NCL JAN 2015

PROJECT ID: 9391-07-70

WITH: N/A

COUNTY: LANGLADE

ORDER OF SHEETS

TOTAL SHEETS = 58

STATE OF WISCONSIN

DEPARTMENT OF TRANSPORTATION

PLAN OF PROPOSED IMPROVEMENT

MARATHON COUNTY LINE - CTH HH

EAU CLAIRE RIVER BRIDGE B-34-0051

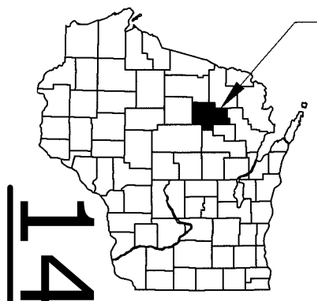
CTH Y

LANGLADE COUNTY

STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
9391-07-70	WISC 2015011	1

STATE PROJECT NUMBER
9391-07-70

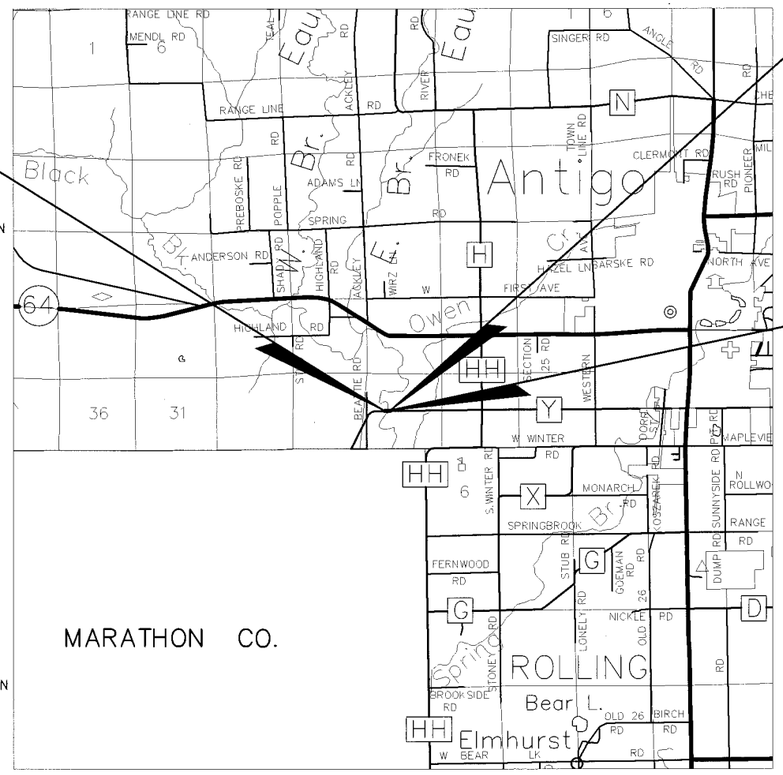
PROJECT LOCATION



BEGIN PROJECT 9391-07-70
STA 14+00.00
N = 335,079.23
E = 598,973.00

END PROJECT 9391-07-70
STA 17+50.00
N = 335,077.07
E = 599,322.99

STRUCTURE B-34-0051
STA 15+73.00



LAYOUT
SCALE 0 1 MI

TOTAL NET LENGTH OF CENTERLINE = .066 MI

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

DESIGN DESIGNATION

A.A.D.T.	(2015)	= 460
A.A.D.T.	(2035)	= 640
D.H.V.		= N/A
D.D.		= 60/40
T.		= 3.4 %
DESIGN SPEED		= 55 MPH
ESALS		= 21,900

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 (CAUTION)
- MARSH AREA
- WOODED OR SHRUB AREA

HIGH VOLTAGE (CAUTION)

PROFILE
- GRADE LINE
- ORIGINAL GROUND
- MARSH OR ROCK PROFILE (To be noted as such) (ROCK)
- SPECIAL DITCH (LABEL)
- GRADE ELEVATION (955.36)
- CULVERT (Profile View)

UTILITIES
- ELECTRIC (E)
- FIBER OPTIC (FO)
- GAS (G)
- SANITARY SEWER (SAN)
- STORM SEWER (SS)
- TELEPHONE (T)
- WATER (W)
- UTILITY PEDESTAL
- POWER POLE
- TELEPHONE POLE

ACCEPTED FOR

COUNTY of LANGLADE

07/17/2014 (Date) (SIGNATURE COMMISSIONER)

ORIGINAL PLANS PREPARED BY

Mead & Hunt

Mead & Hunt, Inc.
1345B North Road
Green Bay, WI 54313
phone: 920-496-0500
meadhunt.com

WISCONSIN ANGELA B. KERRIGAN NO. 39383-006 De Pere, WI PROFESSIONAL ENGINEER

7/15/14

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PREPARED BY

Surveyor	MEAD & HUNT
Designer	MEAD & HUNT
Management Consultant	CEDAR CORPORATION

APPROVED FOR THE DEPARTMENT

DATE: 7-31-14 (Management Consultant Signature)

E

GENERAL NOTES

ELEVATIONS SHOWN ON THE PLAN ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88).

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

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

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

THE EXACT LOCATION OF THE EROSION CONTROL DEVICES SHALL BE DETERMINED IN THE FIELD.

BEARINGS SHOWN ON THE PLANS ARE GRID BEARINGS TO THE NEAREST SECOND.

A VERTICAL SAWCUT SHALL BE MADE THROUGH EXISTING DRIVEWAYS AND PAVEMENTS AT REMOVAL LIMITS.

4 IN ASPHALTIC SURFACE/HMA PAVEMENT SHALL BE CONSTRUCTED WITH A 1.75 **IN** UPPER LAYER AND A **2.25 IN** LOWER LAYER.

SILT FENCE IS TO BE PLACED AS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER, AND IN PLACE PRIOR TO BRIDGE REMOVAL.

EXISTING PIPE CULVERT SIZES SHOWN ARE APPROXIMATE AND THE CONTRACTOR SHALL BASE ITS BID ON ACTUAL FIELD CONDITIONS.

SHRINKAGE IS ESTIMATED AT 30%.

CONSULTANT CONTACT
MEAD & HUNT, INC.
1345B NORTH ROAD
GREEN BAY, WI 54313
ATTN: ANGIE KERRIGAN, P.E.
TELEPHONE: 920-593-6840
E-MAIL: ANGIE.KERRIGAN@MEADHUNT.COM

DNR LIAISON
DEPARTMENT OF NATURAL RESOURCES
107 SUTLIFF
RHINELANDER, WI 54501
ATTN: JON SIMONSEN
TELEPHONE: 715-365-8916
E-MAIL: JONATHAN.SIMONSEN@WISCONSIN.GOV

LANGLADE COUNTY
LANGLADE COUNTY HIGHWAY DEPARTMENT
1521 ARTIC STREET
ANTIGO, WI 54409
ATTN: TIM RUSCH, HIGHWAY COMMISIONER
TELEPHONE: 715-627-6272
EMAIL: TRUSCH@CO.LANGLADE.WI.US

UTILITY CONTACTS

CITY GAS COMPANY
809 5TH AVENUE
ANTIGO, WI 54409
ATTN: JACK ZIMMERMAN
TELEPHONE: 715-627-4351 (OFFICE)
715-216-3572 (CELL)
EMAIL: JZIMMERMAN@CITYGASANTIGO.COM

FRONTIER COMMUNICATIONS OF WISCONSIN
1851 N. 14TH AVENUE
WAUSAU, WI 54401
ATTN: CALVIN KLADE
TELEPHONE: 715-847-1525
EMAIL: CALVIN.KLADE@FTR.COM

WISCONSIN PUBLIC SERVICE CORP
P.O. BOX 1166
WAUSAU, WI 54307-9001
ATTN: DON LUTZOW
TELEPHONE: 715-848-8487 (OFFICE)
715-493-7802 (CELL)
EMAIL: DALUTZOW@WISCONSINPUBLICSERVICE.COM

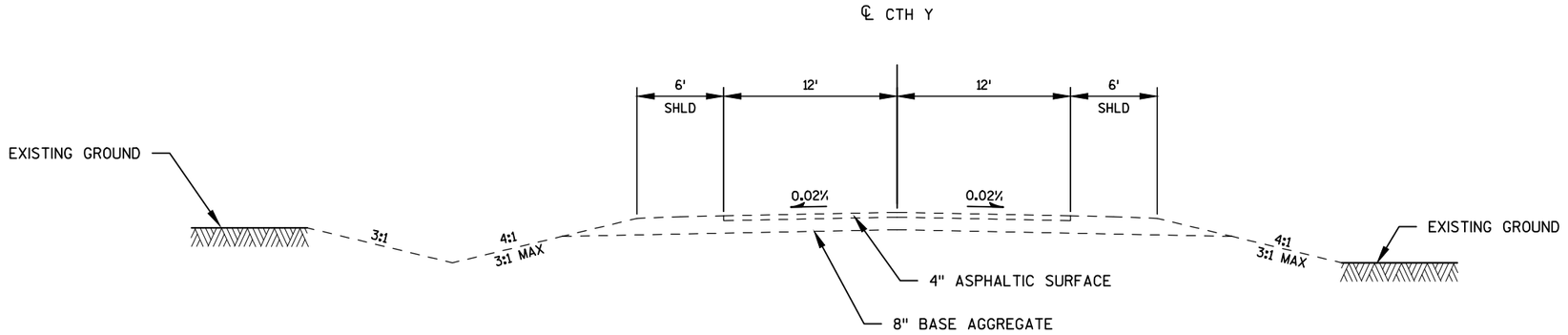
STANDARD ABBREVIATIONS

ADT	AVERAGE DAILY TRAFFIC
ASPH	ASPHALTIC
BM	BENCH MARK
℄	CENTERLINE
CWT	HUNDREDWEIGHT
CY	CUBIC YARD
DHV	DESIGN HOURLY VOLUME
DWY	DRIVEWAY
EL	ELEVATION
EXC	EXCAVATION
FT	FOOT
FTG	FOOTING
LB	POUND
LF	LINEAR FOOT
LHF	LEFT-HAND FORWARD
LS	LUMP SUM
LT	LEFT
NO	NUMBER
PI	POINT OF INTERSECTION
PL	PROPERTY LINE
RHF	RIGHT-HAND FORWARD
RT	RIGHT
R/W	RIGHT-OF-WAY
SF	SQUARE FOOT
SHLDR	SHOULDER
STA	STATION
SY	SQUARE YARD
T	TRUCKS (PERCENT OF)
TLE	TEMPORARY LIMITED EASEMENT
TYP	TYPICAL
VAR	VARIABLE
VC	VERTICAL CURVE
VPC	VERTICAL POINT OF CURVE
VPI	VERTICAL POINT OF INTERSECTION
VPT	VERTICAL POINT OF TANGENCY

RUNOFF COEFFICIENT TABLE

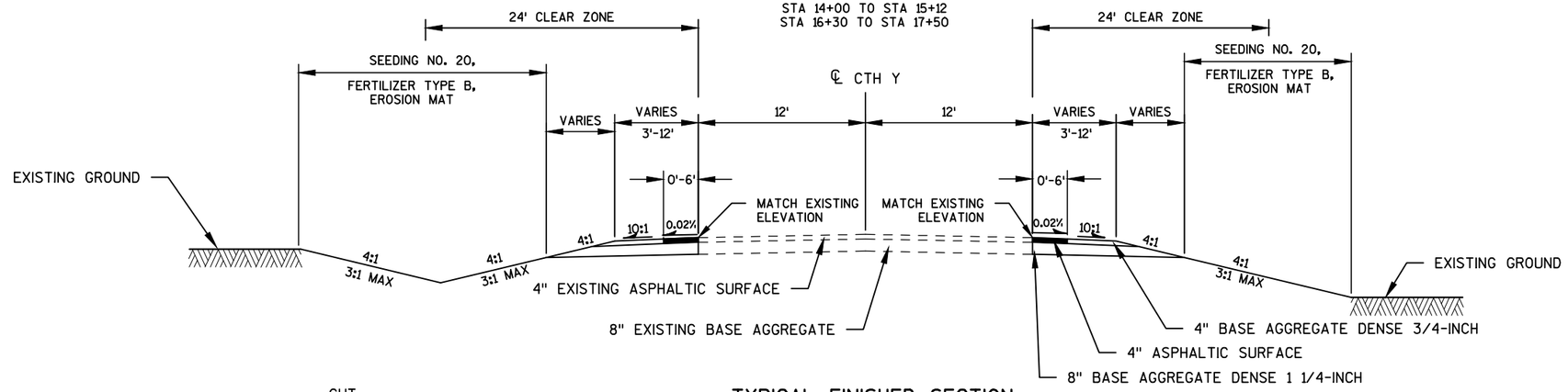
	HYDROLOGIC SOIL GROUP											
	A			B			C			D		
	SLOPE RANGE (PERCENT)			SLOPE RANGE (PERCENT)			SLOPE RANGE (PERCENT)			SLOPE RANGE (PERCENT)		
LAND USE:	0-2	2-6	6 & OVER	0-2	2-6	6 & OVER	0-2	2-6	6 & OVER	0-2	2-6	6 & OVER
ROW CROPS	.08 .22	.16 .30	.22 .38	.12 .26	.20 .34	.27 .44	.15 .30	.24 .37	.33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

TOTAL PROJECT AREA = 1.43 ACRES
TOTAL AREA EXPECTED TO BE DISTURBED BY CONSTRUCTION ACTIVITIES = 0.94 ACRES



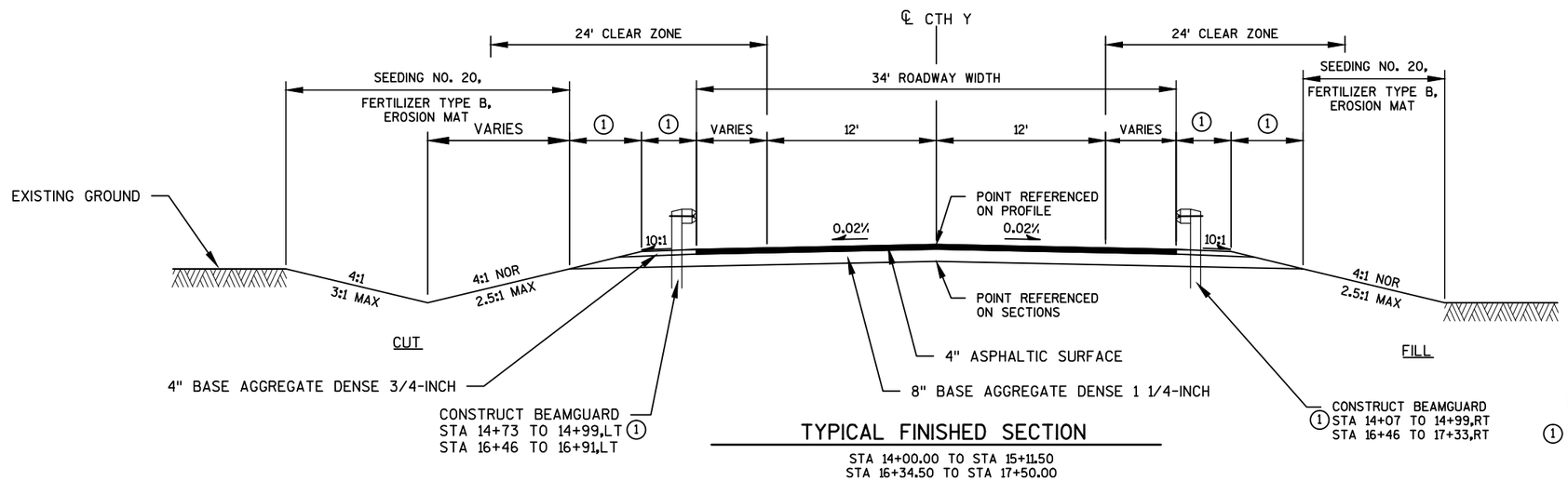
TYPICAL EXISTING SECTION

STA 14+00 TO STA 15+12
STA 16+30 TO STA 17+50



TYPICAL FINISHED SECTION

STA 13+17.13 TO STA 14+00.00
STA 17+50.00 TO STA 18+35.39



TYPICAL FINISHED SECTION

STA 14+00.00 TO STA 15+11.50
STA 16+34.50 TO STA 17+50.00

NOTES

(1) CONSTRUCT BEAMGUARD ACCORDING TO TYPE SPECIFIC STANDARD DETAILS

PROJECT NO: 9391-07-70	HWY: CTH Y	COUNTY: LANGLADE	PLAN: TYPICAL SECTIONS	SHEET 3	E

FILE NAME : X:\1210000\122116.01\TECH\DSGN\CIVIL\CIVIL3D\93910700\SHEETSPLAN\93910770_020301_TS.DWG
PLOT DATE : 11/7/2014 1:33 PM PLOT BY : ANGIE KERRIGAN PLOT NAME : PLOT SCALE : 1 IN:10 FT
WISDOT/CADDS SHEET 42

2

2

LEGEND

EROSION MAT URBAN CLASS I, TYPE B

RIP RAP

SILT FENCE

TURBIDITY BARRIER

TEMPORARY DITCH CHECK

SURFACE WATER FLOW

N

WETLAND BOUNDARY

EAU CLAIRE RIVER

TLE

TLE

R/W

48 LF - CPCS 12-INCH
2 - CPS AEW 12-INCH

SLOPE INTERCEPT
(TYP)

BM2

OH

G

13+00

14+00

15+00

16+00

17+00

18+00

CTH Y

BEGIN CONSTRUCTION
STA 13+17.13

BEGIN PROJECT
STA 14+00.00

WETLAND BOUNDARY

GEOTEXTILE FABRIC TYPE 'HR'
UNDER HEAVY RIPRAP
(SEE STRUCTURE PLANS)

R/W

SLOPE INTERCEPT
(TYP)

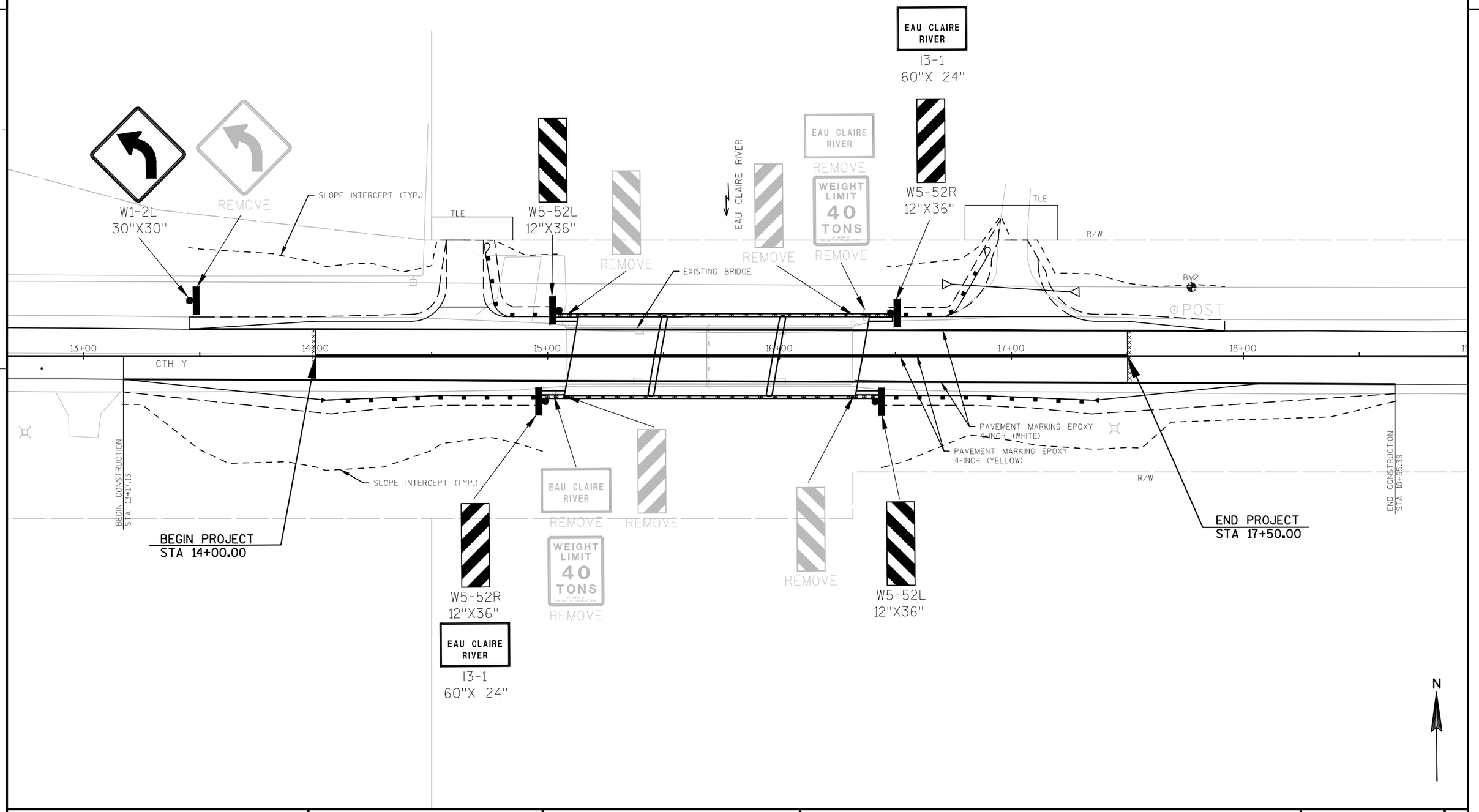
END PROJECT
STA 17+50.00

END CONSTRUCTION
STA 18+65.39

PROJECT NO: 9391-07-70	HWY: CTH Y	COUNTY: LANGLADE	EROSION CONTROL PLAN	SHEET 4	E

FILE NAME : X:\1210000\122116.01\TECH\DSGN\CIVIL\CIVIL3D\93910700\SHEETSPLAN\93910770_022001_EC.DWG PLOT DATE : 7/30/2014 6:52 AM PLOT BY : ANDREA BONELL PLOT NAME : PLOT SCALE : 1:40_XREF

2



PROJECT NO: 9391-07-70	HWY: CTH Y	COUNTY: LANGLADE	PAVEMENT MARKING AND SIGNING PLAN	SHEET 5	E

DATE 11NOV14 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	9391-07-70 QUANTITY
0010	201.0105	CLEARING	STA	2.000	2.000
0020	201.0205	GRUBBING	STA	2.000	2.000
0030	203.0700.S	REMOVING OLD STRUCTURE OVER WATERWAY WITH DEBRIS CAPTURE SYSTEM (STATION) 01. STATION 15+50	LS	1.000	1.000
0040	205.0100	EXCAVATION COMMON	CY	513.000	513.000
0050	206.1000	EXCAVATION FOR STRUCTURES BRIDGES (STRUCTURE) 01. B-34-0051	LS	1.000	1.000
0060	206.5000	COFFERDAMS (STRUCTURE) 01. B-34-0051	LS	1.000	1.000
0070	210.0100	BACKFILL STRUCTURE	CY	160.000	160.000
0080	213.0100	FINISHING ROADWAY (PROJECT) 01. 9193-07-70	EACH	1.000	1.000
0090	305.0110	BASE AGGREGATE DENSE 3/4-INCH	TON	187.000	187.000
0100	305.0120	BASE AGGREGATE DENSE 1 1/4-INCH	TON	653.000	653.000
0110	455.0605	TACK COAT	GAL	24.000	24.000
0120	465.0105	ASPHALTIC SURFACE	TON	228.000	228.000
0130	502.0100	CONCRETE MASONRY BRIDGES	CY	455.000	455.000
0140	502.3200	PROTECTIVE SURFACE TREATMENT	SY	604.000	604.000
0150	505.0405	BAR STEEL REINFORCEMENT HS BRIDGES	LB	8,900.000	8,900.000
0160	505.0605	BAR STEEL REINFORCEMENT HS COATED BRIDGES	LB	71,860.000	71,860.000
0170	513.4060	RAILING TUBULAR TYPE M (STRUCTURE) 01. B-34-0051	LS	1.000	1.000
0180	516.0500	RUBBERIZED MEMBRANE WATERPROOFING	SY	20.000	20.000
0190	521.0112	CULVERT PIPE CORRUGATED STEEL 12-INCH	LF	48.000	48.000
0200	521.1012	APRON ENDWALLS FOR CULVERT PIPE STEEL 12-INCH	EACH	2.000	2.000
0210	550.0500	PILE POINTS	EACH	28.000	28.000
0220	550.1100	PILING STEEL HP 10-INCH X 42 LB	LF	1,885.000	1,885.000
0230	606.0300	RIPRAP HEAVY	CY	360.000	360.000
0240	612.0406	PIPE UNDERDRAIN WRAPPED 6-INCH	LF	142.000	142.000
0250	614.0200	STEEL THRIE BEAM STRUCTURE APPROACH	LF	42.000	42.000
0260	614.0345	STEEL PLATE BEAM GUARD SHORT RADIUS	LF	50.000	50.000
0270	614.0390	STEEL PLATE BEAM GUARD SHORT RADIUS TERMINAL	EACH	2.000	2.000
0280	614.2500	MGS THRIE BEAM TRANSITION	LF	80.000	80.000
0290	614.2610	MGS GUARDRAIL TERMINAL EAT	EACH	2.000	2.000
0300	619.1000	MOBILIZATION	EACH	1.000	1.000
0310	624.0100	WATER	MGAL	12.000	12.000
0320	625.0500	SALVAGED TOPSOIL **P**	SY	1,282.000	1,282.000
0330	628.1504	SILT FENCE	LF	380.000	380.000
0340	628.1520	SILT FENCE MAINTENANCE	LF	760.000	760.000
0350	628.1905	MOBILIZATIONS EROSION CONTROL	EACH	5.000	5.000
0360	628.1910	MOBILIZATIONS EMERGENCY EROSION CONTROL	EACH	3.000	3.000
0370	628.2008	EROSION MAT URBAN CLASS I TYPE B	SY	1,282.000	1,282.000
0380	628.6005	TURBIDITY BARRIERS	SY	299.000	299.000
0390	628.7504	TEMPORARY DITCH CHECKS	LF	16.000	16.000
0400	629.0210	FERTILIZER TYPE B	CWT	1.000	1.000
0410	630.0120	SEEDING MIXTURE NO. 20 **P**	LB	35.000	35.000
0420	630.0200	SEEDING TEMPORARY **P**	LB	35.000	35.000
0430	634.0616	POSTS WOOD 4X6-INCH X 16-FT	EACH	5.000	5.000
0440	637.2210	SIGNS TYPE II REFLECTIVE H	SF	20.000	20.000
0450	637.2230	SIGNS TYPE II REFLECTIVE F	SF	18.250	18.250
0460	638.2602	REMOVING SIGNS TYPE II	EACH	5.000	5.000
0470	638.3000	REMOVING SMALL SIGN SUPPORTS	EACH	5.000	5.000

3

DATE 11NOV14 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	9391-07-70 QUANTITY
0480	642.5001	FIELD OFFICE TYPE B	EACH	1.000	1.000
0490	645.0120	GEOTEXTILE FABRIC TYPE HR	SY	660.000	660.000
0500	646.0106	PAVEMENT MARKING EPOXY 4-INCH	LF	1,694.000	1,694.000
0510	650.4500	CONSTRUCTION STAKING SUBGRADE	LF	448.000	448.000
0520	650.5000	CONSTRUCTION STAKING BASE	LF	448.000	448.000
0530	650.6500	CONSTRUCTION STAKING STRUCTURE LAYOUT (STRUCTURE) 01. B-34-0051	LS	1.000	1.000
0540	650.9910	CONSTRUCTION STAKING SUPPLEMENTAL CONTROL (PROJECT) 01. 9391-07-70	LS	1.000	1.000
0550	650.9920	CONSTRUCTION STAKING SLOPE STAKES	LF	448.000	448.000
0560	690.0150	SAWING ASPHALT	LF	350.000	350.000
0570	715.0502	INCENTIVE STRENGTH CONCRETE STRUCTURES	DOL	3,300.000	3,300.000
0580	999.1000.S	SEISMOGRAPH	LS	1.000	1.000
0590	999.1500.S	CRACK AND DAMAGE SURVEY	LS	1.000	1.000
0600	ASP.1T0A	ON-THE-JOB TRAINING APPRENTICE AT $5.00/HR	HRS	600.000	600.000
0610	ASP.1T0G	ON-THE-JOB TRAINING GRADUATE AT $5.00/HR	HRS	300.000	300.000

CLEARING AND GRUBBING SUMMARY

STATION - STATION			OFFSET	201.0105 CLEARING STA	201.0205 GRUBBING STA
14+00	-	16+00	RT	2	2
TOTAL				**2**	**2**

FINISHING ROADWAY (9391-07-70)

STATION - STATION	213.0100 FINISHING ROADWAY EACH
9391-07-70	1
TOTAL	**1**

BASE AGGREGATE DENSE FOR ROADWAY

STATION - STATION			LOCATION	305.0110 BASE AGGREGATE DENSE 3/4-INCH TON	305.0120 BASE AGGREGATE DENSE 1 1/4-INCH TON	624.0100 WATER MGAL
13+17.13	-	15+10.23	CTHY	50	320	5
14+53.00			CTHY LT	29	--	0.5
16+75.00			CTHY LT	34	--	0.5
16+35.77	-	183+65.39	CTHY	74	333	6
TOTAL				**187**	**653**	**12**

Division	From/To Station	Common Excavation (1) (Item #205.0100)		Available Material (3)	Unexpanded Fill	Expanded Fill (4)	Mass Ordinate +/- (5)	Waste
		Cut	**EBS Excavation (2)**			**1.3**		
CTHY WEST OF BRIDGE	13+17.13 - 15+10.23	211	0	211	129	167	43	
CTHY EAST OF BRIDGE	16+35.77 - 18+65.39	293	0	293	35	46	247	
CTHY	UNDISTRIBUTED	0	10	0	10	13	-13	
GRAND TOTAL		**503**	**10**	**503**	**174**	**226**	**277**	**277**
		Total Common Exc	**513**					

1) Common Excavation is the sum of the Cut and EBS Excavation columns. Item number 205.0100

2) EBS Excavation to be backfilled with Borrow or Cut.

3) Available Material = Cut

4) Expanded Fill. Factor = 1.30

5) The Mass Ordinate + or - Qty calculated for the Division. Plus quantity indicates an excess of material within the Division. Minus indicates a shortage of material within the Division.

3

ASPHALT PAVEMENT SUMMARY

STATION - STATION			455.0605 TACK COAT GAL	465.0105 ASPHALTIC SURFACE TON
13+17.13	-	15+10.23	12	117
16+35.77	-	183+65.39	12	111
TOTAL			**24**	**228**

CULVERT PIPE

STATION	OFFSET	521.0112 CULVERT PIPE CORRUGATED STEEL 12-INCH LF	521.1012 APRON ENDWALLS FOR CULVERT PIPE STEEL 12-INCH EACH
17+00	LT	48	2
TOTAL		**48**	**2**

MOBILIZATION

STATION - STATION	619.1000 MOBILIZATION EACH
PROJECT	1
TOTAL	**1**

3

SILT FENCE

STATION - STATION			OFFSET	628.1504 SILT FENCE LF	628.1520 SILT FENCE MAINTENANCE LF
13+17.13	-	15+22.00	RT	209	418
13+46.00	-	14+53.00	LT	108	217
14+75.00	-	15+37.00	LT	63	125
TOTAL				**380**	**760**

BEAM GUARD AND TERMINALS

STATION - STATION			OFFSET	614.2500 MGS THRIE BEAM TRANSITION LF	614.2610 MGS GUARDRAIL TERMINAL EAT EA	614.0200 STEEL THRIE BEAM STRUCTURE APPROACH LF	614.0345 STEEL PLATE BEAM GUARD SHORT RADIUS LF	614.0390 STEEL PLATE BEAM GUARD SHORT RADIUS TERMINAL EA
14+60.00	-	15+02.00	RT	40	1	--	--	--
14+93.00	-	15+02.00	LT	--	--	21	25	1
16+43.00	-	17+36.00	RT	40	1	--	--	--
16+43.00	-	16+91.00	LT	--	--	21	25	1
TOTAL				**80**	**2**	**42**	**50**	**2**

TURBIDITY BARRIERS

STATION	LOCATION	628.6005 TURBIDITY BARRIER SY
15+10.25	CTH Y	133
16+35.77	CTH Y	166
TOTAL		**299**

TEMPORARY DITCH CHECKS

STATION	OFFSET	628.7504 TEMPORARY DITCH CHECKS LF
16+53.00	RT	8
16+56.00	LT	8
TOTAL		**16**

EROSION CONTROL MOBILIZATION

STATION - STATION	628.1905 EROSION CONTROL MOBILIZATION EA	628.1910 EMERGENCY EROSION CONTROL MOBILIZATION EA
PROJECT	5	3
TOTAL	**5**	**3**

3

FINISHING ITEMS

STATION - STATION			OFFSET	625.0500 SALVAGED TOPSOIL **P** SY	628.2008 EROSION MAT URBAN CLASS I TYPE B SY	629.0210 FERTILIZER TYPE B CWT	630.0120 SEEDING MIXTURE NO. 20 **P** LB	630.0200 SEEDING TEMPORARY **P** LB
13+17.13	-	15+10.23	RT	352	352	0.2	9.5	9.5
13+17.13	-	15+10.23	LT	291	291	0.2	8.0	8.0
16+35.77	-	18+65.39	RT	240	240	0.2	6.5	6.5
16+35.77	-	18+65.39	LT	143	143	0.1	4.0	4.0
UNDISTRIBUTED			--	256	256	0.2	7.0	7.0
TOTAL				**1282**	**1282**	**1**	**35**	**35**

SIGNING SUMMARY

STATION	OFFSET	638.2602 REMOVING SIGNS TYPE II EA	638.3000 REMOVING SMALL SIGN SUPPORTS EA	634.0416 POSTS WOOD 4X6-INCH X 16-FT EA	637.2210 SIGNS TYPE II REFLECTIVE H SF	637.2230 SIGNS TYPE II REFLECTIVE F SF	COMMENT
13+46.00	LT	1	1	1	--	6.25	W1-2L 30"X30"
14+98.95	RT	1	1	1	--	3.00	W5-52R 12"X36"
					10.00	--	I3-1 60"X24"
15+05.00	LT	1	1	1	--	3.00	W5-52L 12"X36"
16+41.00	RT	1	1	1	--	3.00	W5-52L 12"X36"
16+48.00	LT	1	1	1	--	3.00	W5-52R 12"X36"
					10.00	--	I3-1 60"X24"
TOTAL		**5**	**5**	**5**	**20.00**	**18.25**	

FIELD OFFICE TYPE B

STATION - STATION	642.5001 FIELD OFFICE TYPE B EACH
PROJECT	1
TOTAL	**1**

SEISMOGRAPH AND CRACK AND DAMAGE SURVEY

STATION - STATION	999.1000.S SEISMOGRAPH LS	999.1500.S CRACK AND DAMAGE SURVEY LS
PROJECT	1	1
TOTAL	**1**	**1**

PAVEMENT MARKING SUMMARY

STATION - STATION			OFFSET	646.0106 PAVEMENT MARKING EPOXY 4-INCH YELLOW LF	646.0106 PAVEMENT MARKING EPOXY 4-INCH WHITE LF
14+00.00	-	17+50.00	CL	700	--
13+45.68	-	17+90.66	LT	--	446
13+17.13	-	18+65.39	RT	--	548
SUBTOTAL				700	994
TOTAL				**1,694**	

CONSTRUCTION STAKING SUMMARY

STATION - STATION			650.4500 CONSTRUCTION STAKING SUBGRADE LF	650.5000 CONSTRUCTION STAKING BASE LF	*650.6500 CONSTRUCTION STAKING STRUCTURE LAYOUT B-34-0051 LS	650.9910 CONSTRUCTION STAKING SUPPLEMENTAL CONTROL .01 9391-07-70 LS	650.9920 CONSTRUCTION STAKING SLOPE STAKES LF
PROJECT			--	--	1	1	--
14+00.00	-	STRUCTURE	224	224	--	--	224
STRUCTURE	-	17+50.00	224	224	--	--	224
TOTAL			**448**	**448**	**1**	**1**	**448**

*CATEGORY 0020

SAWCUTTING SUMMARY

STATION	-	STATION	LOCATION	690.0150 SAWING ASPHALT LF
13+17.16	-	14+00.00	RT	83
13+45.68	-	14+00.00	LT	65
14+00.00			--	22
17+50.00			--	22
17+50.00	-	17+91.90	LT	42
17+50.00	-	18+65.39	RT	115
TOTAL				**350**

TOWN

OF

ACKLEY

PARCEL ID: 002-1177
CHRISTINA G.
KAEMPFER

PARCEL ID: 002-1178
BRIAN DUCHAC
SE ¼, NW ¼, SEC 34,
T-31-N, R-10-E

PARCEL ID: 002-1181
JAMES FISCHER

PARCEL ID: 002-1179
MICHEAL & THERESA
HARTMAN

APPROXIMATE WETLAND BOUNDARY
WISCONSIN PUBLIC SERVICE
BM1
TLE SLOPE
14+50.00, 60.00' LT
14+50.00, 50.00' LT
STA 14+60.37 LT
AGGREGATE F.E.
RIPARIAN FORESTED WETLAND
350 SF = 0.008 AC
14+85.00, 60.00' LT
14+85.00, 50.00' LT
36 MAPLE
9 ASH
24 MAPLE
EAU CLAIRE RIVER
STEEL THRIE BEAM STRUCTURE APPROACH
EXISTING BRIDGE
STEEL PLATE BEAM GUARD SHORT RADIUS
R8'
S89° 36' 00.00"E
1336.12'
CTH Y
(ASPH)
POINT A
MGS GUARDRAIL TERMINAL EAT
MGS THRIE BEAM TRANSITION
APPROXIMATE WETLAND BOUNDARY
STRUCTURE B-34-0051
STA 15+73.00
N=335078.1614
E=599145.9939
BENCH MARKS
STA 17+01.50 LT
AGGREGATE P.E.
TLE SLOPE
16+80.00, 65.00' LT
16+80.00, 50.00' LT
17+20.00, 65.00' LT
17+20.00, 50.00' LT
R/W
8" PINE
10" PINE
4" PINE
BM2
POST
STEEL PLATE BEAM GUARD SHORT RADIUS
SLOPE INTERCEPT (TYP)
CITY GAS COMPANY
S89° 38' 46"E
MGS THRIE BEAM TRANSITION
MGS GUARDRAIL TERMINAL EAT
SLOPE INTERCEPT (TYP)
R/W
FRONTIER COMMUNICATIONS OF WISCONSIN
BEGIN CONSTRUCTION STA 13+17.13
END CONSTRUCTION STA 18+35.39
BEGIN PROJECT STA 14+00.00
END PROJECT STA 17+50.00

NO.	STATION	DESCRIPTION	ELEV.
1	10+65.83, 33.11', LT	POWER POLE 3110-34 W6	1438.24'
2	17+77.70, 29.65', LT	POWER POLE 3110-34 W8	1445.78'

STA 15+73.00
STRUCTURE B-34-0051 REQUIRED 3 SPAN REINFORCED CONCRETE HAUNCHED SLAB 34' CLEAR ROADWAY SKEW 10 DEGREES LHF

STA 15+70.00
REMOVE STRUCTURE B-34-002
2 SPAN STEEL DECK GIRDER
OVERALL LENGTH 125'
OVERALL WIDTH 26.5'

VCL = 100.00
K = 222.33
PROPOSED PROFILE
EXISTING PROFILE
0.65%
1.10%
STA 14+00.00 EL 1442.66
VPC STA 14+25.00 VPC EL 1442.83
VPI STA 14+75.00 VPI EL 1443.15
VPI STA 15+25.00 VPT EL 1443.70
STA 17+50.00 EL 1446.18
OBSERVED HIGH WATER ELEV 1434.09
OBSERVED WATER SURFACE ELEV 1431.83

SCHEDULE OF LANDS & INTERESTS REQUIRED			
PARCEL	OWNER	INTEREST	AREA
1	BRIAN DUCHAC	TLE	950.00 SQ. FT.

1450 1440 1430 1424

1442.38 1442.45 1442.52 1442.57 1442.66 1442.66 1442.90 1442.83 1443.12 1443.00 1443.26 1443.21 1443.39 1443.44 1434.13 1443.70 1430.53 1443.98 1429.85 1444.25 1429.62 1444.53 1440.05 1444.80 1444.95 1445.08 1445.41 1445.35 1445.71 1445.63 1445.94 1445.90 1446.18 1446.18 1446.46 1446.66 1446.89 1447.12 1447.35 1447.55

13+00 13+25 13+50 13+75 14+00 14+25 14+50 14+75 15+00 15+25 15+50 15+75 16+00 16+25 16+50 16+75 17+00 17+25 17+50 17+75 18+00 18+25 18+50 18+75 19+00

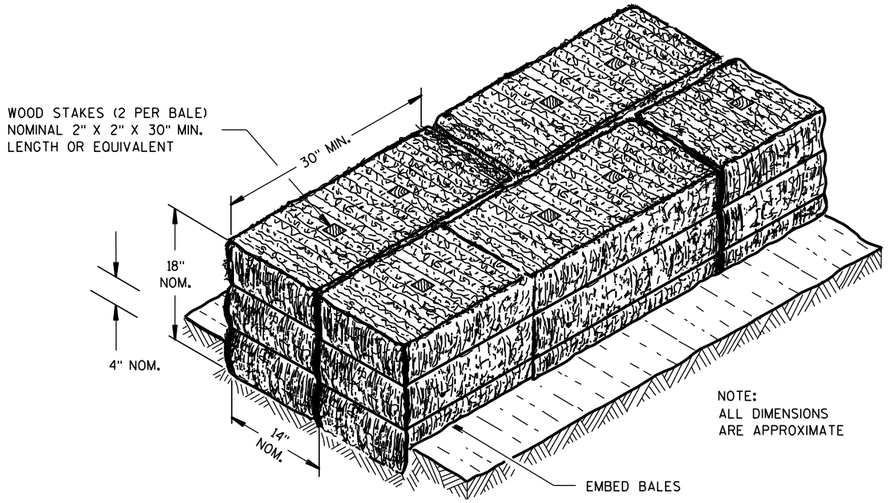
PROJECT NO: 9391-07-70	HWY: CTH Y	COUNTY: LANGLADE	PLAN AND PROFILE: CTH Y	SHEET 11	E

FILE NAME : X:\1210000\122116.01\TECH\DSGN\CIVIL\CIVIL3D\93910700\SHEETSPLAN\93910770_050101_PP.DWG PLOT DATE : 11/7/2014 1:56 PM PLOT BY : ANGIE KERRIGAN PLOT NAME : PLOT SCALE : 1:40_XREF

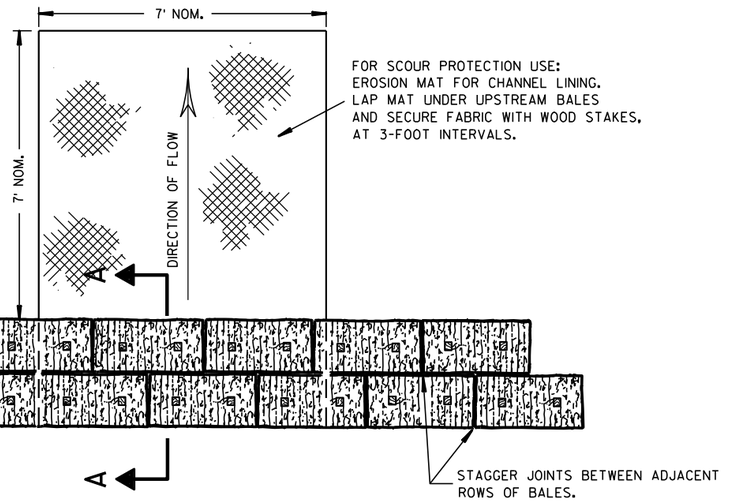
WISDOT/CADDS SHEET 44

Standard Detail Drawing List

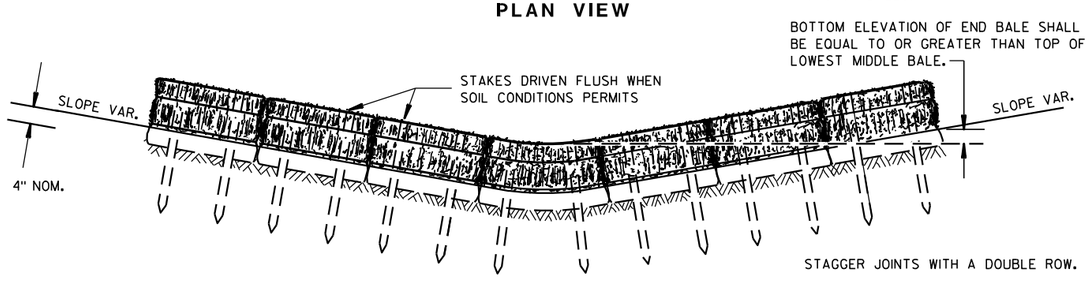
08E08-03	TYPICAL INSTALLATIONS OF EROSION BALES / TEMPORARY DITCH CHECKS
08E09-06	SILT FENCE
08E11-02	TURBIDITY BARRIER
08F01-11	APRON ENDWALLS FOR CULVERT PIPE
12A03-10	NAME PLATE (STRUCTURES)
14B20-11A	STEEL THRIE BEAM STRUCTURE APPROACH
14B20-11F	STEEL THRIE BEAM STRUCTURE APPROACH, CONNECTION TO BRIDGE RAILING TYPE "M"
14B27-01A	STEEL PLATE BEAM GUARD SHORT RADIUS TERMINAL
14B27-01B	STEEL PLATE BEAM GUARD SHORT RADIUS TERMINAL
14B27-01C	STEEL PLATE BEAM GUARD SHORT RADIUS TERMINAL
14B42-03A	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)
15C06-07	SIGNING & MARKING FOR TWO LANE BRIDGES
15C08-16A	PAVEMENT MARKING (MAINLINE)



SECTION A-A



PLAN VIEW



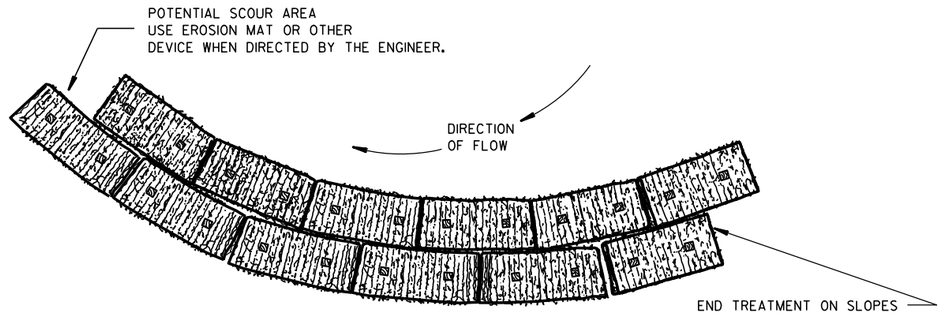
FRONT ELEVATION

TEMPORARY DITCH CHECK USING EROSION BALES (1)

GENERAL NOTES

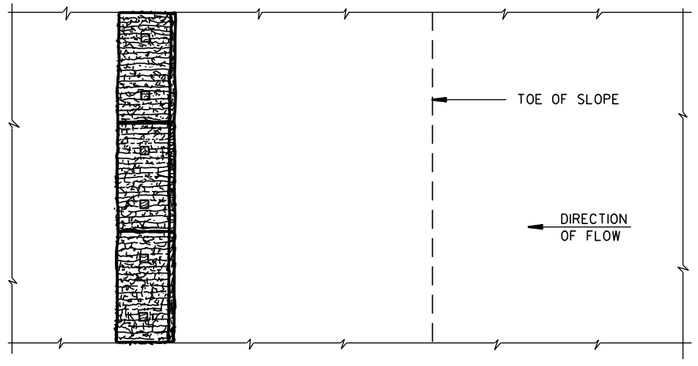
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

(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.

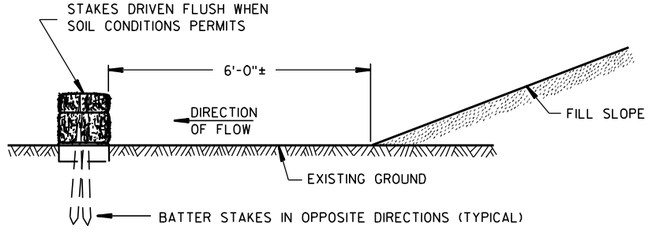


PLAN VIEW

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 — DATE

/S/ Beth Cannestra — CHIEF ROADWAY DEVELOPMENT ENGINEER

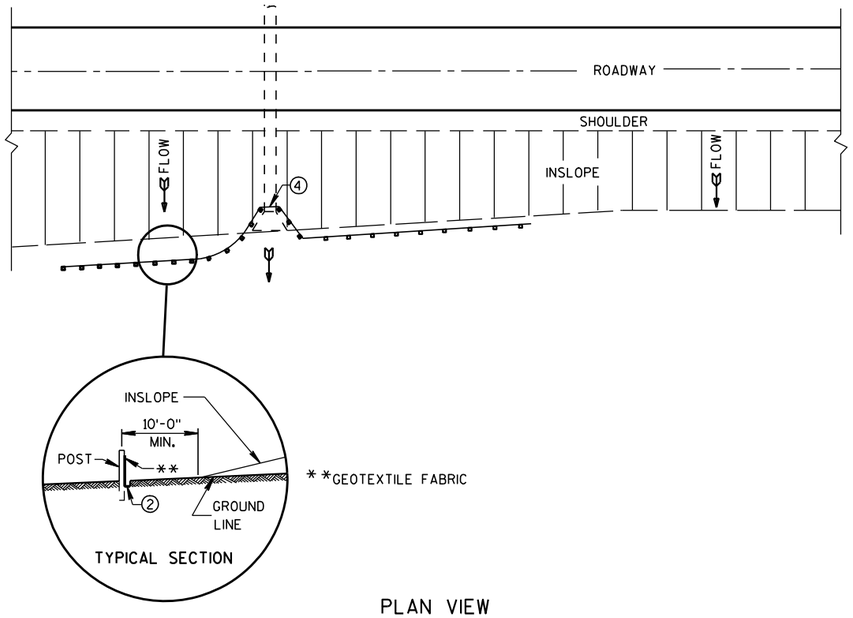
FHWA

6

S.D.D. 8 E 8-3

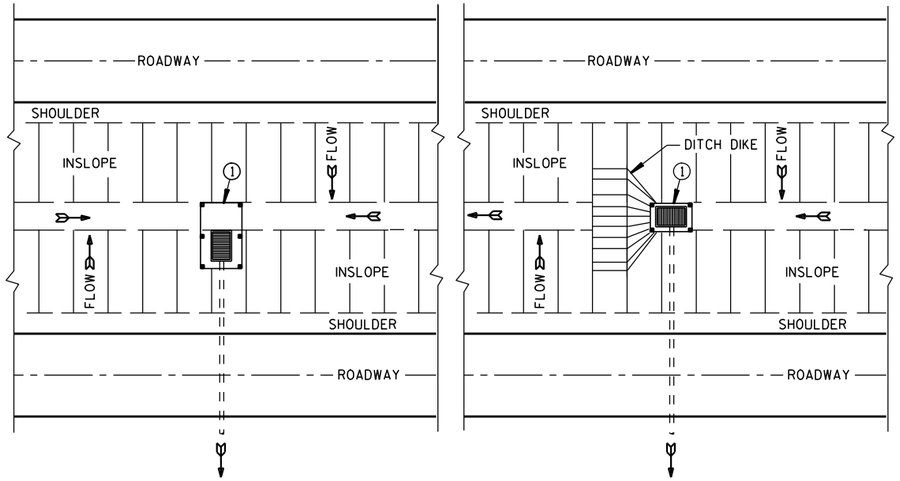
6

S.D.D. 8 E 8-3



PLAN VIEW

TYPICAL APPLICATION OF SILT FENCE



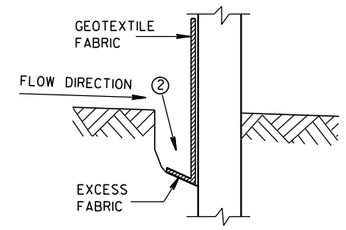
PLAN VIEW

SILT FENCE AT MEDIAN SURFACE DRAINS

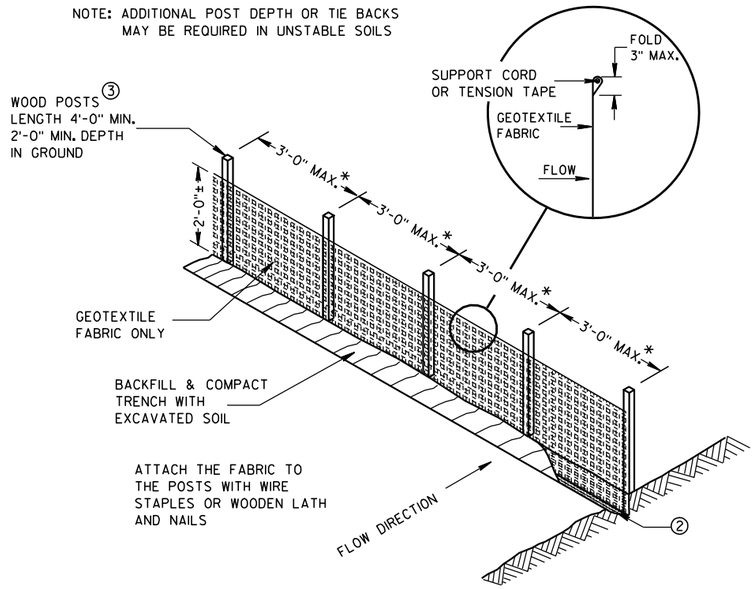
GENERAL NOTES

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

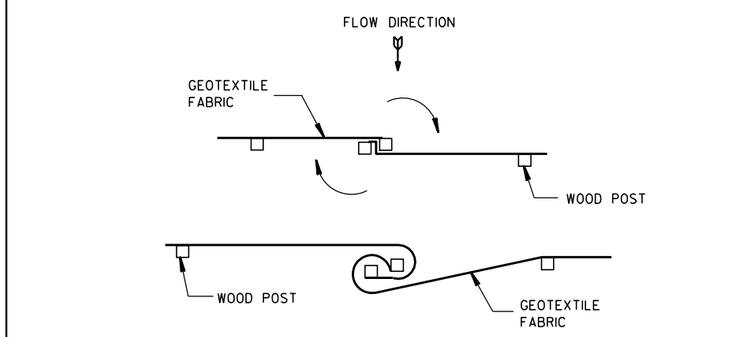
1. HORIZONTAL BRACE REQUIRED WITH 2" X 4" WOODEN FRAME OR EQUIVALENT AT TOP OF POSTS.
2. FOR MANUAL INSTALLATIONS THE TRENCH SHALL BE A MINIMUM OF 4" WIDE & 6" DEEP TO BURY AND ANCHOR THE GEOTEXTILE FABRIC. FOLD MATERIAL TO FIT TRENCH AND BACKFILL & COMPACT TRENCH WITH EXCAVATED SOIL.
3. WOOD POSTS SHALL BE A MINIMUM SIZE OF 1⅛" X 1⅛" 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.



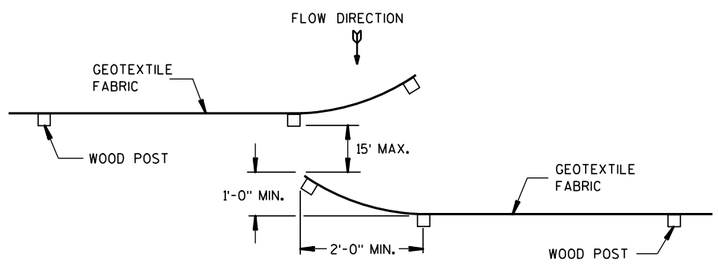
TRENCH DETAIL



SILT FENCE

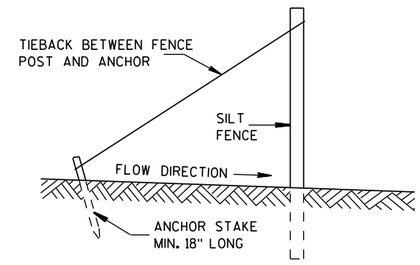


TWIST METHOD



HOOK METHOD

JOINING TWO LENGTHS OF SILT FENCE 5



SILT FENCE TIE BACK

(WHEN REQUIRED BY THE ENGINEER)

SILT FENCE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

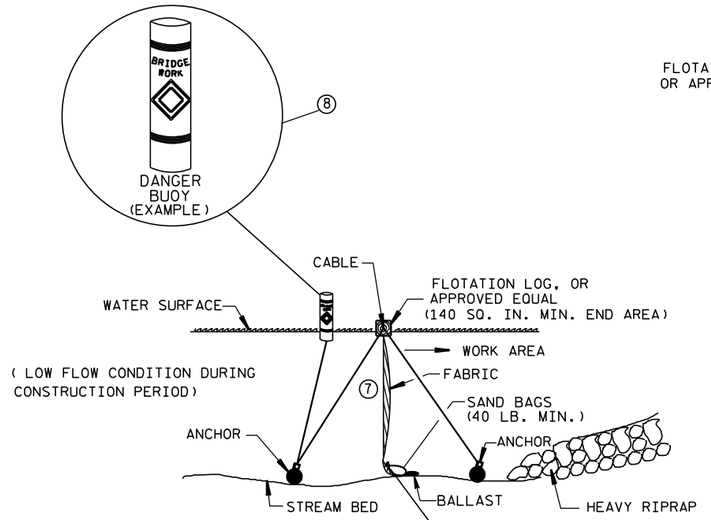
APPROVED
4-29-05 DATE
/S/ Beth Cannestra
CHIEF ROADWAY DEVELOPMENT ENGINEER
FHWA

6

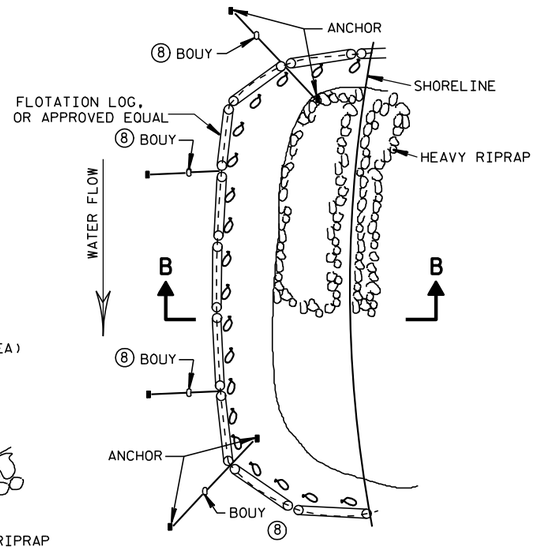
S.D.D. 8 E 9-6

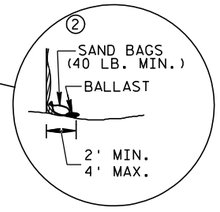
6

S.D.D. 8 E 9-6

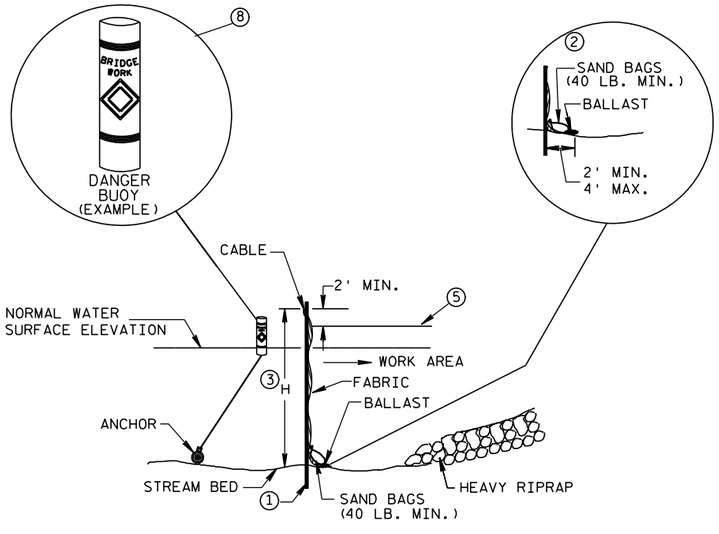


SECTION B-B

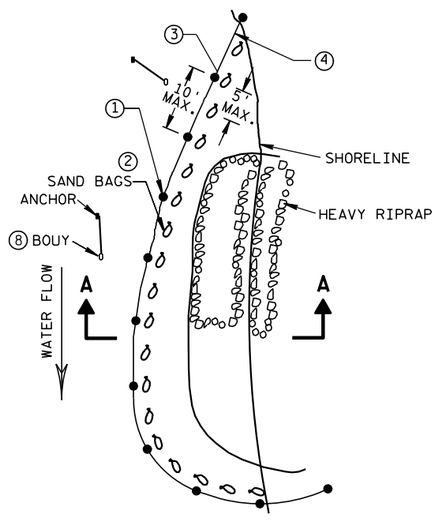




TURBIDITY BARRIER FLOAT ALTERNATIVE
CAUTION - SEE NOTE 6



SECTION A-A



PLAN VIEW

TURBIDITY BARRIER STANDARD POST INSTALLATION

TURBIDITY BARRIER PLACEMENT DETAILS

GENERAL NOTES

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

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

① DRIVEN STEEL POSTS, PIPES, OR CHANNELS. LENGTH SHALL BE SUFFICIENT TO SECURELY SUPPORT BARRIER AT HIGH WATER ELEVATIONS.

② 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.

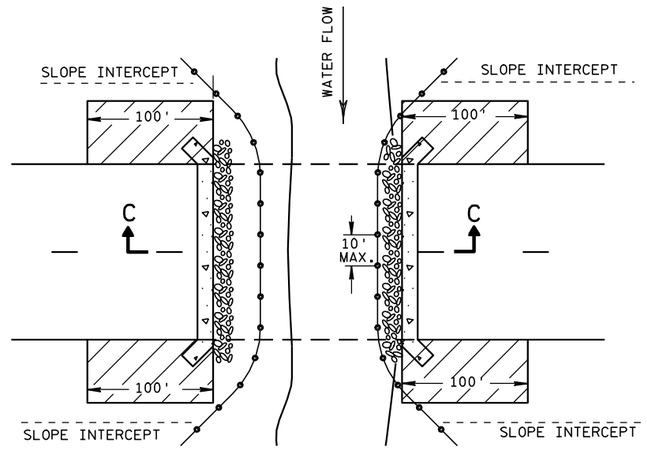
④ IN WATERWAYS SUBJECT TO FLUCTUATING WATER ELEVATIONS, PROVISIONS SHOULD BE MADE TO ALLOW THE WATER TO EQUALIZE ON EACH SIDE OF THE BARRIER. THIS MAY BE ACCOMPLISHED BY LEAVING A PORTION OF THE BARRIER OPEN ON THE UPSTREAM END.

⑤ ESTIMATED HIGH WATER ELEVATION DURING CONSTRUCTION PERIOD. MIMIMUM BARRIER HEIGHT SHALL BE 2'GREATER THAN EITHER THE 02 ELEVATION OR THE ESTIMATED HIGH WATER ELEVATION DURING CONSTRUCTION, WICHEVER IS GREATER.

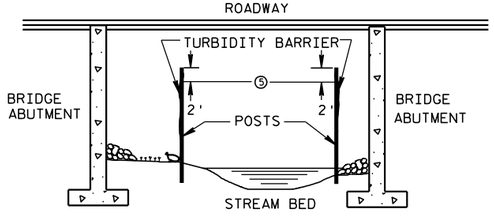
⑥ FLOAT ALTERNATIVE WILL ONLY BE ALLOWED WITH WRITTEN APPROVAL OF THE ENGINEER, AND IS MEANT FOR LOCATIONS WHERE BED ROCK PREVENTS THE INSTALLATION OF POSTS.

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 DATE	/S/ Beth Cannestra CHIEF ROADWAY DEVELOPMENT ENGINEER
FHWA	

6

S.D.D. 8 E 11-2

METAL APRON ENDWALLS

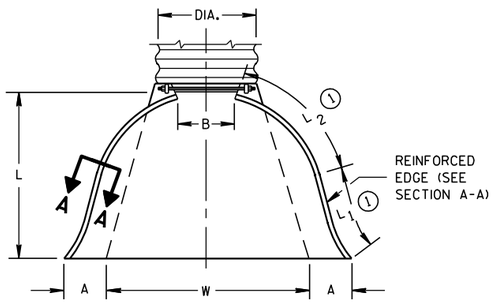
PIPE DIA. (IN.)	MIN. THICK. (Inches) STEEL	MIN. THICK. (Inches) ALUM.	DIMENSIONS (Inches) A (±1")	B (MAX.)	H (±1")	L (±1 1/2")	L1 ①	L2 ①	W (±2")	APPROX. SLOPE	BODY
12	.064	.060	6	6	6	21	12	17 1/2	24	2 1/2 to 1	1 Pc.
15	.064	.060	7	8	6	26	14	21 3/4	30	2 1/2 to 1	1 Pc.
18	.064	.060	8	10	6	31	15	28 1/4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

× EXCEPT CENTER PANEL SEE GENERAL NOTES

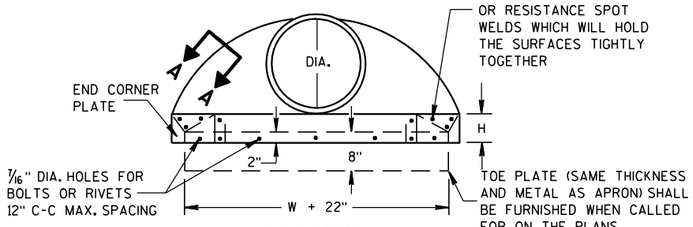
REINFORCED CONCRETE APRON ENDWALLS

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

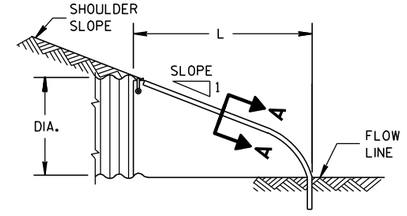
*MINIMUM
**MAXIMUM



PLAN VIEW

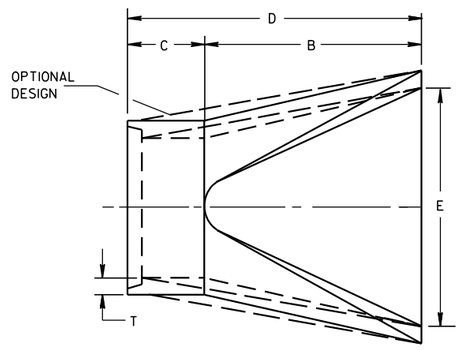


END VIEW

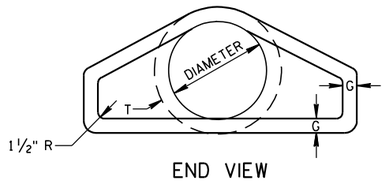


SIDE ELEVATION

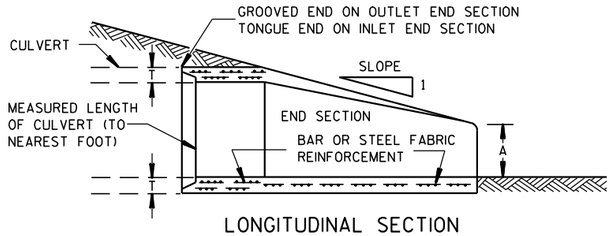
METAL ENDWALLS



PLAN

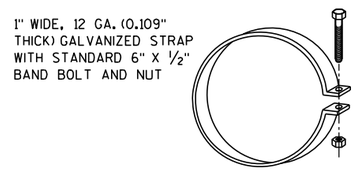


END VIEW



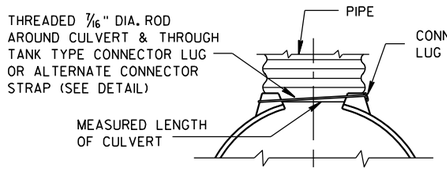
LONGITUDINAL SECTION

CONCRETE ENDWALLS

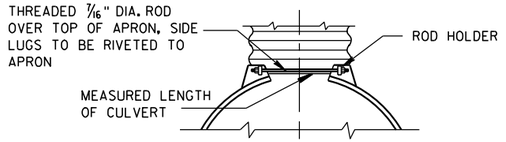


ALTERNATE FOR TYPE 1 CONNECTION

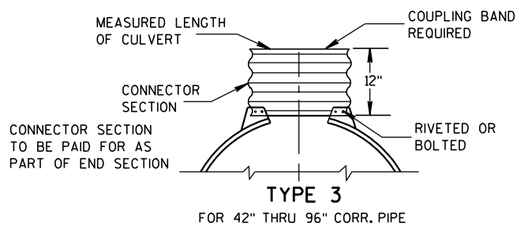
END SECTION CONNECTOR STRAP



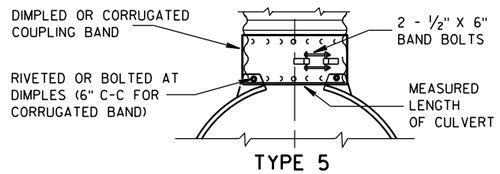
TYPE 1
FOR 12" THRU 24" CORR. PIPE



TYPE 2
FOR 30" THRU 96" CORR. PIPE



TYPE 3
FOR 42" THRU 96" CORR. PIPE



TYPE 5
ALTERNATE FOR:
ALL SIZES CORRUGATED CIRCULAR PIPE

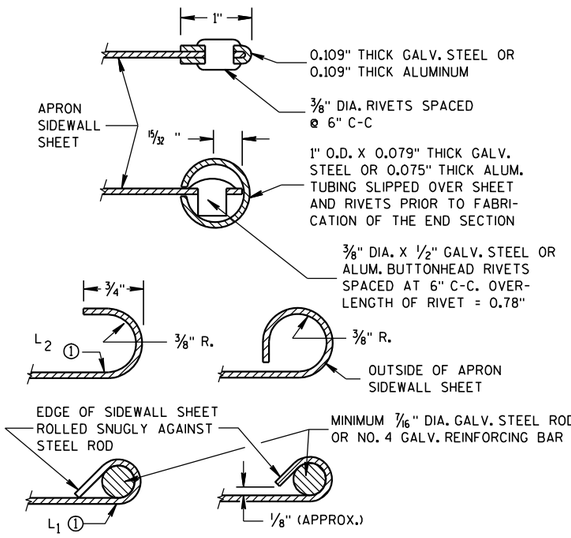
NOTE: DIMPLED BAND FITS OVER OUTSIDE OF ENDWALL. AND CORRUGATED BAND FITS INSIDE ENDWALL. DIMPLED BAND MAY BE USED WITH HELICALLY CORRUGATED PIPE.

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

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

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

CONNECTION DETAILS



SECTION A-A

GENERAL NOTES

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

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

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

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

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

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

APRON ENDWALLS FOR CULVERT PIPE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

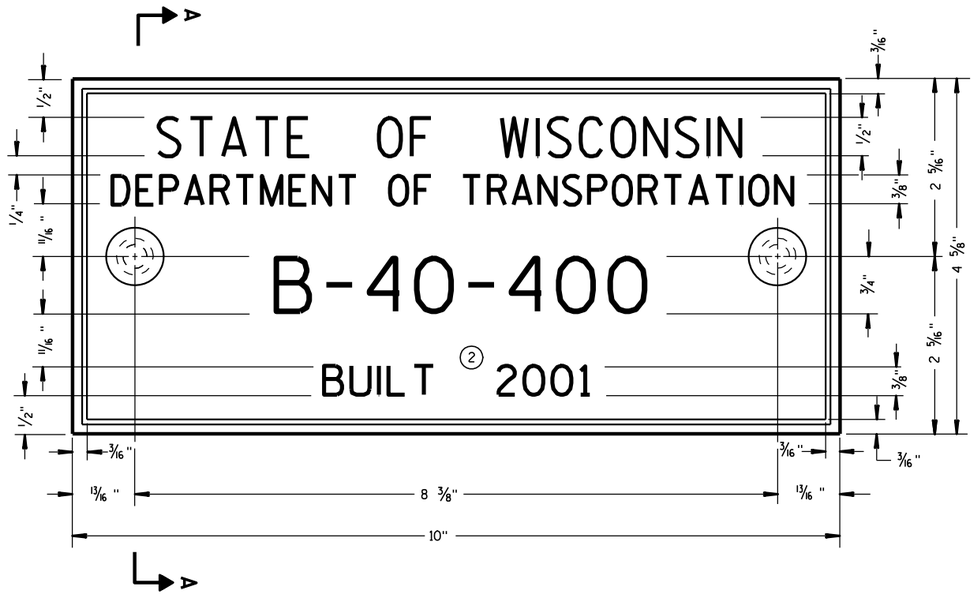
APPROVED
11/30/94 DATE
/S/ Rory L. Rhinesmith
CHIEF ROADWAY DEVELOPMENT ENGINEER
FHWA

6

S.D.D. 8 F 1-11

6

S.D.D. 8 F 1-11



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

FOR MULTI-UNIT STRUCTURES
LINE 3 ABOVE SHALL READ

B = BRIDGE
C = CULVERT
R = RETAINING WALL

COUNTY NO.

BRIDGE NO.

UNIT NO. FOR MULTIPLE UNIT BRIDGE

B-40-400-1A

NUMBERING DESIGNATION
MULTI-UNIT STRUCTURES

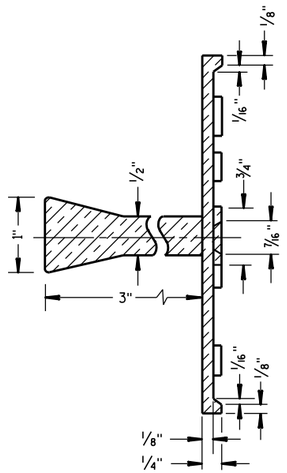
GENERAL NOTES

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

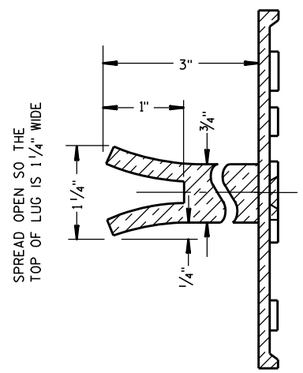
THE BRIDGE NUMBER AND YEAR BUILT SHOWN ON THIS DRAWING ARE EXAMPLES ONLY. SEE CONSTRUCTION PLANS FOR INDIVIDUAL NUMBERING AND YEAR BUILT.

(1) EPOXY RESIN SHALL BE FROM AN APPROVED MANUFACTURER AND USED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

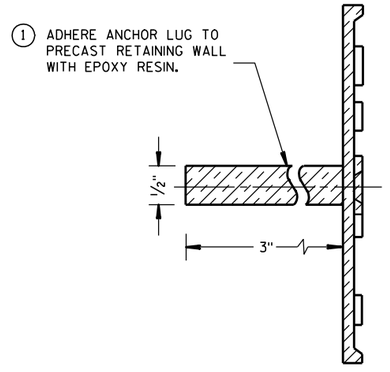
(2) REHABILITATION OF AN EXISTING STRUCTURE SHOULD USE THE DATE OF ORIGINAL STRUCTURE CONSTRUCTION.



SECTION A-A



ALTERNATE LUG



ALTERNATE LUG
(FOR ATTACHMENT TO PRECAST STRUCTURES)

NAME PLATE (STRUCTURES)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

3/26/10 DATE

/S/ Scot Beck -- CHIEF STRUCTURAL DEVELOPMENT ENGINEER

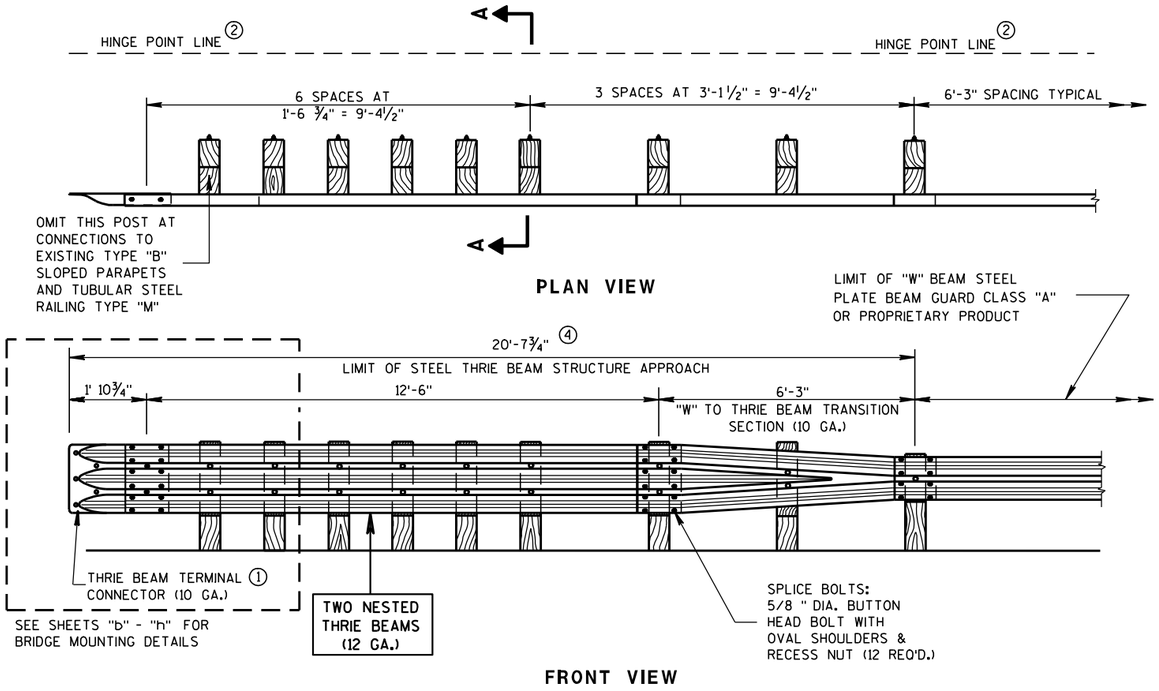
FHWA

6

S.D.D. 12 A 3-10

6

S.D.D. 12 A 3-10



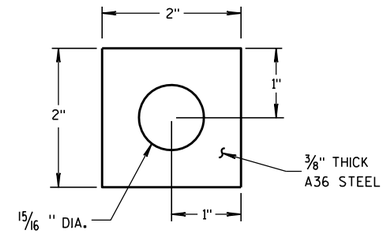


PLATE WASHER DETAIL

GENERAL NOTES

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

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

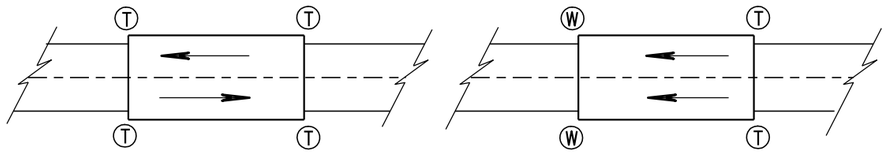
IF ROCK IS ENCOUNTERED, REMOVE ROCK TO FULL DEPTH OF POST PLUS 2 1/2" , AND 12" DIAMETER AROUND POST. SEE 14B15 FOR MORE DETAILS.

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

② MINIMUM EMBEDMENT SHALL BE 4'-0". WHERE EXISTING CONDITIONS DO NOT PERMIT THE APPROPRIATE EARTHWORK SHOWN ON THE PLAN TYPICAL SECTIONS OR DETAILS, THE ENGINEER MAY ALLOW THE REDUCTION OR ELIMINATION OF THE 2 FOOT DISTANCE TO THE HINGE POINT. OTHERWISE BUILD AS THE PLAN SHOWS OR AS THE ENGINEER DIRECTS. IF THE 2 FOOT DISTANCE TO THE HINGE POINT IS REDUCED OR ELIMINATED, INCREASE THE POST EMBEDMENT DEPTH TO 4'-6" OR MORE.

③ POST BOLTS ARE 5/8" DIAMETER ASTM A307 BUTTON HEAD BOLT. A POST BOLT REQUIRES A 5/8" DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX AND A 5/8" DIAMETER F844 FLAT WASHER. LENGTH OF POST BOLT MAY VARY.

④ ALL WOOD POSTS MUST BE 6" X 8" AND AT LEAST 7'-0" LONG.



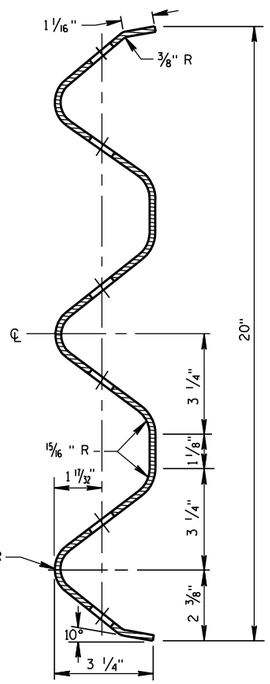
TWO WAY TRAFFIC

ONE WAY TRAFFIC

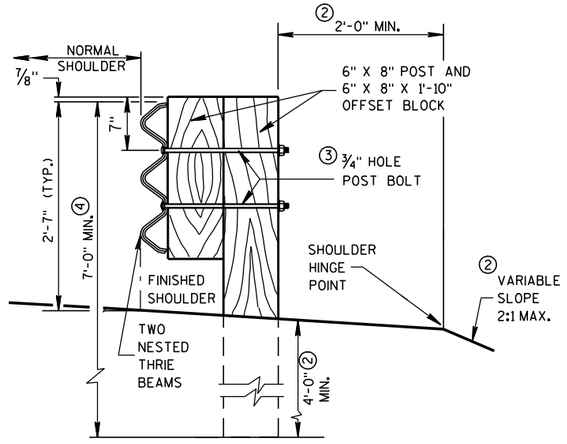
T THRIE BEAM CONNECTION

W W-BEAM CONNECTION WHEN REQUIRED

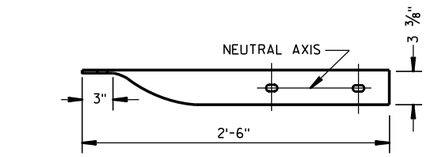
TYPICAL LOCATIONS OF THRIE BEAM AND W-BEAM CONNECTIONS TO BRIDGE

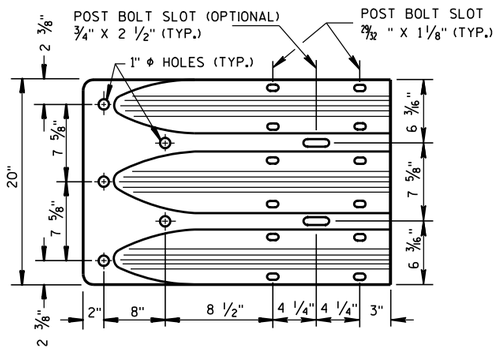


SECTION THRU THRIE BEAM RAIL ELEMENT

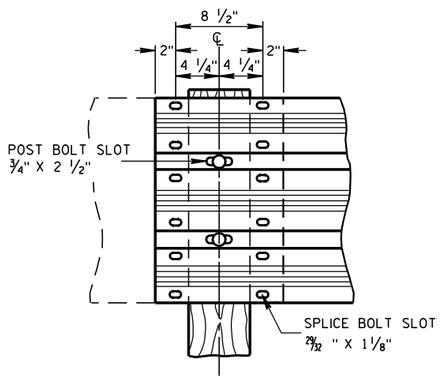


SECTION A-A





THRIE BEAM TERMINAL CONNECTOR



THRIE BEAM SPLICE

STEEL THRIE BEAM STRUCTURE APPROACH

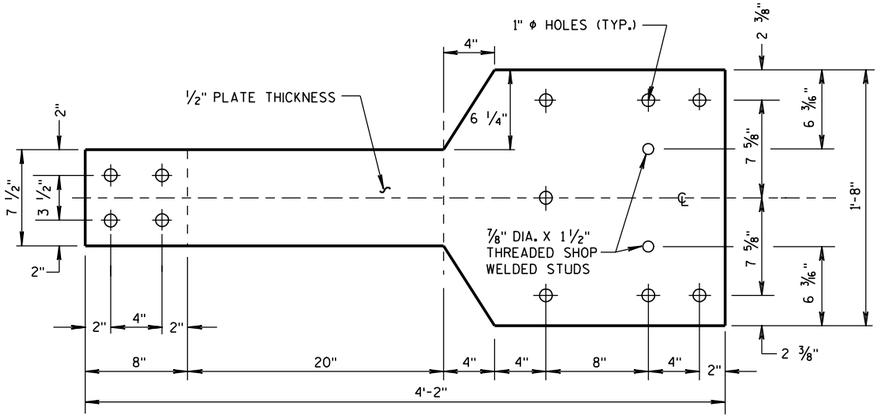
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

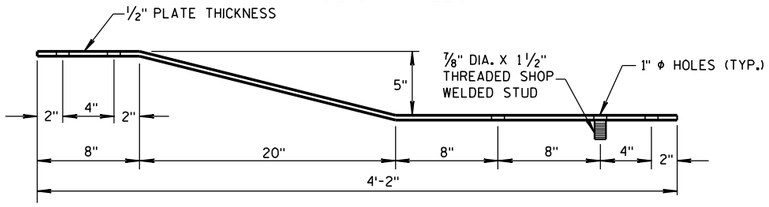
FHWA

GENERAL NOTES

(1) VARY THIS DIMENSION DEPENDING ON ABUTMENT TYPE, WINGWALL DETAILS, AND ANGLE OF SKEW. PLACE THE FIRST WOOD POST OFF THE BRIDGE SHALL BE AS CLOSE AS FEASIBLE TO THE STEEL END POST.

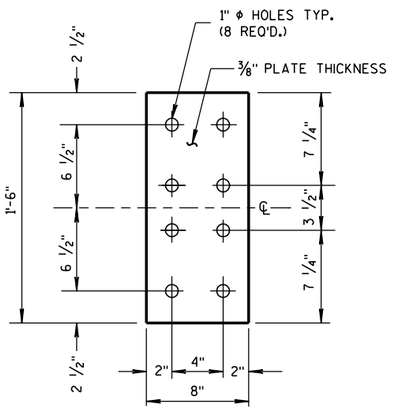


FRONT VIEW



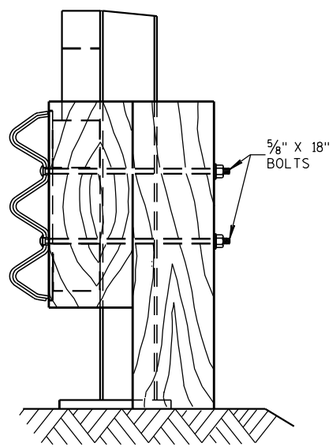
PLAN VIEW

BACK-UP PLATE DETAIL, TYPE "M"

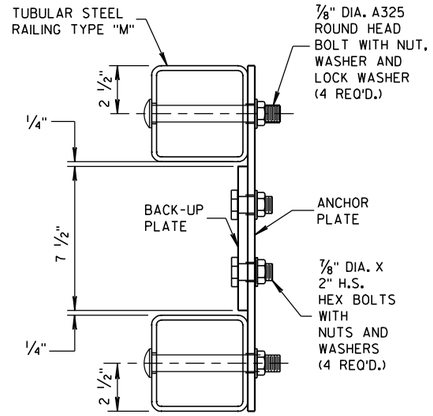


FRONT VIEW

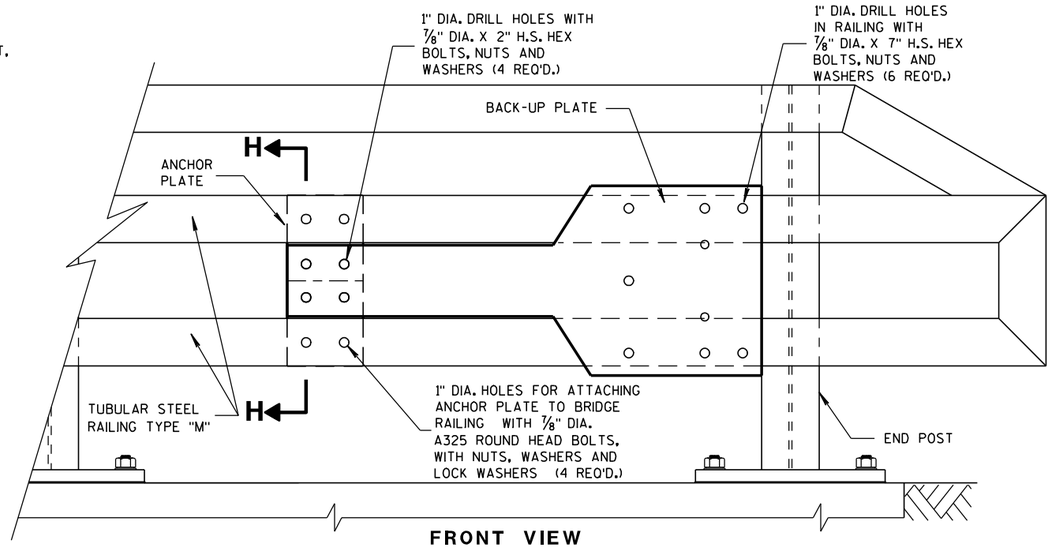
ANCHOR PLATE DETAIL, TYPE "M"



SECTION I-I

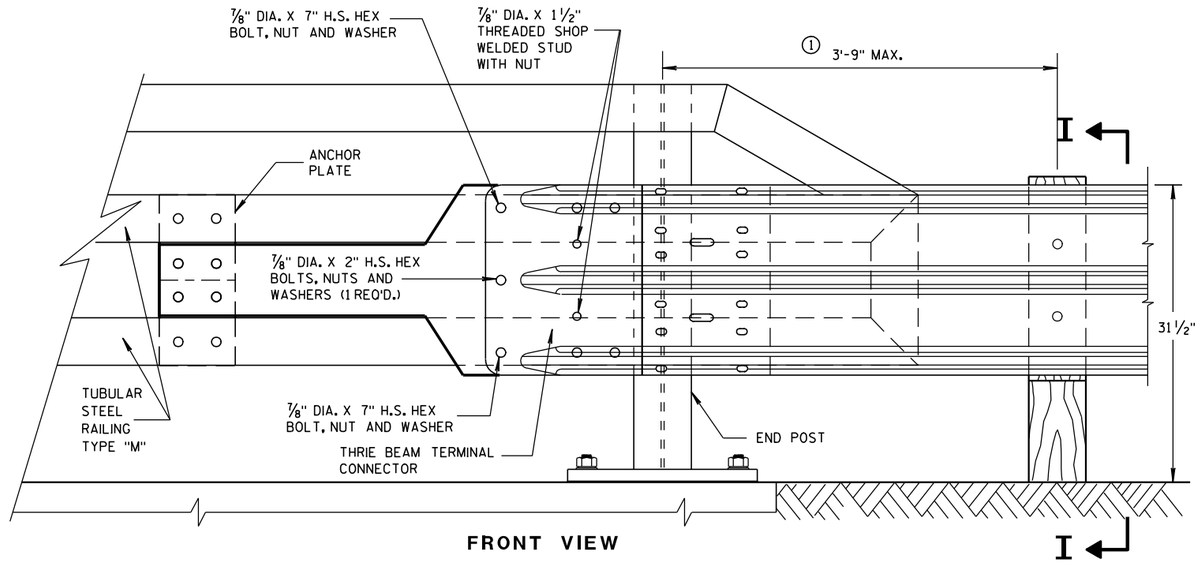


SECTION H-H

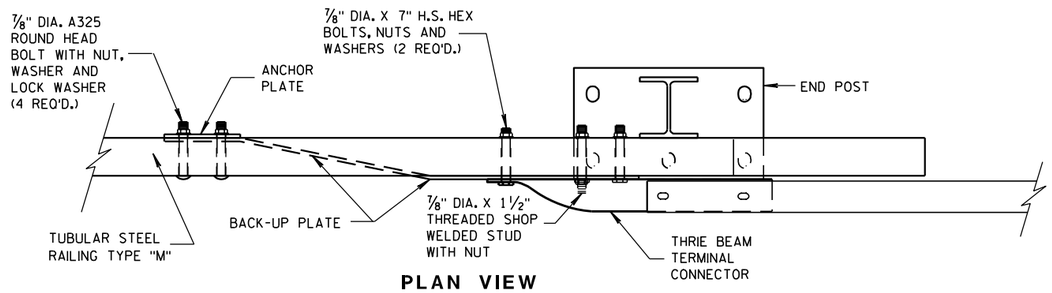


FRONT VIEW

ANCHOR AND BACK-UP PLATE MOUNTING TO BRIDGE RAILING, TYPE "M"



FRONT VIEW



PLAN VIEW

THRIE BEAM CONNECTION TO TUBULAR RAILING, TYPE "M"

STEEL THRIE BEAM STRUCTURE APPROACH, CONNECTION TO BRIDGE RAILING TYPE "M"

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
8/31/2012 — DATE
/S/ Jerry H. [illegible] — ROADWAY STANDARDS ENGINEER

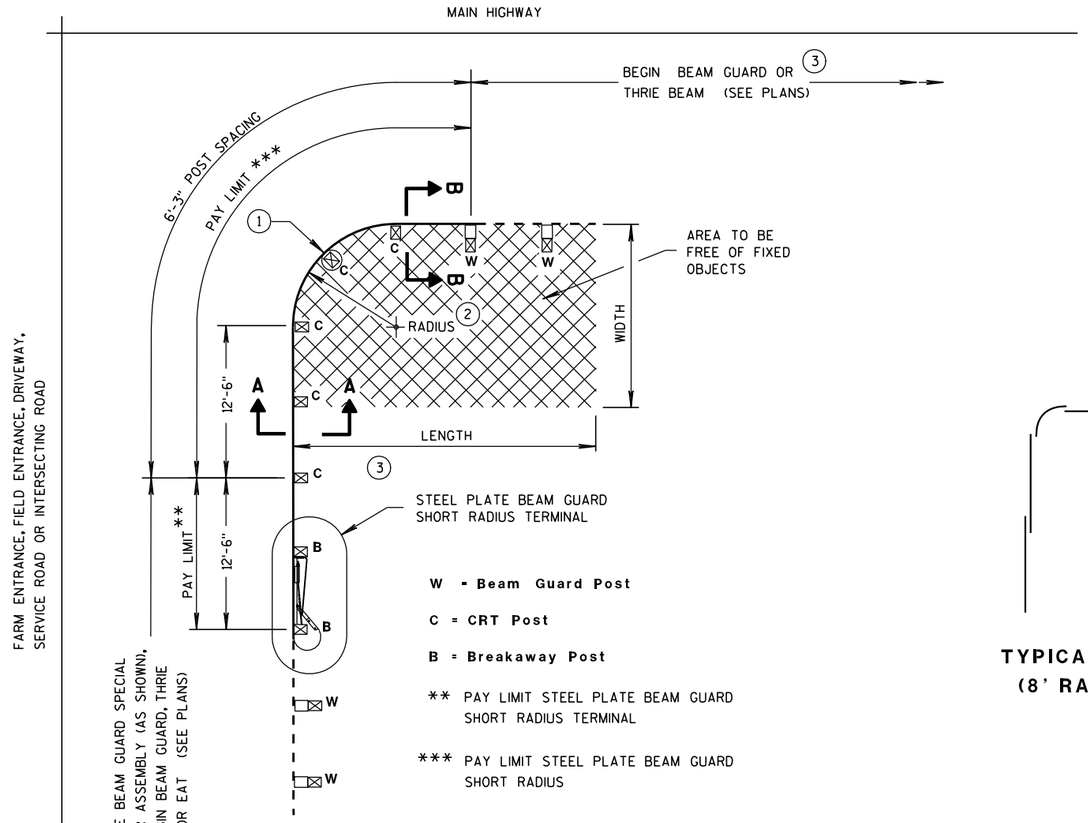
FHWA

6

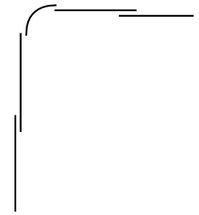
S.D.D. 14 B 20-11f

6

S.D.D. 14 B 20-11f



TYPICAL LAYOUT
(8' RADIUS SHOWN)



TYPICAL LAP SPLICES
(8' RADIUS SHOWN)

GENERAL NOTES

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

SHOP BEND CURVED RAIL SECTIONS.

SEE STANDARD DETAIL DRAWING 14 B 15 FOR OTHER DETAIL.

(1) ON THE 8 FOOT RADIUS INSTALLATION, DO NOT INSTALL BUTTON HEAD BOLT AT CENTER CRT POST.

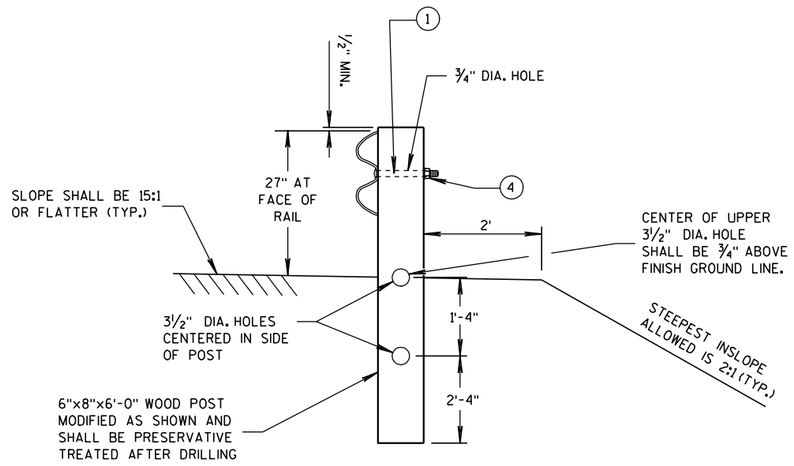
(2) RADIUS FROM 8' - 36'. SEE PLAN.

(3) HEIGHT TRANSITION MAY BE REQUIRED. SEE PLAN OR PROJECT ENGINEER.

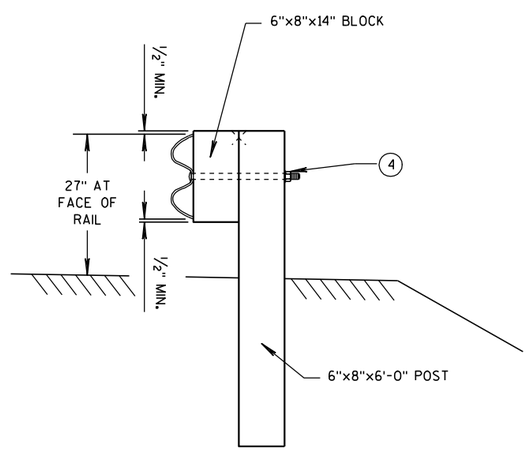
(4) 5/8" ø X 1'-6" BUTTON HEAD BOLT AND RECESS NUT WITH ROUND WASHER UNDER NUT.

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

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



SECTION A-A
(CRT POST)

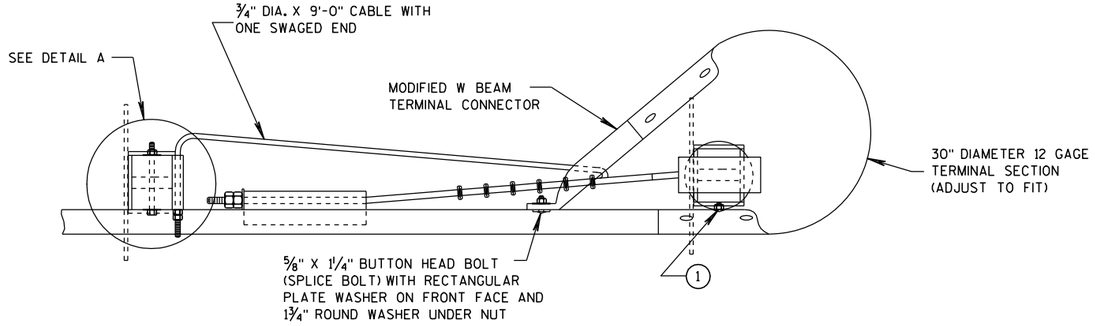


SECTION B-B
(BEAM GUARD POST)

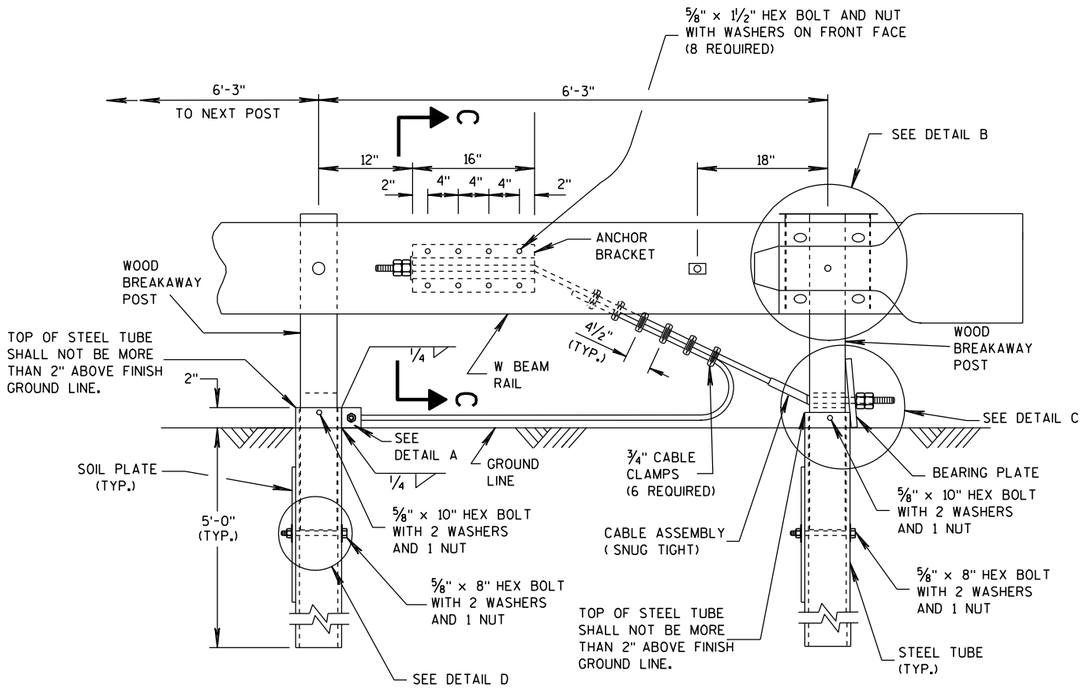
STEEL PLATE BEAM GUARD SHORT RADIUS TERMINAL

STEEL PLATE BEAM GUARD SHORT RADIUS TERMINAL
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION

6
S.D.D. 14 B 27-1a



PLAN VIEW



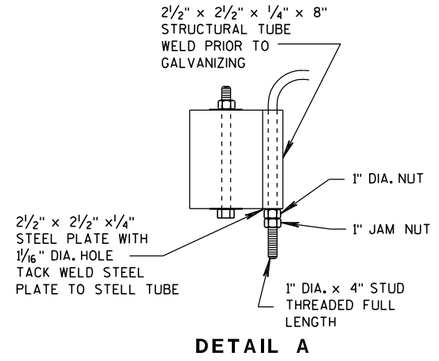
ELEVATION VIEW

STEEL PLATE BEAM GUARD SHORT RADIUS TERMINAL

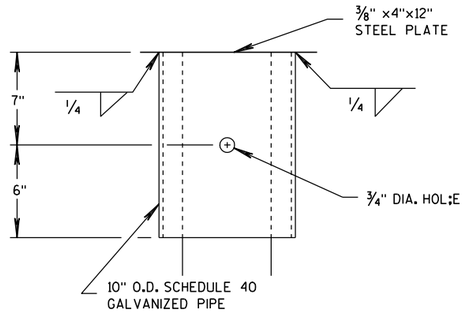
GENERAL NOTES

(1) ATTACH W BEAM RAIL TO THE STEEL PIPE WITH A ⅝" X 2" BUTTON HEAD BOLT WITH NO WASHER. CONNECTION TO THE POST IS NOT REQUIRED.

INSTALL GALVANIZED ¾" (6X19) PREFORMED WIRE OR INDEPENDENT WIRE ROPE CORE CONFORMING TO AASHTO M 30. MANUFACTURE WIRE ROPE OUT OF IMPROVED PLOW STEEL WITH A MINIMUM BREAKING STRENGTH OF 42,800 PSI.



DETAIL A



DETAIL B

(BEAM GUARD AND TERMINAL SECTION NOT SHOWN)

STEEL PLATE BEAM GUARD SHORT RADIUS TERMINAL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6

S.D.D. 14 B 27-1b

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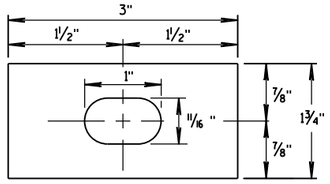
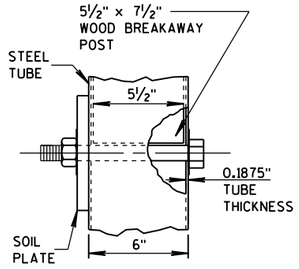
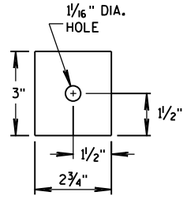
S.D.D. 14 B 27-1b



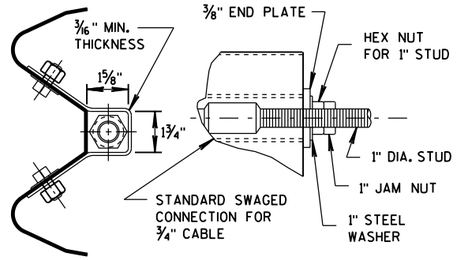
RECTANGULAR PLATE WASHER



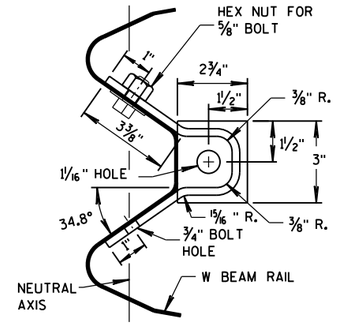
DETAIL D



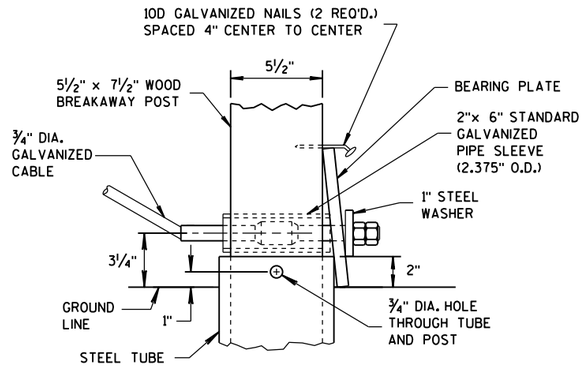
END PLATE



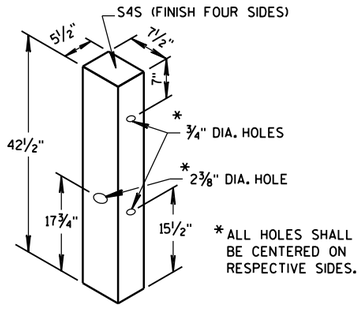
SECTION C-C
(END PLATE REMOVED)



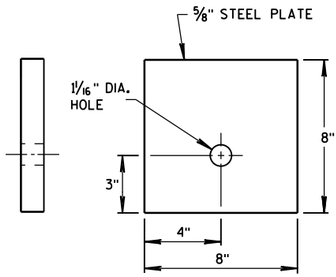
ANCHOR BRACKET



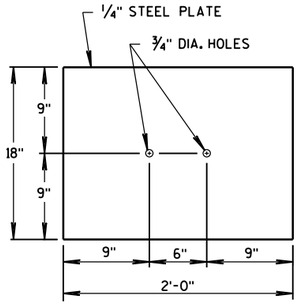
DETAIL C



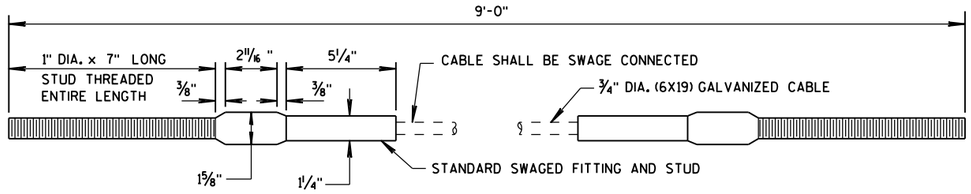
WOOD BREAKAWAY POST



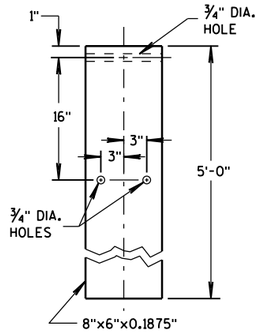
BEARING PLATE



SOIL PLATE



CABLE ASSEMBLY



STEEL TUBE

STEEL PLATE BEAM GUARD
SHORT RADIUS TERMINAL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

12/18/08 — DATE

/S/ Jerry H. Zogg — ROADWAY STANDARDS ENGINEER

FHWA

6

S.D.D. 14 B 27-1c

6

S.D.D. 14 B 27-1c

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.

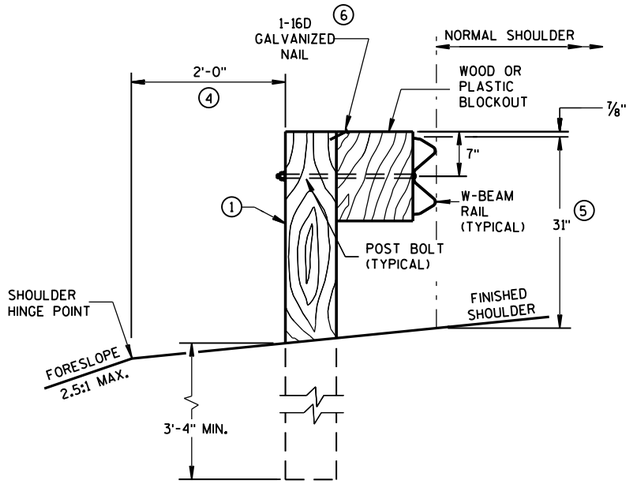
(2) USE WOOD OR APPROVED PLASTIC BLOCKOUTS. WOOD BLOCKOUTS MAY BE CONSTRUCTED OUT OF TWO OR MORE WOOD BLOCKOUTS. SEE ALTERNATE WOOD BLOCKOUT DETAIL. DIMENSIONS OF APPROVED PLASTIC BLOCKOUTS MAY VARY.

(3) IF ROCK IS ENCOUNTERED DURING EXCAVATION, PROVIDE A HOLE 12 INCHES IN DIAMETER EXTENDING 20 INCHES DEEP INTO THE ROCK. PLACE APPROXIMATELY 2½ INCHES OF GRANULAR MATERIAL IN THE BOTTOM OF THE HOLE. CUT THE POSTS THE TO LENGTH AMD 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).

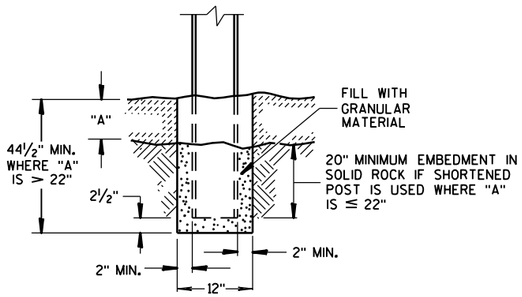
(5) FOR NEW MGS INSTALLATION TOP OF W-BEAM RAIL TOLERANCE IS ± 1". FOR EXISTING MGS INSTALLATION TOP OF W-BEAM IS BETWEEN 27¾" TO 32".

(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.



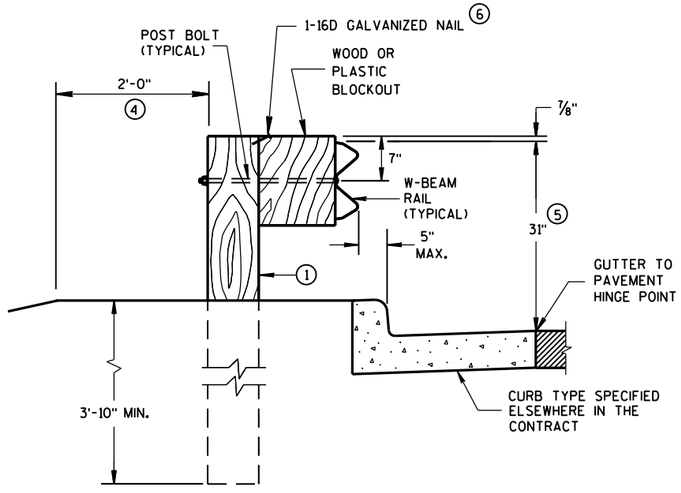
END VIEW

LOCATED ALONG A ROADWAY SHOULDER
STANDARD INSTALLATION



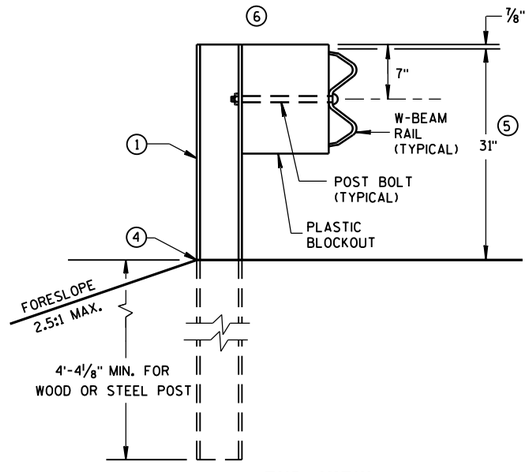
END VIEW

SETTING STEEL OR WOOD POST IN ROCK (3)



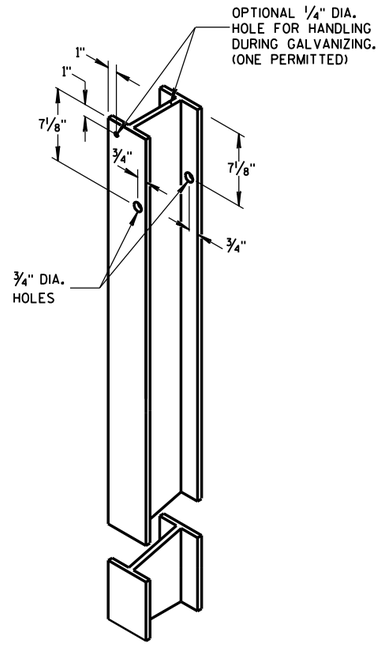
END VIEW

LOCATED ALONG A CURBED ROADWAY

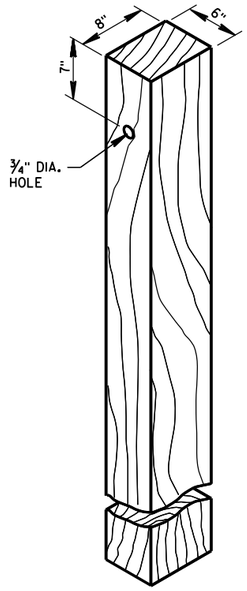


END VIEW

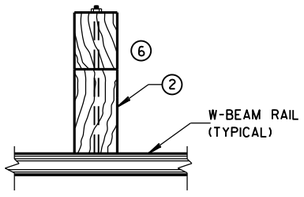
MGS LONGER POST AT HALFPOST SPACING W BEAM (K)



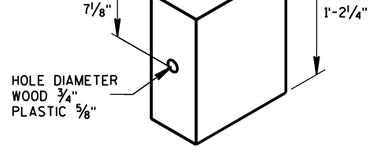
STEEL POST &
HOLE PUNCHING DETAIL
(w6X9) (1)



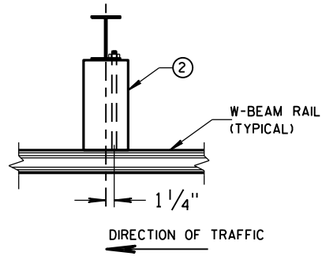
WOOD POST
(6" X 8") NOMINAL (1)



PLAN VIEW
WOOD POST,
BLOCKOUT & BEAM



WOOD OR
PLASTIC BLOCKOUT (2)

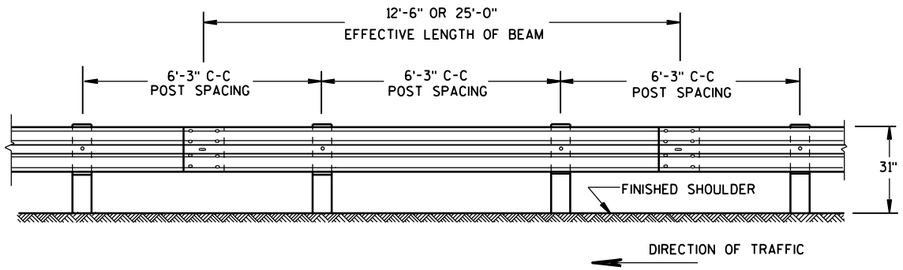


PLAN VIEW
STEEL POST,
PLASTIC BLOCKOUT & BEAM

MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL

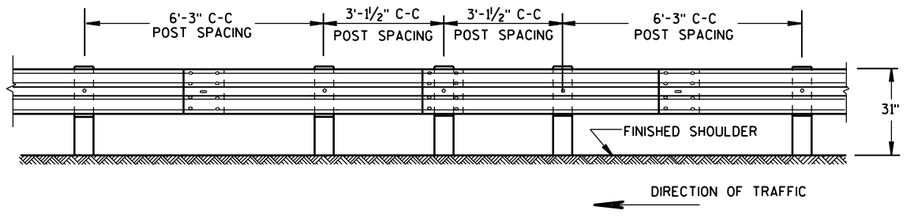
STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI

6
S.D.D. 14 B 42-3a



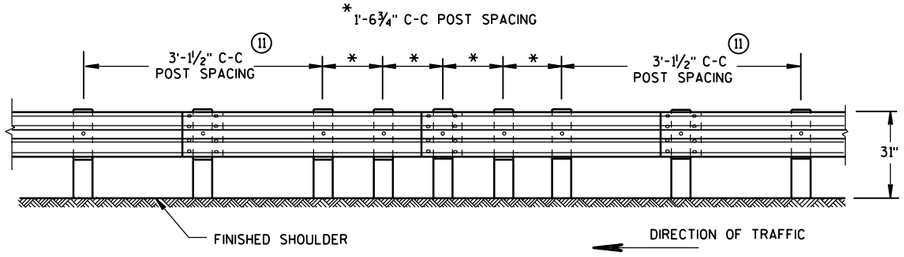
FRONT VIEW

POST SPACING STANDARD INSTALLATION



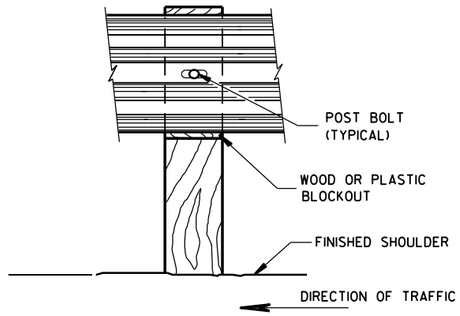
FRONT VIEW

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

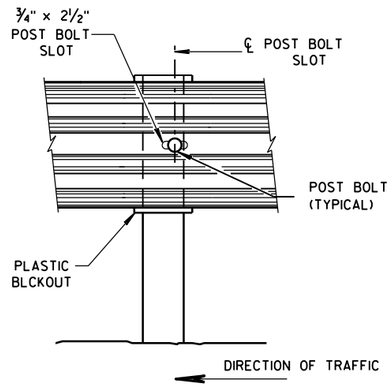


FRONT VIEW

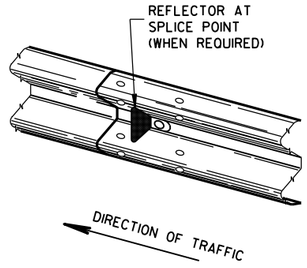
QUARTER POST SPACING (QS)

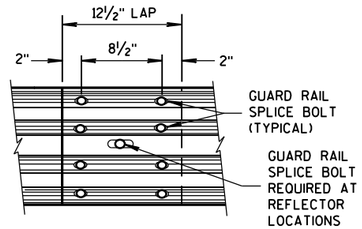


FRONT VIEW AT WOOD POST

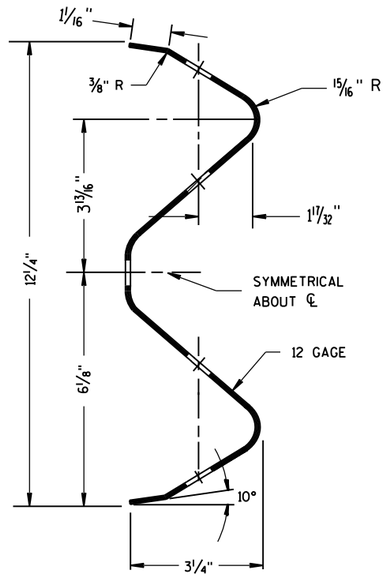


FRONT VIEW AT STEEL POST

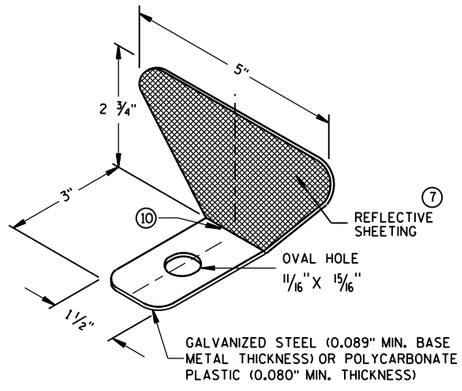




FRONT VIEW
MID-SPAN BEAM SPLICE



SECTION THRU W-BEAM RAIL



ONE SIDED REFLECTOR DETAIL AND TYPICAL INSTALLATION ⑦

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° ± 1° 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 ⅝" DIAMETER ASTM A307 GUARDRAIL BOLT. A POST BOLT REQUIRES ⅝" DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX NUT AND ⅝" DIAMETER F844 FLAT WASHER. POST BOLTS MAY BE LONGER IF MULTIPLE BLOCKOUTS ARE BEING USED.

GUARD RAIL SPLICE BOLTS ARE A ⅝" DIAMETER ASTM A307 GUARDRAIL HEAD BOLT. A GUARDRAIL SPLICE BOLT REQUIRES ⅝" DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX NUT.

REFLECTOR SPACING ⑧

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

MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPO

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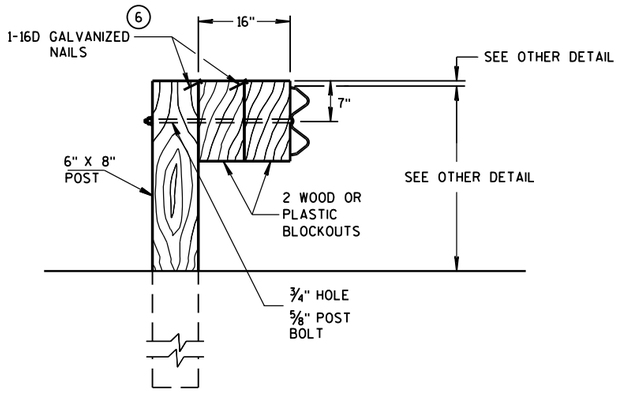
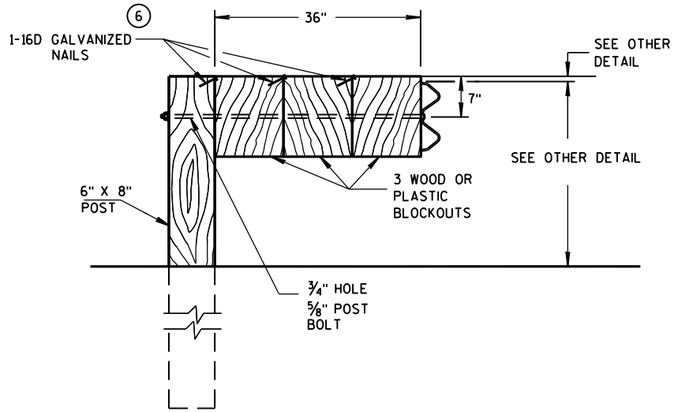
S.D.D. 14 B 42-3b



DETAIL FOR 16" BLOCKOUT DEPTH

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

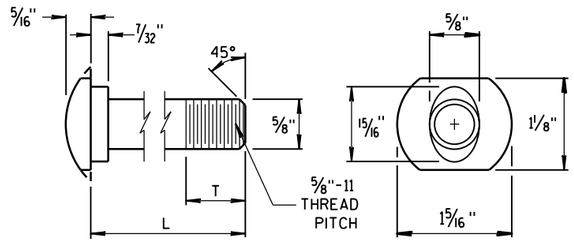


DETAIL FOR 36" BLOCKOUT DEPTH

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

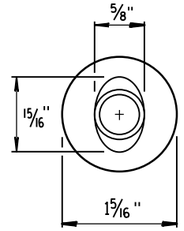
DO NOT USE 16" OR 36" BLOCKOUTS IF IT CAUSES THE POST TO BE DRIVEN BEYOND SHOULDER HINGE POINT OR CAUSES A FIXED OBJECT TO BE WITHIN THE DEFLECTION DISTANCE OF THE BARRIER.

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

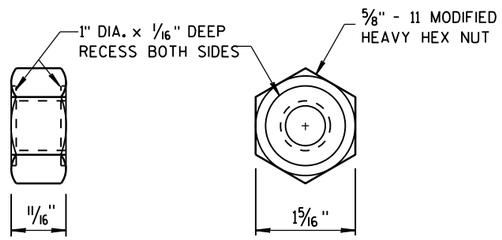


POST BOLT TABLE

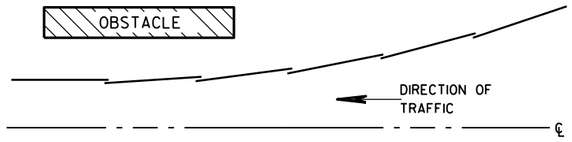
L	T (MIN.)
1 1/4"	1 1/8"
2"	1 3/4"
10"	4"
14"	4 1/16"
18"	4"
21"	4 1/16"
25"	4"



ALTERNATE BOLT HEAD

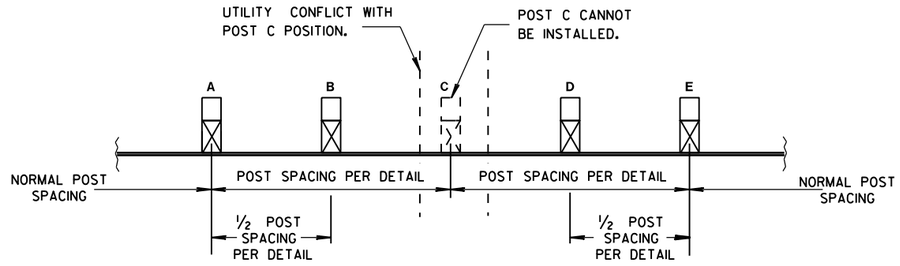


POST BOLT AND RECESS NUT

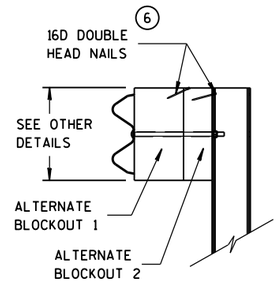


PLAN VIEW

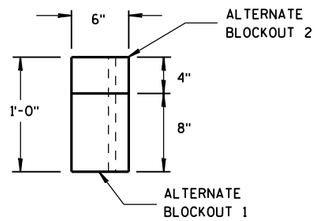
BEAM LAPPING DETAIL



POST DRIVING FOR CONTINUOUS UNDERGROUND OBSTRUCTION



SIDE VIEW



TOP VIEW

ALTERNATE WOOD BLOCKOUT DETAIL

MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

6
S.D.D. 14 B 42-3c

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 MANUFACTURES 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.

(F) ATTACH ALUMINUM SHEET TO E.A.T. HEAD USING 4 STAINLESS STEEL SELF-TAPPING SCREWS. ONE SCREW PER CORNER.

(G) ½" DIAMETER X 3" LONG LAG BOLT AND WASHER.

(H) HARDWARE VARIES BETWEEN DIFFERENT MANUFACTURES. SEE MANUFACTURE'S DRAWING FOR INFORMATION.

(I) DIMENSIONS MAY VARY. SEE MANUFACTURE'S INFORMATION.

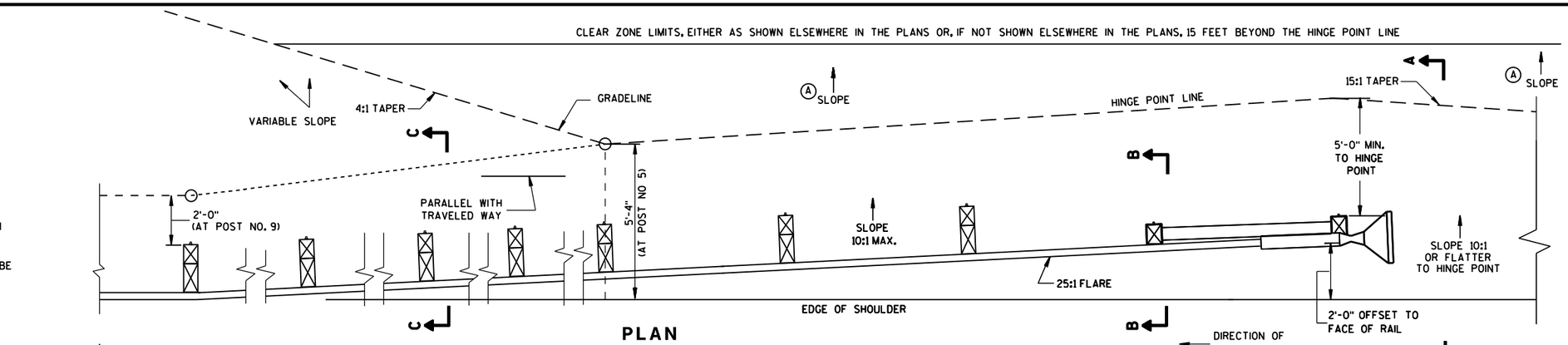
SEE SDD 14B42 FOR MORE INFORMATION.

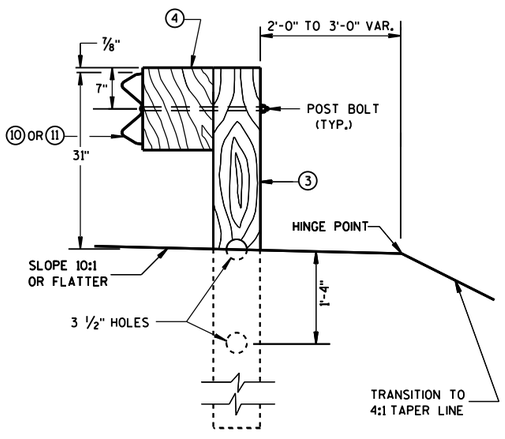
* DO NOT ATTACH BLOCKOUTS TO POSTS 1 AND 2.

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

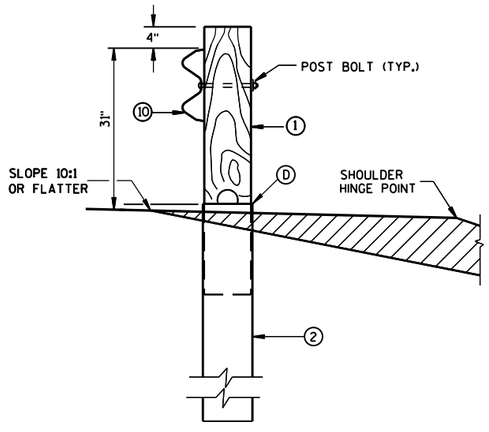
W-BEAM RAIL SPLICES ARE LOCATED AT POST NUMBER 3, AND BETWEEN POST 5 AND 6, BETWEEN POSTS 7 AND 8, AND MIDDLE OF THE SPAN AFTER POST 9.

THE CENTER OF THE UPPER 3½" 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.

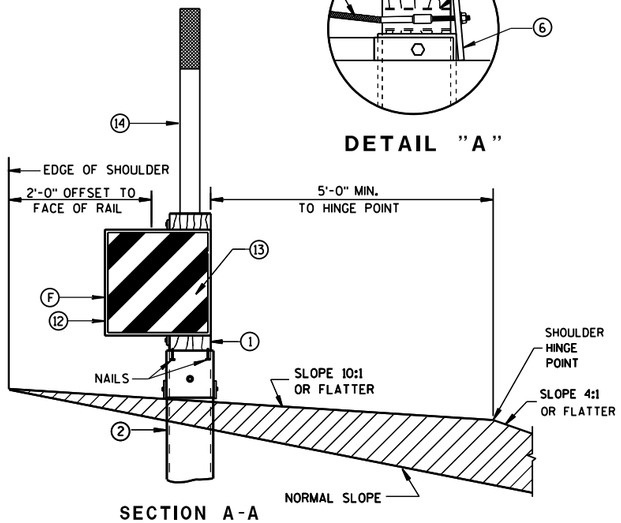




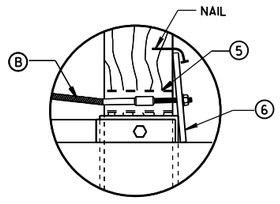
SECTION C-C
TYPICAL AT POST NOS. 3-9



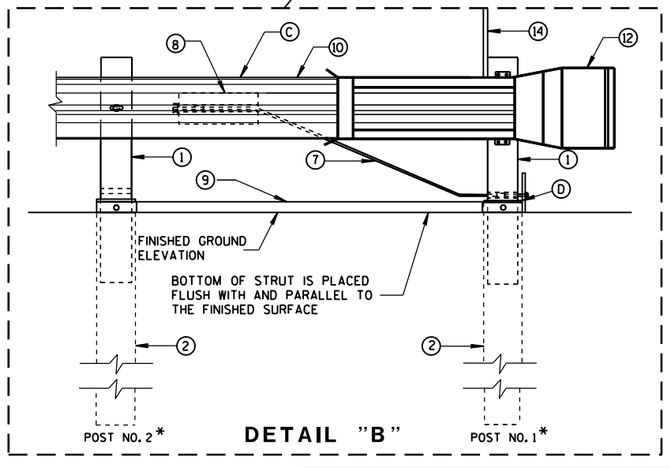
SECTION B-B
TYPICAL AT POST NO. 2*



SECTION A-A
TYPICAL AT POST NO. 1*



DETAIL "A"

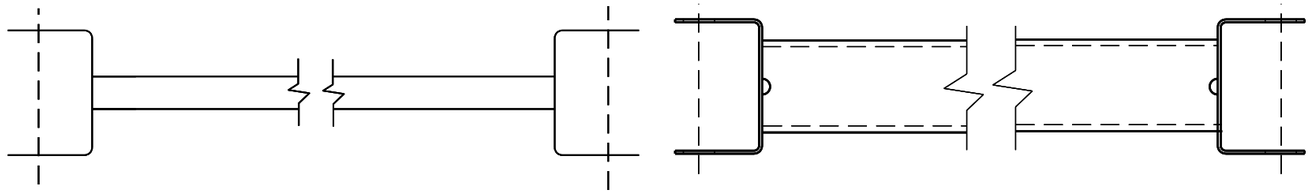


DETAIL "B"

MIDWEST GUARDRAIL SYSTEM
ENERGY ABSORBING TERMINAL
(MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPO

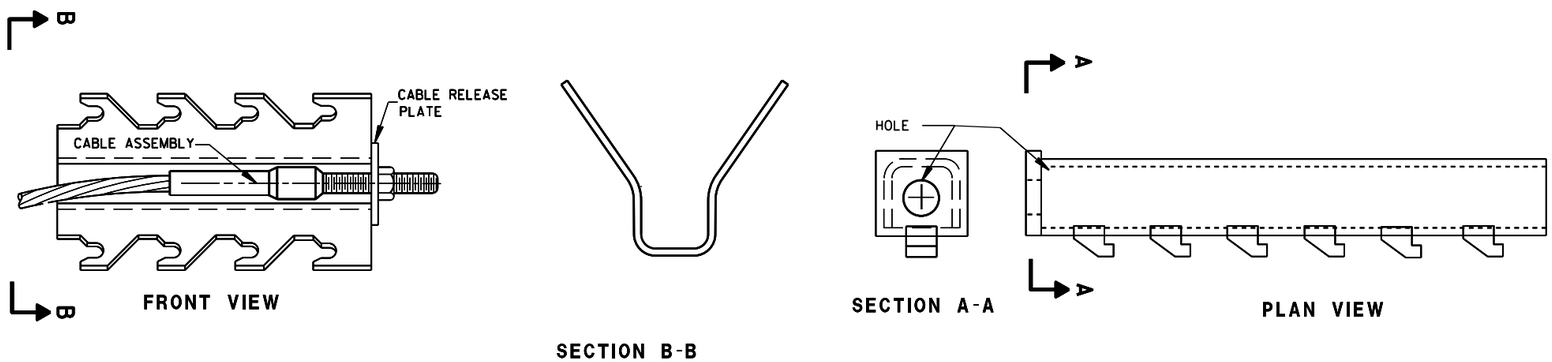
S.D.D. 14 B 44-2a



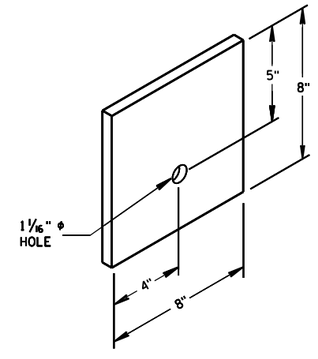
GENERIC GROUND STRUT (9) (H)

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)



GENERIC ANCHOR CABLE BOX (8) (H)



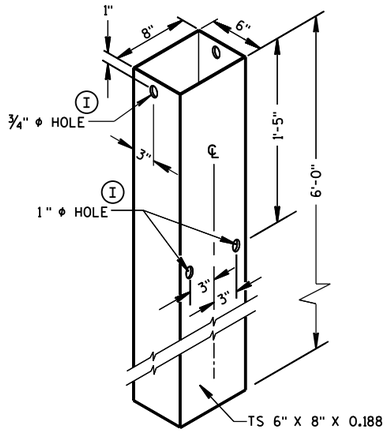
BEARING PLATE (6)

MIDWEST GUARDRAIL SYSTEM
ENERGY ABSORBING TERMINAL
(MGS)

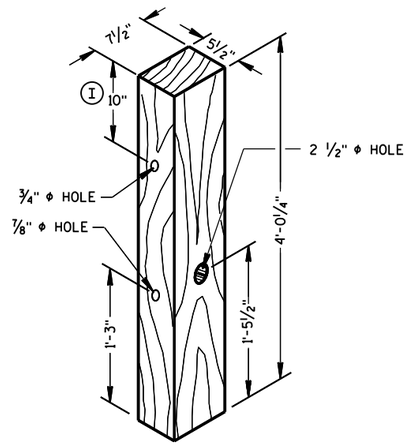
STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI

6

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

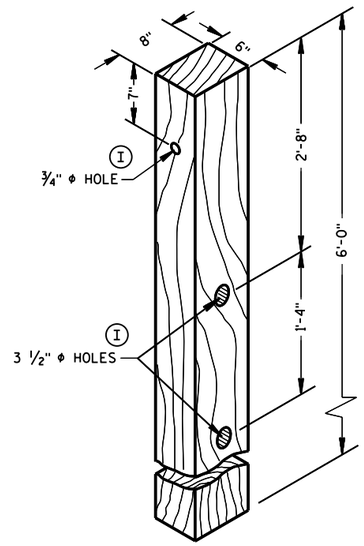


FOUNDATION TUBE (2)



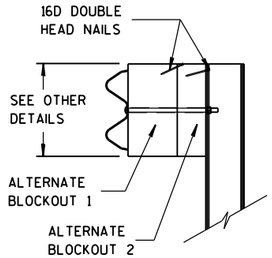
POSTS NUMBER 1 AND 2

WOOD BREAKAWAY POST (1)

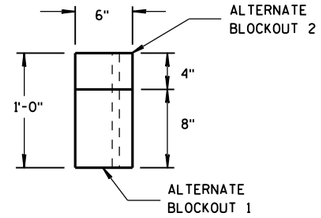


POSTS NUMBER 3-9

WOOD CRT POST (3)

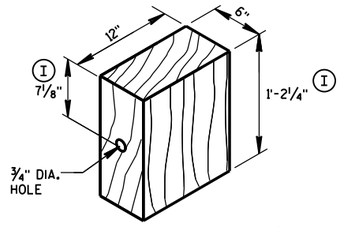


SIDE VIEW



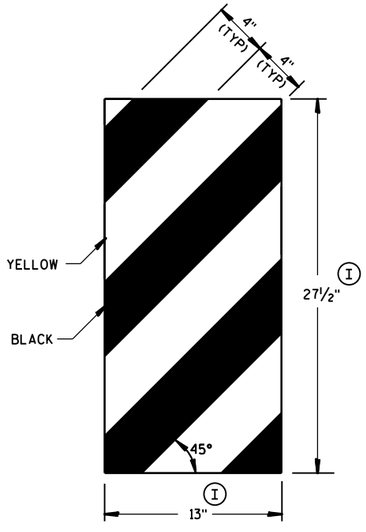
TOP VIEW

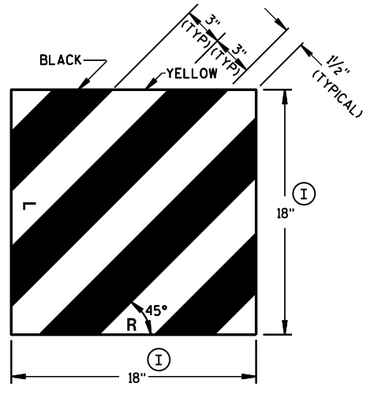
ALTERNATE WOOD BLOCKOUT DETAIL



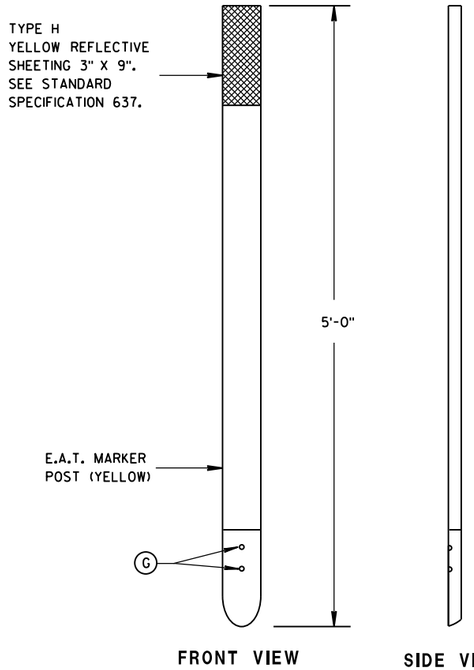
WOOD BLOCKOUT (4)

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





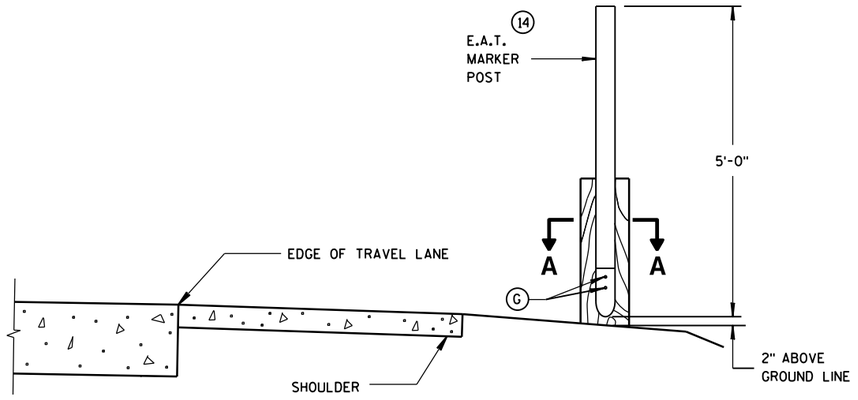
GENERIC REFLECTIVE SHEETING (13) (H)



FRONT VIEW

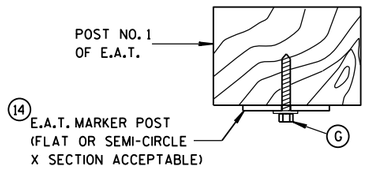
SIDE VIEW

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

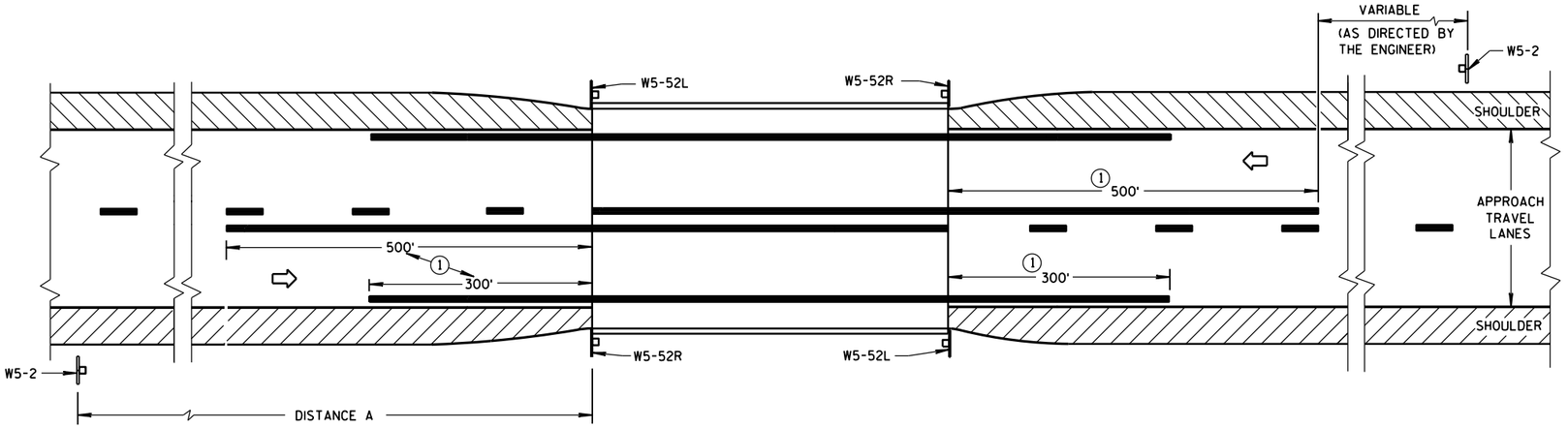
MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

6

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



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.

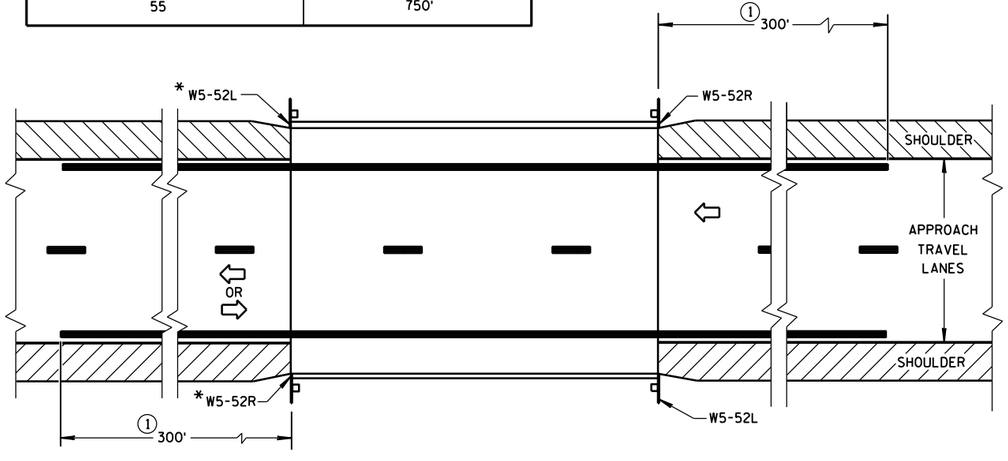
DISTANCE TABLE

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

SITUATION 1

WARRANTING CRITERIA:

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

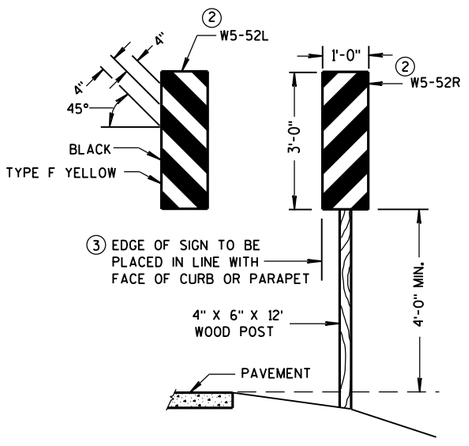


*OMIT ON ONE-WAY TRAVELLED WAYS

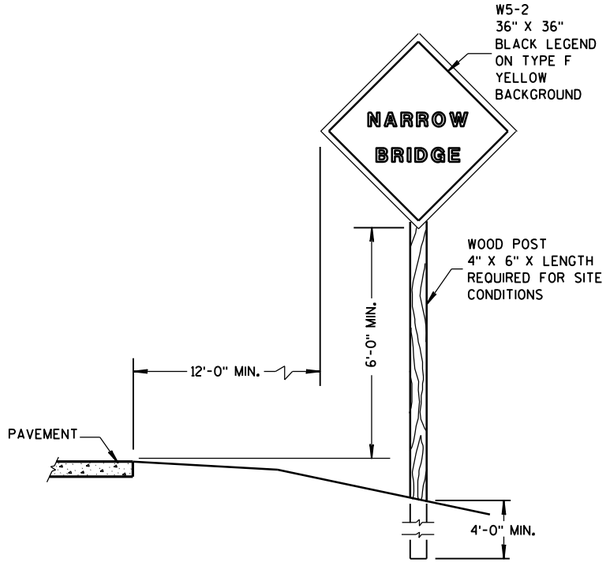
SITUATION 2

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.



OBJECT MARKER PLACEMENT



SIGN PLACEMENT

SIGNING & MARKING
FOR TWO LANE BRIDGES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

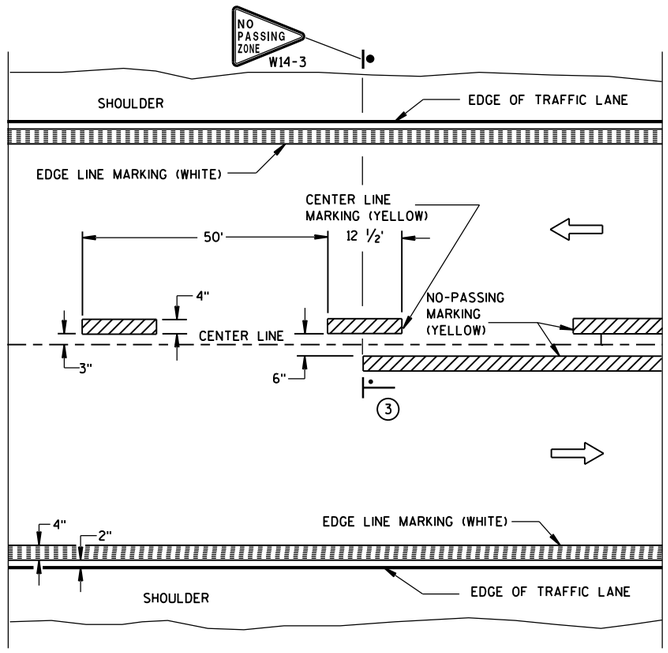
3-2014 DATE

/S/ Travis Feltes
STATE TRAFFIC ENGINEER

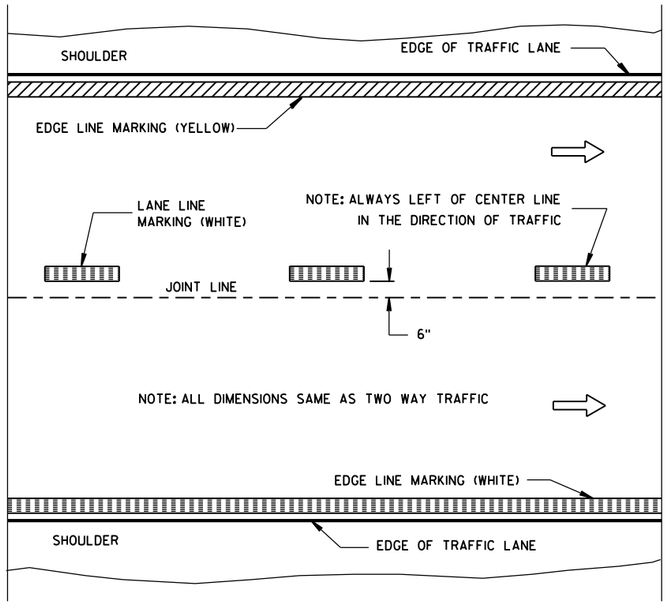
FHWA

6

S.D.D. 15 C 6-7

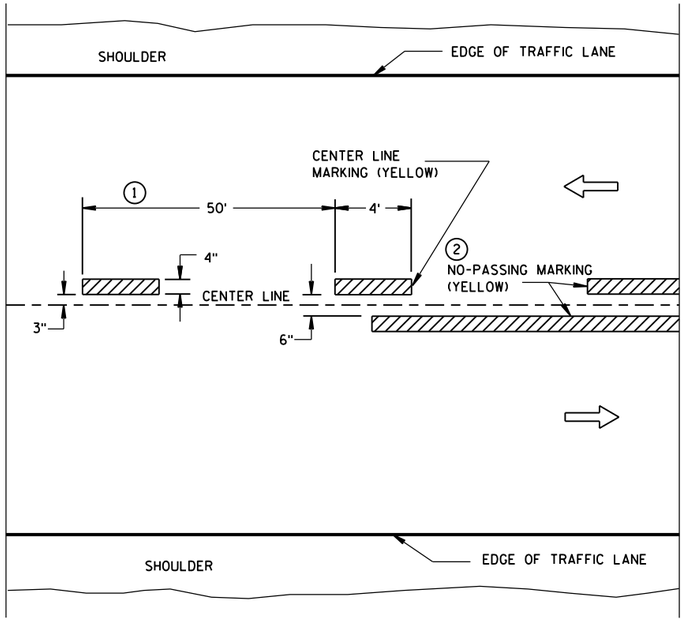


TWO WAY TRAFFIC

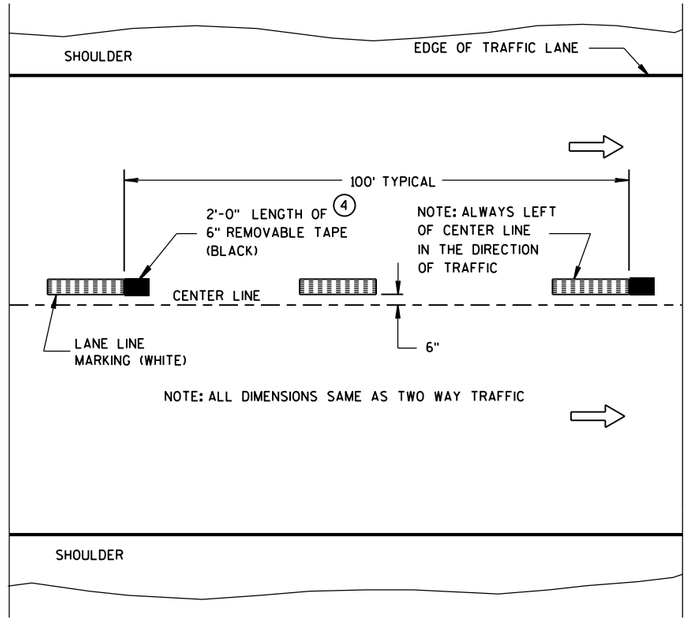


ONE WAY TRAFFIC

PERMANENT PAVEMENT MARKING



TWO WAY TRAFFIC



ONE WAY TRAFFIC

TEMPORARY (INTERMEDIATE) PAVEMENT MARKING

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

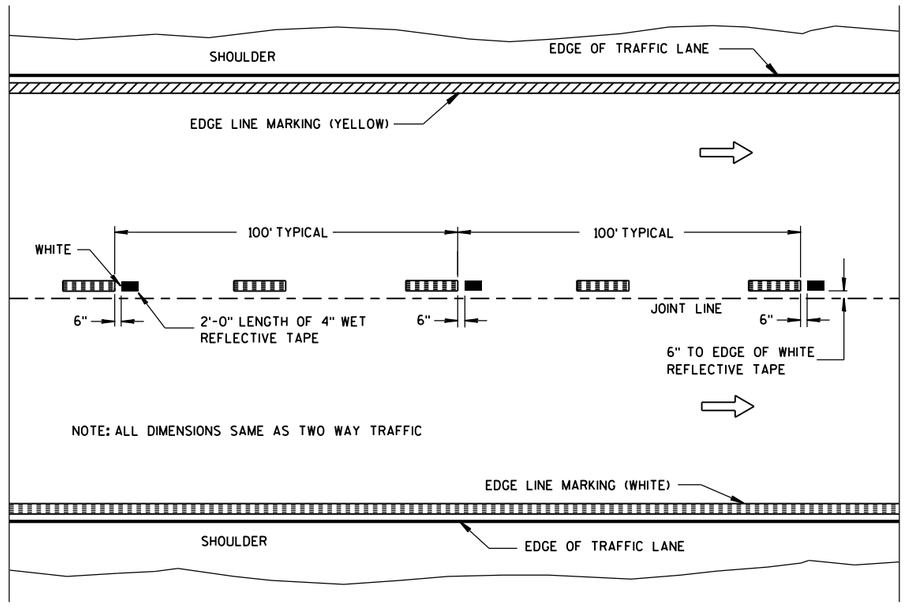
GENERAL NOTES

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

LEGEND

"T" MARKING

POST MOUNTED SIGN

PAVEMENT MARKING (MAINLINE)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

5-13-2013 — DATE

/S/ Travis Feltes — STATE TRAFFIC E

FHWA

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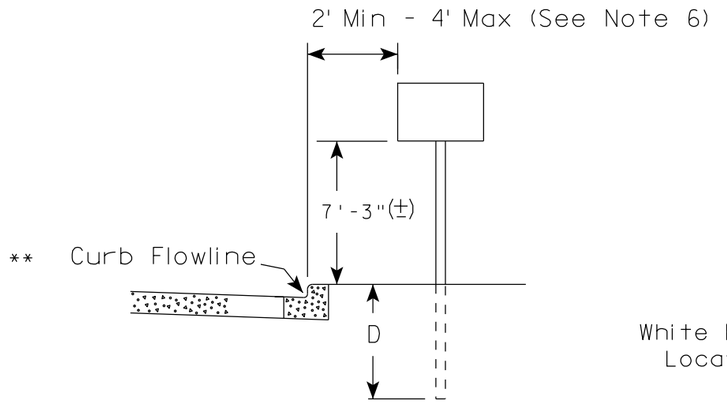
S.D.D. 15 C 8-16a

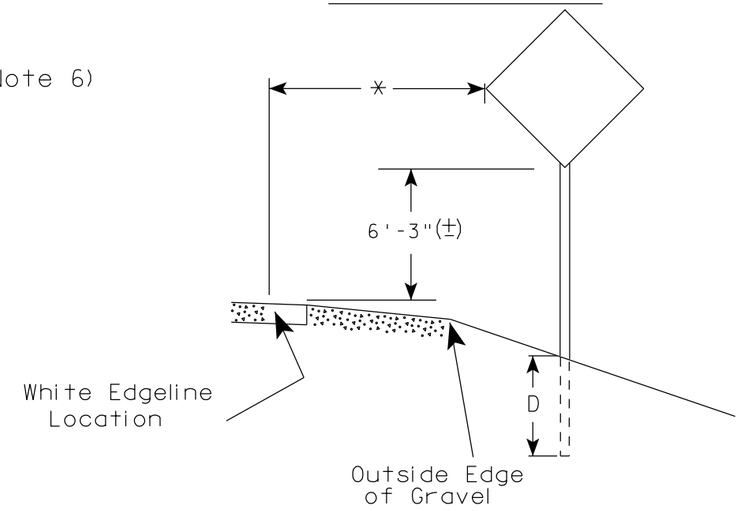
6

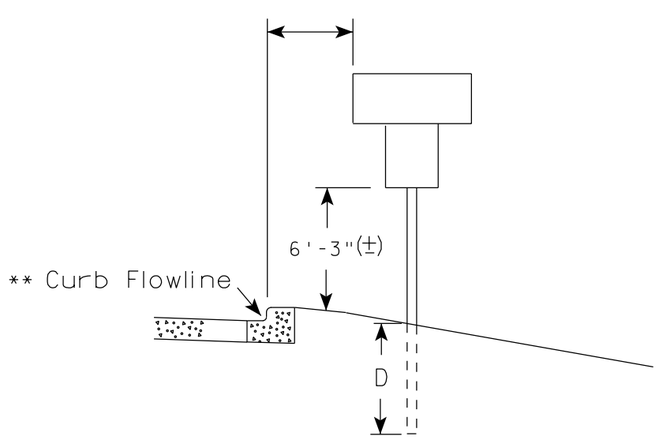
S.D.D. 15 C 8-16a

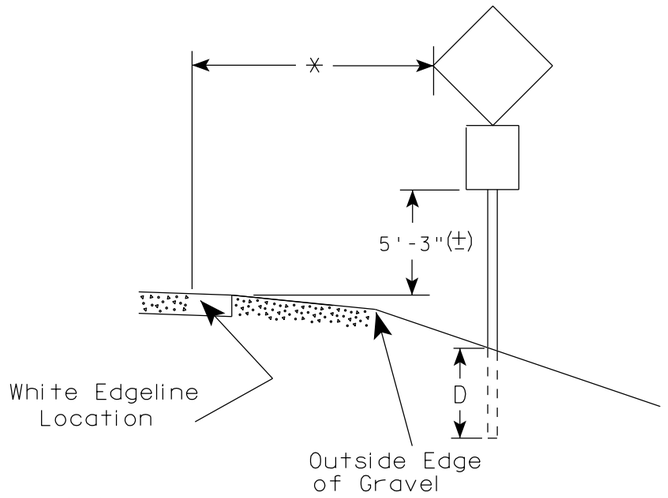
URBAN AREA



RURAL AREA (See Note 2)







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

GENERAL NOTES

1. Signs wider than 4 feet, 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 (A4-5) 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 stop signs (R1-1F) 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) & End of Rod Markers (W5-56 & W5-56A) 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'

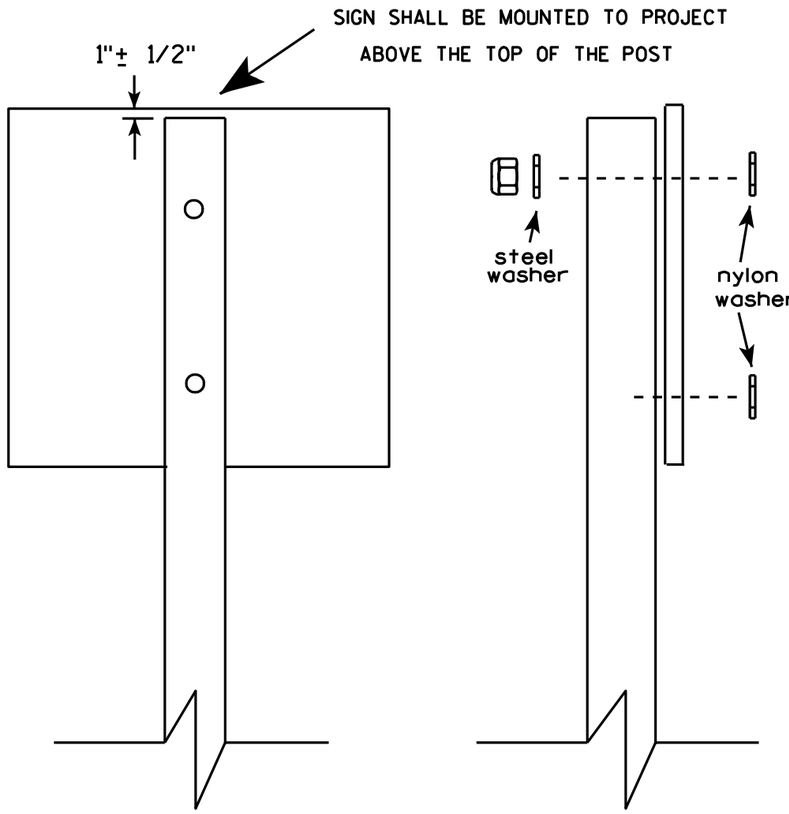
TYPICAL INSTALLATION OF PERMANENT TYPE II SIGNS ON SINGLE POSTS

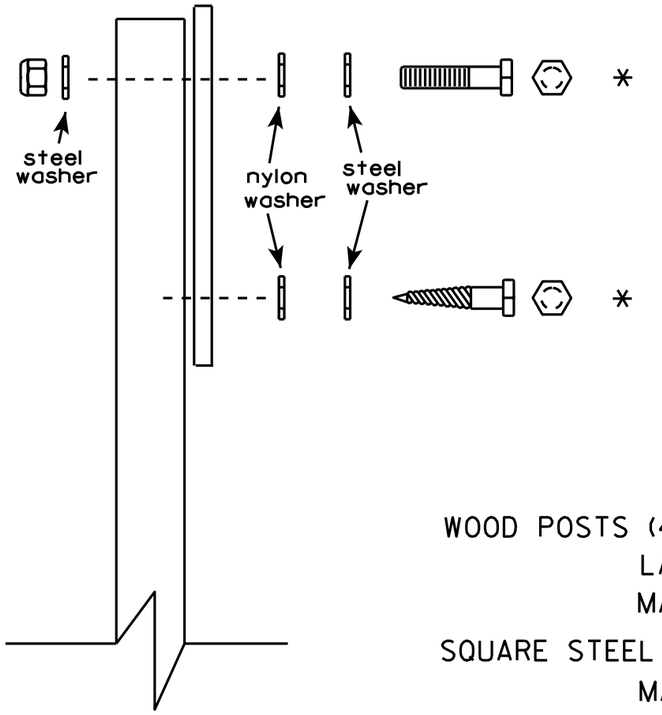
WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch for State Traffic Engineer

DATE 9/30/13 PLATE NO. A4-3.18

PROJECT NO: 9391-07-70	HWY: CTH Y	COUNTY: LANGLADE		SHEET NO:	E





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

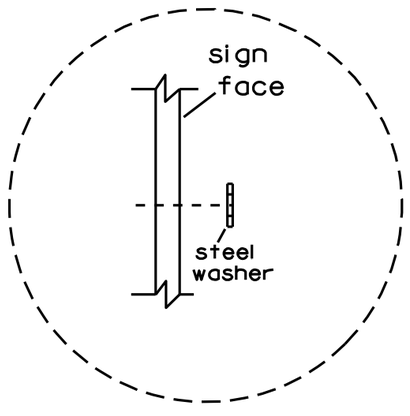
a. Hot dip galvanized in accordance with ASTM Designation: A 153, Class D, or SC 3
b. Electro-galvanized in accordance with ASTM Designation : B 633, TYPE III, SC 3.

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

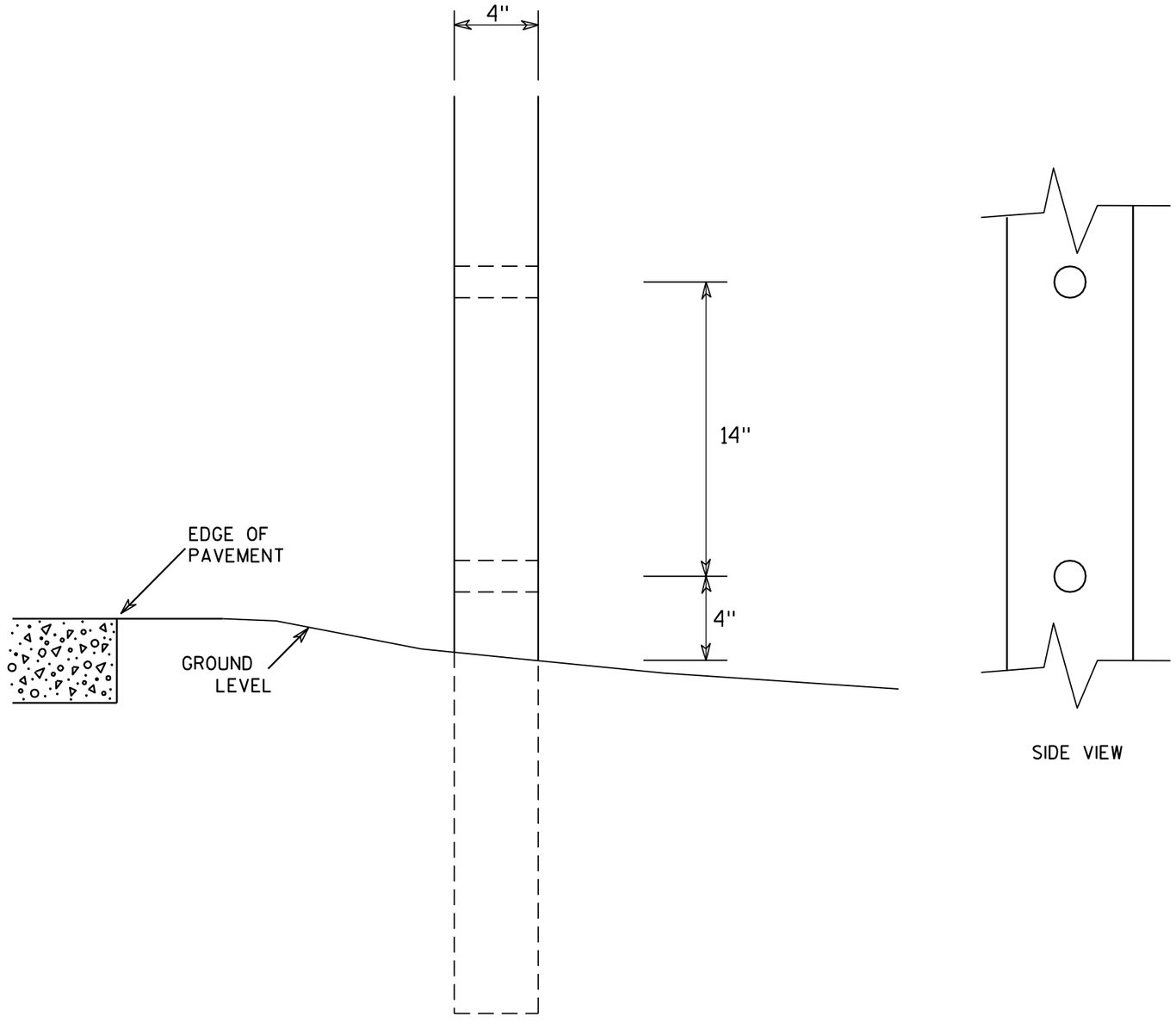
PROJECT NO: 9391-07-70	HWY: CTH Y	COUNTY: LANGLADE		SHEET NO: 32	E

FILE NAME : C:\Users\PROJECTS\tr_stdplate\A48.DGN PLOT DATE : 23-MAR-2010 10:15 PLOT BY : ditjph

WISDOT/CADDS SHEET 42

7

7



SIDE VIEW

GENERAL NOTES

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

7

7

4 X 6 WOOD POST MODIFICATIONS

WISCONSIN DEPT OF TRANSPORTATION

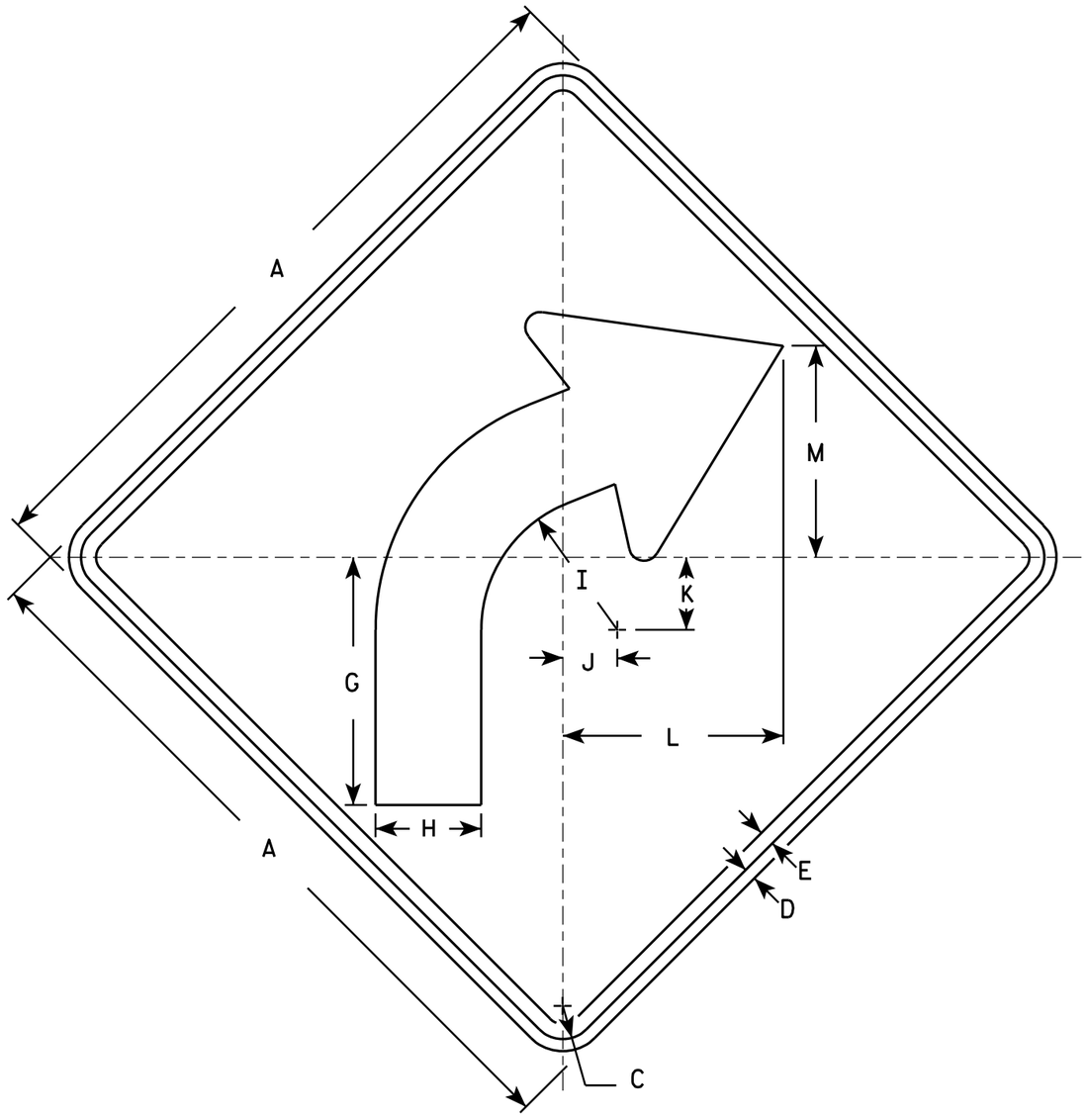
APPROVED Chester J Spang for State Traffic Engineer

DATE 3/27/97 PLATE NO. A4-11.2

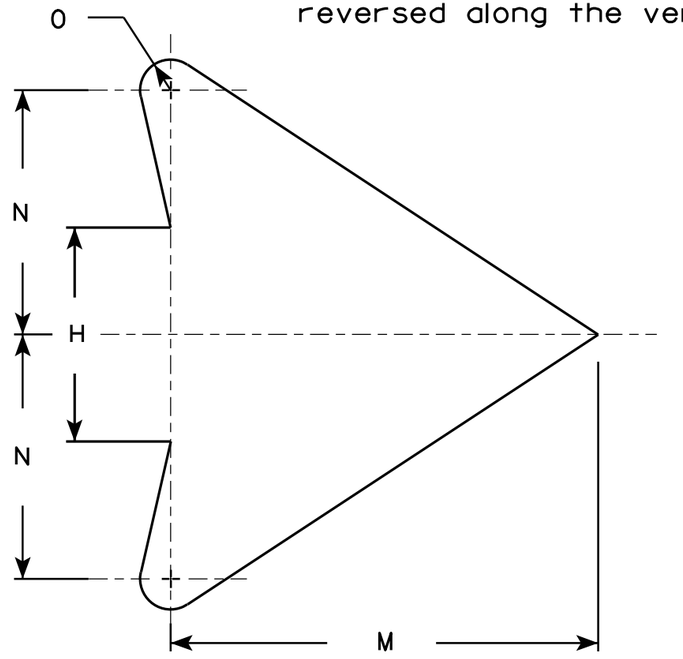
PROJECT NO: 9391-07-70	HWY: CTH Y	COUNTY: LANGLADE		SHEET NO: 33	E

NOTES

1. Sign is Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
   Background - Yellow
   Message - Black
3. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
4. W1-2L is the same as W1-2R except the arrow is reversed along the vertical centerline.



W1-2R



ARROW DETAIL

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	24		1 1/8	3/8	1/2		8 1/4	3 1/2	4 1/2	1 3/4	2 3/8	7 1/4	7	4	1/2												4.0
2S	30		1 3/8	1/2	5/8		10 1/4	4 3/8	5 5/8	2 1/4	3	9 1/8	8 3/4	5	5/8												6.25
2M	36		1 5/8	5/8	3/4		12 3/8	5 1/4	6 3/4	2 5/8	3 1/2	10 7/8	10 1/2	6	3/4												9.0
3	36		1 5/8	5/8	3/4		12 3/8	5 1/4	6 3/4	2 5/8	3 1/2	10 7/8	10 1/2	6	3/4												9.0
4	36		1 5/8	5/8	3/4		12 3/8	5 1/4	6 3/4	2 5/8	3 1/2	10 7/8	10 1/2	6	3/4												9.0
5	48		2 1/4	3/4	1		16 1/2	7	9	3 1/2	4 5/8	14 1/2	14	8	1												16.0

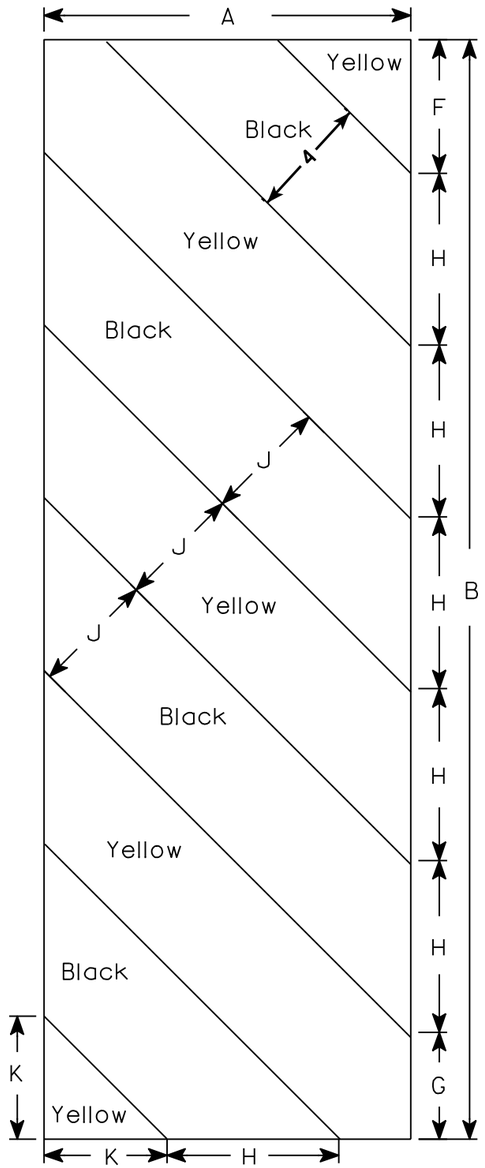
STANDARD SIGN
W1-2

WISCONSIN DEPT OF TRANSPORTATION

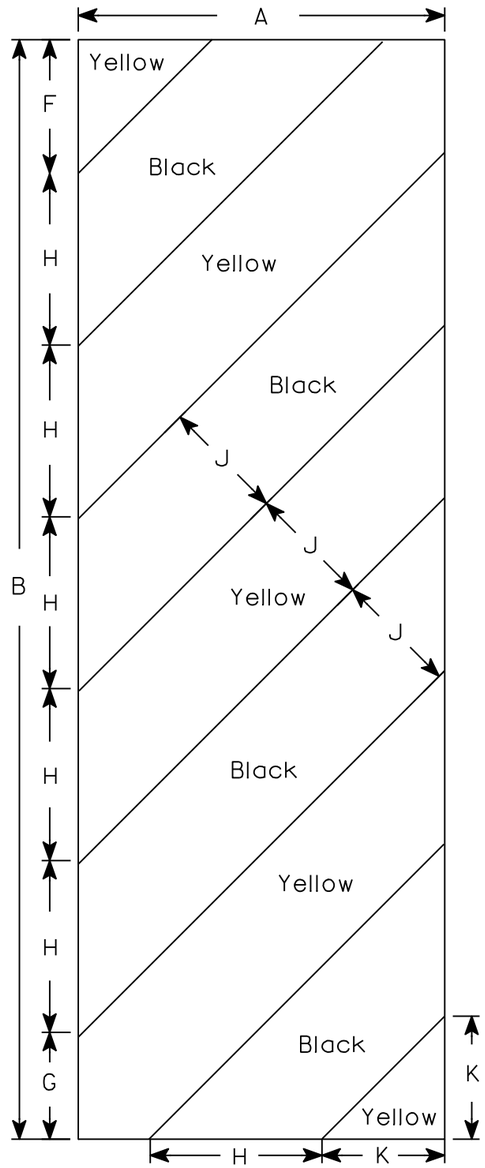
APPROVED Matthew R Rauch for State Traffic Engineer

DATE 5/15/12 PLATE NO. W1-2.10

PROJECT NO: 9391-07-70 | HWY: CTH Y | COUNTY: LANGLADE | SHEET NO: 34 | E



W5-52L



W5-52R

NOTES

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

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

STANDARD SIGN

W5-52L & W5-52R

WISCONSIN DEPT OF TRANSPORTATION

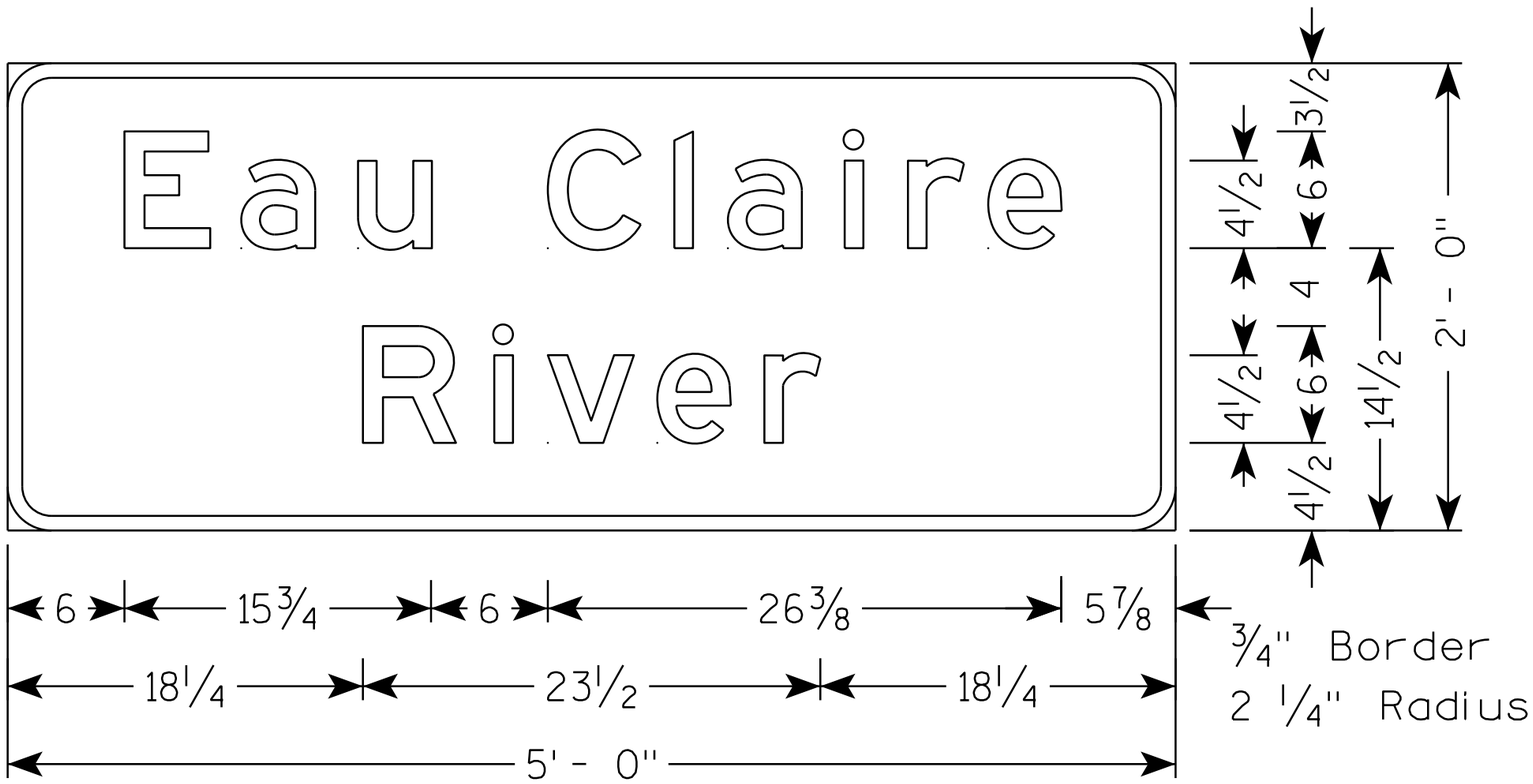
APPROVED Matthew R Rauch
for State Traffic Engineer

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

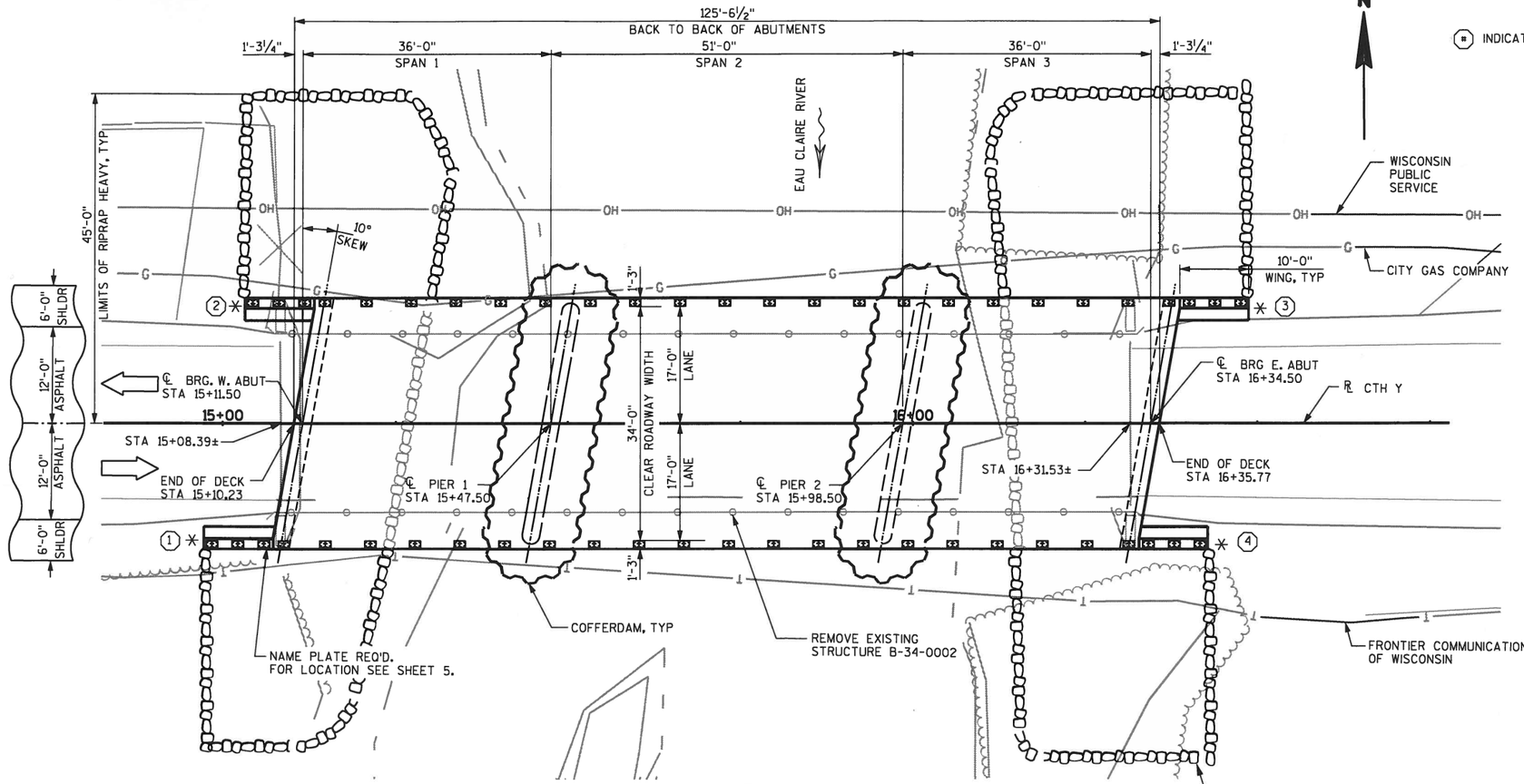
PROJECT NO: 9391-07-70 | HWY: CTH Y | COUNTY: LANGLADE | SHEET NO: 35 | E

NOTES

1. Sign Is Type II - Type H Reflective
2. Color:
   Background - GREEN
   Message - WHITE
3. Message Series - E



I3-1



PLAN B-34-0051

(THREE SPAN REINFORCED CONCRETE HAUNCH SLAB)

✳ LOCATION OF BEAM GUARD ATTACHMENT

(#) INDICATES WING NUMBER

STATE PROJECT NUMBER

9391-07-70

LIVE LOAD:

DESIGN LOADING	HL-93
INVENTORY RATING FACTOR	1.07
OPERATING RATING FACTOR	1.38
WISCONSIN STANDARD PERMIT VEHICLE (WIS-SPV)	250 KIPS

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

ULTIMATE DESIGN STRESSES:

CONCRETE MASONRY, SLAB	f'c = 4000 psi
ALL OTHER	f'c = 3500 psi
HIGH STRENGTH BAR STEEL REINFORCEMENT	fy = 60 ksi

FOUNDATION DATA:

ABUTMENTS AND PIER TO BE SUPPORTED ON HP 10-INCH X 42 LB STEEL PILING WITH A REQUIRED DRIVING RESISTANCE OF 120 TONS * PER PILE AT THE ABUTMENTS AND 180 TONS * PER PILE AT THE PIERS. ESTIMATED 60'-0" LONG AT THE WEST ABUTMENT, 65'-0" LONG AT THE EAST ABUTMENT 60'-0" LONG AT PIER 1 AND 80'-0" LONG AT THE PIER 2. PILE POINTS REQUIRED.

* 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 DYNAMIC EQUATION TO DETERMINE DRIVEN PILE CAPACITY.

HYDRAULIC DATA:

100 YEAR FREQUENCY

Q_{100}	5400 cfs
Q_{100} BRIDGE	5400 cfs
Q_{100} ROAD	0 cfs
STREAM VELOCITY	6.85 ft/s
HIGH WATER	EL. 1439.92
WATERWAY AREA	788 ft²
DRAINAGE AREA	200 mi²
SCOUR CRITICAL CODE	5
OVER TOPPING FREQUENCY	N/A

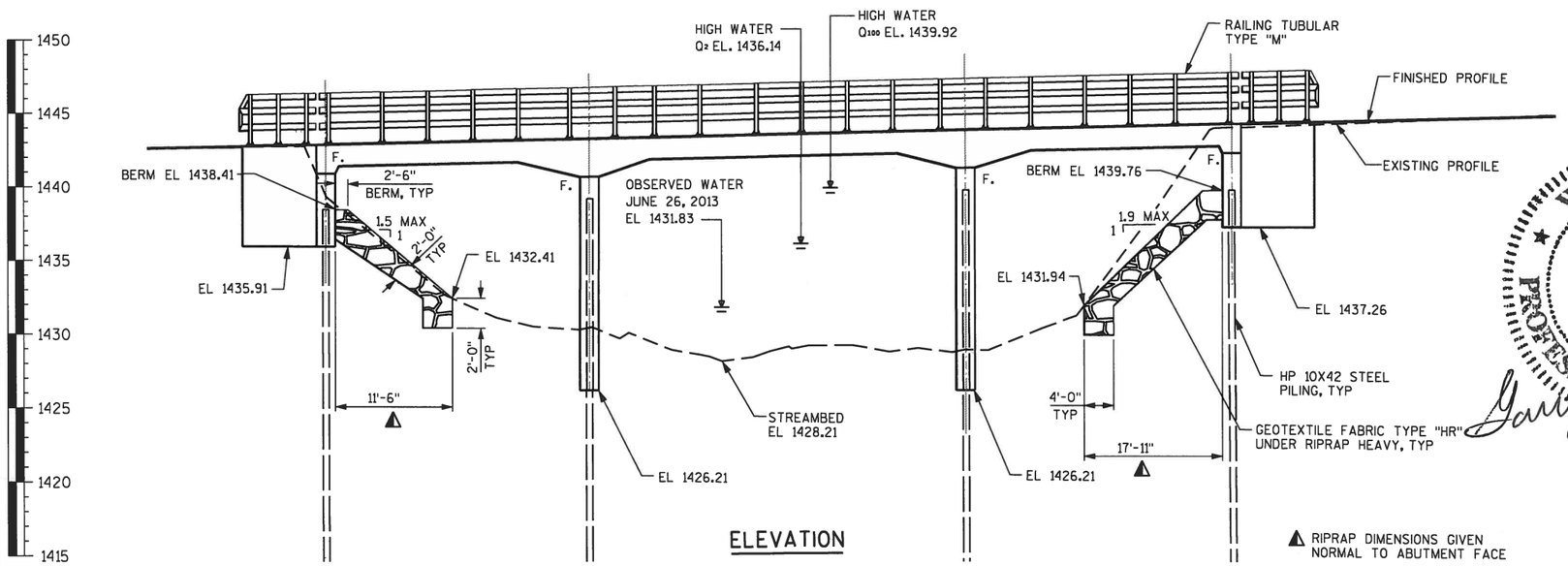
2 YEAR FREQUENCY

Q_2	1710 cfs
HIGH WATER	EL. 1436.14

TRAFFIC DATA:

ADT (2015) = 460
ADT (2035) = 640
DESIGN SPEED = 55 MPH

LIST OF DRAWINGS:



ELEVATION

▲ RIPRAP DIMENSIONS GIVEN NORMAL TO ABUTMENT FACE

WISCONSIN
GARY A. RUCHTI
E-30936
MADISON
WI
PROFESSIONAL ENGINEER
7/22/14

BRIDGE OFFICE CONTACT
WILLIAM DREHER, P.E.
TELEPHONE: (608) 266-8489

CONSULTANT CONTACT
GARY RUCHTI, P.E.
TELEPHONE: (608) 273-6380

NO.	DATE	REVISION	BY

Mead & Hunt, Inc.
6501 Watts Road
Madison, WI 53719
608.273.6380
fax: 608.273.6391
www.meadhunt.com

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

ACCEPTED _____ _____
CHIEF STRUCTURES DESIGN ENGINEER — DATE

STRUCTURE B-34-51

CTH Y OVER EAU CLAIRE RIVER

COUNTY	TOWN ~~CITY/VILLAGE~~
LANGLADE	ACKLEY

DESIGN SPEC.
AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS

DESIGNED BY	DESIGN CK'D.	DRAWN BY	PLANS CK'D.
RCP	MJB	MJB/TAV	GAR

GENERAL PLAN

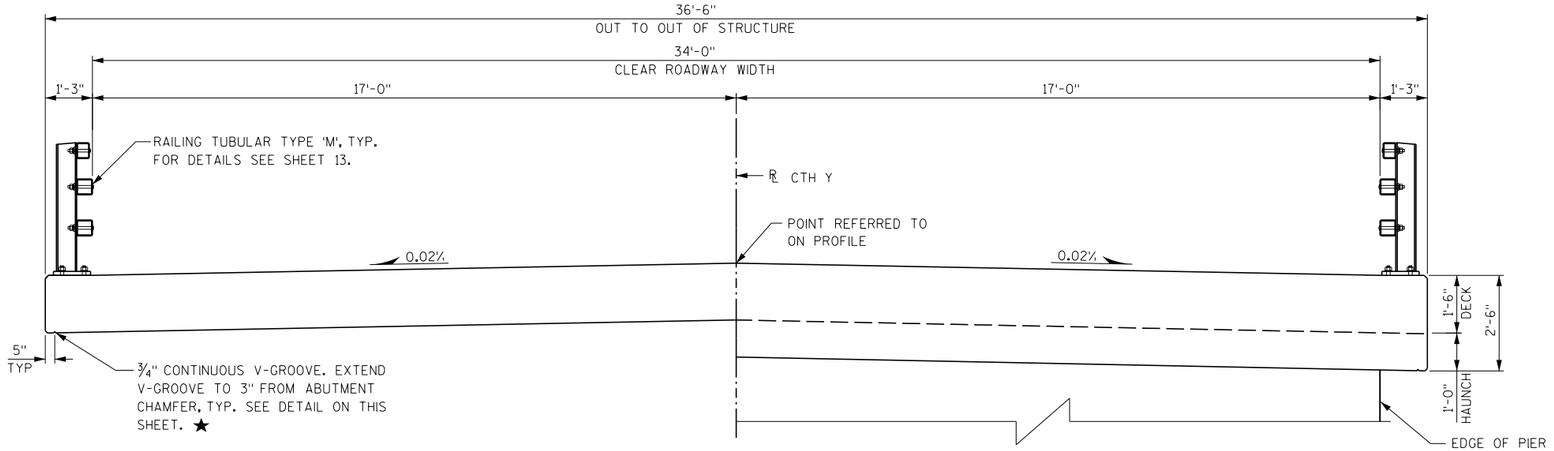
SHEET 1 OF 13
37

8

8

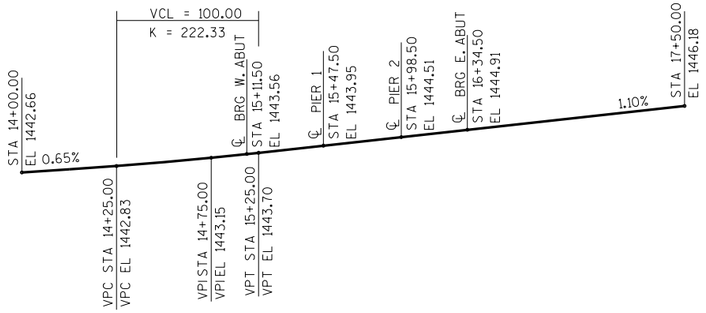
FILE NAME : X:±1210000±122116.01±TECH±CAD±93910700±Design±Structure±080101_gp.dgPLOT DATE : 7/17/2014

PLOT SCALE : 20.0000 sf / in.



CROSS SECTION THRU ROADWAY

(LOOKING EAST)



PROFILE GRADE LINE, ℄ CTH Y

GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.

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

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

THE FIRST OR FIRST TWO DIGITS OF THE BAR MARK SIGNIFIES THE BAR SIZE.

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

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

THE EXISTING GROUNDLINE SHALL BE THE UPPER LIMITS OF EXCAVATION FOR STRUCTURES.

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

THE EXISTING STRUCTURE IS A 125' LONG BY 24.0' CLEAR ROADWAY WIDTH, TWO SPAN STEEL DECK GIRDER STRUCTURE (B-34-0002).

ALL STATIONS AND ELEVATIONS ARE IN FEET.

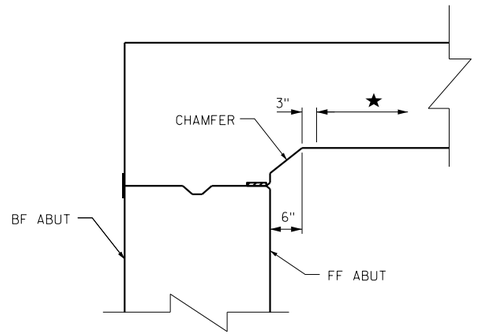
◓ ELEVATIONS SHOWN ON THE PLAN ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88).

PROTECTIVE SURFACE TREATMENT SHALL BE APPLIED TO THE LIMITS SHOWN IN THE DETAIL ON SHEET 3.

COFFERDAMS TO BE USED FOR EXCAVATION DURING THE REMOVAL OF THE EXISTING PIER AND CONSTRUCTION OF BOTH NEW PIERS.

◓ BENCH MARKS

NO.	STATION	OFFSET	DESCRIPTION	ELEV.
1	10+65.83	33.11', LT	POWER POLE 3110-34 W6	1438.24'
2	17+77.70	29.65', LT	POWER POLE 3110-34 W8	1445.78'



DRIP GROOVE DETAIL AT ABUTMENTS

TOTAL ESTIMATED QUANTITIES

BID ITEM NO.	BID ITEMS	UNIT	W ABUT	E ABUT	PIER 1	PIER 2	SUPER	TOTALS
203.0700.S	REMOVING OLD STRUCTURE OVER WATERWAY WITH DEBRIS CAPTURE SYSTEM STATION 15+50	LS	---	---	---	---	---	1
206.1000	EXCAVATION FOR STRUCTURES BRIDGES B-34-0051	LS	---	---	---	---	---	1
206.5000	COFFERDAMS B-34-0051	LS	---	---	---	---	---	1
210.0100	BACKFILL STRUCTURE	CY	80	80	---	---	---	160
502.0100	CONCRETE MASONRY BRIDGES	CY	33	33	49	51	289	455
502.3200	PROTECTIVE SURFACE TREATMENT	SY	10	10	---	---	584	604
505.0405	BAR STEEL REINFORCEMENT HS BRIDGES	LB	2140	2140	2260	2360	---	8900
505.0605	BAR STEEL REINFORCEMENT HS COATED BRIDGES	LB	1380	1390	---	---	69090	71860
513.4060	RAILING TUBULAR TYPE M B-34-0051	LS	---	---	---	---	---	1
516.0500	RUBBERIZED MEMBRANE WATERPROOFING	SY	10	10	---	---	---	20
550.0500	PILE POINTS	EA	5	5	9	9	---	28
550.1100	PILING STEEL HP 10-INCH X 42 LB	LF	300	325	540	720	---	1885
606.0300	RIPRAP HEAVY	CY	160	200	---	---	---	360
612.0406	PIPE UNDERDRAIN WRAPPED 6-INCH	LF	71	71	---	---	---	142
645.0120	GEOTEXTILE FABRIC TYPE 'HR'	SY	300	360	---	---	---	660
	NON BID ITEMS							
	FILLER	SIZE						1/2" & 3/4"

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-34-51

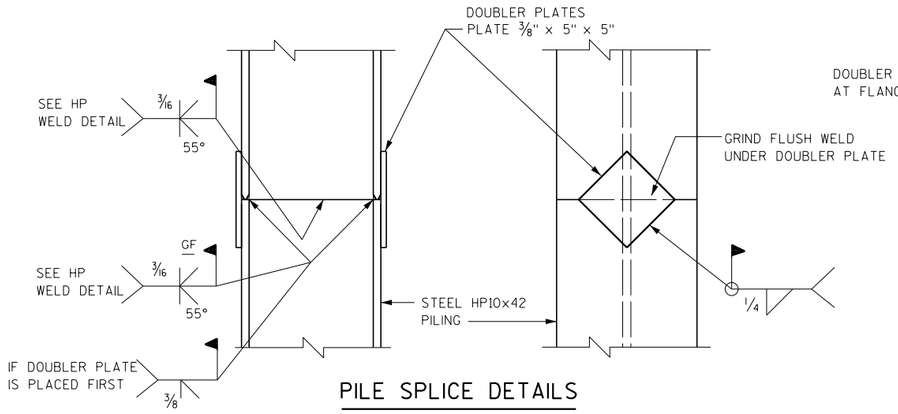
DRAWN BY TAV | PLANS CK'D. GAR

CROSS SECTION, GENERAL NOTES & QUANTITIES

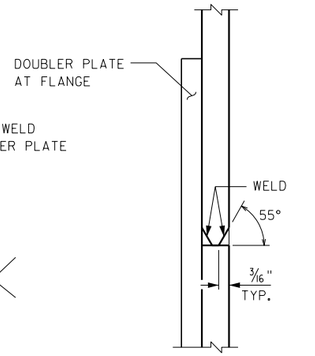
SHEET 7 OF 13
38

STATE PROJECT NUMBER

9391-07-70

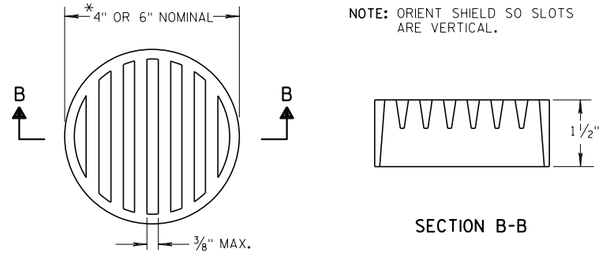


PILE SPLICE DETAILS



HP WELD DETAIL

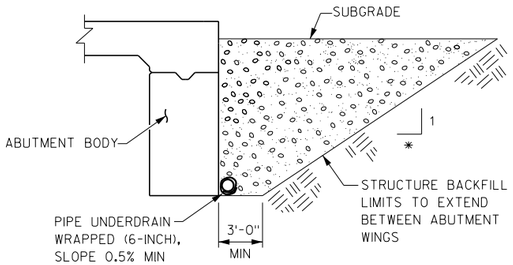
FLANGE SHOWN, WEB SIMILAR



② RODENT SHIELD

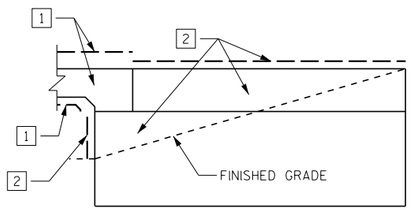
*NOTE: DIMENSIONS ARE APPROXIMATE. THE GRATE IS SIZED TO FIT INTO A PIPE COUPLING.

② THE RODENT SHIELD SHALL BE A PVC GRATE SIMILAR TO THIS DETAIL. THE GRATE IS COMMERCIALLY AVAILABLE AS A FLOOR STRAINER. A PIPE COUPLING IS REQUIRED FOR THE ATTACHMENT OF THIS SHIELD TO THE OUTFALL PIPE. THE SHIELD SHALL BE FASTENED TO THE PIPE COUPLING WITH TWO OR MORE NO. 10 X 1-INCH STAINLESS STEEL SHEET METAL SCREWS. THE RODENT SHIELD SHALL BE INCIDENTAL TO THE BID ITEM "PIPE UNDERDRAIN WRAPPED 6-INCH.

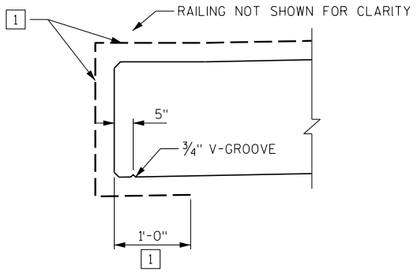


STRUCTURE BACKFILL DETAIL

(TYPICAL AT BOTH ABUTMENTS)
* OSHA MINIMUM REQUIREMENT. A SLOPE OF 1.5:1 WAS USED FOR QUANTITY CALCULATIONS



ABUTMENT HAUNCH & WING FACE



SECTION THRU EDGE OF SLAB

(TYPICAL AT BOTH EDGES)

LIMITS OF PROTECTIVE SURFACE TREATMENT

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 COAT SUPERSTRUCTURE WITH "PROTECTIVE SURFACE TREATMENT" AS PER THE STANDARD SPECIFICATIONS. EXTEND FROM BEAM SEAT TO BEAM SEAT OF ABUTMENTS. SEE DETAIL ON THIS SHEET.

2 COAT ABUTMENTS WITH "PROTECTIVE SURFACE TREATMENT" AS PER THE STANDARD SPECIFICATIONS. BE APPLIED TO THE TOP AND EXTERIOR EXPOSED FACE OF THE WINGS. ALSO TO BE APPLIED TO THE ABUTMENT FACE FOR A DISTANCE OF 1'-0" FROM THE END END OF ABUTMENT. SEE DETAILS ON THIS SHEET.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-34-51

DRAWN BY TAV | PLANS CK'D. GAR

CONSTRUCTION DETAILS

SHEET 3 OF 13
39

8

8

FILE NAME : X:\1210000\122116.01\TECH\CAD\93910700\Design\Structure\080103_cd.dgn PLOT DATE : 5/29/2014

PLOT SCALE : 4.0000 sf / in.

STATE PROJECT NUMBER

9391-07-70

ABBREVIATIONS

F — FINE M — MEDIUM C — COARSE
WS — WEATHERED SO — SOUND

MATERIAL SYMBOLS

ASPHALT, SILT, WATER, SAND, AIR, WEATHERED GRANITE, GRAVEL, CLAY, IGNEOUS ROCK

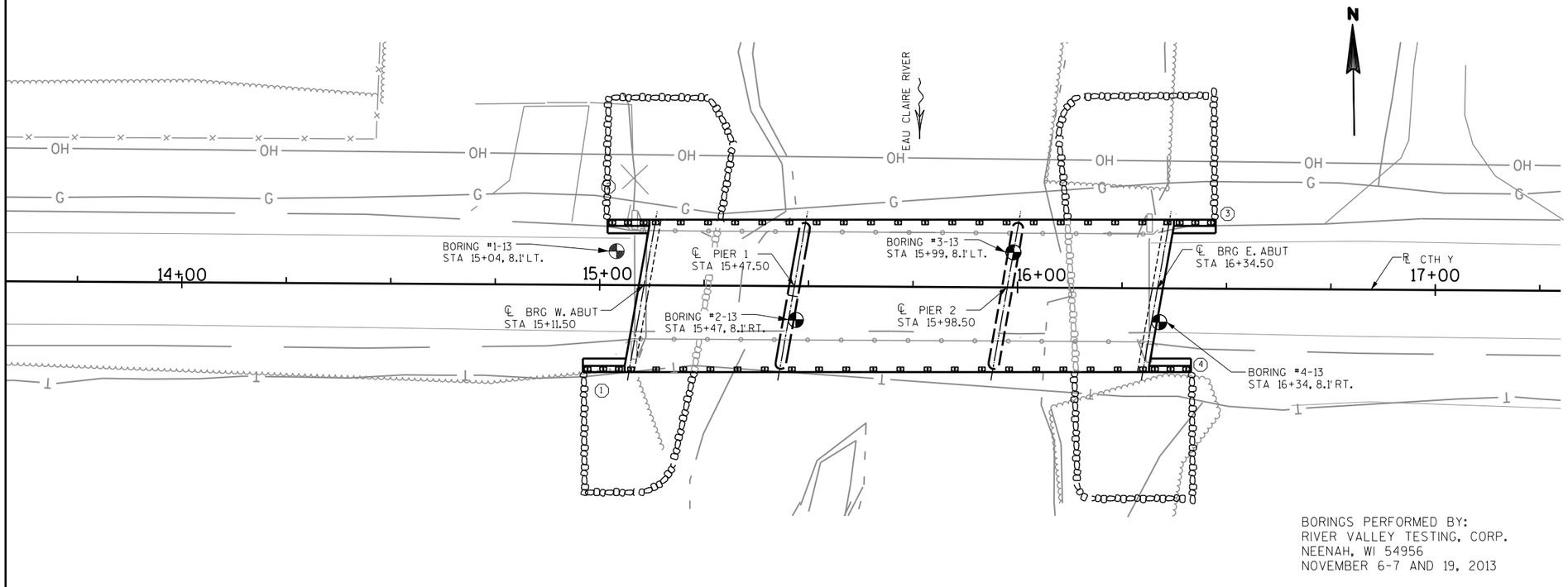
LEGEND OF PROBING

PROBING NO.
STA.
ELEVATION
7 AVERAGE BLOWS PER FOOT
REFUSAL 95/6

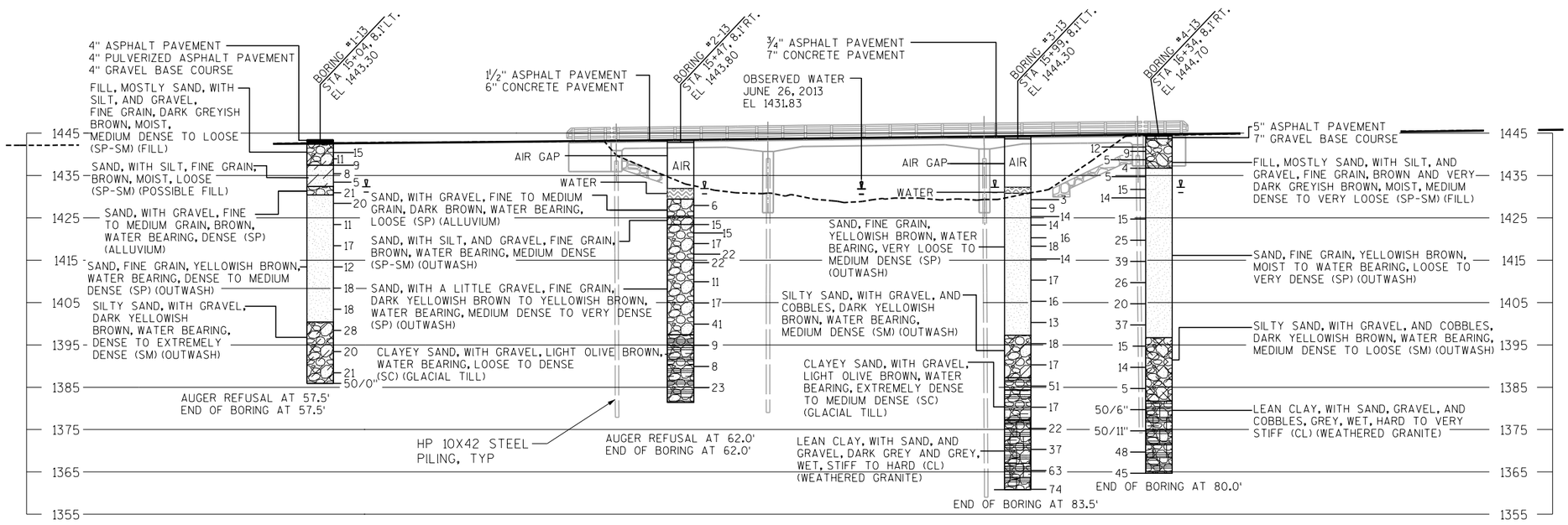
95/6=95 BLOWS FOR 6" PENETRATION
PROBING TAKEN WITH A 350# WT. FALLING 18" ON A 2" O.D. POINT.

LEGEND OF BORING

BORING NO.
ELEV.
STA.
UNCONFINED STRENGTH → 7.7 7
BLOWS PER FT. USING 140# WT. FALLING 30"
WASH SAMPLE
SHELBY TUBE — S.T.
GROUND WATER ELEVATION
NO GROUND WATER OBSERVED ABOVE THIS ELEVATION
SANDY GRAVEL
F. BOULDERS OR COBBLES
SAND
SILTY CLAY
SO LIMESTONE



BORINGS PERFORMED BY:
RIVER VALLEY TESTING, CORP.
NEENAH, WI 54956
NOVEMBER 6-7 AND 19, 2013



UNLESS OTHERWISE SPECIFIED, THE BLOWS PER FOOT AT THE LOCATIONS INDICATED ARE BASED ON DRIVING A 2" O.D. X 1.4" I.D. SPLIT SPOON SAMPLER WITH A 140# HAMMER HAVING A FREE FALL OF 30". THE BLOW COUNT IS TAKEN IN UNDISTURBED SOIL IMMEDIATELY BELOW A CASED OR OPEN HOLE ELIMINATING SIDE FRICTION ON THE DRIVE PIPE.

SUBSURFACE EXPLORATION FOR FOUNDATION DESIGN AND BIDDERS INFORMATION

TO OBTAIN RELATIVE DATA CONCERNING THE CHARACTER OF MATERIAL IN AND UPON WHICH THE FOUNDATION MIGHT BE BUILT, BORINGS AND/OR SOUNDINGS WERE MADE AT POINTS APPROXIMATELY AS INDICATED ON THIS DRAWING. THE DATA PRESENTED HEREIN REPRESENTS THE FINDINGS OF THE SUBSURFACE EXPLORATIONS MADE. HOWEVER, BECAUSE THE DEPTHS INVESTIGATED ARE LIMITED AND THE AREA OF THE BORINGS AND/OR SOUNDINGS IS VERY SMALL IN RELATION TO THE ENTIRE AREA, THE WISCONSIN DEPARTMENT OF TRANSPORTATION DOES NOT WARRANT CONDITIONS BELOW THE DEPTHS INVESTIGATED OR THAT THE CLASSIFICATION OF MATERIAL ENCOUNTERED IN THESE INVESTIGATIONS IS NECESSARILY TYPICAL OF THE ENTIRE SITE.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-34-51

DRAWN BY TAV PLANS CK'D. GAR

SUBSURFACE EXPLORATION

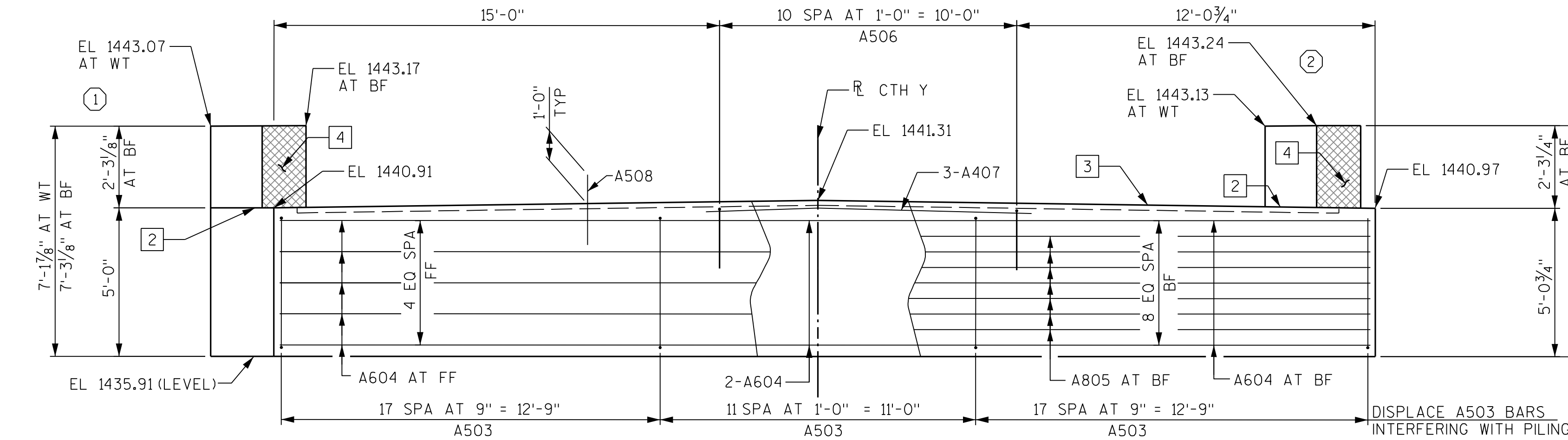
SHEET 4 OF 13
40

8

8

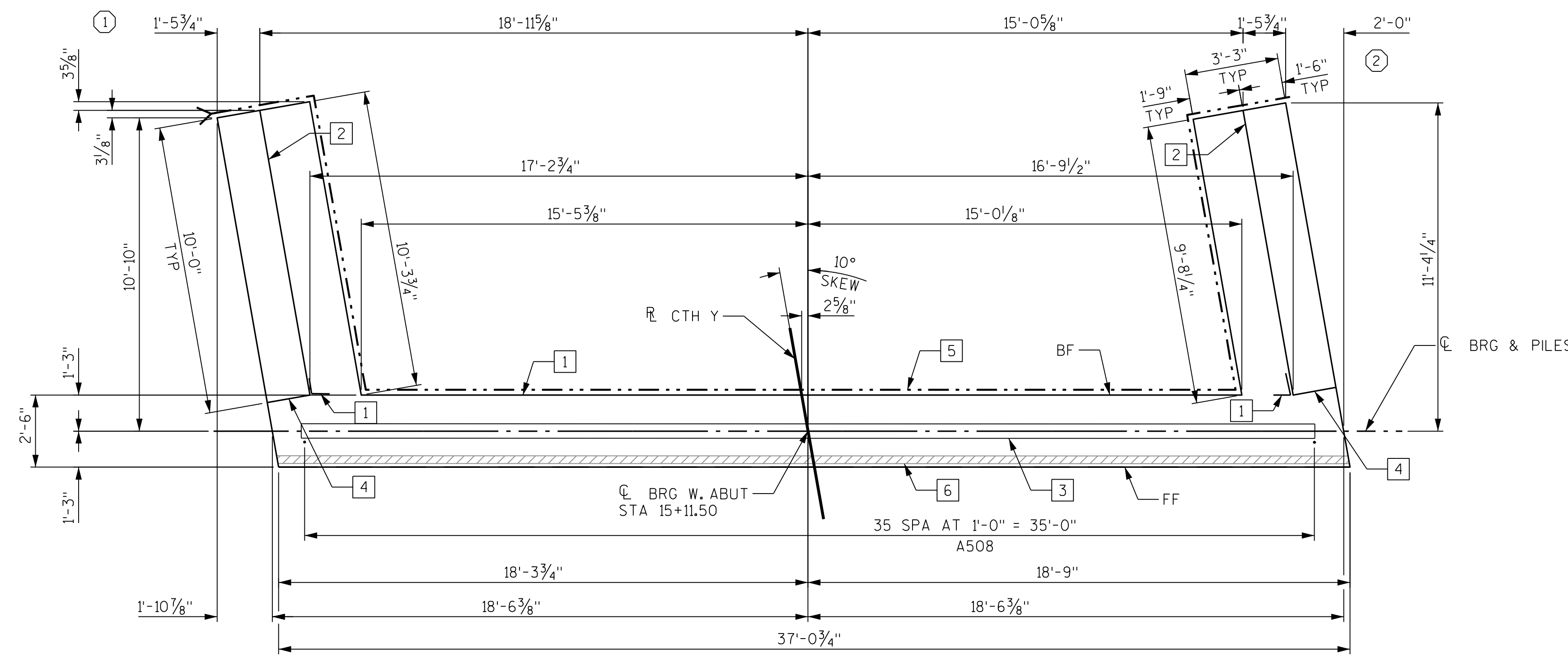
STATE PROJECT NUMBER

9391-07-70

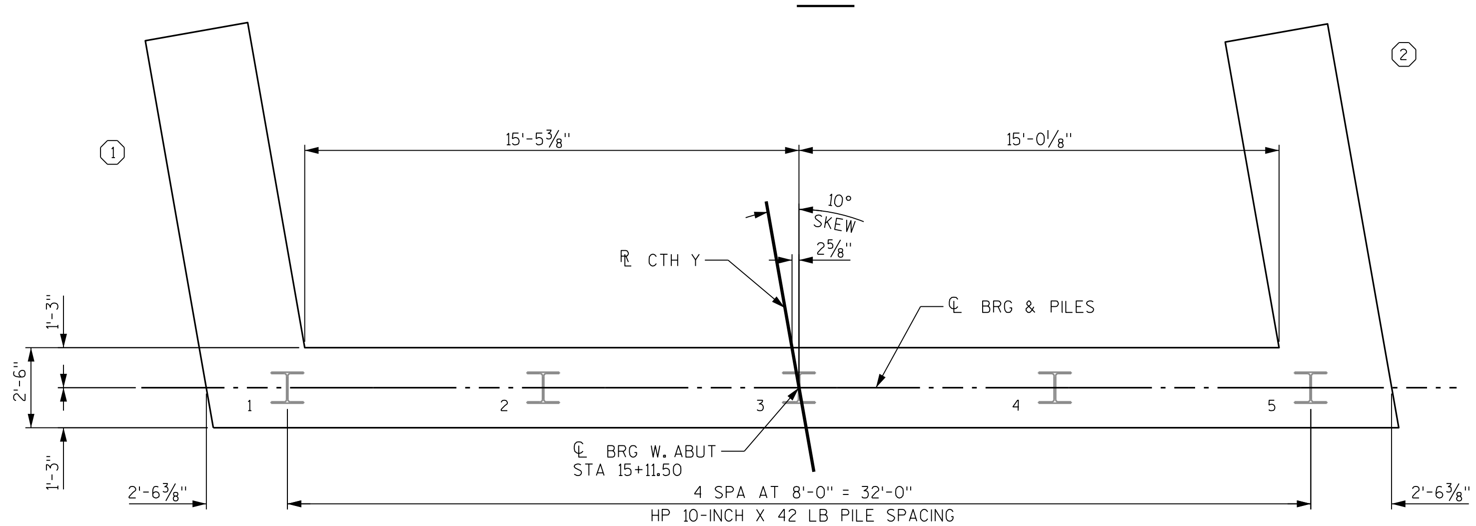


ELEVATION

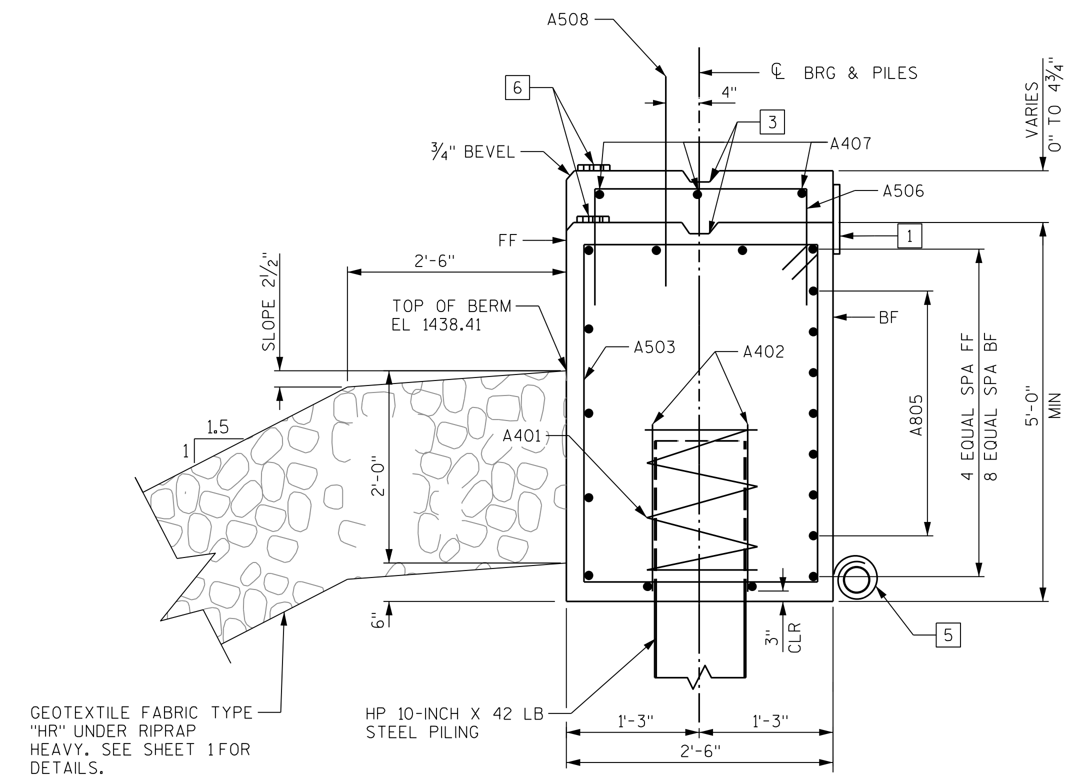
(WEST ABUTMENT LOOKING WEST)
(PILES NOT SHOWN)



PLAN



PILE PLAN



SECTION THRU ABUTMENT BODY

ALL HORIZONTAL BARS NOT LABELED ARE A604 BARS

NOTES

A508 BARS MAY BE PLACED AFTER CONCRETE IS POURED, BUT BEFORE INTIAL SET HAS TAKEN PLACE.

FILL / EXCAVATE TO BOTTOM OF ABUTMENT EL 1435.91 BEFORE DRIVING PILING.

SEE SHEET 3 FOR PILE SPLICE, STRUCTURE BACKFILL, RODENT SHIELD AND PIPE UNDERDRAIN DETAILS.

ABUTMENT TO BE SUPPORTED ON HP 10-INCH X 42 LB STEEL PILING WITH A REQUIRED DRIVING RESISTANCE OF 120 TONS PER PILE AS DETERMINED BY THE MODIFIED GATES DYNAMIC EQUATION. ESTIMATED 60'-0" LONG AT THE WEST ABUTMENT. PILE POINTS REQUIRED.

1 18" RUBBERIZED MEMBRANE WATERPROOFING. SEAL ALL HORIZONTAL AND VERTICAL JOINTS ON BACK FACE. EXTEND FROM BRIDGE SEAT TO TOP OF WING.

2 OPTIONAL KEYED CONSTRUCTION JOINT FORMED BY BEVELED 2" x 6" KEYWAY, WITH 18" RUBBERIZED WATERPROOFING ON BF.

3 KEYED CONSTRUCTION JOINT FORMED BY BEVELED 2" x 6" KEYWAY. TERMINATE 1'-0" FROM ABUTMENT ENDS.

4 ½" FILLER - TO EXTEND FROM BRIDGE SEAT TO TOP OF WING, INCLUDED IN WING LENGTH. SEAL ALL EXPOSED HORIZONTAL AND VERTICAL SURFACES OF ½" FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. (1" DEEP AND HOLD ⅛" BELOW SURFACE OF CONCRETE). EXTEND SEALER 3" BELOW GUTTER LINE AT INSIDE FACE.

5 PIPE UNDERDRAIN WRAPPED, (6-INCH). SLOPE 0.5% MIN TO SUITABLE DRAINAGE. ATTACH RODENT SHIELD AT ENDS OF PIPE UNDERDRAIN AS SHOWN ON SHEET 3.

6 4" x ¾" FILLER LENGTH OF ABUTMENT

(#) INDICATES WING NUMBER

FF - FRONT FACE
BF - BACK FACE
WT - WING TIP

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-34-51

DRAWN BY MJB PLANS CK'D. GAR

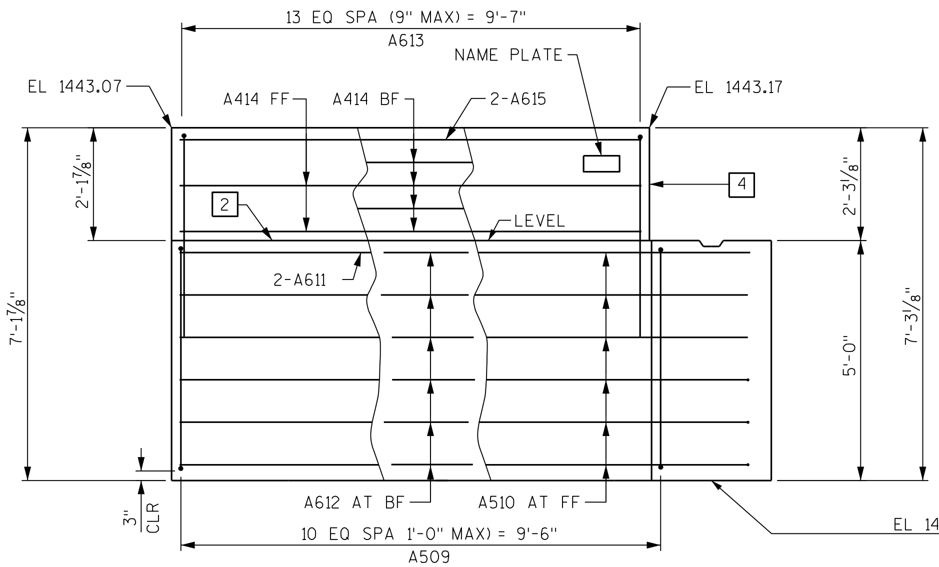
WEST ABUTMENT

SHEET 5 OF 13

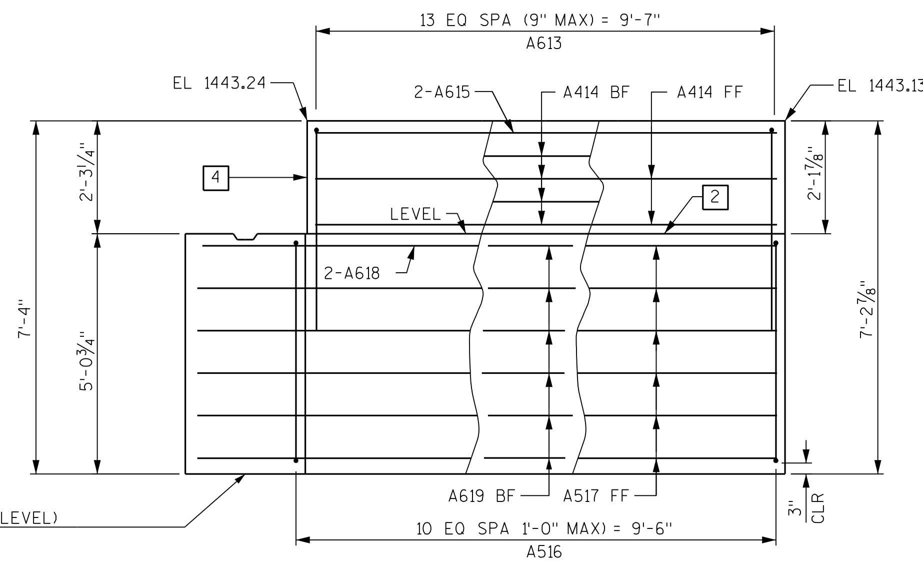
8

8

FILE NAME : X:±1210000±122116.01±TECH±CAD±93910700±Design±Structure±B3405 WA.dgn PLOT DATE : 5/29/2014 PLOT BY : 1258MJB PLOT SCALE : 6.0000 sf / in.



WING 1 ELEVATION



WING 2 ELEVATION

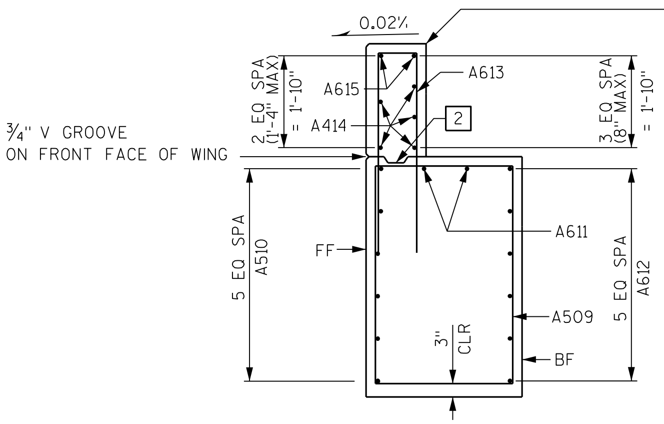
BILL OF BARS WEST ABUTMENT						COATED= 1380 LBS. UNCOATED= 2140 LBS.	
MARK	NUMBER		LENGTH	BENT	BAR SERIES	LOCATION	
	COATED	UNCOATED	FT. - IN.				
A 4 01		5	28 - 0	X		ABUTMENT BODY - 1 PER PILE	SPIRAL
A 4 02		10	2 - 3			ABUTMENT BODY - 2 PER PILE	VERT
A 5 03		46	13 - 8	X		ABUTMENT BODY	VERT
A 6 04		11	36 - 8			ABUTMENT BODY - FF, TOP, BTM	HORI
A 8 05		7	36 - 8			ABUTMENT BODY - BF	HORI
A 5 06		11	4 - 11	X		ABUTMENT BODY - TOP	VERT
A 4 07		3	10 - 4			ABUTMENT BODY - TOP	HORI
A 5 08	36		2 - 0			ABUTMENT BODY - DOWELS	VERT
A 5 09	11		15 - 4	X		WING 1 BODY	VERT
A 5 10	6		11 - 11			WING 1 BODY - FF	HORI
A 6 11	2		12 - 1			WING 1 BODY - TOP	HORI
A 6 12	6		12 - 3			WING 1 BODY - BF	HORI
A 6 13	28		9 - 2	X		WINGS 1 & 2 - TOP	VERT
A 4 14	10		9 - 7			WINGS 1 & 2 - TOP	HORI
A 6 15	4		9 - 7			WINGS 1 & 2 - TOP	HORI
A 5 16	11		15 - 4	X		WING 2 BODY	VERT
A 5 17	6		12 - 5			WING 2 BODY - FF	HORI
A 6 18	2		12 - 1			WING 2 BODY - TOP	HORI
A 6 19	6		11 - 8			WING 2 BODY - BF	HORI

BAR DIMENSIONS IN BENDING DETAILS ARE OUT TO OUT OF BARS.

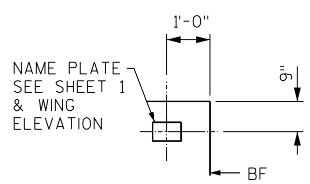
ALL REINFORCING BARS ARE ENGLISH.

THE FIRST OR FIRST TWO DIGITS OF THE BAR MARK SIGNIFIES THE BAR SIZE.

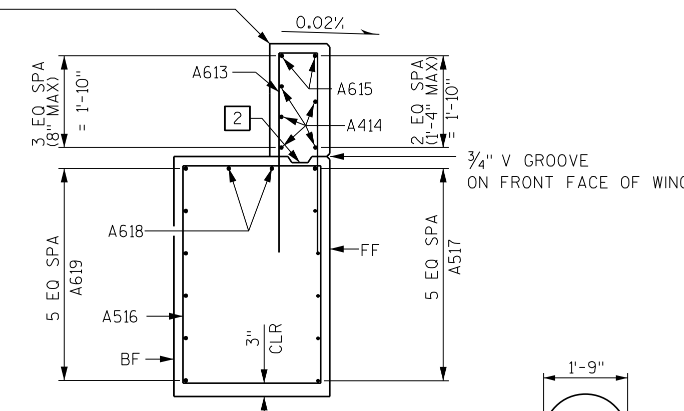
ELEVATIONS AND DIMENSIONS ARE TO THIS LOCATION
SLOPE TOP OF WINGS AS SHOWN



WING 1 SECTION



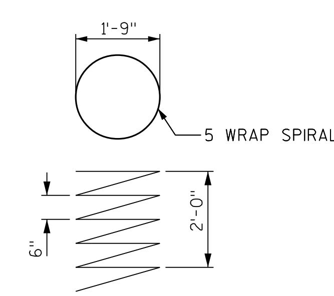
NAME PLATE LOCATION
ON WING 1



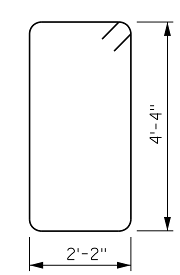
WING 2 SECTION

2 OPTIONAL KEYED CONSTRUCTION JOINT FORMED BY BEVELED 2" x 6" KEYWAY. PROVIDE 18" RUBBERIZED WATERPROOFING ON BF IF OPTIONAL CONSTRUCTION JOINT USED.

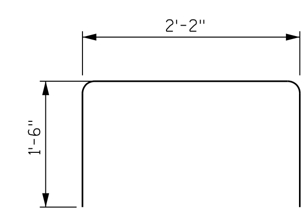
4 ½" FILLER - TO EXTEND FROM BRIDGE SEAT TO TOP OF WING. INCLUDED IN WING LENGTH. SEAL ALL EXPOSED HORIZONTAL AND VERTICAL SURFACES OF ½" FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. (1" DEEP AND HOLD ⅛" BELOW SURFACE OF CONCRETE. EXTEND SEALER 3" BELOW GUTTER LINE AT INSIDE FACE.



A401



A503



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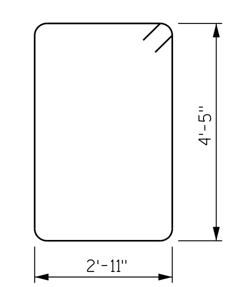

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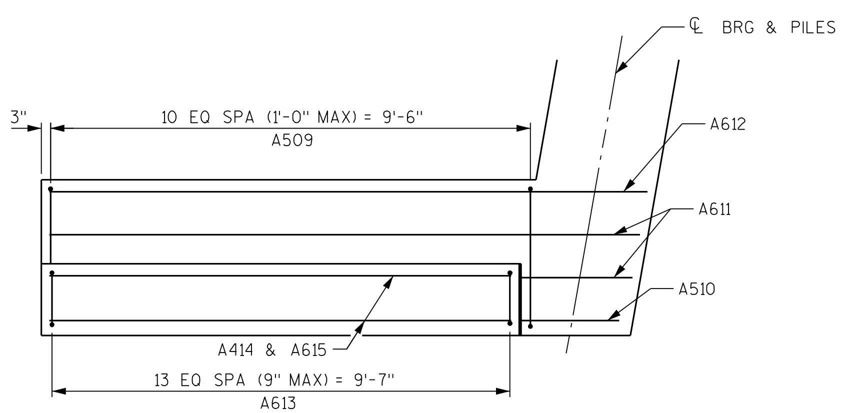
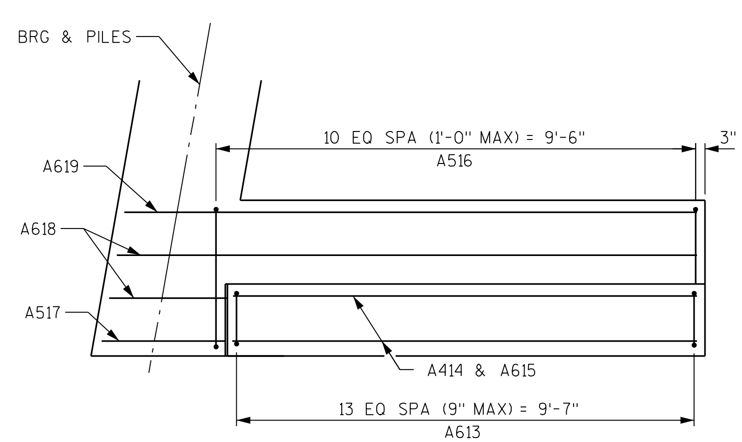
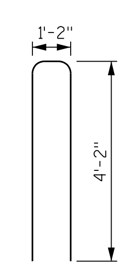


WING 1 PLAN



WING 2 PLAN



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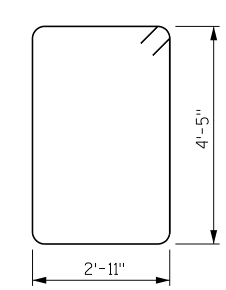


A516

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-34-51

DRAWN BY MJB | PLANS CK'D. GAR

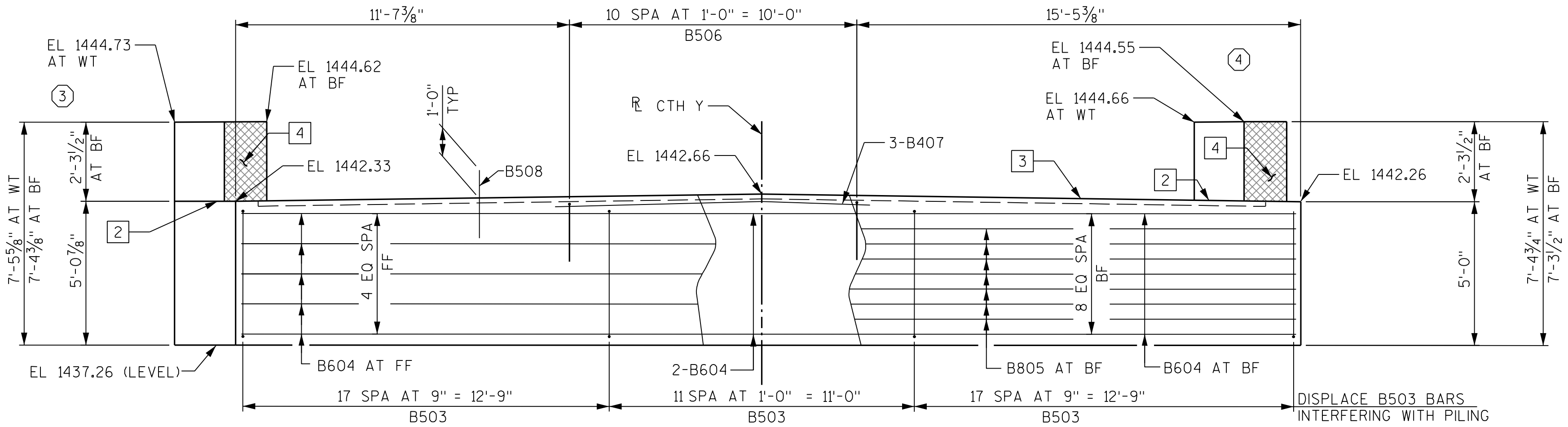
WEST ABUTMENT DETAILS

SHEET 6 OF 13

8

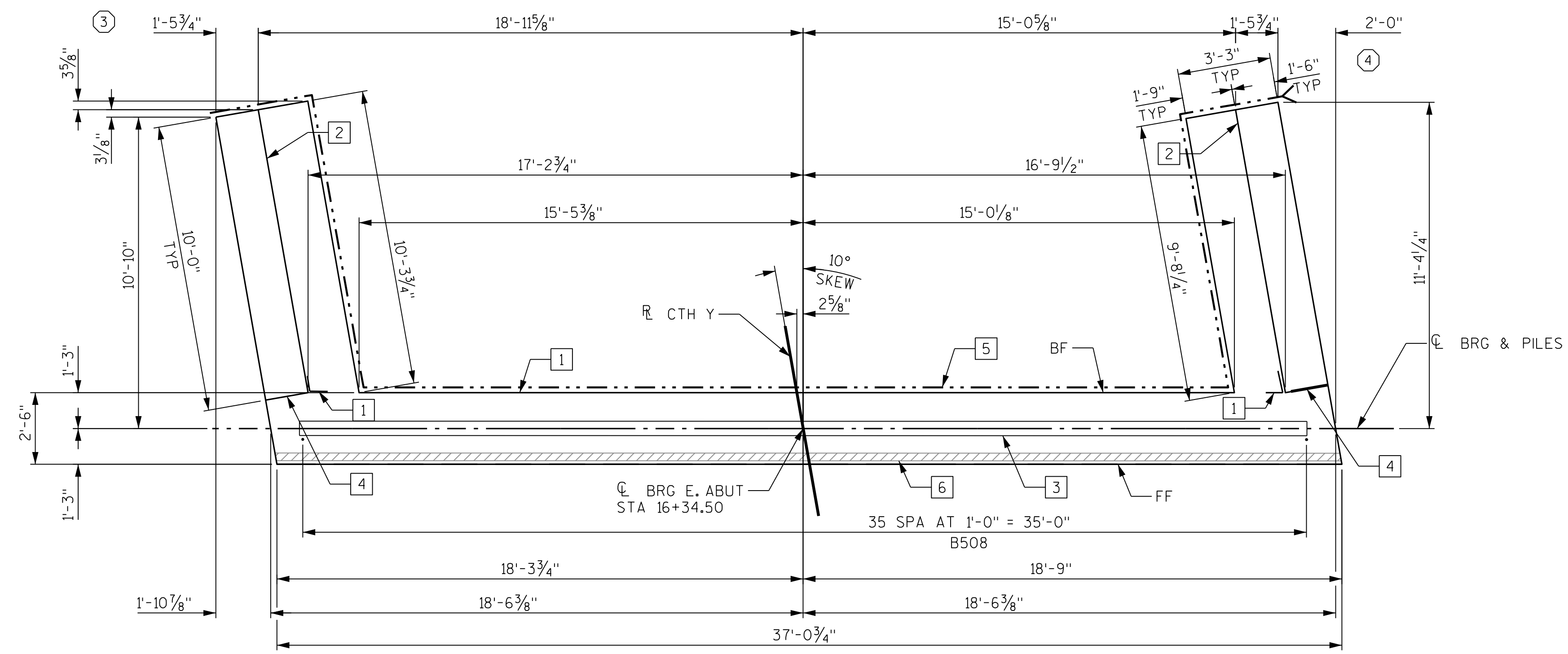
STATE PROJECT NUMBER

9391-07-70

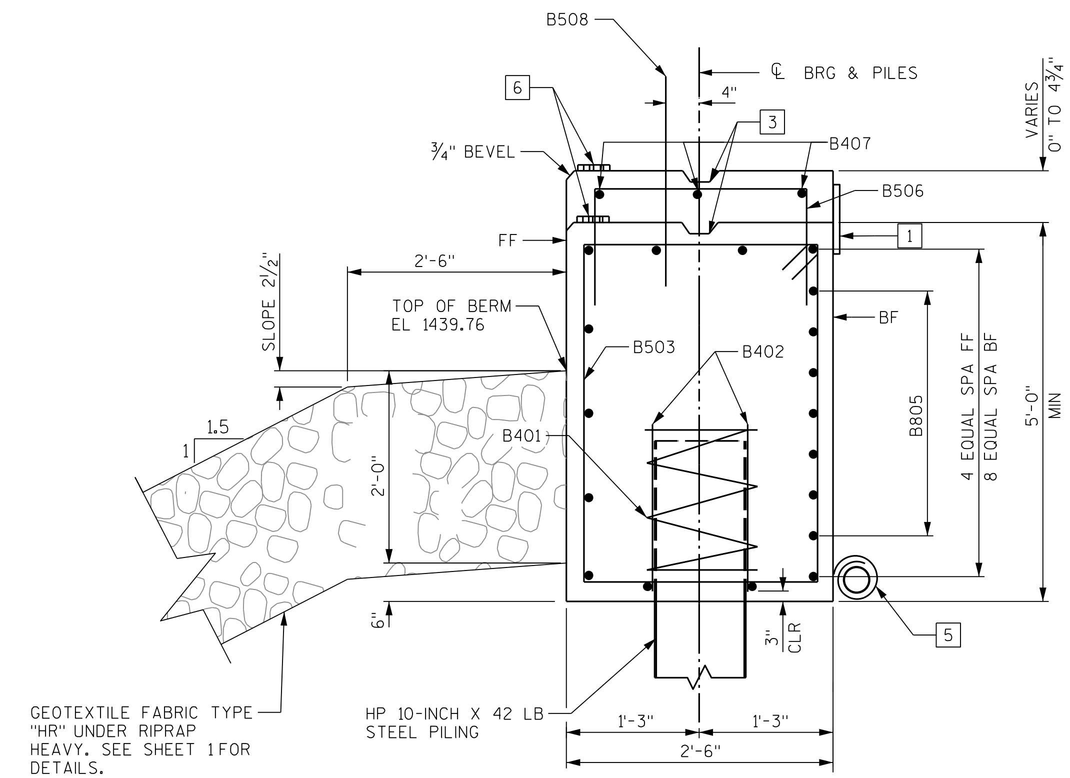


ELEVATION

(EAST ABUTMENT LOOKING EAST)
(PILES NOT SHOWN)



PLAN



SECTION THRU ABUTMENT BODY

ALL HORIZONTAL BARS NOT LABELED ARE B604 BARS

NOTES

B508 BARS MAY BE PLACED AFTER CONCRETE IS POURED, BUT BEFORE INTIAL SET HAS TAKEN PLACE.

FILL / EXCAVATE TO BOTTOM OF ABUTMENT EL 1437.26 BEFORE DRIVING PILING.

SEE SHEET 3 FOR PILE SPLICE, STRUCTURE BACKFILL, RODENT SHIELD AND PIPE UNDERDRAIN DETAILS.

ABUTMENT TO BE SUPPORTED ON HP 10-INCH X 42 LB STEEL PILING WITH A REQUIRED DRIVING RESISTANCE OF 120 TONS PER PILE AS DETERMINED BY THE MODIFIED GATES DYNAMIC EQUATION. ESTIMATED 65'-0" LONG AT THE EAST ABUTMENT. PILE POINTS REQUIRED.

1 18" RUBBERIZED MEMBRANE WATERPROOFING. SEAL ALL HORIZONTAL AND VERTICAL JOINTS ON BACK FACE. EXTEND FROM BRIDGE SEAT TO TOP OF WING.

2 OPTIONAL KEYED CONSTRUCTION JOINT FORMED BY BEVELED 2" x 6" KEYWAY, WITH 18" RUBBERIZED WATERPROOFING ON BF.

3 KEYED CONSTRUCTION JOINT FORMED BY BEVELED 2" x 6" KEYWAY. TERMINATE 1'-0" FROM ABUTMENT ENDS.

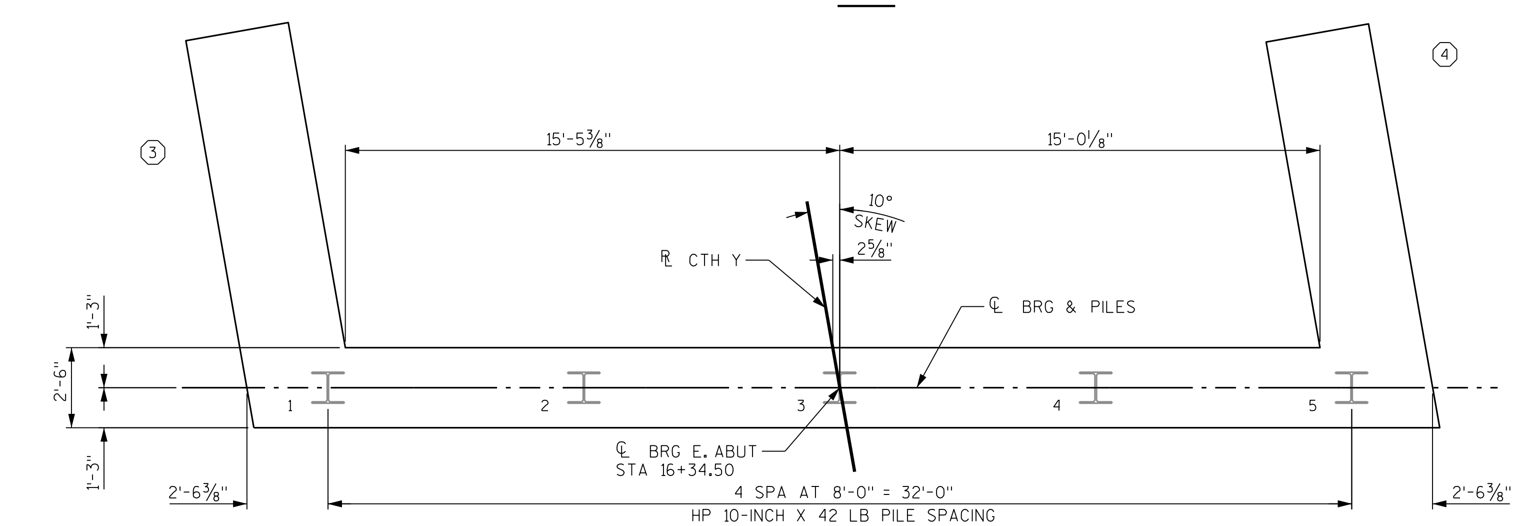
4 ½" FILLER - TO EXTEND FROM BRIDGE SEAT TO TOP OF WING, INCLUDED IN WING LENGTH. SEAL ALL EXPOSED HORIZONTAL AND VERTICAL SURFACES OF ½" FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. (1" DEEP AND HOLD ⅛" BELOW SURFACE OF CONCRETE). EXTEND SEALER 3" BELOW GUTTER LINE AT INSIDE FACE.

5 PIPE UNDERDRAIN WRAPPED, (6-INCH). SLOPE 0.5% MIN TO SUITABLE DRAINAGE. ATTACH RODENT SHIELD AT ENDS OF PIPE UNDERDRAIN AS SHOWN ON SHEET 3.

6 4" x ¾" FILLER LENGTH OF ABUTMENT

(#) INDICATES WING NUMBER

FF - FRONT FACE
BF - BACK FACE
WT - WING TIP



PILE PLAN

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-34-51

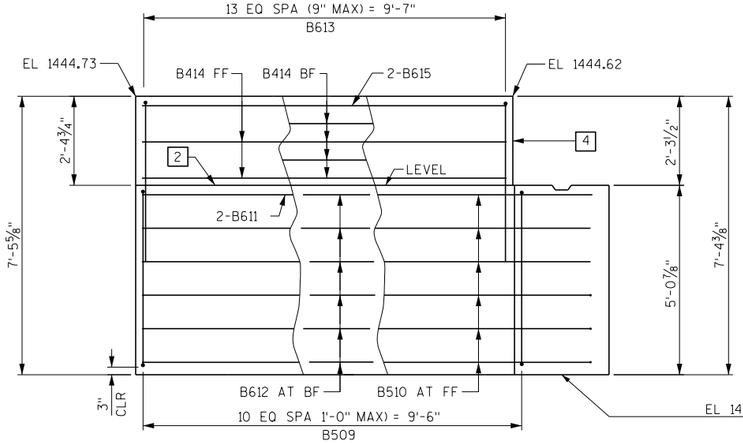
DRAE. BY MJB | PLANS CK'D. GAR

EAST ABUTMENT

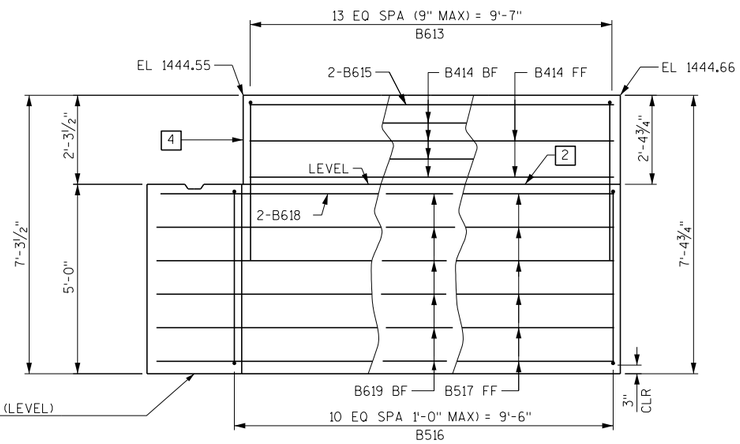
SHEET 7 OF 13

STATE PROJECT NUMBER

9391-07-70



WING 3 ELEVATION



WING 4 ELEVATION

BILL OF BARS
EAST ABUTMENT

COATED= 1390 LBS.
UNCOATED= 2140 LBS.

MARK	NUMBER COATED	NUMBER UNCOATED	LENGTH FT. - IN.	BENT	BAR SERIES	LOCATION	
B 4 01		5	28 - 0	X		ABUTMENT BODY - 1 PER PILE	SPIRAL
B 4 02		10	2 - 3			ABUTMENT BODY - 2 PER PILE	VERT
B 5 03		46	13 - 8	X		ABUTMENT BODY	VERT
B 6 04		11	36 - 8			ABUTMENT BODY - FF, TOP, BTM	HORI
B 8 05		7	36 - 8			ABUTMENT BODY - BF	HORI
B 5 06		11	4 - 11	X		ABUTMENT BODY - TOP	VERT
B 4 07		3	10 - 4			ABUTMENT BODY - TOP	HORI
B 5 08	36		2 - 0			ABUTMENT BODY - DOWELS	VERT
B 5 09	11		15 - 4	X		WING 3 BODY	VERT
B 5 10	6		11 - 11			WING 3 BODY - FF	HORI
B 6 11	2		12 - 1			WING 3 BODY - TOP	HORI
B 6 12	6		12 - 3			WING 3 BODY - BF	HORI
B 6 13	28		9 - 4	X		WINGS 3 & 4 - TOP	VERT
B 4 14	10		9 - 7			WINGS 3 & 4 - TOP	HORI
B 6 15	4		9 - 7			WINGS 3 & 4 - TOP	HORI
B 5 16	11		15 - 4	X		WING 4 BODY	VERT
B 5 17	6		12 - 5			WING 4 BODY - FF	HORI
B 6 18	2		12 - 1			WING 4 BODY - TOP	HORI
B 6 19	6		11 - 8			WING 4 BODY - BF	HORI

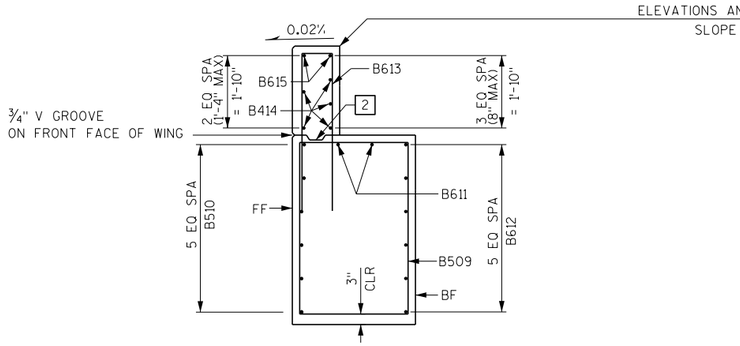
BAR DIMENSIONS IN BENDING DETAILS ARE OUT TO OUT OF BARS.

ALL REINFORCING BARS ARE ENGLISH.

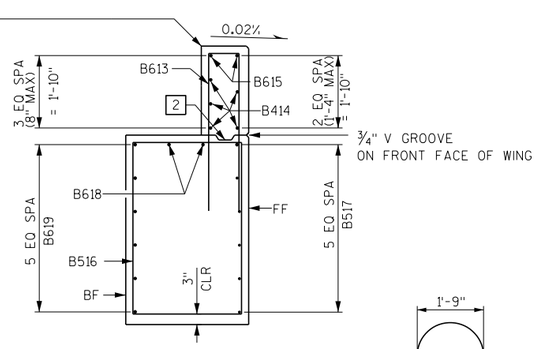
THE FIRST OR FIRST TWO DIGITS OF THE BAR MARK SIGNIFIES THE BAR SIZE.

[2] OPTIONAL KEYED CONSTRUCTION JOINT FORMED BY BEVELED 2" x 6" KEYWAY, PROVIDE 18" RUBBERIZED WATERPROOFING ON BF IF OPTIONAL CONSTRUCTION JOINT USED.

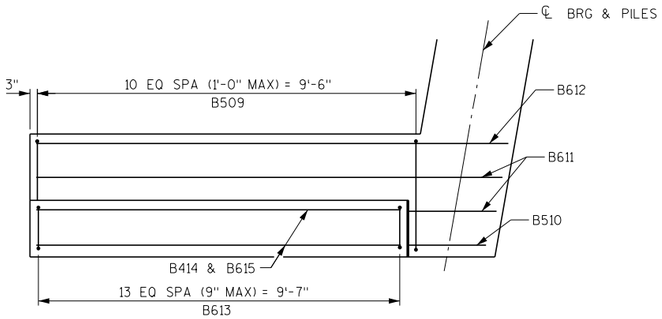
[4] ½" FILLER - TO EXTEND FROM BRIDGE SEAT TO TOP OF WING, INCLUDED IN WING LENGTH. SEAL ALL EXPOSED HORIZONTAL AND VERTICAL SURFACES OF ½" FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. (1" DEEP AND HOLD ⅛" BELOW SURFACE OF CONCRETE. EXTEND SEALER 3" BELOW GUTTER LINE AT INSIDE FACE.



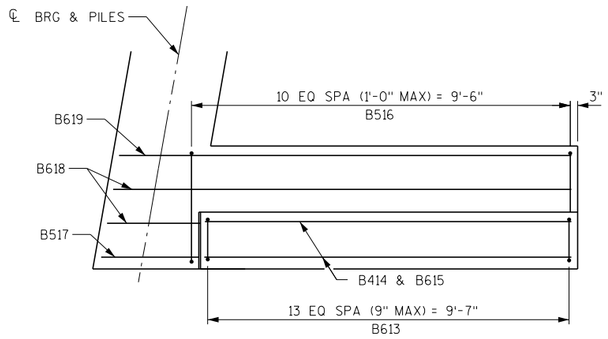
WING 3 SECTION



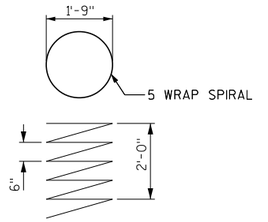
WING 4 SECTION



WING 3 PLAN



WING 4 PLAN



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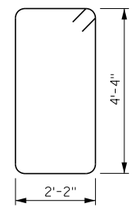

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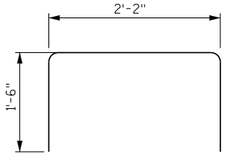

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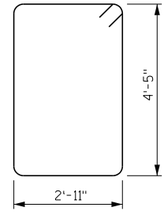

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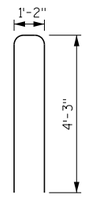

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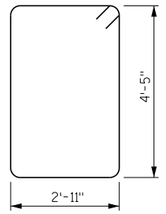


B516

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-34-51

DRAWN BY MJB | PLANS CK'D. GAR

EAST ABUTMENT DETAILS

SHEET 8 OF 13
44

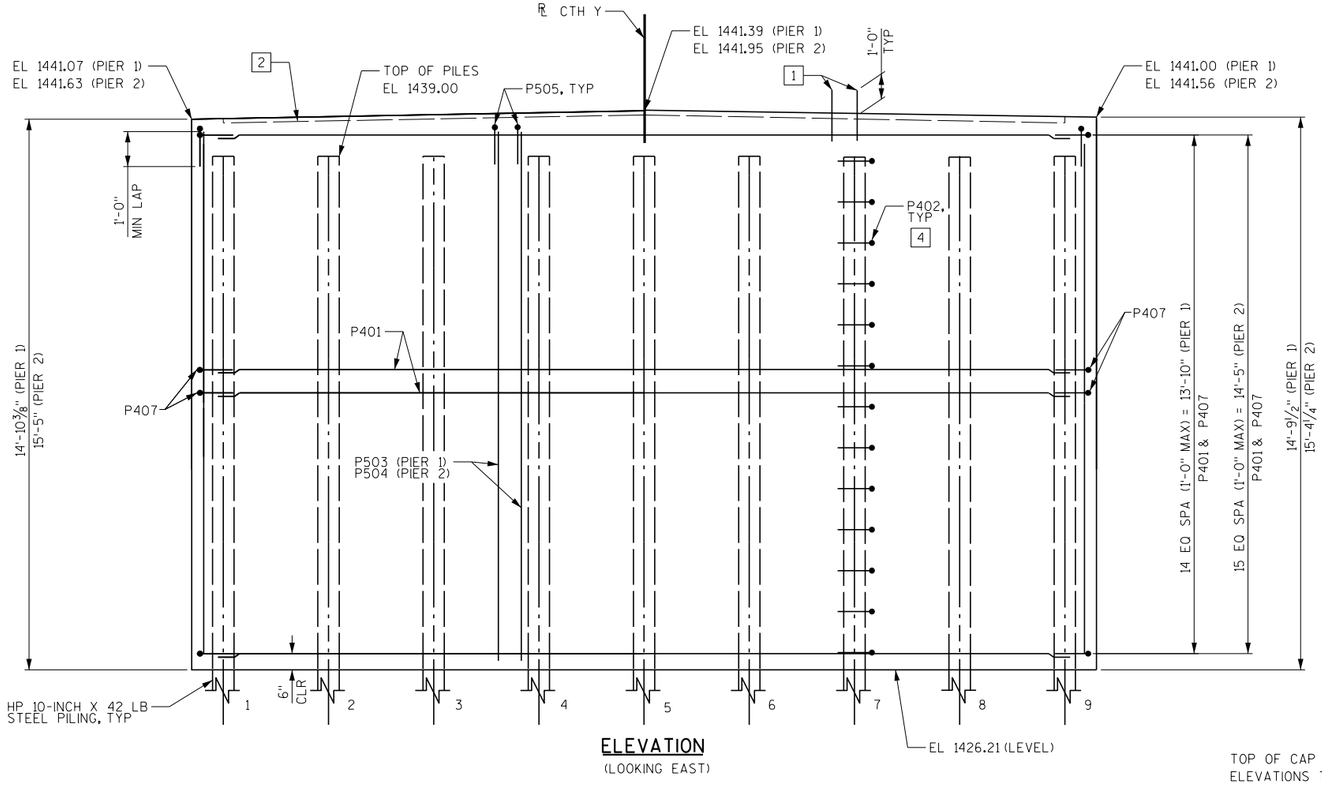
8

8

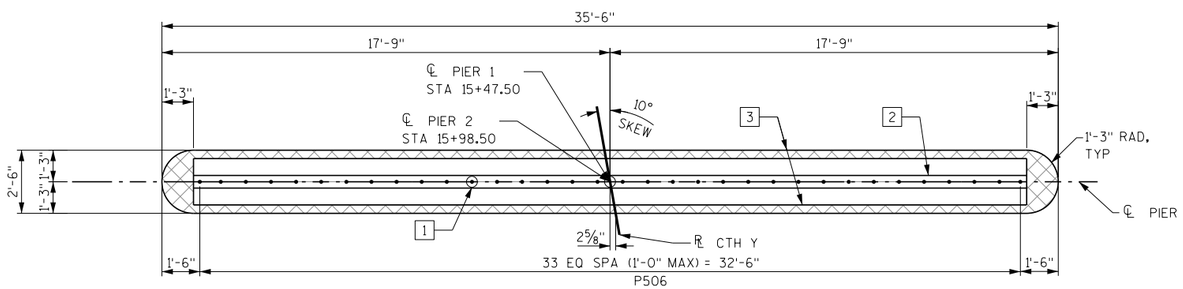
STATE PROJECT NUMBER

9391-07-70

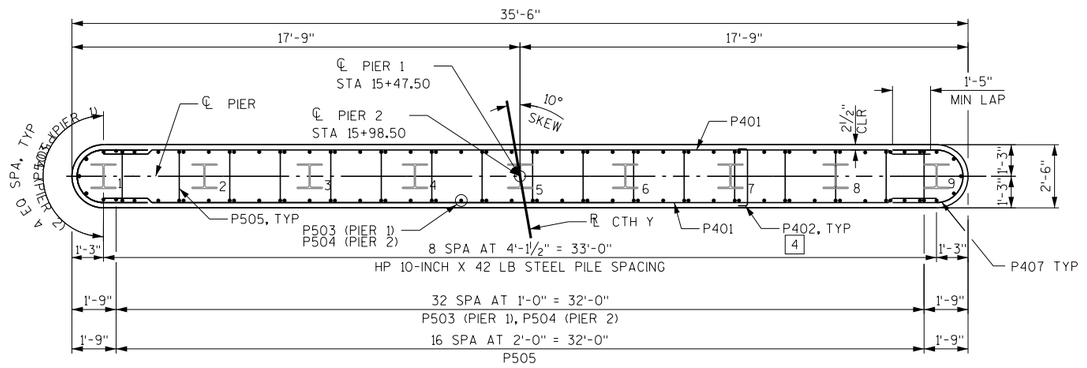
PIER 1 COATED= 0 LBS.
PIER 1 UNCOATED= 2260 LBS.
PIER 2 COATED= 0 LBS.
PIER 2 UNCOATED= 2360 LBS.



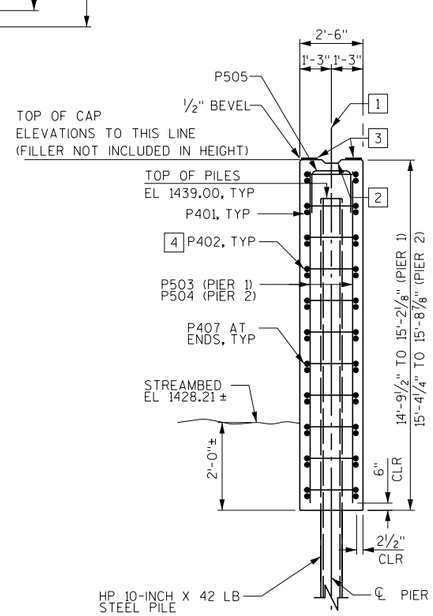
ELEVATION
(LOOKING EAST)



PLAN



PILE AND REINFORCEMENT PLAN



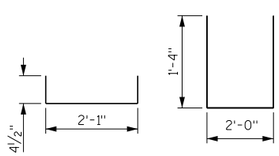
TYPICAL SECTION THRU PIER

BILL OF BARS
PIERS 1 AND 2

MARK	PIER 1 NUMBER COATED	PIER 1 NUMBER UNCOATED	PIER 2 NUMBER COATED	PIER 2 NUMBER UNCOATED	LENGTH FT - IN	BENT	BAR SERIES	LOCATION	
P401		30		32	33 - 0			SHAFT	HORIZ
P402		117		117	2 - 8	X		SHAFT - TIES	HORIZ
P503		76			14 - 1			SHAFT - PIER 1	VERT
P504				76	14 - 8			SHAFT - PIER 2	VERT
P505		17		17	4 - 5	X		SHAFT AT TOP	VERT
P506		34		34	2 - 0			SHAFT DOWELS	VERT
P407		30		32	6 - 1	X		SHAFT AT ENDS	VERT

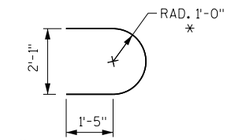
BAR DIMENSIONS IN BENDING DETAILS ARE OUT TO OUT OF BARS.

THE FIRST OR FIRST TWO DIGITS OF A BAR MARK SIGNIFIES THE BAR SIZE.



P402

P505



* MEASURED ON INSIDE OF BAR

P407

NOTES

PIERS TO BE SUPPORTED ON HP 10-INCH x 42 LB STEEL PILING WITH A REQUIRED DRIVING RESISTANCE OF 180 TONS PER PILE AS DETERMINED BY THE MODIFIED GATES DYNAMIC EQUATION. ESTIMATED 60'-0" LONG AT PIER 1 AND 80'-0" LONG AT PIER 2. PILE POINTS REQUIRED.

FOR PILE SPLICE DETAILS SEE SHEET 3.

1. P506 BARS MAY BE PLACED AFTER CONCRETE IS PLACED, BUT BEFORE INTIAL SET HAS TAKEN PLACE.
2. KEYED CONSTRUCTION JOINT FORMED BY BEVELED 2"x6" KEYWAY, TERMINATE 1'-3" FROM PIER ENDS.
3. 4" x ¾" FILLER LENGTH OF PIER.
4. P402 PLACED ADJACENT TO EACH PILE AT 1'-0" VERTICAL CENTERS.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-34-51

DRAWN BY MJB | PLANS CK'D. GAR

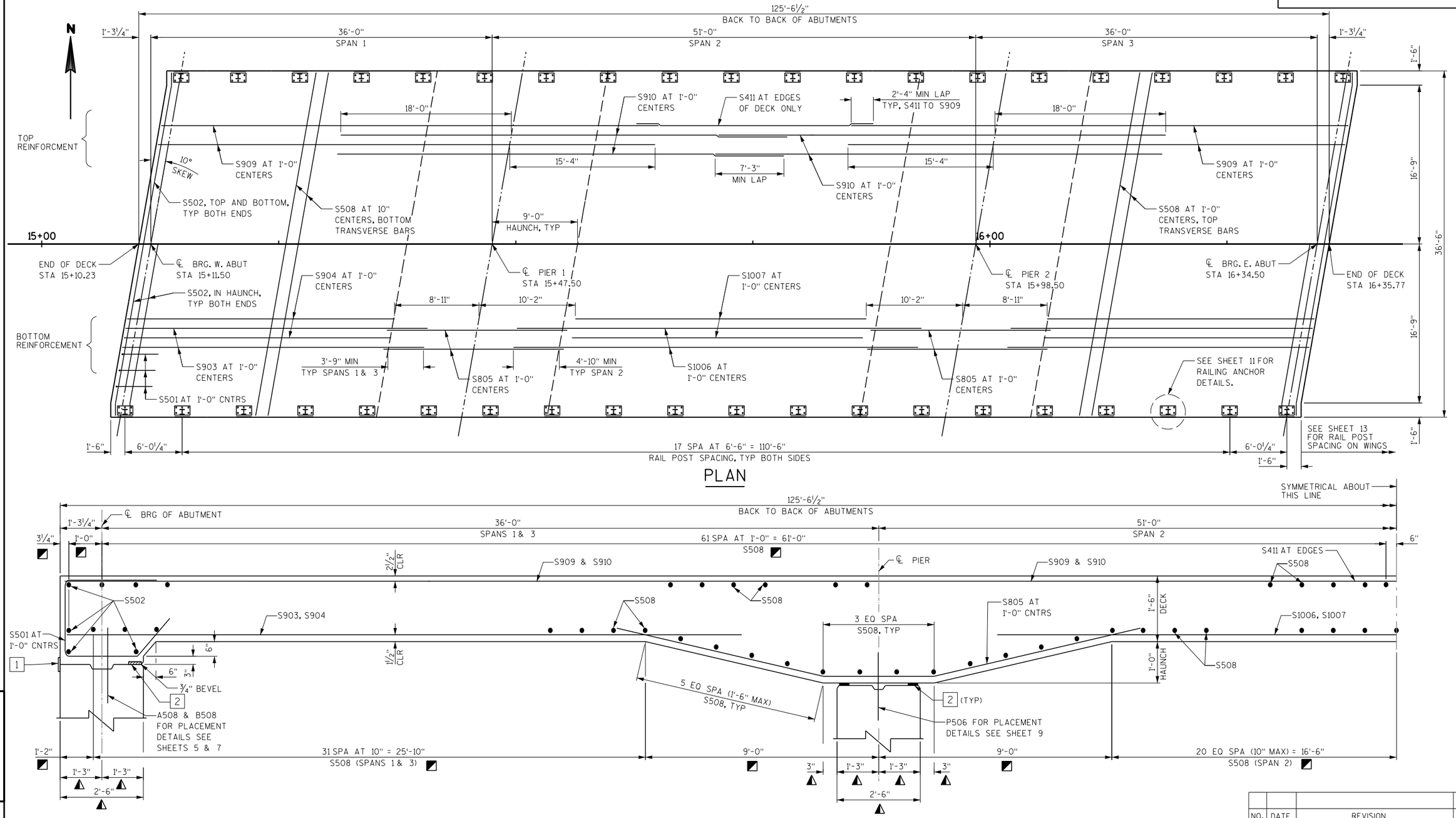
PIER DETAILS

SHEET 9 OF 13
45

8

8

STATE PROJECT NUMBER
9391-07-70



PLAN

PART LONGITUDINAL SECTION

NOTES

1. 18" RUBBERIZED MEMBRANE WATERPROOFING (RMW)
2. 4" × ¾" FILLER LENGTH OF ABUTMENT & PIER.

◪ MEASURED PARALLEL TO ℄ CTH Y

◭ MEASURED NORMAL TO ℄ SUBSTRUCTURE

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-34-51

DRAWN BY MJB | PLANS CK'D. GAR

SUPERSTRUCTURE

SHEET 10 OF 13
46

8

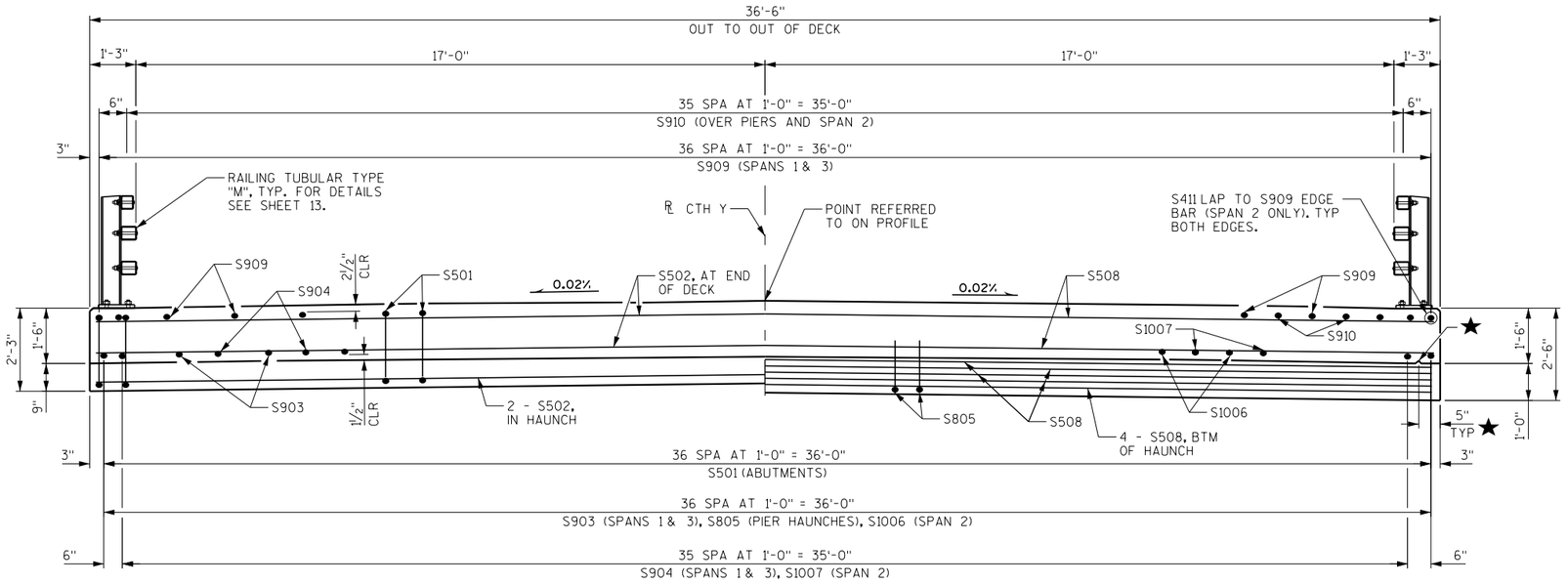
8

FILE NAME : X:±1210000±122116.01±TECH±CAD±93910700±Design±Structure±080110_ss.dgn PLOT DATE : 7/17/2014

PLOT SCALE : 10.0000 sf / in.

STATE PROJECT NUMBER

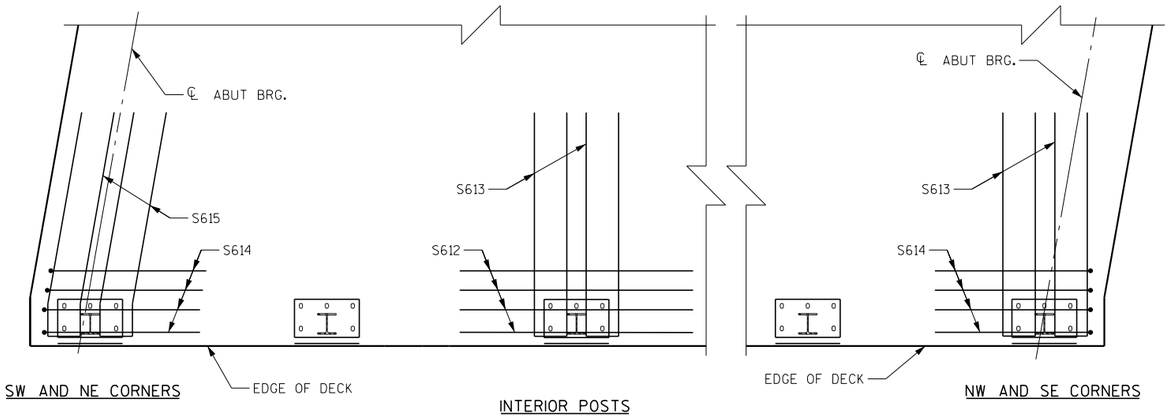
9391-07-70



AT ABUTMENTS AT PIER

CROSS SECTION THRU ROADWAY

(LOOKING EAST)



RAILING ANCHOR DETAILS

NOTES

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

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

★ ¾" V-GROOVE. TERMINATE 3" FROM CHAMFER AT ABUTMENTS, TYP. SEE DETAIL ON SHEET 2.

PRIOR TO RELEASING SLAB FALSEWORK, TAKE TOP OF SLAB ELEVATIONS AT THE ℄ OF ABUTMENTS AND AT 5/10 PTS. TO VERIFY CAMBER. TAKE ELEVATIONS ALONG EDGE OF DECK AND AT ℄.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-34-51

DRAWN BY MJB | PLANS CK'D. GAR

SUPERSTRUCTURE DETAILS

SHEET 11 OF 13
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STATE PROJECT NUMBER

9391-07-70

ELEVATION TABLE

SPAN POINT	NORTH EDGE		R/L CTH Y		SOUTH EDGE	
	STATION	ELEVATION	STATION	ELEVATION	STATION	ELEVATION
W ABUT	15+14.72	1443.22	15+11.50	1443.56	15+08.28	1443.16
0.1	15+18.32	1443.26	15+15.10	1443.59	15+11.88	1443.19
0.2	15+21.92	1443.30	15+18.70	1443.63	15+15.48	1443.23
0.3	15+25.52	1443.34	15+22.30	1443.67	15+19.08	1443.27
0.4	15+29.12	1443.38	15+25.90	1443.71	15+22.68	1443.31
0.5	15+32.72	1443.42	15+29.50	1443.75	15+26.28	1443.35
0.6	15+36.32	1443.46	15+33.10	1443.79	15+29.88	1443.39
0.7	15+39.92	1443.50	15+36.70	1443.83	15+33.48	1443.43
0.8	15+43.52	1443.54	15+40.30	1443.87	15+37.08	1443.47
0.9	15+47.12	1443.58	15+43.90	1443.91	15+40.68	1443.51
PIER 1	15+50.72	1443.62	15+47.50	1443.95	15+44.28	1443.55
0.1	15+55.82	1443.67	15+52.60	1444.00	15+49.38	1443.60
0.2	15+60.92	1443.73	15+57.70	1444.06	15+54.48	1443.66
0.3	15+66.02	1443.79	15+62.80	1444.12	15+59.58	1443.72
0.4	15+71.12	1443.84	15+67.90	1444.17	15+64.68	1443.77
0.5	15+76.22	1443.90	15+73.00	1444.23	15+69.78	1443.83
0.6	15+81.32	1443.96	15+78.10	1444.29	15+74.88	1443.88
0.7	15+86.42	1444.01	15+83.20	1444.34	15+79.98	1443.94
0.8	15+91.52	1444.07	15+88.30	1444.40	15+85.08	1444.00
0.9	15+96.62	1444.12	15+93.40	1444.45	15+90.18	1444.05
PIER 2	16+01.72	1444.18	15+98.50	1444.51	15+95.28	1444.11
0.1	16+05.32	1444.22	16+02.10	1444.55	15+98.88	1444.15
0.2	16+08.92	1444.26	16+05.70	1444.59	16+02.48	1444.19
0.3	16+12.52	1444.30	16+09.30	1444.63	16+06.08	1444.23
0.4	16+16.12	1444.34	16+12.90	1444.67	16+09.68	1444.27
0.5	16+19.72	1444.38	16+16.50	1444.71	16+13.28	1444.31
0.6	16+23.32	1444.42	16+20.10	1444.75	16+16.88	1444.35
0.7	16+26.92	1444.46	16+23.70	1444.79	16+20.48	1444.39
0.8	16+30.52	1444.50	16+27.30	1444.83	16+24.08	1444.43
0.9	16+34.12	1444.54	16+30.90	1444.87	16+27.68	1444.47
E ABUT	16+37.72	1444.58	16+34.50	1444.91	16+31.28	1444.51

BILL OF BARS
SUPERSTRUCTURE

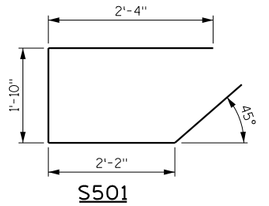
COATED= 69090 LBS
UNCOATED= 0 LBS

MARK	NUMBER COATED	NUMBER UNCOATED	LENGTH FT - IN	BENT	LOCATION	
S 5 01	74		8 - 6	X	SLAB - ABUTMENT - TIES	LONGIT
S 5 02	8		36 - 8	X	SLAB - AT ENDS	LONGIT
S 9 03	74		31 - 11		SLAB - BOTTOM SPANS 1 & 3	LONGIT
S 9 04	72		28 - 2		SLAB - BOTTOM SPANS 1 & 3	LONGIT
S 8 05	74		21 - 10	X	SLAB - BOTTOM HAUNCH	LONGIT
S 10 06	37		42 - 8		SLAB - BOTTOM SPAN 2	LONGIT
S 10 07	36		30 - 8		SLAB - BOTTOM SPAN 2	LONGIT
S 5 08	253		36 - 8		SLAB - TOP & BOTTOM	TRANS
S 9 09	74		52 - 6		SLAB - TOP SPANS 1 & 3	LONGIT
S 9 10	72		47 - 2		SLAB - TOP OVER PIERS	LONGIT
S 4 11	2		25 - 0		SLAB - TOP SPAN 2 AT EDGES	LONGIT
S 6 12	144		6 - 0		RAILING ANCHOR	LONGIT
S 6 13	76		12 - 0	X	RAILING ANCHOR	TRANS
S 6 14	16		5 - 8	X	RAILING ANCHOR - END POSTS	LONGIT
S 6 15	4		12 - 3	X	RAILING ANCHOR	TRANS

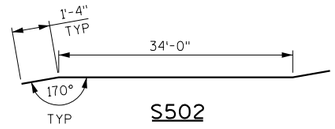
BAR DIMENSIONS IN BENDING DETAILS ARE OUT TO OUT OF BARS.

ALL REINFORCING BARS ARE ENGLISH.

THE FIRST OR FIRST TWO DIGITS OF A BAR MARK SIGNIFIES THE BAR SIZE.



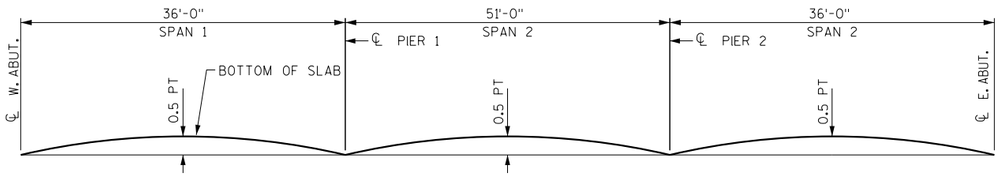
S501



S502

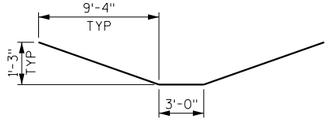
CAMBER

SPAN PT.	CAMBER (IN)
W ABUT	0
0.1	1/8
0.2	1/4
0.3	1/4
0.4	1/4
0.5	1/4
0.6	1/8
0.7	0
0.8	0
0.9	0
PIER 1	0
0.1	1/8
0.2	1/4
0.3	2/4
0.4	3/4
0.5	3/4
0.6	3/4
0.7	2/4
0.8	1/4
0.9	1/8
PIER 2	0
0.1	0
0.2	0
0.3	0
0.4	1/8
0.5	1/4
0.6	1/4
0.7	1/4
0.8	1/4
0.9	1/8
E ABUT	0

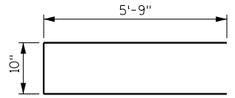


CAMBER DIAGRAM

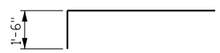
CAMBER SPAN AS SHOWN TO PROVIDE FOR DEADLOAD DEFLECTION & FUTURE CREEP. CAMBER DOES NOT INCLUDE ALLOWANCE FOR FORM SETTLEMENT.



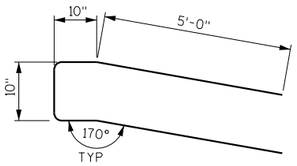
S805



S613



S614



S615

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-34-51

DRAWN BY MJB | PLANS CK'D. GAR

SUPERSTRUCTURE DETAILS

SHEET 12 OF 13
48

8

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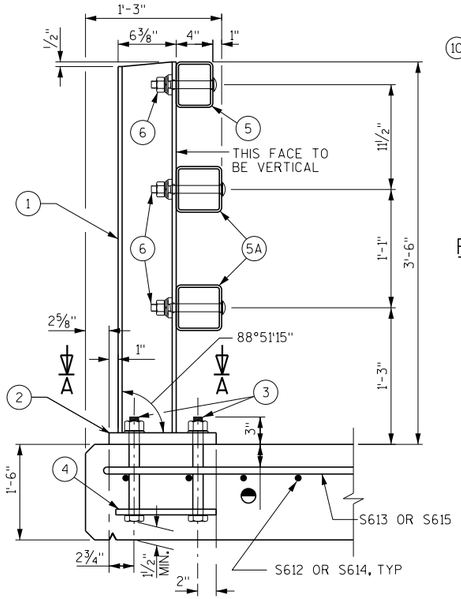
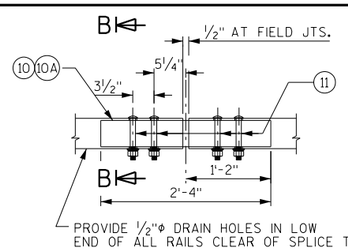
FILE NAME : X:±1210000±122116.01±TECH±CAD±93910700±Design±Structure±080112_ss.dgn PLOT DATE : 5/29/2014

PLOT SCALE : 4.0000 ' / in.

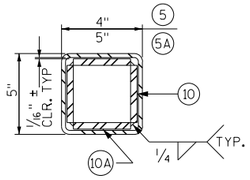


SECTION THRU RAILING ON DECK

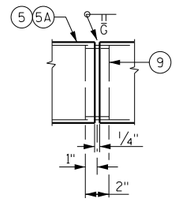
◓ PLACE BELOW TOP MAT OF SLAB REINF.



FIELD ERECTION JOINT DETAIL

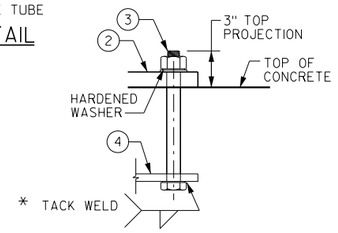


SECTION B-B



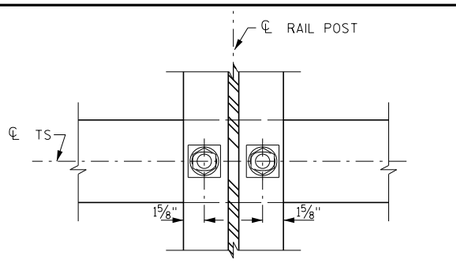
SHOP RAIL SPLICE DETAIL

(LOCATION MUST BE SHOWN ON SHOP DRAWINGS)

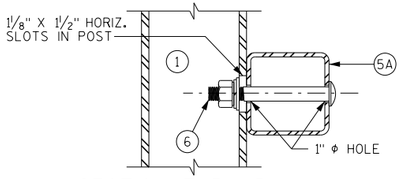


ANCHOR BOLTS

* FOR ANCHOR BOLTS IN WINGS, TACK WELD MAY BE USED IN FIELD AFTER ANCHOR PLATE IS IN POSITION IF REQ'D. FOR CONSTRUCTABILITY.



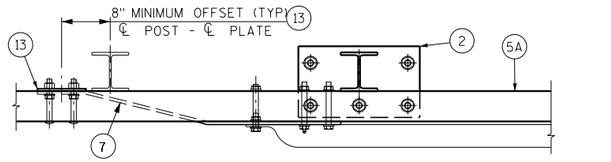
SECTION THRU POST WEB



SECTION THRU RAIL

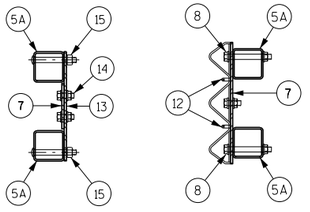
NOTE: CONNECTIONS AT LOWER RAILS SHOWN. CONNECTIONS AT TOP RAIL SIMILAR.

TYPICAL RAIL TO POST CONNECTIONS



TOP VIEW AT END POST

THRIE BEAM RAIL ATTACHMENT



SECTION C-C

SECTION D-D

LEGEND

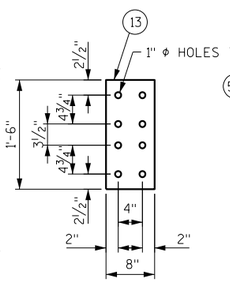
1. W6 x 25 WITH 1⅛" X 1½" HORIZ. SLOTS ON EACH SIDE OF POST FOR BOLT NO. 6. CUT BOTTOM OF POST TO MATCH CROSS SLOPE OF ROADWAY. PLACE POST VERTICAL. PLACE POSTS NORMAL TO GRADE LINE.
2. PLATE 1¼" × 11¾" × 1'-8" WITH 1⅝" X 1⅝" SLOTTED HOLES FOR ANCHOR BOLTS NO. 3. WELD TO NO. 1 AS SHOWN. SLOTS PARALLEL TO SHORT SIDE OF PLATE.
3. ASTM A449 - 1⅛" DIA. ANCHOR BOLTS WITH NUT AND HARDENED WASHER (ALL GALVANIZED). 5 REQ'D. PER POST. THREAD 3" AND PLACE NORMAL TO PLATE NO. 2. CHAMFER TOP OF BOLTS BEFORE THREADING. USE 1'-9" LONG IN WINGS AND 1'-3" LONG IN SLAB. (AN EQUIVALENT THREADED ROD WITH NUTS AND HARDENED WASHERS MAY BE SUBSTITUTED FOR ANCHOR BOLTS IN WINGS IF REQ'D. FOR CONSTRUCTABILITY.)
4. ⅝" × 11" × 1'-8" ANCHOR PLATE (GALVANIZED) WITH 1¾" DIA. HOLES FOR ANCHOR BOLTS NO. 3
5. TS 5 × 4 × 0.25 STRUCTURAL TUBING. ATTACH TO NO. 1 WITH NO. 6.
5A. TS 5 × 5 × 0.25 STRUCTURAL TUBING. ATTACH TO NO. 1 WITH NO. 6.
6. ⅞" DIA. A325 SLOTTED ROUND HEAD BOLT WITH NUT, 3/16" X 1⅝" X 1⅝" WASHER, AND LOCK WASHER (2 REQ'D. AT EACH RAIL TO POST LOCATION.)
7. ½" THK. BACK-UP PLATE WITH 2 - ⅞" X 1½" THREADED SHOP WELDED STUDS (NO. 12). BOLT TO RAIL AS SHOWN IN DETAIL. REQUIRED AT THRIE BEAM GUARD RAIL ATTACHMENTS ONLY. PLACE SYMMETRICALLY ABOUT TUBES NO. 5A.
8. 1" DIA. HOLES IN PLATE NO. 7 & TUBES NO. 5A FOR ⅞" DIA. A325 BOLTS WITH HEX NUTS AND WASHERS. 6 HOLES IN TUBES AND PLATE NO. 7.
9. SPLICE SLEEVE FABRICATED FROM ¼" PLATE. PROVIDE "SLIDING FIT".
10. ⅜" X 3⅝" X 2'-4" PLATE. 2 PER RAIL. USED IN NO. 5 & 5A.
10A. ⅜" X 2⅝" X 2'-4" PLATE USED IN NO. 5, ⅜" X 3⅝" X 2'-4" PLATE USED IN NO. 5A. 2 PER RAIL.
11. ⅞" Φ A325 ROUND HEAD BOLT WITH NUT, WASHER, AND LOCK WASHER. USE 15/16" X 1¼" LONGIT. SLOTTED HOLES AT FIELD JOINTS AND 15/16" X 2¼" MIN. LONGIT. SLOTTED HOLES AT EXP. JOINTS IN PLATE NO. 10A.
12. ⅞" DIA. X 1½" LONG THREADED SHOP WELDED STUDS (2 REQ'D).
13. ⅜" X 8" X 1'-6" PLATE. BOLT TO RAIL AS SHOWN IN DETAIL. REQ'D. AT THRIE BEAM GUARD RAIL ATTACHMENTS ONLY. PLACE SYM. ABOUT TUBES NO. 5A.
14. ⅞" DIA. X 2" LONG A325 HEX BOLT WITH NUT AND WASHER (5 REQ'D.).
15. 1" Φ HOLES IN TUBES NO. 5A FOR ⅞" DIA. A325 ROUND HEAD BOLT WITH NUT, WASHER AND LOCK WASHER (4 REQ'D.). 4 HOLES IN TUBES.

GENERAL NOTES

1. BID ITEM SHALL BE "RAILING TUBULAR TYPE M B-34-0051" WHICH INCLUDES ALL ITEMS SHOWN.
2. RAIL POST AND BASE PLATES SHALL CONFORM TO THE REQUIREMENTS OF ASTM A709 GRADE 50. HOLLOW RAILING STRUCTURAL TUBING SHALL CONFORM TO THE REQUIREMENTS OF ASTM A500 GRADE B OR C WITH A CERTIFIED FY = 50 KSI. ANCHOR PLATES, AND SPLICE TUBE PLATES SHALL CONFORM TO THE REQUIREMENTS OF ASTM A709 GRADE 36.
3. THE NUT SECURING THE POST BASE PLATE TO THE CONCRETE SHALL BE TIGHTENED TO A SNUG FIT AND GIVEN AN ADDITIONAL ⅛ TURN.
4. RAILS SHALL BE CONTINUOUS OVER A MINIMUM OF THREE (3) POSTS WITHOUT SPLICES WHERE POSSIBLE.
5. ENDS OF TUBE SECTIONS SHALL BE SAWED. GRIND SMOOTH EXPOSED EDGES. ALL CUT ENDS SHALL BE TRUE AND SMOOTH.
6. WELD IS THE SAME ON BOTH FLANGES. FLANGE WELD DOES NOT REQUIRE MAGNETIC PARTICLE TESTING.
7. FILL BOLT SLOT OPENINGS IN POST SHIMS AND PLATE NO. 2 AND CAULK AROUND PERIMETER OF PLATE NO. 2 WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. STEEL POST SHIMS MAY BE USED UNDER POSTS WHERE REQ'D. FOR ALIGNMENT.
8. POST BASE PLATES SHALL BE FLAT WITH ALL SURFACES SMOOTH AND FREE FROM WARP AND ALL EDGES SMOOTH, STRAIGHT AND VERTICAL. ALL PLATE CUTS SHALL BE MACHINE OR MACHINE FLAME CUT.
9. ALL MATERIAL SHALL BE GALVANIZED AFTER FABRICATION. PRIOR TO GALVANIZING, ALL STEEL RAILING POSTS & STEEL TUBING SHALL BE GIVEN A NO. 6 BLAST CLEANING BY SSPC SPECIFICATIONS.
10. THIS RAILING MEETS NCHRP REPORT 350 EVALUATION CRITERIA FOR TEST LEVEL 4 (TL-4).

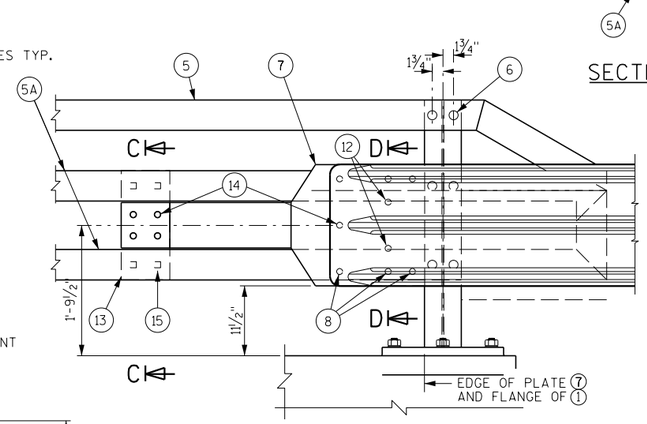
SECTION A-A

◭ TIE TO TOP MAT OF STEEL.



ANCHOR PLATE

AT BEAM GUARD ATTACHMENT



DETAIL AT END POST

THRIE BEAM RAIL ATTACHMENT

ANCHOR PLATE

AT RAIL TO DECK CONNECTION

POST SHIM DETAIL

BACK-UP PLATE DETAIL

AT BEAM GUARD ATTACHMENT

PART ELEVATION OF RAILING

◪ ½" JOINT FILLER

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-34-51

DRAWN BY MJB | PLANS CK'D. GAR

RAILING TUBULAR TYPE 'M'

SHEET 13 OF 13
49

STATE PROJECT NUMBER
9391-07-70

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CTH Y WEST OF BRIDGE

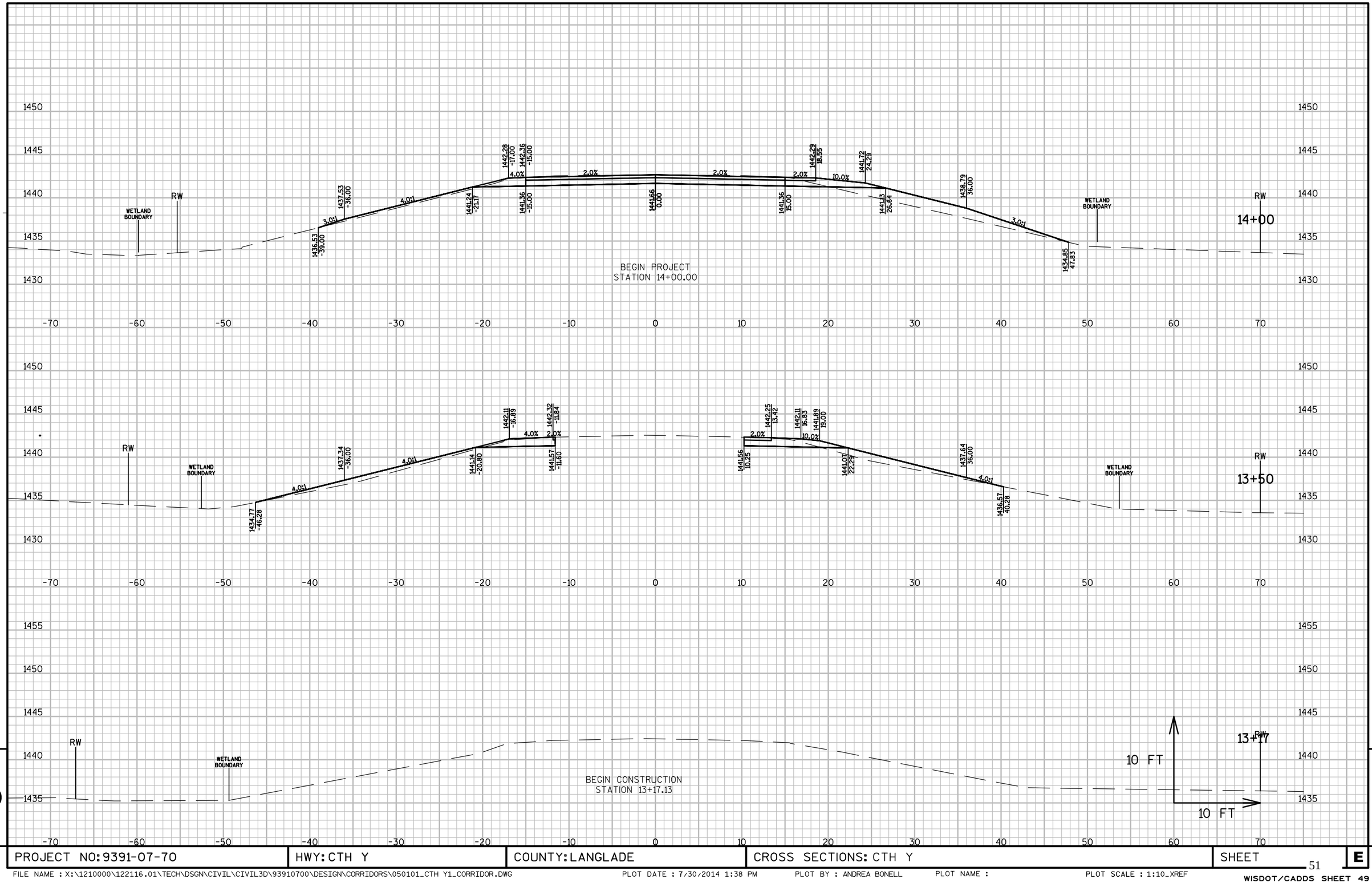
Station	Real Station	Distance	AREA (SF) Cut	AREA (SF) Fill	Incremental Vol (CY) (Unadjusted) Cut	Incremental Vol (CY) (Unadjusted) Fill	Cumulative Vol (CY) Cut 1.00	Cumulative Vol (CY) Expanded Fill 1.30 (1)	Mass Ordinate (2)
13+17.13	1317.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
13+46.00	1346.00	28.87	25.83	8.25	13.81	4.41	13.81	5.73	
13+50.00	1350.00	4.00	12.35	20.16	2.83	2.10	16.64	8.47	
14+00.00	1400.00	50.00	37.86	29.43	46.49	45.92	63.13	68.16	
14+04.00	1404.00	4.00	38.34	31.93	5.64	4.55	68.77	74.07	
14+29.00	1429.00	25.00	40.13	34.26	36.33	30.64	105.10	113.91	
14+50.00	1450.00	21.00	41.42	19.68	31.71	20.98	136.82	141.18	
14+54.00	1454.00	4.00	41.28	15.70	6.13	2.62	142.94	144.58	
14+98.00	1498.00	48.00	34.73	4.02	67.56	17.53	210.51	167.37	43.13
					210.51	128.75			

CTH Y EAST OF BRIDGE

Station	Real Station	Distance	AREA (SF) Cut	AREA (SF) Fill	Incremental Vol (CY) (Unadjusted) Cut	Incremental Vol (CY) (Unadjusted) Fill	Cumulative Vol (CY) Cut 1.00	Cumulative Vol (CY) Expanded Fill 1.30 (1)	Mass Ordinate (2)
16+50.00	1650.00	0.00	44.88	2.76	0.00	0.00	0.00	0.00	
16+85.00	1685.00	35.00	64.31	4.03	58.18	4.40	58.18	5.72	
17+00.00	1700.00	15.00	67.49	5.88	36.61	2.75	94.79	9.30	
17+10.00	1710.00	10.00	62.05	7.25	23.99	2.43	118.78	12.46	
17+35.00	1735.00	25.00	57.80	9.24	55.49	7.63	174.26	22.39	
17+50.00	1750.00	15.00	55.14	8.23	31.37	4.85	205.64	28.69	
17+91.00	1791.00	41.00	19.02	4.15	56.31	9.40	261.94	40.91	
18+00.00	1800.00	9.00	8.61	2.62	4.61	1.13	266.55	42.38	
18+50.00	1850.00	50.00	14.97	0.21	21.83	2.62	288.38	45.79	
18+65.00	1865.00	15.00	0.00	0.00	4.16	0.06	292.54	45.86	246.68
					292.54	35.28			

1) Expanded Fill. Factor = 1.30

2) The Mass Ordinate + or - Qty calculated for the Division. Plus quantity indicates an excess of material within the Division. Minus indicates a shortage of material within the Division.



PROJECT NO: 9391-07-70	HWY: CTH Y	COUNTY: LANGLADE	CROSS SECTIONS: CTH Y	SHEET	E

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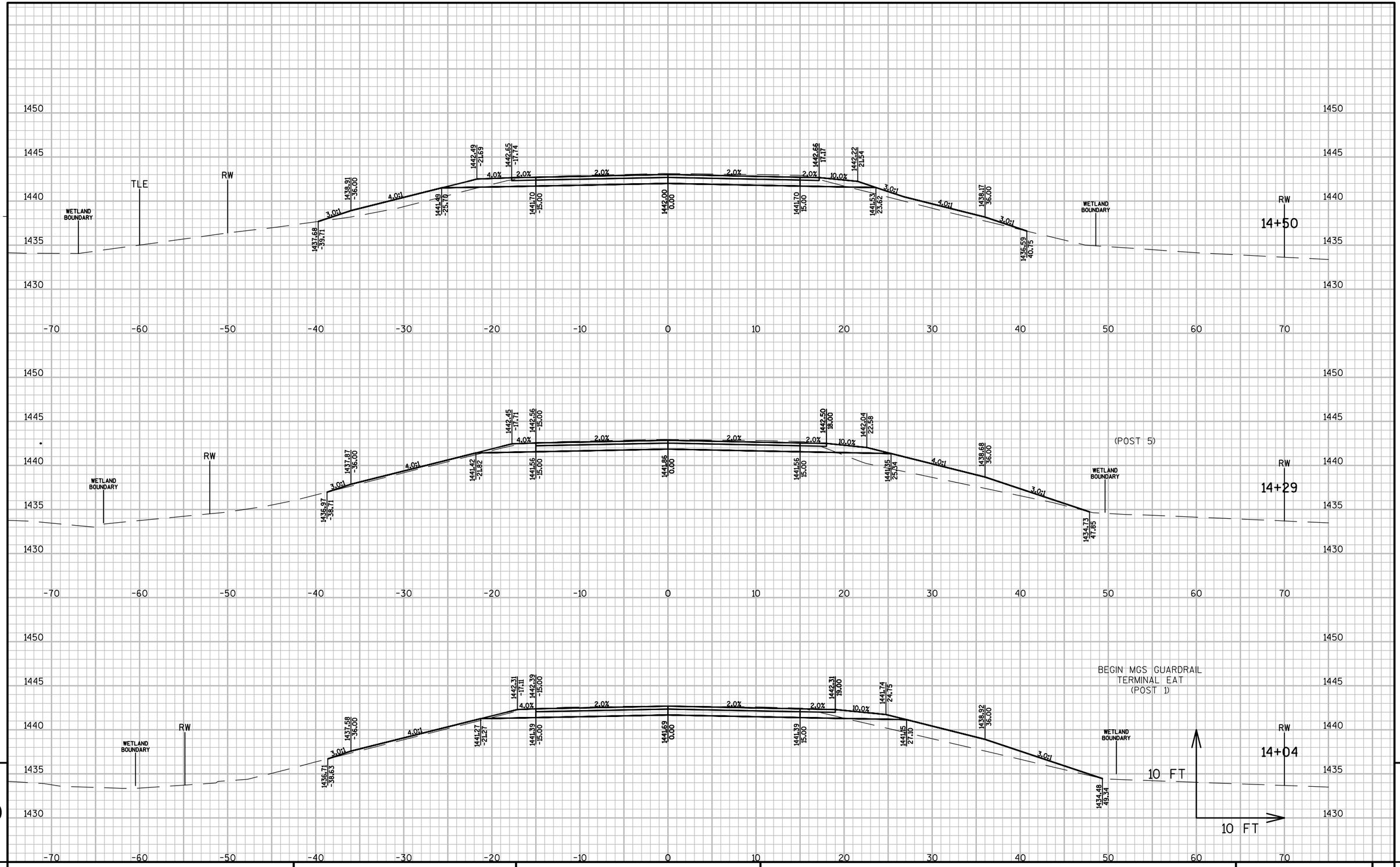

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9

PROJECT NO: 9391-07-70	HWY: CTH Y	COUNTY: LANGLADE	CROSS SECTIONS: CTH Y	SHEET	E

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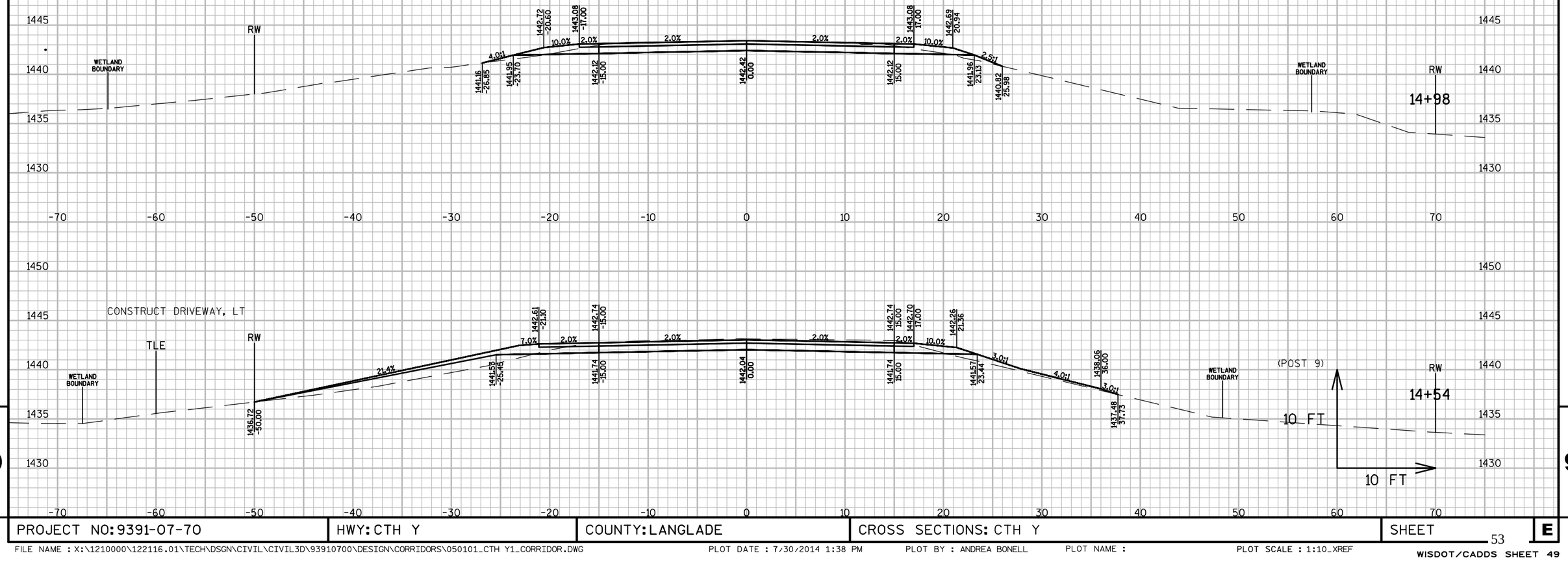
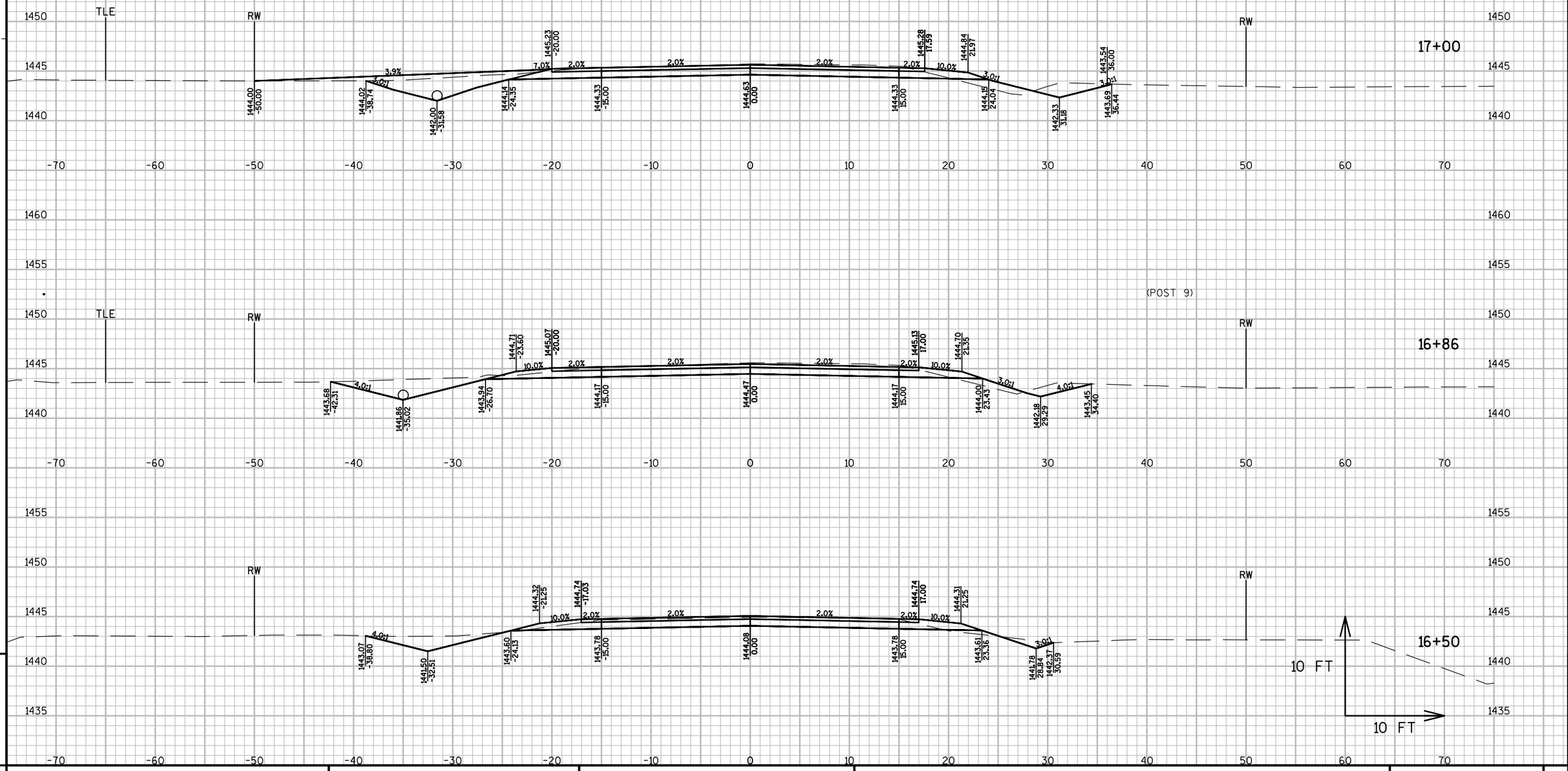
CONSTRUCT STRUCTURE
B-34-0051
STA 14+93 TO STA 16+53

15+71



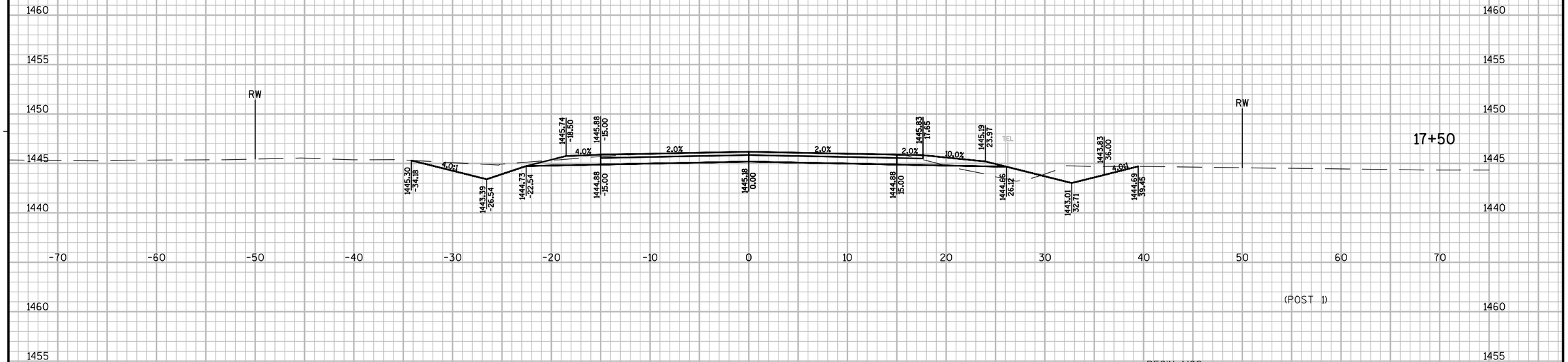
PROJECT NO: 9391-07-70	HWY: CTH Y	COUNTY: LANGLADE	CROSS SECTIONS: CTH Y	SHEET 53	E

CONSTRUCT DRIVEWAY, LT



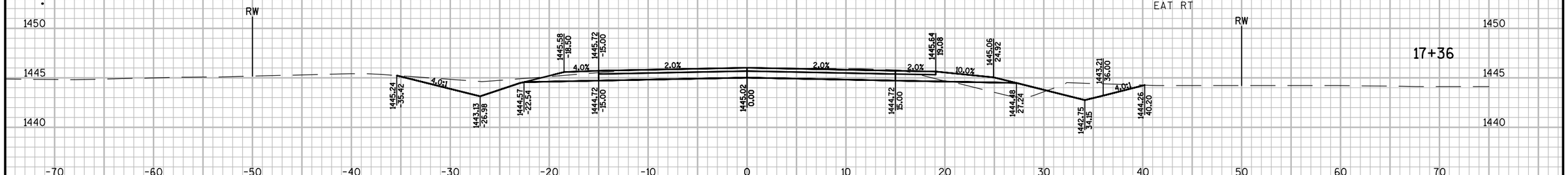
PROJECT NO: 9391-07-70	HWY: CTH Y	COUNTY: LANGLADE	CROSS SECTIONS: CTH Y	SHEET	E

END PROJECT
STATION 17+50.00



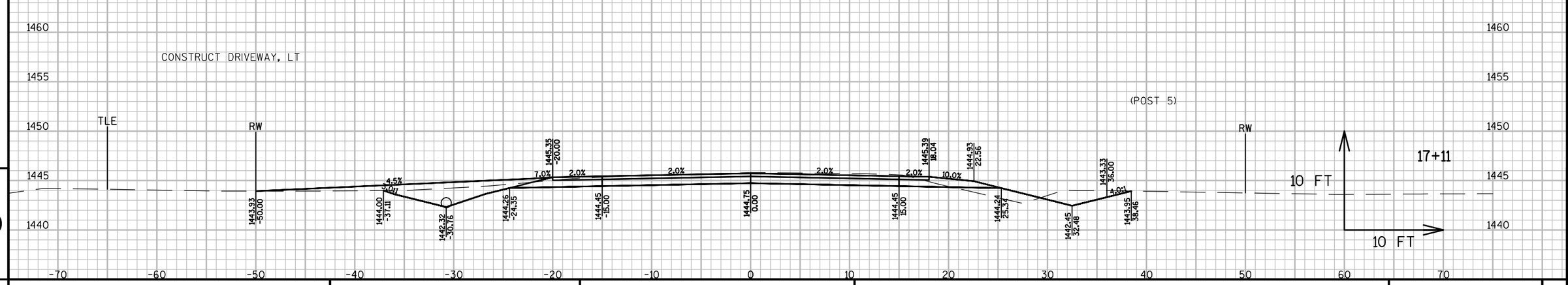
(POST 1)

BEGIN MGS
GUARDRAIL TERMINAL
EAT RT



CONSTRUCT DRIVEWAY, LT

(POST 5)



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PROJECT NO: 9391-07-70	HWY: CTH Y	COUNTY: LANGLADE	CROSS SECTIONS: CTH Y	SHEET	E

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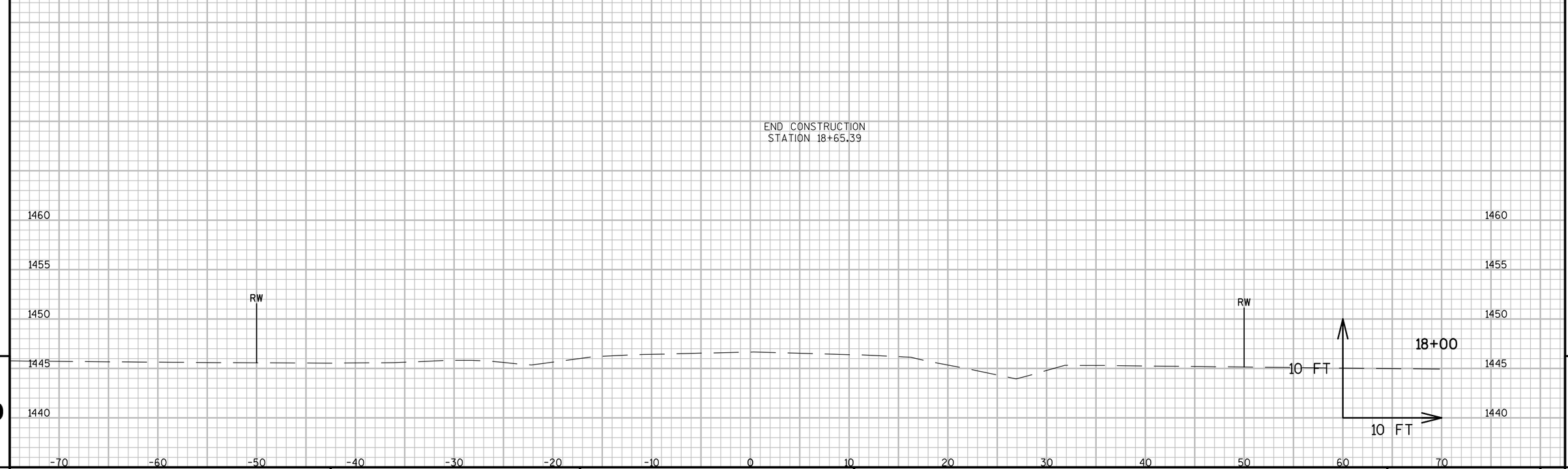
END CONSTRUCTION
STATION 18+65.39



9 9

PROJECT NO: 9391-07-70	HWY: CTH Y	COUNTY: LANGLADE	CROSS SECTIONS: CTH Y	SHEET	E

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Notes

Wisconsin Department of Transportation

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