

GENERAL NOTES

NO TREES OR SHRUBS SHALL BE REMOVED UNLESS SUCH TREES OR SHRUBS HAVE BEEN DESIGNATED FOR REMOVAL BY THE ENGINEER.

DISTURBED AREAS WITHIN THE RIGHT OF WAY ARE TO BE TOPSOIL, FERTILIZED, SEEDED AND EROSION MAT AS DIRECTED BY THE ENGINEER.

ALL PRIVATE DRIVEWAYS AND COMMERCIAL ENTRANCES SHALL BE RESTORED IN KIND. LIMITS TO BE DETERMINED BY THE ENGINEER.

PAVING LIMITS ARE TO BE DETERMINED BY THE ENGINEER.

LOCATION OF UNDERGROUND UTILITIES AS SHOWN ON THE PLAN ARE APPROXIMATE, THERE MAY BE OTHER UTILITY INSTALLATIONS WITHIN THE PROJECT AREA THAT ARE NOT SHOWN.

ALL RADII ARE MEASURED TO THE EDGE OF PAVEMENT UNLESS OTHERWISE NOTED ON THE PLAN.

CURVE DATA IS BASED ON THE ARC DEFINITION.

PRIOR TO THE PLACEMENT OF STEEL PLATE BEAM GUARD, THE SHOULDERS SHALL BE IN PLACE, SHAPED AND COMPACTED UNLESS SHOWN OTHERWISE.

THE EROSION CONTROL FEATURES AS SHOWN ON THE PLAN DETAILS ARE AT SUGGESTED LOCATIONS, THEIR EXACT LOCATIONS WILL BE DETERMINED IN THE FIELD BY THE ENGINEER.

WETLANDS MAY EXIST IN LOCATIONS THAT ARE NOT SHOWN IN THE PLANS. DO NOT STAGE IN OR DISTURB WETLANDS AREAS.

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

4½-INCH ASPHALTIC SURFACE SPECIAL SHALL CONSIST OF A 2½-INCH LOWER LAYER AND A 2-INCH UPPER LAYER.

REMOVE ALL EXISTING CULVERT MARKER POSTS. "MARKERS CULVERT END" REQUIRED AT ALL CROSS CULVERT LOCATIONS.

STANDARD ABBREVIATIONS

A.A.D.T.	ANNUAL AVERAGE DAILY TRAFFIC
B.A.D.	BASE AGGREGATE DENSE
C/L	CENTERLINE
CPRC	CULVERT PIPE REINFORCED CONCRETE
CMCP	CORRUGATED METAL CULVERT PIPE
CY	CUBIC YARD
D.D.	DAILY DIRECTIONAL SPLIT (TRAFFIC VOLUME)
D.H.V.	DAILY HOURLY TRAFFIC
EAT	ENERGY ABSORBING TERMINAL
EB	EASTBOUND
EL.	ELEVATION
ESALS	EQUIVALENT SINGLE AXLE LOADS
FO	FIBER OPTIC
INV	INVERT
LB	POUND
LF OR L.F.	LINEAR FEET
LT.	LEFT
MAX.	MAXIMUM
MIN.	MINIMUM
NB	NORTHBOUND
NPZ	NO PASSING ZONE
OH	OVERHEAD
P.E.	PRIVATE ENTRANCE
REQ'D	REQUIRED
R/L OR RL	REFERENCE LINE
RT.	RIGHT
R/W	RIGHT OF WAY
SB	SOUTHBOUND
S.D.D.	STANDARD DETAIL DRAWING
STA.	STATION
SF	SQUARE FOOT
STH	STATE HIGHWAY
SY	SQUARE YARD
T.	PERCENT OF TRUCK TRAFFIC
T.L.E.	TEMPORARY LIMITED EASEMENT
TYP.	TYPICAL
VAR.	VARIES
WB	WESTBOUND

WISDOT REGIONAL CONTACT

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WISDOT NORTHWEST REGION
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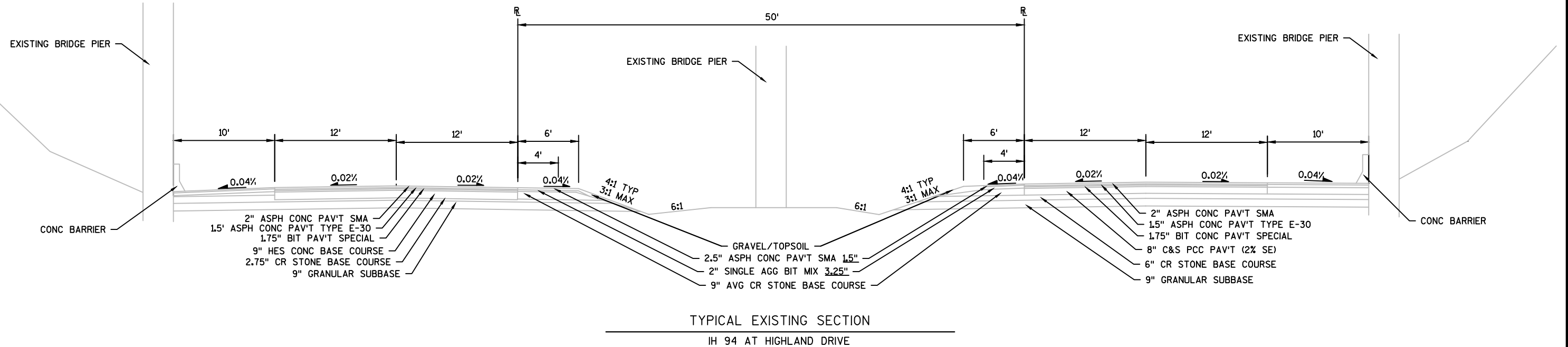
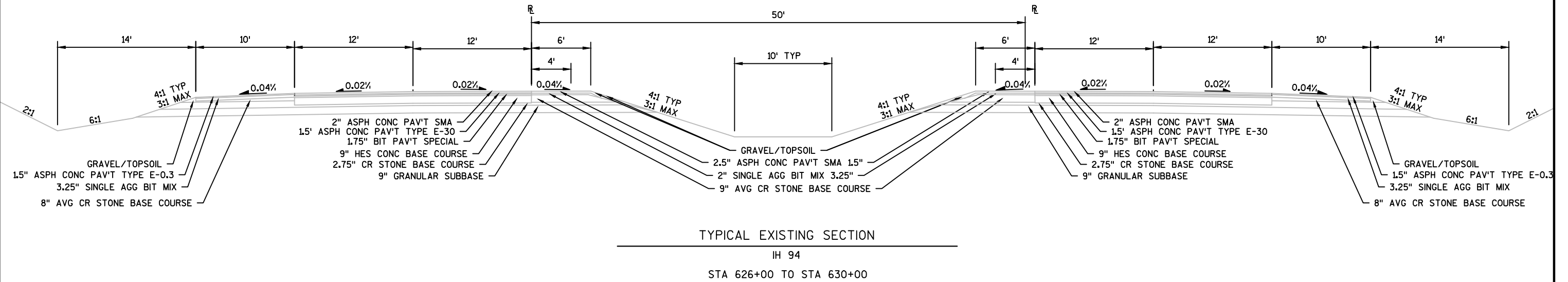
ROB DOOLEY
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1925 RIDGEWAY ST
P.O. BOX 108
HAMMOND, WI 54015-5039
(715) 796-5637
RobDoo@scsecnet.net

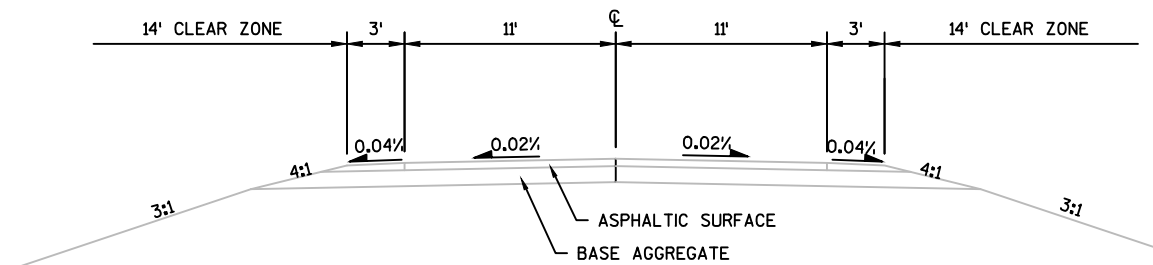
ROBERT SAMPSON
CENTURYLINK COMMUNICATIONS F/K/A QWEST
1310 E MARY ST
OTTUMWA, IA 52501
(636) 887-5367
robert.sampson@centurylink.com

DIGGERSHOTLINE

Dial 811 or (800)242-8511

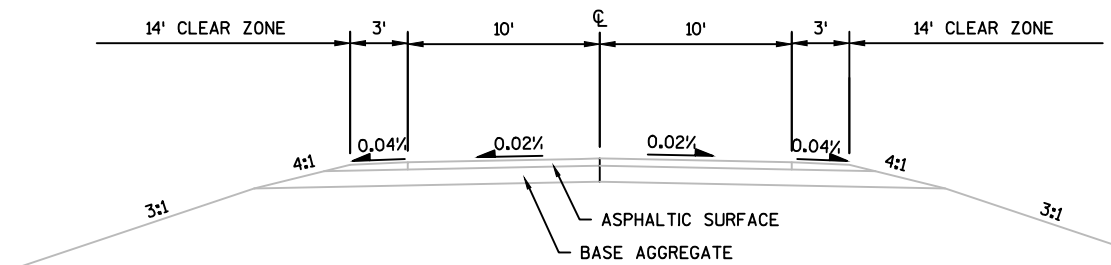
www.DiggersHotline.com





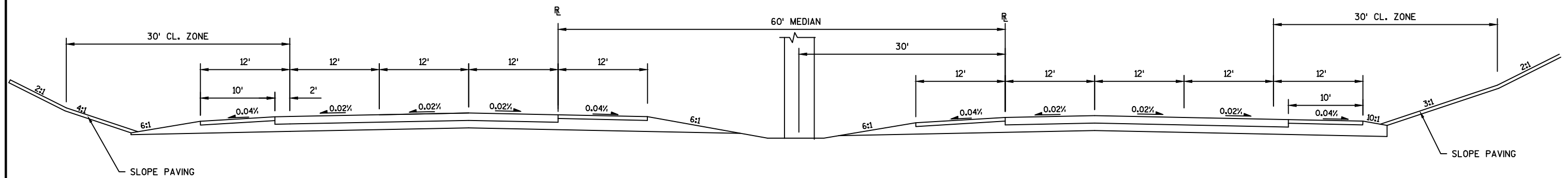
TYPICAL EXISTING SECTION

HIGHLAND DRIVE
STA 47+75 TO STA 48+68
STA 50+66 TO STA 52+25

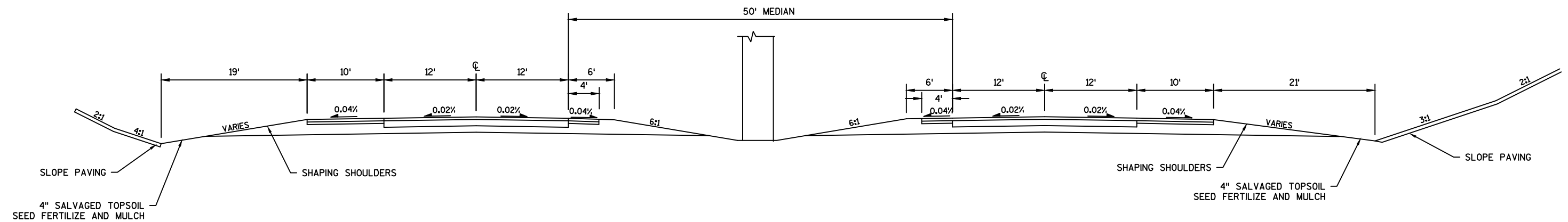


TYPICAL EXISTING SECTION

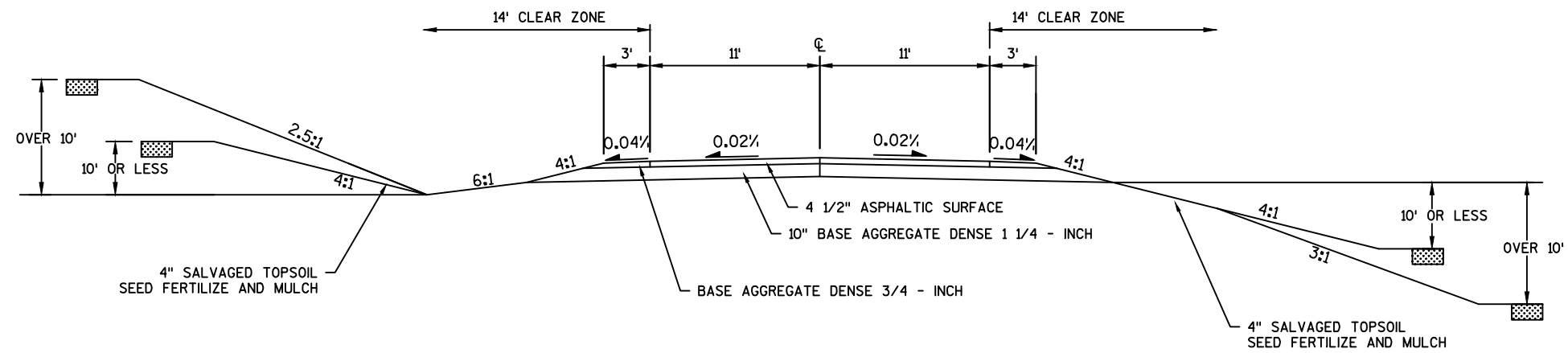
HIGHLAND DRIVE
STA 37+50 TO STA 47+75
STA 52+25 TO STA 55+00



TYPICAL FUTURE SECTION
6-LANE IH 94 AT HIGHLAND DRIVE
STA 626+00 TO STA 630+00

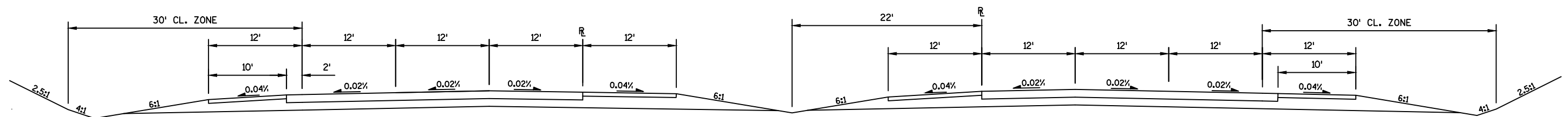


TYPICAL FINISHED SECTION
IH 94 AT HIGHLAND DRIVE
STA 626+00 TO STA 630+00



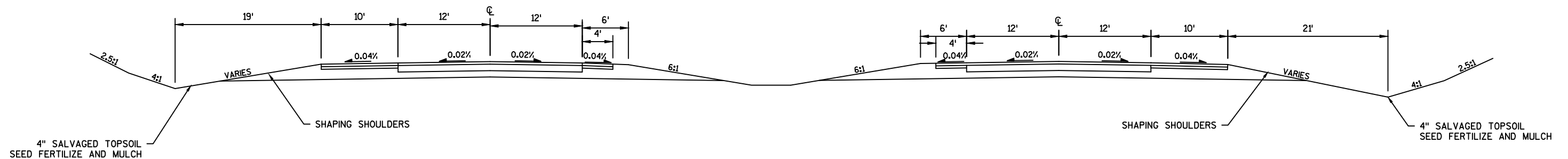
TYPICAL FINISHED SECTION

HIGHLAND DRIVE
STA 37+50 TO STA 48+42.6
STA 50+85.1 TO STA 55+00



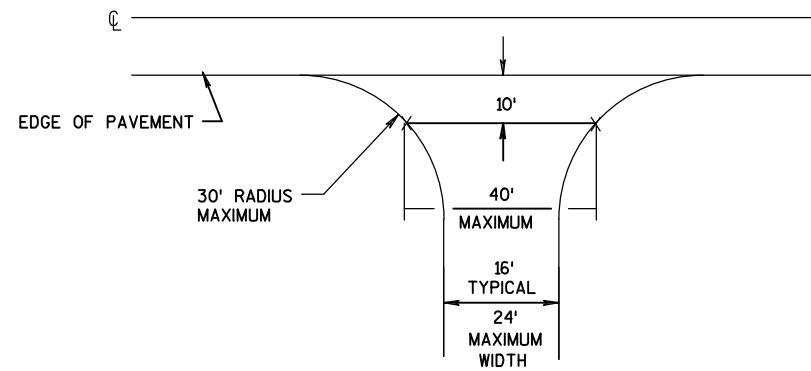
TYPICAL FUTURE SECTION

6-LANE IH 94
STA 626+00 TO STA 630+00

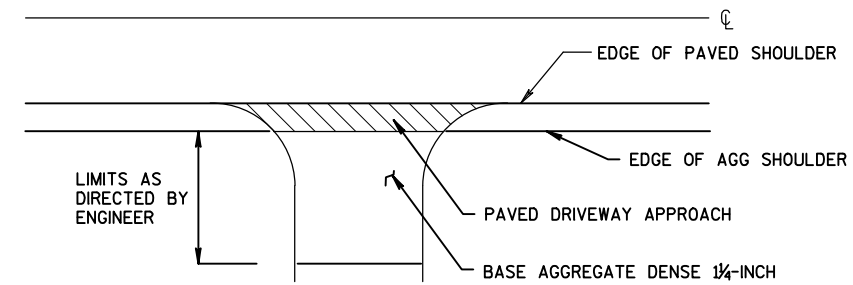


TYPICAL FINISHED SECTION

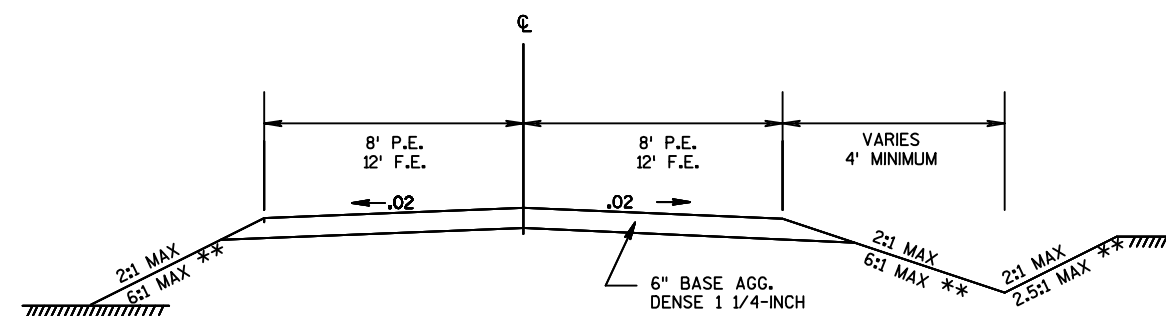
IH 94
STA 626+00 TO STA 630+00



TYPICAL DRIVEWAY DETAIL
(NON-COMMERCIAL RURAL)



RURAL DRIVEWAY DETAIL - AGG

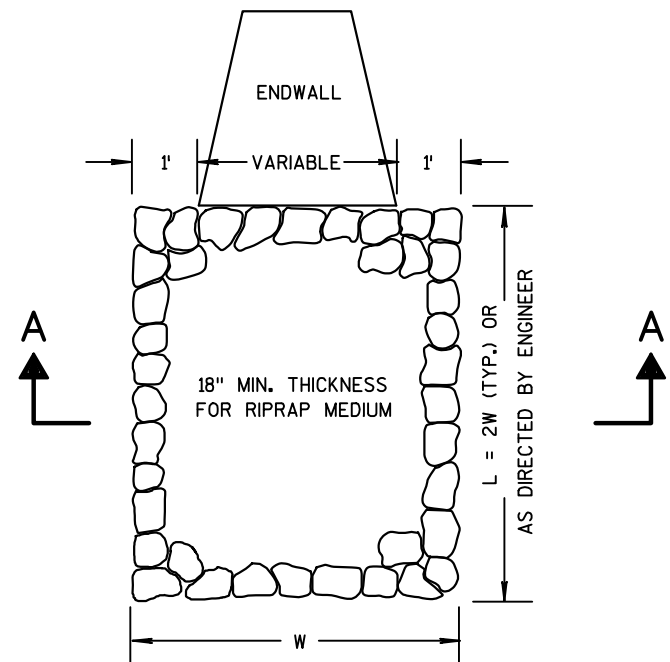
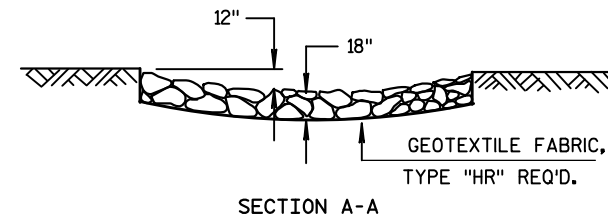
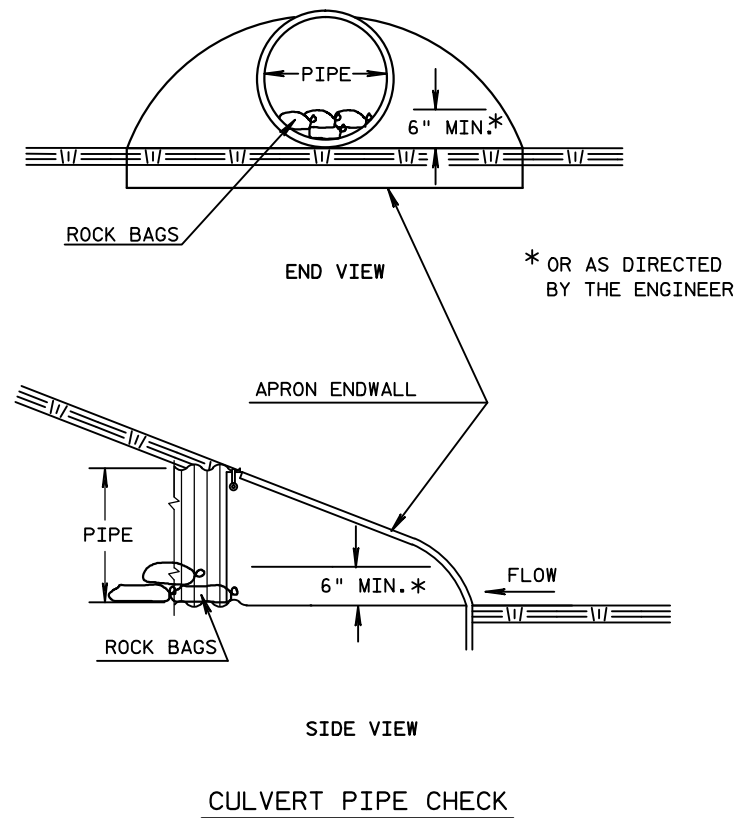


** WITHIN CLEAR ZONE

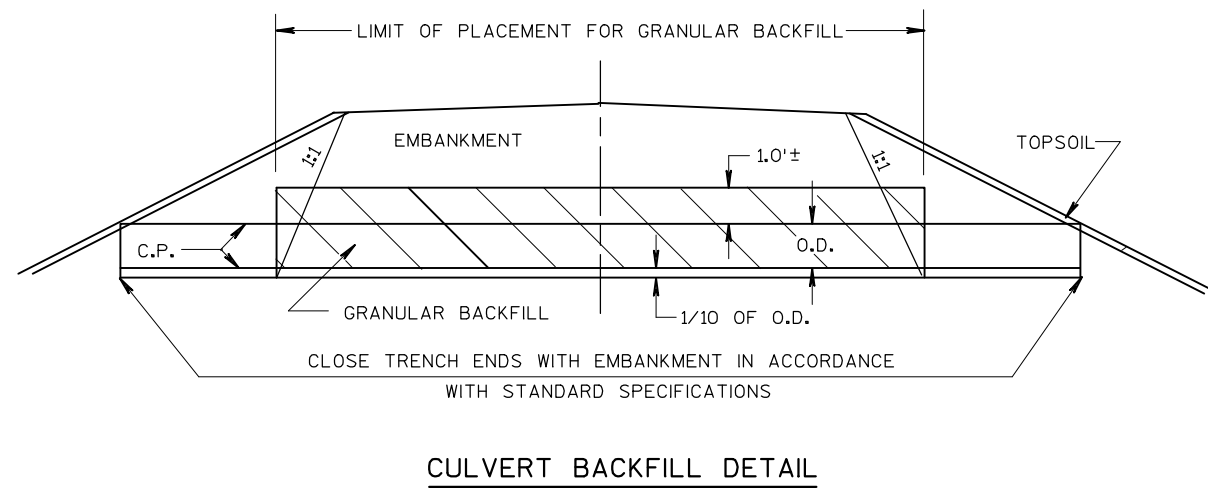
NOTE:

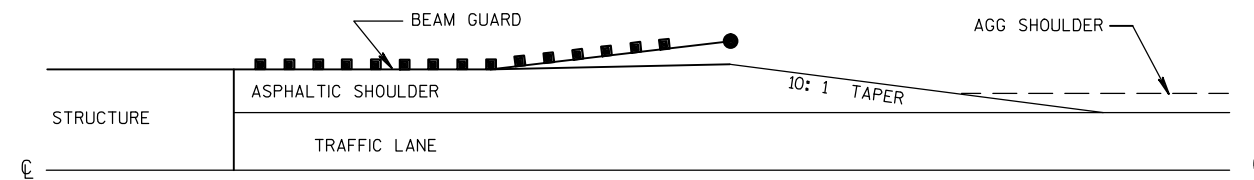
DRIVEWAY PROFILES NOT EXPECTED TO EXCEED 10%. PLACE LOW POINT OF DRIVEWAY PROFILE OVER DITCH FLOW LINE.

TYPICAL SECTION
FOR RURAL DRIVEWAYS

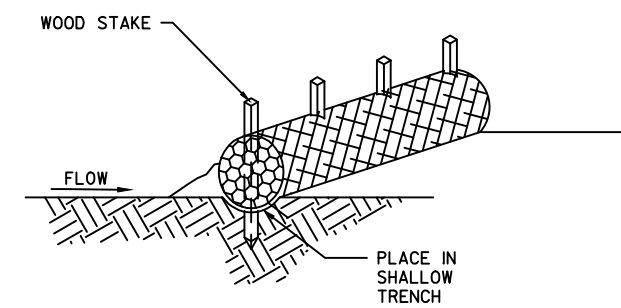


RIPRAP MEDIUM TREATMENT AT CULVERTS





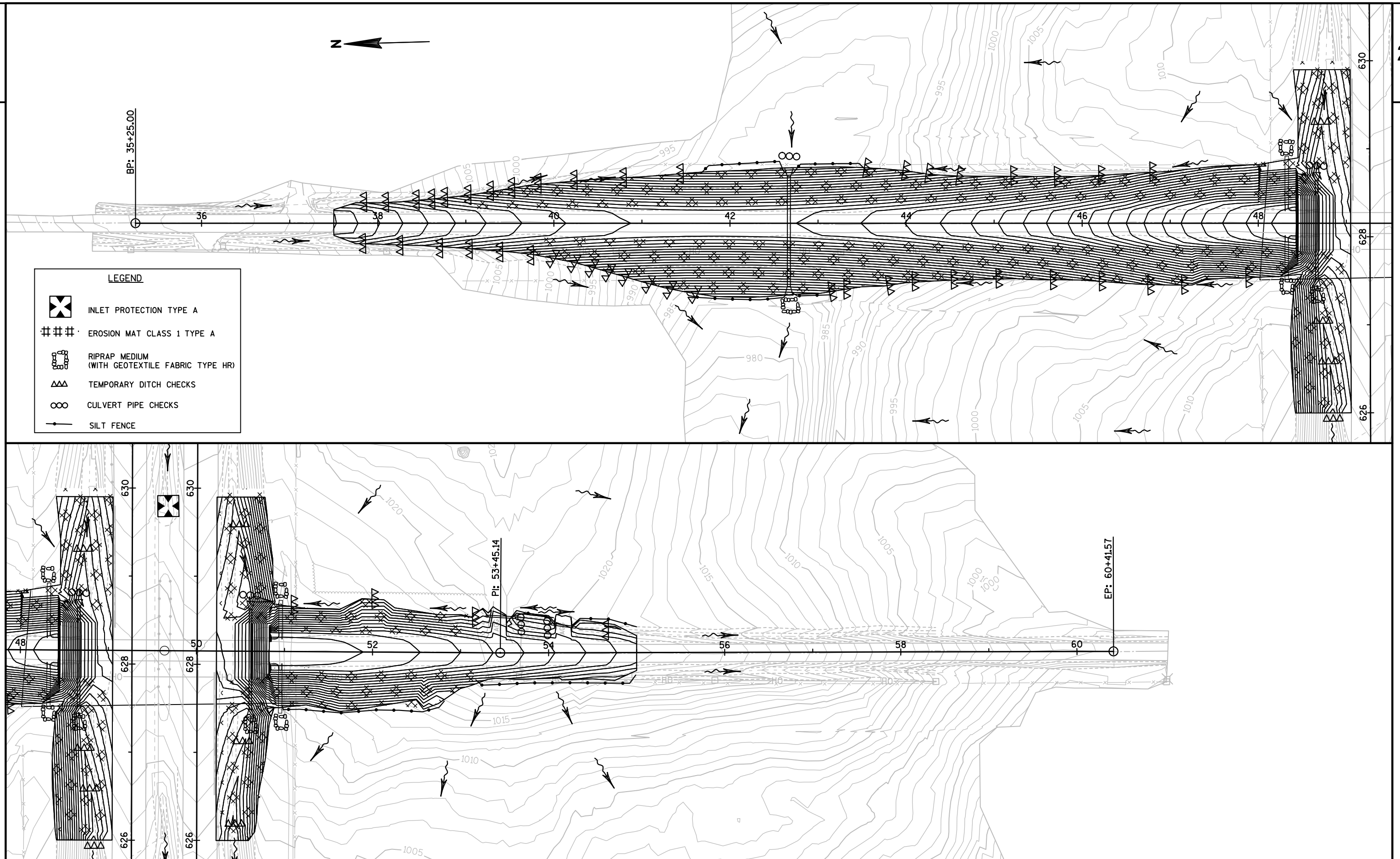
DETAIL FOR ASPHALTIC SHOULDER AT BEAM GUARD



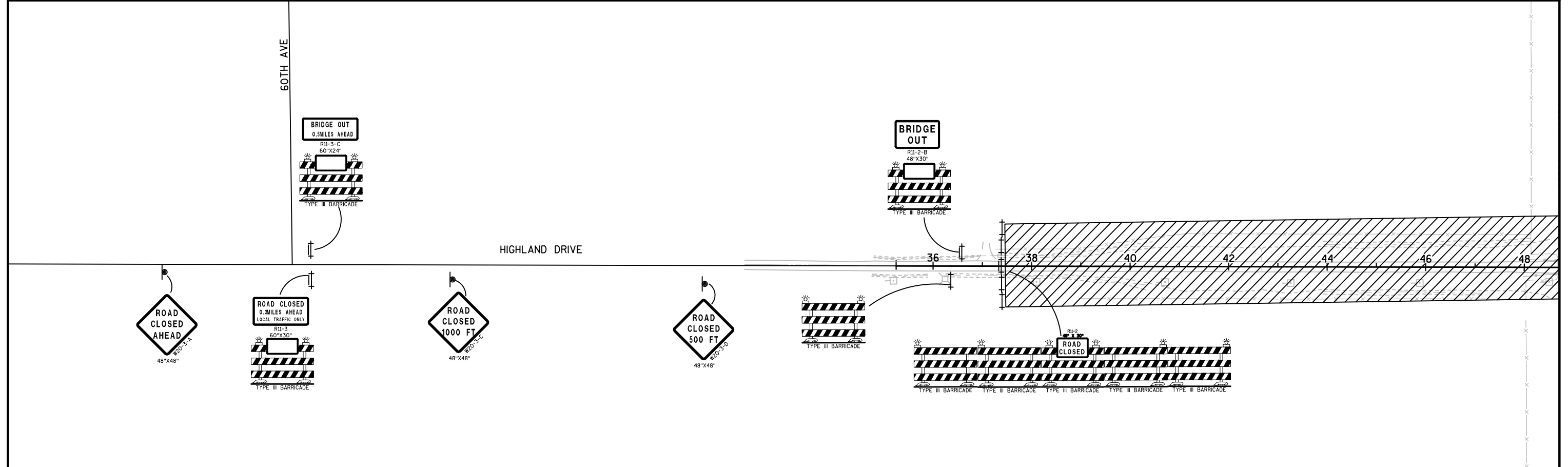
TEMPORARY DITCH CHECKS

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E

WISDOT/CADDS SHEET 44

GENERAL NOTES:

- | | |
|---|--|
|  | POST WITH ATTACHED SIGN |
|  | DIRECTION OF TRAFFIC |
|  | WORK ZONE |
|  | PORTABLE CHANGEABLE MESSAGE SIGN REMOTE CONTROL
SEE ALT. ROUTE DETAIL FOR LOCATION |
| * | A SPEED LIMIT SIGN SHALL BE LOCATED 1500 FEET BEYOND THE END OF THE ACCELERATION LANE OF EACH ENTRANCE RAMP. THERE SHALL BE A SPEED LIMIT SIGN INCORPORATED A MINIMUM OF EVERY 2 TO 3 MILES WITHIN THE LANE CLOSURE. |
| ** | SEE SDD 15D12-6B: "TRAFFIC CONTROL, LANE CLOSURE, SPEED REDUCTION" FOR TRAFFIC CONTROL LOCATED WITHIN THE TRANSITION AREA, BUFFER SPACE, AND WORK SPACE (WORK AREA). |
| *** | TO BE USED DURING SHORT TERM LANE CLOSURES |

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

THE SPACING BETWEEN SIGNS SHOULD BE ADJUSTED TO NOT CONFLICT WITH AND TO PROVIDE A MINIMUM OF 200 FEET (500 FEET DESIREABLE) DISTANCE TO EXISTING SIGNS.

TRAFFIC CONTROL SHOWN IS FOR LANE CLOSURES IN ONE DIRECTION AT ANY GIVEN TIME. IMPLEMENT TRAFFIC CONTROL IN BOTH DIRECTIONS IF LANE CLOSURES ARE IMPLEMENTED FOR BOTH DIRECTIONS.

COORDINATE LOCATIONS OF LANE CLOSURES/SPEED REDUCTION ADVANCED SIGNING
WITH DETAILS SHOWN ON ALTERNATE ROUTE DETAIL.

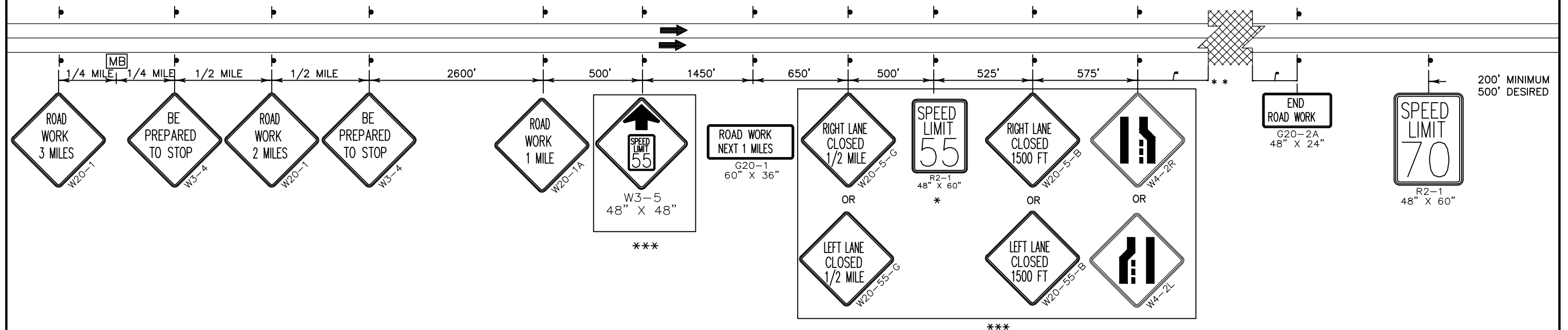
RETURN SPEED LIMIT TO 70 MPH AND COVER SIGNS DURING NON-WORKING HOURS.

ALL SIGNS ARE 48"X48" UNLESS OTHERWISE NOTED.

"WO" IS THE SAME AS "W" EXCEPT THE BACKGROUND IS ORANGE.

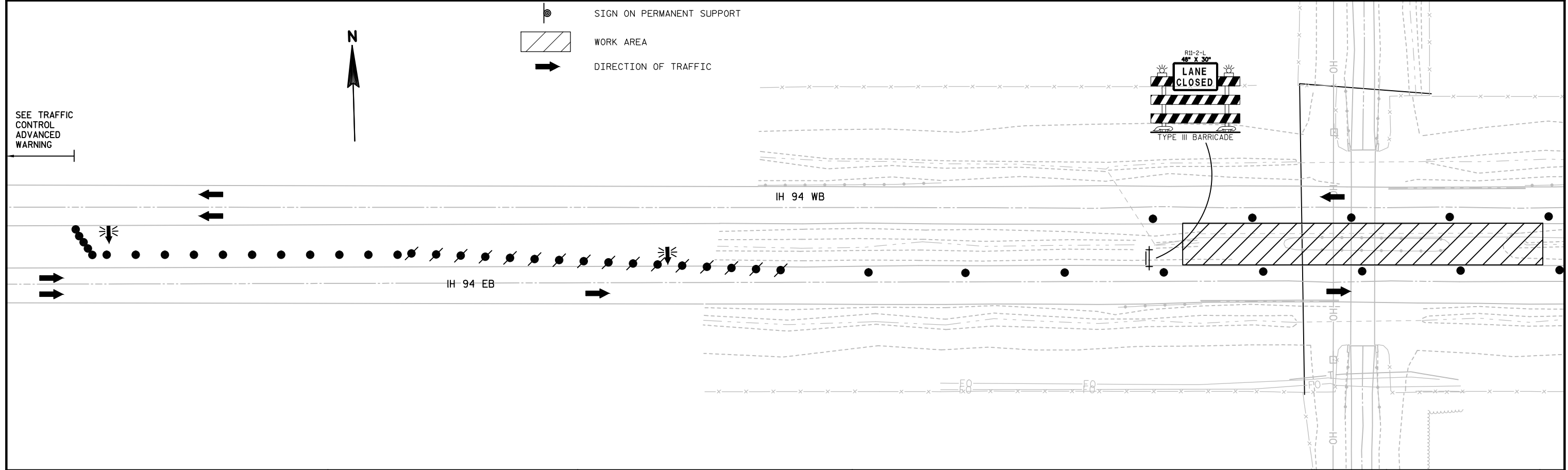
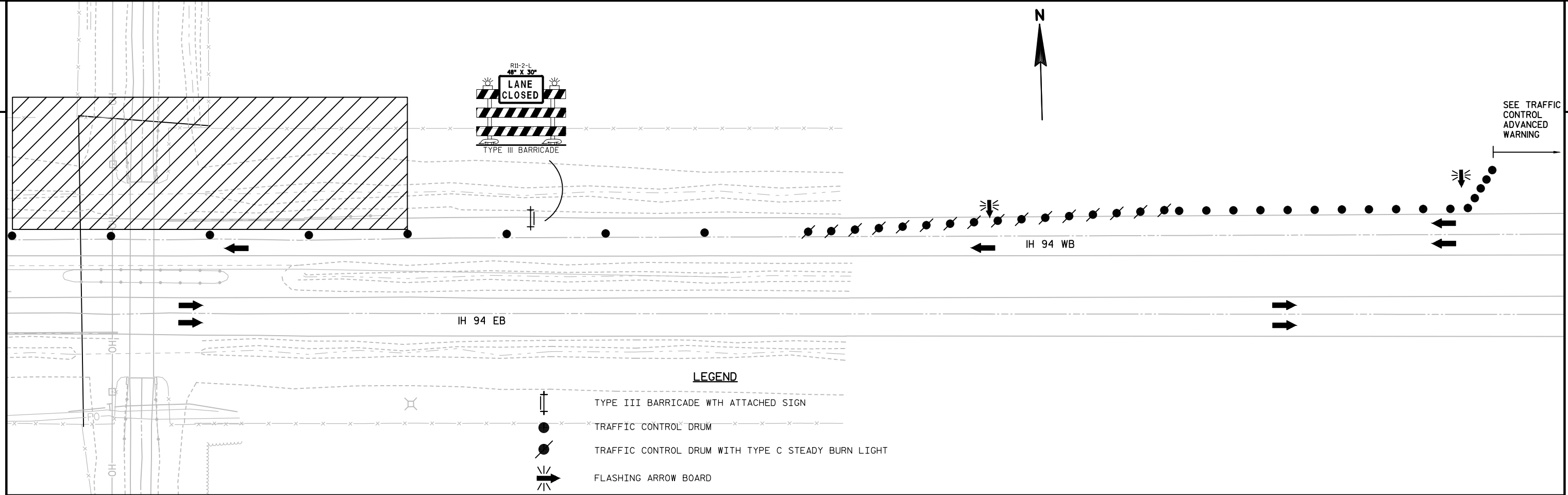
ANY SIGNS TEMPORARY OR EXISTING, WHICH CONFLICT WITH TRAFFIC CONTROL "IN USE" SHALL BE REMOVED OR COVERED AS NEEDED AND AS APPROVED BY THE ENGINEER. NO WARNING LIGHTS SHALL BE WORKING ON "COVERED" OR "DOWNED" SIGNS.

FOR A LANE CLOSURE THAT IS IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS, THE ADVANCED WARNING SIGNS MAY BE MOUNTED ON PORTABLE SUPPORTS.



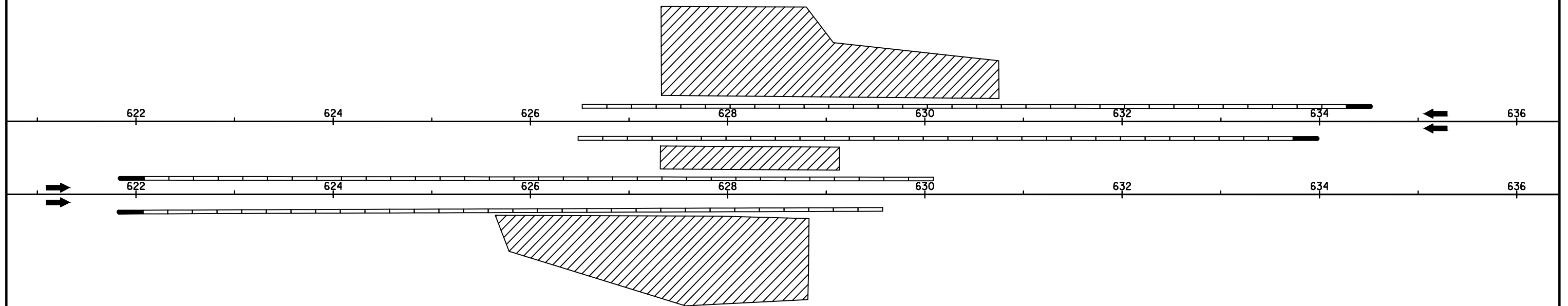
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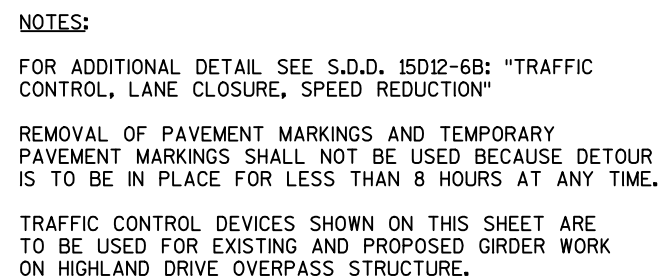


LEGEND

- CRASH CUSHION
- CONCRETE BARRIER TEMPORARY PRECAST
- WORK AREA
- DIRECTION OF TRAFFIC



NOTE: SEE SDD 14 B 8-1 FOR LENGTHS OF NEED.



** SEE QUANTITY ESTIMATING CHART
FOR WOOD AND BREAKAWAY STEEL POSTS
AND FOR NUMBER OF POSTS REQ'D.

NOTES:

"M0" IS THE SAME AS "M" AND "W0" IS THE SAME AS "W" EXCEPT
THE BACKGROUND IS ORANGE.

THE CONTRACTOR SHALL COVER EXISTING SIGNS WITH THE PROPOSED
ALTERNATE ROUTE DETOUR SIGNS OR REMOVE THE EXISTING SIGN
AND REPLACE AFTER COMPLETION OF THE PROJECT.

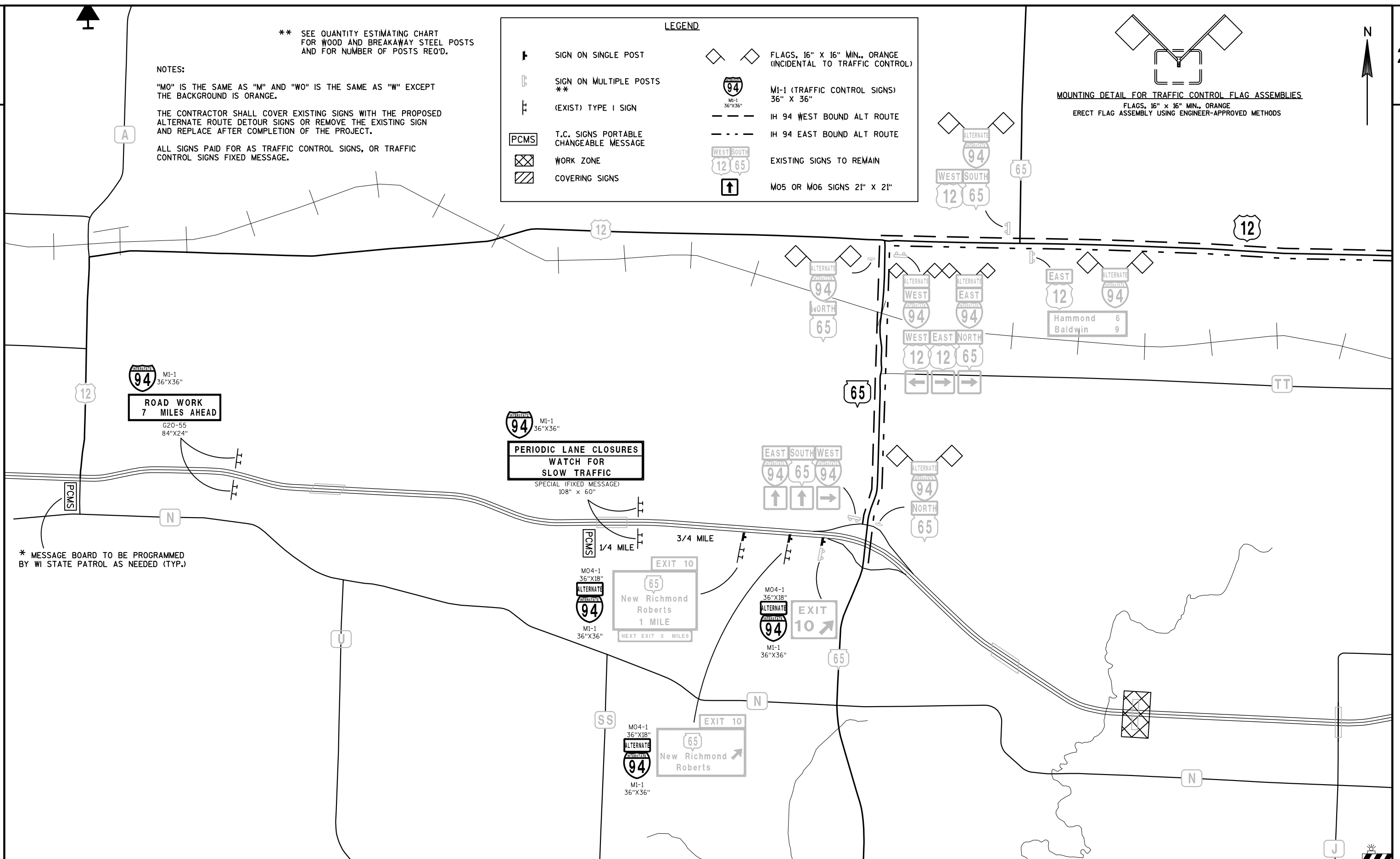
ALL SIGNS PAID FOR AS TRAFFIC CONTROL SIGNS, OR TRAFFIC
CONTROL SIGNS FIXED MESSAGE.

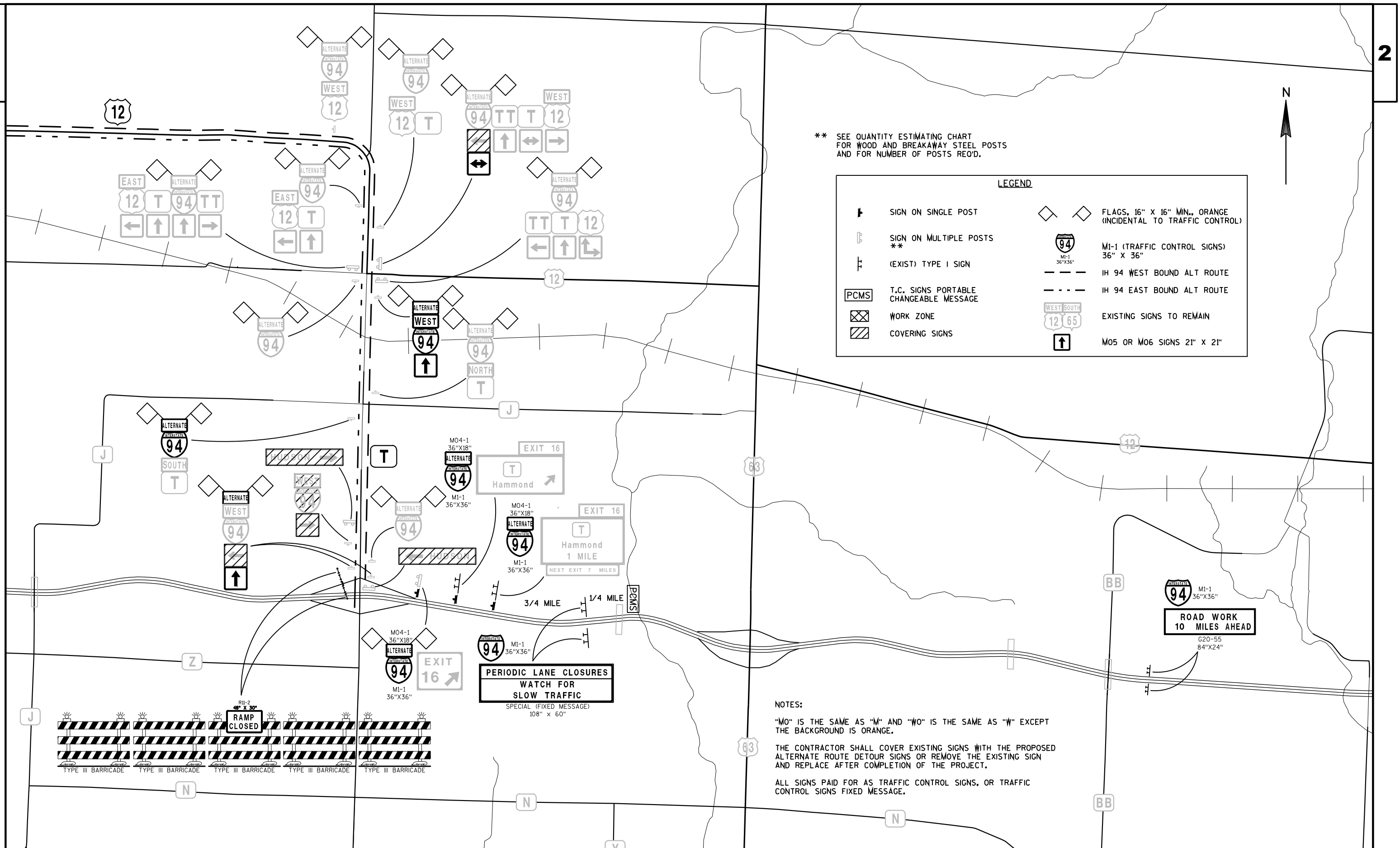
LEGEND

- | | | | |
|--|---|--|--|
| | SIGN ON SINGLE POST | | FLAGS, 16" X 16" MIN., ORANGE
(INCIDENTAL TO TRAFFIC CONTROL) |
| | SIGN ON MULTIPLE POSTS
** | | MI-1 (TRAFFIC CONTROL SIGNS)
36" X 36" |
| | (EXIST) TYPE I SIGN | | IH 94 WEST BOUND ALT ROUTE |
| | T.C. SIGNS PORTABLE
CHANGEABLE MESSAGE | | IH 94 EAST BOUND ALT ROUTE |
| | WORK ZONE | | EXISTING SIGNS TO REMAIN |
| | COVERING SIGNS | | M05 OR M06 SIGNS 21" X 21" |

MOUNTING DETAIL FOR TRAFFIC CONTROL FLAG ASSEMBLIES

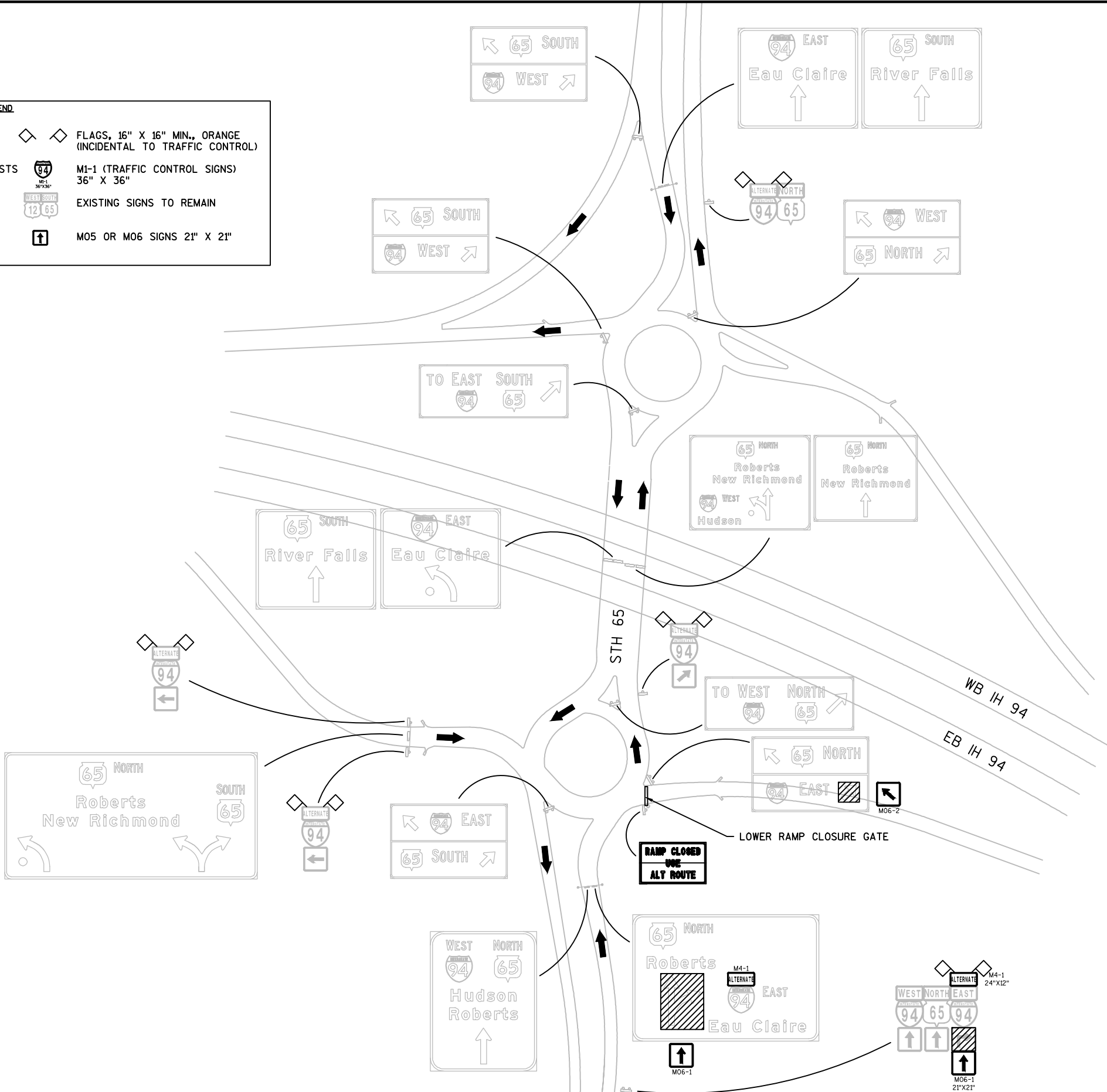
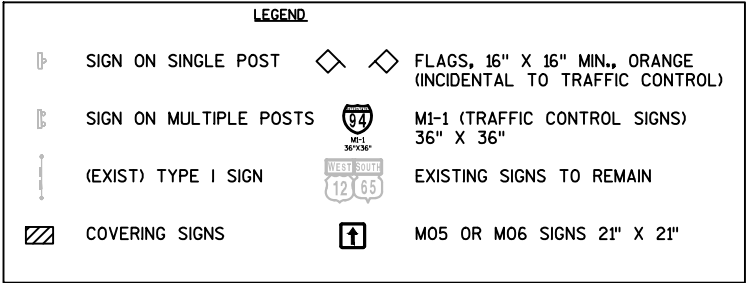
FLAGS, 16" X 16" MIN., ORANGE
ERECT FLAG ASSEMBLY USING ENGINEER-APPROVED METHODS

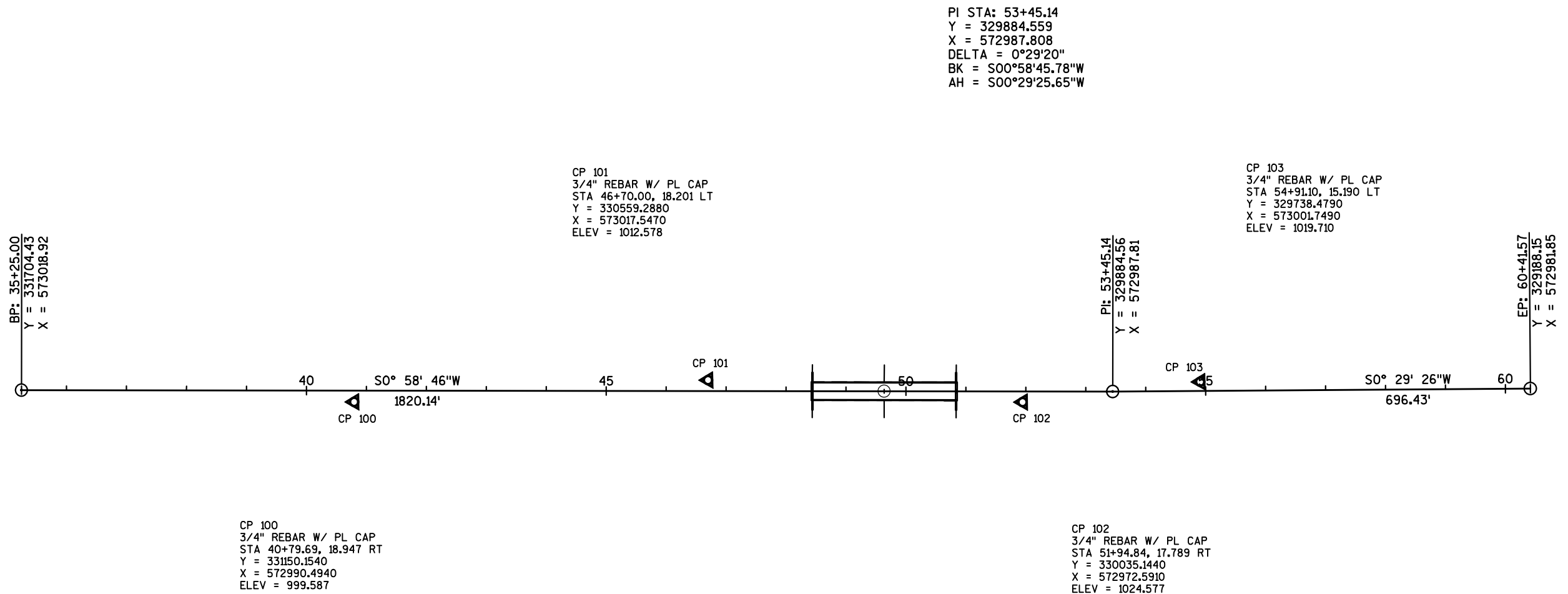




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DATE 30SEP16		E S T I M A T E O F Q U A N T I T I E S			
LINE					1021-01-71
NUMBER	ITEM	ITEM DESCRIPTION	UNIT	TOTAL	QUANTITY
0010	201.0105	Clearing	STA	11.000	11.000
0020	201.0205	Grubbing	STA	11.000	11.000
0030	203.0100	Removing Small Pipe Culverts	EACH	5.000	5.000
0040	203.0200	Removing Old Structure (station) 01. Sta. 49+64	LS	1.000	1.000
0050	204.0110	Removing Asphaltic Surface	SY	3,600.000	3,600.000
0060	204.0157	Removing Concrete Barrier	LF	350.000	350.000
0070	204.0170	Removing Fence	LF	370.000	370.000
0080	204.0180	Removing Delineators and Markers	EACH	9.000	9.000
0090	205.0100	Excavation Common	CY	3,600.000	3,600.000
0100	206.1000	Excavation for Structures Bridges (structure) 01. B-55-0258	LS	1.000	1.000
0110	208.1100	Select Borrow	CY	24,900.000	24,900.000
0120	210.1500	Backfill Structure Type A	TON	828.000	828.000
0130	213.0100	Finishing Roadway (project) 01. 1021-01-71	EACH	1.000	1.000
0140	305.0110	Base Aggregate Dense 3/4-Inch	TON	470.000	470.000
0150	305.0120	Base Aggregate Dense 1 1/4-Inch	TON	3,400.000	3,400.000
0160	305.0500	Shaping Shoulders	STA	8.000	8.000
0170	455.0605	Tack Coat	GAL	200.000	200.000
0180	465.0105	Asphaltic Surface	TON	1,020.000	1,020.000
0190	465.0315	Asphaltic Flumes	SY	100.000	100.000
0200	502.0100	Concrete Masonry Bridges	CY	474.000	474.000
0210	502.3200	Protective Surface Treatment	SY	755.000	755.000
0220	502.3210	Pigmented Surface Sealer	SY	208.000	208.000
0230	503.0155	Prestressed Girder Type I 54W-Inch	LF	963.000	963.000
0240	505.0400	Bar Steel Reinforcement HS Structures	LB	7,360.000	7,360.000
0250	505.0600	Bar Steel Reinforcement HS Coated Structures	LB	86,460.000	86,460.000
0260	506.2605	Bearing Pads Elastomeric Non-Laminated	EACH	16.000	16.000
0270	506.4000	Steel Diaphragms (structure) 01. B-55-0258	EACH	12.000	12.000
0280	516.0500	Rubberized Membrane Waterproofing	SY	14.000	14.000
0290	521.0118	Culvert Pipe Corrugated Steel 18-Inch	LF	76.000	76.000
0300	521.1018	Apron Endwalls for Culvert Pipe Steel 18-Inch	EACH	4.000	4.000
0310	522.0136	Culvert Pipe Reinforced Concrete Class III 36-Inch	LF	226.000	226.000
0320	522.0342	Culvert Pipe Reinforced Concrete Class IV 42-Inch	LF	118.000	118.000
0330	522.1036	Apron Endwalls for Culvert Pipe Reinforced Concrete 36-Inch	EACH	4.000	4.000
0340	522.1042	Apron Endwalls for Culvert Pipe Reinforced Concrete 42-Inch	EACH	2.000	2.000
0350	550.1100	Piling Steel HP 10-Inch X 42 Lb	LF	400.000	400.000
0360	603.8000	Concrete Barrier Temporary Precast Delivered	LF	3,805.000	3,805.000
0370	603.8125	Concrete Barrier Temporary Precast Installed	LF	3,805.000	3,805.000
0380	604.0600	Slope Paving Select Crushed Material	SY	330.000	330.000
0390	606.0200	Riprap Medium	CY	25.000	25.000
0400	612.0406	Pipe Underdrain Wrapped 6-Inch	LF	150.000	150.000
0410	614.0150	Anchor Assemblies for Steel Plate Beam Guard	EACH	4.000	4.000
0420	614.0220	Steel Thrie Beam Bullnose Terminal	EACH	2.000	2.000
0430	614.0230	Steel Thrie Beam	LF	125.000	125.000

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3

DATE 30SEP16		E S T I M A T E O F Q U A N T I T I E S			
LINE				1021-01-71	
NUMBER	ITEM	ITEM DESCRIPTION	UNIT	TOTAL	QUANTITY
0440	614.0905	Crash Cushions Temporary	EACH	4.000	4.000
0450	614.0920	Salvaged Rail	LF	815.000	815.000
0460	614.2300	MGS Guardrail 3	LF	100.000	100.000
0470	614.2500	MGS Thrie Beam Transition	LF	158.000	158.000
0480	614.2610	MGS Guardrail Terminal EAT	EACH	4.000	4.000
0490	616.0100	Fence Woven Wire (height) 01. 4-FT Barbed	LF	275.000	275.000
0500	618.0100	Maintenance And Repair of Haul Roads (project) 01. 1021-01-71	EACH	1.000	1.000
0510	619.1000	Mobilization	EACH	1.000	1.000
0520	624.0100	Water	MGAL	150.000	150.000
0530	625.0500	Salvaged Topsoil	SY	21,000.000	21,000.000
0540	627.0200	Mulching	SY	22,880.000	22,880.000
0550	628.1504	Silt Fence	LF	850.000	850.000
0560	628.1520	Silt Fence Maintenance	LF	850.000	850.000
0570	628.1905	Mobilizations Erosion Control	EACH	3.000	3.000
0580	628.1910	Mobilizations Emergency Erosion Control	EACH	4.000	4.000
0590	628.2002	Erosion Mat Class I Type A	SY	17,800.000	17,800.000
0600	628.7005	Inlet Protection Type A	EACH	1.000	1.000
0610	628.7504	Temporary Ditch Checks	LF	1,000.000	1,000.000
0620	628.7555	Culvert Pipe Checks	EACH	20.000	20.000
0630	629.0210	Fertilizer Type B	CWT	14.000	14.000
0640	630.0120	Seeding Mixture No. 20	LB	610.000	610.000
0650	633.0100	Delineator Posts Steel	EACH	4.000	4.000
0660	633.0500	Delineator Reflectors	EACH	4.000	4.000
0670	633.5200	Markers Culvert End	EACH	6.000	6.000
0680	634.0612	Posts Wood 4x6-Inch X 12-FT	EACH	4.000	4.000
0690	637.2230	Signs Type II Reflective F	SF	12.000	12.000
0700	638.2602	Removing Signs Type II	EACH	4.000	4.000
0710	638.3000	Removing Small Sign Supports	EACH	4.000	4.000
0720	642.5001	Field Office Type B	EACH	1.000	1.000
0730	643.0100	Traffic Control (project) 01. 1021-01-71	EACH	1.000	1.000
0740	643.0300	Traffic Control Drums	DAY	10,800.000	10,800.000
0750	643.0420	Traffic Control Barricades Type III	DAY	2,700.000	2,700.000
0760	643.0705	Traffic Control Warning Lights Type A	DAY	4,200.000	4,200.000
0770	643.0715	Traffic Control Warning Lights Type C	DAY	3,000.000	3,000.000
0780	643.0800	Traffic Control Arrow Boards	DAY	400.000	400.000
0790	643.0900	Traffic Control Signs	DAY	11,250.000	11,250.000
0800	643.0910	Traffic Control Covering Signs Type I	EACH	5.000	5.000
0810	643.0920	Traffic Control Covering Signs Type II	EACH	40.000	40.000
0820	643.1000	Traffic Control Signs Fixed Message	SF	90.000	90.000
0830	643.1050	Traffic Control Signs PCMS	DAY	300.000	300.000
0840	643.2000	Traffic Control Detour (project) 01. 1021-01-71	EACH	1.000	1.000
0850	645.0120	Geotextile Type HR	SY	55.000	55.000
0860	646.0106	Pavement Marking Epoxy 4-Inch	LF	3,500.000	3,500.000
0870	650.4500	Construction Staking Subgrade	LF	1,506.000	1,506.000
0880	650.5000	Construction Staking Base	LF	1,506.000	1,506.000
0890	650.6000	Construction Staking Pipe Culverts	EACH	2.000	2.000
0900	650.6500	Construction Staking Structure Layout (structure) 01. B-55-0258	LS	1.000	1.000
0910	650.9910	Construction Staking Supplemental Control (project) 01. 1021-01-71	LS	1.000	1.000
0920	650.9920	Construction Staking Slope Stakes	LF	2,306.000	2,306.000

3

DATE 30SEP16		E S T I M A T E O F Q U A N T I T I E S			
LINE					1021-01-71
NUMBER	ITEM	ITEM DESCRIPTION	UNIT	TOTAL	QUANTITY
0930	690.0150	Sawing Asphalt	LF	44.000	44.000
0940	715.0502	Incentive Strength Concrete Structures	DOL	2,844.000	2,844.000
0950	ASP.1T0A	On-the-Job Training Apprentice at \$5.00/HR	HRS	1,200.000	1,200.000
0960	ASP.1T0G	On-the-Job Training Graduate at \$5.00/HR	HRS	300.000	300.000
0970	SPV.0090	Special 01. Fence Chain Link Polymer-Coated 6-Ft	LF	488.000	488.000

*ALL ITEMS ARE CATEGORY 010 UNLESS OTHERWISE NOTED

CLEARING AND GRUBBING					
			201.0105 CLEARING	201.0205 GRUBBING	
STATION	TO	STATION	LOCATION	STA	STA
46+50	TO	48+50	LT & RT	2	2
52+00	TO	53+00	LT	1	1
626+00	TO	630+00	IH 94 EB	4	4
626+00	TO	630+00	IH 94 WB	4	4
ITEM TOTAL				11	11

REMOVING SMALL PIPE CULVERTS				203.0100
STATION	TO	STATION	LOCATION	EACH
42+67			HIGHLAND DR	1
328+15			IH 94	2
53+40			PE LT	1
54+15			PE LT	1
ITEM TOTAL				5

REMOVING ASPHALTIC SURFACE				204.0110
STATION	TO	STATION	LOCATION	SY
37+50	TO	48+68	MAINLINE	2550
50+66	TO	55+00	MAINLINE	1050
ITEM TOTAL				3600

REMOVING CONCRETE BARRIER				204.0157
STATION	TO	STATION	LOCATION	LF
626+52	TO	628+27	IH 94 EB	175
628+05	TO	629+80	IH 94 WB	175
ITEM TOTAL				350

REMOVING FENCE				204.0170
STATION	TO	STATION	LOCATION	LF
48+10	TO	48+70	LT & RT	220
50+65	TO	51+10	LT & RT	150
ITEM TOTAL				370

REMOVING DELINEATORS AND MARKERS		204.0180
STATION TO STATION	LOCATION	EACH
37+50 TO 55+00	HIGHLAND DR	2
626+00 TO 630+00	IH 94	7
ITEM TOTAL		9

FINISHING ROADWAY (PROJECT) 1021-01-71				213.0100
STATION	TO	STATION	LOCATION	EACH
37+50	TO	55+00	MAINLINE	1
ITEM TOTAL				1

BASE AGGREGATE DENSE 3/4-INCH				305.0110
STATION	TO	STATION	LOCATION	TON
37+50	TO	48+43	MAINLINE	350
50+86	TO	55+00	MAINLINE	120
ITEM TOTAL				470

BASE AGGREGATE DENSE 1 1/4-INCH				305.0120
STATION	TO	STATION	LOCATION	TON
37+50	TO	48+43	MAINLINE	2400
50+86	TO	55+00	MAINLINE	970
53+40			PE	15
54+15			PE	15
ITEM TOTAL				3400

SHAPING SHOULDERS				305.0500
STATION	TO	STATION	LOCATION	STA
626+00	TO	630+00	IH 94 EB RT	4
626+00	TO	630+00	IH 94 WB LT	4
ITEM TOTAL				8

EARTHWORK SUMMARY											
DIVISION	STATIONS	LOCATION	COMMON EXCAVATION	SALVAGED/ UNUSABLE PAVEMENT MATERIAL (4)	AVAILABLE MATERIAL (5)	UNEXPANDED FILL	EXPANDED FILL (13)	MASS ORDINATE +/- (14)	WASTE	SELECT BORROW	COMMENT:
			ITEM #205.0110 CUT (2)				FACTOR 1.25			ITEM #208.1100	
HIGHLAND DRIVE											
1	37+50 TO 48+42	NORTH	47	133	47	20058	25073	-25026	0	25026	
2	50+86 TO 55+00	SOUTH	76	52	76	2353	2941	-2865	0	2865	
HIGHLAND DR SUBTOTAL			123	185	123	22411	28014	-27891	0	27891	
IH 94											
3	626+00 TO 630+00	EB	1693	0	1693	207	259	1434	1434	-1434	
4	626+00 TO 630+00	WB	1744	0	1744	127	159	1585	1585	-1585	
IH 94 SUBTOTAL			3437	0	3437	334	418	3019	3019	-3019	
GRAND TOTAL			3560	185	3560	22745	28431	-24872	3019	24872	SEE NOTE 15
PAID QUANTITIES			TOTAL COMMON EXCAVATION			3600	TOTAL SELECT BORROW			24900	

- 1) Common Excavation is the sum of the Cut and EBS Excavation columns. Item number 205.0100
2) Salvaged/Unsuable Pavement Material is Included in Cut.
3) EBS Excavation to be backfilled with Select Borrow material. Note: this is designers choice, can be backfilled with Borrow, or Cut as well.
4) Salvaged/Unusable Pavement Material
5) Available Material = Cut - Salvaged/Unusable Pavement Material
6) Marsh Excavation - to be backfilled with Select Borrow Material. Note: this is designers choice, can be backfilled with Borrow, or Cut as well. Item number 205.0500
7) Rock Excavation Item number 205.0200
8) Reduced Marsh in Fill - Excavated Marsh material is usable in Fills outside the 1:1 slope. Marsh in Fill Reduction factor = 0.6
9) Reduced EBS in Fill - Excavated EBS material is usable in Fills outside the 1:1 slope. EBS in Fill Reduction factor = 0.8
10) Expanded Marsh Backfill - This is to be filled with Select Borrow material. Marsh Backfill Factor = 1.5. Item number 208.11
11) Expanded EBS Backfill - This is to be filled with Select Borrow material. EBS Backfill Factor = 1.3. Item number 208.11
12) Expanded Rock - Factor = 1.1
13) Expanded Fill. Factor = 1.25
14) The Mass Ordinate + or - Qty calculated for the Division. Plus quantity indicates an excess of material within the Division. Minus indicates a shortage of material within the Division.
15) Select Borrow volume is calculated using waste material from division 3 and division 4 as fill.

*ALL ITEMS ARE CATEGORY 010 UNLESS OTHERWISE NOTED

TACK COAT				455.0605
STATION	TO	STATION	LOCATION	GAL
37+50	TO	48+43	MAINLINE	140
50+86	TO	55+00	MAINLINE	60
ITEM TOTAL				200

ASPHALTIC SURFACE				465.0105
STATION	TO	STATION	LOCATION	TON
37+50	TO	48+43	MAINLINE	730
50+86	TO	55+00	MAINLINE	290
ITEM TOTAL				1020

ASPHALTIC FLUMES				465.0315
STATION	TO	STATION	LOCATION	SY
48+32			LT & RT	50
50+95			LT& RT	50
ITEM TOTAL				100

RIPRAP MEDIUM				606.0200
STATION	TO	STATION	LOCATION	CY
42+67			RT	2
48+32			FLUMES	10
627+50			IH 94 LT & RT	3
50+95			FLUMES	10
ITEM TOTAL				25

FENCE WOVEN WIRE (4.5-FEET), BARBED				616.0100
STATION	TO	STATION	LOCATION	LF
48+00	TO	48+43	LT	160
50+85	TO	51+10	LT	115
ITEM TOTAL				275

MAINTENANCE AND REPAIR OF HAUL ROADS (PROJECT) 1021-01-71				618.0100
STATION	TO	STATION	LOCATION	EACH
37+50	TO	55+00	PROJECT	1
ITEM TOTAL				1

MOBILIZATION				619.1000	
STATION	TO	STATION	LOCATION	EACH	CATEGORY
37+50	TO	55+00	ROADWAY	0.5	010
	49+64		B-55-258	0.5	020
ITEM TOTAL				1	

WATER				624.0100
STATION	TO	STATION	LOCATION	MGAL
37+50	TO	55+00	COMPACTION	75
37+50	TO	55+00	DUST CONTROL	75
ITEM TOTAL				150

CULVERT PIPE AND APRON ENDWALLS							
STATION	LOCATION	521.0118 CPCS 18-INCH (0.064" THICKNESS) LF	521.1018 APRON ENDWALLS FOR CULVERT PIPE STEEL 18-INCH EACH	522.0136 CPRC CLASS III 36-INCH LF	522.1036 APRON ENDWALLS FOR CPRC 36-INCH EACH	522.0342 CPRC CLASS IV 42-INCH LF	522.1042 APRON ENDWALLS FOR CPRC 42-INCH EACH
42+67	MAINLINE	--	--	--	--	118	2
48+66	MAINLINE	--	--	112	2	--	--
50+61	MAINLINE	--	--	114	2	--	--
53+40	PE LT	38	2	--	--	--	--
54+15	PE LT	38	2	--	--	--	--
ITEM TOTAL		76	4	226	4	118	2

GUARDRAIL SUMMARY									
STATION	TO	STATION	LOCATION	614.0920 SALVAGE RAIL LF	614.0220 STEEL THRIE BEAM BULLNOSE TERMINAL EACH	614.0230 STEEL THRIE BEAM LF	614.2300 MGS 3 GUARDRAIL LF	614.2500 MGS THRIE BEAM TRANSITION LF	614.2610 MGS GUARDRAIL TERMINAL EAT EACH
47+40.1	TO	48+42.6	LT	76	--	--	12.5	39.4	1
47+15.0	TO	48+42.6	RT	76	--	--	37.5	39.4	1
50+85.1	TO	52+12.6	LT	76	--	--	37.5	39.4	1
50+85.1	TO	51+87.6	RT	76	--	--	12.5	39.4	1
625+68	TO	626+52	IH 94 EB	84	--	--	--	--	--
629+80	TO	630+64	IH 94 WB	84	--	--	--	--	--
627+29.4	TO	628+98.5	IH 94 MED	343	2.0	125	--	--	--
ITEM TOTAL				815	2	125	100	158	4

*ALL ITEMS ARE CATEGORY 010 UNLESS OTHERWISE NOTED

SILT FENCE & SILT FENCE MAINTENANCE					
STATION	TO	STATION	LOCATION	628.1504 SILT FENCE	628.1520 SILT FENCE MAINTENANCE
				LF	LF
41+50	TO	43+50	LT & RT	375	375
50+86	TO	55+00	LT & RT	425	425
UNDISTRIBUTED				50	50
ITEM TOTAL				850	850

MOBILIZATIONS EROSION CONTROL					628.1905
STATION	TO	STATION	LOCATION	EACH	
37+50	TO	55+00	PROJECT	3	
ITEM TOTAL					3

MOBILIZATIONS EMERGENCY EROSION CONTROL					628.1910
STATION	TO	STATION	LOCATION	EACH	
37+50	TO	55+00	PROJECT	4	
ITEM TOTAL					4

EROSION MAT CLASS I TYPE A					628.2002
STATION	TO	STATION	LOCATION	SY	
39+00	TO	48+43	MAINLINE	8250	
50+86	TO	53+00	MAINLINE	1930	
626+00	TO	630+00	IH 94	4670	
UNDISTRIBUTED				2950	
ITEM TOTAL					17800

INLET PROTECTION TYPE A					628.7005
STATION	TO	STATION	LOCATION	EACH	
629+75			IH 94 MEDIAN	1	
ITEM TOTAL					1

TEMPORARY DITCH CHECKS					628.7504
STATION	TO	STATION	LOCATION	LF	
37+50	TO	48+43	MAINLINE	675	
50+86	TO	55+00	MAINLINE	60	
626+00	TO	630+00	IH 94	105	
UNDISTRIBUTED				160	
ITEM TOTAL					1000

CULVERT PIPE CHECKS					628.7555
STATION	TO	STATION	LOCATION	EACH	
42+66			LT	6	
628+80			IH 94 LT & RT	10	
53+55			LT	2	
54+30			LT	2	
ITEM TOTAL					20

DELINEATOR POSTS STEEL					633.0100
STATION	TO	STATION	LOCATION	EACH	
626+00	TO	630+00	IH 94 EB	2	
626+00	TO	630+00	IH 94 WB	2	
ITEM TOTAL					4

DELINEATORS REFLECTORS					633.0500
STATION	TO	STATION	LOCATION	EACH	
626+00	TO	630+00	IH 94 EB	2	
626+00	TO	630+00	IH 94 WB	2	
ITEM TOTAL					4

MARKERS CULVERT END					633.5200
STATION	TO	STATION	LOCATION	EACH	
42+67			MAINLINE	2	
628+15			IH 94	4	
ITEM TOTAL					6

SALVAGED TOPSOIL, MULCHING, FERTILIZING, & SEEDING							
STATION	TO	STATION	LOCATION	625.0500	627.0200	629.0210	630.0120
				SALVAGED TOPSOIL	MULCHING	FERTILIZER	SEEDING MIXTURE
				SY	SY	TYPE B CWT	NO. 20 LBS
40+50	TO	48+42	LT & RT	10280	11160	6.5	300
50+82	TO	52+50	LT & RT	2810	3000	2.0	90
626+00	TO	630+00	IH 94 EB	2410	2815	1.5	65
626+00	TO	630+00	IH 94 WB	2660	3065	2.0	75
UNDISTRIBUTED				2840	2840	2.0	80
ITEM TOTAL				21000	22880	14.0	610

FIELD OFFICE TYPE B					642.5001
STATION	TO	STATION	LOCATION	EACH	
37+50 TO 55+00			PROJECT	1	
ITEM TOTAL					1

*ALL ITEMS ARE CATEGORY 010 UNLESS OTHERWISE NOTED

TRAFFIC CONTROL ITEMS								
LOCATION	LOCATION	603.8000 CONCRETE BARRIER TEMPORARY PRECAST DELIVERED LF	603.8125 CONCRETE BARRIER TEMPORARY PRECAST INSTALLED LF	614.0905 CRASH CUSHIONS TEMPORARY EACH	643.0100 TRAFFIC CONTROL (PROJECT) 1021-01-71 EACH	643.0300 TRAFFIC CONTROL DRUMS DAY	643.0420 TRAFFIC CONTROL BARRICADES TYPE III DAY	643.0705 TRAFFIC CONTROL WARNING LIGHTS TYPE A DAY
HIGHLAND DRIVE	SEE TRAFFIC CONTROL SHEETS	--	--	--	1	--	2150	3360
ALT ROUTE IH 94	SEE TRAFFIC CONTROL SHEETS	--	--	--	--	6600	450	560
IH 94 LONG TERM	SEE TRAFFIC CONTROL SHEETS	3805	3805	4	--	--	--	--
IH 94 SHORT TERM	SEE TRAFFIC CONTROL SHEETS	--	--	--	--	4200	100	280
ITEM TOTAL		3805	3805	4	1	10800	2700	4200

LOCATION	LOCATION	643.0715 TRAFFIC CONTROL WARNING LIGHTS TYPE C DAY	643.0800 TRAFFIC CONTROL ARROW BOARDS DAY	643.0900 TRAFFIC CONTROL SIGNS DAY	643.0910 TRAFFIC CONTROL COVERING SIGNS TYPE I EACH	643.0920 TRAFFIC CONTROL COVERING SIGNS TYPE II EACH	643.1000 TRAFFIC CONTROL SIGNS FIXED MESSAGE SF	643.1050 TRAFFIC CONTROL SIGNS PCMS DAY	643.2000 TRAFFIC CONTROL DETOUR (PROJECT) 1021-01-71 EACH
HIGHLAND DRIVE	SEE TRAFFIC CONTROL SHEETS	--	--	1450	--	--	--	--	--
ALT ROUTE IH 94	SEE TRAFFIC CONTROL SHEETS	1500	200	3700	5	35	90	130	1
IH 94 LONG TERM	SEE TRAFFIC CONTROL SHEETS	--	--	2750	--	2	--	120	--
IH 94 SHORT TERM	SEE TRAFFIC CONTROL SHEETS	1500	200	3350	--	3	--	50	--
ITEM TOTAL		3000	400	11250	5	40	90	300	1

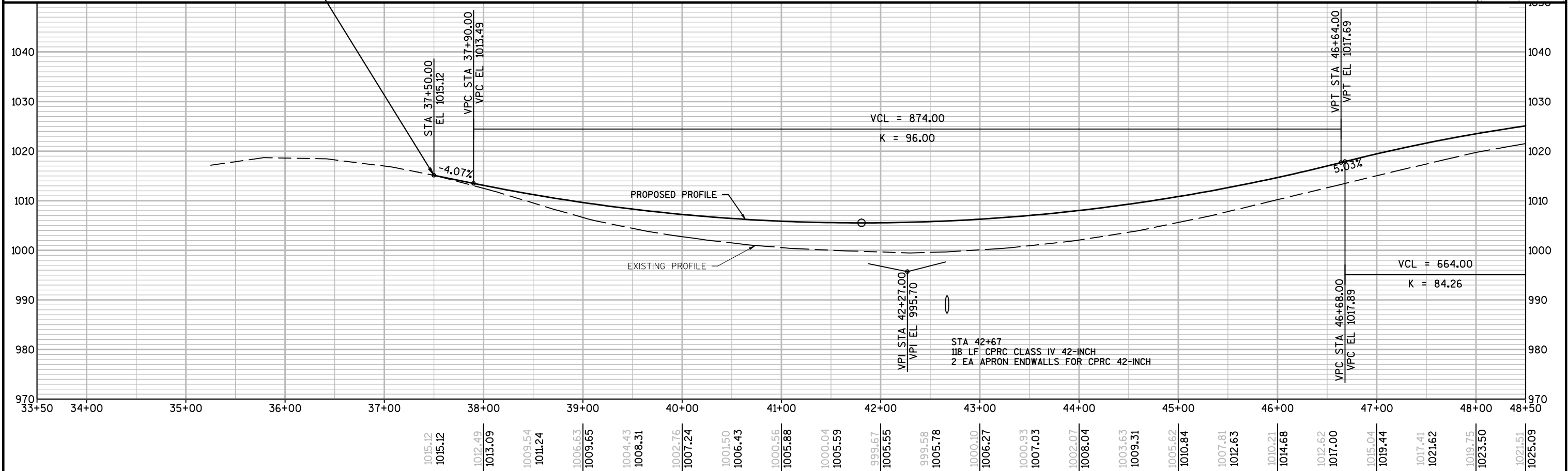
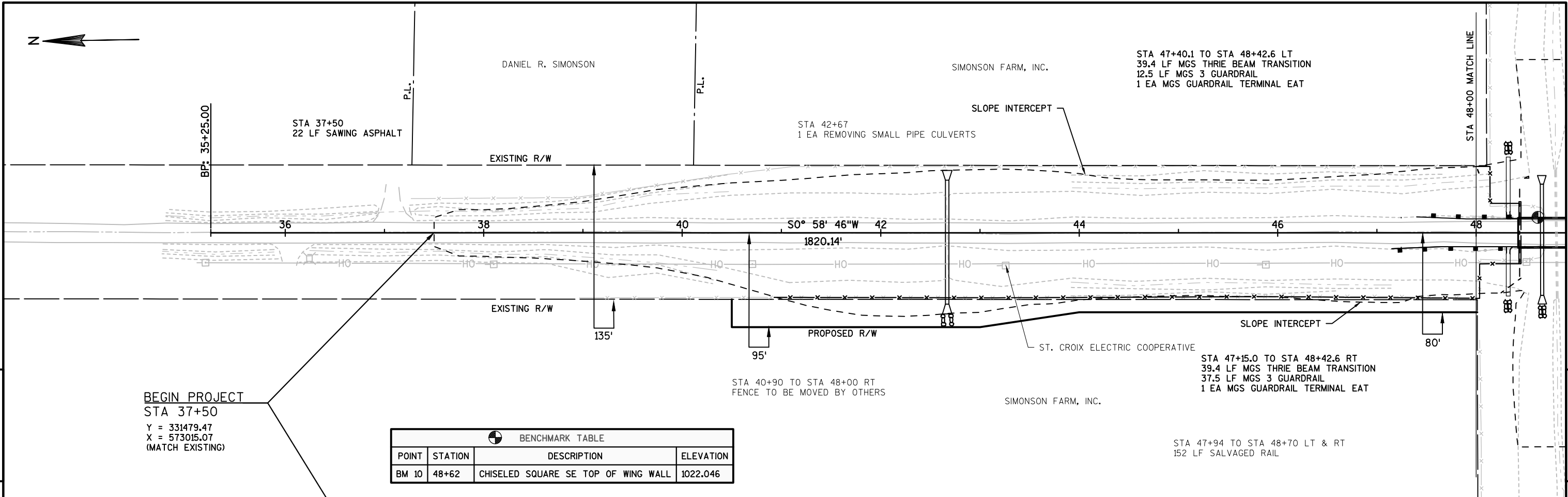
GEOTEXTILE FABRIC TYPE HR				645.0120
STATION	TO	STATION	LOCATION	SY
42+67			RT	5
48+32			FLUMES	20
627+50			IH 94 LT & RT	10
50+95			FLUMES	20
ITEM TOTAL				55

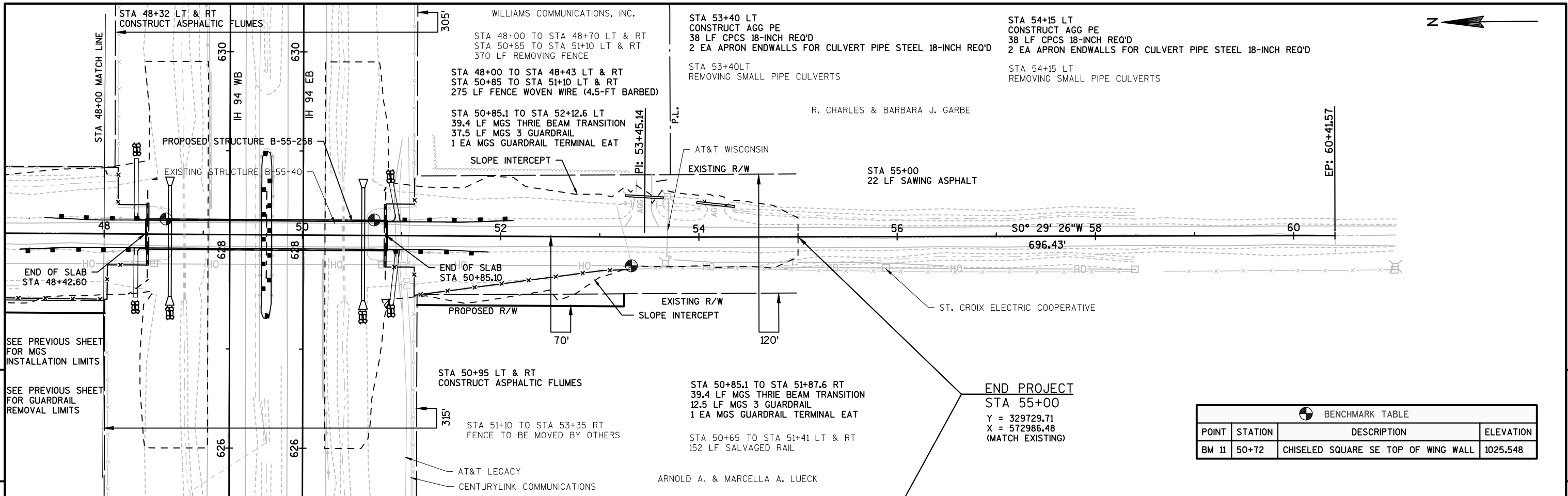
PERMANENT SIGNING								
SIGN NUMBER	STATION	LOCATION	SIGN CODE	SIGN DESCRIPTION	637.2230 SIGNS, TYPE II, REFLECTIVE F SF	634.0612 WOOD POSTS, 4X6-INCH X 12 FT EACH	638.2602 REMOVING SIGNS TYPE II EACH	638.3000 REMOVING SMALL SIGN SUPPORTS EACH
1001	48+43	RT	W5-52L	CLEARANCE STRIPER DOWN LEFT	3.00	1	1	1
1002	48+43	LT	W5-52R	CLEARANCE STRIPER DOWN RIGHT	3.00	1	1	1
1003	50+86	LT	W5-52R	CLEARANCE STRIPER DOWN RIGHT	3.00	1	1	1
1004	50+86	RT	W5-52L	CLEARANCE STRIPER DOWN LEFT	3.00	1	1	1
ITEM TOTAL					12.00	4	4	4

PAVEMENT MARKING EPOXY 4-INCH				646.0106
STATION	TO	STATION	LOCATION	LF
37+50	TO	55+00	MAINLINE	3500
ITEM TOTAL				3500

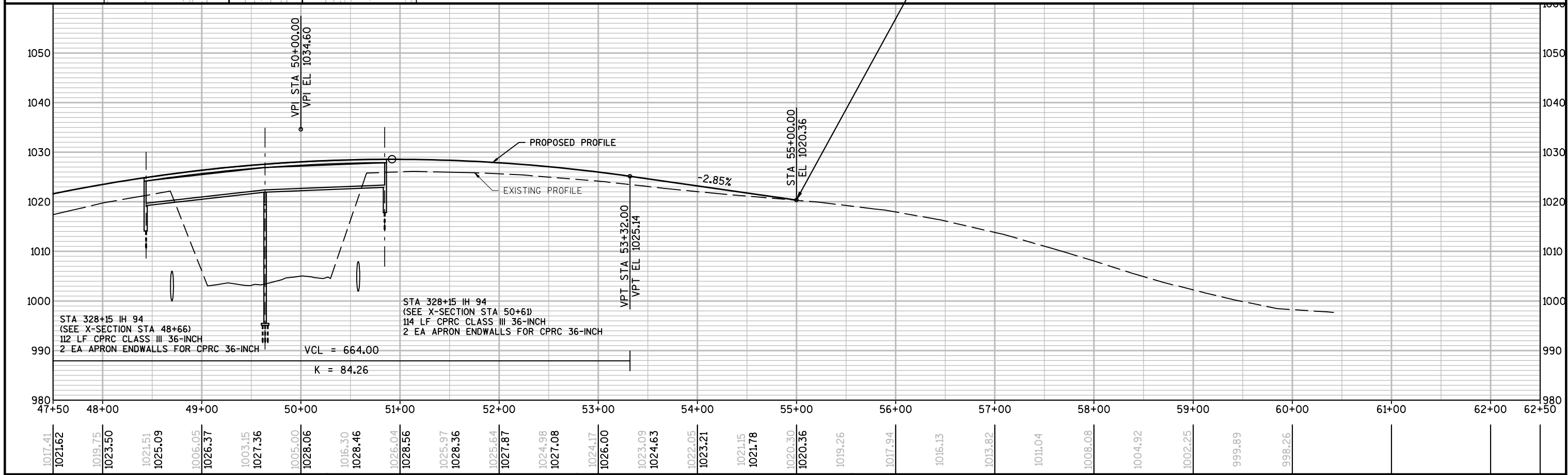
CONSTRUCTION STAKING									
STATION TO STATION			LOCATION	650.4500 CATEGORY 010 CONSTRUCTION STAKING SUBGRADE	650.5000 CATEGORY 010 CONSTRUCTION STAKING BASE	650.6000 CATEGORY 010 CONSTRUCTION STAKING PIPE CULVERTS	650.6500 CATEGORY 020 CONSTRUCTION STAKING STRUCTURE LAYOUT (STRUCTURE) B-55-258	650.9910 CATEGORY 010 CONSTRUCTION STAKING SUPPLIMENTAL CONTROL (PROJECT) 1021-01-71	650.9920 CATEGORY 010 CONSTRUCTION STAKING SLOPE STAKES
				LF	LF	EACH	LS	LS	LF
37+50	TO	55+00	HIGHLAND DR	1506	1506	--	--	1	1506
626+00	TO	630+00	IH 94 EB	--	--	--	--	--	400
626+00	TO	630+00	IH 94 WB	--	--	--	--	--	400
48+42	TO	50+86	B-55-258	--	--	--	1	--	
628+15			IH 94	--	--	2	--	--	
ITEM TOTAL				1506	1506	2	1	1	2306

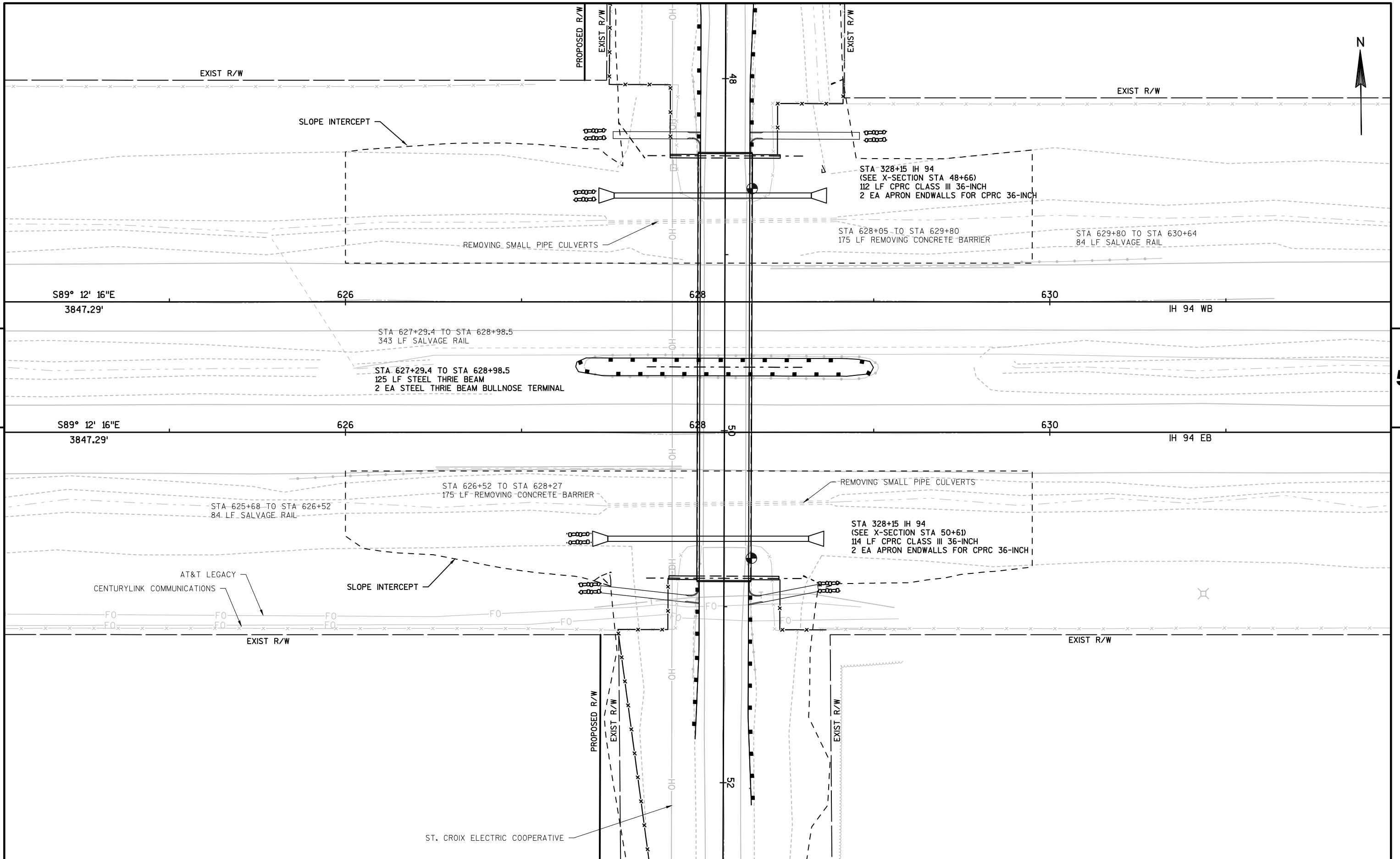
SAWING ASPHALT				690.0150
STATION	TO	STATION	LOCATION	LF
37+50			HIGHLAND DRIVE	22
55+00			HIGHLAND DRIVE	22
ITEM TOTAL				44





BENCHMARK TABLE			
POINT	STATION	DESCRIPTION	ELEVATION
BM 11	50+72	CHISELED SQUARE SE TOP OF WING WALL	1025.548



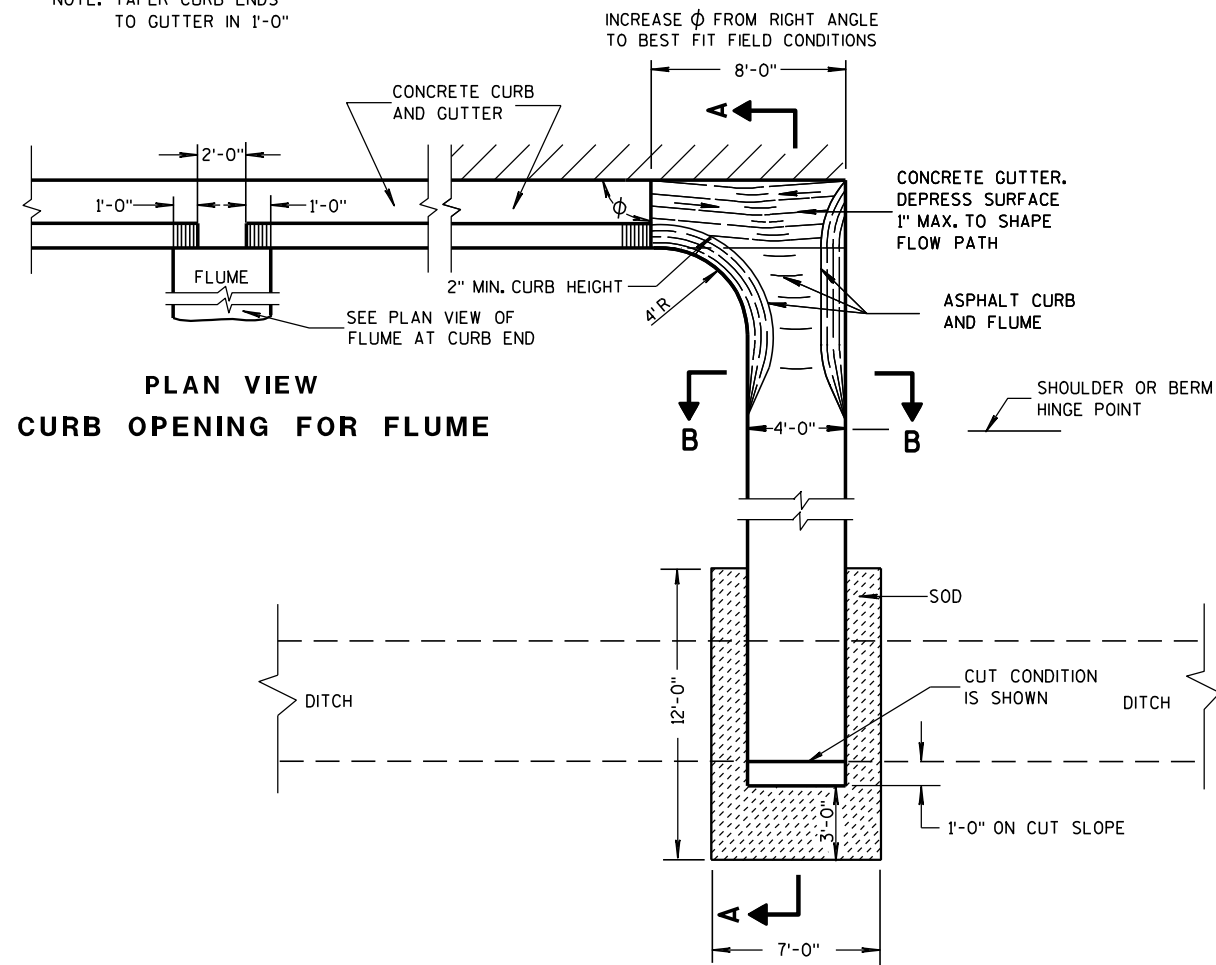


Standard Detail Drawing List

08D04-05	CONCRETE SURFACE DRAINS & ASPHALTIC FLUMES
08E08-03	TYPICAL INSTALLATIONS OF EROSION BALES / TEMPORARY DITCH CHECKS
08E09-06	SILT FENCE
08E10-02	INLET PROTECTION TYPE A, B, C AND D
08F01-11	APRON ENDWALLS FOR CULVERT PIPE
12A03-10	NAME PLATE (STRUCTURES)
14B07-14A	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B07-14B	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B07-14C	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B07-14D	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B07-14E	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B07-14F	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B07-14G	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B07-14H	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B08-02A	CRASH CUSHION/SAND BARREL ARRAY AND OTHER TEMPORARY BARRIER LAYOUT DETAILS
14B08-02B	CRASH CUSHION/SAND BARREL ARRAY AND OTHER TEMPORARY BARRIER LAYOUT DETAILS
14B08-02C	CRASH CUSHION/SAND BARREL ARRAY AND OTHER TEMPORARY BARRIER LAYOUT DETAILS
14B08-02D	CRASH CUSHION/SAND BARREL ARRAY AND OTHER TEMPORARY BARRIER LAYOUT DETAILS
14B08-02E	CRASH CUSHION/SAND BARREL ARRAY AND OTHER TEMPORARY BARRIER LAYOUT DETAILS
14B20-11A	STEEL THRIE BEAM STRUCTURE APPROACH
14B26-03A	STEEL THRIE BEAM BULLNOSE TERMINAL
14B26-03B	STEEL THRIE BEAM BULLNOSE TERMINAL
14B26-03C	STEEL THRIE BEAM BULLNOSE TERMINAL
14B26-03D	STEEL THRIE BEAM BULLNOSE TERMINAL
14B26-03E	STEEL THRIE BEAM BULLNOSE TERMINAL
14B42-04A	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-04B	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-04C	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B44-02A	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B44-02B	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B44-02C	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B45-04A	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-04B	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-04C	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-04D	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-04E	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-04F	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-04G	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-04H	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-04I	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-04J	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-04K	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-04L	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
15A02-09	DELINEATOR POST, DELINEATOR REFLECTOR AND DELINEATOR BRACKET WITH REFLECTIVE SHEETING
15A03-02A	FLEXIBLE MARKER POST FOR CULVERT END
15A03-02B	FLEXIBLE MARKER POST FOR CULVERT END
15A06-02	DELINEATOR LAYOUT
15B01-08A	FENCE WOVEN WIRE
15B01-08B	FENCE WOVEN WIRE
15C02-06A	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C02-06B	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C02-06C	DETOUR SIGNING FOR MAINLINE CLOSURES
15C06-08	SIGNING & MARKING FOR TWO LANE BRIDGES
15C08-16A	PAVEMENT MARKING (MAINLINE)
15D12-06B	TRAFFIC CONTROL, LANE CLOSURE, SPEED REDUCTION
15D27-03	TRAFFIC CONTROL, SHOULDER CLOSURE ON DIVIDED ROADWAY, SPEEDS GREATER THAN 40 MPH
15D38-01A	TEMPORARY TRAFFIC CONTROL FIXED MESSAGE SIGNS
15D38-01B	ATTACHMENT OF SIGNS TO POSTS

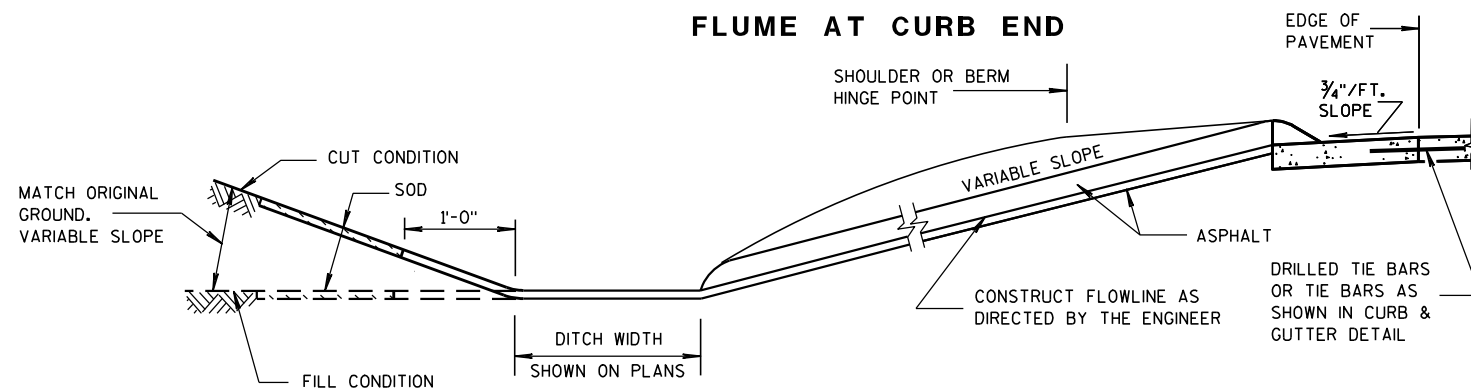
ASPHALTIC FLUME

NOTE: TAPER CURB ENDS
TO GUTTER IN 1'-0"

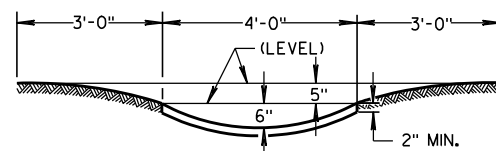


PLAN VIEW
CURB OPENING FOR FLUME

PLAN VIEW
FLUME AT CURB END



SECTION A-A



SECTION B-B

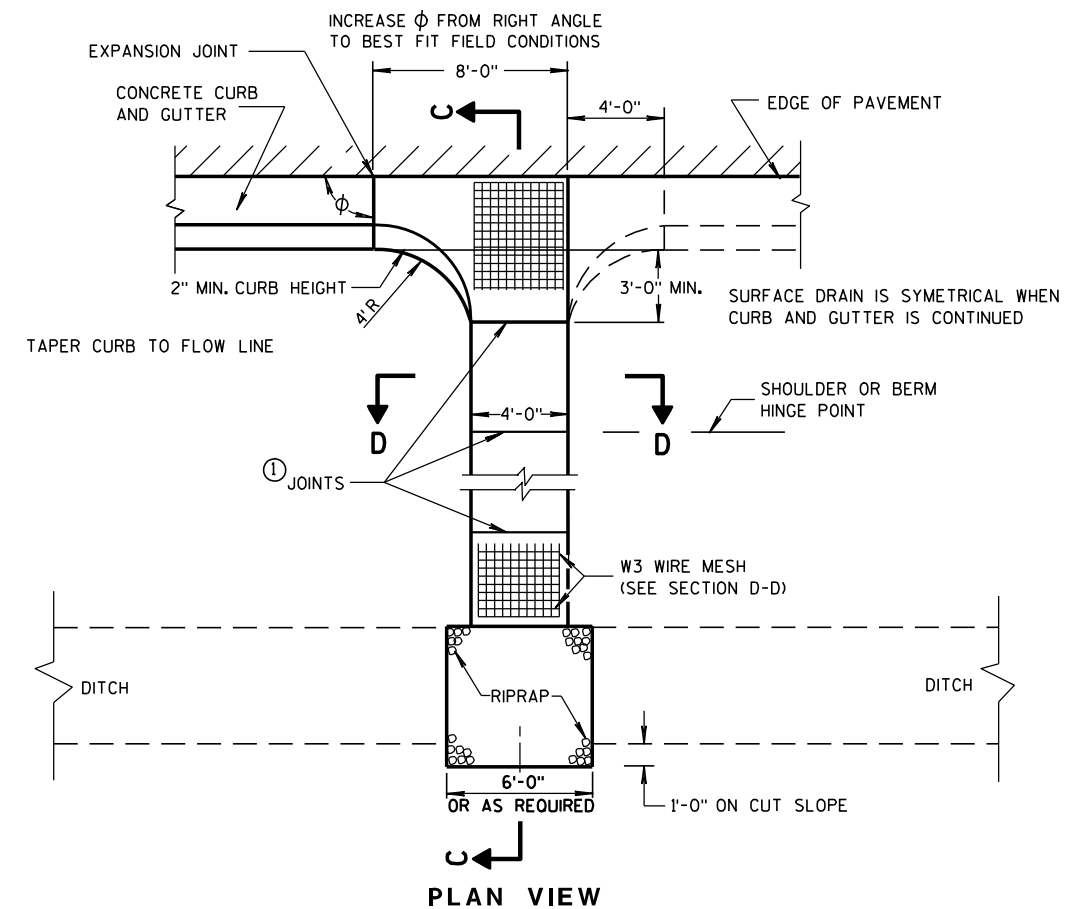
GENERAL NOTES

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

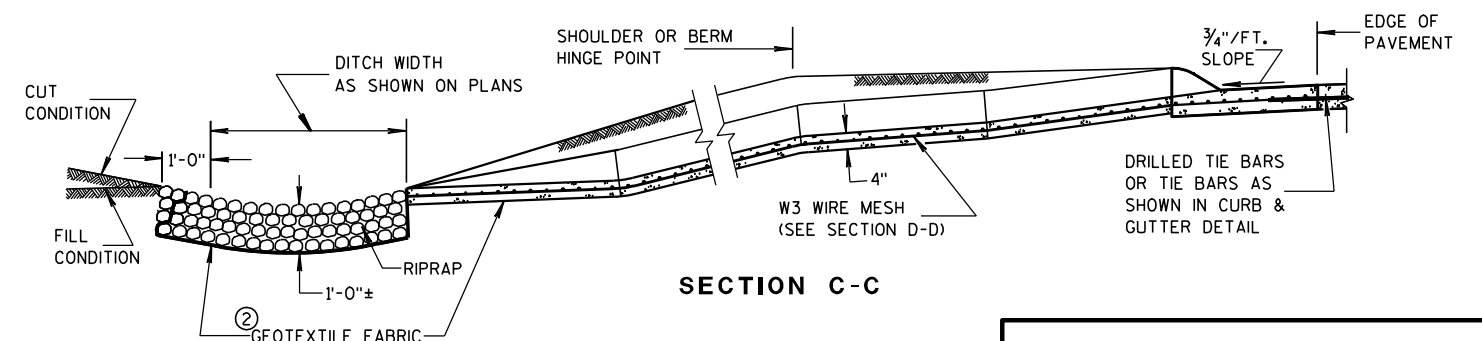
WELDED STEEL WIRE FABRIC SHALL BE IN ACCORDANCE WITH AASHTO SPECIFICATION M55.

- ① JOINTS SHALL BE 1/8 TO 1/4 INCH WIDE BY 1 1/2 INCHES DEEP AND SPACED AT UNIFORM INTERVALS OF APPROXIMATELY 4 FEET.
- ② GEOTEXTILE FABRIC TYPE "R" SHALL UNDERLAY THE FULL LENGTH AND WIDTH OF THE CONCRETE SURFACE DRAIN AND RIPRAP.
- ③ CONCRETE SURFACE DRAIN WITHOUT CURB AND GUTTER MAY BE USED ON BACKSLOPES WHEN SPECIFIED

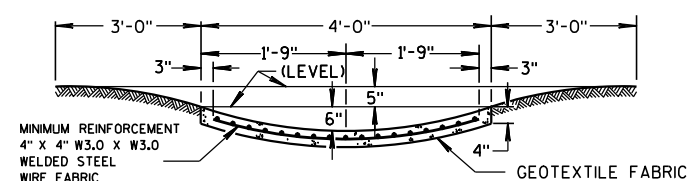
③ CONCRETE SURFACE DRAIN



PLAN VIEW



SECTION C-C



SECTION D-D

CONCRETE SURFACE DRAINS & ASPHALTIC FLUMES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

9-4-08

DATE

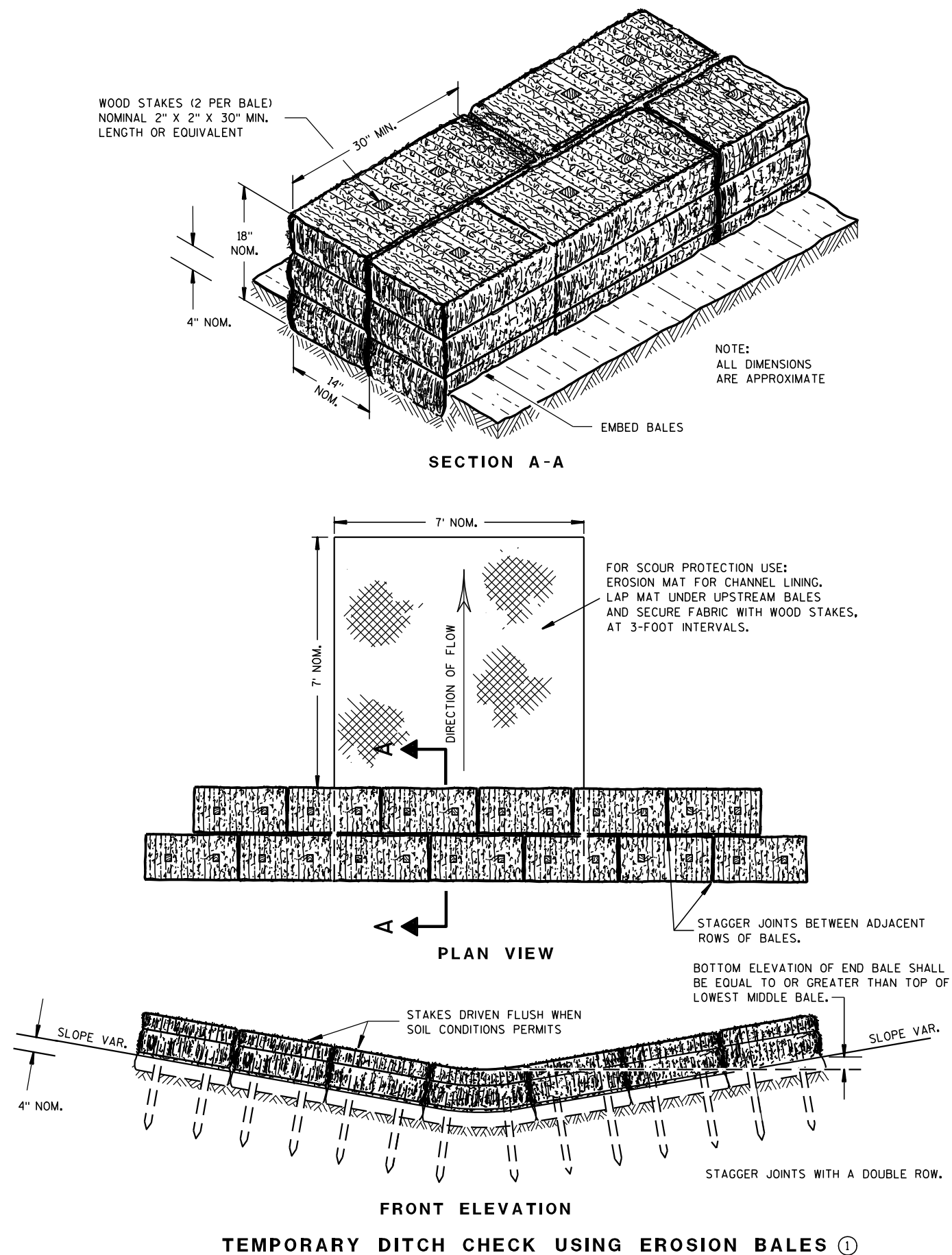
/S/ Jerry H. Zapp

ROADWAY STANDARDS 32

FHWA

ENGINEER

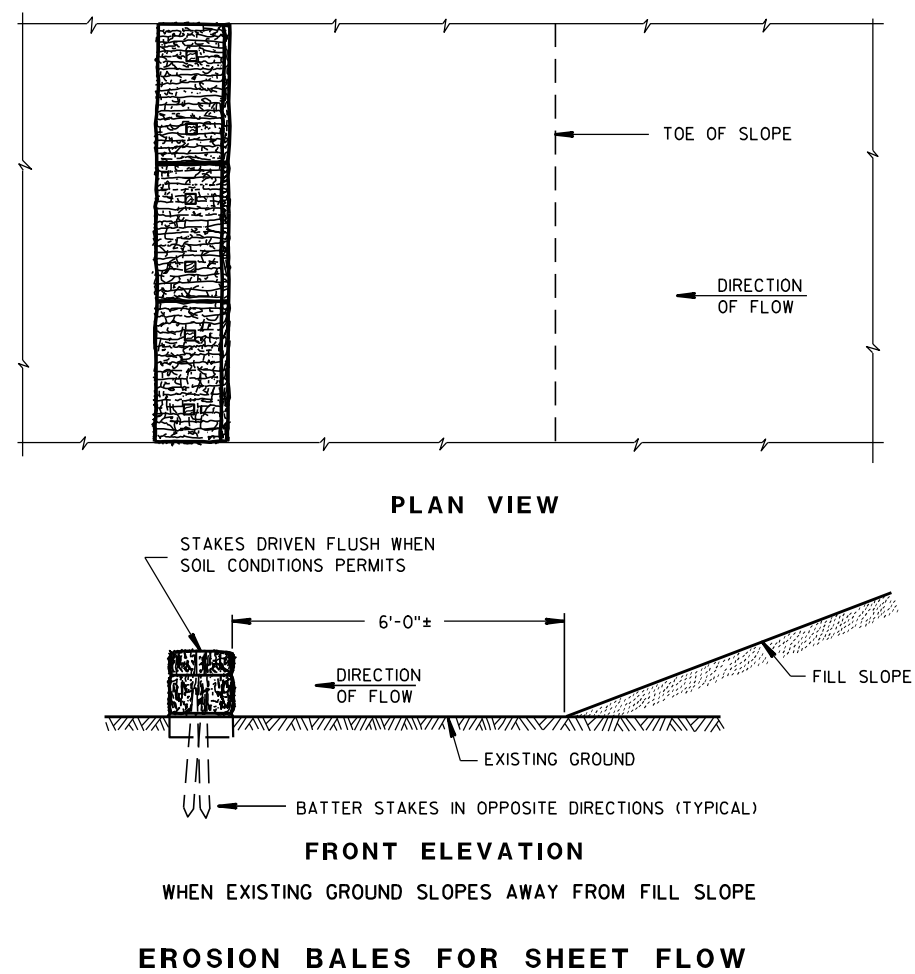
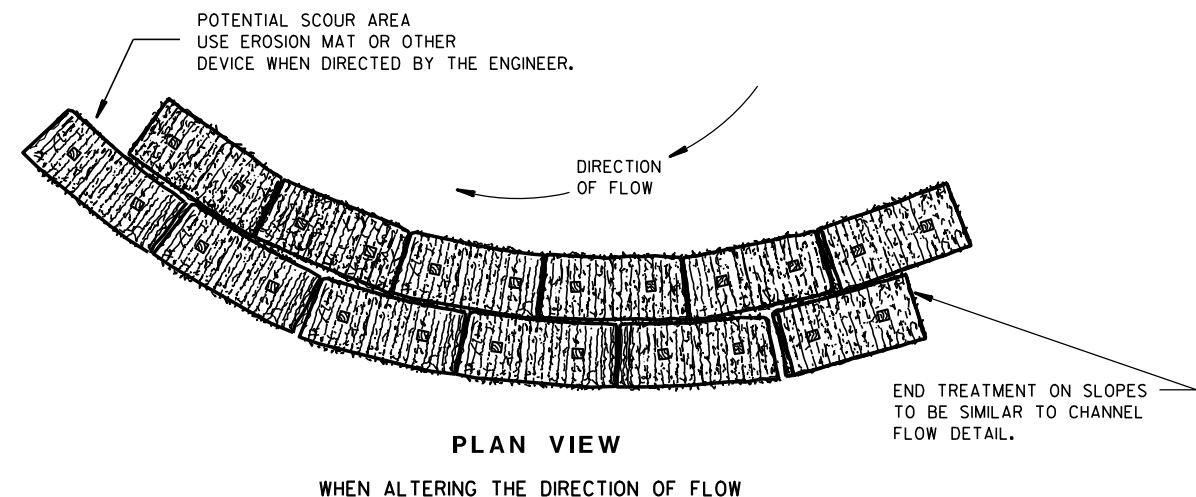
MENT



GENERAL NOTES

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

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

TYPICAL INSTALLATIONS OF
EROSION BALES / TEMPORARY
DITCH CHECKS

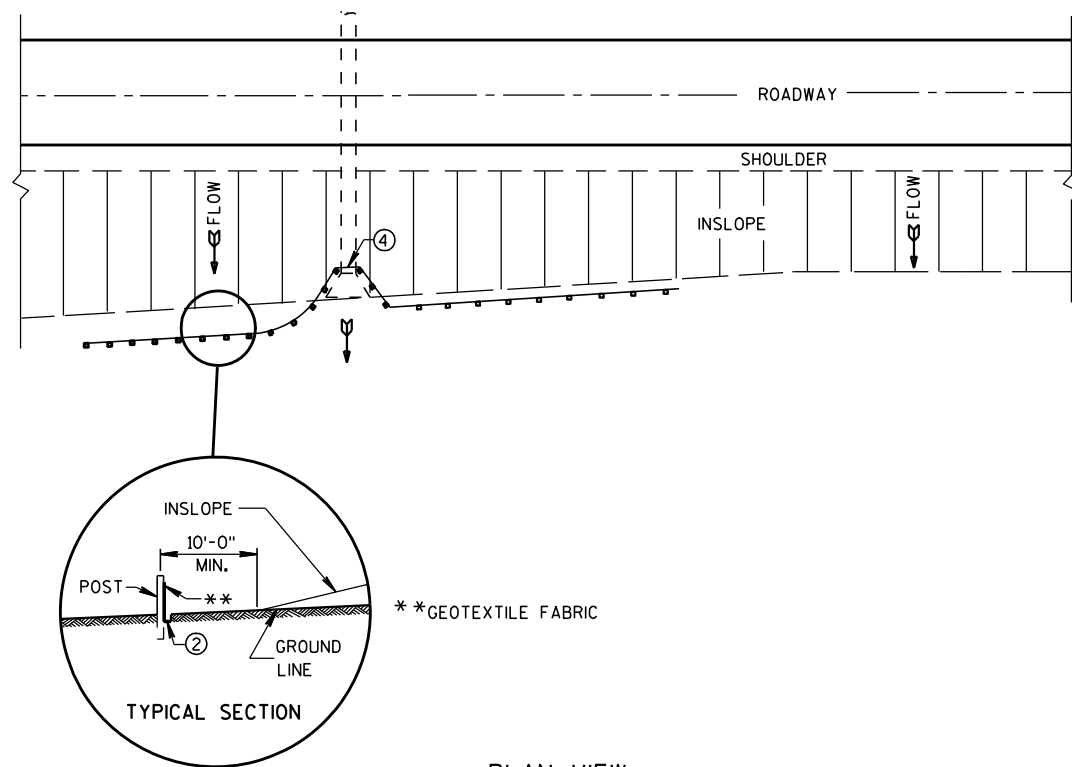
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

6/04/02
DATE/S/ Beth Conn
CHIEF ROADWAY DEVELOPER

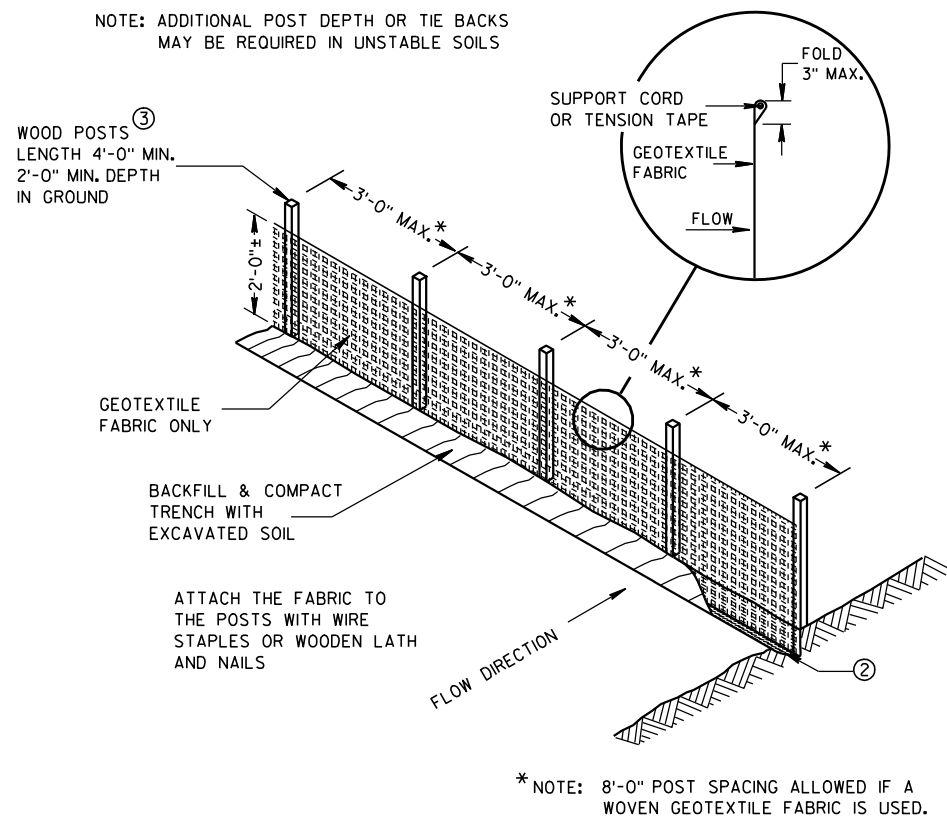
ENGINEER

FHWA



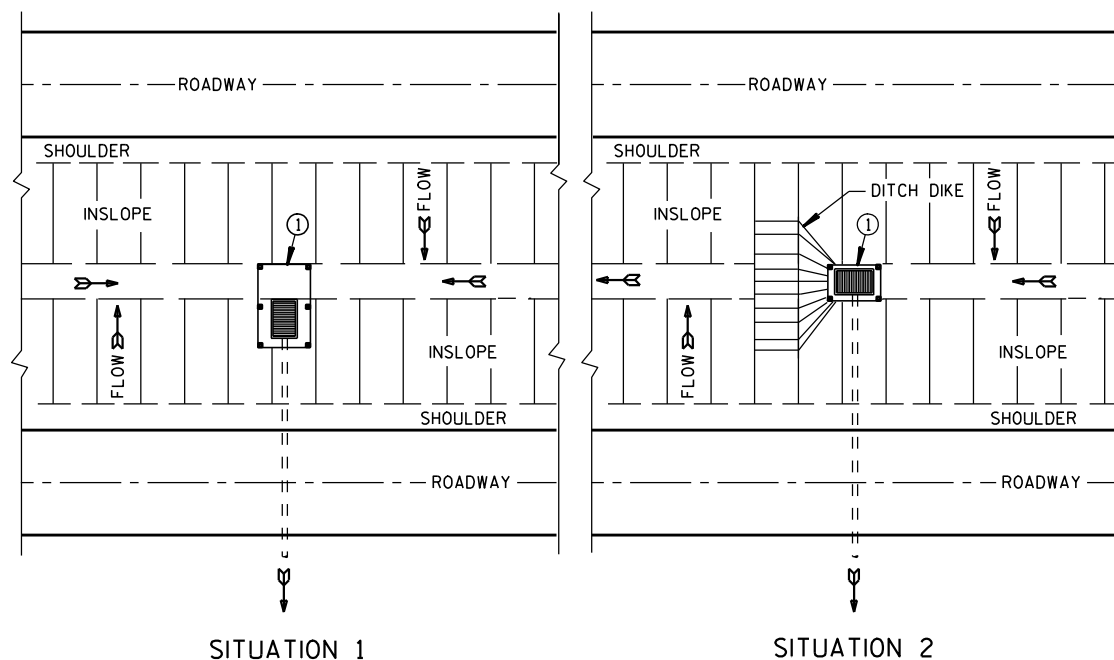
PLAN VIEW
TYPICAL APPLICATION OF SILT FENCE

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

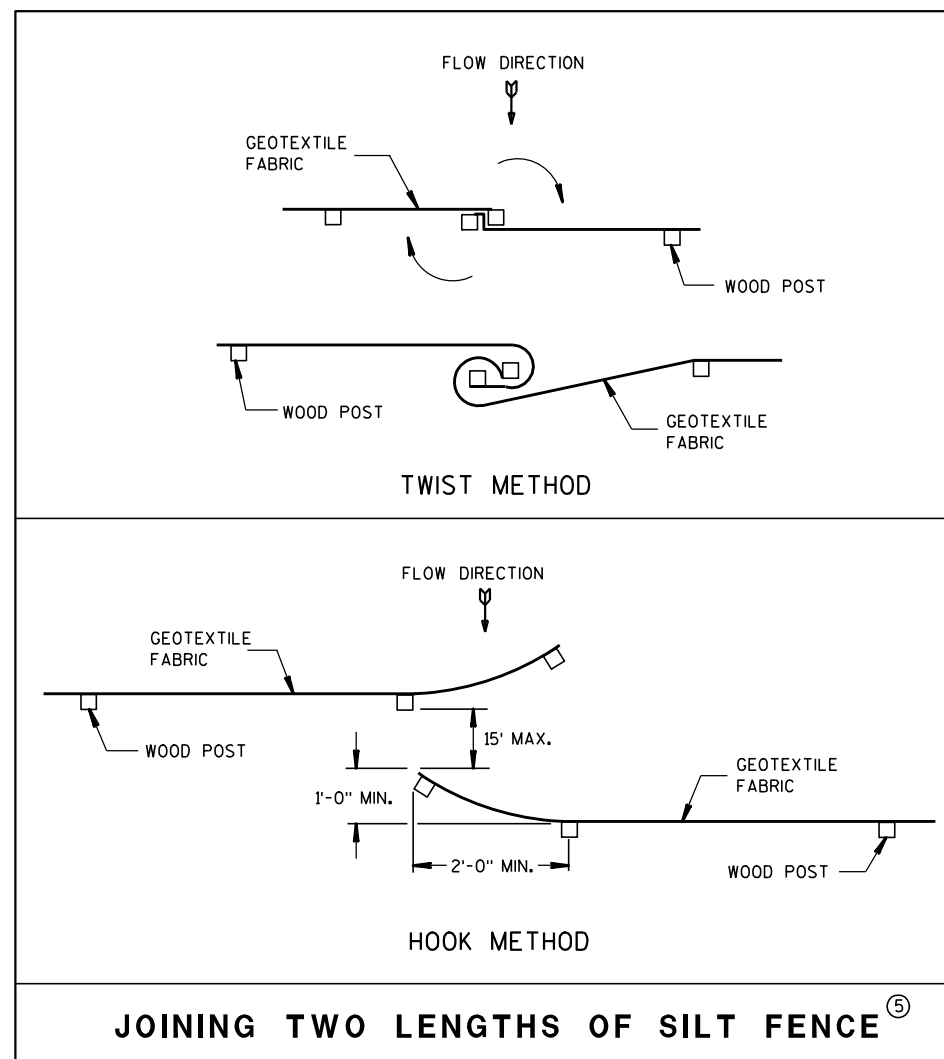


SILT FENCE

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



PLAN VIEW
SILT FENCE AT MEDIAN SURFACE DRAINS

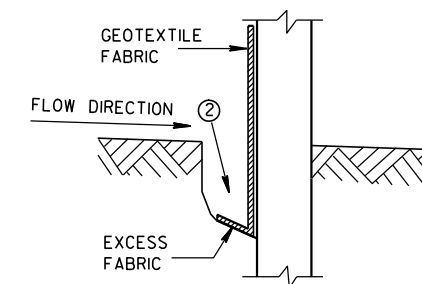


JOINING TWO LENGTHS OF SILT FENCE^⑤

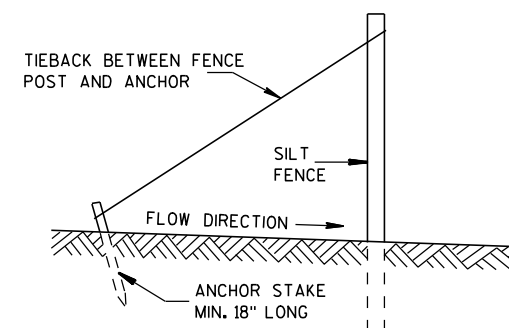
GENERAL NOTES

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

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



TRENCH DETAIL



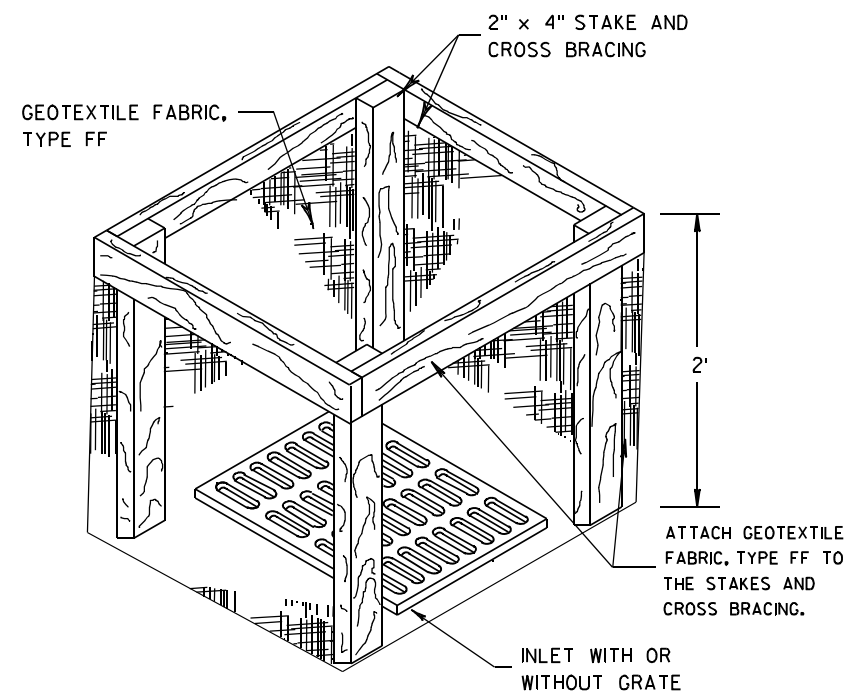
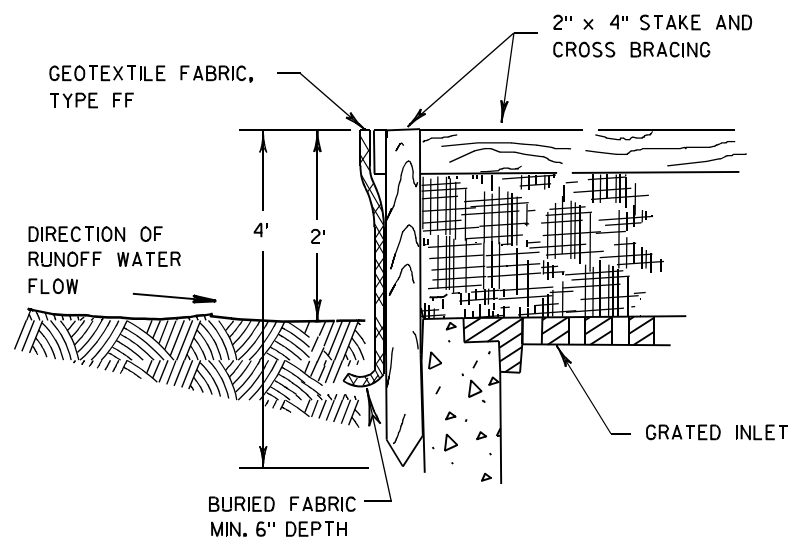
SILT FENCE TIE BACK
(WHEN REQUIRED BY THE ENGINEER)

SILT FENCE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

4-29-05 /S/ Beth Conn...
DATE CHIEF ROADWAY DEVELOPER 34 INEER
FHWA



INLET PROTECTION, TYPE A

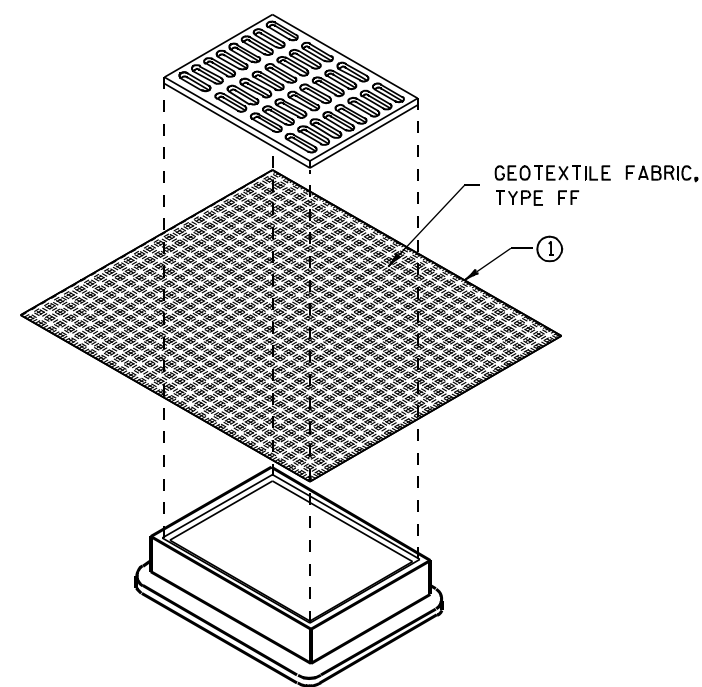
GENERAL NOTES

INLET PROTECTION DEVICES SHALL BE MAINTAINED OR REPLACED AT THE DIRECTION OF THE ENGINEER.

MANUFACTURED ALTERNATIVES APPROVED AND LISTED ON THE DEPARTMENT'S EROSION CONTROL PRODUCT ACCEPTABILITY LIST MAY BE SUBSTITUTED.

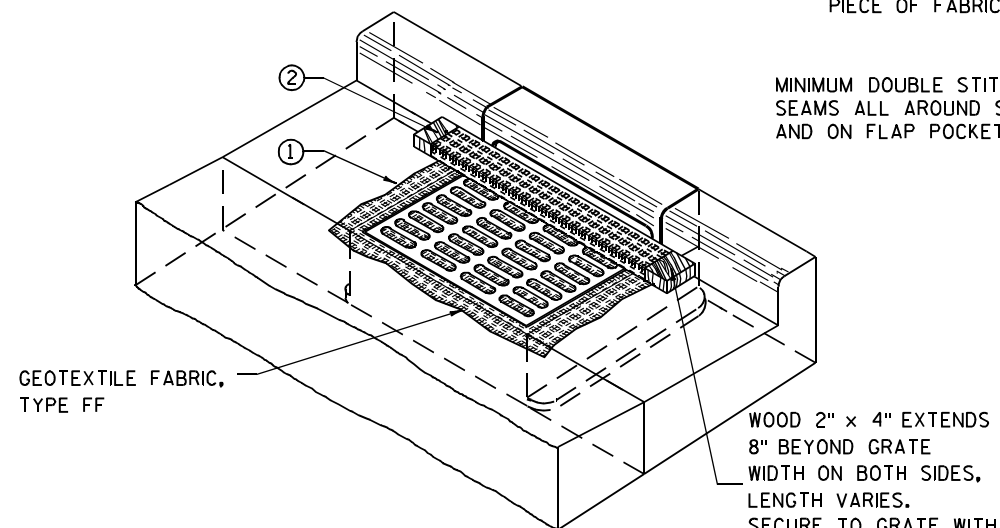
WHEN REMOVING OR MAINTAINING INLET PROTECTION, CARE SHALL BE TAKEN SO THAT THE SEDIMENT TRAPPED ON THE GEOTEXTILE FABRIC DOES NOT FALL INTO THE INLET. ANY MATERIAL FALLING INTO THE INLET SHALL BE REMOVED IMMEDIATELY.

- ① FINISHED SIZE, INCLUDING FLAP POCKETS WHERE REQUIRED, SHALL EXTEND A MINIMUM OF 10" AROUND THE PERIMETER TO FACILITATE MAINTENANCE OR REMOVAL.
- ② FOR INLET PROTECTION, TYPE C (WITH CURB BOX), AN ADDITIONAL 18" OF FABRIC IS WRAPPED AROUND THE WOOD AND SECURED WITH STAPLES. THE WOOD SHALL NOT BLOCK THE ENTIRE HEIGHT OF THE CURB BOX OPENING.
- ③ FLAP POCKETS SHALL BE LARGE ENOUGH TO ACCEPT WOOD 2X4.



**INLET PROTECTION, TYPE B
(WITHOUT CURB BOX)**

(CAN BE INSTALLED IN ANY INLET WITHOUT A CURB BOX)



INLET PROTECTION, TYPE C (WITH CURB BOX)

INSTALLATION NOTES

TYPE B & C

TRIM EXCESS FABRIC IN THE FLOW LINE TO WITHIN 3" OF THE GRATE.

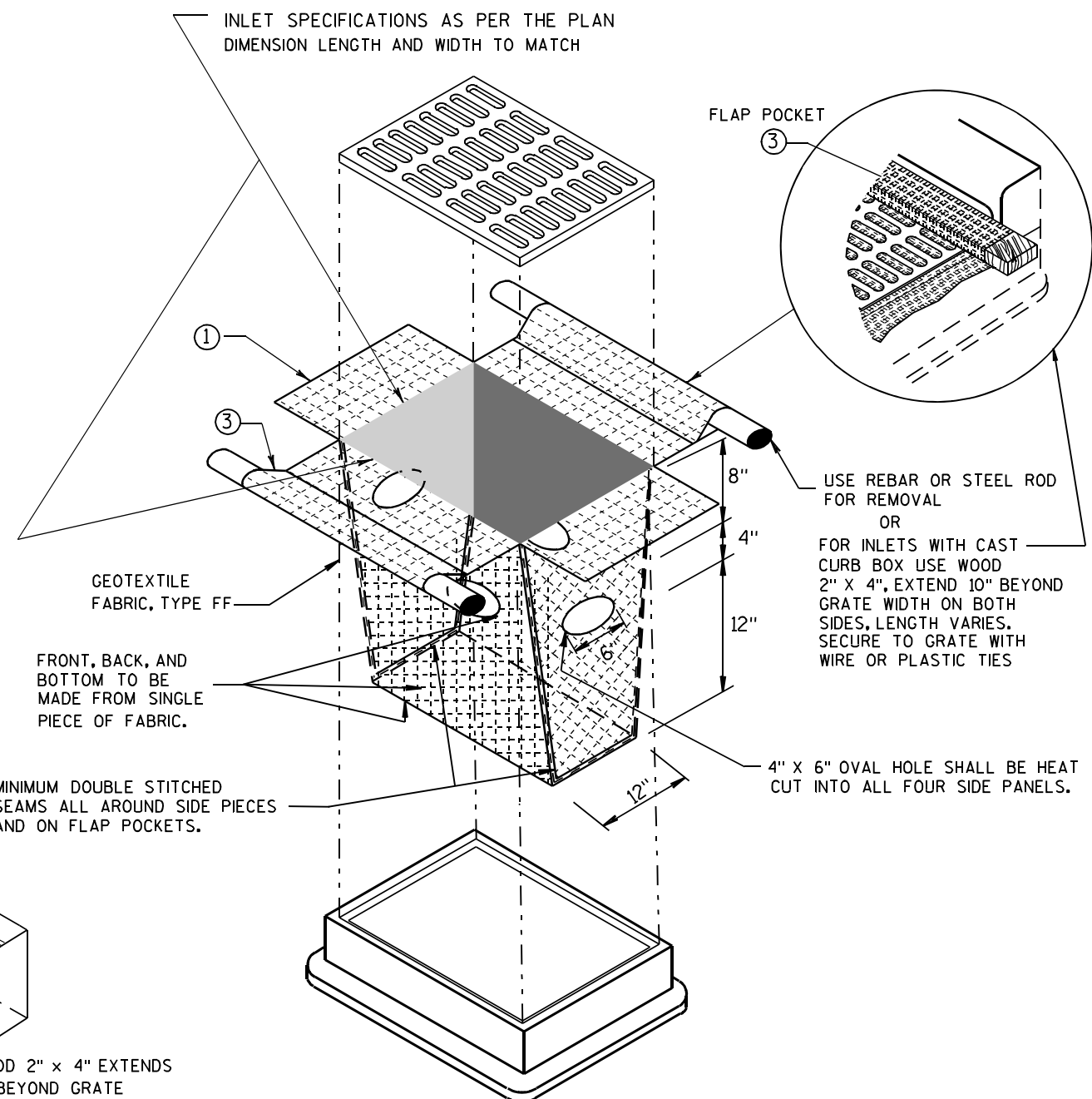
THE CONTRACTOR SHALL DEMONSTRATE A METHOD OF MAINTENANCE, USING A SEWN FLAP, HAND HOLDS OR OTHER METHOD TO PREVENT ACCUMULATED SEDIMENT FROM ENTERING THE INLET.

TYPE D

DO NOT INSTALL INLET PROTECTION TYPE D IN INLETS SHALLower THAN 30", MEASURED FROM THE BOTTOM OF THE INLET TO THE TOP OF THE GRATE.

TRIM EXCESS FABRIC IN THE FLOW LINE TO WITHIN 3" OF THE GRATE.

THE INSTALLED BAG SHALL HAVE A MINIMUM SIDE CLEARANCE, BETWEEN THE INLET WALLS AND THE BAG, MEASURED AT THE BOTTOM OF THE OVERFLOW HOLES, OF 3". WHERE NECESSARY THE CONTRACTOR SHALL CINCH THE BAG, USING PLASTIC ZIP TIES, TO ACHIEVE THE 3" CLEARANCE. THE TIES SHALL BE PLACED AT A MAXIMUM OF 4" FROM THE BOTTOM OF THE BAG.



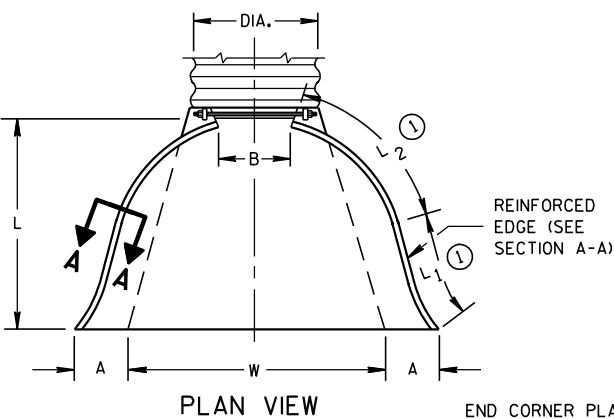
INLET PROTECTION, TYPE D

(CAN BE INSTALLED IN ANY INLET TYPE WITH OR WITHOUT A CURB BOX AS PER NOTE ②)

INLET PROTECTION TYPE A, B, C, AND D	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 10/16/02 DATE	/S/ Beth Connolly 35 CHIEF ROADWAY DEVELOPMENT ENGINEER
FHWA	

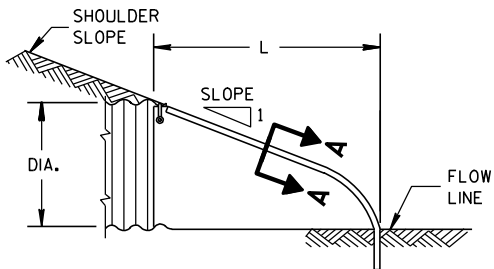
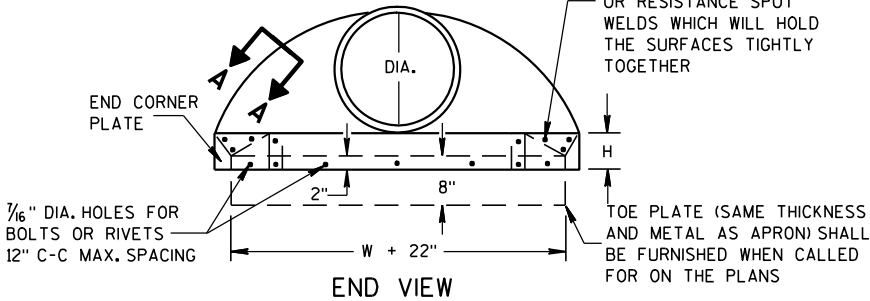
METAL APRON ENDWALLS												
PIPE DIA. (IN.)	MIN. THICK. (Inches)		DIMENSIONS (Inches)							APPROX. SLOPE		BODY
	STEEL	ALUM.	A (±1")	B (MAX.)	H (±1")	L (±1 1/2")	L1 ①	L2 ①	W (±2")			
12	.064	.060	6	6	6	21	12	17 1/2	24	2 1/2 to 1		1 Pc.
15	.064	.060	7	8	6	26	14	21 3/4	30	2 1/2 to 1		1 Pc.
18	.064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

* EXCEPT CENTER PANEL
SEE GENERAL NOTES



END CORNER PLATES MAY
BE FASTENED TO APRON
PROPER BY BOLTS, RIVETS,
OR RESISTANCE SPOT
WELDS WHICH WILL HOLD
THE SURFACES TIGHTLY
TOGETHER

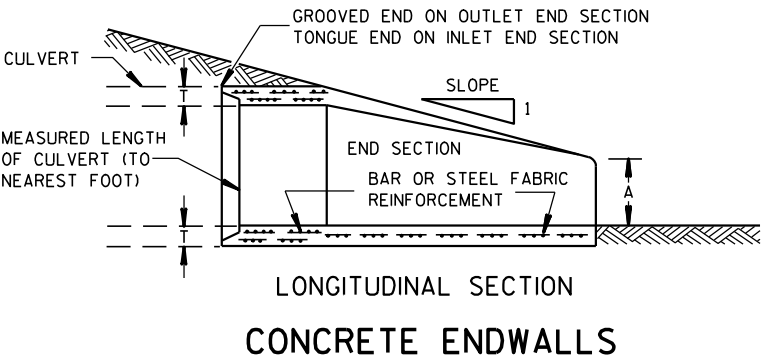
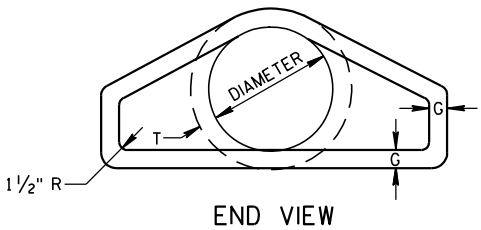
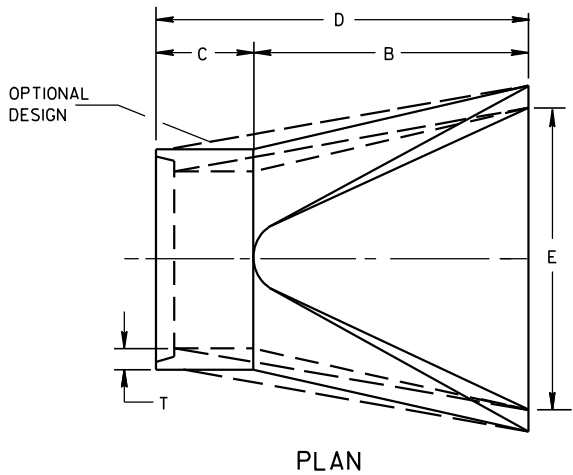
TOE PLATE (SAME THICKNESS
AND METAL AS APRON) SHALL
BE FURNISHED WHEN CALLED
FOR ON THE PLANS



SIDE ELEVATION
METAL ENDWALLS

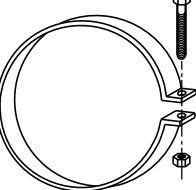
REINFORCED CONCRETE APRON ENDWALLS												
PIPE DIA. (IN.)	DIMENSIONS (Inches)							APPROX. SLOPE				
	T	A	B	C	D	E	G					
12	2	4	24	48 1/8	72 1/8	24	2	3 to 1				
15	2 1/4	6	27	46	73	30	2 1/4	3 to 1				
18	2 1/2	9	27	46	73	36	2 1/2	3 to 1				
21	2 3/4	9	36	37 1/2	73 1/2	42	2 3/4	3 to 1				
24	3	9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

* MINIMUM
** MAXIMUM

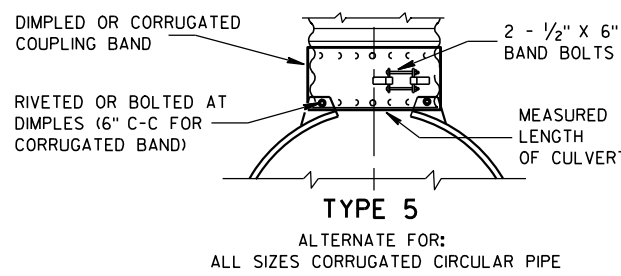
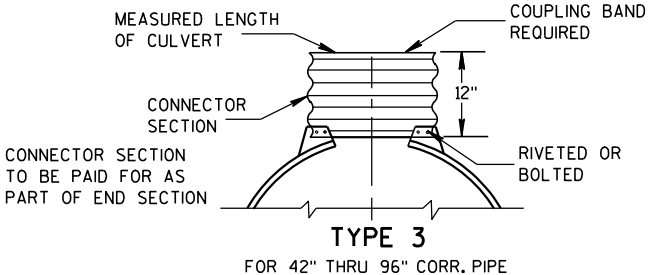
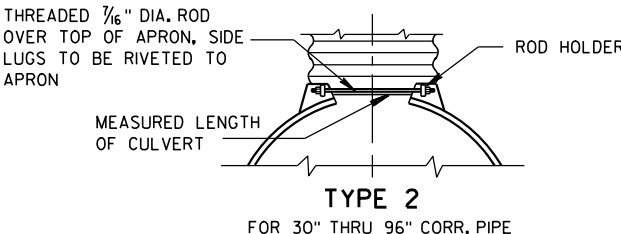
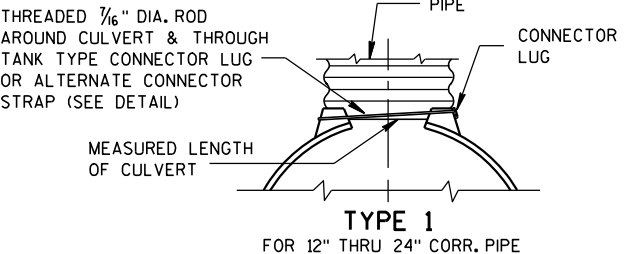


LONGITUDINAL SECTION
CONCRETE ENDWALLS

1" WIDE, 12 GA. (0.109"
THICK) GALVANIZED STRAP
WITH STANDARD 6" X 1/2"
BAND BOLT AND NUT



ALTERNATE FOR TYPE 1 CONNECTION
END SECTION CONNECTOR STRAP



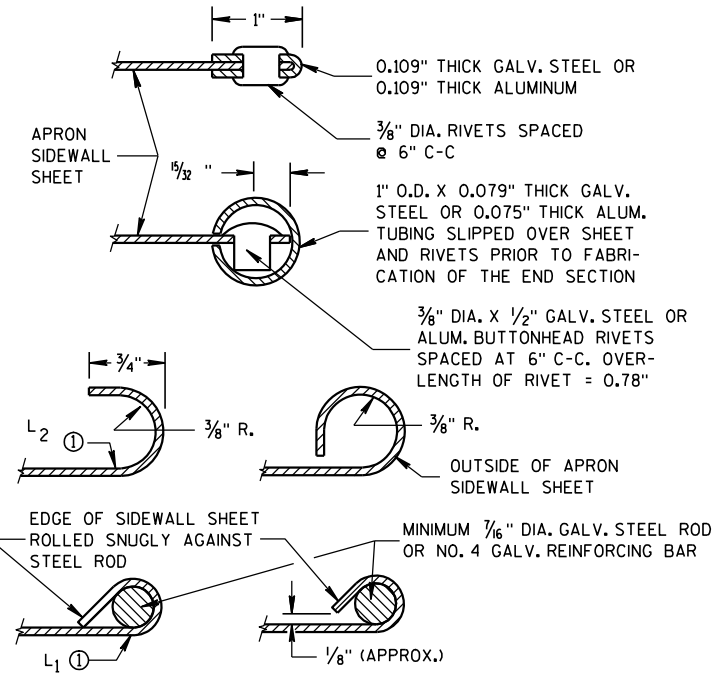
NOTE: DIMPLED BAND FITS OVER OUTSIDE OF ENDWALL,
AND CORRUGATED BAND FITS INSIDE ENDWALL.
DIMPLED BAND MAY BE USED WITH HELICALLY
CORRUGATED PIPE.

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

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

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

CONNECTION DETAILS



SECTION A-A

GENERAL NOTES

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

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

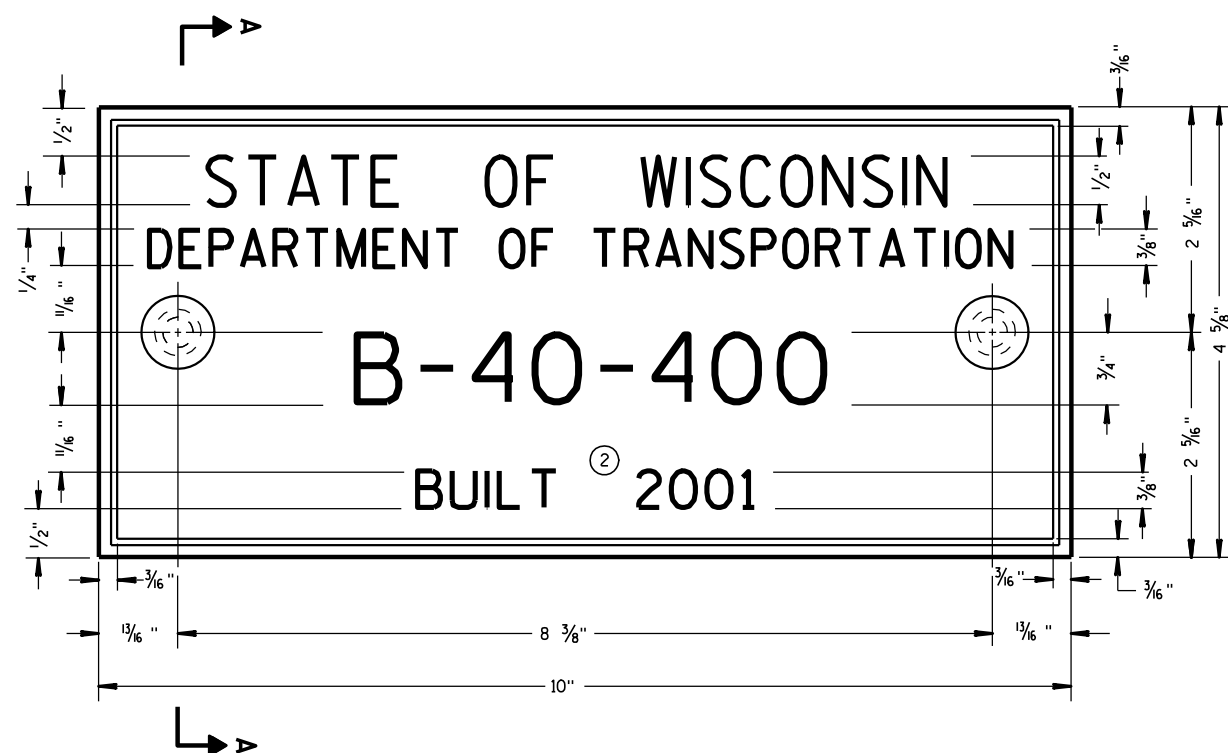
ALL THREE PIECE STEEL APRON ENDWALLS FOR 60" DIAMETER PIPE AND
LARGER SHALL HAVE 0.109" SIDES AND 0.138" CENTER PANELS. ALL
THREE PIECE ALUMINUM APRON ENDWALLS FOR 60" DIAMETER PIPE AND
LARGER SHALL HAVE 0.105" SIDES AND 0.134" CENTER PANELS. THE WIDTH
OF CENTER PANELS SHALL BE GREATER THAN 20 PERCENT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

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

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

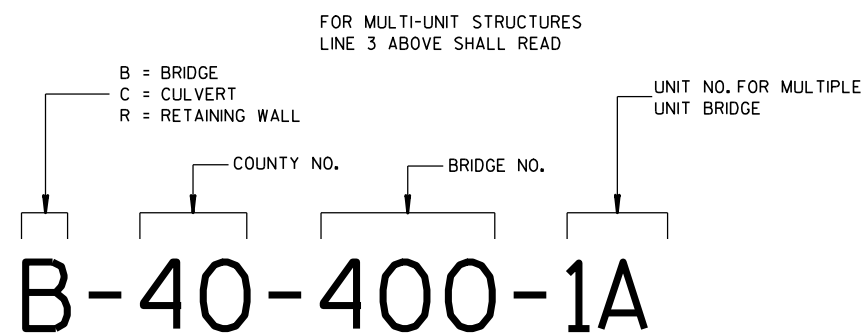
① FOR PIPE SIZES UP TO 60" DIAMETER, A 180° ROLLED EDGE MAY BE USED
INSTEAD OF STEEL ROD REINFORCEMENT. SEE SECTION A-A.

APRON ENDWALLS FOR CULVERT PIPE			
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
APPROVED 11/30/94 DATE	/S/ Rory L. Rhinehart CHIEF ROADWAY DEVELOP	36	NEER
FHWA			



TYPICAL NAME PLATE

(BRIDGES, CULVERTS, AND RETAINING WALLS)



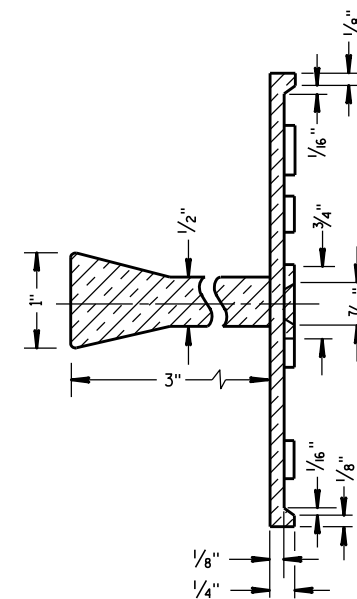
NUMBERING DESIGNATION
MULTI-UNIT STRUCTURES

GENERAL NOTES

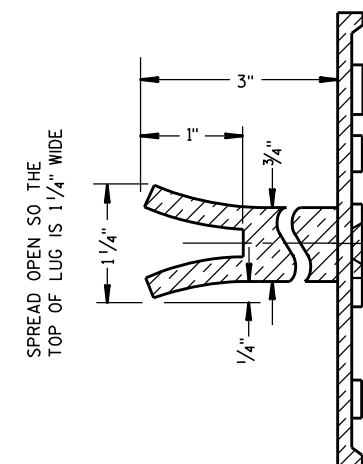
NAME PLATES TO BE INSTALLED ON BRIDGES, CULVERTS, AND RETAINING WALLS SHALL CONFORM TO THE REQUIREMENTS OF SECTION 502.3.11 OF THE STANDARD SPECIFICATIONS.

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

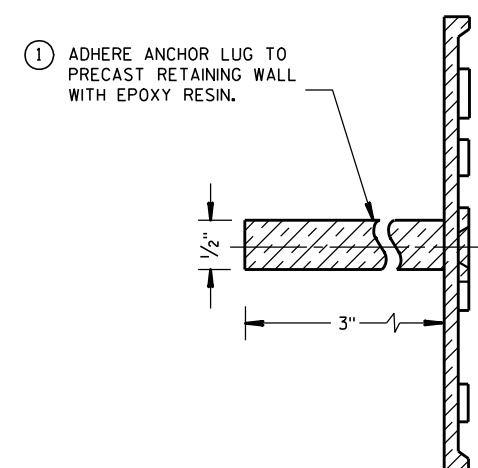
- ① EPOXY RESIN SHALL BE FROM AN APPROVED MANUFACTURER AND USED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
- ② REHABILITATION OF AN EXISTING STRUCTURE SHOULD USE THE DATE OF ORIGINAL STRUCTURE CONSTRUCTION.



SECTION A-A



ALTERNATE LUG



ALTERNATE LUG

(FOR ATTACHMENT TO PRECAST STRUCTURES)

**NAME PLATE
(STRUCTURES)**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

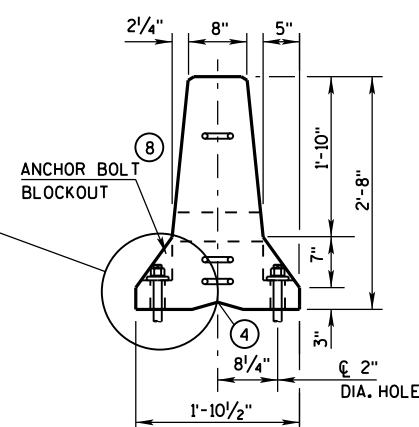
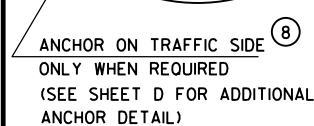
APPROVED

3/26/10
DATE

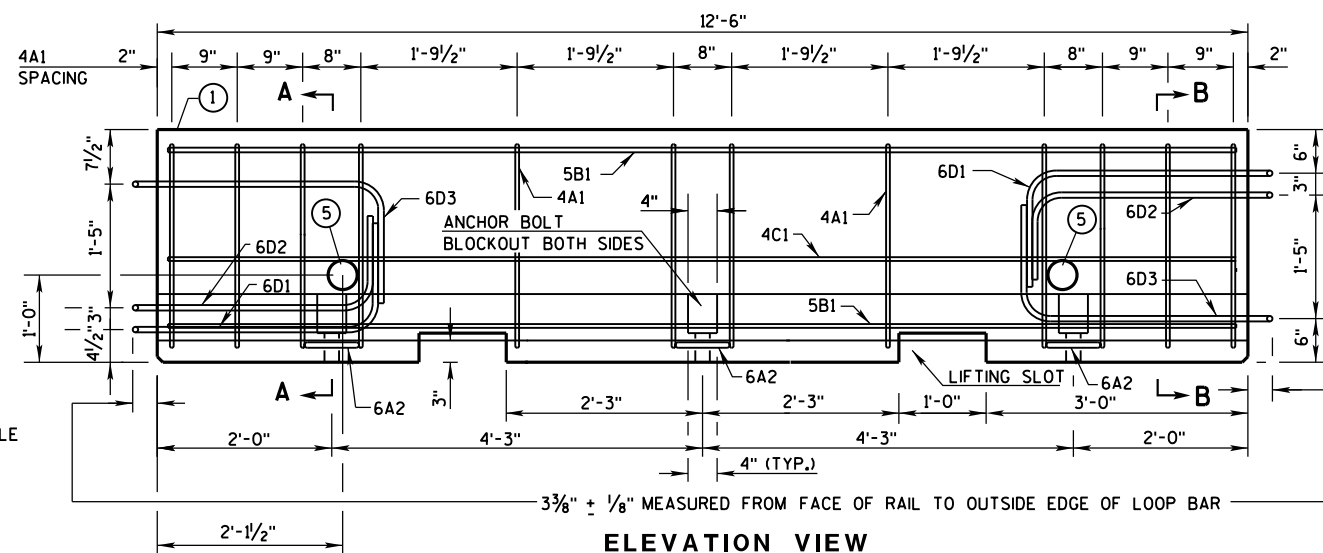
_____/S/ Scot Beck
CHIEF STRUCTURAL DEVELOP

JFF

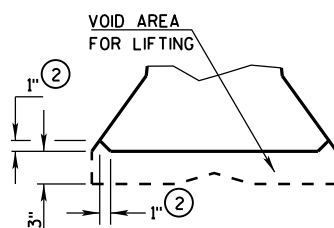
FHWA



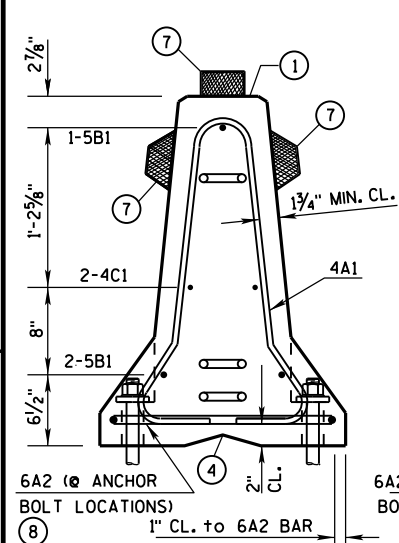
END VIEW



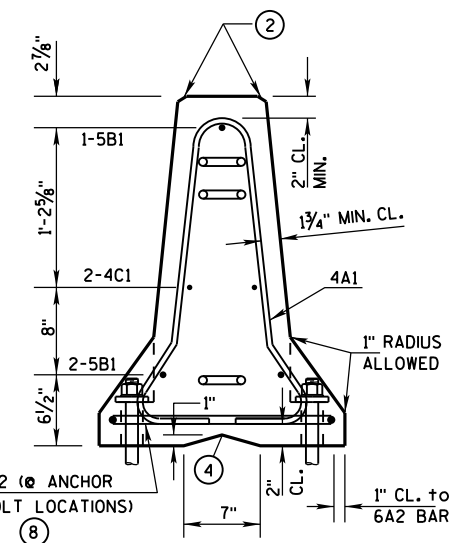
ELEVATION VIEW



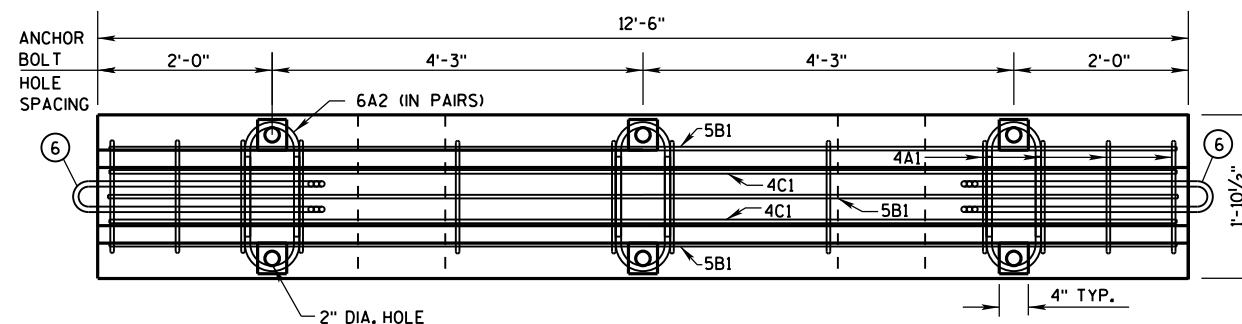
DETAIL "B"
LIFTING SLOT DETAIL



SECTION A-A
(STIRRUP PLACEMENT)

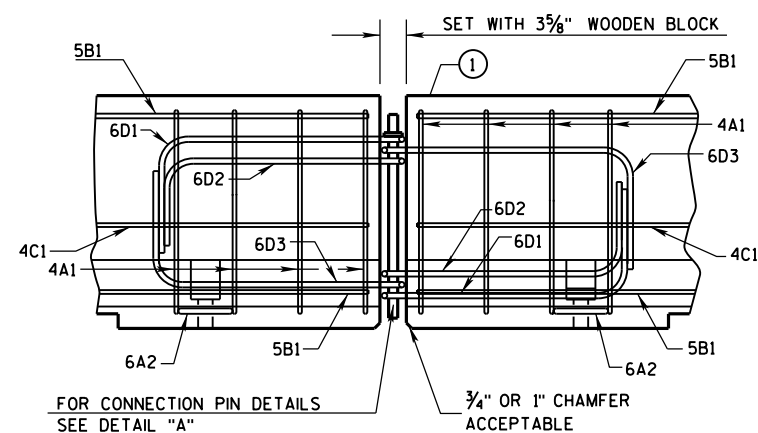


SECTION B-B
(STIRRUP PLACEMENT)

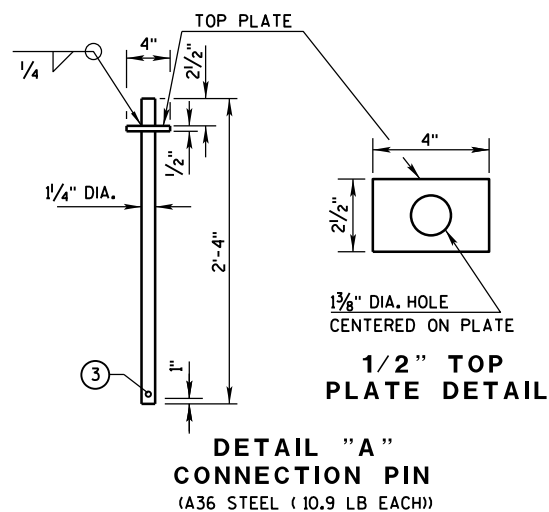


PLAN VIEW

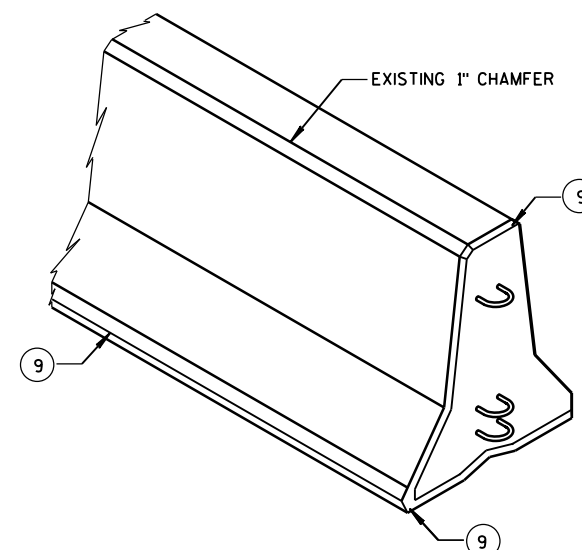
DETAILS OF BARRIER SECTION



DETAILS OF BARRIER CONNECTION



DETAIL "A"
CONNECTION PIN
(A36 STEEL (10.9 LB EACH))



GENERAL NOTES

THESE GENERAL NOTES APPLY TO SHEETS 14B7-14(d) THRU 14B7-14(h).

DO NOT INTERMIX CONCRETE BARRIER TEMPORARY PRECAST, 12'-6" (CBTP12.5) WITH OTHER TEMPORARY CONCRETE BARRIERS.

USE ASTM A-615, GRADE 60, DEFORMED STEEL BARS FOR BARS 4A1, 6A2, 5B1 AND 4C1 IN THE BARRIER SECTION AND FOR 4V1, 4V2, 4V3, 4V4, 4V5, 4V6, 4F1, 4F2 AND 5F3 IN THE BARRIER TAPER SECTION.

LOOP BARS 6D1, 6D2 AND 6D3 SHALL BE $\frac{3}{4}$ " SMOOTH STEEL BARS WITH A MINIMUM YIELD STRENGTH OF 60 KSI, A TENSILE STRENGTH OF NOT LESS THAN 1.25 TIMES THE YIELD STRENGTH BUT A MINIMUM OF 80 KSI, A MINIMUM 14% ELONGATION IN 8 INCHES AND PASSING A 180 DEGREE BEND TEST USING A $3\frac{1}{2}$ " PIN BEND DIAMETER FOR BEND TESTS. THE LOOPS SHALL BE INSTALLED WITHIN $\frac{1}{8}$ " OF THE PLAN DIMENSION.

CONSTRUCT LIFTING SLOTS AS SPECIFIED ON THE PLANS TO FACILITATE THE DRAINAGE OF WATER AFTER INSTALLATION.

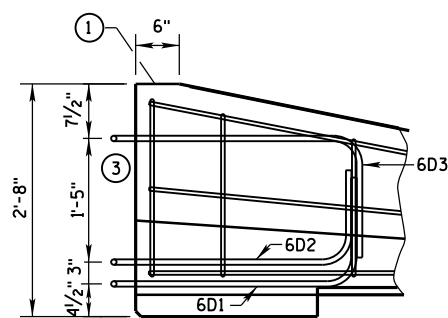
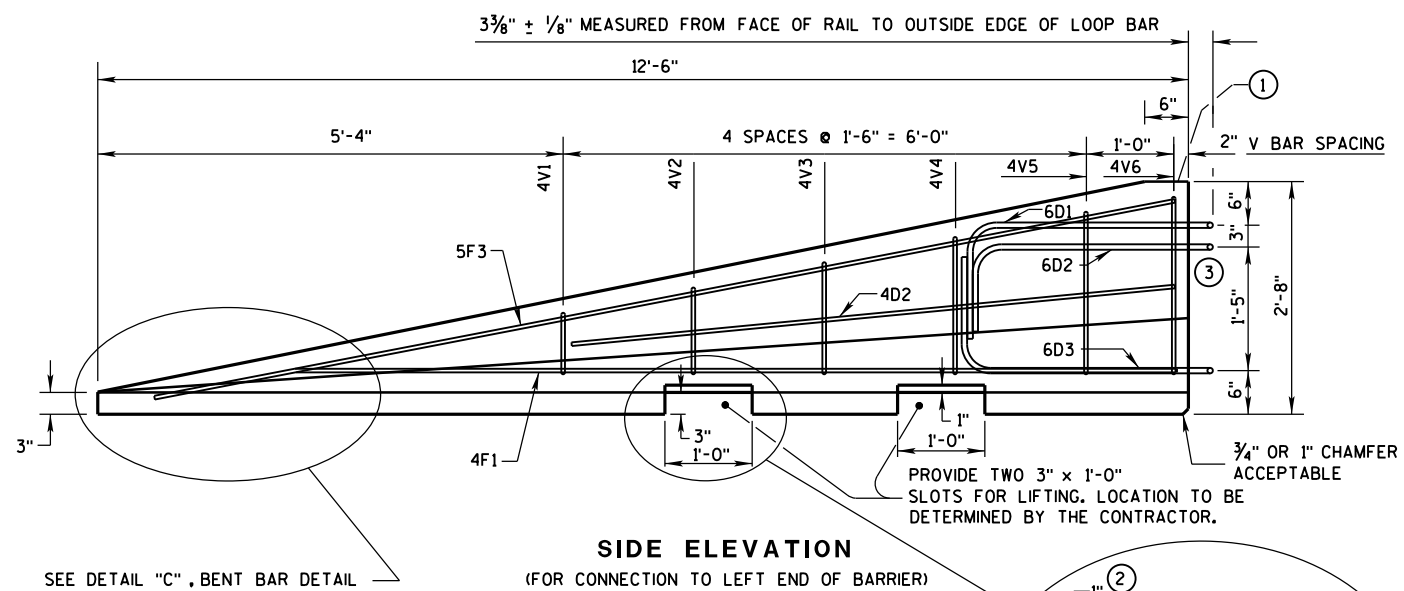
PLACE BARRIER ON A PAVED SURFACE. REMOVE ALL LOOSE DIRT AND SAND FROM THE ROADWAY SURFACE PRIOR TO PLACEMENT OF THE BARRIER.

INSTALL MECHANICAL OR ADHESIVE ANCHORS PER MANUFACTURER'S RECOMMENDATIONS.
PROVIDE MANUFACTURER'S INFORMATION TO PROJECT ENGINEER.

- ① MARK ONE END OF EACH BARRIER PERMANENTLY BY FORMING INTO THE BARRIER THE FOLLOWING INFORMATION:
 - a. TYPE: WICBTP
 - b. MANUFACTURER
 - c. DATE MANUFACTURED (MONTH AND YEAR)
- ② 1" CHAMFER TO PREVENT SPALLING.
- ③ A $\frac{3}{8}$ " HOLE IN THE CONNECTION PIN, AT THE LOCATION SHOWN, IS ACCEPTABLE, BUT NOT REQUIRED..
- ④ "V" NOTCH IS OPTIONAL.
- ⑤ THE 4" DIAMETER, 11 GAUGE STEEL, ROUND MECHANICAL TUBING SLEEVE FOR LIFTING (OPTIONAL).
- ⑥ NEVER USE LOOP BARS (6D1, 6D2 OR 6D3) TO LIFT, MOVE OR REPOSITION THE BARRIER.
- ⑦ USE DELINEATORS CONFORMING TO SECTION 633 OF THE STANDARD SPECIFICATIONS. CONTRACTOR MAY USE ALTERNATE SHAPES AND HOUSING. INSTALL DELINEATORS ACCORDING TO MANUFACTURES INSTRUCTION. INSTALL YELLOW REFLECTORS WHEN BARRIER IS LOCATED TO THE LEFT OF TRAFFIC AND WHITE REFLECTORS WHEN BARRIER IS LOCATED TO THE RIGHT OF TRAFFIC. SPACE DELINEATORS A MAXIMUM OF 25 FEET APART. PROVIDE TOP MOUNTED DELINEATORS IN ADDITION TO THE SIDE MOUNTED DELINEATORS ON ALL BARRIER INSTALLATIONS LOCATED ON A CURVED ALIGNMENT LONGER THAN 200 FEET AND ON BARRIERS USED TO SEPARATE OPPOSING TRAFFIC.
- ⑧ SEE SHEET D FOR ANCHORING CRITERIA.
- ⑨ 1" CHAMFER OPTIONAL.

CONCRETE BARRIER
TEMPORARY PRECAST, 12'-6"

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION³⁸

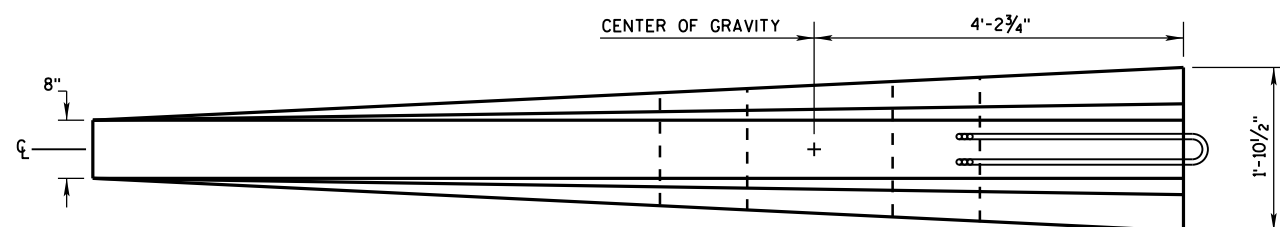
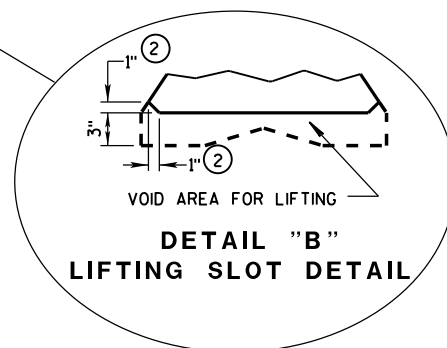


GENERAL NOTES

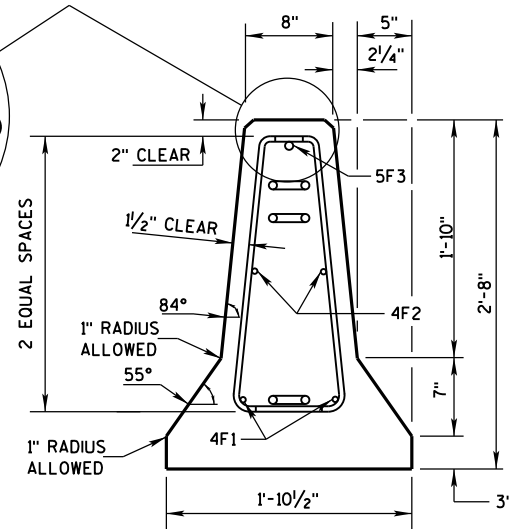
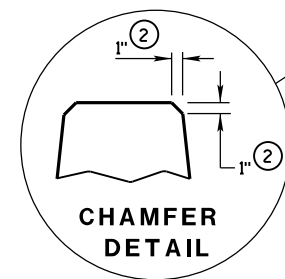
- ① MARK ONE END OF EACH BARRIER PERMANENTLY BY FORMING INTO THE BARRIER THE FOLLOWING INFORMATION:
 - a. TYPE WICBTP
 - b. MANUFACTURER
 - c. DATE MANUFACTURED (MONTH AND YEAR)
- ② 1" CHAMFER TO PREVENT SPALLING.
- ③ NEVER USE LOOP BARS (6D1, 6D2 OR 6D3) TO LIFT, MOVE OR REPOSITION THE BARRIER.

SIDE ELEVATION

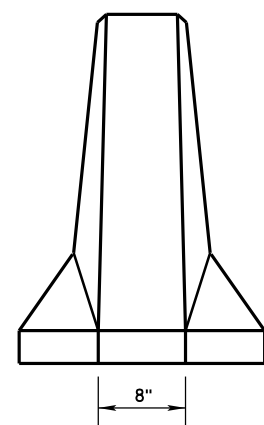
LOOP BAR ASSEMBLY INVERTED
FOR OPPOSITE END.
(FOR CONNECTION TO RIGHT END OF BARRIER)



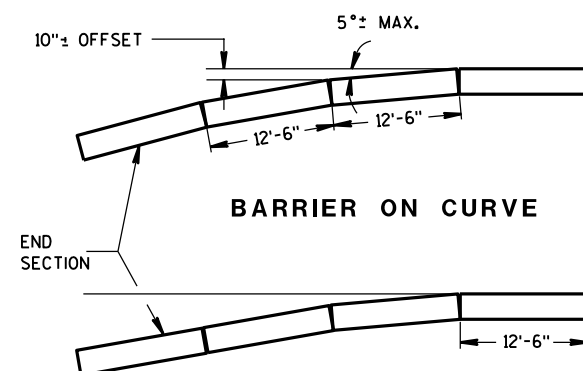
PLAN VIEW



END SECTION



FRONT ELEVATION



FLARE AT BARRIER END

POSTED SPEED, (MPH)	FLARE RATE
40 OR LESS	6:1
45 OR GREATER	8:1

DETAILS OF BARRIER TAPER SECTION

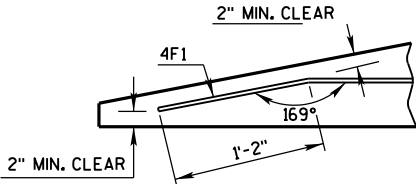
CONCRETE BARRIER
TEMPORARY PRECAST, 12'-6"

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

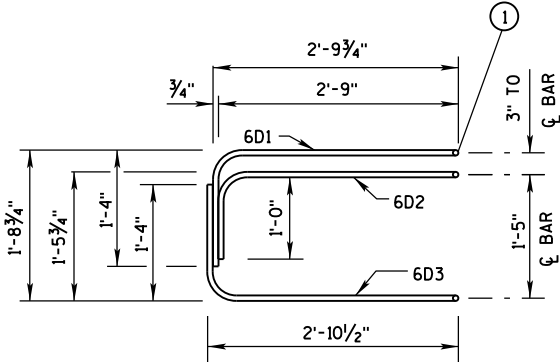
BARRIER TAPER SECTION
BILL OF MATERIALS

(PER 12'-6" BARRIER TAPER SECTION)

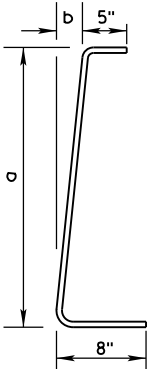
BAR	BAR SIZE	NO. OF BARS	LENGTH FT.
4V1	4	2	1'-11"
4V2	4	2	2'-2"
4V3	4	2	2'-6"
4V4	4	2	2'-9"
4V5	4	2	3'-2"
4V6	4	2	3'-4"
4F1	4	2	12'-0"
4F2	4	2	7'-6"
5F3	5	1	11'-9"
LOOP ASSEMBLY			
6D1	6	1	8'-5"
6D2	6	1	7'-7"
6D3	6	1	8'-6"



DETAIL "C"
BENT BAR DETAIL



ELEVATION
LOOP BAR ASSEMBLY



BAR	a	b
V1	10"	1"
V2	1'-1"	1 1/4"
V3	1'-5"	1 5/8"
V4	1'-8"	1 7/8"
V5	2'-0 1/2"	2 3/8"
V6	2'-3"	2 3/4"

4V BARS
2 AT EACH SIZE REQUIRED
FOR STIRRUP ASSEMBLY

TAPER BARRIER SECTION

GENERAL NOTES

① NEVER USE LOOP BARS (6D1, 6D2 OR 6D3) TO LIFT, MOVE OR REPOSITION THE BARRIER.

BARRIER SECTION
BILL OF MATERIALS

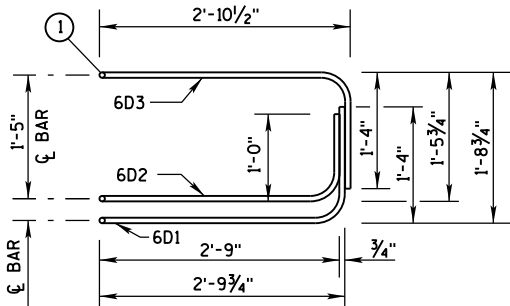
(PER 12'-6" BARRIER SECTION)

BAR	BAR SIZE	NO. OF BARS	LENGTH FT.
4A1	4	12	6'-0"
6A2	6	6	2'-11"
5B1	5	3	12'-2"
4C1	4	2	12'-2"
LOOP ASSEMBLY			
6D1	6	2	8'-5"
6D2	6	2	7'-7"
6D3	6	2	8'-6"

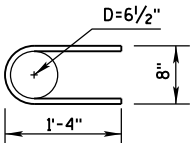


PLAN VIEW
LOOP BAR ASSEMBLY

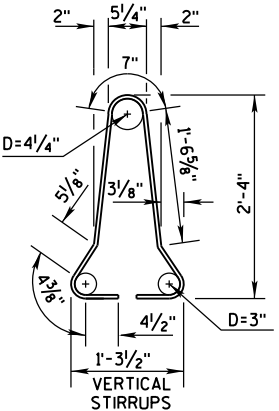
(MARKED END SHOWN, INVERT FOR OTHER END)



ELEVATION VIEW



6A2

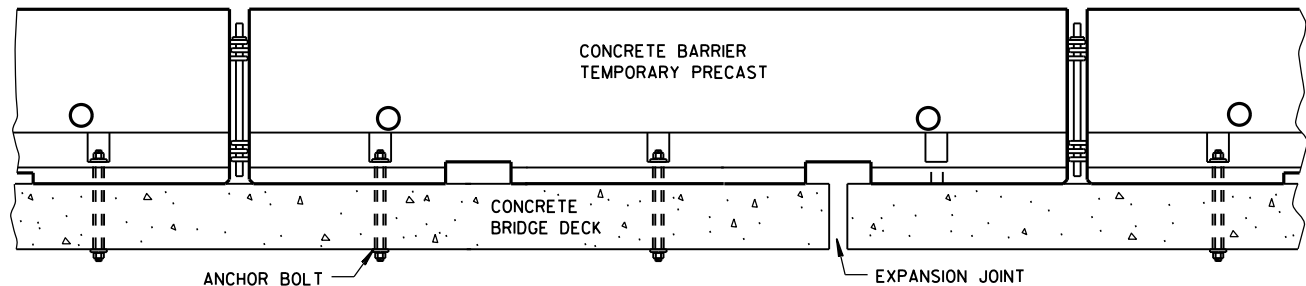
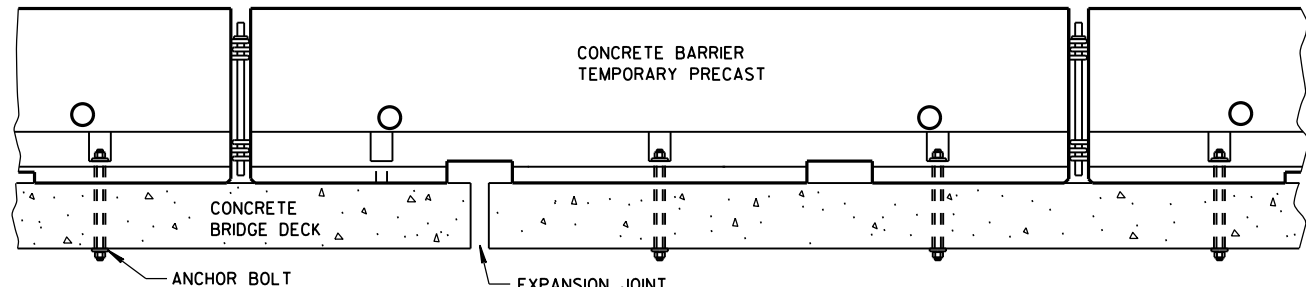


4A1

BARRIER SECTION

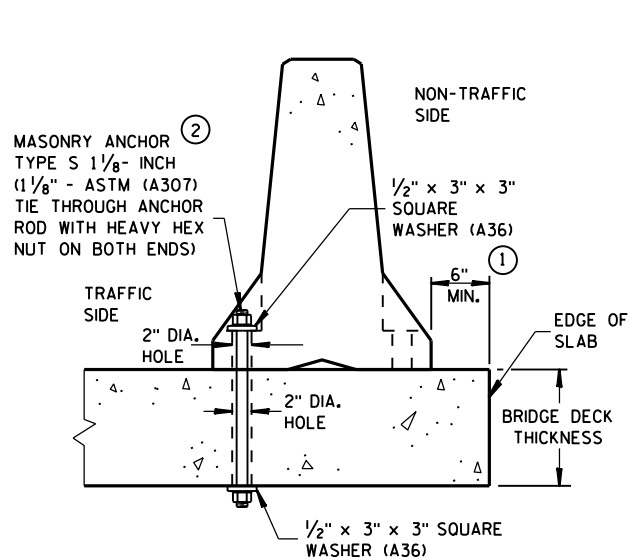
CONCRETE BARRIER
TEMPORARY PRECAST, 12'-6"

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



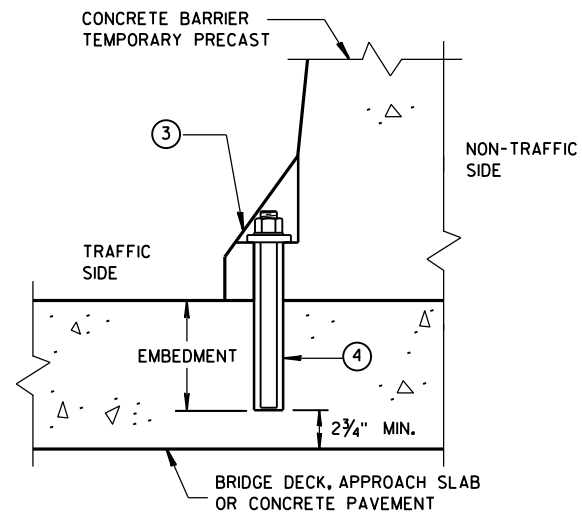
TREATMENT AT BRIDGE DECK EXPANSION JOINTS

(NO SINGLE CONCRETE BARRIER SECTION SHALL BE ANCHORED TO BOTH THE BRIDGE DECK AND THE APPROACH SLAB. ALL ANCHOR BOLT LOCATIONS SHALL BE ANCHORED TO THE DECK IN ACCORDANCE WITH THE DETAIL. NO MORE THAN ONE ANCHOR BOLT SHALL BE ELIMINATED FROM A BARRIER SECTION WHEN SPANNING AN EXPANSION JOINT.)



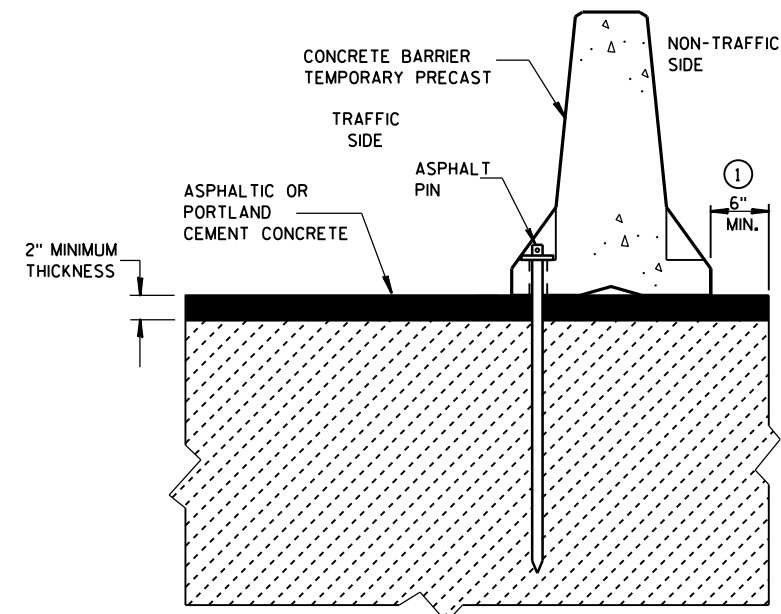
THROUGH BOLTED ANCHOR INSTALLATION ON BRIDGE DECK

(DO NOT USE ON CONCRETE BRIDGE DECK WITH ASPHALT OVERLAY)



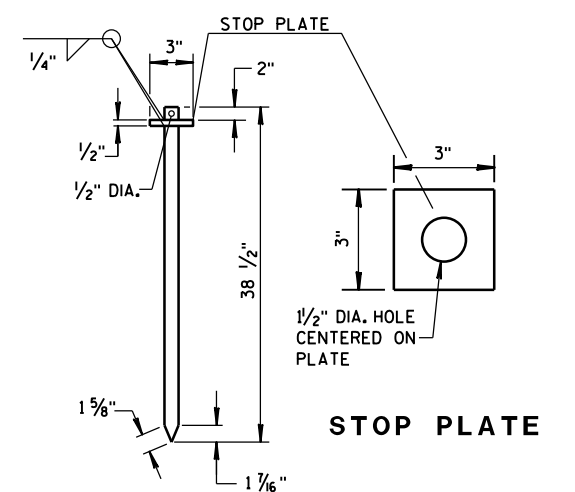
REMOVABLE ADHESIVE BONDED ANCHOR INSTALLATION ON CONCRETE BRIDGE DECK, CONCRETE APPROACH SLAB, OR CONCRETE PAVEMENT

(DO NOT USE ON CONCRETE WITH AN ASPHALTIC OVERLAY)

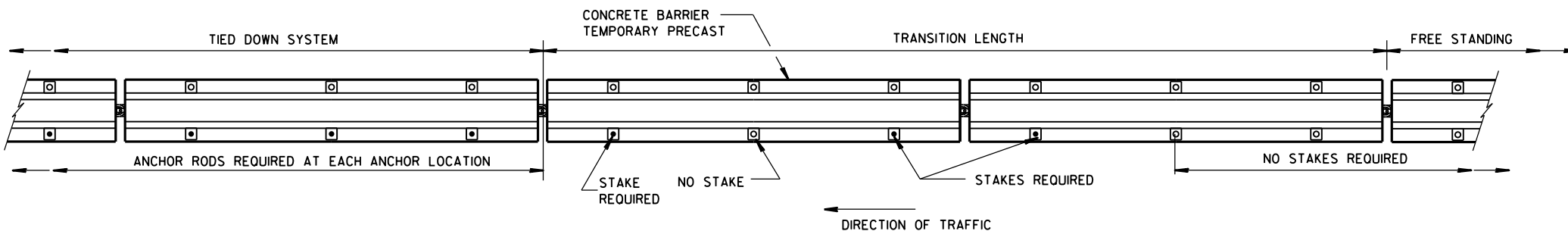


STAKE DOWN INSTALLATION FOR ASPHALTIC OR PORTLAND CEMENT CONCRETE SURFACE

(STAKING IS INCIDENTAL TO CONCRETE BARRIER TEMPORARY PRECAST)



ASPHALT PIN
(ASTM A36 STEEL)



PLAN VIEW

FREE STANDING TRANSITION TO TIED-DOWN SYSTEM

(PLACE TRANSITION IN A TANGENT SECTION OF BARRIER PARALLEL TO THE ROADWAY. IF TRANSITION OCCURS ON STRUCTURAL SLAB, ANCHOR AS SHOWN.)

GENERAL NOTES

- ① CONCRETE BARRIER TEMPORARY PRECAST, 12'-6" SHALL BE ANCHORED IF:
THE DISTANCE TO A 2 FOOT OR GREATER DROPOFF THAT IS STEEPER THAN 3H : 1V,
FOR EXAMPLE THE EDGE OF A BRIDGE DECK OR A DROPOFF AT THE EDGE OF PAVEMENT,
IS LESS THAN 4 FEET FROM THE SIDE OF THE BARRIER CLOSEST TO THE DROPOFF
AND THE POSTED SPEED IS 45 MPH OR GREATER, OR

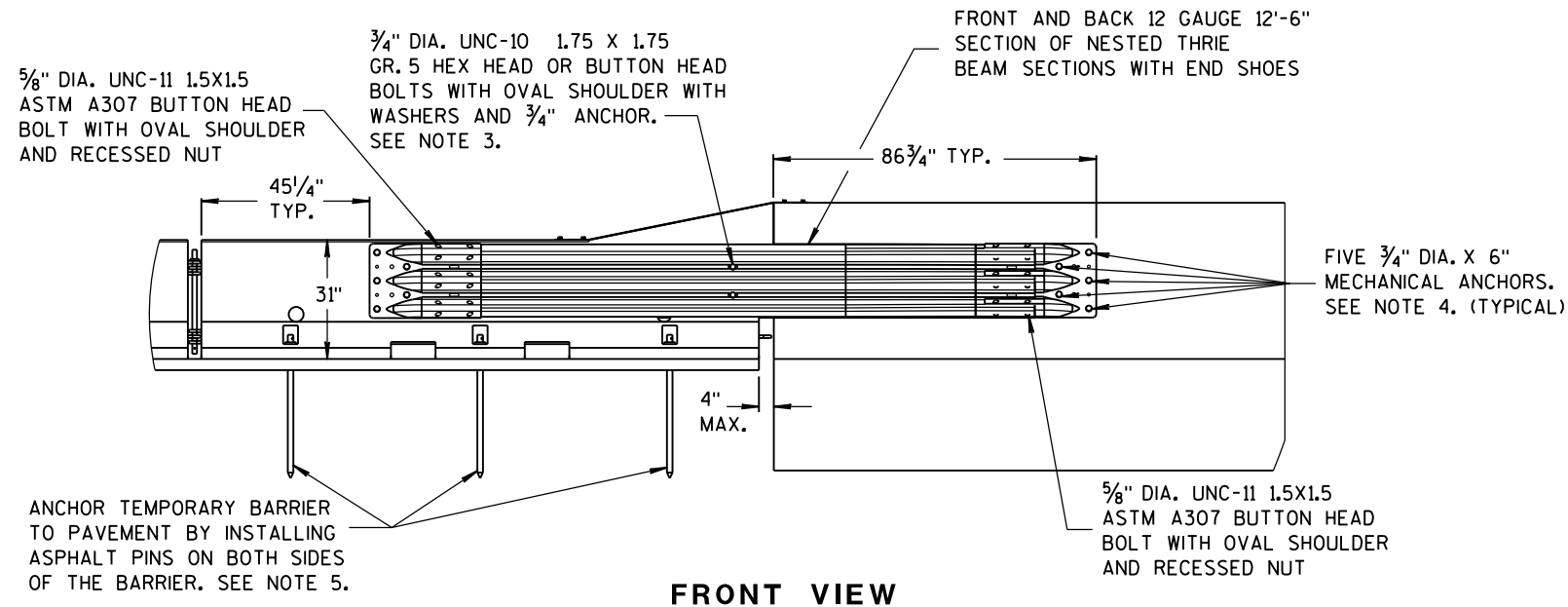
THE DISTANCE TO A 2 FOOT OR GREATER DROPOFF THAT IS STEEPER THAN 3H : 1V,
FOR EXAMPLE THE EDGE OF A BRIDGE DECK OR A DROPOFF AT THE EDGE OF PAVEMENT,
IS LESS THAN 2 FEET FROM THE SIDE OF THE BARRIER CLOSEST TO THE DROPOFF
AND THE POSTED SPEED IS 40 MPH OR LESS.
- ② ANCHORING IS INCIDENTAL TO CONCRETE BARRIER TEMPORARY PRECAST.

WITH THE APPROVAL OF THE ENGINEER, REMOVABLE ADHESIVE BONDED ANCHOR BOLT
INSTALLATION MAY BE USED IN LIEU OF THROUGH BOLTED ANCHOR INSTALLATION. THE ADHESIVE
BONDED ANCHOR BOLT MUST BE REMOVABLE. USE ASTM (A307) MASONRY ANCHORS TYPE
S 1 1/8"-INCH, EMBEDDED TO A DEPTH SUFFICIENT TO DEVELOP THE ULTIMATE CAPACITY OF THE
ANCHOR BOLT AND PROVIDE DOCUMENTATION TO CONFIRM THIS.

UPON REMOVAL OR RELOCATION OF THE BARRIER UNITS, REMOVE ALL ANCHOR BOLTS AND COMPLETELY
FILL IN THE REMAINING HOLES IN CONCRETE BRIDGE DECKS, CONCRETE APPROACH SLABS AND CON-
CRETE PAVEMENTS THAT ARE TO REMAIN, WITH A NON-SHRINK COMMERCIAL GROUT OR MATERIAL
IDENTIFIED ON THE CURRENT WISDOT APPROVED PRODUCTS LIST.
- ③ 1/8" DIAMETER A307 THREADED ROD, 1/2" x 3" x 3" SQUARE PLATE WASHER WITH ASTM A36 STEEL,
ASTM A563A HEAVY HEX NUT.
- ④ ADHESIVE ANCHORS WITH A MINIMUM BOND STRENGTH OF 1,800 PSI AND 5/4" EMBEDMENT. SEE 603.2
AND 603.3.1.2 OF THE WISCONSIN STANDARD SPECIFICATIONS FOR MORE INFORMATION ON ADHESIVE ANCHORS.

CONCRETE BARRIER
TEMPORARY PRECAST, 12'-6"

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



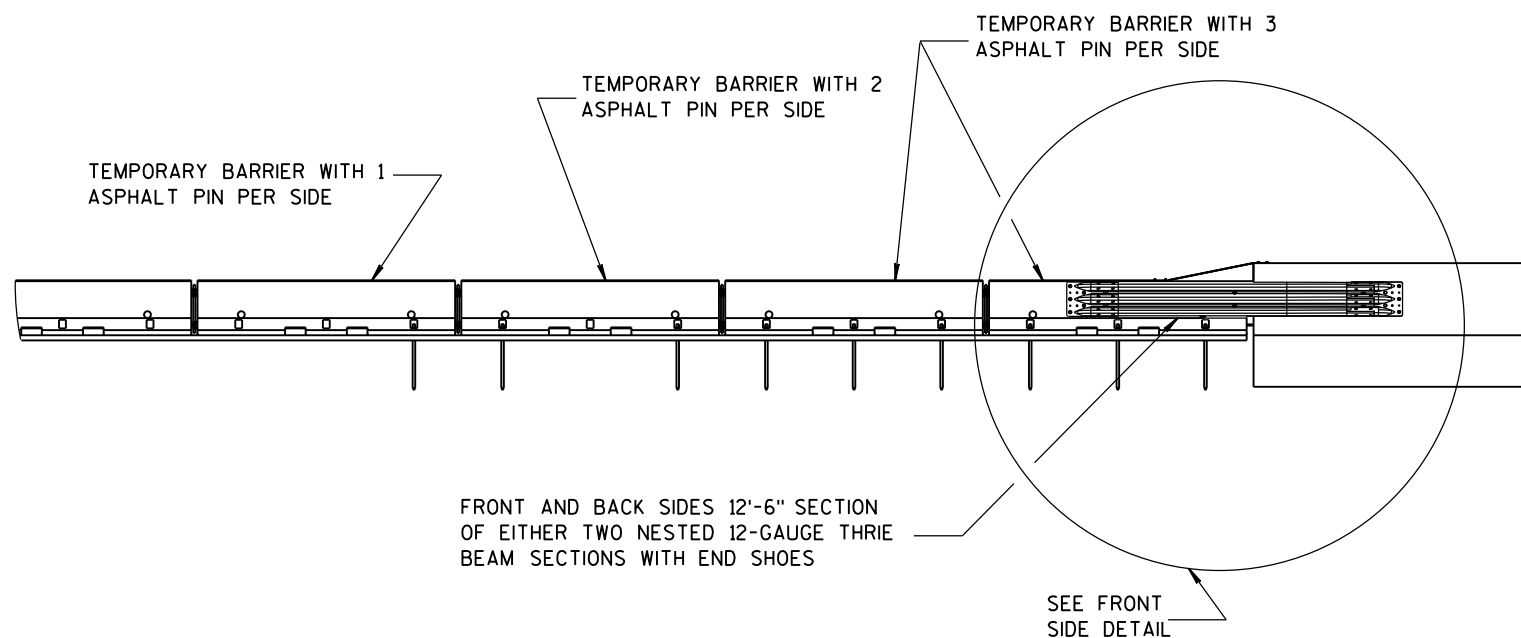
FRONT VIEW

NOTES

NESTED THRIE BEAM IS REQUIRED ON BOTH SIDES OF THE TEMPORARY BARRIER FOR ALL INSTALLATIONS.

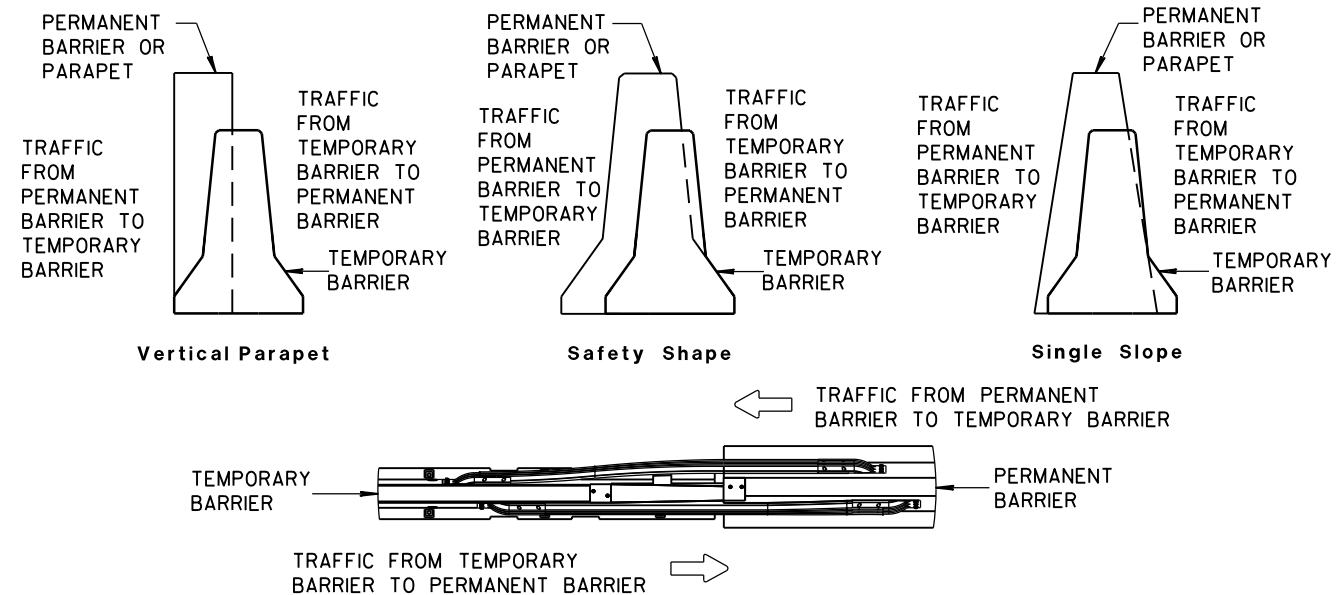
1. CAP END PLATE PLACED FLUSH WITH UPSTREAM END OF PERMANENT BARRIER OR PARAPET.
2. THRIE BEAM PIECES ARE OFFSET 15 1/4" TO PREVENT INTERFERENCE FROM THE ANCHORS ON OPPOSING SIDES.
3. MINIMUM MECHANICAL OR ADHESIVE ANCHOR STRENGTH REQUIREMENTS: ULTIMATE TENSILE LOAD 9.48 KIPS AND ULTIMATE SHEAR LOAD 10.48 KIPS.

4. MINIMUM MECHANICAL OR ADHESIVE ANCHOR STRENGTH REQUIREMENTS: ULTIMATE TENSILE LOAD 17.9 KIPS AND ULTIMATE SHEAR LOAD 21.96 KIPS.
5. MAY BE USED ON CONCRETE OR ASPHALT PAVEMENTS. ASPHALT OPTION SHOWN. FOR CONCRETE OPTION SEE OTHER DETAILS.
6. MINIMUM MECHANICAL OR ADHESIVE ANCHOR STRENGTH REQUIREMENTS: ULTIMATE TENSILE LOAD 12.14 KIPS AND ULTIMATE SHEAR LOAD 17.5 KIPS.

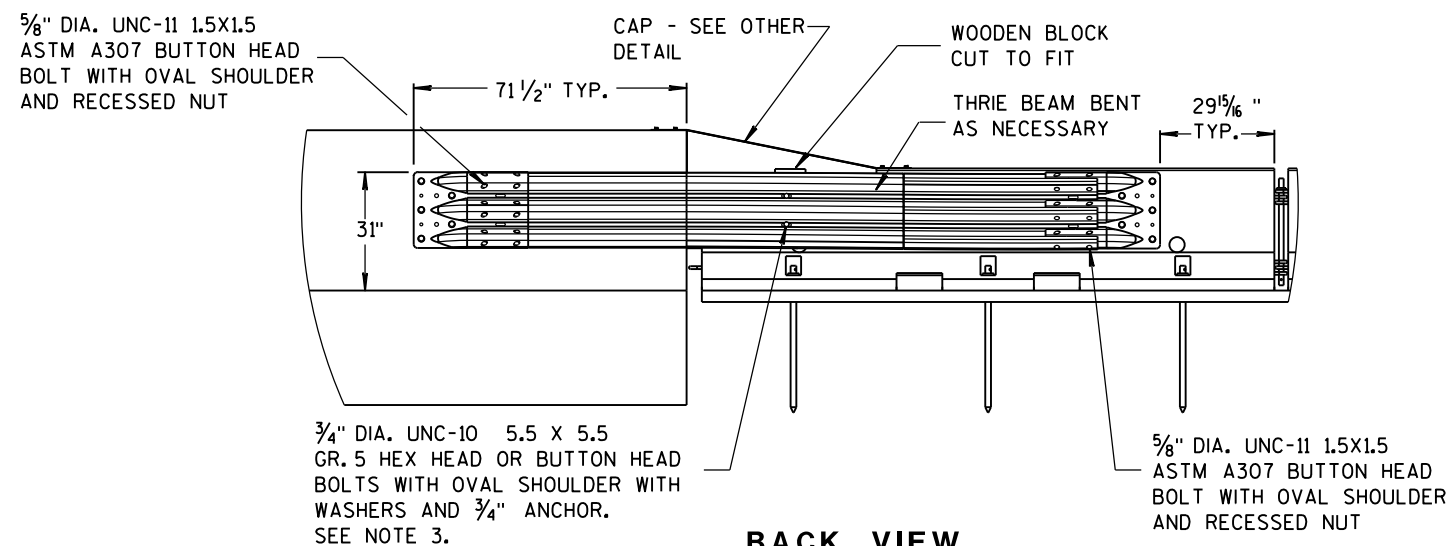


FRONT VIEW

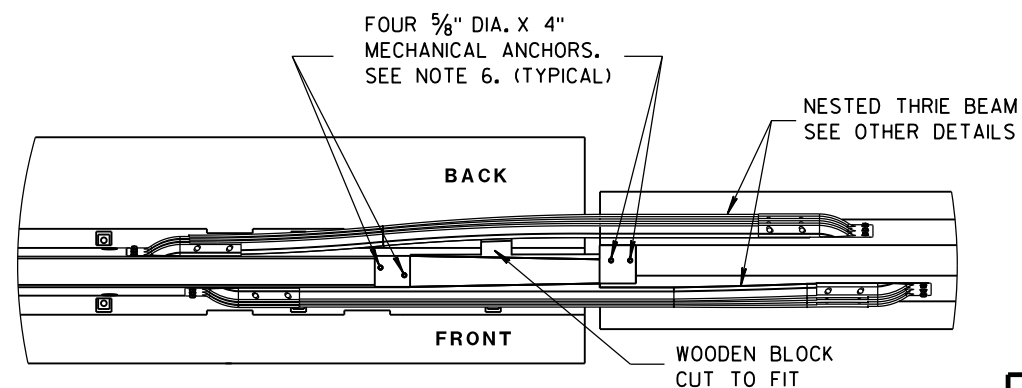
BI-DIRECTIONAL TRANSITION TO TIED-DOWN SYSTEM



TEMPORARY BARRIER PLACEMENT FOR BI-DIRECTIONAL TRANSITION TO TIED-DOWN SYSTEM



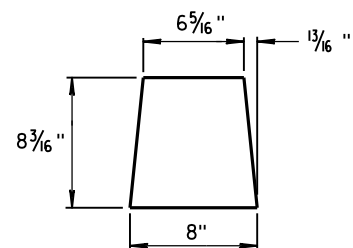
BACK VIEW



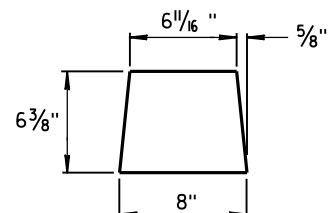
PLAN VIEW

CONCRETE BARRIER
TEMPORARY PRECAST, 12'-6"

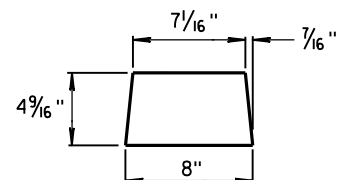
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



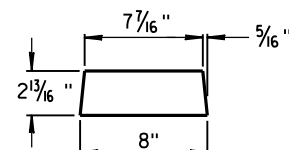
GUSSET 1



GUSSET 2

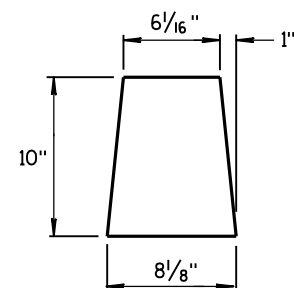


GUSSET 3

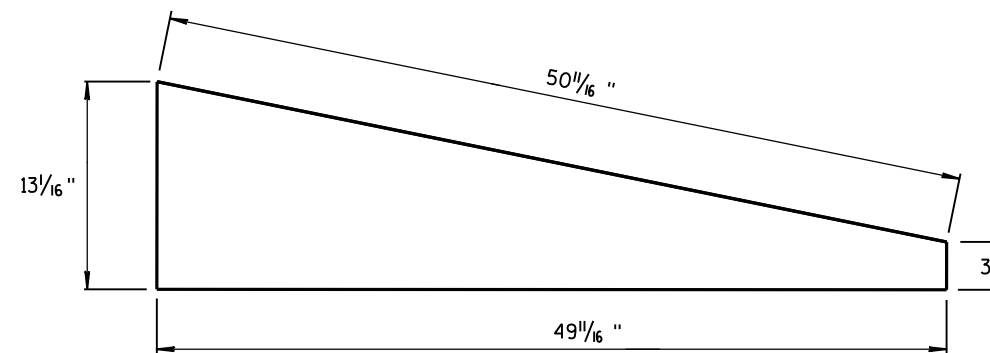


GUSSET 4

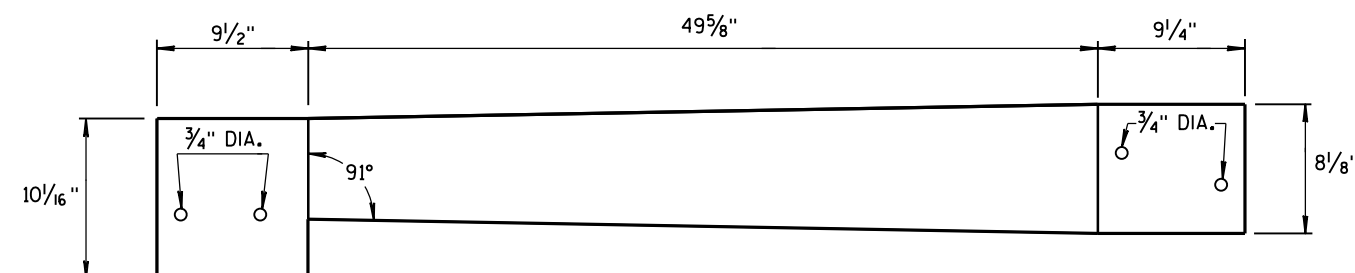
GUSSETS



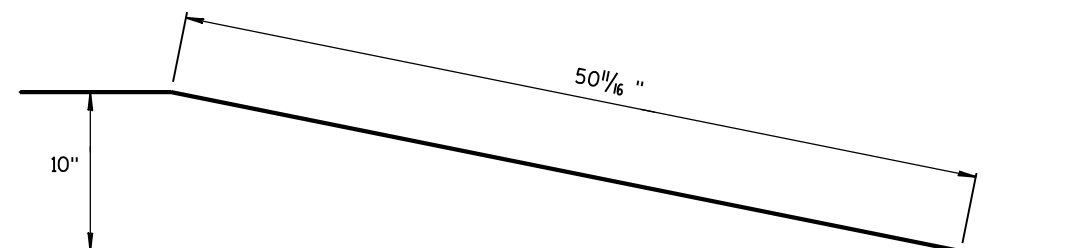
END PLATE



SIDE PLATE

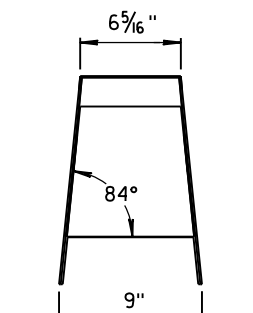


TOP PLATE

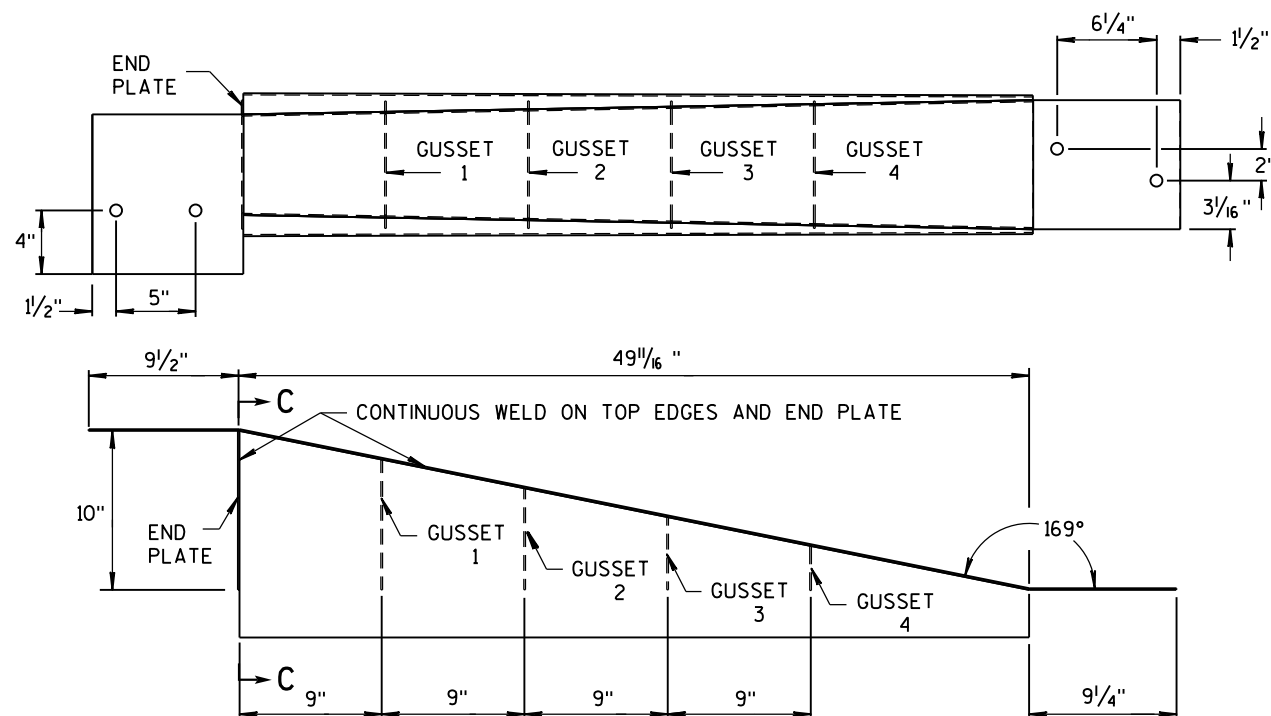


**SIDE, TOP AND END PLATES FOR CAP
FROM TEMPORARY CONCRETE BARRIER
TO 42" PERMANENT CONCRETE BARRIER**

SIDE PLATES, TOP PLATE, END PLATE AND GUSSETS ARE 12 GAUGE ASTM A36 GALVANIZED STEEL.



SECTION C-C



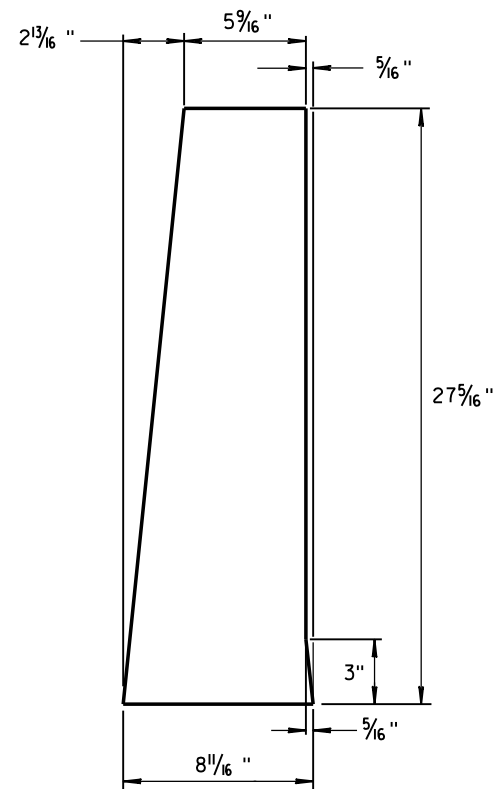
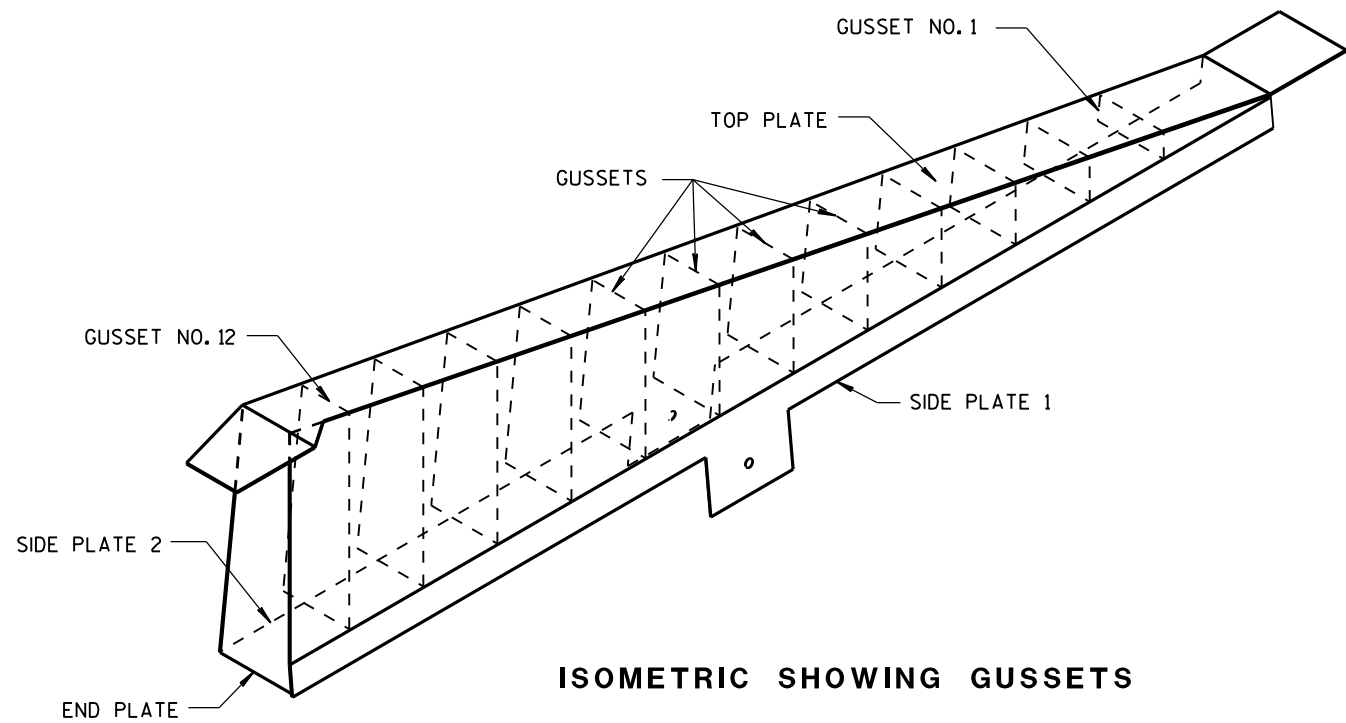
NOTES

1. FOUR GUSSETS AND END PLATE ARE STITCH WELDED ON THREE SIDES.
2. TWO TRIANGULAR SIDE PLATES ARE STITCH WELDED TO TOP PLATE, END PLATE, AND GUSSETS.

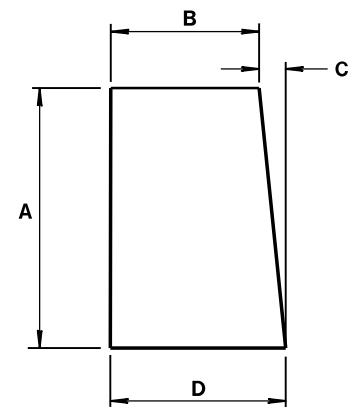
**CAP DETAILS FOR TEMPORARY CONCRETE
BARRIER TO 42" PERMANENT CONCRETE BARRIER**

**CONCRETE BARRIER
TEMPORARY PRECAST, 12'-6"**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



1/8" STEEL PLATE

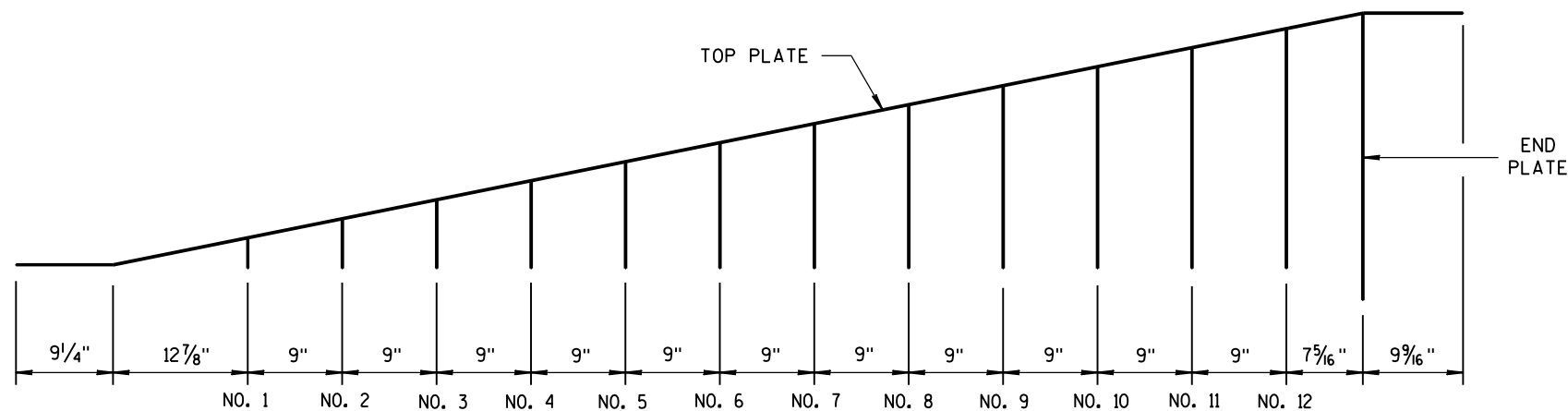


ALL GUSSETS 1/8" STEEL PLATE

GUSSET DIMENSIONS				
GUSSET NO.	A	B	C	D
1	2 7/8"	7 3/4"	1/4"	8
2	4 1/16 "	7 9/16 "	1/2"	8
3	6 1/2"	7 3/8 "	1 1/16 "	8 1/16 "
4	8 5/16 "	7 3/16 "	7/8"	8 1/16 "
5	10 1/8 "	7"	1 1/16 "	8 1/16 "
6	11 5/16 "	6 13/16 "	1 1/4"	8 1/16 "
7	13 3/4"	6 5/8 "	1 7/16 "	8 1/16 "
8	15 9/16 "	6 7/16 "	1 9/16 "	8 1/16 "
9	17 3/8"	6 1/4"	1 13/16 "	8 1/16 "
10	19 3/16 "	6 1/16 "	1 15/16 "	8 1/16 "
11	21"	5 7/8 "	2 3/16 "	8 1/16 "
12	22 13/16 "	5 11/16 "	2 5/16 "	8 1/16 "

SIDE PLATES, TOP PLATE, END PLATE AND GUSSETS ARE 12 GAUGE ASTM A36 STEEL AND GALVANIZED.

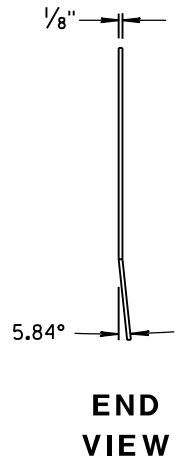
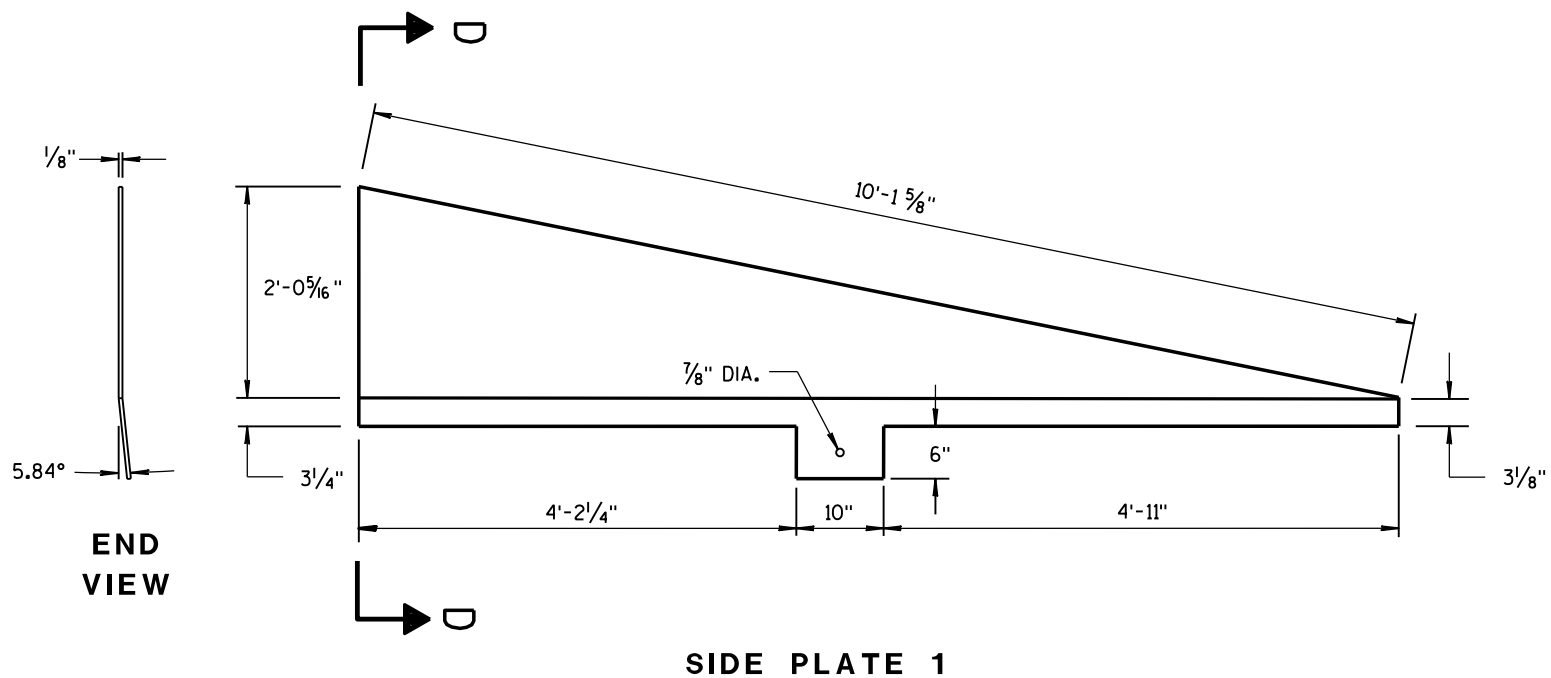
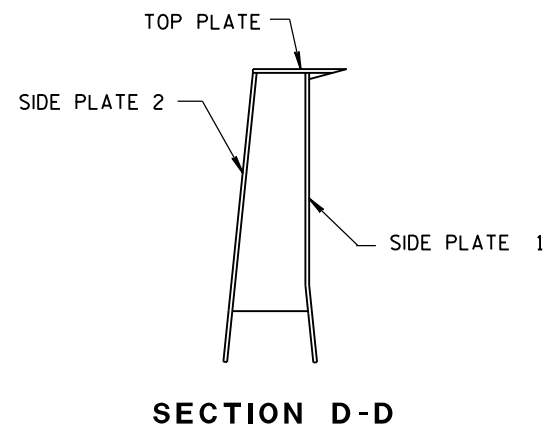
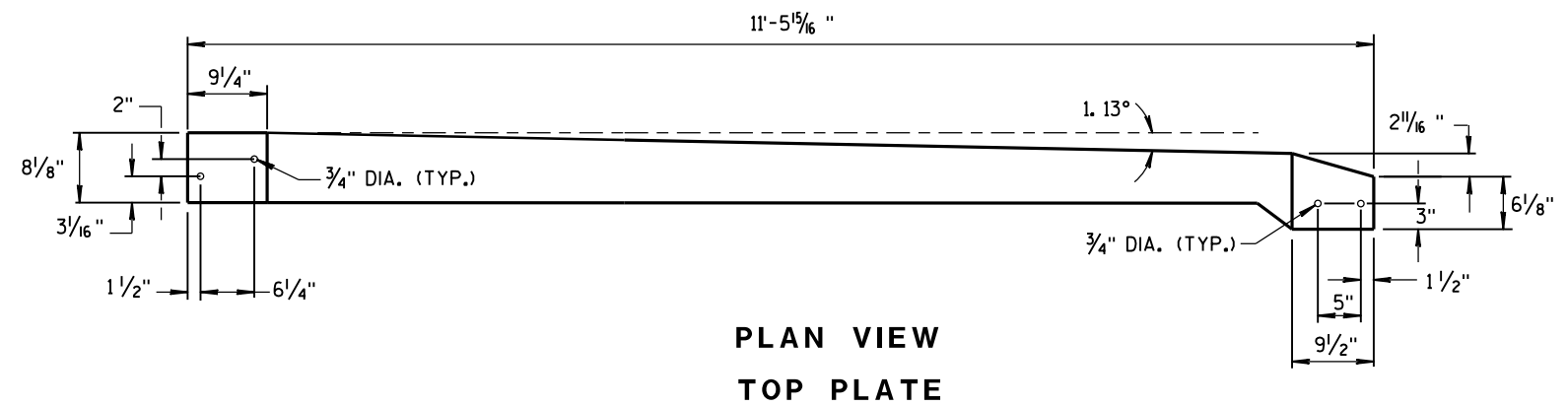
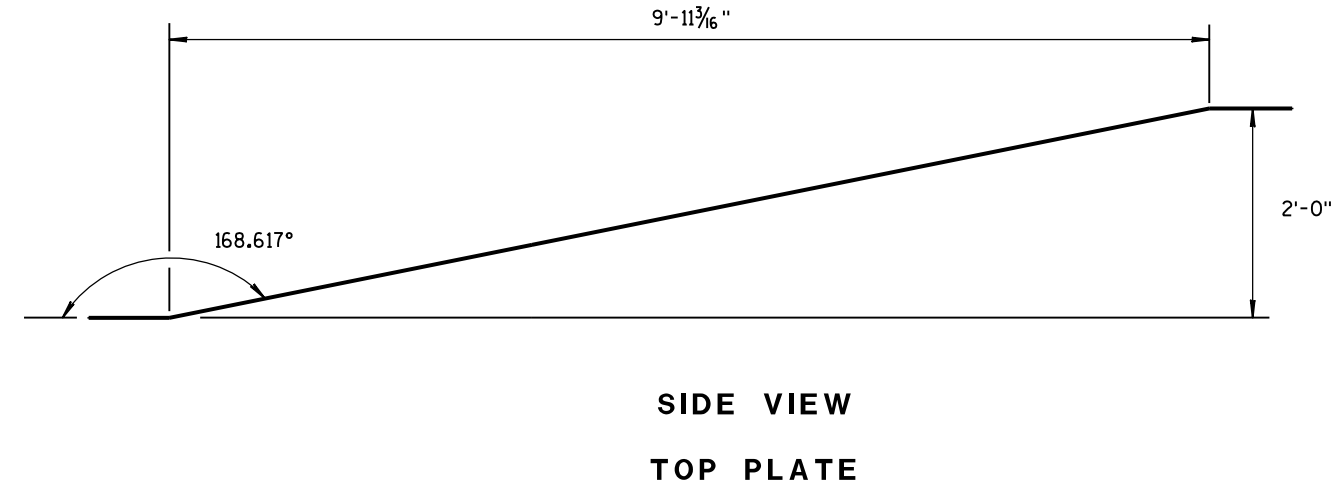
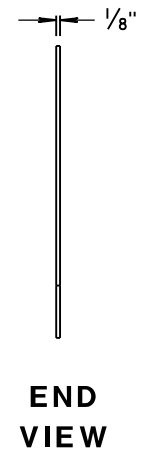
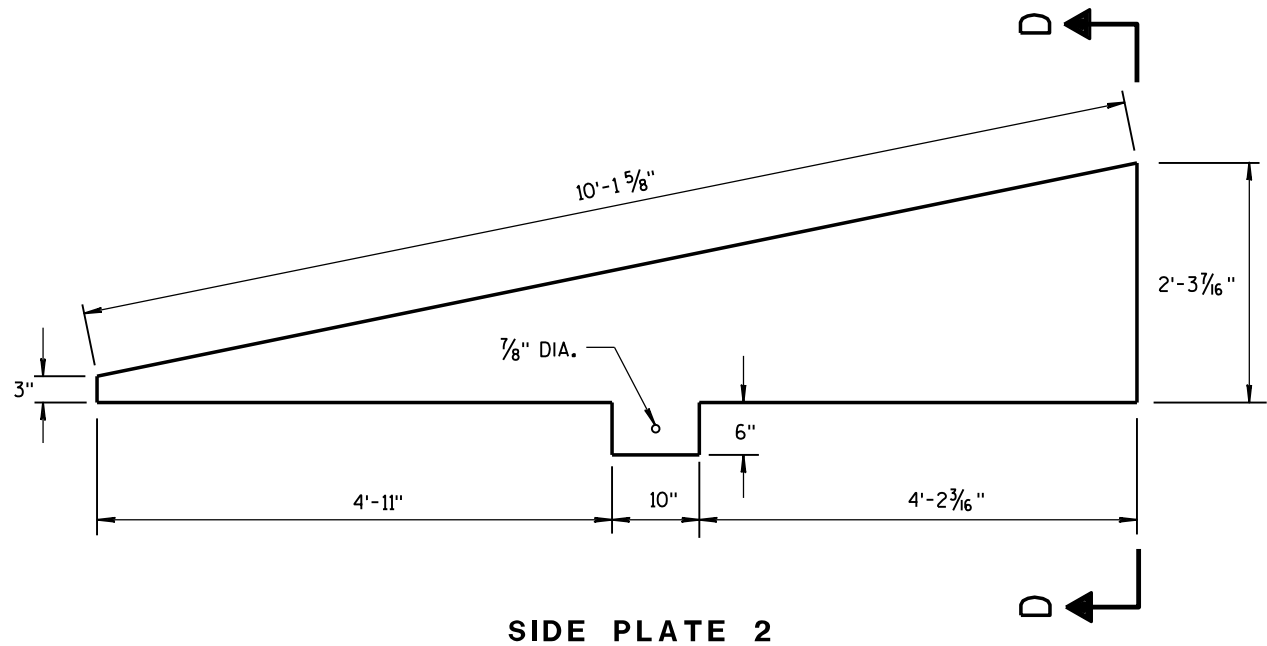
GUSSETS AND END PLATE ARE STITCH WELDED ON 3 SIDES. TWO TRIANGULAR SIDE PLATES ARE STITCH WELDED TO TOP PLATE, END PLATE AND GUSSETS.



CAP DETAILS FOR TEMPORARY CONCRETE BARRIER TO 56" PERMANENT CONCRETE BARRIER

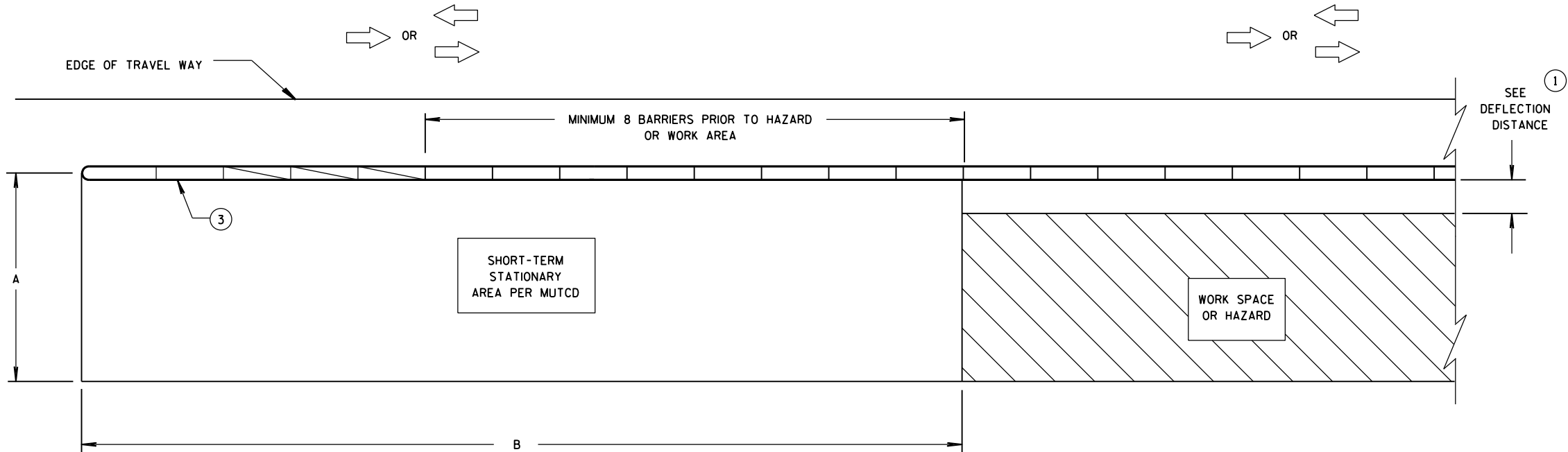
CONCRETE BARRIER
TEMPORARY PRECAST, 12'-6"

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

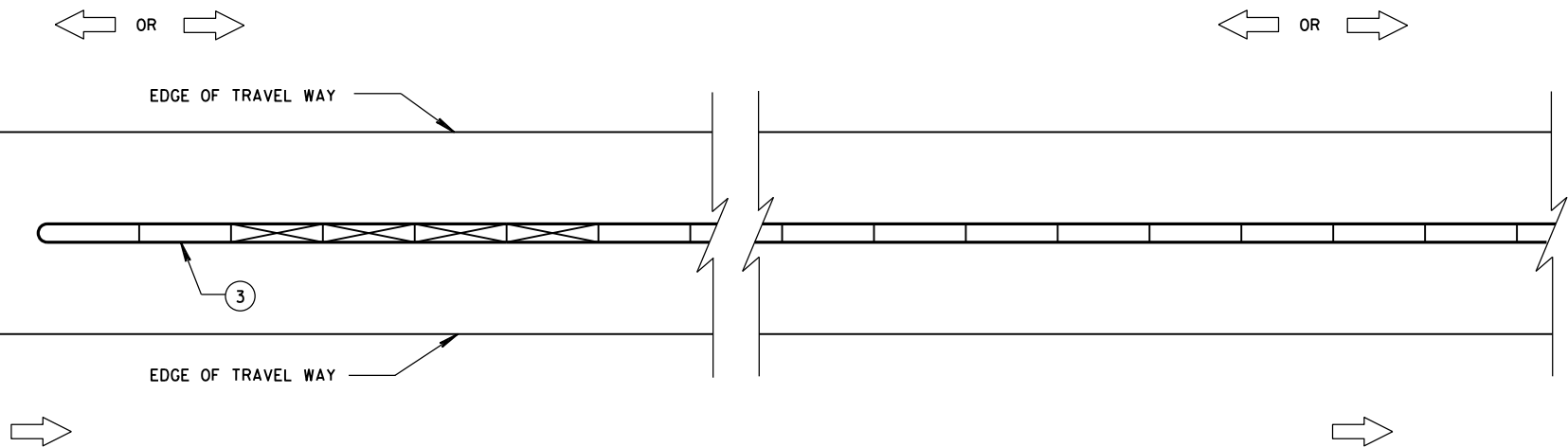


CAP DETAILS FOR TEMPORARY CONCRETE BARRIER TO 56" PERMANENT CONCRETE BARRIER

CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"		
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION		
APPROVED June 2014 DATE	/S/ Jerry H. Zoog ROADWAY STANDARD ENGINEER	45 INT
FHWA		



CRASH CUSHION/SAND BARREL ARRAY AND TEMPORARY BARRIER
INSTALLATION FOR TRAFFIC ON ONE SIDE OF BARRIER



CRASH CUSHION/SAND BARREL ARRAY AND TEMPORARY BARRIER
INSTALLATION FOR TRAFFIC ON BOTH SIDES OF BARRIER

GENERAL NOTES

SEE STANDARD DETAIL DRAWING 14B7 FOR MORE INFORMATION.

DETAILS PROVIDE A GENERAL LAYOUT OF TEMPORARY CONCRETE BARRIER, CRASH CUSHIONS, SAND BARREL ARRAYS AND TIE DOWN TRANSITIONS. DETAILS PROVIDED MAY NOT FIT ALL POSSIBLE SITUATIONS OR SITE CONDITIONS. SEE OTHER SECTIONS OF THE CONTRACT OR PROJECT ENGINEER FOR MORE DETAILS.

ADDITIONAL TEMPORARY BARRIER MAY BE REQUIRED TO PROTECT TRAVELING PUBLIC FROM HAZARDS, CONTRACTOR'S OPERATIONS OR TO CONTROL TRAFFIC.

TEMPORARY BARRIER MAY BE REQUIRED TO BE ANCHORED TO PAVEMENT OR BRIDGE DECK.

FOR DETAILS ON CRASH CUSHION OR SAND BARREL ARRAYS SEE OTHER SECTIONS OF THE PLAN AND MANUFACTURE'S DETAILS.

SLOPES LEADING TO TEMPORARY BARRIER, CRASH CUSHION OR SAND BARREL ARRAY ARE 10:1 OR LESS.

① FOR DEFLECTION INFORMATION SEE STANDARD DETAIL DRAWING 14B7.

② VALUES PROVIDED MAY NOT FIT ALL POSSIBLE SITUATIONS OR SITE CONDITIONS. SEE OTHER SECTIONS OF THE CONTRACT OR PROJECT ENGINEER FOR MORE DETAILS.

③ ANCHOR TEMPORARY BARRIER ACCORDING TO CRASH CUSHION OR SAND BARREL MANUFACTURER'S RECOMMENDATIONS. IF MANUFACTURER'S RECOMMENDATIONS ARE NOT PROVIDED, ANCHOR 3 PINS ON TRAFFIC SIDE.

DIMENSION A TABLE ②

FACILITY	POSTED SPEED MPH	DIMENSION A	
		MIN. FT	MAX. FT
FREEWAY/EXPRESSWAY	ALL	15	20
NON-FREEWAY/EXPRESSWAY	GREATER THAN OR EQUAL TO 45	10	15
NON-FREEWAY/EXPRESSWAY	LESS THAN 45	8	10
AADT LESS THAN 1,500	ALL	8	10

DIMENSION B TABLE ②

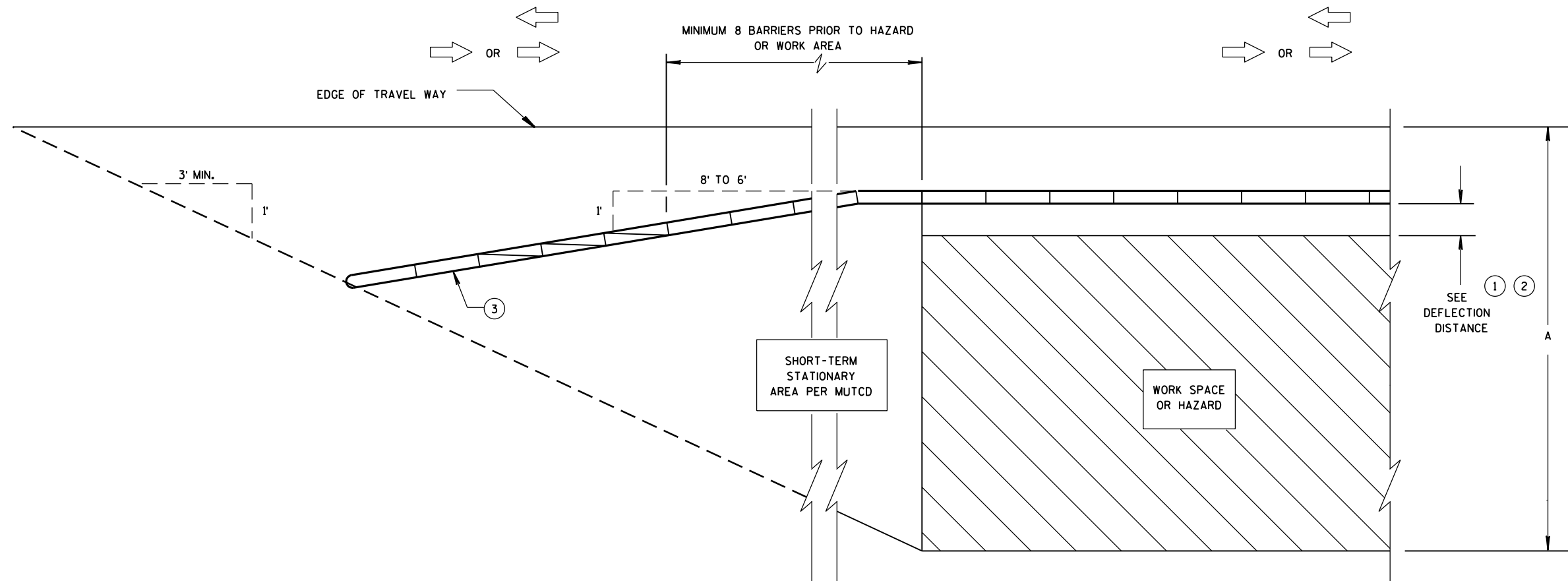
POSTED SPEEDS MPH	DIMENSION B FT
20	115
25	155
30	200
35	250
40	305
45	360
50	425
55	495
60	570
65	645

LEGEND

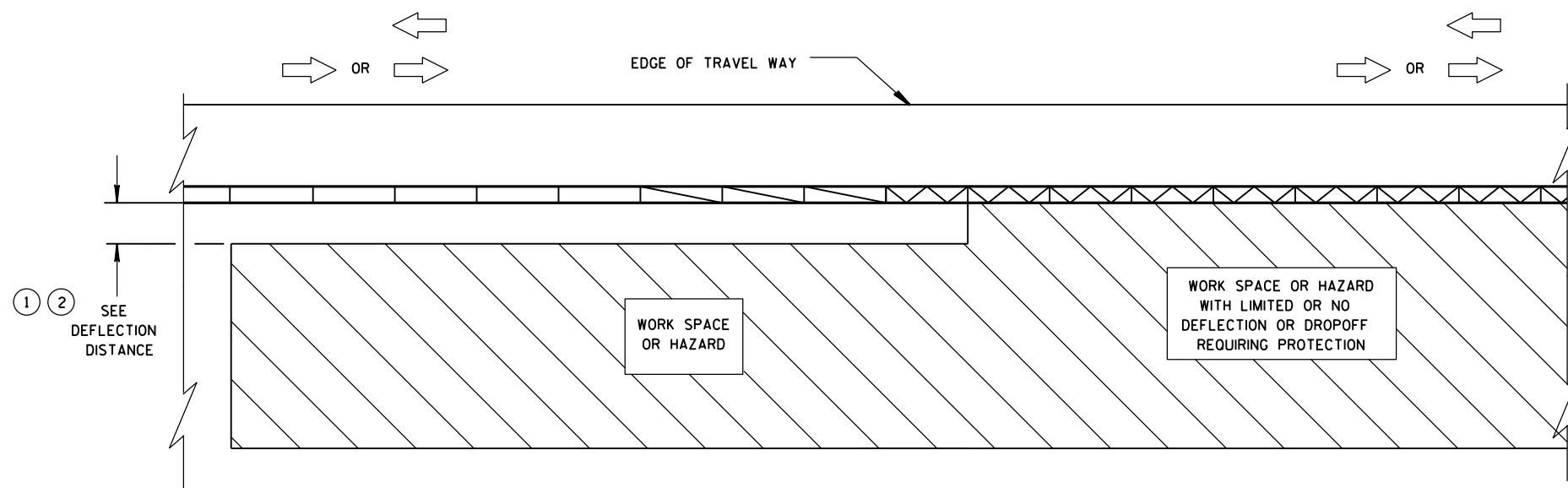
- DIRECTION OF TRAVEL →
- CRASH CUSHION OR SAND BARREL ARRAY
- SEE FREE STANDING TRANSITION TO TIED-DOWN SYSTEM DETAILS
- SEE BI-DIRECTIONAL TRANSITION TO TIED-DOWN SYSTEM DETAILS
- 3 PINS PLACED ON TRAFFIC SIDE OF BARRIER
- PERMANENT CONCRETE BARRIER OR CONCRETE PARAPET
- FREE STANDING TEMPORARY BARRIER

CRASH CUSHION/SAND BARREL
ARRAY AND OTHER TEMPORARY
BARRIER LAYOUT DETAILS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



**CRASH CUSHION/SAND BARREL ARRAY AND TEMPORARY BARRIER
INSTALLATION FOR TRAFFIC ON ONE SIDE - FLARED INSTALLATION**



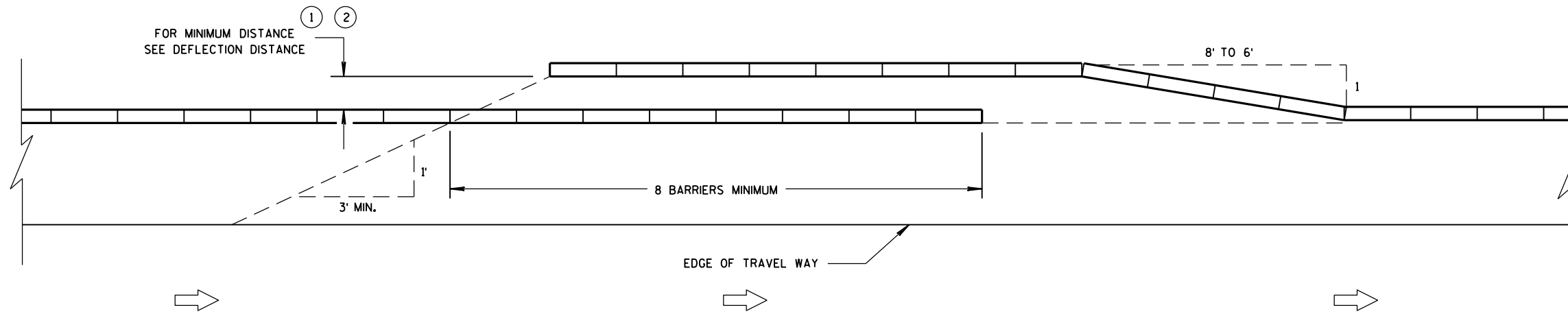
**TRANSITION FROM FREE STANDING TEMPORARY BARRIER
TO ANCHORED BARRIER**

LEGEND

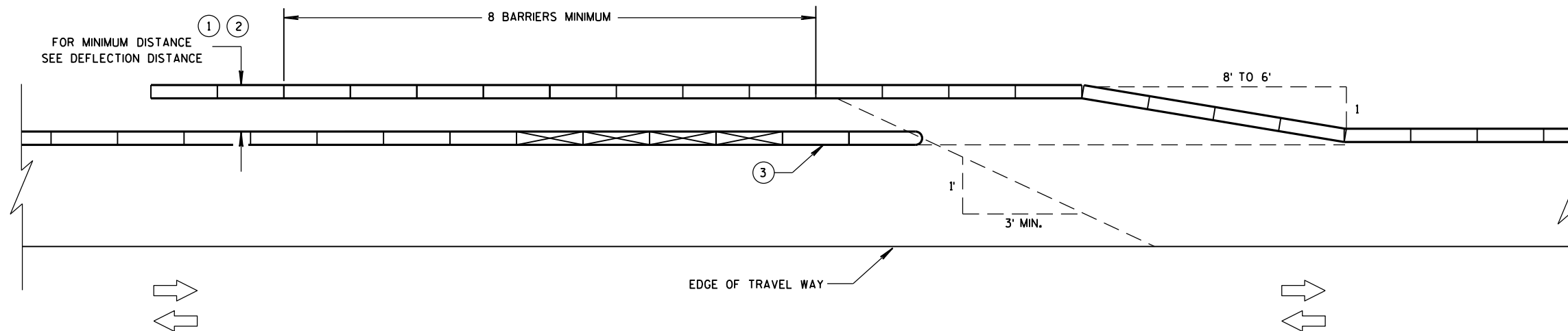
DIRECTION OF TRAVEL	
CRASH CUSHION OR SAND BARREL ARRAY	
SEE FREE STANDING TRANSITION TO TIED-DOWN SYSTEM DETAILS	
SEE BI-DIRECTIONAL TRANSITION TO TIED-DOWN SYSTEM DETAILS	
3 PINS PLACED ON TRAFFIC SIDE OF BARRIER	
PERMANENT CONCRETE BARRIER OR CONCRETE PARAPET	
FREE STANDING TEMPORARY BARRIER	

**CRASH CUSHION/SAND BARREL
ARRAY AND OTHER TEMPORARY
BARRIER LAYOUT DETAILS**

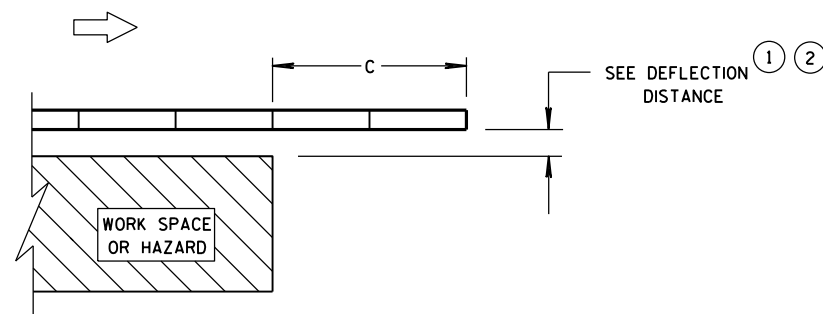
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION⁴⁷



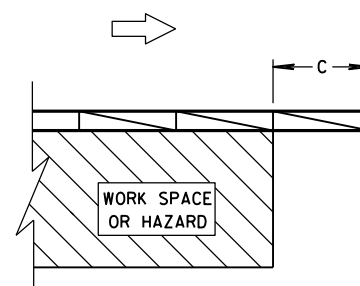
TEMPORARY BARRIER OVERLAP - ONE-WAY TRAFFIC



TEMPORARY BARRIER OVERLAP - TWO-WAY TRAFFIC



**ENDING TEMPORARY BARRIER
DOWNSTREAM - UNANCHORED**



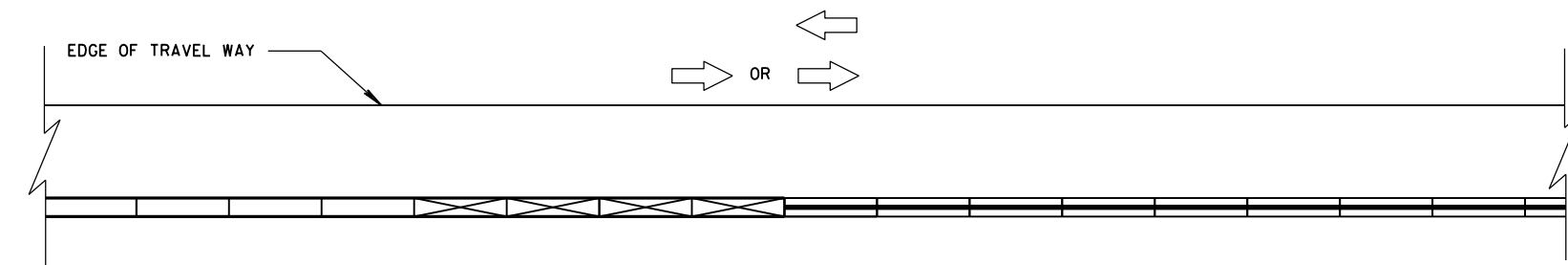
**ENDING TEMPORARY BARRIER
DOWNSTREAM - ANCHORED**

LEGEND

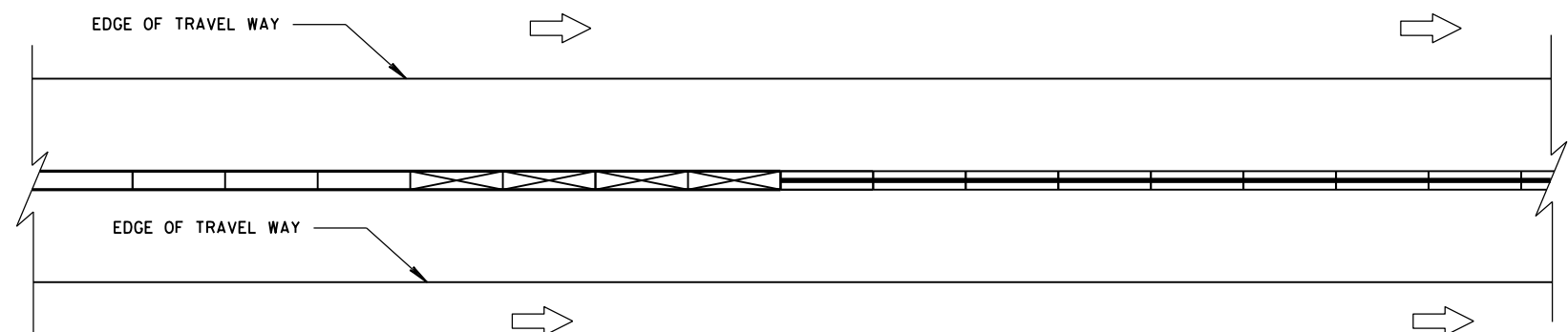
DIRECTION OF TRAVEL	
CRASH CUSHION OR SAND BARREL ARRAY	
SEE FREE STANDING TRANSITION TO TIED-DOWN SYSTEM DETAILS	
SEE BI-DIRECTIONAL TRANSITION TO TIED-DOWN SYSTEM DETAILS	
3 PINS PLACED ON TRAFFIC SIDE OF BARRIER	
PERMANENT CONCRETE BARRIER OR CONCRETE PARAPET	
FREE STANDING TEMPORARY BARRIER	

**CRASH CUSHION/SAND BARREL
ARRAY AND OTHER TEMPORARY
BARRIER LAYOUT DETAILS**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



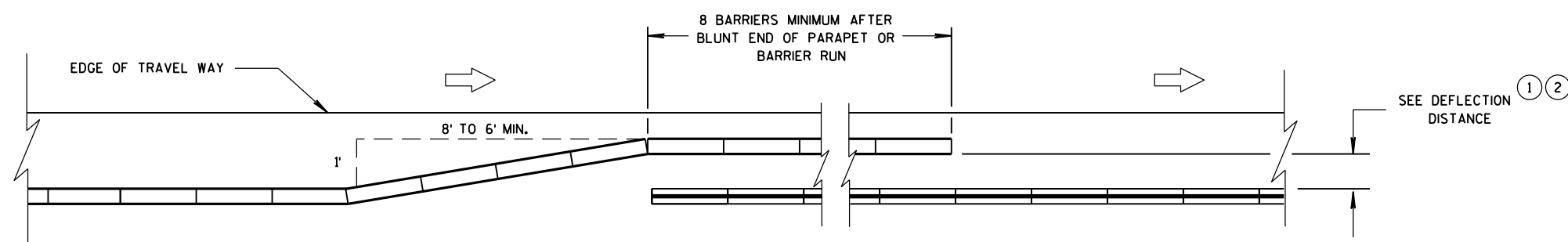
**CONNECTING TEMPORARY BARRIER TO PERMANENT
CONCRETE BARRIER-TRAFFIC ON ONE SIDE**



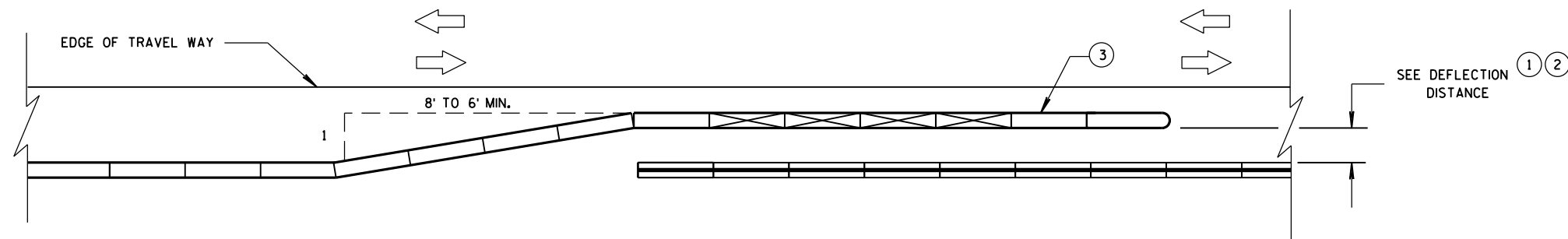
**CONNECTING TEMPORARY BARRIER TO PERMANENT
CONCRETE BARRIER-TRAFFIC ON BOTH SIDES**

LEGEND

DIRECTION OF TRAVEL	
CRASH CUSHION OR SAND BARREL ARRAY	
SEE FREE STANDING TRANSITION TO TIED-DOWN SYSTEM DETAILS	
SEE BI-DIRECTIONAL TRANSITION TO TIED-DOWN SYSTEM DETAILS	
3 PINS PLACED ON TRAFFIC SIDE OF BARRIER	
PERMANENT CONCRETE BARRIER OR CONCRETE PARAPET	
FREE STANDING TEMPORARY BARRIER	



**OVERLAPPING TEMPORARY BARRIER AND PERMANENT BARRIER -
ONE WAY TRAFFIC**

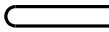
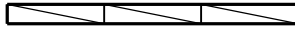
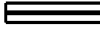
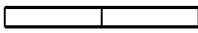


**OVERLAPPING TEMPORARY BARRIER AND PERMANENT BARRIER -
TWO WAY TRAFFIC**

**CRASH CUSHION/SAND BARREL
ARRAY AND OTHER TEMPORARY
BARRIER LAYOUT DETAILS**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

LEGEND

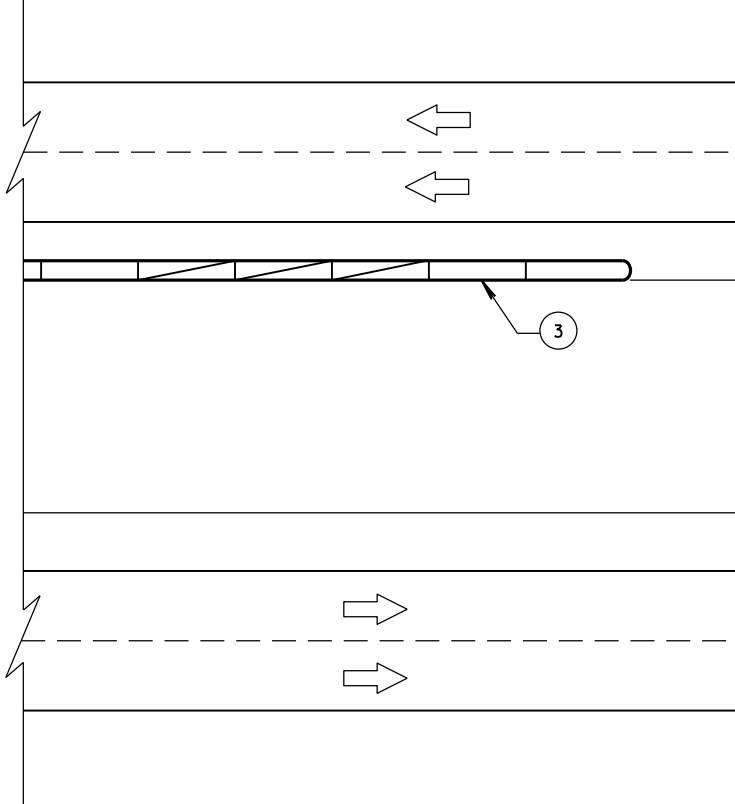
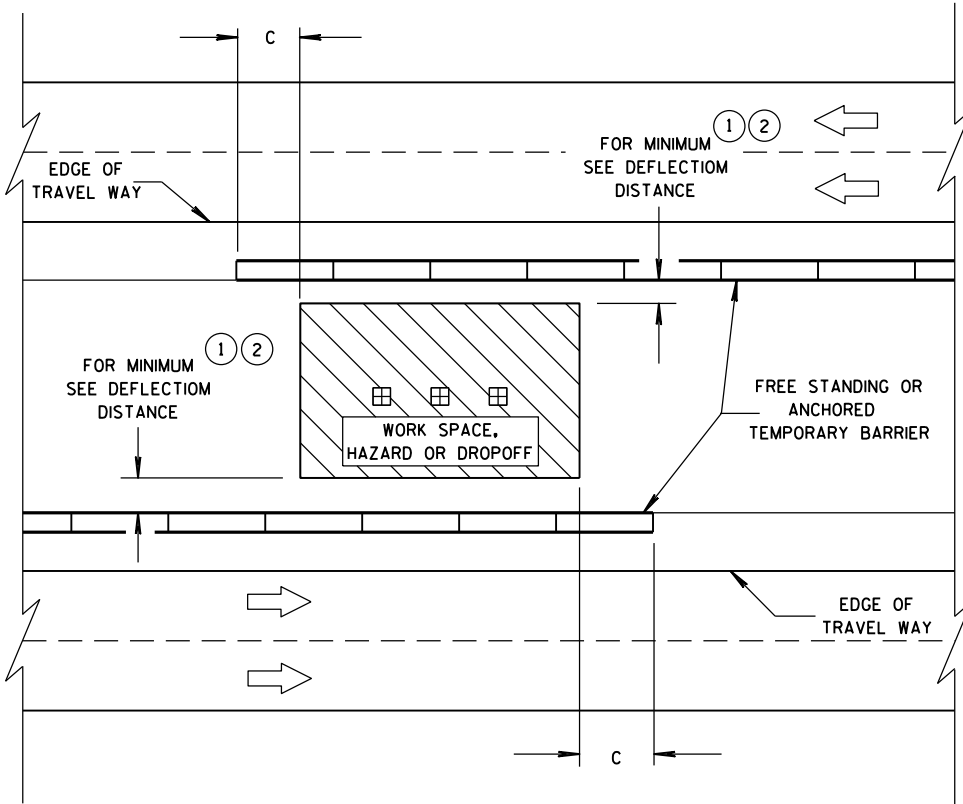
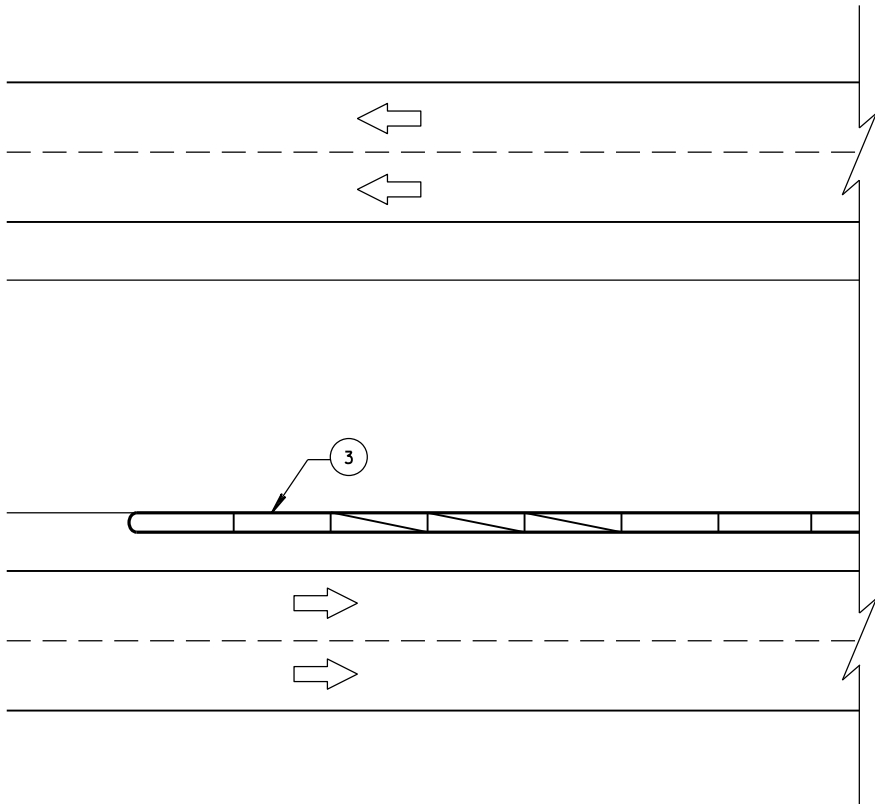
- DIRECTION OF TRAVEL 
- CRASH CUSHION OR SAND BARREL ARRAY 
- SEE FREE STANDING TRANSITION TO TIED-DOWN SYSTEM DETAILS 
- SEE BI-DIRECTIONAL TRANSITION TO TIED-DOWN SYSTEM DETAILS 
- 3 PINS PLACED ON TRAFFIC SIDE OF BARRIER 
- PERMANENT CONCRETE BARRIER OR CONCRETE PARAPET 
- FREE STANDING TEMPORARY BARRIER 

DIMENSION C TABLE

2

AVAILABLE DEFLECTION DISTANCE	MINIMUM LENGTH OF BARRIER BEYOND HAZARD FT
GREATER THAN 8'	12.5
LESS THAN OR EQUAL TO 8' BUT GREATER THAN 4'	50
LESS THAN OR EQUAL TO 4'	100

6



6

CRASH CUSHION/SAND BARREL
ARRAY AND OTHER TEMPORARY
BARRIER LAYOUT DETAILS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June, 2015 /S/ Jerry H. Zogg
DATE ROADWAY STANDARDS 50 ENT
FHWA ENGINEER

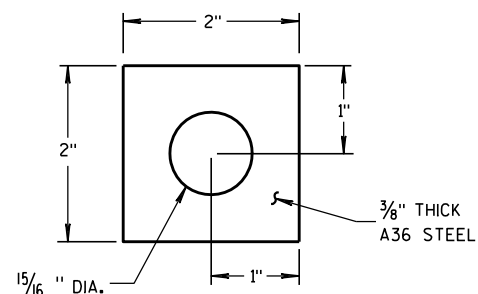
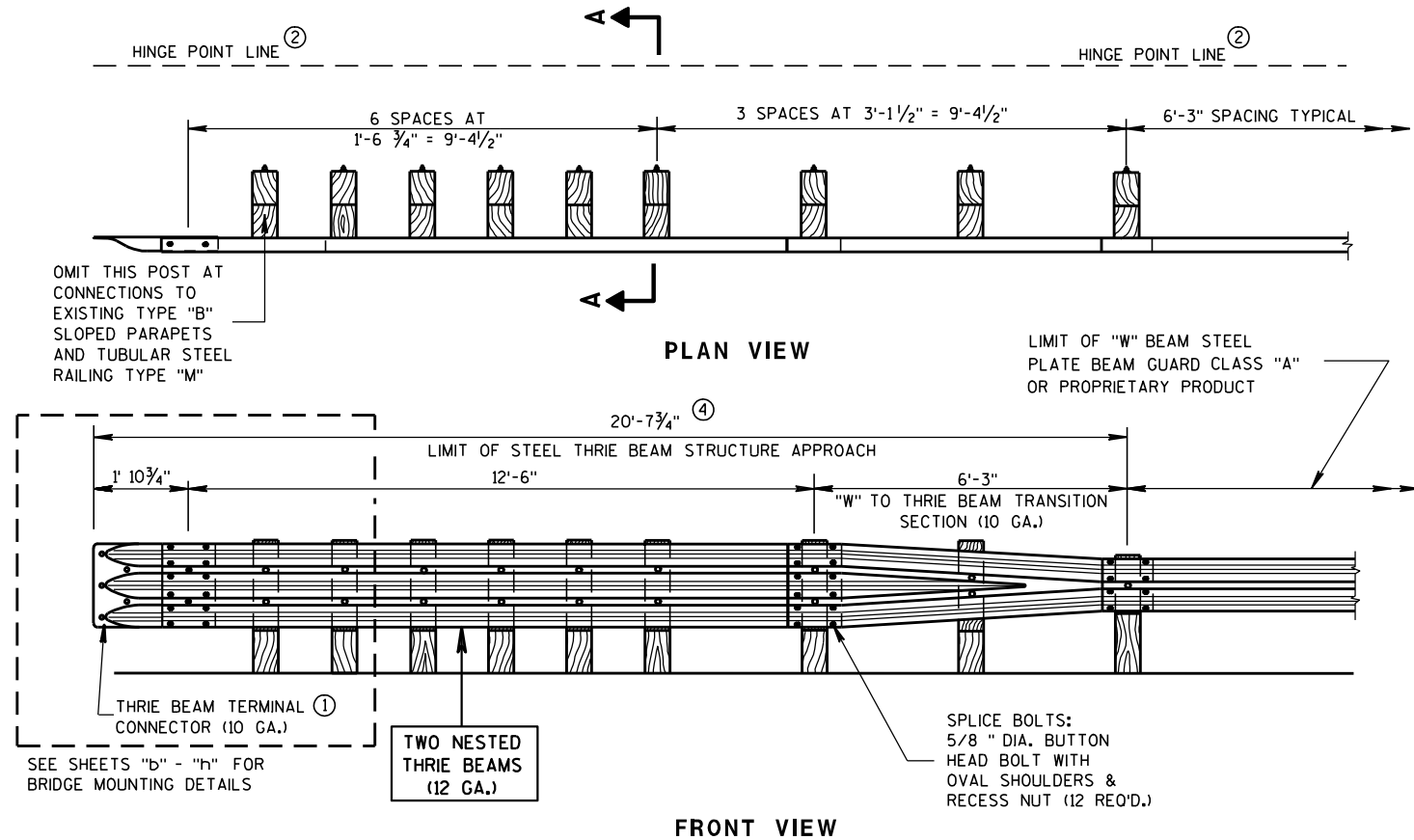


PLATE WASHER DETAIL

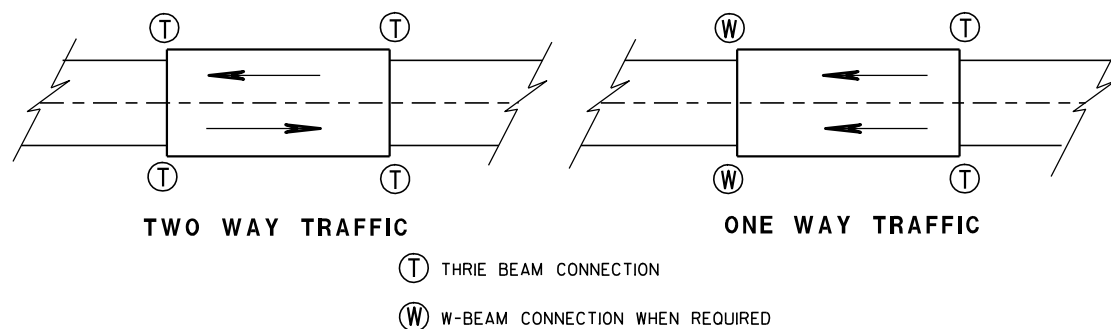
GENERAL NOTES

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

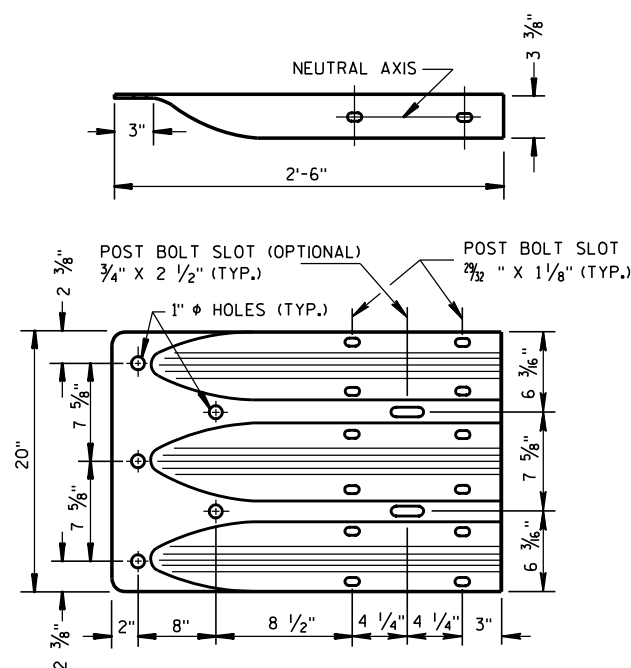
DO NOT USE STEEL POSTS AND NOTCHED PLASTIC BLOCKOUTS IN THE STEEL THRIE BEAM STRUCTURAL APPROACH AND THE TRANSITION SECTION OF STEEL PLATE BEAM GUARD, CLASS "A" INSTALLATIONS.

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

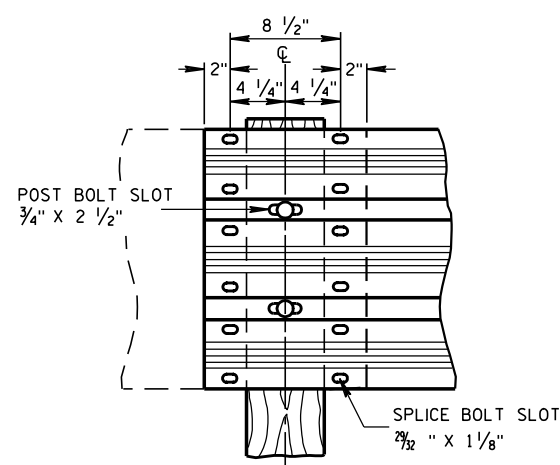
- ① BRIDGE RAILING TYPE "W" DOES NOT REQUIRE A TERMINAL CONNECTOR.
- ② MINIMUM EMBEDMENT SHALL BE 4'-0". WHERE EXISTING CONDITIONS DO NOT PERMIT THE APPROPRIATE EARTHWORK SHOWN ON THE PLAN TYPICAL SECTIONS OR DETAILS, THE ENGINEER MAY ALLOW THE REDUCTION OR ELIMINATION OF THE 2 FOOT DISTANCE TO THE HINGE POINT. OTHERWISE BUILD AS THE PLAN SHOWS OR AS THE ENGINEER DIRECTS. IF THE 2 FOOT DISTANCE TO THE HINGE POINT IS REDUCED OR ELIMINATED, INCREASE THE POST EMBEDMENT DEPTH TO 4'-6" OR MORE.
- ③ POST BOLTS ARE 5/8" DIAMETER ASTM A307 BUTTON HEAD BOLT. A POST BOLT REQUIRES A 5/8" DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX AND A 5/8" DIAMETER F844 FLAT WASHER. LENGTH OF POST BOLT MAY VARY.
- ④ ALL WOOD POSTS MUST BE 6" X 8" AND AT LEAST 7'-0" LONG.



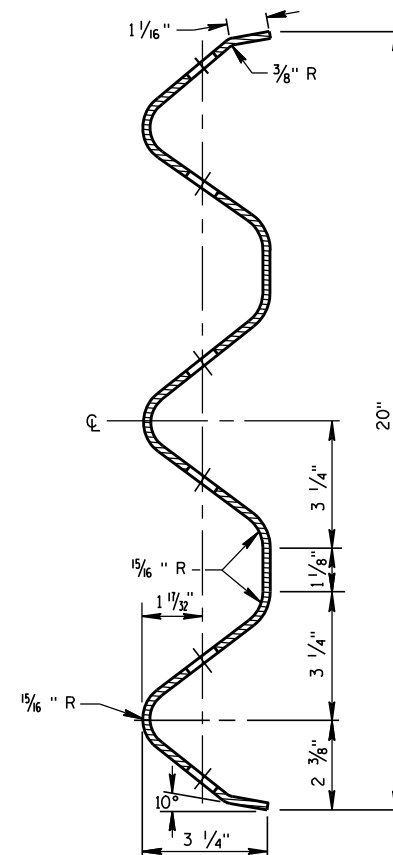
TYPICAL LOCATIONS OF THRIE BEAM AND W-BEAM CONNECTIONS TO BRIDGE



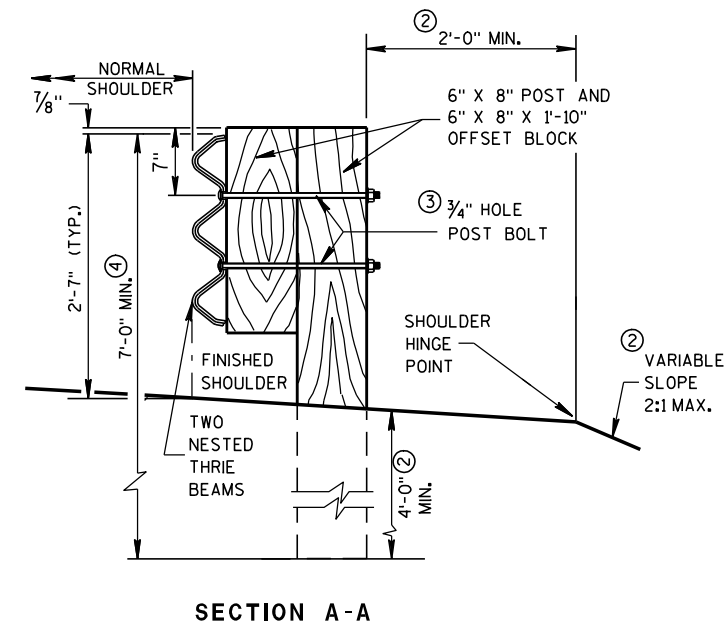
THRIE BEAM TERMINAL CONNECTOR



THRIE BEAM SPLICE



SECTION THRU THRIE BEAM RAIL ELEMENT



STEEL THRIE BEAM STRUCTURE APPROACH

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

8/31/2012

DATE

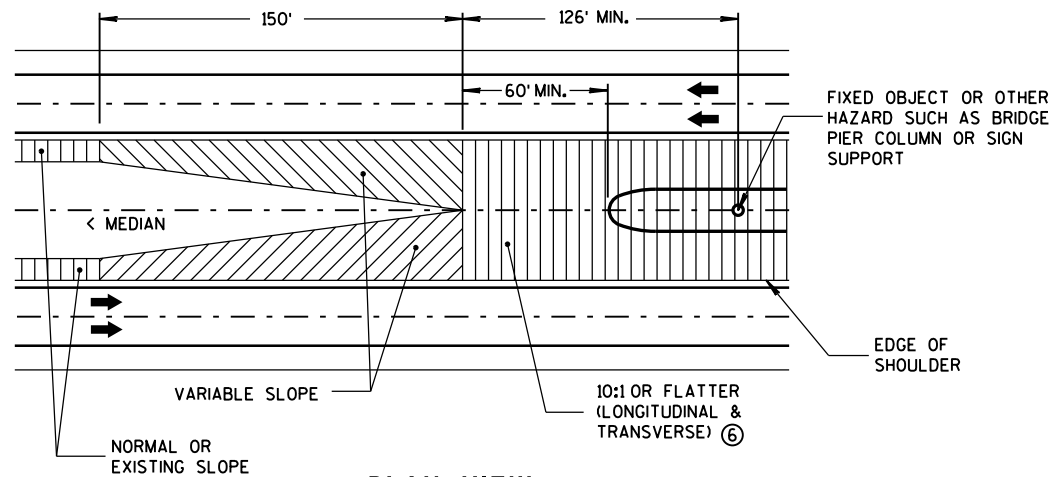
/S/ Jerry H. Zoon

ROADWAY STANDARDS 51

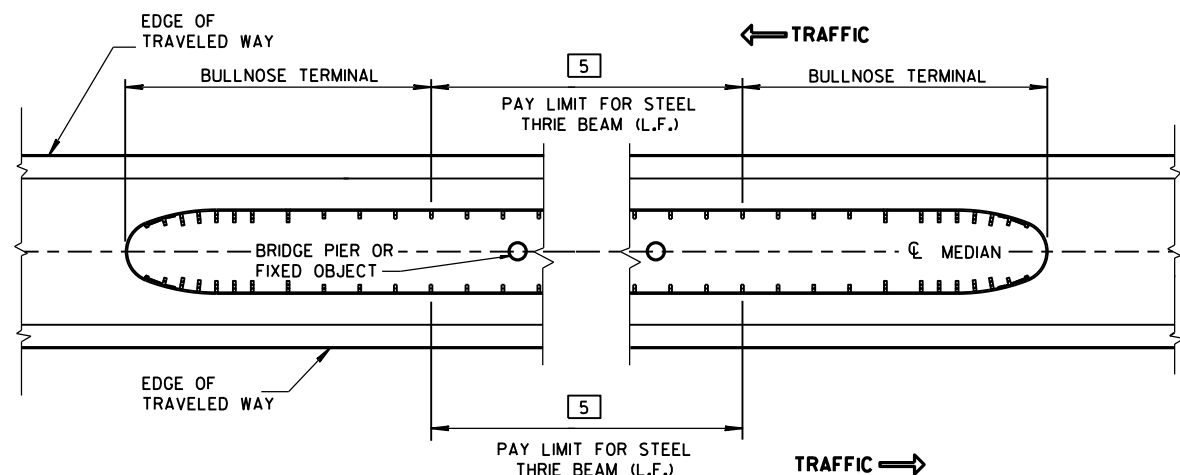
ENGINEER

INT

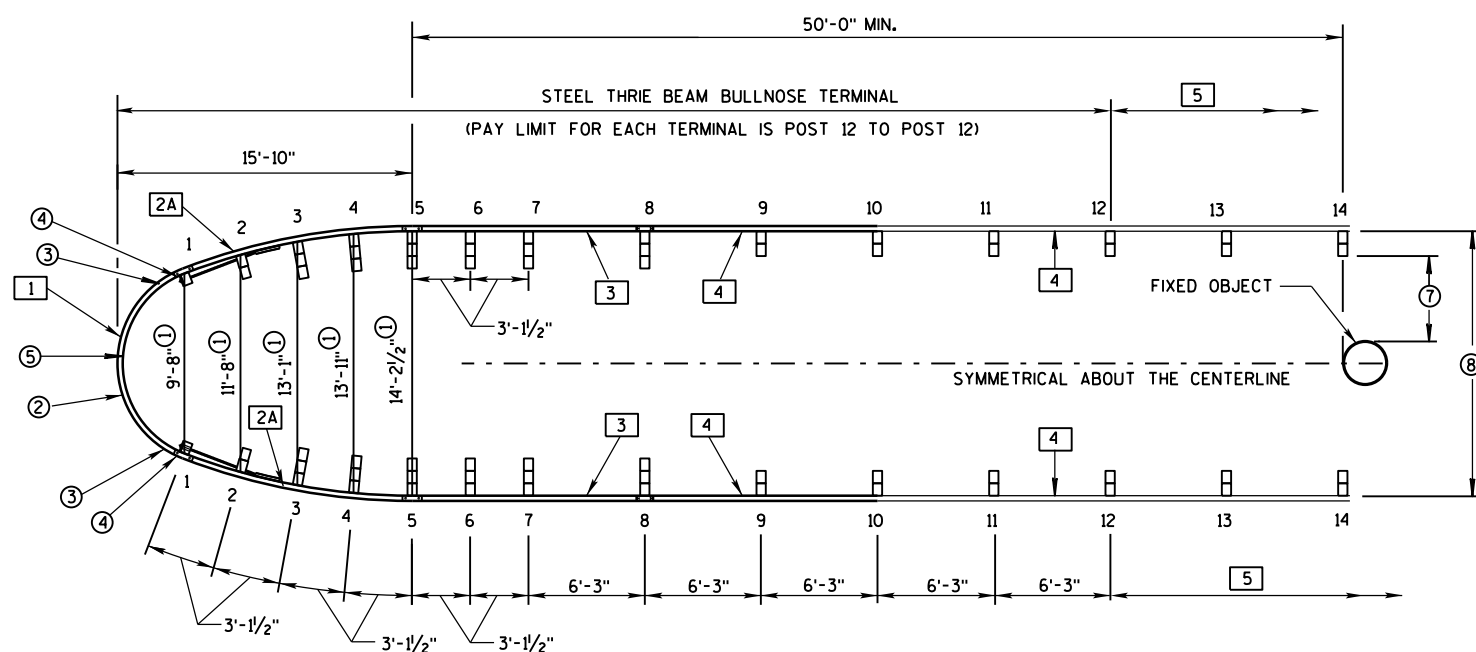
FHWA



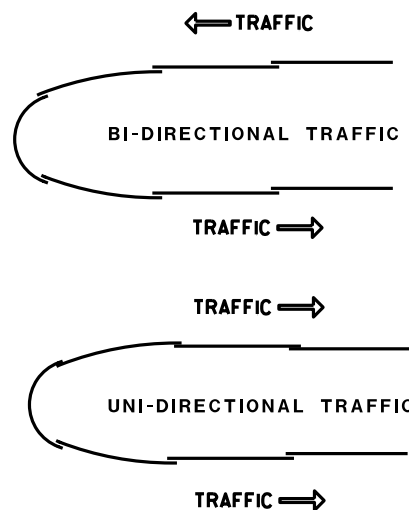
**PLAN VIEW
GRADING AT BULLNOSE
(ALL INSTALLATIONS)**



MEDIAN HAZARD PROTECTION PAY LIMITS



**PLAN VIEW
TYPICAL BULLNOSE LAYOUT**



**LAPPING DETAIL
(ALL INSTALLATIONS)**

GENERAL NOTES

SEE STANDARD DETAIL DRAWINGS 14 B 26a-e.

PUNCHING, DRILLING, CUTTING OR WELDING IS NOT PERMITTED ON ANY GALVANIZED THRIE BEAM ACCESSORY OR TERMINAL ACCESSORY.

OTHER ANCHOR CABLE ASSEMBLIES HAVING 40,000 LBS. MIN. BREAKING STRENGTH MAY BE USED.

FOR POSTS 2 THROUGH 14, IF POST CANNOT BE INSTALLED AT SPECIFIED LOCATION 1 EXTRA STANDARD WOOD BLOCK MAY BE ADDED.

THE USE OF STEEL POSTS ON THE BULLNOSE IS NOT ALLOWED.

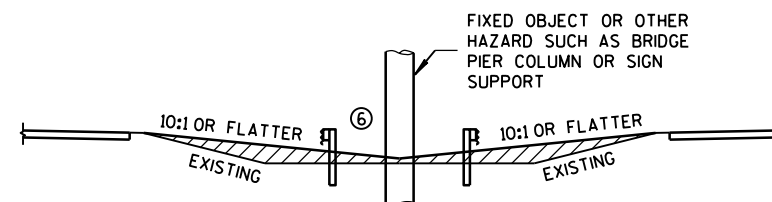
BOLTS AND ALL NECESSARY HARDWARE SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A 153.

ALL THRIE BEAM SHALL BE 12-GAUGE.

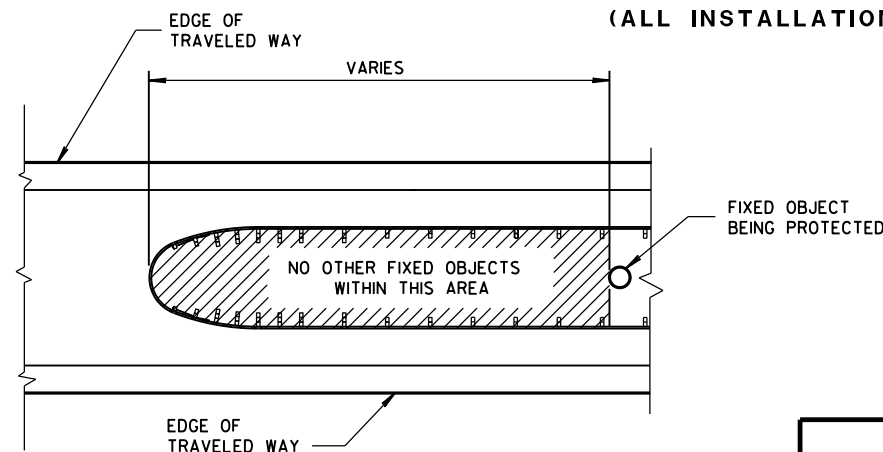
IF ROCK IS ENCOUNTERED, REMOVE ROCK TO FULL DEPTH OF POST PLUS 2 1/2" AND 12" DIAMETER AROUND POST. SEE SDD 14B15 OR SDD 14B42 FOR MORE INFORMATION.

- 1 SLOTTED THRIE BEAM RAIL NO.1. (POST 1 TO POST 1)
- 2A SLOTTED THRIE BEAM RAIL NO.2A. (POST 1 TO POST 5)
- 3 SLOTTED THRIE BEAM RAIL NO.3. (POST 5 TO POST 8)
- 4 UNBENT STANDARD THRIE-BEAM RAIL NO.4. (POST 8 TO POST 10 & POST 10 TO POST 12)
- 5 BEYOND POST 12: CONSTRUCT STEEL THRIE BEAM - USE UNBENT STANDARD THRIE BEAM RAIL NO.5.

- ① DIMENSIONS ARE FROM BACK OF RAIL TO BACK OF RAIL WHERE RAIL IS BOLTED TO POST OR BLOCK.
- ② U-BOLT CABLE CLIPS (3 PER CABLE) SPACED OUT ON NOSE, TO HOLD CABLE TO BACKSIDE OF THE RAIL.
- ③ NOSE CABLE W/SWAGGED END BUTTONS.
- ④ NOSE CABLE ANCHOR PLATE (BACKSIDE OF SPLICE).
- ⑤ THE SLACK IN THE NOSE CABLES SHALL BE EVENLY DISTRIBUTED BETWEEN THE CABLE CLIP FASTENERS AND POST NO.1 ON EITHER SIDE OF THE NOSE.
- ⑥ PROVIDE SUITABLE DRAINAGE WHEN MEDIAN GRADING IMPEDES NORMAL FLOW.
- ⑦ 2'-6" MINIMUM LATERAL DISTANCE BETWEEN BACK OF POST AND FACE OF FIXED OBJECT.
- ⑧ MAXIMUM WIDTH OF SYSTEM IS 14'-2 1/2" MEASURED FROM BACK OF RAIL TO BACK OF RAIL WHERE RAIL IS BOLTED TO A POST OR BLOCK.



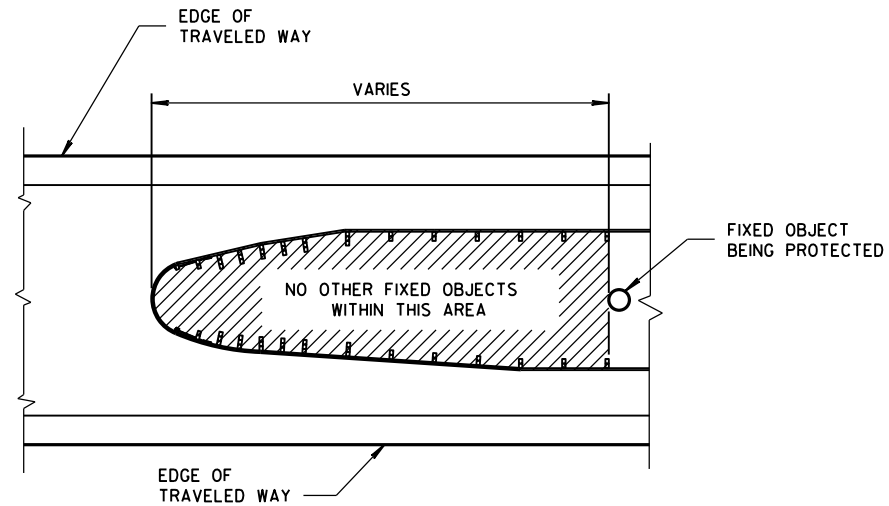
**MEDIAN GRADING SECTION
(ALL INSTALLATIONS)**



**HAZARD FREE
AREA INSIDE BULLNOSE**

**STEEL THRIE BEAM
BULLNOSE TERMINAL**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



HAZARD FREE AREA INSIDE BULLNOSE

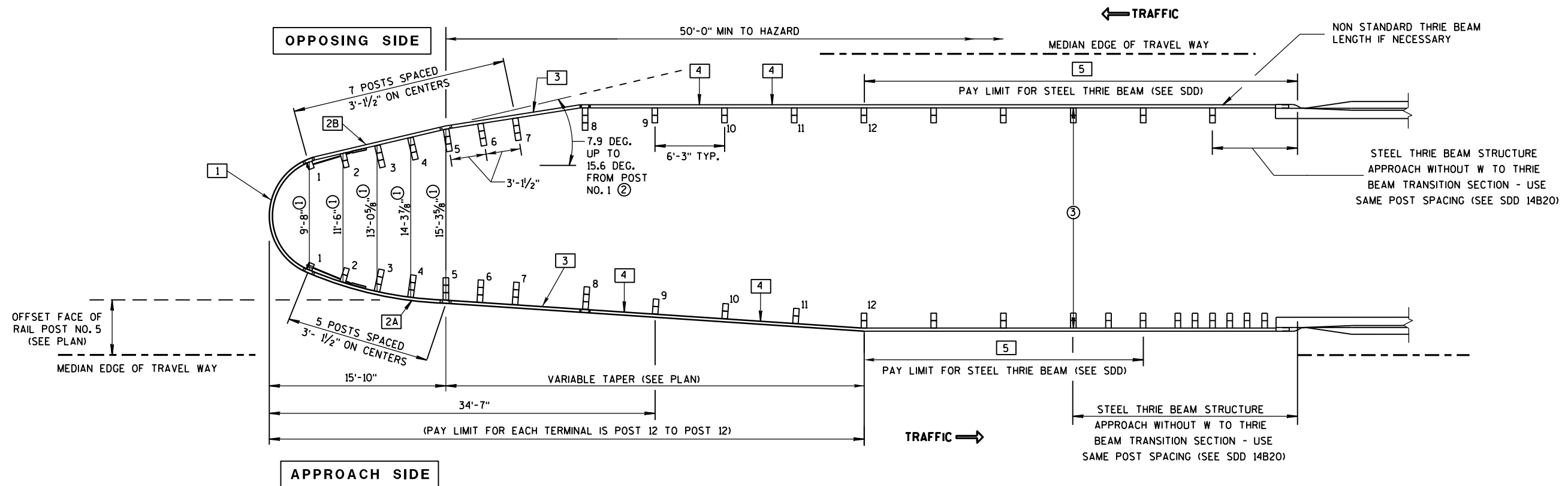
GENERAL NOTES

SEE STANDARD DETAIL DRAWINGS 14 B 26a-e.

FOR POSTS 2 THROUGH 14, IF POST CANNOT BE INSTALLED AT SPECIFIED LOCATION 1 EXTRA STANDARD WOOD BLOCK MAY BE ADDED.

- [1] SLOTTED THRIE BEAM RAIL NO. 1, (POST 1 TO POST 1)
- [2A] SLOTTED THRIE BEAM RAIL NO. 2A, (POST 1 TO POST 5)
- [2B] SLOTTED THRIE BEAM RAIL NO. 2B, (POST 1 TO POST 5)
- [3] SLOTTED THRIE BEAM RAIL NO. 3, (POST 5 TO POST 8)
- [4] UNBENT STANDARD THRIE-BEAM RAIL NO. 4, (POST 8 TO POST 10 & POST 10 TO POST 12)
- [5] BEYOND POST 12: CONSTRUCT STEEL THRIE BEAM - USE UNBENT STANDARD THRIE BEAM RAIL NO. 5.

- ① DIMENSIONS ARE FROM BACK OF RAIL TO BACK OF RAIL WHERE RAIL IS BOLTED TO POST.
- ② TAPER BEGINNING AT POST NO. 1 MUST CONTINUE TO POST NO. 5. PAST POST NO. 5 TAPER MAY END OR BE EXTENDED UP TO 15.6 DEGREES TO FIT VARIABLE MEDIAN WIDTHS. (SEE PLAN)
- ③ FOR MEDIANS WIDER THAN 14'-2½" MEASURED FROM BACK OF RAIL TO BACK OF RAIL WHERE RAIL IS BOLTED TO A POST OR BLOCK.



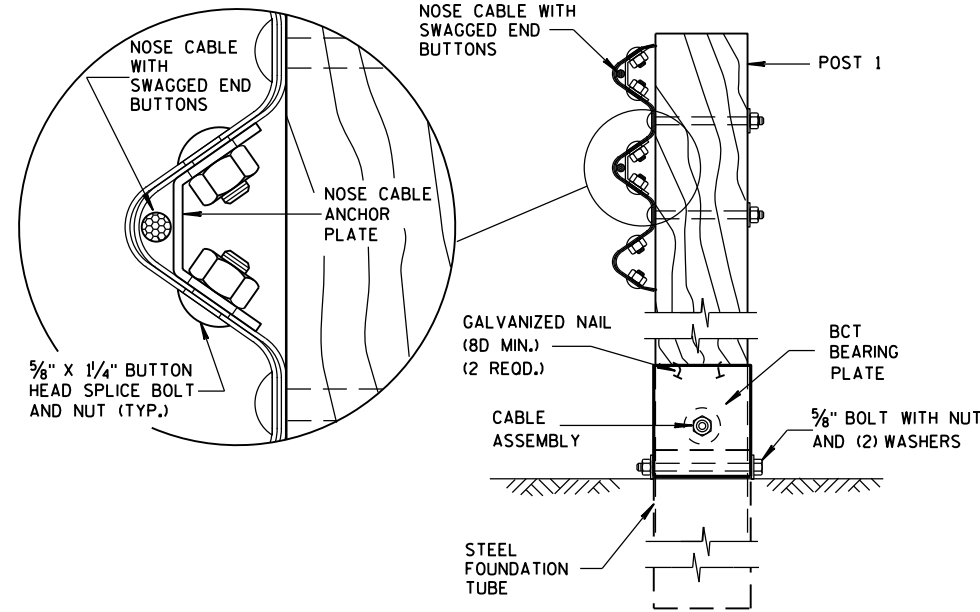
PLAN VIEW

WIDENED BULLNOSE DESIGN

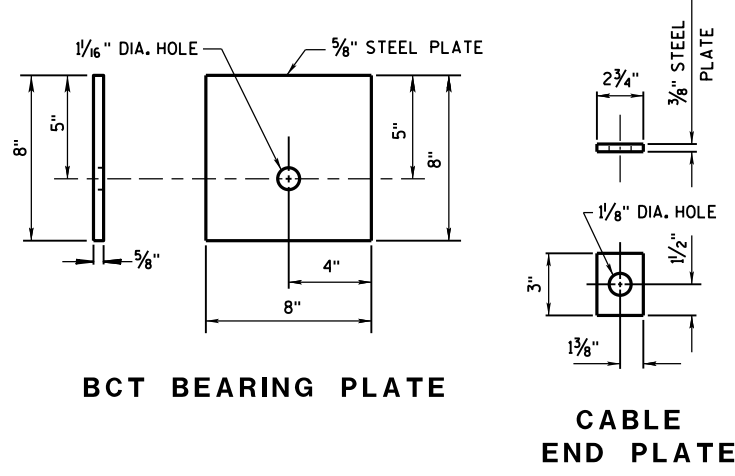
(INSTALLATION AT TWIN BRIDGES WITH BI-DIRECTIONAL TRAFFIC SHOWN)

STEEL THRIE BEAM
BULLNOSE TERMINAL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

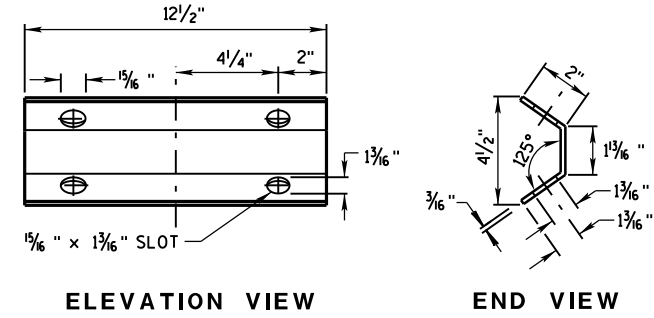


NOSE CABLE ASSEMBLY AT POST NO. 1



BCT BEARING PLATE

CABLE END PLATE

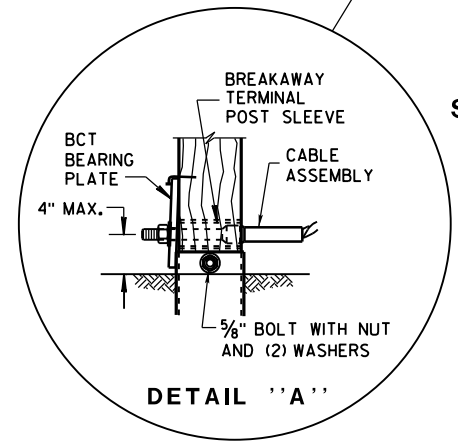


ELEVATION VIEW

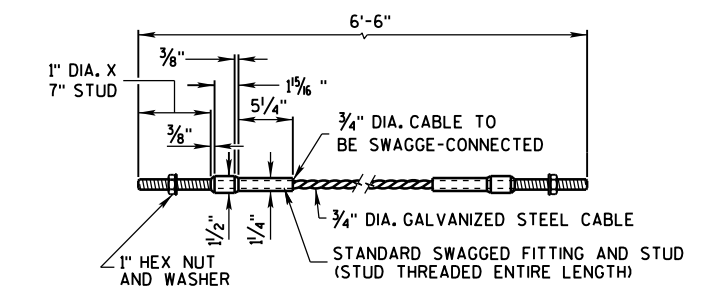
END VIEW

NOSE CABLE ANCHOR PLATE

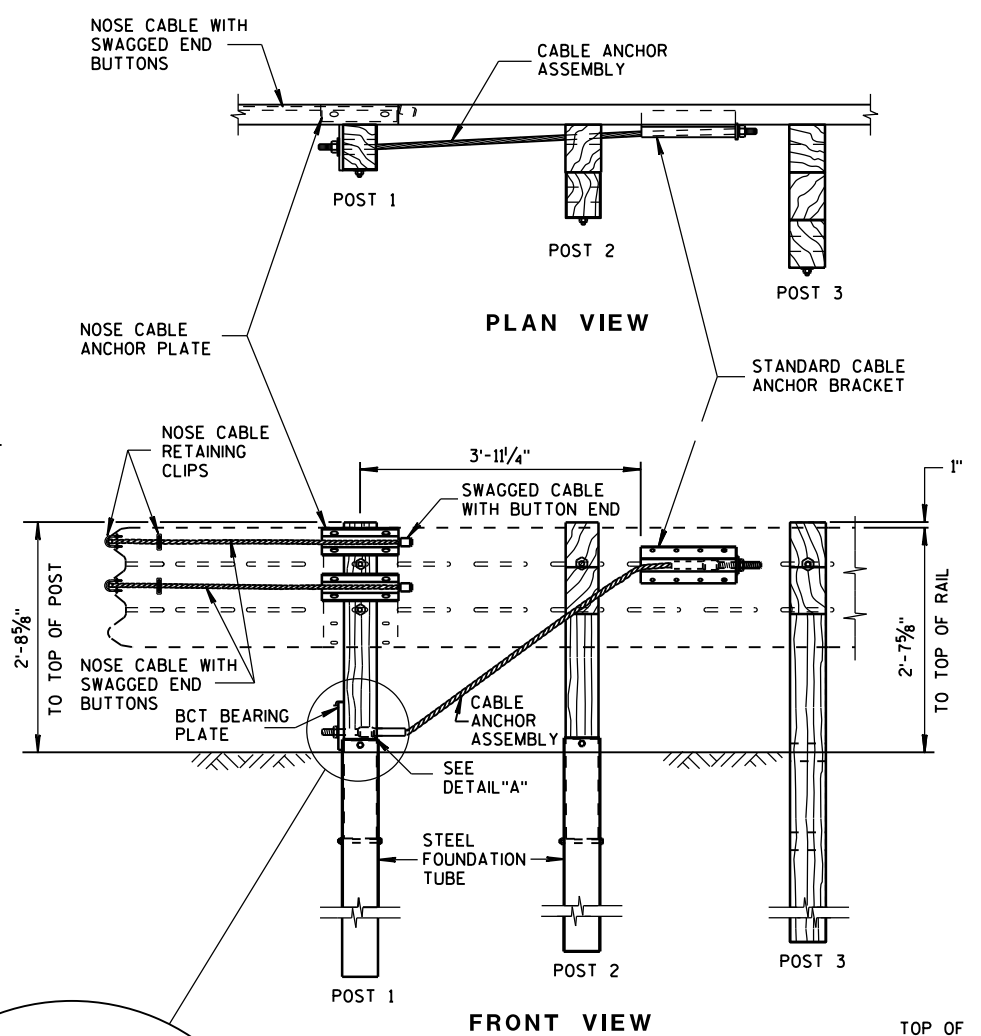
NOTE: 12 1/2" x 5 13/16" x 3/16" STEEL PLATE (A306)



DETAIL "A"



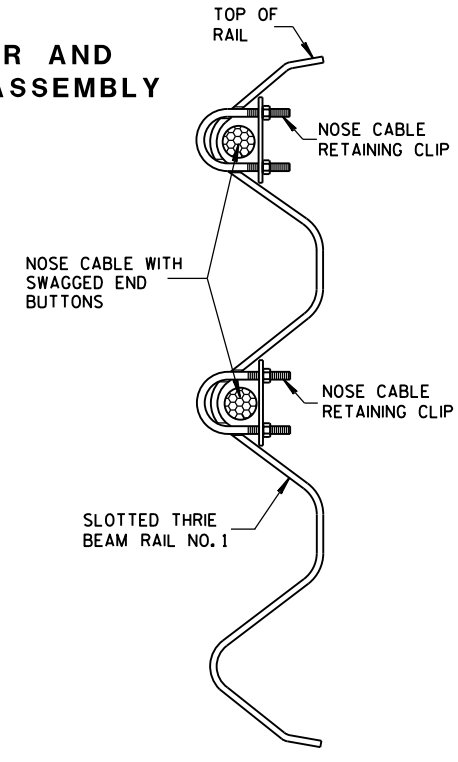
DETAILS OF CABLE ANCHOR ASSEMBLY



PLAN VIEW

FRONT VIEW

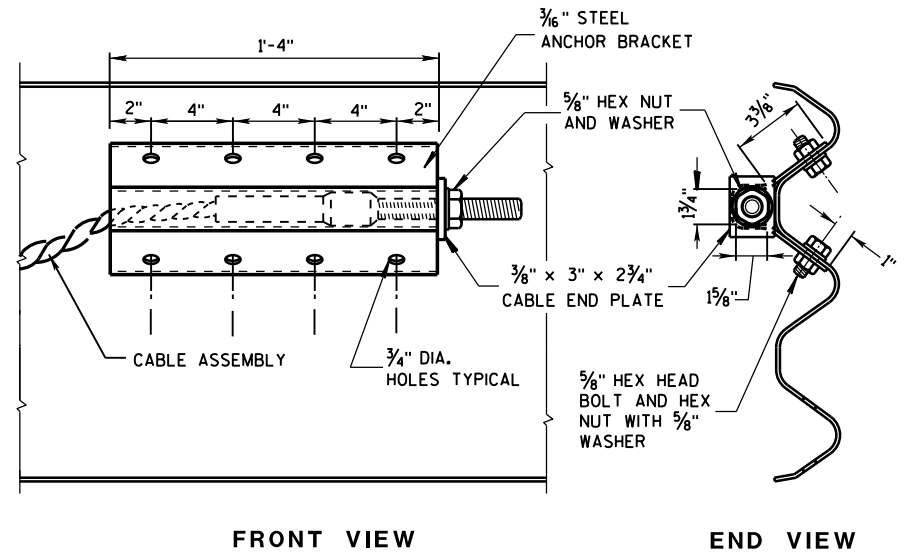
NOSE CABLE ANCHOR AND STANDARD BRACKET ASSEMBLY



PLACEMENT OF NOSE CABLE RETAINING CLIP

GENERAL NOTES

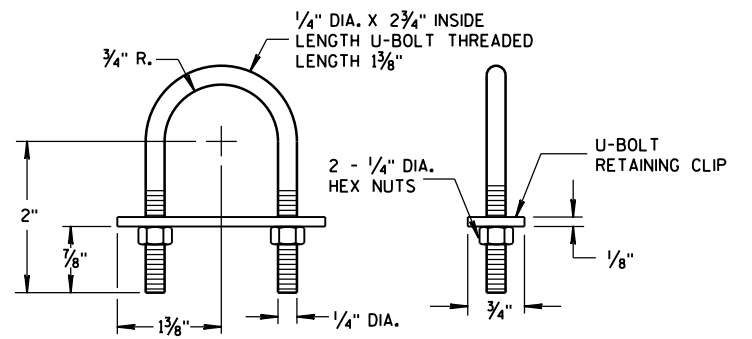
SEE STANDARD DETAIL DRAWINGS 14 B 26a-e.



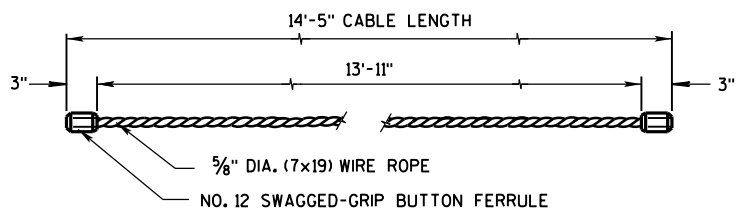
FRONT VIEW

END VIEW

DETAILS OF CABLE ANCHOR BRACKET



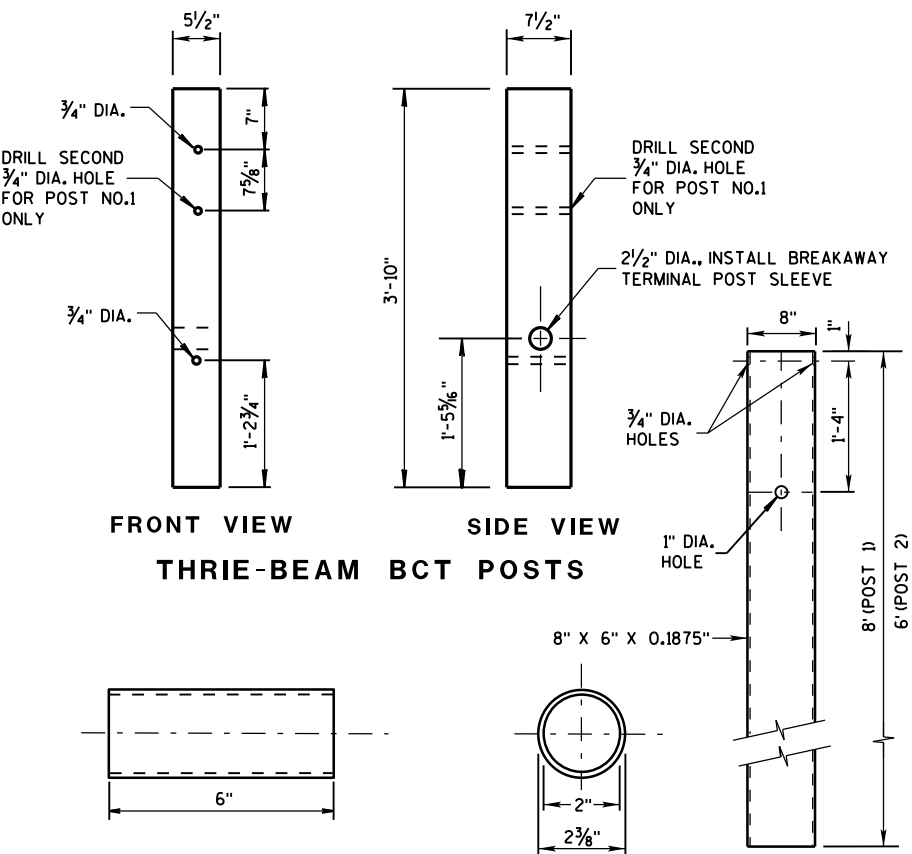
NOSE CABLE RETAINING CLIP



NOSE CABLE WITH SWAGGED END BUTTONS

TO PULL OFF SWAGGED GRIP BUTTON FERRULE FROM WIRE ROPE REQUIRES A FORCE EQUAL TO 98% OF THE WIRE ROPE'S BREAKING STRENGTH.

STEEL THRIE BEAM BULLNOSE TERMINAL
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION

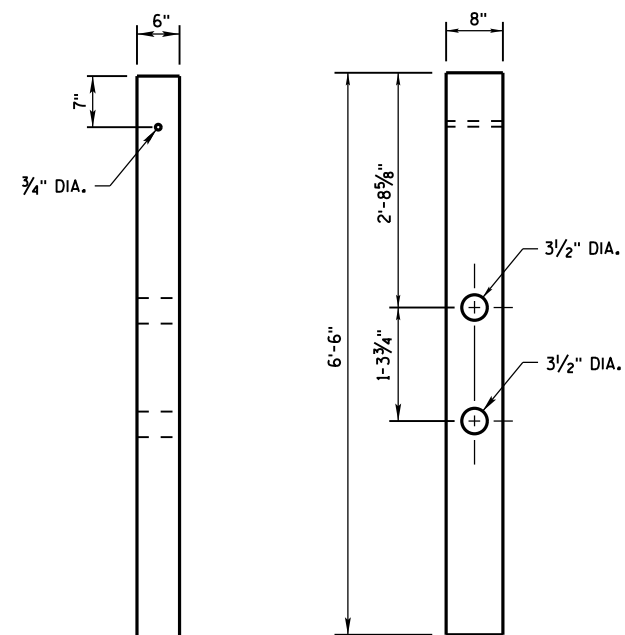


FRONT VIEW
THRIE-BEAM BCT POSTS

SIDE VIEW

BREAKAWAY TERMINAL
POST SLEEVE

STEEL
FOUNDATION TUBE



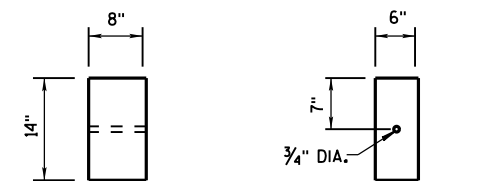
FRONT VIEW

SIDE VIEW

THRIE-BEAM CRT WOOD POSTS

GENERAL NOTES

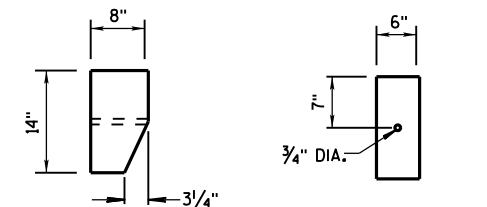
SEE STANDARD DETAIL DRAWINGS 14 B 26a-e.



SIDE VIEW

FRONT VIEW

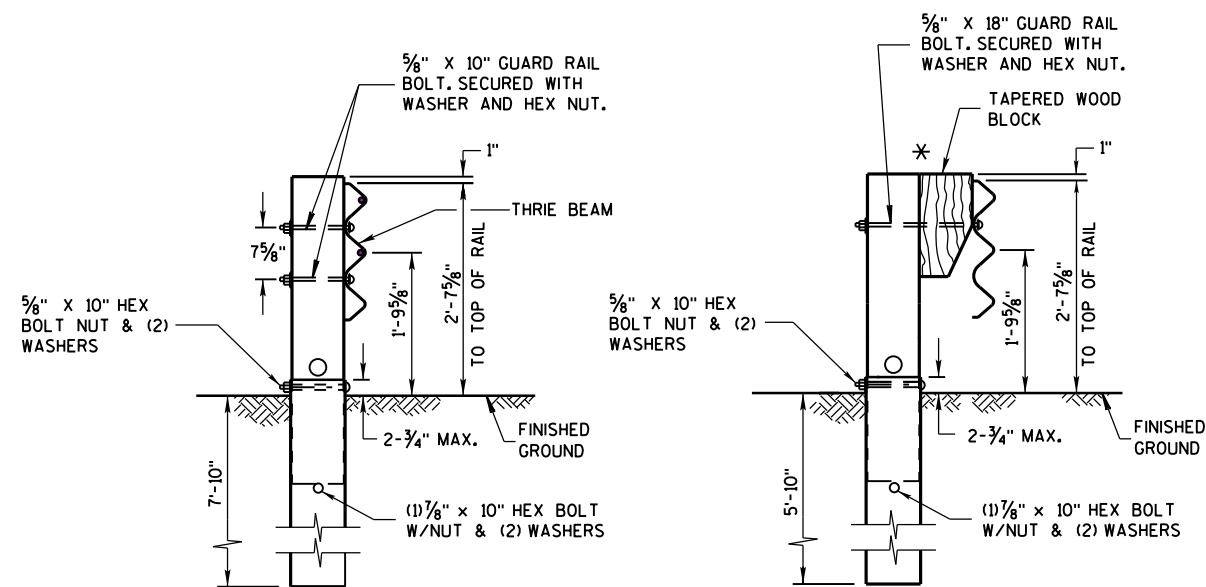
STANDARD WOOD BLOCK



SIDE VIEW

FRONT VIEW

TAPERED WOOD BLOCK

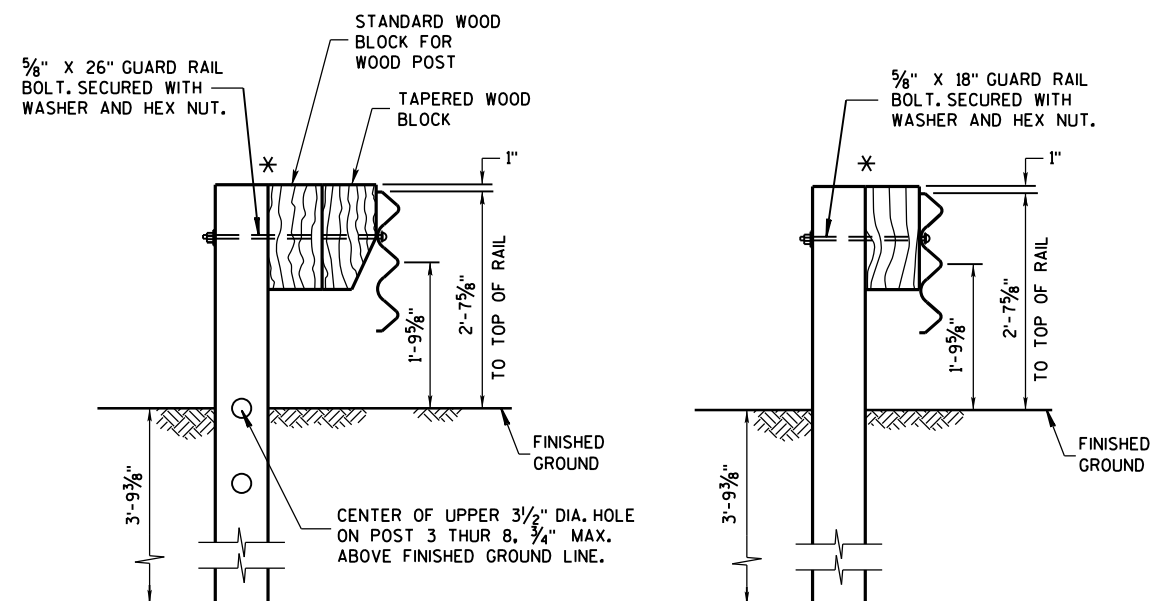


THRIE-BEAM BCT POST
(WITH 8'-0" FOUNDATION TUBE)

POST NO. 1

THRIE-BEAM BCT POST
(WITH 6'-0" FOUNDATION TUBE
AND 1'-2" TAPERED BLOCK)

POST NO. 2



THRIE-BEAM CRT POST
(6'-6" LONG POST WITH 1'-2" BLOCK
AND 1'-2" TAPERED BLOCK)

POST NO. 3,4,5,6,7, & 8

THRIE-BEAM POST
(6'-6" LONG POST
WITH 1'-2" BLOCK)

POST NO. 9,10,11, & 12
(ALSO USE FOR STEEL
THRIE BEAM BEYOND POST 12)

* IF NEEDED DUE TO AN UNDERGROUND
OBSTACLE ADD 1 ADDITIONAL STANDARD
BLOCKOUT TO POST.

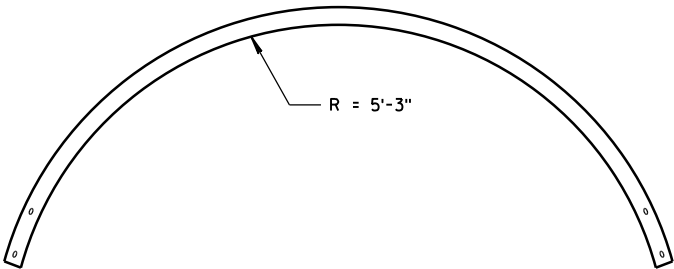
STEEL THRIE BEAM
BULLNOSE TERMINAL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

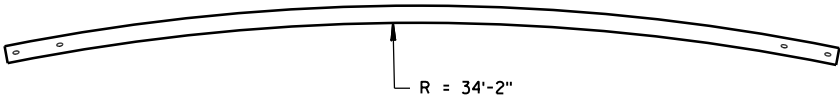
GENERAL NOTES

SEE STANADRD DETAIL DRAWINGS 14 B 26a-e.

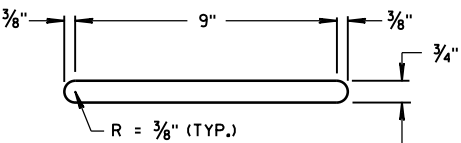
- ① SLOTTED THRIE BEAM RAIL DIMENSIONS SHOWN ARE BEFORE BENDING TO THE RADIUS SHOWN.
② SLOT SIZE AND SPACING SYMMETRIC.
③ SLOTTED THRIE BEAM RAIL NO. 1, 12'-6", SHOP BEND TO R=5'-3".
④ SLOTTED THRIE BEAM RAIL NO. 2A, 12'-6", SHOP BEND TO R=34'-2".
SLOTTED THRIE BEAM RAIL NO. 2B, 12'-6", RAIL IS STRAIGHT.
⑤ SLOTTED THRIE BEAM RAIL NO. 3, 12'-6", TANGENT.



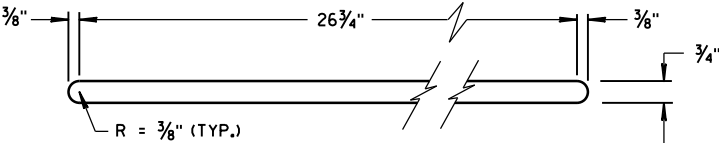
PLAN VIEW
SLOTTED THRIE BEAM RAIL NO. 1



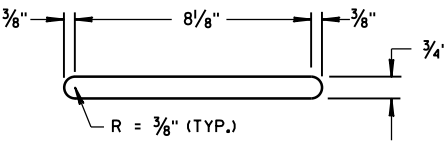
PLAN VIEW
SLOTTED THRIE BEAM RAIL NO. 2A



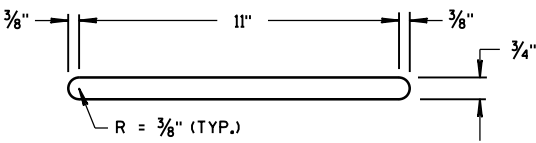
SLOT A



SLOT B

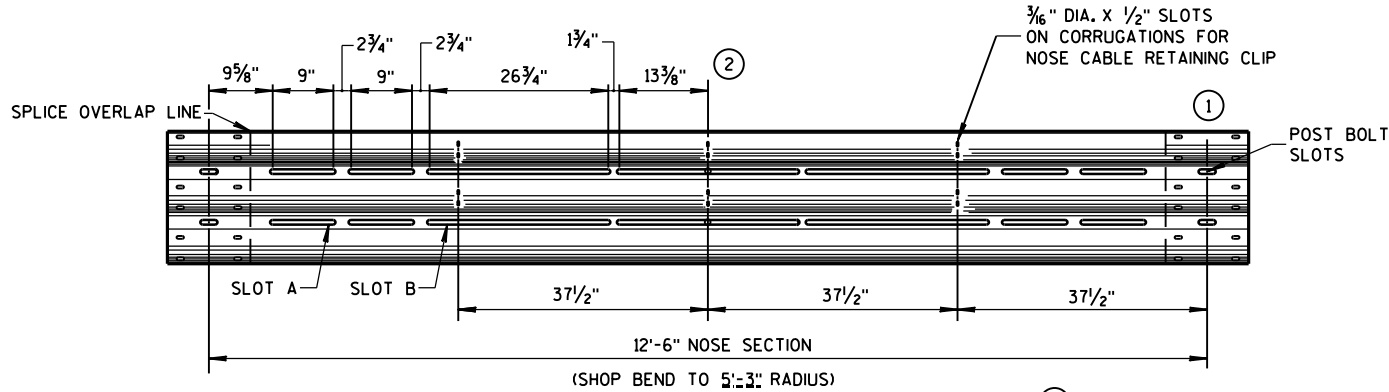


SLOT C

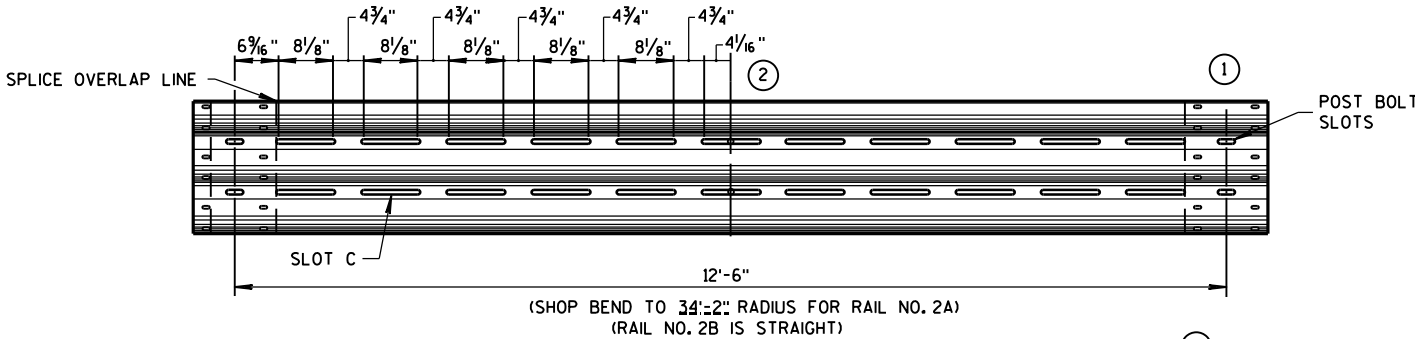


SLOT D

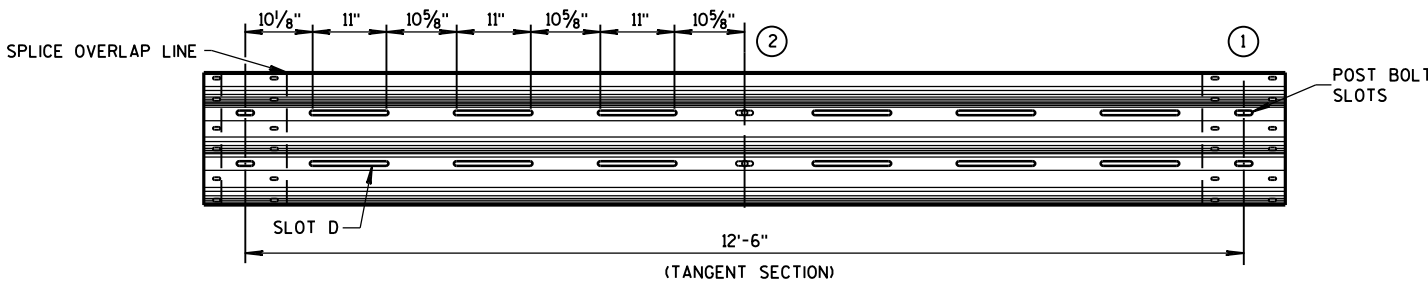
SLOT DETAILS



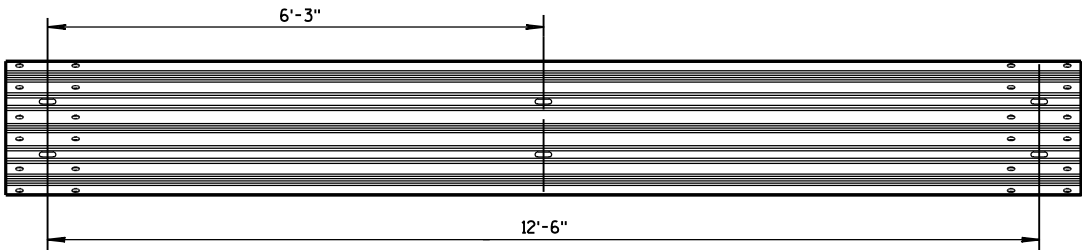
SLOTTED THRIE BEAM RAIL NO. 1



SLOTTED THRIE BEAM RAILS NO. 2A AND NO. 2B



SLOTTED THRIE BEAM RAIL NO. 3



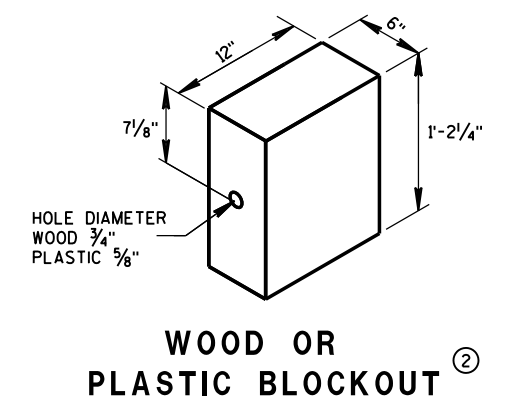
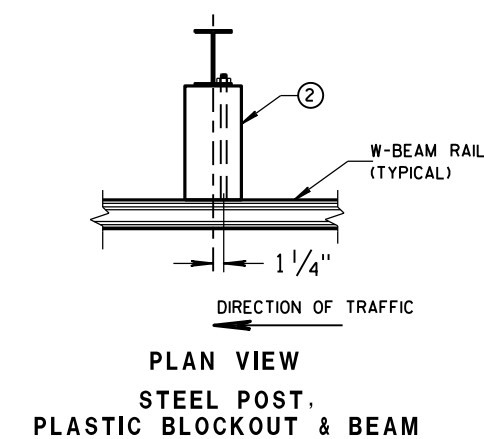
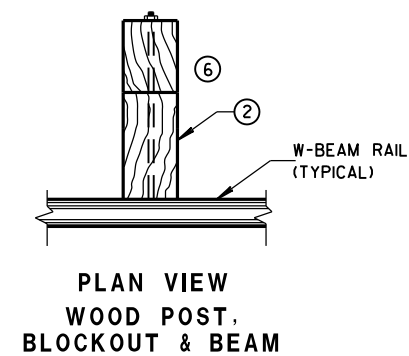
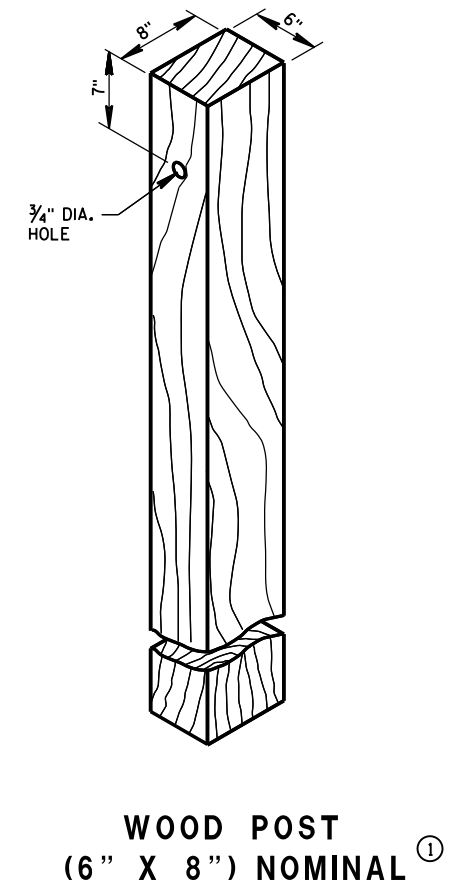
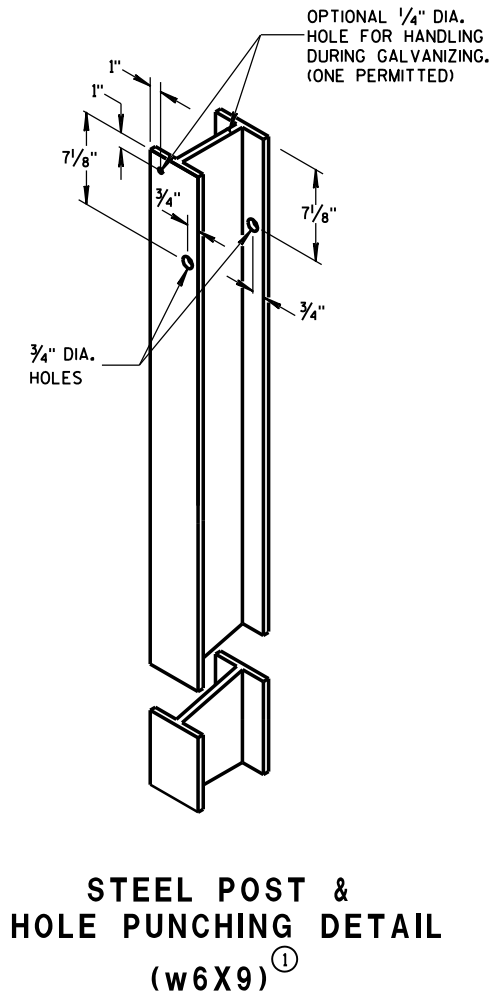
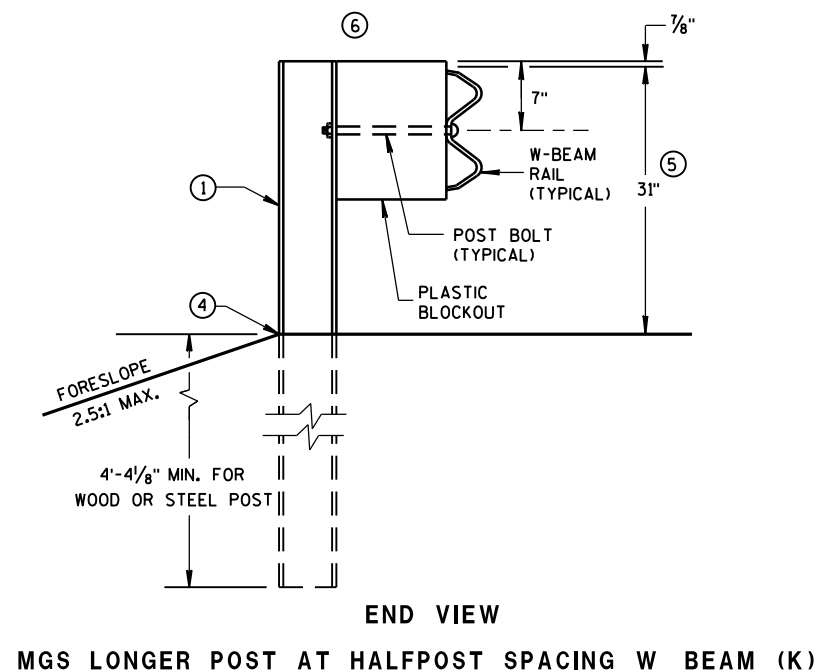
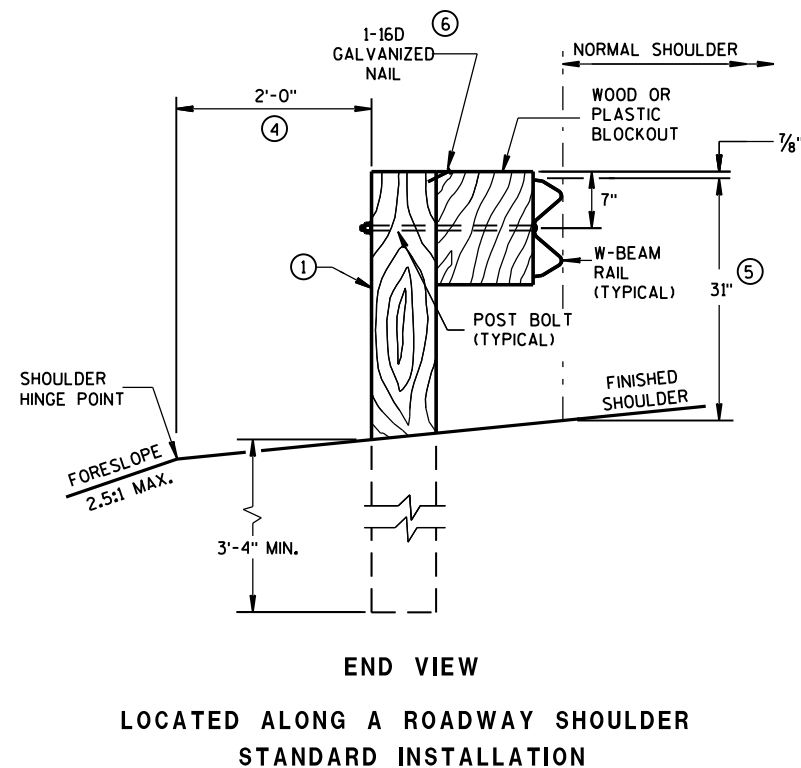
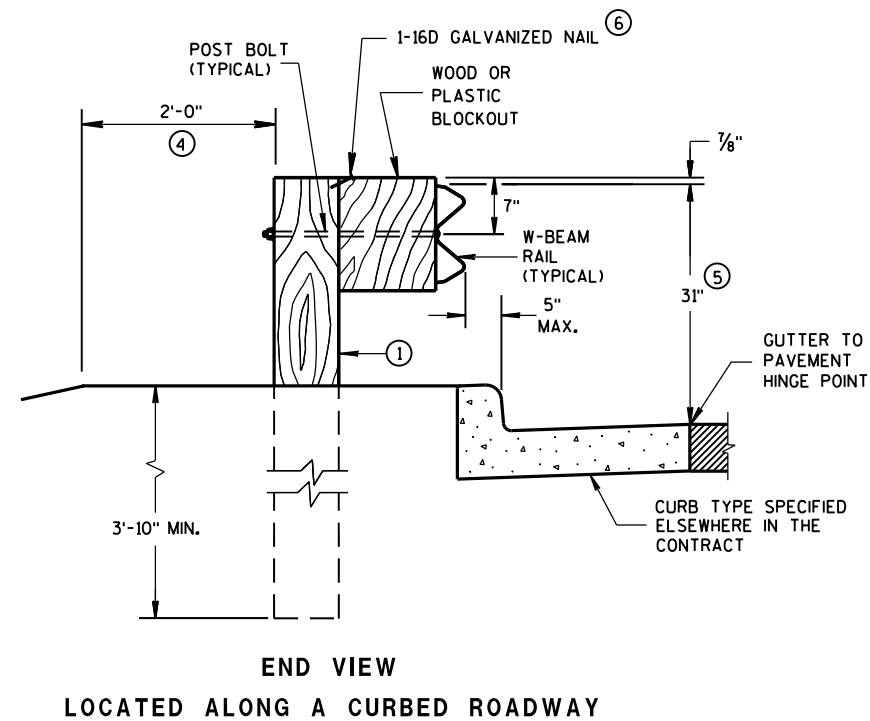
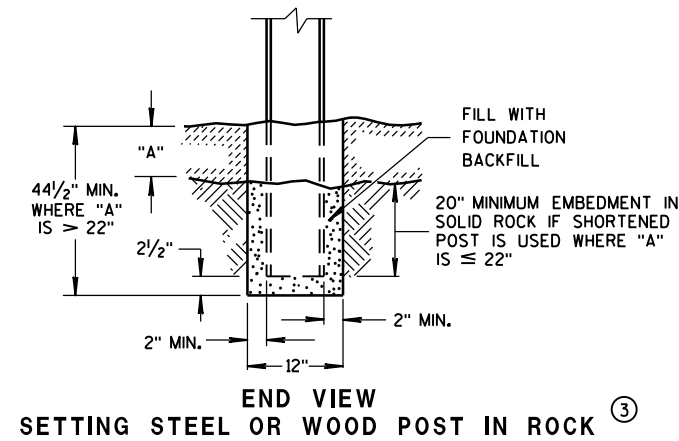
UNBENT STANDARD THRIE BEAM RAIL NO. 4 AND NO. 5

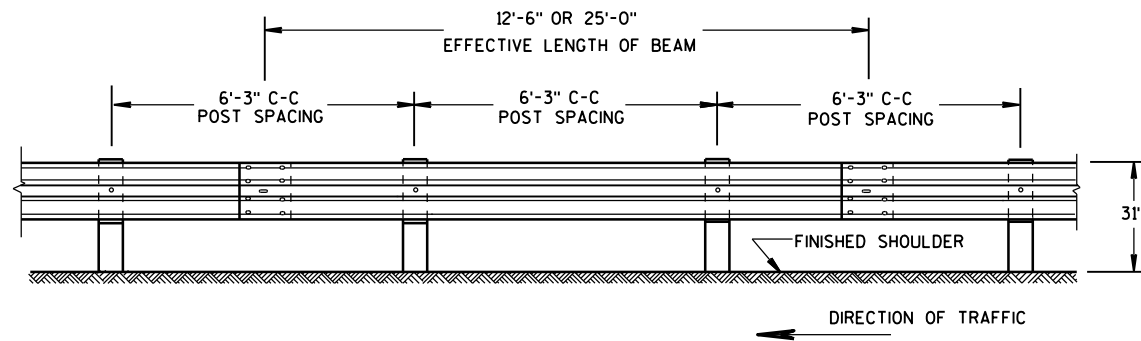
STEEL THRIE BEAM
BULLNOSE TERMINAL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

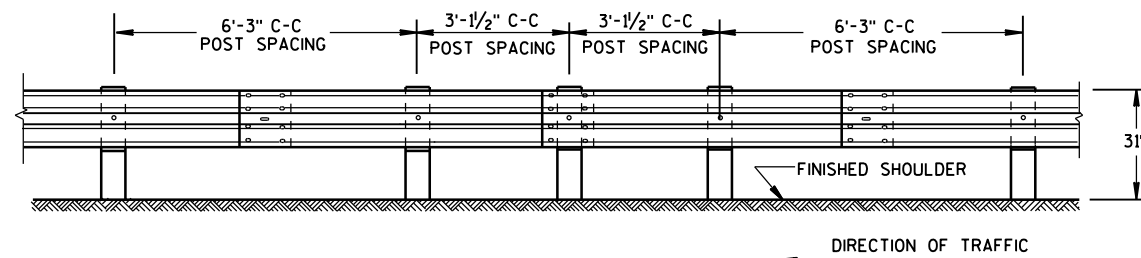
- ① WOOD OR STEEL POSTS (W6X9 OR W6X8.5) MAY BE USED. DO NOT INTERMIX WOOD AND STEEL POSTS. INSTALL STEEL POSTS WITH HOLES ON APPROACHING TRAFFIC SIDE.
- ② USE WOOD OR APPROVED PLASTIC BLOCKOUTS. WOOD BLOCKOUTS MAY BE CONSTRUCTED OUT OF TWO OR MORE WOOD BLOCKOUTS. SEE ALTERNATE WOOD BLOCKOUT DETAIL. DIMENSIONS OF APPROVED PLASTIC BLOCKOUTS MAY VARY.
- ③ IF ROCK IS ENCOUNTERED DURING EXCAVATION, PROVIDE A HOLE 12 INCHES IN DIAMETER EXTENDING 20 INCHES DEEP INTO THE ROCK. PLACE APPROXIMATELY $2\frac{1}{2}$ INCHES OF GRANULAR MATERIAL IN THE BOTTOM OF THE HOLE. CUT THE POSTS TO LENGTH AND INSTALL. BACKFILL WITH EXCAVATED MATERIAL AND COMPACT. BACKFILL IS TO BE FREE OF LARGE ROCKS.
- ④ WHEN THE DISTANCE FROM BACK OF POST TO SHOULDER HINGE POINT IS LESS THAN 2 FEET INSTALL LONGER POST AT HALF POST SPACING (K).
- ⑤ FOR NEW MGS INSTALLATION TOP OF W-BEAM RAIL TOLERANCE IS $\pm 1"$. FOR EXISTING MGS INSTALLATION TOP OF W-BEAM IS BETWEEN $27\frac{3}{4}"$ TO 32".
- ⑥ WHEN USING STEEL POST AND WOOD BLOCKOUTS INSTALL FOUR 16D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.





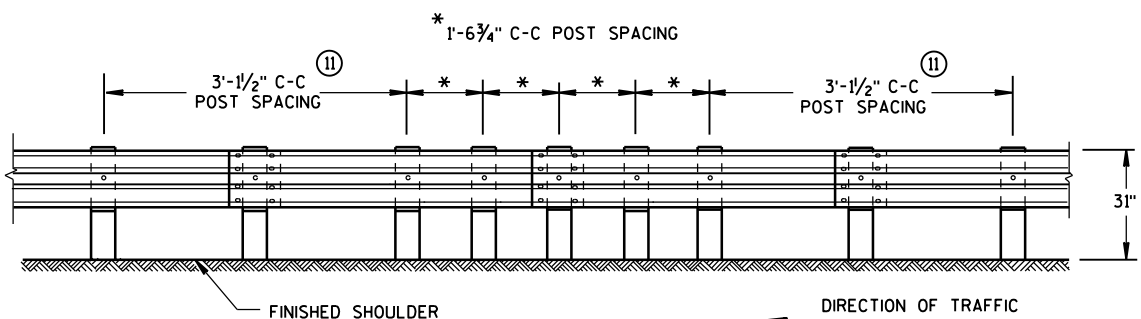
FRONT VIEW

POST SPACING STANDARD INSTALLATION



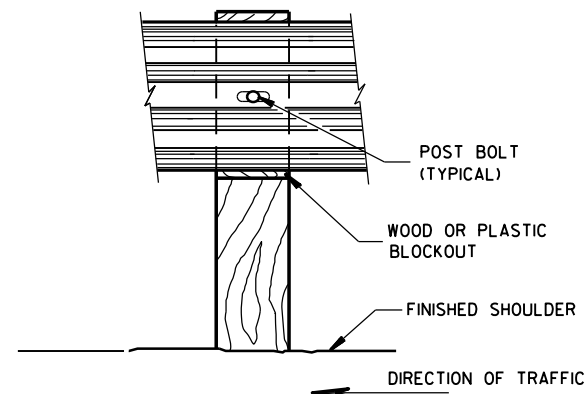
FRONT VIEW

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

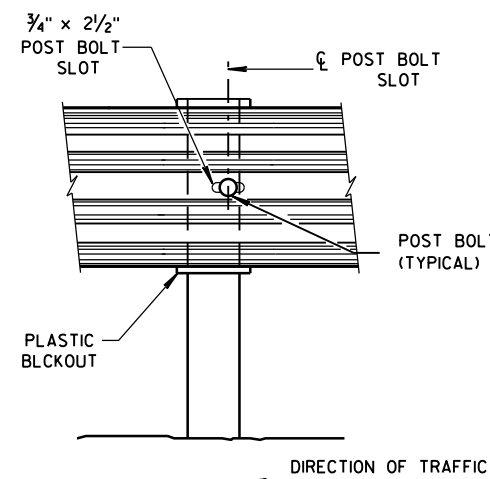


FRONT VIEW

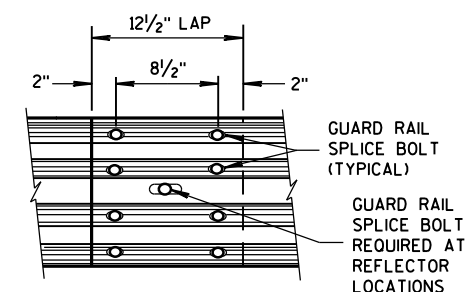
QUARTER POST SPACING (QS)



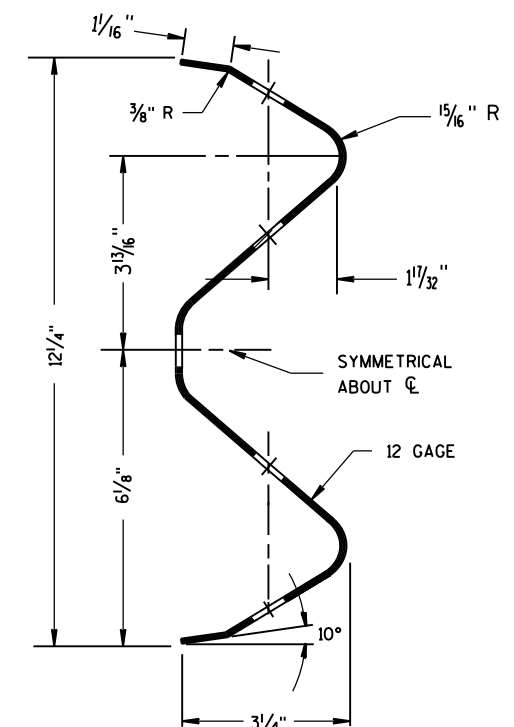
FRONT VIEW AT WOOD POST



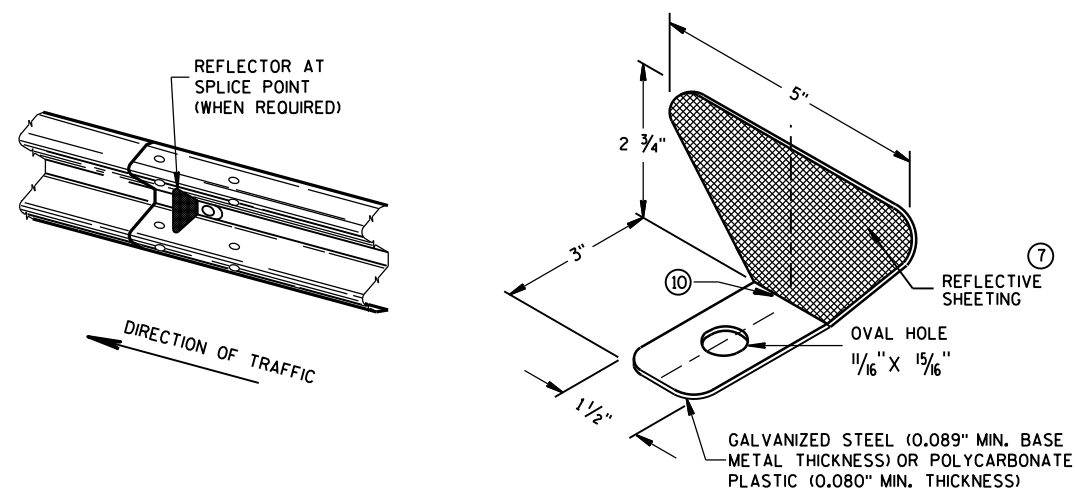
FRONT VIEW AT STEEL POST



FRONT VIEW
MID-SPAN BEAM SPLICE



SECTION THRU W-BEAM RAIL



ONE SIDED REFLECTOR DETAIL AND TYPICAL INSTALLATION

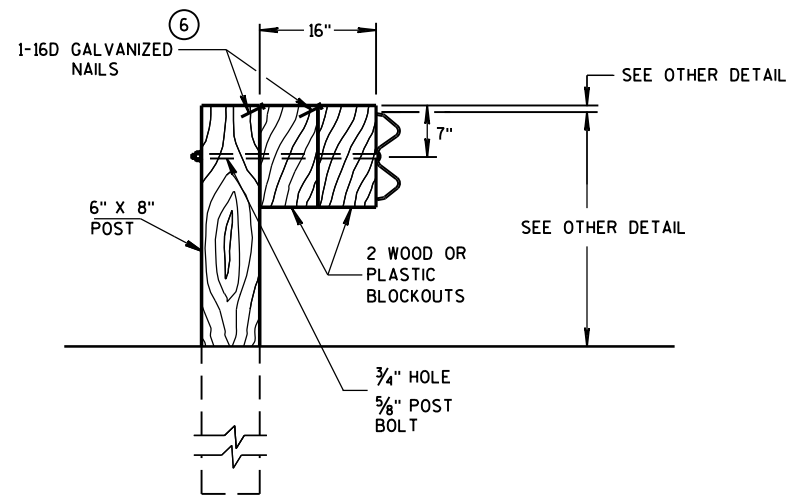
- ⑦ PROVIDE SILVER REFLECTIVE SHEETING ON ALL REFLECTORS EXCEPT THOSE LOCATED ALONG THE LEFT EDGE OF ONE-WAY ROADWAYS, WHICH SHALL BE PROVIDED WITH YELLOW REFLECTIVE SHEETING. SHEETING IS TYPE H. SEE STANDARD SPECIFICATION 637.
 - ⑧ DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINAL. RAIL SPLICE LOCATIONS ARE THE ONLY ACCEPTABLE LOCATIONS FOR REFLECTORS.
 - ⑨ REVERSE EVERY OTHER REFLECTOR FOR 2-WAY VISIBILITY. THE CONTRACTOR MAY FURNISH TWO-SIDED REFLECTORS IN LIEU OF ONE-SIDED REFLECTORS.
 - ⑩ PROVIDE AN ANGLE OF BEND OF $90^\circ \pm 1^\circ$ FOR TWO-SIDED REFLECTORS.
 - ⑪ 25 FEET OF HALF POST SPACING IS REQUIRED ON APPROACH AND DEPARTURE ENDS OF QUARTER POST SPACING.
- POST BOLTS ARE A $\frac{5}{8}$ " DIAMETER ASTM A307 GUARDRAIL BOLT. A POST BOLT REQUIRES $\frac{5}{8}$ " DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX NUT AND $\frac{5}{8}$ " DIAMETER F844 FLAT WASHER. POST BOLTS MAY BE LONGER IF MULTIPLE BLOCKOUTS ARE BEING USED.
- GUARD RAIL SPLICE BOLTS ARE A $\frac{5}{8}$ " DIAMETER ASTM A307 GUARDRAIL HEAD BOLT. A GUARDRAIL SPLICE BOLT REQUIRES $\frac{5}{8}$ " DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX NUT.

REFLECTOR SPACING

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

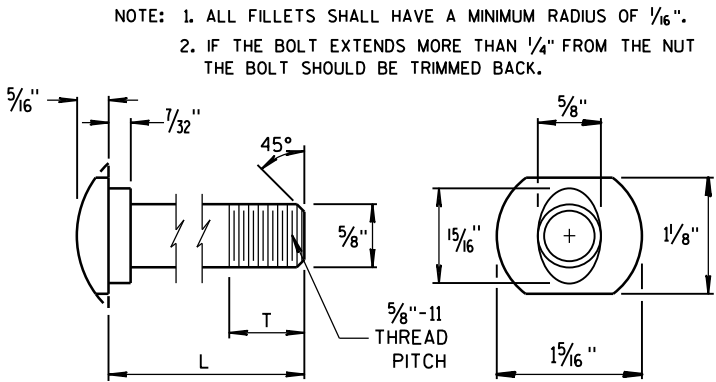
MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

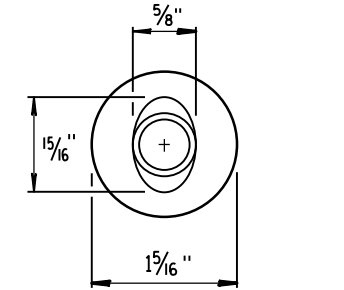


DETAIL FOR 16" BLOCKOUT DEPTH

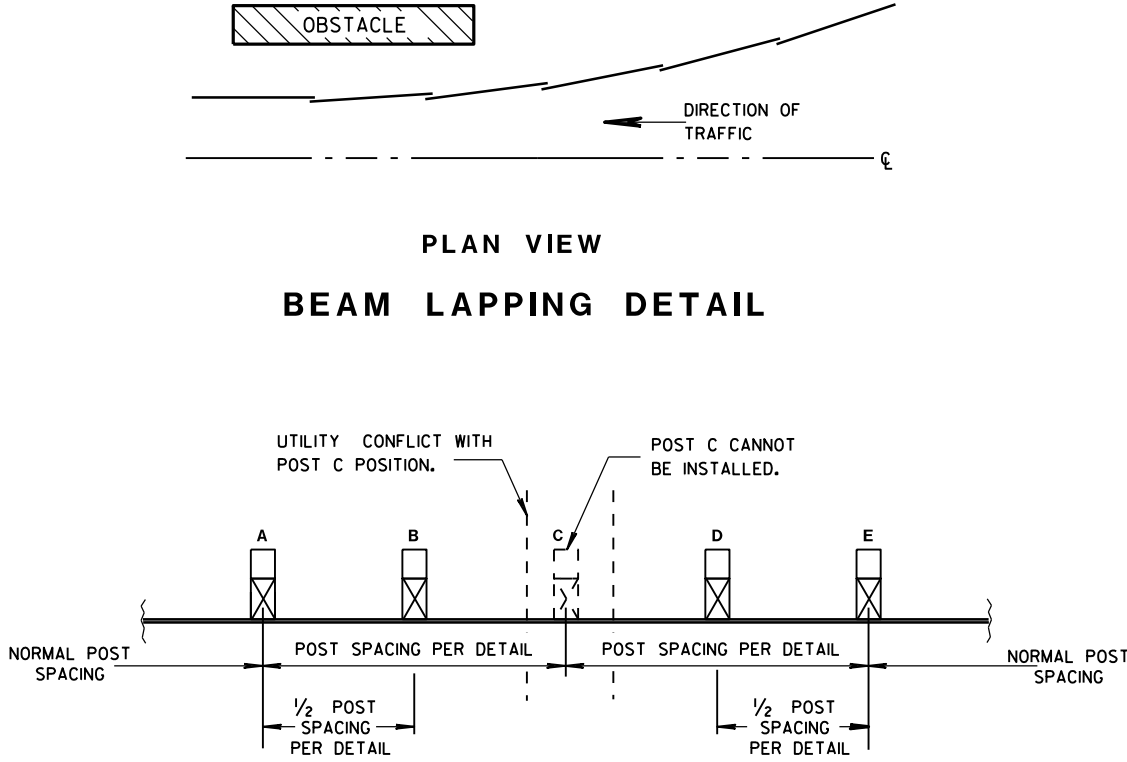
IT IS ACCEPTABLE TO USE BLOCKOUTS UP TO 16" DEEP TO INCREASE THE POST OFFSET TO AVOID UNDERGROUND OBSTACLES. THERE IS NO LIMIT TO THE NUMBER OF POSTS THAT CAN HAVE ADDITIONAL BLOCKOUTS UP TO 16" DEEP.



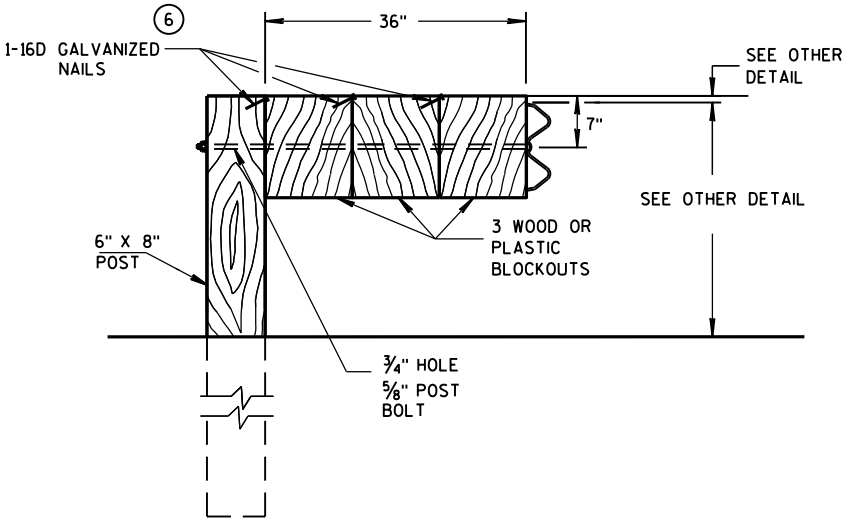
POST BOLT TABLE



ALTERNATE BOLT HEAD



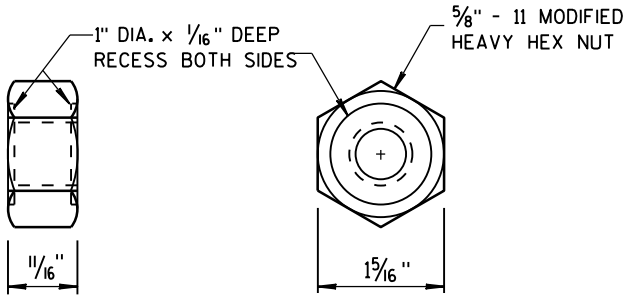
POST DRIVING FOR CONTINUOUS UNDERGROUND OBSTRUCTION



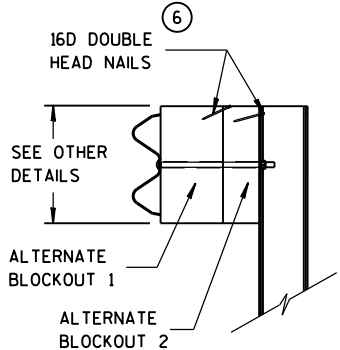
DETAIL FOR 36" BLOCKOUT DEPTH

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.

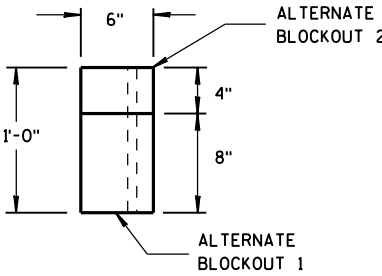
DO NOT USE 16" OR 36" BLOCKOUTS IF IT CAUSES THE POST TO BE DRIVEN BEYOND SHOULDER HINGE POINT OR CAUSES A FIXED OBJECT TO BE WITHIN THE DEFLECTION DISTANCE OF THE BARRIER.



POST BOLT, SPLICE BOLT AND RECESS NUT



SIDE VIEW



TOP VIEW

ALTERNATE WOOD BLOCKOUT DETAIL

MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL			
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
APPROVED June 2016 DATE	/S/ Jerry H. Zogg ROADWAY STANDARDS ENGINEER	59 INT	FHWA

GENERAL NOTES

- (A) THE SLOPE IN THE AREA BOUNDED BY THE GRADELINE, THE HINGE POINT LINE (HPL), AND THE CLEAR ZONE LIMITS (CZL) SHALL BE 4:1 OR FLATTER.
- (B) AFTER FINAL ASSEMBLY, RECHECK CABLE TO BE SURE IT IS TAUT AND HAS NOT RELAXED.
- (C) DIFFERENT MANUFACTURES REQUIRE DIFFERENT PERFORATED W-BEAM RAIL END PANELS. SEE MANUFACTURES INFORMATION.
- (D) THE TOP OF THE STEEL TUBE ON POST 1 AND POST 2 SHALL NOT BE MORE THAN 3" ABOVE THE FINISH GROUND ELEVATION.
- (E) ATTACH ALUMINUM SHEET TO E.A.T. HEAD USING 4 STAINLESS STEEL SELF-TAPPING SCREWS, ONE SCREW PER CORNER.
- (G) 1/2" DIAMETER X 3" LONG LAG BOLT AND WASHER.
- (H) HARDWARE VARIES BETWEEN DIFFERENT MANUFACTURES. SEE MANUFACTURE'S DRAWING FOR INFORMATION.
- (I) DIMENSIONS MAY VARY. SEE MANUFACTURE'S INFORMATION.

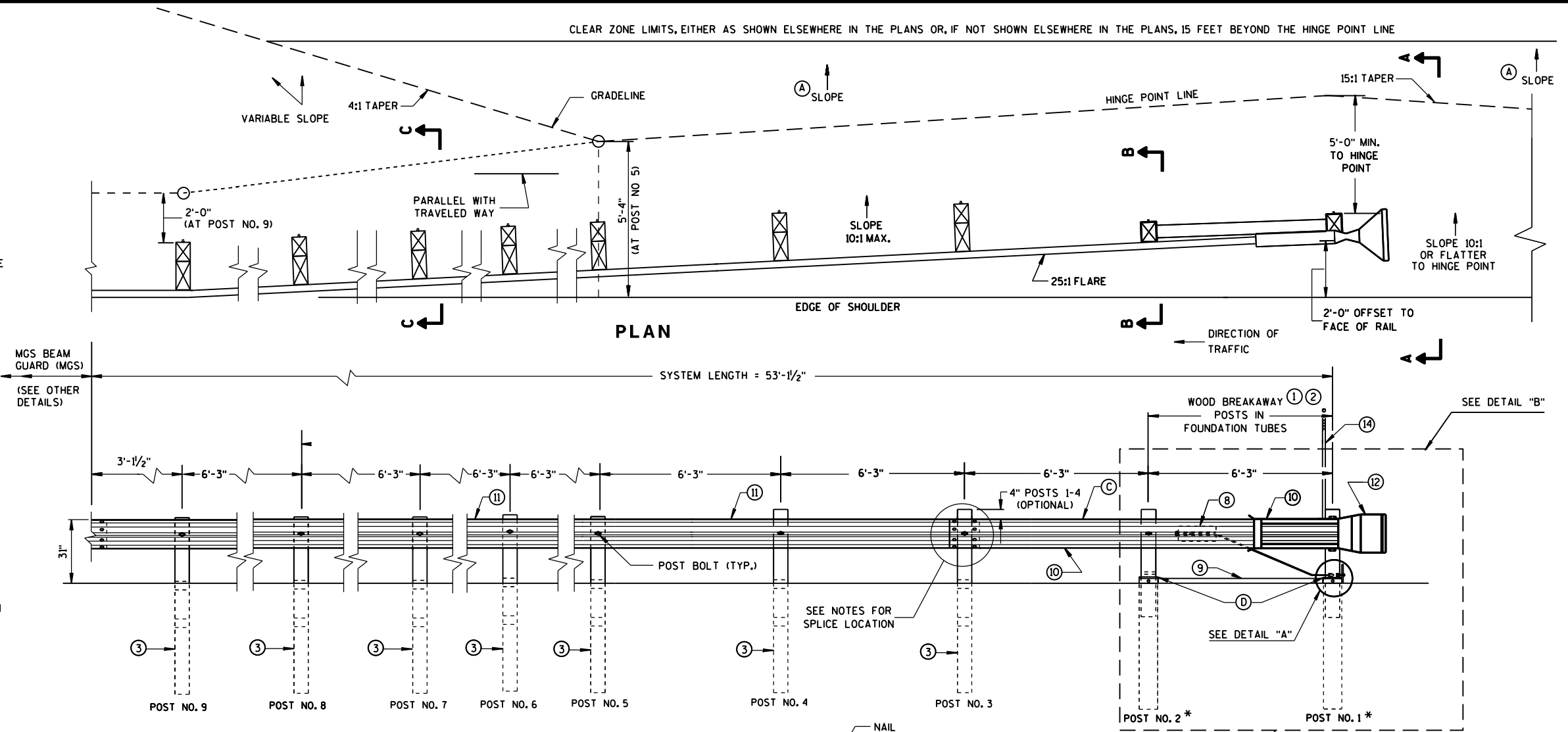
SEE SDD 14B42 FOR MORE INFORMATION.

* DO NOT ATTACH BLOCKOUTS TO POSTS 1 AND 2.

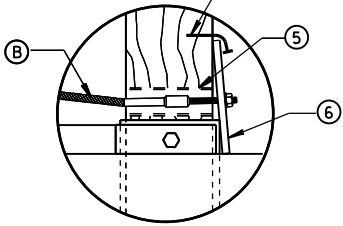
DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINAL.

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

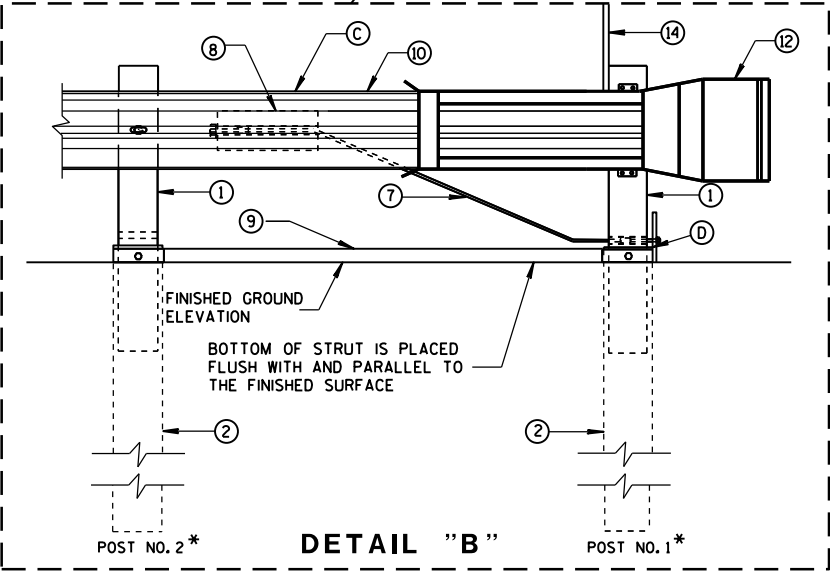
THE CENTER OF THE UPPER 3/2" DIAMETER HOLE ON POST NUMBER 3 THROUGH POST 9 IS TO BE FLUSH WITH THE GROUND LINE UP TO A MAXIMUM OF 2" ABOVE GROUND LINE.



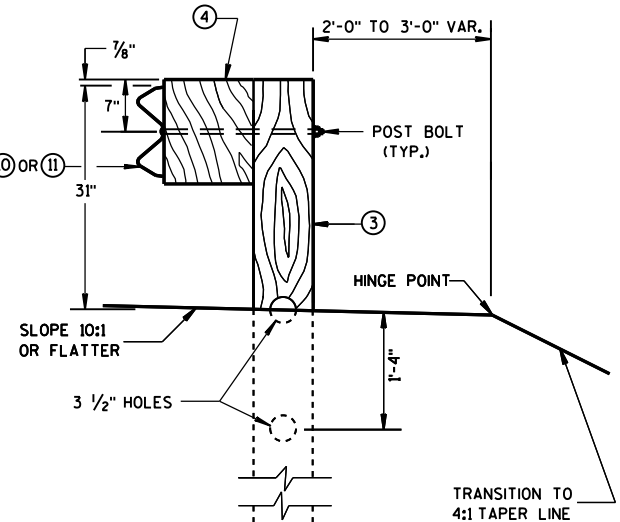
ELEVATION



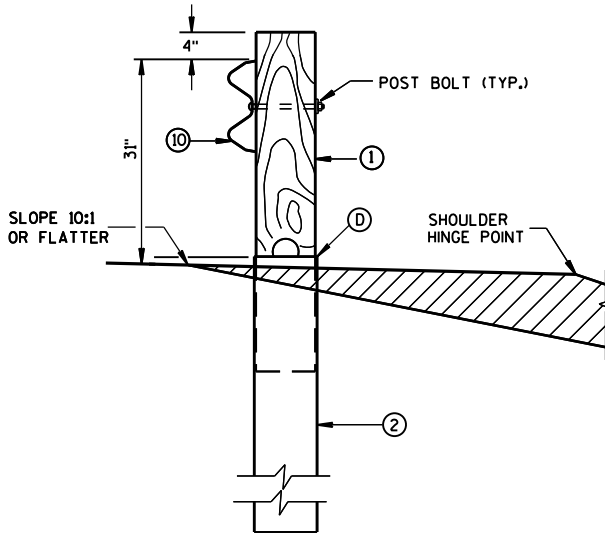
DETAIL "A"



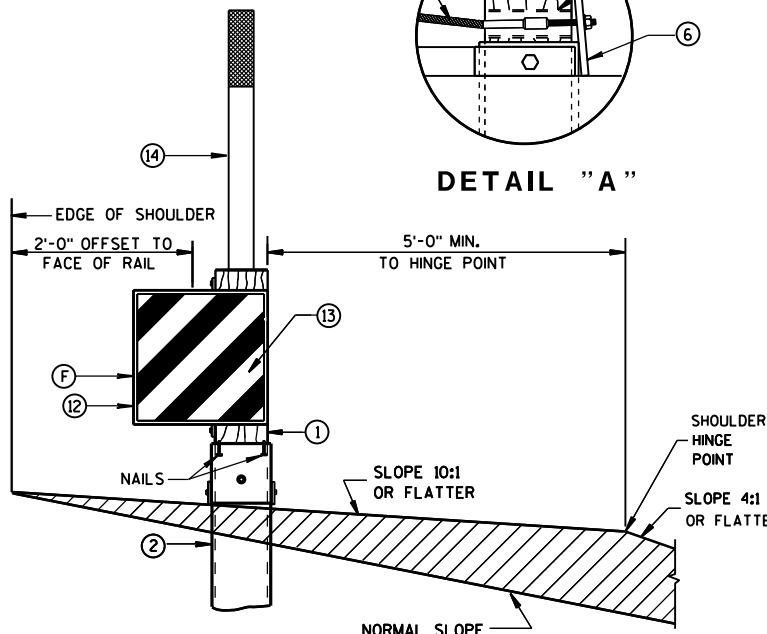
DETAIL "B"



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



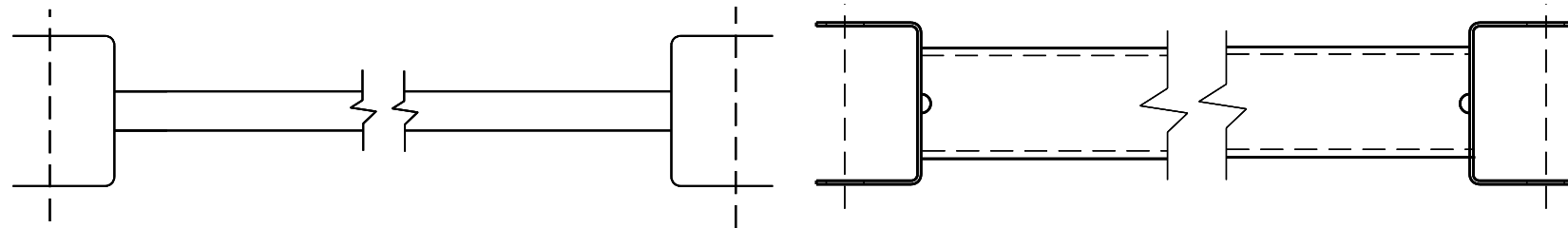
SECTION B-B
TYPICAL AT POST NO. 2*



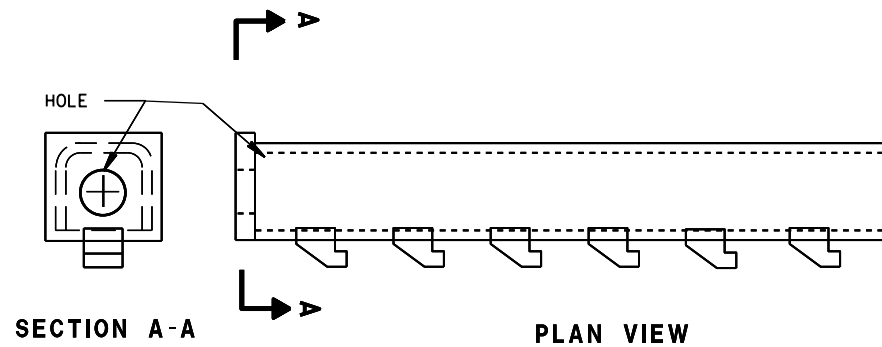
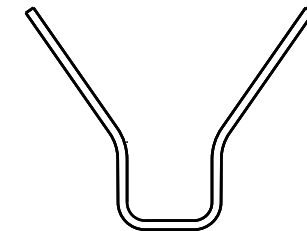
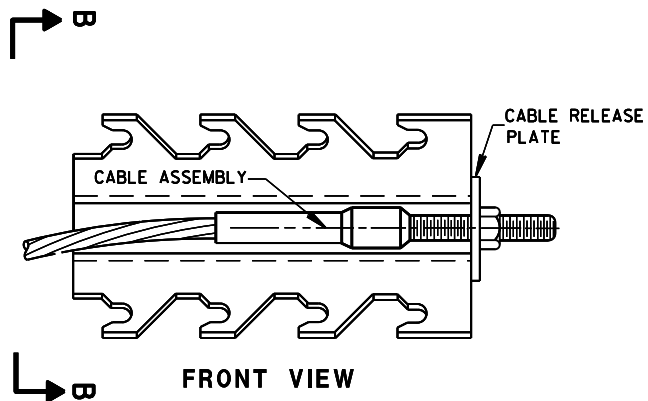
SECTION A-A
TYPICAL AT POST NO. 1*

MIDWEST GUARDRAIL SYSTEM
ENERGY ABSORBING TERMINAL
(MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



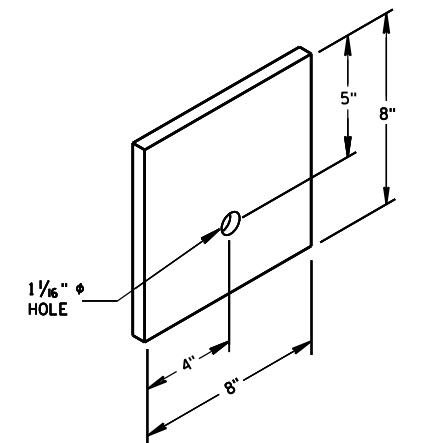
GENERIC GROUND STRUT (9) (H)



GENERIC ANCHOR CABLE BOX (8) (H)

BILL OF MATERIALS

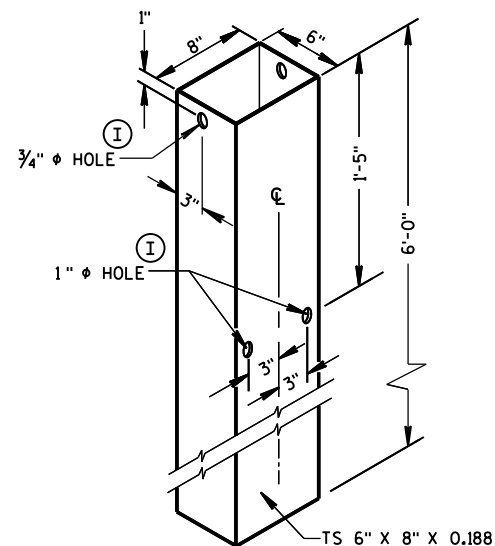
PART NO.	DESCRIPTION
MATERIALS PROVIDED BY MGS EAT MANUFACTURER. SEE MANUFACTURER'S DETAILS FOR MORE INFORMATION.	
(1)	WOOD BREAKAWAY POST
(2)	6" X 8" X 0.188", 6'-0" LONG FOUNDATION TUBE AT POSTS 1 AND 2
(3)	WOOD CRT
(4)	WOOD BLOCKOUT
(5)	PIPE SLEEVE
(6)	BEARING PLATE
(7)	BCT CABLE ASSEMBLY
(8)	ANCHOR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



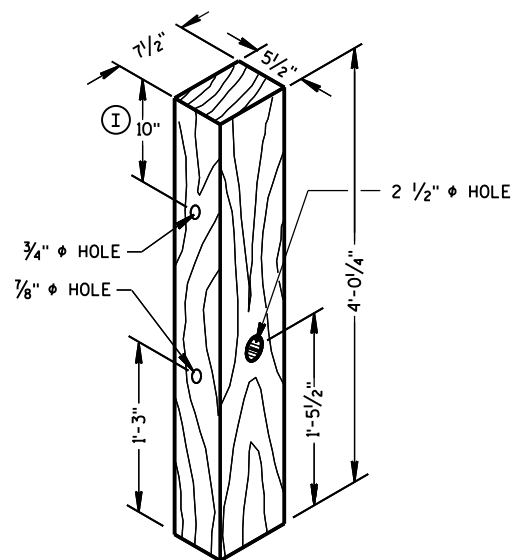
BEARING PLATE (6)

MIDWEST GUARDRAIL SYSTEM
ENERGY ABSORBING TERMINAL
(MGS)

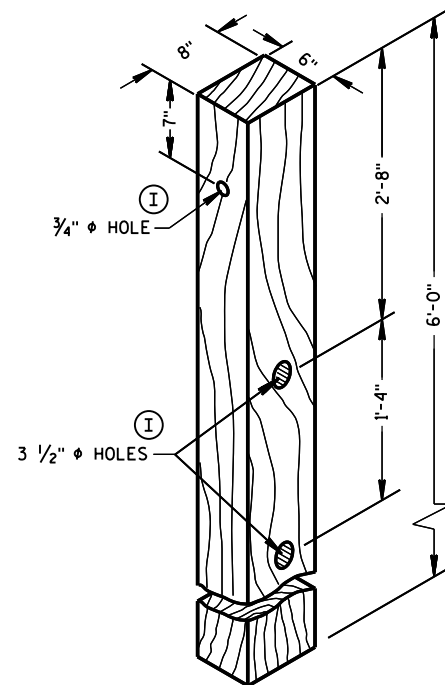
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



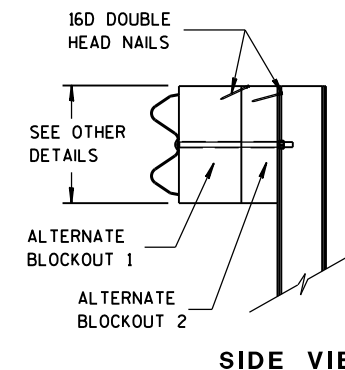
FOUNDATION TUBE ②



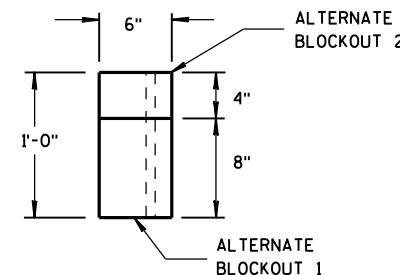
POSTS NUMBER 1 AND 2
WOOD BREAKAWAY POST ①



POSTS NUMBER 3-9
WOOD CRT POST ③

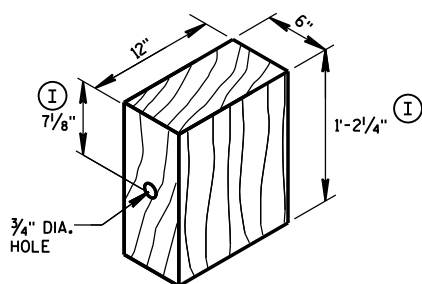


SIDE VIEW



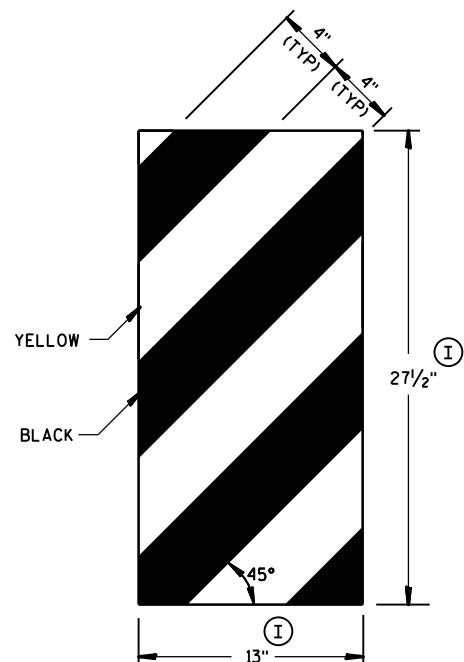
TOP VIEW

ALTERNATE WOOD
BLOCKOUT DETAIL

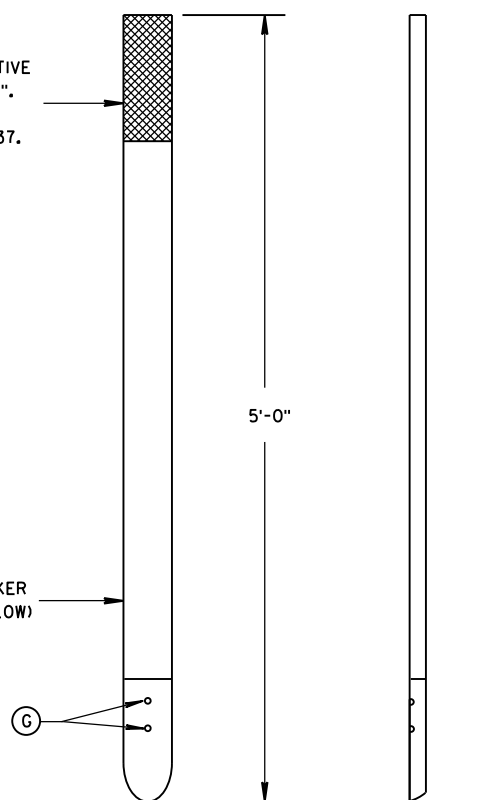
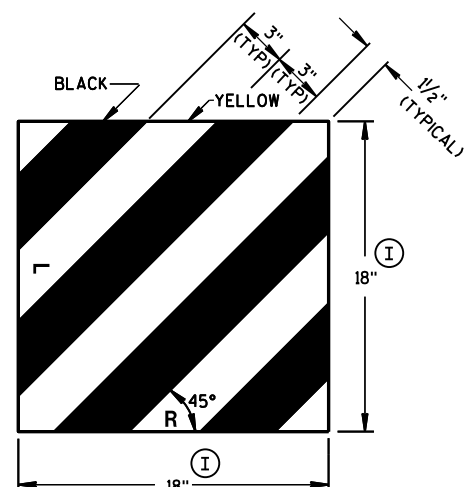


WOOD BLOCKOUT ④
REQ'D. AT ALL POSTS EXCEPT POST NO'S 1 & 2

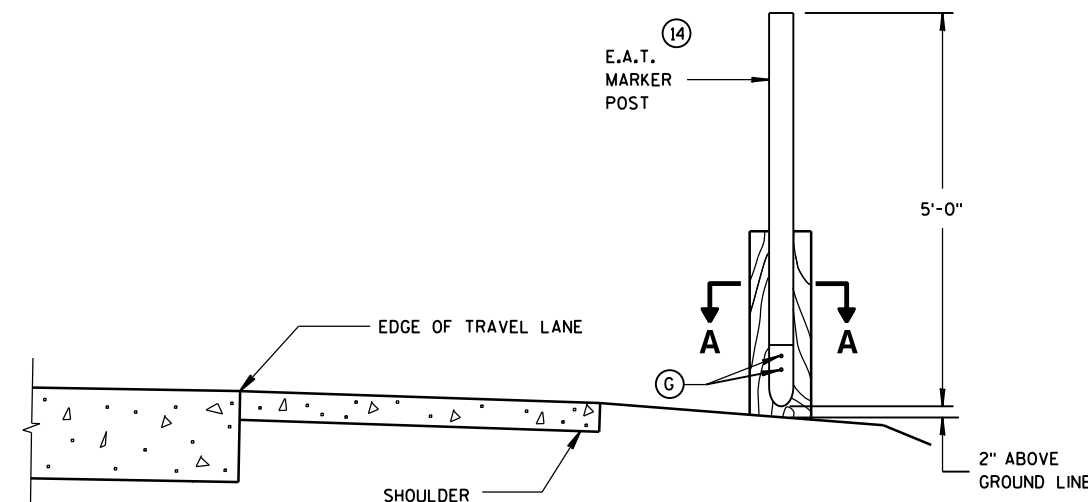
TYPE H
YELLOW REFLECTIVE
SHEETING 3" X 9".
SEE STANDARD
SPECIFICATION 637.



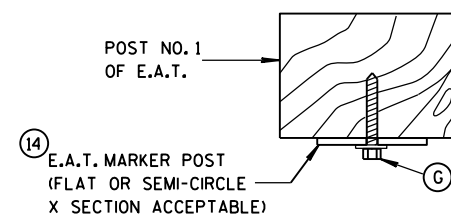
GENERIC REFLECTIVE SHEETING ⑬ ①



FRONT VIEW
SIDE VIEW
E.A.T. MARKER POST ⑭



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

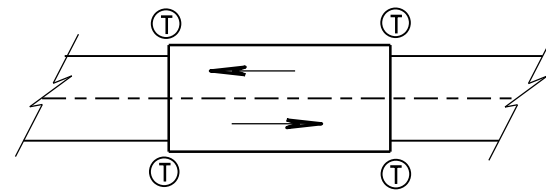


SECTION A-A

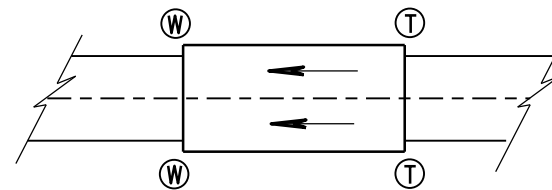
MIDWEST GUARDRAIL SYSTEM
ENERGY ABSORBING TERMINAL
(MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June 2014 /S/ Jerry H. Zogg
DATE ROADWAY STANDARDS 62 ENT
FHWA ENGINEER



TWO WAY TRAFFIC



ONE WAY TRAFFIC

(T) THRIE BEAM CONNECTION

(W) W-BEAM CONNECTION WHEN REQUIRED

GENERAL NOTES

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

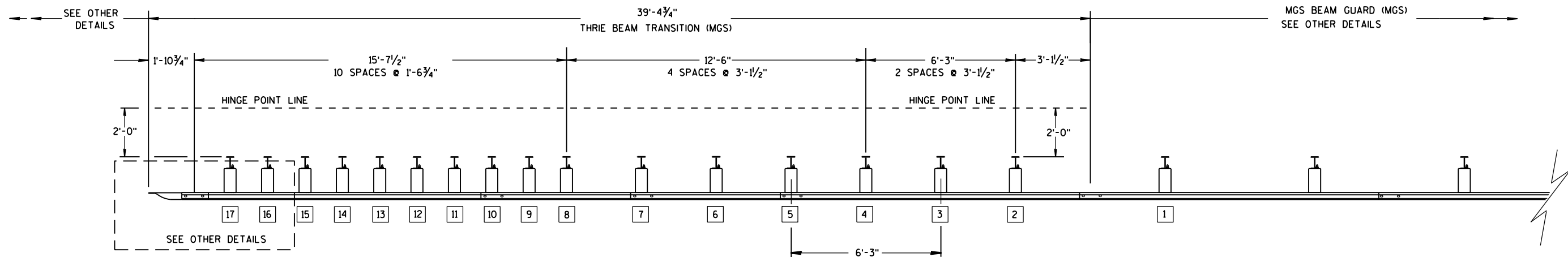
TRANSITION USES STEEL POSTS ONLY.

SEE STANDARD DETAIL DRAWING 14 B 42 FOR MORE INFORMATION.

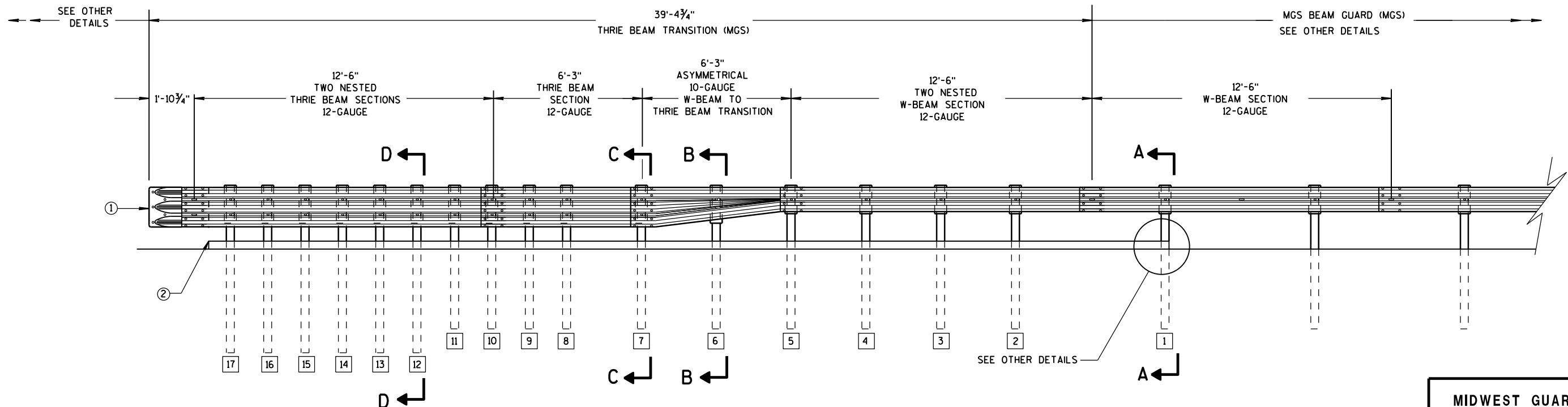
① BRIDGE RAILING TYPE "W" DOES NOT REQUIRE A TERMINAL CONNECTOR.

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

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



PLAN VIEW



ELEVATION VIEW

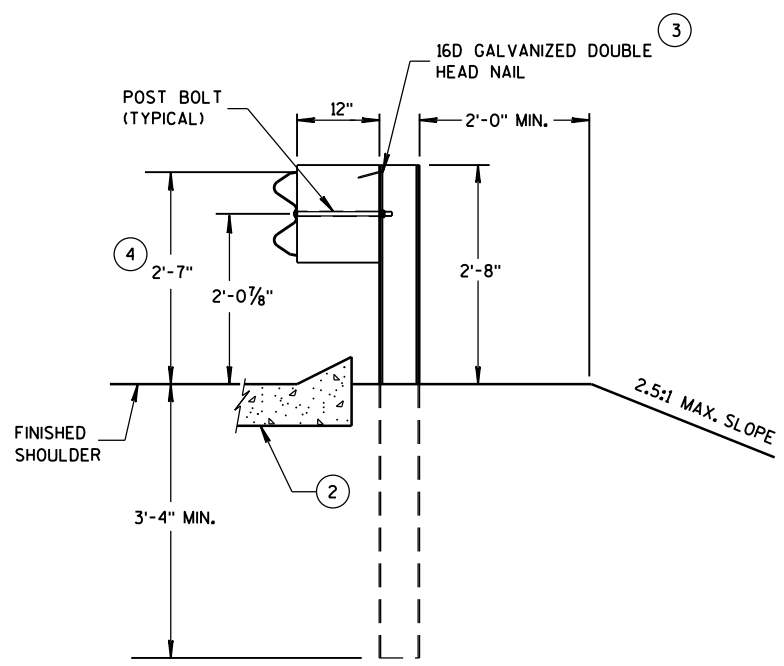
MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

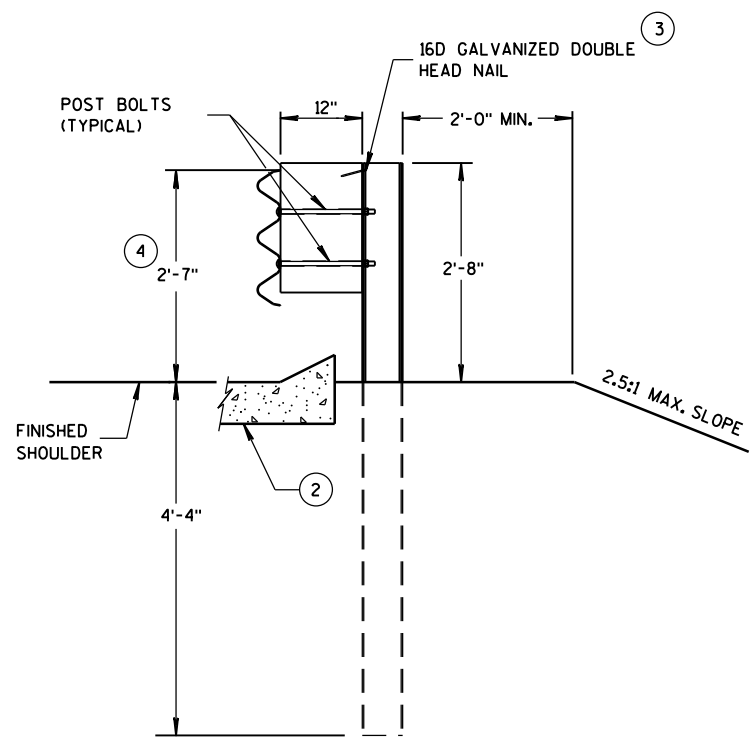
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

GENERAL NOTES

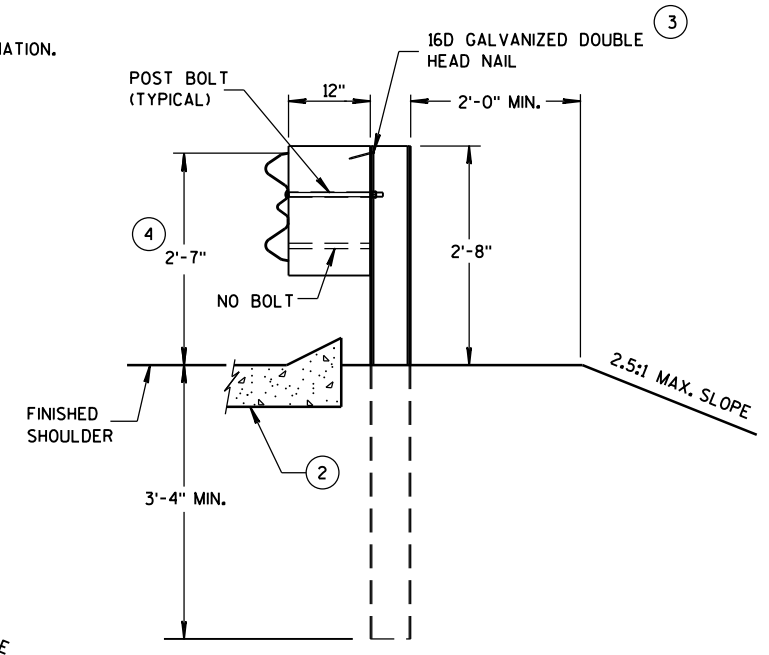
- 2 OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.
- 3 WHEN USING STEEL POSTS AND WOOD BLOCKOUTS INSTALL FOUR 10D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.
- 4 TOLERANCE FOR TOP OF W-BEAM RAIL IS $\pm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



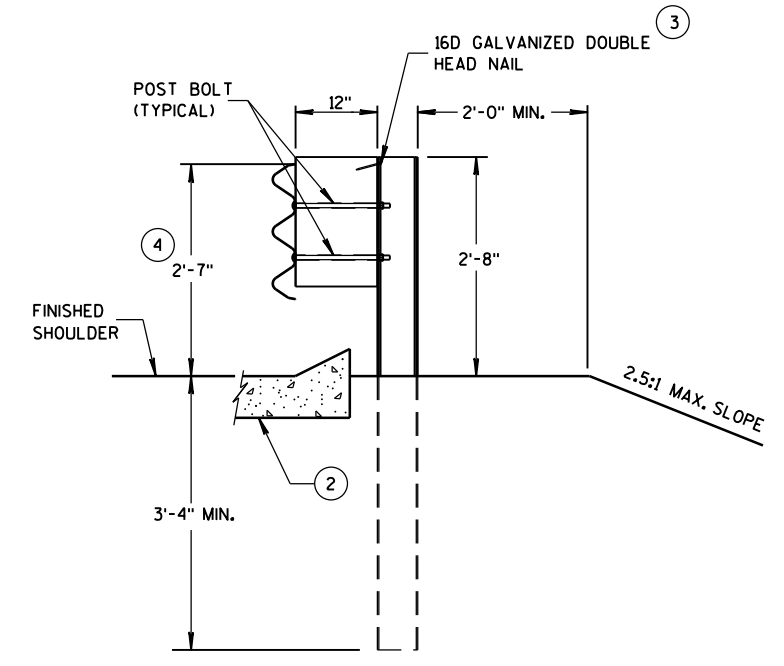
SECTION A-A
POSTS 1-5



SECTION D-D
POSTS 12-17



SECTION B-B
POST 6



SECTION C-C
POSTS 7-11

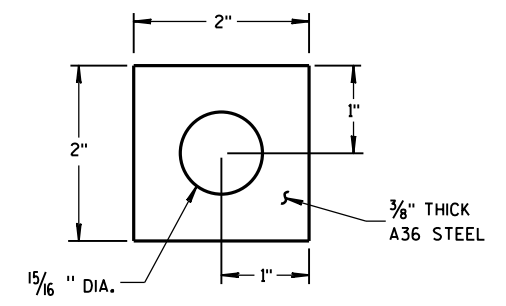
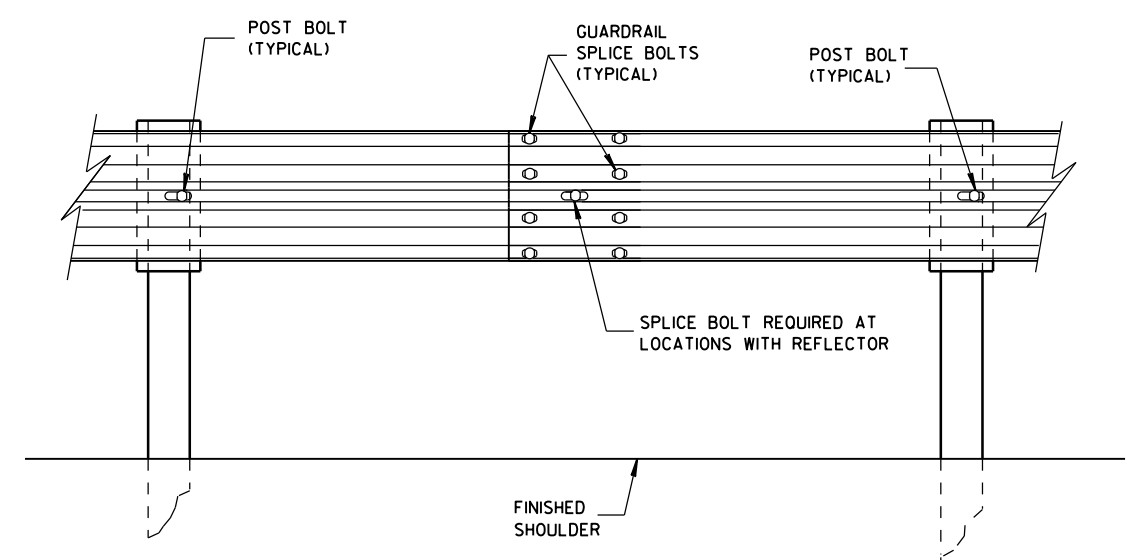
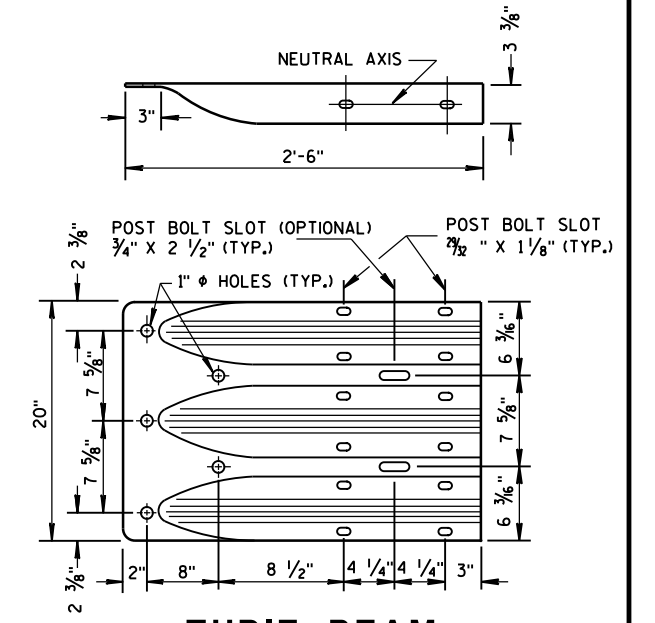


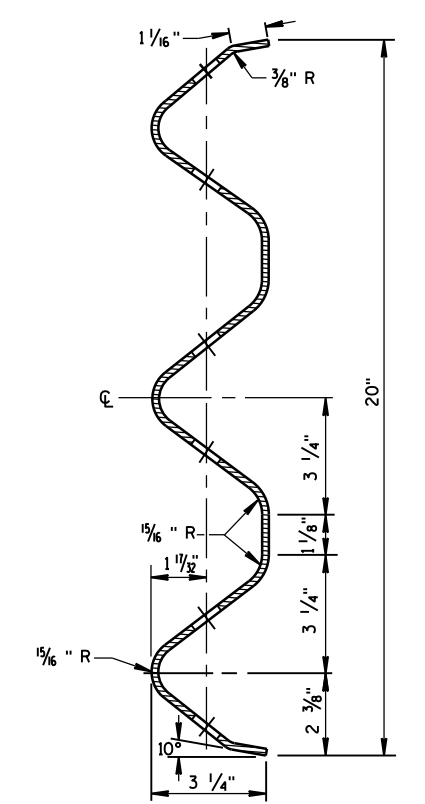
PLATE WASHER DETAIL



SPlice DETAIL



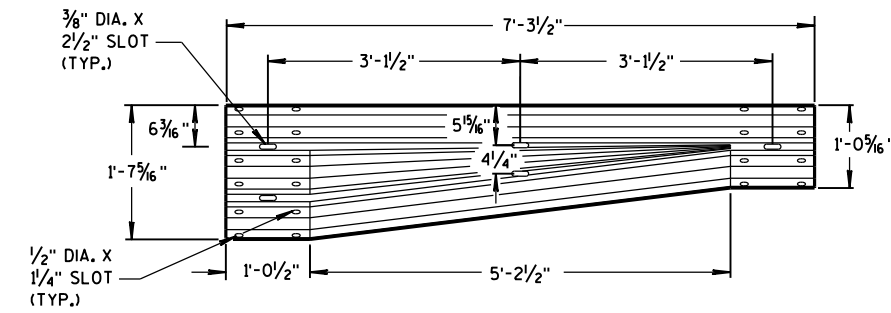
THRIE BEAM
TERMINAL CONNECTOR



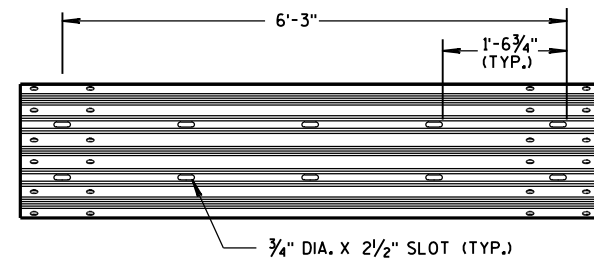
SECTION THRU THRIE
BEAM RAIL ELEMENT

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

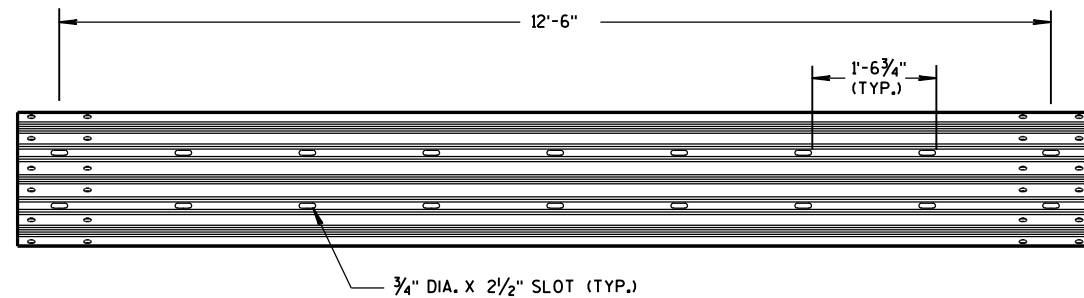
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



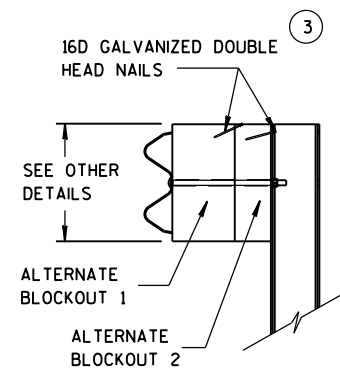
W-BEAM TO THRIE BEAM TRANSITION SECTION



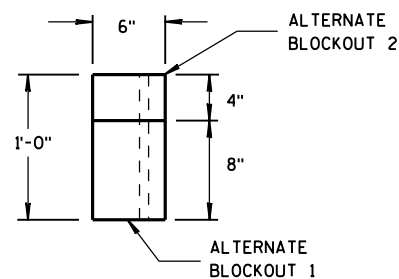
6'-3" THRIE BEAM SECTION



12'-6" THRIE BEAM SECTION

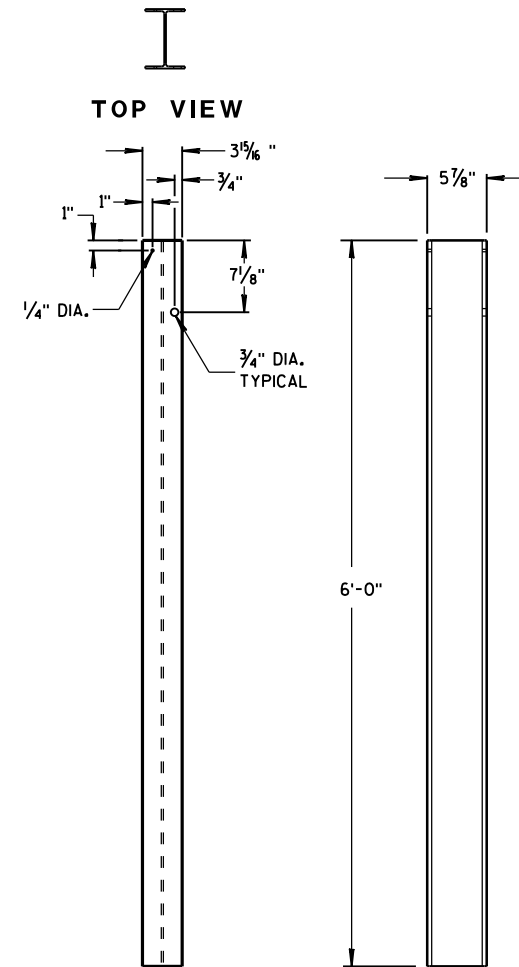


SIDE VIEW



TOP VIEW

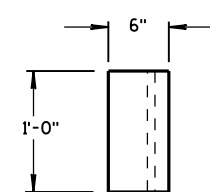
ALTERNATE WOOD BLOCKOUT DETAIL



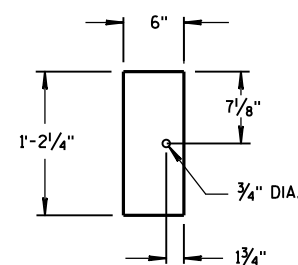
FRONT VIEW

SIDE VIEW

STEEL POSTS 1-5

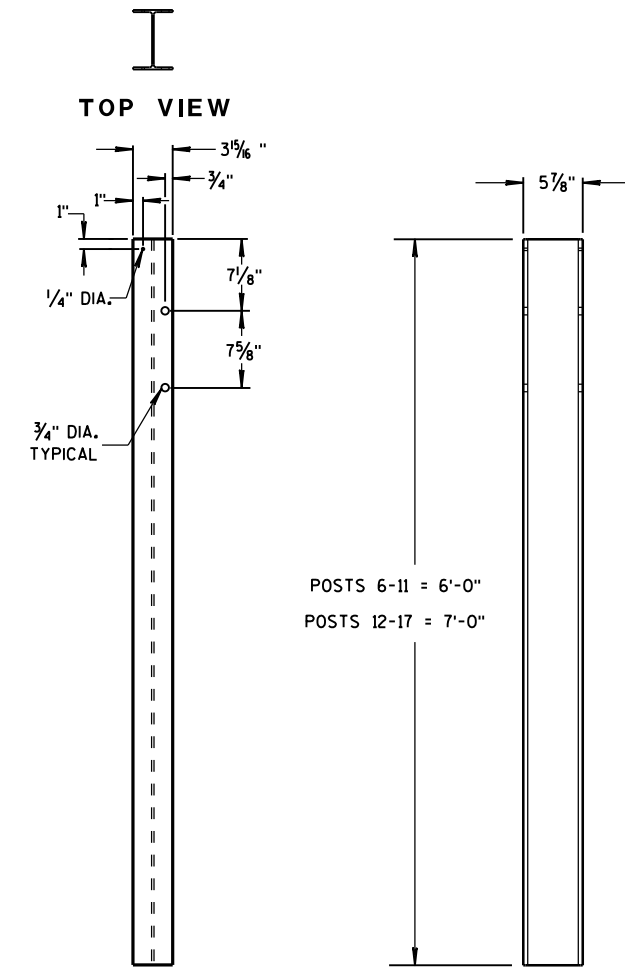


TOP VIEW



FRONT VIEW

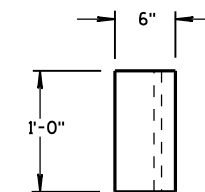
BLOCKOUT
POSTS 1-5



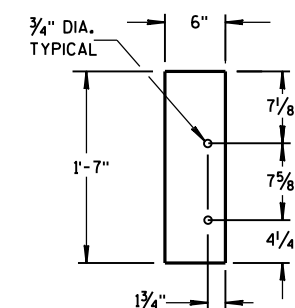
FRONT VIEW

SIDE VIEW

STEEL POSTS 6-17



TOP VIEW



FRONT VIEW

BLOCKOUT
POSTS 6-17

GENERAL NOTES

STEEL POSTS ARE W6X9 OR W6X8.5.

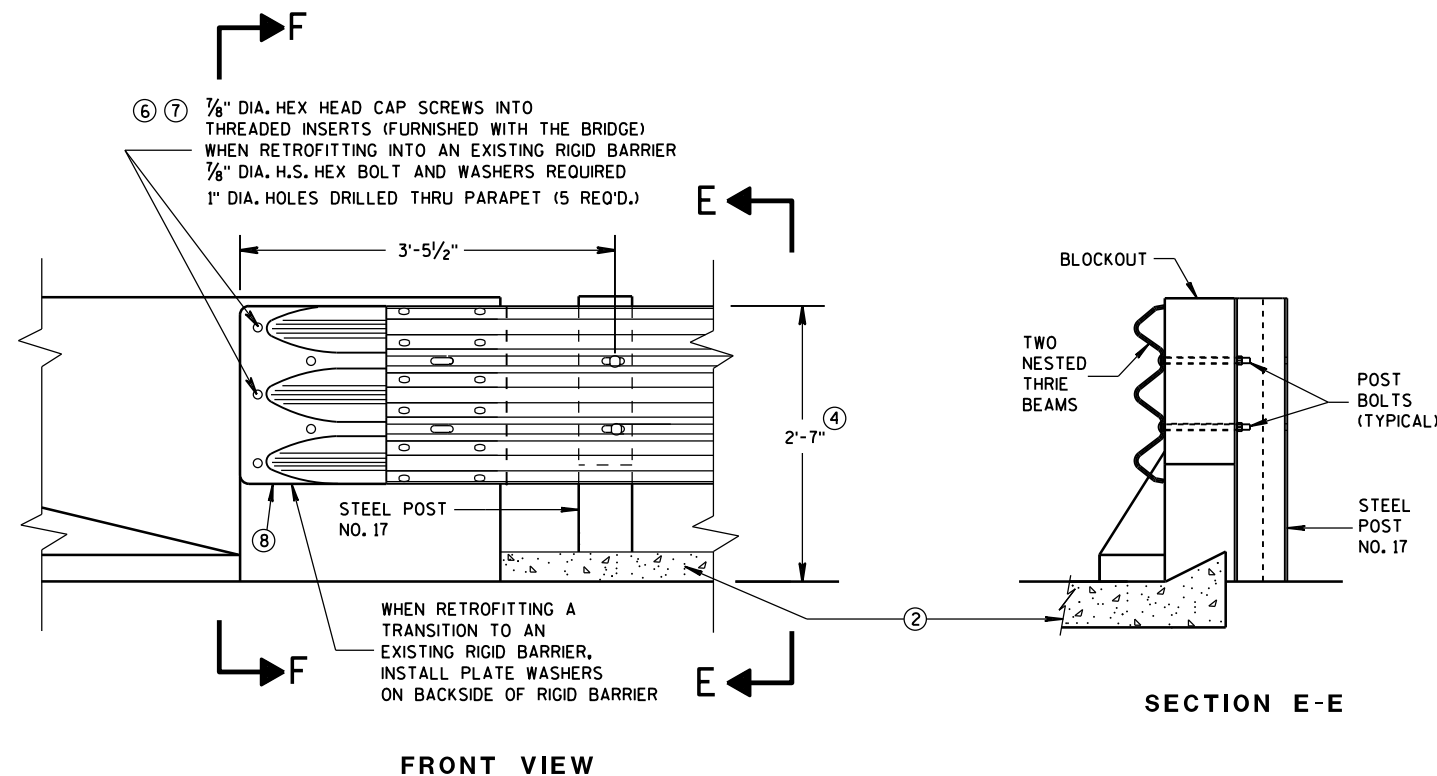
BOLT HOLES FOR POST ARE ON FRONT AND OF SIDE OF POST.

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

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

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

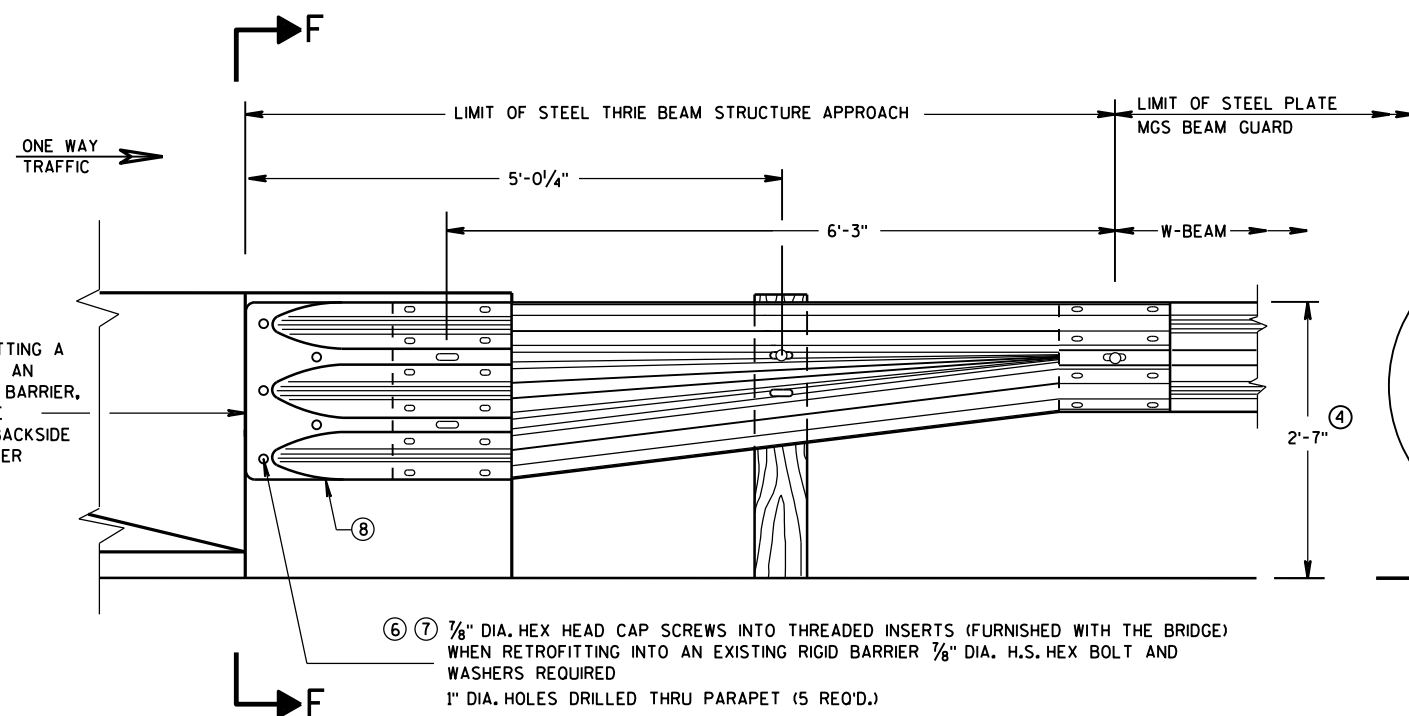
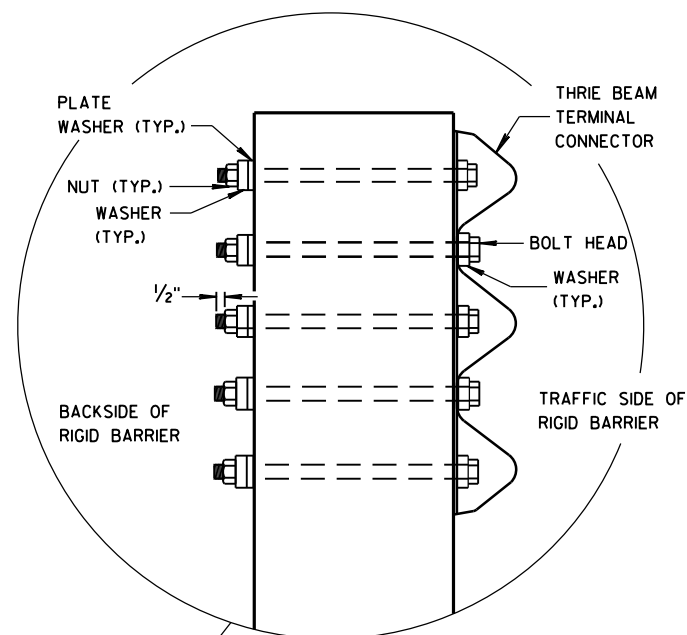


THRIE BEAM CONNECTION TO BRIDGE PARAPET WITH SQUARE ENDS

GENERAL NOTES

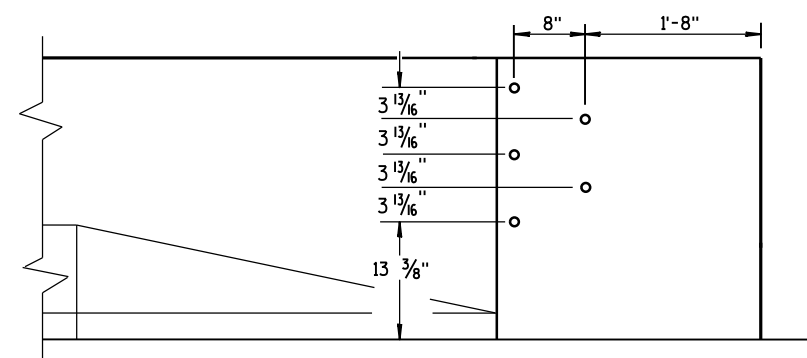
THESE ARE TYPICAL CONNECTION DETAILS. ADJUST THE POSITION OF CONNECTIONS TO EXISTING BRIDGES TO FIT THE ACTUAL BRIDGE AND SITE DIMENSIONS.

- 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.
- 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 5/8" 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".



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

June, 2015

DATE

FHWA

/S/ Jerry H. Zogg

ROADWAY STANDARDS D 66

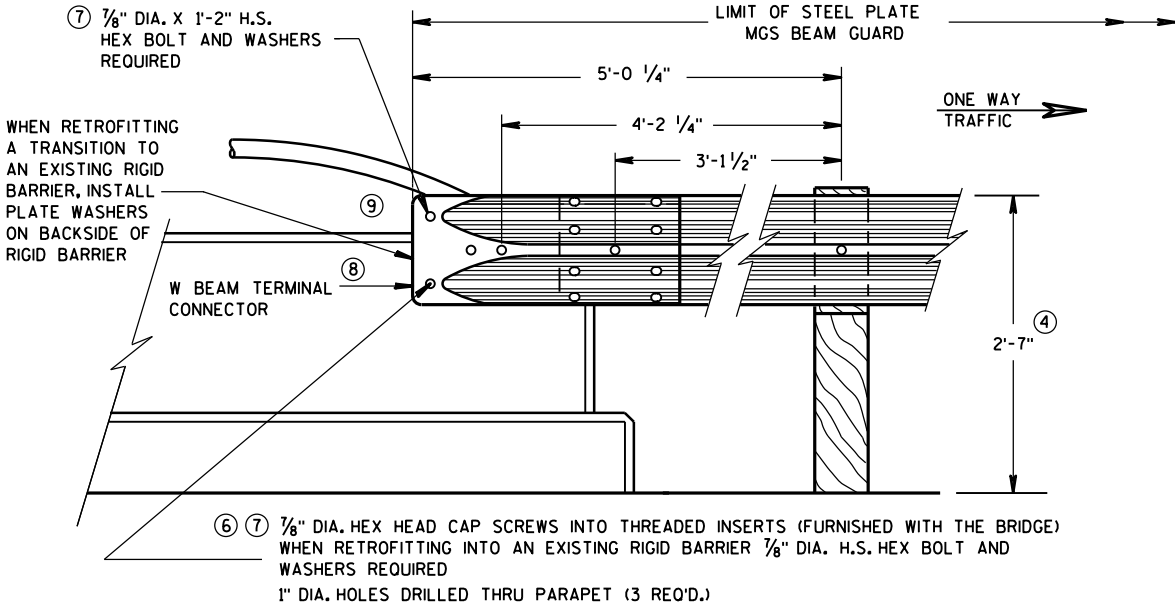
ENGINEER

NT

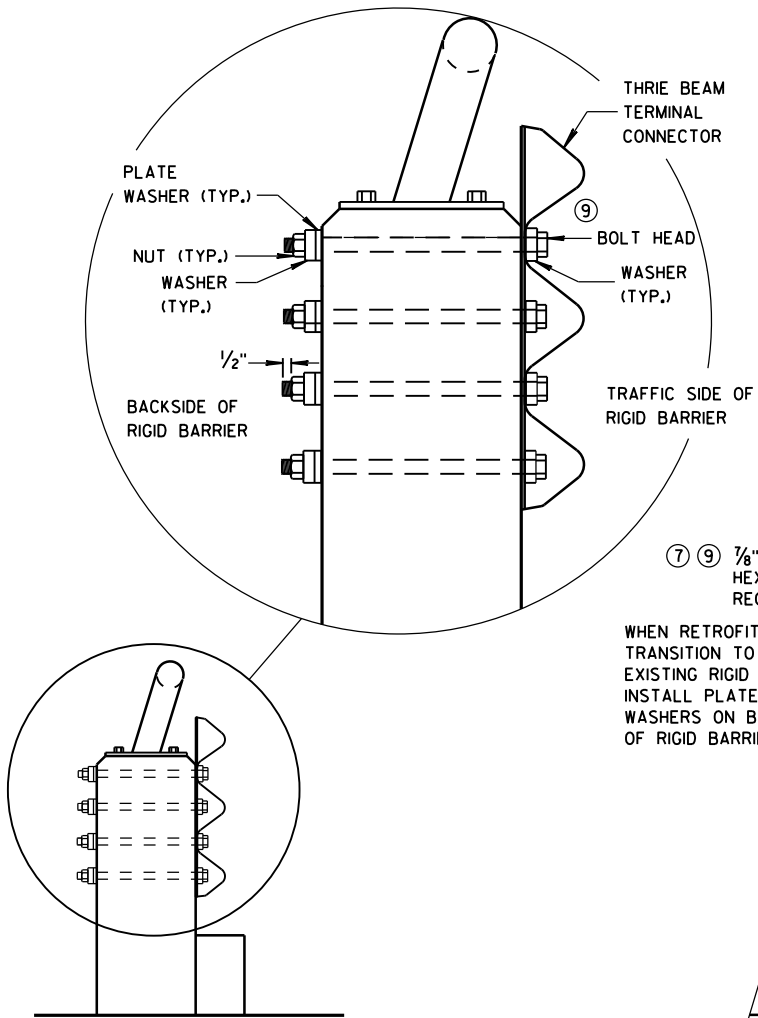
GENERAL NOTES

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

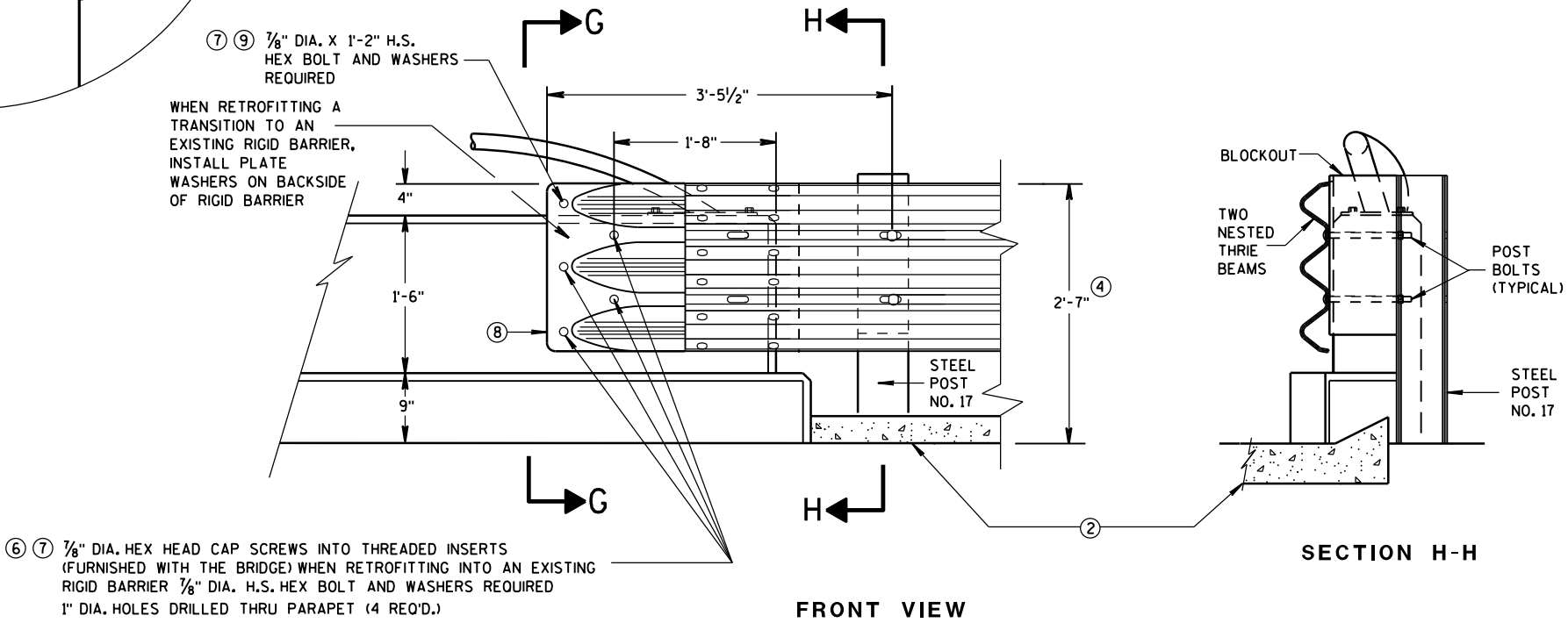
- ② OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.
- ④ TOLERANCE FOR TOP OF BEAM IS $\pm 1"$.
- ⑥ DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.
- ⑦ BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH 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 $\frac{5}{8}"$ 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 $\frac{1}{2}"$.
- 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.



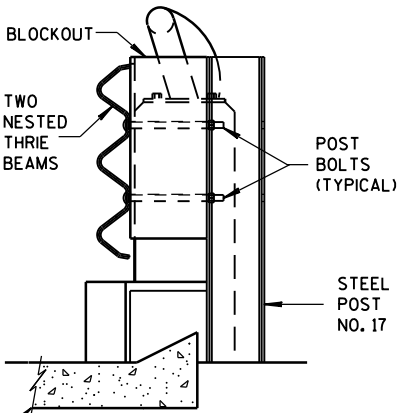
FRONT VIEW
W BEAM CONNECTION TO VERTICAL FACE PARAPET
(USE ONLY ON THE TRAFFIC EXIT END OF ONE WAY BRIDGES)



SECTION G-G



FRONT VIEW
THRIE BEAM CONNECTION TO VERTICAL FACED PARAPETS

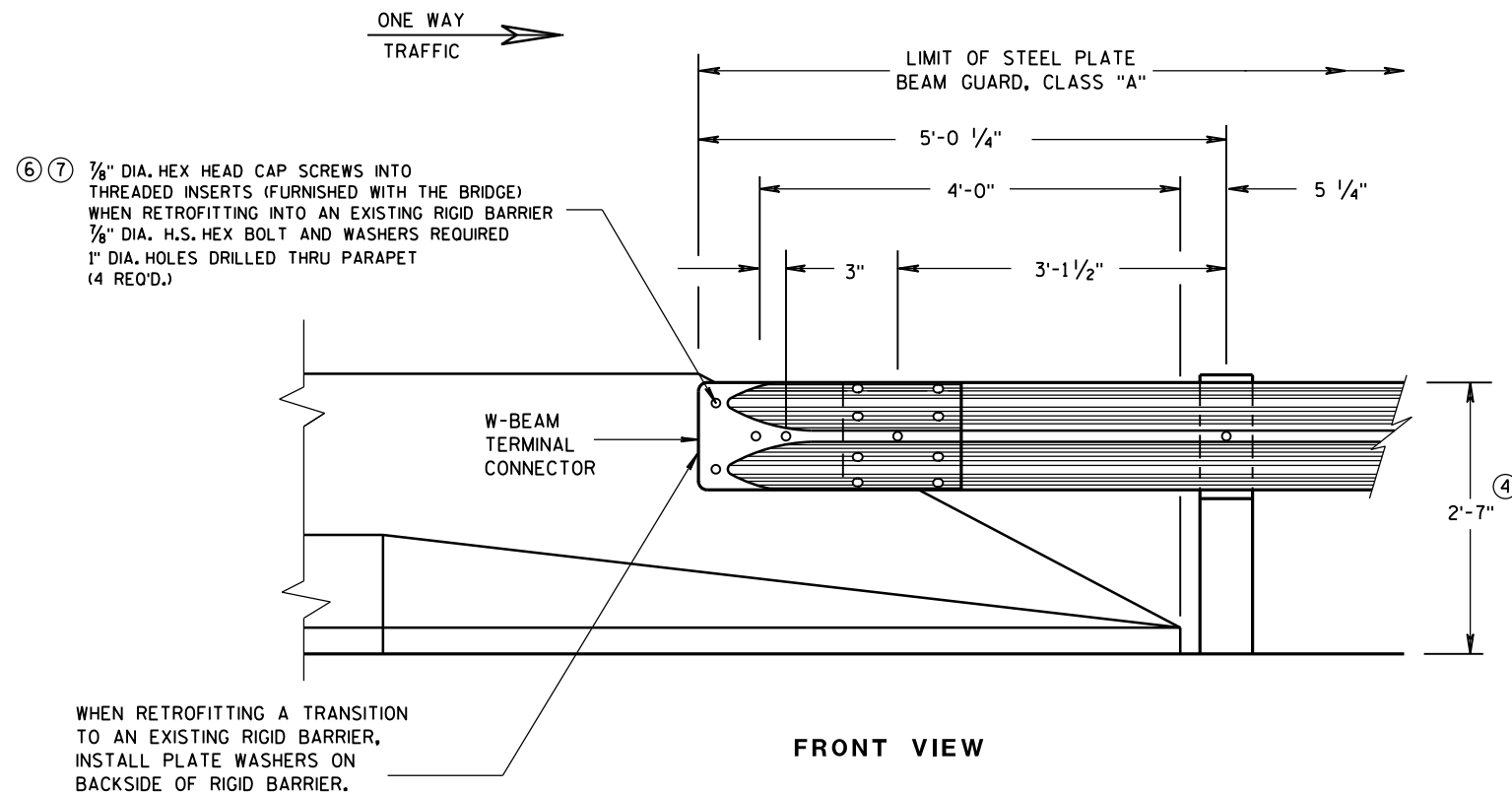


SECTION H-H

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

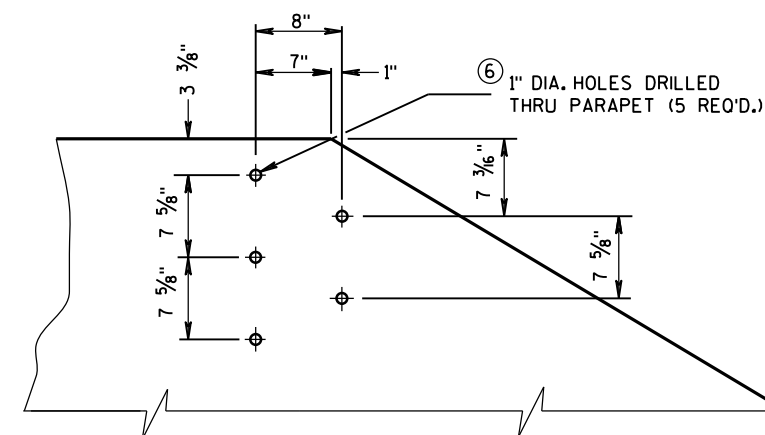
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June, 2015 /S/ Jerry H. Zogg
DATE ROADWAY STANDARDS D 67 NT
FHWA ENGINEER

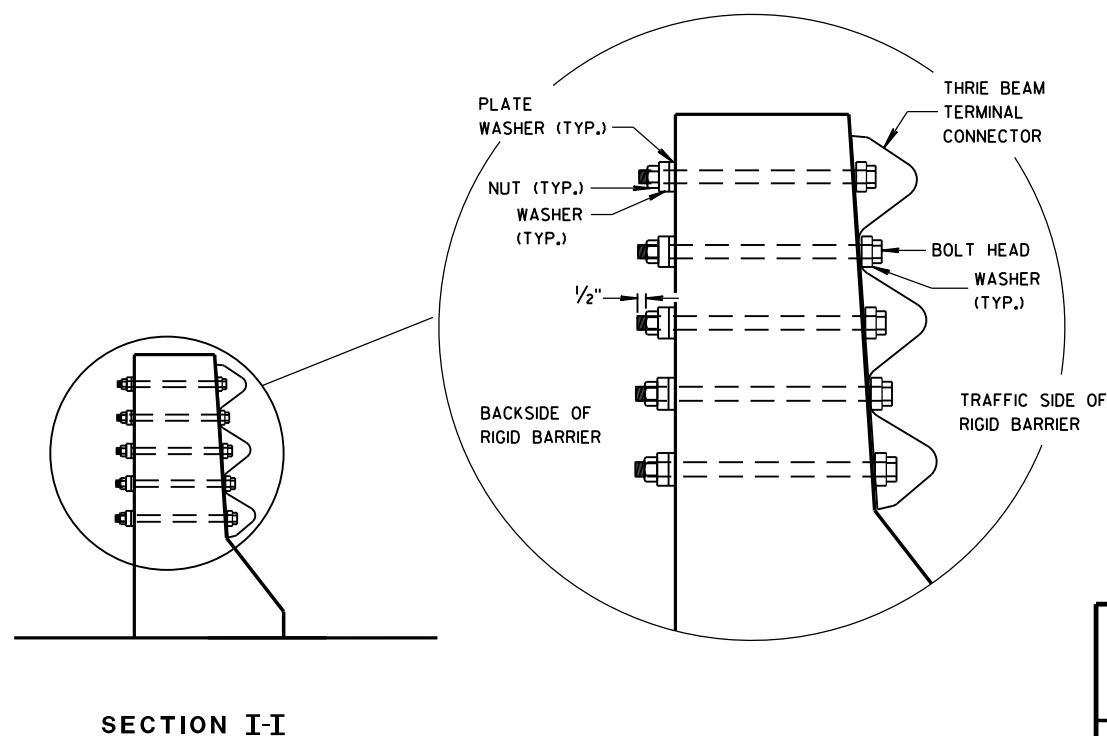
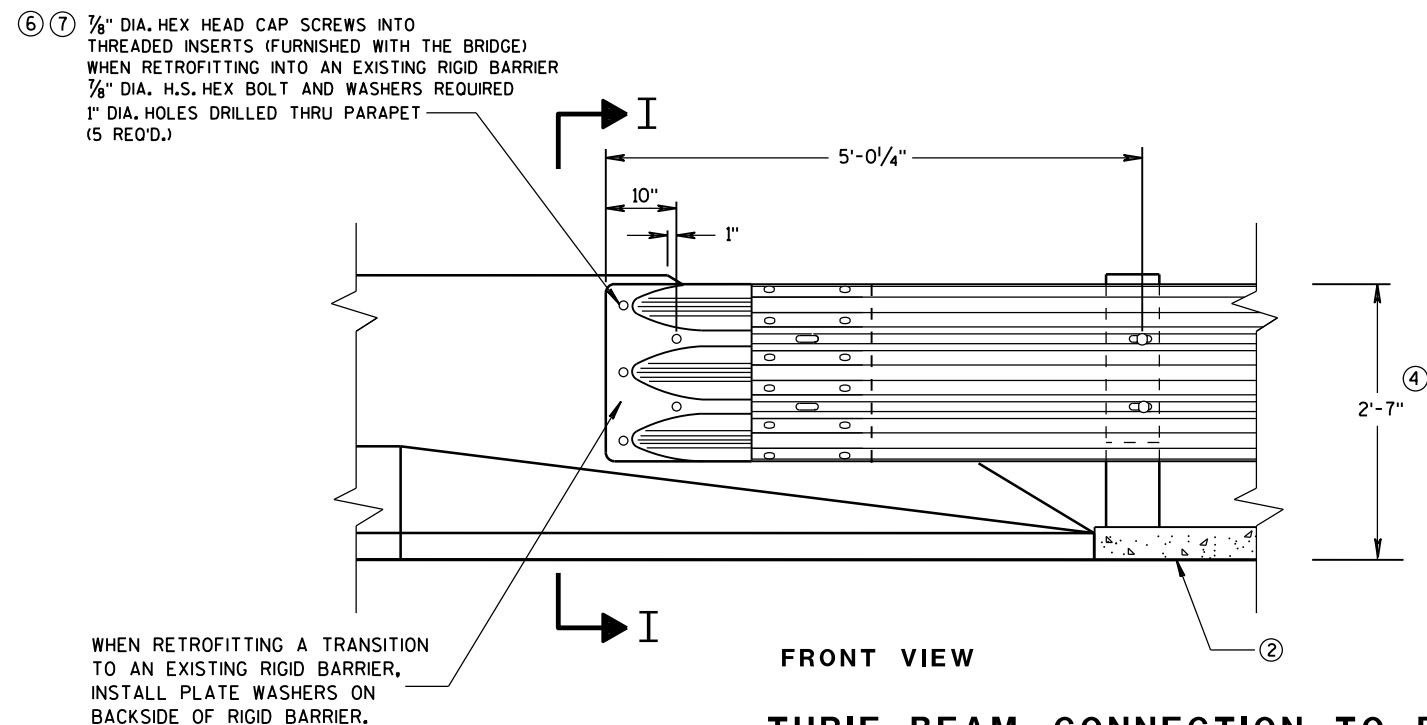


GENERAL NOTES

- 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.
- 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 5/8" THICK AND ONE PLATE WASHER. REPAIR ANY DAMAGED CONCRETE FROM BOLT INSTALLATION.



DRILL HOLE LOCATION AND PATTERN
FOR THRIE BEAM CONNECTION



MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

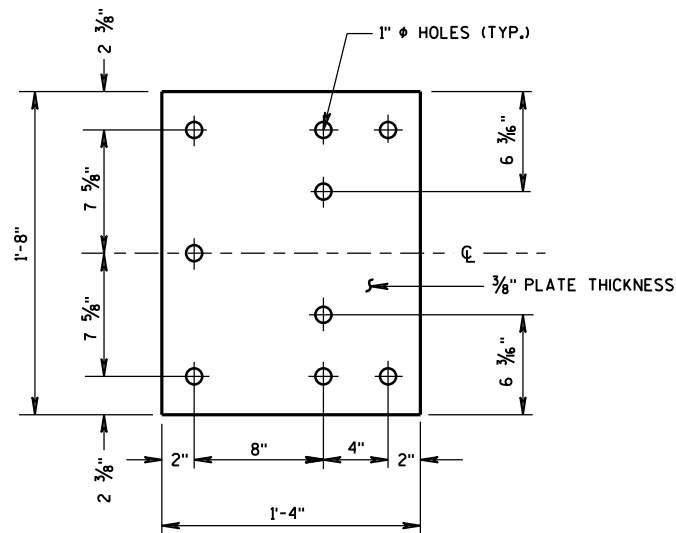
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

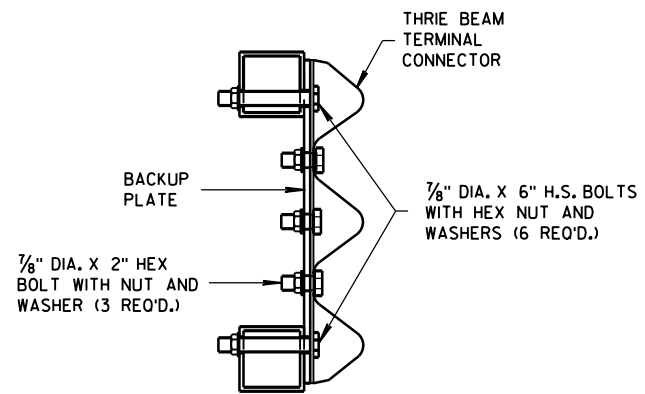
June, 2015
DATE

/S/ Jerry H. Zogg
ROADWAY STANDARDS ENGINEER

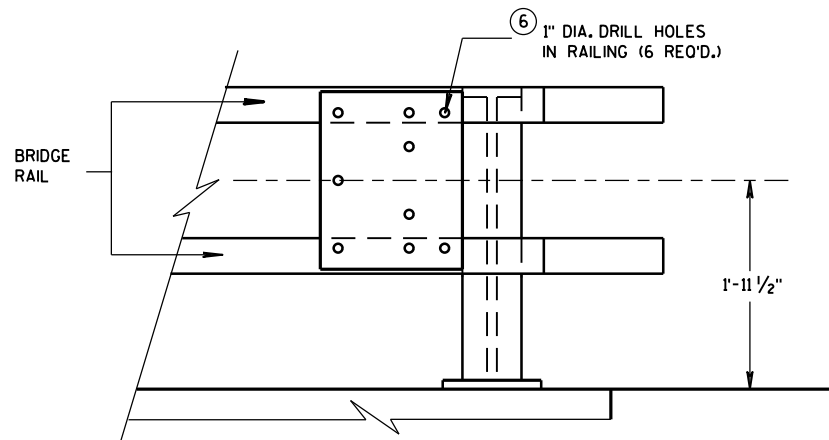
FHWA



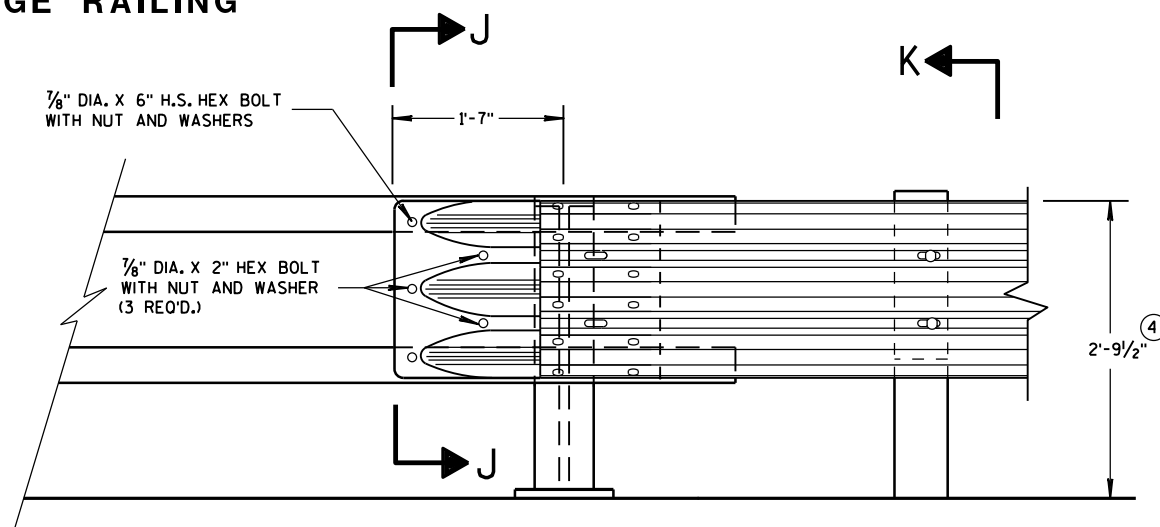
BACK-UP PLATE DETAIL



SECTION J-J

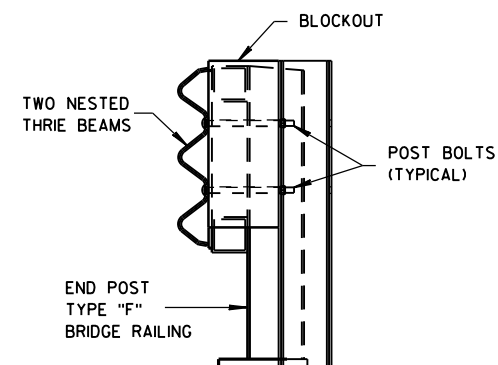


BACK-UP PLATE MOUNTING ONTO BRIDGE RAILING



FRONT VIEW

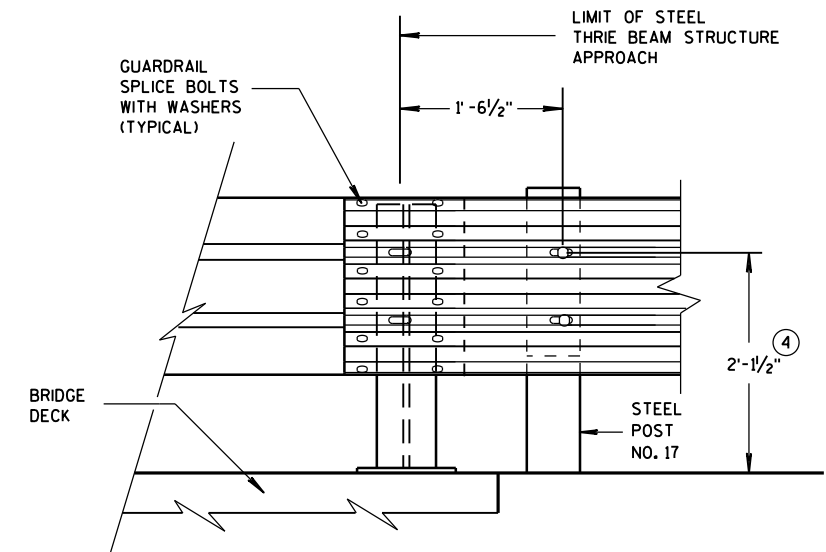
THRIE BEAM CONNECTION TO TUBULAR RAILING TYPE "F"



SECTION K-K

GENERAL NOTES

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



FRONT VIEW

THRIE BEAM CONNECTION TO STEEL RAILING TYPE "W"

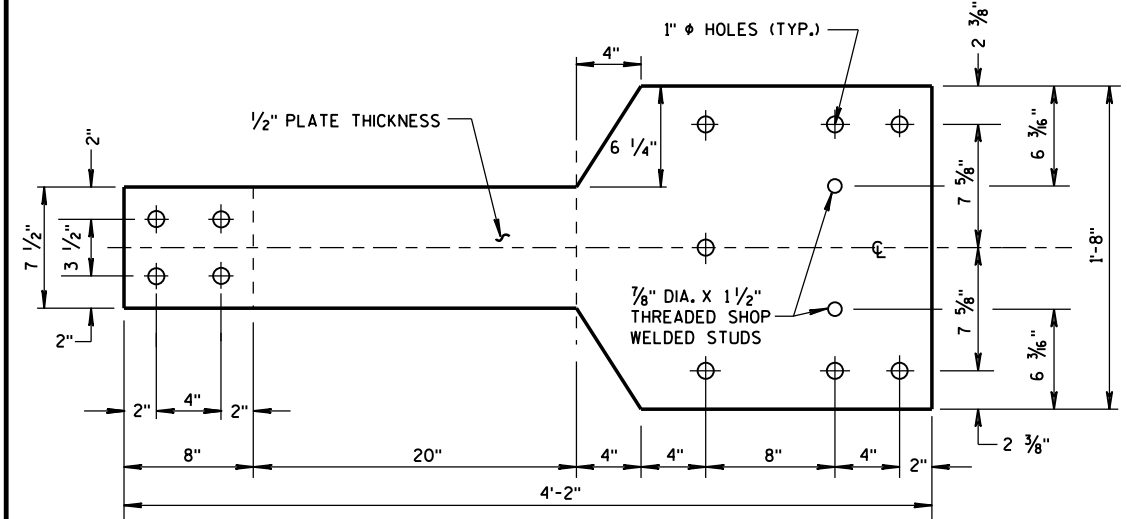
MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

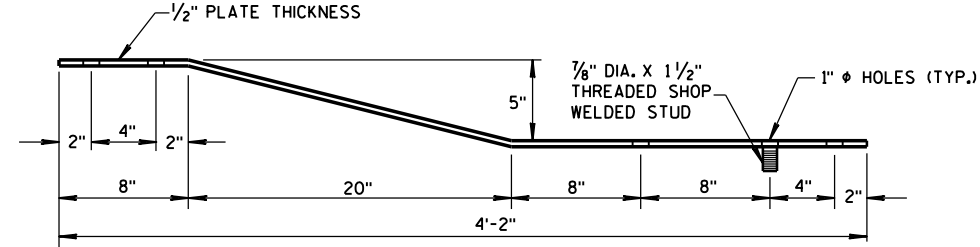
APPROVED
June, 2015 /S/ Jerry H. Zogg
DATE ROADWAY STANDARDS D 69 NT
FHWA ENGINEER

GENERAL NOTES

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

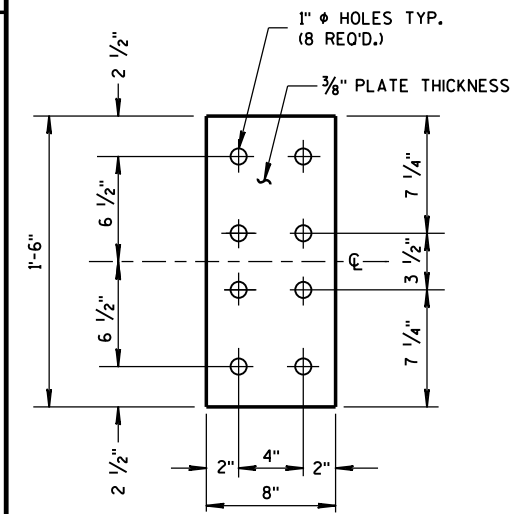


FRONT VIEW



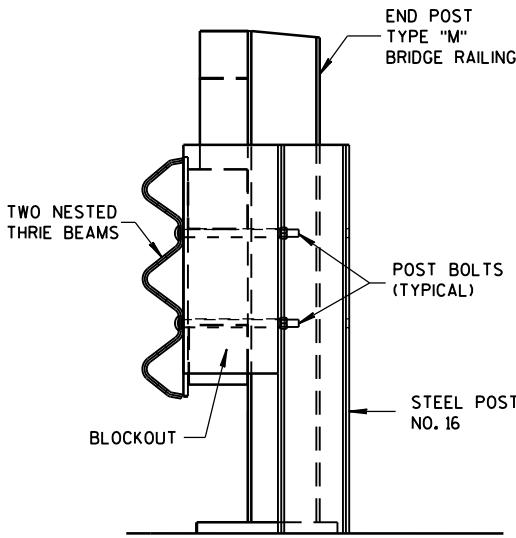
PLAN VIEW

BACK-UP PLATE DETAIL, TYPE "M"

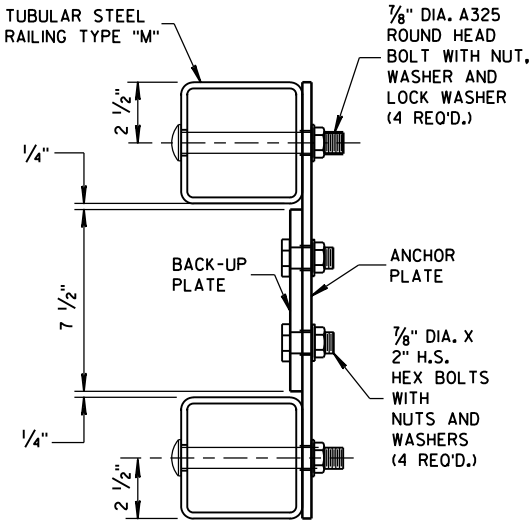


FRONT VIEW

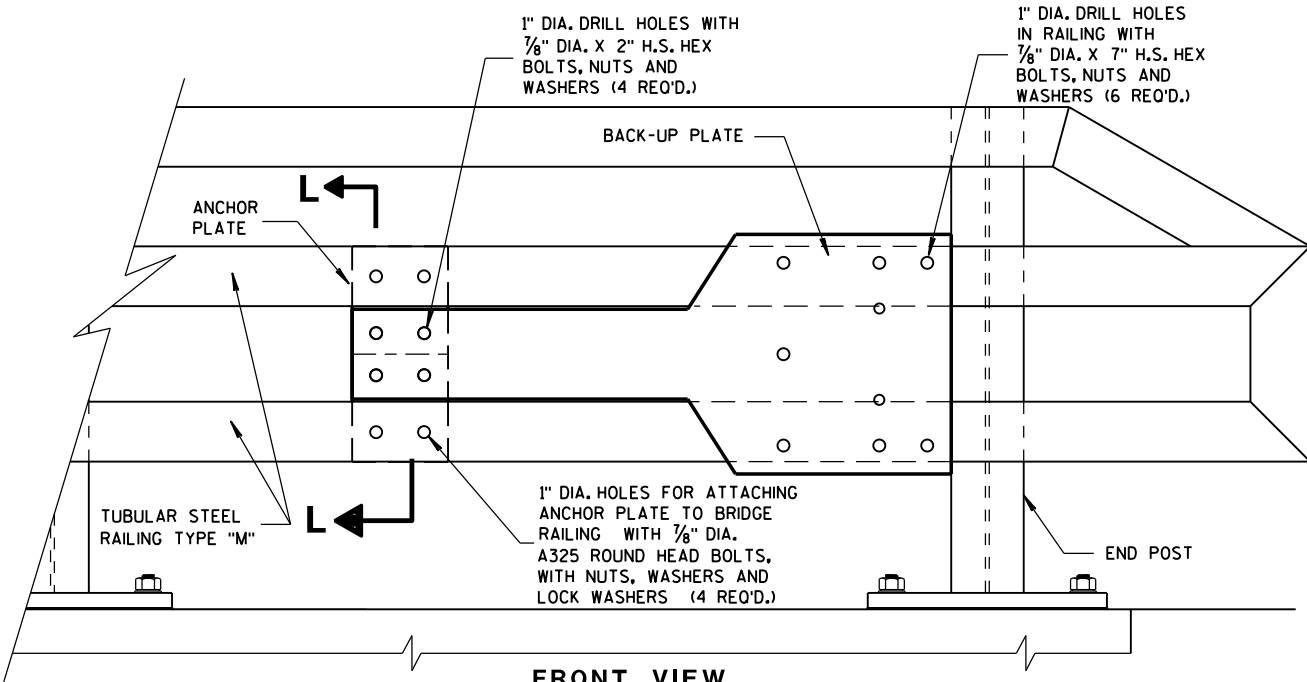
ANCHOR PLATE DETAIL, TYPE "M"



SECTION M-M

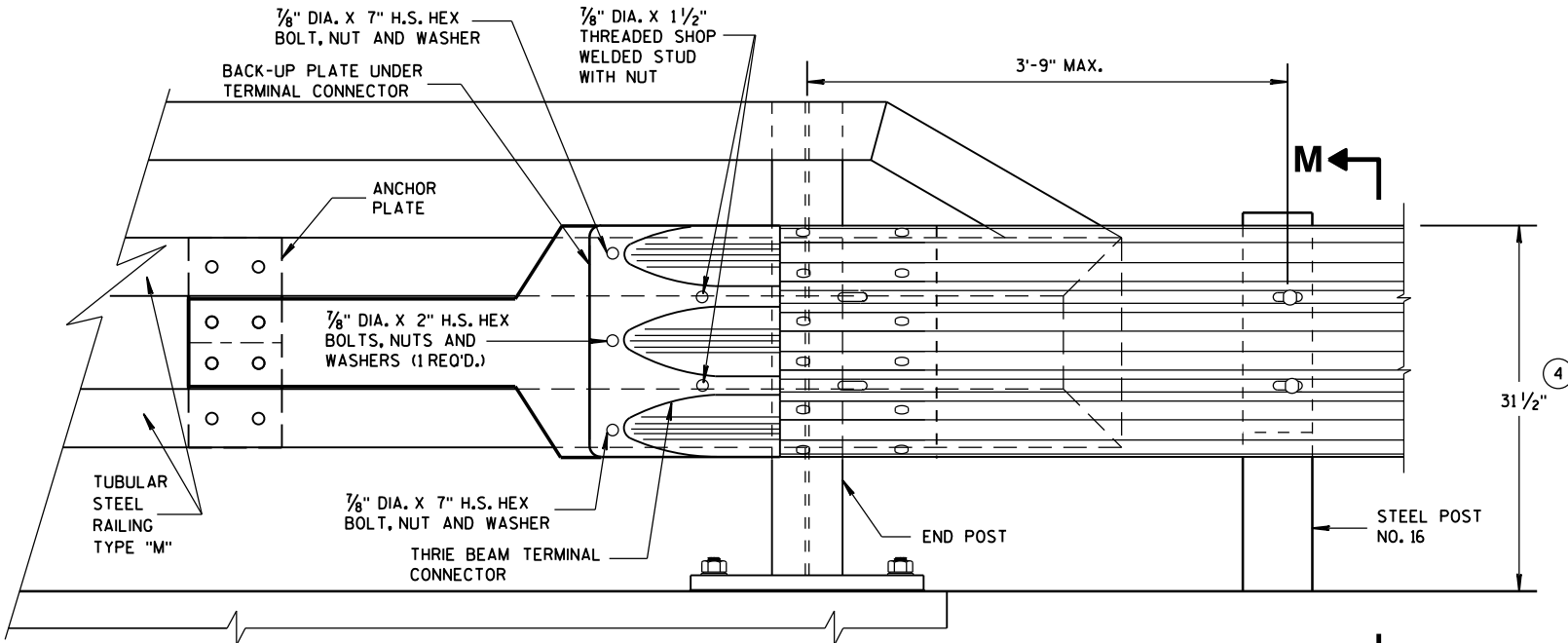


SECTION L-L

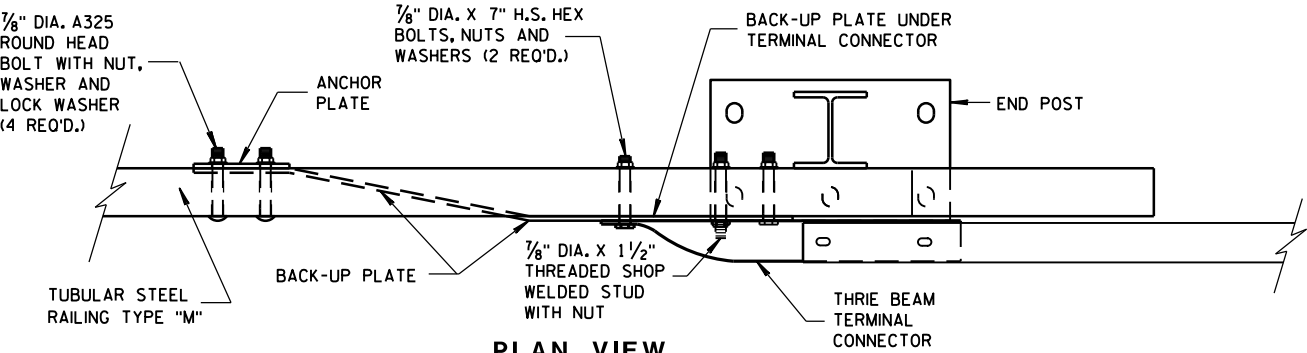


FRONT VIEW

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



FRONT VIEW



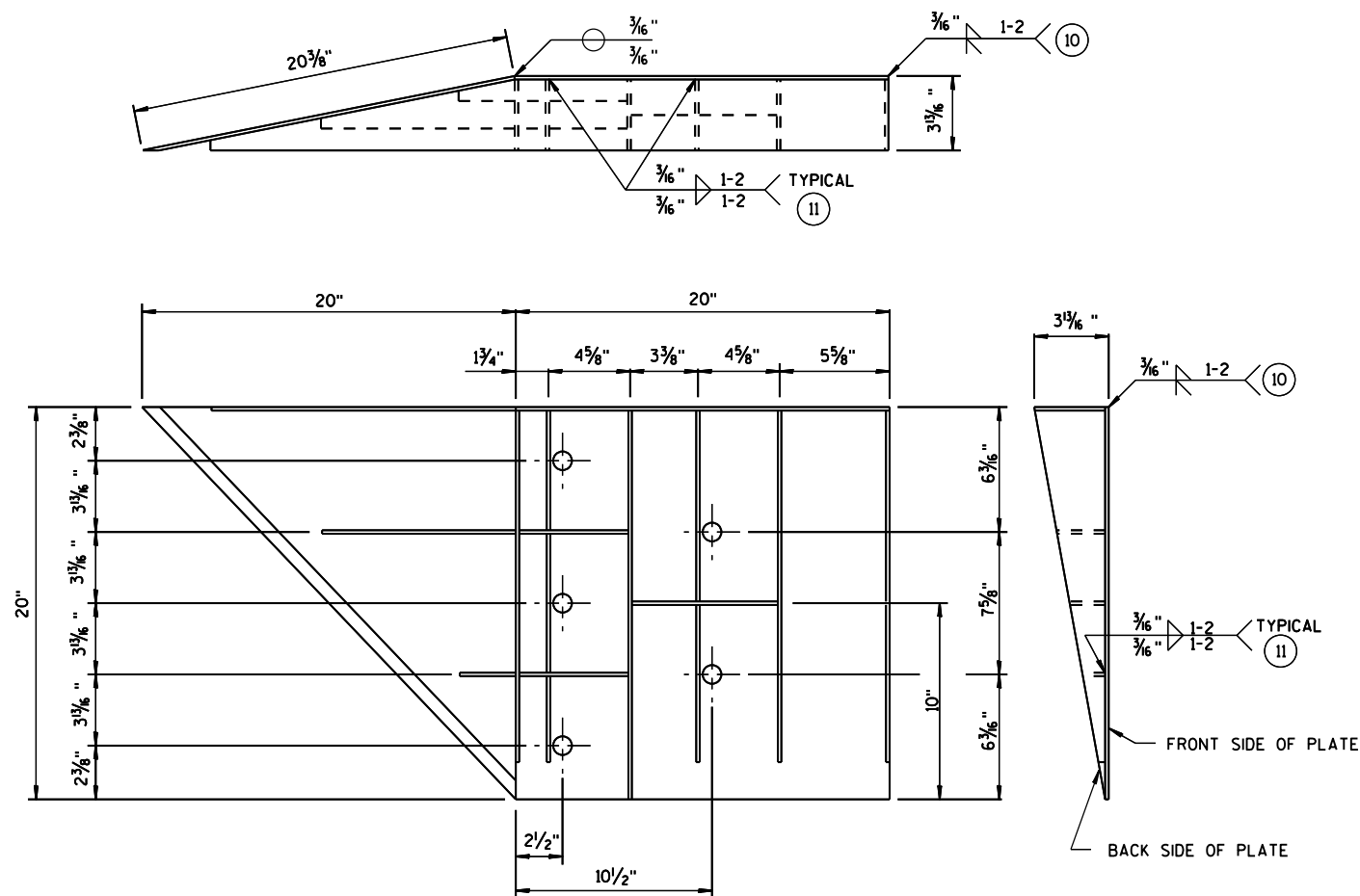
PLAN VIEW

THRIE BEAM CONNECTION TO TUBULAR RAILING, TYPE "M"

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June, 2015 /S/ Jerry H. Zogg
DATE ROADWAY STANDARDS [70] INT
FHWA ENGINEER



WELDING INSTRUCTION

(VIEWED FROM BACK SIDE OF PLATE)

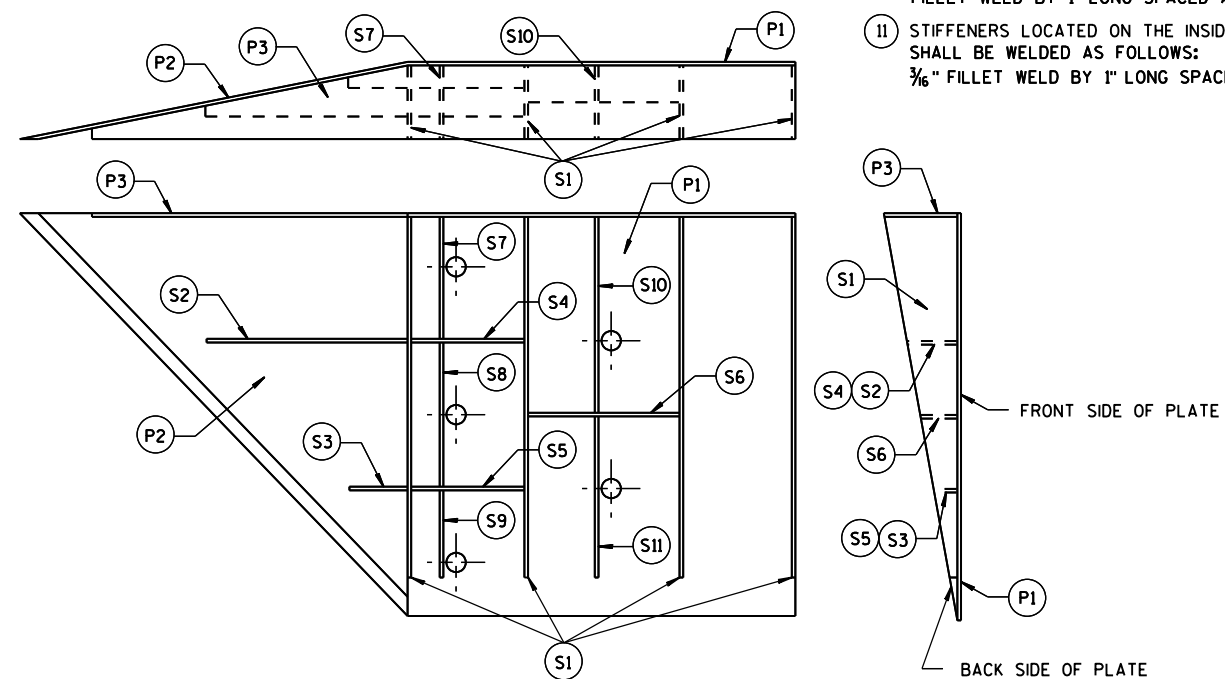


PLATE AND STIFFENER IDENTIFICATION

(VIEWED FROM BACK SIDE OF PLATE)

GENERAL NOTES

COVER PLATE PANELS ARE $\frac{3}{16}$ " THICK.

ALL STIFFENERS ARE $\frac{1}{4}$ " 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 $\frac{3}{16}$ " 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:
 $\frac{3}{16}$ " FILLET WELD BY 1" LONG SPACED AT 2".

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

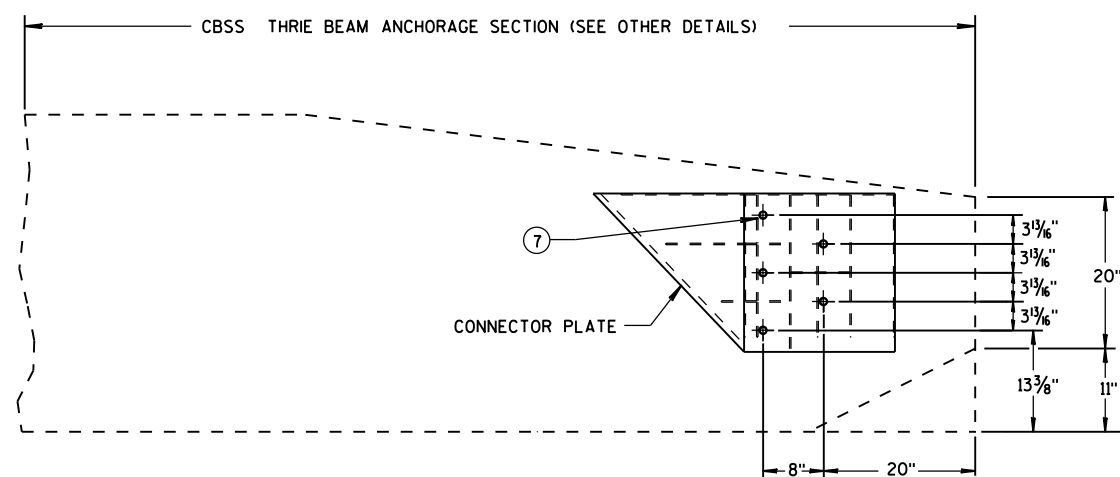
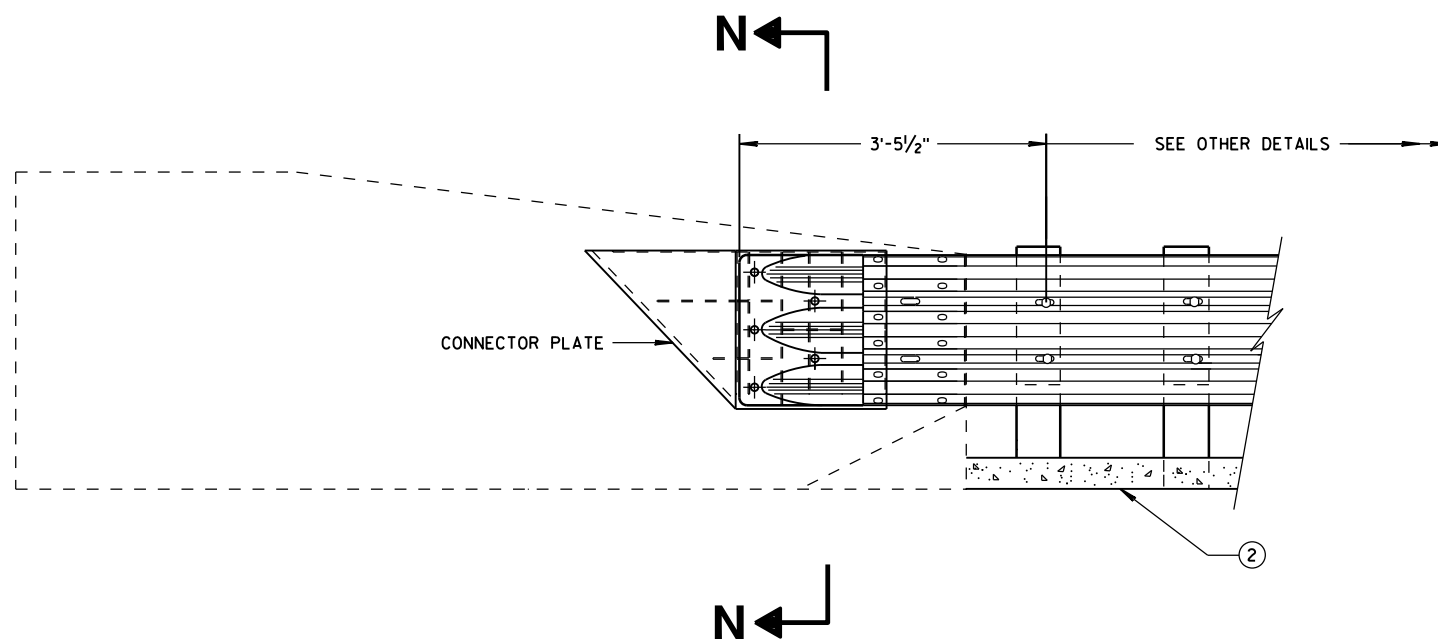
SINGLE SLOPE CONNECTION PLATE

MIDWEST GUARDRAIL SYSTEM
THREE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

THRIE BEAM CONNECTION TO SINGLE SLOPE BARRIER



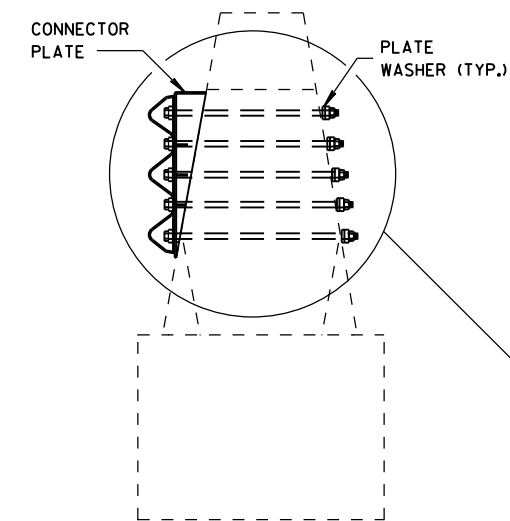
SINGLE SLOPE CONNECTION PLATE PLACEMENT

GENERAL NOTES

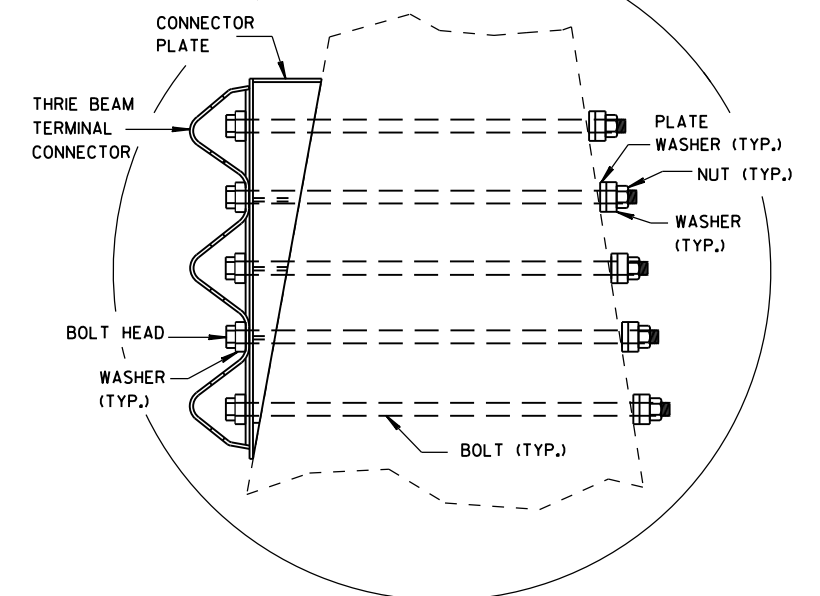
CONNECTOR PLATE, DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.

(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 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 5/8" THICK AND ONE PLATE WASHER. REPAIR ANY DAMAGED CONCRETE FROM BOLT INSTALLATION.



SECTION N-N



MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
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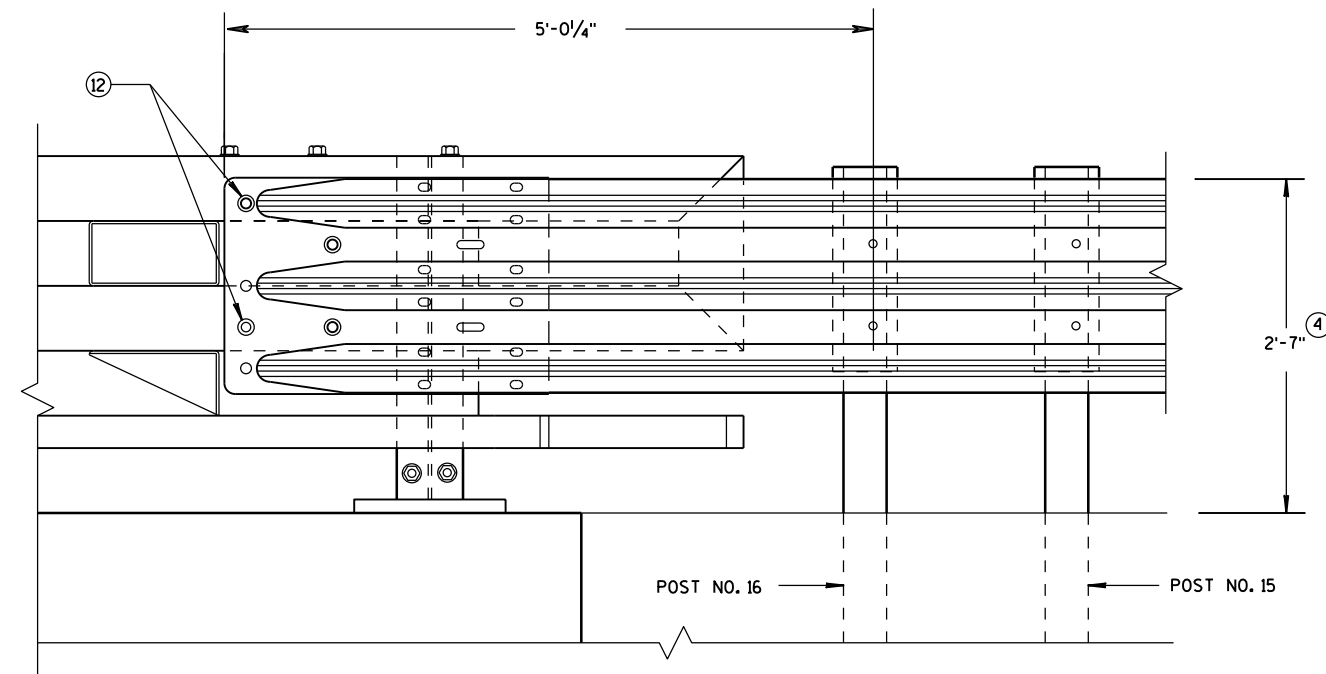
/s/ Jerry H. Zoaga
ROADWAY STANDARDS D 72
ENGINEER

NT

GENERAL NOTES

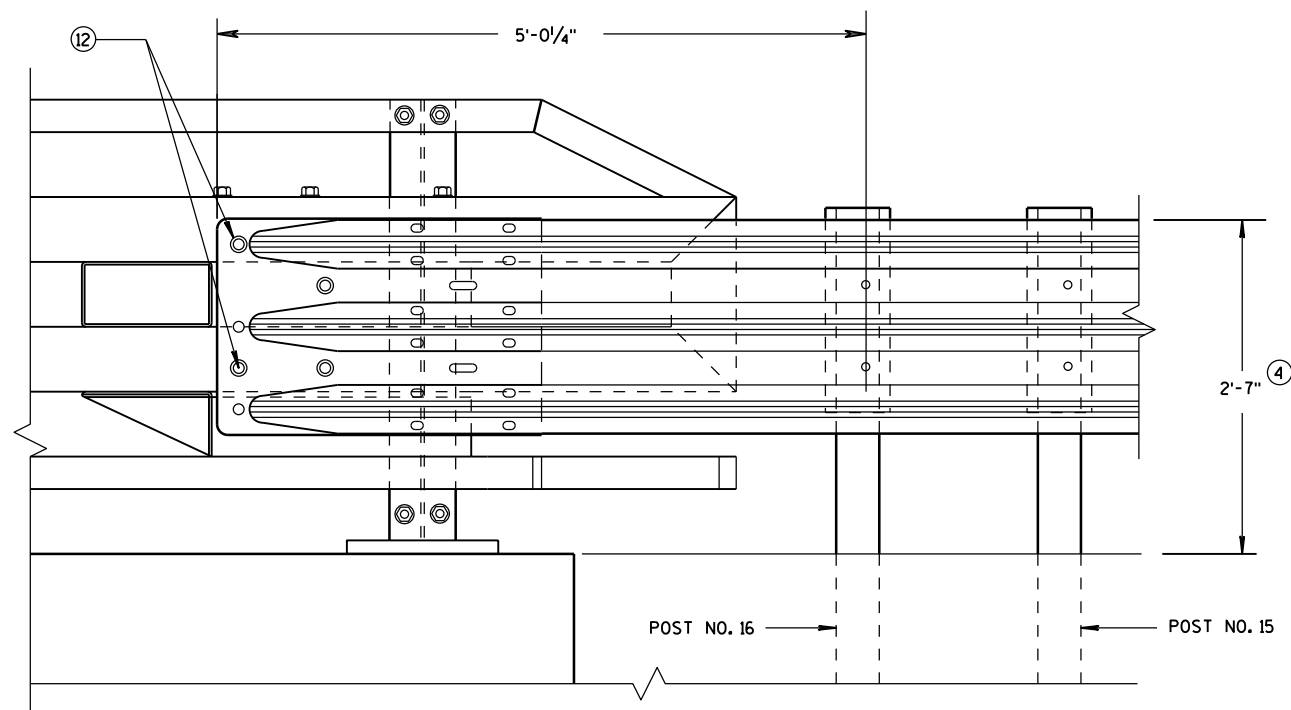
④ TOLERANCE FOR TOP OF BEAM IS $\pm 1"$.

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.



ELEVATION OF DETAIL AT NY3 END POST

THRIE BEAM RAIL ATTACHMENT



ELEVATION OF DETAIL AT NY4 END POST

THRIE BEAM RAIL ATTACHMENT

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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June, 2015

DATE

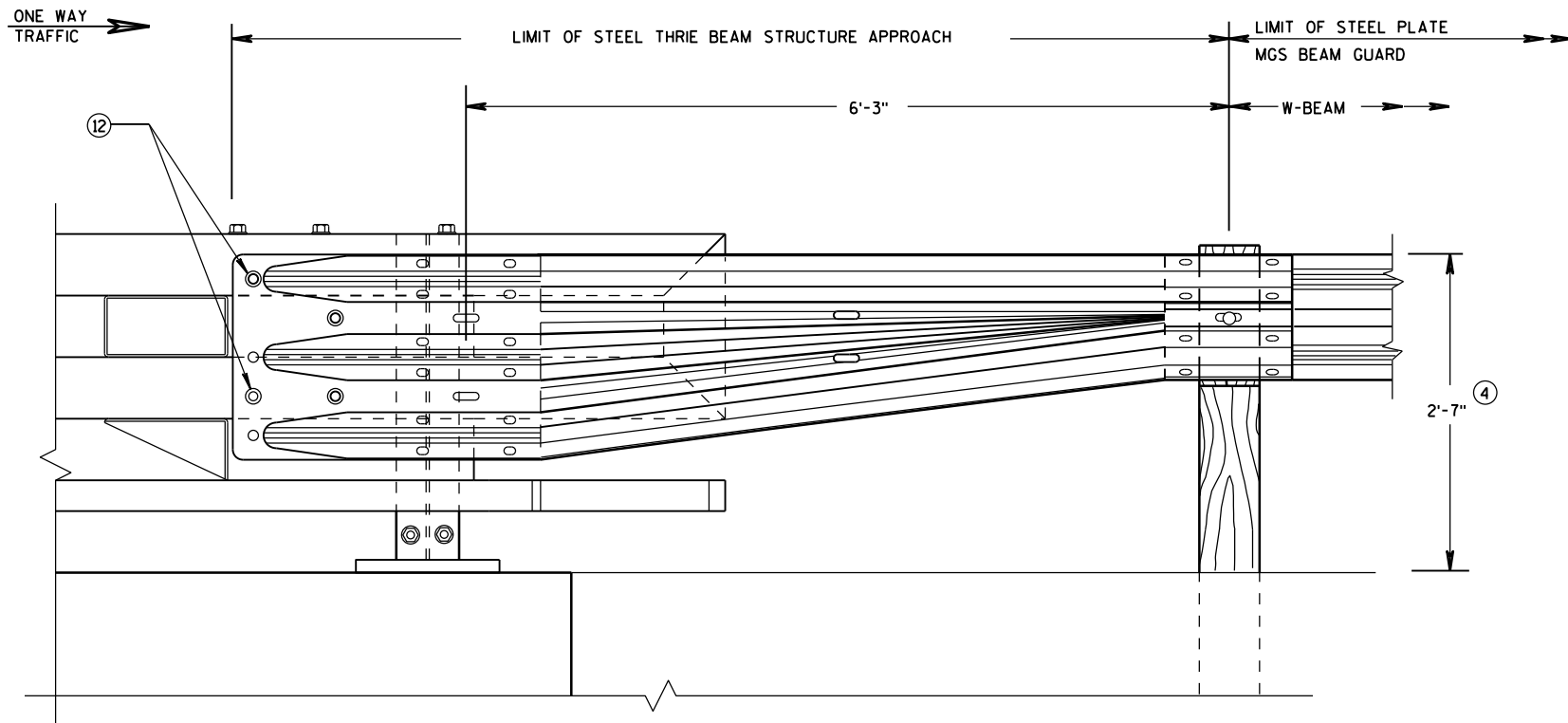
FHWA

/S/ Jerry H. Zogg

ROADWAY STANDARDS D 73

ENGINEER

NT

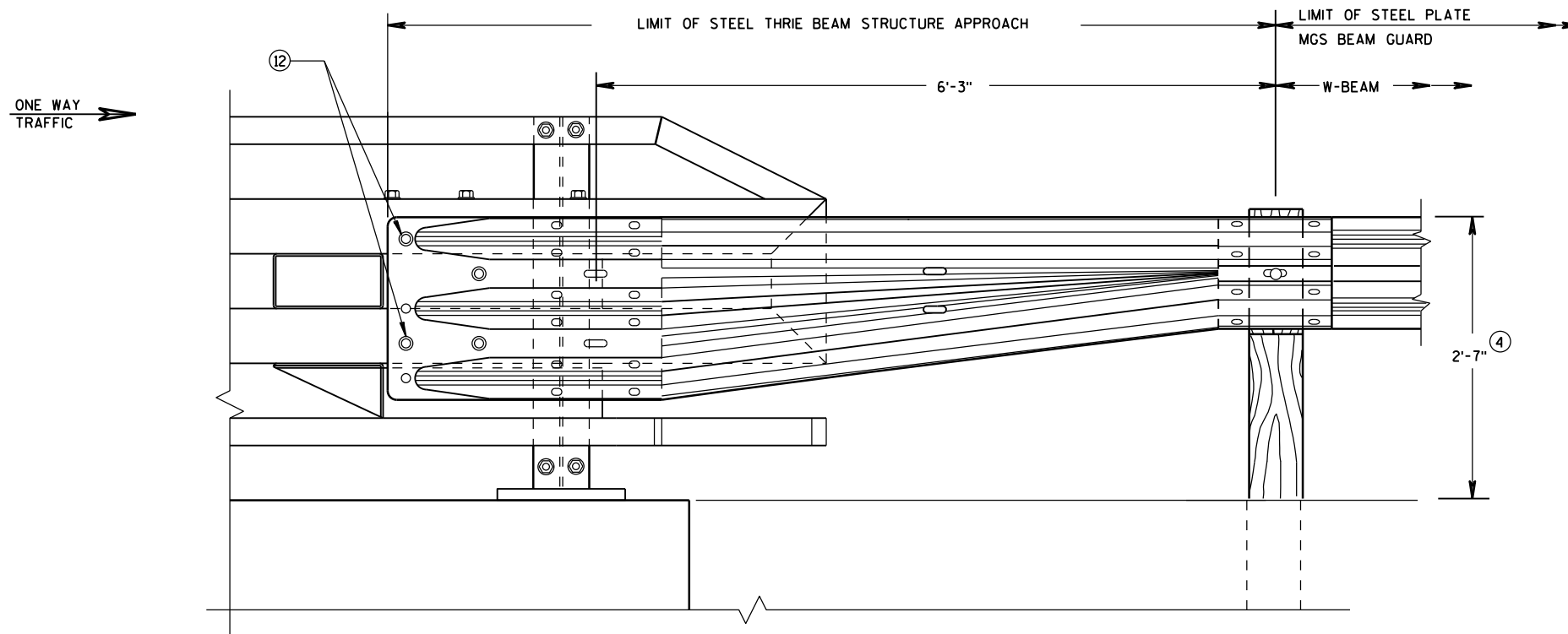


FRONT VIEW

**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.



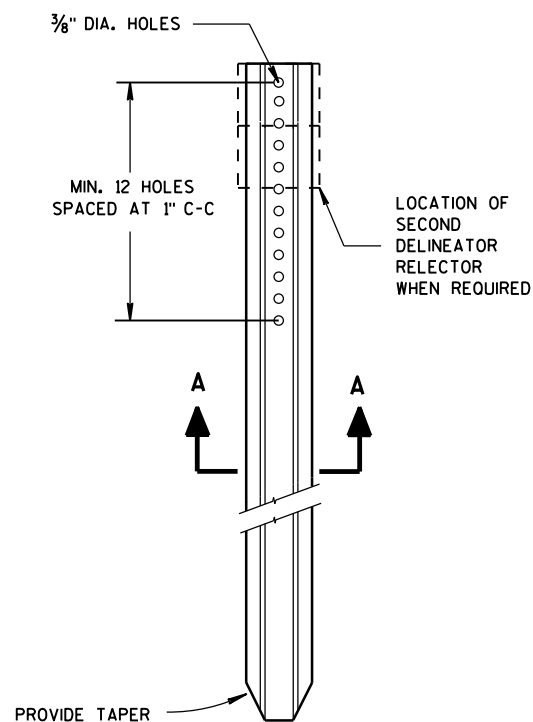
FRONT VIEW

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

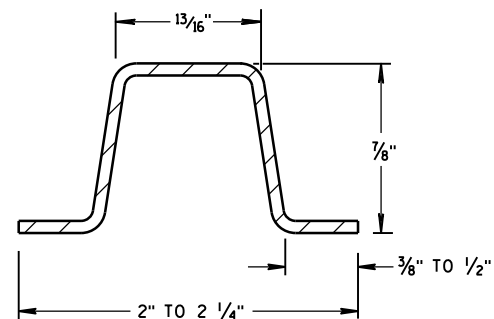
MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED	/S/ Jerry H. Zogg	NT
June, 2015	DATE	ROADWAY STANDARDS D 74
FHWA	ENGINEER	

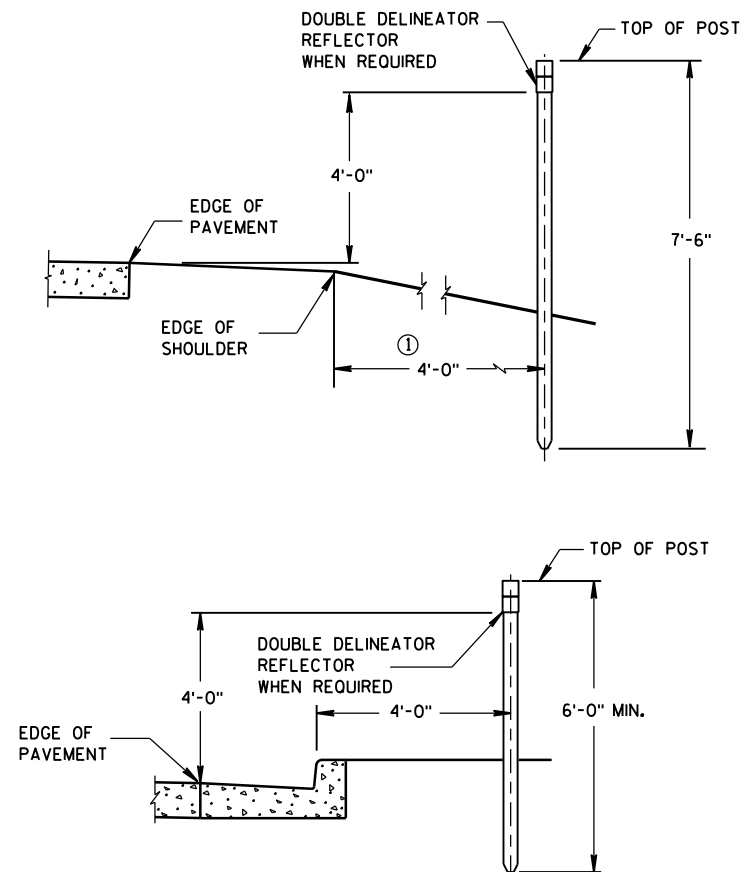


DELINEATOR POST

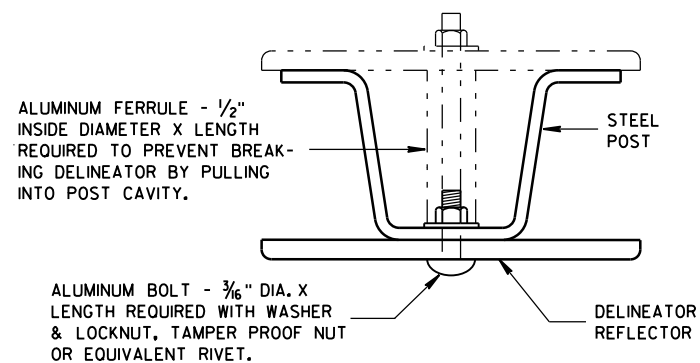
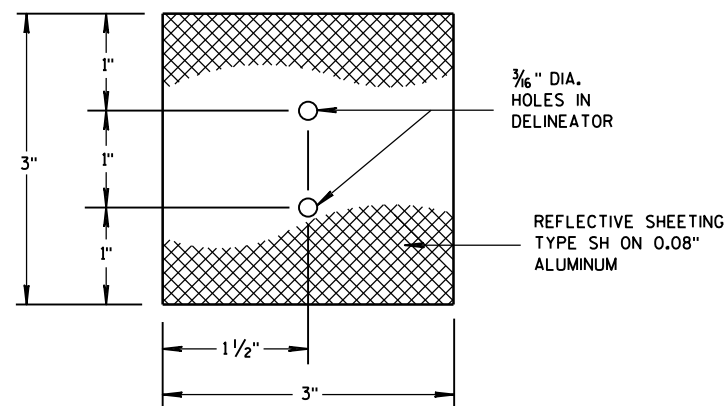


SECTION A-A

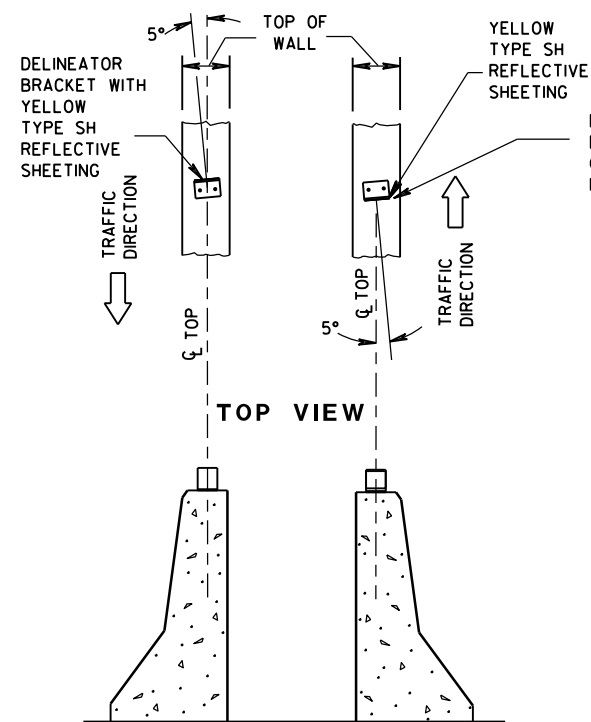
WEIGHT 1.12 LBS PER FT. ± 0.1 LB.



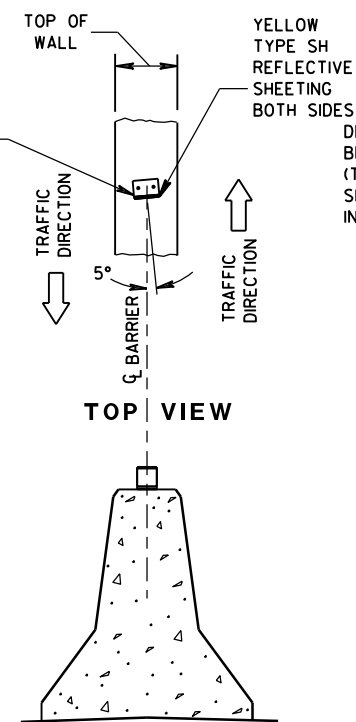
TYPICAL INSTALLATIONS OF DELINEATOR POSTS

MOUNTING DETAIL
FOR DELINEATOR REFLECTOR

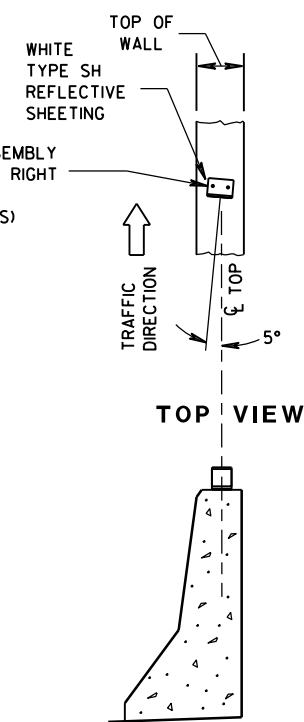
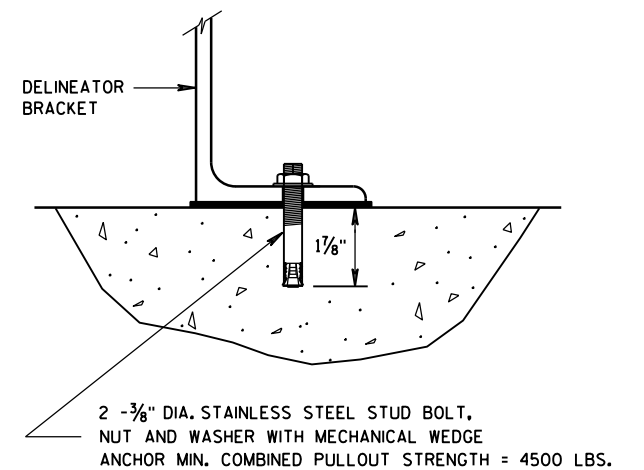
3" x 3" DELINEATOR REFLECTOR



DOUBLE BARRIERS IN MEDIAN



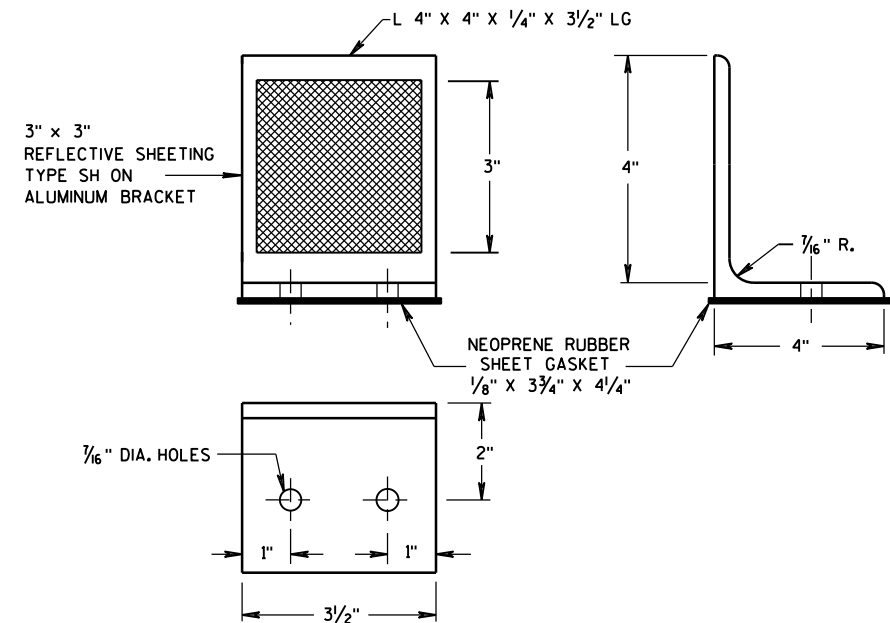
MEDIAN BARRIER

BARRIER LOCATED
TO RT. OF TRAFFIC FLOWDELINEATOR BRACKET
MOUNTING DETAIL

GENERAL NOTES

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

- ① DELINEATORS SHALL BE PLACED AT A CONSTANT DISTANCE FROM THE EDGE OF THE SHOULDER FOR THE LENGTH OF THE INSTALLATION.



DELINEATOR BRACKET

LOCATION AND AIMING DETAILS FOR DELINEATOR BRACKETS MOUNTED ON CONCRETE BARRIERS

DELINEATOR POST,
DELINEATOR REFLECTOR AND
DELINEATOR BRACKET
WITH REFLECTIVE SHEETING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

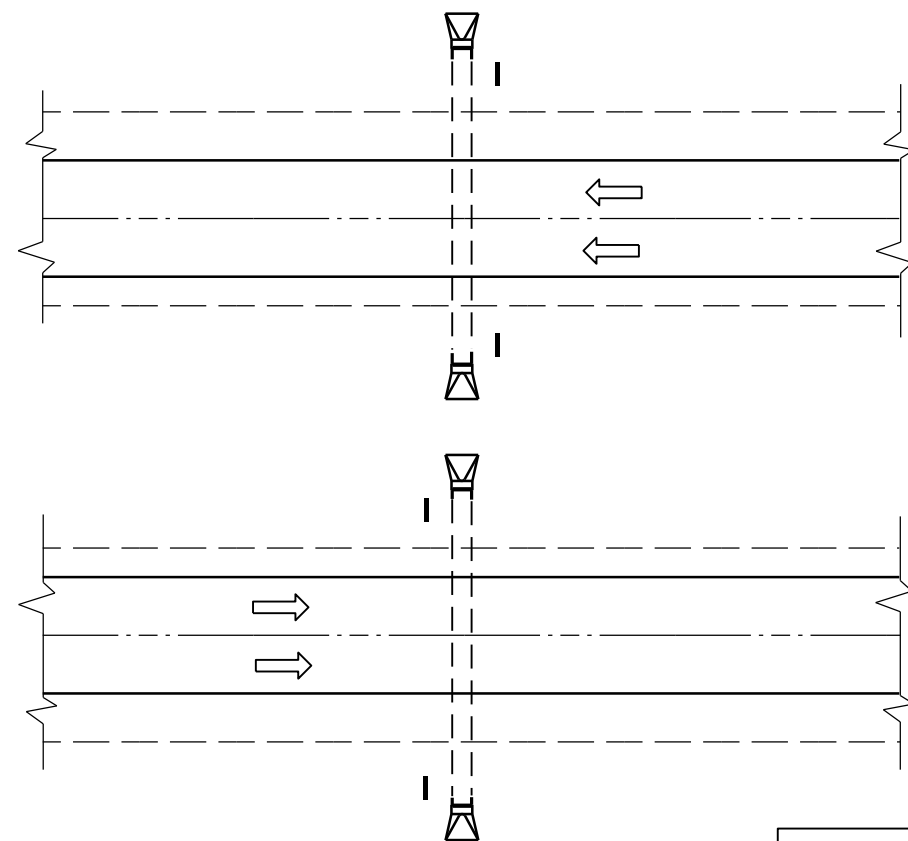
4-18-16

DATE

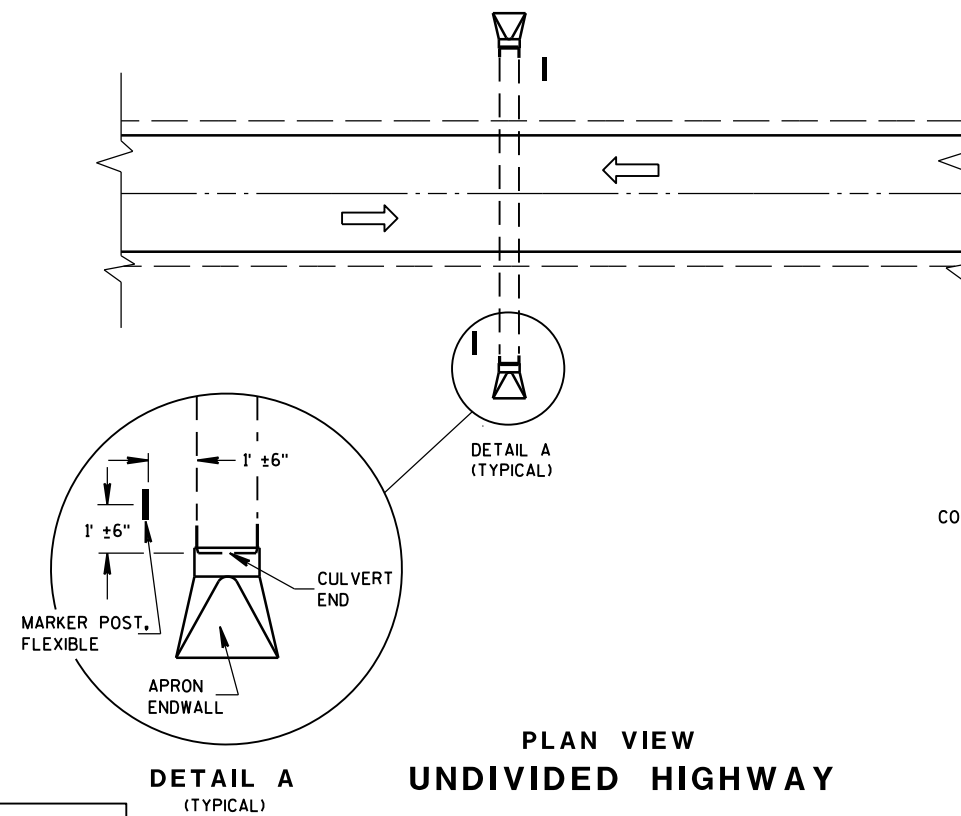
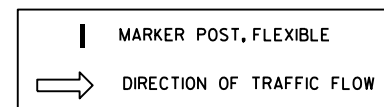
/S/ Matthew R. Rauch

STATE SIGNING AND MAINTENANCE ENGINEER

FHWA



PLAN VIEW
DIVIDED HIGHWAY

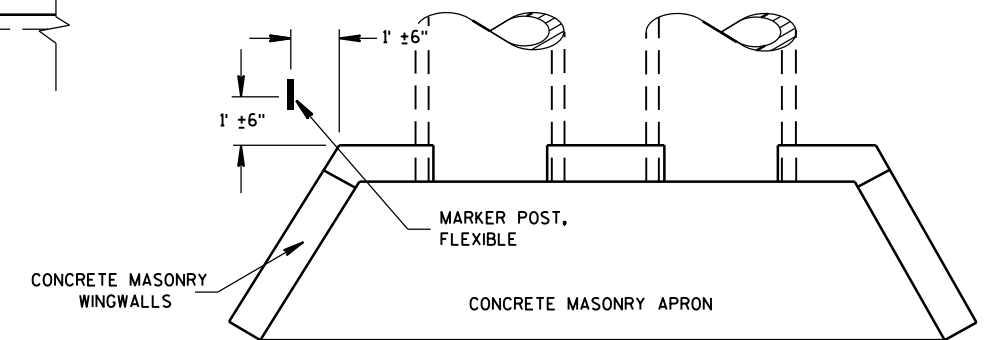


PLAN VIEW
UNDIVIDED HIGHWAY

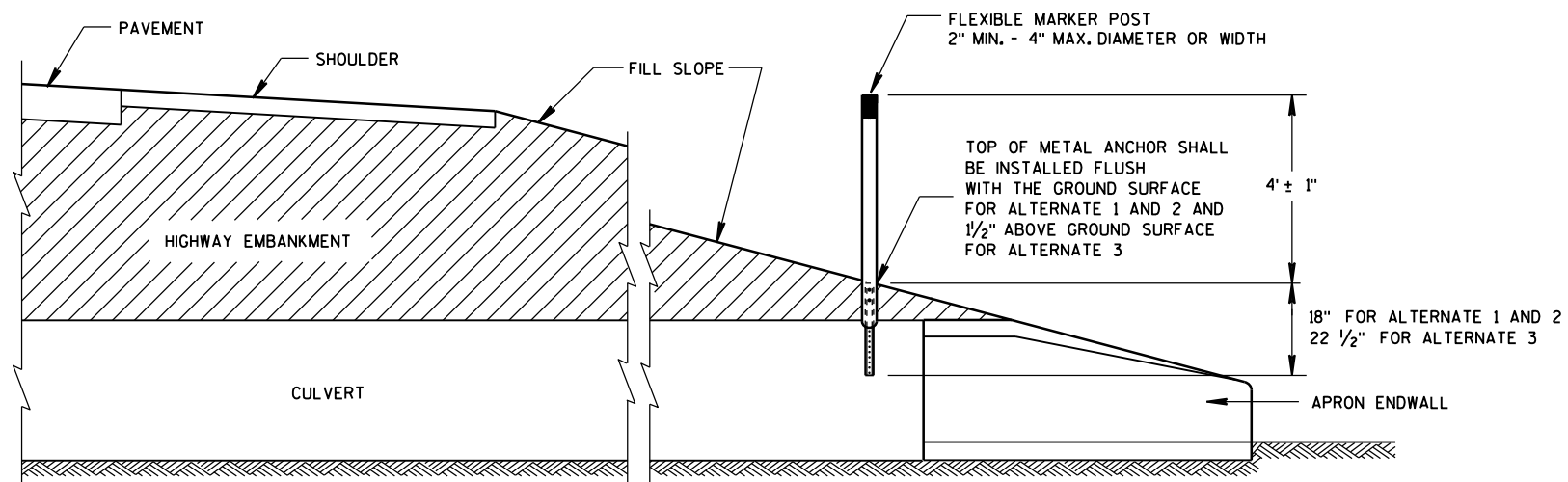
FLEXIBLE MARKER POST LOCATION

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.



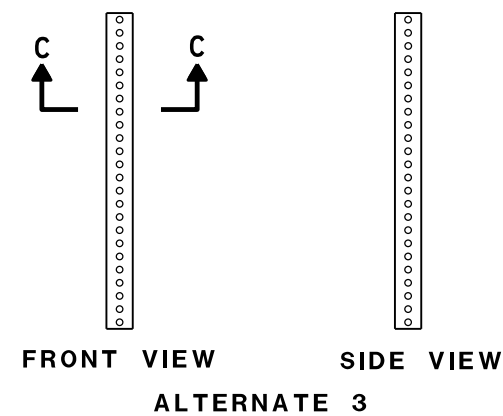
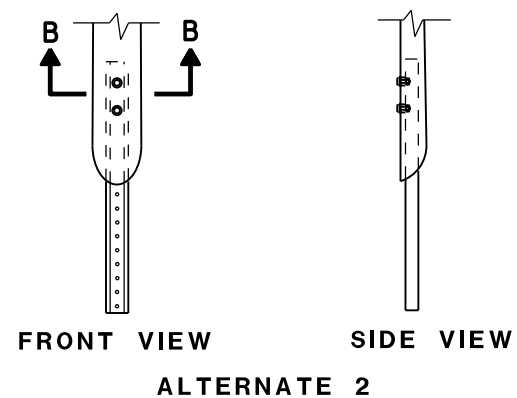
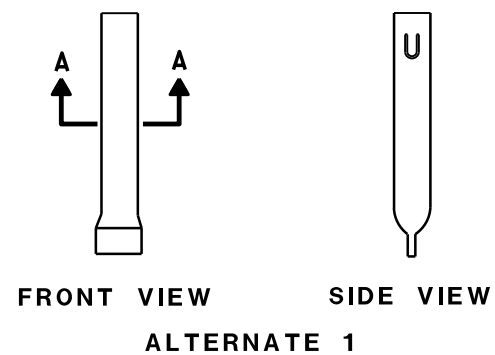
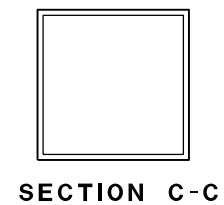
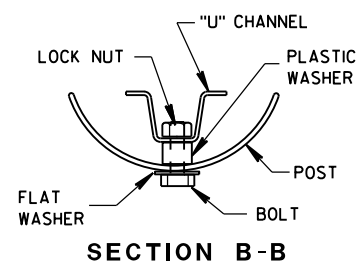
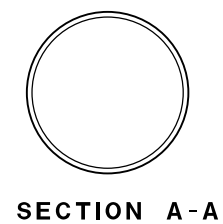
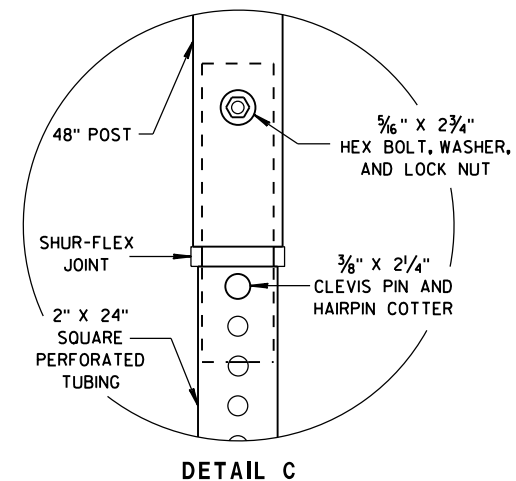
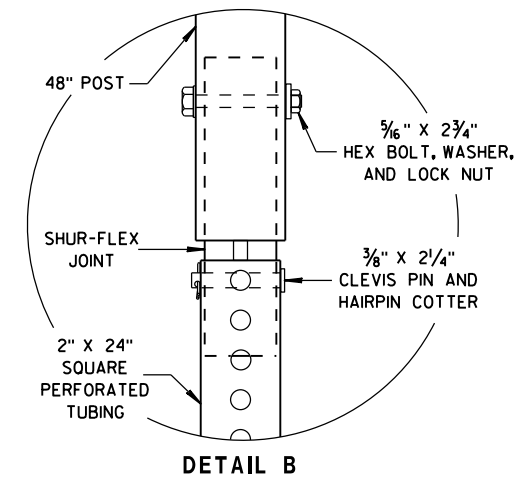
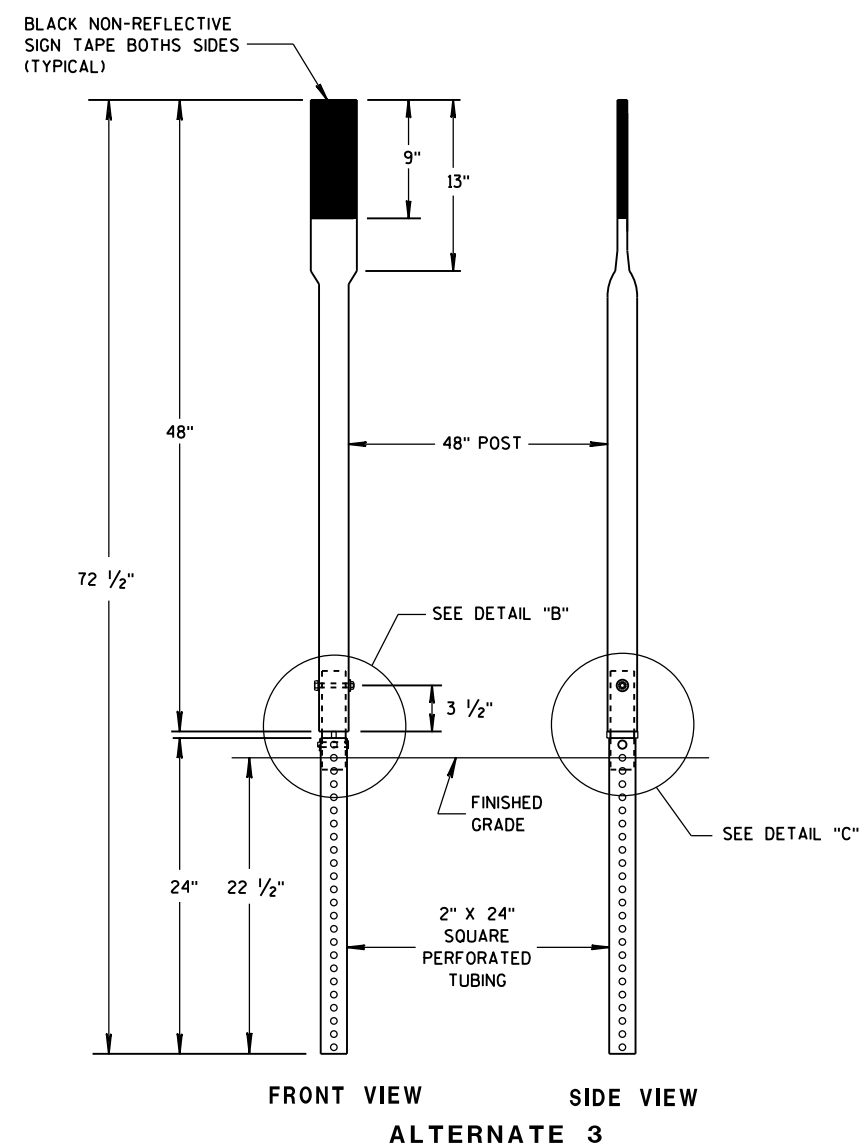
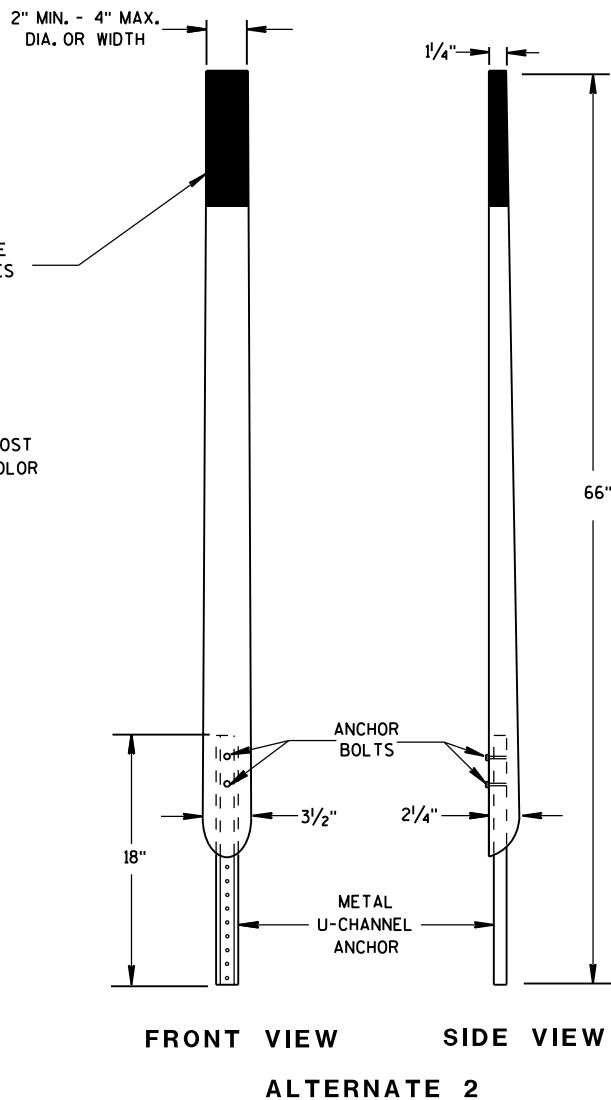
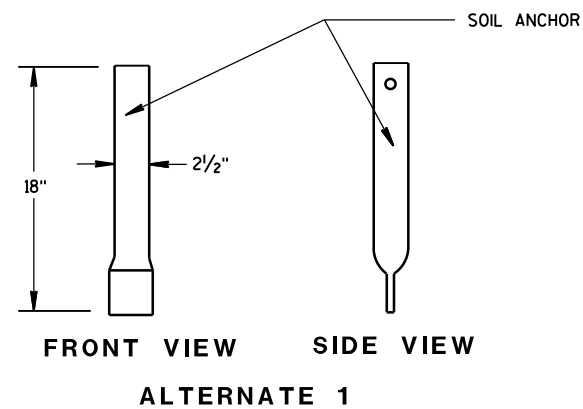
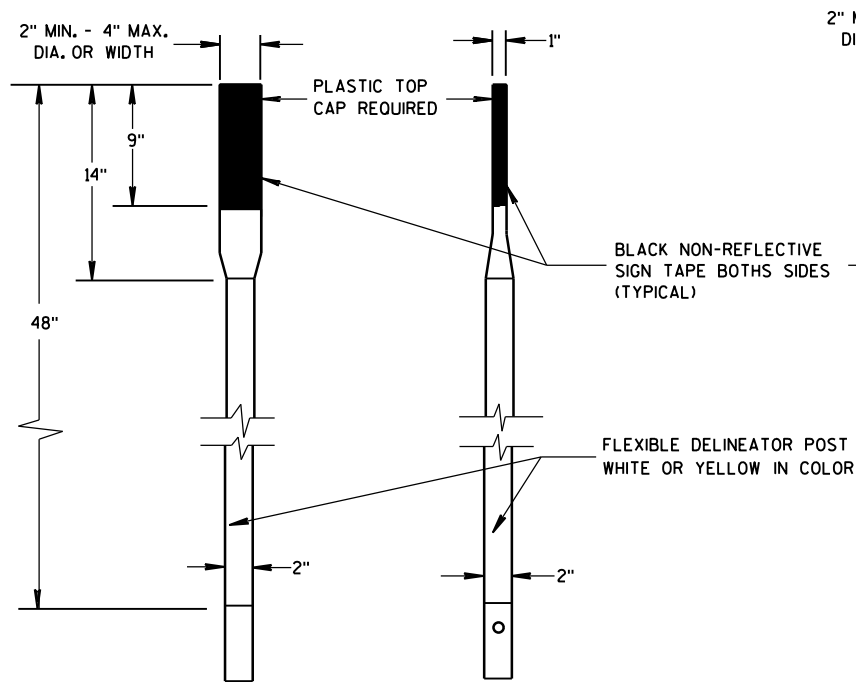
PLAN VIEW
CONCRETE MASONRY ENDWALLS FOR
CULVERT PIPE AND PIPE ARCH



CROSS SECTION
FLEXIBLE MARKER POST

FLEXIBLE MARKER POST
FOR CULVERT END

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



FLEXIBLE MARKER POST FOR CULVERT END

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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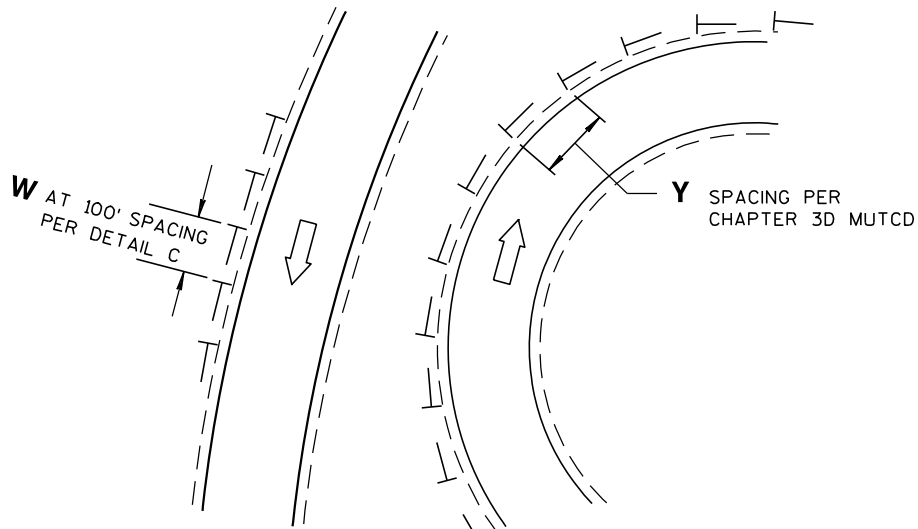
10/1/2012

DATE

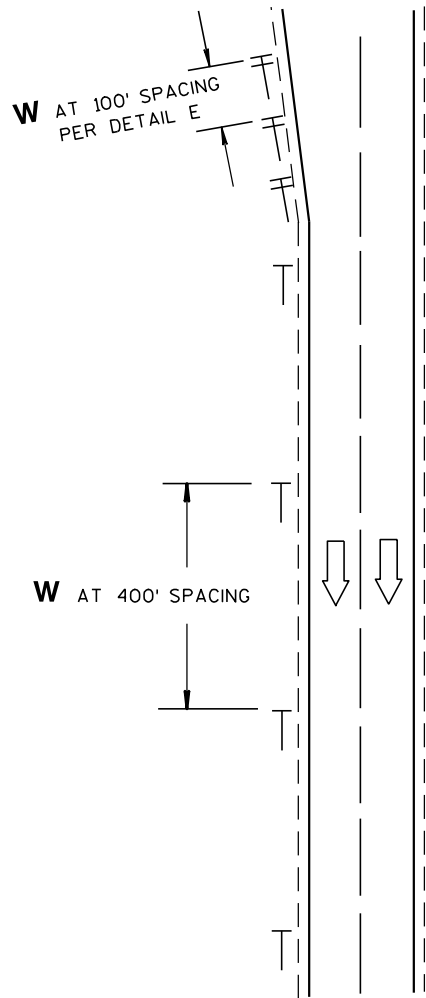
FHWA

/S/ Travis Feltes
STATE TRAFFIC ENGINEER 77

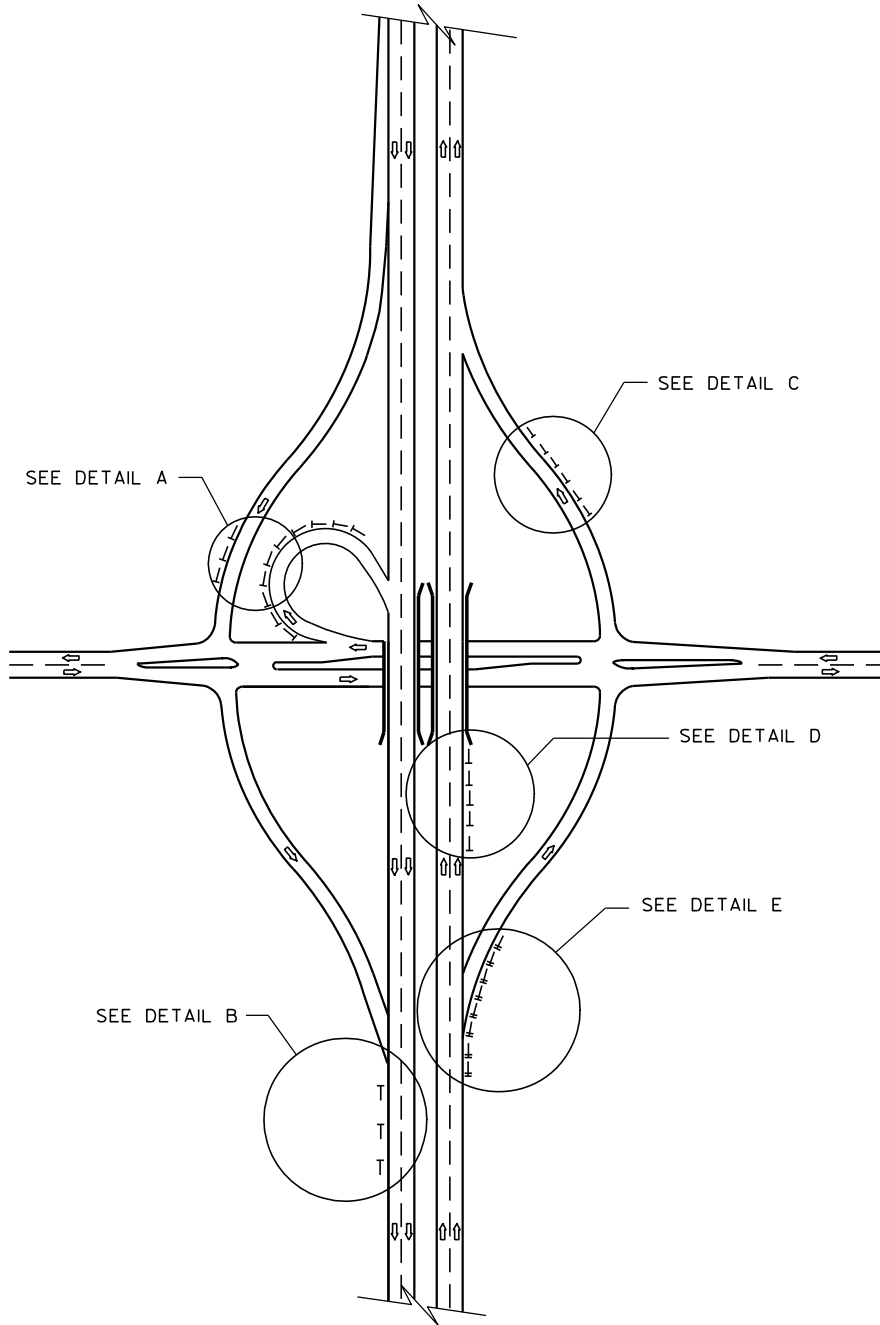
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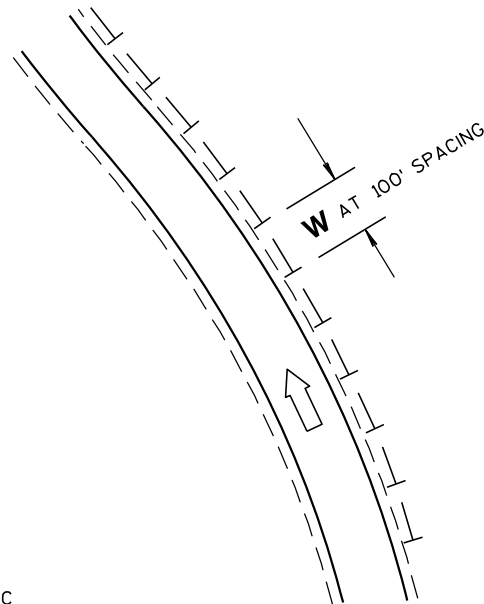
DETAIL A
DELINEATOR LAYOUT AT CURVED RAMP



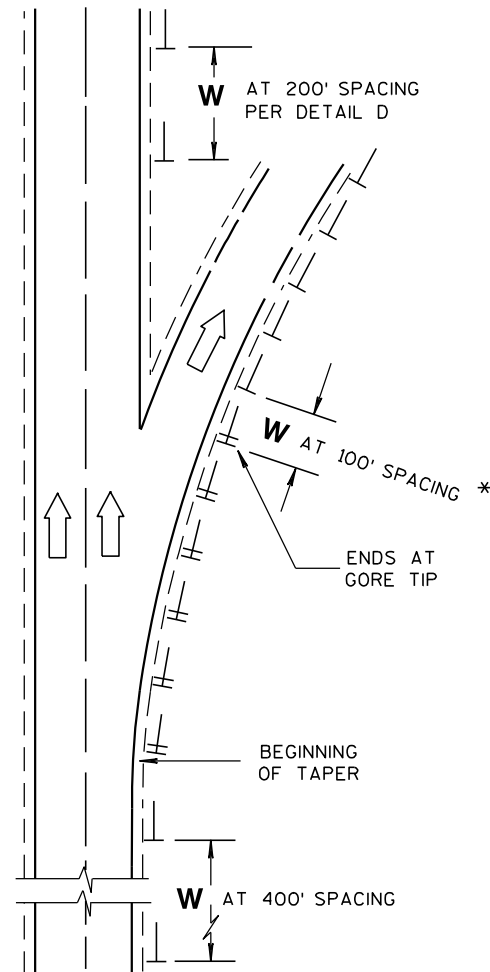
DETAIL B
DELINEATOR LAYOUT
ALONG MAINLINE



DELINEATOR LAYOUT



DETAIL C
DELINEATOR LAYOUT ALONG RAMP



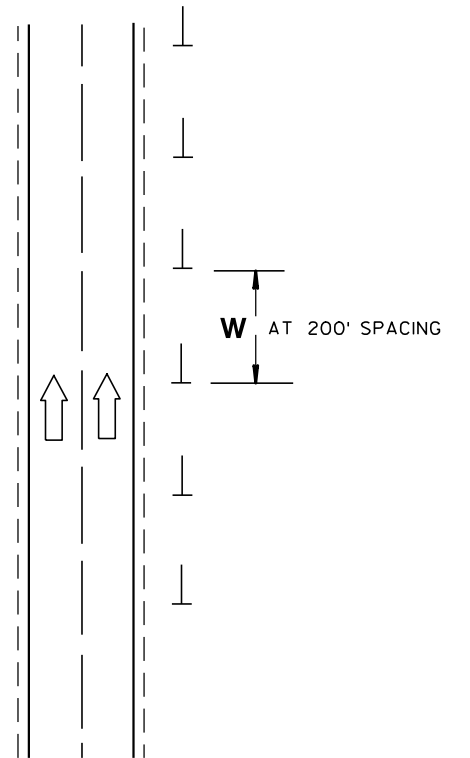
DETAIL E
DELINEATOR LAYOUT FOR ACCELERATION
- DECELERATION LANES AND TAPERS AT RAMPS

GENERAL NOTES

* USE DOUBLE DELINEATOR ALONG ACCELERATION-DECELERATION LANES AND TAPERS.
USE SINGLE DELINEATOR WHEN RAMP PAVEMENT IS FULL WIDTH.

LEGEND

- DIRECTION OF TRAFFIC FLOW
- SINGLE DELINEATOR
- DOUBLE DELINEATOR
- W** WHITE
- Y** YELLOW



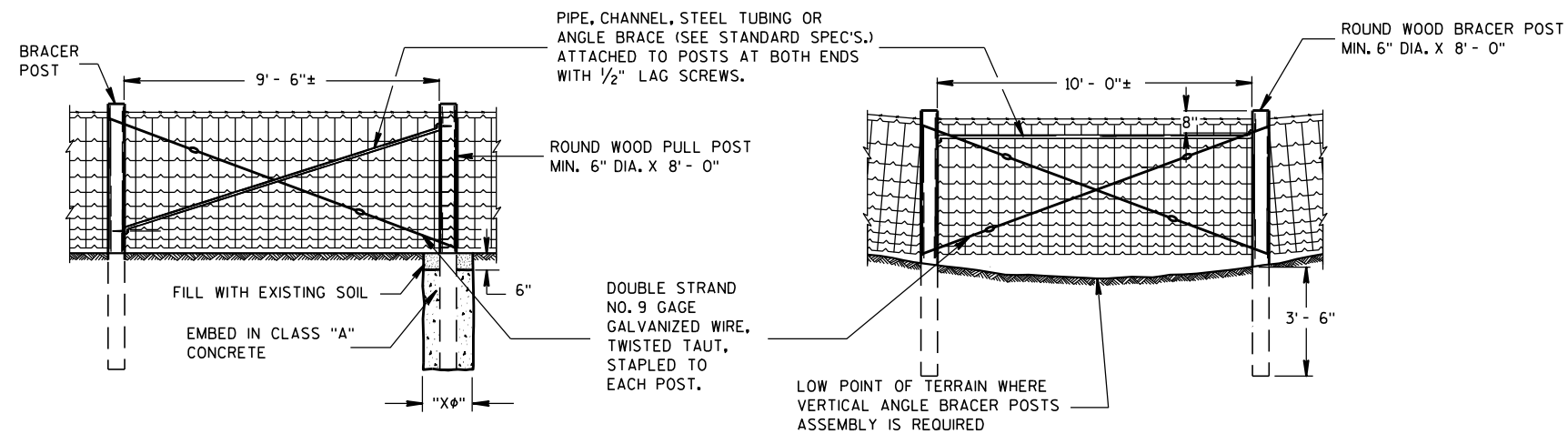
DETAIL D
DELINEATOR LAYOUT
BETWEEN INTERCHANGE RAMPS

DELINEATOR LAYOUT

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
2/5/09 /S/ Thomas N. Nethorn
DATE STATE TRAFFIC ENGINEER SIGN
FHWA

ILLUSTRATION SHOWS POSITION OF STANDARD STEEL BRACE, DOUBLE STRAND GALVANIZED WIRE, AND THE POST TO BE EMBEDDED IN CONCRETE WHEN WIRE FENCE IS INSTALLED FROM LEFT TO RIGHT. THE BRACES SHALL BE POSITIONED ON THE OPPOSITE DIAGONALS AND THE OPPOSITE POST SHALL BE EMBEDDED IN CONCRETE WHEN WIRE FENCE IS INSTALLED FROM RIGHT TO LEFT.



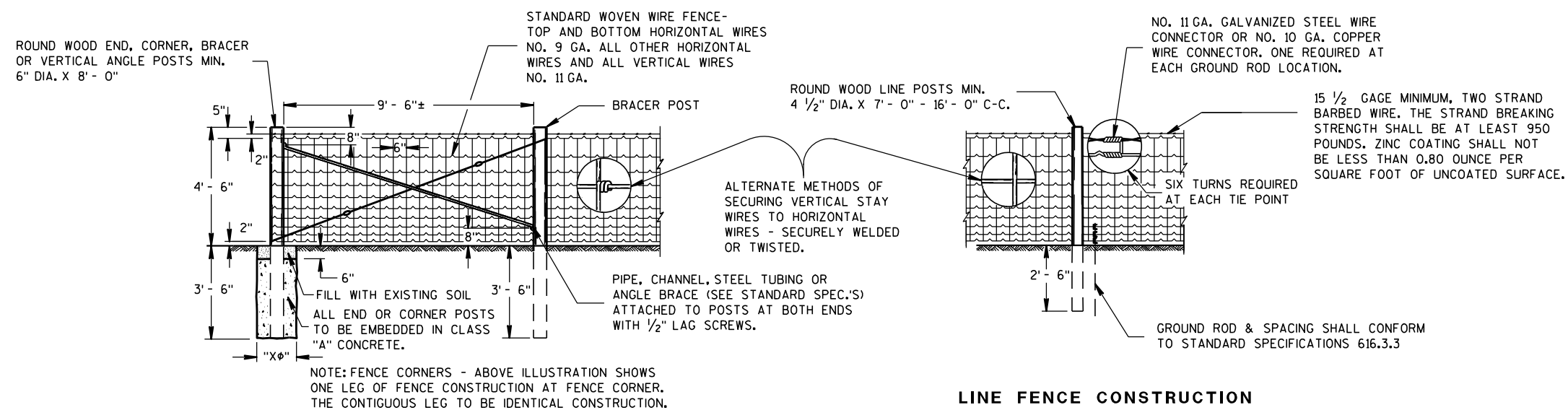
PULL OR STRETCHER POSTS ASSEMBLY

VERTICAL ANGLE BRACER POSTS ASSEMBLY

"X ϕ " = DIAMETER OF THE POST PLUS 12".

DO NOT STAPLE WIRE TIGHT TO THE LINE POSTS. ALLOW MOVEMENT OF WIRE FOR EXPANSION AND CONTRACTION. STAPLE ARRANGEMENT SHALL BE THE SAME FOR ALL OTHER POSTS EXCEPT THAT THEY SHALL BE DRIVEN TIGHT TO POSTS. ALL STAPLES SHALL BE 2" X 9 GAGE AND SHALL BE MANUFACTURED FROM GALVANIZED WIRE OR HOT DIP GALVANIZED AFTER FORMING. STAPLES SHALL HAVE SLASH-CUT POINTS.

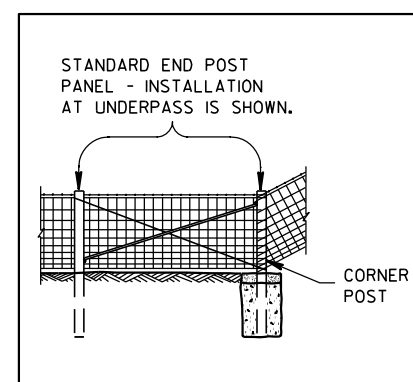
FENCE SHALL BE LOCATED 3'-0" INSIDE
THE RIGHT OF WAY LINE UNLESS
OTHERWISE INDICATED ON THE PLANS.



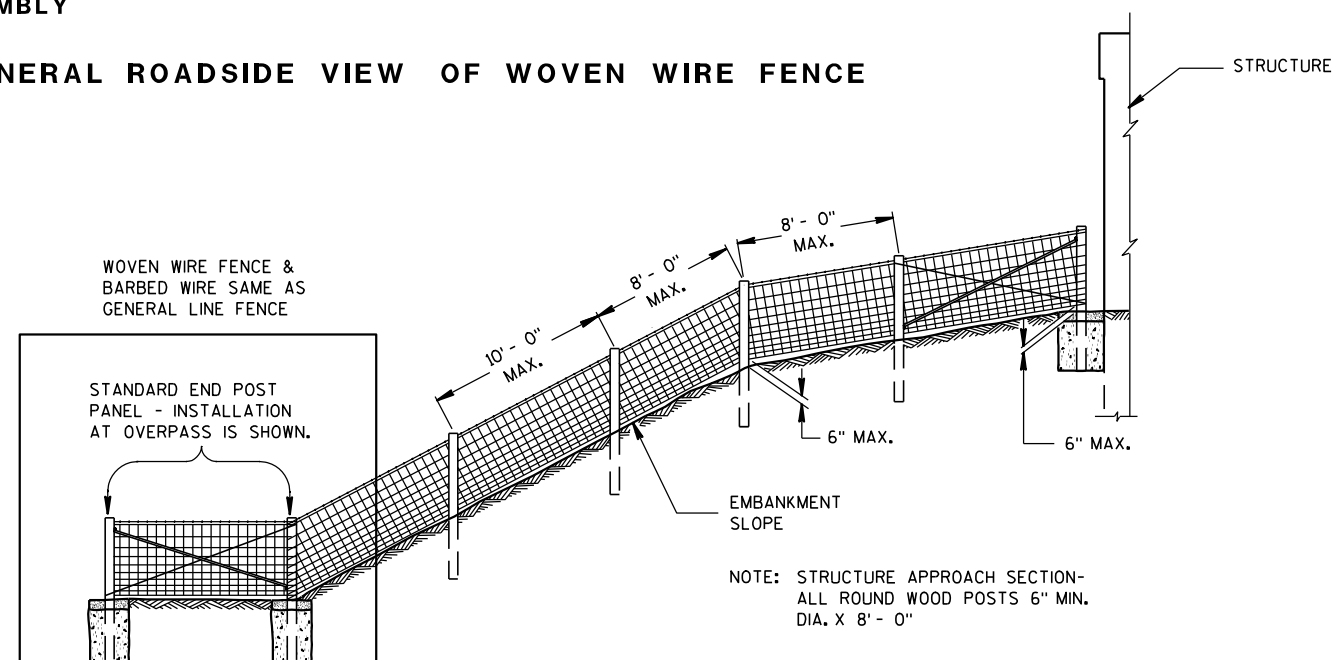
LINE FENCE CONSTRUCTION

END OR CORNER POSTS ASSEMBLY

GENERAL ROADSIDE VIEW OF WOVEN WIRE FENCE



ALTERNATE FENCE DESIGN AT STRUCTURE



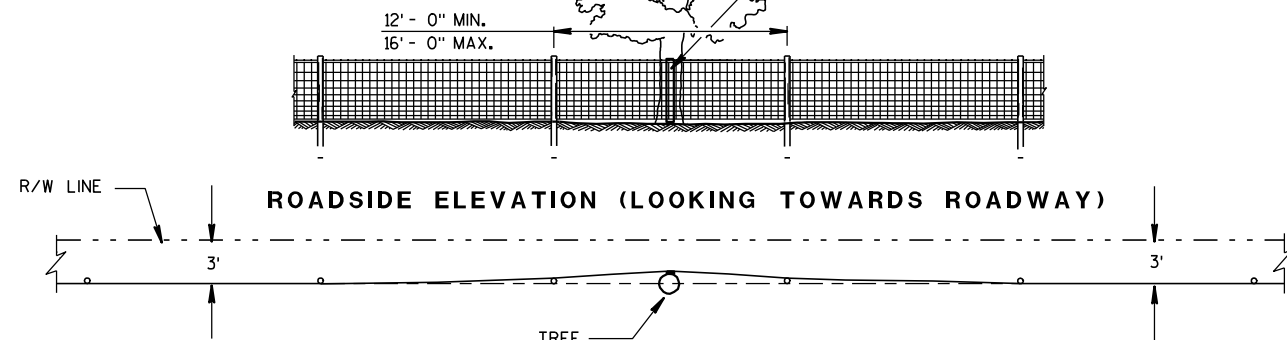
FENCE DESIGN AT STRUCTURE APPROACH

FENCE WOVEN WIRE

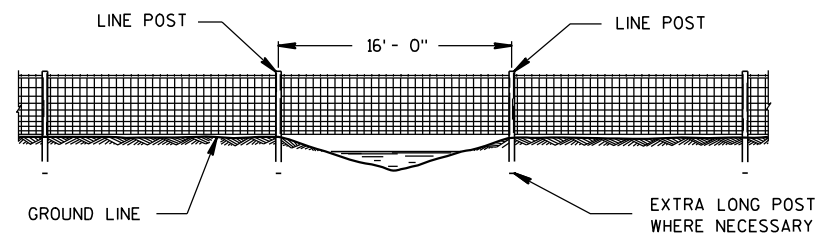
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

NOTE: TREE IN NORMAL FENCE LINE SPECIFICALLY ORDERED BY ENGINEER TO REMAIN IN PLACE.

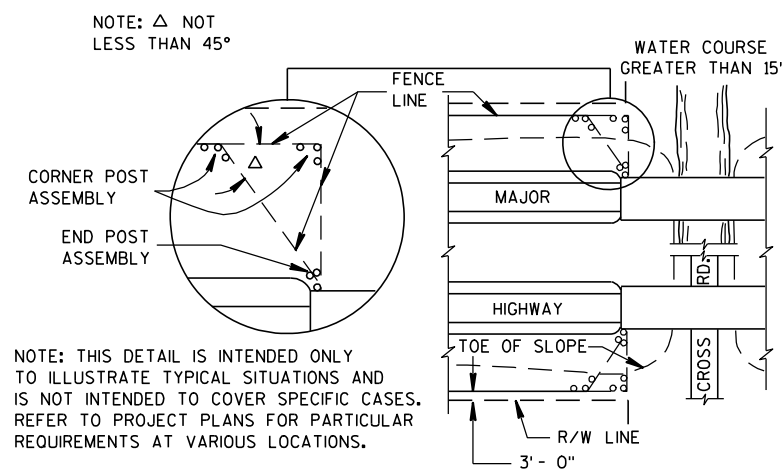
2" X 6" DOUGLAS FIR OR SO. YELLOW PINE PLACED BETWEEN TREE AND WOVEN WIRE FENCE. WOVEN WIRE FENCE AND BARBED WIRE TO BE STAPLED TO 2" X 6" LIKE AS TO LINE POST. 2" X 6" NOT FASTENED TO TREE.



PLAN VIEW
FENCE DESIGN AT TREES REMAINING
IN NORMAL FENCE LINE

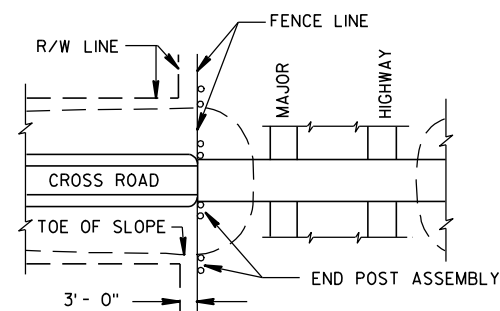


FENCE CONSTRUCTION OVER STREAM
COURSES OF 15 FT. OR LESS IN WIDTH

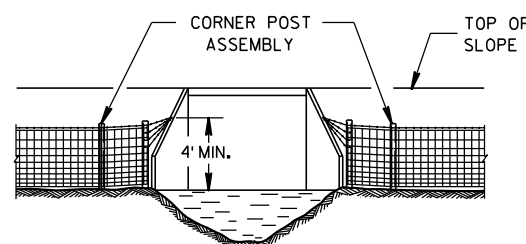


PLAN VIEW
MAJOR HIGHWAY OVERPASS OR STREAM COURSE
CROSSING OF GREATER THAN 15 FT. IN WIDTH

FENCE LOCATION AT STRUCTURES

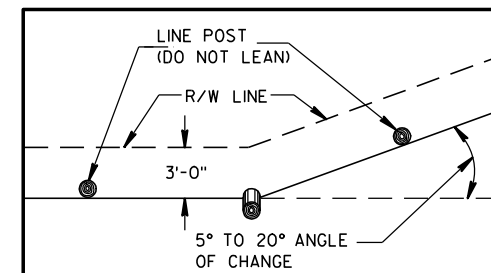
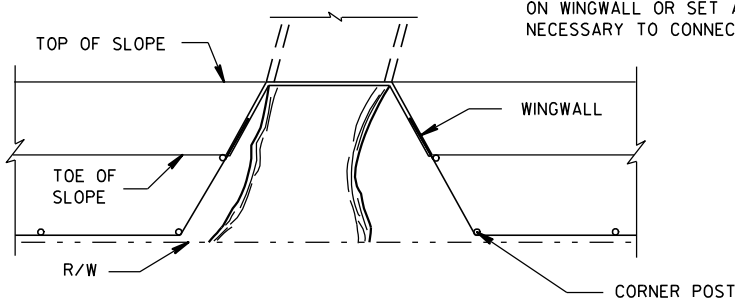


PLAN VIEW
MAJOR HIGHWAY UNDERPASS

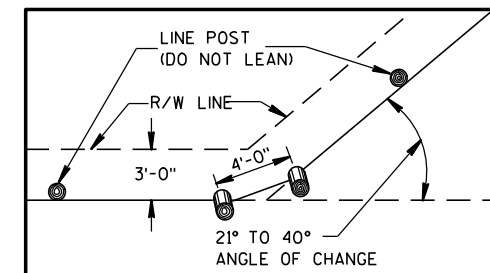


FENCE INSTALLATION TO WINGWALLS

NOTE: PLACE A MINIMUM OF 4 STRANDS OF BARBED WIRE, 6" MAXIMUM CENTERS IN FAN SHAPE CONNECTED TO AN EYE BOLT ON WINGWALL OR SET A LONE POST WHEN NECESSARY TO CONNECT BARBED WIRE.



PLAN VIEW
SINGLE POST CORNER

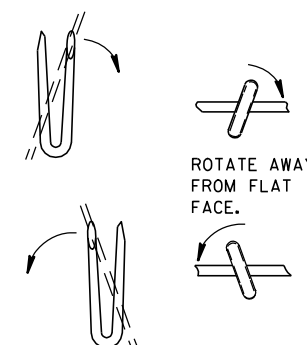


PLAN VIEW
DOUBLE POST CORNER

RIGHT OF WAY LINE CHANGE 40° AND LESS

NOTE: SINGLE AND DOUBLE POSTS SHALL BE A MIN. 6" DIA. X 8'-0" WITH A LEAN OF 4" TOWARD THE OUTSIDE OF THE CURVE.

WHEN THE RIGHT OF WAY LINE CHANGE IS MORE THAN 40° USE THE CORNER OR STRETCHER POSTS ASSEMBLY.



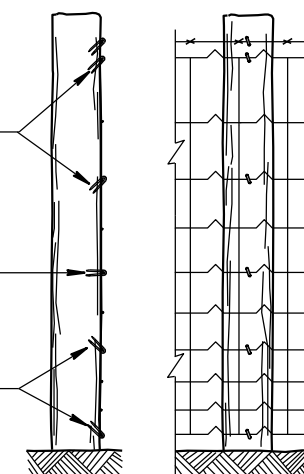
LINE POST

NOTE: WHEN POSTS ARE DRIVEN THE SMALL END SHALL BE DOWN.

STAPLES SLOPED DOWNWARD FOR SUSTAINED GRADES AND OVER KNOLLS.

STAPLES LEVEL FOR LEVEL GROUND.

SLOPE UPWARDS WHEN FENCE TENDS TO LIFT.



END ELEVATION
FARM SIDE ELEVATION
FENCE MOUNTING DETAIL

FENCE WOVEN WIRE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

4/4/2008

DATE

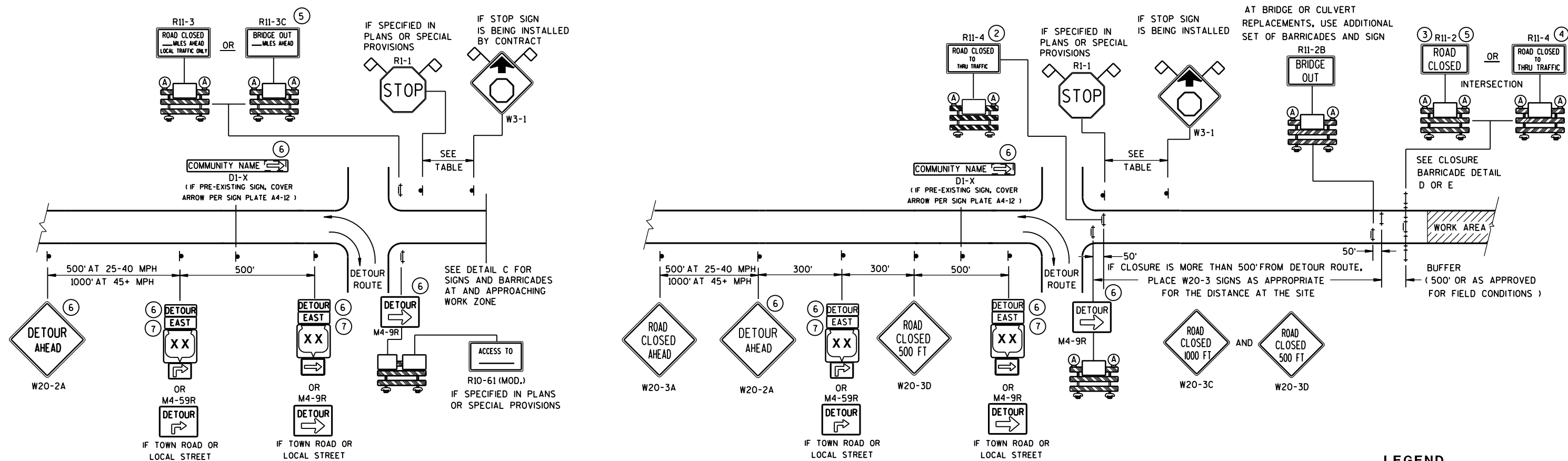
FHWA

/S/ Jerry H. 7----

ROADWAY STANDARDS 180

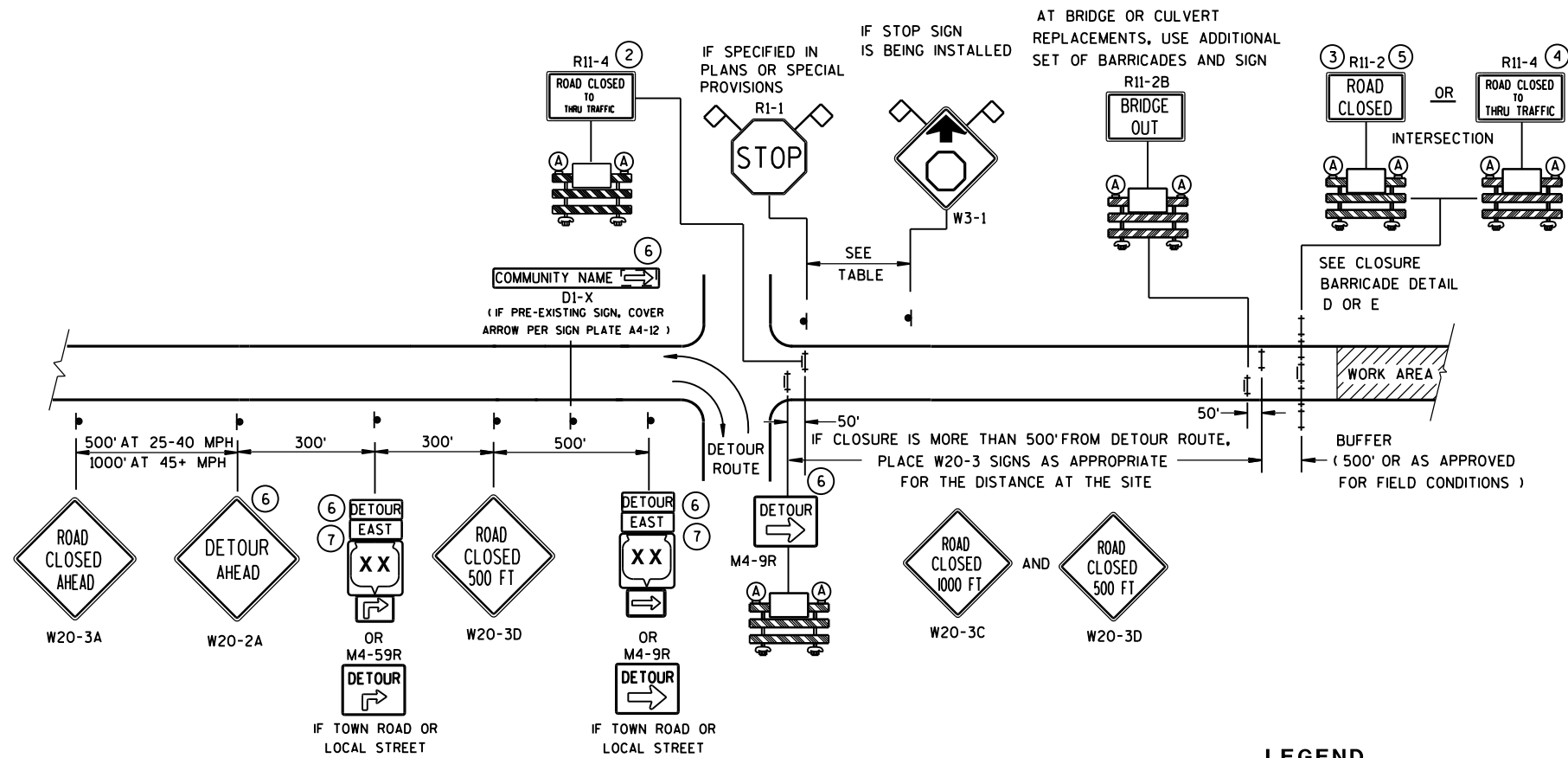
ENGINEER

ENT



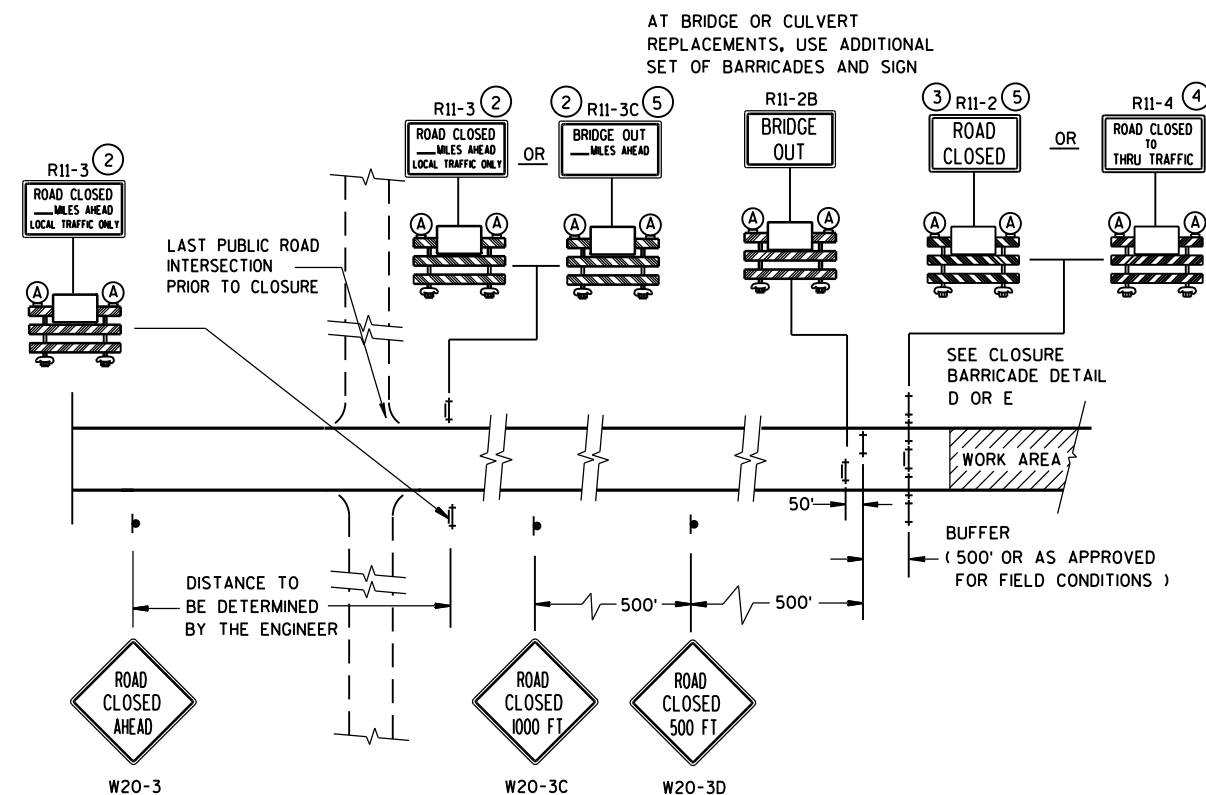
DETAIL A
MAINLINE CLOSURE WITH POSTED DETOUR

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



DETAIL B
MAINLINE CLOSURE WITH POSTED DETOUR

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



DETAIL C
MAINLINE CLOSURE, NO POSTED DETOUR

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

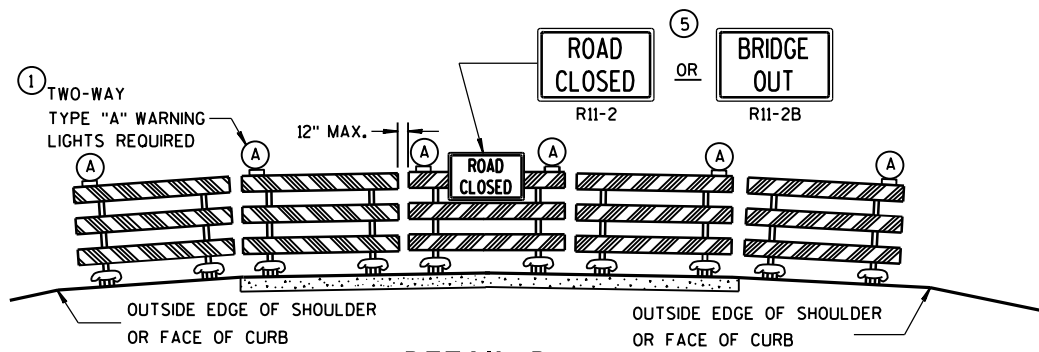
- ### LEGEND
-  SIGN ON PERMANENT SUPPORT
-  TYPE III BARRICADE
-  TYPE III BARRICADE WITH ATTACHED SIGN
-  TYPE "A" WARNING LIGHT (FLASHING)
-  WORK AREA
-  M4-8
M3-X
-  M1-4
-  COUNTY M1-5A
-  M1-6
-  M05-1
-  M06-1
- FLAGS, 16" X 16" MIN., (ORANGE)

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

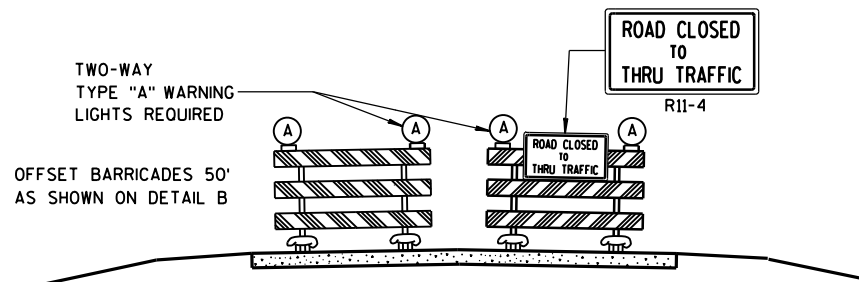
BARRICADES AND SIGNS FOR MAINLINE CLOSURES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

Sept. 2015 /S/ Peter Amakobe Atepe
DATE STATEWIDE WORK ZO81 FIC
FHWA SAFETY ENGINEER



DETAIL D
ROAD CLOSURE BARRICADE DETAIL
APPROACH VIEW



DETAIL E
LANE CLOSURE BARRICADE DETAIL
APPROACH VIEW

SEE SDD 15C2-SHEET "a" FOR LEGEND

GENERAL NOTES

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

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

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

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

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

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

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

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

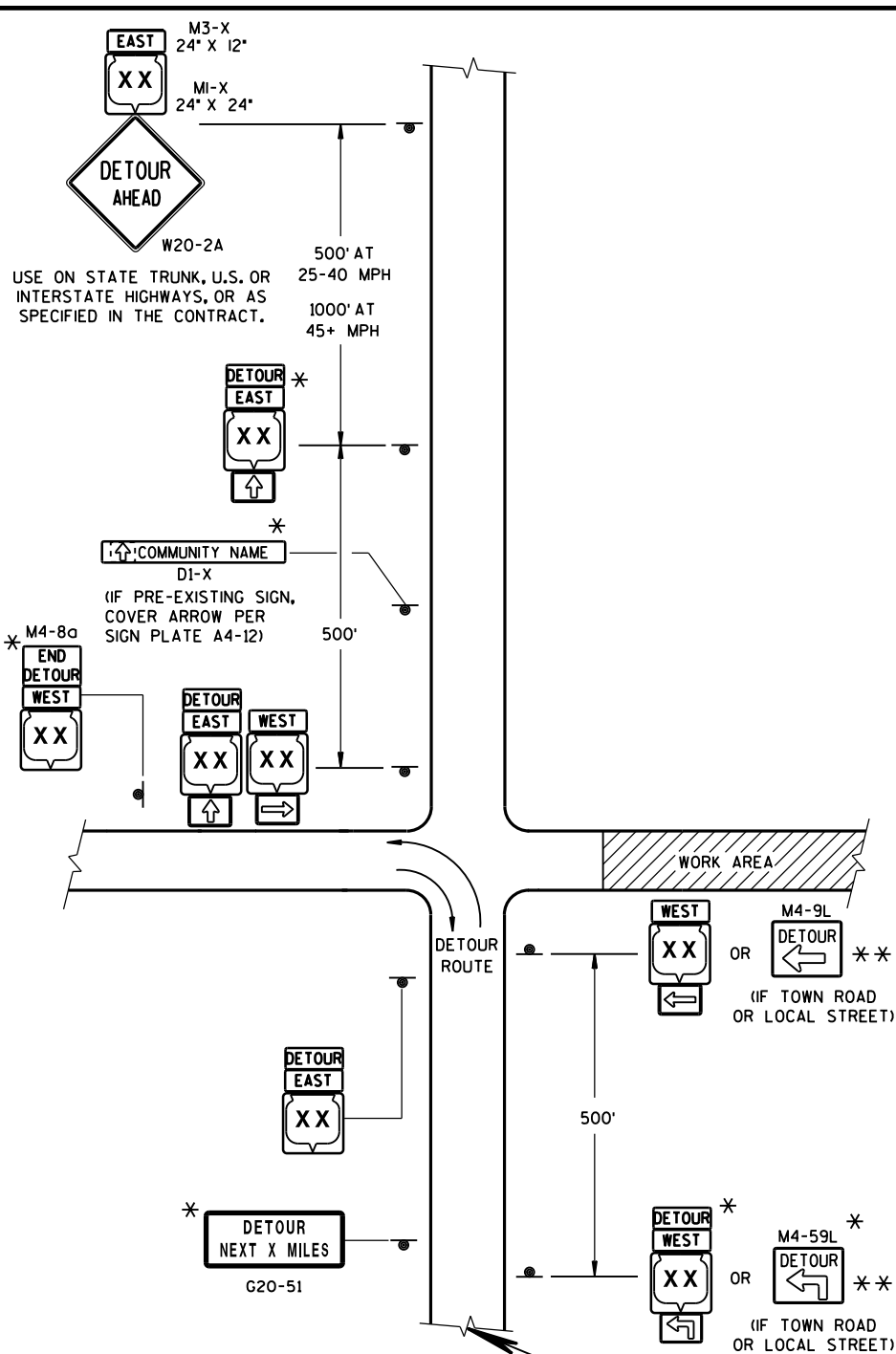
"WO AND "MO" SIGNS ARE THE SAME AS "W" AND "M" SIGNS EXCEPT THE BACKGROUND IS ORANGE.

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

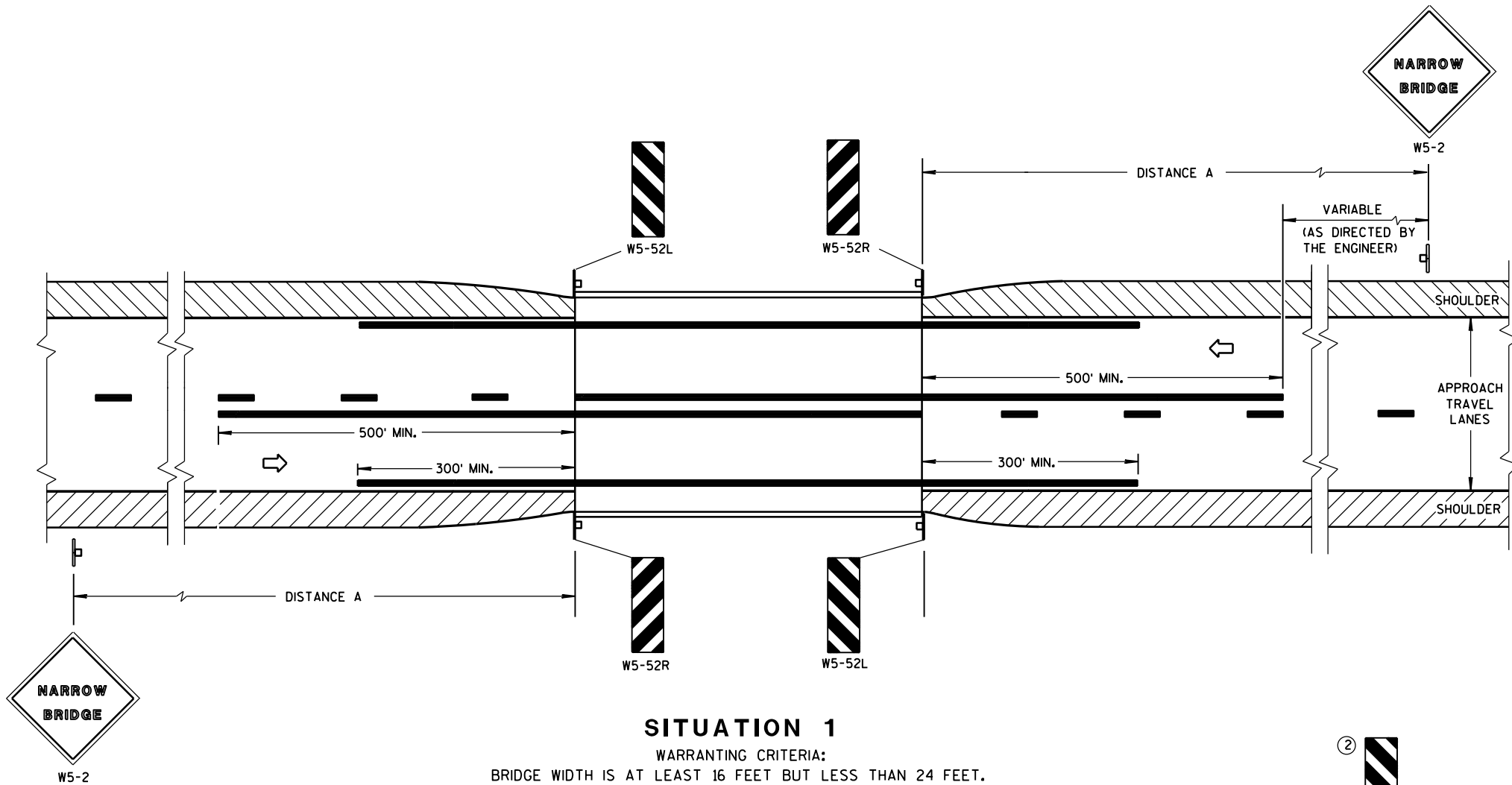
- R11-2 SHALL BE 48" X 30".
- R11-3, R11-4 AND R10-61 SHALL BE 60" X 30".
- M4-9 SHALL BE 30" X 24".
- M3-X SHALL BE 24" X 12". (36" X 18" IF NEEDED TO MATCH EXISTING SIGNS.)
- M4-8 SHALL BE 24" X 12". (30" X 15" IF NEEDED TO MATCH EXISTING SIGNS.)
- M1-4, M1-5A, AND M1-6 SHALL BE 24" X 24". (36" X 36"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

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

BARRICADES AND SIGNS FOR MAINLINE CLOSURES			
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
Sept. 2015 DATE	/S/ Peter Amokobe Atepe STATEWIDE WORK ZONE SAFETY ENGINEER	82	FIC
FHWA			



**THIS DRAWING PROVIDES GENERAL GUIDANCE
ON TYPICAL DETOUR SIGN LAYOUT AND SPACING.
SEE PROJECT DETOUR SIGNING SHEETS FOR
SPECIFIC DETAILS FOR EACH PROJECT.**



SITUATION 1

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

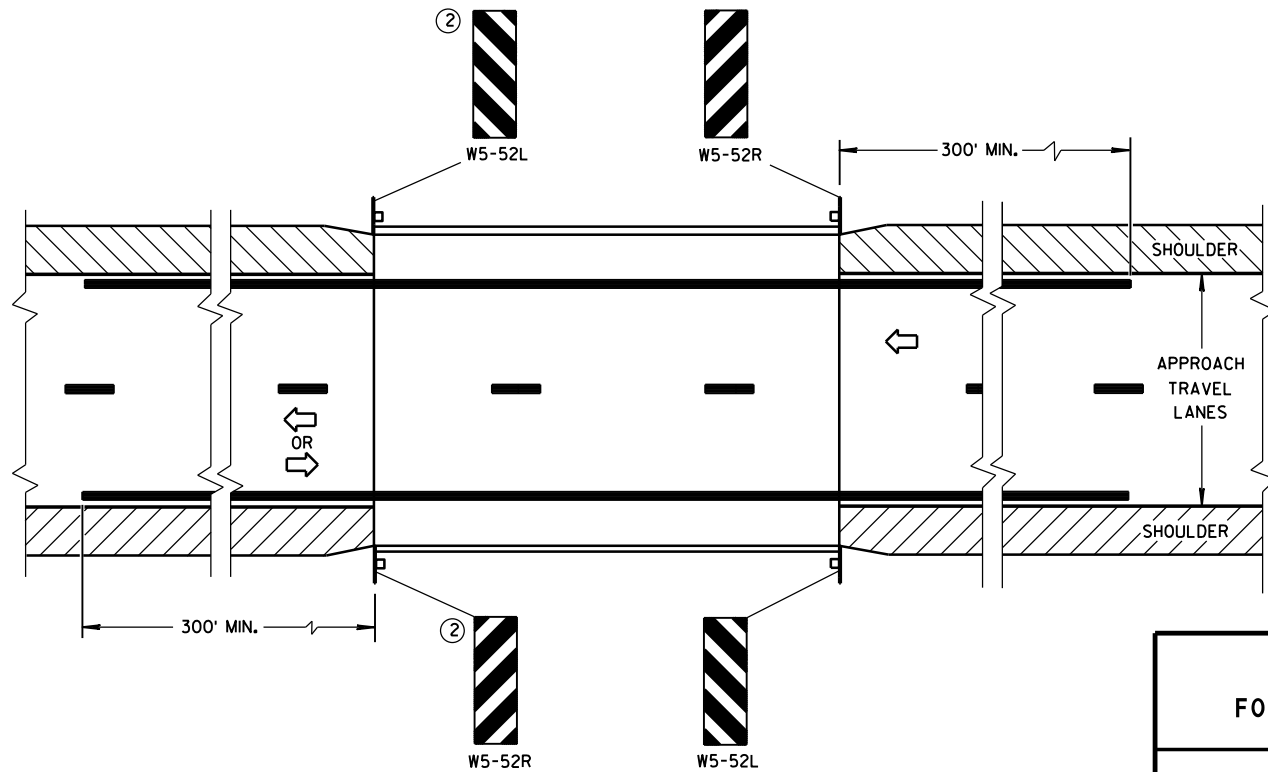
DISTANCE TABLE

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

GENERAL NOTES

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

- ① LOCATE W5-52 SIGN POST(S) BEHIND GUARDRAIL WHEN PRESENT.
- ② OMIT ON ONE-WAY TRAVELLED WAYS.
- ③ EDGE OF W5-52 SIGN SHALL BE PLACED IN LINE WITH FACE OF CURB OR PARAPET.



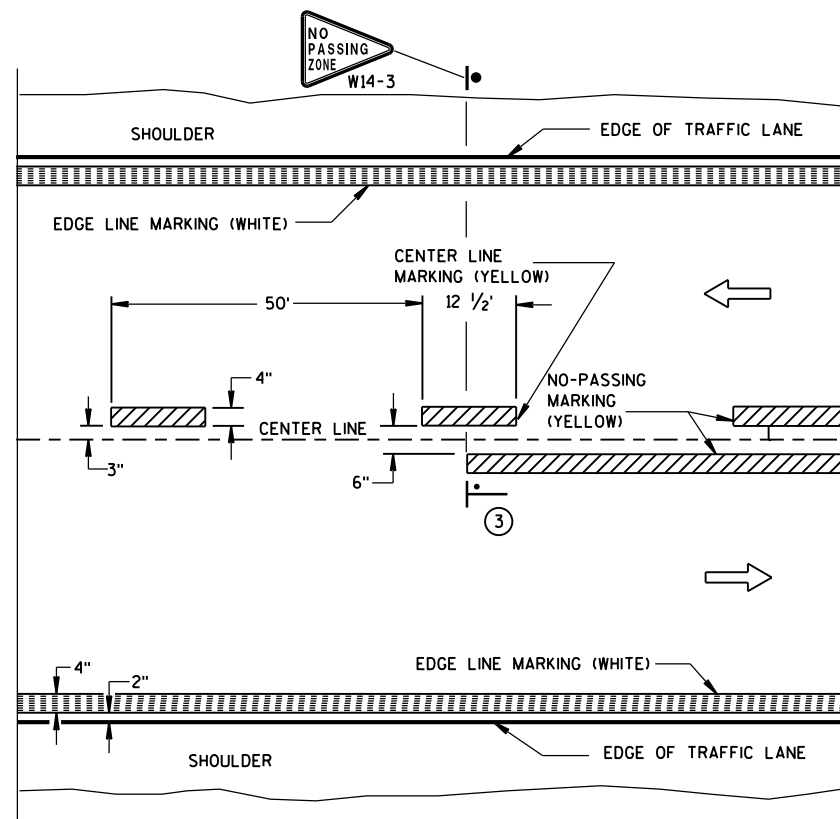
SITUATION 2

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

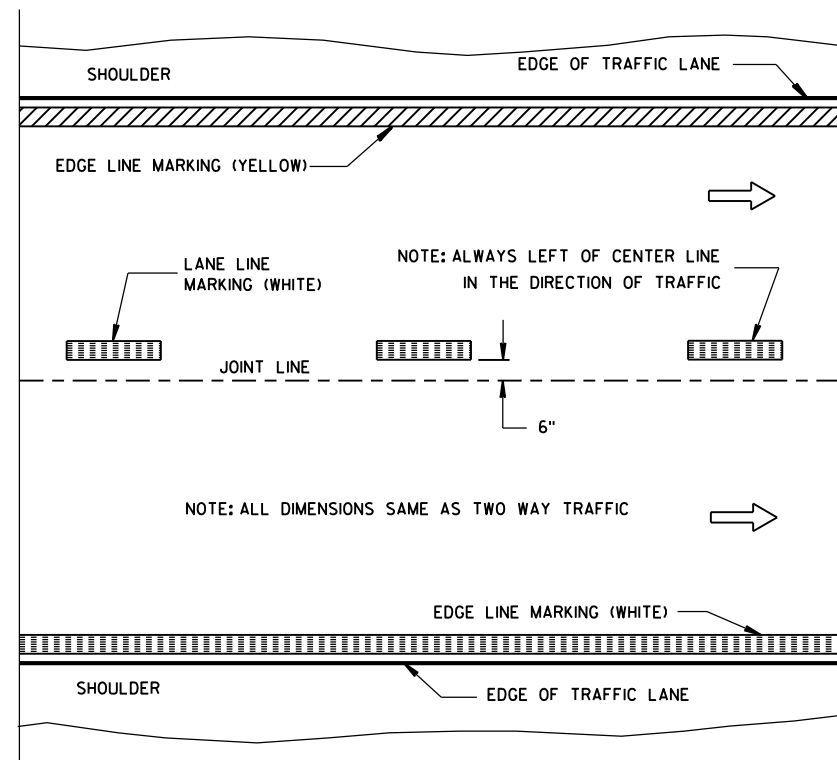
SIGNING & MARKING FOR TWO LANE BRIDGES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
4-18-16 /S/ Matthew R. Rauch
DATE STATE SIGNING AND MAR 84 JEER
FHWA

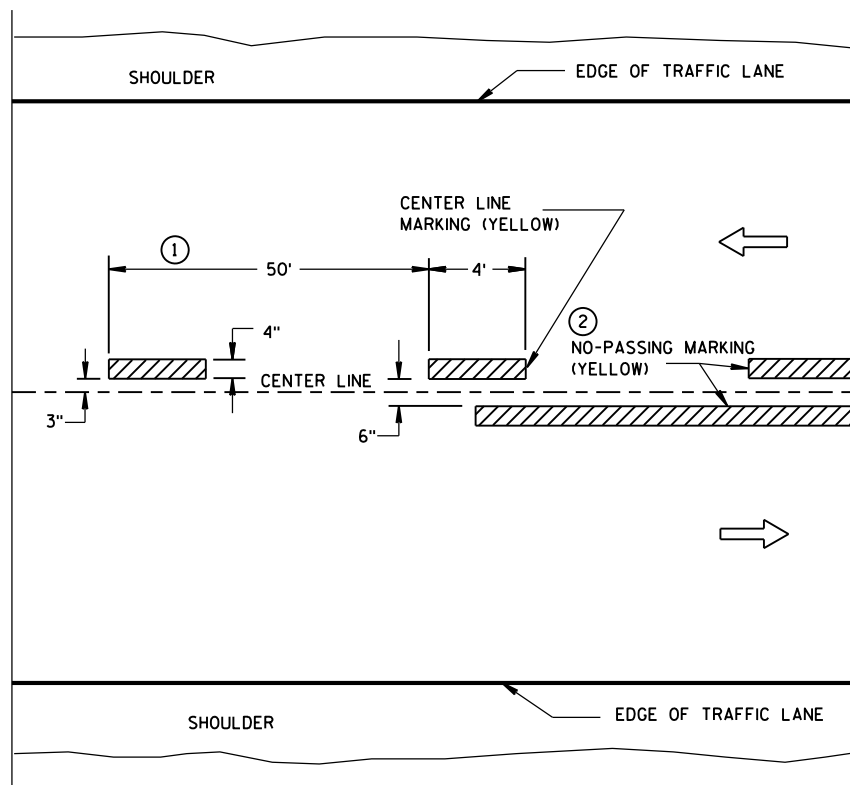


TWO WAY TRAFFIC

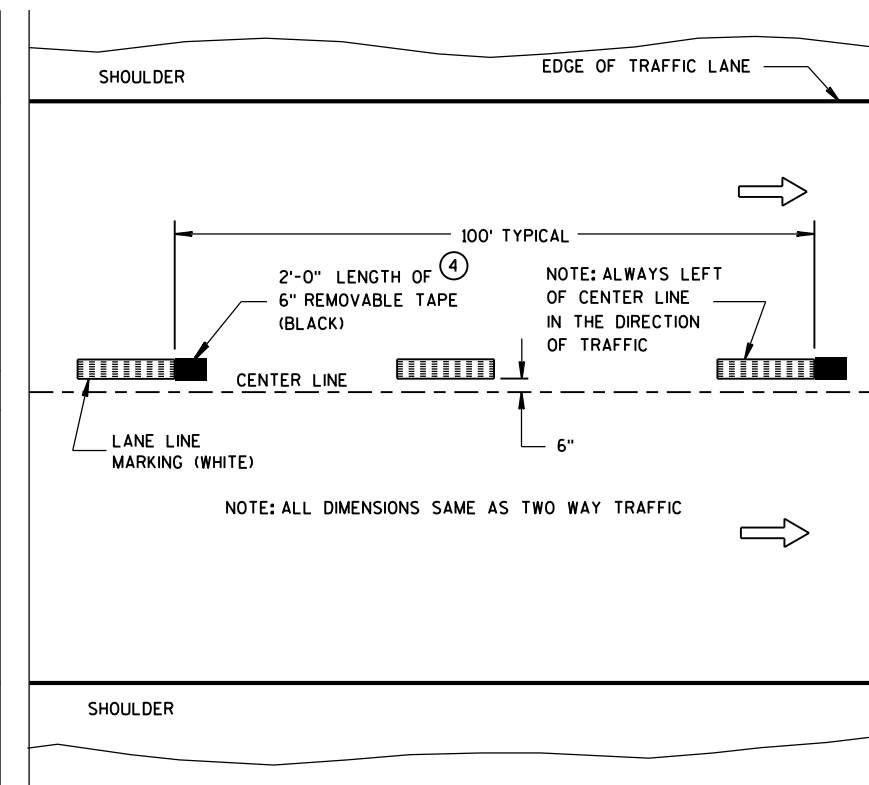


ONE WAY TRAFFIC

PERMANENT PAVEMENT MARKING



TWO WAY TRAFFIC



ONE WAY TRAFFIC

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

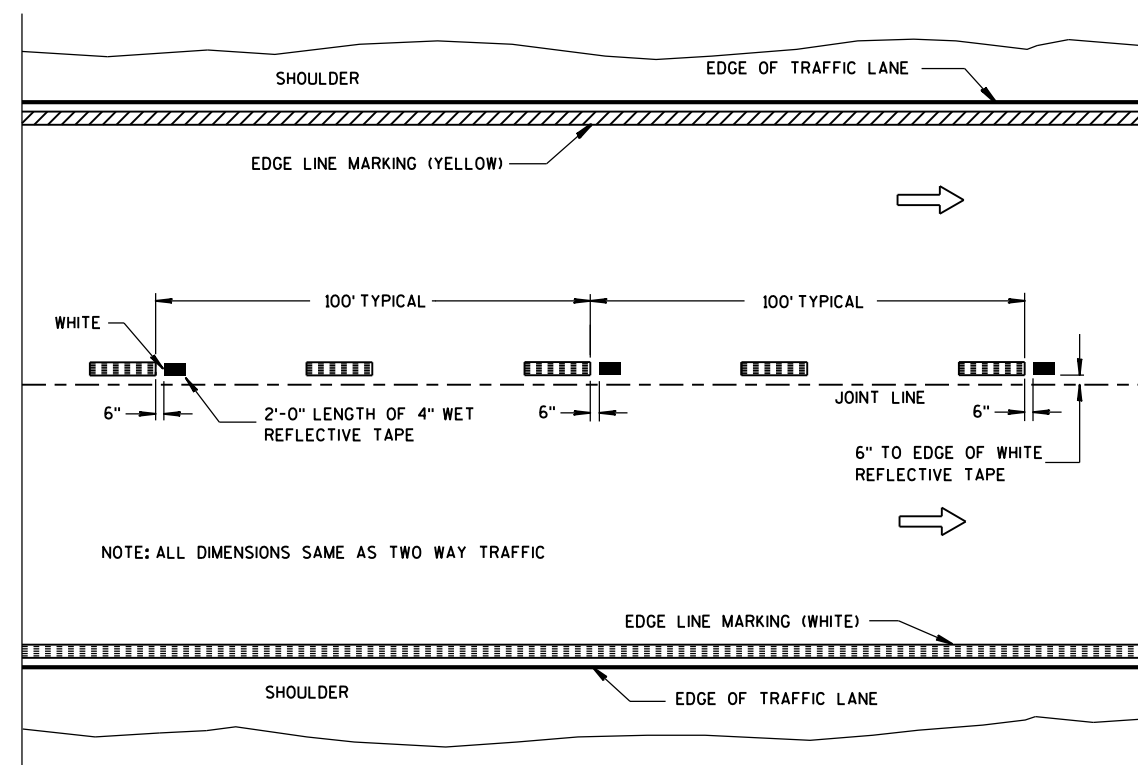
GENERAL NOTES

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

- ① HALF CYCLE LENGTHS (25'±) WITH 2' MINIMUM STRIPE LENGTHS SHALL BE PROVIDED ON ROADWAYS (INCLUDING TEMPORARY TRAVELED WAYS) WITH REVERSE CURVATURE, CURVATURE OF OVER 5 DEGREES OR WHEN DIRECTED BY THE ENGINEER TO MARK UNUSUAL ALIGNMENT OF THE TRAVELED WAY.
- ② NO PASSING ZONE TEMPORARY PAVEMENT MARKING IS REQUIRED TO BE PLACED, WHERE APPROPRIATE, ALONG WITH CENTERLINE TEMPORARY PAVEMENT MARKING WHEN A SAME DAY PERMANENT PAVEMENT MARKING ITEM IS INCLUDED IN THE CONTRACT.
- ③ NO PASSING ZONE MARKINGS ARE PLACED ACCORDING TO "T" MARKINGS. IF EXISTING NO PASSING ZONE W14-3 SIGNS ARE BEYOND 50 FEET IN EITHER DIRECTION, THE SIGNS SHALL BE MOVED TO THE "T" MARKINGS.
- ④ CONCRETE ONLY.

NOTE

ARROW SYMBOL (→) SHOWS DIRECTION OF TRAVEL



**WET REFLECTIVE TAPE SUPPLEMENT TO
SPRAYED OR NON WET REFLECTIVE TAPE LANE LINE**

LEGEND

- "T" MARKING
- POST MOUNTED SIGN

PAVEMENT MARKING
(MAINLINE)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
5-13-2013
DATE
FHWA

/S/ Travis Feltes
STATE TRAFFIC E 85

LEGEND

- TYPE III BARRICADE WITH ATTACHED SIGN
- SIGN ON PERMANENT SUPPORT
- TRAFFIC CONTROL DRUM WITH TYPE "C" STEADY BURN LIGHT
- TRAFFIC CONTROL DRUM
- FLASHING ARROW BOARD
- TYPE "A" WARNING LIGHT (FLASHING)
- REMOVING PAVEMENT MARKING
- DIRECTION OF TRAFFIC
- WORK AREA

GENERAL NOTES

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

THE SPACING BETWEEN SIGNS SHOULD BE ADJUSTED TO NOT CONFLICT WITH AND TO PROVIDE A MINIMUM OF 200 FEET, (500 FEET DESIREABLE) DISTANCE TO EXISTING SIGNS.

THIS LANE CLOSURE IS TYPICAL FOR CLOSING RIGHT LANE - REVERSE FOR CLOSING LEFT LANE.

ALL SIGNS ARE 48"x48" UNLESS OTHERWISE NOTED.

"W0" IS THE SAME AS "W" EXCEPT THE BACKGROUND IS ORANGE.

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. NO WARNING LIGHTS SHALL BE WORKING ON "COVERED" OR "DOWNED" SIGNS.

CONSIDER GEOMETRICS WHEN LOCATING SIGNS AND ARROW BOARD SO THE DRIVER HAS A CLEAR VIEW OF THE ARROW BOARD AND LANE CLOSURE DRUMS FOR A MINIMUM 1500 FEET IN FRONT OF DRUMS.

FOR A LANE CLOSURE THAT IS IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS, THE ADVANCED WARNING SIGNS MAY BE MOUNTED ON PORTABLE SUPPORTS.

REMOVE PAVEMENT MARKINGS IF LANE CLOSURE IS TO BE IN PLACE FOR LONGER THAN 4 OR MORE DAYS AND NIGHTS.

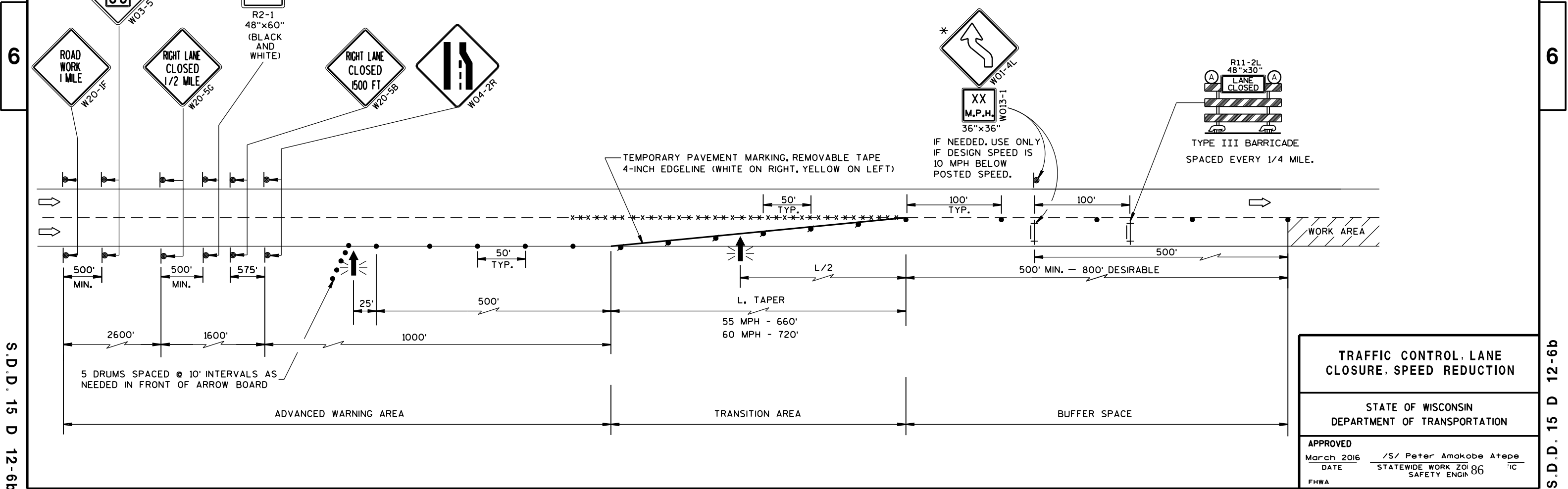
WARNING LIGHTS ARE NOT REQUIRED IF THE LANE CLOSURE IS A DAYTIME ONLY OPERATION.

IF THE HORIZONTAL ALIGNMENT IS SUCH THAT A CURVE MAY REQUIRE ADDITIONAL DELINEATION, THE DEVICE SPACING MAY BE DECREASED TO 50 FEET.

ADJUSTMENTS IN BUFFER SPACE NEED TO BE INCORPORATED WHEN THE LANE CLOSURE OCCURS NEAR AN INTERCHANGE EXIT OR ENTRANCE RAMP. THE LANE CLOSURE MUST MUST TAKE PLACE FAR ENOUGH IN ADVANCE OF AN EXIT OR ENTRANCE RAMP TO STILL ALLOW FOR ADEQUATE BUFFER SPACE. THE MINIMUM LENGTH OF THE BUFFER SPACE BEFORE AN EXIT RAMP SHOULD BE 1/2 THE LENGTH OF THE TRANSITION AREA. THE ENTRANCE RAMP SHOULD BE FOLLOWED BY THE ORIGINAL BUFFER SPACE LENGTH OF 800 FEET DESIRABLE PRIOR TO ANOTHER TRAFFIC CONTROL CHANGE SUCH AS A CROSSOVER MANEUVER.

* THE LEFT REVERSE CURVE SIGN (W01-4L) IS ONLY REQUIRED WHEN THIS DETAIL IS USED IN COMBINATION WITH "SINGLE LANE CROSSOVER" DETAIL.

** A SPEED LIMIT SIGN SHALL BE LOCATED 1500 FEET BEYOND THE END OF THE ACCELERATION LANE OF EACH ENTRANCE RAMP. THERE SHOULD BE A SPEED LIMIT SIGN INCORPORATED A MINIMUM OF EVERY 2 OR 3 MILES. INCLUDE A RESUME SPEED LIMIT SIGN 200 FEET MINIMUM (500 FEET DESIREABLE) BEYOND THE "END OF ROADWORK" SIGN.



TRAFFIC CONTROL, LANE CLOSURE, SPEED REDUCTION	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED March 2016 DATE	/S/ Peter Amakobe Atepe STATEWIDE WORK ZONE SAFETY ENGINEER
FHWA	

LEGEND

- TRAFFIC CONTROL DRUM
- ⦿ SIGN ON PERMANENT SUPPORT
- ➡ DIRECTION OF TRAFFIC
- ⚡➡ FLASHING ARROW BOARD
- ▨ WORK AREA

GENERAL NOTES

THIS DETAIL IS TYPICAL FOR CLOSING THE RIGHT SHOULDER. FOR CLOSING THE LEFT SHOULDER, REVERSE THE TRAFFIC CONTROL.

THIS DETAIL MAY BE USED FOR DIVIDED ROADWAYS WITH ANY NUMBER OF TRAVEL LANES.

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

ALL SIGNS ARE 48" X 48" UNLESS OTHERWISE NOTED.

SIGN LAYOUTS SHALL BE IN ACCORDANCE WITH THE FHWA'S MANUAL OF STANDARD HIGHWAY SIGNS OR THE WISCONSIN STANDARD SIGN PLATES.

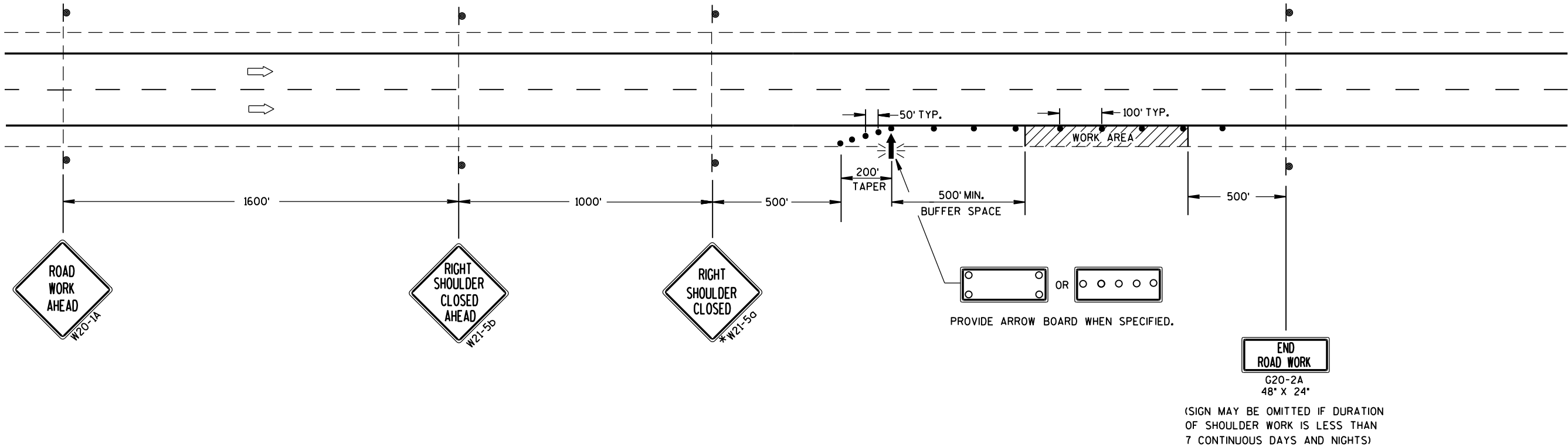
SIGNS THAT WILL BE IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS MAY BE MOUNTED ON PORTABLE SUPPORTS.

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.

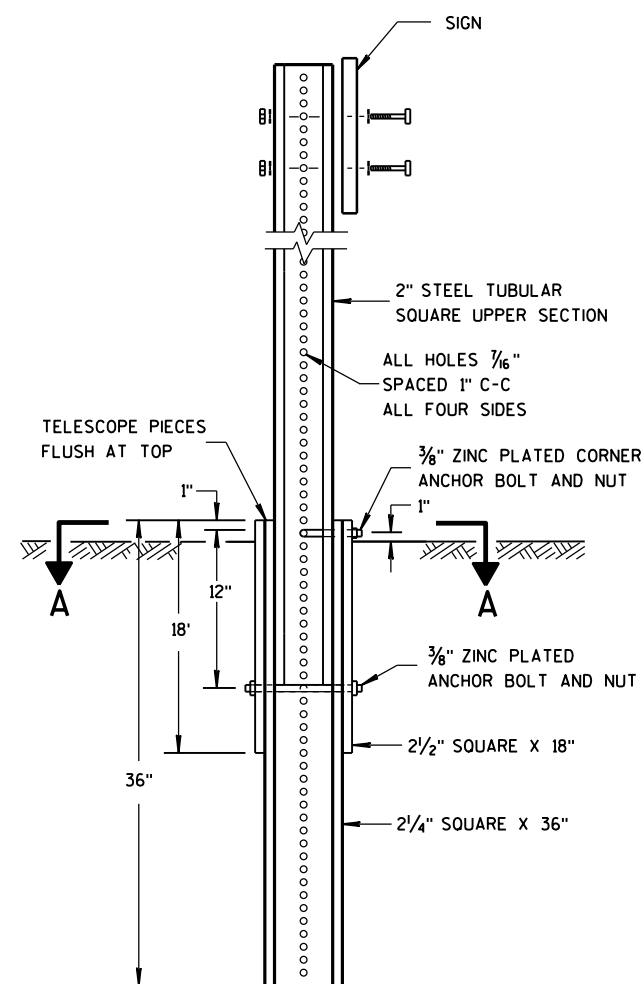
CHANNELIZING DEVICES PLACED ADJACENT TO THE WORK AREA SHALL BE PULLED BACK FROM THE TRAVEL LANE WHEN WORK IS NOT IN PROGRESS.

WHEN A RAMP INTERSECTS THE FACILITY ON WHICH THE WORK IS BEING PERFORMED, ADDITIONAL TRAFFIC CONTROLS SHALL BE PROVIDED AS SPECIFIED IN THE PLANS AND/OR THE SPECIAL PROVISIONS OR AS APPROVED BY THE ENGINEER.

*FOR SHORT DURATION SHOULDER WORK OF LESS THAN ONE HOUR, THE W21-5a SIGN MAY BE OMITTED.



TRAFFIC CONTROL SHOULDER CLOSURE ON DIVIDED ROADWAY, SPEEDS GREATER THAN 40 MPH		
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION		
APPROVED		
June 2016	/S/ Peter Amakobe Atepe	
DATE	STATEWIDE WORK ZONE	IC
FHWA	SAFETY ENGINEER	



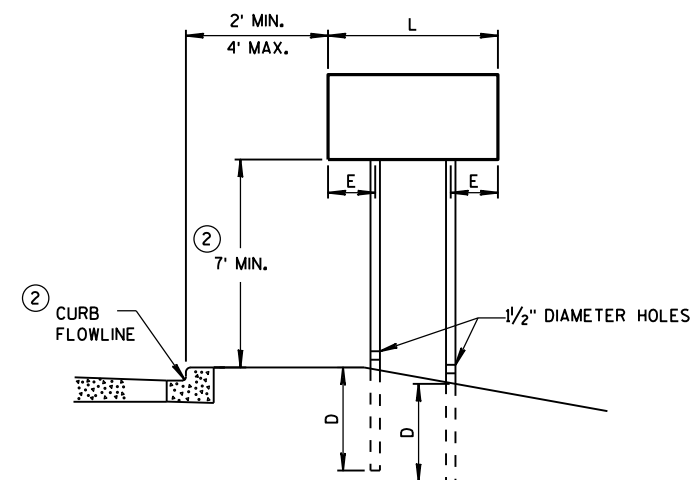
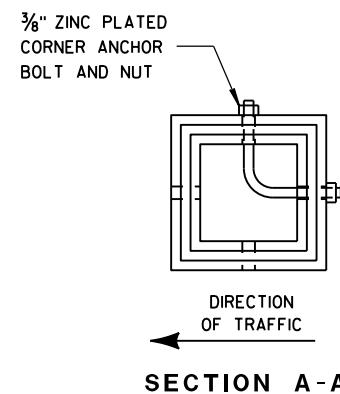
DETAIL OF TUBULAR STEEL SIGN POST

TUBULAR STEEL POSTS

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

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

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

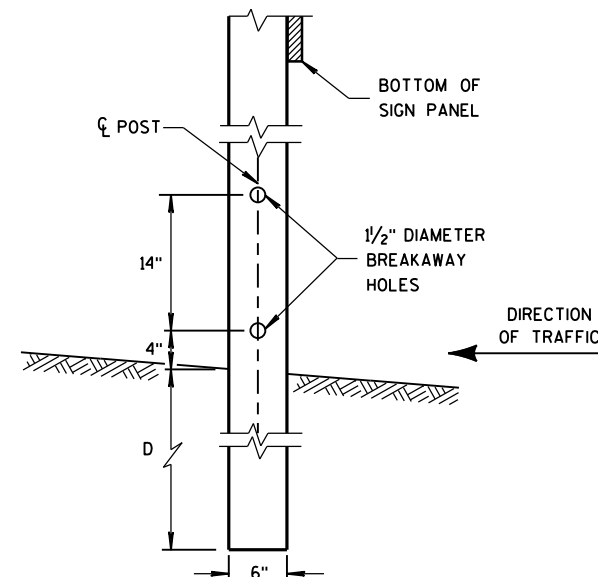


URBAN AREA

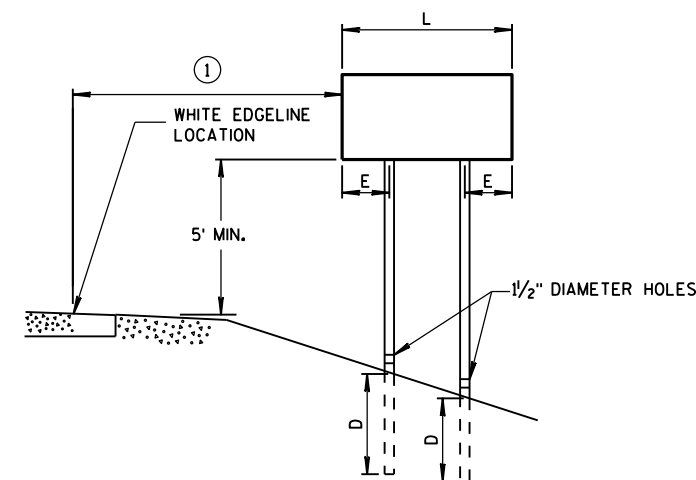
POST MOUNTING DETAIL FOR TEMPORARY TRAFFIC CONTROL FIXED MESSAGE SIGNS

WOOD POST
EMBEDMENT DEPTH

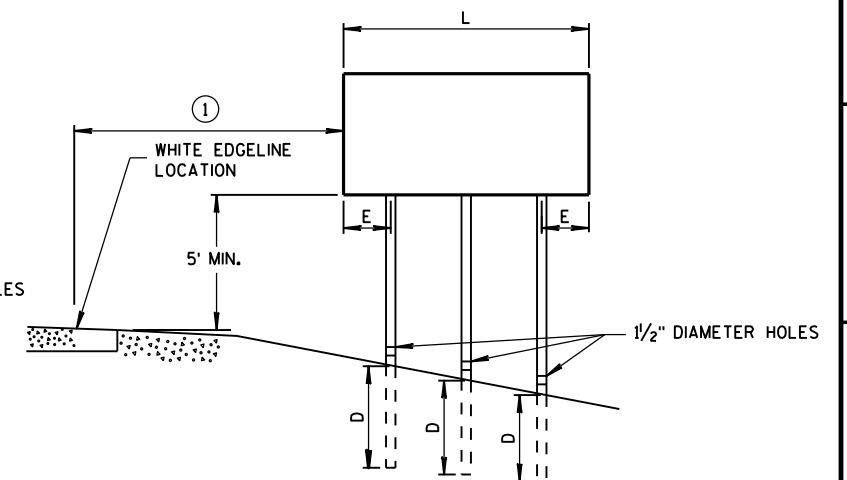
AREA OF SIGN INSTALLATION (SQ. FT.)	D (MIN)
20 OR LESS	4'
GREATER THAN 20	5'



4"x6" WOOD POST MODIFICATION



RURAL AREA



4" X 6" WOOD POST

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

SEE NOTE (3)

GENERAL NOTES

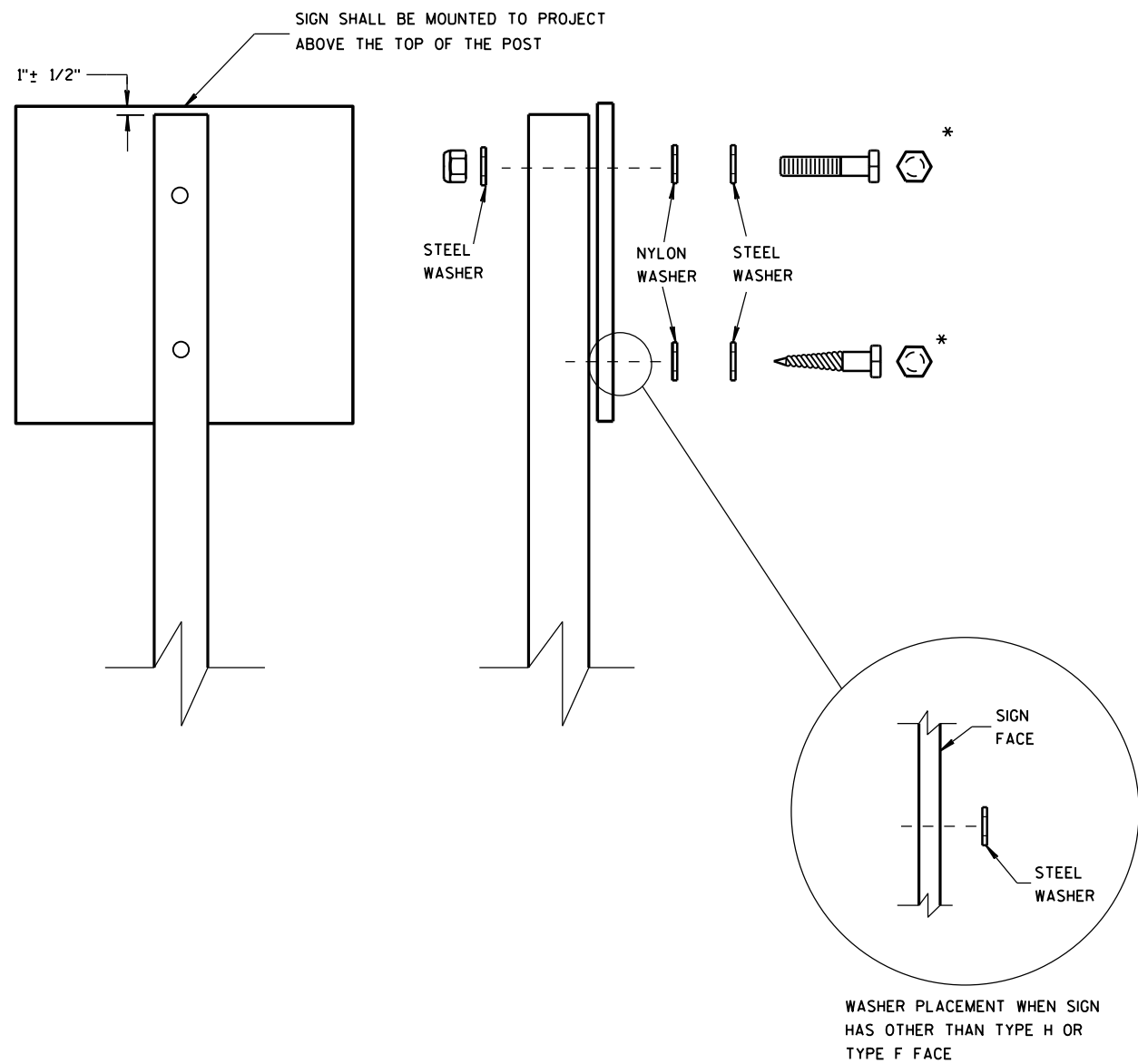
① 6 FEET FROM THE EDGE OF PAVEMENT (EDGE LINE LOCATION) UNLESS OTHERWISE DIRECTED BY THE PROJECT ENGINEER. LATERAL OFFSET SHOULD BE ADJUSTED TO AVOID THE DITCH FLOWLINE.

② THE EXISTENCE OF CURB AND GUTTER DOES NOT IN ITSELF MANDATE THE VERTICAL CLEARANCE ILLUSTRATED. THAT HEIGHT IS TYPICALLY MEASURED WHERE THERE IS SIDEWALK ADJACENT TO THE ROADWAY OR PARKING IS PERMITTED. IN THE ABSENCE OF SIDEWALK, VERTICAL CLEARANCE IS MEASURED FROM THE TOP OF THE CURB. IF NO SIDEWALK AND NO PARKING, VERTICAL CLEARANCE MAY BE REDUCED TO 5 FOOT MINIMUM. OFFSET OF SIGNS IS MEASURED FROM THE CURB FLOWLINE.

③ FOR SIGNS REQUIRING 4 POSTS, SPACE INTERMEDIATE POSTS EVENLY.

TEMPORARY TRAFFIC CONTROL FIXED MESSAGE SIGNS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION⁸⁸



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

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

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

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

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

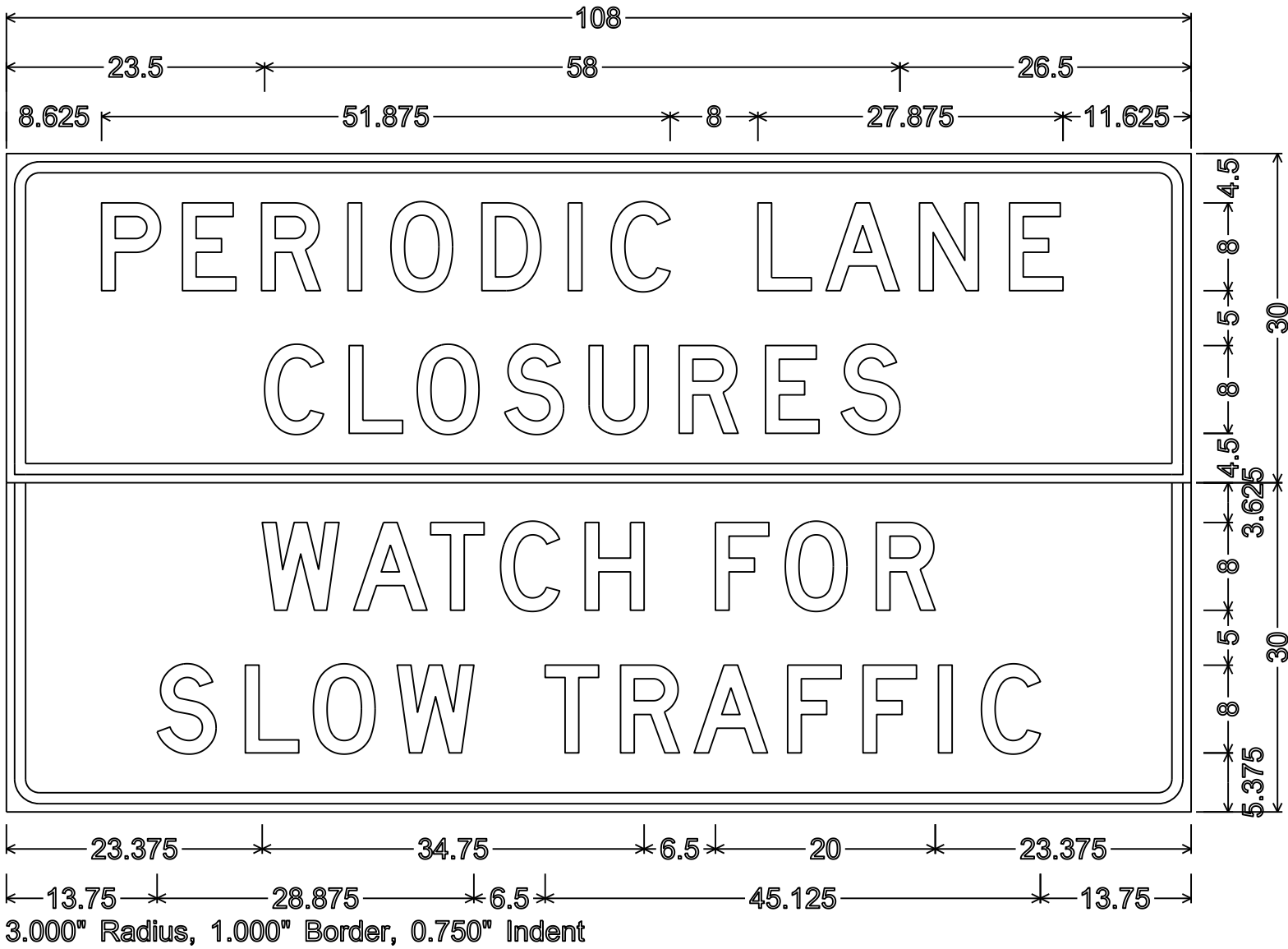
- WASHERS (ALL POSTS) -
- 1-1/4" O.D. x 3/8" I.D. x 1/16" STEEL
 - 1-1/4" O.D. x 3/8" I.D. x .080 NYLON FOR ALL TYPE H SIGNS

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

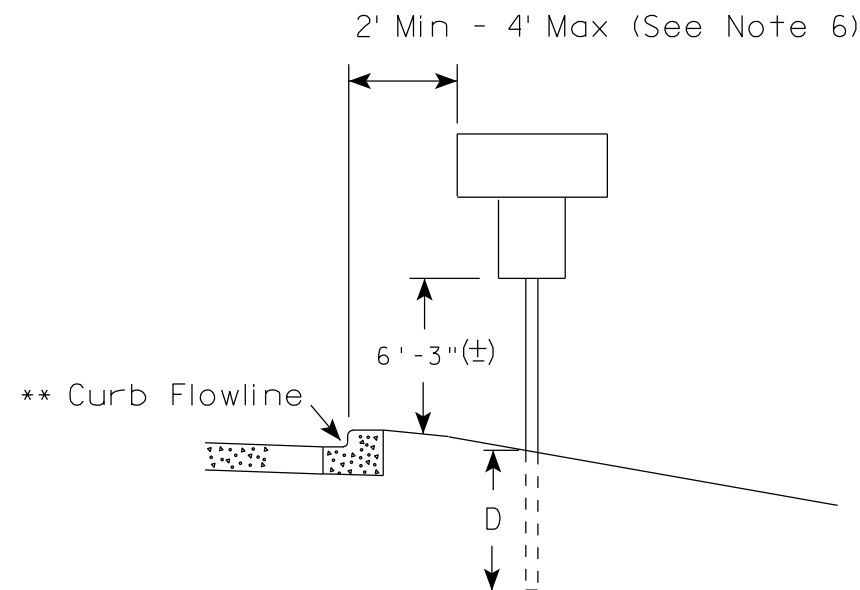
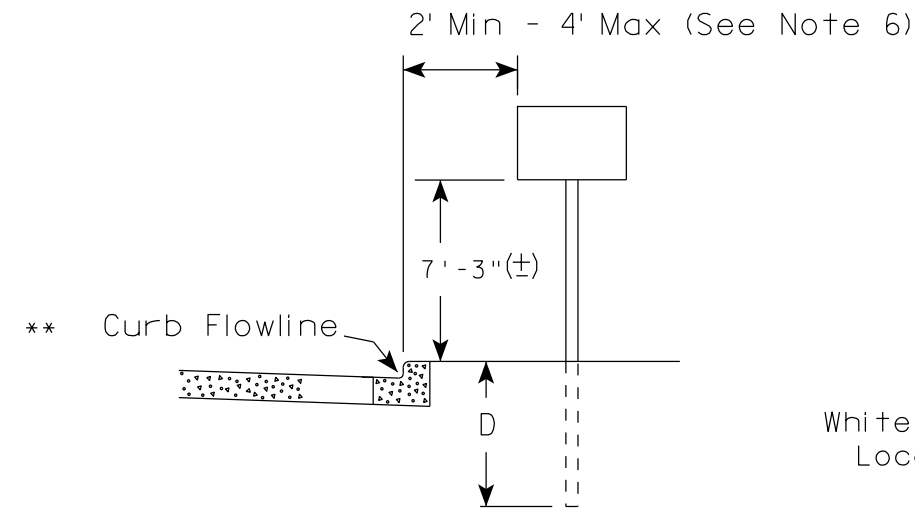
ATTACHMENT OF SIGNS TO POSTS		
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION		
APPROVED Feb. 2015	/S/ Travis Feltes	
DATE	STATE TRAFFIC ENGINEER	89 SIGN
FHWA		

NOTES

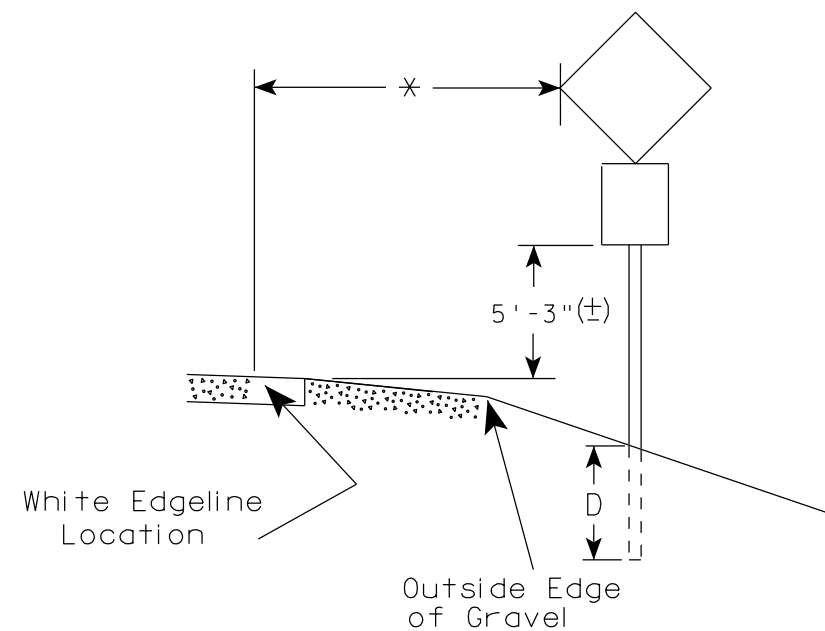
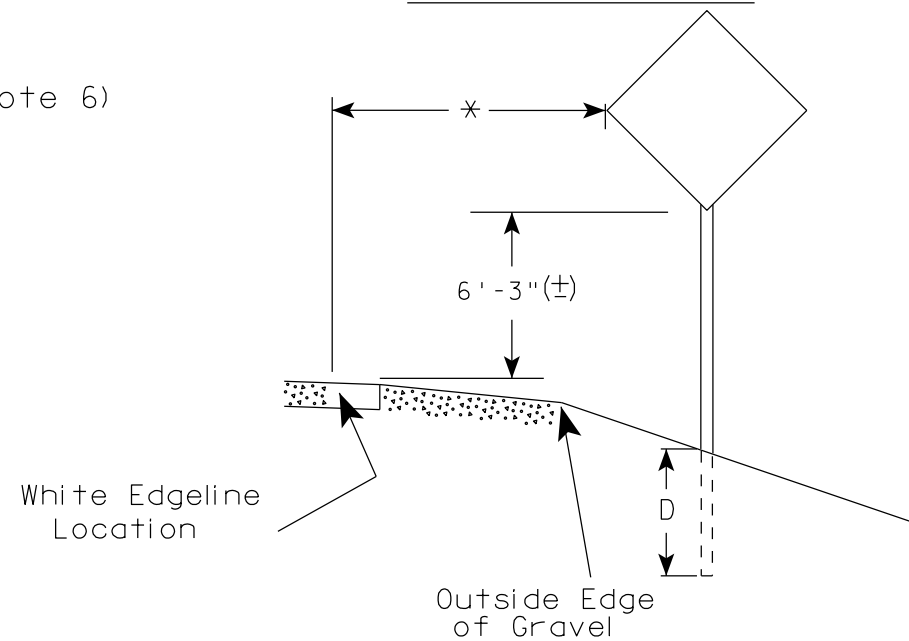
- 1. All Signs are Type II - Type F Reflective
- 2. Color:
 - Background - Orange
 - Message - Black
- 3. Message Series - D



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

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 7/23/15

PLATE NO. A4-3.20

91

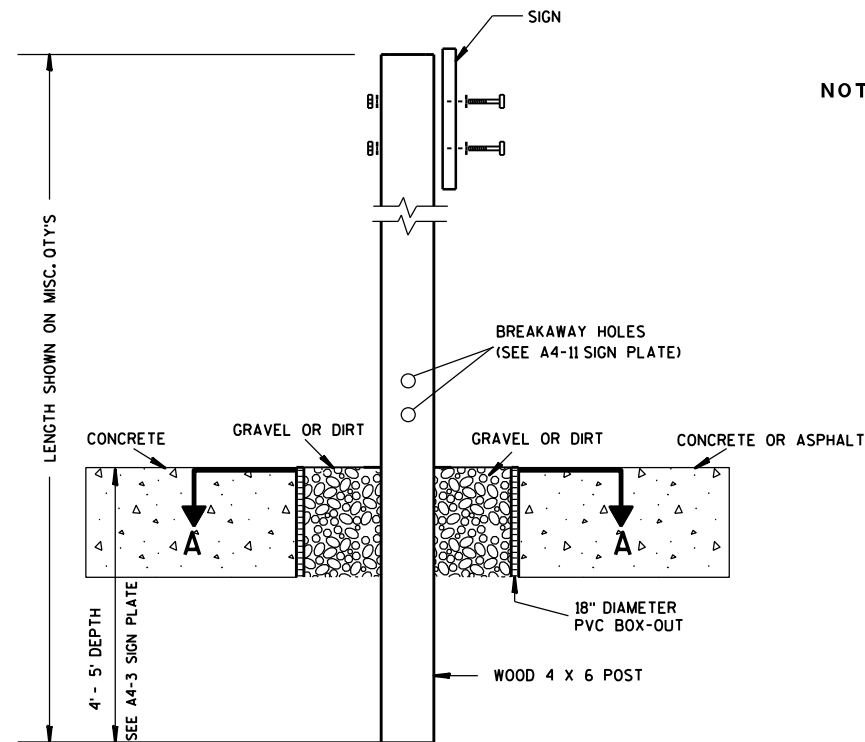
PROJECT NO:

HWY:

COUNTY:

SHEET NO:

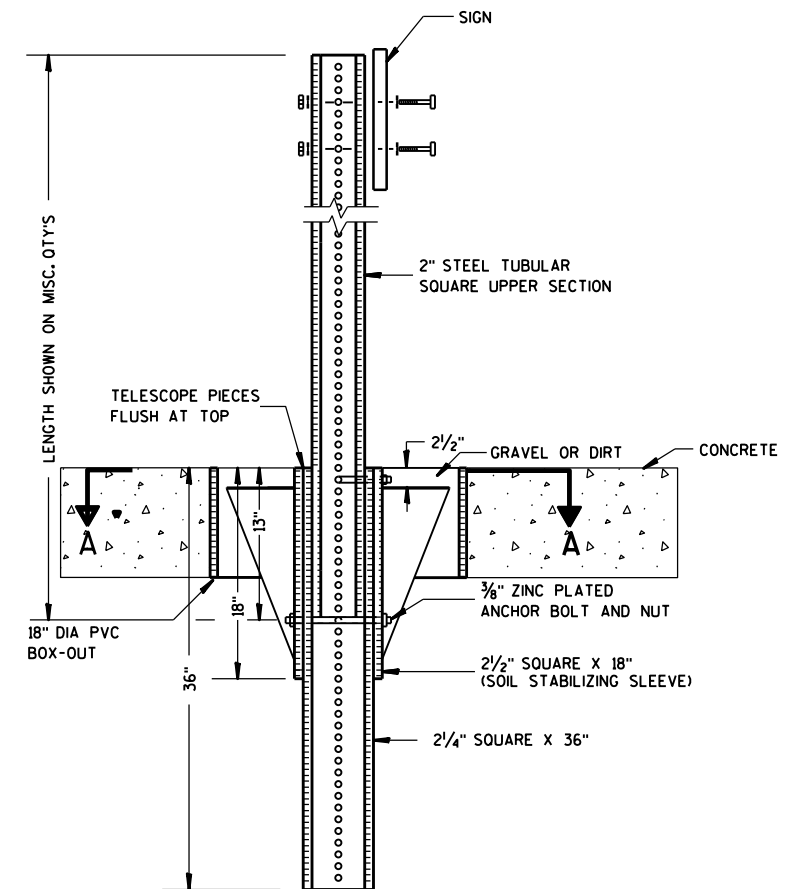
E



ELEVATION VIEW

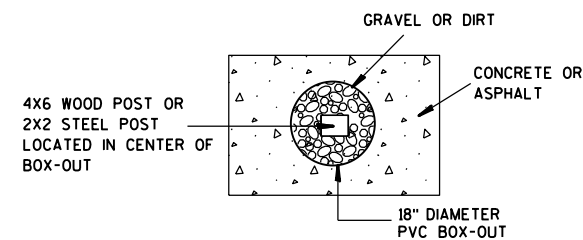
DETAIL OF WOOD 4 X 6 SIGN POST IN BOX-OUT

- 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

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 1/27/14 PLAT 92 A4-3B.1

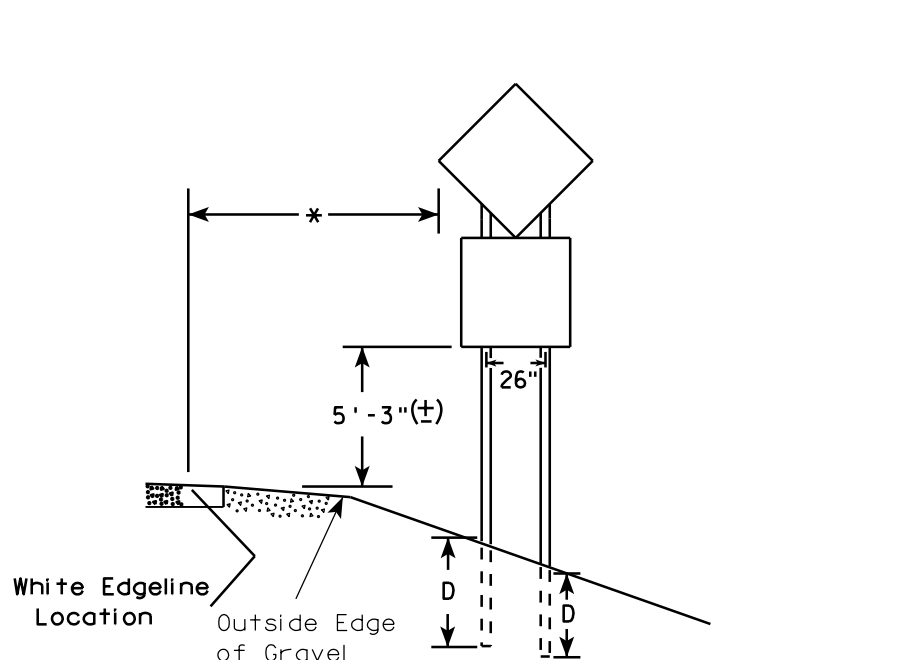
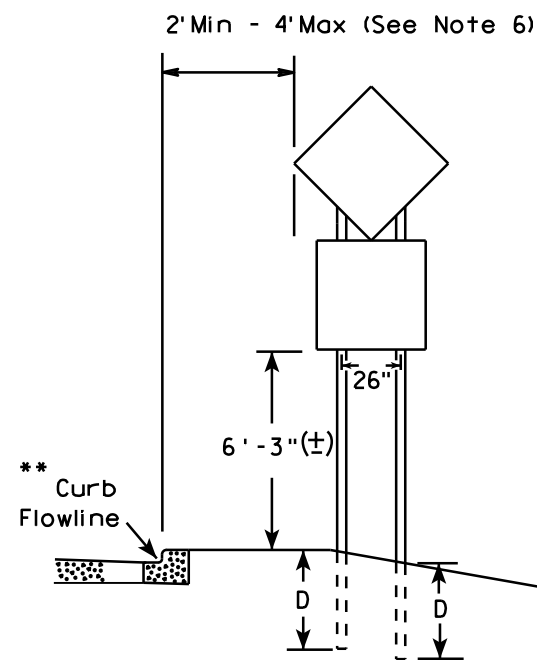
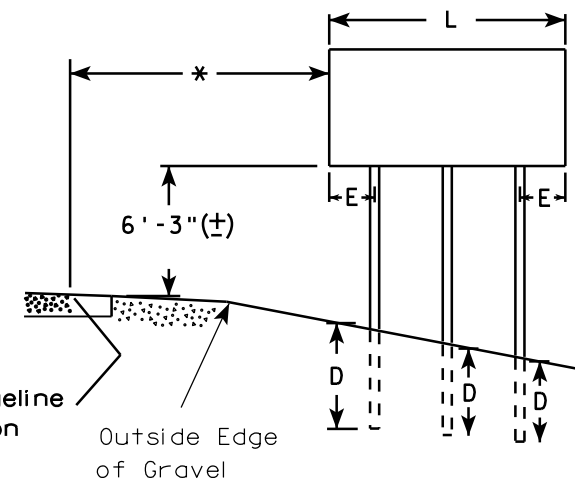
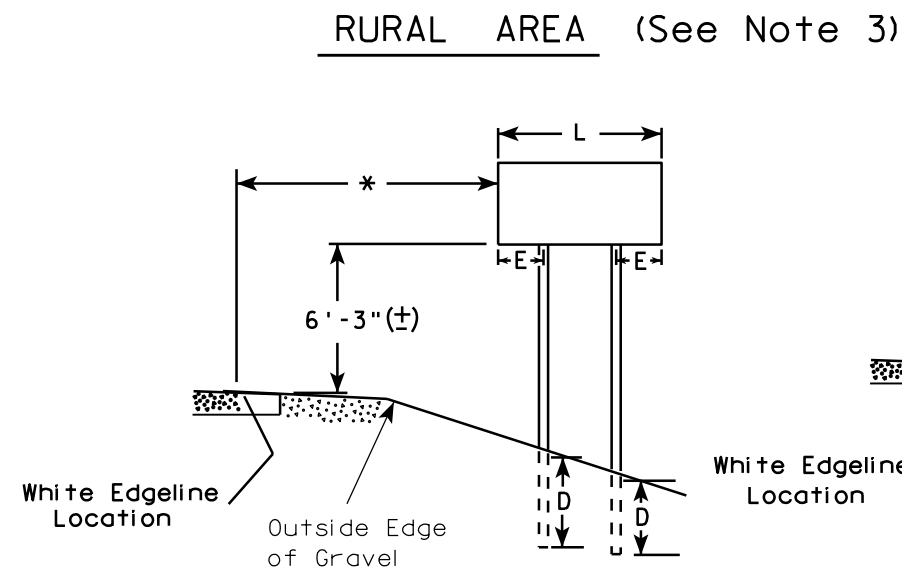
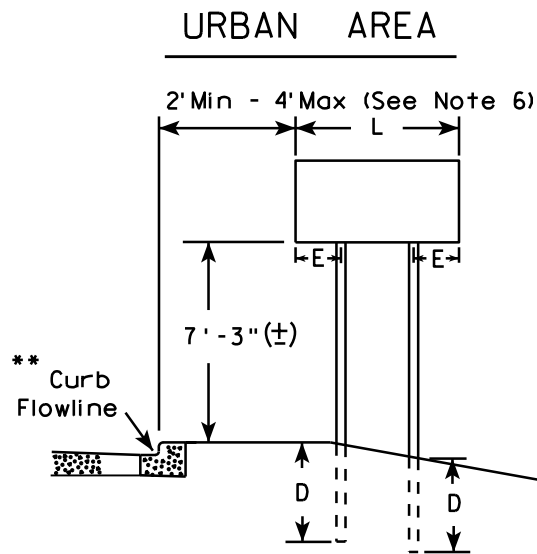
PROJECT NO:

HWY:

COUNTY:

SHEET NO:

E



48" DIAMOND WARNING SIGN

48" DIAMOND WARNING SIGN

- 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. Minimum mounting height for J assemblies (A2-1S) is 7'-3" (±) or 6'-3" (±) per urban or rural detail respectively.
 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" (±).

* 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 120"	L/5

SIGN SHAPE OTHER THAN DIAMOND (THREE POSTS REQUIRED)	
L	E
Greater than 120" less than 168"	12"

SIGN SHAPE OTHER THAN DIAMOND (FOUR POSTS REQUIRED)	
L	E
168" and greater	12"

POST EMBEDMENT DEPTH

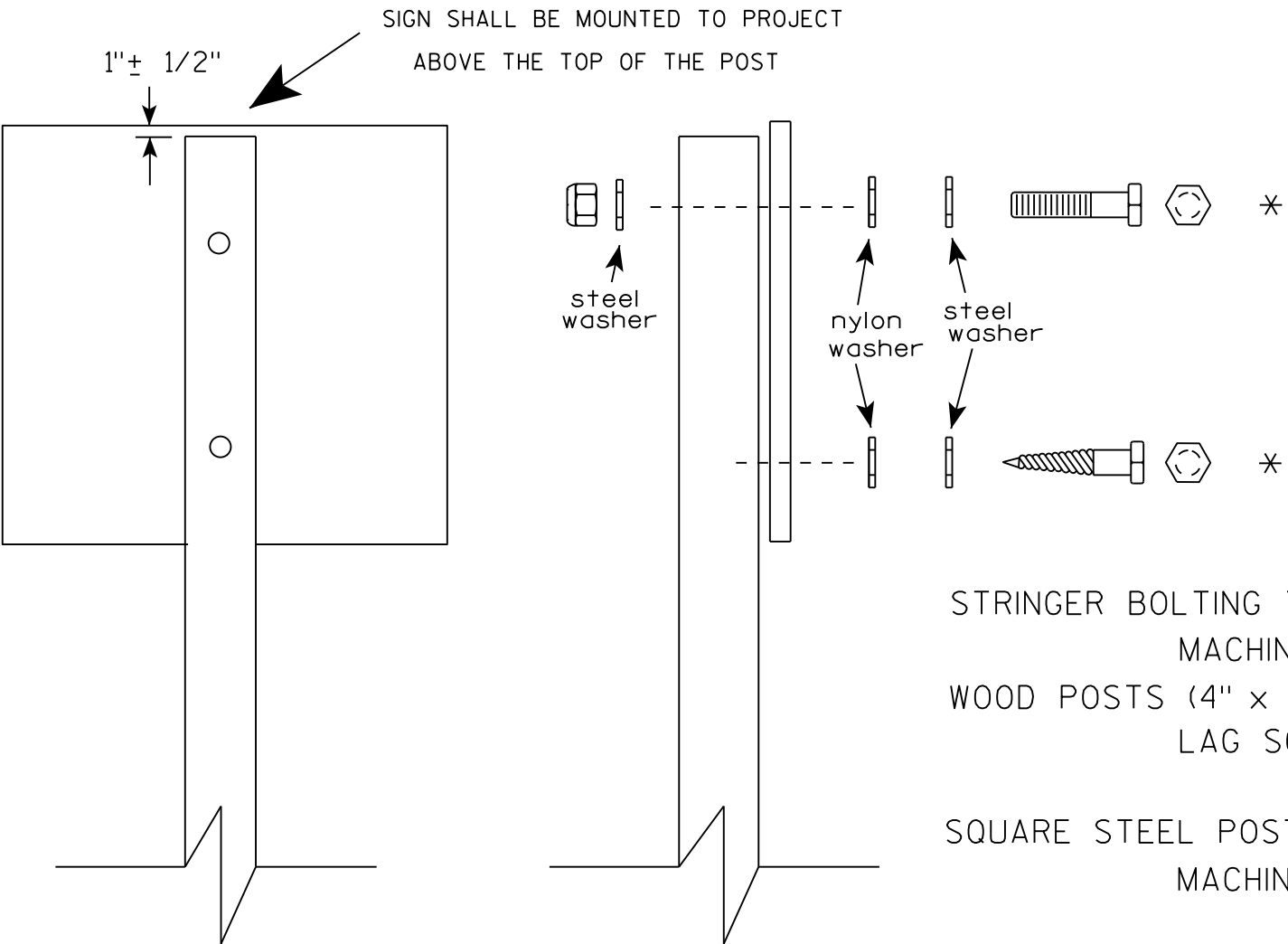
Area of Sign Installation (Sq. Ft.)	D (Min)
20 or Less	4'
Greater than 20	5'

TYPICAL INSTALLATION
OF TYPE II SIGNS
ON MULTIPLE POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 7/23/15 PLATE NO. 14



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

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

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

- STRINGER BOLTING TO ALUMINUM SIGNS (SEE SIGN PLATE A4-18)
- MACHINE BOLTS - 5/16" X 1-3/4" Length w/ lock nuts
- WOOD POSTS (4" x 4" or 4" x 6")
- LAG SCREWS - 3/8" X 3" (NO STRINGERS ON BACK OF SIGN)
 - 3/8" X 4" (STRINGERS ON BACK OF SIGN)
- SQUARE STEEL POSTS (2" x 2")
- MACHINE BOLTS - 3/8" X 3-1/4" Length w/ nuts (NO STRINGER ON BACK OF SIGN)
 - 3/8" X 5" Length w/ nuts (STRINGERS ON BACK OF SIGN)
- RIVETS - 9/32" (6605-9-6) BULB-TITE, TRI-FOLD, ALUMINUM BODY/MANDREL
- O.D. FLANGE .720-.765 INCH, GRIP RANGE .042-.375 INCH
- WASHERS (ALL POSTS) -
- 1-1/4" O.D. X 3/8" I.D. X 1/16" STEEL
 - 1-1/4" O.D. X 3/8" I.D. X .080 NYLON

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

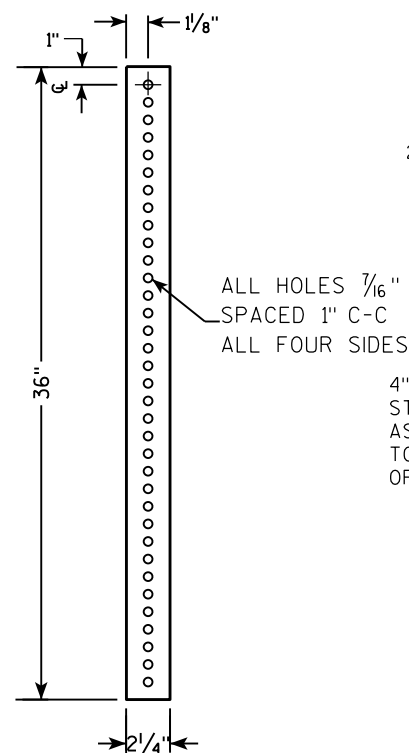
ATTACHMENT OF SIGNS
TO POSTS

WISCONSIN DEPT OF TRANSPORTATION

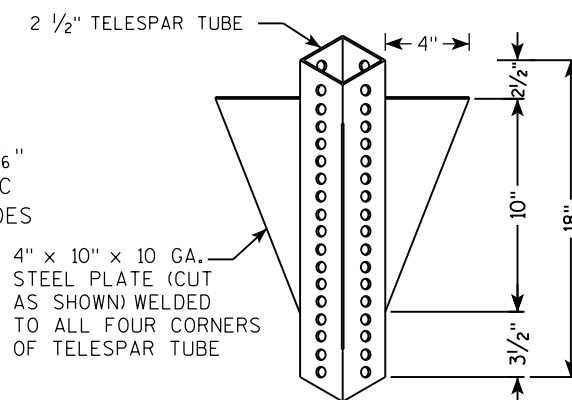
APPROVED *Matthew R. Rauch*
For State Traffic Engineer

DATE 8/11/16 PLATE NO. A4-8.8
94

**2 1/4 " SQUARE
12 GAUGE
PERFORATED
GALVANIZED FINISH**

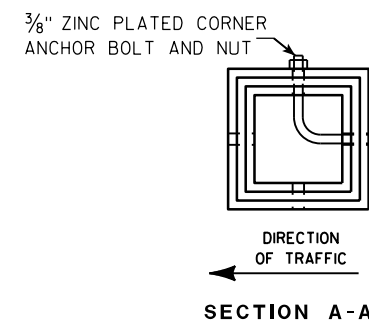


**2 1/2" SQUARE
12 GAUGE
OMNI-DIRECTIONAL
PERFORATED
SOIL STABILIZING SLEEVE
GALVANIZED FINISH**

[illegible]

TECHNICAL DRAWING OF A SIGNPOST ASSEMBLY:

- Dimensions:**
 - Overall height: LENGTH SHOWN ON MISC. QTYS
 - Top section height: 36"
 - Section below top: 18"
 - Section below that: 12"
- Components and Labels:**
 - SIGN
 - SEE SIGN PLATE A4-8 FOR BOLT WASHER, & NUT MATERIAL
 - 2" STEEL TUBULAR SQUARE UPPER SECTION
 - ALL HOLES $\frac{7}{16}$ " SPACED 1" C-C
 - ALL FOUR SIDES
 - $\frac{3}{8}$ " ZINC PLATED CORNER ANCHOR BOLT AND NUT
 - TELESCOPE PIECES FLUSH AT TOP
 - $\frac{3}{8}$ " ZINC PLATED ANCHOR BOLT AND NUT
 - 2 1/2" SQUARE X 18" (SOIL STABILIZING SLEEVE)
 - 2 1/4" SQUARE X 36"



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 Matthae R Rauch

for State Traffic Engineer

DATE 2/05/15 PLAT 95 14-9.9

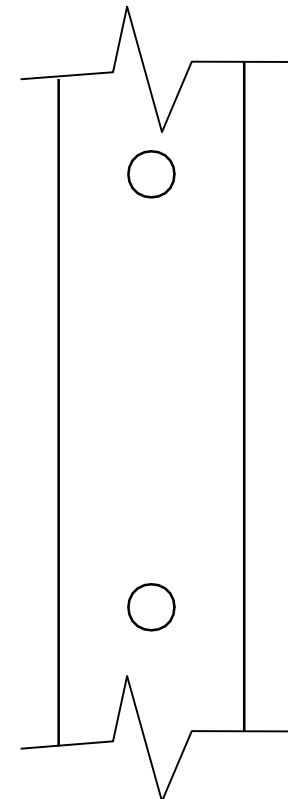
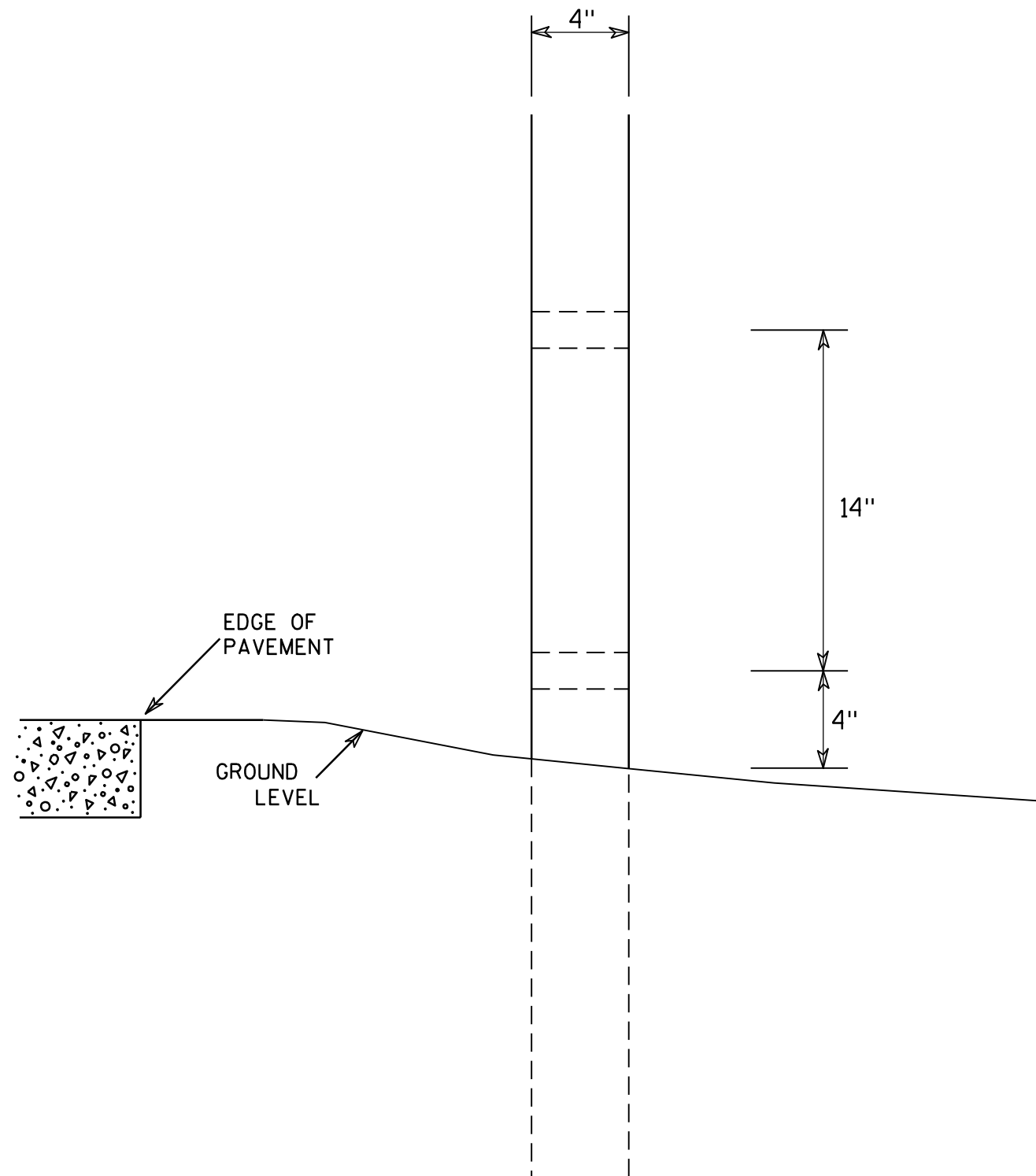
PROJECT NO:

HWY:

COUNTY:

SHEET NO:

E



SIDE VIEW

GENERAL NOTES

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

4 X 6 WOOD POST MODIFICATIONS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED

Chester J. Spang
for State Traffic Engineer

DATE 3/27/97

PLATE NO. A4-11.2

PROJECT NO:

HWY:

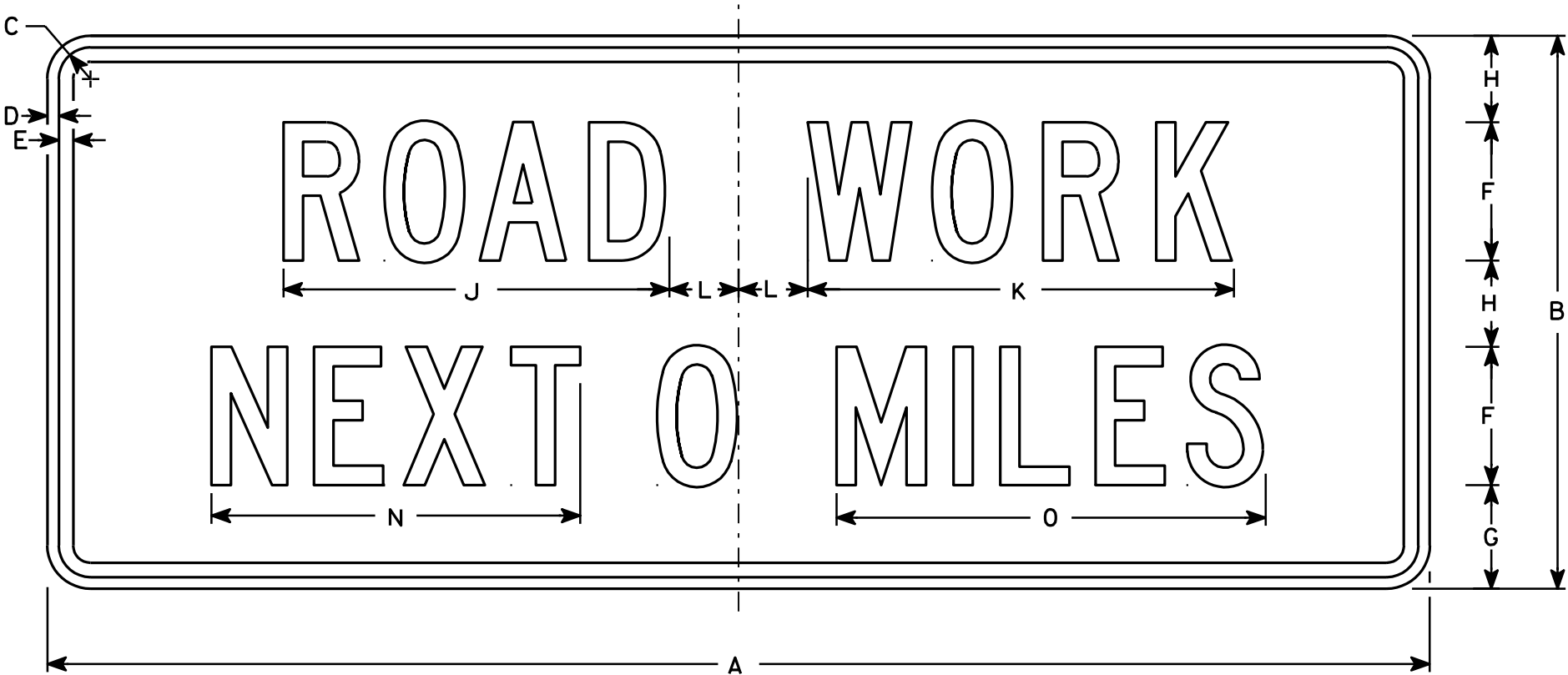
COUNTY:

SHEET NO: 96

E

NOTES

- 1. Sign is Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
- 2. Color:
Background - Orange
Message - Black
- 3. Message Series - C
- 4. 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.
- 5. Substitute appropriate numerals and optically adjust spacing to achieve proper balance



G20-1

Metric equivalent
for this sign is:

SIZE	
1	
2	1500 mm X 600 mm
3	
4	1500 mm X 600 mm
5	

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.	Area m ²
1																												
2	60	24	1 3⁄8	1⁄2	5⁄8	6	4 1⁄2	3 3⁄4		16 3⁄4	18 1⁄2	3		16	18 5⁄8												10	.90
3																												
4	60	24	1 3⁄8	1⁄2	5⁄8	6	4 1⁄2	3 3⁄4		16 3⁄4	18 1⁄2	3		16	18 5⁄8												10	.90
5																												

STANDARD SIGN
G20-1

WISCONSIN DEPT OF TRANSPORTATION

APPROVED

Chris J. Spay
State Traffic Engineer

DATE 4/8/97

PLATE NO. G20-1.7

PROJECT NO:

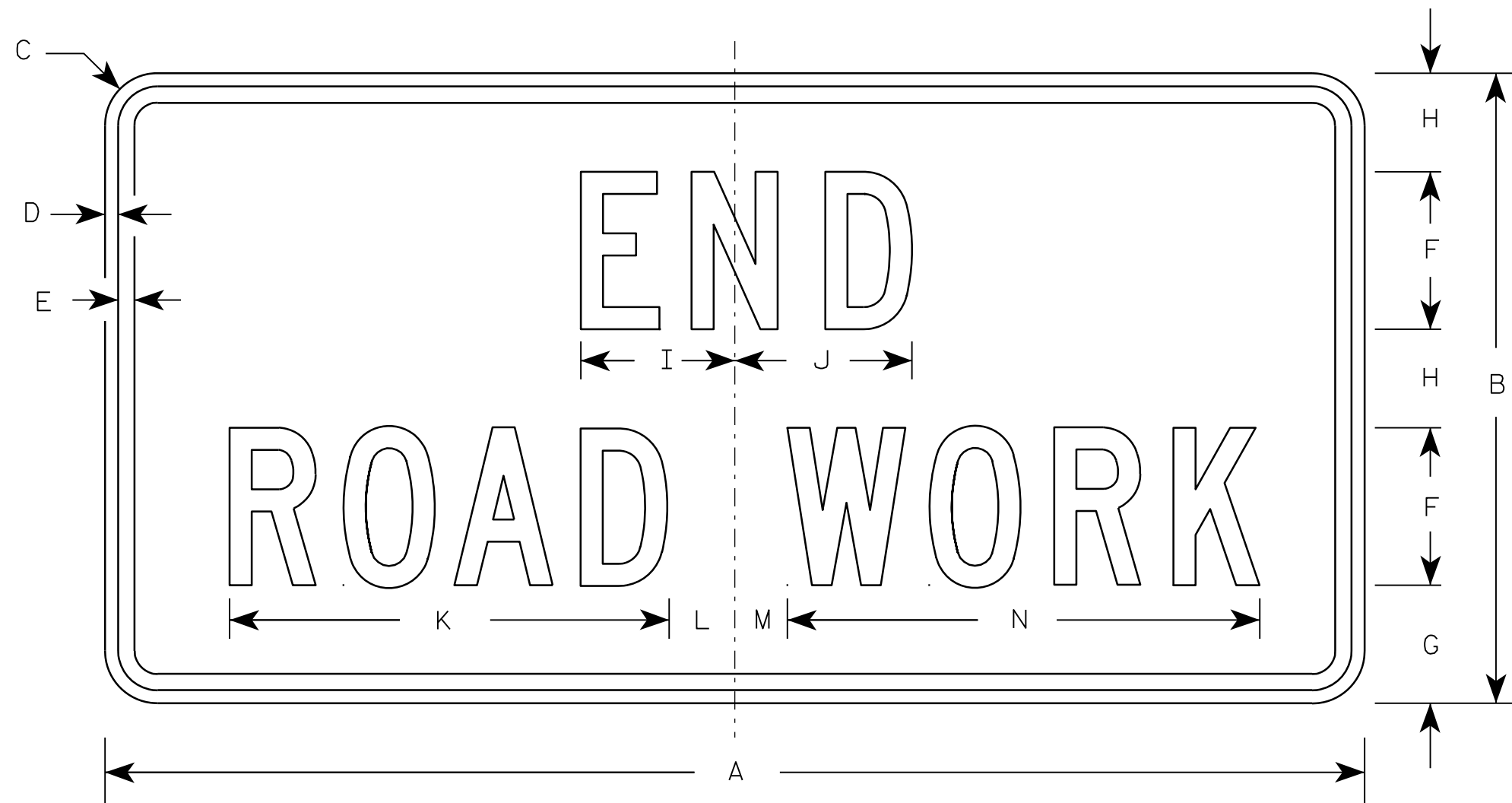
HWY:

COUNTY:

SHEET NO: 97

E

7



G20-2A

Metric equivalent
for this sign is:

SIZE	
1	900 mm X 450 mm
2	1200 mm X 600 mm
3	1200 mm X 600 mm
4	1200 mm X 600 mm
5	1200 mm X 600 mm

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.	Area m ²
1	36	18	1 1/8	3/8	1/2	4	3 3/4	2 1/2	4 1/8	4 1/8	11 1/8	2	1	12 1/8													4.5	0.41
2	48	24	1 1/2	1/2	5/8	6	4 1/2	3 3/4	5 7/8	6 3/4	16 3/4	2 1/2	1 3/4	18 1/2													8.0	0.72
3	48	24	1 1/2	1/2	5/8	6	4 1/2	3 3/4	5 7/8	6 3/4	16 3/4	2 1/2	1 3/4	18 1/2													8.0	0.72
4	48	24	1 1/2	1/2	5/8	6	4 1/2	3 3/4	5 7/8	6 3/4	16 3/4	2 1/2	1 3/4	18 1/2													8.0	0.72
5	48	24	1 1/2	1/2	5/8	6	4 1/2	3 3/4	5 7/8	6 3/4	16 3/4	2 1/2	1 3/4	18 1/2													8.0	0.72

NOTES

- Sign is Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
- Color:
Background - Orange
Message - Black
- Message Series - C
- 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.

7

PROJECT NO:

HWY:

COUNTY:

SHEET NO: 98

E

NOTES

1. Sign is Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
Background - Orange
Message - Black
3. Message Series - D
4. Substitute appropriate numeral and adjust spacing to achieve proper balance.



G20-55

Metric equivalent
for this sign is:

SIZE	
1	
2	
3	
4	2550 mm X 900 mm
5	

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	Areq sq. ft.	Areq m ²
1																												
2																												
3																												
4	84	24	1 1/8	3/8	1/2	6	4 1/2	3	21 1/2	4	2	23 1/2	4 1/8	24 5/8	28 3/8												25.5	2.30
5																												

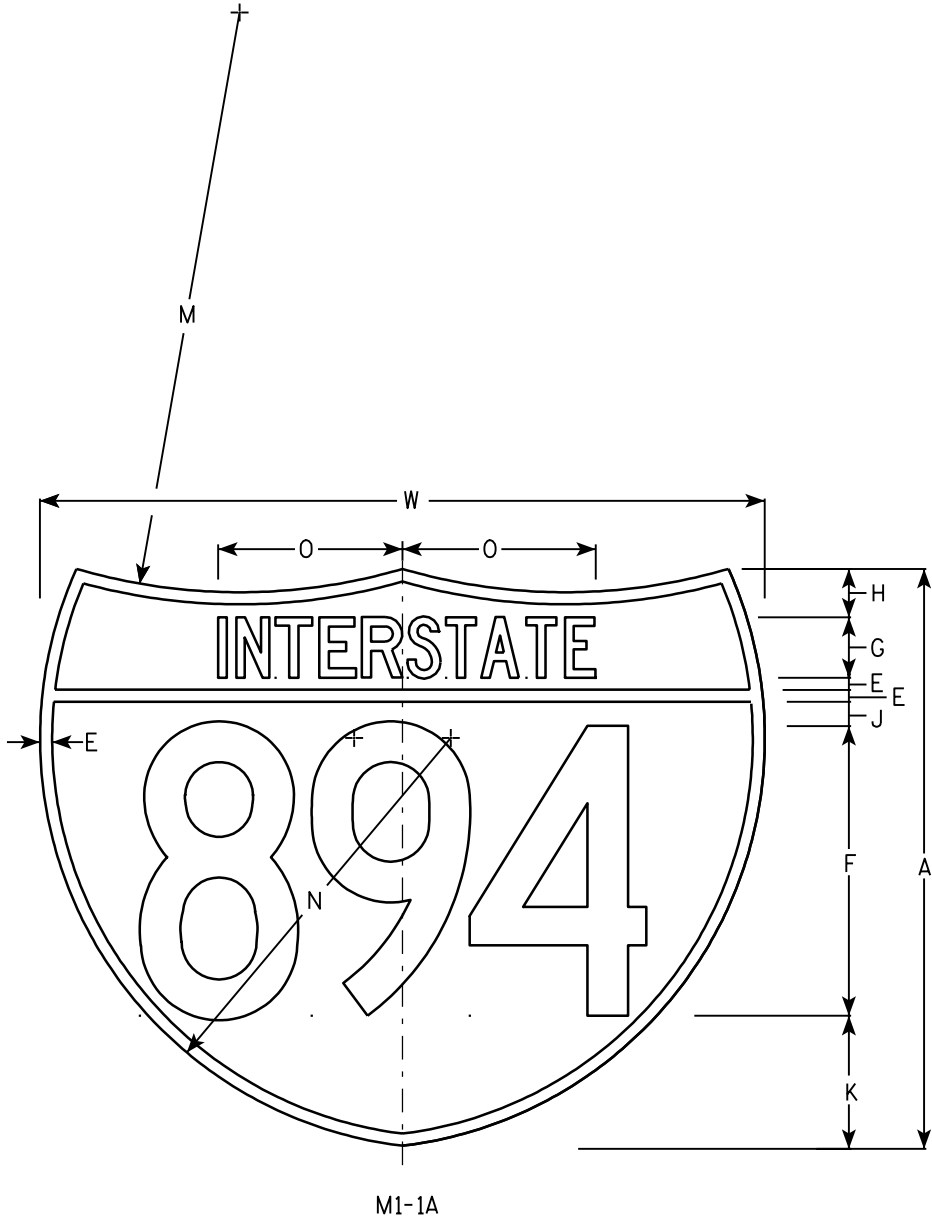
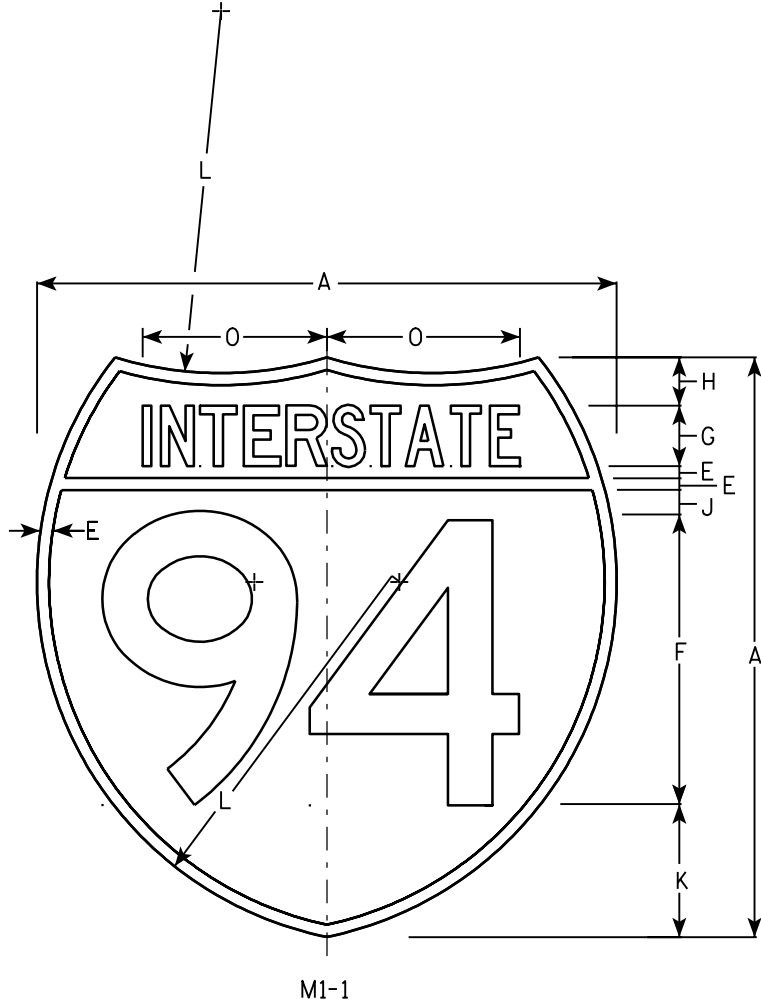
STANDARD SIGN
G20-55

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 9/30/09 PLATE NO. G20-55.2

PROJECT NO: HWY: COUNTY: SHEET NO: 99 E



NOTES

- 1. Sign is Type II - See Note 6 - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
- 2. Color:
Background - Top Red - Bottom Blue (See Note 6)
Message - White - See Note 6
- 3. Message Series - See note 5
- 4. Substitute appropriate numerals & adjust spacing as per plate A10-1.
- 5. M1-1 - Numerals - D
Interstate - C
M1-1A - All copy - C
- 6. Permanent Signs
Message - Type H Reflective
Detour or other temporary signs
Background - Reflective
Message - Reflective

Metric equivalent for these signs are:

SIZE	M1 - 1	SIZE	M1 - 1A
1			
2	600 mm X 600 mm	2	600 mm X 750 mm
3	900 mm X 900 mm	3	900 mm X 1125 mm
4	900 mm X 900 mm	4	900 mm X 1125 mm
5	900 mm X 900 mm	5	900 mm X 1125 mm

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	Area sq. ft.	Area sq. ft.	Area m ²	Area m ²
1																													
2	24				1/2	12	2 1/2	2		1	5 1/2	15	24	17	7 7/8								30			3.13	3.91	.36	.46
3	36				3/4	18	3 3/4	3		1 1/2	8 1/4	22 1/2	36	25 1/2	11 3/4								45			7.03	8.79	.81	1.05
4	36				3/4	18	3 3/4	3		1 1/2	8 1/4	22 1/2	36	25 1/2	11 3/4								45			7.03	8.79	.81	1.05
5	36				3/4	18	3 3/4	3		1 1/2	8 1/4	22 1/2	36	25 1/2	11 3/4								45			7.03	8.79	.81	1.05

INTERSTATE ROUTE MARKER
M1-1 FOR ASSEMBLIES

WISCONSIN DEPT OF TRANSPORTATION
APPROVED *Matthew R. Rauch*
for State Traffic Engineer
DATE 08/23/05 PLATE NO. M1-1.8

NOTES

1. Sign is Type II - Type H except as Shown
2. Color:

Background - See Note 5

Message - See note 5
3. Message Series - B
4. 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.
5. M4-1

Background - White

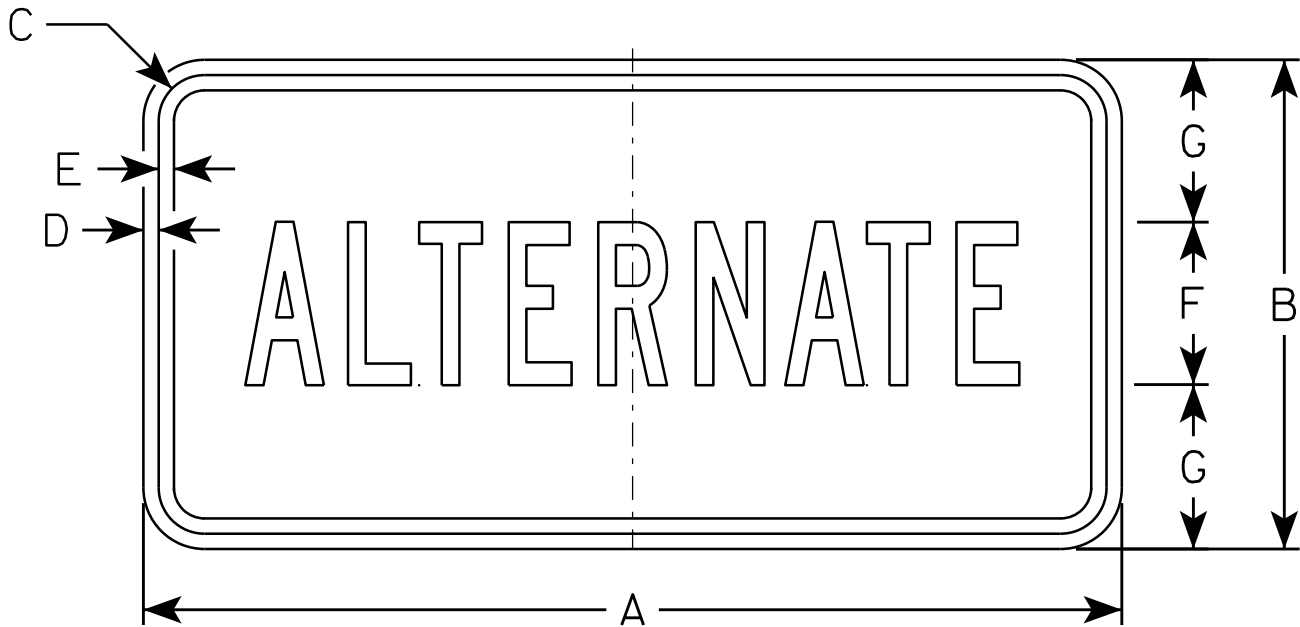
Message - Black
- MB4-1

Background - Blue

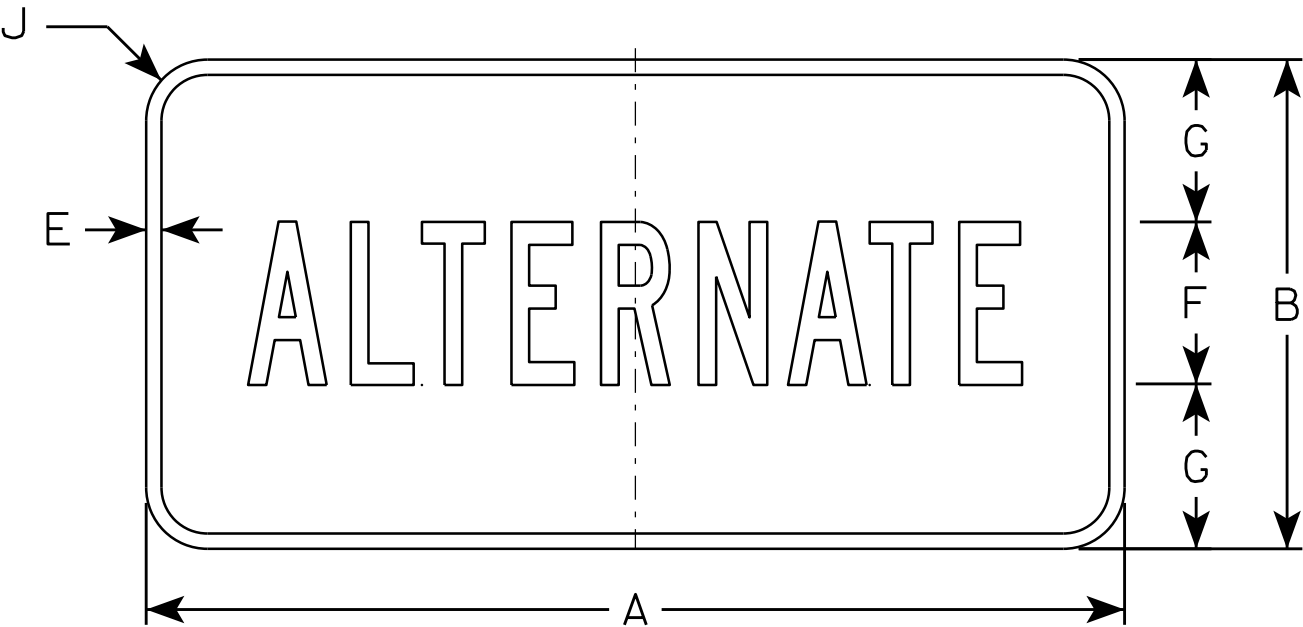
Message - White
- M04-1

Background - Orange - Type F

Message - Black



M4 - 1
M04 - 1



MB4 - 1

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																											
2	24	12	1 1/8	3/8	3/8	4	4	9 3/4	9 1/2	1 1/2																	2.00
3	36	18	1 1/8	3/8	1/2	7	5 1/2	16 3/8	16 1/2	1 1/2																	4.5
4	36	18	1 1/8	3/8	1/2	7	5 1/2	16 3/8	16 1/2	1 1/2																	4.5
5	36	18	1 1/8	3/8	1/2	7	5 1/2	16 3/8	16 1/2	1 1/2																	4.5

STANDARD SIGN
M4 - 1

WISCONSIN DEPT OF TRANSPORTATION

APPROVED

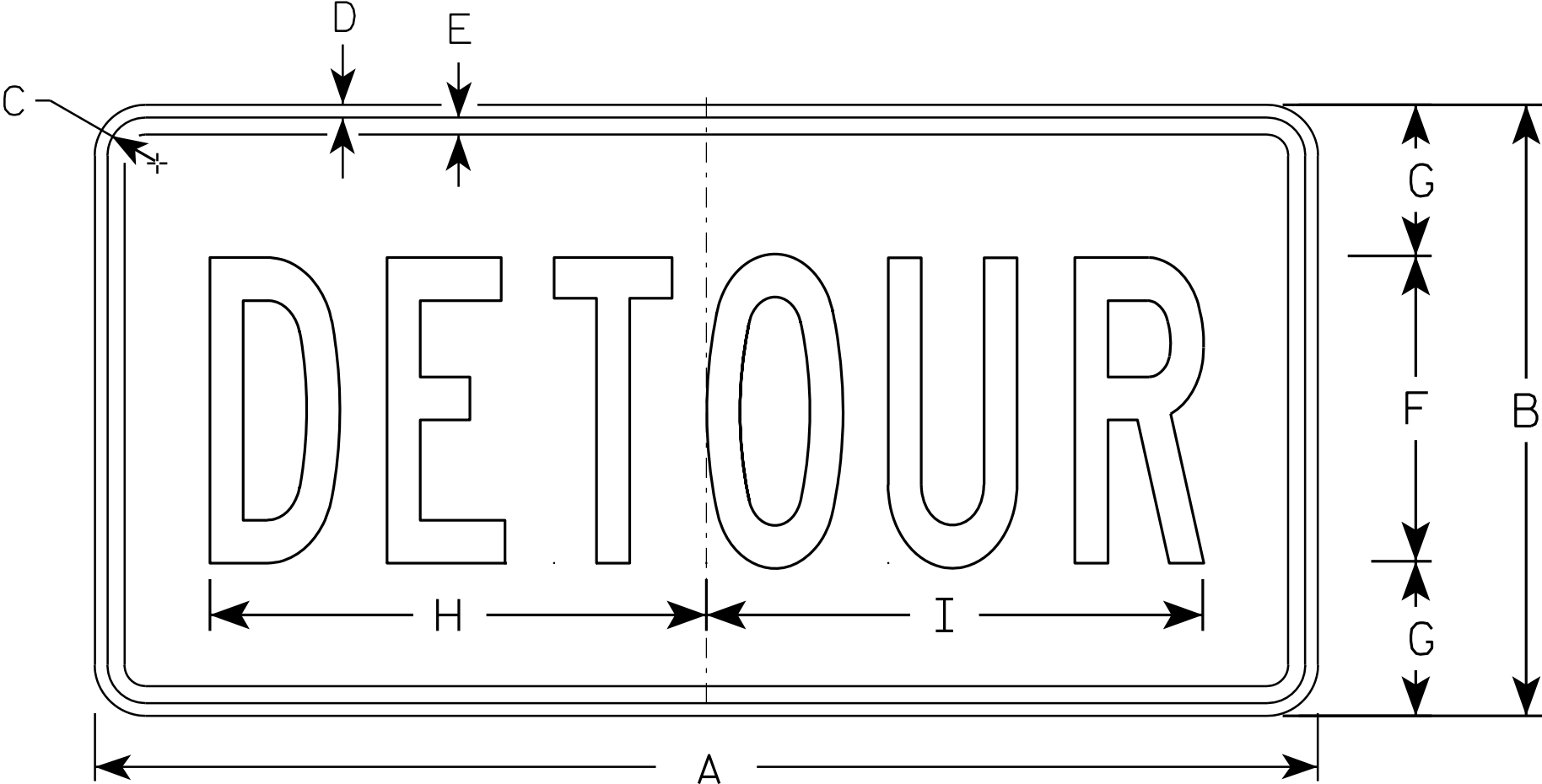
Matthew R. Rauch

for State Traffic Engineer

DATE 6/30/14PLATE 101'14-1.8

NOTES

- 1. Sign is Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
- 2. Color:
 - Background - Orange
 - Message - Black
- 3. Message Series - B
- 4. 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.



M4 - 8

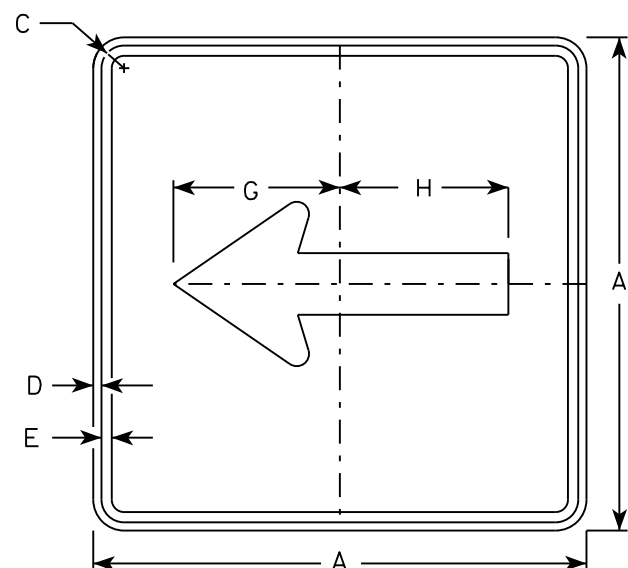
SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Areg sq. ft.
1																											
2	24	12	1 1/8	3/8	3/8	6	3	10	10 1/4																		2.0
3	36	18	1 1/8	3/8	1/2	9	4 1/2	14 5/8	14 1/2																		4.5
4																											
5																											

STANDARD SIGN
M4 - 8

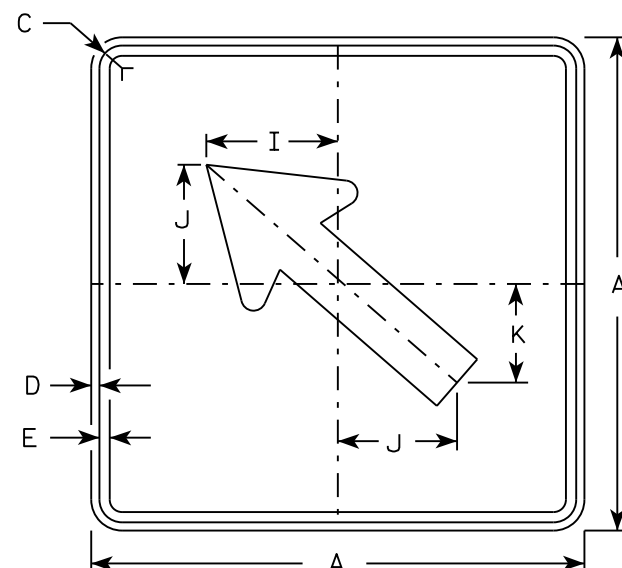
WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

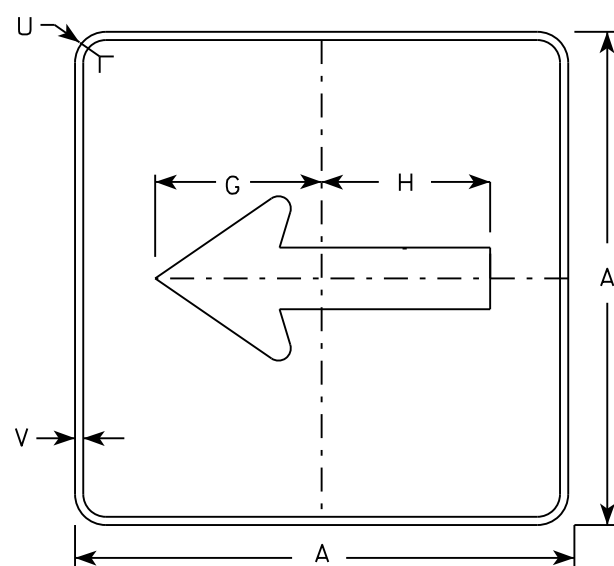
DATE 11/10/10 PLATE NO. M4-8.2



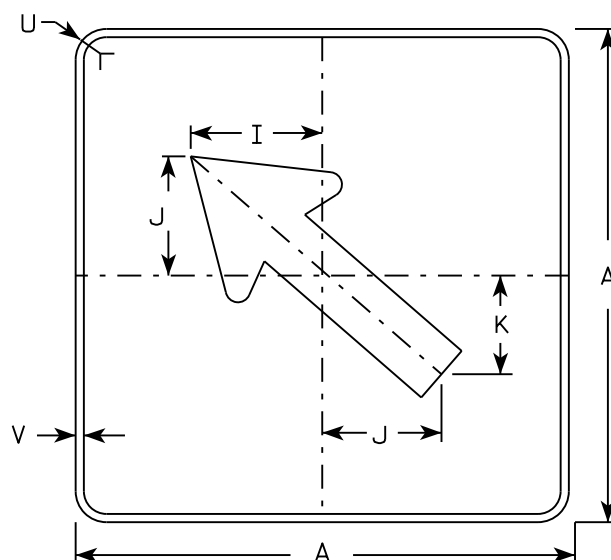
M6 - 1
MM6 - 1
MO6 - 1
MP6 - 1



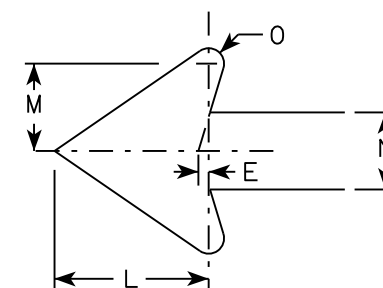
M6 - 2
MM6 - 2
MO6 - 2
MP6 - 2



MB6 - 1
MK6 - 1
MN6 - 1
MR6 - 1



MB6 - 2
MK6 - 2
MN6 - 2
MR6 - 2



NOTES

1. Signs are Type II - Type H except as Shown
2. Color:
 - Background - See note 4
 - Message - See note 4
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. M6-1 and M6-2 Background - White
Message - Black
MB6-1 and MB6-2 Background - Blue
Message - White
MK6-1 and MK6-2 Background - Green
Message - White
MM6-1 and MM6-2 Background - White
Message - Green
MN6-1 and MN6-2 Background - Brown
Message - White
M06-1 and M06-2 Background - Orange - Type F Reflective
Message - Black
MP6-1 and MP6-2 Background - White
Message - Blue
MR6-1 and MR6-2 Background - Brown
Message - Yellow

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																											
2	21		1 1/8	3/8	3/8		7 1/2	7 1/8	5 5/8	5	4 1/4	5 1/4	3	2 5/8	1/2						1 1/2	1/2					3.06
3	30		1 3/8	1/2	5/8		10 3/4	10 1/4	8	7 1/4	6	7 1/2	4 1/4	3 3/4	3/4						1 7/8	1/2					6.25
4	30		1 3/8	1/2	5/8		10 3/4	10 1/4	8	7 1/4	6	7 1/2	4 1/4	3 3/4	3/4						1 7/8	1/2					6.25
5	30		1 3/8	1/2	5/8		10 3/4	10 1/4	8	7 1/4	6	7 1/2	4 1/4	3 3/4	3/4						1 7/8	1/2					6.25

PROJECT NO:

HWY:

COUNTY:

SHEET NO:

	E
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File Name : C:\CAEfiles\Projects\tr_stdlate\M61.DGN

PI NT DATE • 01-DEC-2015 17:57

PL OT BY : \$\$ plotuser \$\$ PL OT NAME :

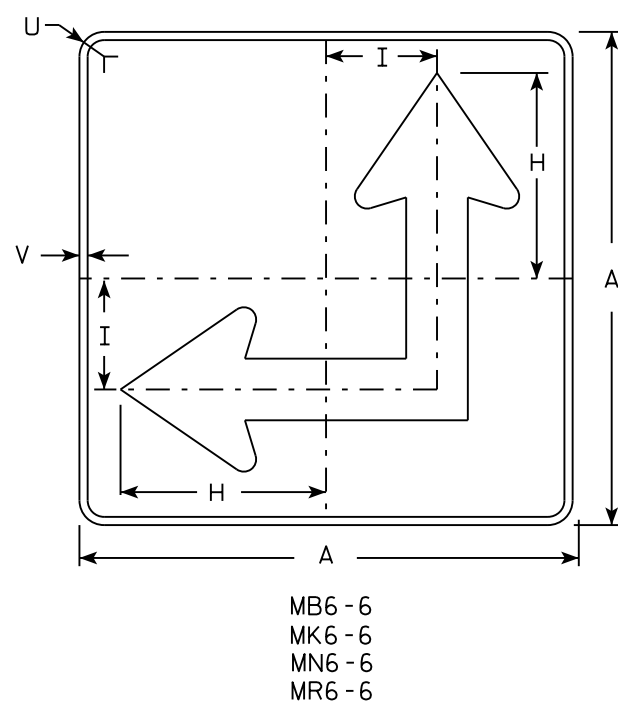
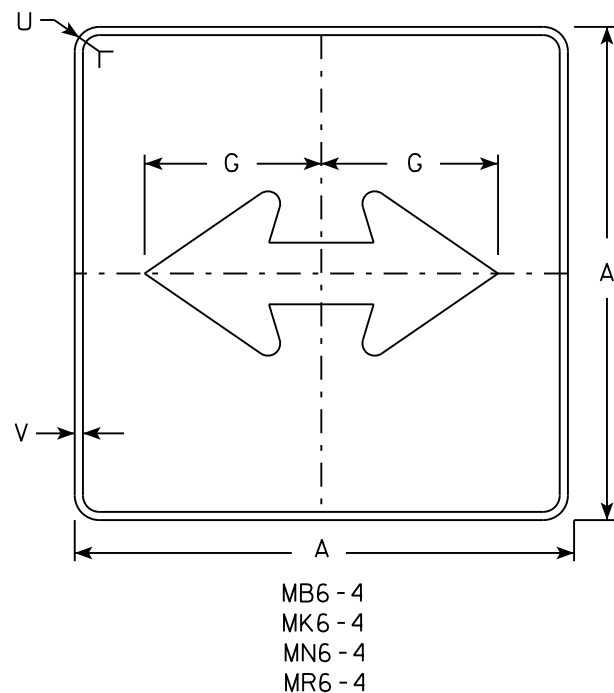
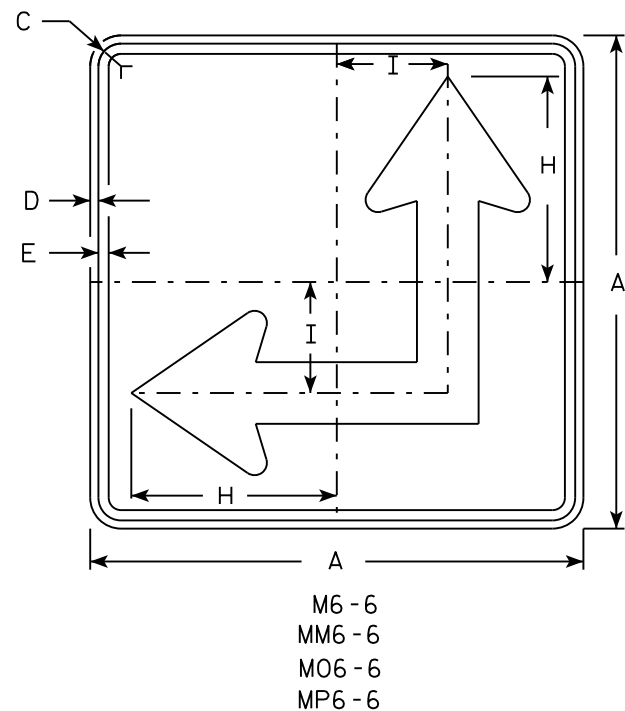
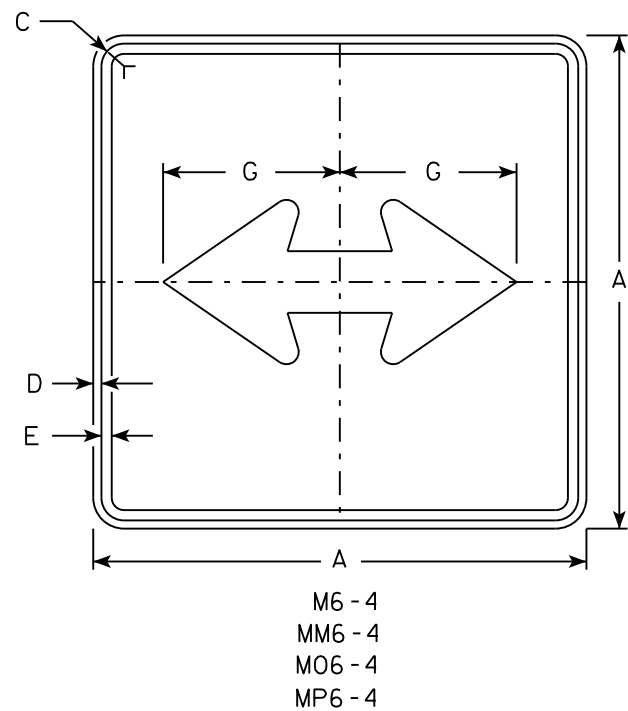
PI NT SCALF * 11 675051*1 000000

STANDARD SIGN
M6-1 & M6-2
SERIES

WISCONSIN DEPT OF TRANSPORTATION

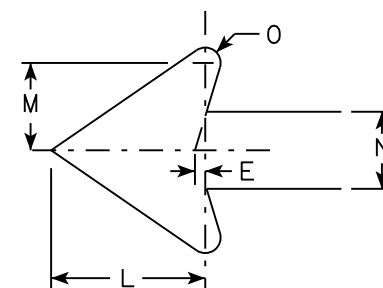
APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 10/15/15 PLATI 103 M6-1.15



NOTES

- Signs are Type II - Type H except as Shown
- Color:
Background - See Note 4
Message - See Note 4
- 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.
- M6-4 and M6-6 Background - White
Message - Black
MB6-4 and MB6-6 Background - Blue
Message - White
MK6-4 and MK6-6 Background - Green
Message - White
MM6-4 and MM6-6 Background - White
Message - Green
MN6-4 and MN6-6 Background - Brown
Message - White
M06-4 and M06-6 Background - Orange - Type F Reflective
Message - Black
MP6-4 and MP6-6 Background - White
Message - Blue
MR6-4 and MR6-6 Background - Brown
Message - Yellow
- M6-6R same as M6-6L except arrow points ahead and right.



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																											
2	21		1 1/8	3/8	3/8		7 1/2	8 3/4	4 1/4			5 1/4	3	2 5/8	1/2						1 1/2	1/2					3.06
3	30		1 3/8	1/2	5/8		10 3/4	12 1/2	6 3/4			7 1/2	4 1/4	3 3/4	3/4						1 7/8	1/2					6.25
4	30		1 3/8	1/2	5/8		10 3/4	12 1/2	6 3/4			7 1/2	4 1/4	3 3/4	3/4						1 7/8	1/2					6.25
5	30		1 3/8	1/2	5/8		10 3/4	12 1/2	6 3/4			7 1/2	4 1/4	3 3/4	3/4						1 7/8	1/2					6.25

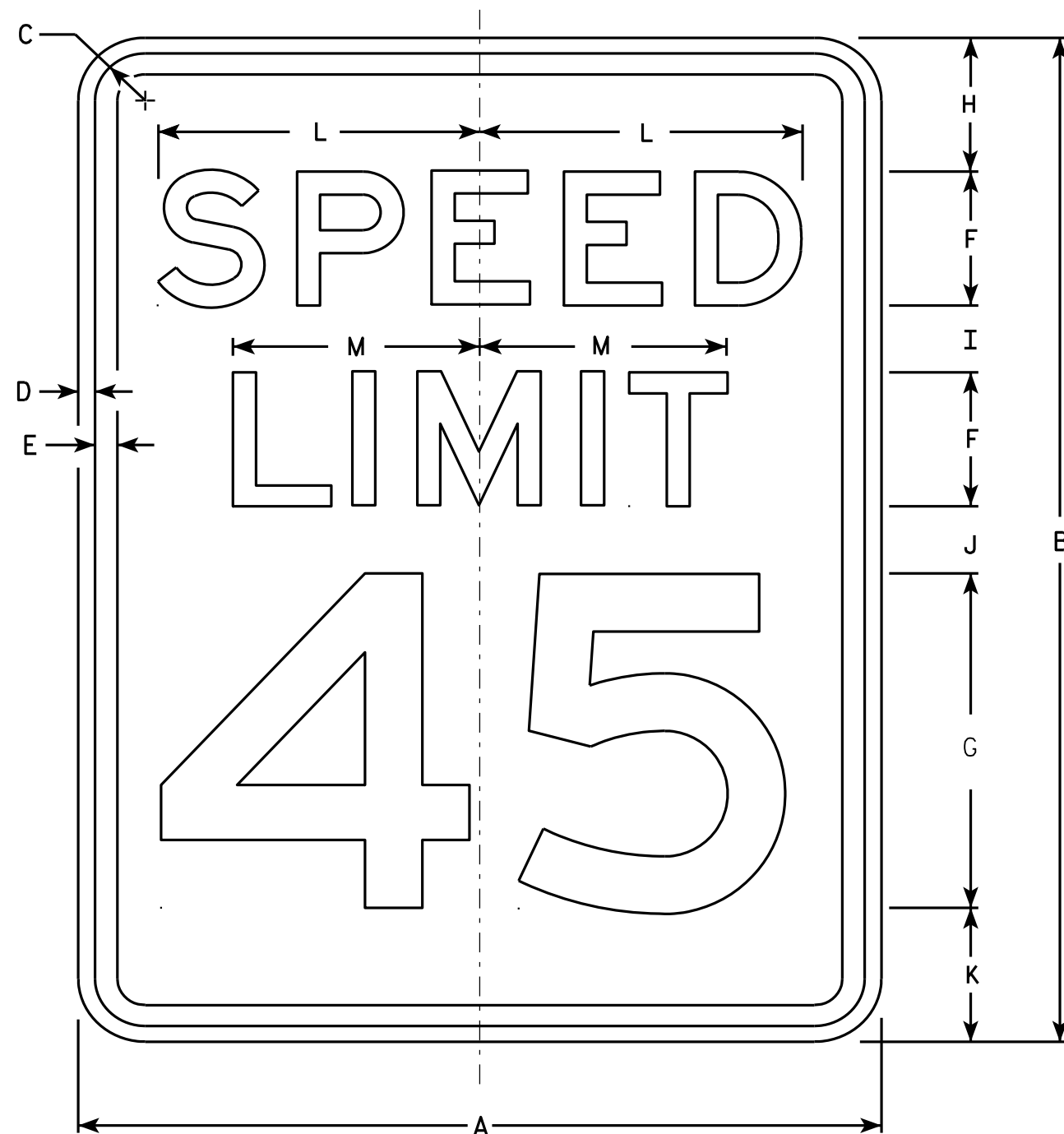
PROJECT NO:	HWY:	COUNTY:	PLAT NO:	SHEET NO:	E
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STANDARD SIGN
M6 - 4 & M6 - 6
SERIES

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 10/15/15 PLAT 104 M6-4.10



R2-1

NOTES

1. Sign is Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
Background - White
Message - Black
3. Message Series - E
4. 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.
5. Substitute appropriate numerals and optically adjust spacing to achieve proper balance.

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	18	24	1 1/8	3/8	1/2	3	8	3	2	2	3	7 1/4	5 1/2														3.0
2S	24	30	1 1/8	3/8	1/2	4	10	3	2 1/4	3 3/8	3 3/8	9 5/8	7 3/8														5.0
2M	30	36	1 3/8	1/2	5/8	5	12	5	2 1/2	2 1/2	4	12	9 1/4														7.5
3	36	48	1 3/8	1/2	5/8	6	14	6	5	5	6	14 3/8	11														12.0
4	36	48	1 3/8	1/2	5/8	6	14	6	5	5	6	14 3/8	11														12.0
5	48	60	2 1/4	3/4	1	8	20	6	4 1/2	6 3/4	6 3/4	19 1/4	14 5/8														20.0

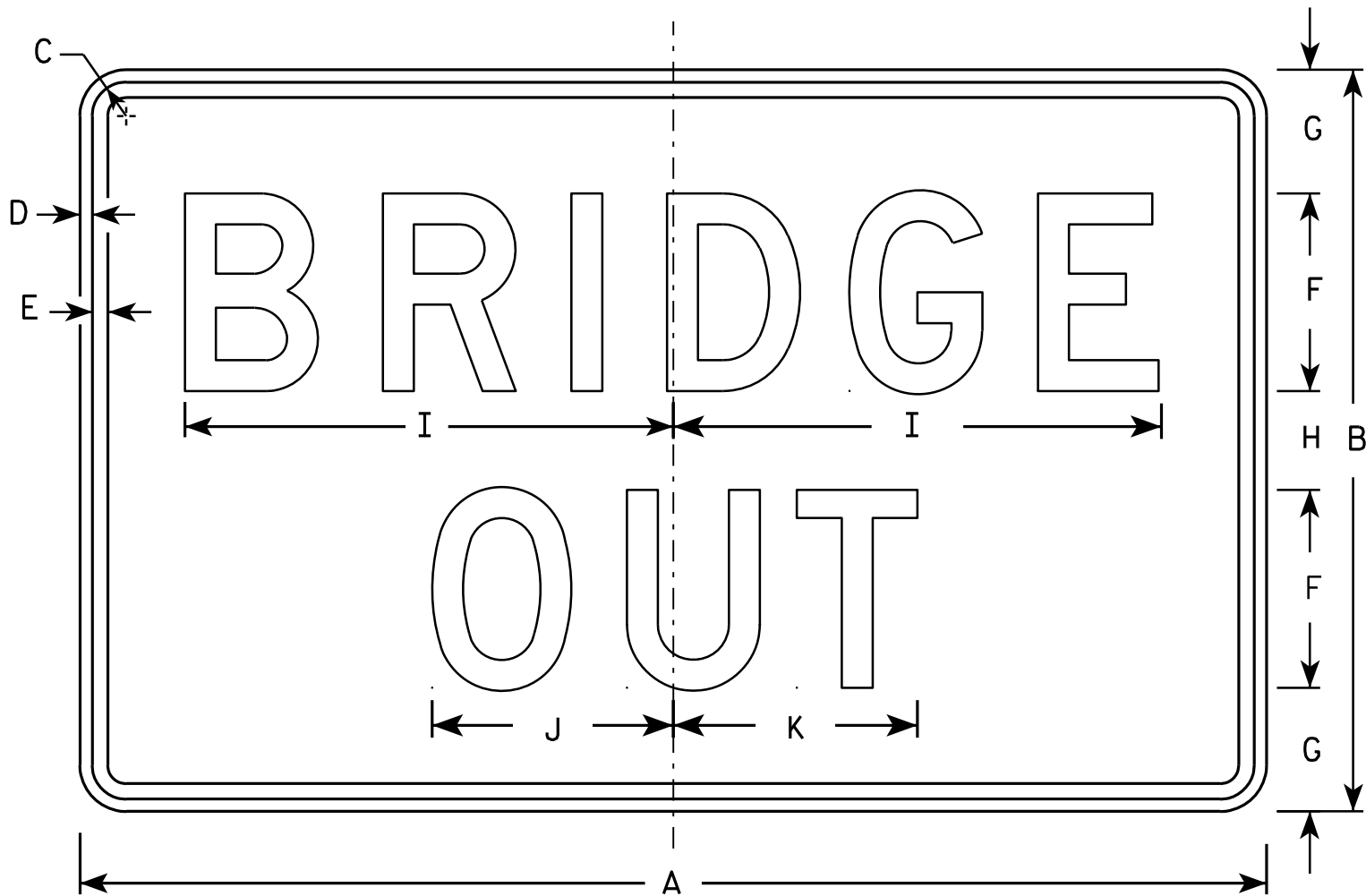
STANDARD SIGN R2-1

WISCONSIN DEPT OF TRANSPORTATION
APPROVED *Matthew R. Rauch*
For State Traffic Engineer
DATE 5/26/10 PLATE NO. R2-1.13

PROJECT NO: HWY: COUNTY: SHEET NO: 105 E

NOTES

- 1. Sign is Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
- 2. Color:
 - Background - White
 - Message - Black
- 3. Message Series - D
- 4. 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.



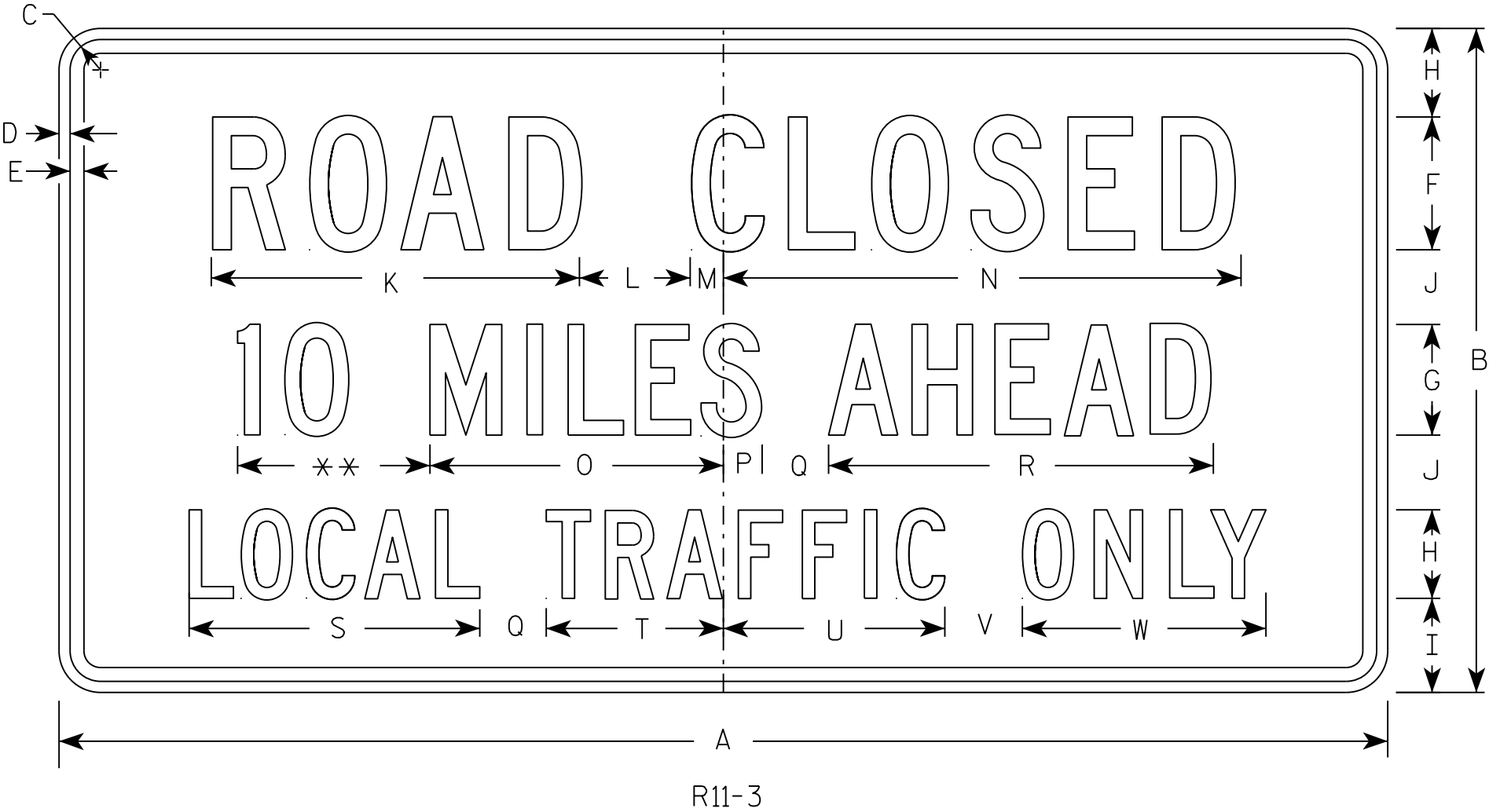
R11-2B

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	48	30	1 3⁄8	1⁄2	5⁄8	8	5	4	19 3⁄4	9 3⁄4	9 7⁄8																10.0
2M	48	30	1 3⁄8	1⁄2	5⁄8	8	5	4	19 3⁄4	9 3⁄4	9 7⁄8																10.0
3	48	30	1 3⁄8	1⁄2	5⁄8	8	5	4	19 3⁄4	9 3⁄4	9 7⁄8																10.0
4	48	30	1 3⁄8	1⁄2	5⁄8	8	5	4	19 3⁄4	9 3⁄4	9 7⁄8																10.0
5	48	30	1 3⁄8	1⁄2	5⁄8	8	5	4	19 3⁄4	9 3⁄4	9 7⁄8																10.0

STANDARD SIGN	
R11-2B	
WISCONSIN DEPT OF TRANSPORTATION	
APPROVED	<i>Matthew R. Rauch</i> For State Traffic Engineer
DATE 4/1/11	PLATE NO. R11-2B.2

NOTES

- 1. Sign is Type II - Type H Reflective
- 2. Color:
 - Background - White
 - Message - Black
- 3. Message Series - C
- 4. 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.
- 5. Substitute appropriate numerals to nearest quarter mile and optically adjust spacing to achieve proper balance.



** See Note 5

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	36	18	1 3⁄8	1⁄2	5⁄8	4	3	2 1⁄2	2	2	11 1⁄8	3	1 1⁄8	15 1⁄4	8	1 1⁄2	2	10 3⁄4	8 3⁄8	4 3⁄4	6 1⁄2	2	6 3⁄4				4.5
2S	60	30	1 3⁄8	1⁄2	5⁄8	6	5	4	4 1⁄4	3 3⁄8	16 5⁄8	5	1 1⁄2	23	13 1⁄4	1 3⁄4	3	17 3⁄8	13 1⁄8	8	10	3 1⁄2	11				12.5
2M	60	30	1 3⁄8	1⁄2	5⁄8	6	5	4	4 1⁄4	3 3⁄8	16 5⁄8	5	1 1⁄2	23	13 1⁄4	1 3⁄4	3	17 3⁄8	13 1⁄8	8	10	3 1⁄2	11				12.5
3																											
4																											
5																											

STANDARD SIGN
R11-3

WISCONSIN DEPT OF TRANSPORTATION

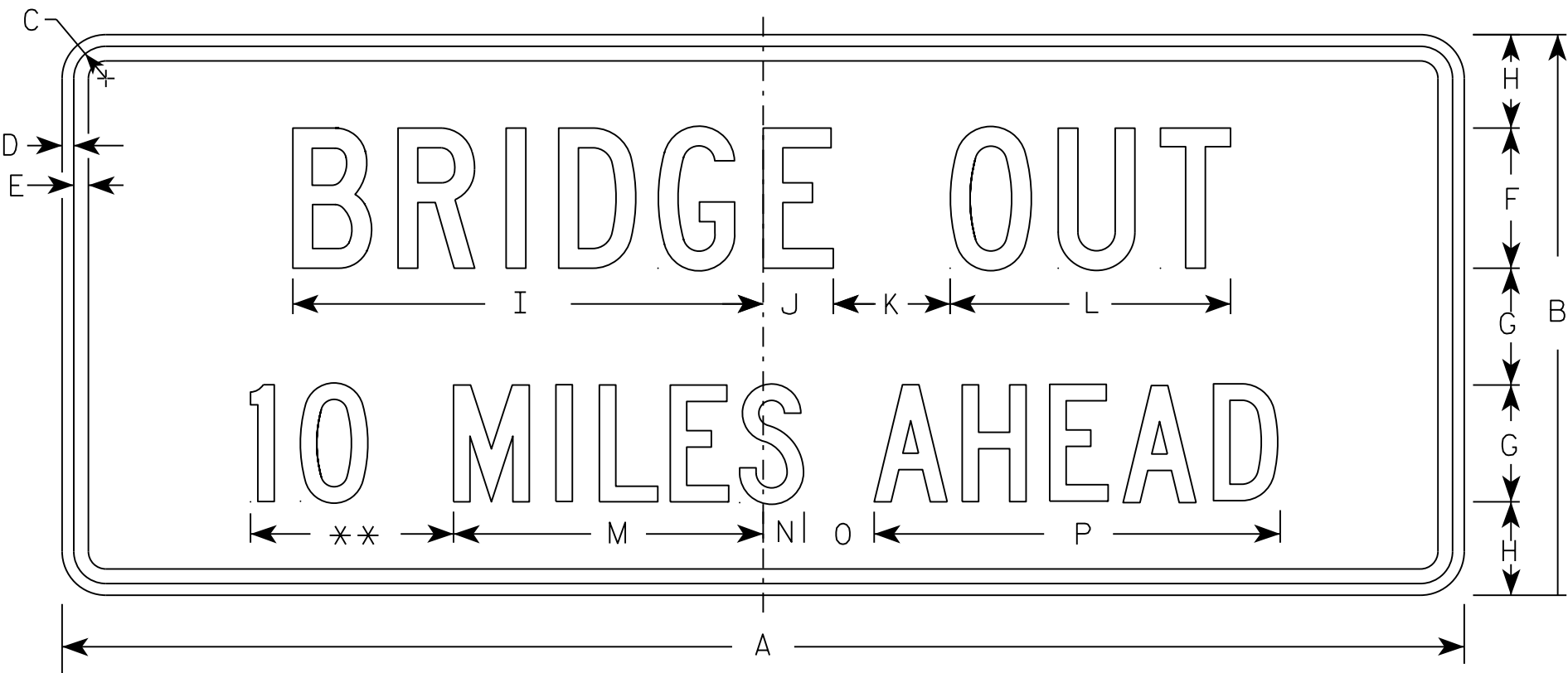
APPROVED *Matthew R. Rauch*
For State Traffic Engineer

DATE 7/28/16 PLATE NO. R11-3.7

107

NOTES

- 1. Sign is Type II - Type H Reflective
- 2. Color:
 - Background - White
 - Message - Black
- 3. Message Series - C
- 4. 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.
- 5. Substitute appropriate numerals to nearest quarter mile and optically adjust spacing to achieve proper balance.



R11-3C

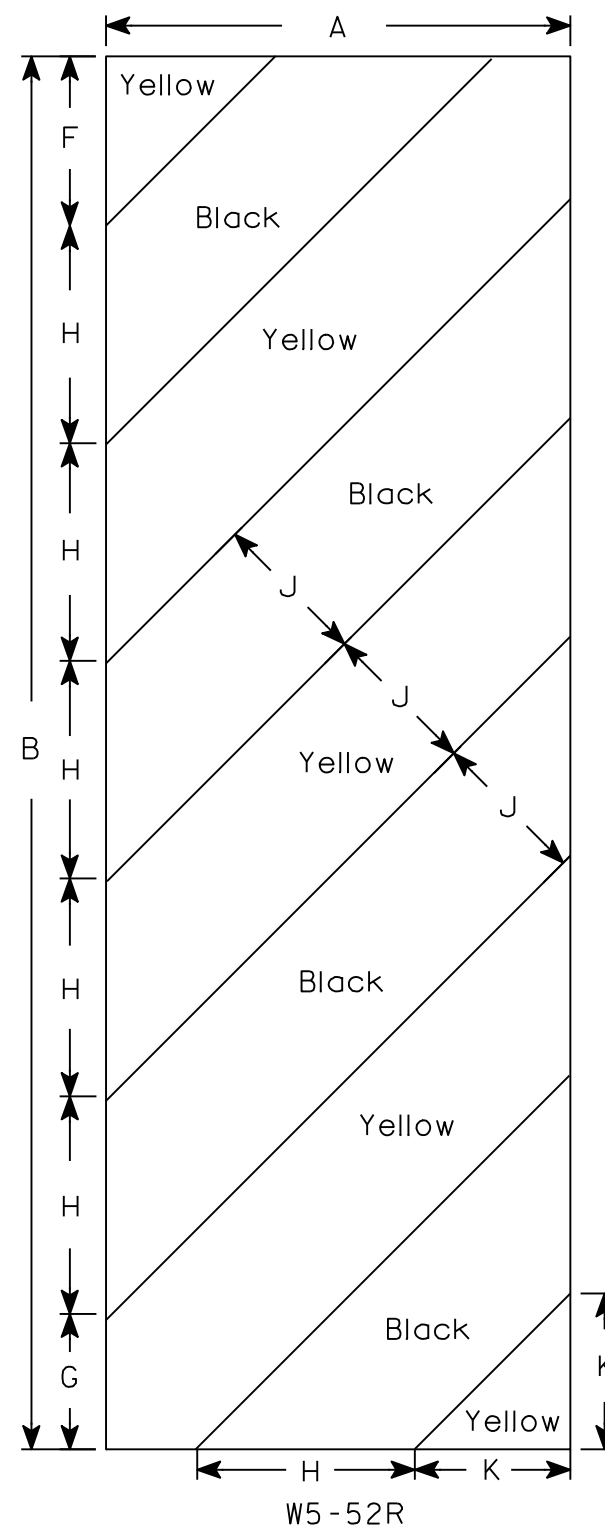
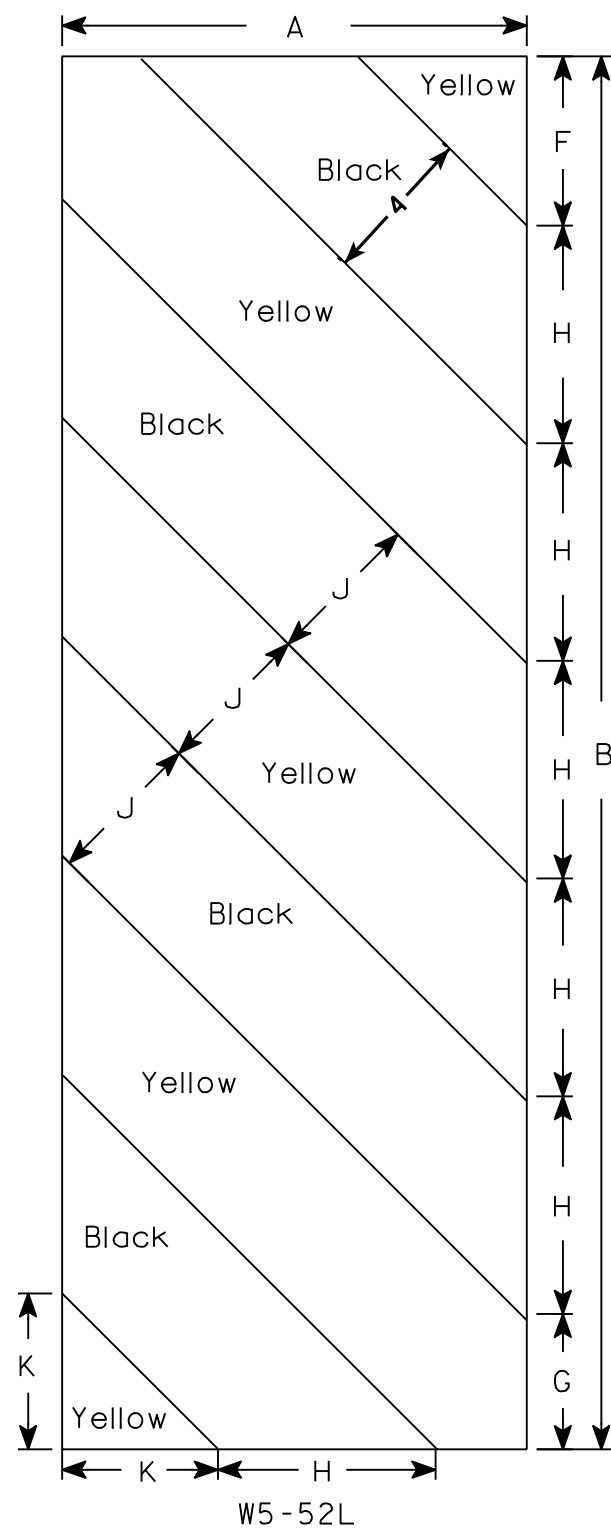
** See Note 5

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	36	15	1 3/8	1/2	5/8	4	3	2 1/2	13 1/4	2 1/4	3	8	8	1 1/2	2	10 3/4											3.75
2S	60	24	1 3/8	1/2	5/8	6	5	4	20 1/8	3	5	12	13 1/4	1 3/4	3	17 3/8											10.0
2M	60	24	1 3/8	1/2	5/8	6	5	4	20 1/8	3	5	12	13 1/4	1 3/4	3	17 3/8											10.0
3																											
4																											
5																											

PROJECT NO:

SHEET NO:

E



NOTES

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

[illegible]

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

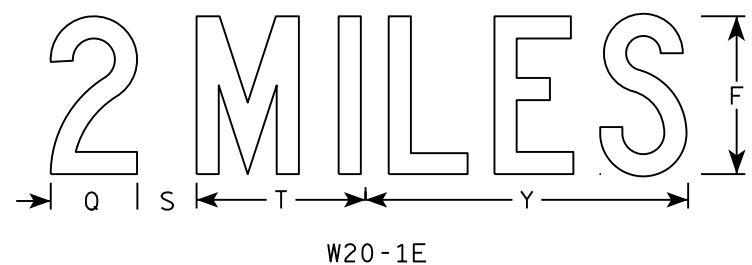
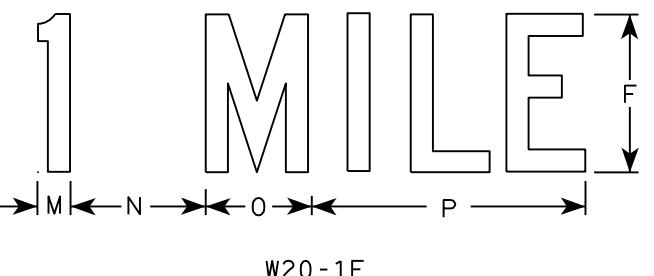
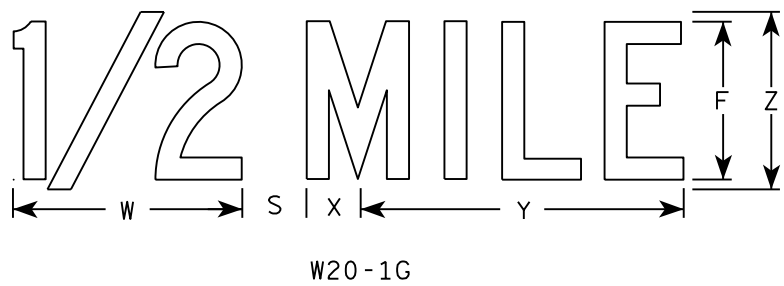
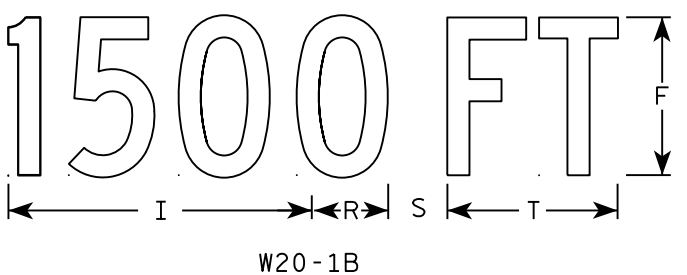
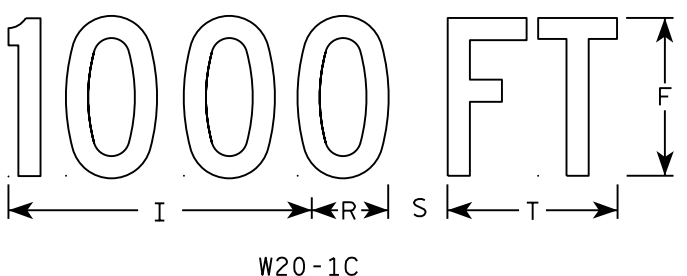
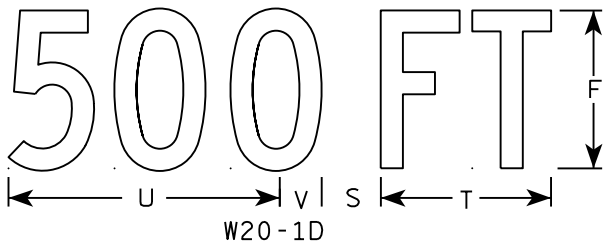
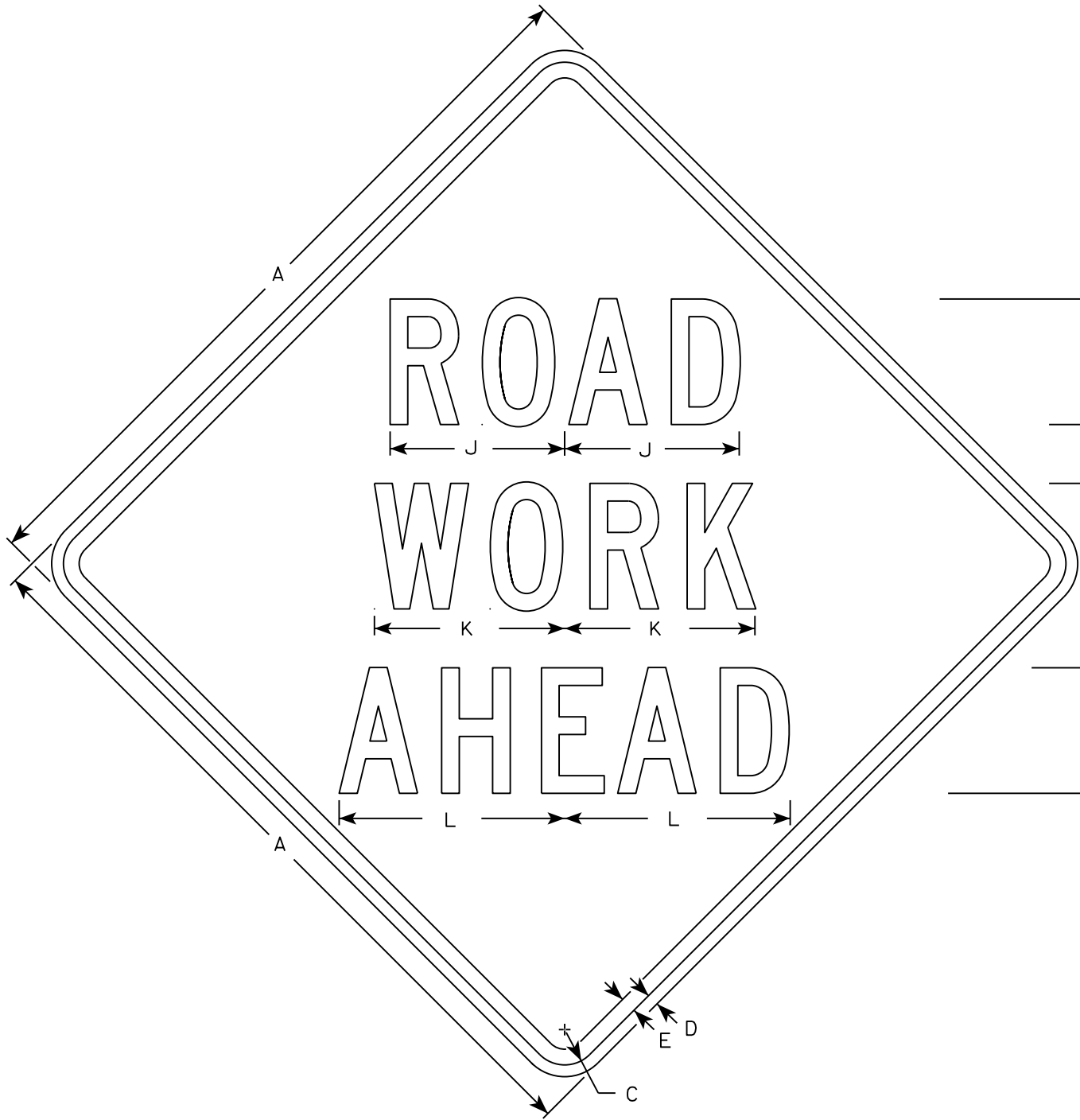
PROJECT NO:

HWY:

COUNTY:

SHEET NO: 109

E



NOTES

- 1. Sign is Type II - Type F Reflective
- 2. Color:
Background - Orange
Message - Black
- 3. Message Series - C
- 4. 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.

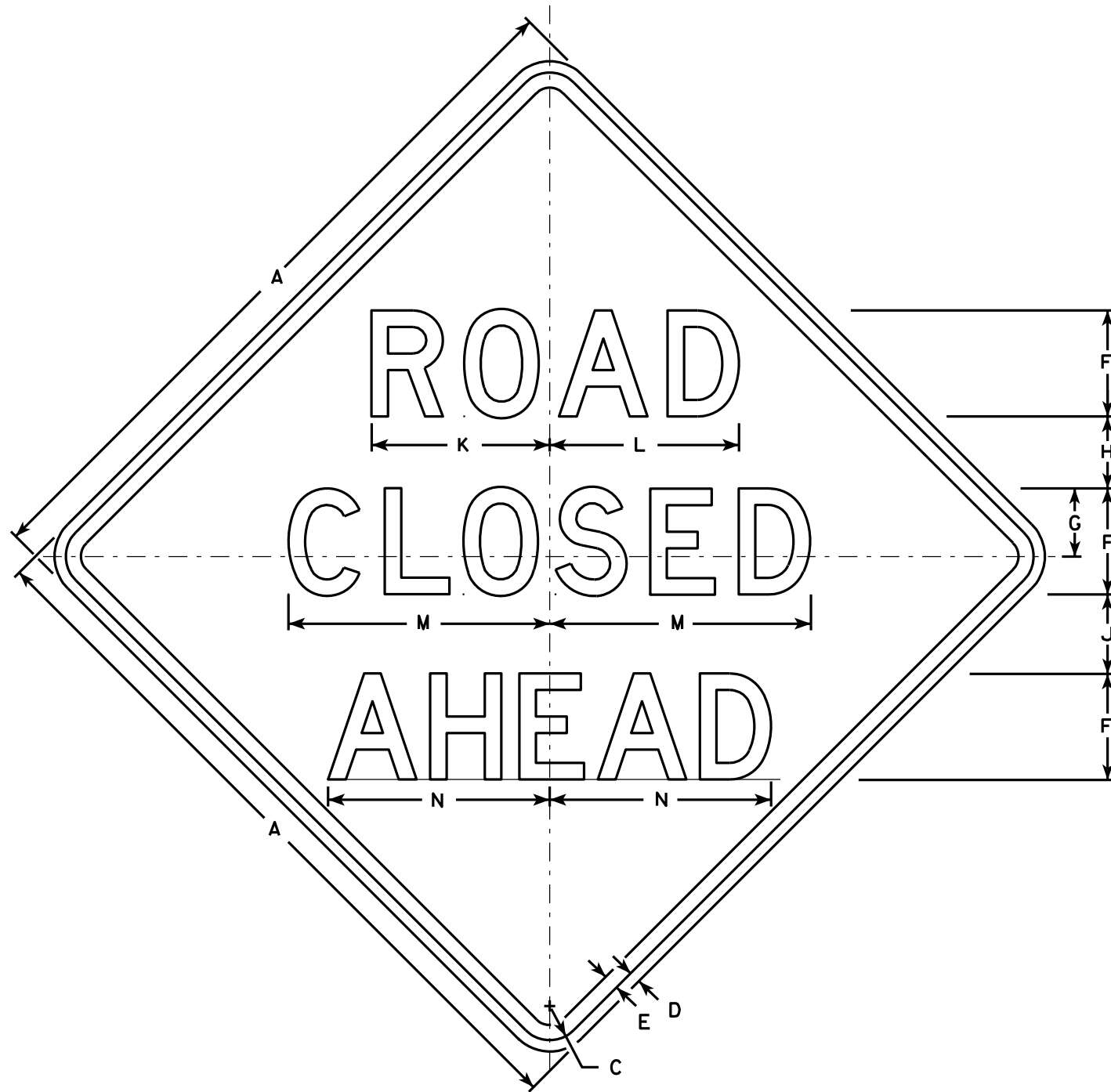
SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	36		1 3/8	1/2	5/8	5	2 5/8	3 1/4	10 1/8	7	7 5/8	8 7/8	1 1/8	4 1/2	3 1/2	9		2 1/2	2 1/4	5 5/8	9	1 3/8	8	1 3/4	10 3/4	6	9.0
2S	48		2 1/4	3/4	1	8	3 3/4	5 1/8	15 3/8	11 1/8	12 1/8	14 3/8	1 5/8	6 7/8	5 3/8	13 7/8	4 3/8	3 7/8	3	8 5/8	13 3/4	2 1/8	11 7/8	2 3/4	16 3/8	9	16.0
2M	48		2 1/4	3/4	1	8	3 3/4	5 1/8	15 3/8	11 1/8	12 1/8	14 3/8	1 5/8	6 7/8	5 3/8	13 7/8	4 3/8	3 7/8	3	8 5/8	13 3/4	2 1/8	11 7/8	2 3/4	16 3/8	9	16.0
3	48		2 1/4	3/4	1	8	3 3/4	5 1/8	15 3/8	11 1/8	12 1/8	14 3/8	1 5/8	6 7/8	5 3/8	13 7/8	4 3/8	3 7/8	3	8 5/8	13 3/4	2 1/8	11 7/8	2 3/4	16 3/8	9	16.0
4	48		2 1/4	3/4	1	8	3 3/4	5 1/8	15 3/8	11 1/8	12 1/8	14 3/8	1 5/8	6 7/8	5 3/8	13 7/8	4 3/8	3 7/8	3	8 5/8	13 3/4	2 1/8	11 7/8	2 3/4	16 3/8	9	16.0
5	48		2 1/4	3/4	1	8	3 3/4	5 1/8	15 3/8	11 1/8	12 1/8	14 3/8	1 5/8	6 7/8	5 3/8	13 7/8	4 3/8	3 7/8	3	8 5/8	13 3/4	2 1/8	11 7/8	2 3/4	16 3/8	9	16.0

STANDARD SIGN
W20-1A, B, C, D, F & G

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 5/07/15 PLATE NO. W20-1.10



W20-3A

500 FT

W20-3D

1000 FT

W20-3C

1500 FT

W20-3B

1/2 MILE

W20-3G

1 MILE

W20-3F

NOTES

1. Sign is Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
Background - Orange
Message - Black
3. Message Series - see note 5
4. 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.
5. Lines 1 and 2 are Series D.
Line 3 is Series D for AHEAD and Series C for all other distances.

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	36		1 5/8	5/8	3/4	5	3 3/8	3 1/2	1 1/8	4	8 3/8	8 7/8	12 1/2	11	9	6	10 1/8	2 1/2	1 7/8	5 5/8	8	1 3/8	4 1/2	3 1/2	10 3/4	1 3/4	9.0
2S	48		2 1/4	3/4	1	7	4 1/2	4 3/4	1 1/2	5 1/4	11 3/4	12 1/2	17 1/4	14 5/8	12	8	13 1/2	3 3/8	2 5/8	7 1/2	10 5/8	1 7/8	6	4 5/8	14 3/8	2 3/8	16.0
2M	48		2 1/4	3/4	1	7	4 1/2	4 3/4	1 1/2	5 1/4	11 3/4	12 1/2	17 1/4	14 5/8	12	8	13 1/2	3 3/8	2 5/8	7 1/2	10 5/8	1 7/8	6	4 5/8	14 3/8	2 3/8	16.0
3	48		2 1/4	3/4	1	7	4 1/2	4 3/4	1 1/2	5 1/4	11 3/4	12 1/2	17 1/4	14 5/8	12	8	13 1/2	3 3/8	2 5/8	7 1/2	10 5/8	1 7/8	6	4 5/8	14 3/8	2 3/8	16.0
4	48		2 1/4	3/4	1	7	4 1/2	4 3/4	1 1/2	5 1/4	11 3/4	12 1/2	17 1/4	14 5/8	12	8	13 1/2	3 3/8	2 5/8	7 1/2	10 5/8	1 7/8	6	4 5/8	14 3/8	2 3/8	16.0
5	48		2 1/4	3/4	1	7	4 1/2	4 3/4	1 1/2	5 1/4	11 3/4	12 1/2	17 1/4	14 5/8	12	8	13 1/2	3 3/8	2 5/8	7 1/2	10 5/8	1 7/8	6	4 5/8	14 3/8	2 3/8	16.0

STANDARD SIGN
W20-3A, B, C, D, F & G

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
For State Traffic Engineer

DATE 3/18/11 PLATE NO. W20-3.7

PROJECT NO:

HWY:

COUNTY:

SHEET NO: 111

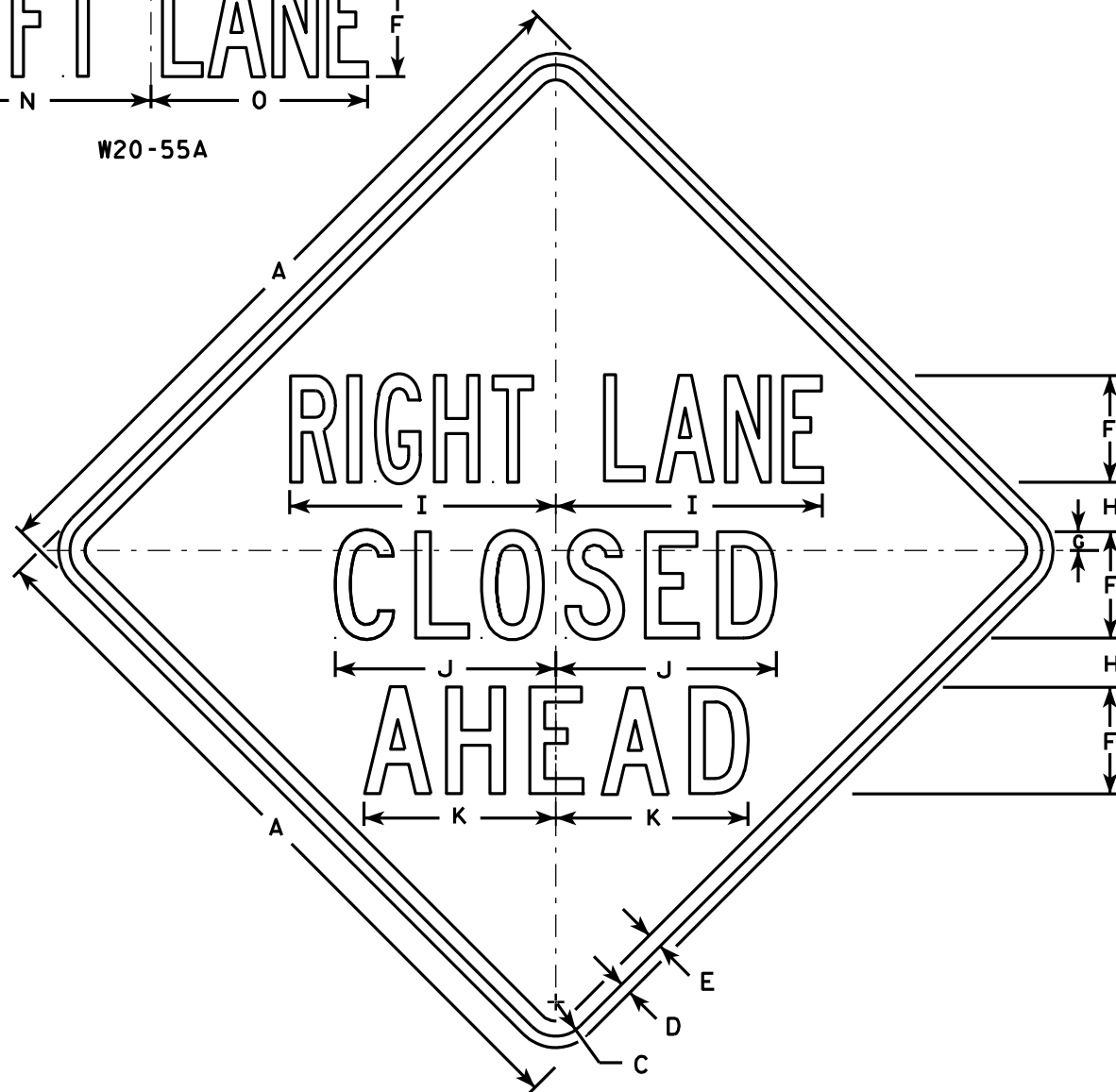
E

CENTER LANE

W20-56A

LEFT LANE

W20-55A



W20-5A

500 FT

W20-5D

1000 FT

W20-5C

1500 FT

W20-5B

1/2 MILE

W20-5G

1 MILE

W20-5F

NOTES

1. Sign is Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
Background - Orange
Message - Black
3. Message Series - See Note 5
4. 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.
5. "----- LANE" is Series B.
All other copy is Series C.

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	36	6	1 5/8	5/8	3/4	5	1 1/8	2 1/2	13 1/8	10 3/4	9 1/2	14 1/4	13 5/8	12	12	1 3/8	1 1/8	4 1/2	3 1/2	9	1 7/8	5 5/8	10 1/8	2 1/2	1 3/4	8	9.0
2S	48	8	2 1/4	3/4	1	7	1 1/4	3 1/4	17 1/2	14 3/8	12 5/8	19	18 3/8	16	14 1/4	1 7/8	1 1/2	6	4 5/8	12	2 5/8	7 1/2	13 1/2	3 3/8	2 3/8	10 5/8	16.0
2M	48	8	2 1/4	3/4	1	7	1 1/4	3 1/4	17 1/2	14 3/8	12 5/8	19	18 3/8	16	14 1/4	1 7/8	1 1/2	6	4 5/8	12	2 5/8	7 1/2	13 1/2	3 3/8	2 3/8	10 5/8	16.0
3	48	8	2 1/4	3/4	1	7	1 1/4	3 1/4	17 1/2	14 3/8	12 5/8	19	18 3/8	16	14 1/4	1 7/8	1 1/2	6	4 5/8	12	2 5/8	7 1/2	13 1/2	3 3/8	2 3/8	10 5/8	16.0
4	48	8	2 1/4	3/4	1	7	1 1/4	3 1/4	17 1/2	14 3/8	12 5/8	19	18 3/8	16	14 1/4	1 7/8	1 1/2	6	4 5/8	12	2 5/8	7 1/2	13 1/2	3 3/8	2 3/8	10 5/8	16.0
5	48	8	2 1/4	3/4	1	7	1 1/4	3 1/4	17 1/2	14 3/8	12 5/8	19	18 3/8	16	14 1/4	1 7/8	1 1/2	6	4 5/8	12	2 5/8	7 1/2	13 1/2	3 3/8	2 3/8	10 5/8	16.0

PROJECT NO:

HWY:

COUNTY:

STANDARD SIGN
W20-5A, B, C, D, F & G

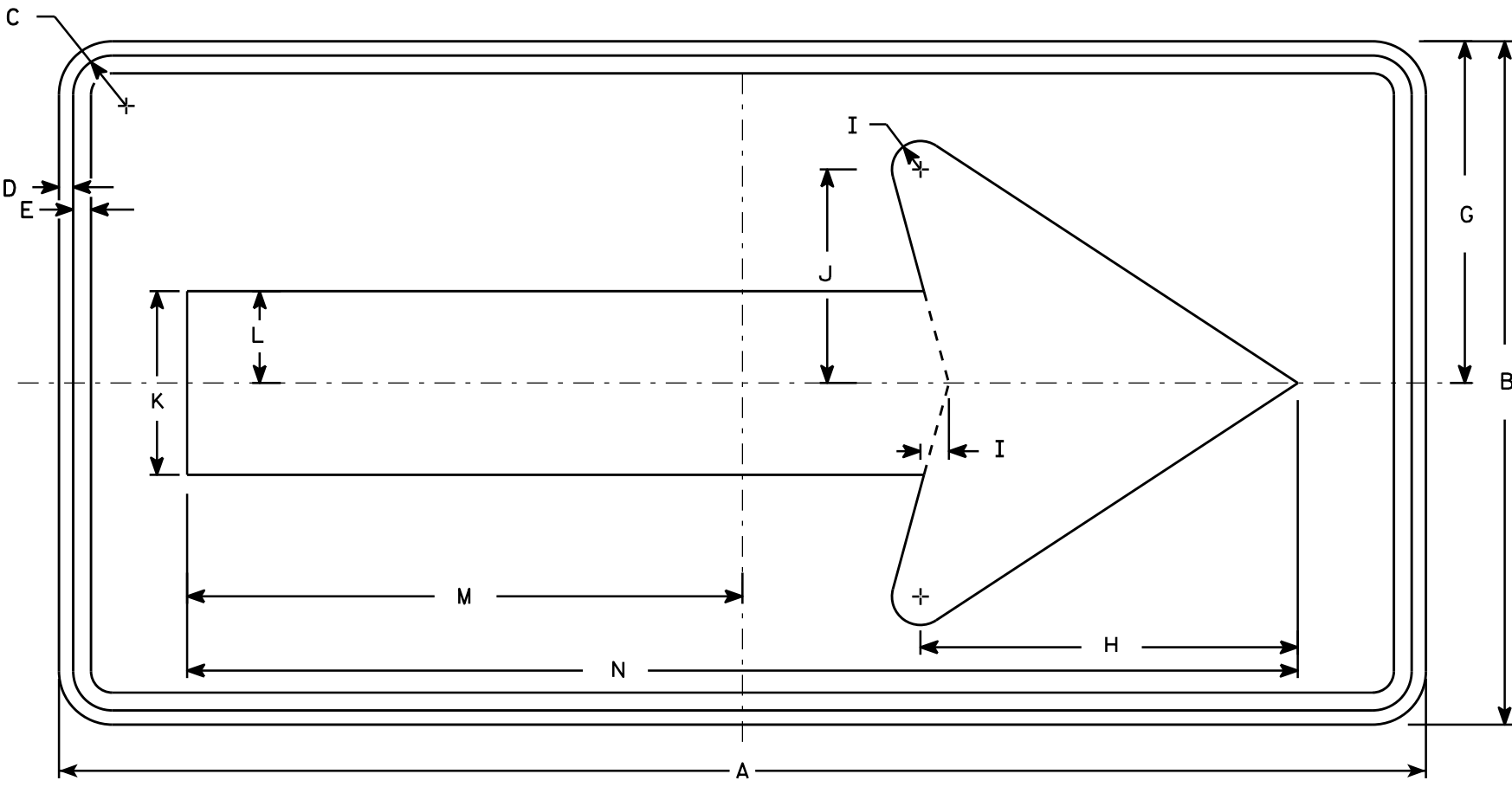
WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 3/18/11 PLATE NO. W20-5.11

SHEET NO: 112

E



W01-6

NOTES

- 1. Sign is Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
- 2. Color:
Background - Orange
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.

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	48	24	1 3⁄8	1⁄2	5⁄8		12	13 1⁄4	1	7 1⁄2	6 1⁄2	3 1⁄4	19 1⁄2	39													8.0
2M	48	24	1 3⁄8	1⁄2	5⁄8		12	13 1⁄4	1	7 1⁄2	6 1⁄2	3 1⁄4	19 1⁄2	39													8.0
3	60	30	1 3⁄8	1⁄2	5⁄8		15	16 1⁄4	1 1⁄4	9 1⁄4	8	4	24 3⁄8	48 3⁄4													12.5
4	60	30	1 3⁄8	1⁄2	5⁄8		15	16 1⁄4	1 1⁄4	9 1⁄4	8	4	24 3⁄8	48 3⁄4													12.5
5	60	30	1 3⁄8	1⁄2	5⁄8		15	16 1⁄4	1 1⁄4	9 1⁄4	8	4	24 3⁄8	48 3⁄4													12.5

STANDARD SIGN

W01-6

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 11/18/13 PLATE NO. 113 W01-6.1

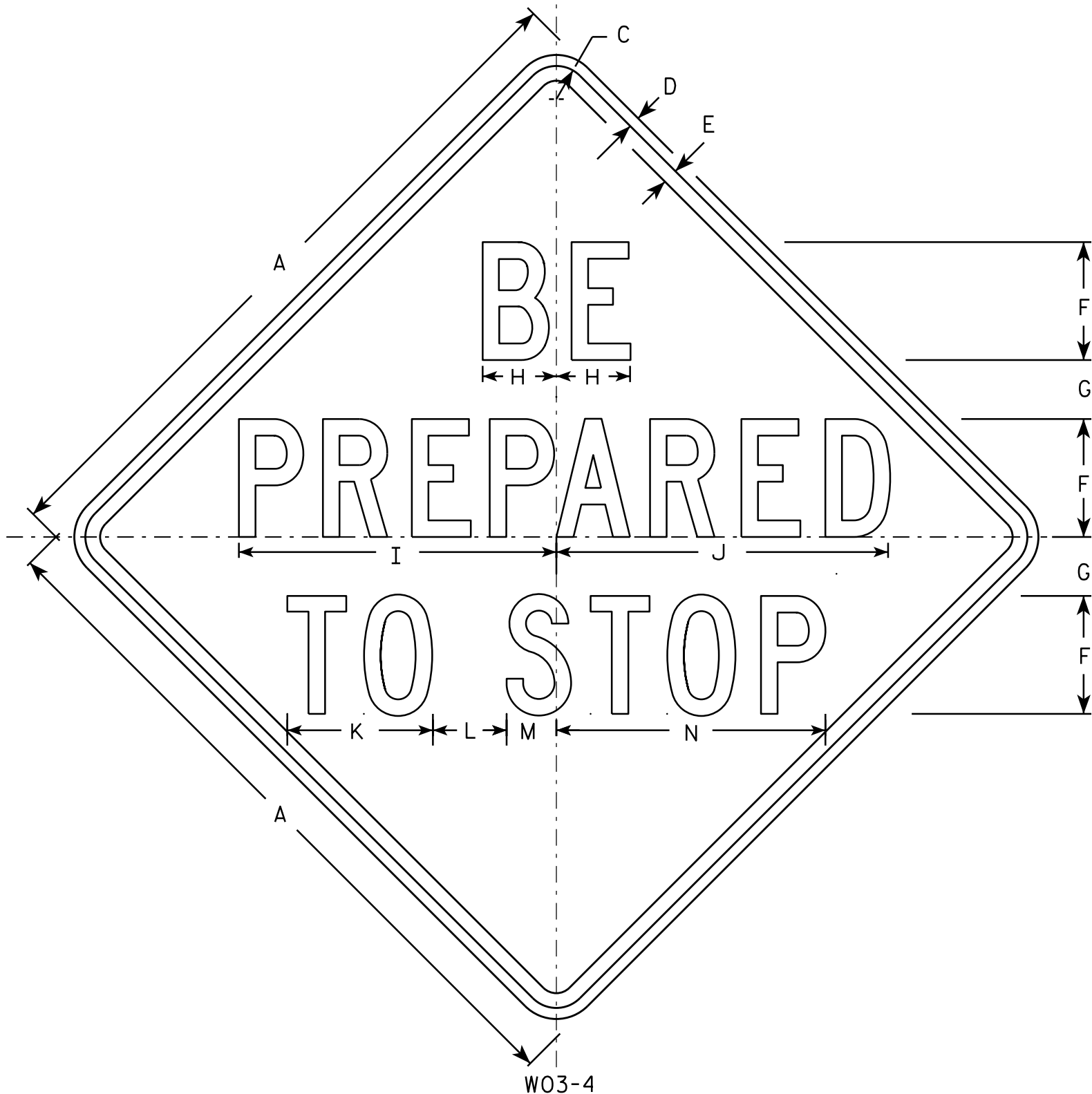
PROJECT NO:

HWY:

COUNTY:

SHEET NO:

E



NOTES

1. Sign is Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
Background - Orange
Message - Black
3. Message Series - C
4. 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.

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	36		1 3⁄8	1⁄2	5⁄8	6	2 1⁄2	3 3⁄4	15 7⁄8	16 7⁄8	7 3⁄8	4	2 3⁄8	13 3⁄4													9.0
2S	48		2 1⁄4	3⁄4	1	8	4	5	21 1⁄2	22 1⁄2	9 7⁄8	5	3 3⁄8	18 1⁄4													16.0
2M	48		2 1⁄4	3⁄4	1	8	4	5	21 1⁄2	22 1⁄2	9 7⁄8	5	3 3⁄8	18 1⁄4													16.0
3	48		2 1⁄4	3⁄4	1	8	4	5	21 1⁄2	22 1⁄2	9 7⁄8	5	3 3⁄8	18 1⁄4													16.0
4	48		2 1⁄4	3⁄4	1	8	4	5	21 1⁄2	22 1⁄2	9 7⁄8	5	3 3⁄8	18 1⁄4													16.0
5	48		2 1⁄4	3⁄4	1	8	4	5	21 1⁄2	22 1⁄2	9 7⁄8	5	3 3⁄8	18 1⁄4													16.0

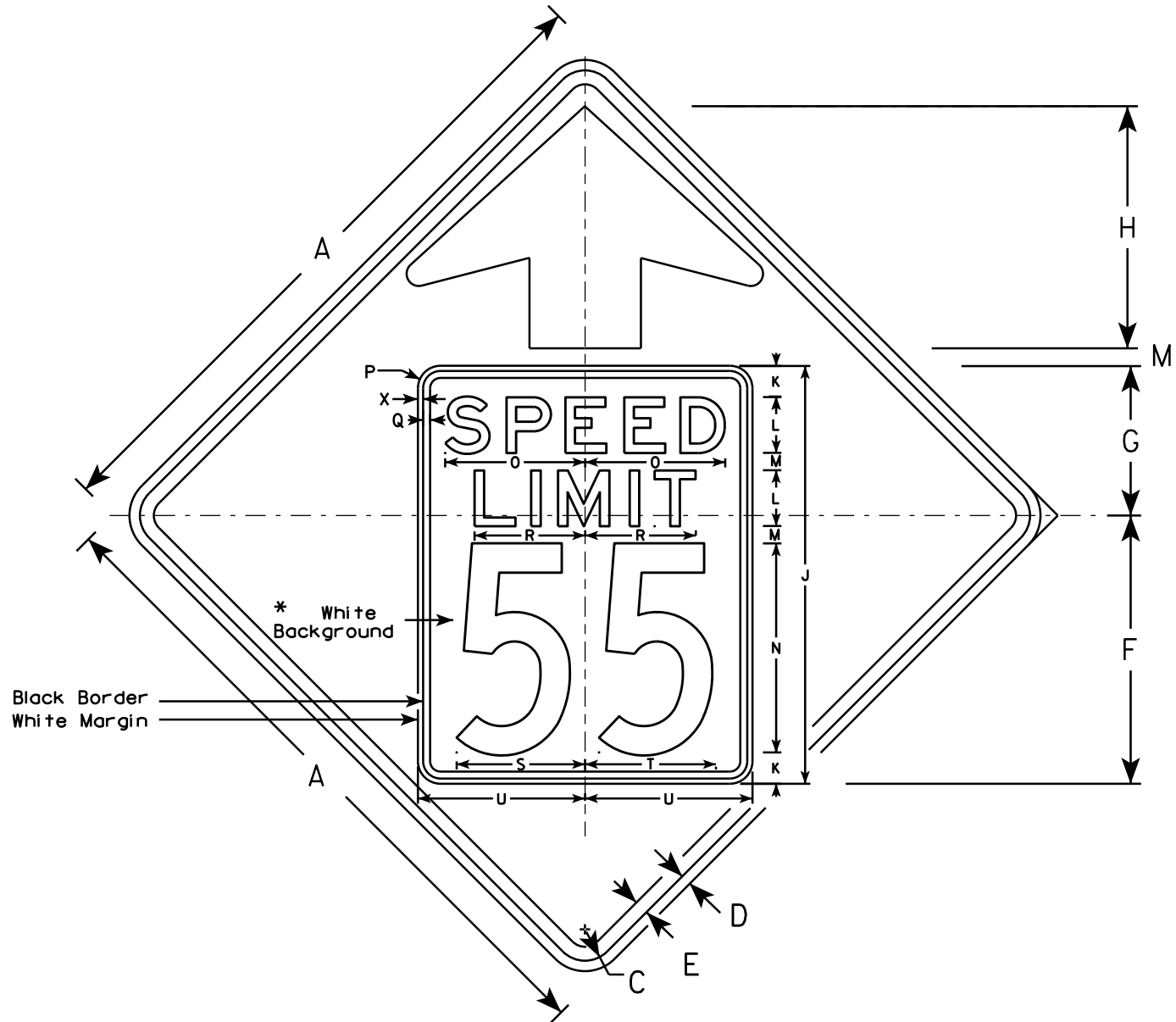
STANDARD SIGN W03-4

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 12/02/13 PLATE NO. 114 W03-4.1

PROJECT NO: HWY: COUNTY: SHEET NO: E

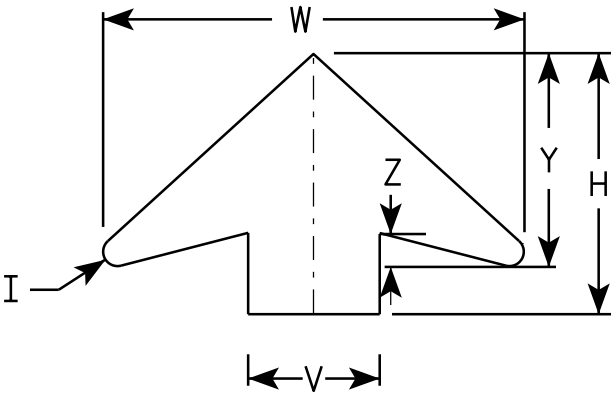


W03-5

NOTES

- 1. Sign is Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
- 2. Color: *
Background - ORANGE*
Message - BLACK
- 3. Message Series - C for numbers Series E for wording
- 4. Substitute appropriate numerals and optically adjust spacing to achieve proper balance

*Speed Limit Sign shall have a White Background



ARROW DETAIL

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	36		1 5/8	5/8	3/4	14 1/2	9 1/2	11 1/2	5/8	24	2	3	1	12	7 1/8	1 1/2	3/8	5 3/4	7 1/4	7 1/8	9	6	19 1/4	3/8	9 3/4	1 5/8	9.0
2S	48		2 1/4	3/4	1	19 1/4	10 3/4	17 3/8	7/8	30	2 1/4	4	1 1/4	15	10	1 5/8	1/2	8	9 1/4	9 3/8	12	8	25 5/8	3/8	13	2	16.0
2M	48		2 1/4	3/4	1	19 1/4	10 3/4	17 3/8	7/8	30	2 1/4	4	1 1/4	15	10	1 5/8	1/2	8	9 1/4	9 3/8	12	8	25 5/8	3/8	13	2	16.0
3	48		2 1/4	3/4	1	19 1/4	10 3/4	17 3/8	7/8	30	2 1/4	4	1 1/4	15	10	1 5/8	1/2	8	9 1/4	9 3/8	12	8	25 5/8	3/8	13	2	16.0
4	48		2 1/4	3/4	1	19 1/4	10 3/4	17 3/8	7/8	30	2 1/4	4	1 1/4	15	10	1 5/8	1/2	8	9 1/4	9 3/8	12	8	25 5/8	3/8	13	2	16.0
5	48		2 1/4	3/4	1	19 1/4	10 3/4	17 3/8	7/8	30	2 1/4	4	1 1/4	15	10	1 5/8	1/2	8	9 1/4	9 3/8	12	8	25 5/8	3/8	13	2	16.0

PROJECT NO:

STANDARD SIGN
W03-5

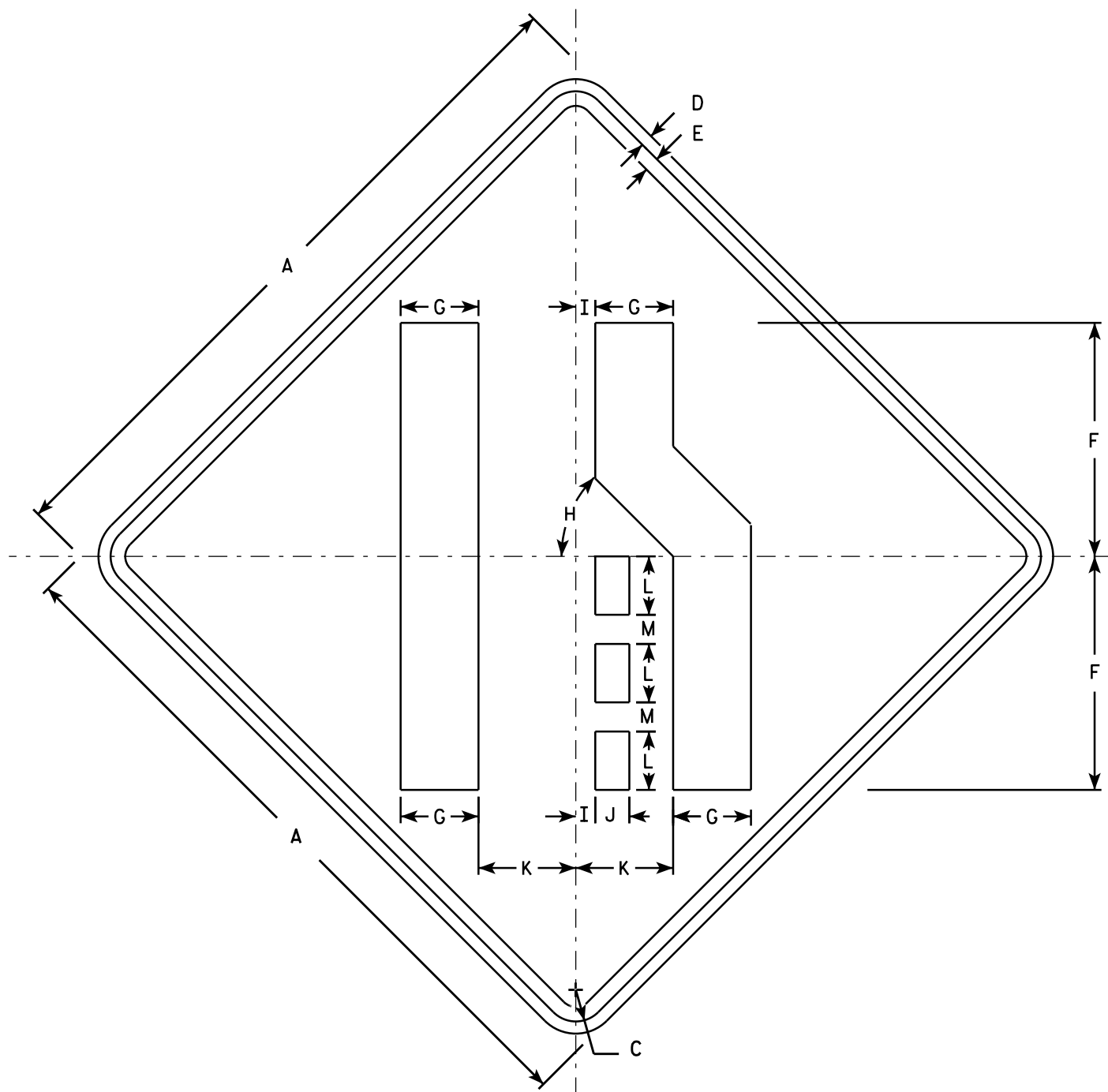
WISCONSIN DEPT OF TRANSPORTATION

APPROVED
Matthew R. Rauch
for State Traffic Engineer

DATE 11/20/13 PLATE 115 W03-5.1

SHEET NO:

E



W04-2R

NOTES

1. Sign is Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
Background - Orange
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. W04-2L is the same as W04-2R except the symbols reversed along the vertical centerline.

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	36		1 5/8	5/8	3/4	12	4	45°	1	1 3/4	5	3	1 1/2														9.0
2S	48		2 1/4	3/4	1	16	5 3/8	45°	1 1/4	2 3/8	6 3/4	4	2														16.0
2M	48		2 1/4	3/4	1	16	5 3/8	45°	1 1/4	2 3/8	6 3/4	4	2														16.0
3	48		2 1/4	3/4	1	16	5 3/8	45°	1 1/4	2 3/8	6 3/4	4	2														16.0
4	48		2 1/4	3/4	1	16	5 3/8	45°	1 1/4	2 3/8	6 3/4	4	2														16.0
5	48		2 1/4	3/4	1	16	5 3/8	45°	1 1/4	2 3/8	6 3/4	4	2														16.0

STANDARD SIGN

W04-2

WISCONSIN DEPT OF TRANSPORTATION

APPROVED

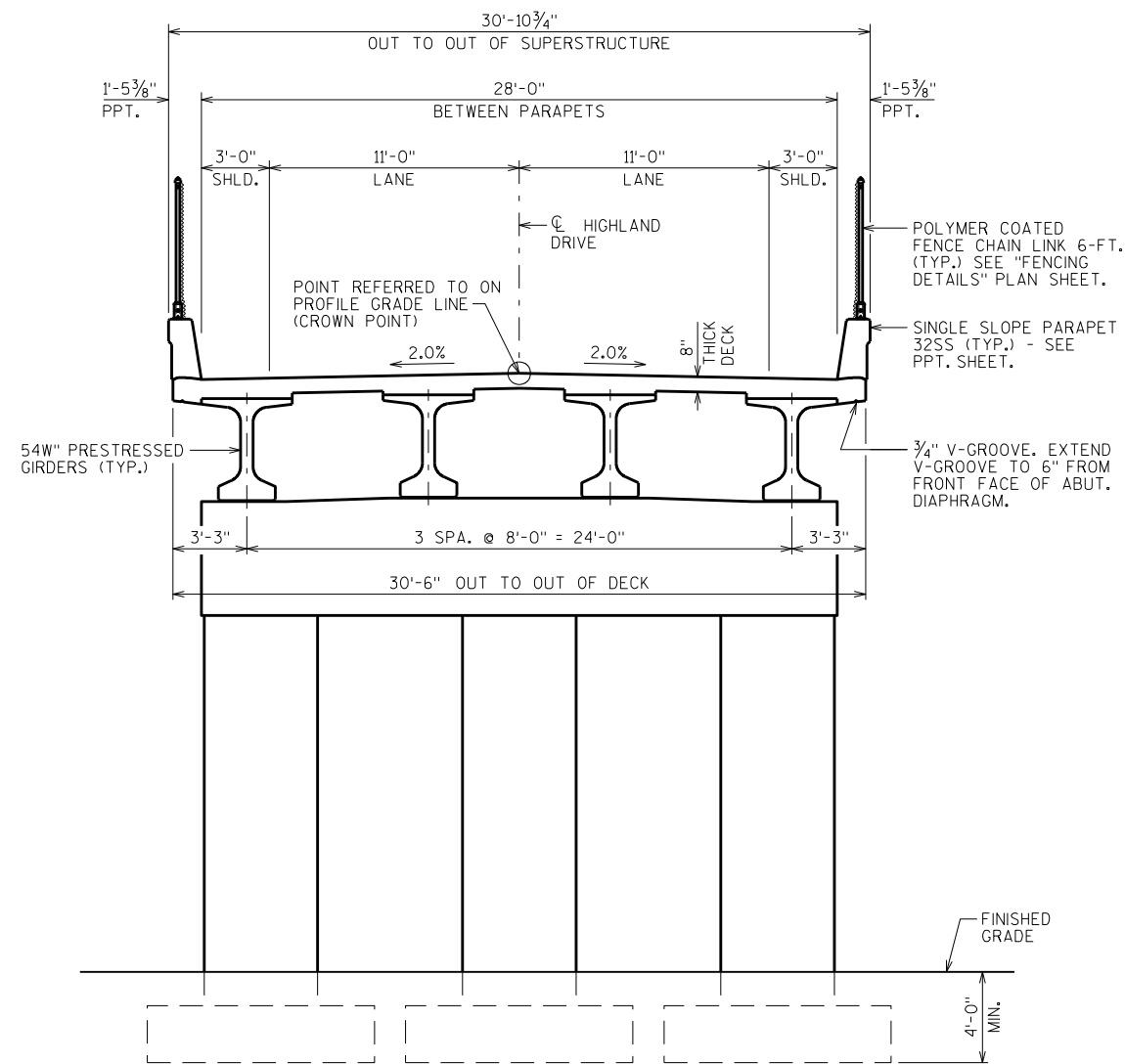
Matthew R. Rauch
For State Traffic Engineer

DATE 11/20/13

PLATE 116

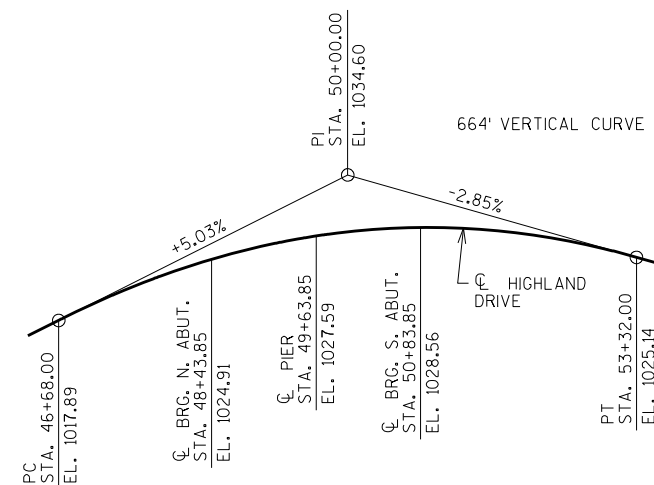
W04-2.1

BID ITEM NUMBER	BID ITEMS	UNIT	SUPER.	NORTH ABUT.	SOUTH ABUT.	PIER	TOTALS
203.0200	REMOVING OLD STRUCTURE STA. 49+64	LS	—	—	—	—	1
206.1000	EXCAVATION FOR STRUCTURES BRIDGES B-55-258	LS	—	—	—	—	1
210.1500	BACKFILL STRUCTURE TYPE A	TON	—	414	414	—	828
502.0100	CONCRETE MASONRY BRIDGES	CY	325	38	38	73	474
502.3200	PROTECTIVE SURFACE TREATMENT	SY	755	—	—	—	755
502.3210	PIGMENTED SURFACE SEALER	SY	208	—	—	—	208
503.0155	PRESTRESSED GIRDER TYPE I 54W-INCH	LF	963	—	—	—	963
505.0400	BAR STEEL REINFORCEMENT HS STRUCTURES	LB	—	1960	1960	3440	7360
505.0600	BAR STEEL REINFORCEMENT HS COATED STRUCTURES	LB	72,530	1690	1690	10,550	86,460
506.2605	BEARING PADS ELASTOMERIC NON-LAMINATED	EACH	—	4	4	8	16
506.4000	STEEL DIAPHRAGMS B-55-258	EACH	12	—	—	—	12
516.0500	RUBBERIZED MEMBRANE WATERPROOFING	SY	—	7	7	—	14
550.1100	PIILING STEEL HP 10-INCH X 42 LB	LF	—	200	200	—	400
604.0600	SLOPE PAVING SELECT CRUSHED MATERIAL	SY	—	170	160	—	330
612.0406	PIPE UNDERDRAIN WRAPPED 6-INCH	LF	—	75	75	—	150
614.0150	ANCHOR ASSEMBLIES FOR STEEL PLATE BEAM GUARD	EACH	4	—	—	—	4
SPV.0090	FENCE CHAIN LINK POLYMER-COATED 6-FT.	LF	488	—	—	—	488
			—	—	—	—	
			—	—	—	—	
	NON-BID ITEMS		—	—	—	—	
	FILLER	SIZE	—	—	—	—	1/2" & 3/4"
			—	—	—	—	

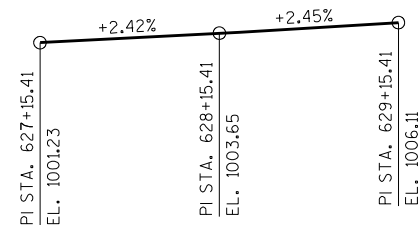


GENERAL NOTES

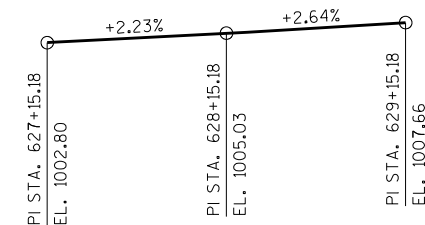
THE SLOPE OF THE FILL IN FRONT OF THE ABUTMENTS SHALL BE COVERED WITH SLOPE PAVING, SELECT CRUSHED MATERIAL, TO THE EXTENTS SHOWN ON "SLOPE PAVING (SELECT CRUSHED MATERIAL)" SHEET & ABUTMENT DETAIL SHEETS.



PROFILE GRADE LINE HIGHLAND DR.



PROFILE GRADE LINE IH 94 WB

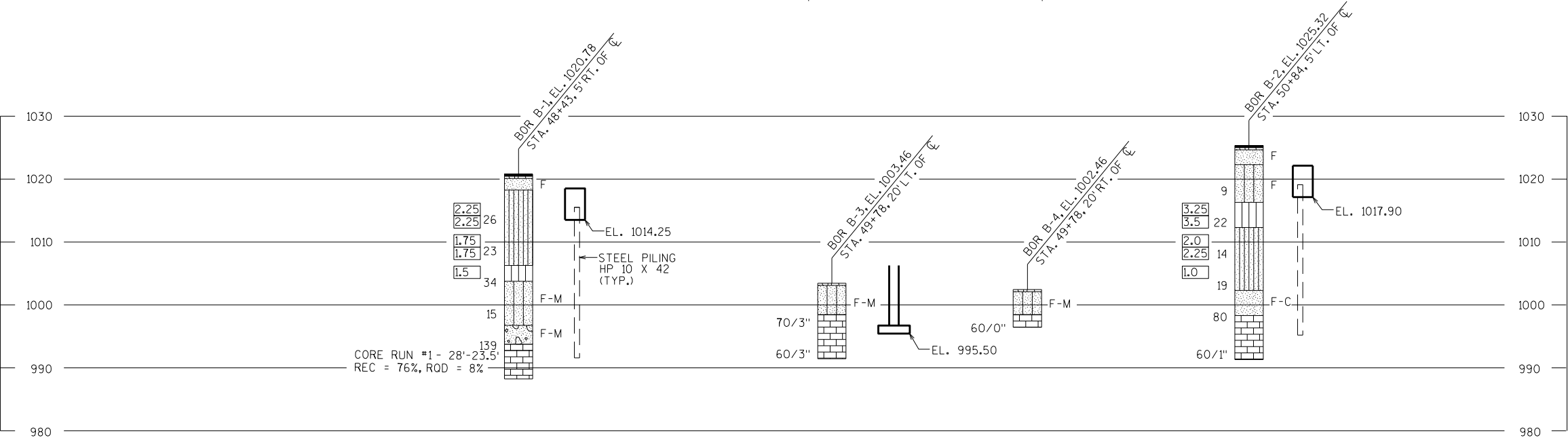
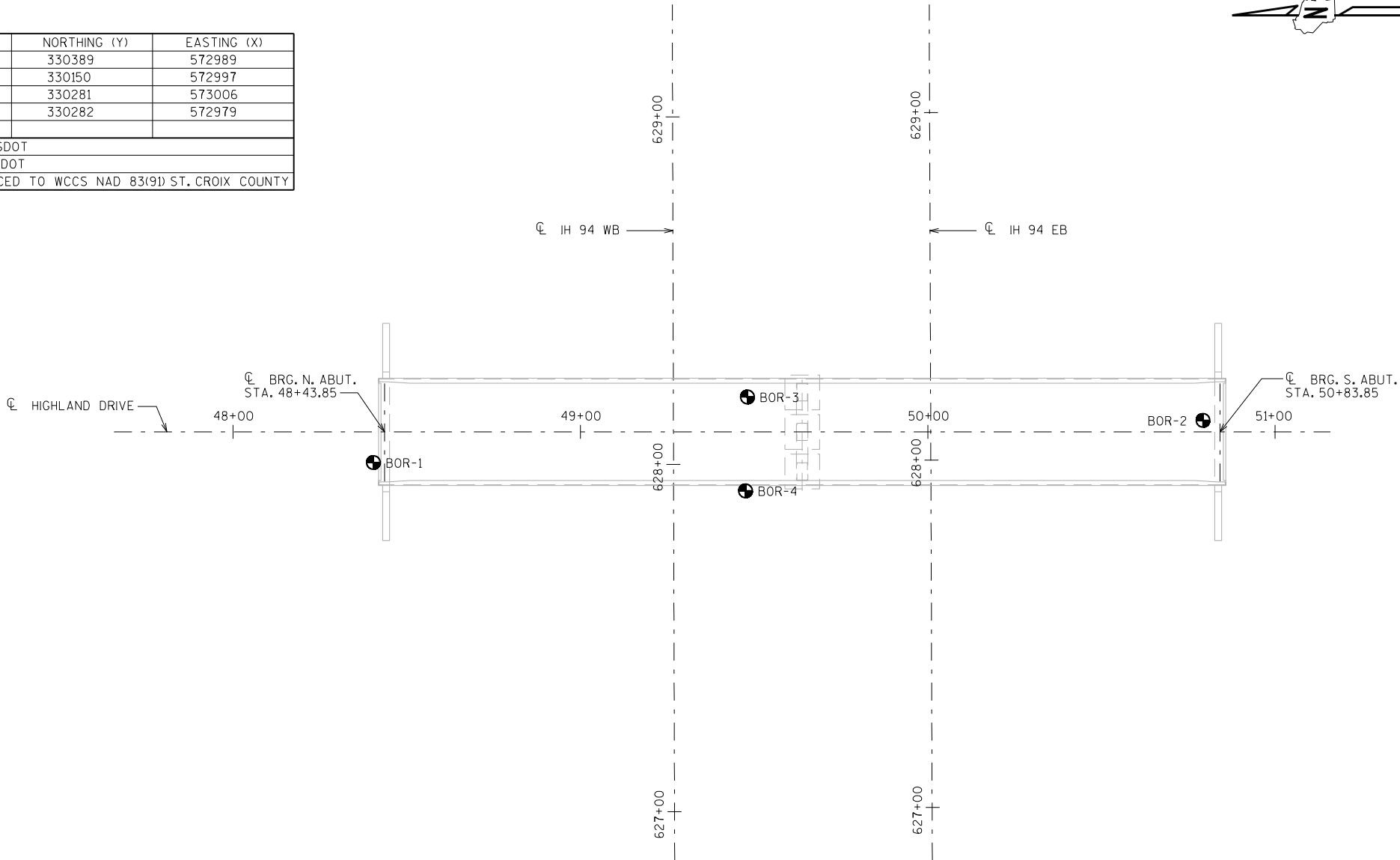


PROFILE GRADE LINE IH 94 EB

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE B-55-258			
DRAWN BY WWR		PLANS CK'D. DFD	
CROSS SECTION & QUANTITIES		SHEET 2	
		118	

HUDSON - BALDWIN
HIGHLAND DRIVE OVER IH 94

BORING #	DATE COMPLETED	NORTHING (Y)	EASTING (X)
1	6/3/2014	330389	572989
2	6/3/2014	330150	572997
3	6/4/2014	330281	573006
4	6/4/2014	330282	572979
BORINGS COMPLETED BY: WISDOT			
REPORT COMPLETED BY: WISDOT			
ALL COORDINATES REFERENCED TO WCCS NAD 83(91) ST. CROIX COUNTY			



STATE PROJECT NUMBER		
1021-01-71		
MATERIAL SYMBOLS		
ASPHALT	TOPSOIL	PEAT
CONCRETE	FILL	GRAVEL
SAND	CLAY	SILT
BOULDERS OR COBBLES	LIMESTONE	BEDROCK (UNKNOWN)
SHALE	SANDSTONE	IGNEOUS/META

LEGEND OF BORING

BORING #/EL.
STA., OFFSET

ST
0.25
17

F-C
COBBLE OR BOULDER

WEATHERED LIMESTONE

CORE RUN #1 - 24'-29'
REC=80%, ROD=72%

GROUND WATER ELEVATION

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

ABBREVIATIONS

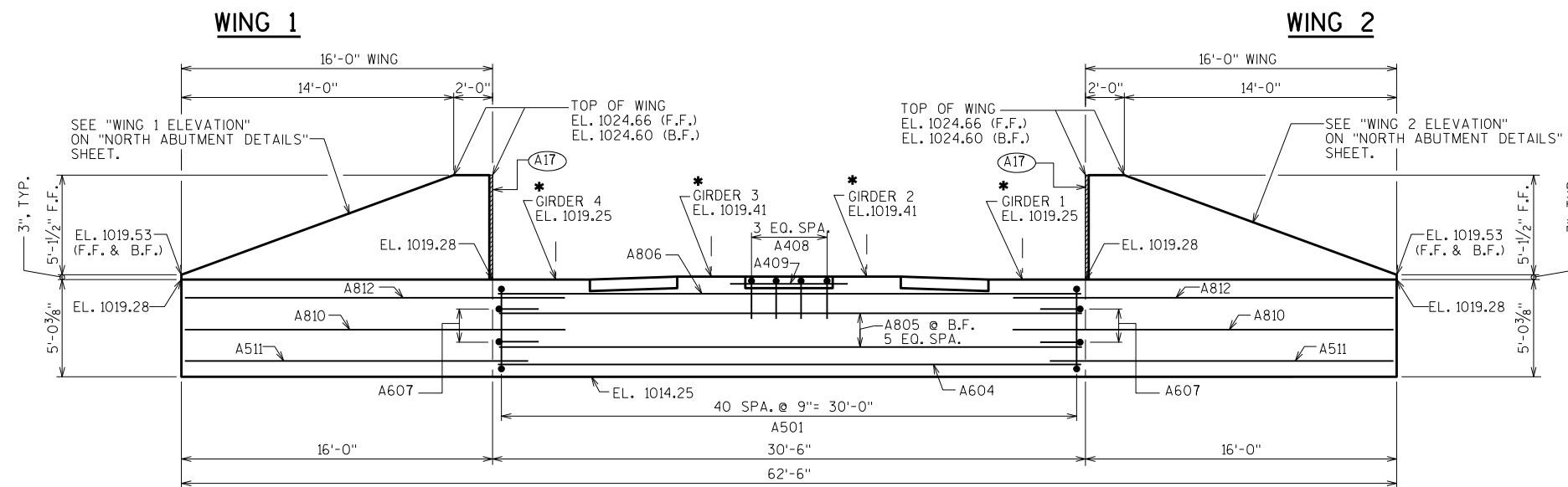
F-FINE M-MEDIUM C-COARSE ST-SHELBY TUBE

SUBSURFACE EXPLORATION FOR FOUNDATION DESIGN AND BIDDERS INFORMATION

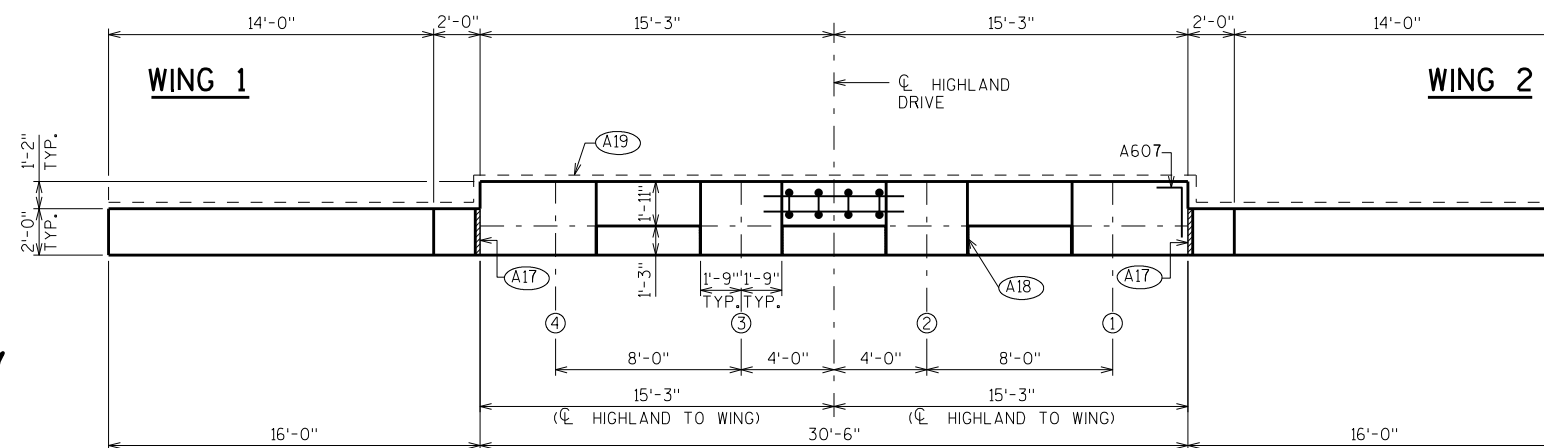
BORINGS WERE COMPLETED AT POINTS APPROXIMATELY AS INDICATED ON THIS DRAWING TO OBTAIN INFORMATION CONCERNING THE CHARACTER OF SUBSURFACE MATERIALS FOUND AT THE SITE. BECAUSE THE INVESTIGATED DEPTHS ARE LIMITED AND THE AREA OF THE BORINGS IS VERY SMALL IN RELATION TO THE ENTIRE SITE, THE WISCONSIN DEPARTMENT 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.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE B-55-258			
DRAWN BY PR/WWR		PLANS CKD. DFD	
SUBSURFACE EXPLORATION		SHEET 3	
		119	

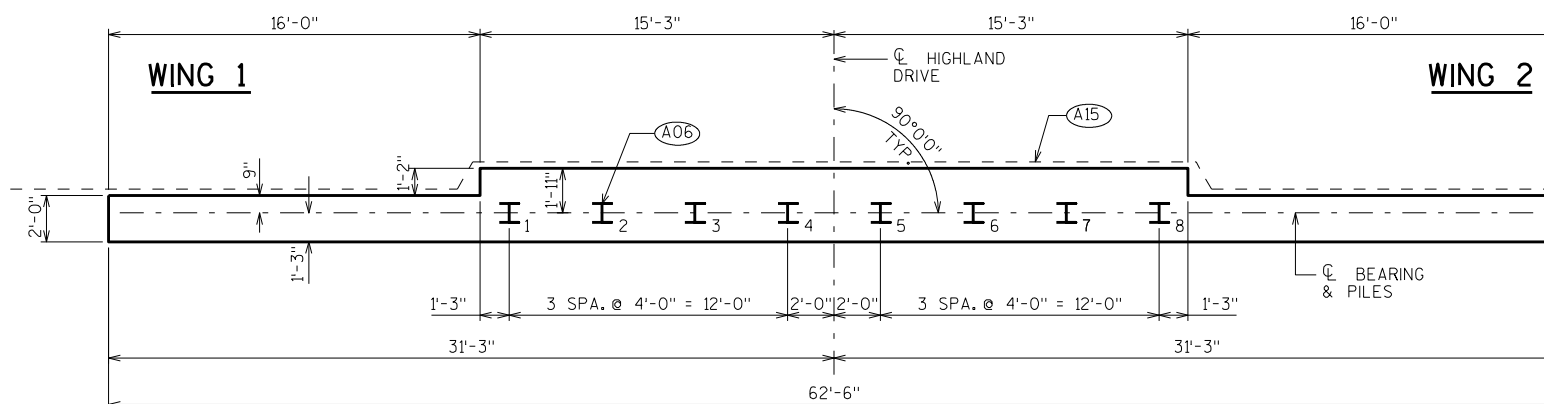
SCALE =



ELEVATION LOOKING NORTH



PLAN

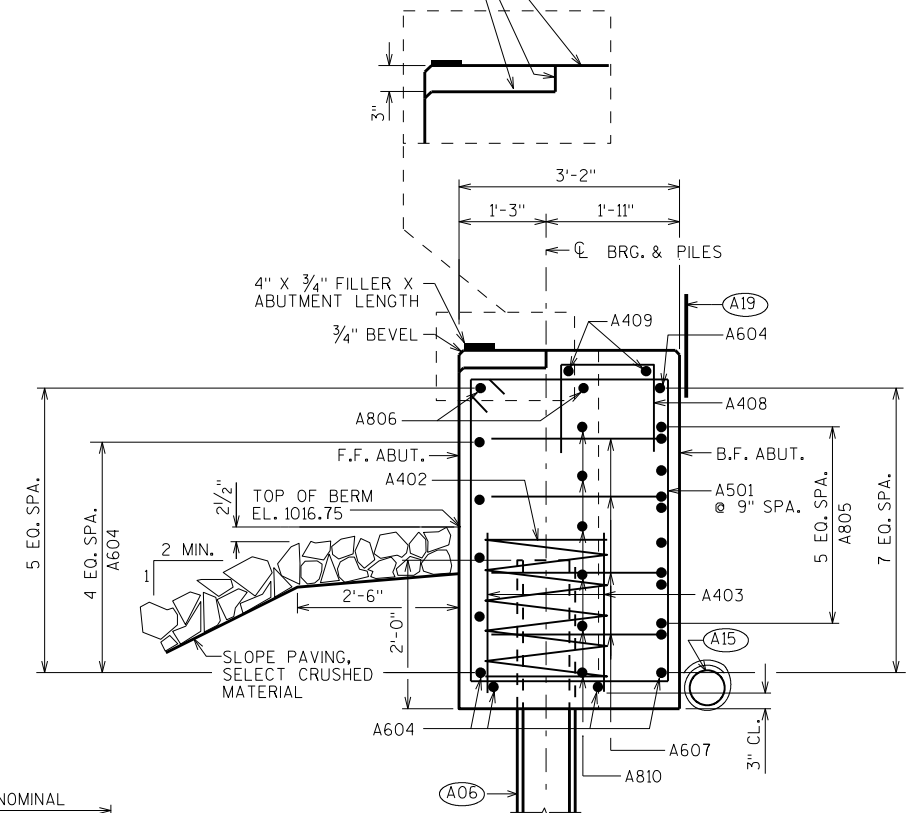


PILE PLAN

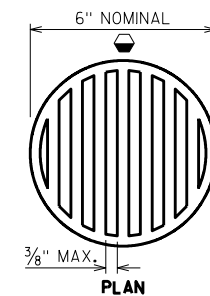
STEEL TROWEL TOP SURFACE OF ABUTMENT.
PLACE MULTIPLE LAYERS OF POLYETHYLENE
SHEETS OVER ENTIRE ABUTMENT TOP BEFORE
PLACING BEARING PADS. TOTAL THICKNESS OF
SHEETS SHALL BE AT LEAST 0.03".

STATE PROJECT NUMBER

1021-01-71



SECTION THRU BODY

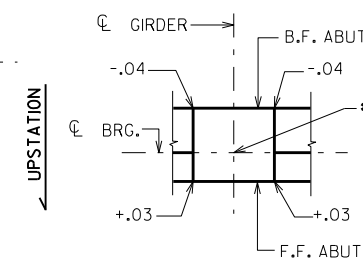


RODENT SHIELD DETAIL

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

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

THE RODENT SHIELD SHALL BE 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.



SLOPED BEAM SEAT DETAIL

* BEAM SEAT ELEVATIONS
GIVEN AT THIS POINT

- (A06) SUPPORT ABUTMENT ON HP 10 x 42 STEEL PILING, ESTIMATED 25'-0" LONG WITH A REQUIRED DRIVING RESISTANCE OF 180 TONS PER PILE.
- (A15) PIPE UNDERDRAIN WRAPPED (6-INCH), SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. RODENT SHIELD REQUIRED.
- (A17) 1/2" FILLER (INCLUDED IN WING LENGTH); SEAL ALL EXPOSED HORIZ. & VERT. SURFACES OF 1/2" FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. (1" DEEP AND HOLD 1/8" BELOW SURFACE OF CONCRETE), EXTEND SEALER 3" BELOW GUTTER LINE AT INSIDE FACE.
- (A18) 3/4" CORK FILLER UP VERT. BEAM SEAT FACES THAT RUN PARALLEL WITH GIRDER.
- (A19) 18" (RMW) RUBBERIZED MEMBRANE WATERPROOFING SEAL ALL HORIZ. & VERT. JOINTS AT BACKFACE.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE B-55-258			
DRAWN BY		WWR	PLANS CK'D. DFD
NORTH ABUTMENT		SHEET 4	
		120	

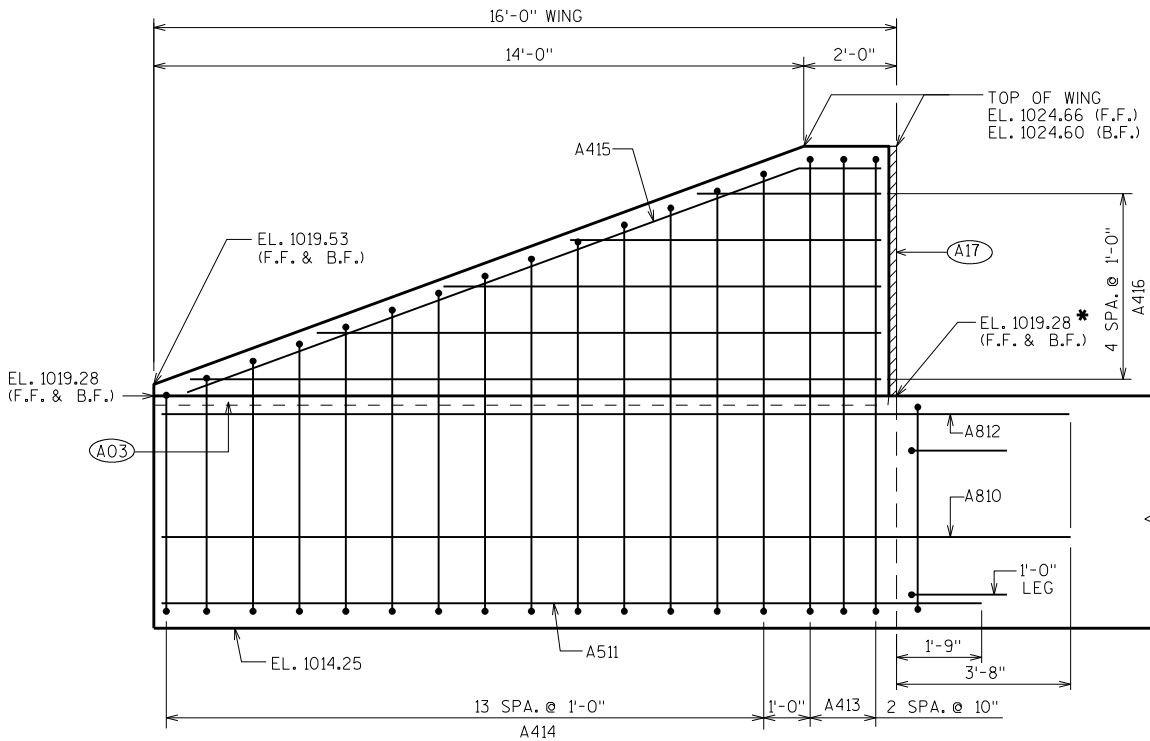
SCALE =

BILL OF BARS

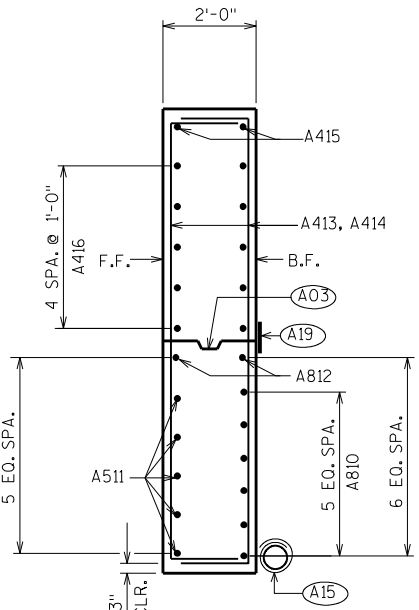
NOTE: THE FIRST OR FIRST TWO DIGITS OF THE BAR MARK SIGNIFIES THE BAR SIZE

BAR MARK	COAT	NO. REQ'D.	LENGTH	BENT	BAR SERIES	LOCATION
A501		41	14'-10"	X		BODY-VERT.-STIRRUP
A402		8	28'-0"	X		BODY-1 PER PILE
A403		16	2'-3"			BODY-VERT.-2 PER PILE
A604		9	30'-2"			BODY-LONGIT.
A805		6	30'-2"			BODY-LONGIT.-B.F.
A806		2	30'-2"			BODY-LONGIT.-TOP
A607		8	3'-8"	X		BODY-HORIZ. L-BAR
A408		12	3'-11"	X		BODY-VERT.-TOP
A409		6	6'-6"			BODY-HORIZ.-BTWN. BEAM SEATS
A810	X	12	19'-6"			WINGS/BODY-HORIZ.
A511	X	10	17'-7"			WINGS/BODY-HORIZ.
A812	X	4	19'-6"			WINGS/BODY-HORIZ.
A413	X	12	13'-1"	X		WINGS-VERT.
A414	X	56	10'-5"	X	▲	WINGS-VERT.
A415	X	4	16'-7"	X		WINGS-TOP
A416	X	20	10'-2"		▲	WINGS-HORIZ.

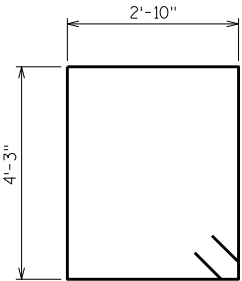
▲ LENGTH SHOWN FOR BAR IS AN AVERAGE LENGTH AND SHOULD ONLY BE USED FOR BAR WEIGHT CALCULATIONS. SEE BAR SERIES TABLE FOR ACTUAL LENGTHS.



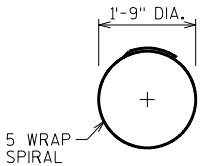
WING 1 ELEVATION



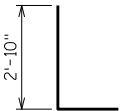
WING 1 SECTION



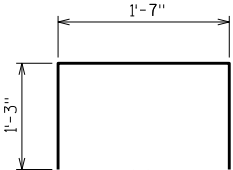
A501



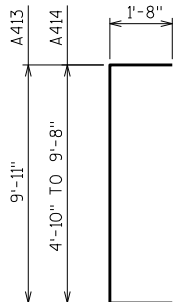
A402



A607



A408



A413, A414



A415

BAR SERIES TABLE

BAR MARK	NO. REQ'D.	LENGTH
A414	4 SERIES OF 14	8'-0" TO 12'-10"
A416	4 SERIES OF 5	4'-9" TO 15'-7"
	OF SERIES	TO
	OF SERIES	TO

BUNDLE AND TAG EACH SERIES SEPARATELY.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE B-55-258			
DRAWN BY		WWR	PLANS CK'D. DFD
NORTH ABUTMENT DETAILS		SHEET	5
			121

- (A03) OPTIONAL CONST. JOINT: KEYWAY FORMED BY BEVELED 2 x 6, (18" RMW @ B.F. & 3/4" "V" GROOVE @ F.F. IF JOINT IS USED).
- (A15) PIPE UNDERDRAIN WRAPPED (6-INCH), SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. RODENT SHIELD REQUIRED.
- (A17) 1/2" FILLER (INCLUDED IN WING LENGTH): SEAL ALL EXPOSED HORIZ. & VERT. SURFACES OF 1/2" FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. (1" DEEP AND HOLD 1/8" BELOW SURFACE OF CONCRETE). EXTEND SEALER 3" BELOW GUTTER LINE AT INSIDE FACE.
- (A19) 18" (RMW) RUBBERIZED MEMBRANE WATERPROOFING SEAL ALL HORIZ. & VERT. JOINTS AT BACKFACE.

* BEAM SEAT REQUIRES SLOPE AT THIS LOCATION. IF OPTIONAL CONST. JOINT USED AT WINGS, SLOPE THE CONST. JOINT TO MATCH BEAM SEAT SLOPE. (SEE "SLOPE BEAM SEAT DETAIL" ON "NORTH ABUTMENT" SHEET).

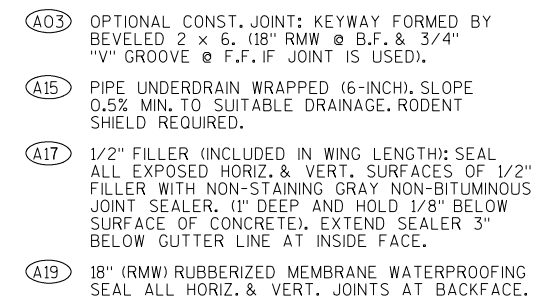
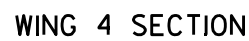
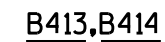


SECTION THRU BODY



- (A06) SUPPORT ABUTMENT ON HP 10 x 42 STEEL PILING, ESTIMATED 25'-0" LONG WITH A REQUIRED DRIVING RESISTANCE OF 180 TONS PER PILE.
- (A15) PIPE UNDERDRAIN WRAPPED (6-INCH) SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. RODENT SHIELD REQUIRED.
- (A17) 1/2" FILLER (INCLUDED IN WING LENGTH); SEAL ALL EXPOSED HORIZ. & VERT. SURFACES OF 1/2" FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. (1" DEEP AND HOLD 1/8" BELOW SURFACE OF CONCRETE); EXTEND SEALER 3" BELOW GUTTER LINE AT INSIDE FACE.
- (A18) 3/4" CORK FILLER UP VERT. BEAM SEAT FACES THAT RUN PARALLEL WITH GIRDER.
- (A19) 18" (RMW) RUBBERIZED MEMBRANE WATERPROOFING SEAL ALL HORIZ. & VERT. JOINTS AT BACKFACE.

NO.	DATE	REVISION			BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION					
STRUCTURE B-55-258					
		DRAWN BY	WWR	PLANS CK'D.	DFD
SOUTH ABUTMENT			SHEET 6		
			122		

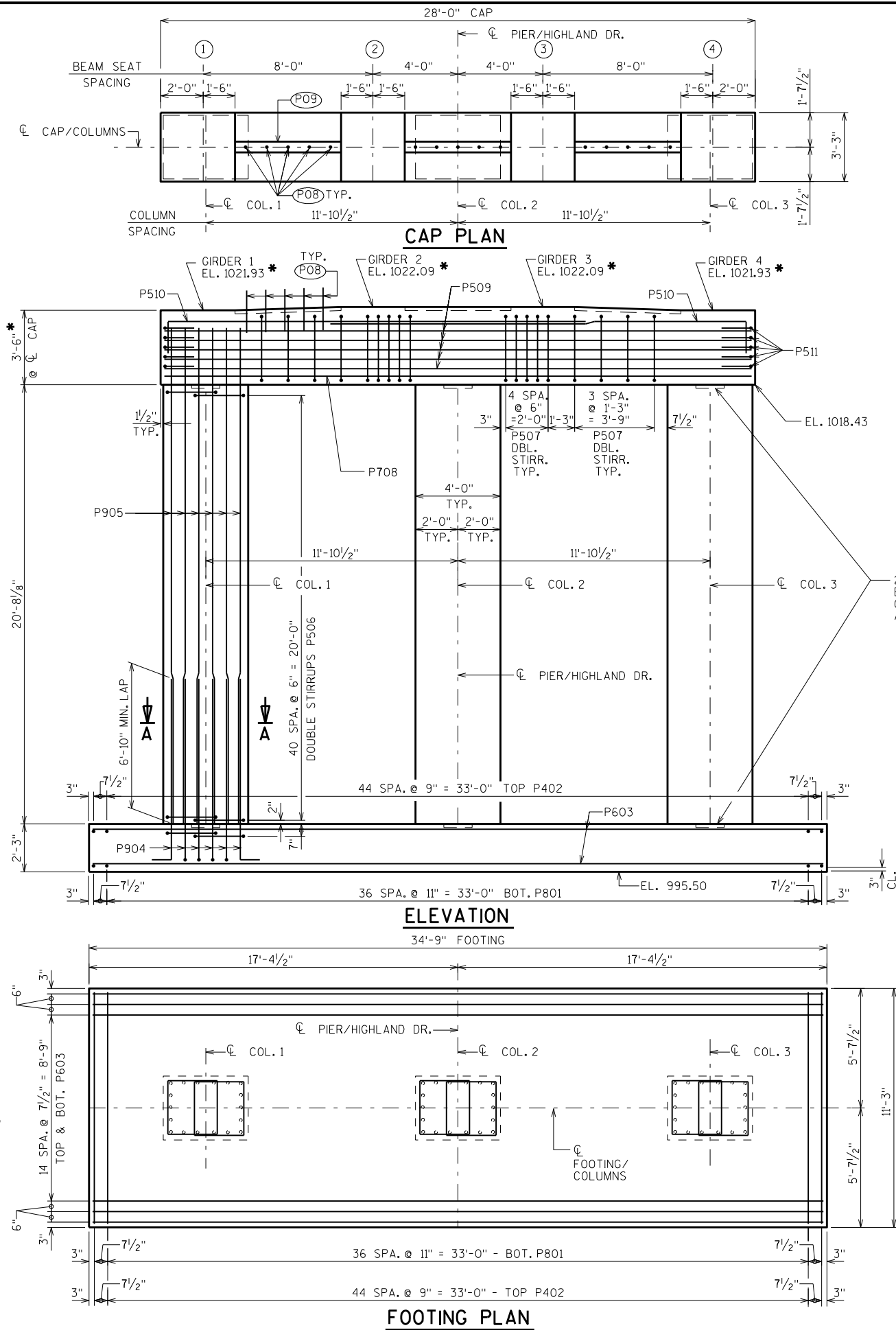


▲ LENGTH SHOWN FOR BAR IS AN AVERAGE LENGTH AND SHOULD ONLY BE USED FOR BAR WEIGHT CALCULATIONS. SEE BAR SERIES TABLE FOR ACTUAL LENGTHS.

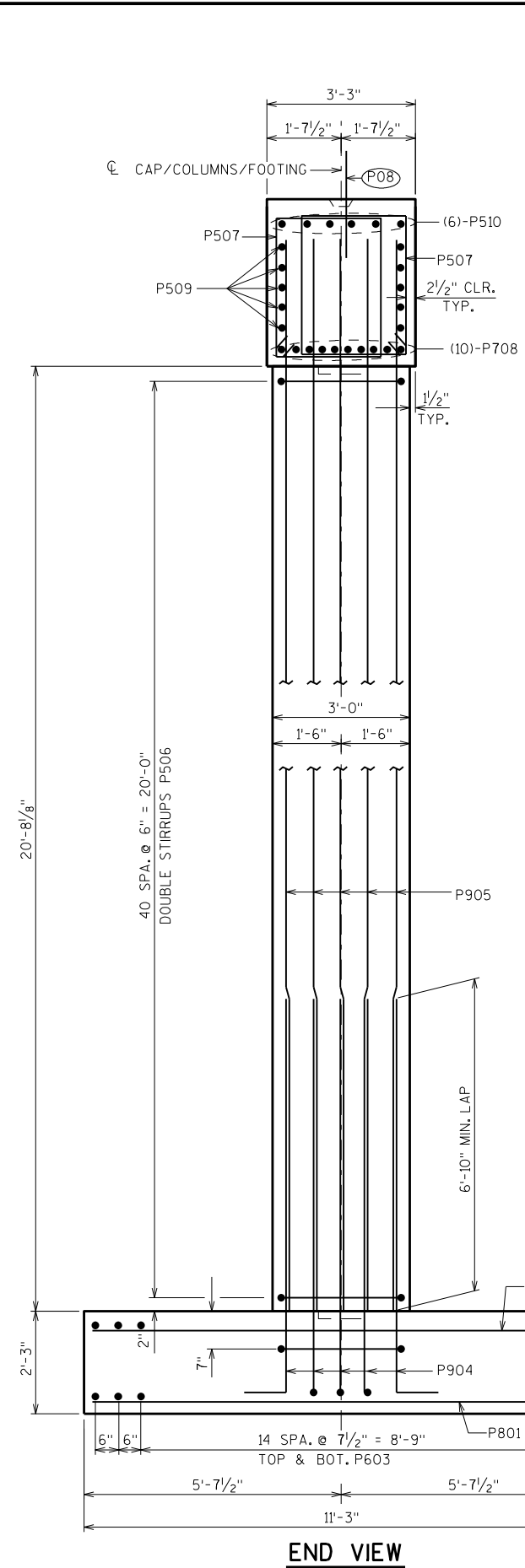
BAR MARK	NO. REQ'D.	LENGTH
B414	4 SERIES OF 14	8'-0" TO 12'-10"
B416	4 SERIES OF 5	4'-9" TO 15'-7"
	SERIES OF	TO
	SERIES OF	TO

BUNDLE AND TAG EACH SERIES SEPARATELY.

NO.	DATE	REVISION			BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION					
STRUCTURE B-55-258					
		DRAWN BY	WWR	PLANS CK'D.	DFD
SOUTH ABUTMENT DETAILS			SHEET 7		
			123		



8



STATE PROJECT NUMBER

1021-01-71

SLOPED BEAM SEAT DETAIL

UPSTATION

+0.02'

+0.02'

-0.02'

-0.02'

CL GIRDERS

CL CAP

* ELEVATIONS GIVEN AT THIS POINT

SECTION A-A

CL COL. 1, 2, 3

5 EQ. SPA. P904, P905

2 1/2" CLR.

3'-0"

1'-6"

1'-6"

2'-0"

2'-0"

4'-0"

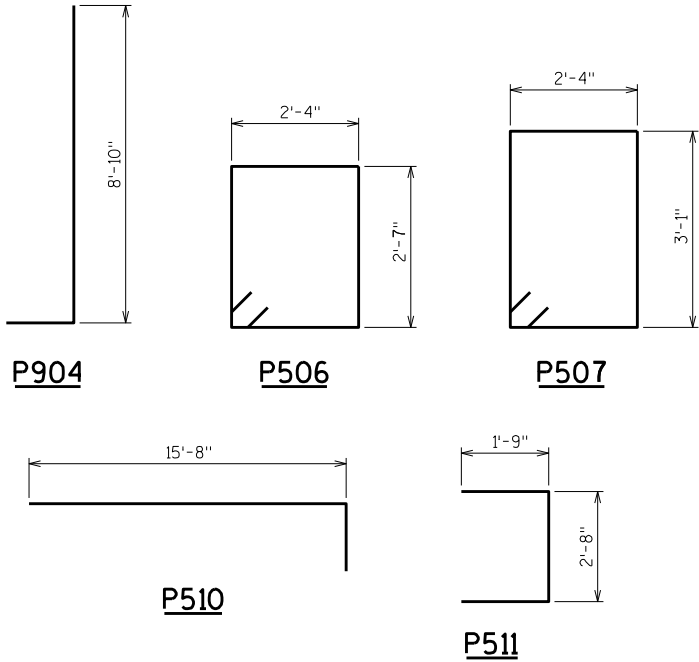
4 EQ. SPA. P904, P905

2 1/2" CLR.

CL FOOTING/COLUMNS

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION STRUCTURE B-55-258			
DRAWN BY WWR		PLANS CK'D. DFD	
PIER		SHEET 8	
		124	

SCALE =



BILL OF BARS

NOTE: THE FIRST OR FIRST TWO DIGITS OF THE BAR MARK SIGNIFIES THE BAR SIZE

BAR MARK	COAT	NO. REQ'D.	LENGTH	BENT	BAR SERIES	LOCATION
P801		39	10'-11			FOOTING-TRANS.-BOT.
P402		47	10'-11			FOOTING-TRANS.-TOP
P603		38	34'-5"			FOOTING-LONGIT.
P904	X	54	10'-2"	X		FOOTING/COLUMN-DOWEL
P905	X	54	23'-8"			COLUMN-VERT.
P506	X	252	10'-6"	X		FOOTING/COLUMN-HORIZ.-STIRR.
P507	X	36	11'-6"	X		CAP-VERT.-STIRR.
P708	X	10	27'-7"			CAP-HORIZ.-BOT.
P509	X	10	27'-7"			CAP-HORIZ.-MIDDLE
P510	X	12	16'-5"	X		CAP-HORIZ.-TOP
P511	X	10	5'-11"	X		CAP-HORIZ.-ENDS
P512	X	15	2'-0"			CAP-VERT.-TOP

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE B-55-258			
DRAWN BY		WWR	PLANS CK'D. DFD
PIER DETAILS		SHEET	9
			125

SCALE =

NOTES

TOP OF GIRDER TO BE ROUGH FLOATED AND BROOMED TRANSVERSELY, EXCEPT THE OUTSIDE 15" OF GIRDER, WHICH SHALL RECEIVE A SMOOTH FINISH, AN APPROVED CONCRETE SEALER SHALL BE APPLIED TO ALL SMOOTH SURFACES INCLUDING THE OUTSIDE 15" OF THE TOP FLANGE.

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

THE GIRDERS SHALL BE PROVIDED WITH A SUITABLE LIFTING DEVICE FOR HANDLING AND ERECTING THE GIRDERS. SEE SECT. 503.3.3 OF STANDARD SPECIFICATIONS FOR GUIDANCE.

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

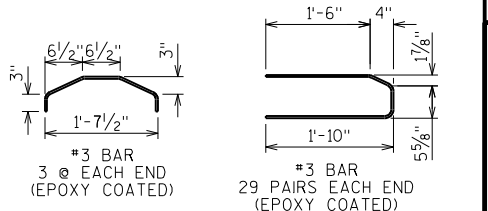
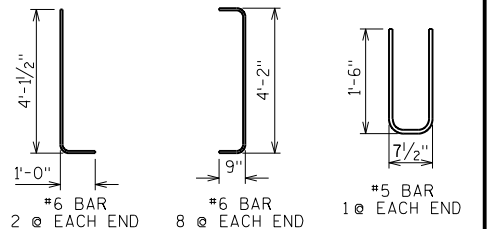
ALL GIRDERS SHALL BE CAST FULL LENGTH AS SHOWN.

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

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

PRESTRESSING STRANDS SHALL BE (.06" DIA.)-7 WIRE LOW-RELAXATION STRANDS WITH AN ULTIMATE STRENGTH OF 270,000 PSI.

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

**SIDE VIEW & TYP. SECTION IN SPAN**

- (A) DETAIL TYP. AT EACH END
(B) 6 #4 BARS, FULL LENGTH, MIN. LAP = 1'-11"

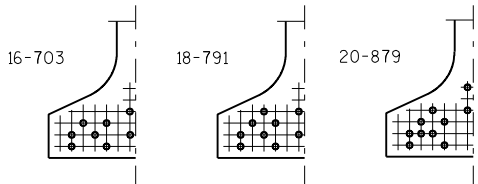
INSERT/HOLES SPACING FOR STEEL DIAPHRAGMS TO GIRDER WEB CONNECTION FOR ALL GIRDERS

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

GIRDER DATA

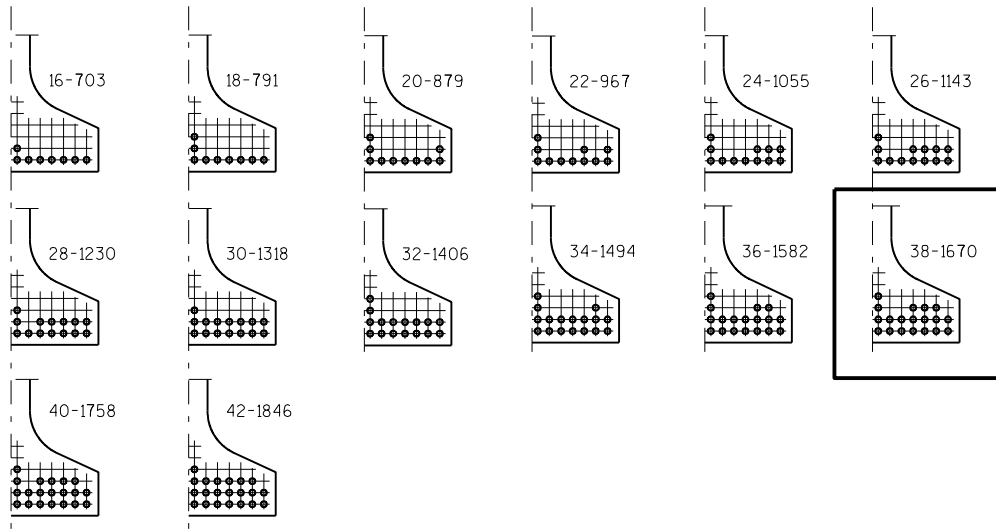
GIRDER DATA																							
SPAN	GIRDER	GIRDER LENGTH "L"	DEAD LOAD DEFL. (IN.)									CONC. STRGTH. f'c (p.s.i.)	"P" 1/3 OF GIRDER	"P" MID 1/3 OF GIRDER	"P" END 1/3 OF GIRDER	DIA. OF STRAND (IN.)	DRAPED PATTERN					UNDRAPED PATTERN	
			1/10	2/10	3/10	4/10	5/10	6/10	7/10	8/10	9/10						TOTAL NO. OF STRANDS	f'ci (P.S.I.) *	(IN.)				TOTAL NO. OF STRANDS
																		"A"	"B" MIN.	"B" MAX.	"C"		
1	ALL	120.375	0.72	1.37	1.87	2.18	2.28	2.16	1.83	1.33	0.69	8,000	7	7.5	7	0.6	38	6,400	49	16	19	5	
2	ALL	120.375	0.69	1.33	1.83	2.16	2.28	2.18	1.87	1.37	0.72	8,000	7	7.5	7	0.6	38	6,400	49	16	19	5	

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE B-55-258			
DRAWN BY WWR		PLANS CKD. DFD	
54W" PRESTRESSED GIRDER DETAILS 1			SHEET 10
			126



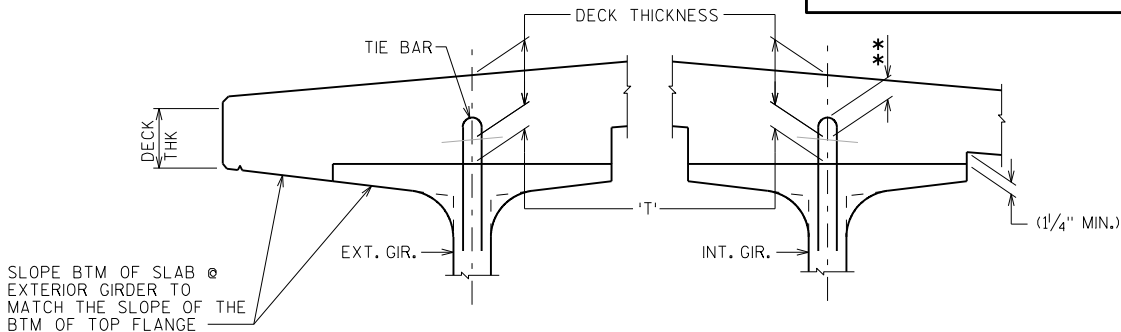
**STANDARD ARRANGEMENTS TO RAISE CENTER OF GRAVITY
TO AVOID DRAPING OF STRANDS**

0.6"φ STRANDS



ARRANGEMENT AT ¼ SPAN - FOR GIRDERS WITH DRAPED STRANDS

0.6"φ STRANDS



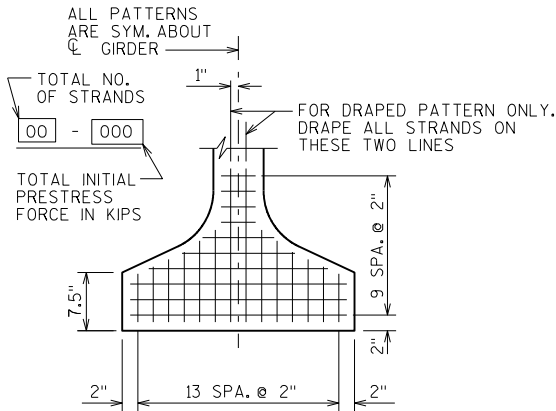
DECK HAUNCH DETAIL

IF 1/4" MINIMUM HAUNCH HEIGHT AT EDGE OF GIRDER CANNOT BE MAINTAINED, THE GRADE LINE MAY BE REVISED BY THE ENGINEER AT THE OPTION OF THE CONTRACTOR. THE PLAN DECK THICKNESS SHALL BE HELD. NOTIFY THE STRUCTURES SECTION IF THE GRADE LINE IS RAISED FROM THE PLAN PROFILE BY MORE THAN 1/2" OR, ** IF 3" MINIMUM DECK EMBEDMENT OF TIE BAR CANNOT BE OBTAINED.

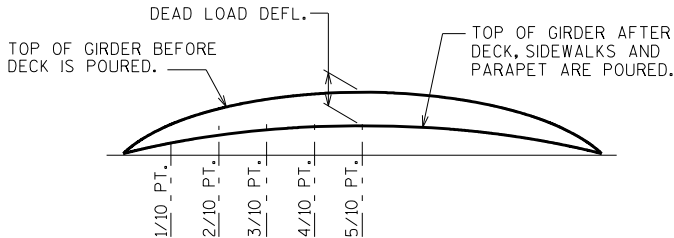
TO DETERMINE 'T', ELEV. OF TOP OF GIR'S. AT ¼ OF SUBSTRUCTURE UNITS & AT 1/10 POINTS OF EACH SPAN SHALL BE TAKEN. THEN FOLLOW THIS PROCESS:

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

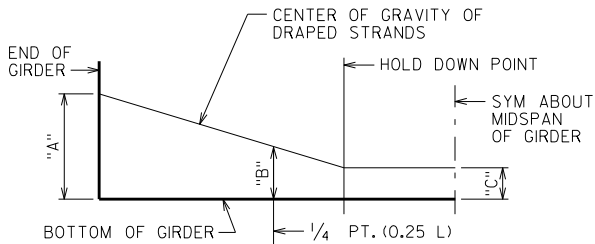
NOTE: AN AVERAGE HAUNCH ('T') OF 2 3/4" WAS USED IN THE QUANTITY "CONCRETE MASONRY BRIDGES".



TYP. STRAND PATTERN



DEAD LOAD DEFLECTION DIAGRAM



DRAPED STRAND PROFILE

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

SPAN	CAMBER (IN.) *
1	3.98
2	3.98

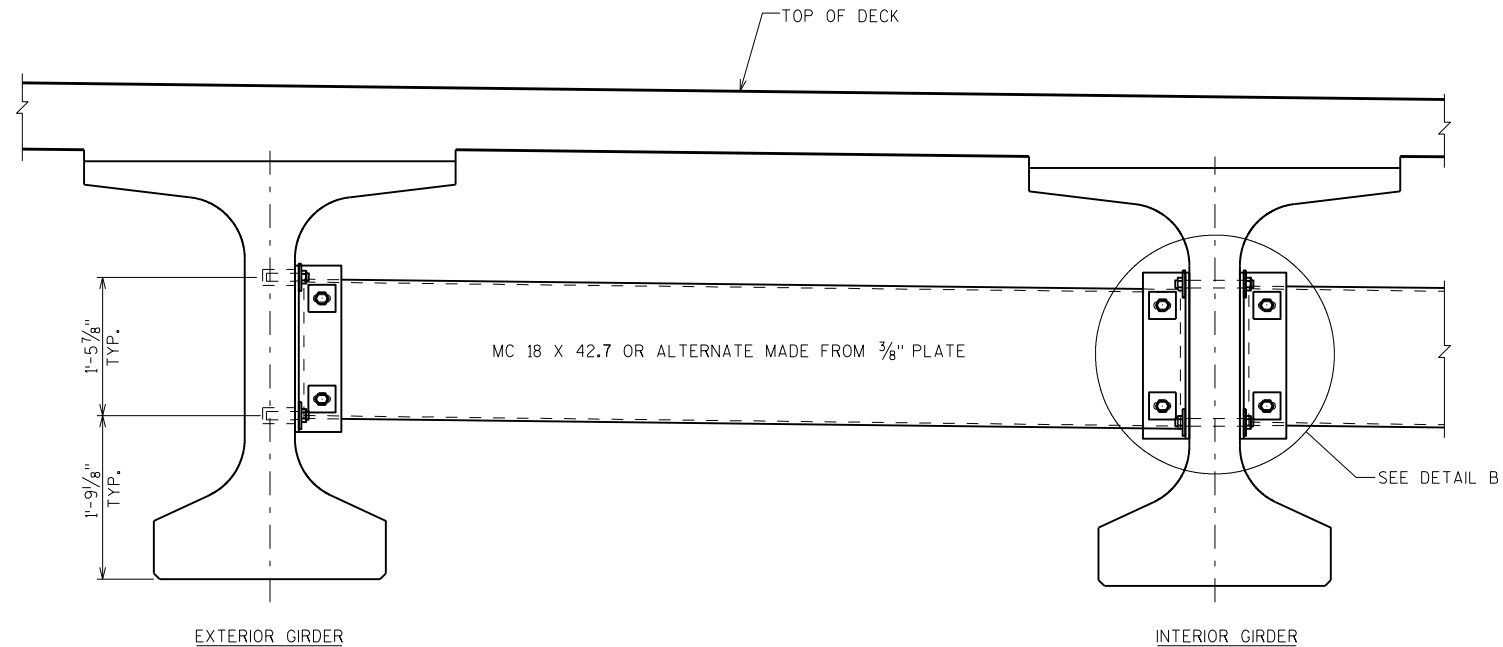
THESE VALUES ARE NOT TO BE USED IN DETERMINING 'T'.
USE ACTUAL GIRDER SHOTS.
THESE VALUES ARE FOR INFORMATIONAL PURPOSES ONLY.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE B-55-258			
DRAWN BY		WWR	PLANS CK'D. DFD
54W" PRESTRESSED GIRDER DETAILS 2		SHEET 11	
		127	

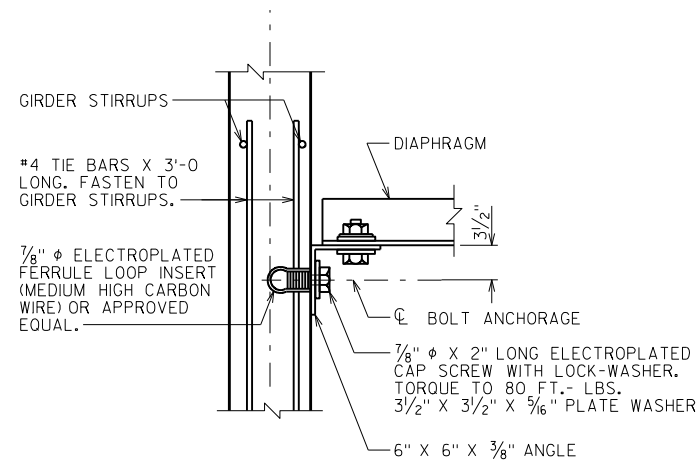
ALL DIAPHRAGM MATERIAL NOT EMBEDDED IN THE CONCRETE GIRDER SHALL BE PAID FOR AT THE UNIT PRICE BID FOR "STEEL DIAPHRAGMS B-55-258", EACH.

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

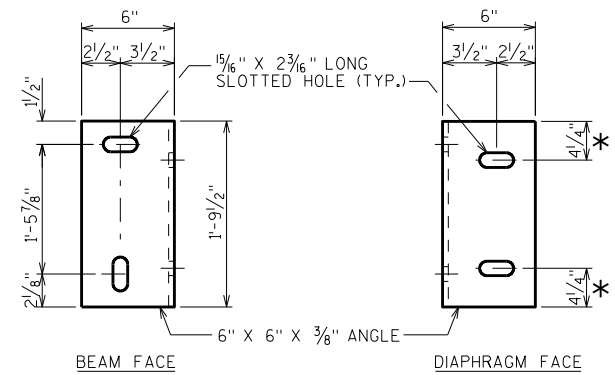
ALL DIAPHRAGM STRUCTURAL STEEL SHOWN SHALL BE HOT-DIPPED GALVANIZED. ALL BOLTS, NUTS AND WASHERS SHALL BE HOT-DIPPED GALVANIZED IN ACCORDANCE WITH ASTM A153 CLASS C. GALVANIZED NUTS SHALL BE TAPPED OVERSIZED IN ACCORDANCE WITH THE REQUIREMENTS OF ASTM A563 AND SHALL MEET THE REQUIREMENTS OF SUPPLEMENTARY REQUIREMENT S10F OF ASTM A563, LUBRICANT AND TEST FOR COATED NUTS.



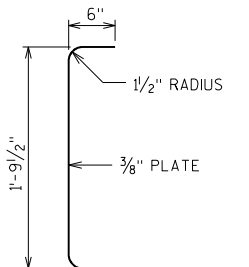
PART TRANSVERSE SECTION AT DIAPHRAGM



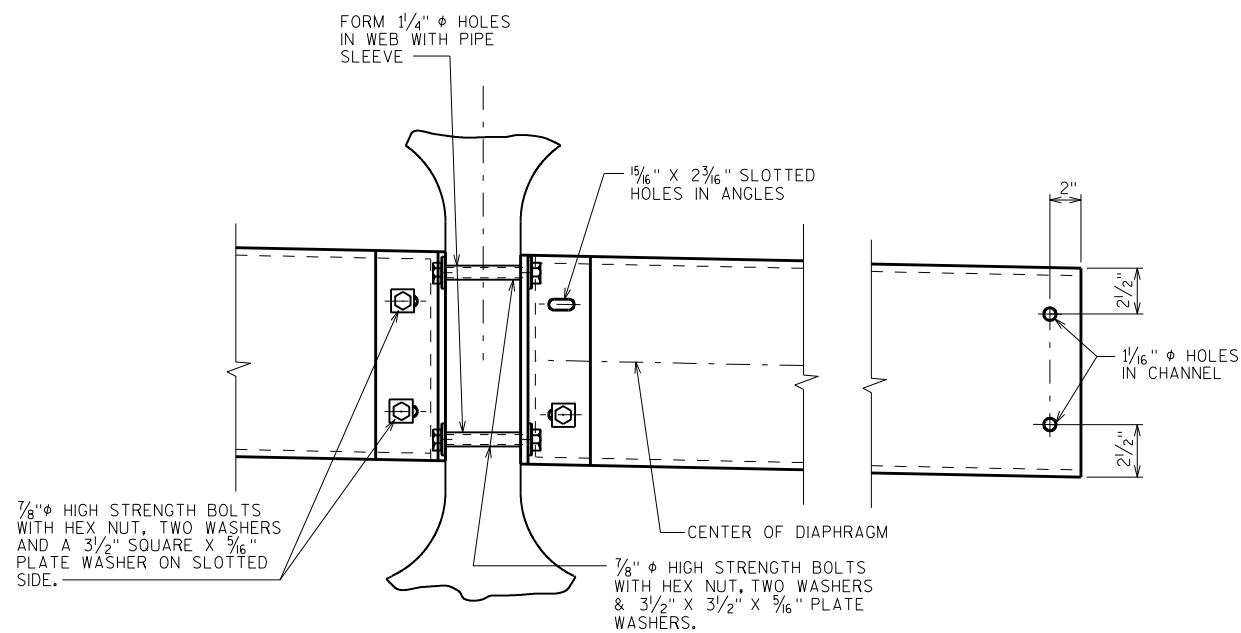
SECTION A-A
(FOR EXTERIOR ATTACHMENT)



* 2 1/2" FOR ALTERNATE PLATE DIAPHRAGM



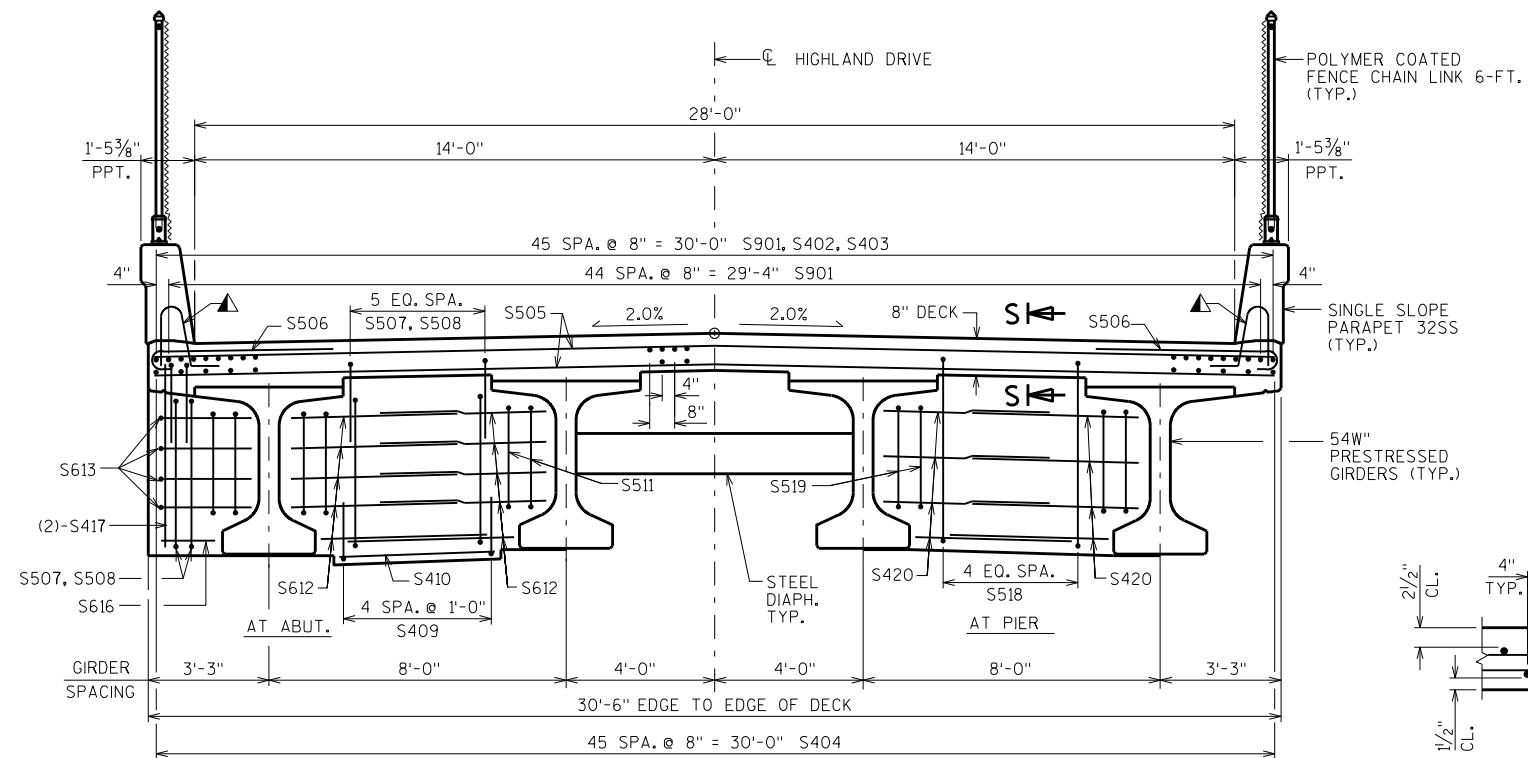
SECTION THRU
ALTERNATE DIAPHRAGM



(FOR CONTINUOUS LINE OF DIAPHRAGMS)

DETAIL B

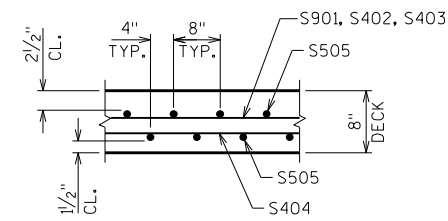
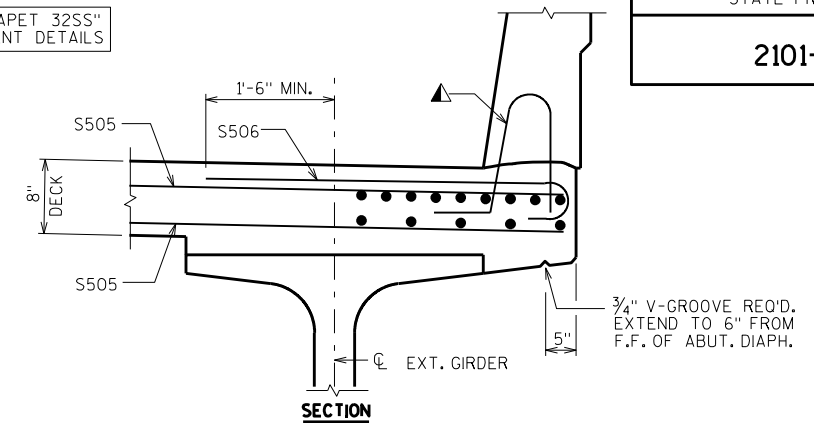
NO.	DATE	REVISION			BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION					
STRUCTURE B-55-258					
		DRAWN BY	WWR	PLANS CK'D.	DFD
STEEL DIAPHRAGM			SHEET 12		
			128		



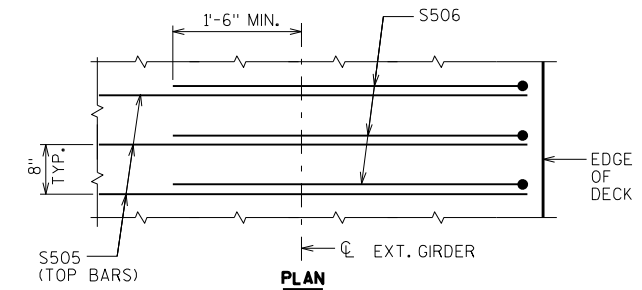
CROSS SECTION THRU DECK

LOOKING SOUTH

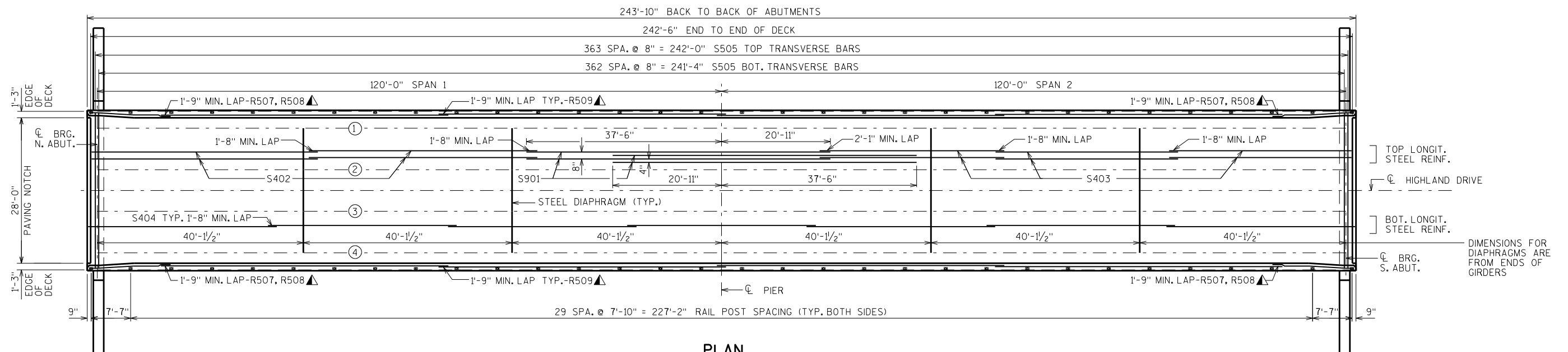
SEE "SINGLE SLOPE PARAPET 32SS" SHEET FOR REINFORCEMENT DETAILS



SECTION S-S



ADDITIONAL REINFORCEMENT AT EDGE OF DECK (TYP.)



PLAN

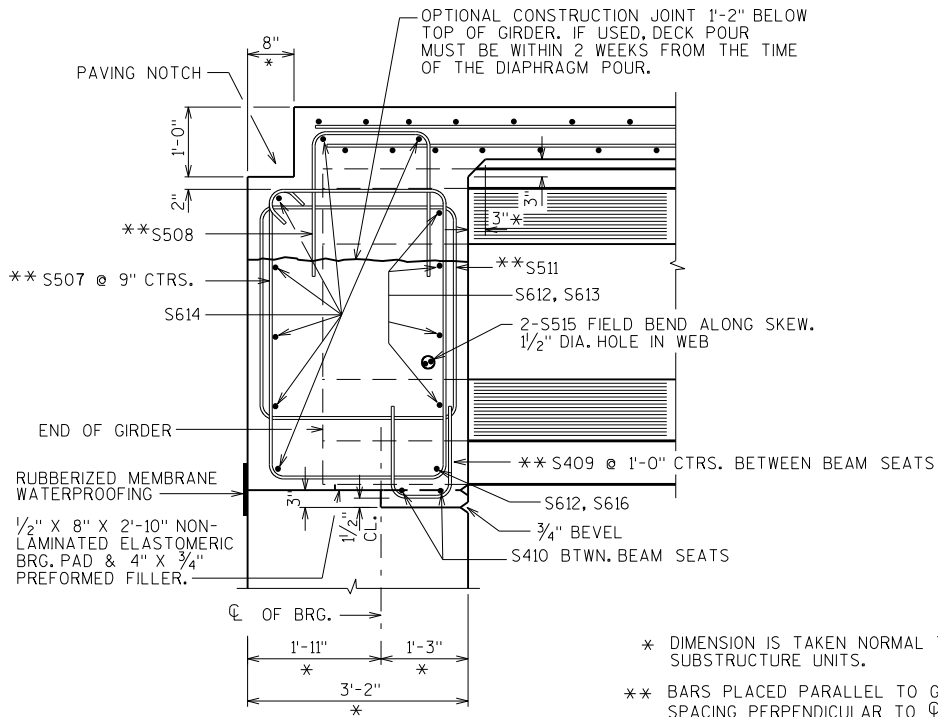
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE B-55-258			
DRAWN BY WWR		PLANS CK'D. DFD	
SUPERSTRUCTURE		SHEET 13	
		129	

BILL OF BARS

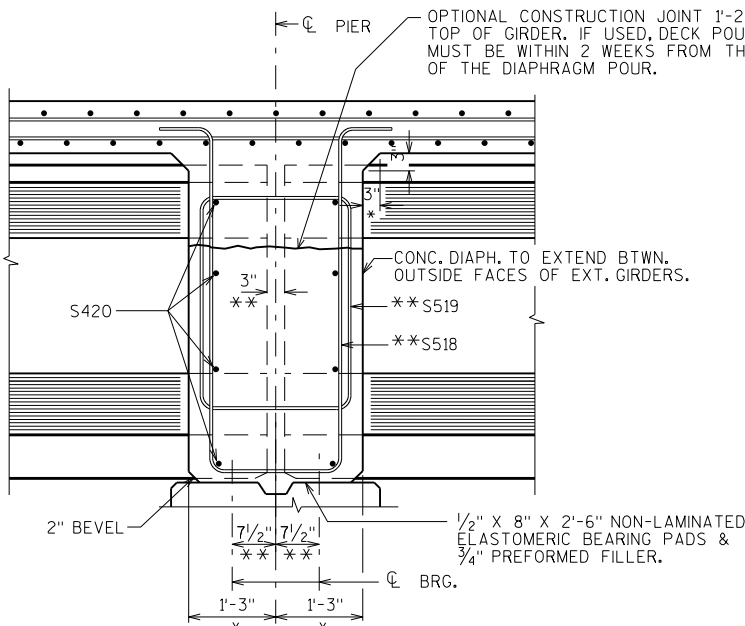
NOTE: THE FIRST OR FIRST TWO DIGITS OF THE BAR MARK SIGNIFIES THE BAR SIZE

BAR MARK	COAT	NO. REQ'D.	LENGTH	BENT	BAR SERIES	LOCATION
S901	X	91	58'-5"			DECK-LONGIT.-TOP-CONTINUITY
S402	X	92	43'-5"			DECK-LONGIT.-TOP-SPAN 1
S403	X	138	35'-3"			DECK-LONGIT.-TOP-SPAN 2
S404	X	322	36'-1"			DECK-LONGIT.-BOT.
S505	X	727	30'-2"			DECK-TRANSVERSE
S506	X	728	5'-3"	X		DECK-TRANSVERSE-TOP EDGE
S507	X	44	14'-6"	X		ABUT. DIAPH.-VERT.
S508	X	44	5'-11"	X		ABUT. DIAPH.-VERT.
S409	X	30	3'-3"	X		ABUT. DIAPH.-VERT.
S410	X	12	4'-3"			ABUT. DIAPH.-HORIZ.
S511	X	32	12'-2"	X		ABUT. DIAPH.-VERT.-BOT.
S612	X	60	4'-8"			ABUT. DIAPH.-HORIZ.
S613	X	16	7'-8"	X		ABUT. DIAPH.-HORIZ.
S614	X	14	30'-2"			ABUT. DIAPH.-HORIZ.-ENDS
S515	X	16	6'-0"			ABUT. DIAPH.-HORIZ.
S616	X	4	1'-8"			ABUT. DIAPH.-HORIZ.-THRU GIRDERS
S417	X	8	5'-0"			ABUT. DIAPH.-VERT.-ENDS
S518	X	15	13'-2"	X		PIER DIAPH.-VERT.-ENDS
S519	X	12	10'-10"	X		PIER DIAPH.-VERT.
S420	X	48	4'-4"			PIER DIAPH.-HORIZ.

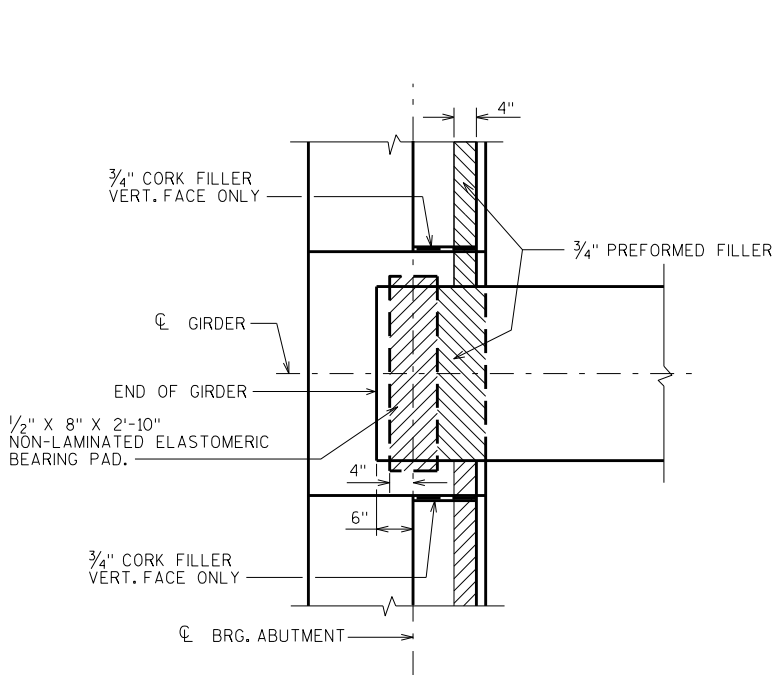
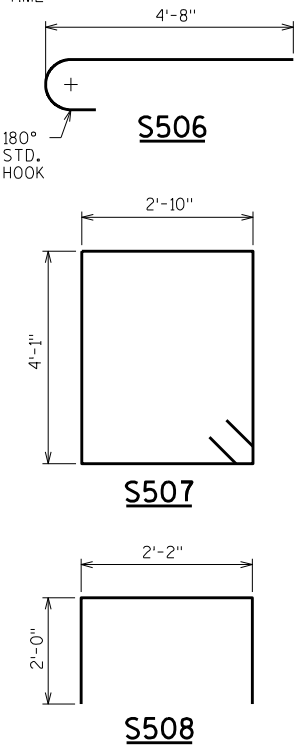
SEE "SINGLE SLOPE PARAPET 32SS" SHEET FOR PARAPET REINFORCEMENT. ALL PARAPET BARS HAVE "R" BAR MARKS, INCLUDING THE VERT. BARS THAT ARE CAST-IN-PLACE WITH THE CONCRETE DECK POUR.



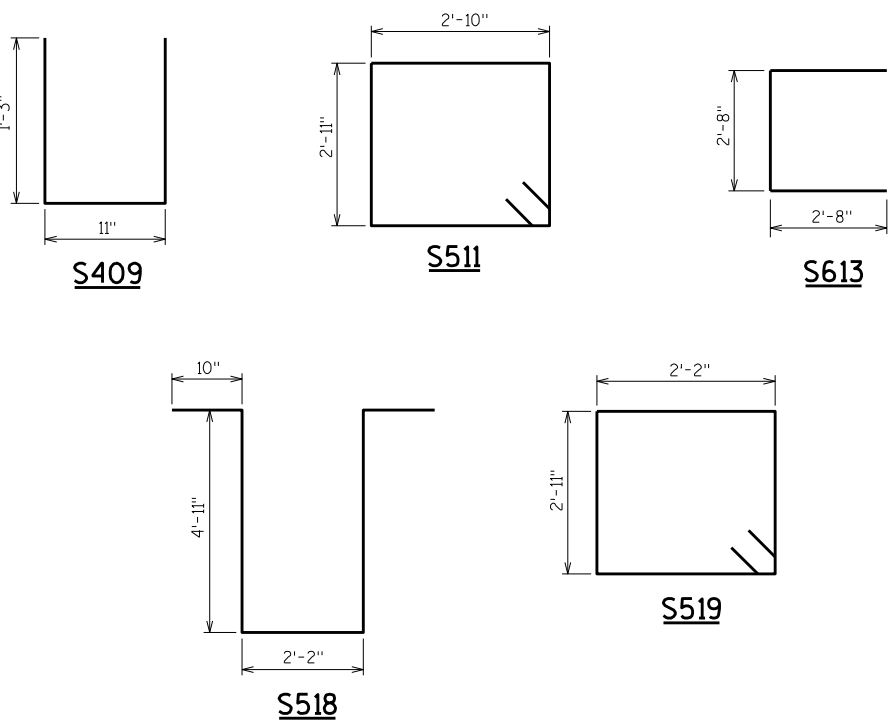
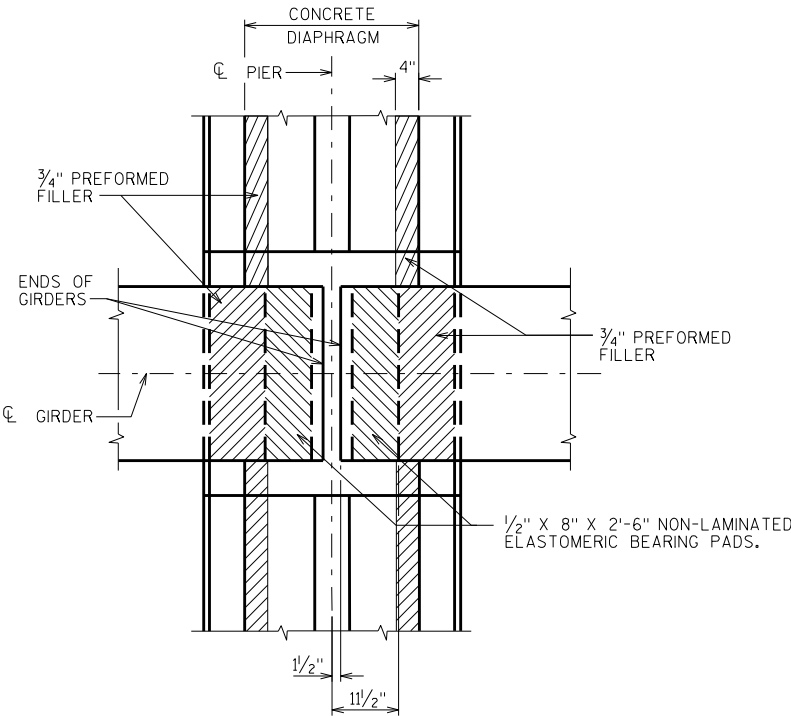
PART LONGIT. SECTION



AT PIER DIAPHRAGM



BEARING PAD DETAIL



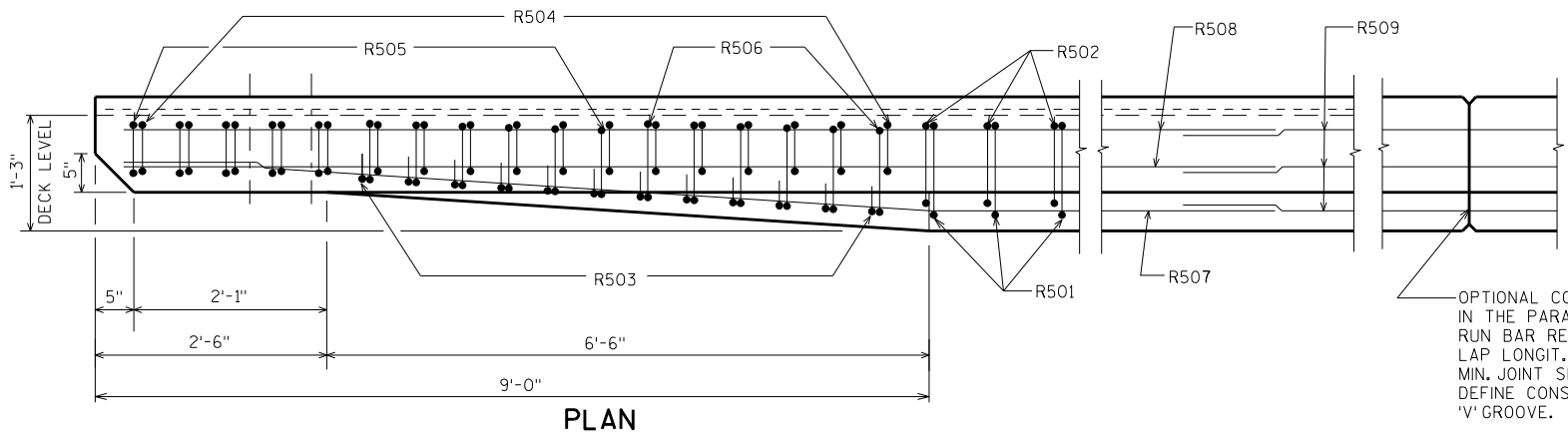
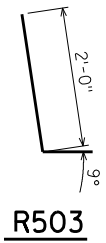
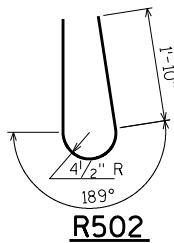
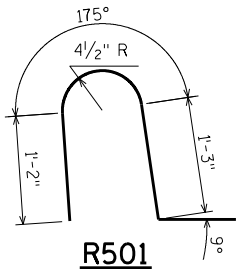
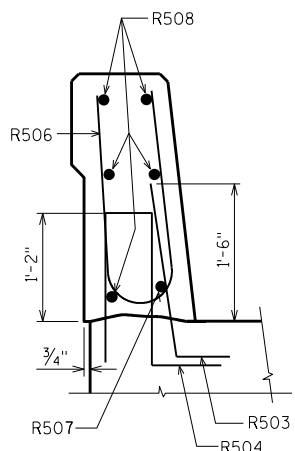
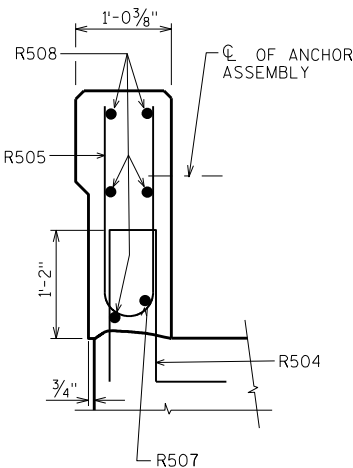
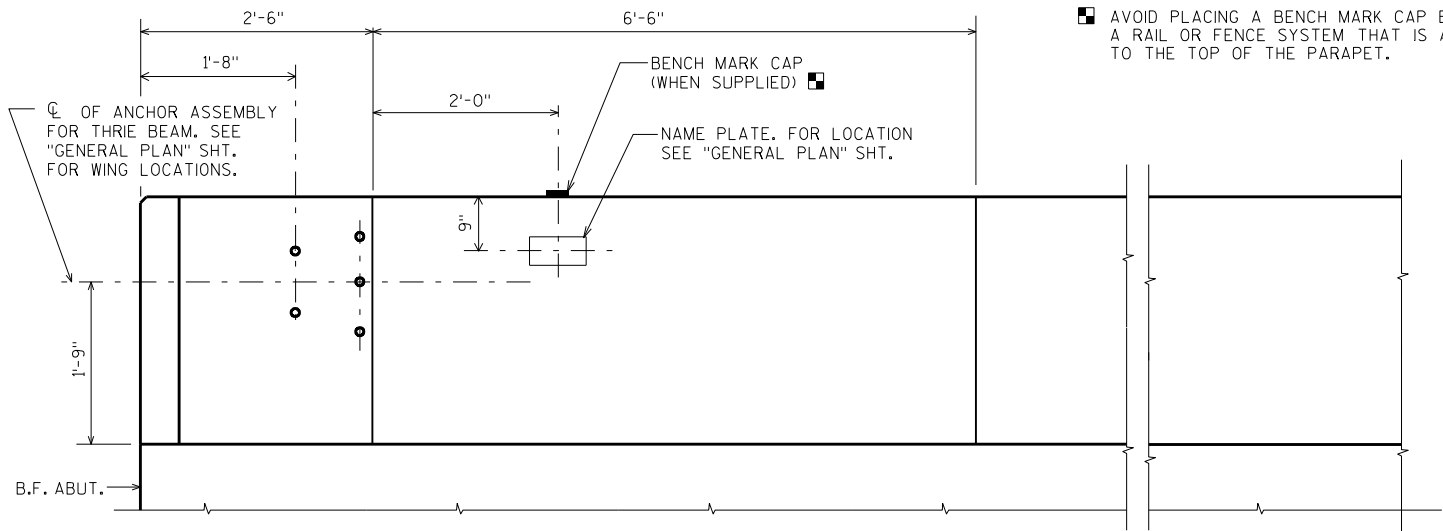
TOP OF DECK ELEVATIONS

	CL BRG. N. ABUT.	1/10 PT	2/10 PT	3/10 PT	4/10 PT	5/10 PT	6/10 PT	7/10 PT	8/10 PT	9/10 PT	CL PIER	1/10 PT	2/10 PT	3/10 PT	4/10 PT	5/10 PT	6/10 PT	7/10 PT	8/10 PT	9/10 PT	CL BRG. S. ABUT.
LT EOD	1024.63	1024.97	1025.30	1025.61	1025.90	1026.18	1026.44	1026.68	1026.91	1027.11	1027.31	1027.48	1027.64	1027.78	1027.90	1028.00	1028.09	1028.16	1028.22	1028.26	1028.28
GIRDER 1	1024.67	1025.01	1025.34	1025.65	1025.94	1026.22	1026.48	1026.72	1026.95	1027.15	1027.35	1027.52	1027.68	1027.82	1027.94	1028.04	1028.13	1028.20	1028.26	1028.30	1028.32
GIRDER 2	1024.83	1025.17	1025.50	1025.81	1026.10	1026.38	1026.64	1026.88	1027.11	1027.31	1027.51	1027.68	1027.84	1027.98	1028.10	1028.20	1028.29	1028.36	1028.42	1028.46	1028.48
CROWN	1024.91	1025.25	1025.58	1025.89	1026.18	1026.46	1026.72	1026.96	1027.19	1027.39	1027.59	1027.76	1027.92	1028.06	1028.18	1028.28	1028.37	1028.44	1028.50	1028.54	1028.56
GIRDER 3	1024.83	1025.17	1025.50	1025.81	1026.10	1026.38	1026.64	1026.88	1027.11	1027.31	1027.51	1027.68	1027.84	1027.98	1028.10	1028.20	1028.29	1028.36	1028.42	1028.46	1028.48
GIRDER 4	1024.67	1025.01	1025.34	1025.65	1025.94	1026.22	1026.48	1026.72	1026.95	1027.15	1027.35	1027.52	1027.68	1027.82	1027.94	1028.04	1028.13	1028.20	1028.26	1028.30	1028.32
RT EOD	1024.63	1024.97	1025.30	1025.61	1025.90	1026.18	1026.44	1026.68	1026.91	1027.11	1027.31	1027.48	1027.64	1027.78	1027.90	1028.00	1028.09	1028.16	1028.22	1028.26	1028.28

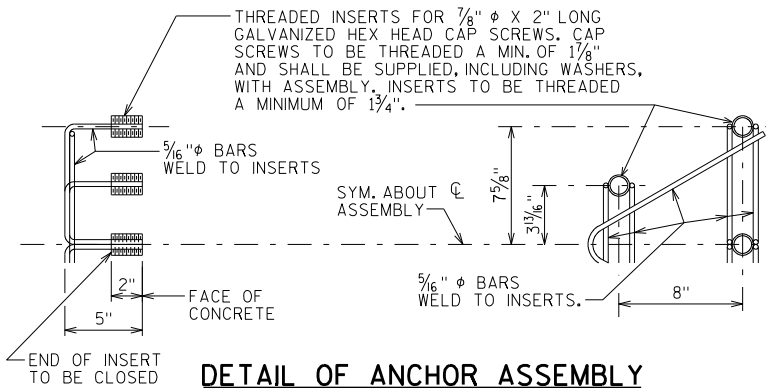
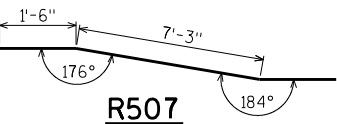
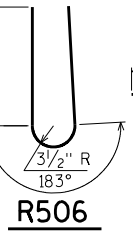
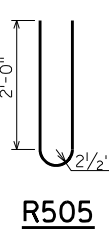
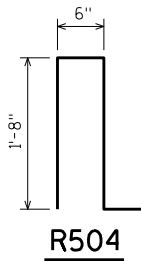
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE B-55-258			
DRAWN BY WWR		PLANS CK'D. DFD	
SUPERSTRUCTURE DETAILS			SHEET 14
			130

BILL OF BARS

BAR MARK	COAT	EAST PPT.	WEST PPT.	LENGTH	BENT	BAR SERIES	LOCATION
R501	X	340	340	4'-5"	X		PARAPET VERT.
R502	X	340	340	5'-0"	X		PARAPET VERT.
R503	X	24	24	2'-9"	X		PARAPET-VERT.
R504	X	34	34	4'-4"	X		PARAPET-VERT.
R505	X	22	22	4'-9"	X		PARAPET-VERT.
R506	X	12	12	4'-10"	X		PARAPET-VERT.
R507	X	2	2	15'-6"	X		PARAPET-HORIZ.
R508	X	10	10	15'-6"			PARAPET HORIZ.
R509	X	24	24	55'-3"			PARAPET HORIZ.



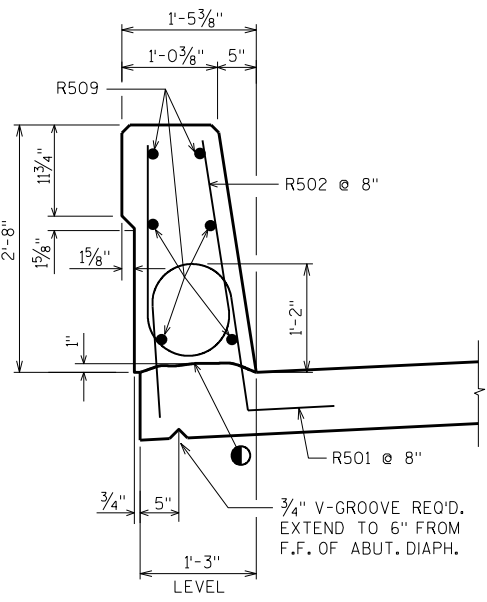
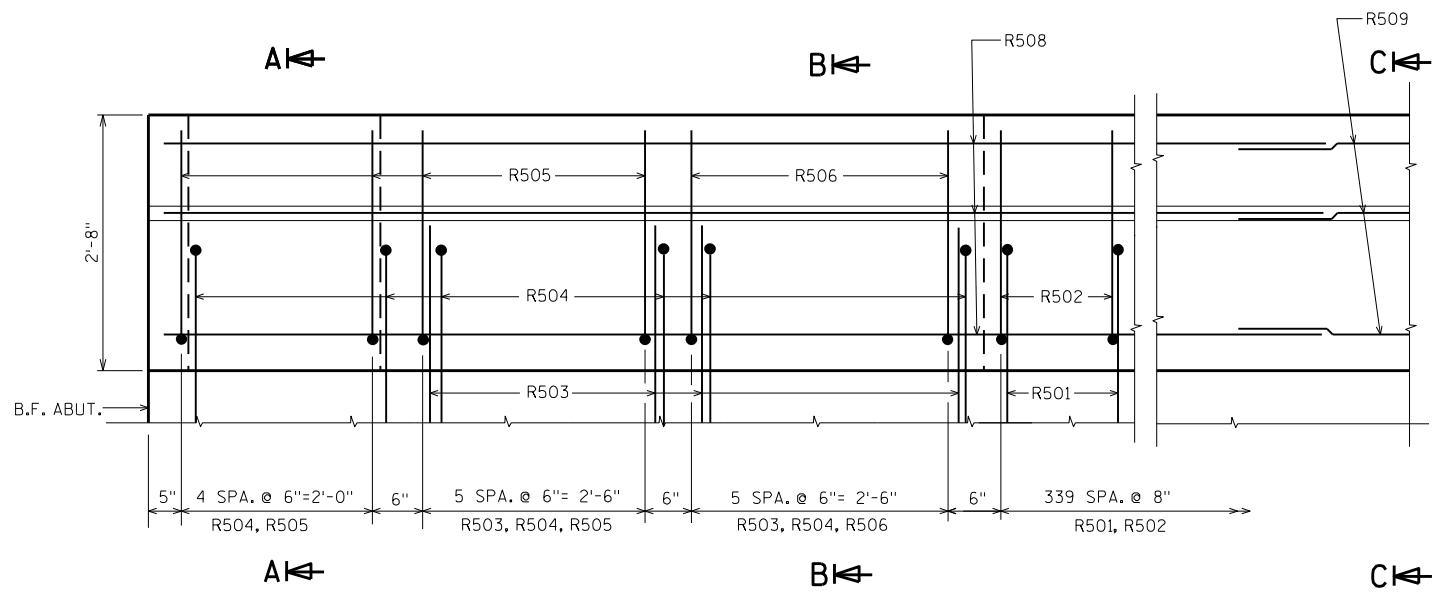
OPTIONAL CONSTRUCTION JOINTS IN THE PARAPETS MAY BE USED. RUN BAR REINF. THRU THE JOINT. LAP LONGIT. BARS A MIN. OF 1'-9". MIN. JOINT SPACING OF 80'-0". DEFINE CONST. JOINT WITH A 3/4" - 'V' GROOVE.



DETAIL OF ANCHOR ASSEMBLY

NOTE: HEX HEAD CAP SCREWS & WASHERS TO BE GALVANIZED IN ACCORDANCE WITH AASHTO M232 CLASS C.

ASSEMBLY SHALL BE BID ITEM "ANCHOR ASSEMBLIES FOR STEEL PLATE BEAM GUARD", EACH.

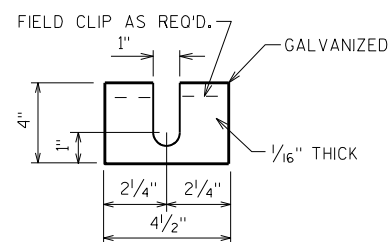


CONST. JOINT - STRIKE OFF AS SHOWN.

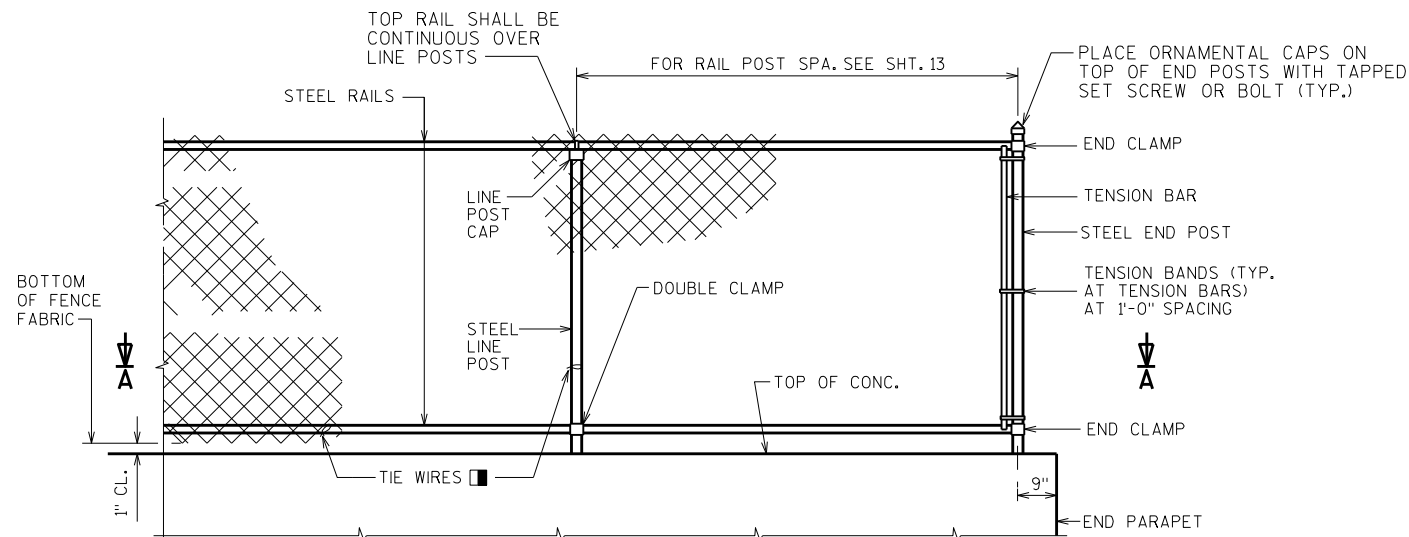
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE B-55-258			
DRAWN BY WWR		PLANS CK'D. DFD	
SINGLE SLOPE PARAPET 32SS			SHEET 15 131

**FENCE MEMBER
SIZE & WEIGHT**

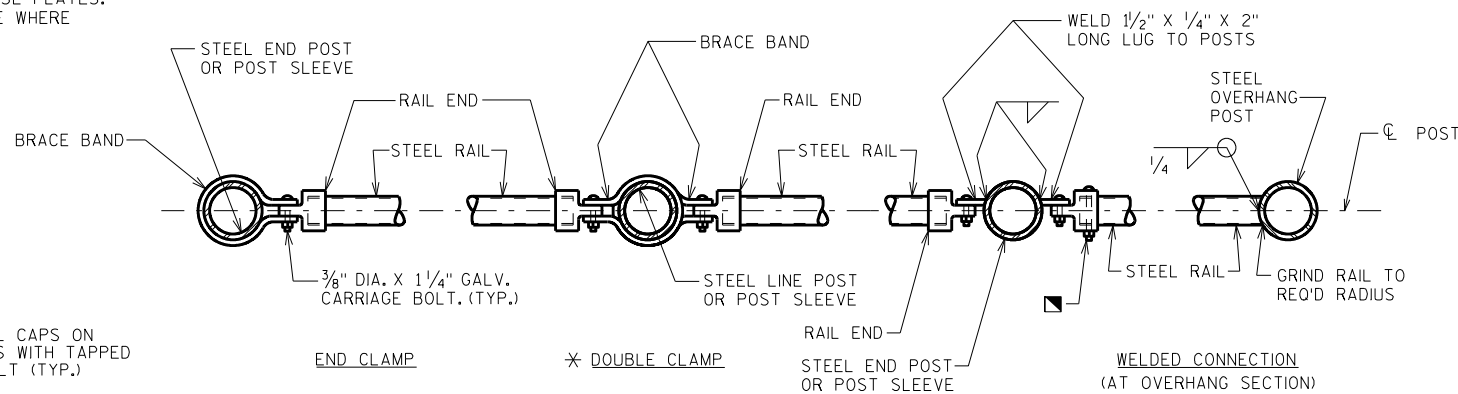
STEEL FENCE MEMBER	OUTSIDE DIAMETER (INCHES)	WEIGHT (LB/FT)
RAILS	1.660	2.27
END POST	2.875	5.80
OVERHANG POST	2.875	5.80
LINE POST	2.375	3.65
POST SLEEVE	4.000	9.12

**POST SHIM DETAILS**

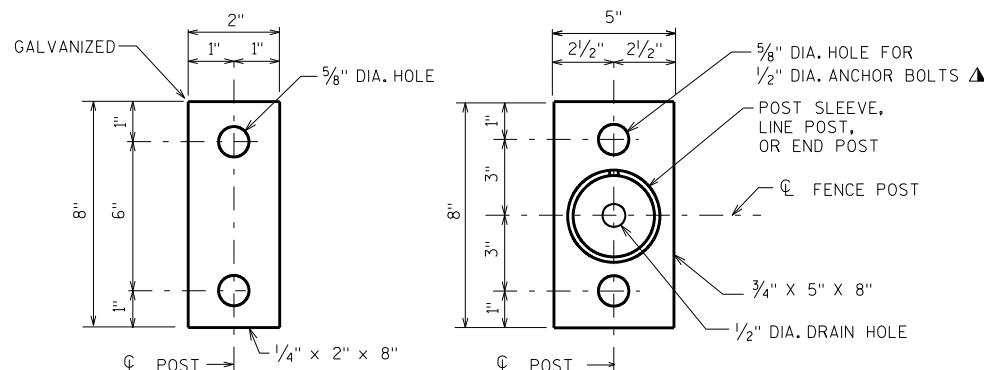
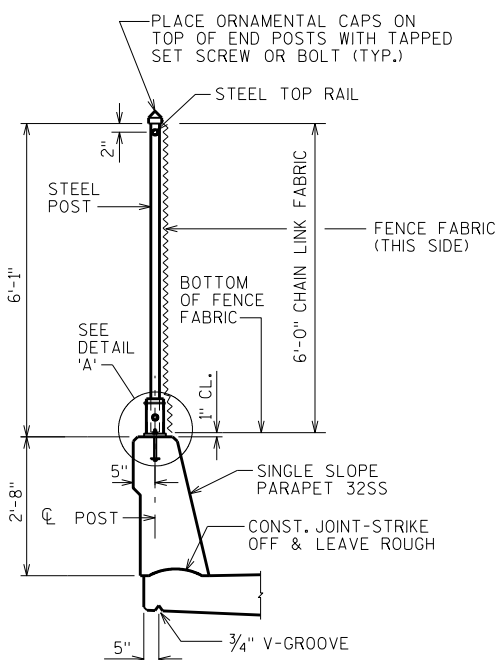
SHIMS REQUIRED ONLY WHEN END POSTS AND LINE POSTS ARE WELDED TO BASE PLATES. PROVIDE 4 SHIMS PER POST. USE WHERE REQUIRED FOR ALIGNMENT.

**FENCE PART ELEVATION**

VIEWING FABRIC SIDE

**SECTION A-A**

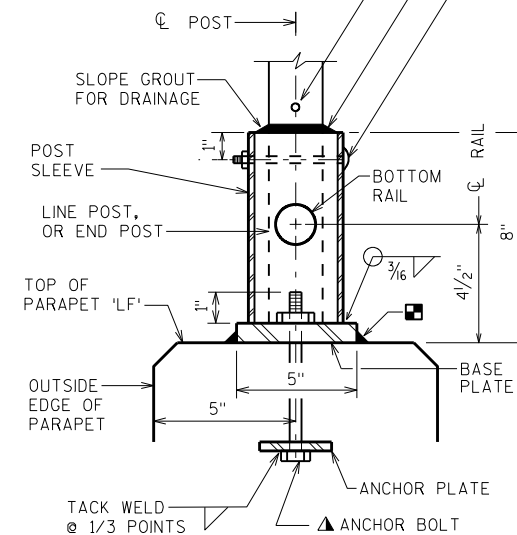
NOTE: PLACE ALL BOLT HEADS ON SIDE OF FENCE ADJACENT TO PEDESTRIANS

**ANCHOR PLATE****BASE PLATE****SECTION THRU FENCE**

3/8" DIA. GALV. CARRIAGE BOLT WITH LOCKING NUT. (TO BE SUPPLIED WITH ASSEMBLY)

FILL SLEEVE AND BEVEL AWAY FROM POST WITH NON-SHRINK GROUT AFTER SETTING POST. (LEAVE NO VOIDS)

DRILL 3/16" DIA. DRAIN HOLE PARALLEL TO ROADWAY IMMEDIATELY ABOVE GROUT IN POST. SLEEVE LOCATIONS ONLY.

**DETAIL 'A'**

UNIT SHALL BE GALVANIZED AFTER FABRICATION

NOTE: IN LIEU OF USING THE POST SLEEVE, THE FENCE POST MAY BE WELDED TO THE BASE PLATE.

GENERAL NOTES

POSTS ARE TO BE SET VERTICAL.

ALL FENCE COMPONENTS SHALL BE GALVANIZED STEEL WITH A COLORED POLYMER-COATING ON THE OUTSIDE.

FABRIC SHALL CONFORM TO ASTM F668, CLASS 2B. STEEL RAILS, POSTS AND POST SLEEVES SHALL CONFORM TO ASTM F1083, STANDARD WEIGHT PIPE (SCHEDULE 40). FITTINGS SHALL CONFORM TO ASTM F626. SEE THE "BRIDGE SPECIAL PROVISIONS" FOR ADDITIONAL DETAILS.

THE COLOR OF POLYMER-COATING FOR THIS STRUCTURE SHALL BE BLACK, IN ACCORDANCE WITH ASTM F934.

THE BID ITEM SHALL BE "FENCE CHAIN LINK POLYMER-COATED 6- FT.", LF.

COMPLETE ANY REQUIRED WELDING OF COMPONENTS BEFORE GALVANIZING.

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.

BASE PLATES, ANCHOR PLATES AND SHIMS SHALL BE ASTM A709, GRADE 36.

ALL POST SPACINGS ARE MEASURED HORIZONTALLY ALONG THE C/L OF THE POST.

CAULK AROUND PERIMETER OF BASE PLATE AND FILL PORTION OF SLOTTED HOLE AROUND ANCHOR BOLT IN SHIM WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER.

ALTERNATE TO DOUBLE CLAMP: USE LINE RAIL CLAMP (BOULEVARD) OR 180° BRACE BAND, WHICH MAY BE USED WHEN THE POSTS ARE EITHER BOLTED TO THE POST SLEEVES OR DIRECTLY WELDED TO THE BASE PLATE.

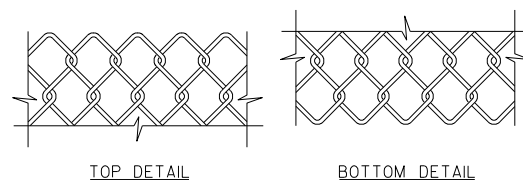
1/2" DIA. X 6 7/8" LONG GALVANIZED HEX BOLT WITH NUT & WASHER, TYPE "S", 1/2" DIA. CONCRETE MASONRY ANCHORS MAY BE SUBSTITUTED FOR 1/2" DIA. BOLTS. ANCHOR PLATE NOT REQUIRED WHEN TYPE "S" ANCHORS ARE USED. SEE

MASONRY ANCHOR TYPE S 1/2-INCH. EMBED 6" IN CONCRETE. ANCHOR, WASHER, AND NUT SHALL BE GALVANIZED.

ATTACH FABRIC TO RAILS, AND TO POSTS WITHOUT TENSION BANDS, WITH TIE WIRES (ROUND, 9-GAGE) SPACED AT 1'-0".

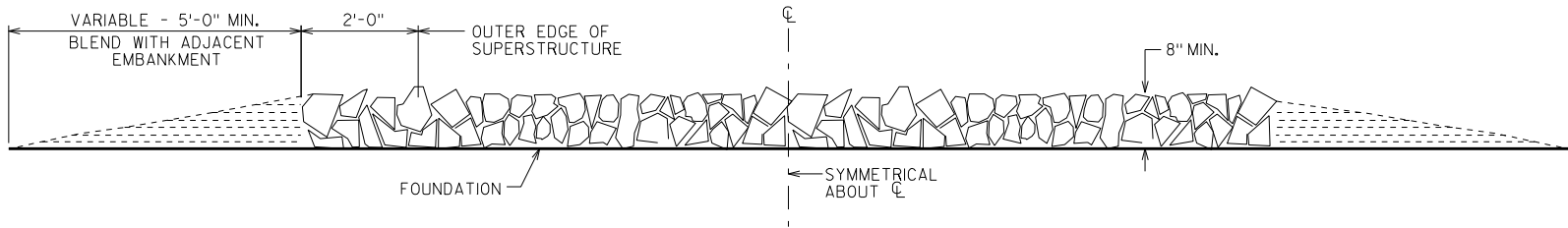
BOLT RAIL TO RAIL END TO SECURE OVERHANG SECTION. ALTERNATE IS TO WELD RAIL DIRECTLY TO END POST.

MINIMUM LENGTH OF TOP RAIL BETWEEN SPLICES SHALL BE 20'-0". LOCATE SPLICES NEAR 1/4 POINT OF POST SPACING.

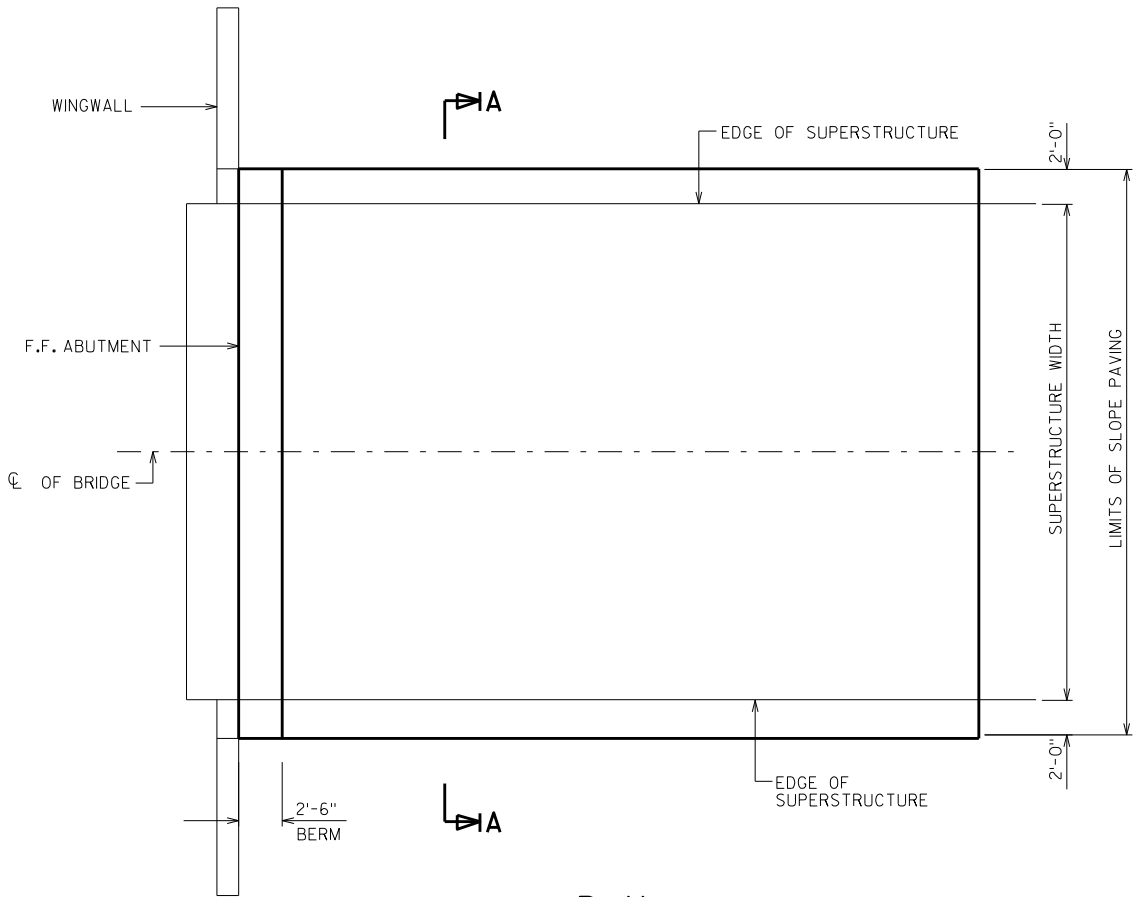
**FENCE FABRIC**

FENCE FABRIC WOVEN OF 9-GAGE WIRE IN 2" DIAMOND PATTERN MESH WITH BOTH THE TOP AND BOTTOM SELVAGES KNUCKLED.

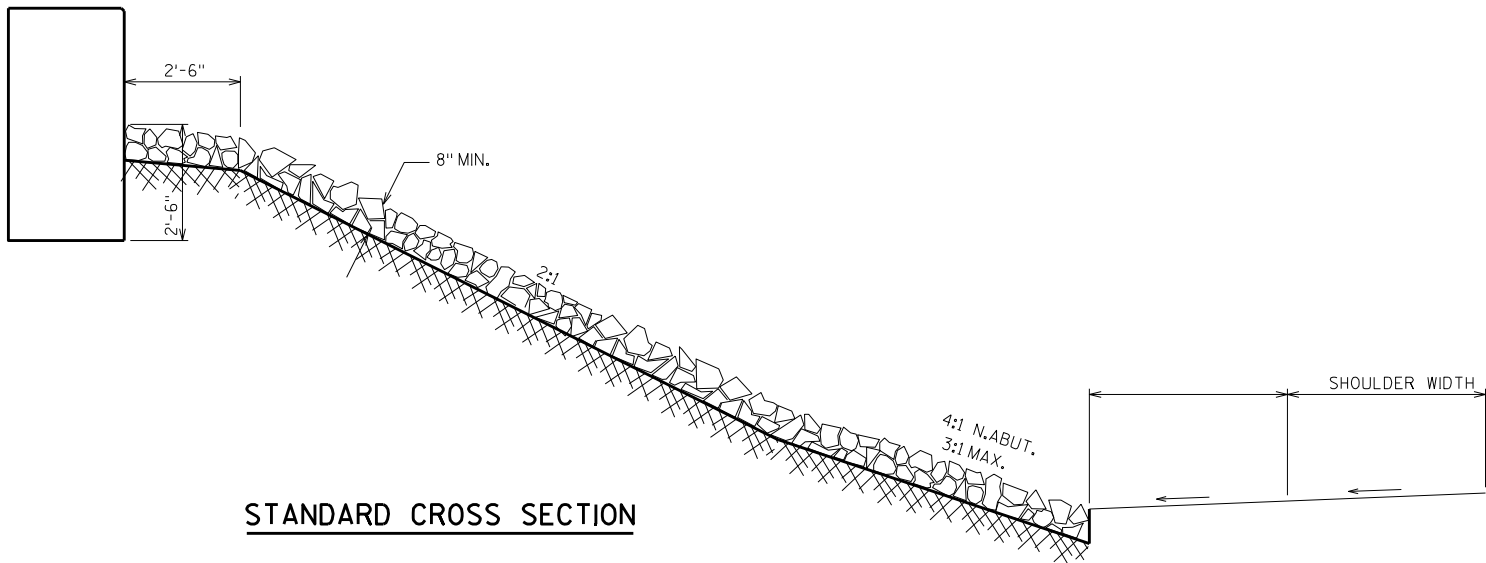
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE B-55-258			
DRAWN BY WWR		PLANS CKD. DFD	
FENCING DETAILS			SHEET 16
			132



SECTION A-A



PLAN



STANDARD CROSS SECTION

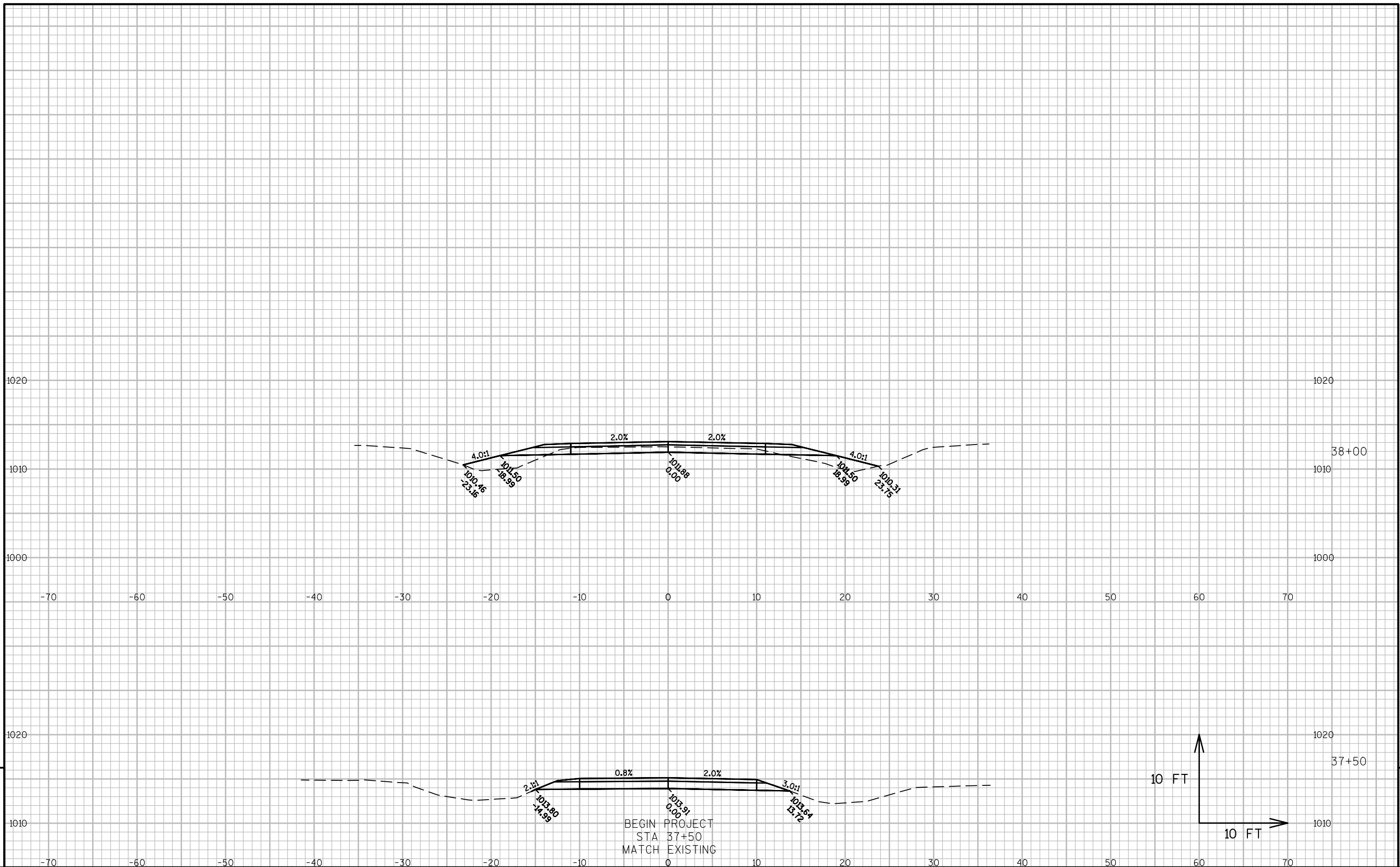
GENERAL NOTES

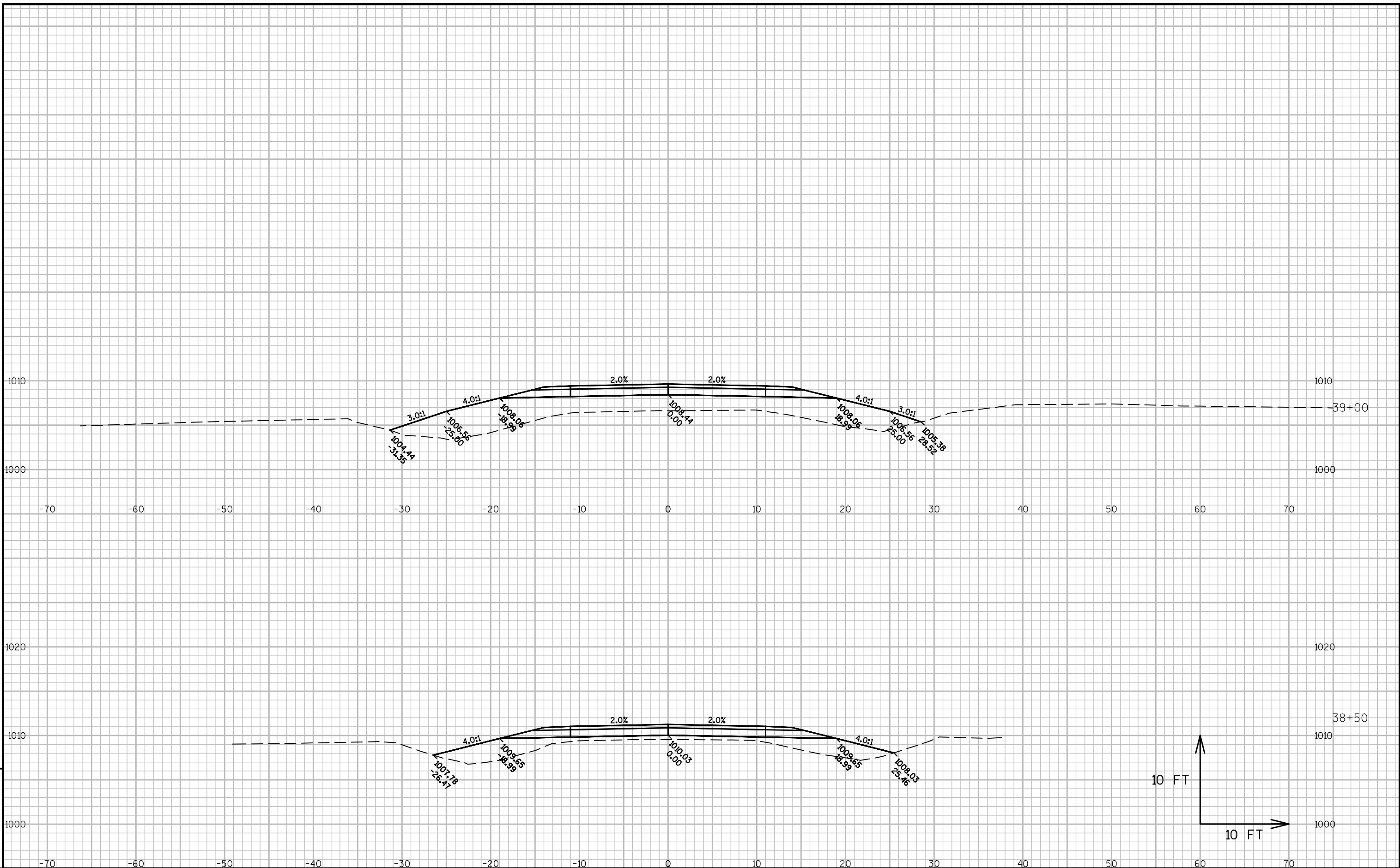
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS.

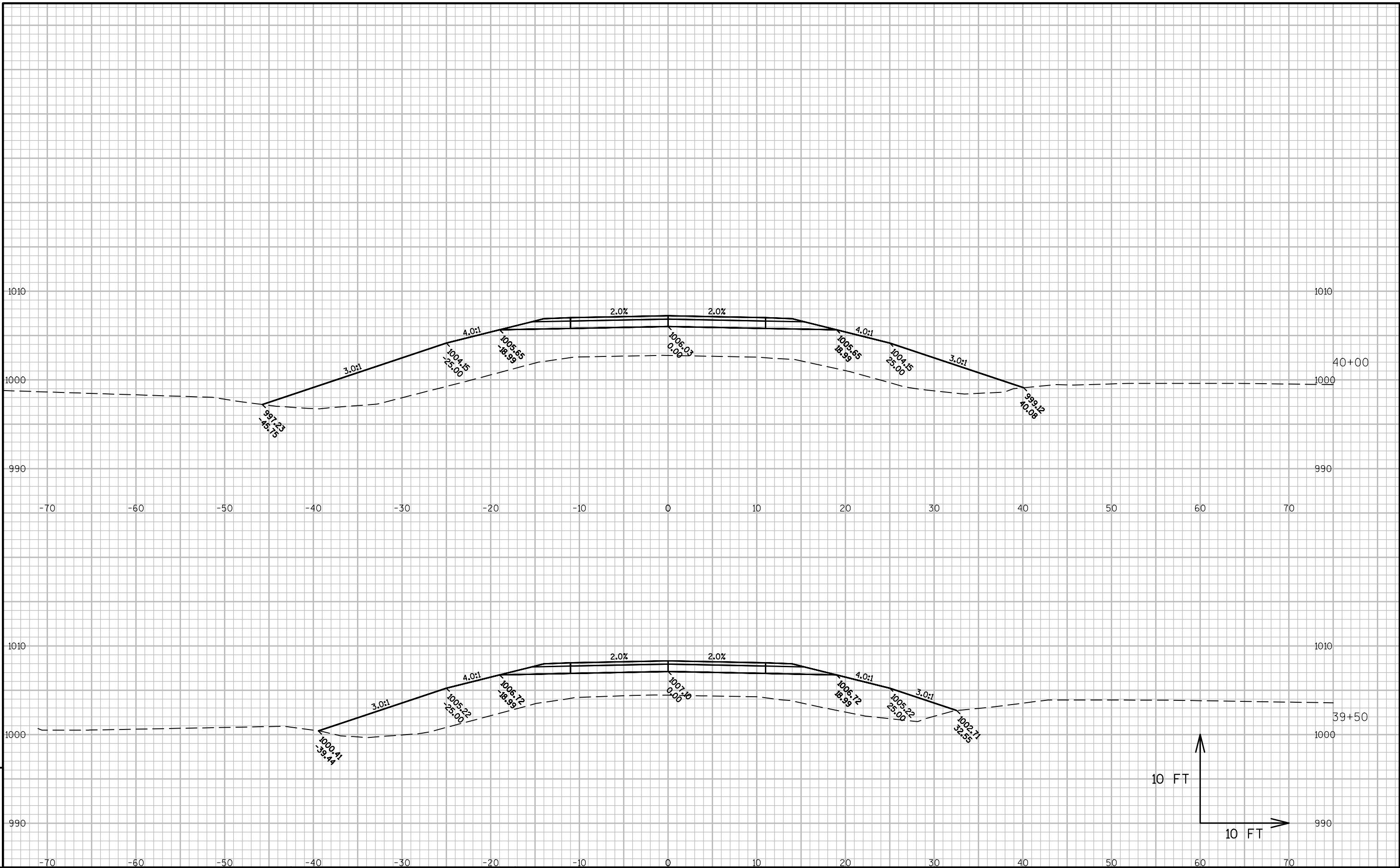
WOOD FORMS MAY BE LEFT IN PLACE WHEN OF A QUALITY ACCEPTABLE TO THE ENGINEER.

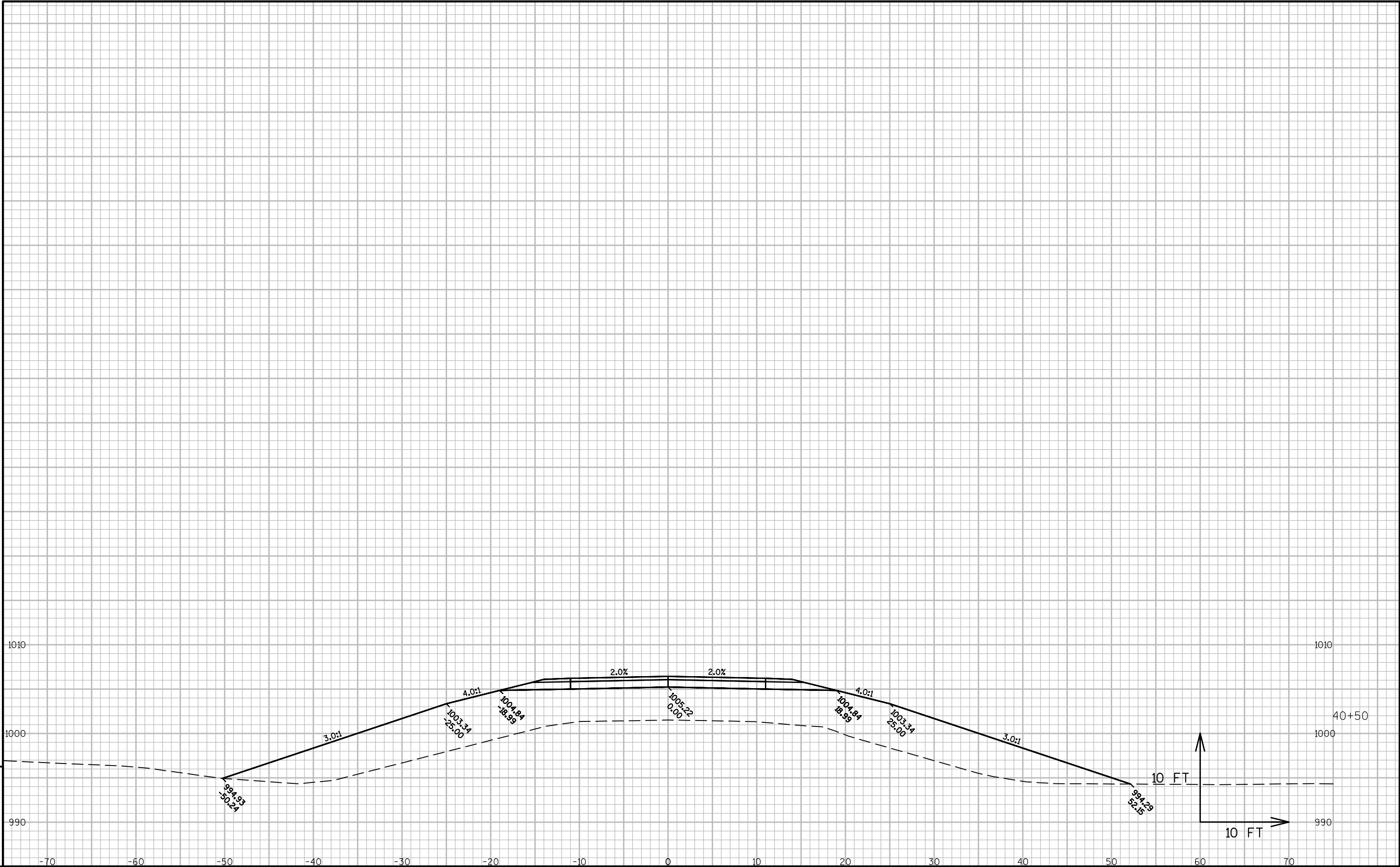
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE B-55-258			
DRAWN BY		WWR	PLANS CK'D. DFD
SLOPE PAVING (SELECT CRUSHED MATERIAL)		SHEET 17	
		133	

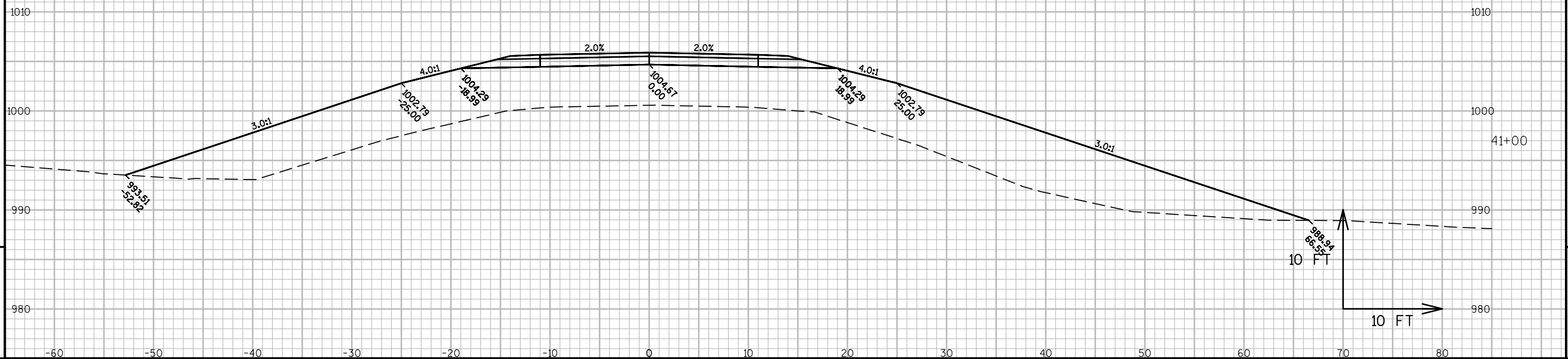
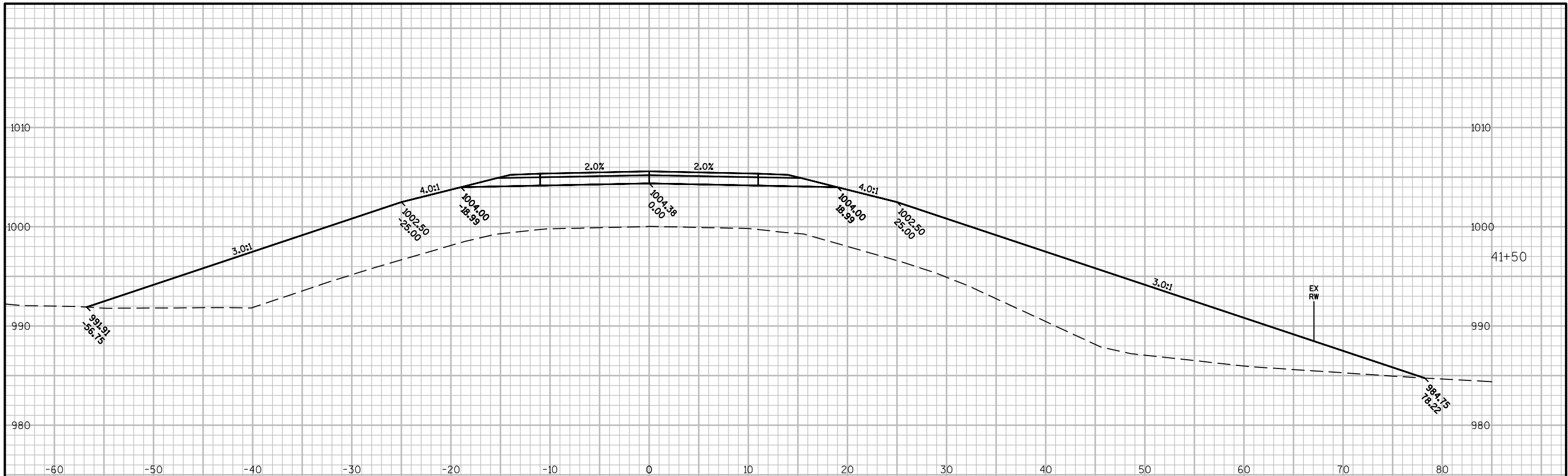
DIVISION 1 - HIGHLAND DRIVE											
STATION	REAL STATION	DISTANCE	AREA (SF)			Incremental Vol (CY) (Unadjusted)			Cumulative Vol (CY)		MASS ORD.
			CUT	SALVAGED/UNUSABLE PAVEMENT MATERIAL	FILL	CUT	SALVAGED/UNUSABLE PAVEMENT MATERIAL	FILL	CUT	EXP. FILL	
									1.00	1.25	
						NOTE 1	NOTE 2	NOTE 3	NOTE 1		NOTE 8
37+50	3750		27	3	0	0	0	0	0	0	0
38+00	3800	50	12	3	18	36	0	16	36	20	16
38+50	3850	50	0	3	55	11	6	68	47	105	-58
39+00	3900	50	0	3	132	0	6	174	47	323	-275
39+50	3950	50	0	3	221	0	6	327	47	731	-684
40+00	4000	50	0	3	301	0	6	483	47	1335	-1288
40+50	4050	50	0	3	399	0	6	649	47	2146	-2099
41+00	4100	50	0	3	520	0	6	851	47	3210	-3163
41+50	4150	50	0	3	651	0	6	1084	47	4565	-4518
42+00	4200	50	0	3	761	0	6	1308	47	6200	-6153
42+50	4250	50	0	3	858	0	6	1499	47	8074	-8026
42+67	4267	17	0	3	891	0	2	540	47	8749	-8701
43+00	4300	33	0	3	835	0	4	1066	47	10081	-10034
43+50	4350	50	0	3	750	0	6	1468	47	11916	-11869
44+00	4400	50	0	3	702	0	6	1345	47	13598	-13550
44+50	4450	50	0	3	623	0	6	1227	47	15131	-15084
45+00	4500	50	0	3	575	0	6	1109	47	16518	-16470
45+50	4550	50	0	3	531	0	6	1024	47	17798	-17750
46+00	4600	50	0	3	518	0	6	972	47	19013	-18965
46+50	4650	50	0	3	587	0	6	1023	47	20291	-20244
46+99	4699	49	0	3	661	0	6	1143	47	21720	-21673
47+00	4700	1	0	3	661	0	0	13	47	21736	-21689
47+24	4724	24	0	4	635	0	3	587	47	22470	-22423
47+49	4749	25	0	4	499	0	3	525	47	23126	-23079
47+50	4750	1	0	4	499	0	0	10	47	23139	-23091
48+00	4800	50	0	4	468	0	7	895	47	24258	-24210
48+42	4842	42	0	4	371	0	6	652	47	25073	-25025
COLUMN TOTALS						47	133	20058			

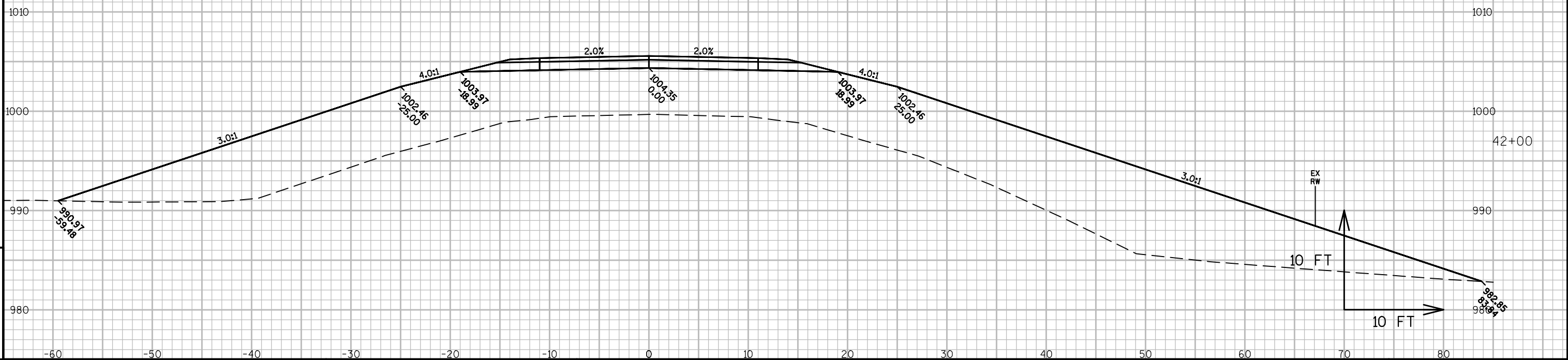
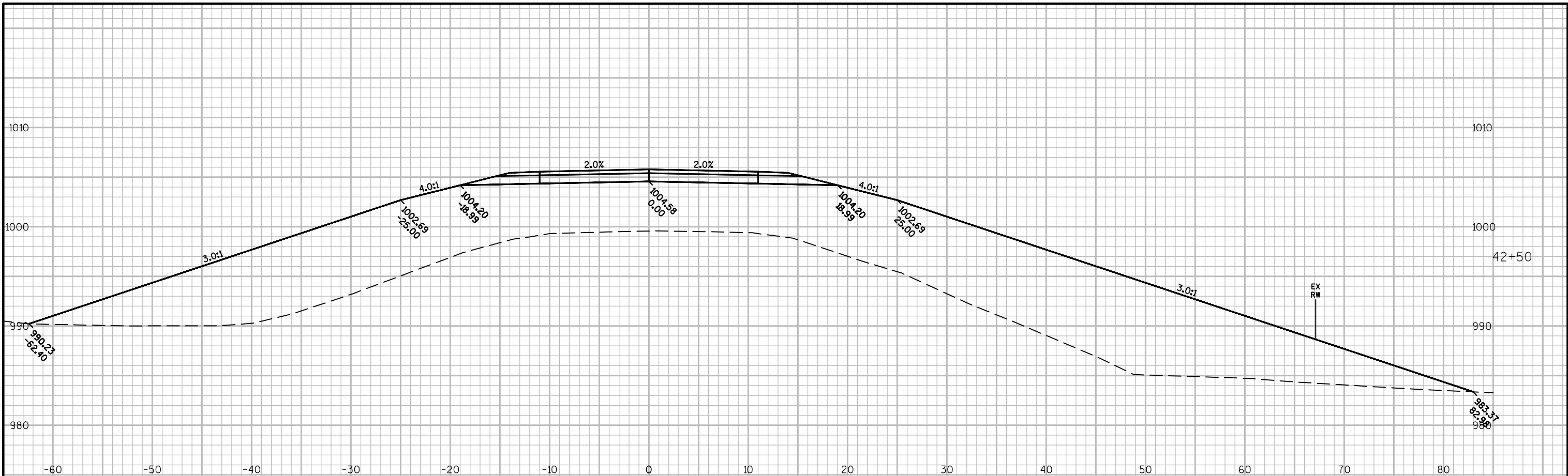


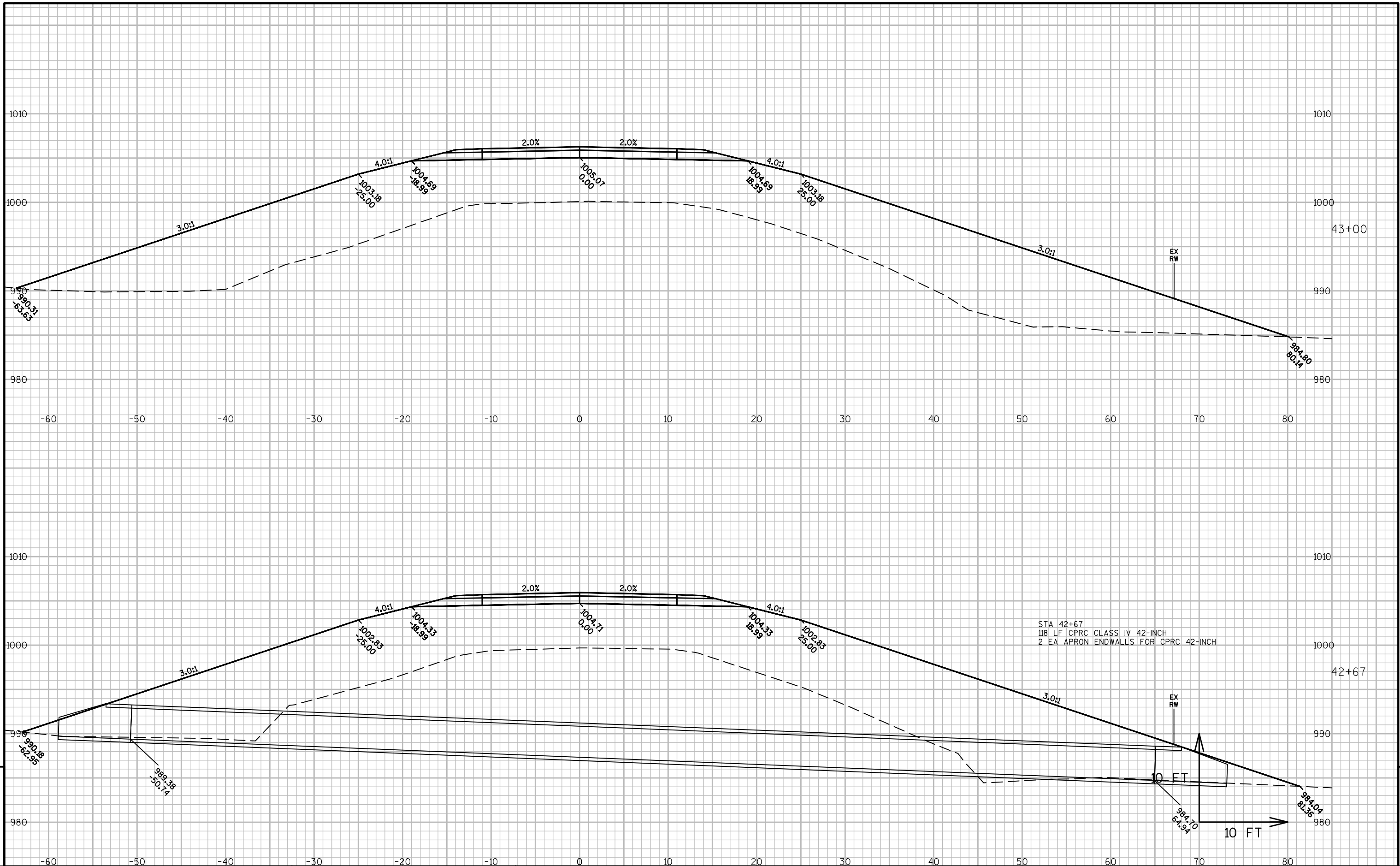


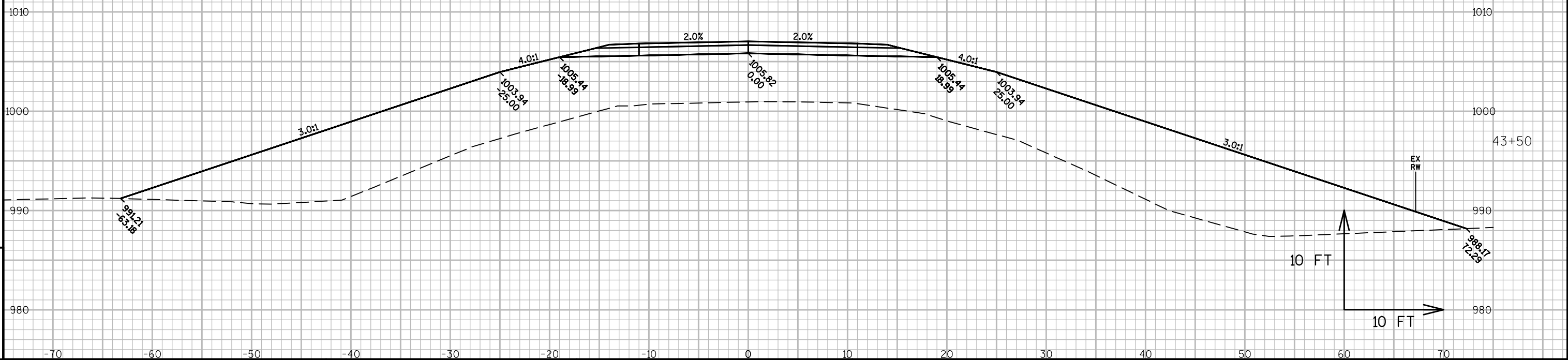
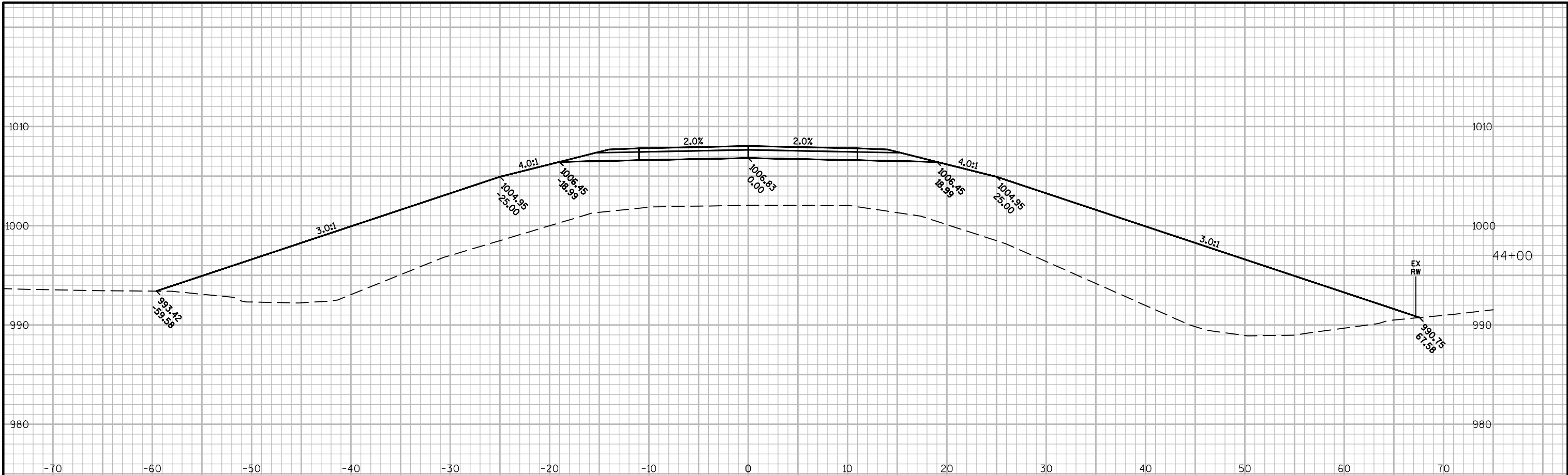


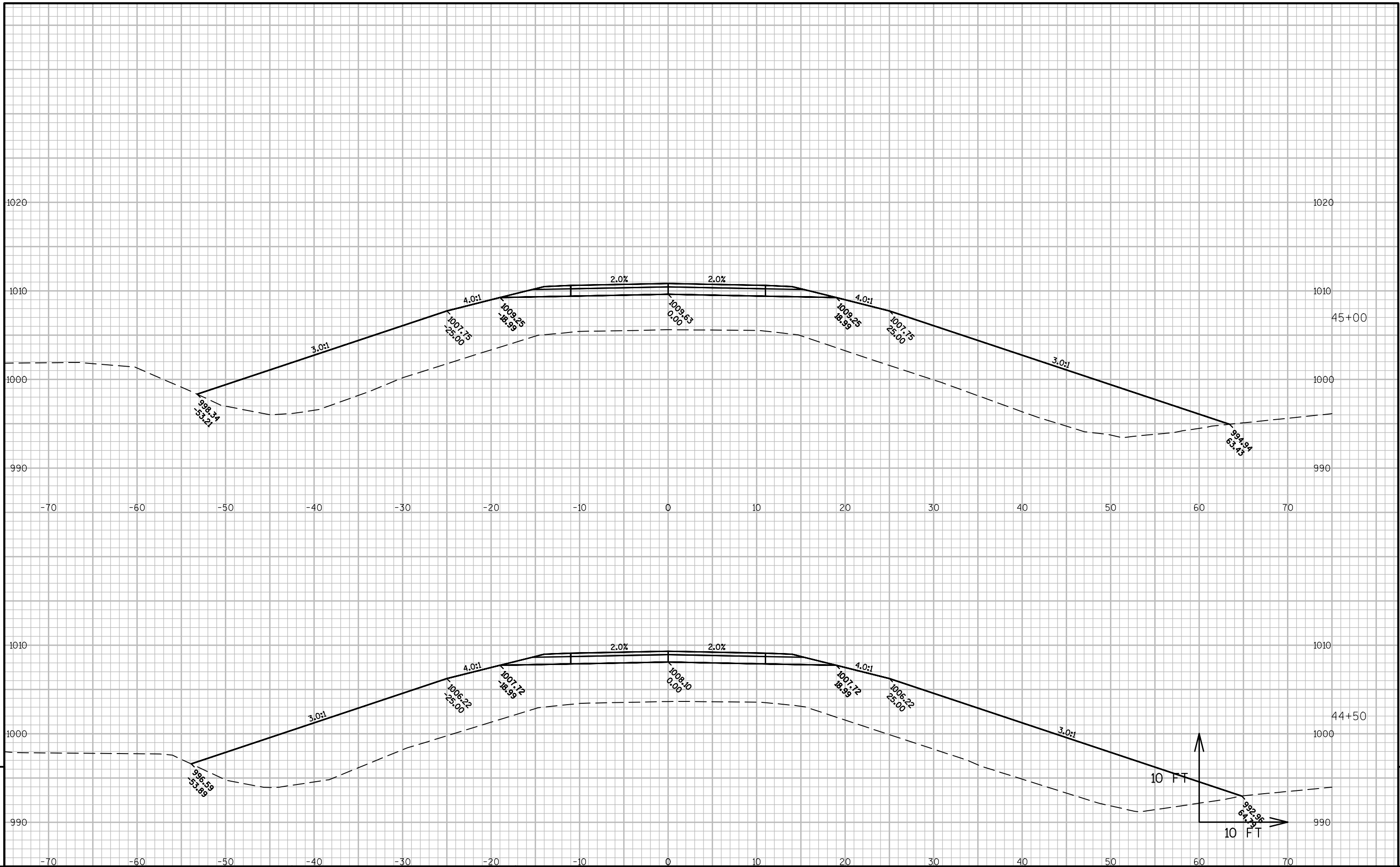


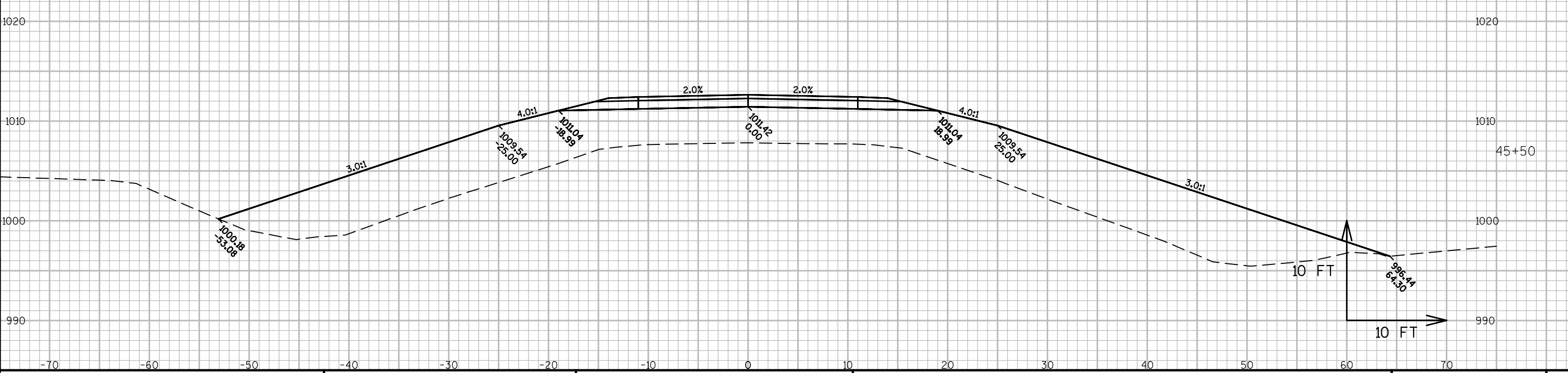
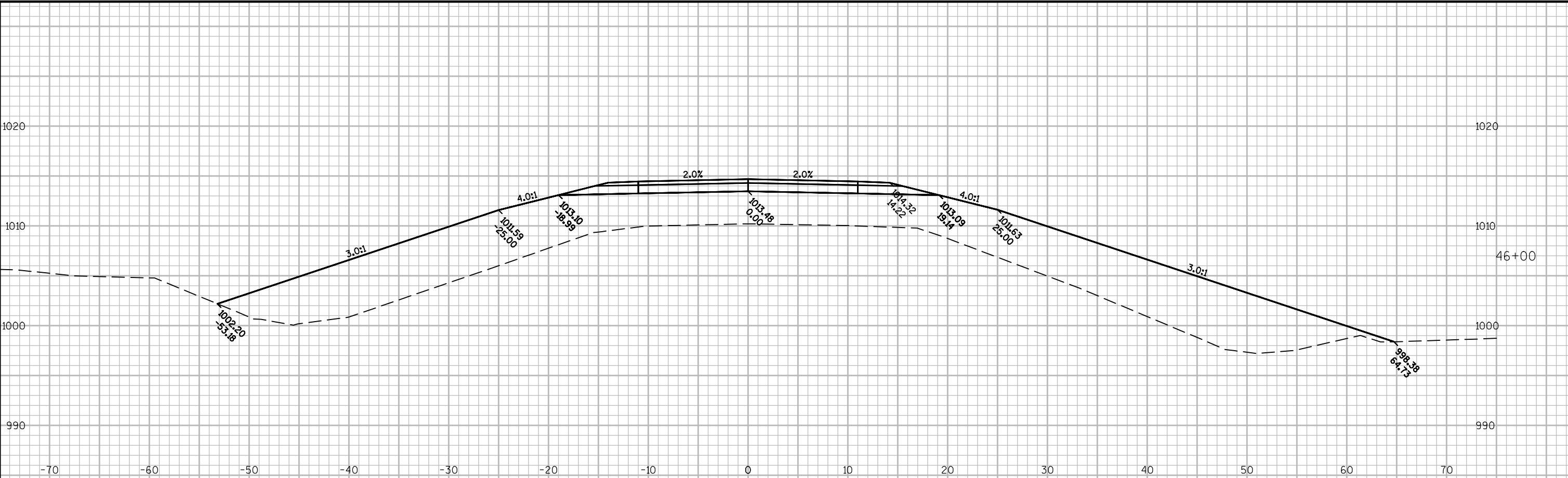


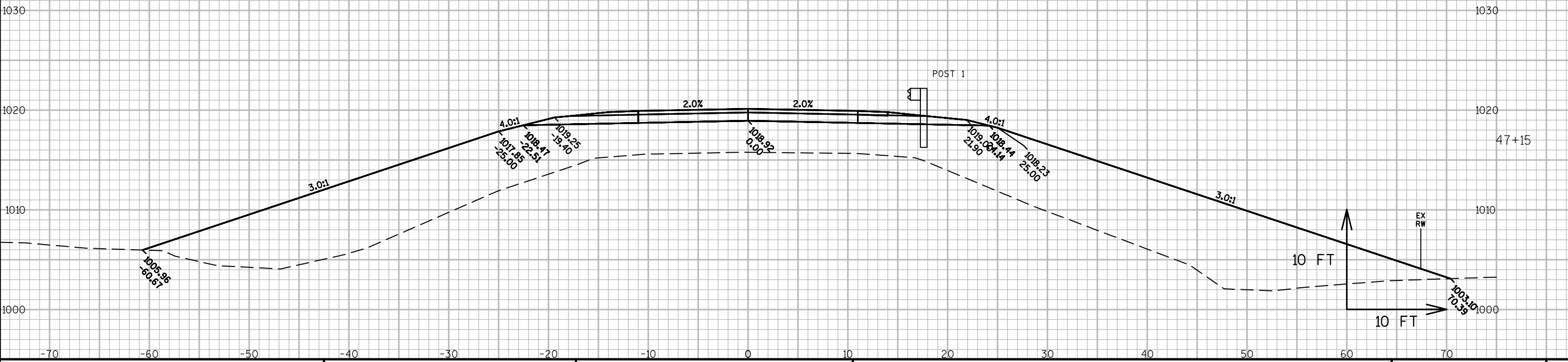
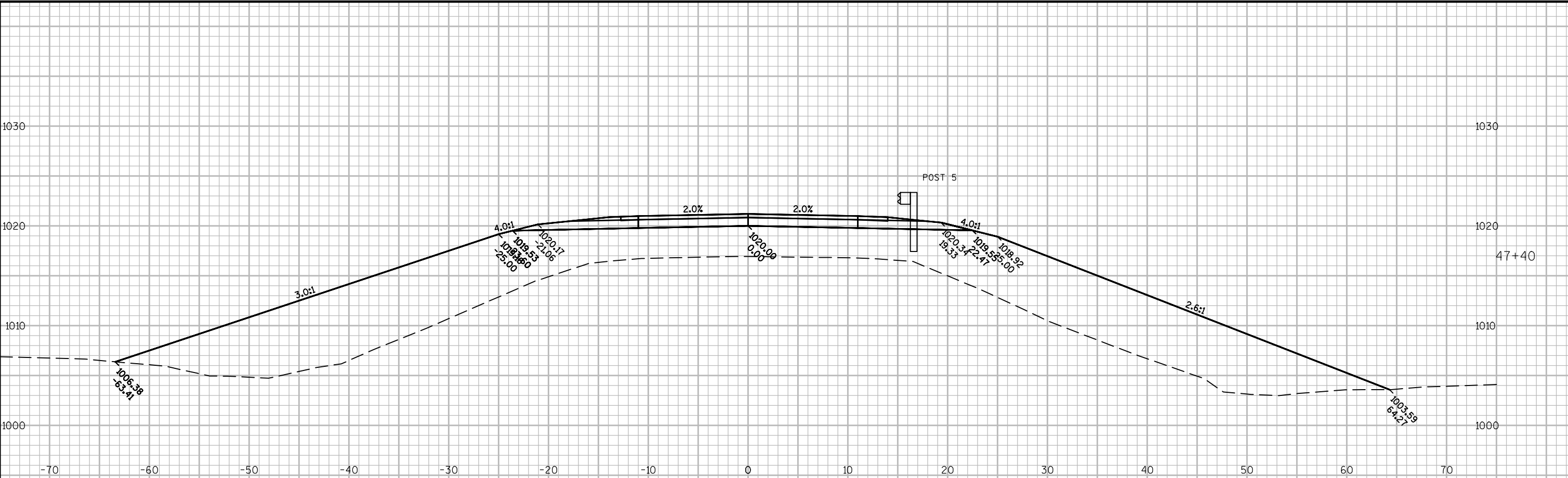


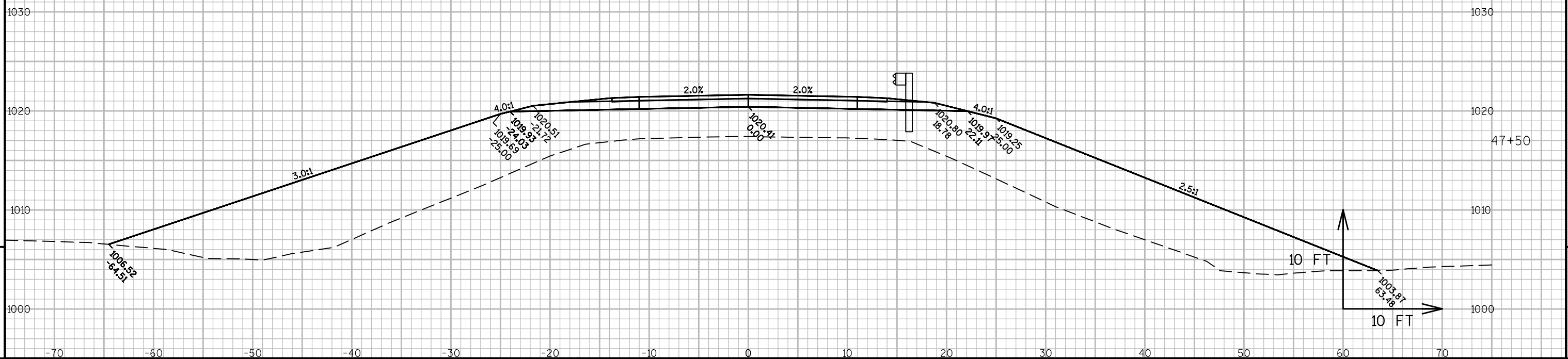
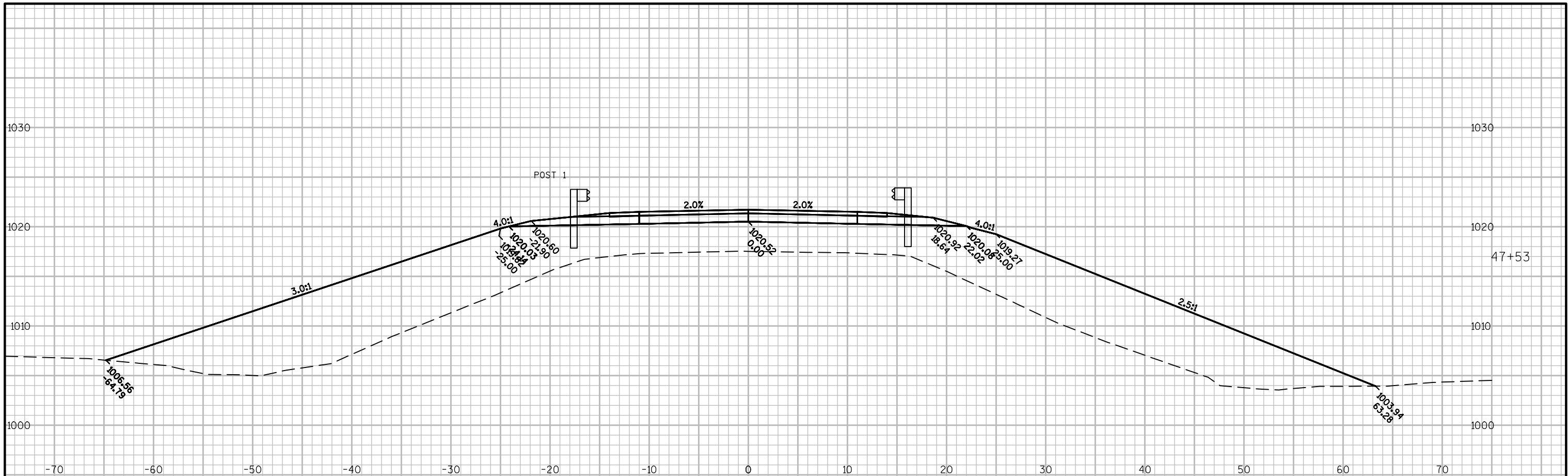


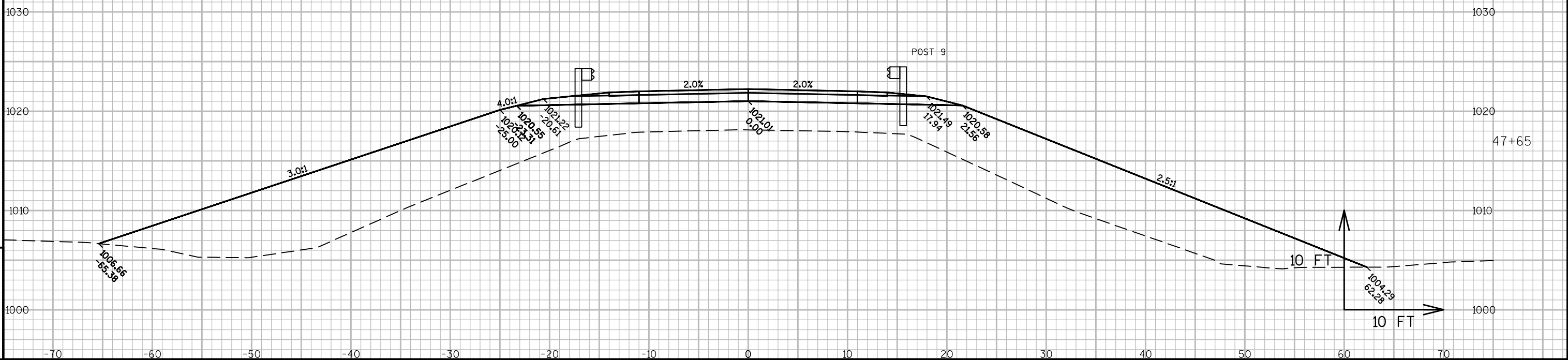
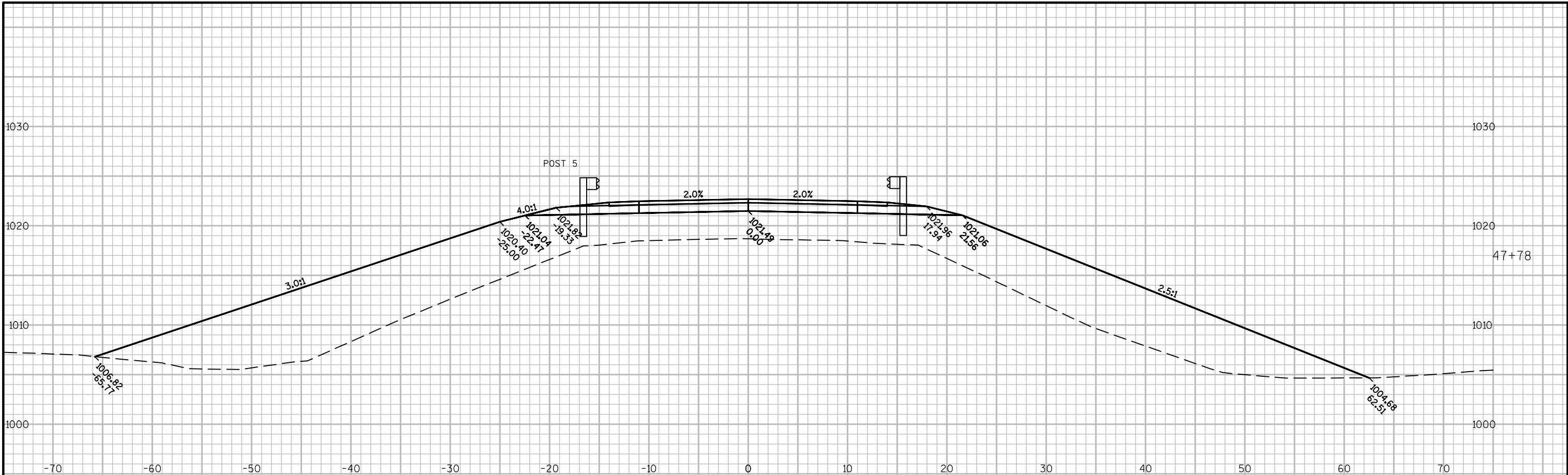












NOTE: SECTIONS SHOWN ON THIS PAGE ARE NOT USED FOR EARTHWORK CALCULATIONS

STA 328+15 IH 94
(SEE X-SECTION STA 50+61)
114 LF CPRC CLASS III 36-INCH
2 EA APRON ENDWALLS FOR CPRC 36-INCH

STA 328+15 IH 94
(SEE X-SECTION STA 48+66)
112 LF CPRC CLASS III 36-INCH
2 EA APRON ENDWALLS FOR CPRC 36-INCH

1010
1000
995
-70 -60 -50 -40 -30 -20 -10 0 10 20 30 40 50 60 70

50+61
1002.64
-16.01
999.19
65.98
1000

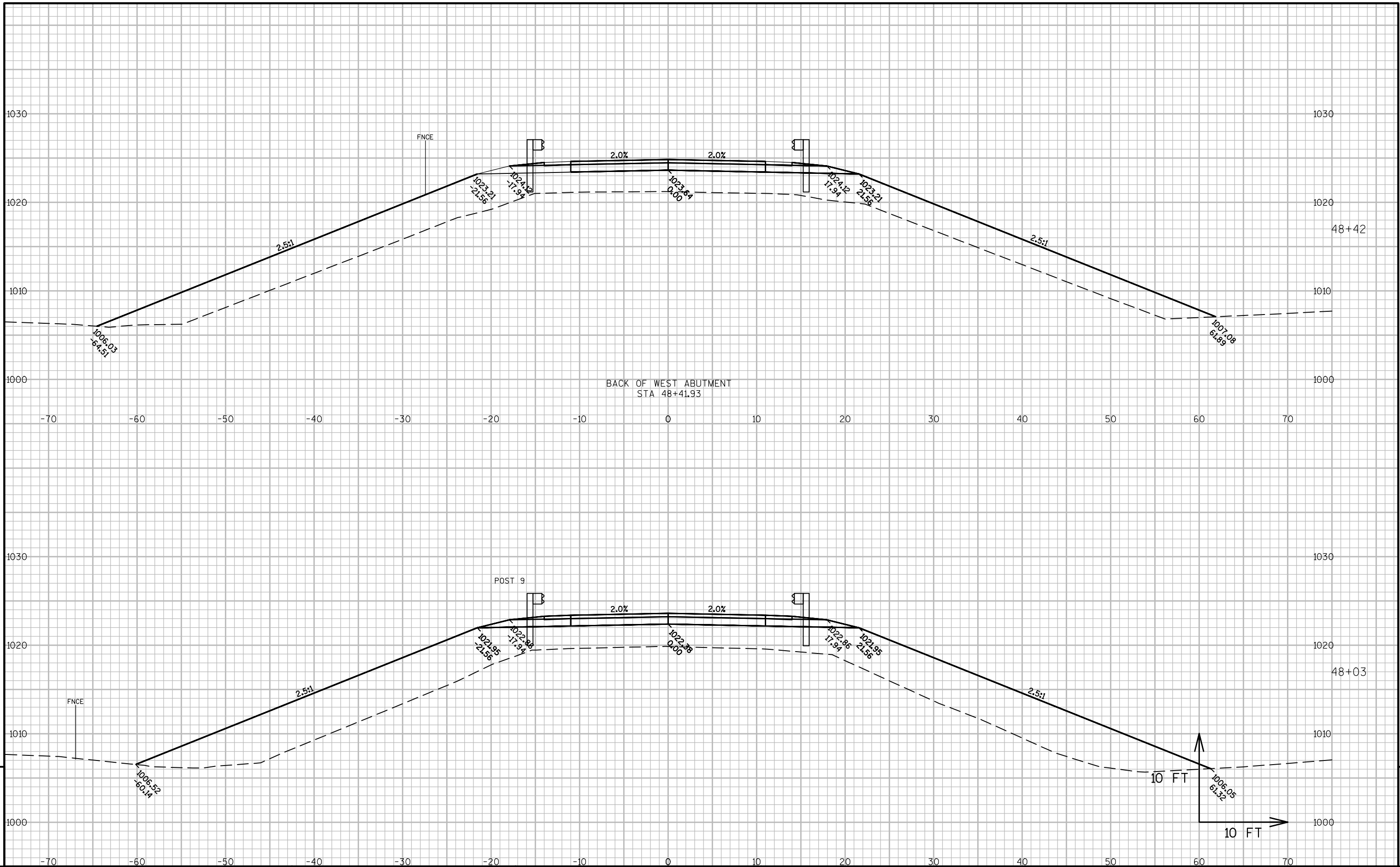
1010
1000
990
-70 -60 -50 -40 -30 -20 -10 0 10 20 30 40 50 60 70

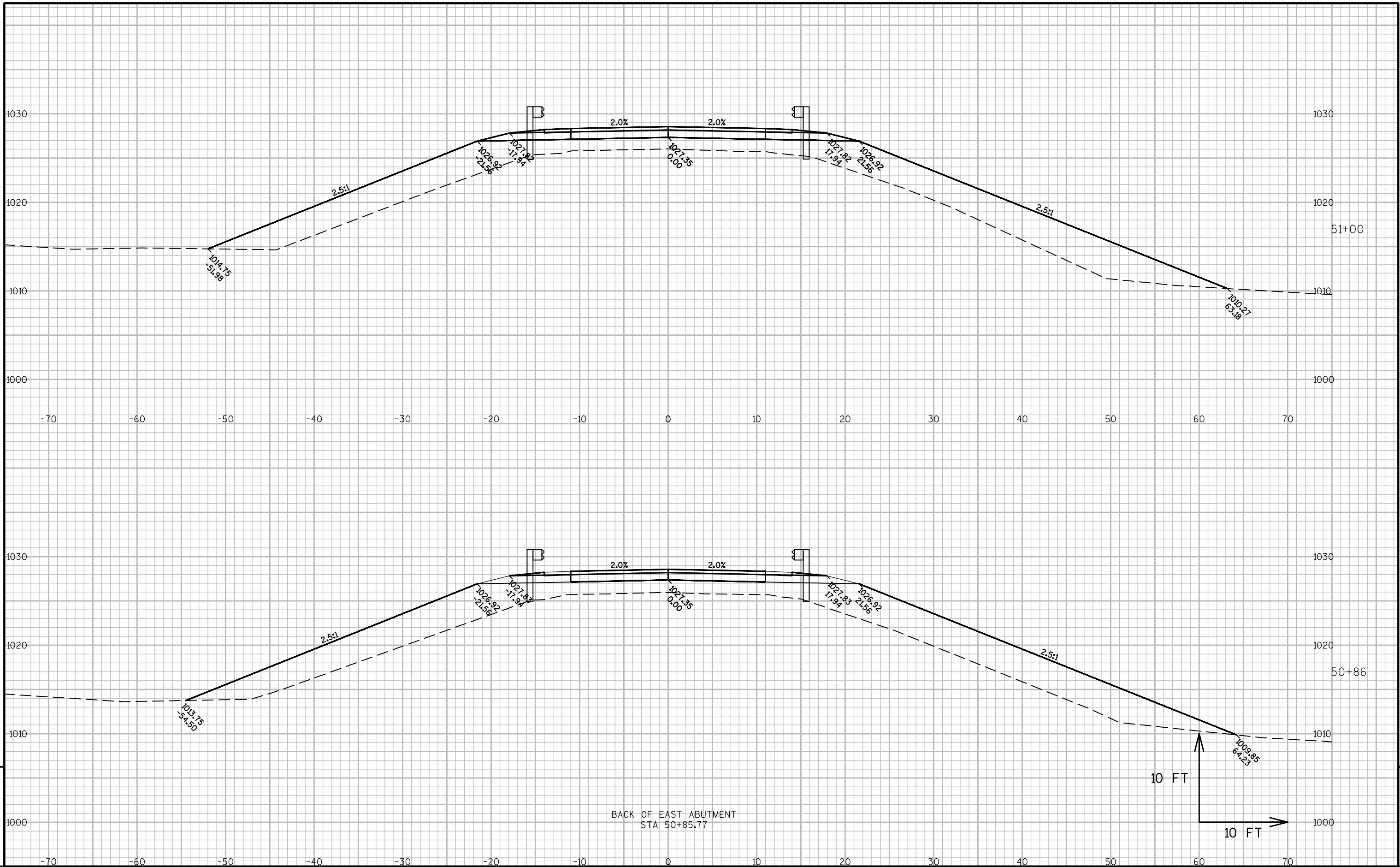
48+66
1000.46
-48.96
997.17
63.05
1000
10 FT
10 FT

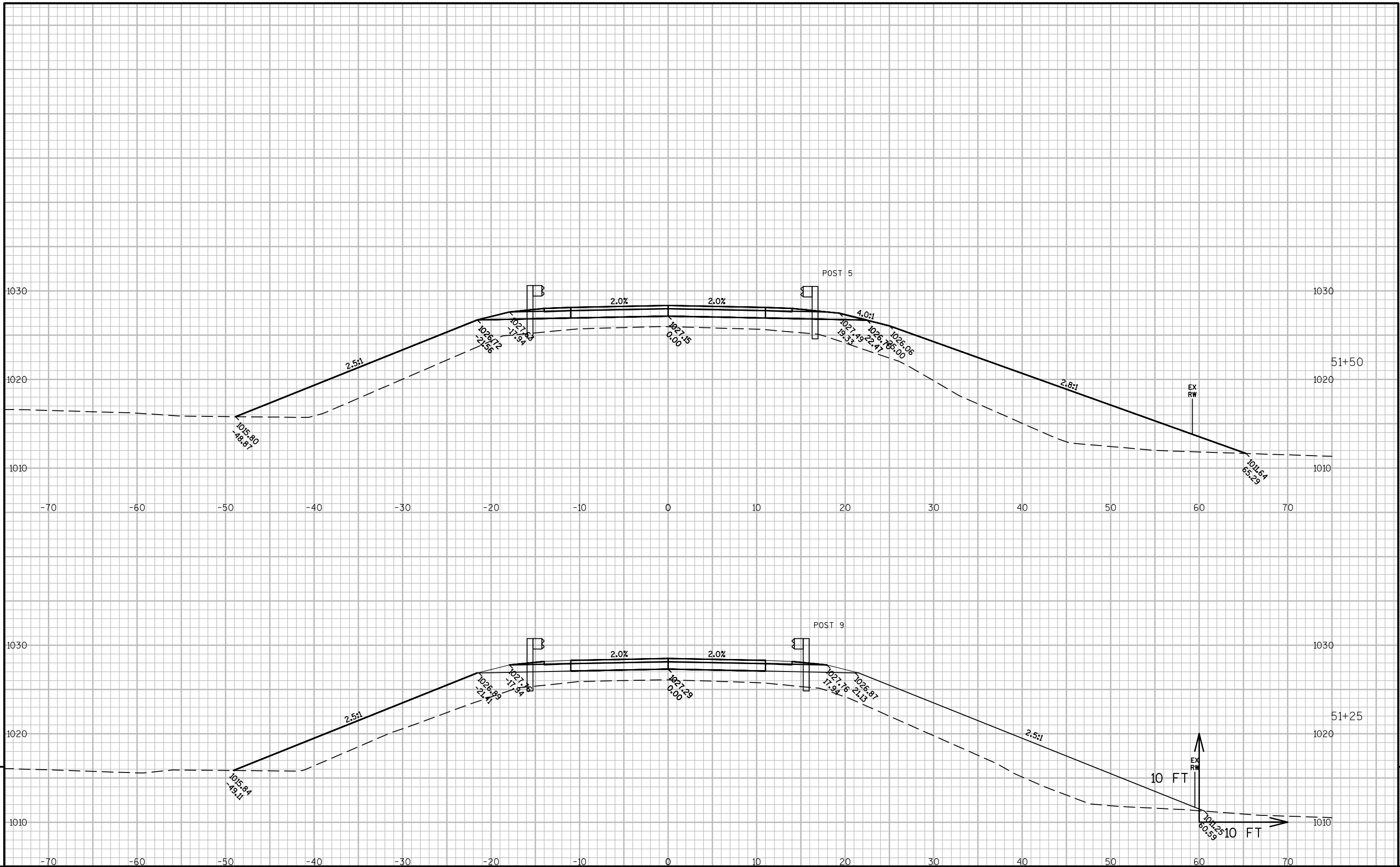
STA 328+15 IH 94
(SEE X-SECTION STA 48+66)
112 LF CPRC CLASS III 36-INCH
2 EA APRON ENDWALLS FOR CPRC 36-INCH

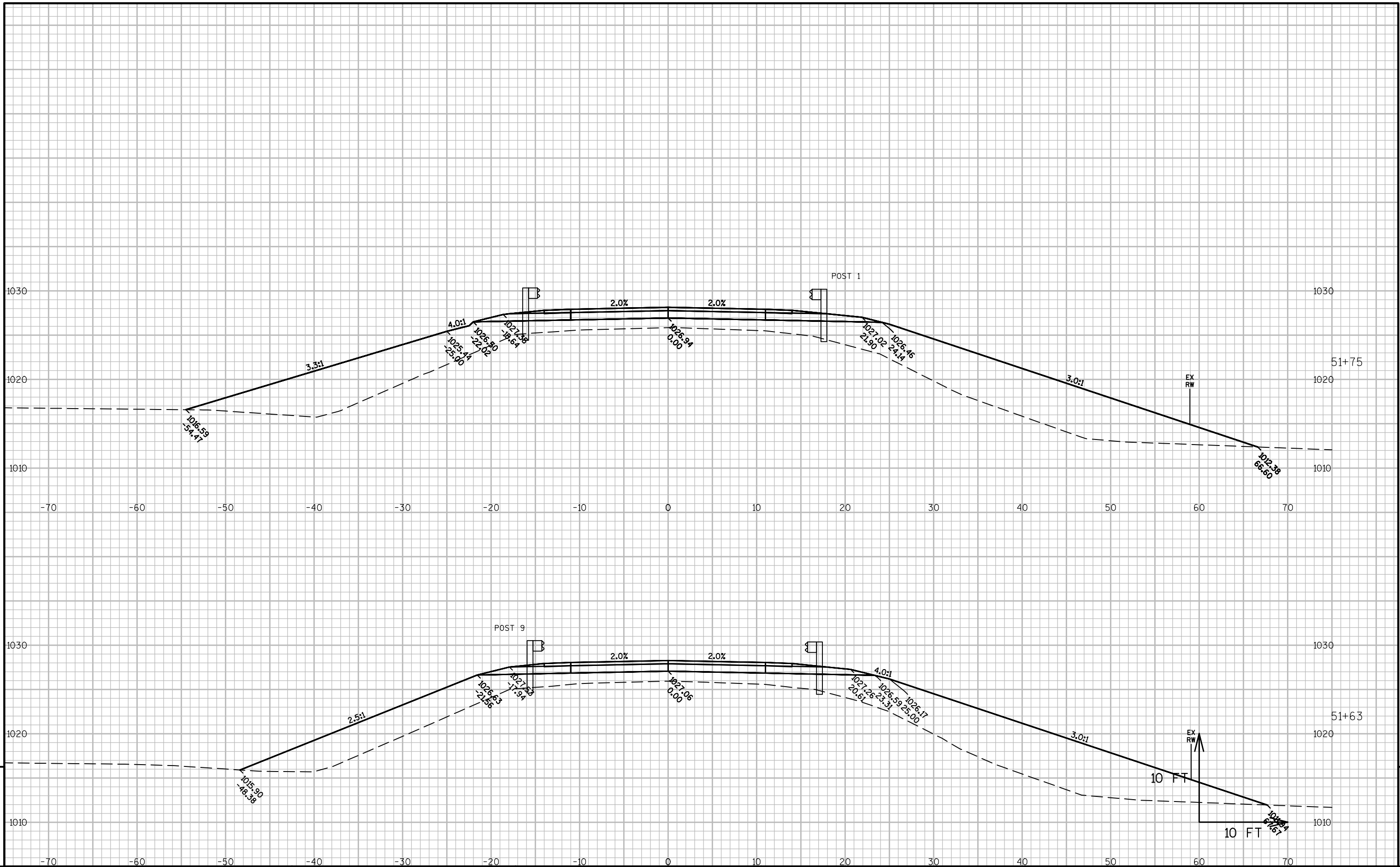
 $48 + 66$

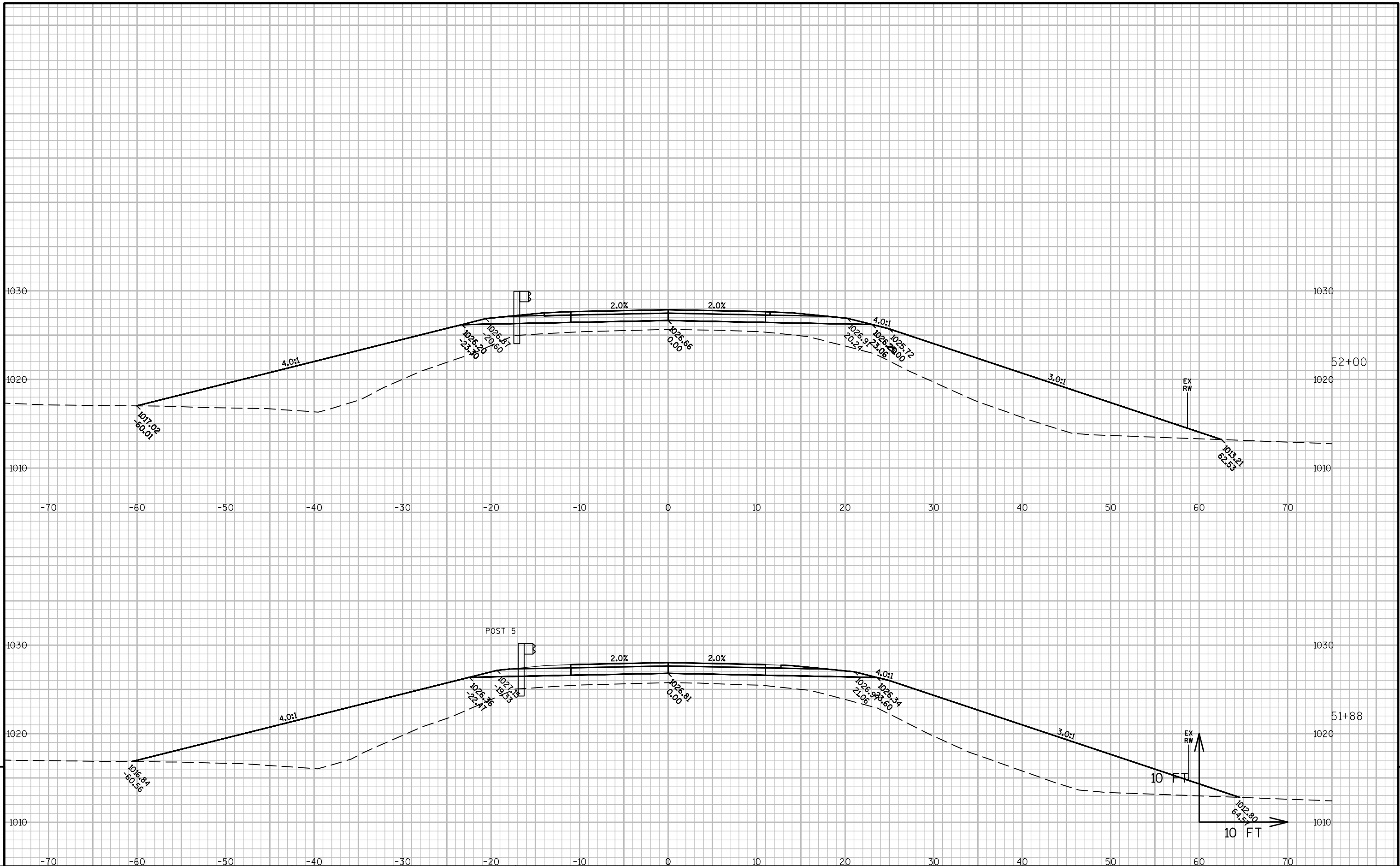
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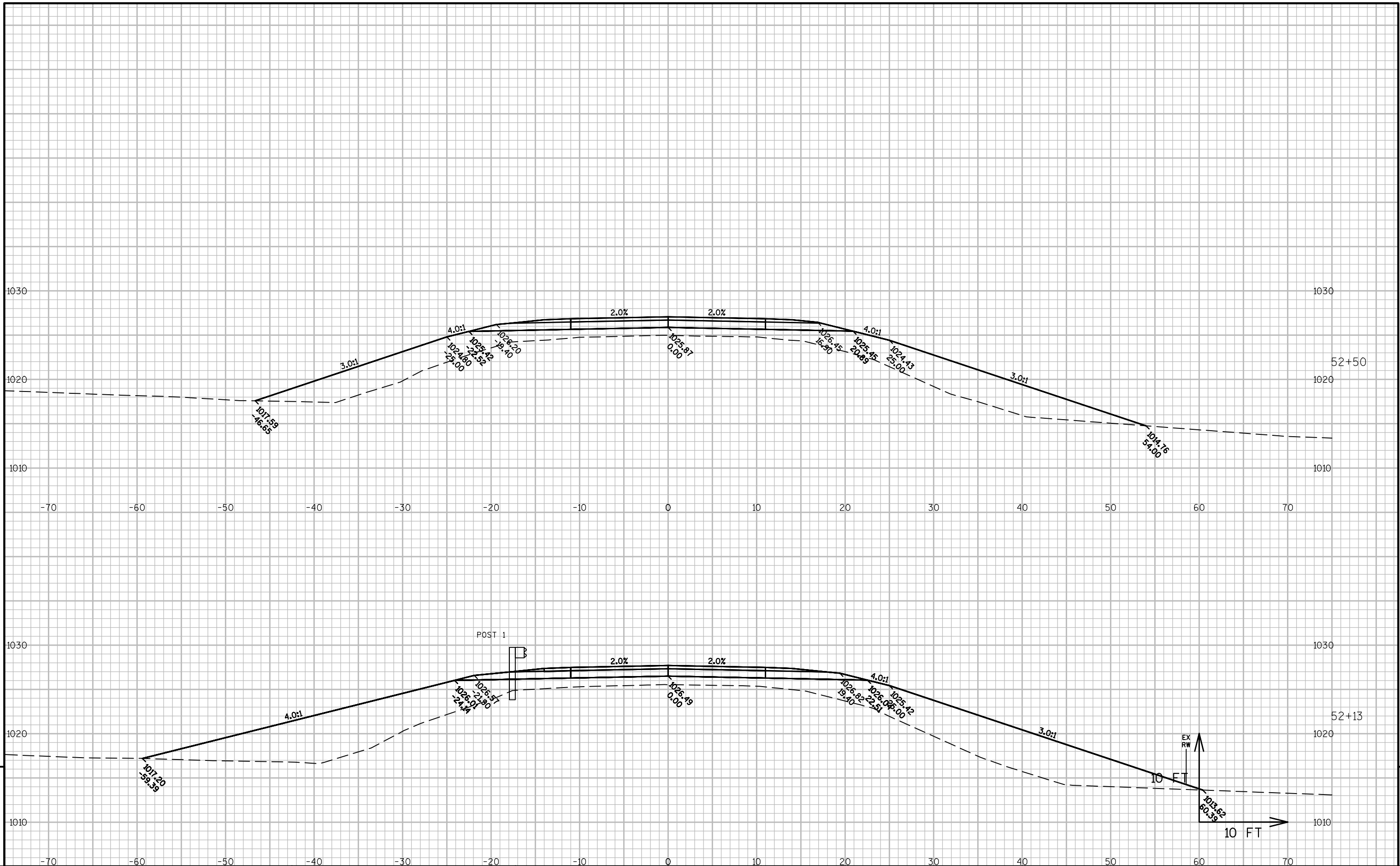


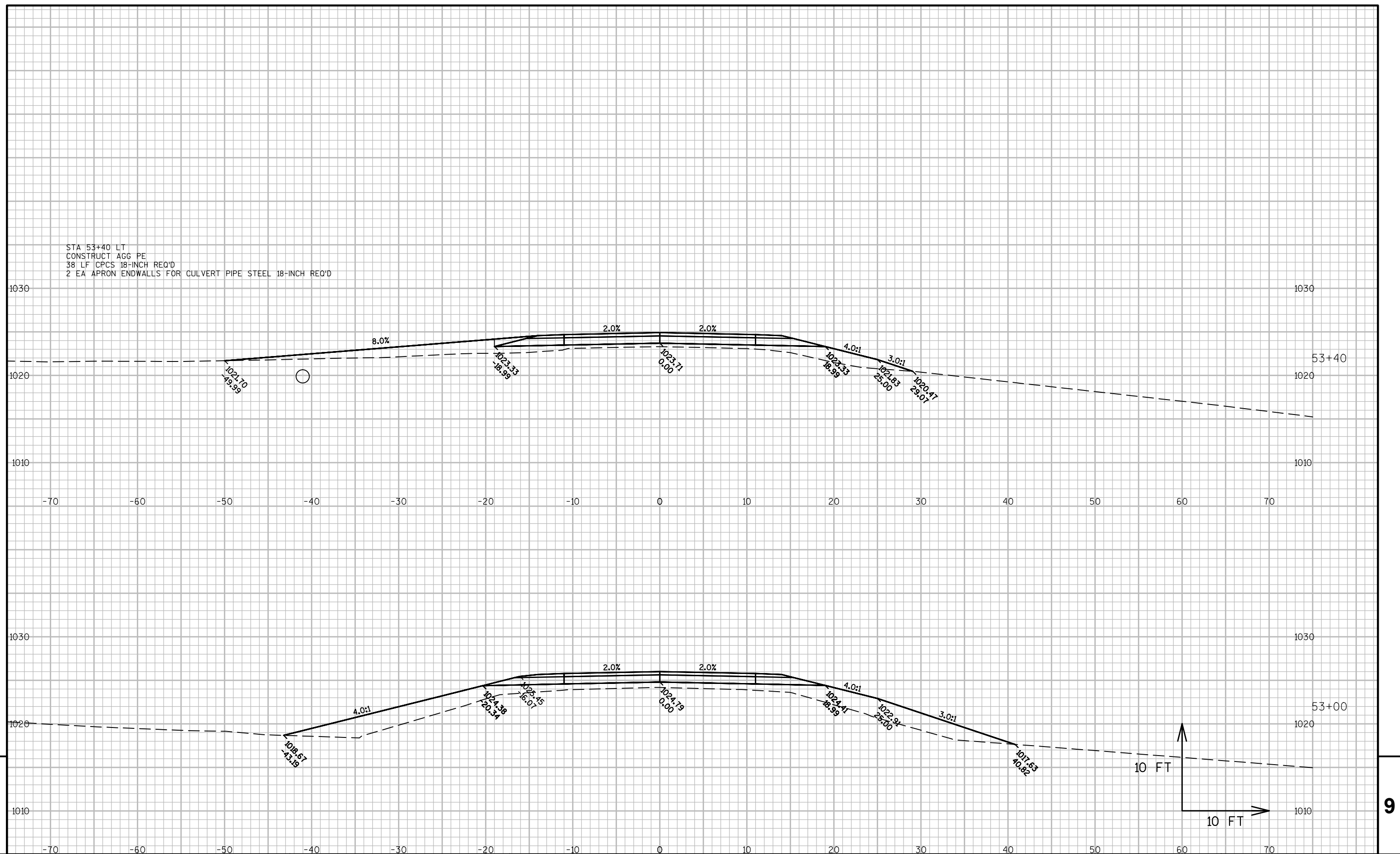


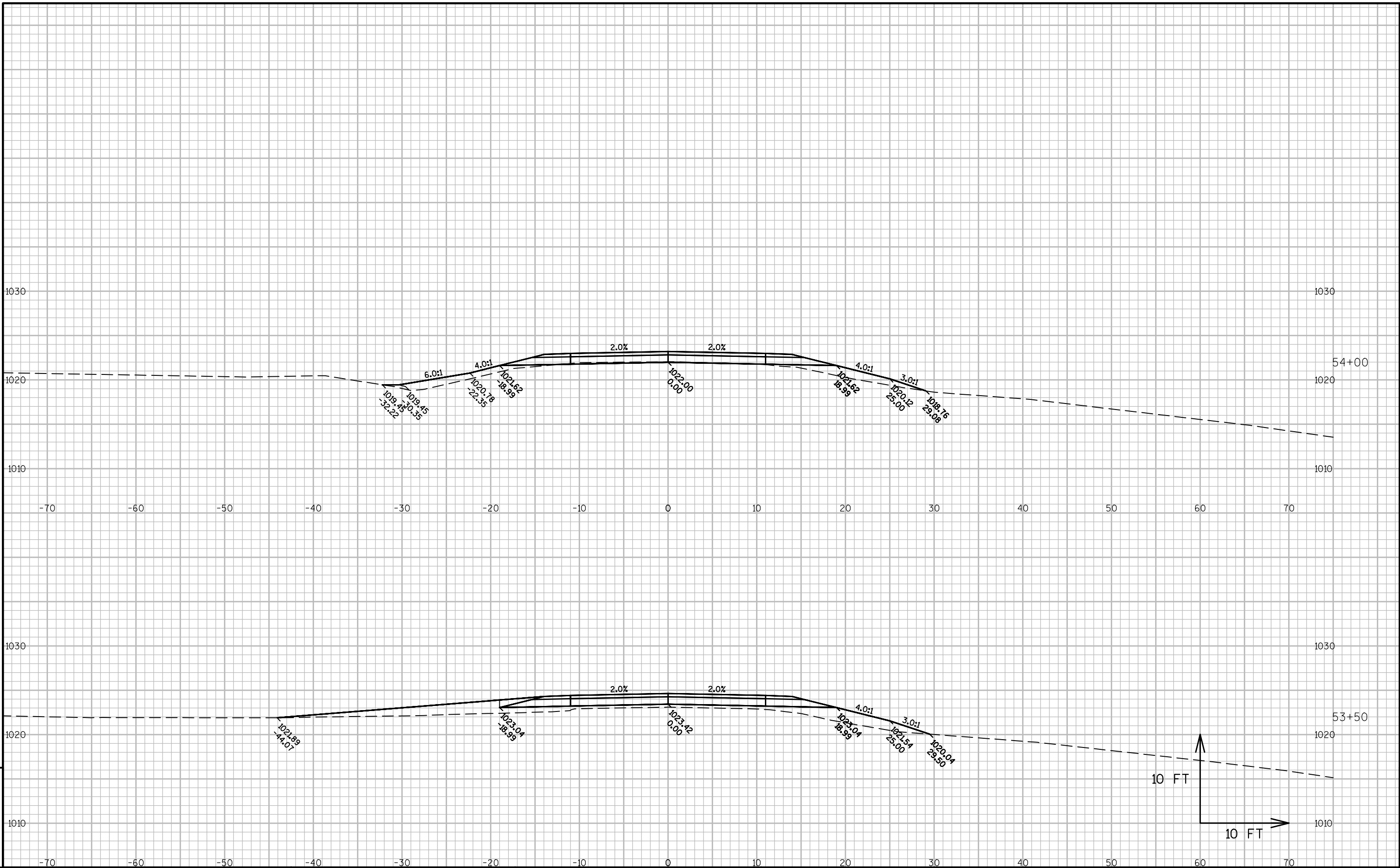


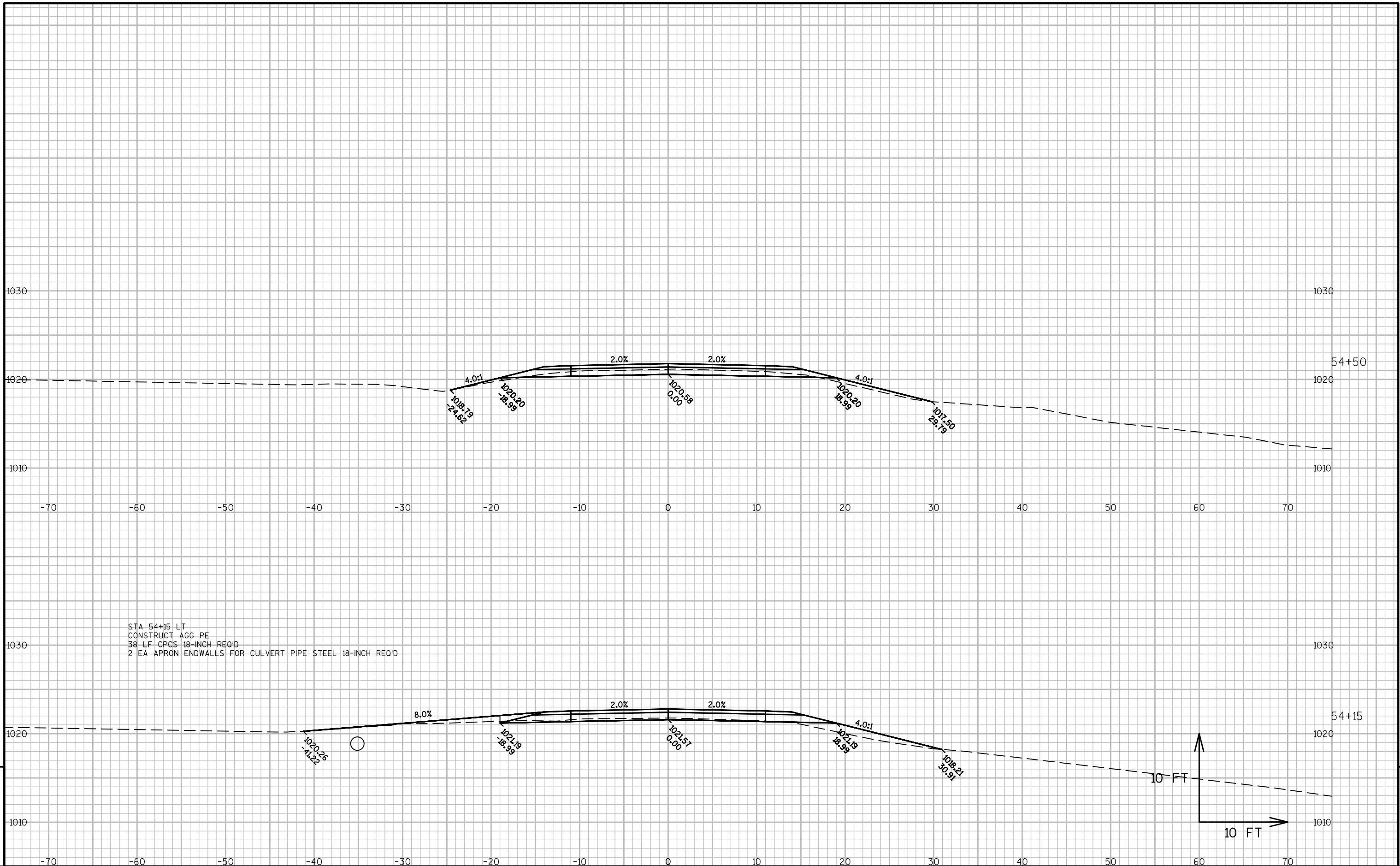












STA 54+15 LT
CONSTRUCT AGG. PE
38 LF CPCS 18-INCH REQ'D
2 EA APRON ENDWALLS FOR CULVERT PIPE STEEL 18-INCH REQ'D

PROJECT NO: 1021-01-71

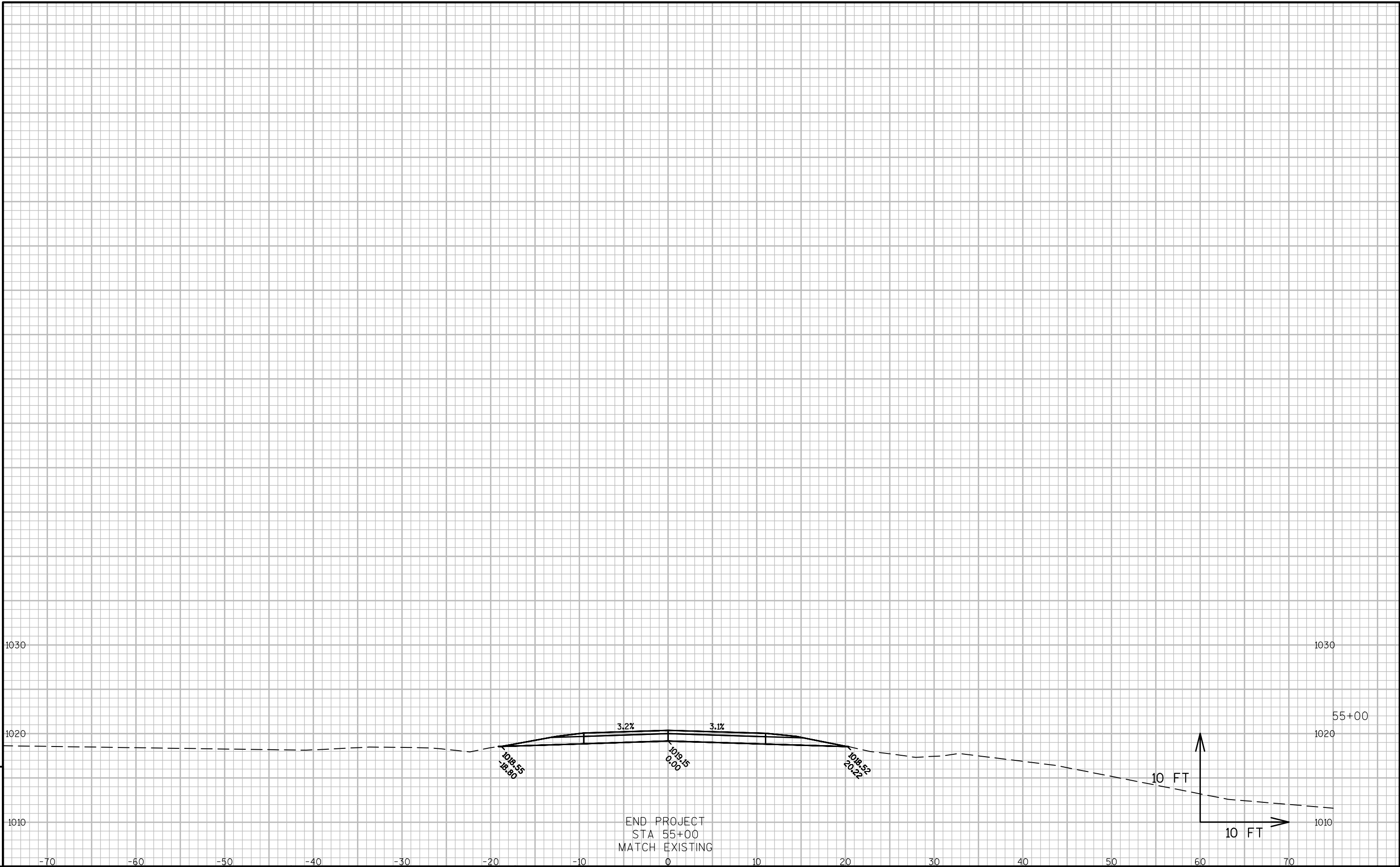
HWY: IH 94

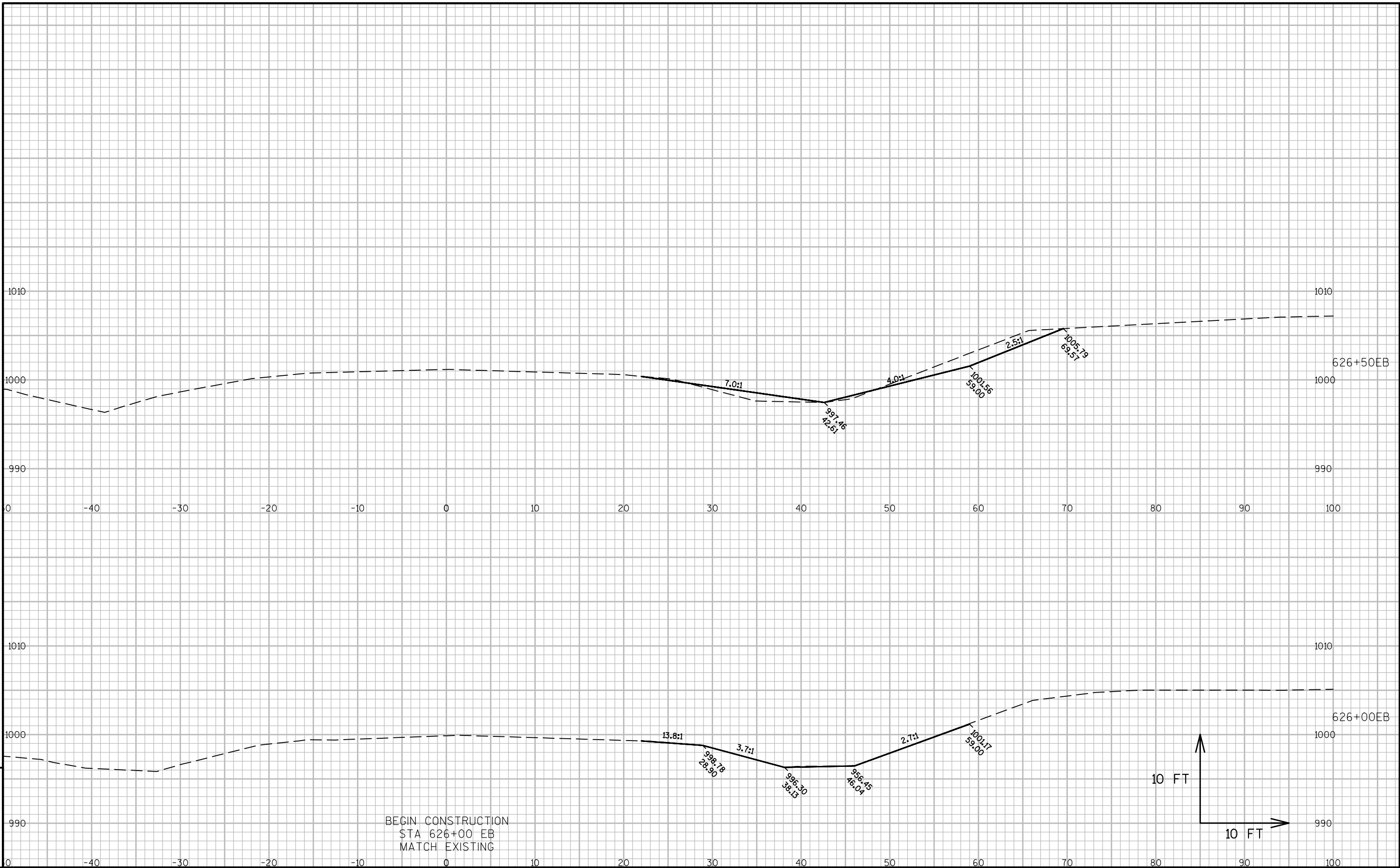
COUNTY: ST. CROIX

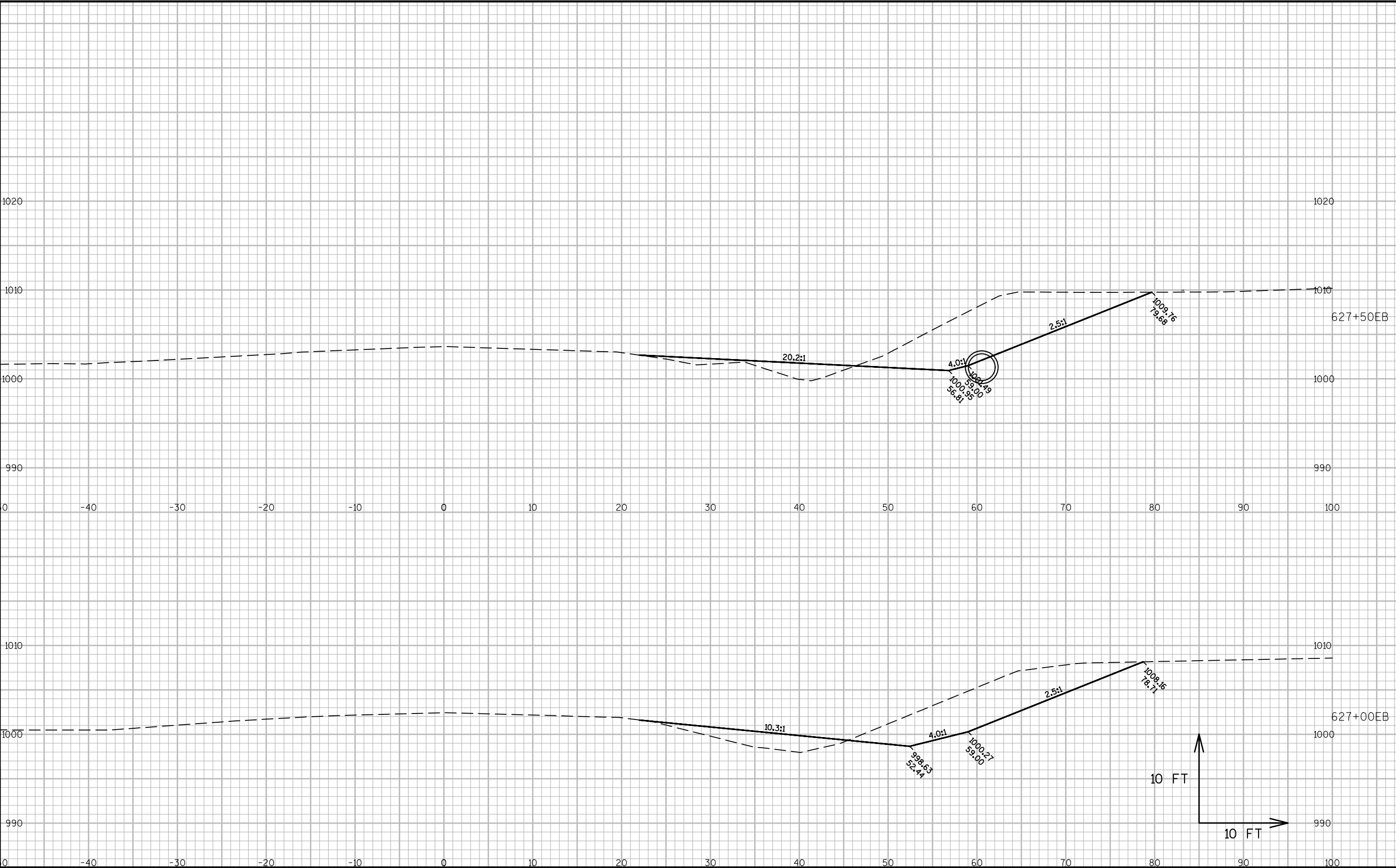
CROSS SECTIONS: HIGHLAND DRIVE

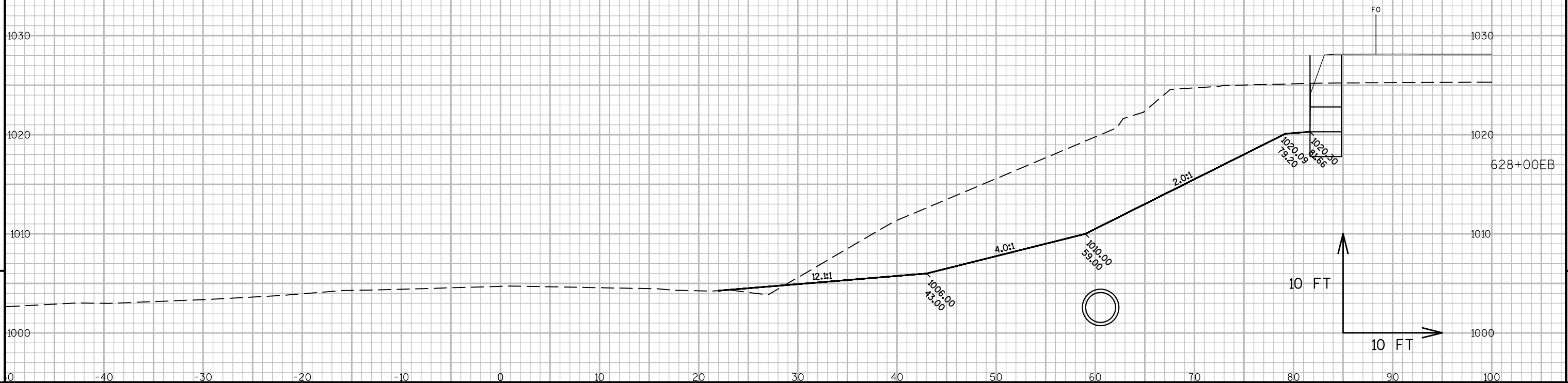
SHEET 159

E









PROJECT NO:1021-01-71

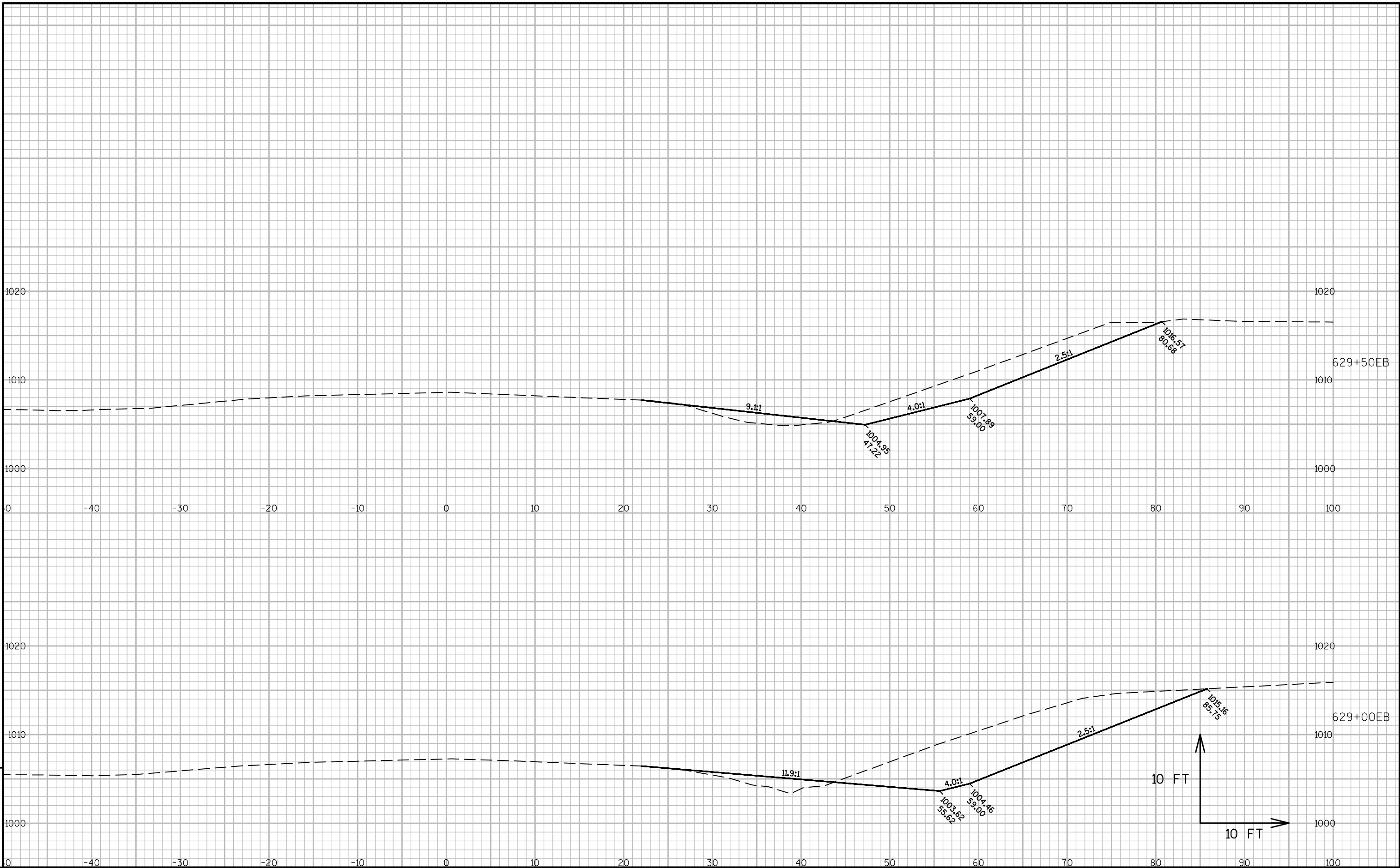
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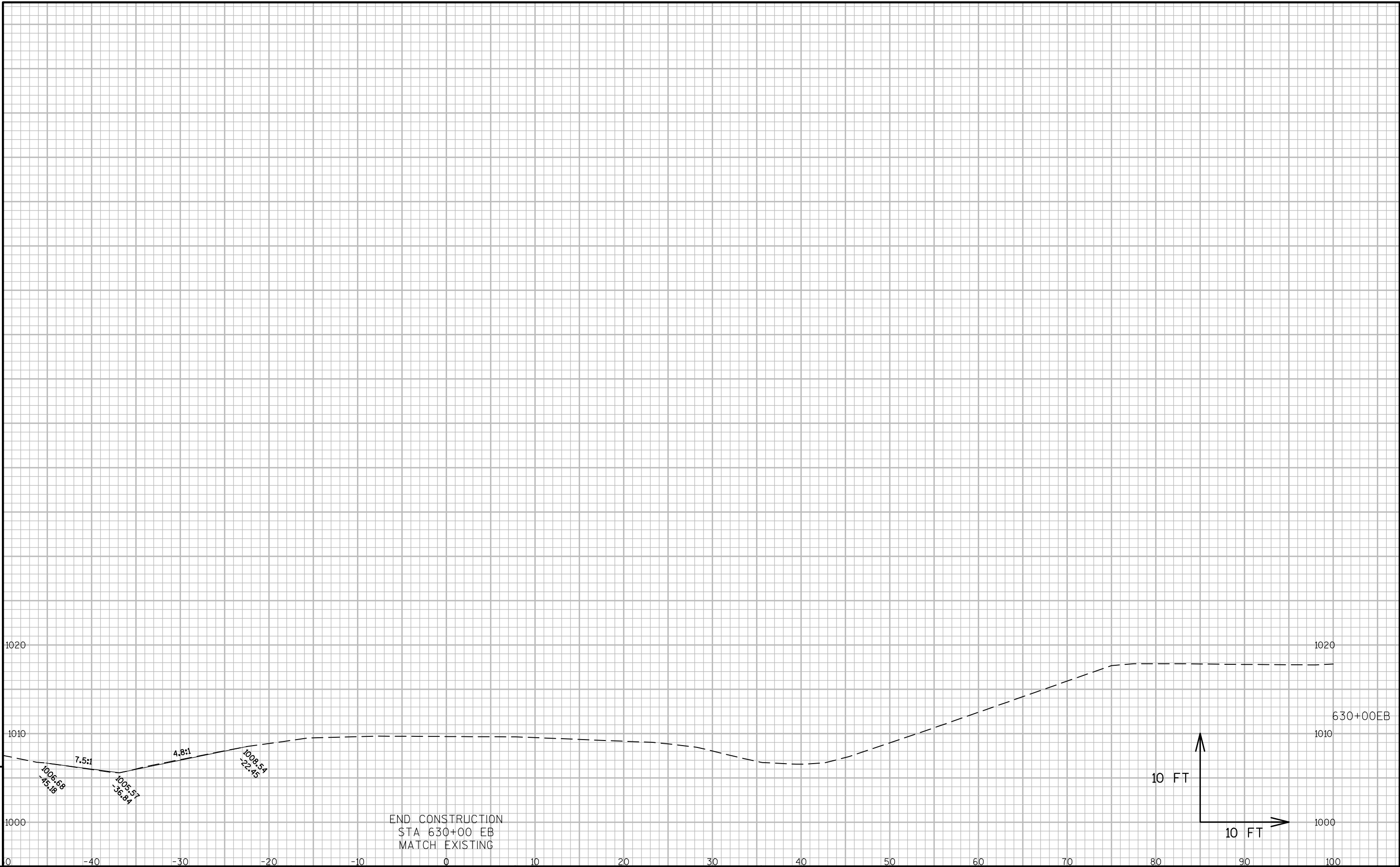
COUNTY:ST. CROIX

CROSS SECTIONS: IH 94 EB

SHEET 163

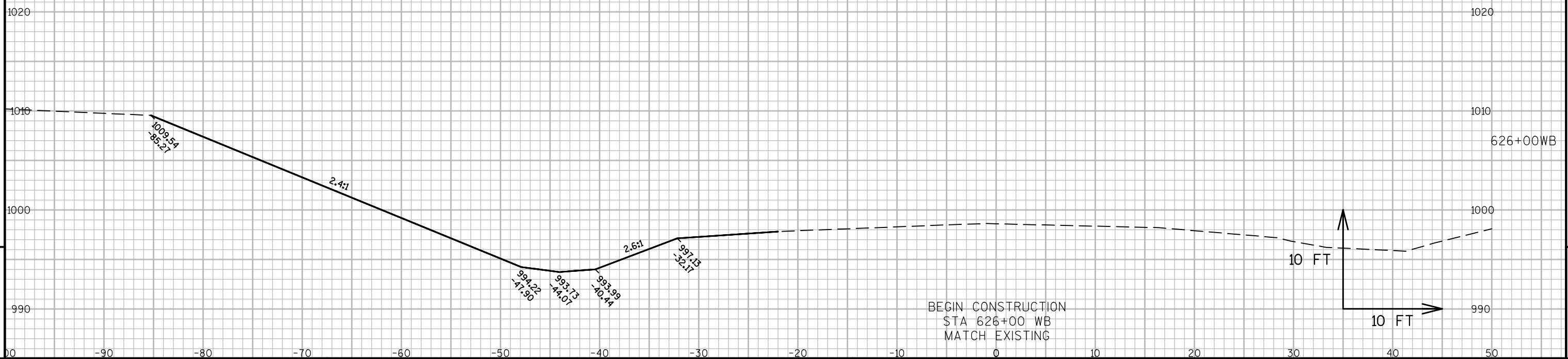
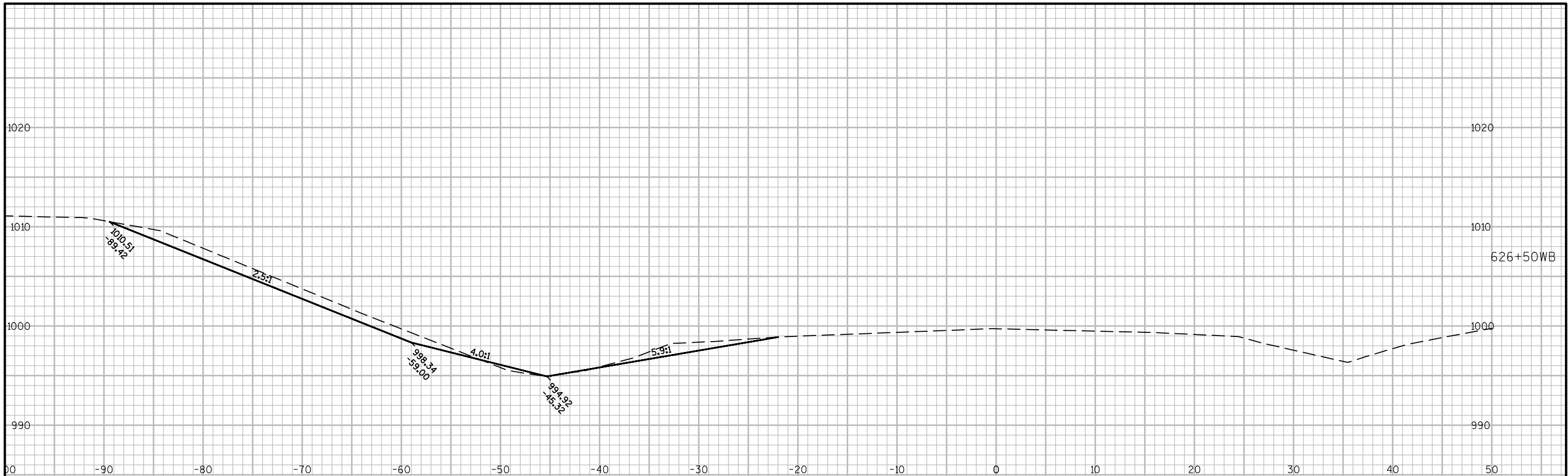
E



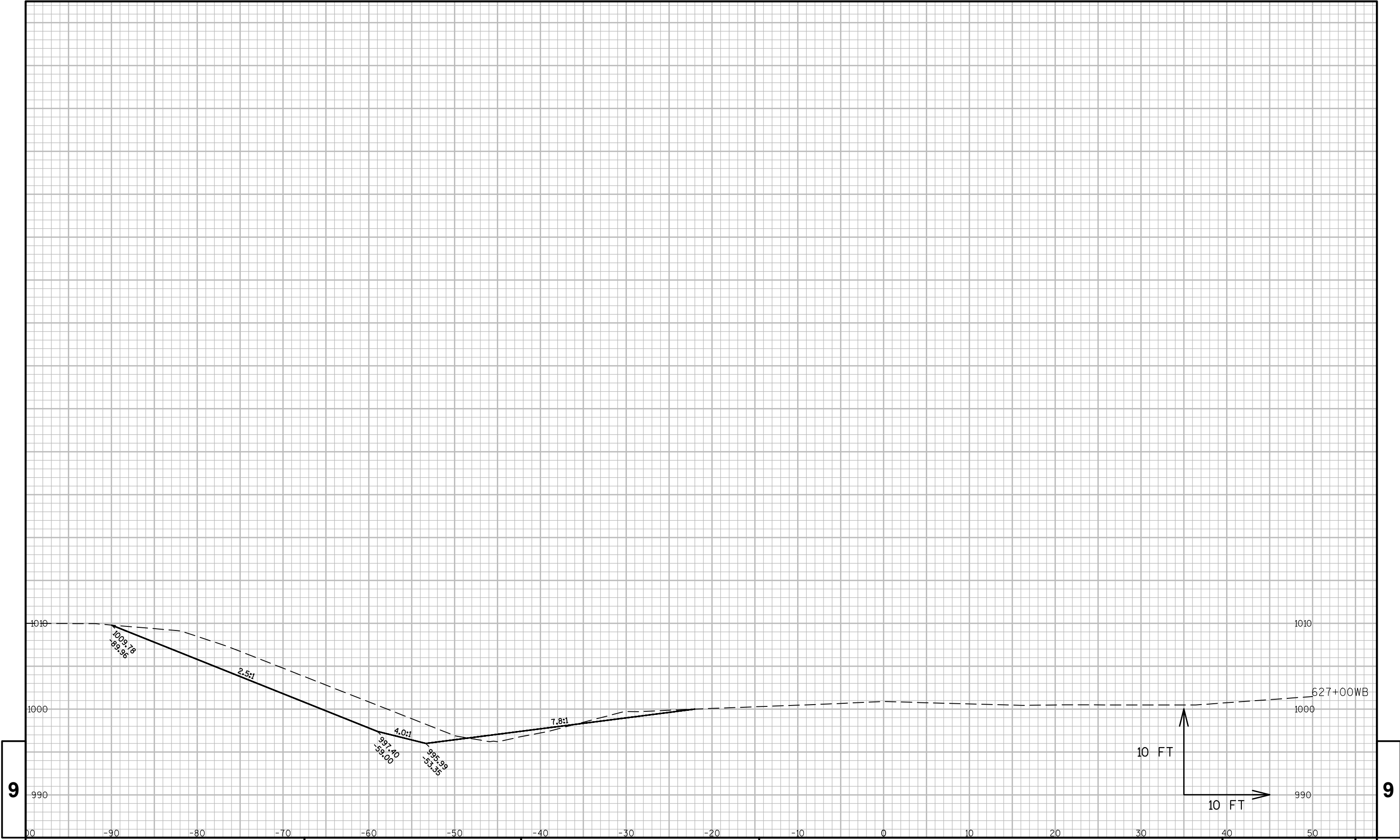


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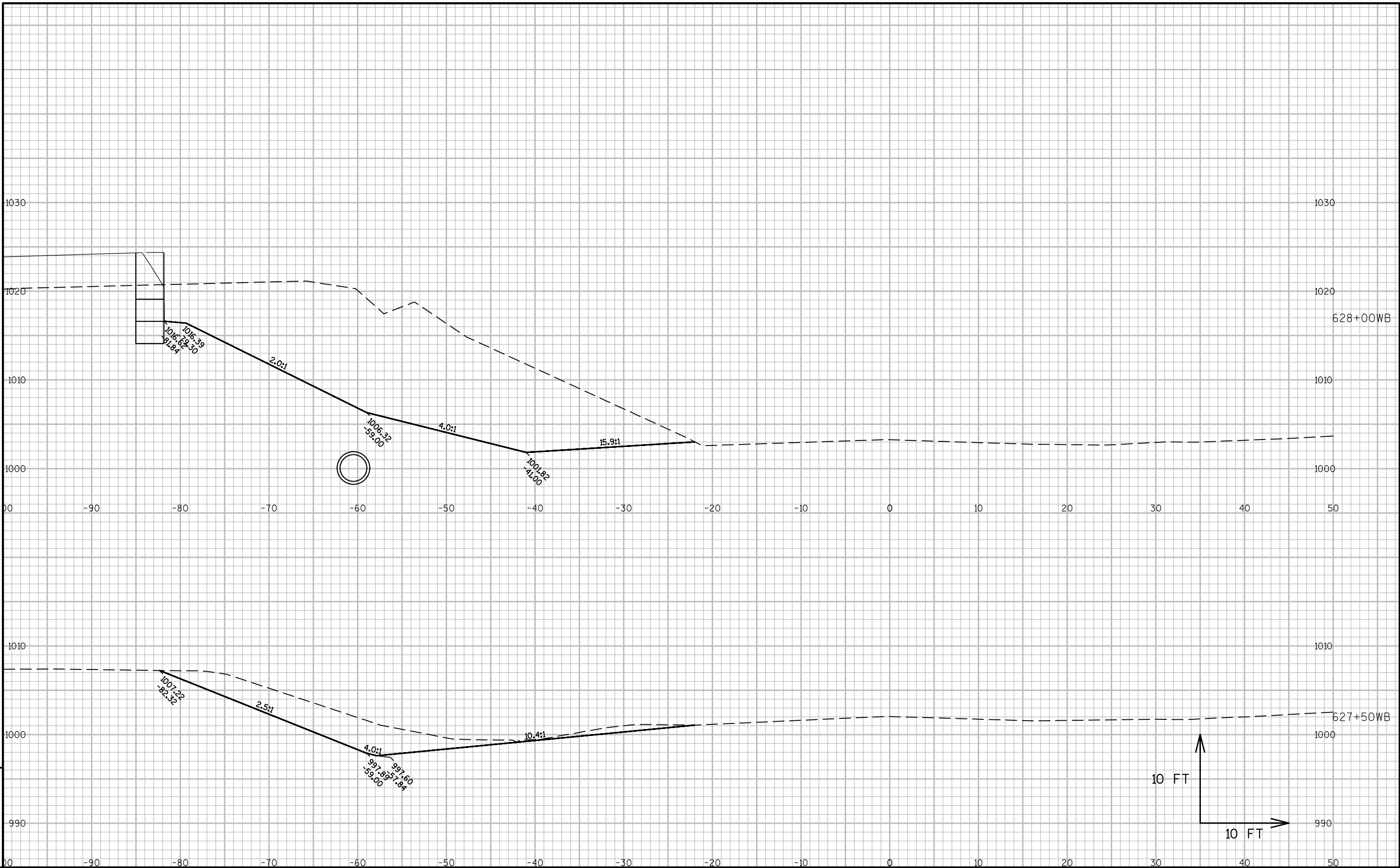


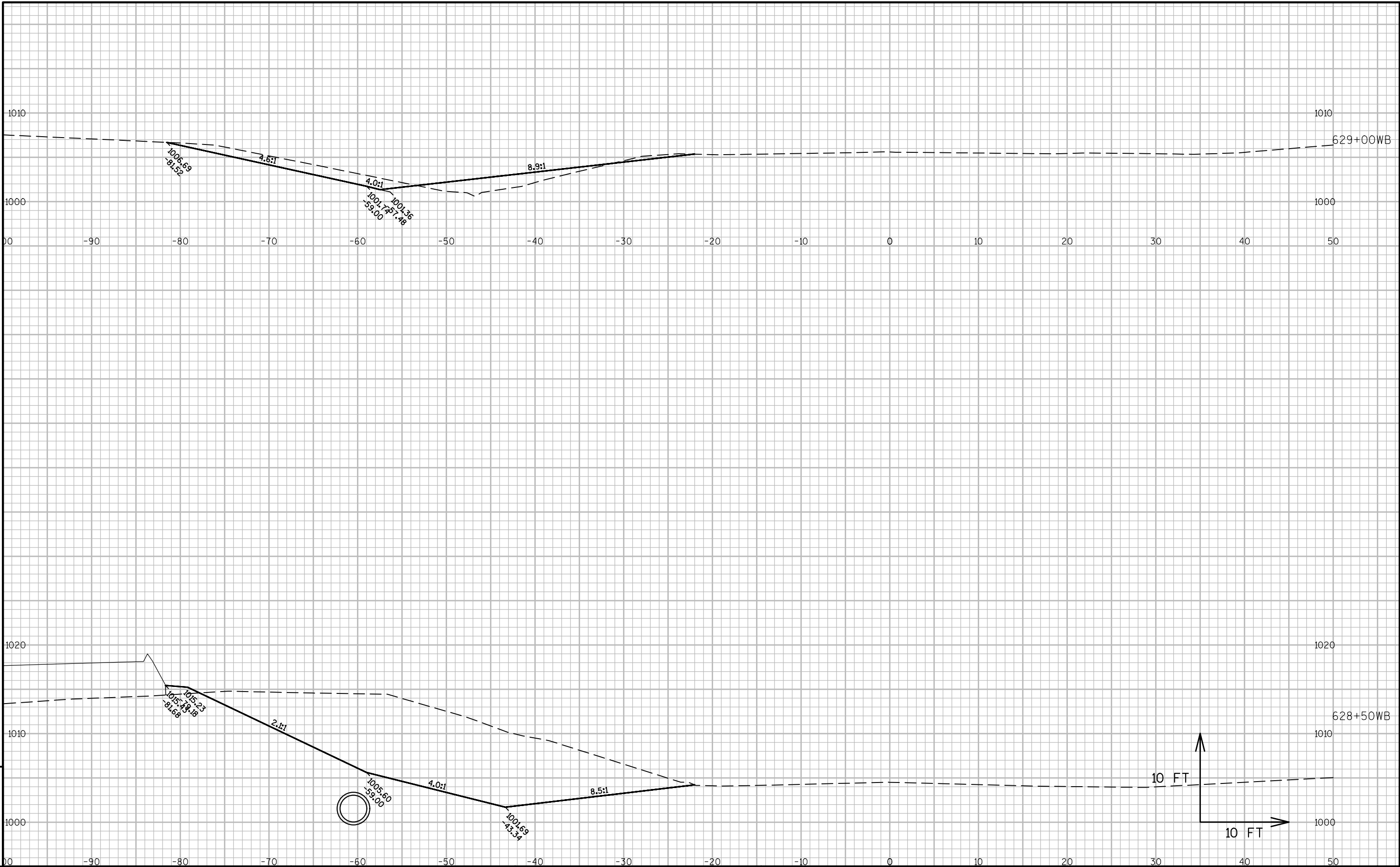
PROJECT NO:1021-01-71	HWY:IH 94	COUNTY:ST. CROIX	CROSS SECTIONS: IH 94 WB	SHEET 166	E
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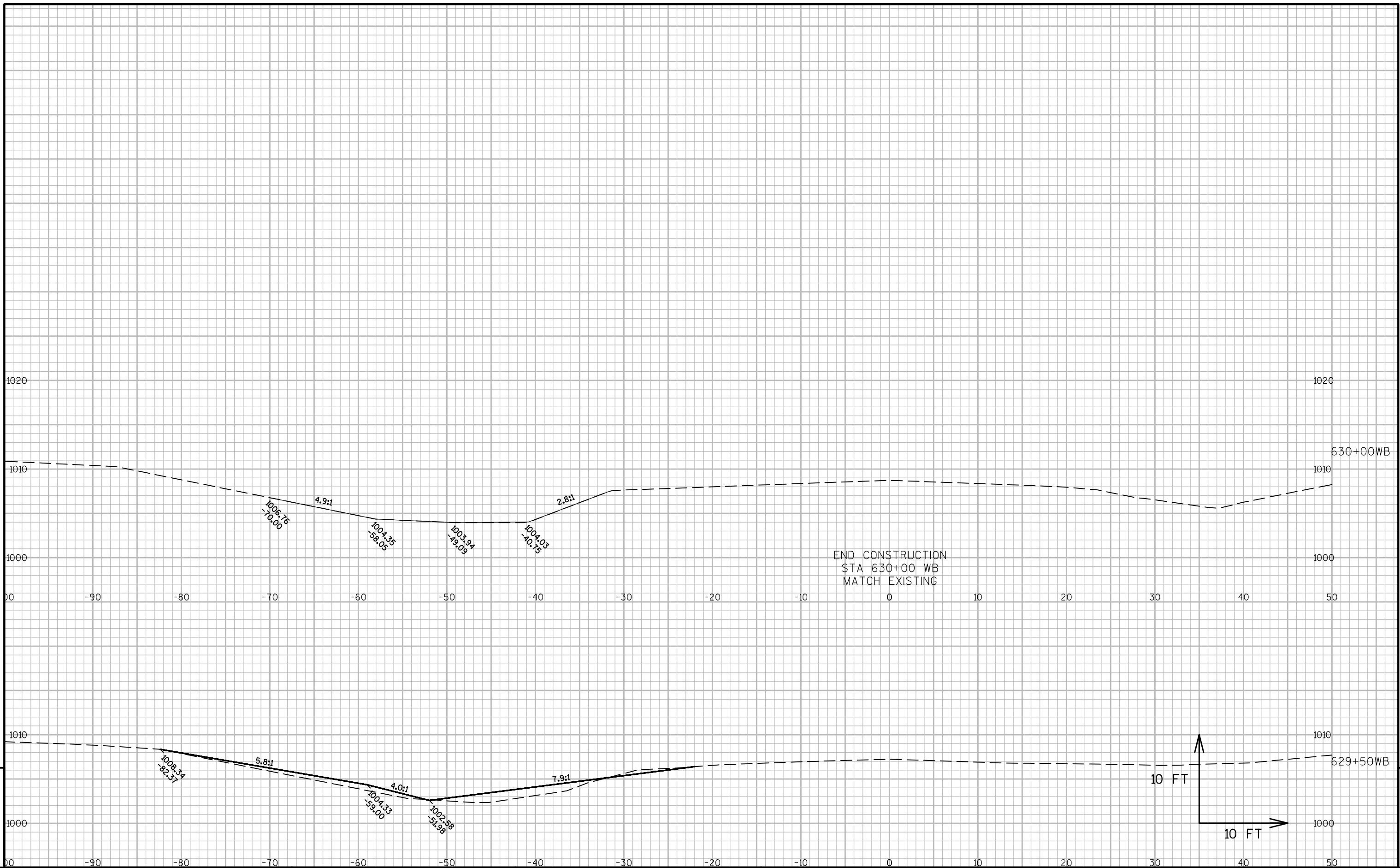


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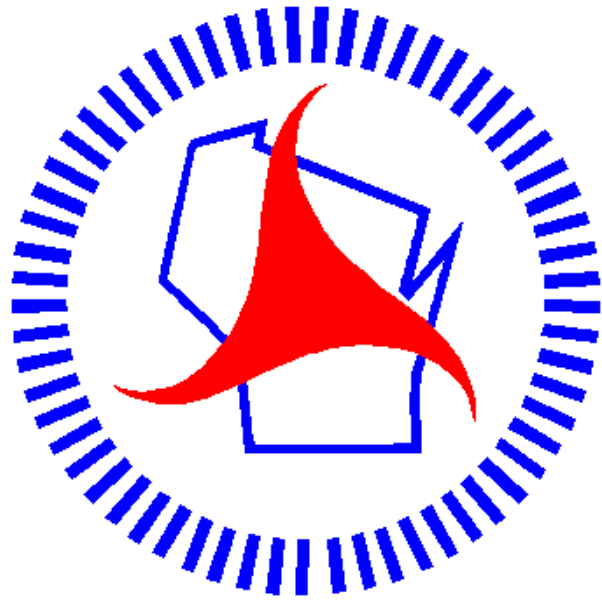
9







Notes



Wisconsin Department of Transportation

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