NWL MAR 2017

PROJECT ID: 8389-00-70
WITH: N/A

COUNTY: DOUGLAS

13

ORDER OF SHEETS

TOTAL SHEETS = 76

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PLAN OF PROPOSED IMPROVEMENT

T LAKESIDE, SLEEPY VALLEY LOOP

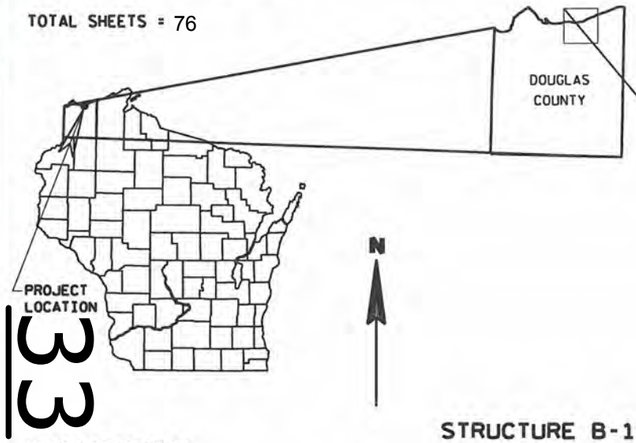
MIDDLE RIVER BRIDGE B160134

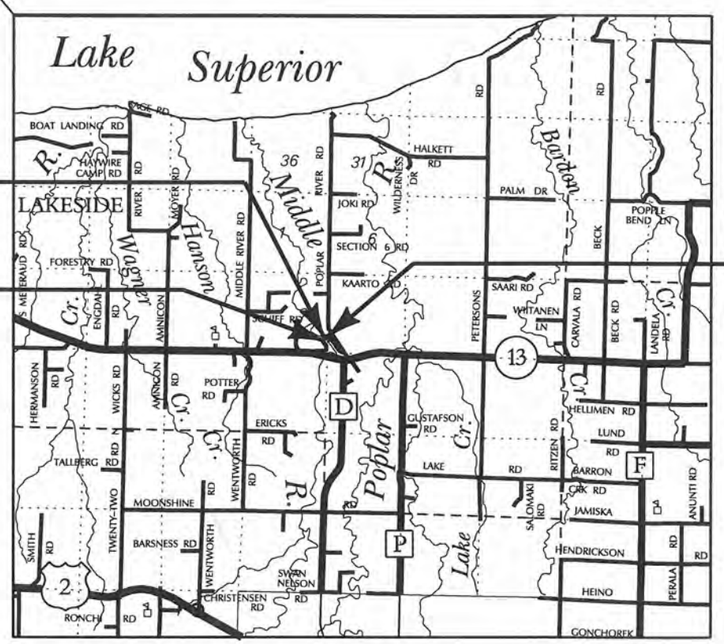
LOCAL STREET

DOUGLAS COUNTY

STATE PROJECT NUMBER
8389-00-70

STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
8389-00-70	WISC 2017121	1





STRUCTURE B-16-0134

BEGIN PROJECT
STA. 8+50.00
Y = 279818.69
X = 222030.43

END PROJECT
STA. 12+00.00
Y = 280020.83
X = 222214.29

LAYOUT
SCALE 0 1 MI.

TOTAL NET LENGTH OF CENTERLINE = 0.066 MI.

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

DESIGN DESIGNATION

A.D.T.	(2017)	=	<100
A.D.T.	(2037)	=	<100
D.H.V.		=	10
D.		=	50/50
T.		=	5.0
DESIGN SPEED		=	20 MPH
ESALS		=	N/A

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)
- HIGH VOLTAGE (CAUTION)
- MARSH AREA
- 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
- OVERHEAD (OH)
- ELECTRIC (E)
- FIBER OPTIC (FO)
- GAS (G)
- SANITARY SEWER (SAN)
- STORM SEWER (SS)
- TELEPHONE (T)
- WATER (W)
- UTILITY PEDESTAL
- POWER POLE
- TELEPHONE POLE

ACCEPTED FOR
Town of Lakeside
10-15-16 Date
Town Chairman

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

WISCONSIN
DANIEL N. SYDOW
E-38363
WI
PROFESSIONAL ENGINEER

DATE 10/7/2016

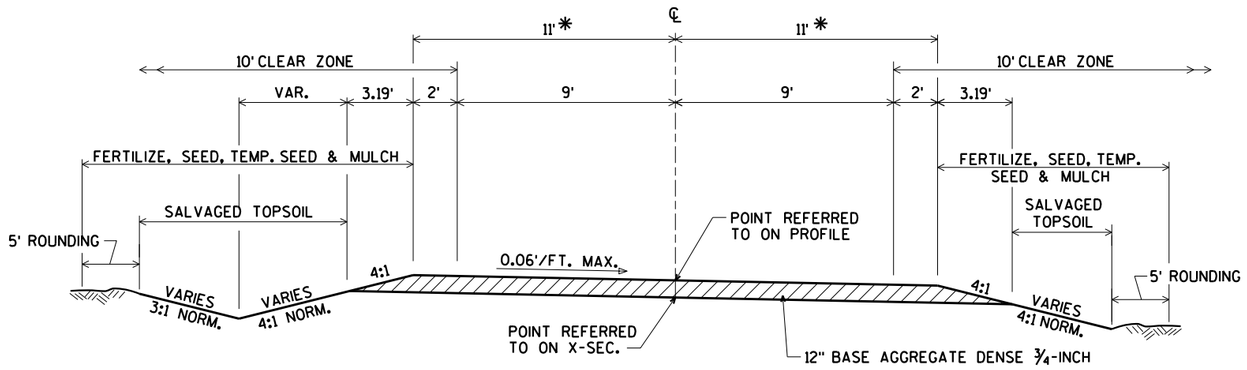
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PREPARED BY
Surveyor AYRES ASSOCIATES INC
Designer AYRES ASSOCIATES INC

Management Consultant KNIGHT EA
C.O. Examiner

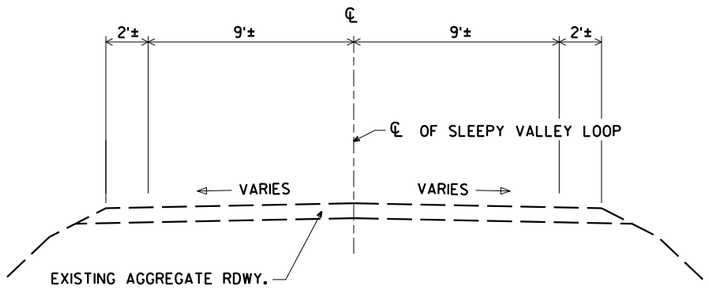
APPROVED FOR THE DEPARTMENT
DATE: 10/28/16
Management Consultant Signature

E

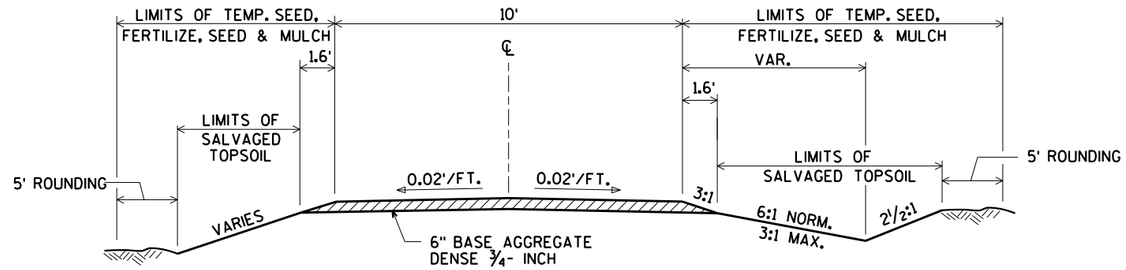


TYPICAL FINISHED SECTION

*BASE AGGREGATE SURFACE SHALL TAPER WITH THE GUARDRAIL AND TO 11' AT THE ENDS OF THE PROJECT.



TYPICAL EXISTING SECTION



TYPICAL SECTION FOR PRIVATE ENTRANCE

(STA. 11+17 P.E. LT.)

GENERAL NOTES

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

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

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

THE DEPARTMENT OF TRANSPORTATION WILL FURNISH THE CONTRACTOR WITH A MONUMENT TO BE INSTALLED BY THE CONTRACTOR AS DIRECTED BY THE ENGINEER.

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

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

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

UTILITIES

CENTURYLINK
P.O. BOX 518
OSCEOLA, WI 54020
ATTN: MIKE VANDENBOS
715-294-2463
mike.vandenbos@centurylink.com

DAHLBERG LIGHT & POWER COMPANY
P.O. BOX 300
SOLON SPRINGS, WI 54873
ATTN: JIM DAHLBERG
715-378-2205 ext. 119
JIMDAHLBERG@dahlberglightandpower.com

**DENOTES UTILITIES THAT ARE NOT DIGGERS HOTLINE MEMBERS

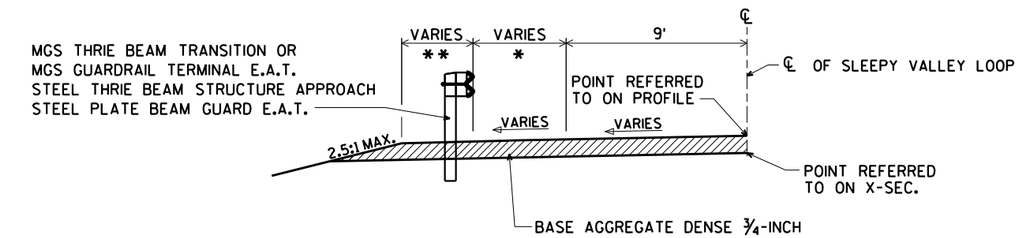
DIGGERS HOTLINE
Dial 811 or (800) 242-8511
www.DiggersHotline.com

WISCONSIN DEPARTMENT OF NATURAL RESOURCES CONTACT:

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

DESIGNER

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

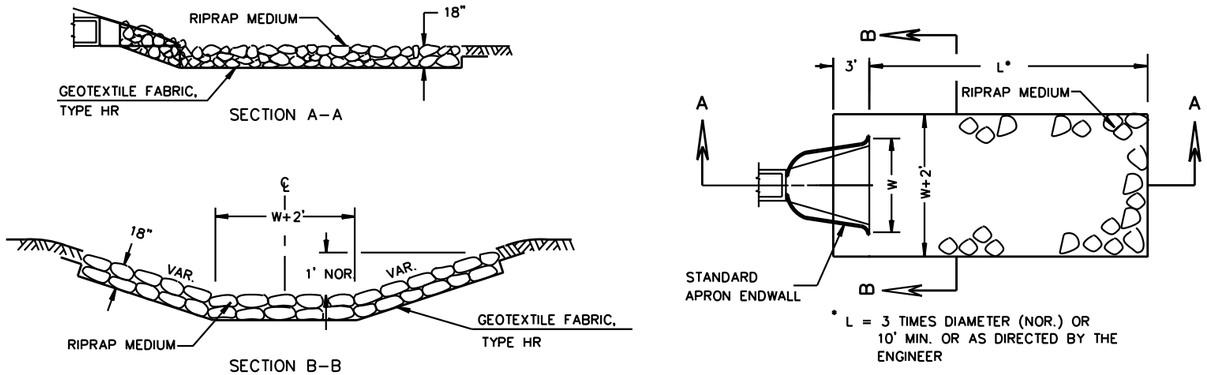


TYPICAL FINISHED HALF SECTION WITH BEAM GUARD

** 4'-0" NORMAL
6'-0" MAX. (AT ANCHORAGES)

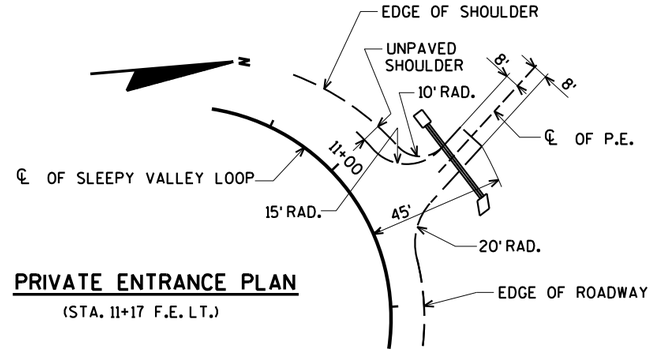
* 3' NORMAL
5' MAX. (AT ANCHORAGES)

PROJECT NO: 8389-00-70	HWY: SLEEPY VALLEY LOOP	COUNTY: DOUGLAS	TYPICAL SECTIONS	SHEET 2	E



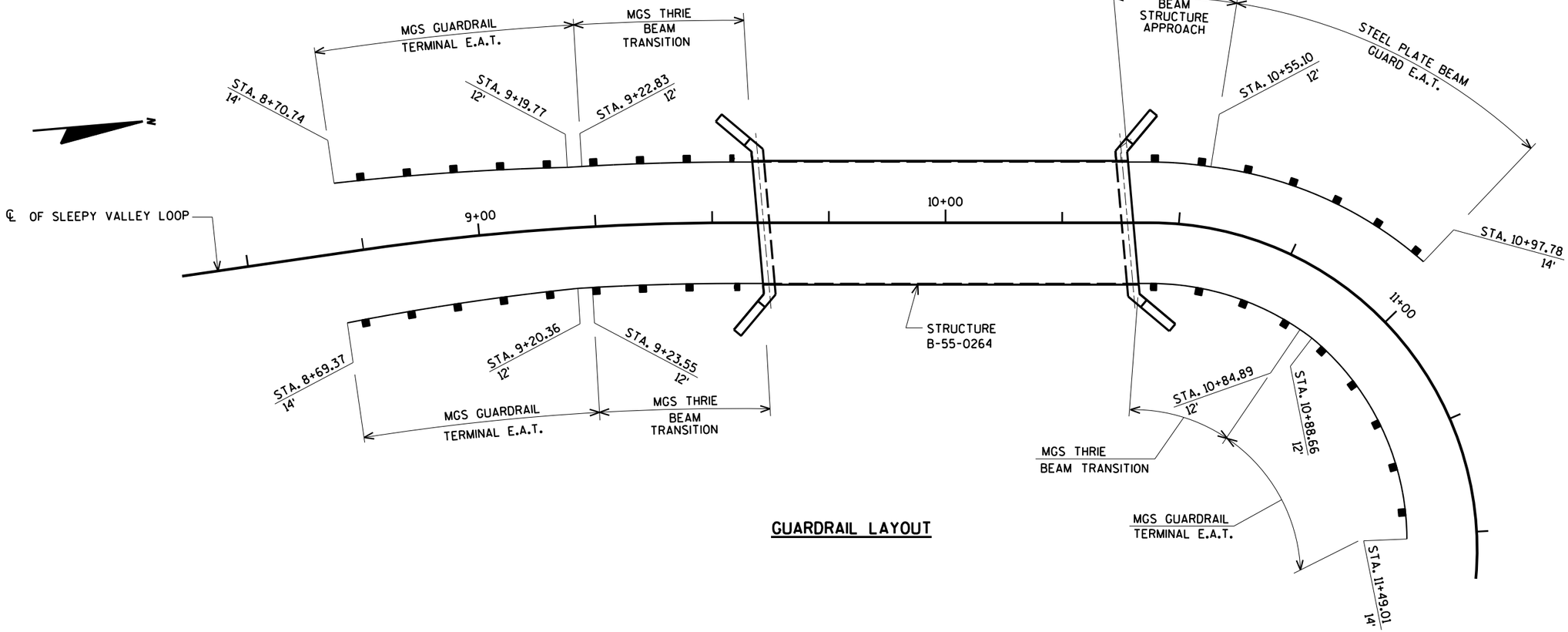
RIPRAP AND GEOTEXTILE FABRIC DETAIL

AT APRON ENDWALLS



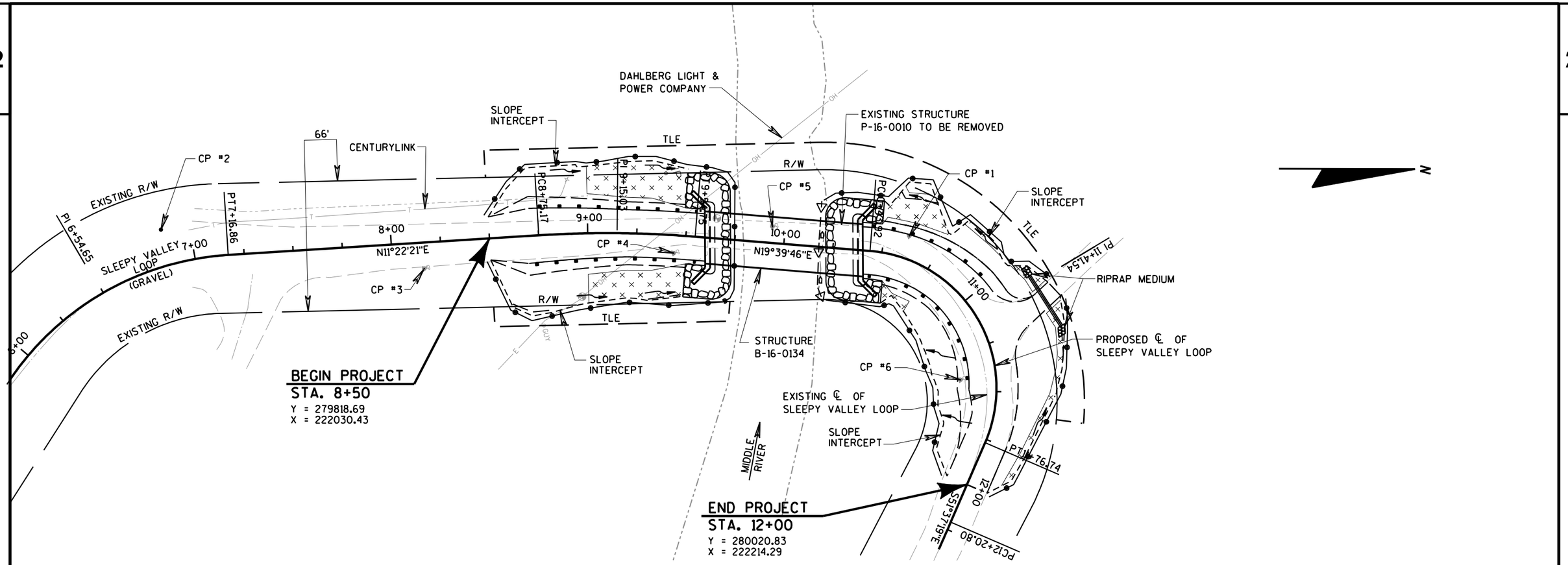
PRIVATE ENTRANCE PLAN

(STA. 11+17 F.E. LT.)



GUARDRAIL LAYOUT

PROJECT NO: 8389-00-70	HWY: SLEEPY VALLEY LOOP	COUNTY: DOUGLAS	CONSTRUCTION DETAILS	SHEET 3	E



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

HIGH WATER $_2$ EL. 677.7

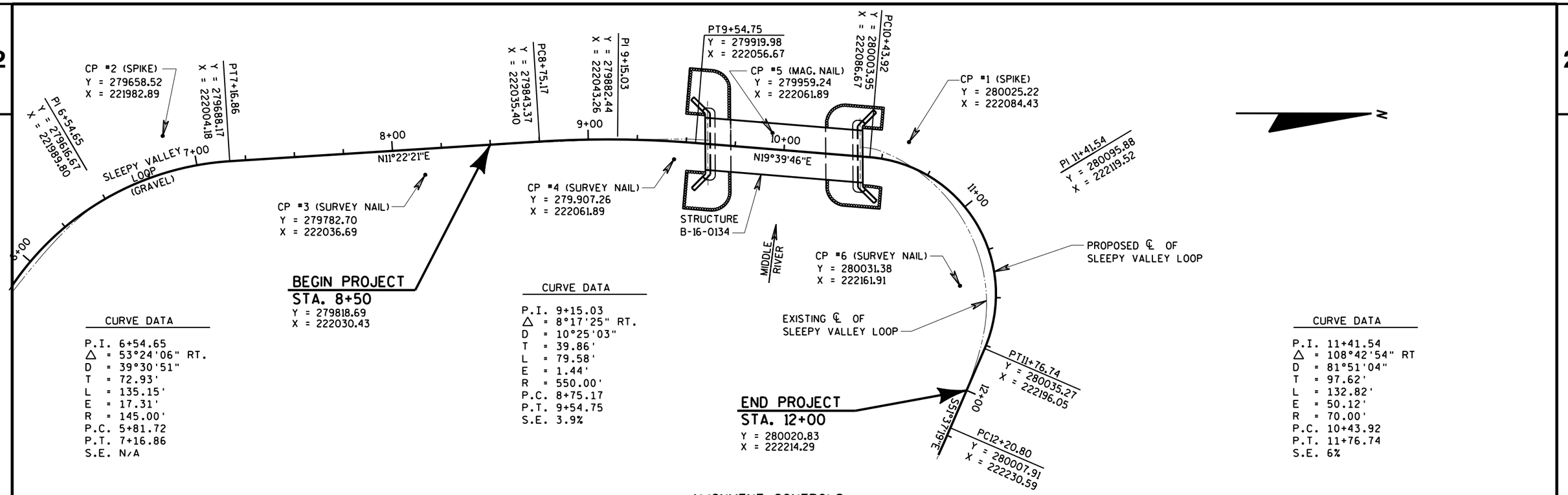
LEGEND

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

TOTAL PROJECT AREA = 0.658 ACRES
TOTAL AREA EXPECTED TO BE DISTURBED BY CONSTRUCTION ACTIVITIES = 0.449 ACRES

PROJECT NO: 8389-00-70	HWY: SLEEPY VALLEY LOOP	COUNTY: DOUGLAS	EROSION CONTROL	SCALE, FEET 0 25 50	SHEET 4	E

2



CURVE DATA

P.I. 6+54.65
△ = 53°24'06" RT.
D = 39°30'51"
T = 72.93'
L = 135.15'
E = 17.31'
R = 145.00'
P.C. 5+81.72
P.T. 7+16.86
S.E. N/A

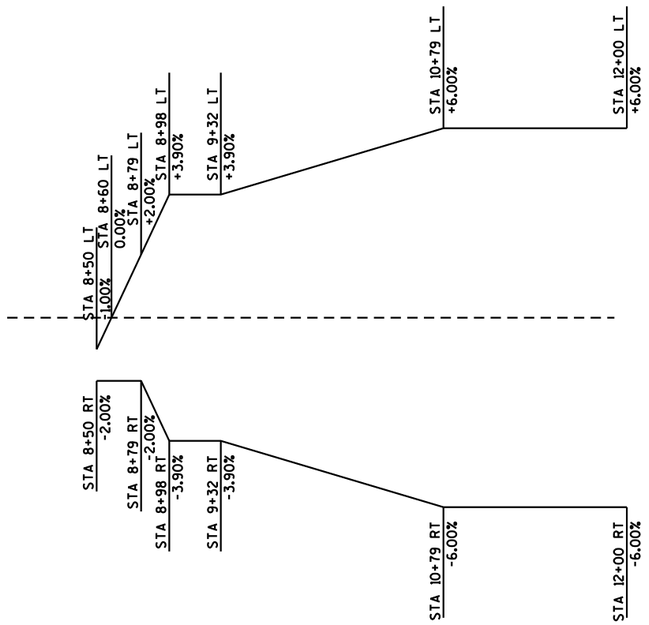
CURVE DATA

P.I. 9+15.03
△ = 8°17'25" RT.
D = 10°25'03"
T = 39.86'
L = 79.58'
E = 1.44'
R = 550.00'
P.C. 8+75.17
P.T. 9+54.75
S.E. 3.9%

CURVE DATA

P.I. 11+41.54
△ = 108°42'54" RT
D = 81°51'04"
T = 97.62'
L = 132.82'
E = 50.12'
R = 70.00'
P.C. 10+43.92
P.T. 11+76.74
S.E. 6%

ALIGNMENT CONTROLS



SUPERELEVATION DIAGRAM

PROJECT NO: 8389-00-70	HWY: SLEEPY VALLEY LOOP	COUNTY: DOUGLAS	ALIGNMENT CONTROLS & SUPERELEVATION	SHEET 5	E

8389-00-70

Line	Item	Item Description	Unit	Total	Qty
0010	201.0105	Clearing	STA	4.000	4.000
0020	201.0205	Grubbing	STA	4.000	4.000
0030	203.0100	Removing Small Pipe Culverts	EACH	2.000	2.000
0040	203.0500.S	Removing Old Structure Over Waterway (station) 01. 10+00	LS	1.000	1.000
0050	205.0100	Excavation Common	CY	351.000	351.000
0060	206.1000	Excavation for Structures Bridges (structure) 01. B-16-0134	LS	1.000	1.000
0070	208.0100	Borrow	CY	304.000	304.000
0080	210.1500	Backfill Structure Type A	TON	530.000	530.000
0090	213.0100	Finishing Roadway (project) 01. 8389-00-70	EACH	1.000	1.000
0100	305.0110	Base Aggregate Dense 3/4-Inch	TON	725.000	725.000
0110	502.0100	Concrete Masonry Bridges	CY	146.000	146.000
0120	502.3200	Protective Surface Treatment	SY	270.000	270.000
0130	503.0137	Prestressed Girder Type I 36W-Inch	LF	316.000	316.000
0140	505.0400	Bar Steel Reinforcement HS Structures	LB	4,390.000	4,390.000
0150	505.0600	Bar Steel Reinforcement HS Coated Structures	LB	15,730.000	15,730.000
0160	506.0105	Structural Steel Carbon	LB	520.000	520.000
0170	506.2605	Bearing Pads Elastomeric Non-Laminated	EACH	8.000	8.000
0180	506.4000	Steel Diaphragms (structure) 01. B-16-0134	EACH	6.000	6.000
0190	513.4061	Railing Tubular Type M (structure) 01. B-16-0134	LF	165.000	165.000
0200	516.0500	Rubberized Membrane Waterproofing	SY	20.000	20.000
0210	520.1018	Apron Endwalls for Culvert Pipe 18-Inch	EACH	2.000	2.000
0220	520.3318	Culvert Pipe Class III-A 18-Inch	LF	30.000	30.000
0230	550.0020	Pre-Boring Rock or Consolidated Materials	LF	120.000	120.000
0240	550.1100	Piling Steel HP 10-Inch X 42 Lb	LF	144.000	144.000
0250	606.0200	Riprap Medium	CY	3.000	3.000
0260	606.0300	Riprap Heavy	CY	195.000	195.000
0270	612.0406	Pipe Underdrain Wrapped 6-Inch	LF	150.000	150.000
0280	614.0200	Steel Thrie Beam Structure Approach	LF	21.000	21.000
0290	614.0370	Steel Plate Beam Guard Energy Absorbing Terminal	EACH	1.000	1.000
0300	614.2500	MGS Thrie Beam Transition	LF	120.000	120.000
0310	614.2610	MGS Guardrail Terminal EAT	EACH	3.000	3.000
0320	619.1000	Mobilization	EACH	1.000	1.000
0330	625.0500	Salvaged Topsoil	SY	885.000	885.000
0340	627.0200	Mulching	SY	925.000	925.000
0350	628.1504	Silt Fence	LF	945.000	945.000
0360	628.1520	Silt Fence Maintenance	LF	1,890.000	1,890.000
0370	628.1905	Mobilizations Erosion Control	EACH	4.000	4.000
0380	628.1910	Mobilizations Emergency Erosion Control	EACH	2.000	2.000

8389-00-70

Line	Item	Item Description	Unit	Total	Qty
0390	628.2027	Erosion Mat Class II Type C	SY	400.000	400.000
0400	628.6005	Turbidity Barriers	SY	55.000	55.000
0410	628.7504	Temporary Ditch Checks	LF	50.000	50.000
0420	629.0210	Fertilizer Type B	CWT	1.500	1.500
0430	630.0120	Seeding Mixture No. 20	LB	45.000	45.000
0440	630.0200	Seeding Temporary	LB	30.000	30.000
0450	634.0612	Posts Wood 4x6-Inch X 12-FT	EACH	4.000	4.000
0460	637.2230	Signs Type II Reflective F	SF	12.000	12.000
0470	638.2102	Moving Signs Type II	EACH	1.000	1.000
0480	638.2602	Removing Signs Type II	EACH	6.000	6.000
0490	638.3000	Removing Small Sign Supports	EACH	6.000	6.000
0500	642.5001	Field Office Type B	EACH	1.000	1.000
0510	643.0100	Traffic Control (project) 01. 8389-00-70	EACH	1.000	1.000
0520	645.0120	Geotextile Type HR	SY	412.000	412.000
0530	650.4500	Construction Staking Subgrade	LF	270.000	270.000
0540	650.5000	Construction Staking Base	LF	270.000	270.000
0550	650.6000	Construction Staking Pipe Culverts	EACH	1.000	1.000
0560	650.6500	Construction Staking Structure Layout (structure) 01. B-16-0134	LS	1.000	1.000
0570	650.9910	Construction Staking Supplemental Control (project) 01. 8389-00-70	LS	1.000	1.000
0580	650.9920	Construction Staking Slope Stakes	LF	270.000	270.000
0590	715.0502	Incentive Strength Concrete Structures	DOL	876.000	876.000
0600	ASP.1T0A	On-the-Job Training Apprentice at $5.00/HR	HRS	1,200.000	1,200.000
0610	ASP.1T0G	On-the-Job Training Graduate at $5.00/HR	HRS	300.000	300.000

3

EARTHWORK SUMMARY (CATEGORY 0010)

DIVISION	STATION TO STATION	LOCATION	**P** 205.0100 EXCAVATION COMMON CUT (1) CY	SALVAGED/ UNUSABLE PAVEMENT MATERIAL (2) CY	AVAILABLE MATERIAL (4) CY	UNEXPANDED FILL (3) CY	EXPANDED FILL (5) CY	MASS ORDINATE ±(6) CY	WASTE CY	**P** 208.0100 BORROW CY	COMMENTS:
1	8+50 TO 9+59.75	SLEEPY VALLEY LOOP	56	0	56	246	320	-264	0	264	
	10+40.25 TO 12+00	SLEEPY VALLEY LOOP	295	0	295	3	4	291	291	0	
	PE 11+17	PRIVATE ENTRANCE	0	0	0	40	0	0	0	40	
	GRANDTOTAL		351	0	351	289	324	27	291	304	

TOTAL EXCAVATION COMMON 351 CY **TOTAL BORROW 304 CY**

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

P PAY PLAN QUANTITY

CLEARING AND GRUBBING (CATEGORY 0010)

STATION TO STATION	LOCATION	201.0105 CLEARING STA	201.0205 GRUBBING STA
Sta. 8+50 to Sta. 12+00	Sleepy Valley Loop	4	4

213.0100 FINISHING ROADWAY (CATEGORY 0010)

LOCATION	EACH
PROJECT 8389-00-70	1

203.0100 REMOVING SMALL PIPE CULVERTS (CATEGORY 0010)

LOCATION	SIZE	EACH
Sta. 10+62, LT.	30"	1
Sta. 11+17, LT.	12"	1
TOTAL		2

BASE AGGREGATE DENSE (CATEGORY 0010)

STATION TO STATION	LOCATION	305.0110 3/4-INCH TON
Sta. 8+50 to Sta. 9+59.75	Sleepy Valley Loop	300
Sta. 10+40.25 to Sta 12+00	Sleepy Valley Loop	405
Sta. 11+17 PE RT	Private Entrance	20
TOTALS		725

3

520.3318 CULVERT PIPE CLASS III-A 18-INCH (CATEGORY 0010)

STATION	LOCATION	RCCP CLASS	THICKNESS (INCHES) STEEL	THICKNESS (INCHES) ALUMINUM	LF
PE Sta. 11+17	LT	III-A	0.064	0.06	30
TOTAL					30

520.1018 APRON ENDWALLS FOR CULVERT PIPE 18-INCH (CATEGORY 0010)

STATION	LOCATION	RCCP CLASS	EACH
PE Sta. 11+17	LT	III-A	2
TOTAL			2

606.0200 RIPRAP MEDIUM (CATEGORY 0010)

STATION	LOCATION	CY
Sta. 11+07.5	34-FT LT	1.5
Sta. 11+27.2	38-FT LT	1.5
TOTAL		3

BEAM GUARD (CATEGORY 0010)

STATION TO STATION	LOCATION	614.0200 STEEL THRIE BEAM STRUCTURE APPROACH LF	614.0370 STEEL PLATE BEAM GUARD EAT EACH	614.2500 MGS THRIE BEAM TRANSITION LF	614.2610 MGS GUARDRAIL TERMINAL EAT EACH
Sta. 8+69.37 to Sta. 9+23.55	RT				1
Sta. 8+70.74 to Sta. 9+23.55	LT				1
Sta. 9+22.83 to South Abutment	LT			40	
Sta. 9+23.25 to South Abutment	RT			40	
North Abutment to Sta. 10+55.10	LT	21			
North Abutment to Sta. 10+84.89	RT			40	
Sta. 10+55.10 to Sta. 10+97.78	LT		1		
Sta. 10+88.66 to Sta. 11+49.01	RT				1
TOTALS		21	1	120	3

619.1000 MOBILIZATION

LOCATION	EACH
PROJECT 8389-00-70 (CATEGORY 0010)	0.2
PROJECT 8389-00-70 (CATEGORY 0020)	0.8
TOTAL	1

SALVAGED TOPSOIL, MULCHING, FERTILIZER, SEED & TEMPORARY SEED (CATEGORY 0010)

STATION TO STATION	LOCATION	625.0500 SALVAGED TOPSOIL SY	627.0200 MULCHING SY	629.0210 FERTILIZER TYPE B CWT	630.0120 SEEDING NO. 20 LB	630.0200 SEEDING TEMPORARY LB
Sta. 8+50 to Sta. 12+00	Sleepy Valley Loop	885	840	0.9	36	25
Undistributed		---	85	0.6	9	5
TOTALS		885	925	1.5	45	30

3

SILT FENCE & SILT FENCE MAINTENANCE (CATEGORY 0010)

STATION TO STATION	LOCATION	628.1504 LF	628.1520 MAINTENANCE LF
Sta. 8+48 to Sta. 9+75	Sleepy Valley Loop, LT	180	360
Sta. 8+48 to Sta. 9+75	Sleepy Valley Loop, RT	175	350
Sta. 10+18 to Sta. 11+11	Sleepy Valley Loop, LT	155	310
Sta. 10+24 to Sta. 12+01	Sleepy Valley Loop, RT	130	260
Sta. 11+57 to Sta. 12+01	Sleepy Valley Loop, LT	115	230
Undistributed		190	380
TOTALS		945	1,890

MOBILIZATIONS EROSION CONTROL & EMERGENCY EROSION CONTROL (CATEGORY 0010)

LOCATION	628.1905 MOBILIZATIONS EROSION CONTROL EACH	628.1910 MOBILIZATIONS EMERGENCY EROSION CONTROL EACH
PROJECT 8389-00-70	4	2

628.2027 EROSION MAT CLASS II TYPE C (CATEGORY 0010)

STATION TO STATION	LOCATION	SY
Sta. 9+00 to Sta. 9+49	Sleepy Valley Loop, LT	110
Sta. 9+00 to Sta. 9+51	Sleepy Valley Loop, RT	90
Sta. 10+48 to Sta. 10+75	Sleepy Valley Loop, LT	50
Sta. 10+56 to Sta. 10+75	Sleepy Valley Loop, RT	10
Sta. 10+78 to Sta. 10+96	Sleepy Valley Loop, LT	10
Sta. 10+98 to Sta. 11+13	Sleepy Valley Loop, LT	10
Sta. 11+19 to Sta. 11+94	Sleepy Valley Loop, LT	40
Undistributed		80
TOTAL		400

628.6005 TURBIDITY BARRIER (CATEGORY 0010)

LOCATION	SY
North Abutment	45
Undistributed	10
TOTALS	55

628.7504 TEMPORARY DITCH CHECKS (CATEGORY 0010)

LOCATION	LF
UNDISTRIBUTED	50

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

STATION	LOCATION	EACH
Sta. 9+59	Sleepy Valley Loop, LT (W5-52L)	1
Sta. 9+61	Sleepy Valley Loop, RT (W5-52R)	1
Sta. 10+39	Sleepy Valley Loop, LT (W5-52R)	1
Sta. 10+41	Sleepy Valley Loop, RT (W5-52L)	1
TOTAL		4

637.2230 SIGNS TYPE II REFLECTIVE F (CATEGORY 0010)

STATION	LOCATION	DESCRIPTION	SF
Sta. 9+59	Sleepy Valley Loop, LT	W5-52L (OBJECT MARKER)	3
Sta. 9+61	Sleepy Valley Loop, RT	W5-52R (OBJECT MARKER)	3
Sta. 10+39	Sleepy Valley Loop, LT	W5-52R (OBJECT MARKER)	3
Sta. 10+41	Sleepy Valley Loop, RT	W5-52L (OBJECT MARKER)	3
TOTAL			12

638.2102 MOVING SIGNS TYPE II (CATEGORY 0010)

STATION	LOCATION	DESCRIPTION	EACH
Sta. 9+61	Sleepy Valley Loop, LT	"LAKESIDE FIRE DEPT WP 4"	1

REMOVING (CATEGORY 0010)

STATION	LOCATION	DESCRIPTION	638.2602 REMOVING SIGNS TYPE II EACH	638.3000 REMOVING SMALL SIGN SUPPORTS EACH
Sta. 9+62	Sleepy Valley Loop, RT	R12-1 (WEIGHT LIMIT)	1	1
Sta. 9+62	Sleepy Valley Loop, RT	W5-52R (OBJECT MARKER)	1	1
Sta. 9+61	Sleepy Valley Loop, LT	W5-52L (OBJECT MARKER)	1	1
Sta. 10+38	Sleepy Valley Loop, RT	W5-52L (OBJECT MARKER)	1	1
Sta. 10+38	Sleepy Valley Loop, LT	W5-52R (OBJECT MARKER)	1	1
Sta. 10+38	Sleepy Valley Loop, LT	R12-1 (WEIGHT LIMIT)	1	1
TOTAL			6	6

642.5001 FIELD OFFICE TYPE B (CATEGORY 0010)

LOCATION	EACH
PROJECT 8389-00-70	1

643.0100 TRAFFIC CONTROL (CATEGORY 0010)

LOCATION	EACH
PROJECT 8389-00-70	1

645.0120 GEOTEXTILE TYPE HR (CATEGORY 0010)

STATION	LOCATION	SY
Sta. 11+07.5	34-FT, LT.	11
Sta. 11+27.2	38-FT, LT.	11
TOTAL		22

CONSTRUCTION STAKING

CATEGORY	LOCATION	650.4500 SUBGRADE LF	650.5000 BASE LF	650.6000 PIPE CULVERTS EACH	650.6500 STRUCTURE LAYOUT LS	650.9910 SUPPLEMENTARY CONTROL LS	650.9920 SLOPE STAKES LF
0010	Sta. 8+50 to Sta. 12+00	270	270	---	---	1	270
0010	Sta. PE 11+17, RT	---	---	1	---	---	---
0020	B-16-0134	---	---	---	1	---	---
TOTALS		270	270	1	1	1	270

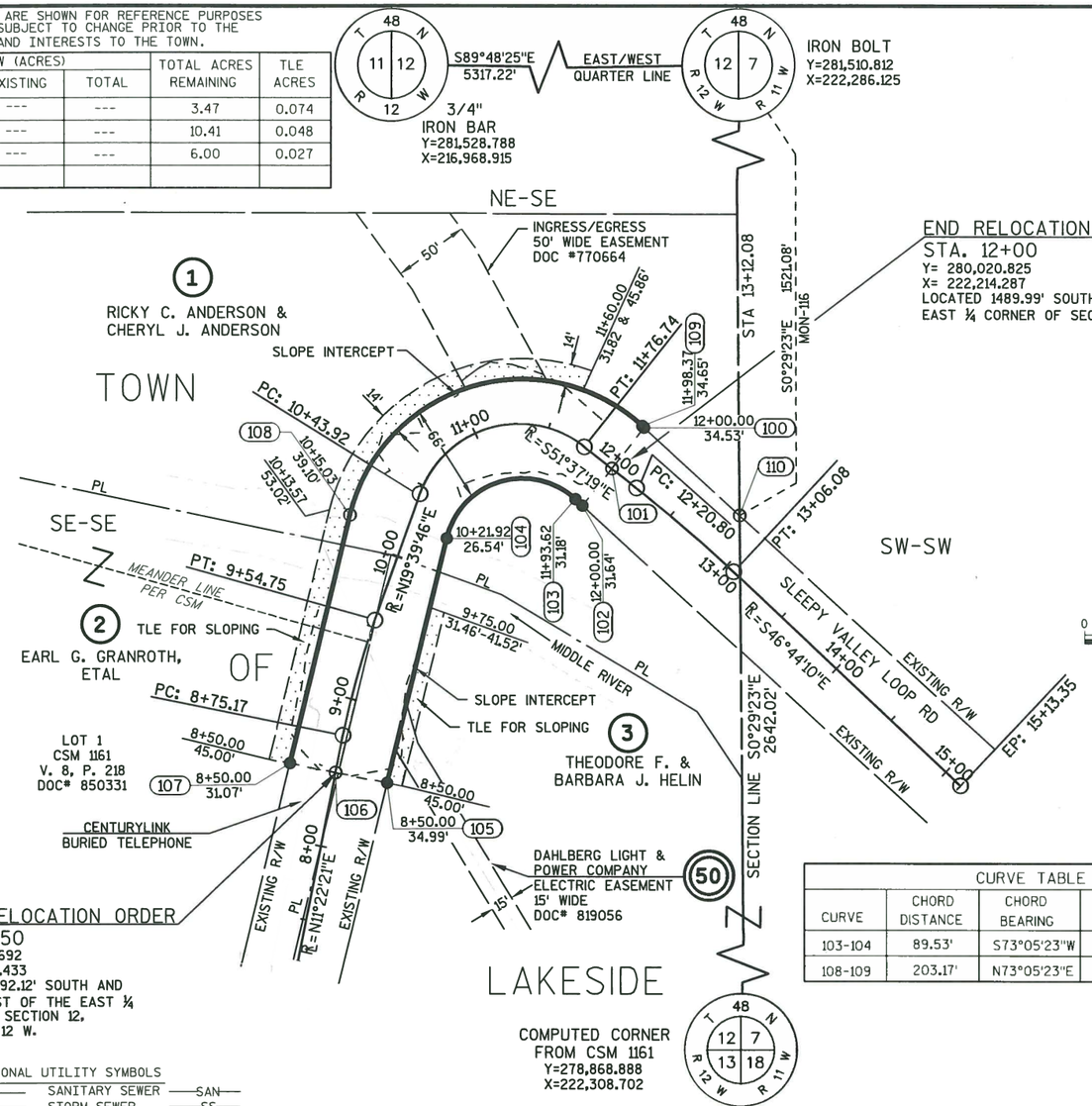
SCHEDULE OF LANDS AND INTERESTS REQUIRED

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

PARCEL NO.	OWNERSHIP	INTEREST REQUIRED	TOTAL ACRES	R/W (ACRES) NEW	R/W (ACRES) EXISTING	R/W (ACRES) TOTAL	TOTAL ACRES REMAINING	TLE ACRES
1	RICKY C. ANDERSON & CHERYL J. ANDERSON	TLE	3.47	---	---	---	3.47	0.074
2	EARL G GRANROTH, ETAL	TLE	10.41	---	---	---	10.41	0.048
3	THEODORE F. & BARBARA J. HELIN	TLE	6.00	---	---	---	6.00	0.027
50	DAHLBERG LIGHT & POWER COMPANY	RELEASE OF RIGHTS						

POINT TABLE		
POINT #	Y	X
100	280,047.898	222,235.727
101	280,020.825	222,214.287
102	279,996.024	222,194.644
103	280,000.349	222,189.925
104	279,974.306	222,104.262
105	279,811.793	222,064.733
106	279,818.692	222,030.433
107	279,824.818	221,999.977
108	279,989.905	222,040.132
109	280,049.003	222,234.522
110	279,989.788	222,299.123

COURSE TABLE		
COURSE	BEARING	DISTANCE
110-100	N47°29'29"W	86.00'
100-101	S38°22'41"W	34.53'
101-102	S38°22'41"W	31.64'
102-103	N47°29'29"W	6.40'
103-104	SEE CURVE TABLE	
104-105	S13°40'15"W	167.25'
105-106	N78°37'39"W	34.99'
106-107	N78°37'39"W	31.07'
107-108	N13°40'15"E	169.90'
108-109	SEE CURVE TABLE	
109-100	S47°29'29"E	1.64'



ALIGNMENT CURVE DATA		
PI STA = 9+15.03	PI STA = 11+41.54	PI STA = 12+63.47
Y = 279,882.445	Y = 280,095.877	Y = 279,981.422
X = 222,043.256	X = 222,119.520	X = 222,264.040
DELTA = 8°17'25"	DELTA = 108°42'55"	DELTA = 4°53'09"
D = 10°25'03"	D = 81°51'04"	D = 5°43'46"
T = 39.86'	T = 97.62'	T = 42.67'
L = 79.58'	L = 132.82'	L = 85.28'
R = 550.00'	R = 70.00'	R = 1000.00'
PC STA = 8+75.17	PC STA = 10+43.92	PC STA = 12+20.80
PT STA = 9+54.75	PT STA = 11+76.74	PT STA = 13+06.08

CURVE TABLE				
CURVE	CHORD DISTANCE	CHORD BEARING	RADIUS	ARC LENGTH
103-104	89.53'	S73°05'23"W	52.00'	107.85'
108-109	203.17'	N73°05'23"E	118.00'	224.74'

CONVENTIONAL SYMBOLS

FOUND IRON PIPE/PIN I.P. (3/4" REBAR UNLESS NOTED)
R/W MONUMENT ° •(SET)
R/W STANDARD △ ▲(SET)
SIGN ISIGN
SECTION CORNER MONUMENT ⊡
SECTION CORNER SYMBOL
FEE (HATCH VARIES)
TEMPORARY LIMITED EASEMENT
PERMANENT LIMITED EASEMENT
R/W BOUNDARY POINT RWB20
PARCEL NUMBER 103
UTILITY PARCEL NUMBER 62
SIGN NUMBER (OFF PREMISE) 21-3
BUILDING

SECTION LINE
QUARTER LINE
SIXTEENTH LINE
NEW REFERENCE LINE 10
NEW R/W LINE
EXISTING R/W LINE
PROPERTY LINE P.L.
LOT & TIE
CORPORATE LIMITS (NAME)
TEMPORARY LIMITED EASEMENT
FENCE
SLOPE INTERCEPTS
PERMANENT LIMITED EASEMENT L
NO ACCESS (BY STATUTORY AUTHORITY)
NO ACCESS (BY PREVIOUS ACQUISITION/CONTROL)
NO ACCESS (BY ACQUISITION)

CONVENTIONAL UTILITY SYMBOLS

WATER	—W—	SANITARY SEWER	—SAN—
GAS	—G—	STORM SEWER	—SS—
TELEPHONE	—T—		NON COMPENSABLE / COMPENSABLE
OVERHEAD TRANSMISSION LINES	—OH—	POWER POLE	▫ / ▪
ELECTRIC	—E—	TELEPHONE POLE	⌀ / •
CABLE TELEVISION	—TV—	TELEPHONE PEDESTAL	⌅ / ⌆
FIBER OPTIC	—FO—	ELECTRIC TOWER	⊠

CONVENTIONAL ABBREVIATIONS

ACCESS POINT/ DRIVEWAY CONNECTION	AP	REFERENCE LINE	R/L
ACCESS RIGHTS	AR	RELEASE OF RIGHTS	ROR
ACRES	AC.	REMAINING	REM.
AND OTHERS	ET.AL.	RIGHT-OF-WAY	R/W
CENTERLINE	C/L	SECTION	SEC.
CERTIFIED SURVEY MAP	CSM	STATION	STA.
CORNER	COR.	TEMPORARY LIMITED EASEMENT	TLE
DOCUMENT	DOC.	VOLUME	V.
EASEMENT	EASE.	**CURVE DATA**	
HIGHWAY EASEMENT	H.E.	LONG CHORD	LCH
LAND CONTRACT	LC	LONG CHORD BEARING	LCB
MONUMENT	MON.	RADIUS	R
PAGE	P.	DEGREE OF CURVE	D
PERMANENT LIMITED EASEMENT	PLE	CENTRAL ANGLE OR DELTA	DELTA
PROPERTY LINE	PL	LENGTH OF CURVE	L
RECORDED AS	(100')	TANGENT	TAN

NOTES:

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

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

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

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

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

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

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

EXISTING HIGHWAY RIGHT-OF-WAY SHOWN HEREIN IS BASED ON CERTIFIED SURVEY MAP 1161 AND A PRESUMED 66' WIDTH CENTERED ON THE EXISTING CENTERLINE PER STATE STATUTE 82.31(2).

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

REVISION DATE

R/W PROJECT NUMBER 8389-00-00		SHEET NUMBER	TOTAL SHEETS
FEDERAL PROJECT NUMBER		4.01	1

PLAT OF RIGHT-OF-WAY REQUIRED FOR

T LAKESIDE, SLEEPY VALLEY LOOP
(MIDDLE RIVER BRIDGE B-16-0134)

TOWN ROAD — DOUGLAS COUNTY

CONSTRUCTION PROJECT NUMBER
8389-00-70

APPROVED FOR TOWN OF LAKESIDE

10-27-16 DATE — TOWN CHAIRMAN

PLAT PREPARED BY
AYRES ASSOCIATES

THE SURVEY IS PREPARED AT THE REQUEST OF THE TOWN OF LAKESIDE. THE TOPOGRAPHY AND UTILITY SURVEY WAS PERFORMED IN JULY, 2013. THIS SURVEY IS ACCURATE TO THE BEST OF MY KNOWLEDGE AND BELIEF.

WISCONSIN
JAMES R CAPPEART
S-3044
COTTAGE GROVE
WI
LAND SURVEYOR

10/20/2016
JAMES R. CAPPEART, P.L.S. — DATE
S-3044

NOTES:
FOR ALIGNMENT CONTROLS, SEE ALIGNMENT CONTROLS SHEET.

CP #2
CENTURYLINK
EXISTING R/W
PI 6+54.65
PT 7+16.86
SLEEPY VALLEY LOOP (GRAVEL)
7+00
8+00
N11°22'21"E
66'
CP #3
5+00
EXISTING R/W

SLOPE INTERCEPT
DAHLBERG LIGHT & POWER COMPANY TLE
PC 8+75.17
PT 9+15.03
9+00
R/W
BM#1
CP #5
CP #4
R/W
TLE
BM#2
SLOPE INTERCEPT

EXISTING STRUCTURE P-16-0010 TO BE REMOVED
STA. 10+62, LT.
REMOVE EXISTING 30" ϕ CP
L = 23'
CP #1
PC 10+39.82
10+00
N19°39'46"E
SLOPE INTERCEPT
TLE
PI 11+41.54
11+00
STRUCTURE B-16-0134
PROPOSED ℄ OF SLEEPY VALLEY LOOP
CP #6
EXISTING ℄ OF SLEEPY VALLEY LOOP
SLOPE INTERCEPT
MIDDLE RIVER
PT 11+76.74
S51°37'19"E
+00
PC12+20.80

N

CONSTRUCT PE
STA. 11+17, LT.

REMOVE EXISTING 12" ϕ CP
STA. 11+17, 28' LT.
L = 29'

NEW - 18" ϕ CP REQ'D.
L = 30'
2 ENDWALLS REQUIRED
INLET EL. 690.72
OUTLET EL. 689.67

BEGIN PROJECT
STA. 8+50
Y = 279818.69
X = 222030.43

END PROJECT
STA. 12+00
Y = 280020.83
X = 222214.29

NO.	STA.	BENCH MARKS ⌖ DESCRIPTION	ELEV.
1	9+65	CHIS. SQ. ON CURB OF BRIDGE, 10' LT.	687.63
2	8+96	RR SPK. IN PP, 32' RT.	681.76

EARTHWORK SUMMARY
STA. 8+50 TO STA. 9+59.75
EXC. COMMON 56 C.Y.
FILL 246 C.Y.
SHR. = 30%
BORROW 264 C.Y.

200.00' VC
K = 39.45
+0.60%
+5.67%
PC STA 9+50.00
PC EL 687.80
HIGH WATER$_{100}$ EL. 680.9
FINISHED ℄ PROFILE
EXISTING ℄ PROFILE
PI STA 8+50.00
PI EL 687.20
WATER EL. 676.4
(7-17-13)
PI STA 10+50.00
PI EL 688.40
STREAM BED
EL. 675.2
PT STA 11+50.00
PT EL 694.07
PI STA 12+00.00
PI EL 696.91

EARTHWORK SUMMARY
STA. 10+40.25 TO STA. 12+00
EXC. COMMON 295 C.Y.
FILL 3 C.Y.
SHR. = 30%
WASTE 291 C.Y.

REMOVING OLD STRUCTURE OVER WATERWAY
STATION 10+00, STRUCTURE P-16-0010
SINGLE SPAN STEEL TRUSS BRIDGE
15.0' CLEAR RDWY. x 78.7' O.A.L.
0° SKEW

STA. 10+00
STRUCTURE B-16-0134 REQ'D.
SINGLE SPAN 36W" PRESTRESSED GIRDER BRIDGE
24'-0" CLEAR ROADWAY x 80'-6" O.A.L.
5° SKEW

700
690
680
670
660

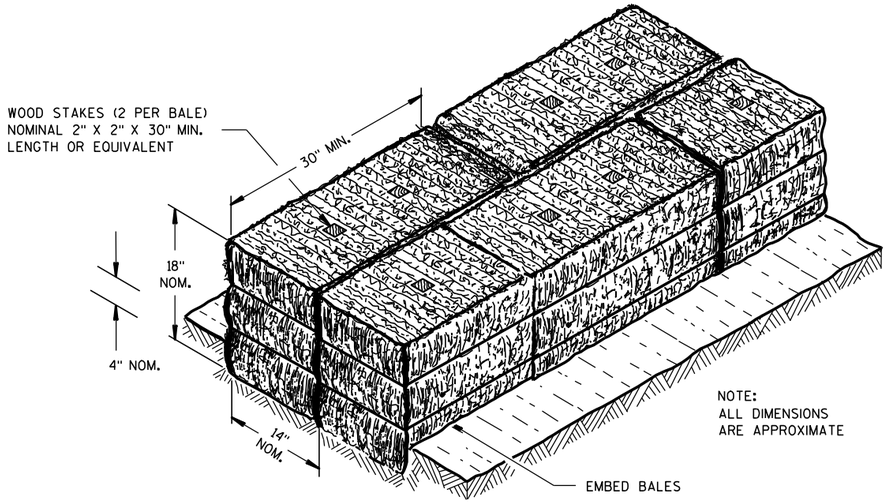
690.57 | 688.39 | 687.43 | 687.20 MATCH | 687.33 **687.50** | 687.29 **687.80** | 675.36 **688.42** | 688.84 **689.67** | 691.57 **691.55** | 694.53 **694.07** | 696.91 MATCH | 699.88 | 702.88

7+00 7+50 8+00 8+50 9+00 9+50 10+00 10+50 11+00 11+50 12+00 12+50 13+00

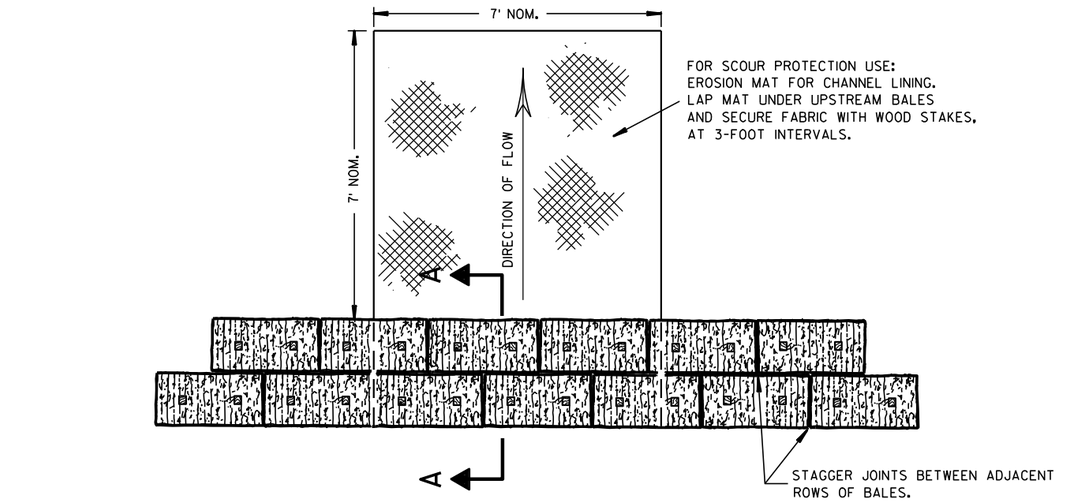
PROJECT NO: 8389-00-70	HWY: SLEEPY VALLEY LOOP	COUNTY: DOUGLAS	PLAN AND PROFILE	SCALE, FEET 0 25 50	SHEET 13	E

Standard Detail Drawing List

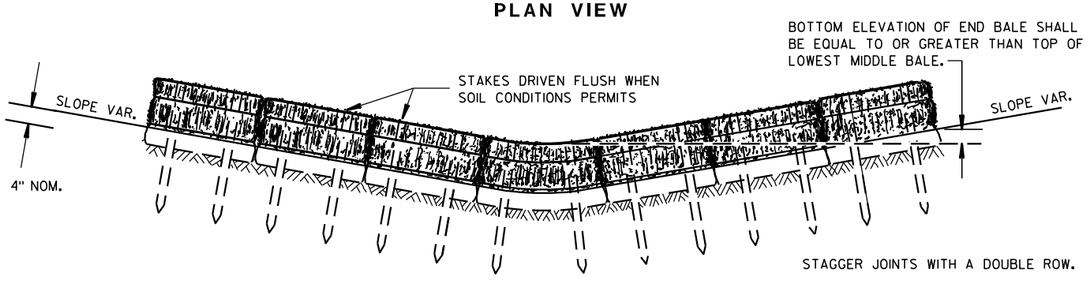
08E08-03	TYPICAL INSTALLATIONS OF EROSION BALES / TEMPORARY DITCH CHECKS
08E09-06	SILT FENCE
08E11-02	TURBIDITY BARRIER
08F01-11	APRON ENDWALLS FOR CULVERT PIPE
12A03-10	NAME PLATE (STRUCTURES)
14B15-09A	STEEL PLATE BEAM GUARD, CLASS "A" INSTALLATION & ELEMENTS
14B15-09B	STEEL PLATE BEAM GUARD, CLASS "A" INSTALLATION & ELEMENTS
14B15-09C	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"
14B24-08A	STEEL PLATE BEAM GUARD ENERGY ABSORBING TERMINAL
14B24-08B	STEEL PLATE BEAM GUARD ENERGY ABSORBING TERMINAL
14B24-08C	STEEL PLATE BEAM GUARD ENERGY ABSORBING TERMINAL
14B42-04A	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-04B	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-04C	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B44-02A	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B44-02B	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B44-02C	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B45-04A	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-04B	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-04C	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-04H	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
15C02-06A	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C02-06B	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C06-08	SIGNING & MARKING FOR TWO LANE BRIDGES



SECTION A-A



PLAN VIEW



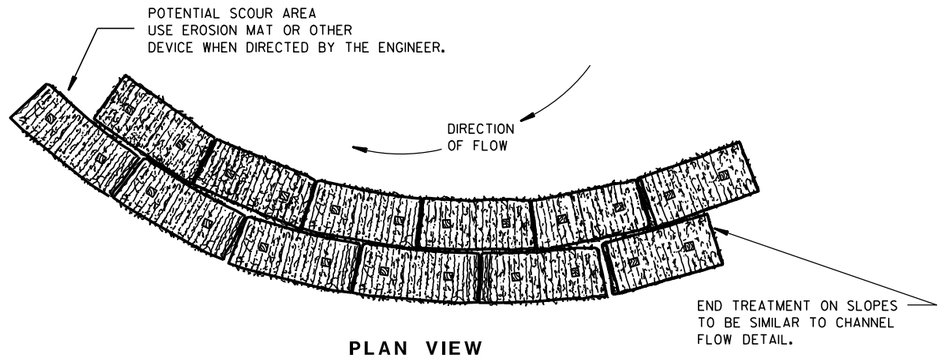
FRONT ELEVATION

TEMPORARY DITCH CHECK USING EROSION BALES (1)

GENERAL NOTES

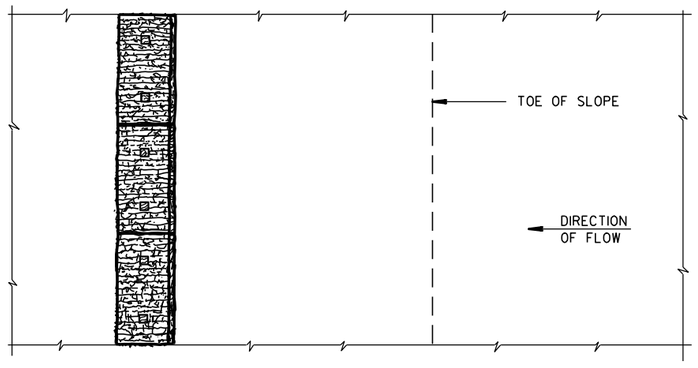
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

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

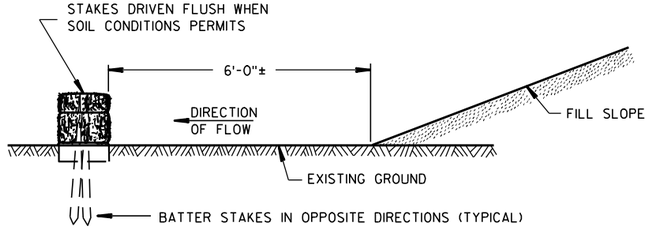


PLAN VIEW

WHEN ALTERING THE DIRECTION OF FLOW



PLAN VIEW



FRONT ELEVATION

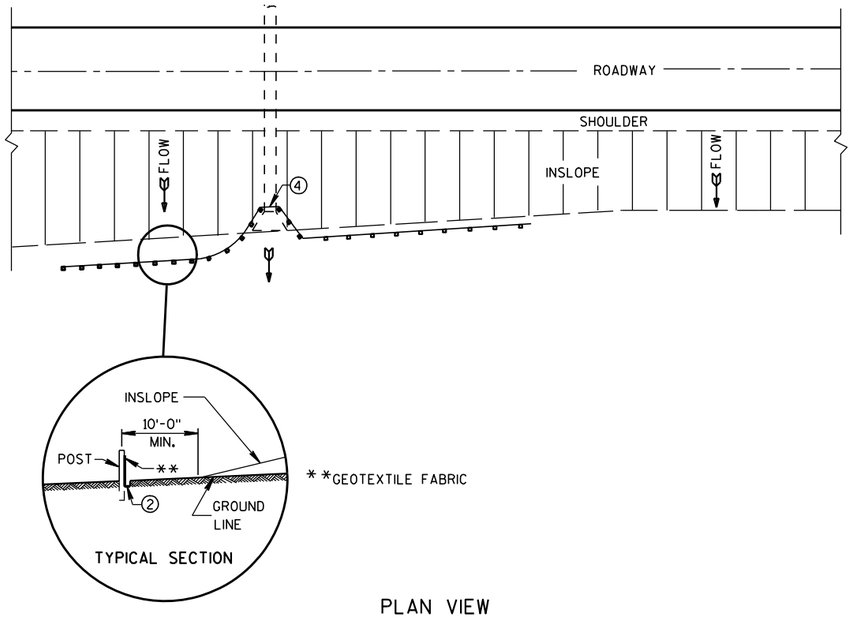
WHEN EXISTING GROUND SLOPES AWAY FROM FILL SLOPE

EROSION BALES FOR SHEET FLOW

TYPICAL INSTALLATIONS OF EROSION BALES / TEMPORARY DITCH CHECKS

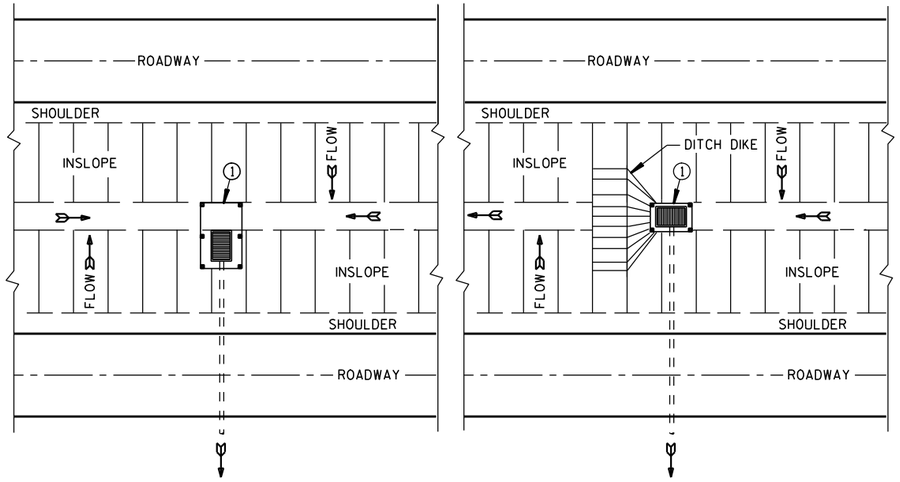
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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



PLAN VIEW

TYPICAL APPLICATION OF SILT FENCE



PLAN VIEW

SILT FENCE AT MEDIAN SURFACE DRAINS

GENERAL NOTES

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

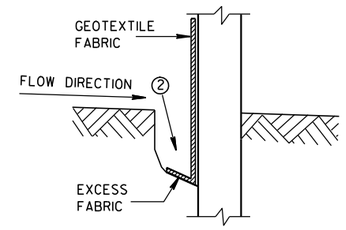
① HORIZONTAL BRACE REQUIRED WITH 2" X 4" WOODEN FRAME OR EQUIVALENT AT TOP OF POSTS.

② FOR MANUAL INSTALLATIONS THE TRENCH SHALL BE A MINIMUM OF 4" WIDE & 6" DEEP TO BURY AND ANCHOR THE GEOTEXTILE FABRIC. FOLD MATERIAL TO FIT TRENCH AND BACKFILL & COMPACT TRENCH WITH EXCAVATED SOIL.

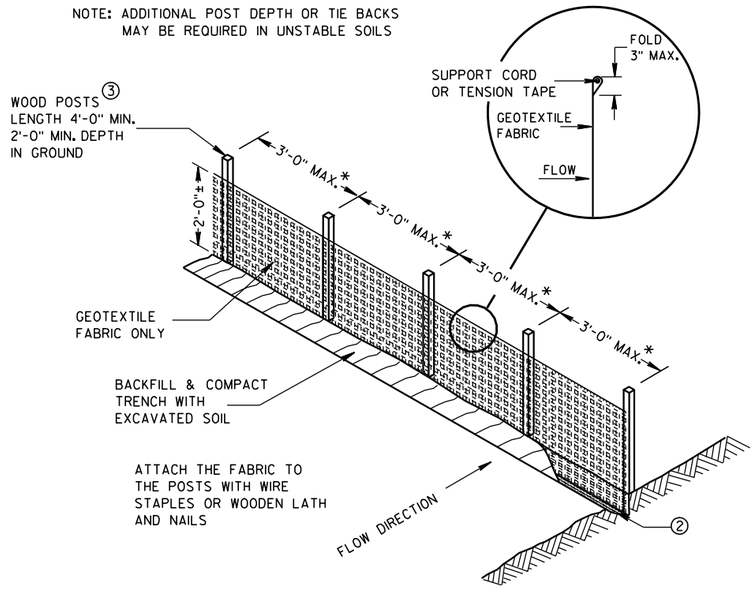
③ WOOD POSTS SHALL BE A MINIMUM SIZE OF 1⅛" X 1⅛" OF OAK OR HICKORY.

④ SILT FENCE TO EXTEND ACROSS THE TOP OF THE PIPE.

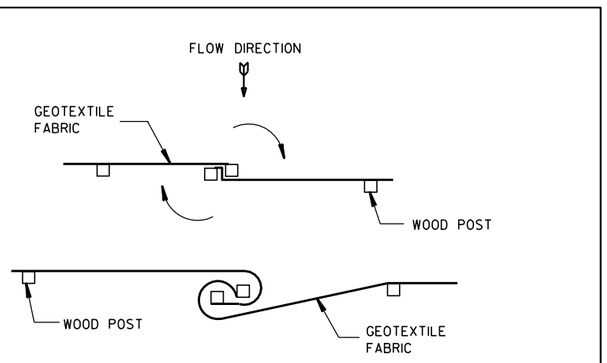
⑤ CONSTRUCT SILT FENCE FROM A CONTINUOUS ROLL IF POSSIBLE BY CUTTING LENGTHS TO AVOID JOINTS. IF A JOINT IS NECESSARY USE ONE OF THE FOLLOWING TWO METHODS; A) OVERLAP THE END POSTS AND TWIST, OR ROTATE, AT LEAST 180 DEGREES, B) HOOK THE END OF EACH SILT FENCE LENGTH.



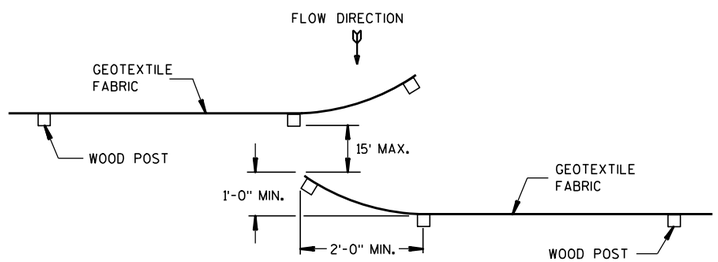
TRENCH DETAIL



SILT FENCE

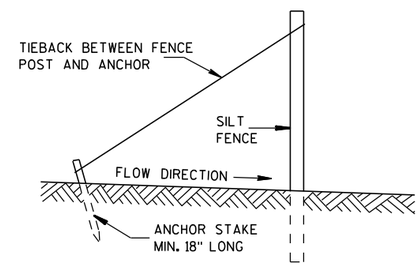


TWIST METHOD



HOOK METHOD

JOINING TWO LENGTHS OF SILT FENCE ⑤



SILT FENCE TIE BACK

(WHEN REQUIRED BY THE ENGINEER)

SILT FENCE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

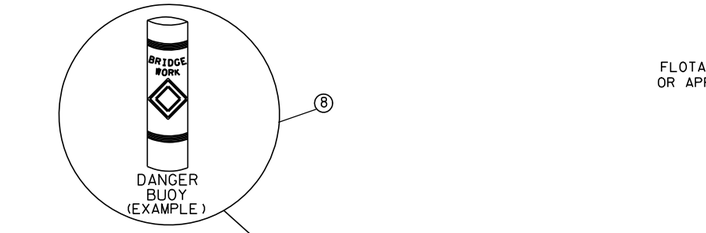
APPROVED
4-29-05 DATE
/S/ Beth Cannestra
CHIEF ROADWAY DEVELOPMENT ENGINEER
FHWA

6

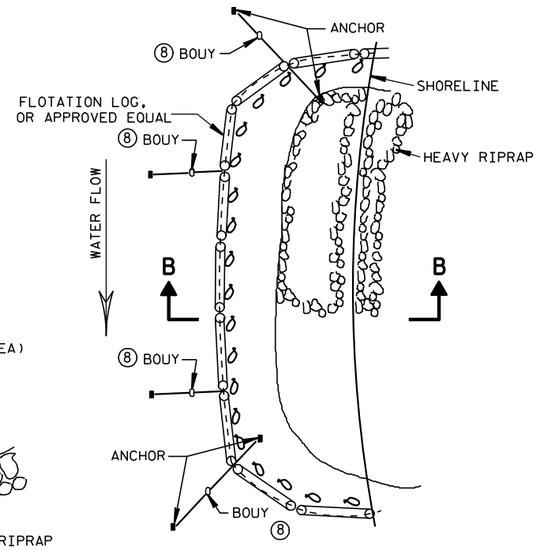
S.D.D. 8 E 9-6

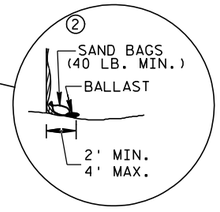
6

S.D.D. 8 E 9-6

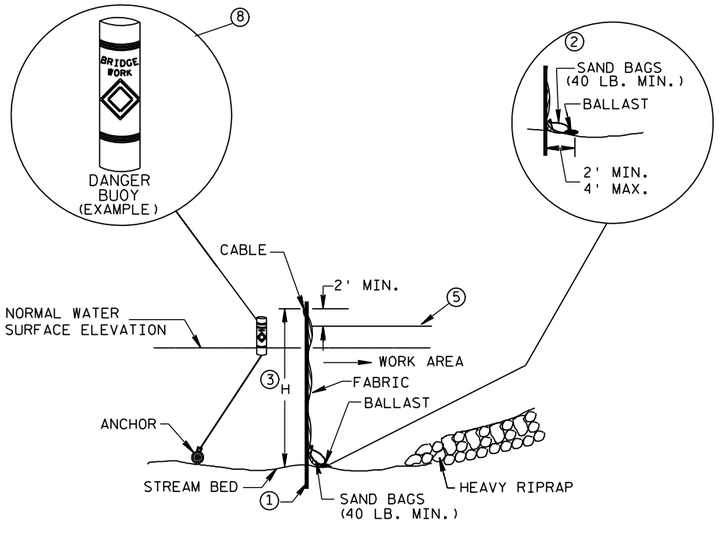


SECTION B-B

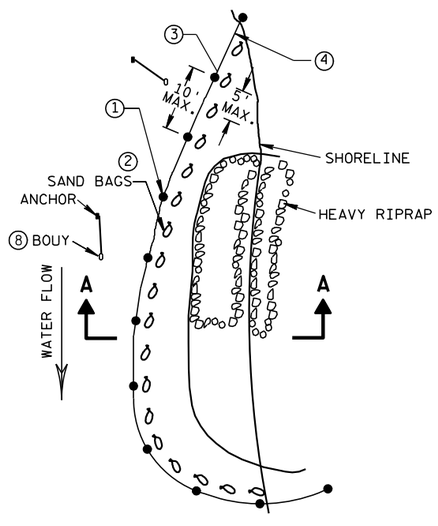




TURBIDITY BARRIER FLOAT ALTERNATIVE
CAUTION - SEE NOTE 6



SECTION A-A



PLAN VIEW

TURBIDITY BARRIER STANDARD POST INSTALLATION

TURBIDITY BARRIER PLACEMENT DETAILS

GENERAL NOTES

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

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

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

② SANDBAGS TO BE USED AS ADDITIONAL BALLAST WHEN ORDERED BY THE ENGINEER TO MEET ADVERSE FIELD CONDITIONS. SPACE AS APPROPRIATE FOR SITE CONDITIONS.

③ WHEN BARRIER HEIGHT, H, EXCEEDS 8 FT., POST SPACING MAY NEED TO BE DECREASED.

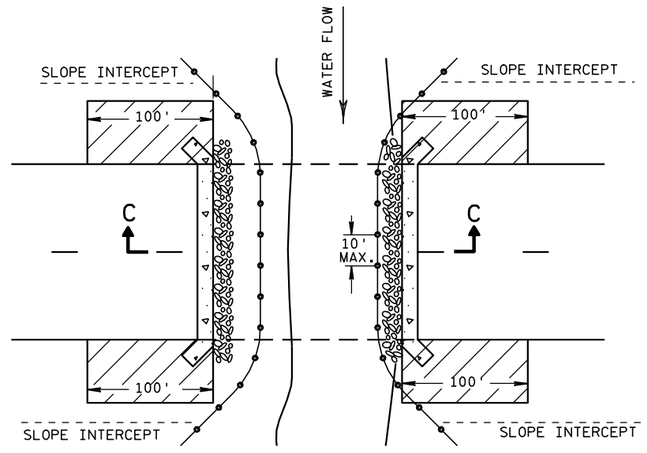
④ IN WATERWAYS SUBJECT TO FLUCTUATING WATER ELEVATIONS, PROVISIONS SHOULD BE MADE TO ALLOW THE WATER TO EQUALIZE ON EACH SIDE OF THE BARRIER. THIS MAY BE ACCOMPLISHED BY LEAVING A PORTION OF THE BARRIER OPEN ON THE UPSTREAM END.

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

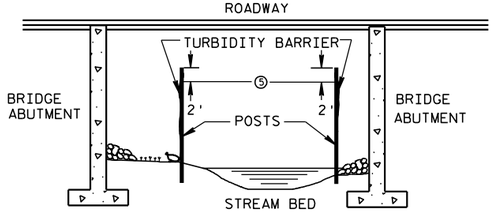
⑥ FLOAT ALTERNATIVE WILL ONLY BE ALLOWED WITH WRITTEN APPROVAL OF THE ENGINEER, AND IS MEANT FOR LOCATIONS WHERE BED ROCK PREVENTS THE INSTALLATION OF POSTS.

⑦ ALLOW SUFFICIENT SLACK VERTICALLY AND HORIZONTALLY SO THAT SEDIMENT BUILD UP WILL NOT SEPARATE OR LOWER THE TURBIDITY BARRIER.

⑧ USE AS DIRECTED BY COAST GUARD OR DNR PERMIT WHEN WORKING IN NAVIGABLE WATERWAYS.



PLAN VIEW



SECTION C-C

TURBIDITY BARRIER DETAIL SHOWING TYPICAL PLACEMENT AT STRUCTURES

TURBIDITY BARRIER

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

6

S.D.D. 8 E 11-2

6

S.D.D. 8 E 11-2

METAL APRON ENDWALLS

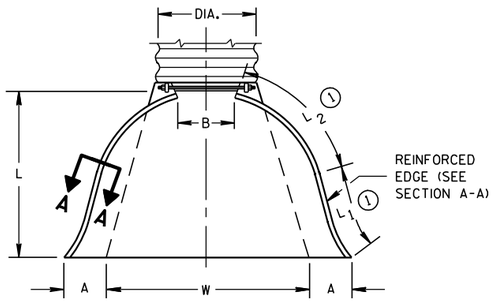
PIPE DIA. (IN.)	MIN. THICK. (Inches) STEEL	MIN. THICK. (Inches) ALUM.	DIMENSIONS (Inches) A (±1")	B (MAX.)	H (±1")	L (±1 1/2")	L1 ①	L2 ①	W (±2")	APPROX. SLOPE	BODY
12	.064	.060	6	6	6	21	12	17 1/2	24	2 1/2 to 1	1 Pc.
15	.064	.060	7	8	6	26	14	21 3/4	30	2 1/2 to 1	1 Pc.
18	.064	.060	8	10	6	31	15	28 1/4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

× EXCEPT CENTER PANEL SEE GENERAL NOTES

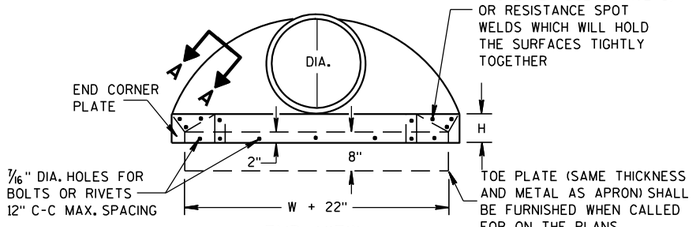
REINFORCED CONCRETE APRON ENDWALLS

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

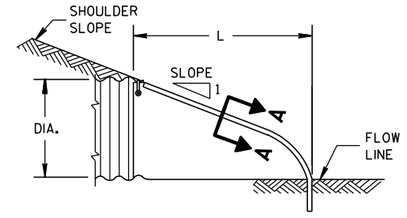
* MINIMUM
** MAXIMUM



PLAN VIEW

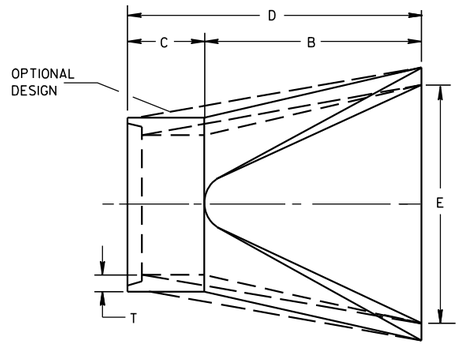


END VIEW

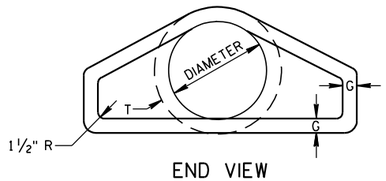


SIDE ELEVATION

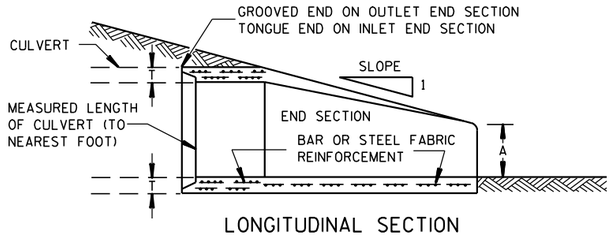
METAL ENDWALLS



PLAN

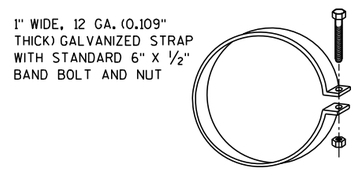


END VIEW



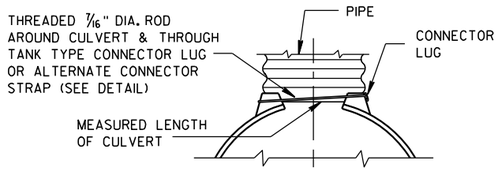
LONGITUDINAL SECTION

CONCRETE ENDWALLS

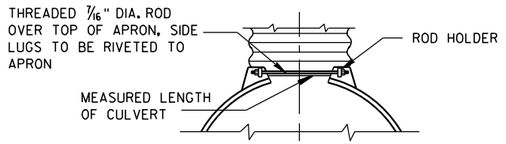


ALTERNATE FOR TYPE 1 CONNECTION

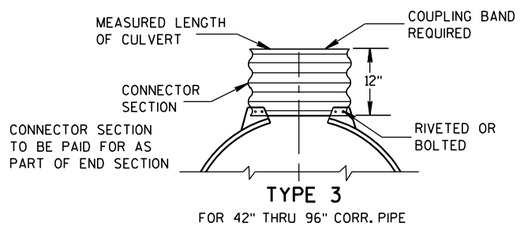
END SECTION CONNECTOR STRAP



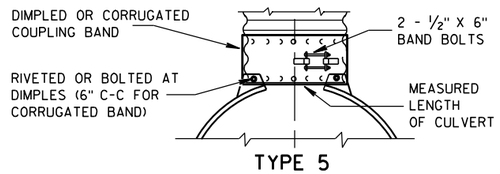
TYPE 1
FOR 12" THRU 24" CORR. PIPE



TYPE 2
FOR 30" THRU 96" CORR. PIPE



TYPE 3
FOR 42" THRU 96" CORR. PIPE



TYPE 5
ALTERNATE FOR:
ALL SIZES CORRUGATED CIRCULAR PIPE

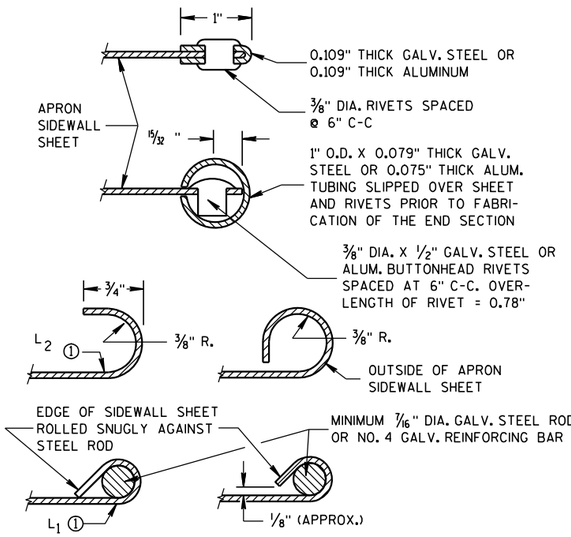
NOTE: DIMPLED BAND FITS OVER OUTSIDE OF ENDWALL. AND CORRUGATED BAND FITS INSIDE ENDWALL. DIMPLED BAND MAY BE USED WITH HELICALLY CORRUGATED PIPE.

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

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

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

CONNECTION DETAILS



SECTION A-A

GENERAL NOTES

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

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

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

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

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

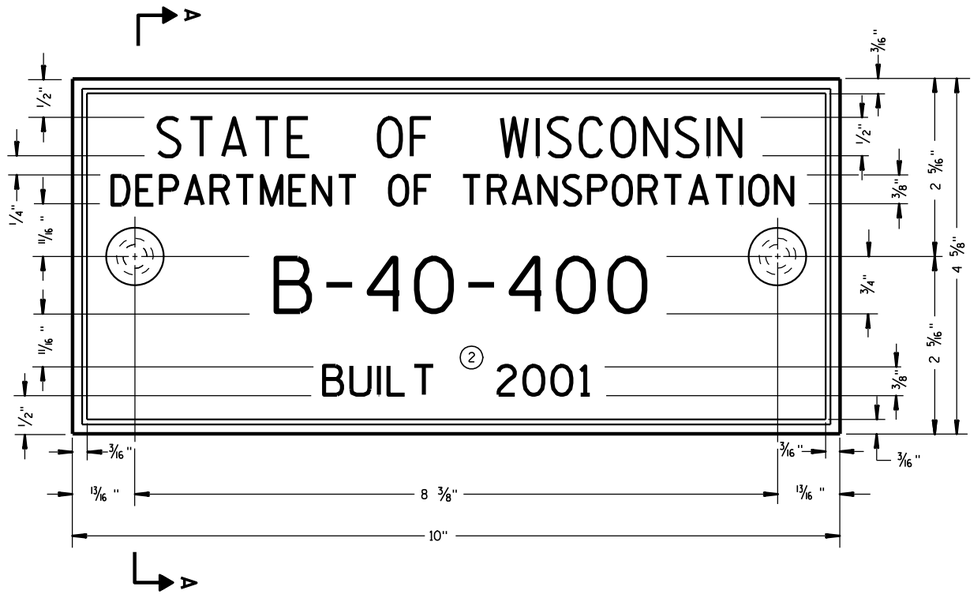
① FOR PIPE SIZES UP TO 60" DIAMETER, A 180° ROLLED EDGE MAY BE USED INSTEAD OF STEEL ROD REINFORCEMENT. SEE SECTION A-A.

APRON ENDWALLS FOR CULVERT PIPE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

6
S.D.D. 8 F 1-11



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

FOR MULTI-UNIT STRUCTURES
LINE 3 ABOVE SHALL READ

B = BRIDGE
C = CULVERT
R = RETAINING WALL

COUNTY NO.

BRIDGE NO.

UNIT NO. FOR MULTIPLE UNIT BRIDGE

B-40-400-1A

NUMBERING DESIGNATION
MULTI-UNIT STRUCTURES

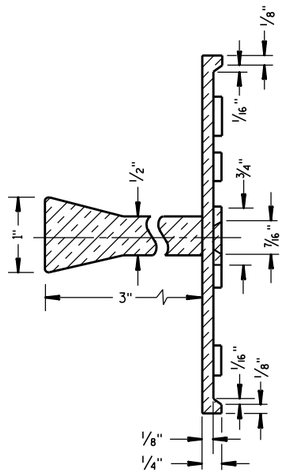
GENERAL NOTES

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

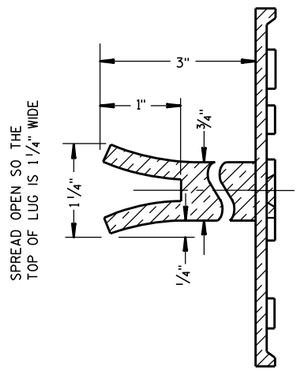
THE BRIDGE NUMBER AND YEAR BUILT SHOWN ON THIS DRAWING ARE EXAMPLES ONLY. SEE CONSTRUCTION PLANS FOR INDIVIDUAL NUMBERING AND YEAR BUILT.

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

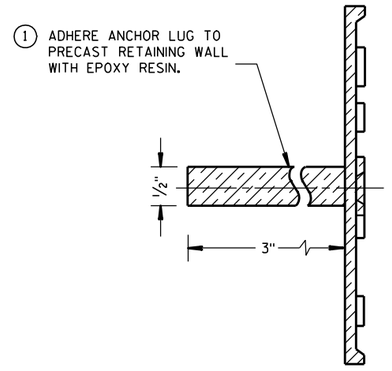
(2) REHABILITATION OF AN EXISTING STRUCTURE SHOULD USE THE DATE OF ORIGINAL STRUCTURE CONSTRUCTION.



SECTION A-A



ALTERNATE LUG



ALTERNATE LUG
(FOR ATTACHMENT TO PRECAST STRUCTURES)

NAME PLATE (STRUCTURES)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

3/26/10 DATE

/S/ Scot Beck -- CHIEF STRUCTURAL DEVELOP ENGINEER

FHWA

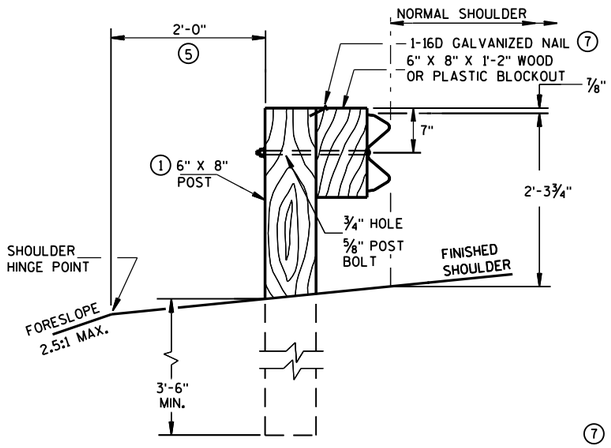
6

S.D.D. 12 A 3-10

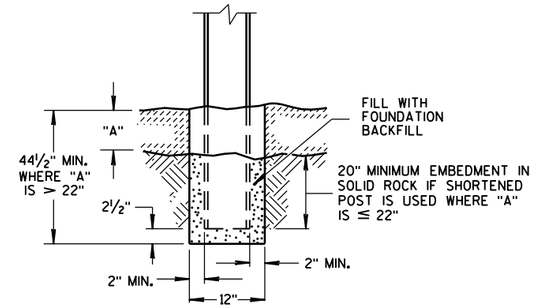
GENERAL NOTES

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

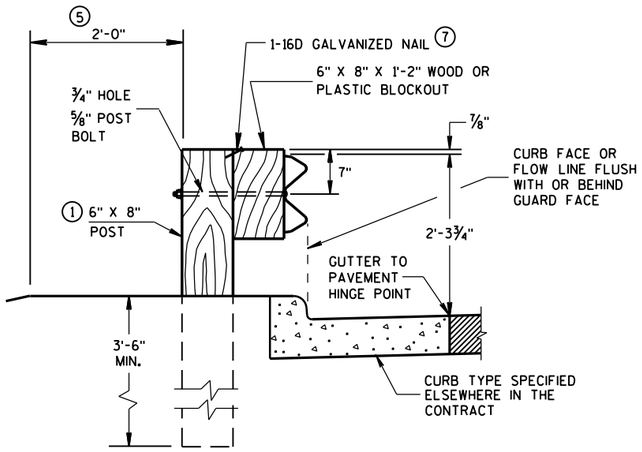
INSTALL BEAM GUARD SECTIONS AND ALL NECESSARY HARDWARE ACCORDING TO THE APPLICABLE PLAN AND CURRENT STANDARD AND SUPPLEMENTAL SPECIFICATIONS.
ALL DIMENSIONS ARE SUBJECT TO MANUFACTURER'S TOLERANCES EXCEPT WHERE ALLOWABLE TOLERANCES ARE SHOWN.



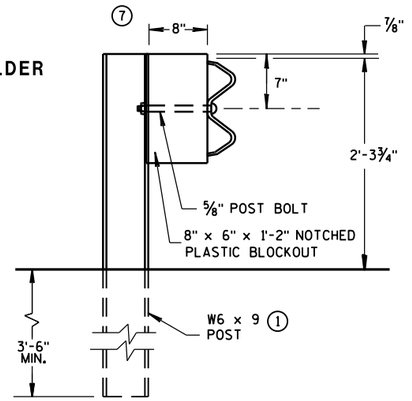
END VIEW
LOCATED ALONG A ROADWAY SHOULDER
STANDARD INSTALLATION



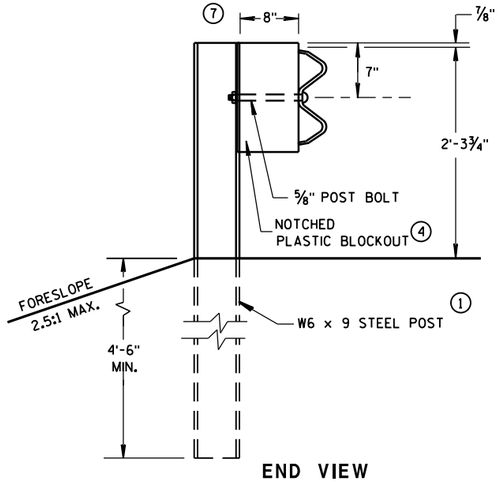
END VIEW
SETTING STEEL OR WOOD POST IN ROCK ⑥



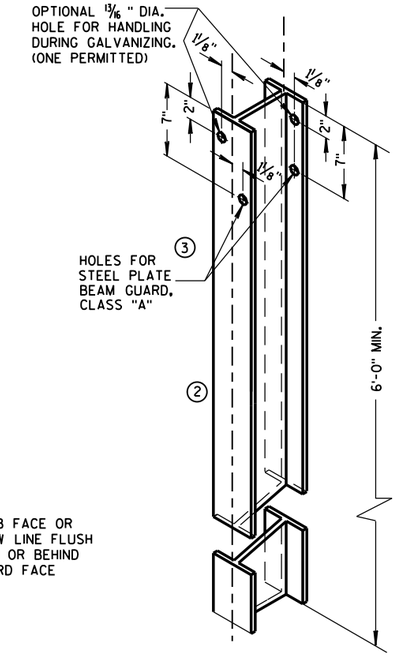
END VIEW
LOCATED ALONG A CURBED ROADWAY



END VIEW
STEEL POST & NOTCHED
PLASTIC BLOCKOUT ALTERNATIVE
STANDARD INSTALLATION

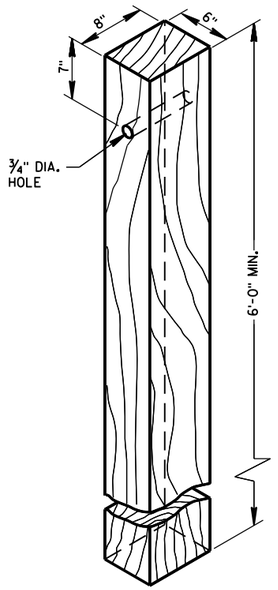


END VIEW
LONGER POST AT HALF
POST SPACING W BEAM
(LHW)

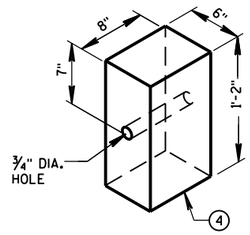


STEEL POST &
HOLE PUNCHING DETAIL
(W6 X 9) ①

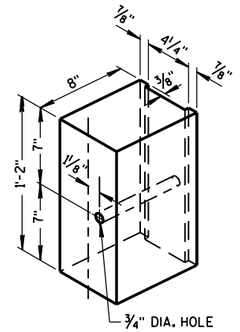
ALL HOLES 13/16" DIAMETER EXCEPT AS NOTED



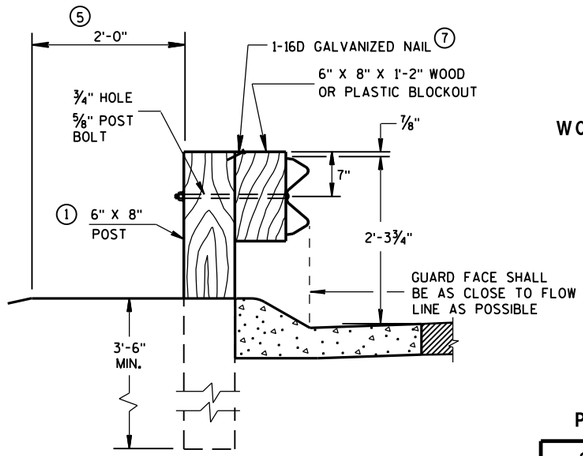
WOOD POST
(6"X8") NOMINAL



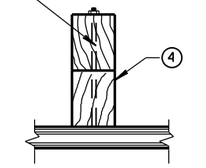
WOOD OR PLASTIC
BLOCKOUT FOR
WOOD POSTS



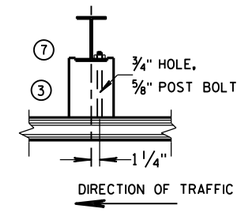
TYPICAL NOTCHED ①
PLASTIC BLOCKOUT
FOR STEEL POSTS



END VIEW
LOCATED ALONG A
MOUNTABLE CURBED ROADWAY



PLAN VIEW
WOOD POST, BLOCKOUT & BEAM



PLAN VIEW
STEEL POST, NOTCHED
PLASTIC BLOCKOUT & BEAM

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR 20

TYPICAL INSTALLATION OF STEEL PLATE BEAM GUARD

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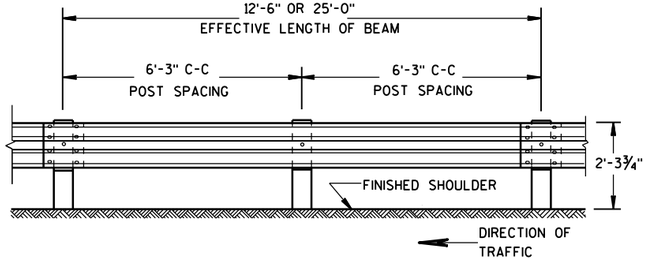
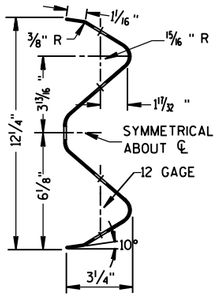
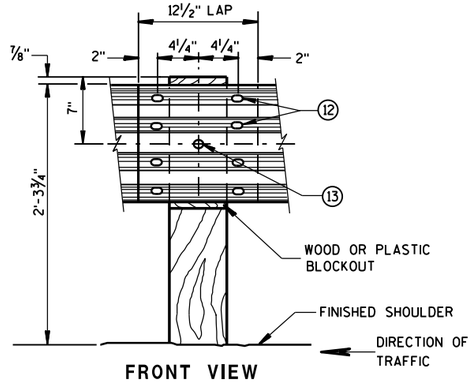


FRONT VIEW

POST SPACING STANDARD INSTALLATION



SECTION THRU W BEAM



FRONT VIEW
BEAM SPLICE AT WOOD POST
AND POST MOUNTING DETAIL

GENERAL NOTES

(8) PROVIDE SILVER REFLECTIVE SHEETING ON ALL REFLECTORS EXCEPT THOSE LOCATED ALONG THE LEFT EDGE OF ONE-WAY ROADWAYS, WHICH SHALL BE PROVIDED WITH YELLOW REFLECTIVE SHEETING. SHEETING IS TYPE H. SEE STANDARD SPECIFICATION 637.

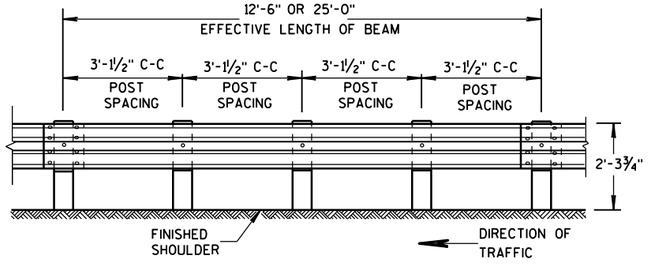
(9) DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINAL.

(10) REVERSE EVERY OTHER REFLECTOR FOR 2-WAY VISIBILITY. THE CONTRACTOR MAY FURNISH TWO-SIDED REFLECTORS IN LIEU OF ONE-SIDED REFLECTORS.

(11) PROVIDE AN ANGLE OF BEND OF 90° ± 1° FOR TWO-SIDED REFLECTORS.

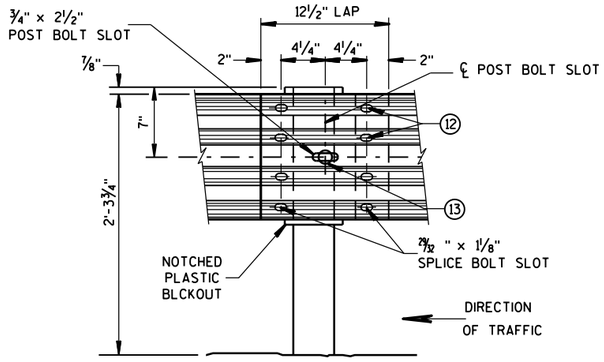
(12) 8 -⅝" ϕ X 2" BUTTON HEAD BOLTS WITH OVAL SHOULDERS & RECESS NUTS.

(13) ⅝" DIA. BUTTON HEAD BOLT AND RECESS NUT WITH ⅝" DIA. F844 FLAT WASHER UNDER NUT.



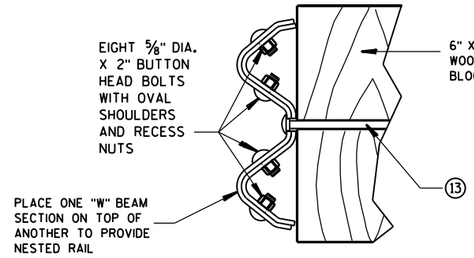
FRONT VIEW

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

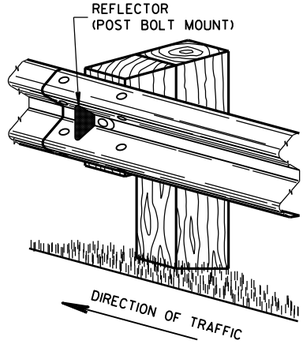


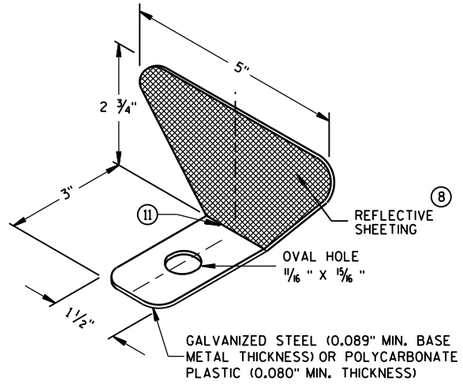
NESTED W BEAM (NW)

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

REFLECTOR SPACING (9)

	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 (10)	6
	> 200'	50' C-C	1	
TWO WAY TRAFFIC	< 200'	50' C-C	2 (11)	3
	> 200'	100' C-C	2	





ONE SIDED REFLECTOR DETAIL AND TYPICAL INSTALLATION (8)

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI

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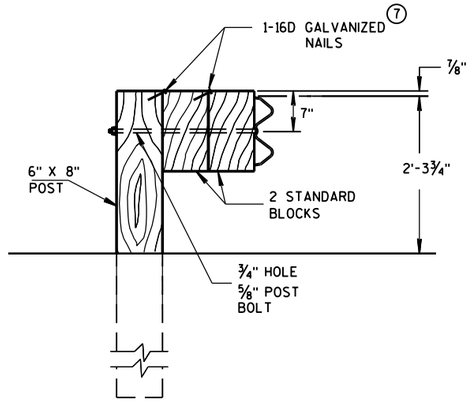
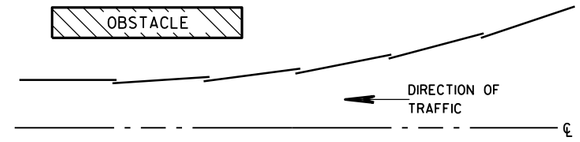
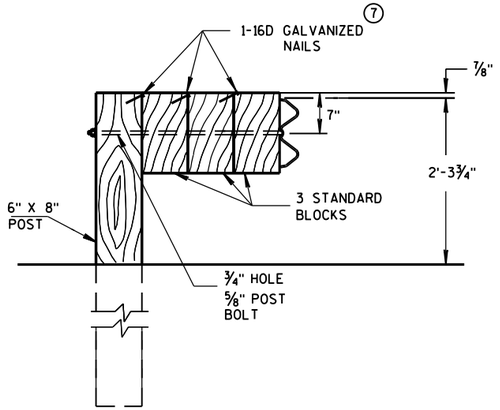


DETAIL FOR DOUBLE BLOCKS

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

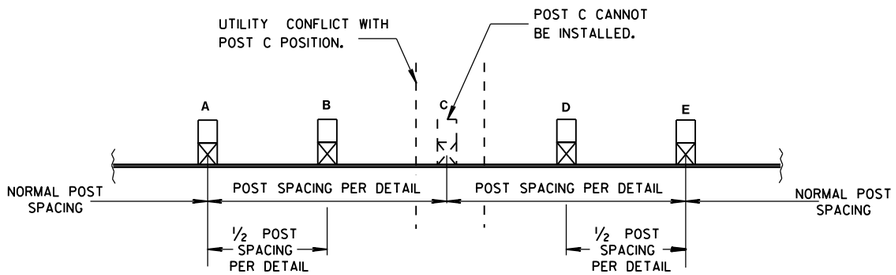


PLAN VIEW
BEAM LAPPING DETAIL



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

June 2016 — DATE

/S/ Jerry H. Zogg — ROADWAY STANDARDS DEVELOPMENT ENGINEER

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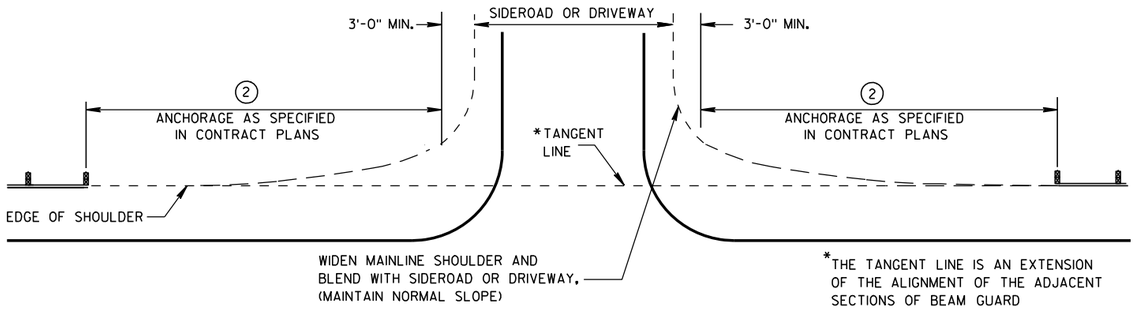
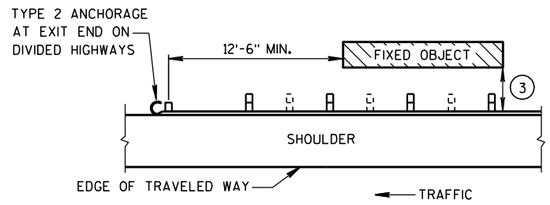
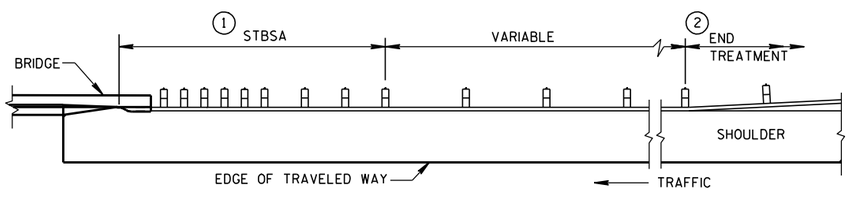


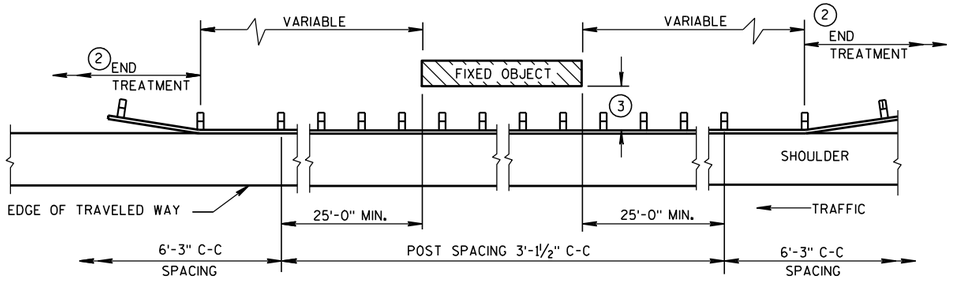
BEAM GUARD AT SIDEROADS OR DRIVEWAYS



BEAM GUARD AT OBSTACLES EXIT END - ONE WAY TRAFFIC

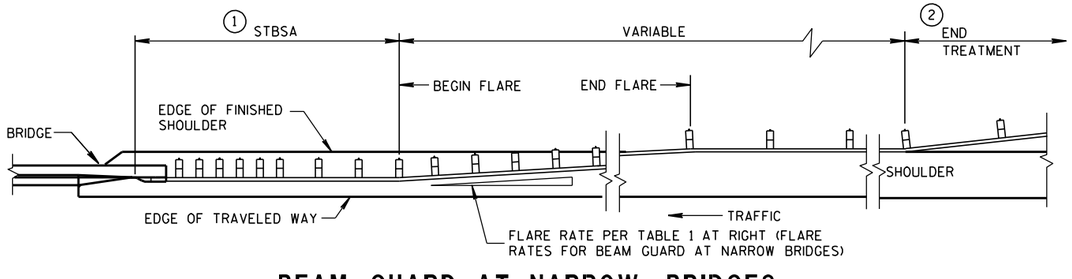


BEAM GUARD AT FULL WIDTH BRIDGES



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)

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"

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

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 ENGINEER

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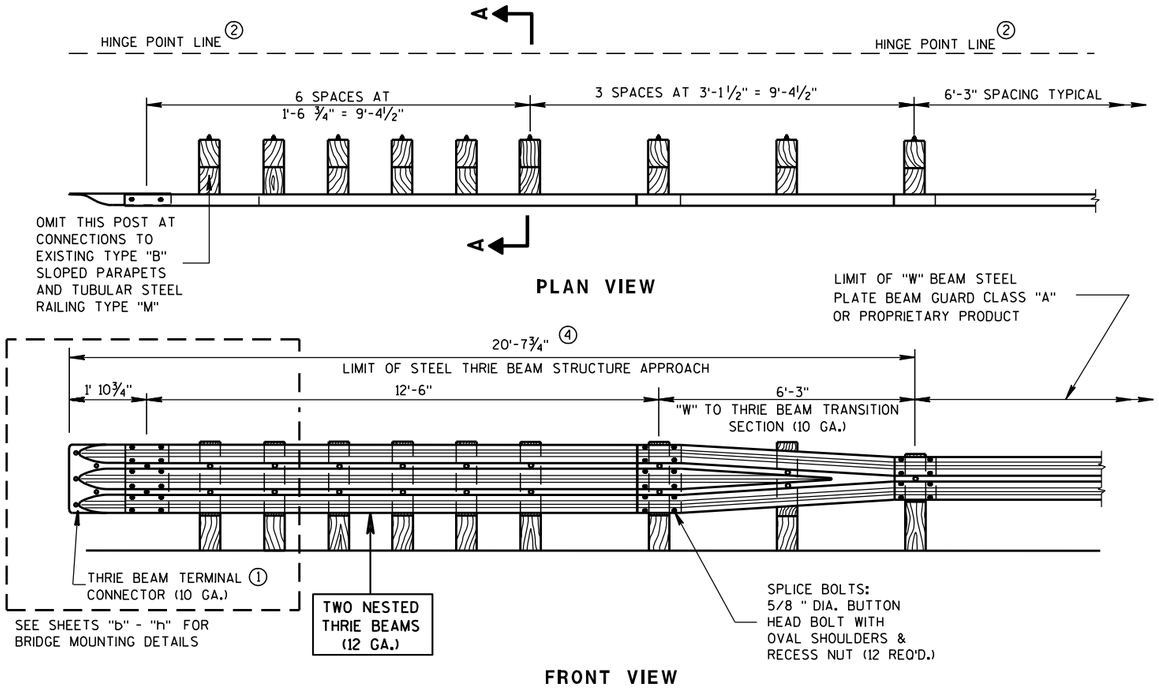


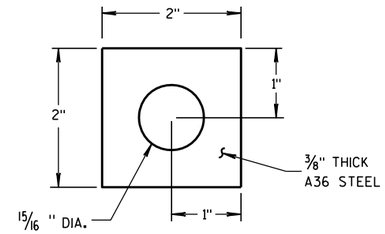


PLATE WASHER DETAIL

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.

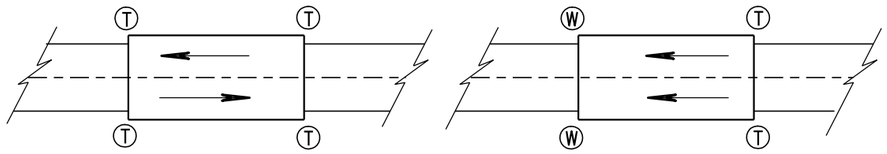
IF ROCK IS ENCOUNTERED, REMOVE ROCK TO FULL DEPTH OF POST PLUS 2 1/2" , AND 12" DIAMETER AROUND POST. SEE 14B15 FOR MORE DETAILS.

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.



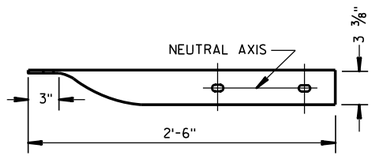
TWO WAY TRAFFIC

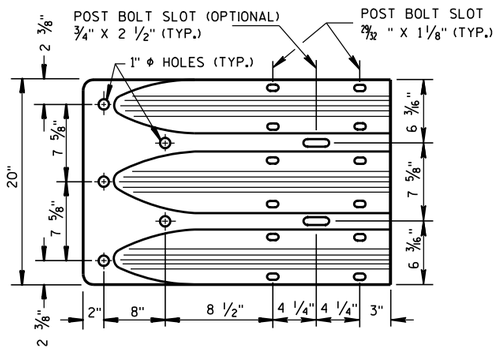
ONE WAY TRAFFIC

T THRIE BEAM CONNECTION

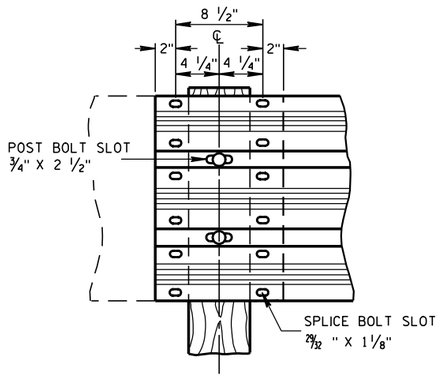
W W-BEAM CONNECTION WHEN REQUIRED

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

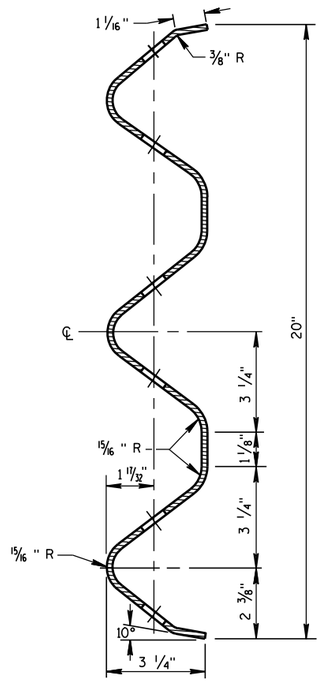




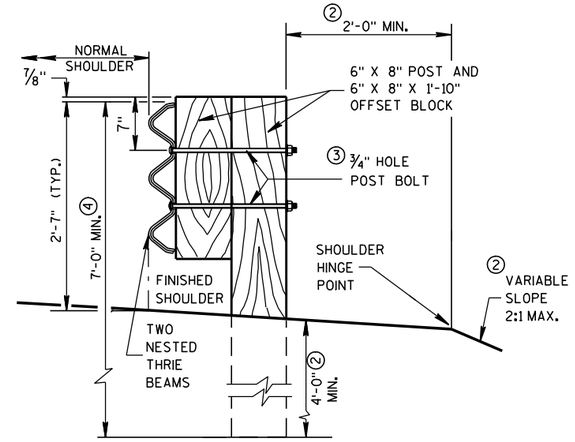
THRIE BEAM TERMINAL CONNECTOR



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 DEVELOPMENT ENGINEER

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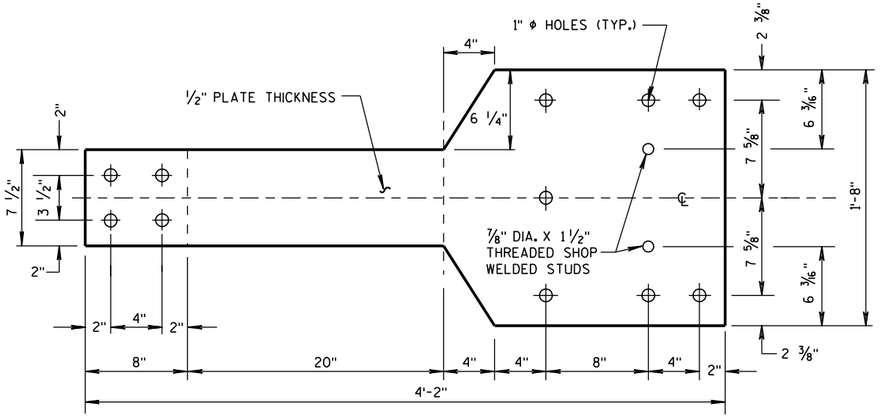
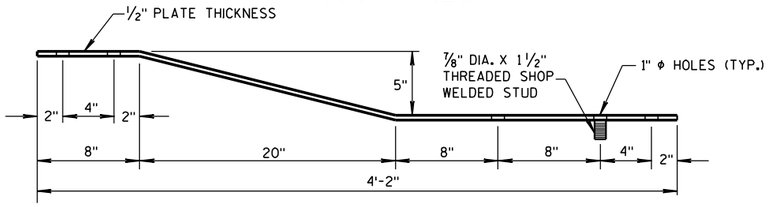
GENERAL NOTES

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

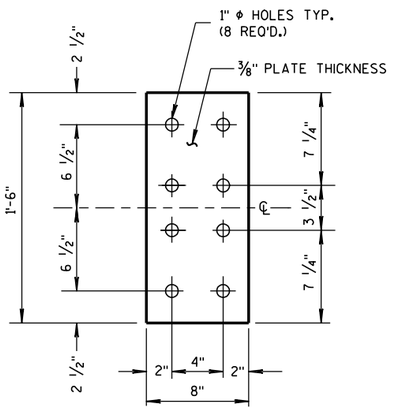


FRONT VIEW



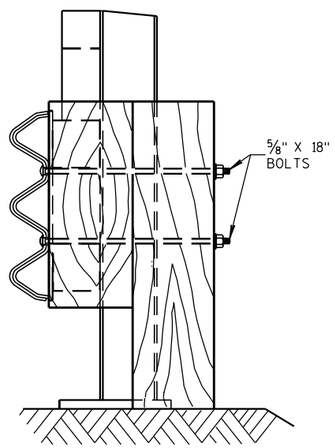
PLAN VIEW

BACK-UP PLATE DETAIL, TYPE "M"

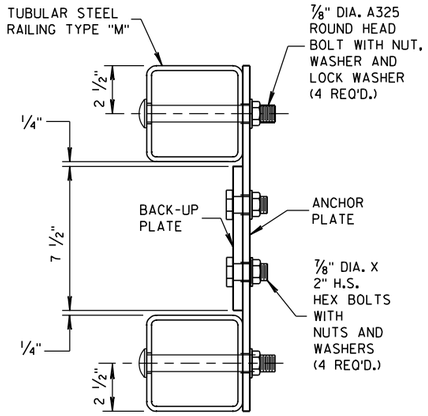


FRONT VIEW

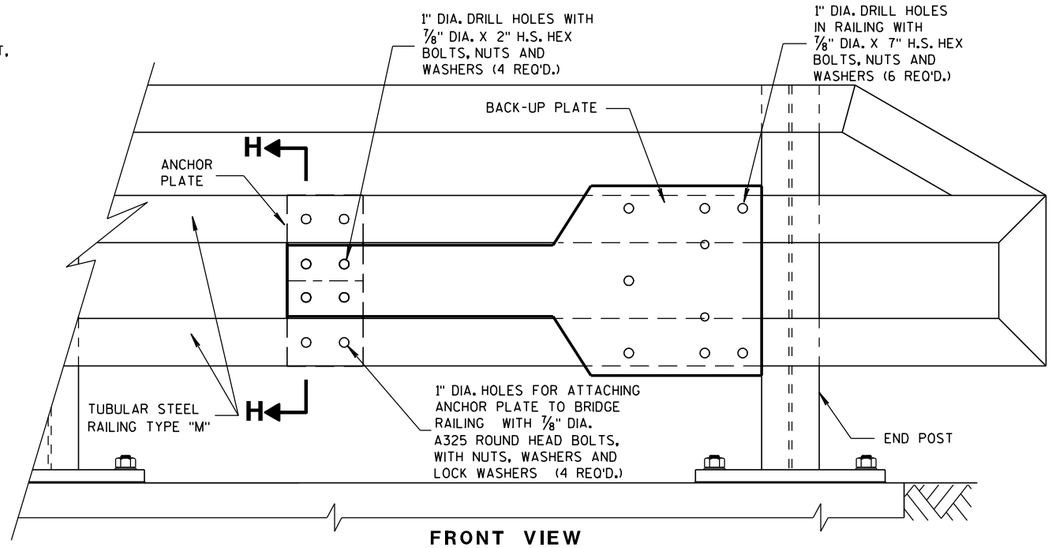
ANCHOR PLATE DETAIL, TYPE "M"



SECTION I-I

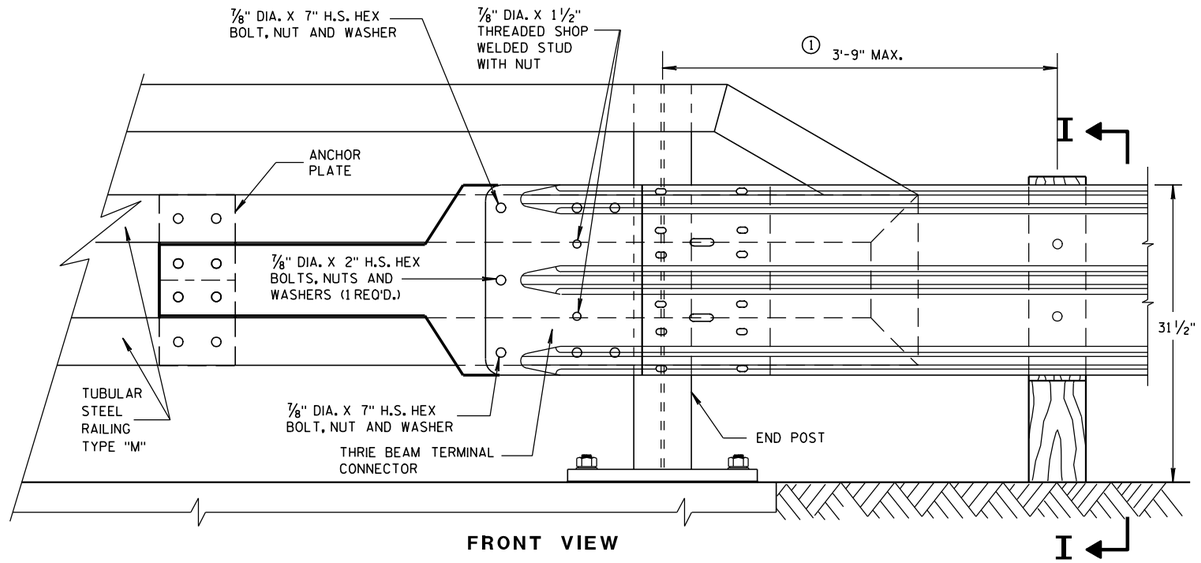


SECTION H-H

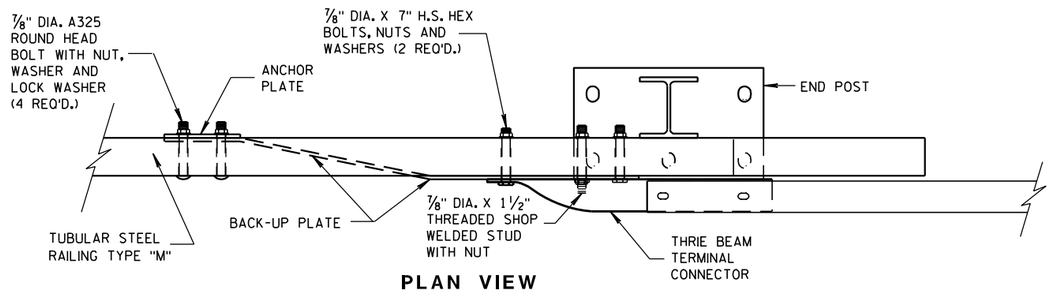


FRONT VIEW

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



FRONT VIEW



PLAN VIEW

THRIE BEAM CONNECTION TO TUBULAR RAILING, TYPE "M"

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

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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	0.040" ALUMINUM SHEET WITH REFLECTIVE SHEETING TYPE F PER SECTION 637 OF THE STANDARD SPECIFICATIONS
⑮	1	E.A.T. MARKER POST

GENERAL NOTES

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

(A) THE SLOPE IN THE AREA BOUNDED BY THE GRADELINE, THE HINGE POINT LINE (HPL), AND THE CLEAR ZONE LIMITS (CZL) SHALL BE 4:1 OR FLATTER.

(B) AFTER FINAL ASSEMBLY, RECHECK CABLE TO BE SURE IT IS TAUT AND HAS NOT RELAXED.

(C) 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.

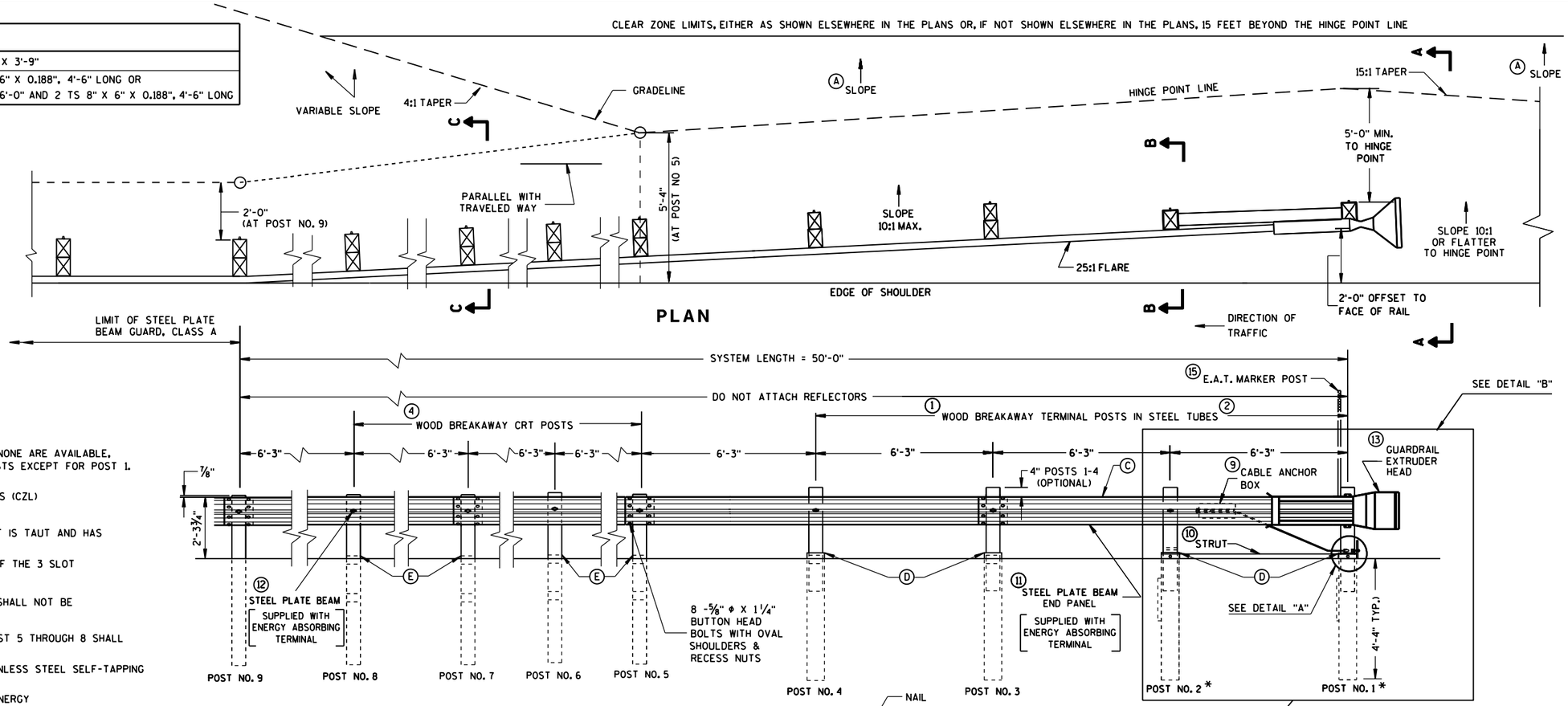
(F) ATTACH ALUMINUM SHEET TO E.A.T. HEAD USING 4 STAINLESS STEEL SELF-TAPPING SCREWS. ONE SCREW PER CORNER.

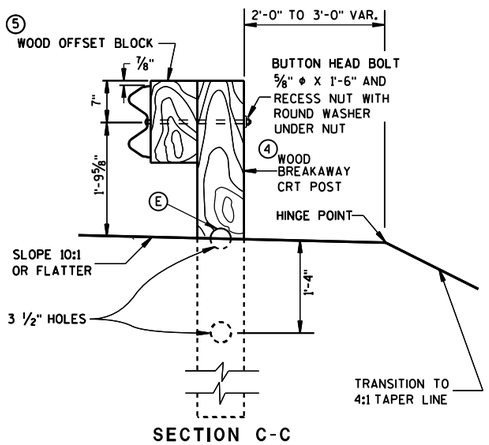
STEEL POSTS SHALL NOT BE ALLOWED FOR USE WITH ENERGY ABSORBING TERMINALS.

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

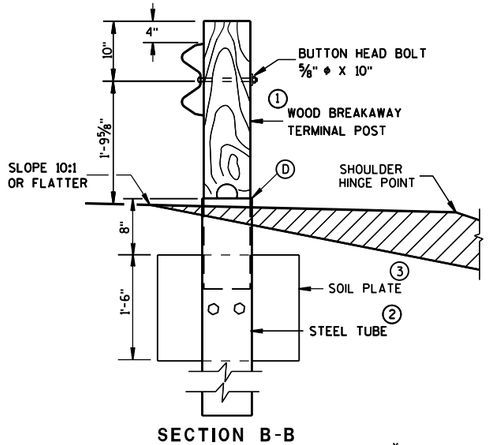
* DO NOT ATTACH BLOCKOUTS TO POSTS 1 AND 2.

** 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.

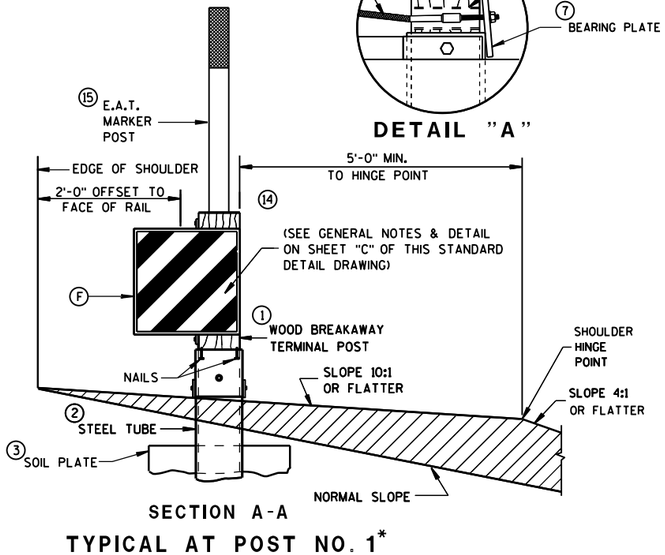




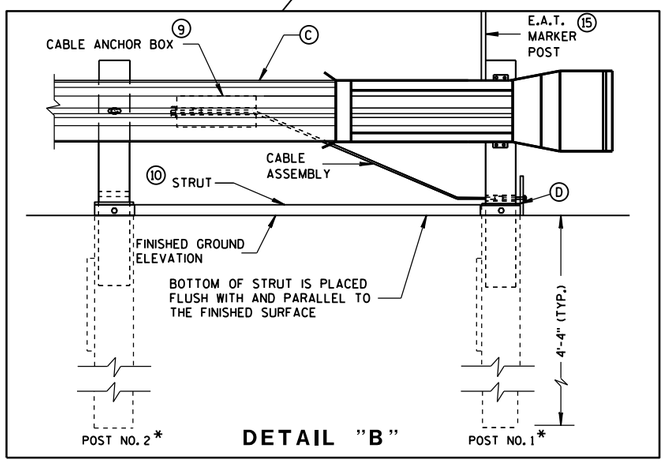
SECTION C-C
TYPICAL AT POST NOS. 6, 8



SECTION B-B
TYPICAL AT POST NO. 2*



SECTION A-A
TYPICAL AT POST NO. 1*



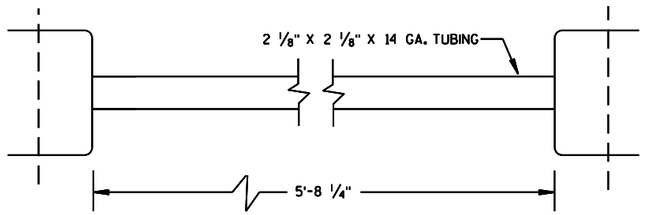
DETAIL "B"

STEEL PLATE BEAM GUARD ENERGY ABSORBING TERMINAL

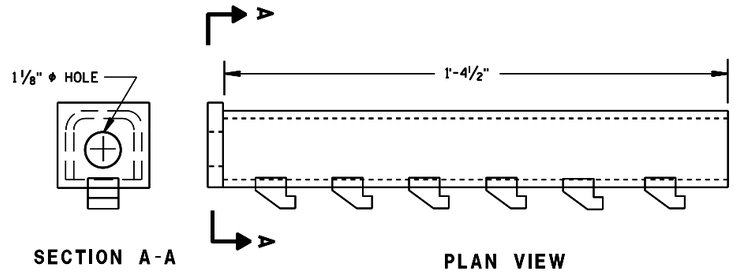
STATE OF WISCONSIN
DEPARTMENT OF TRANSPO

6

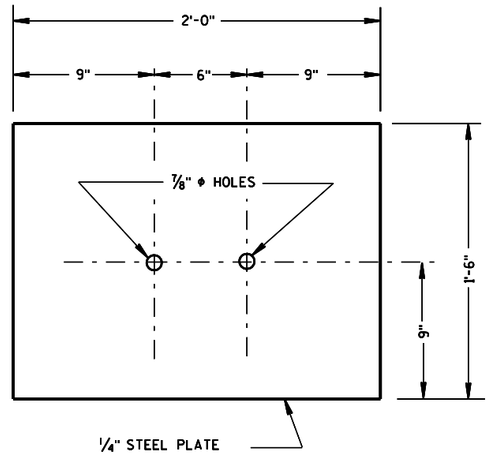
S.D.D. 14 B 24-8a



⑩ STRUT DETAIL (SKT-350)

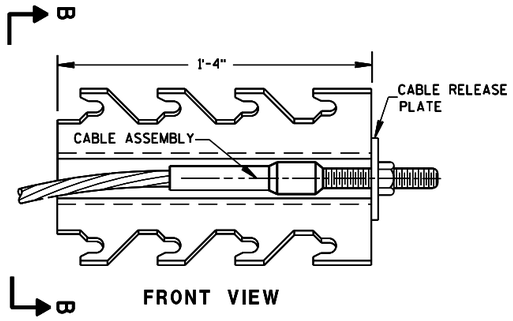


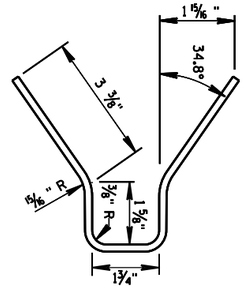
⑨ CABLE ANCHOR BOX (ET-2000/ET-2000 PLUS)



③ SOIL PLATE

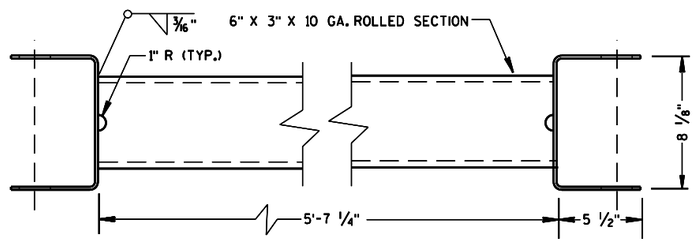
(SKT-350, ET-2000/ET-2000 PLUS)





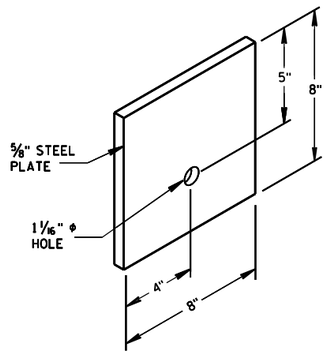
⑨ CABLE ANCHOR BOX (SKT-350)

(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)

STEEL PLATE BEAM GUARD
ENERGY ABSORBING TERMINAL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR

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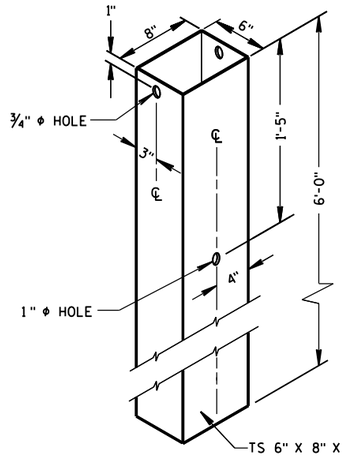
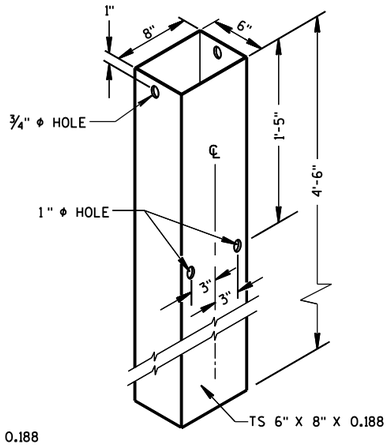
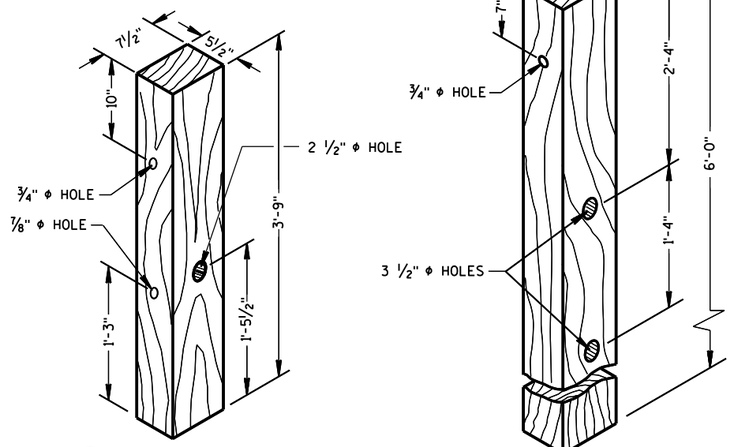
S.D.D. 14 B 24-8b



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

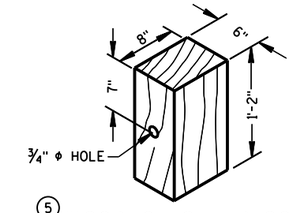
WOOD BREAKAWAY POSTS

GENERAL NOTES

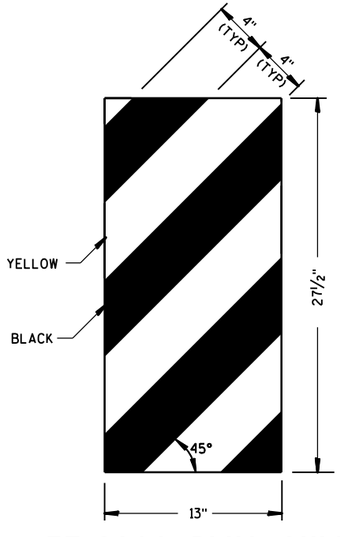
WHEN ROCK IS ENCOUNTERED DURING EXCAVATION, A 12 INCH DIA. POST HOLE EXTENDING 20 INCHES DEEP INTO THE ROCK MAY BE USED IF APPROVED BY THE ENGINEER. GRANULAR MATERIAL SHALL BE PLACED IN THE BOTTOM OF THE HOLE APPROXIMATELY 2 ½" INCHES DEEP TO PROVIDE DRAINAGE. THE SOIL TUBES SHALL BE FIELD CUT TO LENGTH,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

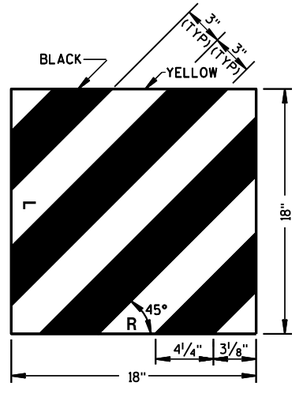
(G) ½" DIA. X 3" LAG BOLT WITH WASHER.



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

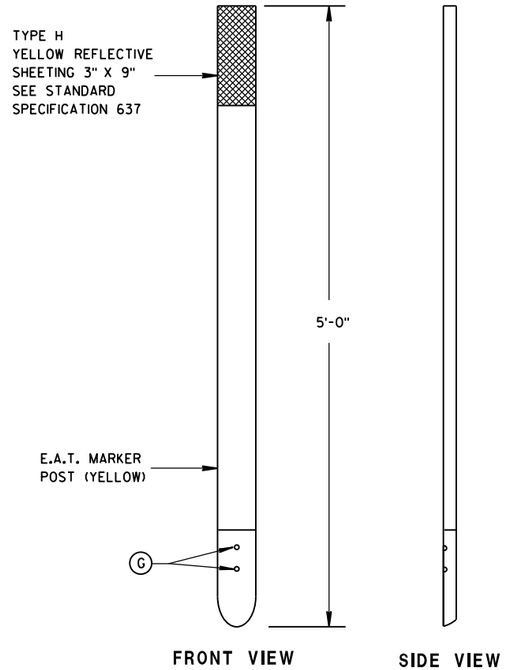


ET-2000 PLUS ONLY



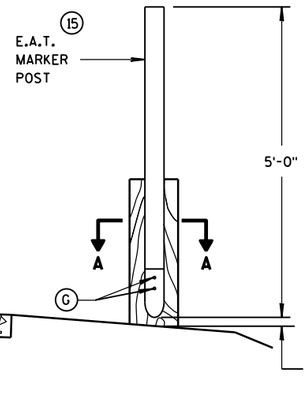
ET-2000 AND SKT-350

⑭ REFLECTIVE SHEETING DETAILS

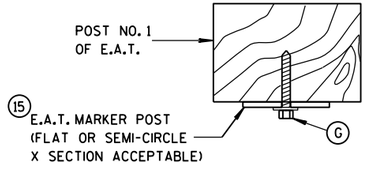


FRONT VIEW SIDE VIEW

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

6

S.D.D. 14 B 24-8c

① WOOD OR STEEL POSTS (w6X9 OR w6X8.5) MAY BE USED. DO NOT INTERMIX WOOD AND STEEL POSTS. INSTALL STEEL POSTS WITH HOLES ON APPROACHING TRAFFIC SIDE.

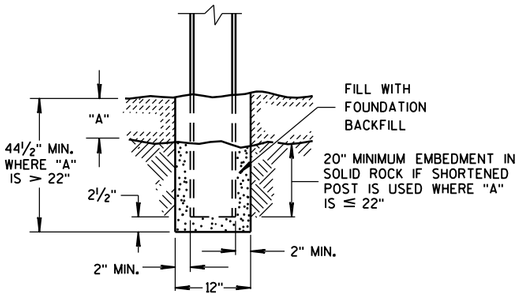
② USE WOOD OR APPROVED PLASTIC BLOCKOUTS. WOOD BLOCKOUTS MAY BE CONSTRUCTED OUT OF TWO OR MORE WOOD BLOCKOUTS. SEE ALTERNATE WOOD BLOCKOUT DETAIL. DIMENSIONS OF APPROVED PLASTIC BLOCKOUTS MAY VARY.

③ IF ROCK IS ENCOUNTERED DURING EXCAVATION, PROVIDE A HOLE 12 INCHES IN DIAMETER EXTENDING 20 INCHES DEEP INTO THE ROCK. PLACE APPROXIMATELY 2½ INCHES OF GRANULAR MATERIAL IN THE BOTTOM OF THE HOLE. CUT THE POSTS THE TO LENGTH AMD INSTALL. BACKFILL WITH EXCAVATED MATERIAL AND COMPACT. BACKFILL IS TO BE FREE OF LARGE ROCKS.

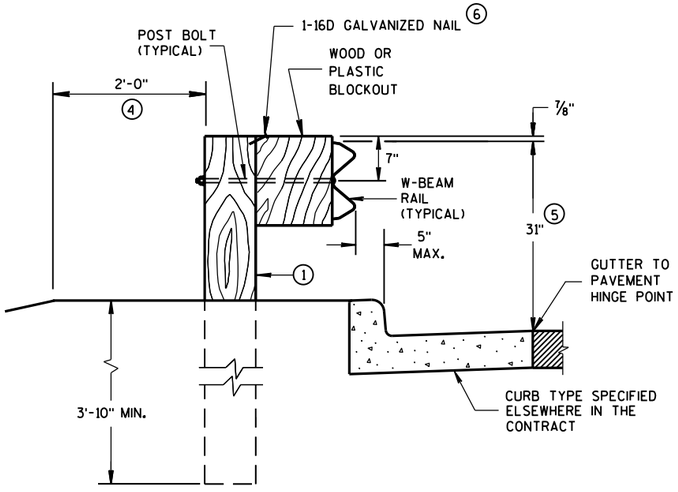
④ WHEN THE DISTANCE FROM BACK OF POST TO SHOULDER HINGE POINT IS LESS THAN 2 FEET INSTALL LONGER POST AT HALF POST SPACING (K).

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

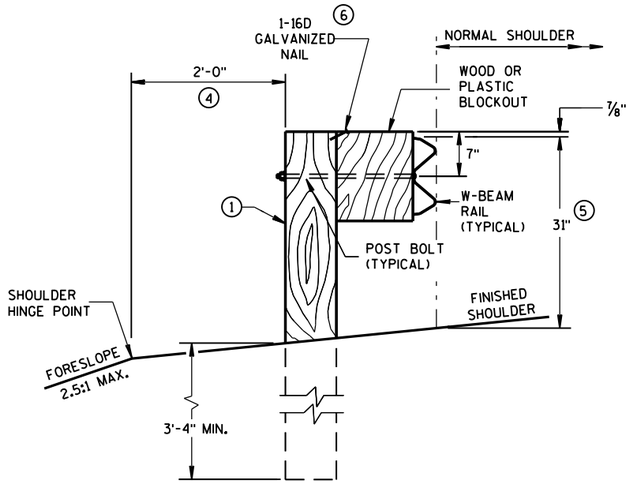
⑥ WHEN USING STEEL POST AND WOOD BLOCKOUTS INSTALL FOUR 16D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.



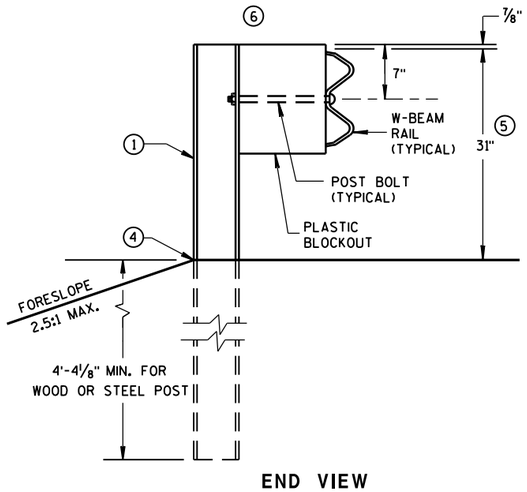
END VIEW
SETTING STEEL OR WOOD POST IN ROCK ③



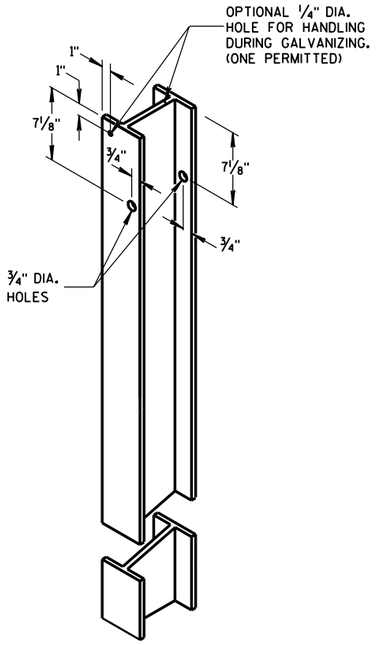
END VIEW
LOCATED ALONG A CURBED ROADWAY



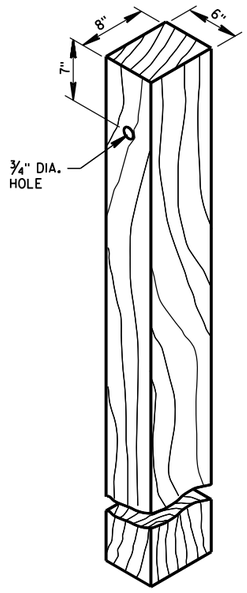
END VIEW
LOCATED ALONG A ROADWAY SHOULDER
STANDARD INSTALLATION



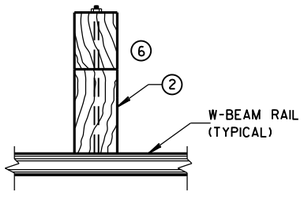
END VIEW
MGS LONGER POST AT HALFPOST SPACING W BEAM (K)



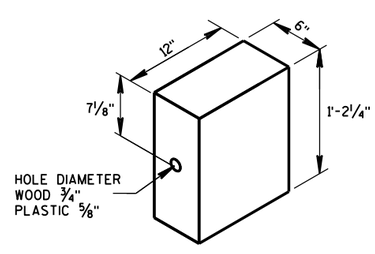
STEEL POST &
HOLE PUNCHING DETAIL
(w6X9) ①



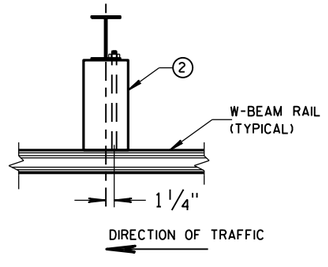
WOOD POST
(6" X 8") NOMINAL ①



PLAN VIEW
WOOD POST,
BLOCKOUT & BEAM



WOOD OR
PLASTIC BLOCKOUT ②



PLAN VIEW
STEEL POST,
PLASTIC BLOCKOUT & BEAM

MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI

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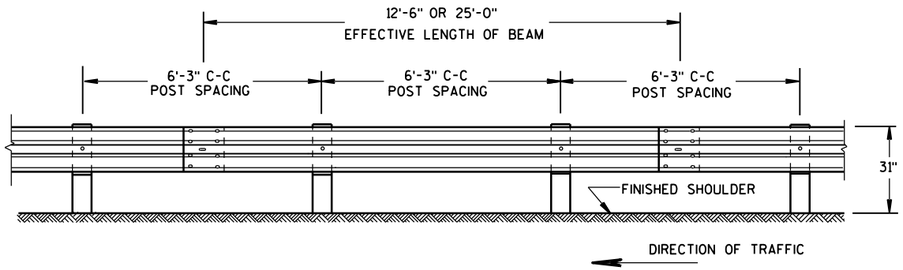
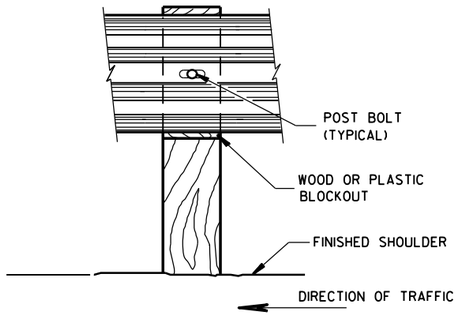
S.D.D. 14 B 42-4a



FRONT VIEW

POST SPACING STANDARD INSTALLATION



FRONT VIEW AT WOOD POST

7. PROVIDE SILVER REFLECTIVE SHEETING ON ALL REFLECTORS EXCEPT THOSE LOCATED ALONG THE LEFT EDGE OF ONE-WAY ROADWAYS, WHICH SHALL BE PROVIDED WITH YELLOW REFLECTIVE SHEETING. SHEETING IS TYPE H. SEE STANDARD SPECIFICATION 637.

8. DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINAL. RAIL SPLICE LOCATIONS ARE THE ONLY ACCEPTABLE LOCATIONS FOR REFLECTORS.

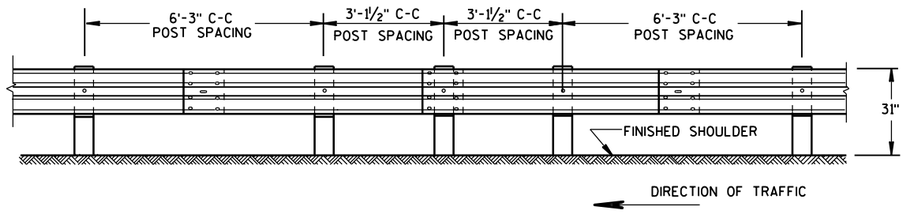
9. REVERSE EVERY OTHER REFLECTOR FOR 2-WAY VISIBILITY. THE CONTRACTOR MAY FURNISH TWO-SIDED REFLECTORS IN LIEU OF ONE-SIDED REFLECTORS.

10. PROVIDE AN ANGLE OF BEND OF 90° ± 1° FOR TWO-SIDED REFLECTORS.

11. 25 FEET OF HALF POST SPACING IS REQUIRED ON APPROACH AND DEPARTURE ENDS OF QUARTER POST SPACING.

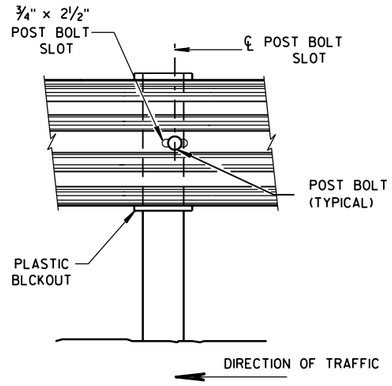
POST BOLTS ARE A 5/8" DIAMETER ASTM A307 GUARDRAIL BOLT. A POST BOLT REQUIRES 5/8" DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX NUT AND 5/8" DIAMETER F844 FLAT WASHER. POST BOLTS MAY BE LONGER IF MULTIPLE BLOCKOUTS ARE BEING USED.

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

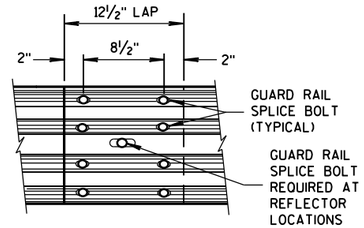


FRONT VIEW

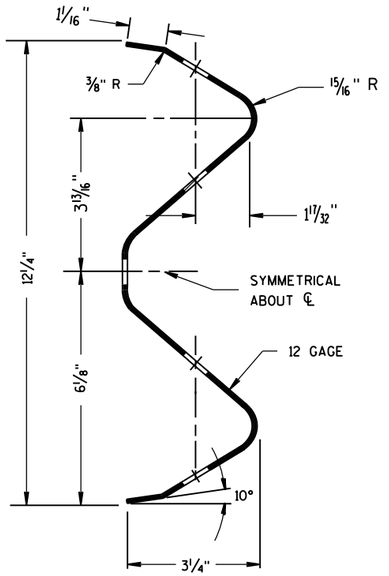
HALF POST SPACING (HS) AND HALF POST SPACING WITH LONGER POSTS (K)



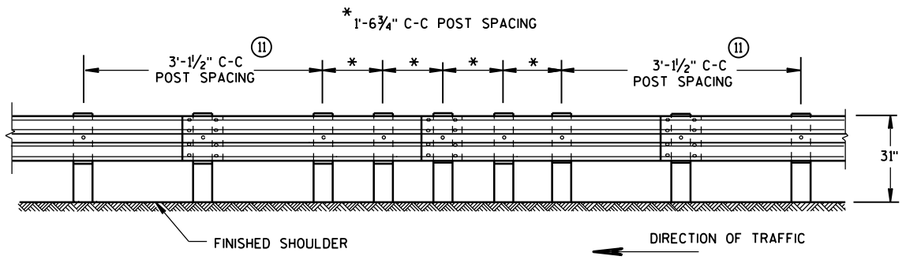
FRONT VIEW AT STEEL POST



FRONT VIEW
MID-SPAN BEAM SPLICE

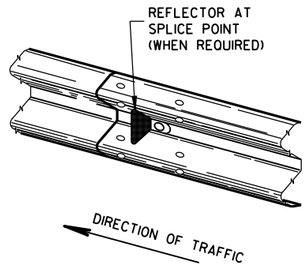


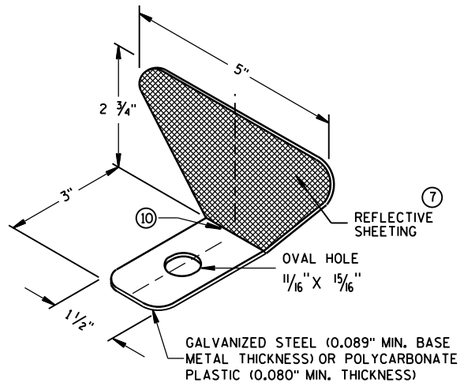
SECTION THRU W-BEAM RAIL



FRONT VIEW

QUARTER POST SPACING (QS)





ONE SIDED REFLECTOR DETAIL AND TYPICAL INSTALLATION 7

REFLECTOR SPACING 8

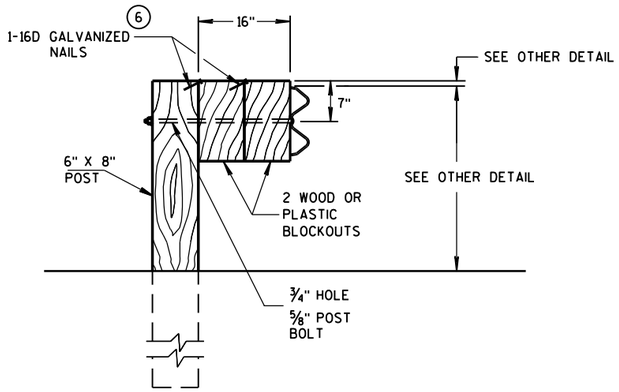
	BEAM GUARD LENGTH	REFLECTOR SPACING	NO. SURFACES REFLECTORIZED	MIN. NO. REFLECTORS
ONE WAY TRAFFIC	< 200'	50' C-C	1	3
	> 200'	100' C-C	1	
TWO WAY TRAFFIC	< 200'	25' C-C	1 9	6
	> 200'	50' C-C	1	
TWO WAY TRAFFIC	< 200'	50' C-C	2	3
	> 200'	100' C-C	2 10	

MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPO

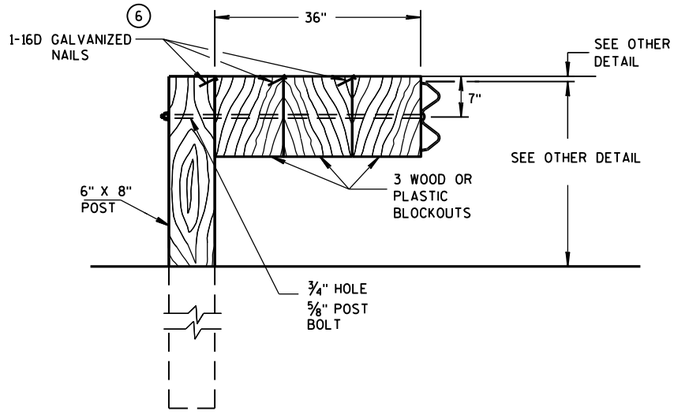
6

S.D.D. 14 B 42-4b



DETAIL FOR 16" BLOCKOUT DEPTH

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

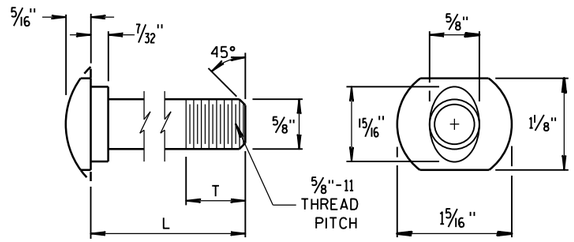


DETAIL FOR 36" BLOCKOUT DEPTH

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

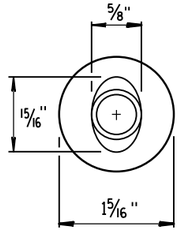
DO NOT USE 16" OR 36" BLOCKOUTS IF IT CAUSES THE POST TO BE DRIVEN BEYOND SHOULDER HINGE POINT OR CAUSES A FIXED OBJECT TO BE WITHIN THE DEFLECTION DISTANCE OF THE BARRIER.

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

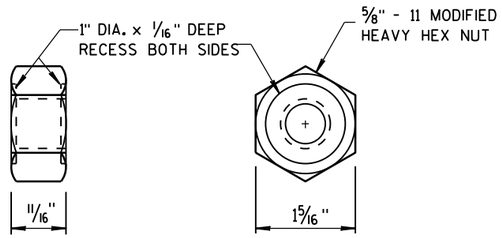


POST BOLT TABLE

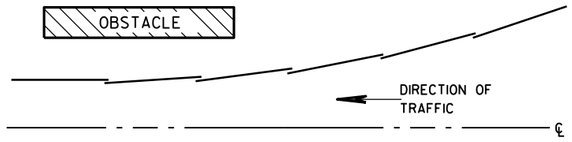
L	T (MIN.)
1¼"	1⅛"
2"	1¾"
10"	4"
14"	4 1/16"
18"	4"
21"	4 1/16"
25"	4"



ALTERNATE BOLT HEAD

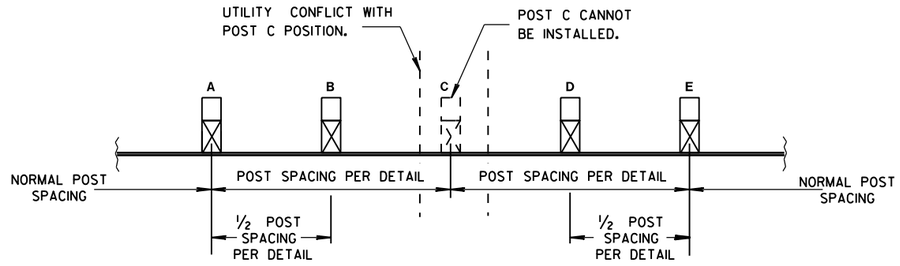


POST BOLT, SPLICE BOLT AND RECESS NUT

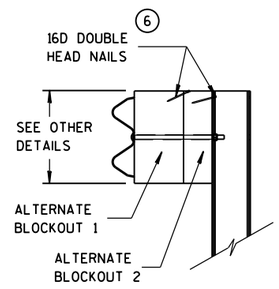


PLAN VIEW

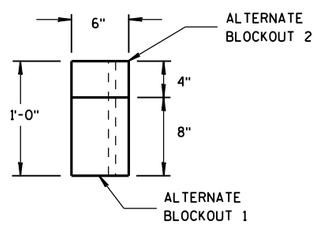
BEAM LAPPING DETAIL



POST DRIVING FOR CONTINUOUS UNDERGROUND OBSTRUCTION



SIDE VIEW



TOP VIEW

ALTERNATE WOOD BLOCKOUT DETAIL

MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June 2016 — DATE
/S/ Jerry H. Zogg — ROADWAY STANDARDS ENGINEER
FHWA

6
S.D.D. 14 B 42-4c

GENERAL NOTES

(A) THE SLOPE IN THE AREA BOUNDED BY THE GRADELINE, THE HINGE POINT LINE (HPL), AND THE CLEAR ZONE LIMITS (CZL) SHALL BE 4:1 OR FLATTER.

(B) AFTER FINAL ASSEMBLY, RECHECK CABLE TO BE SURE IT IS TAUT AND HAS NOT RELAXED.

(C) DIFFERENT MANUFACTURES REQUIRE DIFFERENT PERFORATED W-BEAM RAIL END PANELS. SEE MANUFACTURES INFORMATION.

(D) THE TOP OF THE STEEL TUBE ON POST 1 AND POST 2 SHALL NOT BE MORE THAN 3" ABOVE THE FINISH GROUND ELEVATION.

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

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

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

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

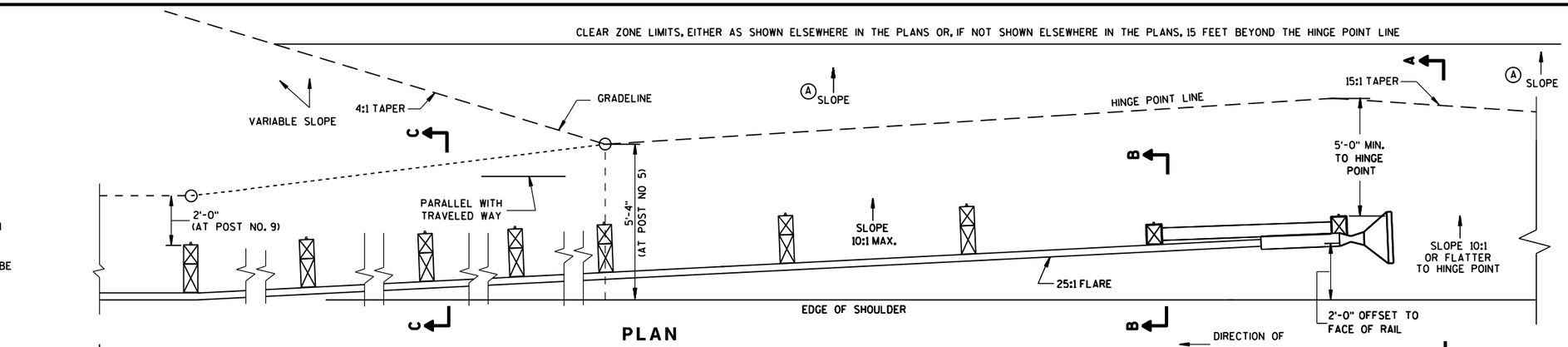
SEE SDD 14B42 FOR MORE INFORMATION.

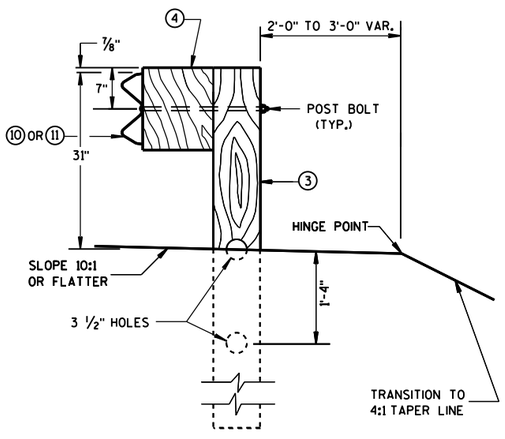
* DO NOT ATTACH BLOCKOUTS TO POSTS 1 AND 2.

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

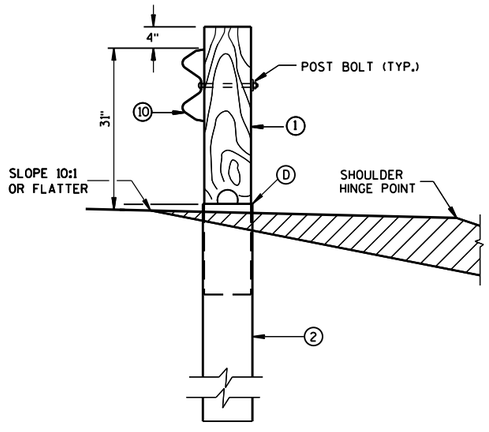
W-BEAM RAIL SPLICES ARE LOCATED AT POST NUMBER 3, AND BETWEEN POST 5 AND 6, BETWEEN POSTS 7 AND 8, AND MIDDLE OF THE SPAN AFTER POST 9.

THE CENTER OF THE UPPER 3½" DIAMETER HOLE ON POST NUMBER 3 THROUGH POST 9 IS TO BE FLUSH WITH THE GROUND LINE UP TO A MAXIMUM OF 2" ABOVE GROUND LINE.

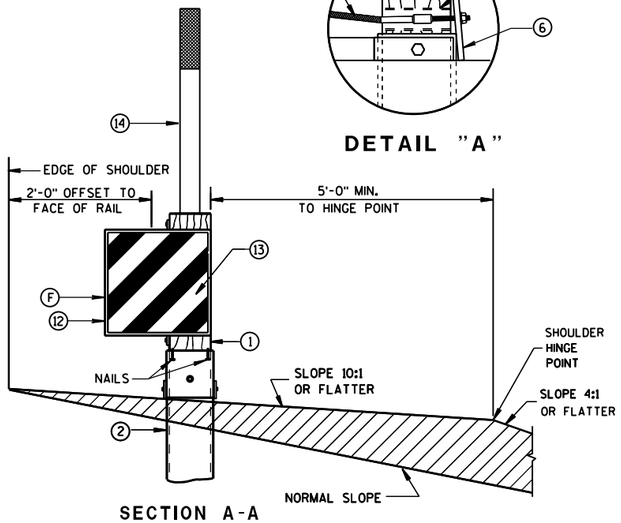




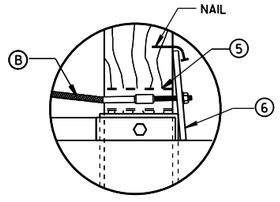
SECTION C-C
TYPICAL AT POST NOS. 3-9



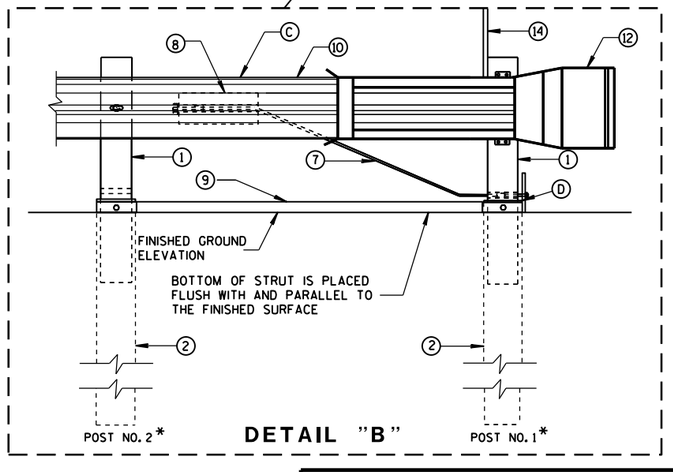
SECTION B-B
TYPICAL AT POST NO. 2*



SECTION A-A
TYPICAL AT POST NO. 1*



DETAIL "A"



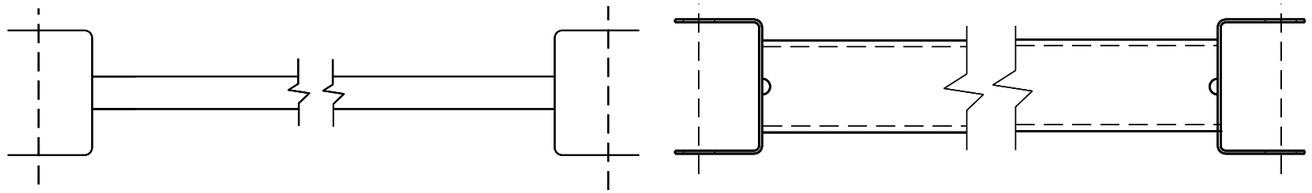
DETAIL "B"

MIDWEST GUARDRAIL SYSTEM
ENERGY ABSORBING TERMINAL (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPO

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

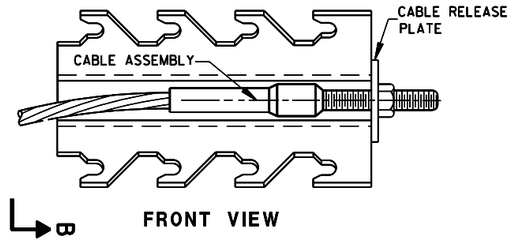
S.D.D. 14 B 44-2a



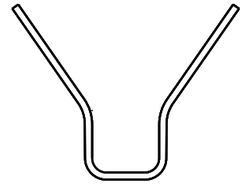
GENERIC GROUND STRUT (9) (H)

BILL OF MATERIALS

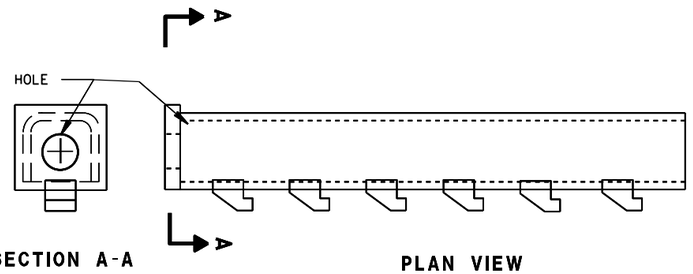
PART NO.	DESCRIPTION MATERIALS PROVIDED BY MGS EAT MANUFACTURER. SEE MANUFACTURER'S DETAILS FOR MORE INFORMATION.
(1)	WOOD BREAKAWAY POST
(2)	6" X 8" X 0.188", 6'-0" LONG FOUNDATION TUBE AT POSTS 1 AND 2
(3)	WOOD CRT
(4)	WOOD BLOCKOUT
(5)	PIPE SLEEVE
(6)	BEARING PLATE
(7)	BCT CABLE ASSEMBLY
(8)	ANCHOR CABLE BOX
(9)	GROUND STRUT
(10)	PERFORATED W-BEAM RAIL END PANEL, 12'-6" LONG.
(11)	STANDARD W-BEAM RAIL. MULTIPLE SECTIONS REQUIRED. SECTIONS VARY IN LENGTH.
(12)	END SECTION EAT
(13)	0.040" ALUMINUM SHEET WITH REFLECTIVE SHEETING TYPE F PER SECTION 637 OF THE STANDARD SPECIFICATIONS
(14)	EAT MARKER POST - YELLOW (SEE APPROVED PRODUCTS LIST)



FRONT VIEW



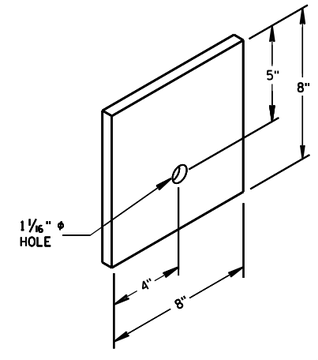
SECTION B-B



SECTION A-A

PLAN VIEW

GENERIC ANCHOR CABLE BOX (8) (H)

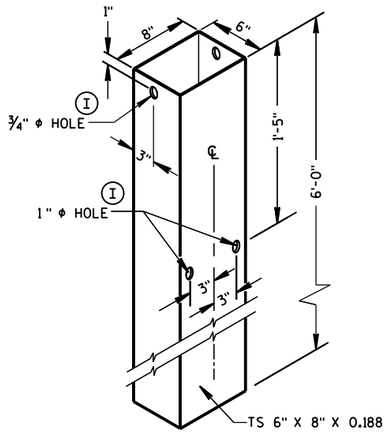


BEARING PLATE (6)

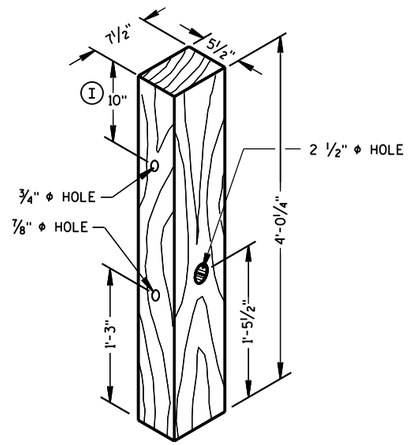
MIDWEST GUARDRAIL SYSTEM
ENERGY ABSORBING TERMINAL
(MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI

6
S.D.D. 14 B 44-2b

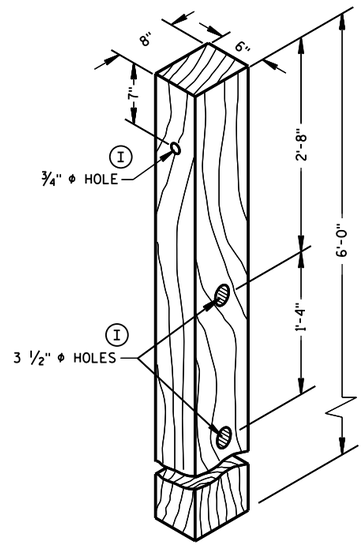


FOUNDATION TUBE (2)



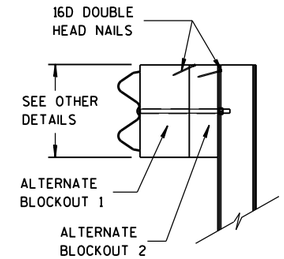
POSTS NUMBER 1 AND 2

WOOD BREAKAWAY POST (1)

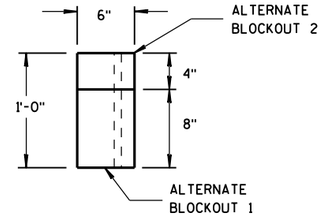


POSTS NUMBER 3-9

WOOD CRT POST (3)

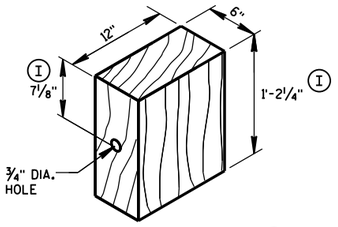


SIDE VIEW



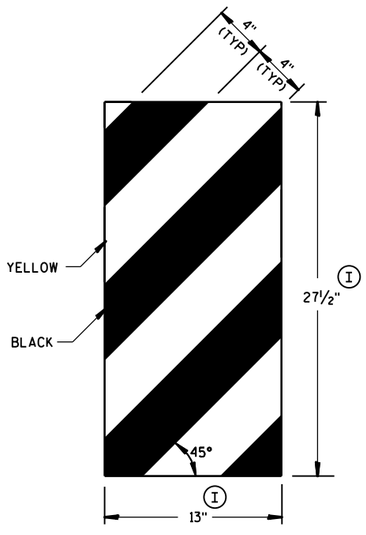
TOP VIEW

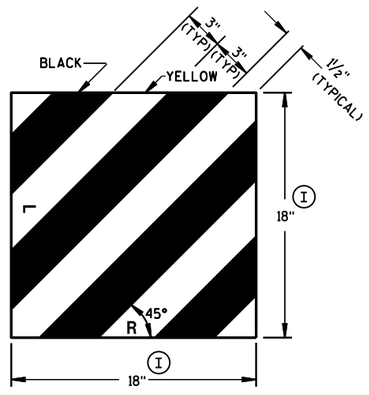
ALTERNATE WOOD BLOCKOUT DETAIL



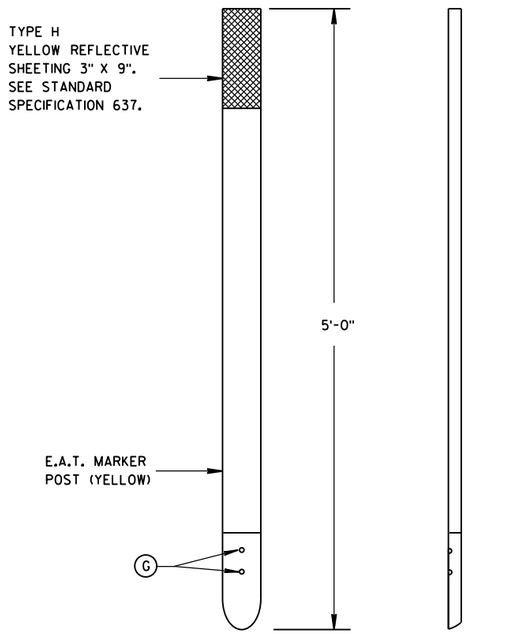
WOOD BLOCKOUT (4)

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





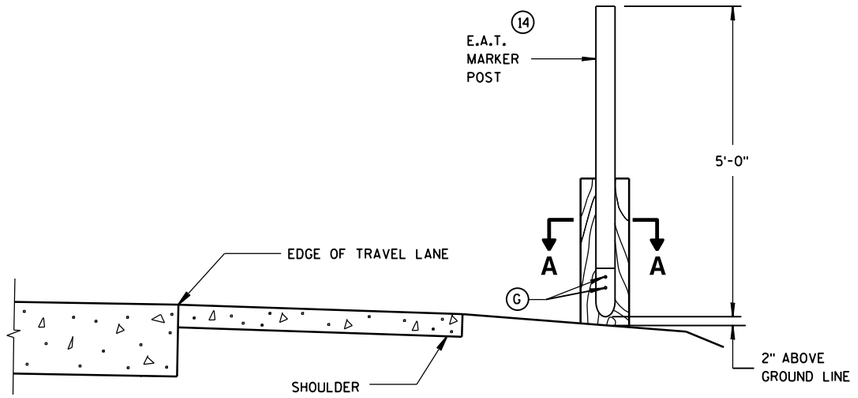
GENERIC REFLECTIVE SHEETING (13) (H)



FRONT VIEW

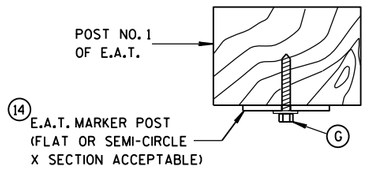
SIDE VIEW

E.A.T. MARKER POST (14)



TYPICAL INSTALLATION OF E.A.T. MARKER POST BACKSIDE OF POST NO. 1

(E.A.T. AND RAIL REMOVED FOR CLARITY)



SECTION A-A

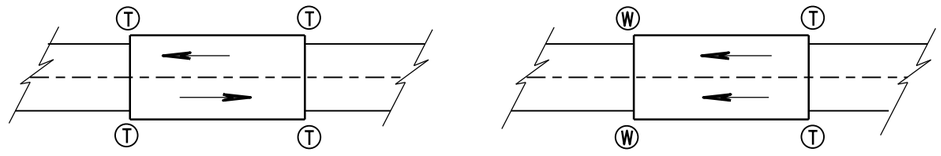
MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

6

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



TWO WAY TRAFFIC

ONE WAY TRAFFIC

Ⓣ THRIE BEAM CONNECTION

Ⓦ W-BEAM CONNECTION WHEN REQUIRED

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

GENERAL NOTES

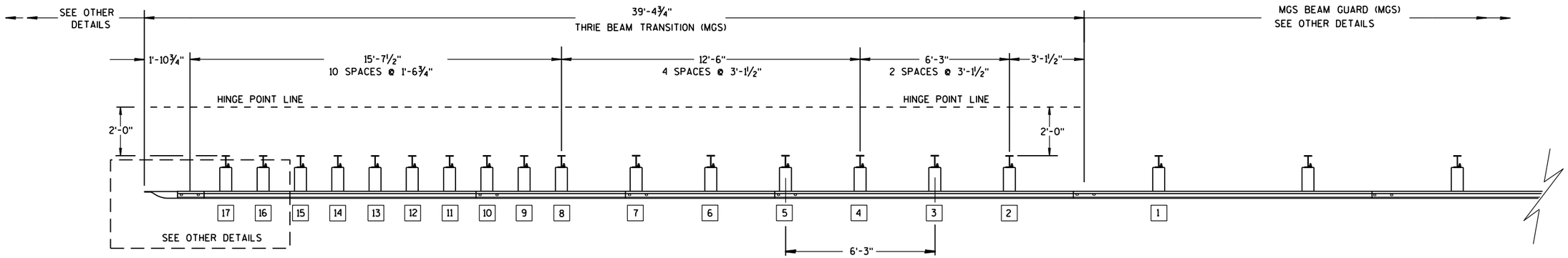
IF ROCK IS ENCOUNTERED, REMOVE ROCK TO FULL DEPTH OF POST PLUS 2½", AND 12" DIAMETER AROUND POST. SEE 14B42 FOR MORE DETAILS.

TRANSITION USES STEEL POSTS ONLY.

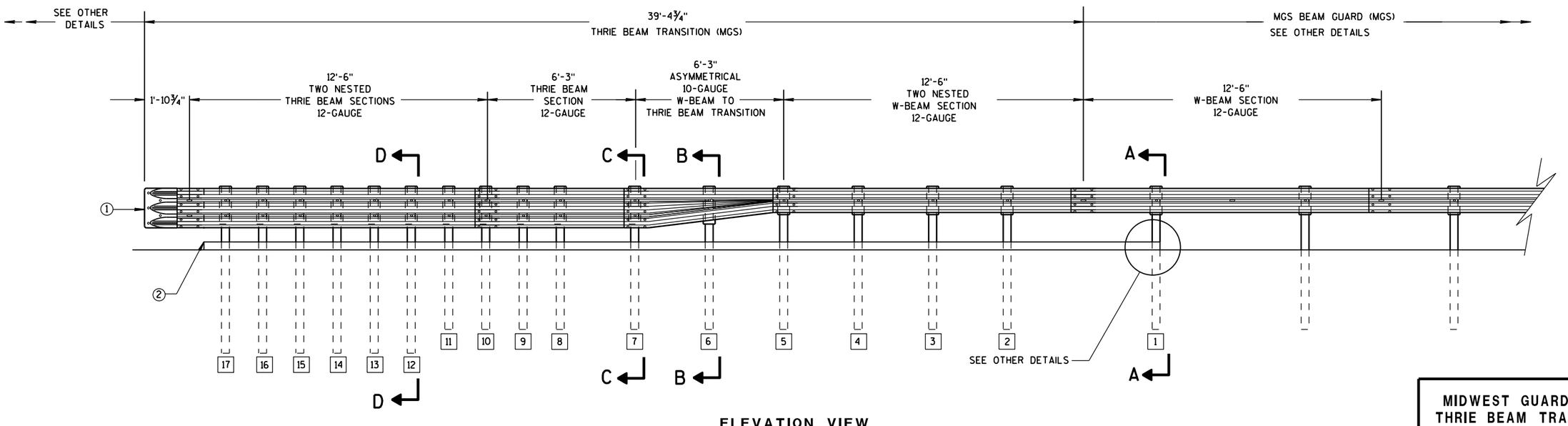
SEE STANDARD DETAIL DRAWING 14 B 42 FOR MORE INFORMATION.

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

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



PLAN VIEW



ELEVATION VIEW

MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR

6

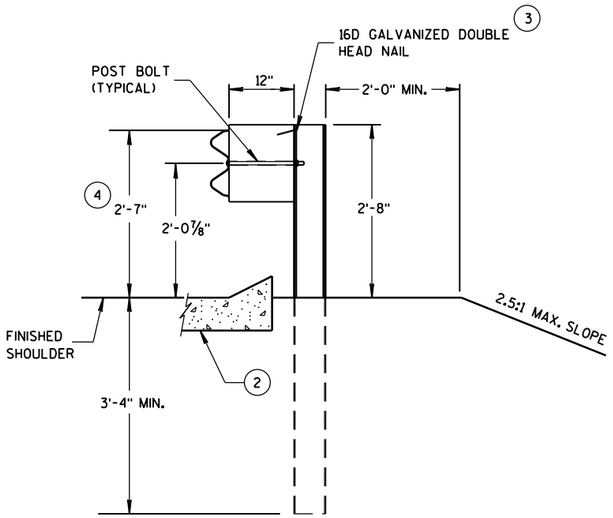
S.D.D. 14 B 45-4a

GENERAL NOTES

(2) OPTIONAL CURB AND GUTTER OR DRAINAGE_FEATURE SEE PLAN FOR INFORMATION.

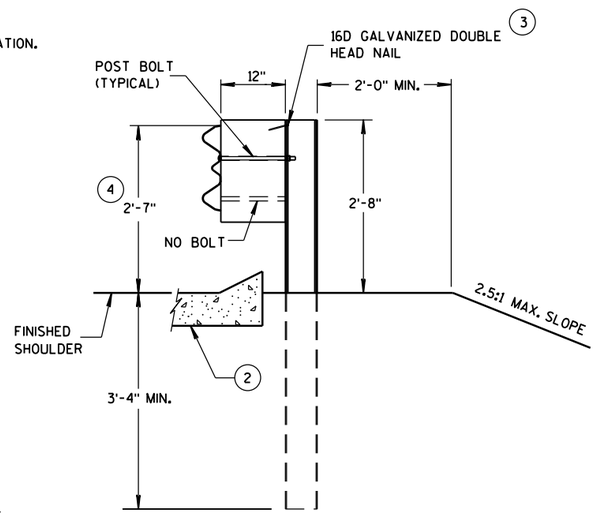
(3) WHEN USING STEEL POSTS AND WOOD BLOCKOUTS INSTALL FOUR 10D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.

(4) TOLERANCE FOR TOP OF W-BEAM RAIL IS ± 1".



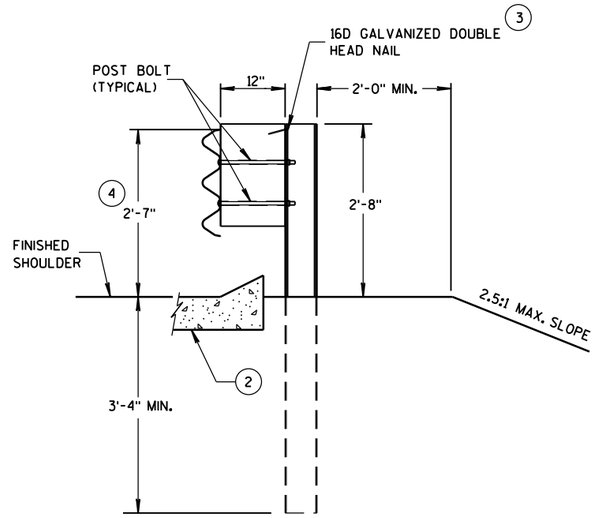
SECTION A-A

POSTS 1-5



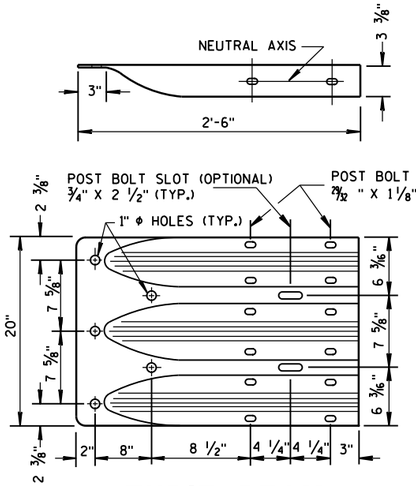
SECTION B-B

POST 6



SECTION C-C

POSTS 7-11



THRIE BEAM TERMINAL CONNECTOR

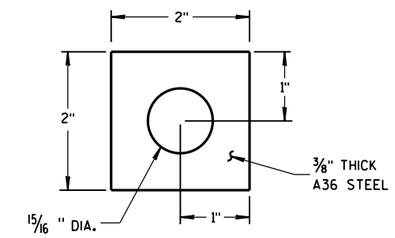
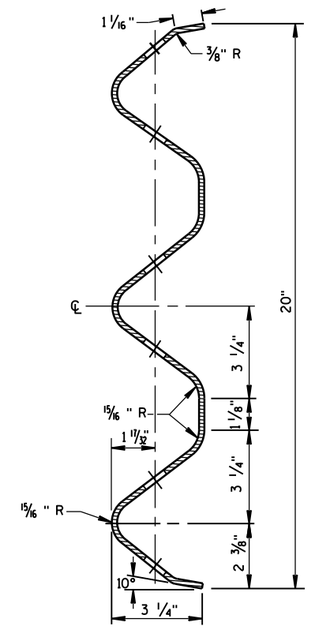
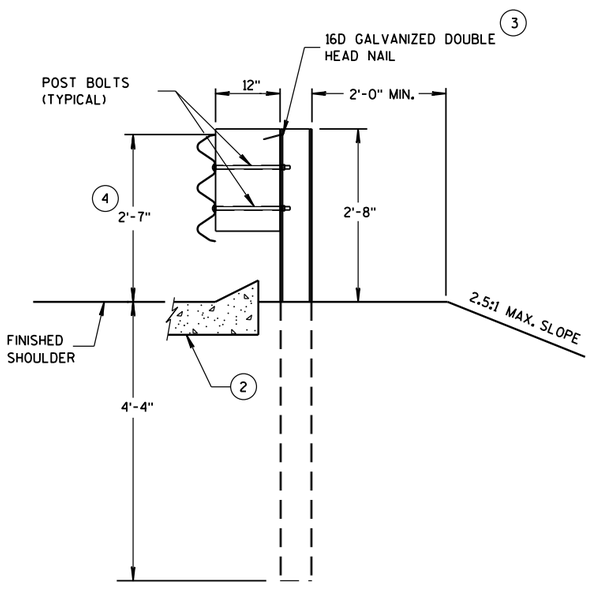


PLATE WASHER DETAIL

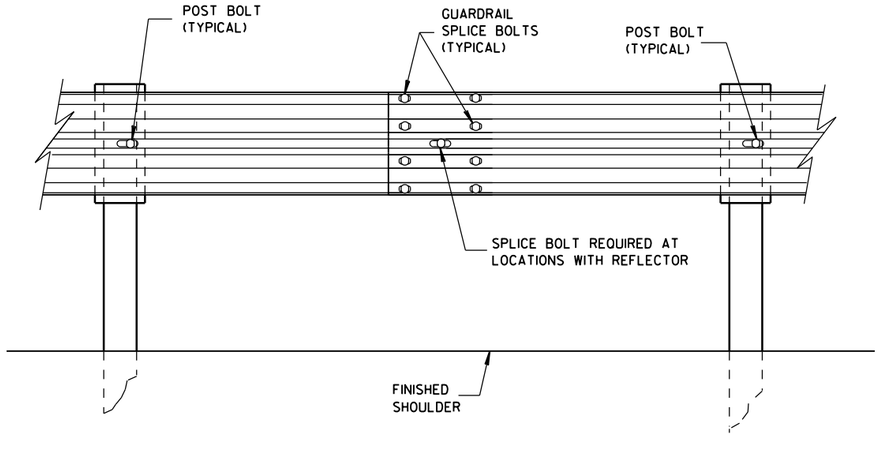


SECTION THRU THRIE BEAM RAIL ELEMENT



SECTION D-D

POSTS 12-17



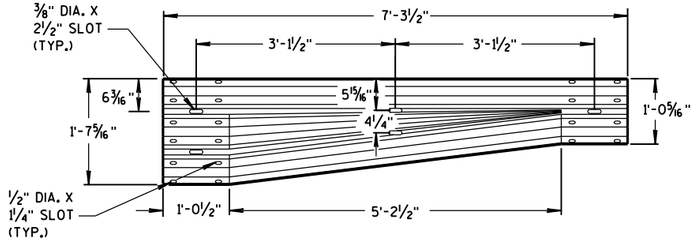
SPLICE DETAIL

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

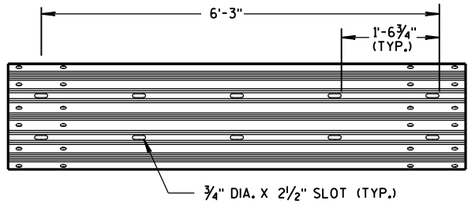
STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR

6

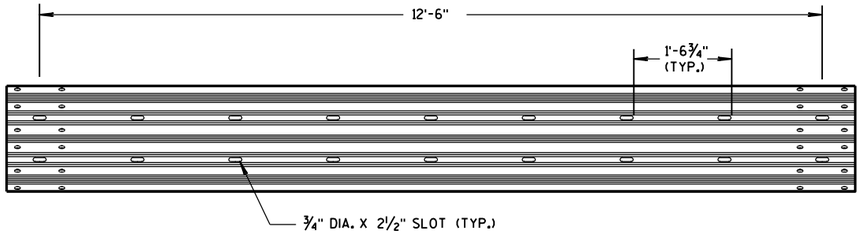
S.D.D. 14 B 45-4b



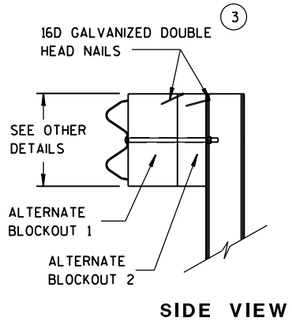
W-BEAM TO THRIE BEAM TRANSITION SECTION



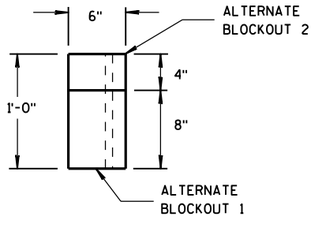
6'-3" THRIE BEAM SECTION



12'-6" THRIE BEAM SECTION

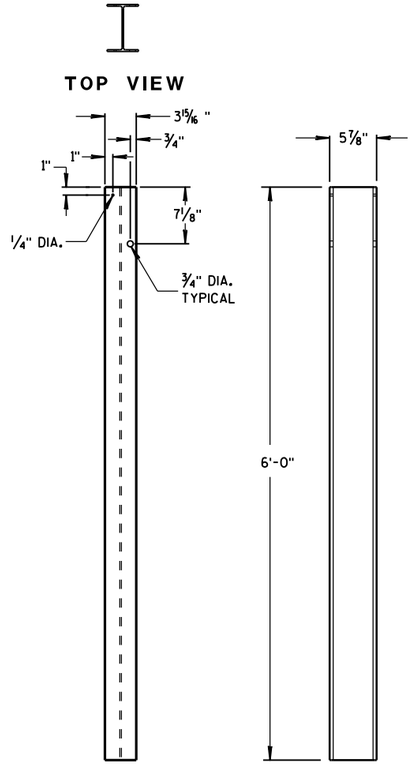


SIDE VIEW

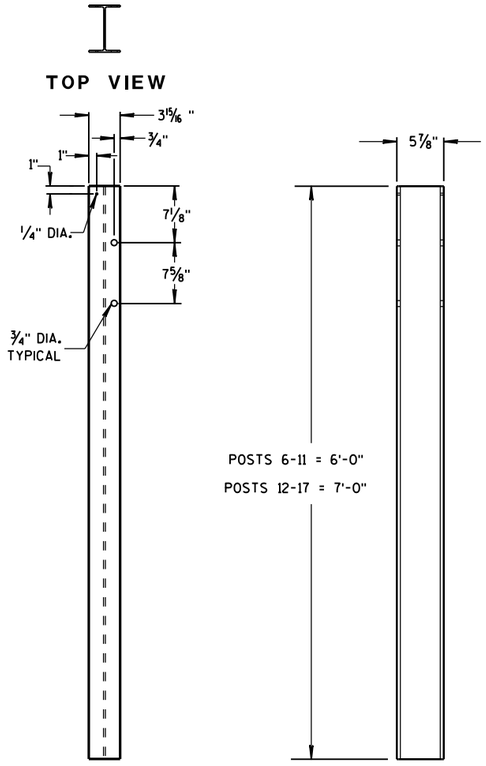


TOP VIEW

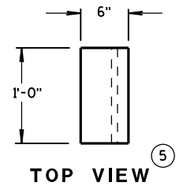
ALTERNATE WOOD BLOCKOUT DETAIL



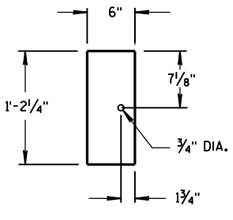
STEEL POSTS 1-5



STEEL POSTS 6-17

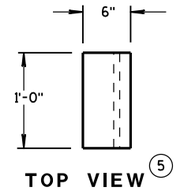


TOP VIEW

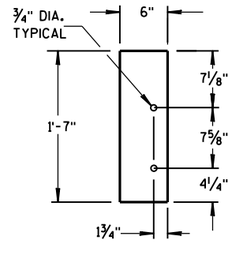


FRONT VIEW

BLOCKOUT POSTS 1-5



TOP VIEW



FRONT VIEW

BLOCKOUT POSTS 6-17

GENERAL NOTES

STEEL POSTS ARE W6X9 OR W6X8.5.

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

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

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

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

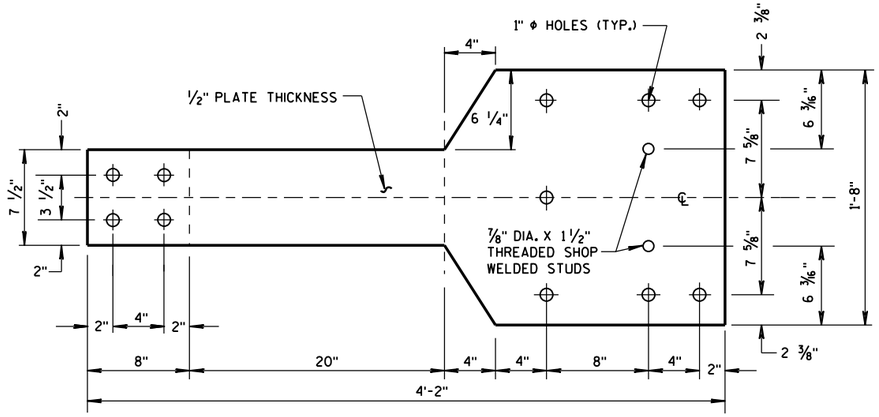
STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR

6

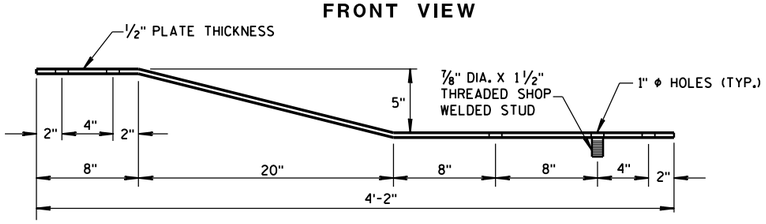
S.D.D. 14 B 45-4c
S.D.D. 14 B 45-4c

GENERAL NOTES

(4) TOLERANCE FOR TOP OF W-BEAM RAIL IS ± 1".

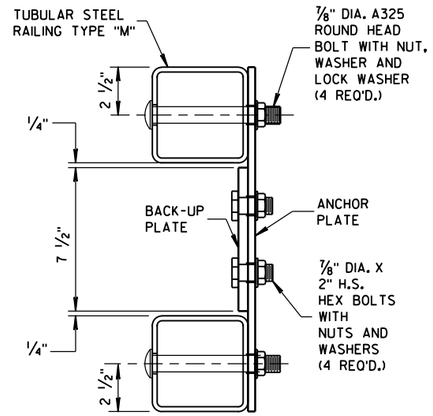


FRONT VIEW

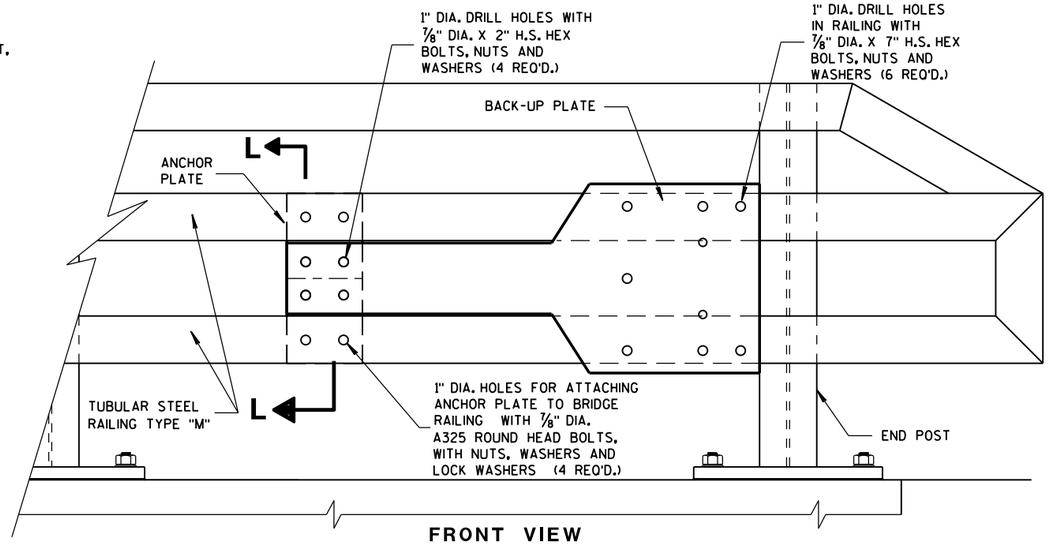


PLAN VIEW

BACK-UP PLATE DETAIL, TYPE "M"

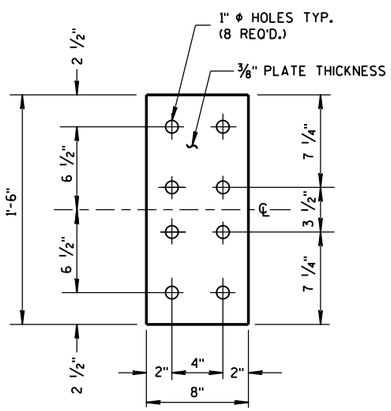


SECTION L-L



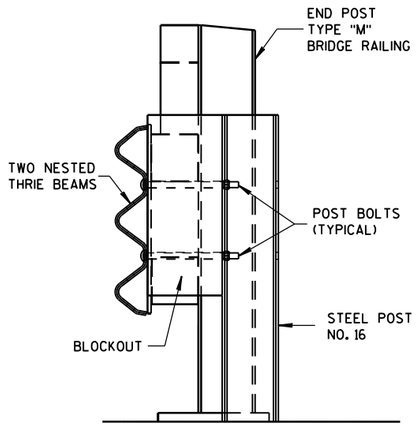
FRONT VIEW

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

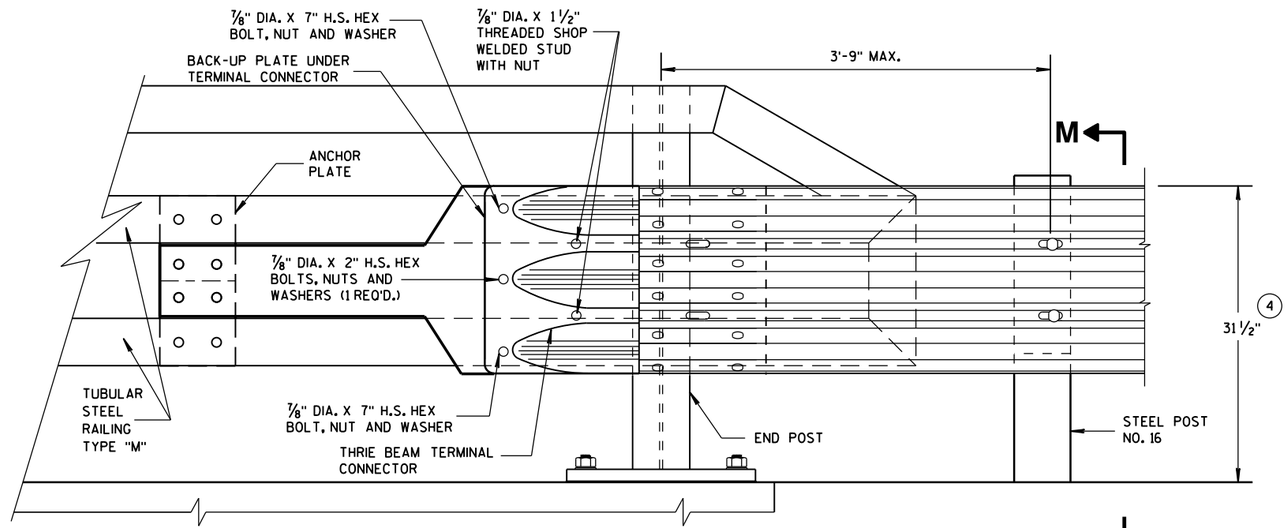


FRONT VIEW

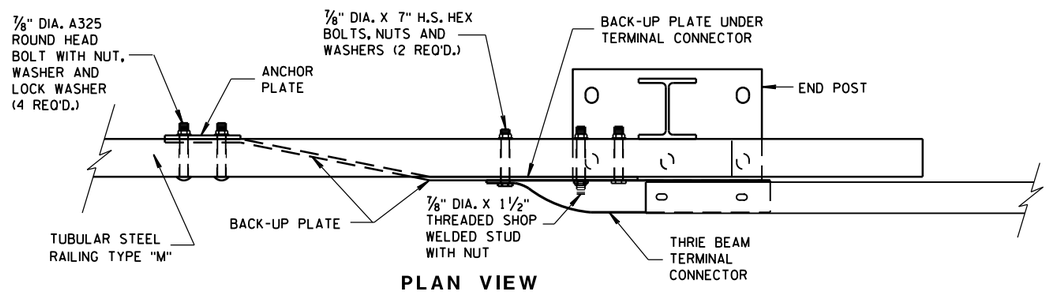
ANCHOR PLATE DETAIL, TYPE "M"



SECTION M-M



FRONT VIEW



PLAN VIEW

THRIE BEAM CONNECTION TO TUBULAR RAILING, TYPE "M"

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

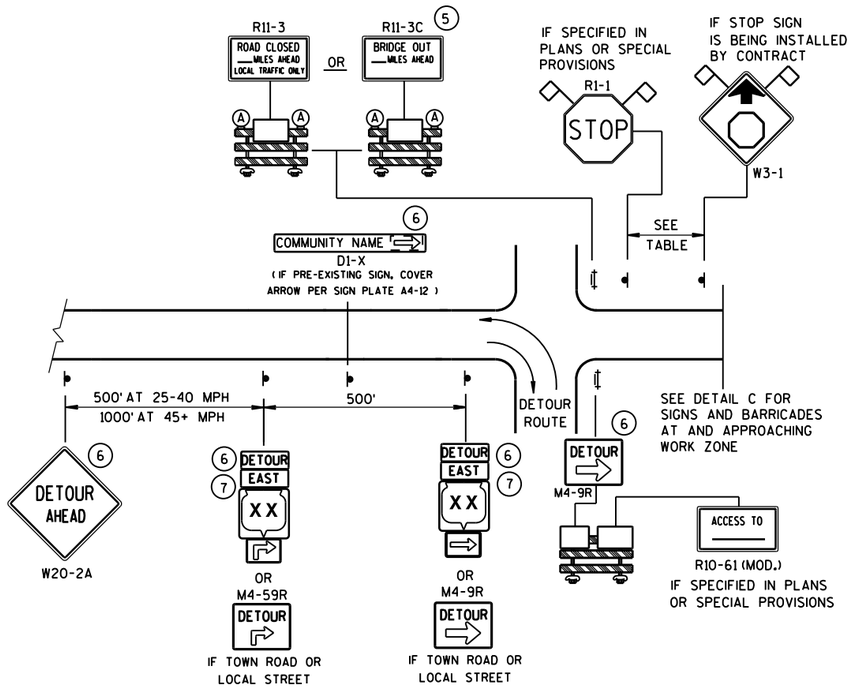
APPROVED
June, 2015 — DATE
/S/ Jerry H. Zogg — ROADWAY STANDARDS ENGINEER
FHWA

6

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

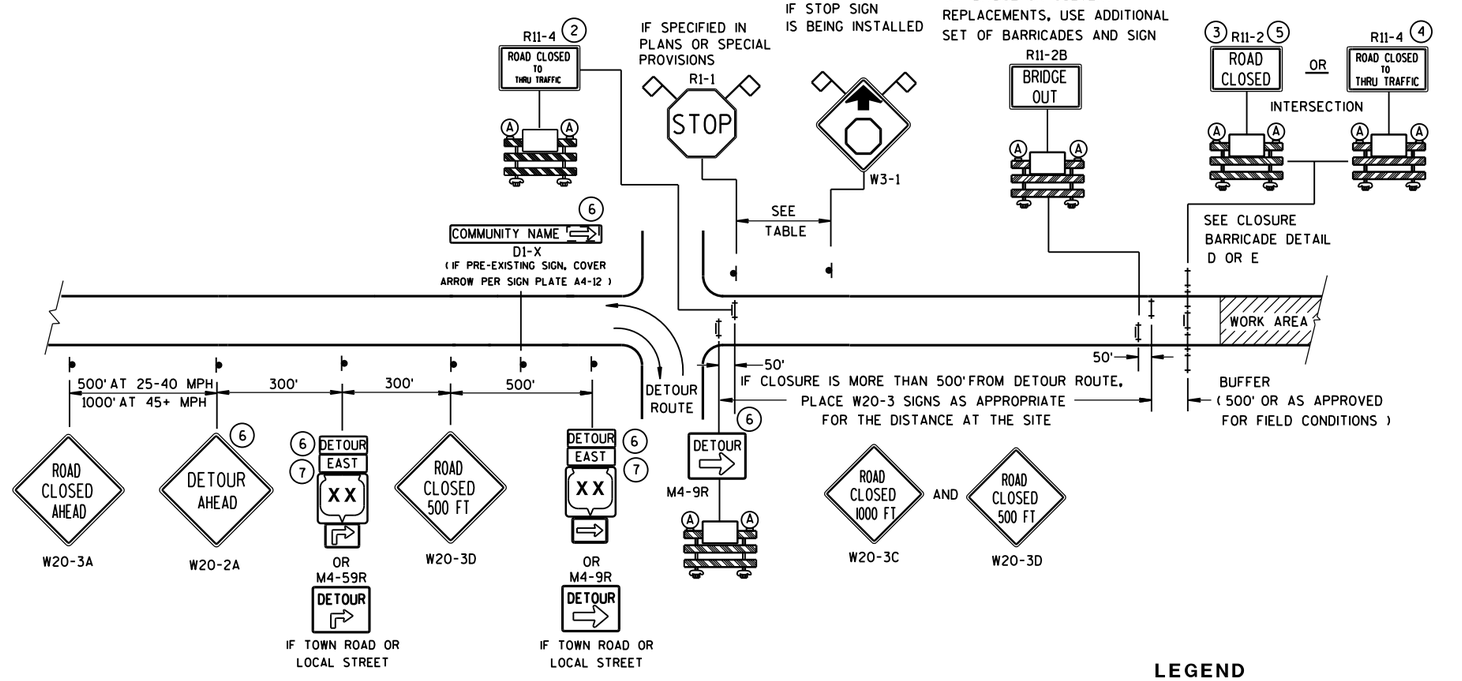
6

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



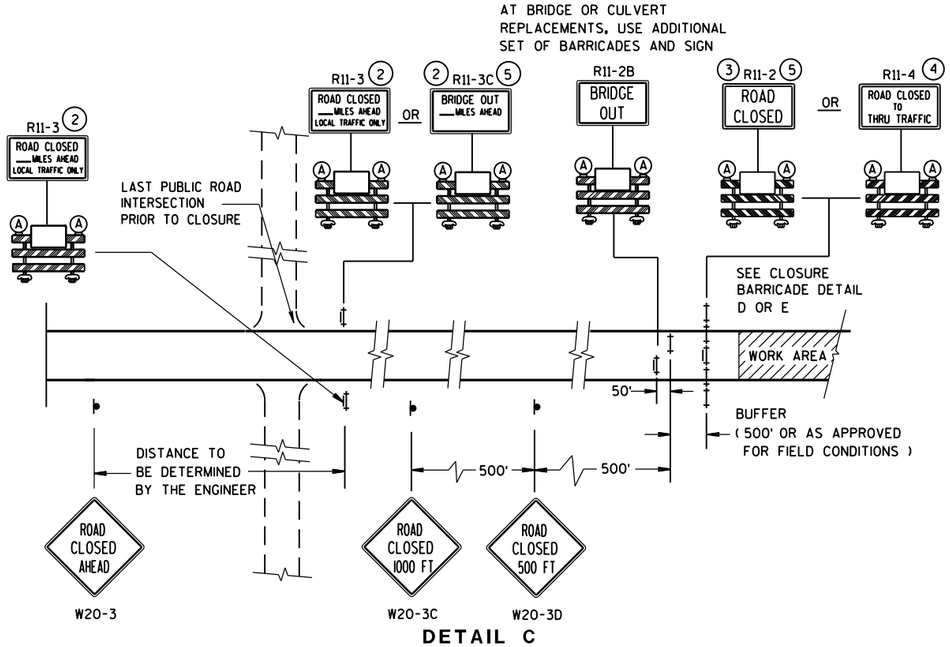
DETAIL A
MAINLINE CLOSURE WITH POSTED DETOUR

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

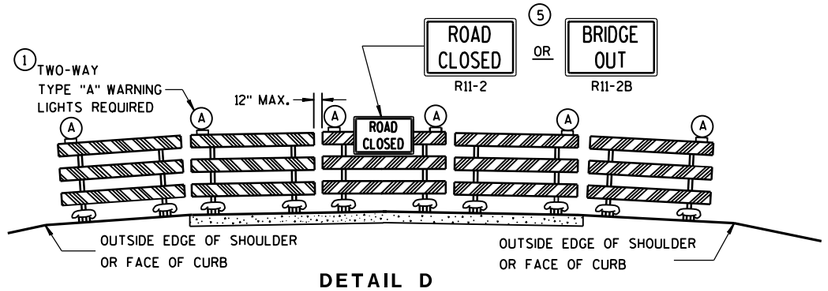
Sept. 2015 — DATE
/S/ Peter Amakobe Atepe
STATEWIDE WORK ZONE TRAFFIC SAFETY ENGINEER
FHWA

6

S.D.D. 15 C 2-6a

6

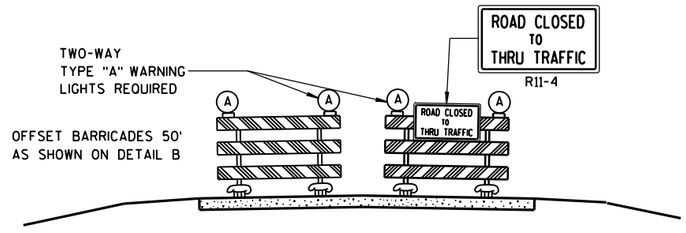
S.D.D. 15 C 2-6a



DETAIL D

ROAD CLOSURE BARRICADE DETAIL

APPROACH VIEW



DETAIL E

LANE CLOSURE BARRICADE DETAIL

APPROACH VIEW

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

GENERAL NOTES

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

BARRICADES AND SIGNS FOR MAINLINE CLOSURES

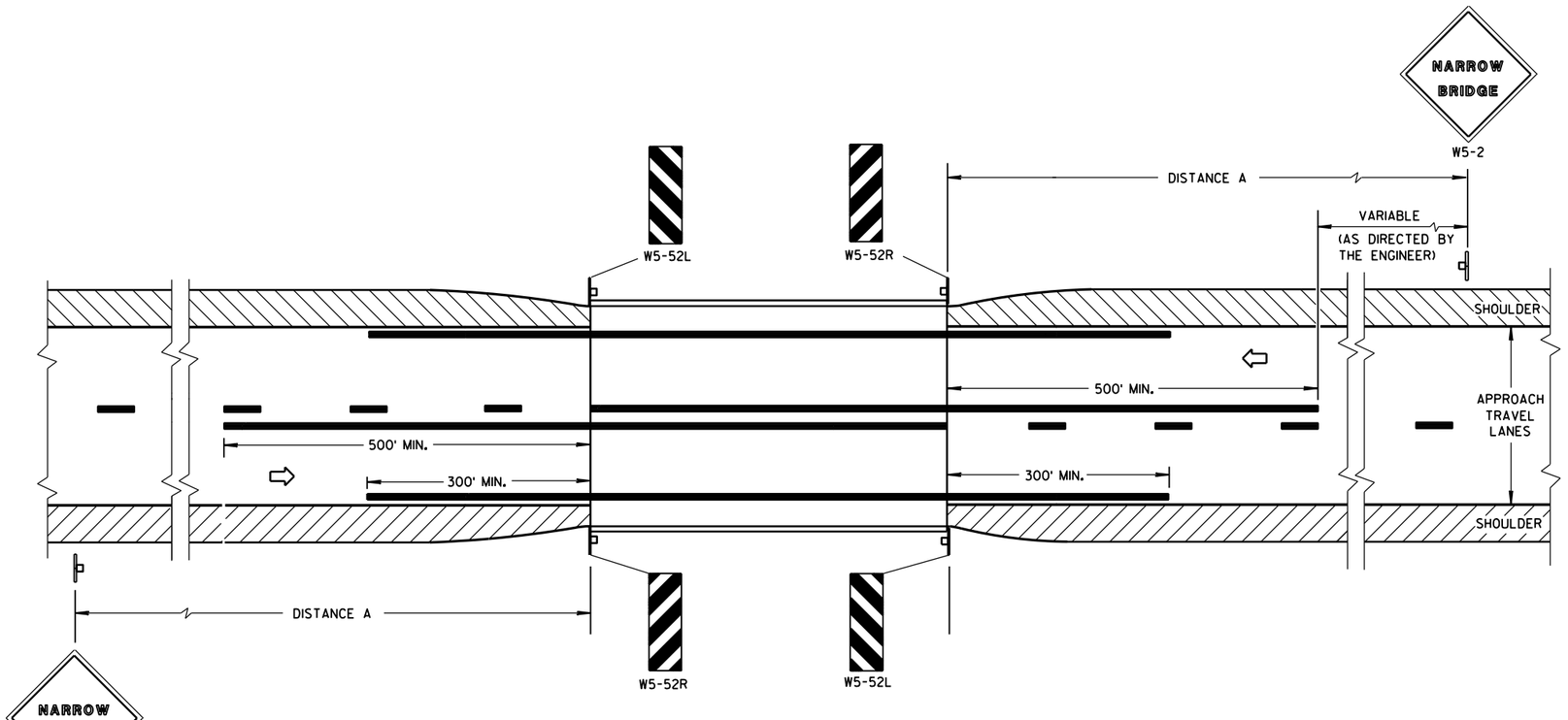
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

Sept. 2015 — DATE

/S/ Peter Amakobe Atepe
STATEWIDE WORK ZO SAFETY ENGI FIC
FHWA

6

S.D.D. 15 C 2-6b

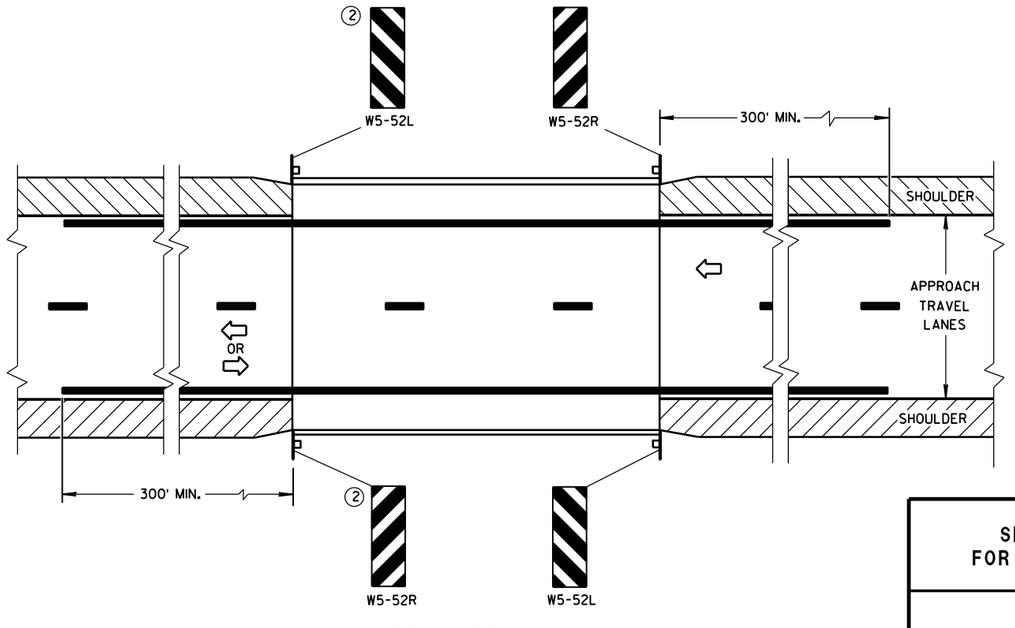


SITUATION 1

WARRANTING CRITERIA:
BRIDGE WIDTH IS AT LEAST 16 FEET BUT LESS THAN 24 FEET.

DISTANCE TABLE

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



SITUATION 2

WARRANTING CRITERIA:

1. BRIDGE WIDTH IS AT LEAST 24 FEET AND
2. BRIDGE SHOULDER WIDTH IS LESS THAN 6 FEET.

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.

① LOCATE W5-52 SIGN POST(S) BEHIND GUARDRAIL WHEN PRESENT.

② OMIT ON ONE-WAY TRAVELLED WAYS.

③ EDGE OF W5-52 SIGN SHALL BE PLACED IN LINE WITH FACE OF CURB OR PARAPET.

SIGNING & MARKING FOR TWO LANE BRIDGES

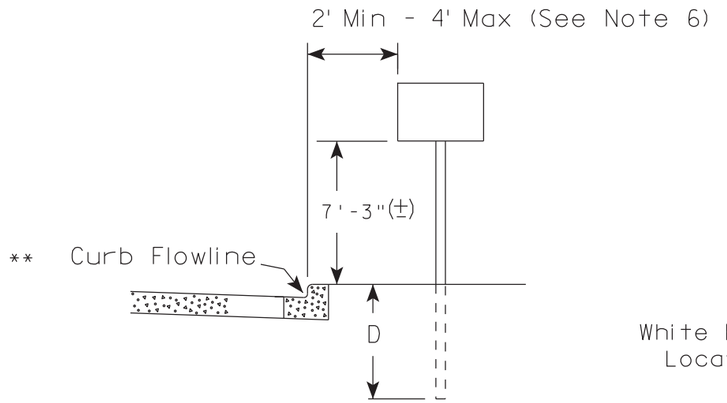
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
4-18-16 — DATE
/S/ Matthew R. Rauch — STATE SIGNING AND MAR ...EER
FHWA

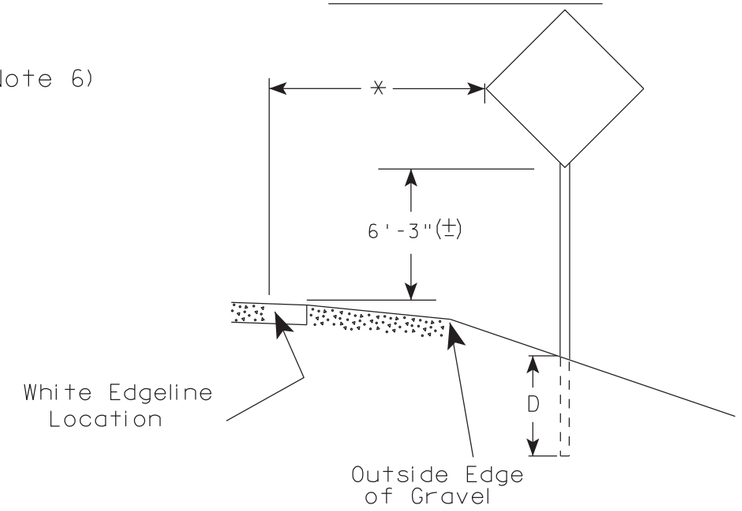
6

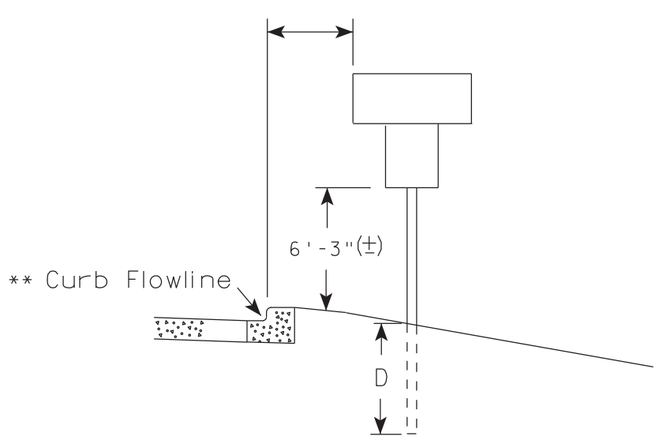
S.D.D. 15 C 6-8

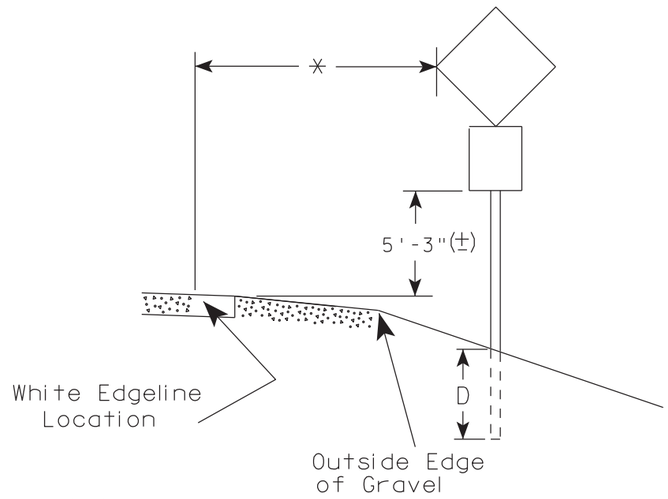
URBAN AREA



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.

POST EMBEDMENT DEPTH

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

GENERAL NOTES

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

TYPICAL INSTALLATION OF PERMANENT TYPE II SIGNS ON SINGLE POSTS

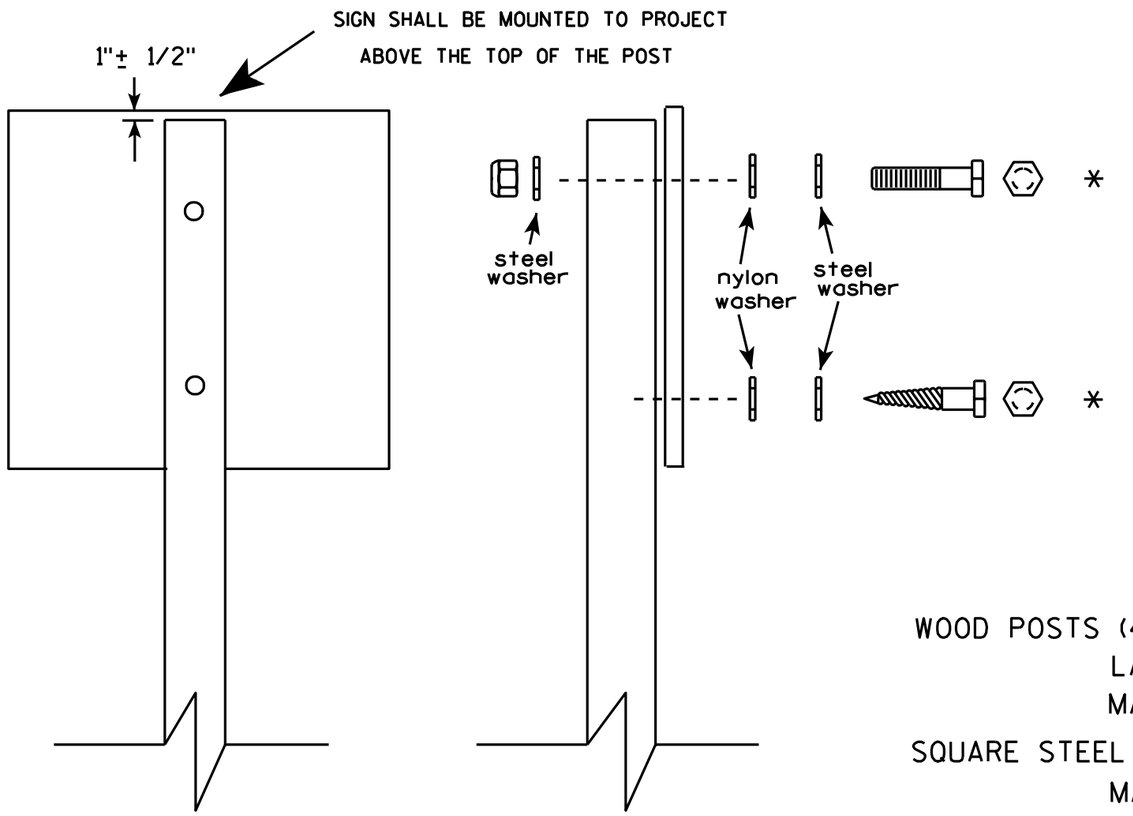
WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 11/12/14 PLATE NO. A4-3.19

PROJECT NO: 8389-00-70	HWY: SLEEPY VALLEY LOOP	COUNTY: DOUGLAS		SHEET NO:	E

FILE NAME : C:\CAEFiles\Projects\tr_stdplate\A43.DGN PLOT DATE : 12-NOV-2014 14:03 PLOT BY : mscsja PLOT NAME : PLOT SCALE : 99.237937:1.000000 WISDOT/CADDS SHEET 42



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

a. Hot dip galvanized in accordance with ASTM Designation: A 153, Class D, or SC 3

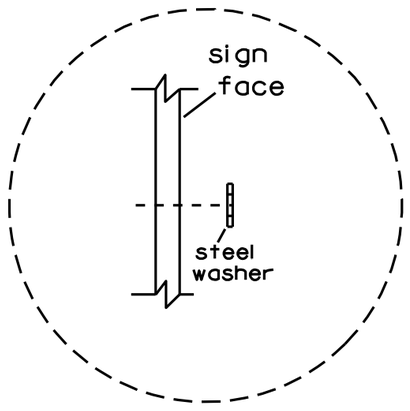
b. Electro-galvanized in accordance with ASTM Designation : B 633, TYPE III, SC 3.

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

WOOD POSTS (4" x 4" or 4" x 6")
LAG SCREWS - 3/8" X 3"
MACHINE BOLTS - 5/16" X 6-1/2" or 7" Length w/ nuts

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

WASHERS (ALL POSTS) -
1-1/4" O.D. X 3/8" I.D. X 1/16" STEEL
1-1/4" O.D. X 3/8" I.D. X .080 NYLON for all Type H signs.



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

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

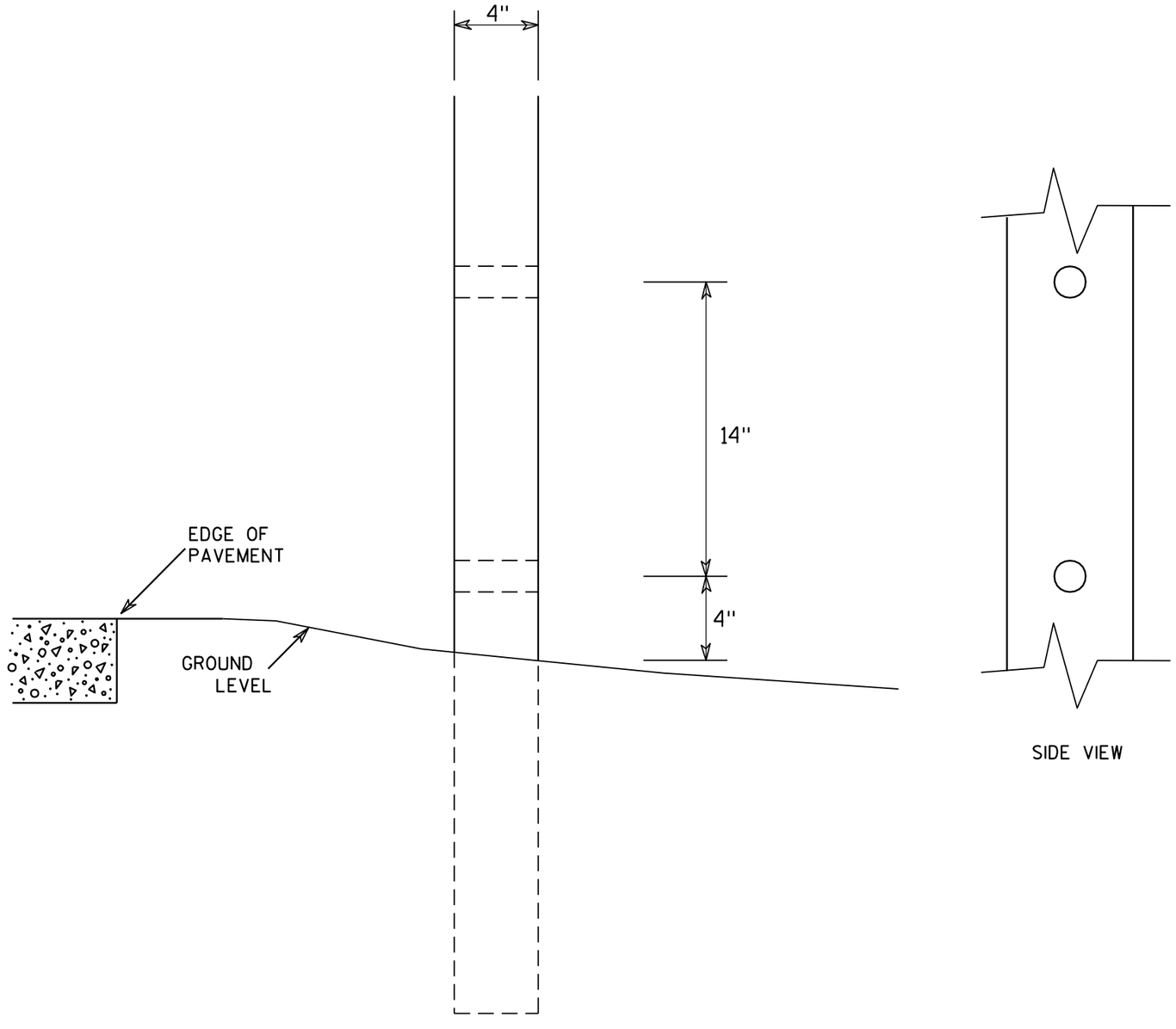
ATTACHMENT OF SIGNS TO POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

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

PROJECT NO: 8389-00-70	HWY: SLEEPY VALLEY LOOP	COUNTY: DOUGLAS		SHEET NO: 43	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.

7

7

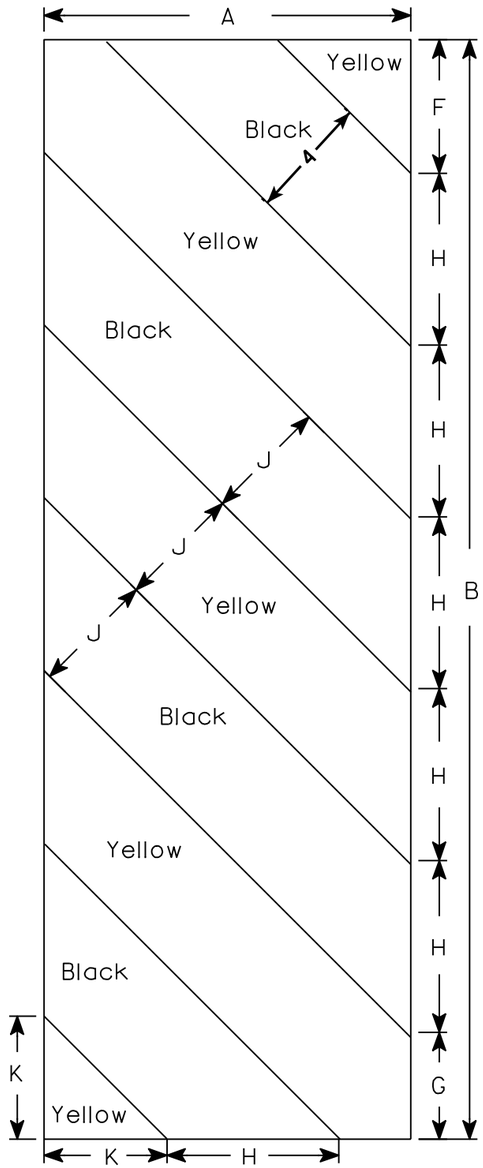
4 X 6 WOOD POST MODIFICATIONS

WISCONSIN DEPT OF TRANSPORTATION

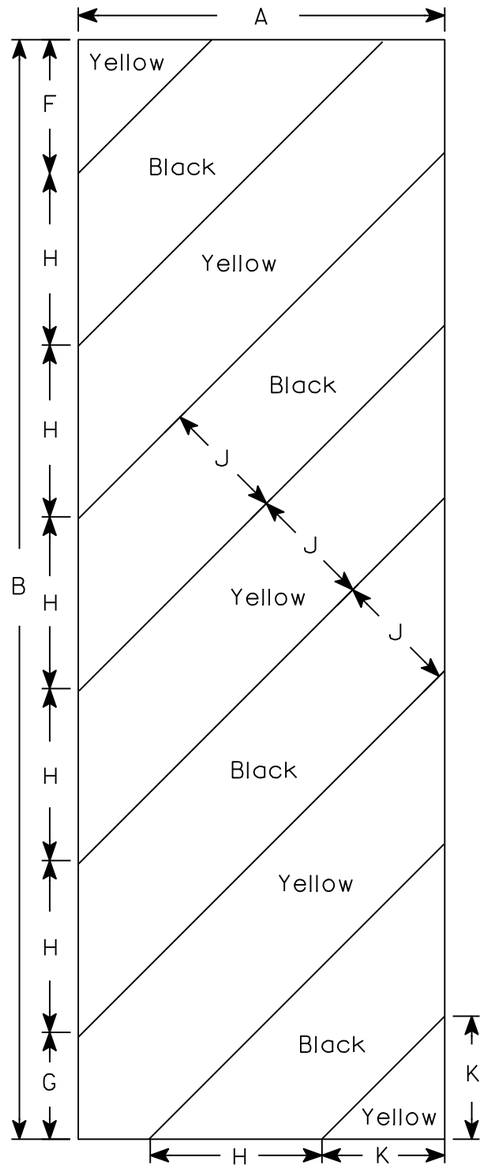
APPROVED Chester J Spang for State Traffic Engineer

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

PROJECT NO: 8389-00-70	HWY: SLEEPY VALLEY LOOP	COUNTY: DOUGLAS		SHEET NO: 44	E



W5-52L



W5-52R

NOTES

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

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

STANDARD SIGN

W5-52L & W5-52R

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

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

PROJECT NO: 8389-00-70 | HWY: SLEEPY VALLEY LOOP | COUNTY: DOUGLAS | SHEET NO: 45 | E

STATE PROJECT NUMBER

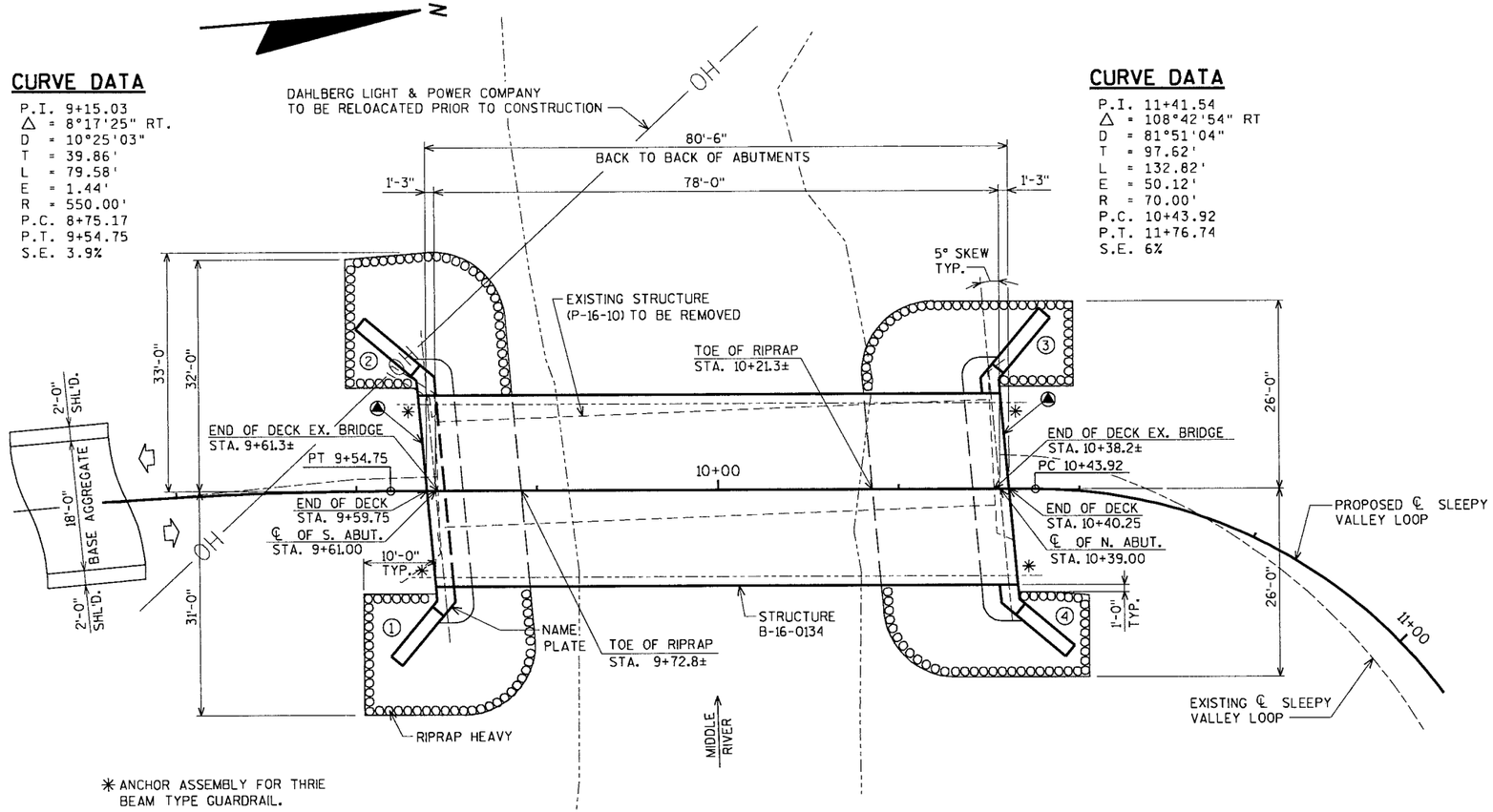
8389-00-70

CURVE DATA

P.I. 9+15.03
△ = 8°17'25" RT.
D = 10°25'03"
T = 39.86'
L = 79.58'
E = 1.44'
R = 550.00'
P.C. 8+75.17
P.T. 9+54.75
S.E. 3.9%

CURVE DATA

P.I. 11+41.54
△ = 108°42'54" RT
D = 81°51'04"
T = 97.62'
L = 132.82'
E = 50.12'
R = 70.00'
P.C. 10+43.92
P.T. 11+76.74
S.E. 6%



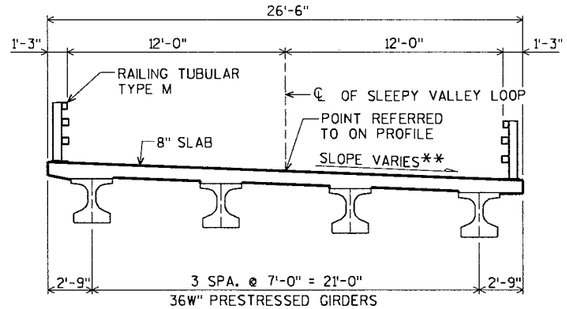
✳ ANCHOR ASSEMBLY FOR THRIE BEAM TYPE GUARDRAIL.

◯ DENOTES WING NUMBER.

◭ PROTECTION ANGLE AT END OF DECK

PLAN

SINGLE SPAN, 36W" PRESTRESSED CONCRETE GIRDER BRIDGE



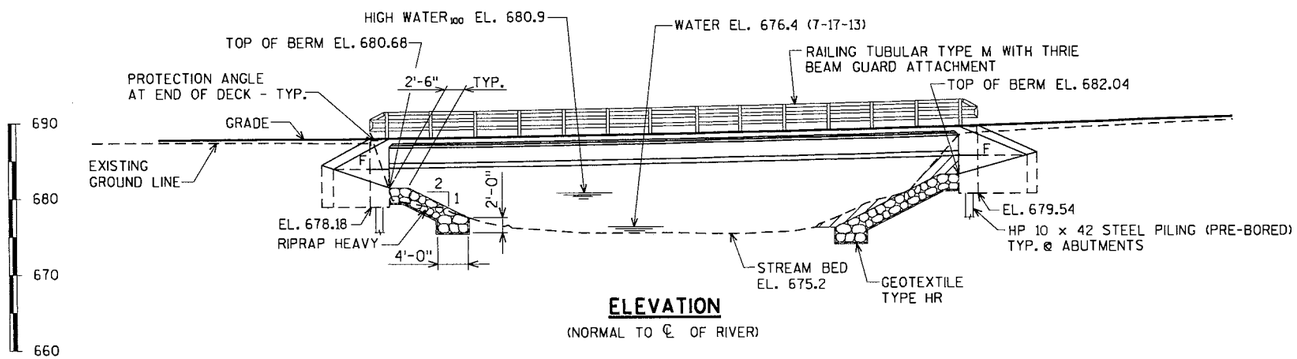
TYPICAL SECTION THRU ROADWAY

(LOOKING NORTH)

** VARIES 0.043% AT ℄ OF SOUTH ABUT. TO 0.054% AT ℄ OF NORTH ABUT.

LIST OF DRAWINGS

COST OF EXCAVATION AND FILL IN THE HATCHED AREAS SHALL BE INCLUDED IN THE CONTRACT LUMP SUM PRICE FOR "EXCAVATION FOR STRUCTURES BRIDGES B-16-134 ".



ELEVATION

(NORMAL TO ℄ OF RIVER)

FOR GENERAL NOTES AND DESIGN DATA SEE SHEET 2

WISCONSIN
DANIEL N. SYDOW
E-38363
WI
PROFESSIONAL ENGINEER
10/24/2016

BRIDGE OFFICE CONTACT:
WILLIAM DREHER
(608)-266-8489

CONSULTANT CONTACT:
DAN SYDOW
(715)-834-3161

NO.	DATE	REVISION	BY

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

ACCEPTED William C. Dreher SDR 11/28/16
CHIEF STRUCTURES DESIGN ENGINEER — DATE

STRUCTURE B-16-134

SLEEPY VALLEY LOOP OVER MIDDLE RIVER

COUNTY	TOWN/~~CITY/VILLAGE~~
DOUGLAS	LAKESIDE

DESIGN SPEC.
AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS

DESIGNED BY	DESIGN CK'D.	DRAWN BY	PLANS CK'D.
CJM	JCK	CJM/CLS	DNS

GENERAL PLAN

SHEET 1 OF 18
46

DATE:
DATE:
DATE:

CHECKED BY:
BACK CHECKED BY:
CORRECTED BY:

8

8

$PRFNAME$
U:\42-0901.00 - Douglas Co. Tn Lakeside, Sleepy Valley Loop\BRIDGE\42090\gp FINAL.dgn

10/24/2016

PENTABLE:BRequ_shd_util.tbl

I.D.

DATE:

DESIGN DATA

LIVE LOAD:

DESIGN LOADING: HL-93
INVENTORY RATING FACTOR: 1.14
OPERATING RATING FACTOR: 1.72
WISCONSIN STANDARD PERMIT VEHICLE (WIS-SPV) = 250 KIPS

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

MATERIAL PROPERTIES:

CONCRETE MASONRY	SUPERSTRUCTURE	f'_c =	4,000 p.s.i.
	ALL OTHER	f'_c =	3,500 p.s.i.
HIGH STRENGTH BAR STEEL REINFORCEMENT (GRADE 60)		f_y =	60,000 p.s.i.
36W" PRESTRESSED GIRDER			
CONCRETE MASONRY		f'_c =	8,000 p.s.i.
STRANDS - 0.6" DIA. WITH ULTIMATE TENSILE STRENGTH OF		=	270,000 p.s.i.

HYDRAULIC DATA:

100 YEAR FLOOD

DRAINAGE AREA = 51.9 sq. mi.
WATERWAY AREA = 233 sq. ft.
V = 7.7 f.p.s.
Q_{100} = 1,800 c.f.s.
HIGH WATER$_{100}$ EL. 680.9
HIGH WATER$_2$ EL. 677.7
RDWY. OVERFLOW = N/A
SCOUR CRITICAL CODE = 8
NAVD 88 DATUM

FOUNDATION DATA:

ABUTMENTS TO BE SUPPORTED ON PRE-BORED HP 10 x 42 STEEL PILING DRIVEN TO A REQUIRED DRIVING RESISTANCE OF 160 TONS ǂ PER PILE AS DETERMINED BY THE MODIFIED GATES DYNAMIC FORMULA. ESTIMATED LENGTH 12'-0" FOR BOTH ABUTMENTS.

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

TRAFFIC DATA:

A.D.T. = <100 (2017)
A.D.T. = <100 (2037)
R.D.S. = 20 M.P.H.

GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.

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

THE FIRST DIGIT OF A THREE DIGIT BAR NO. AND THE FIRST TWO DIGITS OF A FOUR DIGIT BAR NO. SIGNIFIES THE BAR SIZE.

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

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

PROTECTIVE SURFACE TREATMENT IS TO BE APPLIED AS SHOWN IN DETAIL ON SHEET 3.

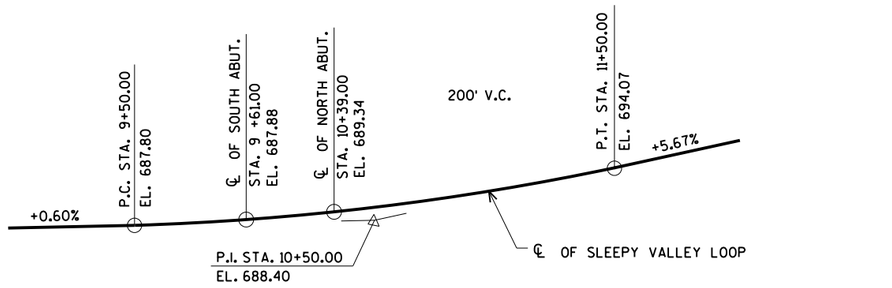
ELASTOMERIC BEARING PADS NEED NOT BE INDIVIDUALLY MOLDED PROVIDED THE CUT EDGES ARE SMOOTH AND TRUE.

THE EXISTING GROUNDLINE SHALL BE THE UPPER LIMIT FOR EXCAVATION FOR STRUCTURES.

THE EXISTING STRUCTURE, P-16-10, TO BE REMOVED, IS A SINGLE SPAN STEEL TRUSS BRIDGE, 77.5 FT. LONG WITH A 15 FT. CLEAR ROADWAY WIDTH.

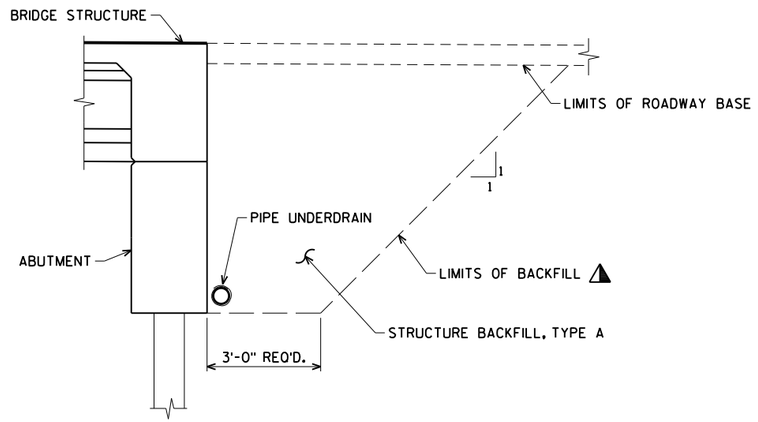
AT THE BACKFACE OF ABUTMENTS ALL VOLUME WHICH CANNOT BE PLACED BEFORE ABUTMENT CONSTRUCTION AND IS NOT OCCUPIED BY THE NEW STRUCTURE SHALL BE BACKFILLED WITH BACKFILL STRUCTURE.

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



PROFILE GRADE LINE
(SLEEPY VALLEY LOOP)

BENCH MARK:
CHIS. SQ. ON CURB AT SW COR. OF BRIDGE
STA. 9+65, 10' LT.
EL. 687.63



STRUCTURE BACKFILL DETAIL

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-134

DRAWN BY CJM/CLS | PLANS CK'D. CJM

DESIGN DATA AND NOTES

SHEET 2 OF 18
47

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

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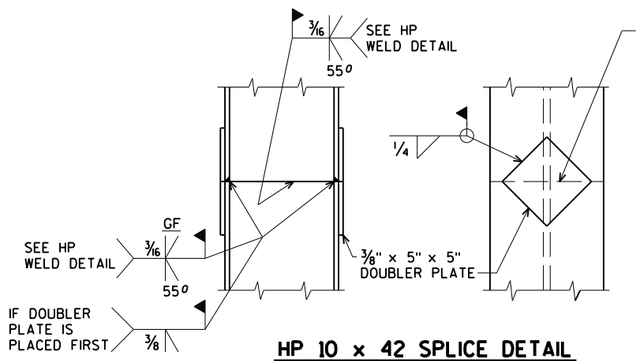
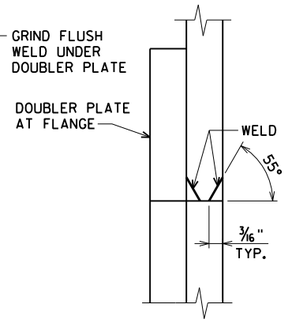
STATE PROJECT NUMBER
8389-00-70

TOTAL ESTIMATED QUANTITIES

BID ITEM NUMBER	BID ITEMS	UNIT	S. ABUT.	N. ABUT.	SUPER.	TOTAL
203.0500.S	REMOVING OLD STRUCTURE OVER WATERWAY STATION 10+00	LS	-----	-----	-----	1
206.1000	EXCAVATION FOR STRUCTURES BRIDGES B-16-134	LS	-----	-----	-----	1
210.1500	BACKFILL STRUCTURE TYPE A	TON	260	270	-----	530
502.0100	CONCRETE MASONRY BRIDGES	CY	31	32	83	146
502.3200	PROTECTIVE SURFACE TREATMENT	SY	-----	-----	270	270
503.0137	PRESTRESSED GIRDER TYPE I 36W-INCH	LF	-----	-----	316	316
505.0400	BAR STEEL REINFORCEMENT HS STRUCTURES	LB	2,190	2,200	-----	4,390
505.0600	BAR STEEL REINFORCEMENT HS COATED STRUCTURES	LB	1,190	1,200	13,340	15,730
506.0105	STRUCTURAL STEEL CARBON	LB	260	260	-----	520
506.2605	BEARING PADS ELASTOMERIC NON-LAMINATED	EACH	-----	-----	8	8
506.4000	STEEL DIAPHRAGMS B-16-134	EACH	-----	-----	6	6
513.4061	RAILING TUBULAR TYPE M B-16-134	LF	-----	-----	165	165
516.0500	RUBBERIZED MEMBRANE WATERPROOFING	SY	10	10	-----	20
550.0020	PRE-BORING ROCK OR CONSOLIDATED MATERIAL	LF	60	60	-----	120
550.1100	PILING STEEL HP 10-INCH x 42 LB	LF	72	72	-----	144
606.0300	RIPRAP HEAVY	CY	105	90	-----	195
612.0406	PIPE UNDERDRAIN WRAPPED 6-INCH	LF	75	75	-----	150
645.0120	GEOTEXTILE TYPE HR	SY	210	180	-----	390
	NON-BID ITEMS					
	FILLER	SIZE	-----	-----	-----	½" & ¾"
	NAME PLATE					

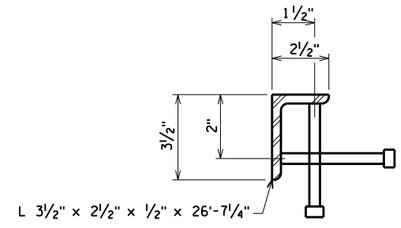


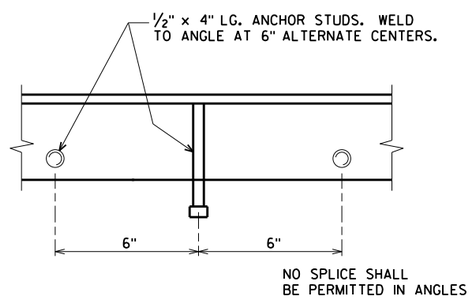
HP 10 x 42 SPLICE DETAIL



HP WELD DETAIL

FLANGE SHOWN, WEB SIMILAR

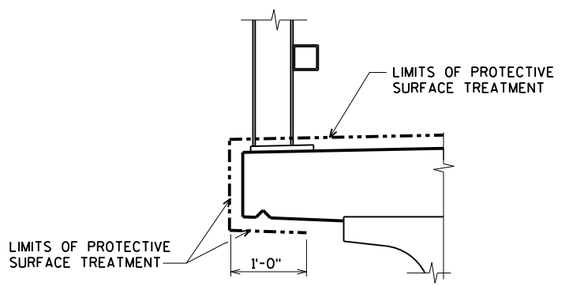




PROTECTION ANGLE DETAIL

(ANGLE AND STUDS TO BE PAID FOR AT THE UNIT PRICE BID FOR "STRUCTURAL STEEL CARBON". (NO PAINT REQ'D.)

SANDBLAST PROTECTION ANGLE AFTER FABRICATION IN ACCORDANCE WITH SSPC SP. #6 "COMMERCIAL BLAST CLEANING". AFTER BLAST CLEANING, THE PROTECTION ANGLE SHALL BE HOT DIPPED GALVANIZED.



PROTECTIVE SURFACE TREATMENT DETAIL

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-134

DRAWN BY CJM/CLS | PLANS CK'D. CJM

QUANTITIES AND DETAILS

SHEET 3 OF 18
48

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

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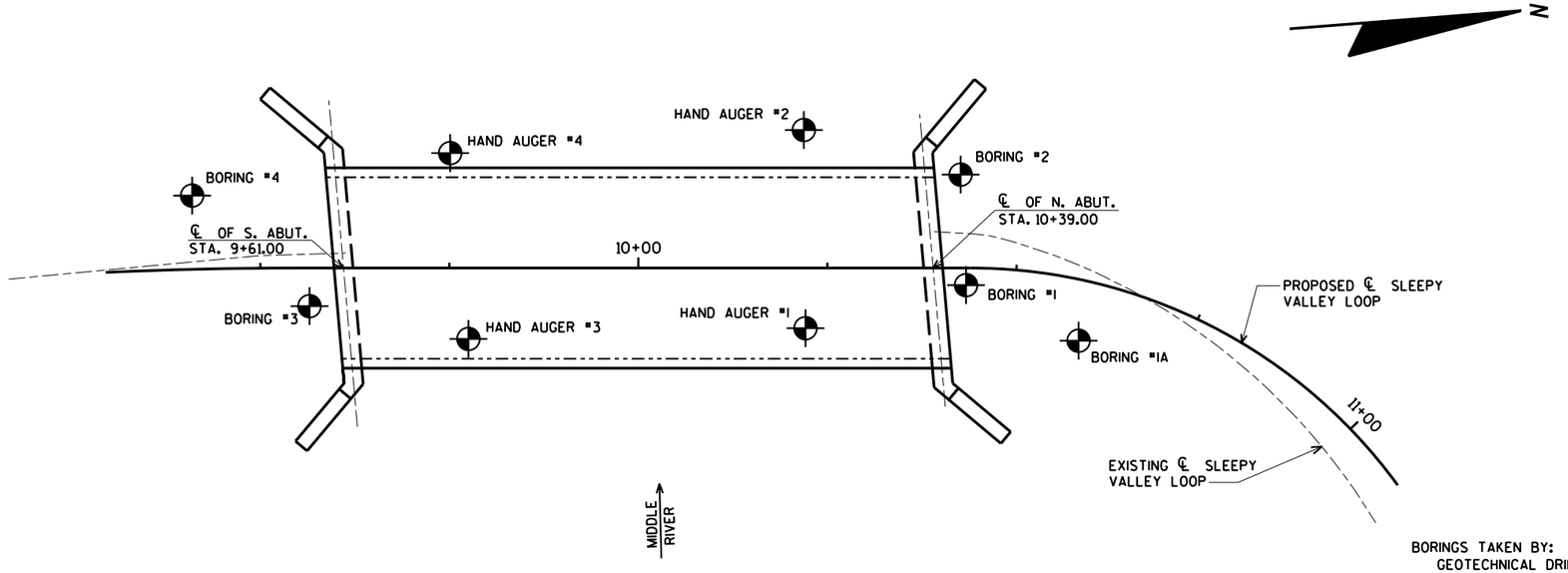
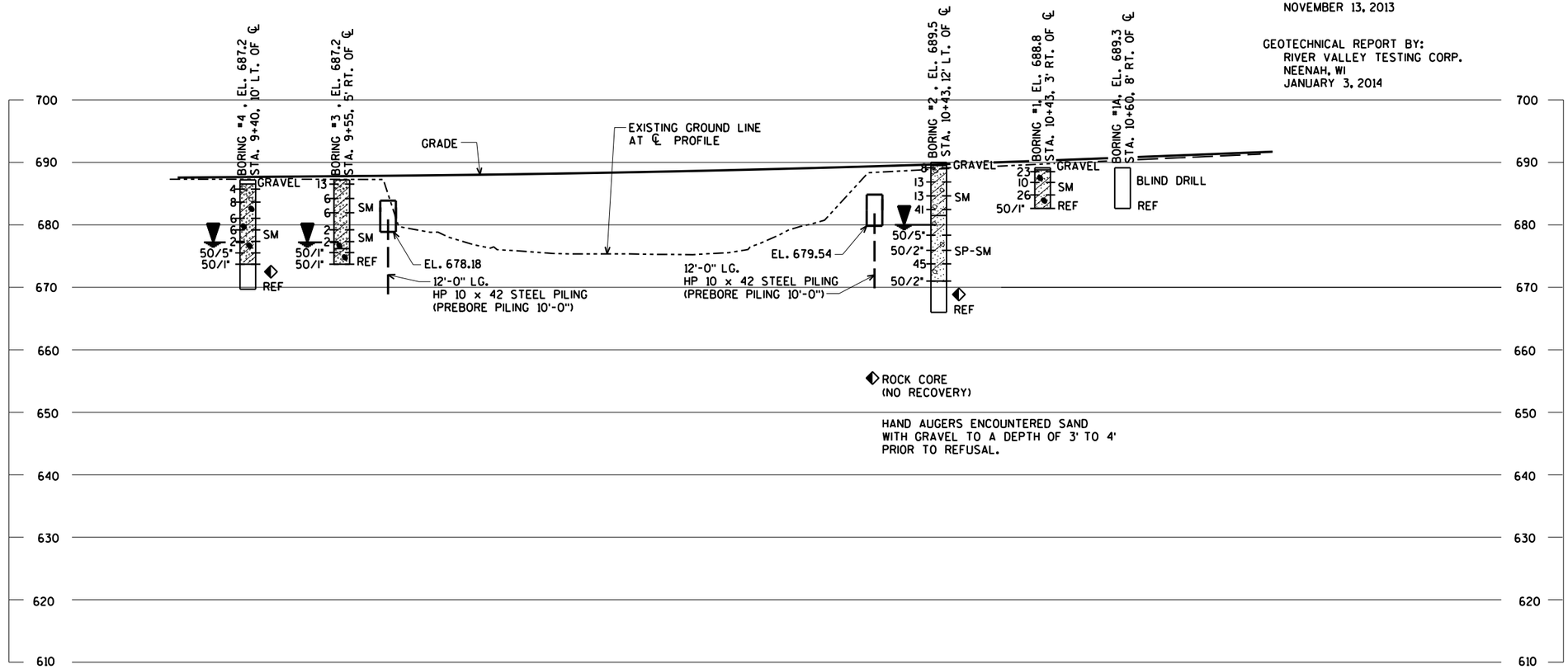
$PRFNAME$
U:\42-0901.00 - Douglas Co, Tn Lakeside, Sleepy Valley Loop\BRIDGE\420901 SOIL.dgn





BORINGS TAKEN BY:
GEOTECHNICAL DRILLING CONTRACTORS, LLC
WAUSAU, WI
NOVEMBER 13, 2013

GEOTECHNICAL REPORT BY:
RIVER VALLEY TESTING CORP.
NEENAH, WI
JANUARY 3, 2014

STATE PROJECT NUMBER

8389-00-70

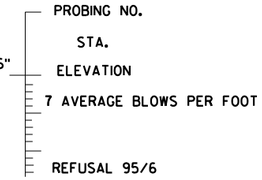
ABBREVIATIONS

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

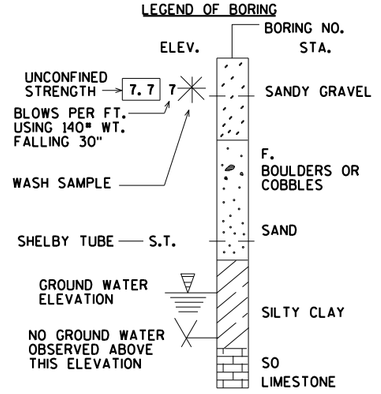
MATERIAL SYMBOLS

TOPSOIL, SILT, SANDSTONE
SAND, PEAT, LIMESTONE
GRAVEL, CLAY, IGNEOUS ROCK

LEGEND OF PROBING



LEGEND OF BORING



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

SUBSURFACE EXPLORATION FOR FOUNDATION DESIGN AND BIDDERS INFORMATION

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

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-134

DRAWN BY CJM | PLANS CK'D. CJM

SUBSURFACE EXPLORATION

SHEET 4 OF 18
49

8

8

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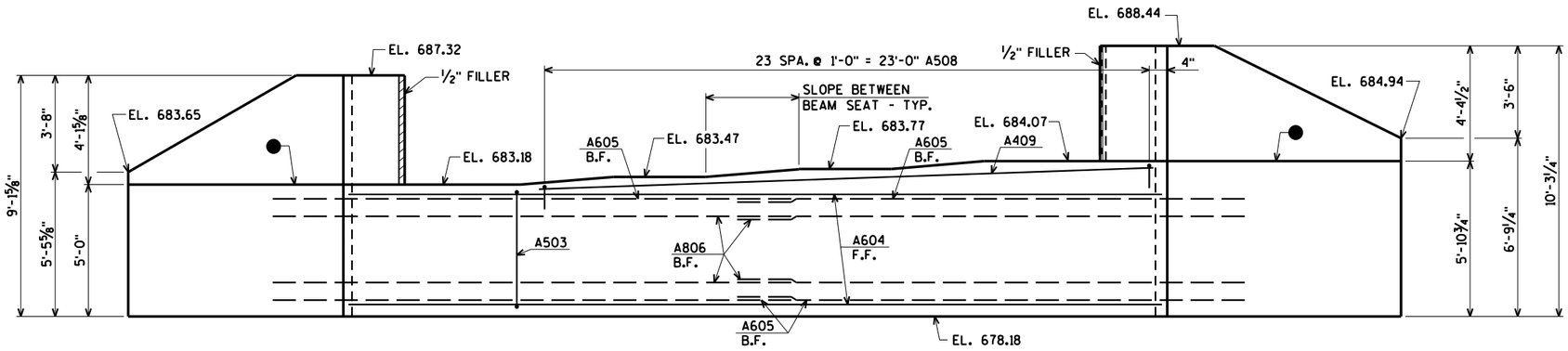
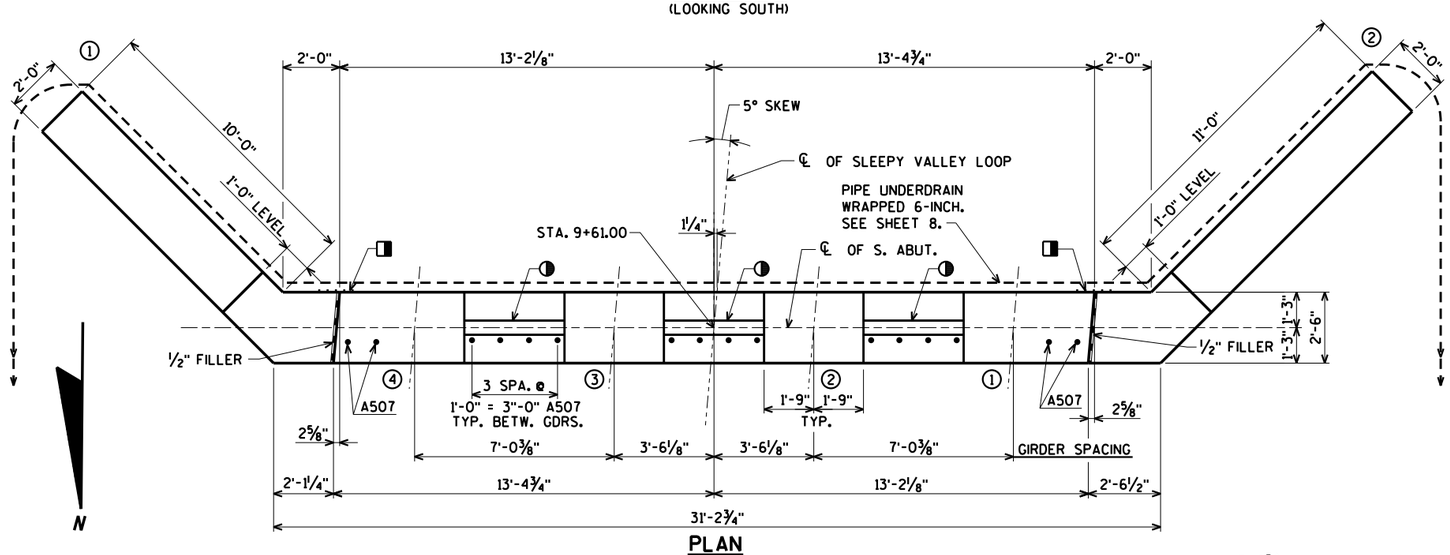
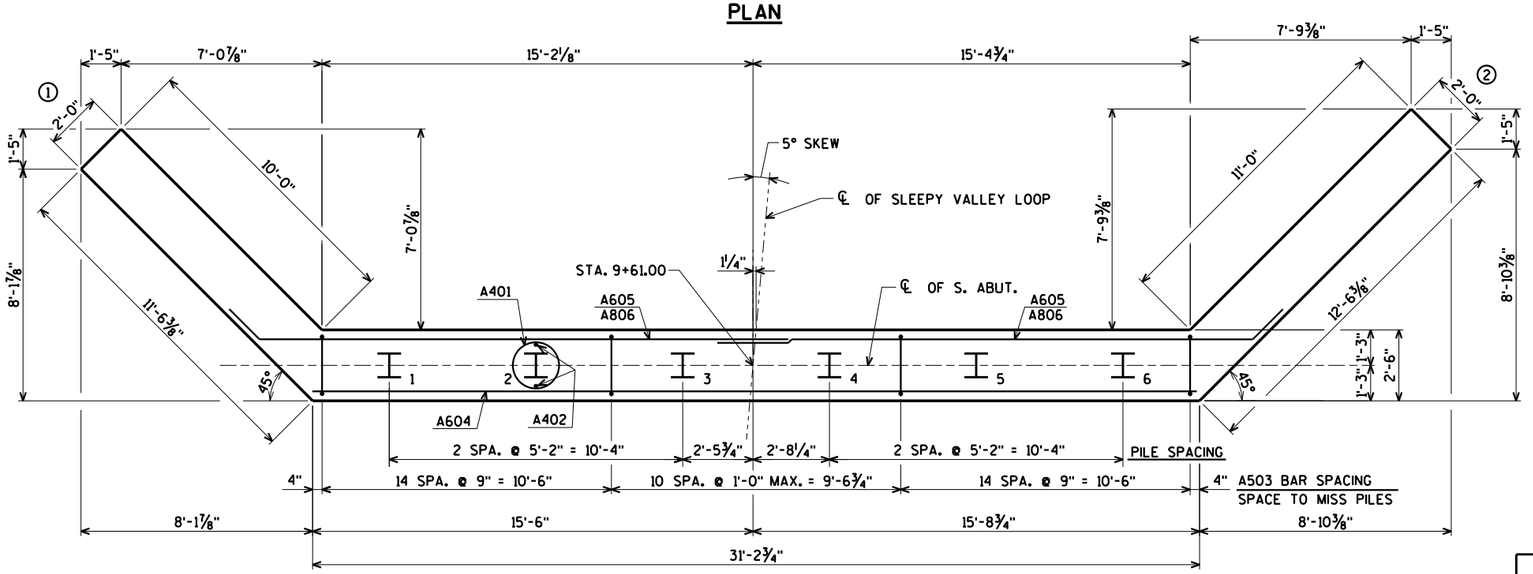


ELEVATION
(LOOKING SOUTH)



PLAN



PILE LAYOUT

NOTE: 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.)

● OPT. KEYED CONST. JOINT - FORMED BY A BEVELED 2" x 6" WITH RUBBERIZED MEMBRANE WATERPROOFING ON B.F.

◑ KEYED CONST. JOINT - FORMED BY A BEVELED 2" x 6".

◨ VERTICAL 18" RUBBERIZED MEMBRANE WATERPROOFING TO EXTEND FROM BRIDGE SEAT TO TOP OF WING WALL.

FOR PILE SPLICE DETAIL SEE SHEET 3.

B.F. DENOTES BACK FACE

F.F. DENOTES FRONT FACE

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-134

DRAWN BY CLS | PLANS CK'D. CJM

SOUTH ABUTMENT

SHEET 5 OF 18
50

ORIGINAL PLANS PREPARED BY
AYRES ASSOCIATES
3433 Oakwood Hills Parkway
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www.AyresAssociates.com

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8/21/2015

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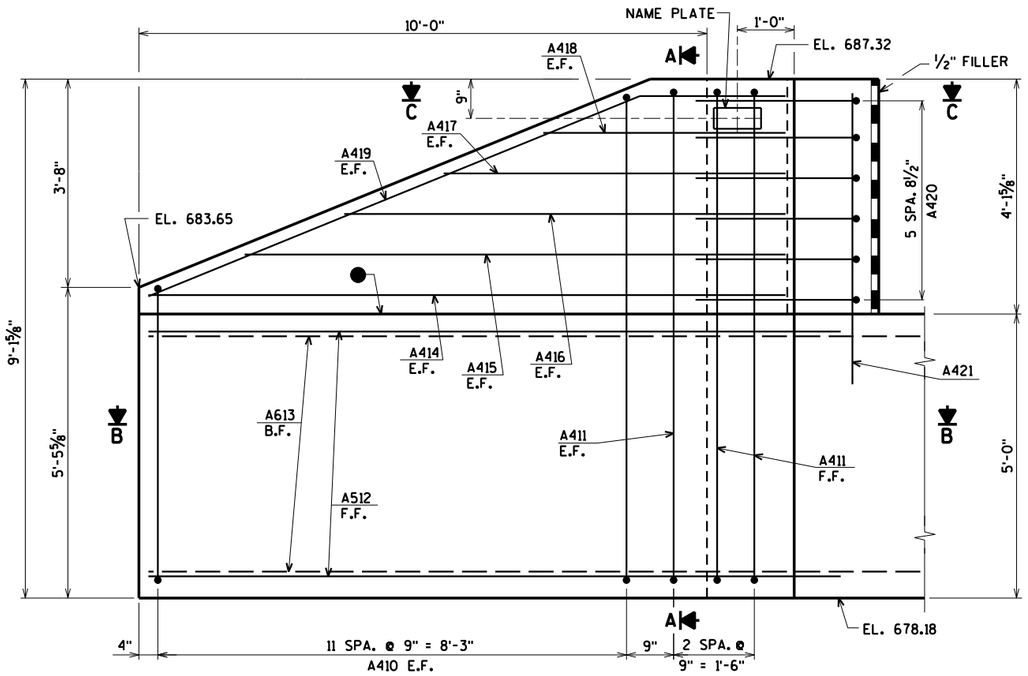
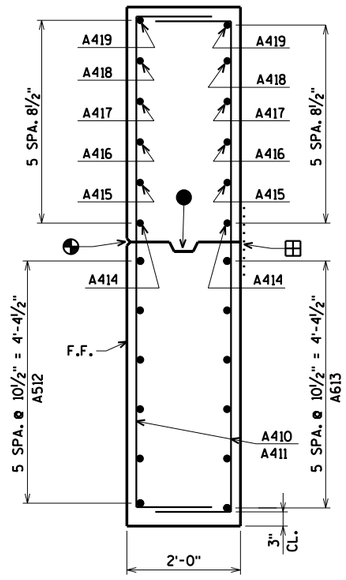
STATE PROJECT NUMBER

8389-00-70



ELEVATION - WING 1



SECTION A

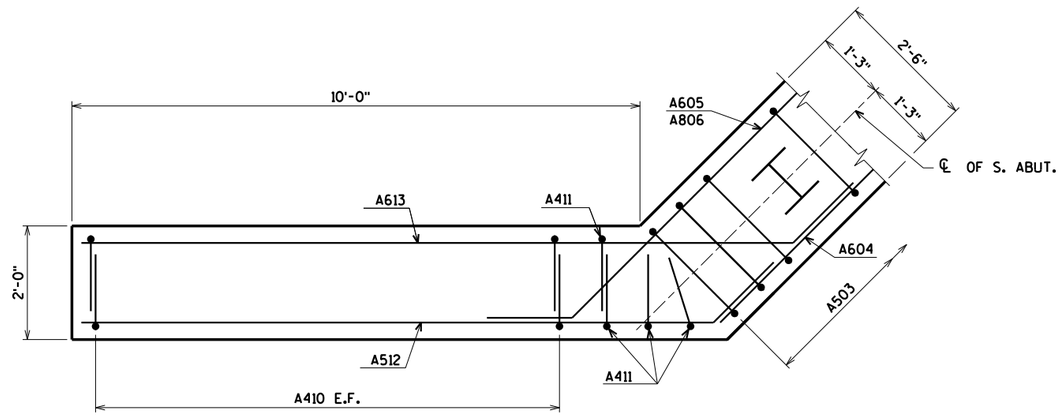
- ⊞ 18" RUBBERIZED MEMBRANE WATERPROOFING ON BACK FACE. NOT REQUIRED IF CONST. JT. IS NOT USED.
- ● OPT. KEYED CONST. JOINT - FORMED BY A BEVELED 2" x 6" WITH RUBBERIZED MEMBRANE WATERPROOFING ON B.F.
- ◓ ¾" 'V' GROOVE ON F.F. OF WING WALL NOT REQUIRED IF CONST. JT. IS NOT USED.
- ◨ VERTICAL 18" RUBBERIZED MEMBRANE WATERPROOFING TO EXTEND FROM BRIDGE SEAT TO TOP OF WING WALL.

FOR PILE SPLICE DETAIL SEE SHEET 3.

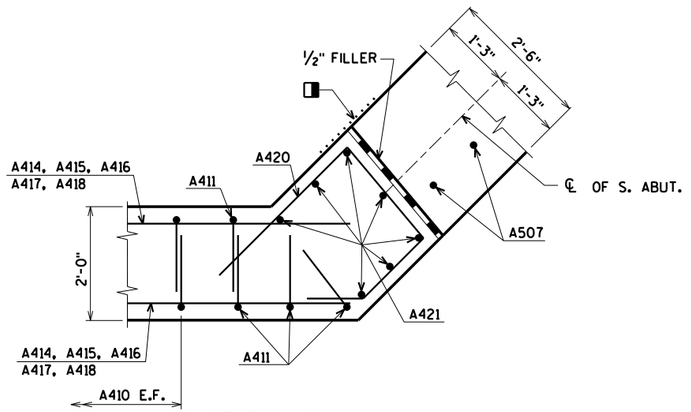
B.F. DENOTES BACK FACE

E.F. DENOTES EACH FACE

F.F. DENOTES FRONT FACE



SECTION B



SECTION C

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-134

DRAWN BY CLS | PLANS CK'D. CJM

SOUTH ABUTMENT WING 1 DETAILS

SHEET 6 OF 18
51

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

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8/21/2015

PENTABLE:BReau_shd_util.tbl

STATE PROJECT NUMBER
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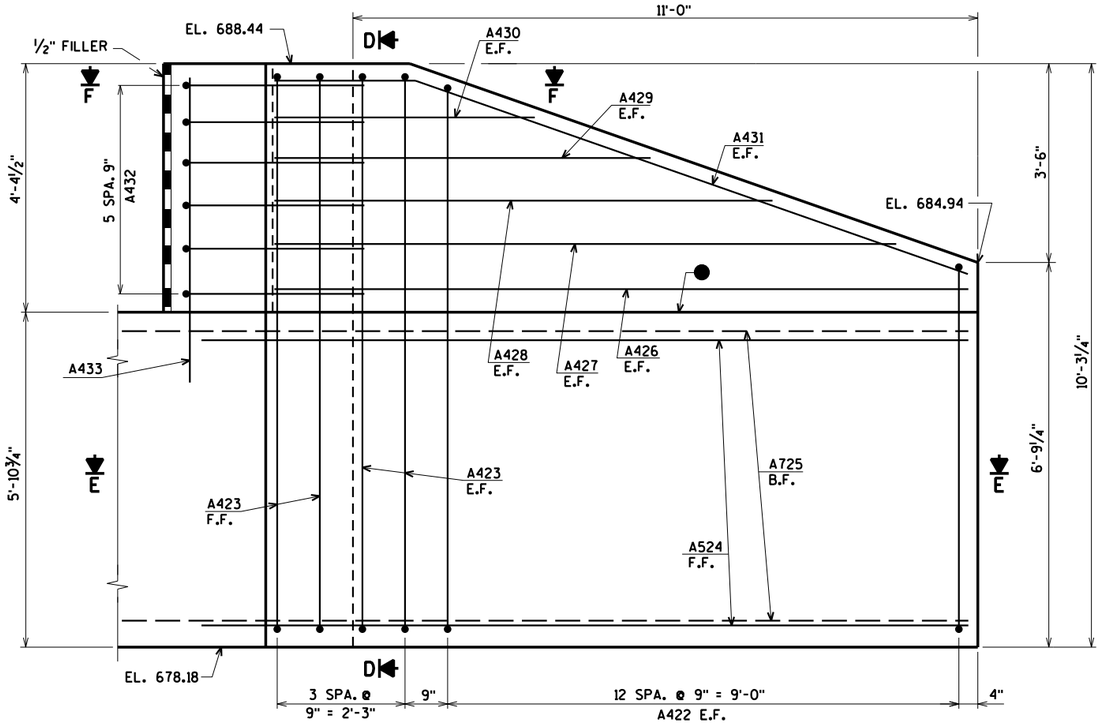
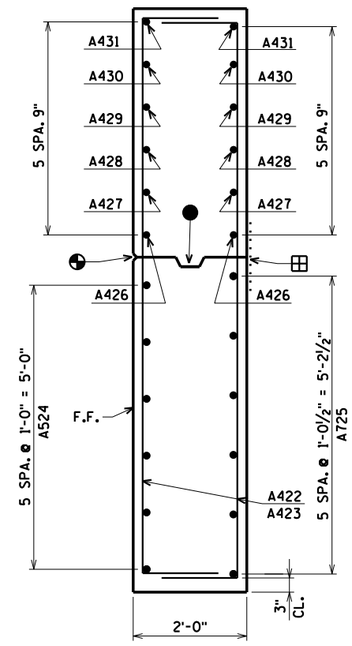
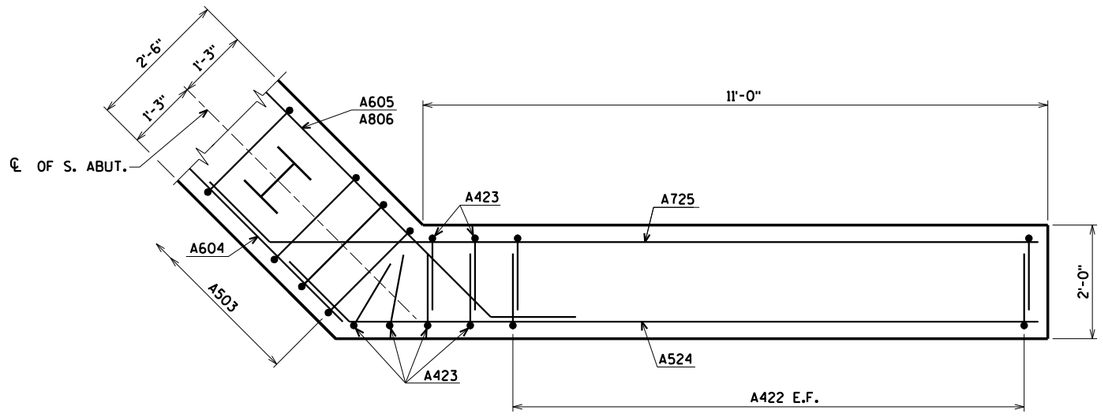


ELEVATION - WING 2



SECTION D



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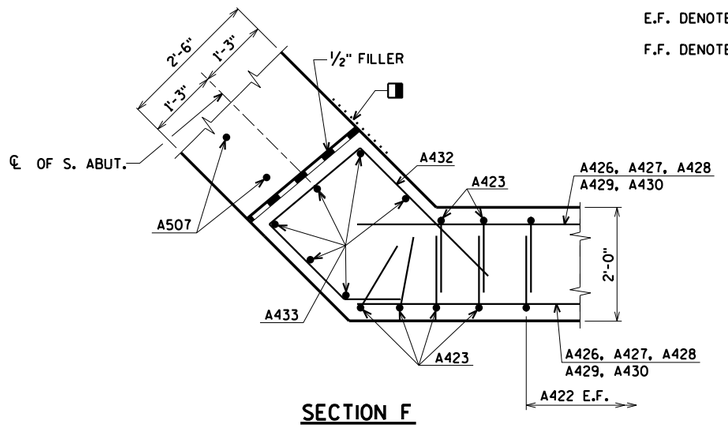

SECTION F

⊞ 18" RUBBERIZED MEMBRANE WATERPROOFING ON BACK FACE. NOT REQUIRED IF CONST. JT. IS NOT USED.

● OPT. KEYED CONST. JOINT - FORMED BY A BEVELED 2" x 6" WITH RUBBERIZED MEMBRANE WATERPROOFING ON B.F.

⊕ ¾" 'V' GROOVE ON F.F. OF WING WALL NOT REQUIRED IF CONST. JT. IS NOT USED.

◨ VERTICAL 18" RUBBERIZED MEMBRANE WATERPROOFING TO EXTEND FROM BRIDGE SEAT TO TOP OF WING WALL.

FOR PILE SPLICE DETAIL SEE SHEET 3.

B.F. DENOTES BACK FACE

E.F. DENOTES EACH FACE

F.F. DENOTES FRONT FACE

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-134

DRAWN BY CLS | PLANS CK'D. CJM

SOUTH ABUTMENT WING 2 DETAILS

SHEET 7 OF 18
52

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

$PRFNAME$
U:\42-0901.00 - Douglas Co, Tn Lakeside, Sleepy Valley Loop\BRIDGE\420901sa.dgn

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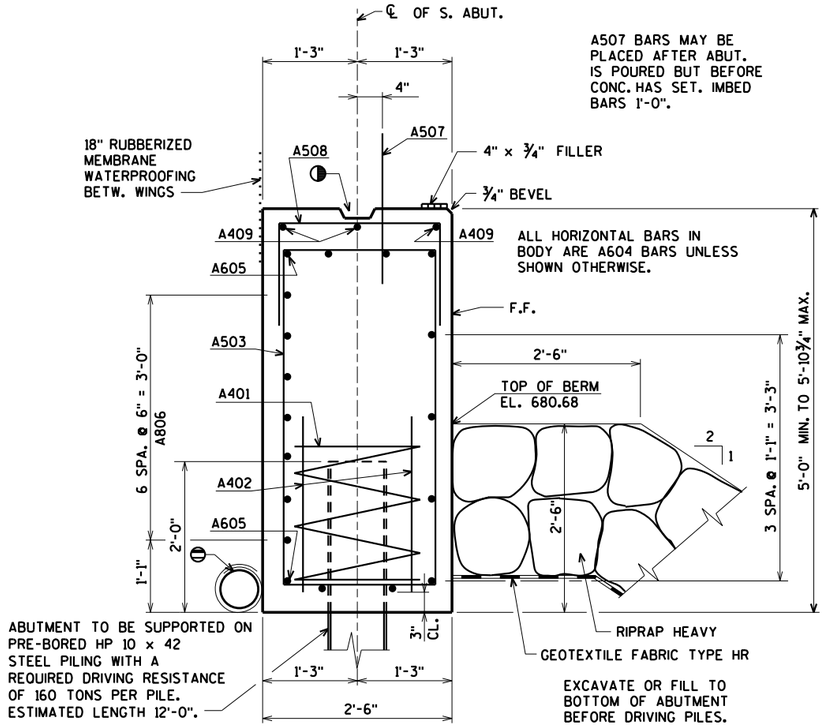
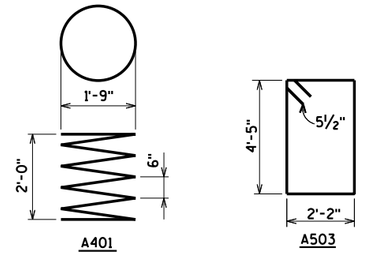
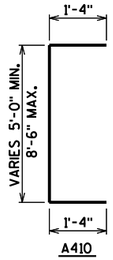


TYPICAL SECTION THRU BODY



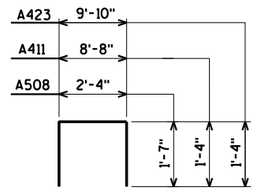
A401

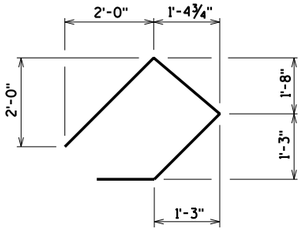
A503



A410

A422





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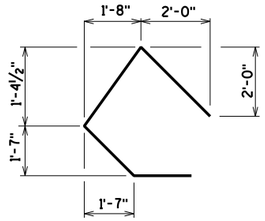


A432

BILL OF BARS

BAR. NO.	COATED BAR	NO. REQ'D.	LENGTH	BENT BAR	BUNDLED BAR SERIES	2.190" UNCOATED 1.190" COATED LOCATION
A401		6	28-0	X		BODY @ PILES
A402		12	2-3			BODY @ PILES
A503		39	13-9	X		BODY VERT.
A604		9	30-10			BODY HORIZ. F.F.
A605		4	20-6	X		BODY HORIZ. B.F.
A806		14	21-0	X		BODY HORIZ. B.F.
A507	X	16	2-0			BODY DOWELS
A508		24	5-3	X		BODY VERT. TOP
A409		3	23-0			BODY HORIZ. TOP
A410	X	24	9-3	X	⊗	WING 1 VERT. E.F.
A411	X	4	11-2	X		WING 1 VERT. E.F.
A512	X	6	12-9	X		WING 1 HORIZ. F.F.
A613	X	6	14-4	X		WING 1 HORIZ. B.F.
A414	X	2	11-3			WING 1 HORIZ. E.F.
A415	X	2	9-7			WING 1 HORIZ. E.F.
A416	X	2	7-10			WING 1 HORIZ. E.F.
A417	X	2	6-1			WING 1 HORIZ. E.F.
A418	X	2	4-4			WING 1 HORIZ. E.F.
A419	X	2	10-11	X		WING 1 DIAG. E.F.
A420	X	6	8-0	X		WING 1 HORIZ.
A421	X	7	6-3			WING 1 VERT.
A422	X	26	10-6	X	⊗	WING 2 VERT. E.F.
A423	X	6	12-4	X		WING 2 VERT. E.F.
A524	X	6	13-9	X		WING 2 HORIZ. F.F.
A725	X	6	15-4	X		WING 2 HORIZ. B.F.
A426	X	2	12-3			WING 2 HORIZ. E.F.
A427	X	2	11-2			WING 2 HORIZ. E.F.
A428	X	2	9-0			WING 2 HORIZ. E.F.
A429	X	2	6-10			WING 2 HORIZ. E.F.
A430	X	2	4-8			WING 2 HORIZ. E.F.
A431	X	2	11-9	X		WING 2 DIAG. E.F.
A432	X	6	8-5	X		WING 2 HORIZ.
A433	X	6	6-4			WING 2 VERT.

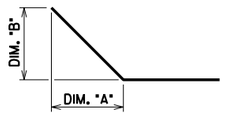
BENDING DIMENSIONS ARE OUT TO OUT OF BARS.

⊗ LENGTH SHOWN FOR BAR IS AN AVERAGE LENGTH AND SHOULD ONLY BE USED FOR BAR WEIGHT CALCULATIONS. SEE BAR SERIES TABLE FOR ACTUAL LENGTHS.

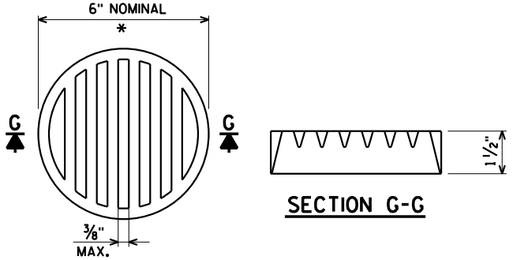
BAR SERIES TABLE

BAR MARK	NO REQ'D.	LENGTH
A410	2 SERIES OF 12	7'-6" TO 11'-0"
A422	2 SERIES OF 13	8'-11" TO 12'-1"

BUNDLE AND TAG EACH SERIES SEPARATELY.



BAR NO.	DIM. "A"	DIM. "B"
A605	1'-0¾"	1'-0¾"
A806	1'-0¾"	1'-0¾"
A512	1'-0¾"	1'-0¾"
A613	1'-0¾"	1'-0¾"
A419	8'-9"	3'-7"
A524	1'-0¾"	1'-0¾"
A725	1'-0¾"	1'-0¾"
A431	9'-9"	3'-5"



SECTION G-G

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

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

THE RODENT SHIELD SHALL BE PVC GRATE SIMILAR TO THIS DETAIL. THE GRATE IS 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 SHIELD SHALL BE FASTENED TO THE PIPE COUPLING WITH TWO OR MORE NO. 10 x 1-INCH SHEET METAL SCREWS.

RODENT SHIELD DETAIL

⊖ PIPE UNDERDRAIN WRAPPED 6-INCH. SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. ATTACH RODENT SHIELD AT ENDS OF PIPE UNDERDRAIN AS DETAILED ON THIS SHEET. RODENT SHIELD TO BE INCLUDED IN BID PRICE OF "PIPE UNDERDRAIN WRAPPED 6-INCH".

◑ KEYED CONST. JOINT - FORMED BY A BEVELED 2" x 6".

FOR PILE SPLICE DETAIL SEE SHEET 3.

B.F. DENOTES BACK FACE

E.F. DENOTES EACH FACE

F.F. DENOTES FRONT FACE

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-134

DRAWN BY CLS | PLANS CK'D. CJM

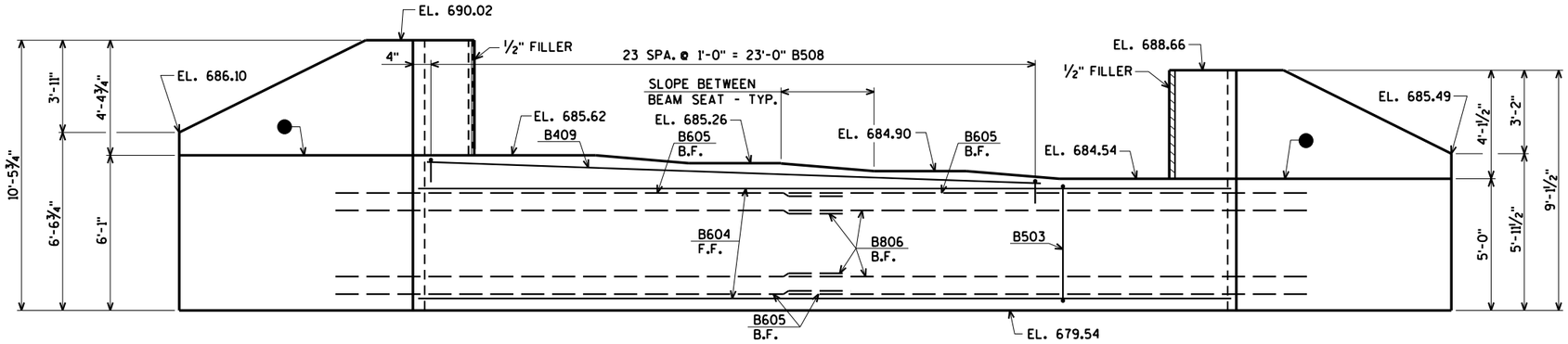
SOUTH ABUTMENT DETAILS AND BILL OF BARS

SHEET 8 OF 18
53

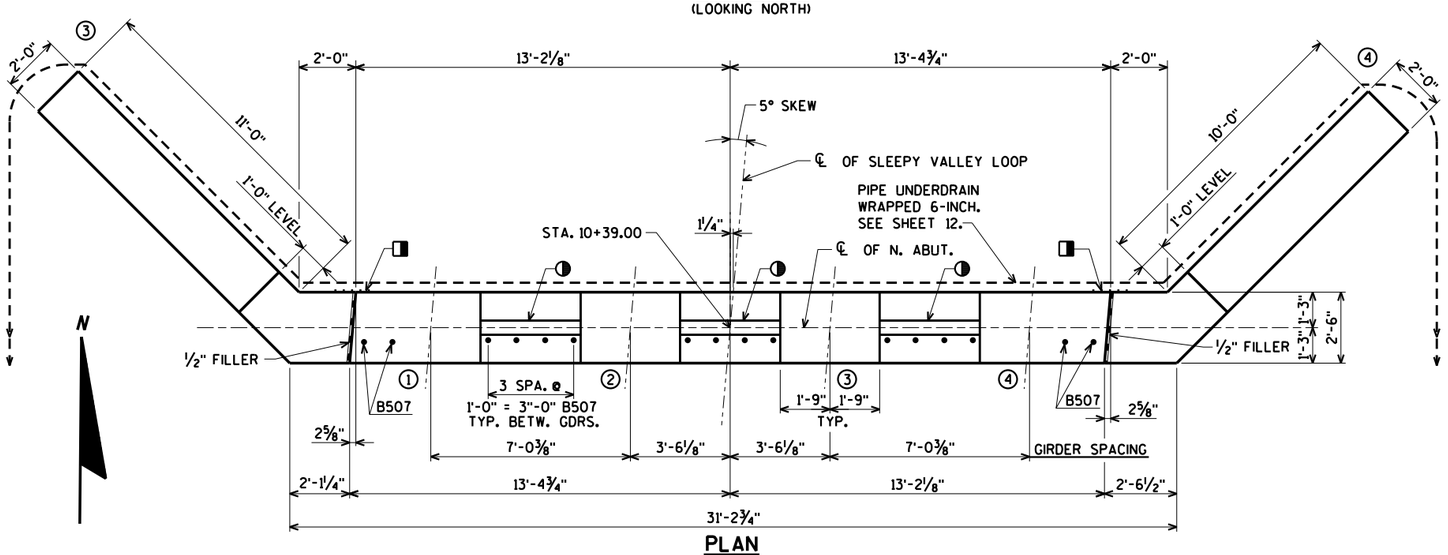
ORIGINAL PLANS PREPARED BY
AYRES ASSOCIATES
3433 Oakwood Hills Parkway
Eau Claire, WI 54701
www.AyresAssociates.com

$PRFNAME$
U:±42-0901.00 - Douglas Co, Tn Lakeside, Sleepy Valley Loop±BRIDGE±420901sa.dgn

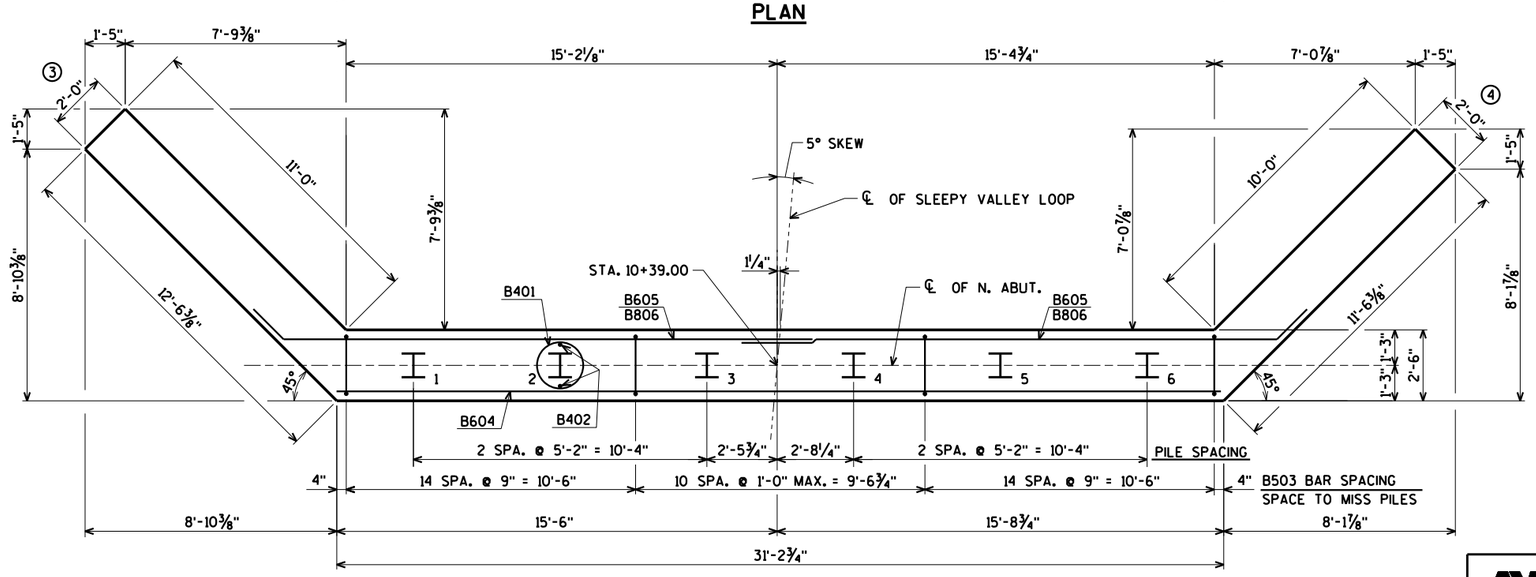
STATE PROJECT NUMBER
8389-00-70



ELEVATION
(LOOKING NORTH)



PLAN



PILE LAYOUT

NOTE: 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.)

- ● OPT. KEYED CONST. JOINT - FORMED BY A BEVELED 2" x 6" WITH RUBBERIZED MEMBRANE WATERPROOFING ON B.F.
- ◑ KEYED CONST. JOINT - FORMED BY A BEVELED 2" x 6".
- ◨ VERTICAL 18" RUBBERIZED MEMBRANE WATERPROOFING TO EXTEND FROM BRIDGE SEAT TO TOP OF WING WALL.

FOR PILE SPLICE DETAIL SEE SHEET 3.

B.F. DENOTES BACK FACE

F.F. DENOTES FRONT FACE

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-134

DRAWN BY CLS | PLANS CK'D. CJM

NORTH ABUTMENT

SHEET 9 OF 18
54

ORIGINAL PLANS PREPARED BY
AYRES ASSOCIATES
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Eau Claire, WI 54701
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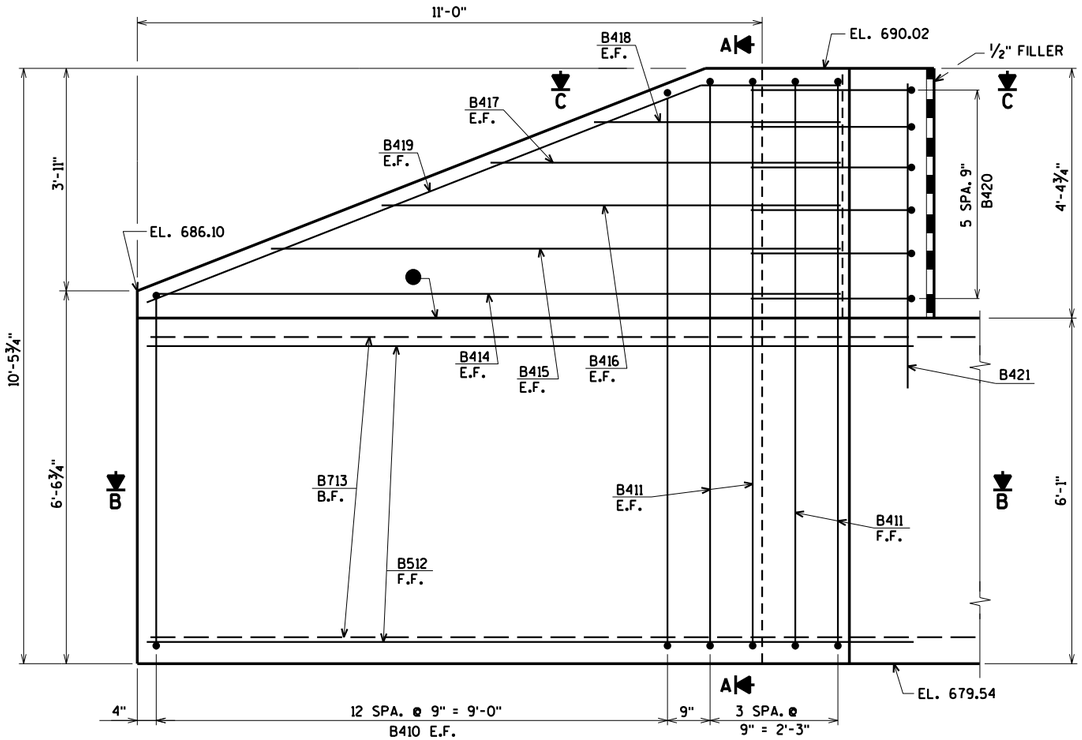
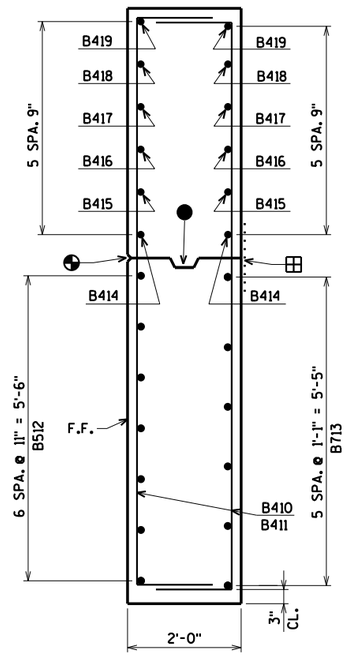


ELEVATION - WING 3



SECTION A

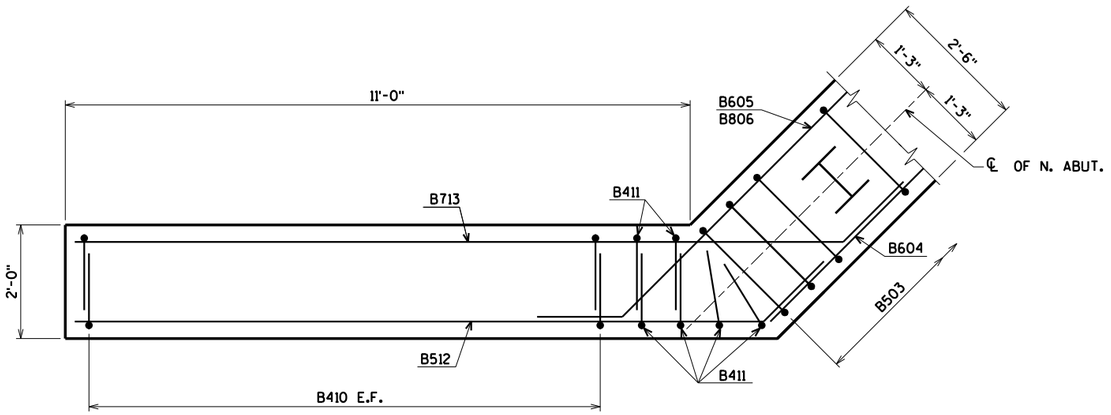
- ⊞ 18" RUBBERIZED MEMBRANE WATERPROOFING ON BACK FACE. NOT REQUIRED IF CONST. JT. IS NOT USED.
- ● OPT. KEYED CONST. JOINT - FORMED BY A BEVELED 2" x 6" WITH RUBBERIZED MEMBRANE WATERPROOFING ON B.F.
- ⊕ ¾" 'V' GROOVE ON F.F. OF WING WALL NOT REQUIRED IF CONST. JT. IS NOT USED.
- ◨ VERTICAL 18" RUBBERIZED MEMBRANE WATERPROOFING TO EXTEND FROM BRIDGE SEAT TO TOP OF WING WALL.

FOR PILE SPLICE DETAIL SEE SHEET 3.

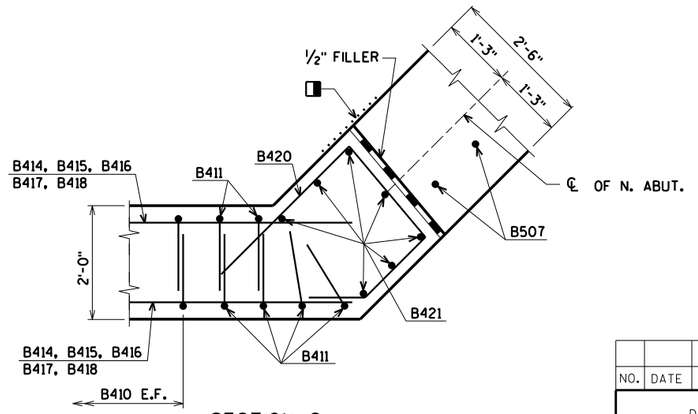
B.F. DENOTES BACK FACE

E.F. DENOTES EACH FACE

F.F. DENOTES FRONT FACE



SECTION B



SECTION C

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-134

DRAWN BY CLS | PLANS CK'D. CJM

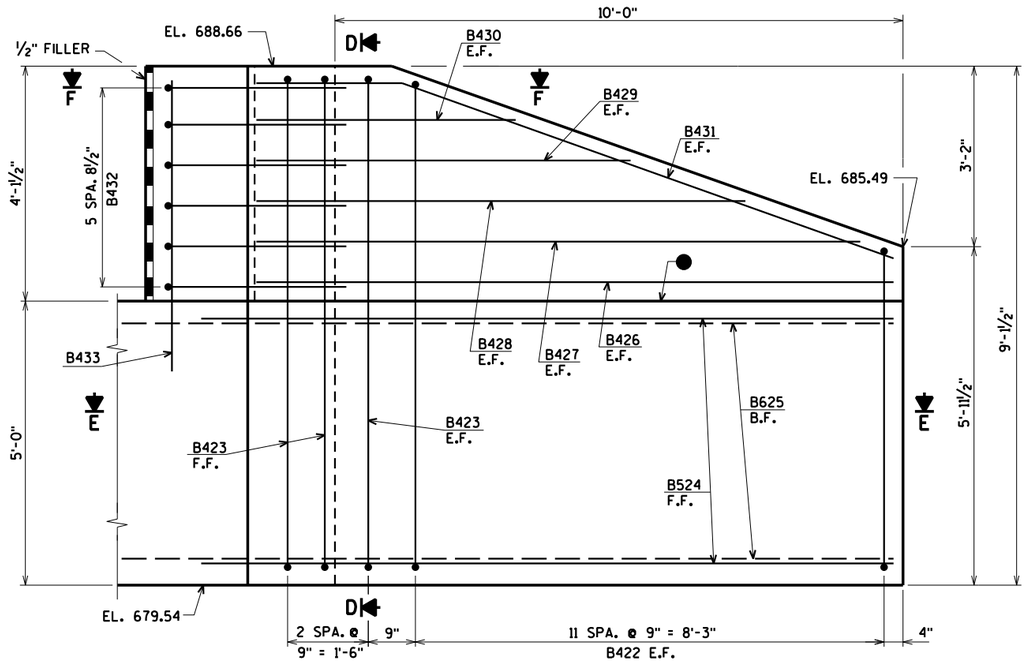
NORTH ABUTMENT WING 3 DETAILS

SHEET 10 OF 18
55

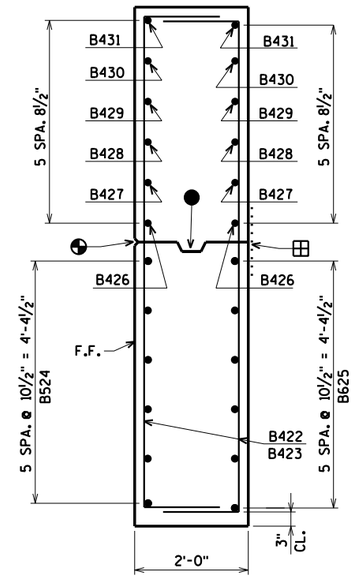
ORIGINAL PLANS PREPARED BY
AYRES ASSOCIATES
3433 Oakwood Hills Parkway
Eau Claire, WI 54701
www.AyresAssociates.com

STATE PROJECT NUMBER

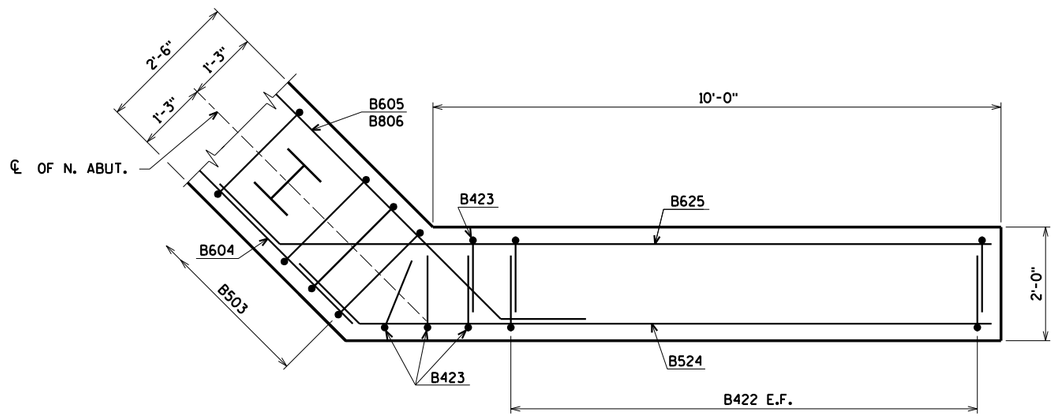
8389-00-70



ELEVATION - WING 4



SECTION D



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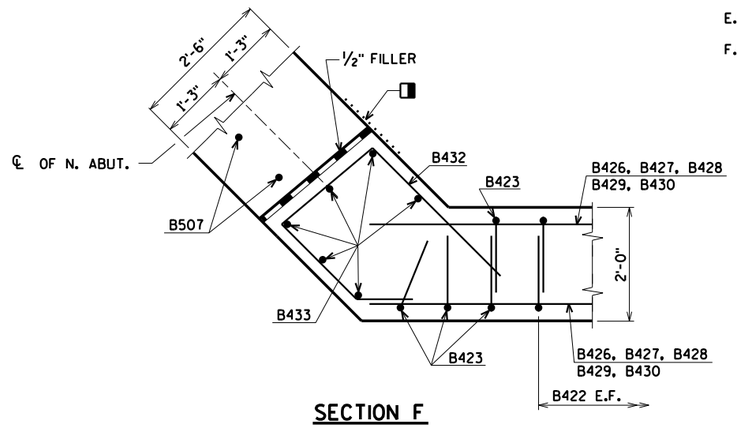

SECTION F

⊞ 18" RUBBERIZED MEMBRANE WATERPROOFING ON BACK FACE. NOT REQUIRED IF CONST. JT. IS NOT USED.

● OPT. KEYED CONST. JOINT - FORMED BY A BEVELED 2" x 6" WITH RUBBERIZED MEMBRANE WATERPROOFING ON B.F.

⊕ ¾" 'V' GROOVE ON F.F. OF WING WALL NOT REQUIRED IF CONST. JT. IS NOT USED.

◨ VERTICAL 18" RUBBERIZED MEMBRANE WATERPROOFING TO EXTEND FROM BRIDGE SEAT TO TOP OF WING WALL.

FOR PILE SPLICE DETAIL SEE SHEET 3.

B.F. DENOTES BACK FACE

E.F. DENOTES EACH FACE

F.F. DENOTES FRONT FACE

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-134

DRAWN BY CLS | PLANS CK'D. CJM

NORTH ABUTMENT WING 4 DETAILS

SHEET 11 OF 18
56

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AYRES ASSOCIATES
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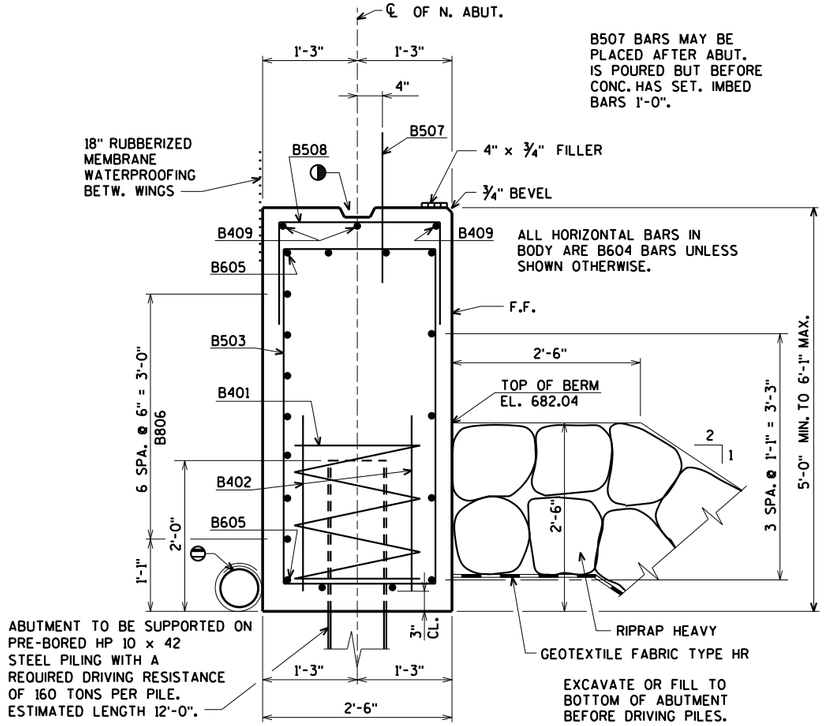
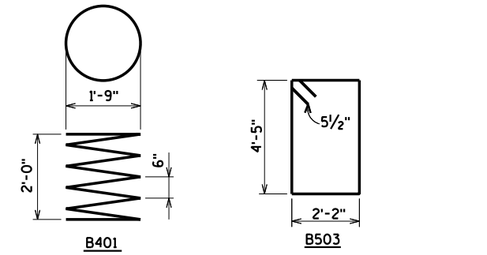
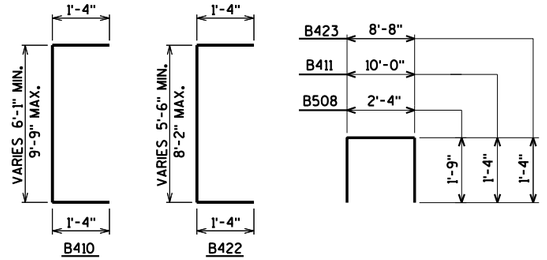
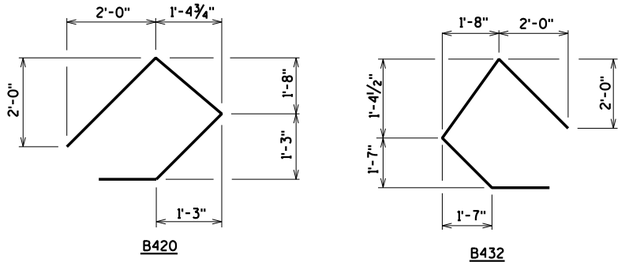


TYPICAL SECTION THRU BODY







BAR SERIES TABLE

BAR MARK	NO REQ'D.	LENGTH
B410	2 SERIES OF 13	8'-7" TO 12'-3"
B422	2 SERIES OF 12	8'-0" TO 10'-7"

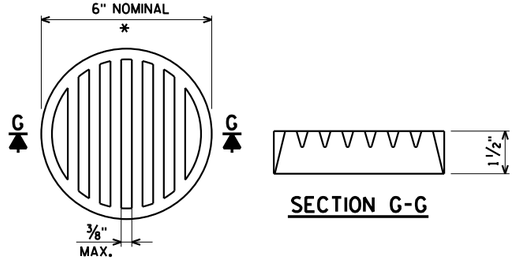
BUNDLE AND TAG EACH SERIES SEPARATELY.

BILL OF BARS

BAR. NO.	COATED BAR	NO. REQ'D.	LENGTH	BENT BAR	BUNDLED BAR SERIES	2,200# UNCOATED 1,200# COATED — LOCATION
B401		6	28-0	X		BODY ℄ PILES
B402		12	2-3			BODY ℄ PILES
B503		39	13-9	X		BODY VERT.
B604		9	30-10			BODY HORIZ. F.F.
B605		4	20-6	X		BODY HORIZ. B.F.
B806		14	21-0	X		BODY HORIZ. B.F.
B507	X	16	2-0			BODY DOWELS
B508		24	5-7	X		BODY VERT. TOP
B409		3	23-0			BODY HORIZ. TOP
B410	X	26	10-5	X	⊗	WING 3 VERT. E.F.
B411	X	6	12-6	X		WING 3 VERT. E.F.
B512	X	7	13-9	X		WING 3 HORIZ. F.F.
B713	X	6	15-4	X		WING 3 HORIZ. B.F.
B414	X	2	12-0			WING 3 HORIZ. E.F.
B415	X	2	10-1			WING 3 HORIZ. E.F.
B416	X	2	8-2			WING 3 HORIZ. E.F.
B417	X	2	6-3			WING 3 HORIZ. E.F.
B418	X	2	4-4			WING 3 HORIZ. E.F.
B419	X	2	11-10	X		WING 3 DIAG. E.F.
B420	X	6	8-0	X		WING 3 HORIZ.
B421	X	7	6-2			WING 3 VERT.
B422	X	24	9-4	X	⊗	WING 4 VERT. E.F.
B423	X	4	11-2	X		WING 4 VERT. E.F.
B524	X	6	12-9	X		WING 4 HORIZ. F.F.
B625	X	6	14-4	X		WING 4 HORIZ. B.F.
B426	X	2	11-3			WING 4 HORIZ. E.F.
B427	X	2	10-8			WING 4 HORIZ. E.F.
B428	X	2	8-8			WING 4 HORIZ. E.F.
B429	X	2	6-8			WING 4 HORIZ. E.F.
B430	X	2	4-8			WING 4 HORIZ. E.F.
B431	X	2	10-8	X		WING 4 DIAG. E.F.
B432	X	6	8-5	X		WING 4 HORIZ.
B433	X	6	5-11			WING 4 VERT.

BENDING DIMENSIONS ARE OUT TO OUT OF BARS.

⊗ LENGTH SHOWN FOR BAR IS AN AVERAGE LENGTH AND SHOULD ONLY BE USED FOR BAR WEIGHT CALCULATIONS. SEE BAR SERIES TABLE FOR ACTUAL LENGTHS.



SECTION G-G

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

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

THE RODENT SHIELD SHALL BE PVC GRATE SIMILAR TO THIS DETAIL. THE GRATE IS 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 SHIELD SHALL BE FASTENED TO THE PIPE COUPLING WITH TWO OR MORE NO. 10 x 1-INCH SHEET METAL SCREWS.

RODENT SHIELD DETAIL

⊖ PIPE UNDERDRAIN WRAPPED 6-INCH. SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. ATTACH RODENT SHIELD AT ENDS OF PIPE UNDERDRAIN AS DETAILED ON THIS SHEET. RODENT SHIELD TO BE INCLUDED IN BID PRICE OF "PIPE UNDERDRAIN WRAPPED 6-INCH".

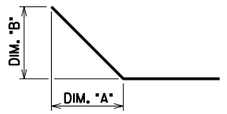
◑ KEYED CONST. JOINT - FORMED BY A BEVELED 2" x 6".

FOR PILE SPLICE DETAIL SEE SHEET 3.

B.F. DENOTES BACK FACE

E.F. DENOTES EACH FACE

F.F. DENOTES FRONT FACE



BAR NO.	DIM. "A"	DIM. "B"
B605	1'-0¾"	1'-0¾"
B806	1'-0¾"	1'-0¾"
B512	1'-0¾"	1'-0¾"
B713	1'-0¾"	1'-0¾"
B419	9'-9"	3'-10"
B524	1'-0¾"	1'-0¾"
B625	1'-0¾"	1'-0¾"
B431	8'-9"	3'-1"

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STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-134

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NORTH ABUTMENT DETAILS AND BILL OF BARS

SHEET 12 OF 18
57

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STATE PROJECT NUMBER

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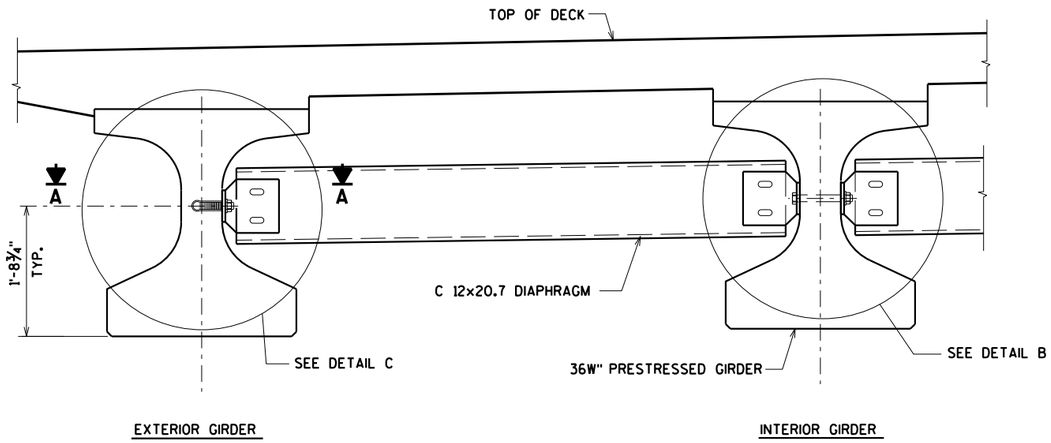
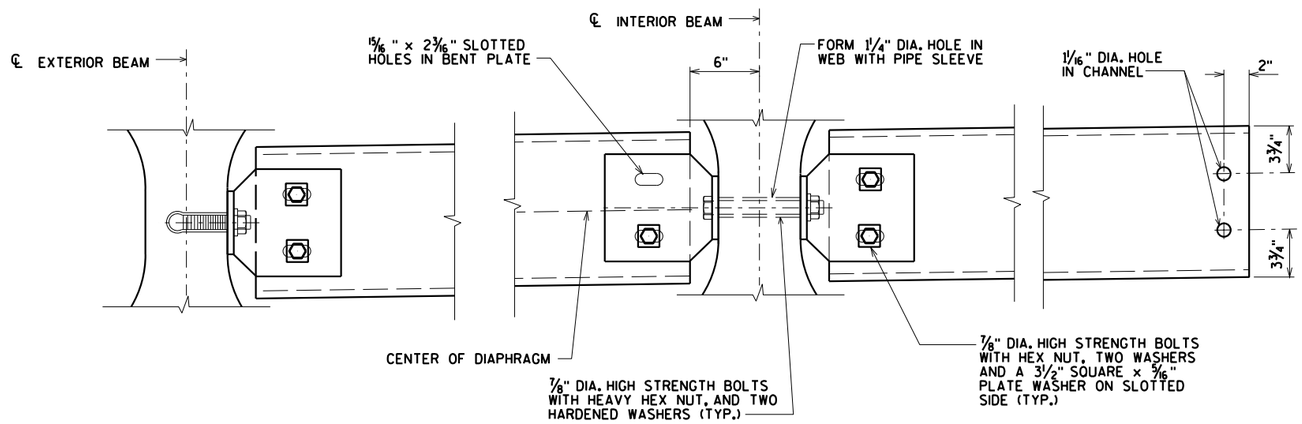


PART TRANSVERSE SECTION AT DIAPHRAGM



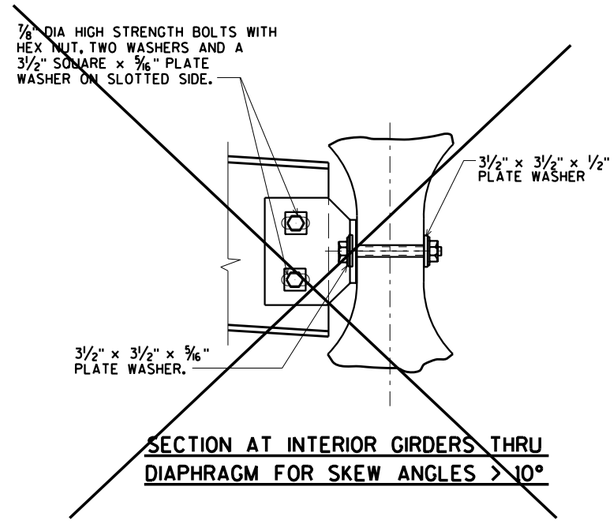
NOTES

ALL DIAPHRAGM MATERIAL NOT EMBEDDED IN THE CONCRETE GIRDER SHALL BE PAID FOR AT THE UNIT PRICE BID FOR "STEEL DIAPHRAGMS B-16-134", EACH.

EACH DIAPHRAGM BETWEEN GIRDERS SHALL CONSTITUTE ONE UNIT.

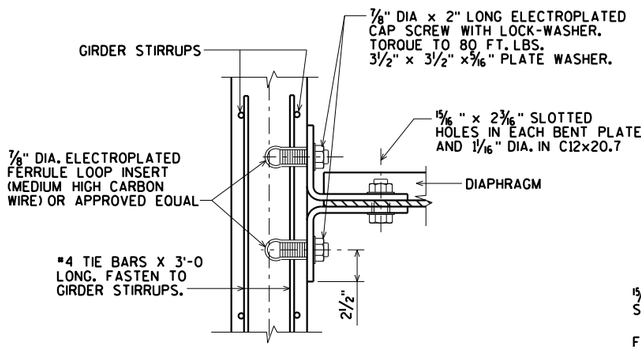
ALL DIAPHRAGM STRUCTURAL STEEL SHALL BE ASTM A709 GRADE 36. ALL BOLTS, NUTS AND WASHERS SHALL BE ASTM A325 TYPE 1.

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.



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

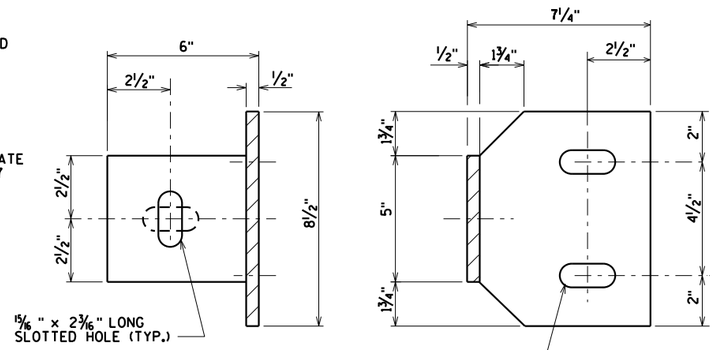
DETAIL C



SECTION A-A

(FOR EXTERIOR ATTACHMENT)

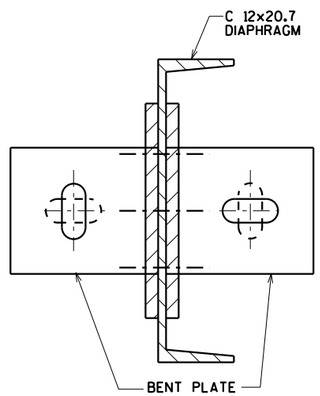
DETAIL B



FOR EACH PAIR OF ANGLES ON A GIVEN BEAM FACE, ONE SLOTTED HOLE TO BE VERTICAL AND ONE TO BE HORIZONTAL.

BEAM FACE

DIAPHRAGM FACE



ATTACHMENT TO CHANNEL

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STRUCTURE B-16-134

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STEEL INTER. DIAPHRAGM DETAILS

SHEET 13 OF 18
58

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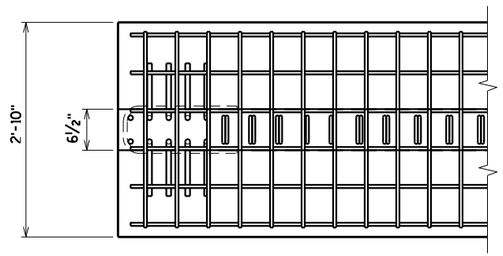
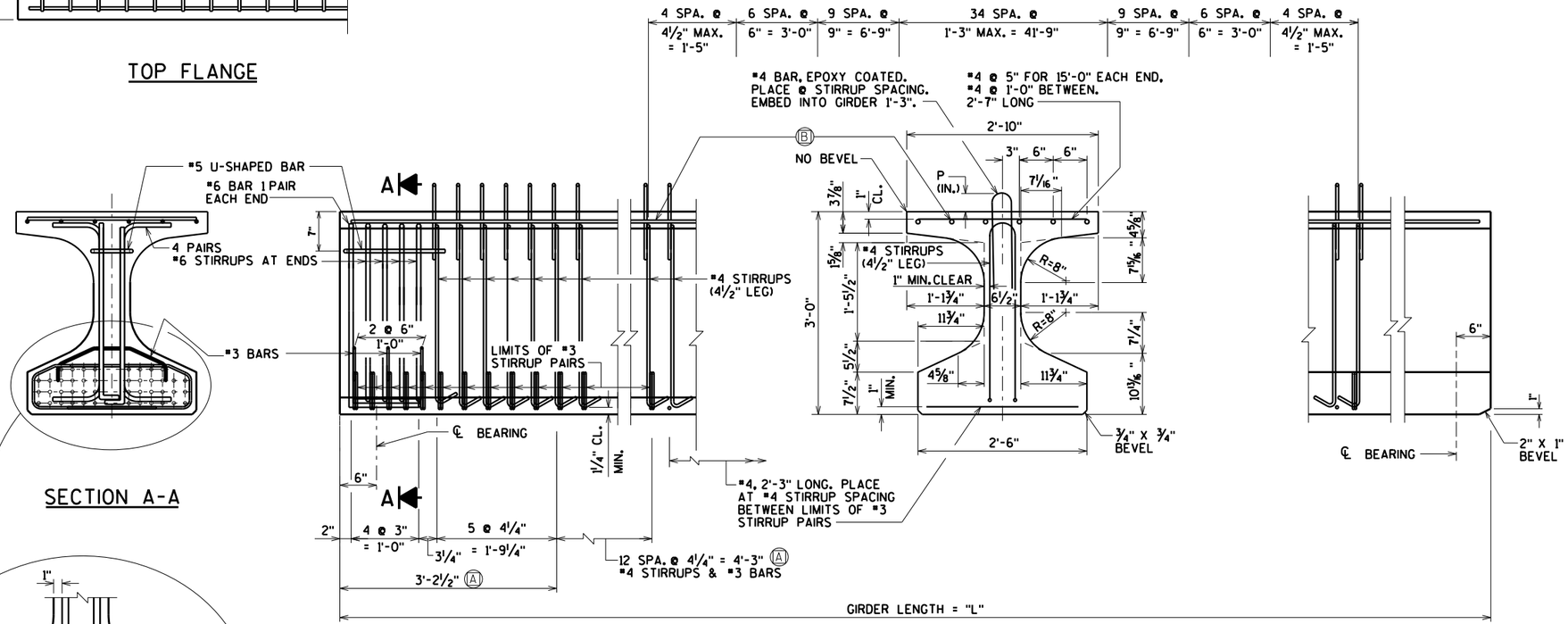


TOP FLANGE

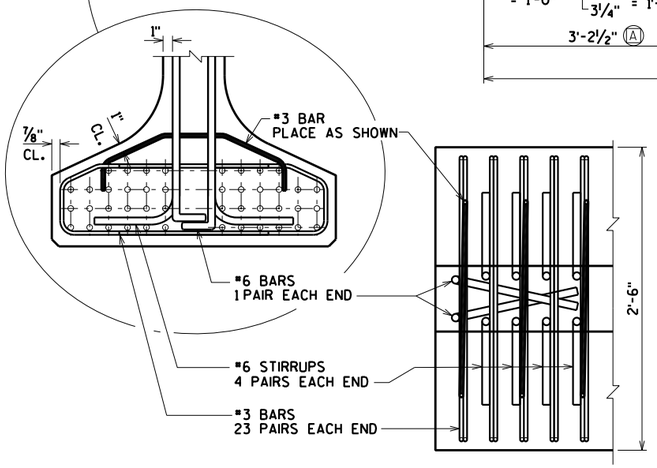


SECTION A-A

SIDE VIEW & TYPICAL SECTION IN SPAN

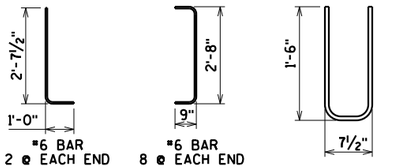
Ⓐ DETAIL TYP. AT EACH END

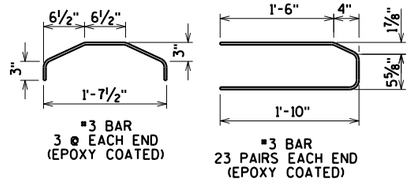
Ⓑ 6 #4 BARS, FULL LENGTH, MIN. LAP = 2'-4"



BOTTOM FLANGE

DETAIL A





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

GIRDER DATA

SPAN	GIRDER	GIRDER LENGTH "L"	DEAD LOAD DEFL. (IN.) 1/10	2/10	3/10	4/10	5/10	6/10	7/10	8/10	9/10	CONC. STRGTH. f'c (p.s.i.)	"P" IST 1/3 OF GIRDER	"P" MID 1/3 OF GIRDER	"P" END 1/3 OF GIRDER	DIA. OF STRAND (IN.)	DRAPED PATTERN TOTAL NO. OF STRANDS	f'ci (P.S.I.) *	(IN.) "A"	"B" MIN.	"B" MAX.	"C"	UNDRAPED PATTERN TOTAL NO. OF STRANDS	f'ci (P.S.I.) *
1	ALL	79'-0"	0.3	0.6	0.9	1.0	1.1	1.0	0.9	0.6	0.3	8,000	10"	8"	10"	0.6	22	6,400	32	11	14	4		

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STRUCTURE B-16-134

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36W" PRESTRESSED GIRDER DETAILS

GIRDER NOTES

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

ALL GIRDERS SHALL BE CAST FULL LENGTH AS SHOWN.

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

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

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

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

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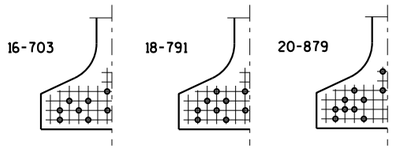
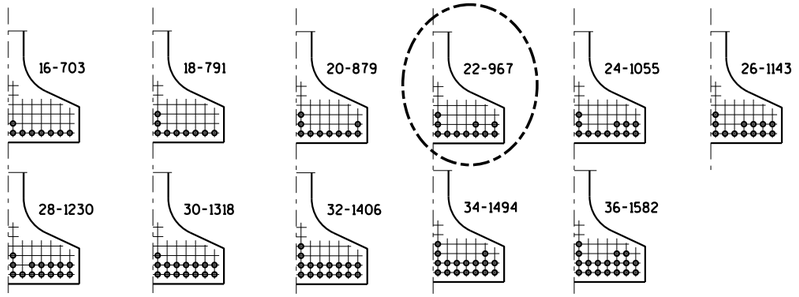


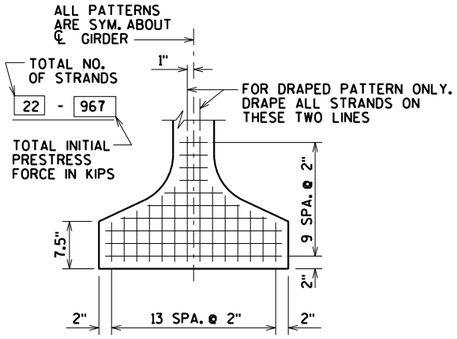
STANDARD ARRANGEMENTS TO RAISE CENTER OF GRAVITY TO AVOID DRAPING OF STRANDS

0.6"Φ STRANDS

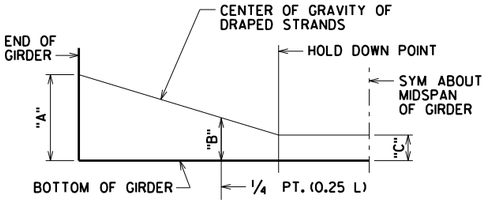


ARRANGEMENT AT ℄ SPAN - FOR GIRDERS WITH DRAPED STRANDS

0.6"Φ STRANDS



TYP. STRAND PATTERN

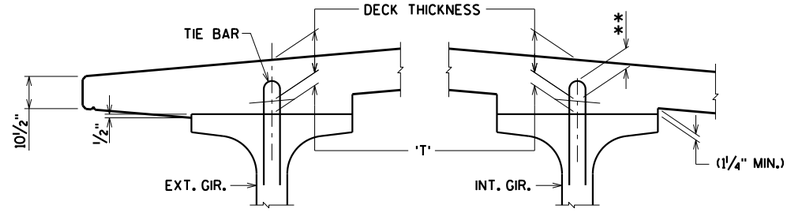


DRAPED STRAND PROFILE

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

SPAN	CAMBER (IN.) *
1	1.9

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



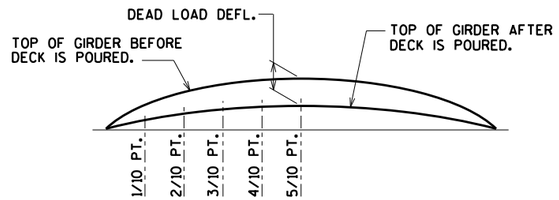
DECK HAUNCH DETAIL

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 DECK 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
- DECK THICKNESS
= HAUNCH HEIGHT 'T'

NOTE: AN AVERAGE HAUNCH ('T') OF 5" WAS USED IN THE QUANTITY "CONCRETE MASONRY BRIDGES".



DEAD LOAD DEFLECTION DIAGRAM

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STRUCTURE B-16-134

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36W" PRESTRESSED GIRDER DETAILS

SHEET 15 OF 18
60

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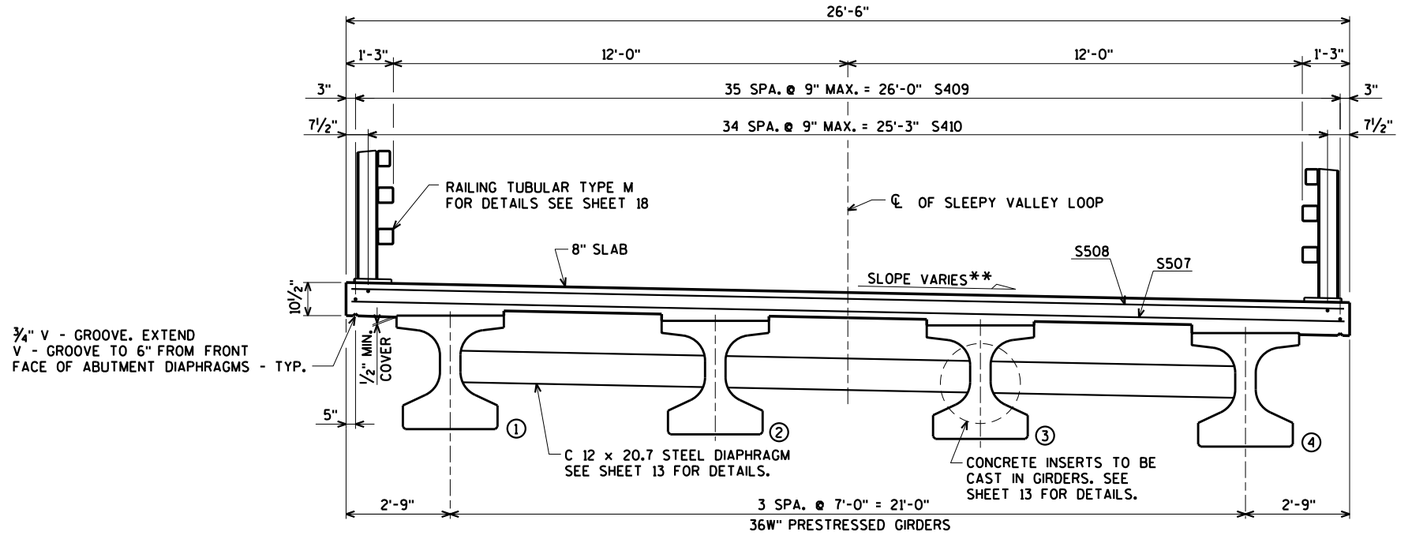


** VARIES 0.043% AT SOUTH ABUT.
TO 0.054% AT NORTH ABUT.

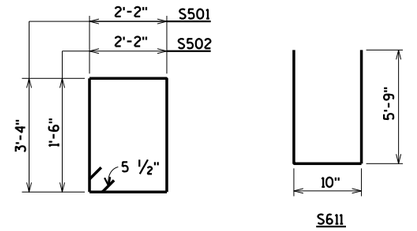
CROSS SECTION THRU ROADWAY

(LOOKING NORTH)

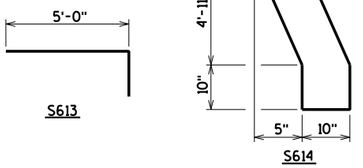
BILL OF BARS

BAR. NO.	COATED BAR	NO. REQ'D.	LENGTH	BENT BAR	BUNDLED BAR SERIES	13,340# COATED LOCATION
S501	X	44	11-6	X		DIAPH. @ ABUT. VERT.
S502	X	16	7-10	X		DIAPH. @ ABUT. VERT.
S603	X	8	2-1			DIAPH. @ ABUT. HORIZ. @ EXT. GDRS.
S604	X	30	4-2			DIAPH. @ ABUT. HORIZ. BETW. GDRS.
S605	X	4	1-2			DIAPH. @ ABUT. HORIZ. @ EXT. GDRS.
S606	X	12	26-3			DIAPH. @ ABUT. HORIZ.
S507	X	113	26-3			SLAB TRANS. BOT.
S508	X	114	26-3			SLAB TRANS. TOP
S409	X	72	40-11			SLAB LONG. BOT.
S410	X	70	41-3			SLAB LONG. TOP
S611	X	48	12-0	X		SLAB @ RAIL POSTS
S612	X	88	6-0			SLAB @ INT. RAIL POSTS
S613	X	16	6-0	X		SLAB @ END RAIL POSTS
S614	X	4	12-0	X		SLAB @ END RAIL POSTS

BENDING DIMENSIONS ARE OUT TO OUT OF BARS.

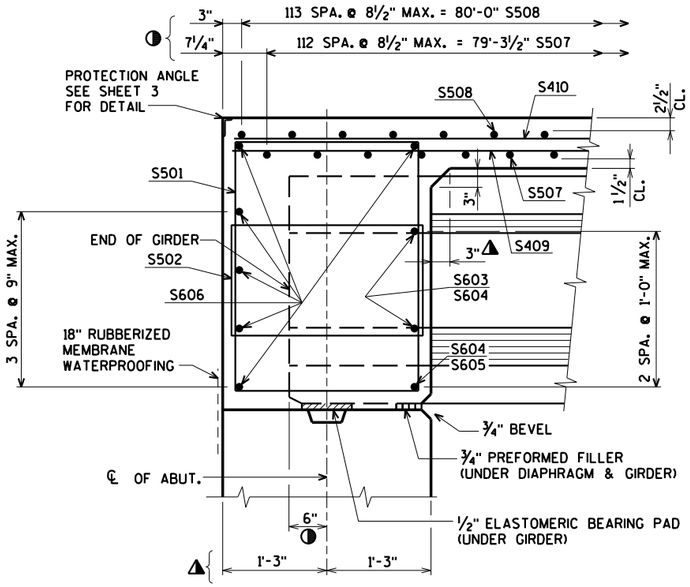


S611



S613

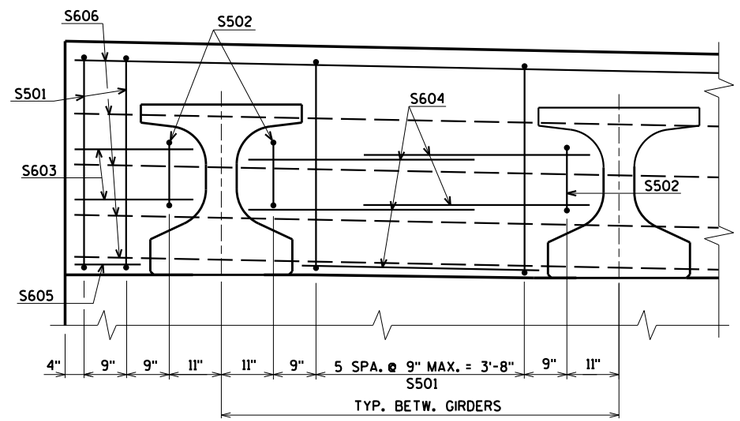
S614



PART LONGITUDINAL SECTION

◑ DIMENSIONS MEASURED ALONG ℄ OF GIRDER.

⚠ DIMENSIONS MEASURED NORMAL TO ℄ OF SUBSTRUCTURE UNIT.



PART ELEVATION AT ABUTMENT

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STRUCTURE B-16-134

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SUPERSTRUCTURE

SHEET 16 OF 18
61

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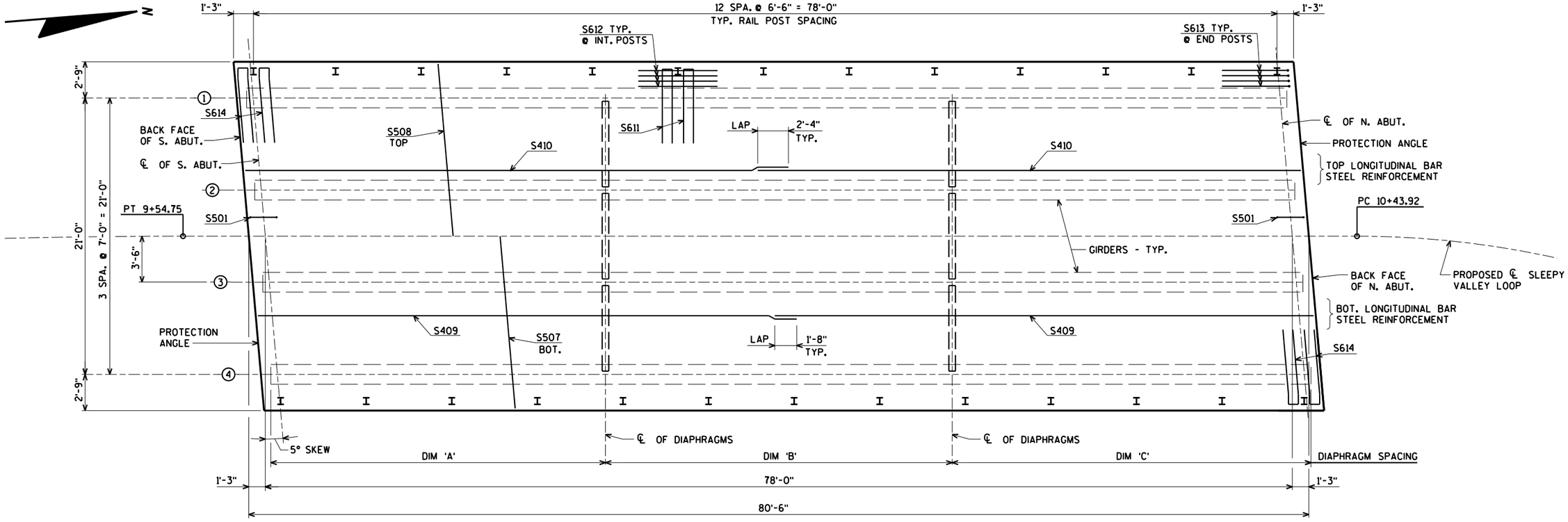


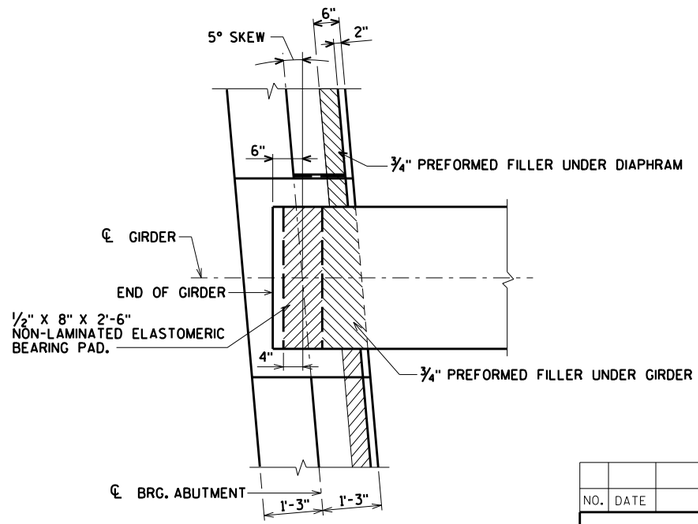
PLAN

TOP OF DECK ELEVATIONS

	℄ OF BRG. S. ABUT.	0.1 PT.	0.2 PT.	0.3 PT.	0.4 PT.	0.5 PT.	0.6 PT.	0.7 PT.	0.8 PT.	0.9 PT.	℄ OF BRG. N. ABUT.
W. EDGE OF DECK	688.44	688.53	688.63	688.75	688.89	689.04	689.20	689.38	689.58	689.79	690.02
GIRDER 1	688.32	688.41	688.51	688.63	688.76	688.91	689.07	689.25	689.44	689.65	689.88
GIRDER 2	688.03	688.11	688.20	688.31	688.44	688.58	688.74	688.91	689.10	689.30	689.52
℄ ROAD	687.88	687.96	688.05	688.16	688.28	688.42	688.57	688.74	688.92	689.12	689.34
GIRDER 3	687.73	687.81	687.89	688.00	688.12	688.25	688.40	688.57	688.75	688.95	689.16
GIRDER 4	687.44	687.50	687.59	687.68	687.80	687.92	688.07	688.23	688.40	688.59	688.80
E. EDGE OF DECK	687.32	687.39	687.47	687.56	687.67	687.80	687.94	688.09	688.27	688.45	688.66

TABLE OF DIAPHRAGM DIMENSIONS

GIRDER	DIM. 'A'	DIM. 'B'	DIM. 'C'
1	27'-3"	26'-4"	25'-5"
2	26'-7⅝"	26'-4"	26'-0⅜"
3	26'-0⅜"	26'-4"	26'-7⅝"
4	25'-5"	26'-4"	27'-3"



BEARING PLAN

NO.	DATE	REVISION	BY

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DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-134

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SUPERSTRUCTURE PLAN

SHEET 17 OF 18
62

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8/24/2015
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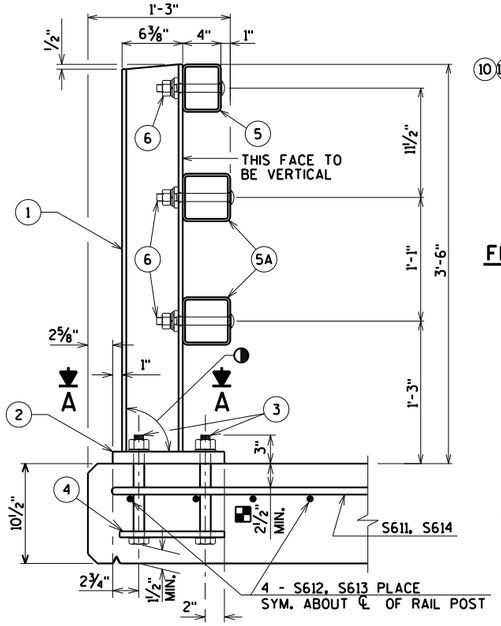
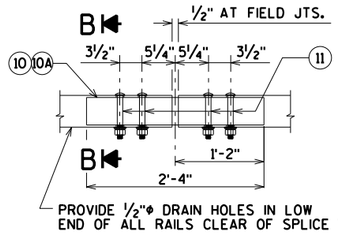
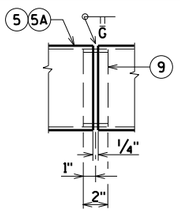


SECTION THRU RAILING ON DECK

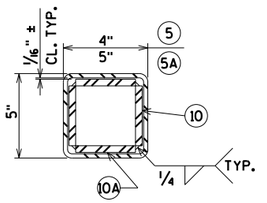


FIELD ERECTION JOINT DETAIL

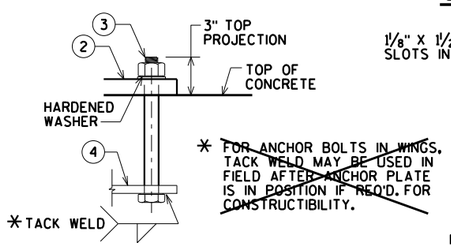


SHOP RAIL SPLICE DETAIL

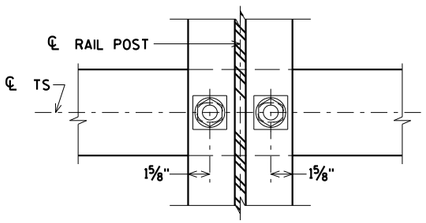
(LOCATION MUST BE SHOWN ON THE SHOP DRAWINGS)



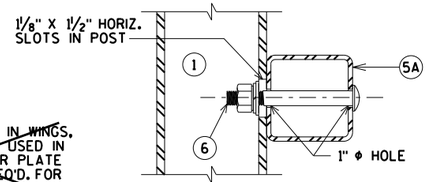
SECTION B



ANCHOR BOLTS



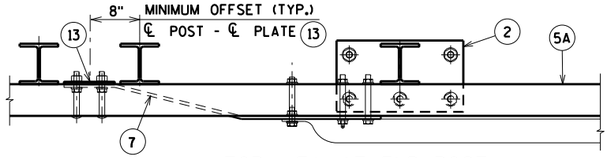
SECTION THRU POST WEB



SECTION THRU RAIL

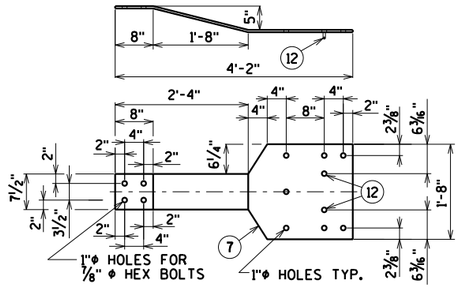
NOTE: CONNECTIONS AT LOWER RAILS SHOWN. CONNECTIONS AT TOP RAIL SIMILAR.

TYPICAL RAIL TO POST CONNECTIONS



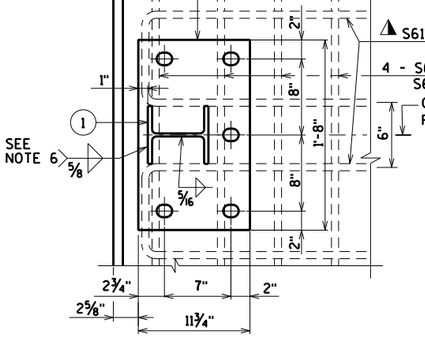
TOP VIEW AT END POST

(THRIE BEAM RAIL ATTACHMENT)

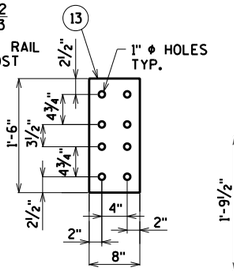


BACK-UP PLATE DETAIL

(AT BEAM GUARD ATTACHMENT)

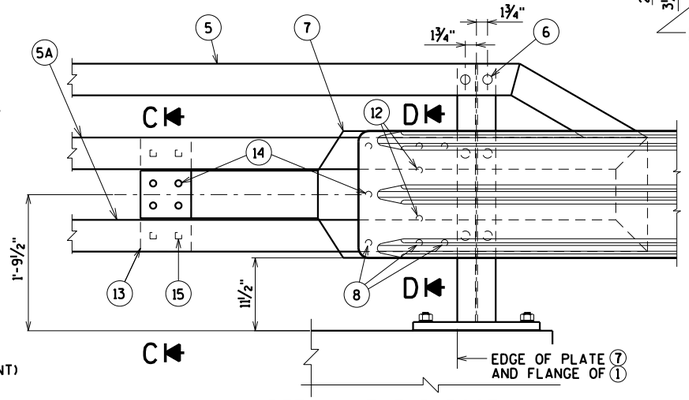


SECTION A

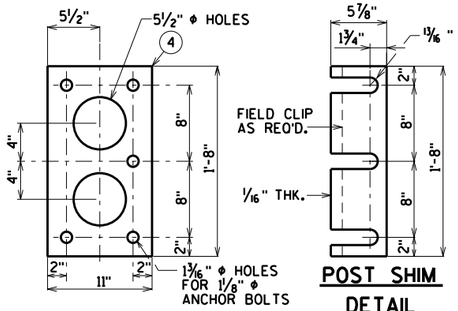


ANCHOR PLATE

(AT BEAM GUARD ATTACHMENT)



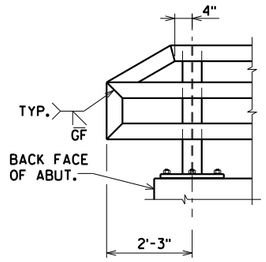
DETAIL AT END POST



ANCHOR PLATE

(AT RAIL TO DECK CONNECTION)

POST SHIM DETAIL



PART ELEVATION OF RAILING

◑ ANGLE VARIES

WEST SIDE:
92°27'44" AT SOUTH ABUTMENT
93°05'27" AT NORTH ABUTMENT

EAST SIDE:
87°32'16" AT SOUTH ABUTMENT
86°54'33" AT NORTH ABUTMENT

◪ PLACE BELOW TOP MAT SLAB REINFORCEMENT.

◭ TIE TO TOP MAT OF STEEL.

LEGEND

① W6 x 25 WITH 1⅛" X 1½" HORIZ. SLOTS ON EACH SIDE OF POST FOR BOLT NO. 6. CUT BOTTOM OF POST TO MATCH CROSS SLOPE OF ROADWAY. PLACE POST VERTICAL. PLACE POSTS NORMAL TO GRADE LINE.

② PLATE 1¼" x 11¾" 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 - 1⅛" DIA. ANCHOR BOLTS WITH NUT AND HARDENED WASHER (ALL GALVANIZED). 5 REQ'D. PER POST. THREAD 3" AND PLACE NORMAL TO PLATE NO. 2. CHAMFER TOP OF BOLTS BEFORE THREADING. ~~USE 1'-9" LONG IN 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 1¾6" 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 (NO. 12). BOLT TO RAIL AS SHOWN IN DETAIL. REQUIRED AT THRIE BEAM GUARD RAIL ATTACHMENTS ONLY. PLACE SYMMETRICALLY ABOUT TUBES NO. 5A.

⑧ 1" DIA. HOLES IN PLATE NO. 7 & TUBES NO. 5A FOR ⅞" DIA. A325 BOLTS WITH HEX NUTS AND WASHERS. 6 HOLES IN TUBES AND PLATE NO. 7.

⑨ SPLICE SLEEVE FABRICATED FROM ¼" PLATE. PROVIDE "SLIDING FIT".

⑩ ⅜" X 3⅝" X 2'-4" PLATE. 2 PER RAIL. USED IN NO. 5 & 5A.

⑩A ⅜" X 2⅝" X 2'-4" PLATE USED IN NO. 5, ⅜" X 3⅝" X 2'-4" PLATE USED IN NO. 5A. 2 PER RAIL.

⑪ ⅞" Φ A325 ROUND HEAD BOLT WITH NUT, WASHER, AND LOCK WASHER. USE 1⅝" X 1¼" LONGIT. SLOTTED HOLES AT FIELD JOINTS ~~AND 1⅝" X 2¼" MIN. LONGIT. SLOTTED HOLES AT EXP. JOINTS~~ IN PLATE NO. 10A.

⑫ ⅞" DIA. X 1½" LONG THREADED SHOP WELDED STUDS (2 REQ'D).

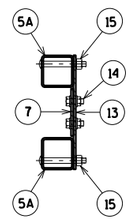
⑬ ⅜" X 8" X 1'-6" PLATE. BOLT TO RAIL AS SHOWN IN DETAIL. REQ'D. AT THRIE BEAM GUARD RAIL ATTACHMENTS ONLY. PLACE SYM. ABOUT TUBES NO. 5A.

⑭ ⅞" DIA. X 2" LONG A325 HEX BOLT WITH NUT AND WASHER (5 REQ'D.).

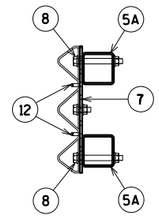
⑮ 1" Φ HOLES IN TUBES NO. 5A FOR ⅞" DIA. A325 ROUND HEAD BOLT WITH NUT, WASHER AND LOCK WASHER (4 REQ'D.). 4 HOLES IN TUBES.

GENERAL NOTES

1. BID ITEM SHALL BE "RAILING TUBULAR TYPE M B-16-134" 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.



SECTION C



SECTION D

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-16-134

DRAWN BY CLS | PLANS CK'D. CJM

RAILING TUBULAR TYPE M

SHEET 18 OF 18
63

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

$PRFNAME$
U:\42-0901.00 - Douglas Co. Tn Lakeside, Sleepy Valley Loop\BRIDGE\420901Mrail.dgn
8/21/2015
PENTABLE:BReau_shd_util.tbl

EARTHWORK SUMMARY (CATEGORY 0010)

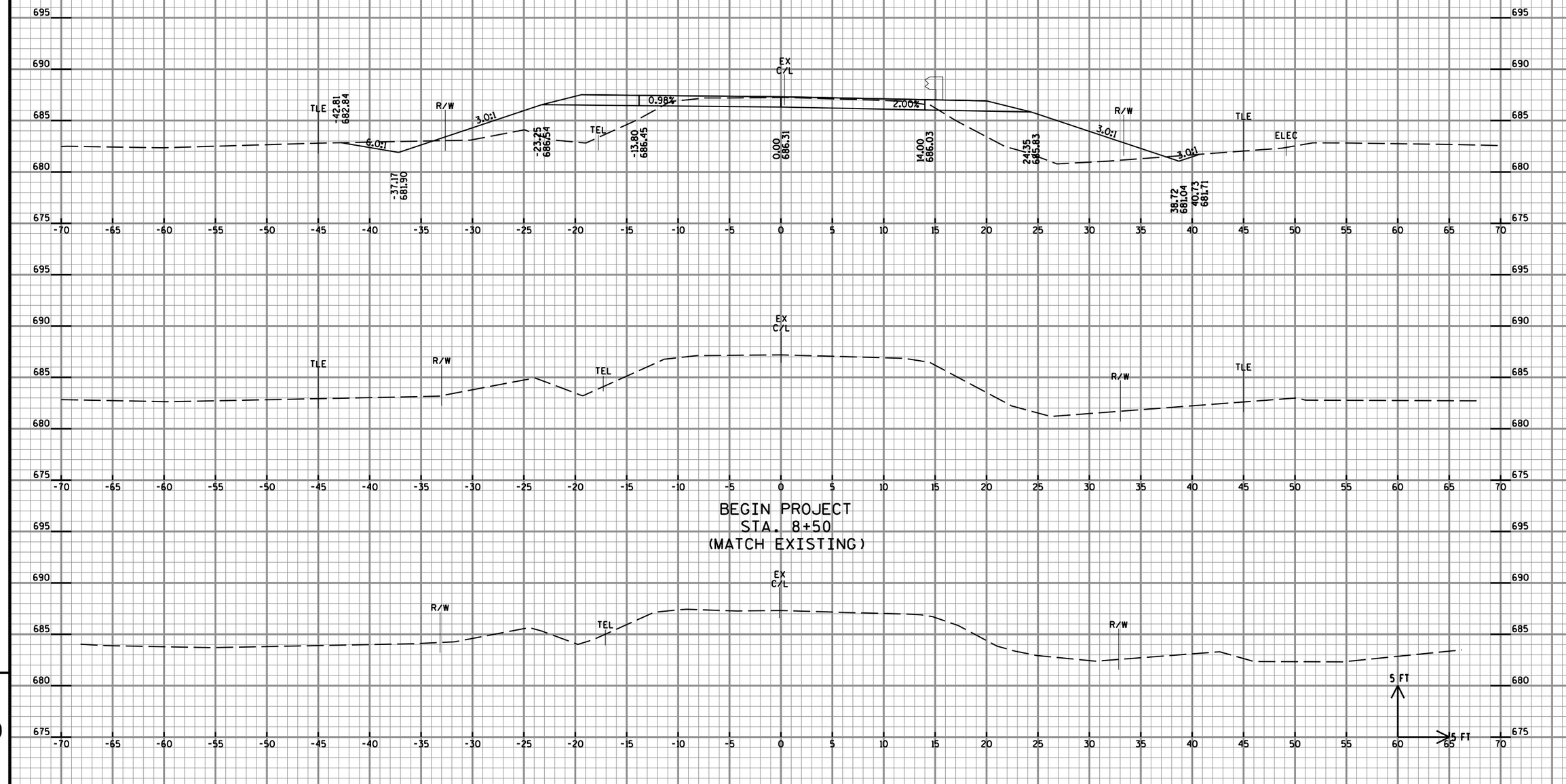
		AREA			INCREMENTAL VOLUME			CUMULATIVE VOLUME		
DIVISION	STATION	CUT SF	SALVAGED/ UNUSABLE PAVEMENT MATERIAL SF	FILL SF	CUT (1) CY	SALVAGED/ UNUSABLE PAVEMENT MATERIAL (2) CY	FILL (3) CY	CUT (1) 1.00 CY	EXPANDED FILL (4) 1.30 CY	MASS ORDINATE ±(5) CY
1	8+50	0	0	0	9		11			
Sleepy Valley Loop	8+75	20	0	24	18	0	45	18	59	-41
	9+00	18	0	74	15	0	104	33	194	-161
	9+25	14	0	151	11	0	79	44	296	-252
	9+50	9	0	18	3	0	7	47	306	-259
	9+60	9	0	18		0	0	47	306	-259
	STRUCTURE (B-16-0134)									
	10+40	0	0	1	0	0	1	0	1	-1
	10+50	1	0	3	10	0	1	10	3	7
	10+62	45	0	2	22	0	1	32	4	28
	10+75	47	0	0	51	0	0	83	4	79
	11+00	63	0	0	48	0	0	131	4	127
	11+17	91	0	0	26	0	0	157	4	153
	11+25	83	0	0	70	0	0	227	4	223
	11+50	68	0	0	50	0	0	277	4	273
	11+75	39	0	0	18	0	0	295	4	291
	12+00	0	0	0		0	0	295	4	291
	Private Entrance Sta. 11+17						40			
TOTALS					351	0	289			291

205.0100 EXCAVATION COMMON = SAY 351 **208.0100 WASTE = SAY 291**

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

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

STA. 8+25 TO 8+69



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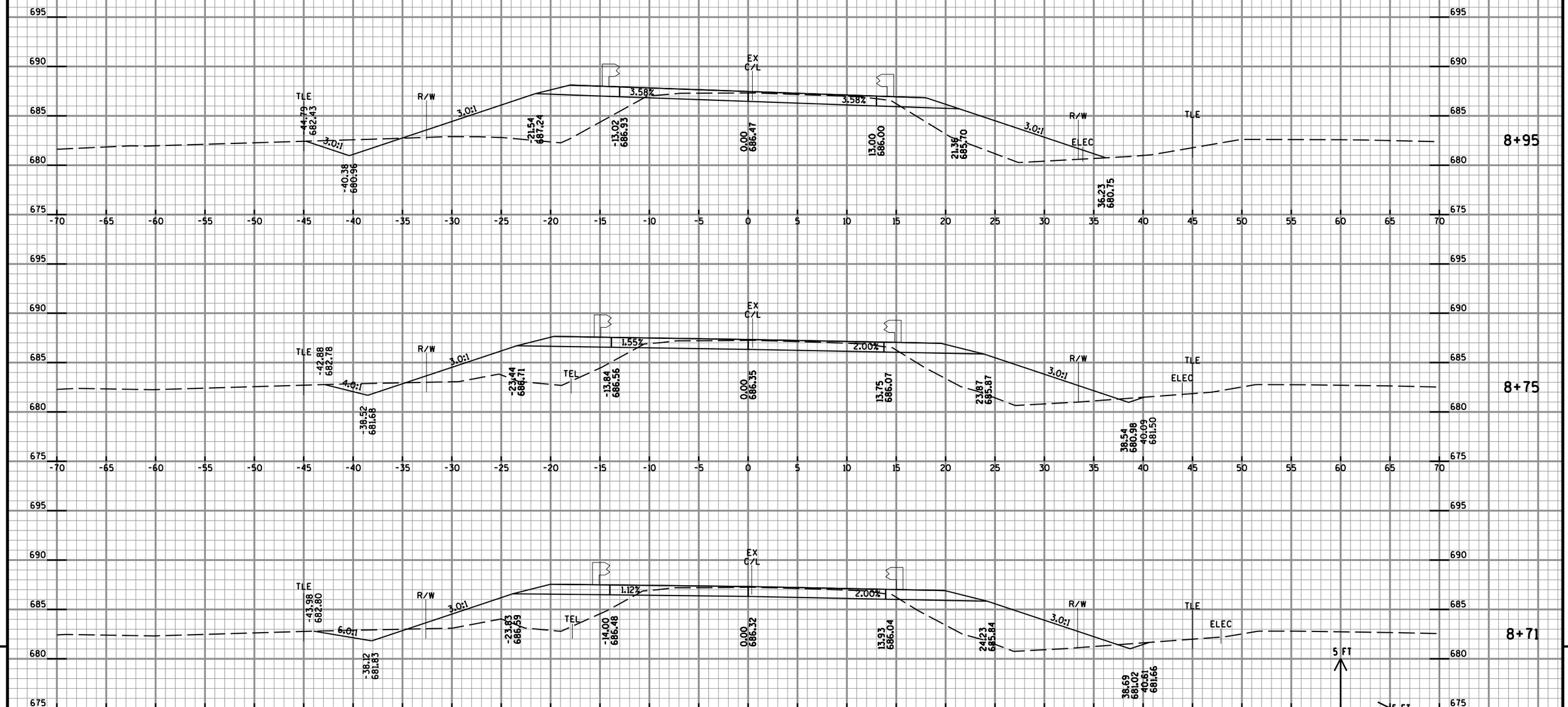
9

PROJECT NO: 8389-00-70	HWY: SLEEPY VALLEY LOOP	COUNTY: DOUGLAS	CROSS SECTIONS	SHEET	E

FILE NAME : U:\42-0901.00 - Douglas Co, Tn Lakeside, Sleepy Valley Loop\InRoads\42090100_xs_bg rev.dgn PLOT DATE : 10/24/2016 PLOT BY : AYRES-EC PLOT NAME : PLOT SCALE : 1:10

WISDOT/CADDS SHEET 21

STA. 8+71 TO 8+95



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PROJECT NO: 8389-00-70	HWY: SLEEPY VALLEY LOOP	COUNTY: DOUGLAS	CROSS SECTIONS	SHEET	E

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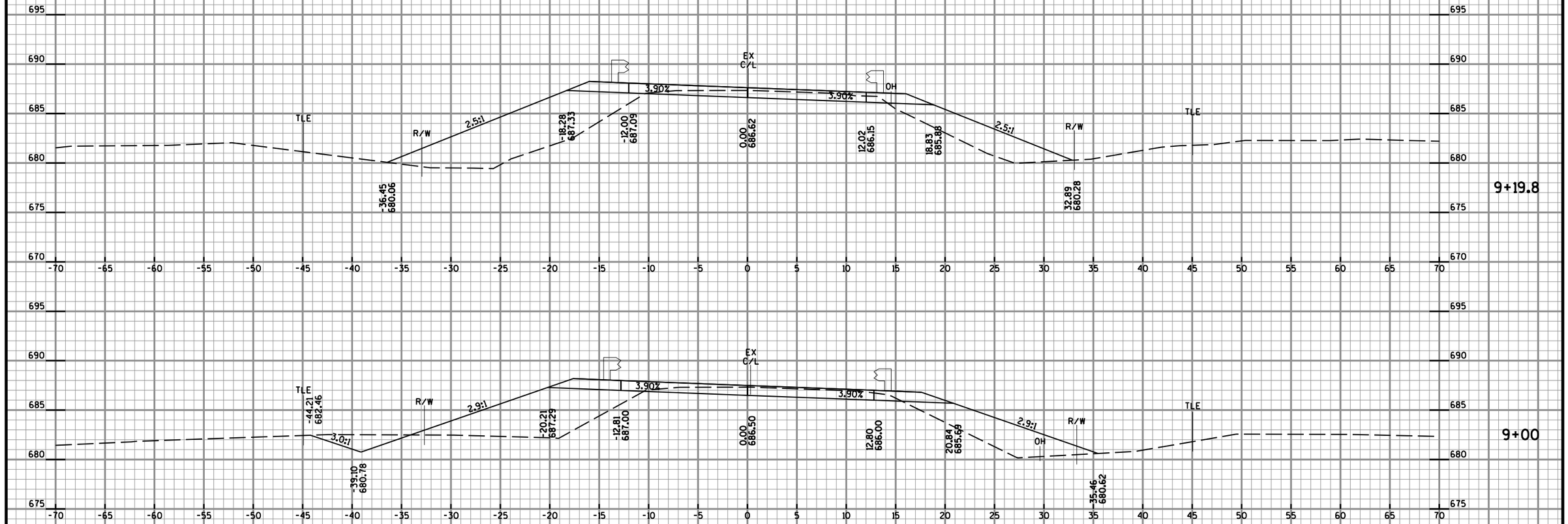
WISDOT/CADDS SHEET 21

STA. 8+95 TO 9+19.8



9+19.8

9+00

5 FT
5 FT

9

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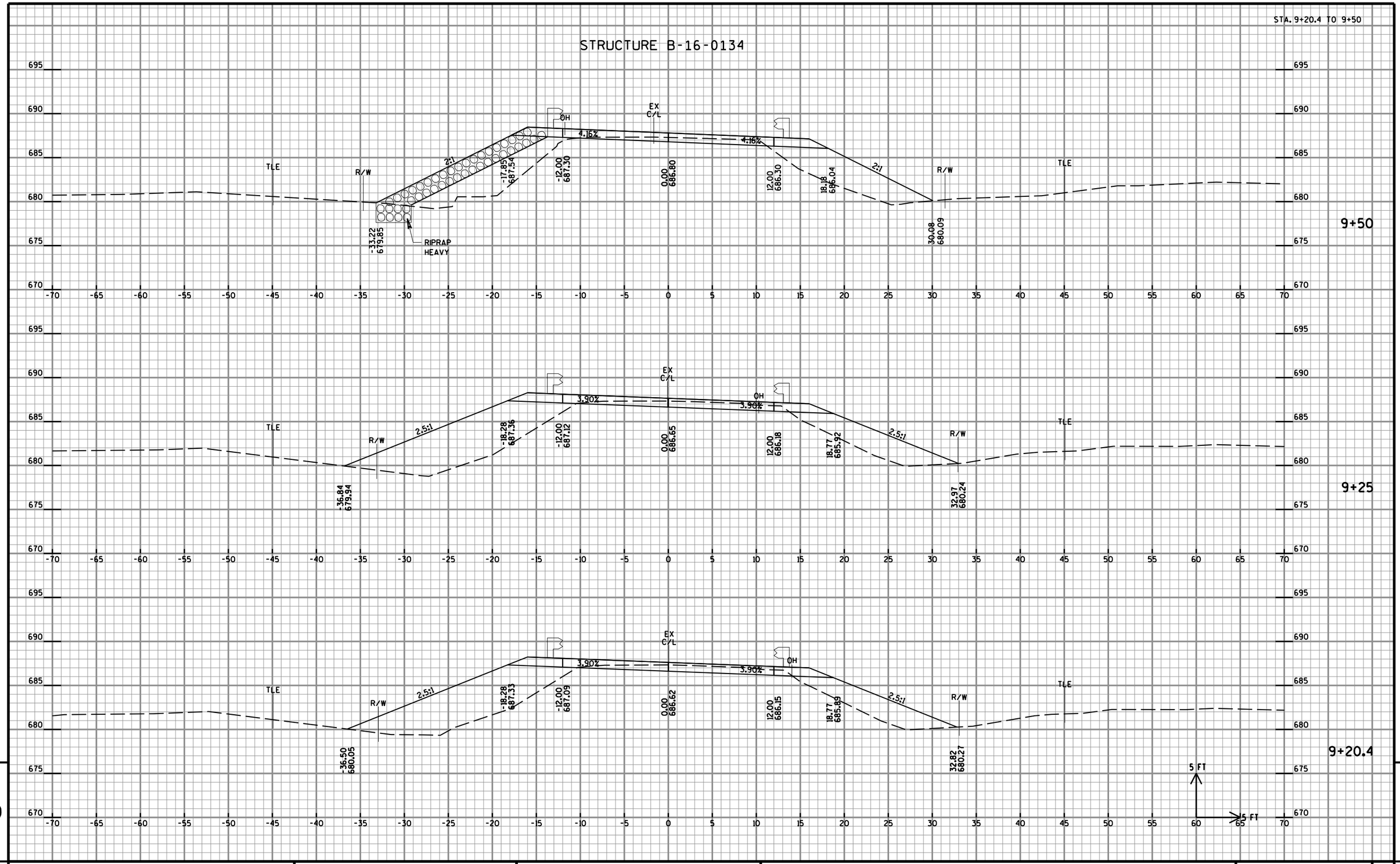
PROJECT NO: 8389-00-70	HWY: SLEEPY VALLEY LOOP	COUNTY: DOUGLAS	CROSS SECTIONS	SHEET	E

FILE NAME : U:\42-0901.00 - Douglas Co, Tn Lakeside, Sleepy Valley Loop\InRoads\42090100_xs_bg rev.dgn PLOT DATE : 10/24/2016 PLOT BY : AYRES-EC PLOT NAME : PLOT SCALE : 1:10

WISDOT/CADDS SHEET 21

STA. 9+20.4 TO 9+50

STRUCTURE B-16-0134



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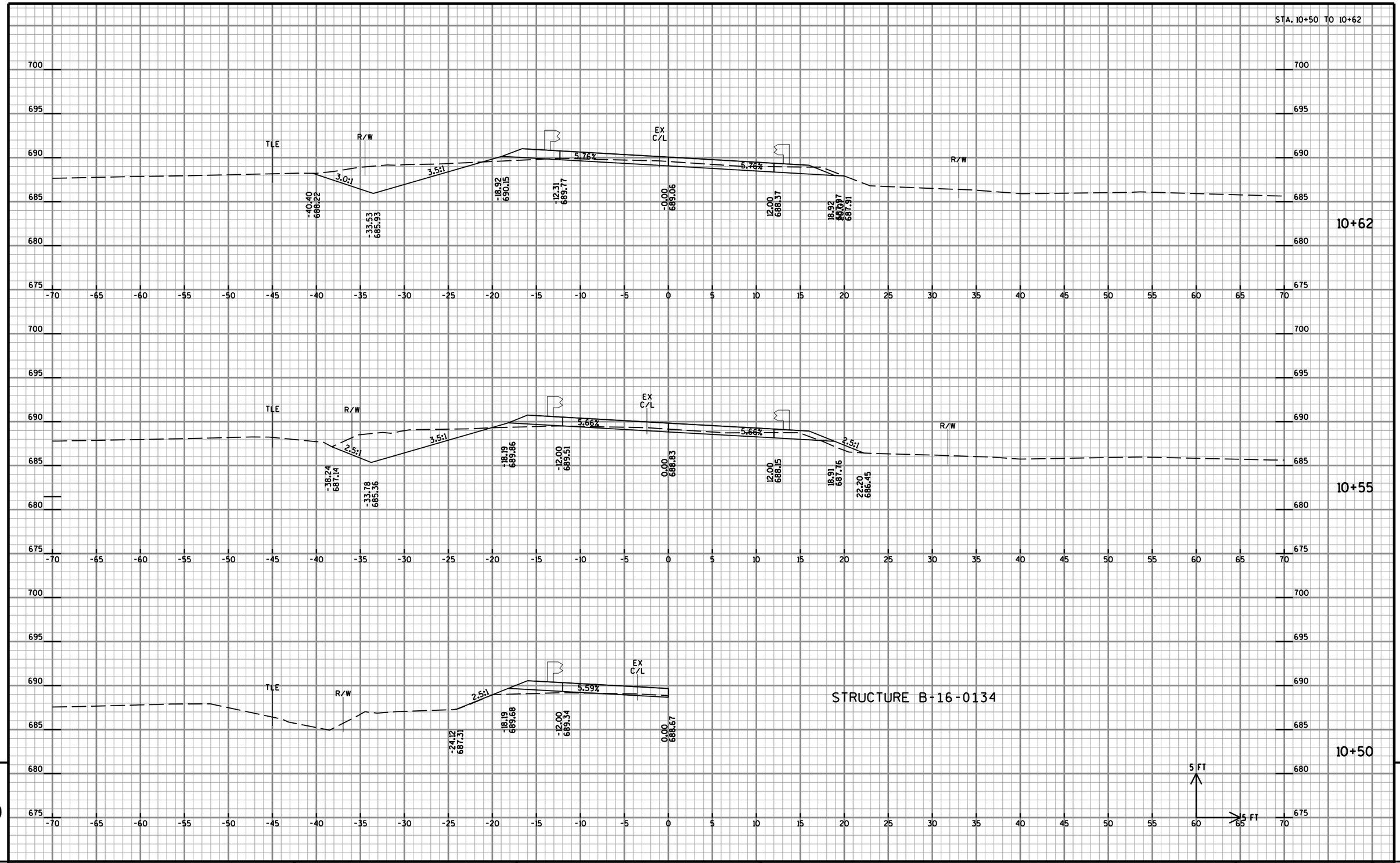
PROJECT NO: 8389-00-70	HWY: SLEEPY VALLEY LOOP	COUNTY: DOUGLAS	CROSS SECTIONS	SHEET	E

FILE NAME : U:\42-0901.00 - Douglas Co, Tn Lakeside, Sleepy Valley Loop\InRoads\42090100_xs_bg rev.dgn PLOT DATE : 10/24/2016 PLOT BY : AYRES-EC PLOT NAME : PLOT SCALE : 1:10

WISDOT/CADDS SHEET 21

STA. 10+50 TO 10+62



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PROJECT NO: 8389-00-70	HWY: SLEEPY VALLEY LOOP	COUNTY: DOUGLAS	CROSS SECTIONS	SHEET	E

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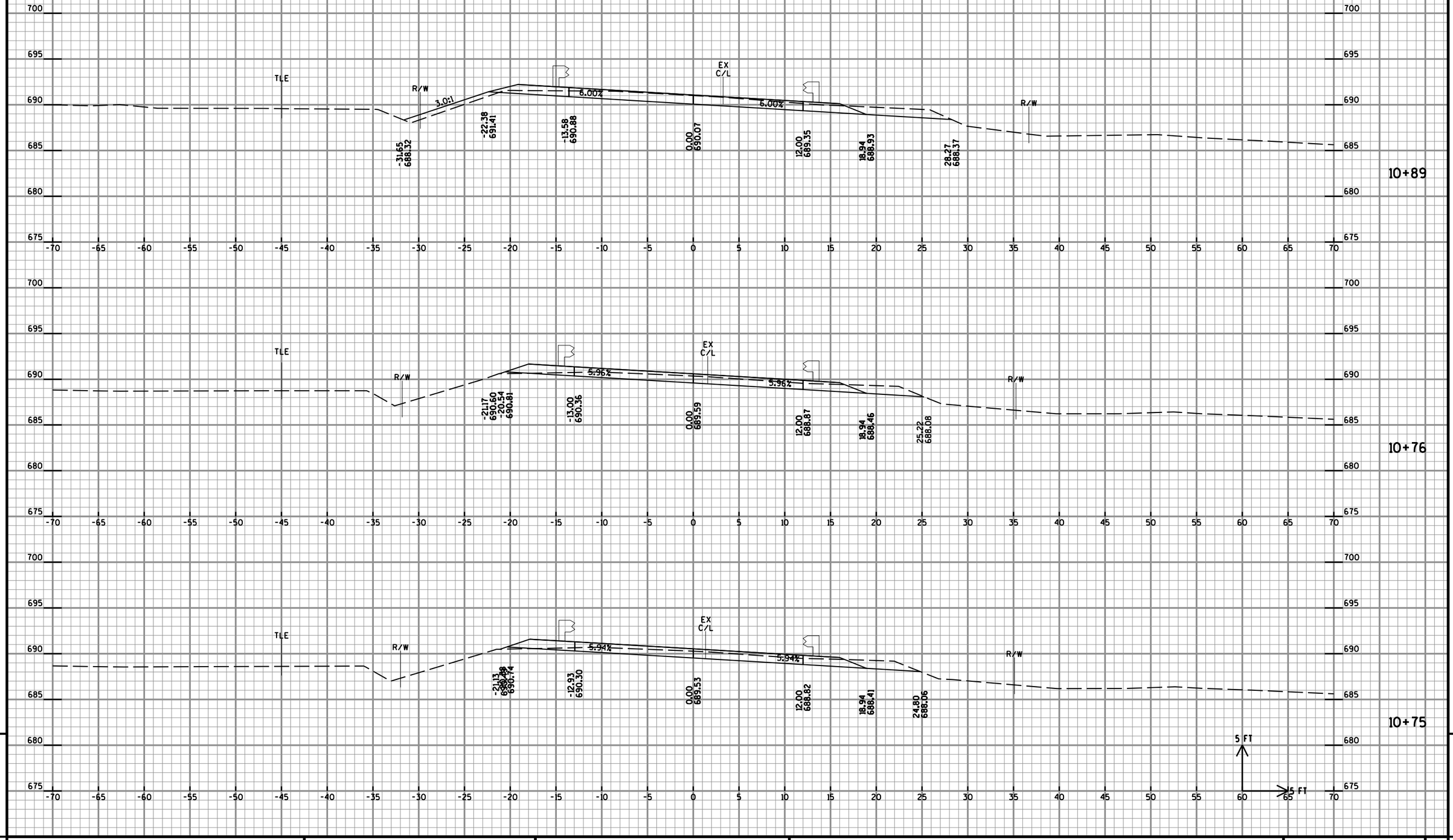
WISDOT/CADDS SHEET 21

STA. 10+75 TO 10+89



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PROJECT NO: 8389-00-70	HWY: SLEEPY VALLEY LOOP	COUNTY: DOUGLAS	CROSS SECTIONS	SHEET 70	E

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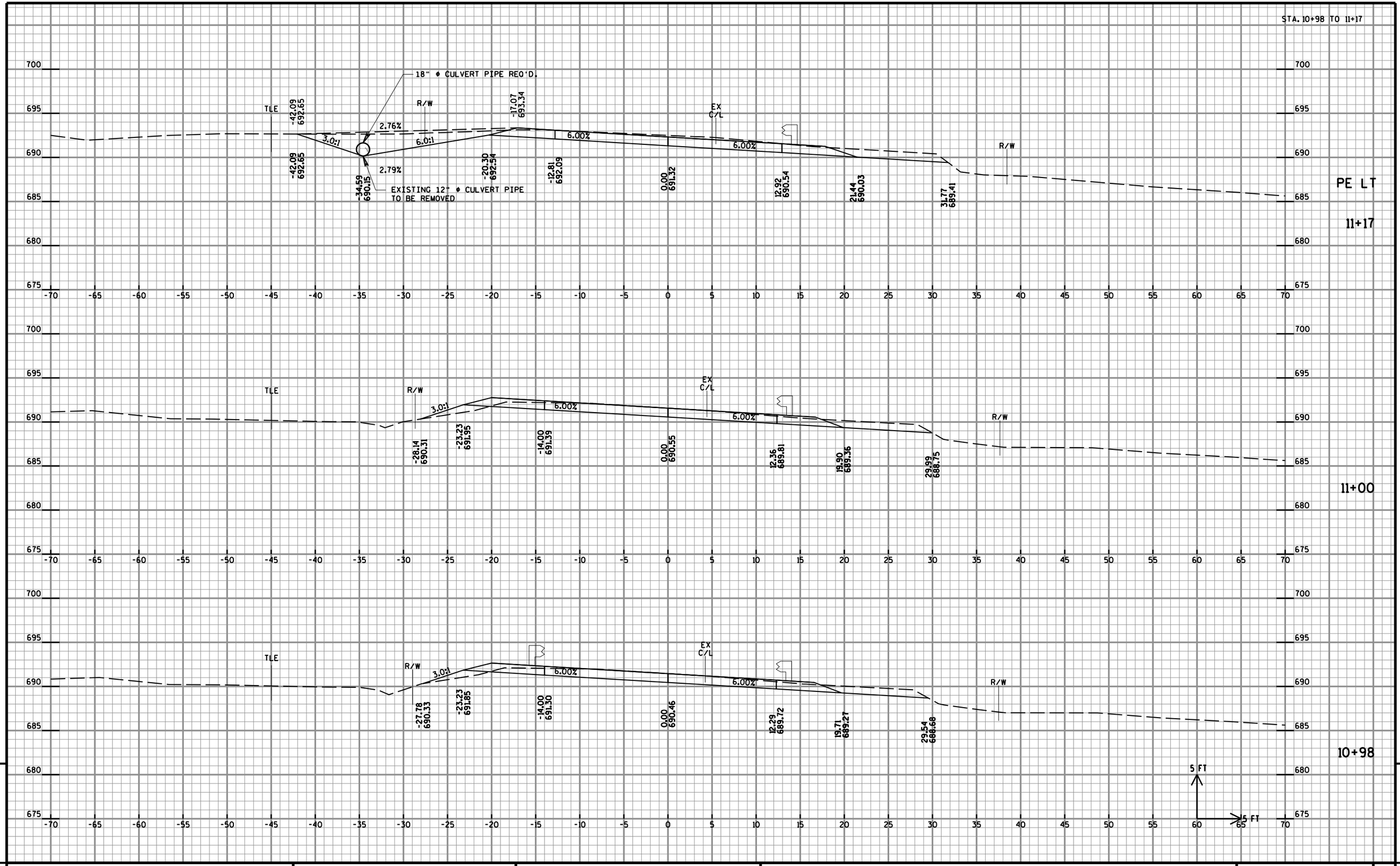
WISDOT/CADDS SHEET 21

STA. 10+98 TO 11+17



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PROJECT NO: 8389-00-70	HWY: SLEEPY VALLEY LOOP	COUNTY: DOUGLAS	CROSS SECTIONS	SHEET	E

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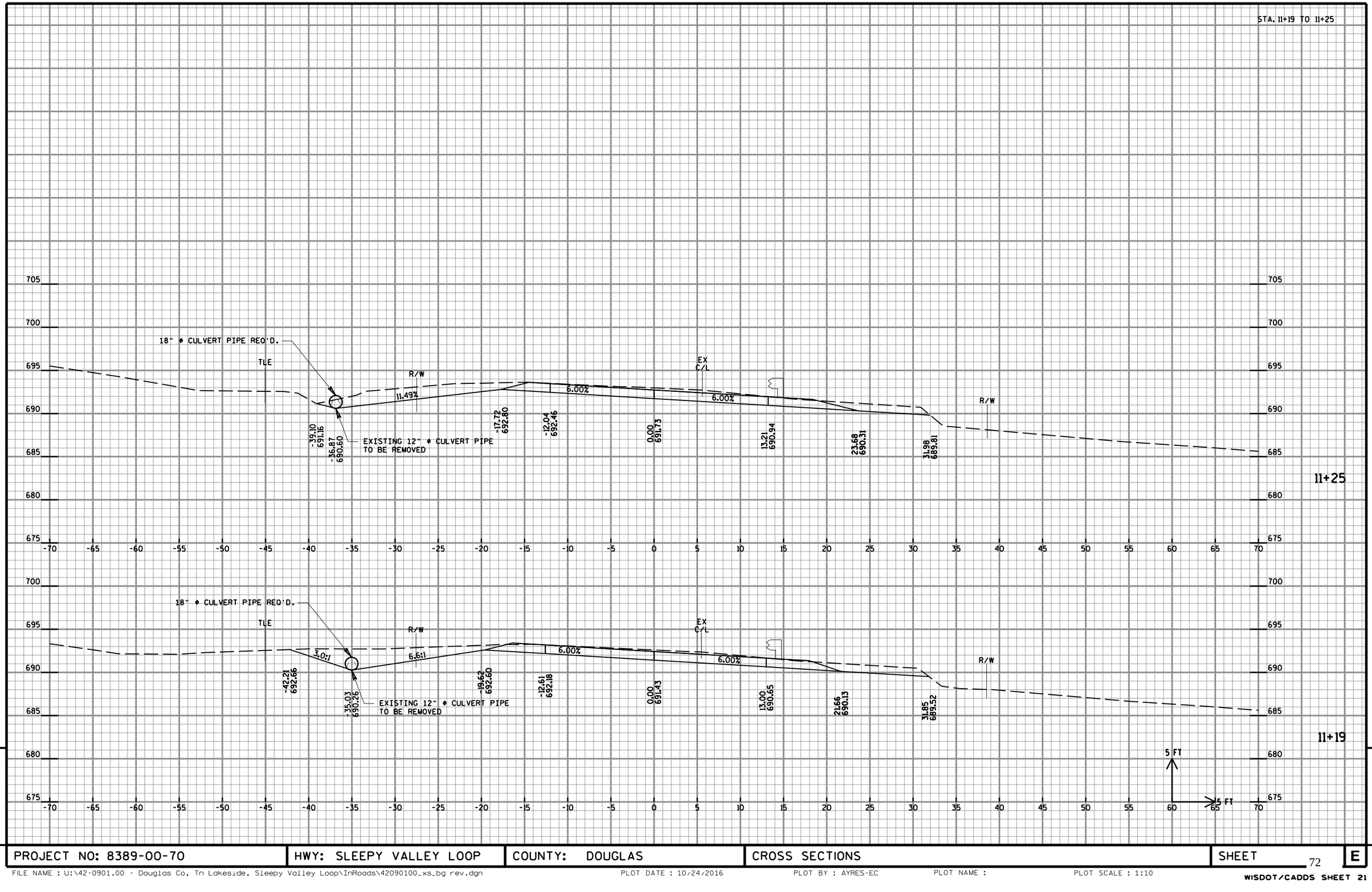
WISDOT/CADDS SHEET 21

STA. 11+19 TO 11+25

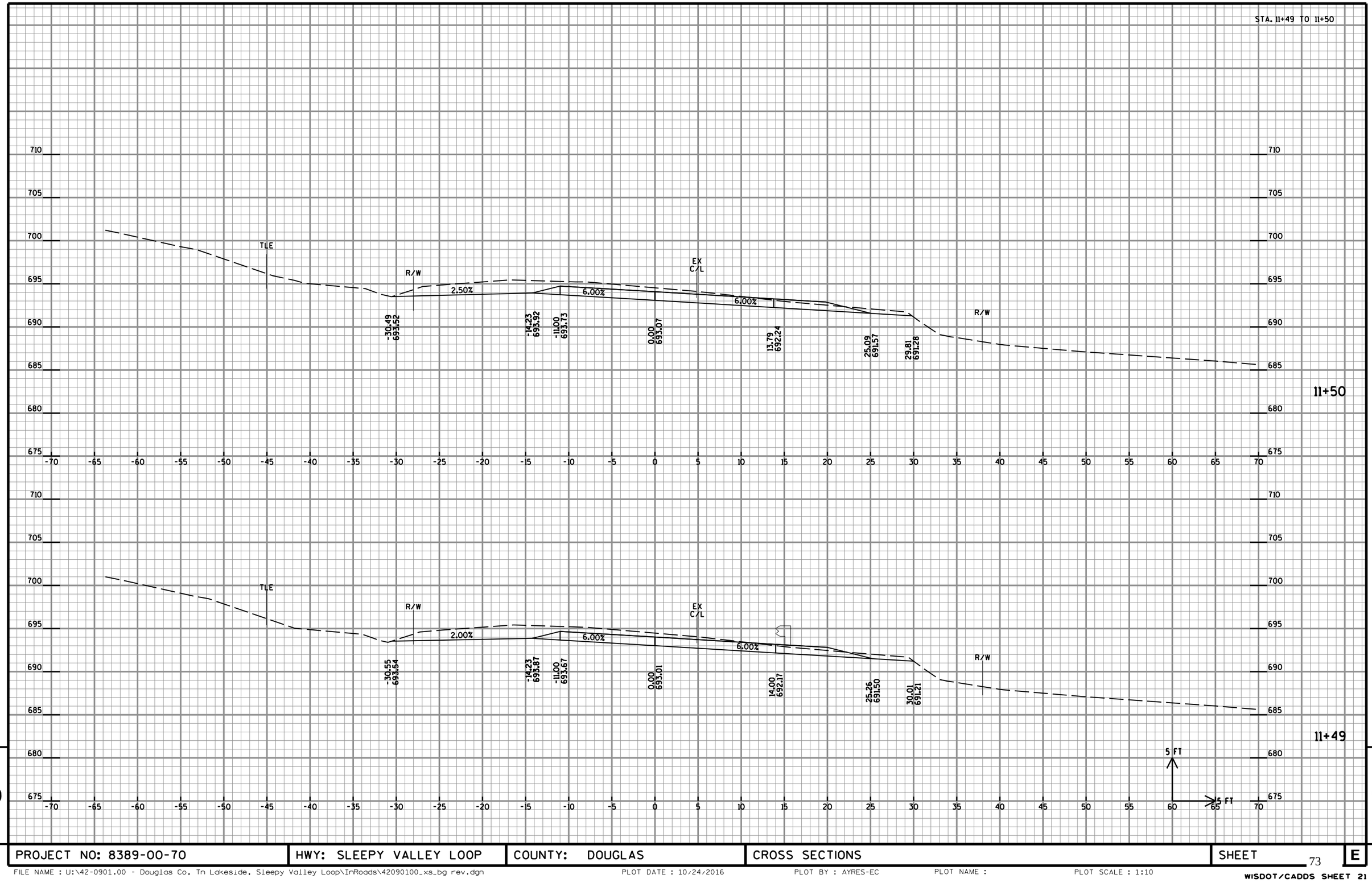


PROJECT NO: 8389-00-70	HWY: SLEEPY VALLEY LOOP	COUNTY: DOUGLAS	CROSS SECTIONS	SHEET E

FILE NAME : U:\42-0901.00 - Douglas Co, Tn Lakeside, Sleepy Valley Loop\InRoads\42090100_xs_bg rev.dgn PLOT DATE : 10/24/2016 PLOT BY : AYRES-EC PLOT NAME : PLOT SCALE : 1:10

WISDOT/CADDS SHEET 21

STA. 11+49 TO 11+50



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PROJECT NO: 8389-00-70	HWY: SLEEPY VALLEY LOOP	COUNTY: DOUGLAS	CROSS SECTIONS	SHEET	E

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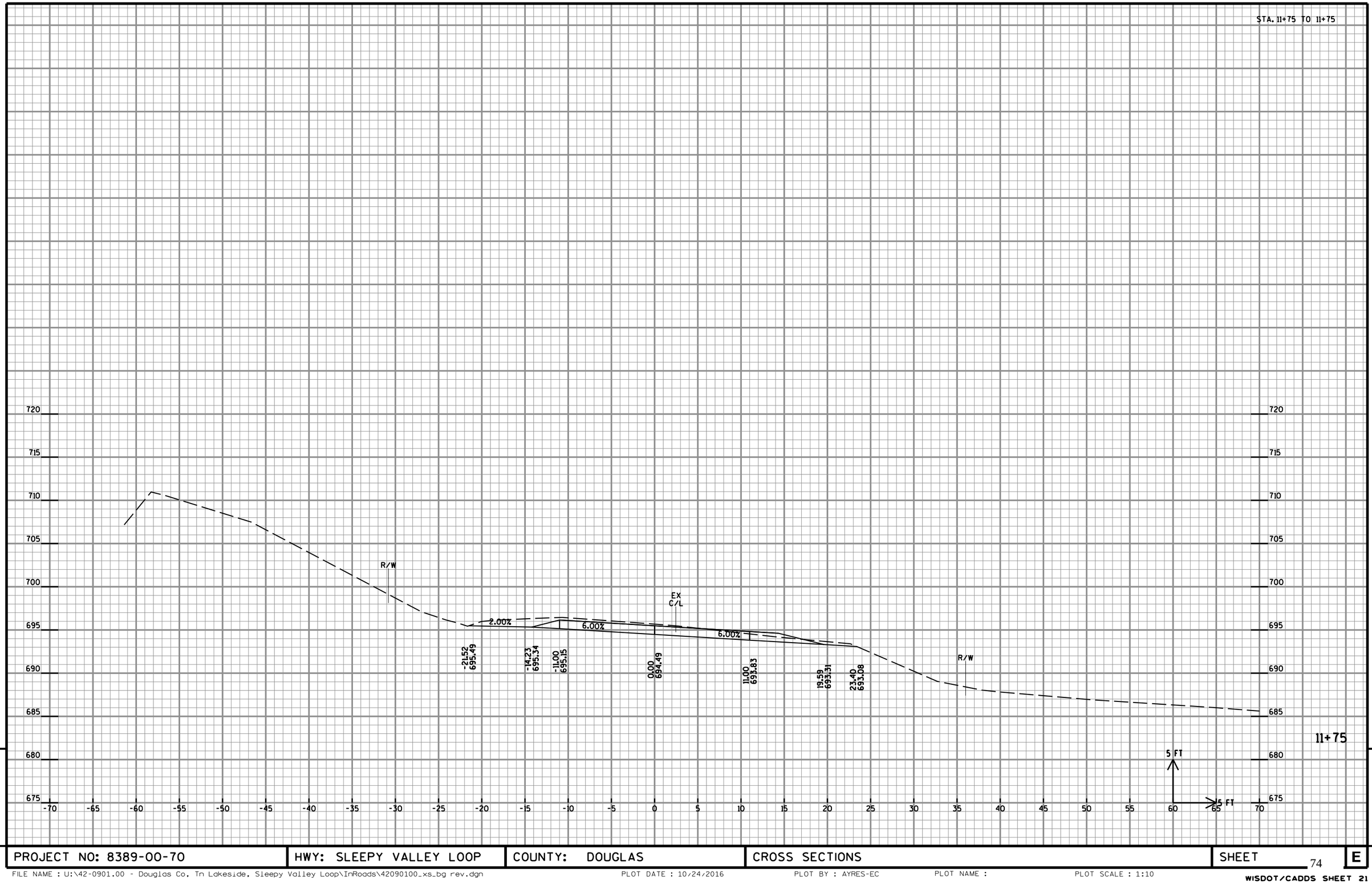
WISDOT/CADDS SHEET 21

STA. 11+75 TO 11+75



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PROJECT NO: 8389-00-70	HWY: SLEEPY VALLEY LOOP	COUNTY: DOUGLAS	CROSS SECTIONS	SHEET	E

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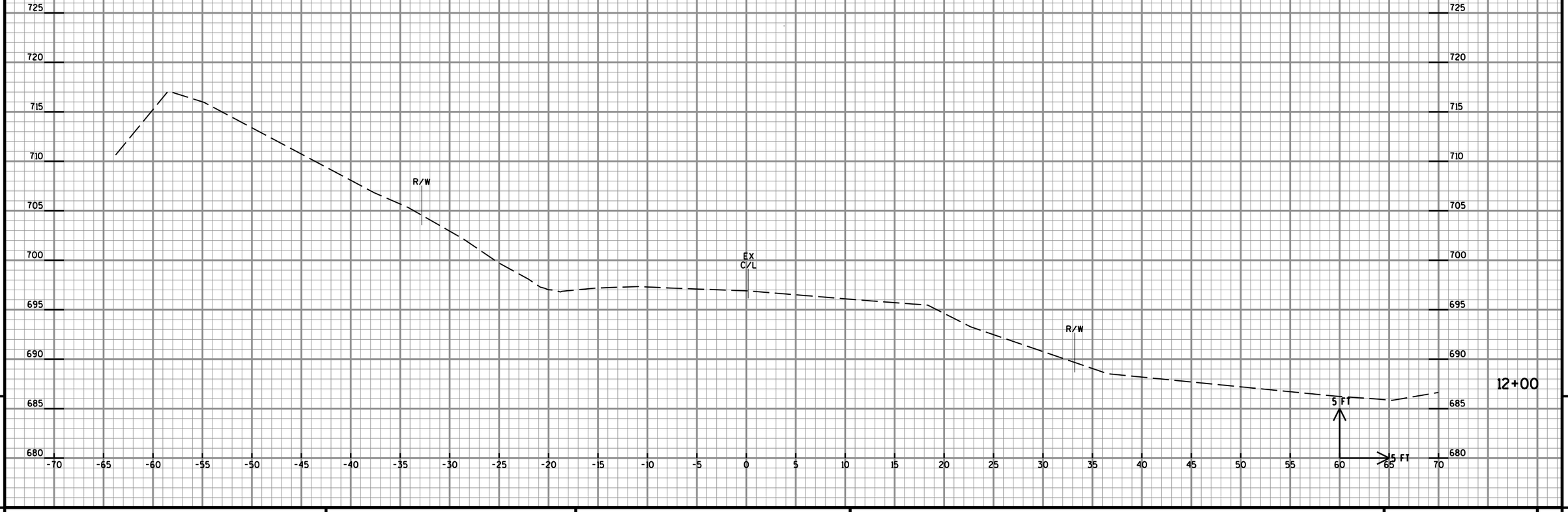
WISDOT/CADDS SHEET 21

END PROJECT
STA. 12+00
(MATCH EXISTING)



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PROJECT NO: 8389-00-70	HWY: SLEEPY VALLEY LOOP	COUNTY: DOUGLAS	CROSS SECTIONS	SHEET E

FILE NAME : U:\42-0901.00 - Douglas Co, Tn Lakeside, Sleepy Valley Loop\InRoads\42090100_xs_bg rev.dgn PLOT DATE : 8/24/2015 PLOT BY : AYRES-EC PLOT NAME : PLOT SCALE : 1:10

WISDOT/CADDS SHEET 21

Wisconsin Department of Transportation

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