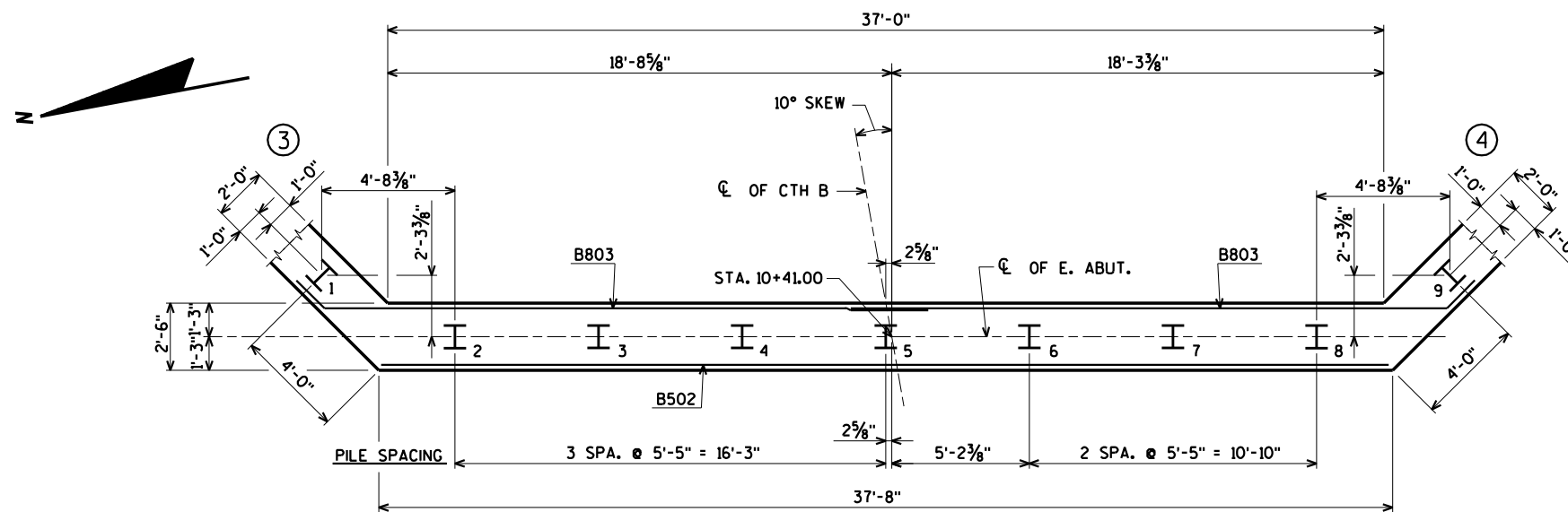
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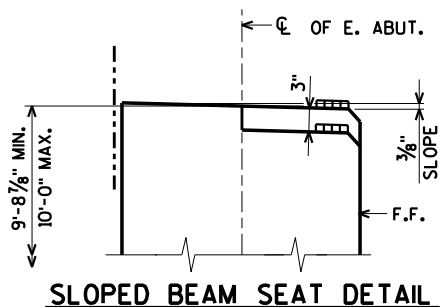
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NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-16-141			
DRAWN BY		CLS	PLANS CK'D. CJM
EAST ABUTMENT			SHEET 8 OF 19

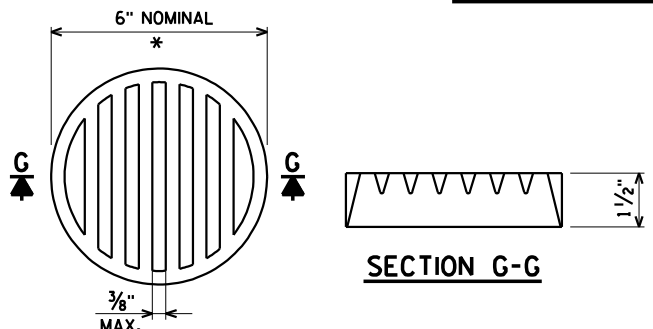
ORIGINAL PLANS PREPARED BY
AYRES ASSOCIATES
3433 Oakwood Hills Parkway
Eau Claire, WI 54701
www.AyresAssociates.com



PILE LAYOUT



SLOPED BEAM SEAT DETAIL

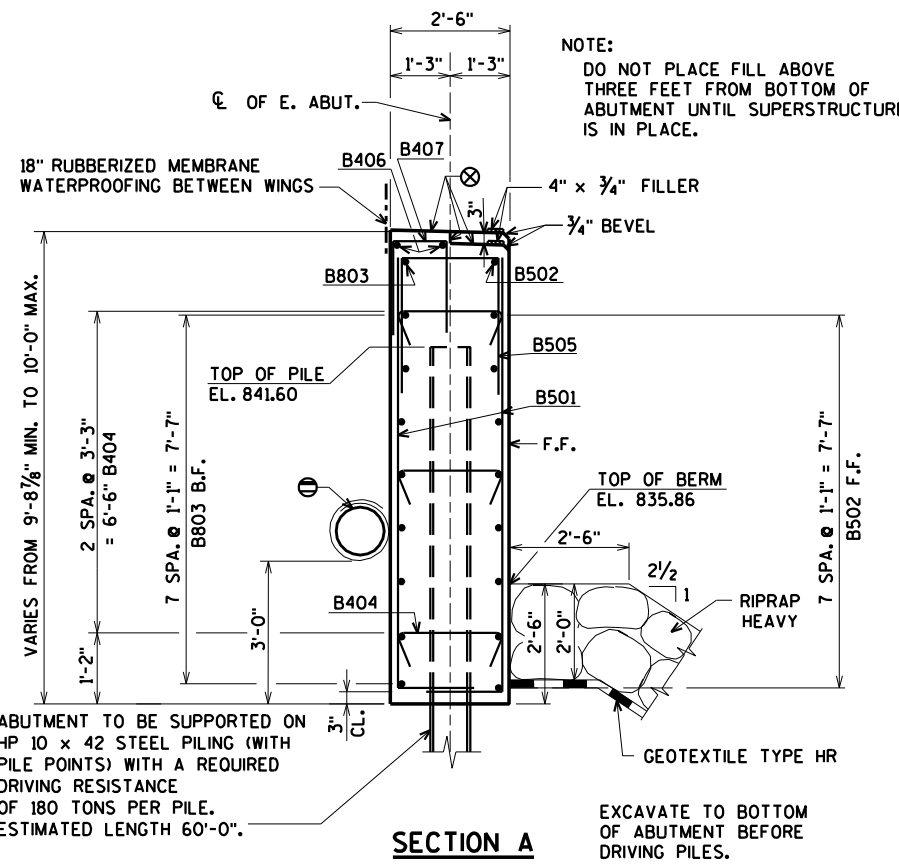


RODENT SHIELD DETAIL

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

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

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



SECTION A

NOTE:
DO NOT PLACE FILL ABOVE THREE FEET FROM BOTTOM OF ABUTMENT UNTIL SUPERSTRUCTURE IS IN PLACE.

⊖ PIPE UNDERDRAIN WRAPPED 6-INCH. SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. ATTACH RODENT SHIELD AT ENDS OF PIPE UNDERDRAIN. SEE DETAIL ON THIS SHEET.

⊗ STEEL TROWEL TOP SURFACE OF ABUTMENT. PLACE MULTIPLE LAYERS OF POLYETHYLENE SHEETS OVER ENTIRE ABUTMENT TOP BEFORE PLACING BEARING PADS AND SUPERSTRUCTURE. TOTAL THICKNESS OF SHEETS SHALL BE AT LEAST 0.03".

FOR PILE SPLICE DETAIL SEE SHEET 2.

FOR LOCATION OF SECTION A SEE SHEET 8.

F.F. DENOTES FRONT FACE.

B.F. DENOTES BACK FACE.

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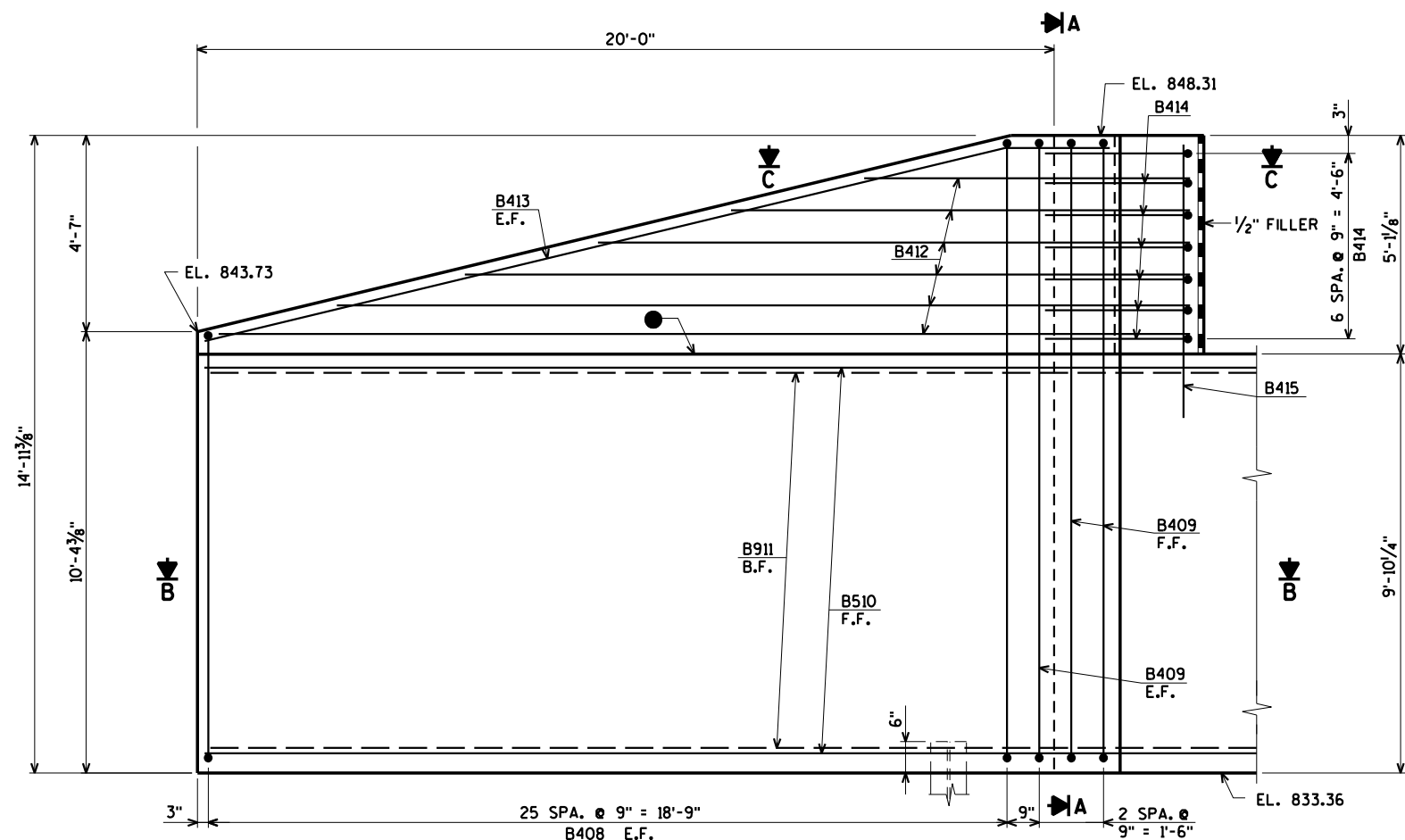
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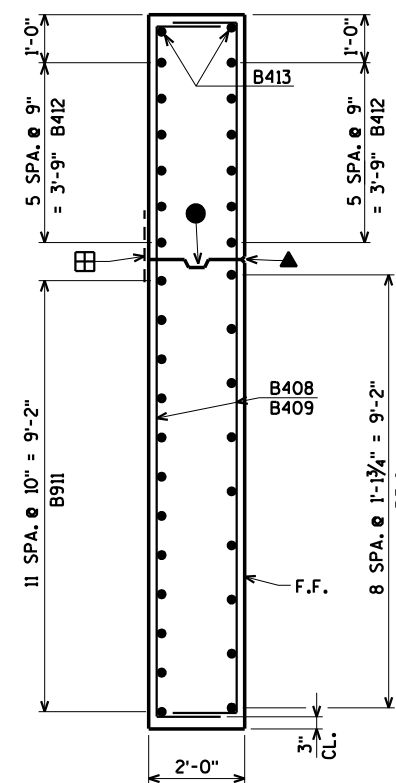
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-16-141			
DRAWN BY	CLS	PLANS CK'D.	CJM
EAST ABUTMENT DETAILS			SHEET 9 OF 19

ORIGINAL PLANS PREPARED BY
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ELEVATION - WING 3



SECTION A

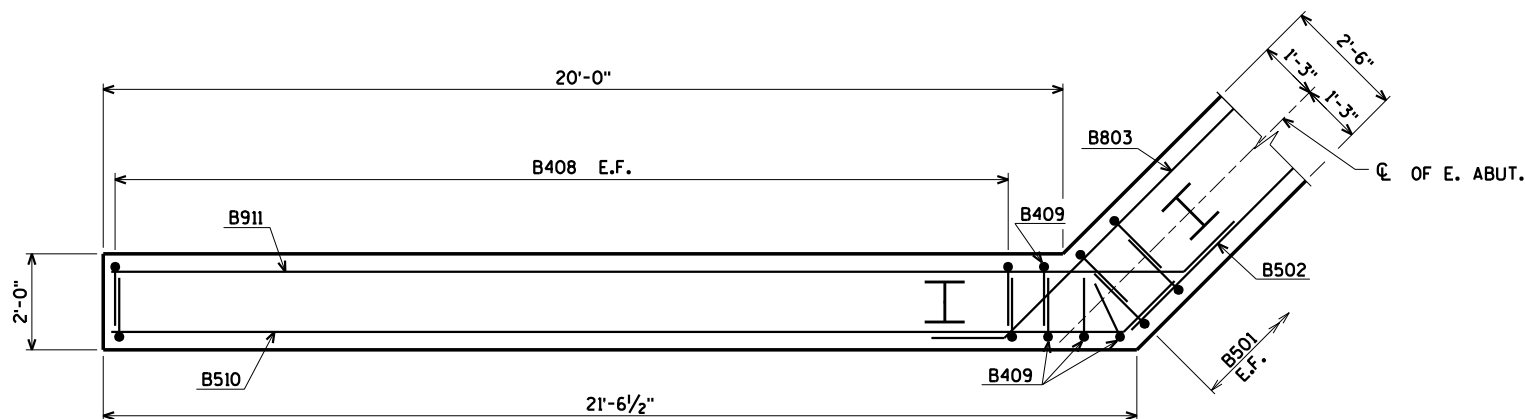
- ▲ 3/4" 'V' GROOVE ON F.F. OF WING WALL - NOT REQUIRED IF CONST. JT. IS NOT USED.
- OPT. KEYED CONST. JOINT - FORMED BY A BEVELED 2" x 6".
- ▲ 18" RUBBERIZED MEMBRANE WATERPROOFING TO EXTEND FROM BEAM SEAT TO TOP OF WINGWALL.
- ⊠ 18" RUBBERIZED MEMBRANE WATERPROOFING ON BACK FACE. NOT REQUIRED IF CONST. JT. IS NOT USED.

FOR PILE SPLICE DETAIL SEE SHEET 2.

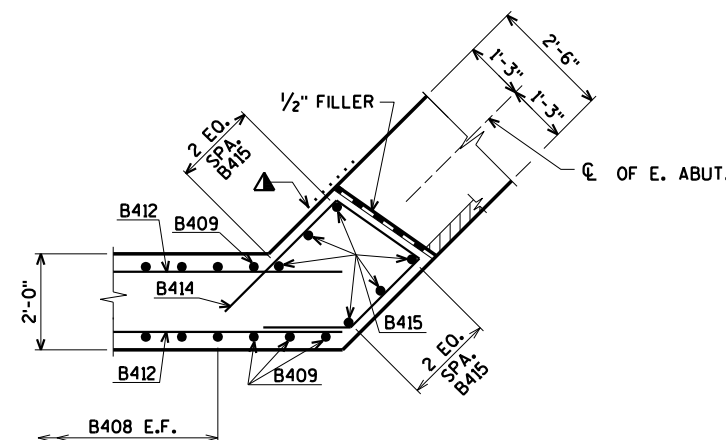
F.F. DENOTES FRONT FACE.

B.F. DENOTES BACK FACE.

E.F. DENOTES EACH FACE



SECTION B



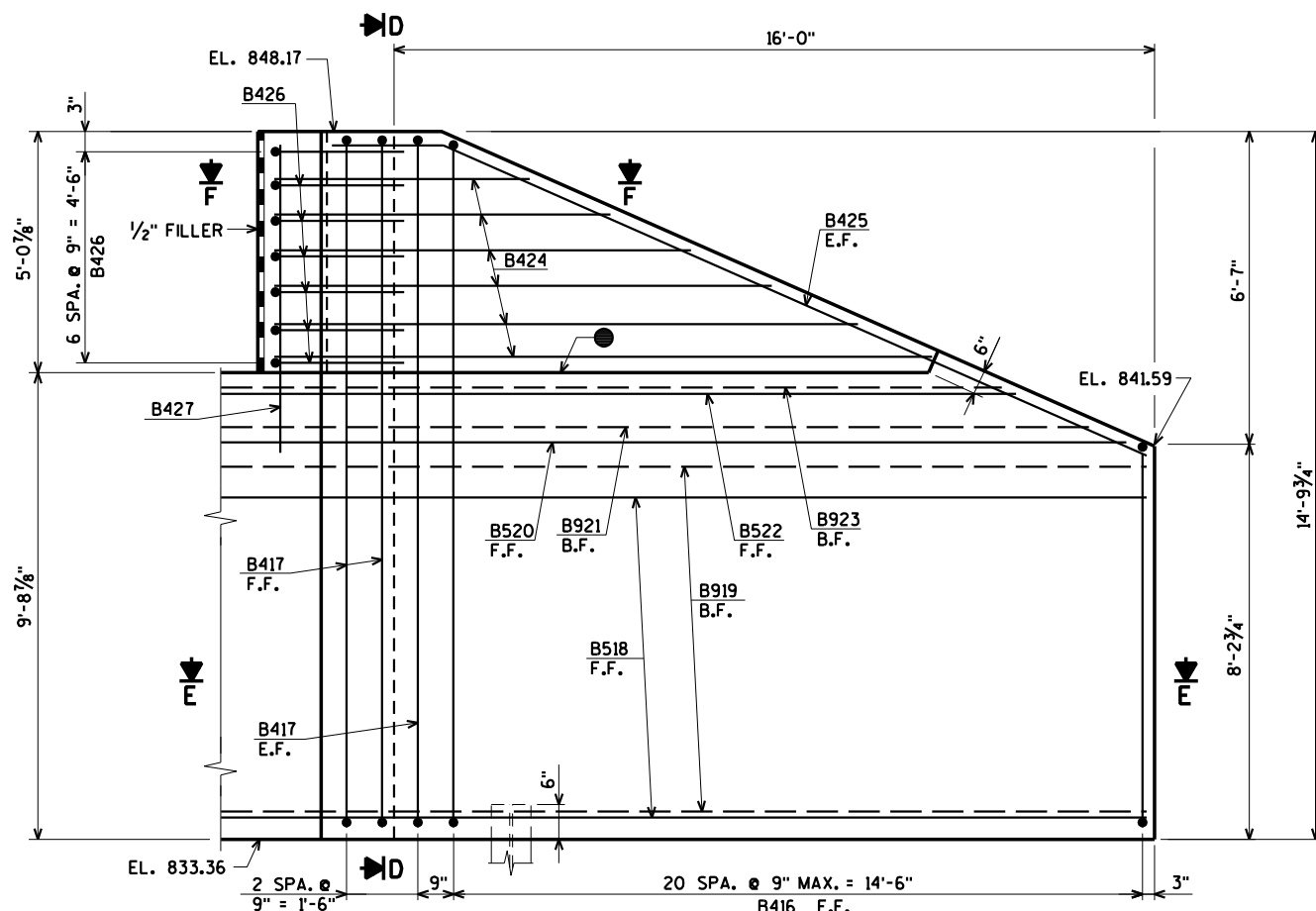
SECTION C

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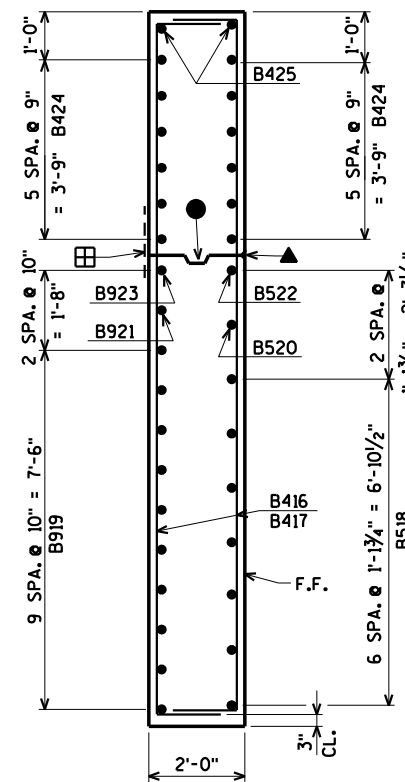
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NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-16-141			
DRAWN BY		CLS	PLANS CK'D. CJM
EAST ABUTMENT WING 3 DETAILS			SHEET 10 OF 19

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ELEVATION - WING 4



SECTION D

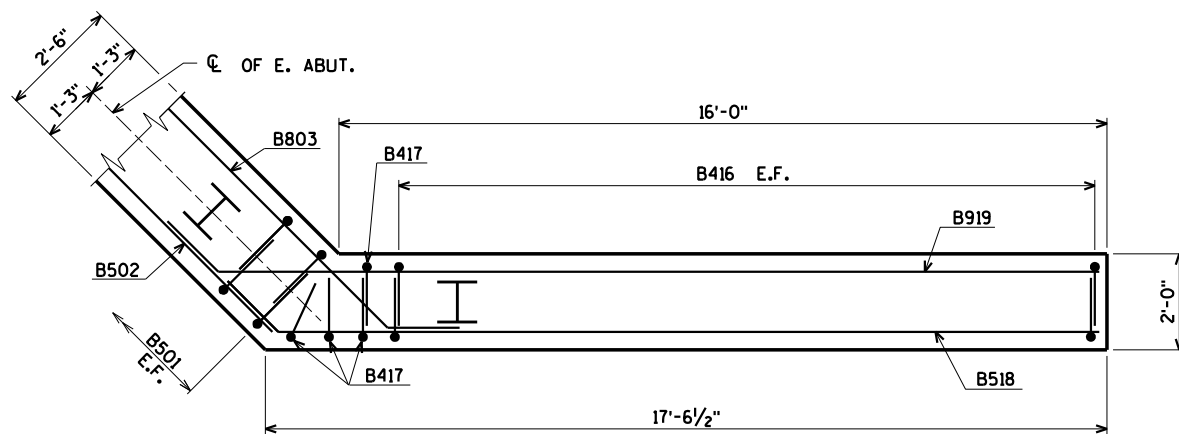
- ▲ 3/4" 'V' GROOVE ON F.F. OF WING WALL - NOT REQUIRED IF CONST. JT. IS NOT USED.
- OPT. KEYED CONST. JOINT - FORMED BY A BEVELED 2" x 6".
- ▲ 18" RUBBERIZED MEMBRANE WATERPROOFING TO EXTEND FROM BEAM SEAT TO TOP OF WINGWALL.
- ▣ 18" RUBBERIZED MEMBRANE WATERPROOFING ON BACK FACE. NOT REQUIRED IF CONST. JT. IS NOT USED.

FOR PILE SPLICE DETAIL SEE SHEET 2.

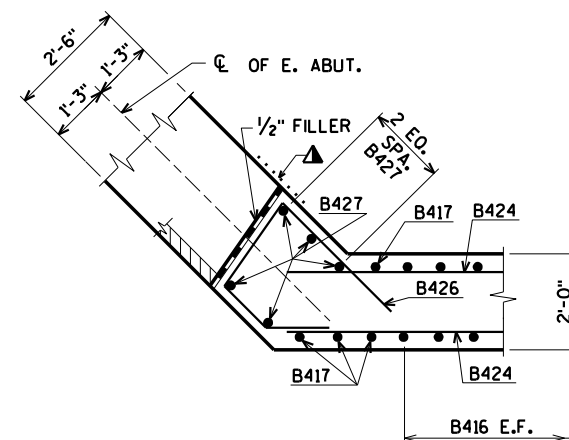
F.F. DENOTES FRONT FACE.

B.F. DENOTES BACK FACE.

E.F. DENOTES EACH FACE



SECTION E



SECTION F

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NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-16-141			
DRAWN BY		CLS	PLANS CK'D. CJM
EAST ABUTMENT WING 4 DETAILS			SHEET 11 OF 19

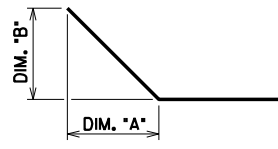
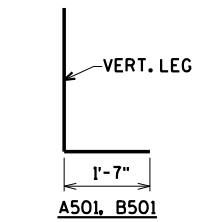
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BILL OF BARS - WEST ABUTMENT

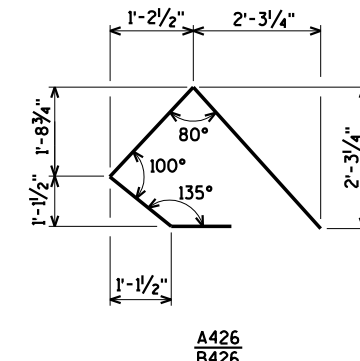
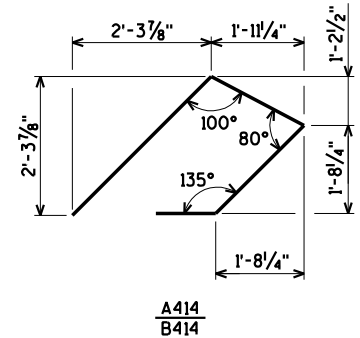
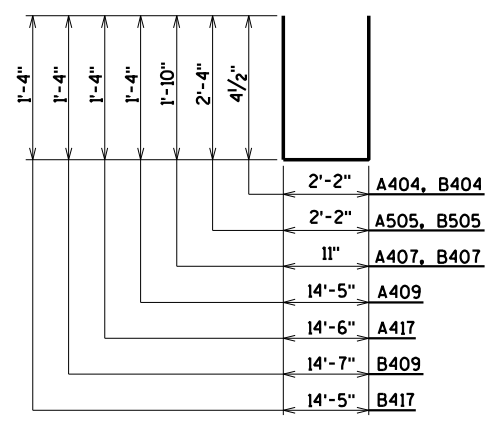
BAR NO.	COATED BAR	NO. REQ'D.	LENGTH	BENT BAR	BUNDLED	BAR SERIES	2,800* UNCOATED 3,530* COATED
							LOCATION
A501		74	10-7	X			BODY VERT. E.F.
A502		9	37-6				BODY HORIZ. F.F.
A803		18	24-10	X			BODY HORIZ. B.F.
A404		30	2-9	X			BODY TIES
A505		37	6-8	X			BODY VERT. TOP
A406		4	19-8				BODY HORIZ. TOP
A407		25	4-5	X			BODY VERT. TOP
A408	X	52	14-8	X			WING 1 VERT. E.F.
A409	X	4	16-11	X			WING 1 VERT. E.F.
A510	X	9	22-9	X			WING 1 HORIZ. F.F.
A911	X	12	24-4	X			WING 1 HORIZ. B.F.
A412	X	12	13-6				WING 1 HORIZ. E.F.
A413	X	2	21-9	X			WING 1 DIAG. E.F.
A414	X	7	8-9	X			WING 1 HORIZ.
A415	X	6	6-4				WING 1 VERT.
A416	X	42	13-7	X			WING 2 VERT. E.F.
A417	X	4	17-0	X			WING 2 VERT. E.F.
A518	X	7	18-9	X			WING 2 HORIZ. F.F.
A919	X	10	20-4	X			WING 2 HORIZ. B.F.
A520	X	1	18-3	X			WING 2 HORIZ. F.F.
A921	X	1	19-1	X			WING 2 HORIZ. B.F.
A522	X	1	15-8	X			WING 2 HORIZ. F.F.
A923	X	1	17-3	X			WING 2 HORIZ. B.F.
A424	X	12	8-6				WING 2 HORIZ. E.F.
A425	X	2	18-8	X			WING 2 DIAG. E.F.
A426	X	7	7-11	X			WING 2 HORIZ.
A427	X	5	6-4				WING 2 VERT.

BILL OF BARS - EAST ABUTMENT

BAR NO.	COATED BAR	NO. REQ'D.	LENGTH	BENT BAR	BUNDLED	BAR SERIES	2,790* UNCOATED 3,530* COATED
							LOCATION
B501		74	10-6	X			BODY VERT. E.F.
B502		9	37-6				BODY HORIZ. F.F.
B803		18	24-10	X			BODY HORIZ. B.F.
B404		30	2-9	X			BODY TIES
B505		37	6-8	X			BODY VERT. TOP
B406		4	19-8				BODY HORIZ. TOP
B407		25	4-5	X			BODY VERT. TOP
B408	X	52	14-8	X			WING 3 VERT. E.F.
B409	X	4	17-1	X			WING 3 VERT. E.F.
B510	X	9	22-9	X			WING 3 HORIZ. F.F.
B911	X	12	24-4	X			WING 3 HORIZ. B.F.
B412	X	12	13-6				WING 3 HORIZ. E.F.
B413	X	2	21-6	X			WING 3 DIAG. E.F.
B414	X	7	8-9	X			WING 3 HORIZ.
B415	X	6	6-4				WING 3 VERT.
B416	X	42	13-7	X			WING 4 VERT. E.F.
B417	X	4	16-11	X			WING 4 VERT. E.F.
B518	X	7	18-9	X			WING 4 HORIZ. F.F.
B919	X	10	20-4	X			WING 4 HORIZ. B.F.
B520	X	1	18-3	X			WING 4 HORIZ. F.F.
B921	X	1	19-1	X			WING 4 HORIZ. B.F.
B522	X	1	15-8	X			WING 4 HORIZ. F.F.
B923	X	1	17-3	X			WING 4 HORIZ. B.F.
B424	X	12	8-6				WING 4 HORIZ. E.F.
B425	X	2	18-8	X			WING 4 DIAG. E.F.
B426	X	7	7-11	X			WING 4 HORIZ.
B427	X	5	6-4				WING 4 VERT.



BAR NO.	DIM. 'A'	DIM. 'B'
A803	1'-0 3/4"	1'-0 3/4"
A510	1'-0 3/4"	1'-0 3/4"
A911	1'-0 3/4"	1'-0 3/4"
A413	18'-10"	4'-6"
A518	1'-0 3/4"	1'-0 3/4"
A919	1'-0 3/4"	1'-0 3/4"
A520	1'-0 3/4"	1'-0 3/4"
A921	1'-0 3/4"	1'-0 3/4"
A522	1'-0 3/4"	1'-0 3/4"
A923	1'-0 3/4"	1'-0 3/4"
A425	14'-10"	6'-6"
B803	1'-0 3/4"	1'-0 3/4"
B510	1'-0 3/4"	1'-0 3/4"
B911	1'-0 3/4"	1'-0 3/4"
B413	18'-10"	4'-6"
B518	1'-0 3/4"	1'-0 3/4"
B919	1'-0 3/4"	1'-0 3/4"
B520	1'-0 3/4"	1'-0 3/4"
B921	1'-0 3/4"	1'-0 3/4"
B522	1'-0 3/4"	1'-0 3/4"
B923	1'-0 3/4"	1'-0 3/4"
B425	14'-10"	6'-6"

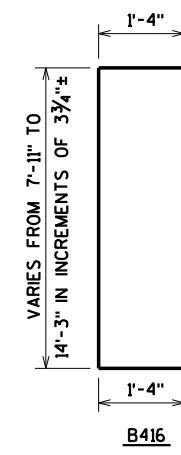
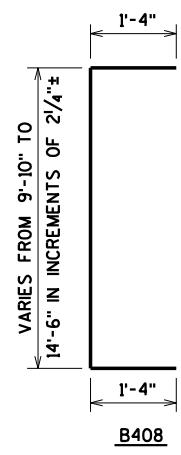
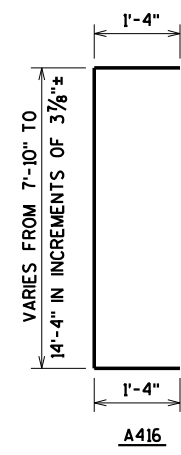
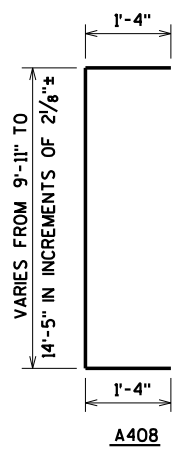


BENDING DIMENSIONS ARE OUT TO OUT OF BARS.
 ⊗ LENGTH SHOWN FOR BAR IS AN AVERAGE LENGTH AND SHOULD ONLY BE USED FOR BAR WEIGHT CALCULATIONS. SEE BAR SERIES TABLE FOR ACTUAL LENGTHS.
 B.F. DENOTES BACK FACE.
 F.F. DENOTES FRONT FACE.
 E.F. DENOTES EACH FACE.

BAR SERIES TABLE

BAR MARK	NO REQ'D.	LENGTH
A408	2 SERIES OF 26	12'-5" TO 16'-11"
A412	2 SERIES OF 6	5'-10" TO 21'-2"
A416	2 SERIES OF 21	10'-4" TO 16'-10"
A424	2 SERIES OF 6	4'-3" TO 12'-9"
B408	2 SERIES OF 26	12'-4" TO 17'-0"
B412	2 SERIES OF 6	5'-10" TO 21'-2"
B416	2 SERIES OF 21	10'-5" TO 16'-9"
B424	2 SERIES OF 6	4'-3" TO 12'-9"

BUNDLE AND TAG EACH SERIES SEPARATELY.



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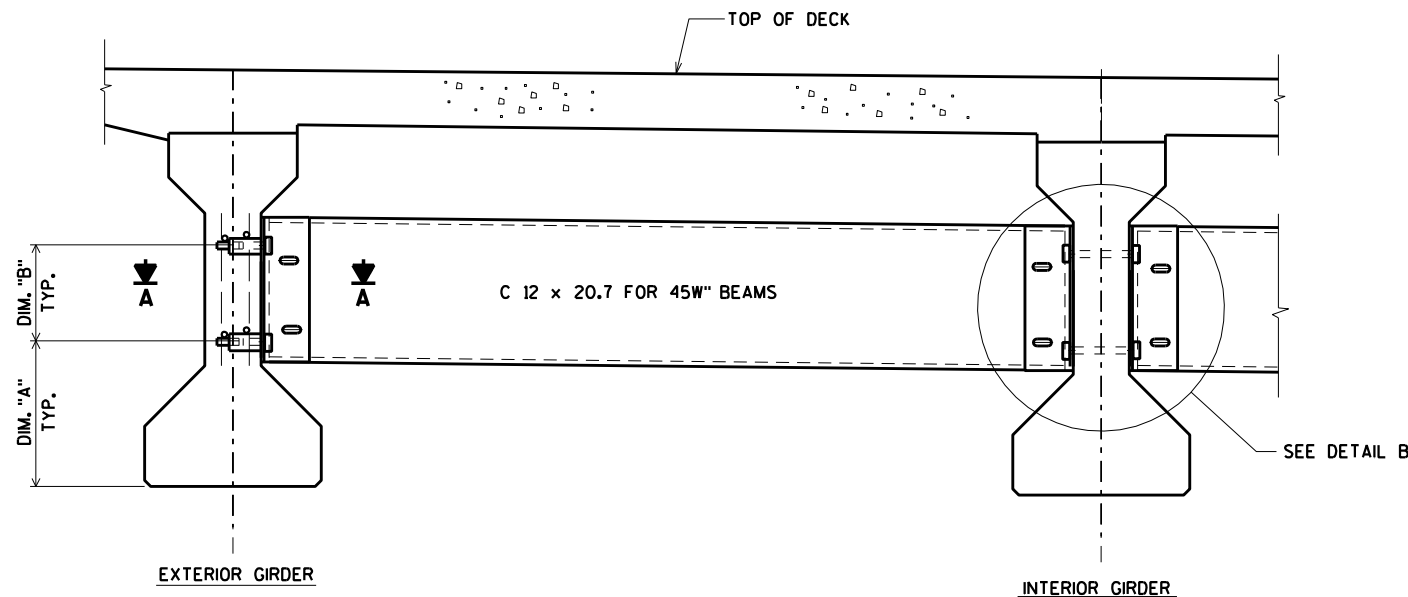
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NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-16-141			
DRAWN BY		CLS	PLANS CK'D. CJM
ABUTMENT BILL OF BARS			SHEET 12 OF 19

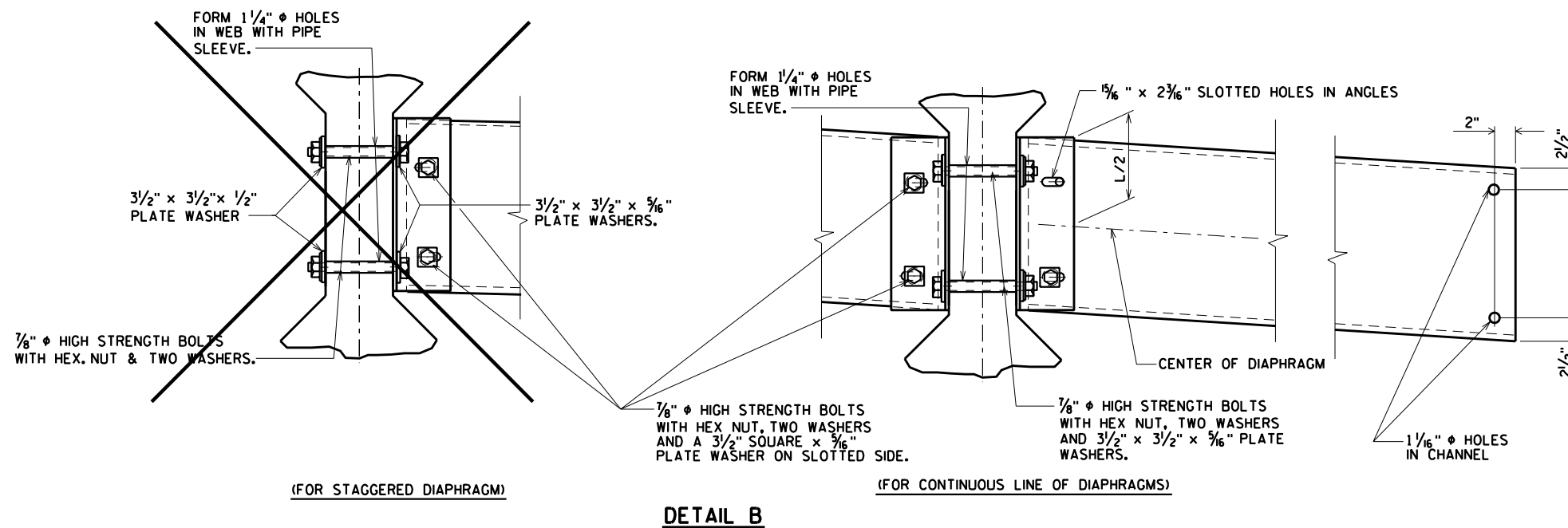
ORIGINAL PLANS PREPARED BY
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 Eau Claire, WI 54701
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TABLE

GIRDER HEIGHT	DIM. "A"	DIM. "B"	DIM. "L"	*DIM. "X"
45W"	1'-9 1/8"	8 7/8"	1'-0 1/2"	2 3/4"



PART TRANSVERSE SECTION AT DIAPHRAGM



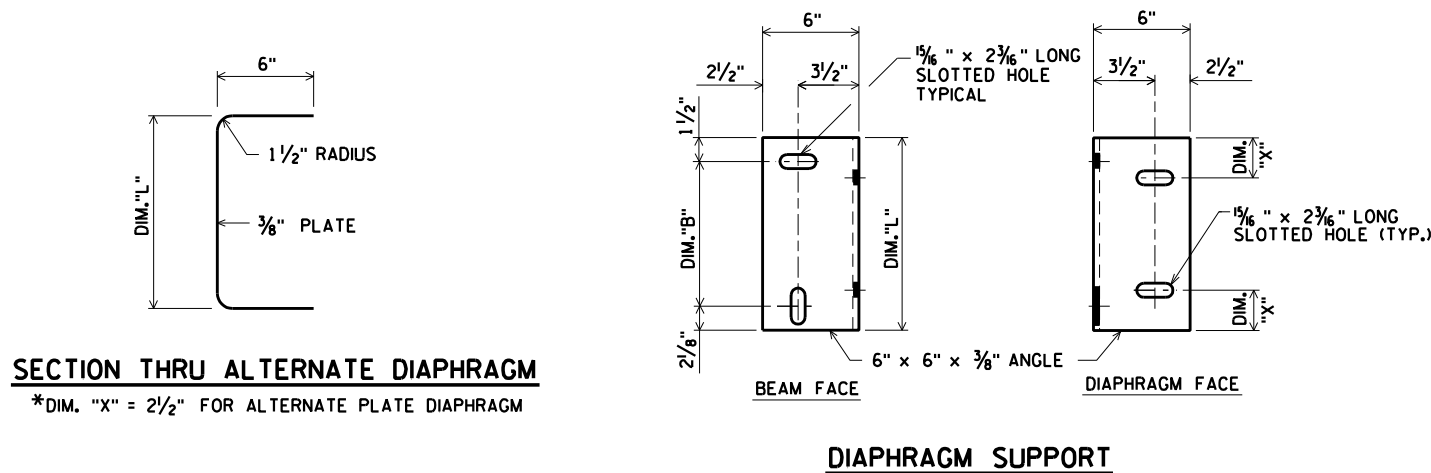
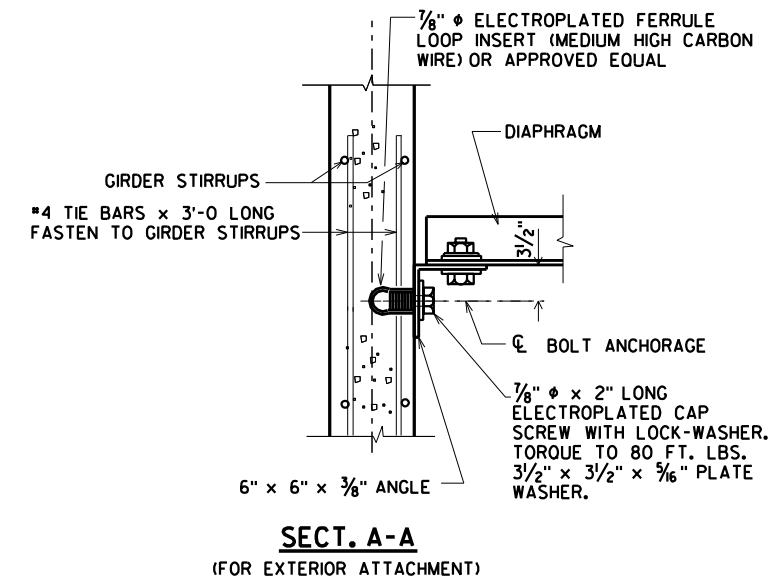
NOTES

ALL DIAPHRAGM MATERIAL NOT EMBEDDED IN THE CONCRETE GIRDER SHALL BE PAID FOR AT THE UNIT PRICE BID FOR "STEEL DIAPHRAGMS B-16-141", EACH.

EACH DIAPHRAGM BETWEEN GIRDERS SHALL CONSTITUTE ONE UNIT.

ALL DIAPHRAGM STRUCTURAL STEEL SHALL BE ASTM A709 GRADE 36. ALL BOLTS, NUTS AND WASHERS SHALL BE ASTM A325 TYPE 1.

ALL DIAPHRAGM STRUCTURAL STEEL SHOWN SHALL BE HOT-DIPPED GALVANIZED. ALL BOLTS, NUTS AND WASHERS SHALL BE HOT-DIPPED GALVANIZED IN ACCORDANCE WITH ASTM A153 CLASS C. GALVANIZED NUTS SHALL BE TAPPED OVERSIZE IN ACCORDANCE WITH THE REQUIREMENTS OF ASTM A563 AND SHALL MEET THE REQUIREMENTS OF SUPPLEMENTARY REQUIREMENT S1 OF ASTM A563, LUBRICANT AND TEST FOR COATED NUTS.



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STRUCTURE B-16-141			
DRAWN BY CLS		PLANS CK'D. CJM	
INTERM. STEEL DIAPHS. DETAILS			SHEET 13 OF 19

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Eau Claire, WI 54701
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GIRDER NOTES

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

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

THE GIRDERS SHALL BE PROVIDED WITH A SUITABLE LIFTING DEVICE FOR HANDLING AND ERECTING THE GIRDERS.

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

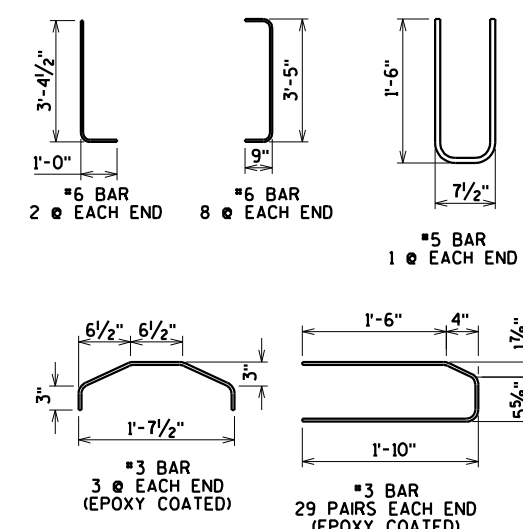
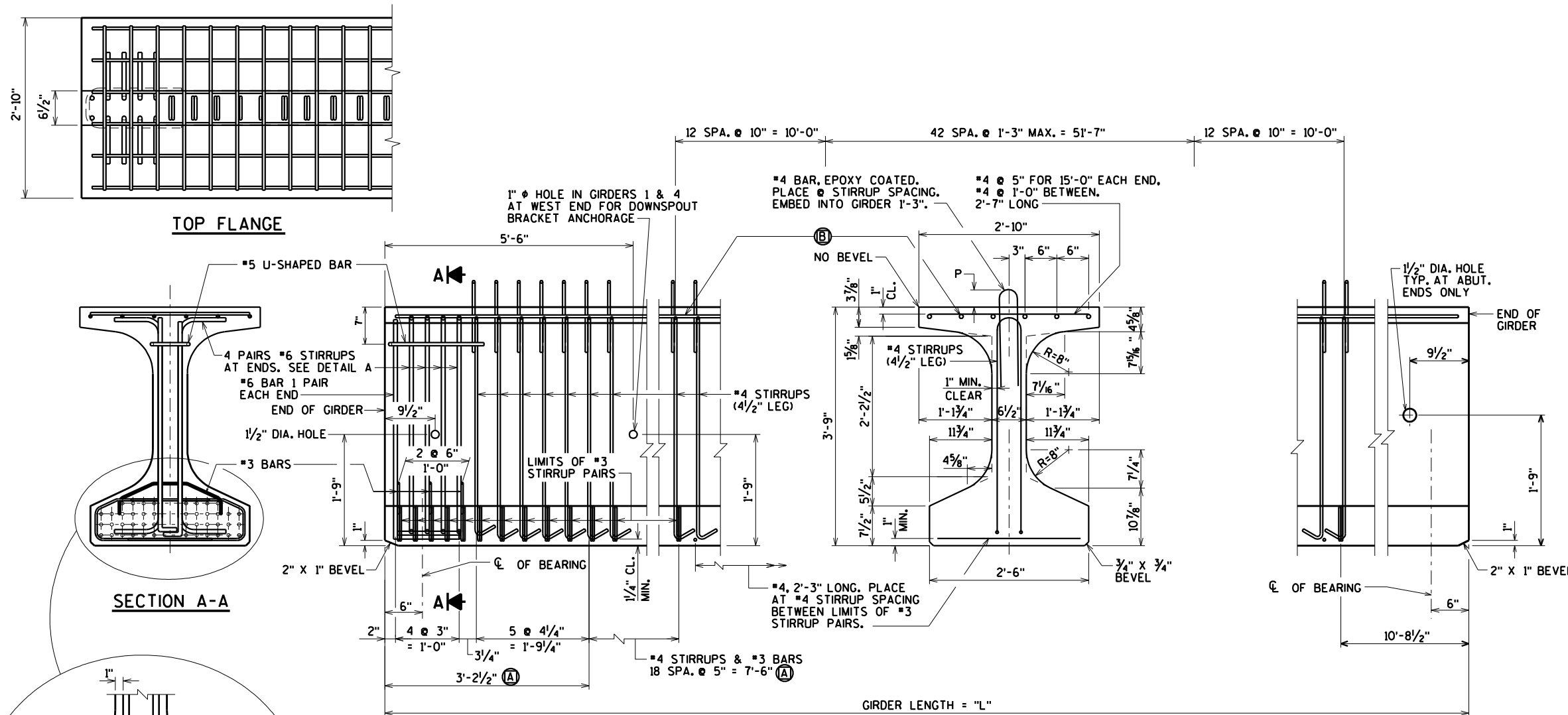
ALL GIRDERS SHALL BE CAST FULL LENGTH AS SHOWN.

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

AN ALTERNATE EQUIVALENT OF WELDED WIRE FABRIC (WWF) ASTM A497 MAY BE SUBSTITUTED FOR THE STIRRUP REINFORCEMENT SHOWN, UPON APPROVAL OF THE STRUCTURES DEVELOPMENT SECTION.

PRESTRESSING STRANDS SHALL BE 0.6"Ø -7 WIRE LOW-RELAXATION STRANDS WITH AN ULTIMATE STRENGTH OF 270,000 psi.

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



- (A) DETAIL TYP. AT EACH END
- (B) 6 #4 BARS, FULL LENGTH, MIN. LAP = 2'-11"

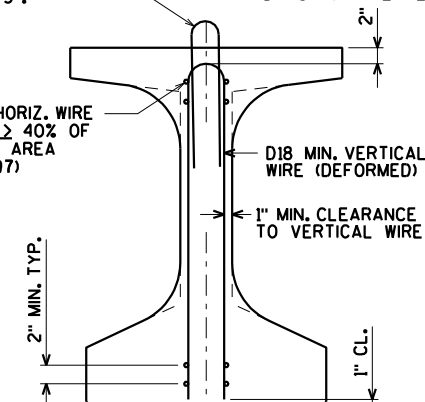
#4 BAR, EPOXY COATED, PLACE # STIRRUP SPACING REQUIRED FOR NON WWF STIRRUPS, EMBED INTO GIRDER 1'-3".

HORIZ. WIRES SHALL BE LOCATED IN TOP AND BOT. FLANGES AND NOT IN THE WEB.

AREA OF HORIZ. WIRE SHALL BE ≥ 40% OF VERT. WIRE AREA (ASTM A497)

D18 MIN. VERTICAL WIRE (DEFORMED)

1" MIN. CLEARANCE TO VERTICAL WIRE



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

GIRDER DATA

SPAN	GIRDER	GIRDER LENGTH "L"	DEAD LOAD DEFL. (IN.)								CONC. STRGTH. f'c (p.s.i.)	"P" 1ST 1/3 OF GIRDER	"P" MID 1/3 OF GIRDER	"P" END 1/3 OF GIRDER	DIA. OF STRAND (IN.)	DRAPED PATTERN (IN.)				UNDRAPED PATTERN				
			1/10	3/10	3/10	5/10	5/10	7/10	7/10	9/10						TOTAL NO. OF STRANDS	f'ci (P.S.I.)	"A" MIN.	"B" MAX.	"C" MAX.	TOTAL NO. OF STRANDS	f'ci (P.S.I.)		
1	ALL	93'-0"	0.6	1.1	1.5	1.8	1.8	1.8	1.5	1.1	0.6	8000	10.5"	7.5"	10.5"	0.60	34	6400	39	13.5	16.5	5		*

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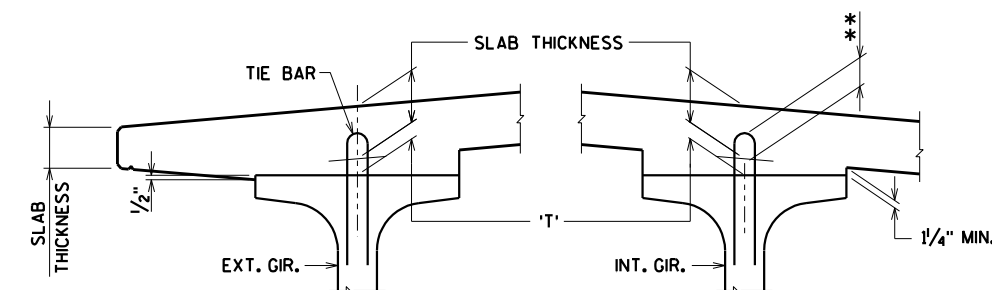
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-16-141			
DRAWN BY	CLS	PLANS CK'D.	CJM
45" PRESTRESSED GIRDER DETAILS			SHEET 14 OF 19

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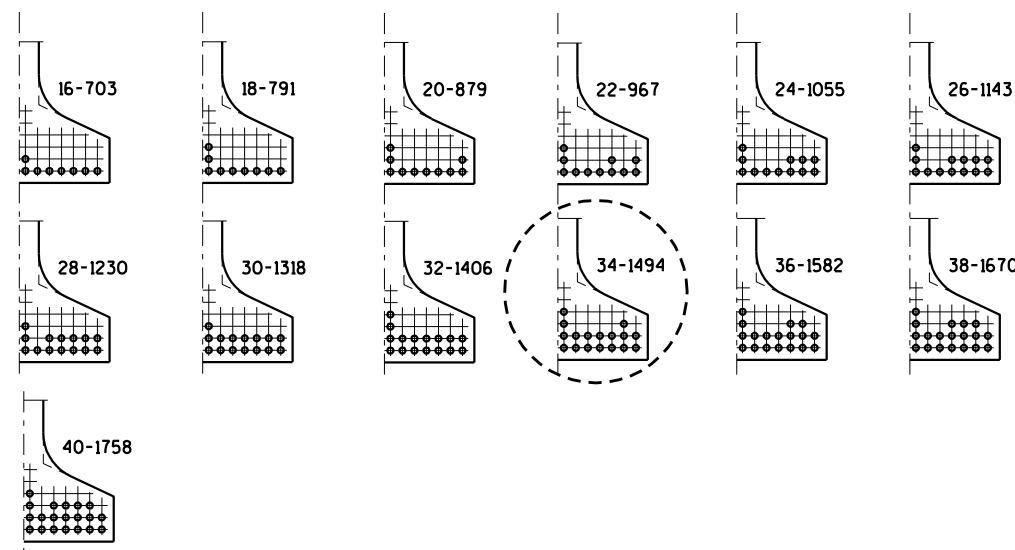
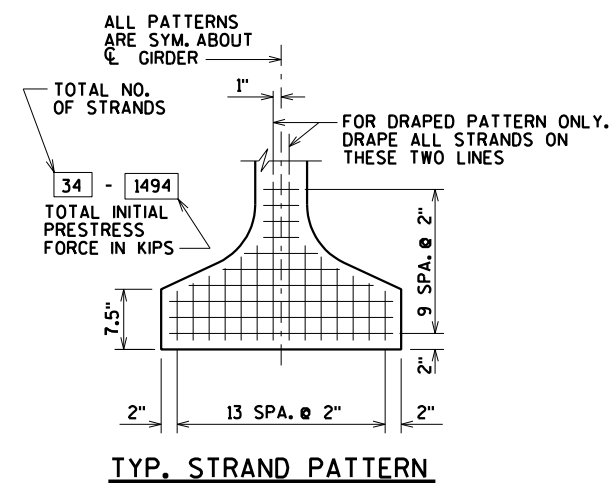
SLAB HAUNCH DETAIL

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

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

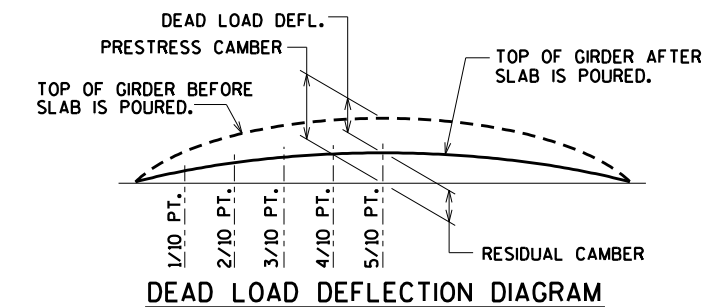
$$\begin{aligned} & \text{TOP OF DECK ELEV. AT FINAL GRADE} \\ & - \text{TOP OF GIRDER ELEVATION} \\ & + \text{DEAD LOAD DEFLECTION} \\ & - \text{SLAB THICKNESS} \\ \hline & = \text{HAUNCH HEIGHT 'T'} \end{aligned}$$

NOTE: AN AVERAGE HAUNCH ('T') OF 4 3/4" WAS USED IN THE QUANTITY "CONCRETE MASONRY BRIDGES".

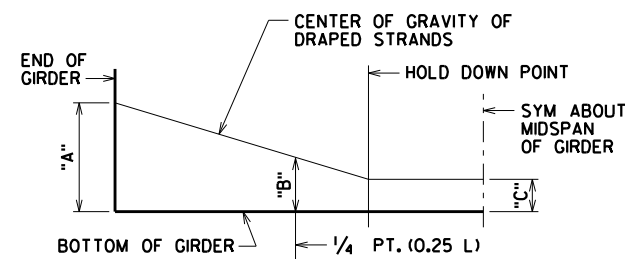


ARRANGEMENT AT CL SPAN - FOR GIRDERS WITH DRAPED STRANDS

0.6" Ø STRANDS



DEAD LOAD DEFLECTION DIAGRAM



DRAPED STRAND PROFILE

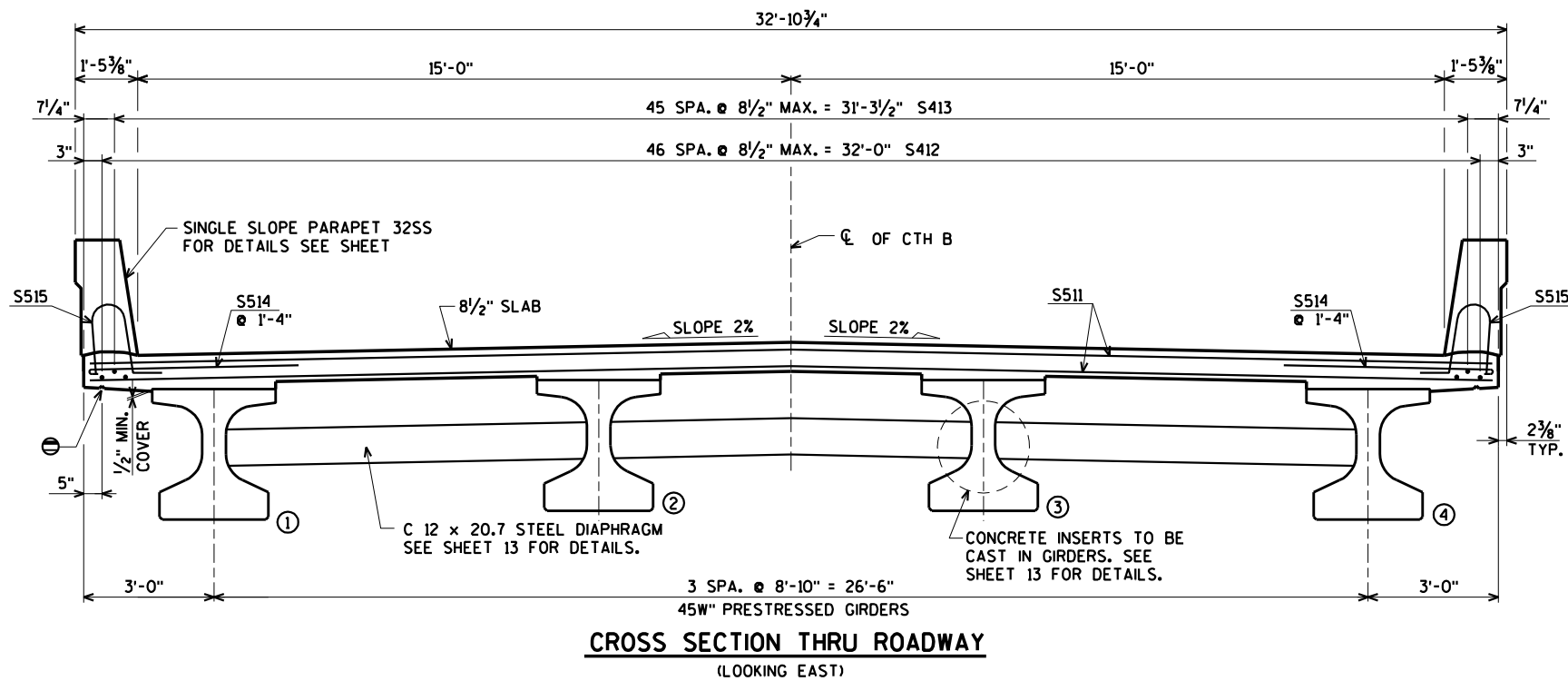
THE THEORETICAL INITIAL CAMBER VALUE AT THE TIME OF STRAND RELEASE AT MIDSPAN MULTIPLIED BY A FACTOR OF 1.4 TO ACCOUNT FOR CAMBER GROWTH FROM THE TIME OF STRAND RELEASE TO JOBSITE PLACEMENT.

SPAN	CAMBER (IN.)
1	3.3

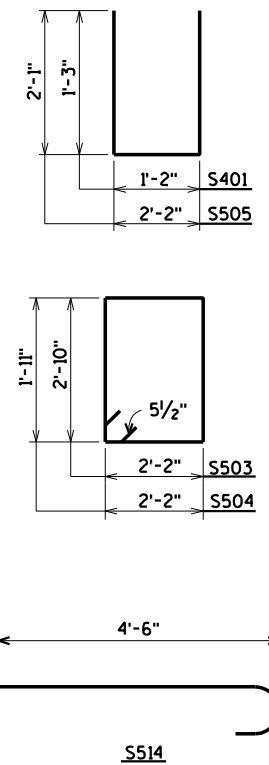
THESE VALUES ARE NOT TO BE USED IN DETERMINING 'T'. USE ACTUAL GIRDER SHOTS.

THESE VALUES ARE FOR INFORMATIONAL PURPOSES ONLY.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-16-141			
54W" PRESTRESSED GIRDER DETAILS			SHEET 15 OF 19



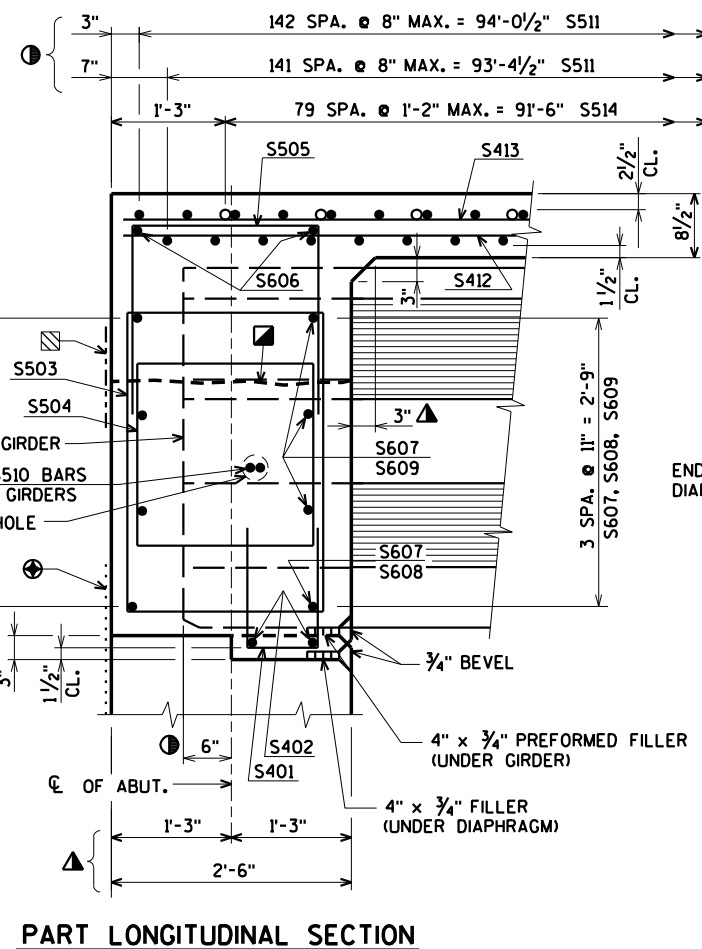
CROSS SECTION THRU ROADWAY
(LOOKING EAST)



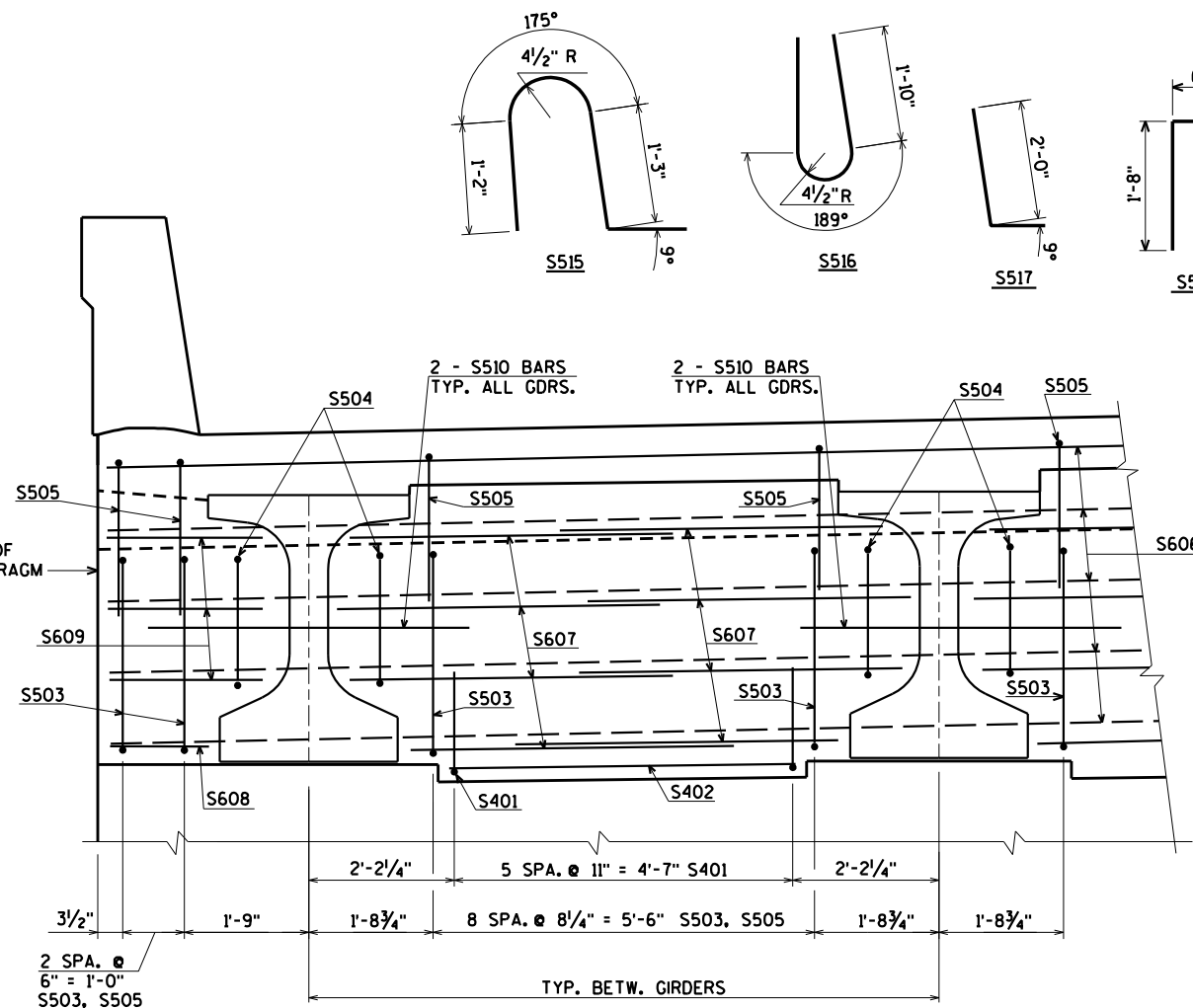
BILL OF BARS

BAR NO.	COATED BAR	NO. REQ'D.	LENGTH	BENT BAR	BUNDLED	BAR SERIES	23,470* COATED	
							LOCATION	
S401	X	36	3-6	X			DIAPH. @ ABUT. VERT. @ NOTCH	
S402	X	12	5-0				DIAPH. @ ABUT. HORIZ. @ NOTCH	
S503	X	66	10-6	X			DIAPH. @ ABUT. VERT.	
S504	X	16	8-8	X			DIAPH. @ ABUT. VERT.	
S505	X	66	6-1	X			DIAPH. @ ABUT. VERT.	
S606	X	12	32-8				DIAPH. @ ABUT. HORIZ.	
S607	X	48	5-1				DIAPH. @ ABUT. HORIZ. BETW. GDERS.	
S608	X	4	1-5				DIAPH. @ ABUT. HORIZ. @ EXT. GDERS.	
S609	X	12	2-2				DIAPH. @ ABUT. HORIZ. @ EXT. GDERS.	
S510	X	16	6-0				DIAPH. @ ABUT. HORIZ. THRU GDERS.	
S511	X	285	32-8				SLAB TRANS. TOP & BOT.	
S412	X	141	32-6				SLAB LONG. BOT.	
S413	X	138	32-7				SLAB LONG. TOP	
S514	X	160	5-1	X			SLAB TRANS. TOP @ ENDS	
S515	X	232	4-5	X			SLAB @ PARAPET VERT.	
S516	X	232	5-0	X			PARAPET VERT.	
S517	X	48	2-9	X			SLAB @ PARAPET VERT.	
S518	X	68	4-4	X			SLAB @ PARAPET VERT.	
S519	X	44	4-9	X			PARAPET VERT.	
S520	X	24	4-10	X			PARAPET VERT.	
S521	X	20	48-5	X			PARAPET HORIZ.	
S522	X	4	48-5	X			PARAPET HORIZ.	
S523	X	12	5-0				SLAB AT FLOOR DRAINS	

BENDING DIMENSIONS ARE OUT TO OUT OF BARS.



PART LONGITUDINAL SECTION

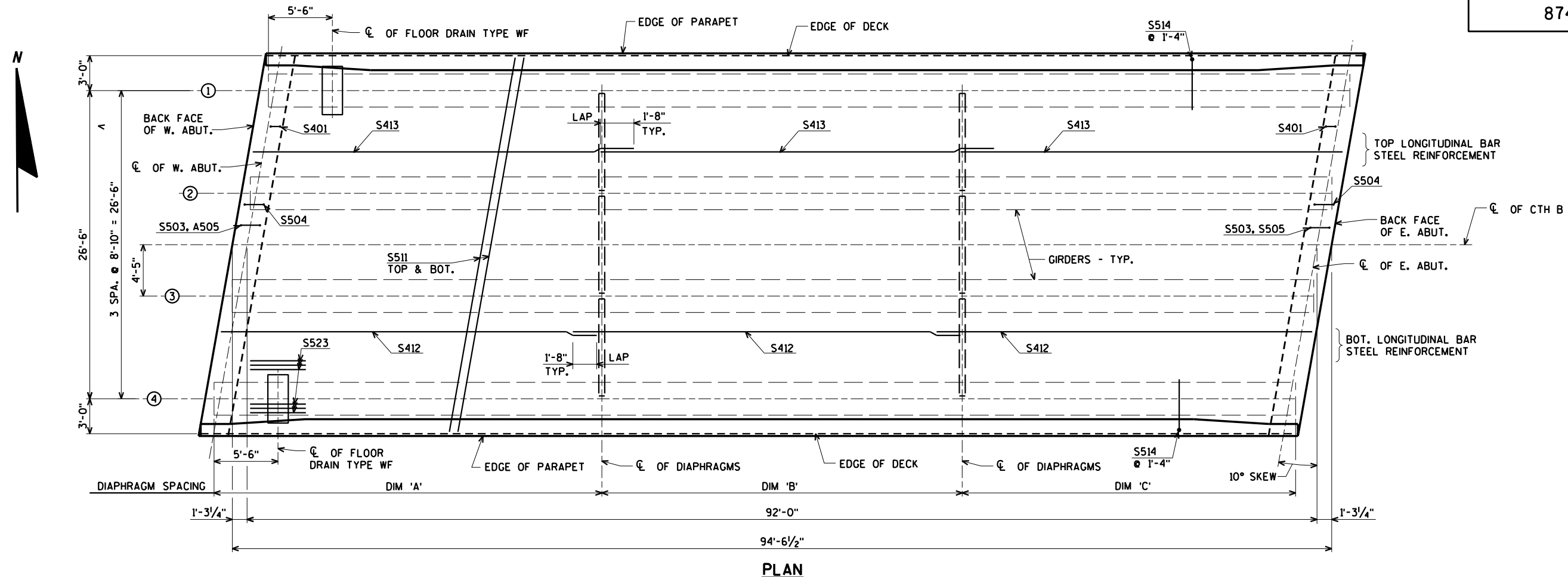


PART SECTION AT ABUTMENT

- ⊖ 3/4" V - GROOVE. EXTEND V - GROOVE TO 6" FROM FRONT FACE OF ABUTMENT DIAPHRAGMS - TYP.
- ⊕ 18" RUBBERIZED MEMBRANE WATERPROOFING
- Ⓞ DIMENSIONS MEASURED ALONG C. OF GIRDER.
- ⚠ DIMENSIONS MEASURED NORMAL TO C. OF SUBSTRUCTURE UNIT.
- ⓧ OPTIONAL CONSTRUCTION JOINT 1'-2" BELOW TOP OF GIRDER. IF USED, DECK POUR MUST BE WITHIN 2 WEEKS FROM THE TIME OF THE DIAPHRAGM POUR.
- ⓧ 18" RUBBERIZED MEMBRANE WATERPROOFING IF CONST. JT. IS USED. COST INCIDENTAL TO BID ITEM "CONCRETE MASONRY BRIDGES"

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-16-141			
DRAWN BY CLS		PLANS CK'D. CJM	
SUPERSTRUCTURE			SHEET 16 OF 19

ORIGINAL PLANS PREPARED BY
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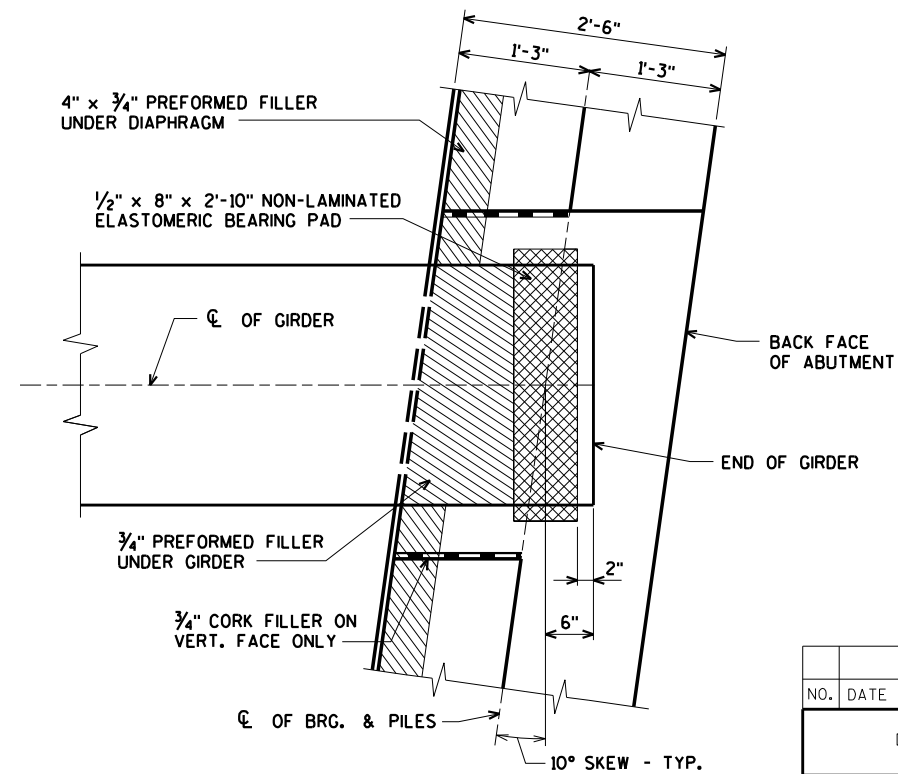
PLAN

TOP OF DECK ELEVATIONS

	€ OF BRG. W. ABUT.	0.1 PT.	0.2 PT.	0.3 PT.	0.4 PT.	0.5 PT.	0.6 PT.	0.7 PT.	0.8 PT.	0.9 PT.	€ OF BRG. E. ABUT.
N. EDGE OF DECK	847.00	847.03	847.08	847.15	847.25	847.37	847.51	847.67	847.86	848.07	848.31
GIRDER 1	847.03	847.06	847.11	847.18	847.28	847.40	847.54	847.70	847.89	848.10	848.33
GIRDER 2	847.21	847.23	847.28	847.35	847.44	847.55	847.69	847.85	848.03	848.24	848.47
€ CTH B	847.30	847.32	847.36	847.43	847.52	847.63	847.77	847.93	848.11	848.31	848.54
GIRDER 3	847.21	847.23	847.27	847.33	847.42	847.53	847.67	847.82	848.00	848.20	848.43
GIRDER 4	847.03	847.05	847.08	847.14	847.23	847.34	847.47	847.62	847.79	847.99	848.21
S. EDGE OF DECK	846.99	847.01	847.05	847.11	847.19	847.30	847.43	847.58	847.75	847.95	848.17

TABLE OF DIAPHRAGM DIMENSIONS

GIRDER	DIM. 'A'	DIM. 'B'	DIM. 'C'
1	28'-8"	31'-0"	33'-4"
2	30'-2 ⁵ / ₈ "	31'-0"	31'-9 ³ / ₈ "
3	31'-9 ³ / ₈ "	31'-0"	30'-2 ⁵ / ₈ "
4	33'-4"	31'-0"	28'-8"



BEARING PAD DETAIL

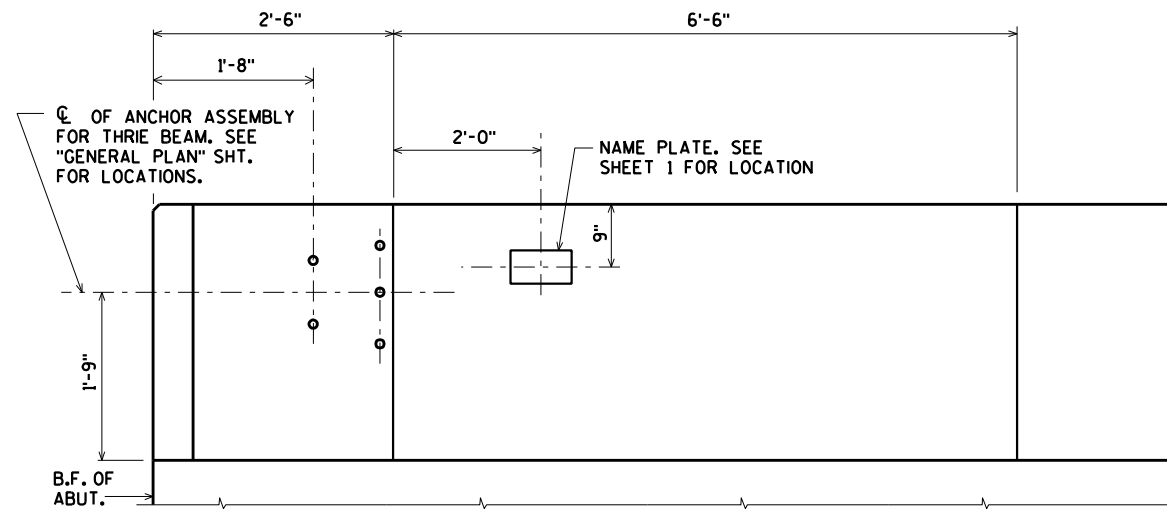
\$PRNAME\$ U:\42-0974\00 - Douglas Co, CTH B\BRIDGE\420974 sup.dgn

8

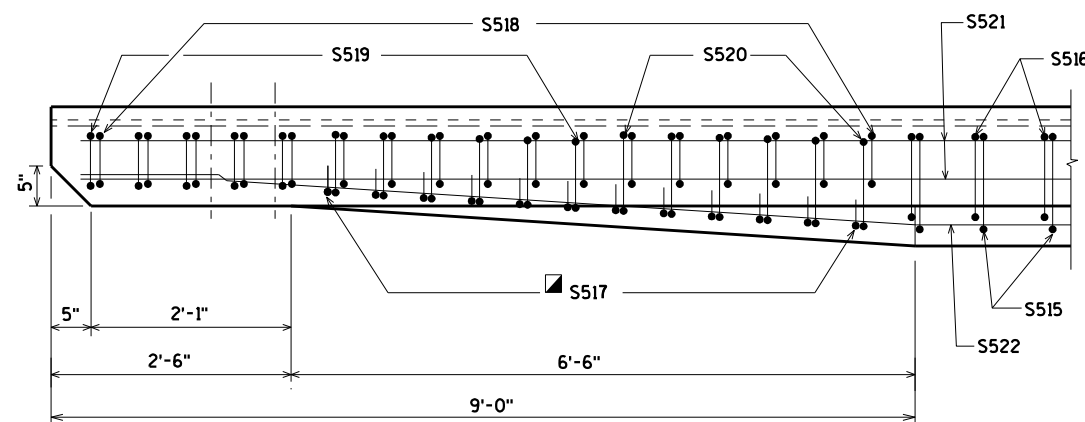
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NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-16-141			
DRAWN BY		CLS	PLANS CK'D. CJM
SUPERSTRUCTURE PLAN			SHEET 17 OF 19

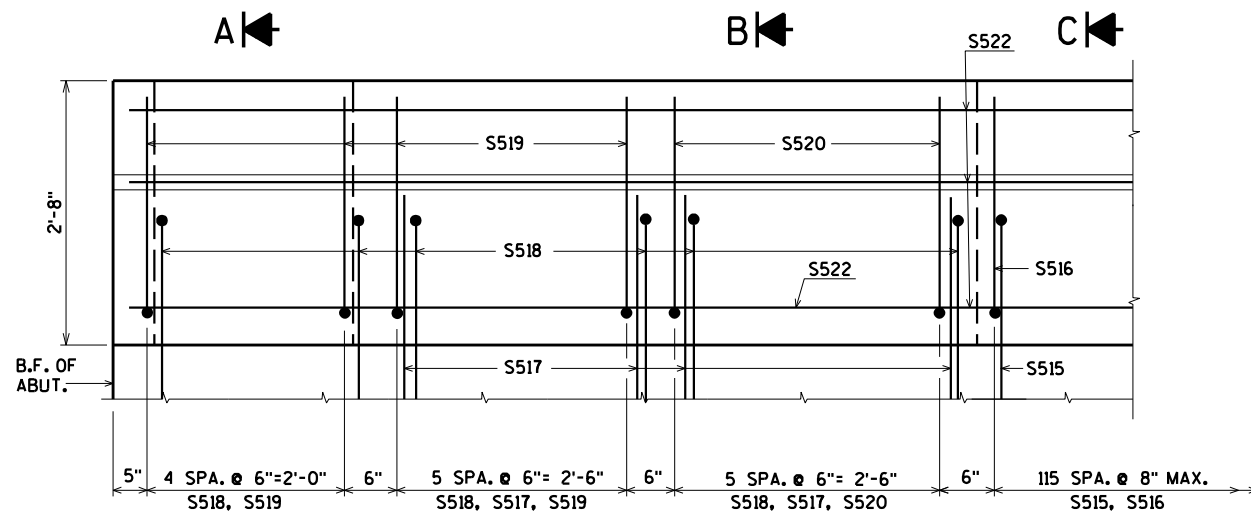
ORIGINAL PLANS PREPARED BY
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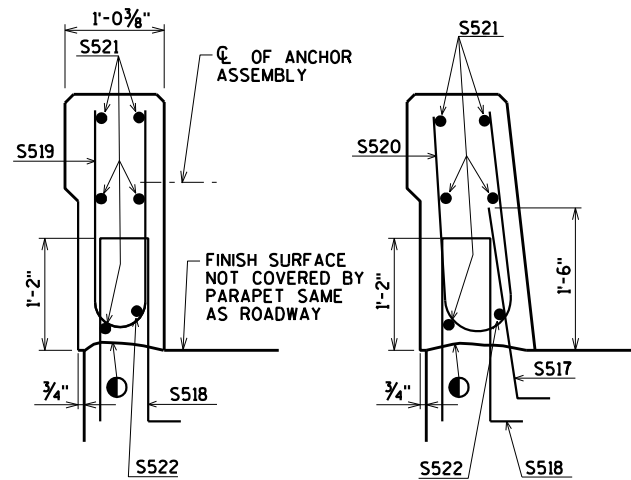
INSIDE ELEVATION



PLAN

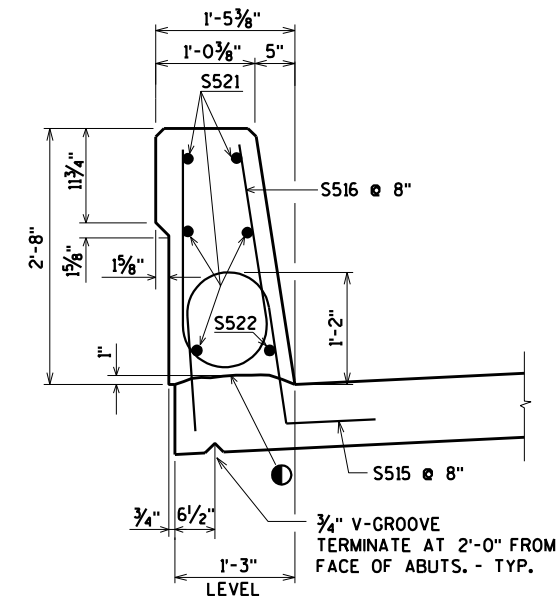


OUTSIDE ELEVATION



SECTION A

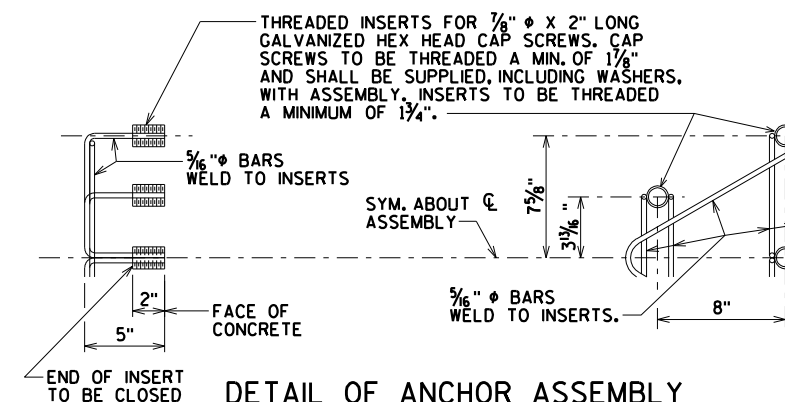
SECTION B



SECTION THRU PARAPET ON BRIDGE
SECTION C

○ CONST. JOINT - STRIKE OFF AS SHOWN.

▣ S517 BARS MAY BE PLACED AFTER CONCRETE IS POURED BUT BEFORE INITIAL SET HAS TAKEN PLACE. USE CARE TO PLACE S519 BARS CORRECTLY ALONG TRANSITION OF PARAPET.



DETAIL OF ANCHOR ASSEMBLY

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

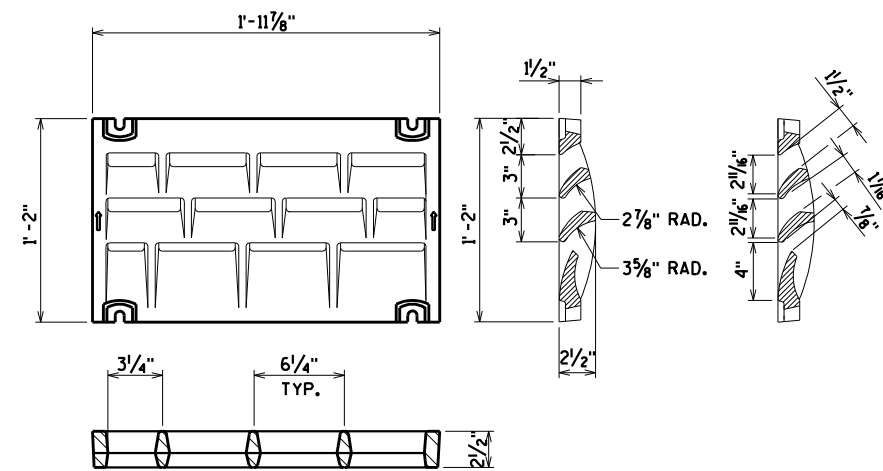
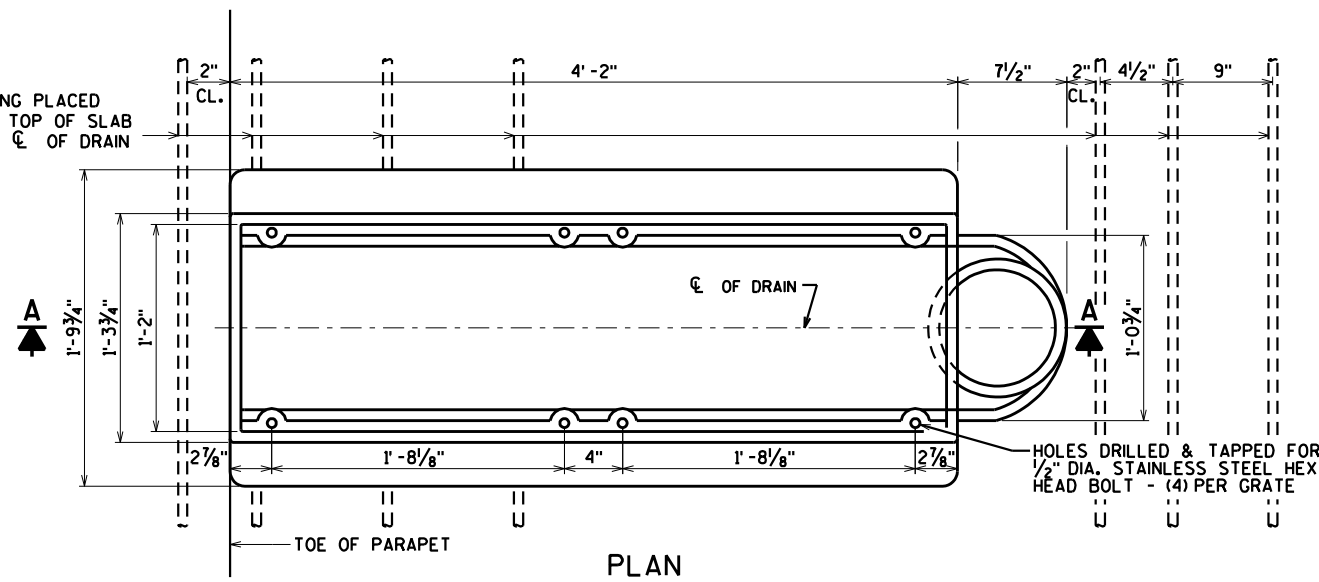
ASSEMBLY SHALL BE BID ITEM "ANCHOR ASSEMBLIES FOR STEEL PLATE BEAM GUARD", EACH.

\$PRNAME\$ U:\42-0974.00 - Douglas Co. CTH B=BRIDGE\420974 32SS.dgn

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-16-141			
DRAWN BY		CLS	PLANS CK'D. CJM
SINGLE SLOPE PARAPET 32SS			SHEET 18 OF 19

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S530, 5'-0" LONG PLACED
3/4" CL. FROM TOP OF SLAB
& SYM. ABOUT C OF DRAIN



GENERAL NOTES

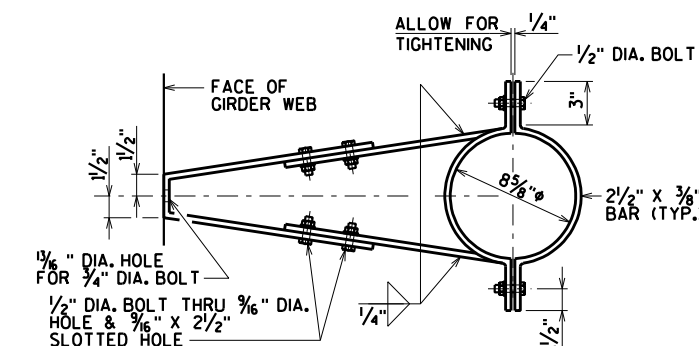
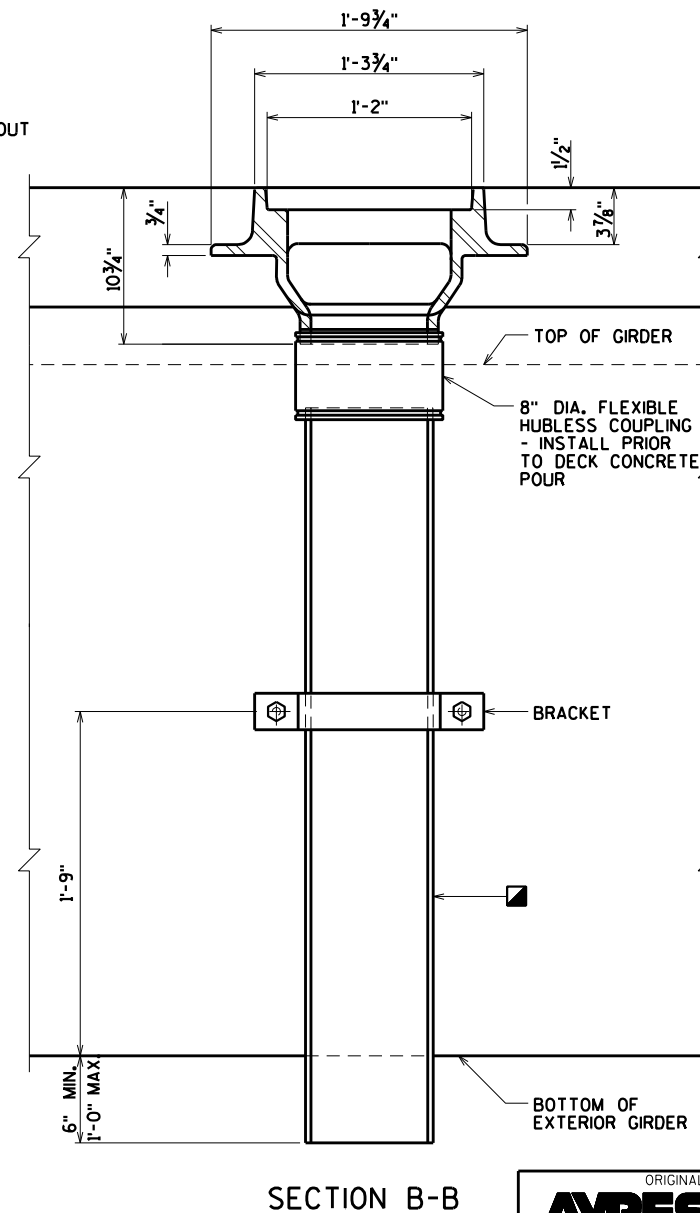
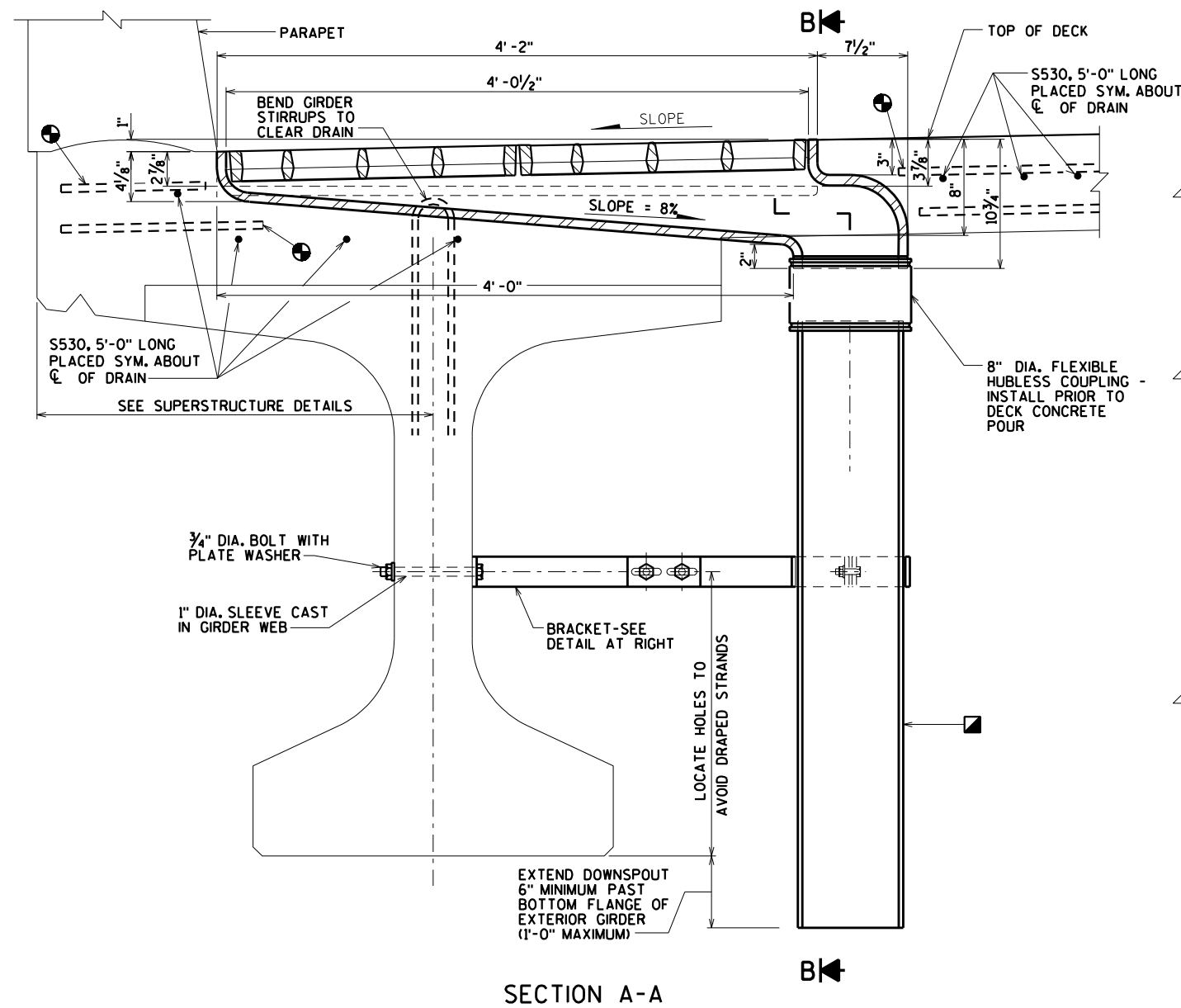
ALL MATERIAL FOR TYPE "WF" CASTING AND 8" DIA. CONNECTION PIPE, EXCLUDING GRATE HOLD DOWN SCREWS, SHALL BE GRAY IRON CONFORMING TO ASTM A48, CLASS 30.

MATERIAL FOR BRACKETS SHALL CONFORM TO ASTM A36.

THE CONTRACTOR MAY PROPOSE AN ALTERNATE TYPE OF BRACKET. THE PROPOSED ALTERNATE DETAILS SHALL BE SUBMITTED AND SUBJECT TO THE APPROVAL OF THE ENGINEER.

8" DIA. DOWNSPOUTS SHALL BE REINFORCED THERMOSETTING RESIN PIPE CONFORMING TO SECTION 514 OF THE STANDARD SPECIFICATIONS.

TRANSVERSE & LONGITUDINAL SLAB BAR REINFORCEMENT TO BE CUT A MAXIMUM OF 1" CLEAR FROM DRAIN FRAME. DISPLACE BARS WHERE POSSIBLE.



\$PRNAME\$ U:\42-0974,00 - Douglas Co, CTH B+BRIDGE+420974 WF drain.dgn

8

8

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-16-141			
DRAWN BY		CLS	PLANS CK'D.
FLOOR DRAIN TYPE WF			SHEET 19 OF 19

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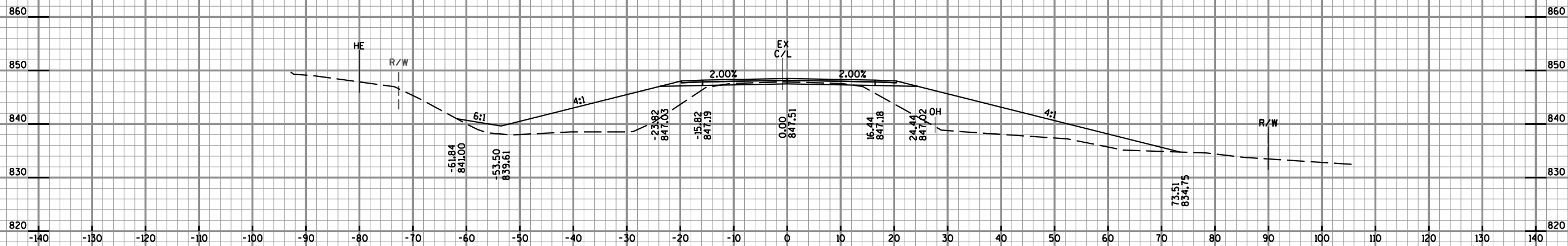
EARTHWORK SUMMARY (CATEGORY 0010)

DIVISION	STATION	<u>AREA</u>			<u>INCREMENTAL VOLUME</u>			<u>CUMULATIVE VOLUME</u>		
		CUT SF	SALVAGED/ UNUSEABLE PAVEMENT MATERIAL SF	FILL SF	CUT (1) CY	SALVAGED/ UNUSEABLE PAVEMENT MATERIAL (2) CY	FILL (3) CY	CUT (1) 1.00 CY	EXPANDED FILL (4) 1.30 CY	MASS ORDINATE ±(5) CY
1 CTH B	8+00	48	0	0						
	8+50	7	0	392	51	0	363	51	472	-421
	8+55	5	0	466	1	0	79	52	575	-523
	8+61	2	0	534	1	0	111	53	719	-666
	8+80	0	0	676	1	0	426	54	1,273	-1,219
	8+86	0	0	623	0	0	144	54	1,460	-1,406
	9+00	0	0	516	0	0	295	54	1,843	-1,789
	9+05	0	0	480	0	0	92	54	1,963	-1,909
	9+11	0	0	479	0	0	107	54	2,102	-2,048
	9+48	0	0	479	0	0	651	54	2,948	-2,894
	STRUCTURE B-16-141									
	10+42	0	0	349	0	0	100	0	130	-130
	10+50	0	0	349	0	0	474	0	746	-746
	10+79	0	0	534	0	0	118	0	900	-900
	10+85	0	0	525	0	0	316	0	1,310	-1,310
	11+00	0	0	611	0	0	90	0	1,427	-1,427
	11+04	0	0	602	0	0	129	0	1,595	-1,595
	11+10	0	0	559	0	0	318	0	2,009	-2,009
	11+29	0	0	344	0	0	70	0	2,100	-2,100
	11+35	0	0	289	0	0	125	0	2,262	-2,262
	11+50	0	0	161	19	0	167	19	2,479	-2,460
	12+00	21	0	20	57	0	18	76	2,503	-2,427
	12+50	41	0	0						
TOTALS					130	0	4,193			-5,321
		205.0100 EXCAVATION COMMON =			SAY 130	208.0100 BORROW =			SAY 5,321	

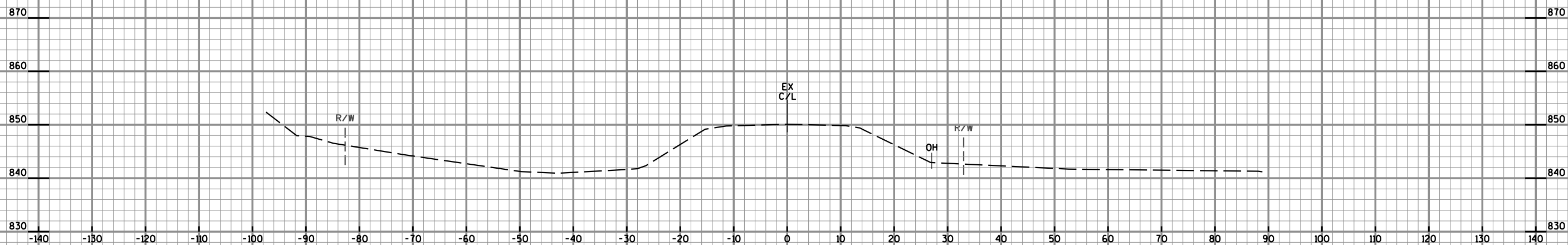
NOTES:

- 1) EXCAVATION COMMON IS THE SUM OF THE CUT COLUMN. ITEM NUMBER 205.0100
- 2) SALVAGED/UNUSEABLE PAVEMENT MATERIAL IS INCLUDED IN CUT.
- 3) DOES NOT INCLUDE UNUSABLE PAVEMENT EXCAVATION VOLUME.
- 4) EXPANDED FILL FACTOR = 1.30 EXPANDED FILL = UNEXPANDED FILL * FILL FACTOR
- 5) THE MASS ORDINATE ± QTY CALCULATED FOR THE DIVISION.

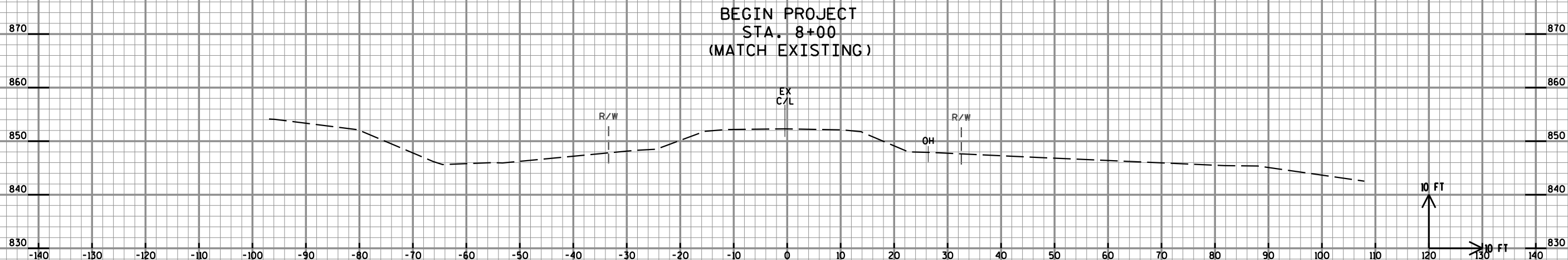
PLUS (+) QUANTITY INDICATES AN EXCESS OF MATERIAL WITHIN THE DIVISION.
 MINUS (-) QUANTITY INDICATES A SHORTAGE OF MATERIAL WITHIN THE DIVISION.



8+50



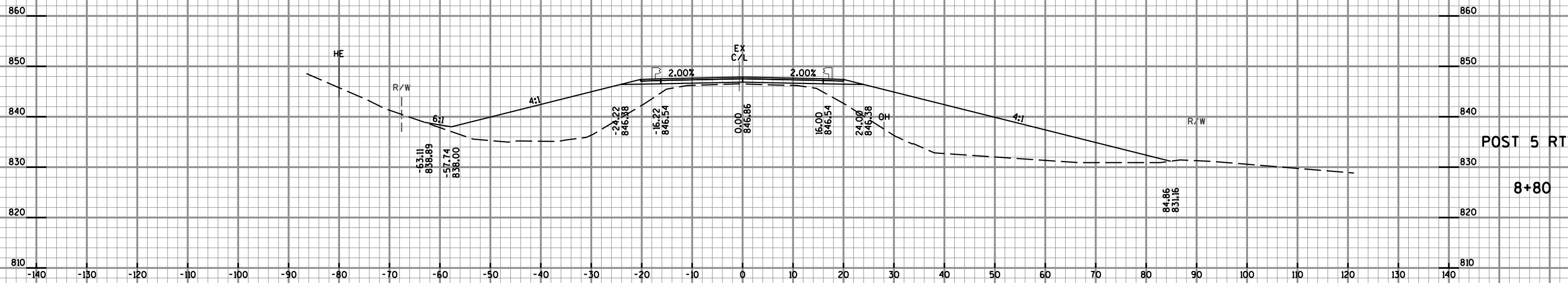
8+00



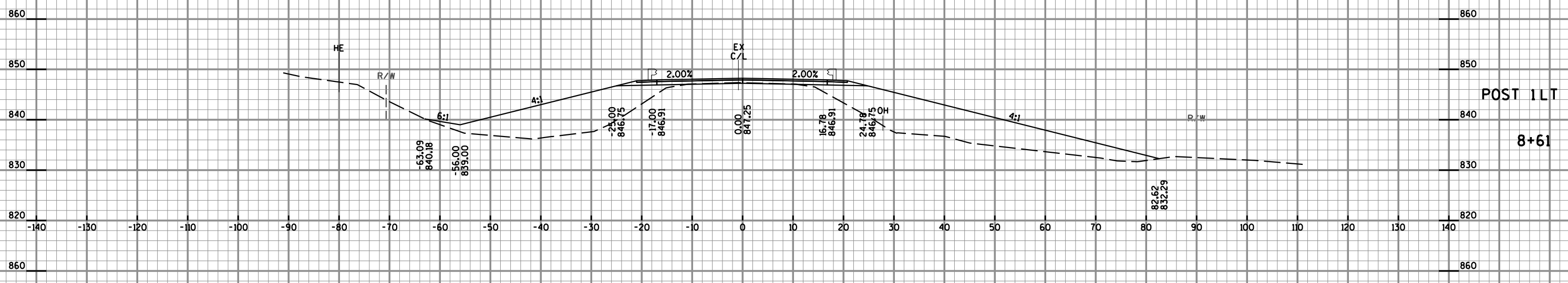
7+50

9

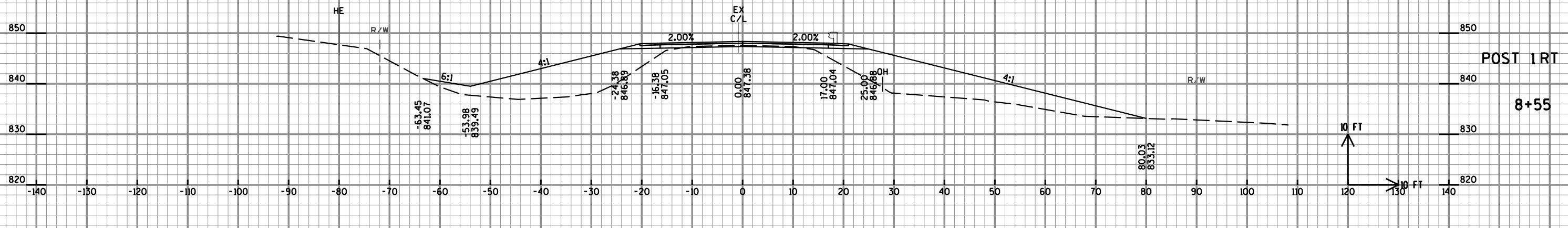
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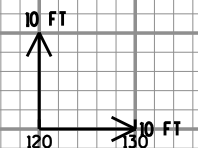
POST 5 RT
8+80



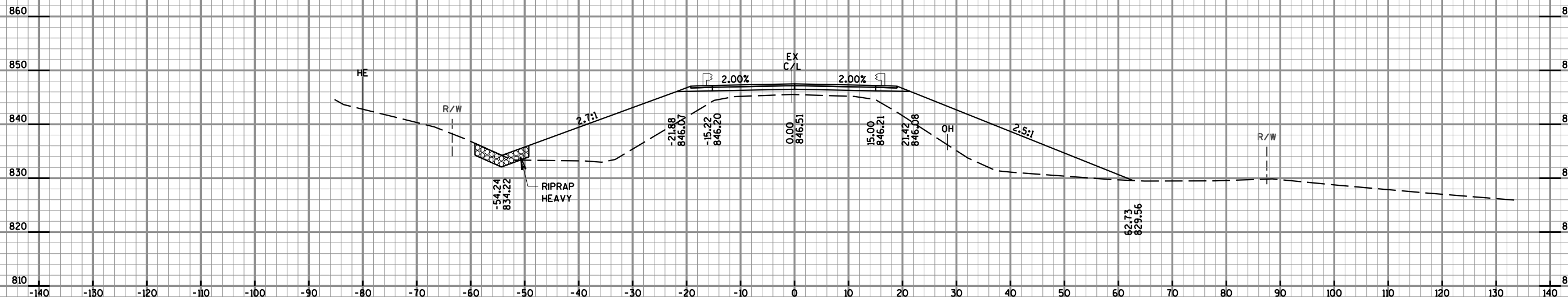
POST 1 LT
8+61



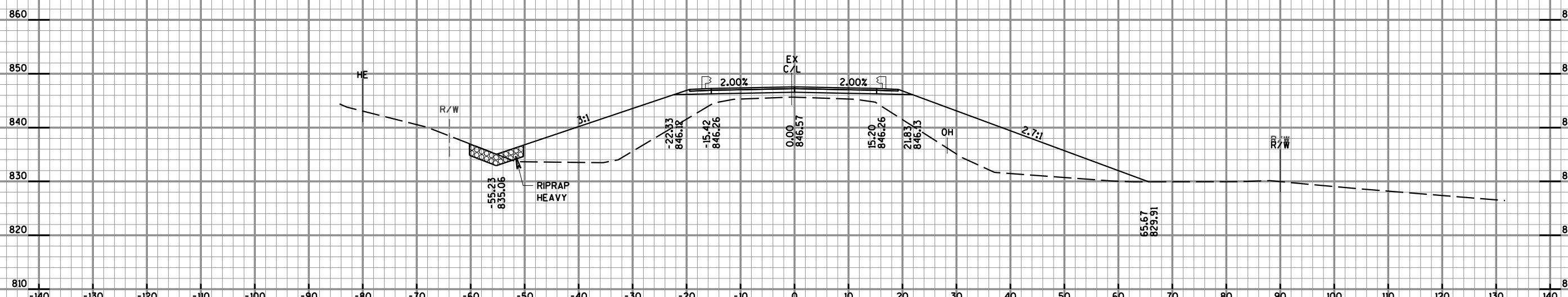
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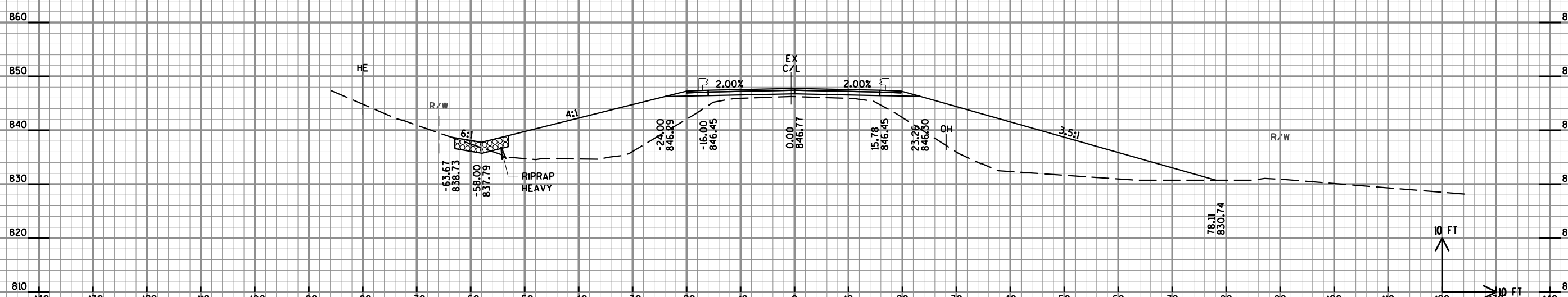
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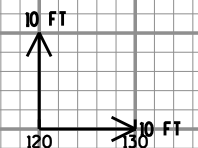
POST 9 RT
9+05



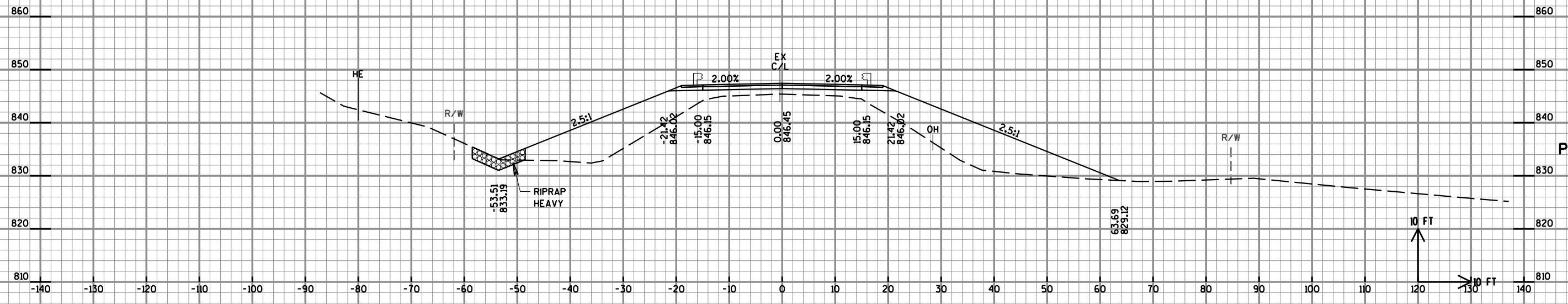
9+00



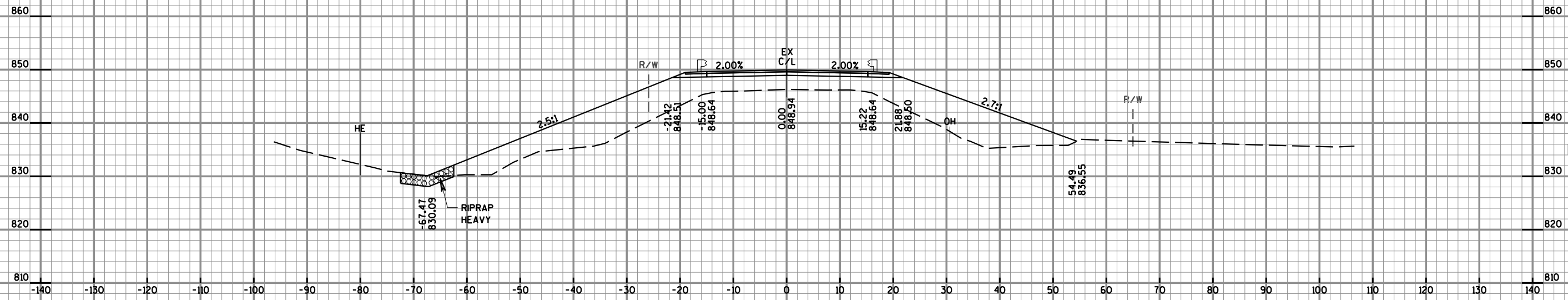
POST 5 LT
8+86



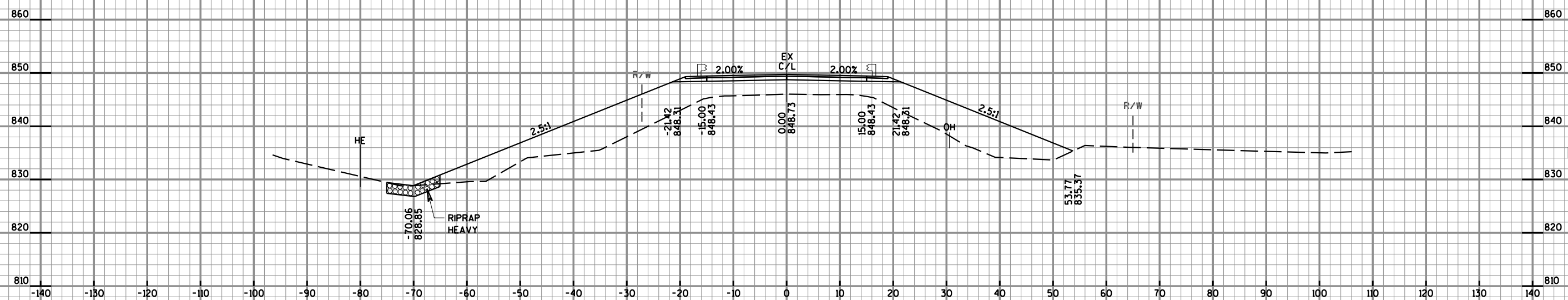
STRUCTURE B-16-141



POST 9 LT
9+11

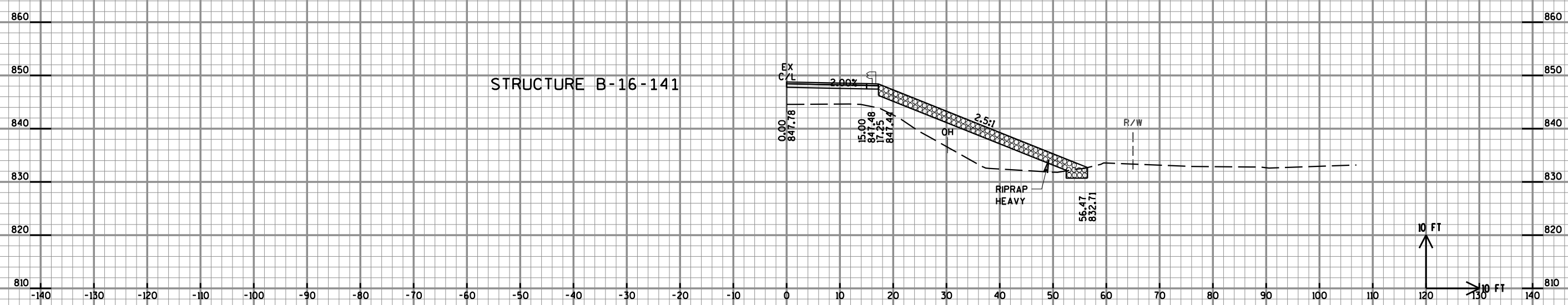


POST 9 LT
10+85

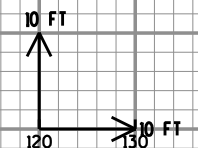


POST 9 RT
10+79

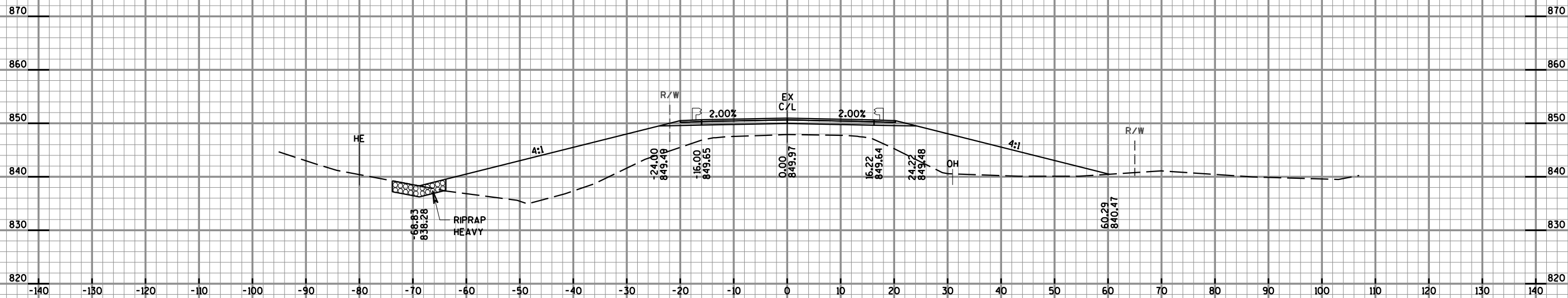
STRUCTURE B-16-141



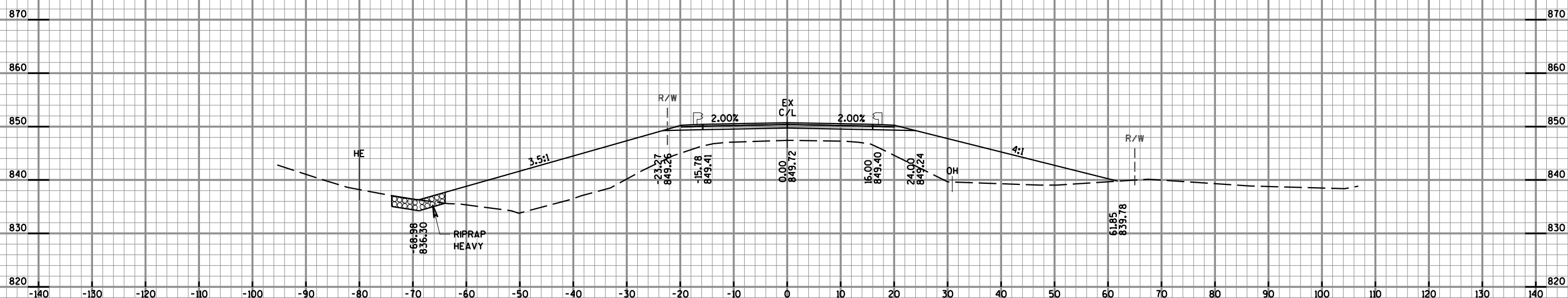
10+50



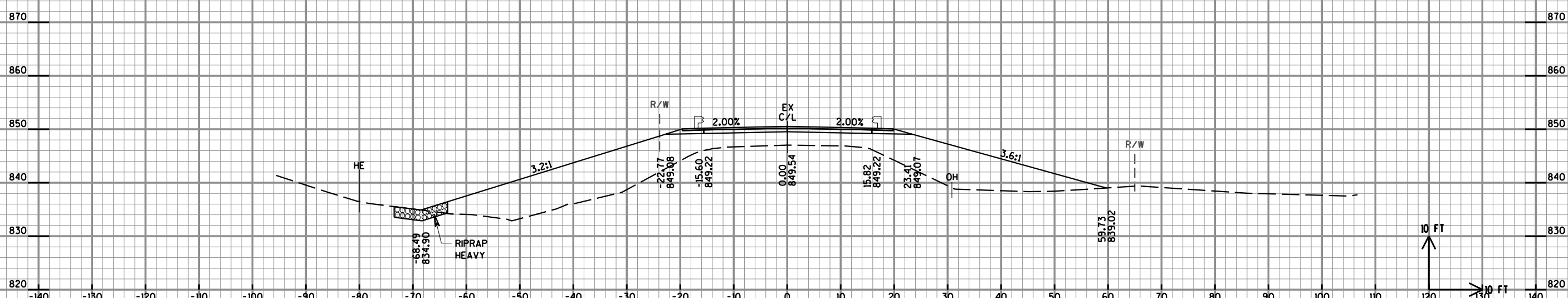
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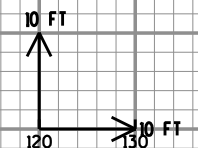
POST 5 LT
11+10



POST 5 RT
11+04

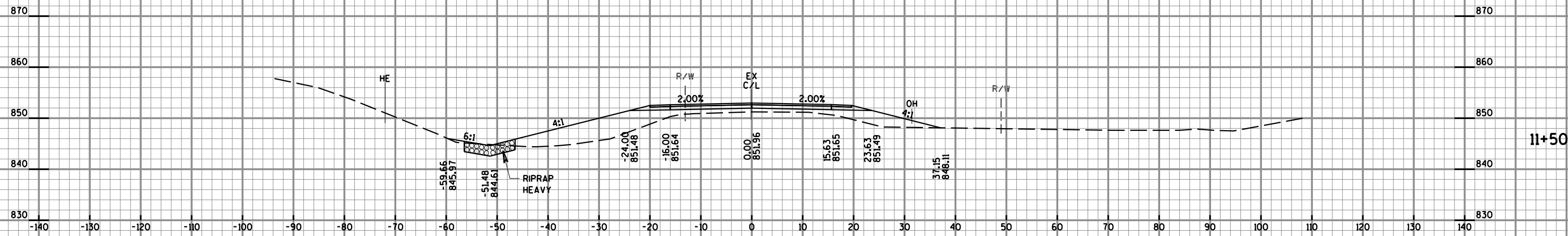


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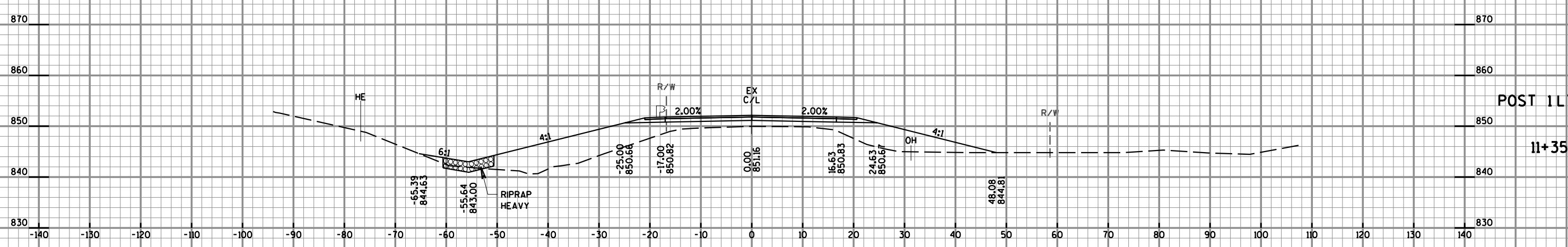


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9

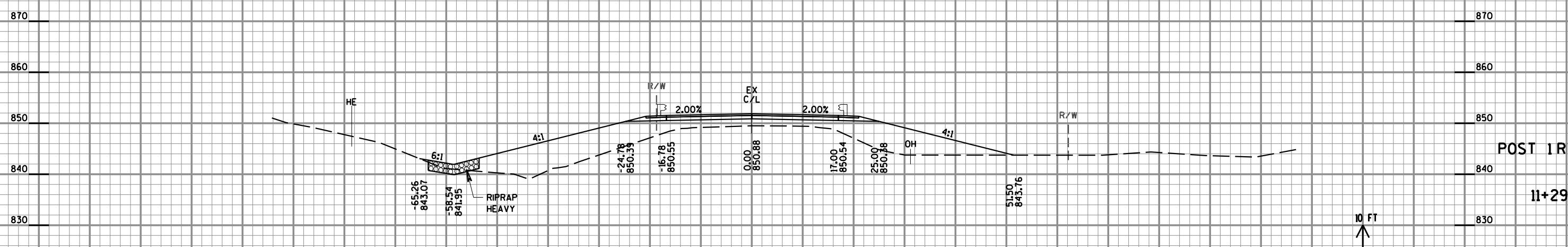


11+50



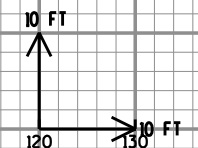
POST 1 LT

11+35



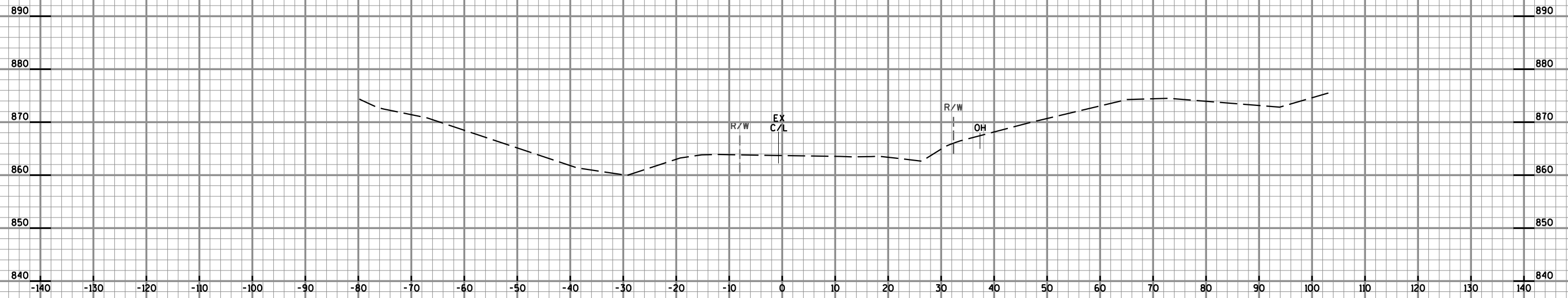
POST 1 RT

11+29

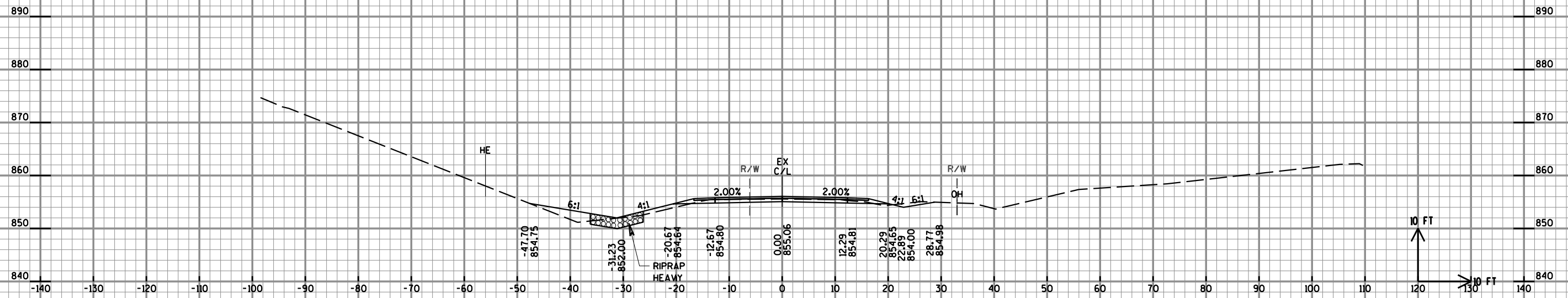
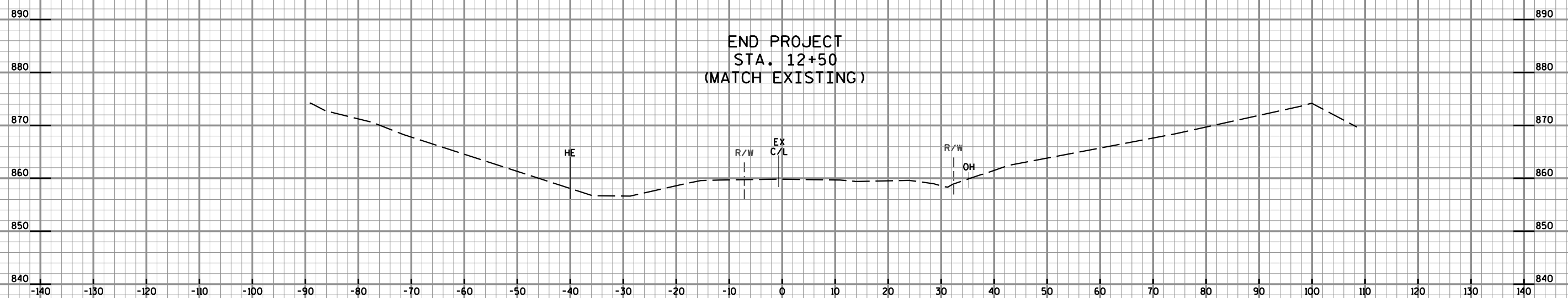


9

9



END PROJECT
STA. 12+50
(MATCH EXISTING)





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