

LAX

JULY 2018302

PROJECT ID: 5001-00-71
WITH: N/A

STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION

PLAN OF PROPOSED IMPROVEMENT

STH 35 - CTH B

(CONWAY VALLEY CREEK BRIDGE B-12-0193)

CTH C CRAWFORD COUNTY

STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
5001-00-71		

ORDER OF SHEETS

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

TOTAL SHEETS = 68

STATE PROJECT NUMBER

5001-00-71



04

PROJECT
LOCATION

DESIGN DESIGNATION

A.D.T. (2018)	=	260
A.D.T. (2038)	=	300
D.H.V. (2038)	=	9.4
D.	=	60/40
T.	=	11.2%
DESIGN SPEED	=	40 MPH
ESALS	=	55,188

CONVENTIONAL SYMBOLS

PLAN

CORPORATE LIMITS	PL - 58.1
PROPERTY LINE	---
LOT LINE	---
LIMITED EASEMENT	---
EXISTING RIGHT OF WAY	---
PROPOSED OR NEW R/W LINE	---
SLOPE INTERCEPT	---
REFERENCE LINE	---

COMBUSTIBLE FLUIDS

EXISTING CULVERT	---
PROPOSED CULVERT (Box or Pipe)	---

MARSH AREA

WOODED OR SHRUB AREA

PROFILE

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

BEGIN PROJECT

STA 12+00

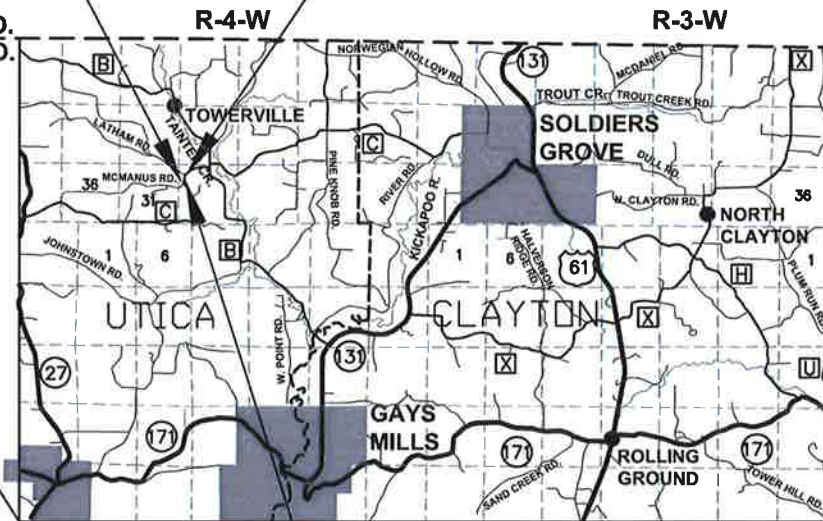
Y = 245619.279
X = 387040.114

END PROJECT

STA 15+00

Y = 245907.438
X = 387122.688

VERNON CO.
CRAWFORD CO.



MT.
STERLING

STRUCTURE
B-12-0193

T-11-N

T-10-N

RICHLAND CO.
CRAWFORD CO.

LAYOUT
SCALE 0 1 MI. 2 MI.

TOTAL NET LENGTH OF CENTERLINE = 0.057 MI.

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

ACCEPTED FOR

COUNTY OF CRAWFORD

Jan 1, 2018 (Date) *[Signature]* HIGHWAY COMMISSIONER

ORIGINAL PLANS PREPARED BY

TEAM ENGINEERING
Transportation | Environmental | Agricultural | Municipal
and Land Surveying

WISCONSIN
JEREMY F. KRACHEY
E-37258
WAUZEKA WIS.
PROFESSIONAL ENGINEER
1/2/18 (Date) *[Signature]* (Signature)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PREPARED BY

Surveyor	TEAM ENGINEERING
Designer	TEAM ENGINEERING
Management Consultant	KL ENGINEERING, INC.

APPROVED FOR THE DEPARTMENT

1/7/18 (Date) *[Signature]* (Management Consultant Signature)

LIST OF STANDARD ABBREVIATIONS

ABUT.	Abutment	JT	Joint	SEC	Section
AC	Acre	JCT	Junction	SHLDR	Shoulder
AGG.	Aggregate	LHF	Left-Hand Forward	SHR	Shrinkage
AH	Ahead	L	Length of Curve	SW	Sidewalk
<	Angle	LIN FT OR LF	Linear Foot	S	South
ASPH	Asphaltic	LC	Long Chord of Curve	SQ	Square
AVG.	Average	MH	Manhole	SF OR SQ FT	Square feet
A.D.T.	Average Daily Traffic	MB	Mailbox	SY OR SQ YD	Square Yard
BAD	Base Aggregate Dense	ML OR M/L	Match Line	STD	Standard
BK.	Back	N	North	SDD	Standard Detail Drawings
BF	Back Face	Y	North Grid Coordinante	STH	State Trunk Highways
B.M	Bench Mark	OD	Outside Diameter	STA	Station
BR.	Bridge	PLE	Permanent Limited Easement	SS	Storm Sewer
C/L	Center Line	PT	Point	SG	Subgrade
CC	Center to Center	PC	Point of Curvature	SE	Superelevation
CTH	County Trunk Highway	PI	Point of Intersection	SL OR S/L	Survey Line
CR.	Creek	PRC	Point of Reverse Curvature	SV	Septic Vent
CY OR CU YD	Crushed	PT	Point of Tangency	T	Tangent
CP	Cubic Yard	POC	Point on curve	TEL	Telephone
C & G	Culvert Pipe	POT	Point on Tangent	TEMP	Temporary
D	Curb and Gutter	PVC	Polyvinyl Chloride	TI	Temporary Interest
DHV	Degree of Curve	PCC	Portland Cement Concrete	TLE	Temporary Limited Easement
DIA	Design Hour Volume	LB	Pound	t	Ton
E	Diameter	PSI	Pounds Per Square Inch	T OR TN	Town
X	East	PE	Private Entrance	TRANS	Transition
ELEC	East Grid Coordinate	R	Radius	TL OR T/L	Transit Line
EL OR ELEV	Electric	RR	Railroad	T	Trucks (percent of)
ESALS	Elevation	RL OR R/L	Reference Line	TYP	Typical
EBS	Equivalent Single Axle Loads	RP	Reference Point	UNCL	Unclassified
FF	Excavation Below Subgrade	RCCP	Reinforced Concrete Culvert Pipe	UG	Underground Cable
FE	Face to Face	REQD	Required	USH	United States Highway
F	Field Entrance	RES	Residence or Residential	VAR	Variable
FG	Fill	RW	Retaining Wall	V	Velocity or Design Speed
FL OR F/L	Finished Grade	RT	Right	VERT	Vertical
FT	Flow Line	RHF	Right-Hand Forward	VC	Vertical Curve
FTG	Foot	R/W	Right-of-Way	VOL	Volume
GN	Footing	R	River	WM	Water Main
HT	Grid North	RD	Road	WV	Water Valve
CWT	Height	RDWY	Roadway	W	West
HYD	Hundredweight	SALV	Salvaged	WB	Westbound
INL	Hydrant	SAN S	Sanitary Sewer	YD	Yard
ID	Inlet				
INV	Inside Diameter				
IP	Invert				
IRS	Iron Pipe or Pin				
	Iron Rod Set				

GENERAL NOTES

MULCH ALL SLOPES AS DIRECTED BY THE ENGINEER IN THE FIELD.

FINISHING ITEMS SHALL BE PLACED TO THE SLOPE INTERCEPT WITH THE ORIGINAL GROUND AS SHOWN ON THE CROSS SECTIONS AND ON ALL DISTURBED AREAS.

NO TREES OR SHRUBS ARE TO BE REMOVED UNLESS SUCH TREES OR SHRUBS HAVE FIRST BEEN INDICATED FOR REMOVAL BY THE ENGINEER IN THE FIELD.

EXCAVATION BELOW SUBGRADE (EBS) IS NOT USED TO BALANCE YARDAGE AND IS NOT SHOWN ON THE CROSS SECTIONS, BUT IS MEASURED AND PAID FOR AS EXCAVATION COMMON. THE LOCATION OF EBS WILL BE DETERMINED BY THE ENGINEER IN THE FIELD.

FILL EXPANSION IS ESTIMATED AT 30%.

DISTURBED AREAS SHOWN WITHIN THE RIGHT-OF-WAY, EXCEPT THE AREAS WITHIN THE FINISHED SHOULDER POINTS, ARE TO BE FERTILIZED (TYPE B), SEEDED (USE SEEDING MIXTURE #20 AND SEEDING TEMPORARY), AND MULCHED AS DIRECTED BY THE ENGINEER IN THE FIELD.

THE LOCATIONS OF SILT FENCE, SALVAGED TOPSOIL, SEEDING MIX #20, SEEDING TEMPORARY, MULCH AND TEMPORARY DITCH CHECKS ARE APPROXIMATE. LOCATIONS ARE TO BE DETERMINED BY THE ENGINEER IN THE FIELD.

REMOVAL OF ASPHALTIC SURFACES WHERE AN ABUTTING ASPHALTIC SURFACE IS TO REMAIN IN PLACE SHALL REQUIRE A SAWCUT MEETING THE APPROVAL OF THE ENGINEER IN THE FIELD.

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

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

BEARINGS ON THE PLAN ARE REFERENCED TO THE WISCONSIN COUNTY COORDINATE SYSTEM, CRAWFORD COUNTY.

EROSION CONTROL DEVICES SHALL BE INSTALLED PRIOR TO CONSTRUCTION. EROSION CONTROL ITEMS ON THE PLAN ARE AT SUGGESTED LOCATIONS. EXACT LOCATIONS AND DIMENSIONS WILL BE DETERMINED BY THE ENGINEER IN THE FIELD. ALL EROSION CONTROL DEVICES SHALL BE MAINTAINED UNTIL SUCH TIME AS THE ENGINEER IN THE FIELD DEEMS THE DEVICES NO LONGER NECESSARY.

4-INCH ASPHALTIC SURFACE SHALL BE PLACED WITH A 2 1/4-INCH LOWER LAYER AND A 1 3/4-INCH UPPER LAYER. THE NOMINAL SIZE OF AGGREGATE USED FOR THE LOWER LAYER SHALL BE 19.0 MM AND THE UPPER LAYER SHALL BE 12.5 MM.

EXACT DIMENSIONS OF ANY PART ITEM CONTAINING THE WORK "RIPRAP" SHALL BE DETERMINED BY THE ENGINEER IN THE FIELD.

DESIGNER

TEAM ENGINEERING, INC.
210 GUARD STREET
WAUZEKA, WI 53826
ATTN: JEREMY KRACHY, P.E.
PH: (608) 875-5075
jkrachey@teamenginc.com

DNR CONTACT

DEPARTMENT OF NATURAL RESOURCES
3550 MORMON COULEE ROAD
LA CROSSE, WI 54601
ATTN: KAREN KALVELAGE
ENVIRONMENTAL ANALYSIS & REVIEW SPECIALIST
PH: (608) 785-9115
karen.kalvelage@wisconsin.gov

MUNICIPALITY CONTACT

CRAWFORD COUNTY HIGHWAY DEPARTMENT
21515 STATE HWY 27
SENECA, WI 54654
ATTN: DENNIS PELOCK, COMMISSIONER
PH: (608) 734-9500
ccommish@centurytel.net

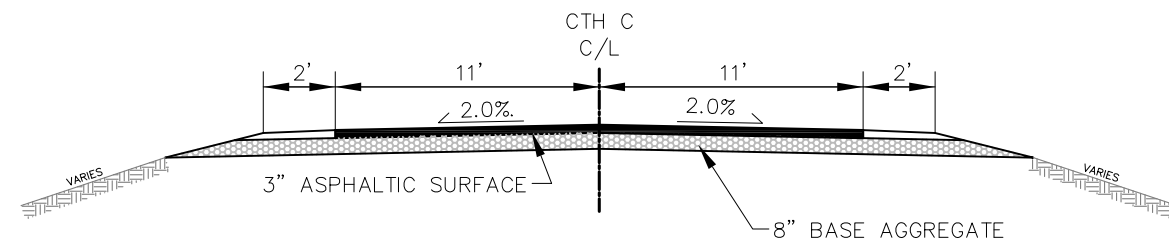
UTILITIES

SCENIC RIVERS ENERGY COOPERATIVE
231 N. SHERIDAN ST.
LANCASTER, WI 53813
ATTN: ANDY KILCOYNE
PH: (608) 723-2121 EXT. 568
akilcoyne@srec.net

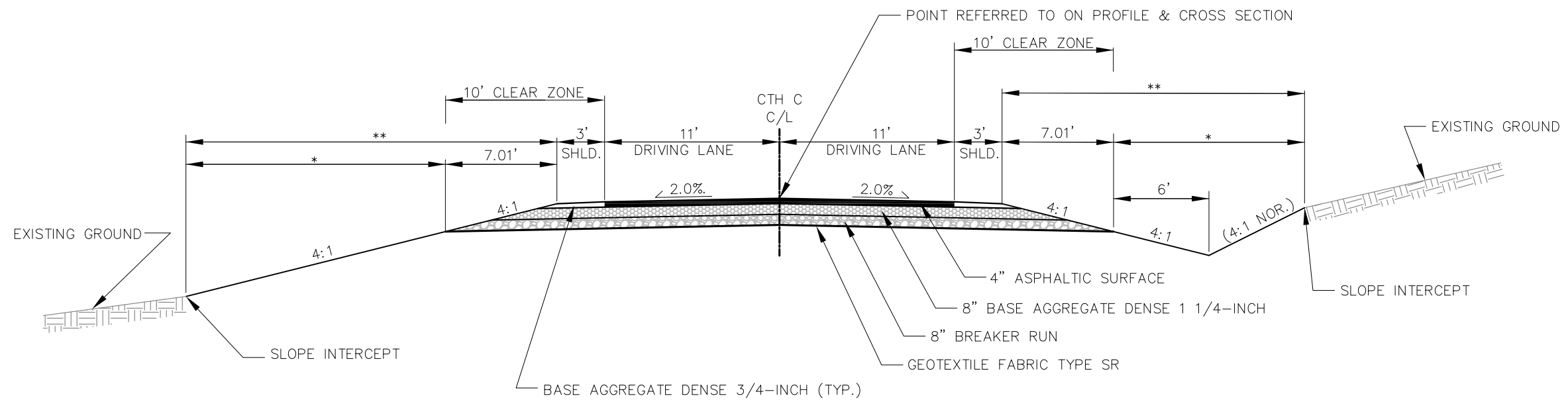
RICHLAND GRANT TELEPHONE COOP
P.O. BOX 67
BLUE RIVER, WI 53518
ATTN: JOHN BARTZ
PH: (608) 537-2461
jbartz@mw.t.net

* - NOT A MEMBER OF DIGGER'S HOTLINE.

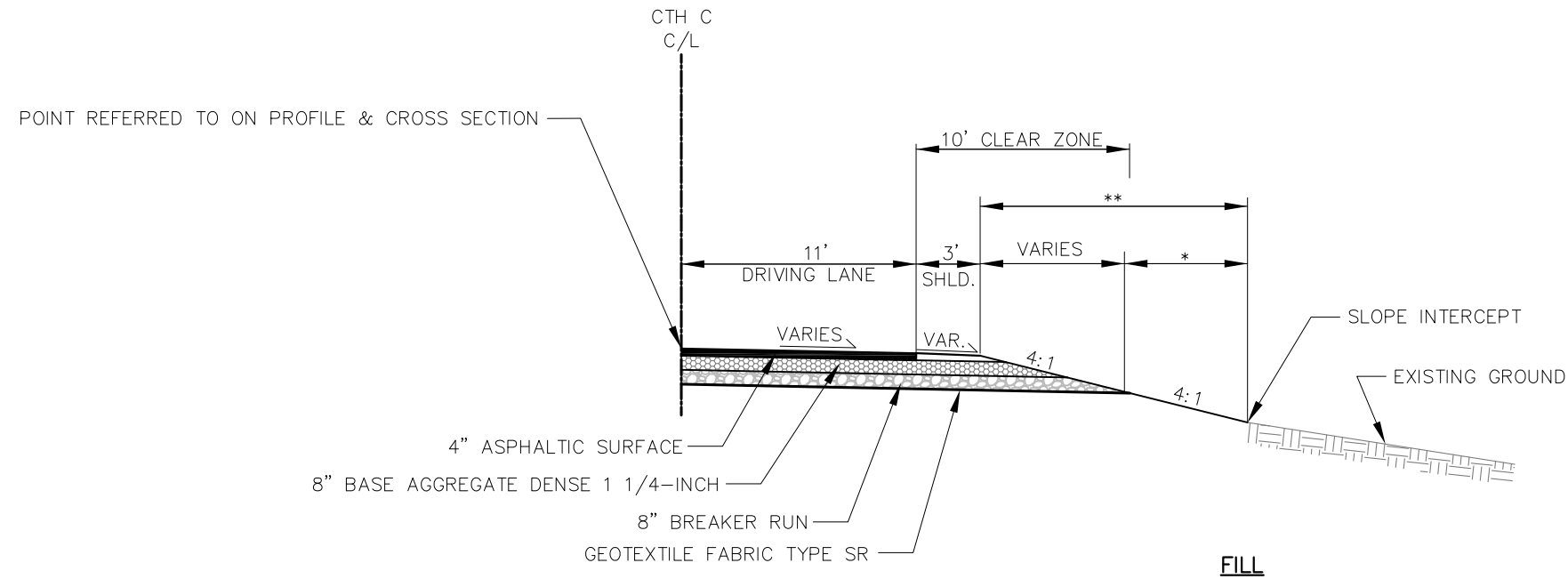


**TYPICAL EXISTING SECTION**

CTH C

FILL**TYPICAL FINISHED SECTION**CTH C
STA 14+58 - STA. 15+00CUT

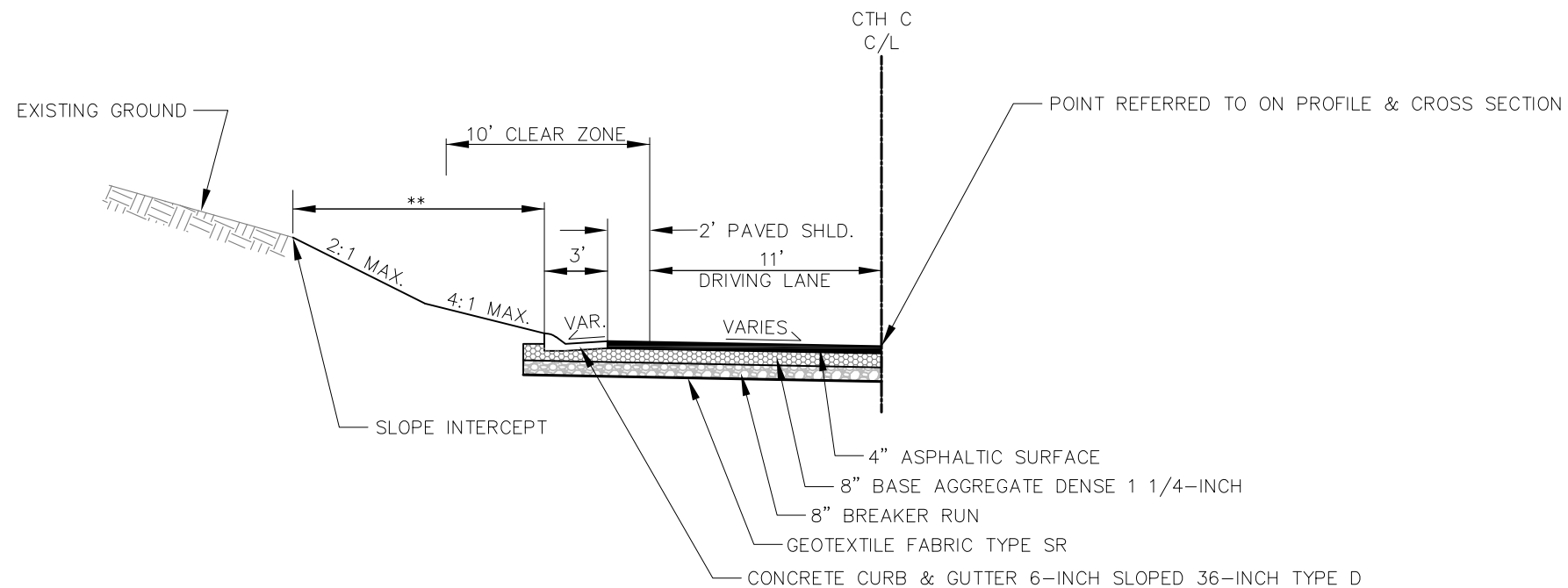
- ** LIMITS OF SEEDING, TEMPORARY SEEDING & FERTILIZER
* LIMITS OF SALVAGED TOPSOIL, EROSION MAT AND MULCH



TYPICAL FINISHED SUPERELEVATED HALF SECTION

CTH C
STA. 12+00 – STA. 12+36, RT.

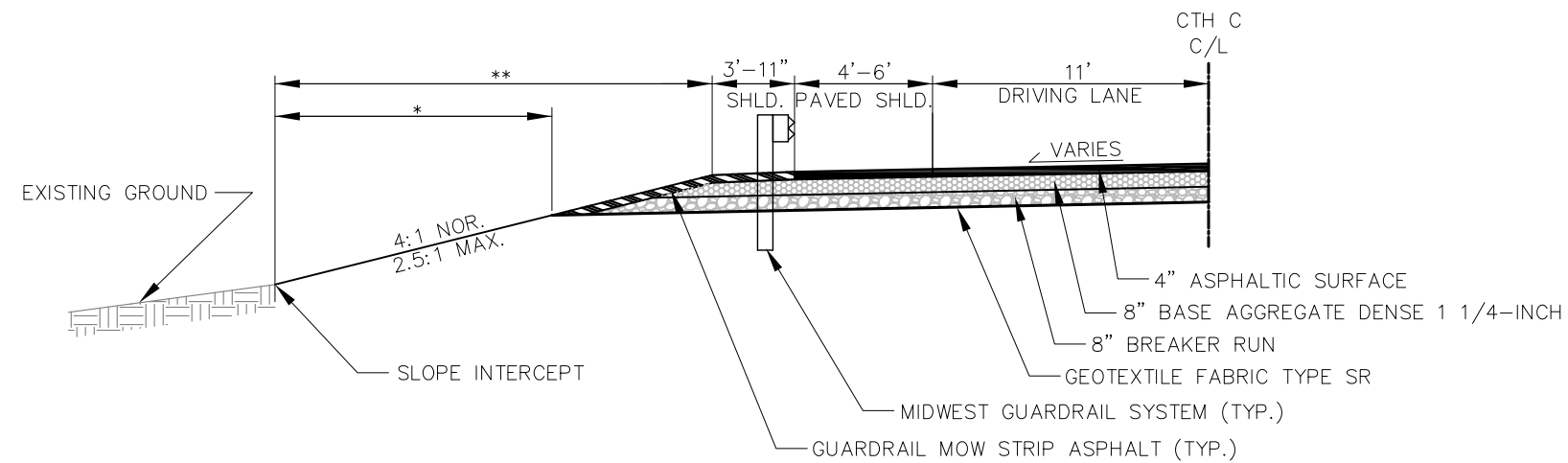
- ** LIMITS OF SEEDING, TEMPORARY SEEDING & FERTILIZER
- * LIMITS OF SALVAGED TOPSOIL, EROSION MAT AND MULCH



TYPICAL FINISHED SUPERELEVATED WITH CURB HALF SECTION

CTH C
STA. 12+25 – STA. 13+27, LT.

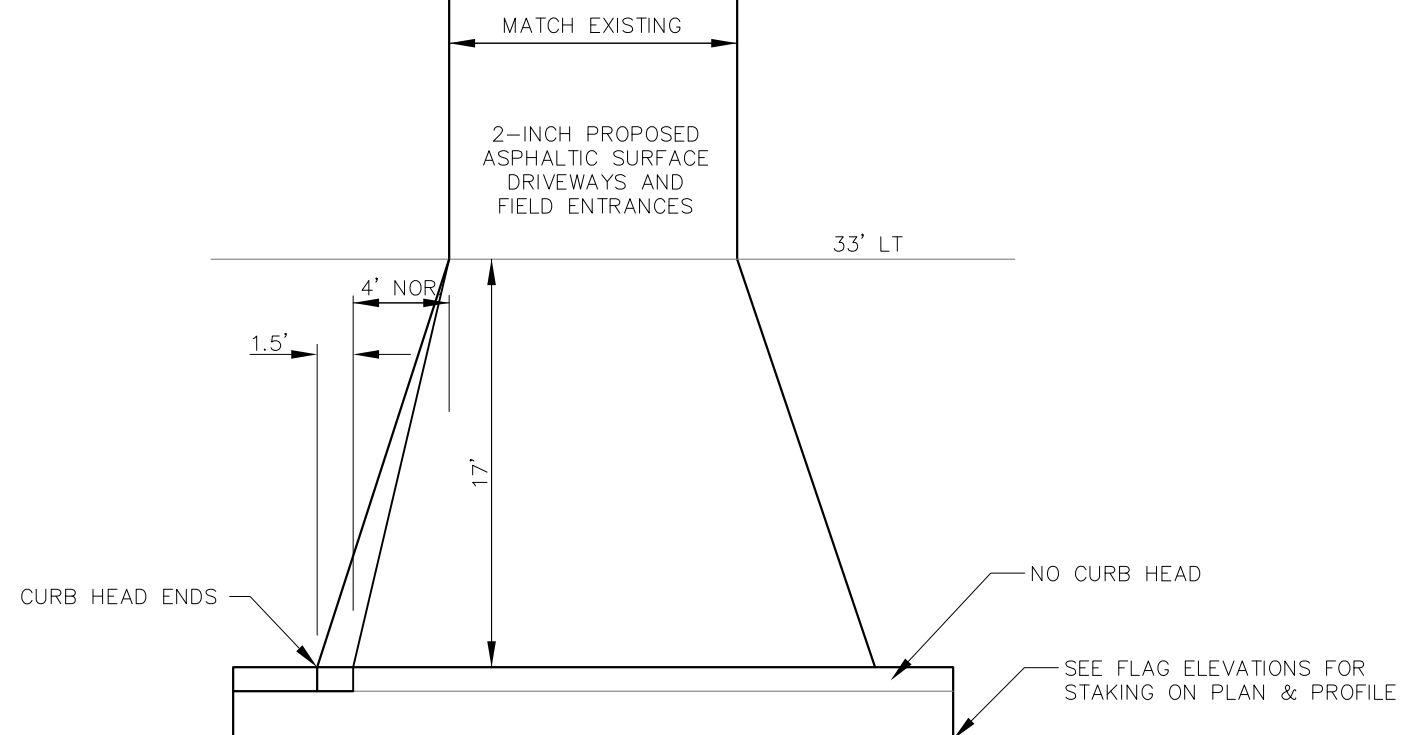
- ** LIMITS OF SEEDING, TEMPORARY SEEDING, FERTILIZER, SALVAGED TOPSOIL & EROSION CONTROL



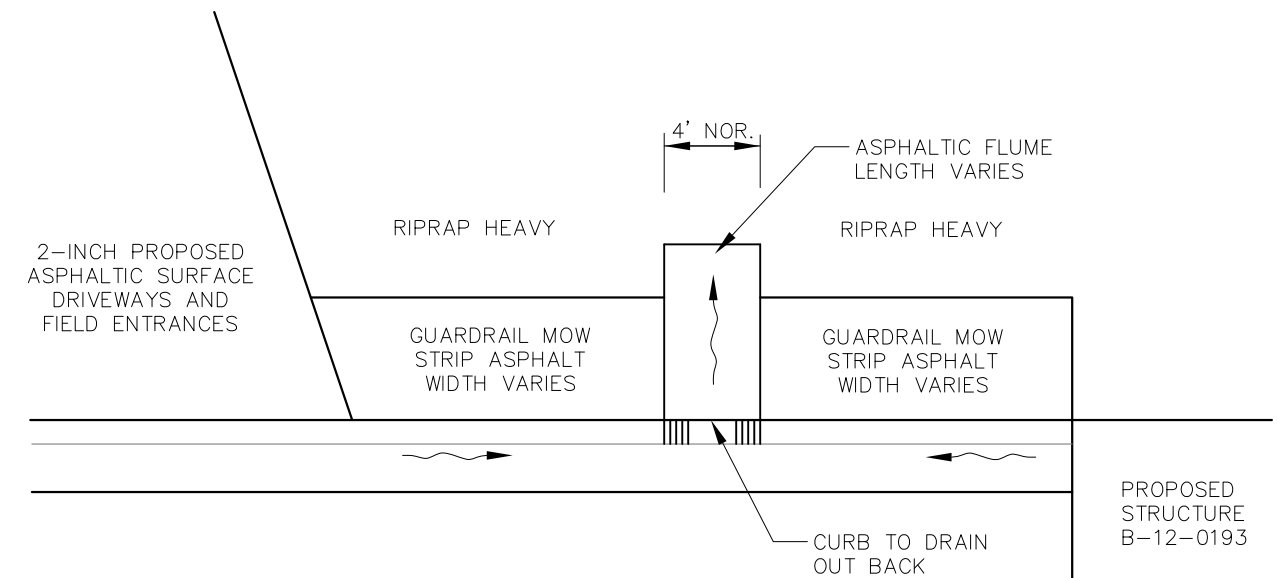
TYPICAL FINISHED BEAM GUARD HALF SECTION

CTH C
 STA. 12+36 – STA. 13+27, RT.
 STA. 13+16 – STA. 13+27, LT.
 STA. 13+68 – STA. 14+58, RT.
 STA. 13+68 – STA. 14+58, LT.

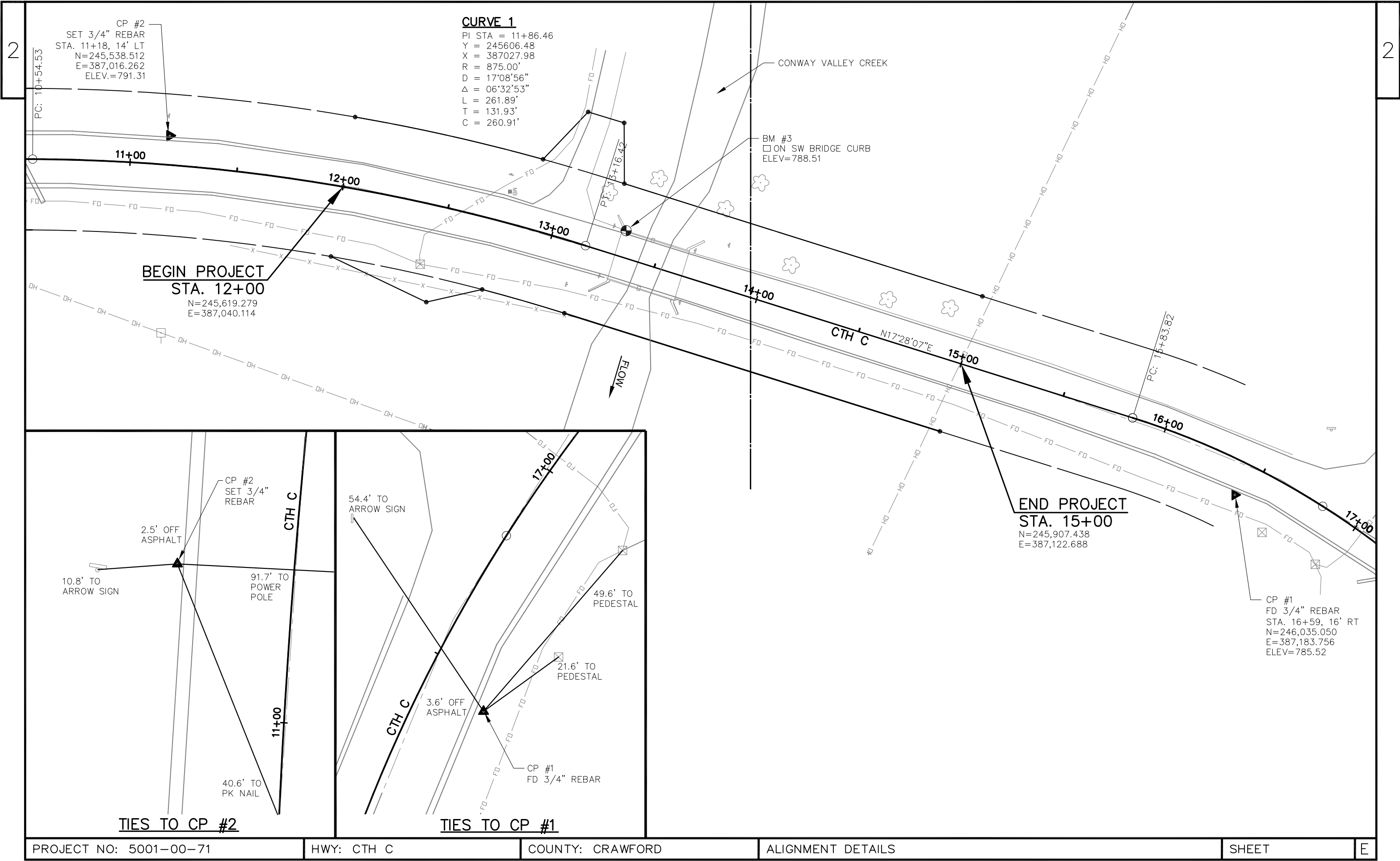
** LIMITS OF SEEDING, TEMPORARY
SEEDING & FERTILIZER
 * LIMITS OF SALVAGED TOPSOIL,
EROSION MAT AND MULCH



RURAL DRIVEWAY DETAIL WITH CURB & GUTTER



ASPHALTIC FLUME DETAIL BEHIND CURB & GUTTER



Estimate Of Quantities

5001-00-71

Line	Item	Item Description	Unit	Total	Qty
0002	201.0105	Clearing **P**	STA	3.000	3.000
0004	201.0205	Grubbing **P**	STA	3.000	3.000
0006	203.0600.S	Removing Old Structure Over Waterway With Minimal Debris (station) 01. 13+47	LS	1.000	1.000
0008	204.0170	Removing Fence	LF	125.000	125.000
0010	205.0100	Excavation Common **P**	CY	535.000	535.000
0012	206.1000	Excavation for Structures Bridges (structure) 01. B-12-0193	LS	1.000	1.000
0014	210.1500	Backfill Structure Type A	TON	560.000	560.000
0016	213.0100	Finishing Roadway (project) 01. 5001-00-71	EACH	1.000	1.000
0018	305.0110	Base Aggregate Dense 3/4-Inch	TON	60.000	60.000
0020	305.0120	Base Aggregate Dense 1 1/4-Inch	TON	500.000	500.000
0022	311.0110	Breaker Run	TON	570.000	570.000
0024	450.4000	HMA Cold Weather Paving	TON	190.000	190.000
0026	455.0605	Tack Coat	GAL	45.000	45.000
0028	465.0105	Asphaltic Surface	TON	190.000	190.000
0030	465.0120	Asphaltic Surface Driveways and Field Entrances	TON	10.000	10.000
0032	465.0315	Asphaltic Flumes	SY	2.000	2.000
0034	502.0100	Concrete Masonry Bridges	CY	206.000	206.000
0036	502.3200	Protective Surface Treatment	SY	170.000	170.000
0038	505.0400	Bar Steel Reinforcement HS Structures	LB	5,416.000	5,416.000
0040	505.0600	Bar Steel Reinforcement HS Coated Structures	LB	20,270.000	20,270.000
0042	513.4061	Railing Tubular Type M (structure) 01. B-12-0193	LF	85.000	85.000
0044	516.0500	Rubberized Membrane Waterproofing	SY	12.000	12.000
0046	550.1100	Piling Steel HP 10-Inch X 42 Lb	LF	470.000	470.000
0048	601.0557	Concrete Curb & Gutter 6-Inch Sloped 36-Inch Type D	LF	102.000	102.000
0050	606.0300	Riprap Heavy	CY	160.000	160.000
0052	612.0406	Pipe Underdrain Wrapped 6-Inch	LF	200.000	200.000
0054	614.0396	Guardrail Mow Strip Asphalt	SY	280.000	280.000
0056	614.2350	MGS Guardrail Short Radius	LF	28.000	28.000
0058	614.2500	MGS Thrie Beam Transition	LF	126.000	126.000
0060	614.2610	MGS Guardrail Terminal EAT	EACH	3.000	3.000
0062	614.2630	MGS Guardrail Short Radius Terminal	EACH	1.000	1.000
0064	618.0100	Maintenance And Repair of Haul Roads (project) 01. 5001-00-71	EACH	1.000	1.000
0066	619.1000	Mobilization	EACH	1.000	1.000
0068	624.0100	Water	MGAL	6.000	6.000
0070	625.0500	Salvaged Topsoil **P**	SY	600.000	600.000
0072	627.0200	Mulching **P**	SY	310.000	310.000
0074	628.1504	Silt Fence	LF	610.000	610.000

Estimate Of Quantities

5001-00-71

Line	Item	Item Description	Unit	Total	Qty
0076	628.1520	Silt Fence Maintenance	LF	1,220.000	1,220.000
0078	628.1905	Mobilizations Erosion Control	EACH	5.000	5.000
0080	628.1910	Mobilizations Emergency Erosion Control	EACH	2.000	2.000
0082	628.2008	Erosion Mat Urban Class I Type B	SY	260.000	260.000
0084	628.7504	Temporary Ditch Checks	LF	20.000	20.000
0086	629.0210	Fertilizer Type B **P**	CWT	0.500	0.500
0088	630.0120	Seeding Mixture No. 20 **P**	LB	20.000	20.000
0090	630.0200	Seeding Temporary **P**	LB	10.000	10.000
0092	633.5100	Markers Row	EACH	11.000	11.000
0094	634.0614	Posts Wood 4x6-Inch X 14-FT	EACH	4.000	4.000
0096	637.2230	Signs Type II Reflective F	SF	12.000	12.000
0098	638.2602	Removing Signs Type II	EACH	6.000	6.000
0100	638.3000	Removing Small Sign Supports	EACH	6.000	6.000
0102	642.5001	Field Office Type B	EACH	1.000	1.000
0104	643.0420	Traffic Control Barricades Type III	DAY	1,377.000	1,377.000
0106	643.0705	Traffic Control Warning Lights Type A	DAY	2,106.000	2,106.000
0108	643.0900	Traffic Control Signs	DAY	1,215.000	1,215.000
0110	643.5000	Traffic Control	EACH	1.000	1.000
0112	645.0111	Geotextile Type DF Schedule A	SY	60.000	60.000
0114	645.0120	Geotextile Type HR	SY	330.000	330.000
0116	645.0135	Geotextile Type SR	SY	1,150.000	1,150.000
0118	646.1020	Marking Line Epoxy 4-Inch	LF	1,200.000	1,200.000
0120	650.4500	Construction Staking Subgrade	LF	259.000	259.000
0122	650.5000	Construction Staking Base	LF	259.000	259.000
0124	650.5500	Construction Staking Curb Gutter and Curb & Gutter	LF	102.000	102.000
0126	650.6500	Construction Staking Structure Layout (structure) 01. B-12-0193	LS	1.000	1.000
0128	650.9910	Construction Staking Supplemental Control (project) 01. 5001-00-71	LS	1.000	1.000
0130	650.9920	Construction Staking Slope Stakes	LF	259.000	259.000
0132	690.0150	Sawing Asphalt	LF	44.000	44.000
0134	715.0502	Incentive Strength Concrete Structures	DOL	2,000.000	2,000.000

CLEARING & GRUBBING <table><tr><th>STATION—STATION</th><th>LOCATION</th><th>**P** (201.0105) CLEARING (STA)</th><th>**P** (201.0205) GRUBBING (STA)</th></tr><tr><td>12+00—15+00</td><td>LT & RT</td><td>3</td><td>3</td></tr><tr><td colspan="2">TOTALS</td><td>3</td><td>3</td></tr></table>				STATION—STATION	LOCATION	**P** (201.0105) CLEARING (STA)	**P** (201.0205) GRUBBING (STA)	12+00—15+00	LT & RT	3	3	TOTALS		3	3	EARTHWORK SUMMARY <table><tr><th>STATION—STATION</th><th>LOCATION</th><th>**P** (205.0100) EXCAVATION COMMON (1) (CY)</th><th>UNEXPANDED FILL (CY)</th><th>EXPANDED FILL (2) (20%) (CY)</th><th>MASS ORDINATE +/- (3) (CY)</th><th>WASTE (CY)</th></tr><tr><td>12+00—13+27</td><td>CTH C</td><td>242</td><td>66</td><td>79</td><td>164</td><td>164</td></tr><tr><td>13+68—15+00</td><td>CTH C</td><td>283</td><td>42</td><td>51</td><td>236</td><td>236</td></tr><tr><td colspan="2">TOTALS</td><td>525</td><td>108</td><td>130</td><td></td><td>400</td></tr></table>							STATION—STATION	LOCATION	**P** (205.0100) EXCAVATION COMMON (1) (CY)	UNEXPANDED FILL (CY)	EXPANDED FILL (2) (20%) (CY)	MASS ORDINATE +/- (3) (CY)	WASTE (CY)	12+00—13+27	CTH C	242	66	79	164	164	13+68—15+00	CTH C	283	42	51	236	236	TOTALS		525	108	130		400																						
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REMOVING FENCE <table><tr><th>STATION—STATION</th><th>LOCATION</th><th>(204.0170) REMOVING FENCE (LF)</th></tr><tr><td>12+00—13+25</td><td>CTH C, RT</td><td>125</td></tr><tr><td colspan="2">TOTALS</td><td>125</td></tr></table>				STATION—STATION	LOCATION	(204.0170) REMOVING FENCE (LF)	12+00—13+25	CTH C, RT	125	TOTALS		125	NOTES: 1.) SALVAGED/UNUSABLE PAVEMENT IS INCLUDED IN CUT 2.) AVAILABLE MATERIAL = CUT 3.) EXPANDED FILL FACTOR 1.20: EXPANDED FILL =(UNEXPANDED FILL)*1.20 4.) THE MASS ORDINATE +OR– QTY CALCULATED FOR THE DIVISION. PLUS QUANTITY INDICATED AN EXCESS OF MATERIAL WITHIN THE CATEGORY. MINUS INDICATES A SHORTAGE OF MATERIAL WITHIN THE CATEGORY. **P** PAY PLAN QUANTITY																																																											
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12+00—13+25	CTH C, RT	125																																																																						
TOTALS		125																																																																						
BASE AGGREGATE DENSE <table><tr><th>STATION—STATION</th><th>LOCATION</th><th>(305.0110) 3/4–INCH (TON)</th><th>(305.0120) 1 1/4–INCH (TON)</th></tr><tr><td>12+00–13+27</td><td>CTH C</td><td>17</td><td>235</td></tr><tr><td>13+68–15+00</td><td>CTH C</td><td>30</td><td>250</td></tr><tr><td>13+00</td><td>P.E., LT</td><td>13</td><td>15</td></tr><tr><td colspan="2">TOTALS</td><td>60</td><td>500</td></tr></table>				STATION—STATION	LOCATION	(305.0110) 3/4–INCH (TON)	(305.0120) 1 1/4–INCH (TON)	12+00–13+27	CTH C	17	235	13+68–15+00	CTH C	30	250	13+00	P.E., LT	13	15	TOTALS		60	500	ASPHALTIC ITEMS <table><tr><th>STATION—STATION</th><th>LOCATION</th><th>(450.4000) HMA COLD WEATHER PAVING (TON)</th><th>(455.0605) TACK COAT (GAL)</th><th>(465.0105) ASPHALTIC SURFACE (TON)</th><th>(465.0120) ASPHALTIC SURFACE DW & FE (TON)</th><th>(465.0315) ASPHALTIC FLUMES (SY)</th></tr><tr><td>12+00–13+27</td><td>CTH C</td><td>86</td><td>20</td><td>86</td><td>–</td><td>–</td></tr><tr><td>13+68–15+00</td><td>CTH C</td><td>104</td><td>25</td><td>104</td><td>–</td><td>–</td></tr><tr><td>13+00</td><td>P.E., LT</td><td>–</td><td>–</td><td>–</td><td>10</td><td>–</td></tr><tr><td>13+20</td><td>16', LT</td><td>–</td><td>–</td><td>–</td><td>–</td><td>2</td></tr><tr><td colspan="2">TOTALS</td><td>190</td><td>45</td><td>190</td><td>10</td><td>2</td></tr></table>							STATION—STATION	LOCATION	(450.4000) HMA COLD WEATHER PAVING (TON)	(455.0605) TACK COAT (GAL)	(465.0105) ASPHALTIC SURFACE (TON)	(465.0120) ASPHALTIC SURFACE DW & FE (TON)	(465.0315) ASPHALTIC FLUMES (SY)	12+00–13+27	CTH C	86	20	86	–	–	13+68–15+00	CTH C	104	25	104	–	–	13+00	P.E., LT	–	–	–	10	–	13+20	16', LT	–	–	–	–	2	TOTALS		190	45	190	10	2
STATION—STATION	LOCATION	(305.0110) 3/4–INCH (TON)	(305.0120) 1 1/4–INCH (TON)																																																																					
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TOTALS		190	45	190	10	2																																																																		
BREAKER RUN <table><tr><th>STATION—STATION</th><th>LOCATION</th><th>(305.0120) 1 1/4–INCH (TON)</th></tr><tr><td>12+00–13+27</td><td>CTH C</td><td>265</td></tr><tr><td>13+68–15+00</td><td>CTH C</td><td>305</td></tr><tr><td colspan="2">TOTALS</td><td>570</td></tr></table>				STATION—STATION	LOCATION	(305.0120) 1 1/4–INCH (TON)	12+00–13+27	CTH C	265	13+68–15+00	CTH C	305	TOTALS		570	GUARDRAIL MOW STRIP ASPHALT <table><tr><th>STATION—STATION</th><th>LOCATION</th><th>(614.0396) (SY)</th></tr><tr><td>12+36–13+27</td><td>CTH C, RT</td><td>89</td></tr><tr><td>13+16–13+27</td><td>CTH C, LT</td><td>13</td></tr><tr><td>13+68–14+58</td><td>CTH C, RT</td><td>89</td></tr><tr><td>13+68–14+58</td><td>CTH C, LT</td><td>89</td></tr><tr><td colspan="2">TOTALS</td><td>280</td></tr></table>							STATION—STATION	LOCATION	(614.0396) (SY)	12+36–13+27	CTH C, RT	89	13+16–13+27	CTH C, LT	13	13+68–14+58	CTH C, RT	89	13+68–14+58	CTH C, LT	89	TOTALS		280																																
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TOTALS		102																																																																						
NOTE: UNLESS NOTED, ALL ITEMS ARE IN CATEGORY 0010.																																																																								
PROJECT NO: 5001–00–71		HWY: CTH C		COUNTY: CRAWFORD		MISCELLANEOUS QUANTITIES			SHEET		E																																																													

MGS THRIE BEAM TRANSITION
MGS GUARDRAIL TERMINAL EAT

STATION—STATION	LOCATION	(614.2500) (LF)	(614.2610) (EACH)
12+87—13+27	MAINLINE, RT	40	—
12+87	MAINLINE, RT	—	1
13+21—13+27	MAINLINE, LT	6	—
13+68—14+08	MAINLINE, RT	40	—
14+08	MAINLINE, RT	—	1
13+68—14+08	MAINLINE, LT	40	—
14+08	MAINLINE, LT	—	1
TOTALS		126	3

MGS GUARDRAIL SHORT RADIUS
MGS GUARDRAIL SHORT RADIUS TERMINAL

STATION—STATION	LOCATION	(614.2350) (LF)	(614.2630) (EACH)
13+13—13+21	MAINLINE, LT (8' RADIUS)	28	—
13+13	MAINLINE, LT	—	1
TOTALS		28	1

MOBILIZATIONS EROSION CONTROL

PROJECT	(628.1905) MOBILIZATIONS EROSION CONTROL (EACH)	(628.1910) MOBILIZATIONS EMERGENCY EROSION CONTROL (EACH)
5001—00—71	5	2
TOTALS		5 2

TEMPORARY DITCH CHECKS

STATION	LOCATION	(628.7504) TEMPORARY DITCH CHECKS (LF)
	UNDISTRUBED	20
TOTALS		20

FINISHING ITEMS

STATION—STATION	LOCATION	**P** (625.0500) SALVAGED TOPSOIL (SY)	**P** (627.0200) MULCHING (SY)	(629.0210) FERTILIZER TYPE B (CWT)	**P** (630.0120) SEEDING MIXTURE NO. 20 (LB)	**P** (630.0200) SEEDING TEMPORARY (LB)
12+00—13+27	MAINLINE	313	136	0.3	10	5
13+68—15+00	MAINLINE	287	174	0.2	10	5
TOTALS		600	310	0.5	20	10

P PAY PLAN QUANTITY

EROSION MAT URBAN CLASS I TYPE B

STATION—STATION	LOCATION	(628.2008) (SY)
12+00—13+27	MAINLINE, LT	157
12+00—13+27	MAINLINE, RT	31
13+68—15+00	MAINLINE, LT	32
13+68—15+00	MAINLINE, RT	40
TOTALS		260

MARKERS ROW

STATION	LOCATION	Y	X	(633.5100) (EACH)
12+00.00	33.00' LT	245624.921	387007.600	1
12+00.00	33.00' RT	245613.636	387072.628	1
12+50.00	45.00' RT	245658.058	387093.891	1
12+75.00	33.00' RT	245684.132	387087.999	1
12+86.57	33.00' LT	245712.532	387027.310	1
13+00.00	60.00' LT	245733.546	387005.237	1
13+16.41	60.00' LT	245750.325	387010.345	1
13+16.42	33.00' RT	245722.420	387099.059	1
13+25.00	33.00' LT	245750.416	387038.679	1
15+00.00	33.00' LT	245917.344	387091.210	1
15+00.00	33.00' RT	245897.532	387154.166	1
TOTALS				11

SILT FENCE & SILT FENCE MAINTENANCE

STATION—STATION	LOCATION	(628.1504) (LF)	(628.1520) (LF)
12+00—13+27	MAINLINE	250	500
13+68—15+00	MAINLINE	360	720
TOTALS		610	1220

REMOVING SIGNS TYPE II & REMOVING SMALL SIGN SUPPORTS

STATION	LOCATION	DESCRIPTION	(638.2602) (EACH)	(638.3000) (EACH)
13+13	RT	15 TON	1	1
13+27	LT	W5-52	1	1
13+27	RT	W5-52	1	1
13+67	LT	W5-52	1	1
13+67	RT	W5-52	1	1
13+80	LT	15 TON	1	1
TOTALS			6	6

TRAFFIC CONTROL

LOCATION	SIGN CODE	MESSAGE	SERVICE PERIOD DAYS	(643.0420) BARRICADES (DAY)	(643.0705) LIGHTS TYPE A (DAY)	(643.0900) SIGNS (DAY)
CTH C	-	-	81	1134	1620	-
CTH C	R11-2B	BRIDGE OUT	81	-	-	162
CTH C	R11-4	RD CLOSED THRU TRAFFIC	81	-	-	162
CTH C	W20-3	RD CLOSED AHEAD	81	-	-	162
CTH C	W20-3C	RD CLOSED 1000 FT	81	-	-	162
CTH C	W20-3D	RD CLOSED 500 FT	81	-	-	162
CTH C/STH 27	-	-	81	81	162	-
CTH C/STH 27	R11-3	RD CLOSED XX MILES	81	-	-	81
CTH C/CTH B	-	-	81	81	162	-
CTH C/CTH B	R11-3	RD CLOSED XX MILES	81	-	-	81
McMANUS RD	W20-3	RD CLOSED AHEAD	81	-	-	81
LATHAM RD	W20-3	RD CLOSED AHEAD	81	-	-	81
CTH C/ZEHRER DR	R11-3	RD CLOSED XX MILES	81	81	162	81
TOTALS				1377	2106	1215

CONSTRUCTION STAKING

STATION-STATION	LOCATION	(650.4500) SUBGRADE (LF)	(650.5000) BASE (LF)	(650.5500) CURB & GUTTER (LF)	(650.6500) STRUCTURE LAYOUT (LS)	(650.9910) SUPPLEMENTAL CONTROL (LS)	(650.9920) SLOPE STAKING (LF)
12+00-13+27	CTH C	127	127	102	-	0.5	127
13+68-15+00	CTH C	132	132	-	-	0.5	132
TOTALS		259	259	102	1 *	1	259
* CATEGORY 0020							

PERMANENT SIGNING

STATION	LOCATION	SIGN CODE	(634.0614) POSTS WOOD 4X6-INCH X 14-FT (EACH)	(637.2230) SIGNS TYPE II REFLECTIVE TYPE F (SF)
13+26	LT	W5-52	1	3
13+26	RT	W5-52	1	3
13+69	LT	W5-52	1	3
13+69	RT	W5-52	1	3
TOTALS			4	12.00

GEOTEXTILE TYPE SR

STATION-STATION	LOCATION	(645.0135) (SY)
12+00-13+27	MAINLINE	531
13+68-15+00	MAINLINE	619
TOTALS		1150

PAVEMENT MARKING

STATION-STATION	LOCATION	(646.1020) MARKING LINE EPOXY 4-INCH (LF)
12+00-15+00	WHITE EDGE LINE, LT	300
12+00-15+00	WHITE EDGE LINE, RT	300
12+00-15+00	DOUBLE YELLOW, MAINLINE	600
TOTAL		1200

SAWING ASPHALT

STATION	LOCATION	(690.0150) (LF)
12+00	CTH C	22
15+00	CTH C	22
TOTALS		44

CONVENTIONAL ABBREVIATIONS

ACCESS RIGHTS	AR	REFERENCE LINE	R/L
ACRES	AC.	RELEASE OF RIGHTS	ROR
AND OTHERS	ET. AL.	REMAINING	REM.
CENTERLINE	C/L	RIGHT-OF-WAY	R/W
CERTIFIED SURVEY MAP	CSM	SECTION	SEC.
CORNER	COR.	STATION	STA.
DOCUMENT	DOC.	TEMPORARY LIMITED EASEMENT	TLE
EASEMENT	EASE.	VOLUME	V.
HIGHWAY EASEMENT	H.E.		
LAND CONTRACT	LC		
MONUMENT	MON.		
PAGE	P.		
PERMANENT LIMITED EASEMENT	PLE		
PROPERTY LINE	P.L.		
RECORDED AS	(100')		

CONVENTIONAL SYMBOLS

FOUND IRON PIPE/PIN	⊙	PROPOSED R/W LINE	---
R/W MONUMENT (SET)	●	EXISTING H.E. LINE	---
NON-MONUMENTED R/W POINT	○	PROPERTY LINE	---
SIGN	⊕	LOT & TIE LINES	---
SECTION CORNER MONUMENT	⊕	SLOPE INTERCEPT	---
SECTION CORNER SYMBOL	⊕	CORPORATE LIMITS	---
FEE (HATCH VARIES)	⊕	ACCESS RESTRICTED (BY PREVIOUS ACQUISITION/CONTROL)	---
TEMPORARY LIMITED EASEMENT	⊕	ACCESS RESTRICTED (BY ACQUISITION/CONTROL)	---
PERMANENT LIMITED EASEMENT	⊕	NO ACCESS (BY STATUTORY AUTHORITY)	---
R/W BOUNDARY POINT	⊕	SECTION LINE	---
PARCEL NUMBER	⊕	QUARTER LINE	---
UTILITY INTEREST	⊕	SIXTEENTH LINE	---
SIGN NUMBER (OFF PREMISE)	⊕	EXISTING CENTERLINE	---
BUILDING	⊕	PROPOSED REFERENCE LINE	---

CONVENTIONAL UTILITY SYMBOLS

WATER	W	NON COMPENSABLE	COMPENSABLE
GAS	G		
TELEPHONE	T		
OVERHEAD	OH		
TRANSMISSION LINES	E		
ELECTRIC	TV		
CABLE TELEVISION	FD		
FIBER OPTIC	SAN		
SANITARY SEWER	SS		
STORM SEWER			

POSITIONS SHOWN ON THIS PLAT ARE WISCONSIN COORDINATE REFERENCE SYSTEM COORDINATES (WISCRS), CRAWFORD COUNTY, NAD 83 (2011) IN U.S. SURVEY FEET. VALUES SHOWN 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" IRON REBARS), UNLESS OTHERWISE NOTED, AND WILL BE PLACED PRIOR TO THE COMPLETION OF THE PROJECT.

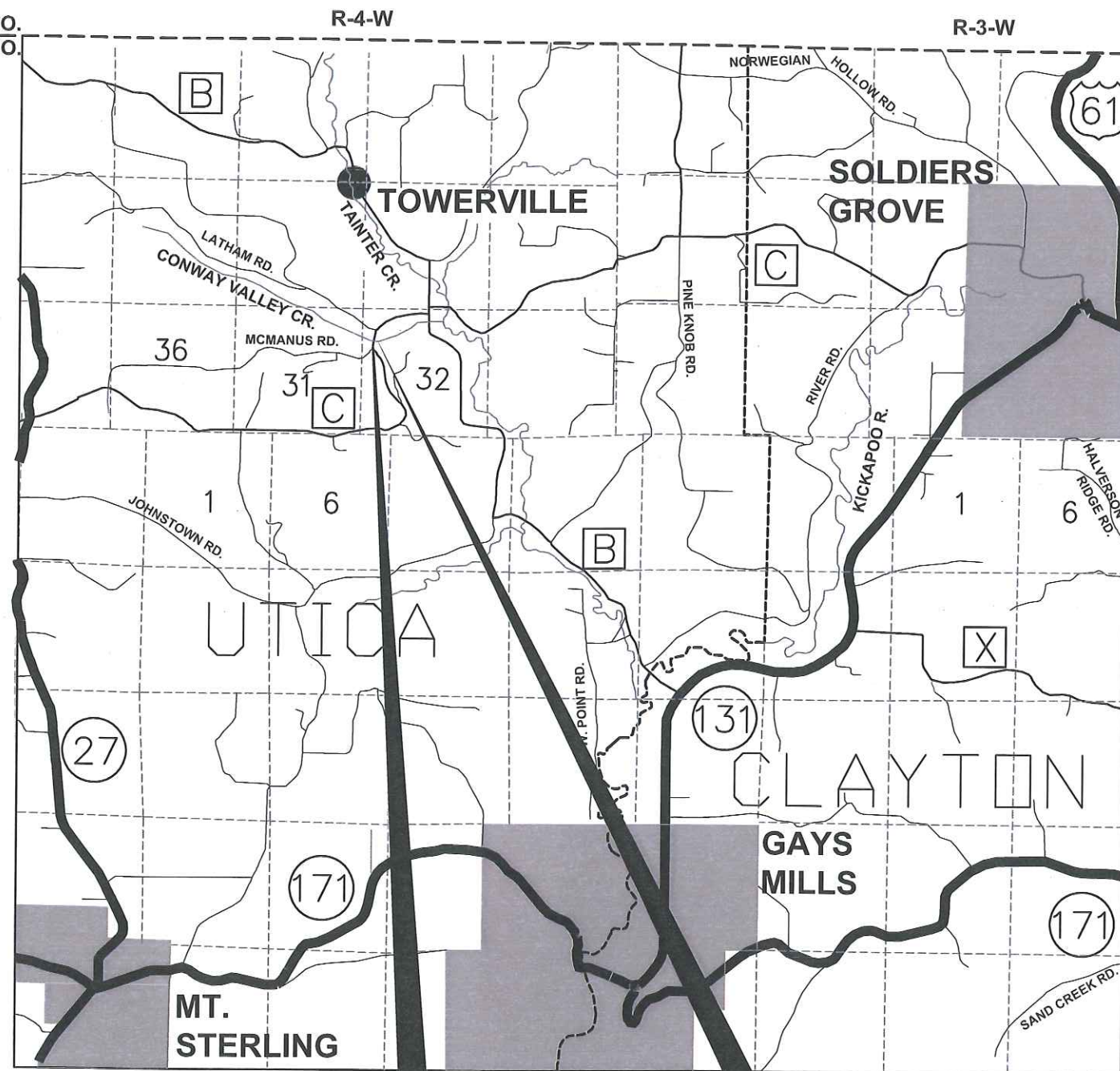
RIGHT-OF-WAY BOUNDARIES ARE DEFINED WITH COURSES OF THE PERIMETER OF THE HIGHWAY LANDS REFERENCED TO THE U.S. PUBLIC LAND SURVEY SYSTEM OR OTHER "SURVEYS" OF PUBLIC RECORD.

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

BASIS OF EXISTING RIGHT-OF-WAY FOR CTH C WAS BASED ON THE CENTERLINE OF EXISTING PAVEMENT AND WIS STATUE 82.31(2).

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

VERNON CO.
CRAWFORD CO.



BEGIN RELOCATION ORDER
STA 12+00.00

1122.71' NORTH AND 283.91' EAST OF
THE WEST QUARTER CORNER OF
SECTION 32, T11N, R4W
Y = 245619.279
X = 387040.114

END RELOCATION ORDER
STA 15+00.00

1410.87' NORTH AND 366.49' EAST OF
THE WEST QUARTER CORNER OF
SECTION 32, T11N, R4W
Y = 245907.438
X = 387122.688

LAYOUT
SCALE 0 0.5 MI. 1 MI.

TOTAL NET LENGTH OF CENTERLINE = 0.057 MI.

R/W PROJECT NUMBER 5001-00-01	SHEET NUMBER 4.01	TOTAL SHEETS 2
FEDERAL PROJECT NUMBER		
PLAT OF RIGHT-OF-WAY REQUIRED FOR STH 35 - CTH B (CONWAY VALLEY CREEK BRIDGE B-12-0193)		
CTH C CRAWFORD COUNTY		
CONSTRUCTION PROJECT NUMBER 5001-00-71		

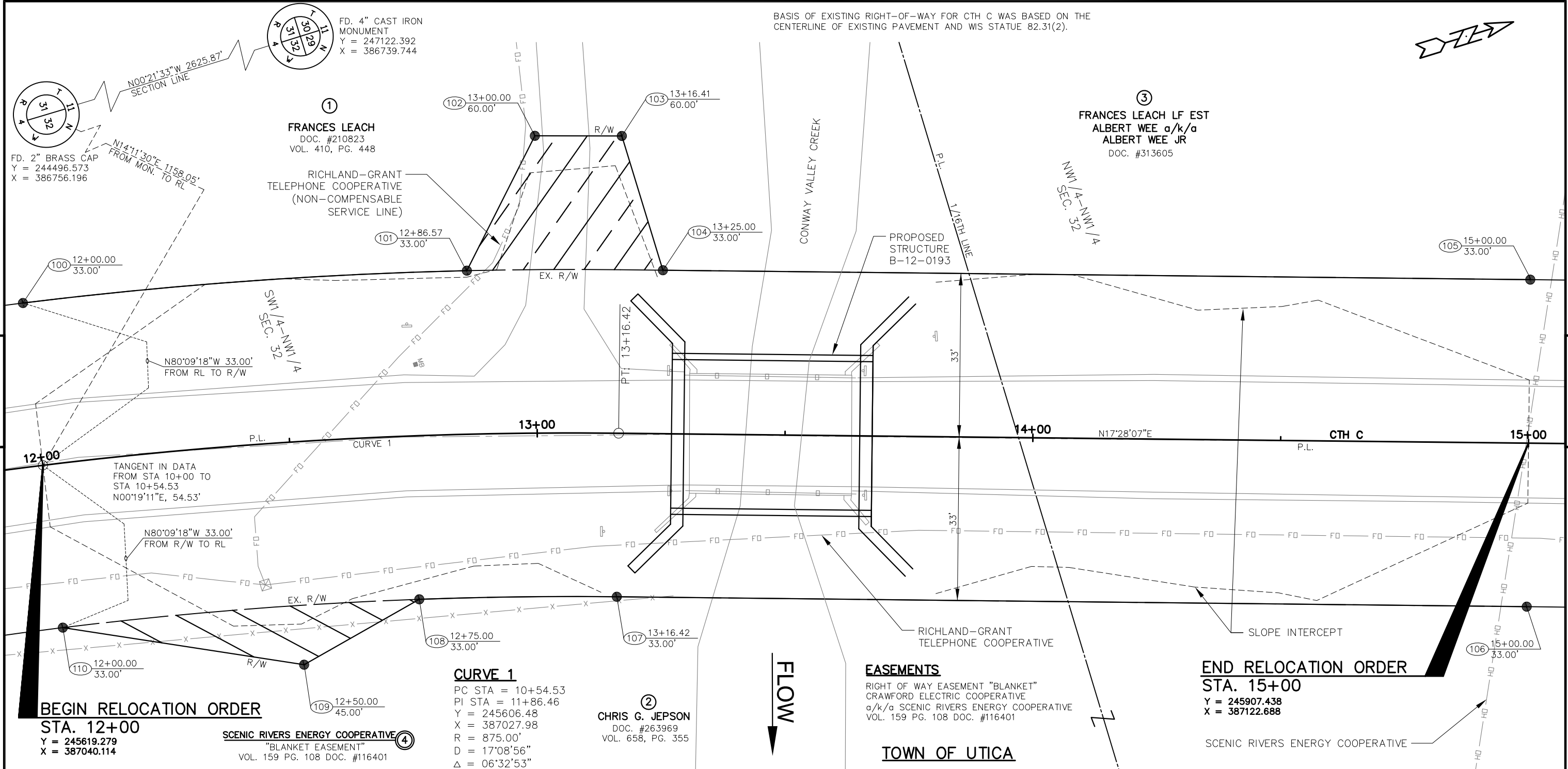
ACCEPTED FOR
COUNTY OF CRAWFORD
16 Nov 17
(Date) Highway Commissioner

ORIGINAL PLAT PREPARED BY
TEAM ENGINEERING
Transportation | Environmental | Agricultural | Municipal
and Land Surveying



11-16-17
(Date) (Signature)

E



BEGIN RELOCATION ORDER
STA. 12+00
Y = 245619.279
X = 387040.114

R/W POINT COORDINATES

POINT NUMBER	Y	X
100	245,624.921	387,007.600
101	245,712.532	387,027.310
102	245,733.546	387,005.237
103	245,750.325	387,010.345
104	245,750.416	387,038.679
105	245,917.344	387,091.210
106	245,897.532	387,154.166
107	245,722.420	387,099.059
108	245,684.132	387,087.999
109	245,658.058	387,093.891
110	245,613.636	387,072.628

R/W COURSE TABLE

COURSE	BEARING	DISTANCE
101-102	N46°24'28"W	30.48'
102-103	N16°55'53"E	17.54'
103-104	N89°49'01"E	28.33'
104-105	N17°28'07"E	175.00'
105-106	S72°31'53"E	66.00'
106-107	S17°28'07"W	183.58'
108-109	S12°43'59"E	26.73'
109-110	S25°34'44"W	49.25'

R/W CURVE TABLE

COURSE	RADIUS	ARC LENGTH	TANGENT	CHORD LENGTH	CHORD BEARING
100-101	908.00'	89.84'	44.96'	89.80'	N12°40'46"E
107-108	842.00'	39.86'	19.93'	39.85'	S16°06'45"W

CURVE 1
PC STA = 10+54.53
PI STA = 11+86.46
Y = 245606.48
X = 387027.98
R = 875.00'
D = 17°08'56"
Δ = 06°32'53"
L = 261.89'
T = 131.93'
C = 260.91'

CHRIS G. JEPSON
DOC. #263969
VOL. 658, PG. 355

EASEMENTS
RIGHT OF WAY EASEMENT "BLANKET"
CRAWFORD ELECTRIC COOPERATIVE
a/k/a SCENIC RIVERS ENERGY COOPERATIVE
VOL. 159 PG. 108 DOC. #116401

END RELOCATION ORDER
STA. 15+00
Y = 245907.438
X = 387122.688

SCHEDULE OF LANDS AND INTERESTS REQUIRED

PARCEL NUMBER	OWNER (S)	INTERESTS REQUIRED	R/W REQUIRED ACRES		
			NEW	EXISTING	TOTAL
1	FRANCES LEACH	FEE	0.02	0.15	0.17
2	CHRIS G. JEPSON	FEE	0.01	0.23	0.24
3	FRANCES LEACH LF EST. ALBERT WEE a/k/a ALBERT WEE JR	FEE	0.00	0.08	0.08
4	SCENIC RIVERS ENERGY COOPERATIVE	RELEASE OF RIGHTS	-	-	-

OWNERS NAMES ARE SHOWN FOR REFERENCE PURPOSES ONLY, AND ARE SUBJECT TO CHANGE PRIOR TO TRANSFER OF LAND INTEREST TO CRAWFORD COUNTY.

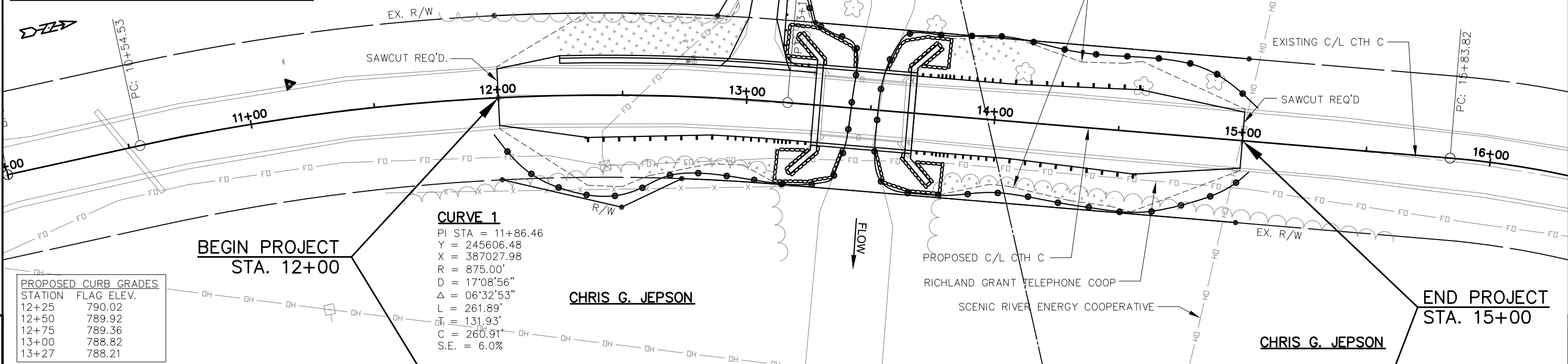
BENCHMARKS		NAVD 88	
NO.	STA./OFFSET	DESCRIPTION	ELEV.
1	16+59, 16' RT.	3/4-INCH REBAR	785.52
2	11+18, 14' LT.	3/4-INCH REBAR	791.31
3	13+32, 13' LT.	ON SW BRIDGE CURB	788.51

FRANCES LEACH

CONCRETE CURB & GUTTER 6-INCH
SLOPED, 36-INCH TYPE D
(STA. 12+25 - STA. 13+27, LT)
(NO CURB HEAD STA. 12+92 TO
DECK. DRAIN OUT BACK ON
ASPHALTIC FLUME, SEE DETAIL)

FRANCES LEACH LF EST
ALBERT WEE a/k/a
ALBERT WEE JR

- SILT FENCE
- EROSION MAT
CLASS I TYPE B URBAN
- HEAVY RIPRAP OVER
GEOTEXTILE TYPE HR



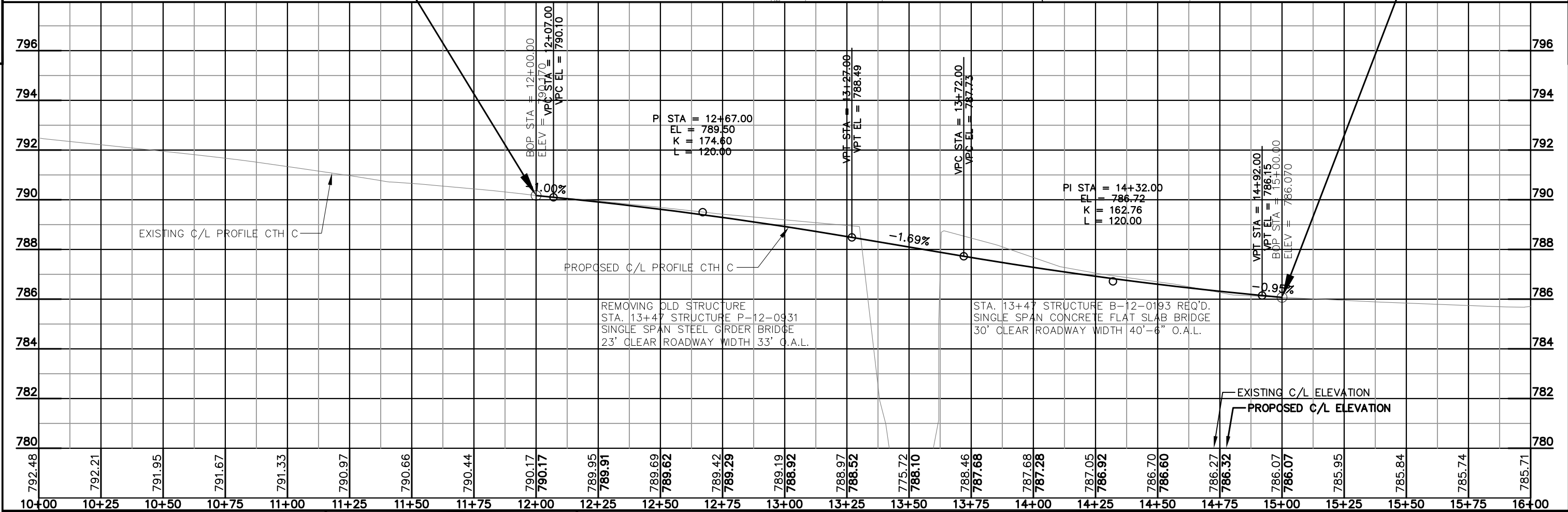
STATION	FLAG ELEV.
12+25	790.02
12+50	789.92
12+75	789.36
13+00	788.82
13+27	788.21

CURVE 1
PI STA = 11+86.46
Y = 245606.48
X = 387027.98
R = 875.00'
D = 17°08'56"
Δ = 06°32'53"
L = 261.89'
ΔT = 131.93'
C = 260.91'
S.E. = 6.0%

CHRIS G. JEPSON

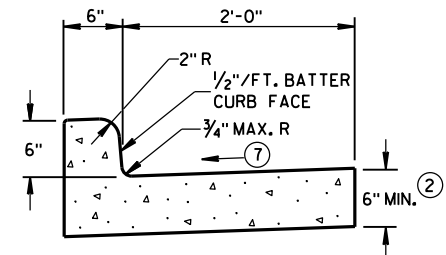
CHRIS G. JEPSON

END PROJECT
STA. 15+00

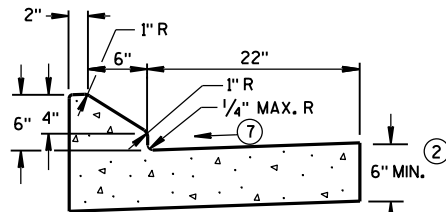


Standard Detail Drawing List

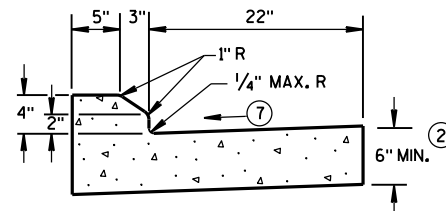
08D01-20A	CONCRETE CURB & GUTTER
08D04-05	CONCRETE SURFACE DRAINS & ASPHALTIC FLUMES
08D20-01	DRIVEWAYS WITH CURB & GUTTER RETURNS
08E08-03	TYPICAL INSTALLATIONS OF EROSION BALES / TEMPORARY DITCH CHECKS
08E09-06	SILT FENCE
12A03-10	NAME PLATE (STRUCTURES)
14B28-03	GUARDRAIL MOW STRIP
14B42-05A	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-05B	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-05C	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-05D	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B44-03A	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B44-03B	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B44-03C	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B45-04A	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-04B	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-04C	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-04G	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-04H	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B53-01A	SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)
14B53-01B	SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)
14B53-01C	SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)
14B53-01D	SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)
14B53-01E	SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)
14B53-01F	SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)
14B53-01G	SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)
14B53-01H	SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)
14B53-01I	SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)
15A01-13A	MARKER POST FOR RIGHT-OF-WAY
15C02-06A	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C02-06B	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C08-18A	LONGITUDINAL MARKING (MAINLINE)
15D38-02A	TEMPORARY TRAFFIC CONTROL SIGN MOUNTING
15D38-02B	ATTACHMENT OF SIGNS TO POSTS



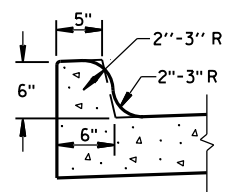
TYPES A^① & D



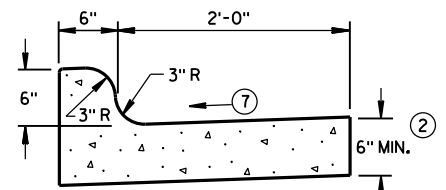
6" SLOPED CURB TYPES G^① & J



4" SLOPED CURB TYPES G^① & J

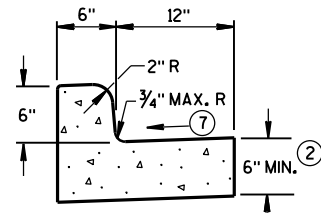


TYPES K^① & L
(OPTIONAL CURB SHAPE)



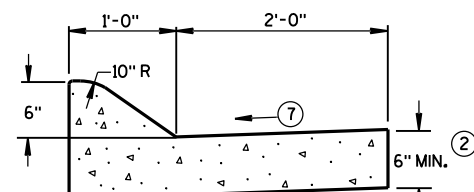
TYPES K^① & L

CONCRETE CURB & GUTTER 30"

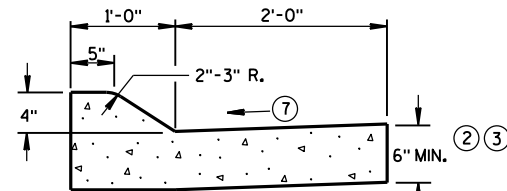


TYPES A^① & D

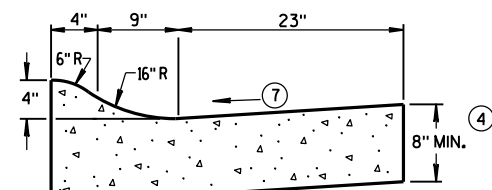
CONCRETE CURB & GUTTER 18"



6" SLOPED CURB TYPES A^① & D

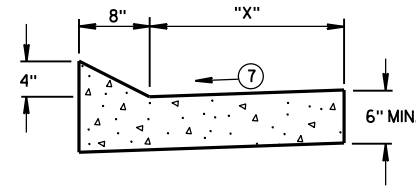


4" SLOPED CURB TYPES A^① & D



4" SLOPED CURB TYPES R^① & T^⑤

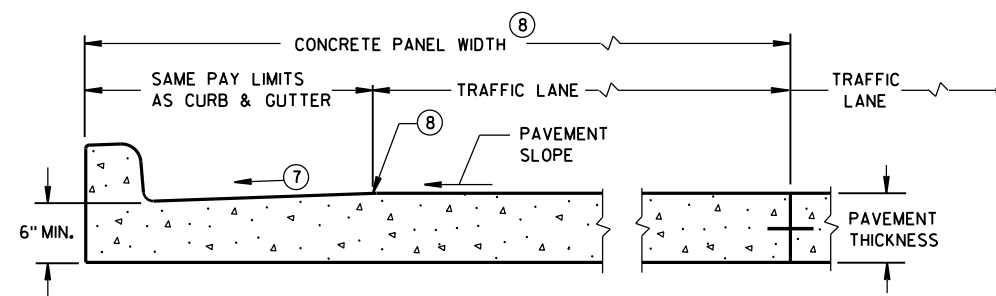
CONCRETE CURB & GUTTER 36"



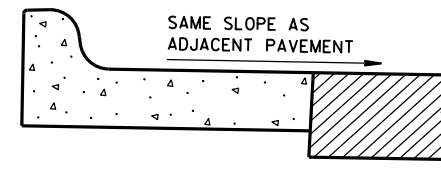
TYPES TBT & TBTT^①

CONCRETE CURB & GUTTER

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



PARTIAL SECTION OF PAVEMENT
WITH INTEGRAL CURB & GUTTER



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

GENERAL NOTES

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

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

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

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

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

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

PAVEMENT THICKNESS
AND MAXIMUM CONCRETE
PANEL WIDTH TABLE

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

* BIKE LANE IS NOT SHOWN.

CONCRETE CURB & GUTTER

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6



S.D.D. 8 D 4-5



6

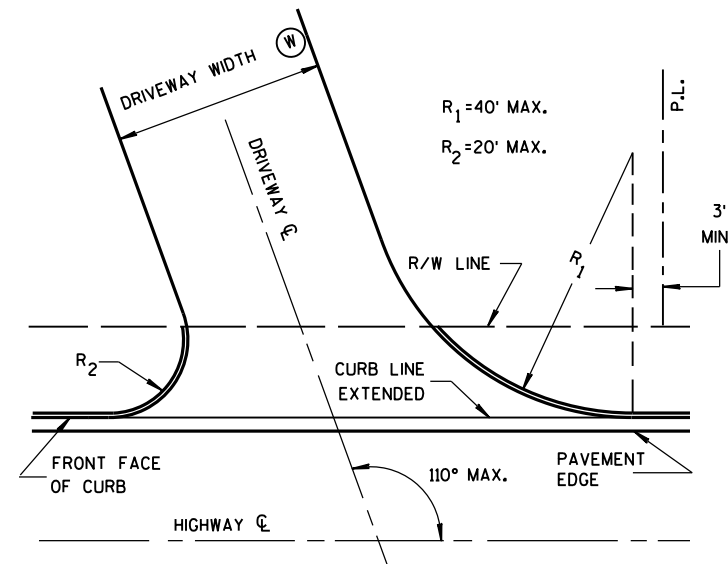
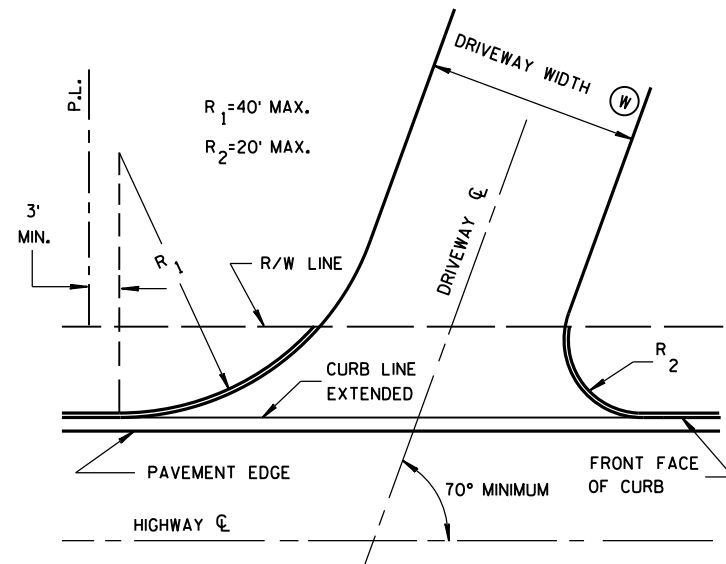
WELDED STEEL WIRE FABRIC SHALL BE IN ACCORDANCE WITH AASHTO SPECIFICATION M55.

- ### ③ CONCRETE SURFACE DRAIN

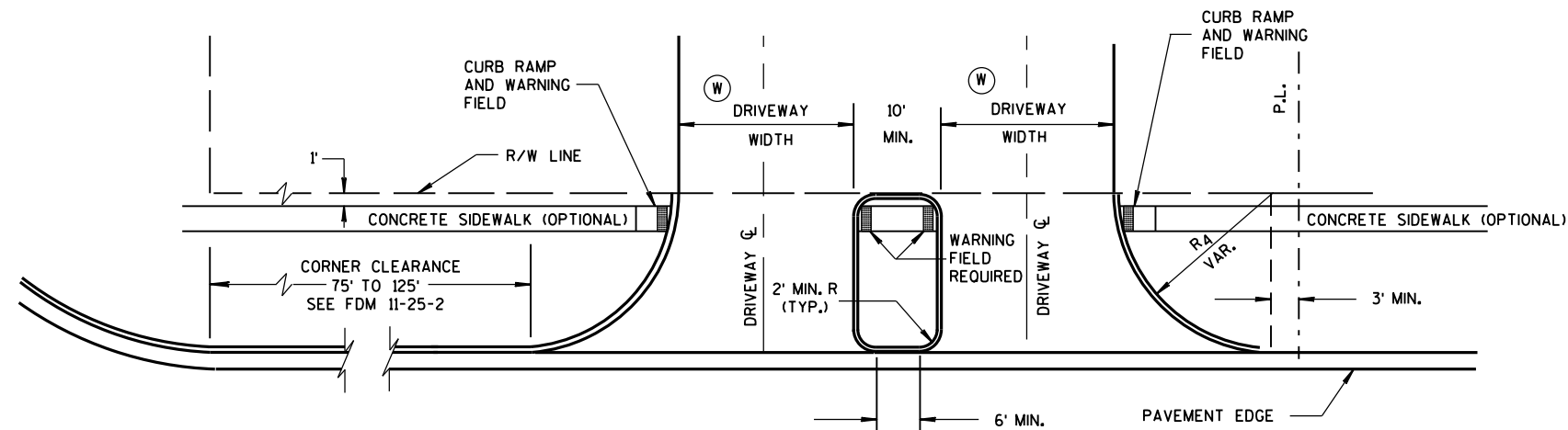


APPROVED
9-4-08 /S/ Jerry H. Zogg
DATE ROADWAY STANDARDS DEVELOPMENT
ENGINEER

S.D.D. 8 D 4-5



**SKewed DRIVEWAY DETAILS
(COMMERCIAL AND NON-COMMERCIAL)
SIDEWALK NOT SHOWN**



**DRIVEWAY LOCATION AND SPACING DETAILS
SIDEWALK SHOWN**

NOTES

A MAXIMUM RADIUS OF 10 FEET SHALL BE USED FOR NON-COMMERCIAL PRIVATE ENTRANCES. RADII FOR COMMERCIAL DRIVEWAYS SHALL BE DETERMINED BY THE ENGINEER BASED ON TRAFFIC AND DRIVEWAY PERMIT RESTRICTIONS.

THE MINIMUM ANGLE OF INTERSECTION BETWEEN THE DRIVEWAY AND HIGHWAY CENTERLINES SHALL BE 70°.

ALL CURVILINEAR PRIVATE ENTRANCE OUTLINES SHALL BE CONTAINED WITHIN THE HIGHWAY R/W.

NO DRIVEWAY SHALL BE BUILT WITHIN 3 FEET OF THE PROPERTY LINE EXCEPT FOR EXISTING JOINT DRIVEWAY SHARED BY TWO OWNERS.

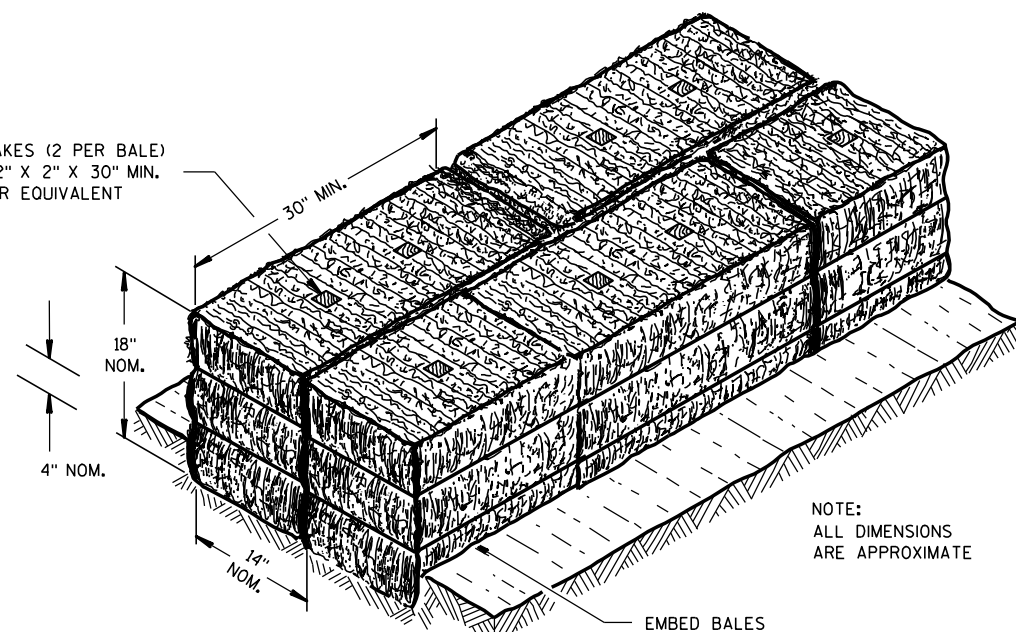
Ⓢ DRIVEWAY WIDTHS:
COMMERCIAL - 35' MAX., 16' MIN.
RESIDENTIAL AND NON-COMMERCIAL - 24' MAX., 12' MIN.

**DRIVEWAYS WITH
CURB & GUTTER RETURNS**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

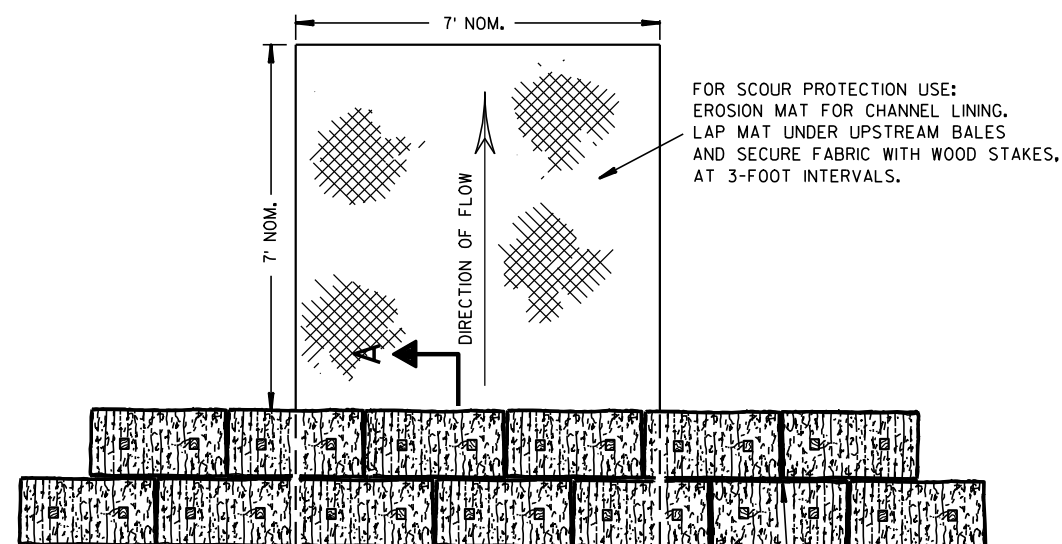
APPROVED
December, 2016 /S/ Rodney Taylor
DATE ROADWAY STANDARDS DEVELOPMENT
FHWA UNIT SUPERVISOR

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



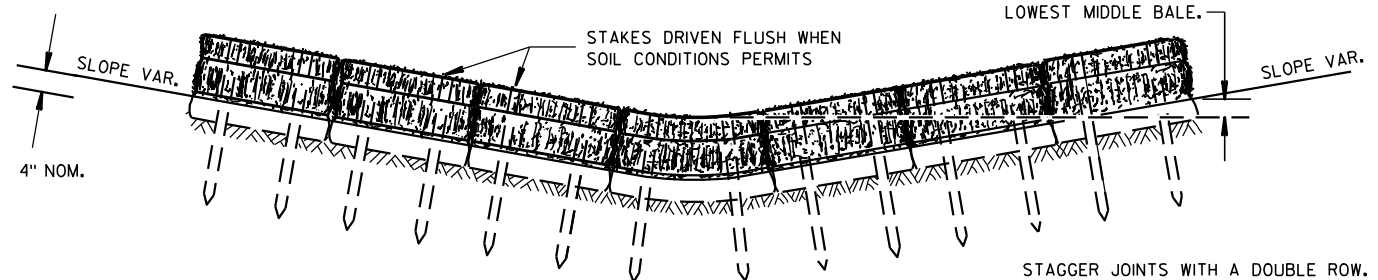
NOTE:
ALL DIMENSIONS
ARE APPROXIMATE

SECTION A-A



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

PLAN VIEW



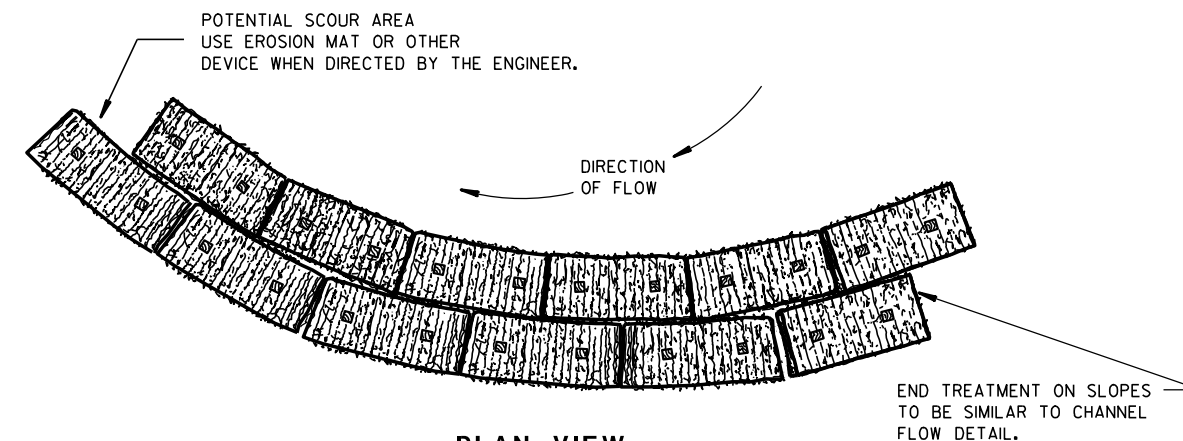
FRONT ELEVATION

TEMPORARY DITCH CHECK USING EROSION BALES ①

GENERAL NOTES

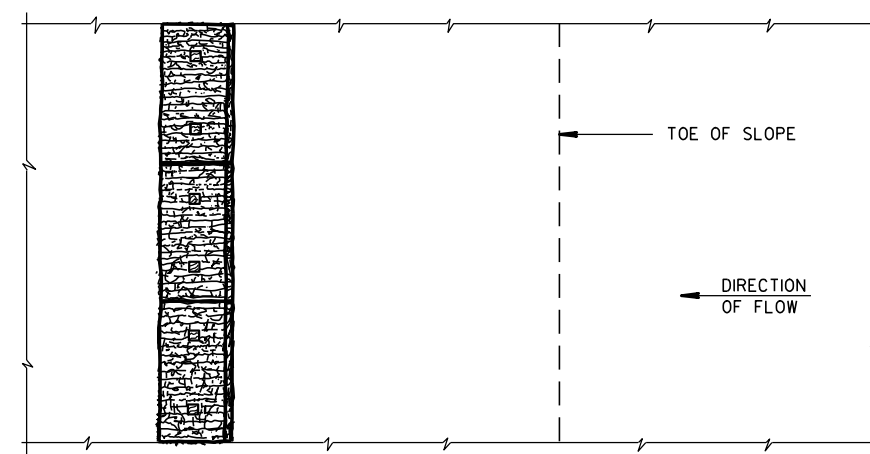
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

- 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.

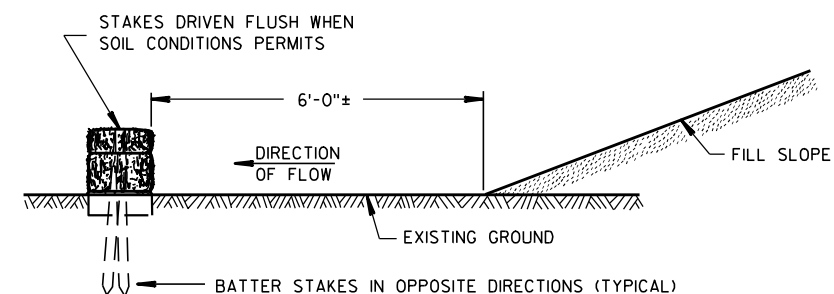


PLAN VIEW

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

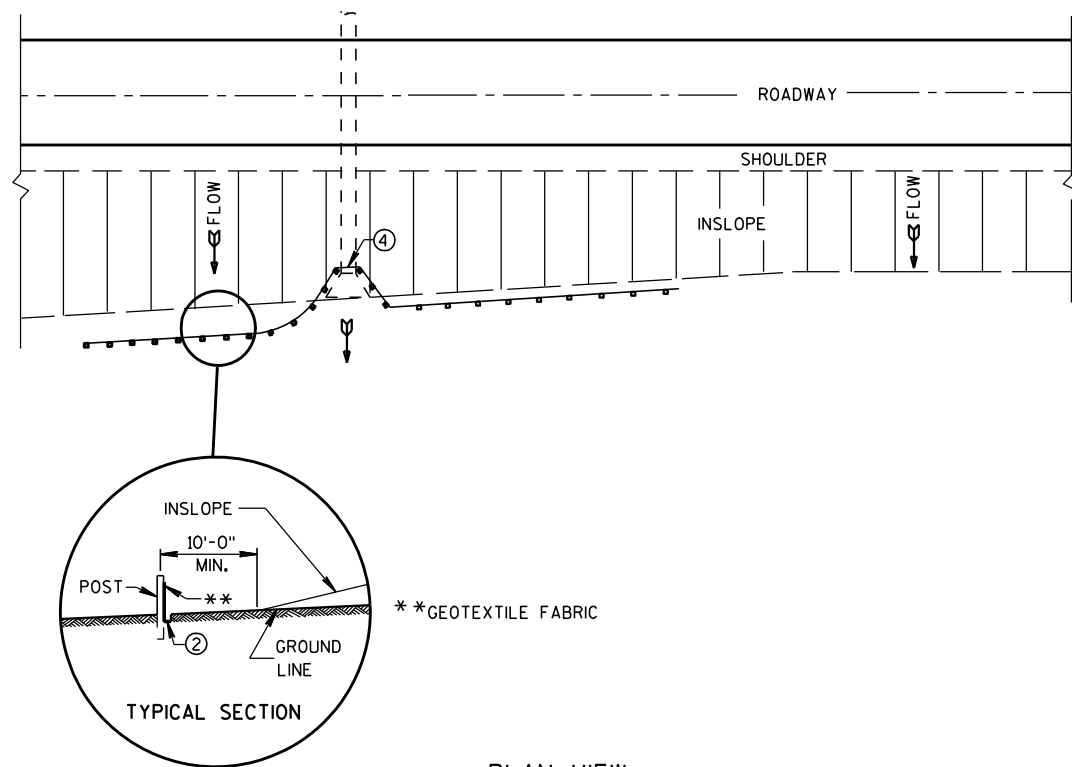
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

6/04/02
DATE

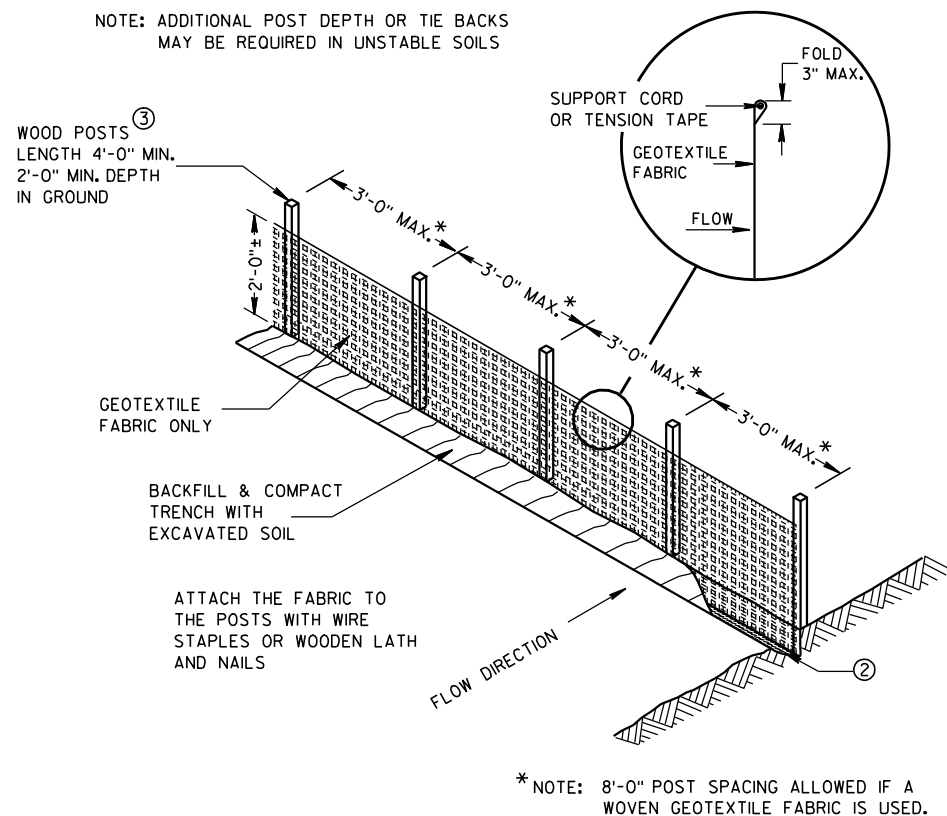
FHWA

/S/ Beth Canestra
CHIEF ROADWAY DEVELOPMENT ENGINEER

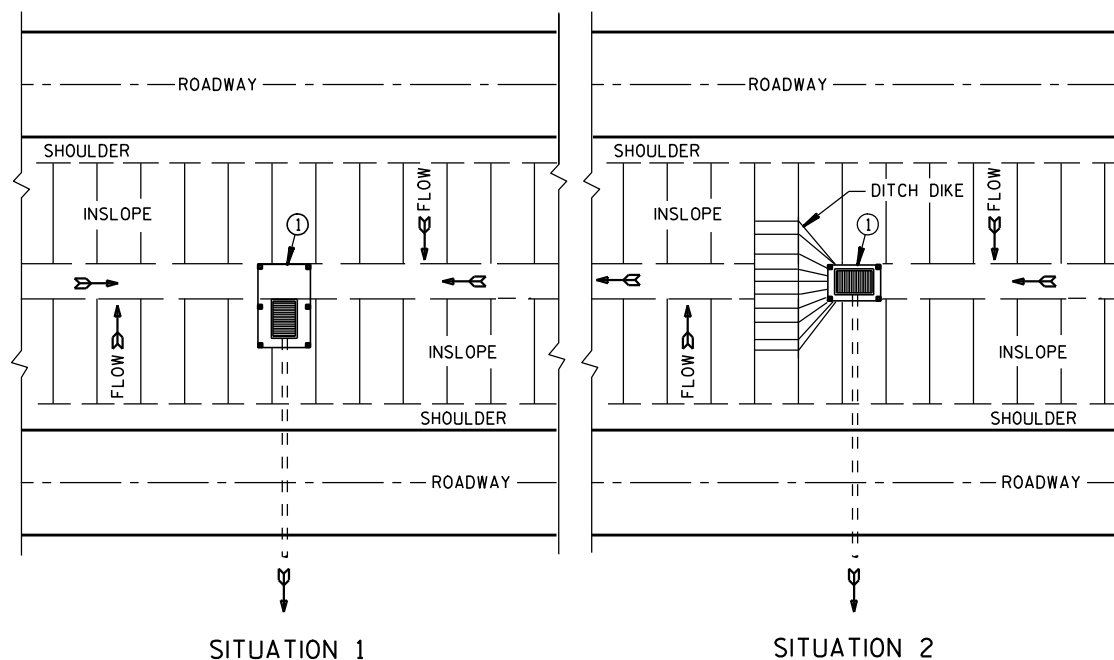


TYPICAL APPLICATION OF SILT FENCE

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

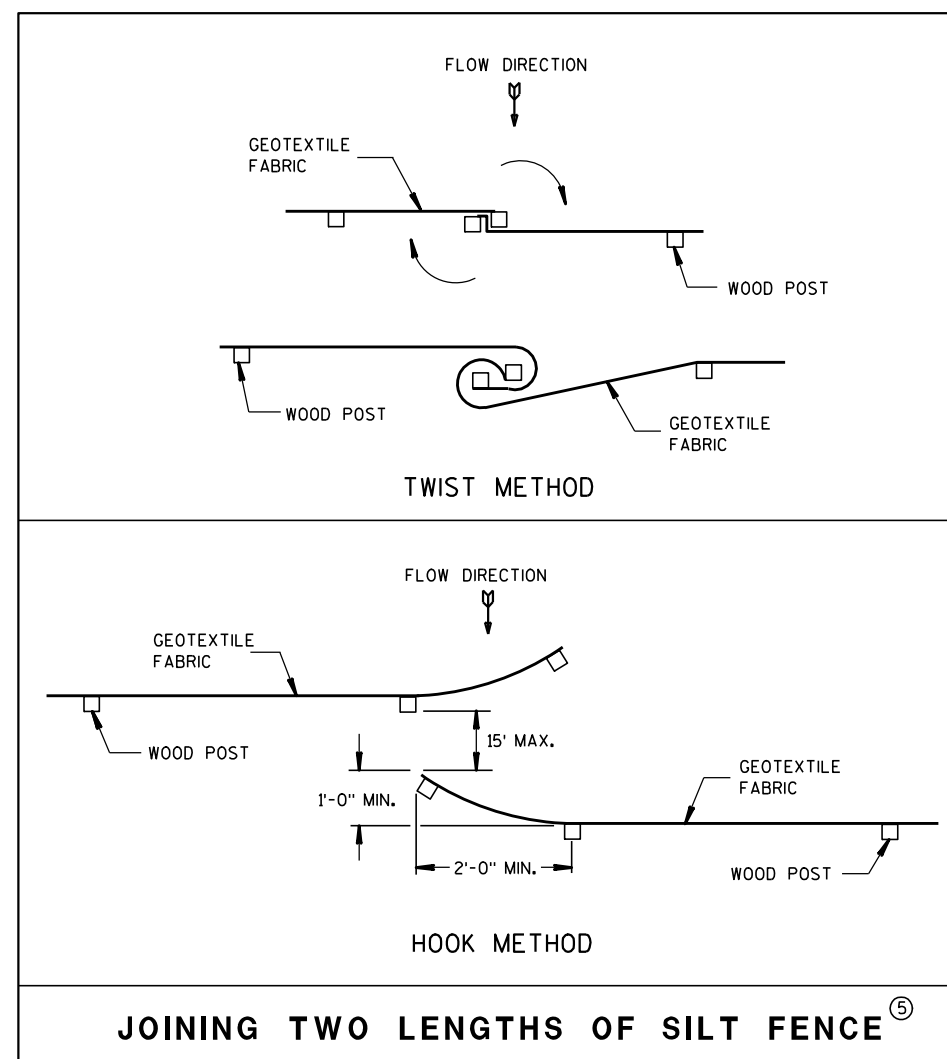


SILT FENCE



PLAN VIEW

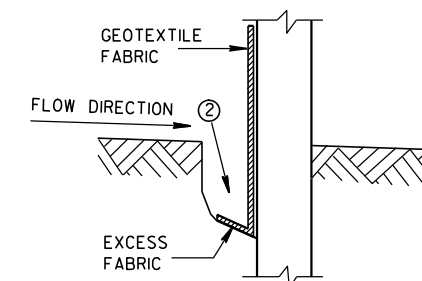
SILT FENCE AT MEDIAN SURFACE DRAINS



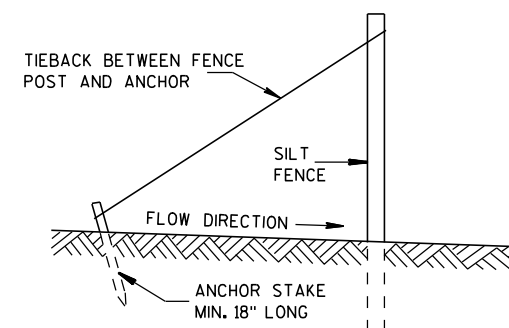
GENERAL NOTES

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 1 1/8" X 1 1/8" OF OAK OR HICKORY.
- ④ SILT FENCE TO EXTEND ACROSS THE TOP OF THE PIPE.
- ⑤ CONSTRUCT SILT FENCE FROM A CONTINUOUS ROLL IF POSSIBLE BY CUTTING LENGTHS TO AVOID JOINTS. IF A JOINT IS NECESSARY USE ONE OF THE FOLLOWING TWO METHODS; A) OVERLAP THE END POSTS AND TWIST, OR ROTATE, AT LEAST 180 DEGREES, B) HOOK THE END OF EACH SILT FENCE LENGTH.



TRENCH DETAIL



SILT FENCE TIE BACK (WHEN REQUIRED BY THE ENGINEER)

SILT FENCE

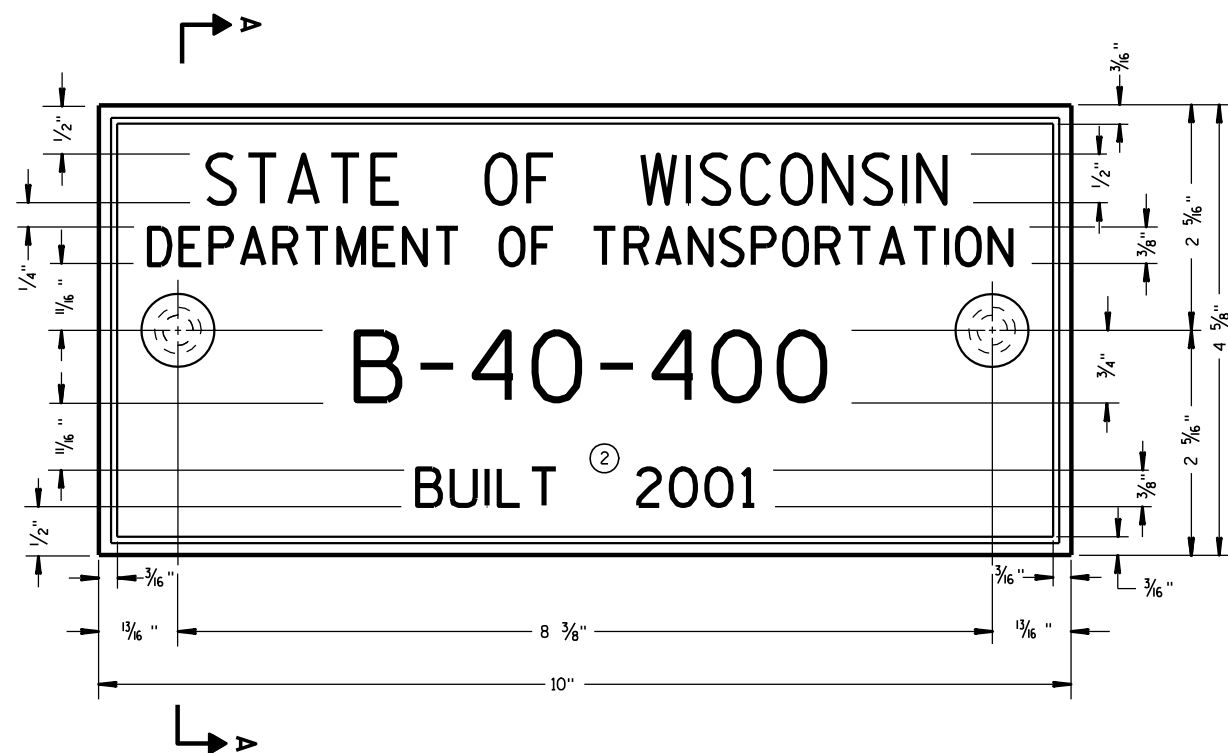
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

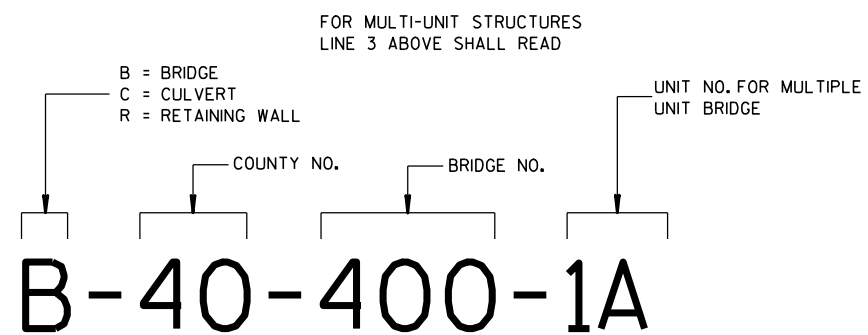
4-29-05
DATE

FHWA

/S/ Beth Cannestra
CHIEF ROADWAY DEVELOPMENT ENGINEER



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



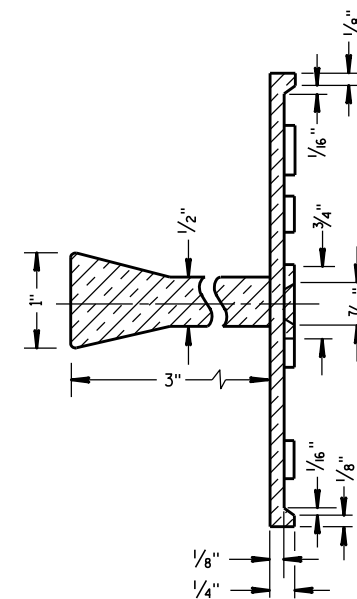
**NUMBERING DESIGNATION
MULTI-UNIT STRUCTURES**

GENERAL NOTES

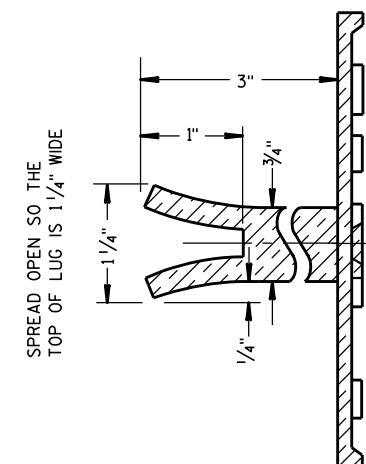
NAME PLATES TO BE INSTALLED ON BRIDGES, CULVERTS, AND RETAINING WALLS SHALL CONFORM TO THE REQUIREMENTS OF SECTION 502.3.11 OF THE STANDARD SPECIFICATIONS.

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

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

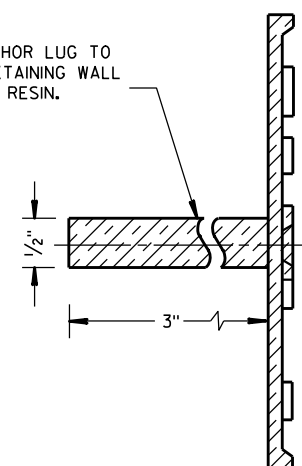


SECTION A-A



ALTERNATE LUG

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



ALTERNATE LUG
(FOR ATTACHMENT TO PRECAST STRUCTURES)

**NAME PLATE
(STRUCTURES)**

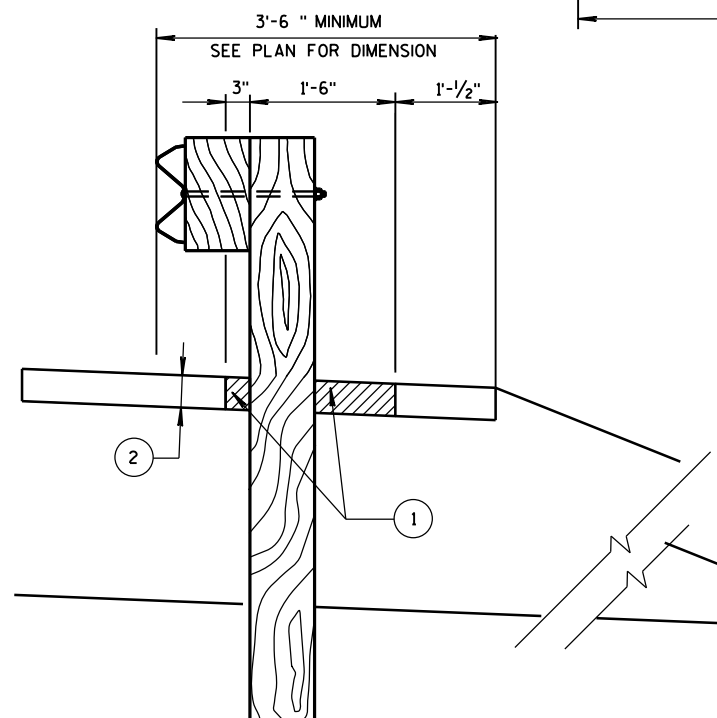
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

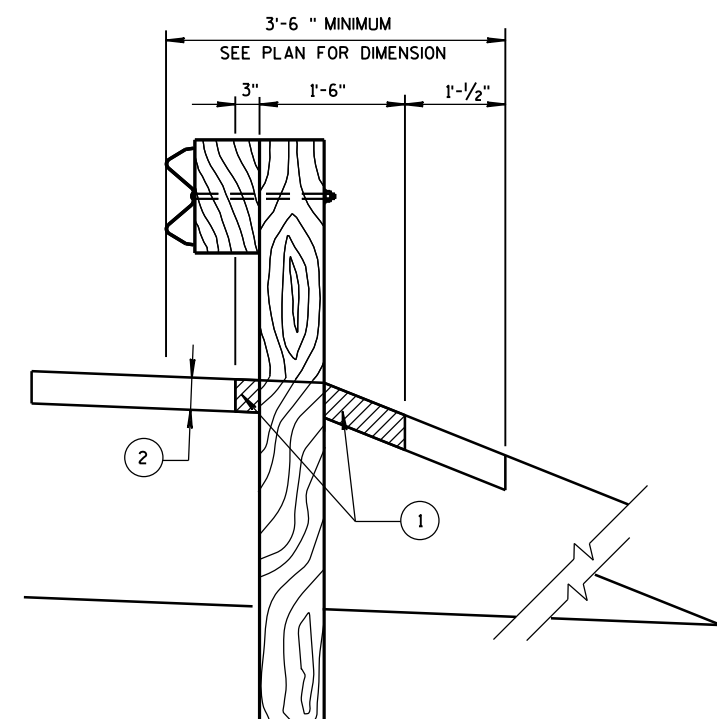
3/26/10
DATE

FHWA

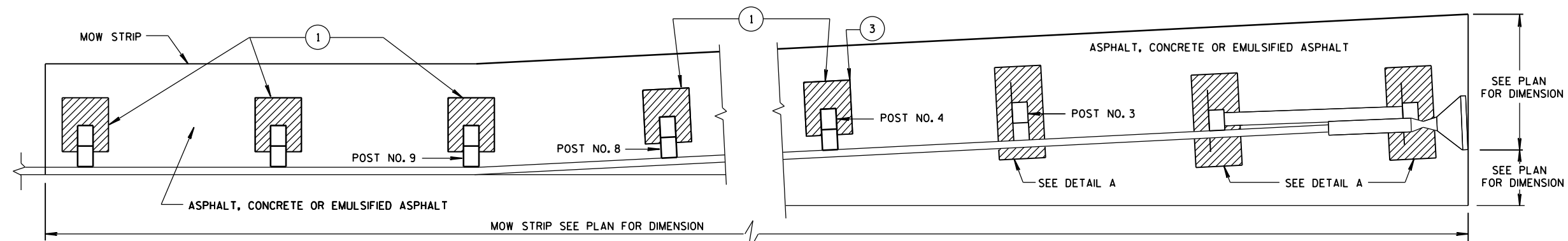
/S/ Scot Becker
CHIEF STRUCTURAL DEVELOPMENT ENGINEER



SECTION A-A

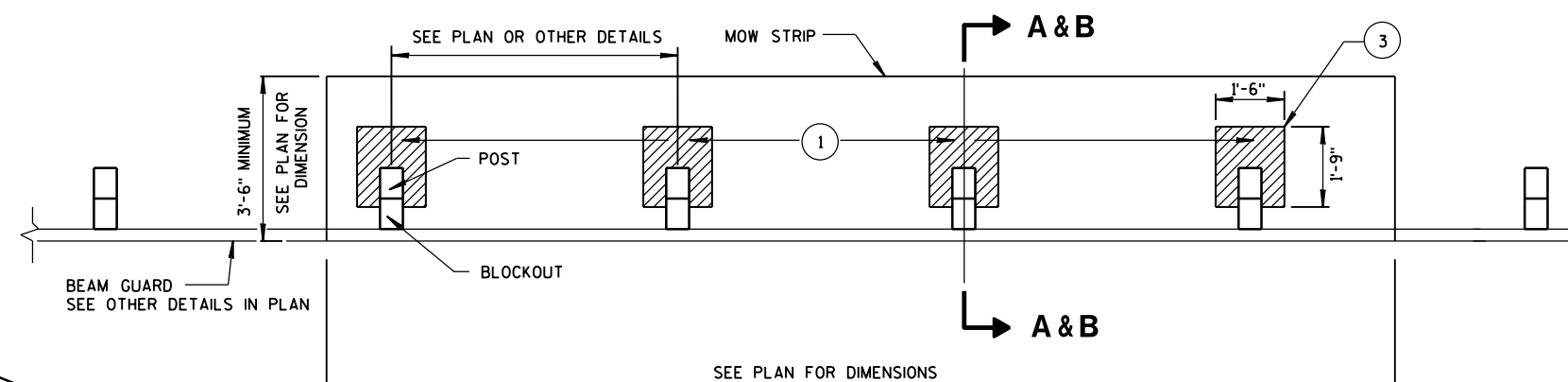


SECTION B-B



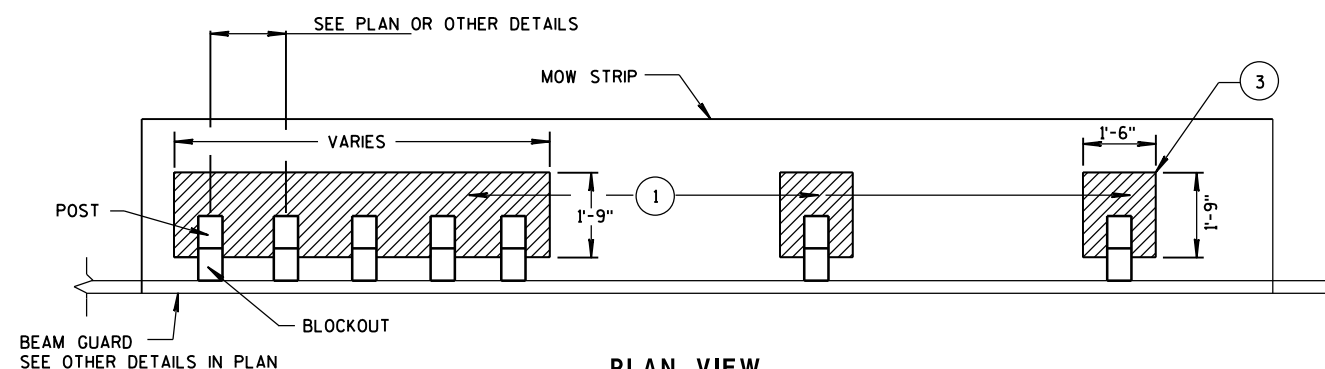
PLAN VIEW

MOW STRIP LAYOUT FOR ENERGY ABORING TERMINAL



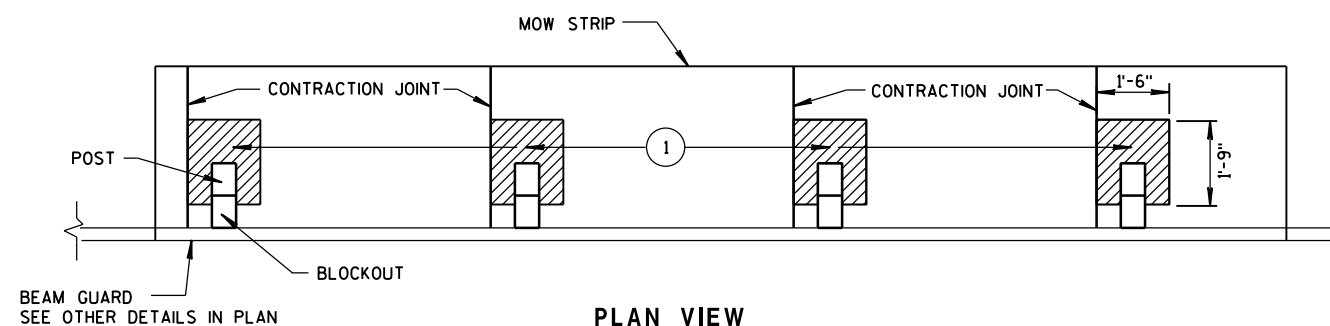
PLAN VIEW

MOW STRIP FOR TYPICAL BLOCKOUT LAYOUT



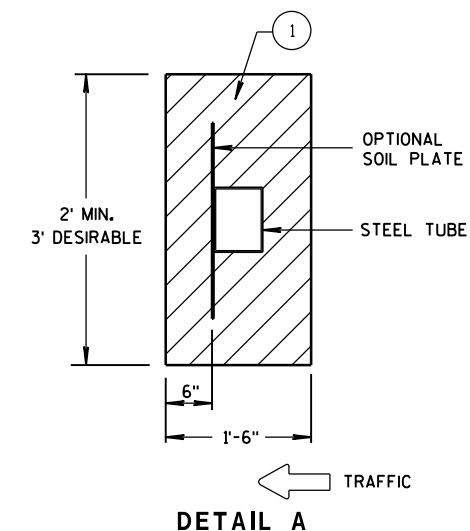
PLAN VIEW

MOW STRIP FOR TIGHT SPACING LAYOUT

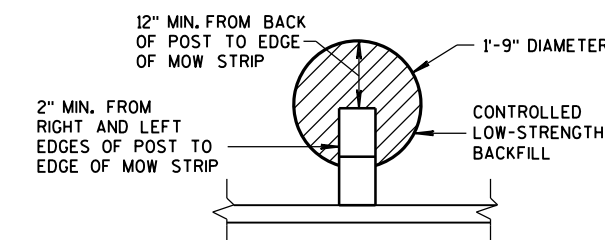


PLAN VIEW

JOINT PLACEMENT FOR CONCRETE MOW STRIP



DETAIL A

ALTERNATIVE HMA
MOW STRIP DESIGN

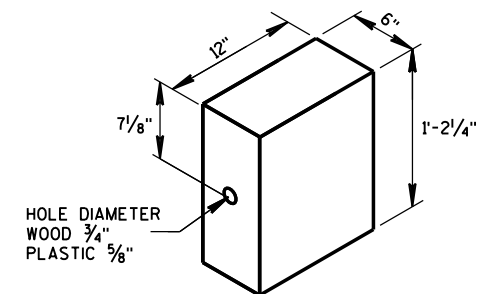
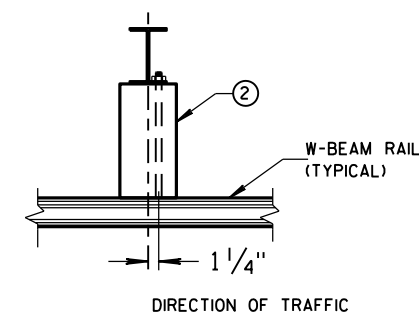
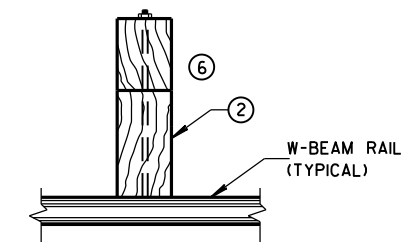
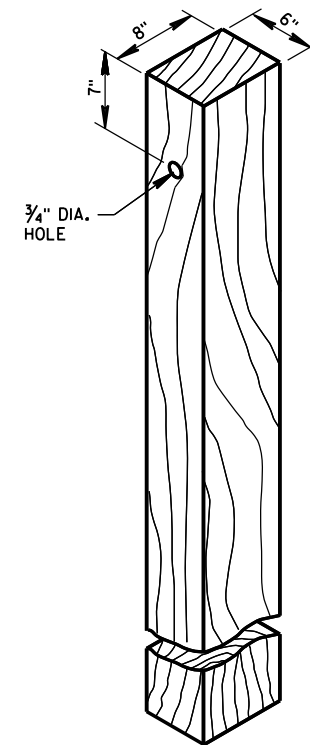
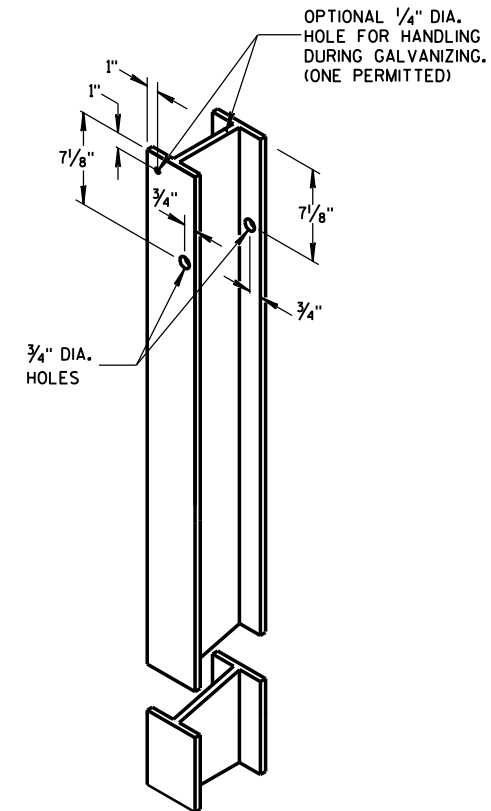
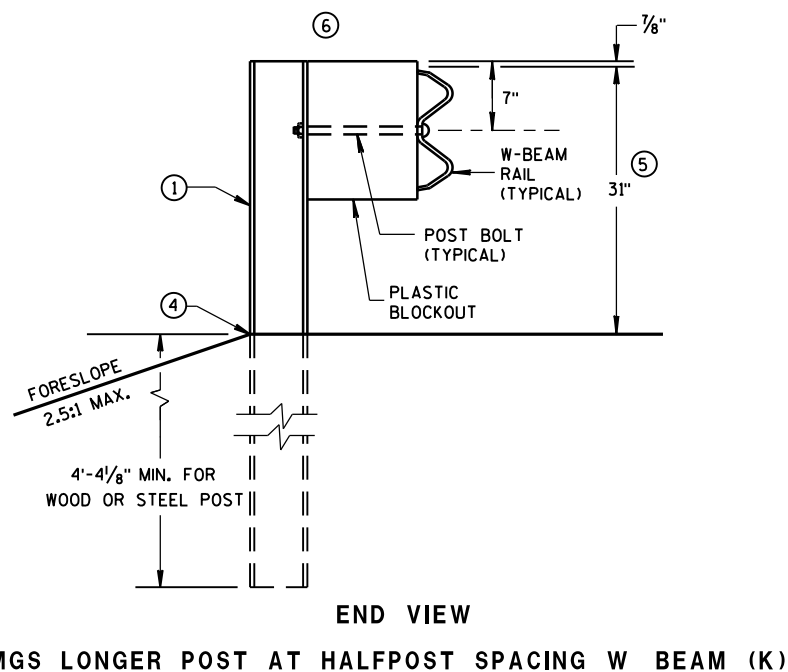
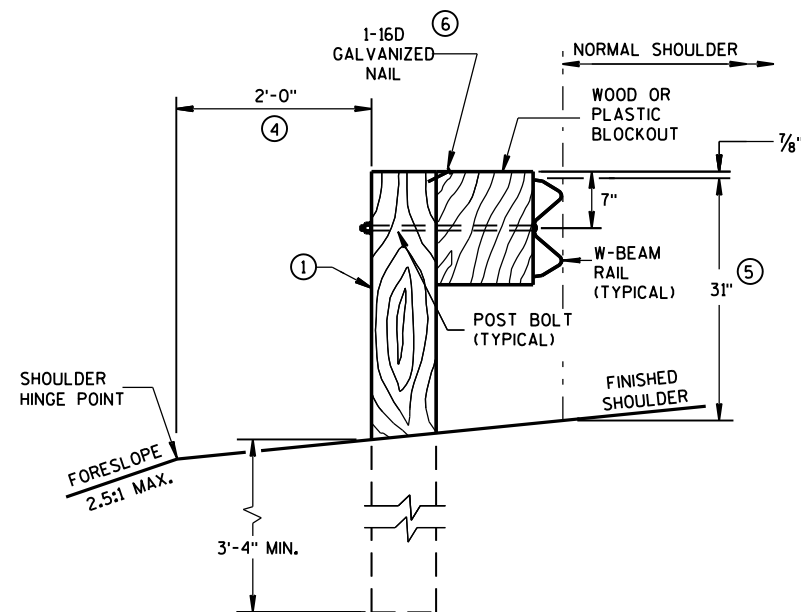
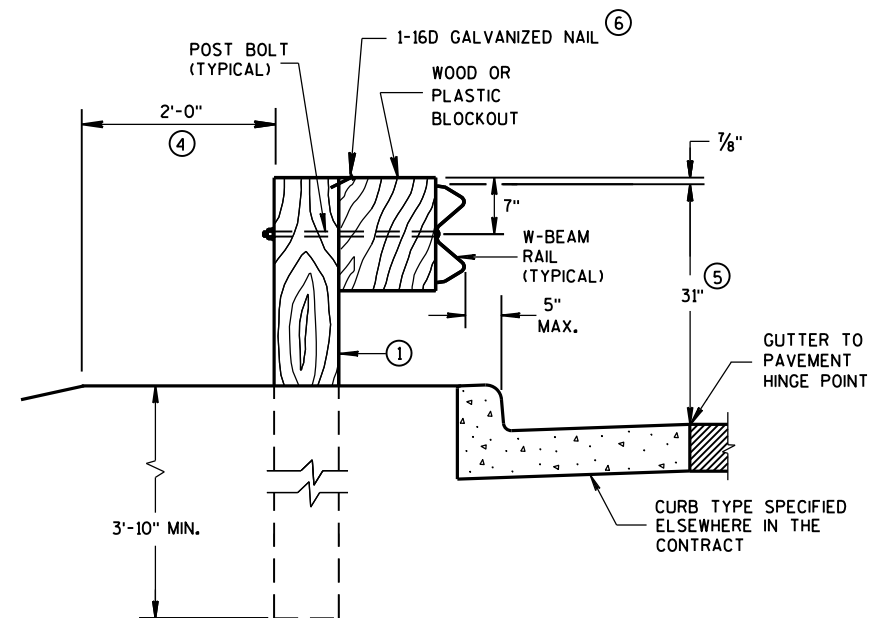
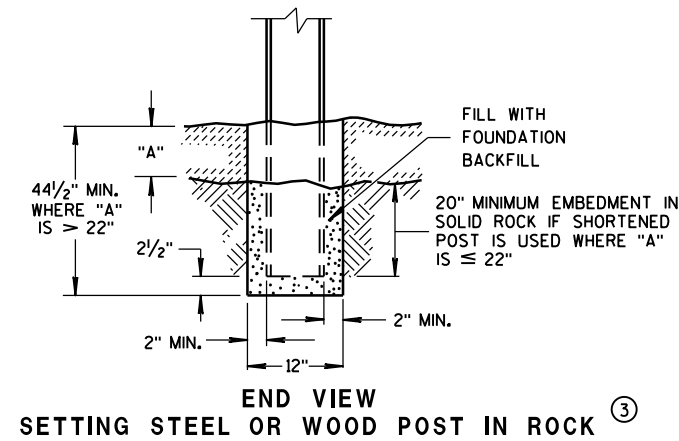
- ① CONTROLLED LOW-STRENGTH BACKFILL OR EMULSIFIED ASPHALT.
- ② DEPTH OF MOW STRIP:
ASPHALT - 4"
CONCRETE - 4"
EMULSIFIED ASPHALT - 1" OR LESS
- ③ FOR EMULSIFIED ASPHALT MOW STRIP LEAVE OUTS NOT REQUIRED. (TYPICAL FOR ALL POSTS.)

GUARDRAIL MOW STRIP

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

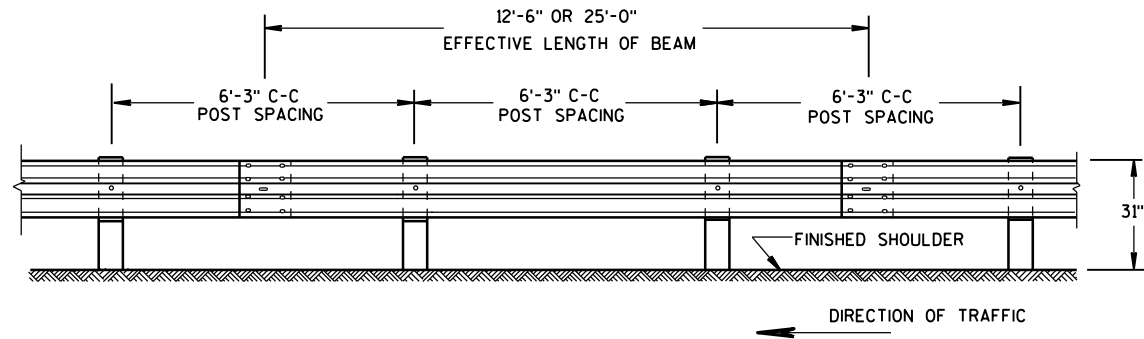
APPROVED June 2014	/S/ Jerry H. Zogg
DATE	ROADWAY STANDARDS DEVELOPMENT ENGINEER
FHWA	

- ① WOOD OR STEEL POSTS (W6X9 OR W6X8.5) MAY BE USED. DO NOT INTERMIX WOOD AND STEEL POSTS. INSTALL STEEL POSTS WITH HOLES ON APPROACHING TRAFFIC SIDE.
- ② USE WOOD OR APPROVED PLASTIC BLOCKOUTS. WOOD BLOCKOUTS MAY BE CONSTRUCTED OUT OF TWO OR MORE WOOD BLOCKOUTS. SEE ALTERNATE WOOD BLOCKOUT DETAIL. DIMENSIONS OF APPROVED PLASTIC BLOCKOUTS MAY VARY.
- ③ IF ROCK IS ENCOUNTERED DURING EXCAVATION, PROVIDE A HOLE 12 INCHES IN DIAMETER EXTENDING 20 INCHES DEEP INTO THE ROCK. PLACE APPROXIMATELY 2½ INCHES OF GRANULAR MATERIAL IN THE BOTTOM OF THE HOLE. CUT THE POSTS TO LENGTH AND INSTALL. BACKFILL WITH EXCAVATED MATERIAL AND COMPACT. BACKFILL IS TO BE FREE OF LARGE ROCKS.
- ④ WHEN THE DISTANCE FROM BACK OF POST TO SHOULDER HINGE POINT IS LESS THAN 2 FEET INSTALL LONGER POST AT HALF POST SPACING (K).
- ⑤ FOR NEW MGS INSTALLATION TOP OF W-BEAM RAIL TOLERANCE IS ± 1". FOR EXISTING MGS INSTALLATION TOP OF W-BEAM IS BETWEEN 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.



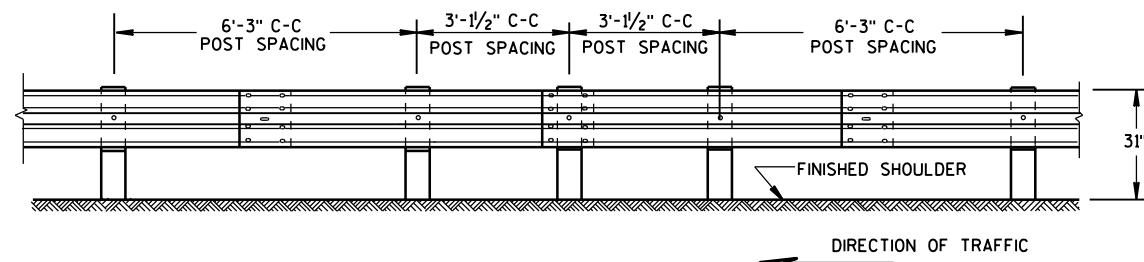
**MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



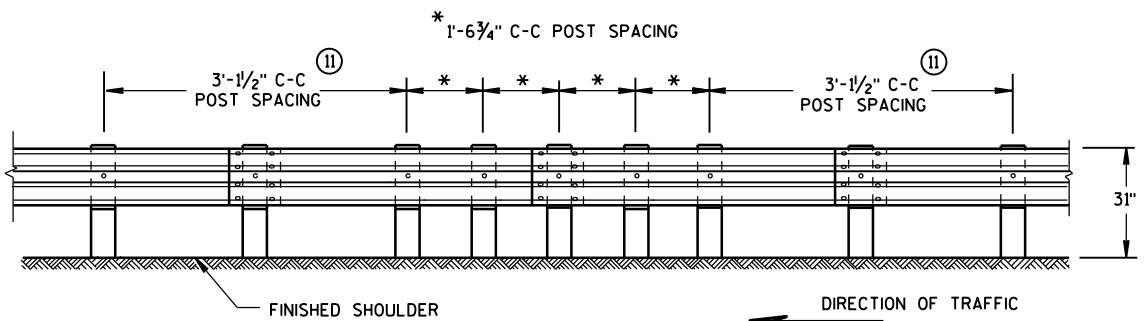
FRONT VIEW

POST SPACING STANDARD INSTALLATION



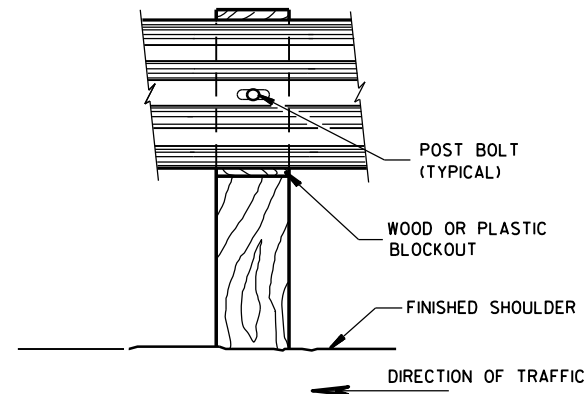
FRONT VIEW

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

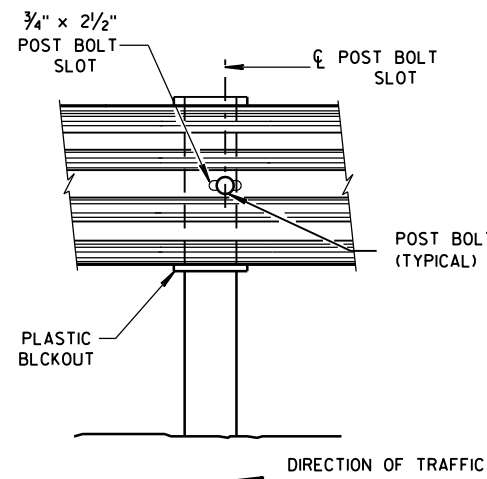


FRONT VIEW

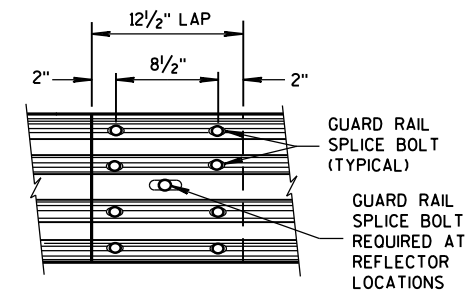
QUARTER POST SPACING (QS)



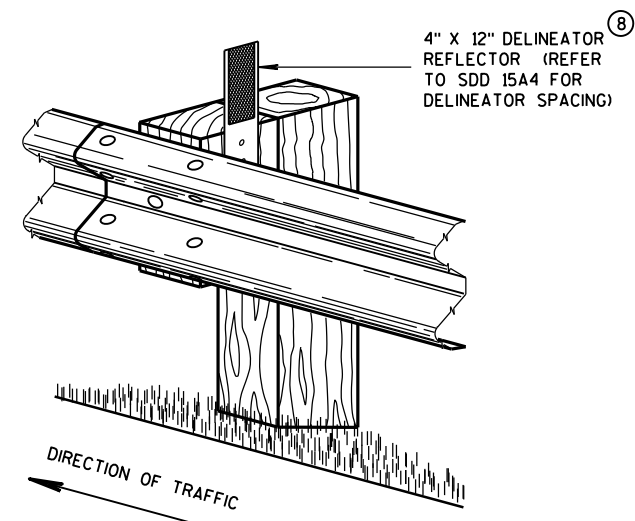
FRONT VIEW AT WOOD POST



FRONT VIEW AT STEEL POST



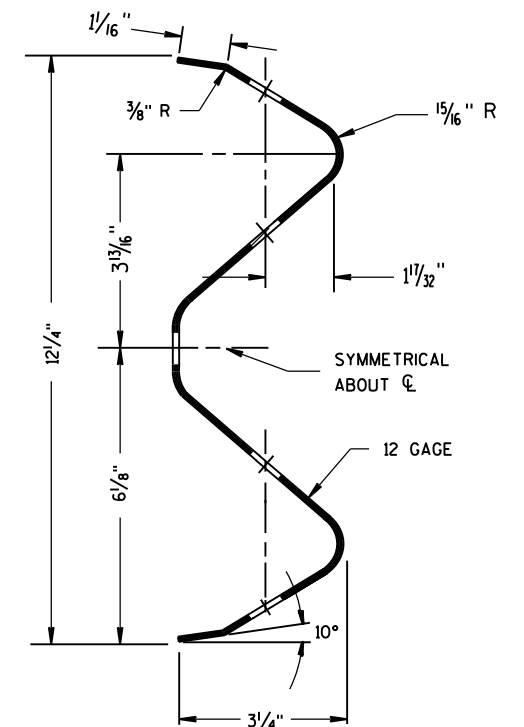
FRONT VIEW
MID-SPAN BEAM SPLICE



ONE SIDED REFLECTOR DETAIL AND TYPICAL INSTALLATION

GENERAL NOTES

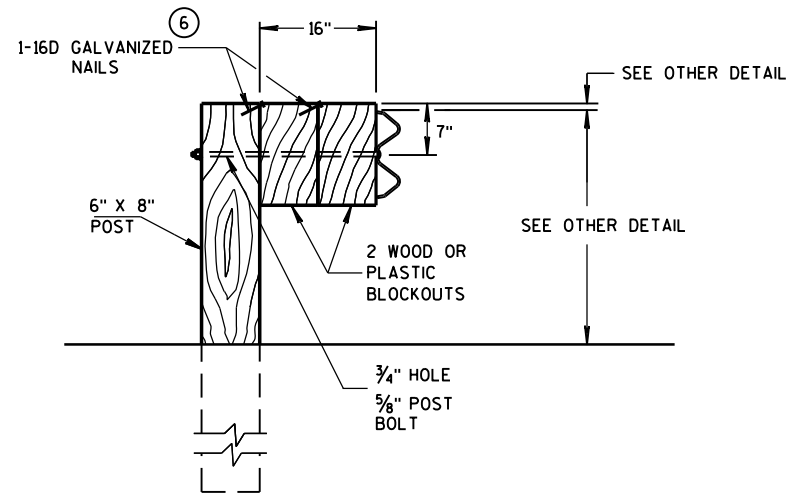
- ⑧ DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINAL. RAIL SPLICE LOCATIONS ARE THE ONLY ACCEPTABLE LOCATIONS FOR REFLECTORS.
 - ⑪ 25 FEET OF HALF POST SPACING IS REQUIRED ON APPROACH AND DEPARTURE ENDS OF QUARTER POST SPACING.
- POST BOLTS ARE A 5/8" DIAMETER ASTM A307 GUARDRAIL BOLT. A POST BOLT REQUIRES 5/8" DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX NUT AND 5/8" DIAMETER F844 FLAT WASHER. POST BOLTS MAY BE LONGER IF MULTIPLE BLOCKOUTS ARE BEING USED.
- GUARD RAIL SPLICE BOLTS ARE A 5/8" DIAMETER ASTM A307 GUARDRAIL HEAD BOLT. A GUARDRAIL SPLICE BOLT REQUIRES 5/8" DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX NUT.



SECTION THRU W-BEAM RAIL

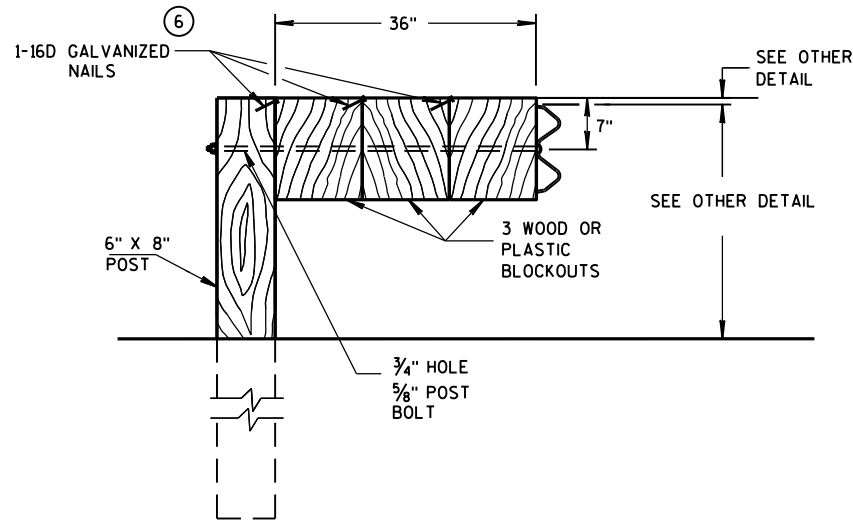
MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



DETAIL FOR 16" BLOCKOUT DEPTH

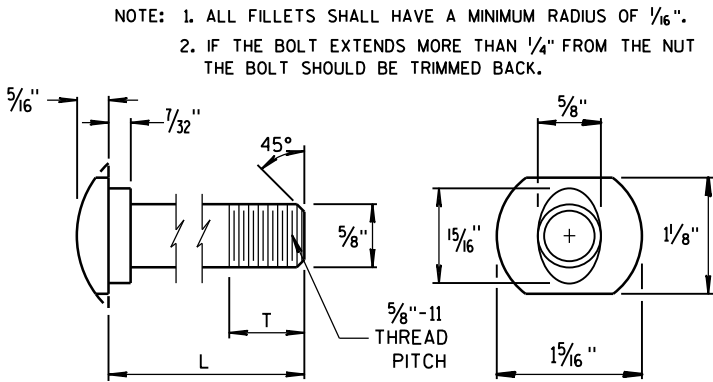
IT IS ACCEPTABLE TO USE BLOCKOUTS UP TO 16" DEEP TO INCREASE THE POST OFFSET TO AVOID UNDERGROUND OBSTACLES. THERE IS NO LIMIT TO THE NUMBER OF POSTS THAT CAN HAVE ADDITIONAL BLOCKOUTS UP TO 16" DEEP.



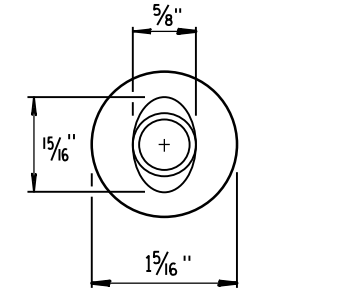
DETAIL FOR 36" BLOCKOUT DEPTH

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

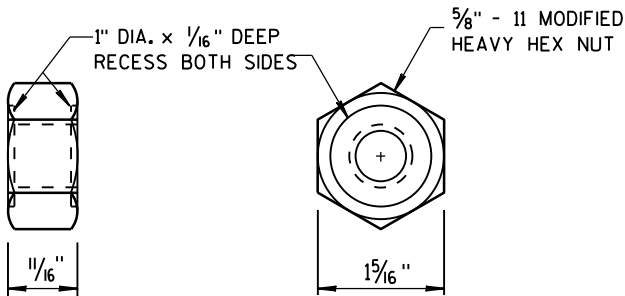
DO NOT USE 16" OR 36" BLOCKOUTS IF IT CAUSES THE POST TO BE DRIVEN BEYOND SHOULDER HINGE POINT OR CAUSES A FIXED OBJECT TO BE WITHIN THE DEFLECTION DISTANCE OF THE BARRIER.



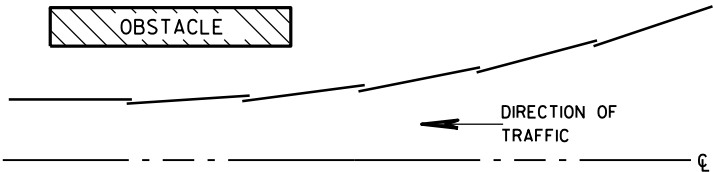
POST BOLT TABLE



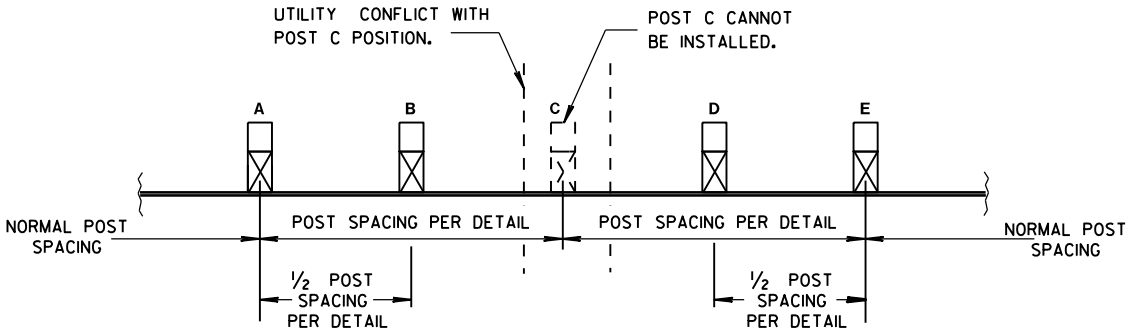
ALTERNATE BOLT HEAD



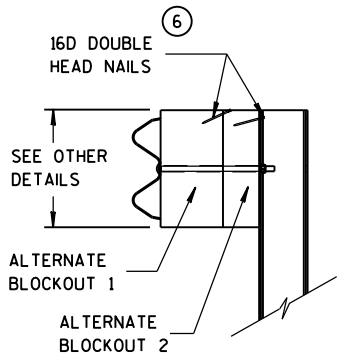
POST BOLT, SPLICE BOLT AND RECESS NUT



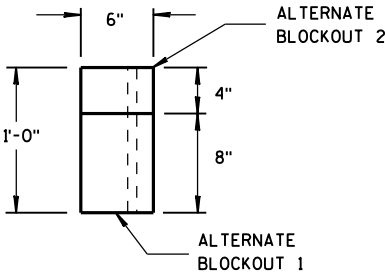
PLAN VIEW
BEAM LAPPING DETAIL



POST DRIVING FOR CONTINUOUS
UNDERGROUND OBSTRUCTION



SIDE VIEW

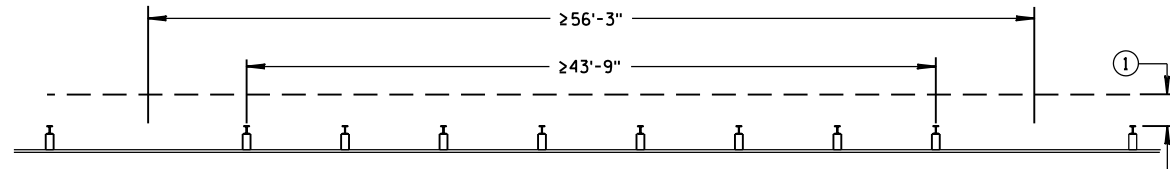


TOP VIEW

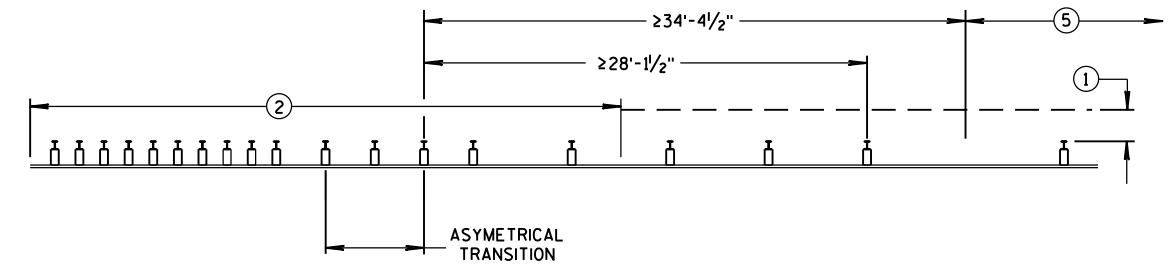
ALTERNATE WOOD
BLOCKOUT DETAIL

MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL

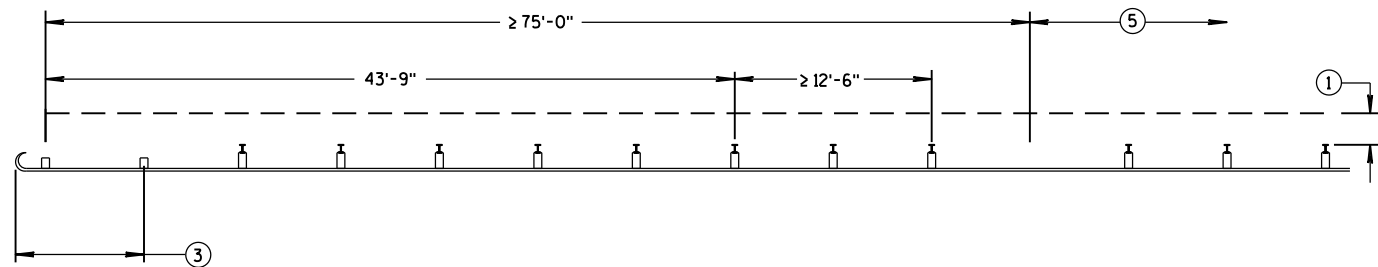
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



MISSING POST IN NORMAL BEAM GUARD RUN

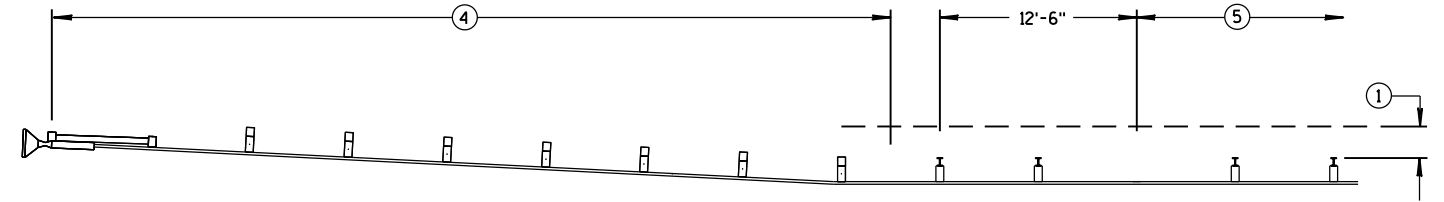


MISSING POST NEAR APPROACH THRIE BEAM TRANSITION

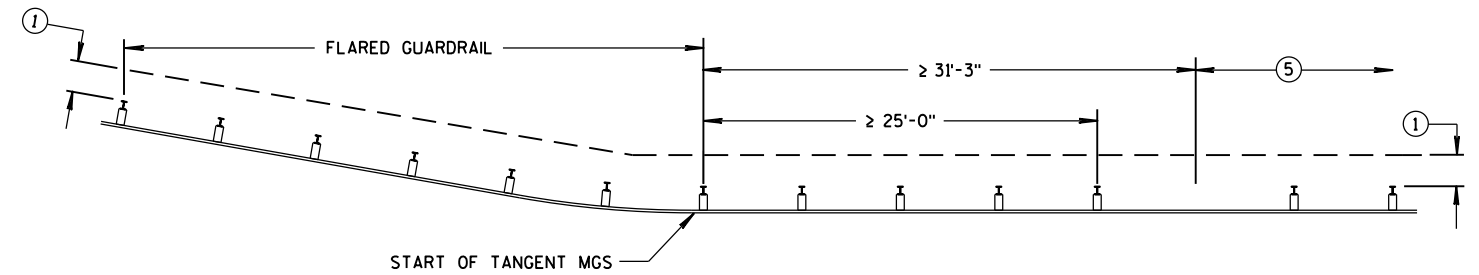


MISSING POST IN NORMAL BEAM GUARD RUN
NEAR TYPE 2 TERMINAL

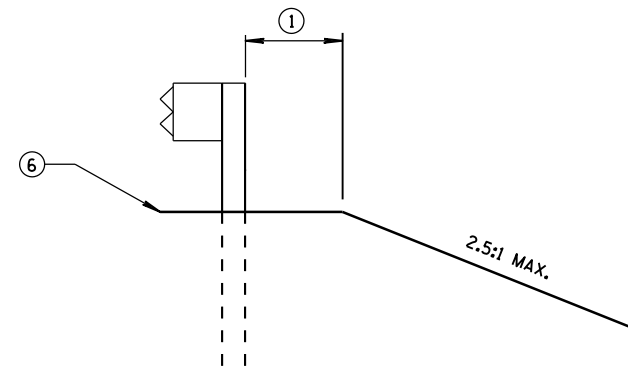
- ① MINIMUM OF 2 FEET OF GRADING BEHIND POST.
- ② SEE SDD 14B45 FOR MORE DETAILS.
- ③ SEE SDD 14B47 FOR MORE DETAILS.
- ④ SEE SDD 14B44 FOR MORE DETAILS.
- ⑤ SEE MISSING POST IN NORMAL BEAM GUARD RUN FOR DISTANCE TO NEXT MISSING POST AND AREA FOR WELL DRAINED, COMPACTED SOILS.
- ⑥ SEE PLAN FOR SHOULDER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



MISSING POST IN NORMAL BEAM GUARD RUN NEAR EAT



MISSING POST IN NORMAL BEAM GUARD RUN
NEAR FLARED BEAM GUARD



CROSS SECTION VIEW

MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

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.
- (F) ATTACH ALUMINUM SHEET TO E.A.T. HEAD USING 4 STAINLESS STEEL SELF-TAPPING SCREWS. ONE SCREW PER CORNER.
- (H) HARDWARE VARIES BETWEEN DIFFERENT MANUFACTURES. SEE MANUFACTURE'S DRAWING FOR INFORMATION.

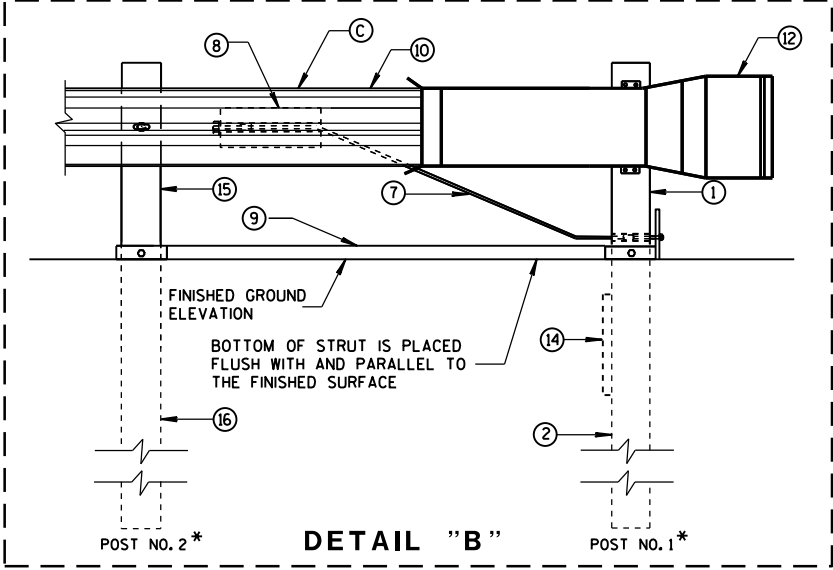
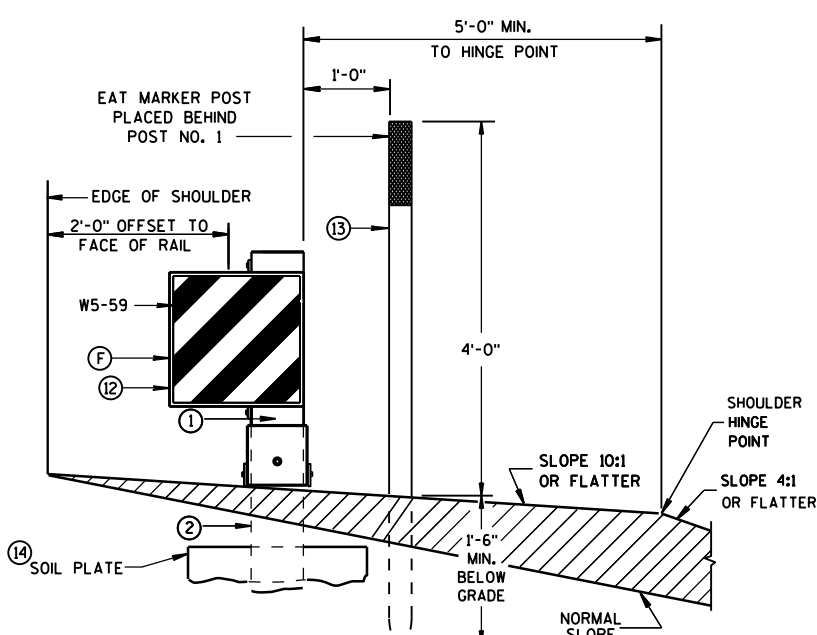
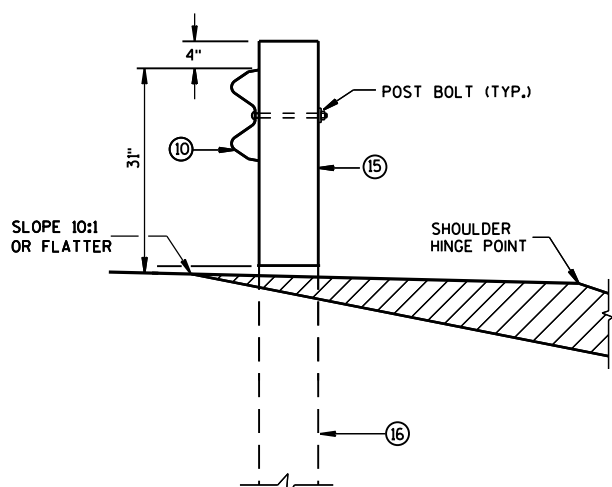
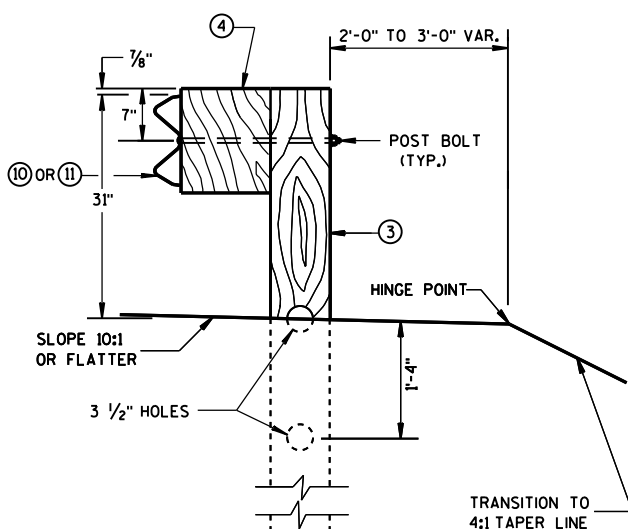
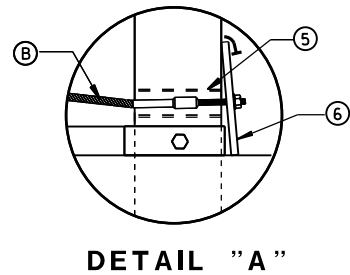
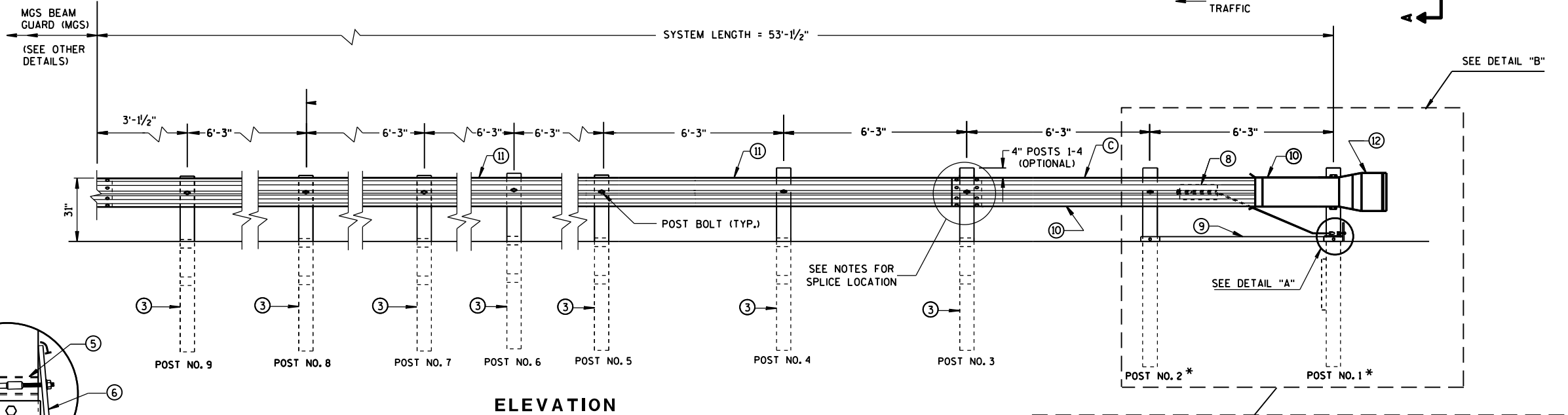
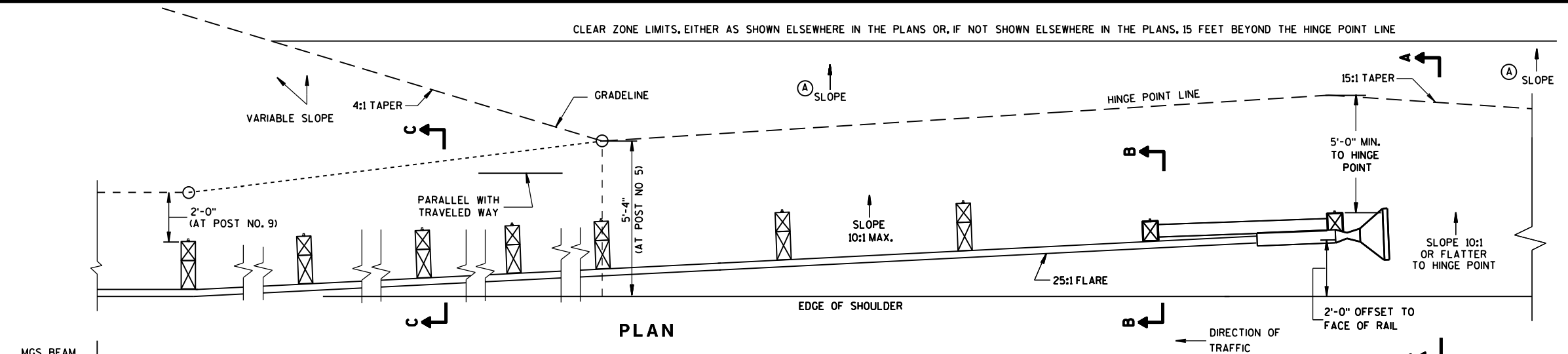
SEE SDD 14B42 FOR MORE INFORMATION.

* 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.

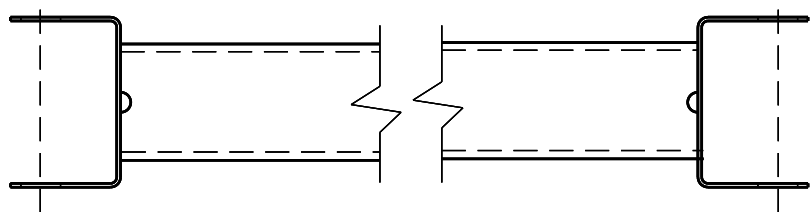
SEE MANUFACTURER'S DRAWING FOR SPLICE LOCATION, HARDWARE DIMENSIONS AND INSTALLATION INSTRUCTIONS.

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



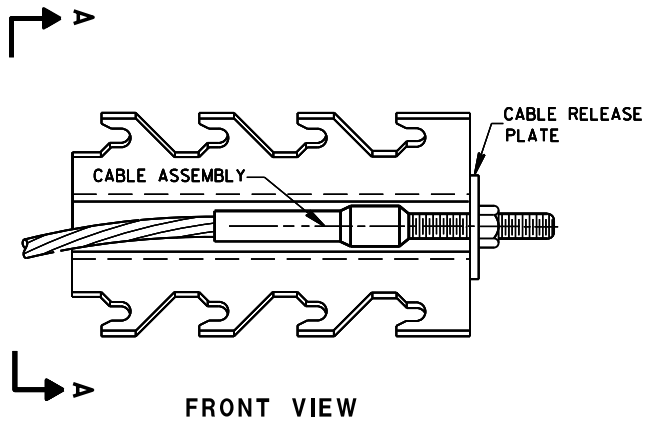
MIDWEST GUARDRAIL SYSTEM
ENERGY ABSORBING TERMINAL
(MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



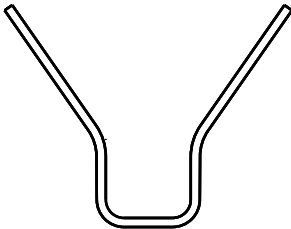
GENERIC GROUND STRUT

9 H

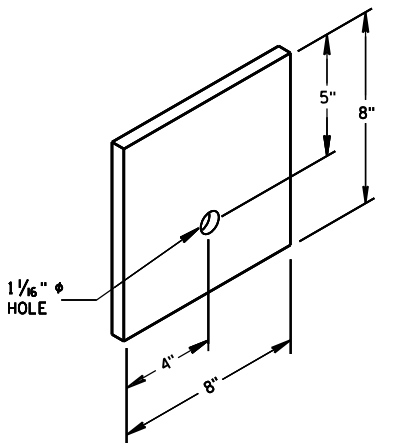


GENERIC ANCHOR CABLE BOX

8 H



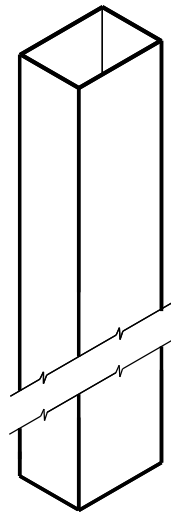
SECTION A-A



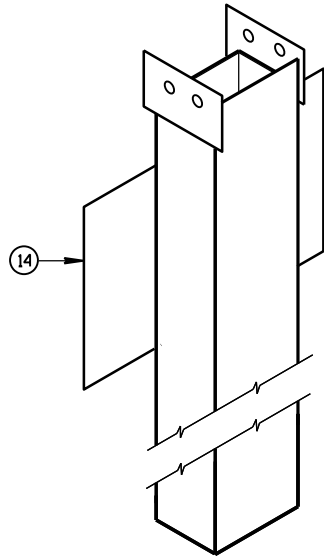
BEARING PLATE

6

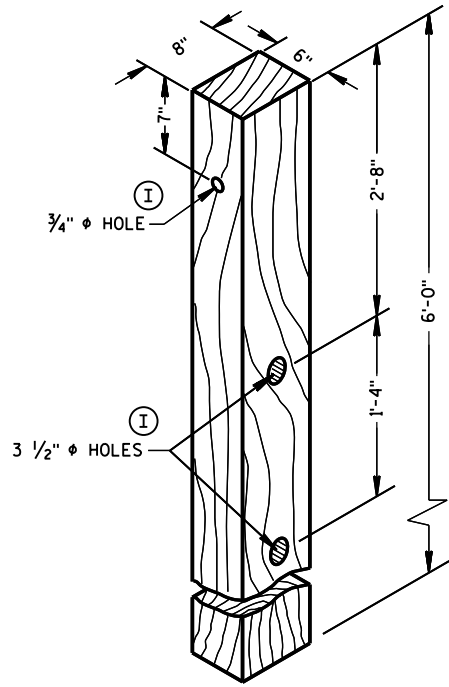
PART NO.	DESCRIPTION
MATERIALS PROVIDED BY MGS EAT MANUFACTURER. SEE MANUFACTURER'S DETAILS FOR MORE INFORMATION.	
①	UPPER POST NO.1 6" X 6" TUBE
②	LOWER POST NO.1
③	WOOD CRT
④	WOOD BLOCKOUT
⑤	PIPE SLEEVE
⑥	BEARING PLATE
⑦	BCT CABLE ASSEMBLY
⑧	ANCHOR CABLE BOX
⑨	GROUND STRUT
⑩	PERFORATED W-BEAM RAIL END PANEL, 12'-6" LONG.
⑪	STANDARD W-BEAM RAIL. MULTIPLE SECTIONS REQUIRED. SECTIONS VARY IN LENGTH.
⑫	IMPACT HEAD
⑬	EAT MARKER POST - YELLOW (SEE APPROVED PRODUCTS LIST)
⑭	SOIL PLATE
⑮	UPPER POST NO. 2
⑯	LOWER POST NO. 2



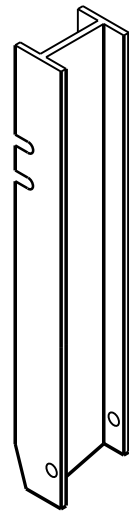
UPPER POST NO. 1⁽¹⁾



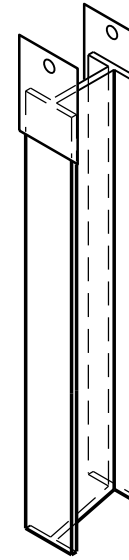
LOWER POST NO. 1⁽²⁾



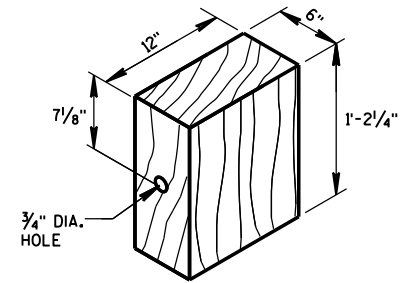
POSTS NUMBER 3-9
WOOD CRT POST⁽³⁾



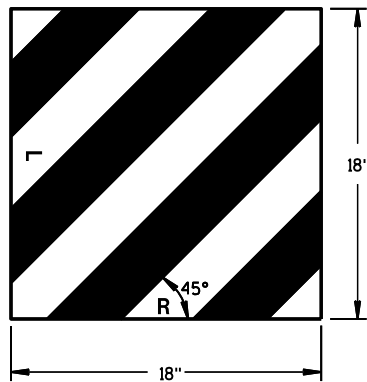
UPPER POST NO. 2⁽¹⁵⁾



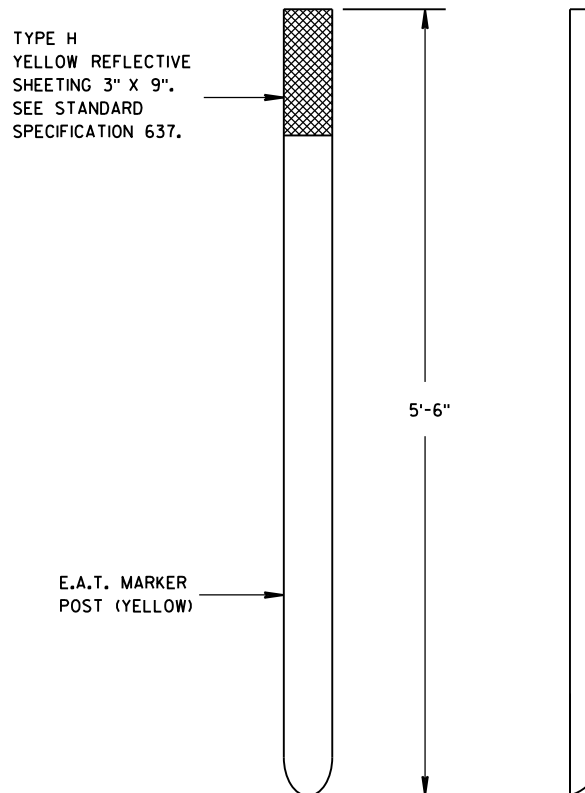
LOWER POST NO. 2⁽¹⁶⁾



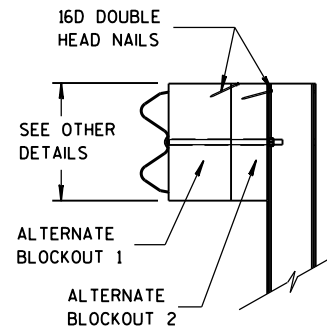
WOOD BLOCKOUT⁽⁴⁾
REQ'D. AT ALL POSTS EXCEPT POST NO'S 1 & 2



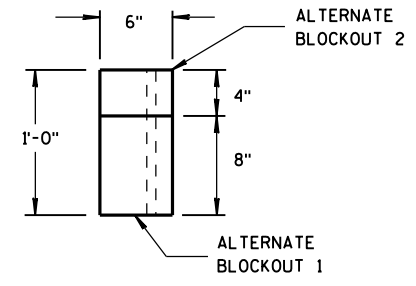
W5-59
REFLECTIVE SHEETING DETAIL^(H)



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

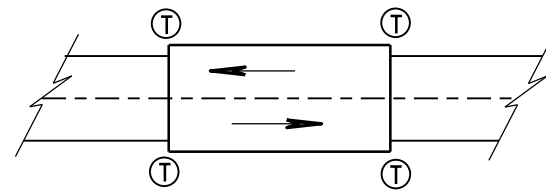


SIDE VIEW
ALTERNATE WOOD
BLOCKOUT DETAIL



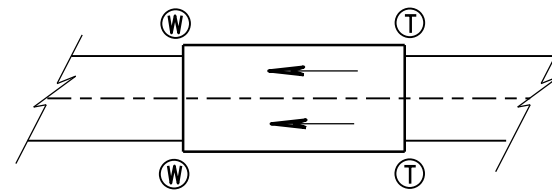
TOP VIEW

MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED June 2017 DATE	/S/ Rodney Taylor ROADWAY STANDARDS DEVELOPMENT UNIT SUPERVISOR
FHWA	



TWO WAY TRAFFIC

Ⓣ THRIE BEAM CONNECTION



ONE WAY TRAFFIC

Ⓦ W-BEAM CONNECTION WHEN REQUIRED

GENERAL NOTES

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

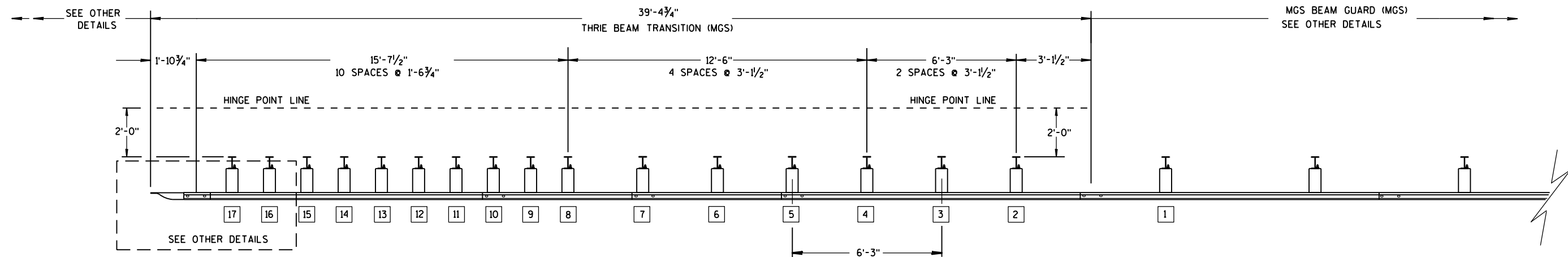
TRANSITION USES STEEL POSTS ONLY.

SEE STANDARD DETAIL DRAWING 14 B 42 FOR MORE INFORMATION.

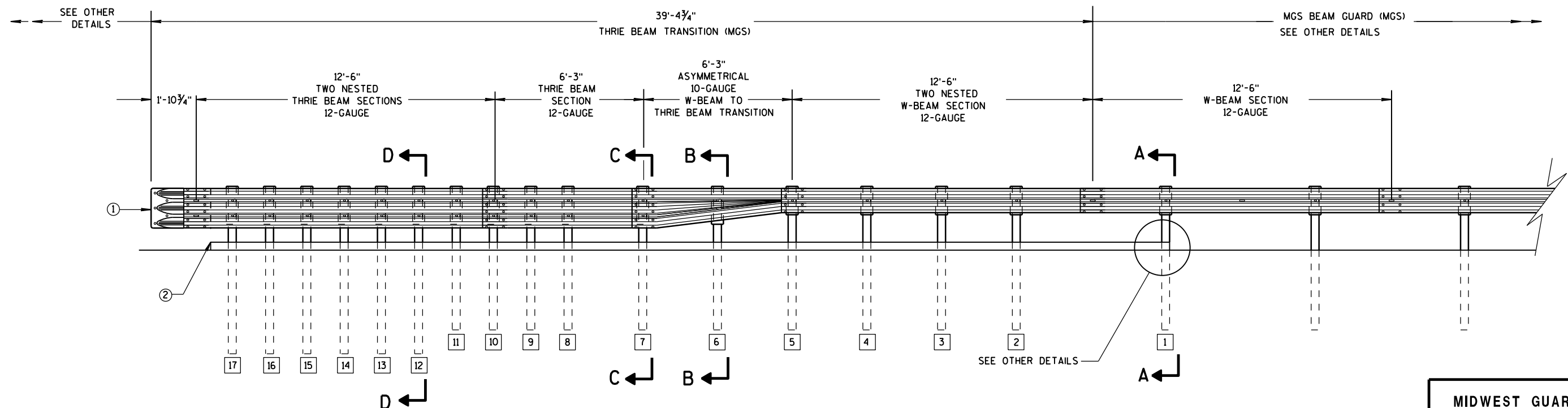
① BRIDGE RAILING TYPE "W" DOES NOT REQUIRE A TERMINAL CONNECTOR.

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

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



PLAN VIEW



ELEVATION VIEW

MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

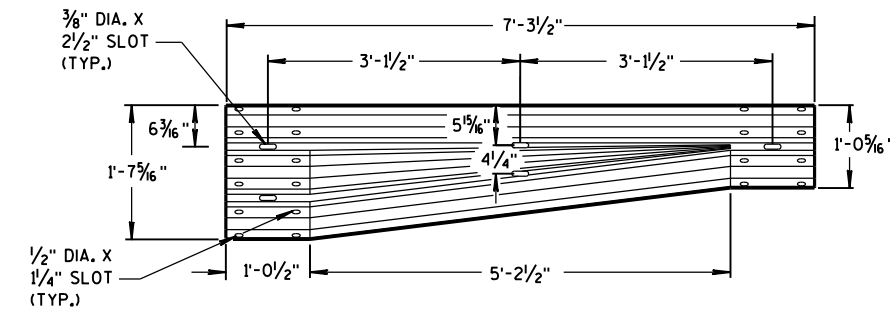
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6

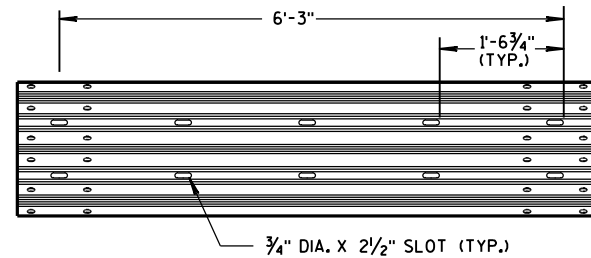
- S.D.D. 14 B 45-4b**



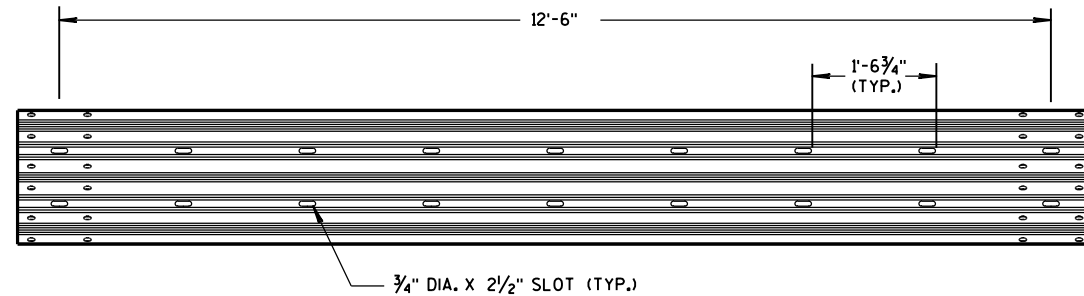
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



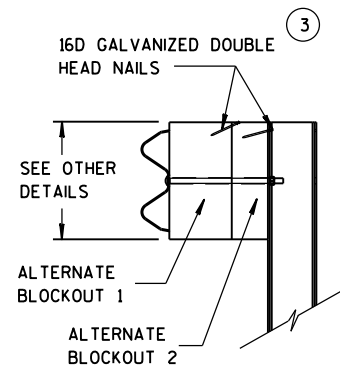
W-BEAM TO THRIE BEAM TRANSITION SECTION



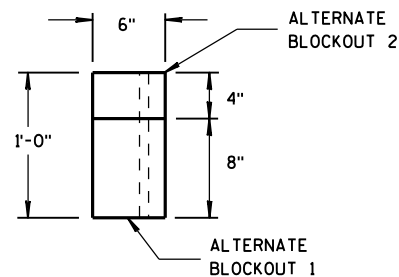
6'-3" THRIE BEAM SECTION



12'-6" THRIE BEAM SECTION

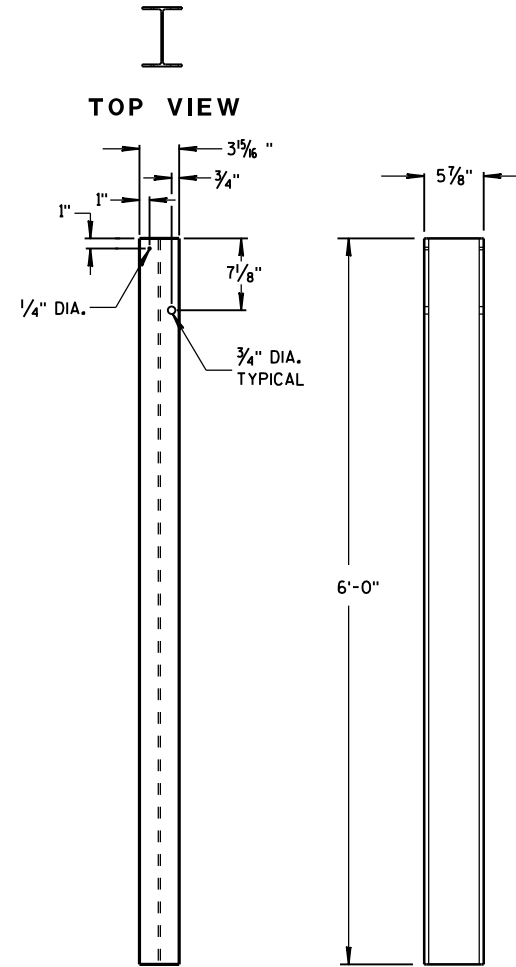


SIDE VIEW



TOP VIEW

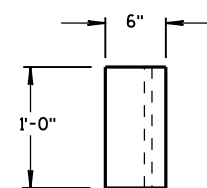
ALTERNATE WOOD BLOCKOUT DETAIL



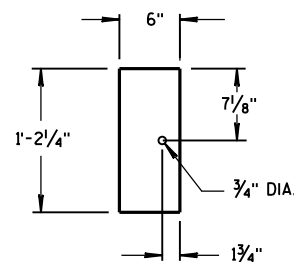
FRONT VIEW

SIDE VIEW

STEEL POSTS 1-5

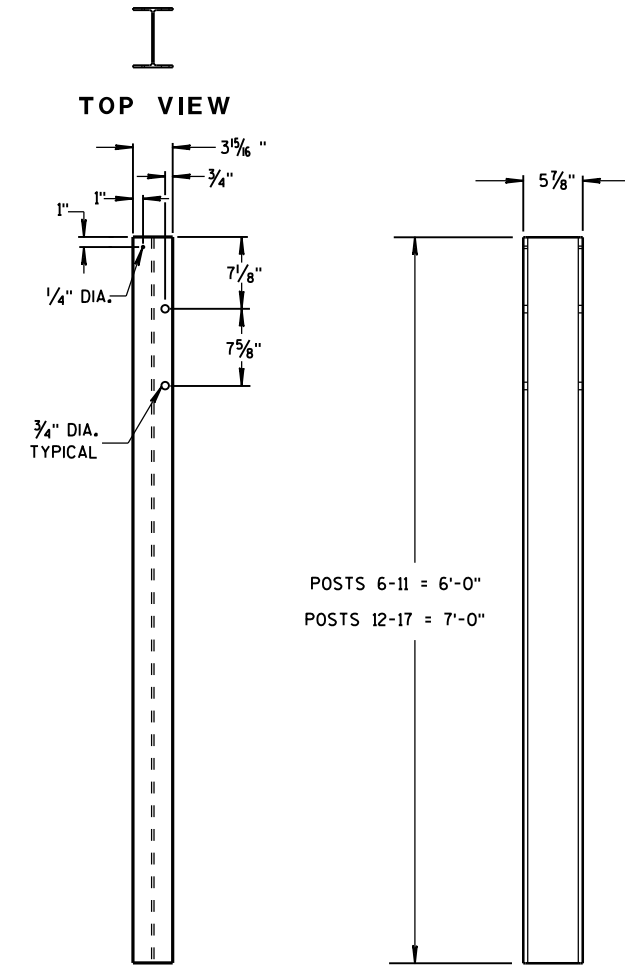


TOP VIEW



FRONT VIEW

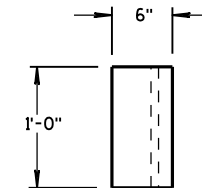
BLOCKOUT
POSTS 1-5



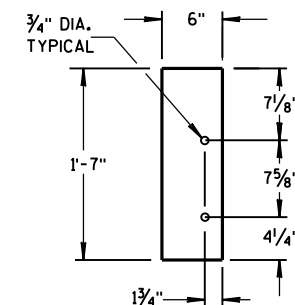
FRONT VIEW

SIDE VIEW

STEEL POSTS 6-17



TOP VIEW



FRONT VIEW

BLOCKOUT
POSTS 6-17

GENERAL NOTES

STEEL POSTS ARE W6X9 OR W6X8.5.

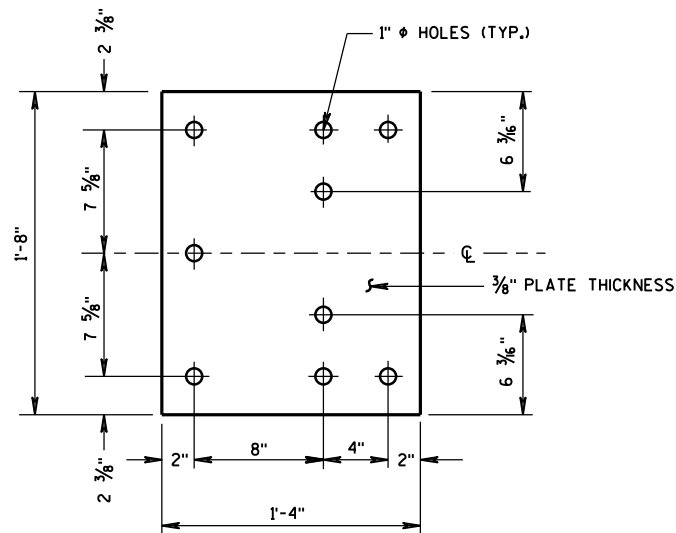
BOLT HOLES FOR POST ARE ON FRONT AND OF SIDE OF POST.

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

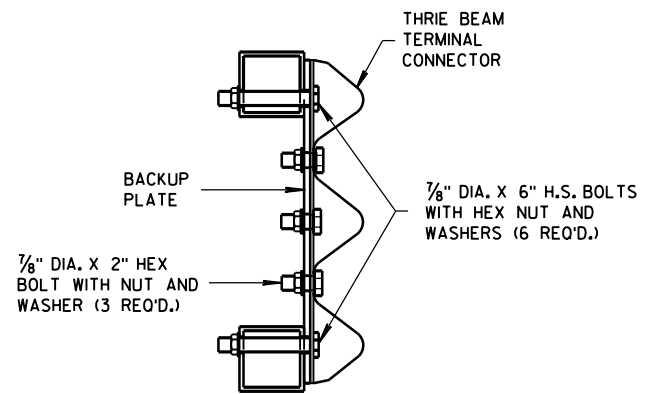
(5) WOOD BLOCKS MAY BE CONSTRUCTED OUT OF 2 WOOD BLOCKS. SEE ALTERNATE WOOD BLOCK DETAIL.

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

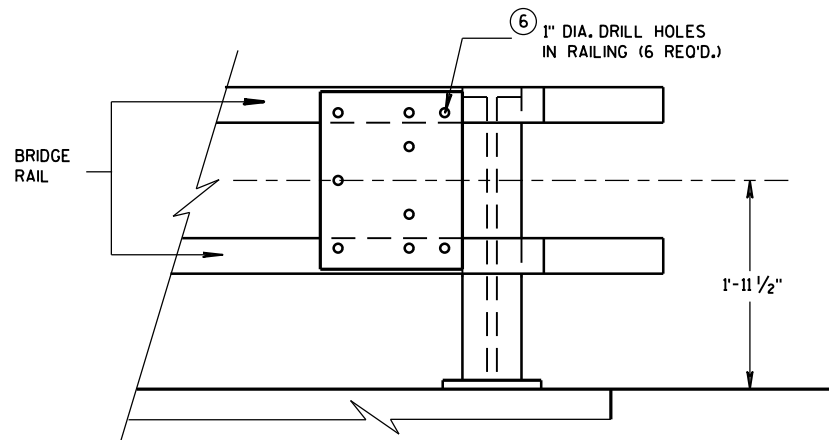
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



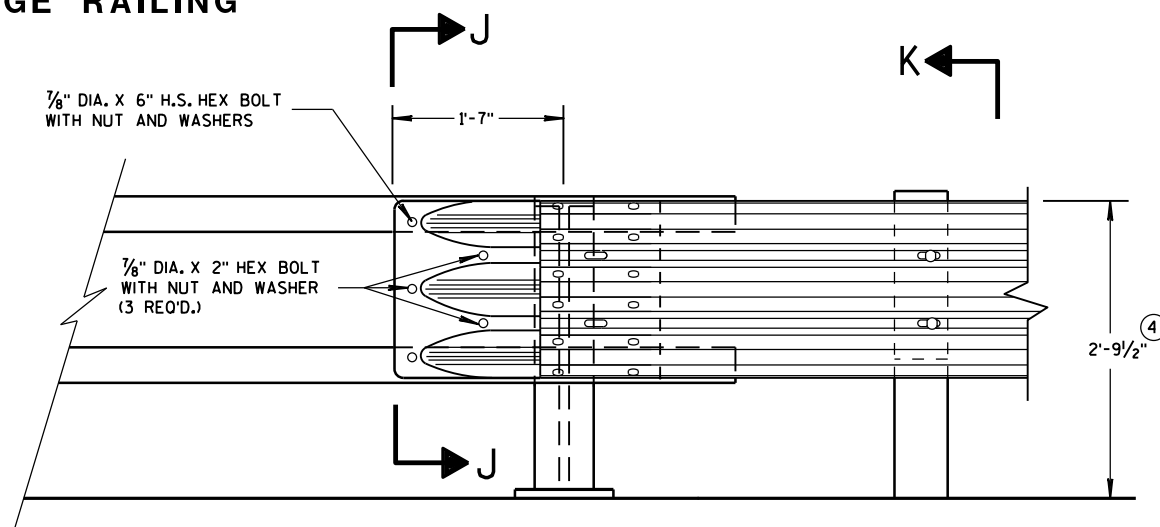
BACK-UP PLATE DETAIL



SECTION J-J

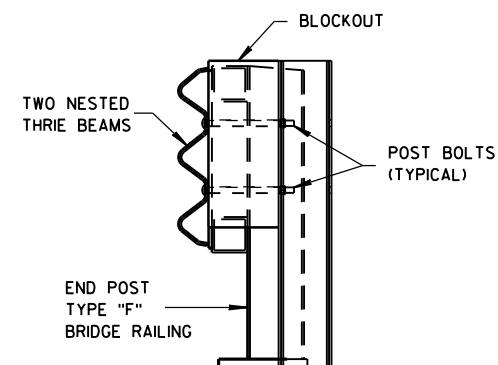


BACK-UP PLATE MOUNTING ONTO BRIDGE RAILING



FRONT VIEW

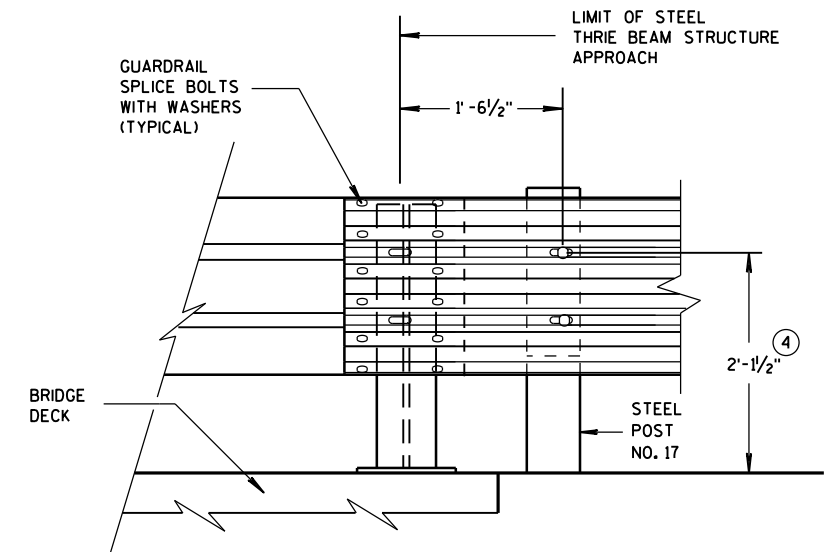
THRIE BEAM CONNECTION TO TUBULAR RAILING TYPE "F"



SECTION K-K

GENERAL NOTES

- ④ TOLERANCE FOR TOP OF BEAM IS $\pm 1"$.
- ⑥ DRILLING HOLES THROUGH THE PAPER, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.



FRONT VIEW

THRIE BEAM CONNECTION TO STEEL RAILING TYPE "W"

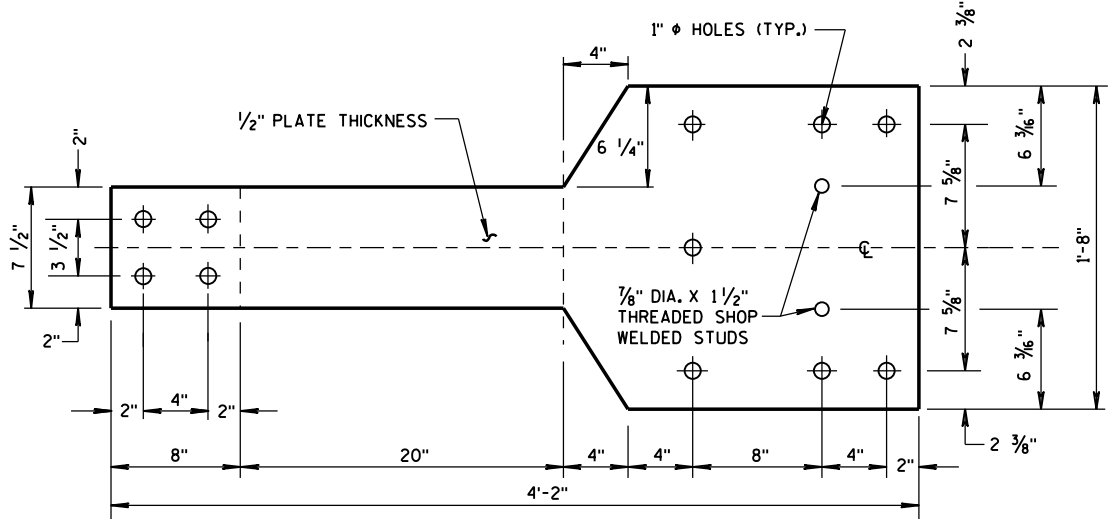
MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

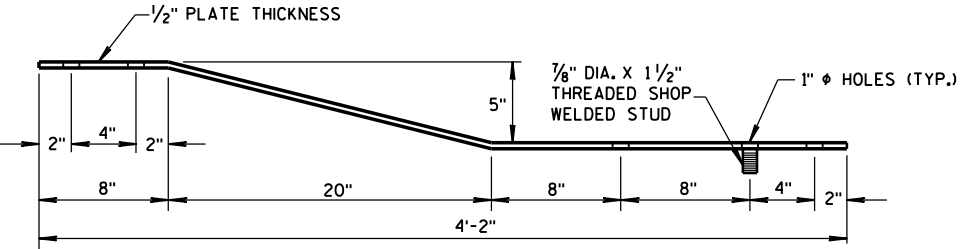
APPROVED
June, 2015 /S/ Jerry H. Zogg
DATE ROADWAY STANDARDS DEVELOPMENT
ENGINEER
FHWA

GENERAL NOTES

④ TOLERANCE FOR TOP OF W-BEAM RAIL IS $\pm 1"$.

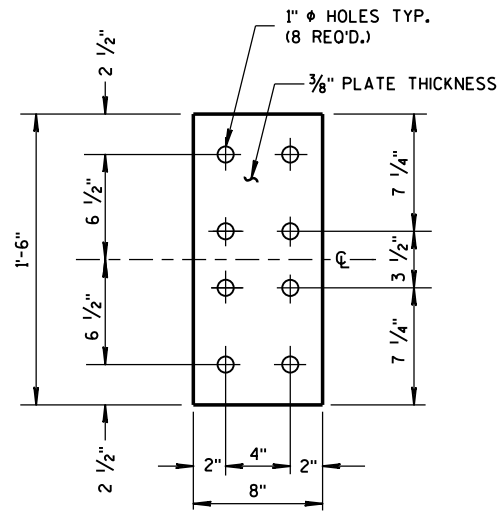


FRONT VIEW



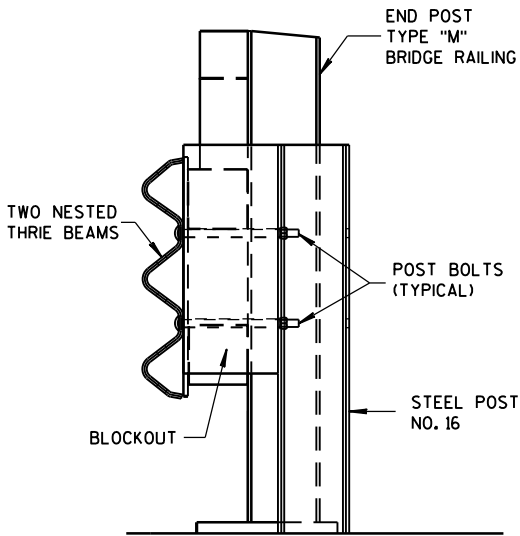
PLAN VIEW

BACK-UP PLATE DETAIL, TYPE "M"

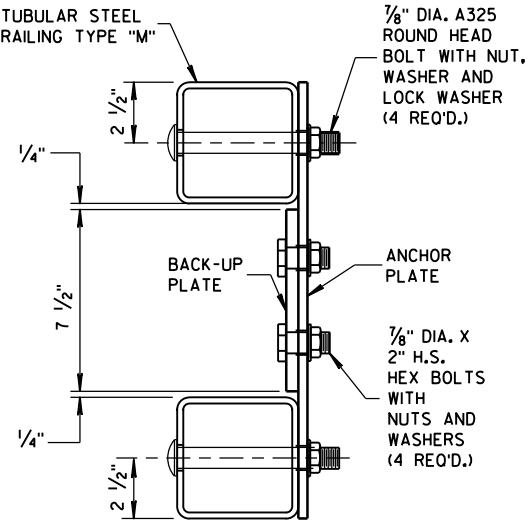


FRONT VIEW

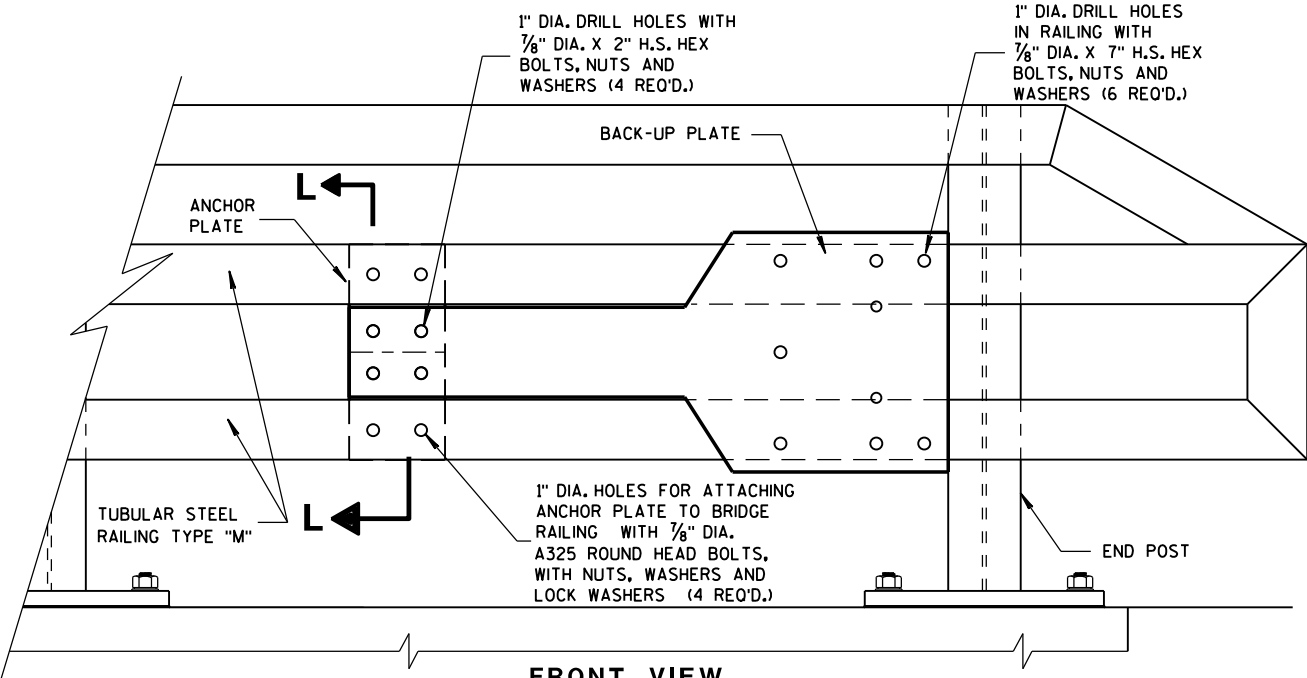
ANCHOR PLATE DETAIL, TYPE "M"



SECTION M-M

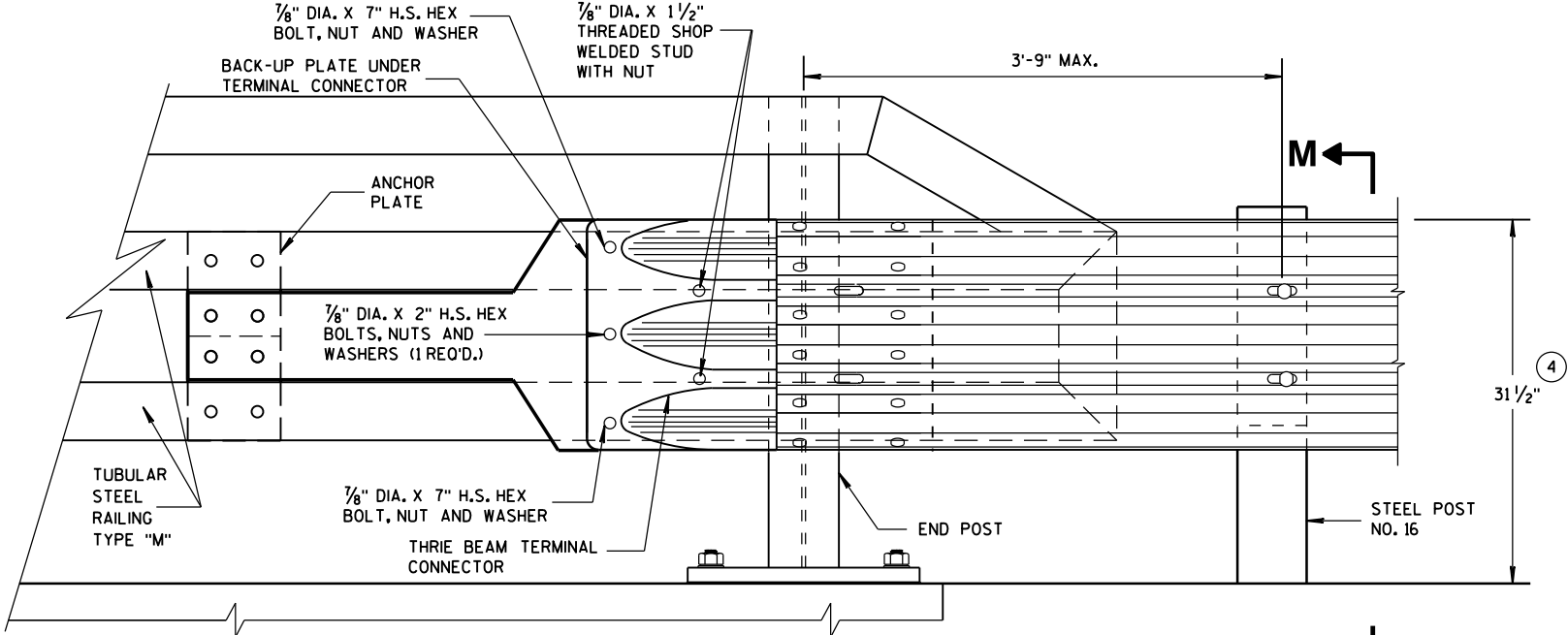


SECTION L-L

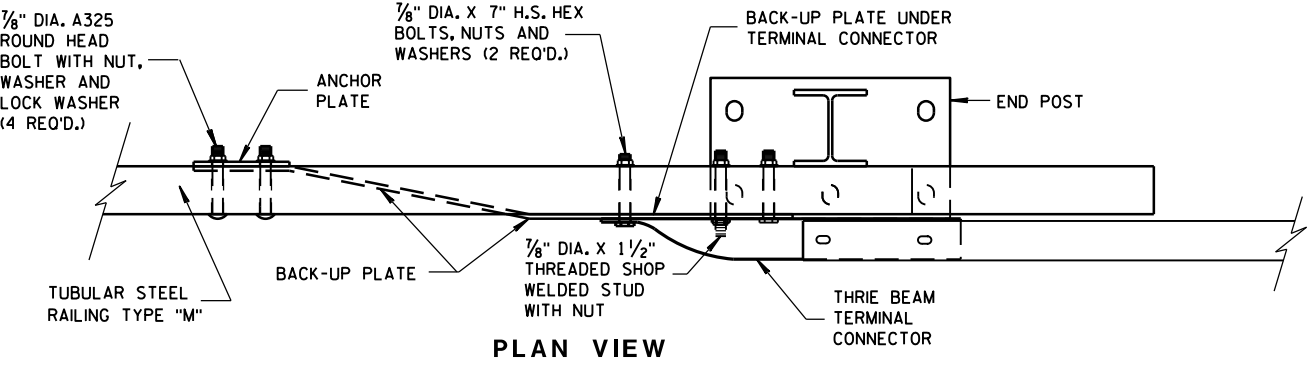


FRONT VIEW

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



FRONT VIEW



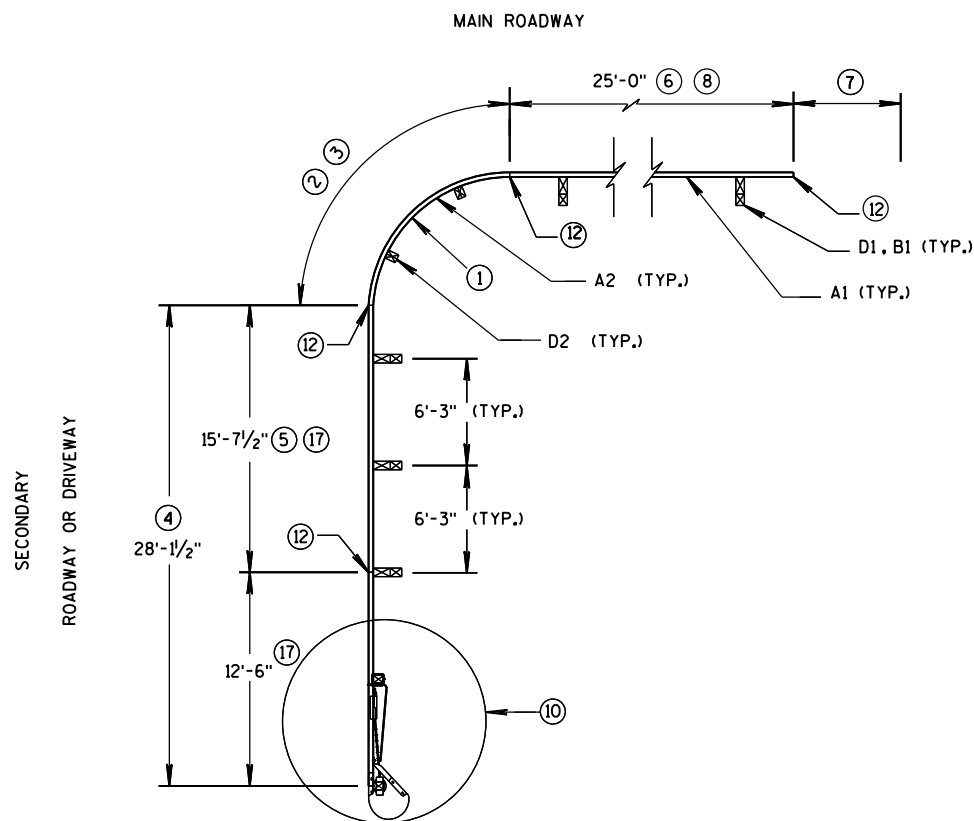
PLAN VIEW

THRIE BEAM CONNECTION TO TUBULAR RAILING, TYPE "M"

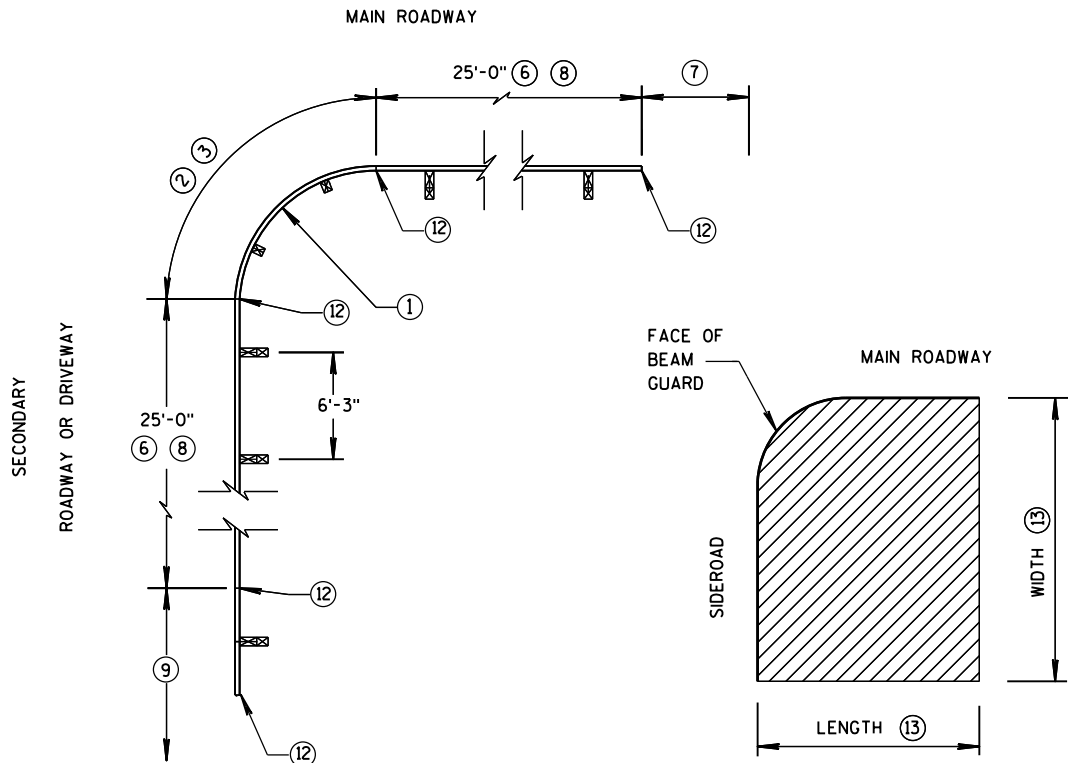
MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

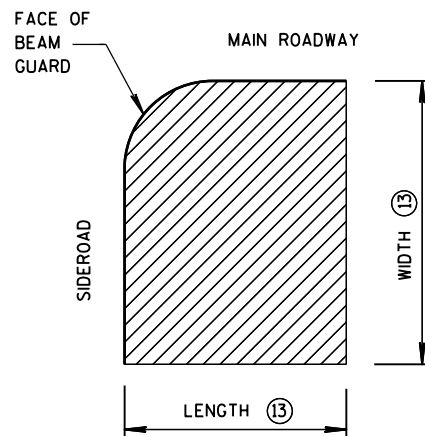
APPROVED
June, 2015
DATE
/S/ Jerry H. Zogg
ROADWAY STANDARDS DEVELOPMENT
ENGINEER
FHWA



SHORT RADIUS BEAM GUARD WITH
SHORT RADIUS TERMINAL ON
SECONDARY ROAD OR DRIVEWAY
PLAN VIEW



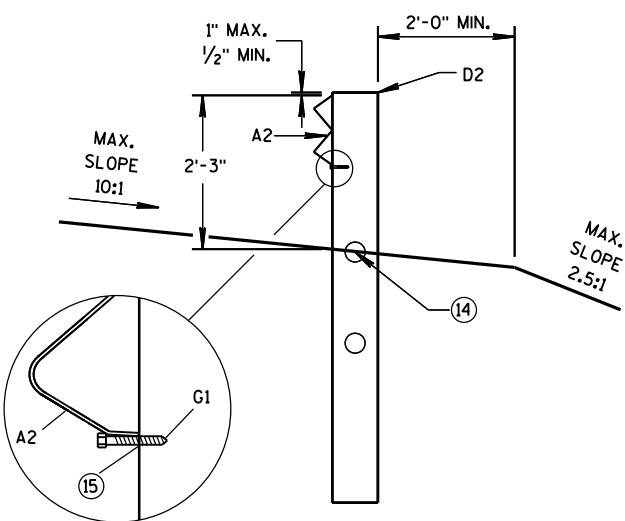
SHORT RADIUS BEAM GUARD WITH
EAT, ADDITIONAL BEAM GUARD
OR
TRANSITION TO RIGID BARRIER
ON SECONDARY ROAD OR
DRIVEWAY
PLAN VIEW



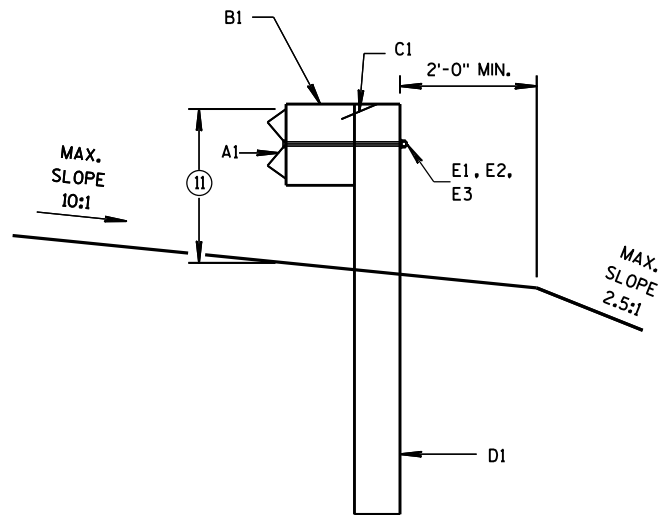
AREA FREE OF
FIXED OBJECTS FOR
RADIUS 32' AND LESS (16)

TABLE FOR RADIUS OF 32' AND LESS

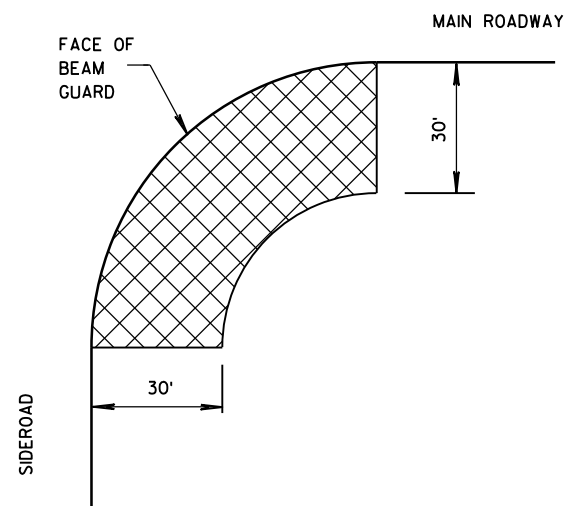
RADIUS FT	LENGTH FT	WIDTH FT
8	25	15
16	30	15
24	40	20
32	50	30



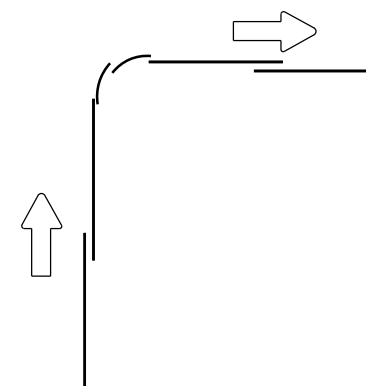
CONTROLLED RELEASE
TERMINAL POST (CRT) IN RADIUS



BEAM GUARD POSTS
IN HEIGHT TRANSITION



AREA FREE OF FIXED OBJECTS (16)
RADIUS GREATER THAN 32'



LAP SPLICE DETAIL

GENERAL NOTES

SEE PLANS FOR OTHER BARRIER SYSTEM AND LOCATION SPECIFICS.

SEE 14B42 FOR MORE INFORMATION ON BEAM GUARD INSTALLATION, PARTS, MATERIALS, AND INSTALLATION INFORMATION.

GALVANIZE PARTS AFTER FABRICATION.

WELDING IS TO FOLLOW CURRENT REQUIREMENTS OF THE AMERICAN WELDING SOCIETY STRUCTURAL WELDING CODE ANSI/AWS D1.1

UNLESS NOTED OTHERWISE, ALL PLATES ARE FLAT AND FREE OF WARP.

UNLESS NOTED OTHERWISE, ALL EDGES ARE SMOOTH, STRAIGHT AND VERITCAL.

ALL CUTS AND HOLES, EXCEPT IN BEAM GUARD RAIL ARE TO BE MACHINED OR MACHINE FLAME CUTS.

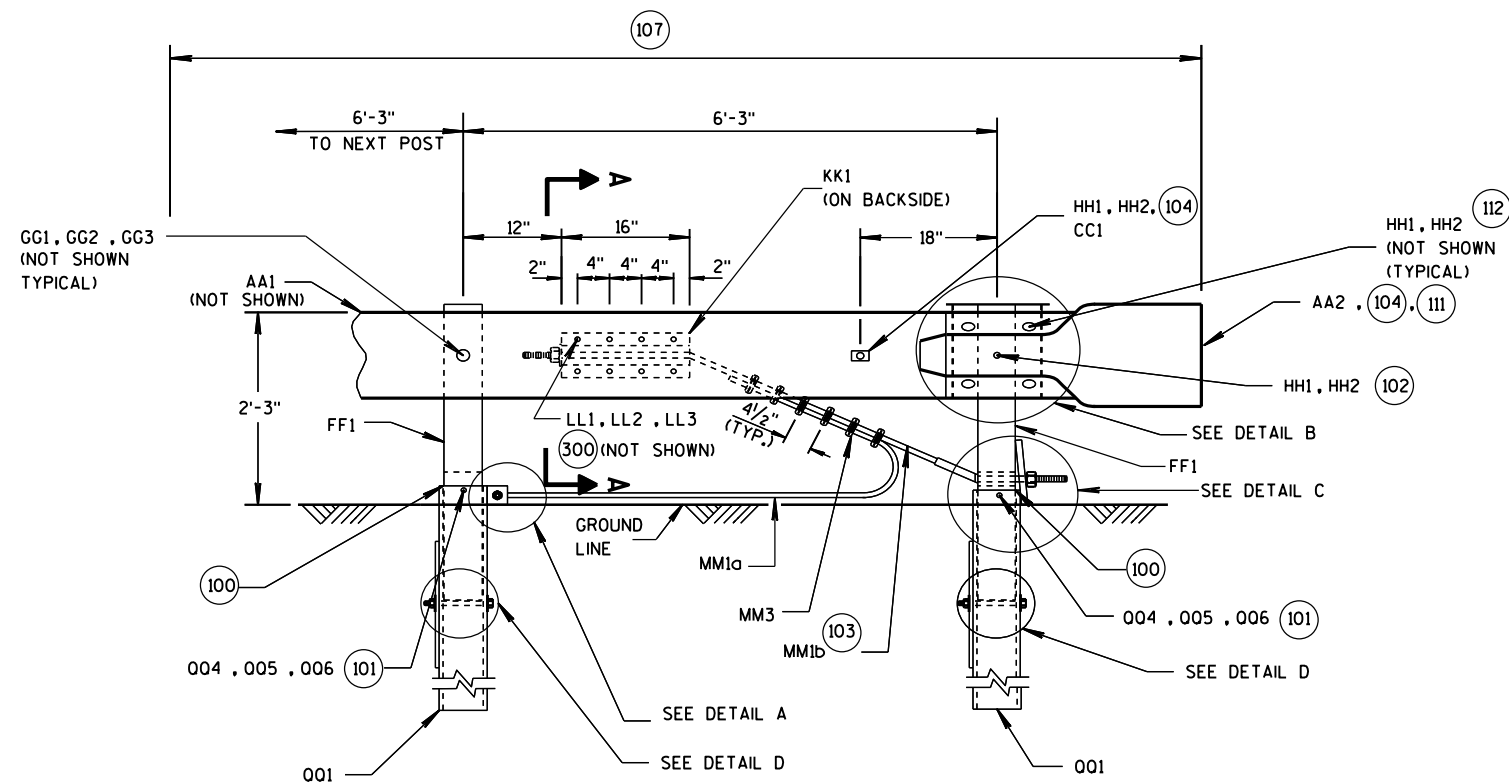
UNLESS NOTED OTHERWISE CUT OR PROVIDE BOLTS THAT ARE 1/4" TO 1/2" BEYOND THE NUT

DRAWINGS ARE NOT TO SCALE.

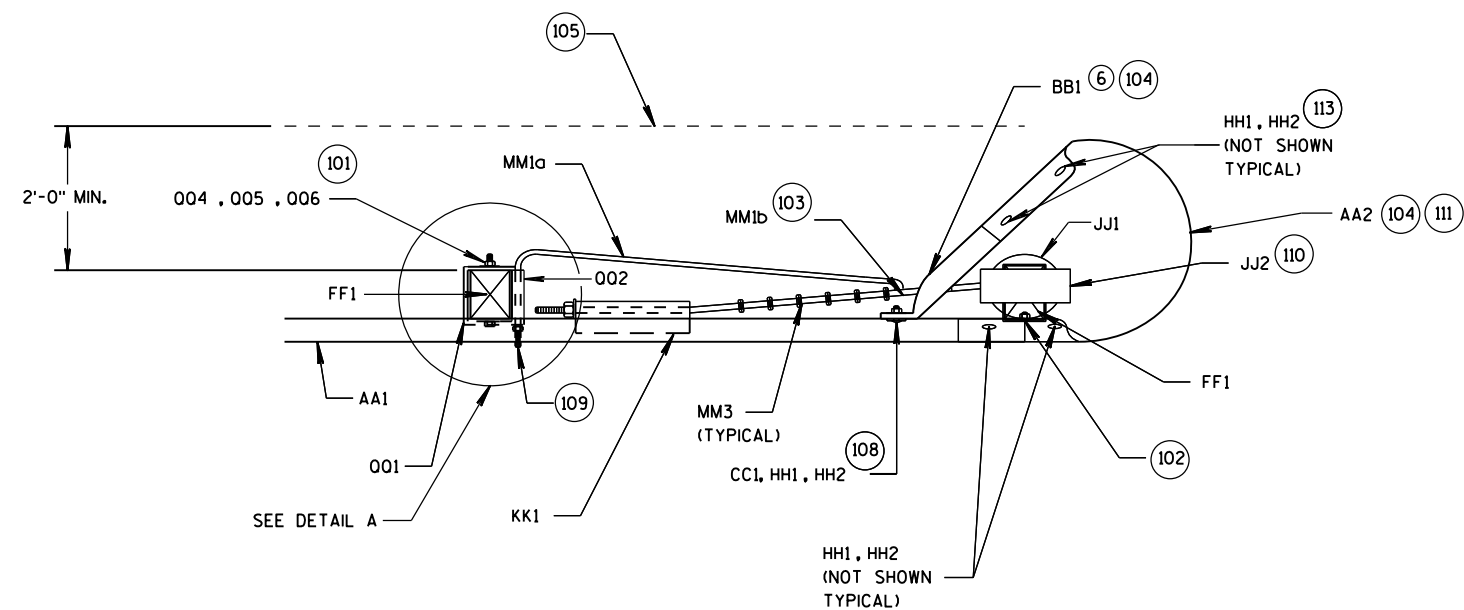
- (1) RADIUS MEASURE FROM INSIDE OF RAIL. LENGTH OF BEAM GUARD SHORT RADIUS GUARD MEASURED ALONG TRAFFIC SIDE OF RAIL. RADIUS BETWEEN 8 FEET TO 150 FEET. SEE PLAN FOR REQUIRED RADIUS. BEAM GUARD RAIL IN RADIUS IS SHOP BENT. ODD RAIL LENGTH OR FIELD CUTS MAY BE REQUIRED.
- (2) CONTROLLED RELEASE TERMINAL (CRT) POSTS ARE USED IN THE RADIUS. CONTROLLED RELEASE TERMINAL (CRT) POSTS ARE SPACED 6'-3". SEE PLAN FOR NUMBER OF CONTROLLED RELEASE TERMINAL (CRT) POSTS.
- (3) WITHIN RADIUS BEAM GUARD RAILS ARE NOT BOLTED TO POSTS. BEAM GUARD RAILS RESTED ON TOP OF LAG SCREW.
- (4) MINIMUM LENGTH OF BEAM GUARD ALONG SIDE ROAD OR DRIVEWAY TO INSTALL SHORT RADIUS TERMINAL. BEAM GUARD IS PAID FOR WITH BEAM GUARD ITEM.
- (5) ODD LENGTH OF BEAM GUARD REQUIRED TO INSTALL SHORT RADIUS TERMINAL.
- (6) MINIMUM AMOUNT OF BEAM GUARD TO BE INSTALLED PRIOR TRANSITION TO RIGID BARRIER, ADDITIONAL BEAM GUARD, OR EAT. BEAM GUARD PAID FOR WITH BEAM GUARD ITEM. SEE PLANS FOR MORE DETAIL.
- (7) BEAM GUARD, EAT OR TRANSITION TO RIGID BARRIER. SEE PLAN.
- (8) TOP OF BEAM GUARD BY THE RADIUS IS 27". HEIGHT OF BEAM GUARD IS 31" BY TRANSITION TO RIGID BARRIER, ADDITIONAL BEAM GUARD OR EAT.
- (9) ADDITIONAL BEAM GUARD, EAT OR TRANSITION TO RIGID BARRIER. BEAM GUARD SHOWN. SEE PLAN FOR DETAILS.
- (10) SHORT RADIUS TERMINAL (SEE OTHER DETAILS)
- (11) HEIGHT VARIES. SEE NOTE (8) AND (17).
- (12) BEAM GUARD RAIL SPLICE LOCATION. SPLICE LOCATION REQUIRE PART F1 AND F2. SEE SDD 14B42 FOR DETAILS.
- (13) SEE TABLE FOR VALUES.
- (14) MAXIMUM HEIGHT FOR CENTER OF HOLE IS 3/4" ABOVE FINISHED GROUND ±1".
- (15) DRILL 15/64" DIA. PILOT HOLE. DO NOT HAMMER LAG SCREW INTO POST.
- (16) SMALL SIGNS ON BREAKAWAY HARDWARE ARE ACCEPTABLE.
- (17) TOP OF RAIL HEIGHT IS 27" WHEN USING A SHORT RADIUS TERMINAL.

SHORT RADIUS BEAM GUARD
(MGS) SHORT RADIUS
TERMINAL (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

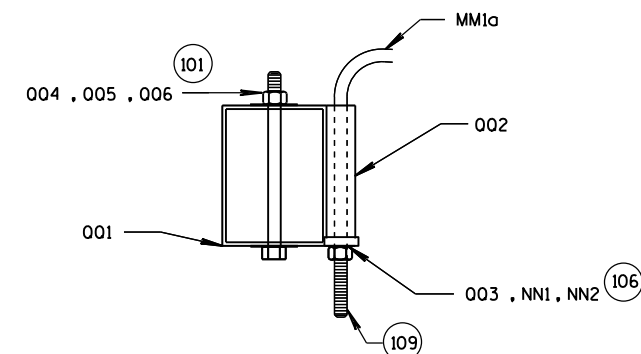


**SHORT RADIUS TERMINAL
PROFILE VIEW**

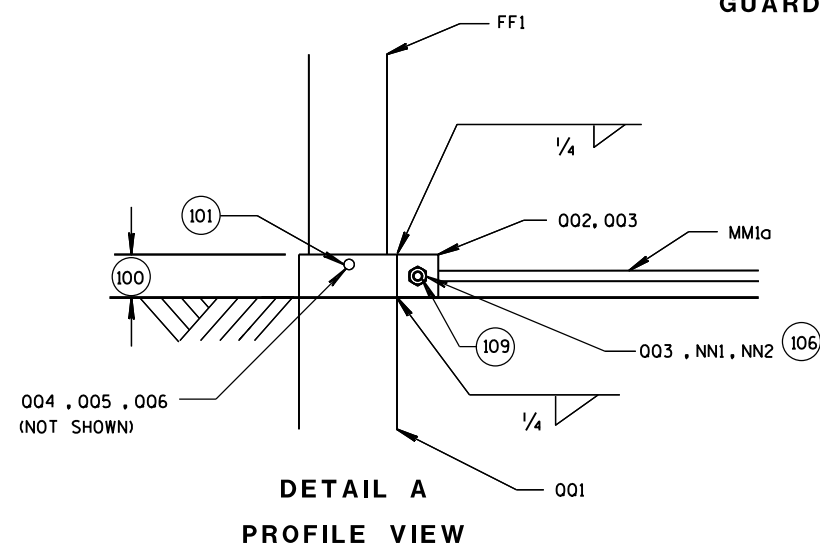


**SHORT RADIUS TERMINAL
TOP VIEW**

- 100 TOP OF FOUNDATION TUBE 2 INCHES MAXIMUM ABOVE FINISHED GROUND.
- 101 WASHERS REQUIRED BETWEEN BOLT HEAD AND FOUNDATION TUBE AND BETWEEN NUT AND FOUNDATION TUBE.
- 102 SPLICE BOLT AND NUT CONNECTS BEAM GUARD RAIL, W-BEAM END SECTION BUFFER, AND STEEL PIPE ASSEMBLY. NO WASHER REQUIRED. SEE DETAIL B.
- 103 CABLE IS TAUT.
- 104 ADJUST AA2 AND BB1 TO FIT.
- 105 BREAK POINT OF SHOULDER.
- 106 TACK WELD CABLE CONNECTOR TUBE PLATE TO CABLE CONNECTION TUBE. SEE DETAIL A PROFILE VIEW.
- 107 PAY LIMIT FOR BEAM GUARD.
- 108 SQUARE WASHER BETWEEN HEAD OF BOLT AND TRAFFIC FACE OF BEAM GUARD. ROUND WASHER REQUIRED BETWEEN NUT AND BB1.
- 109 CUT OR PROVIDE THREADED STUD THAT IS FLUSH WITH FACE OF BEAM GUARD RAIL KK1 (PLUS OR MINUS 1/2" TOLERANCE). DEBURR AFTER CUTTING.
- 110 SEE STEEL PIPE ASSEMBLY DETAILS.
- 111 ATTACH UU2 WITH UU3. SHOP APPLY UU1 TO UU2.
- 112 FOUR HH1 AND HH2 REQUIRED TO ATTACH AA1 TO AA2.
- 113 FOUR HH1 AND HH2 REQUIRED TO ATTACH AA2 TO BB1.



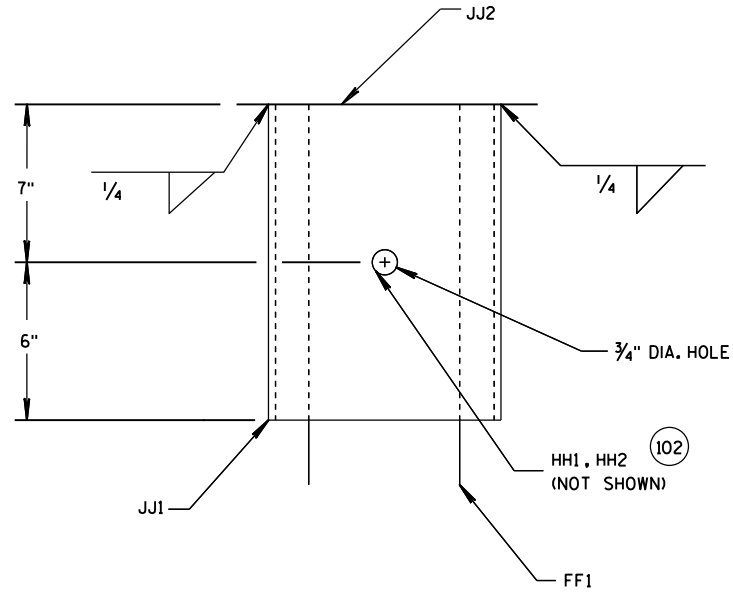
**DETAIL A
TOP VIEW
(WOOD BREAKAWAY AND BEAM
GUARD RAIL POSTS NOT SHOWN)**



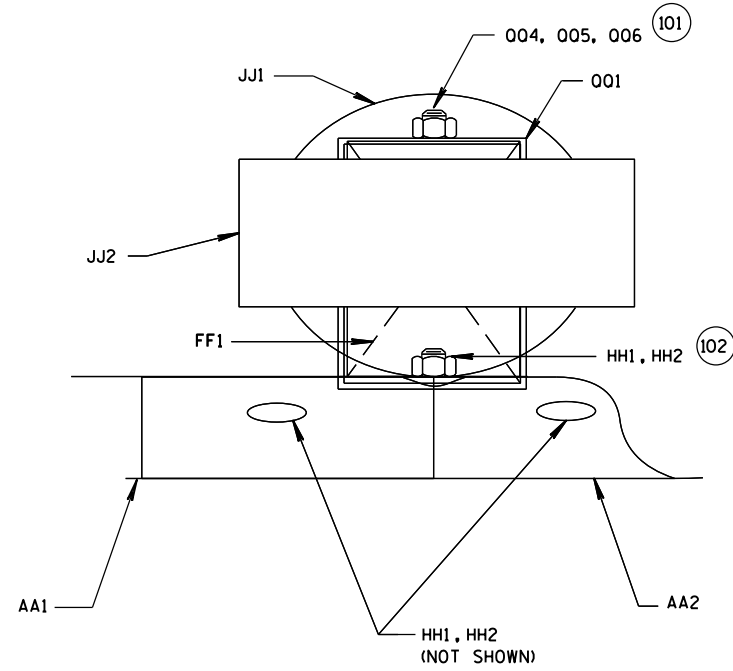
**DETAIL A
PROFILE VIEW**

**STEEL PLATE BEAM GUARD
SHORT RADIUS TERMINAL
MGS**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

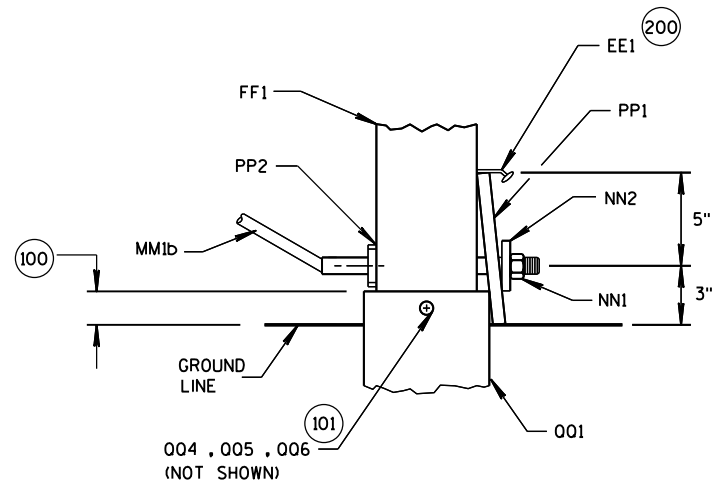


DETAIL B
PROFILE VIEW OF STEEL PIPE ASSEMBLY
 (BEAM GUARD AND W-BEAM
 END SECTION NOT SHOWN)

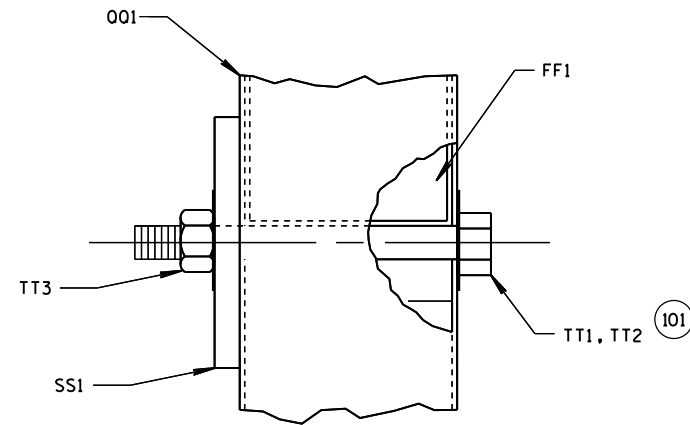


DETAIL B
PLAN VIEW OF STEEL PIPE ASSEMBLY

(200) 2 NAILS SPACED 4 INCHES CENTER TO CENTER.



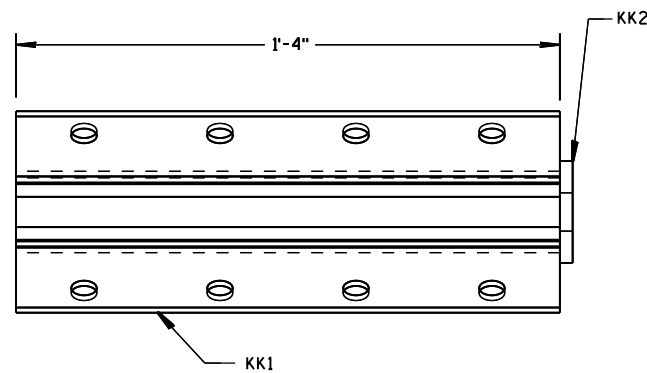
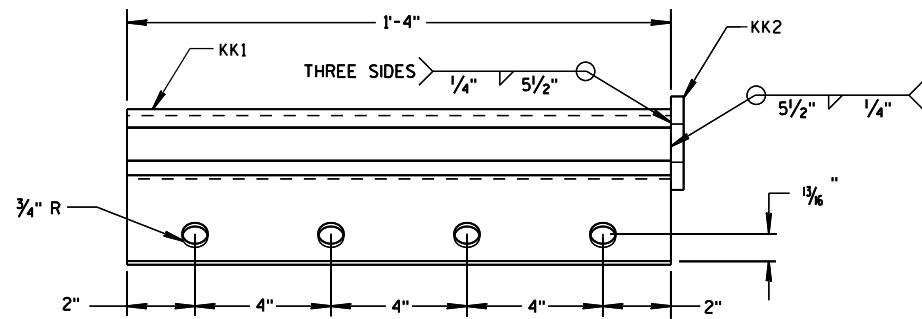
DETAIL C
PROFILE VIEW



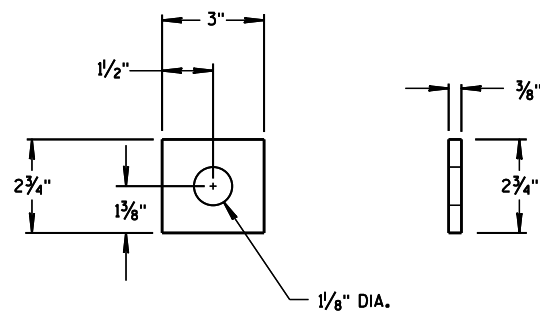
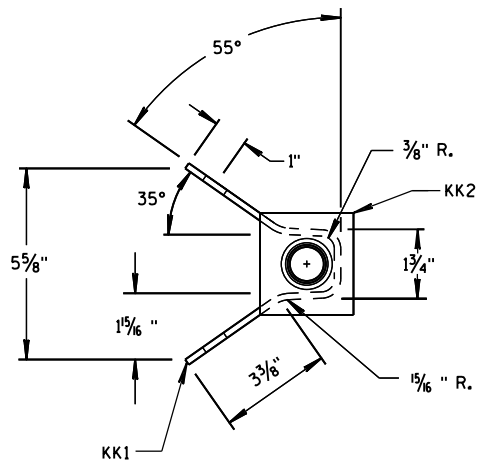
DETAIL D
PROFILE VIEW

**SHORT RADIUS BEAM GUARD
 (MGS) SHORT RADIUS
 TERMINAL (MGS)**

STATE OF WISCONSIN
 DEPARTMENT OF TRANSPORTATION

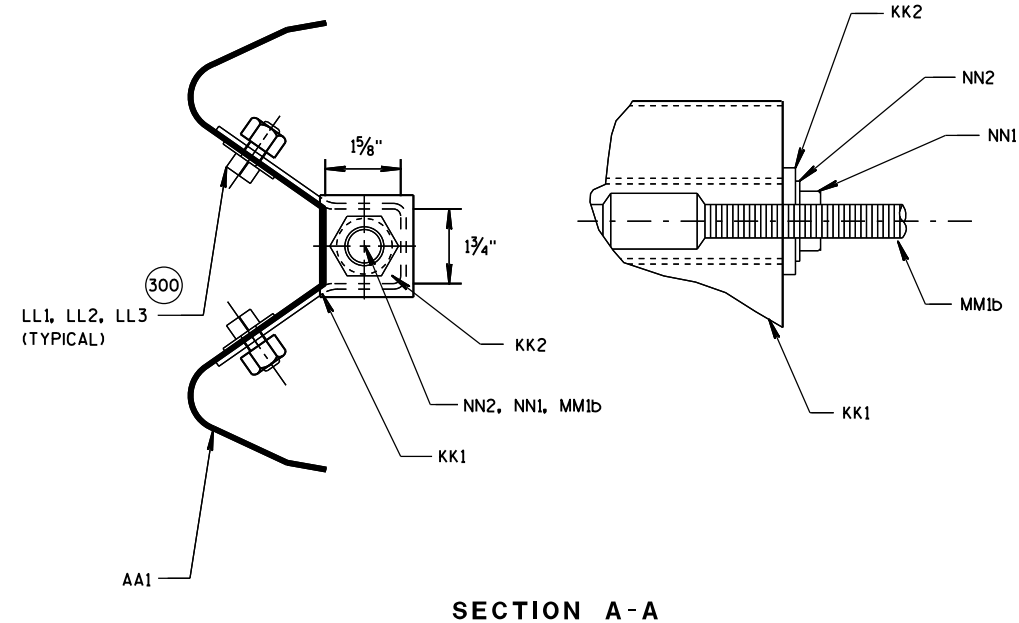


ANCHOR BRACKET (KK1, KK2)



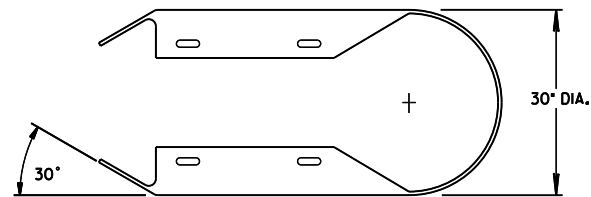
ANCHOR BRACKET BEARING PLATE (KK2)

300 WASHERS REQUIRED BETWEEN BOLT HEAD AND BEAM GUARD RAIL AND BETWEEN NUT AND ANCHOR BRACKET. EIGHT LL1 AND LL3 REQUIRED. SIXTEEN LL2 REQUIRED.

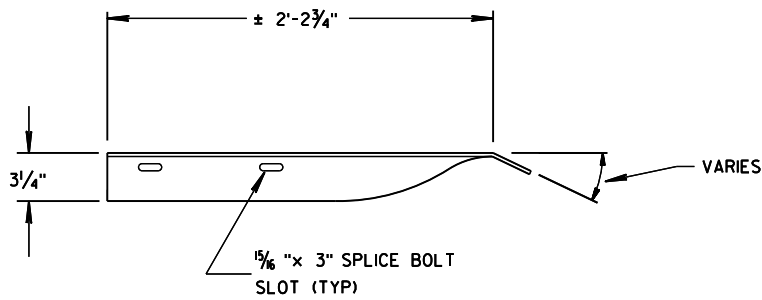


SHORT RADIUS BEAM GUARD
(MGS) SHORT RADIUS
TERMINAL (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

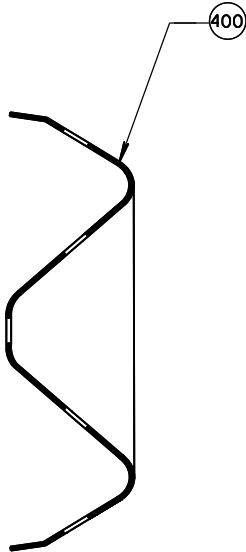


TOP VIEW

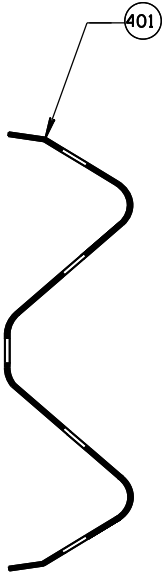


TOP VIEW

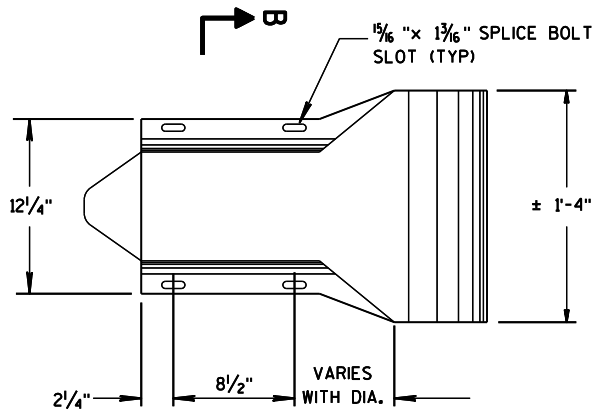
400 CROSS SECTION OF PART IS TO FIT OVER AA1.
401 CROSS SECTION OF PART IS TO FIT OVER OR UNDER AA1.



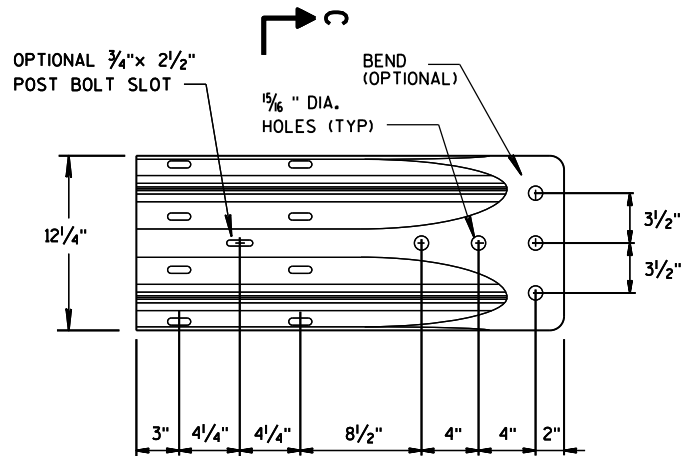
SECTION B-B



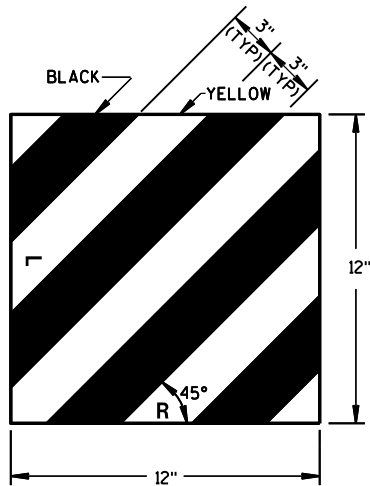
SECTION C-C



W-BEAM
END SECTION BUFFER (AA2)
PROFILE VIEW



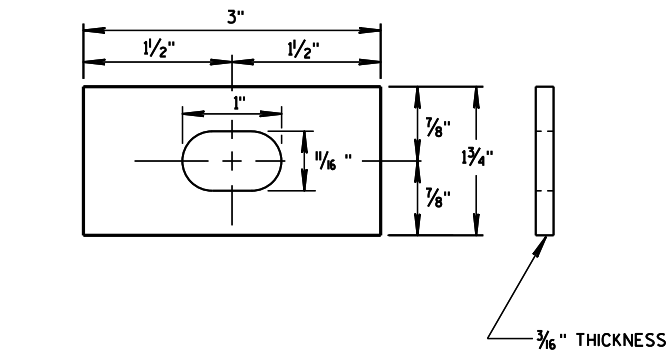
W-BEAM
TERMINAL CONNECTOR (BB1)
PROFILE VIEW



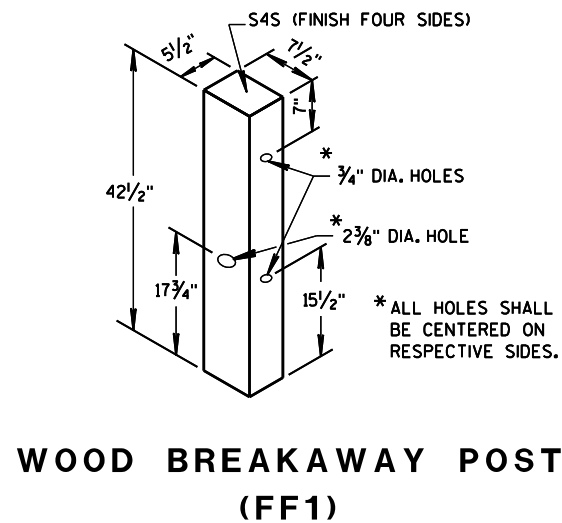
REFLECTIVE SHEETING
(UU1, UU2)

SHORT RADIUS BEAM GUARD
(MGS) SHORT RADIUS
TERMINAL (MGS)

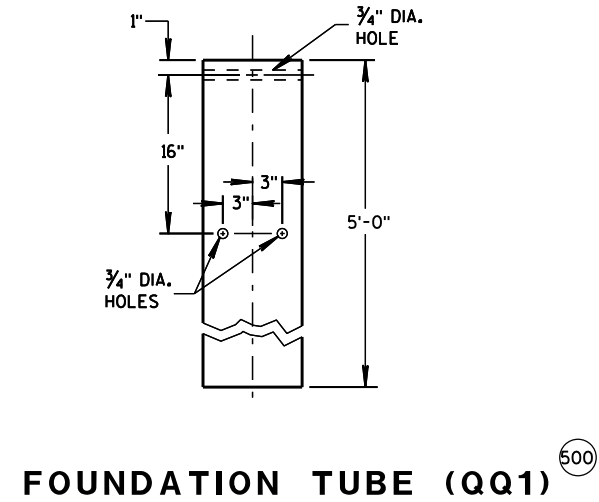
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



**RECTANGULAR
PLATE WASHER (CC1)**

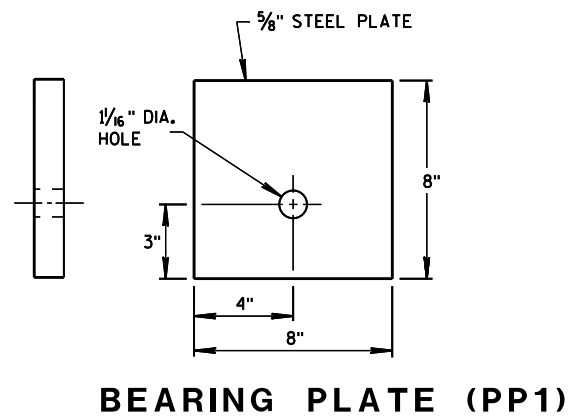


**WOOD BREAKAWAY POST
(FF1)**

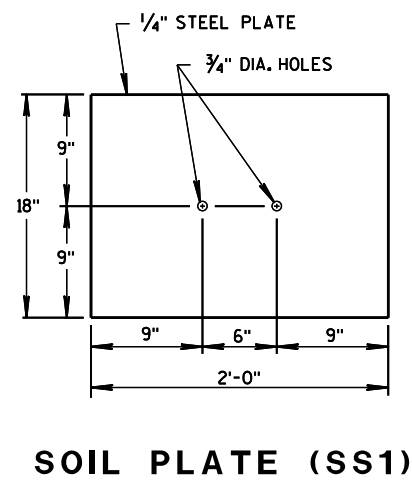


FOUNDATION TUBE (QQ1)

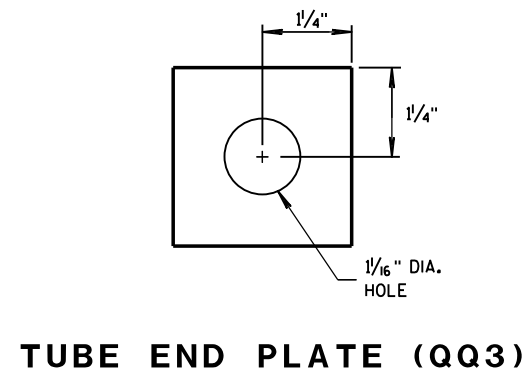
- (500) SEE DETAIL "D" FOR LOCATION AND ATTACHING SSL.
- (501) FOR MM1a THREADED STUD ONLY REQUIRED ON ONE END. SWAGED FITTING REQUIRED.
- (502) LOCATE HOLES ON THE CENTERLINE OF THE SIDE OF THE POST.
- (503) MM1a MAY HAVE ONE THREADED STUD 4 INCHES LONG. SEE NOTE (109).



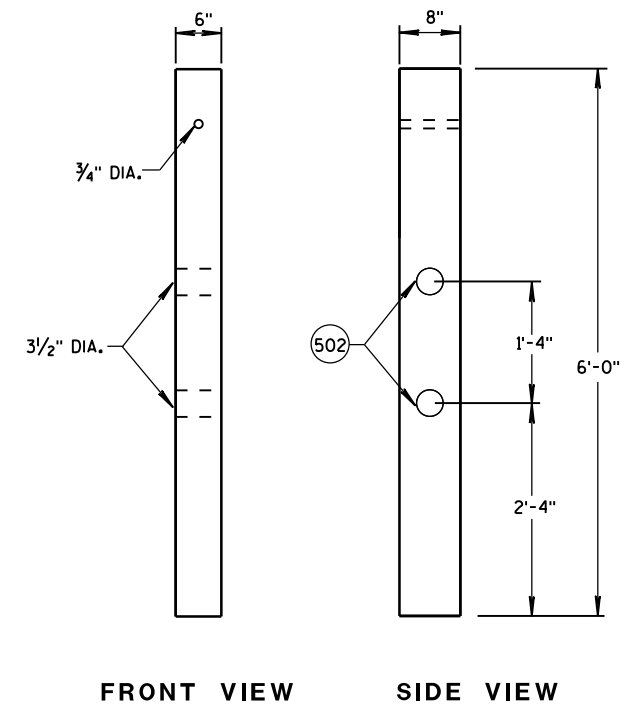
BEARING PLATE (PP1)



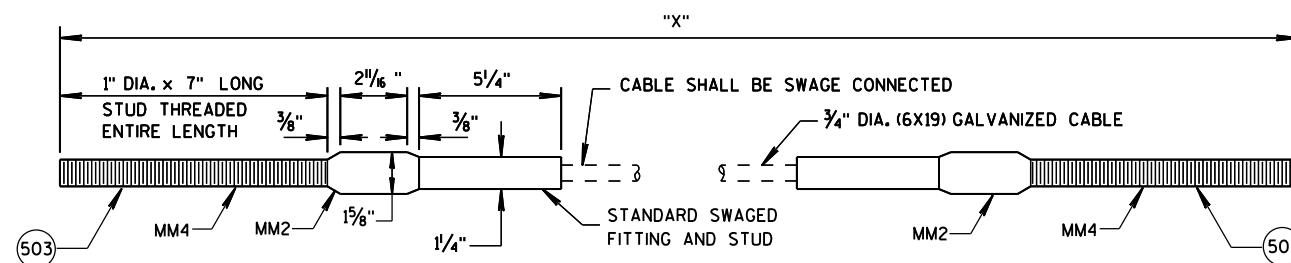
SOIL PLATE (SS1)



TUBE END PLATE (QQ3)



**CONTROLLED RELEASE
TERMINAL POST (CRT) (D2)**



"X" LENGTH	
MM1a	9'-0"
MM1b	6'-8"

**SHORT RADIUS BEAM GUARD
(MGS) SHORT RADIUS
TERMINAL (MGS)**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

BILL OF MATERIALS - SHORT RADIUS BEAM GUARD (MGS)

PART	DESCRIPTION	MATERIALS SPECIFICATIONS	NOTES
A1	BEAM GUARD RAIL	AASHTO M180, CLASS A, TYPE 2	
		APPROVED PRODUCER	
A2	BEAM GUARD RAIL - SHOP BENT	INDICATE ON BACK OF RAIL RADIUS THAT RAIL WAS BENT TO. SHOP BEND RADIUS IS TO THE NEAREST FOOT. FOLLOW AASHTO M180 ON HOW TO MARK RADIUS INFORMATION.	
		AASHTO M180, CLASS A, TYPE 2	
		APPROVED PRODUCER	
B1	BLOCK - WOOD	WISDOT SPEC. 614	SEE SDD 14B42
C1	NAIL	ASTM A153 HOT DIP CLASS D	
		ASTM F1667 TYPE 1 STYLE 12 (16 DOUBLE HEAD)	
D1	POST-STRONG POST-WOOD	WISDOT SPEC. 614	SEE SDD 14B42
D2	POST-CRT-WOOD	WISDOT SPEC. 614	
E1	POST BOLT	ASTM A307 GRADE A OR SAE J429 GRADE 2	5/8" DIA. SEE SDD 14B42 FOR BOLT GEOMETRY
		AASHTO M180	
		GALV. HOT DIP TO AASHTO M232 CLASS C/ASTM A153 CLASS C/ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1/ASTM B695 CLASS 50, TYPE 1	
		UNC	
E2	POST BOLT-WASHER	ASTM F436 TYPE 1 (HARDEN TYPICALLY USED WITH STEEL) OR ASTM F844 (UNHARDENED TYPICALLY WITH WOOD)	5/8" DIA.
		GALV. AASHTO M111/ASTM A 123 OR GALV. HOT DIP, TO AASHTO M232 CLASS C/ASTM A153 CLASS C/ASTM F2329	
E3	POST BOLT - NUT		5/8" DIA. SEE SDD 14B42 FOR GEOMETRY
		AASHTO M180 DOUBLE RECESSED HEAVY HEX HEAD	
		GALV. HOT DIP TO AASHTO M232 CLASS C/ASTM A153 CLASS C/ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1/ASTM B695 CLASS 50, TYPE 1	
		UNC	
		OVER TAPPED NUTS OVER-SIZE AS SPECIFIED IN AASHTO 291 / ASTM A 563	
		ASTM A563 GRADE A HEAVY HEX HEAD	
F1	SPLICE BOLT	GALV. HOT DIP TO AASHTO M232 CLASS C/ASTM A153 CLASS C/ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1/ASTM B695 CLASS 50, TYPE 1	5/8" DIA. SEE SDD 14B42 FOR GEOMETRY AND OTHER INFORMATION
		ASTM A307 GRADE A OR SAE J429 GRADE 2	
		UNC	
		AASHTO M180	

PART	DESCRIPTION	MATERIALS SPECIFICATIONS	NOTES
F2	SPLICE BOLT - NUT	ASTM A563 GRADE A	5/8" DIA. SEE SDD 14B42 FOR GEOMETRY
		AASHTO M180 DOUBLE RECESSED HEAVY HEX HEAD	
		GALV. HOT DIP TO AASHTO M232 CLASS C/ASTM A153 CLASS C/ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1/ASTM B695 CLASS 50, TYPE 1	
		OVER TAPPED NUTS OVER-SIZE AS SPECIFIED IN AASHTO 291 / ASTM A 563	
G1	LAG SCREW	UNC	
		ASTM A308 GRADE A ASTM A153 CLASS D	
H1	DELINEATOR - BEAM GUARD		3/8" DIA. 3" LONG
H2	DELINEATION - SHEETING		SEE SDD 14B42 FOR MORE INFORMATION
J1	FOUNDATION BACKFILL	YELLOW OR WHITE	
		WISDOT SPEC 637 TYPE SH	
AA1	BEAM GUARD RAIL - PUNCHED	APPROVED PRODUCT LIST	
		STANDARD SPEC. 614	
AA2	BEAM GUARD RAIL - END SECTION BUFFER	AASHTO M180, CLASS A, TYPE 2	
		APPROVED PRODUCER	
BB1	BEAM GUARD RAIL - TERMINAL CONNECTOR MODIFIED	AASHTO M180, CLASS A, TYPE 2	
		APPROVED PRODUCER	
CC1	SHORT RADIUS - SQUARE WASHER	AASHTO M180	
		GALV. AASHTO M111 / ASTM A123	
EE1	NAIL	ASTM A153 HOT DIP CLASS D	
		ASTM F1667 TYPE 1 STYLE 12 (16 DOUBLE HEADED)	
FF1	POST - BCT - WOOD	S4S FINISH ON 4 SIDES	
		WISDOT SPEC. 614	
GG1	POST BOLT	ASTM A307 GRADE A OR SAE J429 GRADE 2	3/8" DIA. SEE SDD 14B42 FOR GEOMETRY
		AASHTO M180	
		GALV. HOT DIP TO AASHTO M232 CLASS C/ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1/ASTM B695 CLASS 50, TYPE 1	
GG2	POST BOLT - WASHER	UNC	
		ASTM F436 TYPE 1 (HARDEN TYPICALLY USED WITH STEEL) OR ASTM F844 (UNHARDENED TYPICALLY WITH WOOD)	
		GALV. AASHTO M111 / ASTM A123 OR 5 GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329	3/8" DIA.

SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)

STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION

BILL OF MATERIALS - SHORT RADIUS BEAM GUARD (MGS)

PART	DESCRIPTION	MATERIALS SPECIFICATIONS	NOTES
GG3	POST BOLT - NUT	ASTM A563 GRADE A	3/8" DIA.
		AASHTO M180 DOUBLE RECESSED HEAVY HEX HEAD	SEE 14B42 FOR GEOMETRY
		GALV. HOT DIP TO AASHTO M232 CLASS C/ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1/ASTM B695 CLASS 50, TYPE 1	
		UNC	
		OVER TAPPED NUTS OVER-SIZE AS SPECIFIED IN AASHTO 291 / ASTM A 563	
		ASTM A563 GRADE A HEAVY HEX HEAD	
HH1	SPLICE BOLT	GALV. HOT DIP TO AASHTO M232 CLASS C/ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1/ASTM B695 CLASS 50, TYPE 1	3/8" DIA. SEE 14B42 FOR GEOMETRY
		ASTM A307 GRADE A OR SAE J429 GRADE 2	
		UNC	
		AASHTO M180 HEAD GEOMETRY	
HH2	SPLICE BOLT - NUT	ASTM A563 GRADE A	3/8" DIA.
		AASHTO M180 DOUBLE RECESSED HEAVY HEX HEAD	SEE 14B42 FOR GEOMETRY
		GALV. HOT DIP TO AASHTO M232 CLASS C/ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1/ASTM B695 CLASS 50, TYPE 1	
		OVER TAPPED NUTS OVER-SIZE AS SPECIFIED IN AASHTO 291 / ASTM A 563	
		UNC	
JJ1	PIPE - STEEL	ASTM A53 GALVANIZED GRADE B SCHEDULE 40	10" O.D.
JJ2	TOP PLATE	ASTM A36 MIN STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI OR ASTM A709 MAX STRENGTH 50 KSI OR ASTM A992 MAX STRENGTH 50 KSI	DIMENSIONS 3/8" X 4" X 1'-0"
		GALV. AASHTO M111 / ASTM A123	
KK1	ANCHOR BRACKET	ASTM A36 MIN STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI OR ASTM A709 MAX STRENGTH 50 KSI OR ASTM A992 MAX STRENGTH 50 KSI	
		GALV. AASHTO M111 / ASTM A123	
KK2	ANCHOR BRACKET - BEARING PLATE	ASTM A36 MIN STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI OR ASTM A709 MAX STRENGTH 50 KSI OR ASTM A992 MAX STRENGTH 50 KSI	
		GALV. AASHTO M111 / ASTM A123	
LL1	ANCHOR BRACKET - BOLT	ASTM A307 GRADE B HEAVY HEX HEAD OR SAE J429 GRADE 2 HEAVY HEX HEAD	5/8" DIA.
		GALV. HOT DIP TO AASHTO M232 CLASS C/ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1/ASTM B695 CLASS 50, TYPE 1	
		UNC	
LL2	ANCHOR BRACKET - WASHER	ASTM F436 TYPE 1 (HARDEN WASHER ONLY)	5/8" DIA.
		GALV. AASHTO M111 / ASTM A123 OR 5 GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329	
LL3	ANCHOR BRACKET - NUT	ASTM A563 GRADE A	5/8" DIA.
		GALV. HOT DIP TO AASHTO M232 CLASS C/ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1/ASTM B695 CLASS 50, TYPE 1	
		OVER TAPPED NUTS OVER-SIZE AS SPECIFIED IN AASHTO 291 / ASTM A563	
		UNC	

PART	DESCRIPTION	MATERIALS SPECIFICATIONS	NOTES
MM1a	ANCHOR CABLE	AASHTO M30 / ASTM A741 INDEPENDENT WIRE CORE (IWRC) OR WIRE STRAND CORE (WCS), IMPROVED PLOW STEEL (IPS), 6X19, TYPE II OR IIC CLASS C ZINC COATED	
MM1b	ANCHOR CABLE	AASHTO M30 / ASTM A741 INDEPENDENT WIRE CORE (IWRC) OR WIRE STRAND CORE (WCS), IMPROVED PLOW STEEL (IPS), 6X19, TYPE II OR IIC CLASS C ZINC COATED	
MM2	ANCHOR CABLE - SWAGE FITTING	ASTM A576 GRADE 1035	
		SWAGE FITTINGS ARE TO BE FACTORY SWEDGED. WITH A BREAKING STRENGTH 40,000 LBS.	
		GALV. AASHTO M111 / ASTM A123	
		ASME B30.26 FORGED, CAST, OR DIE STAMPED WITH THE FOLLOWING INTO CONNECTION: NAME OF MANUFACTURER OR TRADEMARK OF CONNECTION'S MANUFACTURER, SIZE OR RATED LOAD, GRADE.	
MM3	WIRE ROPE CABLE CLAMPS	FF-C-450D TYPE 1 CLASS 1	3/4"
		ASTM A153 HOT DIP CLASS D	
MM4	ANCHOR CABLE - SWAGE FITTING - STUD	ASTM F3125 GRADE A325 TYPE 1 OR SAE GRADE 5 OR ASTM A449 TYPE 1 HEAVY HEX HEAD	
		GALV. HOT DIP TO AASHTO M232 CLASS C/ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1/ASTM B695 CLASS 50, TYPE 1	
		UNC	
NN1	ANCHOR CABLE - NUT	ASTM A563 GRADE A	1" DIA.
		AASHTO M180 DOUBLE RECESSED HEAVY HEX HEAD	
		GALV. HOT DIP TO AASHTO M232 CLASS C/ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1/ASTM B695 CLASS 50, TYPE 1	
		OVER TAPPED NUTS OVER-SIZE AS SPECIFIED IN AASHTO 291 / ASTM A563	
NN2	ANCHOR CABLE - NUT - WASHER	UNC	1" DIA.
		ASTM F436 TYPE 1 (HARDEN WASHER ONLY)	
		GALV. AASHTO M111 / ASTM A123 OR 5 GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329	
PP1	BEARING PLATE AT POST	ASTM A36 MIN STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI OR ASTM A709 MAX STRENGTH 50 KSI OR ASTM A992 MAX STRENGTH 50 KSI	
		GALV. AASHTO M111 / ASTM A123	
PP2	PIPE - STEEL	ASTM A53 GALVANIZED GRADE B SCHEDULE 40	2" DIA. x 6" LONG
QQ1	FOUNDATION TUBE	ASTM A500 GRADE B	8" X 6" X 3/16"
		GALV. AASHTO M111 / ASTM A123	
QQ2	SHORT RADIUS - FOUNDATION TUBE - ANCHOR CABLE - TUBE	ASTM A500 GRADE B	DIMENSIONS 2 1/2" X 2 1/4" X 1/4" X 8"
		GALV. AASHTO M111 / ASTM A123	

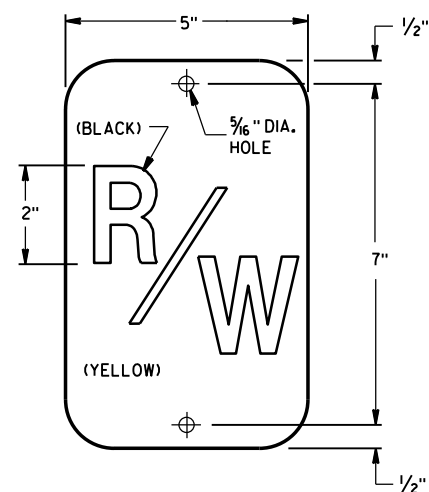
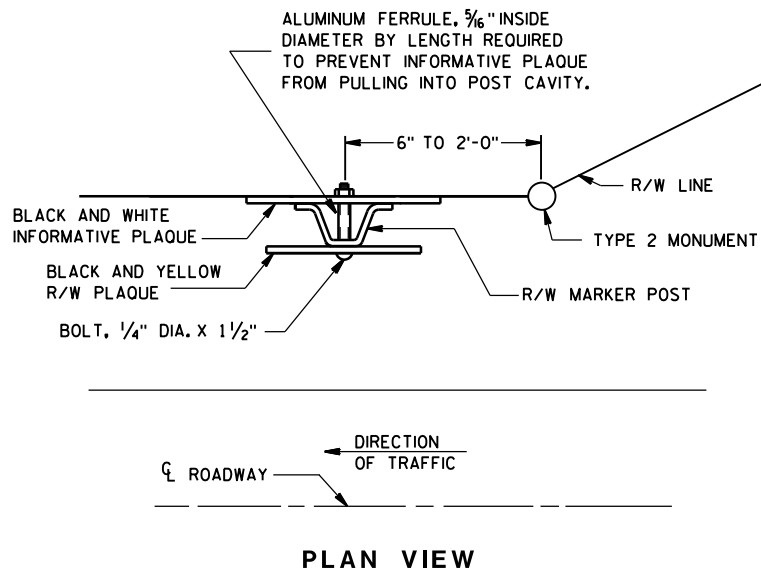
SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

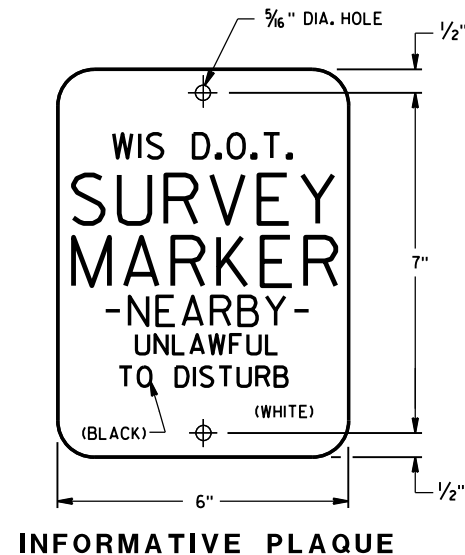
BILL OF MATERIALS - SHORT RADIUS BEAM GUARD (MGS)

PART	DESCRIPTION	MATERIALS SPECIFICATIONS	NOTES
003	SHORT RADIUS - SOIL TUBE - ANCHOR CABLE - TUBE - END PLATE	ASTM A36 MIN STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI OR ASTM A709 MAX STRENGTH 50 KSI OR ASTM A992 MAX STRENGTH 50 KSI	DIMENSIONS 2 1/2" X 2 1/2" X 1/4"
		GALV. AASHTO M111 / ASTM A123	
004	GROUND STRUT AND YOKE - BOLT	GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1 / ASTM B695 CLASS 50, TYPE 1	5/8" DIA.
		ASTM A307 GRADE B HEAVY HEX HEAD OR SAE J429 GRADE 2 HEAVY HEX HEAD	
		UNC	
005	GROUND PLATE AND YOKE - WASHER	ASTM F436 TYPE 1 (HARDEN WASHER ONLY)	5/8" DIA.
		GALV. AASHTO M111 / ASTM A123 OR 5 GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329	
006	GROUND STRUT AND YOKE - NUT	HEAVY HEX	5/8" DIA.
		UNC	
		ASTM A563 GRADE A	
		OVER TAPPED NUTS AS SPECIFIED IN AASHTO 291 / ASTM A 563	
		GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1 / ASTM B695 CLASS 50, TYPE 1	
SS1	SOIL PLATE	ASTM A36 MIN STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI OR ASTM A709 MAX STRENGTH 50 KSI OR ASTM A992 MAX STRENGTH 50 KSI	
		GALV. AASHTO M111 / ASTM A123	
TT1	SOIL PLATE - BOLT	ASTM A307 GRADE B HEAVY HEX HEAD OR SAE J429 GRADE 2 HEAVY HEX HEAD	5/8" DIA.
		GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1 / ASTM B695 CLASS 50, TYPE 1	
		UNC	
TT2	SOIL PLATE - WASHER	ASTM F436 TYPE 1 (HARDEN WASHER ONLY)	5/8" DIA.
		GALV. AASHTO M111 / ASTM A123 OR 5 GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329	
TT3	SOIL PLATE - NUT	GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1 / ASTM B695 CLASS 50, TYPE 1	5/8" DIA.
UU1	OBJECT MARKER - SHEETING	MUTCD / WISDOT OBJECT MARKER TYPE 3	PATTERN AND COLOR FOR SHEETING SHEETING TYPE FOR MARKER
		WISDOT SPEC 637 TYPE F	
		APPROVED PRODUCT LIST	
UU2	OBJECT MARKER - ALUMINUM PLATE	WISDOT SPEC 637 ALUMINUM PLATE	MATERIAL AND THICKNESS OF MATERIALS
UU3	OBJECT MARKER - SCREWS	STAINLESS SELF-TAPPING SCREWS	
VV1	FOUNDATION BACKFILL	WISDOT SPEC 614	

SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED June 2017 DATE	/S/ Rodney Taylor ROADWAY STANDARDS DEVELOPMENT UNIT SUPERVISOR FHWA



THE RIGHT-OF-WAY PLAQUE AND INFORMATIVE PLAQUE WILL BE FURNISHED BY THE WISCONSIN DEPARTMENT OF TRANSPORTATION.



GENERAL NOTES

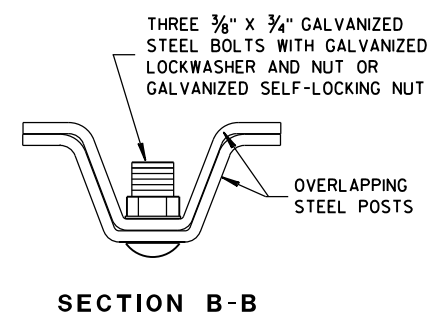
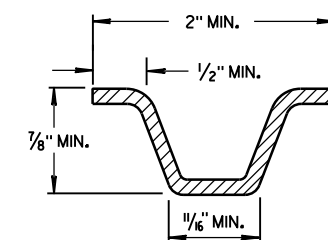
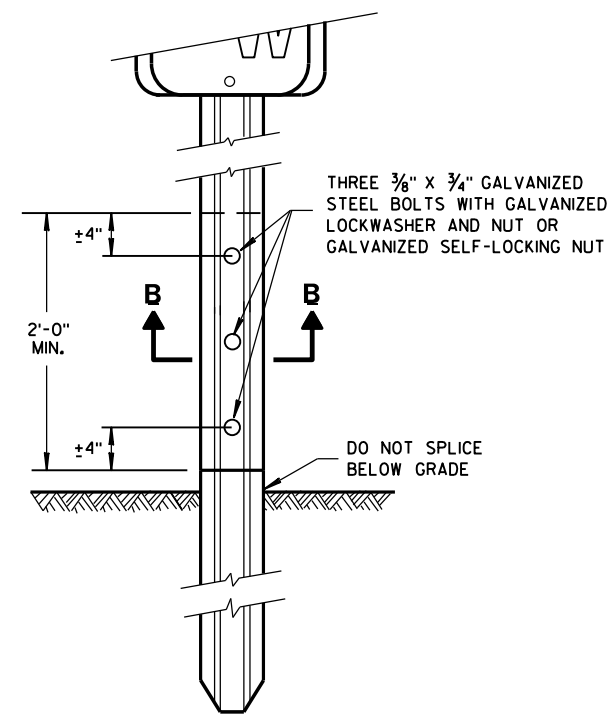
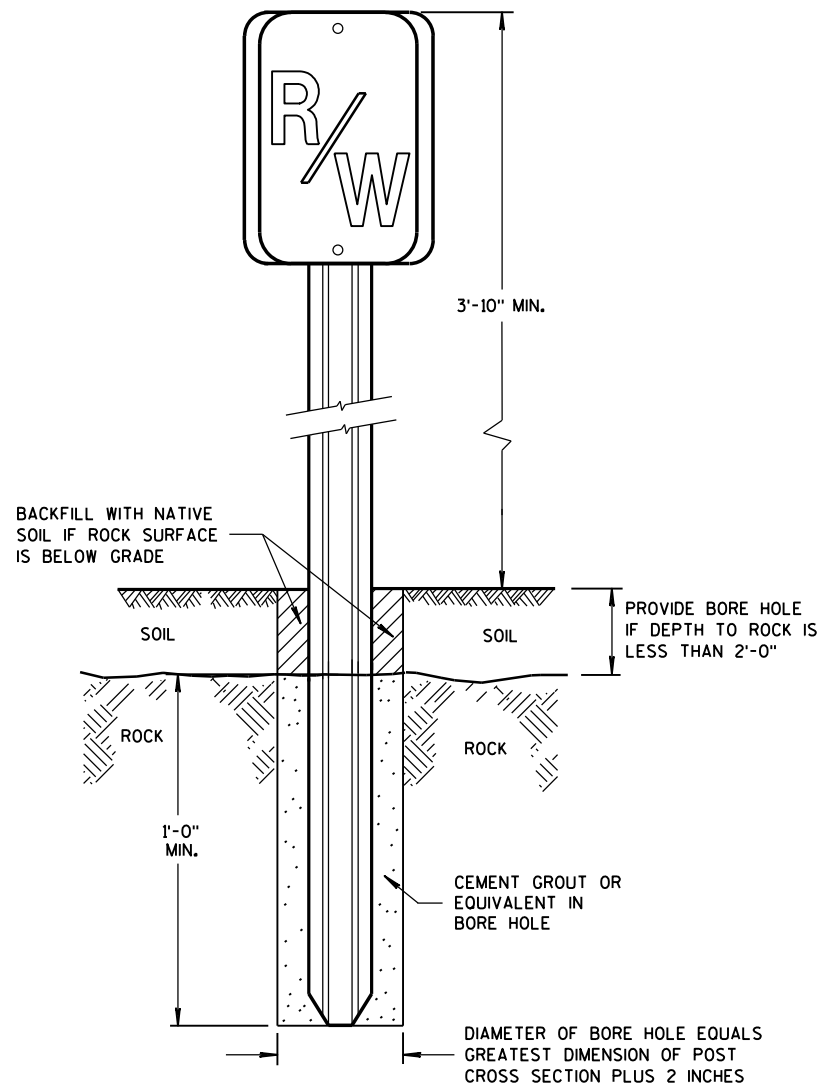
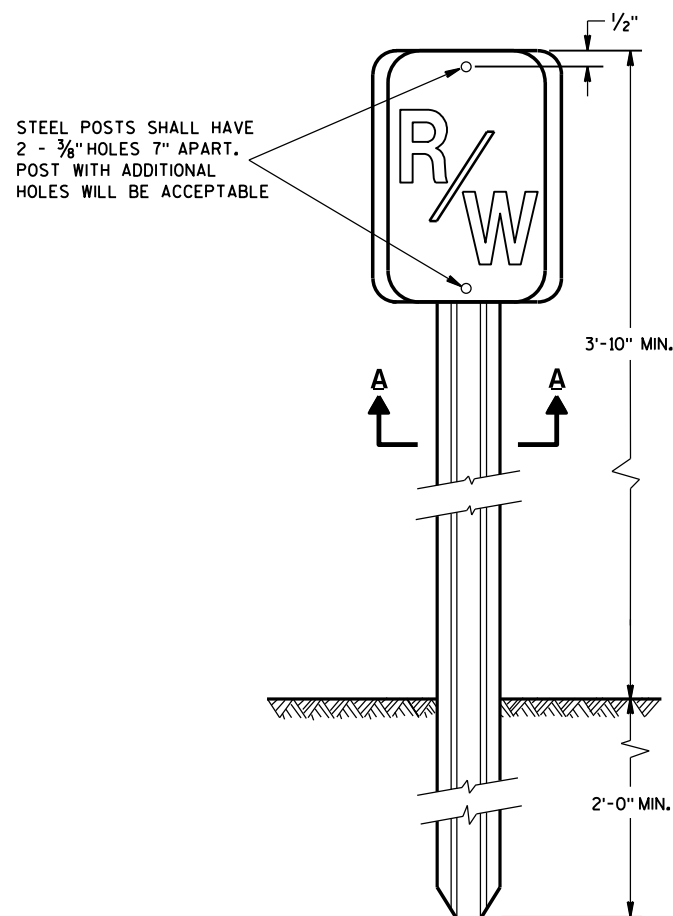
DETAILS OF CONSTRUCTION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

A STEEL MARKER POST FOR RIGHT-OF-WAY SHALL BE PLACED IN THE RIGHT-OF-WAY, WITH THE BACK OF THE POST ON THE LONGER RIGHT-OF-WAY TANGENT, 6 INCHES TO 24 INCHES FROM EACH TYPE 2 MONUMENT TO SERVE AS A GUARD POST, AND AT OTHER LOCATIONS AS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER.

THE 'R/W' PLAQUE SHALL FACE THE ROADWAY AND THE INFORMATIVE PLAQUE SHALL FACE AWAY FROM THE ROADWAY. R/W AND INFORMATIVE PLAQUES WILL BE FURNISHED BY THE DEPARTMENT OF TRANSPORTATION.

STEEL MARKER POSTS SHALL MEET THE MINIMUM MATERIAL REQUIREMENTS FOR STEEL DELINEATOR POSTS; EXCEPT POSTS PAINTED WITH FEDERAL YELLOW ENAMEL NEED NOT BE ZINC COATED.

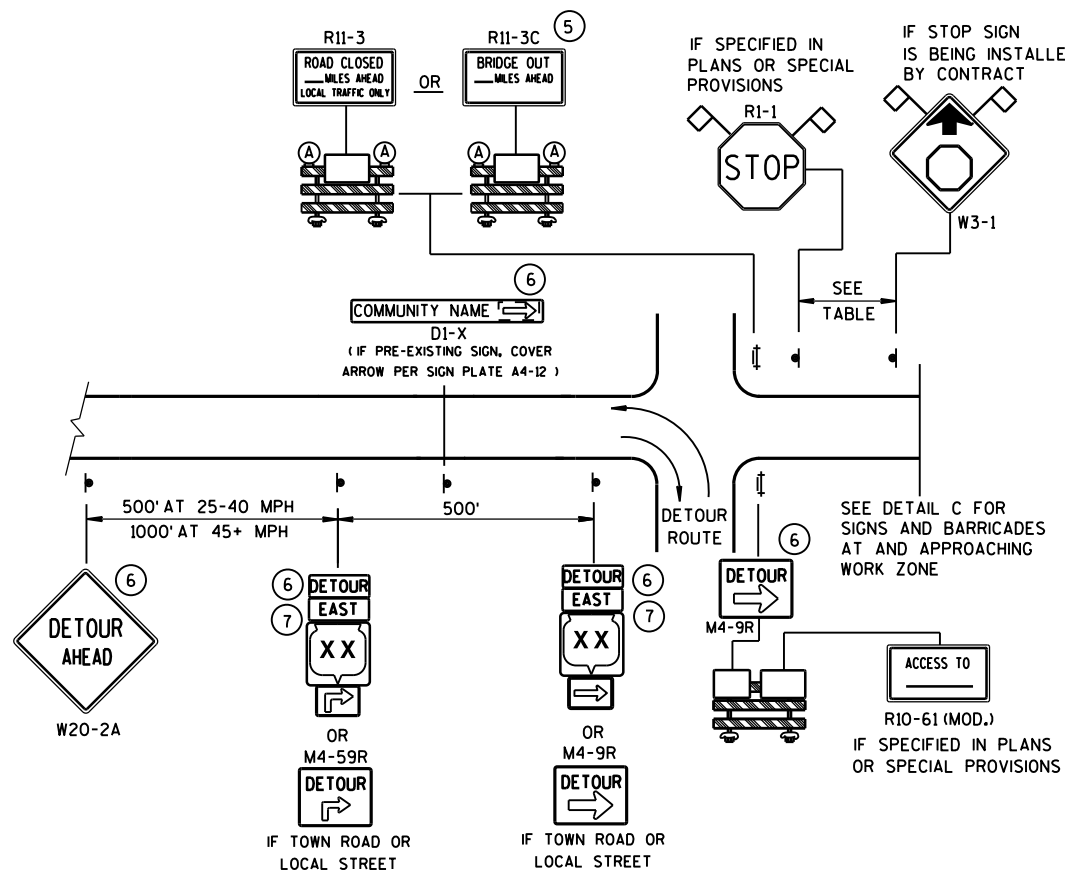
- ① IN AREAS OF SOLID ROCK, DRILL A BORE HOLE 2" GREATER THAN THE WIDEST DIMENSION OF THE POST CROSS SECTION INTO THE ROCK TO A MINIMUM DEPTH OF 12 INCHES. CUT OR SPLICE THE POST SO THAT A MINIMUM LENGTH OF 3' 10" PROTRUDES ABOVE THE GROUND. BLOW OUT THE BORE HOLE IN THE ROCK USING COMPRESSED AIR. FILL THE BORE HOLE WITH CEMENT GROUT, OR EQUIVALENT, DEPENDING ON THE STABILITY OF THE ROCK.



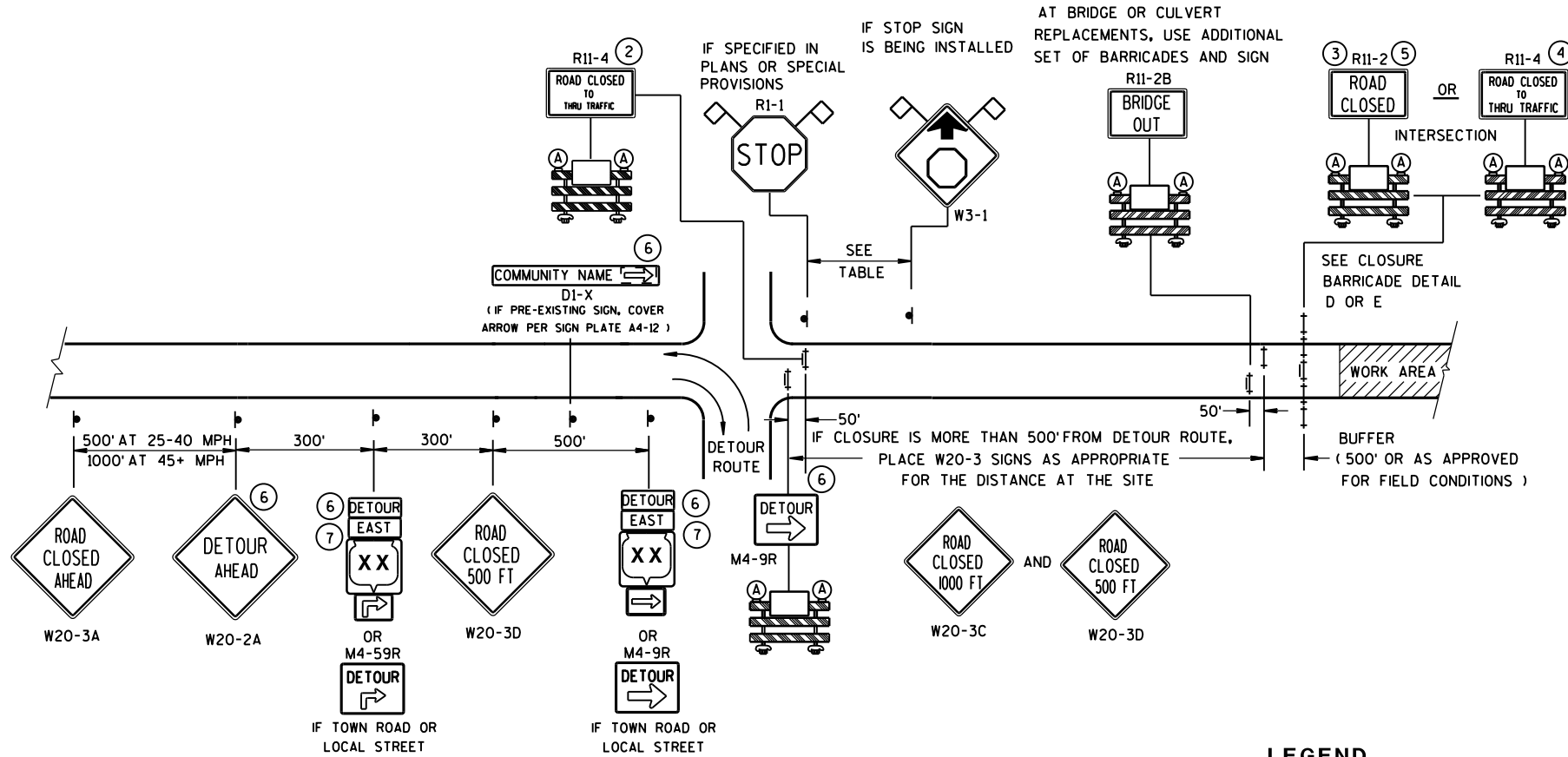
**MARKER POST
FOR RIGHT-OF-WAY**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

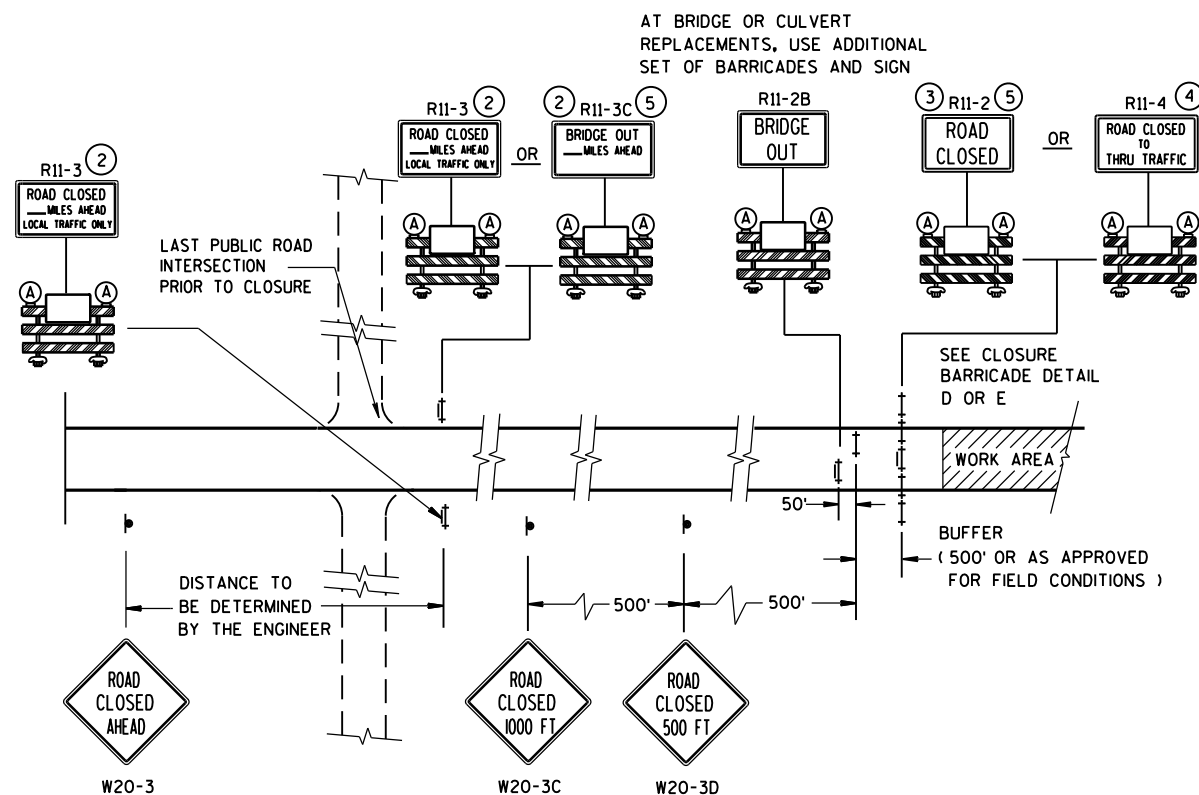
APPROVED
2/18/2016 /S/ Ray Kumapayi
DATE CHIEF SURVEYING AND MAPPING ENGINEER
FHWA



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



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

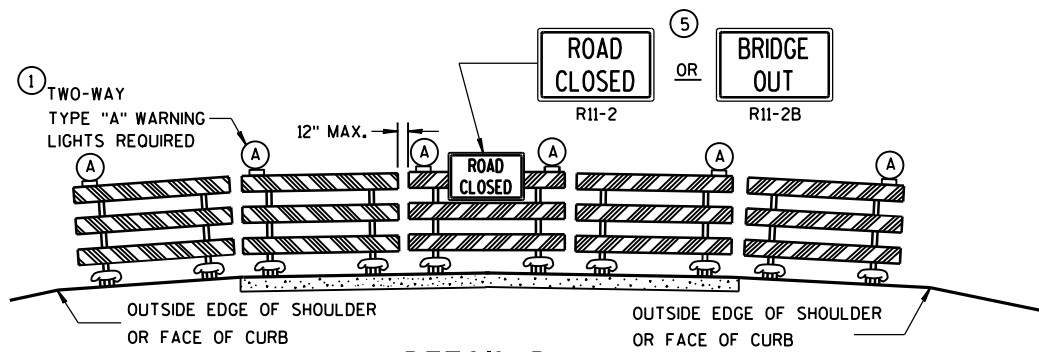


DETAIL C
MAINLINE CLOSURE, NO POSTED DETOUR

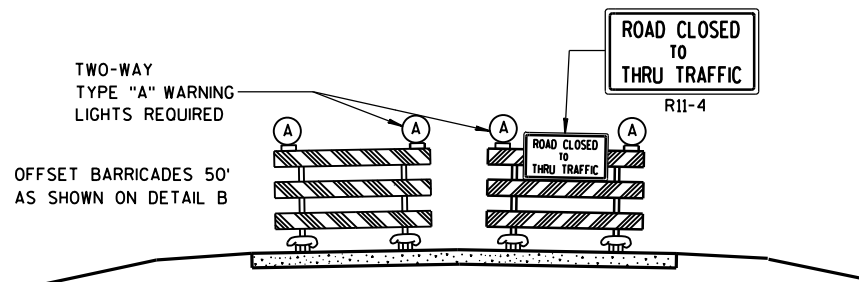
SPEED LIMIT (MPH)	"STOP AHEAD" ADVANCE WARNING DISTANCE (FT)
25	200
30	200
35	350
40	350
45	500
50	550
55	750

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

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



DETAIL D
ROAD CLOSURE BARRICADE DETAIL
APPROACH VIEW



DETAIL E
LANE CLOSURE BARRICADE DETAIL
APPROACH VIEW

SEE SDD 15C2-SHEET "a" FOR LEGEND

GENERAL NOTES

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

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

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

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

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

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

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

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

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

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

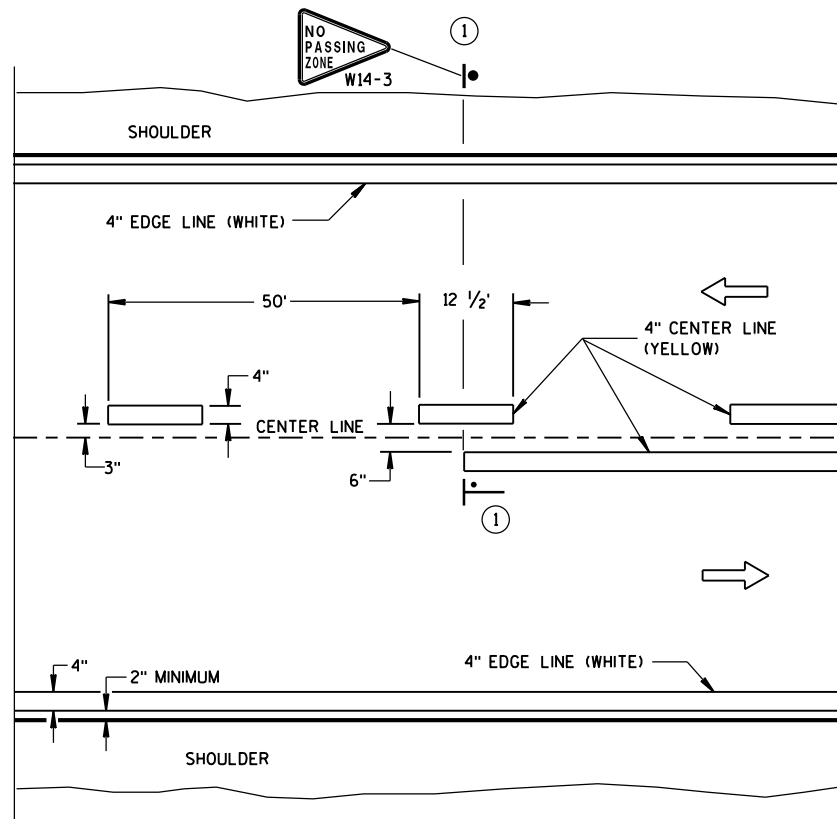
- R11-2 SHALL BE 48" X 30".
- R11-3, R11-4 AND R10-61 SHALL BE 60" X 30".
- M4-9 SHALL BE 30" X 24".
- M3-X SHALL BE 24" X 12". (36" X 18" IF NEEDED TO MATCH EXISTING SIGNS.)
- M4-8 SHALL BE 24" X 12". (30" X 15" IF NEEDED TO MATCH EXISTING SIGNS.)
- M1-4, M1-5A, AND M1-6 SHALL BE 24" X 24". (36" X 36"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

- 1 TWO WARNING LIGHTS SHALL BE PROVIDED ON THE CENTER BARRICADE AND A MINIMUM OF ONE WARNING LIGHT SHALL BE PROVIDED ON EACH OF THE OTHER BARRICADES WITHIN THE ROADWAY LIMITS. SPACING OF THE WARNING LIGHTS SHALL BE UNIFORM TO THE EDGE OF ROADWAY AS SHOWN (APPROX. 8-FOOT LIGHT SPACING).
- 2 THESE SIGNS AND BARRICADES ARE NOT REQUIRED IF ROAD CLOSURE BEGINS AT INTERSECTION.
- 3 FOR ROAD CLOSURE WITHOUT LOCAL ACCESS TO PROJECT, SEE ROAD CLOSURE BARRICADE DETAIL D.
- 4 FOR ROAD CLOSURE WITH LOCAL ACCESS TO PROJECT, SEE LANE CLOSURE BARRICADE DETAIL E.
- 5 FOR BRIDGE OR CULVERT REPLACEMENTS, SUBSTITUTE "BRIDGE OUT" INSTEAD OF "ROAD CLOSED" ON R11-2 AND R11-3 SIGNS.
- 6 INSTALL DETOUR AND COMMUNITY GUIDE SIGNS AND ARROWS ONLY IF SPECIFIED IN THE CONTRACT. IF THERE ARE EXISTING ROUTE MARKER ASSEMBLIES THAT WILL REMAIN IN PLACE, ADJUST THE LOCATION OF THE DETOUR ROUTE SIGNS TO CORRESPOND WITH THE EXISTING ASSEMBLIES. MODIFY EXISTING SIGNS WHERE POSSIBLE. SEE SPECIFIC PROJECT DETOUR SIGNING DETAIL SHEETS. IF DETOUR SIGNS ARE BEING INSTALLED BY OTHERS, PLACE THE CONTRACTED TRAFFIC CONTROL SIGNS TO ALLOW FOR PLACEMENT OF ALL WARNING, DETOUR AND GUIDE SIGNS AS SHOWN.
- 7 "EAST" CARDINAL DIRECTION MARKERS AND RIGHT TURN ARROWS ARE SHOWN. USE OTHER CARDINAL DIRECTIONS AND ARROWS AS APPROPRIATE.

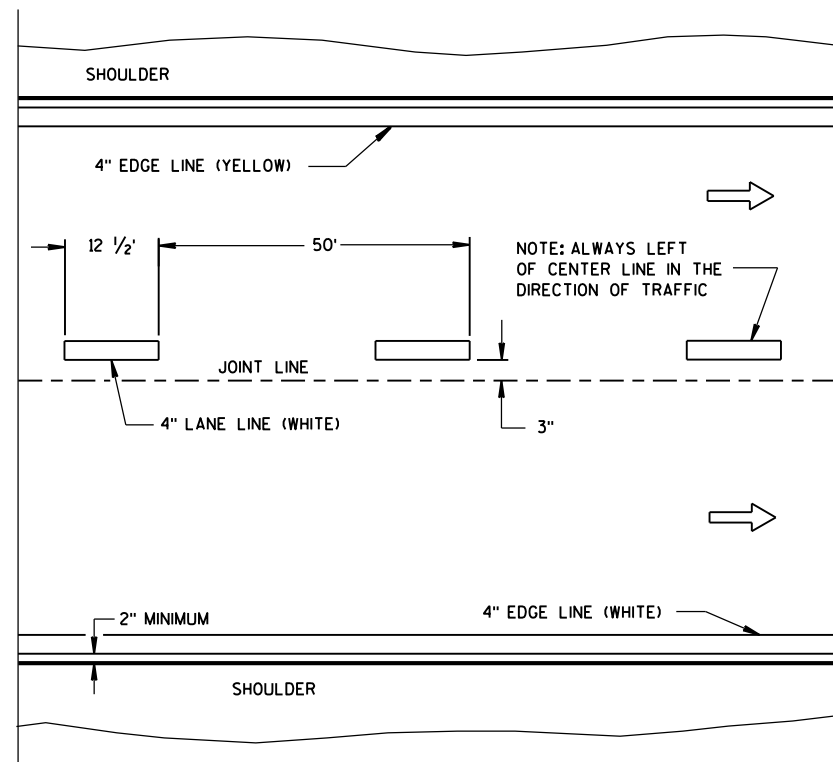
BARRICADES AND SIGNS
FOR
MAINLINE CLOSURES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

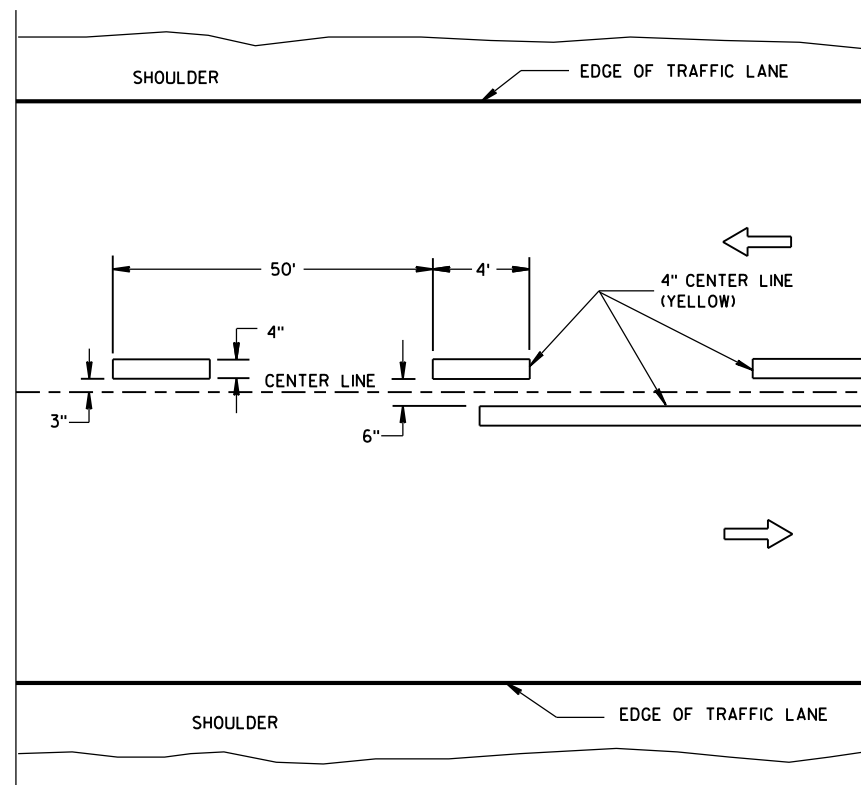


TWO WAY TRAFFIC

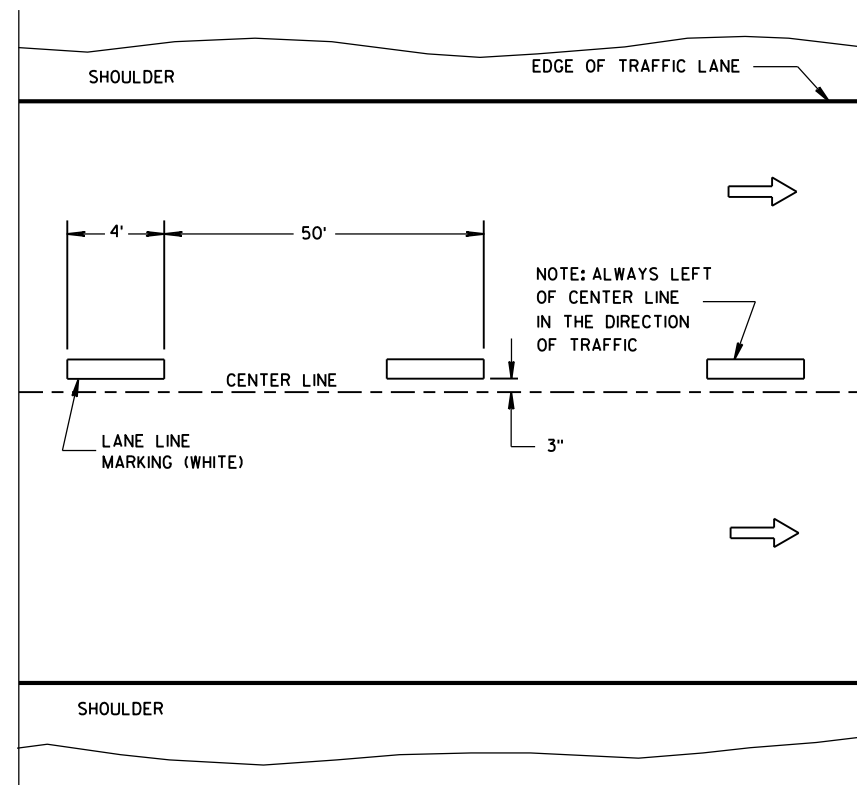


ONE WAY TRAFFIC

PERMANENT PAVEMENT MARKING



TWO WAY TRAFFIC



ONE WAY TRAFFIC

TEMPORARY PAVEMENT MARKING

GENERAL NOTES

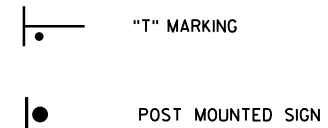
DETAILS OF CONSTRUCTION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO STANDARD SPECIFICATIONS AND SPECIAL PROVISIONS.

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

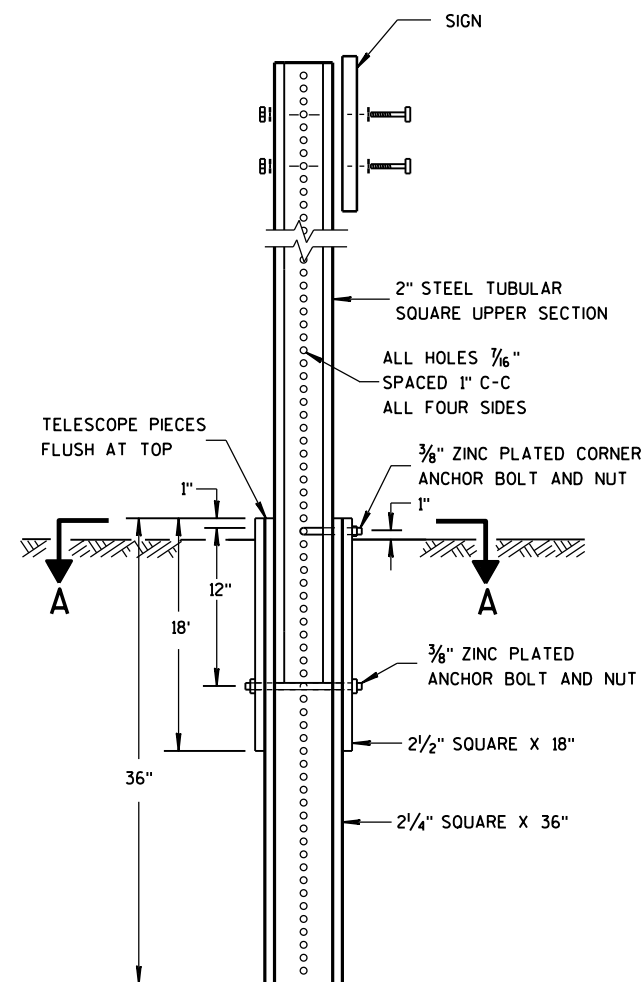
NOTE

ARROW SYMBOL () SHOWS DIRECTION OF TRAVEL

LEGEND



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

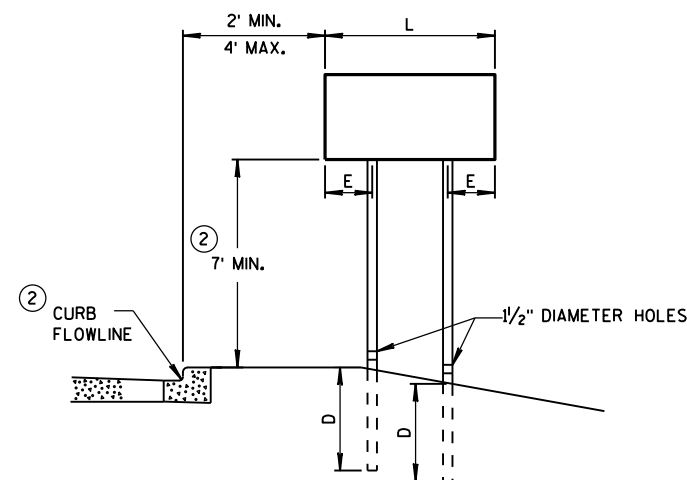
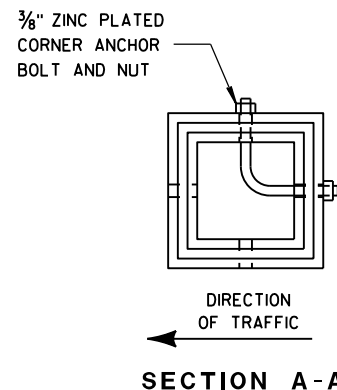


DETAIL OF TUBULAR STEEL SIGN POST

TUBULAR STEEL POSTS

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

SIGNS WIDER THAN 3 FEET OR LARGER THAN 9 SQ. FT. SHALL BE MOUNTED ON MULTIPLE POSTS (SEE ABOVE TABLE).
SIGNS LARGER THAN 27 SQ. FT. SHALL NOT BE MOUNTED ON TUBULAR STEEL POSTS.

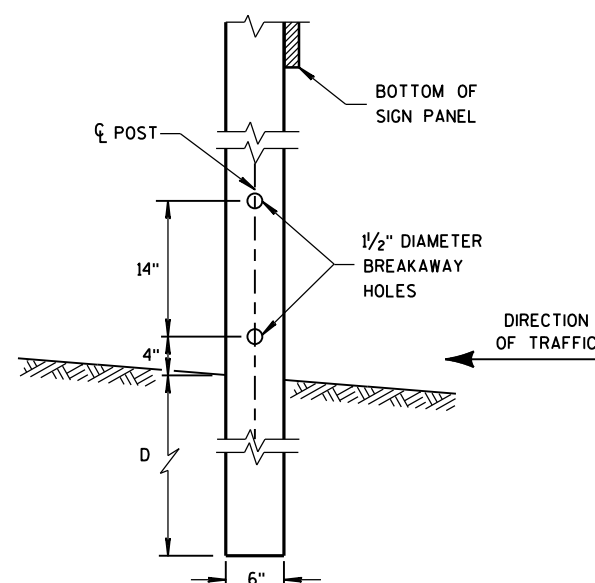


URBAN AREA

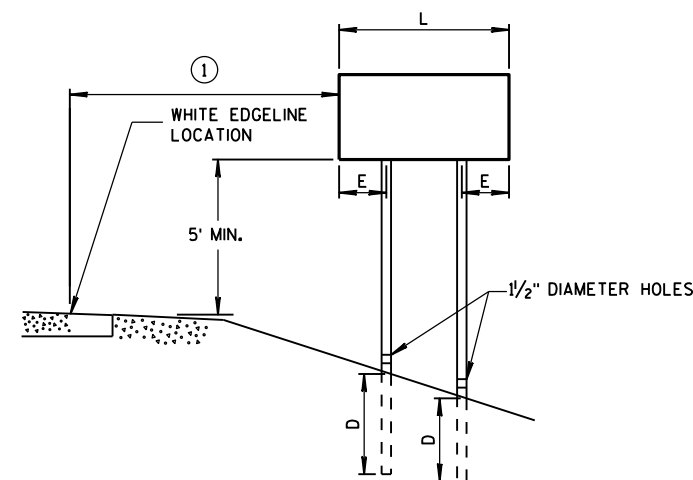
POST MOUNTING DETAIL FOR TEMPORARY TRAFFIC CONTROL FIXED MESSAGE SIGNS

WOOD POST EMBEDMENT DEPTH

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



4 "x6 " WOOD POST MODIFICATION



RURAL AREA

4 " X 6 " WOOD POST

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

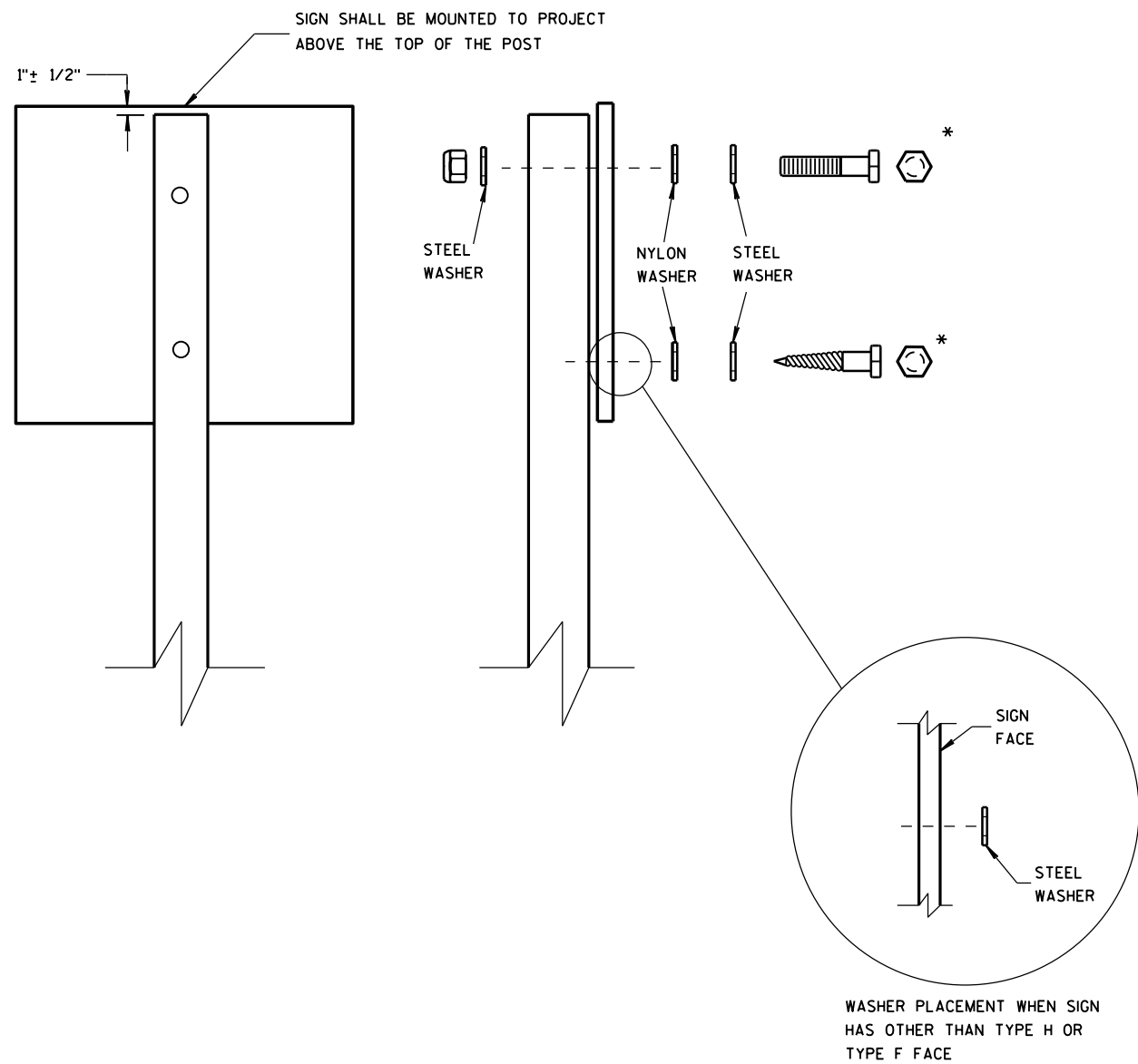
SEE NOTE ③

GENERAL NOTES

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

TEMPORARY TRAFFIC CONTROL SIGN MOUNTING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



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

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

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

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

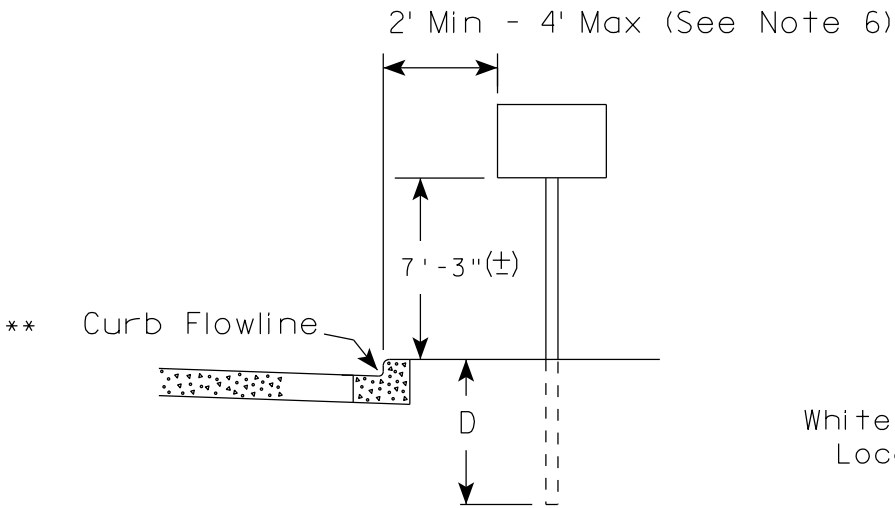
- SQUARE STEEL POSTS (2" x 2")
- MACHINE BOLTS - 3/8" x 3-1/4" LENGTH W/ NUTS
 - RIVETS - 9/32" (6605-9-6) BULB-TITE, TRI-FOLD, ALUMINUM BODY/MANDREL O.D. FLANGE .720-.765 INCH, GRIP RANGE .042-.375 INCH

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

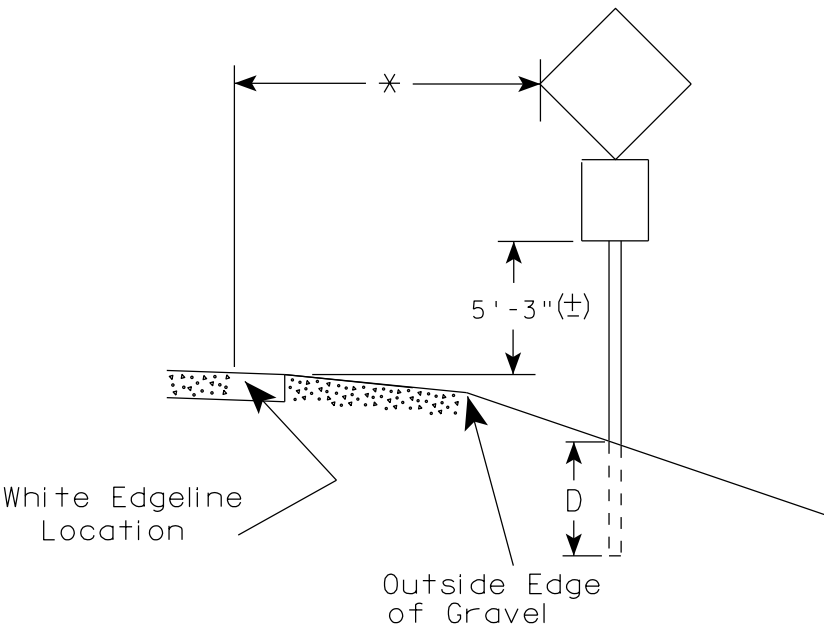
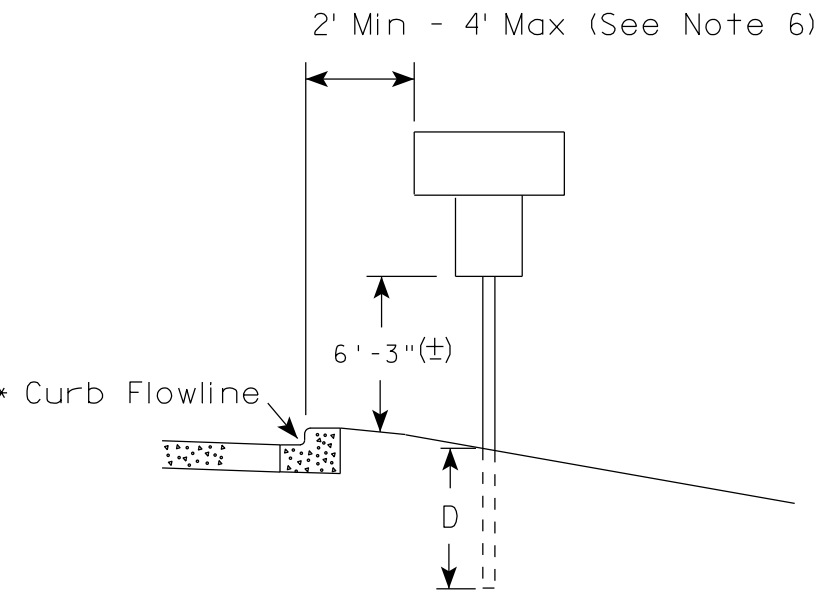
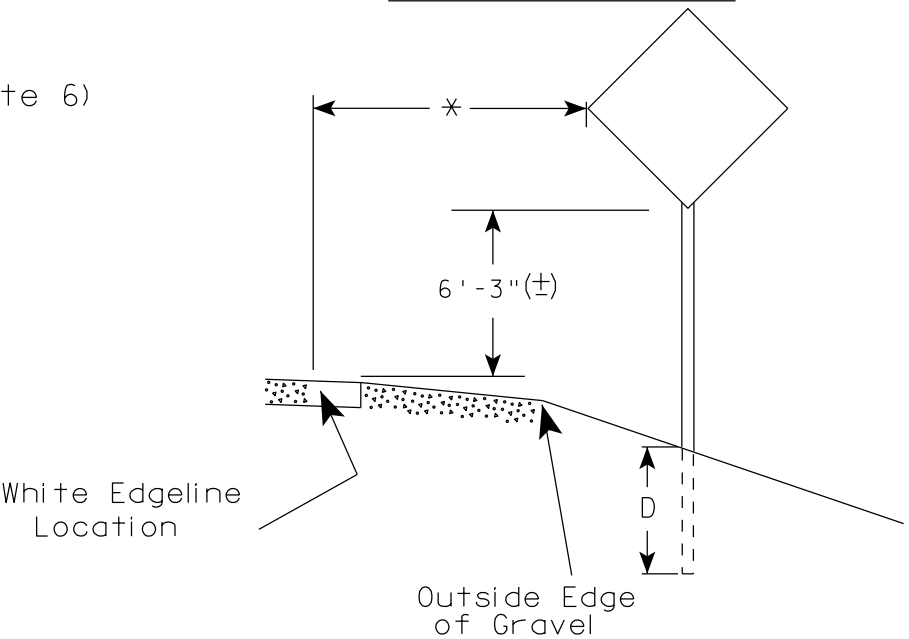
* TWO DIFFERENT FASTENING SYSTEMS ARE SHOWN FOR ILLUSTRATION PURPOSES. ON ANY INDIVIDUAL SIGN, EITHER ONE OR THE OTHER SYSTEM SHALL BE USED. ACTUAL NUMBER OF FASTENERS PER SIGN VARIES WITH THE SIGN AREA. FOR A SINGLE POST INSTALLATION, ALL SIGNS GREATER THAN 9 SQ. FT. REQUIRE THE USE OF 3 FASTENERS.

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

URBAN AREA



RURAL AREA (See Note 2)



POST EMBEDMENT DEPTH

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

GENERAL NOTES

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

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

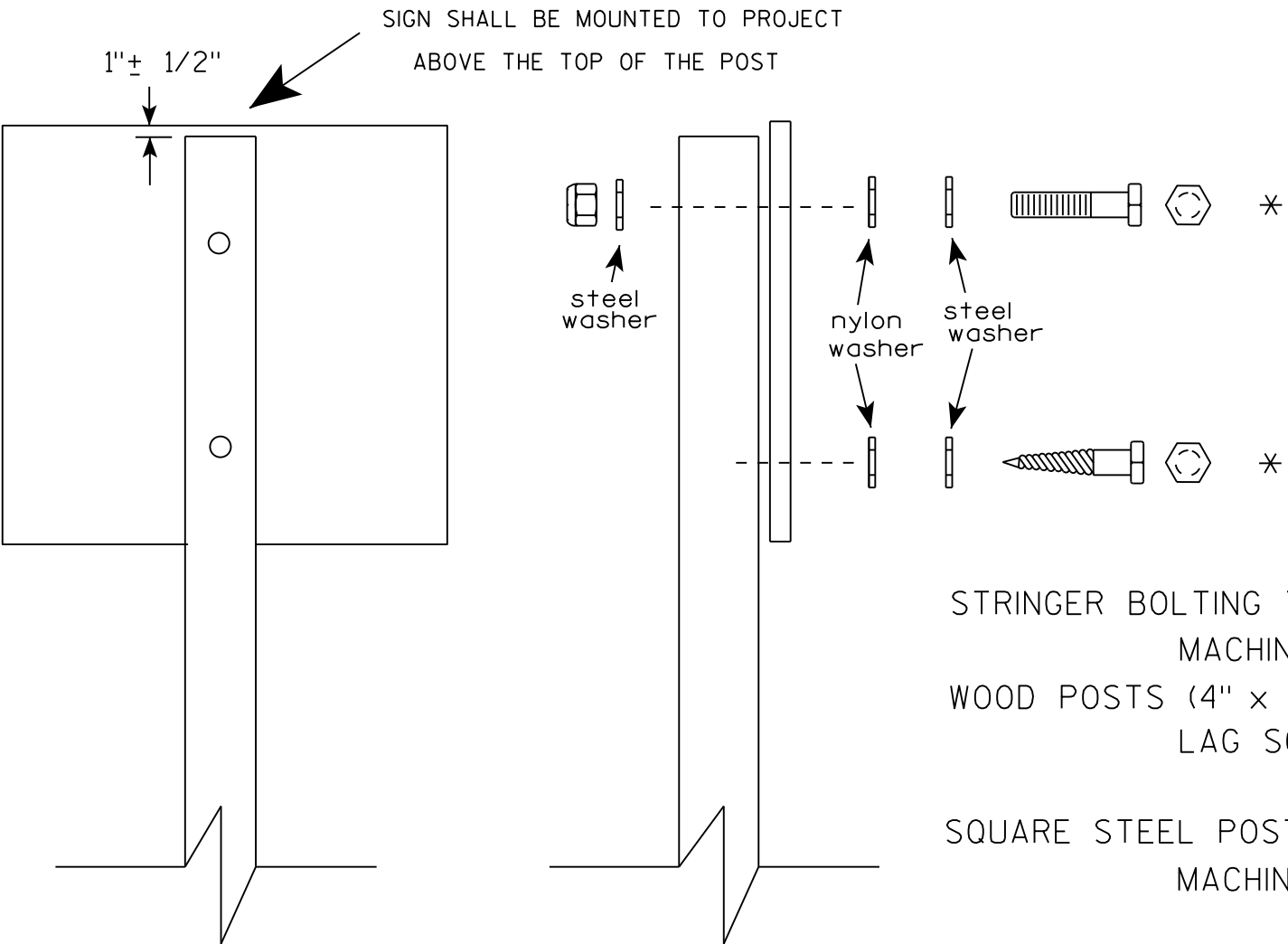
* 6 feet from edge of a paved shoulder or 12 feet from the edge of pavement (edge line location) or 2 feet from outside edge of gravel, whichever is greater unless directed by project engineer.

TYPICAL INSTALLATION
OF PERMANENT TYPE II
SIGNS ON SINGLE POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 7/23/15 PLATE NO. A4-3.20



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

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

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

- STRINGER BOLTING TO ALUMINUM SIGNS (SEE SIGN PLATE A4-18)
- MACHINE BOLTS - 5/16" X 1-3/4" Length w/ lock nuts
- WOOD POSTS (4" x 4" or 4" x 6")
- LAG SCREWS - 3/8" X 3" (NO STRINGERS ON BACK OF SIGN)
 - 3/8" X 4" (STRINGERS ON BACK OF SIGN)
- SQUARE STEEL POSTS (2" x 2")
- MACHINE BOLTS - 3/8" X 3-1/4" Length w/ nuts (NO STRINGER ON BACK OF SIGN)
 - 3/8" X 5" Length w/ nuts (STRINGERS ON BACK OF SIGN)
- 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

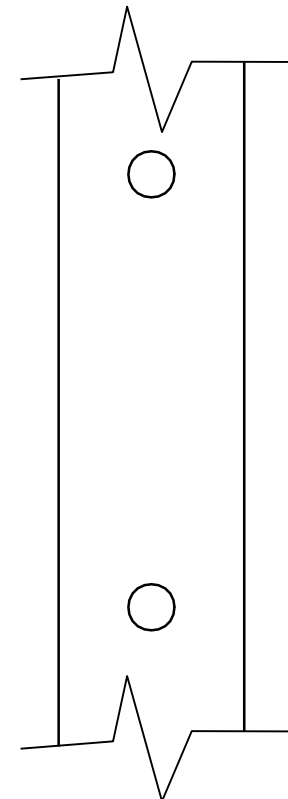
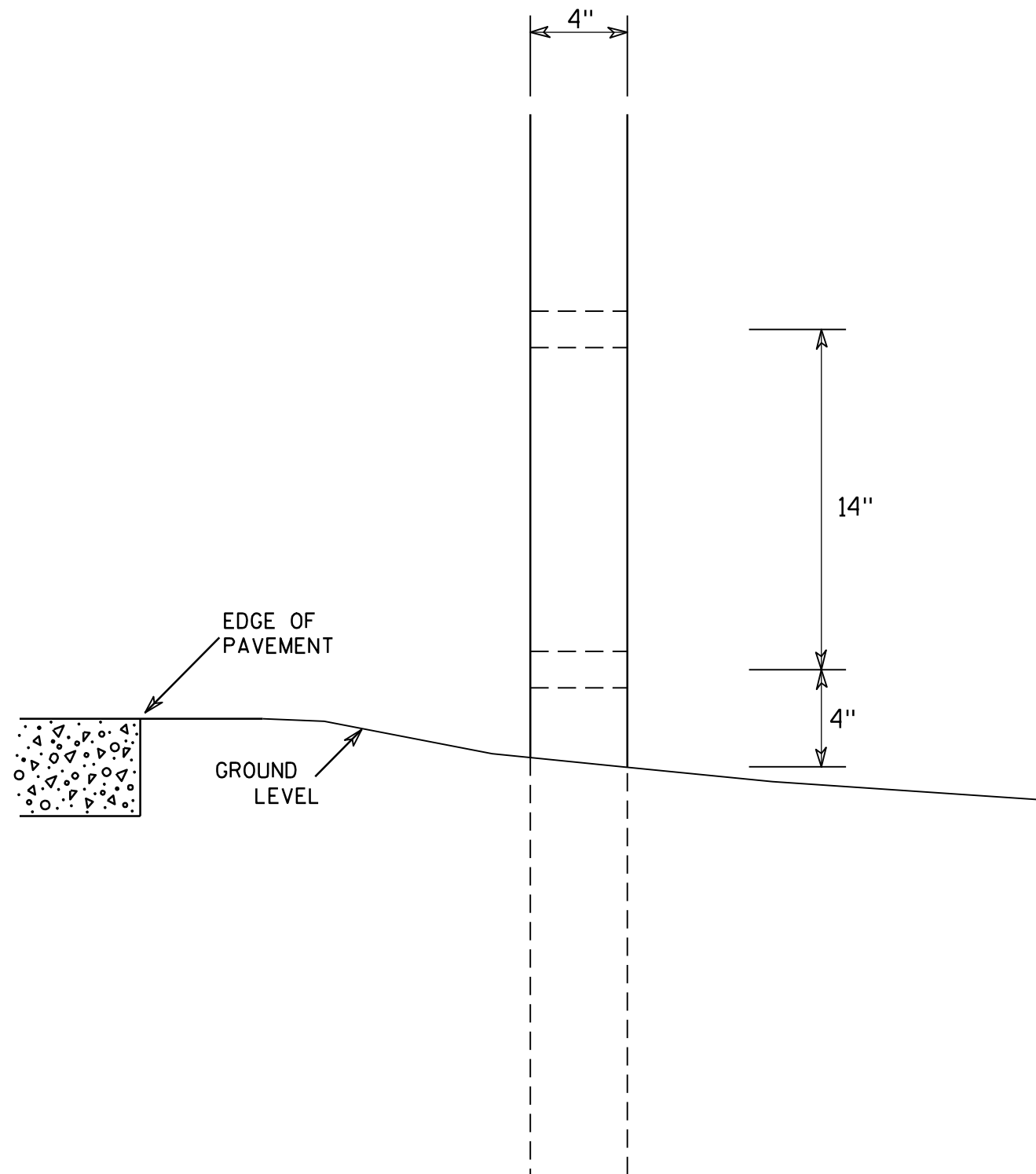
* Two different fastening systems are shown for illustration purposes. On any individual sign, either one or the other system shall be used. Actual number of fasteners per sign varies with the sign area, but normally there are two. For a single post installation, all signs greater than 9 sq. ft. require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

ATTACHMENT OF SIGNS
TO POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
For State Traffic Engineer

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



SIDE VIEW

GENERAL NOTES

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

4 X 6 WOOD POST MODIFICATIONS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED

Chester J. Spang
for State Traffic Engineer

DATE 3/27/97

PLATE NO. A4-11.2

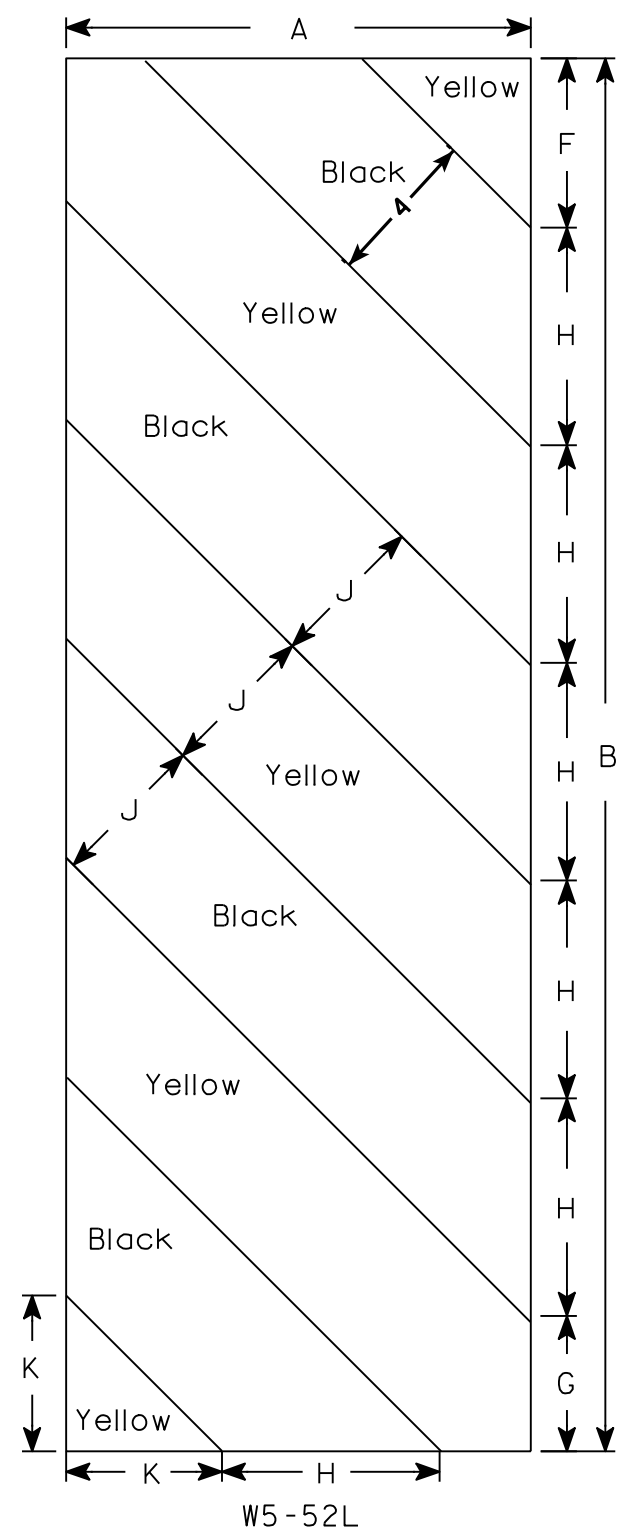
PROJECT NO:

HWY:

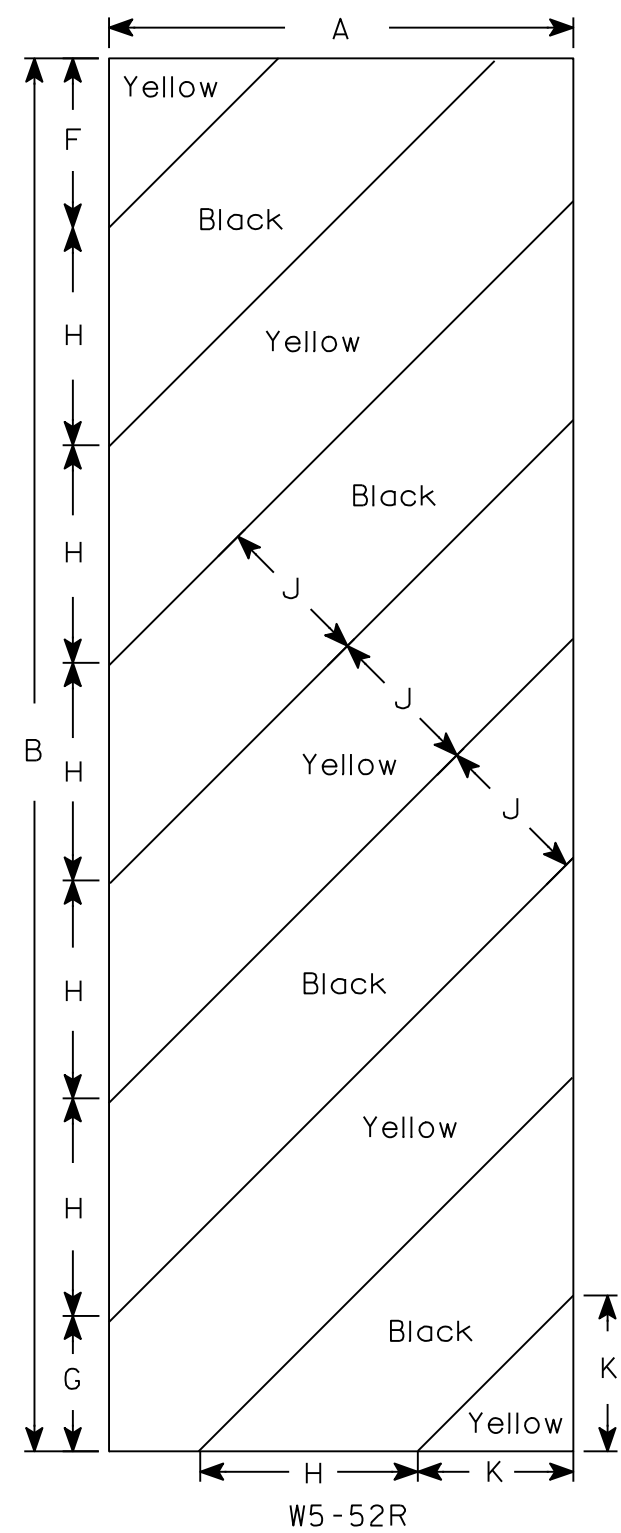
COUNTY:

SHEET NO:

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

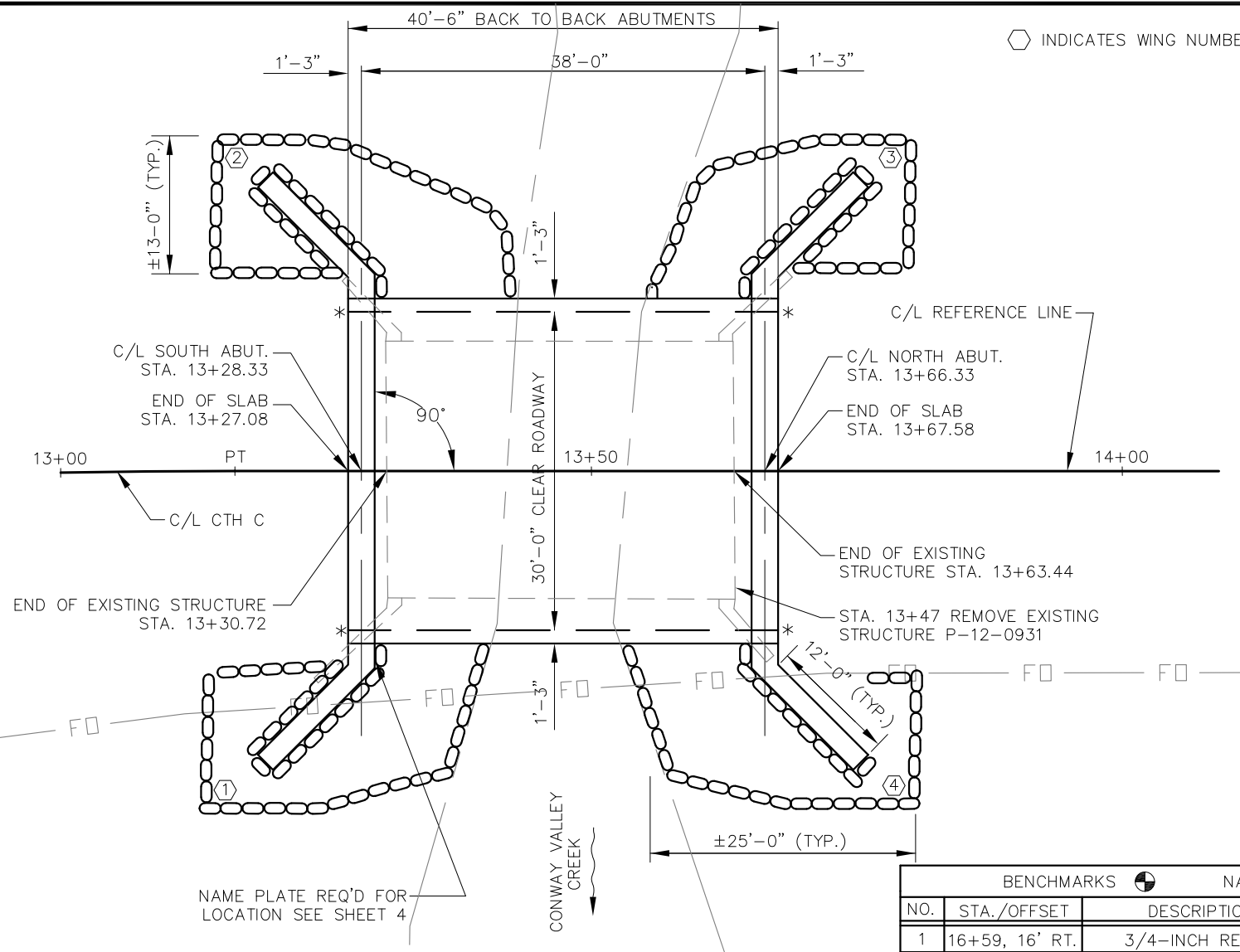
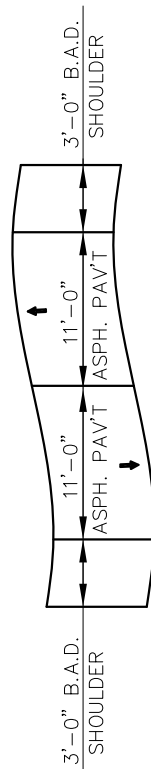
PROJECT NO:

HWY:

COUNTY:

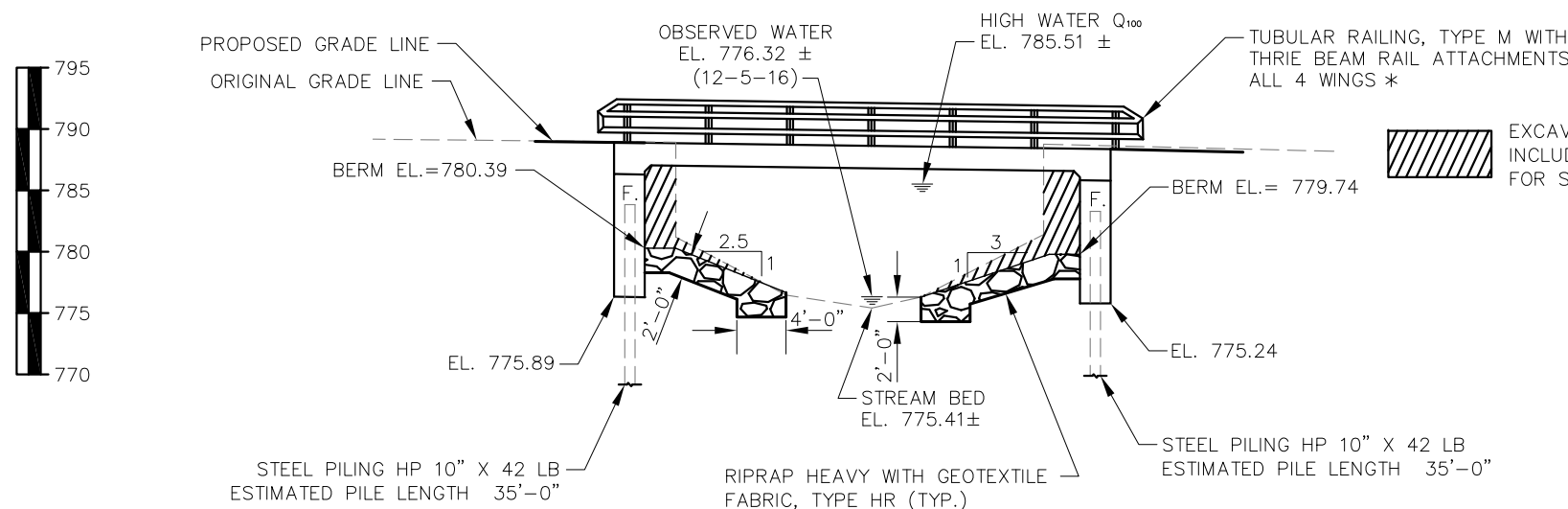
SHEET NO:

E



PLAN B-12-193
(SINGLE SPAN REINFORCED CONCRETE FLAT SLAB)

BENCHMARKS		NAVD 88	
NO.	STA./OFFSET	DESCRIPTION	ELEV.
1	16+59, 16' RT.	3/4-INCH REBAR	785.52
2	11+18, 14' LT.	3/4-INCH REBAR	791.31
3	13+32, 13' LT.	ON SW BRIDGE CURB	788.51



ELEVATION
(CUT ALONG C/L CTH C)

INDICATES WING NUMBER

DESIGN DATA

LIVE LOAD:
DESIGN LOAD _____ HL-93
INVENTORY RATING FACTOR _____ 1.29
OPERATING RATING FACTOR _____ 1.67
WISCONSIN STANDARD PERMIT VEHICLE (WisSPV) _____ 250 KIPS

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

MATERIAL PROPERTIES:
CONCRETE MASONRY, SUPERSTRUCTURE _____ $f'_c = 4,000$ p.s.i.
CONCRETE MASONRY, SUBSTRUCTURE _____ $f'_c = 3,500$ p.s.i.
BAR STEEL REINFORCEMENT, GRADE 60 _____ $f_y = 60,000$ p.s.i.

FOUNDATION DATA:
ABUTMENTS SHALL BE SUPPORTED ON PILING STEEL 10-INCH X 42 LB. PILE DRIVEN TO A REQUIRED DRIVING RESISTANCE OF 140 TONS** FOR ABUTMENT BODY AND 95 TONS** FOR WING PER PILE AS DETERMINED BY THE MODIFIED GATES DYNAMIC FORMULA. ESTIMATE 35 FT PILE LENGTHS AT WEST ABUTMENT, AND 35 FT PILE LENGTHS AT EAST ABUTMENT.

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

TRAFFIC DATA:
A.A.D.T (2018) _____ 240
A.A.D.T (2038) _____ 300
DESIGN SPEED _____ 40 M.P.H.

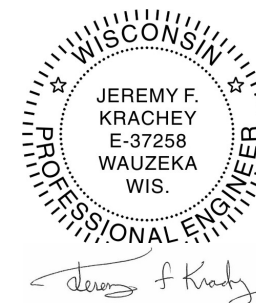
HYDRAULIC DATA:
 Q_{100} _____ 1,357 c.f.s.
 Q_{100} (THRU BRIDGE) _____ 1,357 c.f.s.
 Q_{100} (ROAD) _____ N/A c.f.s.
DRAINAGE AREA _____ 4.51 SQ. MI.
WATERWAY AREA @ Q_{100} _____ 118 SQ. FT.
VELOCITY _____ 11.5 FT/S
HIGH WATER Q_{100} ELEVATION _____ 785.51 FT.
SCOUR CRITICAL CODE _____ 5
 Q_2 _____ 180 c.f.s.
 Q_2 ELEVATION _____ 779.99 FT.
VELOCITY Q_2 _____ 7.3 FT/S

LIST OF DRAWINGS

GENERAL PLAN _____ 1.
CROSS SECTION AND QUANTITIES _____ 2.
SUBSURFACE EXPLORATION _____ 3.
ABUTMENTS _____ 4.
ABUTMENT DETAILS _____ 5 & 6.
SUPERSTRUCTURE _____ 7.
TUBULAR STEEL RAILING, TYPE M _____ 8.

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

CONSULTANT CONTACT:
JEREMY KRACHEY, P.E.
(608) 727-2146



12-12-2017

STATE PROJECT NUMBER

5001-00-71

NO.	DATE	REVISION	BY
ORIGINAL PLANS PREPARED BY: TEAM ENGINEERING			
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
ACCEPTED	<i>William C. Dreher</i> SDR	02/06/18	DATE
CHIEF STRUCTURES DESIGN ENGINEER			
STRUCTURE B-12-193			
CTH C OVER CONWAY VALLEY CREEK			
COUNTY	CRAWFORD	TOWN	UTICA
DESIGN SPEC.	AASHTO LRFD BRIDGE DESIGN SPEC.		
DESIGNED BY	JFK	DESIGN CHECKED	TJK
DRAWN BY	BAS	PLANS CHECKED	JFK
GENERAL PLAN			SHEET 1 OF 8

GENERAL NOTES

DRAWING SHALL NOT BE SCALED.

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

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

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

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

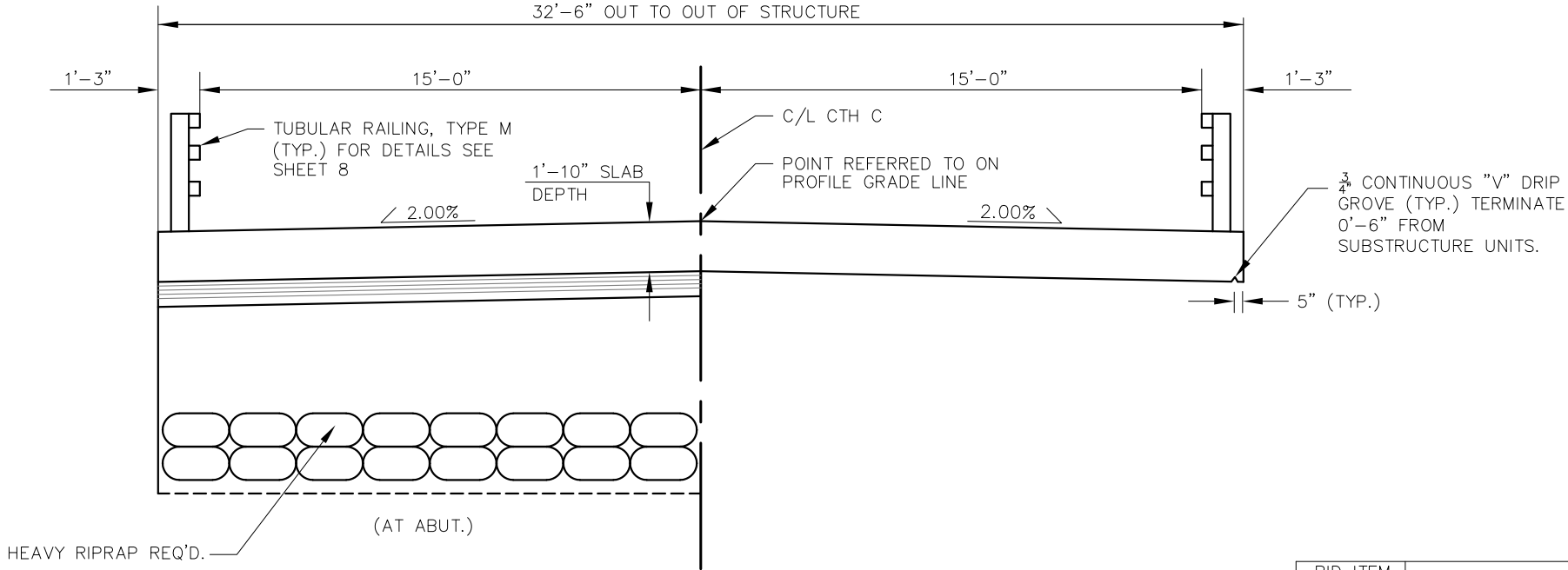
THE EXISTING GROUND LINE SHALL BE THE UPPER LIMITS OF EXCAVATION FOR STRUCTURES.

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

THE EXISTING STRUCTURE (P-12-0931) IS A SINGLE SPAN CONCRETE DECK, STEEL GIRDER STRUCTURE ON TIMBER ABUTMENTS. THE OVERALL LENGTH IS 33' AND THE OVERALL WIDTH IS 24'. THE ENTIRE STRUCTURE IS TO BE REMOVED.

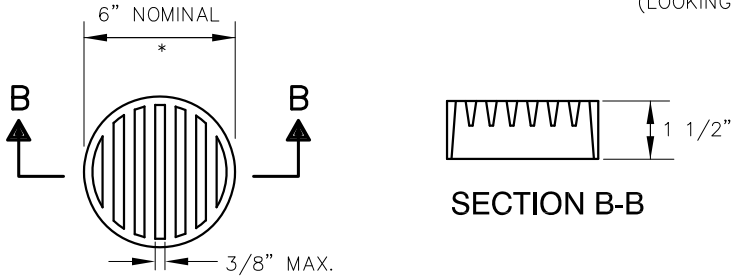
TOTAL ESTIMATED QUANTITIES

BID ITEM NUMBER	BID ITEMS	UNIT	W. ABUT.	E. ABUT.	SUPER.	TOTALS
203.0600.S	REMOVING OLD STRUCTURE OVER WATERWAY WITH MINIMAL DEBRIS STATION 13+47	LS	—	—	—	1
206.1000	EXCAVATION FOR STRUCTURES BRIDGES B-12-193	LS	—	—	—	1
210.1500	BACKFILL STRUCTURE TYPE A	TON	280	280	—	560
502.0100	CONCRETE MASONRY BRIDGES	CY	56	56	94	206
502.3200	PROTECTIVE SURFACE TREATMENT	SY	—	—	170	170
505.0400	BAR STEEL REINFORCEMENT HS STRUCTURES	LB	2708	2708	—	5416
505.0600	BAR STEEL REINFORCEMENT HS COATED STRUCTURES	LB	1976	1976	16318	20270
513.4061	RAILING TUBULAR TYPE M B-12-193	LF	—	—	—	85
516.0500	RUBBERIZED MEMBRANE WATERPROOFING	SY	6	6	—	12
550.1100	PILING STEEL HP 10-INCH X 42 LB	LF	235	235	—	470
606.0300	RIPRAP HEAVY	CY	83	77	—	160
612.0406	PIPE UNDERDRAIN WRAPPED 6-INCH	LF	100	100	—	200
645.0111	GEOTEXTILE TYPE DF SCHEDULE A	SY	30	30	—	60
645.0120	GEOTEXTILE TYPE HR	SY	170	160	—	330
NON-BID ITEMS						
	FILLER	SIZE				½" & ¾"



CROSS SECTION THRU ROADWAY

(LOOKING NORTH)



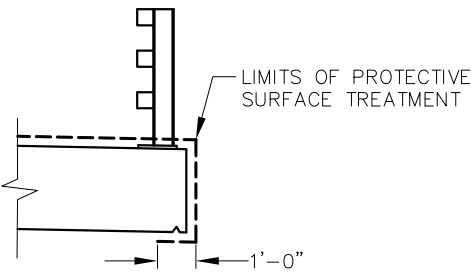
SECTION B-B

RODENT SHIELD

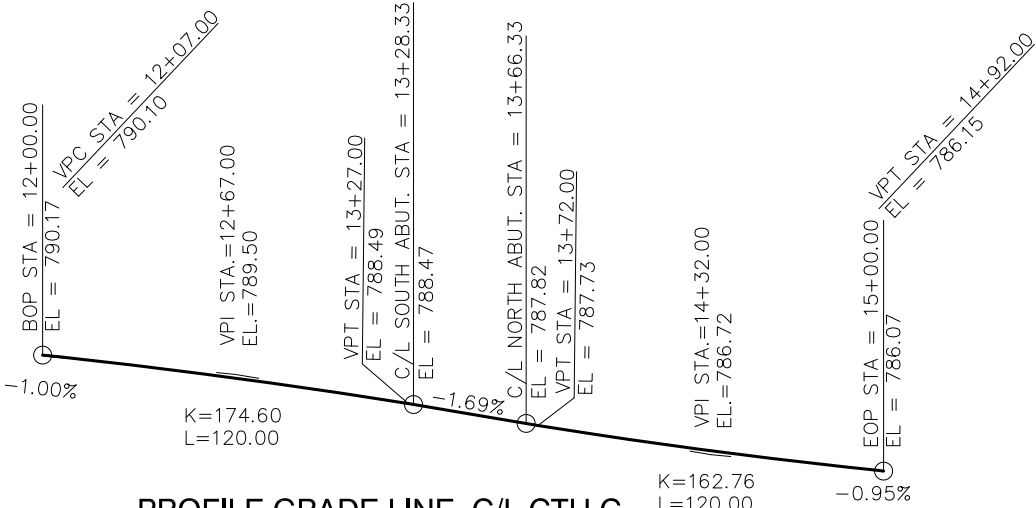
* NOTE: DIMENSIONS ARE APPROXIMATE. THE GRATE IS SIZED TO FIT INTO A PIPE COUPLING, ORIENT SO SLOTS ARE VERITCAL.

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

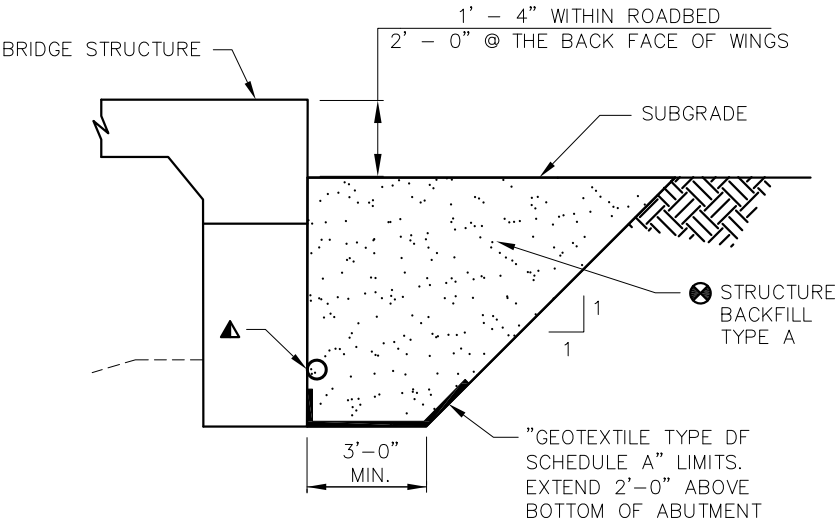
THE RODENT SHIELD SHALL BE A PVC GRATE SIMILAR TO THIS DETAIL. THE GRATE IS COMMERCIALY AVAILABLE AS A FLOOR STRAINER. A PIPE COUPLING IS REQUIRED FOR THE ATTACHMENT OF THIS SHIELD TO THE EXPOSED END OF THE PIPE UNDERDRAIN. THE SHIELD SHALL BE FASTENED TO THE PIPE COUPLING WITH TWO OR MORE NO. 10 X 1-INCH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



PROTECTIVE SURFACE TREATMENT DETAIL



PROFILE GRADE LINE, C/L CTH C



STRUCTURE BACKFILL DETAIL

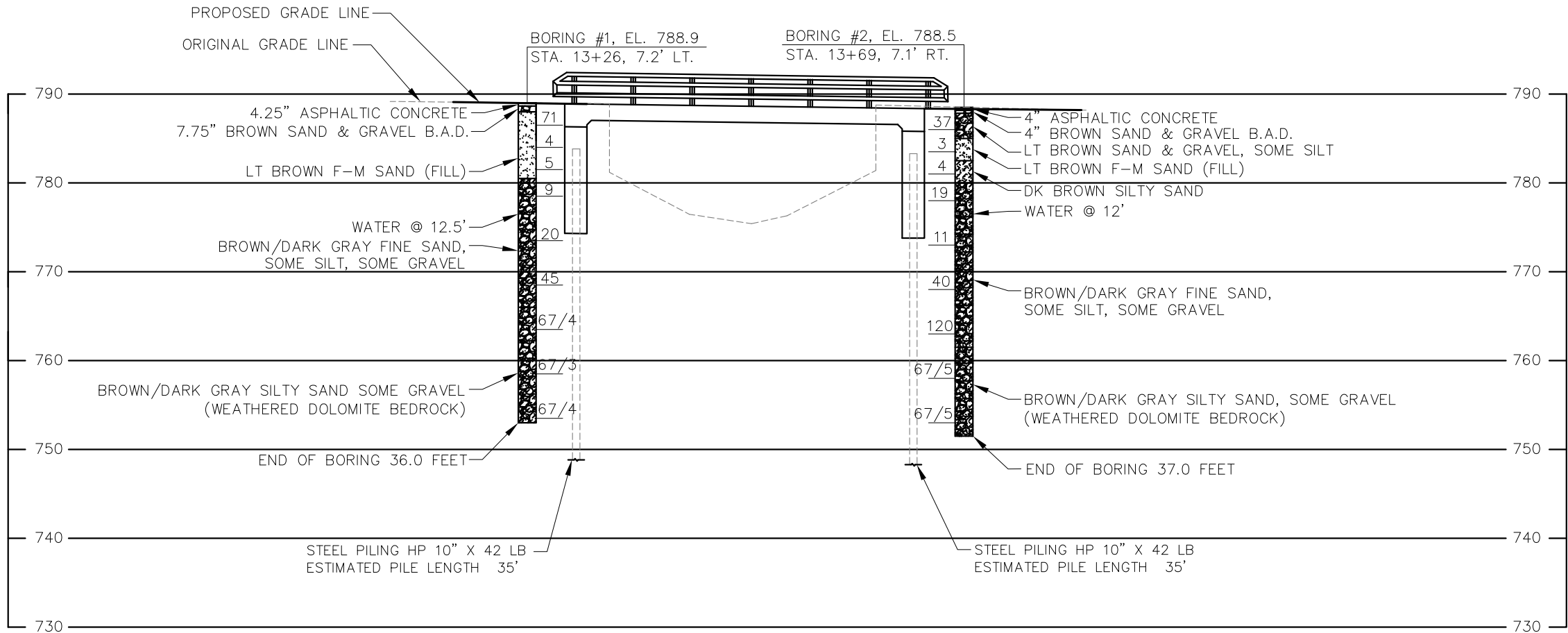
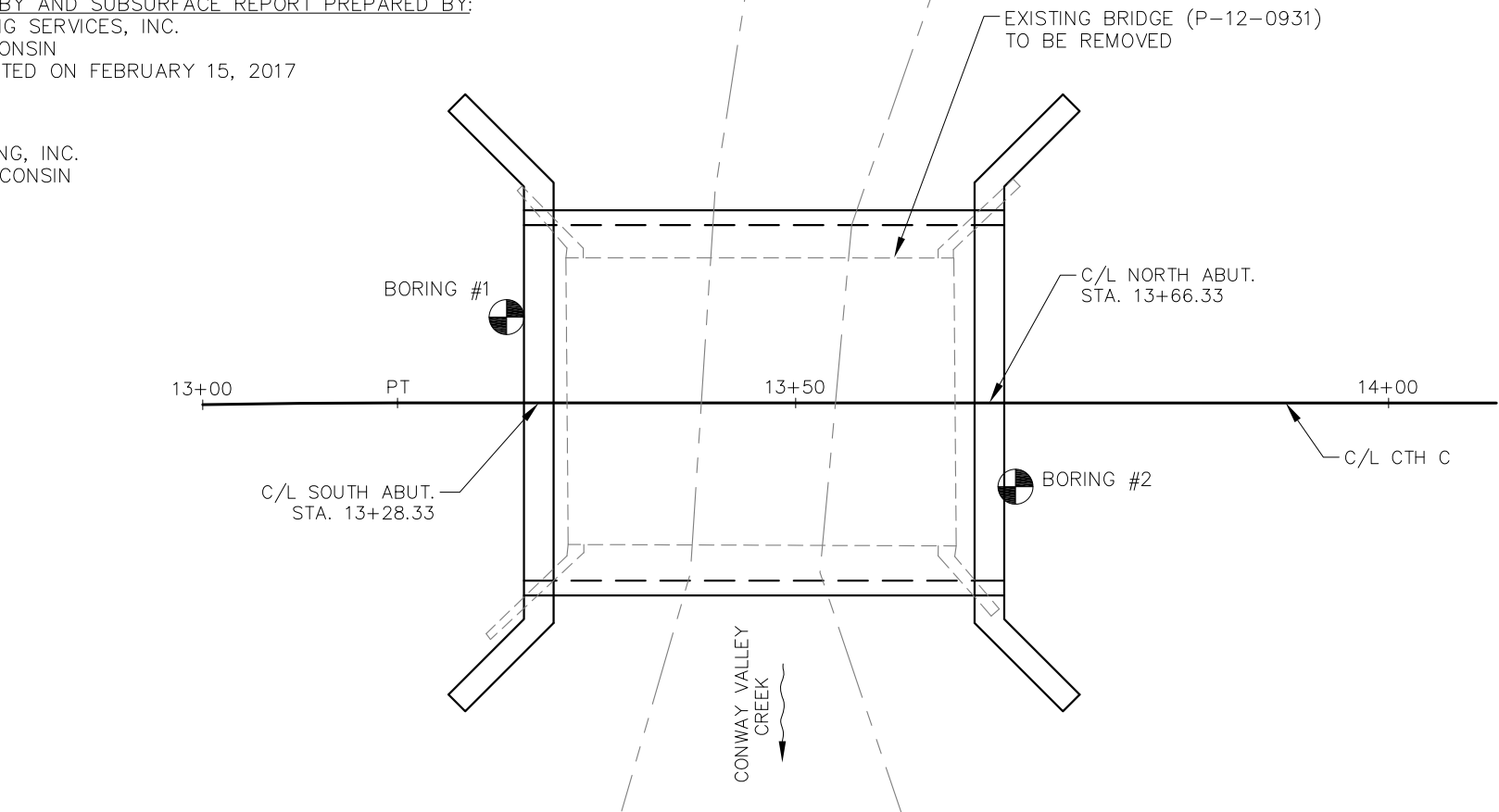
(TYPICAL AT BOTH ABUTMENTS)

- ▲ PIPE UNDERDRAIN WRAPPED (6-INCH). SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. ATTACH RODENT SHIELD AT ENDS OF PIPE UNDERDRAIN.
- ⊗ BACKFILL PAY LIMITS. BACKFILL BEYOND BACKFILL PAY LIMITS SHALL BE INCIDENTAL TO EXCAVATION FOR STRUCTURES. LIMITS OF EXCAVATION SHALL BE DETERMINED BY THE CONTRACTOR.

NO	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-12-193			
DRAWN BY BAS		PLANS CHECKED JFK	
CROSS SECTION & QUANTITIES			SHEET 2 OF 8

BORINGS PERFORMED BY AND SUBSURFACE REPORT PREPARED BY:
NUMMELIN TESTING SERVICES, INC.
WAUNAKEE, WISCONSIN
BORINGS COMPLETED ON FEBRUARY 15, 2017

PLANS PREPARED BY:
TEAM ENGINEERING, INC.
LOGANVILLE, WISCONSIN



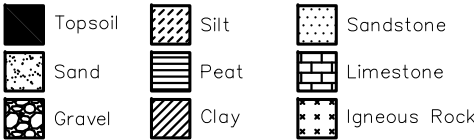
STATE PROJECT NUMBER

5001-00-71

ABBREVIATIONS

VF - Very Fine F - Fine M - Medium C - Coarse
Ws - Weathered So - Sound

MATERIAL SYMBOLS



LEGEND OF PROBING

Probing No.
Sta.
Elevation
95/6=95 Blows for 6"
Penetration
Probing taken with a
350# wt.
Falling 18" on a 2"
O.D. Point.
7 Average Blows Per Foot
Refusal 95/6

LEGEND OF BORING

Boring No.
Sta.
Elev.
Unconfined Strength → [7.7] 7
Blows Per Ft. Using 140# Wt. Falling 30"
Wash Sample
Shelby Tube — S.T.
Ground Water Elevation
No Ground Water Observed Above This Elevation
Sandy Gravel
F.
Boulders or Cobbles
Sand
Silty Clay
So.
Limestone

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 Division of Highways does not warrant conditions below the depths investigated or that the classification of material encountered in these investigations is necessarily typical of the entire site.

NO	DATE	REVISION	BY
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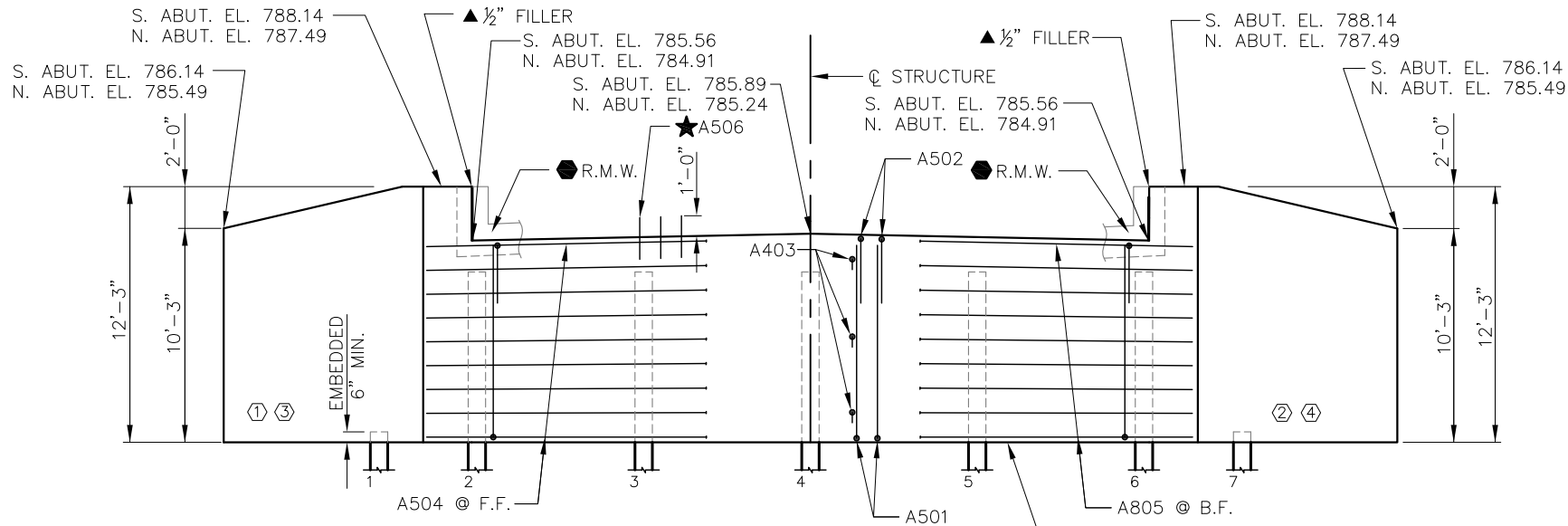
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-12-193

DRAWN BY BAS PLANS CHECKED JFK

SUBSURFACE EXPLORATION

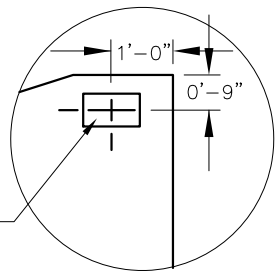
SHEET 3 OF 8



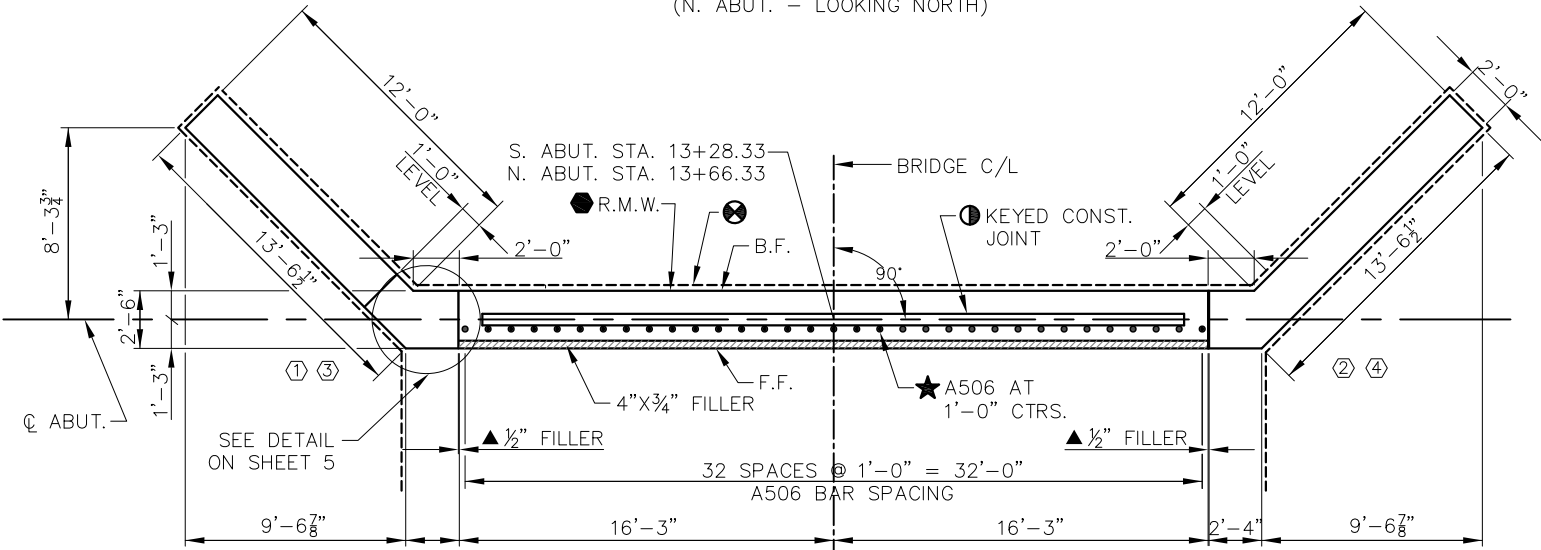
ELEVATION

(S. ABUT. - LOOKING SOUTH)
(N. ABUT. - LOOKING NORTH)

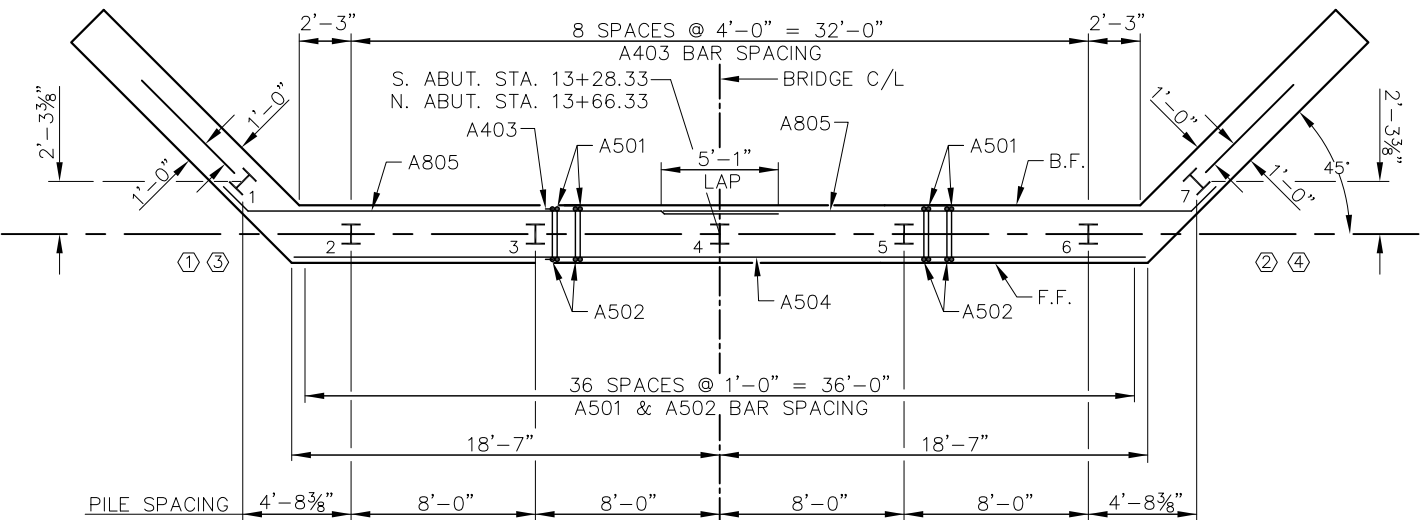
NAME PLATE REQ'D
WING 1 ONLY.



NAME PLATE DETAIL

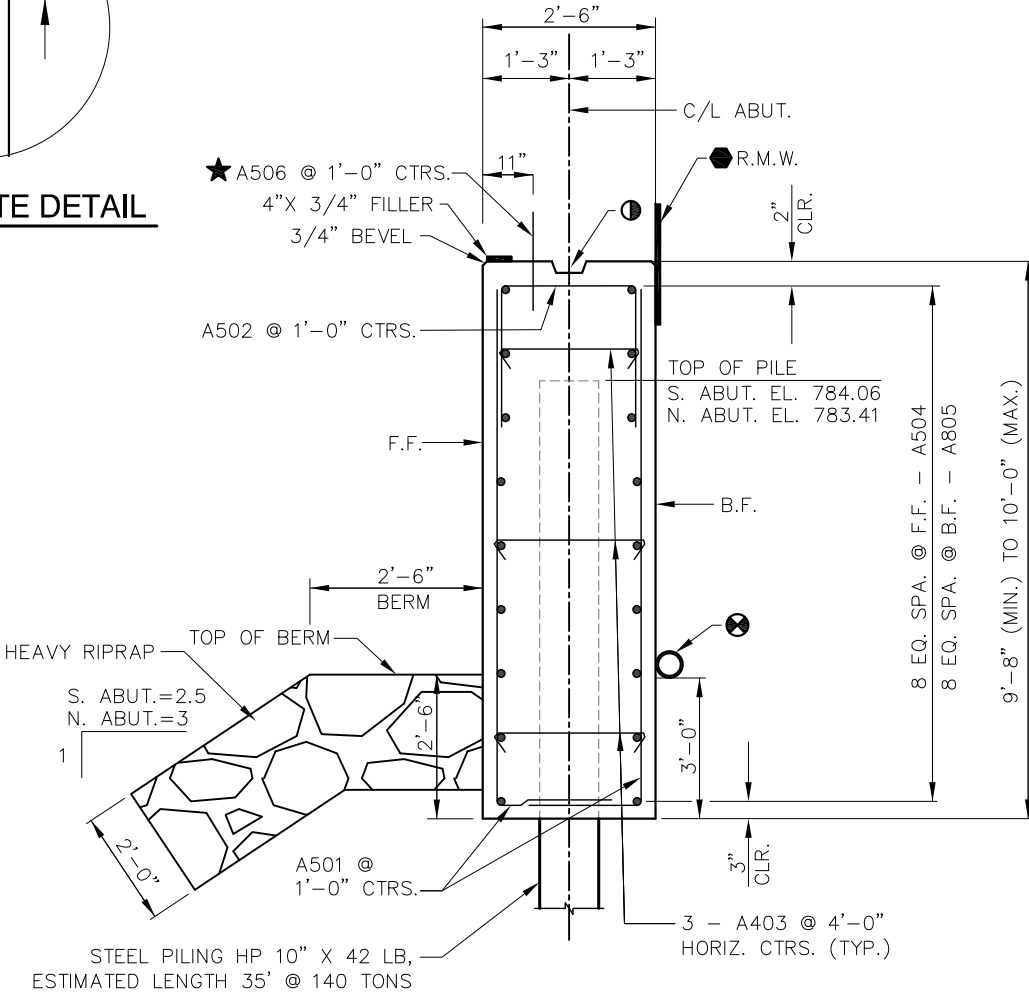


PLAN



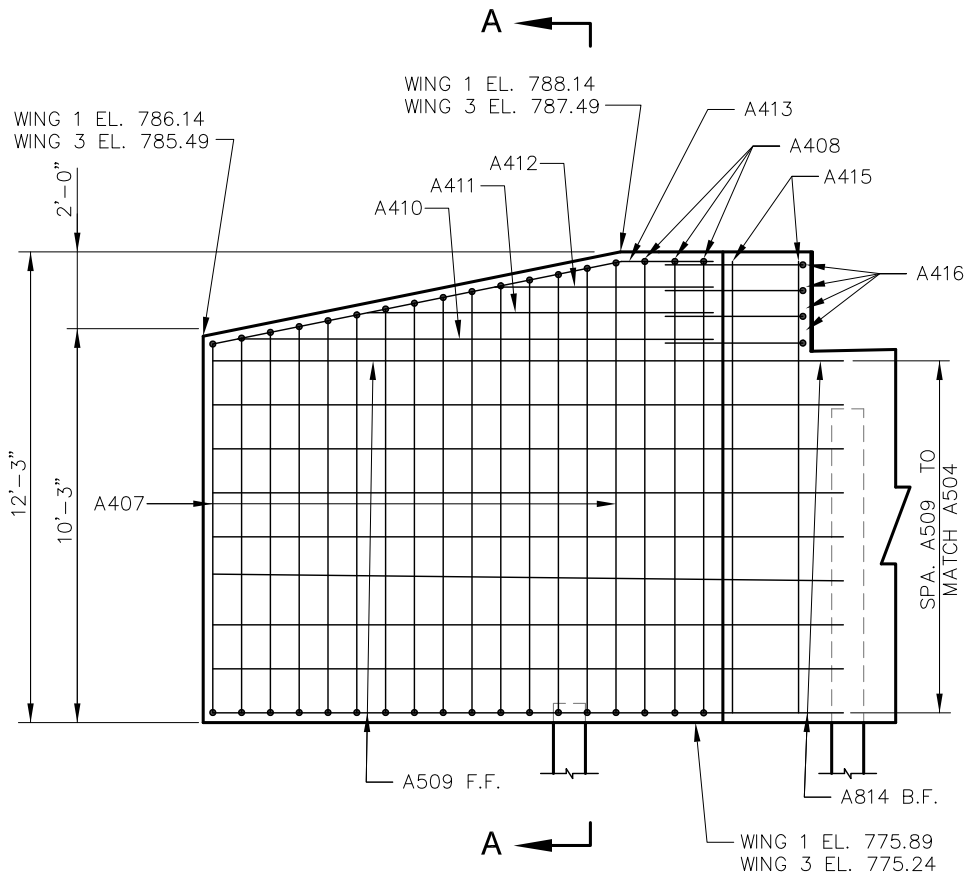
LAYOUT

- KEYED CONSTRUCTION JOINT FORMED BY A SURFACED, BEVELED 2"X6"
- 18" RUBBERIZED MEMBRANE WATERPROOFING (HORIZONTAL & VERTICAL)
- 1/2" FILLER EXTEND AS SHOWN. SEAL ALL EXPOSED HORIZ. & VERT. SURFACES OF FILLER WITH NON-STAINING GRAY, NON-BITUMINOUS JOINT SEALER. (1" DEEP & HOLD 1/8" BELOW SURFACE OF CONCRETE)
- A506 BARS MAY BE PLACED AFTER CONCRETE IS POURED BUT BEFORE IT HAS TAKEN ITS INITIAL SET. EMBED BAR 1'-0".
- PIPE UNDERDRAIN WRAPPED (6-INCH). EXTEND THRU GEOTEXTILE FABRIC AT FACE OF RIPRAP HEAVY. SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. PROVIDE RODENT PROTECTION AT ENDS OF PIPE. (SEE DETAIL ON SHEET 2)

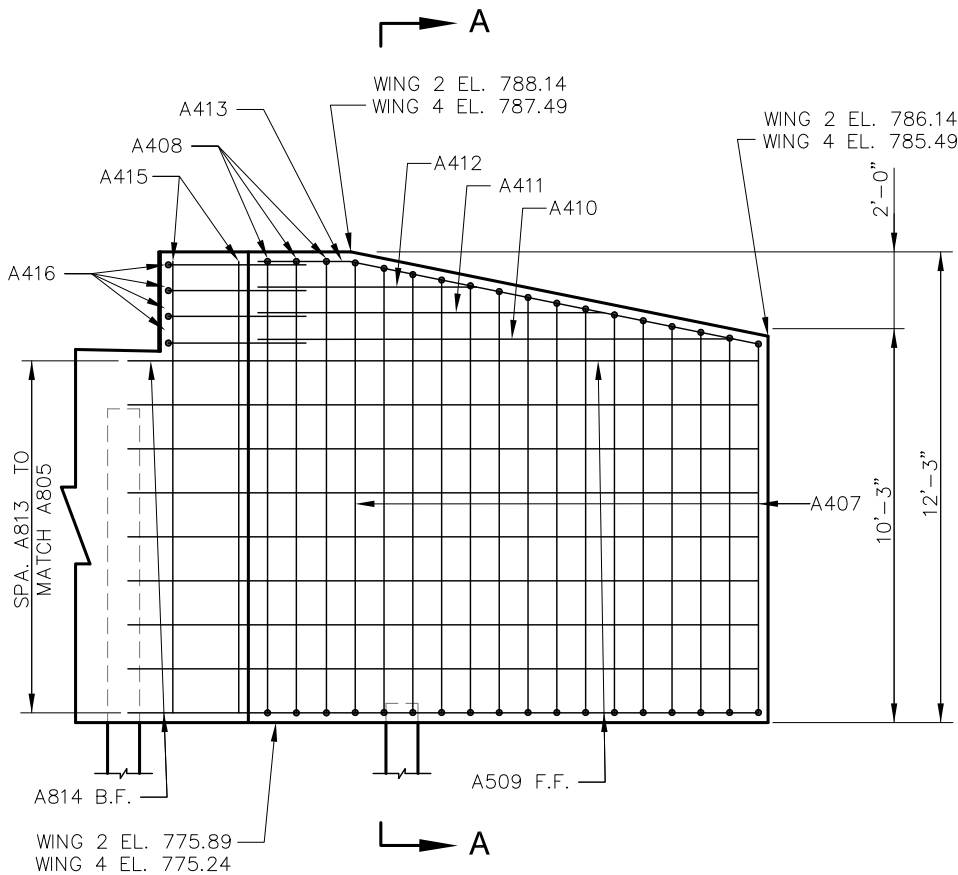


TYPICAL SECTION THROUGH ABUTMENT BODY

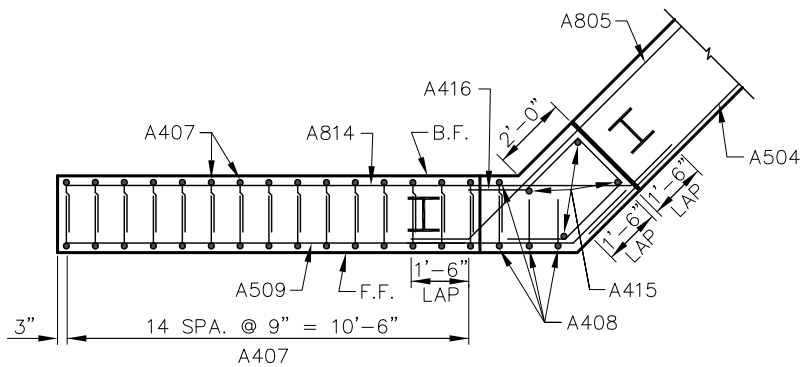
NO	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-12-193			
DRAWN BY BAS		PLANS CHECKED JFK	
ABUTMENTS			SHEET 4 OF 8



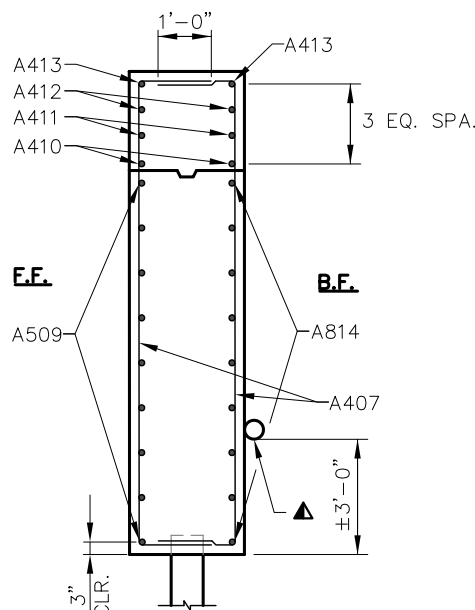
F.F. ELEVATION - WING 1 & 3



F.F. ELEVATION - WING 2 & 4



PLAN - WINGS 1 THRU 4



SECTION A-A
WINGS 1 THRU 4

▲ PIPE UNDERDRAIN WRAPPED (6-INCH). SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. ATTACH RODENT SHIELD AT ENDS OF PIPE UNDERDRAIN. (SEE DETAIL ON SHEET 2)

NO	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-12-193			
DRAWN BY BAS		PLANS CHECKED JFK	
ABUTMENT DETAILS		SHEET 5 OF 8	

THE FIRST DIGIT OF A 3 DIGIT MARK SIGNIFIES THE BAR SIZE
ALL BAR BEND DIMENSIONS ARE OUT TO OUT OF BAR.

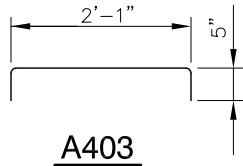
BILL OF BARS
(ABUTMENTS)

COATED
UNCOATED

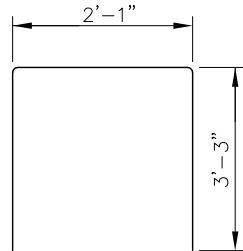
3,952 LBS.
5,416 LBS.

MARK	NO. REQ'D	COAT	LENGTH	BENT	LENGTH
A501	148		10'-7"	X	BODY F.F. & B.F. - VERT.
A502	74		8'-4"	X	BODY TIES @ TOP. - VERT.
A403	54		2'-9"	X	BODY TIES - HORIZ.
A504	18		36'-10"		BODY F.F. - HORIZ.
A805	36		24'-5"	X	BODY B.F. - HORIZ.
A506	66	X	2'-0"		BODY - F.F. - DOWELS - VERT.
A407	120	X	13'-1"	X	WINGS 1 THRU 4 - STIRRUPS - VERT.
A408	24	X	14'-2"	X	WINGS 1 THRU 4 - F.F. & B.F. - VERT.
A509	36	X	14'-8"	X	WINGS 1 THRU 4 - F.F. - HORIZ.
A410	8	X	12'-4"		WINGS 1 THRU 4 - F.F. & B.F. - HORIZ.
A411	8	X	9'-0"		WINGS 1 THRU 4 - F.F. & B.F. - HORIZ.
A412	8	X	5'-8"		WINGS 1 THRU 4 - F.F. & B.F. - HORIZ.
A413	8	X	13'-2"	X	WINGS 1 THRU 4 - F.F. & B.F. - HORIZ.
A814	36	X	16'-2"	X	WINGS 1 THRU 4 - B.F. - HORIZ.
A415	16	X	11'-8"		WINGS 1 THRU 4 - VERT.
A416	16	X	8'-9"	X	WINGS 1 THRU 4 - HORIZ.

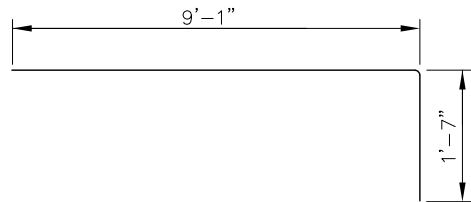
LENGTH SHOWN FOR BAR IS AN AVERAGE LENGTH AND SHOULD ONLY BE USED FOR BAR WEIGHT CALCULATIONS. SEE BAR SERIES TABLE FOR ACTUAL LENGTHS.



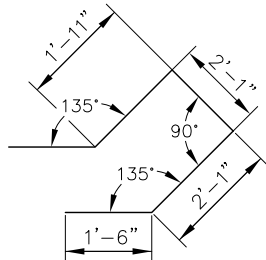
A403



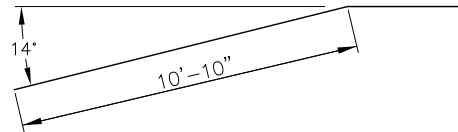
A502



A501



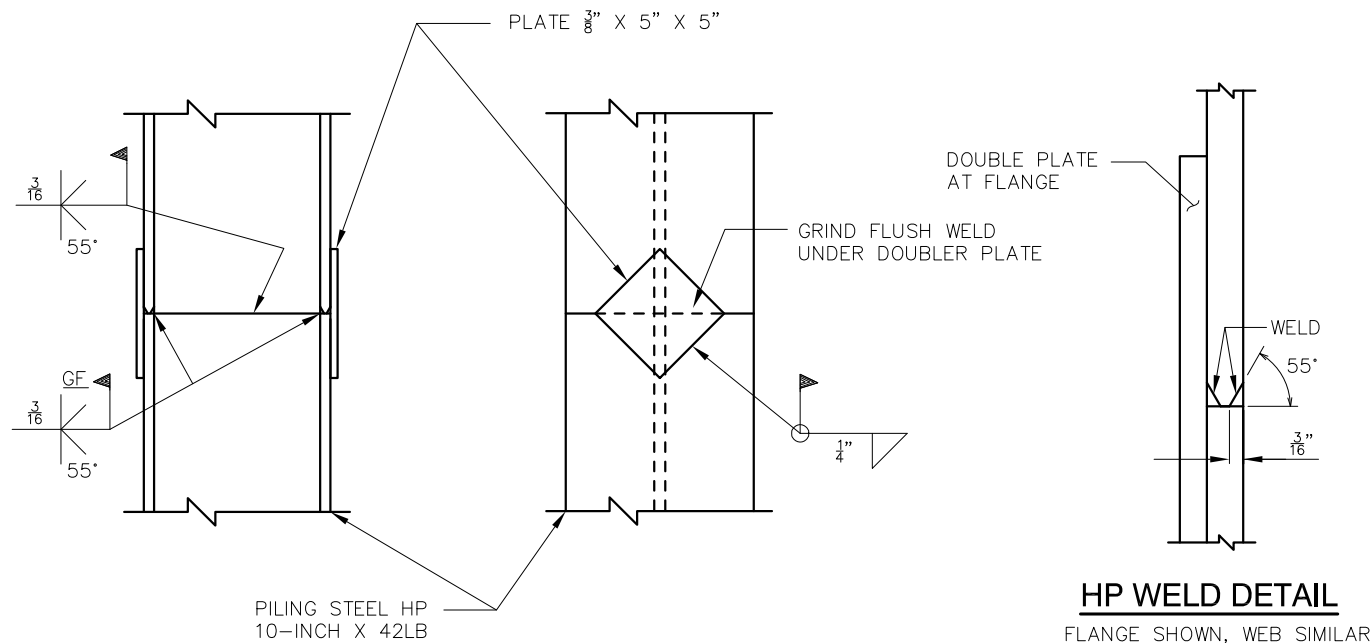
A416



A413

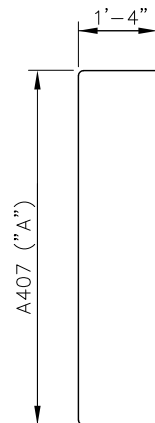


A805, A509, A814



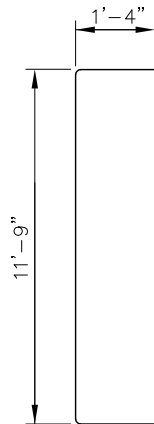
PILE SPLICE DETAIL

HP WELD DETAIL
FLANGE SHOWN, WEB SIMILAR



A407

MARK	"A"
A407	9'-7"
	9'-9"
	9'-10"
	10'-0"
	10'-2"
	10'-4"
	10'-6"
	10'-8"
	10'-9"
	10'-11"
	11'-1"
	11'-3"
	11'-5"
	11'-6"
	11'-8"



A408

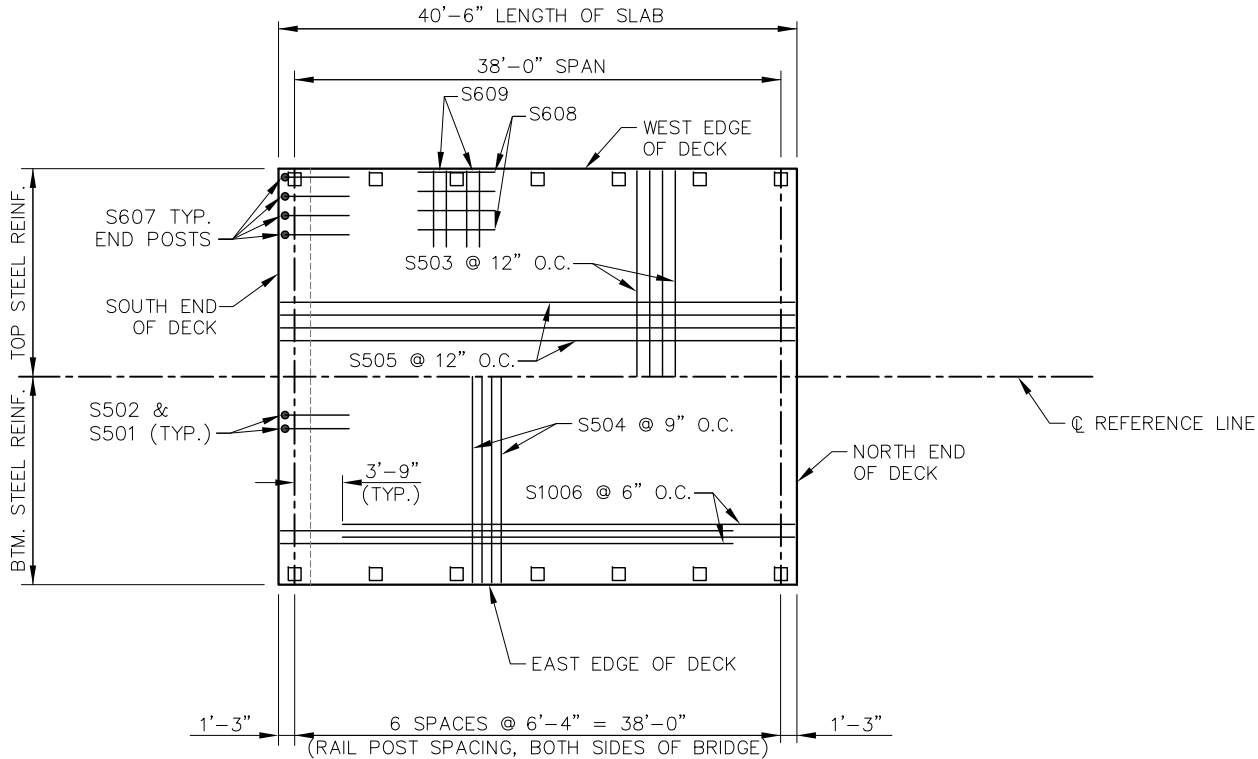
BAR SERIES TABLE

MARK	NO. REQ'D	LENGTH
A407	4 SERIES OF 11	12'-0" TO 14'-1"

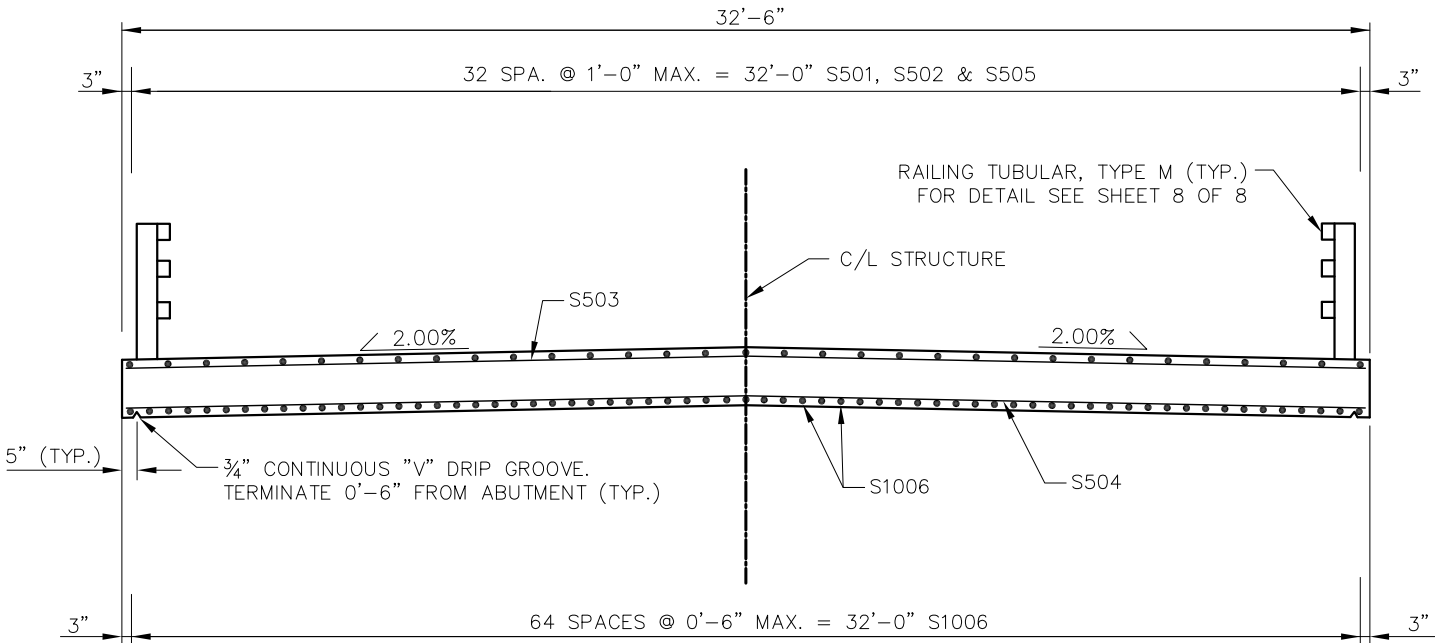
NO	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-12-193			
DRAWN BY BAS		PLANS CHECKED JFK	
ABUTMENT DETAILS		SHEET 6 OF 8	

TOP OF DECK ELEVATIONS

	☉ 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.	☉ BRG. N. ABUT.
L/E.O.D.	788.14	788.08	788.01	787.95	787.88	787.82	787.79	787.69	787.63	787.56	787.50
☉ CTH C	788.47	788.41	788.34	788.28	788.21	788.15	788.09	788.02	787.96	787.89	787.83
R/E.O.D.	788.14	788.08	788.01	787.95	787.88	787.82	787.79	787.69	787.63	787.56	787.50
CAMBER(IN.)	0	$\frac{3}{8}$ "	$\frac{1}{16}$ "	$\frac{7}{8}$ "	$1\frac{1}{16}$ "	$1\frac{1}{8}$ "	$1\frac{1}{16}$ "	$\frac{7}{8}$ "	$1\frac{1}{16}$ "	$\frac{3}{8}$ "	0



PLAN



CROSS SECTION THRU ROADWAY

BILL OF BARS
(SUPERSTRUCTURE) COATED 16,318 LBS.

MARK	NO. REQ'D	LENGTH	BENT	DESCRIPTION
S501	66	4'-5"	X	SLAB AT END OF DECK
S502	66	5'-10"	X	SLAB AT END OF DECK
S503	41	32'-2"		SLAB TOP TRANSVERSE
S504	58	32'-2"		SLAB BOTTOM TRANSVERSE
S505	33	40'-2"		SLAB TOP LONGIT.
S1006	65	35'-4"		SLAB BOTTOM LONGIT.
S607	16	6'-0"	X	AT END RAIL POSTS
S608	40	6'-0"		AT INTERIOR RAIL POSTS
S609	28	12'-4"	X	AT INTERIOR RAIL POSTS

THE FIRST DIGIT OF A 3 DIGIT MARK OR THE FIRST TWO DIGITS OF A 4 DIGIT MARK SIGNIFIES THE BAR SIZE

ALL BAR BEND DIMENSIONS ARE OUT TO OUT OF BAR.

TOP TRANSVERSE BARS IN SLAB SHALL BE SUPPORTED BY INDIVIDUAL BAR CHAIRS AT APPROXIMATELY 3'-0" CENTERS.

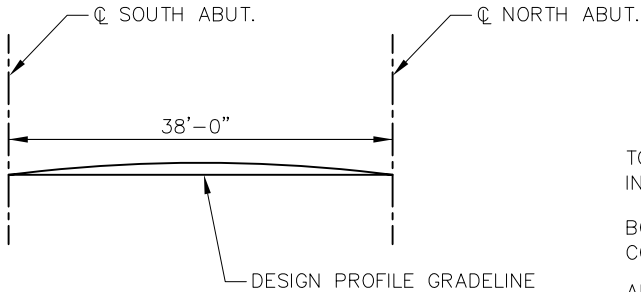
BOTTOM LONGITUDINAL BARS SHALL BE SUPPORTED BY CONTINUOUS BAR CHAIRS AT APPROXIMATELY 4'-0" CENTERS.

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

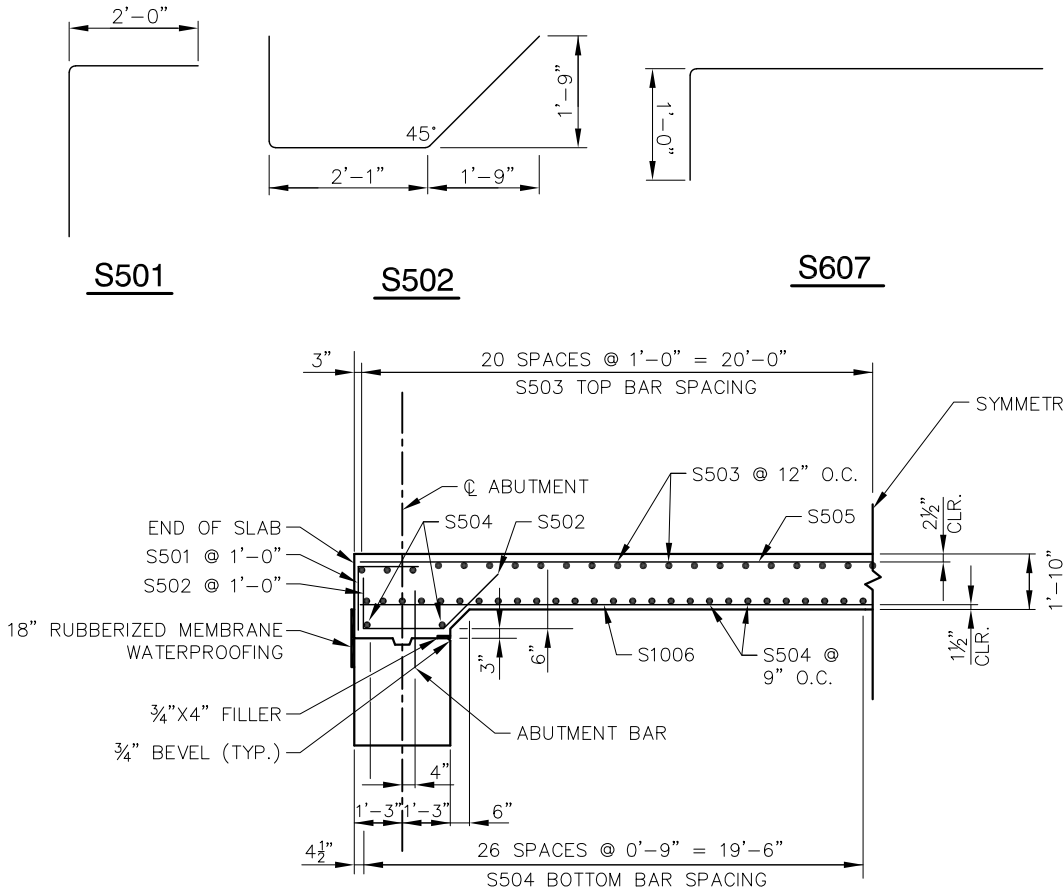
PRIOR TO RELEASING SLAB FALSEWORK, TAKE TOP OF SLAB ELEVATIONS AT THE C/L OF ABUTMENTS AND AT 5 PTS. TO VERIFY CAMBER. TAKE ELEVATIONS ALONG GUTTER LINES AND CROWN OR C/L.

SLAB CAMBER DIAGRAM

CAMBER SPAN AS SHOWN TO PROVIDE FOR DEAD LOAD DEFLECTION AND FUTURE CREEP. CAMBER DOES NOT INCLUDE ALLOWANCE FOR FORM SETTLEMENT.



PARTIAL LONGITUDINAL SECTION



NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-12-193			
DRAWN BY BAS		PLANS CHECKED JFK	
SUPERSTRUCTURE			SHEET 7 OF 8

LEGEND

- ① W6 x 25 WITH 1½" 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 1½" X 1½" SLOTTED HOLES FOR ANCHOR BOLTS NO. 3. WELD TO NO. 1 AS SHOWN. SLOTS PARALLEL TO SHORT SIDE OF PLATE.
- ③ ASTM A449 - 1½" 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 1½" 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, ⅝" X 1½" X 1½" 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 ⅝" X 3⅝" X 2'-4" PLATE. 2 PER RAIL. USED IN NO. 5 & 5A.
- ⑩A ⅝" X 2⅝" X 2'-4" PLATE USED IN NO. 5, ⅝" X 3⅝" X 2'-4" PLATE USED IN NO. 5A. 2 PER RAIL.
- ⑪ ⅞" | A325 ROUND HEAD BOLT WITH NUT, WASHER, AND LOCK WASHER. USE ⅞" X 1½" LONGIT. SLOTTED HOLES AT FIELD JOINTS AND ⅞" 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 ⅝" 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" | 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.

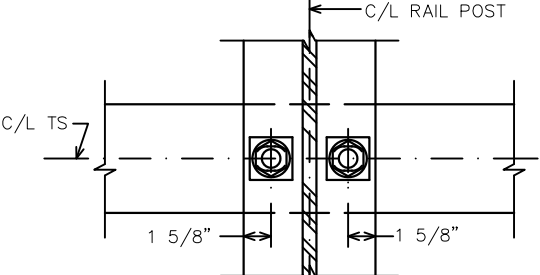
GENERAL NOTES

1. BID ITEM SHALL BE "RAILING TUBULAR TYPE M B-12-0193" 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 ⅓ 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 SSPC 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.

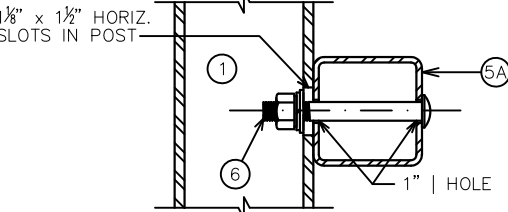
▲ TIE TO TOP MAT OF STEEL.

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

■ RDWY. OPENING OR 2½" MIN. FOR STRIP SEAL EXP. JOINT & ½" OPENING FOR A1 ABUTMENT.



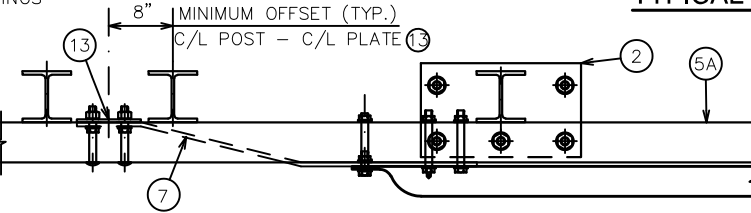
SECTION THRU POST WEB



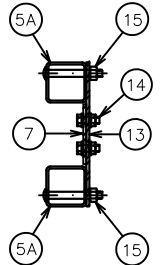
SECTION THRU RAIL

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

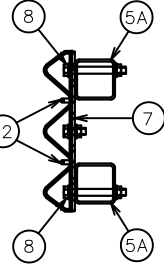
TYPICAL RAIL TO POST CONNECTIONS



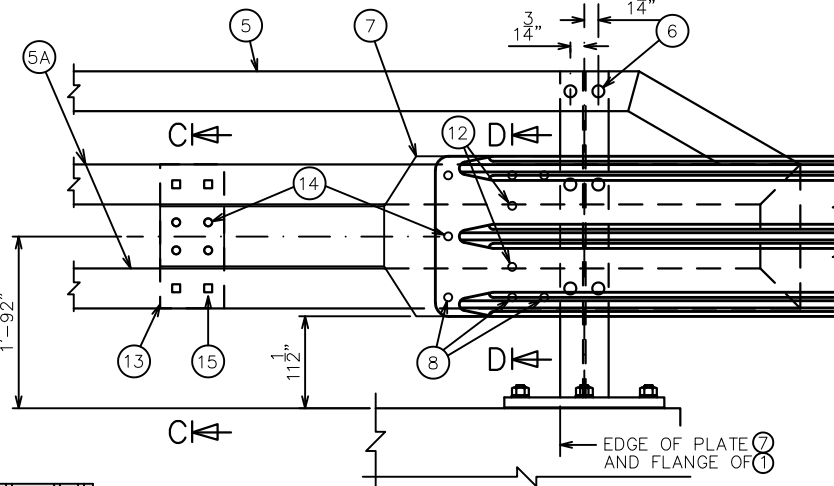
TOP VIEW AT END POST
THRIE BEAM RAIL ATTACHMENT



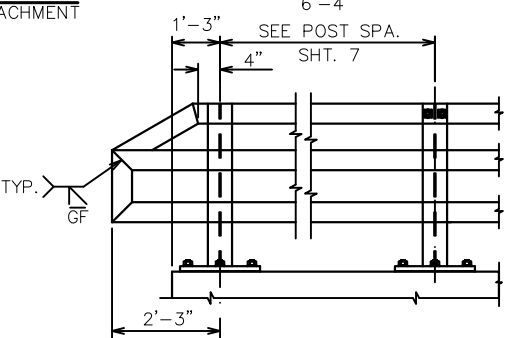
SECTION C-C



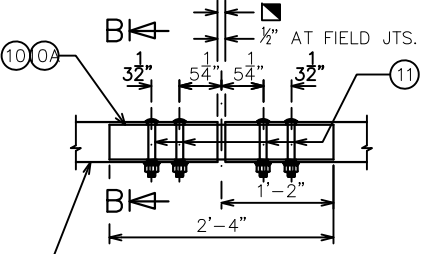
SECTION D-D



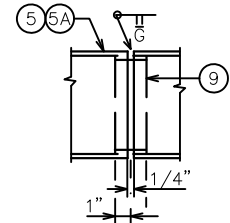
DETAIL AT END POST
THRIE BEAM RAIL ATTACHMENT



PART ELEVATION OF RAILING



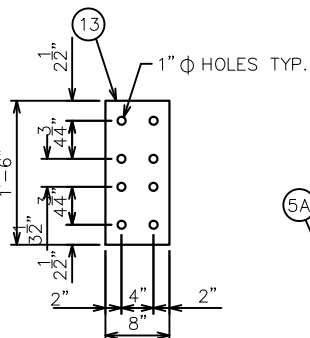
FIELD ERECTION JOINT DETAIL



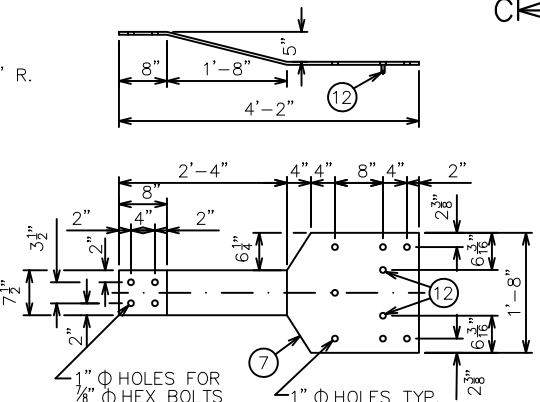
SHOP RAIL SPLICE DETAIL

LOCATION MUST BE SHOWN ON SHOP DRAWINGS

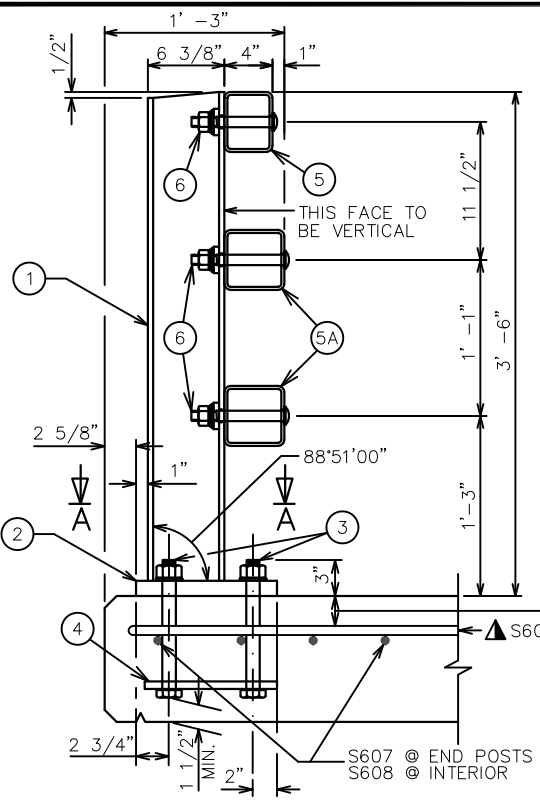
2½" FOR SLABS ON GIRDERS; FOR OTHER STRUCTURES, PLACE BELOW TOP MAT SLAB REINFORCEMENT.



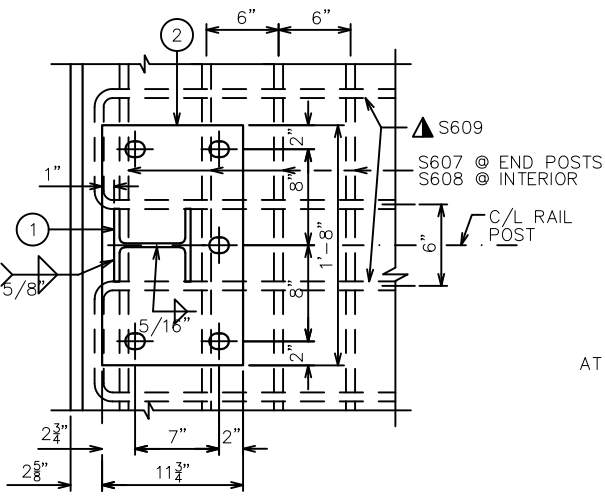
ANCHOR PLATE
AT BEAM GUARD ATTACHMENT



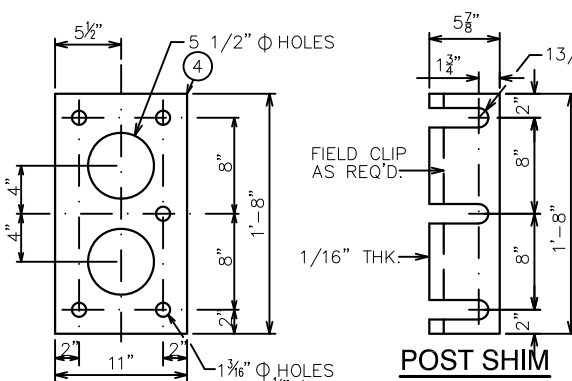
BACK-UP PLATE DETAIL
AT BEAM GUARD ATTACHMENT



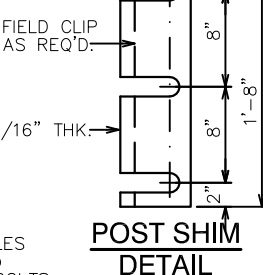
SECTION THRU RAILING ON DECK



SECTION A-A



ANCHOR PLATE
AT RAIL TO DECK CONNECTION



POST SHIM
DETAIL

NO	DATE	REVISION	BY
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STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-12-193

DRAWN BY BAS PLANS CHECKED JFK

TUBULAR STEEL
RAILING TYPE M

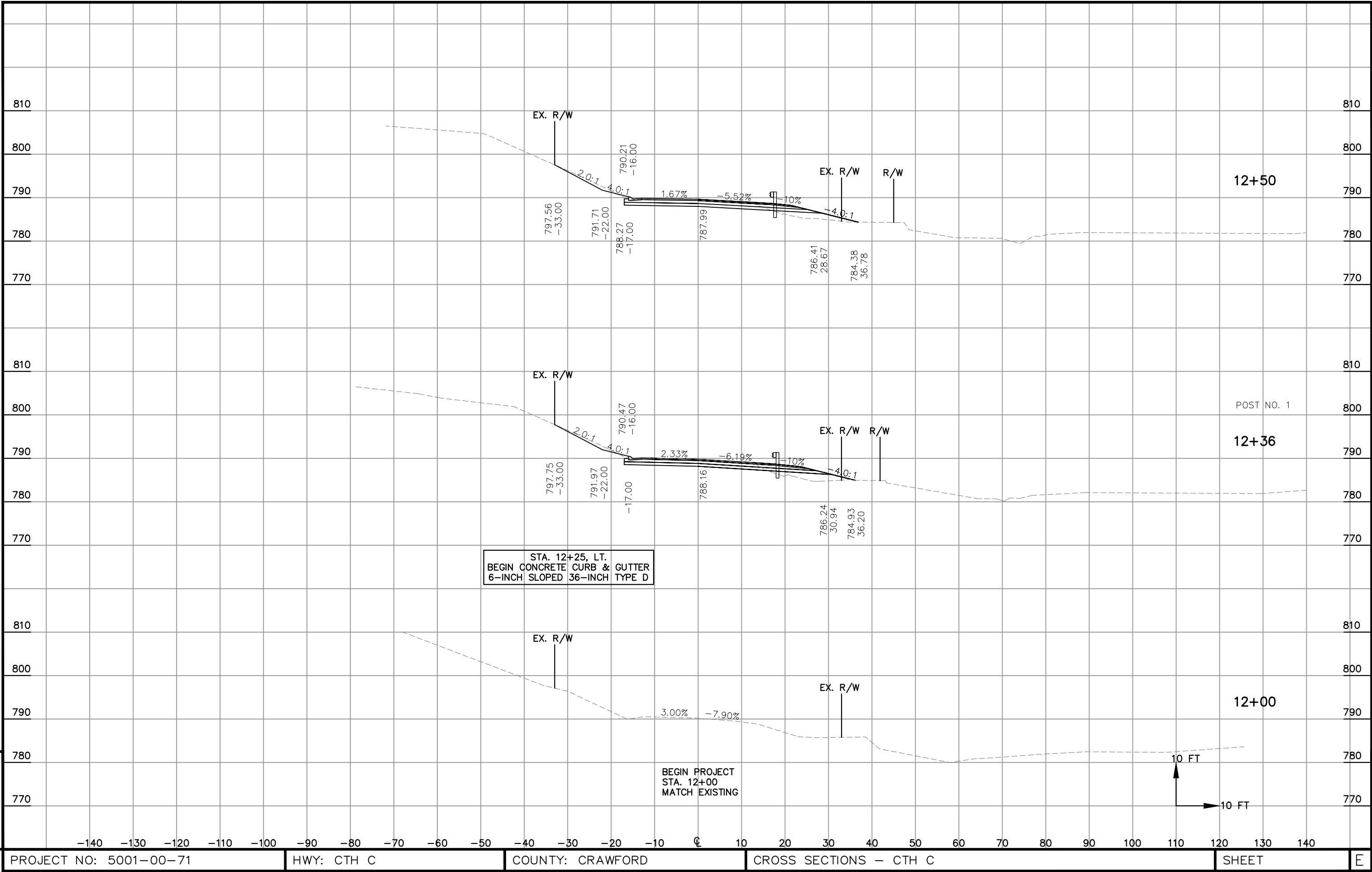
SHEET 8 OF 8

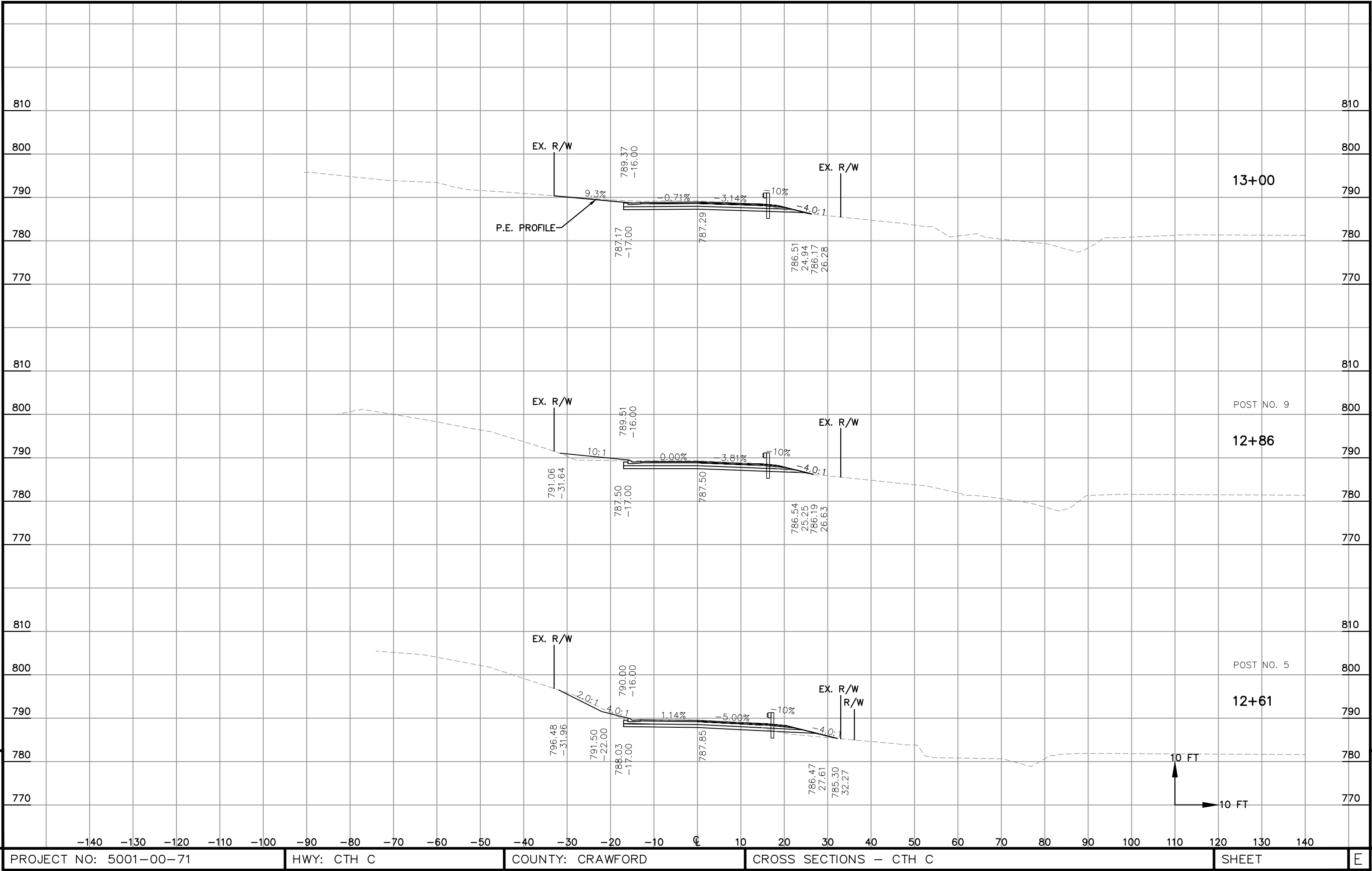
CTH C

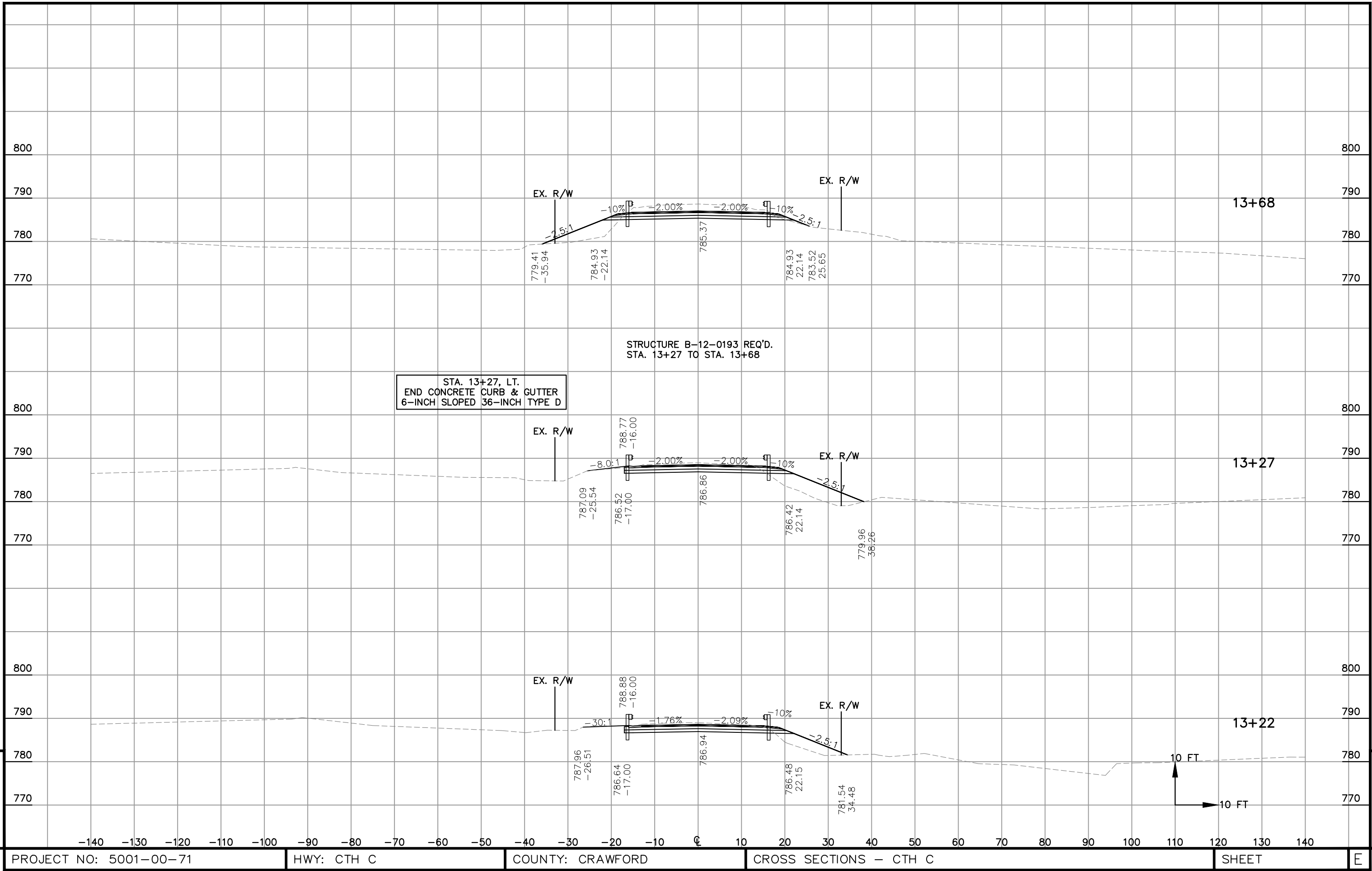
STATION		AREA (SF)		INCREMENTAL VOL (CY)		CUMULATIVE VOL (CY)		MASS HAUL
	FEET	COMMON	FILL	COMMON	FILL	COMMON	FILL*	
12+00		0.0	0.0					
	36.0			38.0	15.3	38.0	18.4	19.6
12+36		28.5	23.0					
	14.0			29.6	10.6	67.6	31.1	36.5
12+50		57.0	18.0					
	11.0			23.2	5.1	90.8	37.2	53.6
12+61		57.0	7.0					
	25.0			54.6	7.9	145.4	46.7	98.7
12+86		59.0	10.0					
	14.0			32.7	2.9	178.1	50.2	127.9
13+00		63.0	1.0					
	22.0			52.1	13.0	230.2	65.8	164.4
13+22		64.0	31.0					
	5.0			11.3	8.4	241.5	75.8	165.7
13+27		61.0	60.0					
				241.5	63.2			

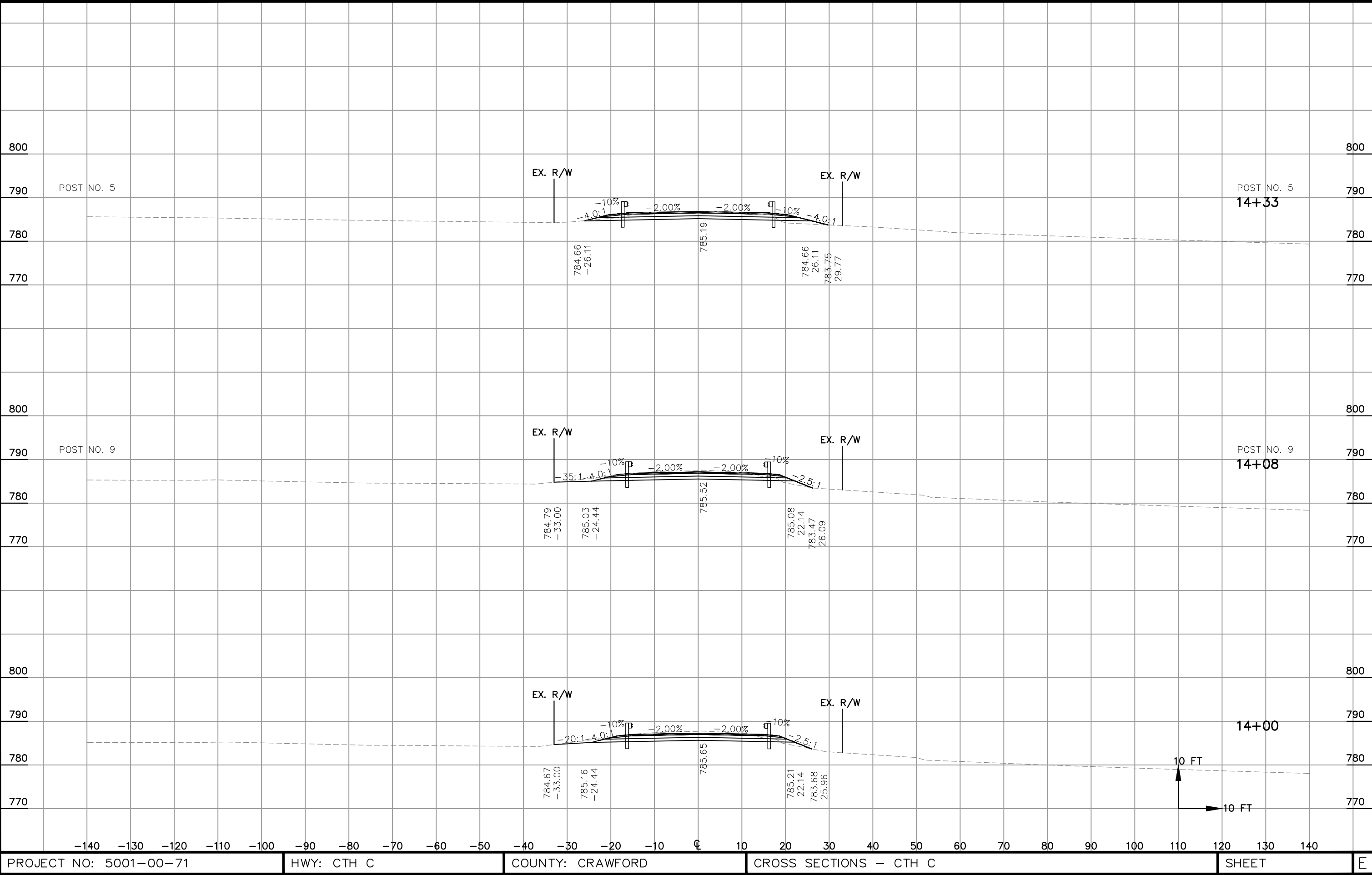
STATION		AREA (SF)		INCREMENTAL VOL (CY)		CUMULATIVE VOL (CY)		MASS HAUL
	FEET	COMMON	FILL	COMMON	FILL	COMMON	FILL*	
13+68		104.0	38.0					
	32.0			103.7	24.3	103.7	29.2	74.5
14+00		71.0	3.0					
	8.0			20.7	1.0	124.4	30.4	94.0
14+08		69.0	4.0					
	25.0			58.8	4.6	183.2	35.9	147.3
14+33		58.0	6.0					
	17.0			36.8	3.8	220.0	40.4	179.6
14+50		59.0	6.0					
	8.0			17.3	1.8	237.3	42.6	194.7
14+58		58.0	6.0					
	42.0			45.1	4.7	282.4	48.2	234.2
15+00		0.0	0.0					
				282.4	40.2			

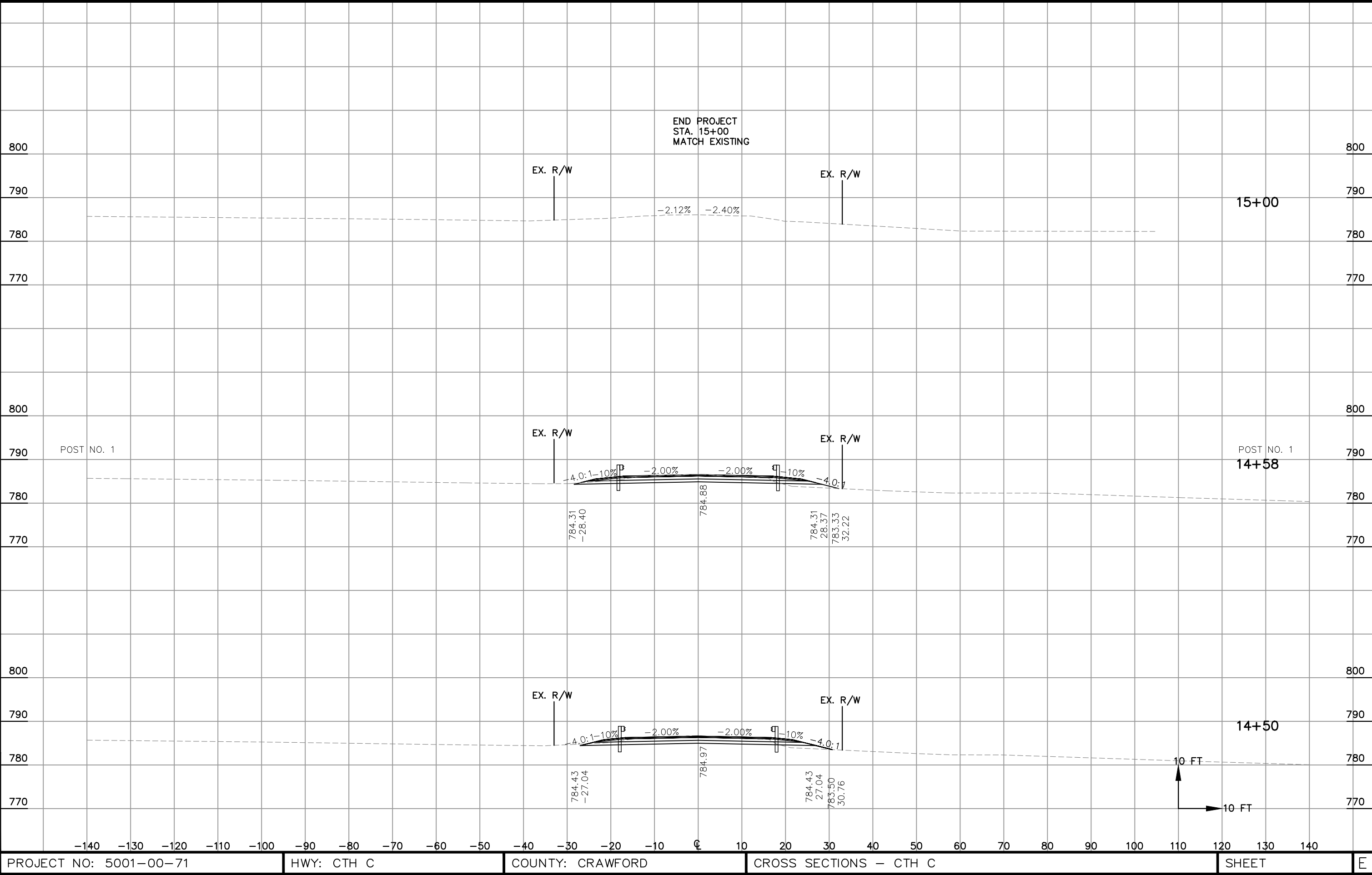
* EXPANDED FILL FACTOR = 1.20

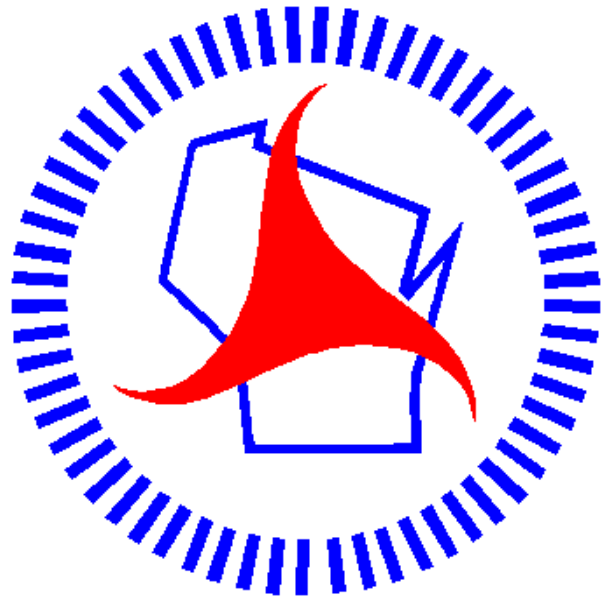












Wisconsin Department of Transportation

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