NCL APR 2014

PROJECT ID: 6796-01-70
WITH: N/A

COUNTY: PORTAGE

ORDER OF SHEETS

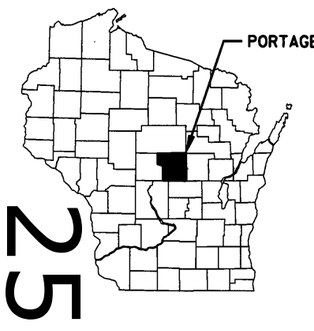
TOTAL SHEETS = 70

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PLAN OF PROPOSED IMPROVEMENT

CTH DB - MARATHON COUNTY LINE
LITTLE EAU CLAIRE RVR BRDG B49-0174
CTH X
PORTAGE COUNTY

STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
6796-01-70	WISC 2014113	1



25

DESIGN DESIGNATION

A.A.D.T. (2014)	=	510
A.A.D.T. (2034)	=	650
D.H.V.	=	79
D.D.	=	60/40
T. (DHV)	=	8.2%
DESIGN SPEED	=	55 MPH
ESALS	=	87,600

CONVENTIONAL SYMBOLS

PLAN

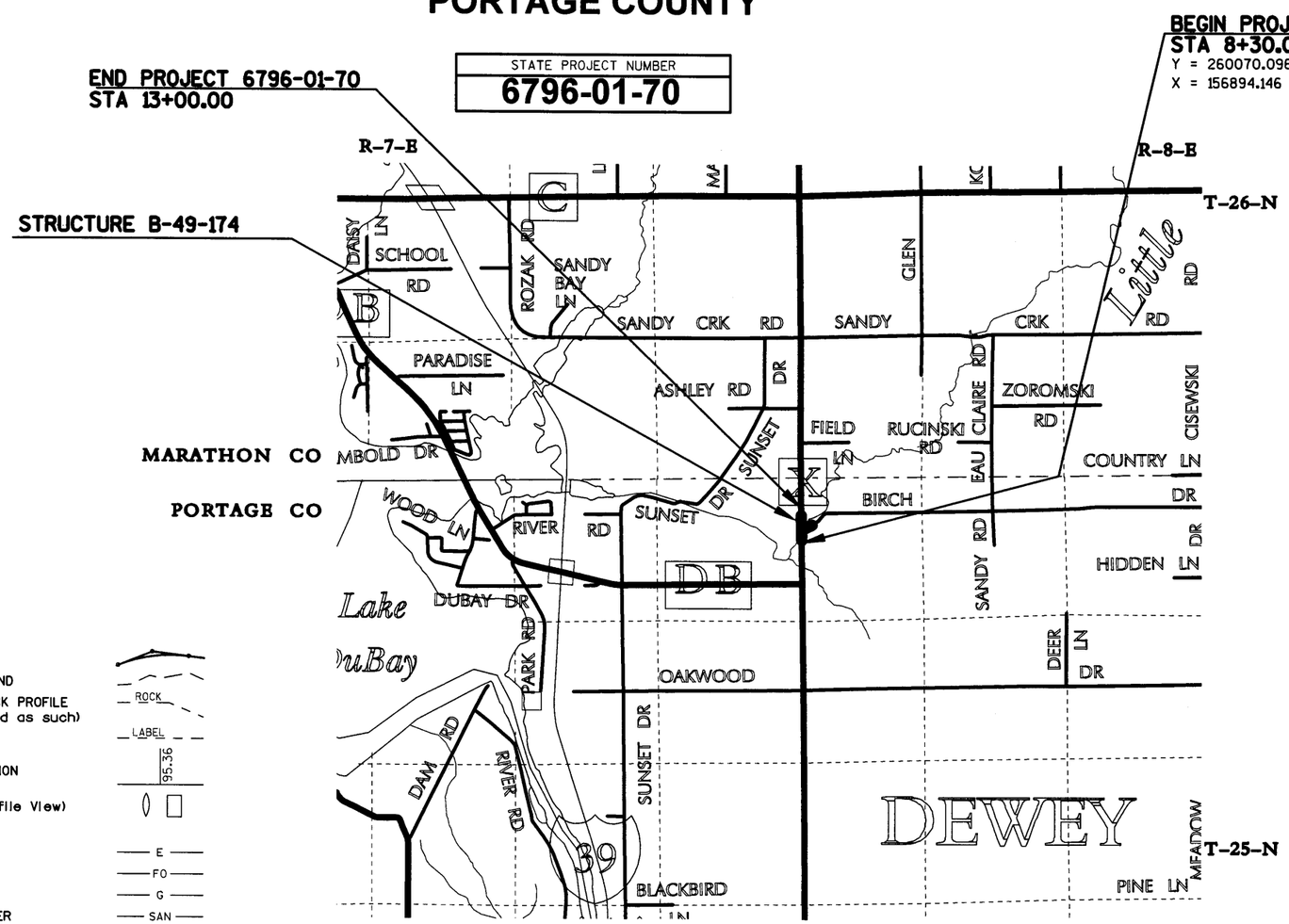
- CORPORATE LIMITS
- PROPERTY LINE (PL + 58.1)
- LOT LINE
- LIMITED HIGHWAY EASEMENT
- EXISTING RIGHT OF WAY
- PROPOSED OR NEW R/W LINE
- SLOPE INTERCEPT
- REFERENCE LINE
- EXISTING CULVERT
- PROPOSED CULVERT (Box or Pipe)
- COMBUSTIBLE FLUIDS (CAUTION)
- WETLANDS
- WOODED OR SHRUB AREA

PROFILE

- GRADE LINE
- ORIGINAL GROUND
- MARSH OR ROCK PROFILE (To be noted as such) (ROCK)
- SPECIAL DITCH (LABEL)
- GRADE ELEVATION (95.36)
- 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



LAYOUT

SCALE 0 1/2 MI. 1 MI.

TOTAL NET LENGTH OF CENTERLINE = 0.089 MI.

COORDINATES ON THIS PLAN ARE REFERENCED TO THE WISCONSIN COUNTY COORDINATE SYSTEM (WCCS), PORTAGE COUNTY, NAD 1983 (91)

ELEVATIONS SHOWN ON THIS PLAN ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 NAVD 88 (91)

ACCEPTED FOR PORTAGE COUNTY

DATE: 10/24/13 (Signature)

Highway Commissioner
TITLE

ORIGINAL PLANS PREPARED BY

OMNNI ASSOCIATES

WISCONSIN
JUDITH ANN WILSON
E-22940
NEENAH, WI
PROFESSIONAL ENGINEER

10/22/13

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PREPARED BY

Surveyor	OMNNI ASSOCIATES
Designer	OMNNI ASSOCIATES
Management Consultant	CEDAR CORP

APPROVED FOR THE DEPARTMENT

DATE: 12-31-2013 (Signature)

E

67960170_010101_ti

WISDOT/CADDS SHEET 15

GENERAL NOTES

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

FILL AS SHOWN ON THE PLANS PERTAINS TO EMBANKMENTS CONSTRUCTED FROM COMMON EXCAVATION. THE ALLOWANCE USED FOR EXPANDING THE FILLS TO COMPUTE THE VOLUME OF MATERIAL REQUIRED IS 25 PERCENT. ALL FILL VOLUMES SHOWN ARE THE ACTUAL VOLUMES.

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

HMA PAVEMENT 4" DEPTH TYPE E-0.3
- 1 3/4" UPPER LAYER (12.5 mm NOMINAL SIZE AGGREGATE)
- 2 1/4" LOWER LAYER (12.5 mm NOMINAL SIZE AGGREGATE)

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

ALL DISTURBED AREAS, NOT OTHERWISE SURFACED ARE TO BE TOPSOILED, FERTILIZED, TEMPORARY SEEDED, SEEDED AND COVERED WITH EROSION MAT OR MULCH.

SEED MIXTURE NO. 75 SHALL BE USED ON ALL DISTURBED AREAS.

WETLAND AREAS ARE SHOWN ON THE PLANS. CONTRACTOR SHALL LIMIT CONSTRUCTION ACTIVITIES TO WORK WITHIN THE SLOPE INTERCEPTS IN THE WETLAND AREAS.

THE EXACT LOCATIONS OF ALL EROSION CONTROL ITEMS SHALL BE DETERMINED BY THE ENGINEER IN THE FIELD.

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

DISTANCES SHOWN ON THIS PLAN ARE GROUND DISTANCES.

A HEIGHT MODERNIZATION PROGRAM (HMP) GEODETIC CONTROL POINT (3.5" DIAMETER BRONZE SURVEY DISK) IS LOCATED IN THE EAST END OF THE SOUTH ABUTMENT OF STRUCTURE P-49-31. AS PART OF THE STRUCTURE REMOVAL, RECOVER THIS MONUMENT AND GIVE IT TO THE CONSTRUCTION ENGINEER.

PLACE SALVAGED RAIL ON THE RIGHT OF WAY FOR PICK UP BY PORTAGE COUNTY.

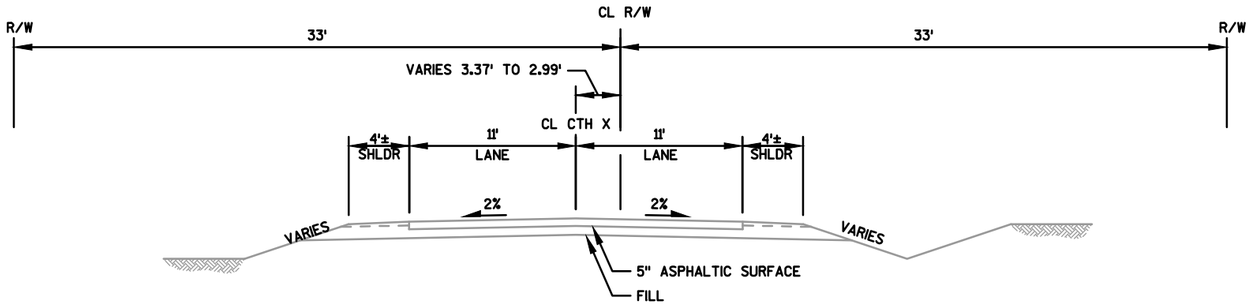
EROSION CONTROL NOTES

RUNOFF COEFFICIENTS FOR THIS PROJECT: EXISTING PAVEMENT 0.95, EXISTING SLOPES 0.30, NEW PAVEMENT 0.95, NEW SLOPES 0.30.

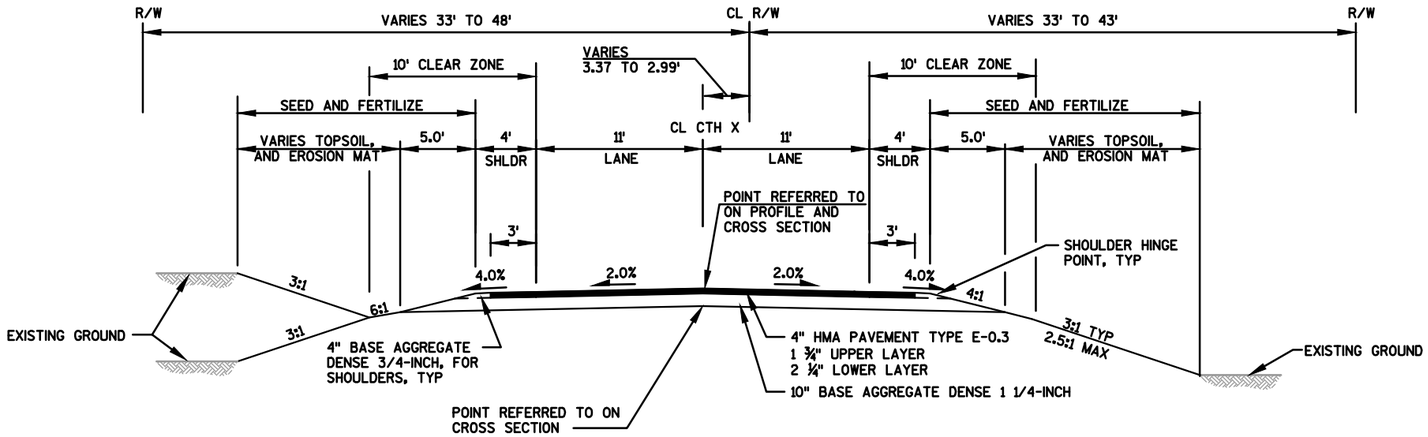
TOTAL PROJECT AREA = 1.34 ACRES
TOTAL AREA EXPECTED TO BE DISTURBED BY CONSTRUCTION ACTIVITIES = 0.93 ACRES

CONTACTS

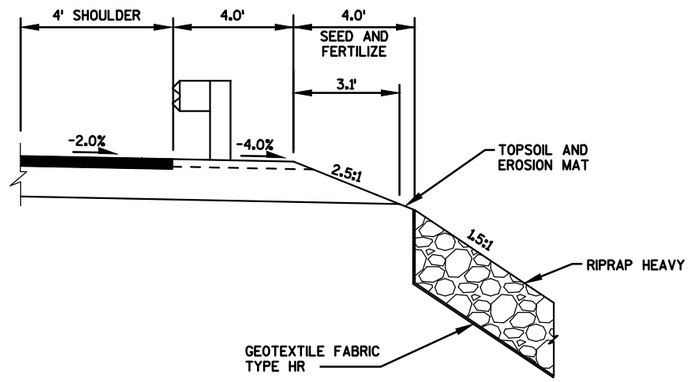
ELECTRIC	CENTRAL WISCONSIN ELECTRIC COOP 10401 LYSTUL ROAD ROSHOLT, WI 54473 ATTN: JEFF RICE TELEPHONE: 715-677-2211 CELL PHONE: 715-701-2038 EMAIL: jeff.rice@cwecoop.com
TELEPHONE	TDS TELECOM 10 COLLEGE AVENUE, SUITE 218A APPLETON, WI 54911 ATTN: STEVE JAKUBIEC TELEPHONE: 920-882-4166 CELL PHONE: 920-562-7221 EMAIL: steve.jakubiec@tdstelecom.com
COMMUNICATIONS	CHARTER COMMUNICATIONS 5024 HEFFRON ST STEVENS POINT, WI 54481 ATTN: RUDI RUDIGER TELEPHONE: 715-302-1550 EMAIL: rrudiger@chartercom.com
PORTAGE COUNTY	NATHAN CHECK, HIGHWAY COMMISSIONER 800 PLOVER ROAD PLOVER, WI 54467 TELEPHONE: 715-345-5230 EMAIL: checkn@co.portage.wi.us
DESIGN CONSULTANT	JUDY WILSON, P.E. OMNNI ASSOCIATES, INC. ONE SYSTEMS DRIVE APPLETON, WI 54914 TELEPHONE: 920-830-6129 EMAIL: judy.wilson@omnni.com
DNR LIAISON	MARC HERSHFIELD DEPARTMENT OF NATURAL RESOURCES 473 GRIFFITH AVENUE WISCONSIN RAPIDS, WI 54494 TELEPHONE: 715-421-7867 EMAIL: marc.hershfield@wisconsin.gov



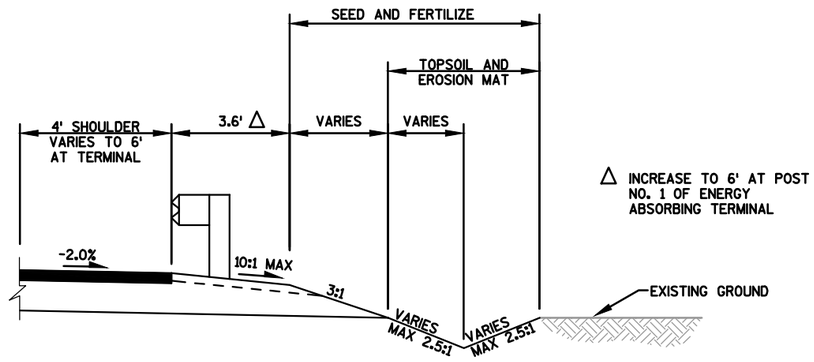
TYPICAL EXISTING SECTION - CTH X
STA 8+30 TO STA 13+00



TYPICAL FINISHED SECTION - CTH X
STA 8+30 TO STA 9+73.56
STA 10+41.44 TO STA 13+00

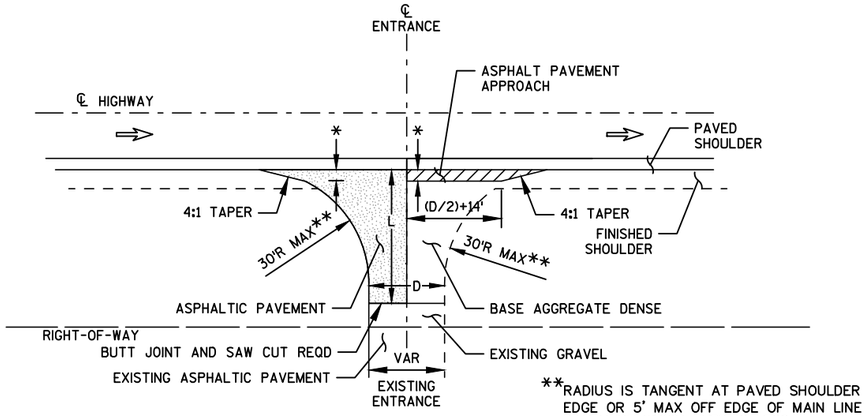


TYPICAL FINISHED SECTION AT RIPRAP
STA 10+74.88 TO STA 12+80.30 RT



TYPICAL FINISHED SECTION AT BEAM GUARD
STA 8+84.20 TO STA 11+26.27 LT
STA 9+45.82 TO STA 9+69.30 RT

PROJECT NO: 6796-01-70	HWY: CTH X	COUNTY: PORTAGE	TYPICAL SECTIONS	SHEET 3	E 2.2



L=VARIABLE, EXACT LENGTH TO BE DETERMINED IN THE FIELD BY THE ENGINEER. BLEND BACK ON THE ENTRANCE FAR ENOUGH TO GET A SMOOTH PROFILE.

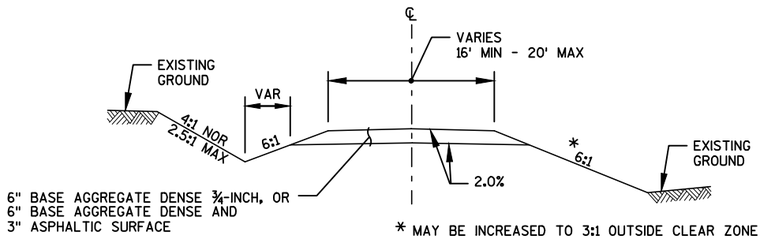
D=DRIVEWAY WIDTH
SEE PLAN AND PROFILE

**RADIUS IS TANGENT AT PAVED SHOULDER EDGE OR 5' MAX OFF EDGE OF MAIN LINE PAVEMENT WHICH EVER IS LESS.

*3' MAX OR TO FINISHED SHOULDER WHICH EVER IS LESS.

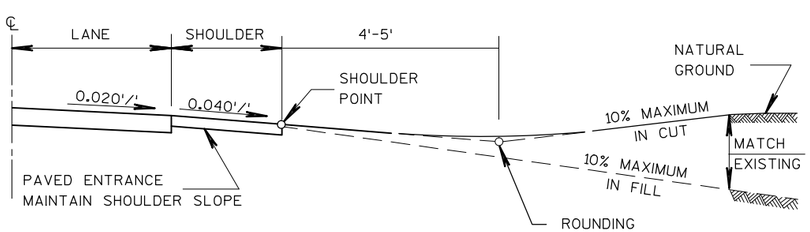
PLAN VIEW

NOTE: ONLY THE BASE AGGREGATE DENSE DRIVEWAY USED IN THIS CONTRACT



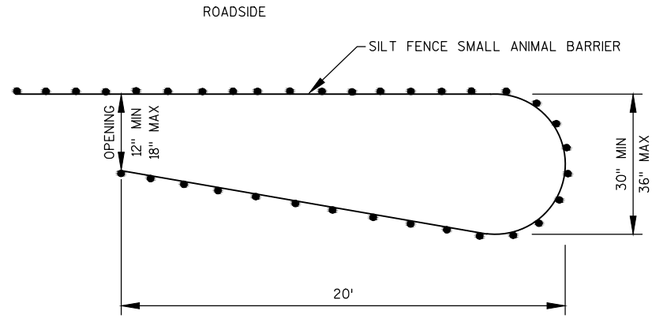
* MAY BE INCREASED TO 3:1 OUTSIDE CLEAR ZONE

TYPICAL CROSS SECTION



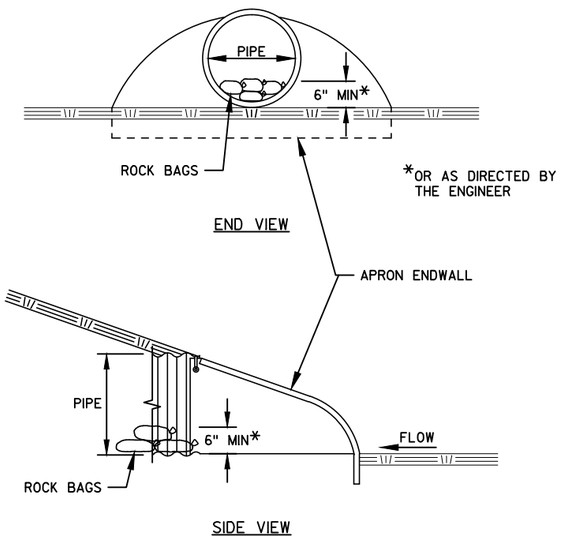
PROFILE VIEW

RURAL DRIVEWAY INTERSECTION DETAIL



NOTES:
SILT FENCE POSTS FOR THE TURN-AROUND SHOULD BE ON THE OUTSIDE OF THE TURN-AROUND AND TRENCHED IN ACCORDING TO SILT FENCE REQUIREMENTS.

TEMPORARY SMALL ANIMAL BARRIER



CULVERT PIPE CHECKS

2

LEGEND

- CULVERT PIPE CHECK
- SILT FENCE
- EROSION MAT URBAN CLASS I TYPE B
- TURBIDITY BARRIER
- TEMPORARY DITCH CHECK
- TEMPORARY SMALL ANIMAL BARRIER

NOTES

EXISTING NORTH ABUTMENT TO BE LEFT IN PLACE DURING CONSTRUCTION OF PROPOSED NORTH ABUTMENT TO CONTROL SEDIMENT. REMOVE EXISTING ABUTMENT TO PROPOSED GROUND ELEVATION AFTER ABUTMENT CONSTRUCTION AND SLOPE STABILIZATION IS COMPLETE.

SILT FENCE WILL BE INSTALLED BY PORTAGE COUNTY PRIOR TO APRIL 15.

N

LITTLE EAU CLAIRE RIVER

SLOPE INTERCEPT

R/W

BP: 20+80.00

20+00

8+00

9+00

10+00

11+00

12+00

13+00

CTH X

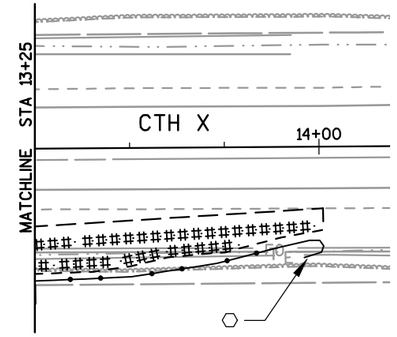
MATCHLINE STA 13+25

21+00

BIRCH DRIVE

22+00

SLOPE INTERCEPT



PROJECT NO:6796-01-70	HWY:CTH X	COUNTY:PORTAGE	EROSION CONTROL PLAN	SHEET 5	E 2.4

2

N

CTH DB

LITTLE EAU CLAIRE RIVER

PORTAGE COUNTY

MARATHON COUNT

SUNSET DR

ASHLEY RD

CTH X

CTH X

FIELD LN

BIRCH DR

R11-3B
60" X 30"
BRIDGE OUT
0.8 MILES AHEAD
LOCAL TRAFFIC ONL

TYPE III BARRICADE

ROAD CLOSED 500 FT W20-3

ROAD CLOSED 1000 FT W20-3

R11-3B
60" X 30"
BRIDGE OUT
0.4 MILES AHEAD
LOCAL TRAFFIC ONL

TYPE III BARRICADE

ROAD CLOSED 1000 FT W20-3

ROAD CLOSED 500 FT W20-3

ROAD CLOSED 500 FT W20-3

ROAD CLOSED AHEAD W20-3

PLACE SIGN AT LAST INTERSECTION ON BIRCH DIRVIE PRIOR TO CLOSURE

GENERAL NOTES

REFER TO STANDARD DETAIL DRAWING " BARRICADES AND SIGNS FOR MAINLINE CLOSURES" - DETAILS C, D, & E

REFER TO STANDARD DETAIL DRAWING "BARRICADES AND SIGNS FOR SIDEROAD CLOSURES " - DETAIL 4

LEGEND

- TYPE III BARRICADE WITH ATTACHED SIGN
- TYPE III BARRICADE
- SIGN ON PERMANENT SUPPORT
- SIGN ON TEMPORARY SUPPORT
- WORK AREA

PROJECT NO: 6796-01-70	HWY: CTH X	COUNTY: PORTAGE	TRAFFIC CONTROL	SHEET 6	E 2.6

FILE NAME : F:\TR\JOBS\E2063A12\CIVIL 3D 2012\SHEETSPLAN\67960170_025000_TC.DWG 67960170_025001_tc PLOT DATE : 10/3/2013 10:16 AM PLOT BY : OMNNI ASSOCIATES, INC - DAVE PERRY

2

N

R11-2B
48" X 30"
BRIDGE OUT
TYPE III BARRICADE

R11-2B
48" X 30"
BRIDGE OUT
TYPE III BARRICADE

R11-3
60" X 30"
ROAD CLOSED TO THRU TRAFFIC
TYPE III BARRICADE

R11-3
60" X 30"
ROAD CLOSED TO THRU TRAFFIC
TYPE III BARRICADE

R11-3
60" X 30"
ROAD CLOSED TO THRU TRAFFIC
TYPE III BARRICADE

STOP
R1-1
30" X 30"

6+00 7+00 8+00 9+00 10+00 11+00 12+00 13+00 14+00 15+00

CTH X

CTH X

21+00

22+00

BIRCH DR

PROVIDE ACCESS (SINGLE LANE MINIMUM) TO AND FROM BIRCH DRIVE AT ALL TIMES DURNING CONSTRUCTION

GENERAL NOTES

REFER TO STANDARD DETAIL DRAWING " BARRICADES AND SIGNS FOR MAINLINE CLOSURES" - DETAILS C, D, & E

REFER TO STANDARD DETAIL DRAWING "BARRICADES AND SIGNS FOR SIDEROAD CLOSURES " - DETAIL 4

LEGEND

- TYPE III BARRICADE WITH ATTACHED SIGN
- TYPE III BARRICADE
- SIGN ON PERMANENT SUPPORT
- SIGN ON TEMPORARY SUPPORT
- WORK AREA

PROJECT NO: 6796-01-70	HWY: CTH X	COUNTY: PORTAGE	TRAFFIC CONTROL	SHEET 7	E

FILE NAME : F:\TR\JOBS\E2063A12\CIVIL 3D 2012\SHEETSPLAN\67960170_025000_TC.DWG 67960170_025002_tc PLOT DATE : 10/3/2013 10:15 AM PLOT BY : OMNNI ASSOCIATES, INC - DAVE PERRY

DATE 11FEB14 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	6796-01-70 QUANTITY
0010	201.0205	GRUBBING	STA	7.000	7.000
0020	203.0100	REMOVING SMALL PIPE CULVERTS	EACH	2.000	2.000
0030	203.0600.S	REMOVING OLD STRUCTURE OVER WATERWAY WITH MINIMAL DEBRIS (STATION) 01. 10+00	LS	1.000	1.000
0040	205.0100	EXCAVATION COMMON	CY	700.000	700.000
0050	206.1000	EXCAVATION FOR STRUCTURES BRIDGES (STRUCTURE) 01. B-49-0174	LS	1.000	1.000
0060	208.0100	BORROW	CY	270.000	270.000
0070	210.0100	BACKFILL STRUCTURE	CY	280.000	280.000
0080	213.0100	FINISHING ROADWAY (PROJECT) 01. 6796-01-70	EACH	1.000	1.000
0090	305.0110	BASE AGGREGATE DENSE 3/4-INCH	TON	200.000	200.000
0100	305.0120	BASE AGGREGATE DENSE 1 1/4-INCH	TON	1,430.000	1,430.000
0110	415.0410	CONCRETE PAVEMENT APPROACH SLAB	SY	162.000	162.000
0120	455.0105	ASPHALTIC MATERIAL PG58-28	TON	19.000	19.000
0130	455.0605	TACK COAT	GAL	36.000	36.000
0140	460.1100	HMA PAVEMENT TYPE E-0.3	TON	330.000	330.000
0150	460.2000	INCENTIVE DENSITY HMA PAVEMENT	DOL	220.000	220.000
0160	502.0100	CONCRETE MASONRY BRIDGES	CY	182.000	182.000
0170	502.3200	PROTECTIVE SURFACE TREATMENT	SY	270.000	270.000
0180	503.0137	PRESTRESSED GIRDER TYPE I 36W-INCH	LF	264.000	264.000
0190	505.0405	BAR STEEL REINFORCEMENT HS BRIDGES	LB	5,430.000	5,430.000
0200	505.0605	BAR STEEL REINFORCEMENT HS COATED BRIDGES	LB	19,490.000	19,490.000
0210	506.2605	BEARING PADS ELASTOMERIC NON-LAMINATED	EACH	8.000	8.000
0220	506.4000	STEEL DIAPHRAGMS (STRUCTURE) 01. B-49-0174	EACH	3.000	3.000
0230	513.4060	RAILING TUBULAR TYPE M (STRUCTURE) 01. B-49-0174	LS	1.000	1.000
0240	516.0500	RUBBERIZED MEMBRANE WATERPROOFING	SY	23.000	23.000
0250	520.0118	CULVERT PIPE CLASS III 18-INCH	LF	30.000	30.000
0260	520.1018	APRON ENDWALLS FOR CULVERT PIPE 18-INCH	EACH	2.000	2.000
0270	525.0124	CULVERT PIPE CORRUGATED ALUMINUM 24-INCH	LF	90.000	90.000
0280	525.0324	ALUMINUM APRON ENDWALLS FOR ALUMINUM CULVERT PIPE 24-INCH	EACH	2.000	2.000
0290	550.0020	PRE-BORING ROCK OR CONSOLIDATED MATERIALS	LF	72.000	72.000
0300	550.0500	PILE POINTS	EACH	8.000	8.000
0310	550.1100	PILING STEEL HP 10-INCH X 42 LB	LF	226.000	226.000
0320	606.0300	RIPRAP HEAVY	CY	470.000	470.000
0330	612.0206	PIPE UNDERDRAIN UNPERFORATED 6-INCH	LF	30.000	30.000
0340	612.0406	PIPE UNDERDRAIN WRAPPED 6-INCH	LF	115.000	115.000
0350	614.0200	STEEL THRIE BEAM STRUCTURE APPROACH	LF	83.000	83.000
0360	614.0305	STEEL PLATE BEAM GUARD CLASS A	LF	169.000	169.000
0370	614.0345	STEEL PLATE BEAM GUARD SHORT RADIUS	LF	50.000	50.000
0380	614.0370	STEEL PLATE BEAM GUARD ENERGY ABSORBING TERMINAL	EACH	4.000	4.000
0390	614.0920	SALVAGED RAIL	LF	470.000	470.000
0400	619.1000	MOBILIZATION	EACH	1.000	1.000
0410	624.0100	WATER	MGAL	10.000	10.000
0420	625.0100	TOPSOIL **P**	SY	1,750.000	1,750.000
0430	628.1504	SILT FENCE	LF	500.000	500.000
0440	628.1520	SILT FENCE MAINTENANCE	LF	1,000.000	1,000.000
0450	628.1905	MOBILIZATIONS EROSION CONTROL	EACH	4.000	4.000
0460	628.1910	MOBILIZATIONS EMERGENCY EROSION CONTROL	EACH	2.000	2.000

3

DATE 11FEB14 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	6796-01-70 QUANTITY
0470	628.2008	EROSION MAT URBAN CLASS I TYPE B	SY	1,750.000	1,750.000
0480	628.6005	TURBIDITY BARRIERS	SY	320.000	320.000
0490	628.7504	TEMPORARY DITCH CHECKS	LF	30.000	30.000
0500	628.7555	CULVERT PIPE CHECKS	EACH	9.000	9.000
0510	629.0210	FERTILIZER TYPE B	CWT	2.000	2.000
0520	630.0175	SEEDING MIXTURE NO. 75 **P**	LB	17.000	17.000
0530	630.0200	SEEDING TEMPORARY	LB	10.000	10.000
0540	633.5200	MARKERS CULVERT END	EACH	2.000	2.000
0550	634.0614	POSTS WOOD 4X6-INCH X 14-FT	EACH	4.000	4.000
0560	637.2230	SIGNS TYPE II REFLECTIVE F	SF	12.000	12.000
0570	638.2102	MOVING SIGNS TYPE II	EACH	2.000	2.000
0580	638.2602	REMOVING SIGNS TYPE II	EACH	4.000	4.000
0590	638.3000	REMOVING SMALL SIGN SUPPORTS	EACH	4.000	4.000
0600	642.5001	FIELD OFFICE TYPE B	EACH	1.000	1.000
0610	643.0100	TRAFFIC CONTROL (PROJECT) 01.6796-01-70	EACH	1.000	1.000
0620	643.0300	TRAFFIC CONTROL DRUMS	DAY	750.000	750.000
0630	643.0420	TRAFFIC CONTROL BARRICADES TYPE III	DAY	1,500.000	1,500.000
0640	643.0705	TRAFFIC CONTROL WARNING LIGHTS TYPE A	DAY	3,000.000	3,000.000
0650	643.0715	TRAFFIC CONTROL WARNING LIGHTS TYPE C	DAY	750.000	750.000
0660	643.0900	TRAFFIC CONTROL SIGNS	DAY	1,500.000	1,500.000
0670	645.0120	GEOTEXTILE FABRIC TYPE HR	SY	730.000	730.000
0680	646.0103	PAVEMENT MARKING PAINT 4-INCH	LF	1,500.000	1,500.000
0690	650.4500	CONSTRUCTION STAKING SUBGRADE	LF	480.000	480.000
0700	650.5000	CONSTRUCTION STAKING BASE	LF	480.000	480.000
0710	650.6000	CONSTRUCTION STAKING PIPE CULVERTS	EACH	1.000	1.000
0720	650.6500	CONSTRUCTION STAKING STRUCTURE LAYOUT (STRUCTURE) 01. B-49-0174	LS	1.000	1.000
0730	650.9910	CONSTRUCTION STAKING SUPPLEMENTAL CONTROL (PROJECT) 01. 6796-01-70	LS	1.000	1.000
0740	650.9920	CONSTRUCTION STAKING SLOPE STAKES	LF	480.000	480.000
0750	690.0150	SAWING ASPHALT	LF	64.000	64.000
0760	715.0415	INCENTIVE STRENGTH CONCRETE PAVEMENT	DOL	500.000	500.000
0770	715.0502	INCENTIVE STRENGTH CONCRETE STRUCTURES	DOL	1,092.000	1,092.000
0780	ASP.1T0A	ON-THE-JOB TRAINING APPRENTICE AT $5. 00/HR	HRS	1,200.000	1,200.000
0790	ASP.1T0G	ON-THE-JOB TRAINING GRADUATE AT $5.00/HR	HRS	600.000	600.000
0800	SPV.0060	SPECIAL 01. BOULDER RETARDS	EACH	10.000	10.000

3

ALL ITEMS ARE CATEGORY 0010 UNLESS OTHERWISE NOTED

GRUBBING

STATION	LOCATION	201.0205 GRUBBING STATION
8+00 - 14+00	CTH X	6
21+00 - 22+00	BIRCH DRIVE	1
	TOTALS	**7**

SALVAGED RAIL

STATION	TO	STATION	DIR	LOCATION	614.0920 LF
8+95	-	BRIDGE	LT	CTH X	85
20+60	-	BRIDGE	RT	BIRCH DRIVE	45
BRIDGE	-	11+31	LT	CTH X	105
BRIDGE	-	12+58	RT	CTH X	235
				TOTAL	**470**

REMOVING SMALL PIPE CULVERTS

STATION	DIR	LOCATION	203.0100 EACH	REMARKS
8+74.5	LT & RT	CTH X	1	24" CMP
10+60	LT	CTH X	1	18" CMP
		TOTAL	**2**	

EARTHWORK SUMMARY

DIVISION	FROM / TO STATION	LOCATION	COMMON EXCAVATION 205.0100 CUT (2) CY	SALVAGED/UNUSABLE PAVEMENT MATERIAL CY	AVAILABLE MATERIAL(5) CY	UNEXPANDED FILL CY	EXPANDED FILL (13) FACTOR 1.25 CY	MASS ORDINATE +/- (14) CY	WASTE CY	BORROW 208.0100 CY
DIVISION 1	07+65/14+00	CTH X	554	137	416	452	565	-148	137	-148
DIVISION 1	20+25/22+00	BIRCH DRIVE	148	28	120	193	241	-121	28	-121
DIVISION 1 SUBTOTAL			701	165	536	644	805	-269	165	-269
GRAND TOTALS			701	165	536	644	805	-269	165	-269
ROUNDED TOTALS			**700**							**270**

2) SALVAGED/UNUSABLE PAVEMENT MATERIAL IS INCLUDED IN CUT.

5) AVAILABLE MATERIAL = CUT - SALVAGED/UNUSABLE PAVEMENT MATERIAL

13) EXPANDED FILL FACTOR = 1.25

14) THE MASS ORDINATE + OR - QUANTITY CALCULATED FOR THE DIVISION. PLUS QUANTITY INDICATES AN EXCESS OF MATERIAL WITHIN DIVISION. MINUS INDICATES A SHORTAGE OF MATERIAL WITHIN THE DIVISION.

BASE AGGREGATE DENSE AND WATER

STATION TO 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
8+30 - STRUCTURE*	CTH X	80	640	4.5
STRUCTURE - 13+00**	CTH X	120	790	5.5
	TOTALS	**200**	**1,430**	**10**

* INCLUDES BIRCH DRIVE

** INCLUDES DRIVEWAY

CONCRETE PAVEMENT

STATION TO STATION	LOCATION	415.0410 CONCRETE PAVEMENT APPROACH SLAB SY
9+49.27 - STRUCTURE	CTH X	81
STRUCTURE - 10+65.62	CTH X	81
	TOTALS	**162**

ASPHALTIC ITEMS

STATION TO STATION	LOCATION	455.0105 ASPHALTIC MATERIAL PG 58-28 TON	455.0605 TACK COAT GAL	460.1100 HMA PAVEMENT E-0.3 TON
8+30 - STRUCTURE *	CTH X	10	19	178
STRUCTURE - 13+00	CTH X	9	17	152
	TOTALS	**19**	**36**	**330**

* INCLUDES BIRCH DRIVE

ALL ITEMS ARE CATEGORY 0010 UNLESS OTHERWISE NOTED

CULVERT PIPE AND APRON ENDWALLS

STATION	LOCATION	520.0118 CULVERT PIPE CLASS III 18-INCH LF	525.0124 CULVERT PIPE CORRUGATED ALUMINUM 24-INCH LF	THICKNESS STEEL INCHES	THICKNESS ALUMINUM INCHES	INLET ELEVATION	DISCHARGE ELEVATION	520.1018 APRON ENDWALLS FOR CULVERT PIPE 18-INCH EACH	525.0324 ALUMINUM APRON ENWALLS FOR ALUMINUM CULVERT PIPE 24-INCH EACH	633.5200 MARKERS CULVERT END
8+75	CTH X	---	90	0.064	0.060	1127.40	1126.40	---	2	2
11+60, LT	CTH X	30	---	0.064	0.060	1128.15	1128.00	2	---	---
	TOTALS	**30**	**90**					**2**	**2**	**2**

RIPRAP, BOULDER RETARDS & GEOTEXTILE FABRIC **

STATION TO STATION	LOCATION	606.0300 RIPRAP HEAVY CY	645.0129 GEOTEXTILE FABRIC TYPE HR SY	SPV.0060.01 BOULDER RETARDS EACH
10+75 - 12+10, RT	CTH X	220	370	2
	TOTALS	**220**	**370**	**2**

** ADDITIONAL QUANTITIES SHOWN ELSEWHERE IN PLANS.

STEEL PLATE BEAM GUARD

STATION TO STATION	LOCATION	614.0200 STEEL THRIE BEAM STRUCTURE APPROACH LF	614.0305 STEEL PLATE BEAM GUARD CLASS A LF	614.0345 STEEL PLATE BEAM GUARD SHORT RADIUS LF	614.0370 STEEL PLATE BEAM GUARD ENERGY ABSORBING TERMINAL EACH
8+84.20 - STRUCTURE, LT	CTH X	20.65	---	---	1
8+44.99 - STRUCTURE, RT	CTH X	20.65	6.25	---	---
20+40 - 21+26.9, LT	BIRCH DRIVE	---	12.5	50	1
STRUCTURE - 11+26.27, LT	CTH X	20.65	12.5	---	1
STRUCTURE - 12+80.30, RT	CTH X	20.65	137.5	---	1
	TOTALS	82.6	168.75	50	4
	ROUNDED TOTALS	**83**	**169**	**50**	**4**

LANDSCAPING

STATION TO STATION	LOCATION	625.0100 TOPSOIL SY	630.0200 SEEDING TEMPORARY LB	630.0175 SEEDING NO 75 LB	629.0210 FERTILIZER TYPE B CWT
7+50 - STRUCTURE, LT	CTH X	280	---	3	0.3
8+30, RT - SOUTH SIDE BIRCH DRIVE	CTH X	140	---	1	0.1
NORTH SIDE BIRCH DRIVE - STRUCTURE	CTH X	350	---	3	0.3
STRUCTURE - 13+30, LT	CTH X	400	---	4	0.4
STRUCTURE - 14+00, RT	CTH X	230	---	2	0.2
UNDISTRIBUTED	CTH X	350	10	4	0.7
	TOTALS	**1,750**	**10**	**17**	**2.0**

TURBIDITY BARRIER

STATION	LOCATION	628.6005 SY
9+90, S. ABUT	CTH X	120
10+30 - 11+80, RT	CTH X	200
	TOTAL	**320**

EROSION CONTROL ITEMS

STATION TO STATION	LOCATION	628.1504 SILT FENCE LF	628.1520 SILT FENCE MAINTENANCE LF	628.1905 MOBILIZATIONS EROSION CONTROL EACH	628.1910 MOBILIZATIONS EMERGENCY EROSION CONTROL EACH	628.2008 EROSION MAT URBAN CLASS I TYPE B SY	628.7504 TEMPORARY DITCH CHECKS LF	628.7555 CULVERT PIPE CHECKS EACH
7+50 - STRUCTURE, LT	CTH X	---	---	---	---	280	---	---
8+30, RT - SOUTH SIDE BIRCH DRIVE	CTH X	---	---	---	---	140	---	3
NORTH SIDE BIRCH DRIVE - STRUCTURE	CTH X	---	---	---	---	350	---	---
STRUCTURE - 13+30, LT	CTH X	---	---	---	---	400	20	3
STRUCTURE - 14+00, RT	CTH X	---	---	---	---	230	---	---
UNDISTRIBUTED	CTH X	500	1000	4	2	350	10	3
	TOTALS	**500**	**1,000**	**4**	**2**	**1,750**	**30**	**9**

SIGNS REFLECTIVE TYPE II & POSTS WOOD

STATION	LOCATION	CODE	SIGN SIZE HORIZ X VERT IN X IN	634.0614 POSTS WOOD 4X6-INCH X 14-FT EACH	637.2230 SIGNS TYPE II RELFECTIVE F SF
9+50, LT	CTH X	W5-52R	12 X 36	1	3
9+67, RT	CTH X	W5-52L	12 X 36	1	3
10+48, LT	CTH X	W5-52L	12 X 36	1	3
10+77, RT	CTH X	W5-52R	12 X 36	1	3
			TOTALS	**4**	**12**

REMOVING SIGNS TYPE II AND REMOVING SMALL SIGN SUPPORTS

STATION	LOCATION	DESCRIPTION	638.2602 REMOVING SIGNS TYPE II EACH	638.3000 REMOVING SMALL SIGN SUPPORTS EACH
9+77, LT	CTH X	OBJECT MARKER	1	1
9+77, RT	CTH X	OBJECT MARKER	1	1
10+27, LT	CTH X	OBJECT MARKER	1	1
10+27, RT	CTH X	OBJECT MARKER	1	1
		TOTALS	**4**	**4**

MOVING SIGNS

FROM STATION	LOCATION	TO STATION	FACE DIR.	DESCRIPTION	638.2102 MOVING SIGNS TYPE II EACH	REMARKS
20+52 , LT	BIRCH DRIVE	20+52 , RT	EB	STREET SIGN	1	---
20+68 , LT	BIRCH DRIVE	20+70 , LT	EB	STOP	1	---
				TOTALS	**2**	

3

TRAFFIC CONTROL

LOCATION	EST. SERVICE PERIOD DAYS	643.0100 TRAFFIC CONTROL 6796-01-70 EACH	643.0300 DRUMS NO	643.0300 DRUMS DAYS	643.0420 BARRICADES TYPE III NO	643.0420 BARRICADES TYPE III DAYS	643.0705 WARNING LIGHTS TYPE A NO	643.0705 WARNING LIGHTS TYPE A DAYS	643.0715 WARNING LIGHTS TYPE C NO	643.0715 WARNING LIGHTS TYPE C DAYS	643.0900 SIGNS NO	643.0900 SIGNS DAYS	REMARKS
PROJECT 6796-01-70	75	1	0	0	16	1,200	32	2,400	0	0	14	1,050	
UNDISTRIBUTED	75	0	10	750	4	300	8	600	10	750	6	450	
TOTALS		**1**		**750**		**1,500**		**3,000**		**750**		**1,500**	

PAVEMENT MARKING PAINT

STATION	LOCATION	646.0103 4-INCH DOUBLE YELLOW LF	646.0103 4-INCH WHITE EDGE LINE LF
8+30 - 13+00	CTH X	940	560
	BIRCH DRIVE		
	TOTAL	**1,500**	

CONSTRUCTION STAKING

STATION TO STATION	LOCATION	650.4500 SUBGRADE LF	650.5000 BASE LF	650.6000 PIPE CULVERTS EACH	CATEGORY 0020 650.6500 STRUCTURE LAYOUT LS	650.9910 SUPPLEMENTAL CONTROL LS	650.9920 SLOPE STAKES LF
8+30 - STRUCTURE	CTH X	145	145	1	---	---	145
STRUCTURE B-49-174	CTH X	---	---	---	1	---	---
STRUCTURE - 13+36	CTH X	260	260	---	---	---	260
20+25 - 21+00	BIRCH DRIVE	75	75		---	---	75
	TOTALS	**480**	**480**	**1**	**1**	**1**	**480**

SAWING ASPHALT

STATION	LOCATION	690.0150 SAWING ASPHALT LF
8+30	CTH X	22
13+00	CTH X	22
21+00	BIRCH DRIVE	20
	TOTAL	**64**

PLAT REVISIONS	R/W PROJECT NUMBER 6796-01-00	SHEET NUMBER 4.1	TOTAL SHEETS 1
	FEDERAL PROJECT NUMBER		

PLAT OF RIGHT-OF-WAY REQUIRED FOR

CTH DB-MARATHON COUNTY LINE

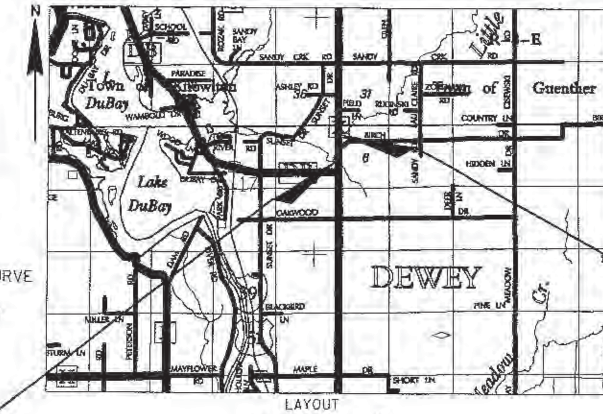
LITTLE EAU CLAIRE RVR BRDG B49-0174

CTH X — PORTAGE COUNTY

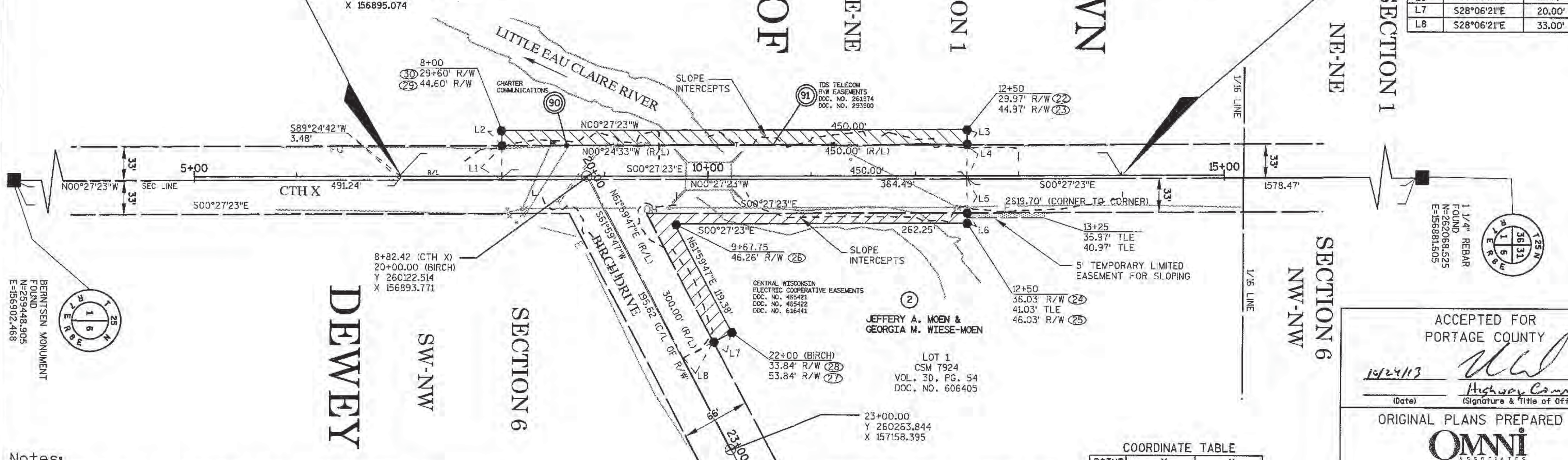
CONSTRUCTION PROJECT NUMBER 6796-01-70

Conventional Signs and Abbreviations

Sign		Abbr.		Abbr.	
	SECTION LINE	AC	ACRES	R	RADIUS
	QUARTER LINE	Δ	CENTRAL ANGLE	R.	RANGE
	TOWNSHIP AND RANGE LINE	C/L	CENTERLINE	R/L	REFERENCE LINE
	PROPOSED OR NEW CENTERLINE	COR.	CORNER	R/W	RIGHT OF WAY
	PROPOSED OR NEW R/W LINE	CTH	COUNTY TRUNK HIGHWAY	¼LINE	QUARTER LINE
	EXISTING R/W LINE	D	DEGREE OF CURVE	1/16LINE	SIXTEENTH LINE
	LOT LINE	E.	EAST	S.	SOUTH
	PROPERTY LINE	L	LENGTH OF CURVE	SEC	SECTION
	COUNTY LINE LIMITS	LC	LONG CHORD	SEC LINE	SECTION LINE
	SLOPE INTERCEPTS	LCB	LONG CHORD BEARING	STH	STATE TRUNK HIGHWAY
	R/W POINT	MI	MILE	SF	SQUARE FEET
	FENCE	N.	NORTH	STA	STATION
	SECTION OR QUARTER CORNER	PC	POINT OF CURVATURE	T.	TOWN
	POWER POLE	PI	POINT OF INTERSECTION	T	TANGENT LENGTH OF CURVE
	TELEPHONE PEDESTAL	PT	POINT OF TANGENCY	TI	TEMPORARY INTEREST
	UNDERGROUND TELEPHONE CABLE	PLE	PERMANENT LIMITED EASEMENT	USH	UNITED STATES HIGHWAY
	NO ACCESS (BY ACQUISITION)	P\L	PROPERTY LINE	W.	WEST
	NO ACCESS (BY STATUTORY AUTHORITY)				
	NO ACCESS (BY PREVIOUS PROJECT)				
	TEMPORARY INTEREST				
	FEE INTEREST				
●	RIGHT-OF-WAY TYPE 2 MONUMENTS SET AT NEWLY ACQUIRED R/W ANGLE POINTS				
(100)	RIGHT-OF-WAY NUMBER				



SCALE: 1"=100' (0 50' 100' 200')



LINE	BEARING	LENGTH
L1	S89°35'27"W	33.00'
L2	S89°35'27"W	15.00'
L3	N89°35'27"E	15.00'
L4	N89°35'27"E	33.00'
L5	N89°35'27"E	33.00'
L6	N89°35'27"E	10.00'
L7	S28°06'21"E	20.00'
L8	S28°06'21"E	33.00'

Notes:

POSITIONS SHOWN ON THIS PLAT ARE WISCONSIN COUNTY COORDINATES (PORTAGE COUNTY), NAD 83 (2012A) IN U.S. SURVEY FEET. VALUES SHOWN ARE GRID COORDINATES. GRID BEARINGS, AND GRID DISTANCES. GRID DISTANCES MAY BE USED AS GROUND DISTANCES.

RIGHT-OF-WAY MONUMENTS ARE TYPE 2 (TYPICALLY ¾" X 24" REBAR) AND WILL BE PLACED PRIOR TO THE COMPLETION OF THE PROJECT.

RIGHT-OF-WAY BOUNDARIES ARE DEFINED WITH COURSES OF THE PERIMETER OF THE HIGHWAY.

LANDS REFERENCED TO THE U.S. PUBLIC LAND SURVEY OR OTHER SURVEYS OF PUBLIC RECORD. OTHER INFORMATION IS PROVIDED TO SUPPLEMENT THE BASIC PERIMETER DESCRIPTION AND SHALL NOT BE CONSTRUED TO PREVAIL OVER THE PERIMETER DESCRIPTION.

THE REFERENCE LINE SHOWN ON THIS PLAT IS INTENDED FOR CONSTRUCTION ONLY AND NOT R/W CENTERLINE.

THE RIGHT-OF-WAY OF CTH X IS BASED ON PORTAGE COUNTY CERTIFIED SURVEY MAPS 1332, 5906, 6288, 7924, AND 8504 BEING 66' FOOT R/W WIDE CENTERED ON SECTION LINE. THE RIGHT-OF-WAY FOR BIRCH DRIVE IS BASED UPON PORTAGE COUNTY CERTIFIED SURVEY MAP NO. 7924.

A TEMPORARY LIMITED EASEMENT (TLE) IS A RIGHT FOR CONSTRUCTION PURPOSES, AS DEFINED HEREIN, INCLUDING THE RIGHT TO OPERATE NECESSARY EQUIPMENT THEREON AND THE RIGHT OF INGRESS AND EGRESS, AS LONG AS REQUIRED FOR SUCH PURPOSES, INCLUDING THE RIGHT TO PRESERVE, PROTECT, REMOVE, OR PLANT THEREON ANY VEGETATION THAT THE HIGHWAY AUTHORITIES MAY DEEM NECESSARY OR DESIRABLE. ALL TLE'S EXPIRE AT THE COMPLETION OF THE CONSTRUCTION PROJECT FOR WHICH THIS INSTRUMENT IS GIVEN.

SCHEDULE OF LANDS AND INTERESTS

"OWNERS" NAMES ARE SHOWN FOR REFERENCE PURPOSES ONLY AND ARE SUBJECT TO CHANGE PRIOR TO TRANSFER OF LAND INTERESTS TO PORTAGE COUNTY.

PARCEL NO.	OWNER	INTEREST REQUIRED	RIGHT-OF-WAY NEW	EXISTING	TOTAL	TLE AREA
1	ANN M. POURCHOT & REGAN G. POURCHOT	FEE	0.15 AC	0.34 AC	0.49 AC	----
2	JEFFERY A. MOEN & GEORGIA M. WIESE-MOEN	FEE TLE	0.13 AC	0.38 AC	0.51 AC	0.01 AC

UTILITY INTEREST REQUIRED

UTILITY NO.	OWNER	INTEREST REQUIRED
90	CHARTER COMMUNICATIONS	RELEASE OF RIGHTS
91	TDS TELECOM	RELEASE OF RIGHTS

67960170_040101_rp (1)

COORDINATE TABLE

POINT	Y	X
22	260489.765	156846.177
23	260489.872	156861.177
24	260490.343	156927.175
25	260490.415	156937.175
26	260208.173	156939.423
27	260264.224	157044.824
28	260246.583	157054.246
29	260039.779	156849.761
30	260039.886	156864.760

ACCEPTED FOR PORTAGE COUNTY

10/24/13 — [signature] Highway Commissioner

(Date) (Signature & Title of Official)

ORIGINAL PLANS PREPARED BY

OMNI ASSOCIATES, APPLETON, WISCONSIN

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

10-22-13 — David a. Yurk

(Date) (Signature)

LEGEND

△ STEEL THRIE BEAM STRUCTURE APPROACH
EAT ENERGY ABSORBING TERMINAL
SPBG STEEL PLATE BEAM GUARD CLASS A
◪ STEEL THRIE BEAM SHORT RADIUS
X GRUB

BEGIN CONSTRUCTION
STA 7+64.00

BEGIN PROJECT
STA 8+30.00
Y = 260070.096
X = 156894.146

BENCH MARKS

NO.	STATION	DESCRIPTION	ELEV.
BM1	8+19.84, 31' RT	60D SPIKE IN PP*20297 30T @ SE CORNER OF INTERSECTION OF CTH X & BIRCH ROAD	1132.45
BM2	12+39, 31' RT	60D SPIKE IN PP*22501 20T, 1ST POLE N OF C/L OF BRIDGE E SIDE OF CTH X	1130.10

REGAN G. & ANN POURCHOT
CHARTER COMMUNICATIONS
C/L CTH X
EXIST R/W
SAWCUT AND MATCH EXIST
CTH X
SECTION LINE
CENTRAL WISCONSIN ELECTRIC COOP
TDS
BM 1
IRVIN & BETTY WACHOWIAK
STA 8+74.50
90"-24" CULVERT PIPE
SKEW 37° LHF
2 ENDWALLS REQD
70' R
20+49.49, 80' RT
8+34.59, 81' RT
SHOULDER HINGE POINT, TYP
SLOPE INTERCEPT
TDS
BIRCH DRIVE
REMOVE 60"-24" CULVERT PIPE
STA 8+82.42 CTH X =
STA 20+00.00 BIRCH DR
EDGE OF WATER
SLOPE INTERCEPT
LITTLE EAU CLAIRE RIVER
EDGE OF WATER
CHARTER COMMUNICATIONS & TDS OVER RIVER
REMOVE OLD STRUCTURE P-49-31
STRUCTURE B-49-174
CONCRETE PAVEMENT APPROACH SLAB, TYP
SALVAGE RAIL, TYP
24' R
20+63.61, 37.30' LT
9+44.98, 39' RT
EDGE OF WATER
HEAVY RIPRAP WITH GEOTEXTILE FABRIC TYPE HR
BOULDER RETARD
JEFFREY MOEN & GEORGIA WIESE-MOEN
MATCH LINE STA 11+40
SCALE = 1"-40'
0' 40' 80'

PI STA = 8+30.00
PI ELEV = 1133.28

YARDAGE SUMMARY
EXCAVATION COMMON = 202 CY
FILL = 218 CY
BORROW = 120 CY

YARDAGE SUMMARY
EXCAVATION COMMON = 352 CY
FILL = 234 CY
BORROW = 28 CY

EXISTING GROUND
FINISHED PROFILE ON CTH X
-0.06%
STRUCTURE B-49-174
STRUCTURE P-49-31
HW 100 EL 1126.73
OBSERVED WATER EL 1121.2

REMOVE STRUCTURE P-49-31
SINGLE SPAN STEEL GIRDER BRIDGE
47.7' LONG, 27' WIDE

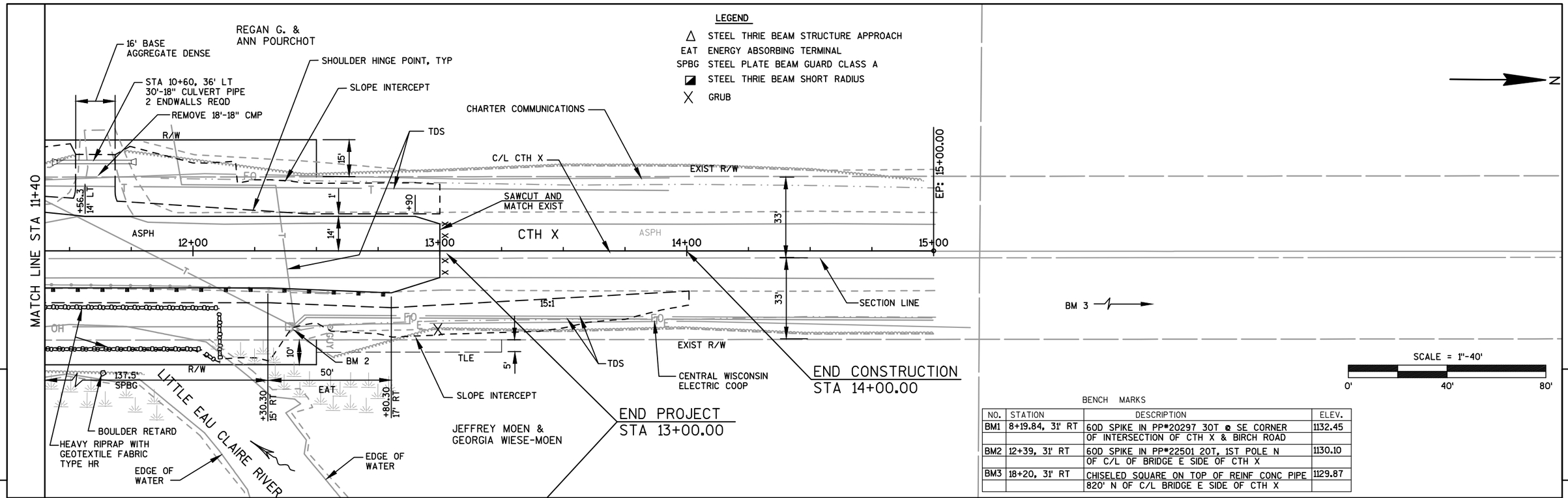
STRUCTURE B-49-174
SINGLE SPAN 36W" PPC GIRDER BRIDGE
69.4' BACK TO BACK ABUTMENTS
30' CLEAR ROADWAY
SEE BRIDGE DRAWINGS 1-12

PROJECT NO:6796-01-70	HWY: CTH X	COUNTY:PORTAGE	PLAN AND PROFILE: CTH X	SHEET 15	E 5.1

FILE NAME : F:\TR\JOBS\E2063A12\CIVIL 3D 2012\SHEETSPLAN\67960170_050100_PP.DWG PLOT DATE : 10/29/2013 8:54 AM PLOT BY : OMNNI ASSOCIATES, INC - DAVE PERRY

67960170_050101_pp

WISDOT/CADDS SHEET 44



BENCH MARKS

NO.	STATION	DESCRIPTION	ELEV.
BM1	8+19.84, 31' RT	60D SPIKE IN PP*20297 30T @ SE CORNER OF INTERSECTION OF CTH X & BIRCH ROAD	1132.45
BM2	12+39, 31' RT	60D SPIKE IN PP*22501 20T, 1ST POLE N OF C/L OF BRIDGE E SIDE OF CTH X	1130.10
BM3	18+20, 31' RT	CHISELED SQUARE ON TOP OF REINF CONC PIPE 820' N OF C/L BRIDGE E SIDE OF CTH X	1129.87

PROJECT NO:6796-01-70	HWY: CTH X	COUNTY:PORTAGE	PLAN AND PROFILE: CTH X	SHEET 16	E

5.2

FILE NAME : F:\TR\JOBS\E2063A12\CIVIL 3D 2012\SHEETSPLAN\67960170_050100_PP.DWG PLOT DATE : 10/29/2013 8:50 AM PLOT BY : OMNNI ASSOCIATES, INC - DAVE PERRY

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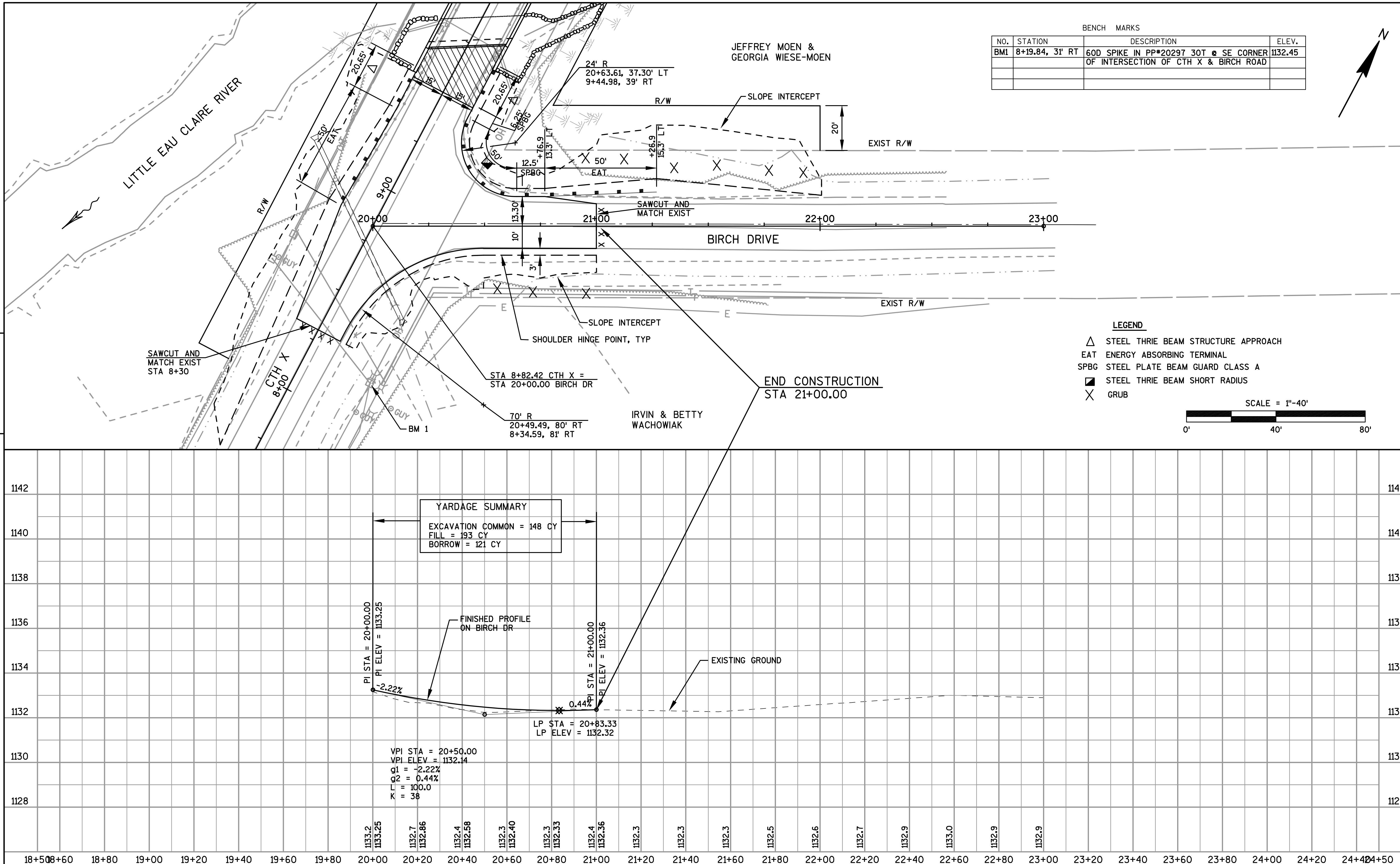
WISDOT/CADDS SHEET 44



BENCH MARKS
LITTLE EAU CLAIRE RIVER
JEFFREY MOEN &
GEORGIA WIESE-MOEN
IRVIN & BETTY
WACHOWIAK
BIRCH DRIVE
CTH X
END CONSTRUCTION
STA 21+00.00
SAWCUT AND
MATCH EXIST
STA 8+30
STA 8+82.42 CTH X =
STA 20+00.00 BIRCH DR
70' R
20+49.49, 80' RT
8+34.59, 81' RT
24' R
20+63.61, 37.30' LT
9+44.98, 39' RT
SLOPE INTERCEPT
SHOULDER HINGE POINT, TYP
EXIST R/W
BM 1
LEGEND
STEEL THRIE BEAM STRUCTURE APPROACH
EAT ENERGY ABSORBING TERMINAL
SPBG STEEL PLATE BEAM GUARD CLASS A
STEEL THRIE BEAM SHORT RADIUS
GRUB
SCALE = 1"-40'
YARDAGE SUMMARY
EXCAVATION COMMON = 148 CY
FILL = 193 CY
BORROW = 121 CY
FINISHED PROFILE
ON BIRCH DR
EXISTING GROUND
PI STA = 20+00.00
PI ELEV = 1133.25
PI STA = 21+00.00
PI ELEV = 1132.36
LP STA = 20+83.33
LP ELEV = 1132.32
VPI STA = 20+50.00
VPI ELEV = 1132.14
g1 = -2.22%
g2 = 0.44%
L = 100.0
K = 38

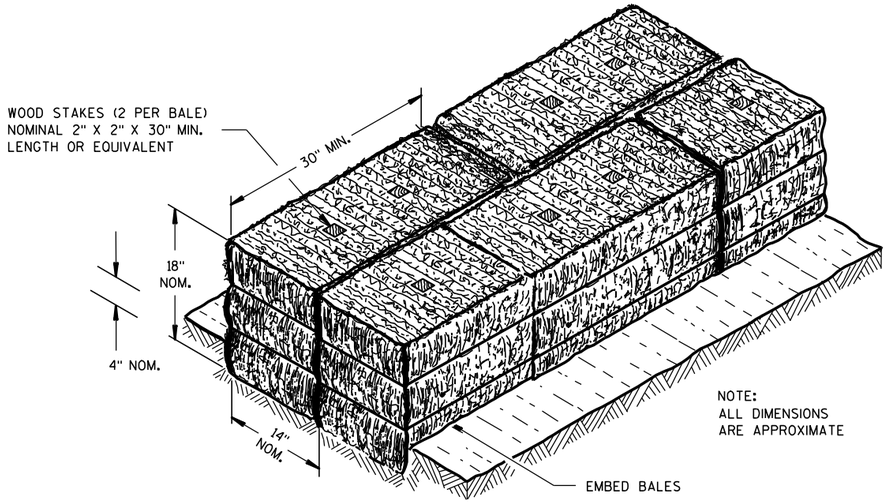
NO.	STATION	DESCRIPTION	ELEV.
BM1	8+19.84, 31' RT	60D SPIKE IN PP#20297 30T @ SE CORNER OF INTERSECTION OF CTH X & BIRCH ROAD	1132.45

PROJECT NO:6796-01-70 | HWY:CTH X | COUNTY:PORTAGE | PLAN AND PROFILE: BIRCH DRIVE | SHEET 17 | E 5.3

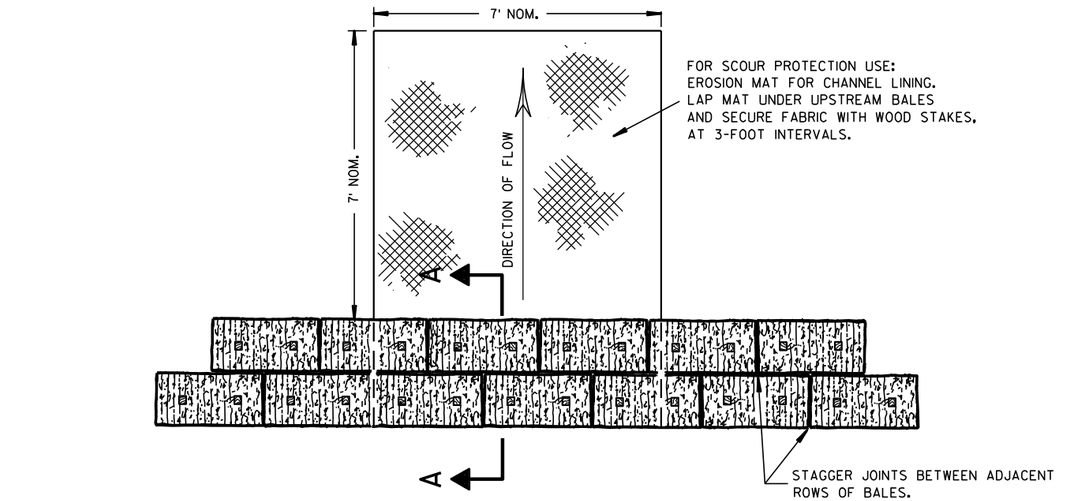
Standard Detail Drawing List

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)
13B02-06	CONCRETE PAVEMENT APPROACH SLAB
14B15-07A	STEEL PLATE BEAM GUARD, CLASS "A" INSTALLATION & ELEMENTS
14B15-07B	STEEL PLATE BEAM GUARD, CLASS "A" INSTALLATION & ELEMENTS
14B15-07C	STEEL PLATE BEAM GUARD, CLASS "A", INSTALLATION & ELEMENTS
14B18-06A	STEEL PLATE BEAM GUARD, CLASS "A" (AT BRIDGES, OBSTACLES AND SIDEROADS/DRIVEWAYS)
14B20-11A	STEEL THRIE BEAM STRUCTURE APPROACH
14B20-11F	STEEL THRIE BEAM STRUCTURE APPROACH, CONNECTION TO BRIDGE RAILING TYPE "M"
14B24-07A	STEEL PLATE BEAM GUARD ENERGY ABSORBING TERMINAL
14B24-07B	STEEL PLATE BEAM GUARD ENERGY ABSORBING TERMINAL
14B24-07C	STEEL PLATE BEAM GUARD ENERGY ABSORBING TERMINAL
14B27-01A	STEEL PLATE BEAM GUARD SHORT RADIUS TERMINAL
14B27-01B	STEEL PLATE BEAM GUARD SHORT RADIUS TERMINAL
14B27-01C	STEEL PLATE BEAM GUARD SHORT RADIUS TERMINAL
15C02-05A	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C02-05B	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C03-02	BARRICADES AND SIGNS FOR SIDEROAD CLOSURES
15C06-06	SIGNING & MARKING FOR TWO LANE BRIDGES
15C08-16A	PAVEMENT MARKING (MAINLINE)

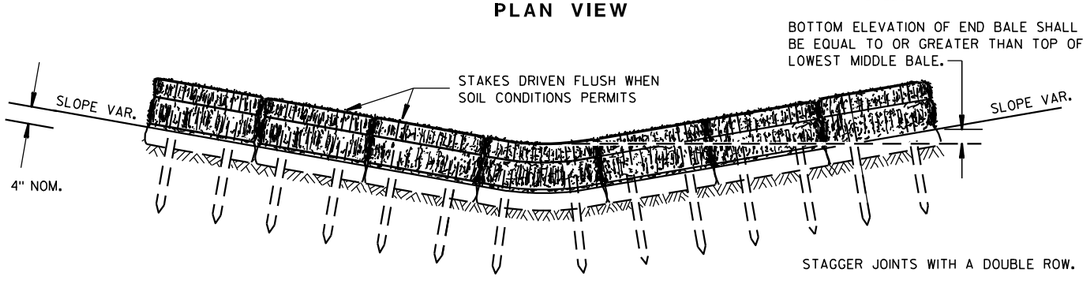
6



SECTION A-A



PLAN VIEW



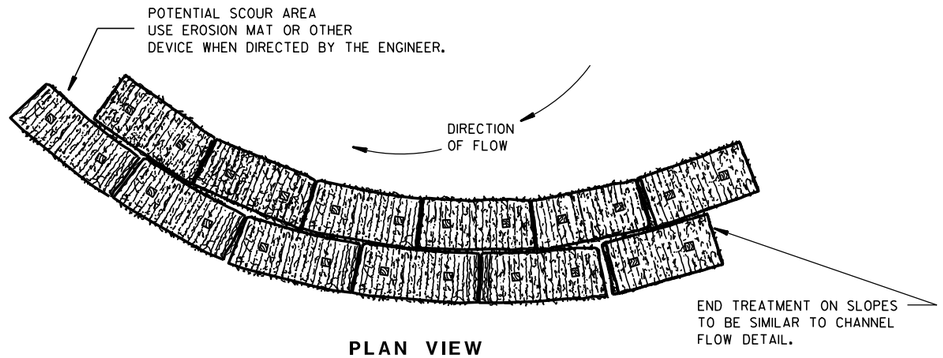
FRONT ELEVATION

TEMPORARY DITCH CHECK USING EROSION BALES ①

GENERAL NOTES

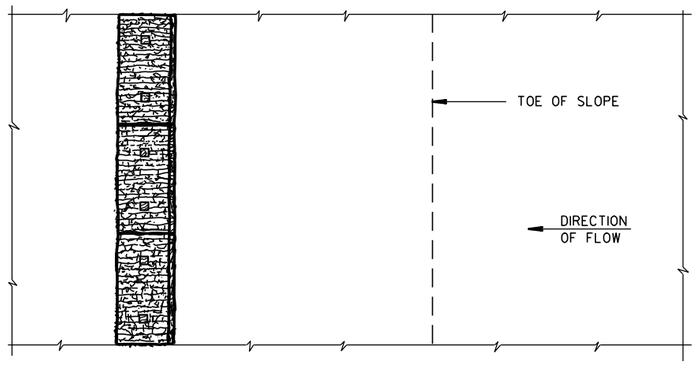
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

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.

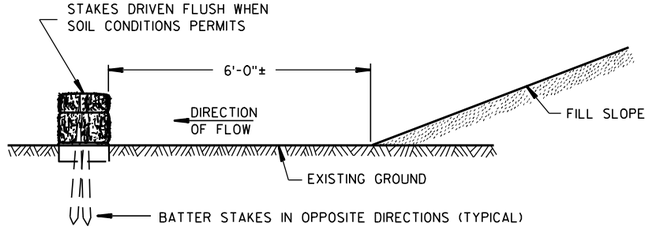


PLAN VIEW

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

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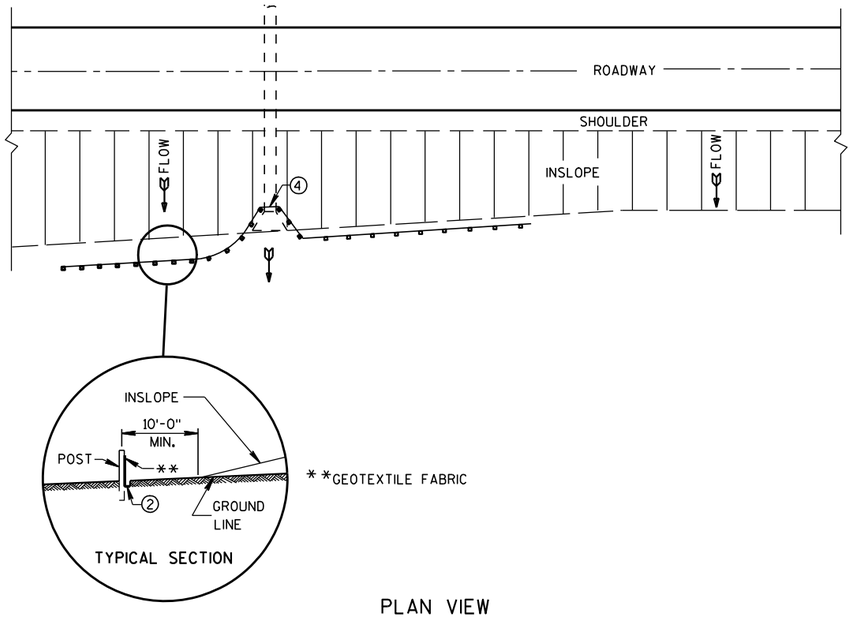
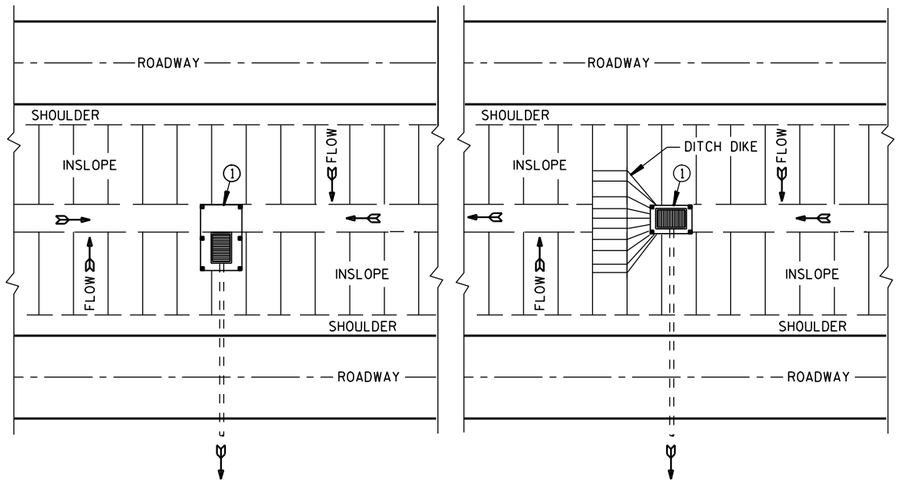


PLAN VIEW

TYPICAL APPLICATION OF SILT FENCE



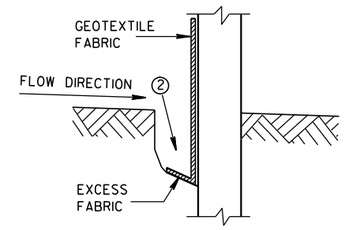
PLAN VIEW

SILT FENCE AT MEDIAN SURFACE DRAINS

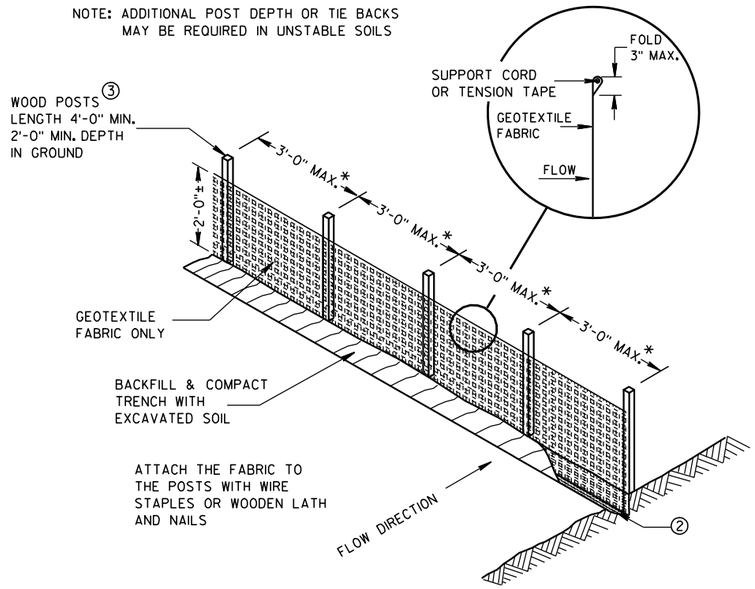
GENERAL NOTES

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

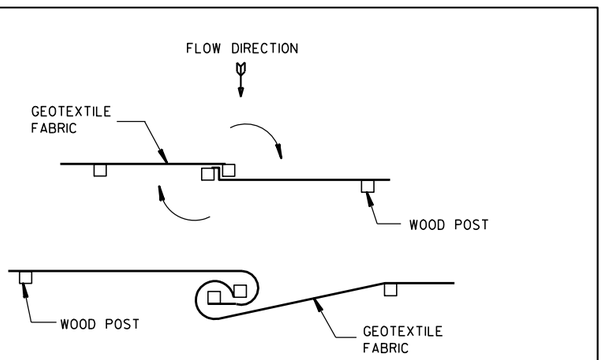
1. HORIZONTAL BRACE REQUIRED WITH 2" X 4" WOODEN FRAME OR EQUIVALENT AT TOP OF POSTS.
2. FOR MANUAL INSTALLATIONS THE TRENCH SHALL BE A MINIMUM OF 4" WIDE & 6" DEEP TO BURY AND ANCHOR THE GEOTEXTILE FABRIC. FOLD MATERIAL TO FIT TRENCH AND BACKFILL & COMPACT TRENCH WITH EXCAVATED SOIL.
3. WOOD POSTS SHALL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



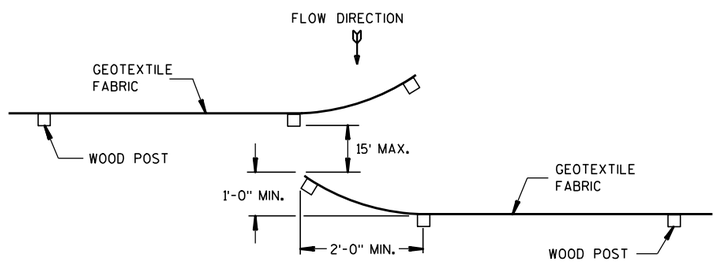
TRENCH DETAIL



SILT FENCE

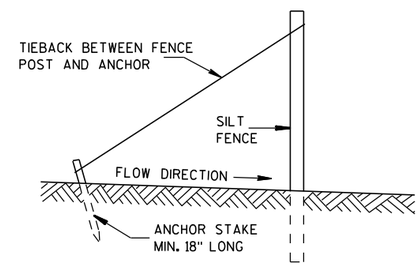


TWIST METHOD



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
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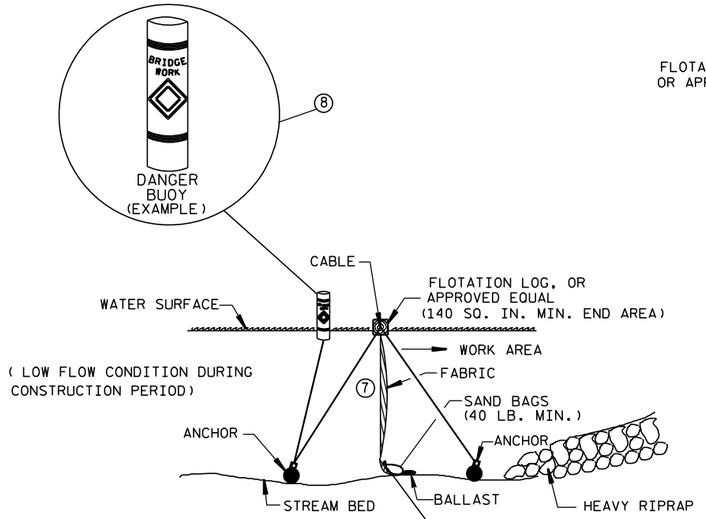
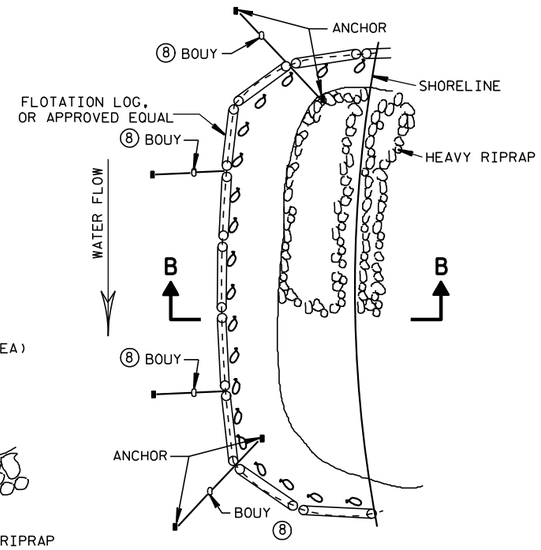
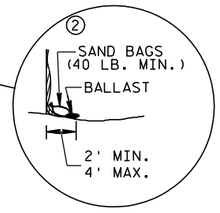
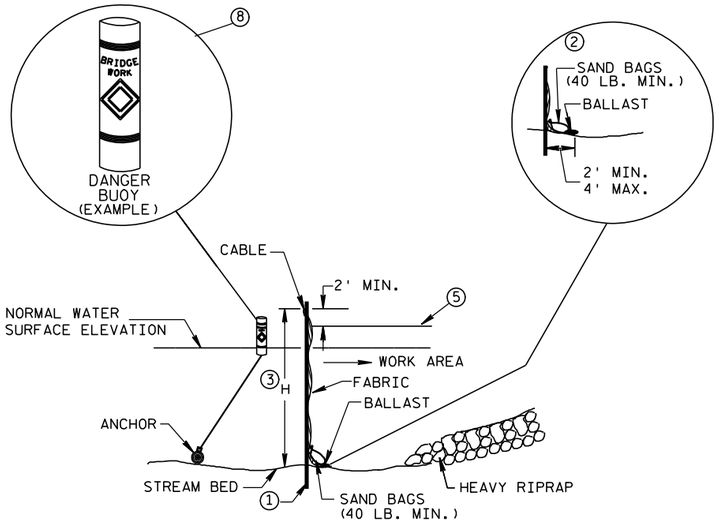


SECTION B-B

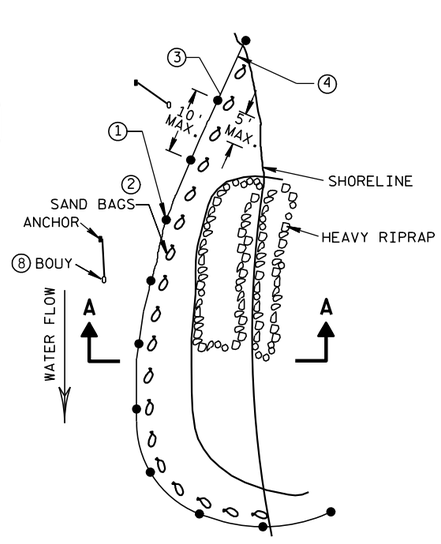




TURBIDITY BARRIER FLOAT ALTERNATIVE
CAUTION - SEE NOTE 6



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.

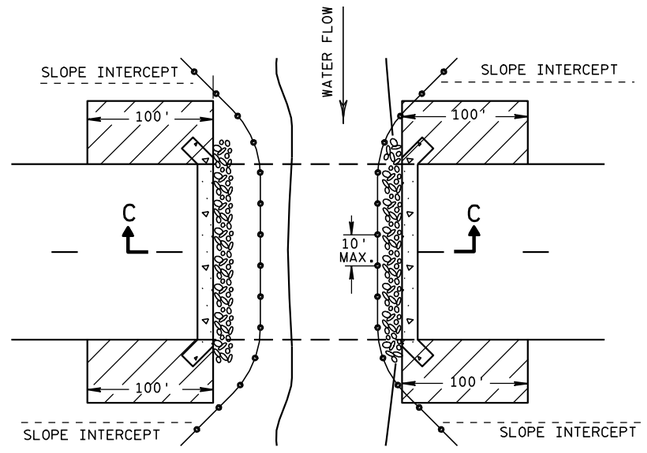
④ IN WATERWAYS SUBJECT TO FLUCTUATING WATER ELEVATIONS, PROVISIONS SHOULD BE MADE TO ALLOW THE WATER TO EQUALIZE ON EACH SIDE OF THE BARRIER. THIS MAY BE ACCOMPLISHED BY LEAVING A PORTION OF THE BARRIER OPEN ON THE UPSTREAM END.

⑤ ESTIMATED HIGH WATER ELEVATION DURING CONSTRUCTION PERIOD. MIMIMUM BARRIER HEIGHT SHALL BE 2'GREATER THAN EITHER THE O2 ELEVATION OR THE ESTIMATED HIGH WATER ELEVATION DURING CONSTRUCTION, WICHEVER IS GREATER.

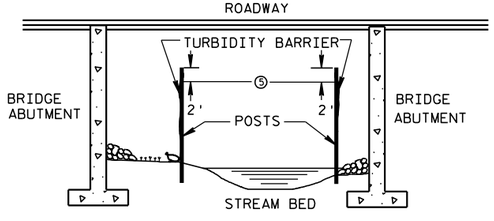
⑥ FLOAT ALTERNATIVE WILL ONLY BE ALLOWED WITH WRITTEN APPROVAL OF THE ENGINEER, AND IS MEANT FOR LOCATIONS WHERE BED ROCK PREVENTS THE INSTALLATION OF POSTS.

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

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S.D.D. 8 E 11-2

METAL APRON ENDWALLS

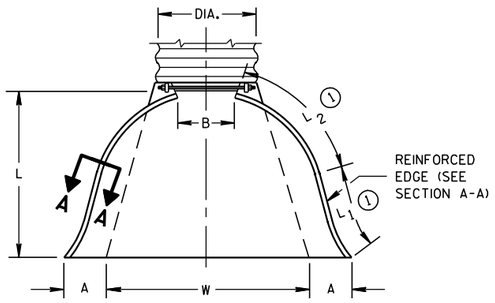
PIPE DIA. (IN.)	MIN. THICK. (Inches) STEEL	MIN. THICK. (Inches) ALUM.	DIMENSIONS (Inches) A (±1")	B (MAX.)	H (±1")	L (±1 1/2")	L1 ①	L2 ①	W (±2")	APPROX. SLOPE	BODY
12	.064	.060	6	6	6	21	12	17 1/2	24	2 1/2 to 1	1 Pc.
15	.064	.060	7	8	6	26	14	21 3/4	30	2 1/2 to 1	1 Pc.
18	.064	.060	8	10	6	31	15	28 1/4	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

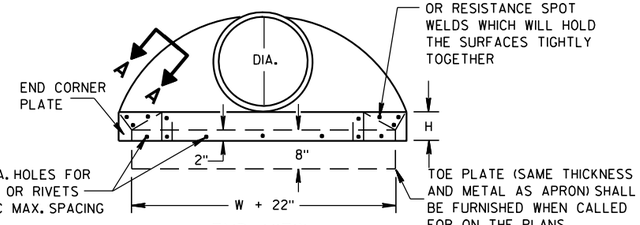
REINFORCED CONCRETE APRON ENDWALLS

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

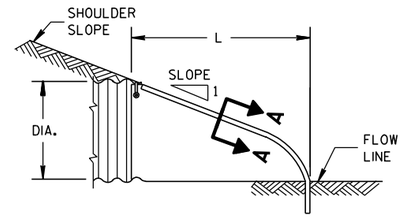
*MINIMUM
**MAXIMUM



PLAN VIEW

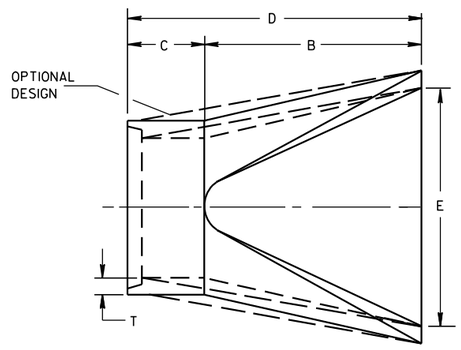


END VIEW

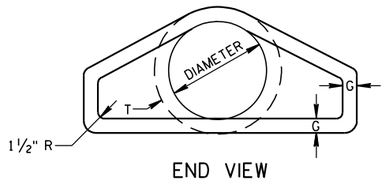


SIDE ELEVATION

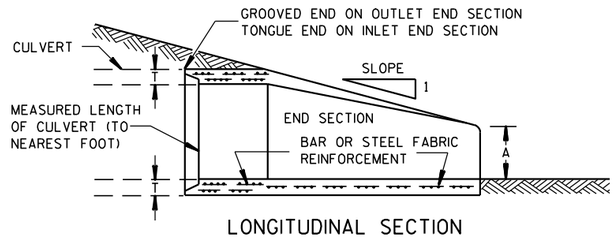
METAL ENDWALLS



PLAN

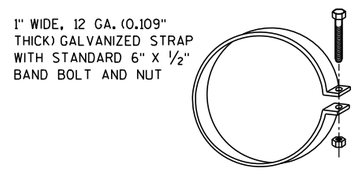


END VIEW



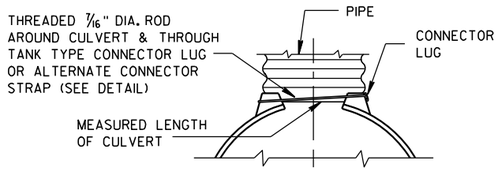
LONGITUDINAL SECTION

CONCRETE ENDWALLS

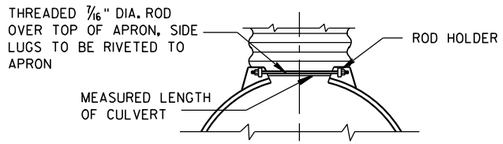


ALTERNATE FOR TYPE 1 CONNECTION

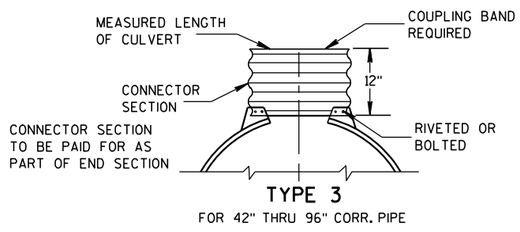
END SECTION CONNECTOR STRAP



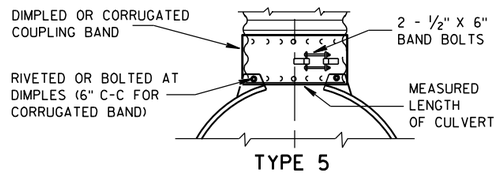
TYPE 1
FOR 12" THRU 24" CORR. PIPE



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

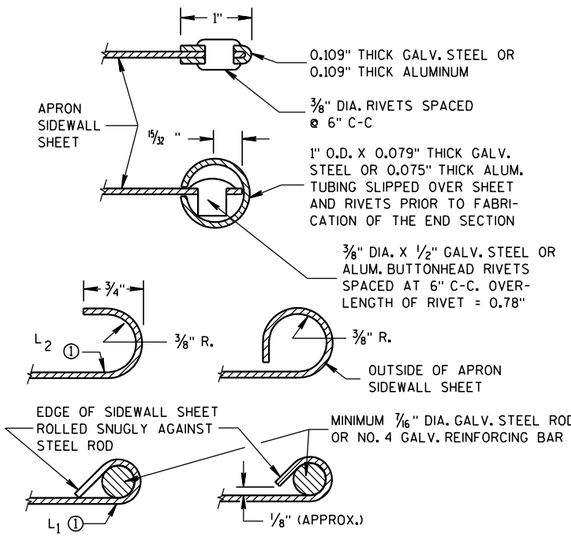
NOTE: DIMPLED BAND FITS OVER OUTSIDE OF ENDWALL. AND CORRUGATED BAND FITS INSIDE ENDWALL. DIMPLED BAND MAY BE USED WITH HELICALLY CORRUGATED PIPE.

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.

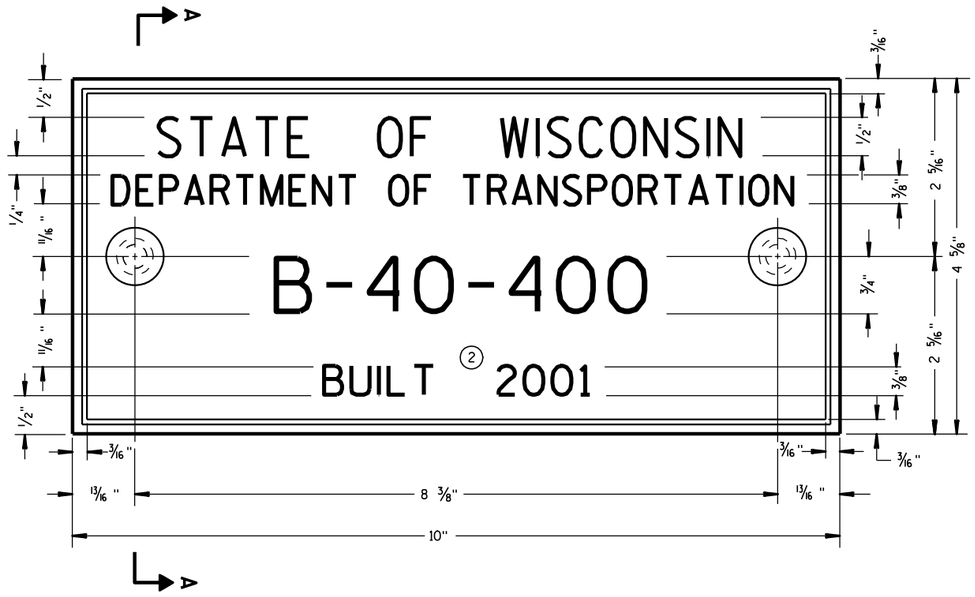
APRON ENDWALLS FOR CULVERT PIPE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

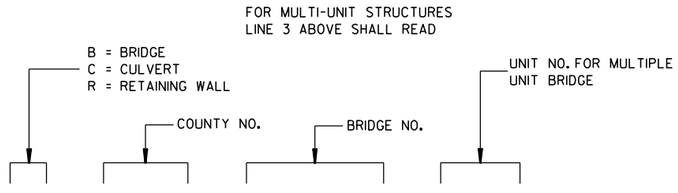
6

S.D.D. 8 F 1-11



TYPICAL NAME PLATE

(BRIDGES, CULVERTS, AND RETAINING WALLS)



NUMBERING DESIGNATION
MULTI-UNIT STRUCTURES

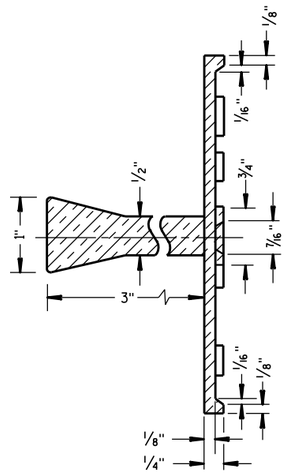
GENERAL NOTES

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

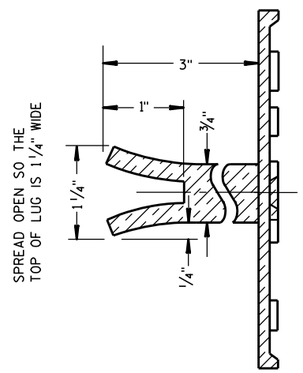
THE BRIDGE NUMBER AND YEAR BUILT SHOWN ON THIS DRAWING ARE EXAMPLES ONLY. SEE CONSTRUCTION PLANS FOR INDIVIDUAL NUMBERING AND YEAR BUILT.

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

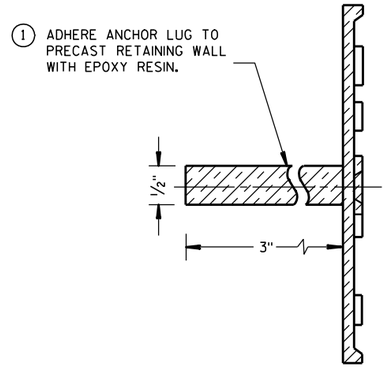
(2) REHABILITATION OF AN EXISTING STRUCTURE SHOULD USE THE DATE OF ORIGINAL STRUCTURE CONSTRUCTION.



SECTION A-A



ALTERNATE LUG



ALTERNATE LUG

(FOR ATTACHMENT TO PRECAST STRUCTURES)

NAME PLATE (STRUCTURES)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

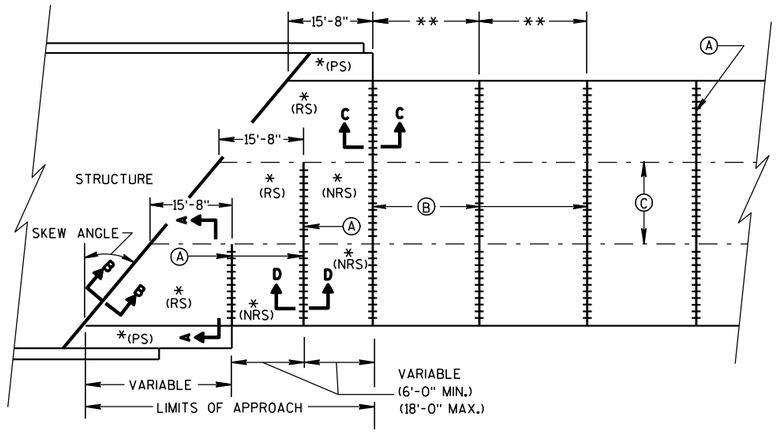
APPROVED

3/26/10 DATE — /S/ Scot Beck — CHIEF STRUCTURAL DEVELOPMENT ENGINEER

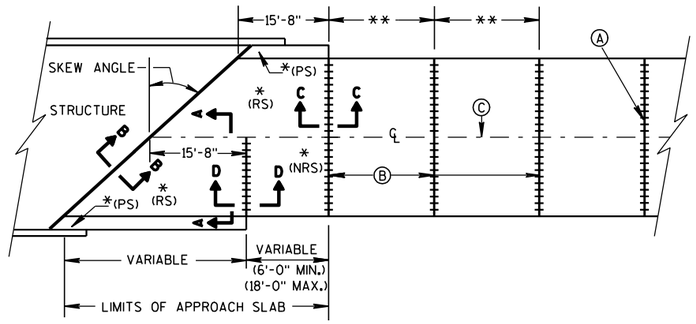
FHWA

6

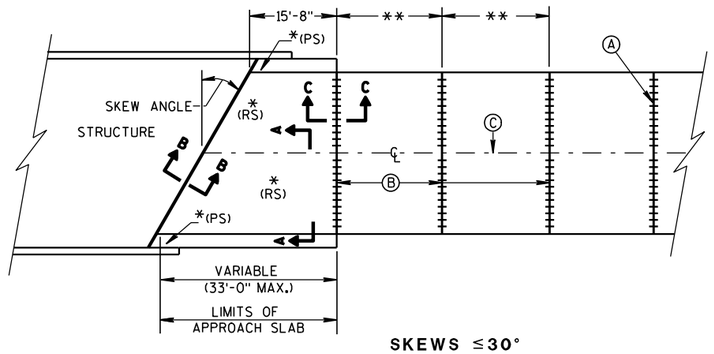
S.D.D. 12 A 3-10



SKEWED APPROACH
(PAVEMENT MORE THAN 2 LANES)



SKEWS >30°
(PAVEMENT WIDTH ≤30')



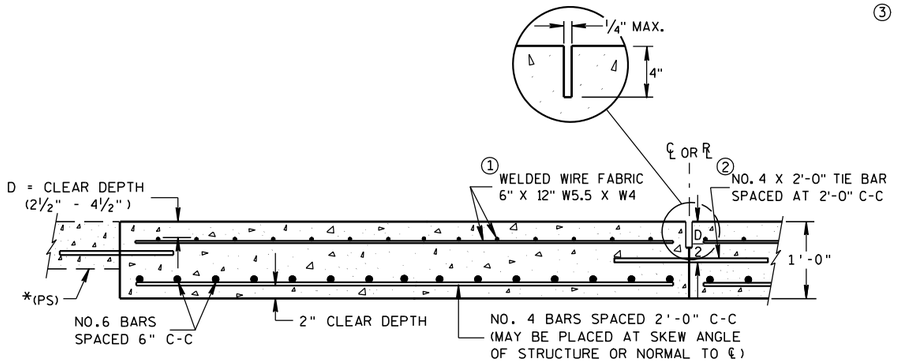
SKEWS ≤30°
(PAVEMENT WIDTH ≤30')

APPROACH SLAB AND ADJACENT PAVEMENT

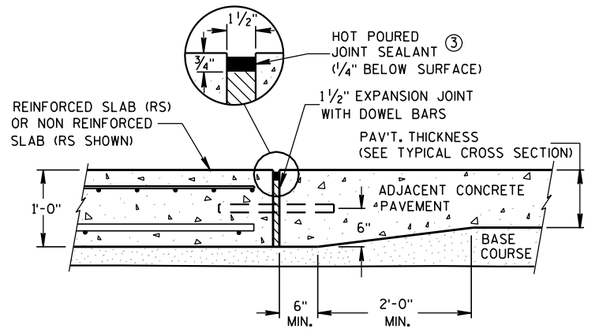
*(RS) = REINFORCED CONCRETE SLAB
*(PS) = PAVED CONCRETE SHOULDER: CONCRETE PAVEMENT, OR CONCRETE SURFACE DRAIN
(SEE DETAILS ELSEWHERE IN THE PLAN)
*(NRS) = NON-REINFORCED CONCRETE SLAB

**STANDARD TRANSVERSE JOINT SPACING
(SEE SDD 13C4, SDD 13C11, & SDD 13C13)

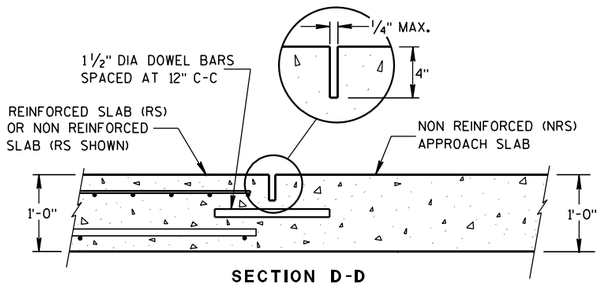
(A) STANDARD CONTRACTION JOINT NORMAL TO ℄ OR ℄
(B) 1½" EXPANSION JOINT WITH DOWEL BARS NORMAL TO ℄ OR ℄
(C) STANDARD LONGITUDINAL JOINT AND TIE BARS.



SECTION A-A
REINFORCEMENT POSITIONING DETAIL



SECTION C-C
TRANSITION DETAIL
APPROACH SLAB TO ADJACENT PAVEMENT



SECTION D-D
CONTRACTION JOINT

GENERAL NOTES

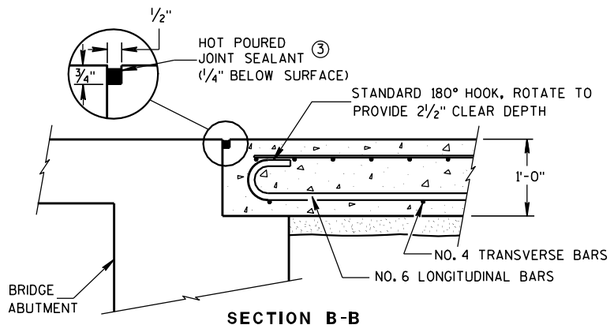
APPROACH SLABS ABUTTING AN HMA PAVEMENT OVER BASE COURSE DO NOT NEED TO BE DOWELED.

THE CONTRACTOR MAY SPLICE NO. 6 BARS IN THE APPROACH SLAB FOR SKEWED STRUCTURES ONLY. STAGGER SPLICES WITH A MAXIMUM OF ONE SPLICE PER BAR. THE LENGTH OF LAP IS 20 INCHES.

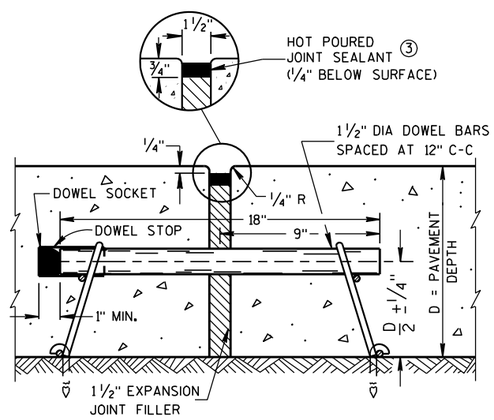
① THE CONTRACTOR MAY USE NO. 4 BARS SPACED AT 2'-0" C-C IN BOTH THE LONGITUDINAL AND TRANSVERSE DIRECTIONS FOR TOP REINFORCEMENT AS AN ALTERNATIVE TO THE WELDED WIRE FABRIC.

② THE CONTRACTOR MAY OMIT TIE BARS BETWEEN REINFORCED SLABS WHERE SLAB REINFORCEMENT BARS EXTEND ACROSS THE CENTERLINE OR REFERENCE LINE.

③ USE A JOINT SEALANT MEETING THE REQUIREMENTS OF ASTM D6690.



SECTION B-B
BEND DETAIL
BOTTOM REINFORCEMENT



EXPANSION JOINT

CONCRETE PAVEMENT APPROACH SLAB

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
12/11/2009 — DATE
/S/ Deb Bischoff — PAVEMENT POLICY & DESIGN ENGINEER
FHWA

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) W6 X 9 OR W6 X 8.5 STEEL POSTS AND NOTCHED PLASTIC BLOCKOUTS ARE ACCEPTABLE ALTERNATIVES FOR 6" X 8" WOOD POSTS WITH WOOD OR PLASTIC BLOCKOUTS. USE APPROVED NOTCHED PLASTIC BLOCKOUTS WITH STEEL POSTS. APPROVED PLASTIC BLOCKOUT DESIGNS MAY VARY FROM THIS TYPICAL DETAIL WHEN USED IN CONJUNCTION WITH STEEL POSTS.

DO NOT MIX STEEL POSTS AND WOOD POSTS IN A SINGLE INSTALLATION.

(2) USE STRUCTURAL STEEL POSTS CONFORMING TO ASTM A 36. GALVANIZED POSTS ACCORDING TO AASHTO M 111. EITHER SET THE POSTS IN DRILLED HOLES OR DRIVE TO GRADE. REMOVE MUSHROOMING CAUSED BY DRIVING AND REPAIR DAMAGED SPELTER COATING ON GALVANIZED POSTS.

(3) INSTALL STEEL POSTS WITH HOLES ON APPROACHING TRAFFIC SIDE.

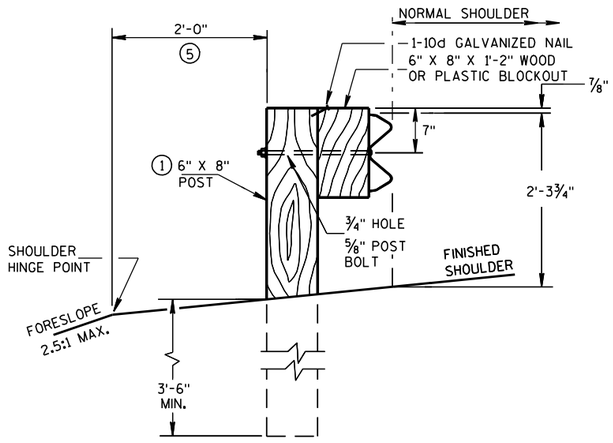
(4) USE EITHER WOOD OR APPROVED PLASTIC BLOCKOUTS ON WOOD POSTS.

(5) IF THE DISTANCE FROM BACK OF POST TO SHOULDER HINGE POINT IS LESS THAN 2 FEET INSTALL LONGER POST AT HALF POST SPACING, W BEAM (LHW).

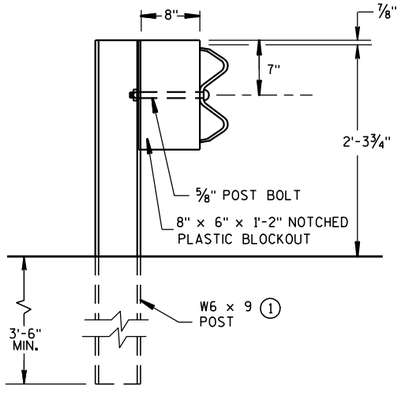
(6) IF ROCK IS ENCOUNTERED DURING EXCAVATION, THE ENGINEER MAY APPROVE USING A 12 INCH DIAMETER POST HOLE EXTENDING 20 INCHES DEEP INTO THE ROCK. PLACE GRANULAR MATERIAL IN THE BOTTOM OF THE HOLE APPROXIMATELY 2½ INCHES DEEP. CUT THE POSTS TO LENGTH AND PLACE IN YHE HOLE. BACKFILL WITH MATERIAL EXCAVATED FROM THE HOLE AND COMPACT ADEQUATEY.

INSTALL BEAM GUARD SECTIONS AND ALL NECESSARY HARDWARE ACCORDING TO THE APPLICABLE PLAN AND CURRENT STANDARD AND SUPPLEMENTAL SPECIFICATIONS.

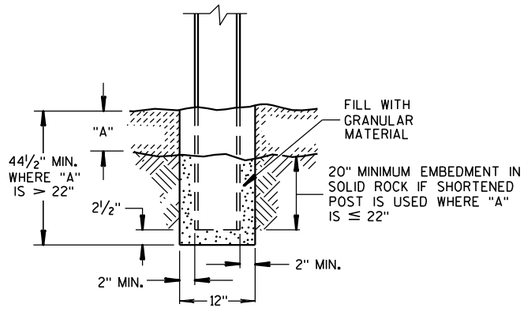
ALL DIMENSIONS ARE SUBJECT TO MANUFACTURER'S TOLERANCES EXCEPT WHERE ALLOWABLE TOLERANCES ARE SHOWN.



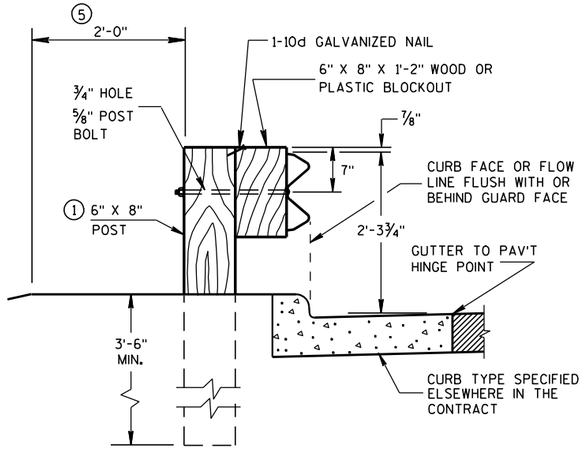
END VIEW
LOCATED ALONG A ROADWAY SHOULDER
STANDARD INSTALLATION



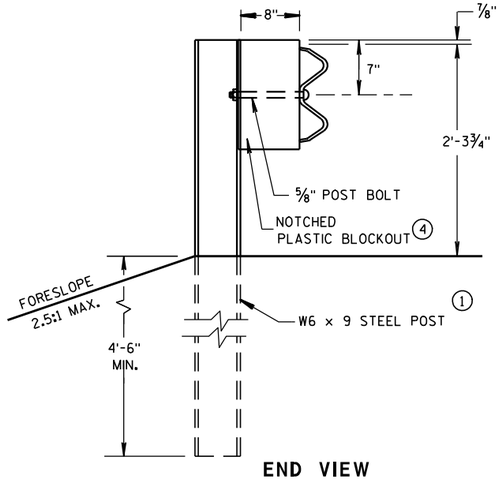
END VIEW
STEEL POST & NOTCHED
PLASTIC BLOCKOUT ALTERNATIVE
STANDARD INSTALLATION



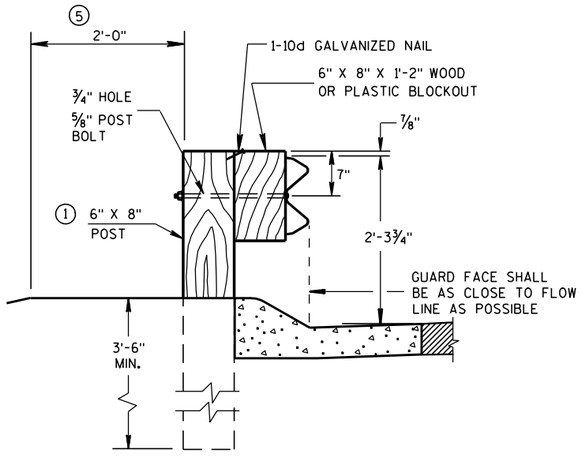
END VIEW
SETTING STEEL OR WOOD POST IN ROCK (6)



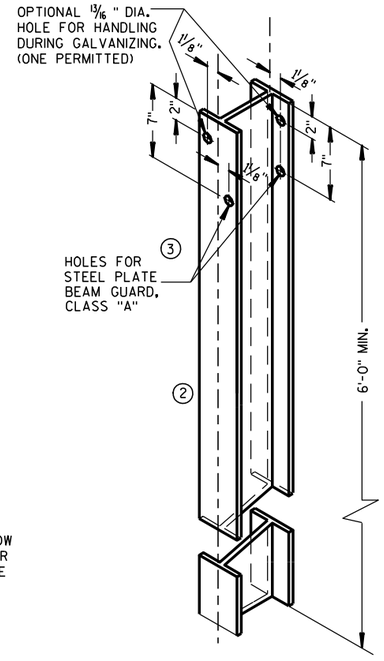
END VIEW
LOCATED ALONG A CURBED ROADWAY



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

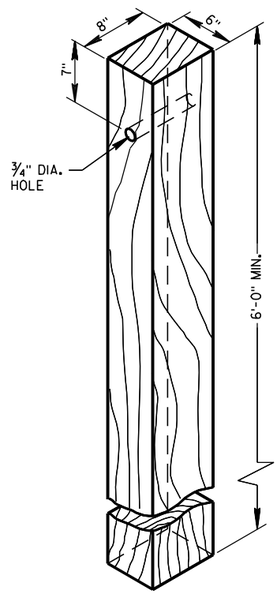


END VIEW
LOCATED ALONG A
MOUNTABLE CURBED ROADWAY

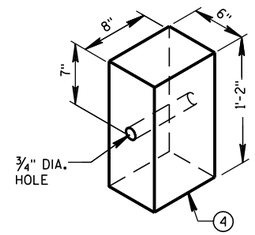


STEEL POST &
HOLE PUNCHING DETAIL
(W6 X 9) (1)

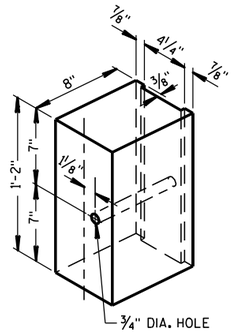
ALL HOLES 13/16" DIAMETER EXCEPT AS NOTED



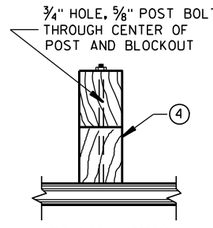
WOOD POST
(6"X8") NOMINAL



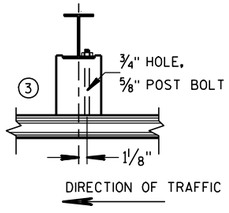
WOOD OR PLASTIC
BLOCKOUT FOR
WOOD POSTS



(1)
TYPICAL NOTCHED
PLASTIC BLOCKOUT
FOR STEEL POSTS



PLAN VIEW
WOOD POST,
BLOCKOUT & BEAM



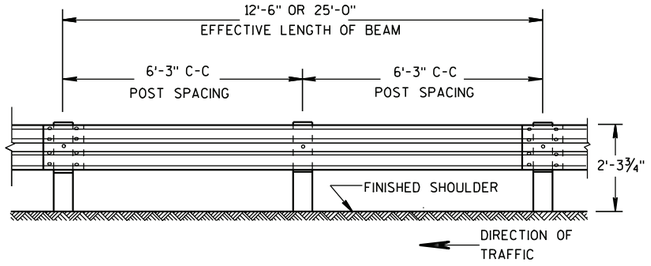
PLAN VIEW
STEEL POST, NOTCHED
PLASTIC BLOCKOUT & BEAM

TYPICAL INSTALLATION OF STEEL PLATE BEAM GUARD

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

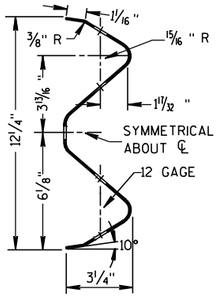
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6
S.D.D. 14 B 15-7a

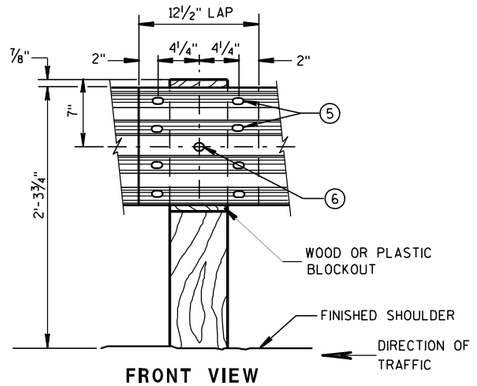


FRONT VIEW

POST SPACING STANDARD INSTALLATION



SECTION THRU W BEAM

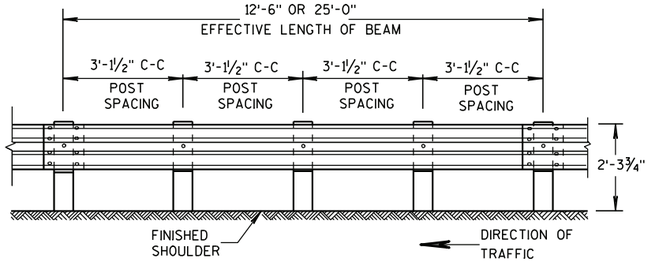


FRONT VIEW

BEAM SPLICE AT WOOD POST AND POST MOUNTING DETAIL

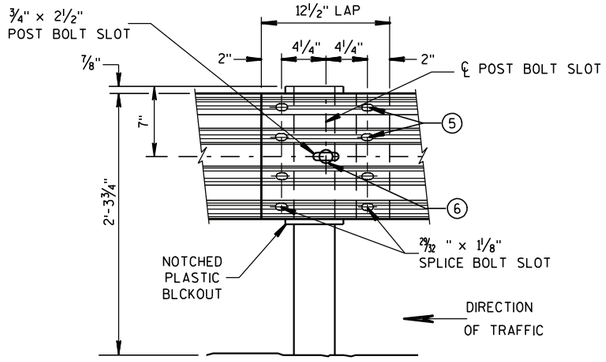
GENERAL NOTES

1. PROVIDE TYPE "H" SILVER REFLECTIVE SHEETING ON ALL REFLECTORS EXCEPT THOSE LOCATED ALONG THE LEFT EDGE OF ONE-WAY ROADWAYS, WHICH SHALL BE PROVIDED WITH TYPE "H" YELLOW REFLECTIVE SHEETING.
2. DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINAL.
3. REVERSE EVERY OTHER REFLECTOR FOR 2-WAY VISIBILITY. THE CONTRACTOR MAY FURNISH TWO-SIDED REFLECTORS IN LIEU OF ONE-SIDED REFLECTORS.
4. PROVIDE AN ANGLE OF BEND OF 90° ± 1° FOR TWO-SIDED REFLECTORS.
5. 8 - 5/8" ϕ X 2 " BUTTON HEAD BOLTS WITH OVAL SHOULDERS & RECESS NUTS.
6. 5/8" ϕ X 1'-6" BUTTON HEAD BOLT AND AND RECESS NUT WITH ROUND WASHER UNDER NUT.



FRONT VIEW

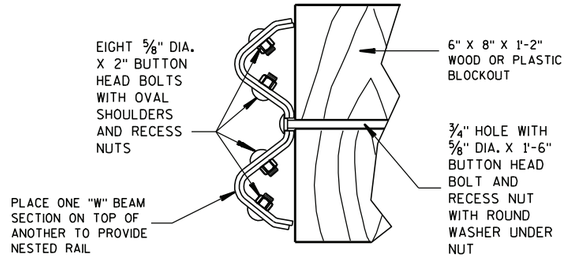
POST SPACING FOR LONGER POST AT HALF POST SPACING W BEAM (LHW)



FRONT VIEW

BEAM SPLICE AT STEEL POST

TYPICAL SPLICING DETAILS OF STEEL PLATE BEAM GUARD

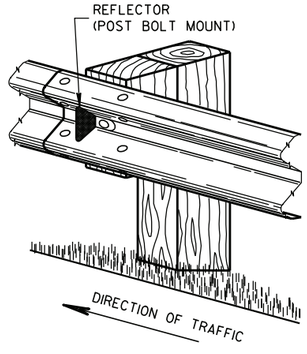


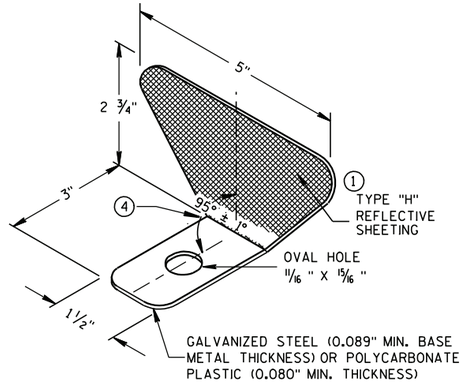
NESTED W BEAM (NW)

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

REFLECTOR SPACING (2)

	BEAM GUARD LENGTH	REFLECTOR SPACING	NO. SURFACES REFLECTORIZED	MIN. NO. REFLECTORS
ONE WAY TRAFFIC	< 200'	50' C-C	1	3
	> 200'	100' C-C	1	
TWO WAY TRAFFIC	< 200'	25' C-C	1 (3)	6
	> 200'	50' C-C	1	
TWO WAY TRAFFIC	< 200'	50' C-C	2	3
	> 200'	100' C-C	2 (4)	



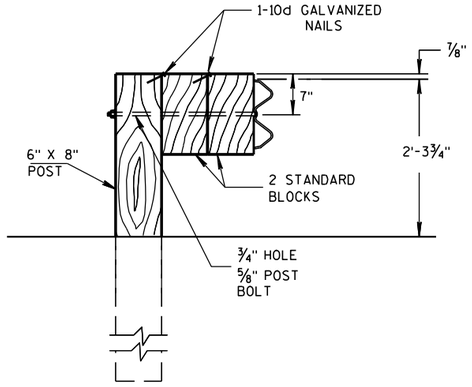


ONE SIDED REFLECTOR DETAIL AND TYPICAL INSTALLATION (1)

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

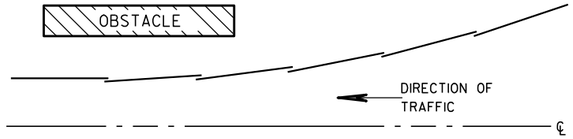
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6
S.D.D. 14 B 15-7b

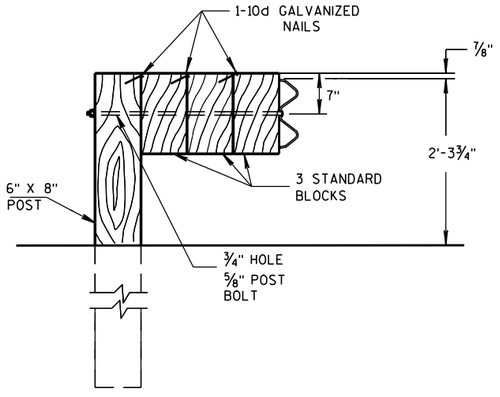


DETAIL FOR DOUBLE BLOCKS

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

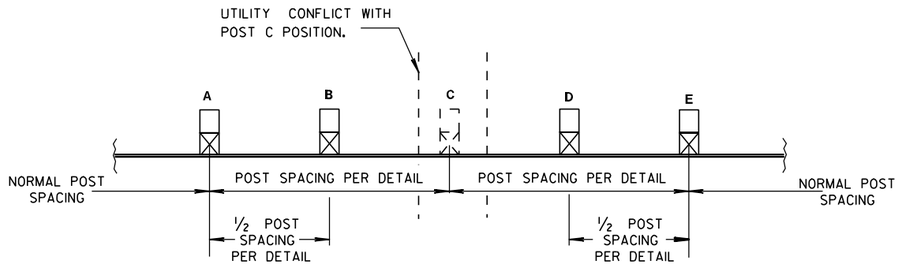


PLAN VIEW
BEAM LAPPING DETAIL



DETAIL FOR TRIPLE BLOCKS

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



POST DRIVING FOR CONTINUOUS UNDERGROUND OBSTRUCTION

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

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

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

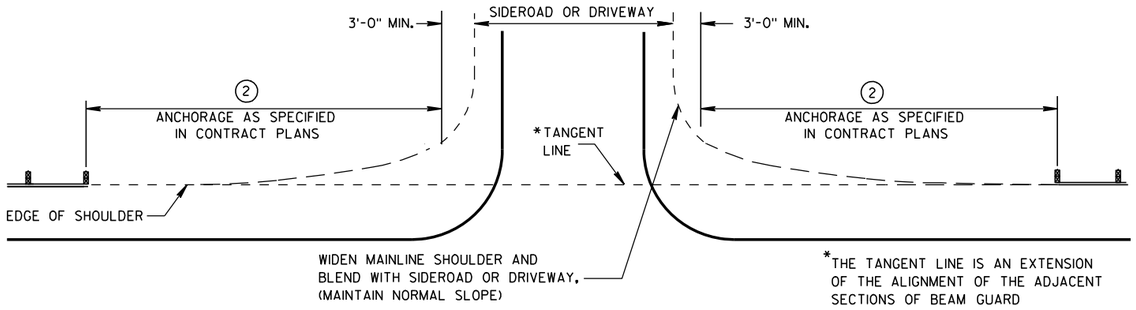
APPROVED

5/23/11	/S/ Jerry H. Zogg	
DATE	ROADWAY STANDARDS ENGINEER	ENT

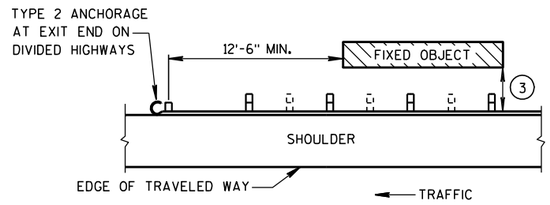
FHWA

6

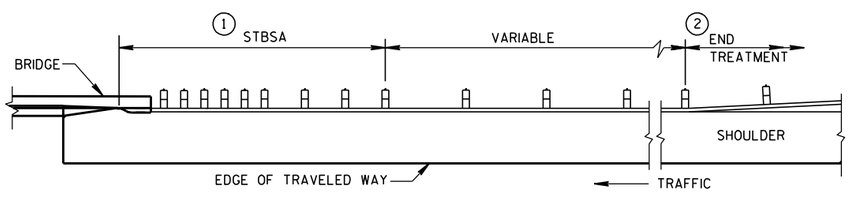
S.D.D. 14 B 15-7c



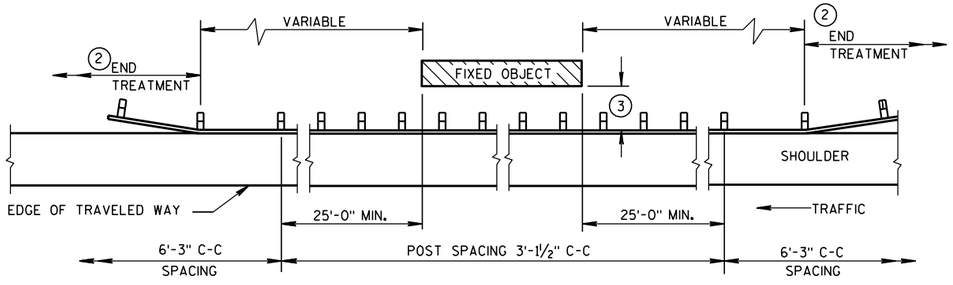
BEAM GUARD AT SIDEROADS OR DRIVEWAYS



BEAM GUARD AT OBSTACLES EXIT END - ONE WAY TRAFFIC

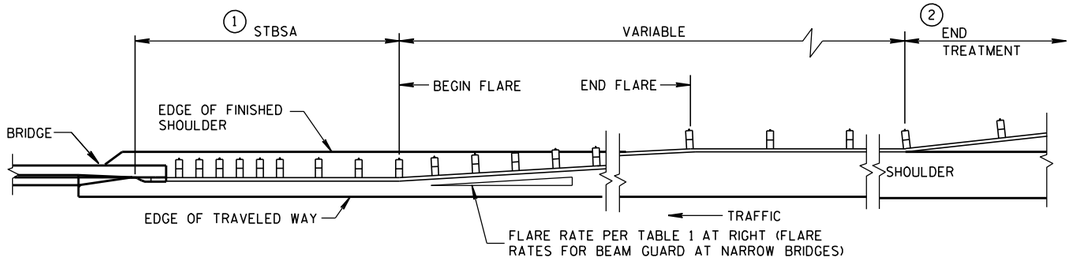


BEAM GUARD AT FULL WIDTH BRIDGES



BEAM GUARD AT OBSTACLES - TWO WAY TRAFFIC

(RAIL TO OBSTACLE CLEARANCE 3'-6" TO 4'-6")



BEAM GUARD AT NARROW BRIDGES

(FLARED TO SHOULDER EDGE, THEN PARALLEL TO ROADWAY)

TABLE 1
FLARE RATES FOR BEAM GUARD AT NARROW BRIDGES

POSTED SPEED (MPH)	FLARE RATE
25	13:1
30	15:1
35	16:1
40	18:1
45	21:1
50	24:1
55	26:1
65	30:1

GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP SHALL CONFORM TO THE PERTINENT STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

W6 X 9 OR W6 X 8.5 STEEL POSTS WITH NOTCHED PLASTIC BLOCKOUTS ARE ACCEPTABLE ALTERNATIVES FOR 6" X 8" WOOD POSTS WITH WOOD OR PLASTIC BLOCKOUTS. USE APPROVED NOTCHED PLASTIC BLOCKOUTS WITH STEEL POSTS.

THE LOCATIONS AND LENGTHS OF BEAM GUARD ARE SHOWN ELSEWHERE IN THE PLAN.

(1) STEEL THRIE BEAM STRUCTURAL APPROACH (STBSA) - SEE CURRENT SDD 14B20.

(2) USE AN APPROVED END TREATMENT FOR THE TRAFFIC APPROACH SIDE OF BRIDGE/OBSTACLES. USE TYPE 2 ANCHORAGE ONLY AT THE DOWNSTREAM ENDS OF BEAM GUARD LOCATED ALONG ROADWAYS WITH ONE WAY TRAFFIC.

(3)

MINIMUM LATERAL DISTANCE FROM FACE OF BEAM GUARD TO FIXED OBJECT	POST SPACING
3'-6"	3' - 1½"
4'-6"	6' - 3"

STEEL PLATE BEAM GUARD CLASS "A" AT BRIDGES, OBSTACLES AND SIDEROADS/DRIVEWAYS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

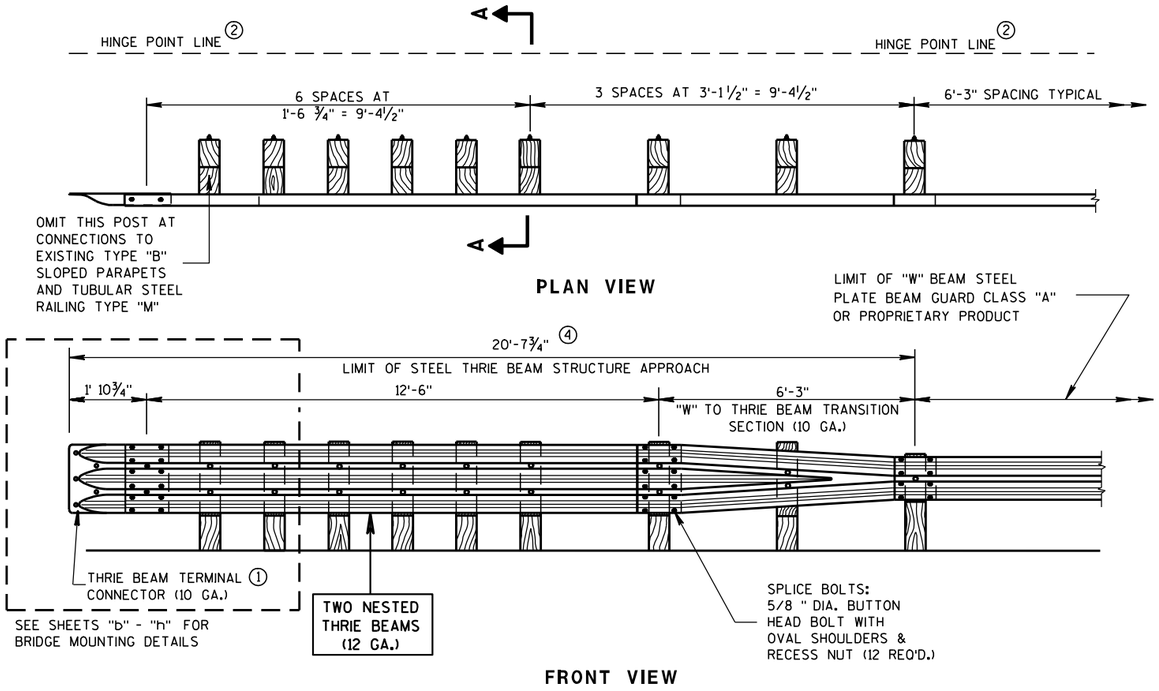
8-21-07
DATE

/S/ Jerry H. Zogg
ROADWAY STANDARDS DEVELOPMENT ENGINEER

FHWA

6

S.D.D. 14 B 18-6a



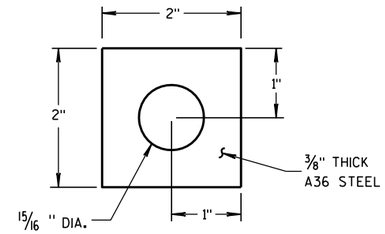


PLATE WASHER DETAIL

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.

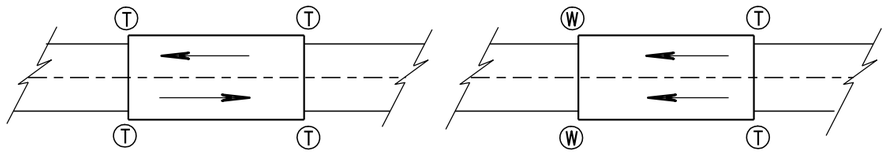
IF ROCK IS ENCOUNTERED, REMOVE ROCK TO FULL DEPTH OF POST PLUS 2 1/2" , AND 12" DIAMETER AROUND POST. SEE 14B15 FOR MORE DETAILS.

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.



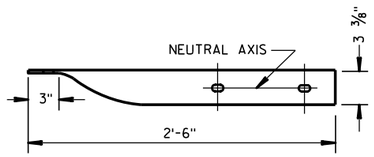
TWO WAY TRAFFIC

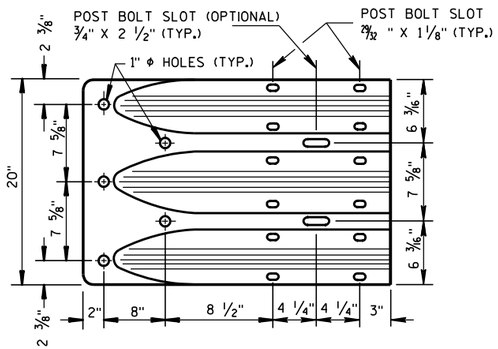
ONE WAY TRAFFIC

T THRIE BEAM CONNECTION

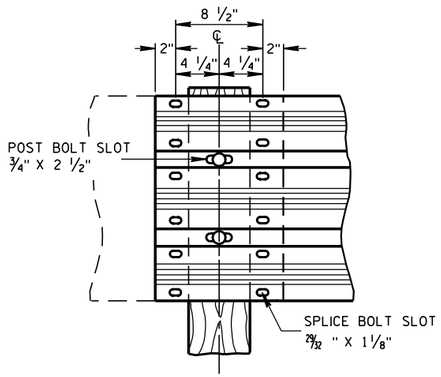
W W-BEAM CONNECTION WHEN REQUIRED

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

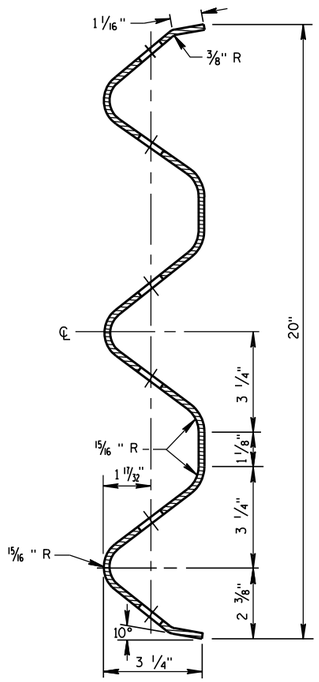




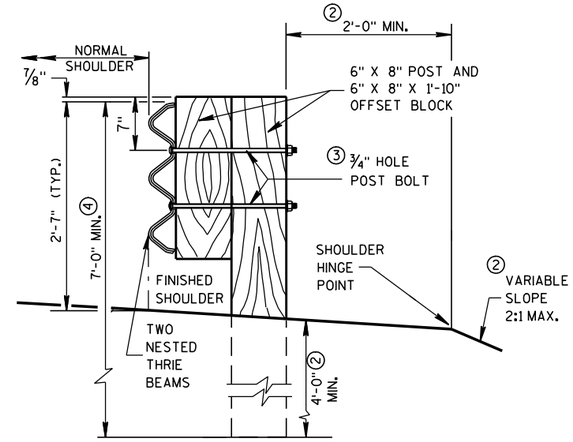
THRIE BEAM TERMINAL CONNECTOR



THRIE BEAM SPLICE



SECTION THRU THRIE BEAM RAIL ELEMENT



SECTION A-A

STEEL THRIE BEAM STRUCTURE APPROACH

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

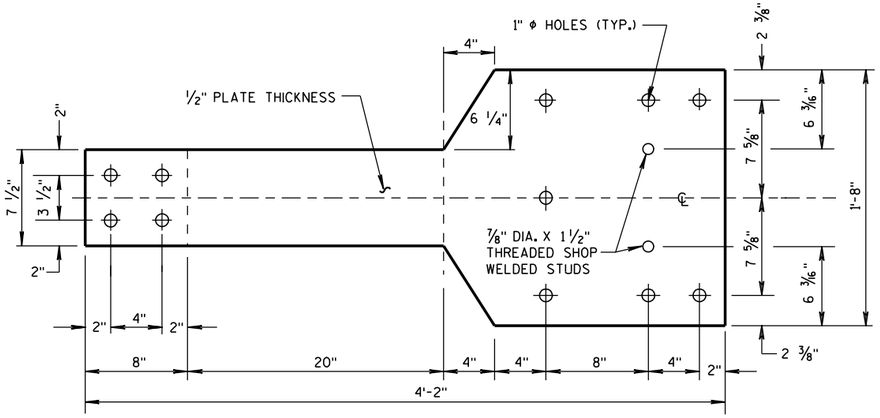
8/31/2012
DATE

/S/ Jerry H. Zogg
ROADWAY STANDARDS ENGINEER

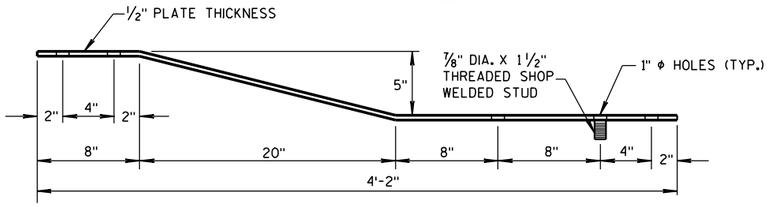
FHWA

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.

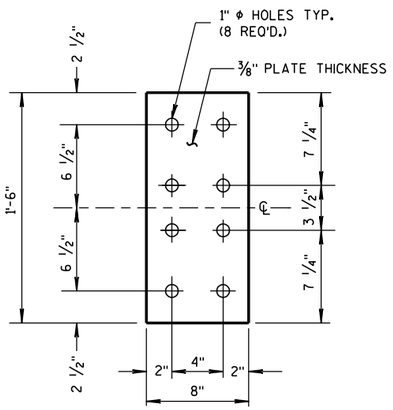


FRONT VIEW



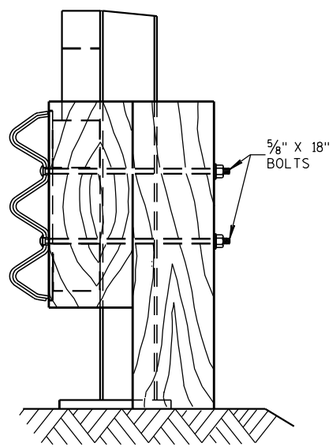
PLAN VIEW

BACK-UP PLATE DETAIL, TYPE "M"

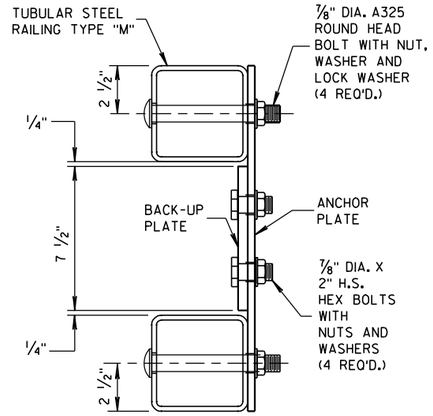


FRONT VIEW

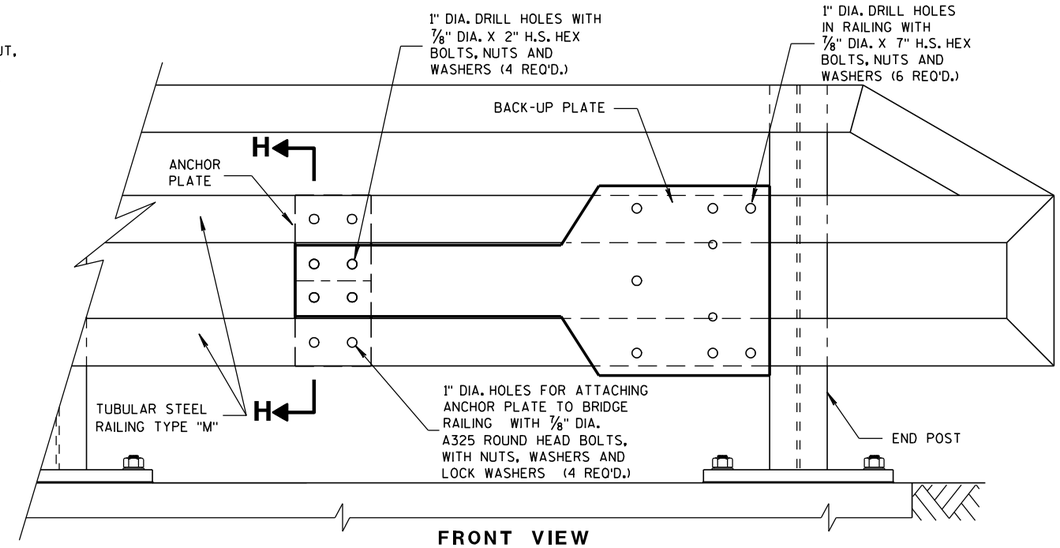
ANCHOR PLATE DETAIL, TYPE "M"



SECTION I-I

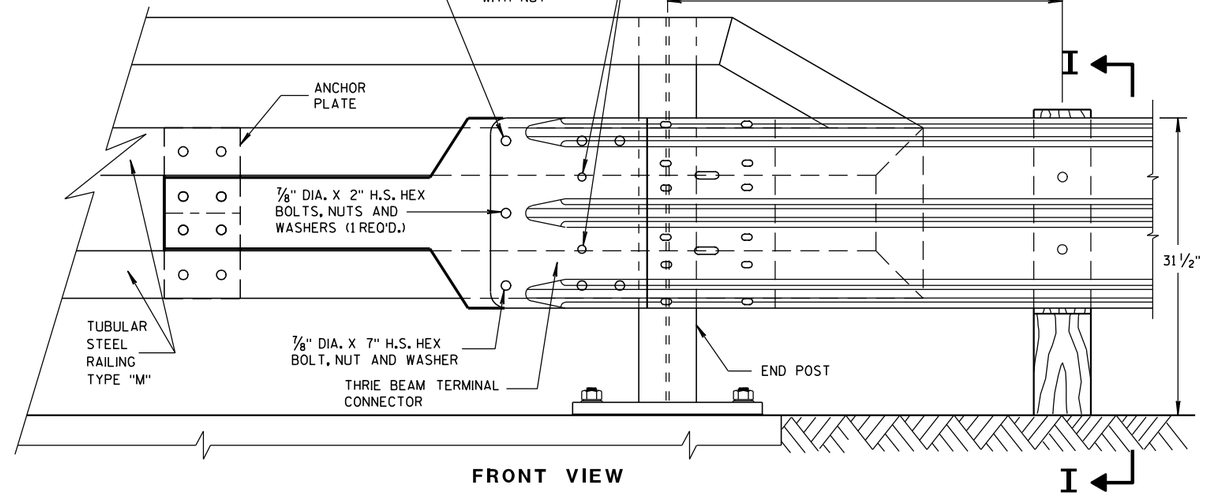


SECTION H-H

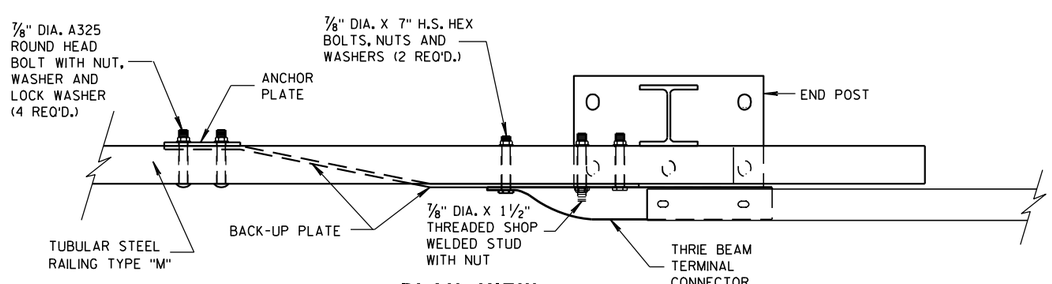


FRONT VIEW

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
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ENT
FHWA

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

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

BILL OF MATERIALS

NOTE NO.	QTY.	DESCRIPTION
(1)	4	WOOD BREAKAWAY TERMINAL POST: 5½" X 7½" X 3'-9"
(2)	**	STEEL TUBE: OPTION 1 - QUANITY OF 4 TS 8" X 6" X 0.188", 4'-6" LONG OR OPTION 2 - QUANITY OF 2 TS 8" X 6" X 0.188", 6'-0" AND 2 TS 8" X 6" X 0.188", 4'-6" LONG
(3)	2	SOIL PLATE: 2'-0" X 1'-6" X ¼" **
(4)	4	WOOD BREAKAWAY CRT POST: 6" X 8" X 6'-0"
(5)	6	WOOD OFFSET BLOCKS: 6' X 8" X 1'-2"
(6)	1	PIPE SLEEVE: 2" X 5 ½" STANDARD PIPE
(7)	1	BEARING PLATE
(8)	1	BCT CABLE ASSEMBLY
(9)	1	CABLE ANCHOR BOX
(10)	1	STRUT & YOKE
(11)	1	STEEL PLATE BEAM, END PANEL 12 GA. 13'-6½" LONG FOR SKT-350, ET-2000 AND ET-2000 PLUS
(12)	3	STEEL PLATE BEAM: 12 GA. 13'-6½"
(13)	1	ET-2000/ET-2000 PLUS GUARDRAIL EXTRUDER OR SKT-350 IMPACT HEAD: AS FURNISHED BY MANUFACTURER
(14)	1	REFLECTIVE SHEETING TYPE H: 18" X 18"
(15)	1	E.A.T. MARKER POST

GENERAL NOTES

FOLLOW MANUFACTURE'S BOLTING RECOMMENDATIONS. IF NONE ARE AVAILABLE, INSTALL ⅝" ϕ X 1'-6" BUTTON HEAD BOLTS AT ALL POSTS EXCEPT FOR POST 1.

(A) THE SLOPE IN THE AREA BOUNDED BY THE EXTENDED VEHICLE RUNOUT PATH (EVRP), 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) THE 13 SLOT FIRST RAIL PANEL MAY BE USED IN LIEU OF THE 3 SLOT RAIL PANEL ON SKT-350 ONLY.

(D) THE TOP OF THE STEEL TUBE ON POSTS 1 THROUGH 4 SHALL NOT BE MORE THAN 3" ABOVE THE FINISH GROUND ELEVATION.

(E) THE CENTER OF THE UPPER 3½" DIAMETER HOLE ON POST 5 THROUGH 8 SHALL BE ¾" ABOVE THE FINISHED GROUND LINE.

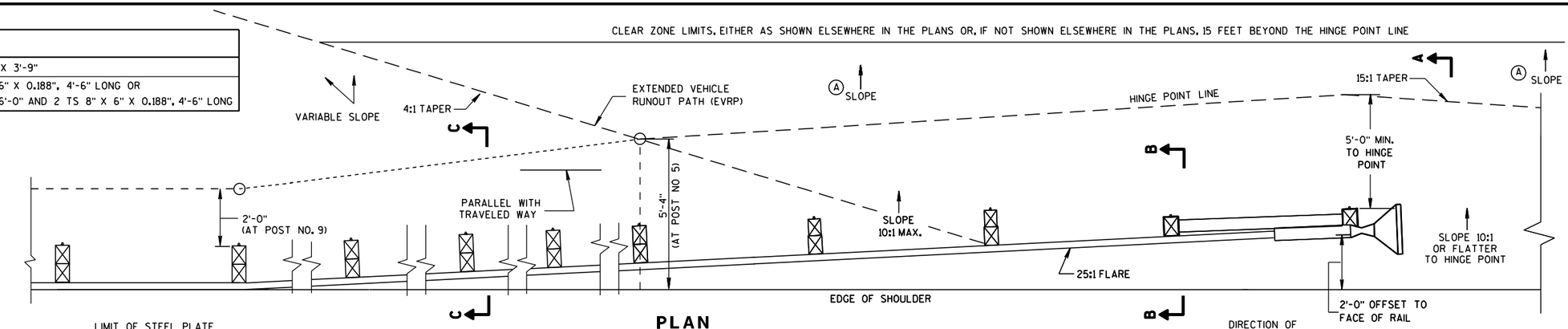
(F) SHEETING IS ATTACHED TO 0.040 ALUMINUM SHEET AND ATTACHED TO E.A.T. HEAD USING 4 STAINLESS STEEL SELF-TAPPING SCREWS. ONE SCREW PER CORNER OF E.A.T.

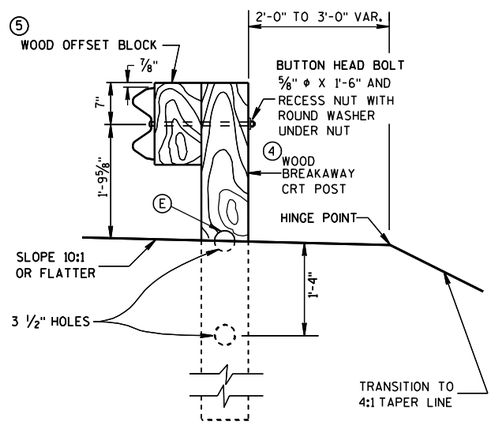
STEEL POSTS SHALL NOT BE ALLOWED FOR USE WITH ENERGY ABSORBING TERMINALS.

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

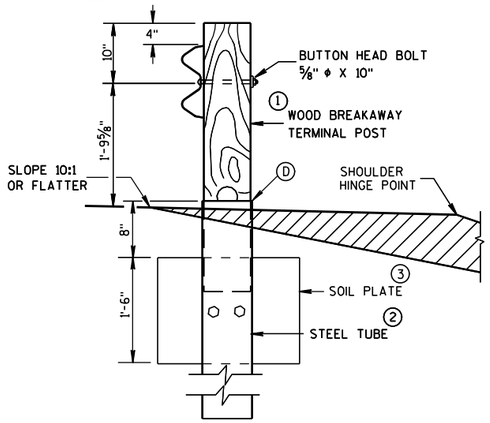
* DO NOT ATTACH BLOCKOUTS TO POSTS 1 AND 2.

** SDD SHOWS 4 - 54 INCH STEEL TUBES WITH SOIL PLATES INSTALLED ON POST 1 AND POST 2. POST 3 AND 4 DO NOT NEED SOIL PLATES. AN ALTERNATIVE INSTALLATION WOULD CONSIST OF 2 - 72 INCH STEEL TUBES ON POST 1 AND POST 2 AND 54 INCH SOIL TUBES ON POSTS 3 AND 4. THE ALTERNATIVE INSTALLATION DOES NOT REQUIRE SOIL PLATES.

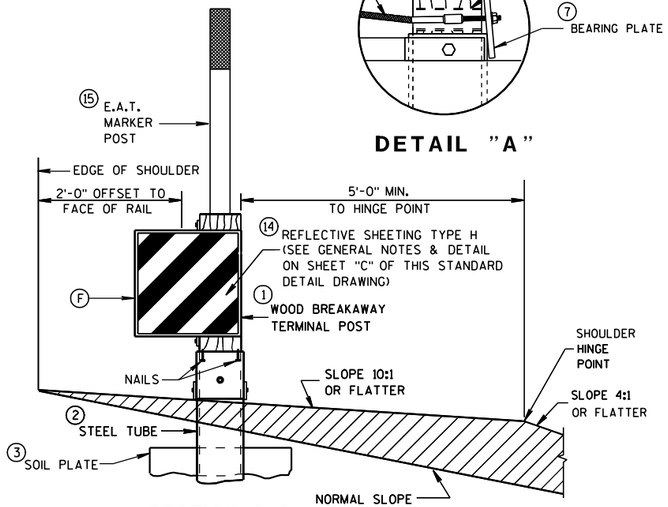




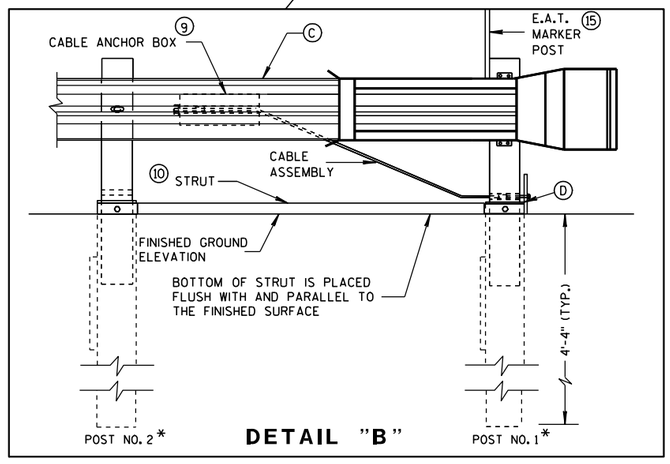
SECTION C-C
TYPICAL AT POST NOS. 6, 8



SECTION B-B
TYPICAL AT POST NO. 2*



SECTION A-A
TYPICAL AT POST NO. 1*

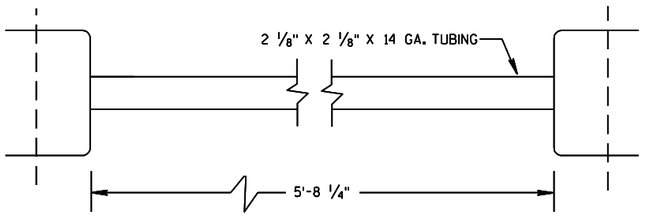


STEEL PLATE BEAM GUARD ENERGY ABSORBING TERMINAL

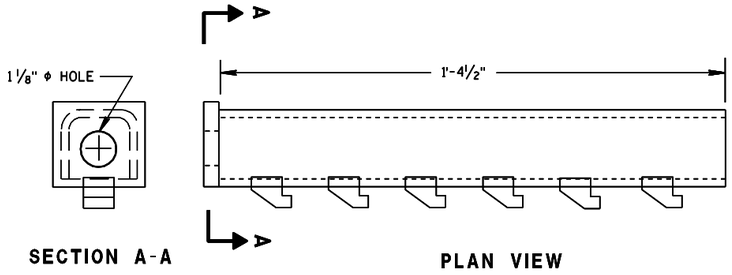
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6

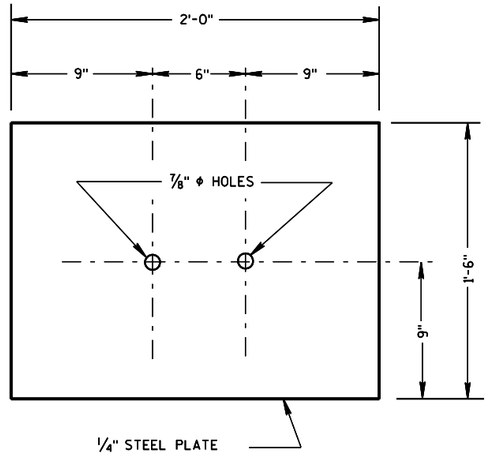
S.D.D. 14 B 24-7a



⑩ STRUT DETAIL (SKT-350)

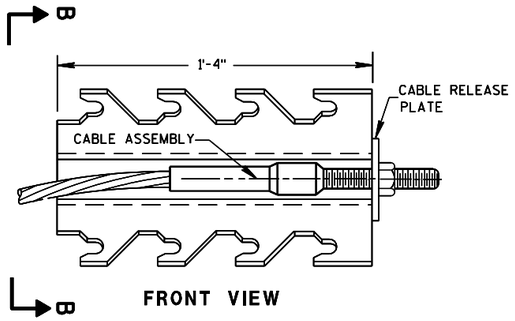


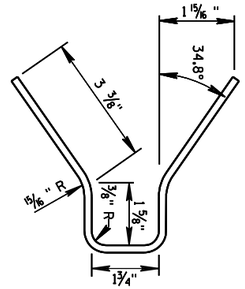
⑨ CABLE ANCHOR BOX (ET-2000/ET-2000 PLUS)



③ SOIL PLATE

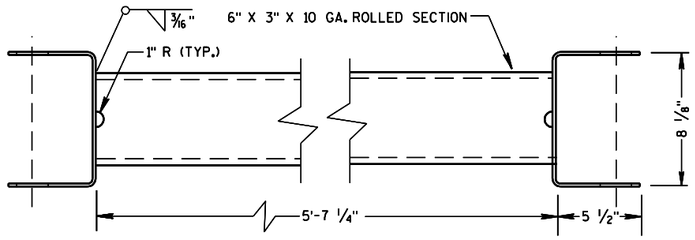
(SKT-350, ET-2000/ET-2000 PLUS)





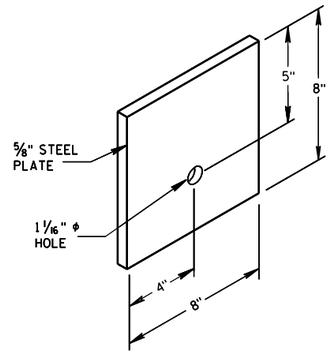
⑨ CABLE ANCHOR BOX (SKT-350)

(SKT-350)



⑩ STRUT DETAIL (ET-2000/ET-2000 PLUS)

(ET-2000/ET-2000 PLUS)



⑦ STEEL BEARING PLATE

(SKT-350, ET-2000/ET-2000 PLUS)

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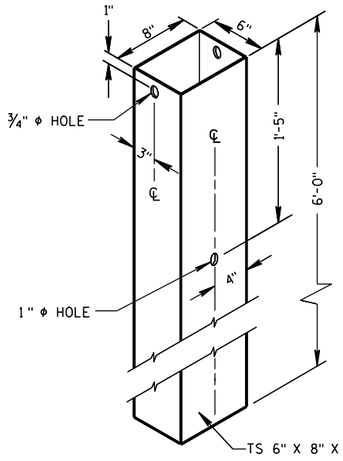
S.D.D. 14 B 24-7b

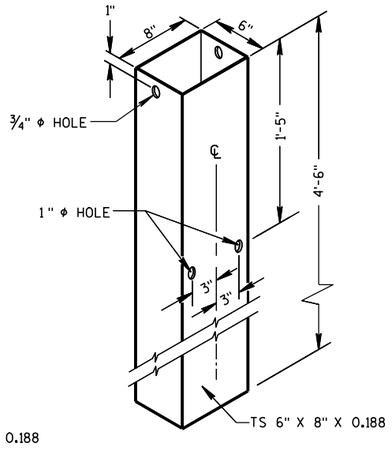
S.D.D. 14 B 24-7b

STEEL PLATE BEAM GUARD
ENERGY ABSORBING TERMINAL

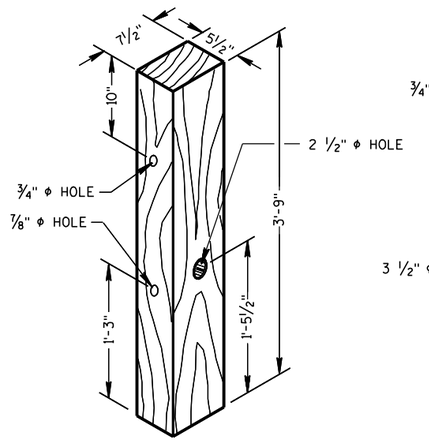
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



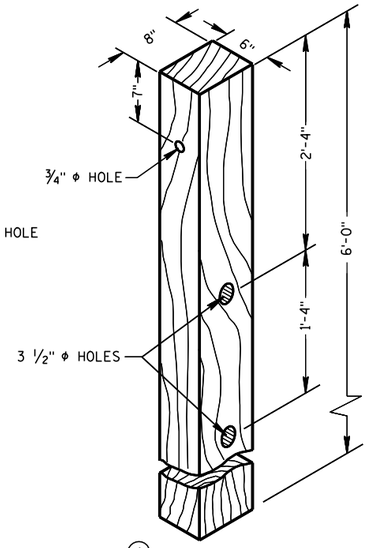
(2) 72" STEEL TUBE
(POSTS NO. 1-4



(2) 54" STEEL TUBE
(POSTS NO. 1-4



(1) TERMINAL POST
(POSTS NO. 1-4



(4) CRT POST
(POSTS NO'S 5-8

WOOD BREAKAWAY POSTS

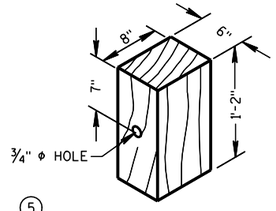
GENERAL NOTES

STEEL PLATE BEAM GUARD, ENERGY ABSORBING TERMINAL SHALL BE PAID FOR AT THE CONTRACT UNIT PRICE EACH, WHICH SHALL INCLUDE HARDWARE, STEEL PLATE BEAM GUARD, POSTS, REFLECTIVE SHEETING AND INSTALLATION AS SHOWN.

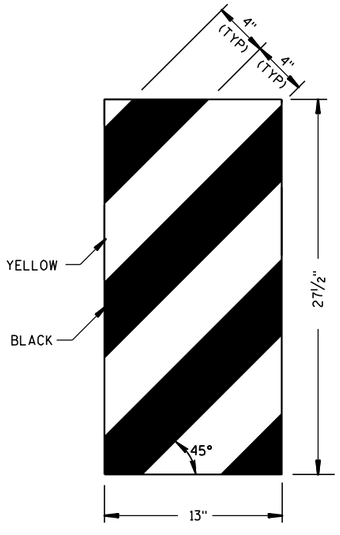
WHEN ROCK IS ENCOUNTERED DURING EXCAVATION, A 12 INCH DIA. POST HOLE EXTENDING 20 INCHES DEEP INTO THE ROCK MAY BE USED IF APPROVED BY THE ENGINEER. GRANULAR MATERIAL SHALL BE PLACED IN THE BOTTOM OF THE HOLE APPROXIMATELY 2 ½" INCHES DEEP TO PROVIDE DRAINAGE. THE SOIL TUBES SHALL BE FIELD CUT TO LENGTH, PLACED IN THE HOLE AND BACKFILLED WITH ADEQUATELY COMPACTED MATERIAL EXCAVATED FROM THE HOLE.

SEE APPROVED PRODUCTS LIST FOR ACCEPTABLE E. A. T. MARKER POST.

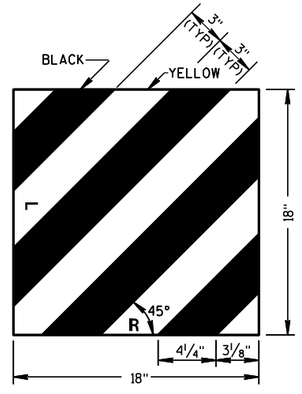
(G) ½" DIA. X 3" LAG BOLT WITH WASHER.



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

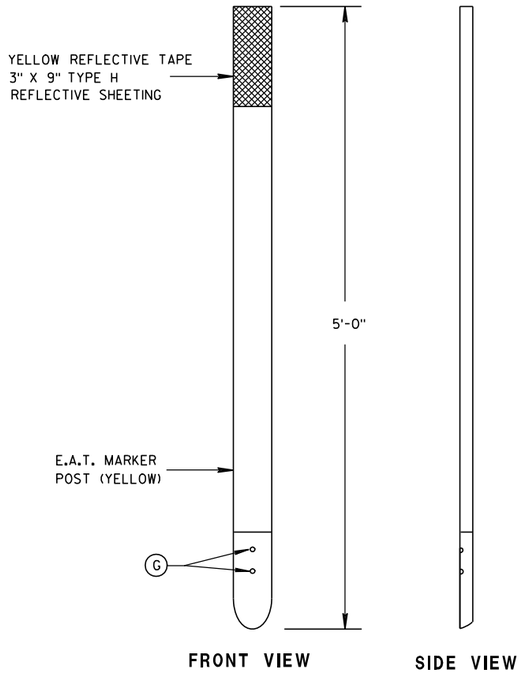


ET-2000 PLUS ONLY

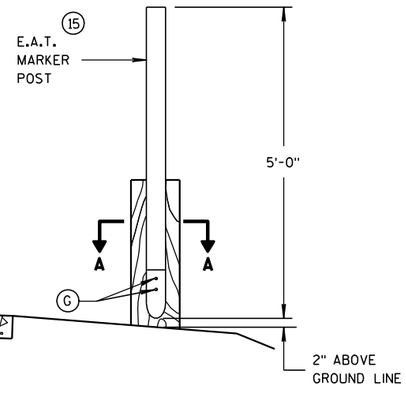


ET-2000 AND SKT-350

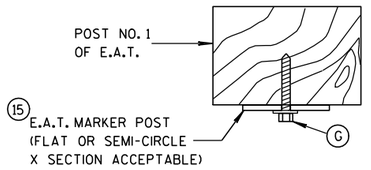
(14) REFLECTIVE SHEETING DETAILS



(15) E.A.T. MARKER POST



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



SECTION A-A

STEEL PLATE BEAM GUARD
ENERGY ABSORBING TERMINAL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

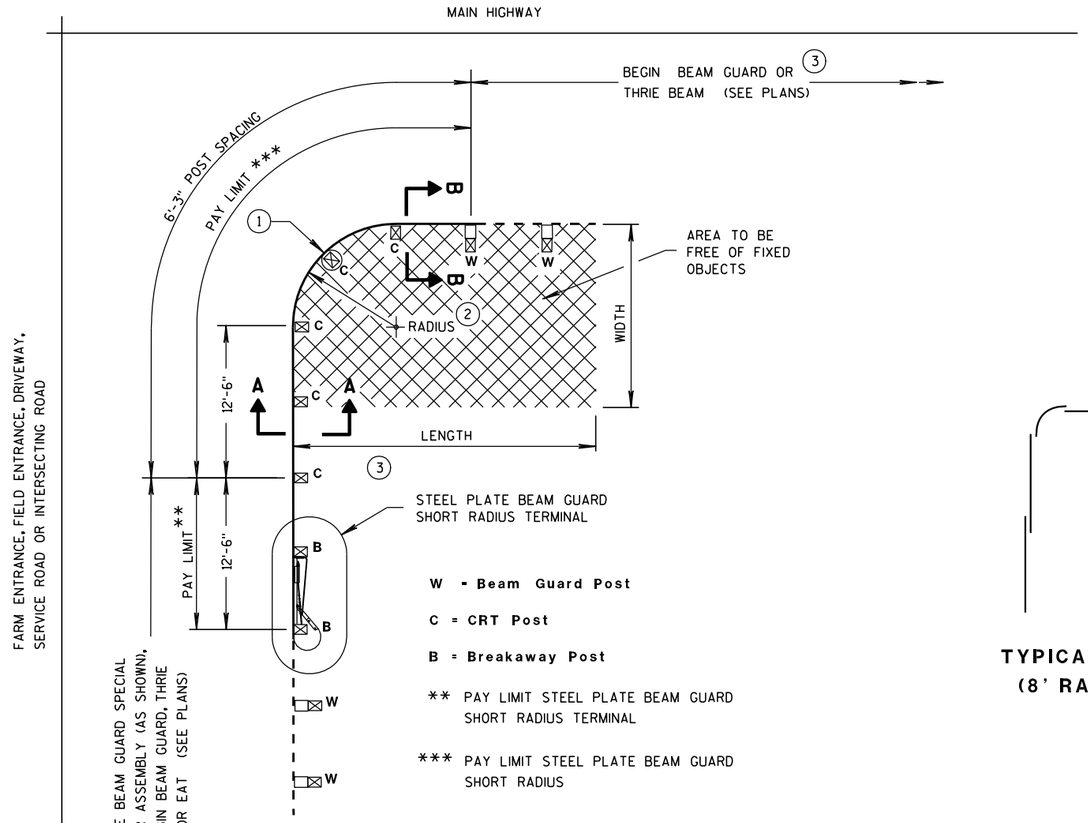
APPROVED
4-12-10 DATE
/S/ Jerry H. [illegible]
ROADWAY STANDARDS ENGINEER
[illegible]ENT
FHWA

6

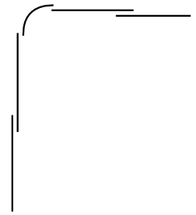
S.D.D. 14 B 24-7c

6

S.D.D. 14 B 24-7c



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.

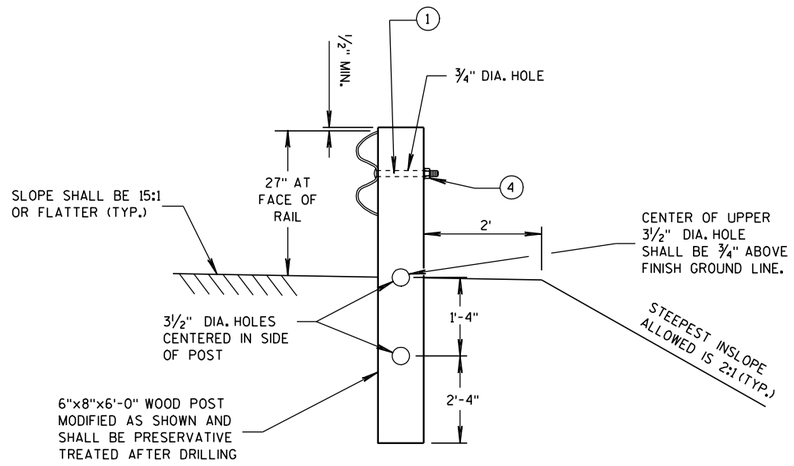
(2) RADIUS FROM 8' - 36'. SEE PLAN.

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

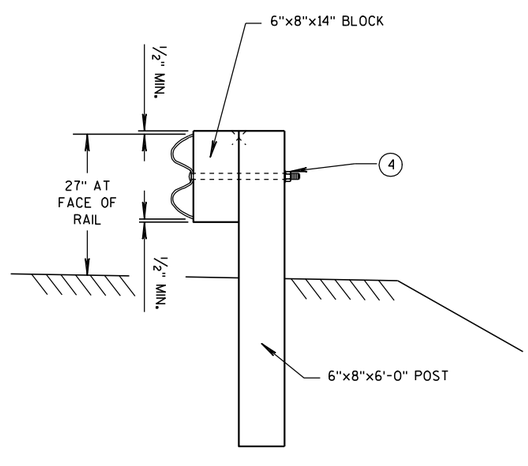
(4) 5/8" ø X 1'-6" BUTTON HEAD BOLT AND RECESS NUT WITH ROUND WASHER UNDER NUT.

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

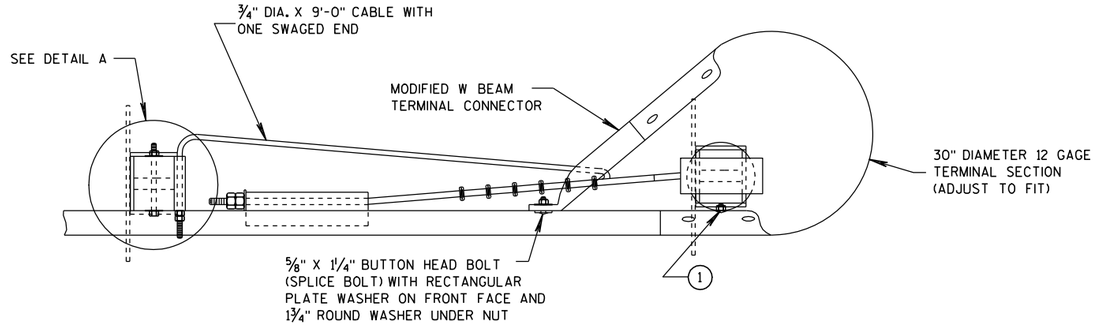
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6

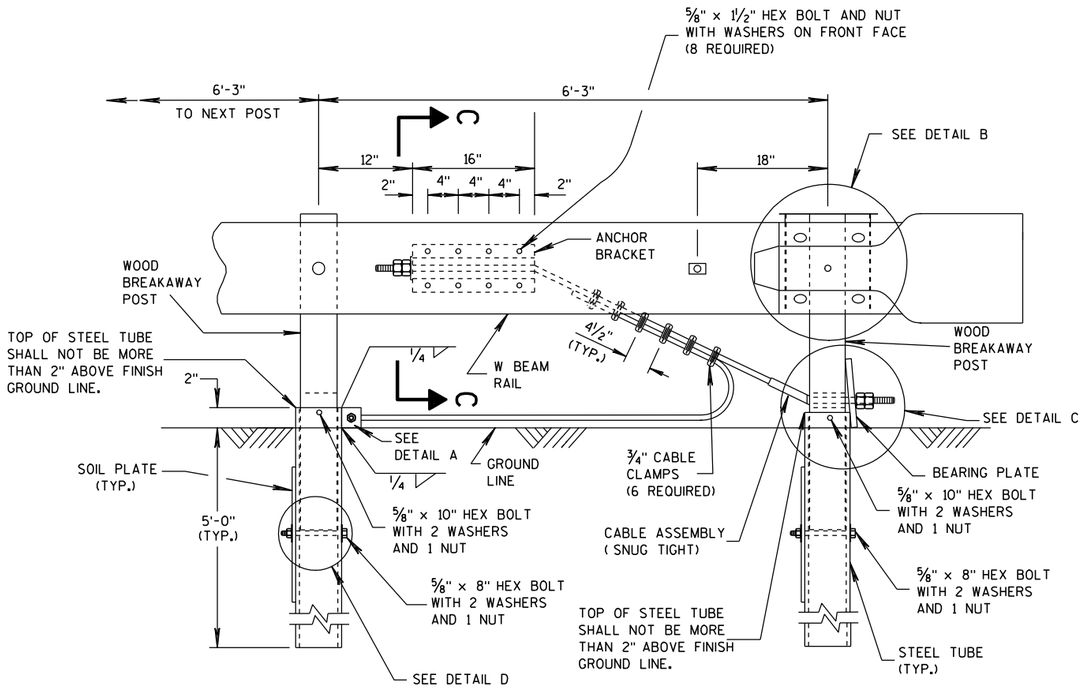
S.D.D. 14 B 27-1a

6

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



PLAN VIEW



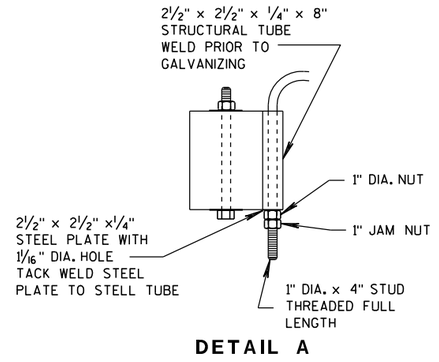
ELEVATION VIEW

STEEL PLATE BEAM GUARD SHORT RADIUS TERMINAL

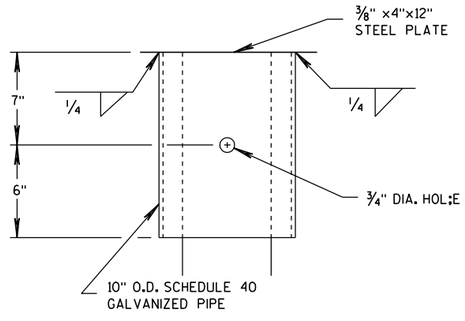
GENERAL NOTES

(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

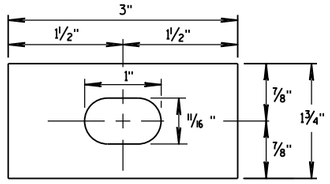
STATE OF WISCONSIN
DEPARTMENT OF TRANSPO...

6

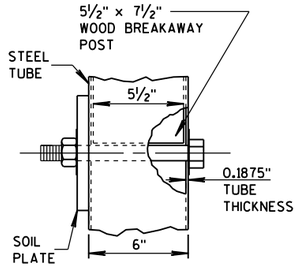
S.D.D. 14 B 27-1b

6

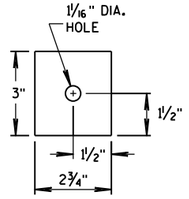
S.D.D. 14 B 27-1b



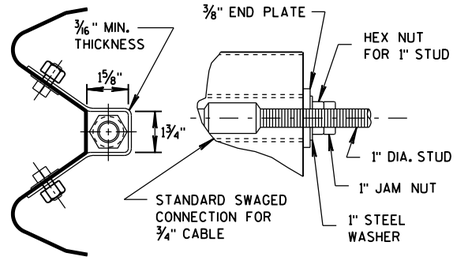
RECTANGULAR PLATE WASHER



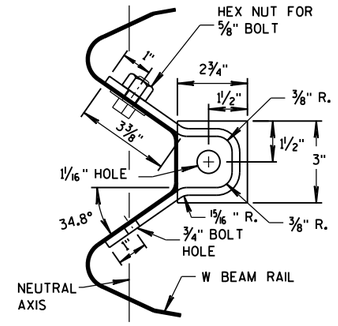
DETAIL D



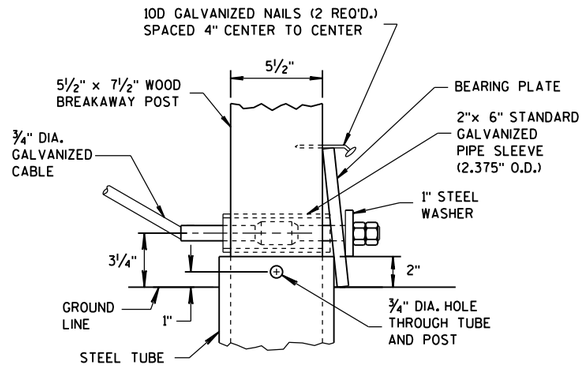
END PLATE



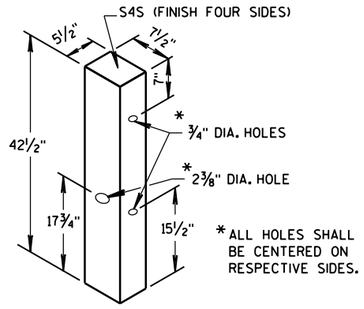
SECTION C-C
(END PLATE REMOVED)



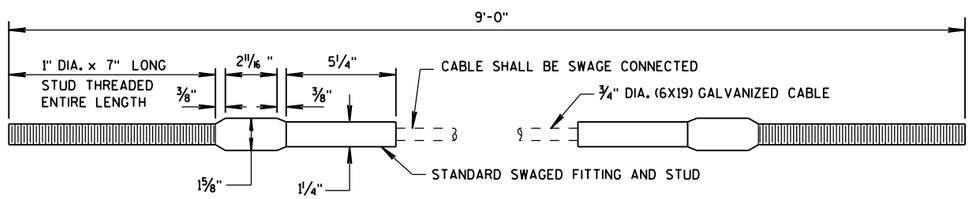
ANCHOR BRACKET



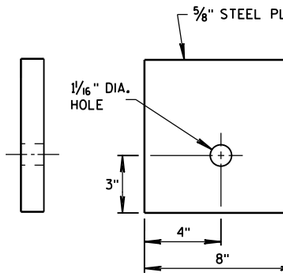
DETAIL C



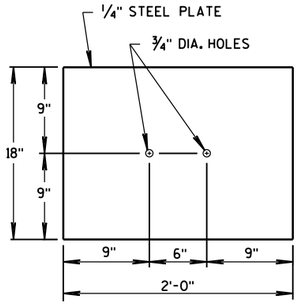
WOOD BREAKAWAY POST



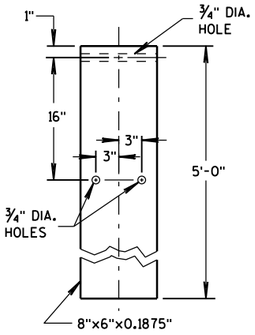
CABLE ASSEMBLY



BEARING PLATE



SOIL PLATE



STEEL TUBE

STEEL PLATE BEAM GUARD SHORT RADIUS TERMINAL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

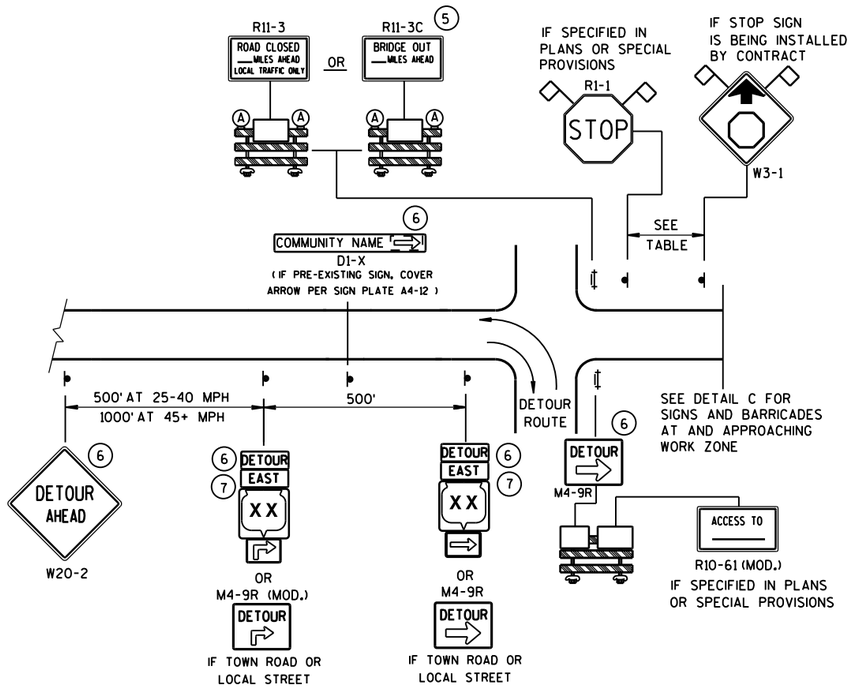
APPROVED
12/18/08 — DATE
/S/ Jerry H. Zogg — ROADWAY STANDARDS DEVELOPMENT ENGINEER
FHWA

6

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

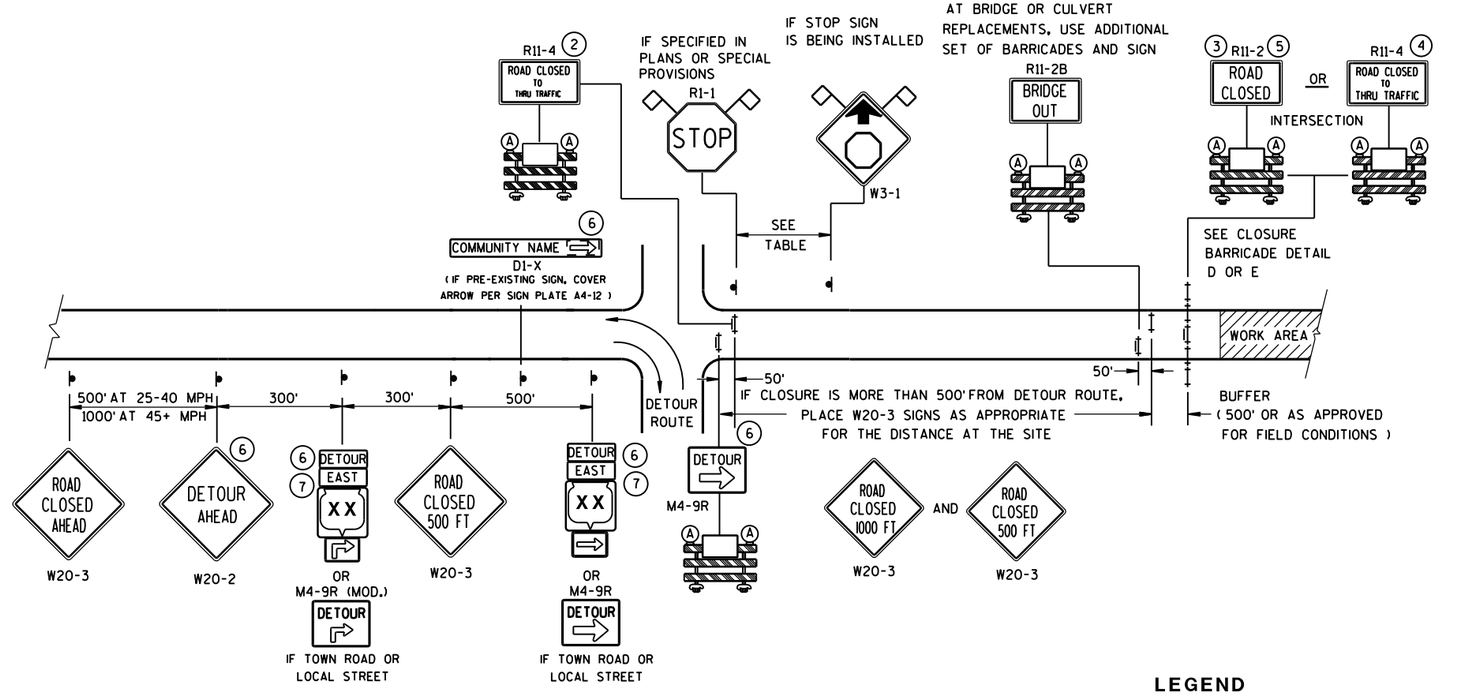
6

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



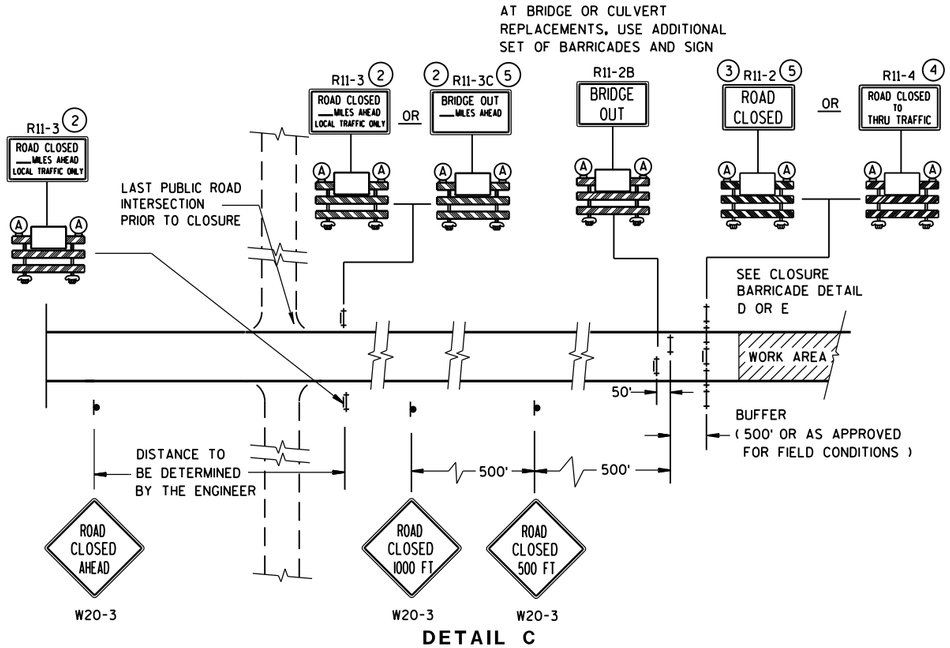
DETAIL A
MAINLINE CLOSURE WITH POSTED DETOUR

WORK ZONE GREATER THAN ½ MILE FROM DETOUR ROUTE (1000 FEET IF URBAN)



DETAIL B
MAINLINE CLOSURE WITH POSTED DETOUR

WORK ZONE LESS THAN ½ MILE FROM DETOUR ROUTE (1000 FEET IF URBAN)



DETAIL C
MAINLINE CLOSURE, NO POSTED DETOUR

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

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

LEGEND

- SIGN ON PERMANENT SUPPORT
- TYPE III BARRICADE
- TYPE III BARRICADE WITH ATTACHED SIGN
- (A) TYPE "A" WARNING LIGHT (FLASHING)
- WORK AREA
- DETOUR / EAST — M4-8 / M3-X
- XX — M1-4; COUNTY XX — M1-5A; XX — M1-6
- M05-1 OR M06-1
- FLAGS, 16" X 16" MIN., (ORANGE)

BARRICADES AND SIGNS FOR MAINLINE CLOSURES

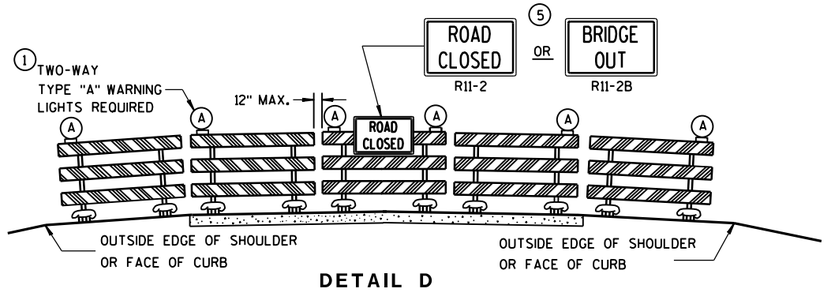
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

8/2013 DATE — /S/ Travis Feltes STATE TRAFFIC ENGINEER — DESIGN

FHWA

6

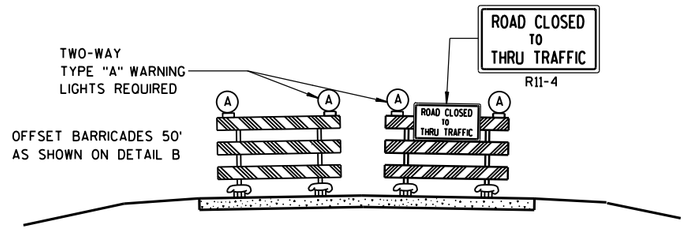
S.D.D. 15 C 2-5a



DETAIL D

ROAD CLOSURE BARRICADE DETAIL

APPROACH VIEW



DETAIL E

LANE CLOSURE BARRICADE DETAIL

APPROACH VIEW

SEE SDD 15C2-SHEET "**a**" FOR LEGEND

GENERAL NOTES

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

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

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

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

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

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

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

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

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

ALL SIGNS SHALL BE 48" X 48" UNLESS OTHERWISE NOTED BELOW:
- R11-2 SHALL BE 48" X 30".
- R11-3, R11-4 AND R10-61 SHALL BE 60" X 30".
- M4-9 SHALL BE 30" X 24".
- M3-X SHALL BE 24" X 12". (36" X 18" IF NEEDED TO MATCH EXISTING SIGNS.)
- M4-8 SHALL BE 24" X 12". (30" X 15" IF NEEDED TO MATCH EXISTING SIGNS.)
- M1-4, M1-5A, AND M1-6 SHALL BE 24" X 24". (36" X 36" IF NEEDED TO MATCH EXISTING SIGNS.)
- M05-1 AND M06-1 SHALL BE 21" X 21". (30" X 30" IF NEEDED TO MATCH EXISTING SIGNS.)
- D1-X SHALL BE AS SHOWN ON SPECIFIC PROJECT SIGNING DETAIL SHEETS.
- R1-1 SHALL BE 36" X 36".

(1) TWO WARNING LIGHTS SHALL BE PROVIDED ON THE CENTER BARRICADE AND A MINIMUM OF ONE WARNING LIGHT SHALL BE PROVIDED ON EACH OF THE OTHER BARRICADES WITHIN THE ROADWAY LIMITS. SPACING OF THE WARNING LIGHTS SHALL BE UNIFORM TO THE EDGE OF ROADWAY AS SHOWN (APPROX. 8-FOOT LIGHT SPACING).

(2) THESE SIGNS AND BARRICADES ARE NOT REQUIRED IF ROAD CLOSURE BEGINS AT INTERSECTION.

(3) FOR ROAD CLOSURE WITHOUT LOCAL ACCESS TO PROJECT, SEE ROAD CLOSURE BARRICADE DETAIL D.

(4) FOR ROAD CLOSURE WITH LOCAL ACCESS TO PROJECT, SEE LANE CLOSURE BARRICADE DETAIL E.

(5) FOR BRIDGE OR CULVERT REPLACEMENTS, SUBSTITUTE "BRIDGE OUT" INSTEAD OF "ROAD CLOSED" ON R11-2 AND R11-3 SIGNS.

(6) INSTALL DETOUR AND COMMUNITY GUIDE SIGNS AND ARROWS ONLY IF SPECIFIED IN THE CONTRACT. IF THERE ARE EXISTING ROUTE MARKER ASSEMBLIES THAT WILL REMAIN IN PLACE, ADJUST THE LOCATION OF THE DETOUR ROUTE SIGNS TO CORRESPOND WITH THE EXISTING ASSEMBLIES. MODIFY EXISTING SIGNS WHERE POSSIBLE. SEE SPECIFIC PROJECT DETOUR SIGNING DETAIL SHEETS. IF DETOUR SIGNS ARE BEING INSTALLED BY OTHERS, PLACE THE CONTRACTED TRAFFIC CONTROL SIGNS TO ALLOW FOR PLACEMENT OF ALL WARNING, DETOUR AND GUIDE SIGNS AS SHOWN.

(7) "EAST" CARDINAL DIRECTION MARKERS AND RIGHT TURN ARROWS ARE SHOWN. USE OTHER CARDINAL DIRECTIONS AND ARROWS AS APPROPRIATE.

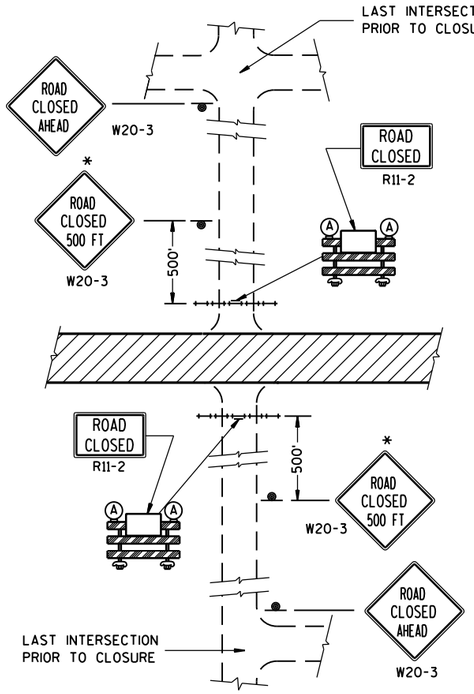
BARRICADES AND SIGNS FOR MAINLINE CLOSURES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

8/2013 — DATE
/S/ Travis Feltes — STATE TRAFFIC ENGINEER
DESIGN
FHWA

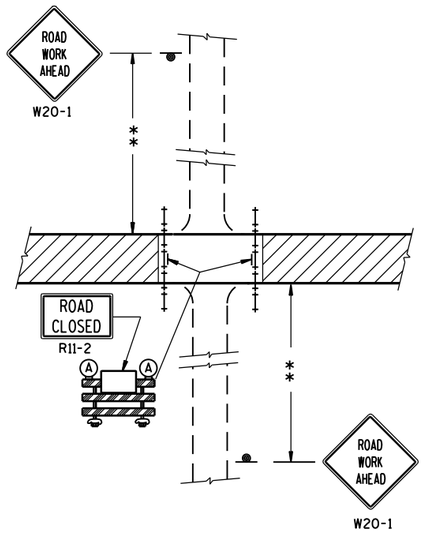
6

S.D.D. 15 C 2-5b



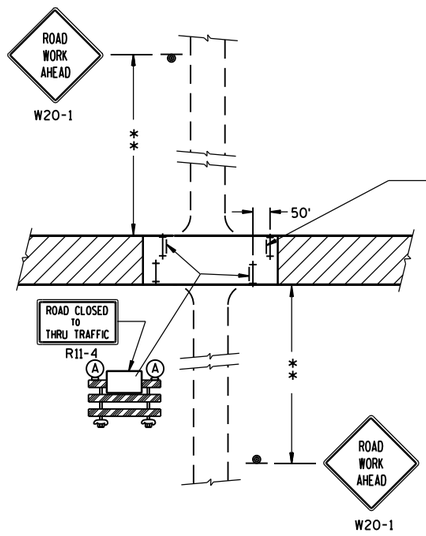
DETAIL 1

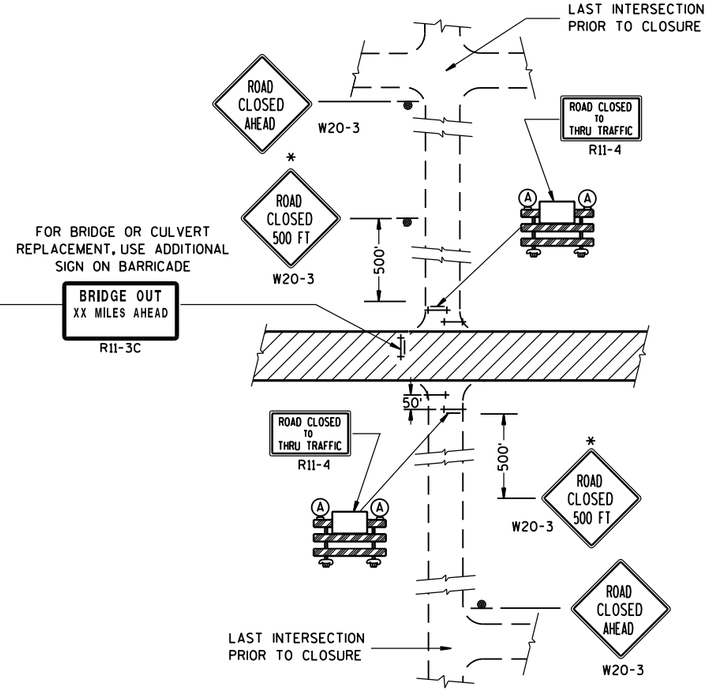
(NO ACCESS TO PROJECT)



DETAIL 2

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





DETAIL 3

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

DETAIL 4

(CONTRACTOR, LOCAL BUSINESS AND RESIDENT ACCESS TO PROJECT)

GENERAL NOTES

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

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

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

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

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

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

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

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

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

ALL SIGNS SHALL BE 48" X 48" UNLESS OTHERWISE NOTED BELOW:
R11-2 SHALL BE 48" X 30".
R11-4 AND R11-3 SHALL BE 60" X 30".

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

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

LEGEND

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

BARRICADES AND SIGNS FOR SIDEROAD CLOSURES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
8/2013 — DATE
/S/ Travis Feltes — STATE TRAFFIC ENGINEER
FHWA

6

S.D.D. 15 C 3-2

6

S.D.D. 15 C 3-2

GENERAL NOTES

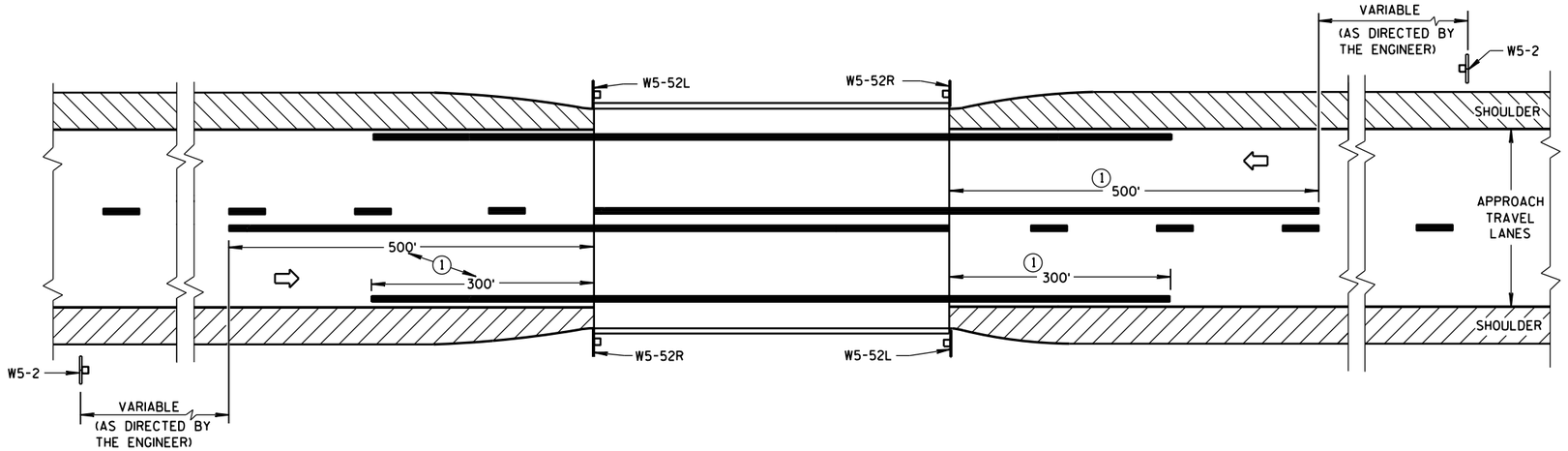
DETAILS OF TRAFFIC CONTROL DEVICES AND INSTALLATION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS, THE SPECIAL PROVISIONS, AND THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

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

(1) MINIMUM DISTANCE UNLESS OTHERWISE SHOWN ON THE PLAN.

(2) FACE OF OBJECT MARKERS W5-52R, AND W5-52L SHALL BE COVERED WITH TYPE F REFLECTIVE SHEETING.

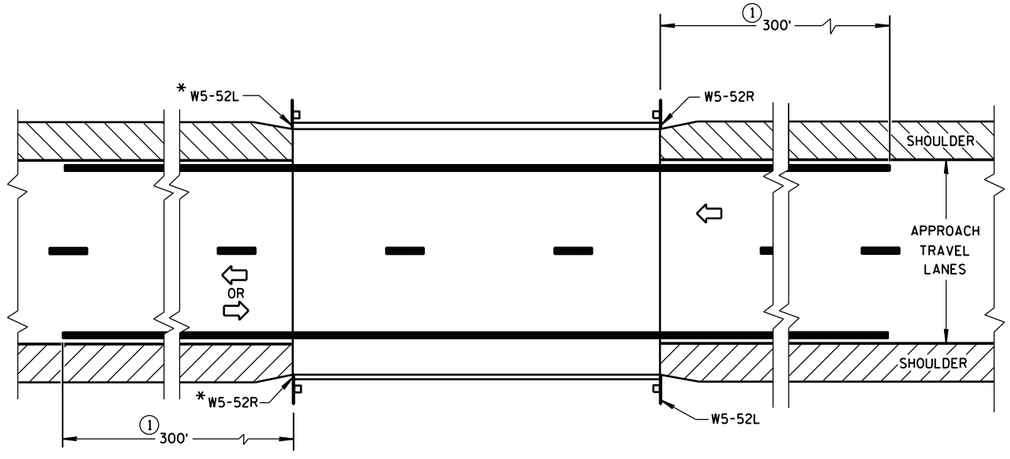
(3) LOCATE OBJECT MARKER POST(S) BEHIND GUARDRAIL WHEN PRESENT.



SITUATION 1

WARRANTING CRITERIA:

BRIDGE WIDTH IS AT LEAST 18 FEET BUT LESS THAN 24 FEET

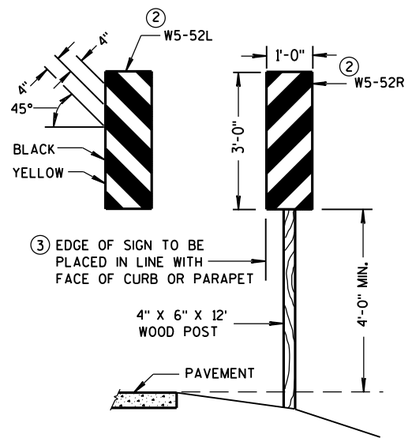


*OMIT ON ONE-WAY TRAVELLED WAYS

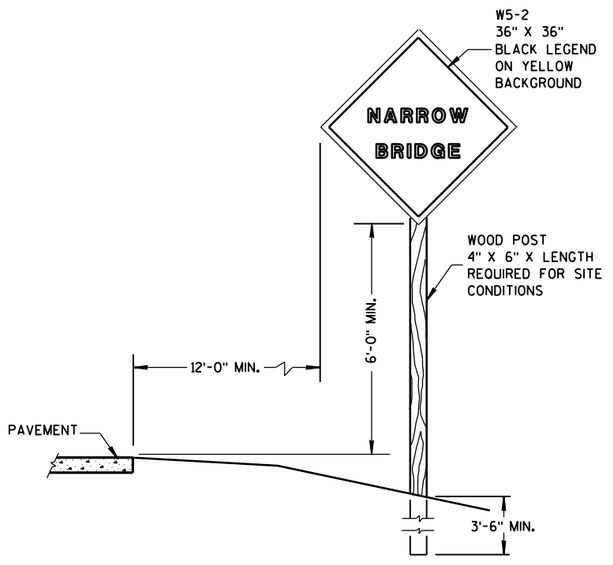
SITUATION 2

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

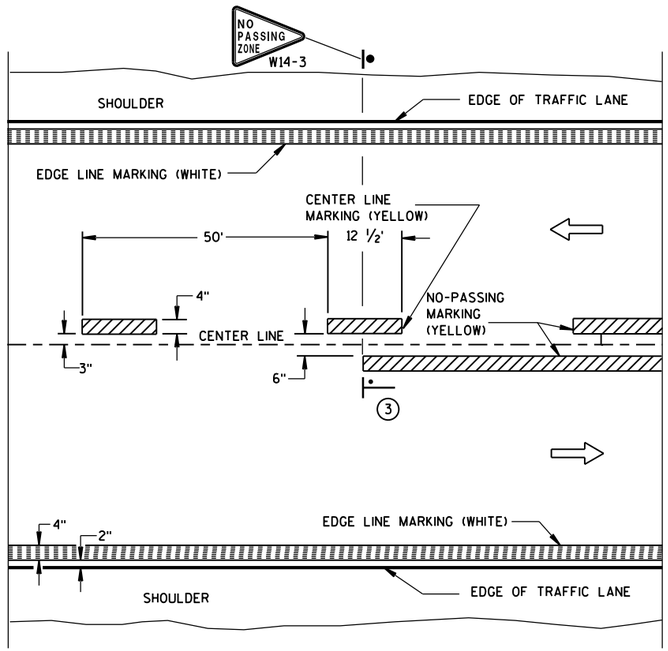
3/4/2013 — DATE

/S/ Travis Feltes — STATE TRAFFIC ENGINEER

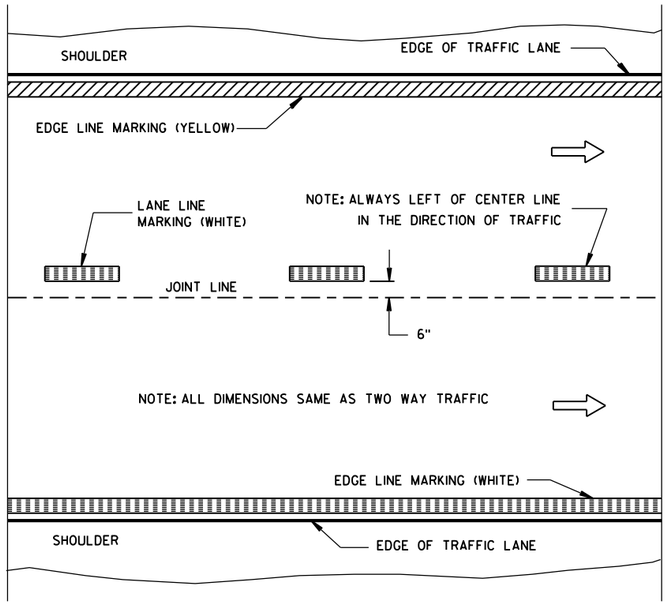
FHWA

6

S.D.D. 15 C 6-6

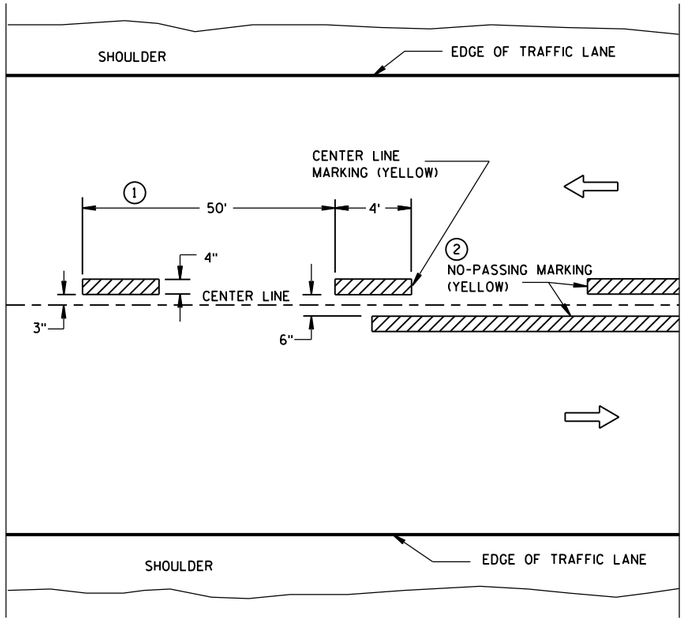


TWO WAY TRAFFIC

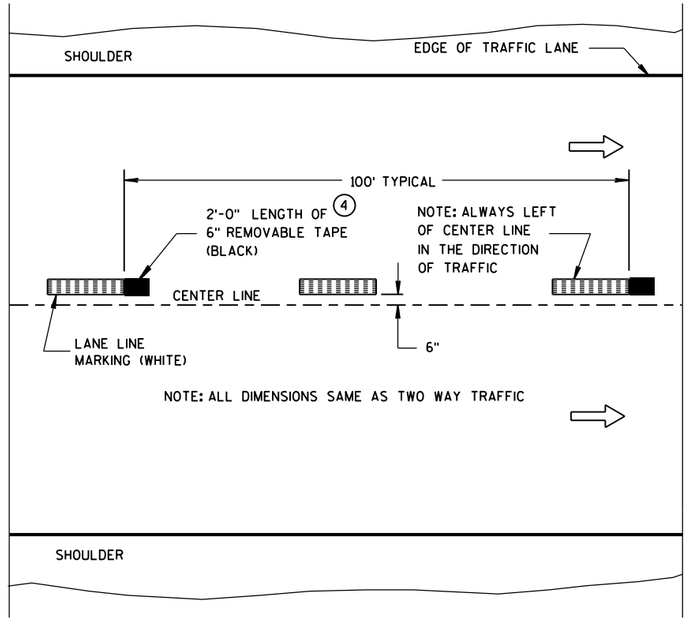


ONE WAY TRAFFIC

PERMANENT PAVEMENT MARKING



TWO WAY TRAFFIC



ONE WAY TRAFFIC

TEMPORARY (INTERMEDIATE) PAVEMENT MARKING

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

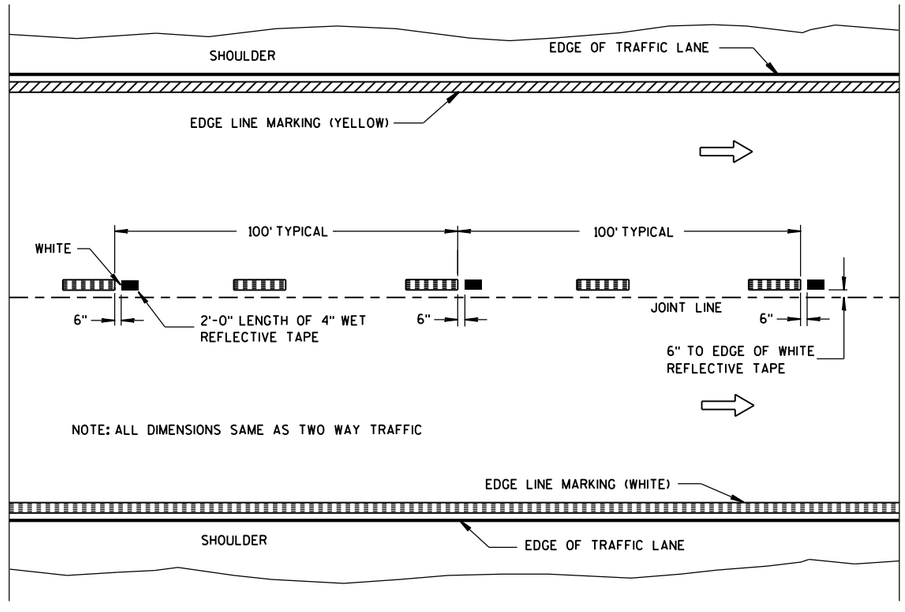
GENERAL NOTES

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

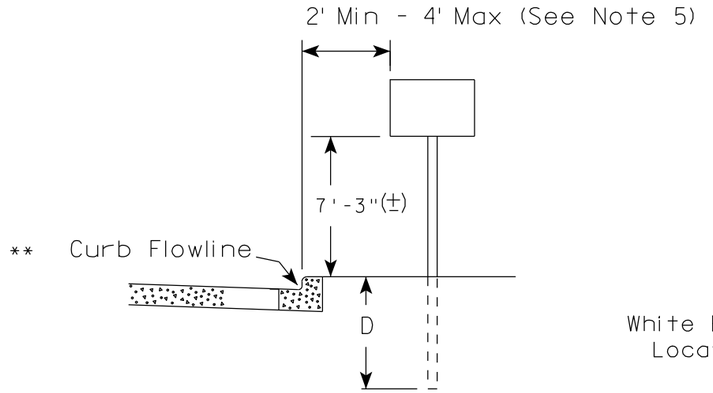
6

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

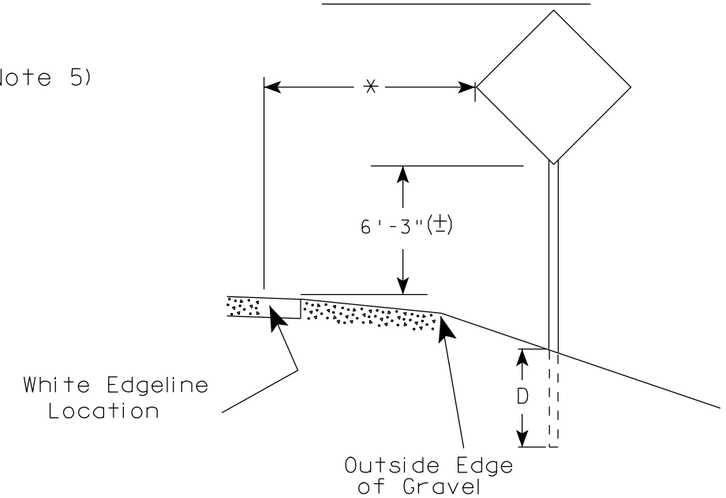
6

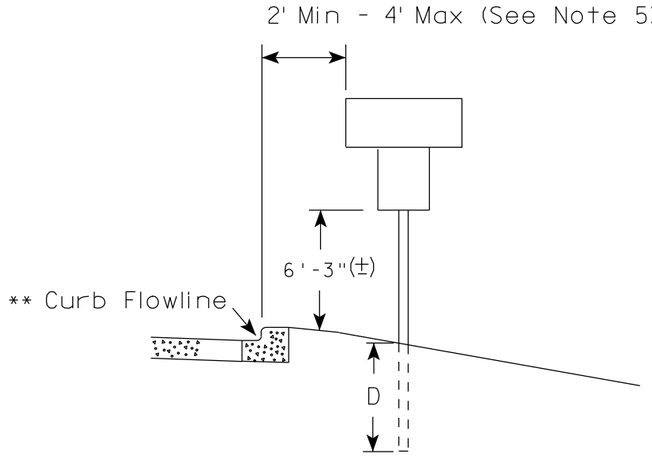
S.D.D. 15 C 8-16a

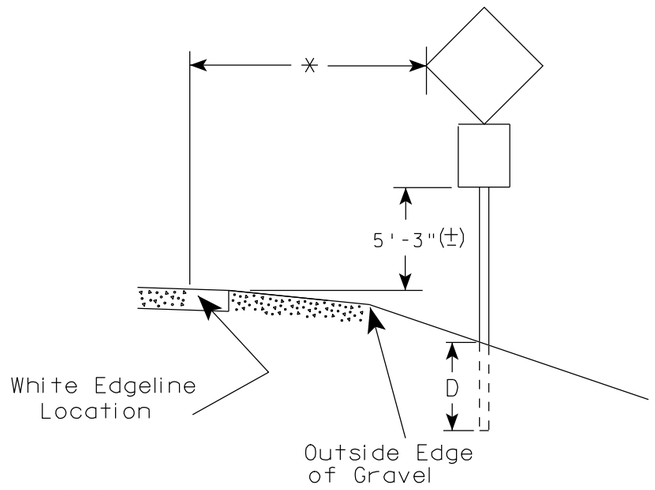
URBAN AREA



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 or larger than 20 sq. ft. 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), Clearance Markers (W5-52), Mile Markers (D10 series) & End of Road 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

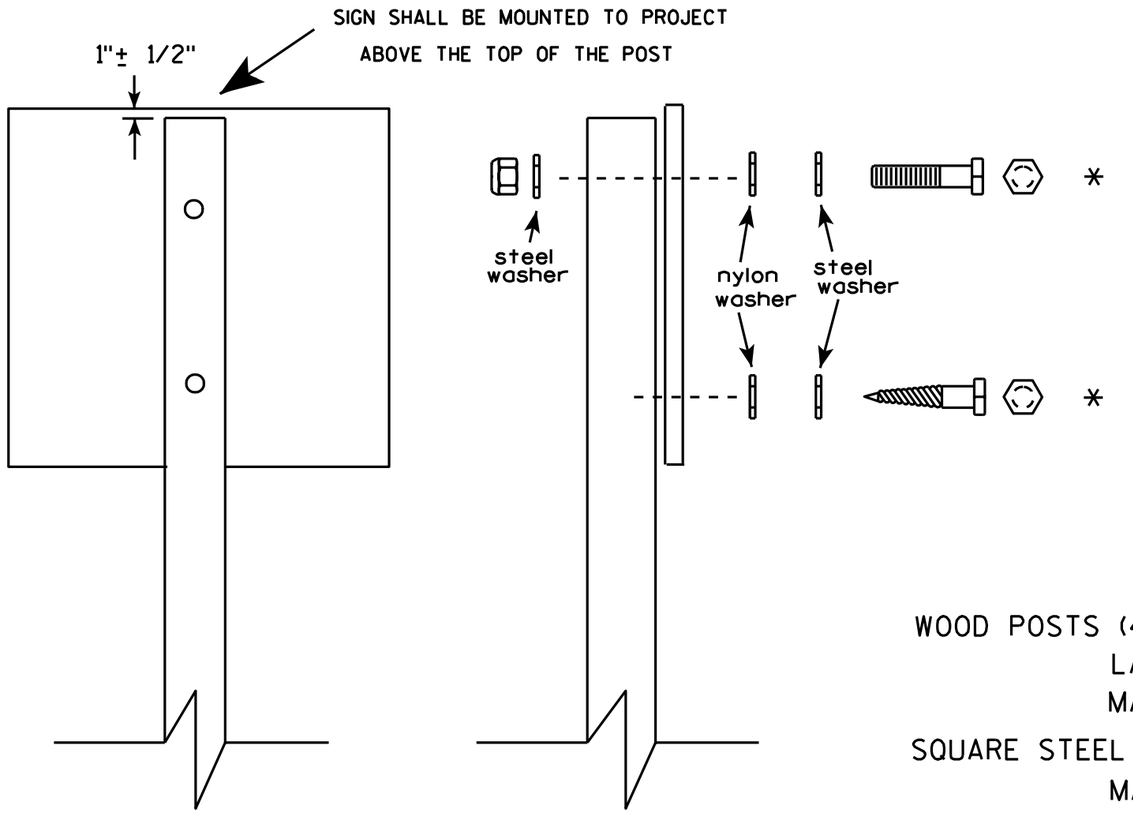
APPROVED Matthew R Rauch for State Traffic Engineer

DATE 9/21/2011 PLATE NO. A4-3.16

7

7

PROJECT NO:	HWY:	COUNTY:		SHEET NO: 54	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

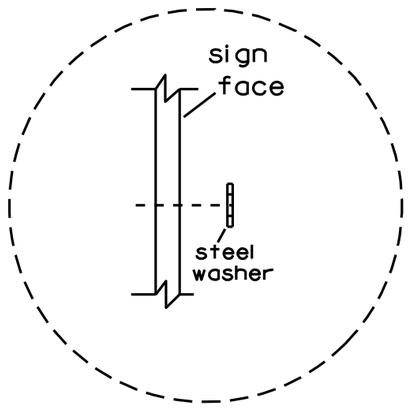
b. Electro-galvanized in accordance with ASTM Designation : B 633, TYPE III, SC 3.

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

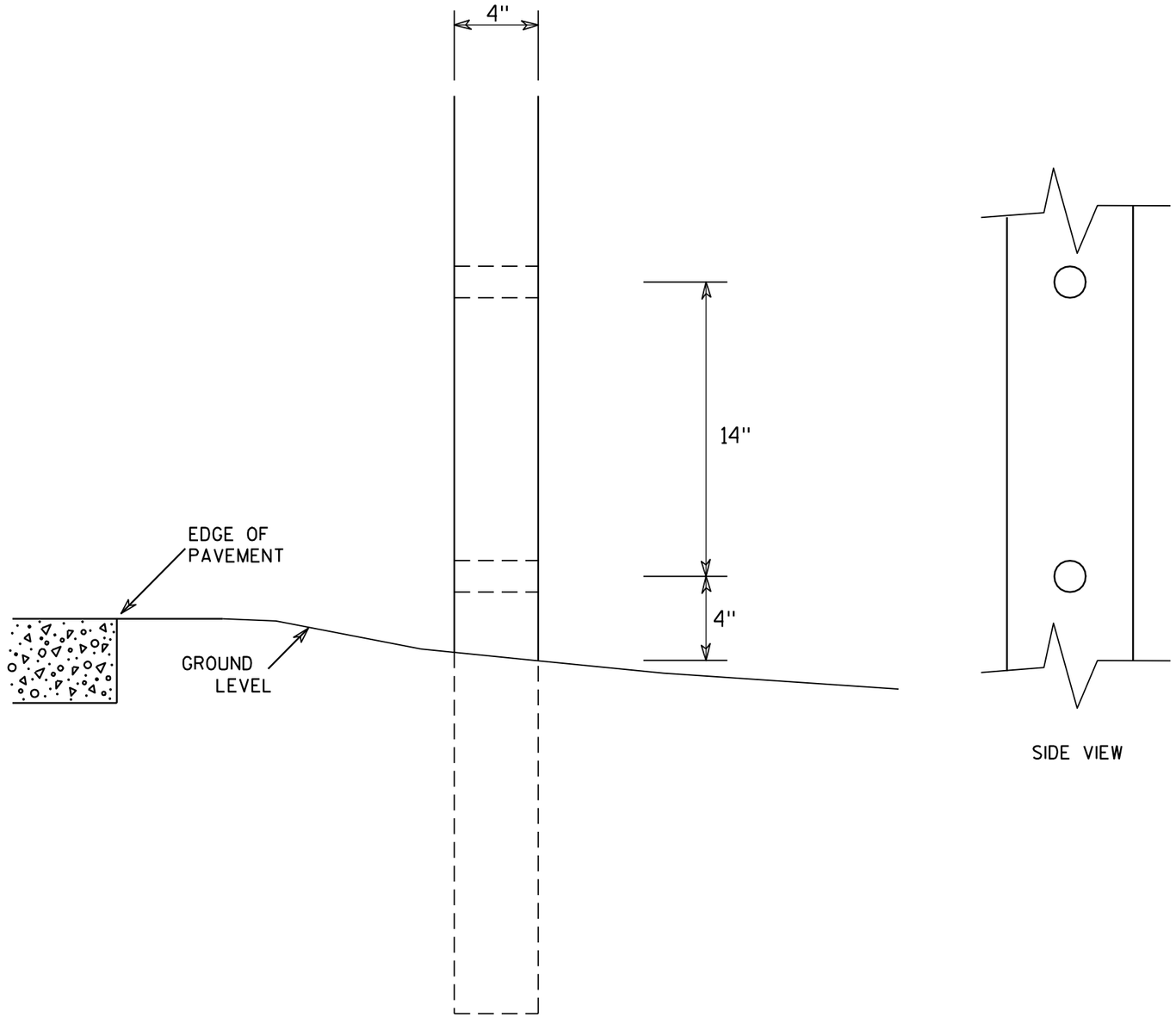
DATE 3/23/10 PLATE NO. A4-8.7

7

7

PROJECT NO:

SHEET NO: 55 E



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.

4 X 6 WOOD POST MODIFICATIONS

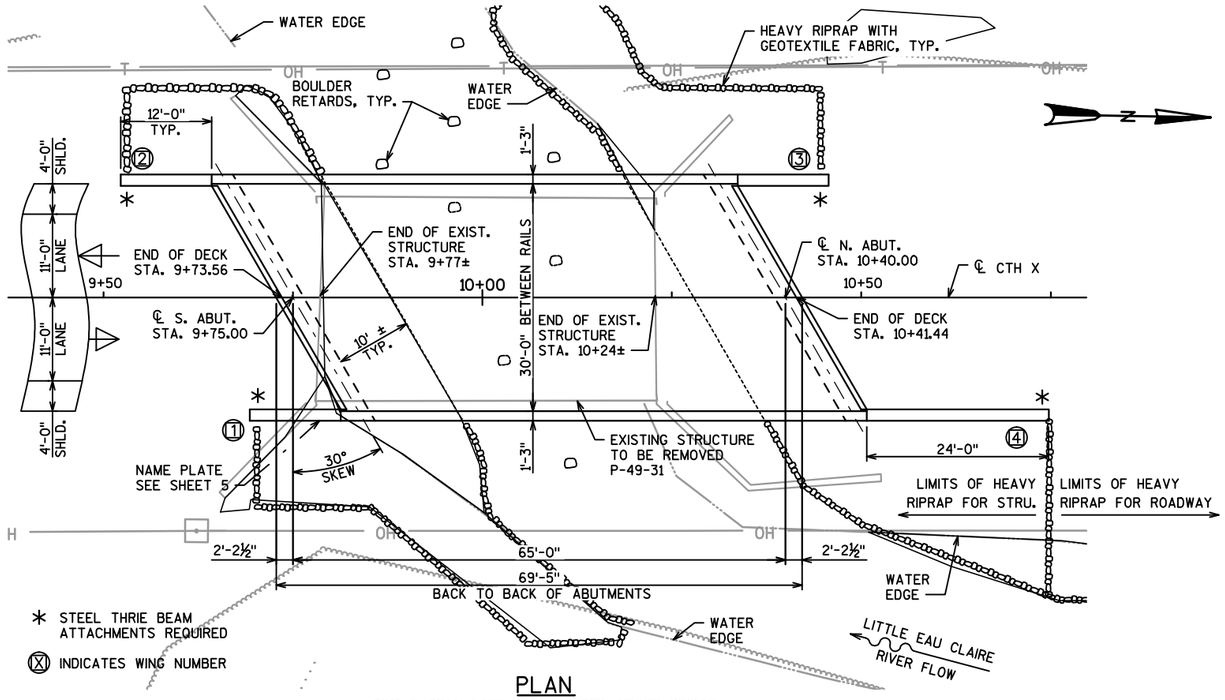
WISCONSIN DEPT OF TRANSPORTATION

APPROVED Chester J Spang for State Traffic Engineer

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

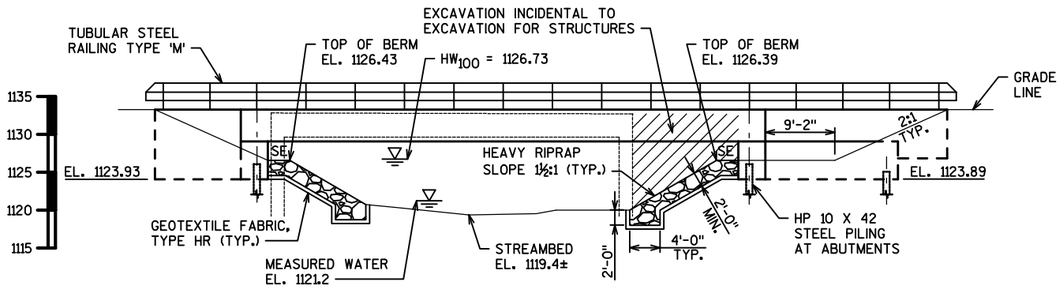
PROJECT NO:	HWY:	COUNTY:		SHEET NO: 56	E

STATE PROJECT NUMBER
6796-01-70

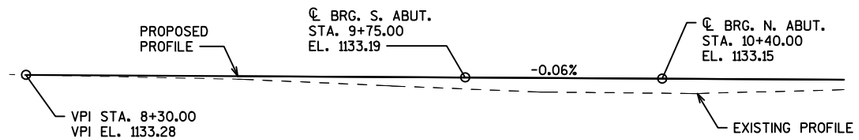


PLAN

SINGLE SPAN 36W" PRESTRESSED GIRDER BRIDGE



ELEVATION



PROFILE GRADE LINE

TRAFFIC DATA

ADT = 510 (2014)
= 650 (2034)
RDS = 55 M.P.H.

LIST OF DRAWINGS

1. GENERAL PLAN
2. CROSS SECTION & QUANTITIES
3. SUBSURFACE EXPLORATION
4. SOUTH ABUTMENT
5. SOUTH ABUTMENT DETAILS
6. NORTH ABUTMENT
7. NORTH ABUTMENT DETAILS
8. 36W" PRESTRESSED GIRDER DETAILS
9. STEEL DIAPHRAGMS
10. SUPERSTRUCTURE
11. SUPERSTRUCTURE DETAILS
12. RAILING TUBULAR TYPE 'M'

CONSULTANT CONTACT

KRISTOFER OLSON
OMNNI ASSOCIATES, INC.
(920) 735-6900

BRIDGE OFFICE CONTACT

WILLIAM DREHER
(608) 266-8489

DESIGN DATA

STRUCTURE IS DESIGNED FOR FUTURE WEARING SURFACE OF 20#/SQ. FT.

LIVE LOAD:

DESIGN LOADING	HL-93
INVENTORY RATING FACTOR	RF = 1.16
OPERATING RATING FACTOR	RF = 1.48
WISCONSIN STANDARD PERMIT VEHICLE (WIS-SPV)	250 KIPS

ULTIMATE DESIGN STRESSES:

CONCRETE MASONRY	
SUPERSTRUCTURE	f'c = 4,000 PSI
ALL OTHER	f'c = 3,500 PSI
HIGH STRENGTH BAR STEEL REINFORCEMENT, GRADE 60	fy = 60,000 PSI
36W" PRESTRESSED GIRDERS	
CONCRETE MASONRY	f'c = 8,000 PSI
STRANDS, 0.6" ULTIMATE TENSILE STRENGTH	fy = 270,000 PSI

FOUNDATION DATA

ABUTMENTS TO BE SUPPORTED ON HP 10 X 42 STEEL PILING. PILING AT SOUTH ABUTMENT SHALL BE PREBORED A MINIMUM OF 3' INTO SOLID ROCK. SHAFTS SHALL BE CASED AND HAVE A DIAMETER OF AT LEAST 18-INCHES. AFTER PILES HAVE BEEN FIRMLY SEATED, FILL THE SHAFT WITH CEMENT GROUT. PILING AT NORTH ABUTMENT SHALL BE FITTED WITH PILE POINTS AND DRIVEN TO A REQUIRED DRIVING RESISTANCE OF 180 TONS** PER PILE. ESTIMATED LENGTH = 14' AT THE SOUTH ABUTMENT AND 18' AT THE NORTH ABUTMENT.

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

HYDRAULIC DATA

Q_{100}	1,250	C.F.S.
VELOCITY	5.15	F.P.S.
HIGH WATER	1126.63	(100 YEAR)
HIGH WATER	1123.57	(2 YEAR)
WATERWAY AREA	242.62	S.F.
DRAINAGE AREA	48.8	SQ. MILES

OVERTOPPING FREQUENCY = N/A
SCOUR CRITICAL CODE = 8

12/4/2013

NO.	DATE	REVISION	BY

ORIGINAL PLANS PREPARED BY
OMNNI ASSOCIATES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

ACCEPTED William C. Dreher KAR — CHIEF STRUCTURES DESIGN ENGINEER — 12/20/13 DATE

STRUCTURE B-49-174

CTH X OVER LITTLE EAU CLAIRE RIVER

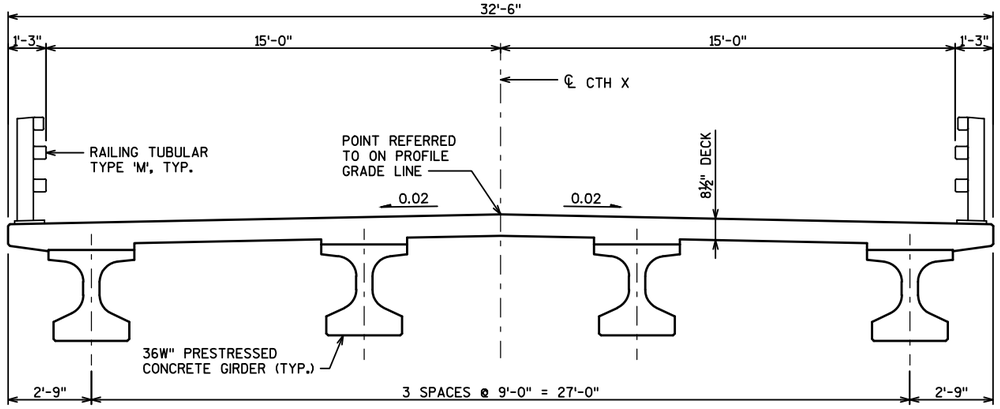
COUNTY: PORTAGE		TOWN: DEWEY	
DESIGN SPEC.: AASHTO LRFD BRIDGE DESIGN SPECIFICATION			LOAD: HL-93
DESIGNED BY: BRE	DESIGN CK'D.: KRO	DRAWN BY: BRE	PLANS CK'D.: KRO

GENERAL PLAN

SHEET 1 of 12

42

STATE PROJECT NUMBER
6796-01-70



CROSS SECTION THRU ROADWAY

GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.

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

BENDING DIMENSIONS FOR REINFORCING BARS ARE OUT TO OUT.

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 TO THE EXTENT SHOWN ON SHEET 1 AND IN THE ABUTMENT DETAILS.

THIS BRIDGE WILL REPLACE THE EXISTING STEEL GIRDER BRIDGE SUPPORTED ON CONCRETE RETAINING ABUTMENTS. THE STRUCTURE WAS BUILT IN 1934.

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

AT THE BACKFACE OF ABUTMENTS, ALL EXCAVATED VOLUME NOT OCCUPIED BY THE NEW STRUCTURE SHALL BE BACKFILLED WITH STRUCTURE BACKFILL.

THE EXISTING GROUND LINE SHALL BE USED AS THE UPPER LIMITS OF EXCAVATION.

THE HAUNCH CONCRETE QUANTITY IS BASED ON THE AVERAGE HAUNCH SHOWN ON THE SUPERSTRUCTURE SHEET, WHICH IS THE MAXIMUM HAUNCH QUANTITY FOR WHICH THE CONTRACTOR WILL BE PAID.

PROTECTIVE SURFACE TREATMENT SHALL BE APPLIED TO THE ENTIRE TOP, SIDES, AND 1'-0" OF THE UNDERSIDE OF THE DECK.

ALL VOIDS BETWEEN HEAVY RIPRAP FROM THE OBSERVED WATER SURFACE ELEVATION TO 2 FEET ABOVE OBSERVED WATER SHALL BE FILLED USING 1 TO 3 INCH STONE, INCIDENTAL TO HEAVY RIPRAP, IN ACCORDANCE WITH THE SPECIAL PROVISION.

BENCH MARKS (NAVD 88)

NO.	STATION	DESCRIPTION	ELEV.
BM1	8+20, 31.5' RT	60D SPIKE IN PP* 20297 30T, SE CORNER OF CTH X AND BIRCH DRIVE	1132.45
BM2	12+39, 31' RT	60D SPIKE IN PP* 22501 20T, 1ST POLE NORTH OF CL OF BRIDGE ℄ EAST R/W OF CTH X	1130.10
BM3	18+21	CHISEL SQUARE ON TOP REINF. CONC. PIPE, 820'± NORTH OF BRIDGE, EAST OF CTH X	1129.87

TOTAL ESTIMATED QUANTITIES

ITEM NUMBER	BID ITEM	UNIT	SUPER.	SOUTH ABUT.	NORTH ABUT.	TOTAL
203.0600.S	REMOVING OLD STRUCTURE OVER WATERWAY WITH MINIMAL DEBRIS (STA 10+00)	LS	-----	-----	-----	1
206.1000	EXCAVATION FOR STRUCTURES BRIDGES (B-49-174)	LS	-----	-----	-----	1
210.0100	BACKFILL STRUCTURE	CY	-----	120	160	280
502.0100	CONCRETE MASONRY BRIDGES	CY	91	42	49	182
502.3200	PROTECTIVE SURFACE TREATMENT	SY	270	-----	-----	270
503.0137	PRESTRESSED GIRDER TYPE I 36W-INCH	LF	264	-----	-----	264
505.0405	BAR STEEL REINFORCEMENT HS BRIDGES	LB	-----	2,280	3,150	5,430
505.0605	BAR STEEL REINFORCEMENT HS COATED BRIDGES	LB	15,310	1,840	2,340	19,490
506.2605	BEARING PADS ELASTOMERIC NON-LAMINATED	EACH	8	-----	-----	8
506.4000	STEEL DIAPHRAGMS (B-49-174)	EACH	3	-----	-----	3
513.4060	RAILING TUBULAR TYPE M (B-49-174)	LS	-----	-----	-----	1
516.0500	RUBBERIZED MEMBRANE WATERPROOFING	SY	-----	11	12	23
550.0020	PRE-BORING ROCK OR CONSOLIDATED MATERIALS	LF	-----	72	-----	72
550.0500	PILE POINTS	EACH	-----	-----	8	8
550.1100	PILING STEEL HP 10-INCH X 42 LB	LF	-----	84	142	226
606.0300	RIPRAP HEAVY	CY	-----	120	130	250
612.0206	PIPE UNDERDRAIN UNPERFORATED 6-INCH	LF	-----	15	15	30
612.0406	PIPE UNDERDRAIN WRAPPED 6-INCH	LF	-----	55	60	115
645.0120	GEOTEXTILE FABRIC TYPE HR	SY	-----	170	190	360
SPV.0060.01	BOULDER RETARDS	EACH	-----	-----	-----	8
	NON-BID ITEMS					
	FILLER	SIZE				1/2" & 3/4"

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-49-174

DRAWN BY BRE | PLANS CK'D. KRO

CROSS SECTION & QUANTITIES

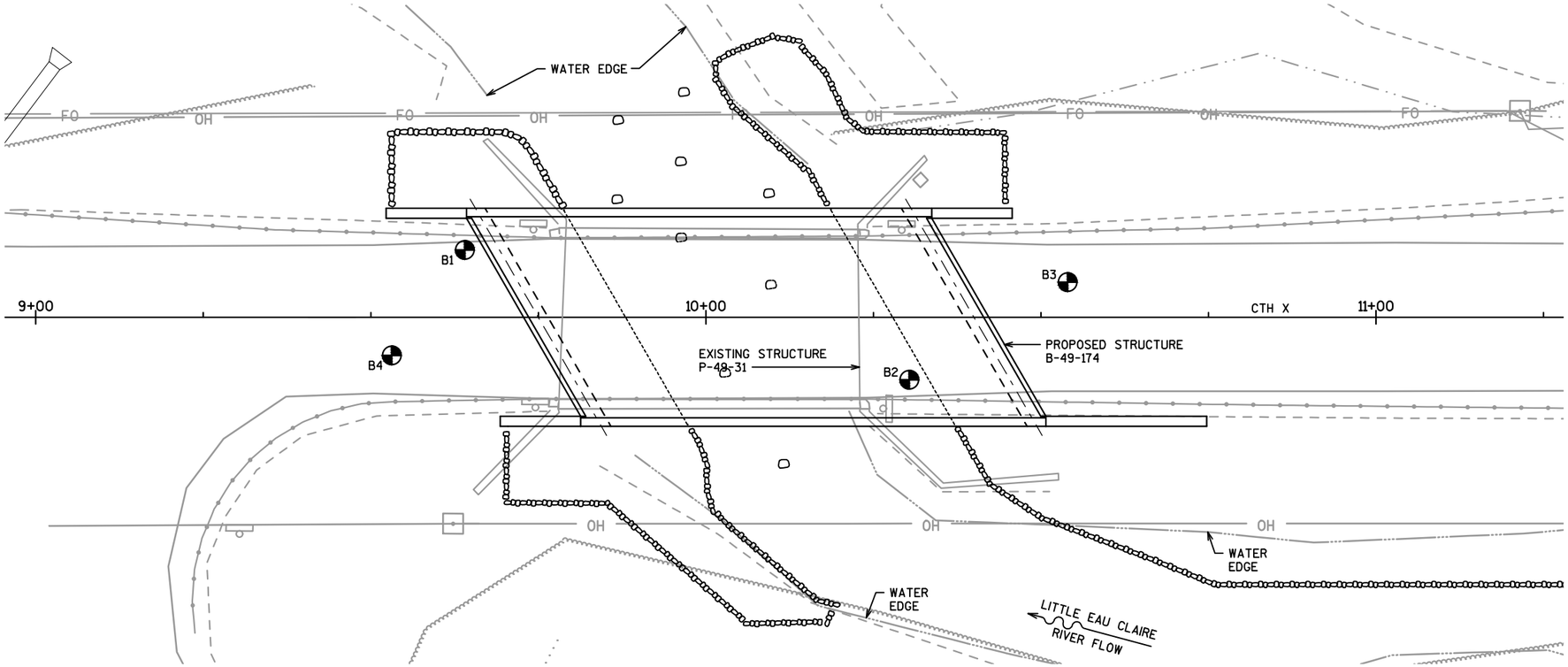
SHEET 2 of 12

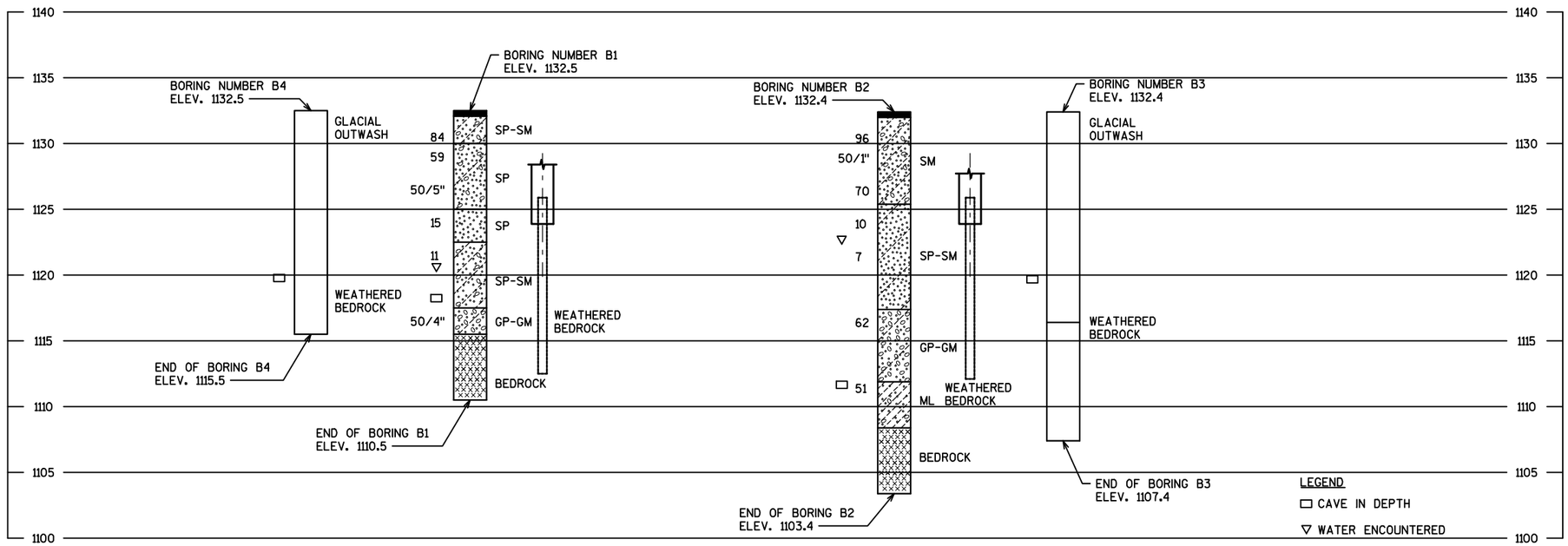
43

8

FILE NAME : F:\TR\JOBS\E2063A12\SHEETS\BRIDGE\B-49-174.DWG PLOT DATE : 11/27/2013 10:58 AM PLOT BY : OMNNI ASSOCIATES, INC - BRIAN EPLEY

STATE PROJECT NUMBER
6796-01-70





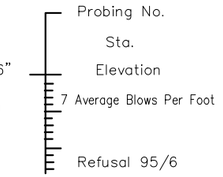
ABBREVIATIONS

F—Fine M—Medium C—Coarse
Ws—Weathered So—Sound

MATERIAL SYMBOLS

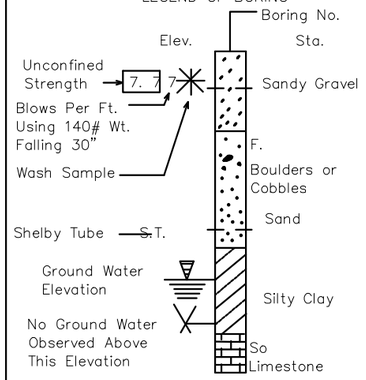
Topsoil, Silt, Sandstone, Sand, Peat, Limestone, Gravel, Clay, Igneous Rock

LEGEND OF PROBING



95/6=95 Blows for 6" Penetration
Probing taken with a 350#wt.
Falling 18" on a 2" O.D. Point.

LEGEND OF BORING



Unless otherwise specified, the blows per foot at the locations indicated are based on driving a O.D.x1. 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 Division of Highways 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-49-174

DRAWN BY BRE PLANS CK'D. KRO

SUBSURFACE EXPLORATION

SHEET 3 of 12

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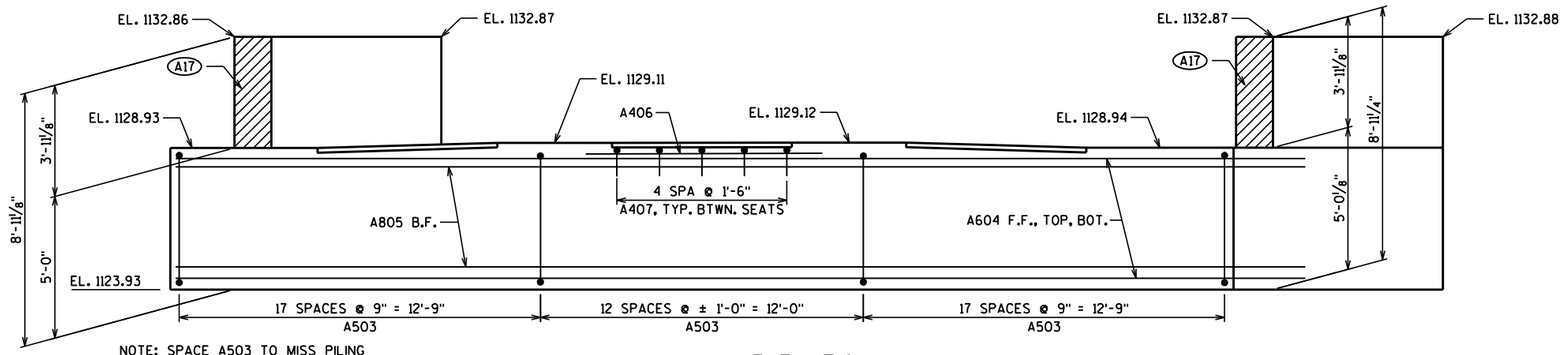
8

8

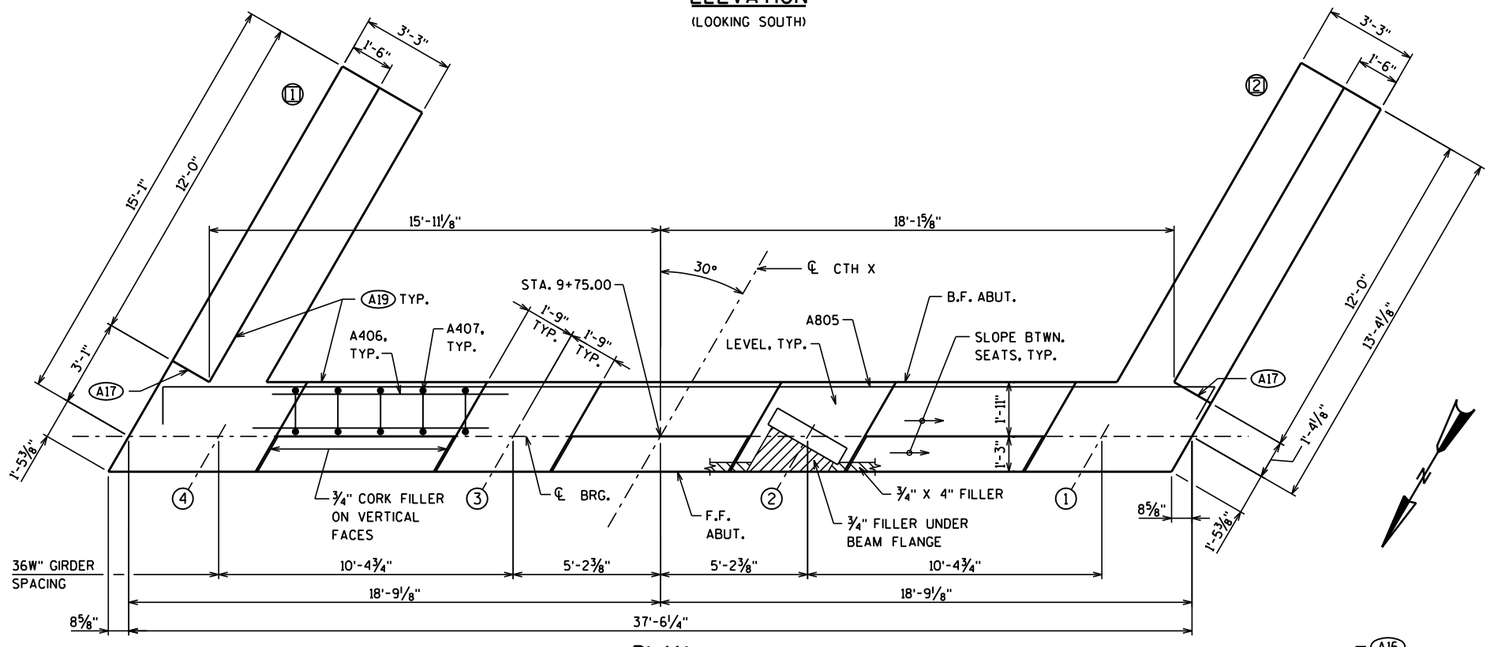
STATE PROJECT NUMBER
6796-01-70



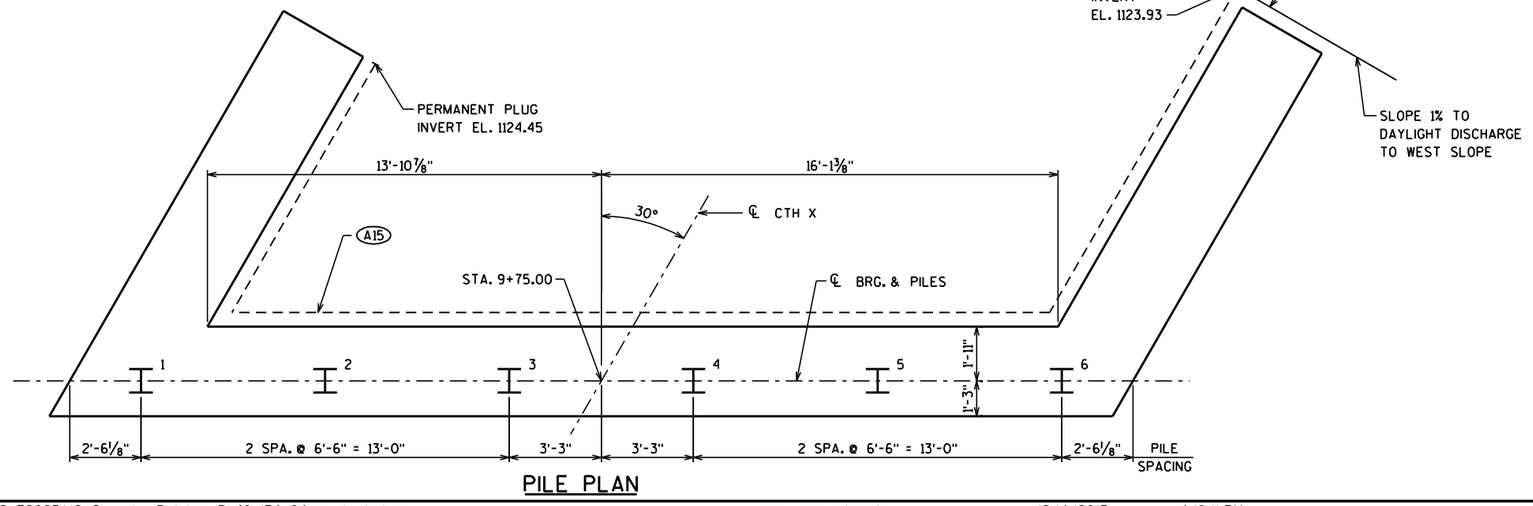
NOTE: SPACE A503 TO MISS PILING

ELEVATION

(LOOKING SOUTH)



PLAN



PILE PLAN

LEGEND

(A15) PIPE UNDERDRAIN WRAPPED 6-INCH. SLOPE 0.5% MIN. TO WEST SLOPES.

(A16) PIPE UNDERDRAIN, UNPERFORATED 6-INCH TO SUITABLE DRAINAGE. ATTACH RODENT SHIELD AT ENDS OF PIPE UNDERDRAIN.

(A17) ½" FILLER 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.)

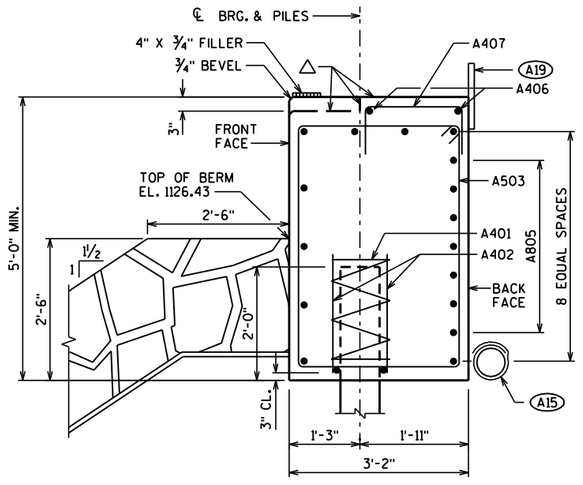
(A19) 18" RUBBERIZED MEMBRANE WATERPROOFING. SEAL ALL HORIZONTAL AND VERTICAL JOINTS ON BACKFACE.

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

ABUTMENTS TO BE SUPPORTED ON HP 10 X 42 STEEL PILING. PILING AT SOUTH ABUTMENT SHALL BE PREBORED A MINIMUM OF 3' INTO SOLID ROCK. SHAFTS SHALL BE CASED AND HAVE A DIAMETER OF AT LEAST 18-INCHES. AFTER PILES HAVE BEEN FIRMLY SEATED, FILL THE SHAFT WITH CEMENT GROUT. ESTIMATED LENGTH = 14' AT THE SOUTH ABUTMENT.

SEE SHEET 5 FOR WINGWALL DETAILS, BILL OF BARS AND BAR BENDING DIAGRAMS.

(X) DENOTES WING NUMBER.



SECTION THRU BODY

HORIZ. BARS NOT OTHERWISE IDENTIFIED ARE A604 BARS

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-49-174

DRAWN BY BRE | PLANS CK'D. KRO

SOUTH ABUTMENT

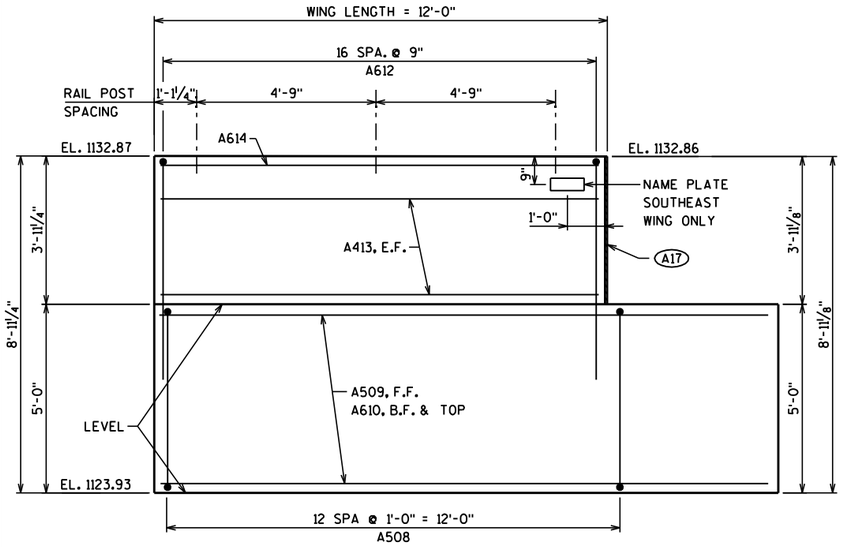
SHEET 4 OF 12

45

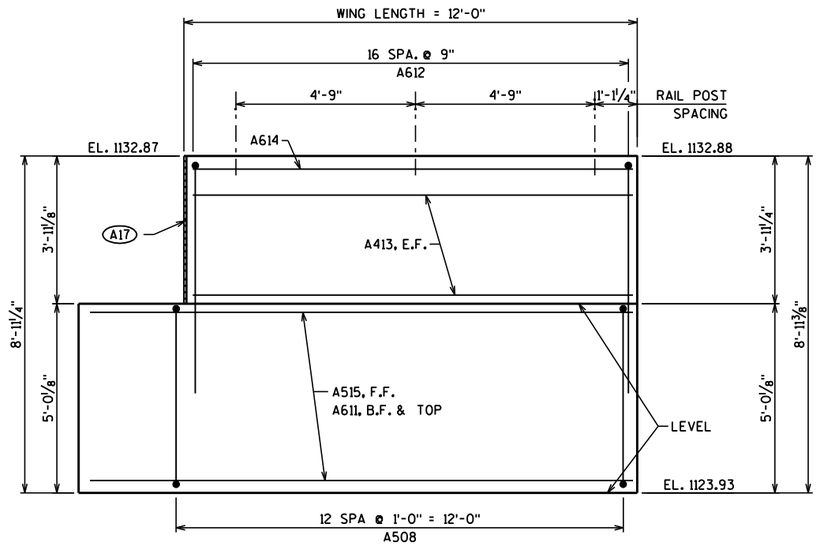
8

8

STATE PROJECT NUMBER
6796-01-70



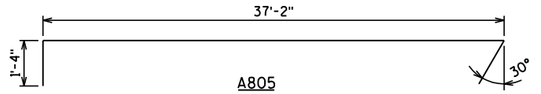
WING 1 ELEVATION

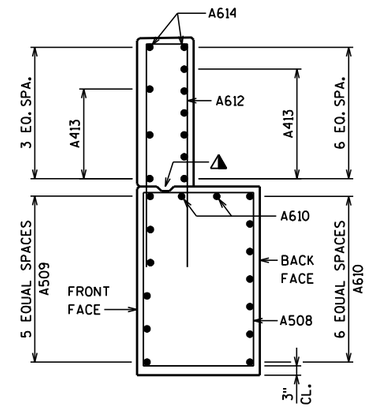


WING 2 ELEVATION

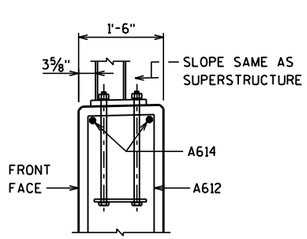
BILL OF BARS

BAR MARK	COAT	NO. REQ'D.	LENGTH	BENT	LOCATION
A401		6	28'-0"	X	BODY - ONE PER PILE
A402		12	2'-3"		BODY - TWO PER PILE
A503		47	14'-11"	X	BODY - STIRRUPS
A604		11	37'-1"		BODY - HORIZONTAL
A805		7	39'-5"	X	BODY - HORIZONTAL B.F.
A406		6	8'-5"		BODY - HORIZONTAL TOP
A407		15	3'-11"	X	BODY - VERTICAL, TOP
A508	X	26	15'-7"	X	WINGS - STIRRUPS
A509	X	6	16'-1"		WING 1 - HORIZONTAL, F.F.
A610	X	9	12'-11"		WING 1 - HORIZONTAL, B.F. & TOP
A611	X	9	14'-10"		WING 2 - HORIZONTAL, B.F. & TOP
A612	X	34	12'-6"	X	WINGS - VERTICAL
A413	X	18	11'-7"		WINGS - HORIZONTAL
A614	X	4	11'-7"		WINGS - HORIZONTAL, TOP
A515	X	6	14'-6"		WING 2 - HORIZONTAL, F.F.

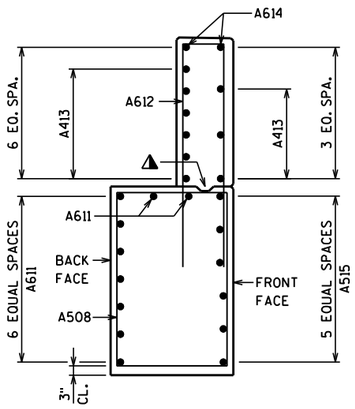




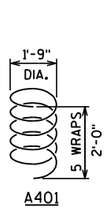
WING 1 SECTION

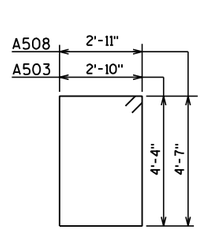


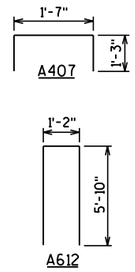
TYPE 'M' RAIL AT TOP OF WING



WING 2 SECTION





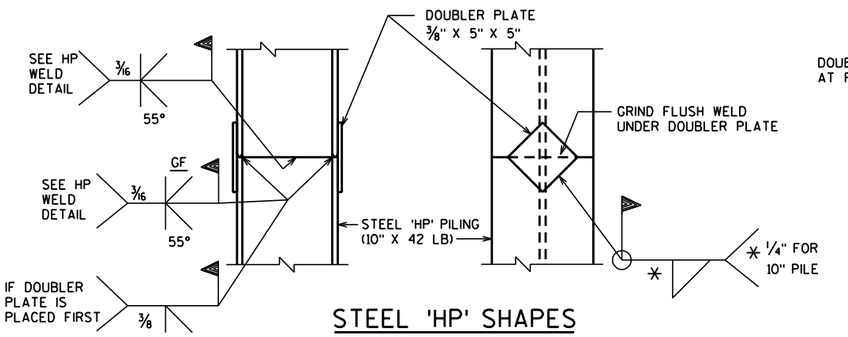


BAR BENDING DIAGRAMS

NOTES:

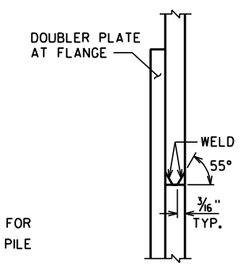
⚠ OPTIONAL CONST. JOINT: KEYWAY FORMED BY BEVELED 2" X 6". (18" R.M.W. @ B.F. & ¾" "V" GROOVE @ F.F. IF JOINT IS USED.)

(A17) ½" FILLER, SEALER (EXTEND TO TOP OF WING)



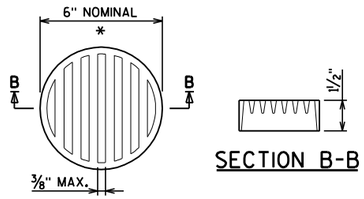
STEEL 'HP' SHAPES

STEEL 'HP' PILE MATERIAL SHALL BE A.S.T.M. DESIGNATION A36.



HP WELD DETAIL

FLANGE SHOWN, WEB SIMILAR



SECTION B-B

RODENT SCREEN DETAIL

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

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

THE RODENT SCREEN 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 SCREEN TO THE EXPOSED END OF THE PIPE UNDERDRAIN. THE SCREEN SHALL BE FASTENED TO THE PIPE COUPLING WITH TWO OR MORE NO. 10 X 1-INCH SHEET METAL SCREWS.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-49-174

DRAWN BY BRE | PLANS CK'D. KRO

SOUTH ABUTMENT DETAILS

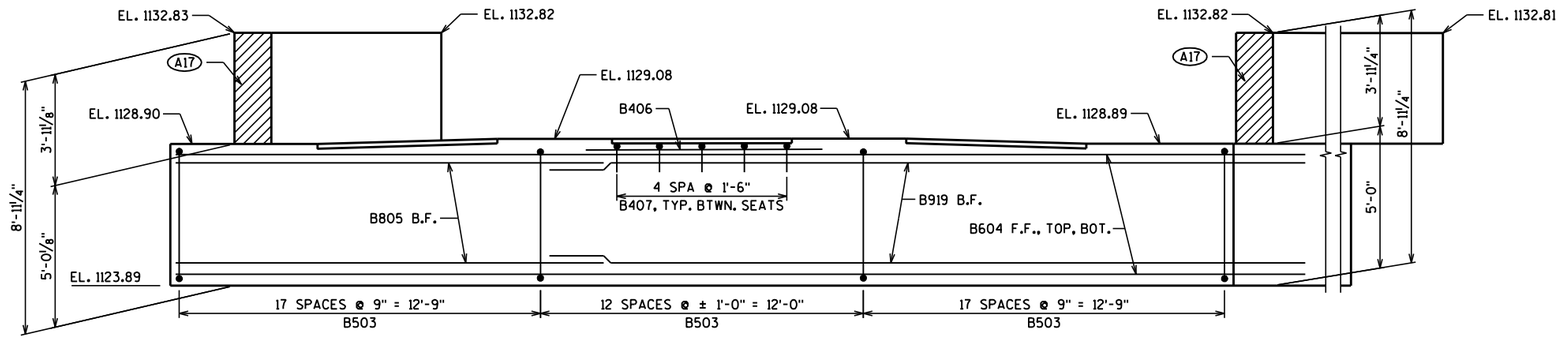
SHEET 5 OF 12

46

8

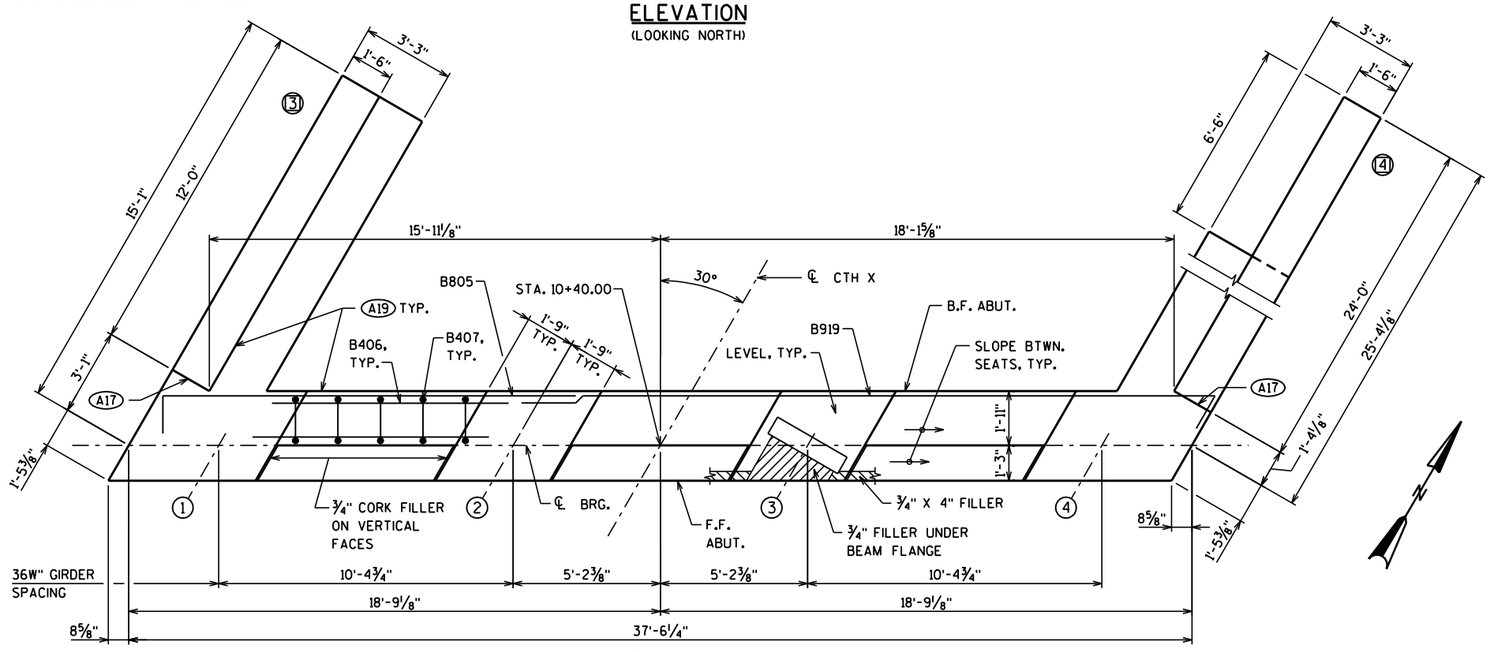
8

STATE PROJECT NUMBER
6796-01-70

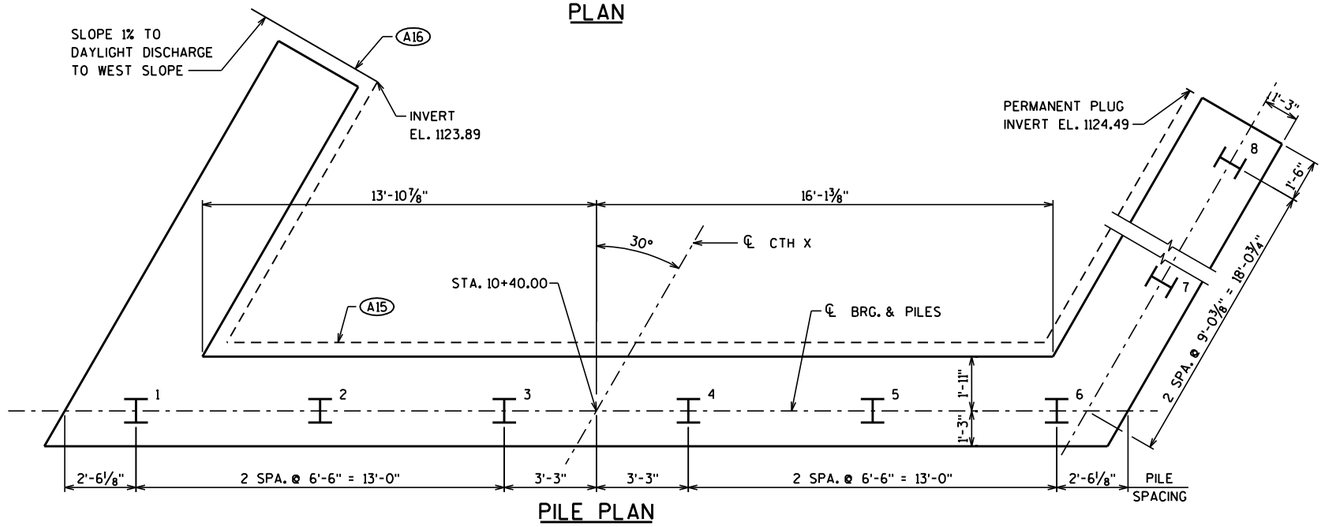


NOTE: SPACE B503 TO MISS PILING

ELEVATION
(LOOKING NORTH)



PLAN



PILE PLAN

LEGEND

(A15) PIPE UNDERDRAIN WRAPPED 6-INCH. SLOPE 0.5% MIN. TO WEST SLOPES.

(A16) PIPE UNDERDRAIN, UNPERFORATED 6-INCH TO SUITABLE DRAINAGE. ATTACH RODENT SHIELD AT ENDS OF PIPE UNDERDRAIN.

(A17) ½" FILLER 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.)

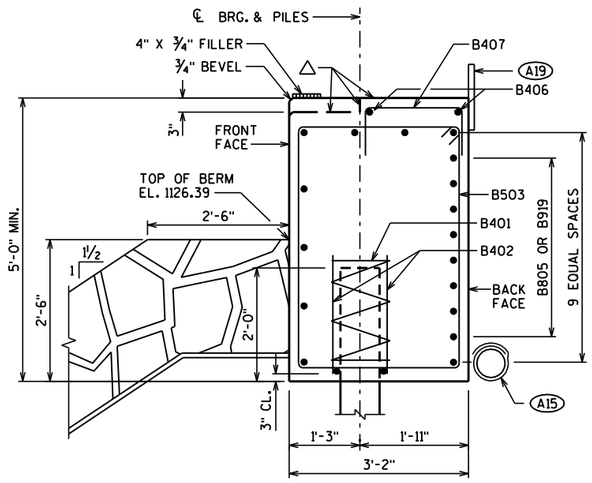
(A19) 18" RUBBERIZED MEMBRANE WATERPROOFING. SEAL ALL HORIZONTAL AND VERTICAL JOINTS ON BACKFACE.

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

ABUTMENTS TO BE SUPPORTED ON HP 10 X 42 STEEL PILING. PILING AT NORTH ABUTMENT SHALL BE FITTED WITH PILE POINTS AND DRIVEN TO A REQUIRED DRIVING RESISTANCE OF 180 TONS PER PILE. ESTIMATED LENGTH = 18' AT THE NORTH ABUTMENT.

SEE SHEET 7 FOR WINGWALL DETAILS, BILL OF BARS AND BAR BENDING DIAGRAMS.

(X) DENOTES WING NUMBER.



SECTION THRU BODY

HORIZ. BARS NOT OTHERWISE IDENTIFIED ARE B604 BARS

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-49-174

DRAWN BY BRE | PLANS CK'D. KRO

NORTH ABUTMENT

SHEET 6 OF 12

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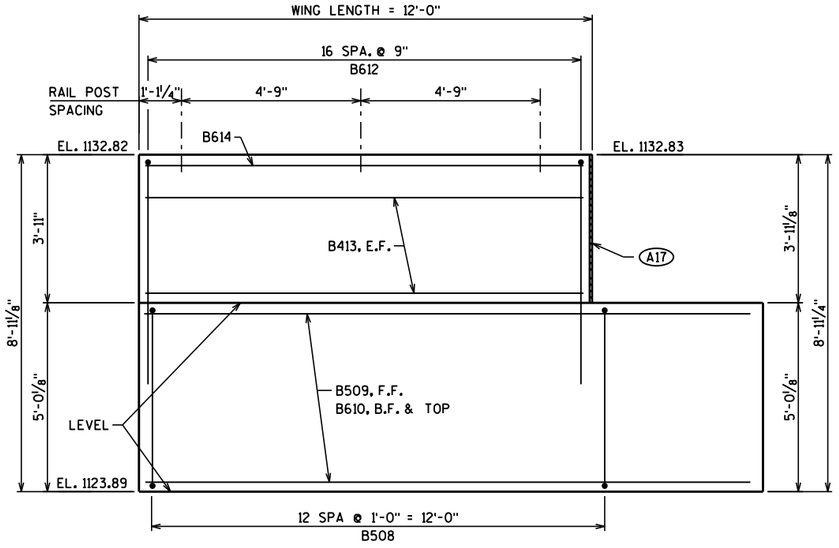
8

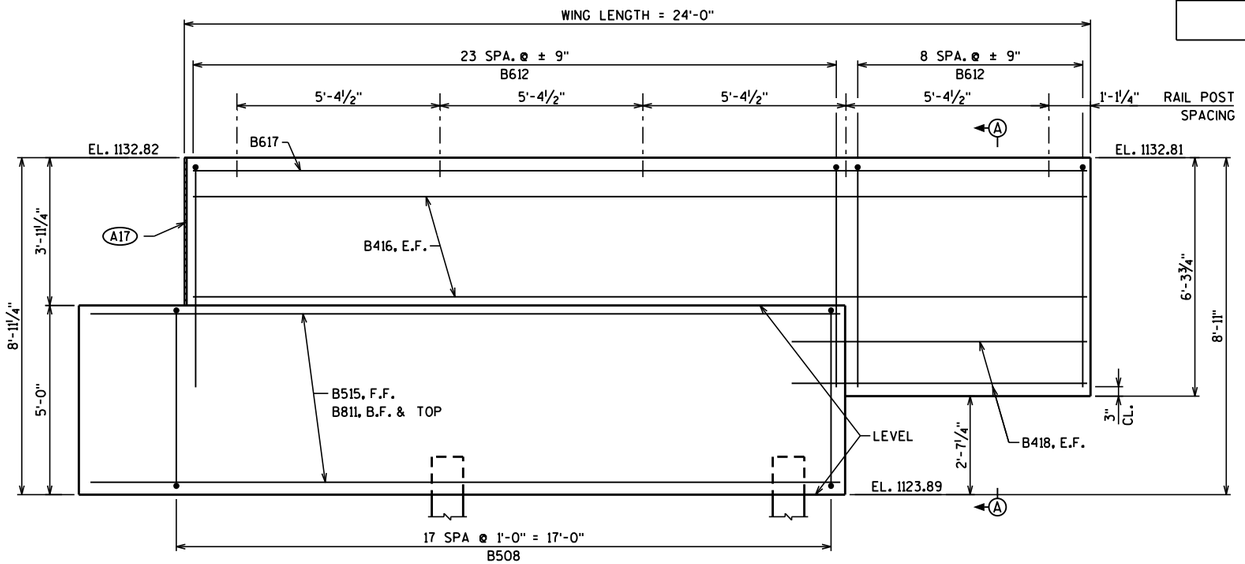
8

FILE NAME : F:±TR±JOBS±E2063A12±Sheets±Bridge±B-49-174 06 n abut.dgn PLOT BY : olsonk PLOT DATE: 12/4/2013 4:20:05 PM

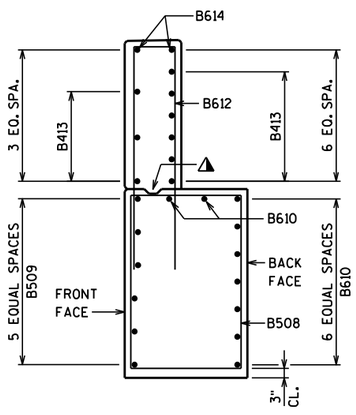
STATE PROJECT NUMBER
6796-01-70



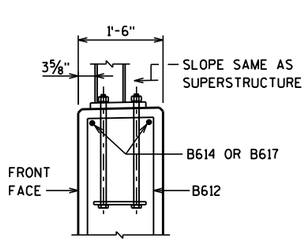
WING 3 ELEVATION



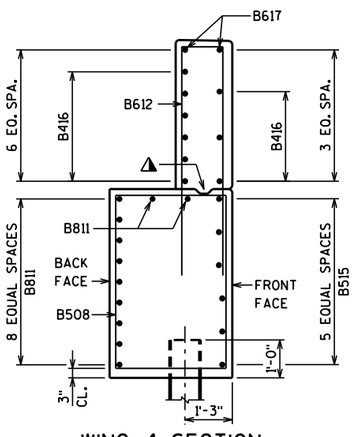
WING 4 ELEVATION



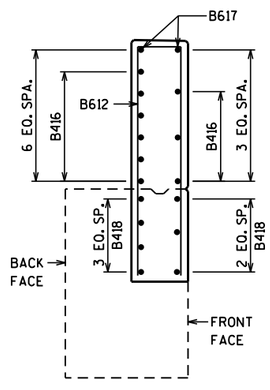
WING 3 SECTION



TYPE 'M' RAIL AT TOP OF WING



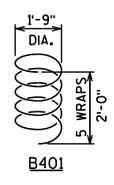
WING 4 SECTION

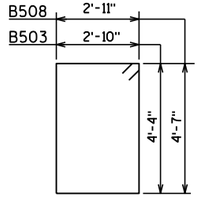


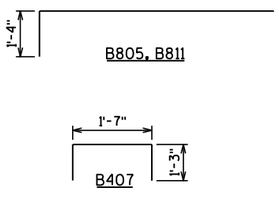
SECTION A-A

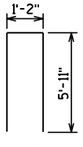
BILL OF BARS

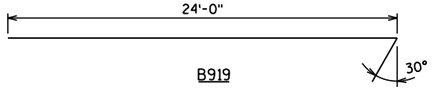
BAR MARK	COAT	NO. REQ'D.	LENGTH	BENT	LOCATION
B401		6	28'-0"	X	BODY - ONE PER PILE
B402		12	2'-3"		BODY - TWO PER PILE
B503		47	14'-11"	X	BODY - STIRRUPS
B604		11	37'-1"		BODY - HORIZONTAL
B805		8	19'-5"	X	BODY - HORIZONTAL B.F.
B406		6	8'-5"		BODY - HORIZONTAL TOP
B407		15	3'-11"	X	BODY - VERTICAL, TOP
B508		31	15'-7"	X	WINGS - STIRRUPS
B509	X	6	16'-1"		WING 3 - HORIZONTAL, F.F.
B610	X	9	12'-11"		WING 3 - HORIZONTAL, B.F. & TOP
B811	X	11	21'-6"	X	WING 4 - HORIZONTAL, B.F. & TOP
B612	X	50	12'-8"	X	WINGS - VERTICAL
B413	X	9	11'-7"		WING 3 - HORIZONTAL
B614	X	2	11'-7"		WING 3 - HORIZONTAL, TOP
B515	X	6	20'-0"		WING 4 - HORIZONTAL, F.F.
B416	X	9	23'-7"		WING 4 - HORIZONTAL
B617	X	2	23'-7"		WING 4 - HORIZONTAL, TOP
B418	X	7	7'-9"		WING 4 - HORIZONTAL
B919		8	25'-4"	X	BODY - HORIZONTAL B.F.











BAR BENDING DIAGRAMS

NOTES:

⚠ OPTIONAL CONST. JOINT: KEYWAY FORMED BY BEVELED 2" X 6". (18" R.M.W. @ B.F. & ¾" "V" GROOVE @ F.F. IF JOINT IS USED.)

(A17) ½" FILLER, SEALER (EXTEND TO TOP OF WING)

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-49-174

DRAWN BY BRE | PLANS CK'D. KRO

NORTH ABUTMENT DETAILS

SHEET 7 OF 12

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8

STATE PROJECT NUMBER
6796-01-70

GIRDER NOTES

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

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

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

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

ALL GIRDERS SHALL BE CAST FULL LENGTH AS SHOWN.

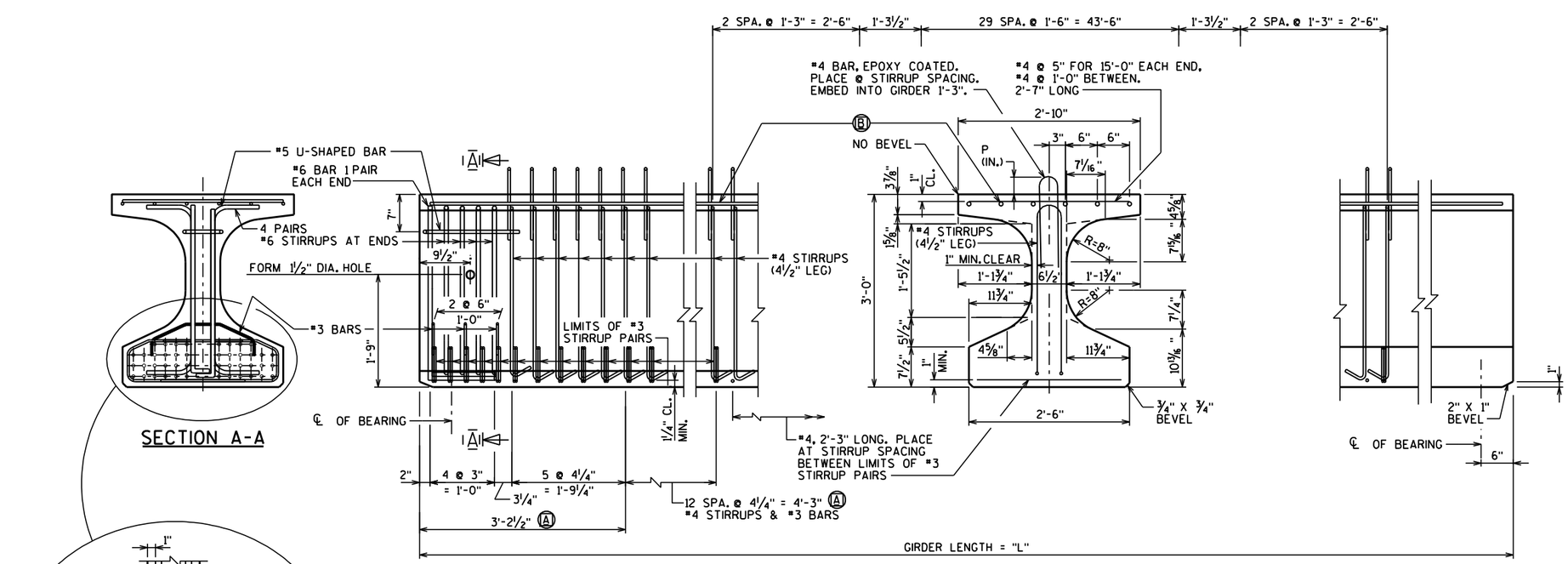
SPACING SHOWN FOR #4 STIRRUPS IS FOR GRADE 60 REINFORCEMENT. IF THE FABRICATOR WANTS TO BUILD A BAR STEEL CAGE BY WELDING LONGITUDINAL REINFORCEMENT TO THE #4 STIRRUPS, ONE OPTION IS AVAILABLE:

USE ASTM A706, GRADE 60 REINFORCEMENT AND THE STIRRUP SPACING AS SHOWN ON THE PLANS.

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

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

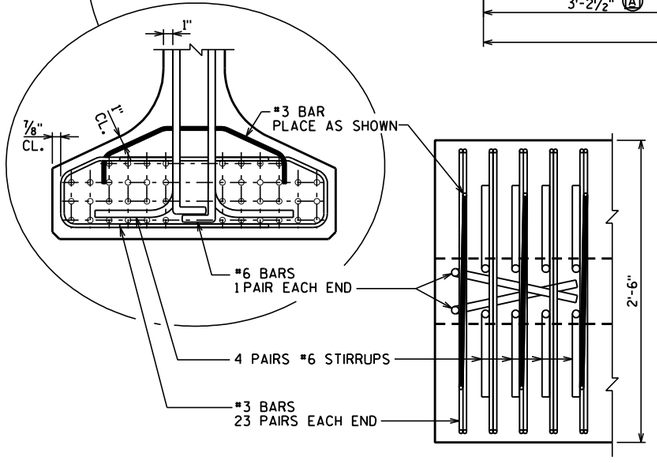
FOR DIAPHRAGM INSERT & CONNECTION DETAILS SEE "STEEL DIAPHRAGM" SHEET.



SIDE VIEW & TYP. SECTION IN SPAN

(A) DETAIL TYP. AT EACH END

(B) 6 #4 BARS, FULL LENGTH, MIN. LAP = 1'-11"

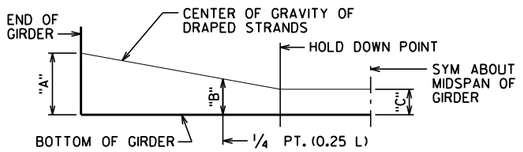


BOTTOM FLANGE

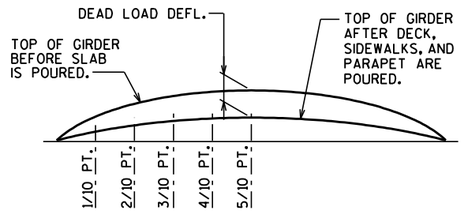
* THE THEORETICAL INITIAL CAMBER VALUE AT THE TIME OF STRAND RELEASE AT MIDSPAN MULTIPLIED BY A FACTOR OF 1.4 TO ACCOUNT FOR CAMBER GROWTH FROM THE TIME OF STRAND RELEASE TO JOBSITE PLACEMENT.

SPAN	CAMBER (IN.) *
1	1.16

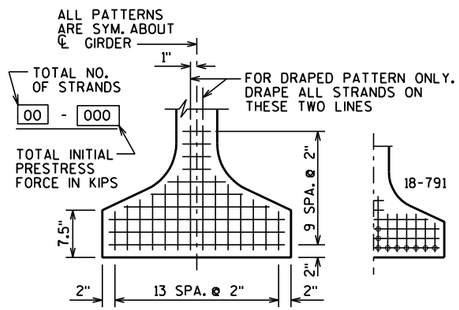
THESE VALUES ARE NOT TO BE USED IN DETERMINING 'T'. USE ACTUAL GIRDER SHOTS. THESE VALUES ARE FOR INFORMATIONAL PURPOSES ONLY.



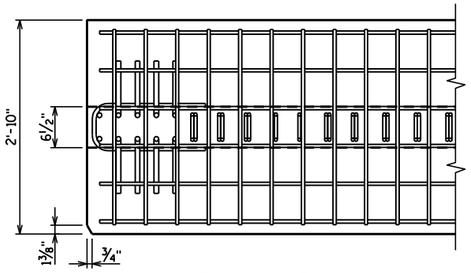
DRAPED STRAND PROFILE



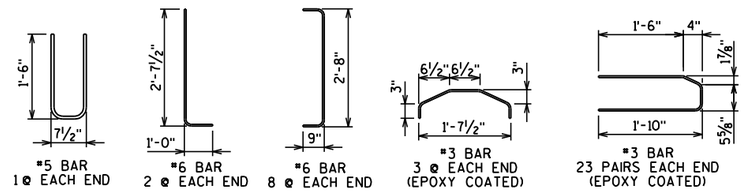
DEAD LOAD DEFLECTION DIAGRAM



TYP. STRAND PATTERN



TOP FLANGE



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

GIRDER DATA

SPAN	GIRDER	GIRDER LENGTH "L"	DEAD LOAD DEFL. (IN.)										CONC. STRGTH. f'c (p.s.i.)	"P" 1ST ⅓ OF GIRDER	"P" MID ⅓ OF GIRDER	"P" END ⅓ OF GIRDER	DIA. OF STRAND (IN.)	DRAPED PATTERN						UNDRAPED PATTERN	
			1/10	2/10	3/10	4/10	5/10	6/10	7/10	8/10	9/10							TOTAL NO. OF STRANDS	f'ci (P.S.I.) *	(IN.) "A"	"B" MIN.	"B" MAX.	"C"	TOTAL NO. OF STRANDS	f'ci (P.S.I.) *
1	ALL	66.0'	0.20	0.39	0.54	0.64	0.67	0.64	0.54	0.39	0.20		8,000	7"	7"	7"	0.6	18	6,800	32	11"	14"	4	---	---

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NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-49-174

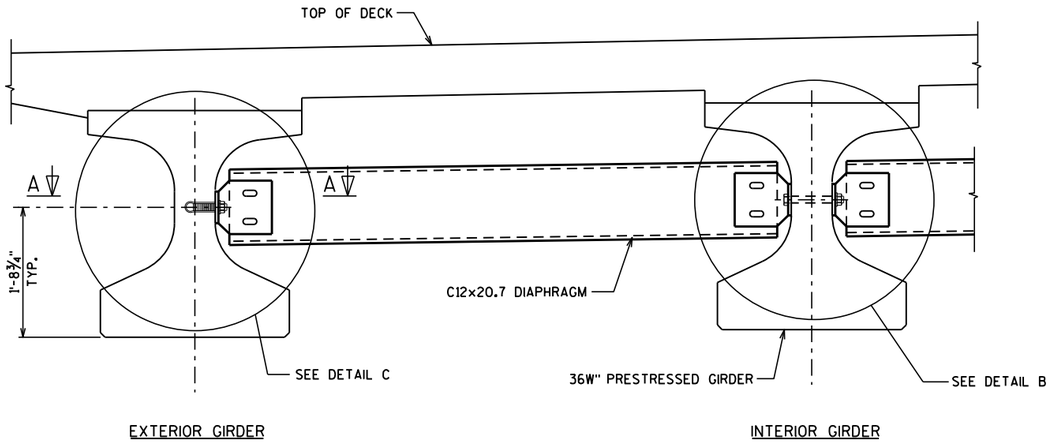
DRAWN BY BRE | PLANS CK'D. KRO

36W" PRESTRESSED GIRDER DETAILS

SHEET 8 OF 12

FILE NAME : F:±TR±JOBS±E2063A12±Sheets±Bridge±B-49-174 08 36w girder.dgn PLOT BY : olsonk PLOT DATE: 12/5/2013 2:09:52 PM

STATE PROJECT NUMBER
6796-01-70



EXTERIOR GIRDER

INTERIOR GIRDER

PART TRANSVERSE SECTION AT DIAPHRAGM

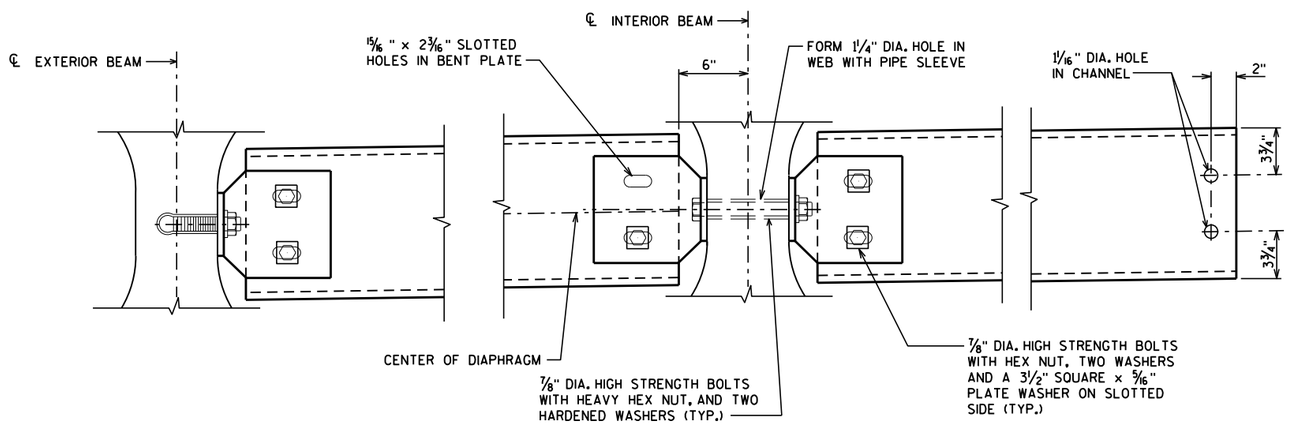
NOTES

ALL DIAPHRAGM MATERIAL NOT EMBEDDED IN THE CONCRETE GIRDER SHALL BE PAID FOR AT THE UNIT PRICE BID FOR "STEEL DIAPHRAGMS B-49-174", EACH.

EACH DIAPHRAGM BETWEEN GIRDERS SHALL CONSTITUTE ONE UNIT.

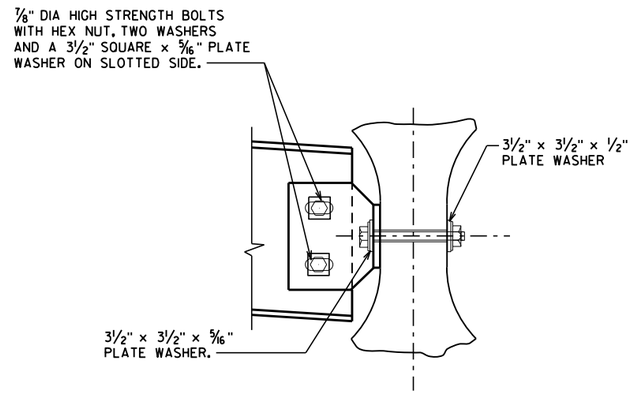
ALL DIAPHRAGM STRUCTURAL STEEL SHALL BE ASTM A709 GRADE 36. ALL BOLTS, NUTS AND WASHERS SHALL BE ASTM A325 TYPE 1.

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

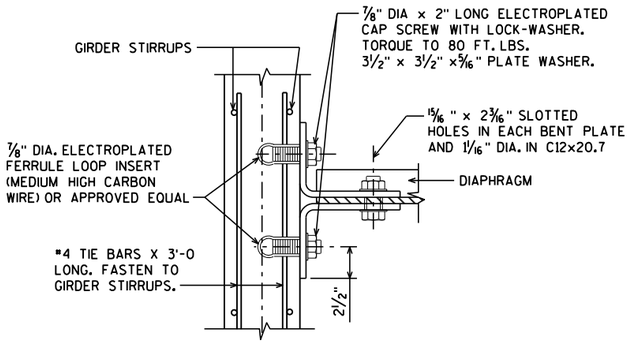


DETAIL C

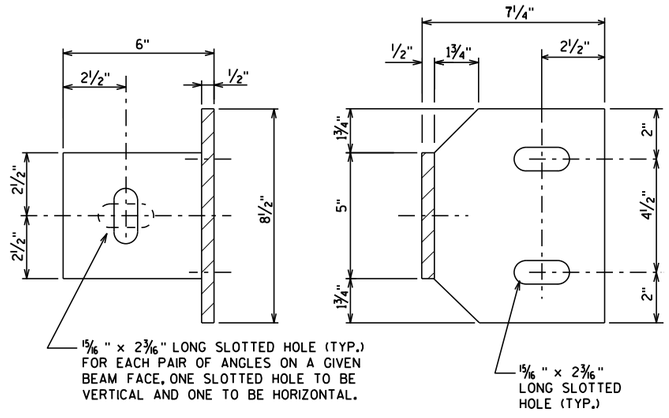
DETAIL B



SECTION AT INTERIOR GIRDERS THRU DIAPHRAGM FOR SKEW ANGLES > 10°

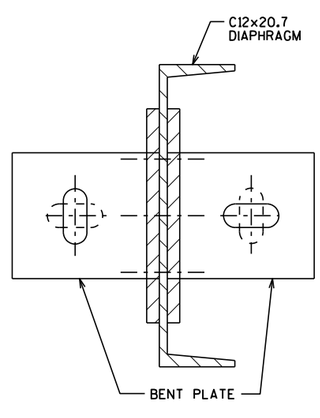


SECTION A-A
(FOR EXTERIOR ATTACHMENT)



BEAM FACE

DIAPHRAGM FACE



ATTACHMENT TO CHANNEL

8

8

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-49-174

DRAWN BY BRE | PLANS CK'D. KRO

STEEL DIAPHRAGMS

SHEET 9 OF 12

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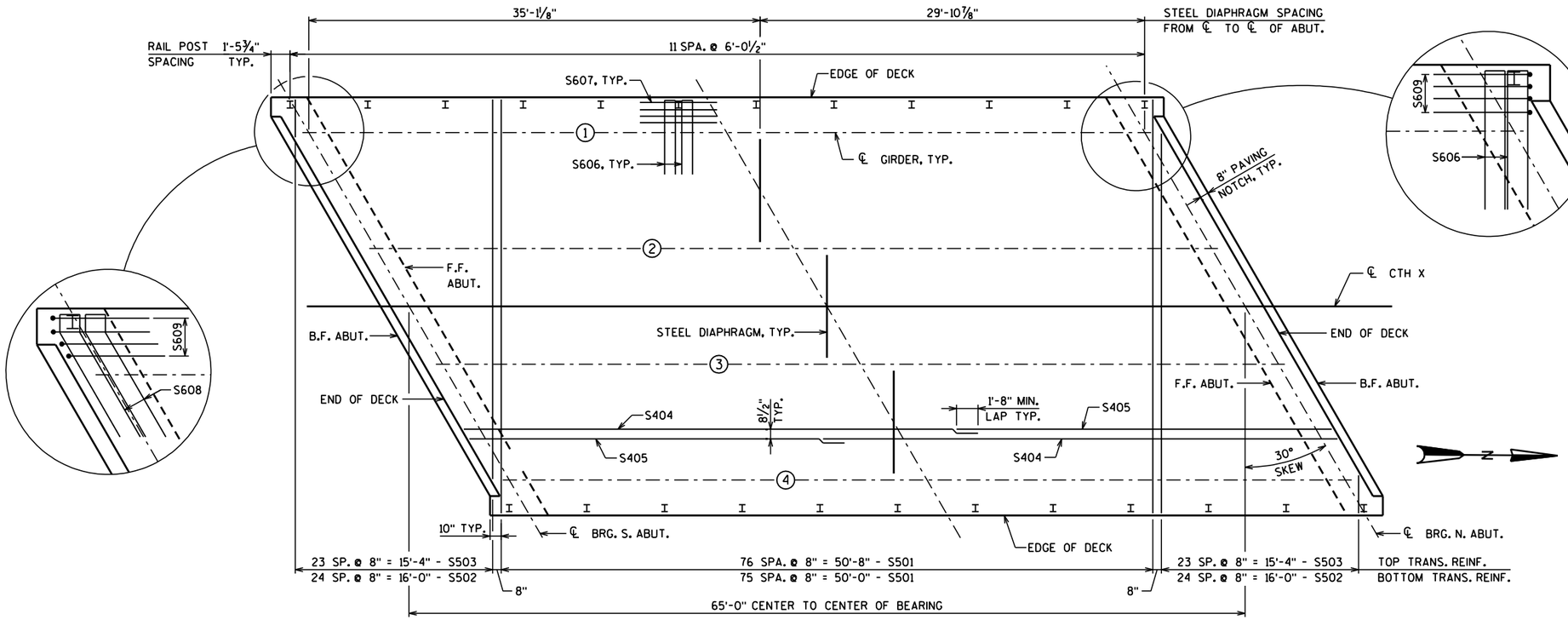
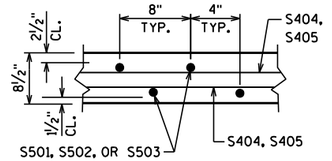
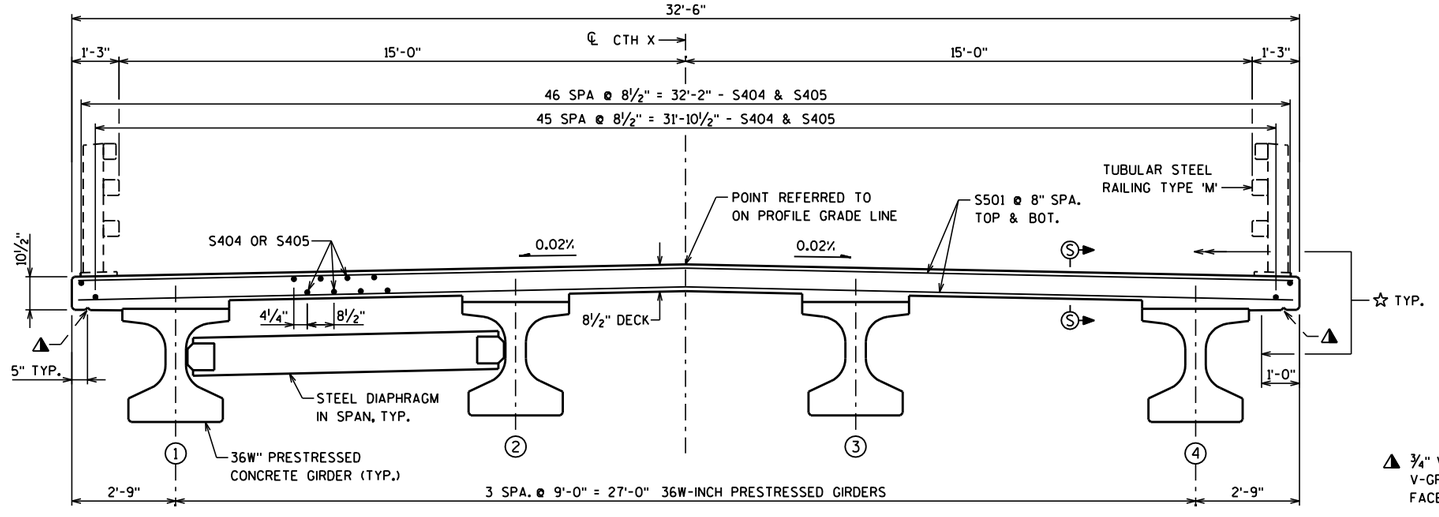
STATE PROJECT NUMBER
6796-01-70



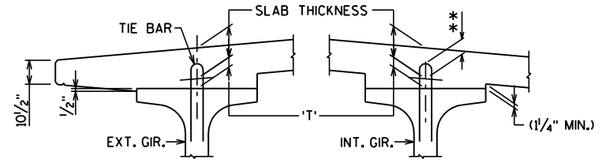
SUPERSTRUCTURE PLAN



SECTION S-S



CROSS SECTION THRU ROADWAY



SLAB HAUNCH DETAIL

IF 1¼" MINIMUM HAUNCH HEIGHT AT EDGE OF GIRDER CANNOT BE MAINTAINED, THE GRADE LINE MAY BE REVISED BY THE ENGINEER AT THE OPTION OF THE CONTRACTOR. THE PLAN SLAB THICKNESS SHALL BE HELD. NOTIFY THE STRUCTURES SECTION IF THE GRADE LINE IS RAISED FROM THE PLAN PROFILE BY MORE THAN ½" OR,

** IF 3" MINIMUM DECK EMBEDMENT OF TIE BAR CANNOT BE OBTAINED.

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

TOP OF DECK ELEV. AT FINAL GRADE
- TOP OF GIRDER ELEVATION
+ DEAD LOAD DEFLECTION
- SLAB THICKNESS
= HAUNCH HEIGHT 'T'

NOTE: AN AVERAGE HAUNCH ('T') OF 2½" WAS USED IN THE QUANTITY "CONCRETE MASONRY BRIDGES".

◭ ¾" V-GROOVE. EXTEND V-GROOVE TO 3" FROM FRONT FACE OF ABUTMENT DIAPHRAGM.

☆ APPLY PROTECTIVE SURFACE TREATMENT.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-49-174

DRAWN BY BRE | PLANS CK'D. KRO

SUPERSTRUCTURE

SHEET 10 OF 12

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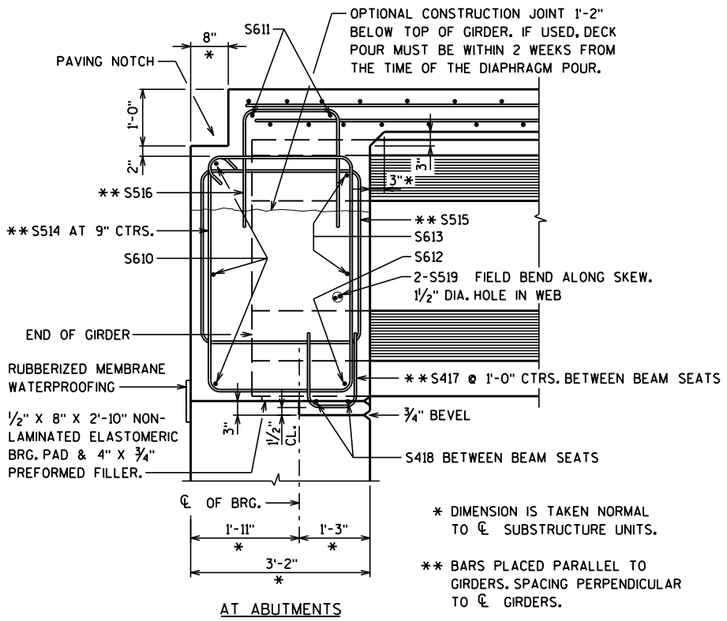
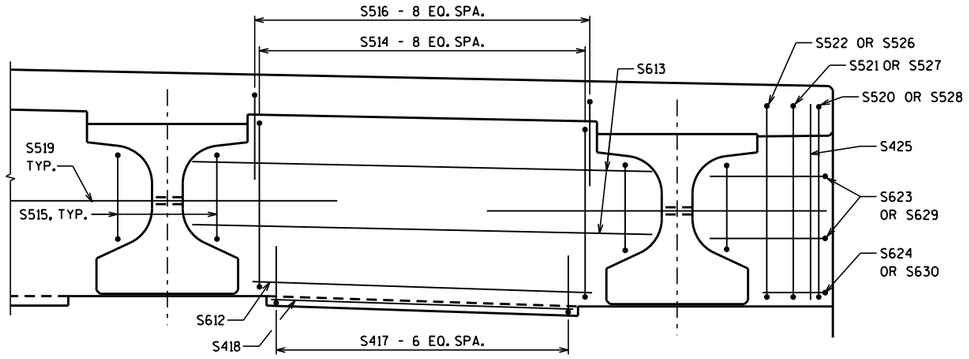


AT ABUTMENTS

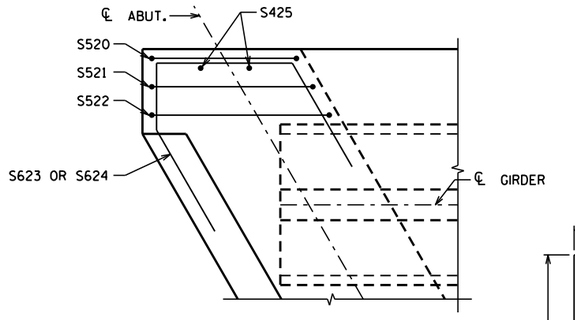
PART LONGIT. SECTION

* DIMENSION IS TAKEN NORMAL TO ℄ SUBSTRUCTURE UNITS.

** BARS PLACED PARALLEL TO GIRDERS. SPACING PERPENDICULAR TO ℄ GIRDERS.

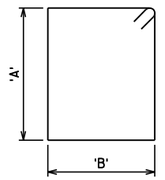


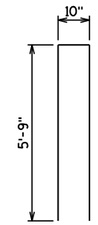
DIAPHRAGM DETAILS AT ABUTMENT



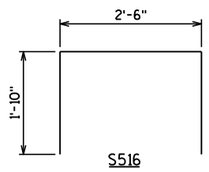
DIAPHRAGM CORNER N.E. & S.W. DETAILS

BAR MARK	'A'	'B'
S514	2'-6"	3'-3"
S515	1'-6"	3'-3"
S520	3'-4"	2'-6"
S521	3'-4"	2'-10"
S522	3'-4"	3'-1"
S526	3'-4"	3'-6"
S527	3'-4"	3'-9"
S528	3'-4"	4'-0"

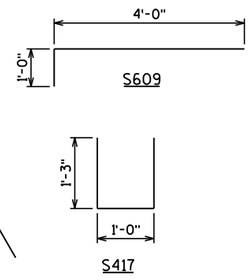




S606



S516



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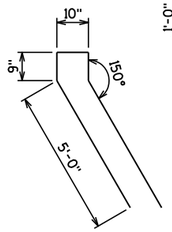
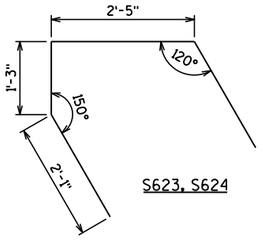
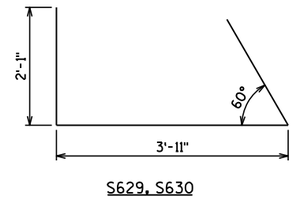


S608

S417



S623, S624



S629, S630

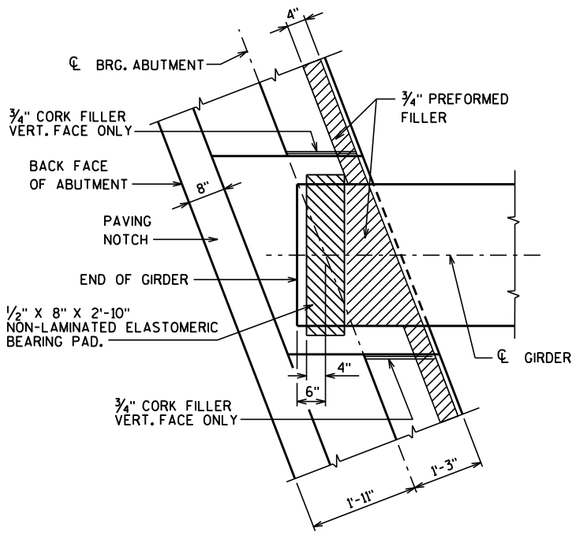
BAR BEND DIAGRAMS

BILL OF BARS

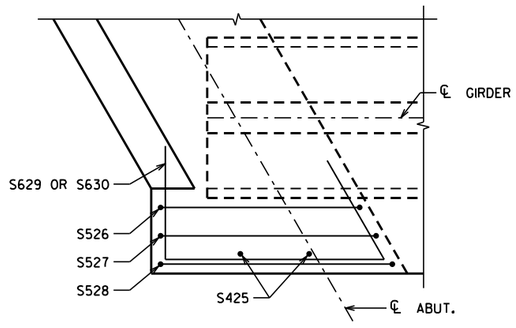
BAR MARK	COAT	NO. REQ'D.	LENGTH	BENT	SERIES	LOCATION
S501	X	153	32'-2"			TRANS. TOP & BOT.
S502	X	50	16'-3"		△	TRANS. BOTTOM
S503	X	48	16'-3"		△	TRANS. TOP
S404	X	93	40'-0"			LONG. TOP & BOT.
S405	X	93	29'-2"			LONG. TOP & BOT.
S606	X	44	12'-0"	X		AT RAIL POST
S607	X	80	6'-0"			AT INTERIOR RAIL POST
S608	X	4	12'-0"	X		AT RAIL POST
S609	X	16	4'-10"	X		AT END RAIL POST
S610	X	6	35'-8"			DIAPH. HORIZONTAL B.F.
S611	X	4	37'-1"			DIAPH. HORIZONTAL TOP
S612	X	6	7'-1"			DIAPH. HORIZONTAL F.F.
S613	X	12	8'-8"			DIAPH. HORIZONTAL F.F.
S514	X	54	12'-1"	X		DIAPH. VERTICAL
S515	X	16	10'-1"	X		DIAPH. VERTICAL
S516	X	54	5'-11"	X		DIAPH. VERTICAL, TOP
S417	X	42	3'-4"	X		DIAPH. VERTICAL, BTW. BEAM SEAT
S418	X	12	5'-9"			DIAPH. HORIZONTAL, BTW. BEAM SEAT
S519	X	16	6'-0"			DIAPH. HORIZONTAL, THRU GIRDERS
S520	X	2	12'-3"	X		DIAPH. ENDS, VERT. S.W., N.E.
S521	X	2	12'-11"	X		DIAPH. ENDS, VERT. S.W., N.E.
S522	X	2	13'-5"	X		DIAPH. ENDS, VERT. S.W., N.E.
S623	X	4	7'-8"	X		DIAPH. ENDS, HORIZ. S.W., N.E.
S624	X	2	6'-10"	X		DIAPH. ENDS, HORIZ. S.W., N.E.
S425	X	8	3'-5"			DIAPH. ENDS, VERT.
S526	X	2	14'-3"	X		DIAPH. ENDS, VERT. S.E., N.W.
S527	X	2	14'-9"	X		DIAPH. ENDS, VERT. S.E., N.W.
S528	X	2	15'-3"	X		DIAPH. ENDS, VERT. S.E., N.W.
S629	X	4	8'-0"	X		DIAPH. ENDS, HORIZ. S.E., N.W.
S630	X	2	7'-0"	X		DIAPH. ENDS, HORIZ. S.E., N.W.

BAR SERIES

BAR NO.	NO. REQ'D.	LENGTH
S502	2 SERIES OF 25	2'-5" TO 30'-1"
S503	2 SERIES OF 24	3'-0" TO 29'-6"



BEARING PAD DETAIL



DIAPHRAGM CORNER S.E. & N.W. DETAILS

TOP OF DECK ELEVATIONS

LOCATION	S.ABUT.	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	N. ABUT.
W. EDGE	1132.87	1132.87	1132.87	1132.86	1132.86	1132.85	1132.85	1132.85	1132.84	1132.84	1132.83
GIRDER 1	1132.93	1132.92	1132.92	1132.92	1132.91	1132.91	1132.90	1132.90	1132.90	1132.89	1132.89
GIRDER 2	1133.10	1133.10	1133.10	1133.09	1133.09	1133.09	1133.08	1133.08	1133.07	1133.07	1133.07
GIRDER 3	1133.10	1133.10	1133.09	1133.09	1133.09	1133.08	1133.08	1133.07	1133.07	1133.07	1133.06
GIRDER 4	1132.92	1132.91	1132.91	1132.91	1132.90	1132.90	1132.89	1132.89	1132.89	1132.88	1132.88
E. EDGE	1132.86	1132.86	1132.85	1132.85	1132.85	1132.84	1132.84	1132.84	1132.83	1132.83	1132.82

STATE PROJECT NUMBER

6796-01-70

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-49-174

DRAWN BY BRE | PLANS CK'D. KRO

SUPERSTRUCTURE DETAILS

SHEET 11 OF 12

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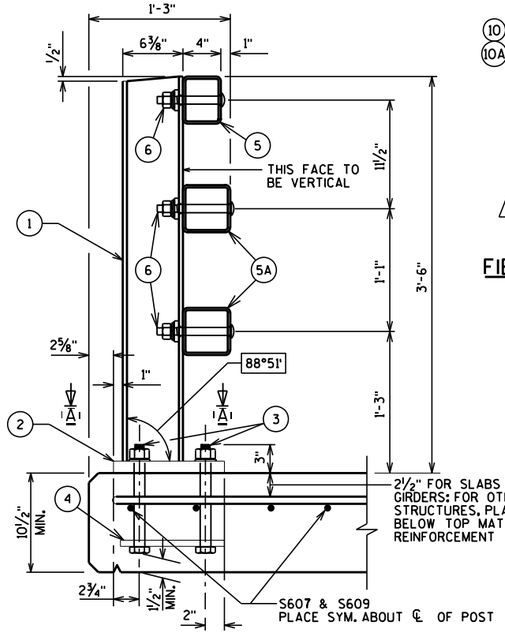
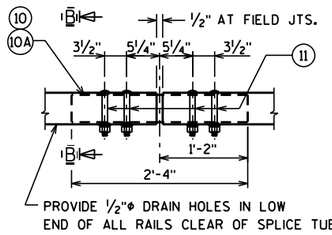
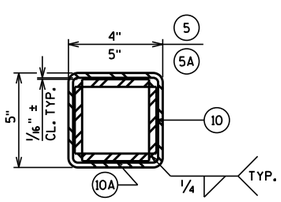


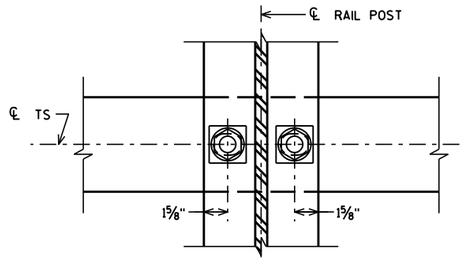
SECTION THRU RAILING ON DECK



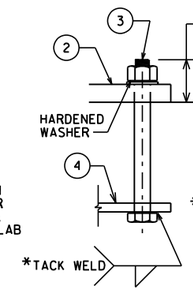
FIELD ERECTION JOINT DETAIL



SECTION B-B

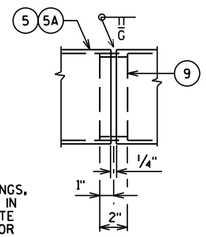


SECTION THRU POST WEB



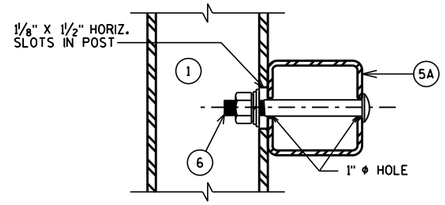
*FOR ANCHOR BOLTS IN WINGS, TACK WELD MAY BE USED IN FIELD AFTER ANCHOR PLATE IS IN POSITION IF REQ'D. FOR CONSTRUCTIBILITY.

ANCHOR BOLTS



SHOP RAIL SPLICE DETAIL

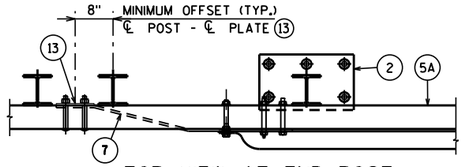
(LOCATION MUST BE SHOWN ON SHOP DRAWINGS)



SECTION THRU RAIL

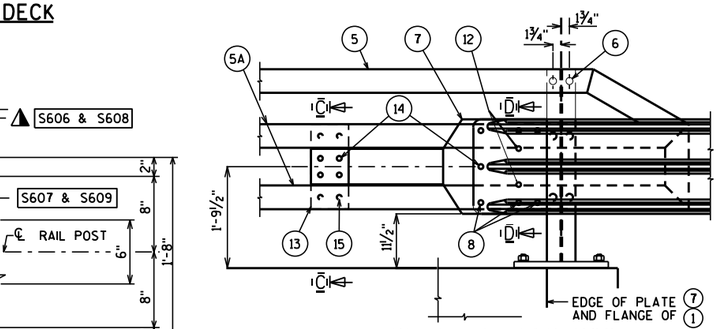
NOTE: CONNECTIONS AT LOWER RAILS SHOWN. CONNECTIONS AT TOP RAIL SIMILAR.

TYPICAL RAIL TO POST CONNECTIONS



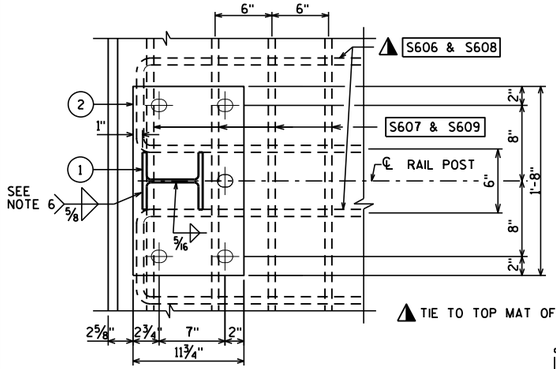
TOP VIEW AT END POST

(THRIE BEAM RAIL ATTACHMENT)

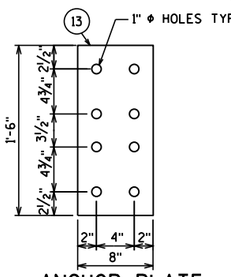


DETAIL AT END POST

(THRIE BEAM RAIL ATTACHMENT)

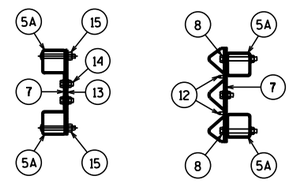


SECTION A-A



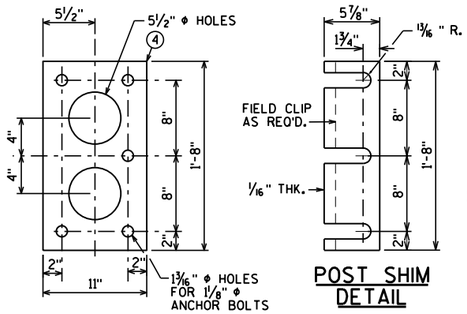
ANCHOR PLATE

AT BEAM GUARD ATTACHMENT



SECTION C-C

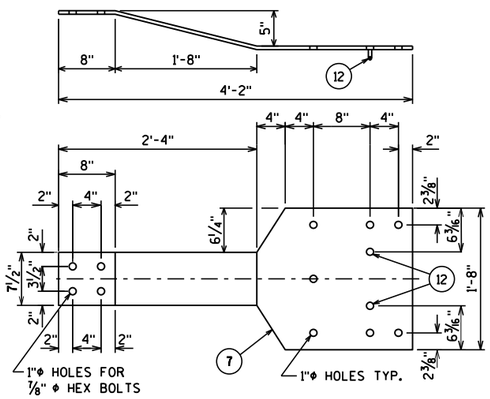
SECTION D-D



ANCHOR PLATE

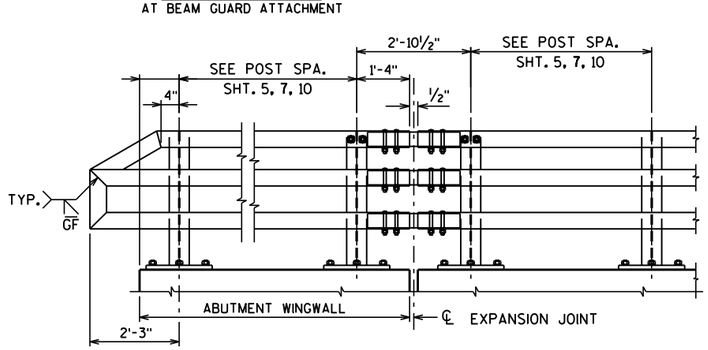
AT RAIL TO DECK CONNECTION

POST SHIM DETAIL



BACK-UP PLATE DETAIL

AT BEAM GUARD ATTACHMENT



PART ELEVATION OF RAILING

LEGEND

(1) W6 x 25 WITH 1⅛" X 1½" HORIZONTAL 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 1'-1¼" x 1'-1¾" x 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 - ⅞" 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 ABUTMENT WINGS. AT POSTS ON CONCRETE SLAB SUPERSTRUCTURES WHERE THE SLAB THICKNESS IS > 16" USE 1'-3" LONG. USE 10¾" LONG AT ALL OTHER LOCATIONS. (AN EQUIVALENT THREADED ROD WITH NUTS AND HARDENED WASHERS MAY BE SUBSTITUTED FOR ANCHOR BOLTS IN WINGS IF REQ'D. FOR CONSTRUCTIBILITY.)

(4) ⅝" x 11" x 1'-8" ANCHOR PLATE (GALVANIZED) WITH 1⅜" DIA. HOLES FOR ANCHOR BOLTS NO. 3

(5) TS 5 x 4 x 0.25 STRUCTURAL TUBING. ATTACH TO NO. 1 WITH NO. 6.

(5A) TS 5 x 5 x 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 (ITEM 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 3⅜" 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. REQUIRED AT THRIE BEAM GUARD RAIL ATTACHMENTS ONLY. PLACE SYMMETRICALLY ABOUT TUBES NO. 5A.

(14) ⅞" DIA. X 2" LONG A325 HEX BOLT WITH NUT AND WASHER.

(15) 1" ϕ HOLES IN TUBES NO. 5A FOR ⅞" DIA. A325 ROUND HEAD BOLT WITH NUT, WASHER, AND LOCK WASHER. 4 HOLES IN TUBES.

GENERAL NOTES

1. BID ITEM SHALL BE "RAILING TUBULAR TYPE M (B-49-174)" 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. RAILS SHALL BE SPLICED IN A PANEL OVER EXPANSION JOINTS.
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 S.S.P.C. SPECIFICATIONS.
10. WHEN PAINTING IS REQUIRED, ALL MATERIAL EXCEPT ANCHORAGE DETAIL (NO. 3 & 4) SHALL BE PAINTED OVER GALVANIZING WITH APPROVED TIE COAT AND TOP COAT.
11. THIS RAILING MEETS NCHRP REPORT 350 EVALUATION CRITERIA FOR TEST LEVEL 4 (TL-4).
12. PLACE FIRST BOTTOM LONGITUDINAL BAR CLEAR OF DRIP GROOVE.

STATE PROJECT NUMBER
6796-01-70

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-49-174

DRAWN BY BRE | PLANS CK'D. KRO

RAILING TUBULAR TYPE 'M'

SHEET 12 OF 12

53

8

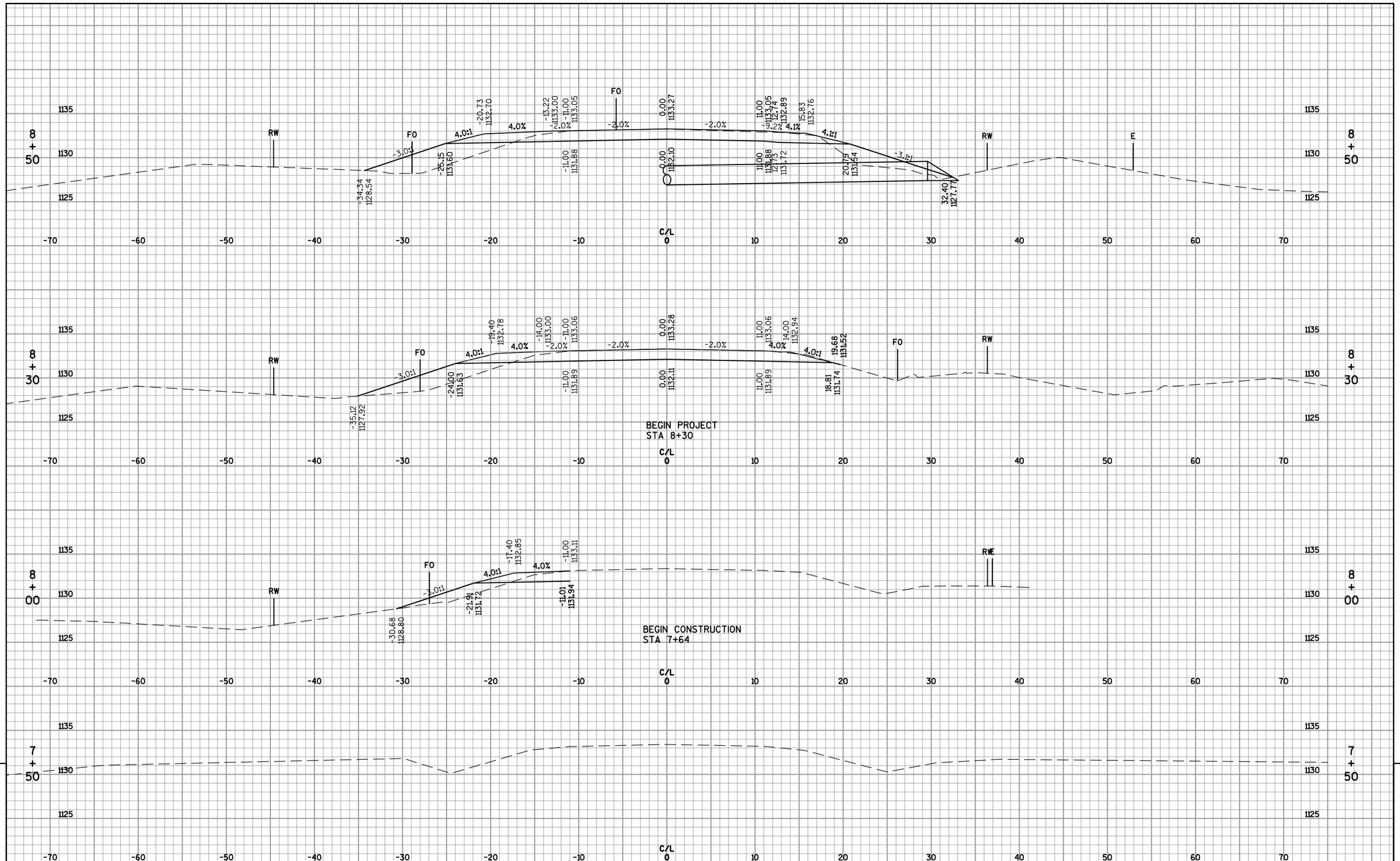
8

CTH X

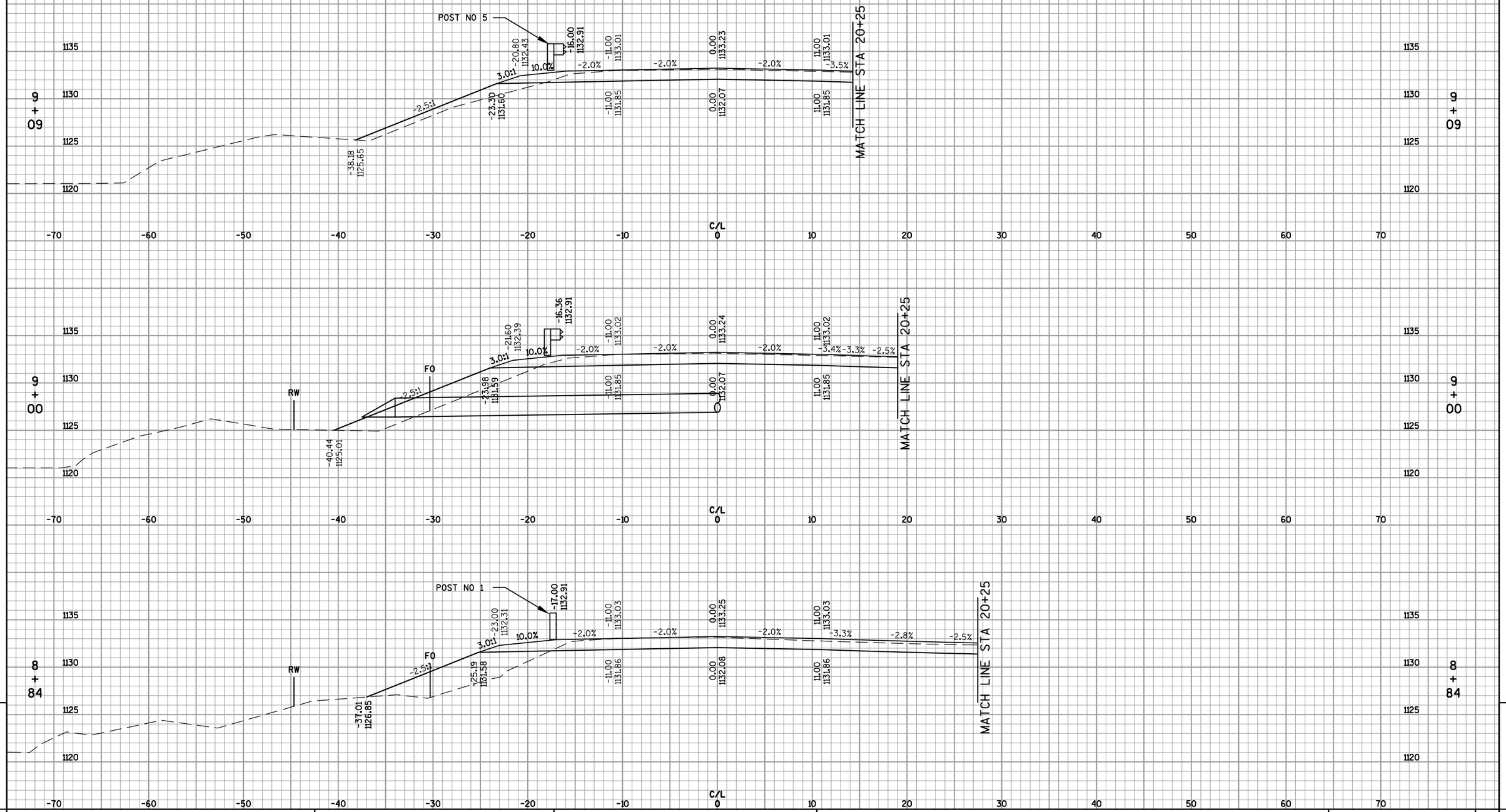
STATION	AREA (SF)			Incremental Vol (CY) (Unadjusted)			Cumulative Vol (CY)		Mass Ordinate
	Cut	Salvaged/Unusable Pavement Material	Fill	Cut	Salvaged/Unusable Pavement Material	Fill	Cut 1.00	Expanded Fill 1.25	
07+65	0	0	0	0	0	0	0	0	0
08+00	5	0	9	3	0	6	3	8	-4
08+30	5	0	21	6	0	17	9	29	-20
08+30	37	9	21	0	0	0	9	29	-20
08+50	36	9	42	27	7	23	36	58	-29
08+84	44	9	43	50	12	54	86	125	-57
09+00	39	9	41	25	5	25	111	157	-69
09+09	32	9	21	12	3	10	123	170	-74
09+34	39	9	26	33	9	22	156	197	-76
09+50	29	9	70	20	5	28	176	232	-97
09+74	29	9	2	26	8	32	202	272	-120
BRIDGE									
10+41	17	9	0	0	0	0	0	0	0
10+50	17	9	38	6	3	6	6	8	-5
10+66	22	9	21	12	5	17	17	30	-21
10+76	23	9	21	8	3	8	26	39	-26
11+01	26	9	43	23	9	30	48	76	-48
11+26	32	9	44	27	9	40	75	127	-80
11+50	47	9	19	35	8	28	111	162	-88
12+00	36	9	11	77	17	28	187	196	-63
12+31	40	9	20	43	11	18	231	218	-52
12+50	34	9	12	26	6	11	257	232	-47
12+56	36	9	9	8	2	2	265	235	-44
12+81	37	9	14	34	9	11	299	249	-32
13+00	38	9	14	26	6	10	325	261	-24
13+00	8	0	14	0	0	0	325	261	-24
13+50	7	0	6	14	0	19	339	284	-34
14+00	7	0	0	13	0	6	352	292	-28

BIRCH DRIVE

STATION	AREA (SF)			Incremental Vol (CY) (Unadjusted)			Cumulative Vol (CY)		Mass Ordinate Note 8
	Cut	Salvaged/Unusable Pavement Material	Fill	Cut	Salvaged/Unusable Pavement Material	Fill	Cut 1.00	Expanded Fill 1.25	
20+25	38	13	0	0	0	0	0	0	0
20+50	54	11	0	43	11	0	43	0	32
20+77	47	8	0	50	9	0	93	0	73
21+02	42	8	46	41	8	21	134	27	79
21+02	4	0	46	0	0	0	134	27	79
21+50	4	0	71	7	0	104	141	157	-44
22+00	4	0	1	7	0	67	148	241	-121



PROJECT NO:6796-01-70	HWY: CTH X	COUNTY:PORTAGE	CROSS SECTIONS: CTH X	SHEET 58	E 9.2



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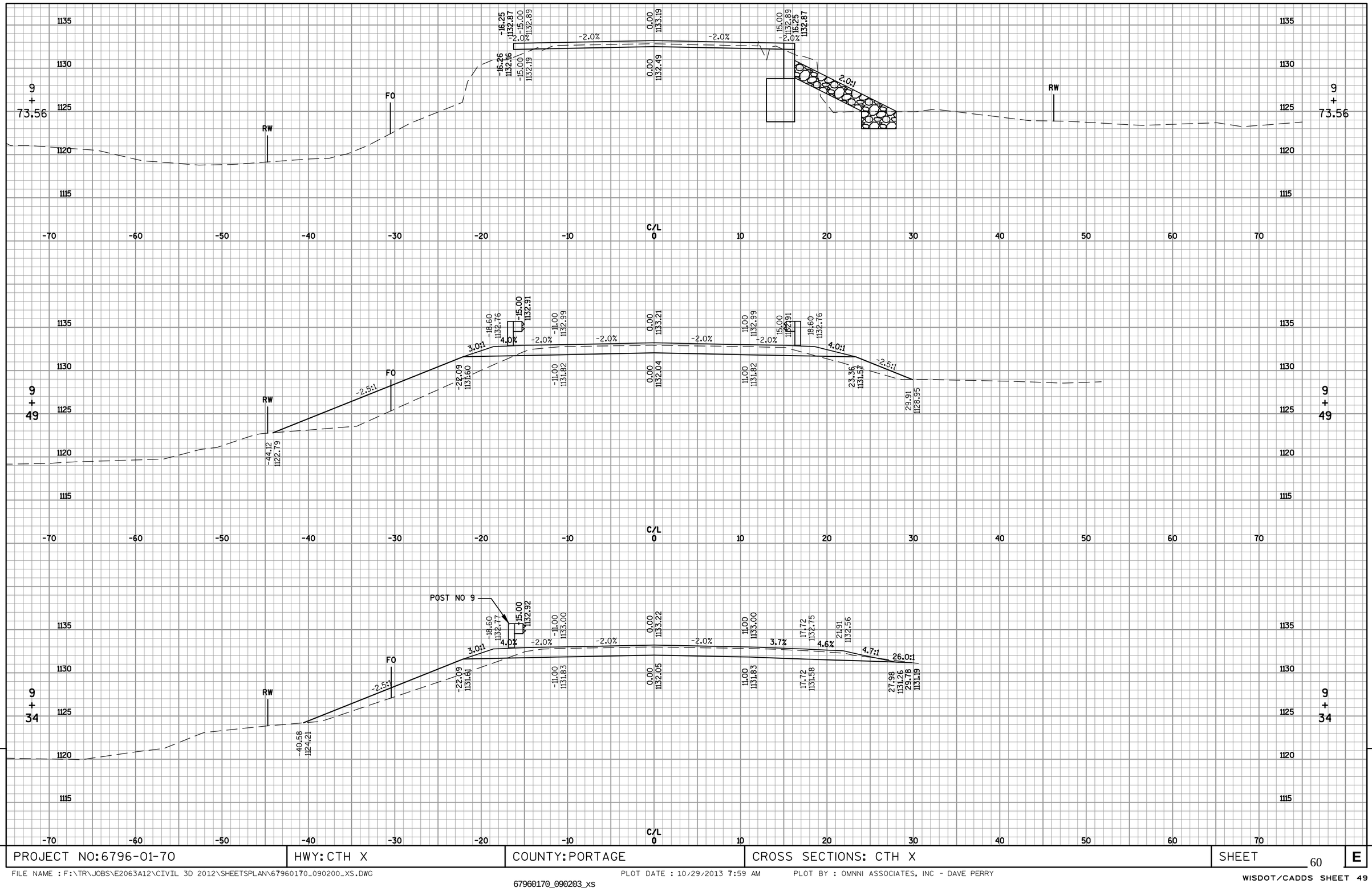

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PROJECT NO:6796-01-70	HWY: CTH X	COUNTY: PORTAGE	CROSS SECTIONS: CTH X	SHEET 60	E	9.4

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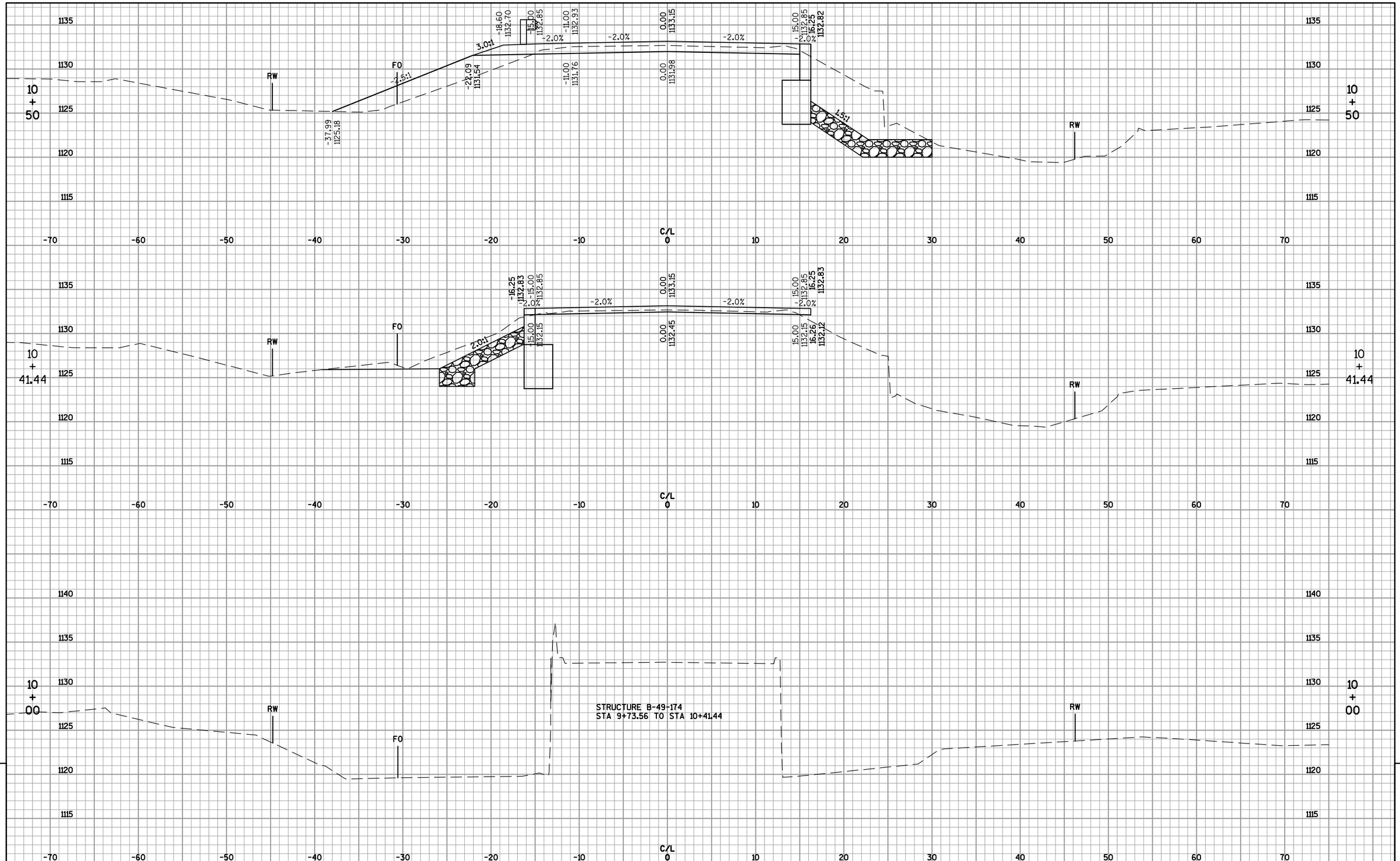
67960170_090203_XS

WISDOT/CADDS SHEET 49



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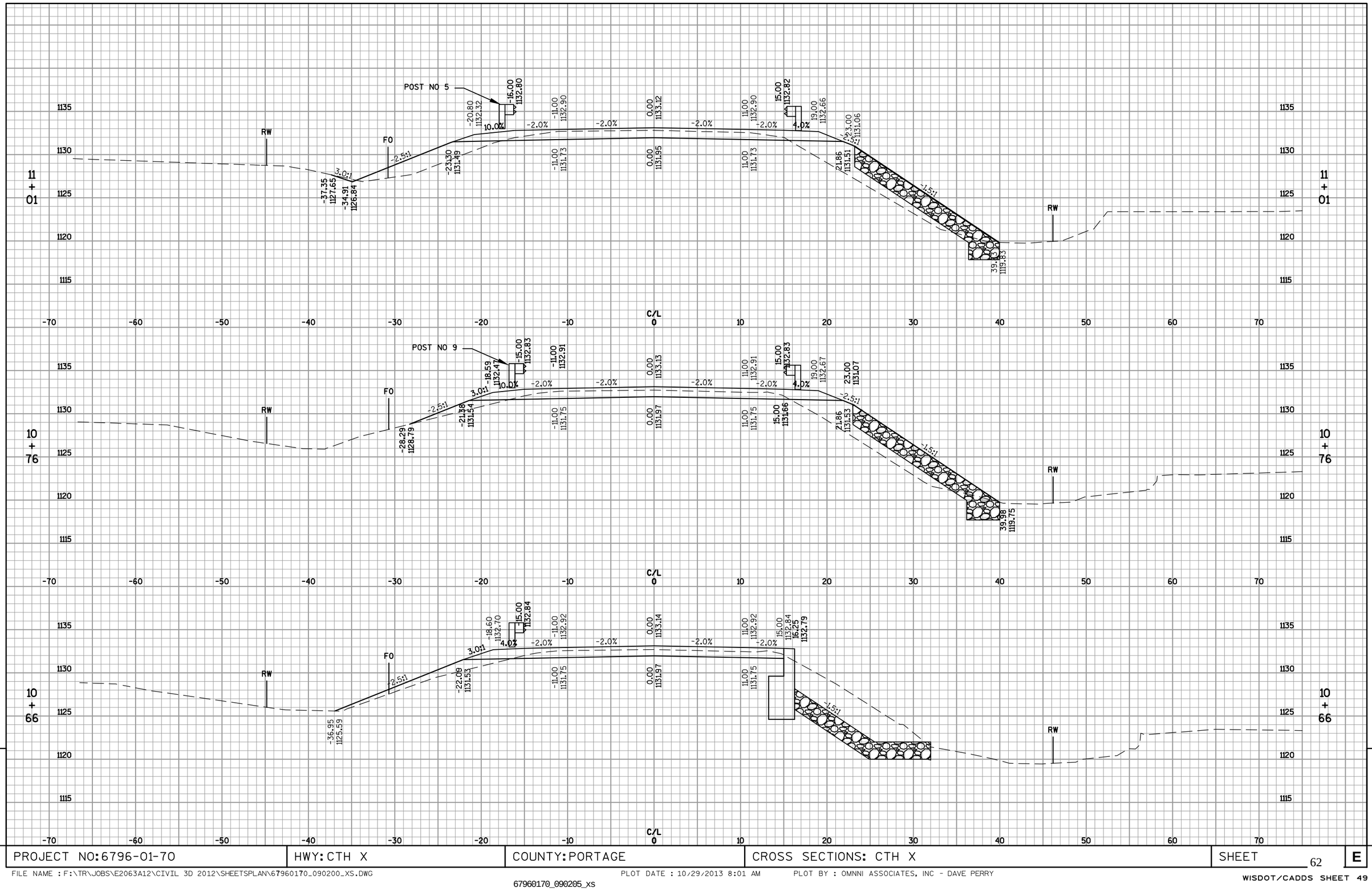
PROJECT NO:6796-01-70	HWY:CTH X	COUNTY:PORTAGE	CROSS SECTIONS: CTH X	SHEET 61	E	9.5



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PROJECT NO:6796-01-70	HWY: CTH X	COUNTY:PORTAGE	CROSS SECTIONS: CTH X	SHEET 62	E 9.6

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67960170_090205_xs

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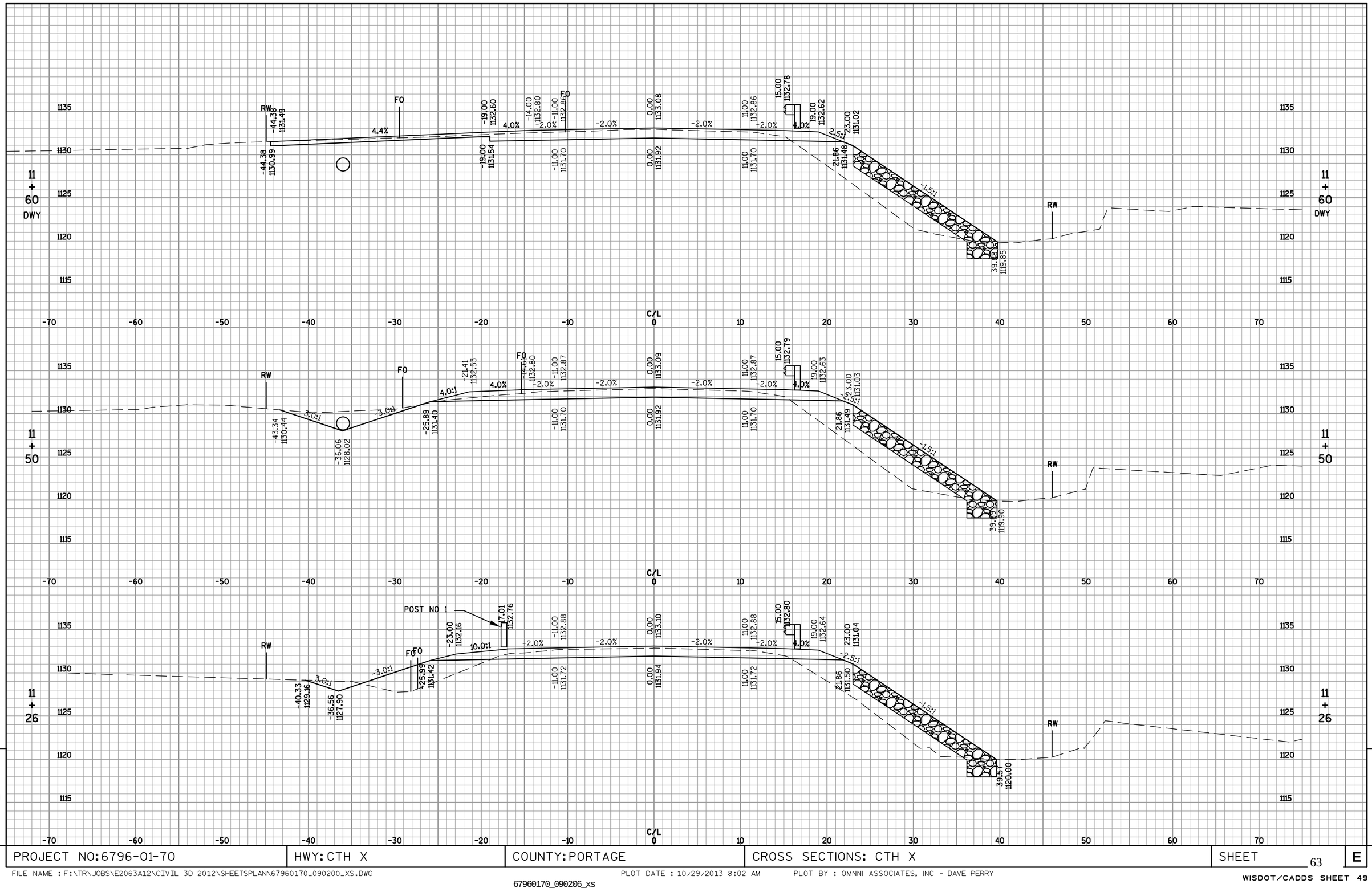

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67960170_090206_XS

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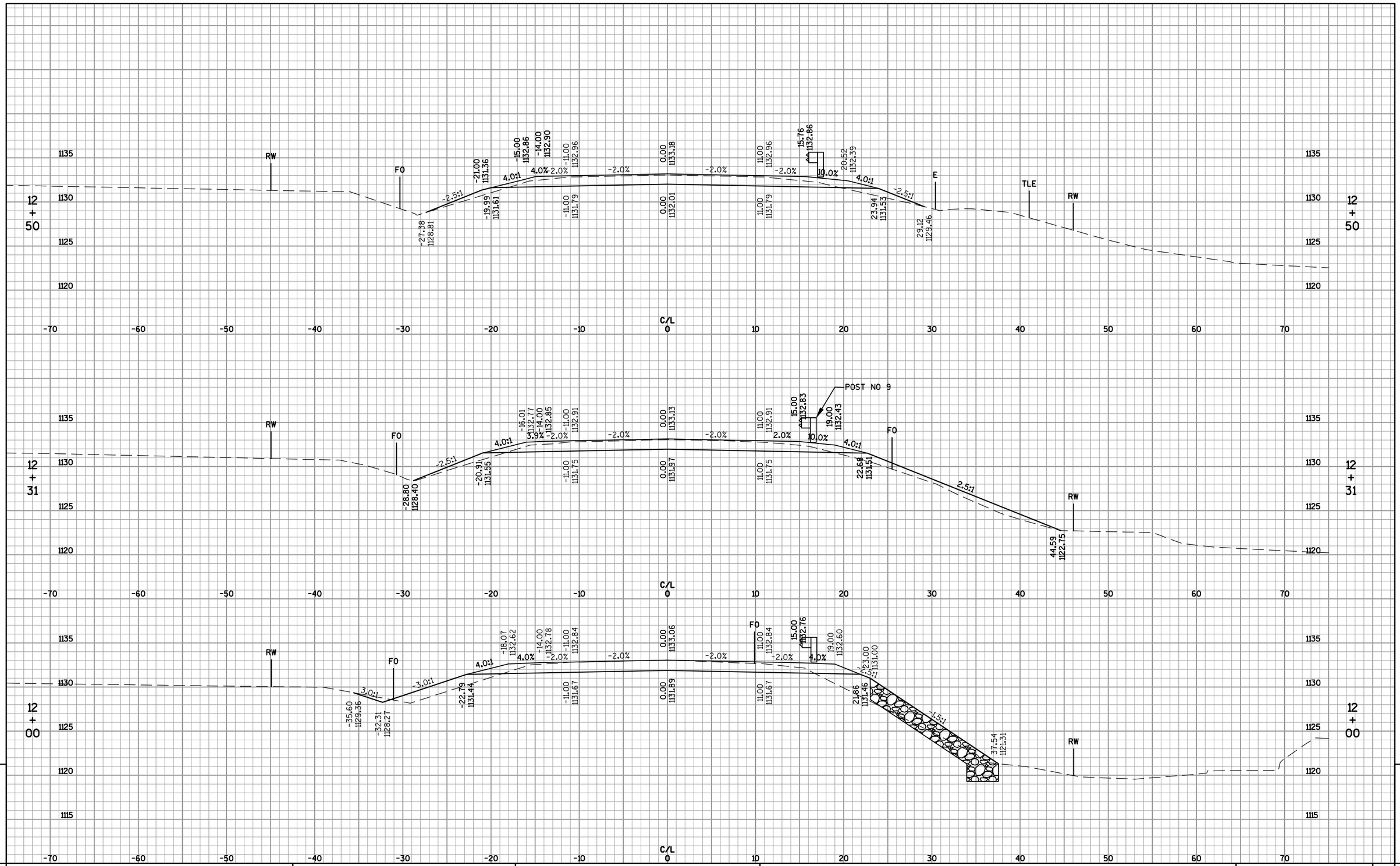

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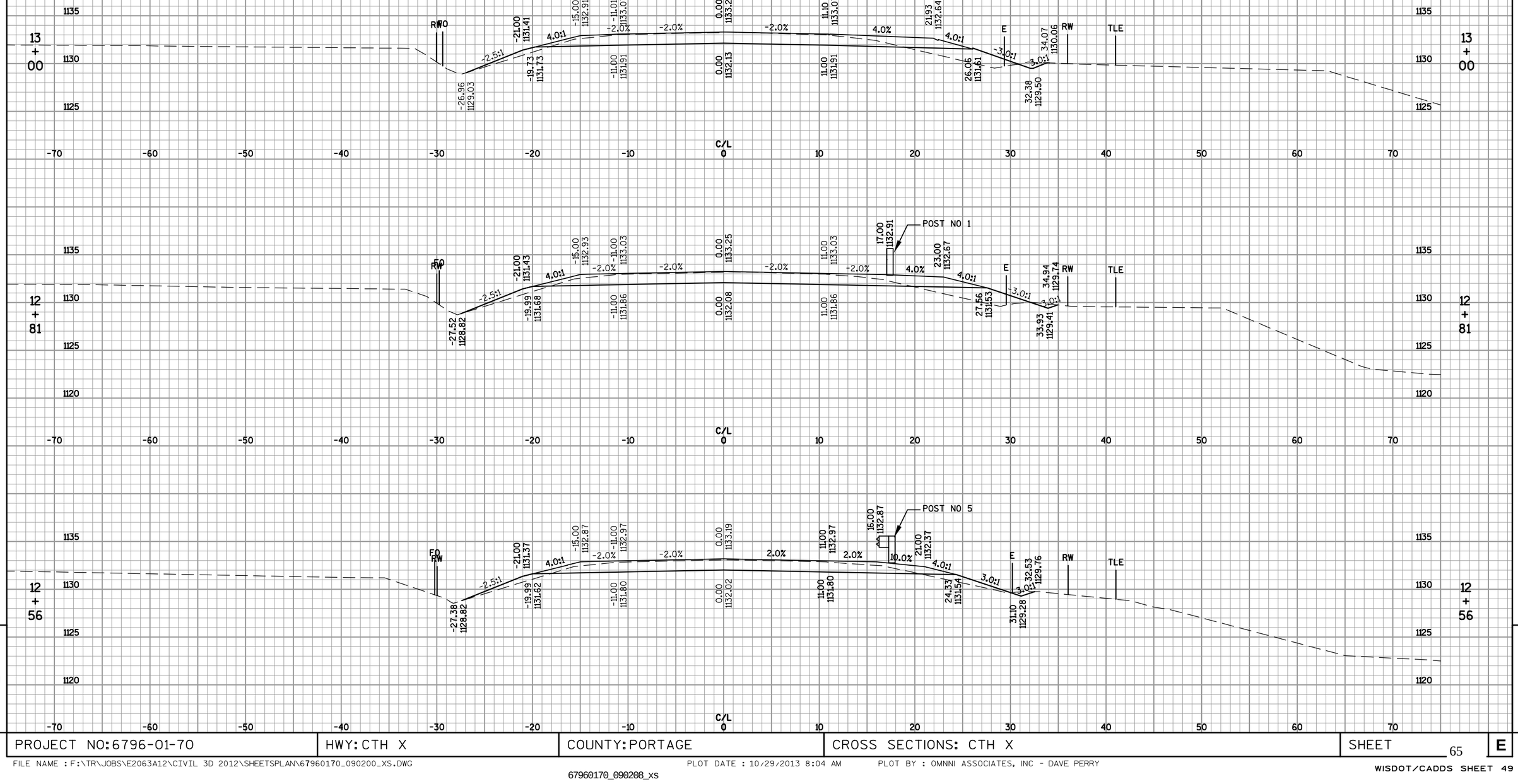
END PROJECT
STA 13+00



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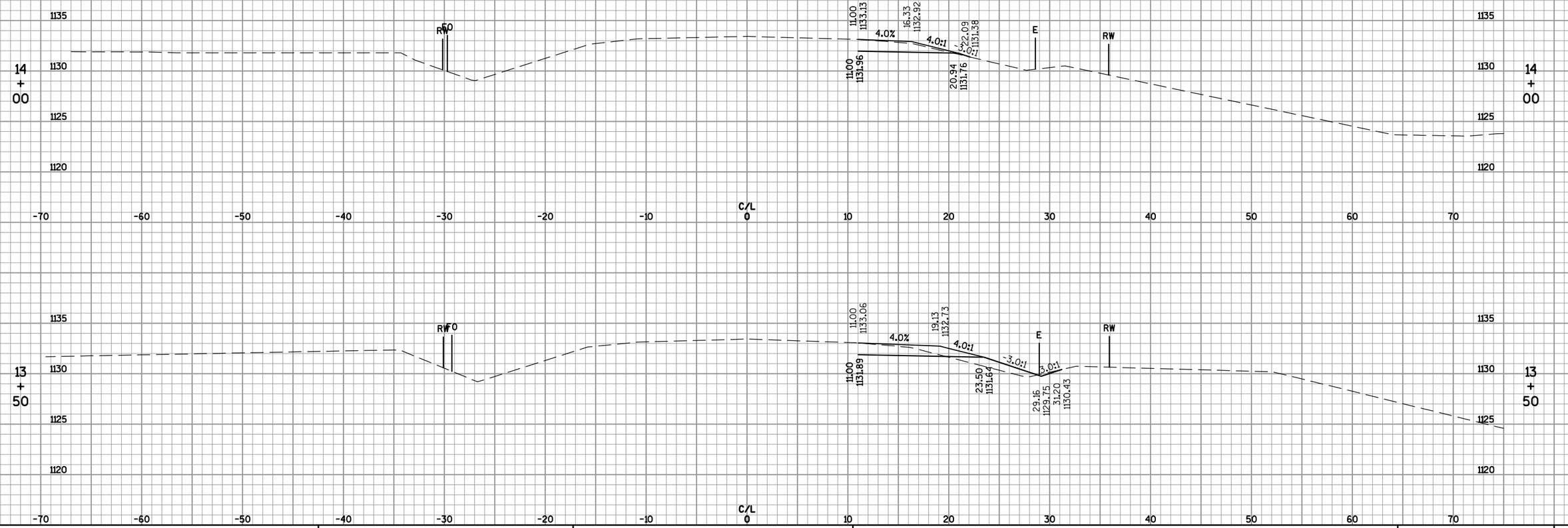
END CONSTRUCTION
STA 14+00



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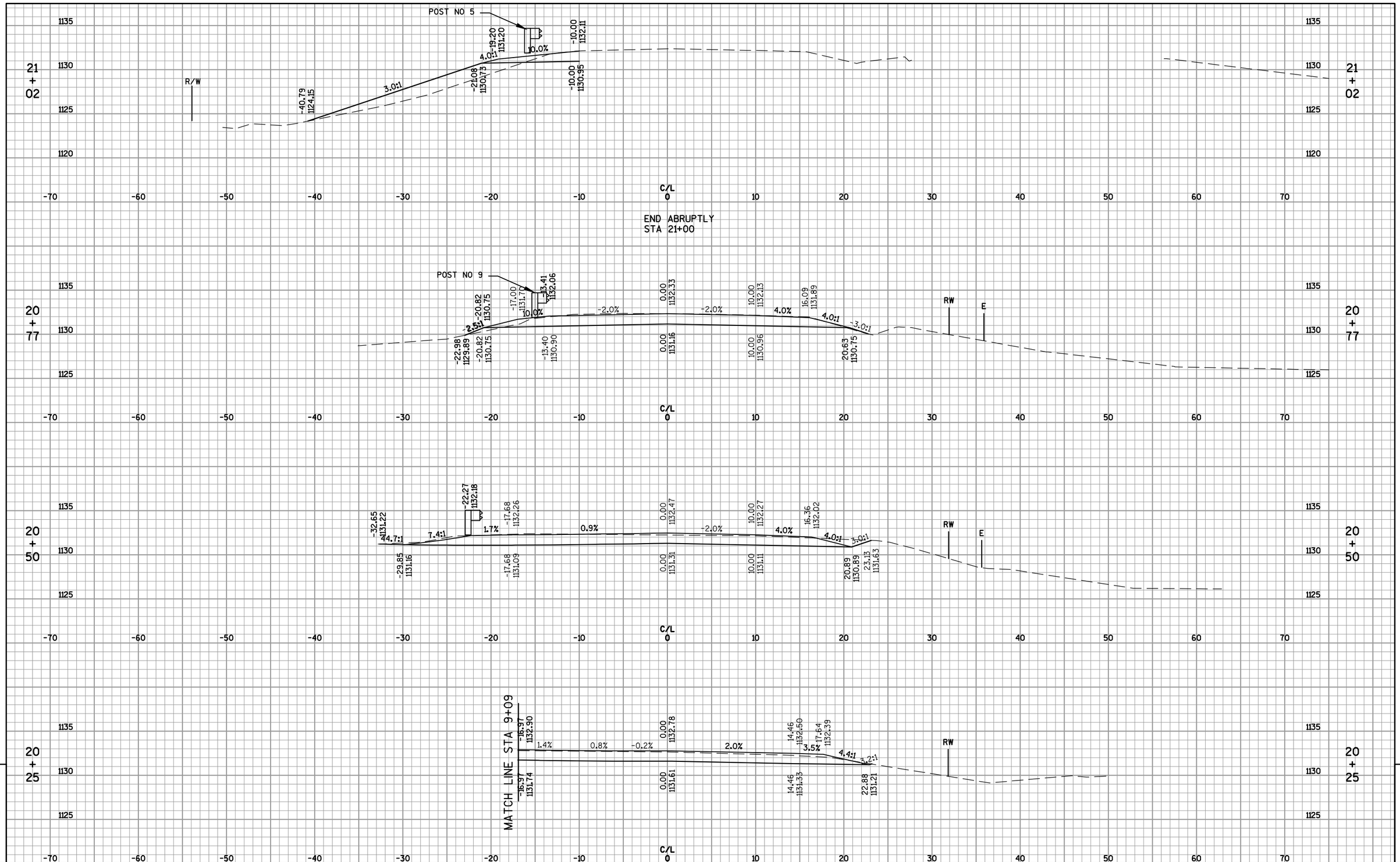
67960170_090209_xs

WISDOT/CADDS SHEET 49



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PROJECT NO:6796-01-70	HWY: CTH X	COUNTY: PORTAGE	CROSS SECTIONS: BIRCH DRIVE	SHEET 67	E	9.11

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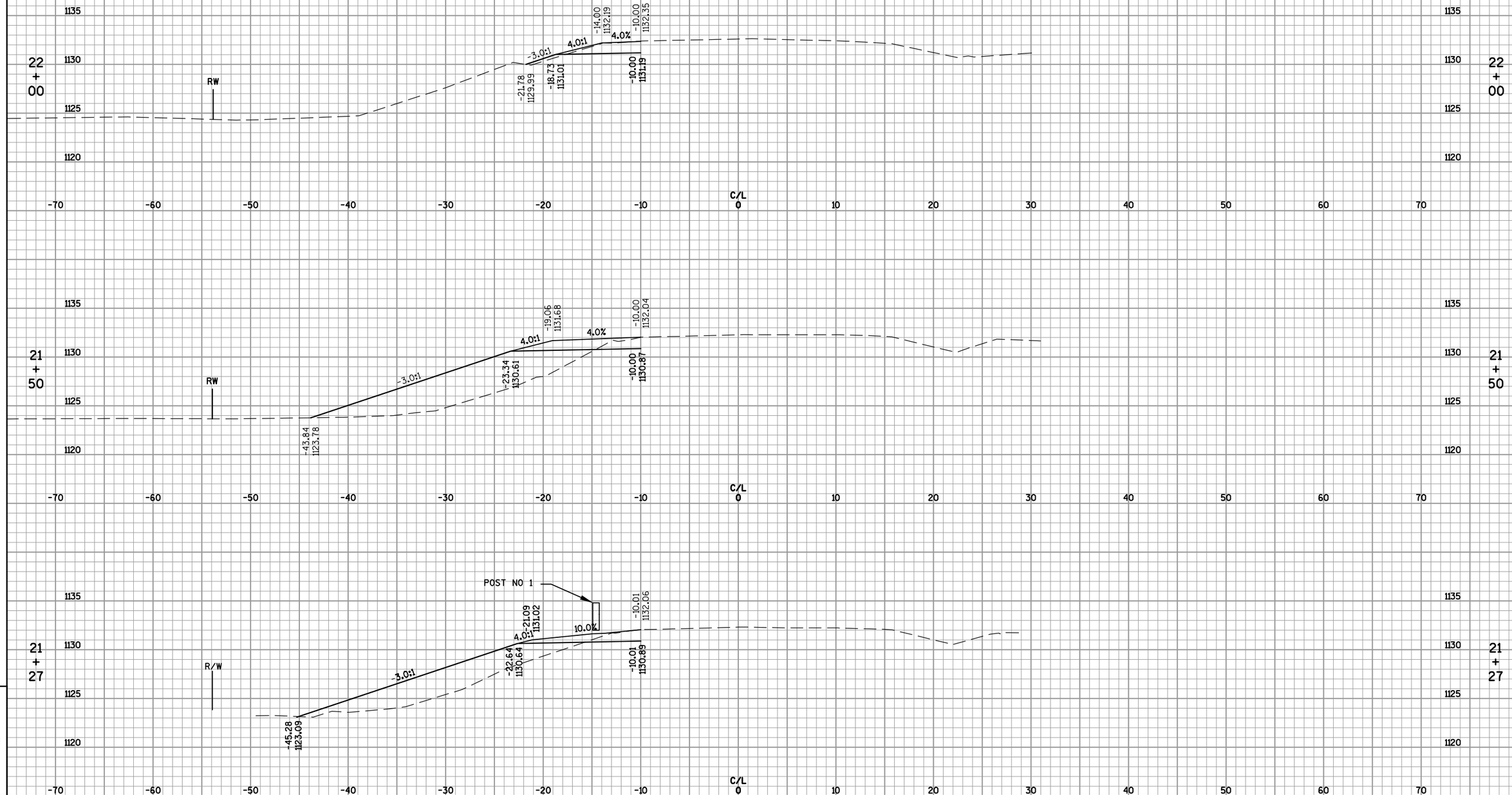
67960170_090211_xs

WISDOT/CADDS SHEET 49

END CONSTRUCTION
STA 22+00



9

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PROJECT NO:6796-01-70	HWY: CTH X	COUNTY: PORTAGE	CROSS SECTIONS: BIRCH DRIVE	SHEET 68	E	9.12

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67960170_090212_xs

WISDOT/CADDS SHEET 49

Notes

Wisconsin Department of Transportation

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