

MAD NOVEMBER 2020

PROJECT ID: 5579-00-73

COUNTY: IOWA

ORDER OF SHEETS

Section No.	1	Title
Section No.	2	Typical Sections and Details
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	Cross Sections

TOTAL SHEETS = 74



DESIGN DESIGNATION

A.A.D.T.	2021	=	340
A.A.D.T.	2041	=	370
D.H.V.		=	93
D.D.		=	60/40
T.		=	11.5
DESIGN SPEED		=	60
ESALS		=	88,000

CONVENTIONAL SYMBOLS

PLAN	
CORPORATE LIMITS	
PROPERTY LINE	
LOT LINE	
LIMITED HIGHWAY EASEMENT	
EXISTING RIGHT OF WAY	
PROPOSED OR NEW R/W LINE	
SLOPE INTERCEPT	
REFERENCE LINE	
EXISTING CULVERT	
PROPOSED CULVERT (Box or Pipe)	
COMBUSTIBLE FLUIDS	
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	
ELECTRIC	
FIBER OPTIC	
GAS	
SANITARY SEWER	
STORM SEWER	
TELEPHONE	
WATER	
UTILITY PEDESTAL	
POWER POLE	
TELEPHONE POLE	

STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION

PLAN OF PROPOSED IMPROVEMENT

CTH T - CTH T

MILL CREEK BRIDGE B-25-0186

CTH H

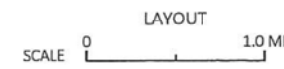
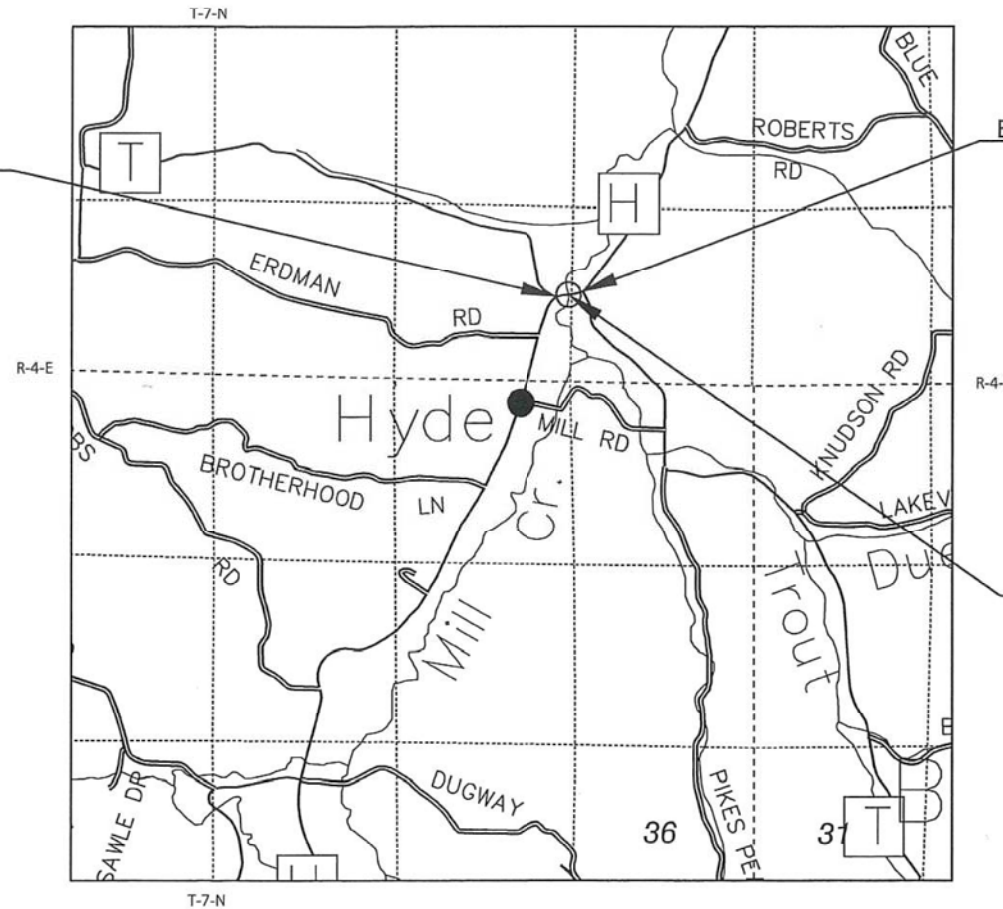
IOWA COUNTY

STATE PROJECT NUMBER

5579-00-73

BEGIN PROJECT STA 11+35 Y = 197 875.260 X = 420 070.730

END PROJECT STA 16+50 Y = 197 960.864 X = 420 577.999



TOTAL NET LENGTH OF CENTERLINE = 0.098

HORIZONTAL POSITIONS SHOWN ON THIS PLAN ARE WISCONSIN COORDINATE REFERENCE SYSTEM (WISCRS), IOWA COUNTY, NAD83 (2011), IN U.S. SURVEY FEET. POSITIONS SHOWN ARE GRID COORDINATES, GRID BEARINGS, AND GRID DISTANCES. GRID DISTANCES ARE THE SAME AS GROUND DISTANCES. ELEVATIONS ARE REFERENCED TO NAVD 88 (2012). GPS DERIVED ELEVATIONS ARE BASED ON GEOID 12A.

STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
5579-00-73	WISC 2020552	1

ACCEPTED FOR

IOWA COUNTY

Signature and Title of Official: Victoria Commissioner

ORIGINAL PLANS PREPARED BY

WESTBROOK Associated Engineers, Inc. 619 EAST HOMIE STREET P.O. BOX 429 SPRING GREEN, WISCONSIN 53588

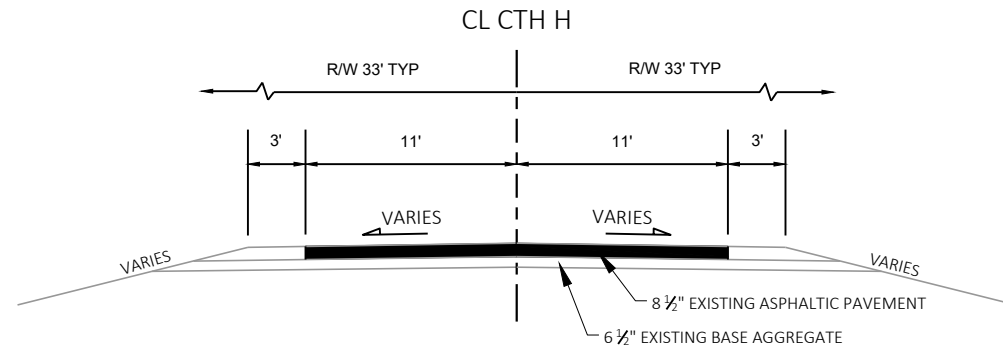


3-12-2020 (Date) Signature

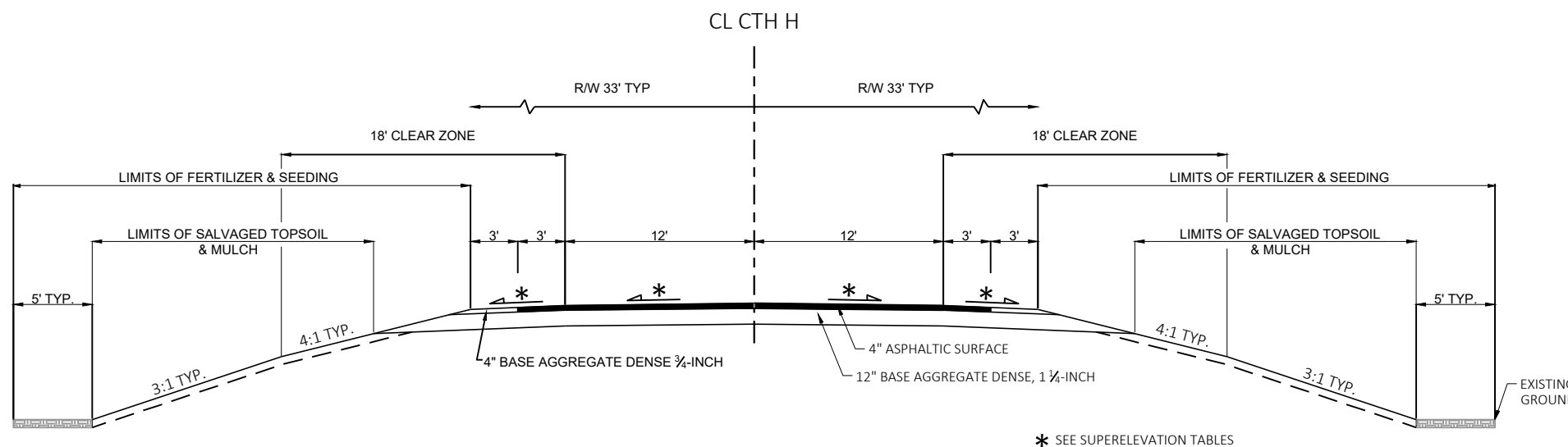
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION

PREPARED BY	
Surveyor	WESTBROOK ASSOCIATED ENGINEERS, INC.
Designer	WESTBROOK ASSOCIATED ENGINEERS, INC.
Project Manager	MARK WESTVELD, P.E.
Regional Examiner	
Regional Supervisor	OSCAR WINGER, P.E.

APPROVED FOR THE DEPARTMENT DATE: 7/21/2020 Mark Westveld (Signature)



TYPICAL EXISTING SECTION



TYPICAL FINISHED SECTION

* SEE SUPERELEVATION TABLES

GENERAL NOTES

EROSION CONTROL ITEMS TO BE PLACED AS SHOWN ON THE PLAN OR AS DIRECTED BY THE ENGINEER. SILT FENCE SHALL BE IN PLACE PRIOR TO CONSTRUCTION.

EROSION CONTROL FEATURES AS SHOWN ON THE PLANS ARE SUGGESTED LOCATIONS. EXACT LOCATIONS WILL BE DETERMINED BY THE ENGINEER IN THE FIELD.
DISTURBED AREAS WITHIN THE RIGHT-OF-WAY, EXCEPT THE DRIVING LANES AND THE SHOULDERS ARE TO BE FERTILIZED, SEEDED, TEMPORARY SEEDED, AND MULCHED, OR AS DIRECTED BY THE ENGINEER.

DUE TO THE PROXIMITY OF THE PROJECT TO THE TROUT CREEK FISHERY AREA ALL MULCH SHALL BE WEED-FREE.

ALL RIPRAP ABOVE THE OBSERVED HIGH WATER MARK SHALL BE TOP-DRESSED WITH 6-INCHES OF SOIL AND SEEDED.

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

WETLANDS ARE PRESENT AT THE LOCATIONS SHOWN IN THE PLANS. DO NOT OPERATE MACHINERY OUTSIDE OF THE SLOPE INTERCEPTS IN THESE LOCATIONS.

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 PLANS ARE APPROXIMATE. THERE MAY BE OTHER UTILITY INSTALLATIONS WITHIN THE PROJECT AREA THAT ARE NOT SHOWN. THE CONTRACTOR IS RESPONSIBLE FOR FIELD LOCATING ALL UTILITIES.

D.O.T. MONUMENT IS TO BE FURNISHED BY THE STATE AND PLACED BY THE CONTRACTOR IN THE SAME WING THAT THE PROPOSED NAME PLATE WILL BE PLACED, AS DIRECTED BY THE ENGINEER.

COORDINATES ON THIS PLAN ARE REFERENCED TO THE WISCONSIN COUNTY COORDINATE SYSTEM (WCCS), IOWA COUNTY, HORIZONTAL DATUM NAD83, ELEVATION DATUM NAVD88.

ASPHALTIC SURFACE LAYERS:

- UPPER: 1 3/4"
- LOWER: 2 1/4"

SUPERELEVATION TABLE: P.I. STA. = 12+15.20					
STATION	REMARK	LEFT		RIGHT	
		SHOULDER	LANE	SHOULDER	LANE
11+35.00	B.O.P	3.8%	3.8%	-6.0%	-6.0%
11+50.00		3.3%	3.3%	-5.7%	-5.7%
12+00.00		1.7%	1.7%	-4.6%	-4.6%
12+50.00		0.2%	0.2%	-3.5%	-3.5%
12+55.41		0.0%	0.0%	-3.4%	-3.4%
13+00.00		-1.4%	-1.4%	-2.4%	-2.4%
13+18.75	BRIDGE	-2.0%	-2.0%	-2.0%	-2.0%

SUPERELEVATION TABLE: P.I. STA. = 16+52.43					
STATION	REMARK	LEFT		RIGHT	
		SHOULDER	LANE	SHOULDER	LANE
14+81.25	BRIDGE	-2.0%	-2.0%	-2.0%	-2.0%
15+00.00		-2.2%	-2.2%	-1.4%	-1.4%
15+42.62		-2.7%	-2.7%	0.0%	0.0%
15+50.00		-2.8%	-2.8%	0.2%	0.2%
16+00.00		-3.4%	-3.4%	1.9%	1.9%
16+50.00	E.O.P	-4.0%	-4.0%	3.5%	3.5%

COMMUNICATIONS

CENTURYLINK
STEVE BISHOP
130 4TH ST
BARABOO, WI 53913
PHONE: (608) 963-8594
EMAIL: steven.bishop@centurylink.com

ELECTRIC

ALLIANT ENERGY
MICHAEL BROLIN
4902 N BILTMORE LN
MADISON, WI 53713
PHONE: (608) 458-4871
EMAIL: MichaelBrolin@alliantenergy.com

COMMUNICATIONS

FRONTIER
DANA GILLETT
100 COMMUNICATIONS DR.
SUN PRAIRIE, WI 53590
PHONE: (608) 512-2389
EMAIL: Dana.Gillett@ftr.com



Dial 811 or (800)242-8511

www.DiggersHotline.com

CONTACTS

CONSULTANT LIAISON
WESTBROOK ASSOCIATED ENGINEERS, INC.
619 EAST HOXIE STREET
SPRING GREEN, WI 53588

ATTN: AARON PALMER, P.E.
PH: (608) 588-7866
FAX: (608) 588-7954
apalmer@westbrookeng.com

WisDNR LIAISON
DNR SOUTH CENTRAL REGION HQ
3911 FISH HATCHERY ROAD
FITCHBURG, WI 53711

ATTN: ANDY BARTA
PH: (608) 275-3308
andrew.barta@wisconsin.gov

COUNTY LIAISON

IOWA COUNTY HIGHWAY DEPT.
1215 N. BEQUETTE STREET
DODGEVILLE, WI 53533

ATTN: CRAIG HARDY
PH: (608) 935-3381
Craig.Hardy@iowacounty.org

- AADT
- AAG.
- B.M.
- ¢ OR CL
- CR.
- C.T.H.
- CWT.
- C.Y.
- D.H.
- D.H.V.
- DIR.
- E.
- COR.
- EL. OR ELEV.
- F.E.
- FT.
- GAL.
- H.W.
- IN.
- K
- L.




- ANNUAL AVERAGE DAILY TRAFFIC
- AGGREGATE
- BENCH MARK
- CENTERLINE
- CRUSHED
- COUNTY TRUNK HIGHWAY
- HUNDREDWEIGHT
- CUBIC YARD
- DOUBLE HEADED
- DESIGN HOURLY VOLUME
- DIRECTED
- EAST
- CORNER
- ELEVATION
- FIELD ENTRANCE
- FOOT (FEET)
- GALLON
- HIGH WATER
- INCHES
- SIGHT DISTANCE
- LENGTH OF CURVE

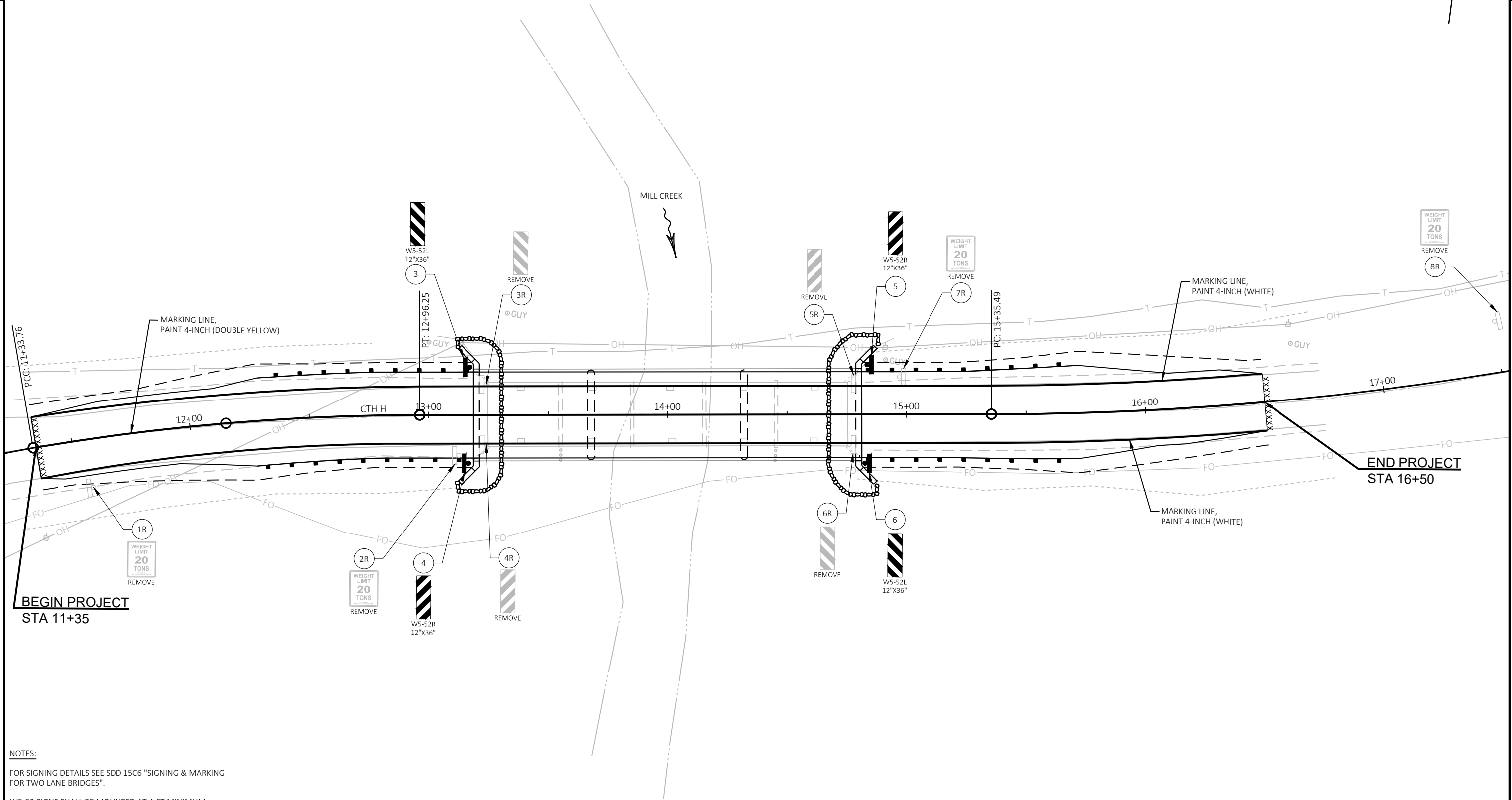
- L.F.
- L.H.F.
- L.S.
- LT.
- MAX.
- MINIMUM
- N.
- NOR.
- PAV'T.
- P.C.
- P.I.
- P.E.
- P.K.
- P OR PL
- P.P.
- PROJ.
- P.T.
- PVMT.
- R.
- R.R.
- REINF.

- REQ'D
- RT.
- R/W
- RD.
- RDWY.
- S.
- SE
- SHRK.
- S.R.
- STD.
- S.T.H.
- STA.
- S.Y.
- T
- T.L
- UNCL.
- V.
- V.C.
- VAR.
- W.

STANDARD ABBREVIATIONS

LEGEND

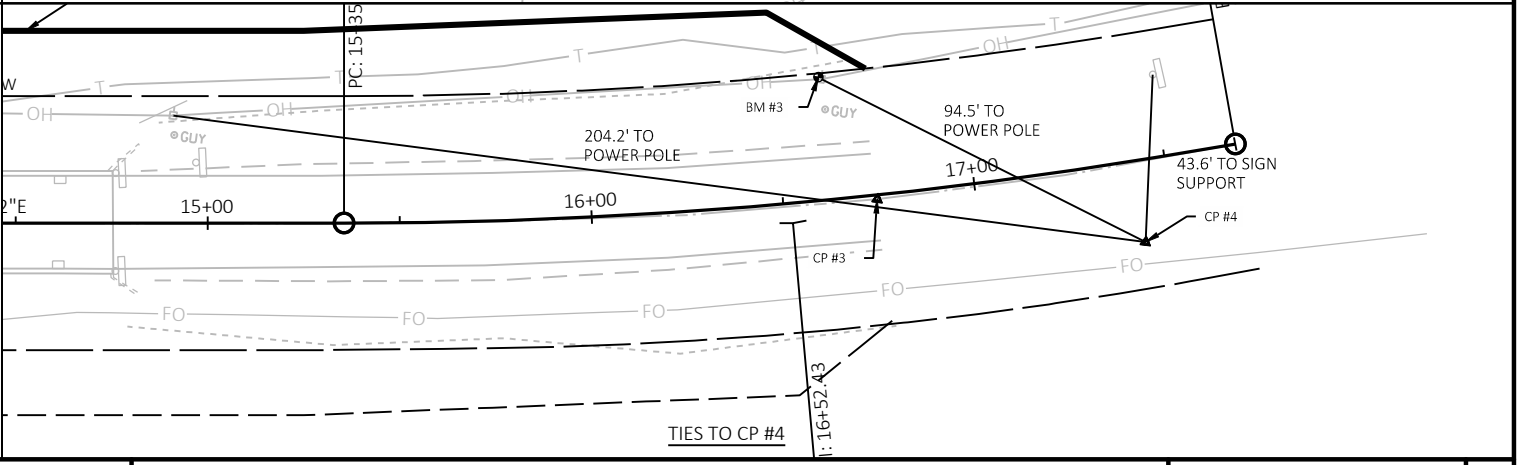
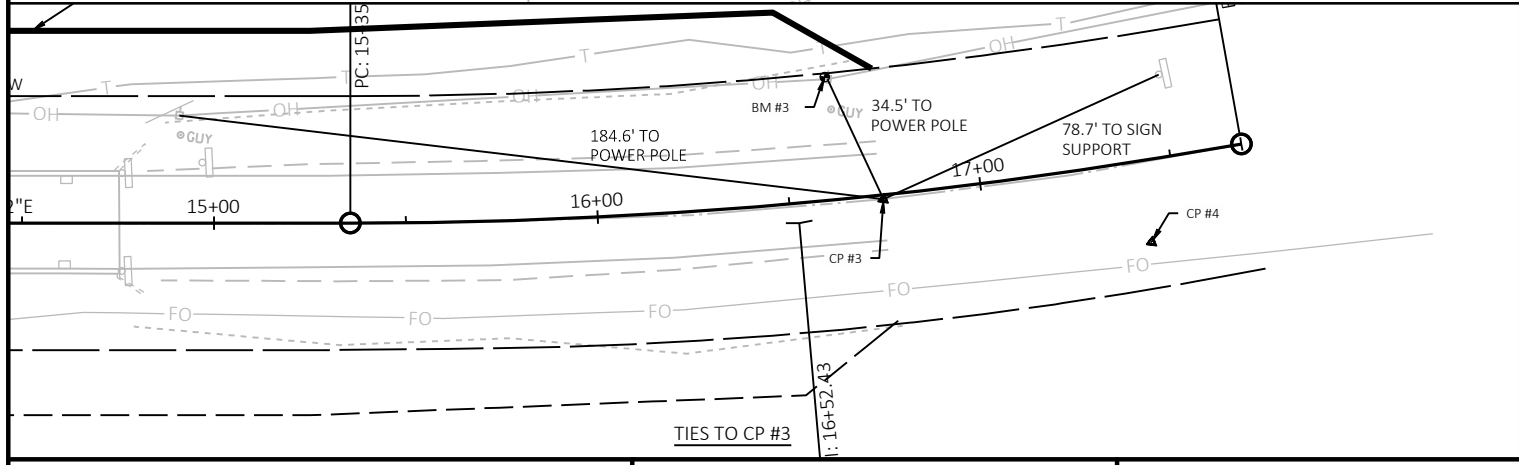
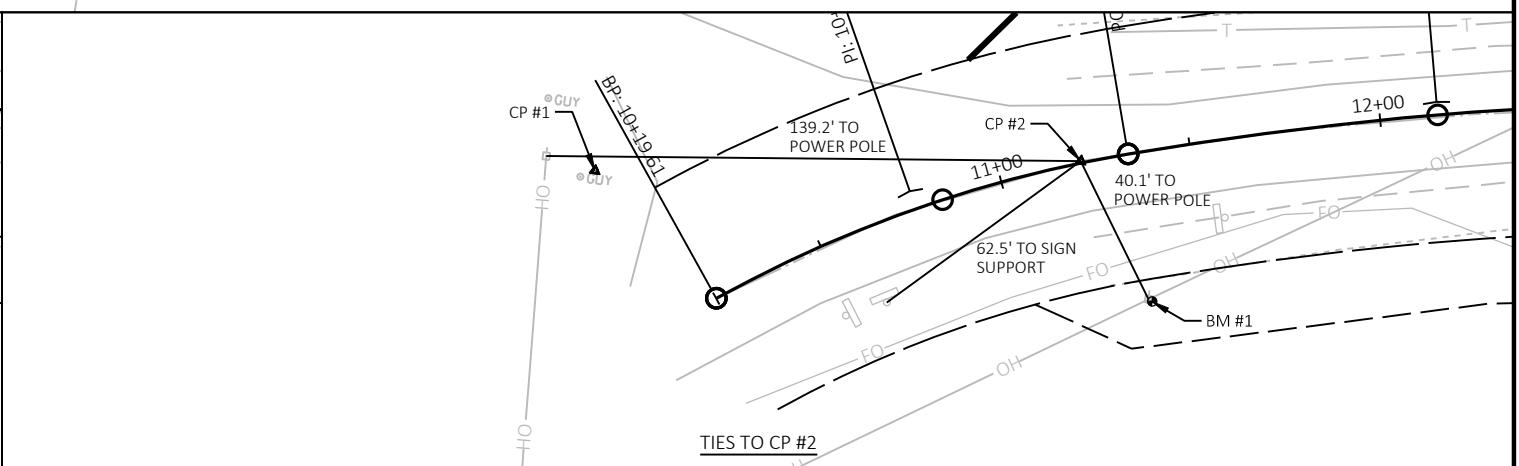
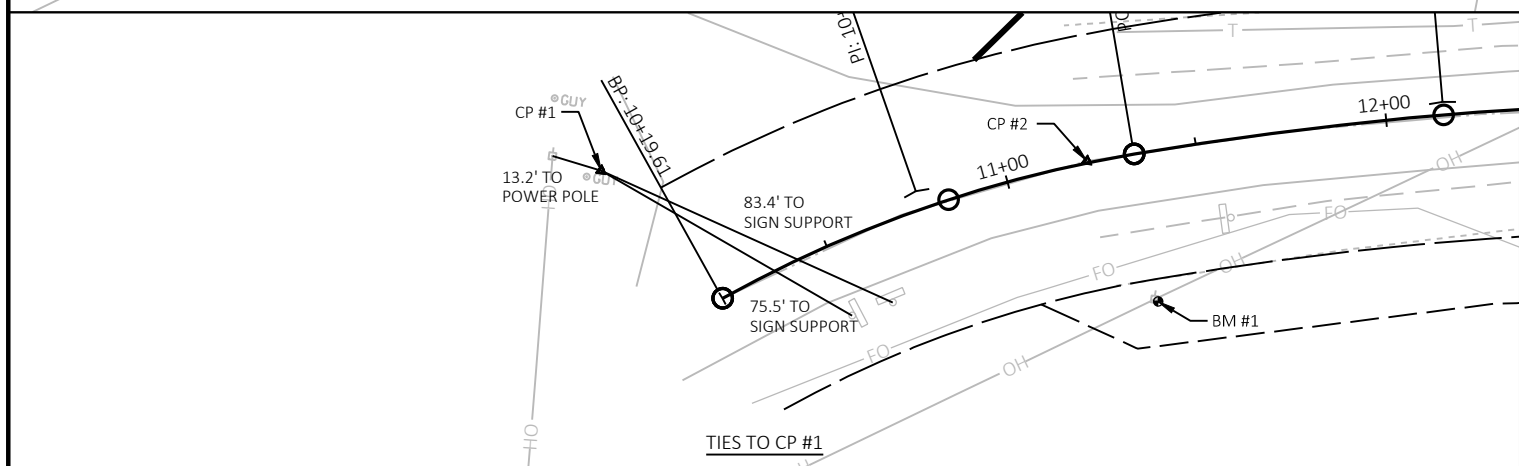
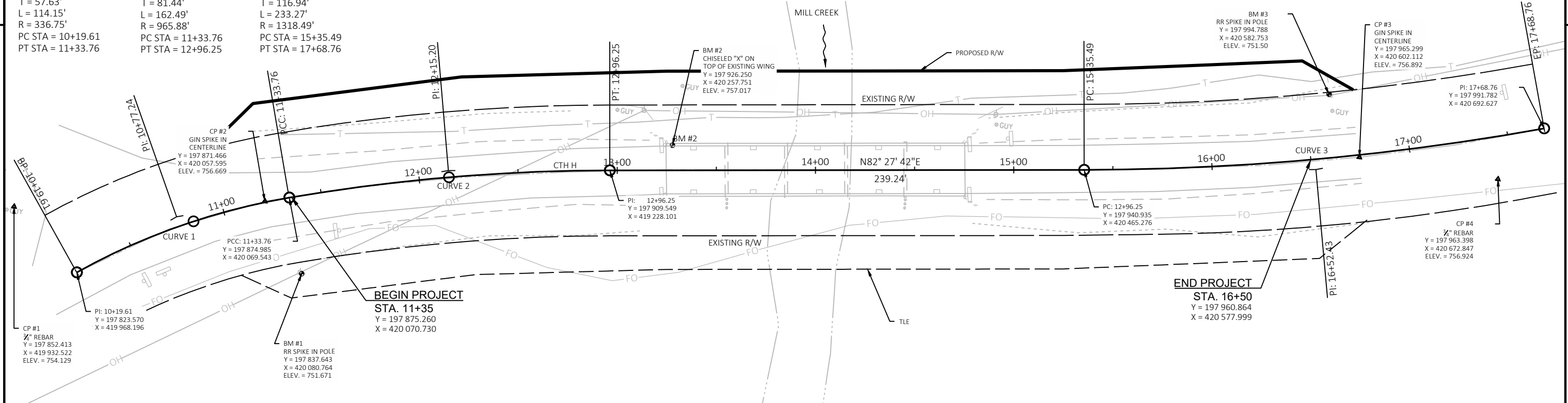
-  EXISTING SIGN
-  PROPOSED SIGN
-  DENOTES SIGN NUMBER



NOTES:
 FOR SIGNING DETAILS SEE SDD 15C6 "SIGNING & MARKING FOR TWO LANE BRIDGES".
 W5-52 SIGNS SHALL BE MOUNTED AT 4-FT MINIMUM MOUNTING HEIGHT.

PROJECT NO: 5579-00-73	HWY: CTH H	COUNTY: IOWA	SIGNING & PAVEMENT MARKING
SHEET			E

CURVE 1	CURVE 2	CURVE 3
PI STA = 10+77.24	PI STA = 12+15.20	PI STA = 16+52.43
Y = 197857.904	Y = 197898.906	Y = 197956.276
X = 420014.478	X = 420147.361	X = 420581.206
DELTA = 19°25'18"	DELTA = 9°38'20"	DELTA = 10°08'13"
D = 17°00'52"	D = 5°55'55"	D = 4°20'44"
T = 57.63'	T = 81.44'	T = 116.94'
L = 114.15'	L = 162.49'	L = 233.27'
R = 336.75'	R = 965.88'	R = 1318.49'
PC STA = 10+19.61	PC STA = 11+33.76	PC STA = 15+35.49
PT STA = 11+33.76	PT STA = 12+96.25	PT STA = 17+68.76



PROJECT NO: 5579-00-73	HWY: CTH H	COUNTY: IOWA	ALIGNMENT DETAILS & CONTROL POINTS	SHEET	E
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Estimate Of Quantities

5579-00-73

Line	Item	Item Description	Unit	Total	Qty
0002	203.0600.S	Removing Old Structure Over Waterway With Minimal Debris (station) 01. 14+00	LS	1.000	1.000
0004	205.0100	Excavation Common	CY	516.000	516.000
0006	206.1000	Excavation for Structures Bridges (structure) 01. B-25-0186	LS	1.000	1.000
0008	208.0100	Borrow	CY	901.000	901.000
0010	210.1500	Backfill Structure Type A	TON	420.000	420.000
0012	213.0100	Finishing Roadway (project) 01. 5579-00-73	EACH	1.000	1.000
0014	305.0110	Base Aggregate Dense 3/4-Inch	TON	64.000	64.000
0016	305.0120	Base Aggregate Dense 1 1/4-Inch	TON	1,270.000	1,270.000
0018	450.4000	HMA Cold Weather Paving	TON	297.000	297.000
0020	455.0605	Tack Coat	GAL	93.000	93.000
0022	465.0105	Asphaltic Surface	TON	297.000	297.000
0024	502.0100	Concrete Masonry Bridges	CY	580.000	580.000
0026	502.3200	Protective Surface Treatment	SY	817.000	817.000
0028	505.0400	Bar Steel Reinforcement HS Structures	LB	12,040.000	12,040.000
0030	505.0600	Bar Steel Reinforcement HS Coated Structures	LB	97,980.000	97,980.000
0032	513.7084	Railing Steel Type NY4	LF	331.000	331.000
0034	516.0500	Rubberized Membrane Waterproofing	SY	16.000	16.000
0036	550.0500	Pile Points	EACH	36.000	36.000
0038	550.2106	Piling CIP Concrete 10 3/4 X 0.365-Inch	LF	1,040.000	1,040.000
0040	550.2126	Piling CIP Concrete 12 3/4 X 0.375-Inch	LF	1,400.000	1,400.000
0042	606.0300	Riprap Heavy	CY	71.000	71.000
0044	612.0406	Pipe Underdrain Wrapped 6-Inch	LF	150.000	150.000
0046	614.2500	MGS Thrie Beam Transition	LF	157.600	157.600
0048	614.2610	MGS Guardrail Terminal EAT	EACH	4.000	4.000
0050	618.0100	Maintenance And Repair of Haul Roads (project) 01. 5579-00-73	EACH	1.000	1.000
0052	619.1000	Mobilization	EACH	1.000	1.000
0054	624.0100	Water	MGAL	14.000	14.000
0056	625.0500	Salvaged Topsoil	SY	1,880.000	1,880.000
0058	627.0200	Mulching	SY	1,985.000	1,985.000
0060	628.1504	Silt Fence	LF	1,205.000	1,205.000
0062	628.1520	Silt Fence Maintenance	LF	1,930.000	1,930.000
0064	628.1905	Mobilizations Erosion Control	EACH	3.000	3.000
0066	628.1910	Mobilizations Emergency Erosion Control	EACH	2.000	2.000
0068	628.6005	Turbidity Barriers	SY	120.000	120.000
0070	629.0210	Fertilizer Type B	CWT	1.700	1.700
0072	630.0200	Seeding Temporary	LB	70.000	70.000
0074	630.0500	Seed Water	MGAL	42.000	42.000

Estimate Of Quantities

5579-00-73

Line	Item	Item Description	Unit	Total	Qty
0076	634.0612	Posts Wood 4x6-Inch X 12-FT	EACH	4.000	4.000
0078	637.2230	Signs Type II Reflective F	SF	12.000	12.000
0080	638.2602	Removing Signs Type II	EACH	8.000	8.000
0082	638.3000	Removing Small Sign Supports	EACH	8.000	8.000
0084	642.5001	Field Office Type B	EACH	1.000	1.000
0086	643.0420	Traffic Control Barricades Type III	DAY	2,332.000	2,332.000
0088	643.0705	Traffic Control Warning Lights Type A	DAY	3,816.000	3,816.000
0090	643.0900	Traffic Control Signs	DAY	2,120.000	2,120.000
0092	643.1050	Traffic Control Signs PCMS	DAY	14.000	14.000
0094	643.5000	Traffic Control	EACH	1.000	1.000
0096	645.0111	Geotextile Type DF Schedule A	SY	84.000	84.000
0098	645.0120	Geotextile Type HR	SY	158.000	158.000
0100	646.1005	Marking Line Paint 4-Inch	LF	2,060.000	2,060.000
0102	650.4500	Construction Staking Subgrade	LF	353.000	353.000
0104	650.5000	Construction Staking Base	LF	353.000	353.000
0106	650.6500	Construction Staking Structure Layout (structure) 01. B-25-0186	LS	1.000	1.000
0108	650.9910	Construction Staking Supplemental Control (project) 01. 5579-00-73	LS	1.000	1.000
0110	650.9920	Construction Staking Slope Stakes	LF	353.000	353.000
0112	690.0150	Sawing Asphalt	LF	50.000	50.000
0114	715.0502	Incentive Strength Concrete Structures	DOL	3,480.000	3,480.000
0116	ASP.1T0A	On-the-Job Training Apprentice at \$5.00/HR	HRS	1,200.000	1,200.000
0118	ASP.1T0G	On-the-Job Training Graduate at \$5.00/HR	HRS	300.000	300.000
0120	SPV.0060	Special 01. Verify Landmark Reference Monuments	EACH	1.000	1.000
0122	SPV.0085	Special 01. Blanchard's Cricket Frog Seed Mix	LB	18.000	18.000
0124	SPV.0180	Special 01. Salvaged Topsoil Over Riprap	SY	84.000	84.000

EARTHWORK SUMMARY

STATION - STATION	LOCATION	COMMON EXCAVATION (1) (ITEM # 205.0100)	SALVAGED / UNUSABLE PAVEMENT MATERIAL (3)	AVAILABLE MATERIAL (4)	UNEXPANDED FILL	EXPANDED FILL (5) FACTOR 1.25	MASS ORDINATE +/- (6)	BORROW (7) (ITEM # 208.0100)	COMMENT:
		CUT (2)							
11+35 - 13+19	WEST APPROACH	280	102	178	409	512	-334	334	
14+81 - 16+50	EAST APPROACH	236	96	140	566	708	-567	567	
TOTALS		516	198	318	975	1219	-901	901	

- 1) COMMON EXCAVATION IS THE CUT. ITEM # 205.0100.
- 2) SALVAGED/UNUSABLE MATERIAL IS INCLUDED IN CUT.
- 3) SALVAGED/UNUSABLE MATERIAL INCLUDES ASPHALTIC PAVEMENT.
- 4) AVAILABLE MATERIAL = CUT - SALVAGED/UNUSABLE MATERIAL
- 5) EXPANDED FILL FACTOR = 1.25; EXPANDED FILL = (UNEXPANDED FILL)*1.25
- 6) THE MASS ORDINATE + OR - CALCULATED FOR THE DIVISION. PLUS QUANTITY INDICATES AN EXCESS OF MATERIAL WITHIN THE DIVISION. MINUS INDICATES A SHORTAGE OF MATERIAL IN THE DIVISION.
- 7) BORROW = ABSOLUTE VALUE OF MASS ORDINATE

MGS GUARDRAIL

STATION - STATION	LOCATION	(LF)	EAT (EACH)
		614.2500	614.2610
	MGS		MGS
	MGS GUARDRAIL		
	THREE BEAM		TERMINAL
	TRANSITION		EAT
			(EACH)
12+29.29 - 13+18.75	MAINLINE, LT	39.40	1
12+26.84 - 13+18.75	MAINLINE, RT	39.40	1
14+81.25 - 15+72.42	MAINLINE, LT	39.40	1
14+81.25 - 15+71.42	MAINLINE, RT	39.40	1
TOTALS		157.60	4

ASPHALTIC ITEMS

STATION - STATION	LOCATION	450.4000 HMA COLD WEATHER PAVING (TON)	455.0600 TACK COAT (GAL)	465.0105 ASPHALTIC SURFACE (TON)
11+35.00 - 13+19.00	MAINLINE	153	48	153
14+81.00 - 16+50.00	MAINLINE	144	45	144
TOTALS		297	93	297

FINISHING ITEMS

STATION - STATION	LOCATION	SPV.0180.01			629.0210		630.0200		SPV.0085.01	
		625.0500 SALVAGED TOPSOIL (SY)	SALVAGED TOPSOIL (SY)	627.0200 MULCHING (SY)	FERTILIZER TYPE B (CWT)	SEEDING TEMPORARY (LB)	BLANCHARD'S CRICKET FROG SEED MIX (LB)	630.0500 SEED WATER (MGAL)		
11+35 - 13+19	WEST APPROACH	742	---	742	0.6	26	6	16		
14+81 - 16+50	EAST APPROACH	763	---	763	0.6	26	6	16		
	WEST RIPRAP	---	42	42	0.1	2.0	1	1		
	EAST RIPRAP	---	42	42	0.1	2.0	1	1		
	UNDISTRIBUTED	375	---	396	0.3	14.0	4	8		
TOTALS		1880	84	1985	1.7	70	18	42		

TURBIDITY BARRIER

LOCATION	628.6005 (SY)
WEST APPROACH	57
EAST APPROACH	63
TOTALS	120

BASE AGGREGATE DENSE

STATION - STATION	LOCATION	305.0110 3/4-INCH SHLD. (TON)	305.0120 1 1/4-INCH BASE (TON)	614.0100 WATER (MGAL)
11+35 - 13+19	WEST APPROACH	33	655	7.0
14+81 - 16+50	EAST APPROACH	31	615	7.0
TOTALS		64	1270	14

SILT FENCE

STATION - STATION	LOCATION	628.1504 SILT FENCE (LF)	628.1520 SILT FENCE MAINTENANCE (LF)
11+35 - 13+19	MAINLINE, LT	265	530
11+35 - 13+19	MAINLINE, RT	233	466
14+81 - 16+50	MAINLINE, LT	226	452
14+81 - 16+50	MAINLINE, RT	241	482
	UNDISTRIBUTED	240	---
TOTALS		1205	1930

MOBILIZATIONS EROSION CONTROL

LOCATION	628.1905 MOBILIZATIONS EROSION CONTROL (EACH)	628.1910 MOBILIZATIONS EMERGENCY EROSION CONTROL (EACH)
ID 5579-00-73	3	2
TOTALS	3	2

ALL QUANTITIES CATEGORY 0010 UNLESS NOTED OTHERWISE.

PROJECT NO: 5579-00-73

HWY: CTH H

COUNTY: IOWA

MISCELLANEOUS QUANTITIES

SHEET

E

SIGNING

STATION	LOCATION	PLAN NUMBER	SIGN CODE	634.0612	637.2230	638.2602	638.3000
				POSTS WOOD 4X6-INCH X 12-FT (EACH)	SIGN TYPE II REFLECTIVE TYPE F (SF)	REMOVING SIGNS TYPE II (EACH)	REMOVING SMALL SIGN SUPPORTS (EACH)
11+56	RT	1R	WEIGHT LIMIT	---	---	1	1
13+13	RT	2R	WEIGHT LIMIT	---	---	1	1
13+18	LT	3	W5-52L	1	3	---	---
13+24	LT	3R	W5-52L	---	---	1	1
13+18	RT	4	W5-52R	1	3	---	---
13+24	RT	4R	W5-52R	---	---	1	1
14+82	LT	5	W5-52R	1	3	---	---
14+76	LT	5R	W5-52R	---	---	1	1
14+82	RT	6	W5-52L	1	3	---	---
14+76	RT	6R	W5-52L	---	---	1	1
14+97	LT	7R	WEIGHT LIMIT	---	---	1	1
17+50	LT	8R	WEIGHT LIMIT	---	---	1	1
TOTAL				4	12	8	8

TRAFFIC CONTROL

LOCATION	DURATION	643.0420 TRAFFIC CONTROL BARRICADES TYPE III		643.0705 TRAFFIC CONTROL WARNING LIGHTS TYPE A		643.0900 TRAFFIC CONTROL SIGNS		643.1050 TRAFFIC CONTROL PCMS		643.5000 TRAFFIC CONTROL (EACH)
		(NO.)	(DAY)	(NO.)	(DAY)	(NO.)	(DAY)	(NO.)	(DAY)	
CTH H	106	14	1484	20	2120	8	848	2	14	1
CTH H & COON ROCK RD	106	2	212	4	424	3	318	---	---	---
CTH H & ROBERTS RD	106	2	212	4	424	3	318	---	---	---
CTH H & ERDMAN RD	106	2	212	4	424	3	318	---	---	---
CTH H & MILL RD	106	2	212	4	424	3	318	---	---	---
TOTAL		22	2332	36	3816	20	2120	2	14	1

PLACE TRAFFIC CONTROL IN ACCORDANCE WITH SDD 15C2.
PLACEMENT SUBJECT TO ENGINEER APPROVAL.

MARKING LINE PAINT 4-INCH

STATION - STATION	LOCATION	646.1005 (LF)	REMARK
11+35 - 16+50	CENTERLINE	1030	DOUBLE YELLOW
11+35 - 16+50	LEFT EDGE	515	WHITE
11+35 - 16+50	RIGHT EDGE	515	WHITE
TOTAL		2060	

CONSTRUCTION STAKING

STATION - STATION	LOCATION	650.4500	650.5000	650.6500	650.9910	650.992
		SUBGRADE (LF)	BASE (LF)	STRUCTURE LAYOUT (LS)	SUPPLEMENTAL CONTROL (LS)	SLOPE STAKES (LF)
11+35 - 13+19	MAINLINE	184	184	---	0.5	184
14+81 - 16+50	MAINLINE	169	169	---	0.5	169
TOTALS		353	353	1*	1	353

* CATEGORY 0020

SAWING ASPHALT

STATION	LOCATION	690.0150 (LF)
11+35	MAINLINE	26
16+50	MAINLINE	24
TOTAL		50

VERIFY LANDMARK REFERENCE MONUMENT

STATION	LOCATION	SPV.0060.01 (EACH)
16+14.08	43.57' LT	1
TOTAL		1

ALL QUANTITIES CATEGORY 0010 UNLESS NOTED OTHERWISE.

PROJECT NO: 5579-00-73

HWY: CTH H

COUNTY: IOWA

MISCELLANEOUS QUANTITIES

SHEET

E

CONVENTIONAL UTILITY SYMBOLS

WATER	—W—
GAS	—G—
TELEPHONE	—T—
OVERHEAD TRANSMISSION LINES	—OH—
ELECTRIC	—E—
CABLE TELEVISION	—TV—
FIBER OPTIC	—FO—
SANITARY SEWER	—SAN—
STORM SEWER	—SS—
ELECTRIC TOWER	⊠

CURVE DATA ABBREVIATIONS

LONG CHORD	LCH
LONG CHORD BEARING	LCB
RADIUS	R
DEGREE OF CURVE	D
CENTRAL ANGLE	Δ/DELTA
LENGTH OF CURVE	L
TANGENT	T
DIRECTION AHEAD	DA
DIRECTION BACK	DB

NOTES:

POSITIONS SHOWN ON THIS PLAT ARE WISCONSIN COORDINATE REFERENCE SYSTEM COORDINATES (WISCRS), IOWA COUNTY, NAD83 2011 IN US 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 ARE TYPE 2 (TYP 1/4" X 24" IRON REBAR) AND ARE PLACED PRIOR TO OR AT THE TIME OF LAND TITLE TRANSFER.

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 RECORD AND/OR EXISTING OCCUPATIONAL LINES. THIS PLAT MAY NOT BE A TRUE REPRESENTATION OF EXISTING PROPERTY LINES, EXCLUDING RIGHT-OF-WAY, AND SHOULD NOT BE USED AS A SUBSTITUTE FOR AN ACCURATE FIELD SURVEY.

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

THE PROPOSED REFERENCE LINE IS COINCIDENTAL WITH THE EXISTING CENTERLINE AND IS REFERRED TO AS "RDWY CENTERLINE" WITHIN THIS PLAT.

RW PROJECT NUMBER 5579-00-01	SHEET NUMBER 4.01	TOTAL SHEETS 2
FEDERAL PROJECT NUMBER		
PLAT OF RIGHT OF WAY REQUIRED FOR CTH T - CTH T (MILL CREEK BRIDGE B-25-0186)		
CTH H	IOWA COUNTY	
CONSTRUCTION PROJECT NUMBER 5579-00-73		

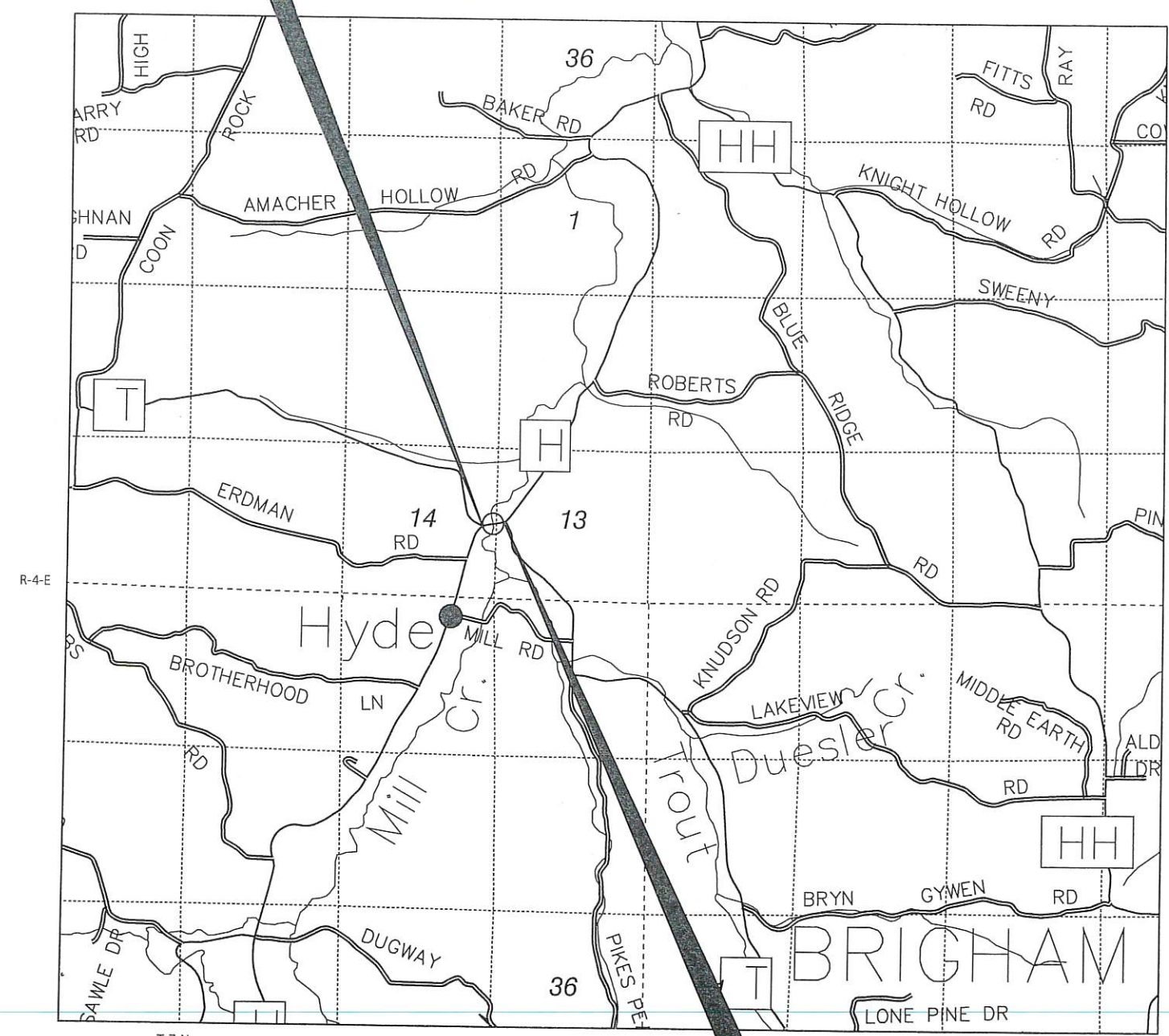
CONVENTIONAL SYMBOLS

SECTION LINE	—	PARCEL NUMBER (25)	UTILITY NUMBER (40)
QUARTER LINE	—	SECTION CORNER	R/W MONUMENT
SIXTEENTH LINE	—	NOTATION FOR COMBUSTIBLE FLUIDS	NON-MONUMENTED R/W POINT
NEW REFERENCE LINE	—	NOTATION FOR HIGH VOLTAGE TRANSMISSION LINES	FOUND IRON PIN
NEW R/W LINE	—	ACCESS CONTROLLED BY ACQUISITION	VALVE (GAS, WATER, ETC.)
EXISTING R/W LINE	—	NO ACCESS (BY STATUTORY AUTHORITY)	SIGN
PROPERTY LINE	—	ACCESS RESTRICTED (BY PREVIOUS PROJECT OR CONTROL)	OFF-PREMISE SIGN
LOT, TIE, AND OTHER MINOR LINES	—	NO ACCESS (NEW HIGHWAY)	
SLOPE INTERCEPT	—	NATIONAL GEODETIC SURVEY MONUMENT	
CORPORATE LIMITS	—	SIXTEENTH CORNER MONUMENT	
UNDERGROUND FACILITY (COMMUNICATIONS, ELECTRIC, ETC)	—	PARALLEL OFFSETS	
FEE ACQUISITION AREA (HATCHING VARIES BY OWNER)	—		
TEMP. LIMITED EASEMENT AREA	—		
EASEMENT AREA (HIGHWAY, PERMANENT LIMITED, OR RESTRICTED DEVELOPMENT)	—		
TRANSMISSION STRUCTURES	—		
BUILDING	—		
BUILDING (TO BE REMOVED)	—		
BRIDGE	—		

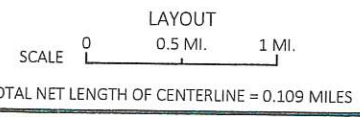
CONVENTIONAL ABBREVIATIONS

ACCESS RIGHTS	AR	OUTLOT	OL
ACRES	AC	PAGE	P
AHEAD	AH	POINT OF TANGENCY	PT
ALUMINUM	ALUM	PROPERTY LINE	PL
AND OTHERS	ET AL	RECORDED AS (100')	
BACK	BK	REEL / IMAGE	R/I
BLOCK	BLK	REFERENCE LINE	R/L
CENTERLINE	C/L	PERMANENT LIMITED EASEMENT	PLE
CERTIFIED SURVEY MAP	CSM	POINT OF BEGINNING	POB
CONCRETE	CONC	POINT OF CURVATURE	PC
COUNTY	CO	POINT OF COMPOUND CURVE	PCC
COUNTY TRUNK HIGHWAY	CTH	POINT OF INTERSECTION	PI
DISTANCE	DIST	REMAINING	REM
CORNER	COR	RESTRICTIVE DEVELOPMENT EASEMENT	RDE
DOCUMENT NUMBER	DOC	RIGHT	RT
EASEMENT	EASE	RIGHT OF WAY	R/W
EXISTING	EX	SECTION	SEC
GAS VALVE	GV	SEPTIC VENT	SEPV
GRID NORTH	GN	SQUARE FEET	SF
HIGHWAY EASEMENT IDENTIFICATION	HE	STATE TRUNK HIGHWAY	STH
LAND CONTRACT	LC	STATION	STA
LEFT	LT	TELEPHONE PEDESTAL	TP
MONUMENT	MON	TEMPORARY LIMITED EASEMENT	TLE
NATIONAL GEODETIC SURVEY NUMBER	NGS	TRANSPORTATION PROJECT PLAT	TPP
	NO	UNITED STATES HIGHWAY	USH
		VOLUME	V

BEGIN RELOCATION ORDER
STA 11+00
Y = 197,863.34
X = 420,037.84



END RELOCATION ORDER
STA 16+75
Y = 197,966.51
X = 420,602.35



CAUTION:
THIS PLAT IS FOR ILLUSTRATIVE PURPOSES ONLY. DEEDS MUST BE CHECKED TO DETERMINE PROPERTY BOUNDARIES.

ACCEPTED FOR IOWA COUNTY
DATE: 10/15/2019
HIGHWAY COMMISSIONER
ORIGINAL PLAT PREPARED BY

WESTBROOK
Associated Engineers, Inc.
619 East Hoxie St. | P.O. Box 429 | Spring Green, WI 53588
P: (608) 588-7866 | F: (608) 588-7954 | www.westbrookeng.com

WISCONSIN
NICHOLAS J. BREY
S-3143
LAVALLE
WISCONSIN
LAND SURVEYOR

DATE: 9-9-19
Signature: Nicholas J. Brey

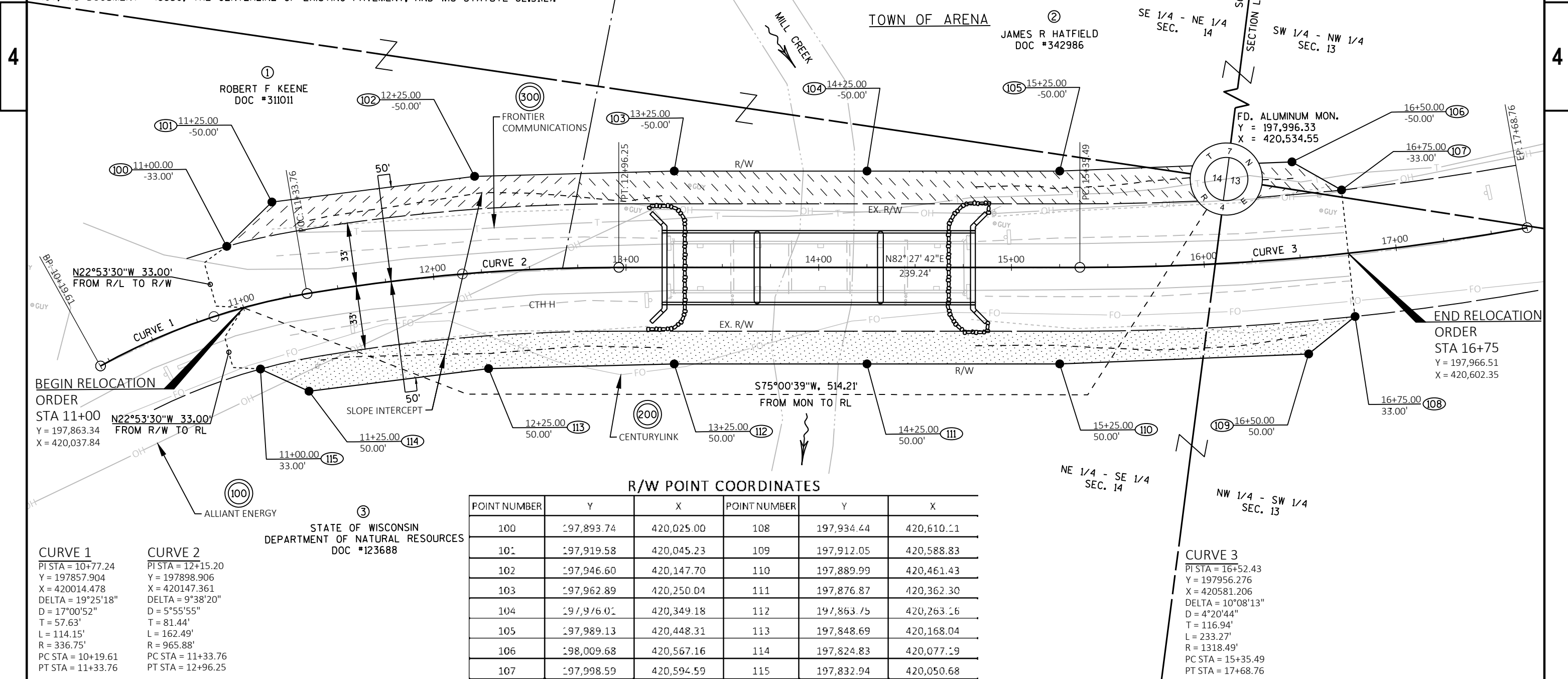
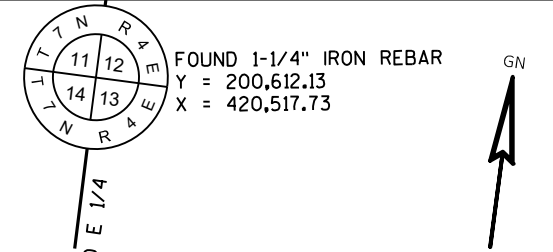
SCHEDULE OF LANDS AND INTERESTS REQUIRED

PARCEL NUMBER	OWNER (S)	INTERESTS REQUIRED	R/W REQUIRED ACRES			TLE ACRES
			NEW	EXISTING	TOTAL	
1	ROBERT F KEENE	HE	0.06	0.13	0.19	--
2	JAMES R HATFIELD	HE	0.15	0.26	0.41	--
3	STATE OF WISCONSIN DNR	TLE	--	0.48	0.48	0.21
100	ALLIANT ENERGY	RELEASE OF RIGHTS	--	--	--	--
200	CENUTRYLINK	RELEASE OF RIGHTS	--	--	--	--
300	FRONTIER COMMUNICATIONS	RELEASE OF RIGHTS	--	--	--	--

BASIS OF EXISTING RIGHT-OF-WAY FOR CTH H WAS BASED ON THE CONVEYANCE OF LANDS FOR HIGHWAY PURPOSES IN AN INSTRUMENT RECORDED JULY 19TH, 1940 IN VOLUME 131 OF DEEDS, PAGE 407, AS DOCUMENT #43550, THE CENTERLINE OF EXISTING PAVEMENT, AND WIS STATUTE 82.31(2).

R/W COURSE TABLE

COURSE#	BEARING	DISTANCE	COURSE#	BEARING	DISTANCE
100-101	N38°03'23"E	32.81'	107-108	S13°36'03"L	66.00'
101-102	N75°13'51"E	105.97'	108-109	S43°32'54"W	30.89'
102-103	N80°57'19"E	103.63'	109-110	S80°10'32"W	129.30'
103-104	N82°27'42"E	100.00'	110-111	S82°27'42"W	100.00'
104-105	N82°27'42"E	100.00'	111-112	S82°27'42"W	100.00'
105-106	N80°11'24"E	120.61'	112-113	S81°00'01"W	96.31'
106-107	S67°59'08"E	29.58'	113-114	S75°17'04"W	93.93'
			114-15	N72°58'52"W	27.73'



R/W POINT COORDINATES

POINT NUMBER	Y	X	POINT NUMBER	Y	X
100	197,893.74	420,025.00	108	197,934.44	420,610.11
101	197,919.58	420,045.23	109	197,912.05	420,588.83
102	197,946.60	420,147.70	110	197,889.99	420,461.43
103	197,962.89	420,250.04	111	197,876.87	420,362.30
104	197,976.01	420,349.18	112	197,863.75	420,263.16
105	197,989.13	420,448.31	113	197,848.69	420,168.04
106	198,009.68	420,567.16	114	197,824.83	420,077.19
107	197,998.59	420,594.59	115	197,832.94	420,050.68

CURVE 1
 PI STA = 10+77.24
 Y = 197857.904
 X = 420014.478
 DELTA = 19°25'18"
 D = 17°00'52"
 T = 57.63'
 L = 114.15'
 R = 336.75'
 PC STA = 10+19.61
 PT STA = 11+33.76

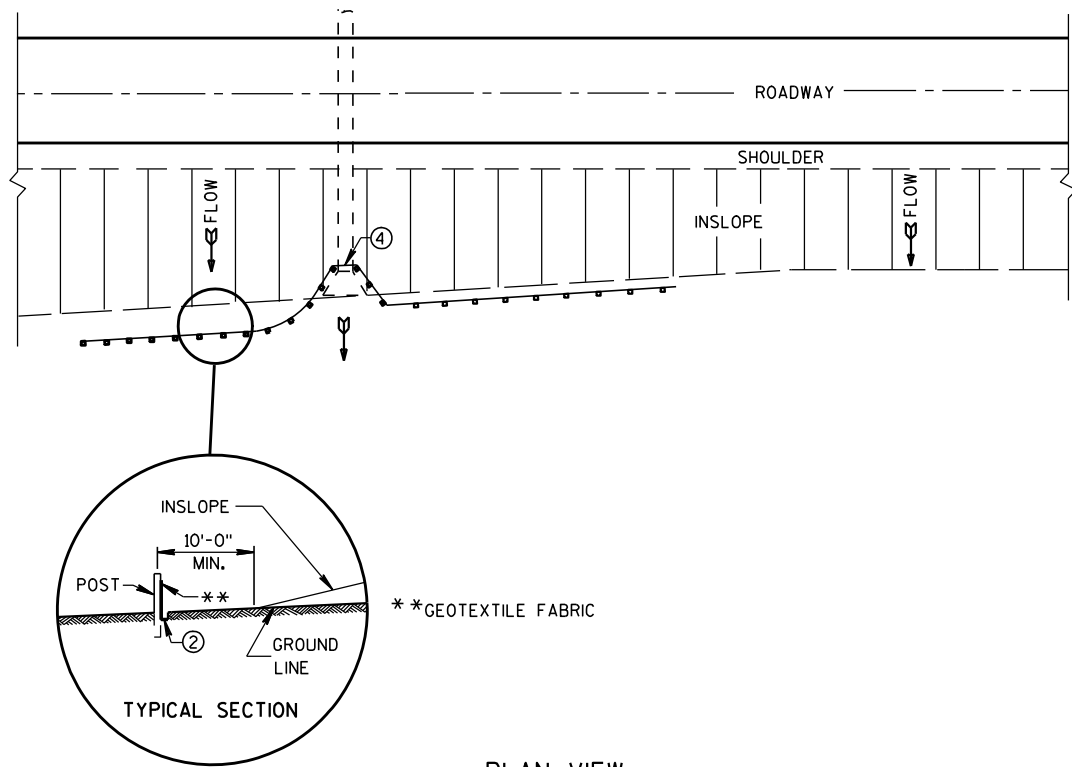
CURVE 2
 PI STA = 12+15.20
 Y = 197898.906
 X = 420147.361
 DELTA = 9°38'20"
 D = 5°55'55"
 T = 81.44'
 L = 162.49'
 R = 965.88'
 PC STA = 11+33.76
 PT STA = 12+96.25

CURVE 3
 PI STA = 16+52.43
 Y = 197956.276
 X = 420581.206
 DELTA = 10°08'13"
 D = 4°20'44"
 T = 116.94'
 L = 233.27'
 R = 1318.49'
 PC STA = 15+35.49
 PT STA = 17+68.76

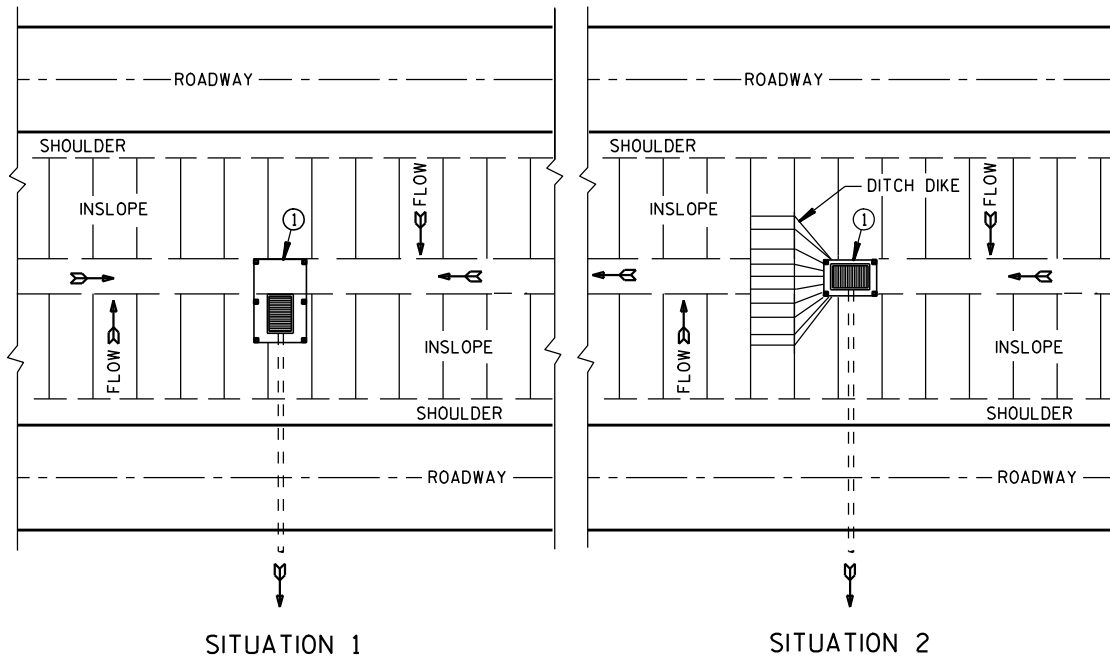
REVISION DATE	DATE SEPTEMBER 9TH, 2019	SCALE, FEET	HWY: CTH H	STATE R/W PROJECT NUMBER	5579-00-01	PLAT SHEET	4.02
	GRID FACTOR N/A		COUNTY: IOWA	CONSTRUCTION PROJECT NUMBER	5579-00-73	PS&E SHEET	

Standard Detail Drawing List

08E09-06	SILT FENCE
08E11-02	TURBIDITY BARRIER
12A03-10	NAME PLATE (STRUCTURES)
14B42-06A	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-06B	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-06C	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-06D	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B44-04A	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B44-04B	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B44-04C	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B45-05A	MIDWEST GUARDRAIL SYSTEM THREE BEAM TRANSITION (MGS)
14B45-05B	MIDWEST GUARDRAIL SYSTEM THREE BEAM TRANSITION (MGS)
14B45-05C	MIDWEST GUARDRAIL SYSTEM THREE BEAM TRANSITION (MGS)
14B45-05D	MIDWEST GUARDRAIL SYSTEM THREE BEAM TRANSITION (MGS)
14B45-05E	MIDWEST GUARDRAIL SYSTEM THREE BEAM TRANSITION (MGS)
14B45-05F	MIDWEST GUARDRAIL SYSTEM THREE BEAM TRANSITION (MGS)
14B45-05G	MIDWEST GUARDRAIL SYSTEM THREE BEAM TRANSITION (MGS)
14B45-05H	MIDWEST GUARDRAIL SYSTEM THREE BEAM TRANSITION (MGS)
14B45-05I	MIDWEST GUARDRAIL SYSTEM THREE BEAM TRANSITION (MGS)
14B45-05J	MIDWEST GUARDRAIL SYSTEM THREE BEAM TRANSITION (MGS)
14B45-05K	MIDWEST GUARDRAIL SYSTEM THREE BEAM TRANSITION (MGS)
14B45-05L	MIDWEST GUARDRAIL SYSTEM THREE BEAM TRANSITION (MGS)
15C02-08A	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C02-08B	BARRICADES AND SIGNS FOR VARIOUS CLOSURES
15C06-09	SIGNING & MARKING FOR TWO LANE BRIDGES
15C08-20A	LONGITUDINAL MARKING (MAINLINE)
15C11-07B	CHANNELIZING DEVICES DRUMS, CONES, BARRICADES AND VERTICAL PANELS
15D38-02A	TEMPORARY TRAFFIC CONTROL SIGN MOUNTING
15D38-02B	ATTACHMENT OF SIGNS TO POSTS
16A01-07	LANDMARK REFERENCE MONUMENTS AND COVERS



PLAN VIEW
TYPICAL APPLICATION OF SILT FENCE

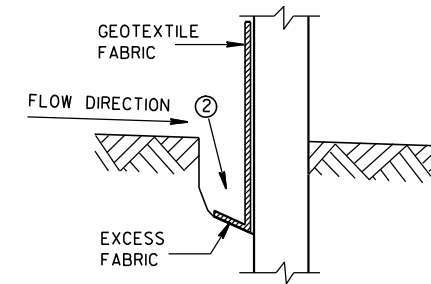


SITUATION 1 SITUATION 2
PLAN VIEW
SILT FENCE AT MEDIAN SURFACE DRAINS

GENERAL NOTES

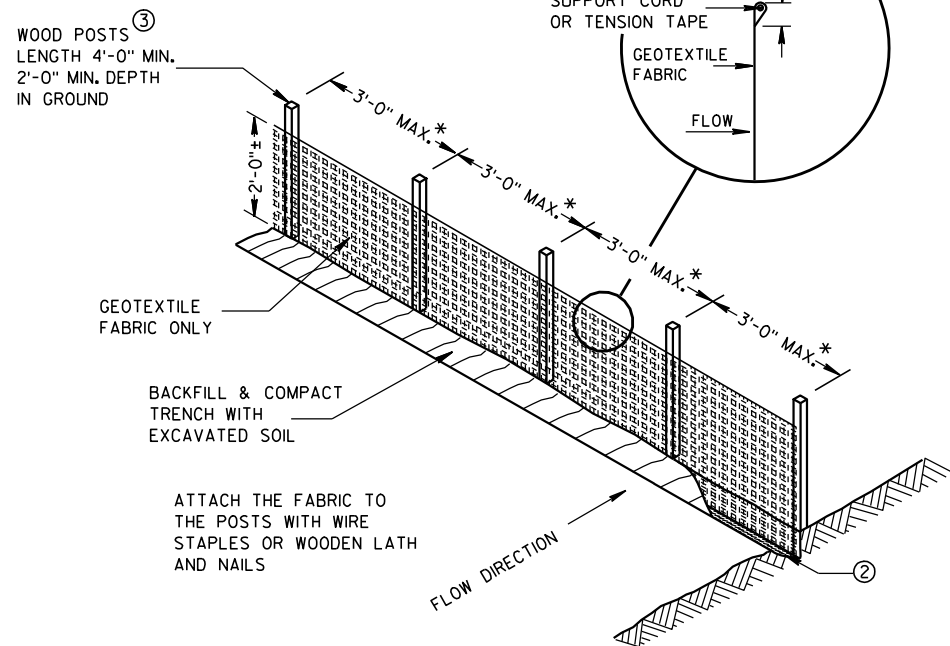
DETAILS OF CONSTRUCTION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.

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



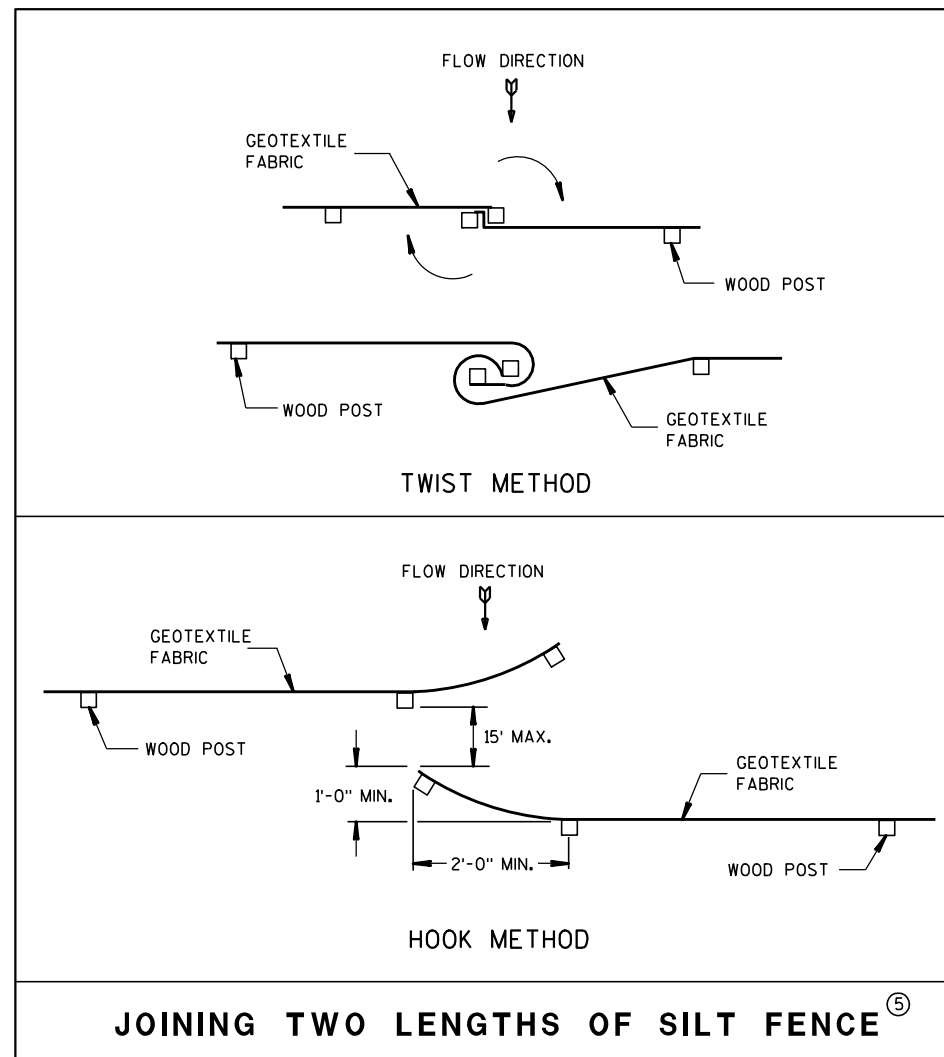
TRENCH DETAIL

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

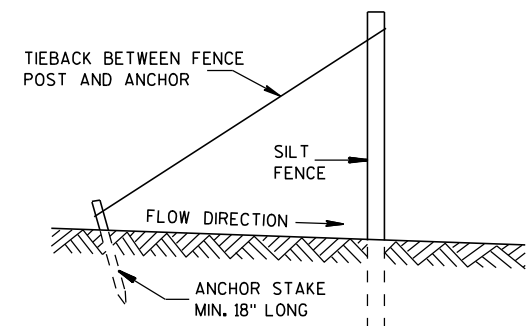


SILT FENCE

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



JOINING TWO LENGTHS OF SILT FENCE ⑤



SILT FENCE TIE BACK
(WHEN REQUIRED BY THE ENGINEER)

SILT FENCE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

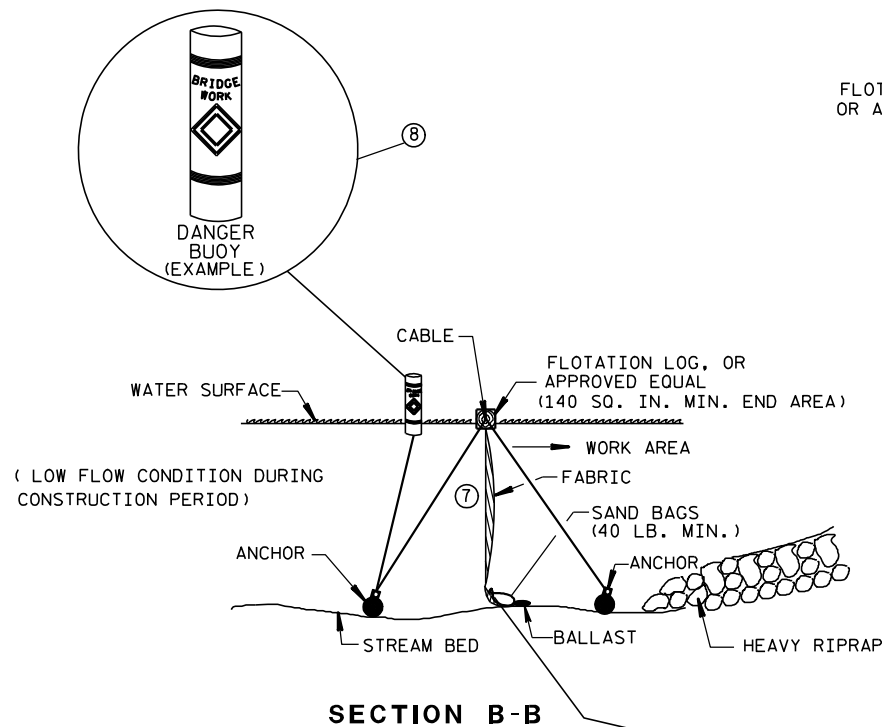
APPROVED

4-29-05

DATE

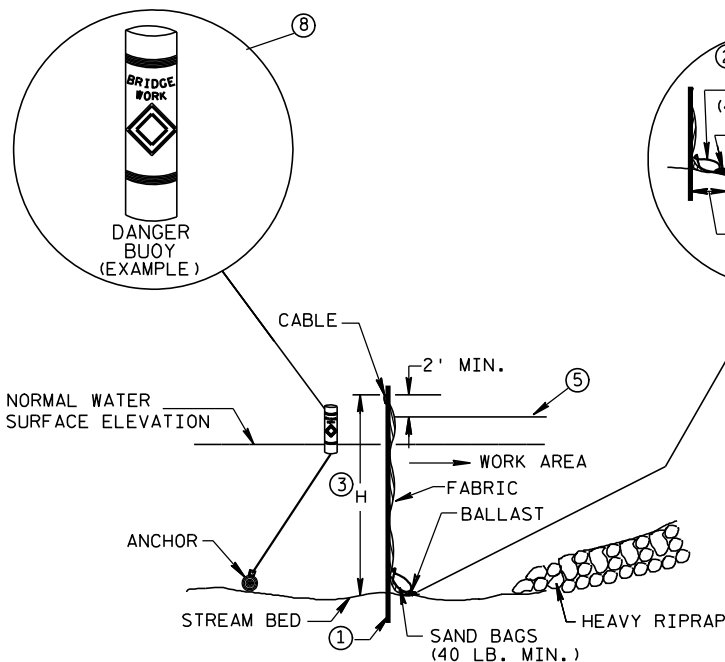
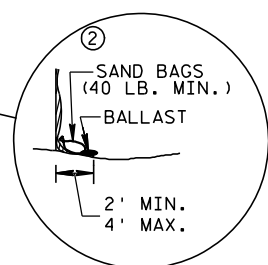
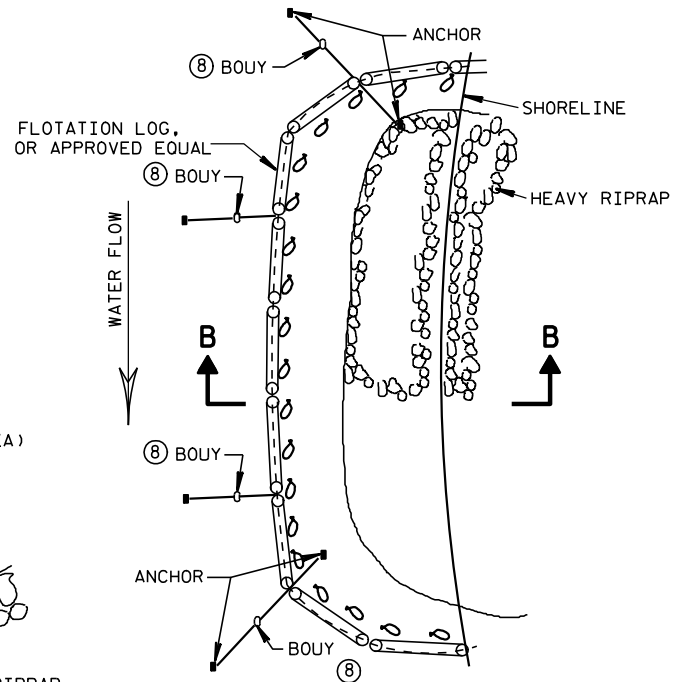
FHWA

/S/ Beth Canestra
CHIEF ROADWAY DEVELOPMENT ENGINEER



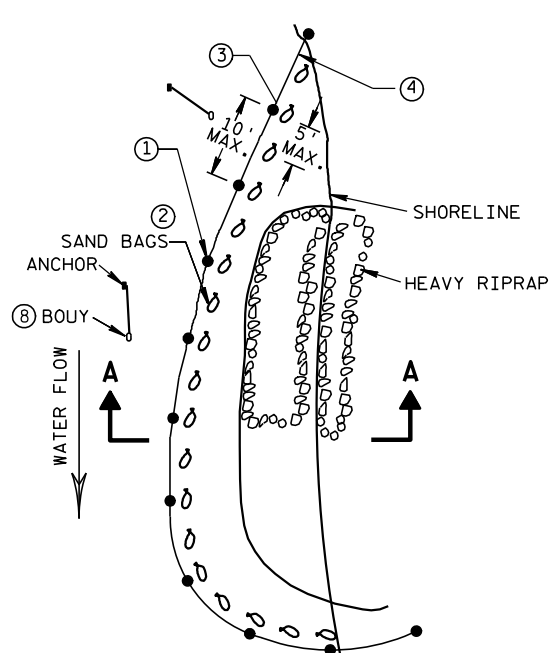
SECTION B-B

TURBIDITY BARRIER FLOAT ALTERNATIVE
CAUTION - SEE NOTE 6



SECTION A-A

TURBIDITY BARRIER STANDARD POST INSTALLATION



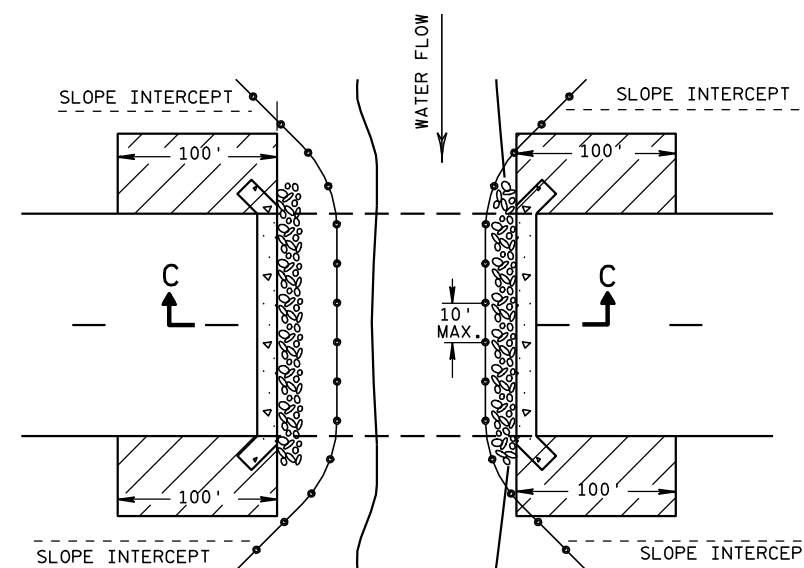
PLAN VIEW

GENERAL NOTES

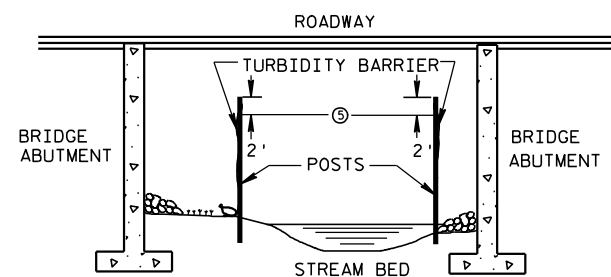
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

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

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



PLAN VIEW



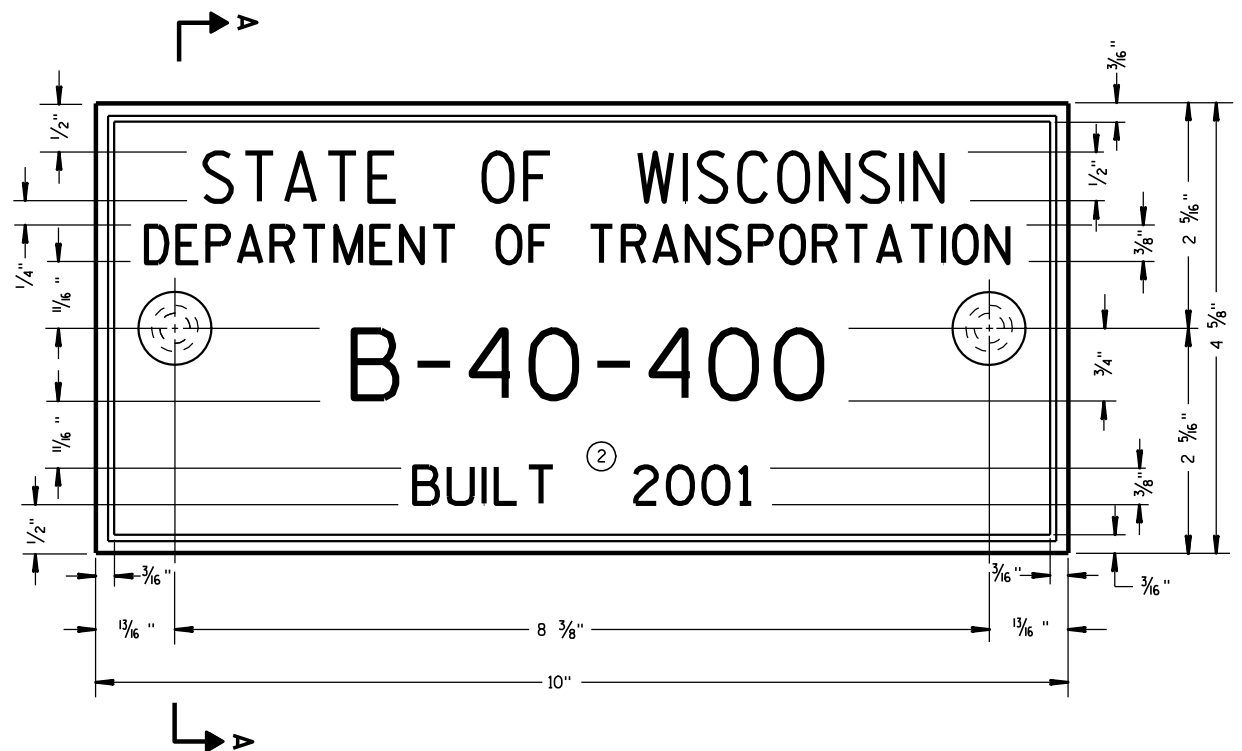
SECTION C-C

TURBIDITY BARRIER DETAIL SHOWING
TYPICAL PLACEMENT AT STRUCTURES

TURBIDITY BARRIER

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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



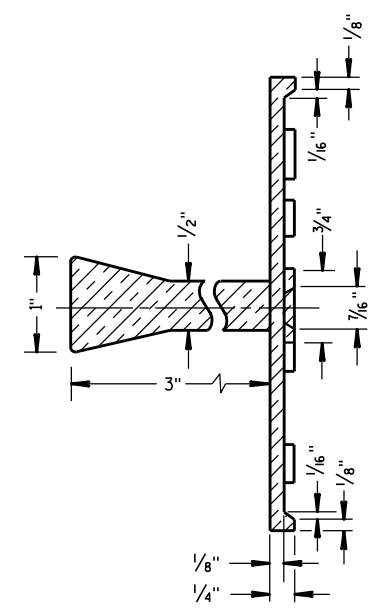
TYPICAL NAME PLATE
(BRIDGES, CULVERTS, AND RETAINING WALLS)

GENERAL NOTES

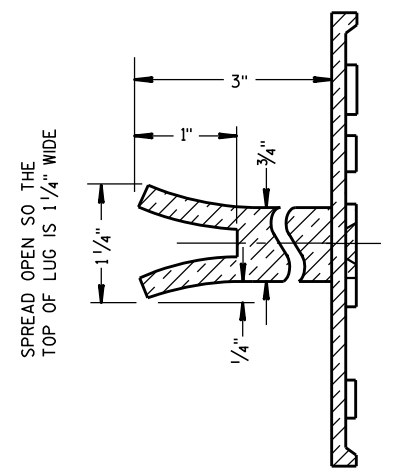
NAME PLATES TO BE INSTALLED ON BRIDGES, CULVERTS, AND RETAINING WALLS SHALL CONFORM TO THE REQUIREMENTS OF SECTION 502.3.11 OF THE STANDARD SPECIFICATIONS.

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

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



SECTION A-A



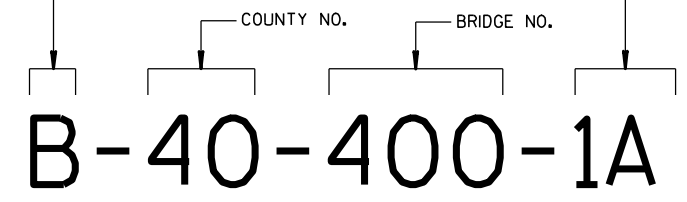
ALTERNATE LUG

6

6

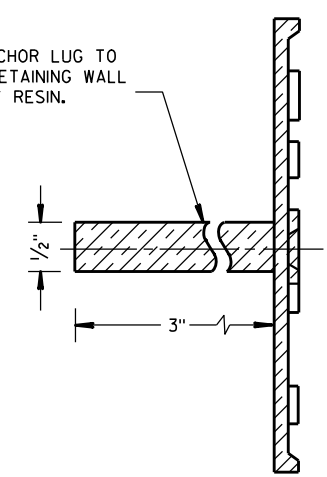
FOR MULTI-UNIT STRUCTURES
LINE 3 ABOVE SHALL READ

- B = BRIDGE
- C = CULVERT
- R = RETAINING WALL
- UNIT NO. FOR MULTIPLE UNIT BRIDGE



**NUMBERING DESIGNATION
MULTI-UNIT STRUCTURES**

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

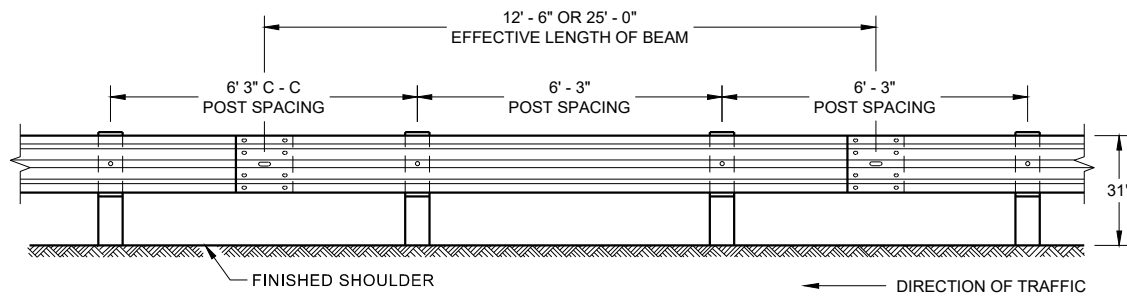


ALTERNATE LUG
(FOR ATTACHMENT TO PRECAST STRUCTURES)

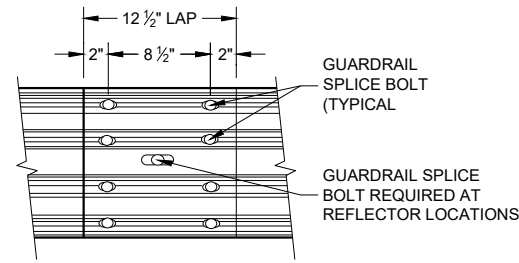
S.D.D. 12 A 3-10

S.D.D. 12 A 3-10

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



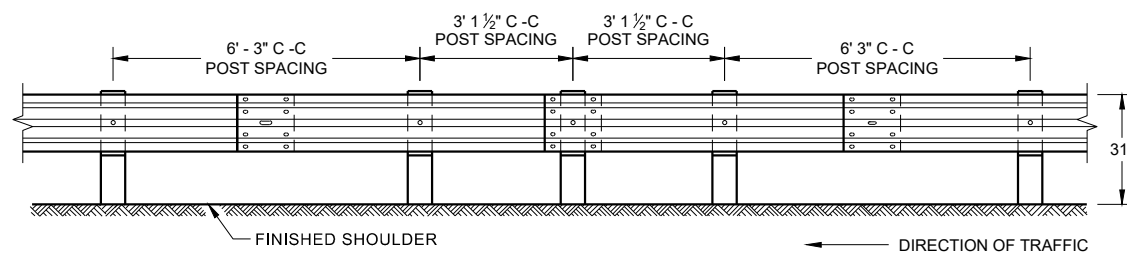
**FRONT VIEW
POST SPACING STANDARD INSTALLATION**



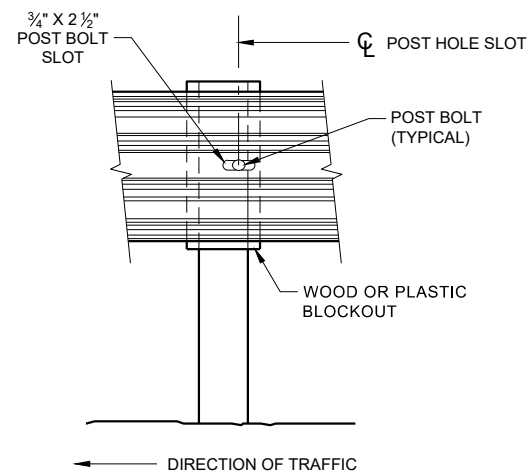
**FRONT VIEW
MID-SPAN BEAM SPLICE**

GENERAL NOTES

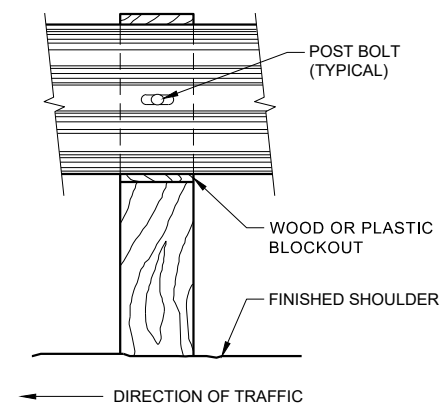
- ⑧ DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINAL.
 - ⑨ 25 FEET OF HALF POST SPACING IS REQUIRED ON APPROACH AND DEPARTURE ENDS OF QUARTER POST SPACING.
- POST BOLTS ARE A 3/8" DIAMETER ASTM A307 GUARDRAIL BOLT. A POST BOLT REQUIRES 3/4" DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX NUT AND 3/8" DIAMETER F844 FLAT WASHER. POST BOLTS MAY BE LONGER IF MULTIPLE BLOCKOUTS ARE BEING USED.
- GUARD RAIL SPLICE BOLTS ARE A 3/8" DIAMETER ASTM A307 GUARDRAIL HEAD BOLT. A GUARDRAIL SPLICE BOLT REQUIRES 3/8" DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX NUT.



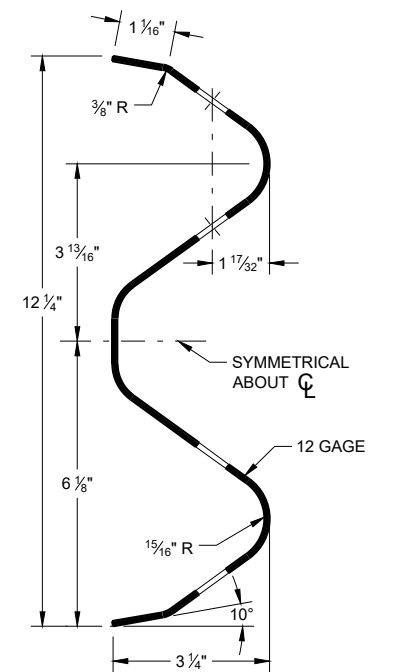
**FRONT VIEW
HALF POST SPACING (HS) AND
HALF POST SPACING WITH LONGER POSTS (K)**



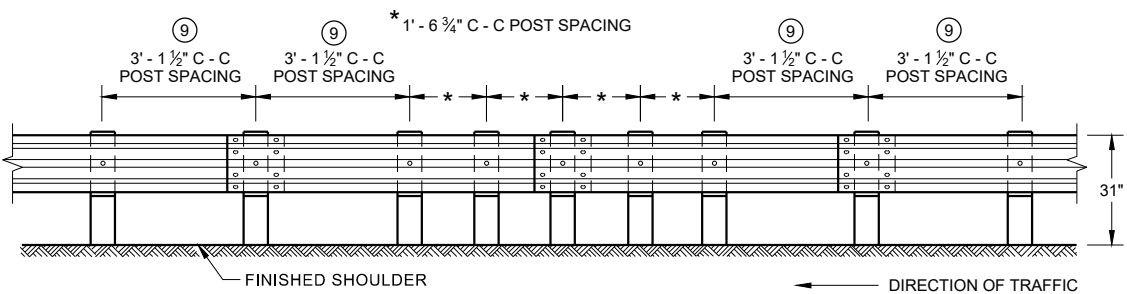
FRONT VIEW AT STEEL POST



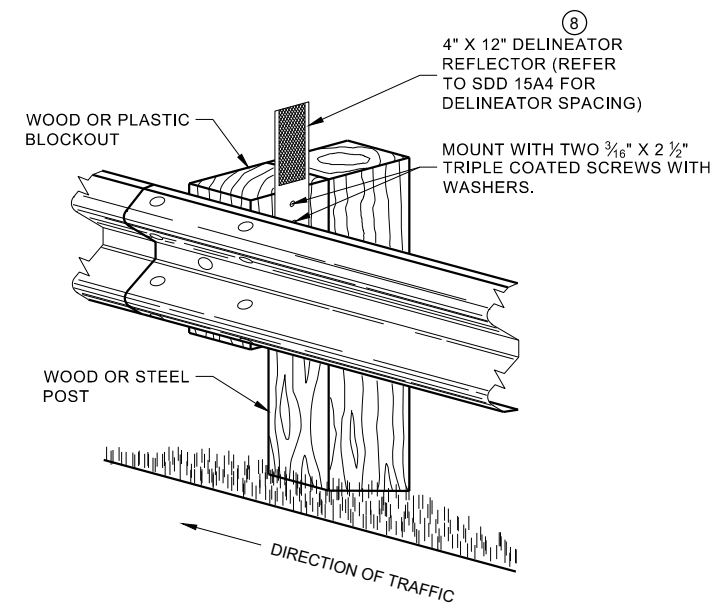
FRONT VIEW AT WOOD POST



SECTION THRU W-BEAM RAIL



**FRONT VIEW
QUARTER POST SPACING (QS)**



**ONE SIDED REFLECTOR DETAIL
AND TYPICAL INSTALLATION**

**MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL**

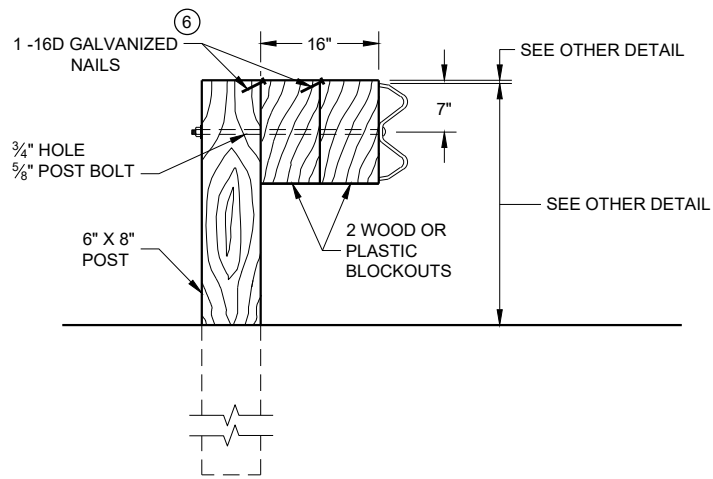
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6

6

SDD 14B42 - 06b

SDD 14B42 - 06b

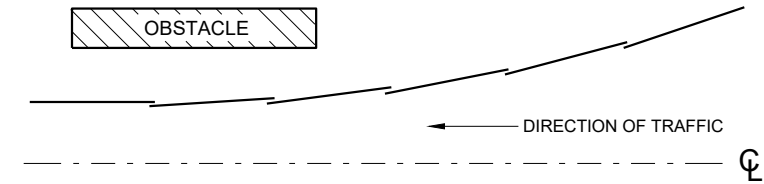
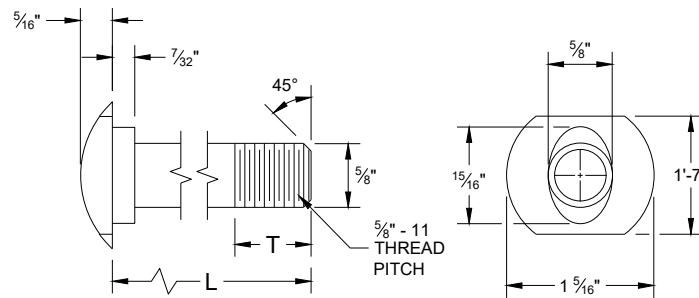


DETAIL FOR 16" BLOCKOUT DEPTH

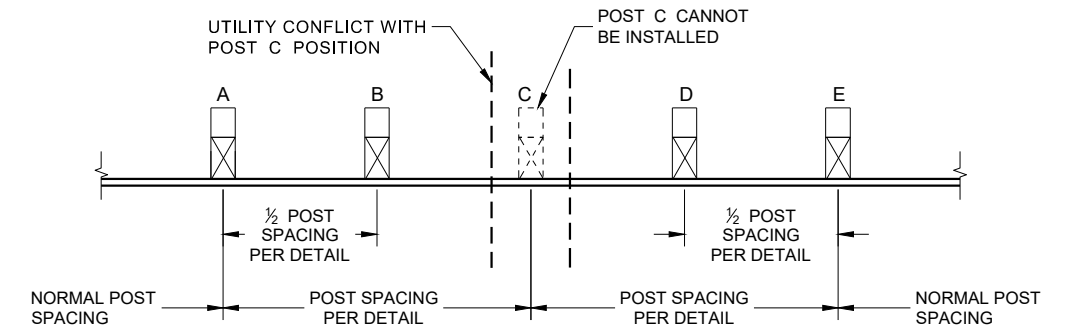
IT IS ACCEPTABLE TO USE BLOCKOUTS UP TO 16" DEEP TO INCREASE THE POST OFFSET TO AVOID UNDERGROUND OBSTACLES. THERE IS NO LIMIT TO THE NUMBER OF POSTS THAT CAN HAVE ADDITIONAL BLOCKOUTS UP TO 16" DEEP.

NOTE:

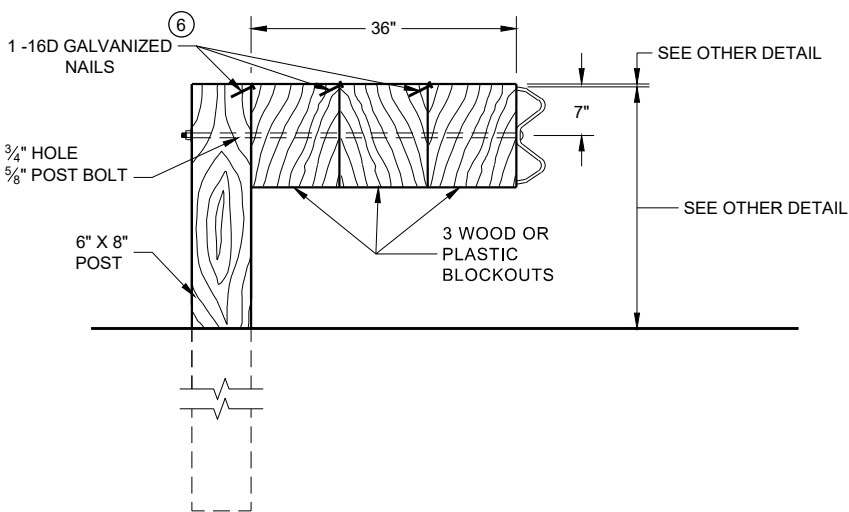
1. ALL FILLETS SHALL HAVE A MINIMUM RADIUS OF 3/16".
2. IF THE BOLT EXTENDS MORE THAN 1/4" FROM THE NUT THE BOLT SHOULD BE TRIMMED BACK.



**PLAN VIEW
BEAM LAPPING DETAIL**



**POST DRIVING FOR CONTINUOUS
UNDERGROUND OBSTRUCTION**

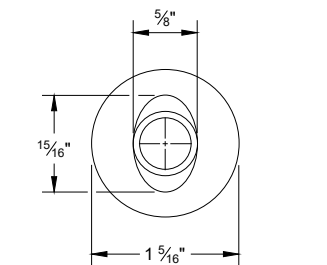


DETAIL FOR 36" BLOCKOUT DEPTH

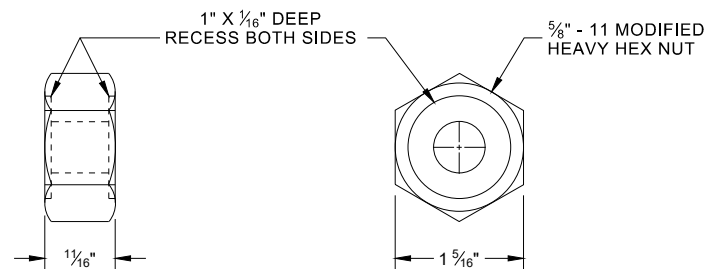
NOTES: UNDER SPECIAL CIRCUMSTANCES, SUCH AS AVOIDING OBSTACLES THAT ARE NOT RELOCATED, IT IS ACCEPTABLE TO INSTALL ADDITIONAL BLOCKOUTS TO OBTAIN UP TO 36" DEPTH FOR ONE OR TWO POSTS IN A SECTION OF GUARDRAIL.
DO NOT USE 16" OR 36" BLOCKOUTS IF IT CAUSES THE POST TO BE DRIVEN BEYOND SHOULDER HINGE POINT OR CAUSES A FIXED OBJECT TO BE WITHIN THE DEFLECTION DISTANCE OF THE BARRIER.

POST BOLT TABLE

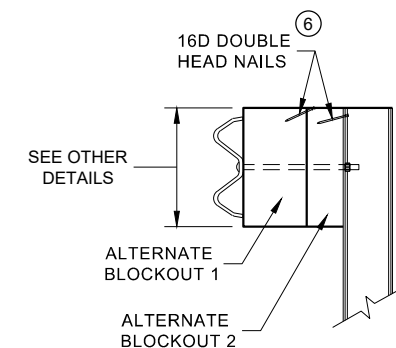
L	T (MIN.)
1 1/4"	1 1/8"
2"	1 3/4"
10"	4"
14"	4 1/16"
18"	4"
21"	4 1/16"
25"	4"



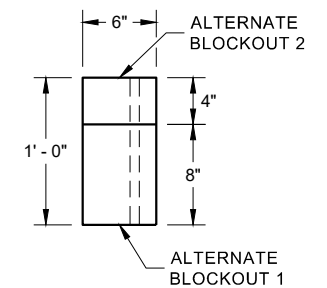
ALTERNATE BOLT HEAD



**POST BOLT, SPLICE BOLT
AND RECESS NUT**



SIDE VIEW



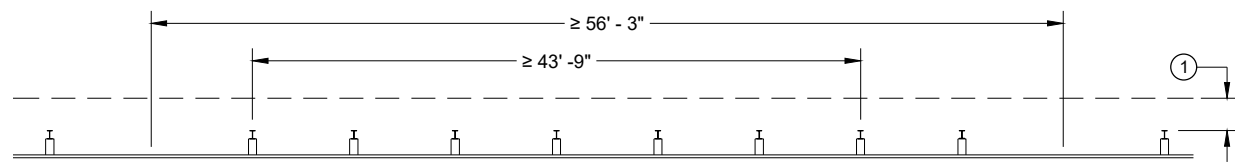
PLAN VIEW

**ALTERNATE WOOD
BLOCKOUT DETAIL**

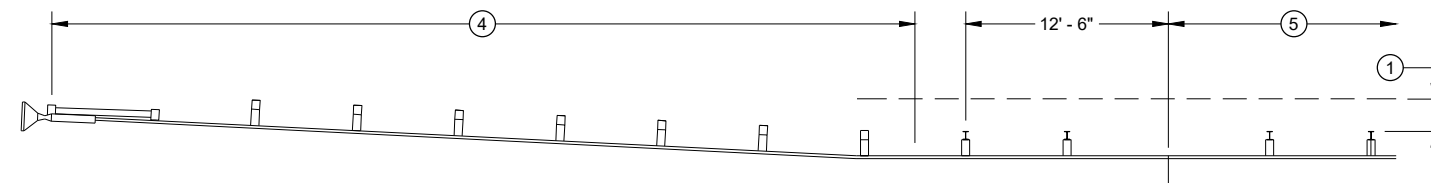
6 WHEN USING STEEL POST AND WOOD BLOCKOUTS, INSTALL FOUR 16D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.

**MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL**

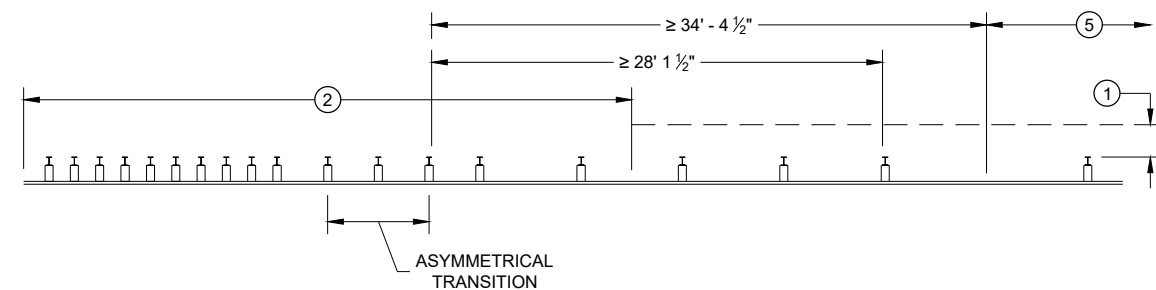
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



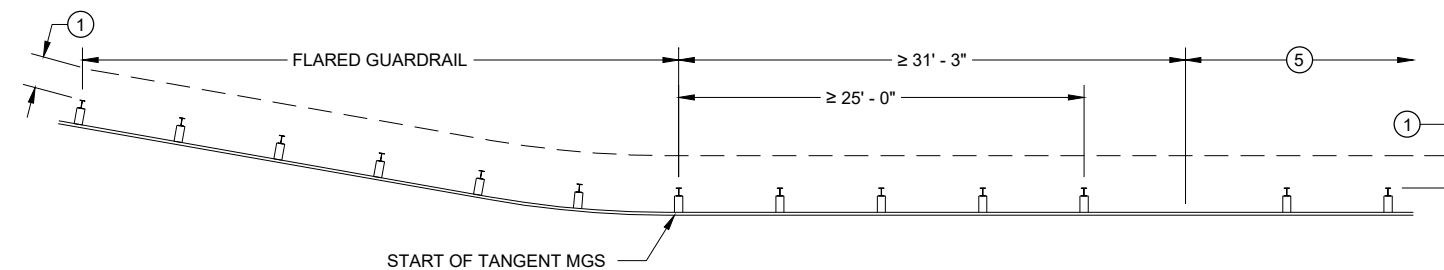
MISSING POST IN NORMAL BEAM GUARD RUN



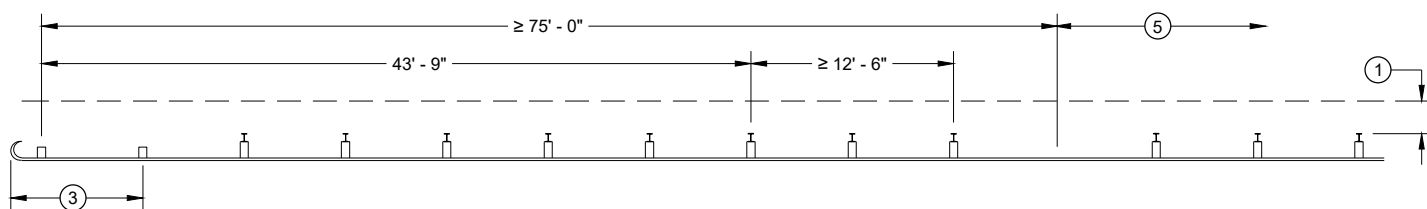
MISSING POST IN NORMAL BEAM GUARD RUN NEAR EAT



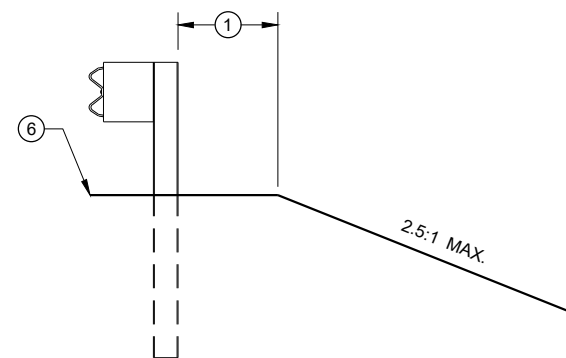
MISSING POST NEAR APPROACH THRIE BEAM TRANSITION



MISSING POST IN NORMAL BEAM GUARD RUN NEAR FLARED BEAM GUARD



MISSING POST IN NORMAL BEAM GUARD RUN NEAR TYPE 2 TERMINAL



CROSS SECTION VIEW

- 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.

6

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SDD 14B42 - 06d

SDD 14B42 - 06d

MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
7/2018 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 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 MANUFACTURERS REQUIRE DIFFERENT PERFORATED W - BEAM RAIL END PANELS. SEE MANUFACTURER'S INFORMATION.
 - (D) ATTACH ALUMINUM SHEET TO E.A.T. HEAD USING 4 STAINLESS STEEL SELF - TAPPING SCREWS. ONE SCREW PER CORNER.
 - (E) HARDWARE MAY VARY BETWEEN MANUFACTURER. SEE MANUFACTURER'S DRAWING FOR INFORMATION.
- DIMENSIONS MAY VARY, MANUFACTURER'S INFORMATION.

SEE SDD 14B42 FOR MORE INFORMATION.

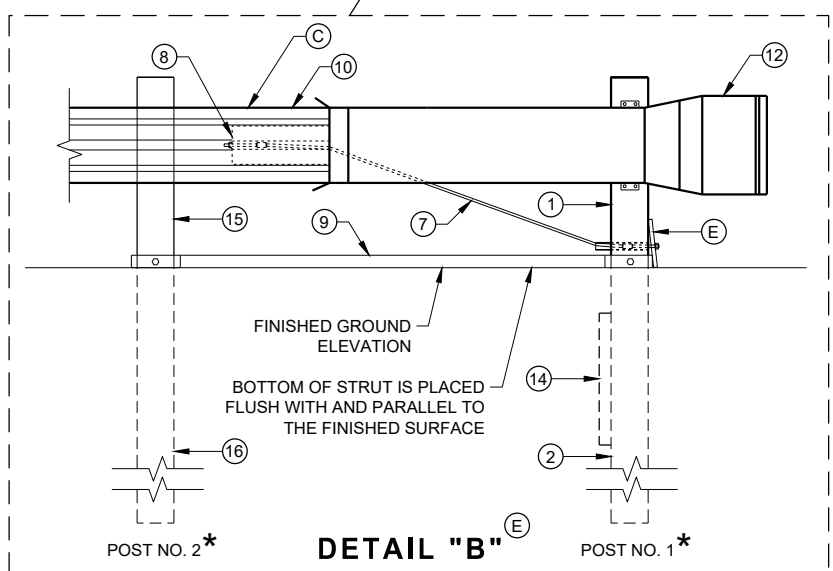
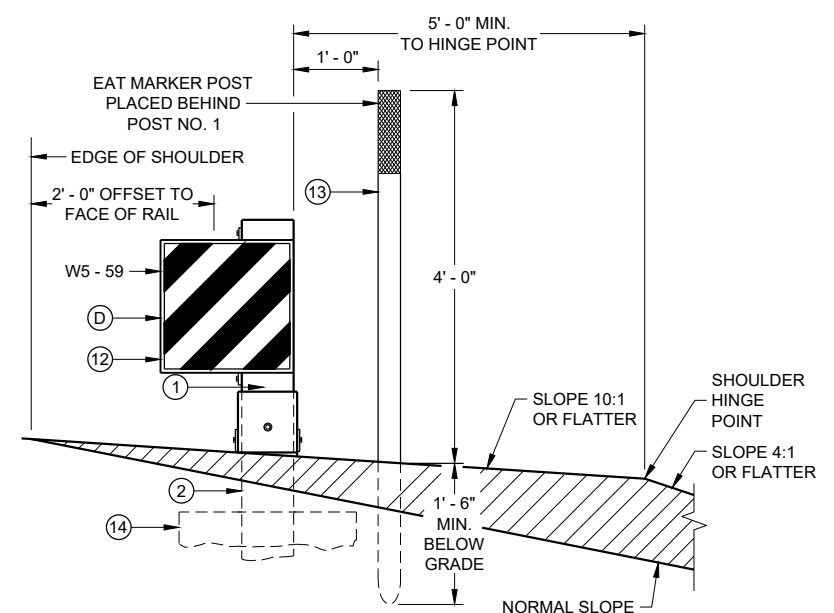
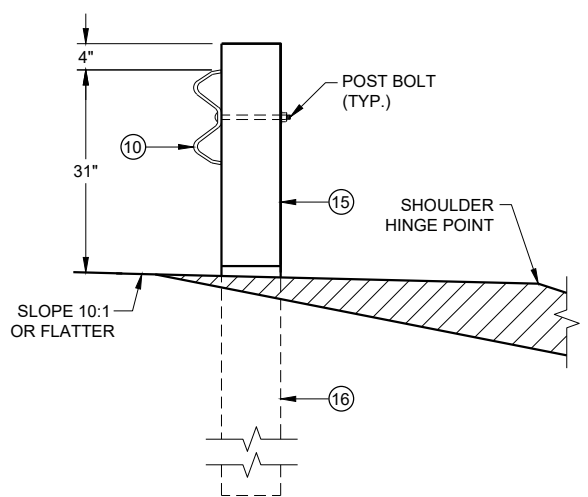
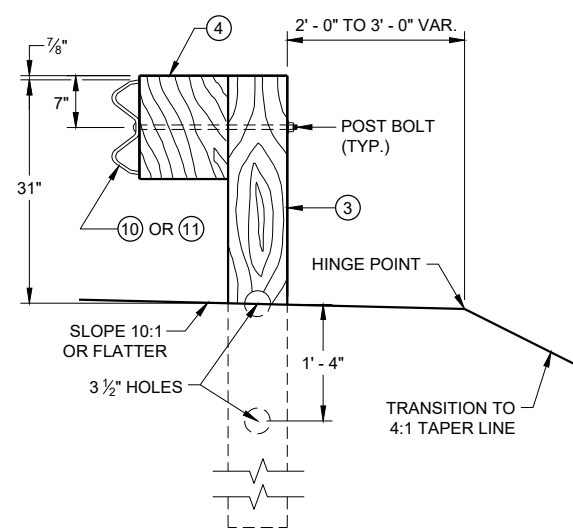
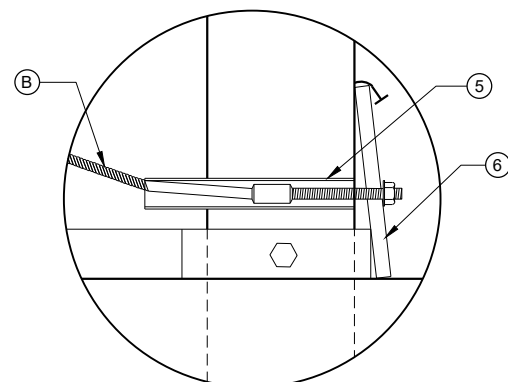
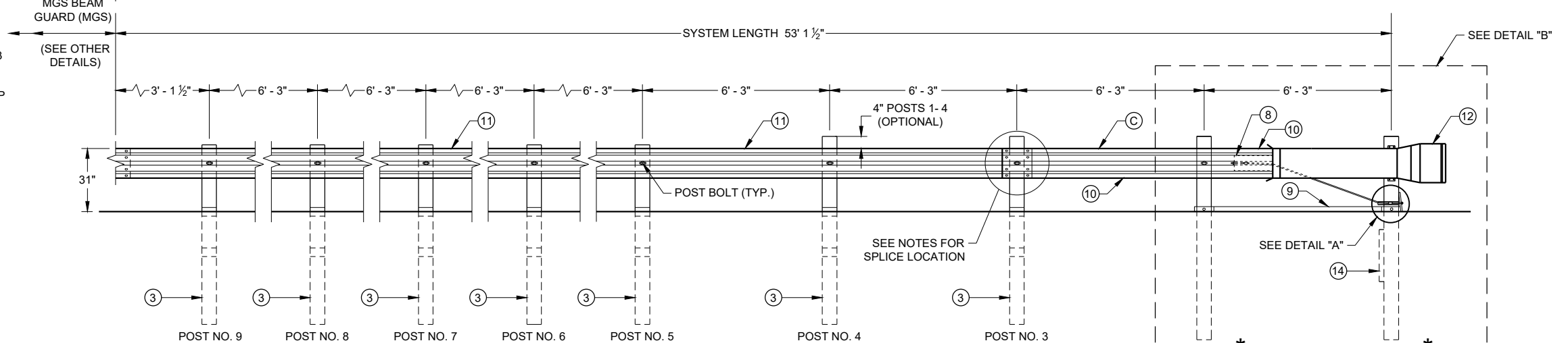
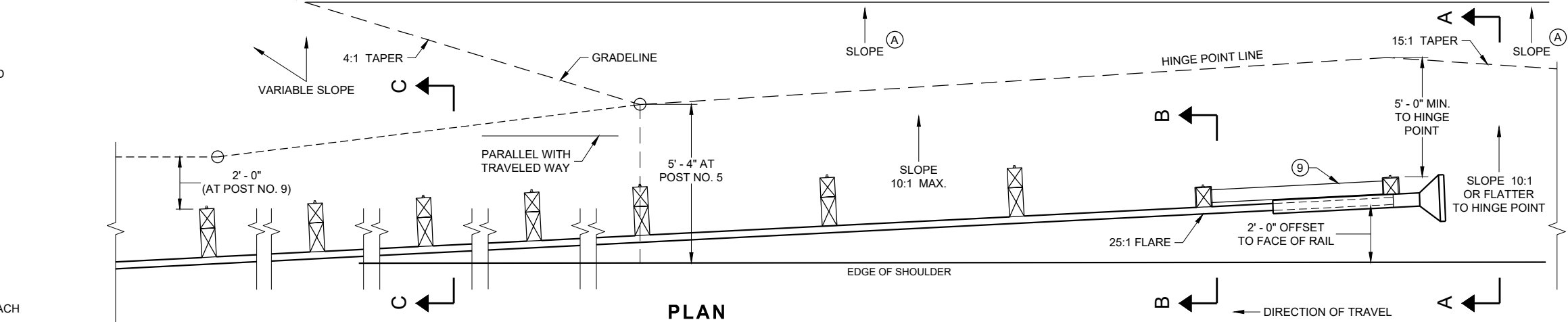
* DO NOT ATTACH BLOCKOUTS TO POST 1 AND 2.

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 1/2" 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. WOOD BLOCKS ON POSTS NUMBERED 3 THROUGH 9 MAY BE ADJUSTED UP TO 3" ABOVE THE TOP OF POST.

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



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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6

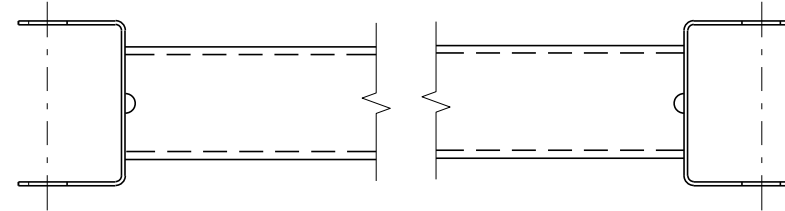
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SDD 14B44 - 04a

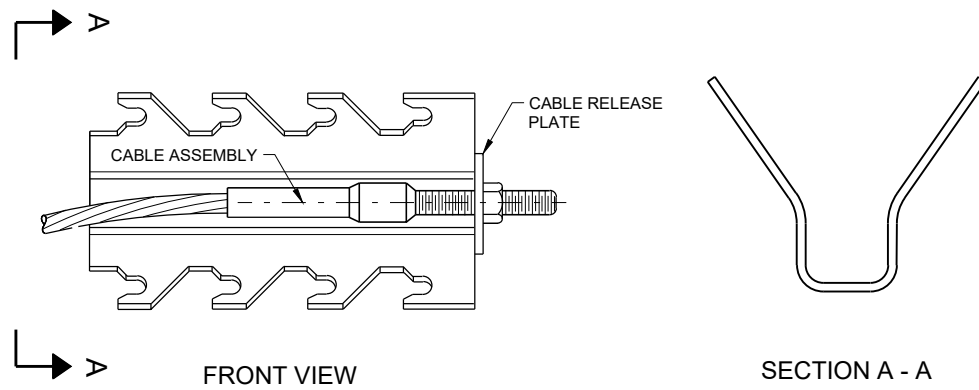
SDD 14B44 - 04a

BILL OF MATERIALS

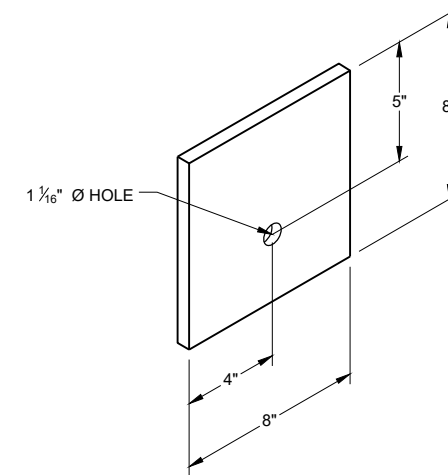
PART NO.	DESCRIPTION MATERIALS PROVIDED BY MGS EAT MANUFACTURER. SEE MANUFACTURER'S DETAILS FOR MORE INFORMATION.
①	UPPER POST NO. 1 6" X 6" TUBE
②	LOWER POST NO. 1
③	WOOD CRT
④	WOOD BLOCKOUT
⑤	PIPE SLEEVE
⑥	BEARING PLATE
⑦	BCT CABLE ASSEMBLY
⑧	ANCHOR CABLE BOX
⑨	GROUND STRUT
⑩	PERFORATED W-BEAM RAIL 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



GENERIC GROUND STRUT ⑨ ⑤



GENERIC ANCHOR CABLE BOX ⑨ ⑤



BEARING PLATE ⑥ ⑤

6

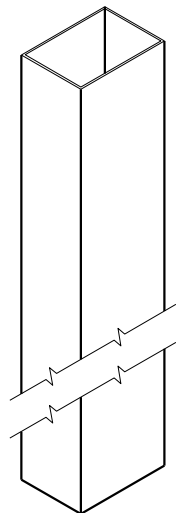
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SDD 14B44 - 04b

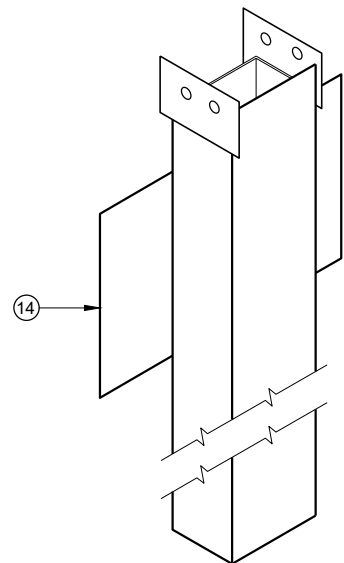
SDD 14B44 - 04b

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

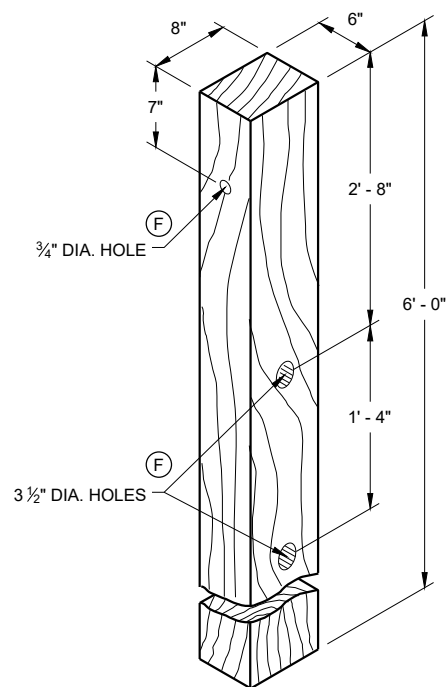
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



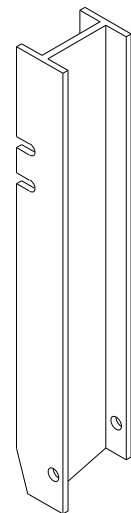
UPPER POST NO. 1 ⁽¹⁾ (E)



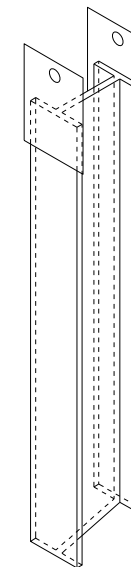
LOWER POST NO. 1 ⁽²⁾ (E)



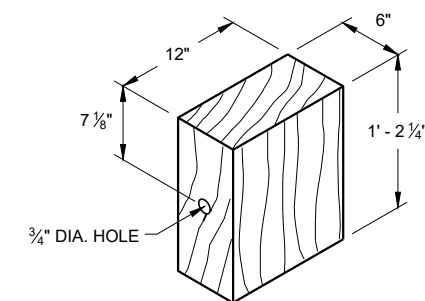
WOOD CRT POST ⁽³⁾ (E)
POSTS NUMBER 3-9



UPPER POST NO. 2 ⁽¹⁵⁾ (E)

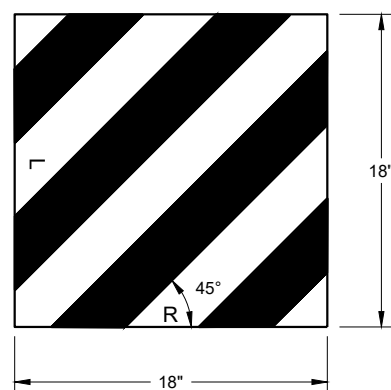


LOWER POST NO. 2 ⁽¹⁶⁾ (E)



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

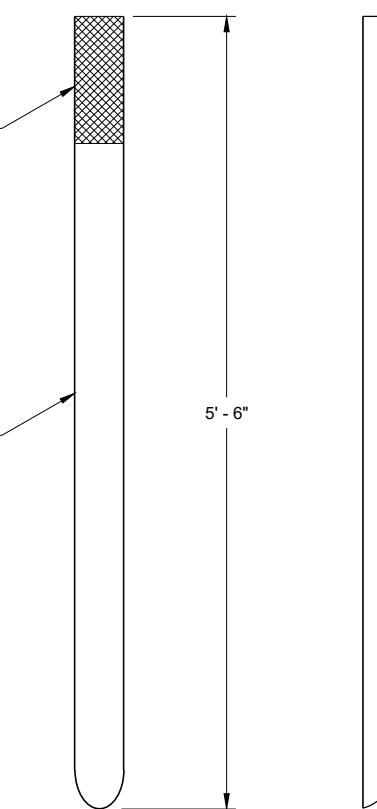
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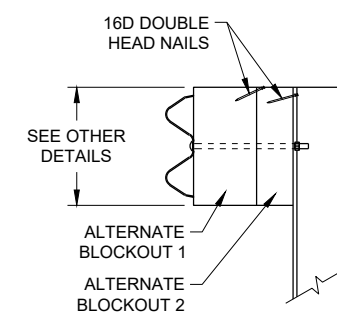
REFLECTIVE SHEETING DETAIL ^(E)

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

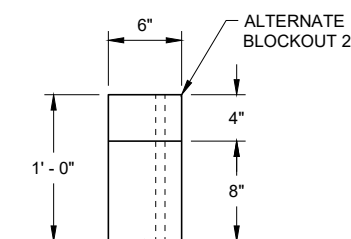
E.A.T. MARKER
POST (YELLOW)



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



SIDE VIEW



TOP VIEW

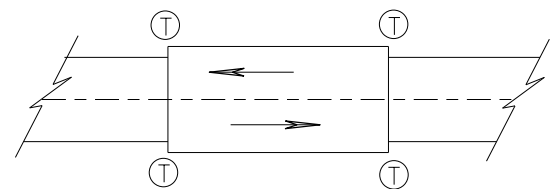
ALTERNATE WOOD
BLOCKOUT DETAIL

6

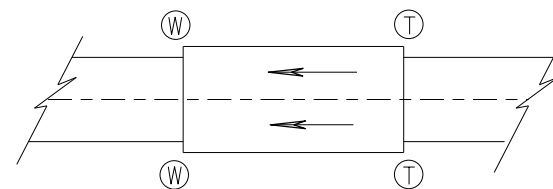
**MIDWEST GUARDRAIL SYSTEM
ENERGY ABSORBING TERMINAL
(MGS)**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
7/2018 DATE /S/ Rodney Taylor
ROADWAY STANDARDS DEVELOPMENT
UNIT SUPERVISOR



TWO WAY TRAFFIC



ONE WAY TRAFFIC

(T) THRIE BEAM CONNECTION

(W) W-BEAM CONNECTION WHEN REQUIRED

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

GENERAL NOTES

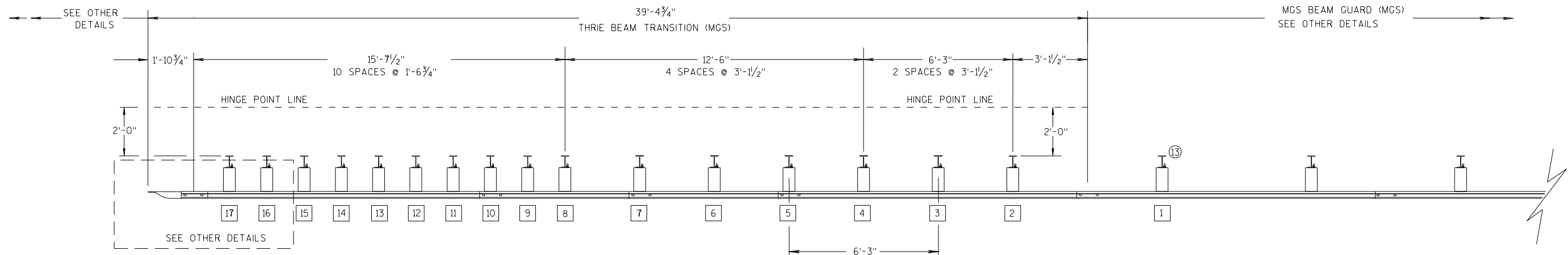
IF ROCK IS ENCOUNTERED, REMOVE ROCK TO FULL DEPTH OF POST PLUS 2 1/2", AND 12" DIAMETER AROUND POST. SEE 14B42 FOR MORE DETAILS.

TRANSITION USES STEEL POSTS ONLY.

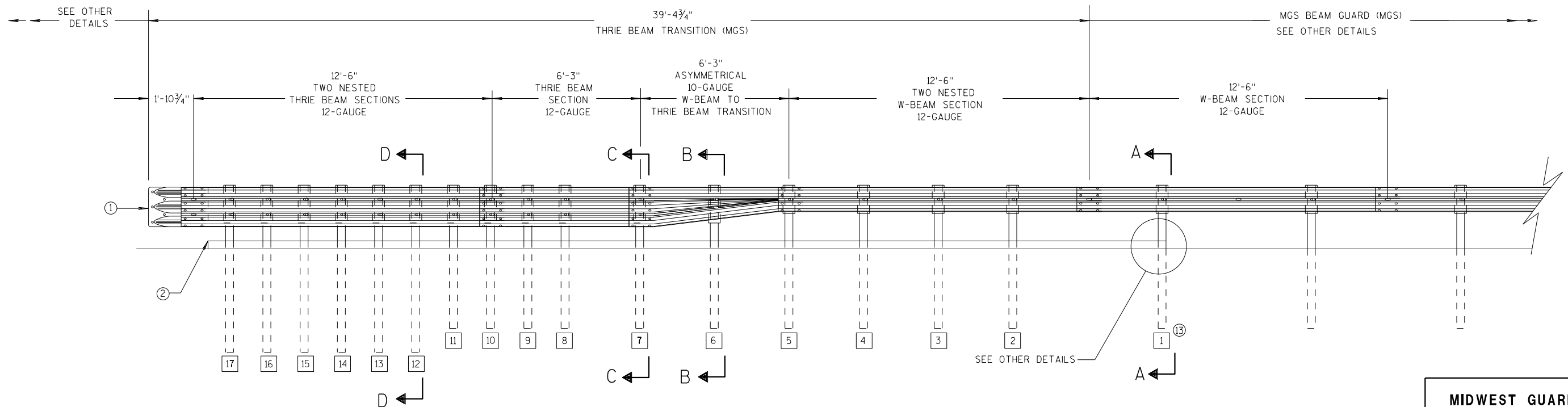
SEE STANDARD DETAIL DRAWING 14 B 42 FOR MORE INFORMATION.

POST 2 THROUGH 17 USES STEEL POST ONLY

- ① BRIDGE RAILING TYPE "W" DOES NOT REQUIRE A TERMINAL CONNECTOR.
- ② OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.
- ⑬ STEEL OR WOOD POST IS ACCEPTABLE AT POST 1. SEE SDD14B42



PLAN VIEW



ELEVATION VIEW

MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6

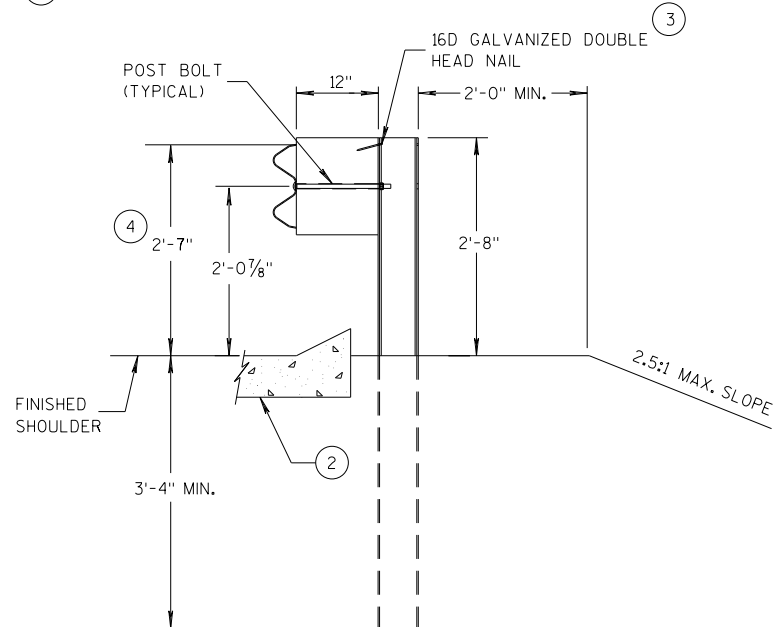
6

S.D.D. 14 B 45-5a

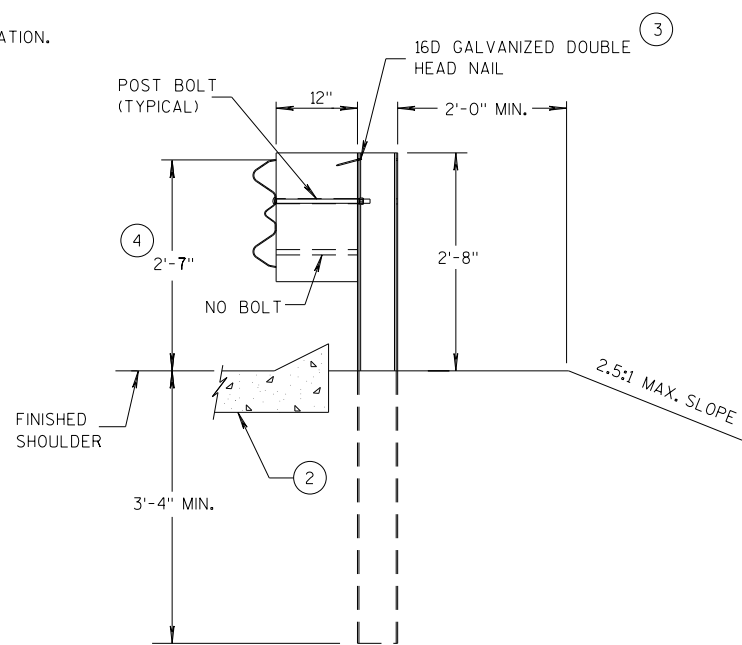
S.D.D. 14 B 45-5a

GENERAL NOTES

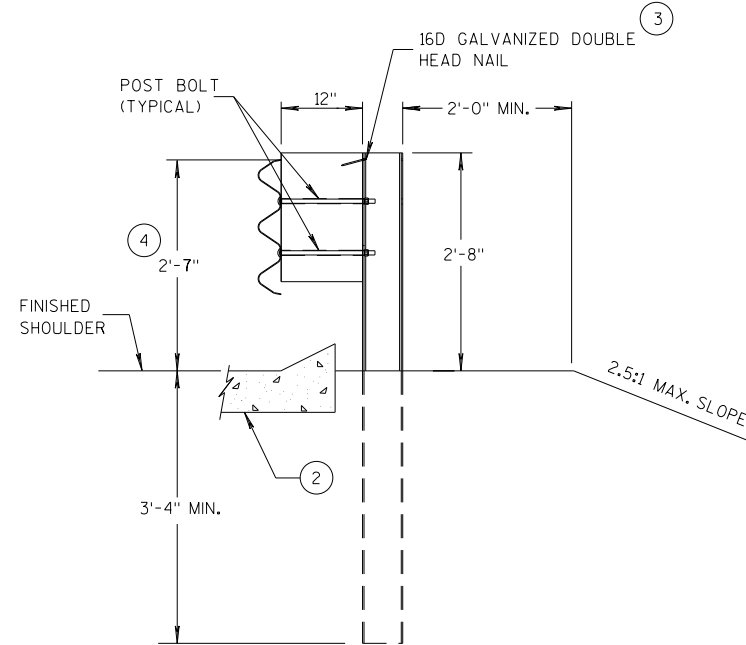
- ② OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.
- ③ WHEN USING STEEL POSTS AND WOOD BLOCKOUTS INSTALL FOUR 10D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.
- ④ TOLERANCE FOR TOP OF W-BEAM RAIL IS ± 1".
- ⑬ STEEL OR WOOD POST IS ACCEPTABLE AT POST 1. SEE SDD 14B42



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



**SECTION B-B
POST 6**



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

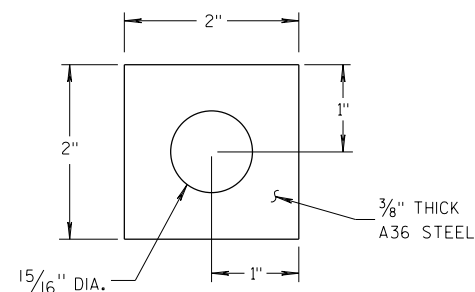
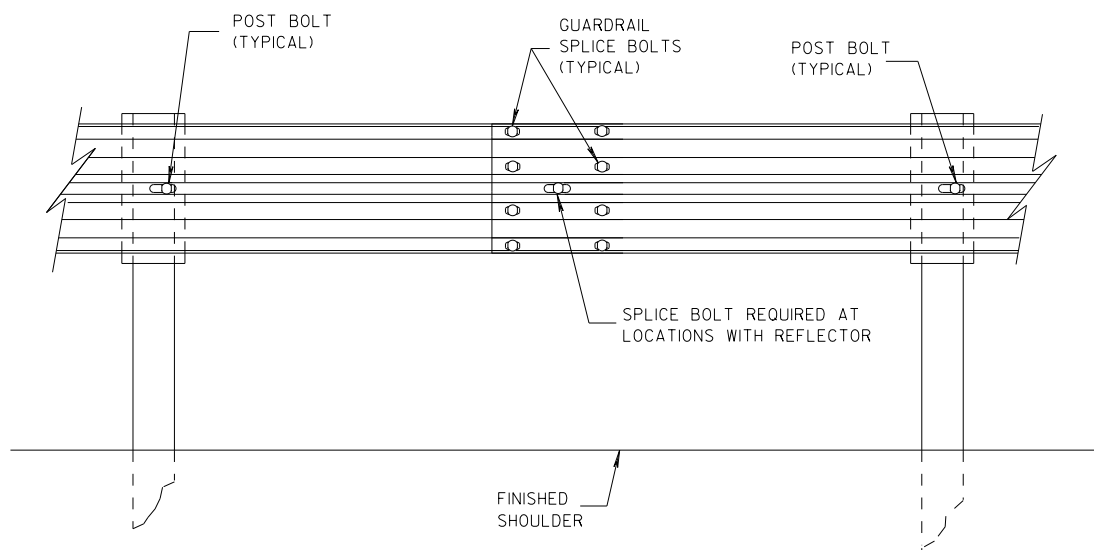
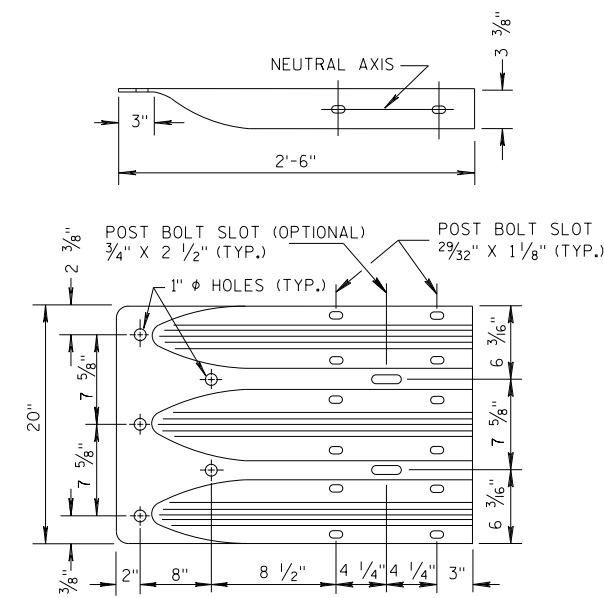


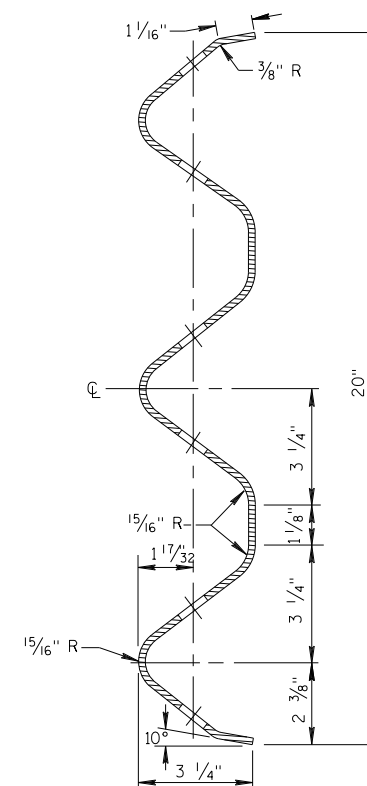
PLATE WASHER DETAIL



SPLICE DETAIL



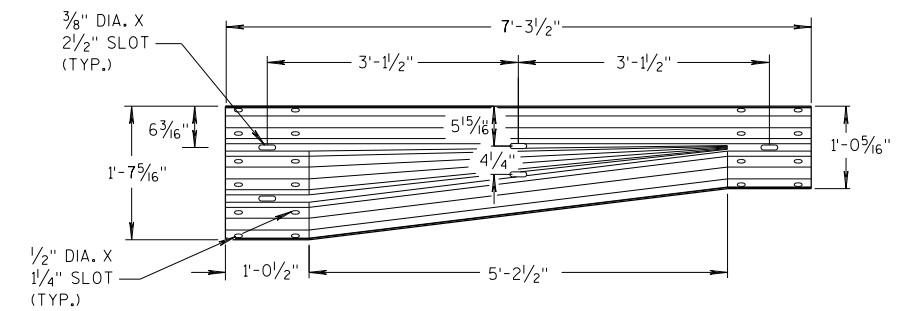
**THRIE BEAM
TERMINAL CONNECTOR**



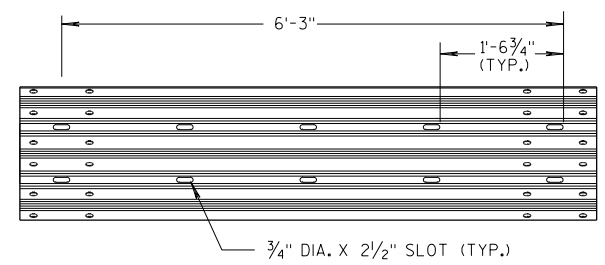
**SECTION THRU THRIE
BEAM RAIL ELEMENT**

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

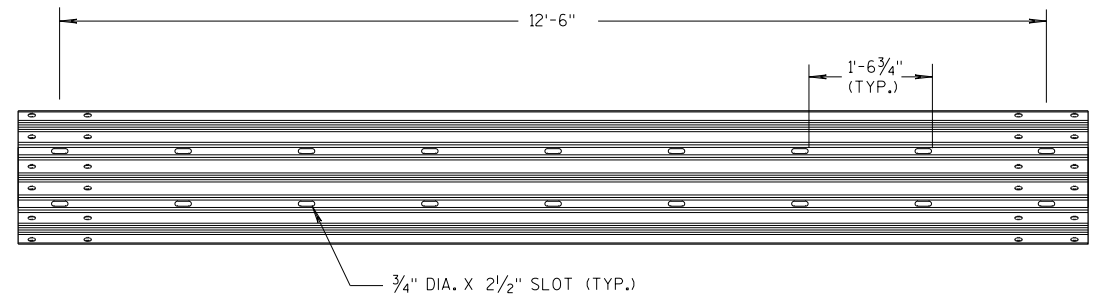
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



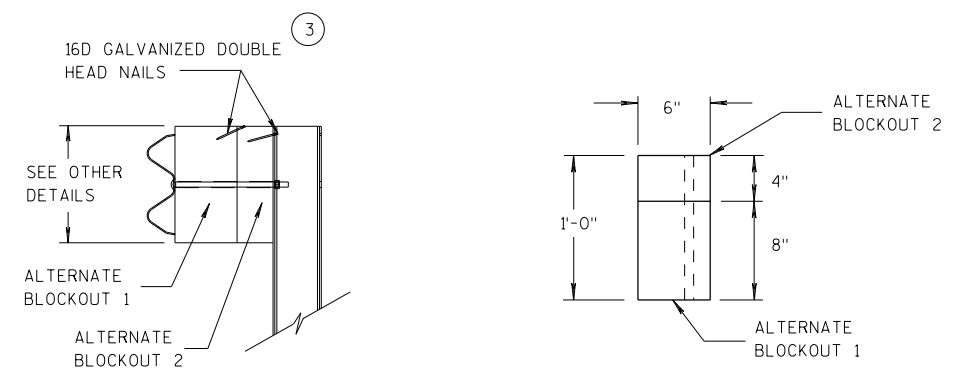
W-BEAM TO THRIE BEAM TRANSITION SECTION



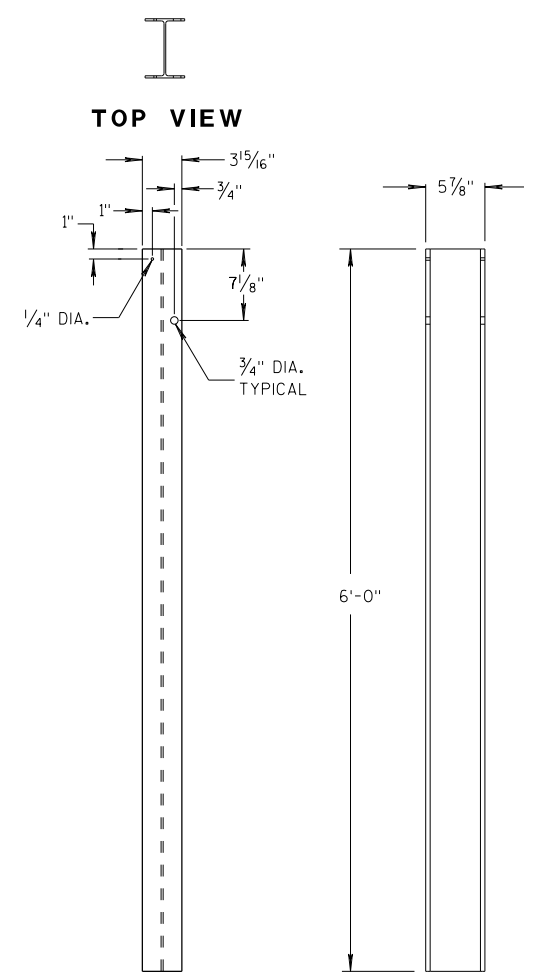
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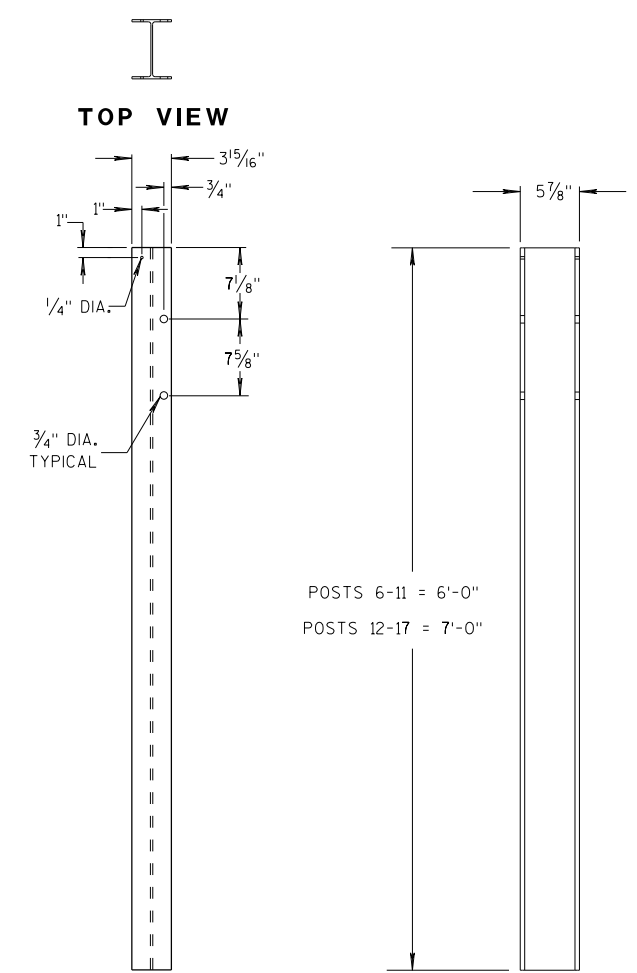
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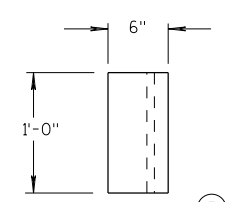
ALTERNATE WOOD BLOCKOUT DETAIL



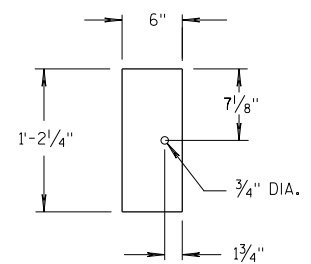
STEEL POSTS 1-5



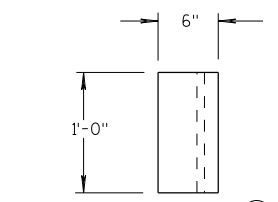
STEEL POSTS 6-17



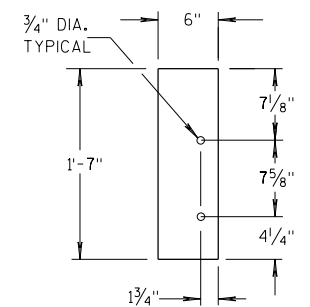
TOP VIEW



**FRONT VIEW
BLOCKOUT
POSTS 1-5**



TOP VIEW



**FRONT VIEW
BLOCKOUT
POSTS 6-17**

GENERAL NOTES

- STEEL POSTS ARE W6X9 OR W6X8.5.
- BOLT HOLES FOR POST ARE ON FRONT AND OF SIDE OF POST.
- (3) WHEN USING STEEL POSTS AND WOOD BLOCKOUTS INSTALL FOUR 16D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.
- (5) WOOD BLOCKS MAY BE CONSTRUCTED OUT OF 2 WOOD BLOCKS. SEE ALTERNATE WOOD BLOCK DETAIL.
- (13) STEEL OR WOOD POST IS ACCEPTABLE AT POST 1. SEE SDD 14B42.

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

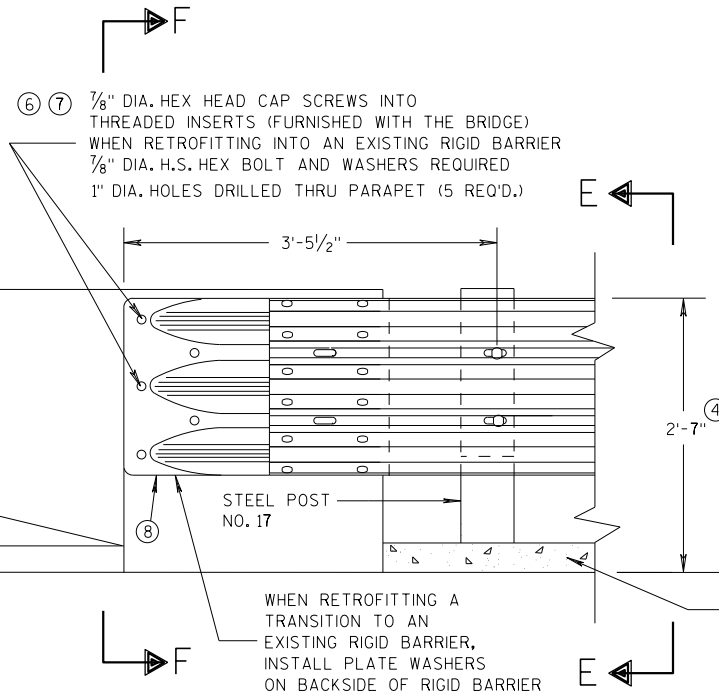
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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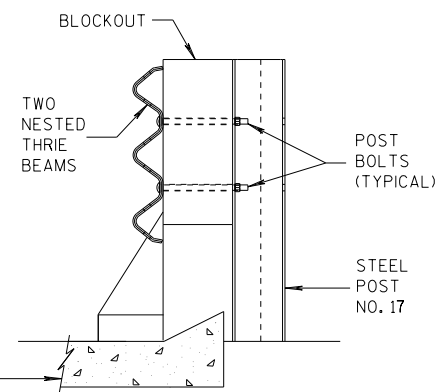
S.D.D. 14 B 45-5c

S.D.D. 14 B 45-5c

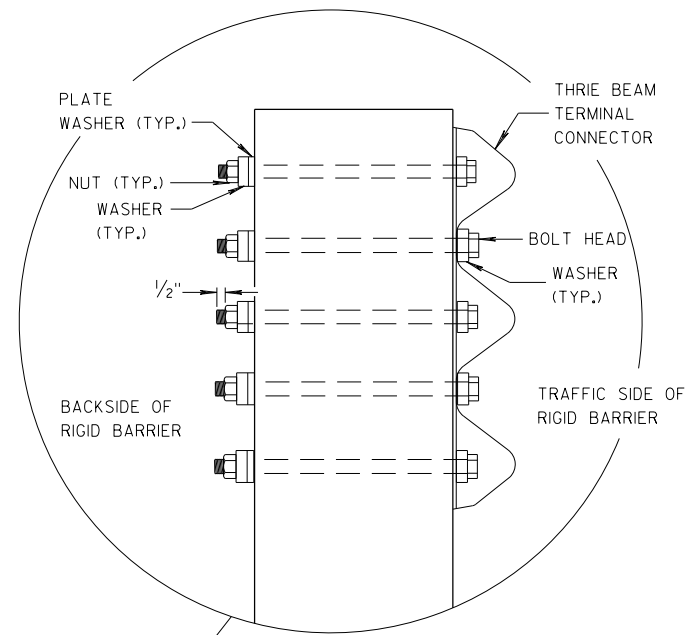


FRONT VIEW

THRIE BEAM CONNECTION TO BRIDGE PARAPET WITH SQUARE ENDS

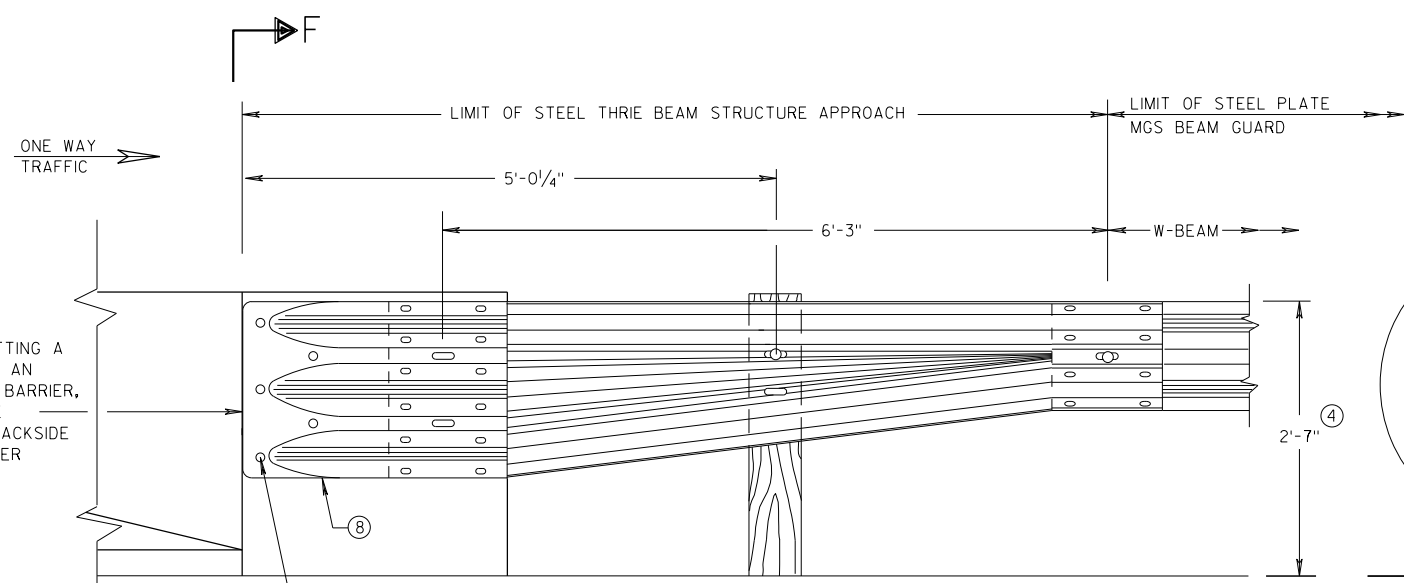


SECTION E-E



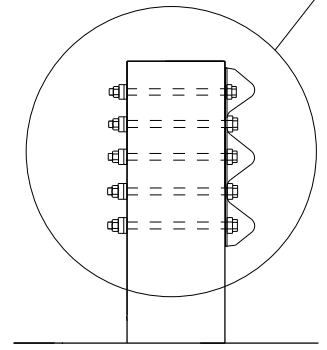
GENERAL NOTES

- THESE ARE TYPICAL CONNECTION DETAILS. ADJUST THE POSITION OF CONNECTIONS TO EXISTING BRIDGES TO FIT THE ACTUAL BRIDGE AND SITE DIMENSIONS.
- (2) OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.
- (4) TOLERANCE FOR TOP OF BEAM IS ± 1 ".
- (6) DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.
- (7) BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM CONNECTOR PLATE. BOLTS THAT EXTEND THROUGH THE PARAPET AND OUT THE BACK FACE REQUIRE A HARDENED ROUND STEEL WASHER THAT IS 2" O.D. X 5/32" THICK AND ONE PLATE WASHER. REPAIR ANY DAMAGED CONCRETE FROM BOLT INSTALLATION.
- (8) THE RECESS FOR A W-BEAM CONNECTION, WHICH EXISTS ON SOME PARAPETS OF THIS TYPE, SHALL BE FILLED WITH A TREATED TIMBER BLOCKOUT. BLOCKOUT SIZE IS 1'-6" X 2'-0" X 3 1/2".

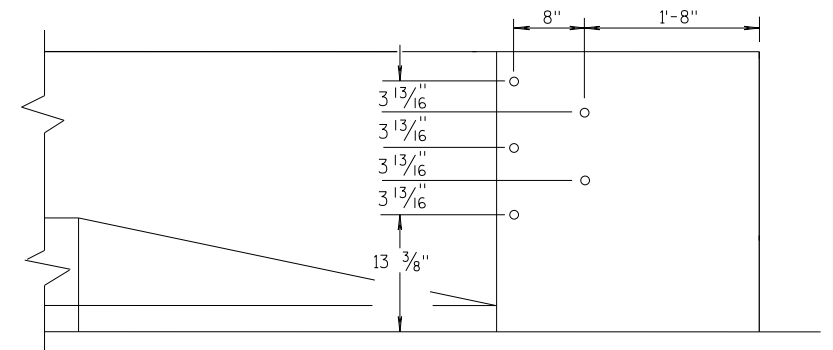


FRONT VIEW

**W BEAM TRANSITION AND CONNECTION TO BRIDGE PARAPETS WITH SQUARE ENDS
(USE ONLY ON THE TRAFFIC EXIT END OF ONE WAY BRIDGES)**



SECTION F-F



DRILL HOLE LOCATION

MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 07/2018 DATE	/S/ Rodney Taylor ROADWAY STANDARDS DEVELOPMENT UNIT SUPERVISOR
FHWA	

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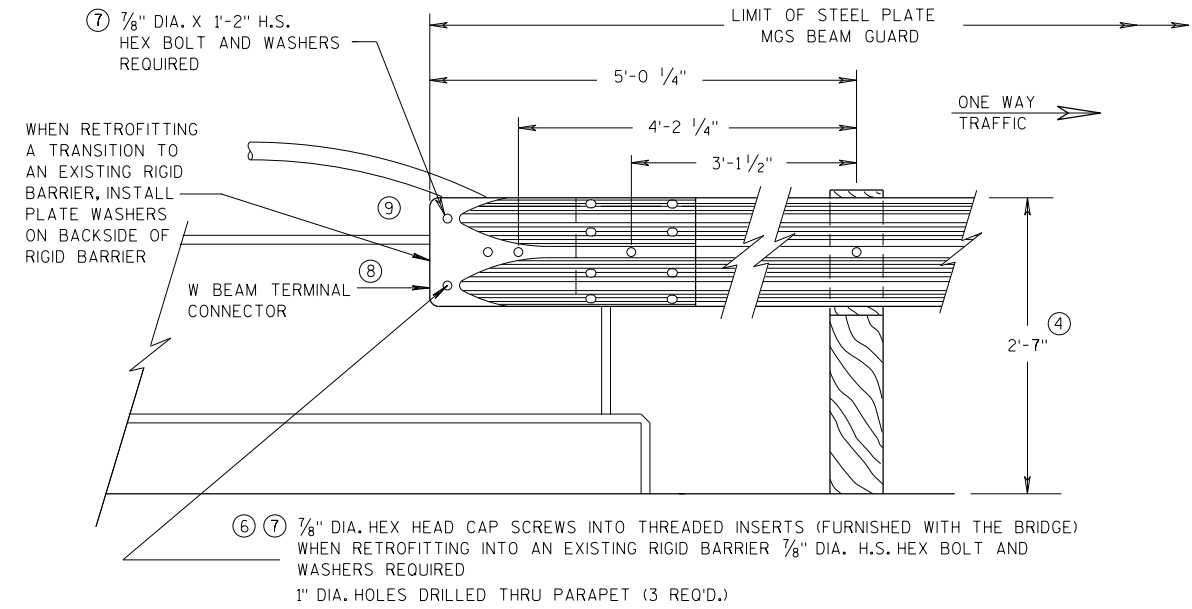
S.D.D. 14 B 45-5d

S.D.D. 14 B 45-5d

GENERAL NOTES

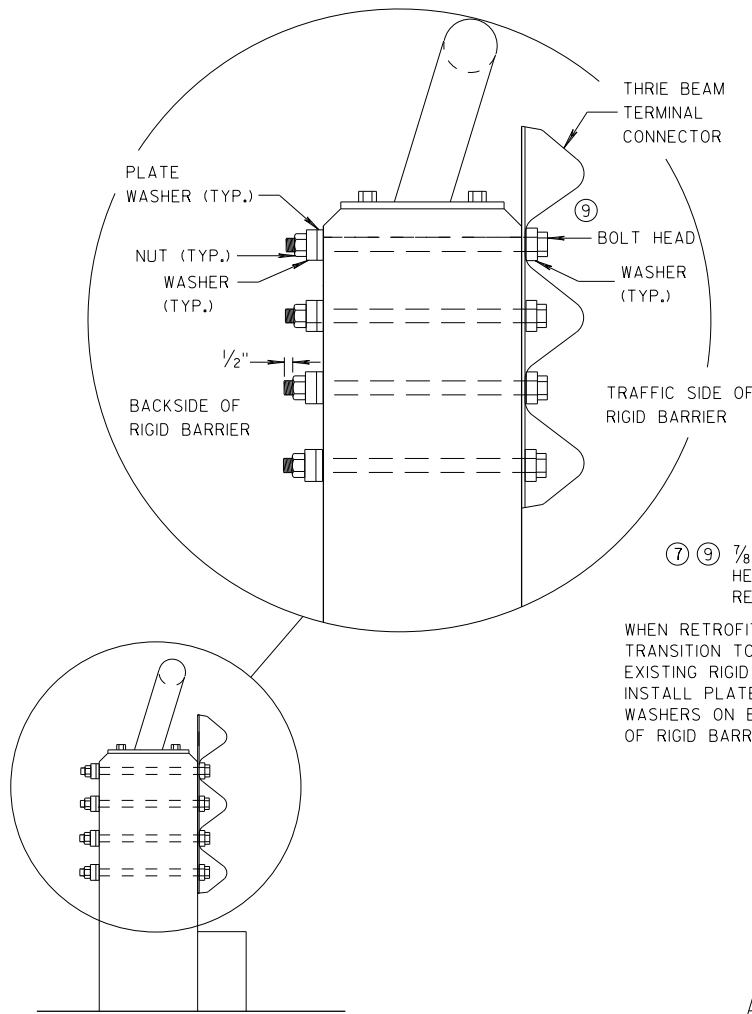
THESE ARE TYPICAL CONNECTION DETAILS. ADJUST THE POSITION OF CONNECTIONS TO EXISTING BRIDGES TO FIT THE ACTUAL BRIDGE AND SITE DIMENSIONS.

- ② OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.
- ④ TOLERANCE FOR TOP OF BEAM IS $\pm 1"$.
- ⑥ DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.
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- ⑧ THE RECESS FOR A W-BEAM CONNECTION, WHICH EXISTS ON SOME PARAPETS OF THIS TYPE, SHALL BE FILLED WITH A TREATED TIMBER BLOCKOUT. BLOCKOUT SIZE IS 1'-6" X 2'-0" X 3 1/2".
- ⑨ BOLT, NUT AND WASHERS NOT REQUIRED FOR THIS LOCATION WHEN RETROFITTING AN EXISTING PAPAPET AND THE HOLE IS EITHER ABOVE PARAPET OR WITHIN 4 INCHES OF THE EDGE OF PARAPET.

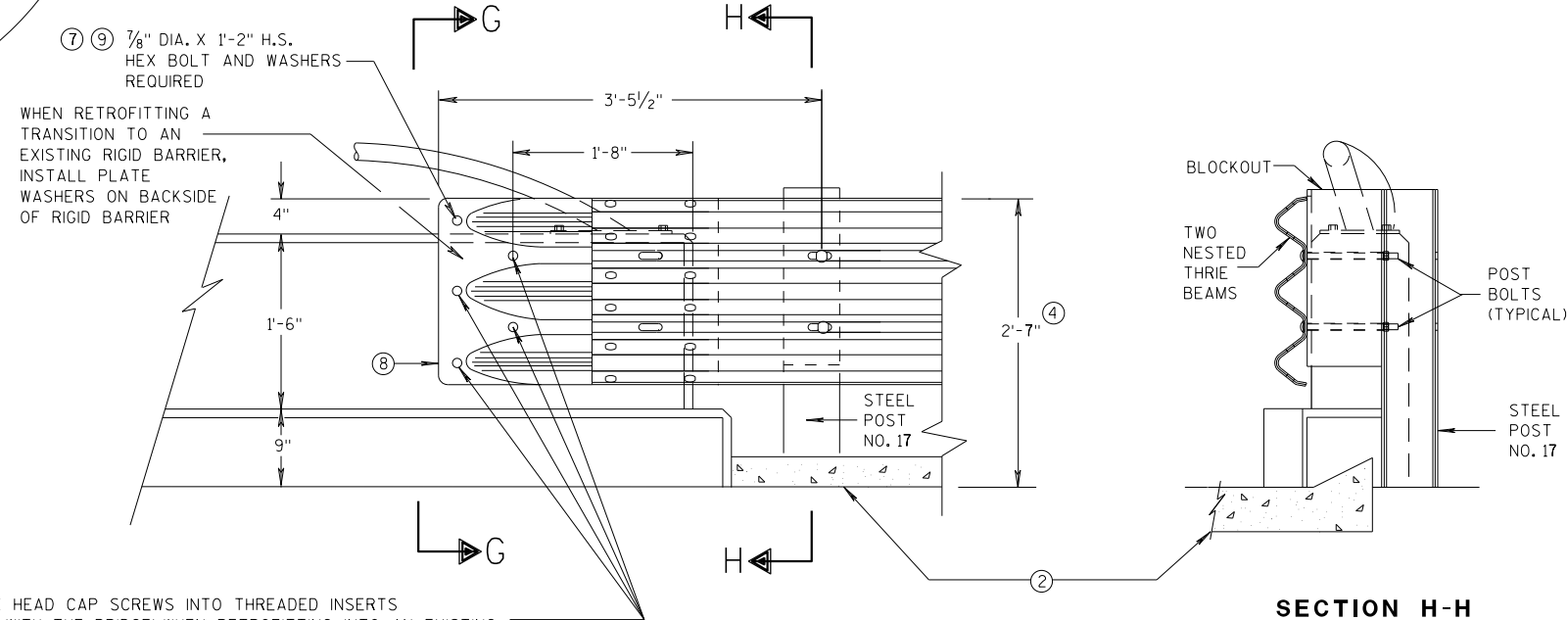


FRONT VIEW

W BEAM CONNECTION TO VERTICAL FACE PARAPET (USE ONLY ON THE TRAFFIC EXIT END OF ONE WAY BRIDGES)

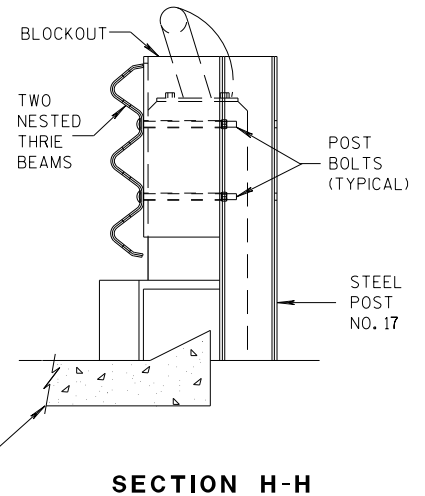


SECTION G-G



FRONT VIEW

THRIE BEAM CONNECTION TO VERTICAL FACED PARAPETS



SECTION H-H

6

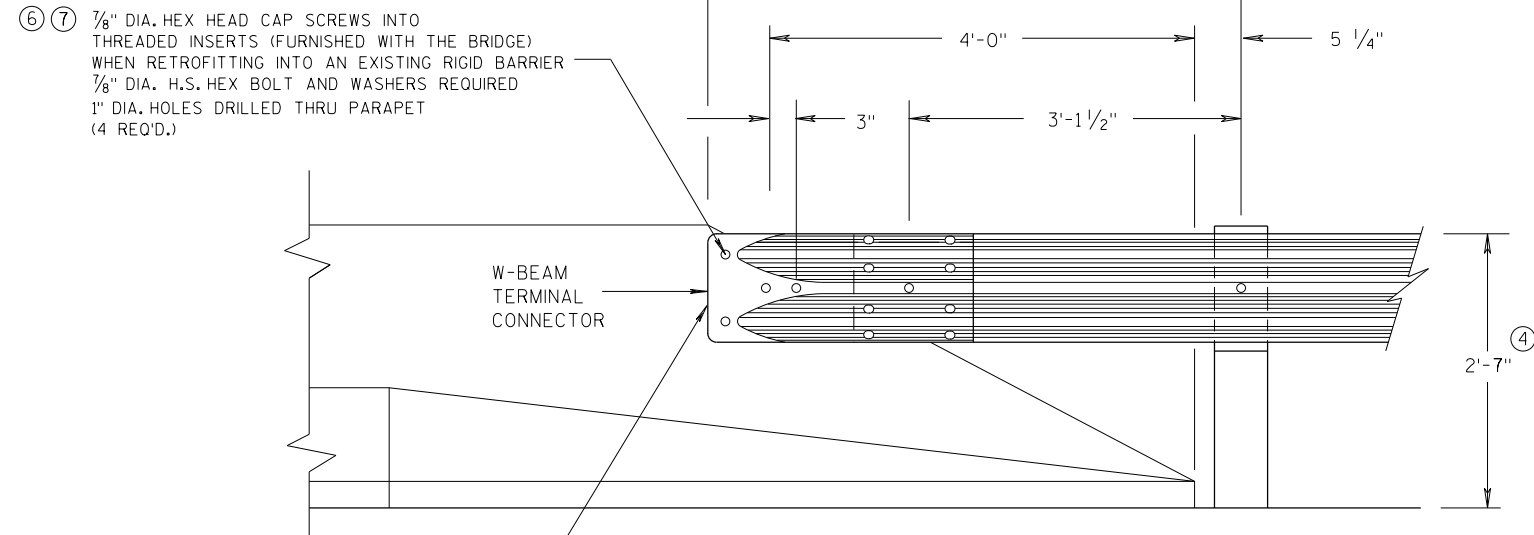
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S.D.D. 14 B 45-5e

S.D.D. 14 B 45-5e

MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 07/2018	/s/ Rodney Taylor
DATE	ROADWAY STANDARDS DEVELOPMENT UNIT SUPERVISOR
FHWA	

ONE WAY
TRAFFIC



W-BEAM
TERMINAL
CONNECTOR

FRONT VIEW

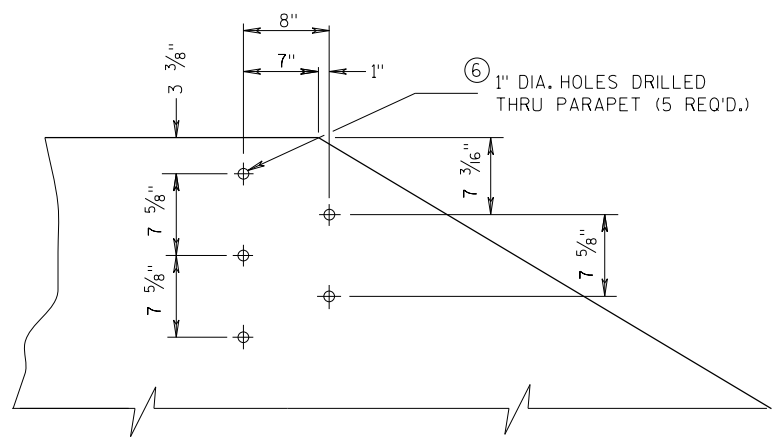
**W BEAM CONNECTION TO
PARAPETS WITH SLOPED ENDS**

(USE ONLY AT TRAFFIC EXIT END OF ONE WAY BRIDGE)

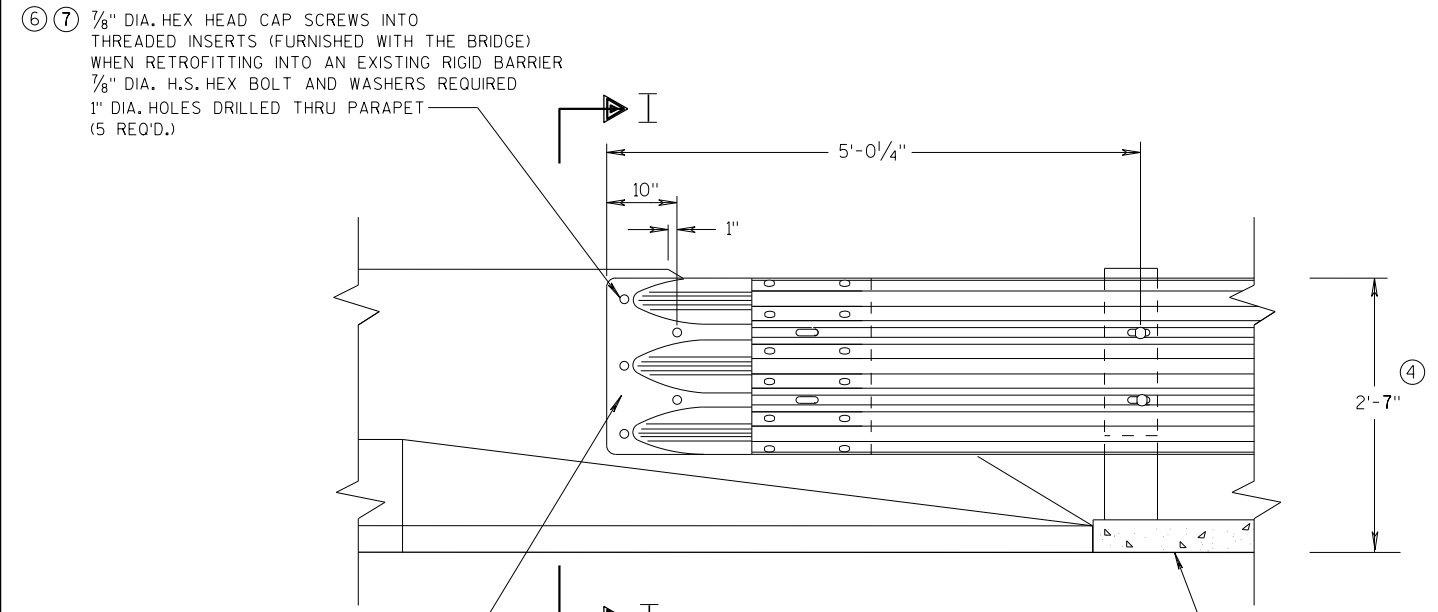
WHEN RETROFITTING A TRANSITION
TO AN EXISTING RIGID BARRIER,
INSTALL PLATE WASHERS ON
BACKSIDE OF RIGID BARRIER.

GENERAL NOTES

- ② OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.
- ④ TOLERANCE FOR TOP OF BEAM IS $\pm 1"$.
- ⑥ DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.
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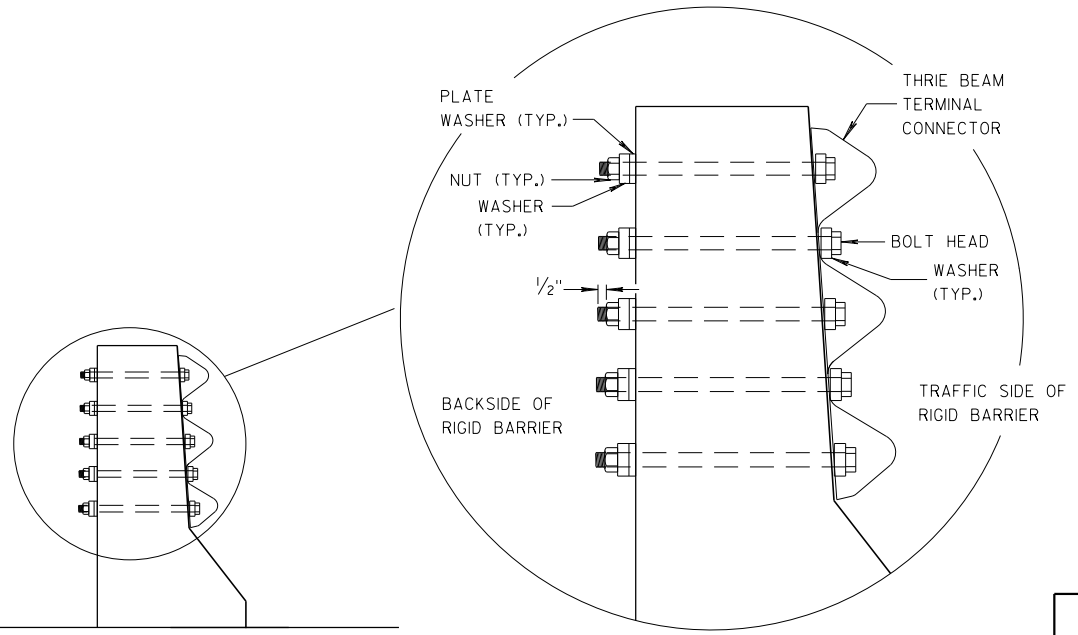
DRILL HOLE LOCATION AND PATTERN
FOR THRIE BEAM CONNECTION



FRONT VIEW

**THRIE BEAM CONNECTION TO BRIDGE
PARAPETS WITH SLOPED ENDS**

WHEN RETROFITTING A TRANSITION
TO AN EXISTING RIGID BARRIER,
INSTALL PLATE WASHERS ON
BACKSIDE OF RIGID BARRIER.



SECTION I-I

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

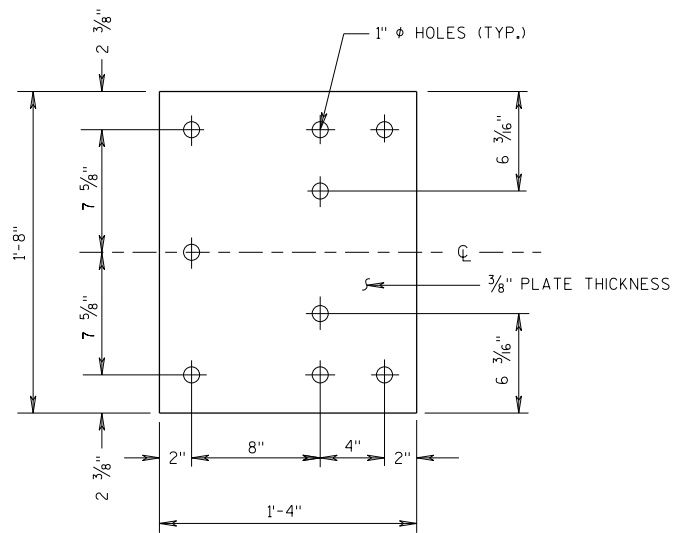
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DATE 07/2018 /S/ Rodney Taylor
ROADWAY STANDARDS DEVELOPMENT
UNIT SUPERVISOR
FHWA

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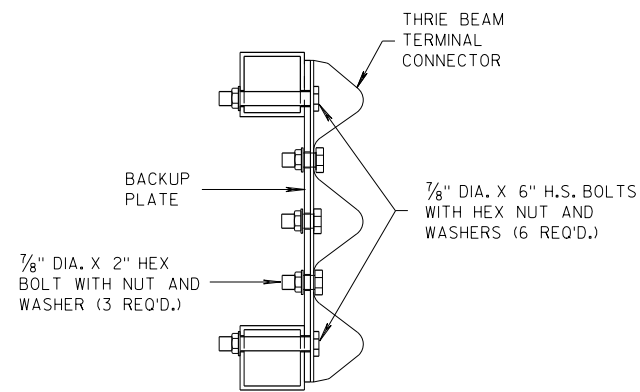
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S.D.D. 14 B 45-5f

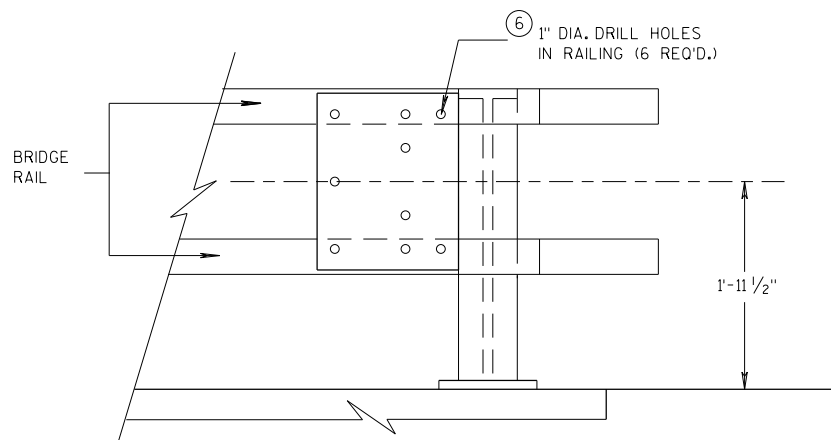
S.D.D. 14 B 45-5f



BACK-UP PLATE DETAIL



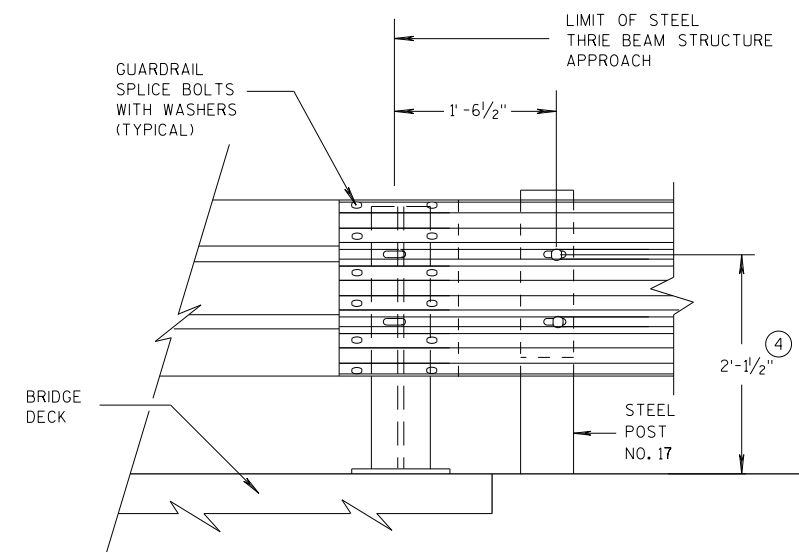
SECTION J-J



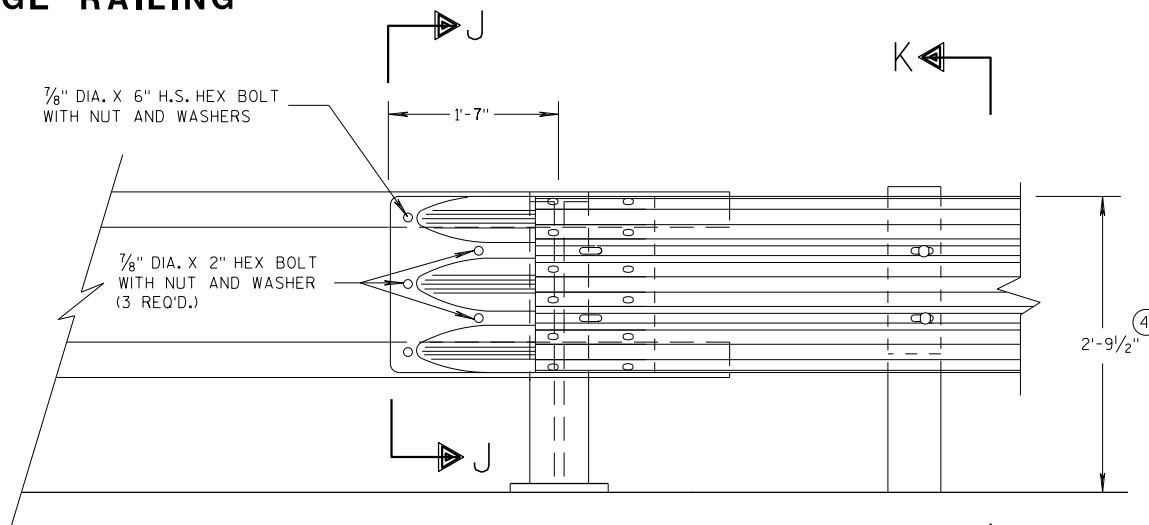
BACK-UP PLATE MOUNTING ONTO BRIDGE RAILING

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.

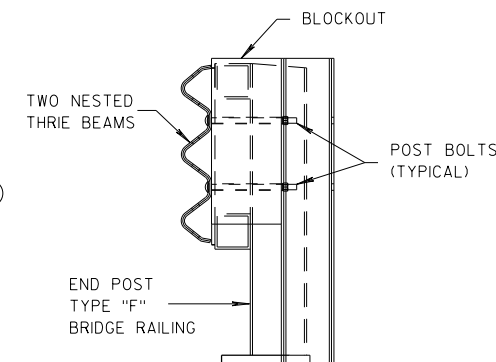


**FRONT VIEW
THRIE BEAM CONNECTION TO
STEEL RAILING TYPE "W"**



FRONT VIEW

**THRIE BEAM CONNECTION TO
TUBULAR RAILING TYPE "F"**



SECTION K-K

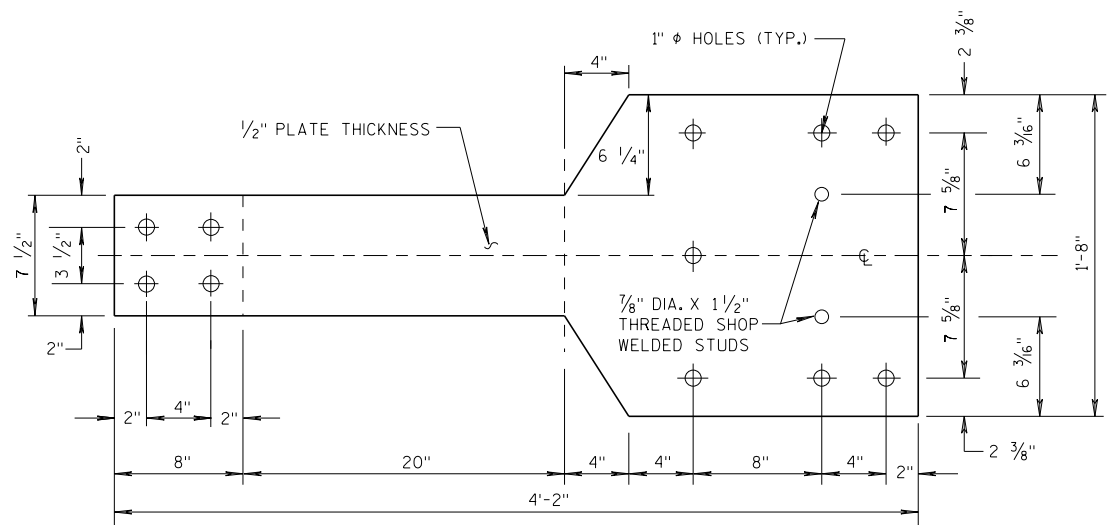
**MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

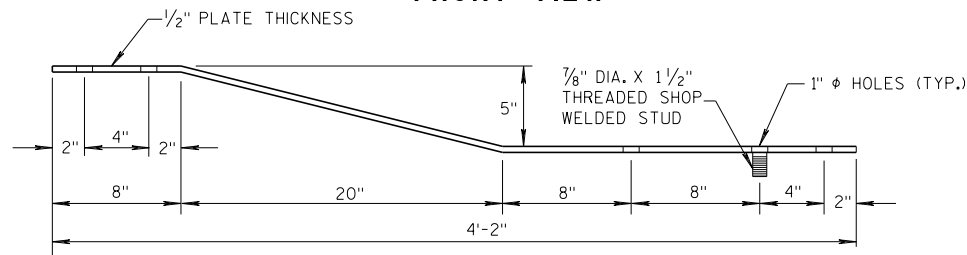
APPROVED
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DATE ROADWAY STANDARDS DEVELOPMENT
FHWA UNIT SUPERVISOR

GENERAL NOTES

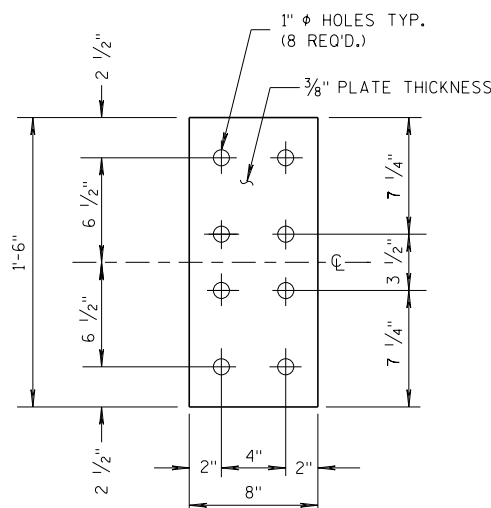
④ TOLERANCE FOR TOP OF W-BEAM RAIL IS ± 1".



FRONT VIEW

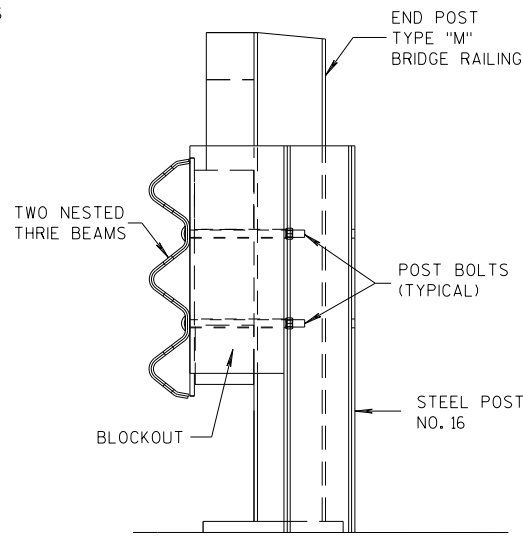


**PLAN VIEW
BACK-UP PLATE DETAIL, TYPE "M"**

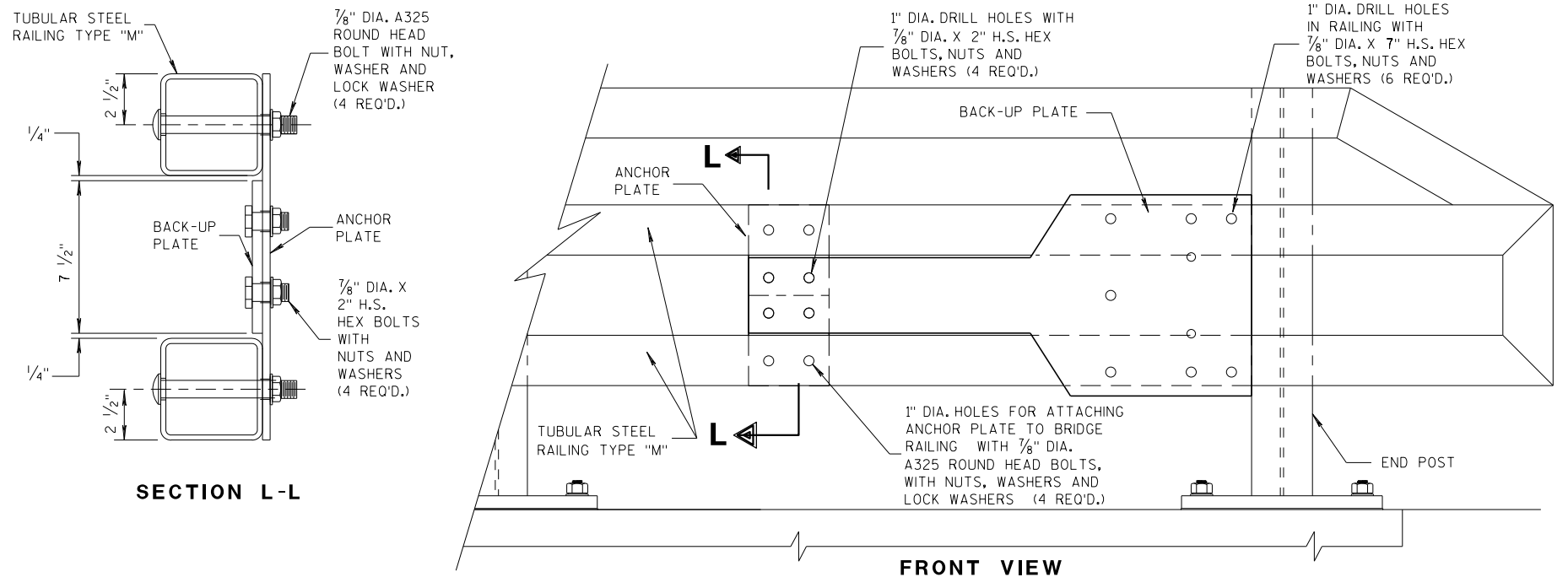


FRONT VIEW

**ANCHOR
PLATE DETAIL,
TYPE "M"**



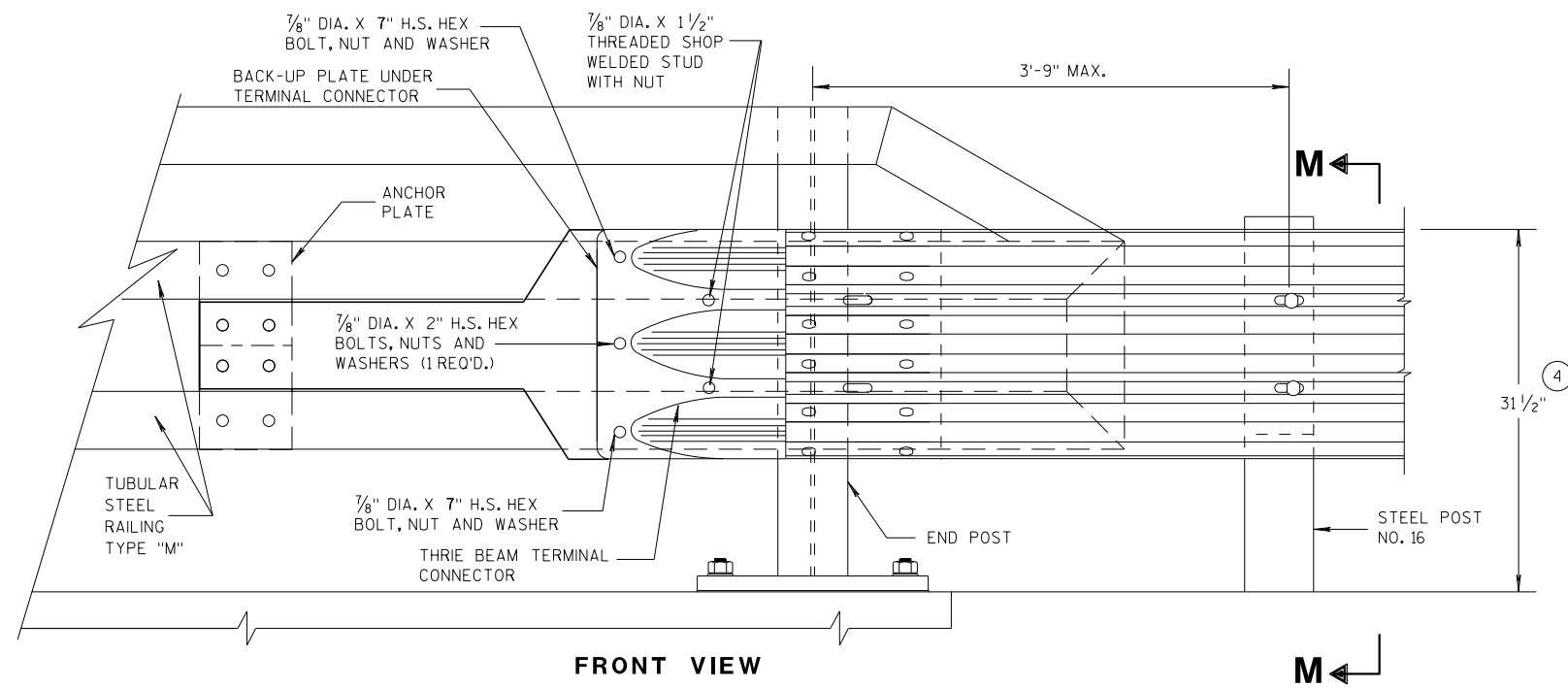
SECTION M-M



SECTION L-L

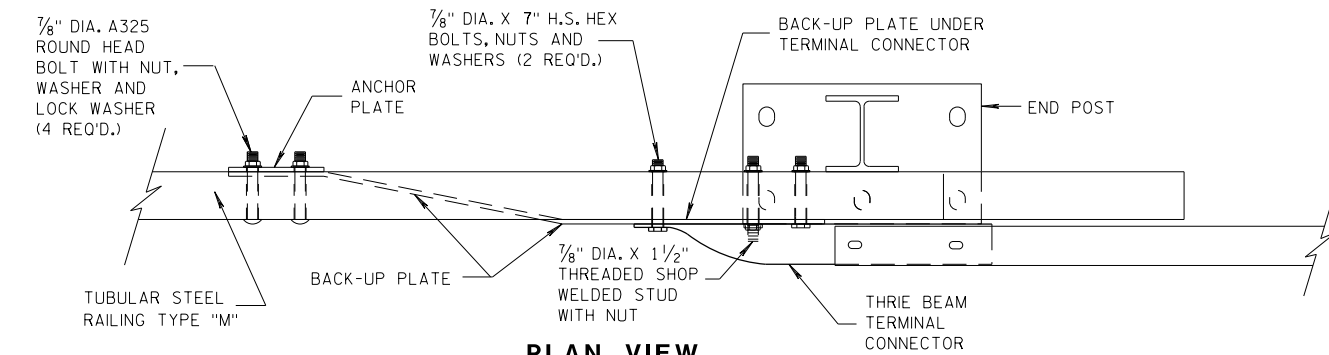
FRONT VIEW

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



FRONT VIEW

M



PLAN VIEW

THRIE BEAM CONNECTION TO TUBULAR RAILING, TYPE "M"

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

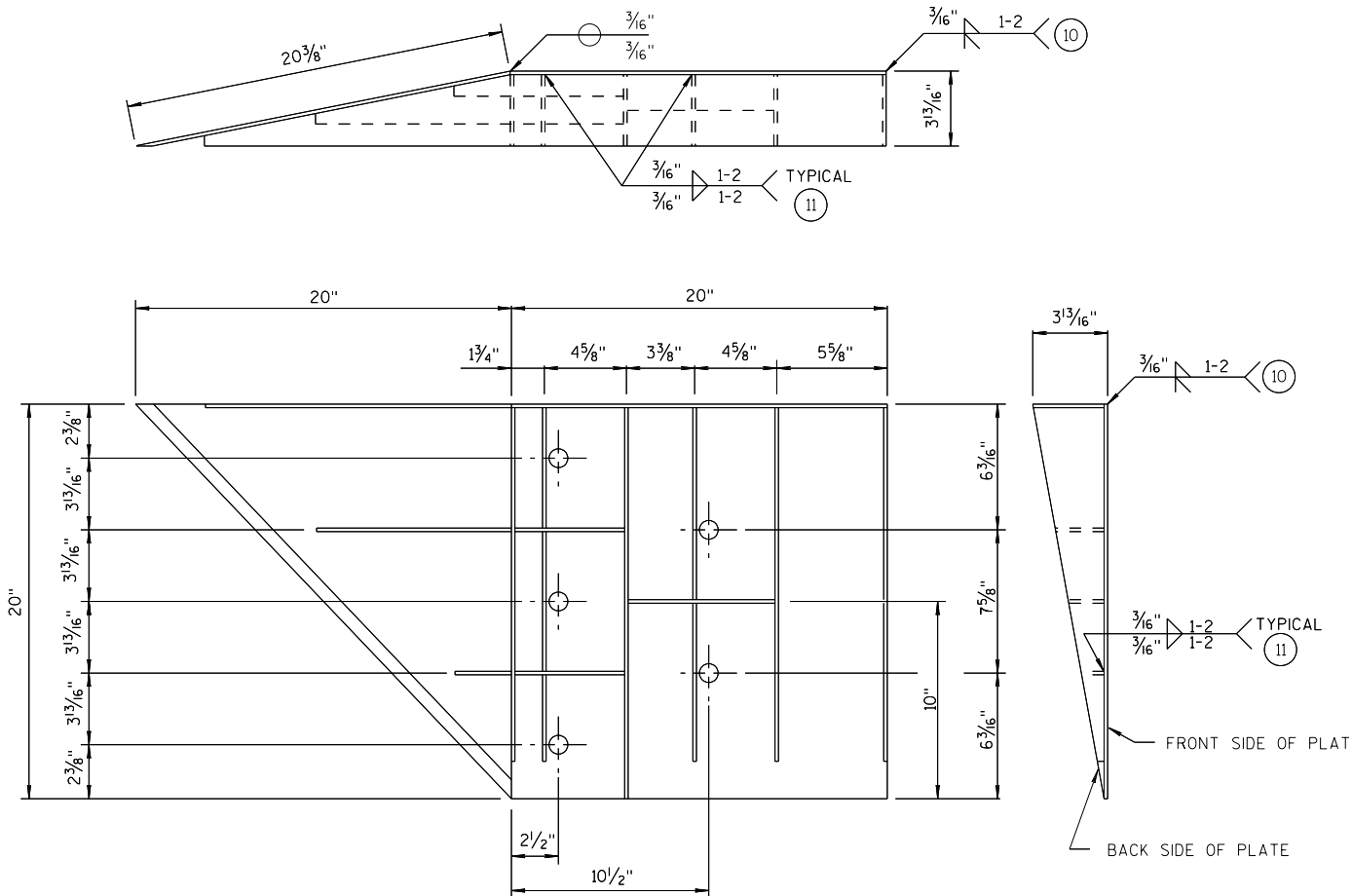
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
DATE 07/2018 /S/ Rodney Taylor
ROADWAY STANDARDS DEVELOPMENT
UNIT SUPERVISOR
FHWA

GENERAL NOTES

- COVER PLATE PANELS ARE 3/16" THICK.
- ALL STIFFENERS ARE 1/4" THICK.
- CONNECTOR PLATE SHALL BE FABRICATED FROM ASTM GRADE A36 STEEL AND GALVANIZED.
- FOR GALVANIZED REQUIREMENTS, SEE SECTION 614 OF THE STANDARD SPECIFICATIONS.
- ALL HOLE DIAMETERS SHALL BE 1".
- FOR OPPOSITE SIDE INSTALLATION MIRROR DRAWINGS.

- (10) STIFFENERS LOCATED AT THE OUTSIDE EDGES OF THE COVER PLATES SHALL BE WELDED AS FOLLOWS:
SINGLE BEVEL GROOVE WELD ON EXTERNAL SIDES AND 3/16" FILLET WELD BY 1" LONG SPACED AT 2" ON INTERNAL SIDES.
- (11) STIFFENERS LOCATED ON THE INSIDE OF THE COVER PLATE SHALL BE WELDED AS FOLLOWS:
3/16" FILLET WELD BY 1" LONG SPACED AT 2".



WELDING INSTRUCTION
(VIEWED FROM BACK SIDE OF PLATE)

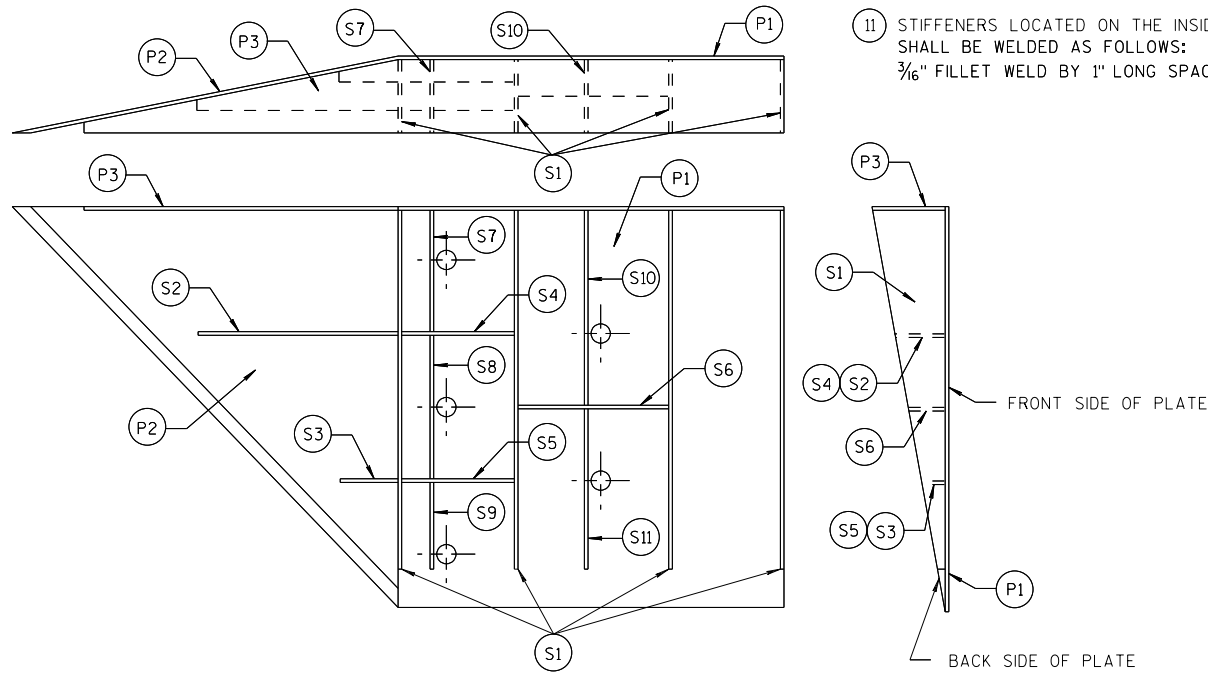


PLATE AND STIFFENER IDENTIFICATION
(VIEWED FROM BACK SIDE OF PLATE)

CONNECTOR PLATE DIMENSION (PER ASSEMBLY)				
PLATE	QUANTITY	SHAPE	SIZE (A x B x C x D)	THICKNESS
P1	1		20" x 20"	3/16"
P2	1		20" x 20" x 28 3/16"	3/16"
P3	1		39" x 3 5/8" x 20" x 19 5/16"	3/16"
S1	4		18 7/16" x 3 5/8" x 18 3/4"	1/4"
S2	1		10 1/4" x 2 1/16" x 10 3/8" x 1/2"	1/4"
S3	1		3" x 1 1/16" x 3 3/8" x 1/2"	1/4"
S4	1		6 1/8" x 2 1/16"	1/4"
S5	1		6 1/8" x 1 1/16"	1/4"
S6	1		7 3/4" x 1 3/4"	1/4"
S7	1		2 3/16" x 6" x 3 5/8" x 5 1/8"	1/4"
S8	1		1 5/32" x 7 1/2" x 2 1/2" x 7 3/8"	1/4"
S9	1		6 1/16" x 6 3/16" x 1 3/32"	1/4"
S10	1		1 7/8" x 9 7/8" x 3 5/8" x 9 11/16"	1/4"
S11	1		8 1/2" x 8 3/4" x 1 3/16"	1/4"

SINGLE SLOPE CONNECTION PLATE

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

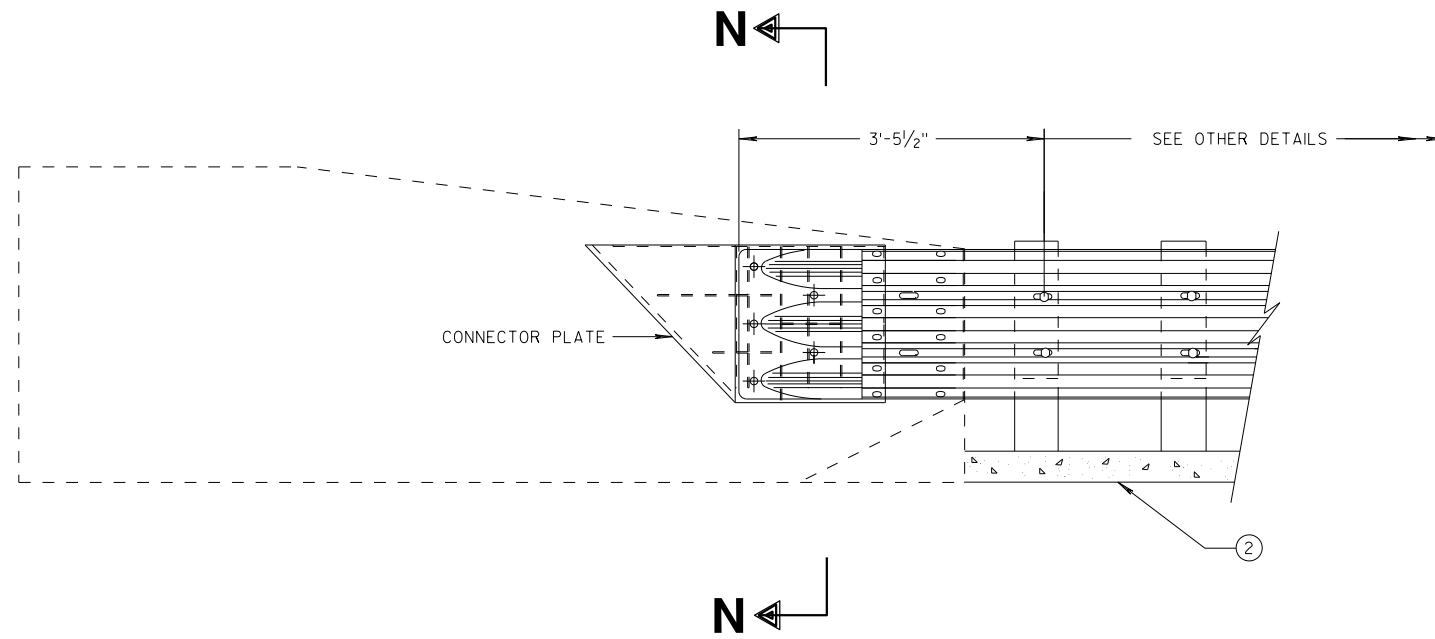
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7/2018 /S/ Rodney Taylor
DATE ROADWAY STANDARDS DEVELOPMENT
FHWA UNIT SUPERVISOR

GENERAL NOTES

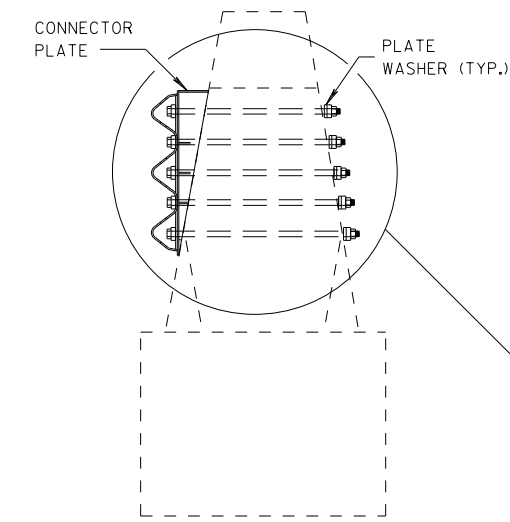
CONNECTOR PLATE, DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.

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

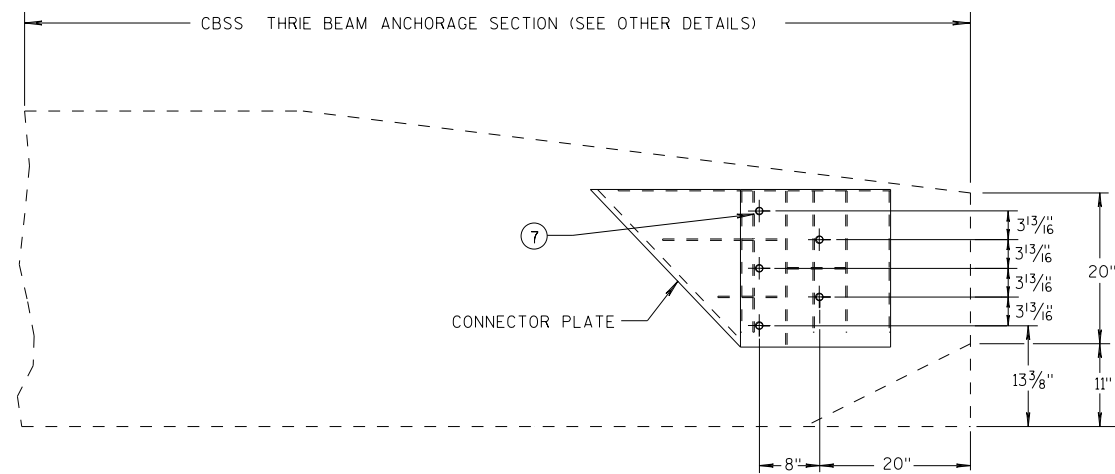
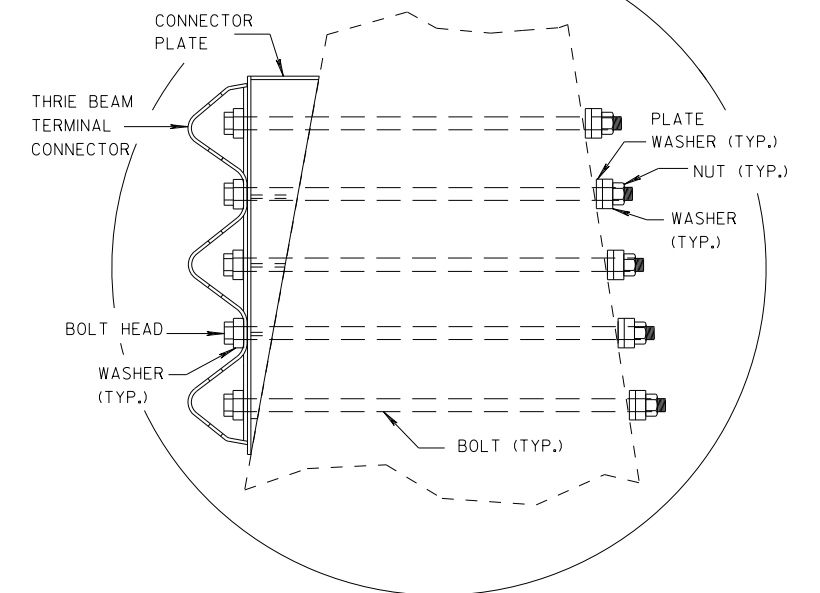
⑦ BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM CONNECTION PLATE. BOLTS THAT EXTEND THROUGH THE PARAPET AND OUT THE BACK FACE REQUIRE A HARDENED ROUND STEEL WASHER THAT IS 2" O.D. X 5/32" THICK AND ONE PLATE WASHER. REPAIR ANY DAMAGED CONCRETE FROM BOLT INSTALLATION.



THRIE BEAM CONNECTION TO SINGLE SLOPE BARRIER



SECTION N-N

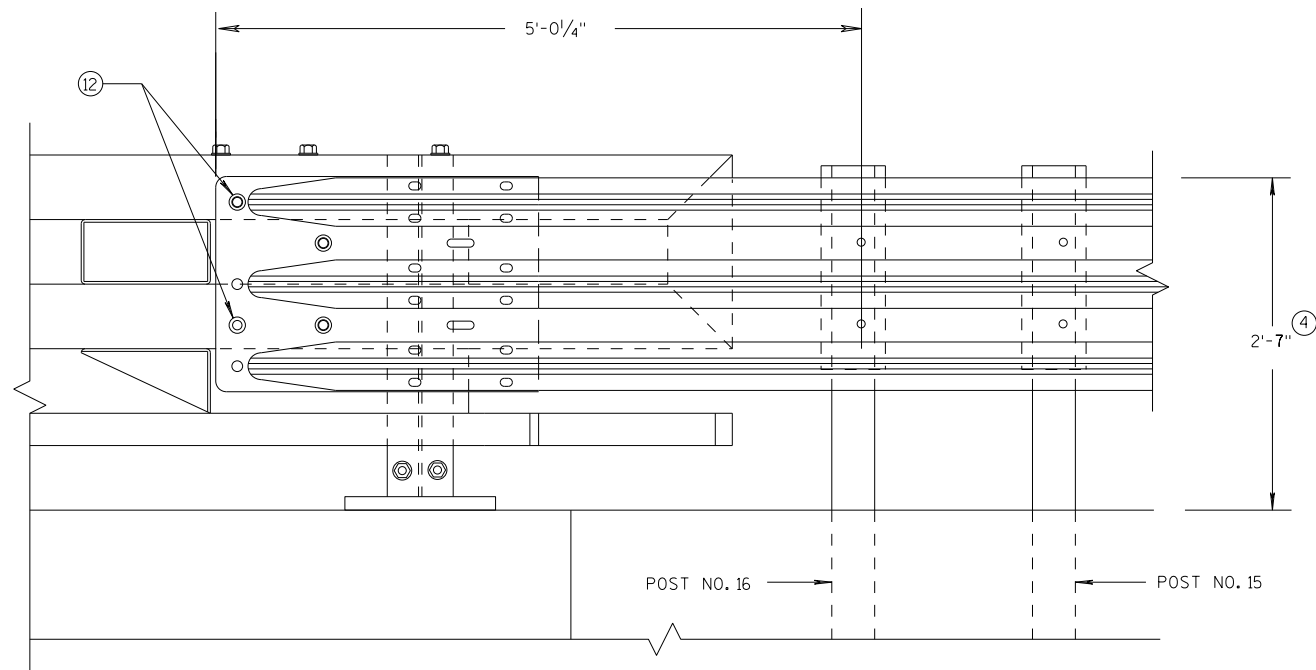


SINGLE SLOPE CONNECTION PLATE PLACEMENT

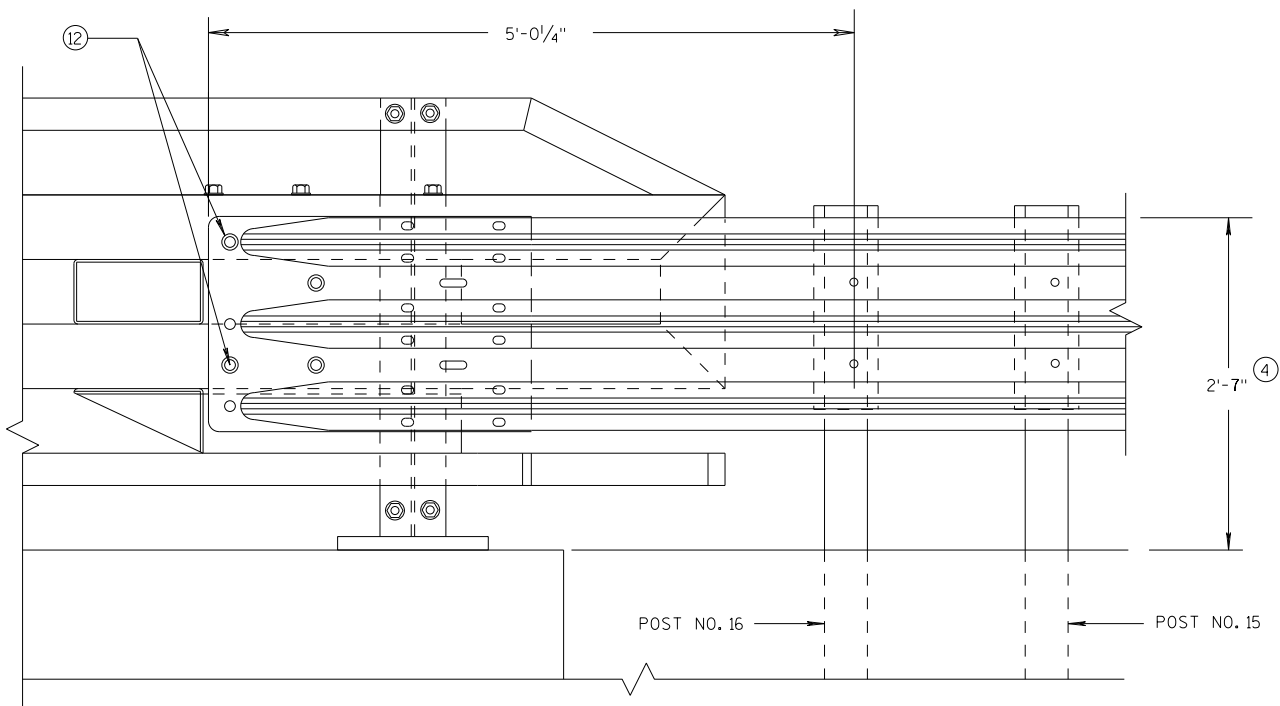
**MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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DATE 7/2018 /S/ Rodney Taylor
ROADWAY STANDARDS DEVELOPMENT
UNIT SUPERVISOR
FHWA



**ELEVATION OF DETAIL AT NY3 END POST
THRIE BEAM RAIL ATTACHMENT**



**ELEVATION OF DETAIL AT NY4 END POST
THRIE BEAM RAIL ATTACHMENT**

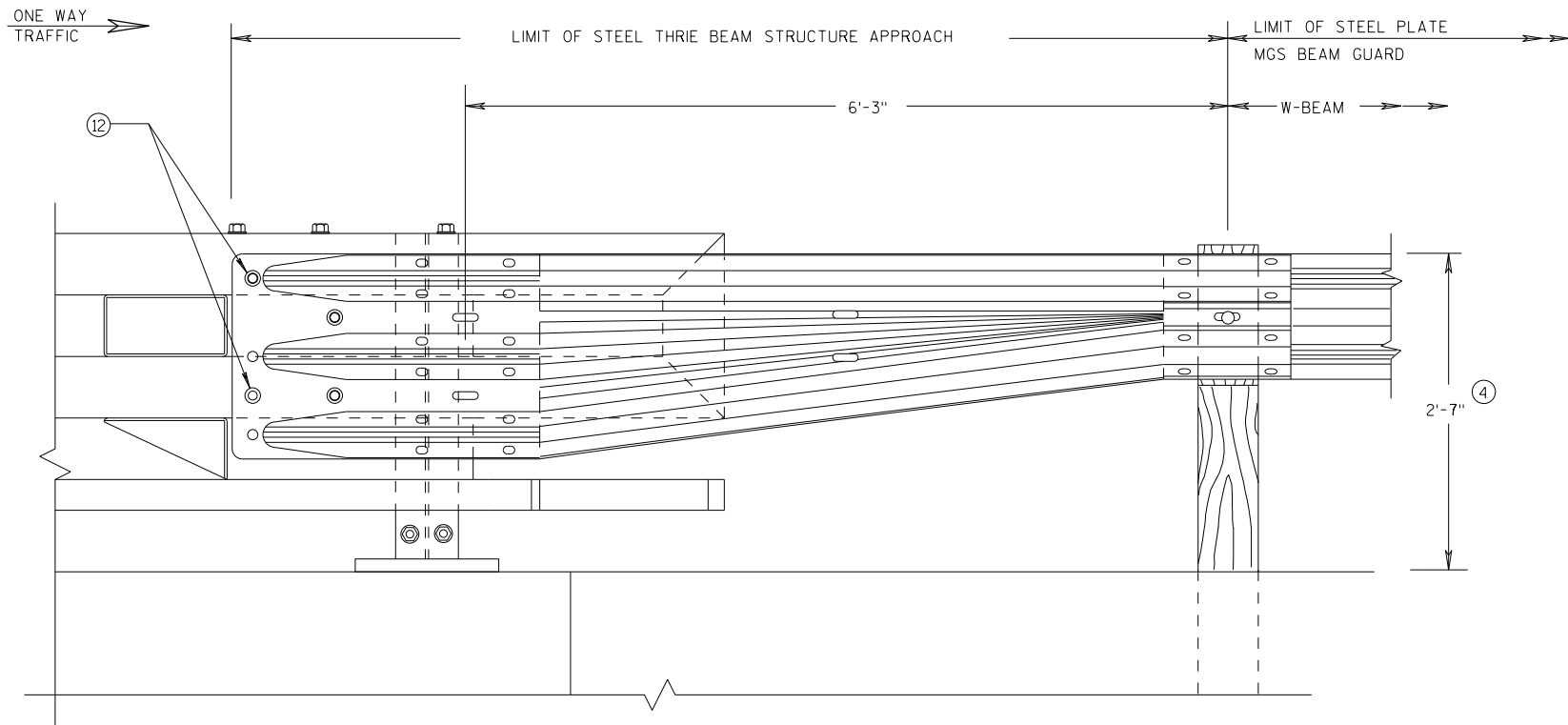
GENERAL NOTES

- ④ TOLERANCE FOR TOP OF BEAM IS ± 1".
- ⑫ BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM CONNECTOR PLATE. ON BACKSIDE OF PARAPET ONE ROUND WASHER, AND NUT REQUIRED. BOLT THREAD IS TO EXTEND 1/2-INCH BEYOND NUT.

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

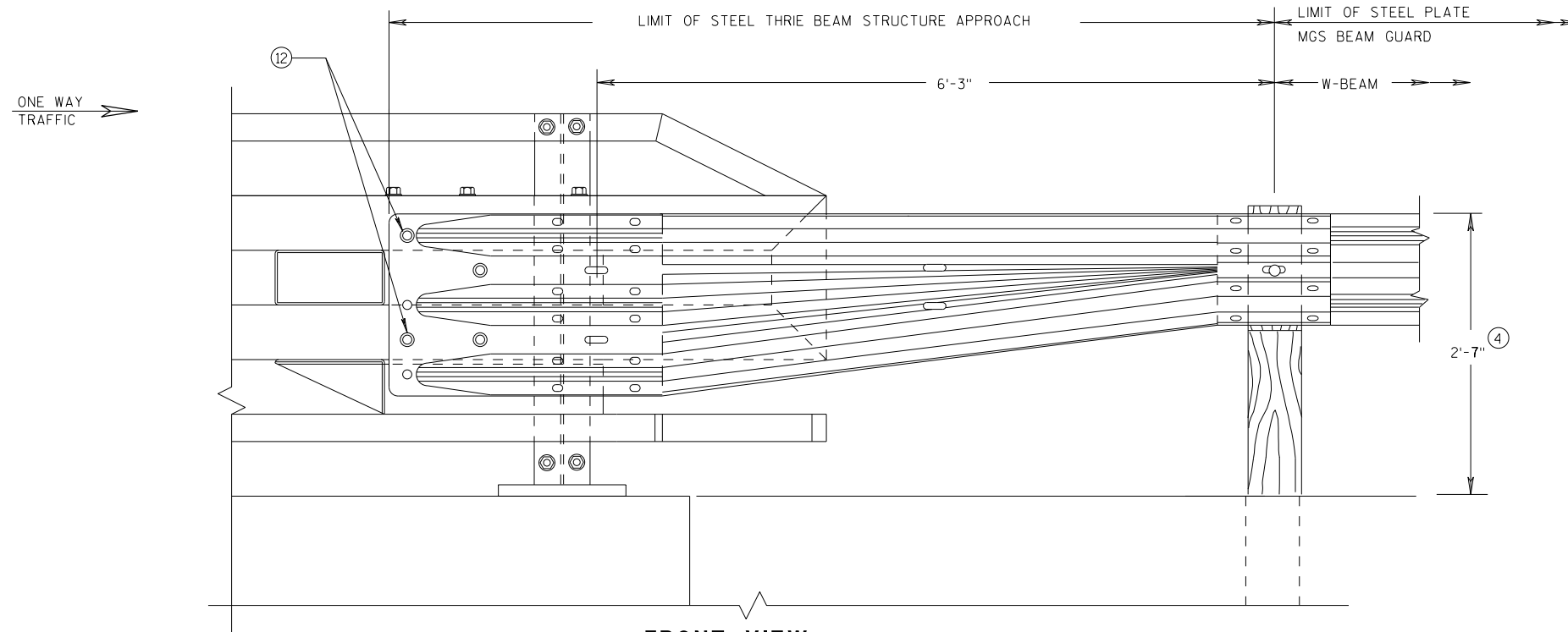
APPROVED
7/2018 /S/ Rodney Taylor
DATE ROADWAY STANDARDS DEVELOPMENT
FHWA UNIT SUPERVISOR



FRONT VIEW
W BEAM TRANSITION AND
CONNECTION TO BRIDGE RAILING TYPE "NY3"
 (USE ONLY ON THE TRAFFIC EXIT END OF ONE WAY BRIDGES)

GENERAL NOTES

- ④ TOLERANCE FOR TOP OF BEAM IS $\pm 1"$.
- ⑫ BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM CONNECTOR PLATE. ON BACKSIDE OF PARAPET ONE ROUND WASHER, AND NUT REQUIRED. BOLT THREAD IS TO EXTEND $\frac{1}{2}$ -INCH BEYOND NUT.

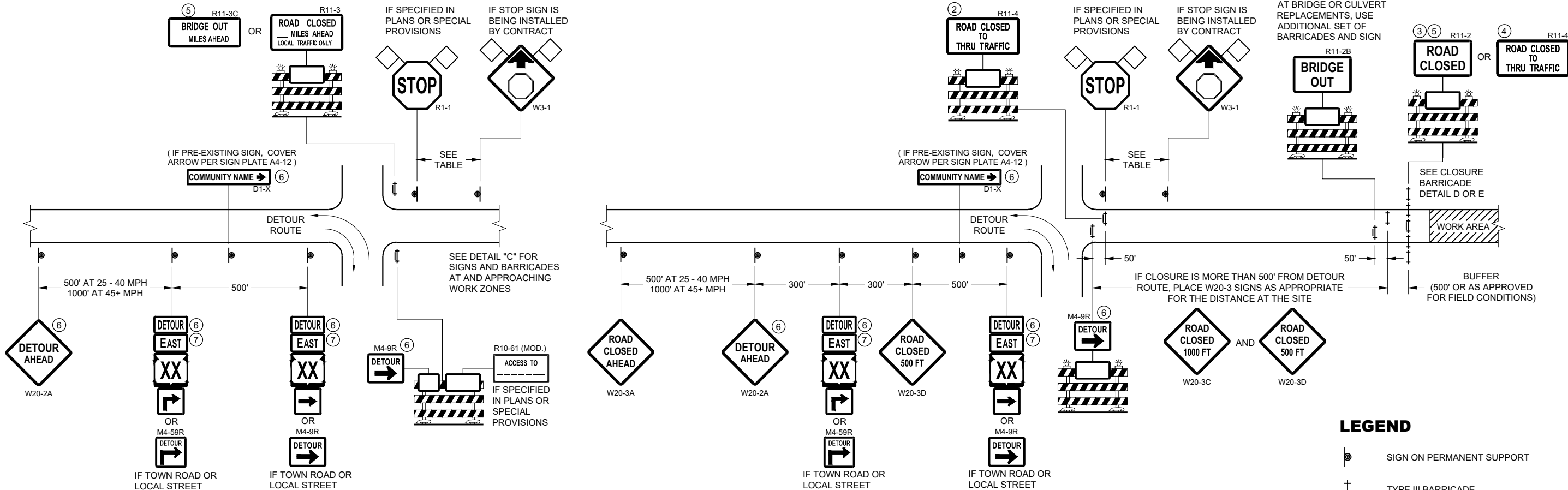


FRONT VIEW
W BEAM TRANSITION AND
CONNECTION TO BRIDGE RAILING TYPE "NY4"
 (USE ONLY ON THE TRAFFIC EXIT END OF ONE WAY BRIDGES)

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
 DEPARTMENT OF TRANSPORTATION

APPROVED
 DATE 7/2018 /S/ Rodney Taylor
 ROADWAY STANDARDS DEVELOPMENT
 UNIT SUPERVISOR
 FHWA



**DETAIL A
MAINLINE CLOSURE WITH POSTED DETOUR**

WORK ZONE GREATER THAN OR EQUAL TO 1/2 MILE FROM
DETOUR ROUTE (1000 FEET IF URBAN)

**DETAIL B
MAINLINE CLOSURE WITH POSTED DETOUR**

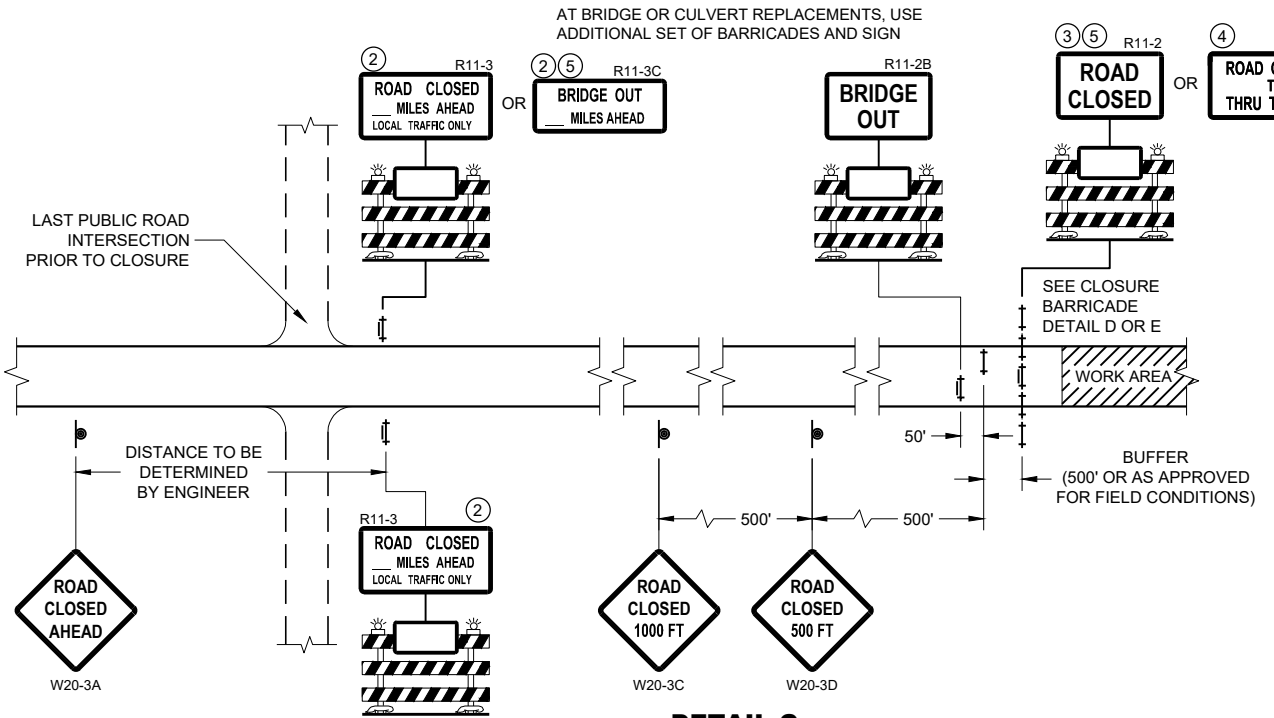
WORK ZONE LESS THAN 1/2 MILE FROM
DETOUR ROUTE (1000 FEET IF URBAN)

LEGEND

- SIGN ON PERMANENT SUPPORT
- TYPE III BARRICADE
- TYPE III BARRICADE WITH ATTACHED SIGN
- TYPE "A" WARNING LIGHT (FLASHING)
- WORK AREA
- FLAGS, 16" X 16" MIN. (ORANGE)

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

- M4 - 8
- M3 - X
- M1 - 4 OR M1 - 6 OR M1 - 5A
- M05 - 1 OR M06 - 1



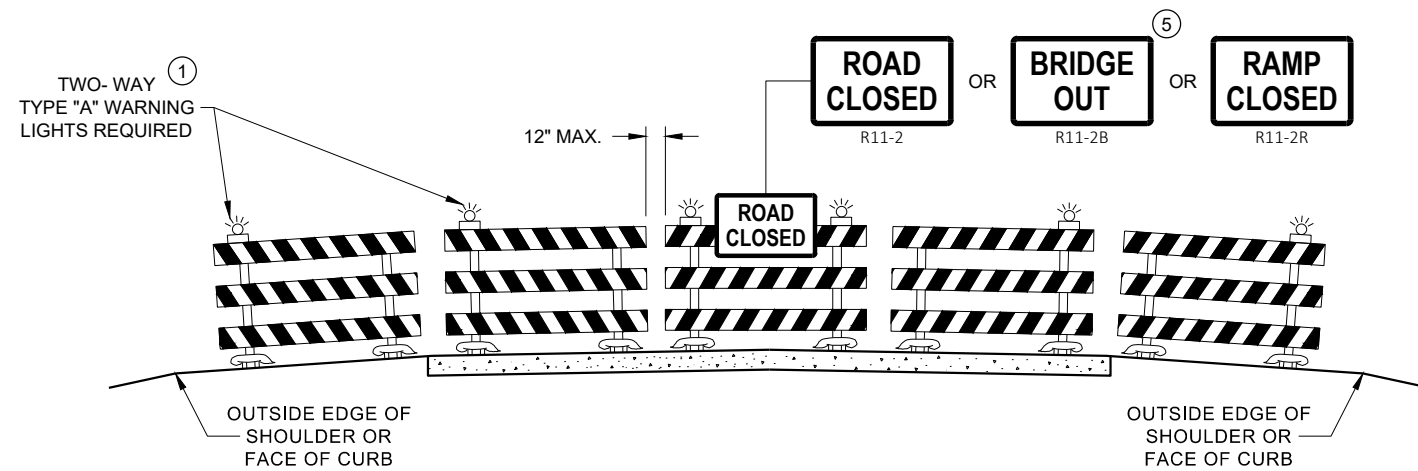
**DETAIL C
MAINLINE CLOSURE, NO POSTED DETOUR**

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

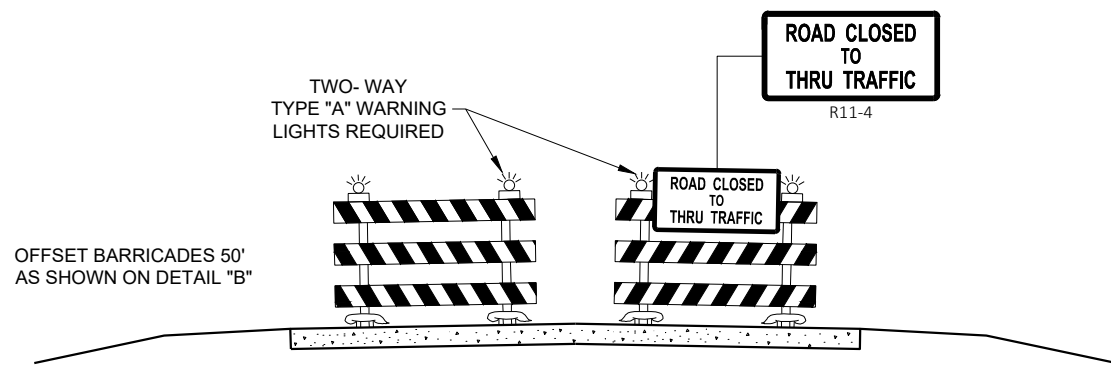
**BARRICADES AND SIGNS
FOR MAINLINE CLOSURES**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
February 2020 /S/ Andrew Heidtke
DATE DATE WORK ZONE ENGINEER
FHWA



**DETAIL D
ROAD CLOSURE BARRICADE DETAIL
APPROACH VIEW**



**DETAIL E
LANE CLOSURE BARRICADE DETAIL
APPROACH VIEW**

SEE SDD 15C2 - SHEET "a" FOR LEGEND

GENERAL NOTES

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

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

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

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

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

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

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

THE R11 - 2, R11 - 3, M4 - 9, R11 - 4, AND R10 - 61 SIGNS PLACED ON THE BARRICADES SHALL COVER NO MORE THAN THE TOP RAIL. THE SIGNS SHALL NOT COVER ANY PORTION OF THE MIDDLE RAIL 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 SHALL, 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" (36" X 18" 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)
- MO5 - 1 AND MO6 - 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 AN 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 ROAD 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
VARIOUS CLOSURES**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
February 2020 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER
FHWA

GENERAL NOTES

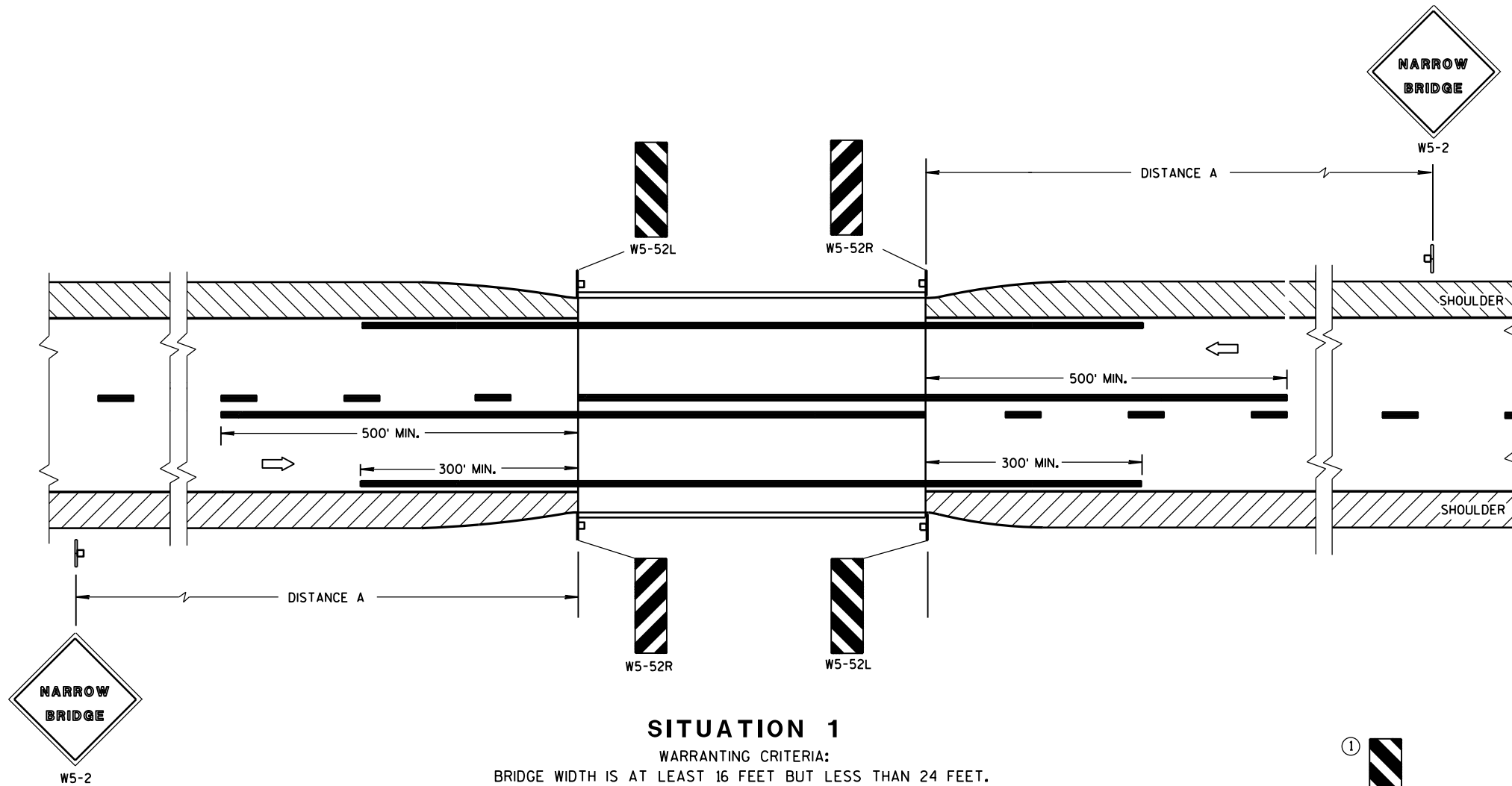
DETAILS OF TRAFFIC CONTROL DEVICES AND INSTALLATION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS, THE SPECIAL PROVISIONS, AND THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

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

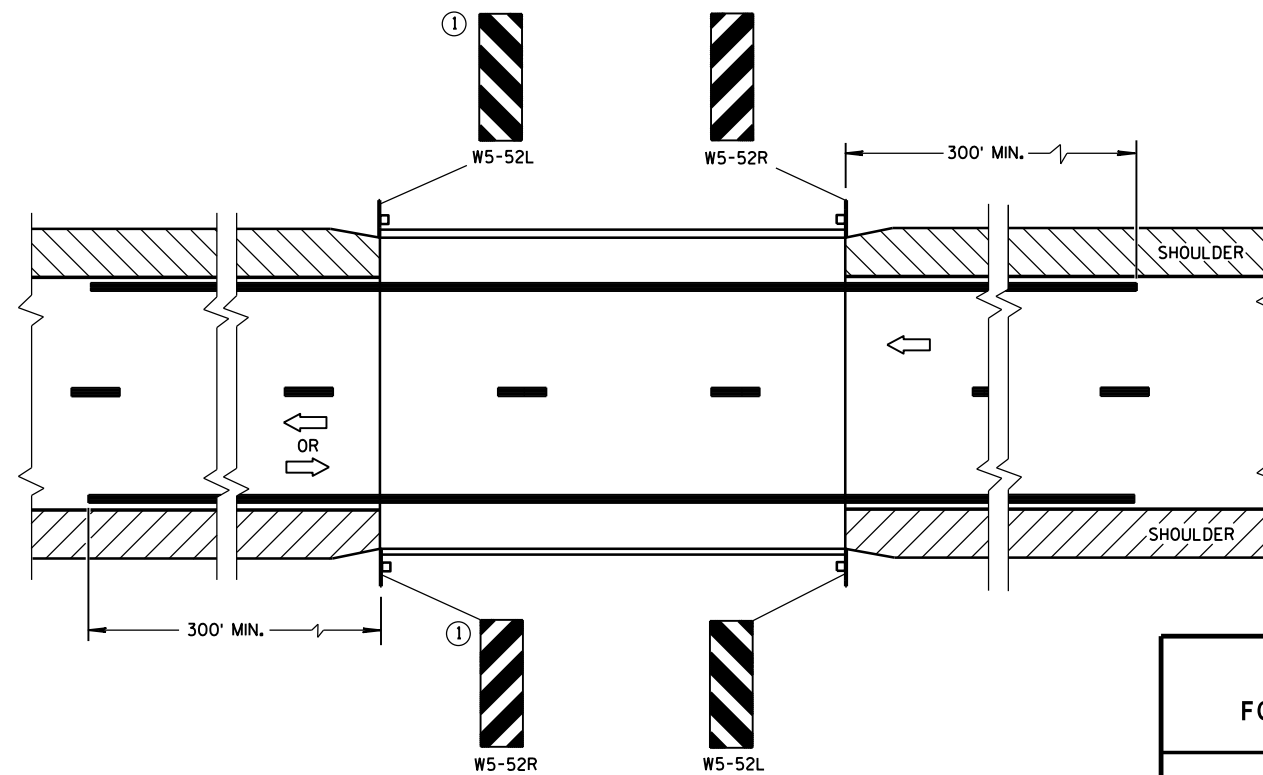
PLACE THE EDGE OF THE W5-52 SIGN IN LINE WITH FACE OF CURB OR PARAPET.

① OMIT ON ONE-WAY TRAVELLED WAYS.

➡ DIRECTION OF TRAFFIC



SITUATION 1
WARRANTING CRITERIA:
BRIDGE WIDTH IS AT LEAST 16 FEET BUT LESS THAN 24 FEET.



SITUATION 2
WARRANTING CRITERIA:
1. BRIDGE WIDTH IS AT LEAST 24 FEET AND
2. BRIDGE SHOULDER WIDTH IS LESS THAN 6 FEET.

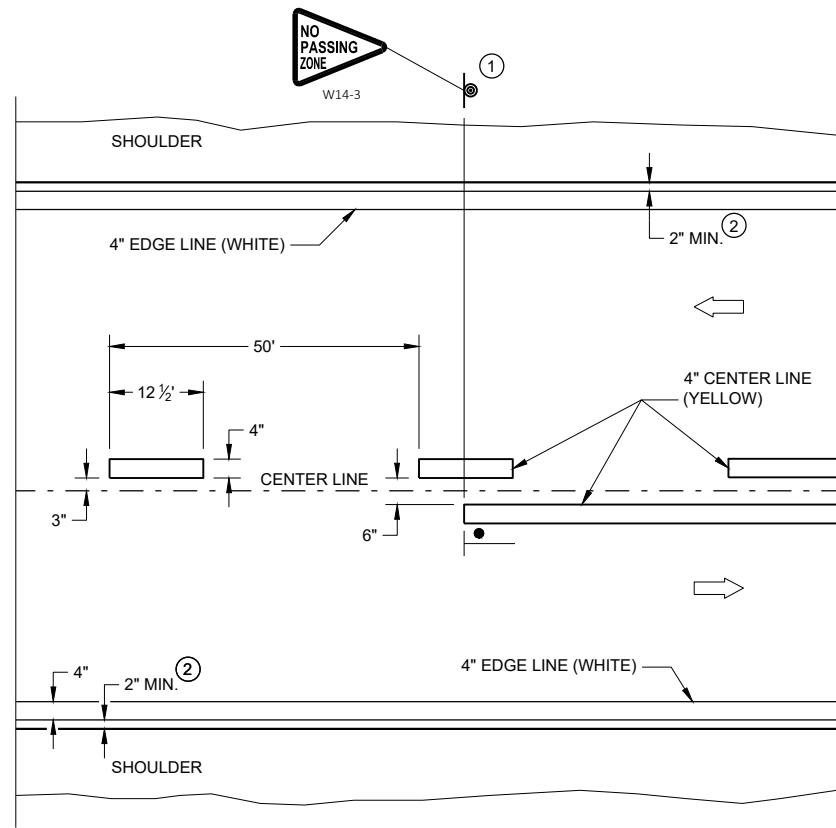
DISTANCE TABLE

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

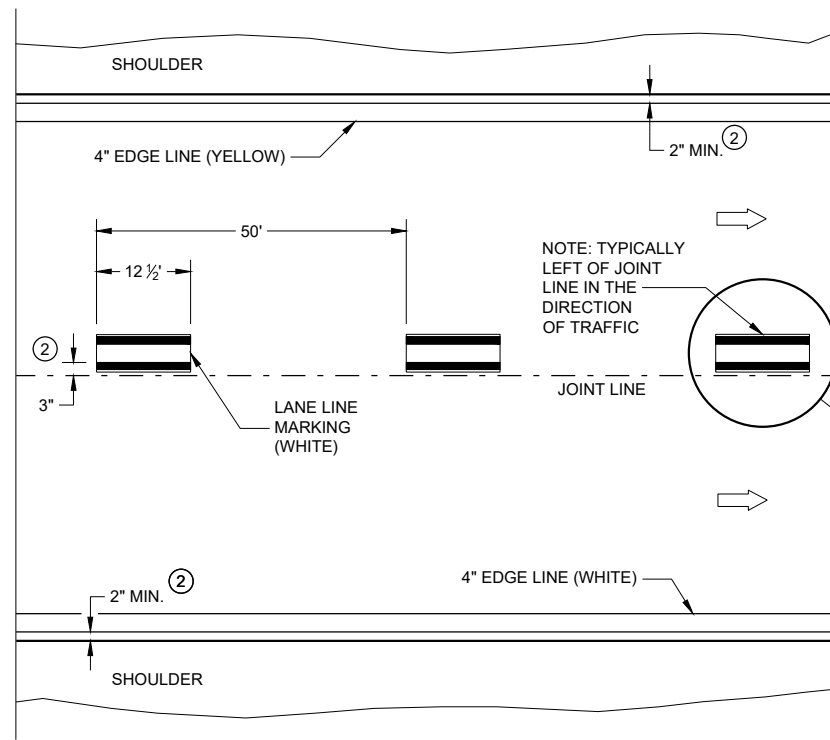
SIGNING & MARKING FOR TWO LANE BRIDGES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June 2017 /S/ Matthew R. Rauch
DATE STATE SIGNING AND MARKING ENGINEER
FHWA

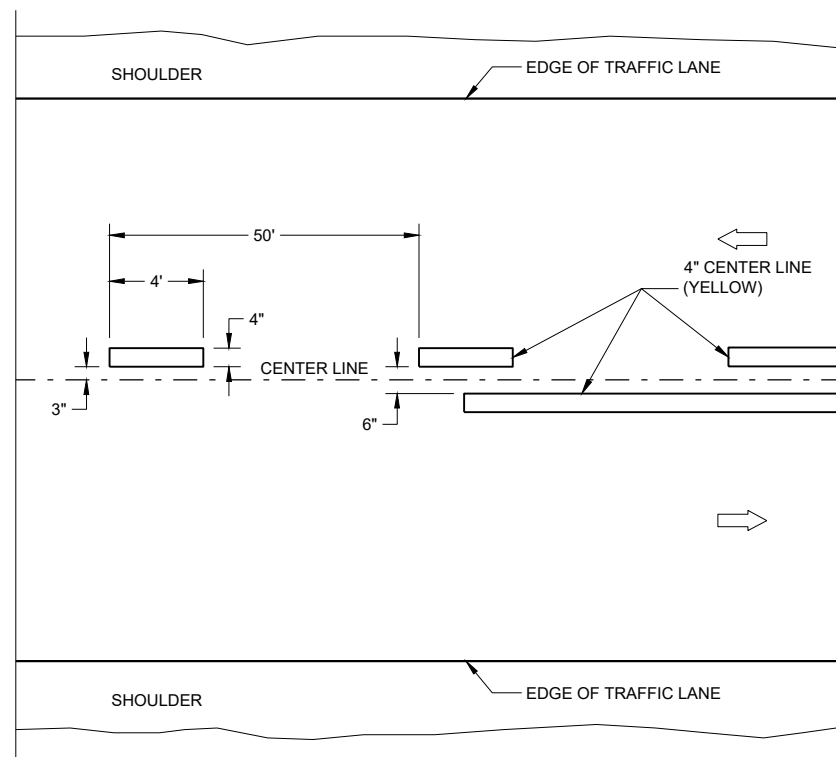


TWO WAY TRAFFIC

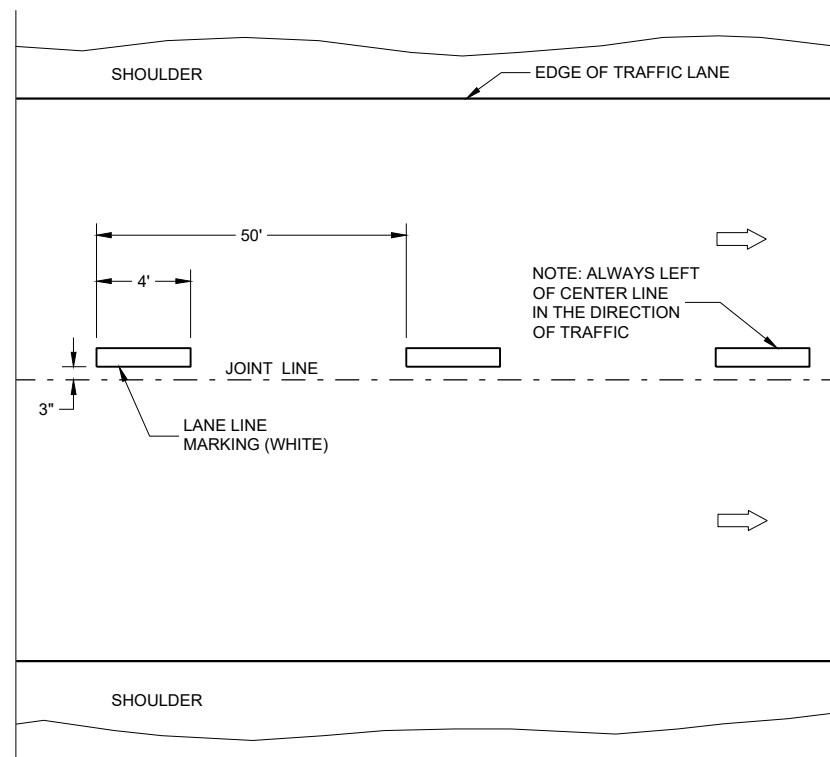


ONE WAY TRAFFIC

PERMANENT PAVEMENT MARKING



TWO WAY TRAFFIC



ONE WAY TRAFFIC

TEMPORARY PAVEMENT MARKING

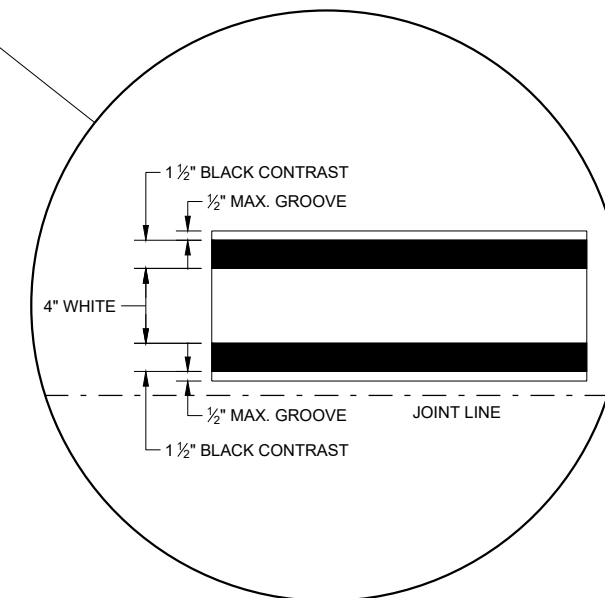
GENERAL NOTES

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 WITH 50 FEET OF THE "T" MARKING
- ② MEASURE FROM EDGE OF MARKING TO JOINT LINE. THIS DOES NOT INCLUDE SPACE NEEDED FOR GROOVING OPERATIONS.

LEGEND

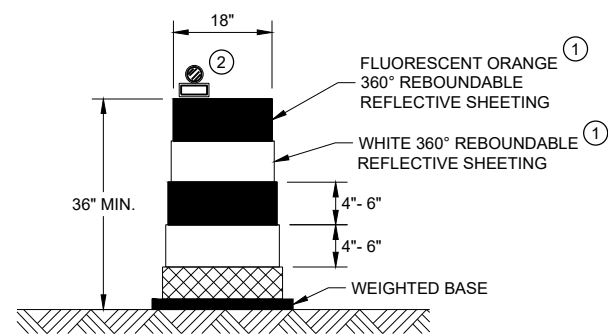
- "T" MARKING
- SIGN ON PERMANENT SUPPORT
- DIRECTION OF TRAFFIC



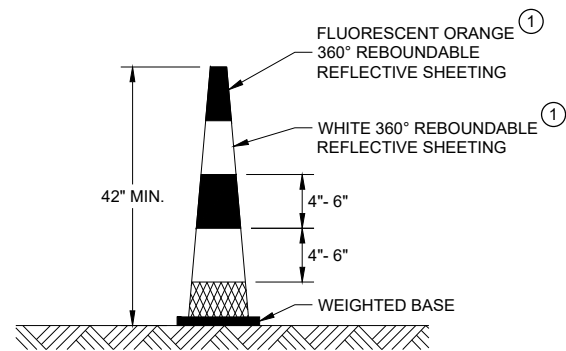
LONGITUDINAL MARKING (MAINLINE)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
February 2020 /S/ Matthew Rauch
DATE STATEWIDE SIGNING AND MARKING
ENGINEER

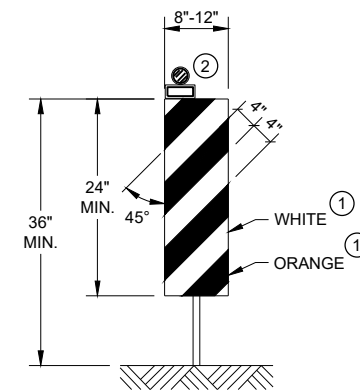


DRUM



42" CONE

DO NOT USE IN TAPERS
 1/2 SPACING OF DRUMS

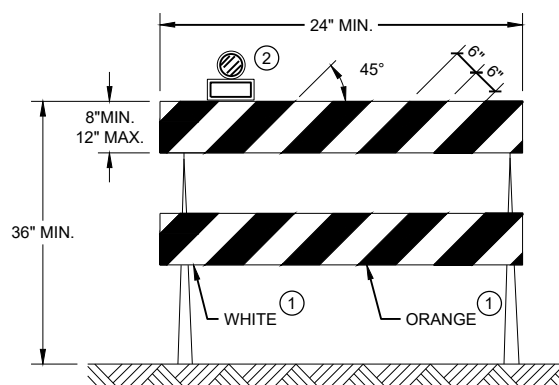


VERTICAL PANEL

THE STRIPES SHALL SLOPE DOWNWARD TO THE TRAFFIC SIDE FOR CHANNELIZATION.

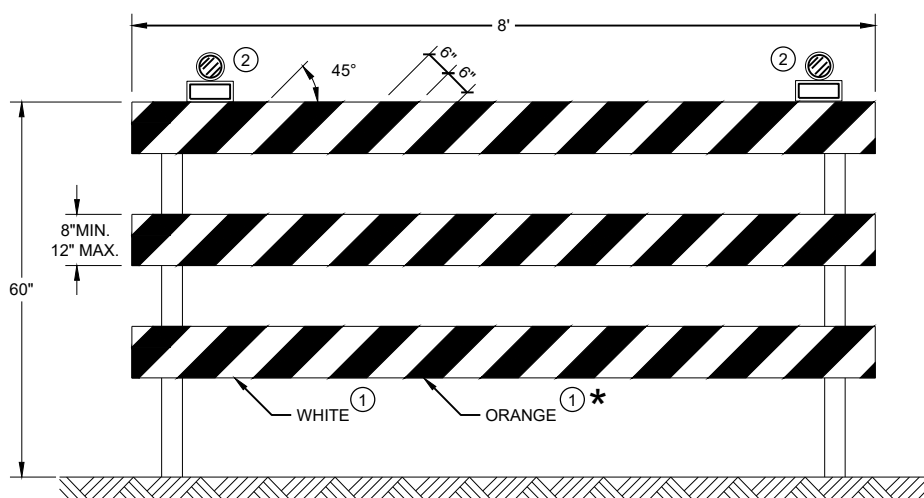
GENERAL NOTES

- ① REFLECTIVE SHEETING SHALL FOLLOW THE REQUIREMENTS IN THE APPROVED PRODUCTS LISTING FOR SIGN SHEETING.
- ② LOCATION OF WARNING LIGHTS WHEN SHOWN ON THE PLAN.



TYPE II BARRICADE

FOR RAILS LESS THAN 36" LONG, 4" WIDE STRIPES MAY BE USED. ALL STRIPES SHALL SLOPE DOWNWARD TO THE TRAFFIC SIDE FOR CHANNELIZATION.

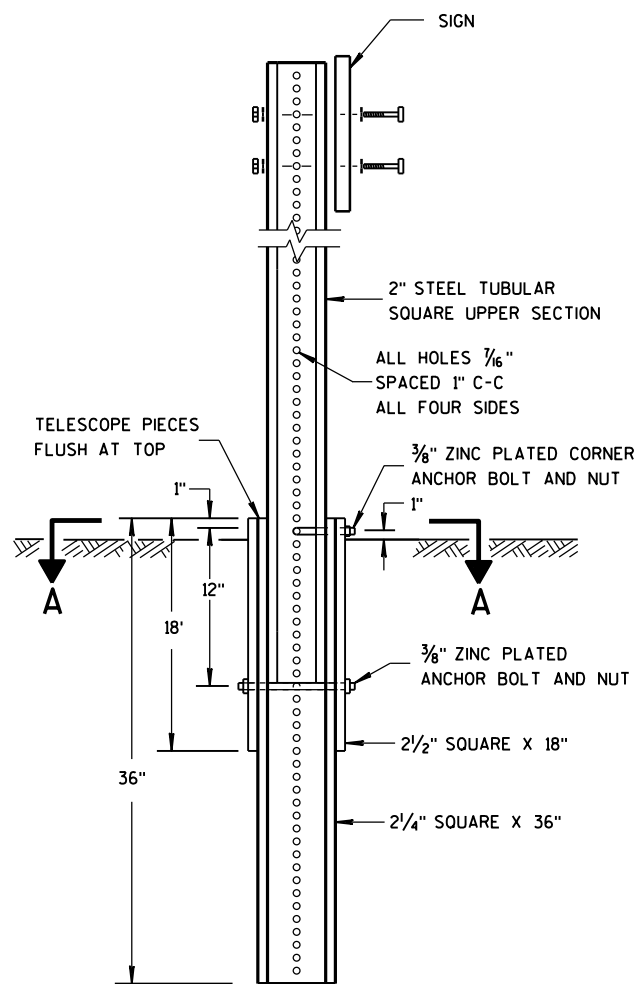


TYPE III BARRICADE

IF SIGN MOUNTED, DO NOT COVER MORE THAN 50% OF THE TOP TWO RAILS OR 33% OF THE TOTAL AREA OF THE THREE RAILS.

* IF USED FOR A PERMANENT APPLICATION USE RED SHEETING.

CHANNELIZING DEVICES DRUMS, CONES, BARRICADES AND VERTICAL PANELS	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED June 2017 DATE	/S/ Andrew Heidtke WORK ZONE ENGINEER
FHWA	



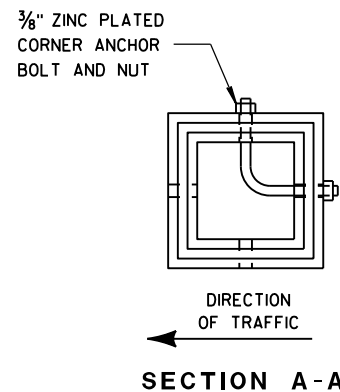
DETAIL OF TUBULAR STEEL SIGN POST

TUBULAR STEEL POSTS

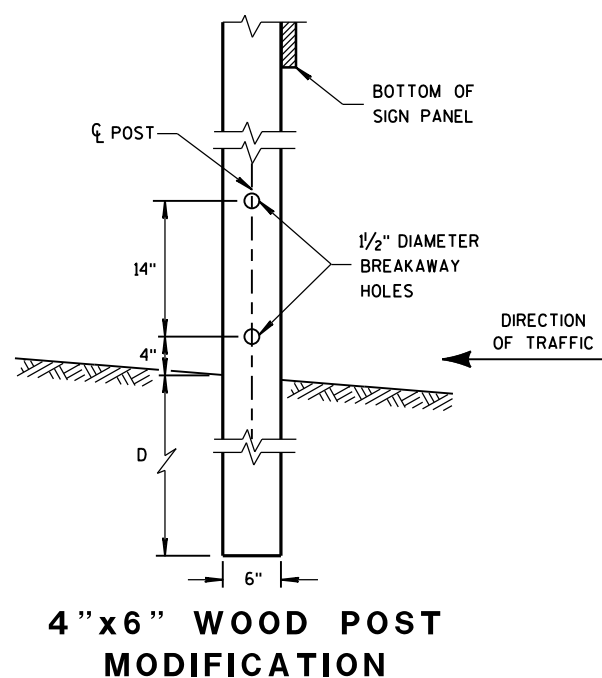
AREA OF SIGN INSTALLATION (SQ. FT.)	NUMBER OF REQUIRED TUBULAR STEEL POSTS
9 OR LESS	1
GREATER THAN 9 LESS THAN OR EQUAL TO 18	2
GREATER THAN 18 LESS THAN OR EQUAL TO 27	3

SIGNS WIDER THAN 3 FEET OR LARGER THAN 9 SQ. FT. SHALL BE MOUNTED ON MULTIPLE POSTS (SEE ABOVE TABLE).

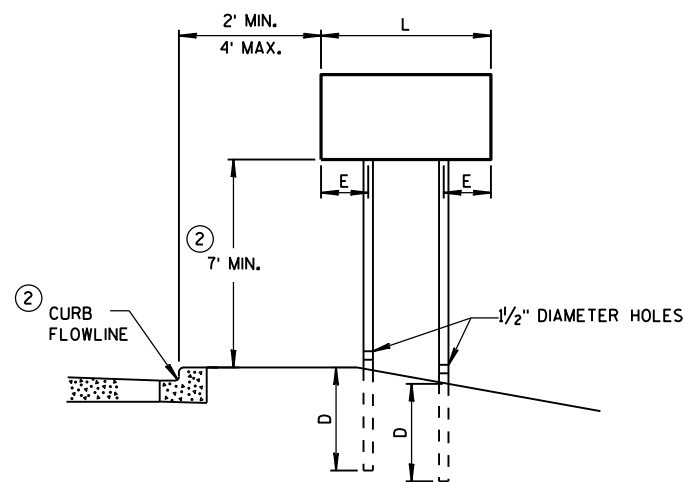
SIGNS LARGER THAN 27 SQ. FT. SHALL NOT BE MOUNTED ON TUBULAR STEEL POSTS.



SECTION A-A



4" X 6" WOOD POST MODIFICATION

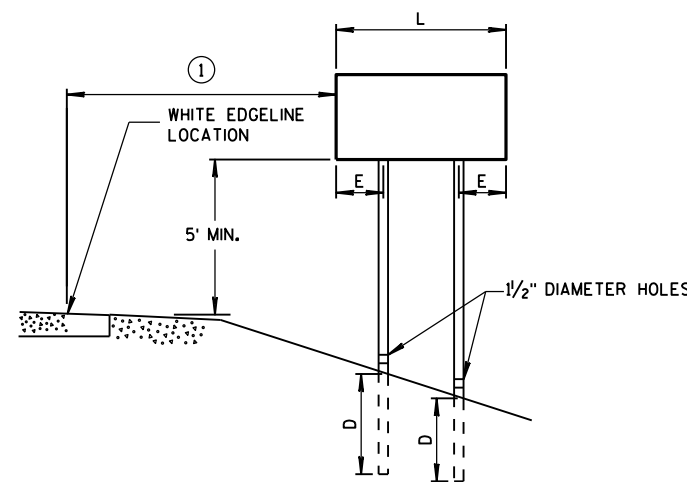


URBAN AREA

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'



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

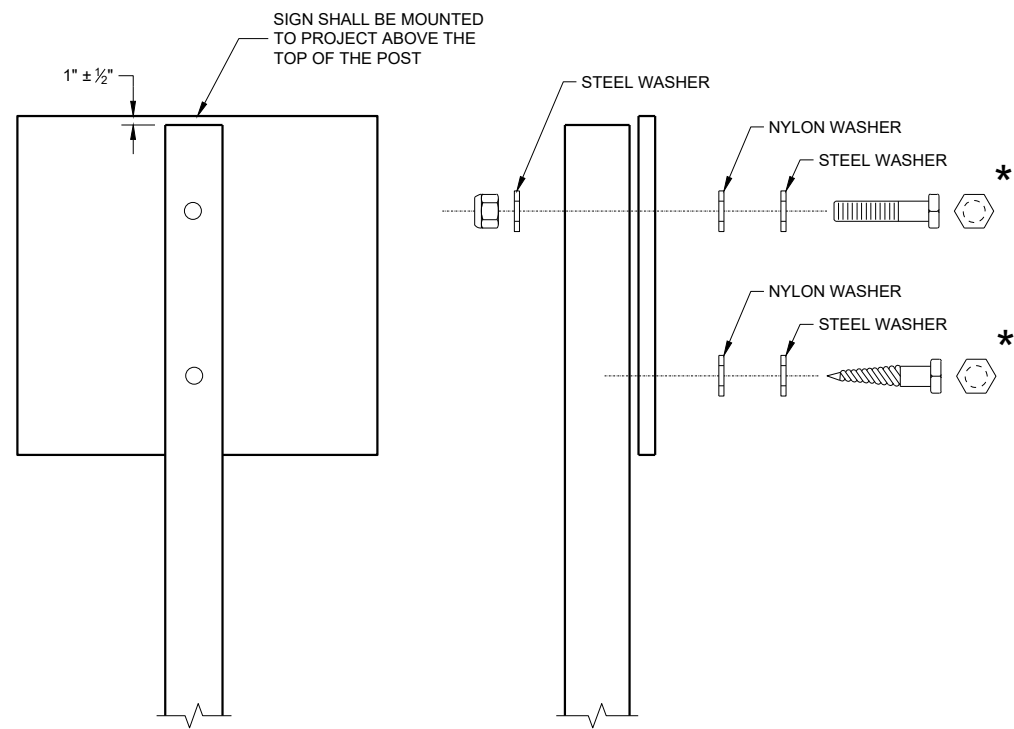
SEE NOTE ③

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

SQUARE STEEL POST (2" x 2")
 MACHINE BOLTS - 3/8" x 3 1/4" LENGTH W/NUTS
 RIVETS - 3/32" (6605-9-6) BULB-TITE, TRI-FOLD, ALUMINUM
 BODY/MANDREL O.D. FLANGE 0.720 - 0.765 INCH,
 GRIP RANGE 0.042 - 0.375 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 0.080 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. 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	

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.

DETAILED DRAWINGS OF PROPOSED ALTERNATE DESIGNS FOR METAL MONUMENTS OR MONUMENT COVERS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL.

PERMANENT MAGNETS SHALL BE INSERTED NEAR THE TOP AND BOTTOM OF ALL ALUMINUM MONUMENTS SO THE MONUMENT CAN EASILY BE DETECTED BY A METAL DETECTOR.

THE CAST IRON MONUMENT COVER SHALL BE A "NON-ROCKING" TYPE. ADJUSTMENT OF THE COVER TO GRADE MAY BE ACCOMPLISHED BY THE USE OF MORTAR AND BRICK, OR BY EITHER PRECAST OR CAST-IN-PLACE REINFORCED CONCRETE GRADE RINGS.

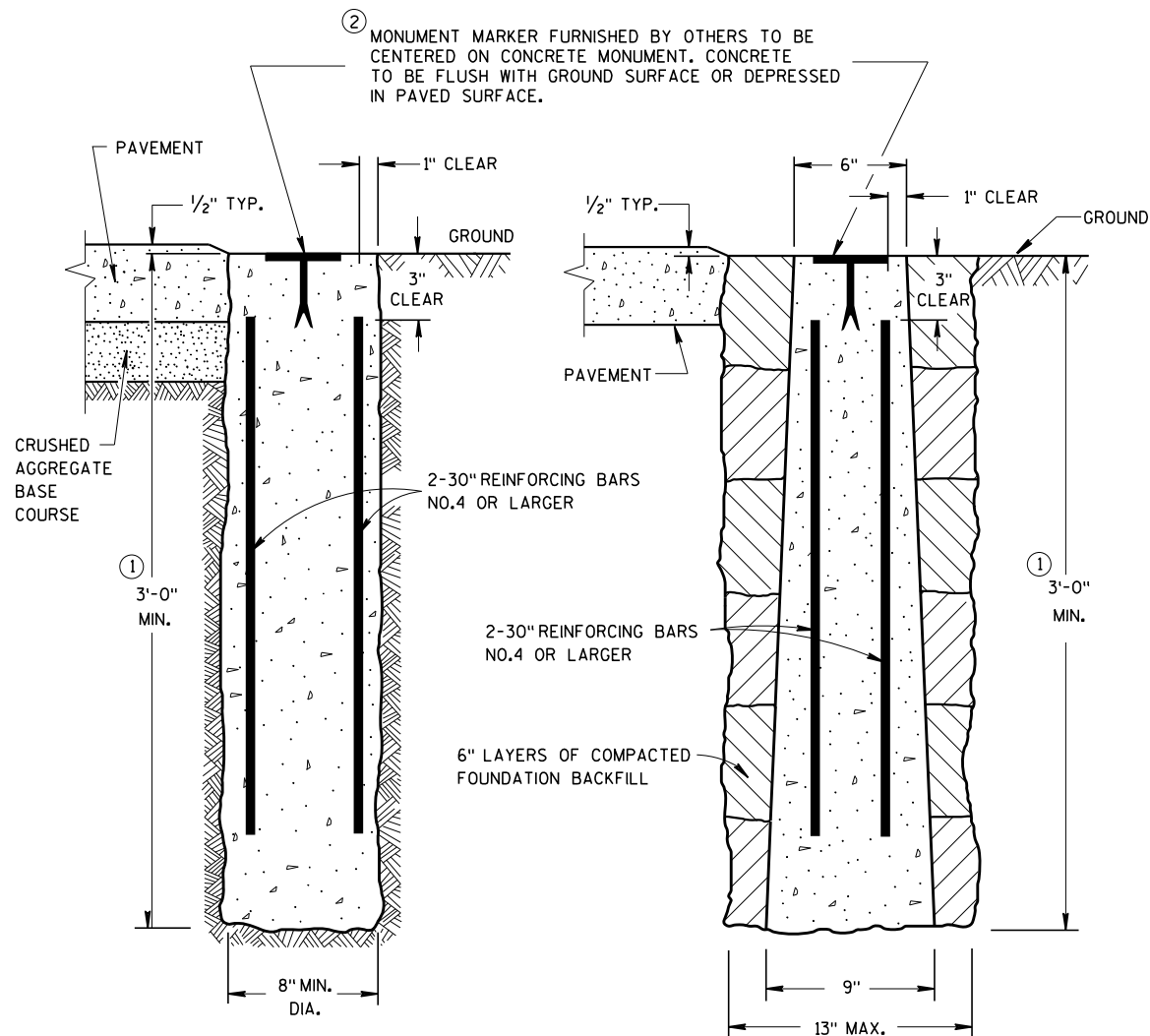
MONUMENTS SHALL BE LOCATED AND PLACED AT THE DIRECTION OF THE ENGINEER.

ALUMINUM MONUMENTS AND MONUMENT COVERS SHALL BE MADE FROM AN ALUMINUM AND MAGNESIUM ALLOY AS DETERMINED BY THE MANUFACTURER.

THE MONUMENT COVERS DETAILED ON THIS DRAWING ARE NOT EQUAL ALTERNATES. MONUMENT COVERS SHALL BE CAST IRON UNLESS ALUMINUM IS SPECIFIED ELSEWHERE IN THE CONTRACT.

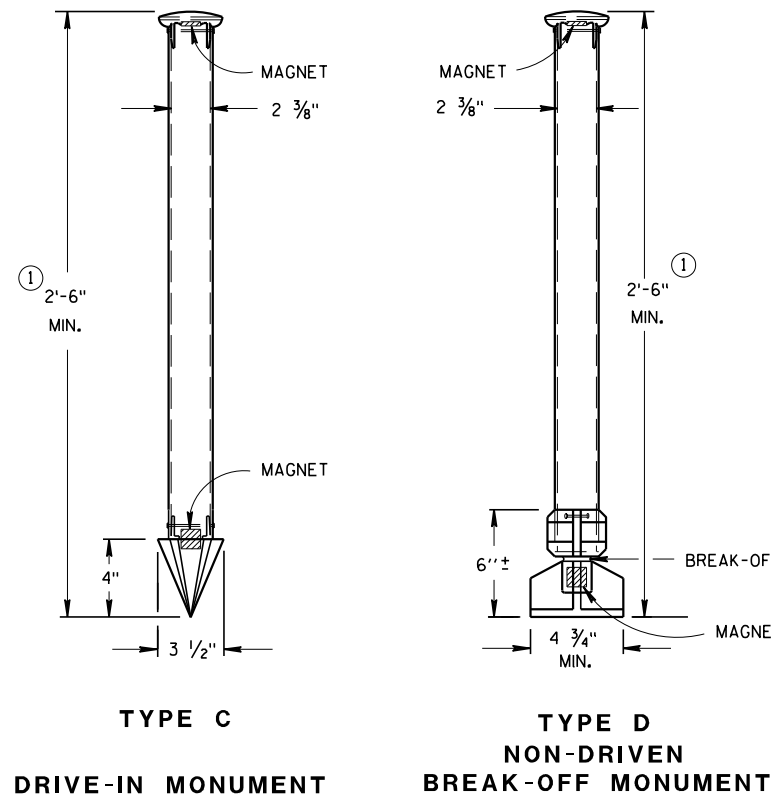
MONUMENT SHALL BE CAST-IN-PLACE CONCRETE UNLESS PRECAST CONCRETE OR ALUMINUM MONUMENTS ARE SPECIFIED IN THE CONTRACT OR PERMITTED BY THE ENGINEER

- ① MINIMUM LENGTH SHALL BE 4'-0" FOR MONUMENTS INSTALLED IN PAVED AREAS.
- ② AN OFFICIAL COUNTY MONUMENT MARKER SUPPLIED BY A COUNTY MAY BE REQUIRED FOR SOME SECTION CORNERS AND WITNESS MONUMENTS INSTEAD OF THIS WIS DOT MARKER.



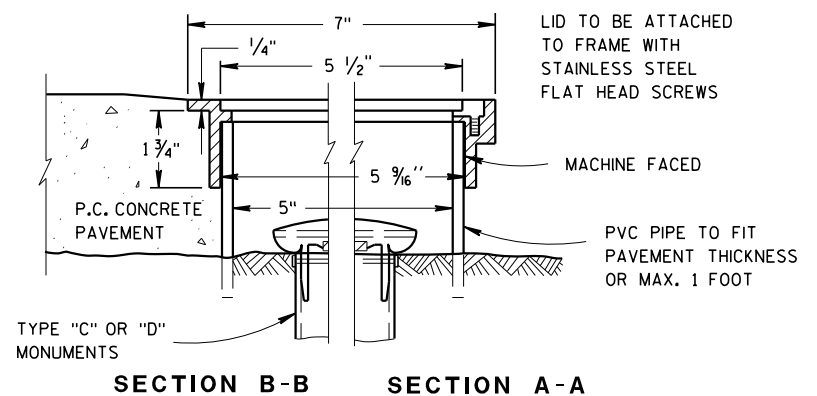
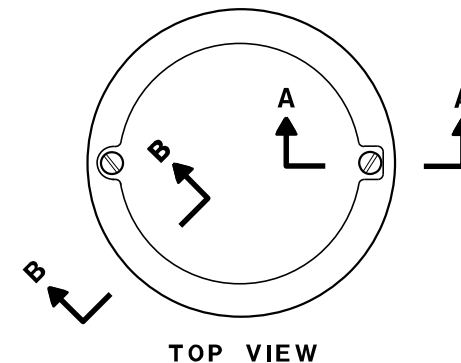
**CAST-IN-PLACE
CONCRETE MONUMENTS
TYPE A**

PRECAST



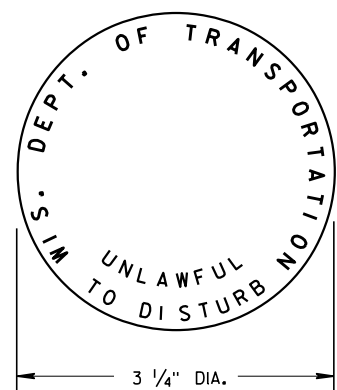
ALUMINUM MONUMENTS

(INCLUDES MARKER)

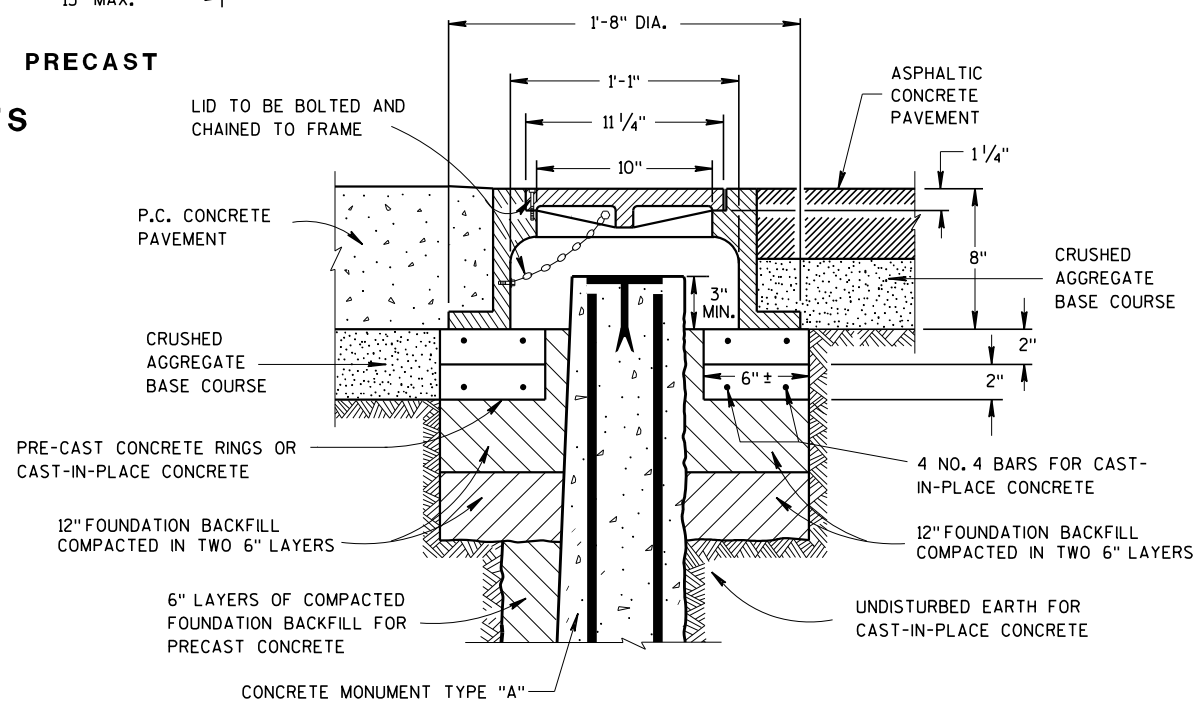


ALUMINUM MONUMENT COVER

(APPROXIMATE WEIGHT 2 LBS)
(FOR CONCRETE PAVEMENT ONLY)



② **WIS DOT MONUMENT
MARKER LOGO
FOR TYPES "A", "C", & "D"**



CAST IRON MONUMENT COVER

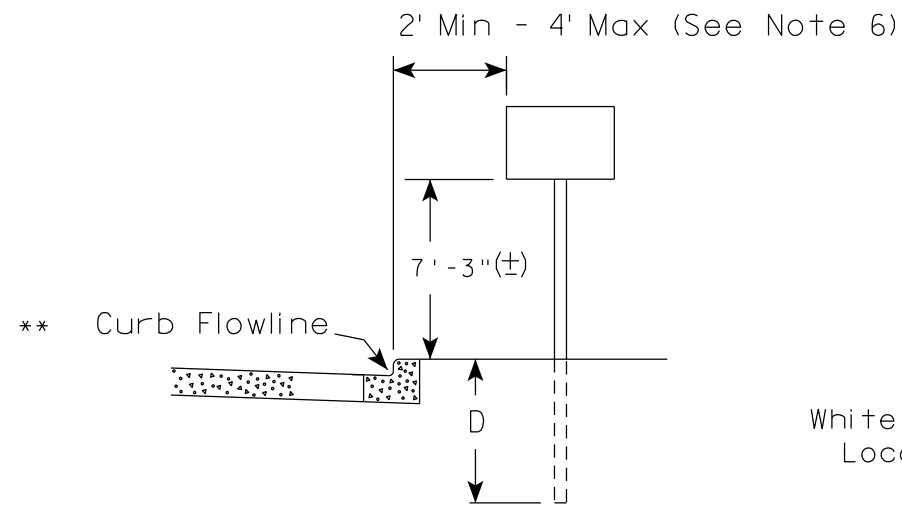
(APPROXIMATE WEIGHT 95 LBS)

LANDMARK REFERENCE MONUMENTS AND COVERS

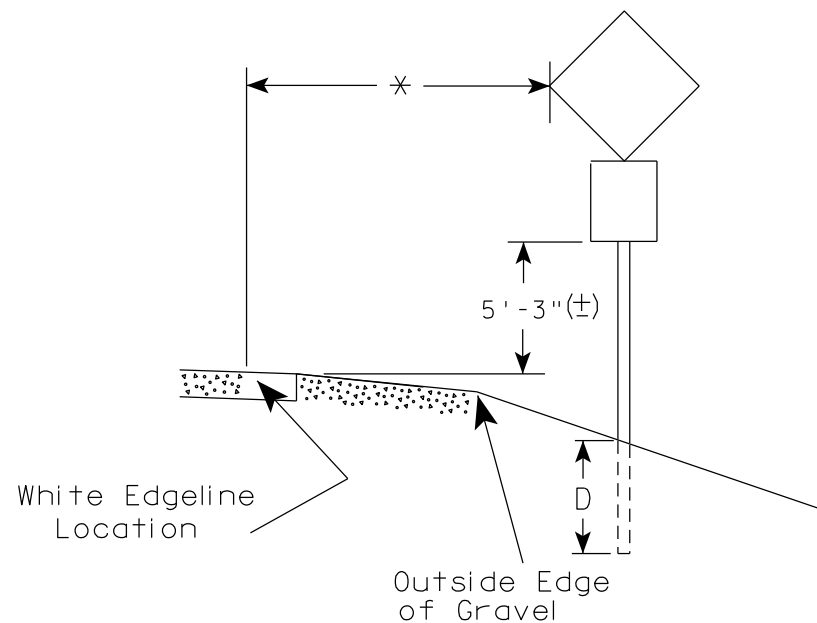
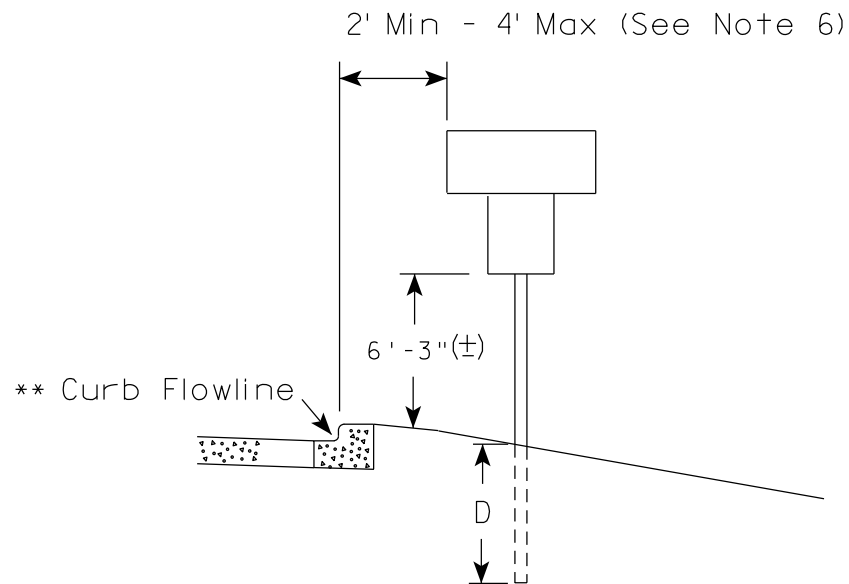
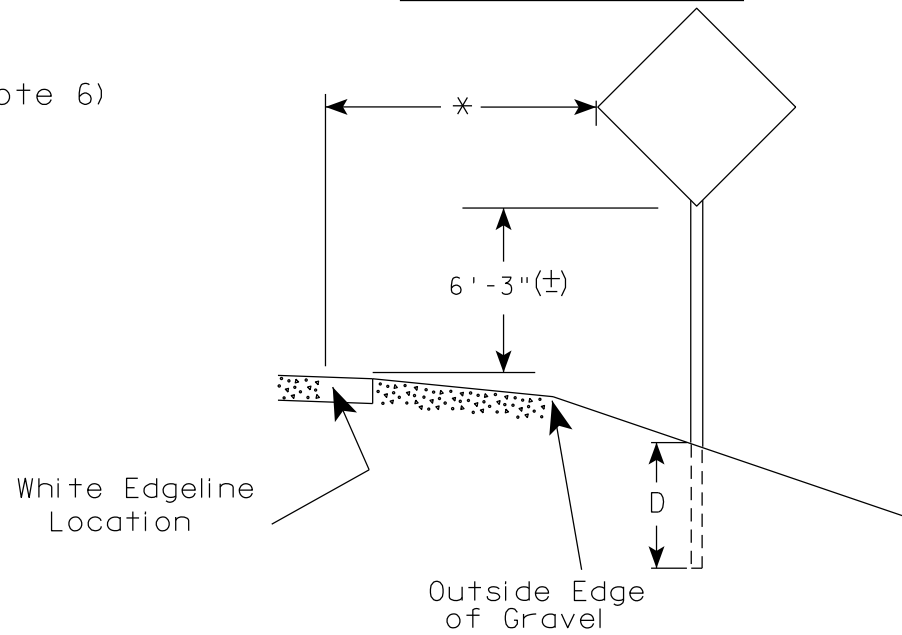
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
March 2018 /S/ Raymond A. Kumapayi
DATE CHIEF SURVEYING AND MAPPING ENGINEER
FHWA

URBAN AREA



RURAL AREA (See Note 2)



GENERAL NOTES

1. Signs wider than 4 feet or 20 sq.ft or larger, shall be mounted on multiple posts. Refer to plate A4-4.
2. If signs are mounted on or behind barrier wall, see A4-10 sign plate.
The Double Arrow sign (W12-1D) 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" (±).
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 signs mounted on traffic signal poles is 5'- 3" (±).
5. Offset distance shall be consistent with existing signs or consistent throughout length of project.
6. The (±) tolerance for mounting height is 3 inches.
7. Folding signs shall be mounted at a height of 5'-3" (±) or as directed by the Engineer.

POST EMBEDMENT DEPTH

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

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

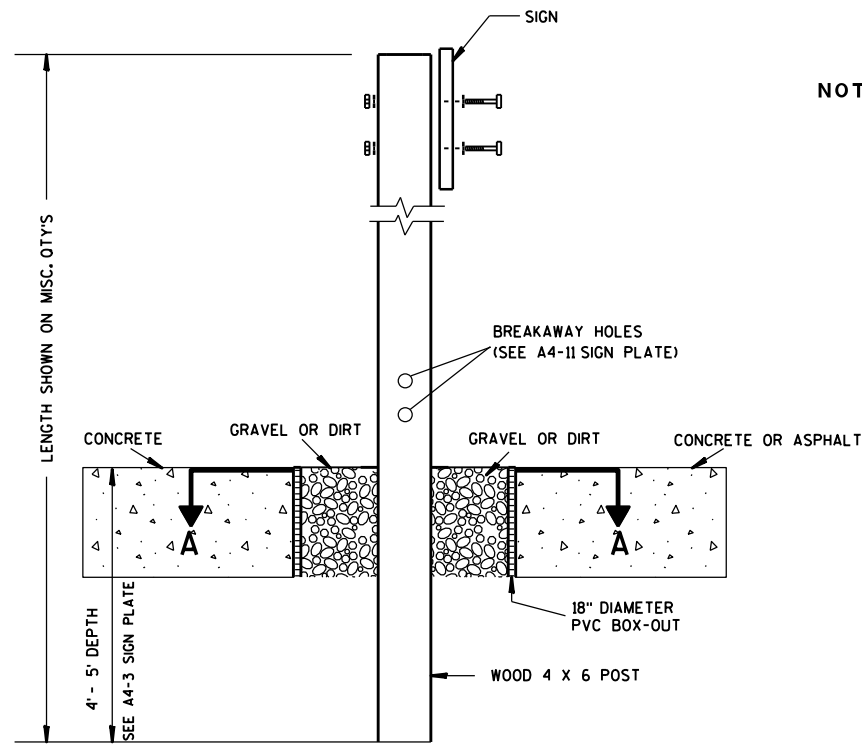
* 6 feet from edge of a paved shoulder or 12 feet from the edge of pavement (edge line location) or 2 feet from outside edge of gravel, whichever is greater unless directed by project engineer.

TYPICAL INSTALLATION OF PERMANENT TYPE II SIGNS ON SINGLE POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

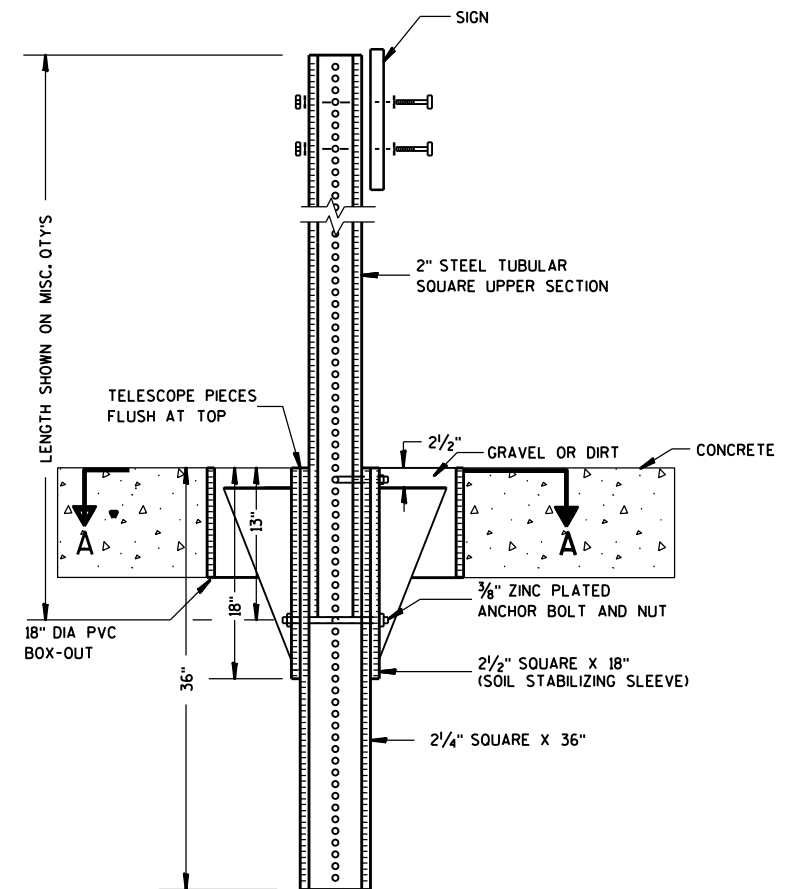
DATE 5/13/2020 PLATE NO. A4-3.22



ELEVATION VIEW

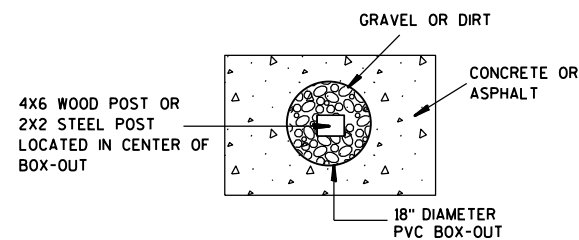
DETAIL OF WOOD 4 X 6 SIGN POST IN BOX-OUT

- NOTES:**
1. ALL MATERIAL TO BE APPROVED BY ENGINEER PRIOR TO INSTALLATION
 2. SEE SIGN PLATE A4-8 FOR SIGN HARDWARE REQUIREMENTS
 3. 18 INCH X 18 INCH SQUARE BOX-OUTS MAY BE USED FOR INSTALLATIONS IN EXISTING CONCRETE OR ASPHALT LOCATIONS.



ELEVATION VIEW

DETAIL OF STEEL 2 X 2 SIGN POST IN BOX-OUT



PLAN VIEW

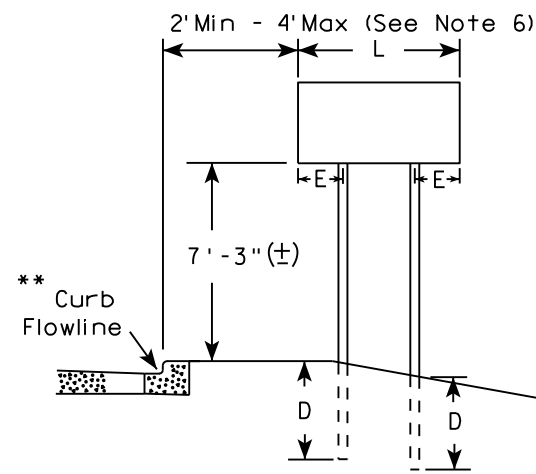
FOR NEW CONCRETE/ ASPHALT INSTALLATIONS

SIGN POST BOX-OUTS A4-3B	
<small>WISCONSIN DEPT OF TRANSPORTATION</small>	
APPROVED <i>Matthew R. Rauch</i> <small>for State Traffic Engineer</small>	
<small>DATE 1/27/14</small>	<small>PLATE NO. A4-3B.1</small>

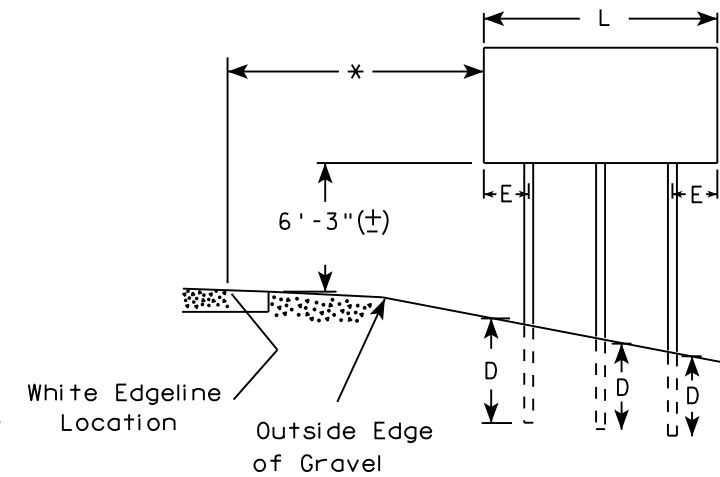
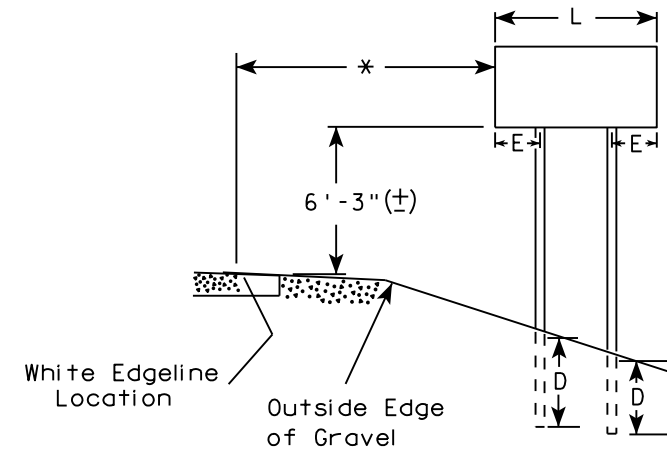
GENERAL NOTES

1. For 3 or 4 post installations, individual post spacing shall be greater than 3'-6".
2. See tables below for required number of posts.
3. For expressways and freeways, mounting height is 7'-3" (±) or 6'-3" (±) depending upon existence of sub-sign.
4. The (±) tolerance for mounting height is 3 inches.
5. J-Assemblies are considered to be one sign for mounting height.
6. Offset distance shall be consistent with existing signs or consistent throughout length of project.
7. Folding signs shall be mounted at a height of 5'-3" (±) or as directed by the engineer.
8. The Double Arrow sign (W12-1) shall be mounted at a height of 2'-3" (±). The Chevron sign (W1-8), Roundabout Chevron panel (R6-4B), Clearance Markers (W5-52), Mile Markers (D10 series), In Road Object Markers (W5-54) & End of Road Markers (W5-56) shall be mounted at a height of 4'-3" (±).

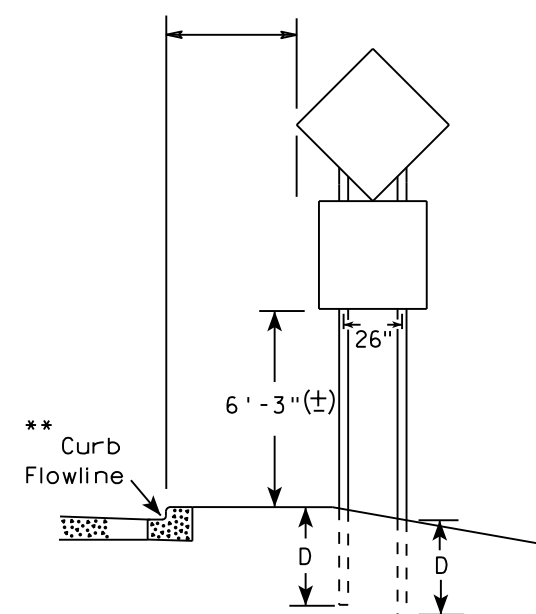
URBAN AREA



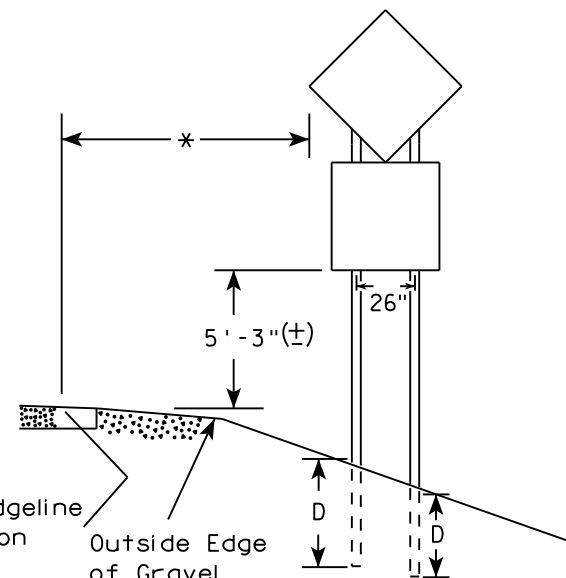
RURAL AREA (See Note 3)



2' Min - 4' Max (See Note 6)



48" DIAMOND WARNING SIGN



48" DIAMOND WARNING SIGN

* 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.

** 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.

*** See A4-3 sign plate for signs 4' or less in width and less than 20 S.F. in area.

SIGN SHAPE OTHER THAN DIAMOND (TWO POSTS REQUIRED)	
L	E
Greater than 48" Less than 60"	12"
60" to 108"	L/5

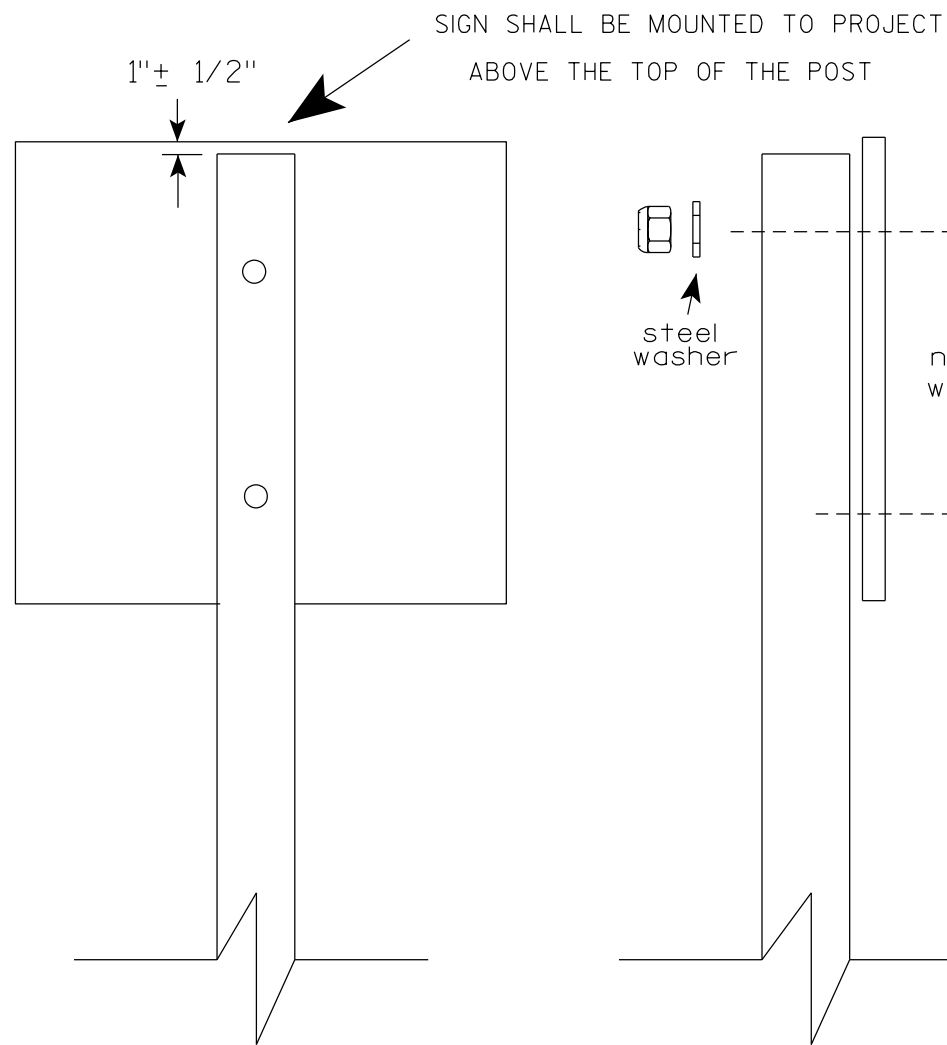
SIGN SHAPE OTHER THAN DIAMOND (THREE POSTS REQUIRED)	
L	E
Greater than 108" to 144"	12"

POST EMBEDMENT DEPTH

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

TYPICAL INSTALLATION OF TYPE II SIGNS ON MULTIPLE POSTS

WISCONSIN DEPT OF TRANSPORTATION
 APPROVED *Matthew R. Rauch*
 For State Traffic Engineer
 DATE 8/21/17 PLATE NO. A4-4.15



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 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

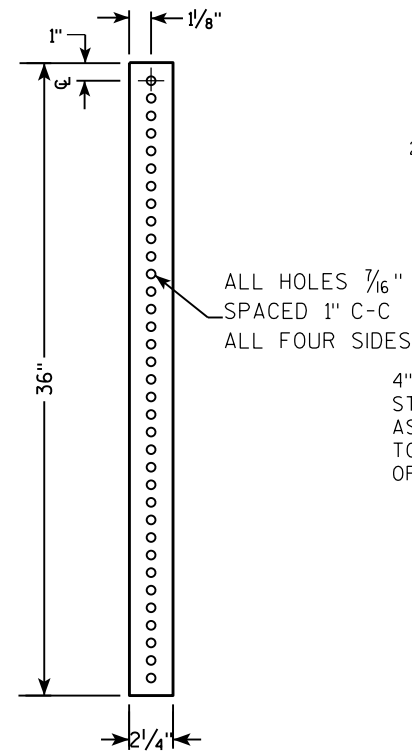
WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R Rauch*
For State Traffic Engineer

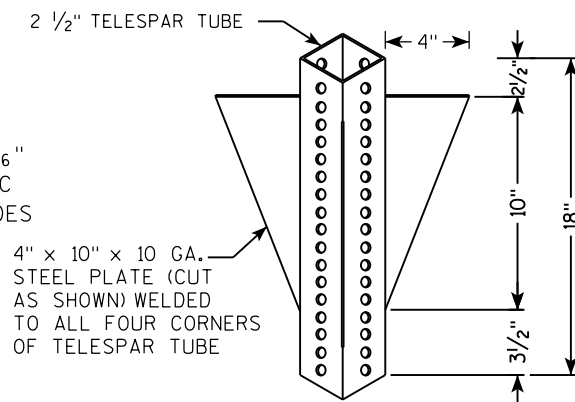
DATE 4/1/2020 PLATE NO. A4-8.9

**TELESCOPIC TUBING ANCHORS
TWO PIECE SYSTEM**

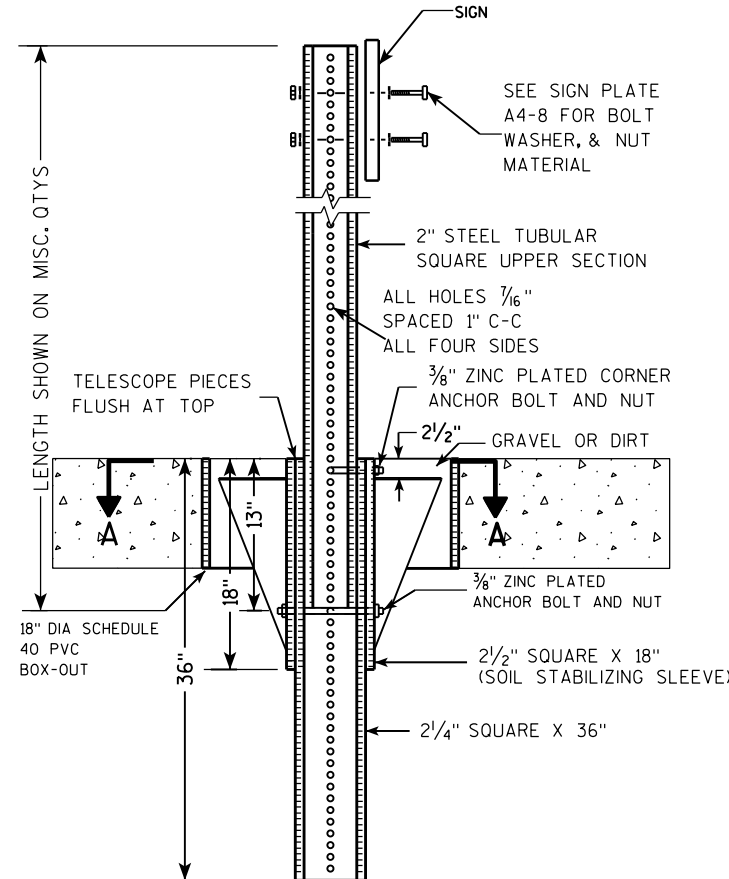
2 1/4" SQUARE
12 GAUGE
PERFORATED
GALVANIZED FINISH



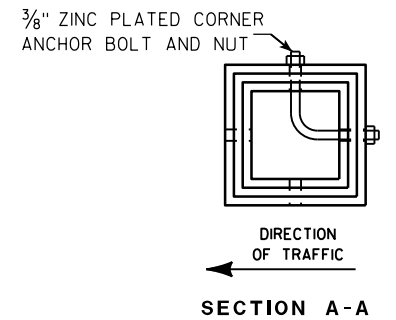
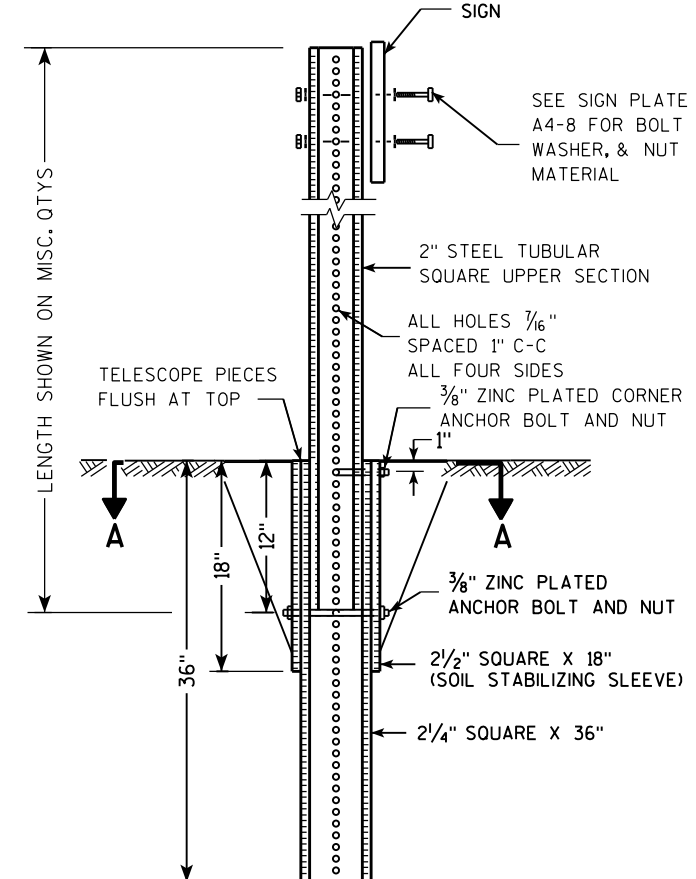
2 1/2" SQUARE
12 GAUGE
OMNI-DIRECTIONAL
PERFORATED
SOIL STABILIZING SLEEVE
GALVANIZED FINISH



**DETAIL OF TUBULAR STEEL SIGN POST
(IN POURED CONCRETE OR ASPHALT)**



**DETAIL OF TUBULAR STEEL SIGN POST
(IN LOCATIONS OTHER THAN POURED CONCRETE OR ASPHALT)**



Area of Sign Installation (Sq. Ft.)	Number of Required 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

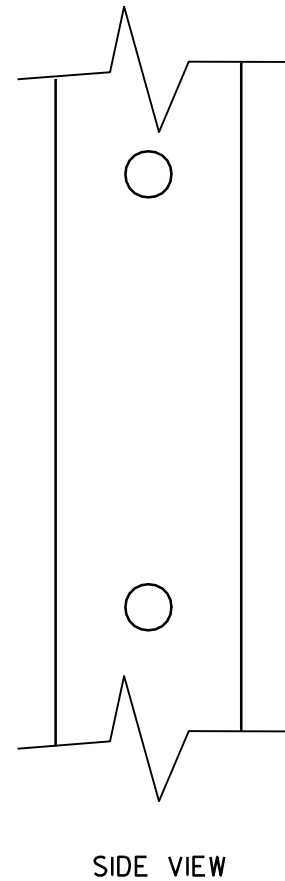
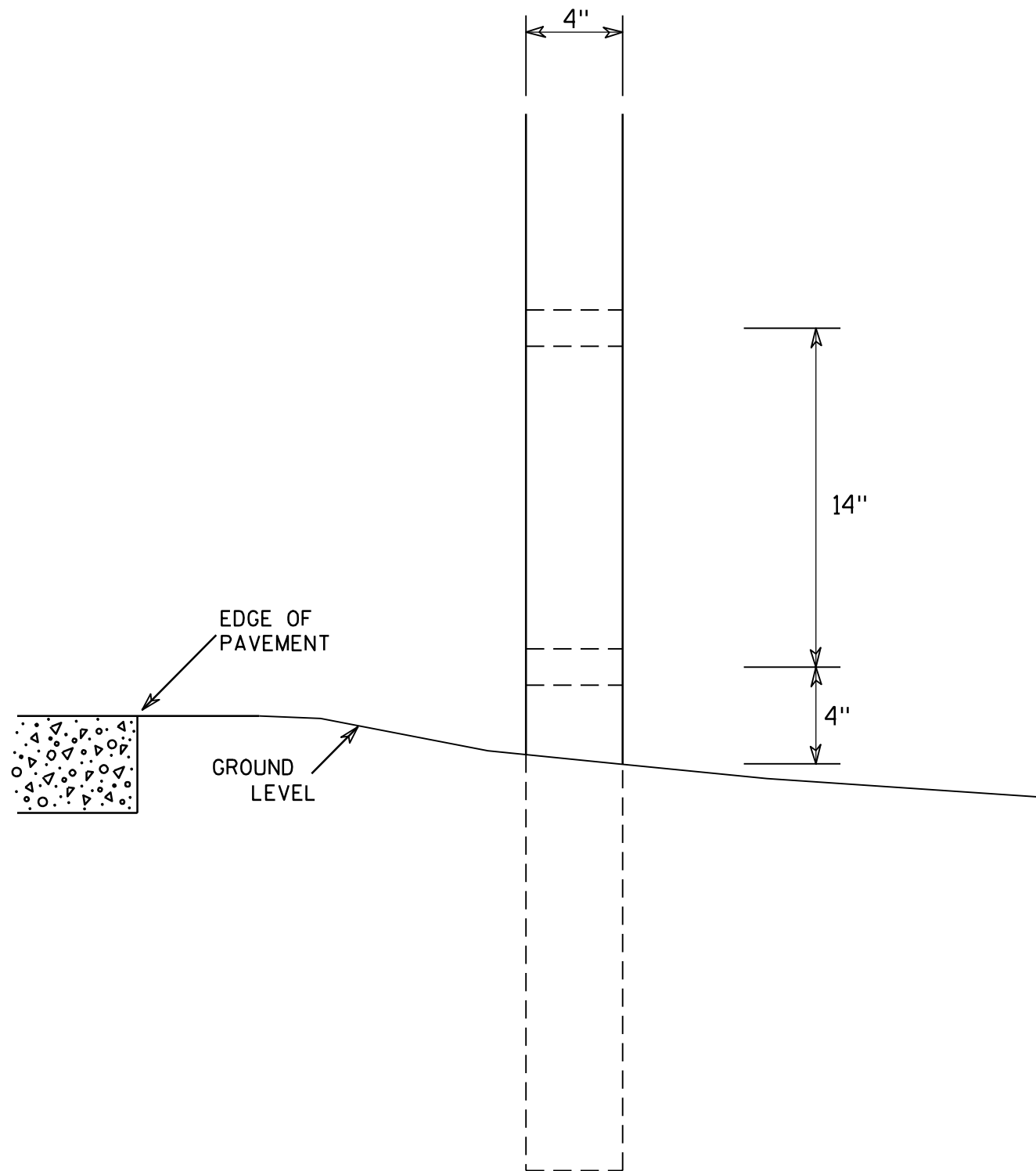
Signs wider than 3 feet or larger than 9 sq. ft shall be mounted on multiple posts (see above table).

**TUBULAR STEEL
SIGN POST
A4-9**

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 2/05/15 PLATE NO. A4-9.9



GENERAL NOTES

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

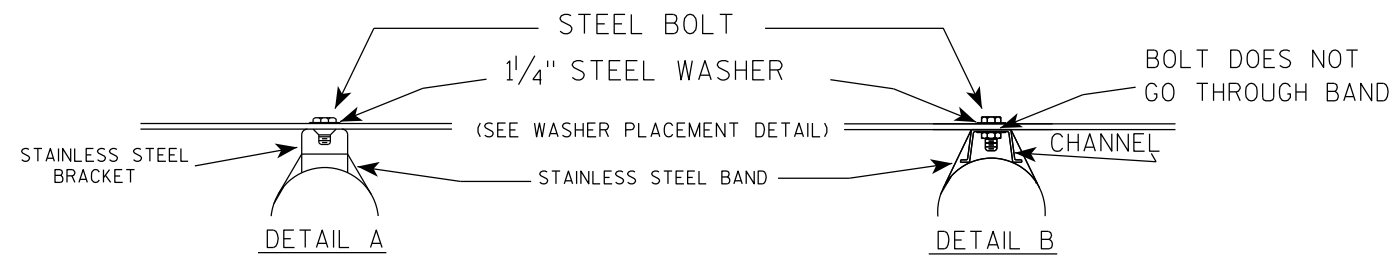
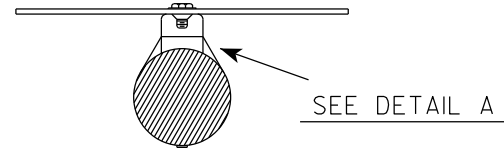
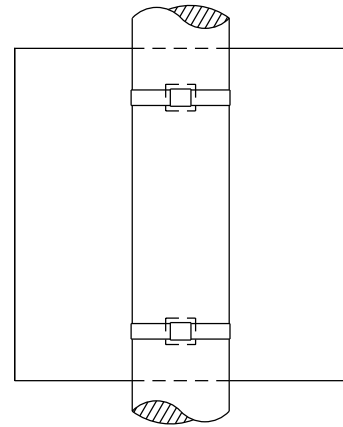
7

7

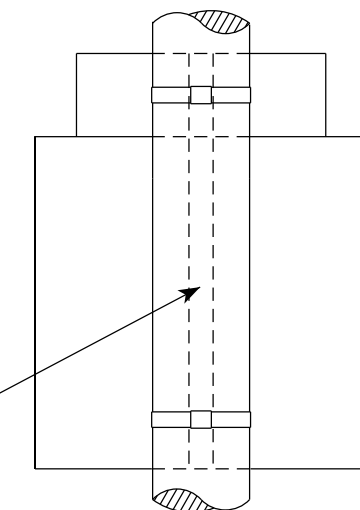
4 X 6 WOOD POST MODIFICATIONS	
<i>WISCONSIN DEPT OF TRANSPORTATION</i>	
APPROVED	<i>Chester J Spang</i> for State Traffic Engineer
DATE 3/27/97	PLATE NO. A4-11.2

BANDING

SINGLE SIGN



"J" ASSEMBLY

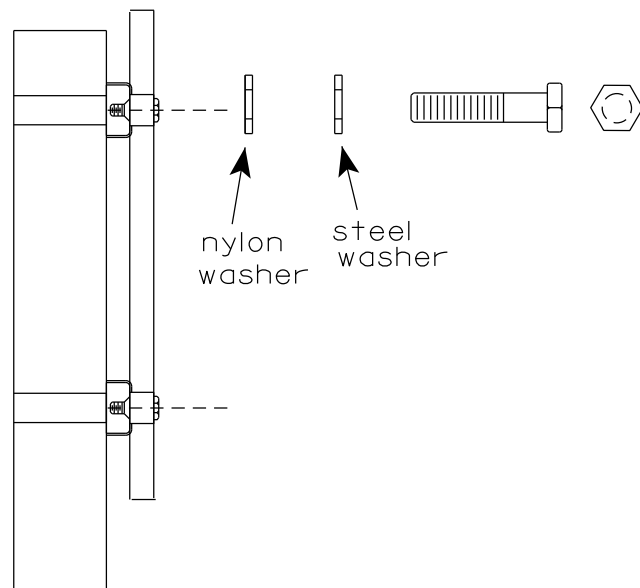


CHANNEL
SEE TYPICAL PANEL
INSTALLATION SHEET



- GENERAL NOTES**
1. Any sign over 3 feet in width shall use the V-Block banding method. See A5-10 standard plate.
 2. Signs 3 feet or greater in height shall have three bracket bands installed. Signs less than 3 feet in height shall have two bracket bands installed.
 3. Banding and assembly bracket shall be stainless steel. All bands shall be 3/4" in width and 0.025" thickness.
 4. ALL SIGN MOUNTING BOLTS AND WASHERS SHALL BE EITHER:
 - a. Hot dip or mechanically galvanized in accordance with ASTM Designation: A 153, Class D
 - b. Electro-galvanized in accordance with ASTM designation: B 633, Type III, SC 3

WASHER PLACEMENT



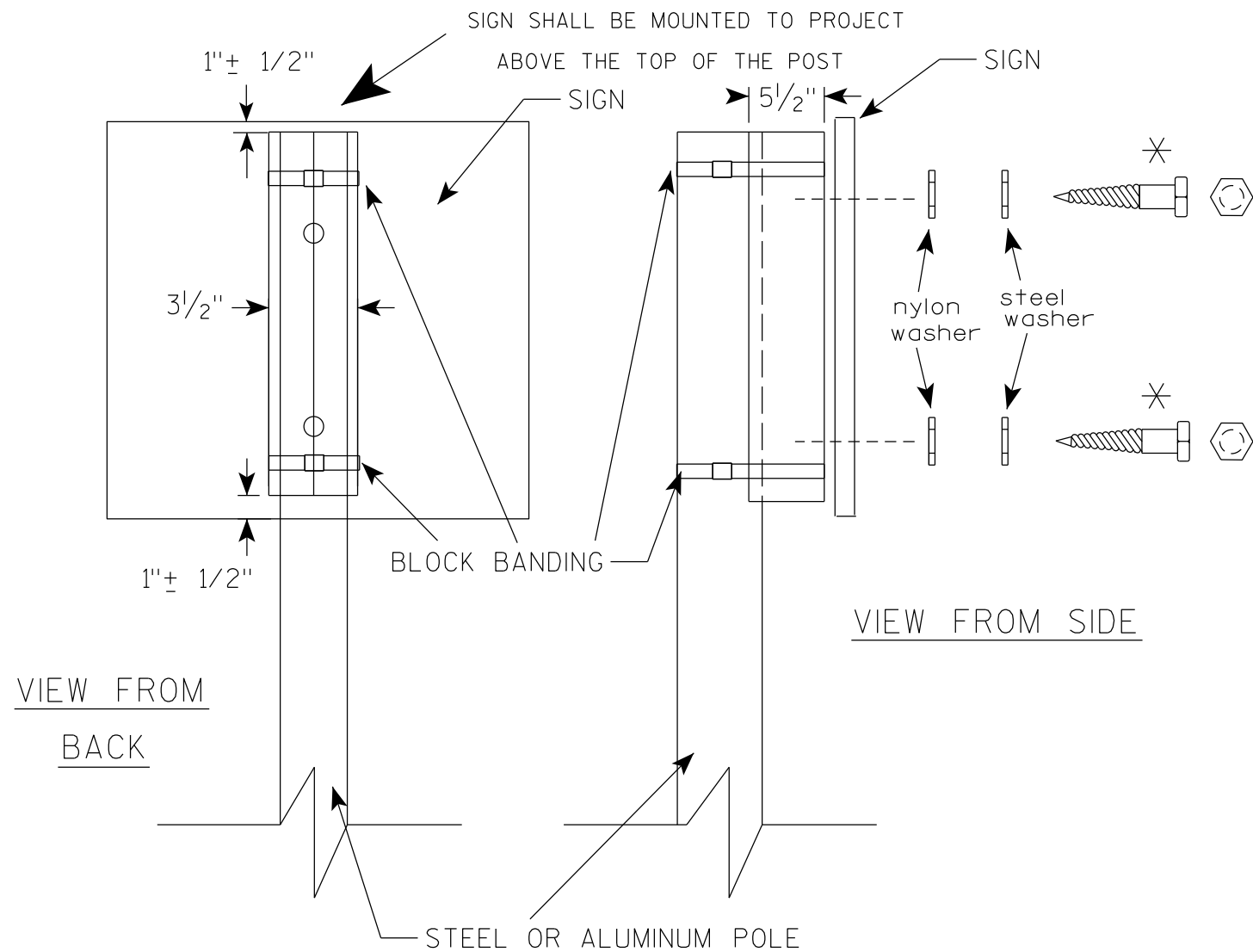
WASHERS (ALL POSTS) -
1-1/4" O.D. X 3/8" I.D. X 1/16" STEEL
1-1/4" O.D. X 3/8" I.D. X .080 NYLON
FOR ALL TYPE H SIGNS

STANDARD SIGN
SIGN BANDING DETAILS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

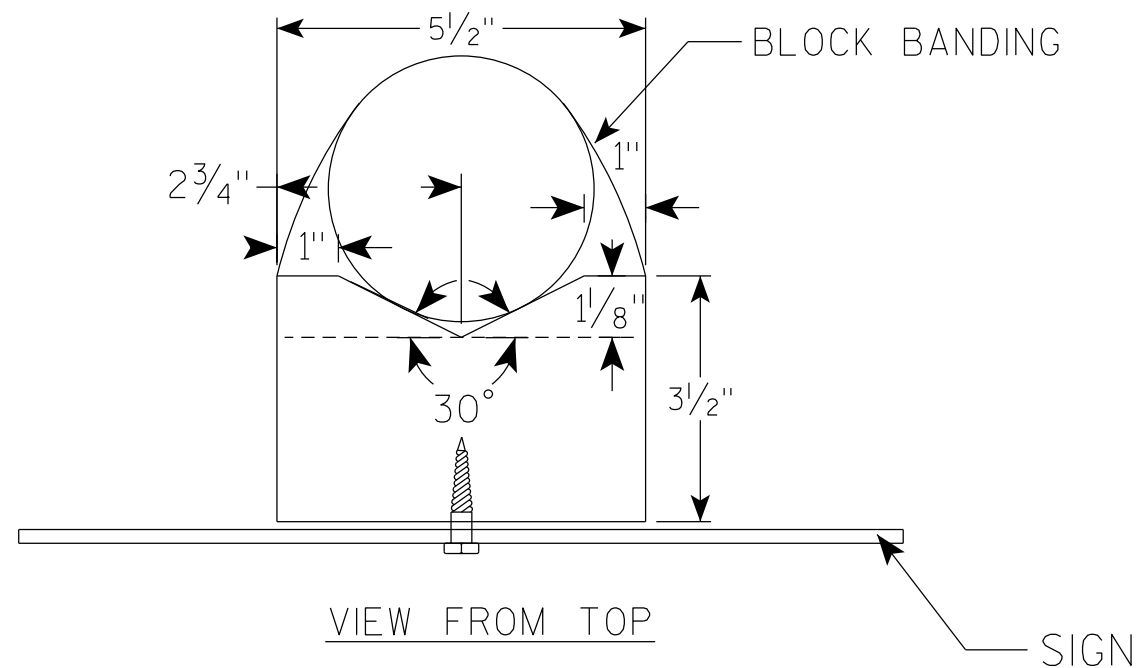
DATE 6/10/19 PLATE NO. A5-9.4



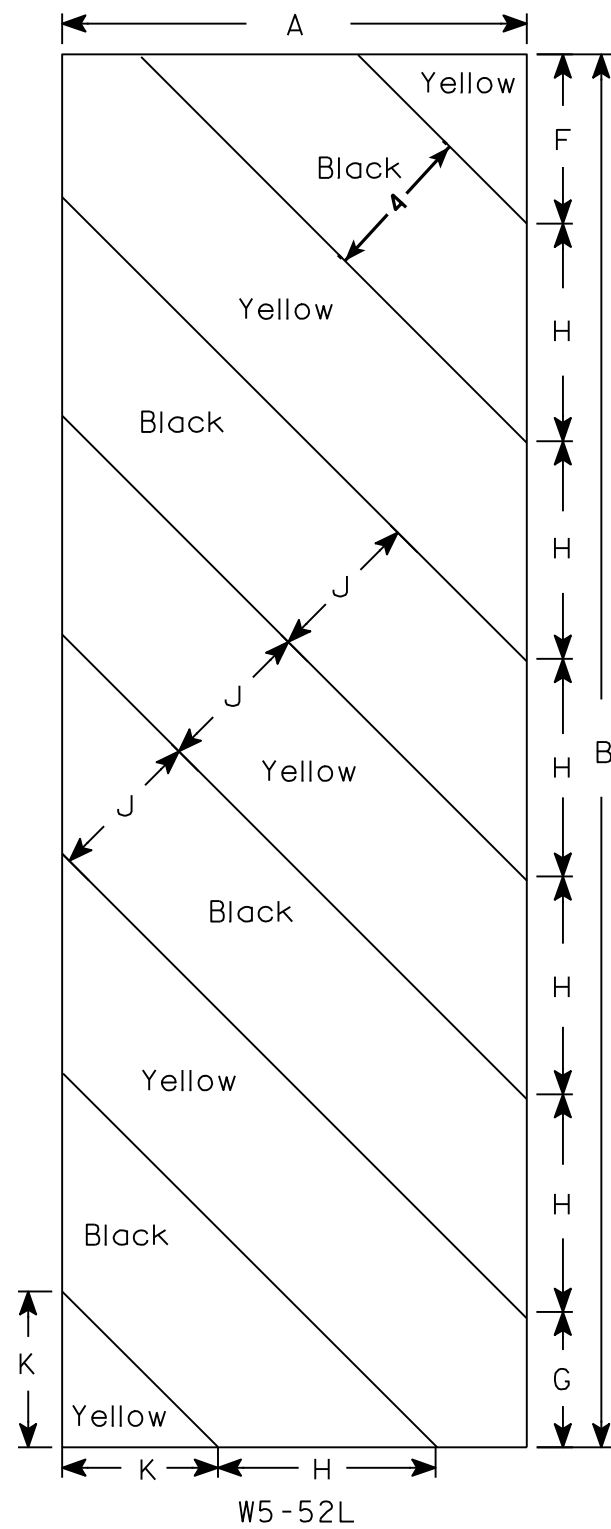
GENERAL NOTES

1. WOOD 4"X6" POST MATERIAL SHALL CONFORM TO 507.2.2 OF THE WisDOT STANDARD SPECIFICATIONS
2. BLOCK BANDING AND CLIPS SHALL BE STAINLESS STEEL, 3/4" WIDTH AND 0.025" THICKNESS
3. SIGNS 3' OR GREATER IN HEIGHT SHALL UTILIZE 3 BLOCK BANDS. SIGNS UNDER 3' IN HEIGHT SHALL UTILIZE 2 BLOCK BANDS
4. ACTUAL NUMBER OF FASTENERS PER SIGN VARIES WITH THE SIGN AREA, BUT NORMALLY THERE ARE TWO. FOR SIGNS GREATER THAN 9 S.F. 3 FASTENERS SHALL BE USED.
5. ALL SIGN MOUNTING BOLTS AND WASHERS SHALL BE EITHER:
 - a. Hot dip or mechanically galvanized in accordance with ASTM Designation: A 153, Class D
 - b. Electro-galvanized in accordance with ASTM Designation : B 633, TYPE III, SC 3
6. ALL BOLTS SHALL HAVE HEXAGONAL HEADS.
7. STEEL WASHERS SHALL BE 1/4" O.D. X 3/8" I.D. X 1/16"
8. NYLON WASHERS SHALL BE 1/4" O.D. X 3/8" I.D. X .080 FOR TYPE H OR TYPE F FACE SIGN

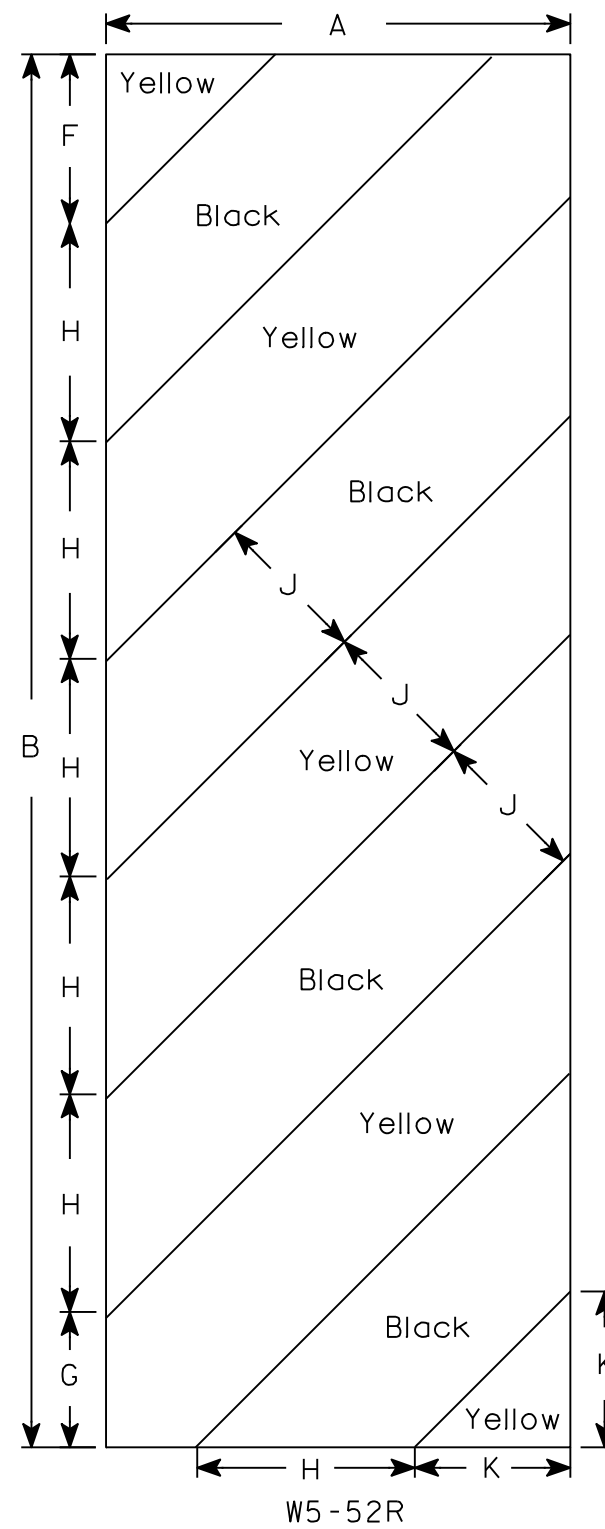
✱ LAG BOLTS SHALL BE 3/8" X 2 1/2"



BLOCK BANDING DETAIL (V-BLOCK OPTION)	
WISCONSIN DEPT OF TRANSPORTATION	
APPROVED	<i>Matthew R Rauch</i> For State Traffic Engineer
DATE 6/10/19	PLATE NO. A5-10.2



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.

7

7

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

STANDARD SIGN
W5-52L & W5-52R

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

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

PROJECT NO: _____ HWY: _____ COUNTY: _____ SHEET NO: _____ E

DESIGN DATA

LIVE LOAD:
DESIGN LOADING HL-93
INVENTORY RATING FACTOR RF=1.19
OPERATING RATING FACTOR RF=1.54
WISCONSIN STANDARD PERMIT
VEHICLE RATING (WS.-SPV): 250 KIPS

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

MATERIAL PROPERTIES:

CONCRETE MASONRY, SLAB fc = 4,000 P.S.I.
ALL OTHER fc = 3,500 P.S.I.
HIGH-STRENGTH BAR STEEL REINFORCEMENT fy = 60,000 P.S.I.

FOUNDATION DATA:

ABUTMENTS TO BE SUPPORTED ON 10 3/4 X 0.365-INCH C.I.P. PILING DRIVEN TO A REQUIRED DRIVING RESISTANCE OF 150 TONS PER PILE AT THE W. ABUT. AND 150 TONS PER PILE AT THE E. ABUT. AS DETERMINED BY THE MODIFIED GATES DYNAMIC FORMULA. ESTIMATED 70 FT PILE LENGTHS AT W. ABUT. AND 60 FT PILE LENGTHS AT E. ABUT.

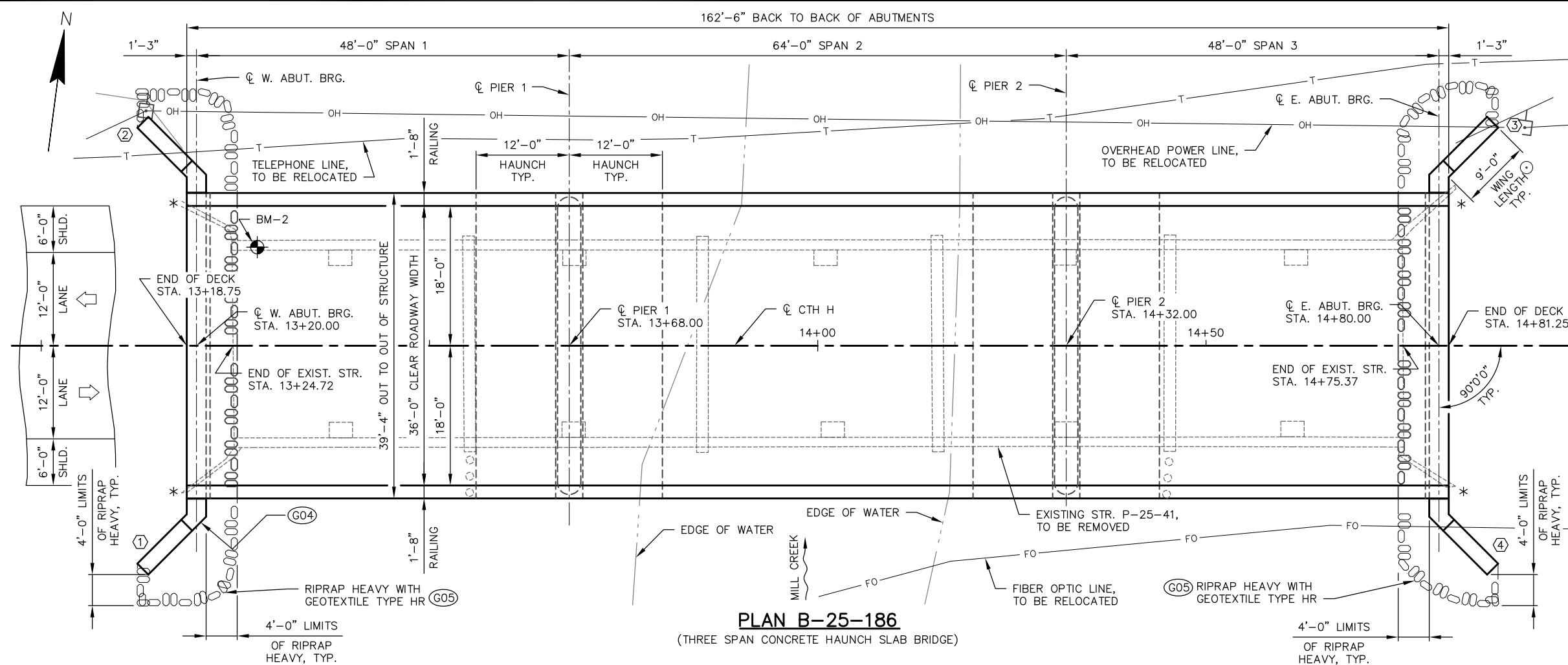
PIER 1 & PIER 2 TO BE SUPPORTED ON 12 3/4 X 0.375-INCH C.I.P. PILING DRIVEN TO A REQUIRED DRIVING RESISTANCE OF 210 TONS PER PILE AS DETERMINED BY THE MODIFIED GATES DYNAMIC FORMULA. ESTIMATED 70 FT PILE LENGTHS AT PIER 1 AND 70 FT PILE LENGTHS AT PIER 2.

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

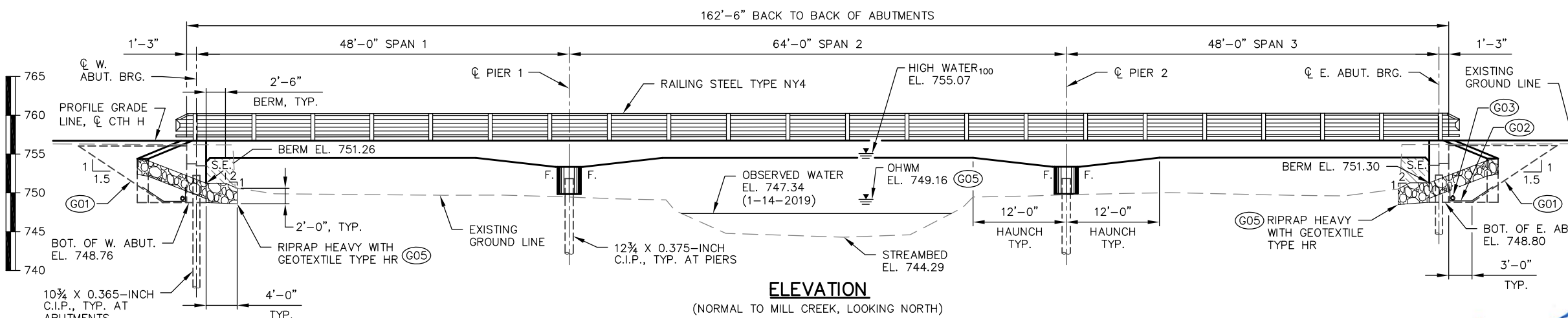
HYDRAULIC DATA:

Q100 4,900 C.F.S.
Q100 (THRU BRIDGE) 4,900 C.F.S.
Q100 (ROAD) N/A
DRAINAGE AREA 66 SQ. MI.
BRIDGE WATER AREA 822 SQ. FT.
BRIDGE VELOCITY 5.96 F.P.S.
HIGH WATER100 EL. 755.07 FT.
OVERTOPPING Q N/A
OVERTOPPING EL. N/A
OVERTOPPING RDWY N/A
SCOUR CRITICAL CODE 5
Q2 1,060 C.F.S.
Q2 ELEVATION 751.77 FT.
Q2 VELOCITY 2.70 C.F.S.

BRIDGE OFFICE CONTACT AARON BONK, P.E. (608) 261-0261
CONSULTANT CONTACT ANDY KNUTSON, P.E., S.E. (608) 588-7866



PLAN B-25-186 (THREE SPAN CONCRETE HAUNCH SLAB BRIDGE)



ELEVATION (NORMAL TO MILL CREEK, LOOKING NORTH)

TRAFFIC DATA:

CTH H A.A.D.T. (2021) 340
A.A.D.T. (2041) 370
DESIGN SPEED 60 M.P.H.

* LOCATION OF BEAM GUARD ATTACHMENT
INDICATES WING NUMBER

BENCH MARKS

Table with 4 columns: NO., STATION/OFFSET, DESCRIPTION, ELEVATION. Includes BM-1, BM-2, BM-3.

HORIZONTAL DATUM AND ADJUSTMENT: NAD 83 (2007)
VERTICAL DATUM AND ADJUSTMENT: NAVD 88 (2007)
COORDINATE REFERENCE SYSTEM: WCCS IOWA CO.

NOTES

- EXCAVATION AS INDICATED IN THE HATCH AREAS, TO BE INCLUDED IN THE BID ITEM "EXCAVATION FOR STRUCTURES BRIDGES B-25-186".
G01 BACKFILL PAY LIMITS. BACKFILL BEYOND BACKFILL PAY LIMITS SHALL BE INCLUDED WITH THE EXCAVATION FOR STRUCTURES. LIMITS OF EXCAVATION SHALL BE DETERMINED BY THE CONTRACTOR.
G02 "GEOTEXTILE TYPE OF SCHEDULE A" LIMITS. EXTEND 2'-0" ABOVE BOTTOM OF ABUTMENT FOR THE ENTIRE ABUTMENT BODY LENGTH.
G03 PIPE UNDERDRAIN WRAPPED (6-INCH). SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. ATTACH RODENT SHIELD AT ENDS OF PIPE UNDERDRAIN AS DETAILED IN "ABUTMENT DETAILS" SHEET.
G04 NAME PLATE REQUIRED AND BENCH MARK CAP (WHEN SUPPLIED). FOR LOCATION SEE "ABUTMENTS" SHEET.

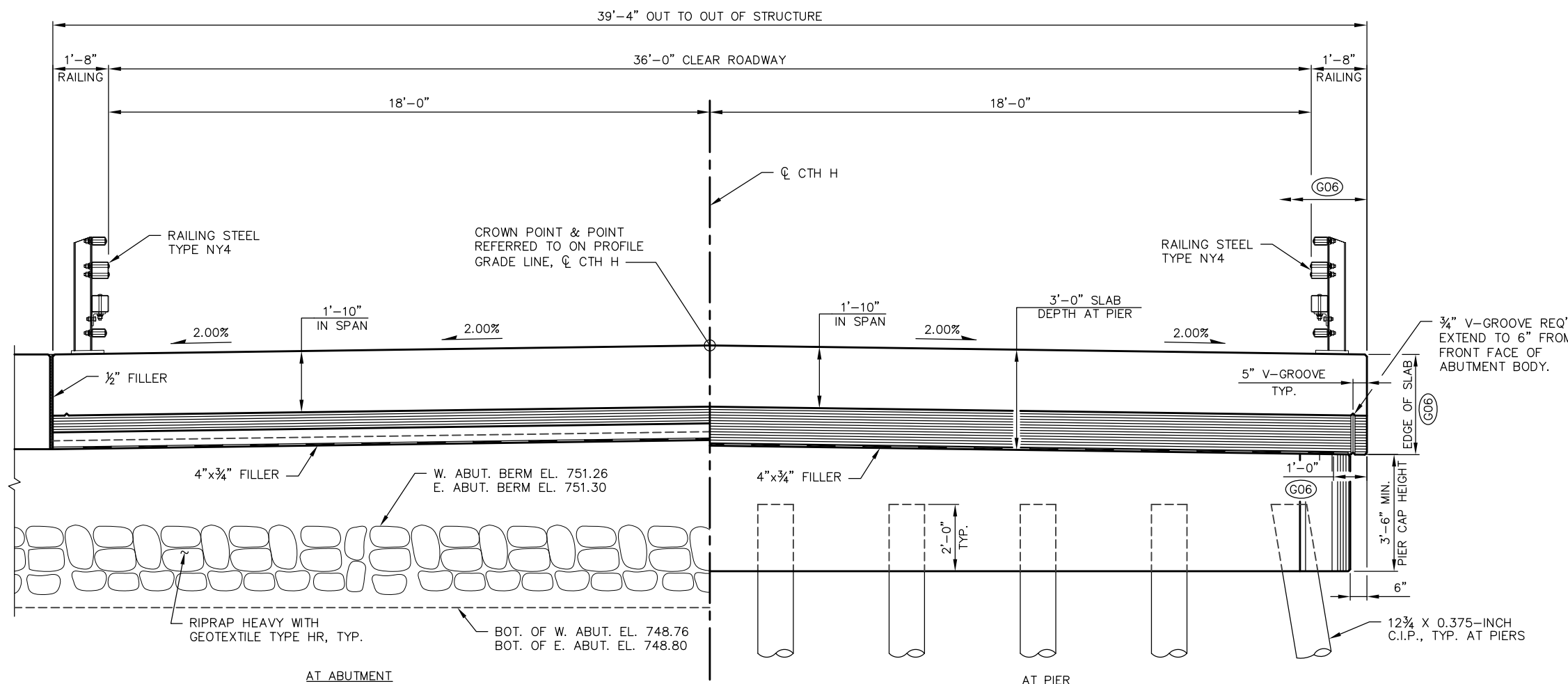
LIST OF DRAWINGS

- 1. GENERAL PLAN
2. CROSS SECTION, GENERAL NOTES & QUANTITIES
3. SUBSURFACE EXPLORATION
4. ABUTMENTS
5. ABUTMENT DETAILS
6. PIER DETAILS
7. SUPERSTRUCTURE
8. SUPERSTRUCTURE DETAILS
9. RAILING STEEL TYPE NY4 DETAILS #1
10. RAILING STEEL TYPE NY4 DETAILS #2

G05 ALL RIPRAP ABOVE THE "ORDINARY HIGH WATER MARK" (OHWM) MUST BE TOP-DRESSED WITH 6" OF SOIL AND SEEDED. *SEE ROADWAY PLANS FOR DETAILS.



WESTBROOK Associated Engineers, Inc.
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION
ACCEPTED: [Signature] SDR 05/05/20
CHIEF STRUCTURES DESIGN ENGINEER DATE
STRUCTURE B-25-186
CTH H OVER MILL CREEK
COUNTY IOWA TOWN/CITY/MILEAGE ARENA
DESIGN SPEC. AASHTO LRFD DESIGN SPEC.
DESIGNED BY CDS DESIGN CK'D. JDO DRAWN BY CDS PLANS CK'D. ACK
GENERAL PLAN SHEET 1 OF 10



GENERAL NOTES

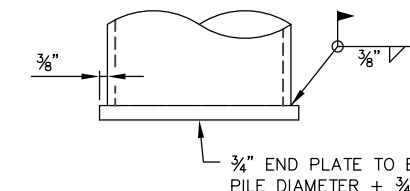
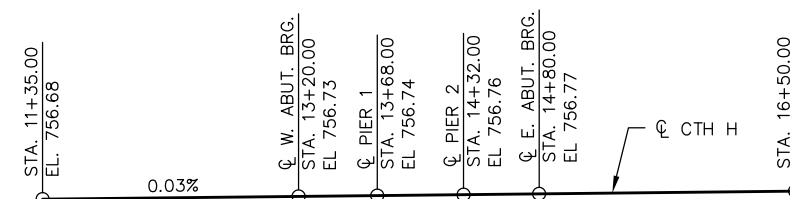
- DRAWINGS SHALL NOT BE SCALED.
- BAR STEEL REINFORCEMENT SHALL BE EMBEDDED 2" CLEAR UNLESS OTHERWISE SHOWN OR NOTED.
- THE FIRST OR FIRST TWO DIGITS OF A FOUR DIGIT BAR MARK SIGNIFIES THE BAR SIZE.
- BEVEL EXPOSED EDGES OF CONCRETE 3/4" UNLESS OTHERWISE NOTED.
- THE SLOPE IN FRONT OF THE ABUTMENTS SHALL BE COVERED WITH RIPRAP HEAVY AND GEOTEXTILE TYPE HR TO THE EXTENT SHOWN ON THE "GENERAL PLAN" SHEET AND THE ABUTMENT SHEETS.
- THE QUANTITY FOR BACKFILL STRUCTURE TYPE A, BID ITEM 210.1500, IS CALCULATED BASED ON STRUCTURE BACKFILL LIMITS AND NOTES SHOWN ON "GENERAL PLAN" SHEET.
- PROTECTIVE SURFACE TREATMENT TO BE APPLIED TO THE SUPERSTRUCTURE SLAB PER THE STANDARD SPECIFICATION.
- THE UPPER LIMITS OF EXCAVATION FOR STRUCTURES SHALL BE THE EXISTING GROUND LINE.
- AT ABUTMENTS, CONCRETE POURED UNDER WATER WILL BE ALLOWED AND SHALL BE DONE IN ACCORDANCE WITH SECTION 502.3.5.3 OF THE STANDARD SPECIFICATIONS.
- SLAB FALSEWORK SHALL BE SUPPORTED ON PILES OR THE SUBSTRUCTURE, UNLESS AN ALTERNATE METHOD IS APPROVED BY THE ENGINEER.
- AT THE BACKFACE OF ABUTMENT ALL VOLUME WHICH CANNOT BE PLACED BEFORE ABUTMENT CONSTRUCTION AND IS NOT OCCUPIED BY THE NEW STRUCTURE SHALL BE BACKFILLED WITH STRUCTURE BACKFILL TYPE A.
- DO NOT PLACE FILL ABOVE 3'-0" FROM BOTTOM OF ABUTMENT UNTIL SUPERSTRUCTURE IS IN PLACE.
- THE EXISTING STRUCTURE (P-25-41) IS A FIVE SPAN STEEL GIRDER WITH CONCRETE DECK BRIDGE WITH AN OVERALL LENGTH OF 150-FT AND A DECK WIDTH OF 26.6-FT AND IS TO BE REMOVED PER BID ITEM "REMOVING OLD STRUCTURE OVER WATERWAY WITH MINIMAL DEBRIS STA. 14+00".

NOTE

G06 COAT WITH "PROTECTIVE SURFACE TREATMENT" AS PER THE STANDARD SPECIFICATIONS.

CROSS SECTION THRU ROADWAY

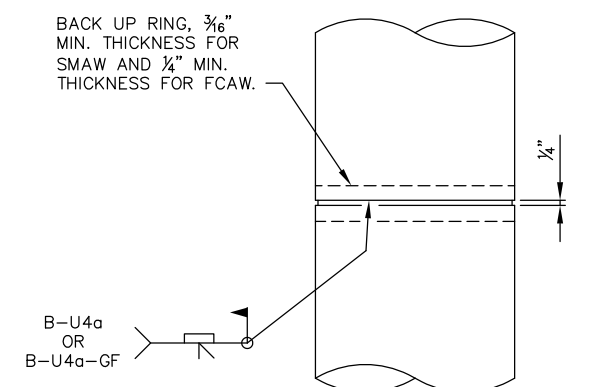
(LOOKING EAST)



TOTAL ESTIMATED QUANTITIES

ITEM NO.	BID ITEMS	UNIT	W. ABUT.	PIER 1	PIER 2	E. ABUT.	SUPER.	TOTALS
203.0600.S	REMOVING OLD STRUCTURE OVER WATERWAY WITH MINIMAL DEBRIS STA. 14+00	LS	---	---	---	---	---	1
206.1000	EXCAVATION FOR STRUCTURES BRIDGES B-25-186	LS	---	---	---	---	---	1
210.1500	BACKFILL STRUCTURE TYPE A	TON	210	---	---	210	---	420
502.0100	CONCRETE MASONRY BRIDGES	CY	31	15	15	31	488	580
502.3200	PROTECTIVE SURFACE TREATMENT	SY	---	---	---	---	817	817
505.0400	BAR STEEL REINFORCEMENT HS STRUCTURES	LB	2820	3200	3200	2820	---	12040
505.0600	BAR STEEL REINFORCEMENT HS COATED STRUCTURES	LB	1330	80	80	1330	95160	97980
513.7084	RAILING STEEL TYPE NY4	LF	---	---	---	---	331	331
516.0500	RUBBERIZED MEMBRANE WATERPROOFING	SY	8	---	---	8	---	16
550.0500	PILE POINTS	EACH	8	10	10	8	---	36
550.2106	PILING CIP CONCRETE 10 3/4 X 0.365-INCH	LF	560	---	---	480	---	1040
550.2126	PILING CIP CONCRETE 12 3/4 X 0.375-INCH	LF	---	700	700	---	---	1400
606.0300	RIPRAP HEAVY	CY	36	---	---	35	---	71
612.0406	PIPE UNDERDRAIN WRAPPED 6-INCH	LF	75	---	---	75	---	150
645.0111	GEOTEXTILE TYPE DF SCHEDULE A	SY	42	---	---	42	---	84
645.0120	GEOTEXTILE TYPE HR	SY	80	---	---	78	---	158
(NON-BID ITEM)	FILLER	SIZE						1/2" & 3/4"

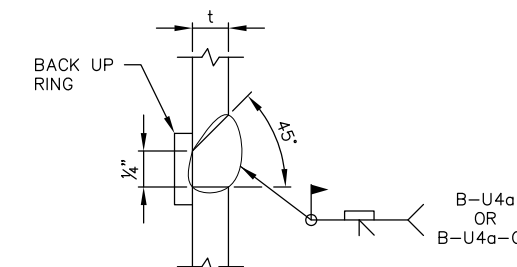
PROFILE GRADE LINE, CL CTH H



CAST-IN-PLACE 'PIPE PILE'

NOTE: CAST-IN-PLACE PILE SHELL MATERIAL SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATION.

END PLATE DETAIL FOR CIP PILING



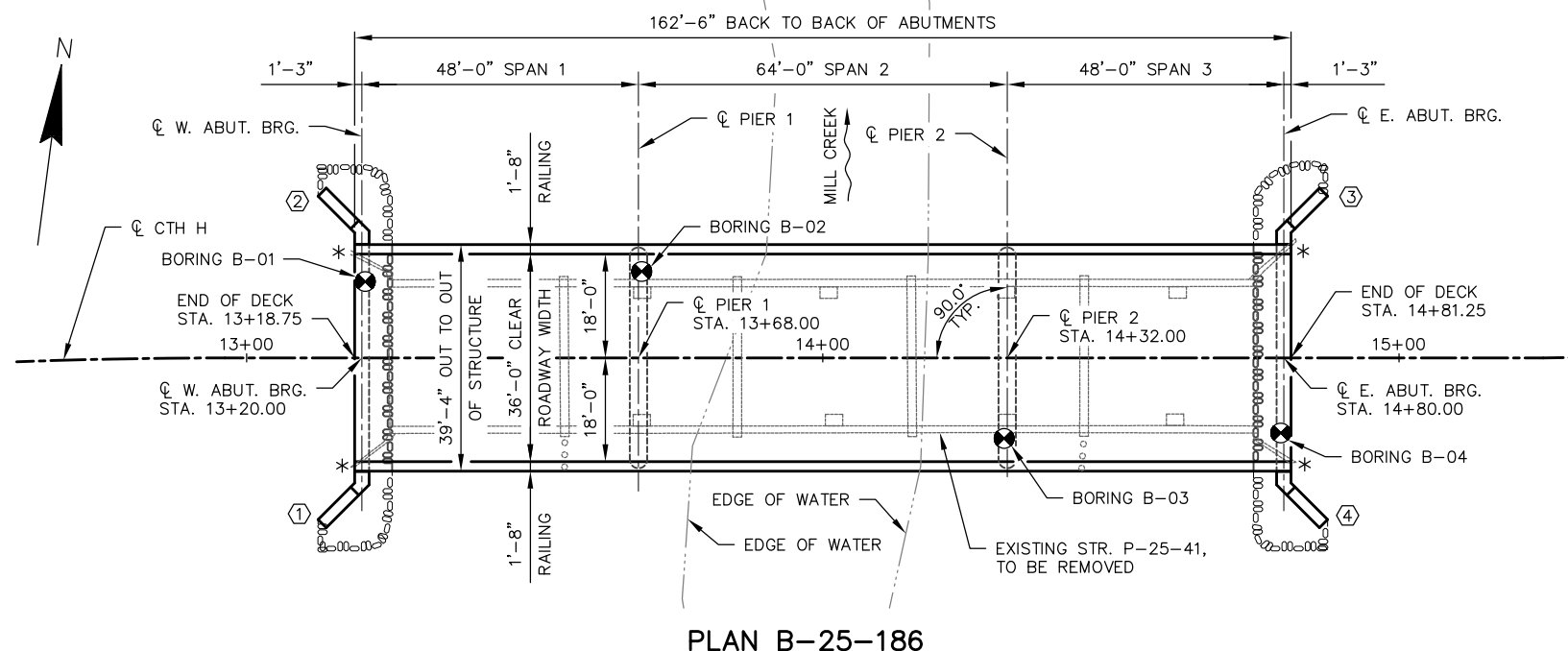
C.I.P. PILE WELD DETAIL

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-25-186			
DRAWN BY	CDS	PLANS OK'D	ACK
CROSS SECTION, GENERAL NOTES & QUANTITIES			SHEET 2 OF 10

B-25-186 BORINGS

BORING #	DATE COMPLETED	NORTHING (Y)	EASTING (X)
BORING B-01	8/28/2017	197926	420250
BORING B-02	8/30/2017	197934	420298
BORING B-03	8/29/2017	197913	420364
BORING B-04	8/29/2017	197920	420411

BORINGS COMPLETED BY: NUMMELIN TESTING SERVICES, INC.
 SUBSURFACE INVESTIGATION REPORT: NUMMELIN TESTING SERVICES, INC.
 ALL COORDINATES REFERENCED TO WCCS, IOWA COUNTY



PLAN B-25-186

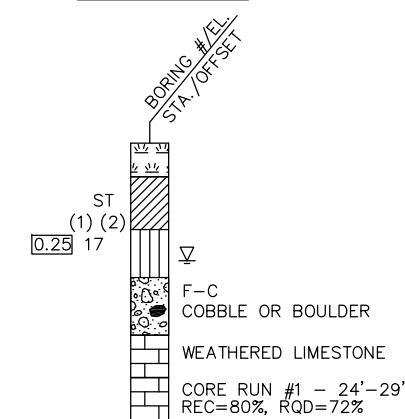
NOTES

- * LOCATION OF BEAM GUARD ATTACHMENT
- ⊙ INDICATES WING NUMBER

MATERIAL SYMBOLS

	ASPHALT		TOPSOIL		PEAT
	CONCRETE		FILL		GRAVEL
	SAND		CLAY		SILT
	BOULDERS OR COBBLES		LIMESTONE		BEDROCK (UNKNOWN)
	SHALE		SANDSTONE		IGNEOUS/META

LEGEND OF BORING



- (1) UNCONFINED STRENGTH, AS DETERMINED BY A POCKET PENETROMETER (TSF)
- (2) UNLESS OTHERWISE SPECIFIED, THE SPT 'N' VALUE IS BASED ON AASHTO T-206, STANDARD PENETRATION TEST. THE SPT 'N' VALUE PRESENTED HAS NOT BEEN CORRECTED FOR OVERBURDEN PRESSURE OR HAMMER EFFICIENCY.

GROUND WATER ELEVATION

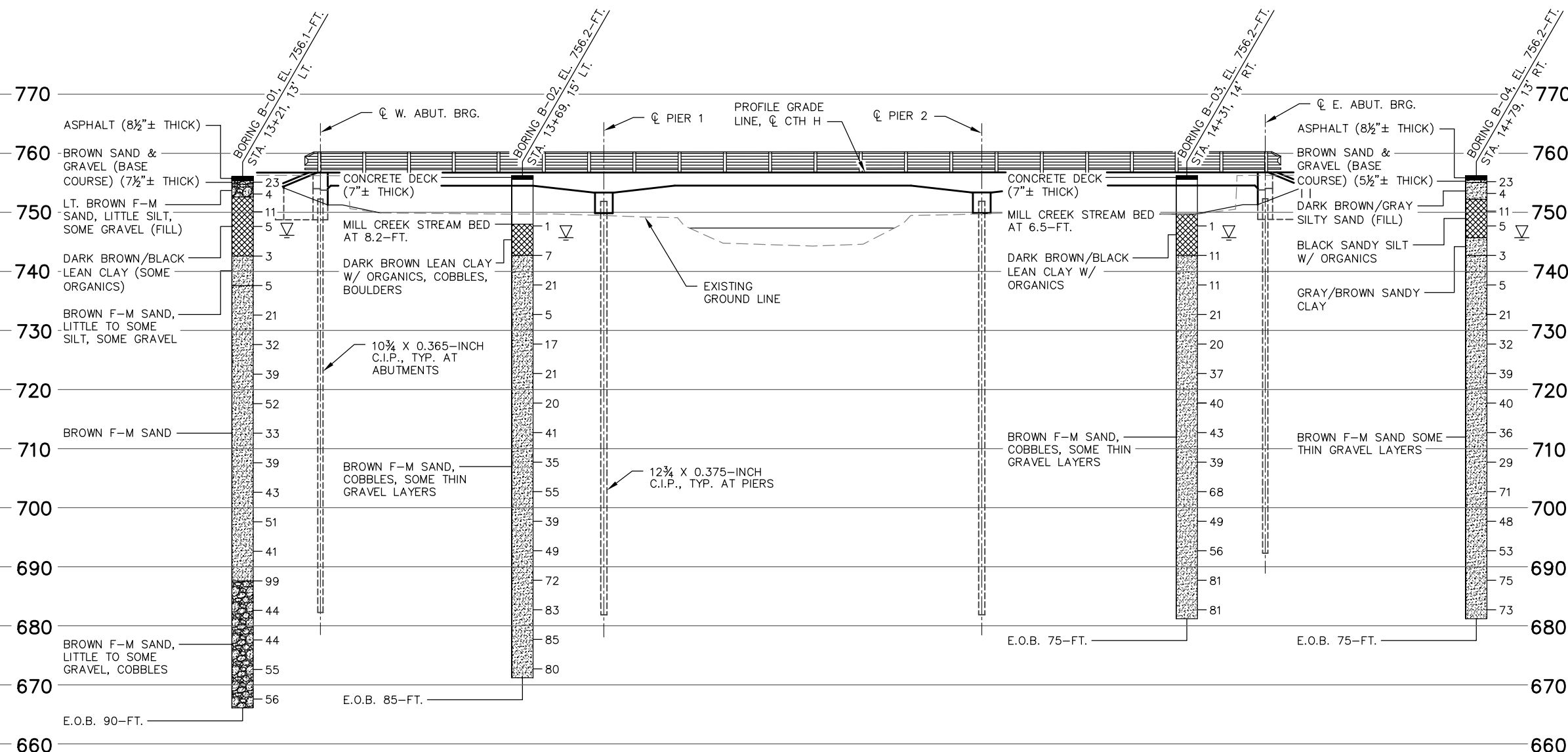
- ▽ AT TIME OF DRILLING
- ▼ END OF DRILLING
- ▼ AFTER DRILLING

ABBREVIATIONS

F-FINE M-MEDIUM C-COARSE ST-SHELBY TUBE

SUBSURFACE EXPLORATION FOR FOUNDATION DESIGN AND BIDDERS INFORMATION

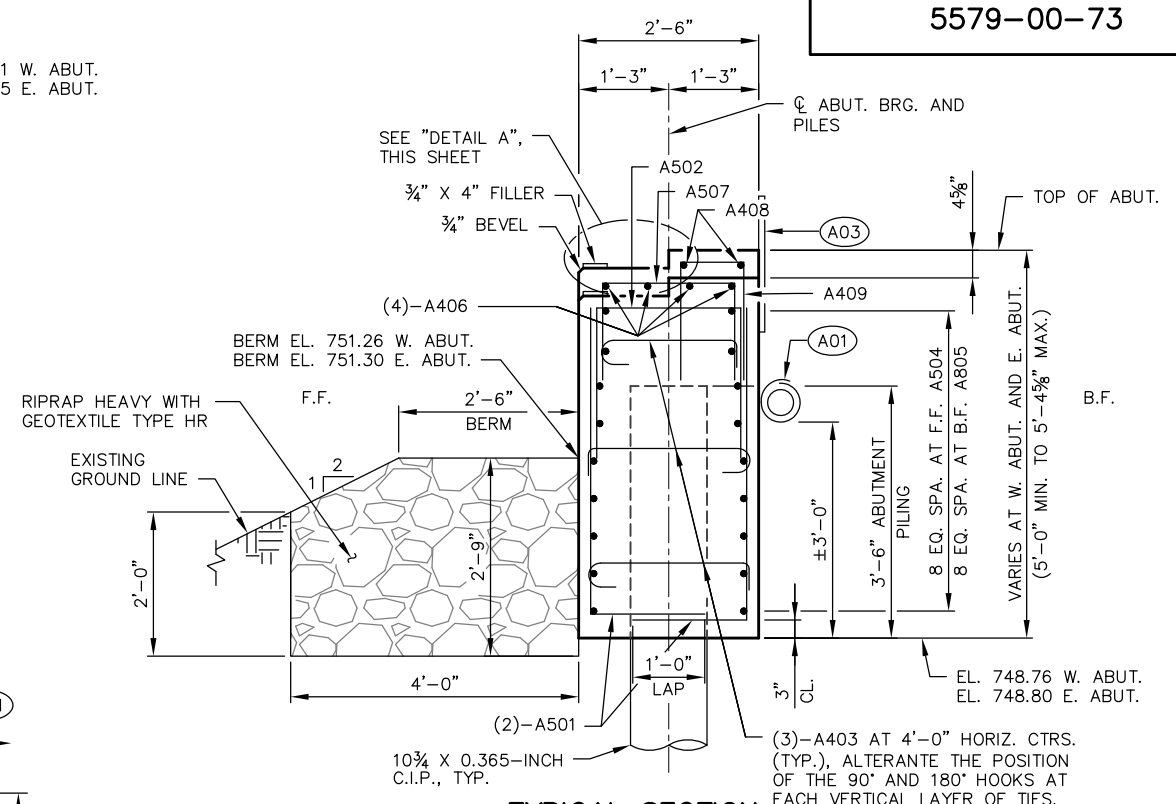
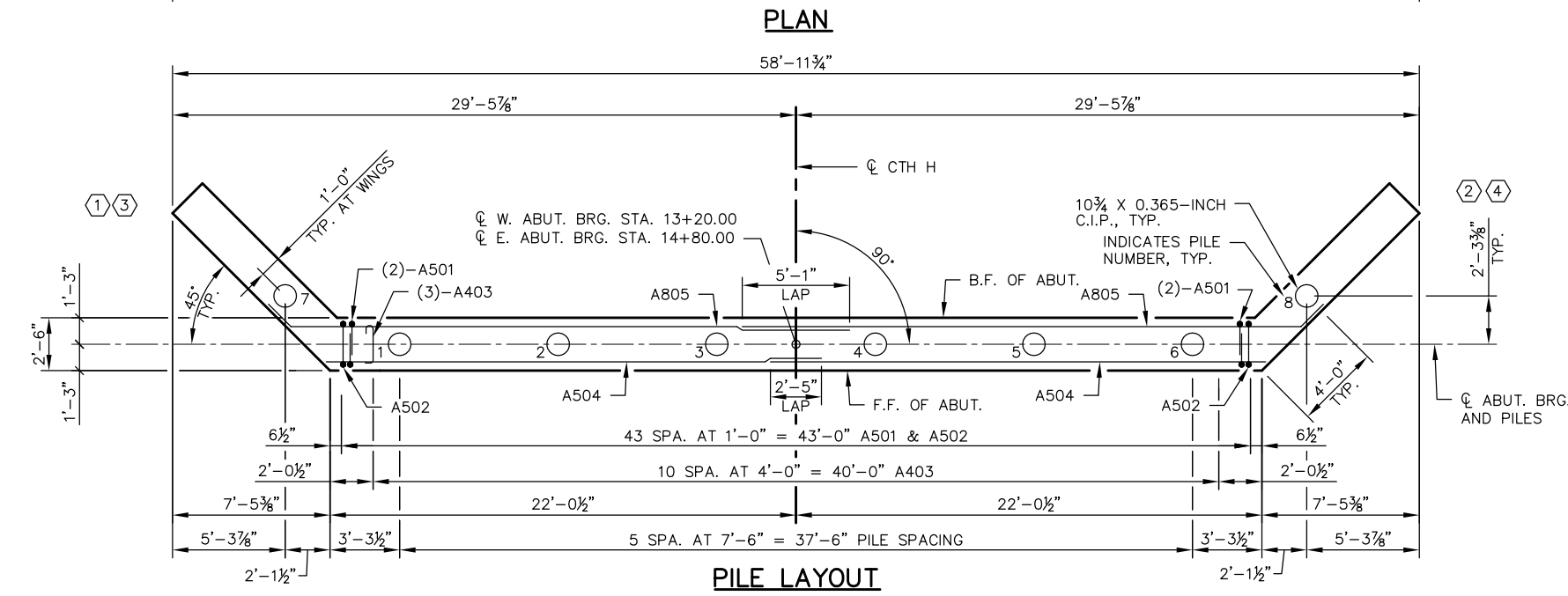
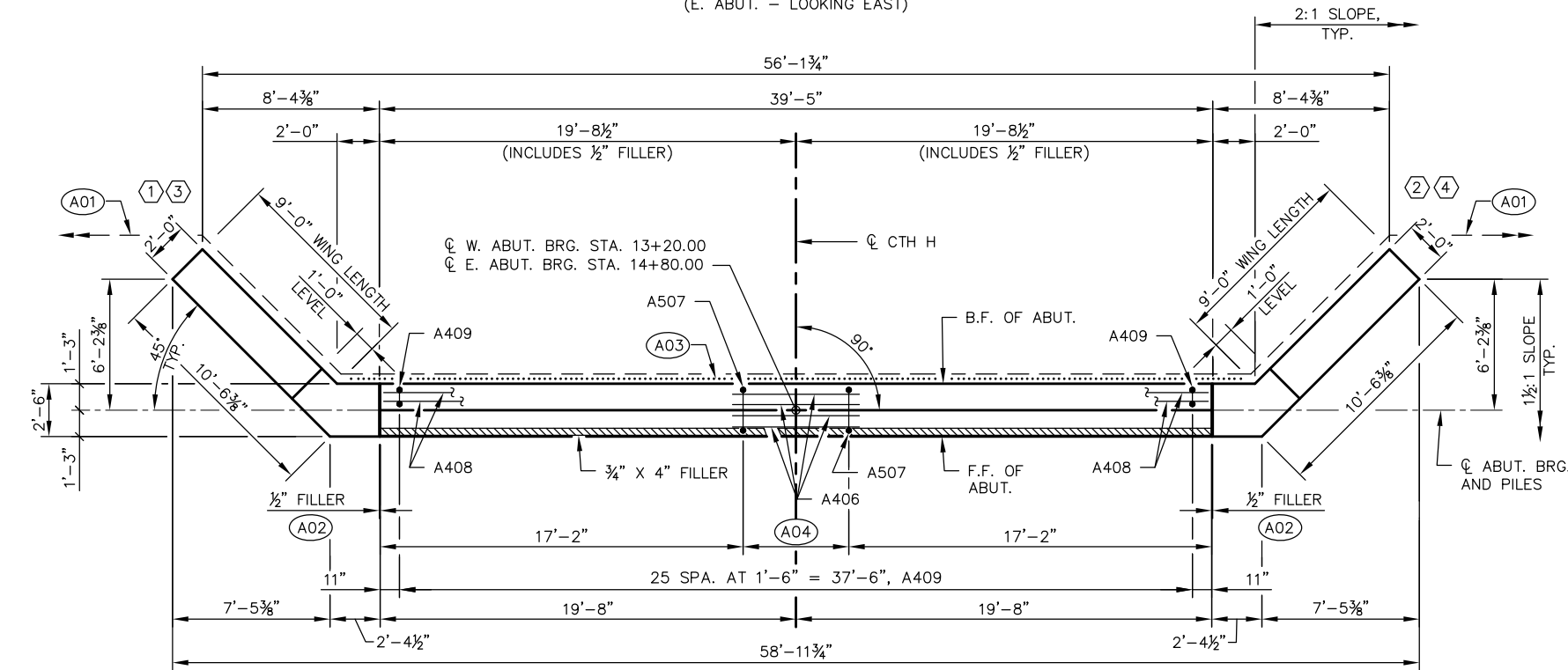
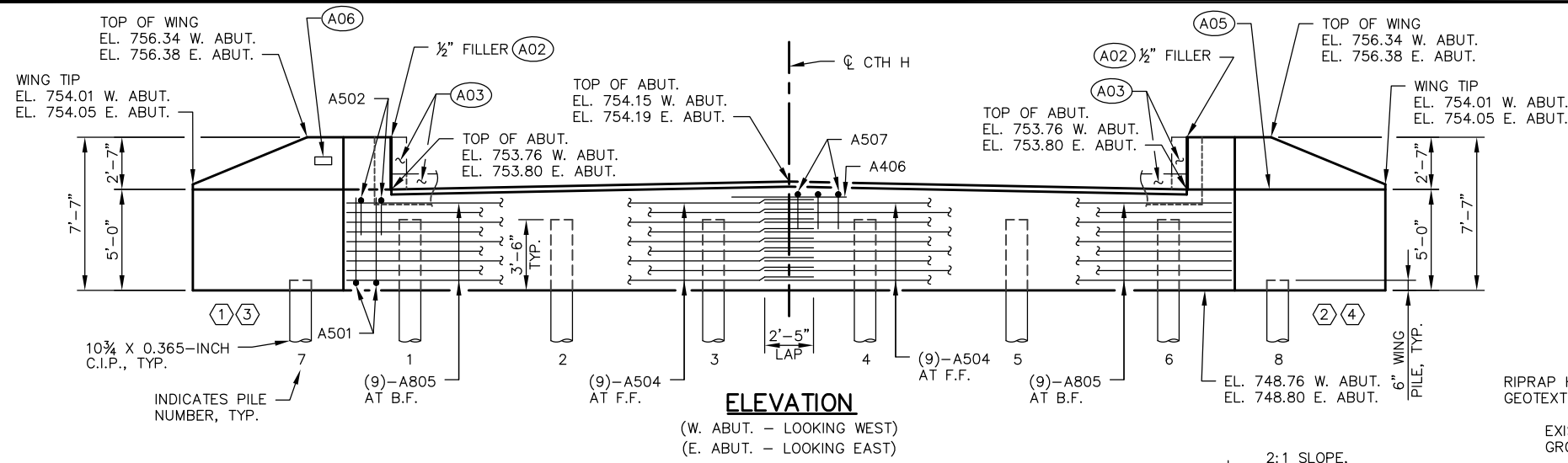
BORINGS WERE COMPLETED AT POINTS APPROXIMATELY AS INDICATED ON THIS DRAWING TO OBTAIN INFORMATION CONCERNING THE CHARACTER OF SUBSURFACE MATERIALS FOUND AT THE SITE. BECAUSE THE INVESTIGATED DEPTHS ARE LIMITED AND THE AREA OF THE BORINGS IS VERY SMALL IN RELATION TO THE ENTIRE SITE, THE WISCONSIN DEPARTMENT OF TRANSPORTATION DOES NOT WARRANT SIMILAR SUBSURFACE CONDITIONS BELOW, BETWEEN, OR BEYOND THESE BORINGS. VARIATIONS IN SOIL CONDITIONS SHOULD BE EXPECTED AND FLUCTUATIONS IN GROUNDWATER LEVELS MAY OCCUR.



8

8

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-25-186			
DRAWN BY: CDS		PLANS OK'D: ACK	
SUBSURFACE EXPLORATION			SHEET 3 OF 10

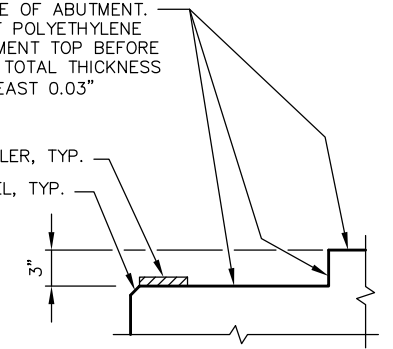


STEEL TROWEL TOP SURFACE OF ABUTMENT. PLACE MULTIPLE LAYERS OF POLYETHYLENE SHEETS OVER ENTIRE ABUTMENT TOP BEFORE PLACING SUPERSTRUCTURE. TOTAL THICKNESS OF SHEETS SHALL BE AT LEAST 0.03"

TYPICAL SECTION THRU ABUTMENT

NOTES

- DO NOT PLACE FILL ABOVE 3'-0" FROM THE BOTTOM OF THE ABUTMENT UNTIL SUPERSTRUCTURE IS IN PLACE.
- WEST AND EAST ABUTMENTS TO BE SUPPORTED ON 10 3/4 X 0.365-INCH C.I.P. PILING DRIVEN TO A REQUIRED DRIVING RESISTANCE OF 150 TONS PER PILE AS DETERMINED BY THE MODIFIED GATES DYNAMIC FORMULA. ESTIMATED 70 FT PILE LENGTHS AT THE WEST ABUTMENT AND 60 FT PILE LENGTHS AT THE EAST ABUTMENT.
- SEE "CROSS SECTION, GENERAL NOTES & QUANTITIES" SHEET FOR C.I.P. PILE SPLICE DETAILS.
- A01 PIPE UNDERDRAIN WRAPPED (6-INCH). SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. ATTACH RODENT SHIELD AT ENDS OF PIPE UNDERDRAIN AS DETAILED ON "ABUTMENT DETAILS" SHEET. RODENT SHIELD SHALL BE INCLUDED WITH THE BID ITEM "PIPE UNDERDRAIN WRAPPED 6-INCH".
- A02 SEAL ALL EXPOSED HORIZONTAL AND VERTICAL SURFACES OF 1/2" FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. (1" DEEP AND HOLD 1/8" BELOW SURFACE OF CONCRETE). 1/2" FILLER TO EXTEND FROM BRIDGE SEAT TO TOP OF WING.
- A03 18" RUBBERIZED MEMBRANE WATERPROOFING (R.M.W.). SEAL ALL HORIZONTAL AND VERTICAL JOINTS ON BACK FACE.
- A04 5 SPA. AT 1'-0" = 5'-0", A507
- A05 OPTIONAL KEYED CONST. JT. FORMED BY BEVELED 2 X 6, TYP.
- A06 NAME PLATE & BENCHMARK CAP (WHEN SUPPLIED) AT WING 1 ONLY. SEE NAME PLATE DETAIL ON "ABUTMENT DETAILS" SHEET.
- INDICATES WING NUMBER



NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-25-186			
DRAWN BY JDO		PLANS OK'D ACK	
ABUTMENTS			SHEET 4 OF 10

COATED = 2,660 LBS.
UNCOATED = 5,640 LBS.

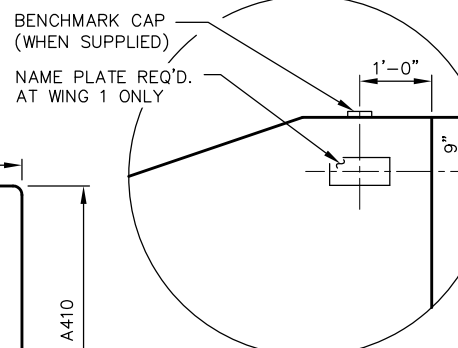
**BILL OF BARS
BOTH ABUTMENTS**

MARK	NUMBER		LENGTH	BENT	BAR SERIES	LOCATION
	COATED	UNCOATED				
A501		176	5'-10"	X		BODY STIRRUP - F.F. & B.F. VERT.
A502		88	6'-1"	X		BODY STIRRUP - TOP VERT.
A403		66	3'-0"	X		BODY - TIES HORIZ.
A504		36	23'-3"			BODY - F.F. HORIZ.
A805		36	28'-1"	X		BODY - B.F. HORIZ.
A406		8	6'-0"			BODY - TOP HORIZ.
A507		12	4'-9"	X		BODY - TOP STIRRUP VERT.
A408		4	39'-0"			BODY - TOP HORIZ.
A409		52	3'-3"	X		BODY - TOP STIRRUP VERT.
A410		96	8'-6"	X	▲	WINGS 1 THRU 4 - STIRRUP - F.F. & B.F. VERT.
A411		32	7'-2"			WINGS 1 THRU 4 - F.F. & B.F. VERT.
A512		36	11'-9"	X		WINGS 1 THRU 4 - F.F. HORIZ.
A413		4	10'-0"			WINGS 1 THRU 4 - F.F. HORIZ.
A414		4	7'-9"			WINGS 1 THRU 4 - F.F. HORIZ.
A415		4	5'-5"			WINGS 1 THRU 4 - F.F. HORIZ.
A416		4	10'-6"	X		WINGS 1 THRU 4 - F.F. - TOP HORIZ.
A817		36	13'-3"	X		WINGS 1 THRU 4 - B.F. HORIZ.
A418		4	8'-5"			WINGS 1 THRU 4 - B.F. HORIZ.
A419		4	6'-3"			WINGS 1 THRU 4 - B.F. HORIZ.
A420		4	4'-0"			WINGS 1 THRU 4 - B.F. HORIZ.
A421		4	8'-11"	X		WINGS 1 THRU 4 - B.F. - TOP HORIZ.
A422		16	4'-2"	X		WINGS 1 THRU 4 - F.F. CORNER HORIZ.
A423		16	2'-9"	X		WINGS 1 THRU 4 - B.F. CORNER HORIZ.

THE FIRST DIGIT OF A BAR MARK SIGNIFIES THE BAR SIZE.

ALL BAR BEND DIMENSIONS ARE OUT TO OUT OF BAR.

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



NAME PLATE DETAIL

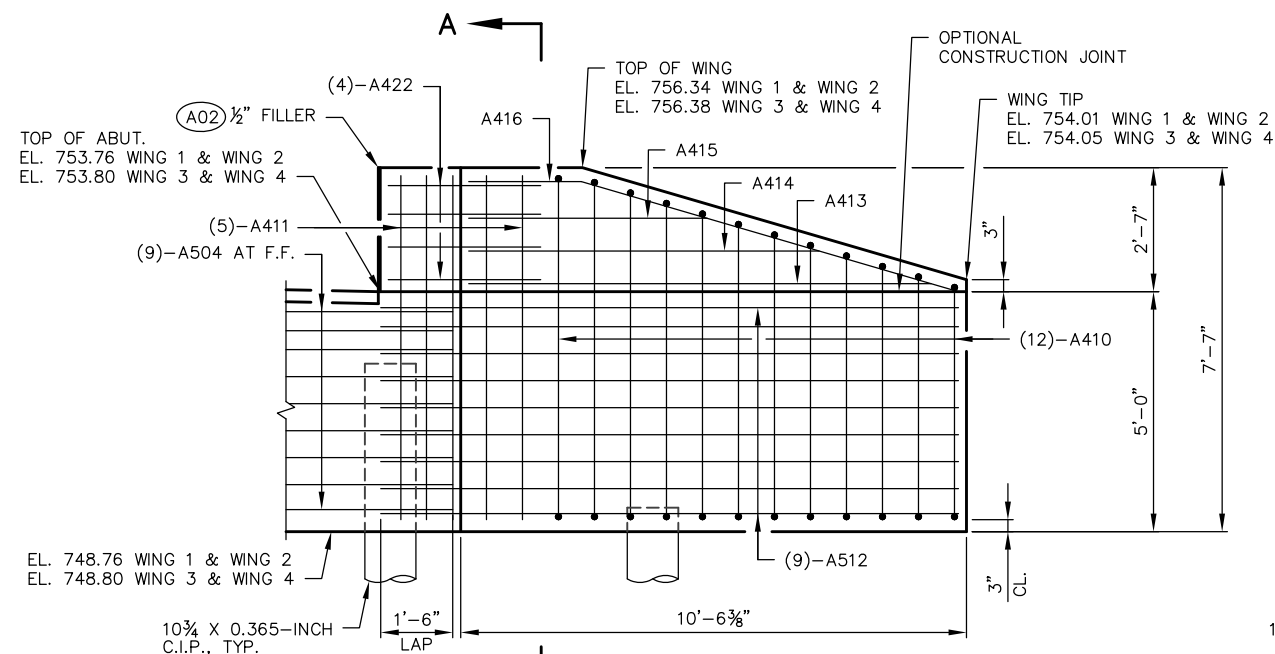
NOTES

DO NOT PLACE FILL ABOVE 3'-0" FROM THE BOTTOM OF THE ABUTMENT UNTIL SUPERSTRUCTURE IS IN PLACE.

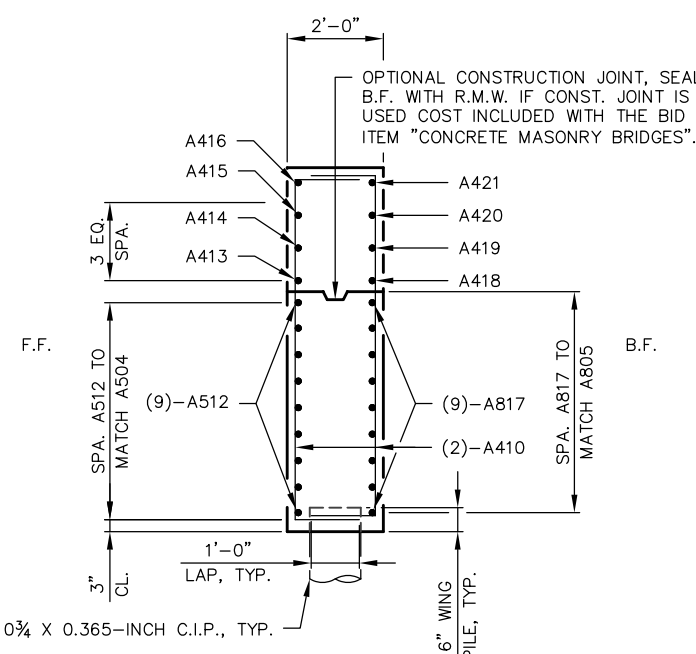
WEST AND EAST ABUTMENT TO BE SUPPORTED ON 10 3/4 X 0.365-INCH C.I.P. PILING DRIVEN TO A REQUIRED DRIVING RESISTANCE OF 150 TONS PER PILE AS DETERMINED BY THE MODIFIED GATES DYNAMIC FORMULA. ESTIMATED 70 FT PILE LENGTHS AT THE WEST ABUTMENT AND 60 FT PILE LENGTHS AT THE EAST ABUTMENT.

SEE "CROSS SECTION, GENERAL NOTES & QUANTITIES" SHEET FOR C.I.P. PILE SPLICE DETAILS.

(A02) SEAL ALL EXPOSED HORIZONTAL AND VERTICAL SURFACES OF 1/2" FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. (1" DEEP AND HOLD 1/8" BELOW SURFACE OF CONCRETE.) 1/2" FILLER TO EXTEND FROM BRIDGE SEAT TO TOP OF WING.



F.F. ELEVATION - WINGS 2 & 4
(WING 1 & 3 SIMILAR)

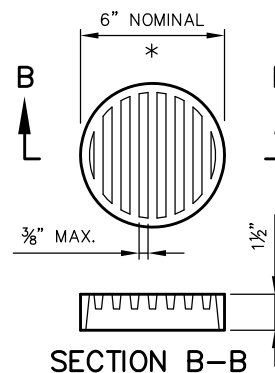


SECTION A-A

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

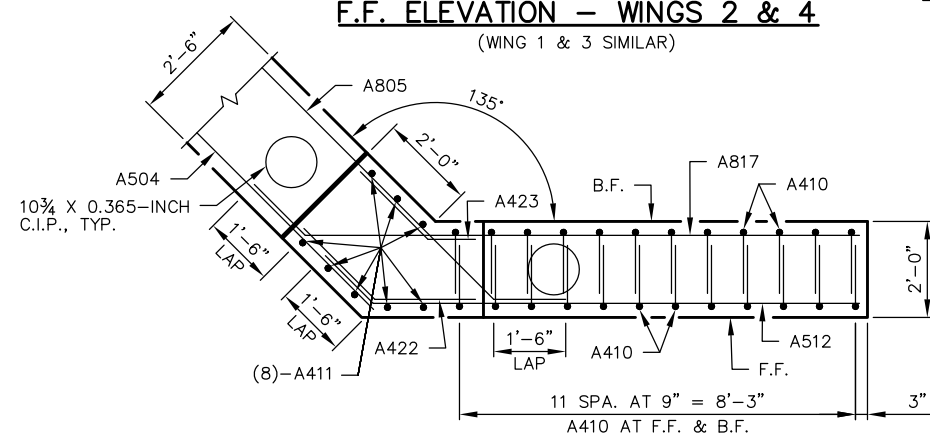
THE RODENT SHIELD SHALL BE A PVC GRATE SIMILAR TO THIS DETAIL. THE GRATE IS COMMERCIALY AVAILABLE AS A FLOOR STRAINER. A PIPE COUPLING IS REQUIRED FOR THE ATTACHMENT OF THIS SHIELD TO THE EXPOSED END OF THE PIPE UNDERDRAIN. THE SHIELD SHALL BE FASTENED TO THE PIPE COUPLING WITH TWO OR MORE NO. 10 X 1-INCH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

THE RODENT SHIELD, PIPE COUPLING AND SCREWS SHALL BE INCLUDED WITH THE BID ITEM "PIPE UNDERDRAIN WRAPPED 6-INCH".

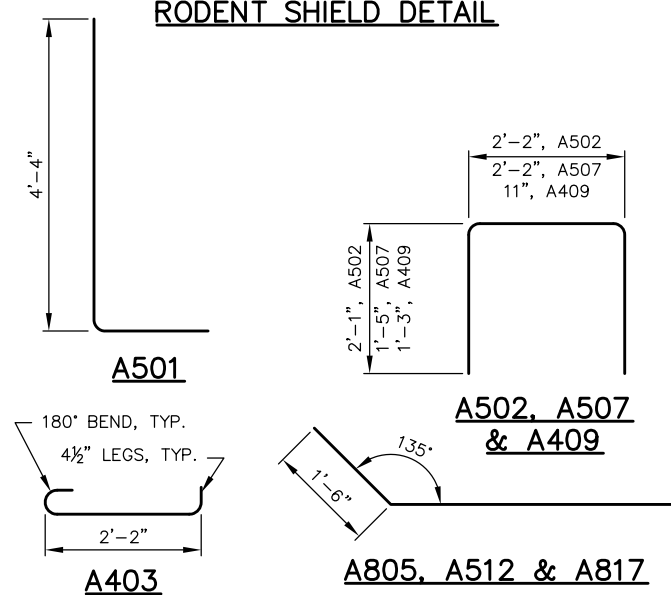


SECTION B-B

RODENT SHIELD DETAIL

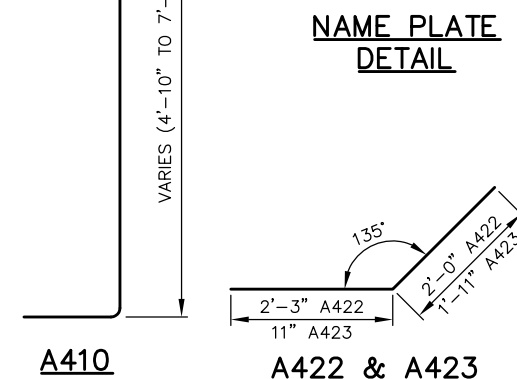


PLAN - WINGS 2 & 4
(WING 1 & 3 SIMILAR)



BAR BEND DIMENSIONS

MARK	"A"	"B"
A416	8'-2"	2'-4"
A421	8'-2"	0'-9"



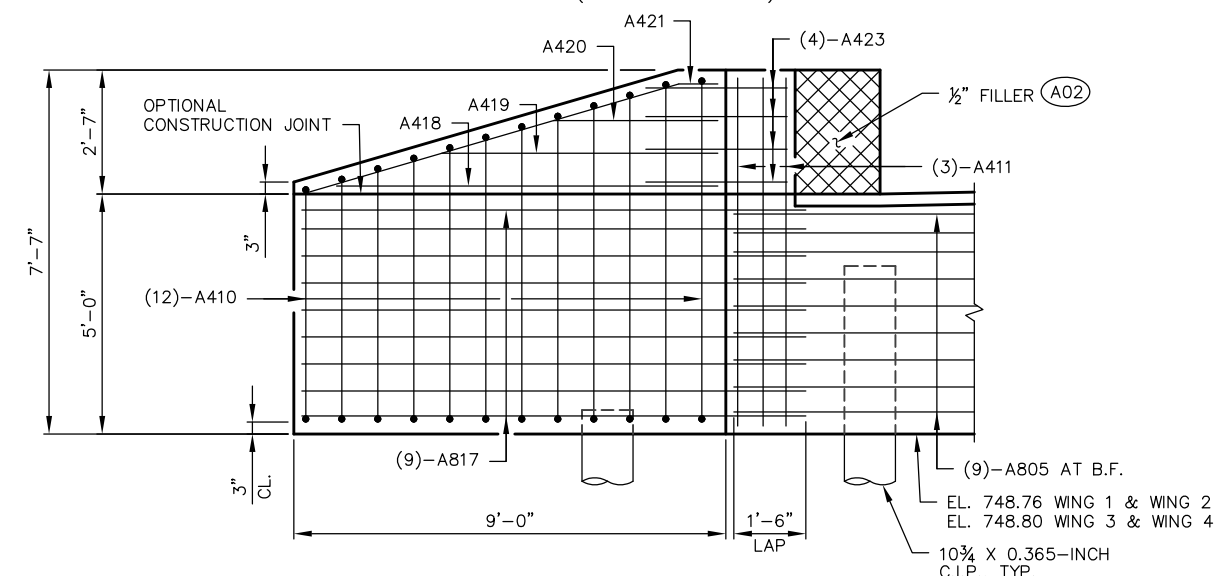
A410

A422 & A423

BAR SERIES TABLE

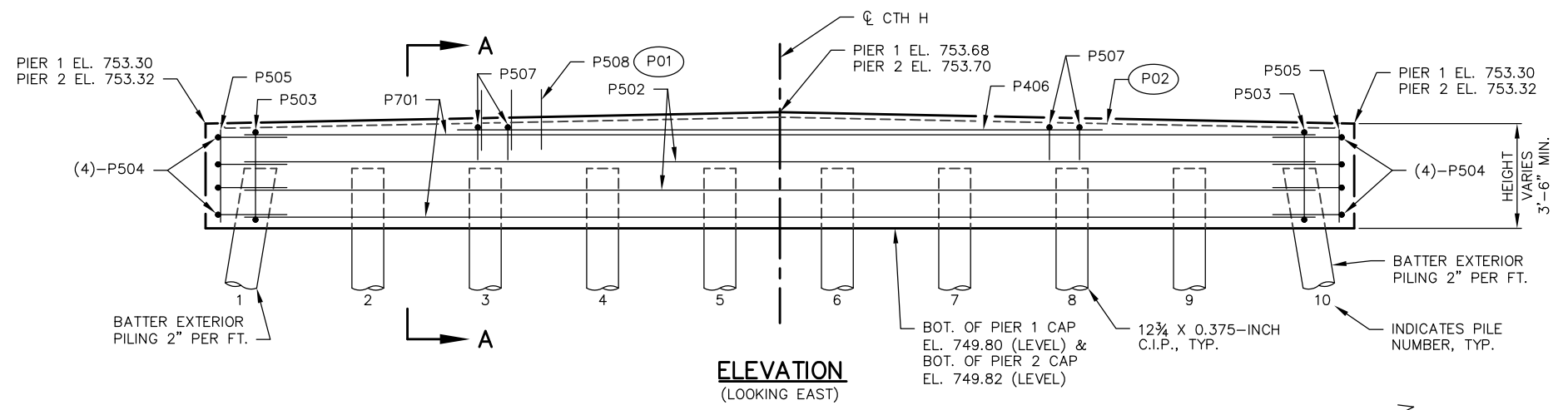
MARK	NO. REQ'D	LENGTH
A410	8 SERIES OF 12	7'-4" TO 9'-8"

BUNDLE AND TAG EACH SERIES SEPARATELY.

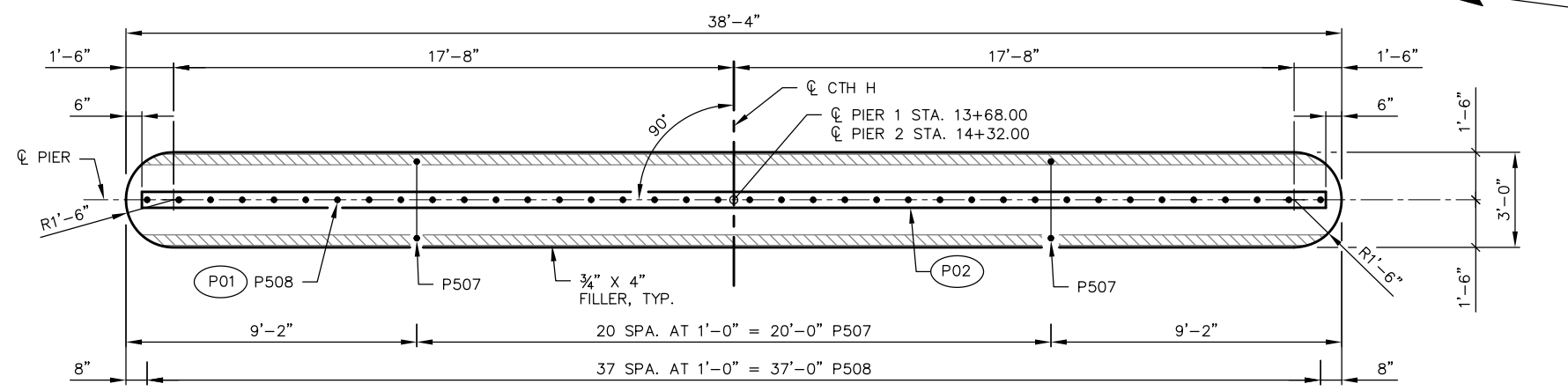


B.F. ELEVATION - WINGS 2 & 4
(WING 1 & 3 SIMILAR)

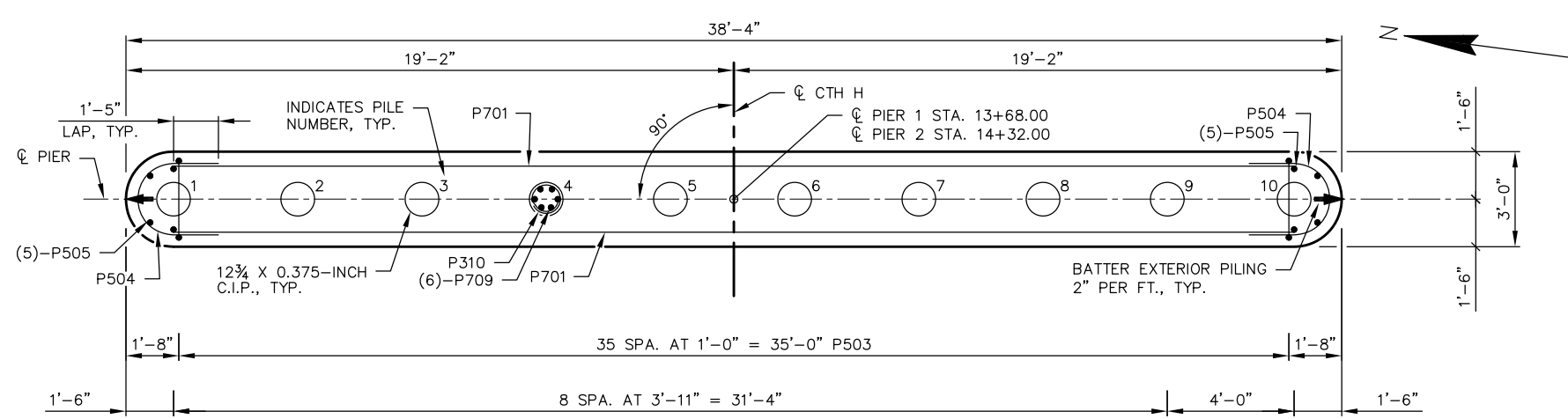
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-25-186			
DRAWN BY: JDO		PLANS OK'D: ACK	
ABUTMENT DETAILS			SHEET 5 OF 10



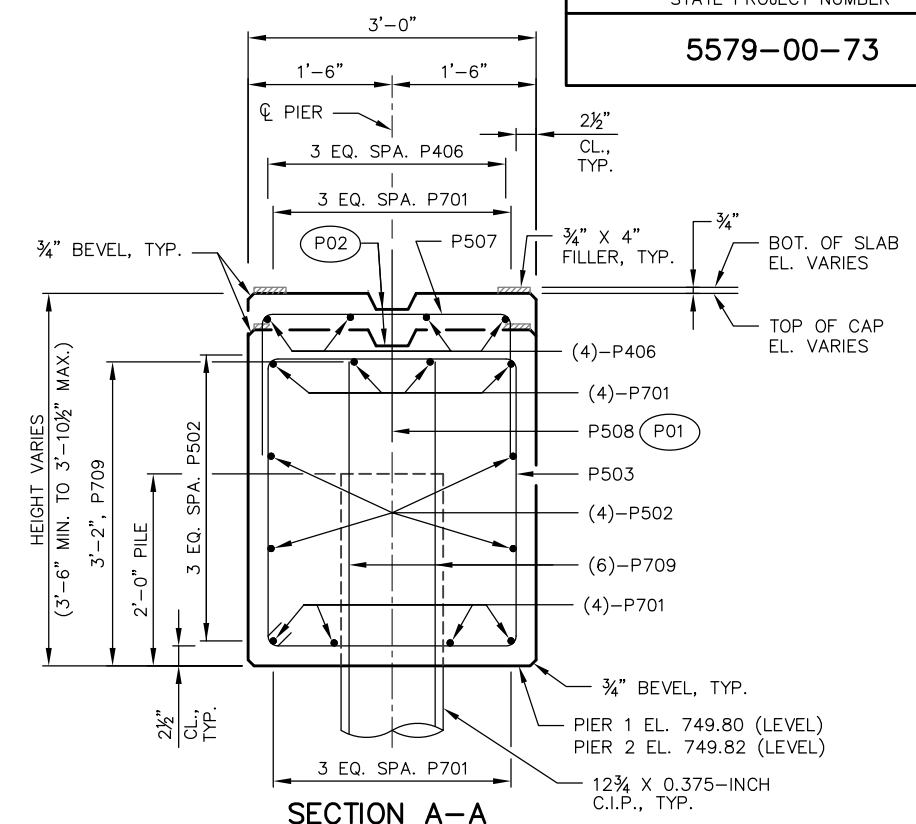
ELEVATION
(LOOKING EAST)



PLAN



PILE AND REINFORCEMENT PLAN



SECTION A-A

BILL OF BARS
BOTH PIERS

COATED = 160 LBS.
UNCOATED = 6,400 LBS

MARK	NUMBER		LENGTH	BENT	BAR SERIES	LOCATION
	COATED	UNCOATED				
P701		16	35'-4"			PIER CAP - TOP & BOTTOM HORIZ.
P502		8	35'-4"			PIER CAP - SIDES HORIZ.
P503		72	12'-0"	X		PIER CAP - STIRRUP VERT.
P504		16	6'-10"	X		PIER CAP - END STIRRUP HORIZ.
P505		20	3'-1"			PIER CAP - END VERTICAL BAR VERT.
P406		8	21'-6"			PIER CAP - TOP HORIZ.
P507		42	5'-4"	X		PIER CAP - TOP STIRRUP VERT.
P508	76		2'-0"			PIER CAP - DOWELS VERT.
P709		120	13'-7"			PILE VERT. VERT.
P310		140	3'-7"	X		PILE TIES HORIZ.

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

NOTES

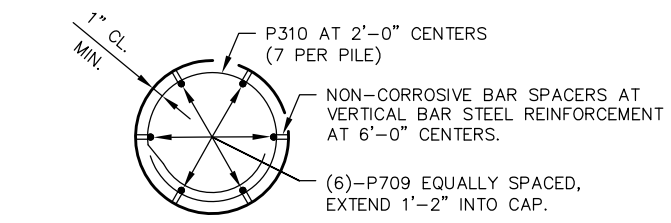
PIER 1 & PIER 2 TO BE SUPPORTED ON 12 3/4 X 0.375-INCH C.I.P. PILING DRIVEN TO A REQUIRED RESISTANCE OF 210 TONS PER PILE. ESTIMATE 70 FT. PILE LENGTHS AT PIER 1 & PIER 2.

PILES SHALL BE PAINTED IN ACCORDANCE WITH SECTION 550.3.11.3 OF THE STANDARD SPECIFICATIONS.

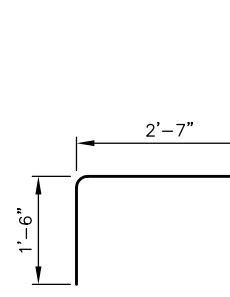
FOR PILE SPLICE DETAILS SEE "CROSS SECTION, GENERAL NOTES & QUANTITIES" SHEET.

(P01) P508 BARS MAY BE PLACED AFTER CONCRETE IS POURED, BUT BEFORE INITIAL SET HAS TAKEN PLACE.

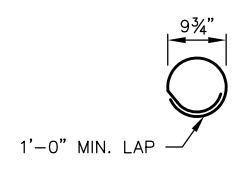
(P02) KEYED CONSTRUCTION JOINT FORMED BY BEVELED 2"x6".



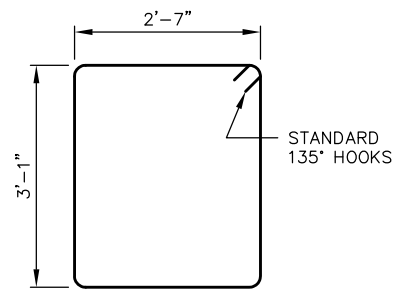
SECTION THRU CONCRETE CAST-IN-PLACE PILING AT PIER



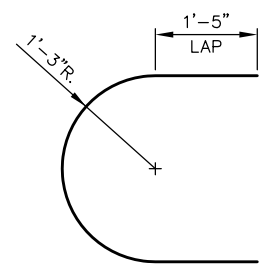
P507



P310



P503

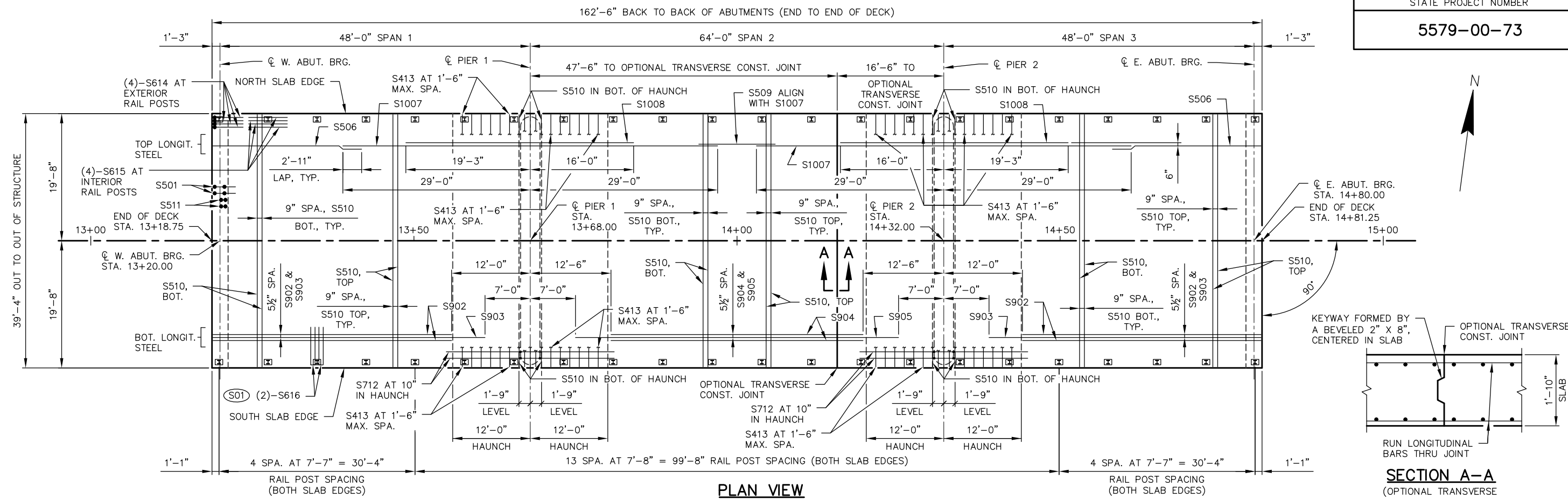


P504

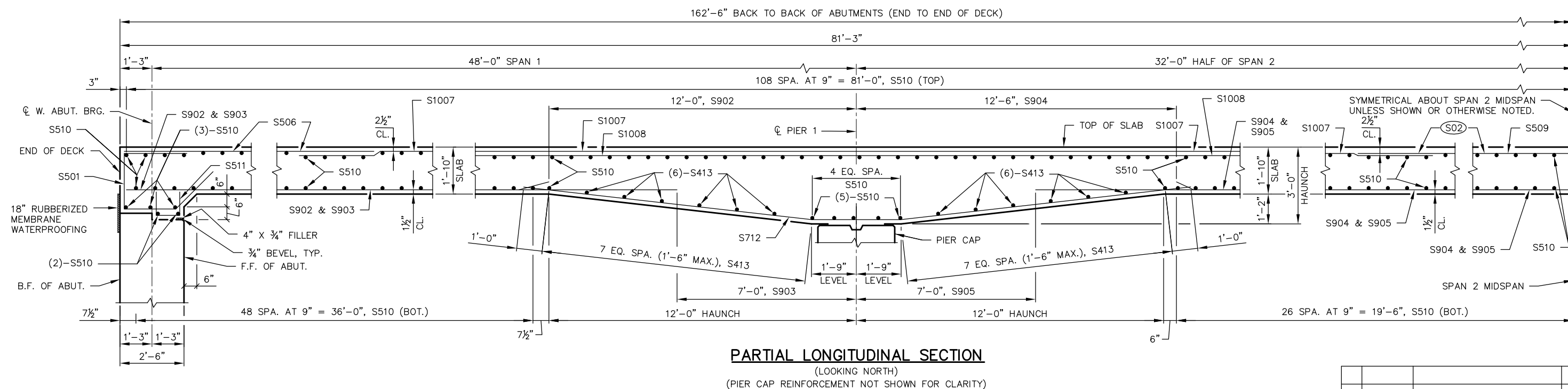
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-25-186			
DRAWN BY JDO		PLANS OK'D ACK	
PIER DETAILS			SHEET 6 OF 10

8

8



SECTION A-A
(OPTIONAL TRANSVERSE CONSTRUCTION JOINT)



NOTES

- TOP TRANSVERSE BARS IN SLAB SHALL BE SUPPORTED BY INDIVIDUAL BAR CHAIRS AT APPROXIMATELY 3'-0" CENTERS EACH WAY.
- BOTTOM LONGITUDINAL BARS SHALL BE SUPPORTED BY CONTINUOUS BAR CHAIRS AT APPROXIMATELY 4'-0" CENTERS.
- ALL SLAB THICKNESS DIMENSIONS ARE MINIMUM. ANY TOLERANCES NECESSARY TO CORRECT CONSTRUCTION DISCREPANCIES ARE TO BE PLUS (+).

- RAILING TO BE INSTALLED ON THE SLAB AFTER FALSEWORK HAS BEEN RELEASED.
- (S01) ADJUST ORIENTATION OF S616 BAR AT END POST TO ENSURE CLEAR COVER AT END OF DECK.
- (S02) ALIGN S509 WITH S1007.

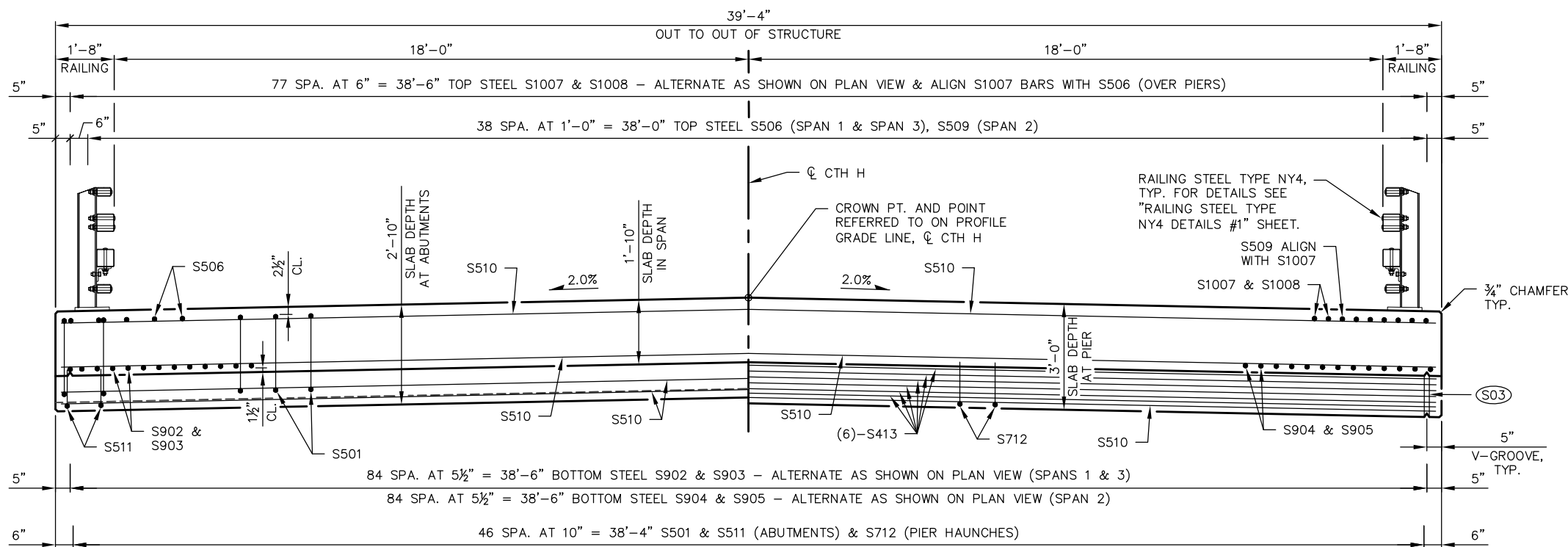
F.F. - FRONT FACE
B.F. - BACK FACE

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-25-186			
DRAWN BY JDO		PLANS OK'D ACK	
SUPERSTRUCTURE			SHEET 7 OF 10

BILL OF BARS SUPERSTRUCTURE
COATED = 95,160 LBS.

MARK	NUMBER		LENGTH	BENT	BAR SERIES	LOCATION
	COATED	UNCOATED				
S501	94		8'-6"	X		SLAB AT ABUTMENT - TIES LONGIT.
S902	84		37'-1"			SLAB - BOTTOM SPAN 1 & 3 LONGIT.
S903	86		42'-1"			SLAB - BOTTOM SPAN 1 & 3 LONGIT.
S904	42		39'-0"			SLAB - BOTTOM SPAN 2 LONGIT.
S905	43		50'-0"			SLAB - BOTTOM SPAN 2 LONGIT.
S506	80		23'-0"			SLAB - TOP SPAN 1 & 3 LONGIT.
S1007	76		58'-0"			SLAB - TOP OVER PIERS LONGIT.
S1008	80		35'-3"			SLAB - TOP OVER PIERS LONGIT.
S509	40		11'-10"			SLAB - TOP SPAN 2 LONGIT.
S510	392		39'-0"			SLAB - TOP & BOTTOM TRANS.
S511	94		2'-8"	X		SLAB AT ABUTMENT LONGIT.
S712	94		26'-2"	X		SLAB - BOTTOM IN HAUNCH LONGIT.
S413	24		39'-0"			SLAB - IN HAUNCH TRANS.
S614	16		6'-0"	X		SLAB - TOP AT END RAIL POSTS LONGIT.
S615	160		6'-0"			SLAB - TOP INTERIOR RAIL POSTS LONGIT.
S616	88		12'-0"	X		SLAB - TOP AT ALL RAIL POSTS TRANS.

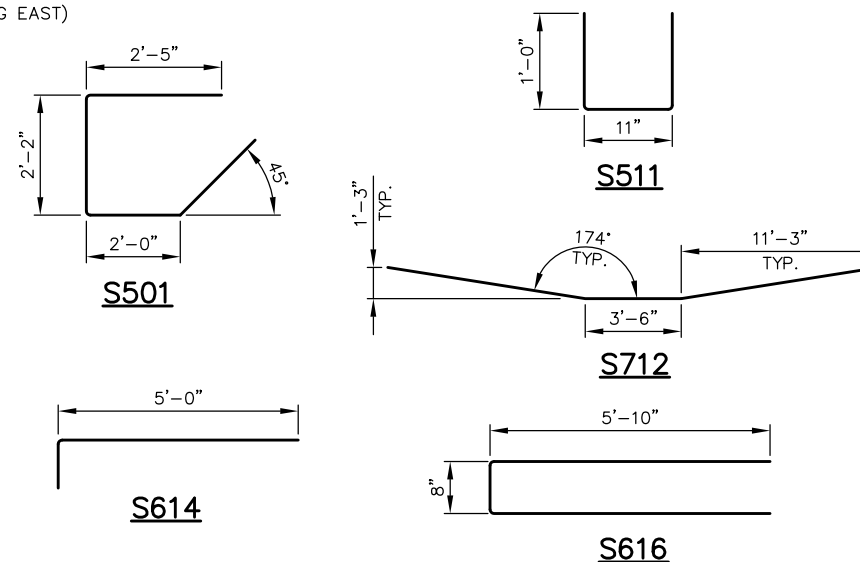
THE FIRST OR FIRST TWO DIGITS OF A FOUR DIGIT BAR MARK SIGNIFIES THE BAR SIZE.
ALL BAR BEND DIMENSIONS ARE OUT TO OUT OF BAR.



AT ABUTMENTS AT PIER

CROSS SECTION THRU ROADWAY

(LOOKING EAST)



SURVEY TOP OF SLAB ELEVATIONS

	Q W. ABUT. BRG.	5/10 PT.	Q PIER 1	5/10 PT.	Q PIER 2	5/10 PT.	Q E. ABUT. BRG.
NORTH SLAB EDGE							
Q CTH H							
SOUTH SLAB EDGE							

PRIOR TO RELEASING SLAB FALSEWORK, TAKE TOP OF DECK ELEVATIONS AT THE Q OF ABUTMENTS, Q OF PIERS AND AT 5/10 POINTS TO VERIFY CAMBER. TAKE ELEVATIONS ALONG EDGE OF SLAB AND REFERENCE LINE. RECORD THE ELEVATIONS IN THE ABOVE TABLE FOR THE "AS BUILT" PLANS.

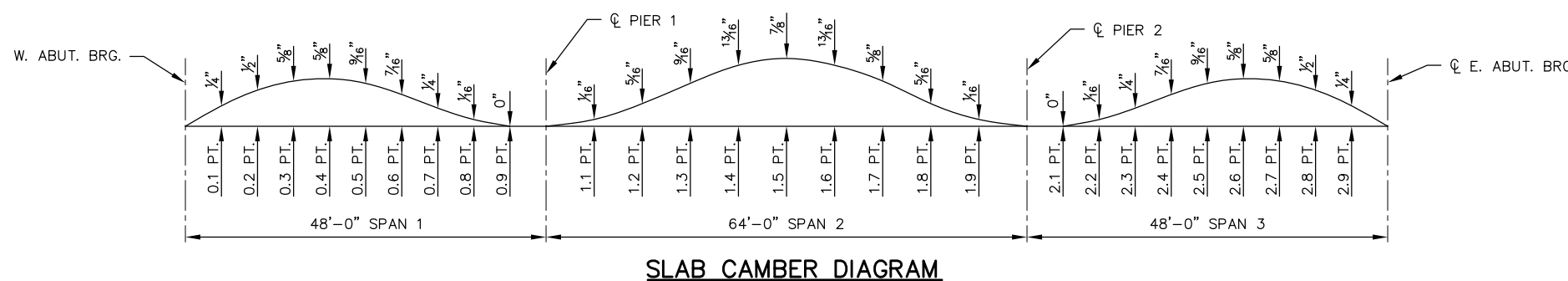
TOP OF DECK ELEVATIONS

SPAN PT	NORTH SLAB EDGE	Q CTH H	SOUTH SLAB EDGE
Q W. ABUT.	756.34	756.73	756.34
0.1	756.34	756.73	756.34
0.2	756.34	756.73	756.34
0.3	756.34	756.73	756.34
0.4	756.35	756.74	756.35
0.5	756.35	756.74	756.35
0.6	756.35	756.74	756.35
0.7	756.35	756.74	756.35
0.8	756.35	756.74	756.35
0.9	756.35	756.74	756.35
Q PIER 1	756.35	756.74	756.35
1.1	756.36	756.75	756.36
1.2	756.36	756.75	756.36
1.3	756.36	756.75	756.36
1.4	756.36	756.75	756.36
1.5	756.36	756.75	756.36
1.6	756.36	756.75	756.36
1.7	756.37	756.76	756.37
1.8	756.37	756.76	756.37
1.9	756.37	756.76	756.37
Q PIER 2	756.37	756.76	756.37
2.1	756.37	756.76	756.37
2.2	756.37	756.76	756.37
2.3	756.37	756.76	756.37
2.4	756.38	756.77	756.38
2.5	756.38	756.77	756.38
2.6	756.38	756.77	756.38
2.7	756.38	756.77	756.38
2.8	756.38	756.77	756.38
2.9	756.38	756.77	756.38
Q E. ABUT.	756.38	756.77	756.38

NOTES

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

(S03) 3/4" V-GROOVE. EXTEND V-GROOVE TO 6" FROM FRONT FACE OF ABUTMENT BODY. V-GROOVES ARE REQUIRED.



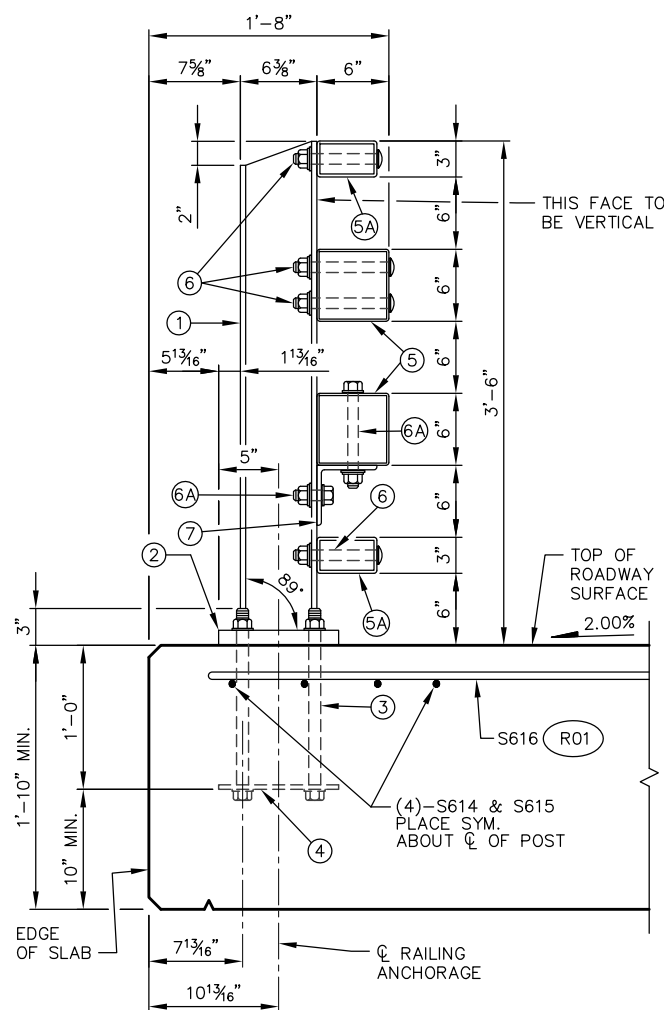
TO DETERMINE FALSEWORK ELEVATION AT EDGE OF SLAB, CROWN OR REFERENCE LINE FOLLOW THIS PROCEDURE:

LESS TOP OF SLAB ELEVATION AT FINAL GRADE
 PLUS SLAB THICKNESS
 PLUS CAMBER
 PLUS FORM SETTLEMENT/DEFLECTION DUE TO PLACEMENT OF SLAB CONCRETE (TO BE COMPUTED BY THE CONTRACTOR)
 EQUALS TOP OF SLAB FALSEWORK ELEVATION.

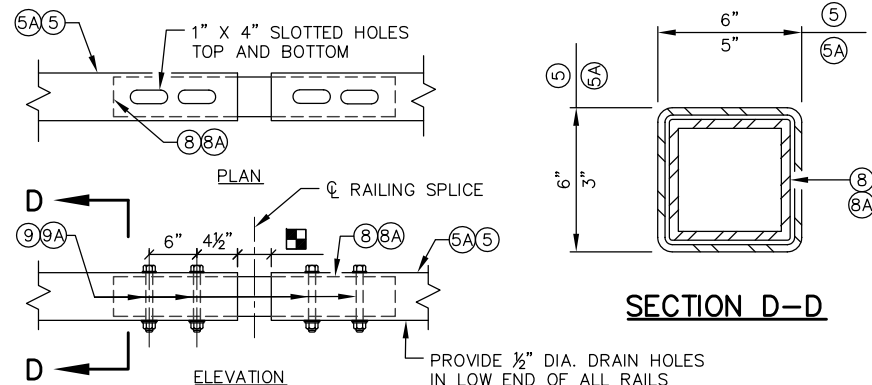
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-25-186			
DRAWN BY JDO		PLANS OK'D ACK	
SUPERSTRUCTURE DETAILS			SHEET 8 OF 10

LEGEND

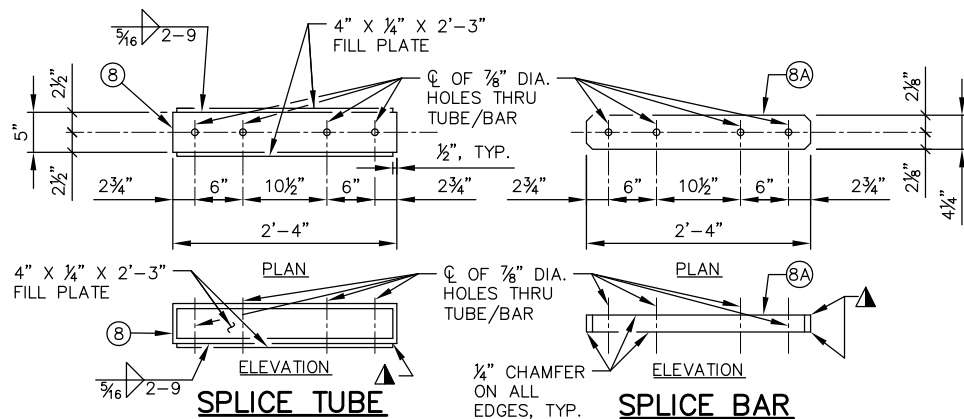
- ① W6 X 25 WITH 1 1/8" X 1 3/8" HORIZONTAL SLOTTED HOLES ON EACH SIDE OF POST FOR BOLT NO. 6 AT TOP TWO RAILS. USE 1" DIA. HOLES FOR BOLT NO. 6 AT BOTTOM NO. 5A & FOR BOLT NO. 6A AT NO. 7. CUT BOTTOM OF POST TO MATCH CROSS SLOPE OF ROADWAY. PLACE POST VERTICAL. PLACE POSTS NORMAL TO GRADE LINE.
- ② PLATE 1 1/4" X 10" X 1'-2" WITH 1 1/8" X 1 1/4" SLOTTED HOLES FOR ANCHOR BOLTS NO. 3. WELD TO NO. 1 AS SHOWN. SLOTS PARALLEL TO SHORT SIDE OF PLATE.
- ③ ASTM A449 - 1" DIA. ANCHOR BOLTS WITH HEAVY HEX NUT AND 2" O.D. HARDENED WASHER (ALL GALVANIZED). 4 REQUIRED PER POST. THREAD 3" AND PLACE NORMAL TO PLATE NO. 2. CHAMFER TOP OF BOLTS BEFORE THREADING. USE 1'-3" LONG BOLT AT POSTS ON CONCRETE SLAB SUPERSTRUCTURES WHERE THE SLAB THICKNESS IS > 16".
- ④ 3/8" X 10" X 1'-2" ANCHOR PLATE (GALVANIZED) WITH 1 1/8" DIA. HOLES FOR ANCHOR BOLTS NO. 3.
- ⑤ TS 6 X 6 X 3/16" STRUCTURAL TUBING. USE 1" DIA. HOLES FOR BOLT NO. 6 (FRONT & BACK) & 1/8" DIA. HOLES FOR BOLT NO. 6A (TOP & BOTTOM).
- ⑤A TS 5 X 3 X 1/4" STRUCTURAL TUBING. USE 1" DIA. HOLES FOR BOLT NO. 6 IN TOP RAIL (FRONT & BACK). USE 1 1/8" X 1 3/8" HORIZONTAL SLOTTED HOLES FOR BOLT NO. 6 IN BOTTOM RAIL (FRONT & BACK) AND A 2" O.D. WASHER UNDER BOLT HEAD.
- ⑥ 7/8" DIA. A325 SLOTTED ROUND HEAD BOLT WITH HEX NUT, 3/16" X 1 3/4" X 1 3/4" WASHER, AND SPRING LOCK WASHER (2 REQUIRED AT RAIL TO POST LOCATIONS SHOWN).
- ⑥A 3/4" DIA. A325 BOLT WITH HEX NUT AND SPRING LOCK WASHER (1 REQUIRED AT RAIL TO ANGLE AND 2 REQUIRED AT ANGLE TO POST LOCATIONS SHOWN WITH 3/16" X 1 1/4" X 1 3/4" WASHER).
- ⑦ L 5 X 5 X 5/8" STRUCTURAL ANGLE. ATTACH TO NO. 1 AND NO. 5 AS SHOWN.
- ⑧ TS 5 X 5 X 5/16" X 2'-4" LONG SPLICE TUBE. 1 PER RAIL. USED IN NO. 5.
- ⑧A 4 1/4" X 2 1/8" X 2'-4" LONG SPLICE BAR. 1 PER RAIL. USED IN NO. 5A.
- ⑨ 3/4" DIA. A325 FULLY THREADED BOLTS, 7 1/2" LONG, WITH 2 WASHERS AND HEAVY HEX NUT ON EACH BOLT. NUT TO BE FINGER TIGHT. (4 REQUIRED PER SPLICE). USE 1" X 4" SLOTTED HOLES IN TOP AND BOTTOM OF NO. 5.
- ⑨A 3/4" DIA. A325 FULLY THREADED BOLTS, 4 1/2" LONG, WITH 2 WASHERS AND HEAVY HEX NUT ON EACH BOLT. NUT TO BE FINGER TIGHT. (4 REQUIRED PER SPLICE). USE 1" X 4" SLOTTED HOLES IN TOP AND BOTTOM OF NO. 5A.
- ⑩ SPLICE SLEEVE FABRICATED FROM 1/4" PLATE. PROVIDE "SLIDING FIT".
- ▣ ROADWAY OPENING OR 2 1/2" MIN. FOR STRIP SEAL EXP. JOINT & 1/2" OPENING FOR A1 ABUTMENT. 1/2" AT FIXED JOINTS. SPLICES ARE REQUIRED IN ANY RAILING SPAN BETWEEN POSTS THAT CONTAINS A SUPERSTRUCTURE EXPANSION JOINT.
- ▲ PROTRUSIONS CAUSED BY WELDING OR GALVANIZING ARE NOT PERMITTED ON THE ADJOINING SURFACES OF THE RAILS, SPLICE TUBES AND FILL PLATES.



SECTION THRU RAILING ON DECK

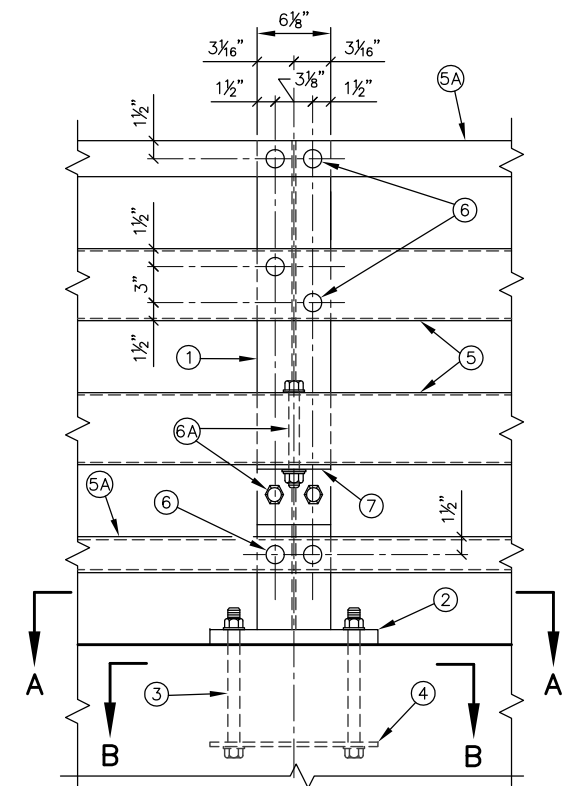


FIELD ERECTION JOINT DETAIL

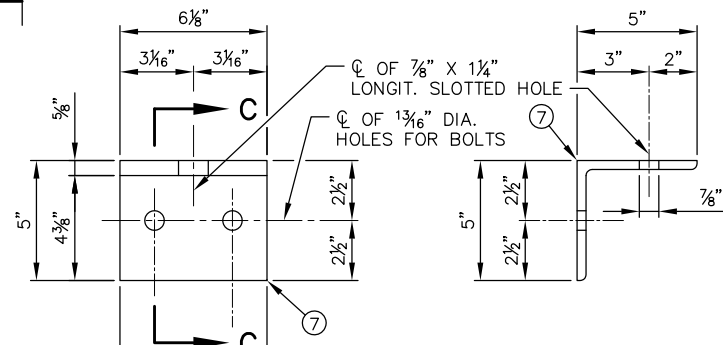


SPLICE TUBE

SPLICE BAR

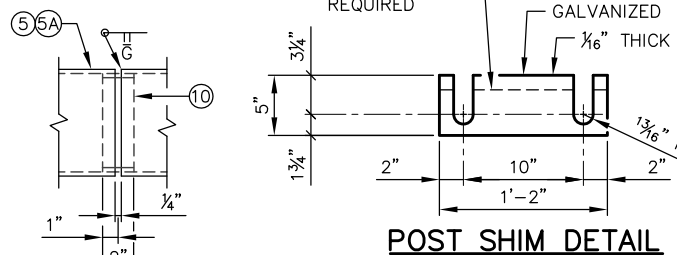


PART ELEVATION OF RAILING AT POST (INTERIOR ELEVATION)



RAILING ANGLE DETAIL (INTERIOR ELEVATION)

SHOP RAIL SPLICE DETAIL (LOCATION MUST BE SHOWN ON SHOP DRAWINGS)

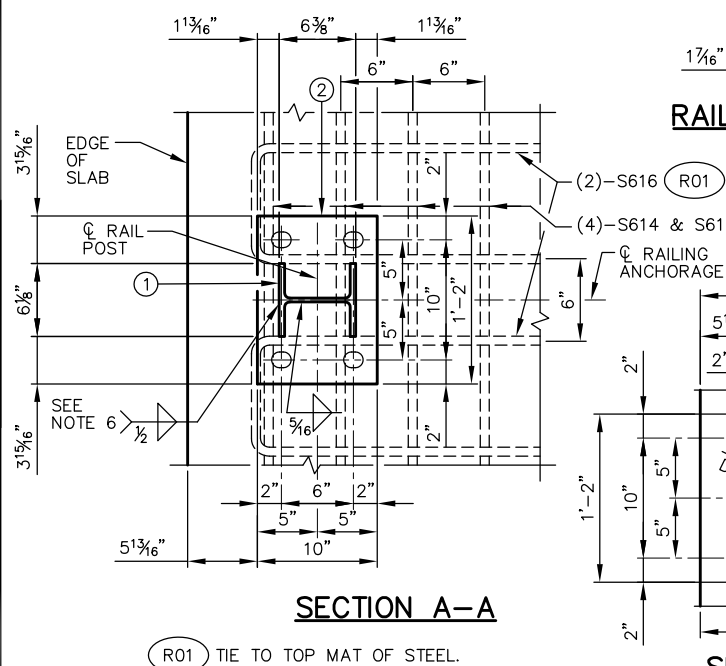


POST SHIM DETAIL

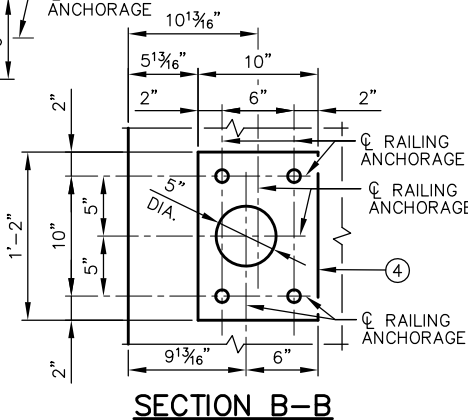
SECTION C-C (ANGLE SECTION)

NOTES

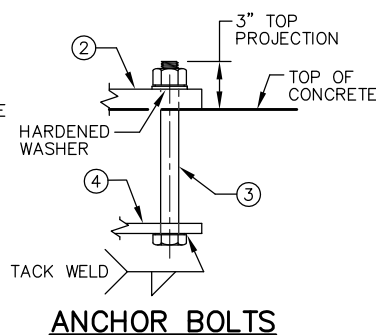
1. BID ITEM SHALL BE "RAILING STEEL TYPE NY4 B-25-186", WHICH INCLUDES ALL ITEMS SHOWN.
2. RAILING SHALL BE CONTINUOUS OVER A MINIMUM OF THREE (3) POSTS WITHOUT SPLICES WHERE POSSIBLE.
3. POST BASE PLATES SHALL BE FLAT WITH ALL SURFACES SMOOTH AND FREE FROM WARP AND ALL EDGES SMOOTH, STRAIGHT, AND VERTICAL. ALL PLATE CUTS SHALL BE MACHINE OR MACHINE FLAME CUT.
4. ALL MATERIAL SHALL BE GALVANIZED AFTER FABRICATION. PRIOR TO GALVANIZING, ALL STEEL RAILING POSTS, ANGLES, SPLICE TUBES, SPLICE BARS AND STEEL TUBING SHALL BE GIVEN A NO. 6 BLAST CLEANING PER SSPC SPECIFICATIONS.
5. RAIL POST, BASE PLATES, SPLICE BAR, ANGLES AND SPLICE PLATES SHALL CONFORM TO THE REQUIREMENTS OF ASTM A709 GRADE 50. STRUCTURAL TUBING SHALL CONFORM TO THE REQUIREMENTS OF ASTM A500 GRADE B OR C WITH A CERTIFIED $f_y=50$ KSI. ANCHOR PLATES & SHIMS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A709 GRADE 36.
6. THE NUT SECURING THE POST BASE PLATE TO THE CONCRETE SHALL BE TIGHTENED TO A SNUG FIT AND GIVEN AN ADDITIONAL 1/8 TURN.
7. FILL BOLT SLOT OPENINGS IN POST SHIMS AND PLATE NO. 2 WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. CAULK AROUND PERIMETER OF NO. 2 WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER.
8. STEEL SHIMS SHALL BE PROVIDED & USED UNDER PLATE NO. 2 WHERE REQUIRED FOR ALIGNMENT, AND SHALL BE GALVANIZED.



SECTION A-A

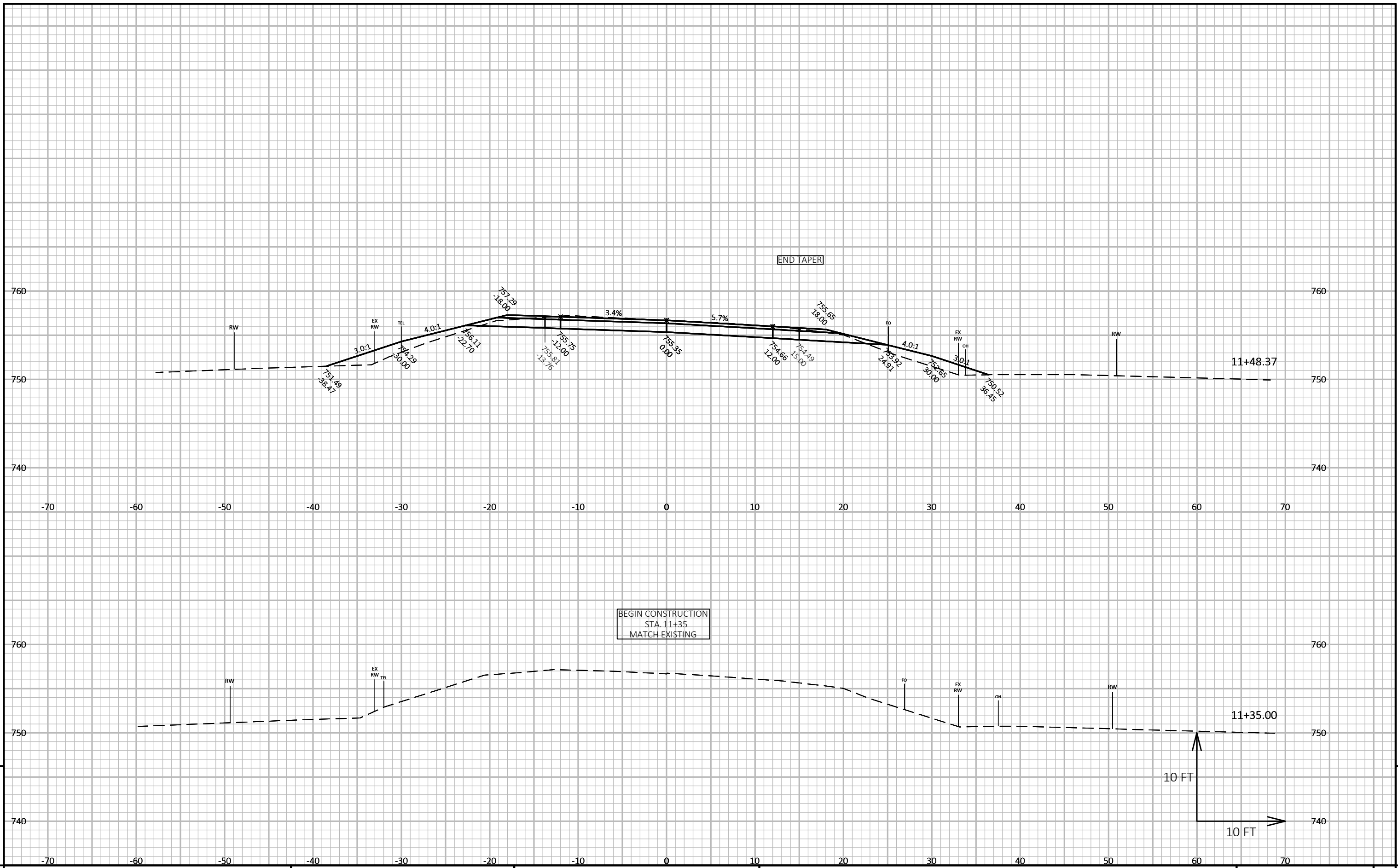


SECTION B-B



ANCHOR BOLTS

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-25-186			
DRAWN BY: JDO		PLANS OK'D: ACK	
RAILING STEEL TYPE NY4 DETAILS #1			SHEET 9 OF 10



PROJECT NO: 5579-00-73

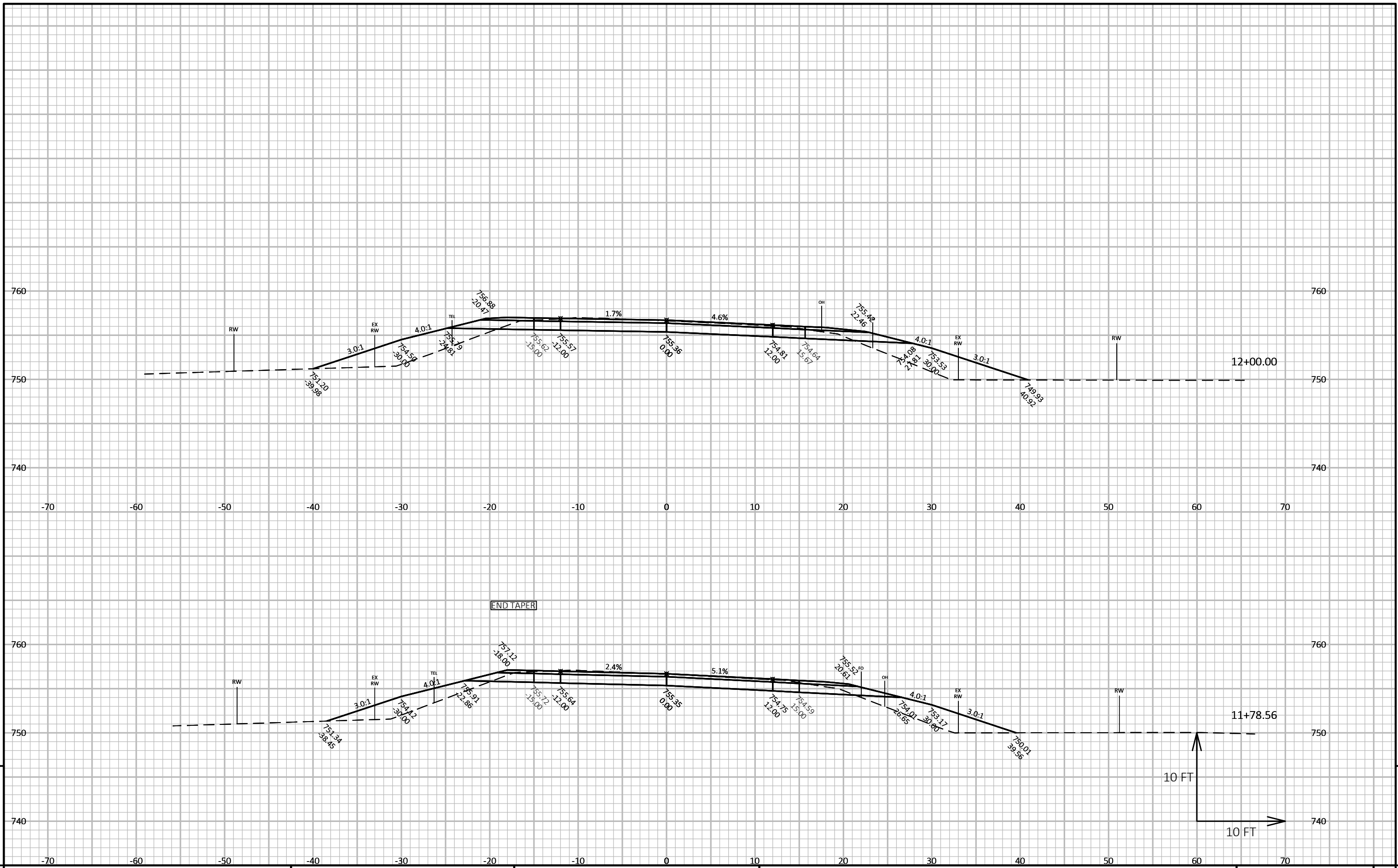
HWY: CTH H

COUNTY: IOWA

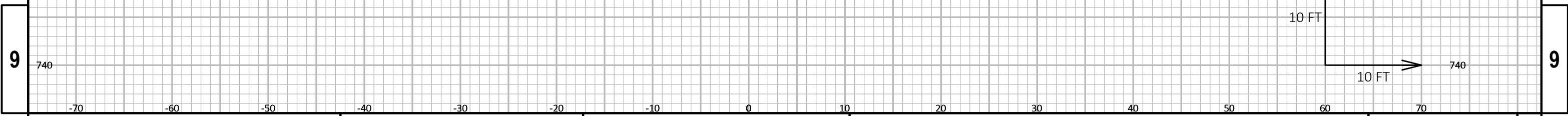
CROSS SECTIONS

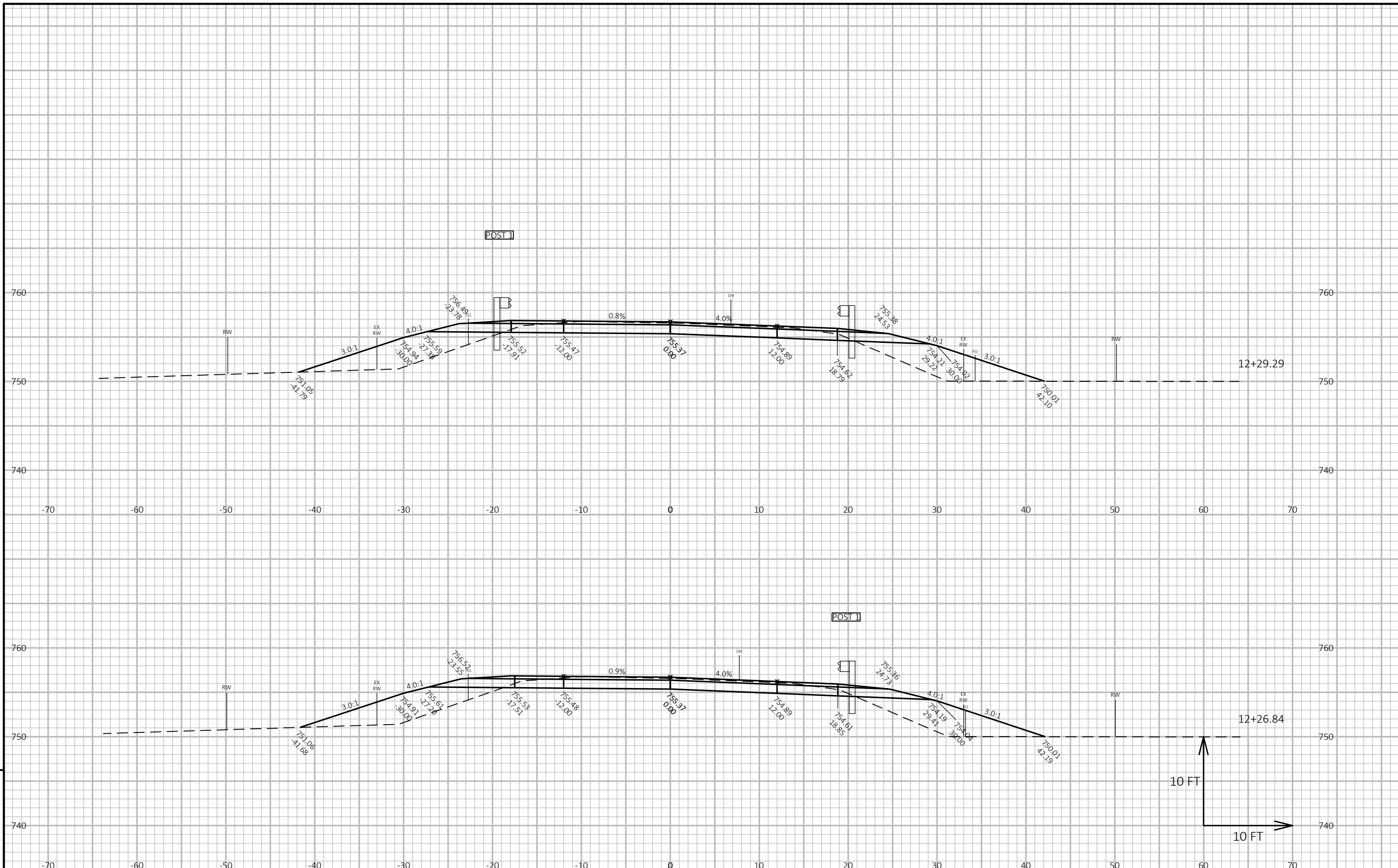
SHEET

E



PROJECT NO: 5579-00-73	HWY: CTH H	COUNTY: IOWA	CROSS SECTIONS	SHEET
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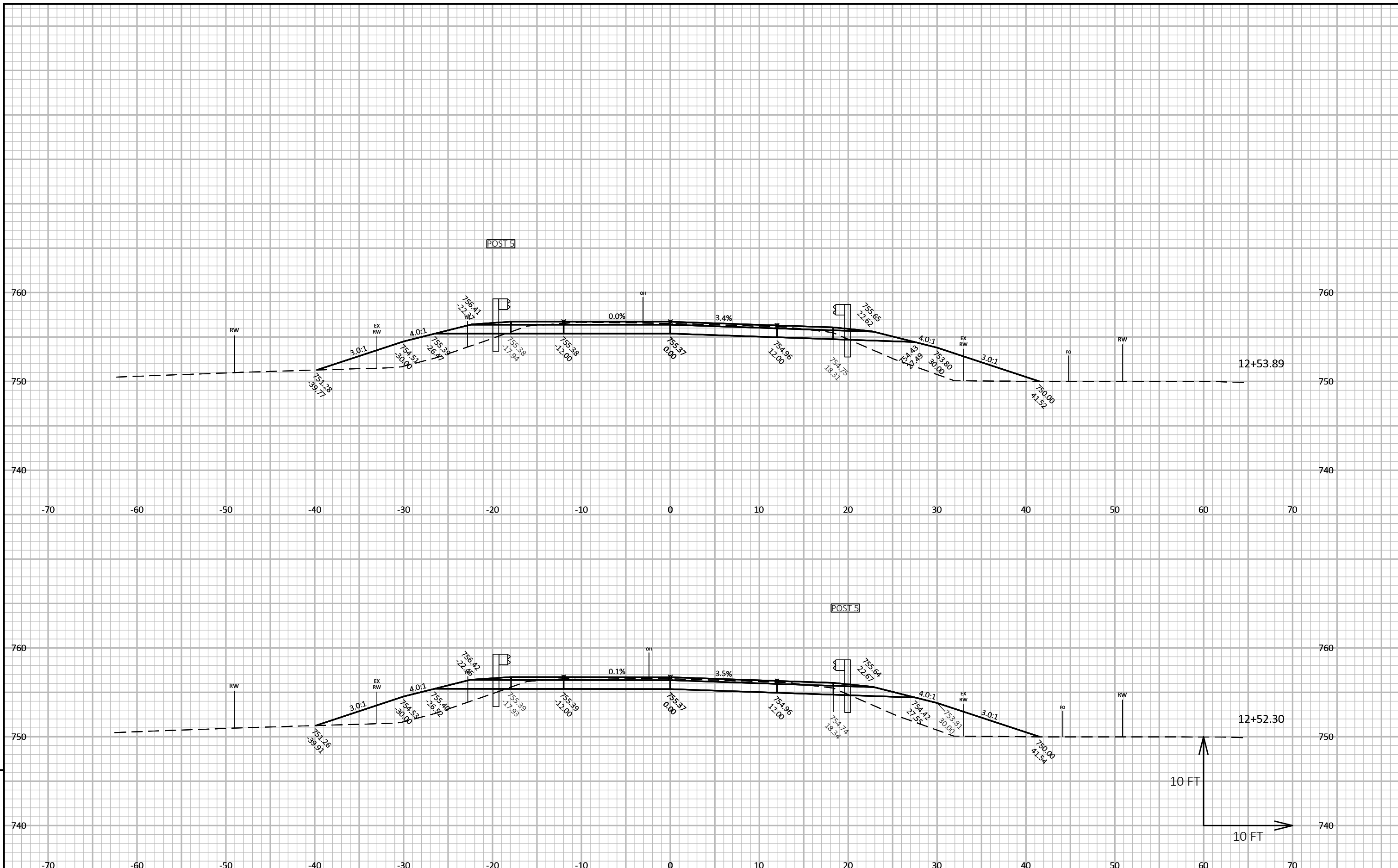
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PROJECT NO: 5579-00-73 HWY: CTH H COUNTY: IOWA CROSS SECTIONS SHEET E

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LAYOUT NAME - 090203_xs



PROJECT NO: 5579-00-73

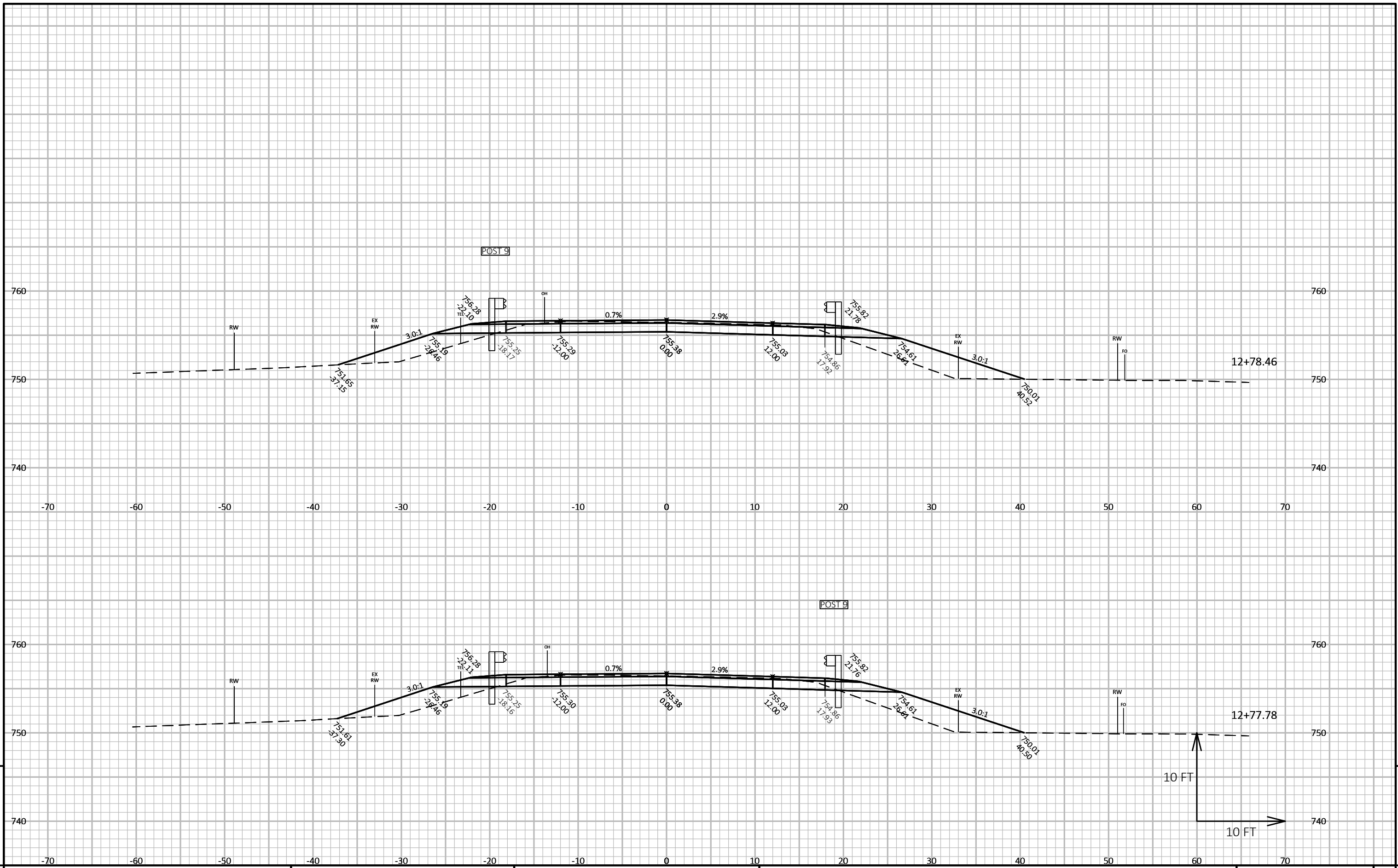
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COUNTY: IOWA

CROSS SECTIONS

SHEET

E



PROJECT NO: 5579-00-73

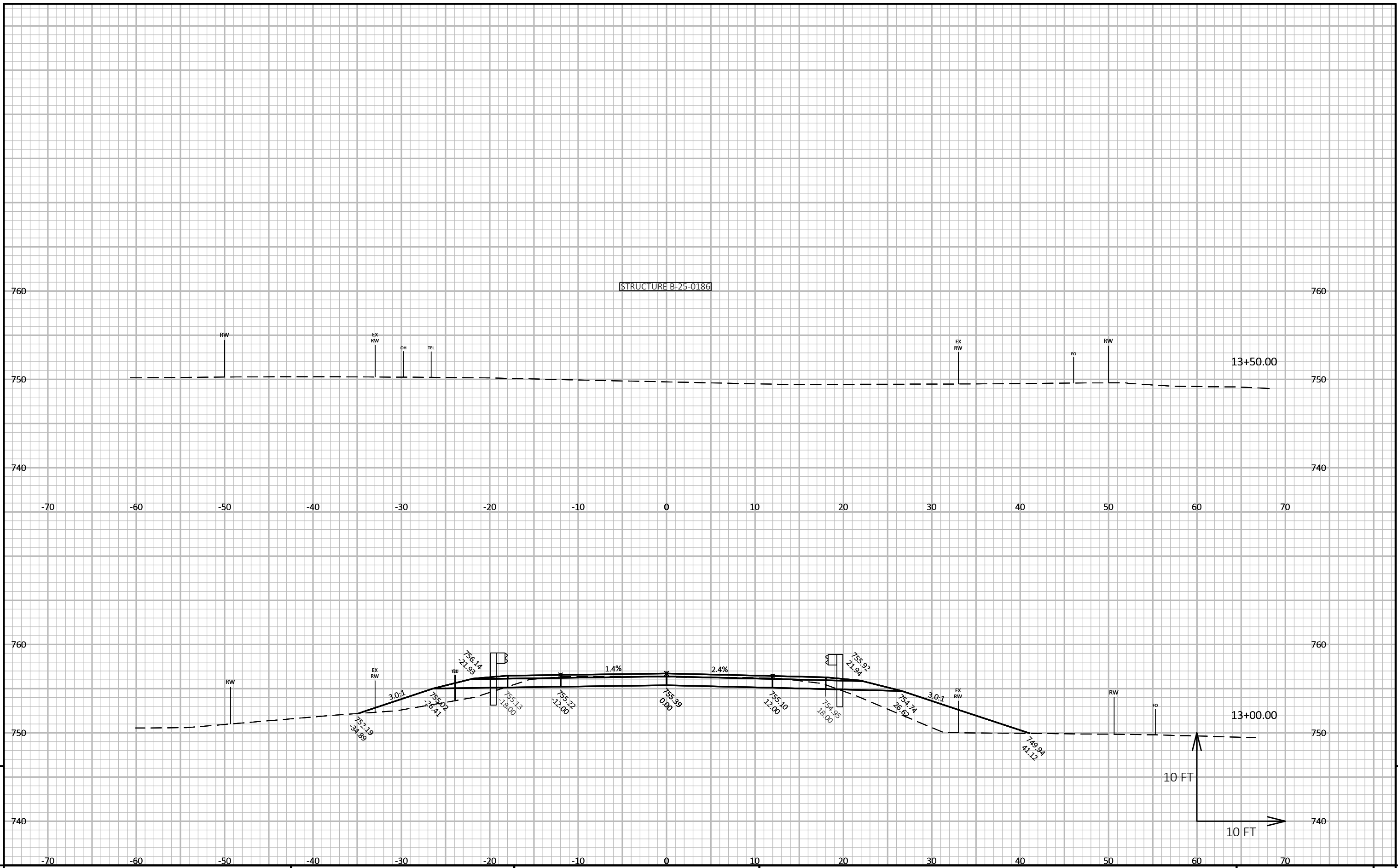
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COUNTY: IOWA

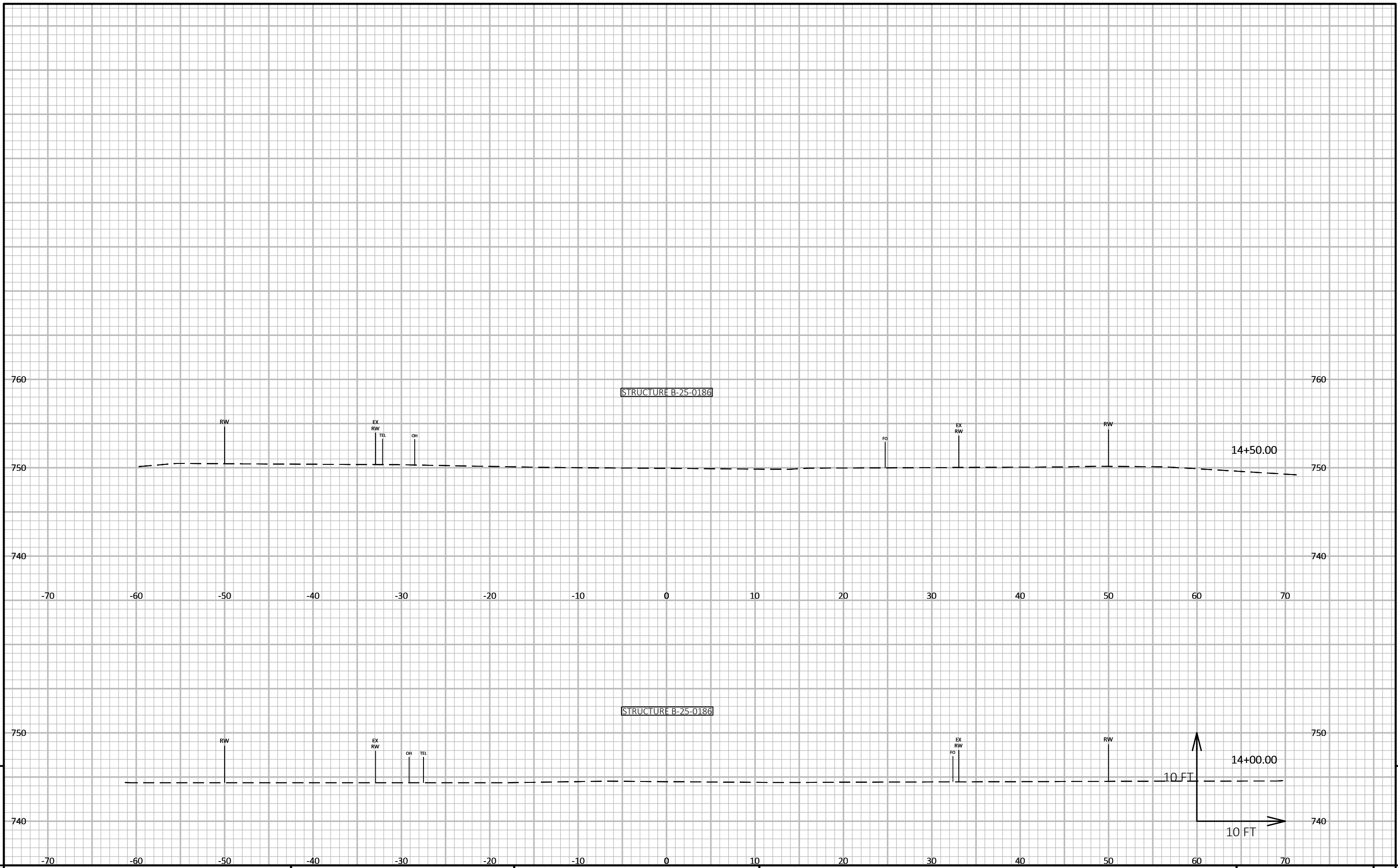
CROSS SECTIONS

SHEET

E



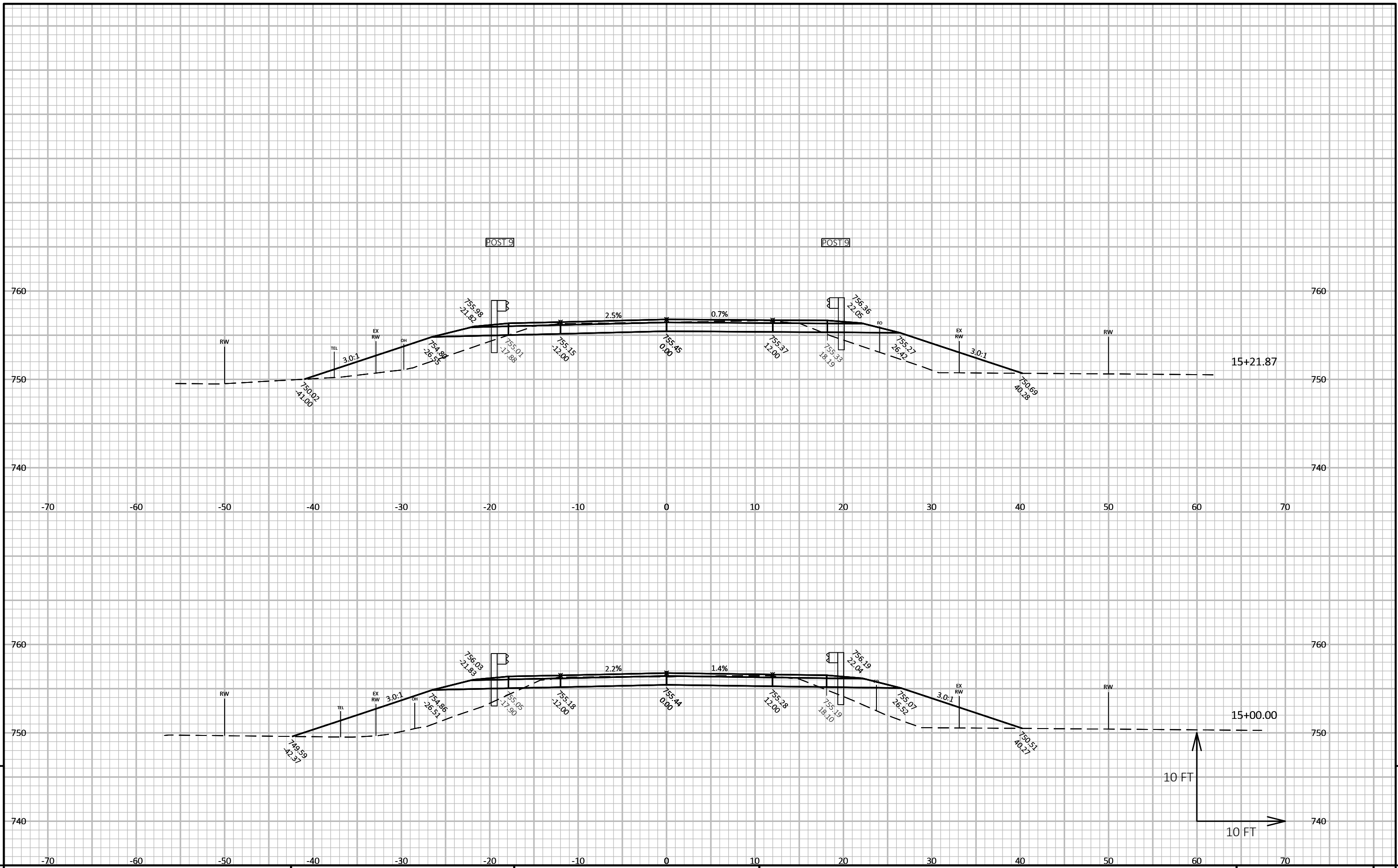
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PROJECT NO: 5579-00-73	HWY: CTH H	COUNTY: IOWA	CROSS SECTIONS	SHEET	E
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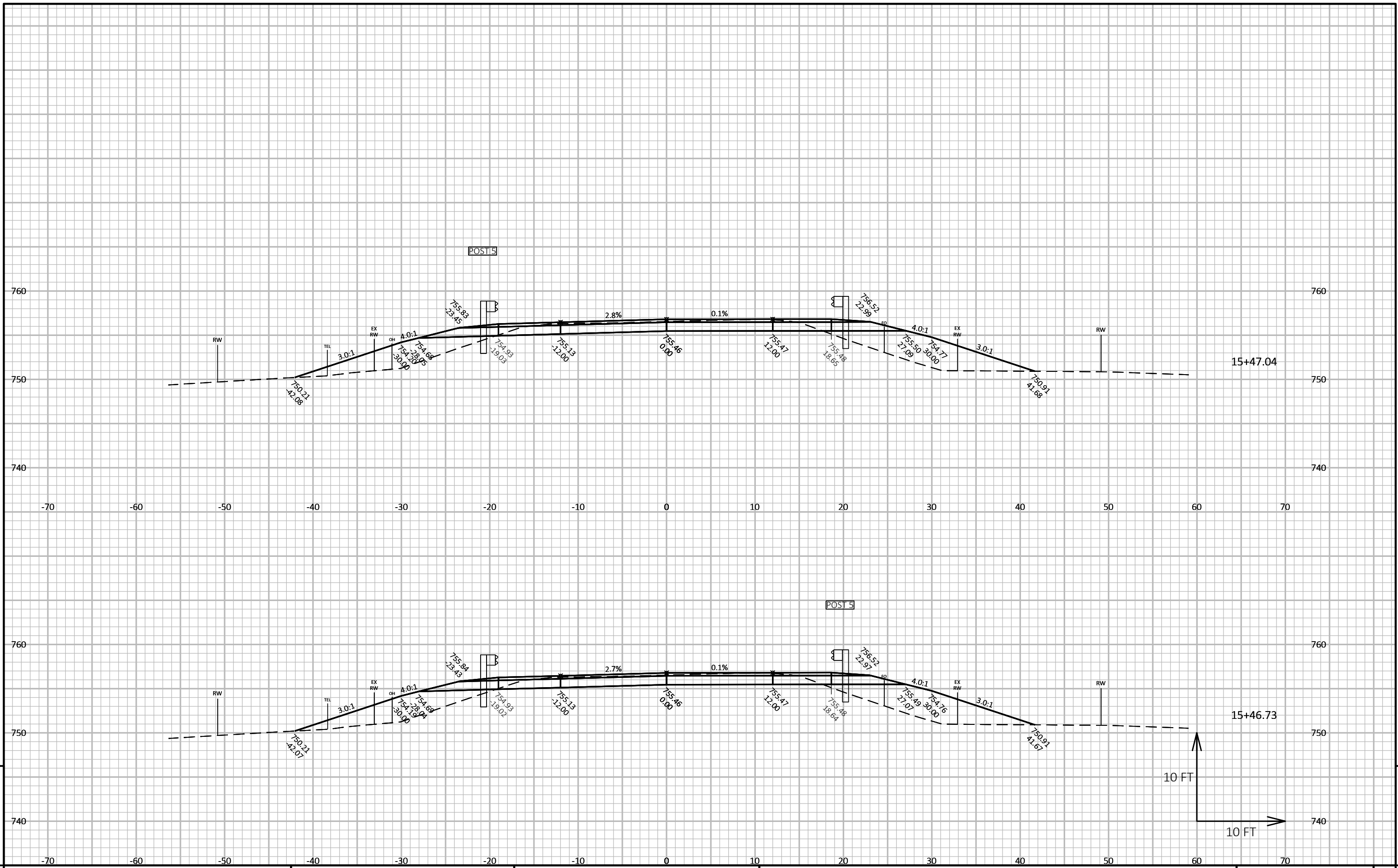
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LAYOUT NAME - 090208_xs



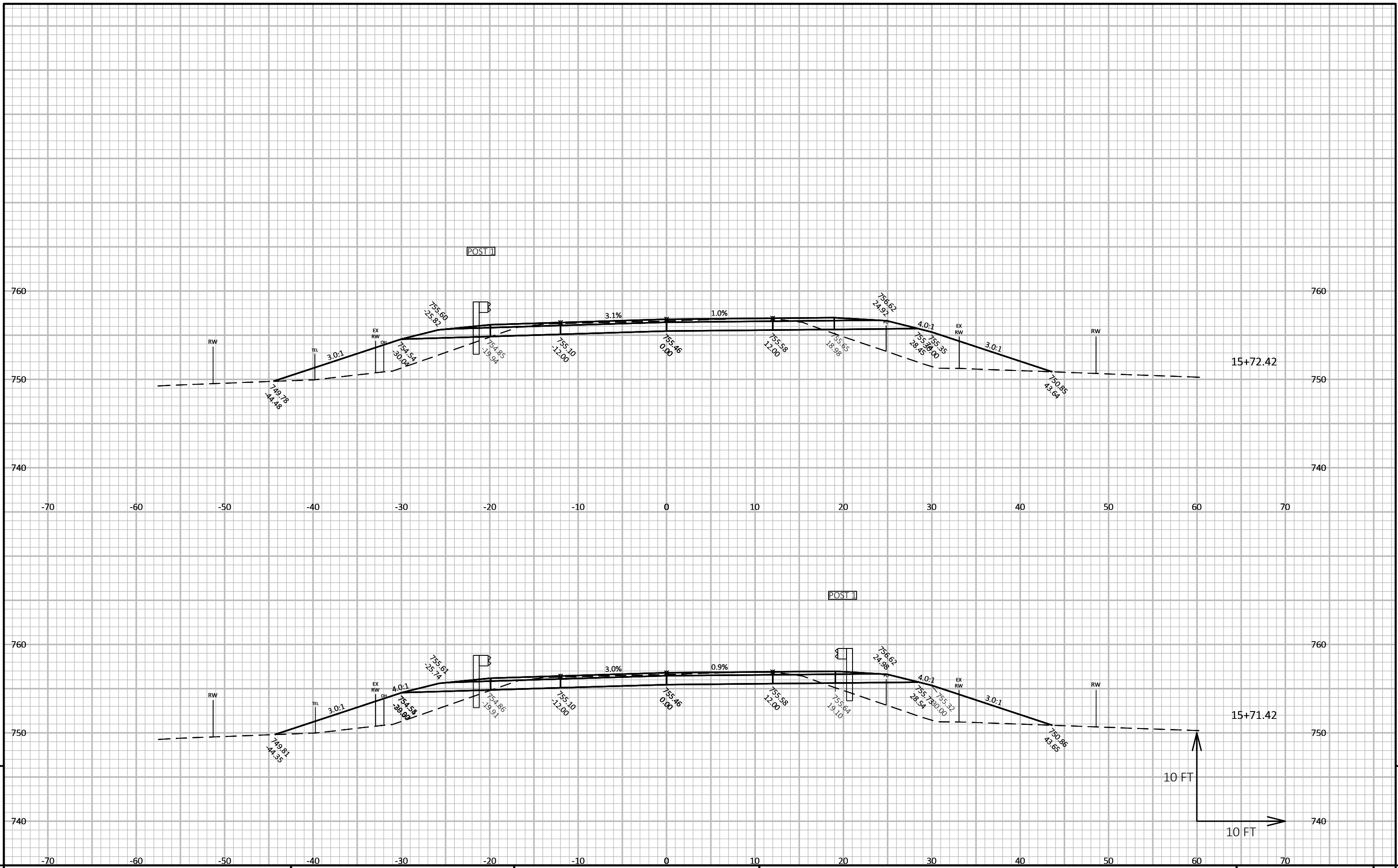
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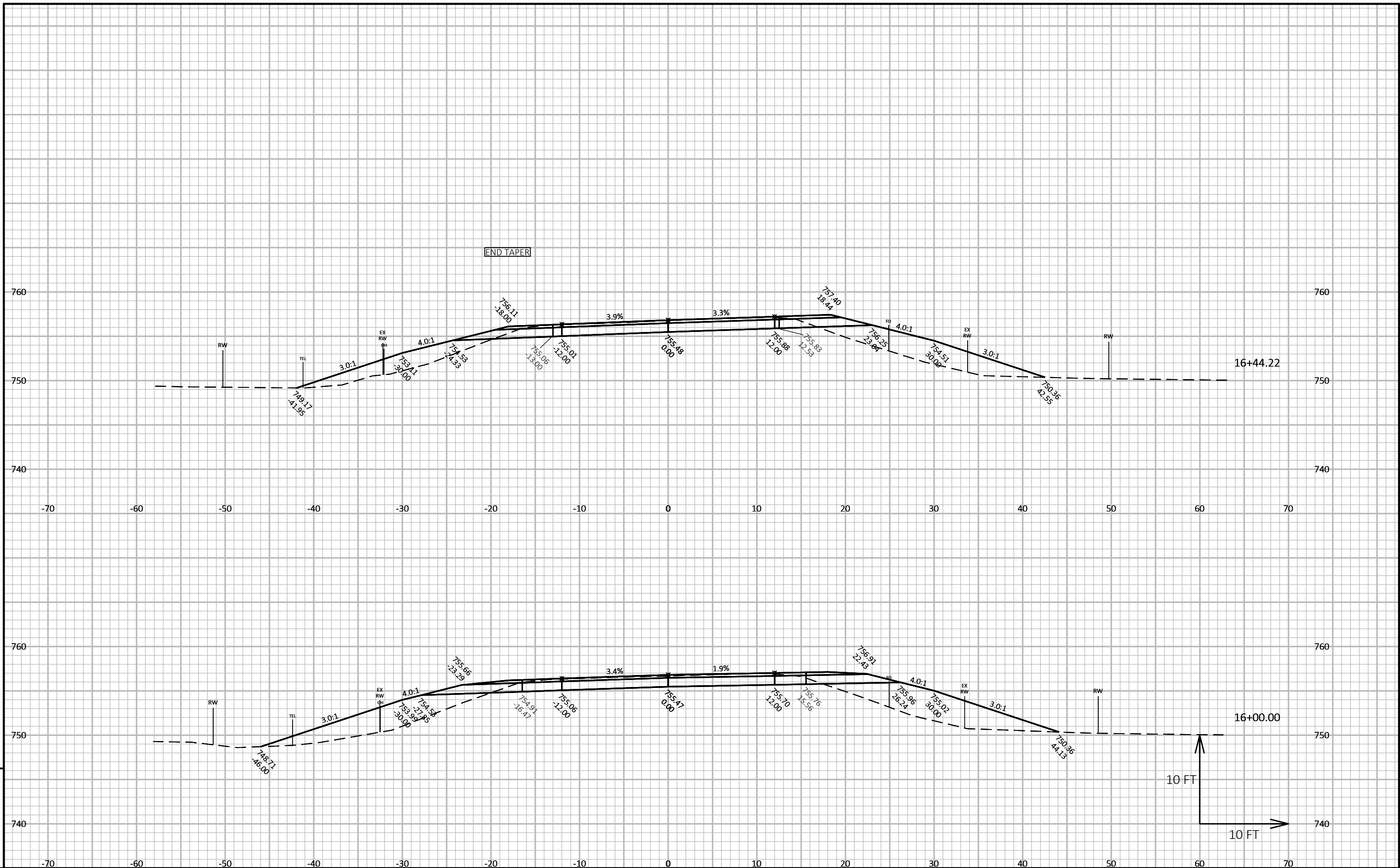
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FILE NAME : G:\00-PROJECT FILES\2017\171111 MILL CREEK BRIDGE P-25-0041 ID 5579-00-03\0-CAD\DESIGN\CORRIDORS\CRDR-CTH H - X-SEC.DWG PLOT DATE : 1/16/2020 12:44 PM PLOT BY : ERIK MEYER PLOT NAME : PLOT SCALE : 1 IN:10 FT HORZ. / 1 IN:10 FT VERT. WISDOT/CADD SHEET 49

LAYOUT NAME - 090209_xs



PROJECT NO: 5579-00-73 HWY: CTH H COUNTY: IOWA CROSS SECTIONS SHEET E

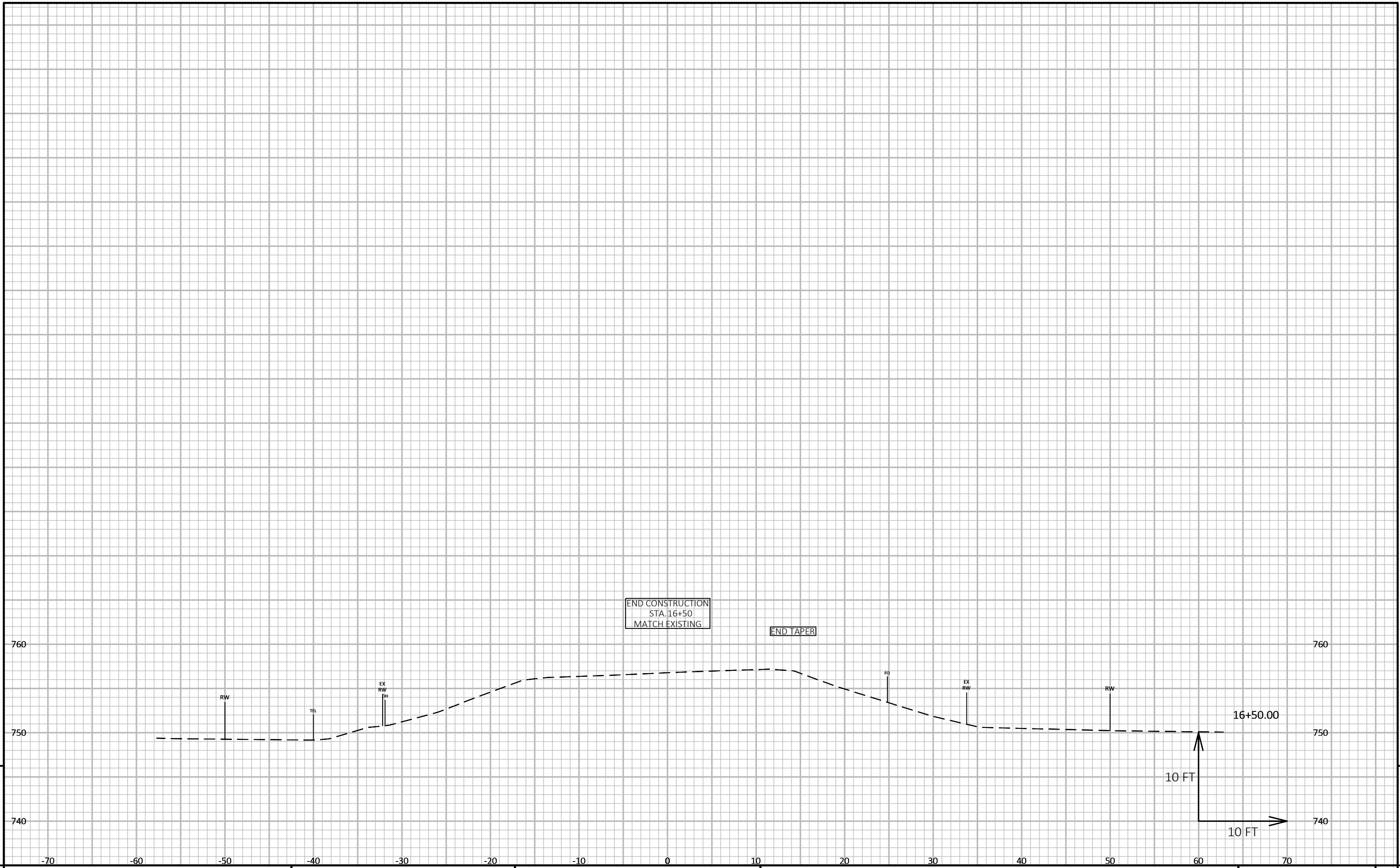


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PROJECT NO: 5579-00-73 HWY: CTH H COUNTY: IOWA CROSS SECTIONS SHEET E

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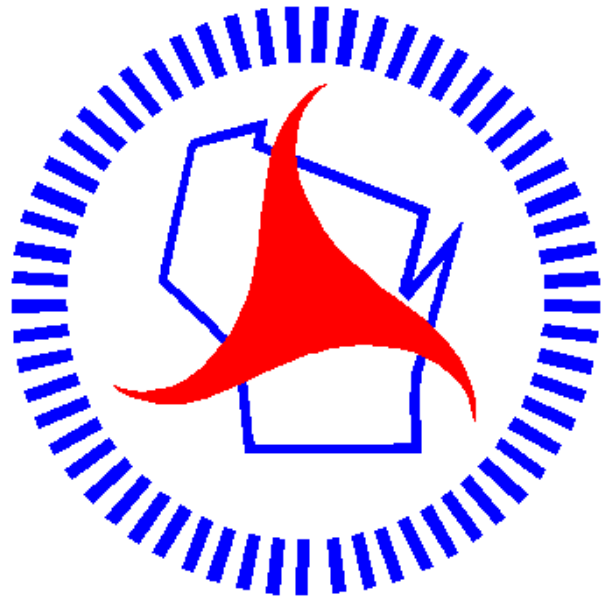


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PROJECT NO: 5579-00-73	HWY: CTH H	COUNTY: IOWA	CROSS SECTIONS	SHEET	E
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 PLOT BY : ERIK MEYER
 PLOT NAME :
 PLOT SCALE : 1 IN:10 FT HORZ. / 1 IN:10 FT VERT.
 WISDOT/CADD SHEET 49



Wisconsin Department of Transportation

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