EAU

PROJECT ID: 8630-00-70

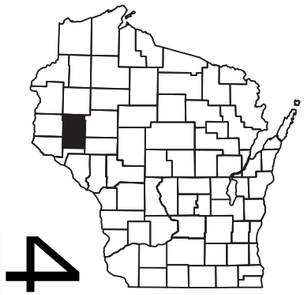
WITH: N/A

COUNTY: DUNN

FEBRUARY 2026

ORDER OF SHEETS

TOTAL SHEETS = 114



N

45

DESIGN DESIGNATION

A.A.D.T.	(2026)	=	2,250
A.A.D.T.	(2046)	=	2,530
D.H.V.		=	15.3
D.D.		=	60/40
T.		=	7.7%
DESIGN SPEED		=	35 MPH
ESALS		=	310,000

CONVENTIONAL SYMBOLS

PLAN

- CORPORATE LIMITS
- PROPERTY LINE
- LOT LINE
- LIMITED HIGHWAY EASEMENT
- EXISTING RIGHT OF WAY
- PROPOSED OR NEW R/W LINE
- SLOPE INTERCEPT
- REFERENCE LINE (300'EB')
- EXISTING CULVERT
- PROPOSED CULVERT (Box or Pipe)
- COMBUSTIBLE FLUIDS (CAUTION)
- MARSH AREA
- WOODED OR SHRUB AREA

PROFILE

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

UTILITIES

- ELECTRIC (E)
- FIBER OPTIC (FO)
- GAS (G)
- SANITARY SEWER (SAN)
- STORM SEWER (SS)
- TELEPHONE (T)
- WATER (W)
- UTILITY PEDESTAL
- POWER POLE
- TELEPHONE POLE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STATE HIGHWAY REHABILITATION-MAINTENANCE PROJECT

GLENWOOD CITY - COLFAX

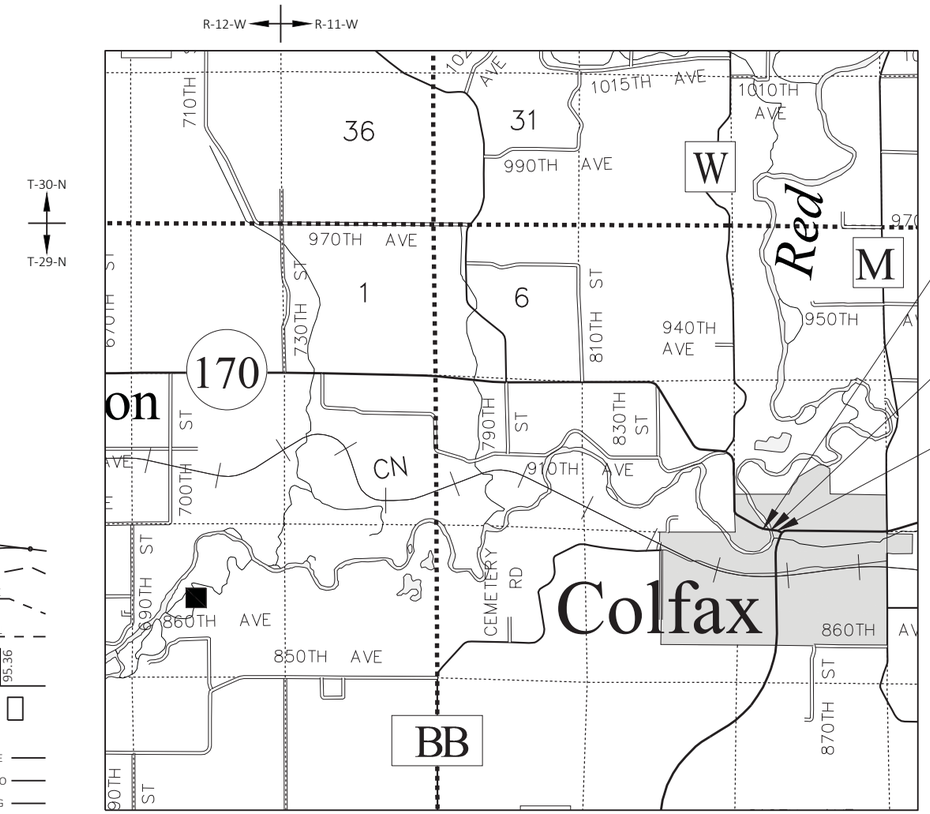
RED CEDAR RIVER BRIDGE B-17-0002

STH 170

DUNN COUNTY

STATE PROJECT NUMBER
8630-00-70

STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
8630-00-70	WISC 2026048	1



LAYOUT

SCALE 0 1 MI

TOTAL NET LENGTH OF CENTERLINE = 0.067 MI

BEGIN PROJECT
STA 4+99.91
Y = 216305.833
X = 212855.694

STRUCTURE B-17-0002
STA 5+76.48 - STA 7+96.50

END PROJECT
STA 8+53.30
Y = 216258.254
X = 213205.863

HORIZONTAL POSITIONS SHOWN ON THIS PLAN ARE WISCONSIN COORDINATE REFERENCE SYSTEM (WISCRS), DUNN COUNTY, NAD83 (2011), IN U.S. SURVEY FEET. POSITIONS SHOWN ARE GRID COORDINATES, GRID BEARINGS, AND GRID DISTANCES. GRID DISTANCES ARE THE SAME AS GROUND DISTANCES.

ELEVATIONS ARE REFERENCED TO NAVD 88 (2012). GPS DERIVED ELEVATIONS ARE BASED ON GEOID 12A

ORIGINAL PLANS PREPARED BY
AYRES

WISCONSIN
ARLEN E. BEAUDETTE
E-36829
EAU CLAIRE
PROFESSIONAL ENGINEER

07/30/2025

DATE: _____ (Professional Engineer Signature)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PREPARED BY

Surveyor	AYRES ASSOCIATES INC
Designer	AYRES ASSOCIATES INC
Project Manager	NICOLE PASSUELLO, PE
Regional Examiner	NW REGION
Regional Supervisor	NICOLE PASSUELLO, PE

APPROVED FOR THE DEPARTMENT

DATE: 7/30/2025 Nicole Passuello (Signature)

Digitally signed by Nicole Passuello
DN: E=DOT, E=nicole.passuello@dot.wi.gov, C=WISDOT, OU=POS Supervisor NW Region, CN=Nicole Passuello
Date: 2025.07.30 15:00:15-05'00'

E

UTILITIES CONTACTS

CINC - COMMUNICATION

105 GARFIELD AVE
EAU CLAIRE, WI 54701
ATTN: DAREN BAUER
(715) 836-5286
bauerdp@uwec.edu

SPECTRUM COMMUNICATIONS - COMMUNICATION

1201 McCANN DRIVE
ALTOONA, WI 54720
ATTN: ROBERT STEPHENS
(715) 579-5594
robert.stephens@charter.com

XCEL ENERGY - ELECTRICITY

1414 W HAMILTON AVE
PO BOX 8
EAU CLAIRE, WI 54702-0008
ATTN: JOHN KELSER
(715) 737-6020
john.kelser@xcelenergy.com

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

WISCONSIN DEPARTMENT OF NATURAL RESOURCES CONTACT:

LEAH NICOL
1300 WEST CLAIREMONT AVE
EAU CLAIRE, WI 54701
(715) 934-9014
LEAH.NICOLE@WISCONSIN.GOV

WISDOT CONTACT:

BILL BIESMANN, PE
WISDOT PROJECT COORDINATOR
KL ENGINEERING
(608) 310-3286
(608) 206-5616 (CELL)
bill.biesmann@KLengineering.com

DESIGNER

ARLEN BEAUDETTE, PE
AYRES ASSOCIATES
3433 OAKWOOD HILLS PARKWAY
EAU CLAIRE WI 54701-7698
(715) 831-7566
BEAUDETTEA@AYRESASSOCIATES.COM

GENERAL NOTES

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

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

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

WHEN THE QUANTITY OF THE ITEM OF BASE AGGREGATE DENSE 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.

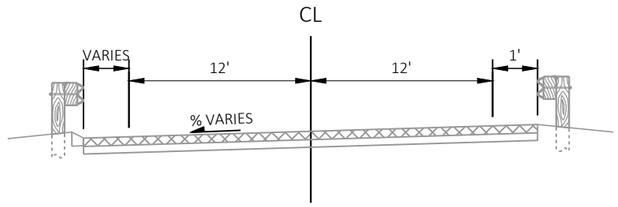
DO NOT DRIVE OR STORE EQUIPMENT, OR STORE CONSTRUCTION MATERIALS IN ENVIRONMENTALLY SENSITIVE AREAS, WETLANDS OR WATERWAYS.

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

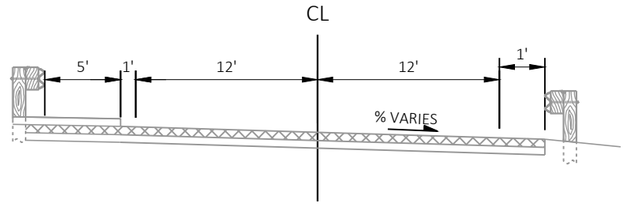
RUNOFF COEFFICIENT TABLE

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

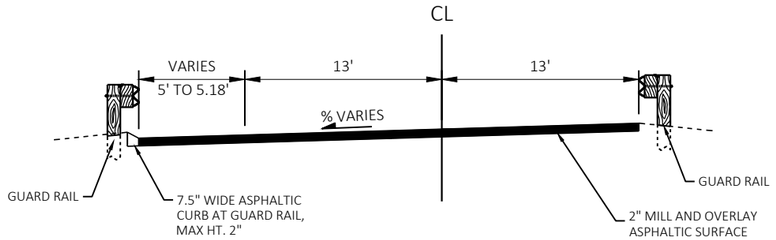
TOTAL PROJECT AREA = 1.060 ACRES
TOTAL AREA EXPECTED TO BE DISTURBED BY CONSTRUCTION ACTIVITIES = 0.337 ACRES



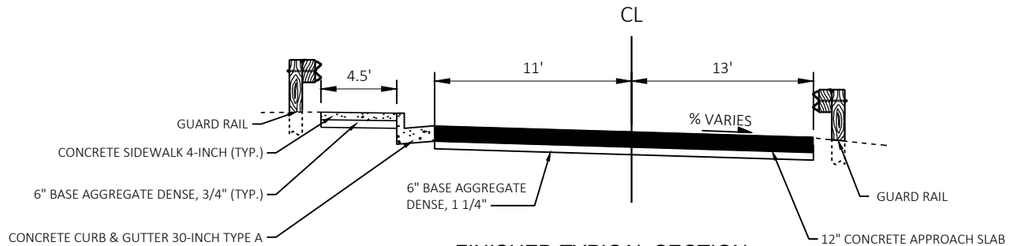
EXISTING TYPICAL SECTION
STA 4+99.91 - 5+54.91



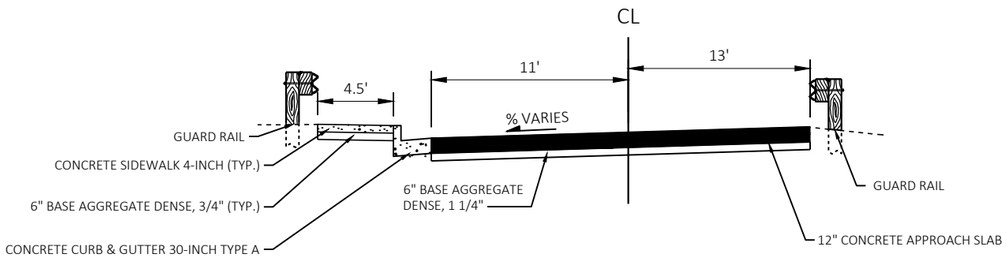
EXISTING TYPICAL SECTION
STA 5+54.91 - 8+53.30



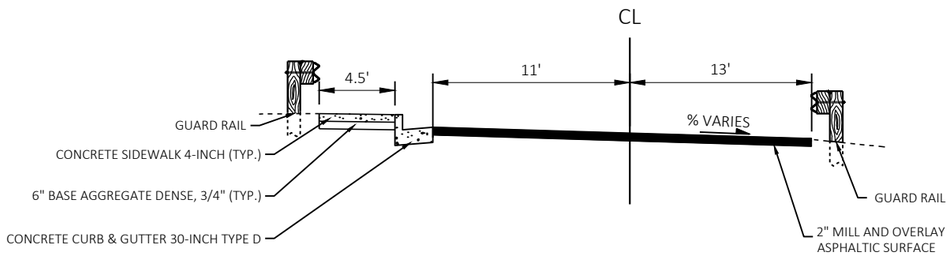
FINISHED TYPICAL SECTION
STA 4+99.91 - 5+54.91



FINISHED TYPICAL SECTION
STA 7+96.50 - 8+18.30

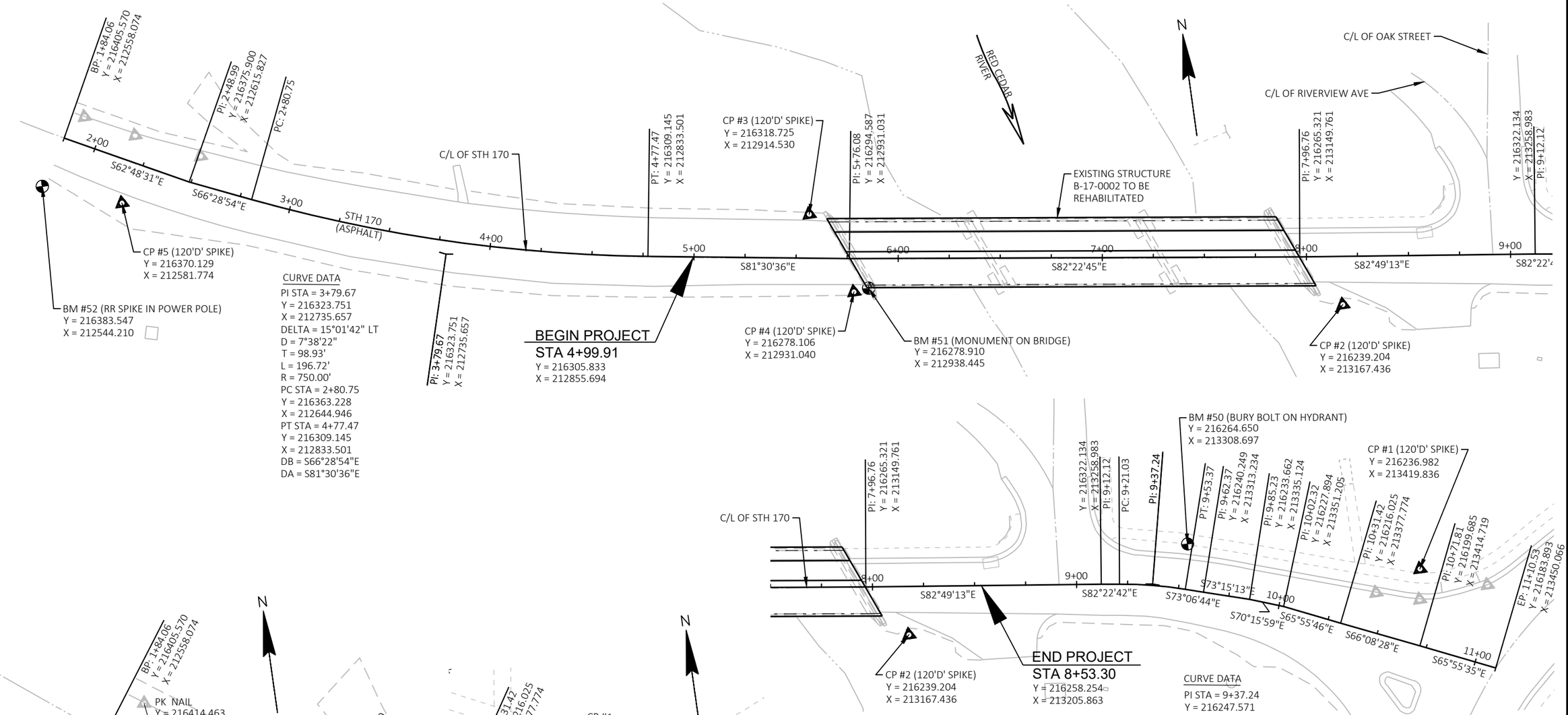


FINISHED TYPICAL SECTION
STA 5+54.91 - 5+76.48

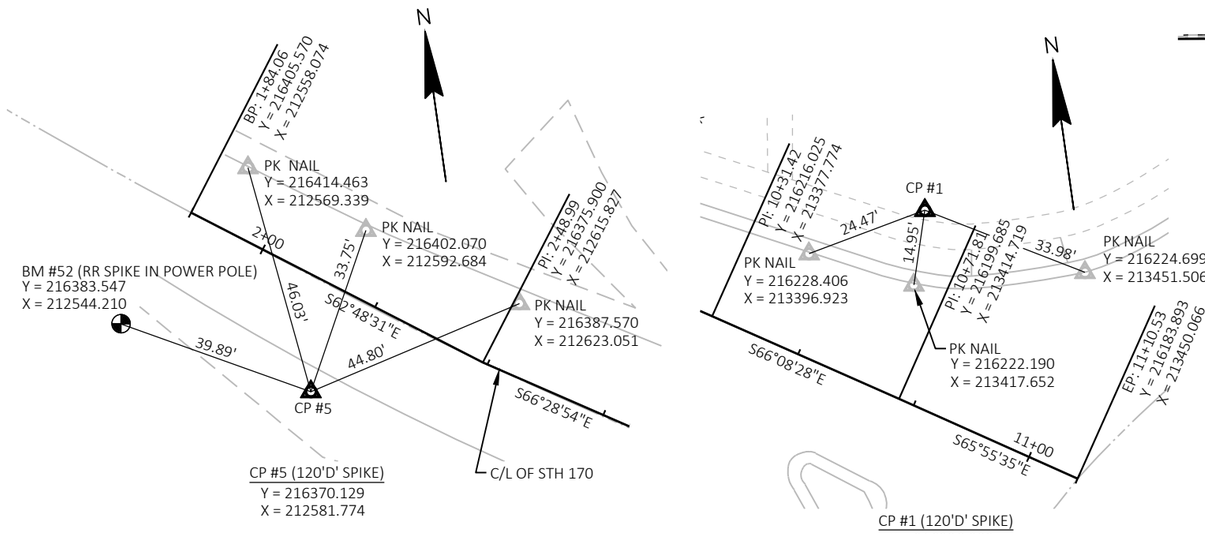


FINISHED TYPICAL SECTION
STA 8+18.30 - 8+53.30

PROJECT NO: 8630-00-70	HWY: STH 170	COUNTY: DUNN	TYPICAL SECTION	SHEET 3	E



ALIGNMENT CONTROLS

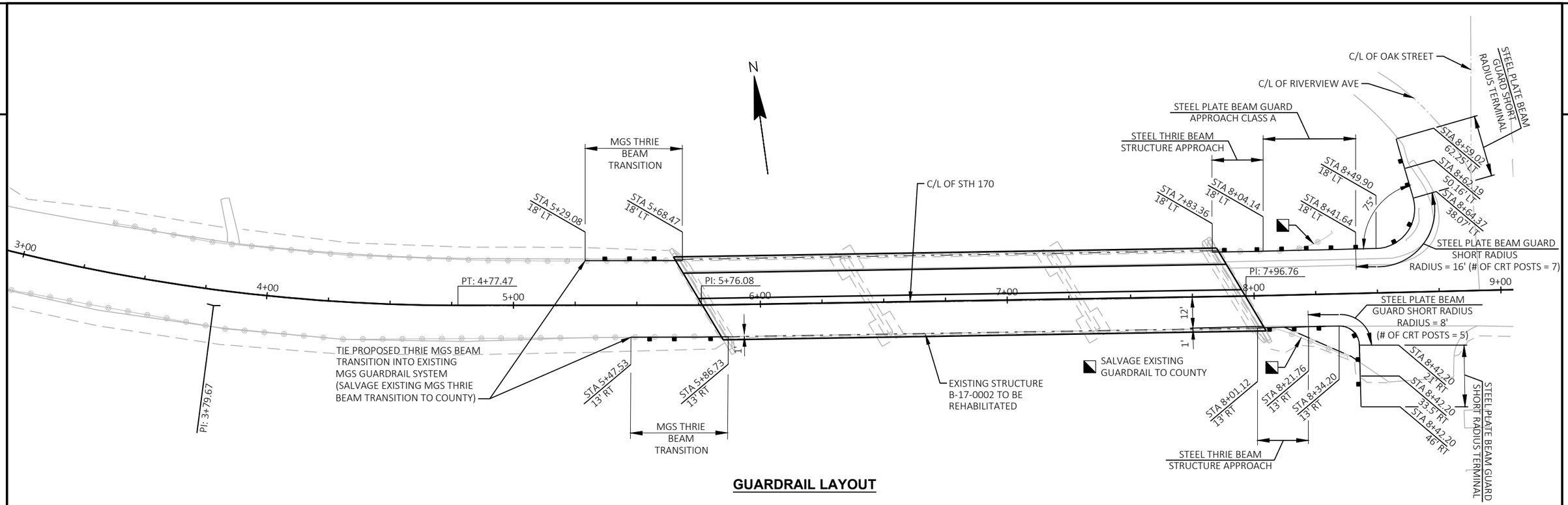


ALIGNMENT TIES

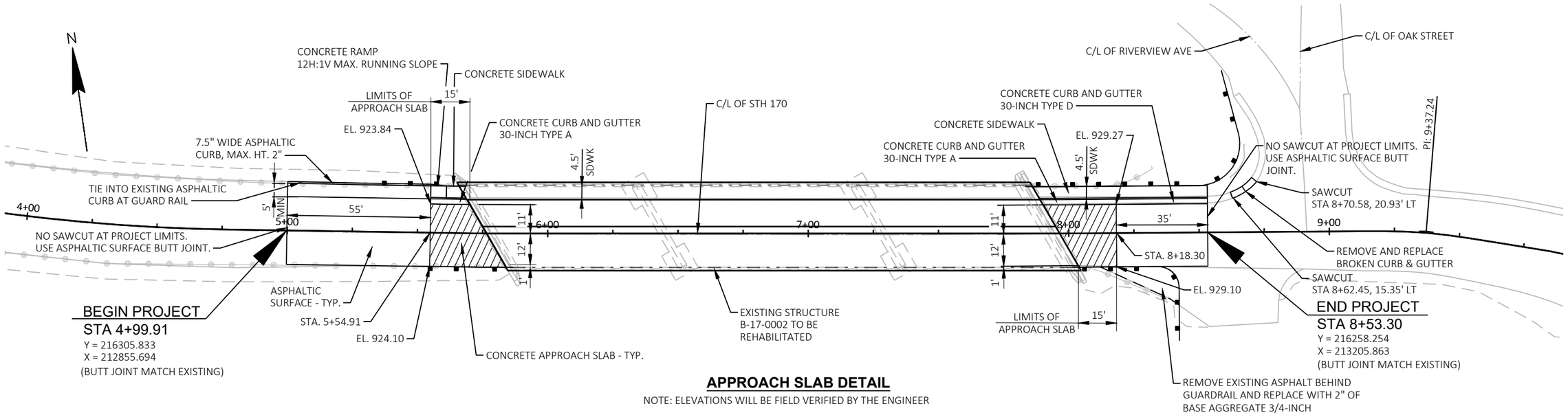
PROJECT NO: 8630-00-70	HWY: STH 170	COUNTY: DUNN	ALIGNMENT CONTROLS	SHEET 4 E

FILE NAME : I:\42\42-1334.00 - DUNN CO, STH 170\C3D\SHEETS\020401-AC.DWG
LAYOUT NAME - ALIGNMENT CNTLS
PLOT DATE : 7/17/2025 12:10 PM
PLOT BY : PEDERSON, CARMEN
PLOT NAME :
PLOT SCALE : 1 IN:50 FT
WISDOT/CADDS SHEET 42

2



GUARDRAIL LAYOUT

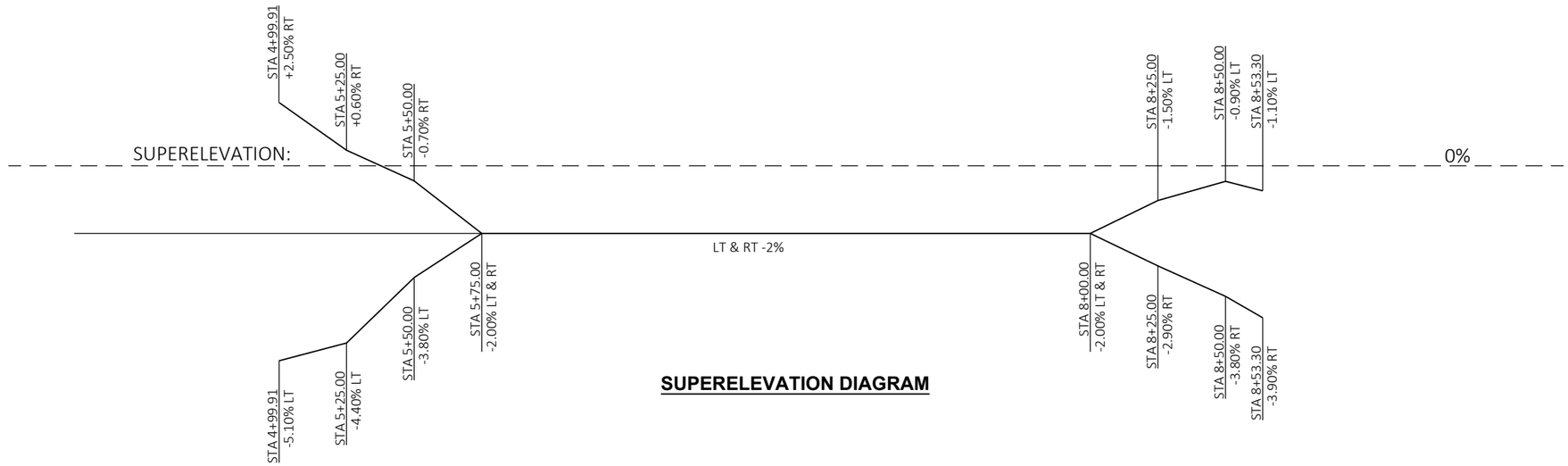


APPROACH SLAB DETAIL

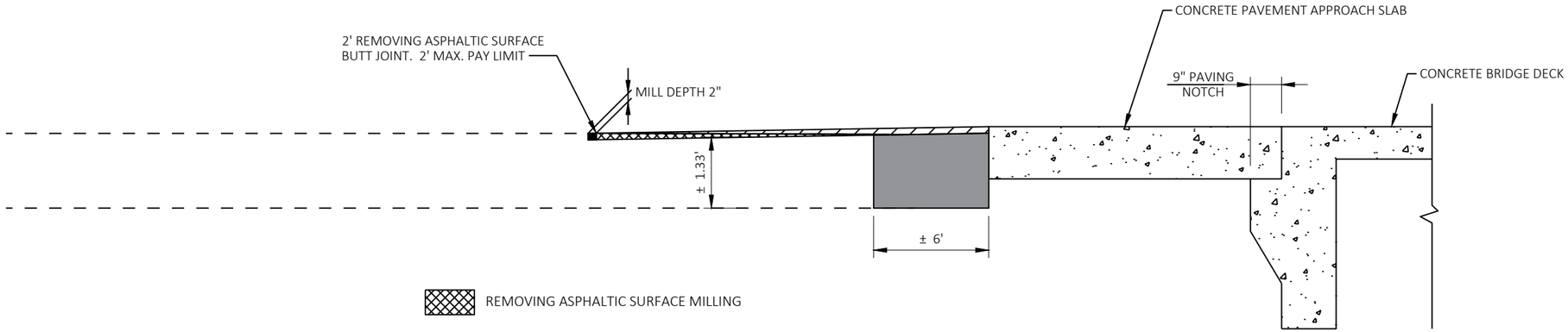
NOTE: ELEVATIONS WILL BE FIELD VERIFIED BY THE ENGINEER

PROJECT NO: 8630-00-70	HWY: STH 170	COUNTY: DUNN	CONSTRUCTION DETAILS	SHEET 5	E

FILE NAME : I:\42\42-1334.00 - DUNN CO, STH 170\C3D\SHEETS\021002-CD.DWG
LAYOUT NAME - CONST
PLOT DATE : 9/29/2025 3:05 PM
PLOT BY : WALDERA, KAREN
PLOT NAME :
PLOT SCALE : 1 IN:40 FT
WISDOT/CADDS SHEET 42



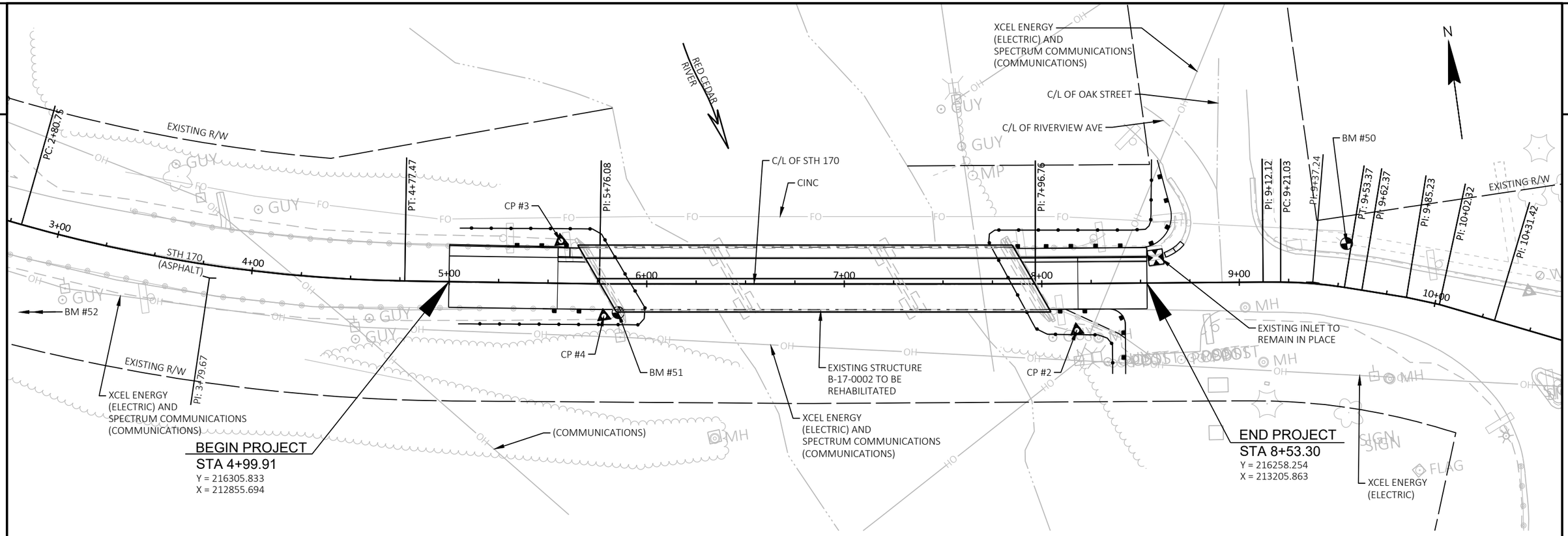
SUPERELEVATION DIAGRAM



ASPHALTIC SURFACE MILLING AND PAVEMENT WEDGE DETAIL

STA 4+99.91 - STA 5+54.91
STA 8+18.30 - STA 8+53.30

PROJECT NO: 8630-00-70	HWY: STH 170	COUNTY: DUNN	CONSTRUCTION DETAILS:	SHEET 6	E



LEGEND

SILT FENCE

INLET PROTECTION TYPE C

NOTES:
NO DISTURBANCE IS ALLOWED OUTSIDE OF THE SLOPE INTERCEPTS.

PROJECT NO: 8630-00-70	HWY: STH 170	COUNTY: DUNN	EROSION CONTROL	SHEET 7	E

2

A

A

335'

MAINTAIN ACCESS TO ATV TRAIL DURING CONSTRUCTION BY INSTALLING A TEMPORARY DETOUR ROUTE. TEMPORARY ACCESS POINT (TOM PRINCE MEMORIAL PARK) IS APPROX. 500 FT WEST OF EXISTING ATV TRAIL ENTRANCE. ATV TRAFFIC WILL FOLLOW ALONG TEMPORARY PEDESTRIAN BARRICADES TO/FROM EXISTING TRAIL AND TEMPORARY ACCESS POINT. ATV TRAFFIC WILL THEN USE STH 170 AND FOLLOW THE TEMPORARY TRAFFIC SIGNAL SYSTEM INSTALLED AT THE RED CEDAR RIVER BRIDGE.

150'

TEMPORARY ATV ACCESS WITH TEMPORARY PEDESTRIAN BARRICADES

HWY 170
BRIDGE WORK
BEGINS XXX-XX

G20-57B
96"X48"

30 MPH

WO13-1
36"X36"

30 MPH

WO13-1
36"X36"

SEE SSD "TRAFFIC CONTROL, ONE LANE ROAD WITH TEMPORARY SIGNALS" FOR SIGN LAYOUT INFORMATION NOT SHOWN HERE.

100' TAPER

CLOSED

G20-62
48"X24"

REMOVE EXISTING STRIPING BETWEEN TEMPORARY MARKING STOP LINES

TEMPORARY MARKING STOP LINE
REMOVABLE TAPE 18-INCH

150'

SEE SSD "BRIDGE TEMPORARY TRAFFIC SIGNAL INSTALLATION" FOR TRAILER MOUNTED TEMPORARY SIGNALS.

10.5'

DRUMS @ 10' SPACING

CRASH CUSHION TEMPORARY

TEMPORARY MARKING LINE
PAINT 6-INCH (WHITE EDGELINE)

N

MAINTAIN ACCESS TO ATV TRAIL DURING CONSTRUCTION BY INSTALLING A TEMPORARY DETOUR ROUTE. TEMPORARY ACCESS POINT (TOM PRINCE MEMORIAL PARK) IS APPROX. 500 FT WEST OF EXISTING ATV TRAIL ENTRANCE. ATV TRAFFIC WILL FOLLOW ALONG TEMPORARY PEDESTRIAN BARRICADES TO/FROM EXISTING TRAIL AND TEMPORARY ACCESS POINT. ATV TRAFFIC WILL THEN USE STH 170 AND FOLLOW THE TEMPORARY TRAFFIC SIGNAL SYSTEM INSTALLED AT THE RED CEDAR RIVER BRIDGE.

TOM PRINCE MEMORIAL
PARK ENTRANCE

TEMPORARY ATV ACCESS WITH TEMPORARY PEDESTRIAN BARRICADES

23' ARC LENGTH

STH 170

A

A

2

LEGEND

- TYPE III BARRICADE
- TYPE III BARRICADE WITH ATTACHED SIGN
- TRAFFIC CONTROL DRUM
- TRAFFIC CONTROL DRUM WITH TYPE C STEADY BURN LIGHT
- SIGN ON TEMPORARY SUPPORT
- TRAFFIC CONTROL 42-INCH CONE
- CONCRETE BARRIER TEMPORARY PRECAST
- WORK AREA

PROPOSED SIGNAL TIMINGS (SEC.)		
PHASE 1 EB STH 170	PHASE 2 WB STH 170	PROGRAM TYPE
10	10	MINIMUM GREEN TIME
4	4	PASSAGE TIME DURING GREEN PHASE
7	7	MINIMUM GAP
10	10	START OF REDUCTION OF PASSAGE FROM MAX. TO MIN. DURING GREEN PHASE
10	10	TIME TO REDUCE PASSAGE FROM MAX. TO MIN. DURING GREEN PHASE
33	29	MAXIMUM GREEN TIME
4	4	YELLOW
23	27	ALL-RED

CONTRACTOR SHALL REVIEW SIGNALS AFTER PROGRAMMING TO INSURE THERE ARE NOT CONFLICTING MOVEMENTS.
TRAFFIC SIGNALS TO BE OPERATED UNDER AN ACTUATED SYSTEM.
PROPOSED SIGNAL TIMING APPLIES TO ALL STAGES.
900' BETWEEN STOP BARS.

IF THERE ARE QUESTIONS REGARDING THE TIMINGS PLEASE CONTACT TRAFFIC ENGINEER.

PROJECT NO: 8630-00-70	HWY: STH 170	COUNTY: DUNN	TRAFFIC CONTROL STAGE 1	SHEET 8	E

FILE NAME : I:\42\42-1334.00 - DUNN CO, STH 170\C3D\SHEETS\026001-S1.DWG PLOT DATE : 9/30/2025 9:28 AM PLOT BY : DALTON, RYAN PLOT NAME : PLOT SCALE : 1 IN:50 FT

WISDOT/CADDS SHEET 42

2

2

REMOVE EXISTING STRIPING BETWEEN TEMPORARY MARKING STOP LINES

SEE SSD "BARRICADES AND SIGNS FOR SIDEROAD CLOSURES" FOR SIGN LAYOUT IN ADVANCE OF ROAD CLOSURE.

100' TAPER

BRIDGE OUT
R11-2B

SEE SSD "BRIDGE TEMPORARY TRAFFIC SIGNAL INSTALLATION" FOR TRAILER MOUNTED TEMPORARY SIGNALS.

50'

SIDEWALK CLOSED
R9-9
24"X12"

CLOSED
G20-62
48"X24"

DRUMS @ 10' SPACING

CRASH CUSHION TEMPORARY

TEMPORARY MARKING STOP LINE
REMOVABLE TAPE 18-INCH

TEMPORARY MARKING LINE
PAINT 6-INCH (WHITE EDGELINE)

SEE SSD "TRAFFIC CONTROL, ONE LANE ROAD WITH TEMPORARY SIGNALS" FOR SIGN LAYOUT INFORMATION NOT SHOWN HERE. WHERE NECESSARY, THE ADVANCE WARNING SIGNS SHALL FEATURE STH 40 ON TOP OF STH 170.

HWY 170
BRIDGE WORK
BEGINS XXX-XX
G20-57B
96"X48"

DO NOT BLOCK INTERSECTION
R10-7
24"X30"

DO NOT BLOCK INTERSECTION
R10-7
24"X30"

DO NOT BLOCK INTERSECTION
R10-7
24"X30"

10'

10'

25'

ONLY ONLY

50'
LANE OPENING

75' TAPER

NOTE: TEMPORARY NORTHBOUND LEFT-TURN LANE IS SHOWN SCHEMATICALLY DUE TO AVAILABILITY OF INFORMATION. AVAILABLE ROADWAY WIDTH SHOULD BE FIELD VERIFIED PRIOR TO SETUP.

HWY 170
BRIDGE WORK
BEGINS XXX-XX
G20-57B
96"X48"

SEE SSD "TRAFFIC CONTROL, ONE LANE ROAD WITH TEMPORARY SIGNALS" FOR SIGN LAYOUT INFORMATION NOT SHOWN HERE.

N

LEGEND

- TYPE III BARRICADE
- TYPE III BARRICADE WITH ATTACHED SIGN
- TRAFFIC CONTROL DRUM
- TRAFFIC CONTROL DRUM WITH TYPE C STEADY BURN LIGHT
- SIGN ON TEMPORARY SUPPORT
- TRAFFIC CONTROL 42-INCH CONE
- CONCRETE BARRIER TEMPORARY PRECAST
- WORK AREA

PROPOSED SIGNAL TIMINGS (SEC.)

PHASE 1 EB STH 170	PHASE 2 WB STH 170	PROGRAM TYPE
10	10	MINIMUM GREEN TIME
4	4	PASSAGE TIME DURING GREEN PHASE
2	2	MINIMUM GAP
10	10	START OF REDUCTION OF PASSAGE FROM MAX. TO MIN. DURING GREEN PHASE
10	10	TIME TO REDUCE PASSAGE FROM MAX. TO MIN. DURING GREEN PHASE
33	29	MAXIMUM GREEN TIME
4	4	YELLOW
23	27	ALL-RED

CONTRACTOR SHALL REVIEW SIGNALS AFTER PROGRAMMING TO INSURE THERE ARE NOT CONFLICTING MOVEMENTS.
TRAFFIC SIGNALS TO BE OPERATED UNDER AN ACTUATED SYSTEM.
PROPOSED SIGNAL TIMING APPLIES TO ALL STAGES.
900' BETWEEN STOP BARS

IF THERE ARE QUESTIONS REGARDING THE TIMINGS PLEASE CONTACT TRAFFIC ENGINEER.

PROJECT NO: 8630-00-70	HWY: STH 170	COUNTY: DUNN	TRAFFIC CONTROL STAGE 1	SHEET 9	E

FILE NAME : I:\42\42-1334.00 - DUNN CO, STH 170\C3D\SHEETS\026001-S1.DWG PLOT DATE : 9/30/2025 9:28 AM PLOT BY : DALTON, RYAN PLOT NAME : PLOT SCALE : 1 IN:50 FT

2

A

A

335'

MAINTAIN ACCESS TO ATV TRAIL DURING CONSTRUCTION BY INSTALLING A TEMPORARY DETOUR ROUTE. TEMPORARY ACCESS POINT (TOM PRINCE MEMORIAL PARK) IS APPROX. 500 FT WEST OF EXISTING ATV TRAIL ENTRANCE. ATV TRAFFIC WILL FOLLOW ALONG TEMPORARY PEDESTRIAN BARRICADES TO/FROM EXISTING TRAIL AND TEMPORARY ACCESS POINT. ATV TRAFFIC WILL THEN USE STH 170 AND FOLLOW THE TEMPORARY TRAFFIC SIGNAL SYSTEM INSTALLED AT THE RED CEDAR RIVER BRIDGE.

150'

TEMPORARY ATV ACCESS WITH TEMPORARY PEDESTRIAN BARRICADES

HWY 170
BRIDGE WORK
BEGINS XXX-XX

G20-57B
96"X48"

30 MPH

WO13-1
36"X36"

30 MPH

WO13-1
36"X36"

SEE SSD "TRAFFIC CONTROL, ONE LANE ROAD WITH TEMPORARY SIGNALS" FOR SIGN LAYOUT INFORMATION NOT SHOWN HERE.

TEMPORARY MARKING STOP LINE
REMOVABLE TAPE 18-INCH
INSTALLED IN STAGE 1

CLOSED

G20-62
48"X24"

REMOVE EXISTING STRIPING BETWEEN TEMPORARY MARKING STOP LINES

SEE SSD "BRIDGE TEMPORARY TRAFFIC SIGNAL INSTALLATION" FOR TRAILER MOUNTED TEMPORARY SIGNALS.

DRUMS @ 10' SPACING

CRASH CUSHION TEMPORARY

100' TAPER

TEMPORARY MARKING LINE
PAINT 6-INCH (WHITE EDGELINE)

9'-8"

N

MAINTAIN ACCESS TO ATV TRAIL DURING CONSTRUCTION BY INSTALLING A TEMPORARY DETOUR ROUTE. TEMPORARY ACCESS POINT (TOM PRINCE MEMORIAL PARK) IS APPROX. 500 FT WEST OF EXISTING ATV TRAIL ENTRANCE. ATV TRAFFIC WILL FOLLOW ALONG TEMPORARY PEDESTRIAN BARRICADES TO/FROM EXISTING TRAIL AND TEMPORARY ACCESS POINT. ATV TRAFFIC WILL THEN USE STH 170 AND FOLLOW THE TEMPORARY TRAFFIC SIGNAL SYSTEM INSTALLED AT THE RED CEDAR RIVER BRIDGE.

TOM PRINCE MEMORIAL
PARK ENTRANCE

TEMPORARY ATV ACCESS WITH TEMPORARY PEDESTRIAN BARRICADES

23' ARC LENGTH

STH 170

A

A

2

LEGEND

- TYPE III BARRICADE
- TYPE III BARRICADE WITH ATTACHED SIGN
- TRAFFIC CONTROL DRUM
- TRAFFIC CONTROL DRUM WITH TYPE C STEADY BURN LIGHT
- SIGN ON TEMPORARY SUPPORT
- TRAFFIC CONTROL 42-INCH CONE
- CONCRETE BARRIER TEMPORARY PRECAST
- WORK AREA

N

PROJECT NO: 8630-00-70	HWY: STH 170	COUNTY: DUNN	TRAFFIC CONTROL STAGE 2	SHEET 10	E

FILE NAME : I:\42\42-1334.00 - DUNN CO, STH 170\C3D\SHEETS\026001-S2.DWG PLOT DATE : 9/30/2025 9:29 AM PLOT BY : DALTON, RYAN PLOT NAME : PLOT SCALE : 1 IN:50 FT

2

SEE SSD "BARRICADES AND SIGNS FOR SIDEROAD CLOSURES" FOR SIGN LAYOUT IN ADVANCE OF ROAD CLOSURE.

SEE SSD "TRAFFIC CONTROL, ONE LANE ROAD WITH TEMPORARY SIGNALS" FOR SIGN LAYOUT INFORMATION NOT SHOWN HERE. WHERE NECESSARY, THE ADVANCE WARNING SIGNS SHALL FEATURE STH 40 ON TOP OF STH 170.

TEMPORARY MARKING LINE
PAINT 6-INCH (WHITE EDGELINE)

BRIDGE OUT
R11-2B

SEE SSD "BRIDGE TEMPORARY TRAFFIC SIGNAL INSTALLATION" FOR TRAILER MOUNTED TEMPORARY SIGNALS.

ROAD CLOSED
R11-2

9'-8"

SIDEWALK CLOSED
R9-9
24"X12"

REMOVE EXISTING STRIPING BETWEEN TEMPORARY MARKING STOP LINES

HWY 170 BRIDGE WORK BEGINS XXX-XX
G20-57B
96"X48"

DO NOT BLOCK INTERSECTION
R10-7
24"X30"

CLOSED
G20-62
48"X24"

50' TAPER

CRASH CUSHION TEMPORARY

DRUMS @ 10' SPACING

TEMPORARY MARKING STOP LINE
REMOVABLE TAPE 18-INCH
INSTALLED IN STAGE 1

DO NOT BLOCK INTERSECTION
R10-7
24"X30"

10'

10'

DO NOT BLOCK INTERSECTION
R10-7
24"X30"

25'

ONLY ONLY

50'
LANE OPENING

75' TAPER

NOTE: TEMPORARY NORTHBOUND LEFT-TURN LANE IS SHOWN SCHEMATICALLY DUE TO AVAILABILITY OF INFORMATION. AVAILABLE ROADWAY WIDTH SHOULD BE FIELD VERIFIED PRIOR TO SETUP.

HWY 170 BRIDGE WORK BEGINS XXX-XX
G20-57B
96"X48"

SEE SSD "TRAFFIC CONTROL, ONE LANE ROAD WITH TEMPORARY SIGNALS" FOR SIGN LAYOUT INFORMATION NOT SHOWN HERE.

N

LEGEND

- TYPE III BARRICADE
- TYPE III BARRICADE WITH ATTACHED SIGN
- TRAFFIC CONTROL DRUM
- TRAFFIC CONTROL DRUM WITH TYPE C STEADY BURN LIGHT
- SIGN ON TEMPORARY SUPPORT
- TRAFFIC CONTROL 42-INCH CONE
- CONCRETE BARRIER TEMPORARY PRECAST
- WORK AREA

PROJECT NO: 8630-00-70	HWY: STH 170	COUNTY: DUNN	TRAFFIC CONTROL STAGE 2	SHEET 11	E

2

A

A

335'

MAINTAIN ACCESS TO ATV TRAIL DURING CONSTRUCTION BY INSTALLING A TEMPORARY DETOUR ROUTE. TEMPORARY ACCESS POINT (TOM PRINCE MEMORIAL PARK) IS APPROX. 500 FT WEST OF EXISTING ATV TRAIL ENTRANCE. ATV TRAFFIC WILL FOLLOW ALONG TEMPORARY PEDESTRIAN BARRICADES TO/FROM EXISTING TRAIL AND TEMPORARY ACCESS POINT. ATV TRAFFIC WILL THEN USE STH 170 AND FOLLOW THE TEMPORARY TRAFFIC SIGNAL SYSTEM INSTALLED AT THE RED CEDAR RIVER BRIDGE.

150'

TEMPORARY ATV ACCESS WITH TEMPORARY PEDESTRIAN BARRICADES

HWY 170
BRIDGE WORK
BEGINS XXX-XX

G20-57B
96"X48"

30 MPH

WO13-1
36"X36"

30 MPH

WO13-1
36"X36"

SEE SSD "TRAFFIC CONTROL, ONE LANE ROAD WITH TEMPORARY SIGNALS" FOR SIGN LAYOUT INFORMATION NOT SHOWN HERE.

100' TAPER

CLOSED

G20-62
48"X24"

REMOVE EXISTING STRIPING BETWEEN TEMPORARY MARKING STOP LINES

TEMPORARY MARKING STOP LINE
REMOVABLE TAPE 18-INCH

150'

SEE SSD "BRIDGE TEMPORARY TRAFFIC SIGNAL INSTALLATION" FOR TRAILER MOUNTED TEMPORARY SIGNALS.

DRUMS @ 10' SPACING

CRASH CUSHION TEMPORARY

10.5'

TEMPORARY MARKING LINE
PAINT 6-INCH (WHITE EDGELINE)

N

MAINTAIN ACCESS TO ATV TRAIL DURING CONSTRUCTION BY INSTALLING A TEMPORARY DETOUR ROUTE. TEMPORARY ACCESS POINT (TOM PRINCE MEMORIAL PARK) IS APPROX. 500 FT WEST OF EXISTING ATV TRAIL ENTRANCE. ATV TRAFFIC WILL FOLLOW ALONG TEMPORARY PEDESTRIAN BARRICADES TO/FROM EXISTING TRAIL AND TEMPORARY ACCESS POINT. ATV TRAFFIC WILL THEN USE STH 170 AND FOLLOW THE TEMPORARY TRAFFIC SIGNAL SYSTEM INSTALLED AT THE RED CEDAR RIVER BRIDGE.

TOM PRINCE MEMORIAL
PARK ENTRANCE

TEMPORARY ATV ACCESS WITH TEMPORARY PEDESTRIAN BARRICADES

23' ARC LENGTH

STH 170

A

A

2

N

LEGEND

- TYPE III BARRICADE
- TYPE III BARRICADE WITH ATTACHED SIGN
- TRAFFIC CONTROL DRUM
- TRAFFIC CONTROL DRUM WITH TYPE C STEADY BURN LIGHT
- SIGN ON TEMPORARY SUPPORT
- TRAFFIC CONTROL 42-INCH CONE
- CONCRETE BARRIER TEMPORARY PRECAST
- WORK AREA

PROJECT NO: 8630-00-70	HWY: STH 170	COUNTY: DUNN	TRAFFIC CONTROL STAGE 3	SHEET 12	E

FILE NAME : I:\42\42-1334.00 - DUNN CO, STH 170\C3D\SHEETS\026001-S3.DWG PLOT DATE : 9/30/2025 9:29 AM PLOT BY : DALTON, RYAN PLOT NAME : PLOT SCALE : 1 IN:50 FT

2

2

REMOVE EXISTING STRIPING BETWEEN TEMPORARY MARKING STOP LINES

SEE SSD "BARRICADES AND SIGNS FOR SIDEROAD CLOSURES" FOR SIGN LAYOUT IN ADVANCE OF ROAD CLOSURE.

100' TAPER

BRIDGE OUT
R11-2B

SEE SSD "BRIDGE TEMPORARY TRAFFIC SIGNAL INSTALLATION" FOR TRAILER MOUNTED TEMPORARY SIGNALS.

50'

SIDEWALK CLOSED
R9-9
24"X12"

CLOSED
G20-62
48"X24"

DRUMS @ 10' SPACING

CRASH CUSHION TEMPORARY

TEMPORARY MARKING STOP LINE
REMOVABLE TAPE 18-INCH

TEMPORARY MARKING LINE
PAINT 6-INCH (WHITE EDGELINE)

SEE SSD "TRAFFIC CONTROL, ONE LANE ROAD WITH TEMPORARY SIGNALS" FOR SIGN LAYOUT INFORMATION NOT SHOWN HERE. WHERE NECESSARY, THE ADVANCE WARNING SIGNS SHALL FEATURE STH 40 ON TOP OF STH 170.

HWY 170
BRIDGE WORK
BEGINS XXX-XX
G20-57B
96"X48"

DO NOT BLOCK INTERSECTION
R10-7
24"X30"

DO NOT BLOCK INTERSECTION
R10-7
24"X30"

DO NOT BLOCK INTERSECTION
R10-7
24"X30"

10'

10'

25'

ONLY ONLY

50'
LANE OPENING

75' TAPER

NOTE: TEMPORARY NORTHBOUND LEFT-TURN LANE IS SHOWN SCHEMATICALLY DUE TO AVAILABILITY OF INFORMATION. AVAILABLE ROADWAY WIDTH SHOULD BE FIELD VERIFIED PRIOR TO SETUP.

HWY 170
BRIDGE WORK
BEGINS XXX-XX
G20-57B
96"X48"

SEE SSD "TRAFFIC CONTROL, ONE LANE ROAD WITH TEMPORARY SIGNALS" FOR SIGN LAYOUT INFORMATION NOT SHOWN HERE.

N

LEGEND

- TYPE III BARRICADE
- TYPE III BARRICADE WITH ATTACHED SIGN
- TRAFFIC CONTROL DRUM
- TRAFFIC CONTROL DRUM WITH TYPE C STEADY BURN LIGHT
- SIGN ON TEMPORARY SUPPORT
- TRAFFIC CONTROL 42-INCH CONE
- CONCRETE BARRIER TEMPORARY PRECAST
- WORK AREA

PROJECT NO: 8630-00-70	HWY: STH 170	COUNTY: DUNN	TRAFFIC CONTROL STAGE 3	SHEET 13	E

Estimate Of Quantities

8630-00-70

Line	Item	Item Description	Unit	Total	Qty
0002	203.0270	Removing Structure Over Waterway Debris Capture (structure) 01. B-17-0002	EACH	1.000	1.000
0004	204.0110	Removing Asphaltic Surface	SY	190.000	190.000
0006	204.0115	Removing Asphaltic Surface Butt Joints	SY	12.000	12.000
0008	204.0120	Removing Asphaltic Surface Milling	SY	289.000	289.000
0010	204.0150	Removing Curb & Gutter	LF	63.000	63.000
0012	204.0155	Removing Concrete Sidewalk	SY	33.000	33.000
0014	205.0100	Excavation Common	CY	5.000	5.000
0016	213.0100	Finishing Roadway (project) 01. 8630-00-70	EACH	1.000	1.000
0018	305.0110	Base Aggregate Dense 3/4-Inch	TON	65.000	65.000
0020	305.0120	Base Aggregate Dense 1 1/4-Inch	TON	40.000	40.000
0022	415.0410	Concrete Pavement Approach Slab	SY	117.000	117.000
0024	455.0605	Tack Coat	GAL	21.000	21.000
0026	465.0105	Asphaltic Surface	TON	75.000	75.000
0028	465.0310	Asphaltic Curb	LF	61.000	61.000
0030	502.0100	Concrete Masonry Bridges	CY	275.000	275.000
0032	502.3101	Expansion Device	LF	78.300	78.300
0034	502.3200	Protective Surface Treatment	SY	750.000	750.000
0036	502.3210	Pigmented Surface Sealer	SY	80.000	80.000
0038	502.4204	Adhesive Anchors No. 4 Bar	EACH	364.000	364.000
0040	502.4205	Adhesive Anchors No. 5 Bar	EACH	68.000	68.000
0042	505.0600	Bar Steel Reinforcement HS Coated Structures	LB	55,950.000	55,950.000
0044	505.0904	Bar Couplers No. 4	EACH	794.000	794.000
0046	506.0605	Structural Steel HS	LB	30,325.000	30,325.000
0048	506.2610	Bearing Pads Elastomeric Laminated	EACH	7.000	7.000
0050	506.3020	Welded Stud Shear Connectors 7/8x7-Inch	EACH	486.000	486.000
0052	506.5000	Bearing Assemblies Fixed (structure) 01. B-17-0002	EACH	1.000	1.000
0054	506.6000	Bearing Assemblies Expansion (structure) 01. B-17-0002	EACH	1.000	1.000
0056	506.7050.S	Removing Bearings (structure) 01. B-17-0002	EACH	7.000	7.000
0058	509.1500	Concrete Surface Repair	SF	150.000	150.000
0060	513.4061	Railing Tubular Type M	LF	218.200	218.200
0062	513.7093	Railing Steel Type 3T	LF	216.600	216.600
0064	517.0601	Painting Epoxy System (structure) 01. B-17-0002	EACH	1.000	1.000
0066	517.0901.S	Preparation and Coating of Top Flanges (structure) 01. B-17-0002	EACH	1.000	1.000
0068	601.0409	Concrete Curb & Gutter 30-Inch Type A	LF	43.000	43.000
0070	601.0411	Concrete Curb & Gutter 30-Inch Type D	LF	47.000	47.000
0072	602.0405	Concrete Sidewalk 4-Inch	SF	351.000	351.000
0074	603.8000	Concrete Barrier Temporary Precast Delivered	LF	627.000	627.000
0076	603.8125	Concrete Barrier Temporary Precast Installed	LF	1,782.000	1,782.000
0078	603.8505	Anchoring Concrete Barrier Temporary Precast on Bridge Decks	LF	220.000	220.000
0080	614.0150	Anchor Assemblies for Steel Plate Beam Guard	EACH	2.000	2.000
0082	614.0200	Steel Thrie Beam Structure Approach	LF	42.000	42.000
0084	614.0305	Steel Plate Beam Guard Class A	LF	37.500	37.500
0086	614.0345	Steel Plate Beam Guard Short Radius	LF	62.500	62.500
0088	614.0390	Steel Plate Beam Guard Short Radius Terminal	EACH	2.000	2.000
0090	614.0905	Crash Cushions Temporary	EACH	6.000	6.000
0092	614.0920	Salvaged Rail	LF	170.000	170.000
0094	614.2500	MGS Thrie Beam Transition	LF	80.000	80.000
0096	618.0100	Maintenance and Repair of Haul Roads (project) 01. 8630-00-70	EACH	1.000	1.000
0098	619.1000	Mobilization	EACH	1.000	1.000

8630-00-70

Line	Item	Item Description	Unit	Total	Qty
0100	624.0100	Water	MGAL	1.000	1.000
0102	628.1504	Silt Fence	LF	565.000	565.000
0104	628.1520	Silt Fence Maintenance	LF	1,130.000	1,130.000
0106	628.1905	Mobilizations Erosion Control	EACH	4.000	4.000
0108	628.1910	Mobilizations Emergency Erosion Control	EACH	4.000	4.000
0110	628.7015	Inlet Protection Type C	EACH	1.000	1.000
0112	638.2102	Moving Signs Type II	EACH	8.000	8.000
0114	638.4000	Moving Small Sign Supports	EACH	8.000	8.000
0116	642.5001	Field Office Type B	EACH	1.000	1.000
0118	643.0300	Traffic Control Drums	DAY	3,237.000	3,237.000
0120	643.0420	Traffic Control Barricades Type III	DAY	1,906.000	1,906.000
0122	643.0715	Traffic Control Warning Lights Type C	DAY	2,417.000	2,417.000
0124	643.0900	Traffic Control Signs	DAY	7,177.000	7,177.000
0126	643.1000	Traffic Control Signs Fixed Message	SF	96.000	96.000
0128	643.1070	Traffic Control Cones 42-Inch	DAY	1,500.000	1,500.000
0130	643.3165	Temporary Marking Line Paint 6-Inch	LF	5,836.000	5,836.000
0132	643.3850	Temporary Marking Stop Line Removable Tape 18-Inch	LF	78.000	78.000
0134	643.5000	Traffic Control	EACH	1.000	1.000
0136	644.1810	Temporary Pedestrian Barricade	LF	508.000	508.000
0138	646.2020	Marking Line Epoxy 6-Inch	LF	3,720.000	3,720.000
0140	646.9000	Marking Removal Line 4-Inch	LF	2,790.000	2,790.000
0142	650.4500	Construction Staking Subgrade	LF	56.000	56.000
0144	650.5000	Construction Staking Base	LF	56.000	56.000
0146	650.5500	Construction Staking Curb Gutter and Curb & Gutter	LF	90.000	90.000
0148	650.6501	Construction Staking Structure Layout (structure) 01. B-17-0002	EACH	1.000	1.000
0150	650.9500	Construction Staking Sidewalk (project) 01. 8630-00-70	EACH	1.000	1.000
0152	650.9911	Construction Staking Supplemental Control (project) 01. 8630-00-70	EACH	1.000	1.000
0154	661.0101	Temporary Traffic Signals for Bridges (structure) 01. B-17-0002	EACH	1.000	1.000
0156	690.0150	Sawing Asphalt	LF	35.000	35.000
0158	690.0250	Sawing Concrete	LF	12.000	12.000
0160	715.0502	Incentive Strength Concrete Structures	DOL	1,650.000	1,650.000
0162	999.2000.S	Installing and Maintaining Bird Deterrent System (station) 01. 6+86.49	EACH	1.000	1.000
0164	ASP.1T0A	On-the-Job Training Apprentice at $5.00/HR	HRS	300.000	300.000
0166	ASP.1T0G	On-the-Job Training Graduate at $5.00/HR	HRS	300.000	300.000
0168	SPV.0060	Special 01. Temporary Vehicle Detection B-17-0002	EACH	1.000	1.000
0170	SPV.0060	Special 02. Cleaning and Painting Bearings	EACH	2.000	2.000

3

REMOVING ASPHALT & CONCRETE ITEMS

STATION	TO	STATION	LOCATION	204.0110 REMOVING ASPHALTIC SURFACE SY	204.0115 REMOVING ASPHALTIC SURFACE BUTT JOINTS SY	204.0120 REMOVING ASPHALTIC SURFACE MILLING SY	204.0150 REMOVING CURB & GUTTER LF	204.0155 REMOVING CONCRETE SIDEWALK SY	205.0100 EXCAVATION COMMON CY
4+99.91	-	5+54.91	STH 170	20	6	195	--	--	2.5
5+54.94	-	5+76.48	STH 170	70	--	--	--	--	--
7+96.5	-	8+18.3	STH 170	57	--	--	--	--	--
8+12.06	-	8+42.2	STH 170, RT	23	--	--	--	--	--
8+18.3	-	8+53.3	STH 170	20	6	94	--	--	2.5
7+88.7	-	8+53.3	STH 170, LT	--	--	--	--	33	--
7+90.15	-	8+53.3	STH 170, LT	--	--	--	63	--	--
			TOTAL 0010	190	12	289	63	33	5

NOTE: REMOVING ASPHALTIC CURB WILL BE PAID FOR AS REMOVING ASPHALTIC SURFACE.

BASE AGGEGRATE DENSE

STATION	TO	STATION	LOCATION	305.0110 BASE AGGREGATE DENSE 3/4-INCH TON	305.0120 BASE AGGREGATE DENSE 1 1/4-INCH TON
4+99.91	-	5+83.98	STH 170, RT/LT	20	--
5+54.91	-	5+83.98	STH 170	--	20
5+54.91	-	5+68.41	STH 170, LT	5	--
7+90.15	-	8+13.3	STH 170	--	20
7+86.1	-	8+53.3	STH 170,LT	15	--
7+86.1	-	8+53.3	STH 170, RT/LT	20	--
8+12.06	-	8+42.2	STH 170, RT	5	--
			TOTAL 0010	65	40

NOTE: UNDISTRIBUTED BASE AGGREATGE AT SHOULDERS

CONCRETE PAVEMENT APPROACH SLAB

STATION	TO	STATION	LOCATION	415.0410 CONCRETE PAVEMENT APPROACH SLAB SY
5+54.91	-	5+83.98	STH 170	60
7+90.15	-	8+13.3	STH 170	57
			TOTAL 0010	117

ASPHALTIC SURFACE

STATION	TO	STATION	LOCATION	455.0605 TACK COAT GAL	465.0105 ASPHALTIC SURFACE TON	465.0310 ASPHALTIC CURB LF
4+99.91	-	5+54.91	STH 170	14	45	-
4+99.91	-	5+60.91	STH 170, LT	-	-	61
8+13.3	-	8+53.3	STH 170	7	30	-
			TOTAL 0010	21	75	61

CONCRETE CURB & GUTTER

STATION	TO	STATION	LOCATION	601.0409 CONCRETE CURB & GUTTER 30-INCH TYPE A LF	601.0411 CONCRETE CURB & GUTTER 30-INCH TYPE D LF
5+54.91	-	5+69.9	STH 170, LT	15	-
7+88.7	-	8+18.3	STH 170, LT	28	-
8+18.3	-	8+53.3	STH 170, LT	-	35
8+62.45	-	8+70.58	STH 170, LT	-	12
			TOTAL 0010	43	47

CONCRETE SIDEWALK 4-INCH

STATION	TO	STATION	LOCATION	602.0405 CONCRETE SIDEWALK 4-INCH SF
5+54.91	-	5+69.9	STH 170, LT	55
7+86.1	-	8+53.3	STH 170, LT	296
			TOTAL 0010	351

ALL ITEMS ON THIS SHEET
ARE CATEGORY 0010
UNLESS OTHERWISE NOTED

3

CONCRETE BARRIER TEMPORARY PRECAST

LOCATION	STAGE	603.8000 CONCRETE BARRIER TEMPORARY PRECAST DELIVERED LF	603.8125 CONCRETE BARRIER TEMPORARY PRECAST INSTALLED LF	603.8505 ANCHORING CONCRETE BARRIER TEMPORARY PRECAST ON BRIDGE DECKS LF
EB SHOULDER	1	627	627	220
WB SHOULDER	2	--	528	--
EB SHOULDER	3	--	627	--
TOTAL 0010		**627**	**1,782**	**220**

GUARDRAIL

STATION	TO	STATION	LOCATION	614.0200 STEEL THRIE BEAM STRUCTURE APPROACH LF	614.0305 STEEL PLATE BEAM GUARD CLASS A LF	614.0345 STEEL PLATE BEAM GUARD SHORT RADIUS LF	614.0390 STEEL PLATE BEAM GUARD SHORT RADIUS TERMINAL EACH	614.0920 SALVAGED RAIL LF	614.2500 MGS THRIE BEAM TRANSITION LF
5+29.08	-	5+68.47	STH 170, LT	--	--	--	--	40	40
5+47.53	-	5+86.73	STH 170, RT	--	--	--	--	40	40
7+83.36	-	8+64.37	STH 170, LT	21	37.5	25	1	51	--
8+01.12	-	8+42.2	STH 170, RT	21	--	37.5	1	39	--
			TOTAL 0010	**42**	**37.5**	**62.5**	**2**	**170**	**80**

NOTE: TIE PROPOSED MGS THRIE BEAM TRANSITION INTO EXISTING MGS GUARDRAIL SYSTEM (WEST APPROACH).
SALVAGE EXISITNG MGS THRIE BEAM TRANSITION TO COUNTY ON WEST APPROACH.
SALVAGE EXISITNG GUARDRAIL TO COUNTY ON EACH APPROACH.

CRASH CUSHIONS TEMPORARY

LOCATION	STAGE	614.0905 CRASH CUSHIONS TEMPORARY EACH	BACK WIDTH	OBJECT MARKING PATTERN	CRASH TEST LEVEL	TRAFFIC DIRECTION	TRAFFIC LOCATION	CRASH CUSHION SHIELDS
EB SHOULDER	1	2	2 FT	1 OM-3L (W05-58L) 1 OM-3R (W05-58R)	TL-2	BIDIRECTIONAL	LEFT	CONCRETE BARRIER TEMPORARY PRECAST ALONG BRIDGE WORK ZONE
WB SHOULDER	2	2	2 FT	1 OM-3L (W05-58L) 1 OM-3R (W05-58R)	TL-2	BIDIRECTIONAL	RIGHT	CONCRETE BARRIER TEMPORARY PRECAST ALONG BRIDGE WORK ZONE
EB SHOULDER	3	2	2 FT	1 OM-3L (W05-58L) 1 OM-3R (W05-58R)	TL-2	BIDIRECTIONAL	LEFT	CONCRETE BARRIER TEMPORARY PRECAST ALONG BRIDGE WORK ZONE
TOTAL 0010		**6**						

EROSION CONTROL ITEMS

STATION	TO	STATION	LOCATION	628.1504 SILT FENCE LF	628.1520 SILT FENCE MAINTENANCE LF	628.7015 INLET PROTECTION TYPE C EACH
5+00	-	6+00	STH 170	220	440	-
7+75	-	8+55	STH 170	230	460	-
	8+58		STH 170, LT	-	-	1
			UNDISTRIBUTED	115	230	-
			TOTAL 0010	**565**	**1,130**	**1**

MOBILIZATIONS EROSION CONTROL

LOCATION	628.1905 MOBILIZATIONS EROSION CONTROL EACH	628.1910 MOBILIZATIONS EMERGENCY EROSION CONTROL EACH
PROJECT LIMITS	4	4
TOTAL 0010	**4**	**4**

WATER

LOCATION	624.0100 WATER MGAL
COMPACTION	1
TOTAL 0010	**1**

SIGNS

STATION	LOCATION	638.2102 MOVING SIGNS TYPE II EACH	638.4000 MOVING SMALL SIGN SUPPORTS EACH	REMARKS
5+27	LT	1	1	SPEED LIMIT 40 MPH SIGN
5+63	LT	1	1	OBJECT MARKER SIGN
5+76	RT	1	1	STOP AHEAD SIGN
5+83	RT	1	1	OBJECT MARKER SIGN
7+86	LT	1	1	OBJECT MARKER SIGN
8+06	RT	1	1	OBJECT MARKER SIGN
8+26	LT	1	1	STH 170 WEST SIGN
8+64	LT	1	1	STOP SIGN
	TOTAL 0010	**8**	**8**	

ALL ITEMS ON THIS SHEET
ARE CATEGORY 0010
UNLESS OTHERWISE NOTED

3

3

TRAFFIC CONTROL

STAGE	DURATION DAYS	EACH	643.0300 TRAFFIC CONTROL DRUMS DAY	EACH	643.0420 TRAFFIC CONTROL BARRICADES TYPE III DAY	EACH	643.0715 TRAFFIC CONTROL WARNING LIGHTS TYPE C DAY	EACH	643.0900 TRAFFIC CONTROL SIGNS DAY	643.1000 TRAFFIC CONTROL SIGNS FIXED MESSAGE SF	EACH	643.1070 TRAFFIC CONTROL CONES 42-INCH DAY	643.5000 TRAFFIC CONTROL EACH	644.1810 TEMPORARY PEDESTRIAN BARRICADE LF	661.0101 TEMPORARY TRAFFIC SIGNALS FOR BRIDGES (STRUCTURE) (01. B-17-0002) EACH	SPV.0060.01 SPECIAL (01. TEMPORARY VEHICLE DETECTION B-17-0002) LS	REMARKS
7 DAYS PRIOR TO CONSTRUCTION	7	10	70	--	--	--	--	--	--	96		--	--	--	--	--	--
STAGE 1	59	27	1593	14	826	21	1,239	57	3,363	--	12	708	--	508		--	TEMP PED BARRICADES INSTALLED STAGE 1, REMOVED STAGE 3
STAGE 2	52	23	1196	17	884	17	884	58	3,016	--	12	624	--	--	1	--	--
STAGE 3	14	27	378	14	196	21	294	57	798	--	12	168	--	--		--	--
UNDISTRIBUTED	--	--	--	--	--	--	--	--	--	--		--	1	--	--	1	--
TOTAL 0010			**3,237**		**1,906**		**2,417**		**7,177**	**96**		**1,500**	**1**	**508**	**1**	**1**	

TEMPORARY MARKING LINE REMOVABLE TAPE

LOCATION	COLOR/DESCRIPTION	STAGE	643.3165 TEMPORARY MARKING LINE PAINT 6-INCH LF	643.3850 TEMPORARY MARKING STOP LINE REMOVABLE TAPE 18-INCH LF
STH 170	WHITE/EDGELINE	1	2,370	26
STH 170	WHITE/EDGELINE	2	1,096	26
STH 170	WHITE/EDGELINE	3	2,370	26
TOTAL 0010			**5,836**	**78**

MARKING LINE EPOXY 6-INCH

STATION	TO	STATION	LOCATION	COLOR/DESCRIPTION	646.2020 MARKING LINE EPOXY 6-INCH LF	646.9000 MARKING LINE REMOVAL 4-INCH LF	REMARKS
+83.1	-	10+13.1	STH 170	DOUBLE YELLOW CENTERLINE	1860	1860	STOP LINE TO STOP LINE
+83.1	-	10+13.1	STH 170	WHITE EDGELINE	1860	930	STOP LINE TO STOP LINE, REMOVAL WB STH 170 ONLY
TOTAL 0010					**3,720**	**2,790**	

CONSTRUCTION STAKING

STATION	TO	STATION	LOCATION	650.4500 CONSTRUCTION STAKING SUBGRADE LF	650.5000 CONSTRUCTION STAKING BASE LF	650.5500 CONSTRUCTION STAKING CURB GUTTER AND CURB & GUTTER LF	650.9500.01 CONSTRUCTION STAKING SIDEWALK (PROJECT) (01. 8630-00-70) EACH
5+54.91	-	5+69.9	STH 170, LT	--	--	15	--
7+88.7	-	8+53.3	STH 170, LT	--	--	63	--
8+62.45	-	8+70.58	STH 170, LT	--	--	12	--
5+54.91		8+53.3	STH 170, LT	--	--	--	1
5+54.91	-	5+83.98	STH 170	29	29	--	--
7+86.1	-	8+13.3	STH 170	27	27	--	--
			TOTAL 0010	**56**	**56**	**90**	**1**

CONSTRUCTION STAKING STRUCTURE LAYOUT

CATEGORY	STATION	LOCATION	650.6501.01 CONSTRUCTION STAKING STRUCTURE LAYOUT (STRUCTURE) (01. B-17-0002) EACH
0020	6+86.49	B-17-0002	1
		TOTAL 0020	**1**

CONSTRUCTION STAKING SUPPLEMENTAL CONTROL

PROJECT	650.9911.01 CONSTRUCTION STAKING SUPPLEMENTAL CONTROL (PROJECT) (01. 8630-00-70) EACH
863-00-70	1
TOTAL 0010	**1**

ALL ITEMS ON THIS SHEET
ARE CATEGORY 0010
UNLESS OTHERWISE NOTED

SAWING

STATION	LOCATION	690.0150 SAWING ASPHALT LF	690.0250 SAWING CONCRETE LF
8+18.30 - 8+53.30	STH 170	35	--
8+53.3	STH 170	--	7.0
8+62.45	STH 170, LT	--	2.5
8+70.58	STH 170, LT	--	2.5
	TOTAL 0010	**35**	**12.0**

INSTALLING AND MAINTAINING BIRD DETERRENT SYSTEM

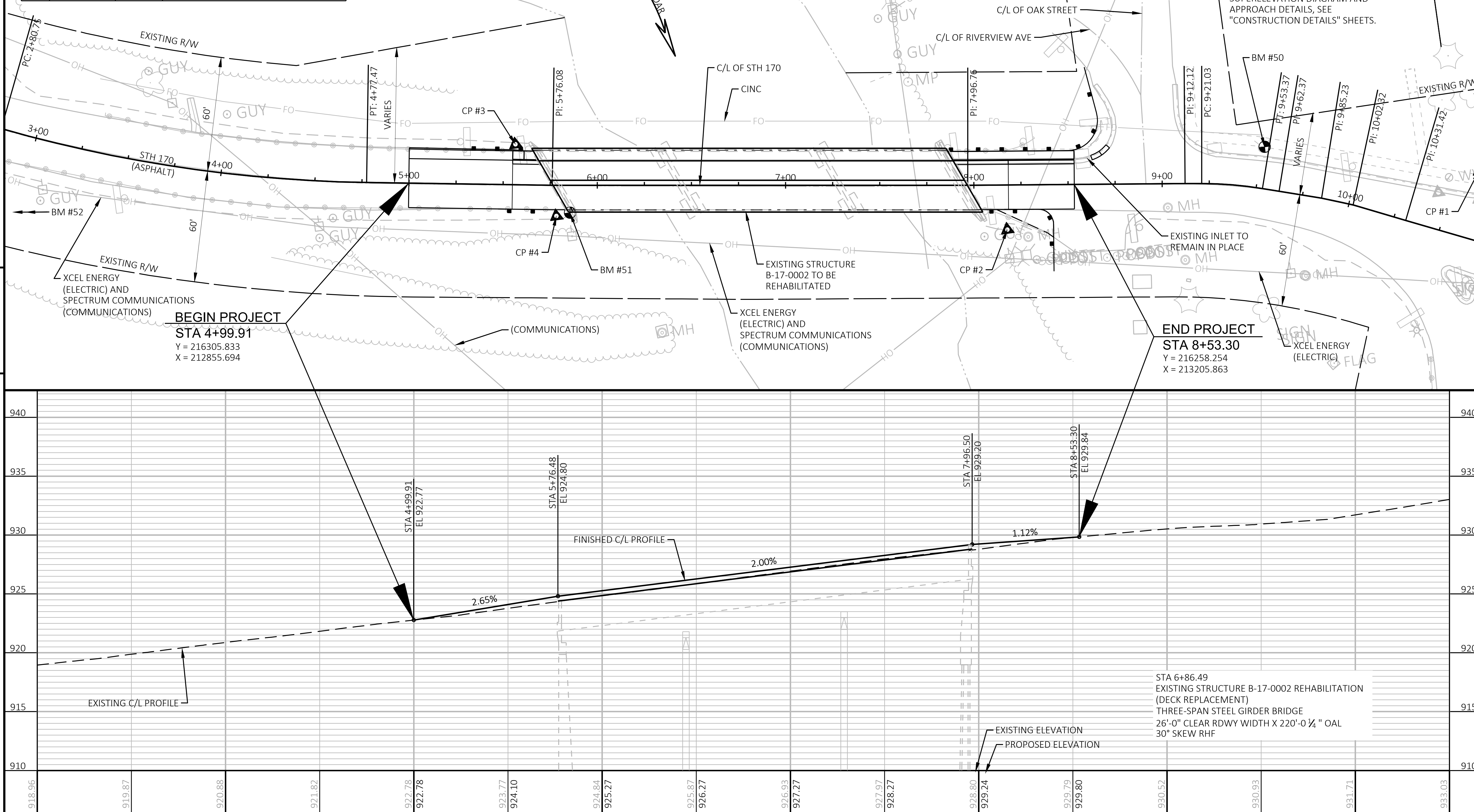
STATION	LOCATION	999.2000.S.01 INSTALLING AND MAINTAINING BIRD DETERRENT SYSTEM (STATION) (01. 6+86.49) EACH
6+86.49	B-17-0002	1
	TOTAL 0010	**1**

ALL ITEMS ON THIS SHEET
ARE CATEGORY 0010
UNLESS OTHERWISE NOTED

BENCH MARKS			
NO.	STATION	ELEV.	DESCRIPTION
50	9+51	933.14	BURY BOLT ON HYDRANT, 22' LT.
51	5+85	924.35	MONUMENT ON BRIDGE, 15' RT.
52	1+82	917.33	RR SPIKE IN POWER POLE, 26' RT.

NOTES:
FOR ALIGNMENT CONTROL POINTS, TIES, BEARINGS, AND COORDINATES, SEE "ALIGNMENT CONTROLS" SHEET.

FOR GUARDRAIL LAYOUT, SUPERELEVATION DIAGRAM AND APPROACH DETAILS, SEE "CONSTRUCTION DETAILS" SHEETS.

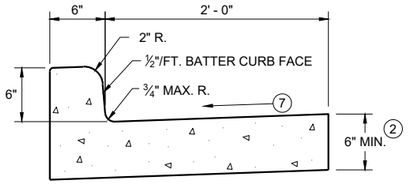


PROJECT NO: 8630-00-70	HWY: STH 170	COUNTY: DUNN	PLAN AND PROFILE:	SHEET 20	E

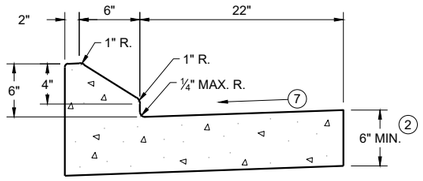
FILE NAME : I:\42\42-1334.00 - DUNN CO, STH 170\C3D\SHEETS\050101-PP.DWG
LAYOUT NAME - pp
PLOT DATE : 11/19/2025 10:09 AM PLOT BY : WALDERA, KAREN PLOT NAME : PLOT SCALE : 1 IN:50 FT

Standard Detail Drawing List

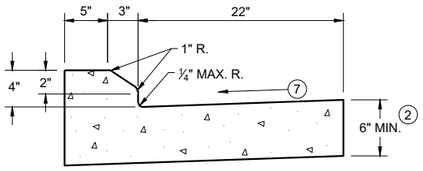
08D01-24A	CONCRETE CURB & GUTTER
08E09-06	SILT FENCE
09G02-05C	BRIDGE TEMPORARY TRAFFIC SIGNAL INSTALLATION
12A03-10	NAME PLATE (STRUCTURES)
13B02-09A	CONCRETE PAVEMENT APPROACH SLAB
14B07-16A	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B07-16B	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B07-16C	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B07-16D	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B07-16E	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B07-16F	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B07-16G	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B07-16H	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
14B15-11A	STEEL PLATE BEAM GUARD, CLASS "A" INSTALLATION & ELEMENTS
14B15-11B	STEEL PLATE BEAM GUARD, CLASS "A" INSTALLATION & ELEMENTS
14B15-11C	STEEL PLATE BEAM GUARD, CLASS "A", INSTALLATION & ELEMENTS
14B20-12A	STEEL THRIE BEAM STRUCTURE APPROACH
14B20-12C	STEEL THRIE BEAM STRUCTURE APPROACH, CONNECTION TO VERTICAL FACED PARAPETS
14B20-12F	STEEL THRIE BEAM STRUCTURE APPROACH, CONNECTION TO BRIDGE RAILING TYPE "M"
14B27-01A	STEEL PLATE BEAM GUARD SHORT RADIUS TERMINAL
14B27-01B	STEEL PLATE BEAM GUARD SHORT RADIUS TERMINAL
14B27-01C	STEEL PLATE BEAM GUARD SHORT RADIUS TERMINAL
14B42-07A	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-07B	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-07C	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-07D	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B45-05A	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05B	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05C	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05E	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05H	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
15C02-09F	ADVANCED WIDTH RESTRICTION SIGNING
15C04-05	TRAFFIC CONTROL, ADVANCE WARNING SIGNS 45 M.P.H. OR GREATER TWO-WAY UNDIVIDED ROAD OPEN TO TRAFFIC
15C08-24A	PERMANENT LONGITUDINAL PAVEMENT MARKINGS
15C08-24B	TEMPORARY LONGITUDINAL PAVEMENT MARKING
15D12-15B	TRAFFIC CONTROL, LANE CLOSURE, SPEED REDUCTION
15D33-09	TRAFFIC CONTROL, ONE LANE ROAD WITH TEMPORARY SIGNALS



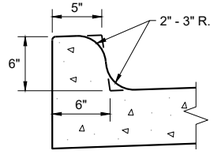
TYPES A (1) & D



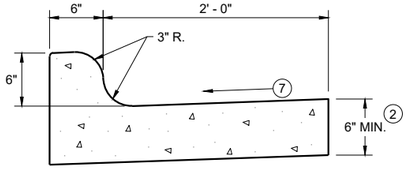
6" SLOPED CURB TYPES G (1) & J



4" SLOPED CURB TYPES G (1) & J

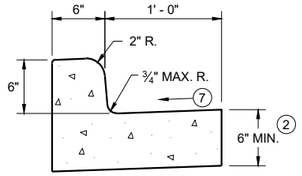


TYPES K (1) & L
(OPTIONAL CURB SHAPE)



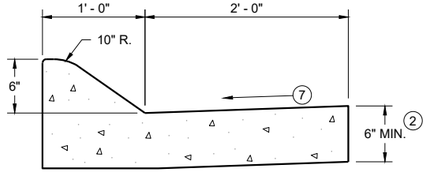
TYPES K (1) & L

CONCRETE CURB AND GUTTER 30"

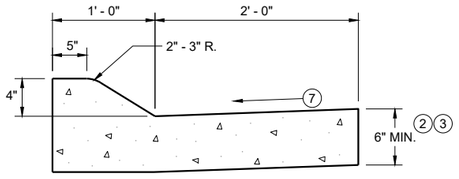


TYPES A (1) & D

CONCRETE CURB AND GUTTER 18"

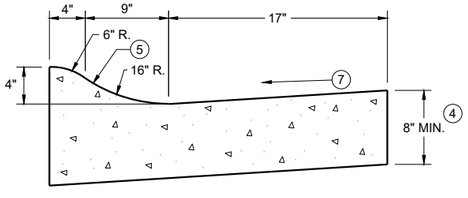


6" SLOPED CURB TYPES A (1) & D



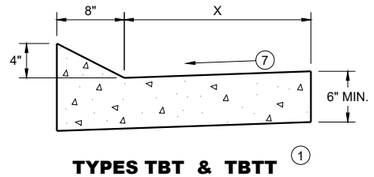
4" SLOPED CURB TYPES A (1) & D

CONCRETE CURB AND GUTTER 36"



4" SLOPED CURB TYPES R (1) & T
CONCRETE CURB AND GUTTER 30"

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

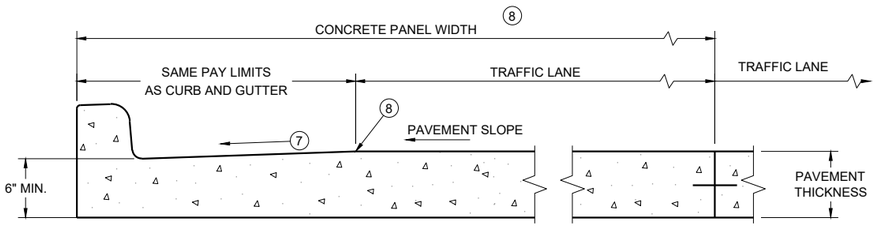


TYPES TBT & TBTT (1)

CONCRETE CURB AND GUTTER

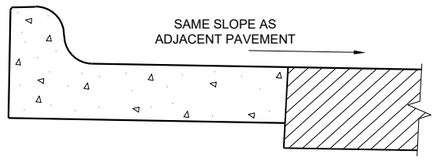
PAVEMENT THICKNESS AND MAXIMUM CONCRETE PANEL WIDTH TABLE

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



PARTIAL SECTION OF PAVEMENT * WITH INTEGRAL CURB AND GUTTER

* BIKE LANE IS NOT SHOWN



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

GENERAL NOTES

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

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

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

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

(1) TIE BARS ARE REQUIRED FOR CURB AND GUTTERS TYPES A, G, K, R, AND TBTT.

(2) THE BOTTOM OF CURB AND GUTTER MAY BE CONSTRUCTED EITHER LEVEL OR PARALLEL TO THE SLOPE OF THE SUBGRADE OR BASE AGGREGATE PROVIDED A 6" MINIMUM GUTTER THICKNESS IS MAINTAINED.

(3) USE 8" MINIMUM GUTTER THICKNESS WHEN USED WITH AN ADJACENT CONCRETE TRUCK APRON PLACED BEHIND BACK OF CURB.

(4) THE BOTTOM OF CURB AND GUTTER MAY BE CONSTRUCTED EITHER LEVEL OR PARALLEL TO THE SLOPE OF THE SUBGRADE OR BASE AGGREGATE PROVIDED A 8" MINIMUM GUTTER THICKNESS IS MAINTAINED.

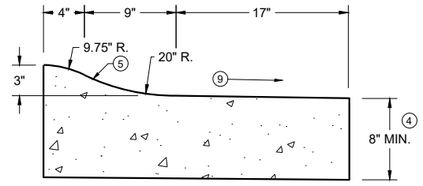
(5) UNLESS OTHERWISE NOTED, FOR STAKING PURPOSES THE FACE OF CURB IS 6" FROM THE BACK OF CURB.

(6) WHEN REVERSE SLOPE GUTTER IS REQUIRED, THE LOCATION(S) WILL BE SHOWN ELSEWHERE IN THE PLAN.

(7) USE 4% GUTTER CROSS SLOPE UNLESS OTHERWISE NOTED IN THE PLANS.

(8) INCLUDE LONGITUDINAL JOINT AND TIE BARS ALONG LANE EDGE WHEN CONCRETE PANEL WIDTH EXCEEDS THE MAXIMUM WIDTH PER TABLE BELOW. LONGITUDINAL JOINT(S) ARE NOT ALLOWED WITHIN TRAFFIC LANES AND BIKE LANES. LONGITUDINAL JOINT MAY BE SAWED.

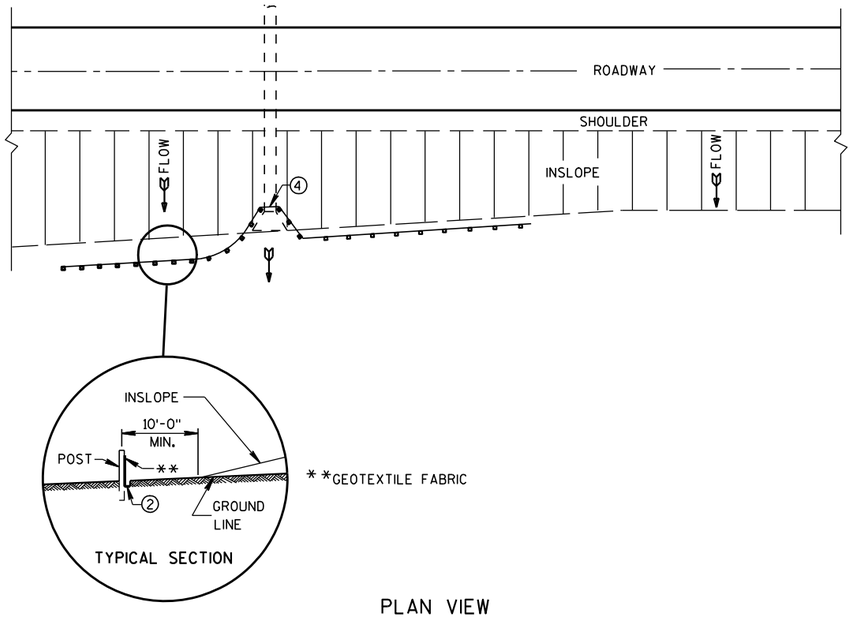
(9) SLOPE TO BE REVERSE SLOPE MATCHING THE SLOPE OF THE PAVEMENT AND THE CIRCULATORY ROADWAY



3" SLOPED CURB TYPES R (1) & T

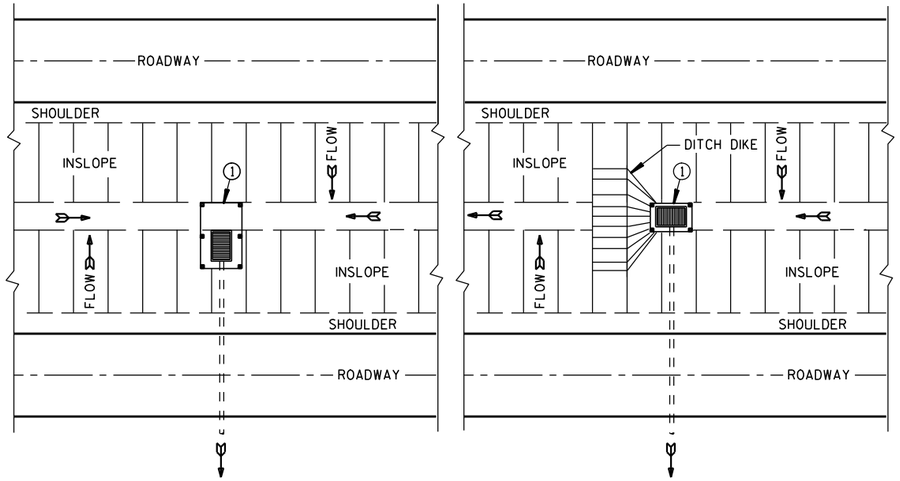
CONCRETE CURB AND GUTTER

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



PLAN VIEW

TYPICAL APPLICATION OF SILT FENCE



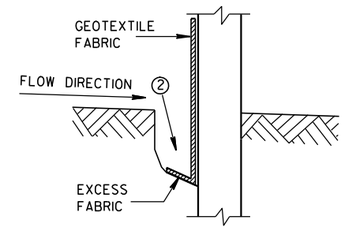
PLAN VIEW

SILT FENCE AT MEDIAN SURFACE DRAINS

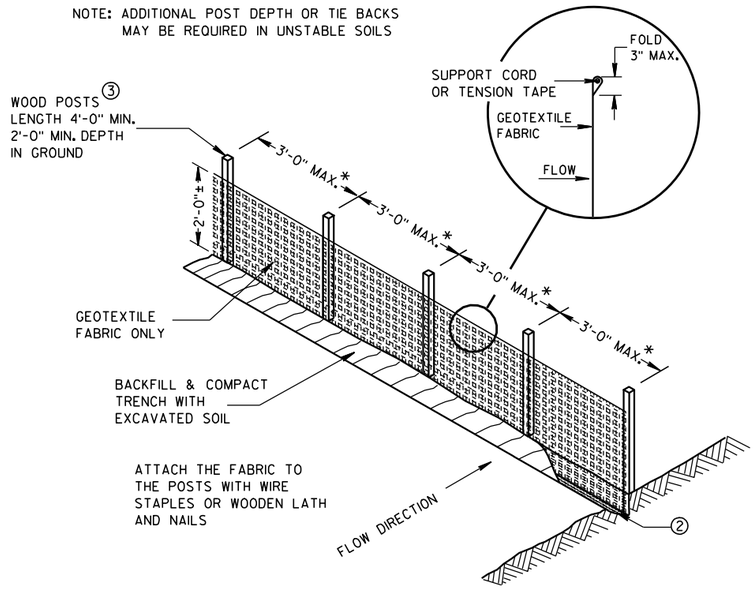
GENERAL NOTES

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

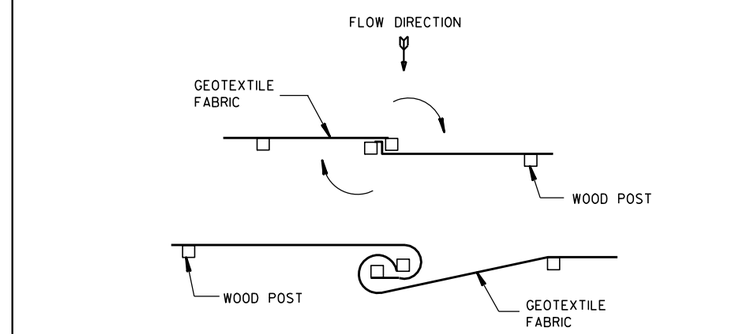
1. HORIZONTAL BRACE REQUIRED WITH 2" X 4" WOODEN FRAME OR EQUIVALENT AT TOP OF POSTS.
2. FOR MANUAL INSTALLATIONS THE TRENCH SHALL BE A MINIMUM OF 4" WIDE & 6" DEEP TO BURY AND ANCHOR THE GEOTEXTILE FABRIC. FOLD MATERIAL TO FIT TRENCH AND BACKFILL & COMPACT TRENCH WITH EXCAVATED SOIL.
3. WOOD POSTS SHALL BE A MINIMUM SIZE OF 1⅛" X 1⅛" OF OAK OR HICKORY.
4. SILT FENCE TO EXTEND ACROSS THE TOP OF THE PIPE.
5. CONSTRUCT SILT FENCE FROM A CONTINUOUS ROLL IF POSSIBLE BY CUTTING LENGTHS TO AVOID JOINTS. IF A JOINT IS NECESSARY USE ONE OF THE FOLLOWING TWO METHODS; A) OVERLAP THE END POSTS AND TWIST, OR ROTATE, AT LEAST 180 DEGREES, B) HOOK THE END OF EACH SILT FENCE LENGTH.



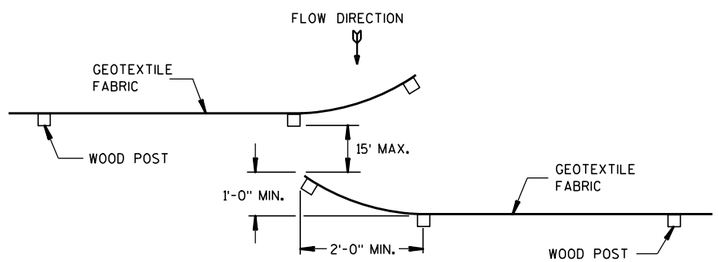
TRENCH DETAIL



SILT FENCE

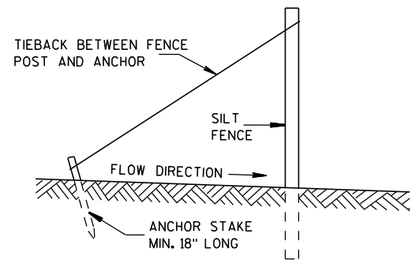


TWIST METHOD



HOOK METHOD

JOINING TWO LENGTHS OF SILT FENCE 5



SILT FENCE TIE BACK

(WHEN REQUIRED BY THE ENGINEER)

SILT FENCE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

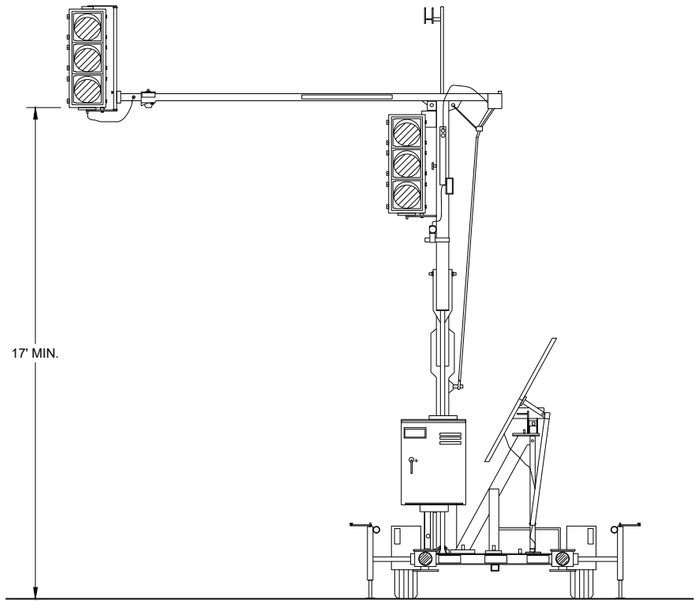
APPROVED
4-29-05 DATE
/S/ Beth Cannestra
CHIEF ROADWAY DEVELOPMENT ENGINEER
FHWA

6

S.D.D. 8 E 9-6

6

S.D.D. 8 E 9-6

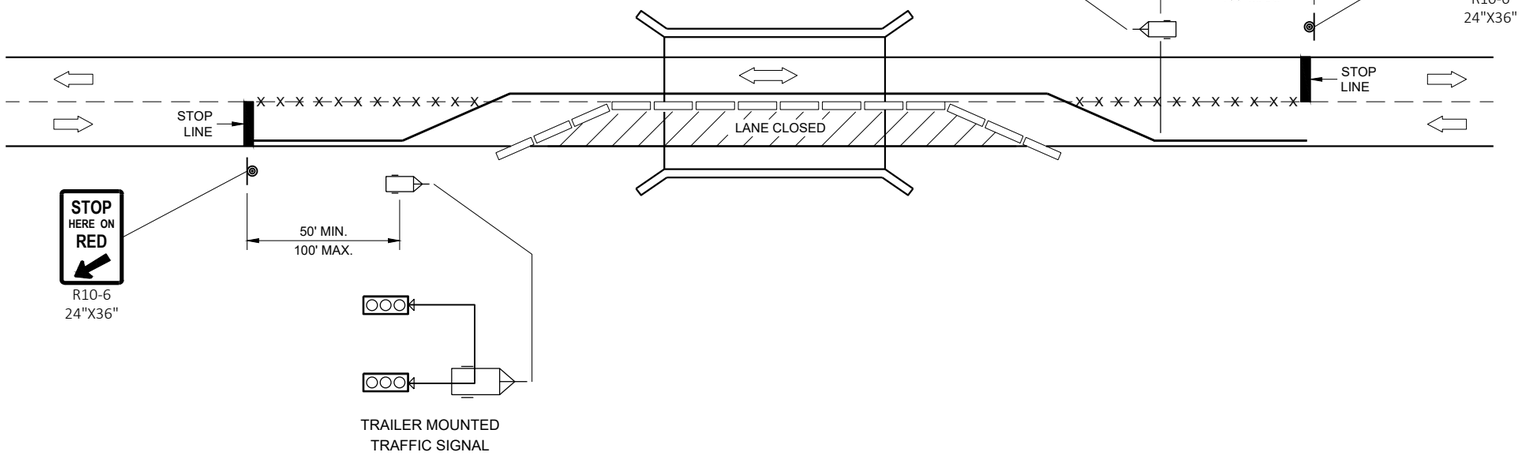


TRAILER MOUNTED TRAFFIC SIGNAL

GENERAL NOTES

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

SIGNING, PAVEMENT MARKING AND LANE CONTROL REQUIREMENTS SHALL CONFORM TO STANDARD DETAIL DRAWING 15D33.



TYPICAL TRAILER MOUNTED TRAFFIC SIGNAL LOCATION

LEGEND

- POST MOUNTED SIGN
- TEMPORARY PRECAST CONCRETE BARRIER
- TRAILER MOUNTED TRAFFIC SIGNAL
- REMOVE PAVEMENT MARKINGS
- DIRECTION OF TRAFFIC

BRIDGE TEMPORARY TRAFFIC SIGNAL INSTALLATION

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

June 2015
DATE

/S/ Ahmet Demerbilek
ROADWAY STANDARDS DEVE ENGINEER

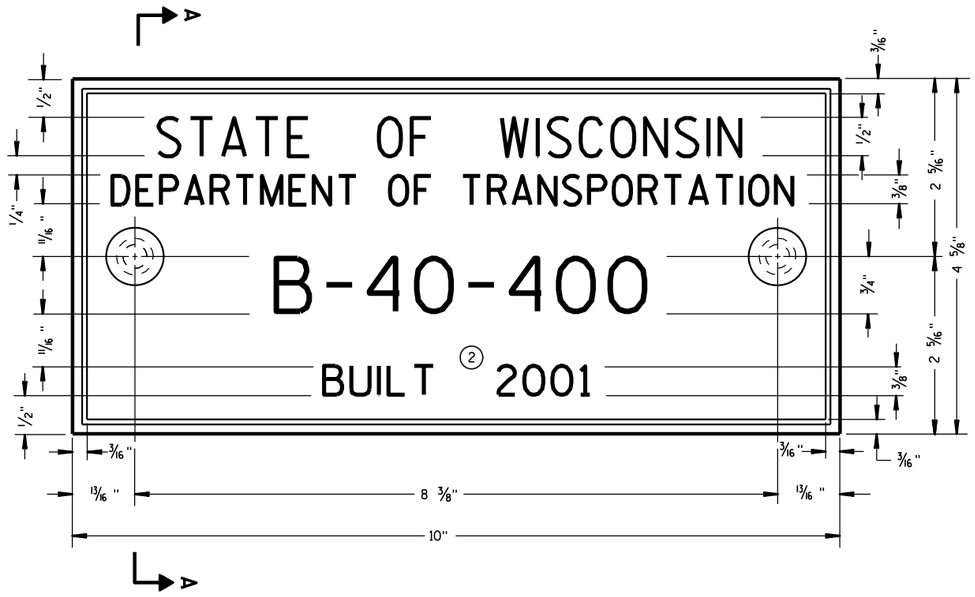
FHWA

6

SDD09G02 - 05c

6

SDD09G02 - 05c



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

FOR MULTI-UNIT STRUCTURES
LINE 3 ABOVE SHALL READ

B = BRIDGE
C = CULVERT
R = RETAINING WALL

COUNTY NO.

BRIDGE NO.

UNIT NO. FOR MULTIPLE UNIT BRIDGE

B-40-400-1A

NUMBERING DESIGNATION
MULTI-UNIT STRUCTURES

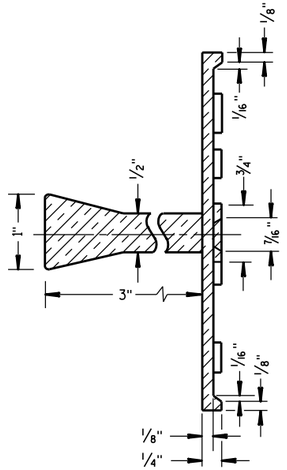
GENERAL NOTES

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

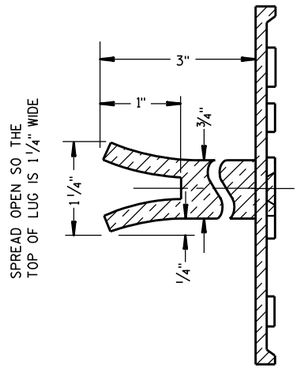
THE BRIDGE NUMBER AND YEAR BUILT SHOWN ON THIS DRAWING ARE EXAMPLES ONLY. SEE CONSTRUCTION PLANS FOR INDIVIDUAL NUMBERING AND YEAR BUILT.

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

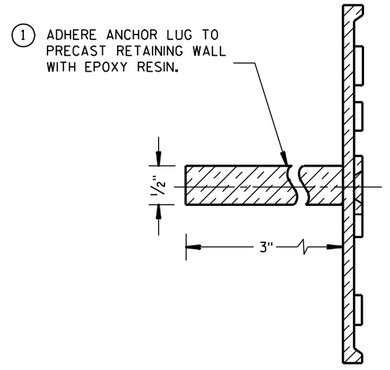
(2) REHABILITATION OF AN EXISTING STRUCTURE SHOULD USE THE DATE OF ORIGINAL STRUCTURE CONSTRUCTION.



SECTION A-A



ALTERNATE LUG



ALTERNATE LUG
(FOR ATTACHMENT TO PRECAST STRUCTURES)

NAME PLATE (STRUCTURES)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

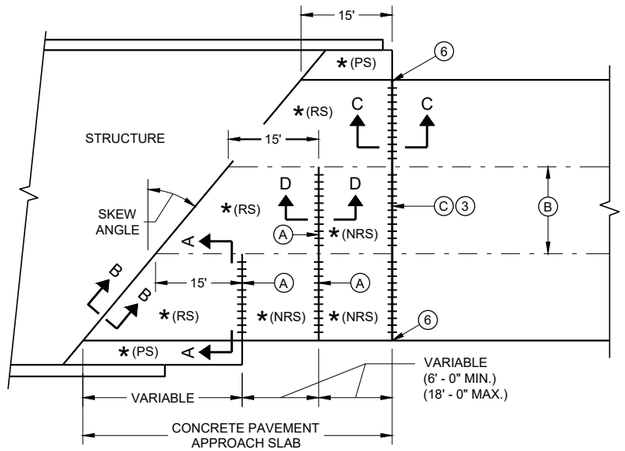
3/26/10 DATE

/S/ Scot Beck CHIEF STRUCTURAL DEVELOPMENT ENGINEER

FHWA

6

S.D.D. 12 A 3-10



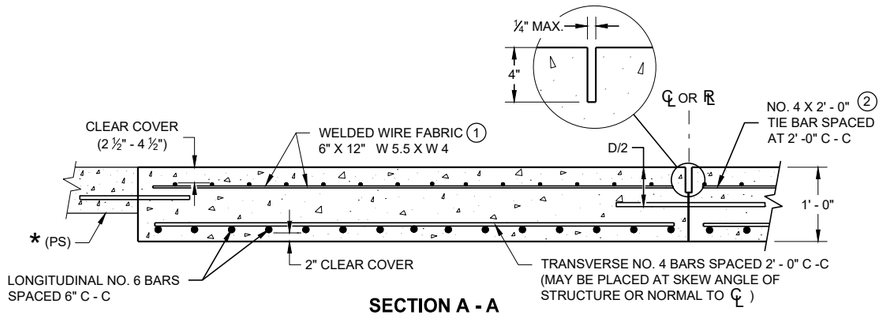
SKEWED APPROACH
(PAVEMENT MORE THAN TWO LANES)

(RS) = REINFORCED CONCRETE SLAB

(PS) = PAVED CONCRETE SHOULDER OR CONCRETE DRAINAGE SLAB

(NRS) - NON - REINFORCED CONCRETE SLAB

*** STANDARD DOWEL BAR DIAMETER (SEE SDD 13C11 AND SDD 13C13)



SECTION A - A
REINFORCEMENT POSITIONING DETAIL

GENERAL NOTES

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

TACK WELD DOWEL BARS TO THE BASKETS ON ALTERNATE ENDS.

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

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

(3) DO NOT CONSTRUCT AN EXPANSION JOINT OR INSTALL DOWEL BARS WHEN ABUTTING AN HMA PAVEMENT.

(4) USE A JOINT SEALANT CONFORMING TO STANDARD SPECIFICATION 415.2.6.

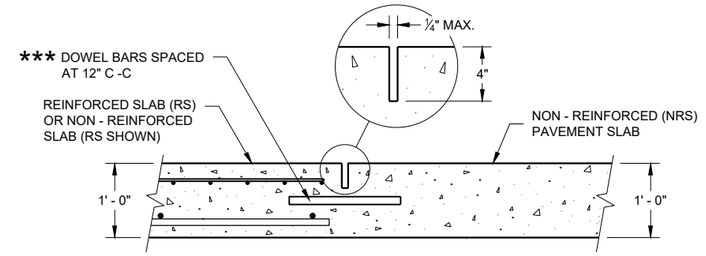
(5) PLACE EXPANSION CAP ON THE END OF THE DOWEL THAT IS NOT TACK WELDED TO THE BASKET. DO NOT FORCE DOWEL BAR PAST THE DOWEL STOP.

(6) EXTEND EXPANSION JOINT THROUGH ANY ADJACENT TIED CONCRETE.

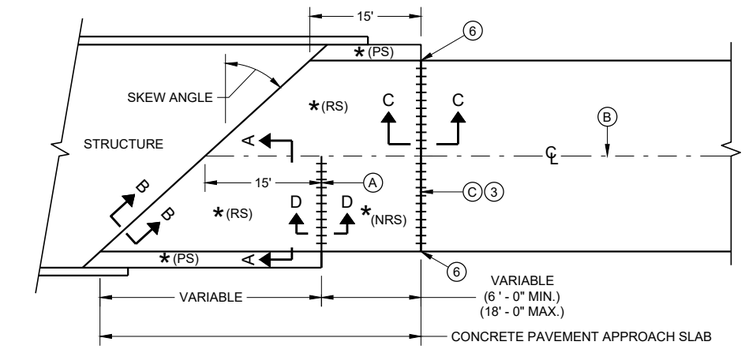
(A) STANDARD CONTRACTION JOINT NORMAL TO ℄ OR ℞.

(B) STANDARD LONGITUDINAL JOINT WITH TIE BARS.

(C) 1 ½" EXPANSION JOINT WITH DOWEL BARS NORMAL TO ℄ OR ℞ .

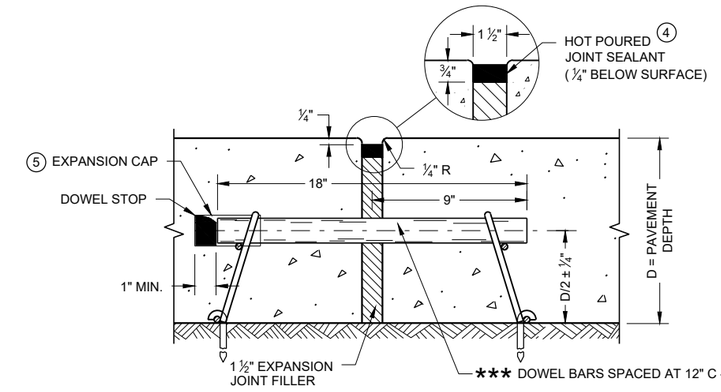


SECTION D - D
CONTRACTION JOINT



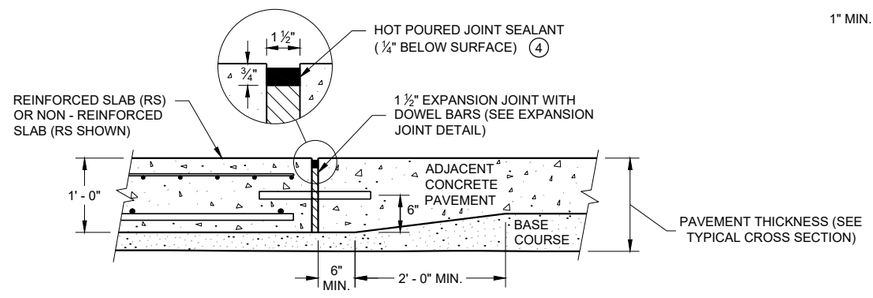
SKEWS > 20°
(PAVEMENT WIDTH ≤ 30')

SECTION B - B
BEND DETAIL
BOTTOM REINFORCEMENT



EXPANSION JOINT DETAIL

SKEWS ≤ 20°
(PAVEMENT WIDTH ≤ 30')



SECTION C - C
TRANSITION DETAIL
APPROACH SLAB TO ADJACENT PAVEMENT

APPROACH SLAB AND ADJACENT PAVEMENT

CONCRETE PAVEMENT APPROACH SLAB

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
November 2018
DATE

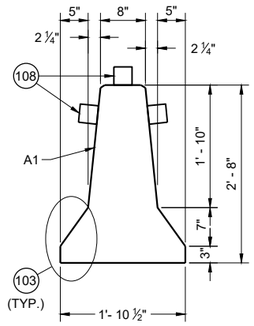
/S/ Peter Kemp, P.E.
PAVEMENT SUPERVISO

FHWA

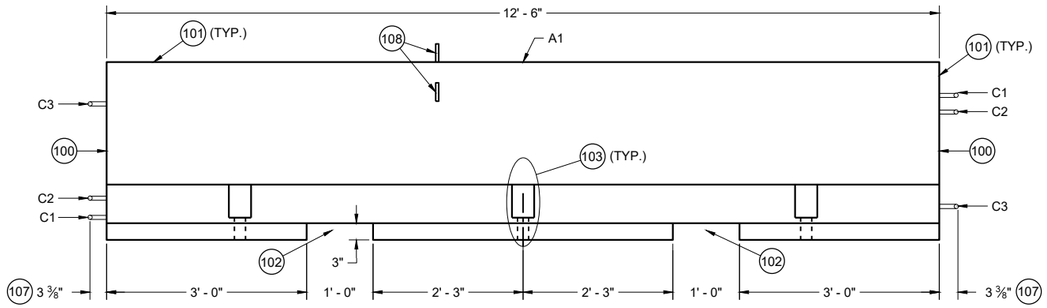
6

SDD 13B02 - 09a

SDD 13B02 - 09a



CROSS SECTION



PROFILE VIEW

GENERAL NOTES

PLACE BARRIER ON PAVED SURFACE. BEFORE PLACEMENT OF TEMPORARY BARRIER, REMOVE ALL LOOSE MATERIAL FROM PAVED SURFACE.

LOOP BARS C1, C2 AND C3 ARE NOT FOR PLACEMENT OR MOVEMENT OF BARRIER.

(100) PERMANENTLY FORM INTO ONE END OF BARRIER THE FOLLOWING INFORMATION:
- A. TYPE OF BARRIER: WI-CBTP
- B. MANUFACTURER
- C. DATE OF MANUFACTURE (MONTH AND YEAR)

(101) 1" OPTIONAL CHAMFER

(102) SEE LIFTING SLOT DETAIL

(103) SEE ANCHOR BLOCK DETAIL

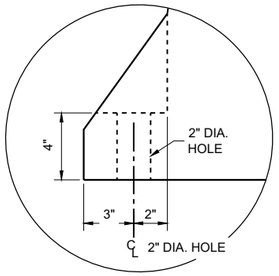
(104) 1 ¾" MIN. CLEAR COVER

(105) 2" MIN. CLEAR COVER

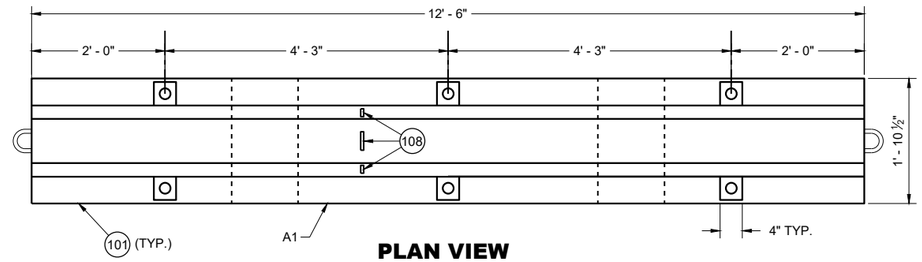
(106) 1" MIN. CLEAR COVER

(107) ± ⅛" MEASURED FROM FACE OF CONCRETE BARRIER TO OUTSIDE OF LOOP BAR (TYP.)

(108) USE DELINEATORS CONFORMING TO SECTION 633 OF THE STANDARD SPECIFICATIONS. CONTRACTOR MY USE ALTERNATE SHAPES AND HOUSING. INSTALL DELINEATORS ACCORDING TO MANUFACTURERS INSTRUCTION. INSTALL YELLOW REFLECTORS WHEN BARRIER IS LOCATED LEFT OF TRAFFIC AND WHITE WHEN BARRIER IS LOCATED RIGHT OF TRAFFIC. SPACE DELINEATORS A MAXIMUM OF 25 FEET APART, PROVIDE TOP MOUNTED DELINEATORS IN ADDITION TO SIDE MOUNTED DELINEATORS ON BARRIER INSTALLATIONS LOCATED ON A CURVED ALIGNMENT LONGER THAT 200 FEET AND ON BARRIERS USED TO SEPARATE OPPOSING TRAFFIC.

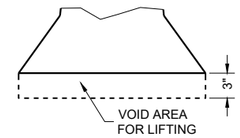


ANCHOR BLOCK DETAIL

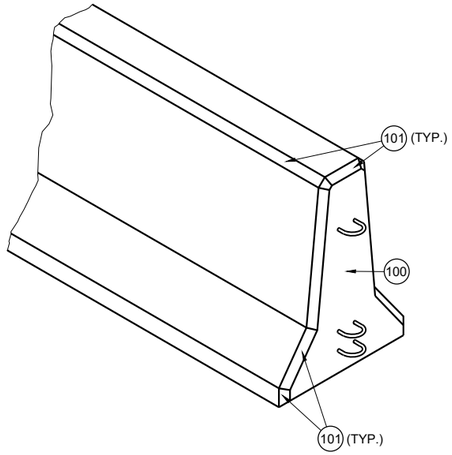


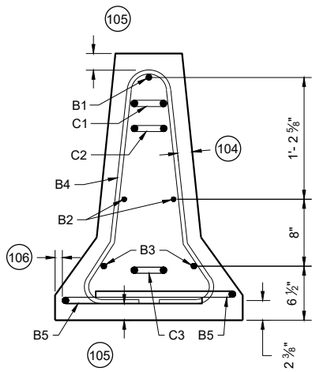
PLAN VIEW

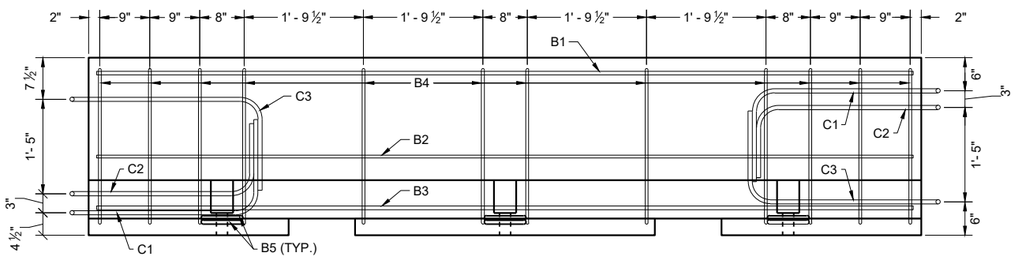
TEMPORARY BARRIER



LIFTING SLOT DETAIL (TYP.)





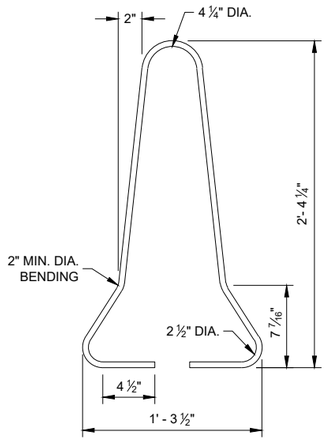


PROFILE VIEW

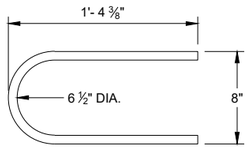
TEMPORARY BARRIER REINFORCEMENT

CONCRETE BARRIER TEMPORARY PRECAST, 12' - 6"

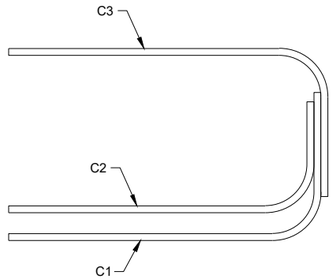
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



B4 BAR DETAIL

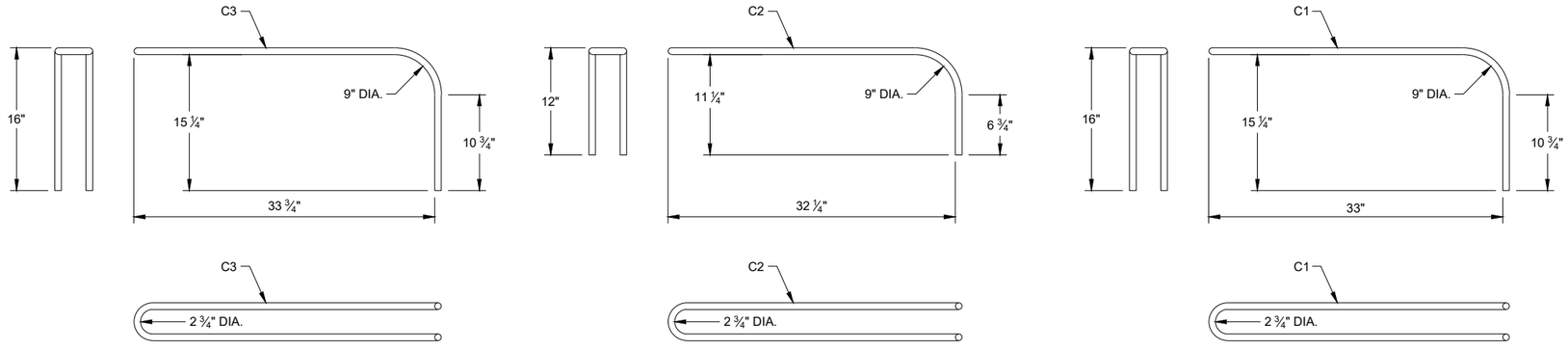


B5 BAR DETAIL



PROFILE VIEW

LOOP BAR ASSEMBLY



C BAR DETAILS

CONCRETE BARRIER TEMPORARY PRECAST, 12' - 6"

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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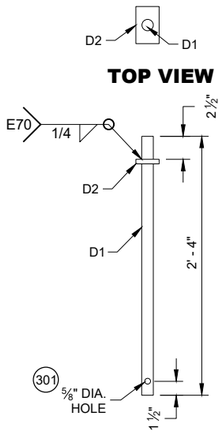
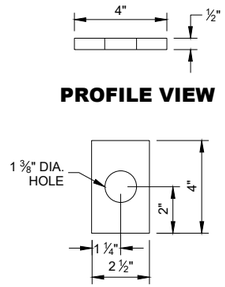
SDD 14B07-16b



TOP VIEW

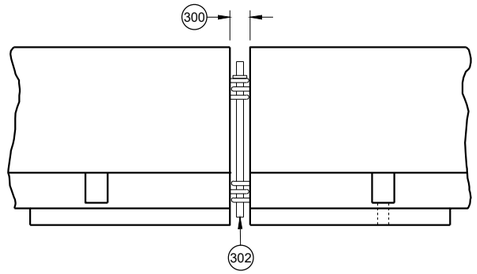
PROFILE VIEW

CONNECTOR PIN ASSEMBLY



PROFILE VIEW

TOP VIEW D2



CONNECTING TEMPORARY BARRIER SECTIONS

GENERAL NOTES

300 SET WITH 3 ⅝" WOOD BLOCK.

301 HOLE IS OPTIONAL.

302 CONNECTOR PIN ASSEMBLY.

303 CONCRETE PAVEMENT, APPROACH SLAB, OR DECK.

304 CONCRETE DECK.

305 DO NOT USE ON CONCRETE BRIDGE DECK WITH ASPHALT OVERLAY OR CONCRETE PAVEMENT WITH ASPHALT OVERLAY.

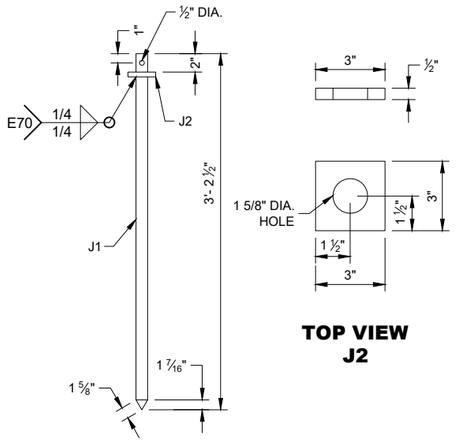
306 MINIMUM OF 2" OF ASPHALT.

307 ASPHALT ANCHOR PIN ASSEMBLY

308 IF DRILLING A PILOT HOLE, THE MAX, DIA. OF THE HOLE IS 3/4"

309 WHEN THERE IS ASPHALT OVERLAYING CONCRETE PAVEMENT, A 1 5/8" DIA. PILOT HOLE CAN BE DRILLED INTO THE OVERLAY AND CONCRETE. IF NEEDED DRILL A 3/4" PILOT HOLE IN BASE COURSE.

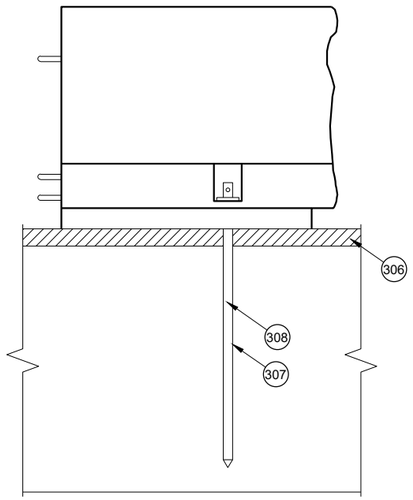
TOP VIEW



PROFILE VIEW

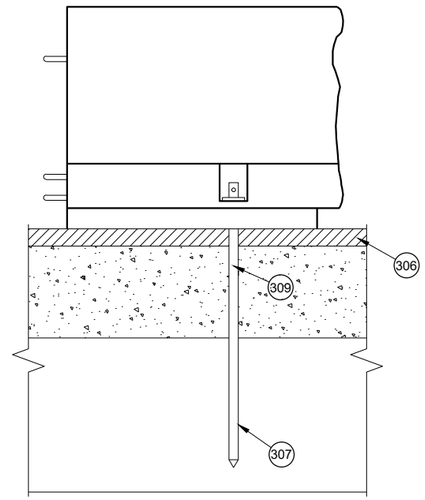
TOP VIEW J2

ASPHALT ANCHOR PIN ASSEMBLY



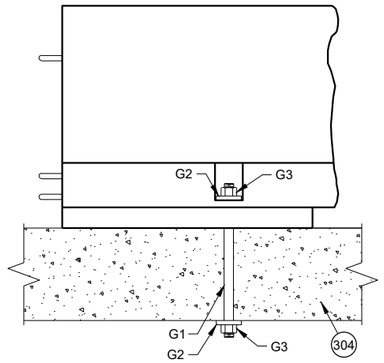
SIDE VIEW

ASPHALT ANCHOR INSTALLATION THROUGH ASPHALT PAVEMENT



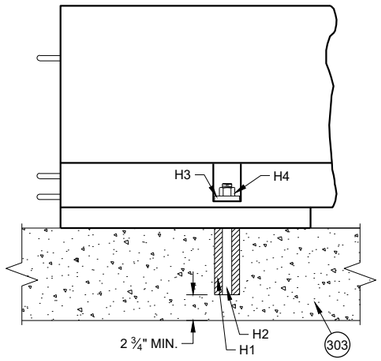
SIDE VIEW

ASPHALT ANCHOR INSTALLATION THROUGH ASPHALT OVERLAY ON TOP OF CONCRETE PAVEMENT



SIDE VIEW

THROUGH BOLT ANCHOR INSTALLATION 305



SIDE VIEW

ADHESIVE ANCHOR INSTALLATION 305

CONCRETE BARRIER TEMPORARY PRECAST, 12' - 6"

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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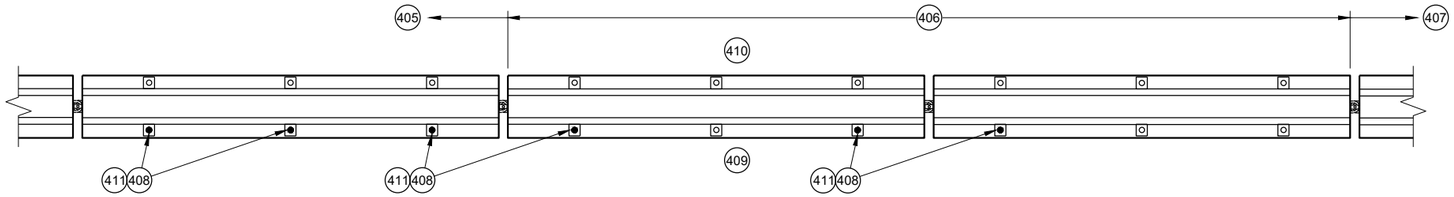
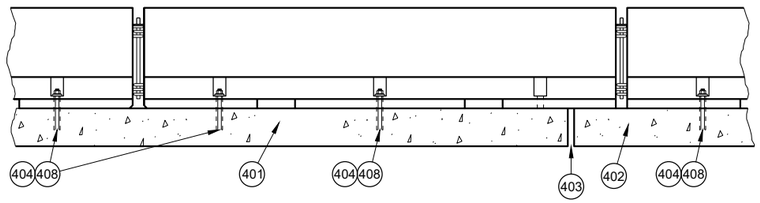
SDD 14B07-16c



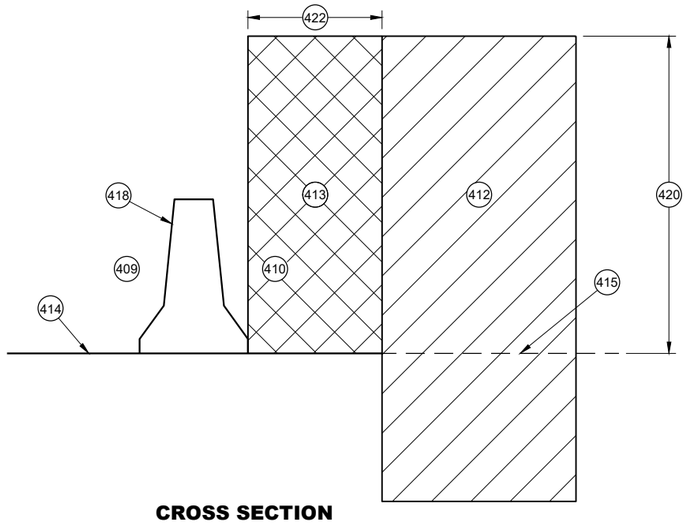
PLAN VIEW

TRANSITION FROM FREE STANDING TO ANCHORED BARRIER



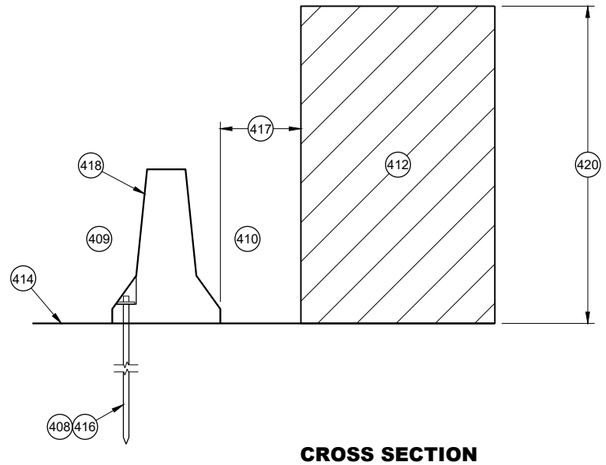
PROFILE VIEW

ANCHORED BARRIER NEAR EXPANSION JOINT (400)



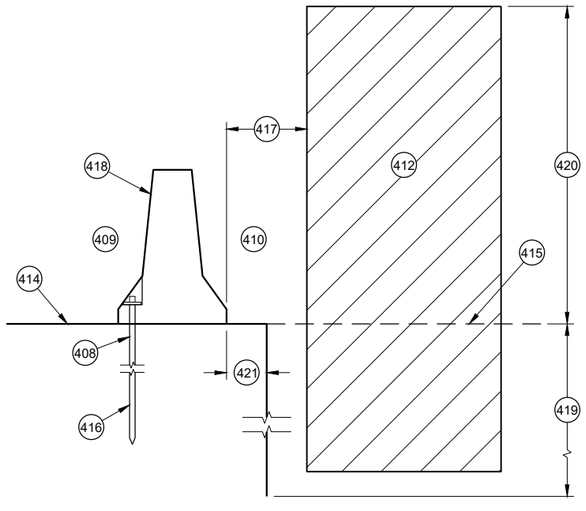
CROSS SECTION

FREE STANDING BARRIER



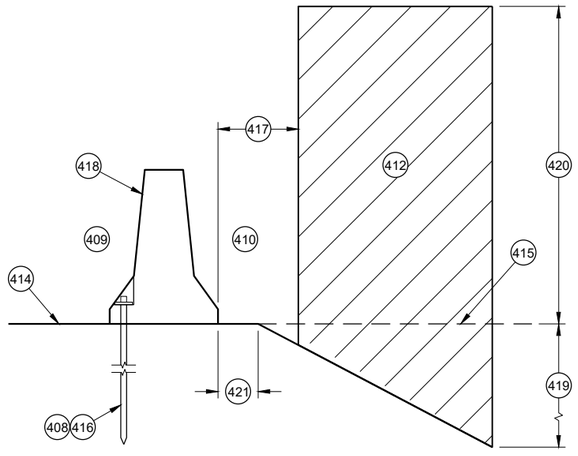
CROSS SECTION

ANCHORED BARRIER FOR OBJECTS ABOVE THE GRADE LINE AND NEAR THE BARRIER



CROSS SECTION

ANCHORED BARRIER NEAR VERTICAL DROP OFF



CROSS SECTION

ANCHORED BARRIER NEAR A SLOPE

GENERAL NOTES

(400) 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.

(401) CONCRETE DECK

(402) CONCRETE DECK OR APPROACH SLAB.

(403) EXPANSION JOINT

(404) ADHESIVE ANCHOR SHOWN. SEE ANCHOR DETAILS.

(405) ANCHORED TEMPORARY BARRIER

(406) TRANSITION FROM ANCHORED TEMPORARY BARRIER TO FREE STANDING

(407) FREE STANDING BARRIER

(408) REMOVE ALL ANCHORS WHEN NO LONGER NEEDED. FILL CONCRETE PAVEMENTS, DECKS AND APPROACH SLABS WITH NON-SHRINK COMMERCIAL GROUT FROM THE APPROVED PRODUCT LIST. FILL ASPHALT PAVEMENTS WITH ASTM D6690 TYPE II RUBBERIZED CRACK FILLER.

(409) TRAFFIC SIDE

(410) NON-TRAFFIC SIDE

(411) ANCHOR LOCATION. SEE ANCHORING DETAILS.

(412) WORK AREA

(413) AREA FREE OF OBJECTS AND WORKERS

(414) GRADE LINE

(415) EXTENDED GRADE LINE

(416) ANCHORED TEMPORARY BARRIER. SEE BOLT THROUGH DECK, REMOVABLE ADHESIVE ANCHOR, OR AN ASPHALT ANCHOR ROD DETAILS FOR MORE INFORMATION. ASPHALT ANCHOR ROD SHOWN.

(417) WHEN OBJECTS EXTEND ABOVE THE GRADE. A MINIMUM OF 1 FOOT IS REQUIRED FROM BACK OF BARRIER TO OBJECT.

(418) OBJECTS ARE NOT TO BE PLACED ON, MOUNTED TO, OR ALLOWED TO LEAN AGAINST THE BARRIER WITHOUT WRITTEN PERMISSION OF THE PROJECT ENGINEER.

(419) DEPTHS OF 3 FEET OR MORE.

(420) Y = 6.5'

(421) OFFSET FROM BACK OF BARRIER EDGE:

CONCRETE PAVEMENT	0.5'
ASPHALT	0.5'

(422) POSTED SPEED (MPH):

45 OR GREATER	4.0'
40 OR LOWER	2.0'

CONCRETE BARRIER TEMPORARY PRECAST, 12' - 6"

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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SDD 14B07-16d

GENERAL NOTES

(500) EXISTING RIGID BARRIERS (VARIES)

(501) TEMPORARY BARRIER

(502) SEE OTHER DETAIL ON HOW TO ANCHOR TEMPORARY BARRIER (BARRIER ASPHALT ANCHOR SHOWN).

(503) ANCHORS ARE REQUIRED ON BOTH SIDE OF THE TEMPORARY BARRIER.

(504) NESTED RAILS ARE REQUIRED ON BOTH SIDES OF THE TEMPORARY BARRIER FOR ALL INSTALLATIONS.

(505) TRAFFIC TRAVELS FROM PERMANENT BARRIER TO TEMPORARY BARRIER.

(506) TRAFFIC TRAVELS FROM TEMPORARY BARRIER TO PERMANENT BARRIER.

(507) VERTICAL BARRIER

(508) SAFETY SHAPE BARRIER

(509) SINGLE SLOPE BARRIER

(510) CAP END PLATE PLACED FLUSH WITH UPSTREAM END OF RIGID BARRIER.

(511) BENT THRIE BEAM TO FIT.

(512) THRIE BEAM PIECES ARE OFFSET 15 ¼" TO PREVENT INTERFERENCE FROM THE ANCHORS ON OPPOSING SIDES.

(513) TWO (2) P1, P2 AND P3 ARE REQUIRED

(514) FIVE (5) N1, N2 AND N3 ARE REQUIRED

(515) TWO (2) R1, R2 AND R3 ARE REQUIRED

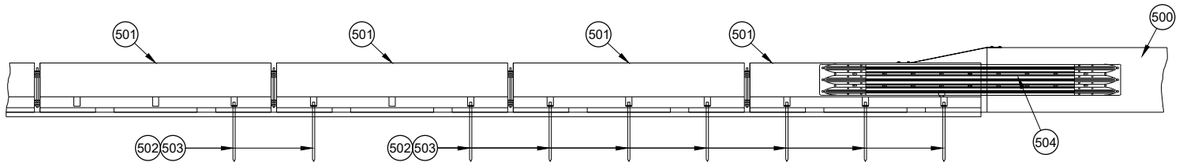
(516) CUT WOOD BLOCK TO FIT.

(517) SEE THRIE BEAM RAIL TERMINAL CONNECTOR DETAIL ASSEMBLY.

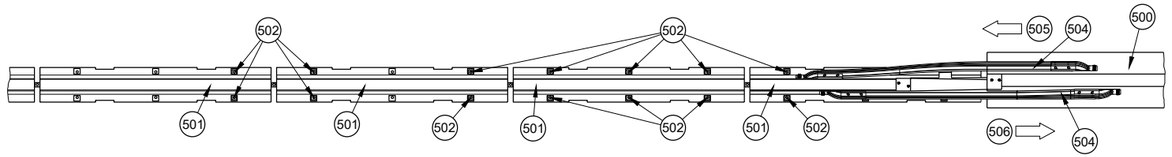
(518) CAP ASSEMBLY

(519) 4" MAX. GAP BETWEEN TEMPORARY BARRIER AND RIGID BARRIER.

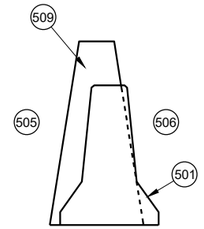
(520) ALL TWELVE SPLICE HOLES REQUIRE M1 AND M2



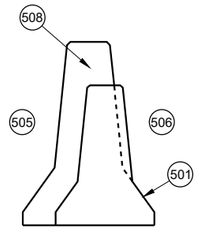
PROFILE VIEW



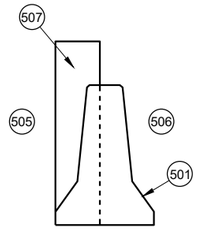
PLAN VIEW



CROSS SECTION TEMPORARY BARRIER PLACEMENT SINGLE SLOPE

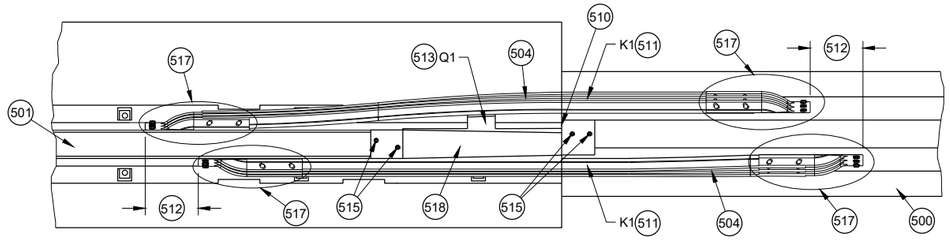


CROSS SECTION TEMPORARY BARRIER PLACEMENT SAFETY SHAPE

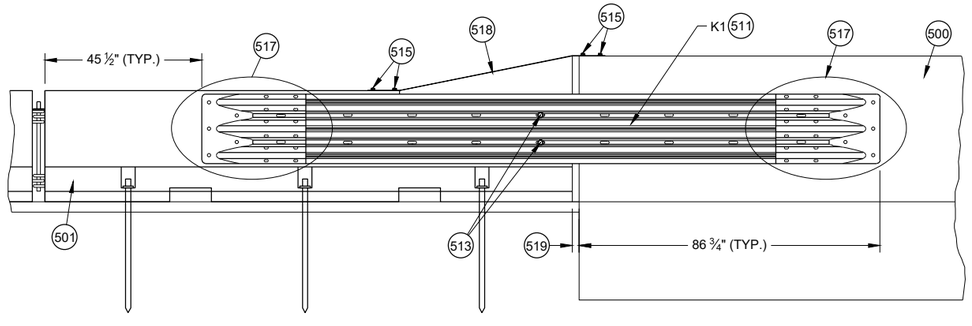


CROSS SECTION TEMPORARY BARRIER PLACEMENT VERTICAL

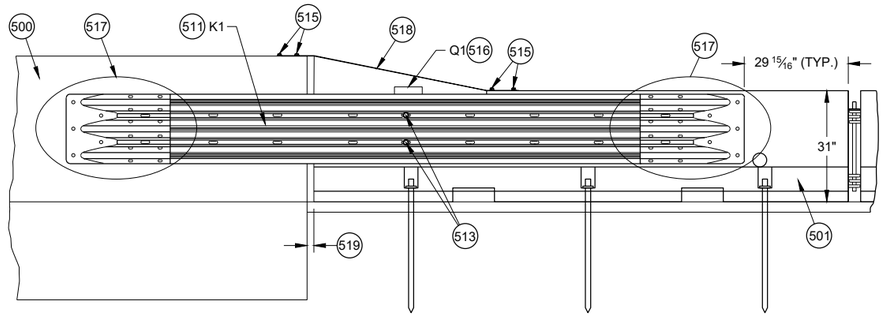
PLAN VIEW TRANSITION TO RIGID BARRIER



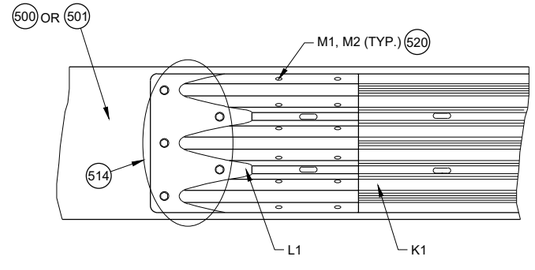
PLAN DETAIL VIEW TRANSITION TO RIGID BARRIER



FRONT DETAIL VIEW TRANSITION TO RIGID BARRIER



BACK DETAIL VIEW TRANSITION TO RIGID BARRIER



(517) DETAIL PLAN VIEW THRIE BEAM RAIL TERMINAL CONNECTOR ASSEMBLY

CONCRETE BARRIER TEMPORARY PRECAST, 12' - 6"

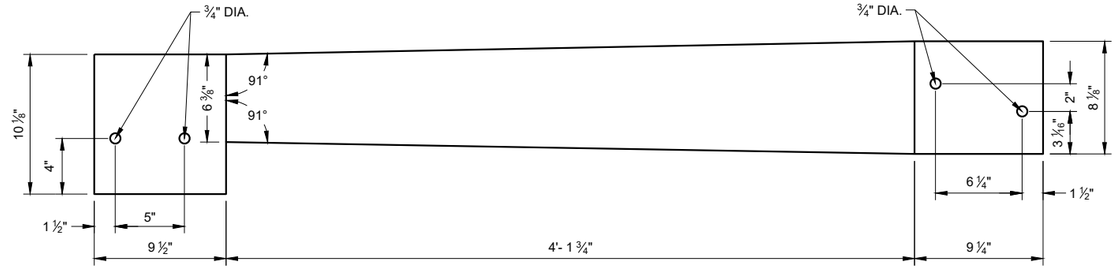
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6

SDD 14B07-16e

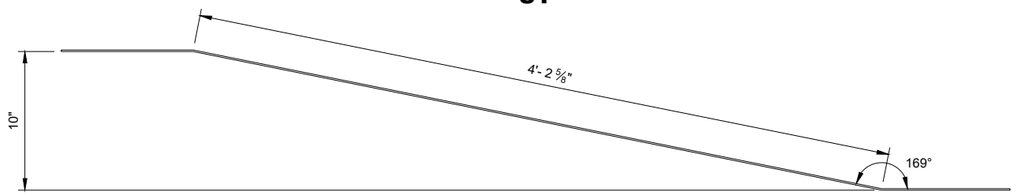
6

SDD 14B07-16e



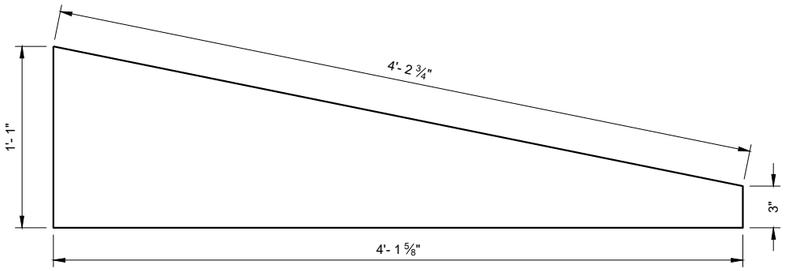
TOP VIEW

S1



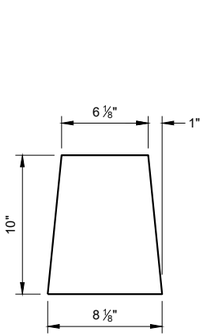
ELEVATION VIEW

S1

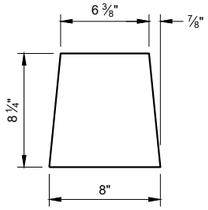


SIDE VIEW

S3



S2



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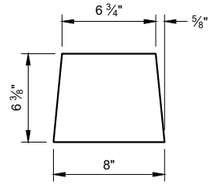

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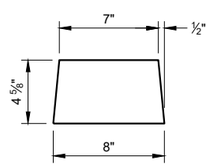

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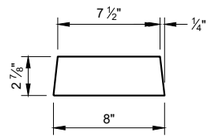
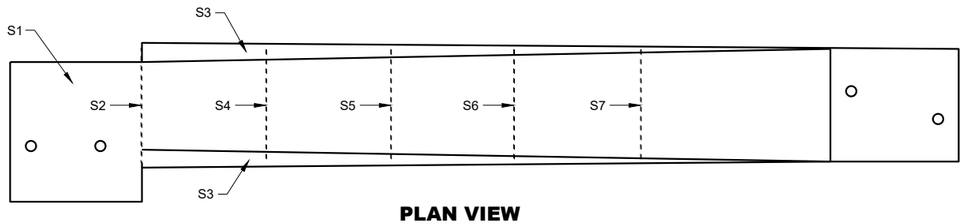
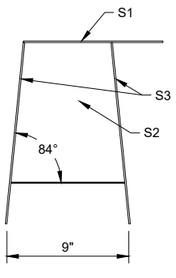


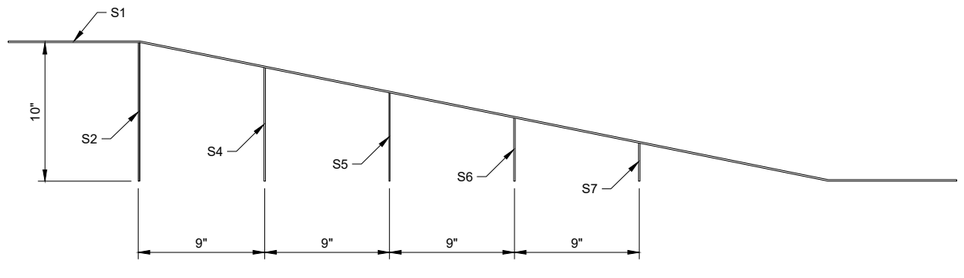
S7



PLAN VIEW



BACK VIEW



SIDE VIEW (600)

42" TOP CAP ASSEMBLY

GENERAL NOTES

STITCH WELD GUSSET PLATES AND END PLATES ON THREE SIDES

STITCH WELD TWO SIDE PLATES TO TOP PLATE, END PLATE AND GUSSETS.

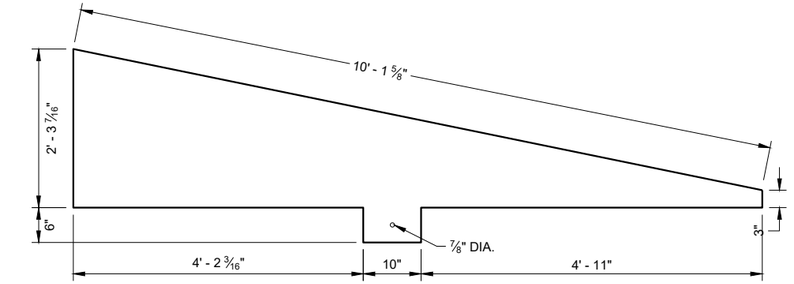
(600) SIDE PLATES (S3) NOT SHOWN FOR CLARITY.

CONCRETE BARRIER TEMPORARY PRECAST, 12' - 6"

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

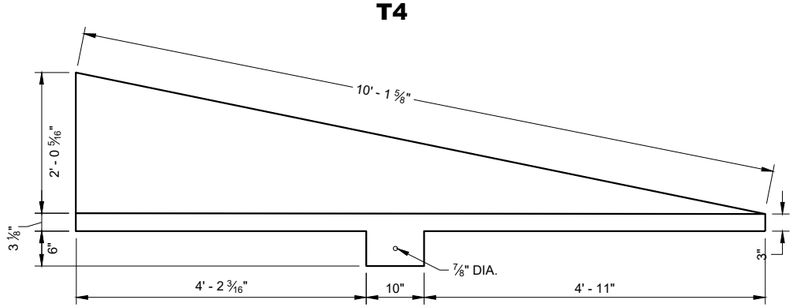
6

SDD 14B07-16f



SIDE VIEW
T4

END VIEW



SIDE VIEW
T3

END VIEW

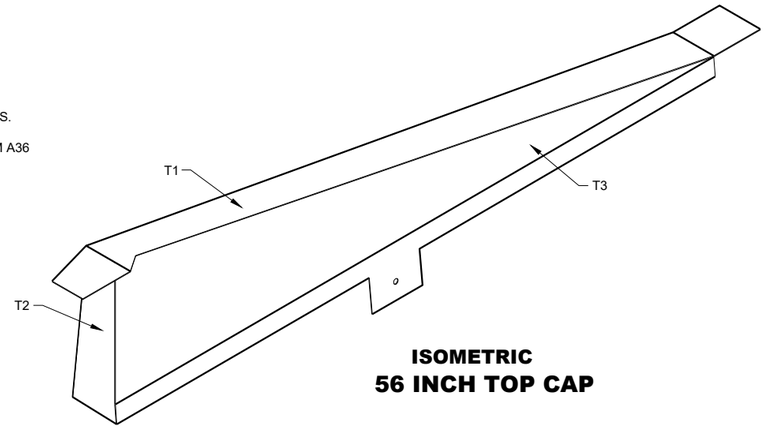
GENERAL NOTES

STITCH WELD GUSSET PLATES AND END PLATES ON THRIE SIDES

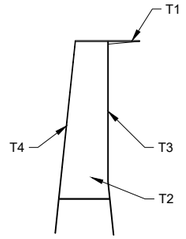
STITCH WELD TWO SIDE PLATES TO TOP PLATE, END PLATE AND GUSSETS.

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

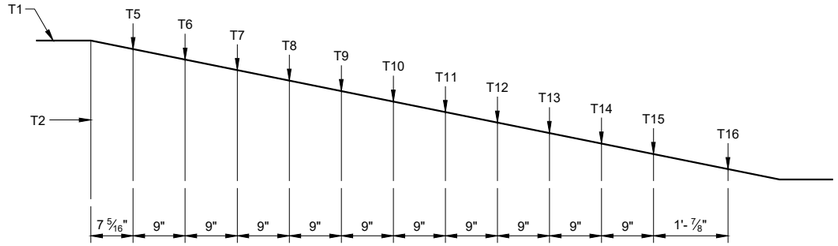
(700) SIDE PLATES (T3 AND T4) NOT SHOWN FOR CLARITY.



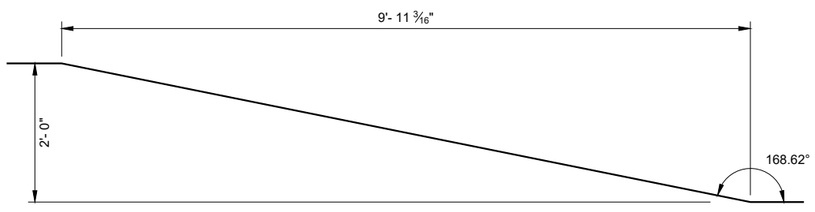
ISOMETRIC
56 INCH TOP CAP



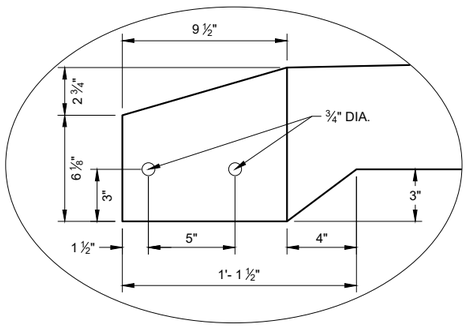
END VIEW
56 INCH TOP CAP



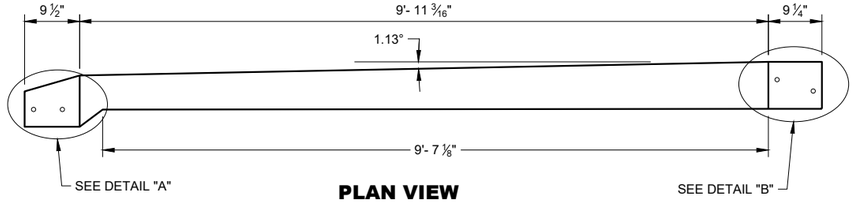
SIDE VIEW (700)
56 INCH TOP CAP



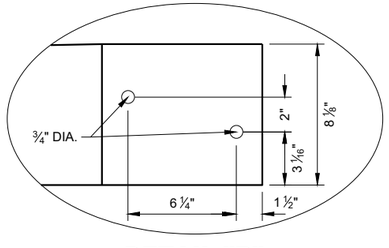
SIDE VIEW
TOP PLATE T1



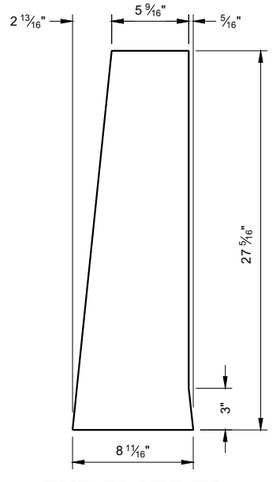
DETAIL "A"



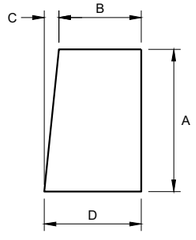
PLAN VIEW
TOP PLATE T1



DETAIL "B"



END PLATE T2



GUSSET PLATES
T5 - T16

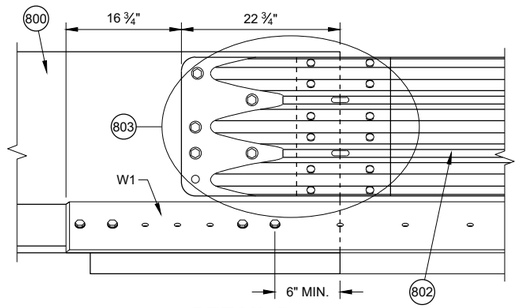
GUSSET DIMENSIONS				
GUSSET NO.	A	B	C	D
T5	22 13/16"	5 1/16"	2 5/16"	8 1/16"
T6	21"	5 7/8"	2 3/16"	8 1/16"
T7	19 3/16"	6 1/16"	1 15/16"	8 1/16"
T8	17 3/8"	6 1/4"	1 13/16"	8 1/16"
T9	15 5/16"	6 7/16"	1 9/16"	8 1/16"
T10	13 3/4"	6 5/8"	1 7/16"	8 1/16"
T11	11 15/16"	6 13/16"	1 1/4"	8 1/16"
T12	10 1/8"	7"	1 1/16"	8 1/16"
T13	8 5/16"	7 3/16"	7/8"	8 1/16"
T14	6 1/2"	7 3/8"	1 1/16"	8 1/16"
T15	4 11/16"	7 9/16"	1/2"	8"
T16	2 7/8"	7 3/4"	1/4"	8"

CONCRETE BARRIER TEMPORARY PRECAST, 12' - 6"

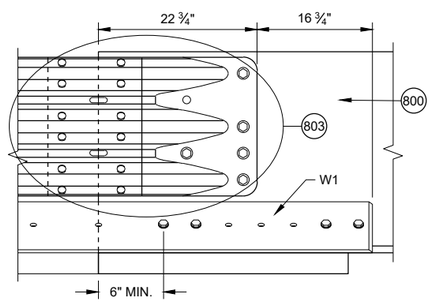
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6

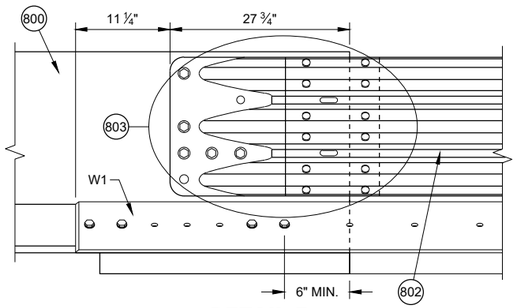
SDD 14B07-16g



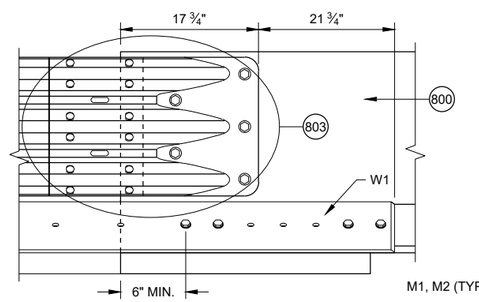
DETAIL D



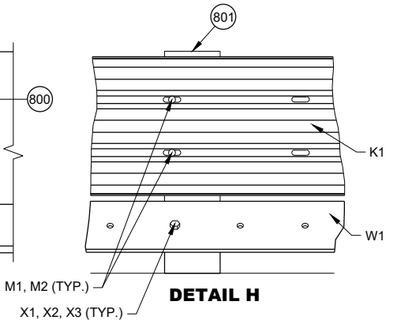
DETAIL E



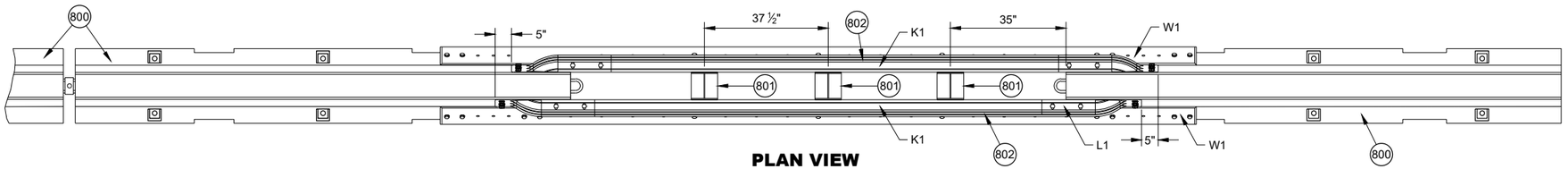
DETAIL F



DETAIL G



DETAIL H



PLAN VIEW

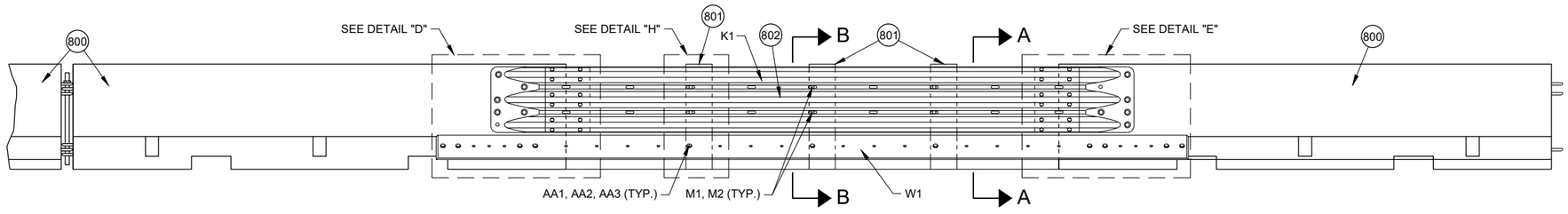
GENERAL NOTES

(800) FREE STANDING TEMPORARY BARRIER

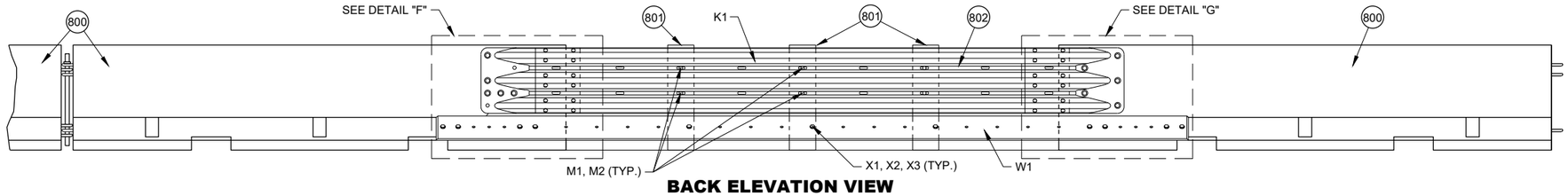
(801) GAP STIFFENER ASSEMBLY

(802) THRIE BEAMS ARE NESTED ON BOTH SIDES OF THE TEMPORARY BARRIER.

(803) SEE THRIE BEAM RAIL TERMINAL CONNECTOR DETAIL



FRONT ELEVATION VIEW



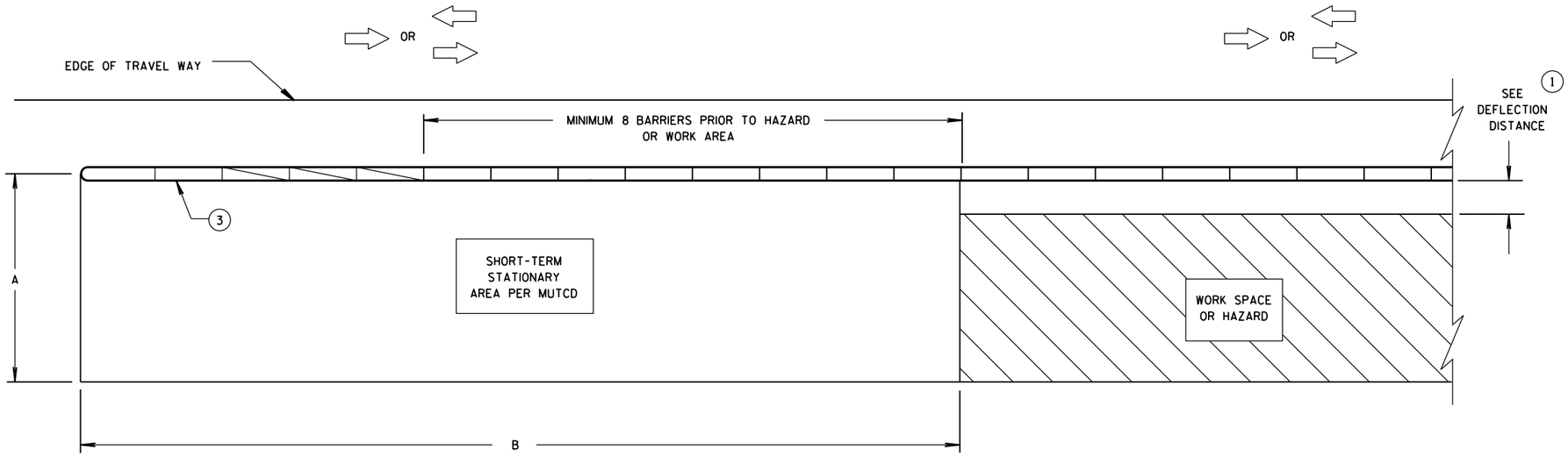
BACK ELEVATION VIEW

PORTABLE CONCRETE BARRIER GAP THRIE BEAM COVER

CONCRETE BARRIER TEMPORARY PRECAST, 12' - 6"

6

SDD 14B07-16h



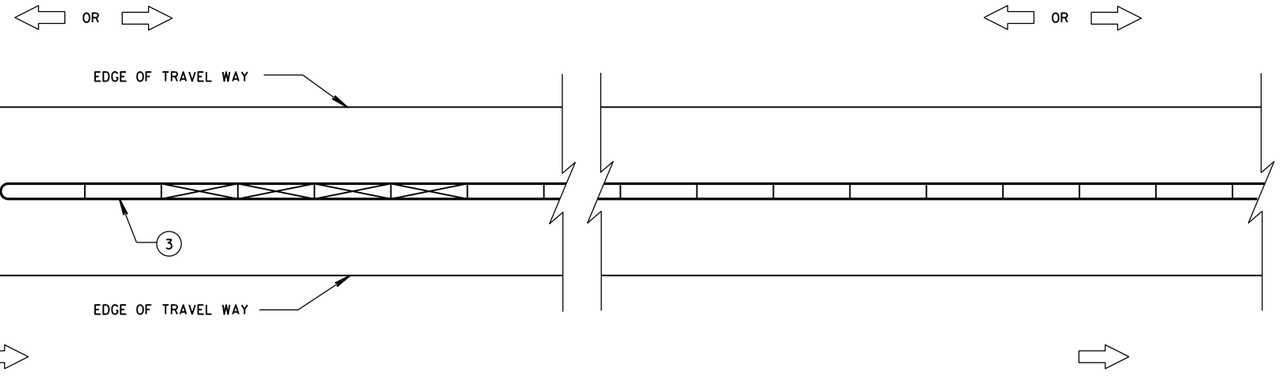
CRASH CUSHION/SAND BARREL ARRAY AND TEMPORARY BARRIER INSTALLATION FOR TRAFFIC ON ONE SIDE OF BARRIER

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



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

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.

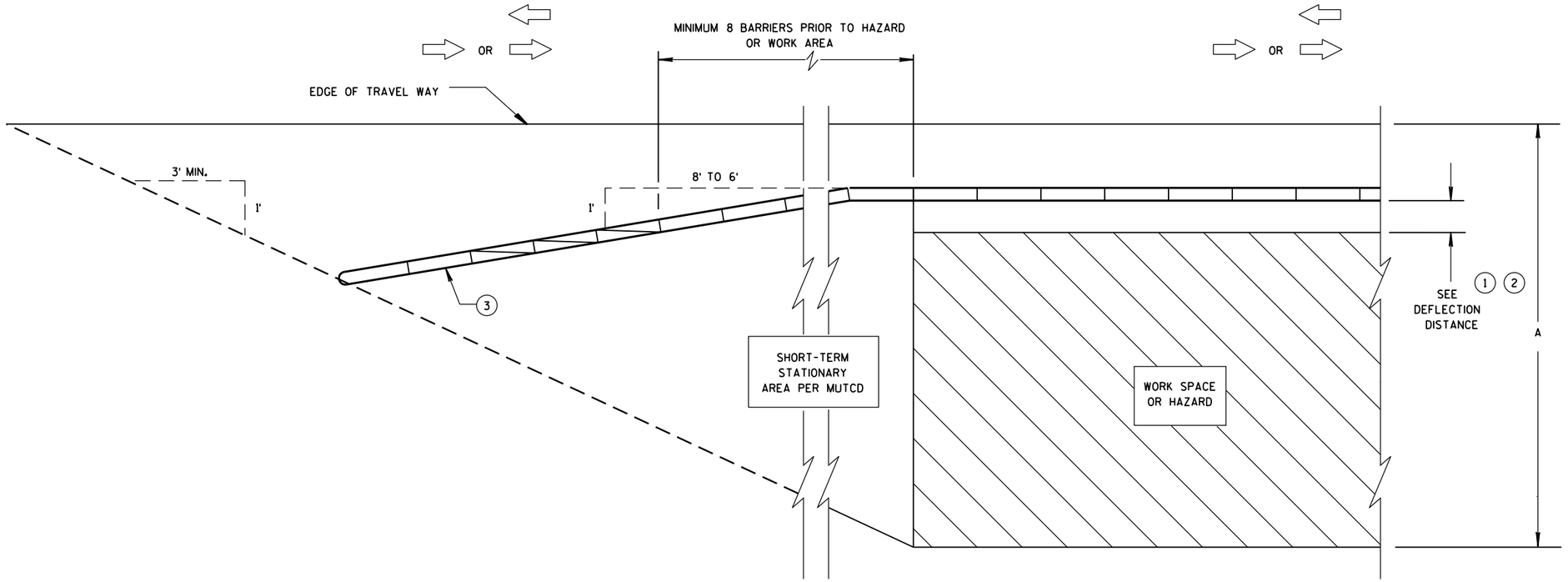
(3) ANCHOR TEMPORARY BARRIER ACCORDING TO CRASH CUSHION OR SAND BARREL MANUFACTURER'S RECOMMENDATIONS. IF MANUFACTURER'S RECOMMENDATIONS ARE NOT PROVIDED, ANCHOR 3 PINS ON TRAFFIC SIDE.

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

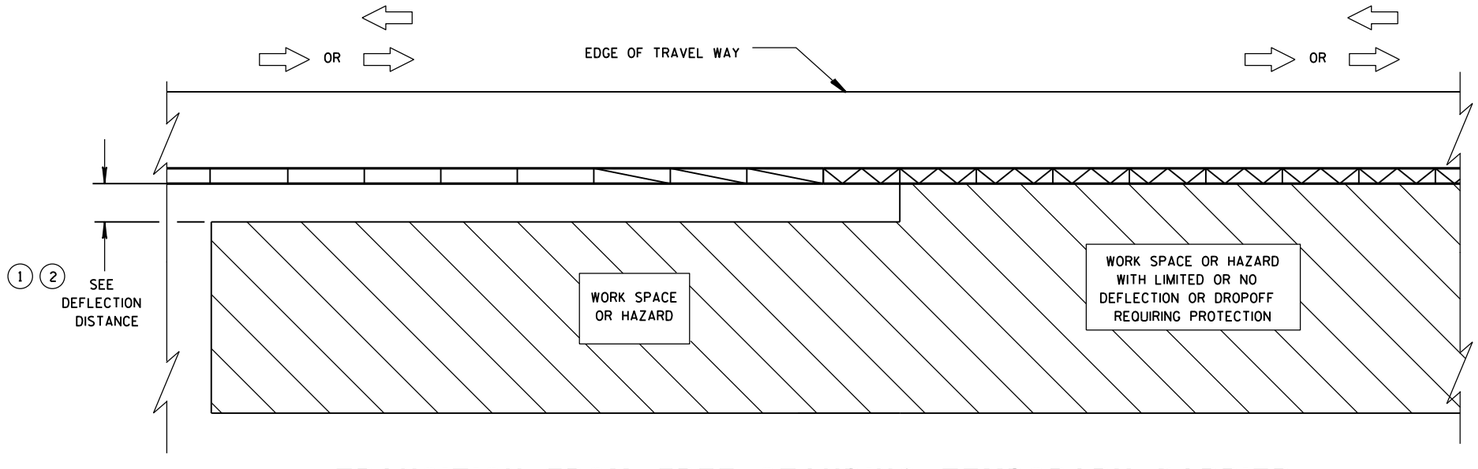
STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR

6

S.D.D. 14 B 8-2a
S.D.D. 14 B 8-2a



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 TRANSPOI

6

S.D.D. 14 B 8-2b

6

S.D.D. 14 B 8-2b

SDD 14B15a Steel Plate Beam Guard, Class "A", Installation and Elements

GENERAL NOTES

1. WOOD OR STEEL POSTS (w6X9 OR w6X8.5) AND NOTCHED PLASTIC BLOCKOUTS ARE ACCEPTABLE ALTERNATIVES FOR 6"X8" WOOD POSTS WITH WOOD OR PLASTIC BLOCKOUTS. USE APPROVED NOTCHED PLASTIC BLOCKOUTS WITH STEEL POSTS. APPROVED PLASTIC BLOCKOUT DESIGNS MAY VARY FROM THIS TYPICAL DETAIL WHEN USED IN CONJUNCTION WITH STEEL POSTS. DO NOT MIX STEEL AND WOOD POSTS IN A SINGLE INSTALLATION.

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

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

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

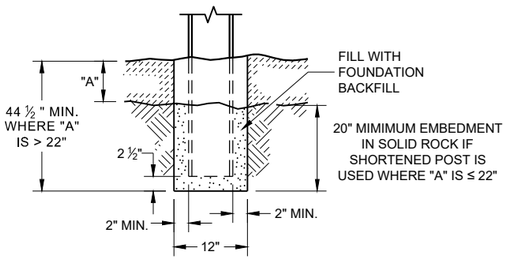
5. IF THE DISTACE FROM BACK OF POST TO SHOULDER HIGHE POINT IS LESS THAN 2 FEET, INSTALL LONGER POST AT HALF POST SPACING, W BEAM (LHW).

6. IF ROCK IS ENCOUNTERED DURING EXCAVATION, THE ENGINEER MAY APPROVE USING A 12 INCHES IN DIAMETER POST HOLE EXTENDING 20 INCHES DEEP INTO THE ROCK. PLACE APPROXIMATELY 2 1/2" INCHES OF GRANULAR MATERIAL IN THE BOTTOM OF THE HOLE. CUT THE POSTS THE TO LENGTH AMD INSTALL. BACKFILL WITH EXCAVATED MATERIAL AND COMPACT ADEQUATELY.

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

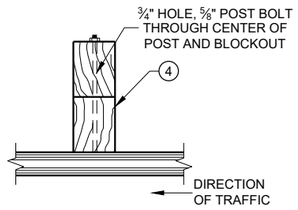
INSTALL BEAM GUARD SECTIONS AND ALL NECESSARY HARDWARE ACCORDING TO THE APPLICABLE PLAN AND CURRENT STANDARD AND SUPPLEMENTAL SPECIFICATIONS.

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



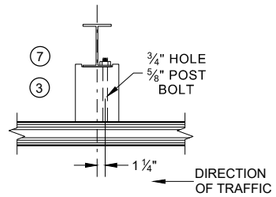
END VIEW

SETTING STEEL OR WOOD POST IN ROCK (6)



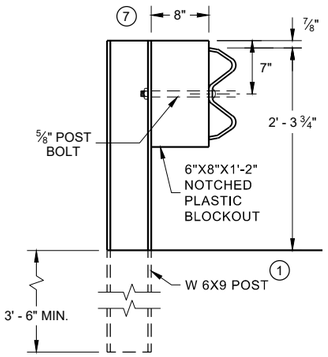
PLAN VIEW

WOOD POST, BLOCKOUT AND BEAM



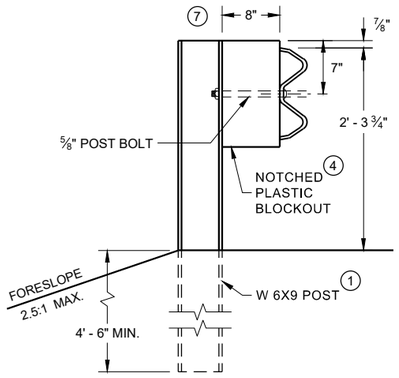
PLAN VIEW

WOOD POST, BLOCKOUT AND BEAM



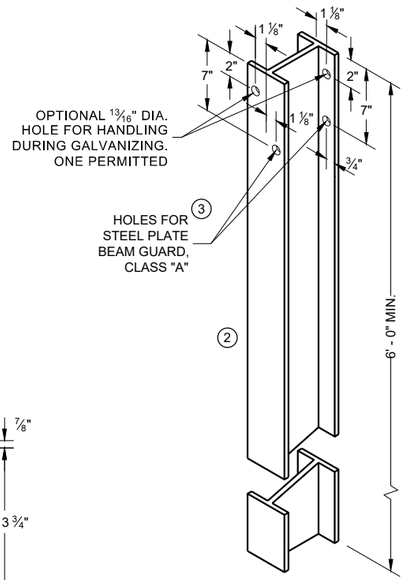
END VIEW

STEEL POST AND NOTCHED PLASTIC BLOCKOUT ALTERNATIVE STANDARD INSTALLATION



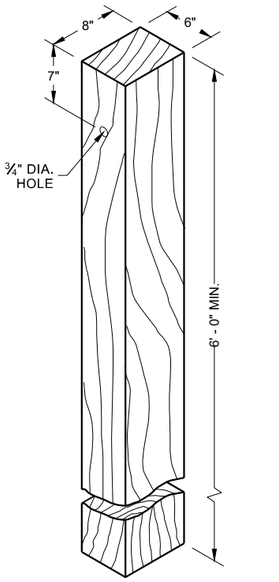
END VIEW

LONGER POST AT HALF POST SPACING W BEAM (LHW)

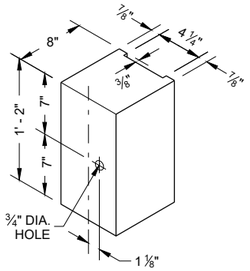


STEEL POST & HOLE PUNCHING DETAIL (W 6 X 9) (1)

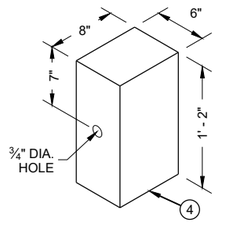
ALL HOLES 13/16" DIAMETER EXCEPT AS NOTED



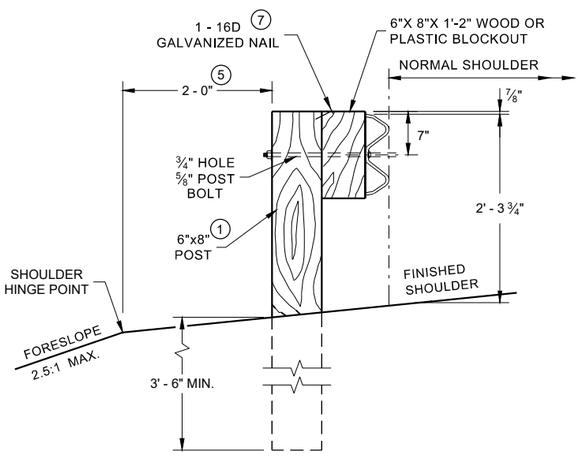
WOOD POST (6" X 8") NOMINAL (1)



TYPICAL NOTCHED PLASTIC BLOCKOUT FOR STEEL POSTS

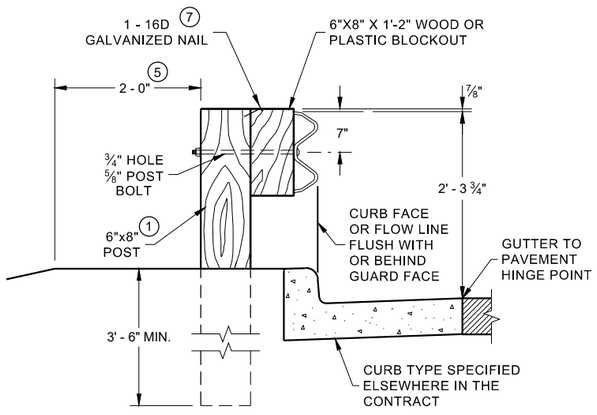


WOOD OR PLASTIC BLOCKOUT FOR WOOD POSTS



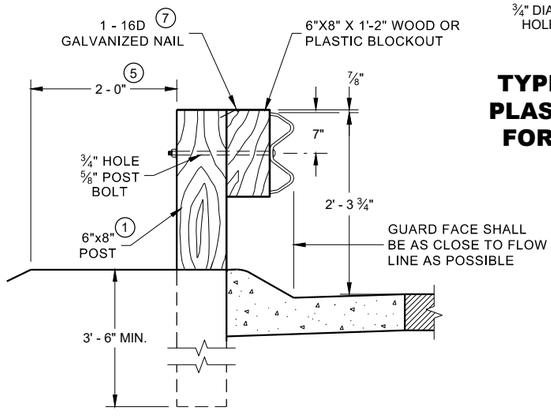
END VIEW

LOCATED ALONG A ROADWAY SHOULDER STANDARD INSTALLATION



END VIEW

LOCATED ALONG A CURBED ROADWAY



END VIEW

LOCATED ALONG A MOUNTABLE CURBED ROADWAY

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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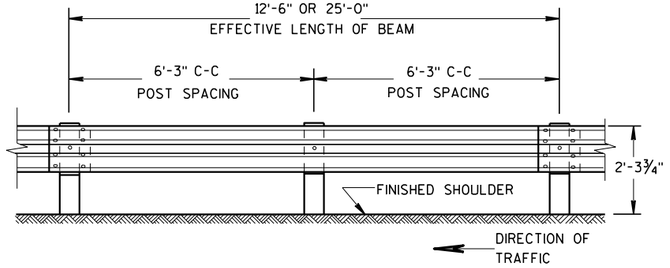
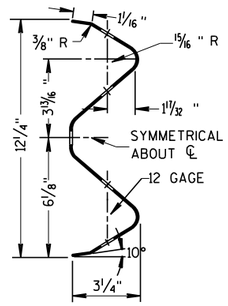
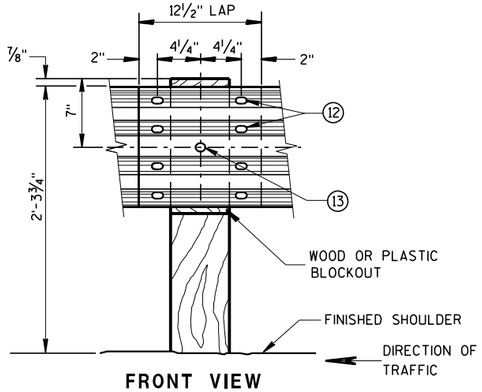


FRONT VIEW

POST SPACING STANDARD INSTALLATION



SECTION THRU W BEAM



FRONT VIEW

BEAM SPLICE AT WOOD POST AND POST MOUNTING DETAIL

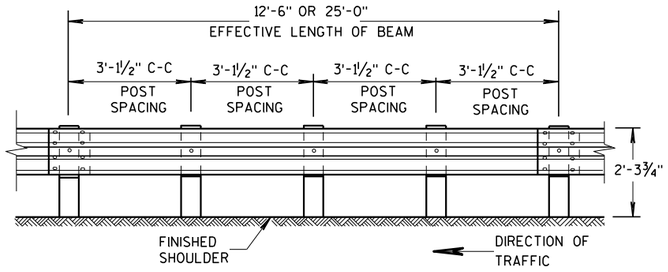
GENERAL NOTES

FURNISH GUARDRAIL DEFLECTORS FROM APPROVED PRODUCTS LIST.

(9) DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINA. START REFLECTORS AT POST #9 AND SPACE EVENLY EVERY 100 FEET (MAX.) TO THE END OF GUARDRAIL RUN, USING A MINIMUM OF 3 REFLECTORS.

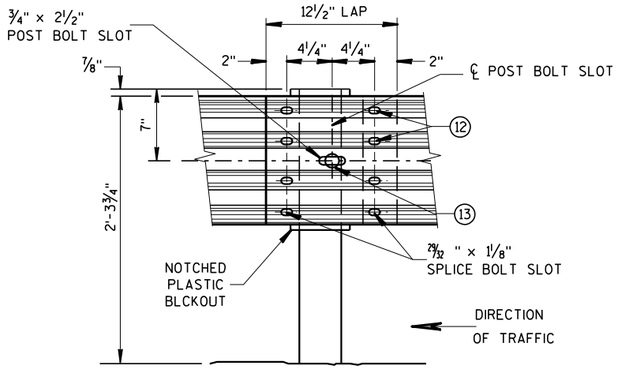
(12) 8 -5/8" ϕ X 2" BUTTON HEAD BOLTS WITH OVAL SHOULDERS & RECESS NUTS.

(13) 5/8" DIA. BUTTON HEAD BOLT AND RECESS NUT WITH 5/8" DIA. F844 FLAT WASHER UNDER NUT.



FRONT VIEW

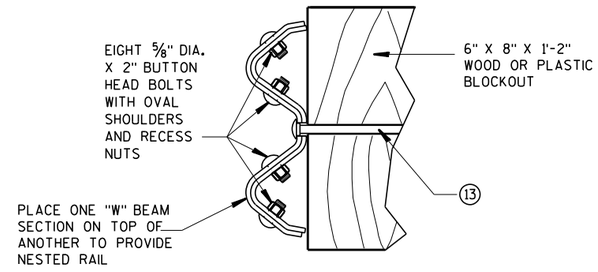
POST SPACING FOR LONGER POST AT HALF POST SPACING W BEAM (LHW)



FRONT VIEW

BEAM SPLICE AT STEEL POST

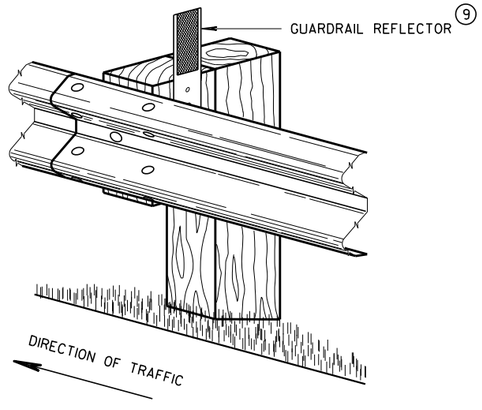
TYPICAL SPLICING DETAILS OF STEEL PLATE BEAM GUARD



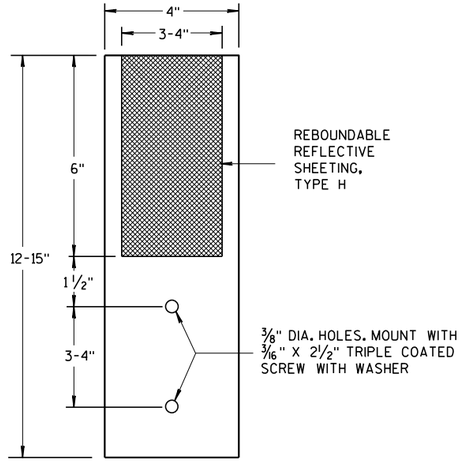
NESTED W BEAM (NW)

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

* USE DOUBLE SIDED WHITE GUADRAIL REFLECTORS ON ROADWAYS WITH BI-DIRECTIONAL TRAFFIC (NO MEDIAN). USE SINGLE SIDED WHITE (RIGHT SIDE) AND SINGLE SIDED YELLOW (LEFT SIDE) ON ROADWAYS WITH MEDIAN SEPARATION.



4" X 12" GUARDRAIL REFLECTOR DETAIL AND TYPICAL INSTALLATION *



4"x 12" GUARDRAIL REFLECTOR

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

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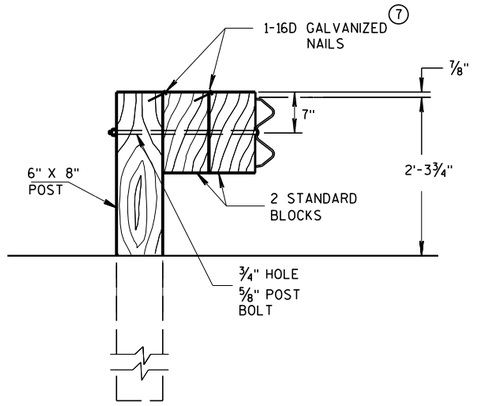
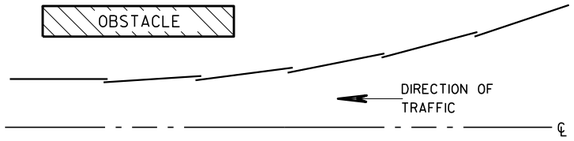
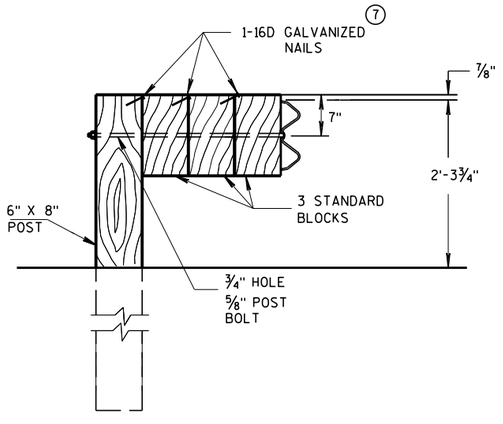


DETAIL FOR DOUBLE BLOCKS

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

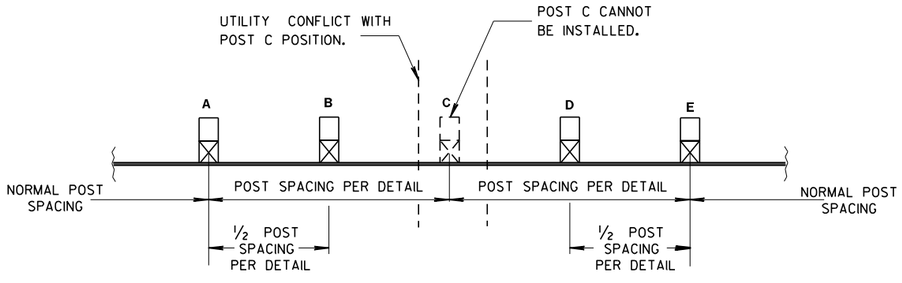


PLAN VIEW
BEAM LAPPING DETAIL



DETAIL FOR TRIPLE BLOCKS

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



POST DRIVING FOR CONTINUOUS UNDERGROUND OBSTRUCTION

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

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

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

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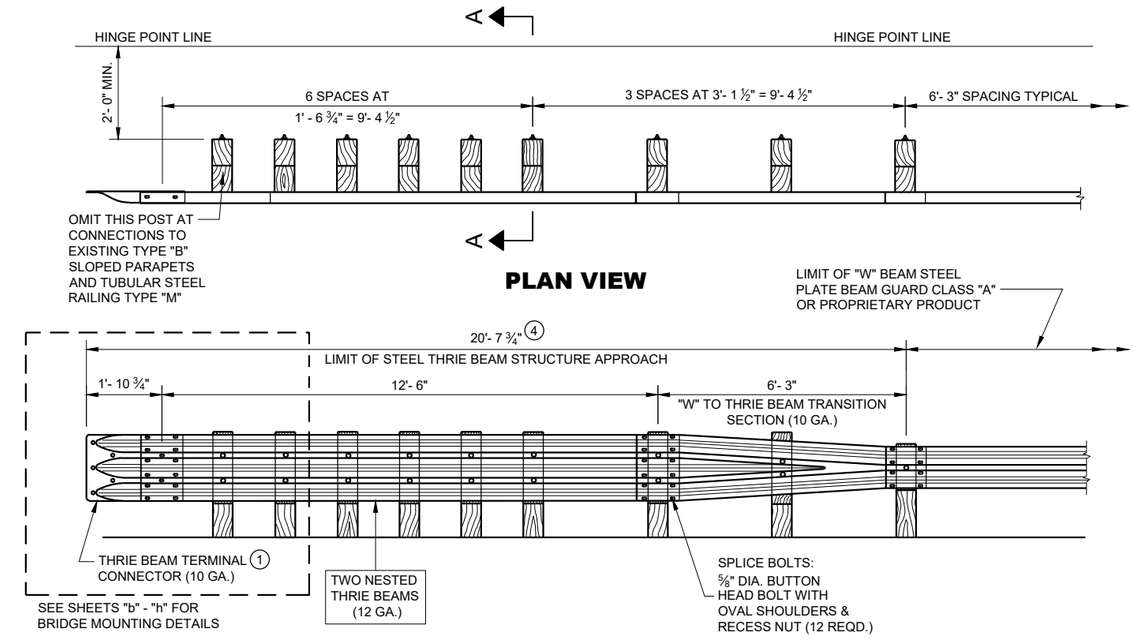


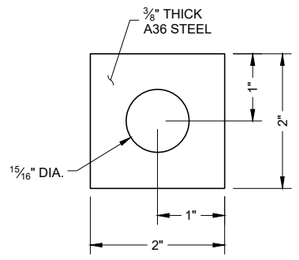


PLATE WASHER DETAIL

GENERAL NOTES

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

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

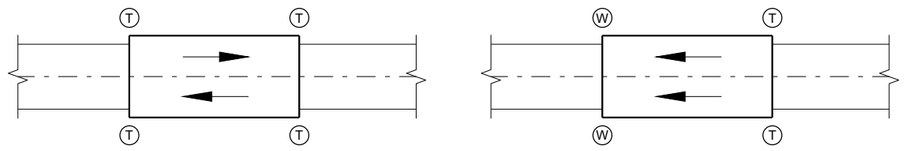
IF ROCK IS ENCOUNTERED, REMOVE ROCK TO FULL DEPTH OF POST PLUS 2 ½" , AND 12" DIAMETER AROUND POST. SEE 14B15 FOR MORE DETAILS.

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

(2) MINIMUM EMBEDMENT SHALL BE 4'- 0".

(3) POST BOLTS ARE ⅝" DIAMETER ASTM A307 BUTTON HEAD BOLT. A POST BOLT REQUIRES A ⅝" DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX AND A ⅝" DIAMETER F844 FLAT WASHER. LENGTH OF POST BOLT MAY VARY.

(4) ALL WOOD POSTS MUST BE 6" X 8" AND AT LEAST 7'-0" LONG.



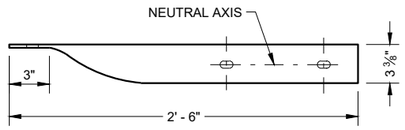
TWO WAY TRAFFIC

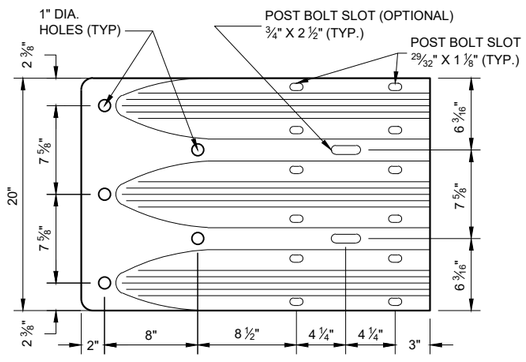
ONE WAY TRAFFIC

(T) THRIE BEAM CONNECTION

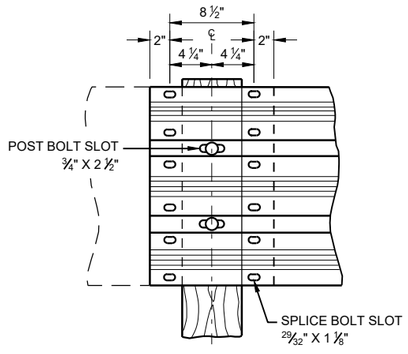
(W) W-BEAM CONNECTION WHEN REQUIRED

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

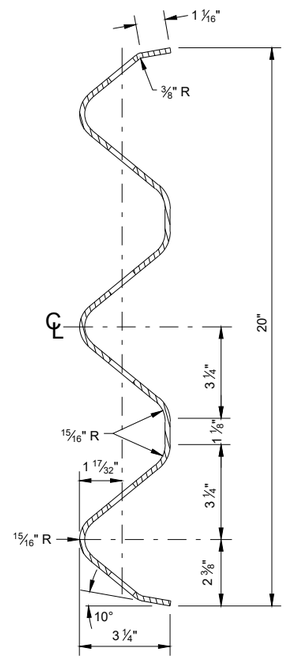




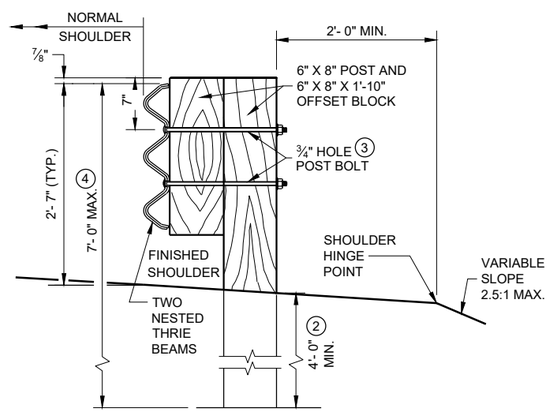
THRIE BEAM TERMINAL CONNECTOR



THRIE BEAM SPLICE



SECTION THRU BEAM RAIL ELEMENT



SECTION A-A

STEEL THRIE BEAM STRUCTURE APPROACH

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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GENERAL NOTES

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

BOLTS, NUTS AND WASHERS SHALL CONFORM TO ASTM A325, A449 AND GALVANIZED PER STANDARD SPECIFICATIONS 614.

(1) DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.

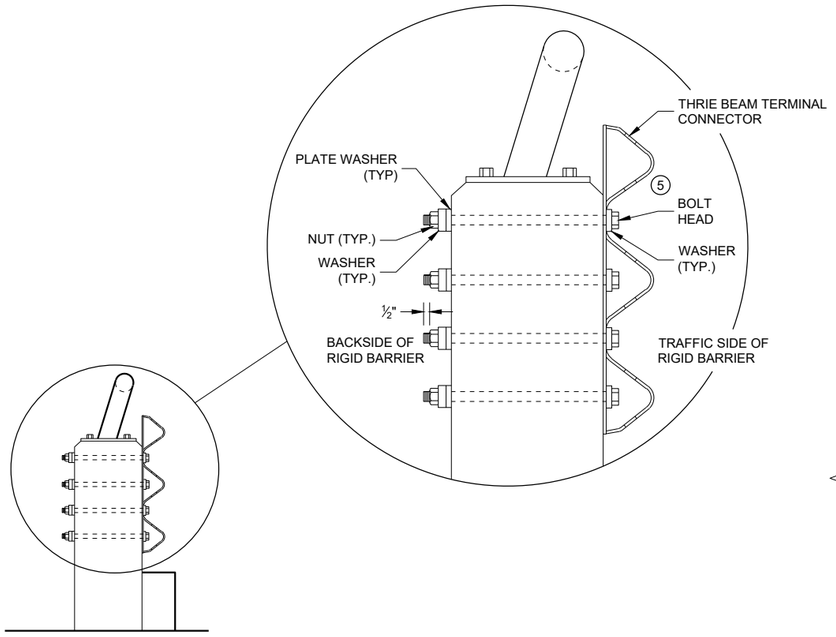
(2) BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM TERMINAL CONNECTOR. 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.

(3) 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 ½".

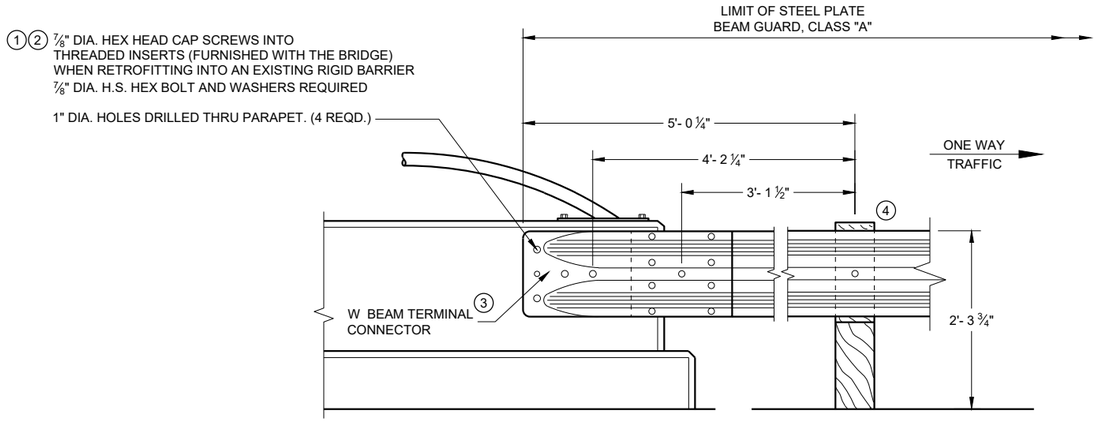
(4) W6 X 9 OR W6 X 8.5 STEEL POSTS AND NOTCHED PLASTIC BLOCKOUTS ARE ACCEPTABLE ALTERNATIVES FOR 6" X 8" WOOD POST WITH WOOD OR PLASTIC BLOCKOUTS. USE APPROVED NOTCHED PLASTIC BLOCKOUTS WITH STEEL POSTS.

(5) BOLT, NUT AND WASHERS NO REQUIRED FOR THIS LOCATION WHEN RETROFITTING AN EXISTING PARAPET AND THE HOLE IS EITHER ABOVE PARAPET OR WITHIN 4 INCHES OF THE THE EDGE OF PARAPET.

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.

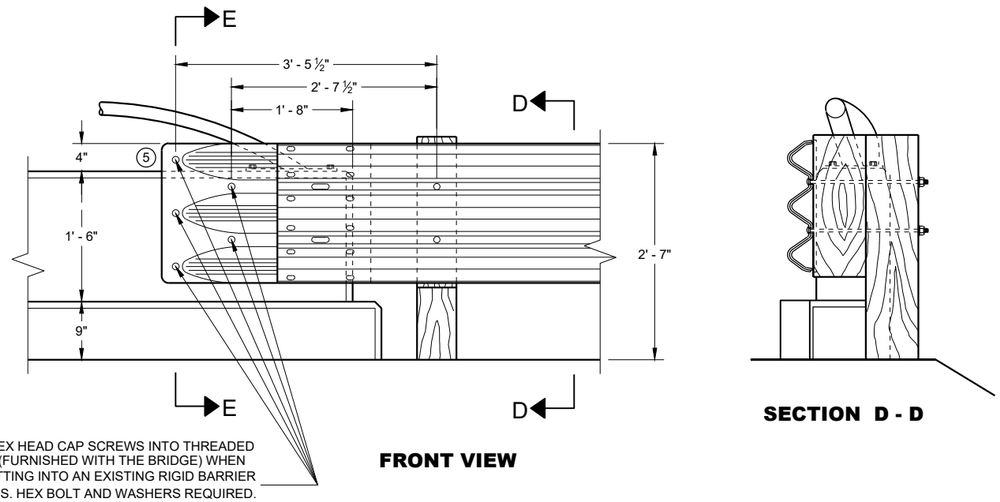


SECTION E - E



FRONT VIEW

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



FRONT VIEW

SECTION D - D

THRIE BEAM CONNECTION TO VERTICAL FACED PARAPETS

STEEL THRIE BEAM STRUCTURE APPROACH, CONNECTION TO VERTICAL FACED PARAPETS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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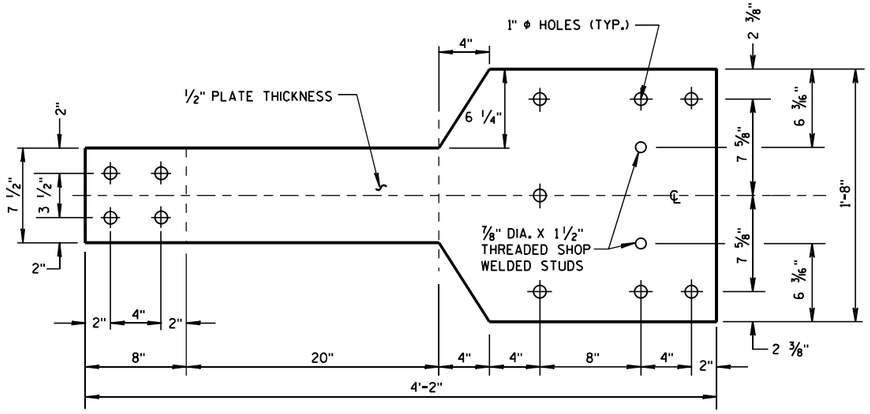
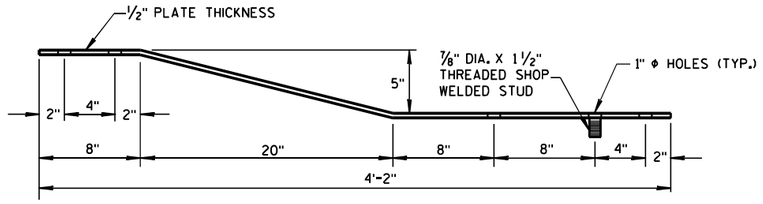
GENERAL NOTES

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

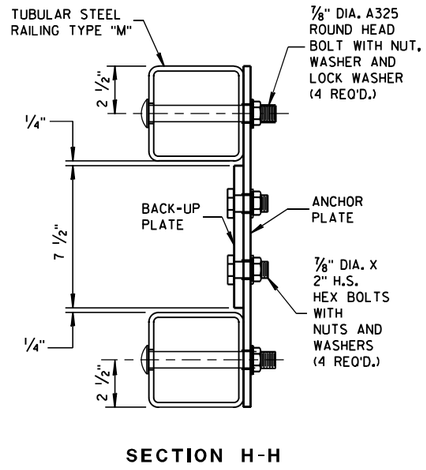


FRONT VIEW

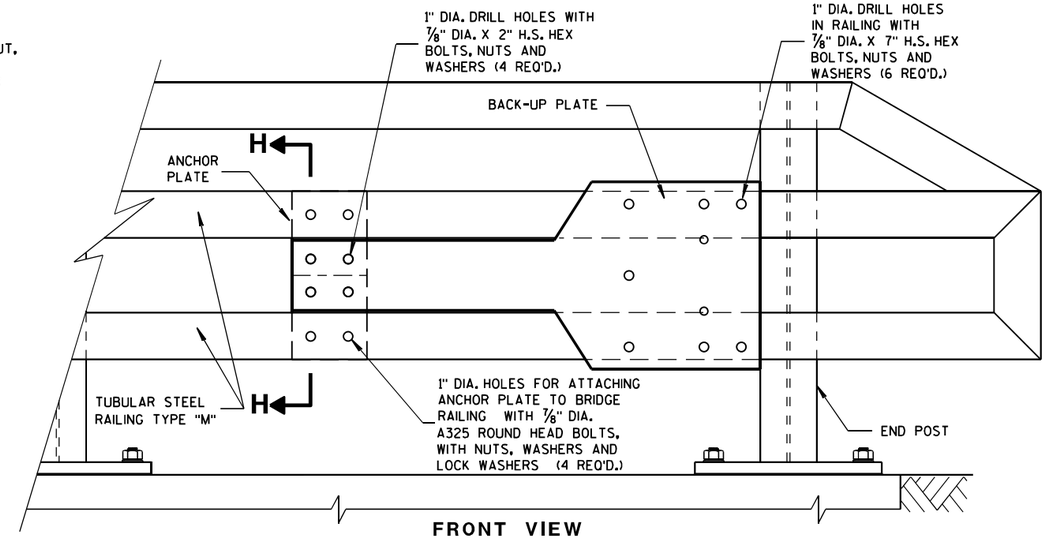


PLAN VIEW

BACK-UP PLATE DETAIL, TYPE "M"

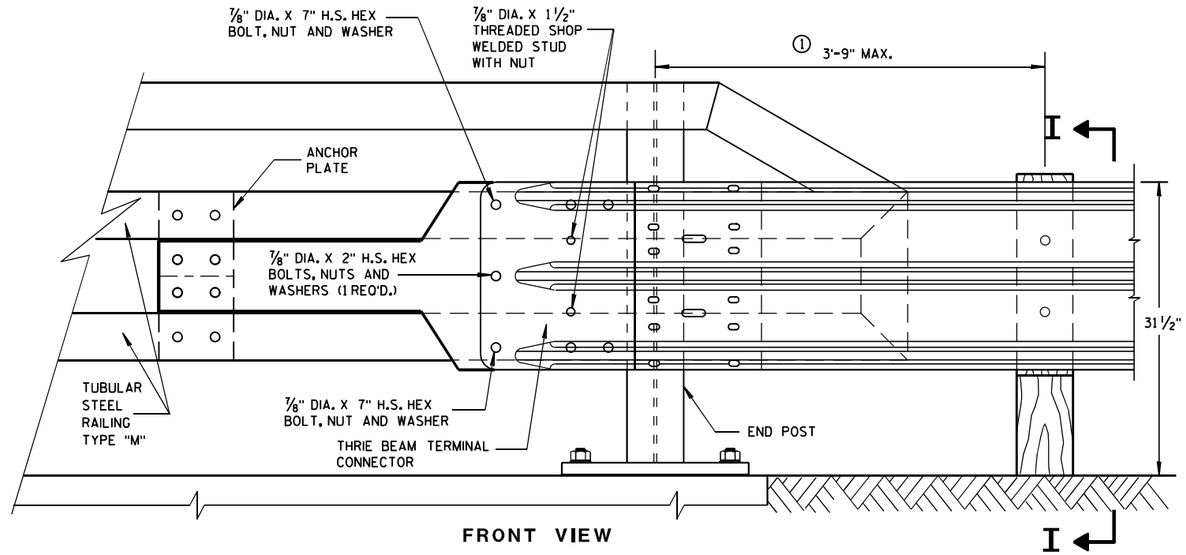


SECTION H-H

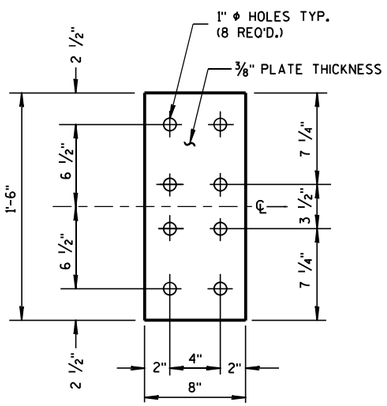


FRONT VIEW

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

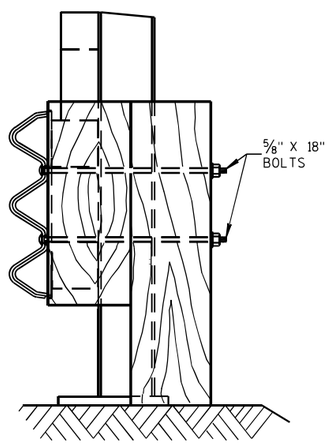


FRONT VIEW

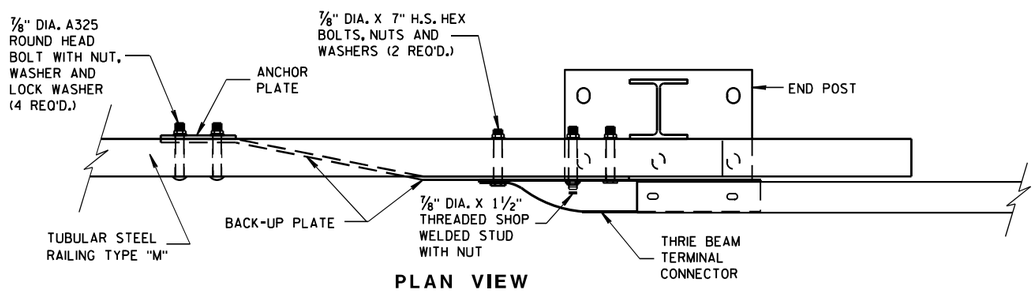


FRONT VIEW

ANCHOR PLATE DETAIL, TYPE "M"



SECTION I-I



PLAN VIEW

THRIE BEAM CONNECTION TO TUBULAR RAILING, TYPE "M"

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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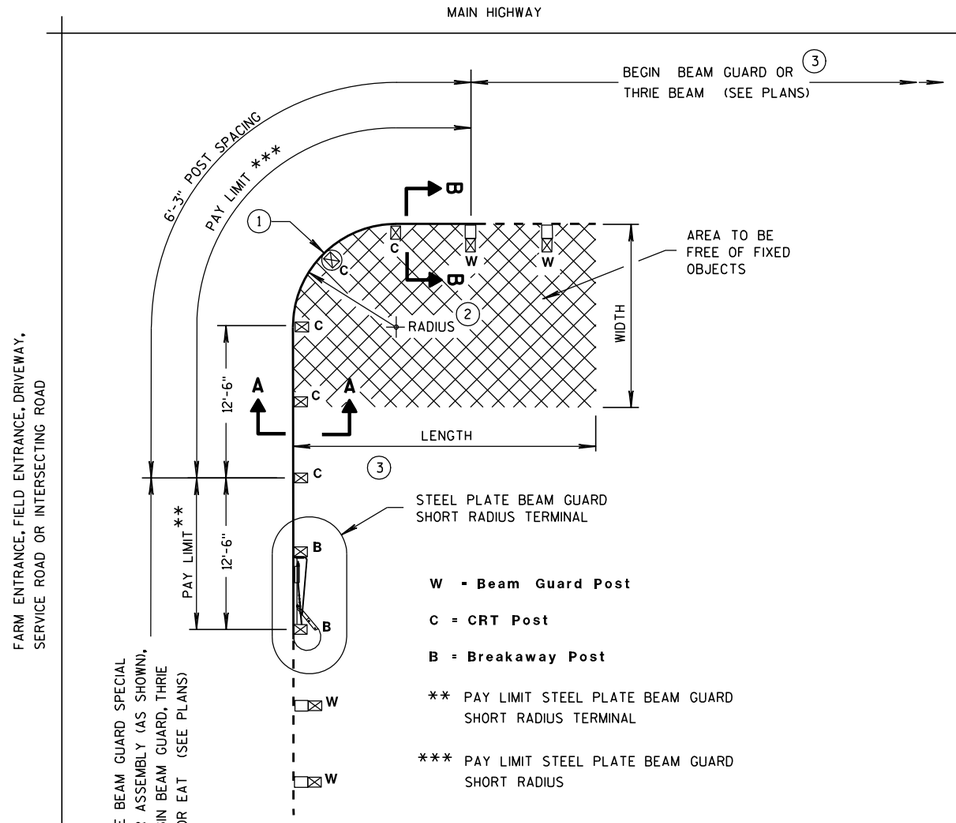
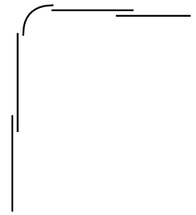


TYPICAL LAYOUT
(8' RADIUS SHOWN)



TYPICAL LAP SPLICES
(8' RADIUS SHOWN)

GENERAL NOTES

ALL ANGLES, CHANNELS, AND PLATES SHALL CONFORM TO THE REQUIREMENTS OF ASTM A36 AND THE STRUCTURAL TUBING SHALL CONFORM TO ASTM A 500. WELDING SHALL MEET THE CURRENT REQUIREMENTS OF THE AMERICAN WELDING SOCIETY STRUCTURAL WELDING CODE ANSI/AWS D1.1. ALL STRUCTURAL STEEL SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A 123. PUNCHING, DRILLING, CUTTING, OR WELDING WILL NOT BE PERMITTED AFTER GALVANIZING. FURNISH AND INSTALL HARDWARE PER STANDARD SPECIFICATION 614.2. UNLESS NOTED OTHERWISE.

SHOP BEND CURVED RAIL SECTIONS.

SEE STANDARD DETAIL DRAWING 14 B 15 FOR OTHER DETAIL.

(1) ON THE 8 FOOT RADIUS INSTALLATION, DO NOT INSTALL BUTTON HEAD BOLT AT CENTER CRT POST.

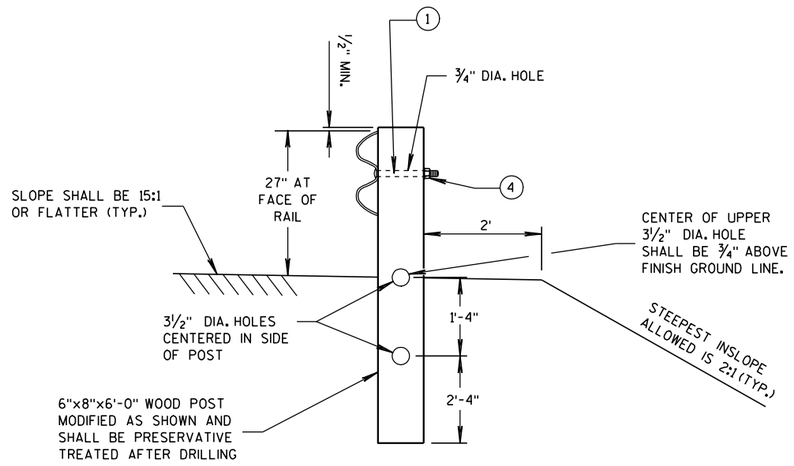
(2) RADIUS FROM 8' - 36'. SEE PLAN.

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

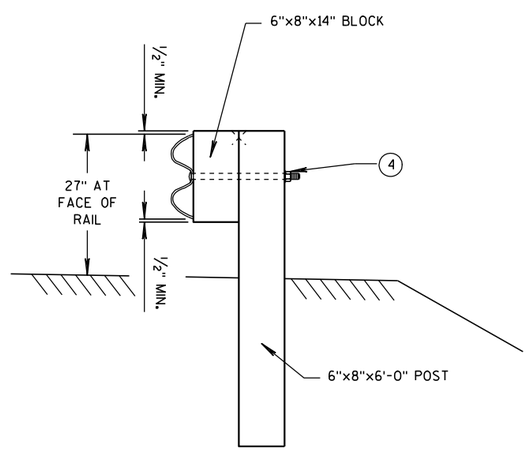
(4) 5/8" ø X 1'-6" BUTTON HEAD BOLT AND RECESS NUT WITH ROUND WASHER UNDER NUT.

RADIUS	NUMBER OF CRT POSTS	*NUMBER AND LENGTH OF CURVED RAILS	REQUIRED AREA FREE OF FIXED OBJECTS (LENGTH x WIDTH)
8'	5	1 at 12.5'	25' x 15'
16'	7	1 at 25'	30' x 15'
24'	9	1 at 25' and 1 at 12.5'	40' x 20'
32'	11	2 at 25'	50' x 20'

* THE NUMBER OF RAILS IS BASED ON A 90° INTERSECTION. SEE PLAN FOR NON 90° INSTALLATIONS.



SECTION A-A
(CRT POST)



SECTION B-B
(BEAM GUARD POST)

STEEL PLATE BEAM GUARD SHORT RADIUS TERMINAL

STEEL PLATE BEAM GUARD SHORT RADIUS TERMINAL

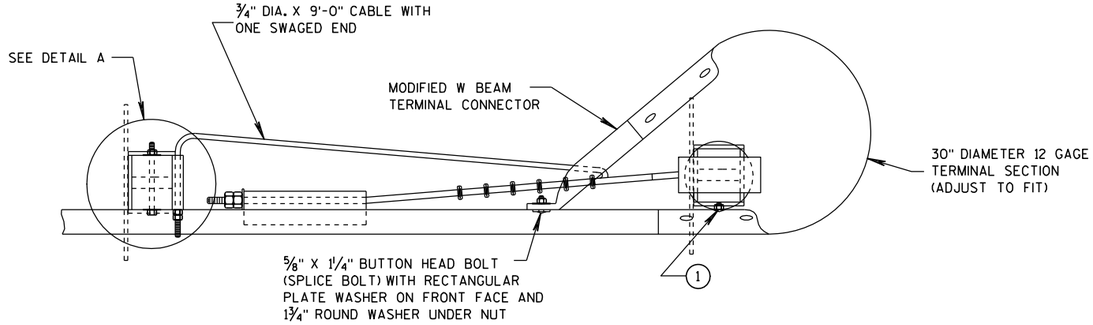
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6

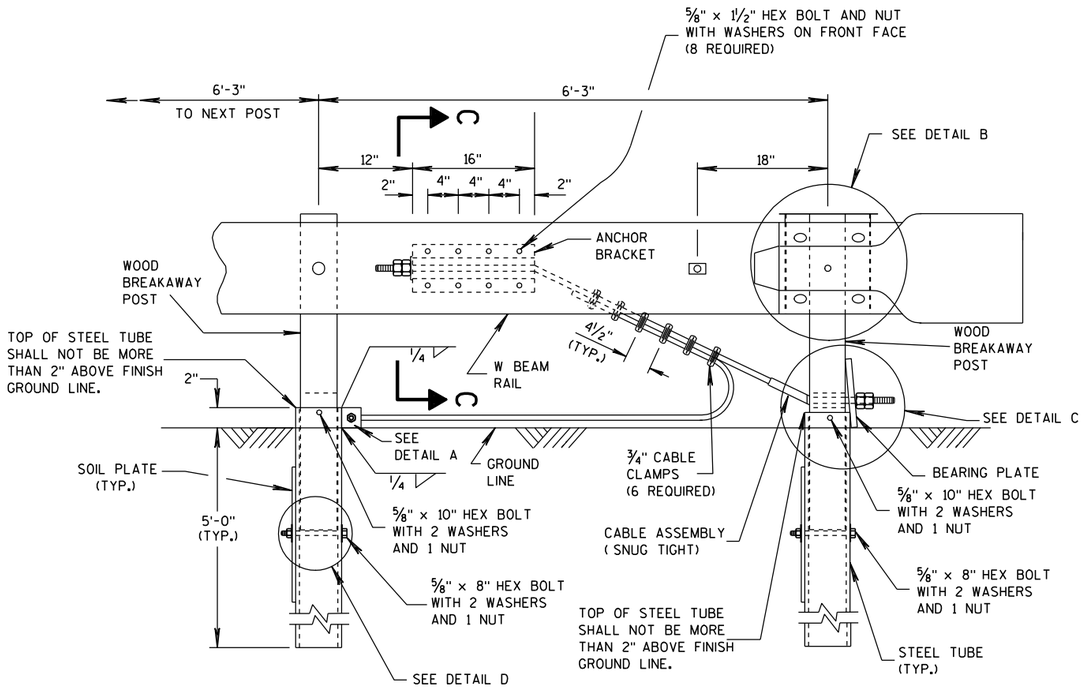
S.D.D. 14 B 27-1a

6

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



PLAN VIEW



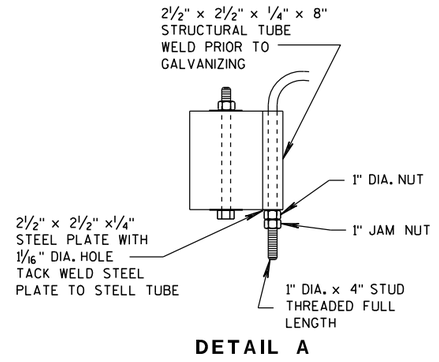
ELEVATION VIEW

STEEL PLATE BEAM GUARD SHORT RADIUS TERMINAL

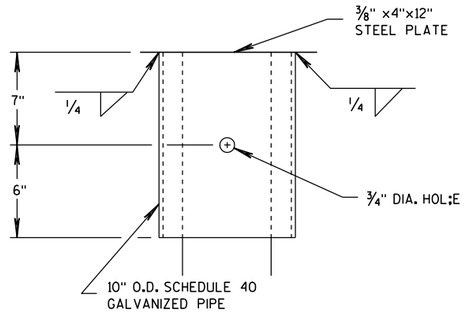
GENERAL NOTES

(1) ATTACH W BEAM RAIL TO THE STEEL PIPE WITH A ⅝" X 2" BUTTON HEAD BOLT WITH NO WASHER. CONNECTION TO THE POST IS NOT REQUIRED.

INSTALL GALVANIZED ¾" (6X19) PREFORMED WIRE OR INDEPENDENT WIRE ROPE CORE CONFORMING TO AASHTO M 30. MANUFACTURE WIRE ROPE OUT OF IMPROVED PLOW STEEL WITH A MINIMUM BREAKING STRENGTH OF 42,800 PSI.



DETAIL A



DETAIL B

(BEAM GUARD AND TERMINAL SECTION NOT SHOWN)

STEEL PLATE BEAM GUARD SHORT RADIUS TERMINAL

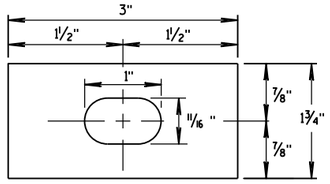
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6

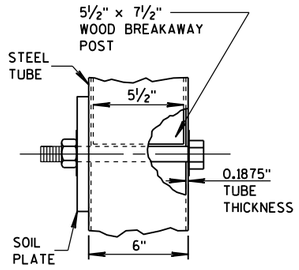
S.D.D. 14 B 27-1b

6

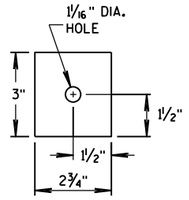
S.D.D. 14 B 27-1b



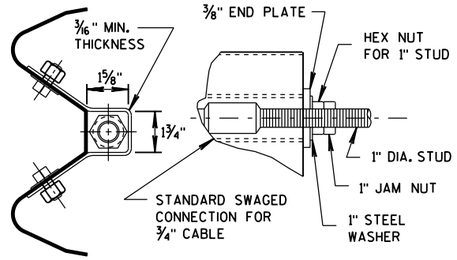
RECTANGULAR PLATE WASHER



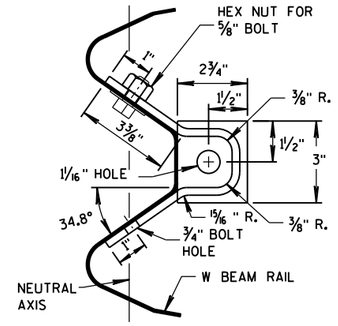
DETAIL D



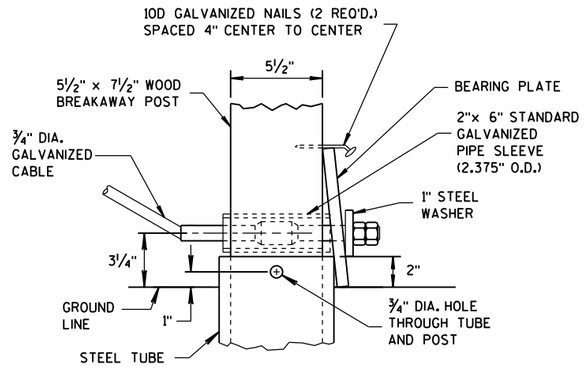
END PLATE



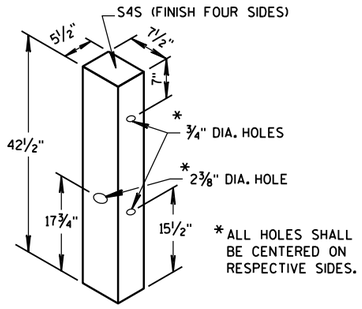
SECTION C-C
(END PLATE REMOVED)



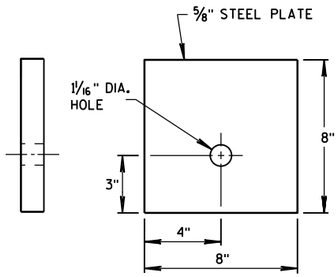
ANCHOR BRACKET



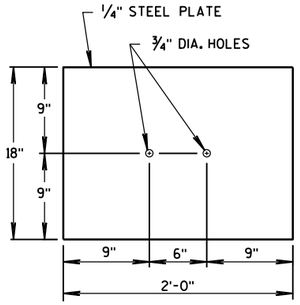
DETAIL C



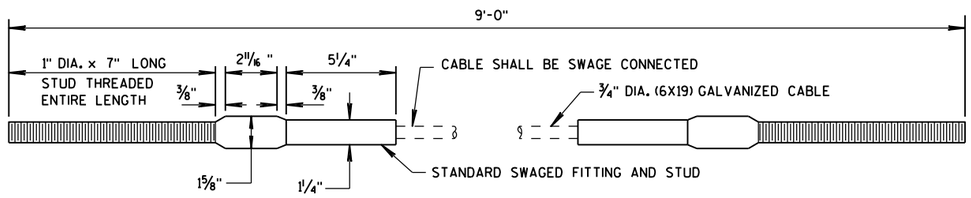
WOOD BREAKAWAY POST



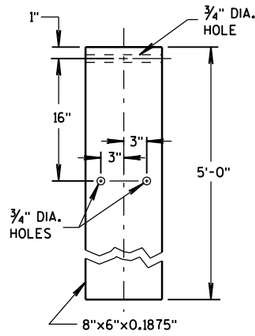
BEARING PLATE



SOIL PLATE



CABLE ASSEMBLY



STEEL TUBE

STEEL PLATE BEAM GUARD
SHORT RADIUS TERMINAL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

6

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

6

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

(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.

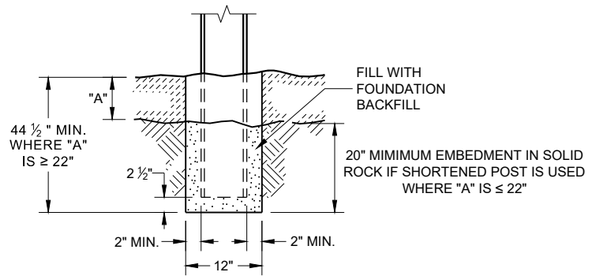
(3) IF ROCK IS ENCOUNTERED DURING EXCAVATION, PROVIDE A HOLE 12 INCHES IN DIAMETER EXTENDING 20 INCHES DEEP INTO THE ROCK. PLACE APPROXIMATELY 2 1/2" INCHES OF GRANULAR MATERIAL IN THE BOTTOM OF THE HOLE. CUT THE POSTS THE TO LENGTH AMD INSTALL. BACKFILL WITH EXCAVATED MATERIAL AND COMPACT. BACKFILL IS TO BE FREE OF LARGE ROCKS.

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

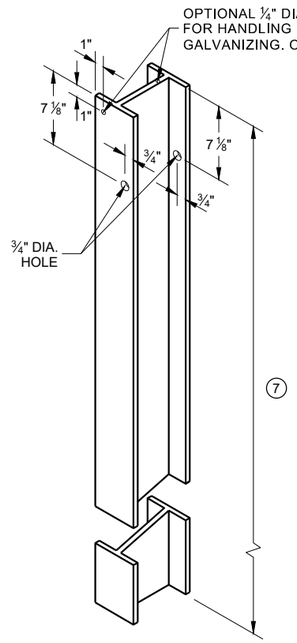
(5) FOR NEW MGS INSTALLATION TOP OF W-BEAM RAIL TOLERANCE IS ±1". FOR EXISTING MGS INSTALLATION TOP OF W-BEAM IS BETWEEN 27 ¾" TO 32".

(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.

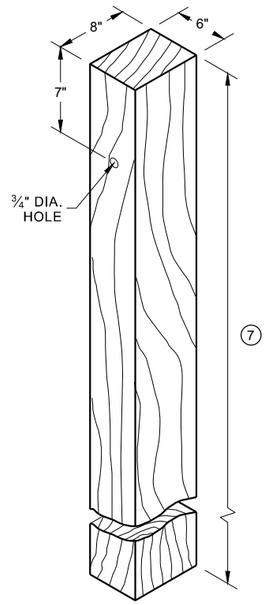
(7) TOTAL POST LENGTH FOR TYPE K IS 7' - 0".
TOTAL POST LENGTH FOR OTHER MGS TYPES IS 6' - 0".



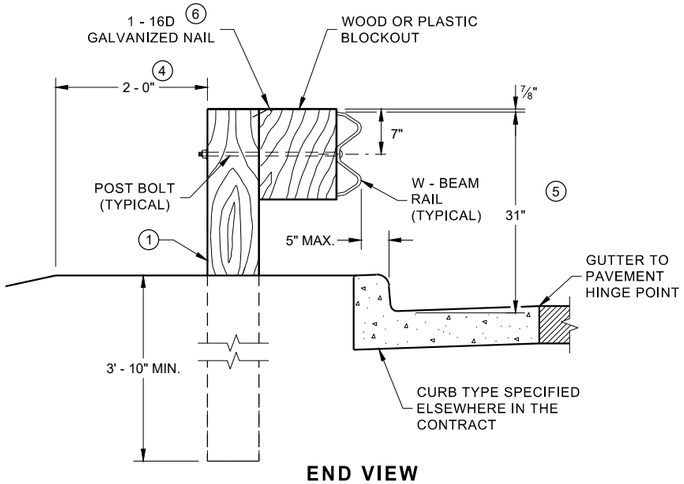
END VIEW
SETTING STEEL OR WOOD POST IN ROCK (3)



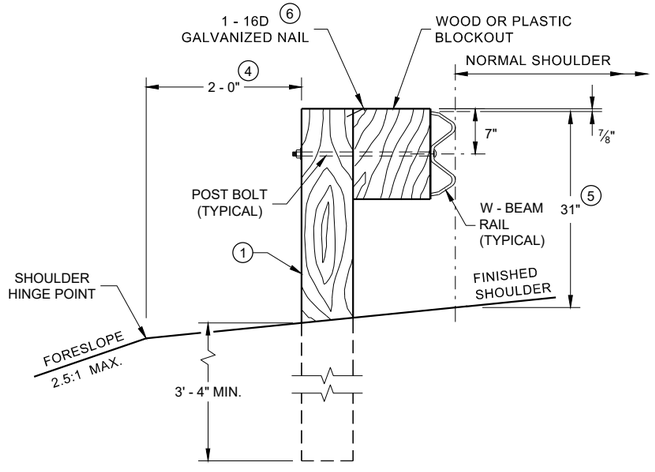
STEEL POST & HOLE PUNCHING DETAIL (W 6 X 9) (1)



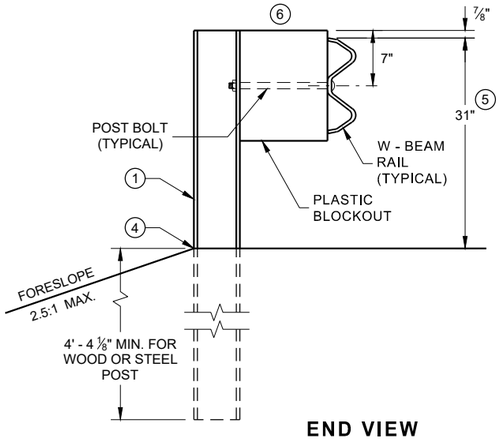
WOOD POST (6" X 8") NOMINAL (1)



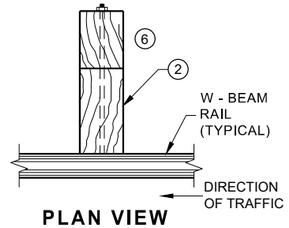
END VIEW
LOCATED ALONG A CURBED ROADWAY



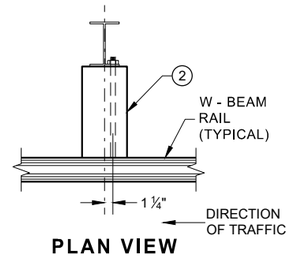
END VIEW
LOCATED ALONG A ROADWAY SHOULDER STANDARD INSTALLATION



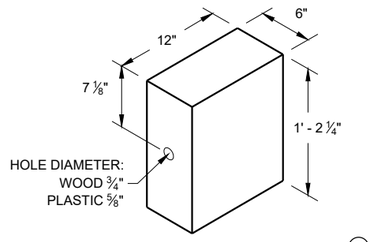
END VIEW
MGS LONGER POST AT HALFPOST SPACING W BEAM (K)



PLAN VIEW
WOOD POST, BLOCKOUT & BEAM



PLAN VIEW
STEEL POST, PLASTIC BLOCKOUT & BEAM



WOOD OR PLASTIC BLOCKOUT (2)

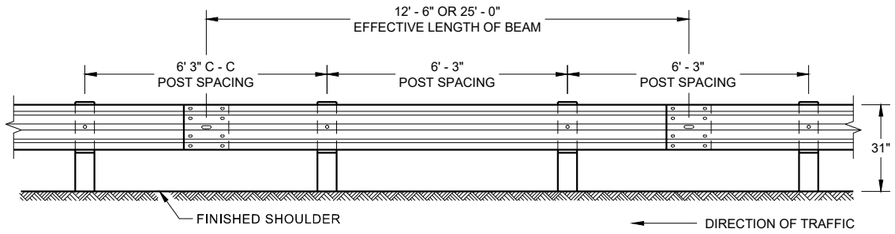
MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

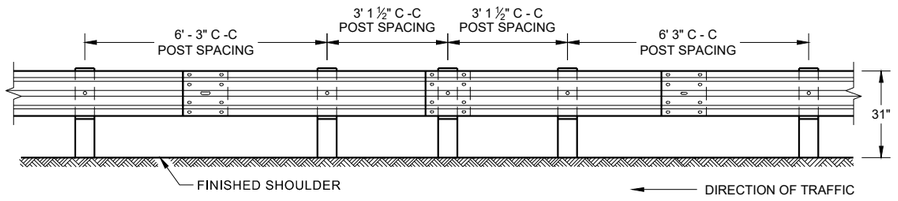
SDD 14B42 - 07a

6

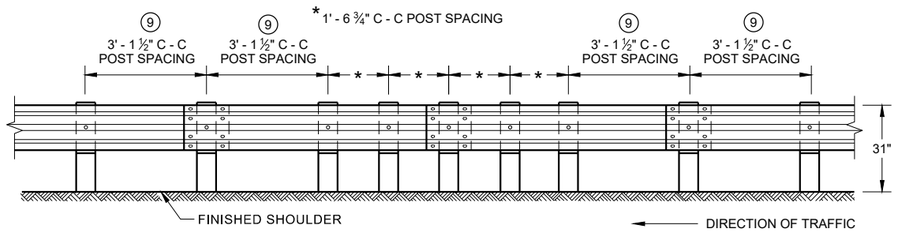
SDD 14B42 - 07a



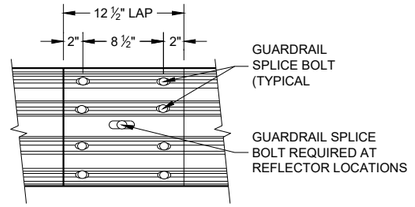
FRONT VIEW
POST SPACING STANDARD INSTALLATION



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



FRONT VIEW
QUARTER POST SPACING (QS)



FRONT VIEW
MID-SPAN BEAM SPLICE

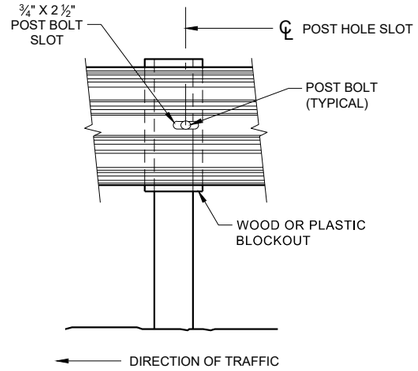
GENERAL NOTES

⑧ DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINAL.

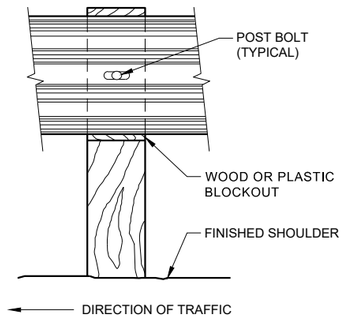
⑨ 25 FEET OF HALF POST SPACING IS REQUIRED ON APPROACH AND DEPARTURE ENDS OF QUARTER POST SPACING.

POST BOLTS ARE A ⅝" DIAMETER ASTM A307 GUARDRAIL BOLT. A POST BOLT REQUIRES ⅝" DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX NUT AND ⅝" DIAMETER F844 FLAT WASHER. POST BOLTS MAY BE LONGER IF MULTIPLE BLOCKOUTS ARE BEING USED.

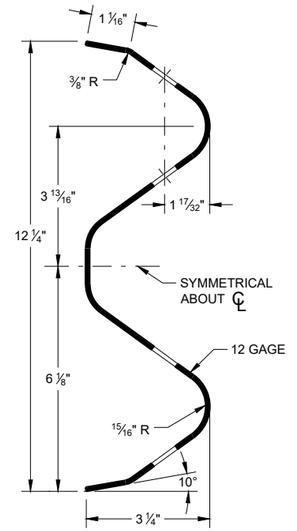
GUARD RAIL SPLICE BOLTS ARE A ⅝" DIAMETER ASTM A307 GUARDRAIL HEAD BOLT. A GUARDRAIL SPLICE BOLT REQUIRES ⅝" DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX NUT.



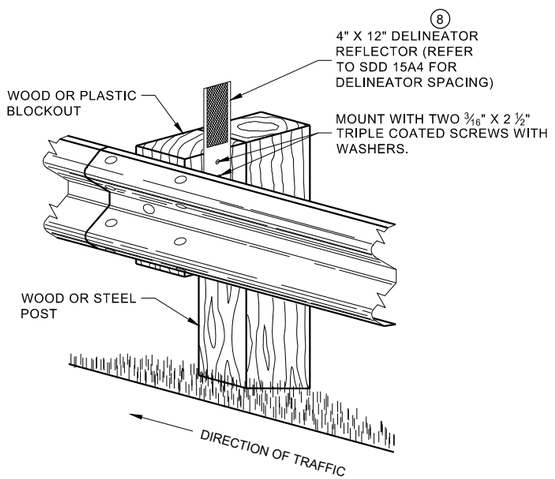
FRONT VIEW AT STEEL POST



FRONT VIEW AT WOOD POST



SECTION THRU W-BEAM RAIL

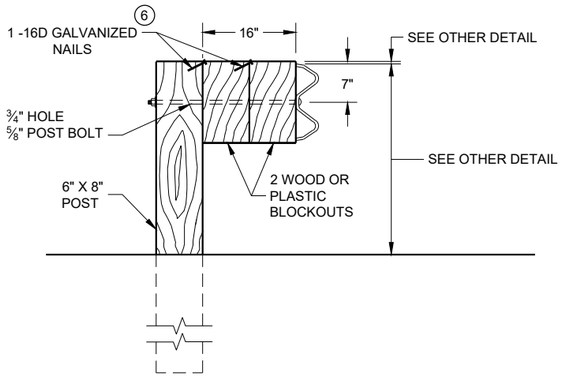


ONE SIDED REFLECTOR DETAIL
AND TYPICAL INSTALLATION

MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6
SDD 14B42 - 07b

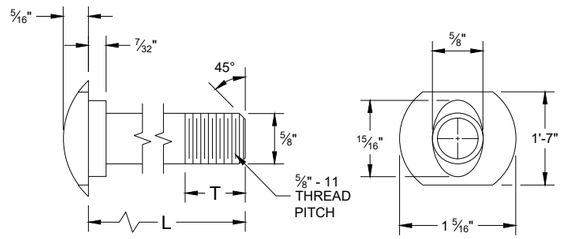


DETAIL FOR 16" BLOCKOUT DEPTH

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

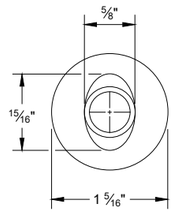
NOTE:

1. ALL FILLETS SHALL HAVE A MINIMUM RADIUS OF 3/16".
2. IF THE BOLT EXTENDS MORE THAN ¼" FROM THE NUT THE BOLT SHOULD BE TRIMMED BACK.

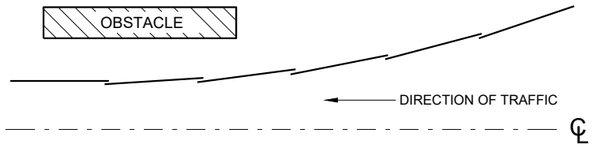


POST BOLT TABLE

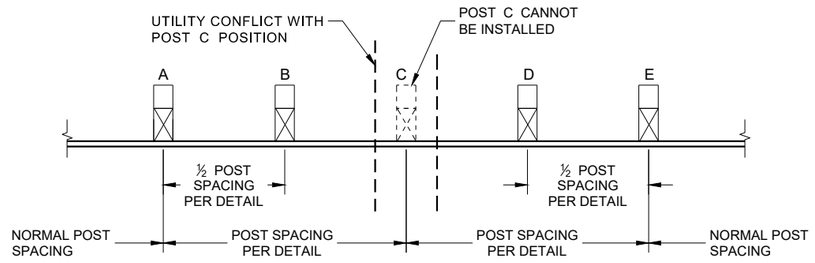
L	T (MIN.)
1 ¼"	1 ⅛"
2"	1 ¾"
10"	4"
14"	4 1/16"
18"	4"
21"	4 1/16"
25"	4"



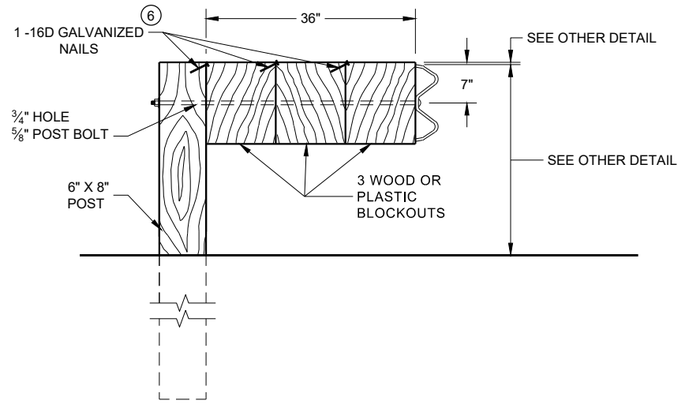
ALTERNATE BOLT HEAD



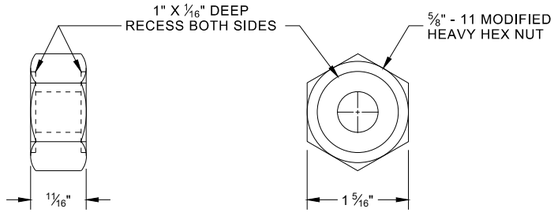
PLAN VIEW
BEAM LAPPING DETAIL



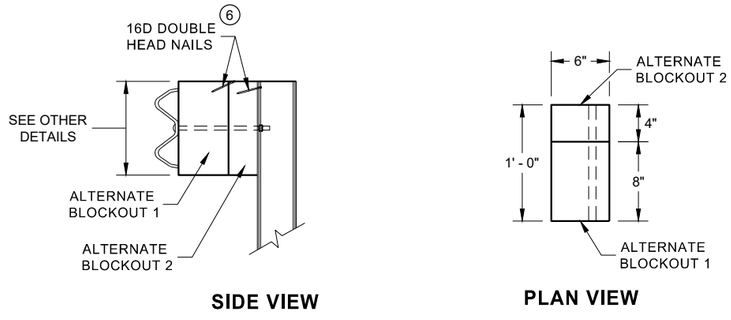
POST DRIVING FOR CONTINUOUS UNDERGROUND OBSTRUCTION



DETAIL FOR 36" BLOCKOUT DEPTH



POST BOLT, SPLICE BOLT AND RECESS NUT



SIDE VIEW

PLAN VIEW

ALTERNATE WOOD BLOCKOUT DETAIL

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.

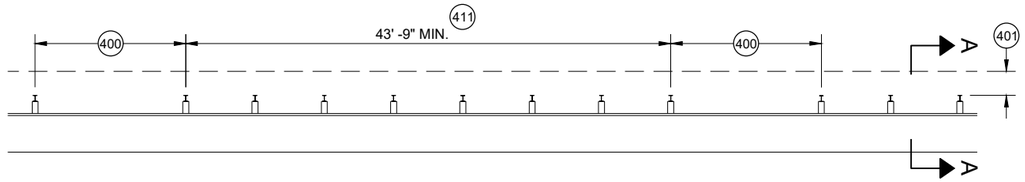
DO NOT USE 16" OR 36" BLOCKOUTS IF IT CAUSES THE POST TO BE DRIVEN BEYOND SHOULDER HINGE POINT OR CAUSES A FIXED OBJECT TO BE WITHIN THE DEFLECTION DISTANCE OF THE BARRIER.

(6) WHEN USING STEEL POST AD 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.

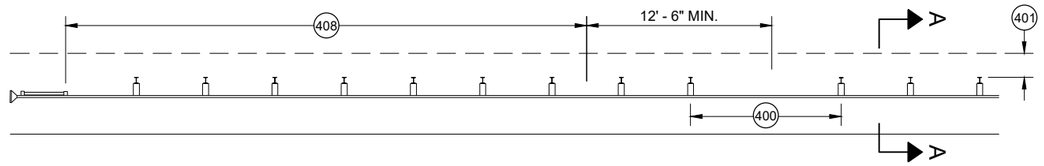
6

MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL

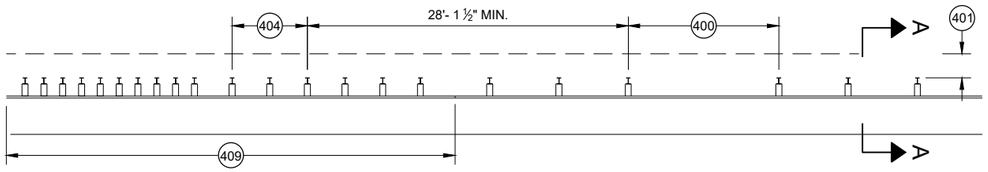
SDD 14B42 - 07c



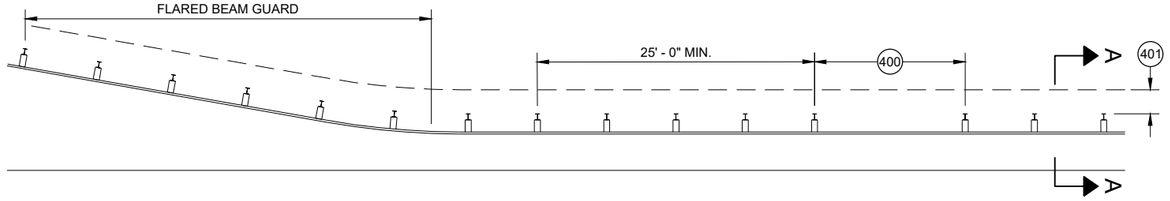
MISSING POST IN MGS GUARDRAIL



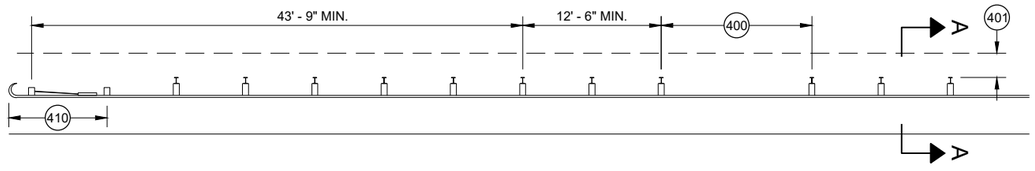
MISSING POST IN MGS GUARDRAIL NEAR EAT



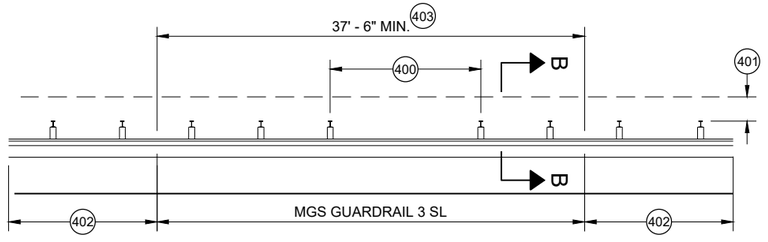
MISSING POST IN MGS GUARDRAIL NEAR AN APPROACH TRANSITION



MISSING POST IN MGS GUARDRAIL NEAR FLARED BEAM GUARD

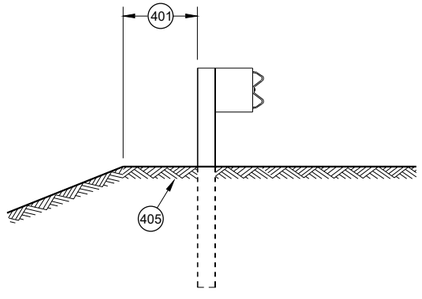


MISSING POST IN MGS GUARDRAIL NEAR A TYPE 2 END TERMINAL

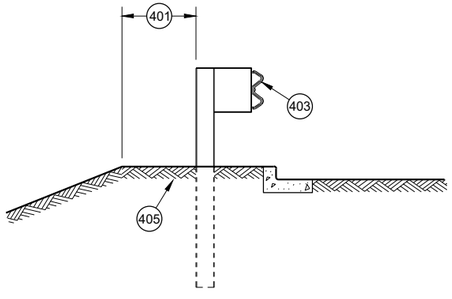


MISSING POST IN SHORT SPAN MGS GUARDRAIL NEAR CURB (SL) 407

(400) MAX SPAN 12' - 6"
(401) 2' MIN.
(402) MGS GUARDRAIL 3
(403) NESTING BEAM GUARD
(404) ASYMMETRIC TRANSITION
(405) SOIL WELL DRAINED AND COMPACTED
(406) SEE OTHER DRAWINGS IN THIS SDD
(407) SEE OTHER DRAWINGS FOR MIN. SPACING BETWEEN SPANS
(408) SEE SDD 14B44
(409) SEE SDD 14B45
(410) SEE SDD 14B47
(411) MINIMUM DISTANCE BETWEEN MISSING POST SPANS.



SECTION A - A 406



SECTION B - B 406

MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
May 2021
DATE

/S/ Rodney Taylor
ROADWAY STANDARDS DEVE
UNIT SUPERVISOR

FHWA

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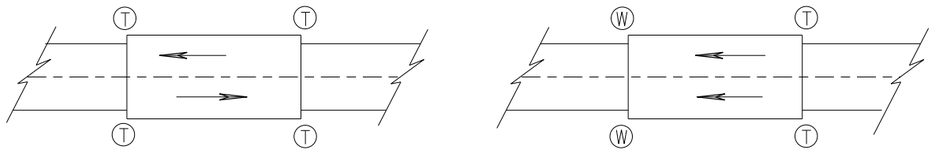
SDD 14B42 - 07d



TWO WAY TRAFFIC

ONE WAY TRAFFIC

(T) THRIE BEAM CONNECTION

(W) W-BEAM CONNECTION WHEN REQUIRED

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

GENERAL NOTES

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

TRANSITION USES STEEL POSTS ONLY.

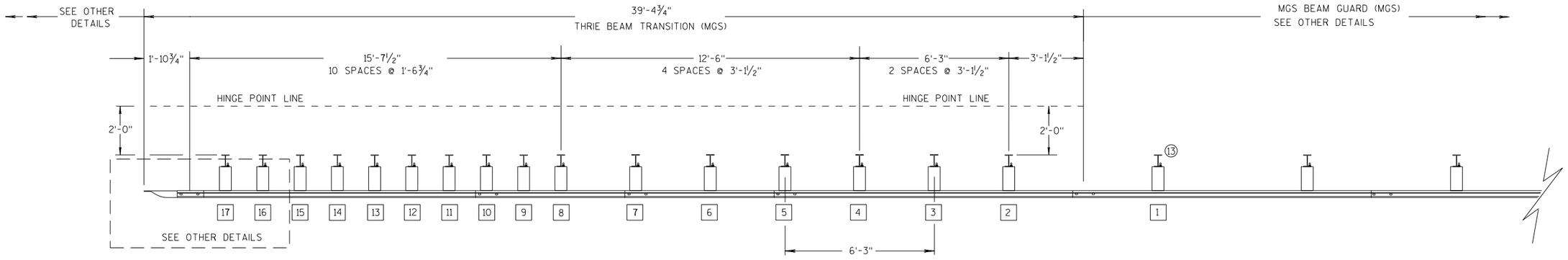
SEE STANDARD DETAIL DRAWING 14 B 42 FOR MORE INFORMATION.

POST 2 THROUGH 17 USES STEEL POST ONLY

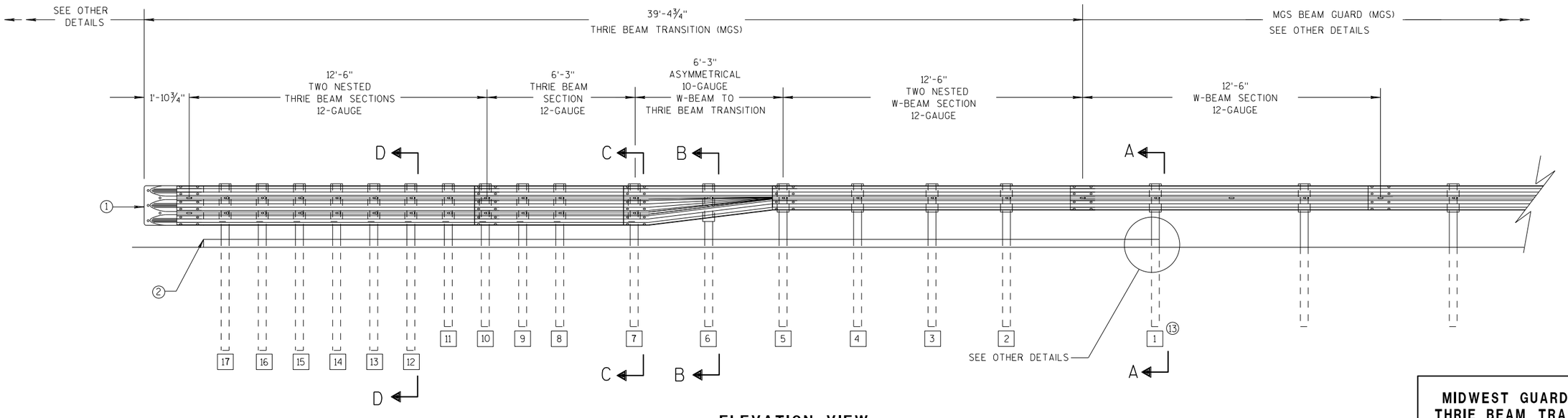
(1) BRIDGE RAILING TYPE "W" DOES NOT REQUIRE A TERMINAL CONNECTOR.

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

(13) STEEL OR WOOD POST IS ACCEPTABLE AT POST 1. SEE SDD14B42



PLAN VIEW



ELEVATION VIEW

MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR

6

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

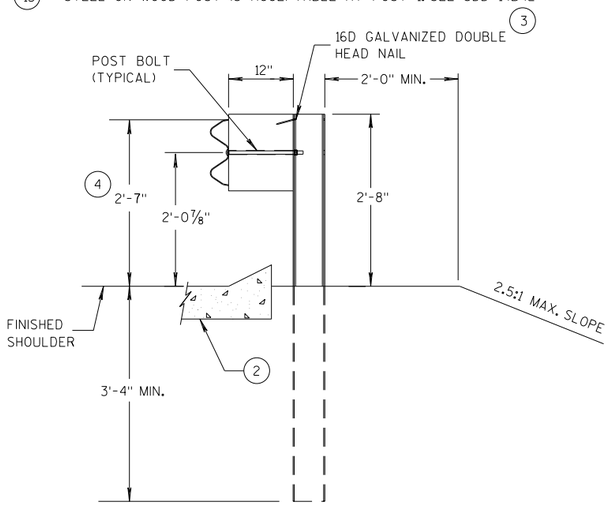
GENERAL NOTES

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

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

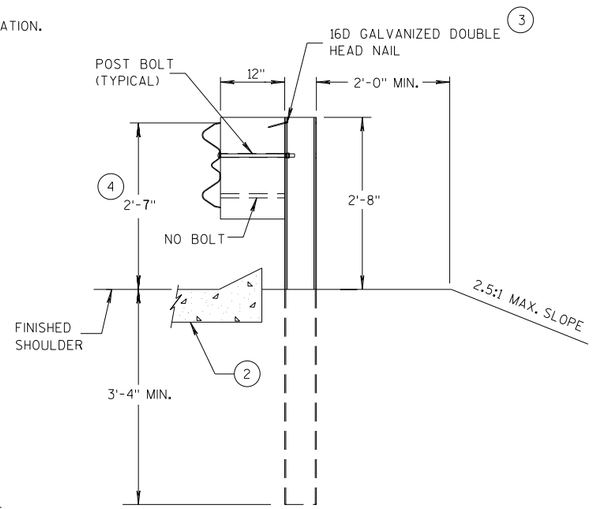
(4) TOLERANCE FOR TOP OF W-BEAM RAIL IS ± 1".

(13) STEEL OR WOOD POST IS ACCEPTABLE AT POST 1. SEE SDD 14B42



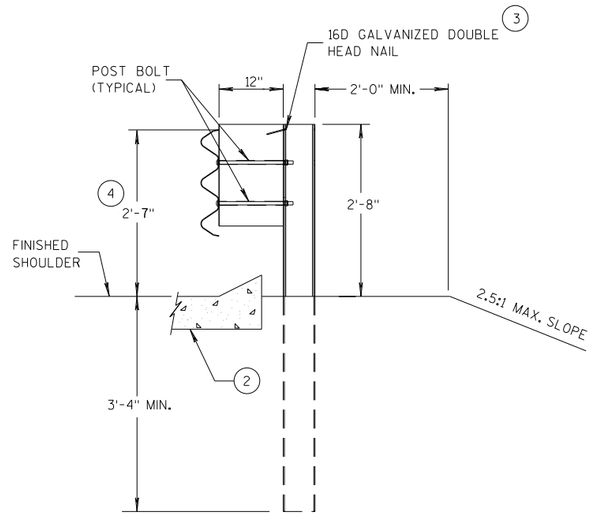
SECTION A-A (13)

POSTS 1-5



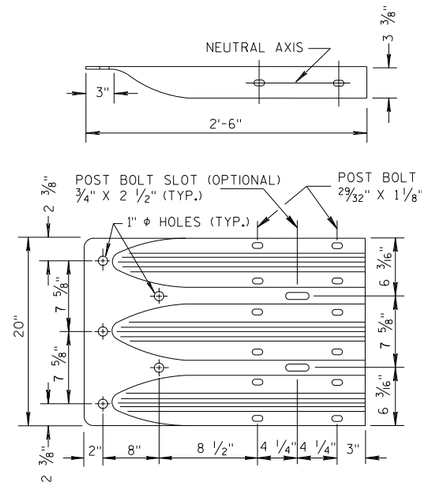
SECTION B-B

POST 6

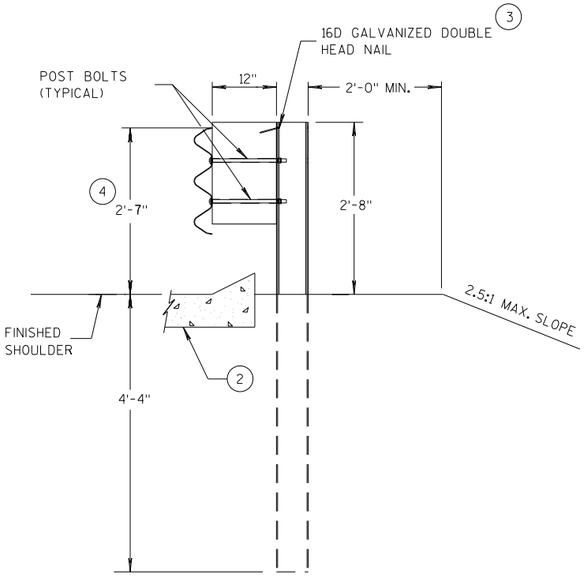


SECTION C-C

POSTS 7-11

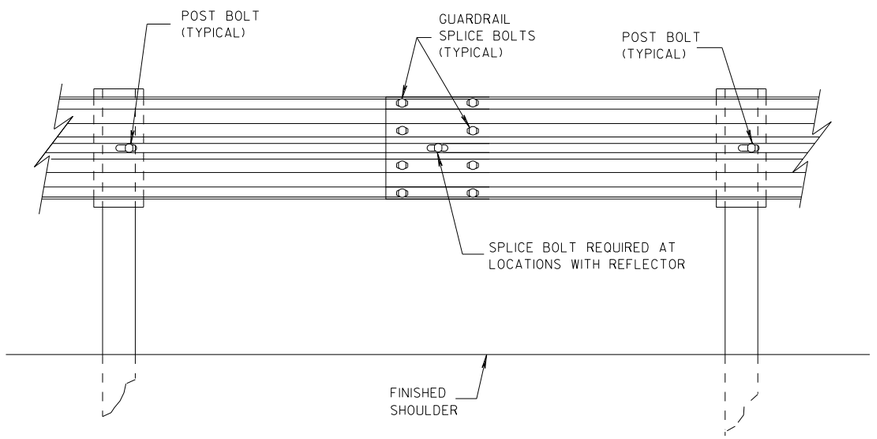


THRIE BEAM TERMINAL CONNECTOR



SECTION D-D

POSTS 12-17



SPLICE DETAIL

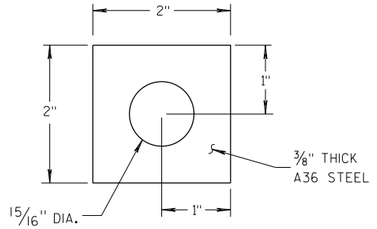
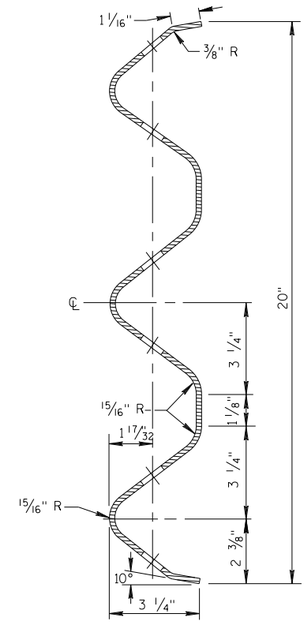


PLATE WASHER DETAIL



SECTION THRU THRIE BEAM RAIL ELEMENT

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

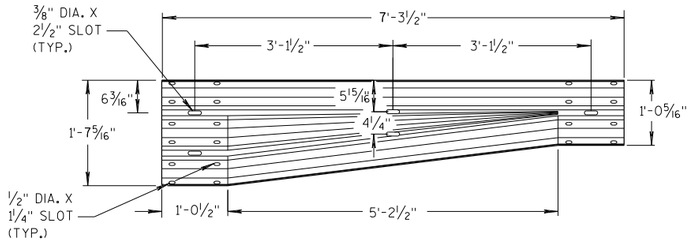
STATE OF WISCONSIN
DEPARTMENT OF TRANSPOF

6

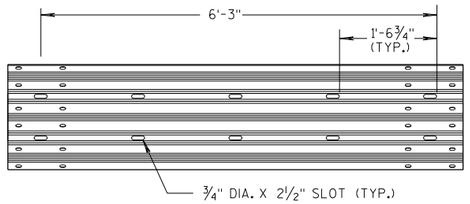
S.D.D. 14 B 45-5b

6

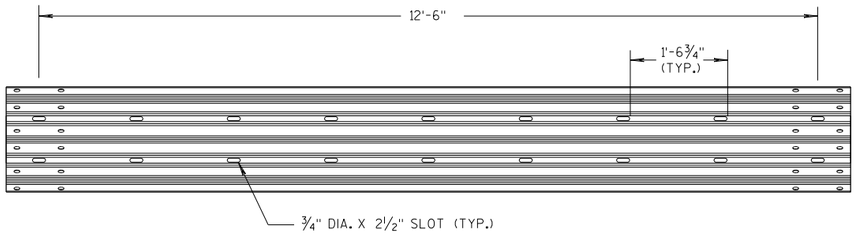
S.D.D. 14 B 45-5b



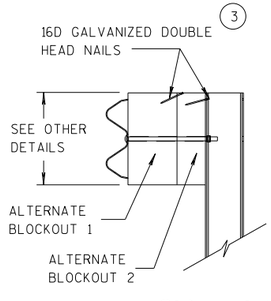
W-BEAM TO THRIE BEAM TRANSITION SECTION



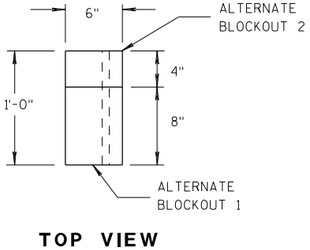
6'-3" THRIE BEAM SECTION



12'-6" THRIE BEAM SECTION

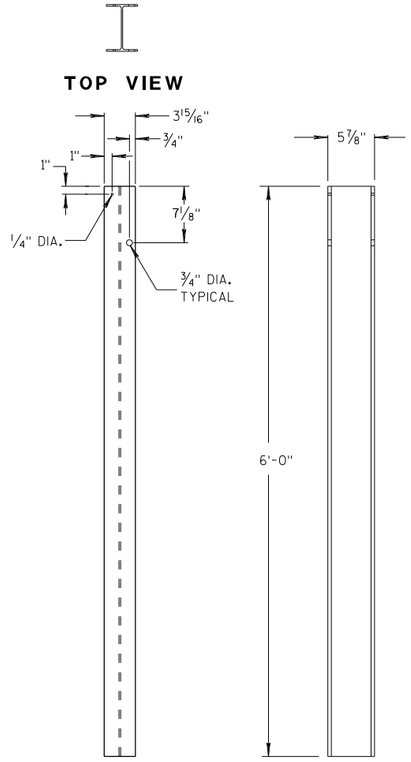


SIDE VIEW



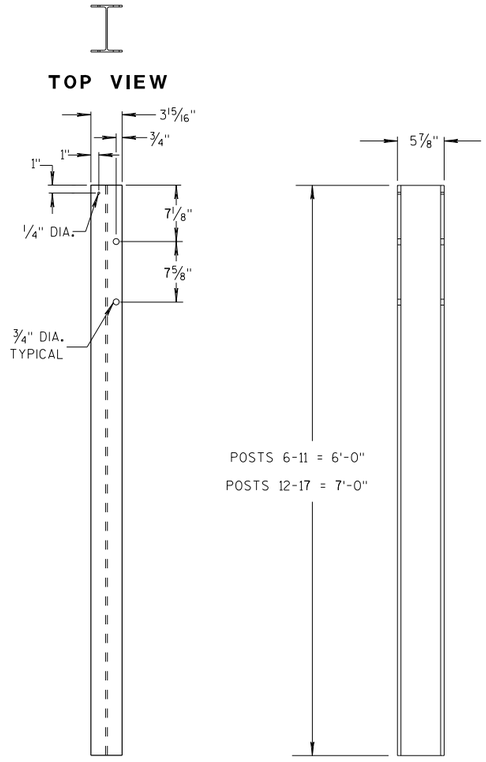
TOP VIEW

ALTERNATE WOOD BLOCKOUT DETAIL



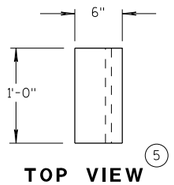
FRONT VIEW SIDE VIEW

STEEL POSTS 1-5 (13)

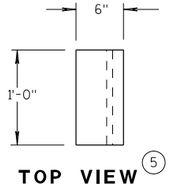


FRONT VIEW SIDE VIEW

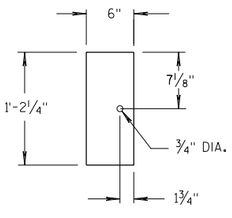
STEEL POSTS 6-17



TOP VIEW (5)

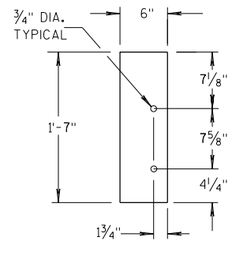


TOP VIEW (5)



FRONT VIEW

BLOCKOUT POSTS 1-5



FRONT VIEW

BLOCKOUT POSTS 6-17

GENERAL NOTES

STEEL POSTS ARE W6X9 OR W6X8.5.

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

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

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

(13) STEEL OR WOOD POST IS ACCEPTABLE AT POST 1. SEE SDD 14B42.

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR

6

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

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.

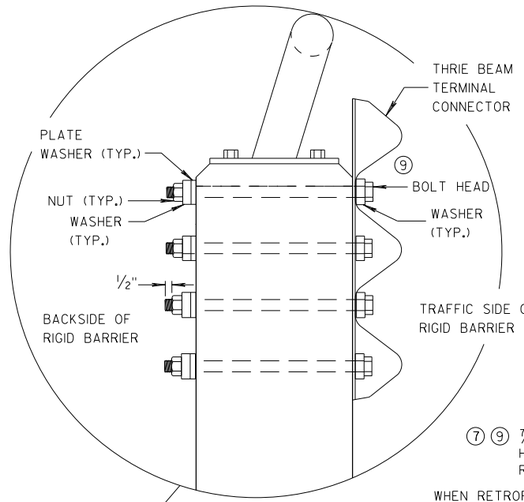
(4) TOLERANCE FOR TOP OF BEAM IS ± 1".

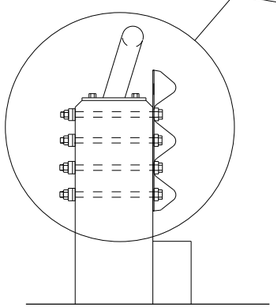
(6) DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.

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

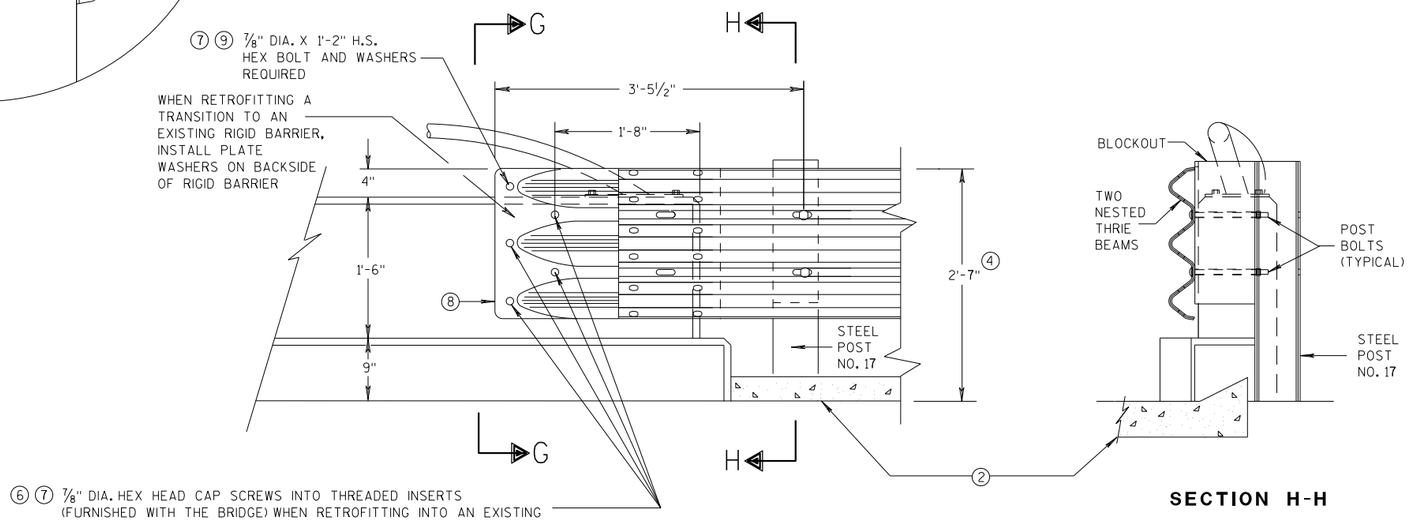
(8) THE RECESS FOR A W-BEAM CONNECTION, WHICH EXISTS ON SOME PARAPETS OF THIS TYPE, SHALL BE FILLED WITH A TREATED TIMBER BLOCKOUT. BLOCKOUT SIZE IS 1'-6" X 2'-0" X 3 ½".

(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.





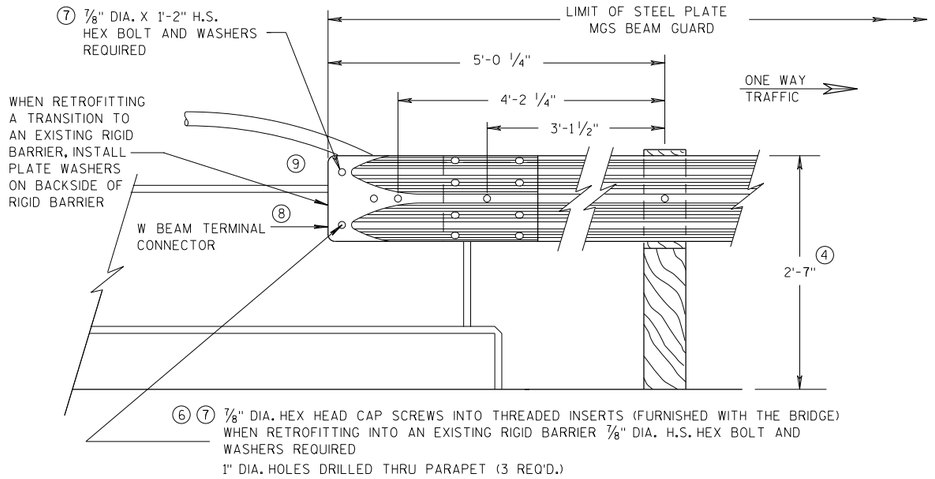
SECTION G-G



FRONT VIEW

SECTION H-H

THRIE BEAM CONNECTION TO VERTICAL FACED PARAPETS



FRONT VIEW

W BEAM CONNECTION TO VERTICAL FACE PARAPET

(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
07/2018 — DATE
/S/ Rodney Taylor
ROADWAY STANDARDS D UNIT SUPERVI
NT
FHWA

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

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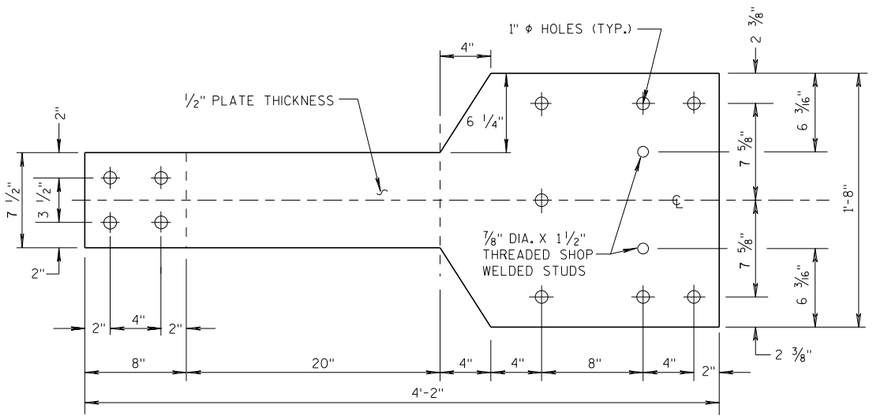
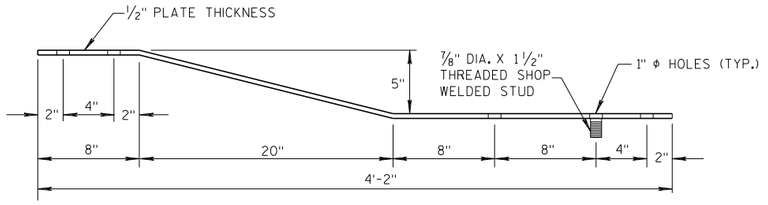
S.D.D. 14 B 45-5e

GENERAL NOTES

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

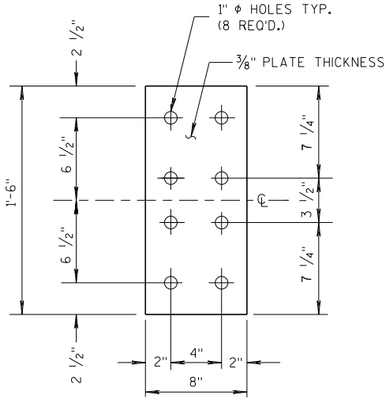


FRONT VIEW



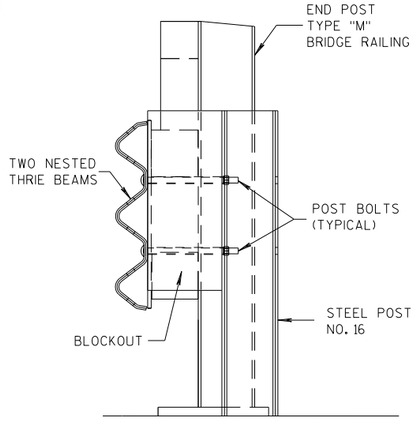
PLAN VIEW

BACK-UP PLATE DETAIL, TYPE "M"

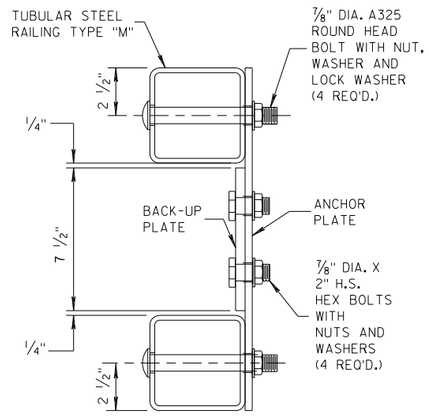


FRONT VIEW

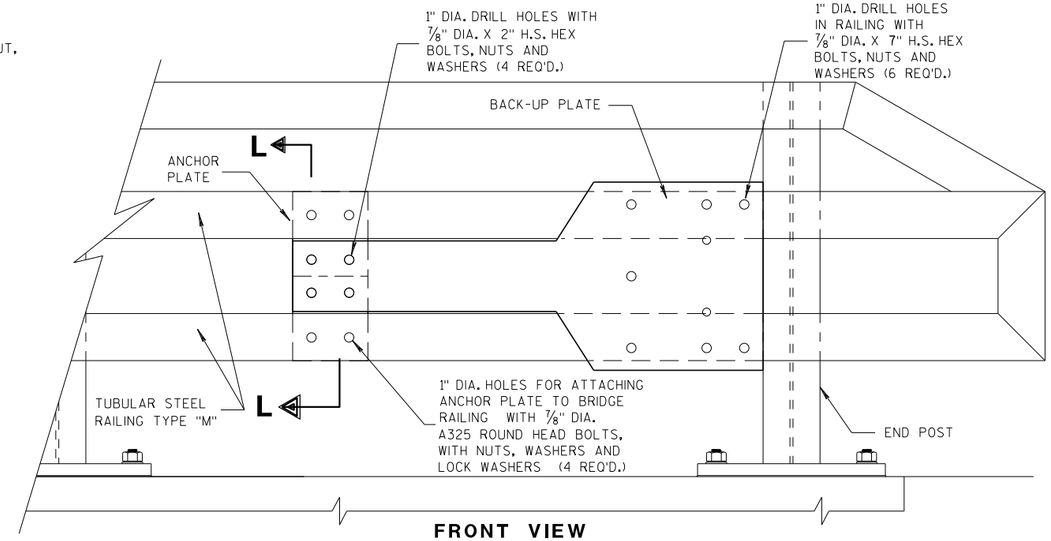
ANCHOR PLATE DETAIL, TYPE "M"



SECTION M-M

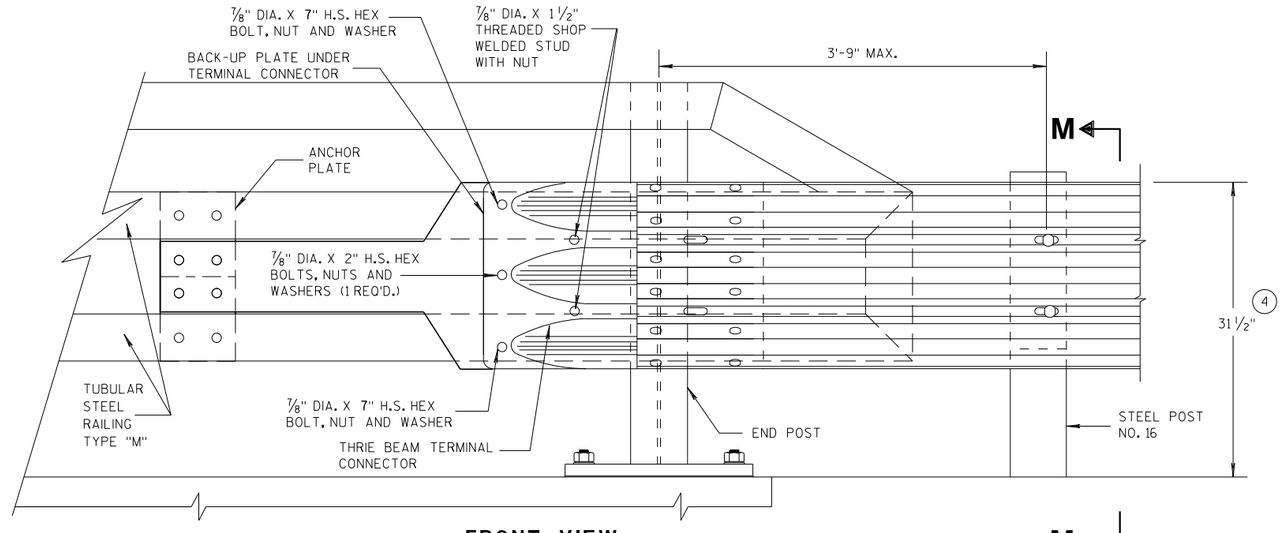


SECTION L-L

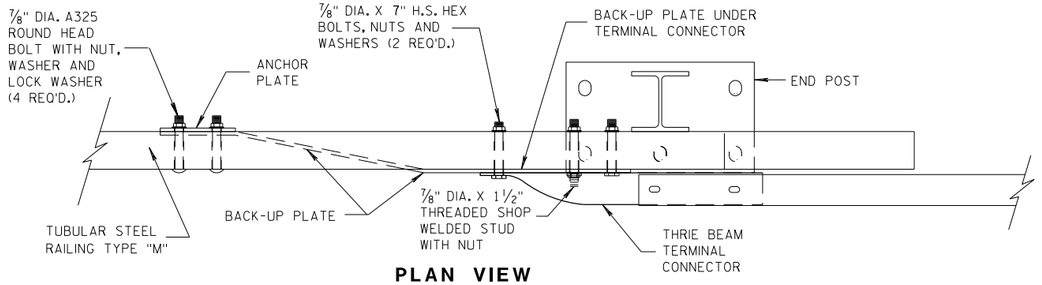


FRONT VIEW

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



FRONT VIEW



PLAN VIEW

THRIE BEAM CONNECTION TO TUBULAR RAILING, TYPE "M"

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

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

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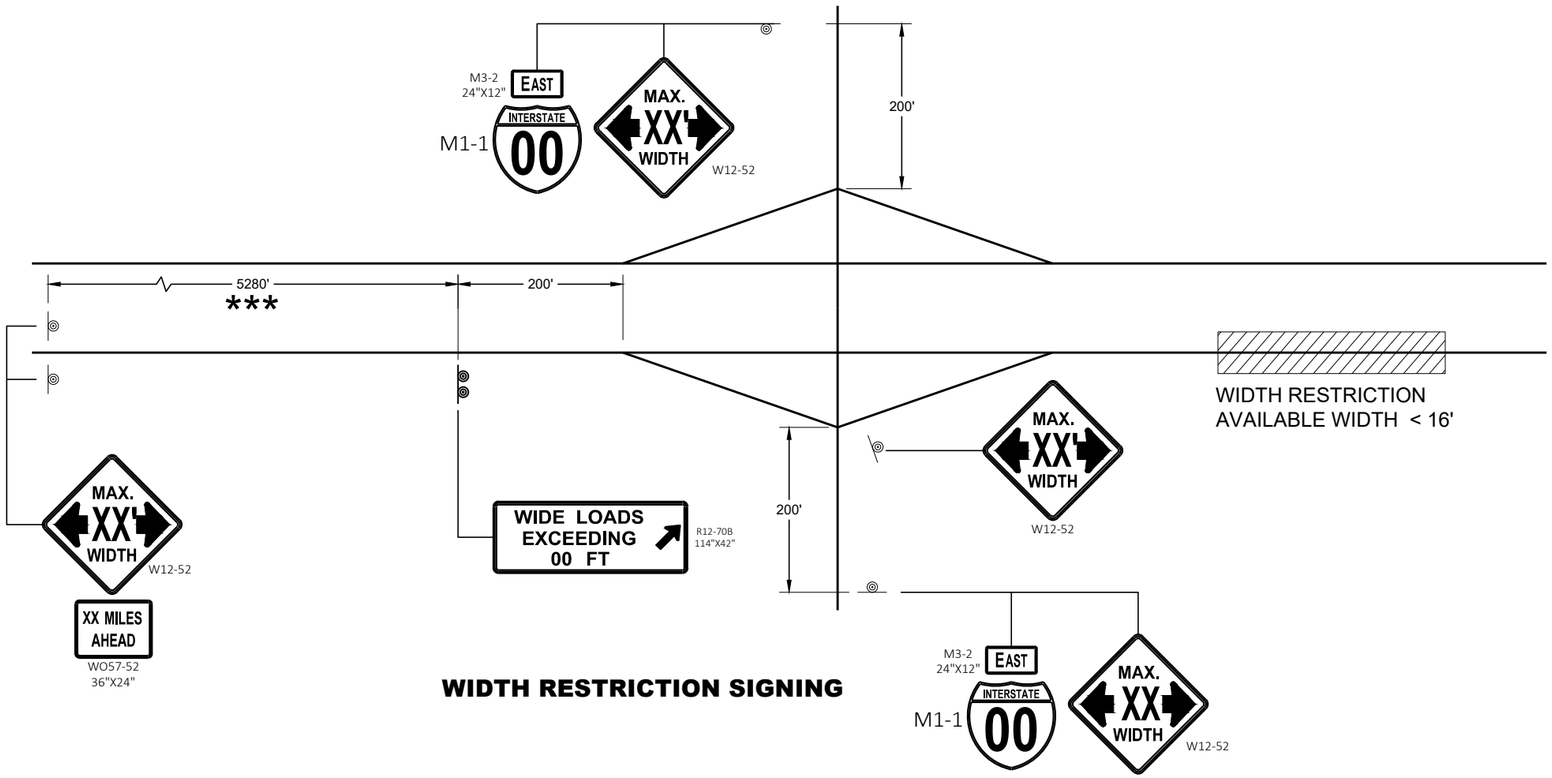
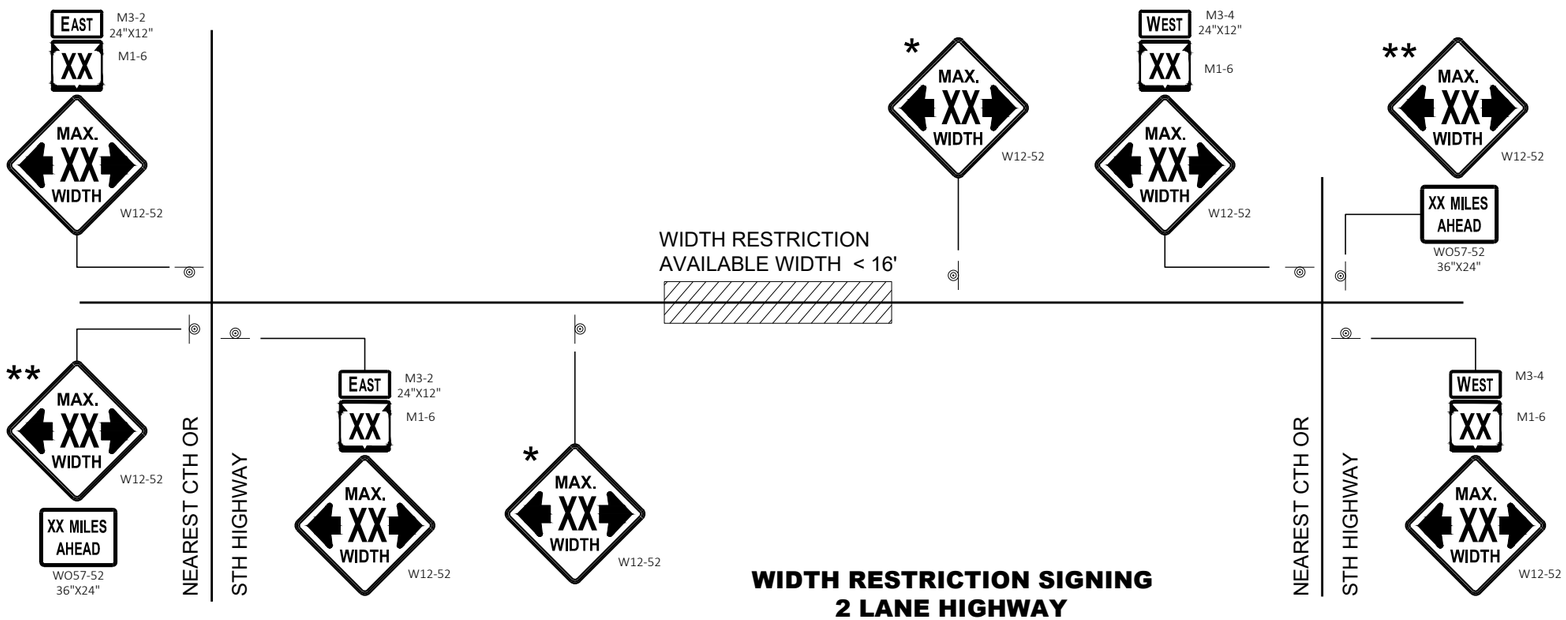
S.D.D. 14 B 45-5h



WIDTH RESTRICTION SIGNING



WIDTH RESTRICTION SIGNING
2 LANE HIGHWAY

LEGEND

◎ SIGN ON PERMANENT SUPPORT

GENERAL NOTES

THE EXACT NUMBER, LOCATION AND SPACING OF ALL SIGNS 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 DESIRABLE MINIMUM OF 200 FEET CLEARANCE TO EXISTING SIGNS THAT WILL REMAIN IN PLACE.

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.

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

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

WIDTH ON SIGN TO BE APPROXIMATELY ONE FOOT LESS THAN AVAILABLE WIDTH.

* PLACE 500 FEET AFTER THE W20 - 1A AND 500 FEET BEFORE ADDITIONAL SIGNS FOR ROADWAYS WITH A PRE - CONSTRUCTION SPEED LIMIT OF 45 MPH OR MORE. FOR 35-40 MPH, USE 350 FOOT TYPICAL SPACING. FOR 25-30 MPH, USE 200 FOOT TYPICAL SPACING.

** SIGN SHALL BE VISIBLE FROM ROADWAY.

*** ADDITIONAL SIGNS NEEDED IF THERE IS AN ON RAMP BETWEEN SIGNS.

WIDTH ON SIGN TO BE APPROX. 1 - FOOT LESS THAN AVAILABLE WIDTH

ADVANCED WIDTH RESTRICTION SIGNING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
May 2023 — DATE
/S/ Andrew Heidtke — WORK ZONE ENGINEER

FHWA

6

SDD 15C02 - 09f

GENERAL NOTES

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

THE SPACING BETWEEN TRAFFIC CONTROL SIGNS SHOULD BE ADJUSTED TO NOT CONFLICT WITH AND SHOULD PROVIDE A MINIMUM OF 200 FEET (500 FEET DESIRABLE) CLEARANCE TO EXISTING SIGNS THAT WILL REMAIN IN PLACE.

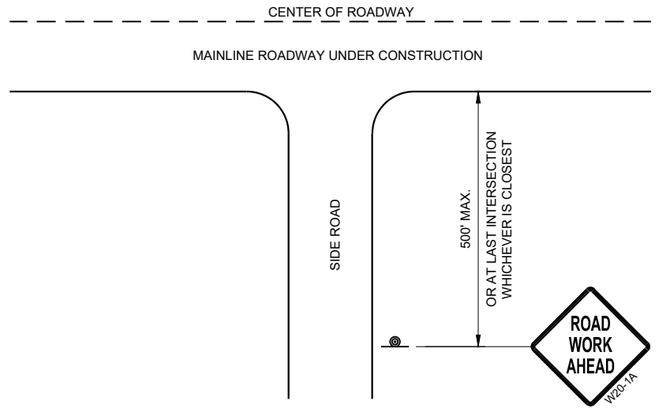
ALL SIGNS ARE 48" X 48" UNLESS OTHERWISE NOTED.

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

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

* OMIT G20-1 SIGNS IF LENGTH OF WORK AREA IS 2 MILES OR LESS

** PLACE AN ADDITIONAL W20-1A "ROAD WORK AHEAD" SIGN IF WORK AREA WITHIN THE PROJECT IS SEPARATED BY MORE THAN 2 MILES FROM PREVIOUS WORK AREA.



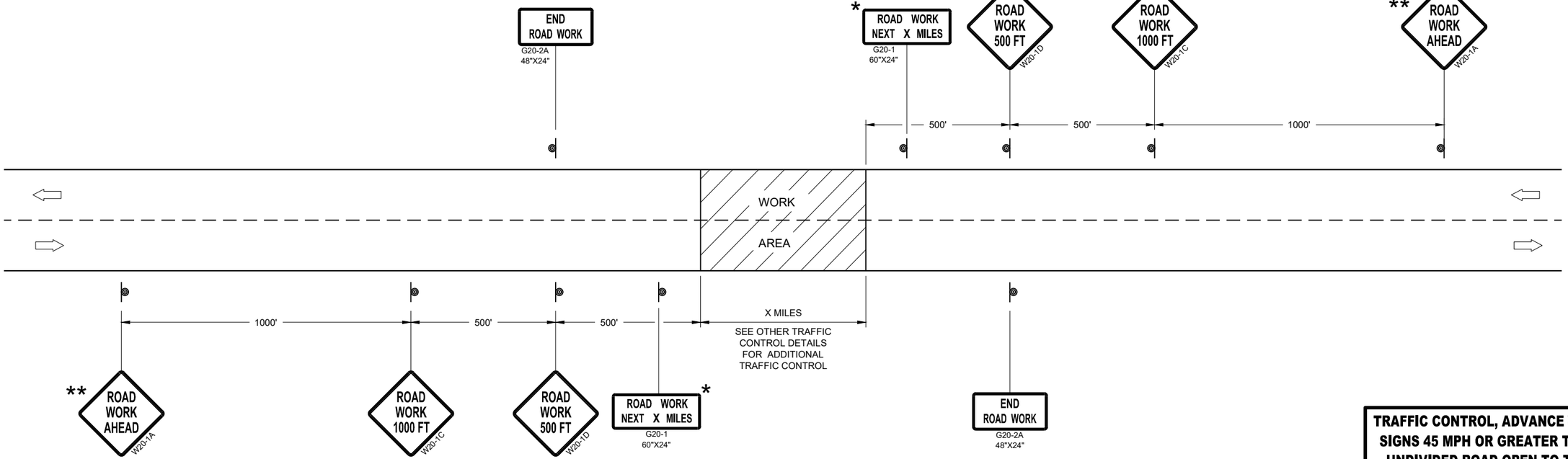
TYPICAL SIDE ROAD APPROACH WARNING SIGN DETAIL

LEGEND

SIGN ON PERMANENT SUPPORT

DIRECTION OF TRAFFIC

WORK AREA



TRAFFIC CONTROL, ADVANCE WARNING SIGNS 45MPH OR GREATER

TRAFFIC CONTROL, ADVANCE WARNING SIGNS 45 MPH OR GREATER TWO-WAY UNDIVIDED ROAD OPEN TO TRAFFIC

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
July 2018
DATE

/S/ Andrew Heidtke
WORK ZONE ENGINEE

FHWA

6

SDD 15C04 - 05

GENERAL NOTES

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

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

(2) MEASURE FROM EDGE OF MARKING TO JOINT LINE. THIS DOES NOT INCLUDE SPACE NEEDED FOR GROOVING OPERATIONS.

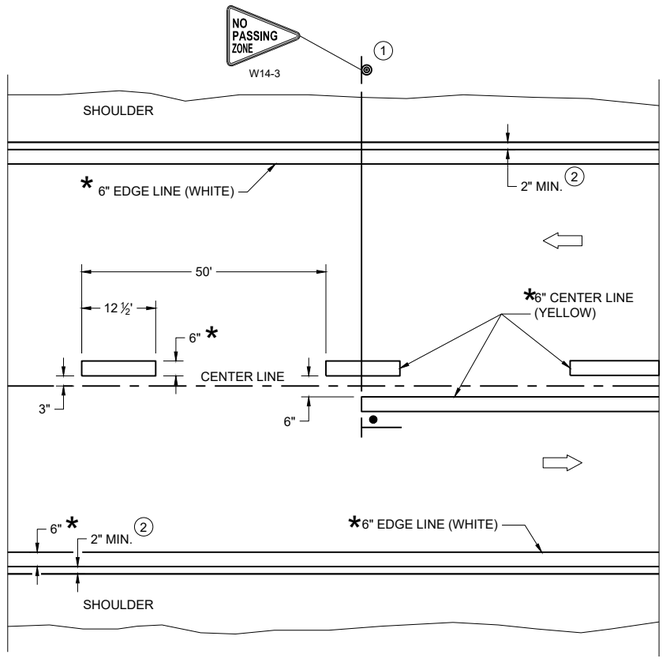
*CONFIRM MARKING LINE WIDTH WITH THE MISCELLANEOUS QUANTITIES

LEGEND

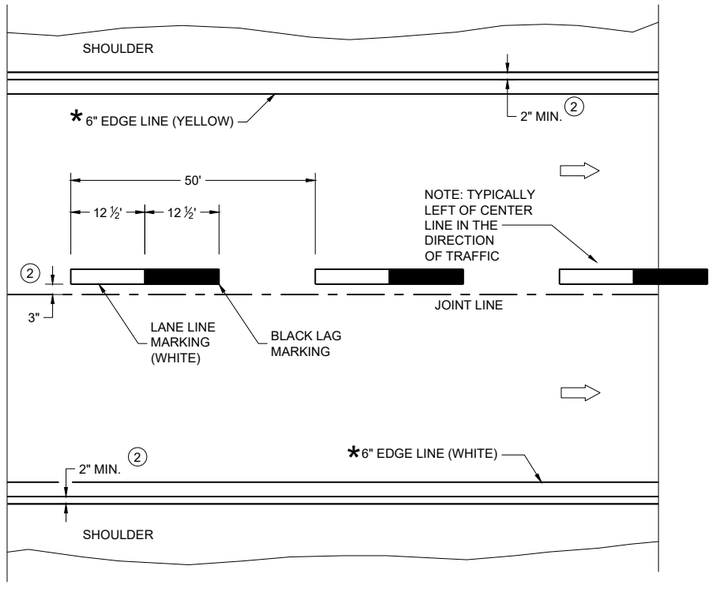
"T" MARKING

SIGN ON PERMANENT SUPPORT

DIRECTION OF TRAFFIC



TWO WAY TRAFFIC



ONE WAY TRAFFIC

PERMANENT PAVEMENT MARKING

6

PERMANENT LONGITUDINAL PAVEMENT MARKINGS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

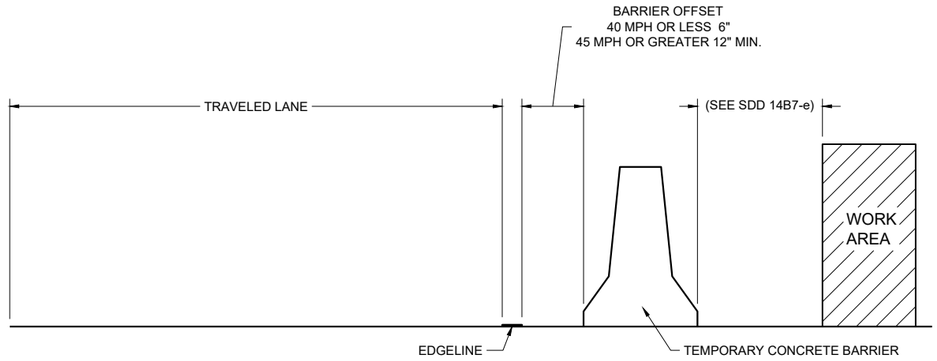
APPROVED
December 2024
DATE

/S/ Jeannie Silver
Statewide Pavement Marking Engineer

FHWA

SDD 15C08-24a

SDD 15C08-24a



TEMPORARY BARRIER OFFSET FROM EDGELINE

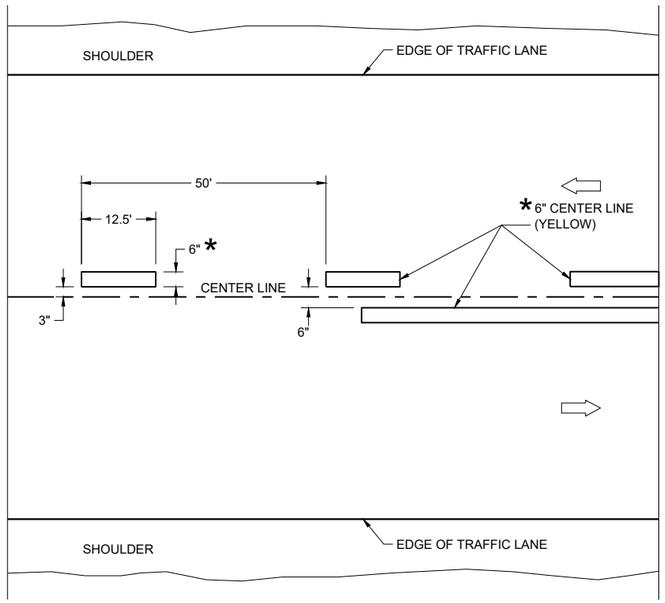
GENERAL NOTES

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

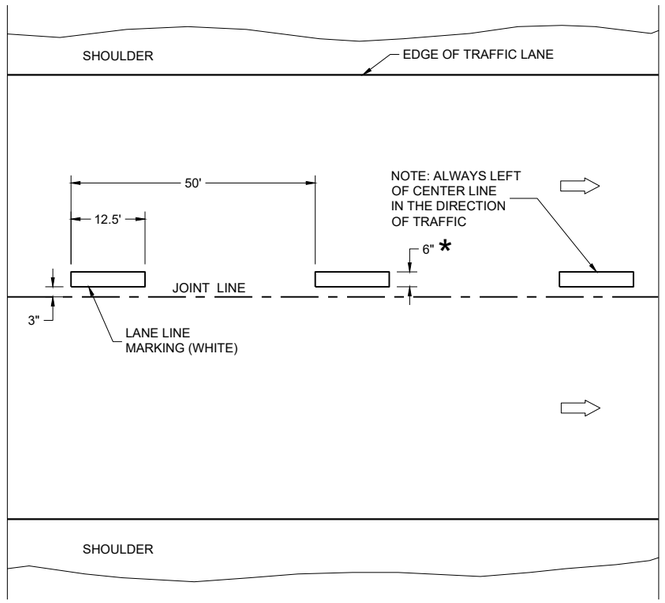
LEGEND

DIRECTION OF TRAFFIC

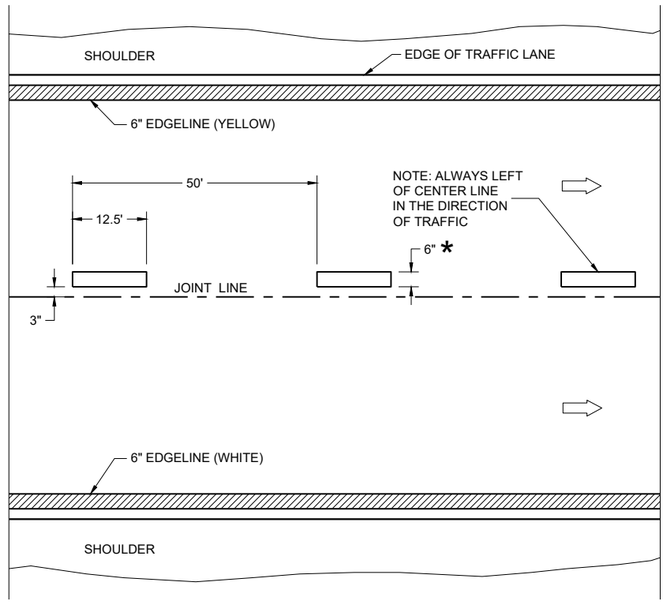
*CONFIRM MARKING LINE WIDTH WITH THE MISCELLANEOUS QUANTITIES



TWO WAY TRAFFIC



ONE WAY TRAFFIC



FREEWAYS AND EXPRESSWAYS

TEMPORARY PAVEMENT MARKING

TEMPORARY LONGITUDINAL PAVEMENT MARKING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
December 2024
DATE
/S/ Jeannie Silver
Statewide Pavement Marking Engineer

FHWA

6

SDD 15C08-24b

6

SDD 15C08-24b

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 DESIRABLE) CLEARANCE TO EXISTING SIGNS.

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

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

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

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

CONSIDER ROADWAY GEOMETRICS WHEN LOCATING SIGNS AND ARROW BOARD SO THE DRIVER HAS A CLEAR VIEW OF THE ARROW BOARD AND LANE CLOSURE 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 AND PLACE TEMPORARY PAVEMENT MARKING LINE IF LANE CLOSURE IS TO BE IN PLACE 4 OR MORE CONTINUOUS 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 OR INTERSECTION. THE LANE CLOSURE 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 ONE HALF 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.

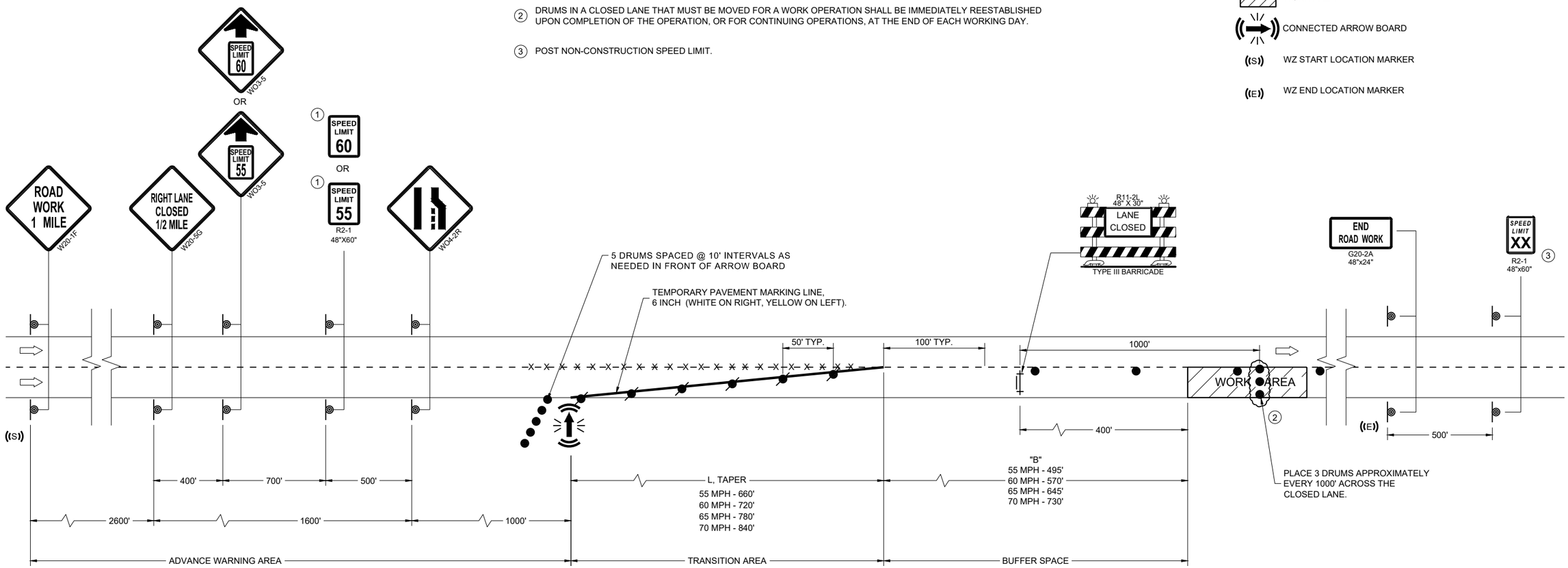
(1) A SPEED LIMIT SIGN SHALL BE LOCATED 1500 FEET BEYOND THE END OF THE ACCELERATION LANE OF EACH ENTRANCE RAMP. PLACE A SPEED LIMIT SIGN A MINIMUM OF EVERY 3 MILES.

(2) DRUMS IN A CLOSED LANE THAT MUST BE MOVED FOR A WORK OPERATION SHALL BE IMMEDIATELY REESTABLISHED UPON COMPLETION OF THE OPERATION, OR FOR CONTINUING OPERATIONS, AT THE END OF EACH WORKING DAY.

(3) POST NON-CONSTRUCTION SPEED LIMIT.

LEGEND

- SIGN ON PERMANENT SUPPORT
- TRAFFIC CONTROL DRUM
- TRAFFIC CONTROL DRUM WITH TYPE "C" STEADY BURN LIGHT
- TYPE III BARRICADE WITH ATTACHED SIGN
- TYPE "A" WARNING LIGHT (FLASHING)
- REMOVING PAVEMENT MARKINGS
- DIRECTION OF TRAFFIC
- WORK AREA
- CONNECTED ARROW BOARD
- (S) WZ START LOCATION MARKER
- (E) WZ END LOCATION MARKER



TRAFFIC CONTROL, LANE CLOSURE, SPEED REDUCTION

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
November 2025 — DATE
/S/ Andrew Heidtke — ROADWAY STANDARDS DEVELOPMENT UNIT SUPERVISOR

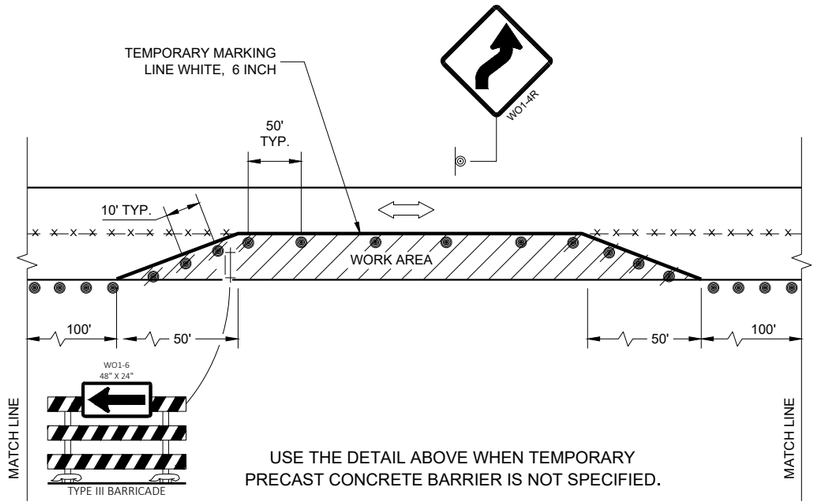
FHWA

6

SDD 15D12-16b

LEGEND

- TYPE III BARRICADE WITH ATTACHED SIGN
- SIGN ON PERMANENT SUPPORT
- TRAFFIC CONTROL DRUM WITH TYPE "C" STEADY BURN LIGHT
- TRAFFIC CONTROL DRUM
- FLAGS, 16" X 16" MIN. (ORANGE)
- REMOVING PAVEMENT MARKING
- DIRECTION OF TRAFFIC
- ASPHALTIC PAVEMENT WIDENING
- CONCRETE BARRIER TEMPORARY PRECAST
- TEMPORARY SIGNAL. SEE SDD 09G02 FOR EXACT PLACEMENT



USE THE DETAIL ABOVE WHEN TEMPORARY PRECAST CONCRETE BARRIER IS NOT SPECIFIED.

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 TRAFFIC CONTROL SIGNS SHOULD BE ADJUSTED TO NOT CONFLICT WITH AND TO PROVIDE A MINIMUM OF 200 FEET (500 FEET DESIRABLE) CLEARANCE TO EXISTING SIGNS THAT WILL REMAIN IN PLACE..

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

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

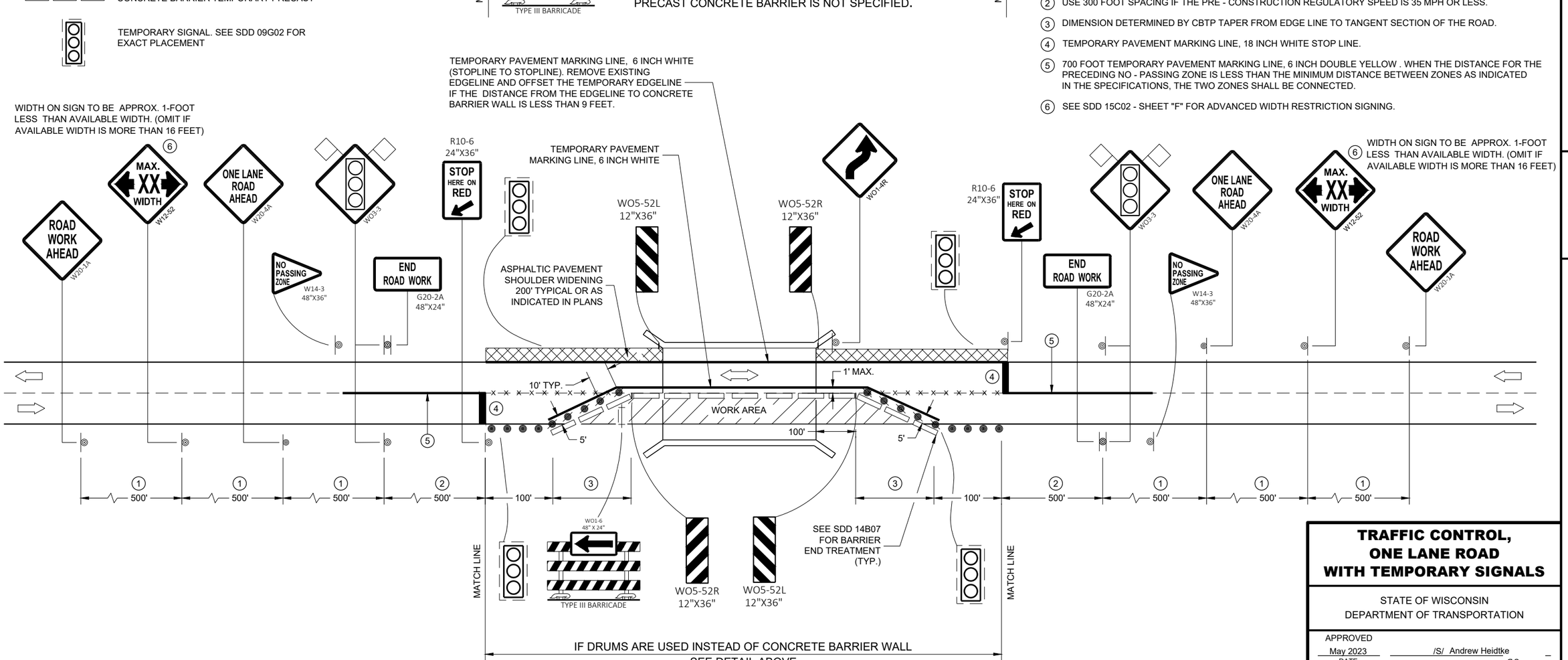
"WO" IS THE SAME AS "W" EXCEPT THE BACKGROUND IS ORANGE.

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

REMOVE PAVEMENT MARKING AND PLACE TEMPORARY PAVEMENT MARKING LINES IF THE CLOSURE IS TO BE IN PLACE FOR 4 OR MORE CONTINUOUS DAYS AND NIGHTS.

INSTALL OVERHEAD TEMPORARY SIGNAL HEADS ABOVE THE MIDDLE OF THE TRAVEL LANE THEY ARE CONTROLLING.

1. 500 FOOT SPACING SHOWN IS FOR ROADWAYS WITH A PRE-CONSTRUCTION REGULATORY SPEED LIMIT OF 45 MPH OR MORE. FOR 35 - 40 MPH, USE 350 FOOT TYPICAL SPACING. FOR 25 - 30 MPH, USE 200 FOOT TYPICAL SPACING.
2. USE 300 FOOT SPACING IF THE PRE - CONSTRUCTION REGULATORY SPEED IS 35 MPH OR LESS.
3. DIMENSION DETERMINED BY CBTP TAPER FROM EDGE LINE TO TANGENT SECTION OF THE ROAD.
4. TEMPORARY PAVEMENT MARKING LINE, 18 INCH WHITE STOP LINE.
5. 700 FOOT TEMPORARY PAVEMENT MARKING LINE, 6 INCH DOUBLE YELLOW . WHEN THE DISTANCE FOR THE PRECEDING NO - PASSING ZONE IS LESS THAN THE MINIMUM DISTANCE BETWEEN ZONES AS INDICATED IN THE SPECIFICATIONS, THE TWO ZONES SHALL BE CONNECTED.
6. SEE SDD 15C02 - SHEET "F" FOR ADVANCED WIDTH RESTRICTION SIGNING.



TRAFFIC CONTROL, ONE LANE ROAD WITH TEMPORARY SIGNALS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
May 2023
DATE

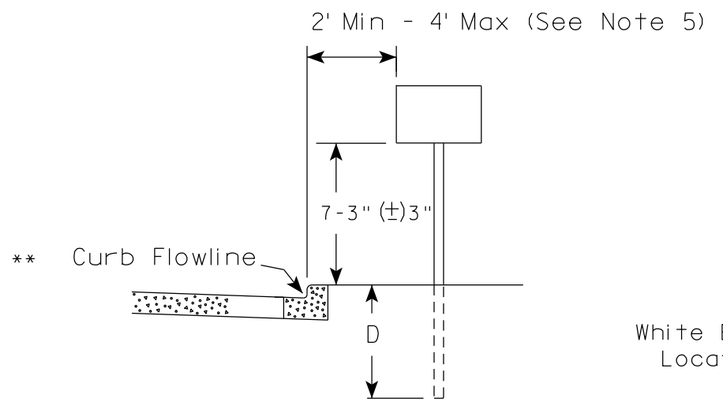
/S/ Andrew Heidtke
WORK ZONE ENGINEE

FHWA

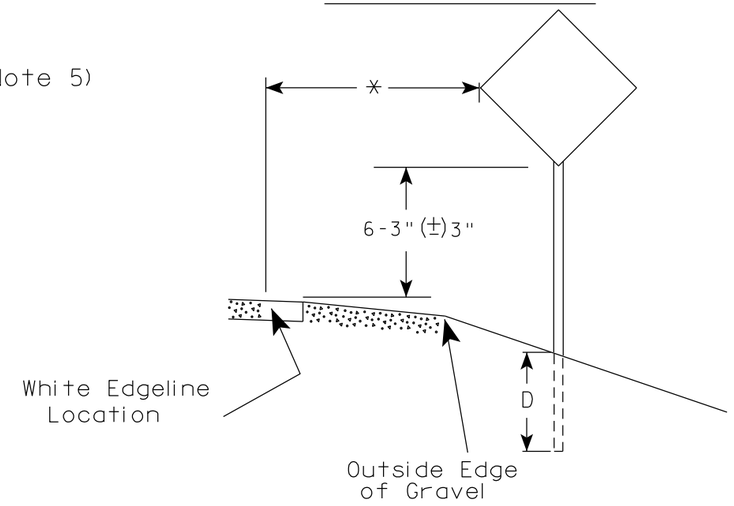
SDD 15D33-09

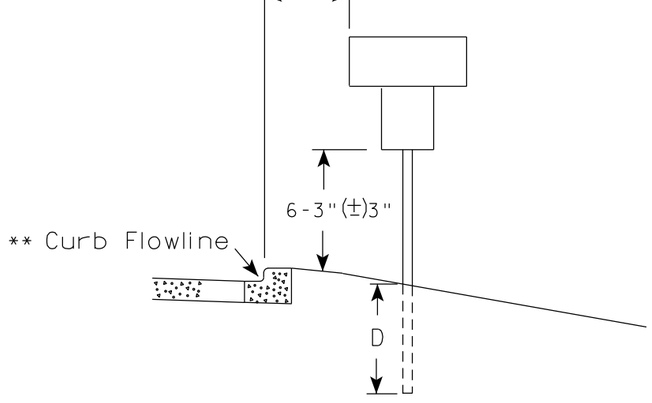
SDD 15D33-09

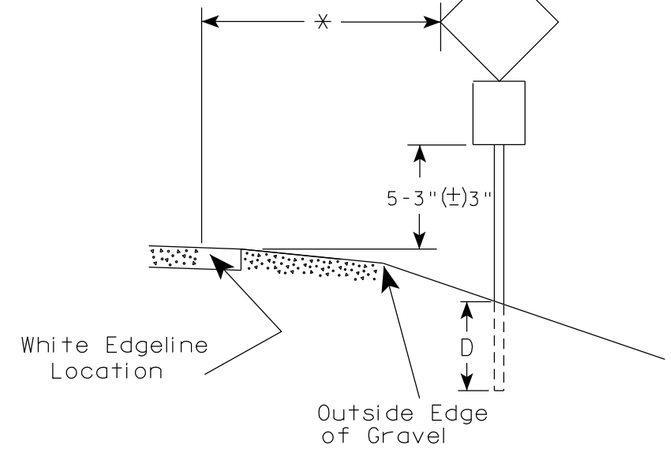
URBAN AREA



RURAL AREA (See Note 2)







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

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

GENERAL NOTES

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

POST EMBEDMENT DEPTH

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

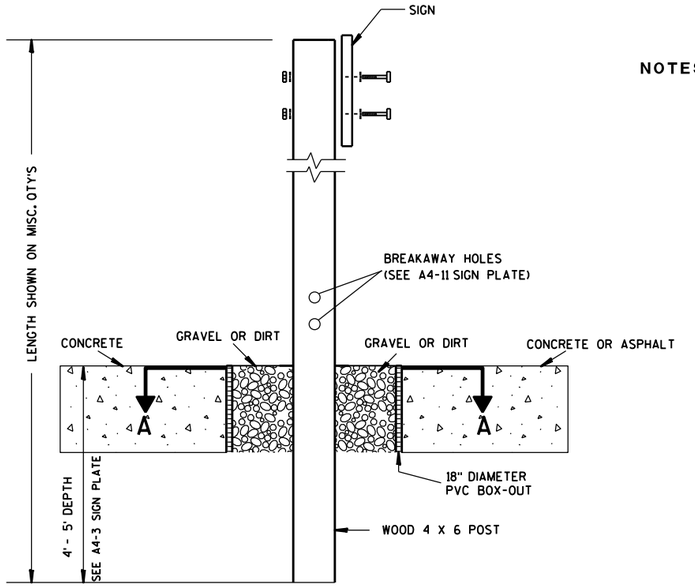
TYPICAL INSTALLATION OF PERMANENT TYPE II SIGNS ON SINGLE POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 12/6/23 PLATE NO. A4-3.23

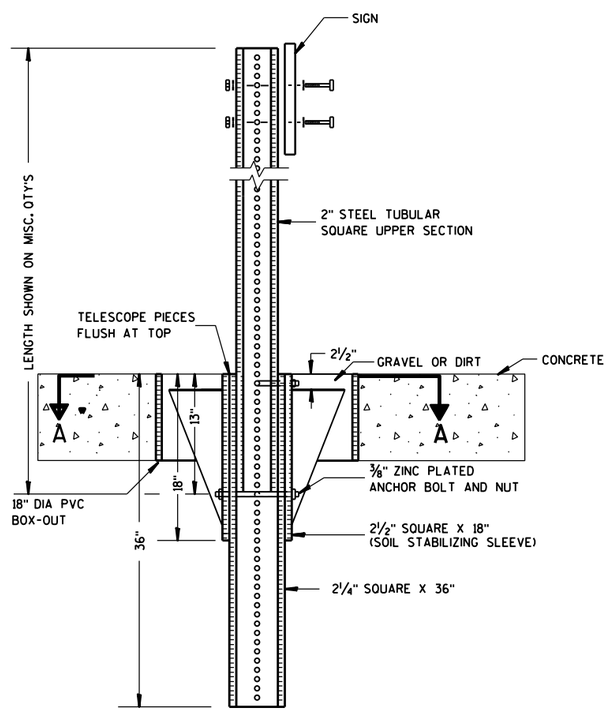
PROJECT NO:	HWY:	COUNTY:		SHEET NO: 61	E



ELEVATION VIEW

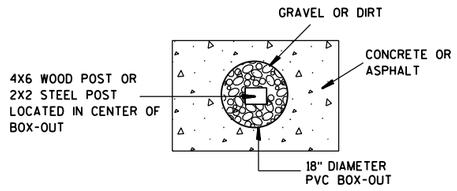
DETAIL OF WOOD 4 X 6 SIGN POST IN BOX-OUT

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

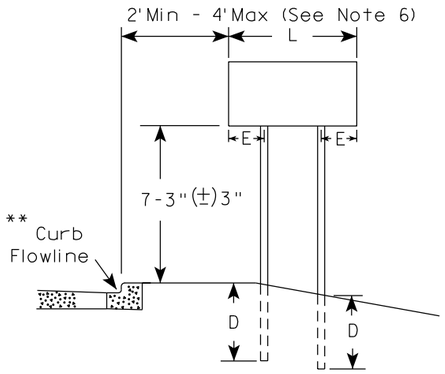
WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

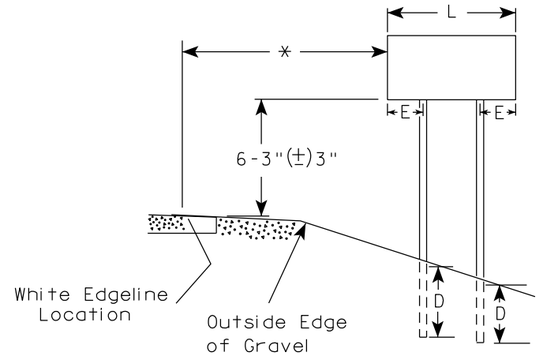
DATE 1/27/14 PLATE NO. A4-3B.1

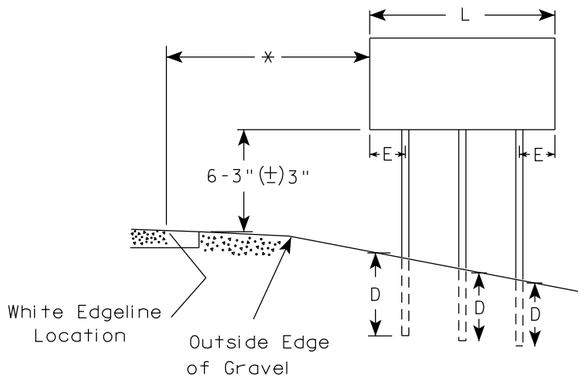
PROJECT NO:	HWY:	COUNTY:		SHEET NO:	E

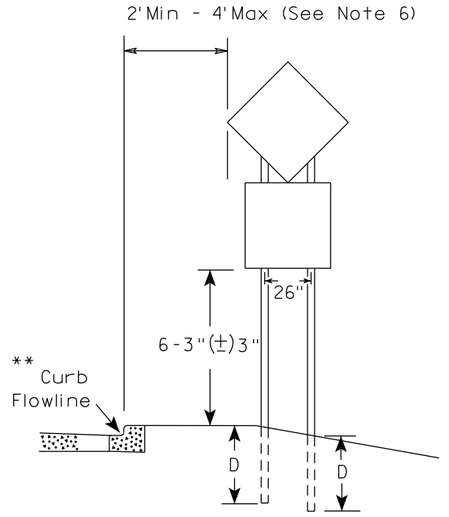
URBAN AREA



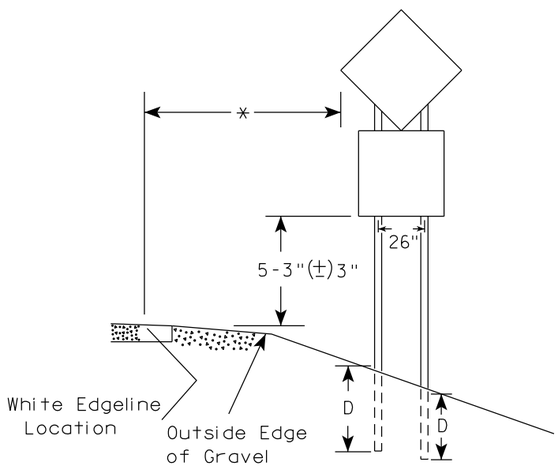
RURAL AREA (See Note 3)







48" DIAMOND WARNING SIGN



48" DIAMOND WARNING SIGN

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

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

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" (±) 3" or 6'-3" (±) 3" depending upon existence of sub-sign.
4. The (±) tolerance for mounting height is 3 inches.
5. J-Assemblies are considered to be one sign for mounting height.
6. Offset distance shall be consistent with existing signs or consistent throughout length of project.
7. Folding signs shall be mounted at a height of 5'-3" (±) 3" or as directed by the engineer.
8. The Double Arrow sign (W12-1) shall be mounted at a height of 2'-3" (±) 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" (±) 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.

POST EMBEDMENT DEPTH

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

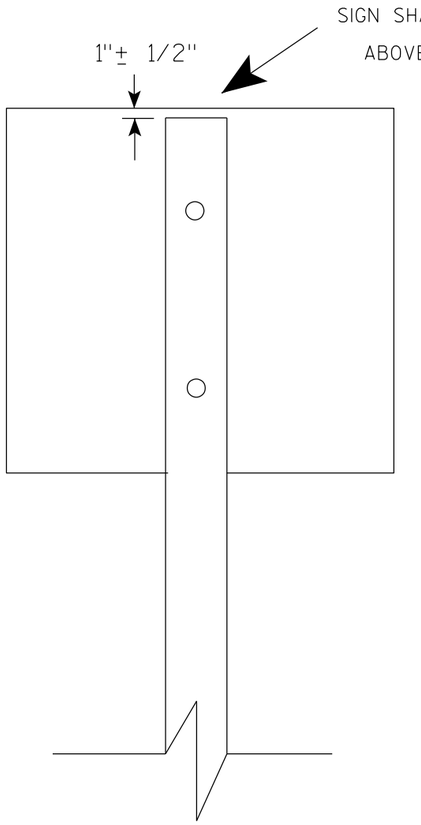
TYPICAL INSTALLATION OF TYPE II SIGNS ON MULTIPLE POSTS

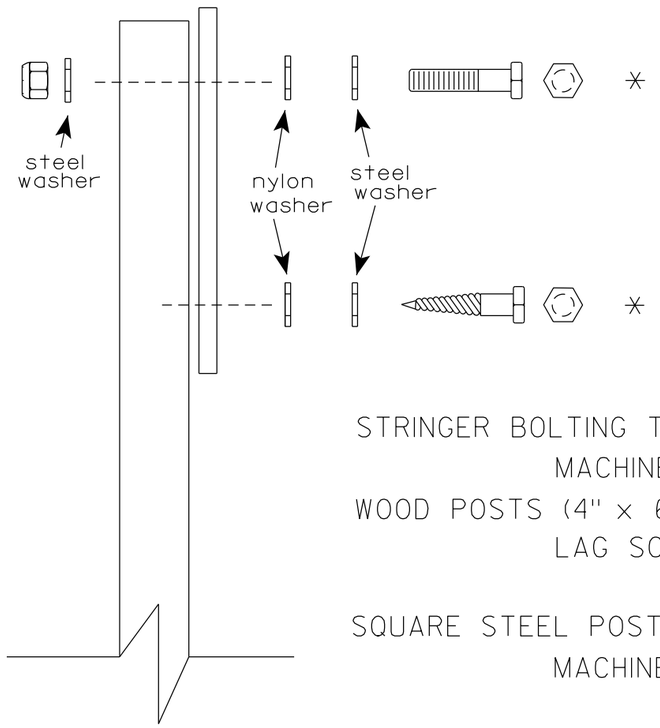
WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 12/6/23 PLATE NO. A4-4.16

PROJECT NO:	HWY:	COUNTY:		SHEET NO: 63	E





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

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

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

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

STRINGER BOLTING TO ALUMINUM SIGNS (SEE SIGN PLATE A4-18)

MACHINE BOLTS - 5/16" X 1-3/4" Length w/ lock nuts

WOOD POSTS (4" x 6")

LAG SCREWS - 3/8" X 3" (NO STRINGERS ON BACK OF SIGN)
3/8" X 4" (STRINGERS ON BACK OF SIGN)

SQUARE STEEL POSTS (2" x 2")

MACHINE BOLTS - 3/8" X 3-1/4" Length w/ nuts (NO STRINGER ON BACK OF SIGN)
3/8" X 5" Length w/ nuts (STRINGERS ON BACK OF SIGN)

RIVETS - 9/32" (6605-9-6) BULB-TITE, TRI-FOLD, ALUMINUM BODY/MANDREL
O.D. FLANGE .720-.765 INCH, GRIP RANGE .042-.375 INCH

WASHERS (ALL POSTS) -

1-1/4" O.D. X 3/8" I.D. X 1/16" STEEL
1-1/4" O.D. X 3/8" I.D. X .080 NYLON

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

ATTACHMENT OF SIGNS TO POSTS

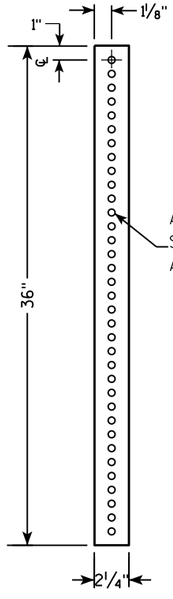
WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

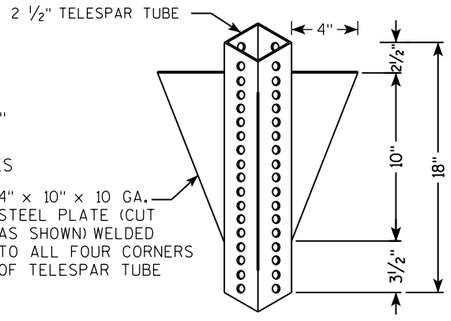
DATE 4/1/2020 PLATE NO. A4-8.9

TELESCOPIC TUBING ANCHORS
TWO PIECE SYSTEM

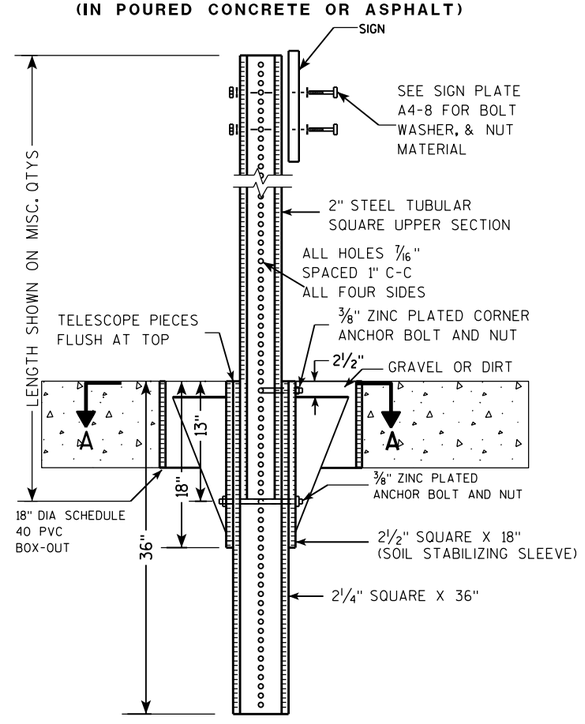
2 1/4 " SQUARE
12 GAUGE
PERFORATED
GALVANIZED FINISH



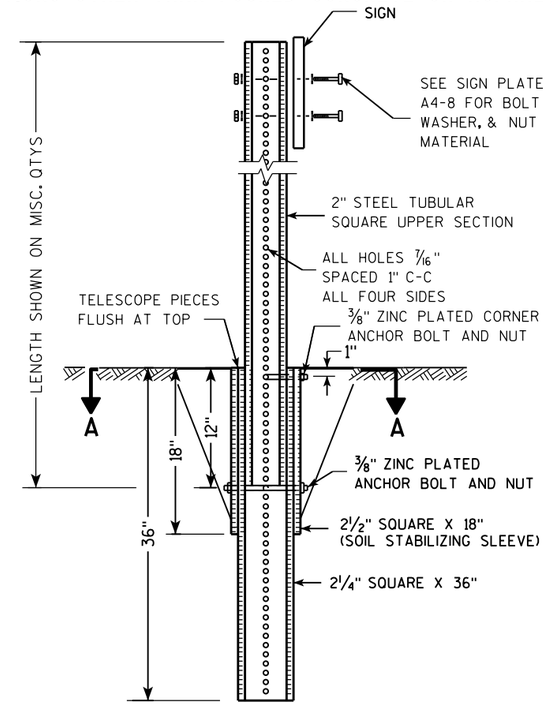
2 1/2 " SQUARE
12 GAUGE
OMNI-DIRECTIONAL
PERFORATED
SOIL STABILIZING SLEEVE
GALVANIZED FINISH

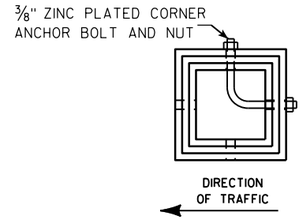


DETAIL OF TUBULAR STEEL SIGN POST
(IN POURED CONCRETE OR ASPHALT)



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





SECTION A-A

Area of Sign Installation (Sq. Ft.)	Number of Required Posts
9 or less	1
Greater than 9 less than or equal to 18	2
Greater than 18 less than or equal to 27	3

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

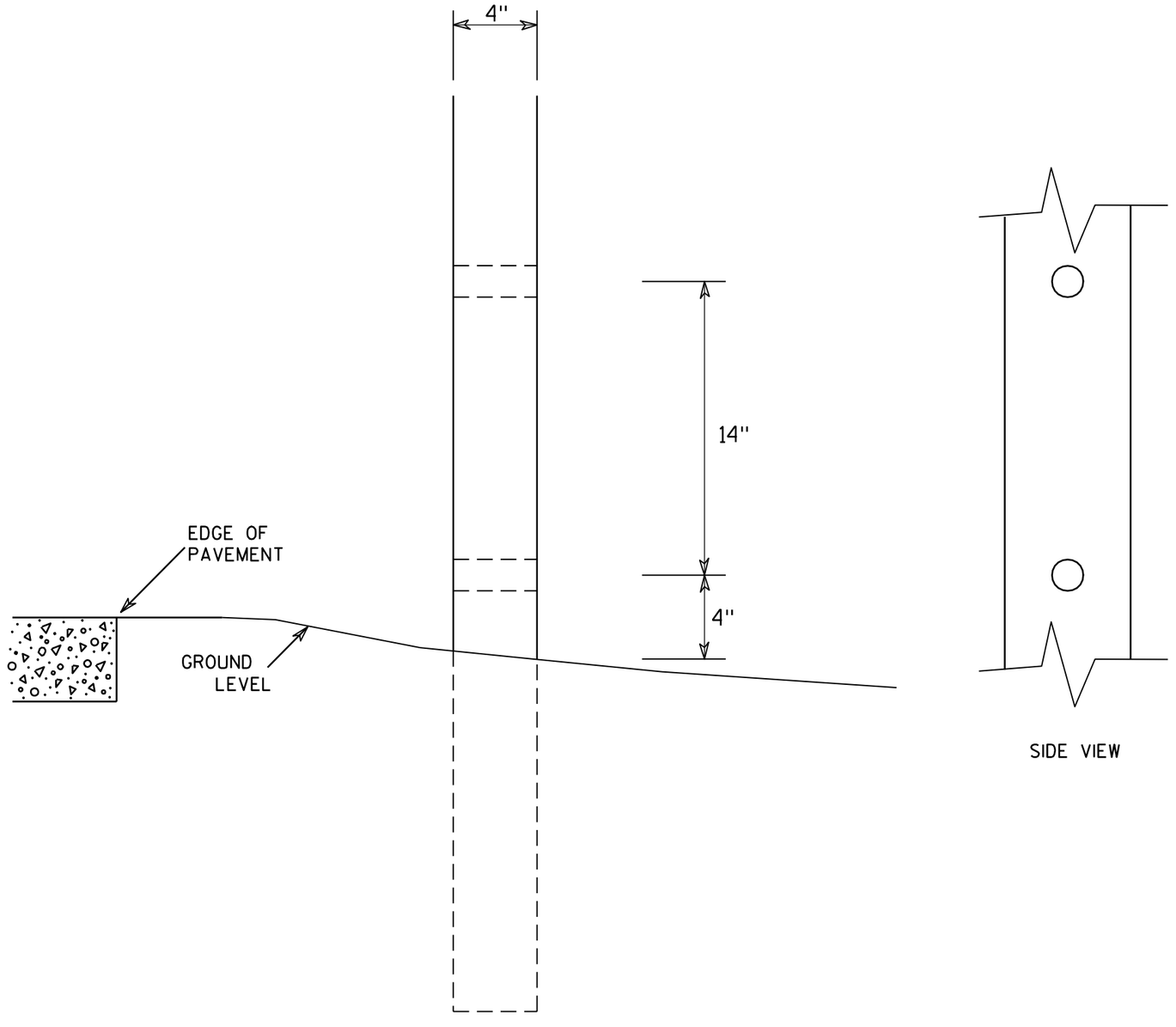
TUBULAR STEEL
SIGN POST
A4-9

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 2/05/15 PLATE 65 A4-9.9

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.

7

7

4 X 6 WOOD POST MODIFICATIONS

WISCONSIN DEPT OF TRANSPORTATION

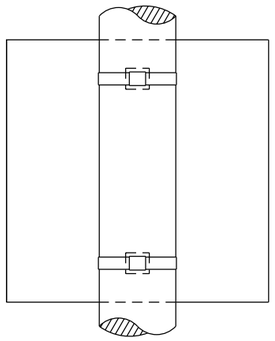
APPROVED Chester J Spang
for State Traffic Engineer

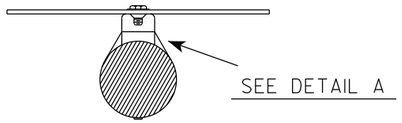
DATE 3/27/97 PLATE NO. A4-11.2

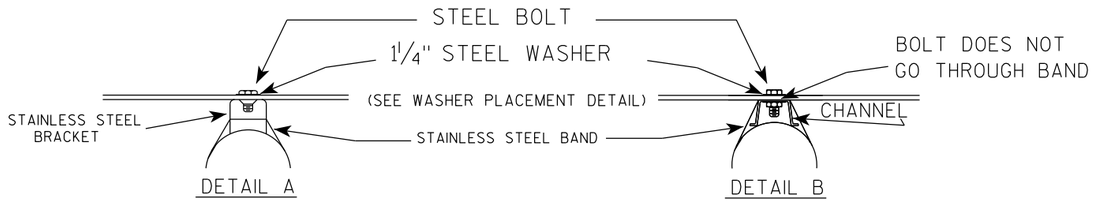
PROJECT NO:	HWY:	COUNTY:		SHEET NO: 66	E

BANDING

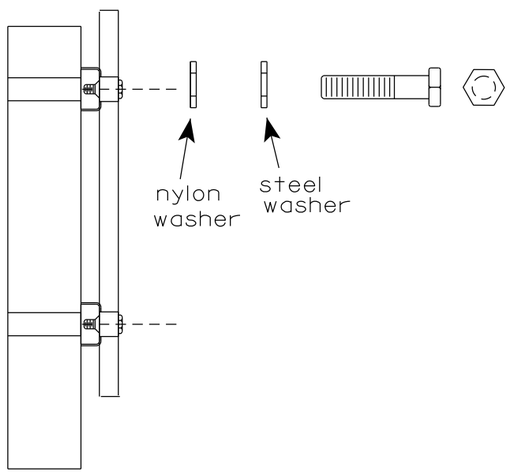
SINGLE SIGN







WASHER PLACEMENT

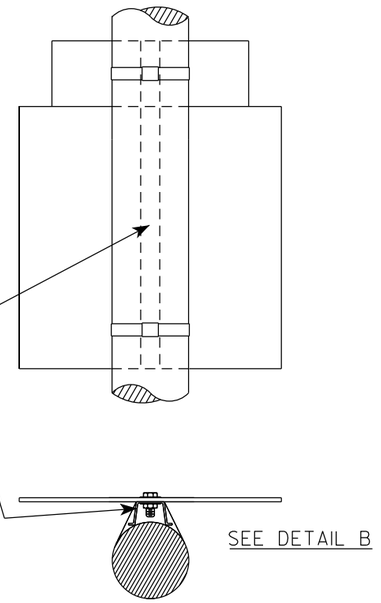


WASHERS (ALL POSTS) -
1-1/4" O.D. X 3/8" I.D. X 1/16" STEEL
1-1/4" O.D. X 3/8" I.D. X .080 NYLON
FOR ALL TYPE H SIGNS

GENERAL NOTES

1. Any sign over 3 feet in width shall use the V-Block banding method. See A5-10 standard plate.
2. Signs 3 feet or greater in height shall have three bracket bands installed. Signs less than 3 feet in height shall have two bracket bands installed.
3. Banding and assembly bracket shall be stainless steel. All bands shall be ¾" in width and 0.025" thickness.
4. ALL SIGN MOUNTING BOLTS AND WASHERS SHALL BE EITHER:
   a. Hot dip or mechanically galvanized in accordance with ASTM Designation: A 153, Class D
   b. Electro-galvanized in accordance with ASTM designation: B 633, Type III, SC 3

"J" ASSEMBLY



STANDARD SIGN
SIGN BANDING DETAILS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

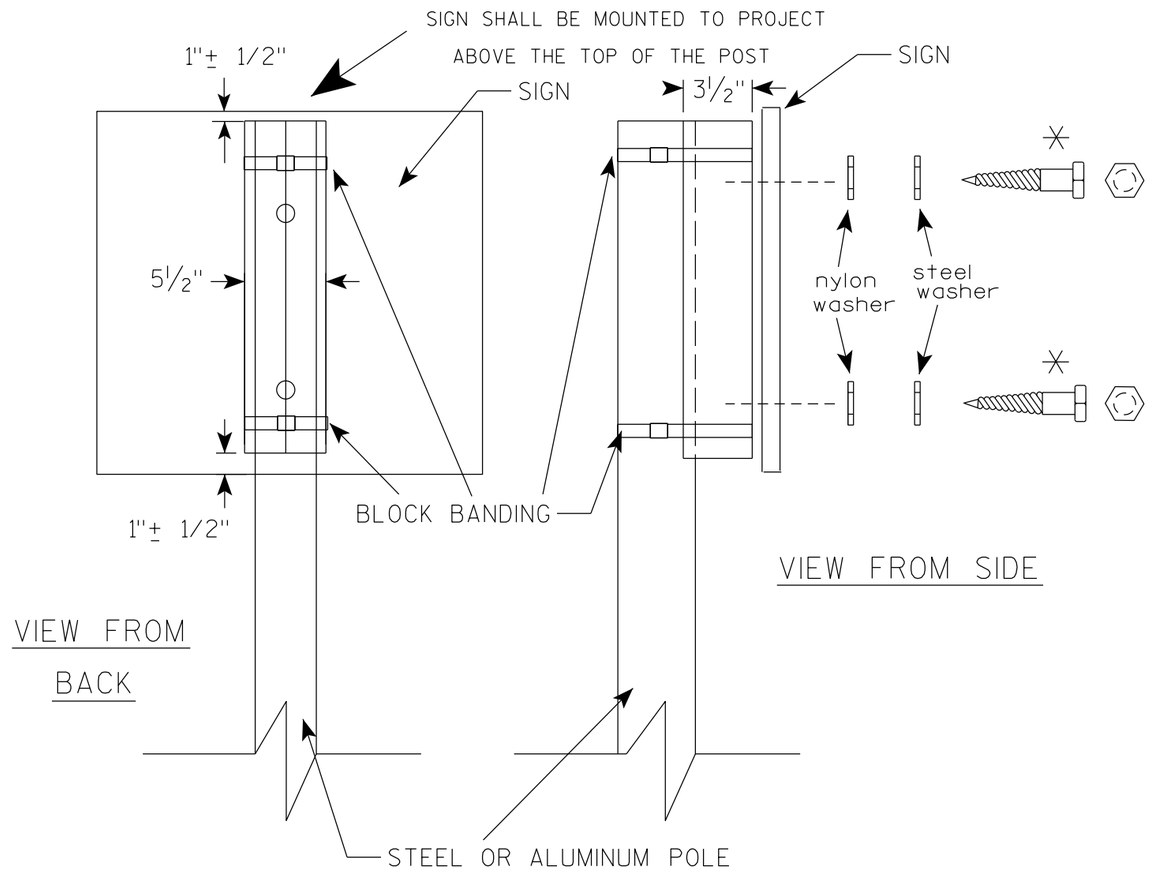
DATE 6/10/19 PLATE NO. A5-9.4

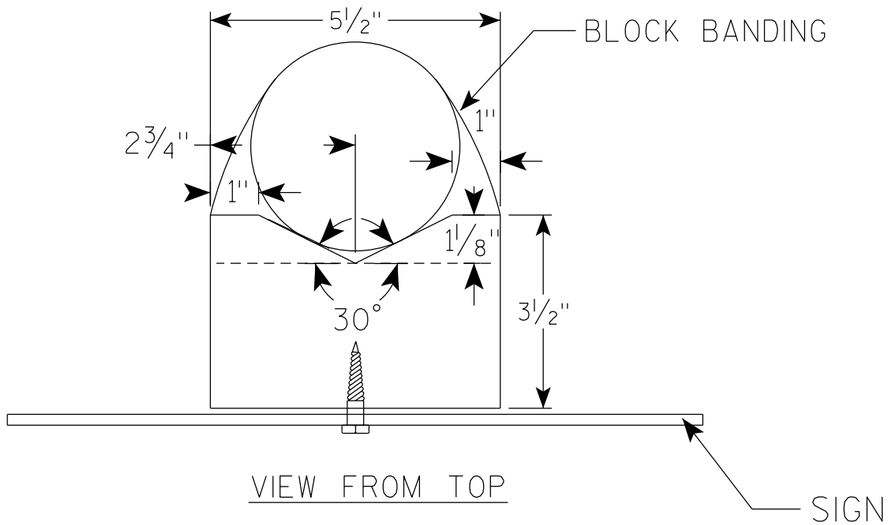
PROJECT NO:	HWY:	COUNTY:		SHEET NO: 67	E

FILE NAME : C:\CAEfiles\Projects\tr_stdplate\A59.dgn PLOT DATE : 10-JUN 2019 4:10 PLOT BY : mscj9h PLOT NAME : PLOT SCALE : $$.....plotscale.....$$ WISDOT/CADDS SHEET 42

7

7





GENERAL NOTES

1. WOOD 4"X6" POST MATERIAL SHALL CONFORM TO 507.2.2 OF THE WisDOT STANDARD SPECIFICATIONS
2. BLOCK BANDING AND CLIPS SHALL BE STAINLESS STEEL, ¾" WIDTH AND 0.025" THICKNESS
3. SIGNS 3' OR GREATER IN HEIGHT SHALL UTILIZE 3 BLOCK BANDS. SIGNS UNDER 3' IN HEIGHT SHALL UTILIZE 2 BLOCK BANDS
4. ACTUAL NUMBER OF FASTENERS PER SIGN VARIES WITH THE SIGN AREA, BUT NORNALLY THERE ARE TWO. FOR SIGNS GREATER THAN 9 S.F. 3 FASTENERS SHALL BE USED.
5. ALL SIGN MOUNTING BOLTS AND WASHERS SHALL BE EITHER:
   a. Hot dip or mechanically galvanized in accordance with ASTM Designation: A 153, Class D
   b. Electro-galvanized in accordance with ASTM Designation : B 633, TYPE III, SC 3
6. ALL BOLTS SHALL HAVE HEXAGONAL HEADS.
7. STEEL WASHERS SHALL BE 1¼" O.D. X ⅜" I.D. X 1/16"
8. NYLON WASHERS SHALL BE 1¼" O.D. X ⅜" I.D. X .080 FOR TYPE H OR TYPE F FACE SIGN

✳ LAG BOLTS SHALL BE ⅜" X 2½"

BLOCK BANDING DETAIL (V-BLOCK OPTION)

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

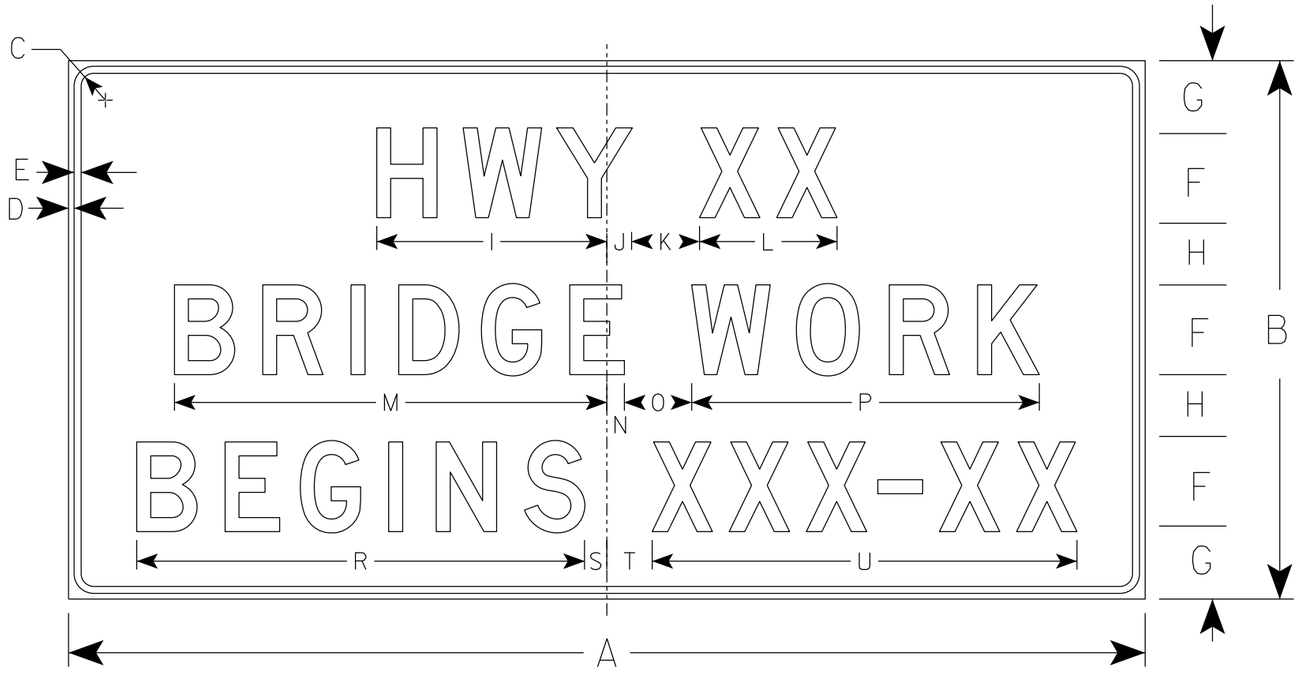
DATE 4/19/2022 PLATE NO. A5-10.3

PROJECT NO:

SHEET NO: 68 E

NOTES

1. Sign is Type II - Type F Reflective
2. Color:
   Background - Orange
   Message - Black
3. Message Series - D
4. Substitute appropriate numeral and adjust spacing to achieve proper balance.



G20-57B

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																											
3	72	36	1 1/8	1/2	5/8	6	5	4	15 5/8	1 5/8	5	9 1/4	29 1/8	7/8	5	23 1/4		29 7/8	1 3/4	3 1/4	28 1/2						18.0
4	96	48	2 1/4	3/4	1	8	6 1/2	5 1/2	20 5/8	2 1/4	6	12 1/4	38 1/2	1 1/2	6	31		39 1/4	2	4	37 7/8						32.0
5																											

STANDARD SIGN
G20-57B

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 1/22/19 PLATE NO. G20-57B.1

PROJECT NO:	HWY:	COUNTY:		SHEET NO: 69	E

NOTES

1. Sign is Type II- Type F Reflective
2. Color:
   Background - Orange
   Message - Black
3. Message Series - E
4. Material shall be .040 aluminmum

G20-60

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																											
3																											
4	108	24				12	6	14 7/8	78 1/4																		18.0
5																											

STANDARD SIGN
G20-60

WISCONSIN DEPT OF TRANSPORTATION

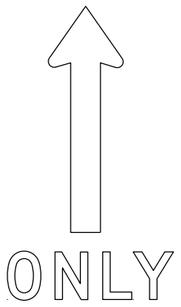
APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 5/13/15 PLATE NO G20-60.1

PROJECT NO: | HWY: | COUNTY: | SHEET NO: E

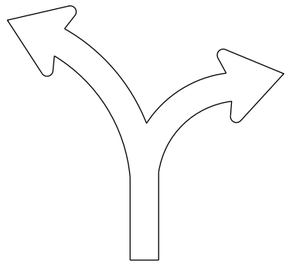
FILE NAME : C:\CAEfiles\Projects\tr_stdplate\G2060.DGN PLOT DATE : 13-MAY-2015 08:46 PLOT BY : mscj9h PLOT NAME : PLOT SCALE : 20.431338:1.000000
WISDOT/CADDS SHEET 42

7



(A)

(B)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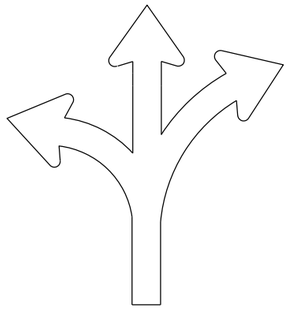
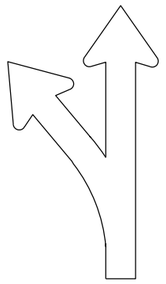
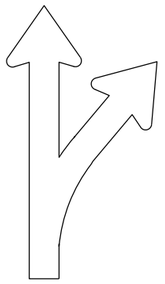

(D)


(E)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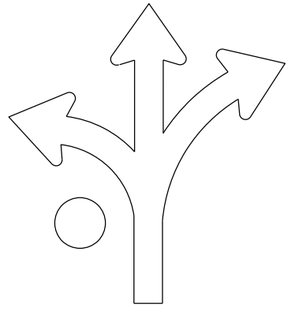
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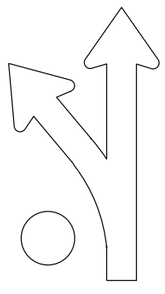
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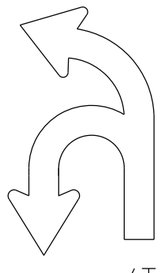
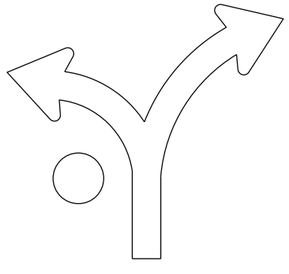
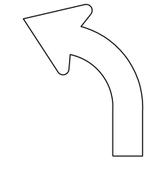
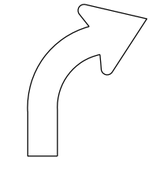

(I)


(J)



(L)



(R)

NOTES

1. Sigs are Type II - Type H Reflective
2. Color:
   Background - White
   Message - Black
3. Message Series - D
4. Use appropriate Letter for Sign Code
   Each letter added makes sign wider. Example R3-8EAR
5. Square footage of sign varies by letters

1 Letter =	3.75 sq ft	for Size 2
	6.0 sq ft	for Size 3
	10.0 sq ft	for Size 4 or 5
2 Letters =	7.5 sq ft	for Size 2
	12.0 sq ft	for Size 3
	20.0 sq ft	for Size 4 or 5
3 Letters =	11.25 sq ft	for Size 2
	18.0 sq ft	for Size 3
	30.0 sq ft	for Size 4 or 5
4 Letters =	15.0 sq ft	for Size 2
	24.0 sq ft	for Size 3
	40.0 sq ft	for Size 4 or 5
5 Letters =	18.75 sq ft	for Size 2
	30.0 sq ft	for Size 3
	50.0 sq ft	for Size 4 or 5
6 Letters =	22.5 sq ft	for Size 2
	36.0 sq ft	for Size 3
	60.0 sq ft	for Size 4 or 5

6. When letters C,D,G,J are used on the Left or Right end of the sign the Sq. Ft. changes.
   Add the amounts when these letters are used:
   1.25 sq ft for Size 2
   1.5 sq ft for Size 3
   2.0 sq ft for Size 4 or 5

STANDARD SIGN
R3-8 Series

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 2/14/23 PLATE NO. R3-8.2

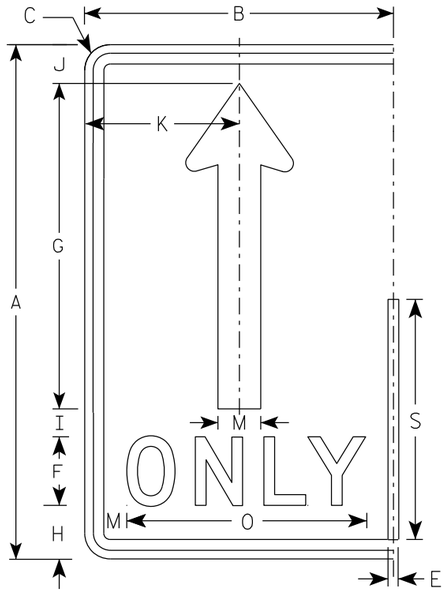
PROJECT NO:

SHEET NO: 71 E

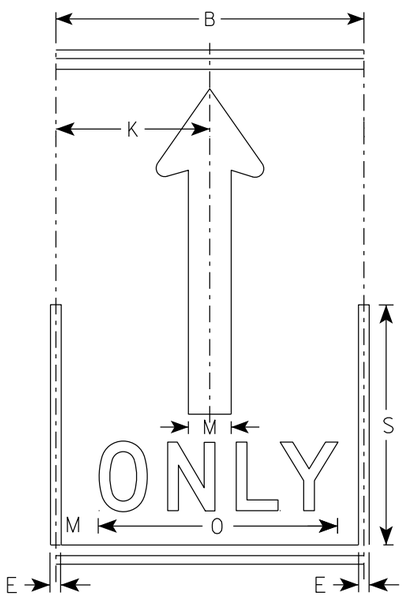
7

NOTES

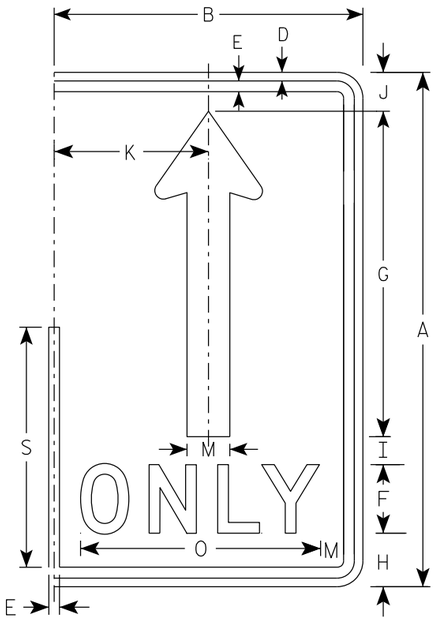
1. Sign is Type II - Type H Reflective
2. Color:
   Background - White
   Message - Black
3. Message Series - D



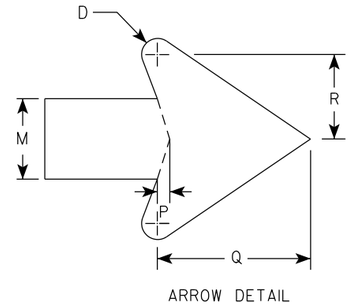
(A)



(A)



(A)



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																											
2S	30	18	1 1/2	1/2	5/8	4	19	3 1/8	1 5/8	2 1/4	9		2 1/2		14	3/8	4 3/4	2 5/8	14								3.75
2M	30	18	1 1/2	1/2	5/8	4	19	3 1/8	1 5/8	2 1/4	9		2 1/2		14	3/8	4 3/4	2 5/8	14								3.75
3	36	24	1 1/2	1/2	5/8	5	22 3/4	3 3/4	1 3/4	2 3/4	12		3		17 5/8	1/2	5 3/4	3 1/8	16 3/4								6.0
4	48	30	2 1/4	3/4	1	6	30 3/8	5 1/8	2 7/8	3 5/8	15		4		21 3/4	5/8	7 5/8	4 1/4	22 3/8								10.0
5	48	30	2 1/4	3/4	1	6	30 3/8	5 1/8	2 7/8	3 5/8	15		4		21 3/4	5/8	7 5/8	4 1/4	22 3/8								10.0

STANDARD SIGN
R3-8 (A) Arrow

WISCONSIN DEPT OF TRANSPORTATION

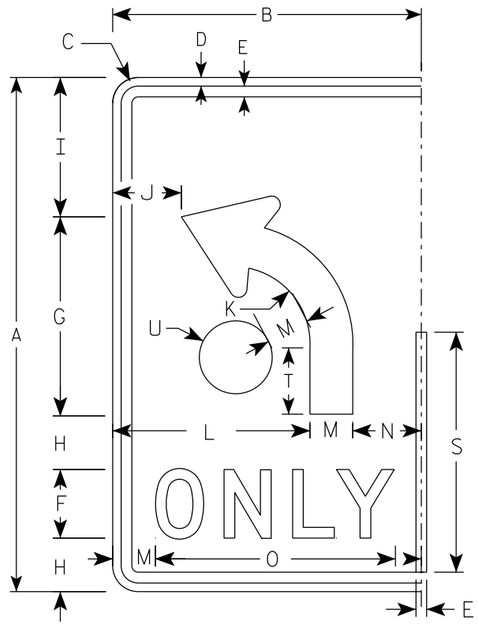
APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 2/14/23 PLATE NO. R3-8.2

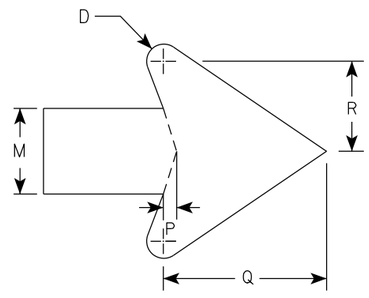
PROJECT NO: | HWY: | COUNTY: | SHEET NO: 72 | E

NOTES

1. Sign is Type II - Type H Reflective
2. Color:
   Background - White
   Message - Black
   Message Series - D



(B)



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																											
2S	30	18	1 1/2	1/2	5/8	4	11 5/8	3 1/8	8 1/8	4	4 1/2	11 1/2	2 1/2	4	14	3/8	4 3/4	2 5/8	14	3 7/8	2 1/8						3.75
2M	30	18	1 1/2	1/2	5/8	4	11 5/8	3 1/8	8 1/8	4	4 1/2	11 1/2	2 1/2	4	14	3/8	4 3/4	2 5/8	14	3 7/8	2 1/8						3.75
3	36	24	1 1/2	1/2	5/8	5	14	3 1/2	9 3/4	6	5 3/8	15	3	6	17 5/8	1/2	5 3/4	3 1/8	16 3/4	4 5/8	2 1/2						6.0
4	48	30	2 1/4	3/4	1	6	18 5/8	5 1/8	13 1/8	6 1/8	7 1/4	18	4	8	21 3/4	5/8	7 5/8	4 1/4	22 3/8	6 1/4	3 3/8						10.0
5	48	30	2 1/4	3/4	1	6	18 5/8	5 1/8	13 1/8	6 1/8	7 1/4	18	4	8	21 3/4	5/8	7 5/8	4 1/4	22 3/8	6 1/4	3 3/8						10.0

STANDARD SIGN

R3-8 (B) Arrow

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

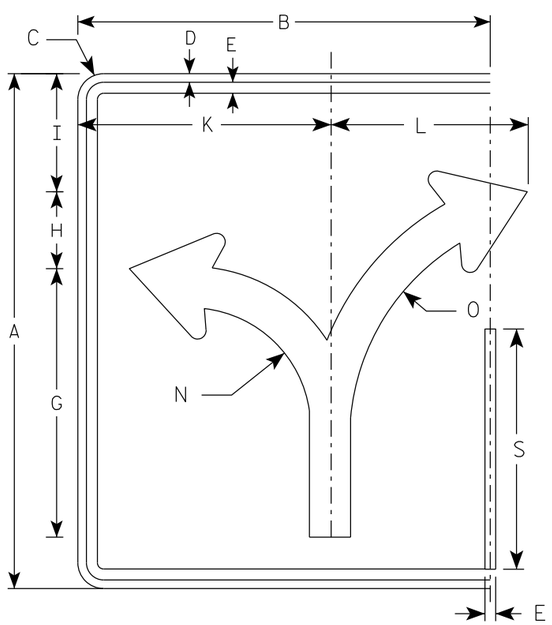
DATE 2/14/23 PLATE NO. R3-8.2

PROJECT NO:

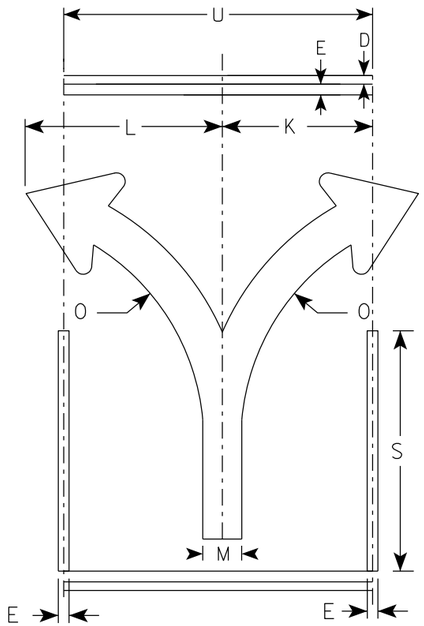
SHEET NO: 73 E

NOTES

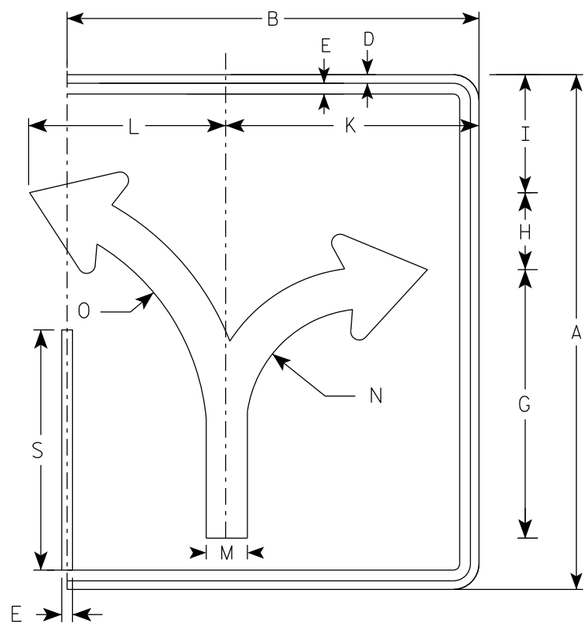
1. Sign is Type II - Type H Reflective
2. Color:
   Background - White
   Message - Black
3. Message Series - None



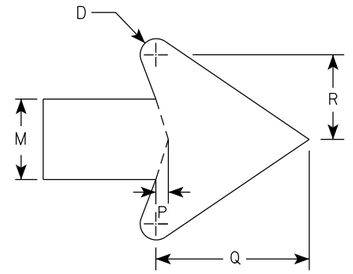
(C)



(C)



(C)



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	ENDS Area sq. ft.	MIDDLE Area sq. ft.
1																												
2S	30	24	1 1/2	1/2	5/8		15 5/8	4 1/2	6 7/8		14 3/4	11 1/2	2 3/8	7	13 1/4	3/8	4 1/2	2 1/2	14		18						5.0	3.75
2M	30	24	1 1/2	1/2	5/8		15 5/8	4 1/2	6 7/8		14 3/4	11 1/2	2 3/8	7	13 1/4	3/8	4 1/2	2 1/2	14		18						5.0	3.75
3	36	30	1 1/2	1/2	5/8		18 3/4	5 1/2	8 1/4		17 1/4	17 1/4	2 7/8	8 3/8	16	1/2	5 1/2	3	16 3/4		24						7.5	6.0
4	48	36	2 1/4	3/4	1		24 7/8	7 1/4	11		23 1/8	18	3 3/4	11 1/8	21 1/4	5/8	7 1/8	4	22 3/8		30						12.0	10.0
5	48	36	2 1/4	3/4	1		24 7/8	7 1/4	11		23 1/8	18	3 3/4	11 1/8	21 1/4	5/8	7 1/8	4	22 3/8		30						12.0	10.0

STANDARD SIGN
R3-8 (C) Arrow

WISCONSIN DEPT OF TRANSPORTATION

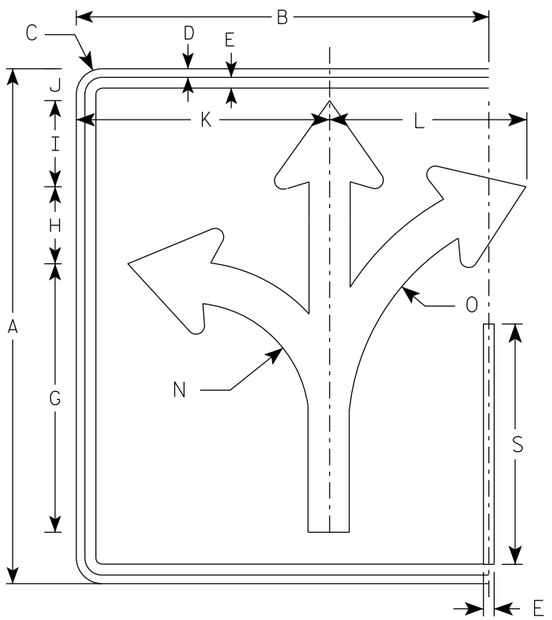
APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 2/14/23 PLATE NO. R3-8.2

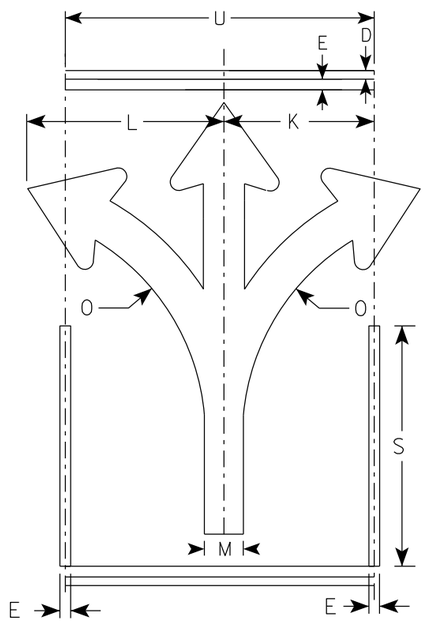
PROJECT NO: | HWY: | COUNTY: | SHEET NO: 74 | E

NOTES

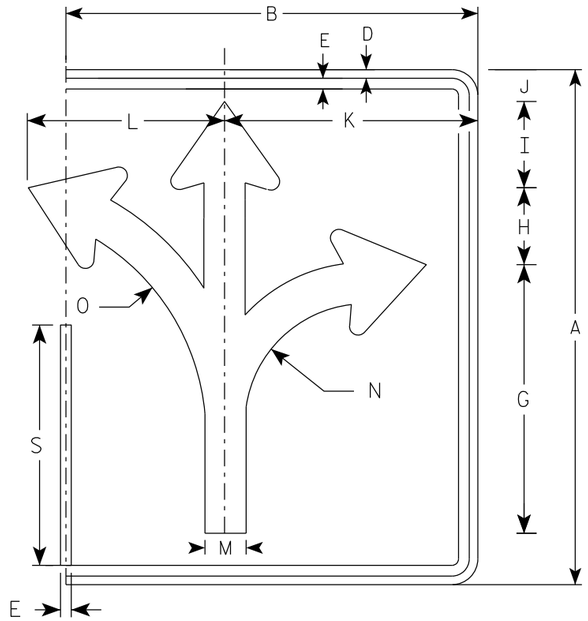
1. Sign is Type II - Type H Reflective
2. Color:
   Background - White
   Message - Black
3. Message Series - None



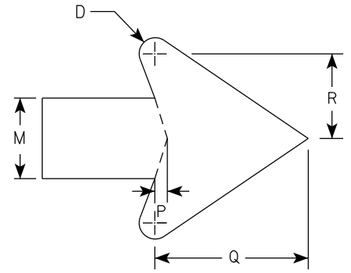
(D)



(D)



(D)



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	ENDS Area sq. ft.	MIDDLE Area sq. ft.
1																												
2S	30	24	1 1/2	1/2	5/8		15 5/8	4 1/2	5	1 7/8	14 3/4	11 1/2	2 3/8	7	13 1/4	3/8	4 1/2	2 1/2	14		18						5.0	3.75
2M	30	24	1 1/2	1/2	5/8		15 5/8	4 1/2	5	1 7/8	14 3/4	11 1/2	2 3/8	7	13 1/4	3/8	4 1/2	2 1/2	14		18						5.0	3.75
3	36	30	1 1/2	1/2	5/8		18 3/4	5 1/2	6	2 1/4	17 1/4	17 1/4	2 7/8	8 3/8	16	1/2	5 1/2	3	16 3/4		24						7.5	6.0
4	48	36	2 1/4	3/4	1		24 7/8	7 1/4	7 7/8	3 1/8	23 1/8	18	3 3/4	11 1/8	21 1/4	5/8	7 1/8	4	22 3/8		30						12.0	10.0
5	48	36	2 1/4	3/4	1		24 7/8	7 1/4	7 7/8	3 1/8	23 1/8	18	3 3/4	11 1/8	21 1/4	5/8	7 1/8	4	22 3/8		30						12.0	10.0

STANDARD SIGN
R3-8 (D) Arrow

WISCONSIN DEPT OF TRANSPORTATION

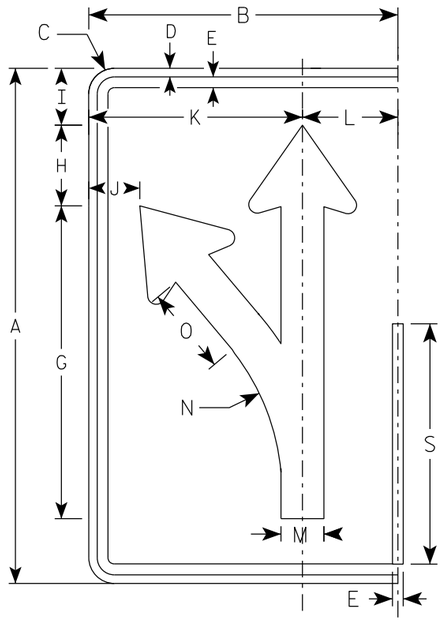
APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 2/14/23 PLATE NO. R3-8.2

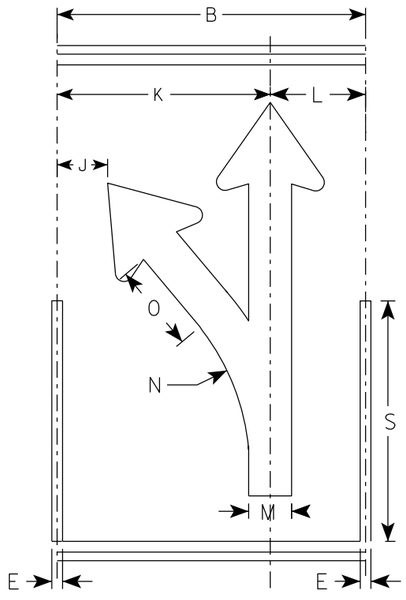
PROJECT NO: | HWY: | COUNTY: | SHEET NO: 75 | E

NOTES

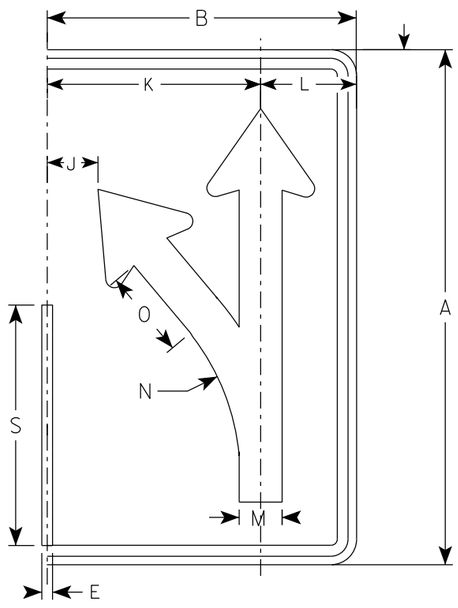
1. Sign is Type II - Type H Reflective
2. Color:
   Background - White
   Message - Black
3. Message Series - None



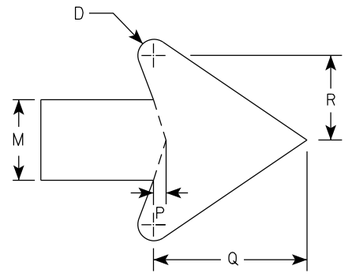
(E)



(E)



(E)



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																											
2S	30	18	1 1/2	1/2	5/8		18 1/4	4 3/4	3 1/4	3	12 1/2	5 1/2	2 1/2	13 1/4	5 1/8	3/8	4 3/4	2 5/8	14								3.75
2M	30	18	1 1/2	1/2	5/8		18 1/4	4 3/4	3 1/4	3	12 1/2	5 1/2	2 1/2	13 1/4	5 1/8	3/8	4 3/4	2 5/8	14								3.75
3	36	24	1 1/2	1/2	5/8		21 7/8	5 5/8	4	4 7/8	16 1/8	7 3/4	3	15 7/8	6 1/8	1/2	5 3/4	3 1/8	16 3/4								6.0
4	48	30	2 1/4	3/4	1		29 1/8	7 1/2	5 1/4	5 3/8	20 1/2	9 1/2	4	21 1/4	8 1/4	5/8	7 5/8	4 1/4	22 3/8								10.0
5	48	30	2 1/4	3/4	1		29 1/8	7 1/2	5 1/4	5 3/8	20 1/2	9 1/2	4	21 1/4	8 1/4	5/8	7 5/8	4 1/4	22 3/8								10.0

STANDARD SIGN
R3-8 (E) Arrow

WISCONSIN DEPT OF TRANSPORTATION

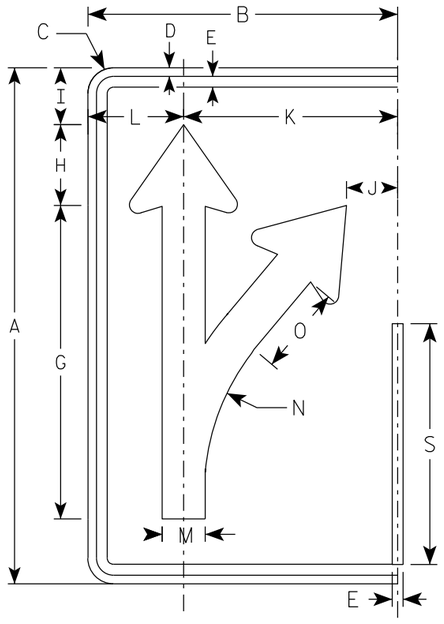
APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 2/14/23 PLATE NO. R3-8.2

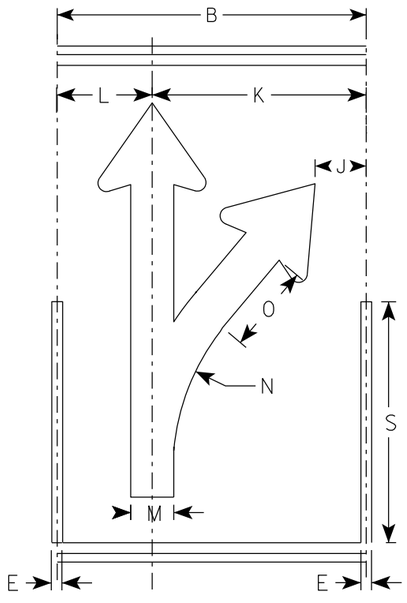
PROJECT NO: | HWY: | COUNTY: | SHEET NO: 76 | E

NOTES

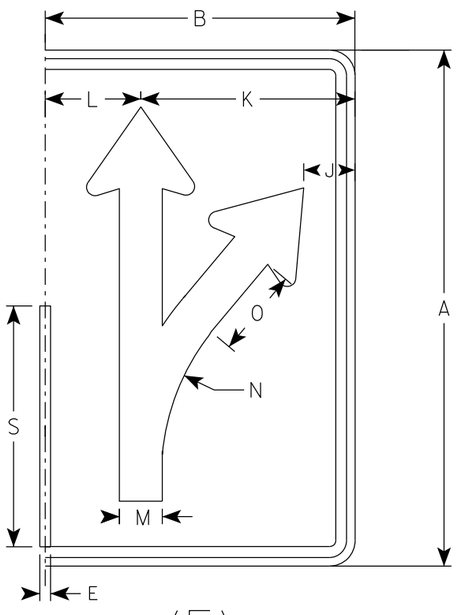
1. Sign is Type II - Type H Reflective
2. Color:
   Background - White
   Message - Black
3. Message Series - None



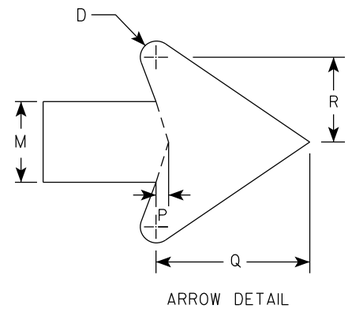
(F)



(F)



(F)



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																											
2S	30	18	1 1/2	1/2	5/8		18 1/4	4 3/4	3 1/4	3	12 1/2	5 1/2	2 1/2	13 1/4	5 1/8	3/8	4 3/4	2 5/8	14								3.75
2M	30	18	1 1/2	1/2	5/8		18 1/4	4 3/4	3 1/4	3	12 1/2	5 1/2	2 1/2	13 1/4	5 1/8	3/8	4 3/4	2 5/8	14								3.75
3	36	24	1 1/2	1/2	5/8		21 7/8	5 5/8	4	4 7/8	16 1/8	7 3/4	3	15 7/8	6 1/8	1/2	5 3/4	3 1/8	16 3/4								6.0
4	48	30	2 1/4	3/4	1		29 1/8	7 1/2	5 1/4	5 3/8	20 1/2	9 1/2	4	21 1/4	8 1/4	5/8	7 5/8	4 1/4	22 3/8								10.0
5	48	30	2 1/4	3/4	1		29 1/8	7 1/2	5 1/4	5 3/8	20 1/2	9 1/2	4	21 1/4	8 1/4	5/8	7 5/8	4 1/4	22 3/8								10.0

STANDARD SIGN
R3-8 (F) Arrow

WISCONSIN DEPT OF TRANSPORTATION

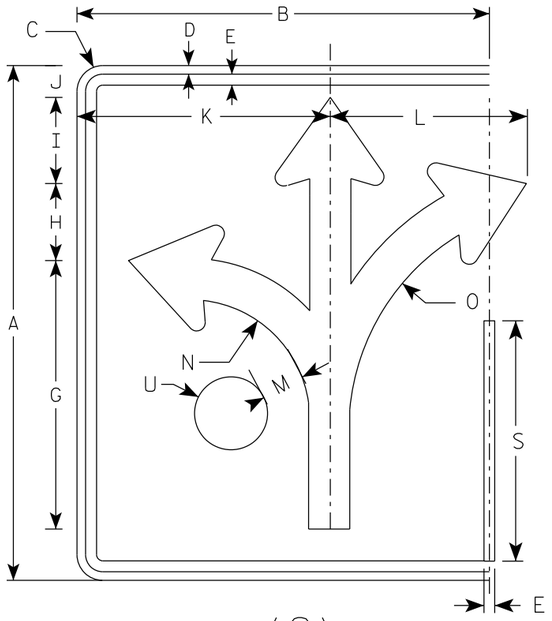
APPROVED Matthew R Rauch
For State Traffic Engineer

DATE 2/14/23 PLATE NO. R3-8.2

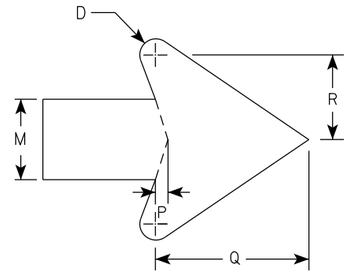
PROJECT NO: | HWY: | COUNTY: | SHEET NO: 77 | E

NOTES

1. Sign is Type II - Type H Reflective
2. Color:
   Background - White
   Message - Black
3. Message Series - None



(G)



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																											
2S	30	24	1 1/2	1/2	5/8		15 5/8	4 1/2	5	1 7/8	14 3/4	11 1/2	2 3/8	7	13 1/4	3/8	4 1/2	2 1/2	14		2 1/8						5.0
2M	30	24	1 1/2	1/2	5/8		15 5/8	4 1/2	5	1 7/8	14 3/4	11 1/2	2 3/8	7	13 1/4	3/8	4 1/2	2 1/2	14		2 1/8						5.0
3	36	30	1 1/2	1/2	5/8		18 3/4	5 1/2	6	3 1/8	17 1/4	17 1/4	2 7/8	8 3/8	16	1/2	5 1/2	3	16 3/4		2 1/2						7.5
4	48	36	2 1/4	3/4	1		24 7/8	7 1/4	7 7/8	3 1/8	23 1/8	18	3 3/4	11 1/8	21 1/4	5/8	7 1/8	4	22 3/8		3 3/8						12.0
5	48	36	2 1/4	3/4	1		24 7/8	7 1/4	7 7/8	3 1/8	23 1/8	18	3 3/4	11 1/8	21 1/4	5/8	7 1/8	4	22 3/8		3 3/8						12.0

STANDARD SIGN
R3-8 (G) Arrow

WISCONSIN DEPT OF TRANSPORTATION

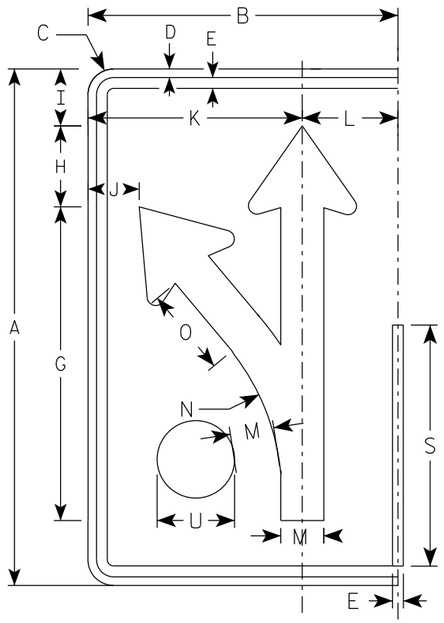
APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 2/14/23 PLATE NO. R3-8.2

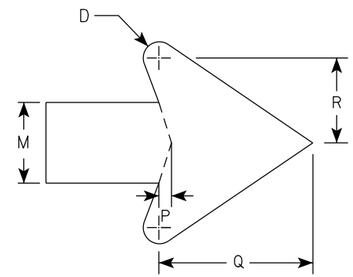
PROJECT NO:	HWY:	COUNTY:		SHEET NO: 78	E

NOTES

1. Sign is Type II - Type H Reflective
2. Color:
   Background - White
   Message - Black
3. Message Series - None



(H)



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																											
2S	30	18	1 1/2	1/2	5/8		18 1/4	4 3/4	3 1/4	3	12 1/2	5 1/2	2 1/2	13 1/4	5 1/8	3/8	4 3/4	2 5/8	14		2 1/8						3.75
2M	30	18	1 1/2	1/2	5/8		18 1/4	4 3/4	3 1/4	3	12 1/2	5 1/2	2 1/2	13 1/4	5 1/8	3/8	4 3/4	2 5/8	14		2 1/8						3.75
3	36	24	1 1/2	1/2	5/8		21 7/8	5 5/8	4	4 7/8	16 1/8	7 3/4	3	15 7/8	6 1/8	1/2	5 3/4	3 1/8	16 3/4		2 1/2						6.0
4	48	30	2 1/4	3/4	1		29 1/8	7 1/2	5 1/4	5 3/8	20 1/2	9 1/2	4	21 1/4	8 1/4	5/8	7 5/8	4 1/4	22 3/8		3 3/8						10.0
5	48	30	2 1/4	3/4	1		29 1/8	7 1/2	5 1/4	5 3/8	20 1/2	9 1/2	4	21 1/4	8 1/4	5/8	7 5/8	4 1/4	22 3/8		3 3/8						10.0

STANDARD SIGN
R3-8 (H) Arrow

WISCONSIN DEPT OF TRANSPORTATION

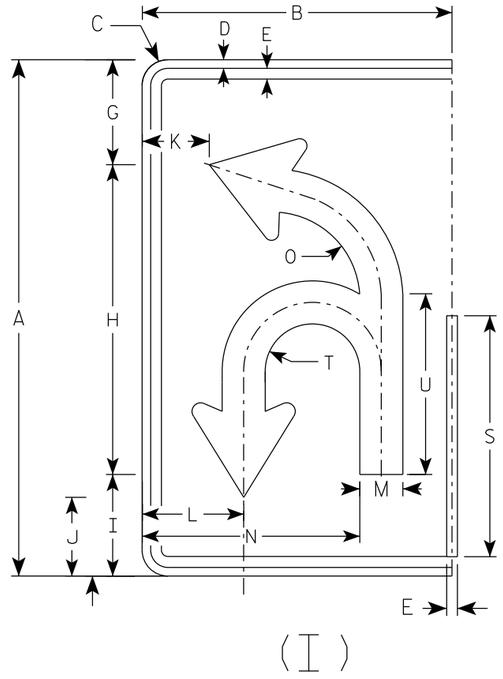
APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 2/14/23 PLATE NO. R3-8.2

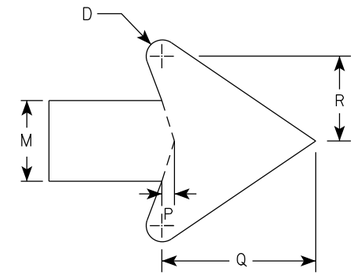
PROJECT NO: | HWY: | COUNTY: | SHEET NO: 79 | E

NOTES

1. Sign is Type II - Type H Reflective
2. Color:
   Background - White
   Message - Black
3. Message Series - None



(I)



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																											
2S	30	18	1 1/2	1/2	5/8		6 1/8	18	5 7/8	4 5/8	3 7/8	5 7/8	2 1/2	12 5/8	5 1/8	3/8	4 3/4	2 5/8	14	2 3/4	10 1/2						3.75
2M	30	18	1 1/2	1/2	5/8		6 1/8	18	5 7/8	4 5/8	3 7/8	5 7/8	2 1/2	12 5/8	5 1/8	3/8	4 3/4	2 5/8	14	2 3/4	10 1/2						3.75
3	36	24	1 1/2	1/2	5/8		21 7/8	21 5/8	7 1/8	5 1/2	5 7/8	8 1/4	3	16 3/8	6 1/8	1/2	5 3/4	3 1/8	16 3/4	3 1/4	12 5/8						6.0
4	48	30	2 1/4	3/4	1		29 1/8	28 3/4	9 3/8	7 1/4	6 7/8	10	4	20 7/8	8 1/8	5/8	7 5/8	4 1/4	22 3/8	4 3/8	16 3/4						10.0
5	48	30	2 1/4	3/4	1		29 1/8	28 3/4	9 3/8	7 1/4	6 7/8	10	4	20 7/8	8 1/8	5/8	7 5/8	4 1/4	22 3/8	4 3/8	16 3/4						10.0

STANDARD SIGN
R3-8 (I) Arrow

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 2/14/23 PLATE NO. R3-8.2

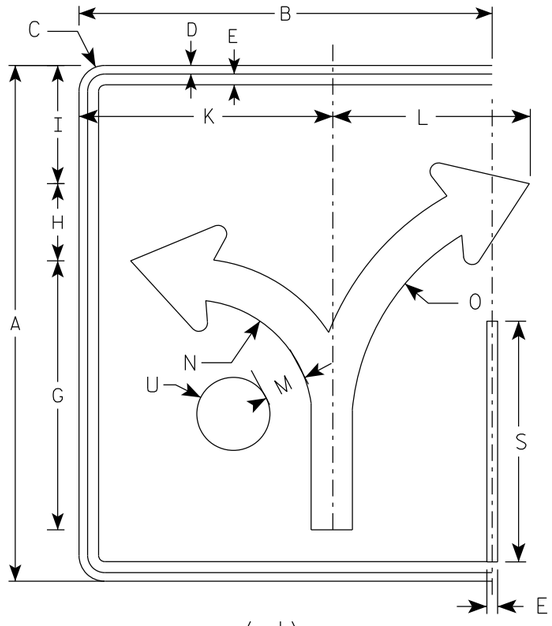
PROJECT NO: | HWY: | COUNTY: | SHEET NO: 80 | E

7

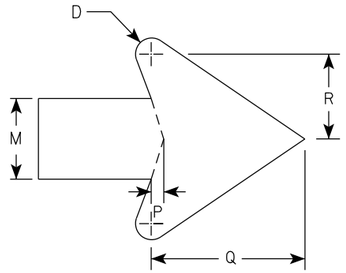
7

NOTES

1. Sign is Type II - Type H Reflective
2. Color:
   Background - White
   Message - Black
3. Message Series - None



(J)



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																											
2S	30	24	1 1/2	1/2	5/8		15 5/8	4 1/2	6 7/8		14 3/4	11 1/2	2 3/8	7	13 1/4	3/8	4 1/2	2 1/2	14		2 1/8						5.0
2M	30	24	1 1/2	1/2	5/8		15 5/8	4 1/2	6 7/8		14 3/4	11 1/2	2 3/8	7	13 1/4	3/8	4 1/2	2 1/2	14		2 1/8						5.0
3	36	30	1 1/2	1/2	5/8		18 3/4	5 1/2	8 1/4		17 1/4	17 1/4	2 7/8	8 3/8	16	1/2	5 1/2	3	16 3/4		2 1/2						7.5
4	48	36	2 1/4	3/4	1		24 7/8	7 1/4	11		23 1/8	18	3 3/4	11 1/8	21 1/4	5/8	7 1/8	4	22 3/8		3 3/8						12.0
5	48	36	2 1/4	3/4	1		24 7/8	7 1/4	11		23 1/8	18	3 3/4	11 1/8	21 1/4	5/8	7 1/8	4	22 3/8		3 3/8						12.0

STANDARD SIGN
R3-8 (J) Arrow

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

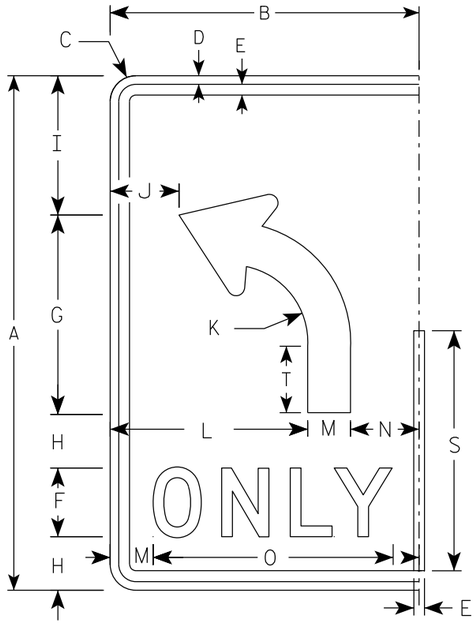
DATE 2/14/23 PLATE NO. R3-8.2

PROJECT NO: | HWY: | COUNTY: | SHEET NO: 81 | E

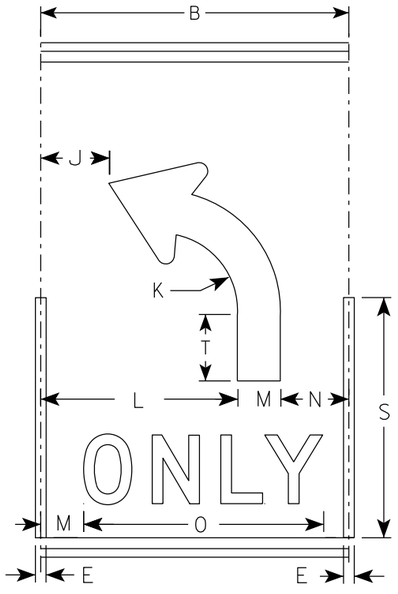
FILE NAME : C:\CAEfiles\Projects\stdplate_R38.dgn PLOT DATE : 14-FEB 2023 3:18 PLOT BY : mscj9h PLOT NAME : PLOT SCALE : $$.....plotscale.....$$ WISDOT/CADDS SHEET 42

NOTES

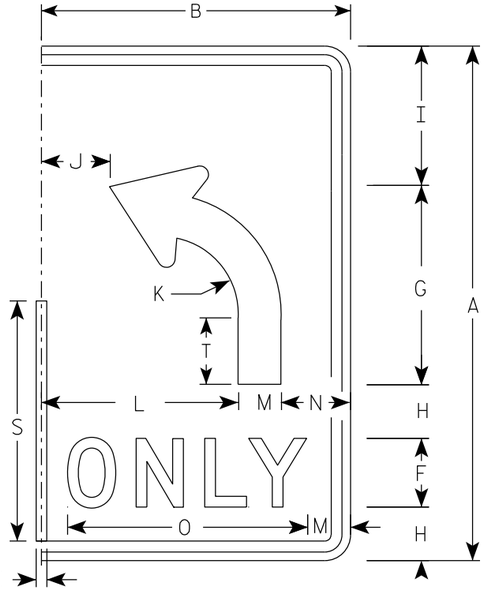
1. Sign is Type II - Type H Reflective
2. Color:
   Background - White
   Message - Black
3. Message Series - D



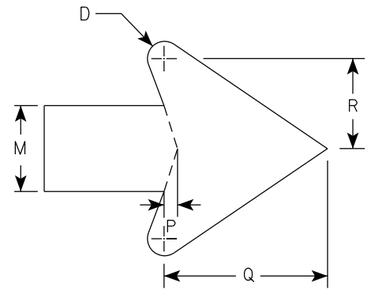
(L)



(L)



(L)



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																											
2S	30	18	1 ½	½	⅝	4	11 ⅝	3 ⅛	8 ⅛	4	4 ½	11 ½	2 ½	4	14	⅜	4 ¾	2 ⅝	14	3 ⅞							3.75
2M	30	18	1 ½	½	⅝	4	11 ⅝	3 ⅛	8 ⅛	4	4 ½	11 ½	2 ½	4	14	⅜	4 ¾	2 ⅝	14	3 ⅞							3.75
3	36	24	1 ½	½	⅝	5	14	3 ½	9 ¾	6	5 ⅜	15	3	6	17 ⅝	½	5 ¾	3 ⅛	16 ¾	4 ⅝							6.0
4	48	30	2 ¼	¾	1	6	18 ⅝	5 ⅛	13 ⅛	6 ⅛	7 ¼	18	4	8	21 ¾	⅝	7 ⅝	4 ¼	22 ⅜	6 ¼							10.0
5	48	30	2 ¼	¾	1	6	18 ⅝	5 ⅛	13 ⅛	6 ⅛	7 ¼	18	4	8	21 ¾	⅝	7 ⅝	4 ¼	22 ⅜	6 ¼							10.0

STANDARD SIGN

R3-8 (L) Arrow

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

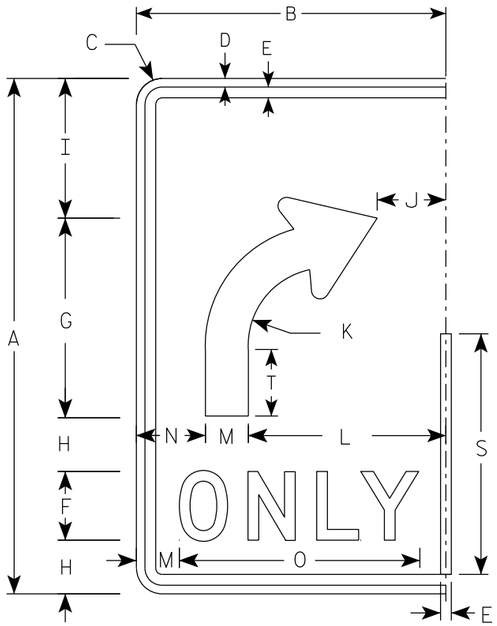
DATE 2/14/23 PLATE NO. R3-8.2

PROJECT NO:

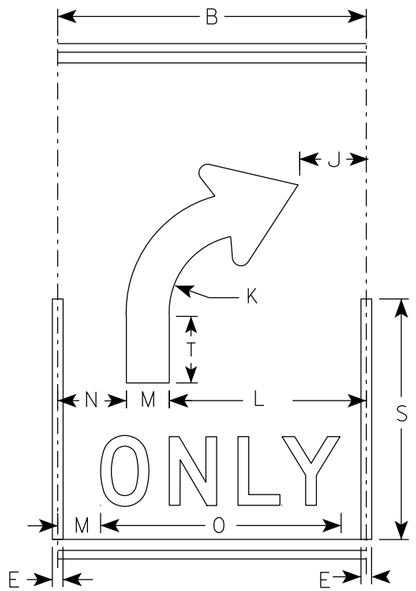
SHEET NO: 82 E

NOTES

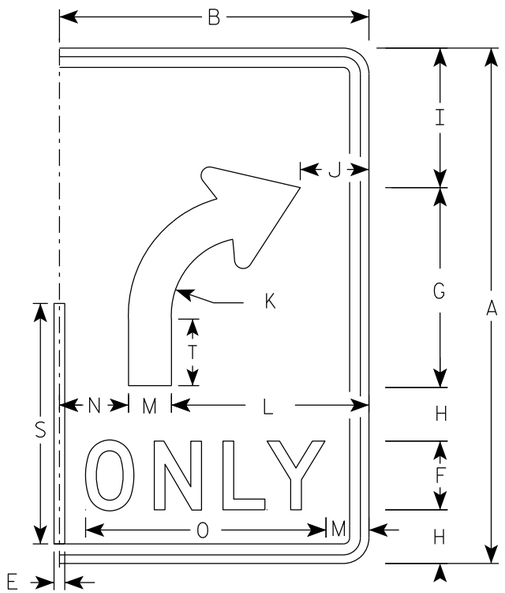
1. Sign is Type II - Type H Reflective
2. Color:
   Background - White
   Message - Black
3. Message Series - D



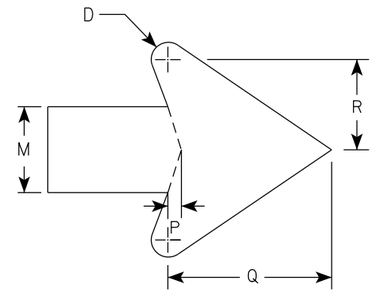
(R)



(R)



(R)



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																											
2S	30	18	1 1/2	1/2	5/8	4	11 5/8	3 1/8	8 1/8	4	4 1/2	11 1/2	2 1/2	4	14	3/8	4 3/4	2 5/8	14	3 7/8							3.75
2M	30	18	1 1/2	1/2	5/8	4	11 5/8	3 1/8	8 1/8	4	4 1/2	11 1/2	2 1/2	4	14	3/8	4 3/4	2 5/8	14	3 7/8							3.75
3	36	24	1 1/2	1/2	5/8	5	14	3 1/2	9 3/4	6	5 3/8	15	3	6	17 5/8	1/2	5 3/4	3 1/8	16 3/4	4 5/8							6.0
4	48	30	2 1/4	3/4	1	6	18 5/8	5 1/8	13 1/8	6 1/8	7 1/4	18	4	8	21 3/4	5/8	7 5/8	4 1/4	22 3/8	6 1/4							10.0
5	48	30	2 1/4	3/4	1	6	18 5/8	5 1/8	13 1/8	6 1/8	7 1/4	18	4	8	21 3/4	5/8	7 5/8	4 1/4	22 3/8	6 1/4							10.0

STANDARD SIGN

R3-8 (R) Arrow

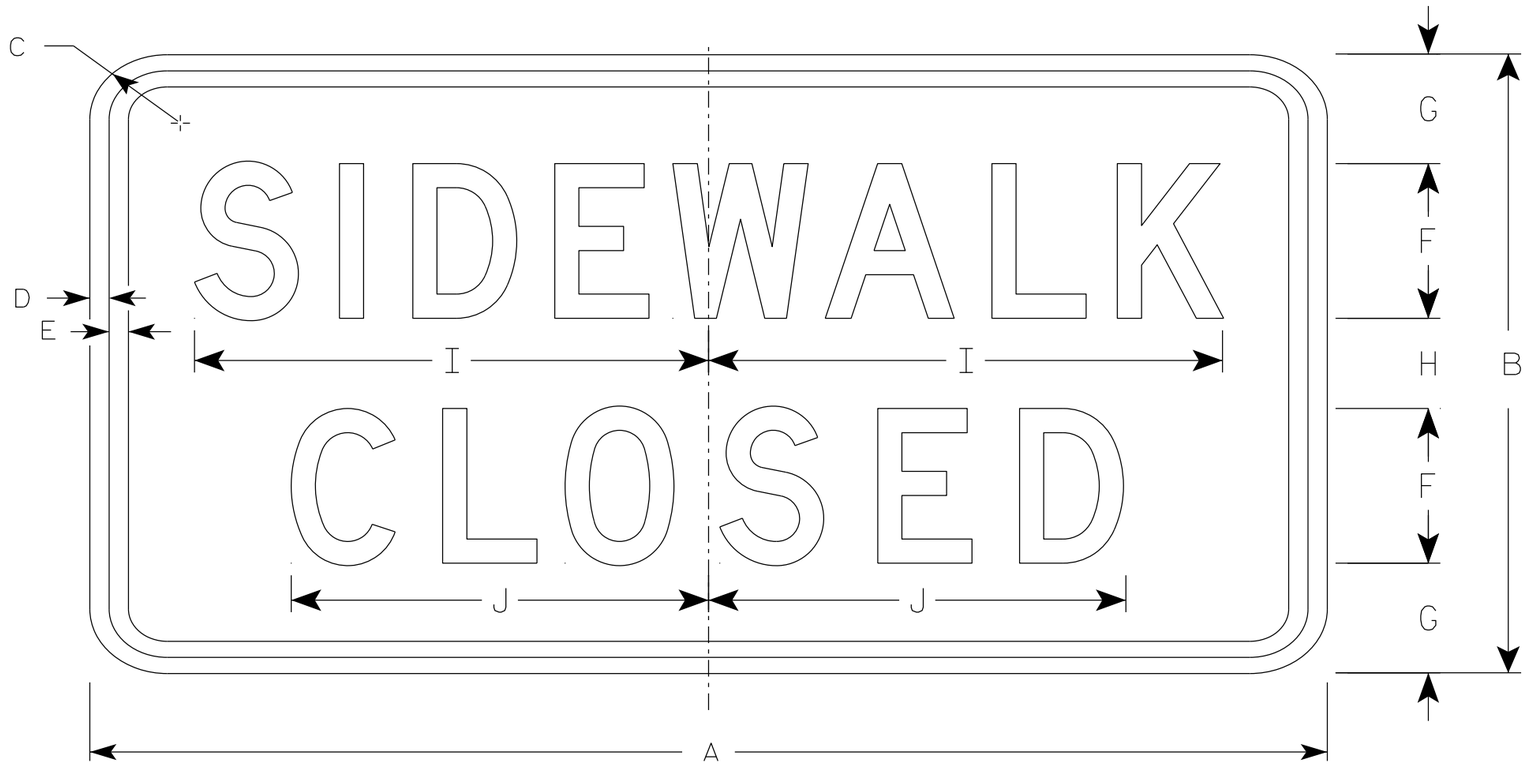
WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 2/14/23 PLATE NO. R3-8.2

PROJECT NO:

SHEET NO: 83 E



R9-9

NOTES

1. Sign is Type II - Type H Reflective
2. Color:
   Background - White
   Message - Black
3. Message Series - C
4. Use Size 2 for Sidewalks. Use Size 3 for Paths and Trails.

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	24	12	1 ½	½	½	3	2 ⅛	1 ¾	10	8 ⅛																	2.0
2M	24	12	1 ½	½	½	3	2 ⅛	1 ¾	10	8 ⅛																	2.0
3	30	18	1 ½	½	½	4	3 ½	3	12 ½	10 ¼																	3.75
4																											
5																											

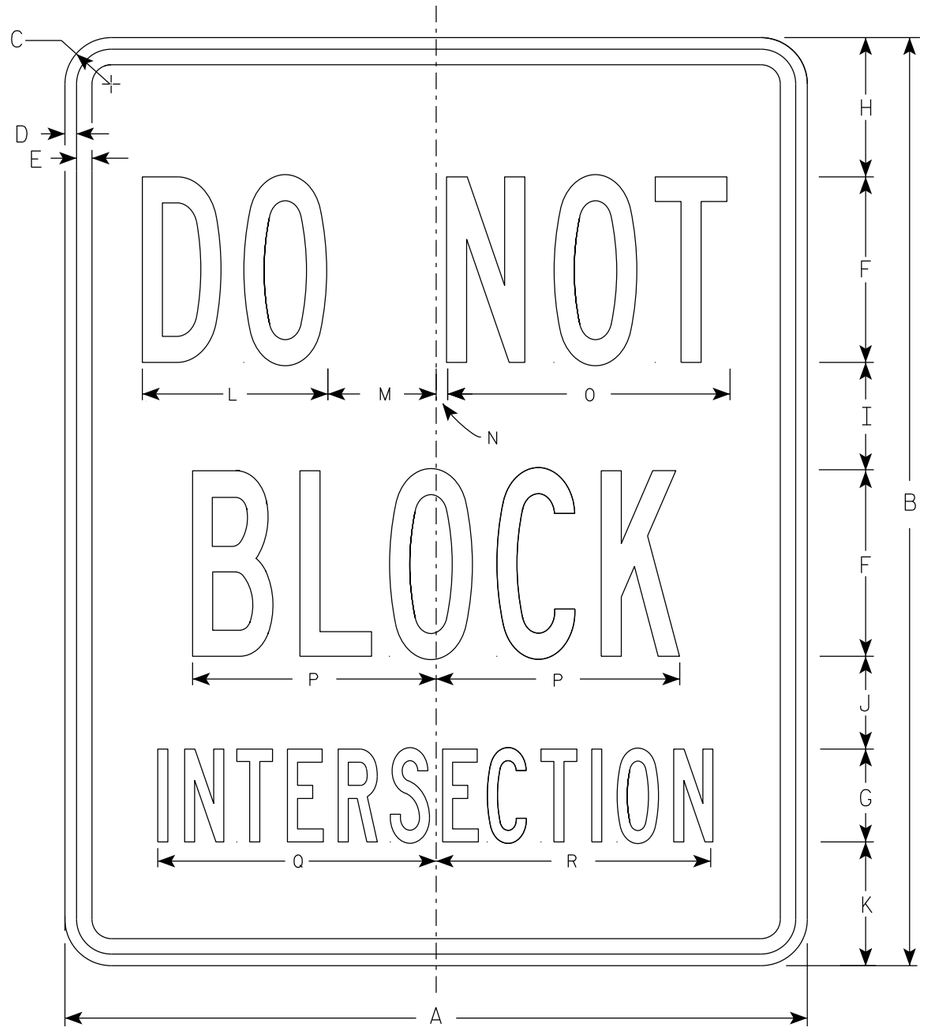
STANDARD SIGN
R9-9

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 1/24/24 PLATE NO. R9-9.7

PROJECT NO: | HWY: | COUNTY: | SHEET NO: 84 | E



R10-7

NOTES

1. Sign is Type II - Type H Reflective
2. Color:
   Background - White
   Message - Black
3. Message Series - B

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	24	30	1 1/2	3/8	1/2	6	3	4 1/2	3 1/2	3	4	6	3 1/2	3/8	9 1/8	7 7/8	9	8 7/8									5.0
2M	24	30	1 1/2	3/8	1/2	6	3	4 1/2	3 1/2	3	4	6	3 1/2	3/8	9 1/8	7 7/8	9	8 7/8									5.0
3	36	48	1 7/8	1/2	5/8	10	5	7	5 1/4	4 1/2	6 1/4	10	5 5/8	1/2	15 1/8	13 1/8	15	14 7/8									12.0
4																											
5																											

STANDARD SIGN
R10-7

WISCONSIN DEPT OF TRANSPORTATION

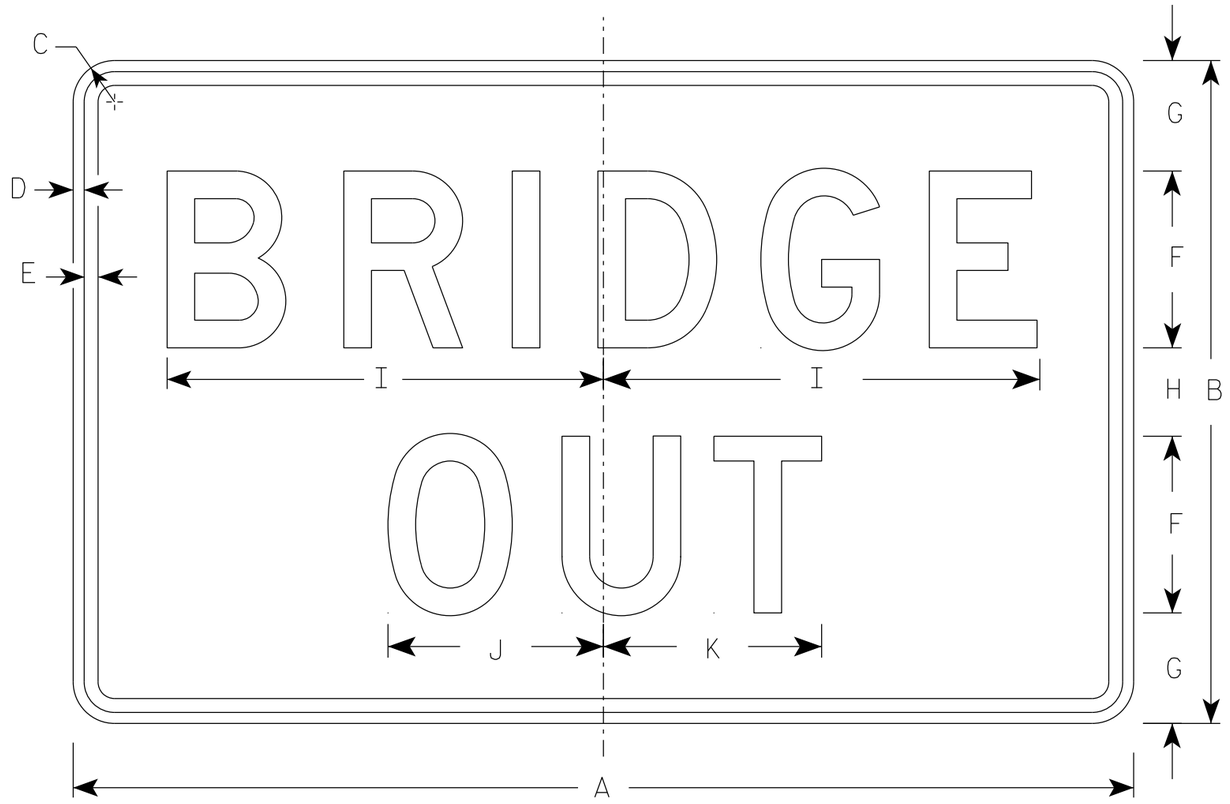
APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 1/25/24 PLATE NO. R10-7.6

PROJECT NO: | HWY: | COUNTY: | SHEET NO: 85 | E

FILE NAME : C:\CAEfiles\Projects\tr_stdplate\R107.dgn PLOT DATE : 25-JAN 2024 12:46 PLOT BY : mscj9h PLOT NAME : PLOT SCALE : $$.....plotscale.....$$

7



R11-2B

NOTES

1. Sign is Type II - Type H Reflective
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.

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

STANDARD SIGN
R11-2B

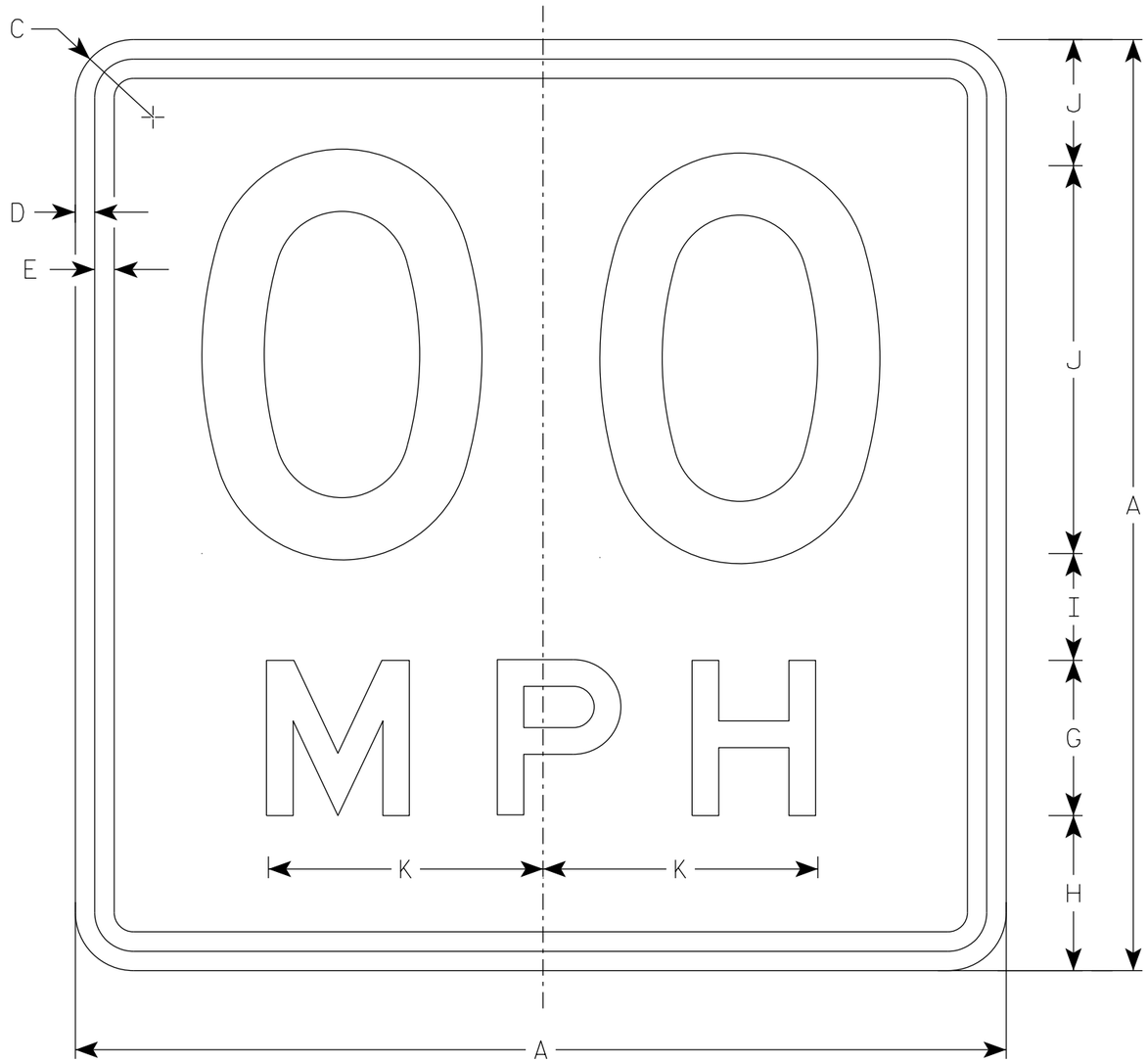
WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
For State Traffic Engineer

DATE 2/5/24 PLATE NO. R11-2B.3

PROJECT NO:

SHEET NO: 86 E



W013-1

NOTES

1. Sign is Type II - Type F Reflective
2. Color:
   Background - Orange
   Message - Black
3. Message Series - See Note 6
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 space about centerline to achieve proper balance.
6. Line 1 is Series D
   Line 2 is Series E

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	24		1 1/2	3/8	1/2	10	4	4	2 3/4	3 1/4	7 1/8																4.0
2S	36		2 1/4	5/8	3/4	16	6	5 1/2	4	4 1/2	10 5/8																9.0
2M	36		2 1/4	5/8	3/4	16	6	5 1/2	4	4 1/2	10 5/8																9.0
3	36		2 1/4	5/8	3/4	16	6	5 1/2	4	4 1/2	10 5/8																9.0
4	36		2 1/4	5/8	3/4	16	6	5 1/2	4	4 1/2	10 5/8																9.0
5	36		2 1/4	5/8	3/4	16	6	5 1/2	4	4 1/2	10 5/8																9.0

STANDARD SIGN

W013-1

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

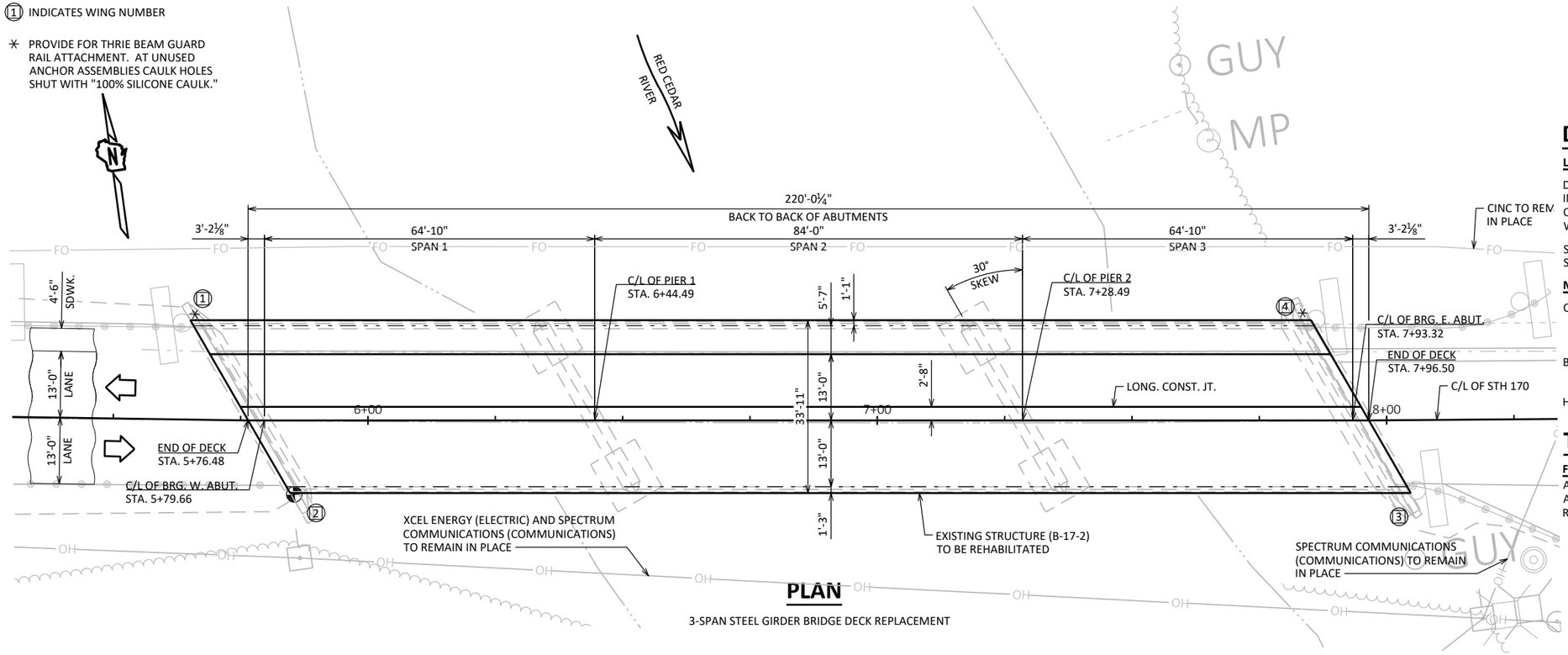
DATE 2/1/2024 PLATE NO. W013-1.2

PROJECT NO:	HWY:	COUNTY:		SHEET NO:	E

STATE PROJECT NUMBER
8630-00-70

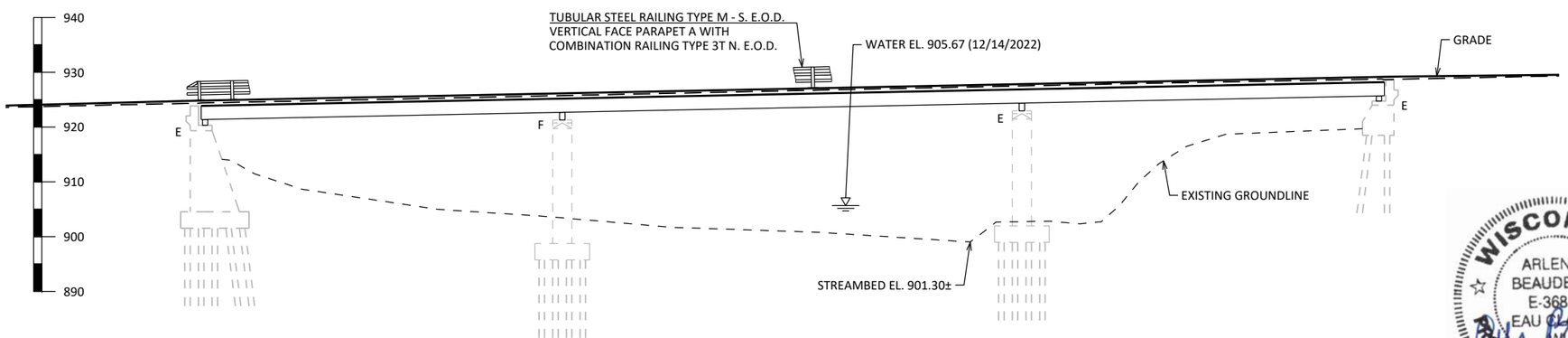
(1) INDICATES WING NUMBER

✳ PROVIDE FOR THRIE BEAM GUARD RAIL ATTACHMENT. AT UNUSED ANCHOR ASSEMBLIES CAULK HOLES SHUT WITH "100% SILICONE CAULK."



PLAN

3-SPAN STEEL GIRDER BRIDGE DECK REPLACEMENT



ELEVATION

NORMAL TO RED CEDAR RIVER

SCOPE OF WORK:

1. REPLACE EXTERIOR GIRDER WITH NEW GIRDER
2. BEARING REPLACEMENT AT ABUTMENTS AND CLEAN AND PAINT PIER 1 & 2 BEARINGS AT GIRDER NO. 6
3. DECK REPLACEMENT
4. JOINT REPAIR
5. CONCRETE SURFACE REPAIR

DESIGN DATA

LIVE LOAD:

DESIGN LOADING: HS-20
INVENTORY RATING: HS-24
OPERATING RATING: HS-40
WISCONSIN STANDARD PERMIT VEHICLE (WIS-SPV): 180 (KIPS)

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

MATERIAL PROPERTIES:

CONCRETE MASONRY:
SUPERSTRUCTURE ——— f'_c = 4,000 PSI
ALL OTHER ——— f'_c = 3,500 PSI

BAR STEEL REINFORCEMENT
GRADE 60 ——— f_y = 60,000 PSI

HIGH STRENGTH STRUCTURAL STEEL (ASTM A709, GRADE 50) ——— f_y = 50,000 PSI

TRAFFIC DATA

FEATURE ON: STH 170

AADT = 2250(2026)
AADT = 2530(2046)
R.D.S. = 45 MPH

LIST OF DRAWINGS:

WISCONSIN ARLEN E. BEAUDETTE E-36829 EAU CLAIRE WI PROFESSIONAL ENGINEER

11/24/2025

STRUCTURE DESIGN CONTACTS:

AARON BONK	(608)-261-0261
ARLEN BEAUDETTE	(715)-834-3161

NO.	DATE	REVISION	BY

ORIGINAL PLANS PREPARED BY

AYRES 3433 Oakwood Hills Parkway Eau Claire, WI 54701 www.AyresAssociates.com

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

ACCEPTED JLR 12/10/25
CHIEF STRUCTURES DESIGN ENGINEER — DATE

STRUCTURE B-17-2

STH 170 OVER RED CEDAR RIVER

COUNTY	VILLAGE
DUNN	COLFAX

DESIGN SPEC.
AASHTO LRFD BRIDGE DESIGN SPECIFICATION

DESIGNED BY	DESIGN CK'D	DRAWN BY	PLANS CK'D
NBE	JLB	ZSS	AEB

GENERAL PLAN

SHEET 1 OF 24
88

I.D. DATE:

8

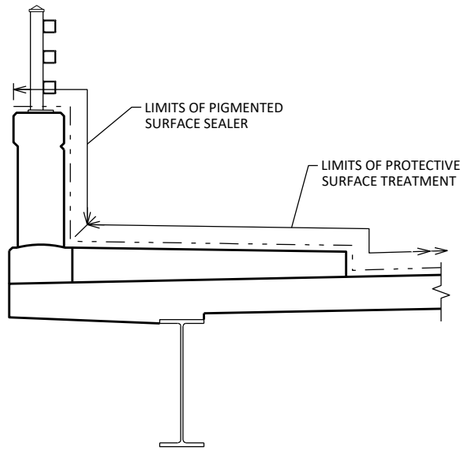
8

STATE PROJECT NUMBER

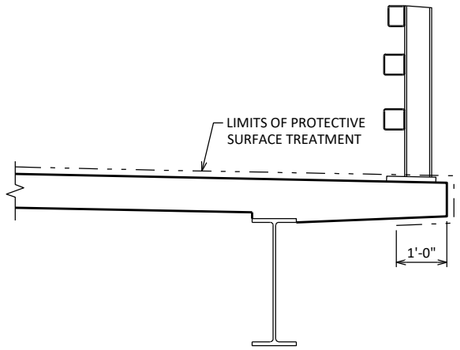
8630-00-70

TOTAL ESTIMATED QUANTITIES

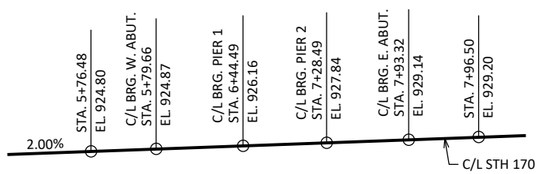
BID ITEM NUMBER	BID ITEMS	UNIT	SUPER	W. ABUT.	PIER 1	PIER 2	E. ABUT.	TOTALS
203.0270	REMOVING STRUCTURE OVER WATERWAY DEBRIS CAPTURE B-17-2	EACH	-----	-----	-----	-----	-----	1
502.0100	CONCRETE MASONRY BRIDGES	CY	265.4	4.6	-----	-----	4.6	275
502.3101	EXPANSION DEVICE	LF	78.3	-----	-----	-----	-----	78.3
502.3200	PROTECTIVE SURFACE TREATMENT	SY	750	-----	-----	-----	-----	750
502.3210	PIGMENTED SURFACE SEALER	SY	80	-----	-----	-----	-----	80
502.4204	ADHESIVE ANCHORS NO. 4 BARS	EACH	356	4	-----	-----	4	364
502.4205	ADHESIVE ANCHORS NO. 5 BARS	EACH	68	-----	-----	-----	-----	68
505.0600	BAR STEEL REINFORCEMENT HS COATED STRUCTURES	LB	55,820	70	-----	-----	60	55,950
505.0904	BAR COUPLER NO. 4	EACH	794	-----	-----	-----	-----	794
506.0605	STRUCTURAL STEEL HS	LB	30,325	-----	-----	-----	-----	30,325
506.2610	BEARING PADS ELASTOMERIC LAMINATED	EACH	-----	6	-----	-----	1	7
506.3020	WELDED STUD SHEAR CONNECTORS 7/8 X 7-INCH	EACH	486	-----	-----	-----	-----	486
506.5000	BEARING ASSEMBLIES FIXED B-17-2	EACH	-----	----	1	-----	-----	1
506.6000	BEARING ASSEMBLIES EXPANSION B-17-2	EACH	-----	-----	-----	1	-----	1
506.7050.S	REMOVING BEARINGS B-17-2	EACH	-----	6	-----	-----	1	7
509.1500	CONCRETE SURFACE REPAIR	SF	-----	50	25	25	50	150
513.4061	RAILING TUBULAR TYPE M	LF	218.2	-----	-----	-----	-----	218.2
513.7093	RAILING STEEL TYPE 3T	LF	216.6	-----	-----	-----	-----	216.6
517.0601	PAINTING EPOXY SYSTEM B-17-2	EACH	1	-----	-----	-----	-----	1
517.0901.S	PREPARATION AND COATING OF TOP FLANGES B-17-2	EACH	1	-----	-----	-----	-----	1
614.0150	ANCHOR ASSEMBLIES FOR STEEL PLATE BEAM GUARD	EACH	-----	1	-----	-----	1	2
SPV.0060	CLEANING AND PAINTING BEARINGS	EACH	-----	-----	1	1	-----	2
	NON-BID ITEMS							
	FILLER	SIZE	---	---	---	---	---	½", ¾"
	BRIDGE SEAT PROTECTION	SY						



PROTECTIVE SURFACE TREATMENT AND PIGMENTED SURFACE SEALER DETAIL



PROTECTIVE SURFACE TREATMENT DETAIL



PROFILE GRADE LINE

STH 170

BENCH MARK

NO.	STATION	DESCRIPTION	ELEV.
50	9+51	BURY BOLT ON HYDRANT, 22' LT.	933.14
51	5+85	MONUMENT ON BRIDGE, 15' RT.	924.35
52	1+82	RR SPIKE IN POWER POLE, 26' RT.	917.33

GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.

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

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

BEVEL EXPOSED EDGES OF CONCRETE ¾" UNLESS OTHERWISE NOTED.

THE UPPER LIMITS OF "EXCAVATION FOR STRUCTURES BRIDGES B-17-2" SHALL BE THE EXISTING GROUNDLINE.

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

PROTECTIVE SURFACE TREATMENT TO BE APPLIED TO THE ENTIRE EXPOSED TOP OF DECK AND SIDEWALK, AND TO THE VERTICAL AND HORIZONTAL SURFACES OF THE PAVING NOTCHES AT ABUTMENT DIAPHRAGMS.

PIGMENTED SURFACE SEALER TO BE APPLIED TO THE FRONT FACE AND THE TOP OF THE PARAPETS.

THE MINIMUM CONCRETE HAUNCH SHALL BE 2" FOR DESIGN CALCULATIONS AND THE HAUNCH CONCRETE QUANTITY IS BASED ON AN AVERAGE DEPTH OF 5", WHICH IS THE MAXIMUM HAUNCH QUANTITY FOR WHICH THE CONTRACTOR WILL BE PAID.

APPLY BRIDGE SEAT PROTECTION, AS PER SECTION 502.3.12 OF THE STANDARD SPECIFICATIONS, TO THE TOP SURFACES OF ALL ABUTMENTS AND PIERS BELOW EXPANSION DEVICES.

ALL CONCRETE REMOVAL SHALL BE DEFINED BY A 1" DEEP SAW CUT UNLESS SHOWN OR NOTED OTHERWISE.

DIMENSIONS SHOWN ARE BASED ON THE ORIGINAL STRUCTURE PLANS.

ALL FIELD CONNECTIONS SHALL BE MADE WITH ¾" DIAMETER A325 HIGH-TENSILE STRENGTH BOLTS UNLESS OTHERWISE SHOWN OR NOTED.

THE CONTRACTOR SHALL SUPPLY A NEW NAME PLATE IN ACCORDANCE WITH SECTION 502.3.11 OF THE STANDARD SPECIFICATIONS AND THE STANDARD DETAIL DRAWINGS. NAME PLATE TO SHOW ORIGINAL CONSTRUCTION YEAR 1950.

ANY EXCAVATION NECESSARY TO COMPLETE THE DECK REPLACEMENT OR JOINT REPAIR AT THE ABUTMENTS IS TO BE CONSIDERED INCIDENTAL TO THE BID ITEM "CONCRETE MASONRY BRIDGES".

THE NEW STRUCTURAL STEEL SHALL BE PAINTED. THE COLOR OF THE FINISH EPOXY TOP COAT SHALL BE GRAY. (FEDERAL STANDARD COLOR NO. 26293) OR SIMILAR COLOR APPROVED BY THE ENGINEER.

BEARINGS LOCATED AT PIER 1 & 2 AT GIRDERLINE NO. 6 ARE TO BE CLEANED AND PAINTED. SEE SPECIAL PROVISIONS.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-17-2

DRAWN BY ZSS | PLANS CK'D AEB

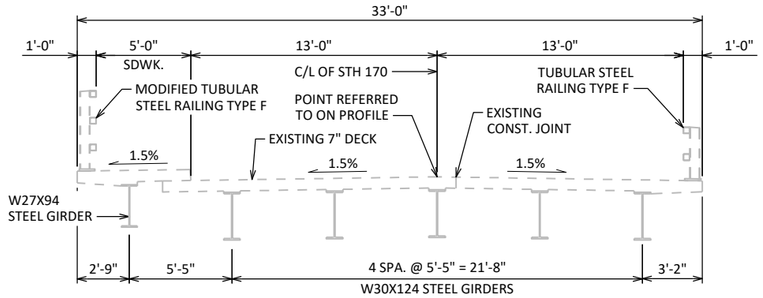
GENERAL NOTES AND QUANTITIES

8

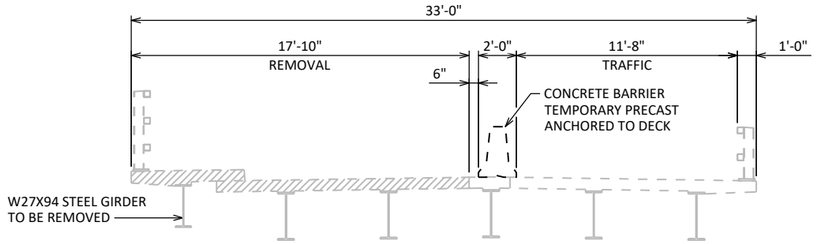
8

STATE PROJECT NUMBER

8630-00-70

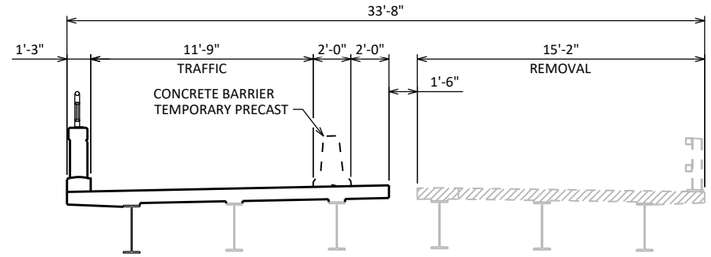


EXISTING TYPICAL SECTION THRU BRIDGE

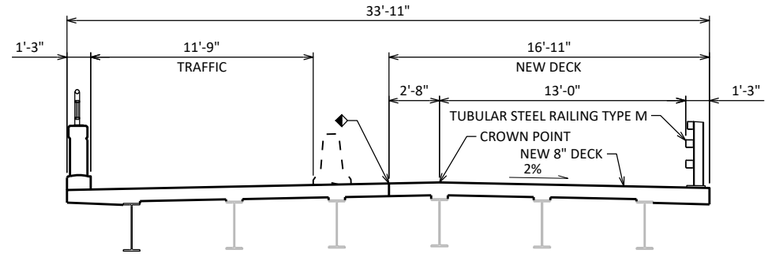


STAGE 1 REMOVAL LIMITS

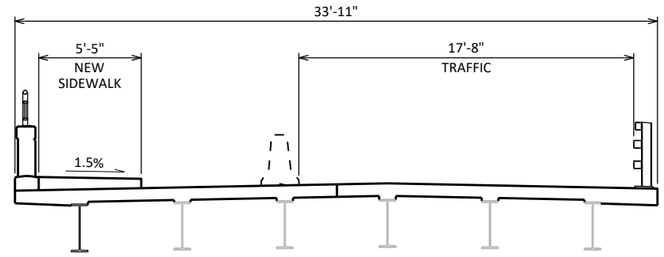
STAGE 1 CONSTRUCTION



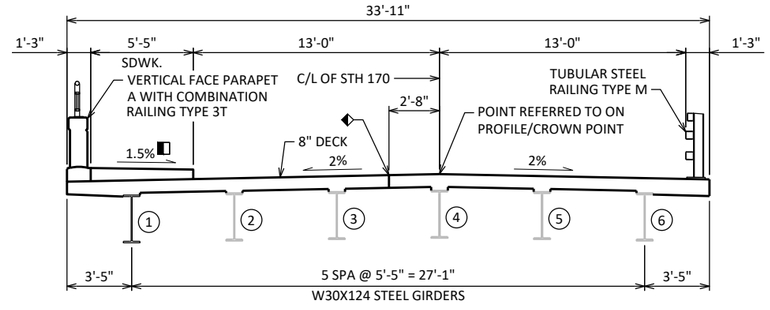
STAGE 2 REMOVAL



STAGE 2 CONSTRUCTION



STAGE 3 CONSTRUCTION



PROPOSED TYPICAL SECTION THRU DECK

◧ ±0.5% CONSTRUCTION TOLERANCE IN SIDEWALK CROSS SLOPE. THE SIDEWALK CROSS SLOPE SHALL NOT EXCEED 2% WITHOUT PRIOR APPROVAL FROM THE ENGINEER.

⬖ LONG. CONST. JT.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-17-2

DRAWN BY ZSS | PLANS CK'D AEB

STAGING PLAN

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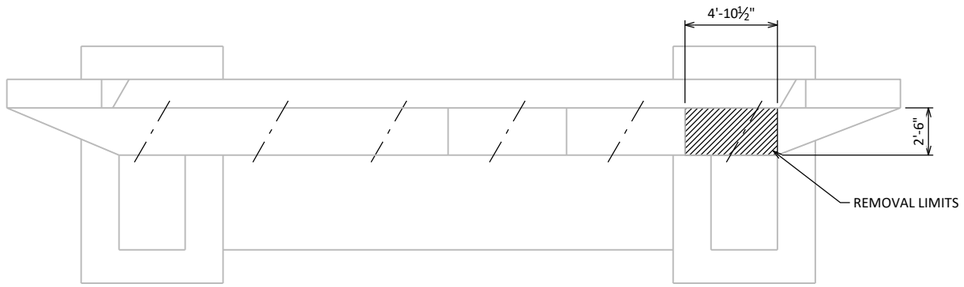
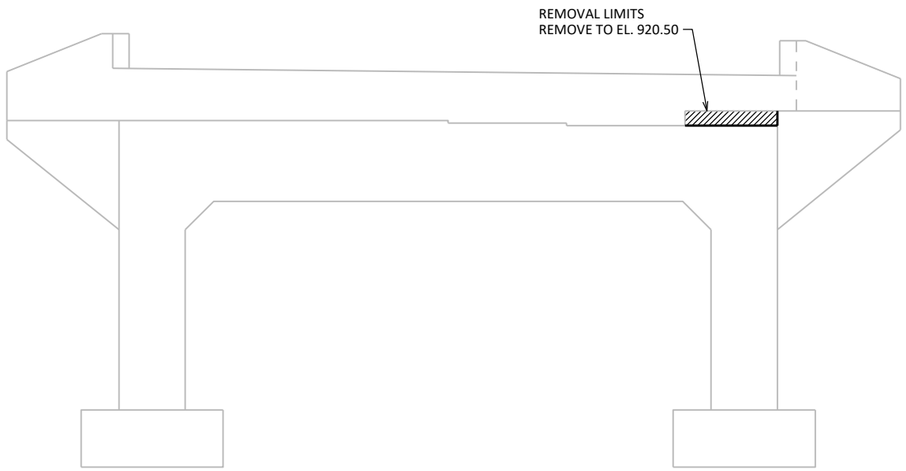
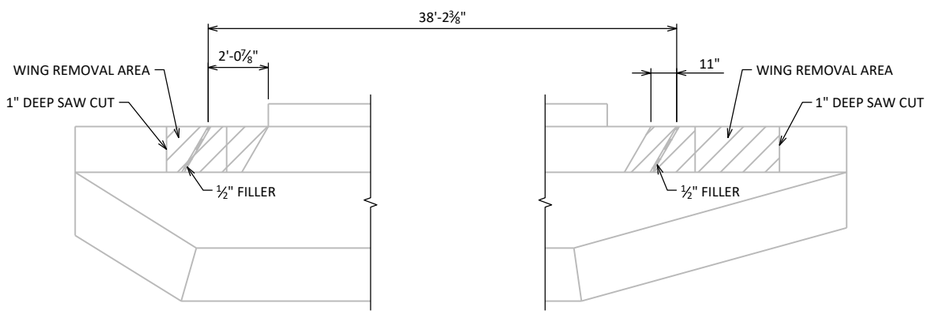


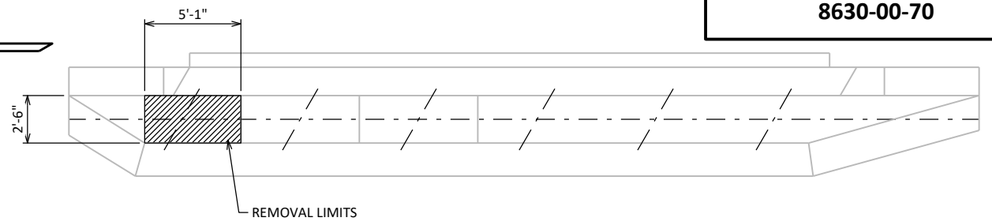
PLAN VIEW
WEST ABUTMENT



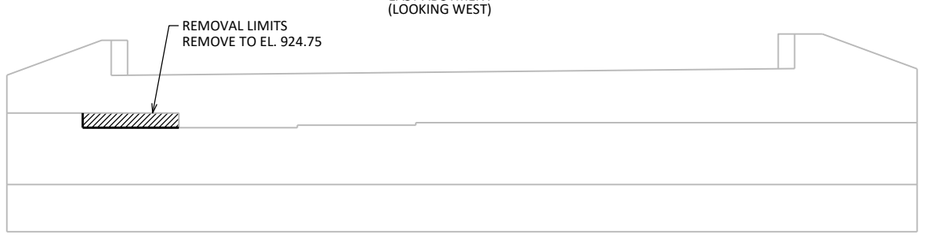
ELEVATION
WEST ABUTMENT
(LOOKING WEST)



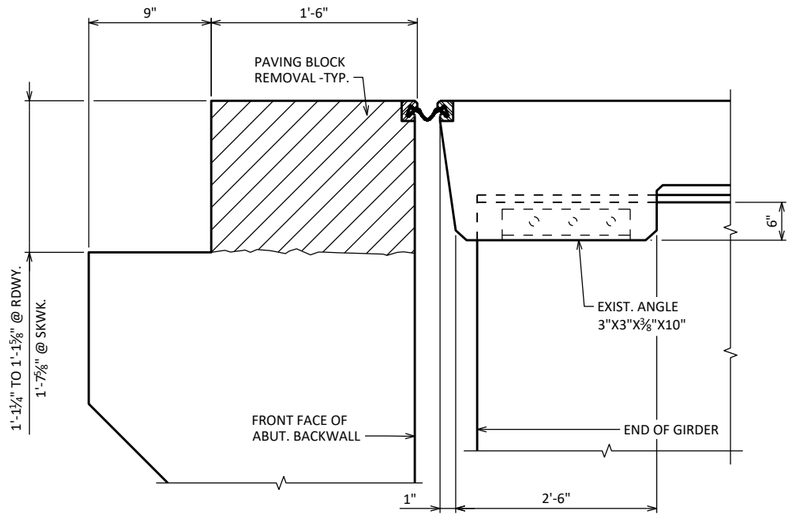
PLAN
SHOWING EAST ABUTMENT
WEST ABUTMENT SIMILAR



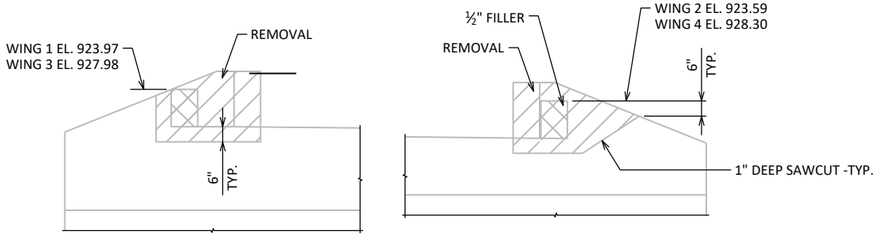
PLAN VIEW
EAST ABUTMENT
(LOOKING WEST)



ELEVATION
EAST ABUTMENT
(LOOKING EAST)



PAVING BLOCK REMOVAL
NORMAL TO C/L SUBSTRUCTURE



ELEVATION

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STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-17-2

DRAWN BY ZSS | PLANS CK'D AEB

ABUTMENT REMOVAL LIMITS

SHEET 4 OF 24

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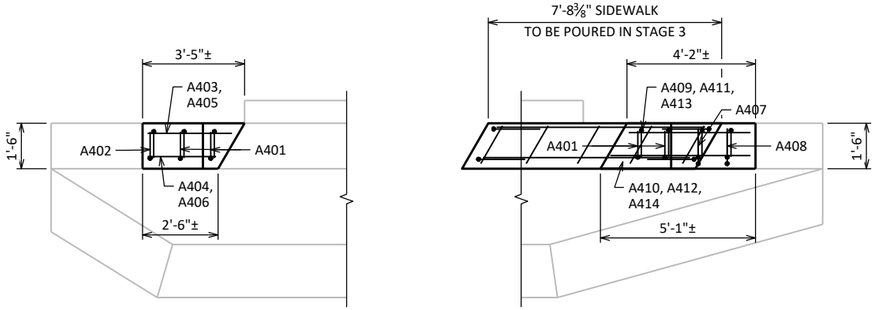
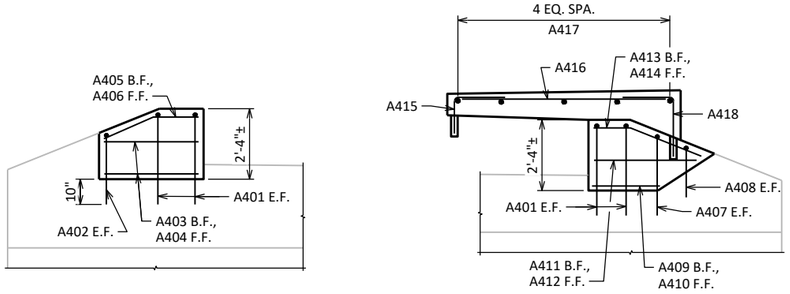
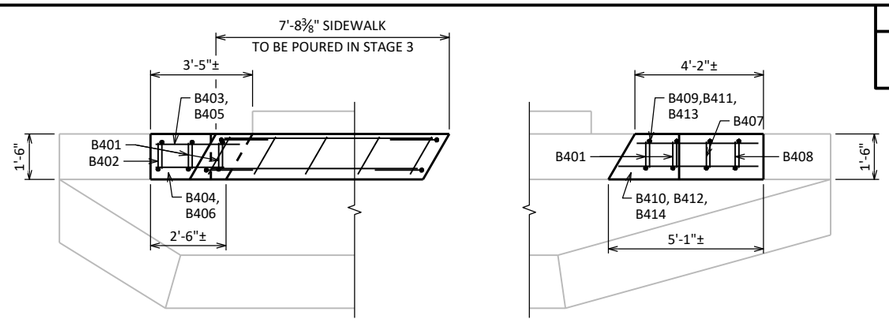


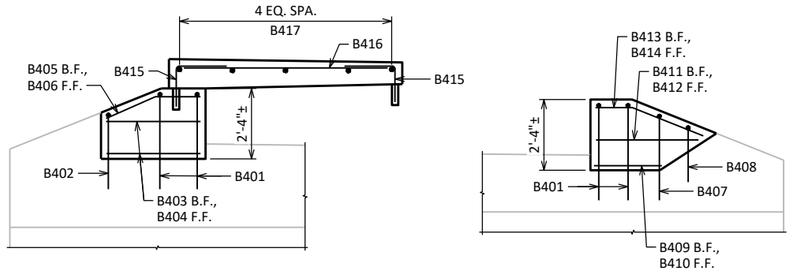
PLAN
WEST ABUTMENT



ELEVATION
WEST ABUTMENT



PLAN
EAST ABUTMENT



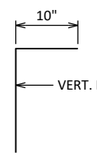
ELEVATION
EAST ABUTMENT

BILL OF BARS - WEST ABUTMENT

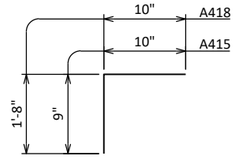
NOTE: THE FIRST OR FIRST TWO DIGITS OF THE BAR MARK SIGNIFIES THE BAR SIZE.

	BAR MARK	COAT	NO. REQ'D.	LENGTH	BENT	BAR SERIES	LOCATION
⚠	A401	X	8	3'-9"	X		WING 1 & 2 VERT.
⚠	A402	X	2	3'-0"	X		WING 2 VERT.
	A403	X	2	2'-9"			WING 2 HORIZ.
	A404	X	2	2'-3"			WING 2 HORIZ.
	A405	X	1	3'-1"	X		WING 2 HORIZ. TOP
	A406	X	1	2'-3"	X		WING 2 HORIZ. TOP
⚠	A407	X	2	3'-4"	X		WING 1 VERT.
⚠	A408	X	2	2'-4"	X		WING 1 VERT.
	A409	X	1	2'-2"			WING 1 HORIZ.
	A410	X	1	2'-2"			WING 1 HORIZ.
	A411	X	1	3'-4"			WING 1 HORIZ.
	A412	X	1	3'-4"			WING 1 HORIZ.
	A413	X	1	3'-7"	X		WING 1 HORIZ. TOP
	A414	X	1	4'-7"	X		WING 1 HORIZ. TOP
⚠	A415	X	2	1'-6"	X		SDWK TRANS. WING 1
	A416	X	2	6'-10"			SDWK TRANS. WING 1
	A417	X	5	1'-5"			SDWK LONG. WING 1
⚠	A418	X	2	2'-0"	X		SDWK TRANS. WING 1

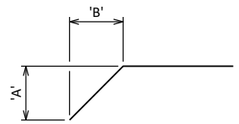
⚠ ADHESIVE ANCHORS NO. 4 BAR



A401, A402, A407, A408



A415, A418



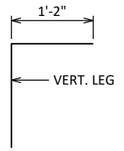
BAR NO.	DIM 'A'	DIM 'B'
A405	8"	1'-10"
A406	8"	1'-10"
A413	1'-0"	2'-8"
A414	1'-0"	2'-8"

BILL OF BARS - EAST ABUTMENT

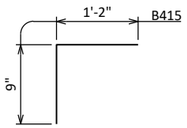
NOTE: THE FIRST OR FIRST TWO DIGITS OF THE BAR MARK SIGNIFIES THE BAR SIZE.

	BAR MARK	COAT	NO. REQ'D.	LENGTH	BENT	BAR SERIES	LOCATION
⚠	B401	X	4	4'-3"	X		WING 3 & 4 VERT.
⚠	B402	X	1	3'-6"	X		WING 4 VERT.
	B403	X	2	2'-9"			WING 4 HORIZ.
	B404	X	2	2'-3"			WING 4 HORIZ.
	B405	X	1	3'-1"	X		WING 4 HORIZ. TOP
	B406	X	1	2'-3"	X		WING 4 HORIZ. TOP
⚠	B407	X	1	3'-10"	X		WING 3 VERT.
⚠	B408	X	1	2'-10"	X		WING 3 VERT.
	B409	X	1	2'-2"			WING 3 HORIZ.
	B410	X	1	2'-2"			WING 3 HORIZ.
	B411	X	1	3'-4"			WING 3 HORIZ.
	B412	X	1	3'-4"			WING 3 HORIZ.
	B413	X	1	3'-7"	X		WING 3 HORIZ. TOP
	B414	X	1	4'-7"	X		WING 3 HORIZ. TOP
⚠	B415	X	4	1'-10"	X		SDWK TRANS. WING 4
	B416	X	2	6'-10"			SDWK TRANS. WING 4
	B417	X	5	1'-5"			SDWK LONG. WING 4

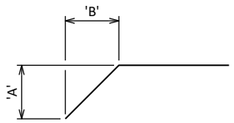
⚠ ADHESIVE ANCHORS NO. 4 BAR



B401, B402, B407, B408



B415



BAR NO.	DIM 'A'	DIM 'B'
B405	8"	1'-10"
B406	8"	1'-10"
B413	1'-0"	2'-8"
B414	1'-0"	2'-8"

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-17-2

DRAWN BY ZSS | PLANS CK'D AEB

ABUTMENT DETAILS AND BILL OF BARS

SHEET 5 OF 24

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STATE PROJECT NUMBER

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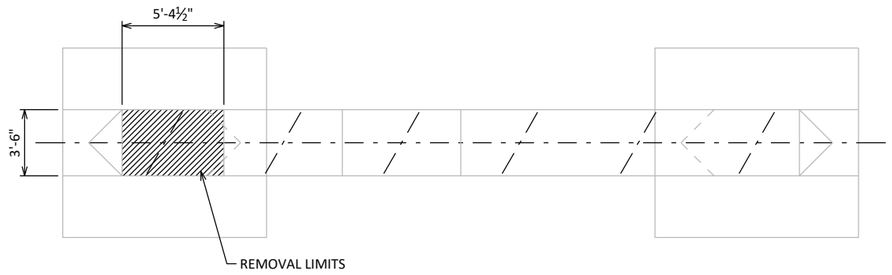
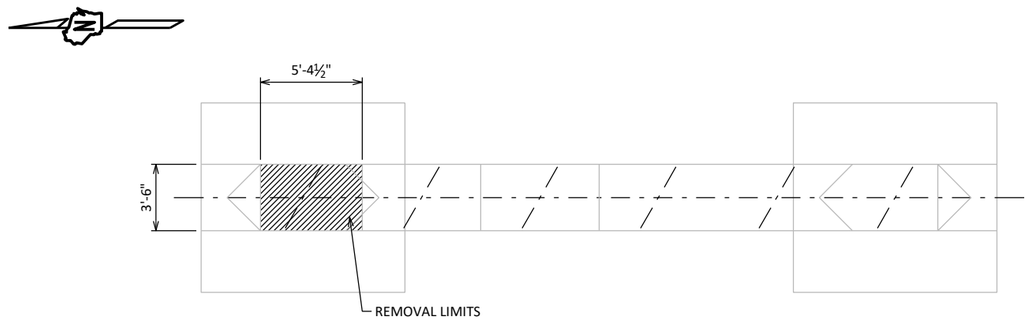


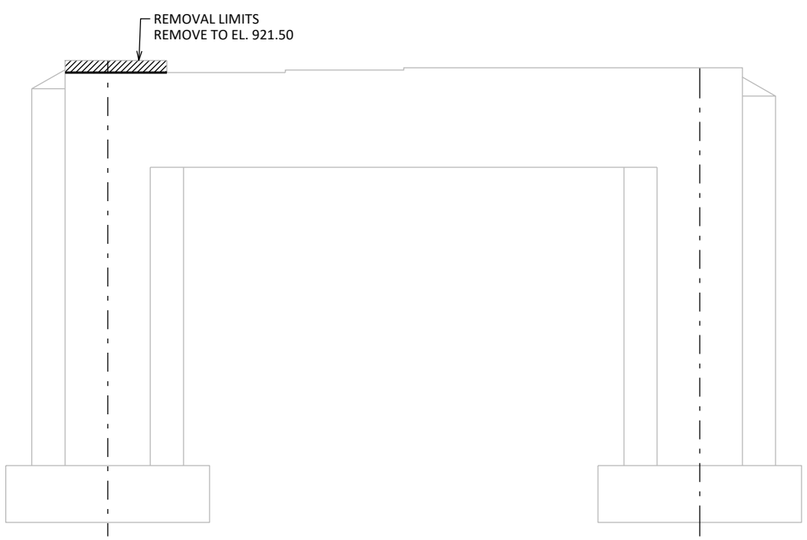
PLAN VIEW

PIER 1



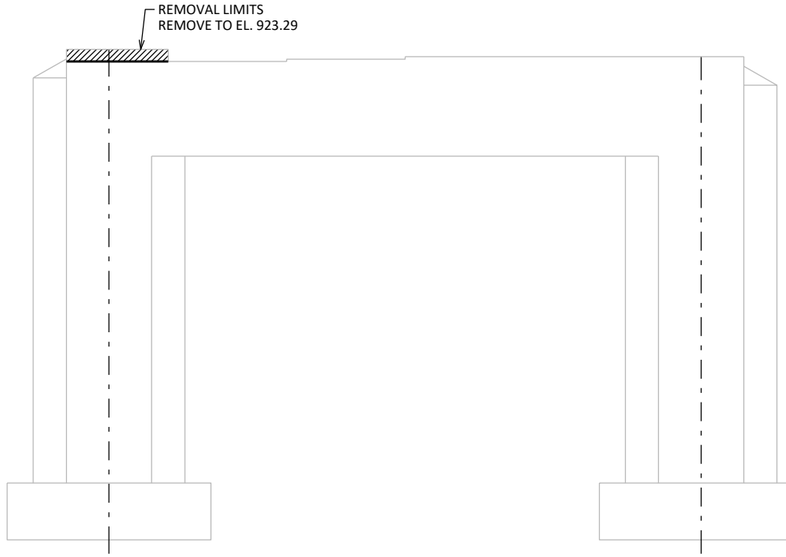
PLAN VIEW

PIER 2
(LOOKING EAST)



ELEVATION

PIER 1
(LOOKING EAST)



ELEVATION

PIER 2
(LOOKING EAST)

8

8

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-17-2

DRAWN BY ZSS | PLANS CK'D AEB

PIER REMOVAL LIMITS

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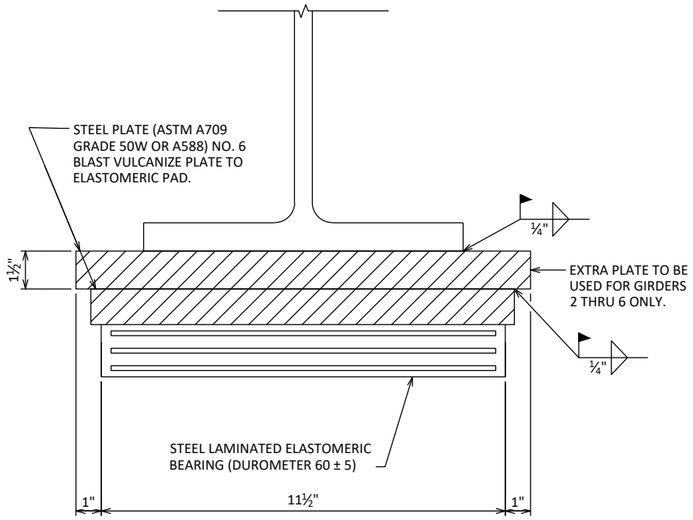
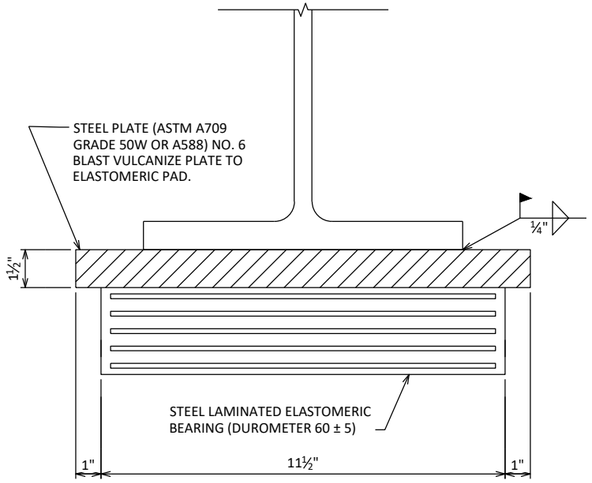


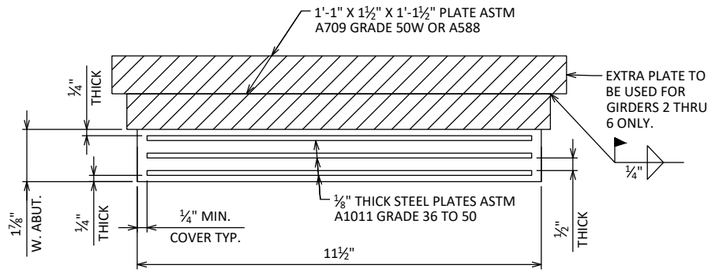
END VIEW

(WEST ABUT)



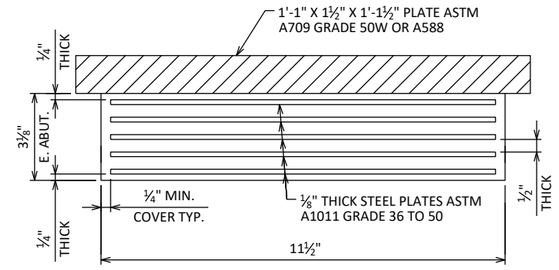
END VIEW

(EAST ABUT)



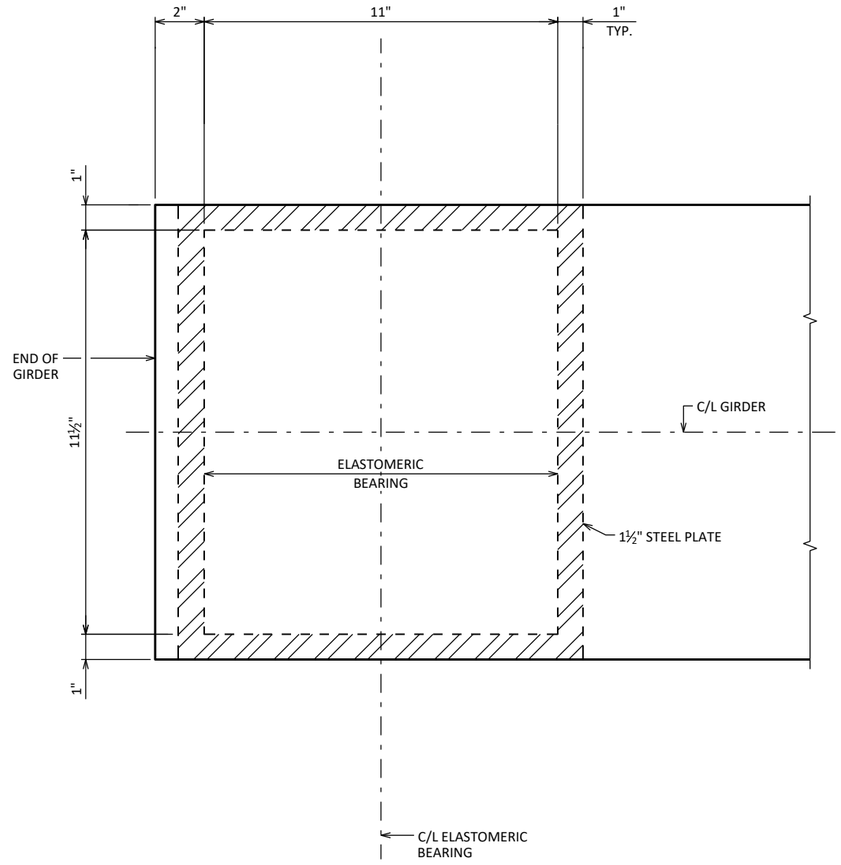
SECTION THRU ELASTOMERIC BEARING

(WEST ABUT)



SECTION THRU ELASTOMERIC BEARING

(EAST ABUT)



PLAN VIEW

NOTES

BEARINGS SHALL NOT BE PLACED AT A TEMPERATURE GREATER THAN 85° F.

ALL MATERIAL USED FOR BEARINGS SHALL BE PAID FOR AT THE UNIT PRICE BID FOR "BEARING PADS ELASTOMERIC LAMINATED", EACH.

ALL STRUCTURAL STEEL BEARING PLATES SHALL BE FLAT ROLLED WITH ALL SURFACES SMOOTH AND FREE FROM WARP AND ALL EDGES SMOOTH, STRAIGHT AND VERTICAL.

ALL PLATE CUTS SHALL BE MACHINE OR MACHINE FLAME CUTS.

BEARINGS DESIGNED PER METHOD A IN THE CURRENT AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-17-2

DRAWN BY ZSS | PLANS CK'D AEB

ELASTOMERIC GIRDER BEARINGS

SHEET 7 OF 24

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SCALE = 0.5

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STATE PROJECT NUMBER

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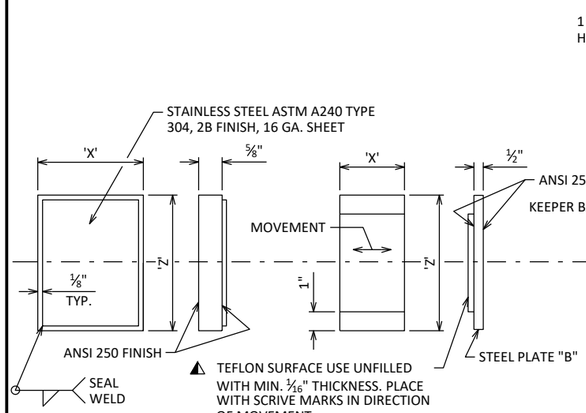
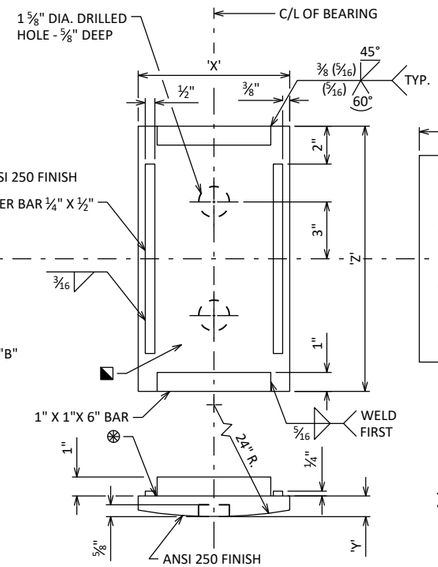
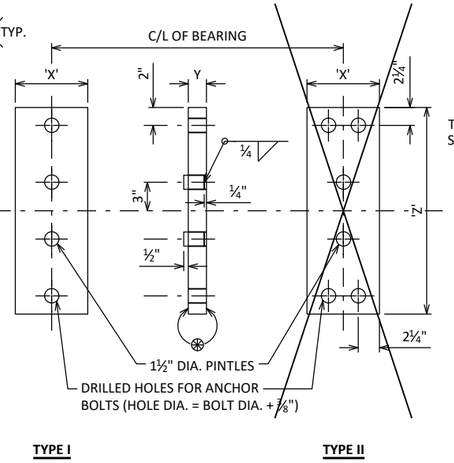


TOP PLATE "A"

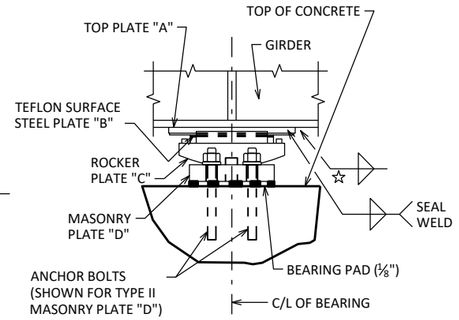
TEFLON SURFACE ON PLATE "B"



ROCKER PLATE "C"



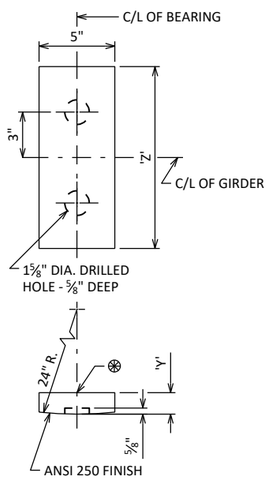
MASONRY PLATE "D"



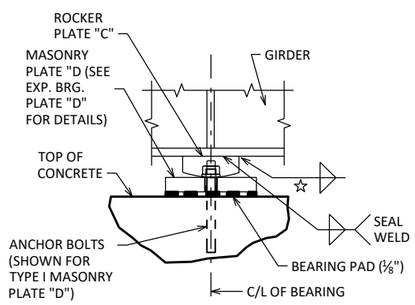
EXPANSION BEARING ASSEMBLY

EXPANSION BEARING

	PLATE "A"		PLATE "B"		PLATE "C"			PLATE "D"			PLATE "D" TYPE	ANCHOR BOLT SIZE	NO. OF BRG'S REQ'D.	LOCATION
	'X'	'Z'	'X'	'Z'	'X'	'Y'	'Z'	'X'	'Y'	'Z'				
EXPANSION BEARING	1'-3"	1'-0"	11"	1'-0"	1'-1"	2⅞"	1'-2¼"	11"	2"	1'-10"	I	1¼" X 1'-5"	1	PIER 2, GRD 1
FIXED BEARING						2⅜"	1'-0"	10"	2⅜"	1'-9"	I	1¼" X 1'-5"	1	PIER 1, GRD 1

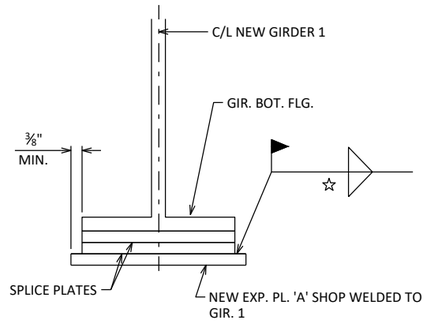


ROCKER PLATE "C"



FIXED BEARING ASSEMBLY

FIXED BEARING



BEARING REPLACEMENT DETAILS

☆ TABLE OF FILLET WELD SIZES

MATERIAL THICKNESS OF THICKER PART JOINED.	‡ MIN. SIZE OF FILLET WELD
TO ½" INCLUSIVE	¾16"
OVER ½" TO ¾"	¼"
OVER ¾" TO 1½"	△ 5/16"
OVER 1½" TO 2¼"	△ ⅜"
OVER 2¼" TO 6"	△ ½"

‡ EXCEPT THAT THE WELD SIZE SHALL NOT EXCEED THE THICKNESS OF THE THINNER PART JOINED.

△ MIN. PASS SIZE IS 5/16"

BEARING NOTES

ALL BEARINGS ARE SYMMETRICAL ABOUT C/L OF GIRDER AND C/L OF BEARING.

⊛ FINISH THESE SURFACES TO ANSI 250 IF 'Y' DIMENSION IS GREATER THAN 2".

ANCHOR BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153, CLASS C.

ANCHOR BOLTS, NUTS AND WASHERS SHALL CONFORM TO ASTM F1554 GRADE 55, OR MATERIAL OF EQUIVALENT YIELD STRENGTH AND ELONGATION.

ALL MATERIAL IN BEARINGS, INCLUDING SHIM PLATES, BUT EXCLUDING STAINLESS STEEL SHEET, TEFLON SURFACE, PINTLES, ANCHOR BOLTS, NUTS AND WASHERS SHALL CONFORM TO ASTM A709 GRADE 50W.

ALL MATERIAL IN BEARINGS, INCLUDING SHIM PLATES AND BEARING PADS, SHALL BE PAID FOR AT THE UNIT PRICE BID FOR "BEARING ASSEMBLIES EXPANSION B-17-2" OR "BEARING ASSEMBLIES FIXED B-17-2", EACH.

CHAMFER ANCHOR BOLTS PRIOR TO THREADING.

ALL FINISHED SURFACES SHALL BE MACHINE FINISHED BY AN AUTOMATIC PROCESS.

ALL PLATE CUTS SHALL BE MACHINE OR MACHINE FLAME CUTS.

ALL STRUCTURAL STEEL BEARING PLATES SHALL BE FLAT ROLLED STEEL PLATES WITH ALL SURFACES SMOOTH AND FREE FROM WARP AND ALL EDGES SMOOTH, STRAIGHT AND VERTICAL.

PROVIDE ⅛" THICK BEARING PAD THE SAME SIZE AS MASONRY PLATE "D" FOR EACH BEARING.

ANCHOR BOLTS SHALL BE THREADED 3". PROVIDE ONE STANDARD WROUGHT WASHER AND ONE HEX NUT PER BOLT. BOLT LENGTH TO BE 1'-5" FOR 1¼" DIA. AND 1'-10" FOR 1½" DIA. BOLTS. PROJECT ANCHOR BOLTS, MASONRY PLATE "D" THICKNESS + 2¼", ABOVE TOP OF CONCRETE.

CHAMFER TOP OF PINTLES ⅛". DRILL HOLES FOR ALL PINTLES IN MASONRY PLATE "D" FOR A DRIVING FIT.

STEEL PINTLES SHALL CONFORM TO ASTM A449 OR ASTM A572 GRADE 50.

FIXED BEARINGS:
ROCKER PLATE "C" SHALL BE SHOP PAINTED WITH A WELDABLE PRIMER.
MASONRY PLATE "D" SHALL BE GALVANIZED.

EXPANSION BEARINGS:
ROCKER PLATE "C" AND MASONRY PLATE "D" SHALL BE GALVANIZED. TOP PLATE "A" AND STEEL PLATE "B" SHALL BE SHOP PAINTED. USE A WELDABLE PRIMER ON TOP PLATE "A". DO NOT PAINT STAINLESS STEEL OR TEFLON SURFACES.

◪ PROVIDE A METHOD FOR HANDLING ROCKER PLATE "C" DURING GALVANIZING.

⚠ BOND STEEL PLATE "B" AND TEFLON WITH ADHESIVE MATERIAL MEETING REQUIREMENTS FOUND IN THE STANDARD SPECIFICATION.

AT INSTALLATION, ENSURE STAINLESS STEEL SLIDING FACE OF THE UPPER ELEMENT AND THE TFE SLIDING FACE OF THE LOWER ELEMENT HAVE THE SURFACE FINISH SPECIFIED AND ARE CLEAN AND FREE OF ALL DUST, MOISTURE, AND OTHER FOREIGN MATTER.

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STRUCTURE B-17-2

DRAWN BY ZSS | PLANS CK'D AEB

BEARING DETAILS

SHEET 8 OF 24

95

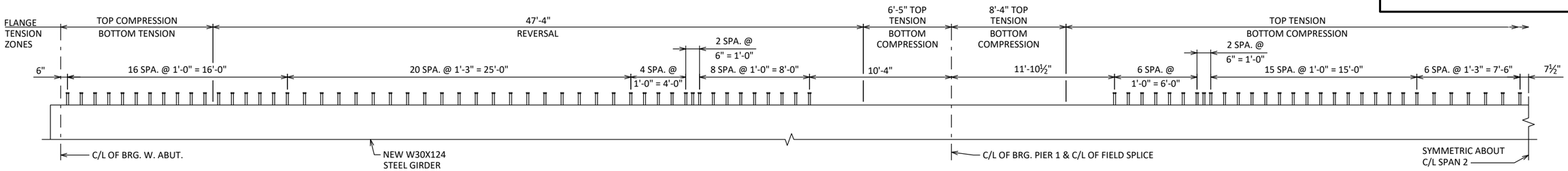
SCALE = 0.17

8

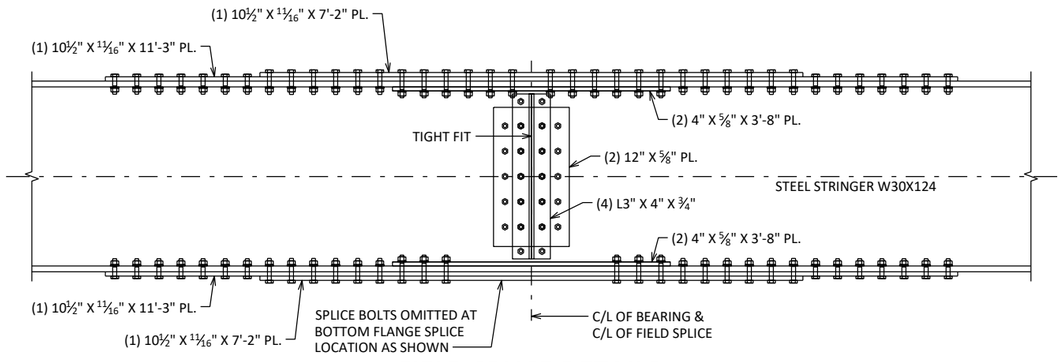
8

STATE PROJECT NUMBER

8630-00-70

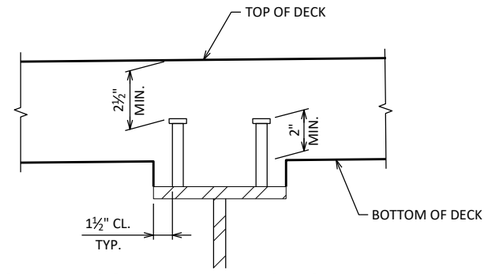


SHEAR CONNECTOR SPACING



FIELD SPLICE DETAILS

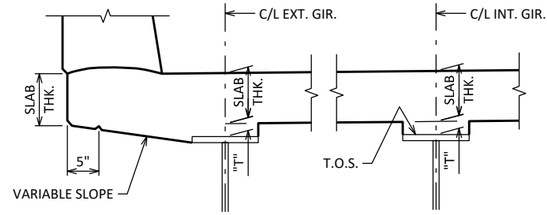
ALL BOLTS ARE A325, ¾" DIA., UNLESS NOTED OTHERWISE



SHEAR CONN. DETAILS - GIRDER 1

NOTE: USE THREE FIELD WELDED ⅞" DIA. X 7" LONG ⚹ STUDS EQUALLY SPACED WITH A MIN. OF 1½" CL. FROM THE FLANGE EDGE. STUDS SHALL NOT BE PLACED OVER FIELD SPLICE PLATES.

⚹ USE DIFFERENT LENGTH STUDS IF 2½" MIN. CLEARANCE OR 2" EXTENSION CRITERIA IS VIOLATED.



CONCRETE HAUNCH DETAILS

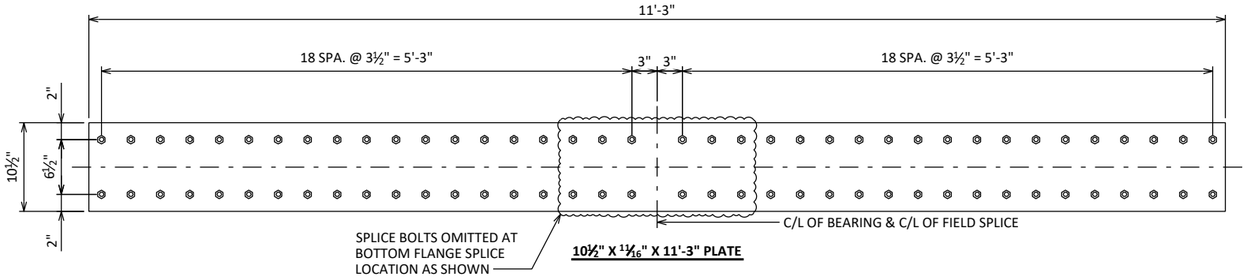
TO DETERMINE 'T': AFTER ALL STRUCTURAL STEEL HAS BEEN ERECTED, ELEVATIONS OF THE TOP FLANGES, TOP OF SPLICE PLATES, OR TOP OF COVER PLATES, WHICHEVER APPLIES, SHALL BE TAKEN AT CENTERLINE OF BEARINGS, CENTERLINE OF FIELD SPLICES, AND AT 0.1 POINTS.

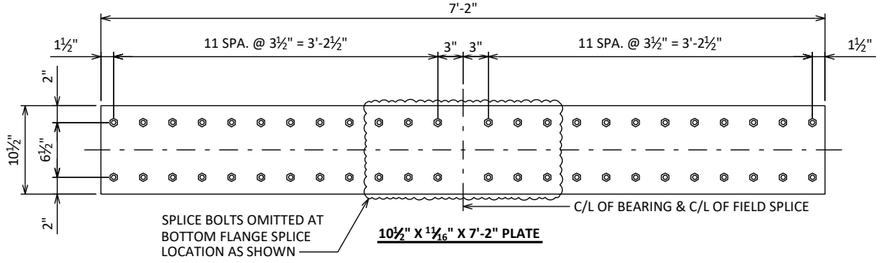
TOP OF DECK ELEVATION AT FINAL GRADE
\- TOP OF STEEL ELEVATION AFTER STEEL ERECTION
\+ CONC. ONLY DEFLECTION; DOWNWARD DEFLECTION IS ADDED, UPWARD DEFLECTION IS SUBTRACTED

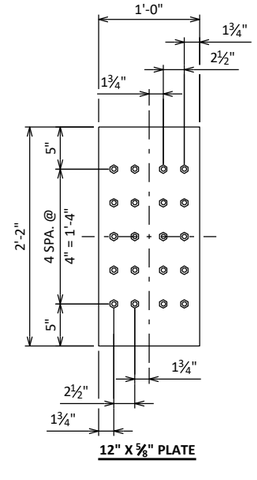
\- SLAB THICKNESS (_)

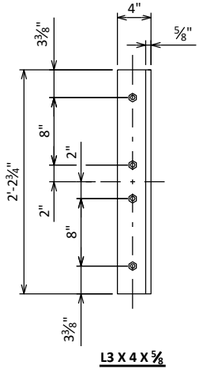
= 'T' VALUE FOR SETTING HAUNCH

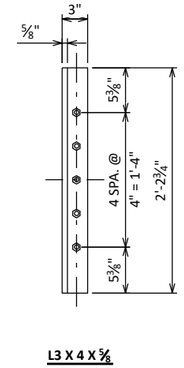
NOTE: AN AVERAGE HAUNCH ('T') OF 5" WAS USED IN THE QUANTITY "CONCRETE MASONRY BRIDGES".











NEW GIRDER NOTES

ALL STRUCTURAL STEEL TO CONFORM TO ASTM 709 GRADE 50, UNLESS OTHERWISE SHOWN OR NOTED.

DIMENSIONS GIVEN ARE HORIZONTAL DIMENSIONS ALONG C/L OF GIRDER.

CROSS FRAME CONNECTION PLATES ARE NOT SHOWN FOR CLARITY. SEE FRAMING PLAN SHEETS FOR LOCATIONS.

PRIOR TO STEEL BLAST, ALL FLAME CUT EDGES OF PLATES THAT ARE TO BE PAINTED SHALL BE GROUND OR PLANED TO REMOVE THE HARDENED SURFACE CAUSED BY THE FLAME.

FIELD WELDING IN TENSION ZONES IS NOT ALLOWED, EXCEPT FOR PLACING SHEAR STUDS.

REVERSAL ZONES INDICATE THAT BOTH THE TOP AND BOTTOM FLANGE MAY BE IN TENSION AND FIELD WELDING IS NOT ALLOWED, EXCEPT FOR PLACING SHEAR STUDS.

SPLICE DETAILS

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STRUCTURE B-17-2

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GIRDER DETAILS

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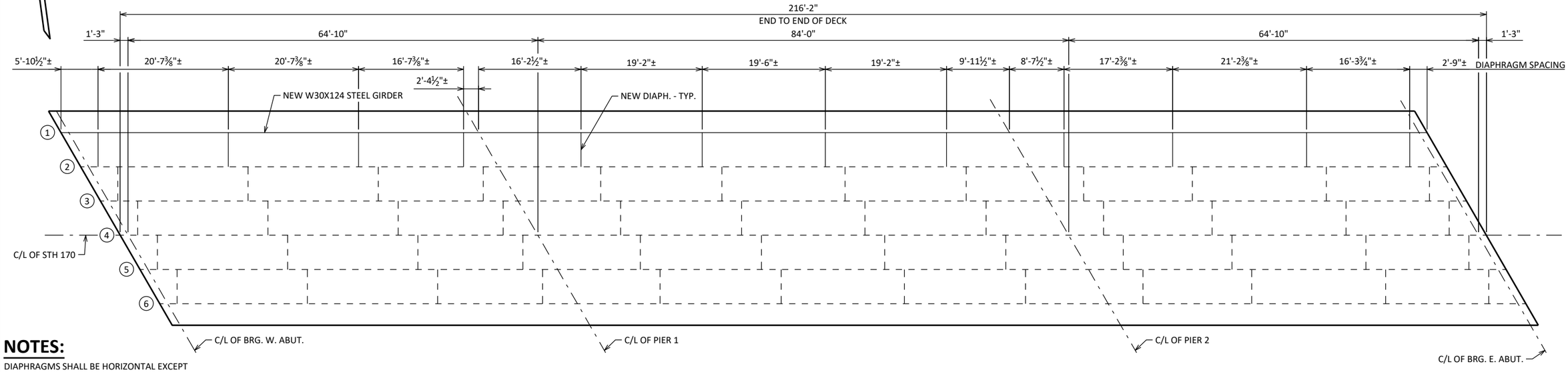
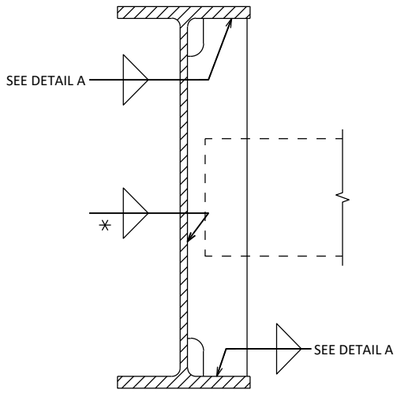


NOTES:

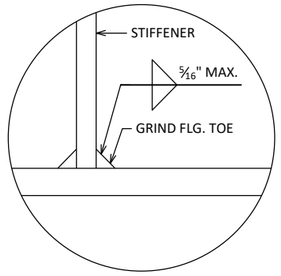
DIAPHRAGMS SHALL BE HORIZONTAL EXCEPT WHEN THE DIFFERENCE IN ADJACENT GIRDER ELEVATIONS IS OF A MAGNITUDE THAT NECESSITATES SLOPING THE DIAPHRAGMS.

ALL BOLTED CONNECTIONS SHALL BE MADE WITH ¾" Ø HIGH STRENGTH ASTM A325 BOLTS.

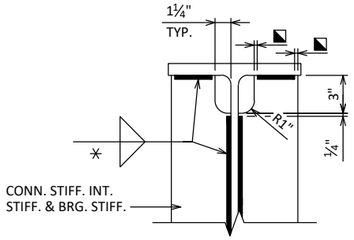
DIAPHRAGM SPACING



CONNECTION STIFF. DETAILS

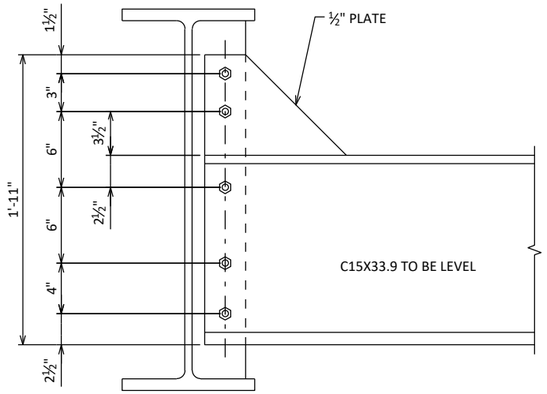


DETAIL A

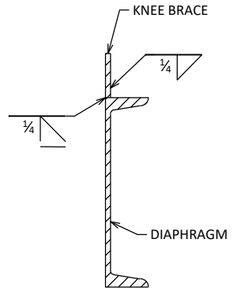


STIFF. & CONN. STIFF. TO WEB/FLANGE CONN. WELDS

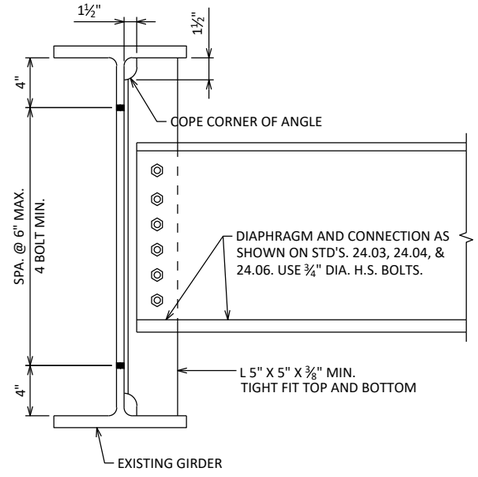
⬔ ⅛" MIN., ¼" MAX. TYP.



INTERMEDIATE DIAPHRAGM DETAIL



SECTION A



DIAPHRAGM CONNECTION TO EXISTING STEEL GIRDER

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DIAPHRAGM SPACING

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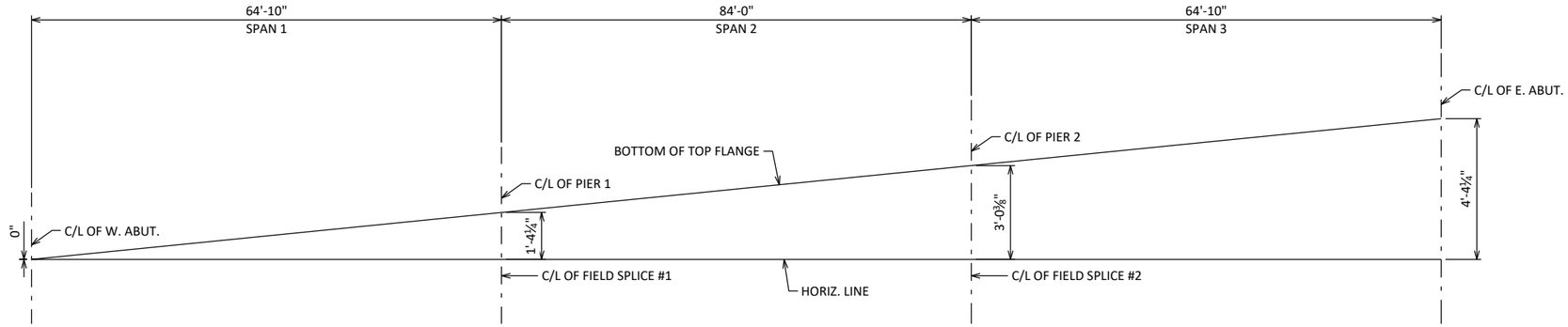
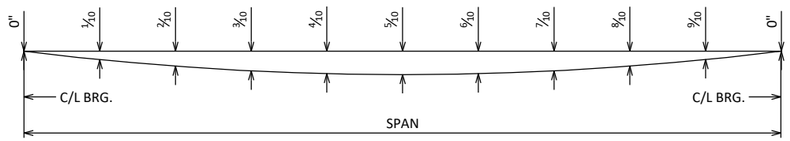


BLOCKING DIAGRAM FOR NEW GIRDER

BOTTOM OF TOP FLANGE	WEST ABUT.	PIER 1/FIELD SPLICE #1	PIER 2/FIELD SPLICE #2	EAST ABUT.
GIRDER 1	922.37	923.84	925.52	926.72



DEFLECTION DIAGRAM

(SPAN 1 - DEFLECTION IN INCHES)

	LOADING	C/L BRG. W. 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.	C/L BRG. PIER 1
GIRDER 1	CONC. ONLY	0.0	0.3	0.5	0.7	0.7	0.7	0.6	0.4	0.2	0.0	0.0
GIRDERS 2-5	CONC. ONLY	0.0	0.2	0.4	0.6	0.6	0.6	0.5	0.3	0.1	0.0	0.0
GIRDER 6	CONC. ONLY	0.0	0.3	0.6	0.8	0.8	0.8	0.6	0.4	0.2	0.0	0.0

DEFLECTION DIAGRAM

(SPAN 2 - DEFLECTION IN INCHES)

	LOADING	C/L BRG. PIER 1	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.	C/L BRG. PIER 2
GIRDER 1	CONC. ONLY	0.0	0.1	0.4	0.8	1.0	1.1	1.0	0.8	0.4	0.1	0.0
GIRDERS 2-5	CONC. ONLY	0.0	0.1	0.4	0.7	0.9	1.0	0.9	0.7	0.4	0.1	0.0
GIRDER 6	CONC. ONLY	0.0	0.2	0.5	0.9	1.2	1.3	1.2	0.9	0.5	0.2	0.0

DEFLECTION DIAGRAM

(SPAN 3 - DEFLECTION IN INCHES)

	LOADING	C/L BRG. PIER 2	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.	C/L BRG. E. ABUT.
GIRDER 1	CONC. ONLY	0.0	0.0	0.2	0.4	0.5	0.7	0.7	0.7	0.5	0.3	0.0
GIRDERS 2-5	CONC. ONLY	0.0	0.0	0.1	0.3	0.5	0.6	0.6	0.6	0.4	0.2	0.0
GIRDER 6	CONC. ONLY	0.0	0.0	0.2	0.4	0.6	0.8	0.8	0.7	0.6	0.3	0.0

FABRICATED CAMBER

SPAN	LOCATION	CAMBER (IN)
1	0.0	0.000
	0.1	0.875
	0.2	1.625
	0.3	2.125
	0.4	2.375
	0.5	2.500
	0.6	2.375
	0.7	2.125
	0.8	1.625
	0.9	0.875
	1.0	0.000
2	0.0	0.000
	0.1	1.000
	0.2	1.625
	0.3	2.250
	0.4	2.500
	0.5	2.625
	0.6	2.500
	0.7	2.250
	0.8	1.625
	0.9	1.000
	1.0	0.000
3	0.0	0.000
	0.1	0.875
	0.2	1.625
	0.3	2.125
	0.4	2.375
	0.5	2.500
	0.6	2.375
	0.7	2.125
	0.8	1.625
	0.9	0.875
	1.0	0.000

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STRUCTURE B-17-2

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BLOCKING DIAGRAM

SHEET 11 OF 24

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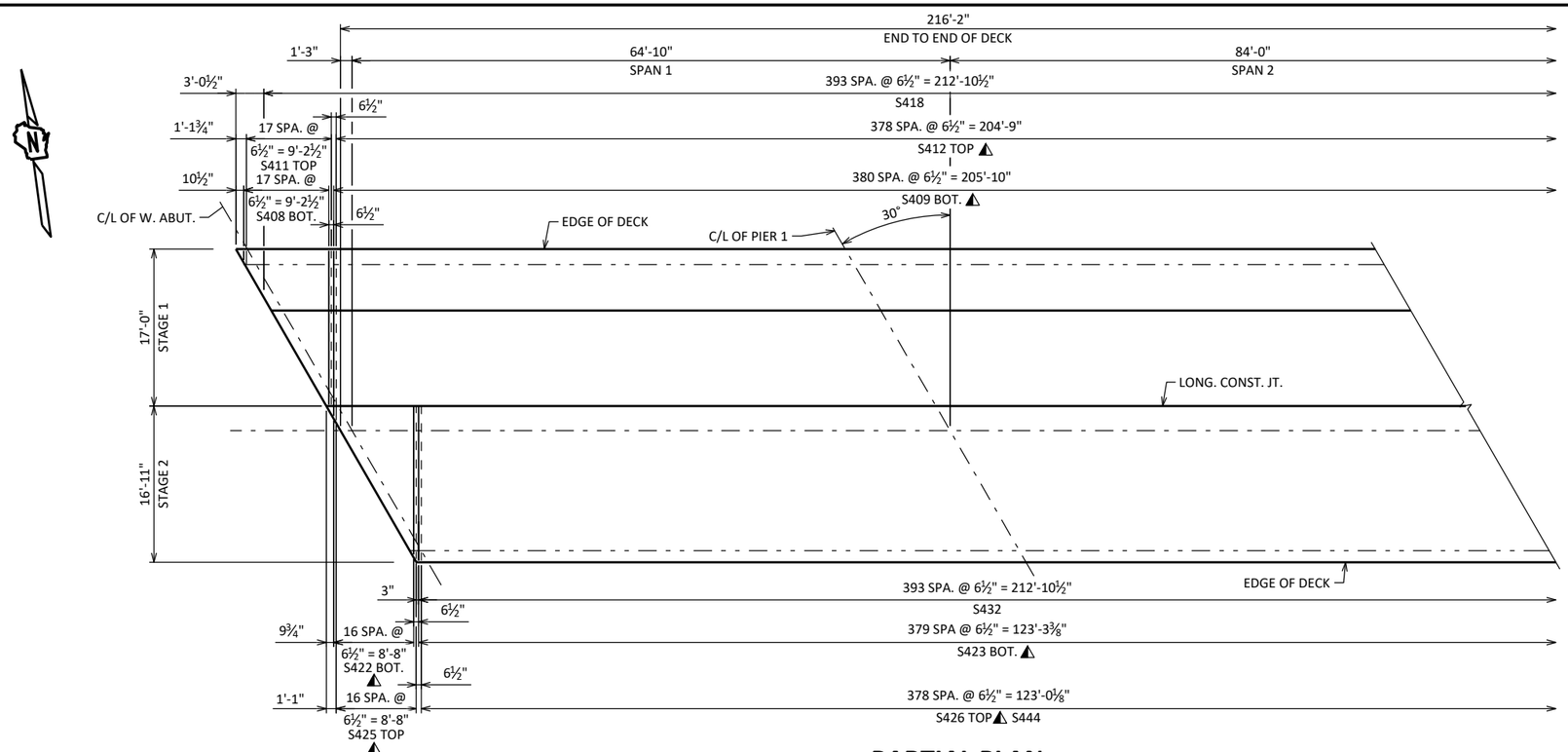
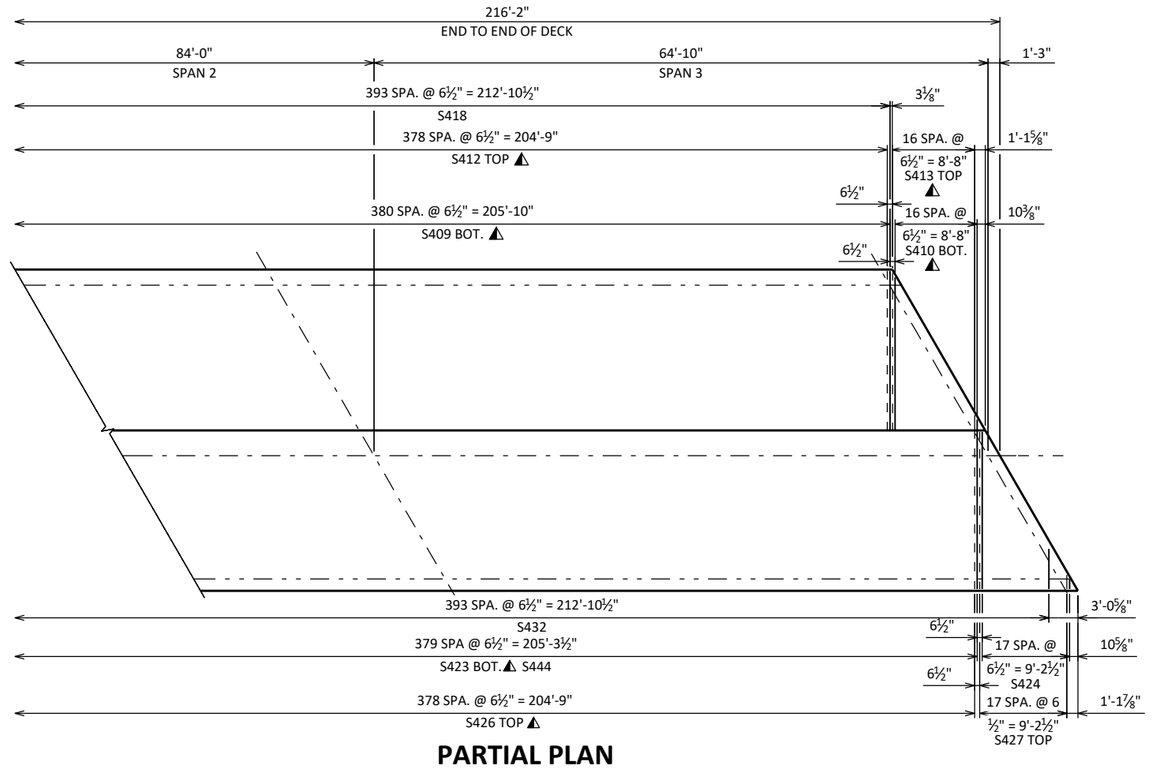


PARTIAL PLAN



PARTIAL PLAN

USE BAR COUPLERS. FOR DETAILS SEE SHEET 16.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-17-2

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TRANSVERSE REINFORCEMENT

SHEET 12 OF 24

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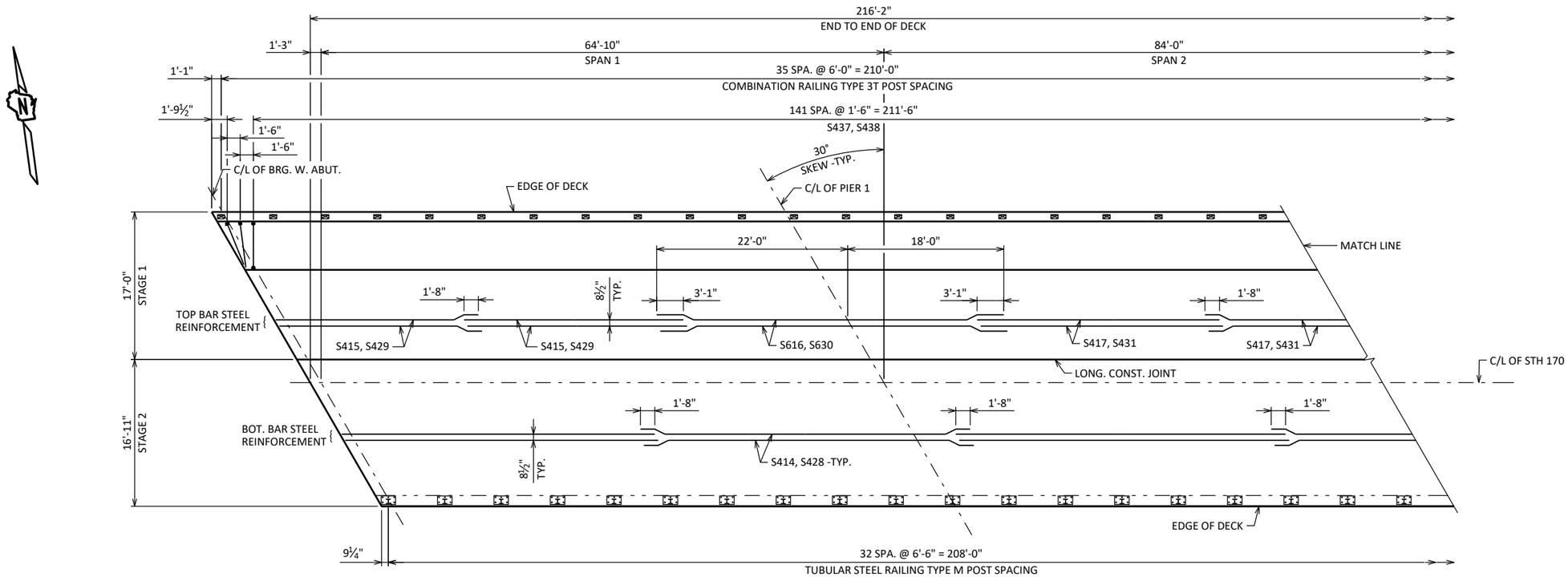
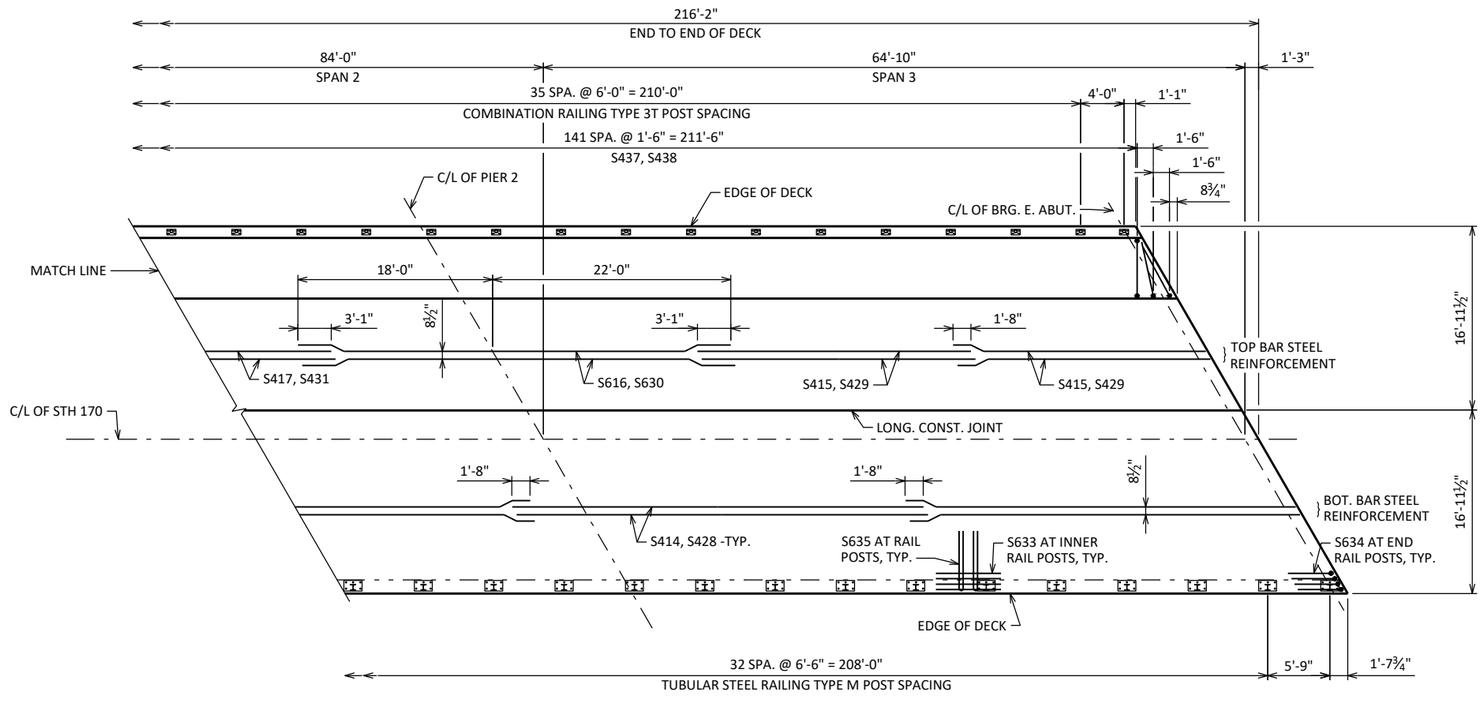


PARTIAL PLAN



PARTIAL PLAN

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-17-2

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LONGITUDINAL REINFORCEMENT

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STATE PROJECT NUMBER

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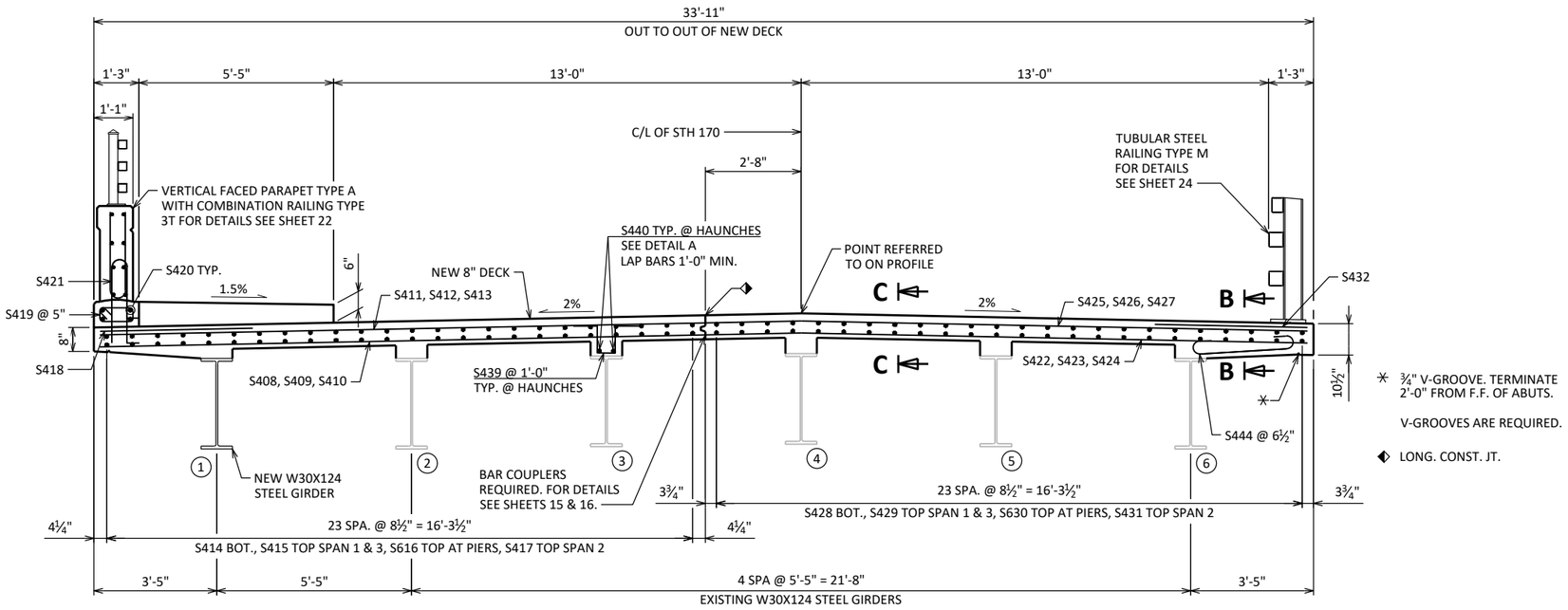
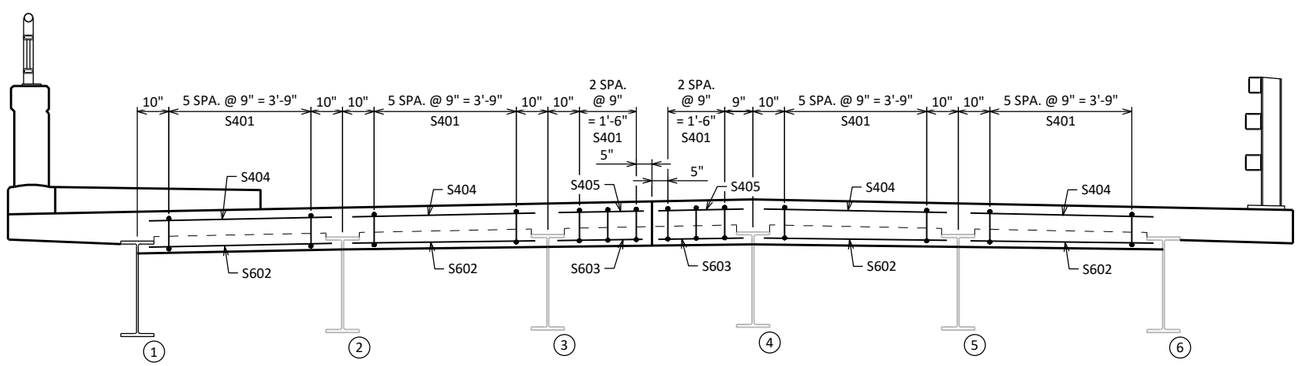
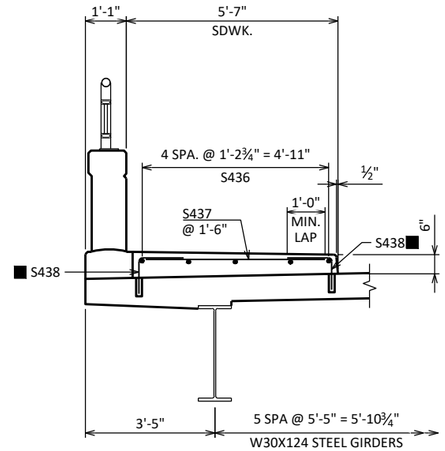


PROPOSED TYPICAL SECTION THRU DECK

(LOOKING EAST)



PART TRANSVERSE SECTION AT EXPANSION JOINT



TYPICAL SECTION THRU SIDEWALK

■ ADHESIVE ANCHORS NO. 4 BARS. EMBED 5" IN CONCRETE.

FOR DETAIL A AND SECTIONS B AND C, SEE SHEET 15.

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STRUCTURE B-17-2

DRAWN BY ZSS | PLANS CK'D AEB

SUPERSTRUCTURE

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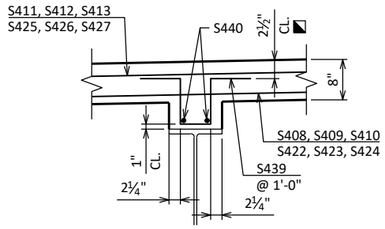
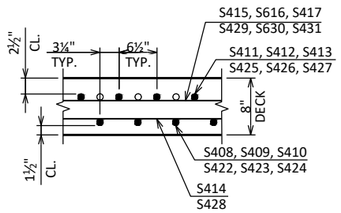
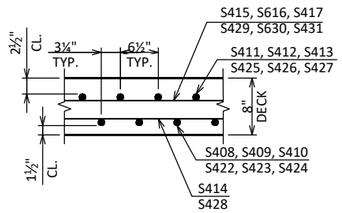


DETAIL A

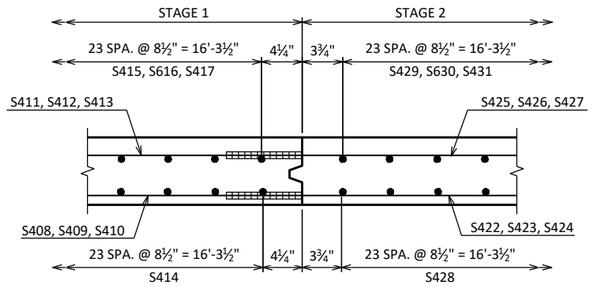
◪ TILT S440 BARS AS REQ'D. TO MAINTAIN 2½" CLEAR



SECTION B



SECTION C



LONGITUDINAL CONST. JOINT AND BAR COUPLER DETAIL

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FOR LOCATION OF DETAIL A AND SECTIONS B AND C, SEE SHEET 14.

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STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-17-2

DRAWN BY ZSS | PLANS CK'D AEB

SUPERSTRUCTURE DETAILS

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NOTES

STEEL SPLICE (COUPLER) ASSEMBLY SHALL BE AN APPROVED TYPE AND SHALL DEVELOP IN TENSION AT LEAST 125% OF THE YIELD STRENGTH OF THE SPLICED REINFORCEMENT BARS.

DOWEL BAR SPLICES SHALL BE OF MINIMUM 60 ksi YIELD STRENGTH, AND HAVE TENSILE STRENGTH AREA EQUAL OR GREATER THAN THAT OF THE LAPPED REINFORCEMENT BARS.

DOWEL BAR SPLICERS SHALL MEET THE DEFORMATION REQUIREMENTS FOR STANDARD ASTM DEFORMED REINFORCING BARS.

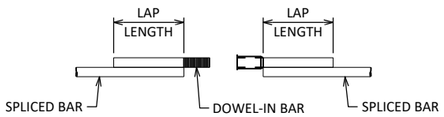
FOR DOWEL BAR SPLICES, ALL REINFORCEMENT BARS SHALL BE LAPPED AND TIED TO THE SPLICER BARS.

SPLICER (COUPLER) ASSEMBLY IN THE DECK SHALL BE EPOXY COATED IN ACCORDANCE WITH THE REQUIREMENTS FOR REINFORCEMENT BARS.

OTHER SYSTEMS OF SIMILAR DESIGN MAY BE SUBMITTED TO THE ENGINEER FOR APPROVAL. APPROVAL SHALL BE BASED ON CERTIFIED TEST RESULTS FROM AN APPROVED TESTING LABORATORY THAT THE PROPOSED SPLICER (COUPLER) ASSEMBLY SATISFIES THE FOLLOWING REQUIREMENT:

MINIMUM CAPACITY = 1.25 X fy X AREA OF SPLICED REINFORCEMENT BAR.

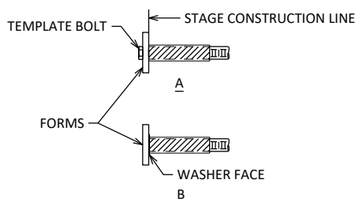
WHERE fy = YIELD STRENGTH OF SPLICED REINFORCEMENT BARS



DOWEL BAR SPLICER

ONE PIECE THREADED SPLICER

SPLICER ALTERNATIVES



INSTALLATION AND SETTING METHODS

"A" SET SPLICER BY MEANS OF A TEMPLATE BOLT
"B" SET SPLICER BY NAILING TO WOOD FORMS OR CEMENTING TO STEEL FORMS.

DOWEL BAR SPLICER LAP LENGTHS

CONCRETE UNDER BAR	BAR SIZE	4	5	6	7	8	9	10	11
12" OR LESS	f'c = 3,500	1'-8"	2'-8"	3'-2"	4'-3"	5'-6"	7'-0"	8'-9"	10'-11"
	f'c = 4,000	1'-8"	2'-8"	3'-2"	4'-0"	5'-2"	6'-6"	8'-3"	10'-2"
MORE THAN 12"	f'c = 3,500	2'-3"	2'-11"	3'-6"	4'-8"	6'-1"	7'-10"	9'-10"	12'-1"
	f'c = 4,000	2'-3"	2'-11"	3'-6"	4'-5"	5'-8"	7'-4"	9'-2"	11'-4"

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NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-17-2

DRAWN BY ZSS | PLANS CK'D AEB

BAR COUPLER DETAILS

SHEET 16 OF 24

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STATE PROJECT NUMBER

8630-00-70

BILL OF BARS

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

BAR MARK	COAT	NO. REQ'D. STAGE 1	NO. REQ'D. STAGE 2	NO. REQ'D. STAGE 3	LENGTH	BENT	BAR SERIES	LOCATION
S401	X	30	30	-	6'-10"	X		DIAPH. @ ABUT. VERT.
S602	X	20	20	-	5'-7"			DIAPH. @ ABUT. HORIZ. BOT. GDR. 1 TO 3 & 4 TO 6
S603	X	10	10	-	2'-7"			DIAPH. @ ABUT. HORIZ. BOT. GRD 3 TO 4
S404	X	8	8	-	5'-7"			DIAPH. @ ABUT. HORIZ. TOP GDR. 1 TO 3 & 4 TO 6
S405	X	4	4	-	2'-7"			DIAPH. @ ABUT. HORIZ. TOP GRD 3 TO 4
S406	X	8	8	-	5'-7"			DIAPH. @ ABUT. HORIZ. GDR. 1 TO 3 & 4 TO 6
S407	X	4	4	-	2'-7"			DIAPH. @ ABUT. HORIZ. GRD 3 TO 4
S408	X	18	-	-	8'-10"		Ⓧ	DECK TRANS.
■ S409	X	381	-	-	16'-10"			DECK TRANS.
■ S410	X	17	-	-	8'-8"		Ⓧ	DECK TRANS.
S411	X	18	-	-	9'-1"		Ⓧ	DECK TRANS. TOP WING 1
■ S412	X	379	-	-	16'-10"			DECK TRANS TOP NORTH SIDE
■ S413	X	17	-	-	9'-1"		Ⓧ	DECK TRANS TOP WING 4
S414	X	144	-	-	38'-0"			DECK LONG. BOT.
S415	X	96	-	-	25'-4"			DECK LONG. TOP SPAN 1 & 3
S616	X	48	-	-	40'-0"			DECK LONG. TOP @ PIERS
S417	X	48	-	-	27'-11"			DECK LONG. TOP SPAN 2
S418	X	394	-	-	4'-3"	X		DECK TRANS. TOP @ EDGES
S419	X	517	-	-	3'-0"	X		PARAPET VERT. @ DECK
S420	X	24	-	-	38'-0"			PARAPET LONG.
S521	X	259	-	-	5'-10"	X		PARAPET VERT. @ DECK
■ S422	X	-	17	-	8'-6"		Ⓧ	DECK TRANS.
■ S423	X	-	380	-	16'-9"			DECK TRANS.
S424	X	-	18	-	8'-10"		Ⓧ	DECK TRANS.
■ S425	X	-	17	-	9'-0"		Ⓧ	DECK TRANS. TOP WING 2
■ S426	X	-	379	-	16'-9"			DECK TRANS. TOP SOUTH SIDE
S427	X	-	18	-	9'-0"		Ⓧ	DECK TRANS. TOP WING 3
S428	X	-	144	-	38'-0"			DECK LONG. BOT.
S429	X	-	96	-	25'-4"			DECK LONG. TOP SPAN 1 & 3
S630	X	-	48	-	40'-0"			DECK LONG. TOP @ PIERS
S431	X	-	48	-	27'-11"			DECK LONG. TOP SPAN 2
S432	X	-	394	-	4'-3"	X		DECK TRANS. TOP @ EDGES
S633	X	-	148	-	6'-0"			SLAB TOP LONG. UNDER RAIL POSTS
S634	X	-	8	-	4'-8"	X		SLAB TOP LONG. UNDER RAIL POST ENDS
S635	X	-	68	-	12'-0"	X		SLAB TOP HOOKS UNDER RAIL POSTS
S436	X	-	-	30	38'-0"			SDWK LONG.
S437	X	-	-	146	4'-9"			SDWK TRANS.
◭ S438	X	-	-	288	1'-10"	X		SDWK TRANS.
S439	X	428	642	-	3'-0"	x		DECK VERT. @ BEAM HAUNCH BEAM 2-6
S440	X	24	36	-	38'-0"			DECK HORIZ. @ BEAM HAUNCH BEAM 2-6
◭ S441	X	34	34	-	3'-2"	X		PAVING BLOCK VERT.
▽ S542	X	34	34	-	2'-7"	X		PAVING BLOCK VERT. ANCHOR
S543	X	18	18	-	6'-4"			PAVING BLOCK HORIZ.
S444	X	-	380	-	4'-0"	X		DECK TRANS. AT GIR. 6 OVERHANG

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

◭ ADHESIVE ANCHORS NO. 4 BAR

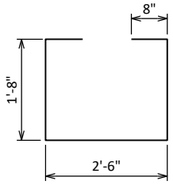
▽ ADHESIVE ANCHORS NO. 5 BAR

■ BAR COUPLER IS REQUIRED

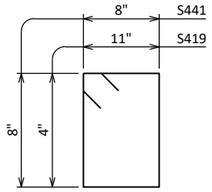
BAR SERIES TABLE

BUNDLE AND TAG EACH SERIES SEPARATELY.

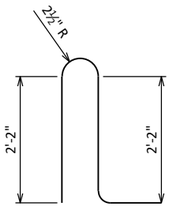
BAR MARK	NO. REQ'D.	LENGTH
S408	1 SERIES OF 18	1'-0" TO 16'-8"
S410	1 SERIES OF 17	1'-1" TO 16'-2"
S411	1 SERIES OF 18	1'-5" TO 16'-8"
S413	1 SERIES OF 17	1'-7" TO 16'-7"
S422	1 SERIES OF 17	1'-0" TO 16'-0"
S424	1 SERIES OF 18	1'-0" TO 16'-7"
S425	1 SERIES OF 17	1'-6" TO 16'-6"
S427	1 SERIES OF 18	1'-5" TO 16'-7"



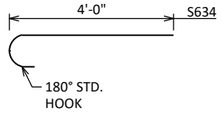
S401



S419, S441



S521



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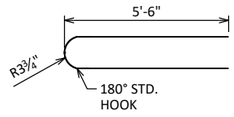

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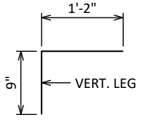
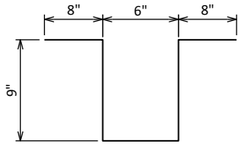


S438



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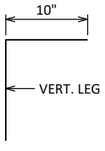
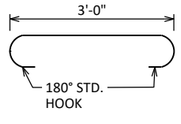


S542



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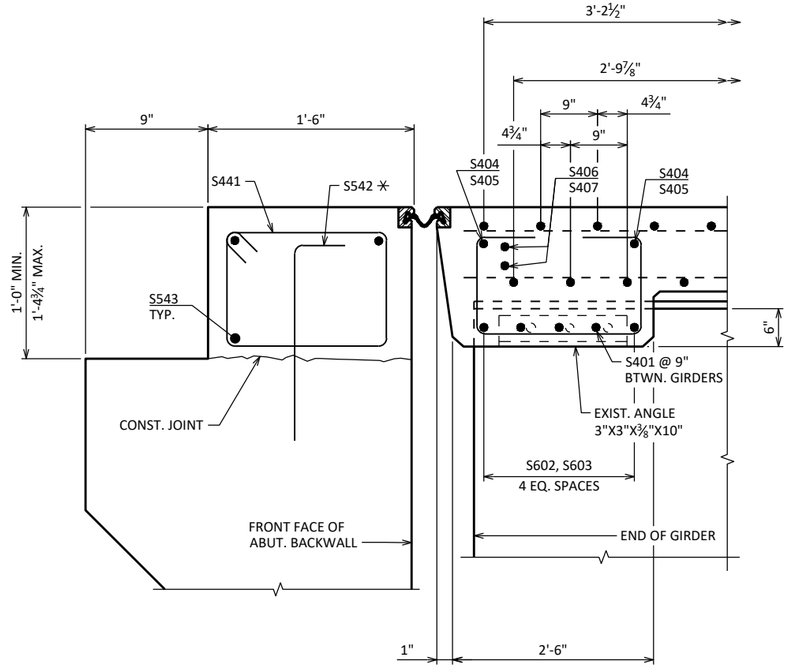

PART LONGITUDINAL SECTION

NORMAL TO C/L SUBSTRUCTURE

✳ ADHESIVE ANCHORS NO. 5 BAR. EMBED 1'-0" IN CONCRETE. SPACE AT 1'-0". TURN 10" LEG AS NECESSARY TO FIT.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-17-2

DRAWN BY ZSS | PLANS CK'D AEB

SUPERSTRUCTURE BILL OF BARS

SHEET 17 OF 24

104

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STATE PROJECT NUMBER
8630-00-70

TOP OF DECK ELEVATIONS - SPAN 1

LOCATION	C/L W. 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.	C/L PIER 1
N. EOD	924.25	924.38	924.51	924.64	924.77	924.89	925.02	925.15	925.28	925.41	925.54
INSIDE FACE OF PARAPET	924.29	924.42	924.55	924.67	924.80	924.93	925.06	925.19	925.32	925.45	925.58
GIRDER 1	924.35	924.48	924.61	924.74	924.87	925.00	925.13	925.26	925.39	925.52	925.65
FACE OF SIDEWALK	924.46	924.59	924.72	924.85	924.98	925.11	925.23	925.36	925.49	925.62	925.75
GIRDER 2	924.53	924.65	924.78	924.91	925.04	925.17	925.30	925.43	925.56	925.69	925.82
GIRDER 3	924.70	924.83	924.96	925.09	925.21	925.34	925.47	925.60	925.73	925.86	925.99
JOINT	924.78	924.91	925.04	925.17	925.30	925.43	925.56	925.69	925.82	925.95	926.08
C/L OF STH 170/GIRDER 4	924.87	925.00	925.13	925.26	925.39	925.52	925.64	925.77	925.90	926.03	926.16
GIRDER 5	924.82	924.95	925.08	925.21	925.34	925.47	925.60	925.73	925.86	925.99	926.12
GIRDER 6	924.78	924.91	925.03	925.16	925.29	925.42	925.55	925.68	925.81	925.94	926.07
S. EOD	924.75	924.88	925.01	925.14	925.27	925.39	925.52	925.65	925.78	925.91	926.04

TOP OF DECK ELEVATIONS - SPAN 2

LOCATION	C/L PIER 1	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.	C/L PIER 2
N. EOD	925.54	925.71	925.88	926.05	926.22	926.38	926.55	926.72	926.89	927.06	927.22
INSIDE FACE OF PARAPET	925.58	925.75	925.92	926.09	926.25	926.42	926.59	926.76	926.93	927.09	927.26
GIRDER 1	925.65	925.82	925.99	926.15	926.32	926.49	926.66	926.83	926.99	927.16	927.33
FACE OF SIDEWALK	925.75	925.92	926.09	926.26	926.43	926.59	926.76	926.93	927.10	927.27	927.43
GIRDER 2	925.82	925.99	926.16	926.33	926.49	926.66	926.83	927.00	927.17	927.33	927.50
GIRDER 3	925.99	926.16	926.33	926.50	926.66	926.83	927.00	927.17	927.34	927.50	927.67
JOINT	926.08	926.25	926.42	926.58	926.75	926.92	927.09	927.26	927.42	927.59	927.76
C/L OF STH 170/GIRDER 4	926.16	926.33	926.50	926.67	926.84	927.00	927.17	927.34	927.51	927.68	927.84
GIRDER 5	926.12	926.29	926.45	926.62	926.79	926.96	927.13	927.29	927.46	927.63	927.80
GIRDER 6	926.07	926.24	926.41	926.58	926.74	926.91	927.08	927.25	927.42	927.58	927.75
S. EOD	926.04	926.21	926.38	926.55	926.72	926.88	927.05	927.22	927.39	927.56	927.72

TOP OF DECK ELEVATIONS - SPAN 3

LOCATION	C/L PIER 2	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.	C/L E. ABUT.
N. EOD	927.22	927.35	927.48	927.61	927.74	927.87	928.00	928.13	928.26	928.39	928.52
INSIDE FACE OF PARAPET	927.26	927.39	927.52	927.65	927.78	927.91	928.04	928.17	928.30	928.43	928.56
GIRDER 1	927.33	927.46	927.59	927.72	927.85	927.98	928.11	928.24	928.37	928.50	928.63
FACE OF SIDEWALK	927.43	927.56	927.69	927.82	927.95	928.08	928.21	928.34	928.47	928.60	928.73
GIRDER 2	927.50	927.63	927.76	927.89	928.02	928.15	928.28	928.41	928.54	928.67	928.80
GIRDER 3	927.67	927.80	927.93	928.06	928.19	928.32	928.45	928.58	928.71	928.84	928.97
JOINT	927.76	927.89	928.02	928.15	928.28	928.41	928.54	928.67	928.80	928.93	929.06
C/L OF STH 170/GIRDER 4	927.84	927.97	928.10	928.23	928.36	928.49	928.62	928.75	928.88	929.01	929.14
GIRDER 5	927.80	927.93	928.06	928.19	928.32	928.45	928.58	928.71	928.84	928.96	929.09
GIRDER 6	927.75	927.88	928.01	928.14	928.27	928.40	928.53	928.66	928.79	928.92	929.05
S. EOD	927.72	927.85	927.98	928.11	928.24	928.37	928.50	928.63	928.76	928.89	929.02

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NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-17-2

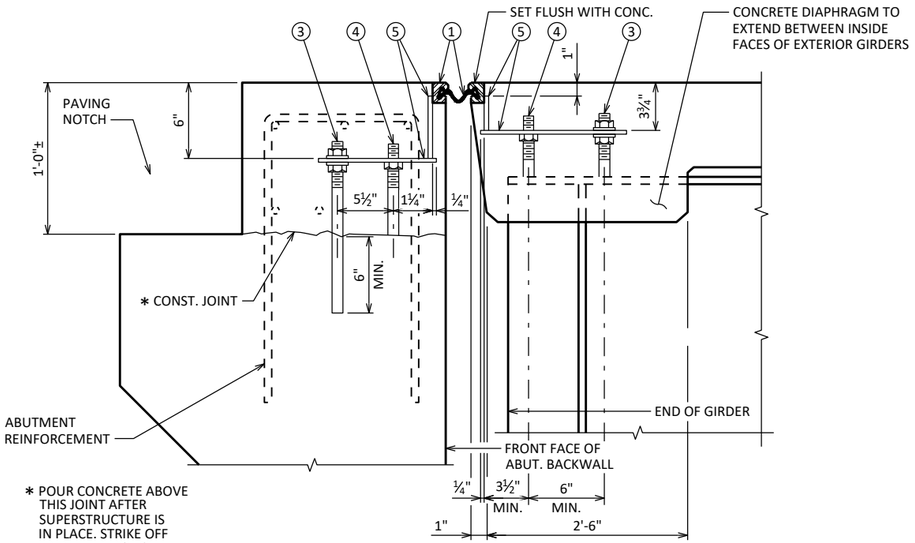
DRAWN BY ZSS | PLANS CK'D AEB

DECK ELEVATIONS

SHEET 18 OF 24
105

STATE PROJECT NUMBER

8630-00-70

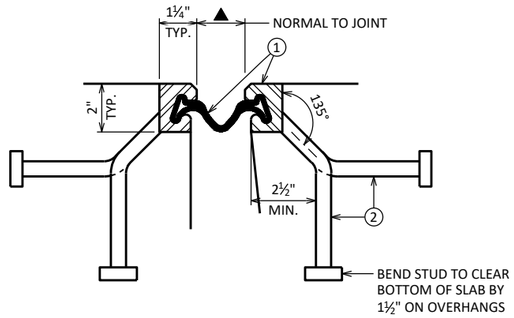


SECTION THRU JOINT AT ABUTMENT

NORMAL TO C/L SUBSTRUCTURE

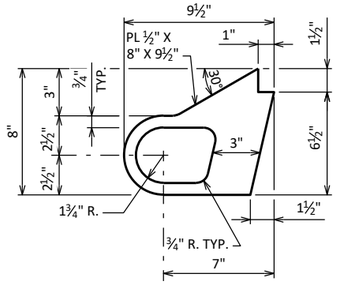
LEGEND

1. NEOPRENE STRIP SEAL (2- INCH) AND STEEL EXTRUSIONS.
2. STUDS ⅝" DIA. X 6¾" LONG AT 6" ALTERNATE CENTERS. WELD TO EXTRUSIONS AND BEND AS SHOWN AFTER WELDING.
2A. ½" THICK ANCHOR PLATE WITH ⅝" DIA. ROD (OR ALTERNATE STRIP SEAL ANCHOR). WELD ROD TO ANCHOR PLATE, WELD ANCHOR PLATE TO NO. 1 AT 1'-6" CENTERS BETWEEN GIRDERS.
3. ¾" DIA. THREADED ROD WITH 2 NUTS AND PLATE WASHERS. WELD THREADED ROD TO TOP FLANGE OR ATTACH BY BOLTING THRU FLANGE. ON ABUTMENT SIDE GROUT THREADED ROD INTO FIELD DRILLED HOLES IN ABUTMENT BACKWALL AS SHOWN.
4. ¾" DIA. THREADED ROD WITH NUT. TACK WELD NUT TO NO. 5.
5. FABRICATE SUPPORT FROM 3" X ½" BAR AS SHOWN OR EQUIVALENT, ONE PER GIRDER PER SIDE. SHOP OR FIELD WELD TO NO. 1. IF FIELD WELDED, COVER WELDED AREAS WITH EPOXY-COATING MATERIAL. PROVIDE 1½" DIA. HOLE FOR NO. 3 AND 1" DIA. HOLE FOR NO. 4.
7. ¾" DIA. X 1½" STAINLESS STEEL SOCKET FLAT HEAD SCREWS WITH ANTI-SEIZE LUBRICANT. PLACE IN COUNTERSUNK HOLE. RECESS 1/16" BELOW PLATE SURFACE.
8. ¾" DIA. X 4" GALVANIZED HEX HEAD BOLT. BEND 45°.
9. ¾" DIA. X 2¼" GALVANIZED THREADED COUPLING.
10. 1" X 5" SLOTTED COUNTERSUNK HOLE FOR NO. 7. PLACE SLOT PARALLEL TO DIRECTION OF MOVEMENT.
11. SIDEWALK COVER PLATE ⅜" X 2'-0" X LIMITS SHOWN. BEND DOWN FACE OF SIDEWALK WITH HOLES FOR NO. 7. GALVANIZE PLATE AFTER SLIP-RESISTANT SURFACE IS APPLIED.



SECTION THRU JOINT

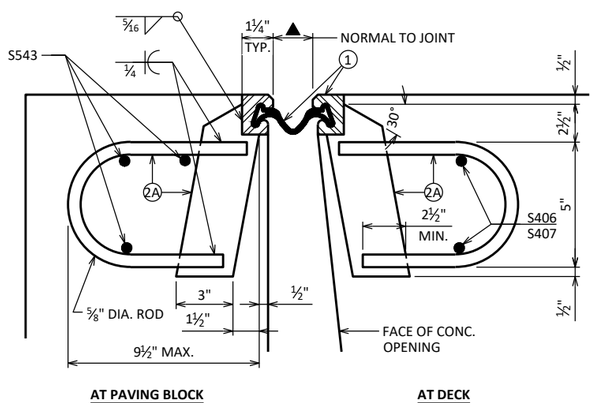
EXTERIOR GIRDER TO EDGE OF DECK AND AT PARAPETS, MEDIANS AND SIDEWALKS



ALTERNATE STRIP SEAL ANCHOR

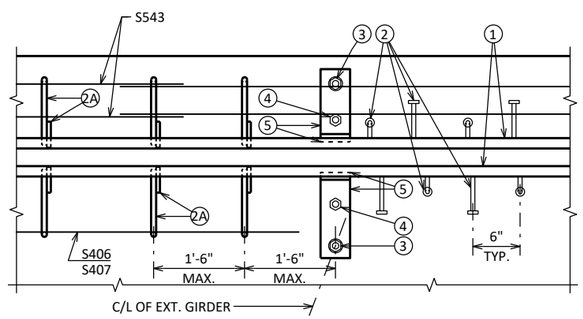
TEMPERATURE TABLE ▲

TEMP.	JOINT OPENING
90°	1¾"
80°	1⅞"
70°	2"
60°	2⅛"
50°	2¼"
45°	2¼"
40°	2¼"
30°	2⅜"



SECTION THRU JOINT

ROADWAY TRAFFIC AREA BETWEEN EXTERIOR GIRDERS



PART PLAN

NOTES

ONE FIELD SPLICE PERMITTED IN STEEL EXTRUSIONS, UNLESS MORE ARE REQUIRED FOR STAGED CONSTRUCTION, HANDLING OR GALVANIZING REQUIREMENTS. IF USED, ANCHOR PLATES SHALL BE PROVIDED 3" FROM EACH SIDE OF THE FIELD SPLICE. DETAILS SHALL BE SUBMITTED FOR APPROVAL. NO SPLICING PERMITTED IN NEOPRENE STRIP SEAL.

AFTER FABRICATION, BUT BEFORE SHIPMENT, STRAIGHTEN STEEL EXTRUSIONS SUCH THAT THEY SHALL BE FREE FROM WARP, TWIST AND SWEEP.

FABRICATOR SHALL PROVIDE MEANS OF KEEPING GALVANIZED EXTRUSIONS CLEAN AND SMOOTH DURING SHIPMENT AND PRIOR TO APPLYING LUBRICANT ADHESIVE FOR NEOPRENE GLAND INSTALLATION.

SANDBLAST PLATES, SUPPORTS AND EXTRUSIONS AFTER FABRICATION IN ACCORDANCE WITH SSPC SP. #6 "COMMERCIAL BLAST CLEANING". AFTER BLAST CLEANING, THE PLATES, SUPPORTS AND EXTRUSIONS SHALL BE HOT DIPPED GALVANIZED. SLIP-RESISTANT SURFACE IS APPLIED TO SIDEWALK COVER PLATES BY THE MANUFACTURER AND THEN HOT DIPPED GALVANIZED TO THEIR RECOMMENDATIONS TO MAINTAIN THE INTEGRITY OF THIS SURFACE.

ANCHOR SYSTEM NO. 8 AND NO. 9 SHALL CONFORM TO ASTM A307 AND SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153 CLASS C AND D.

ALL MATERIAL IN THE EXPANSION JOINT ASSEMBLY, INCLUDING ANCHOR STUDS AND HARDWARE SHALL BE PAID AT THE UNIT PRICE BID FOR "EXPANSION DEVICE B-17-2", LF.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-17-2

DRAWN BY ZSS | PLANS CK'D AEB

EXPANSION DEVICE

SHEET 19 OF 24

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SCALE = 2.00

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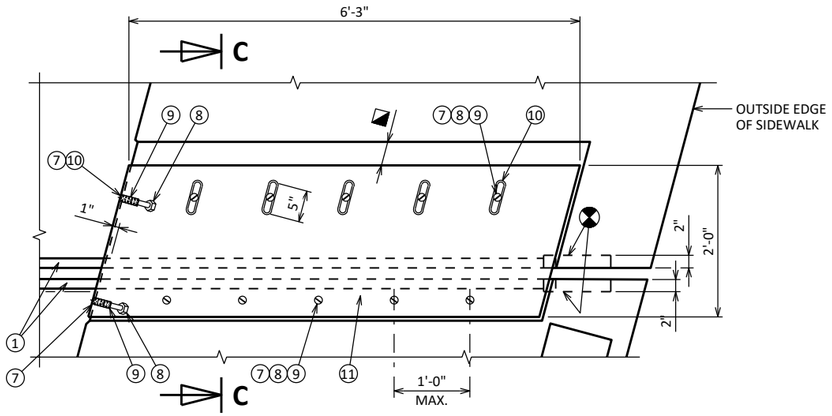
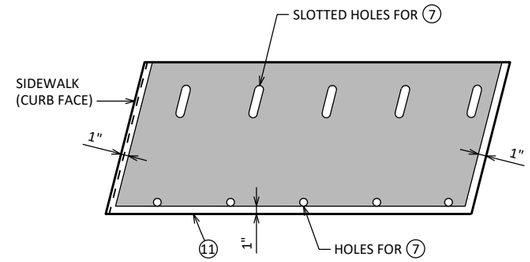
STATE PROJECT NUMBER

8630-00-70



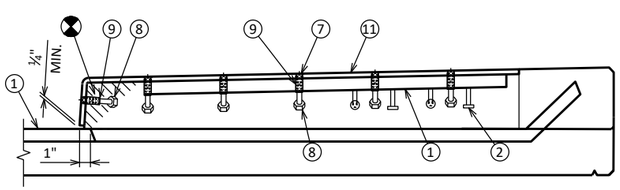
PLAN AT SIDEWALK



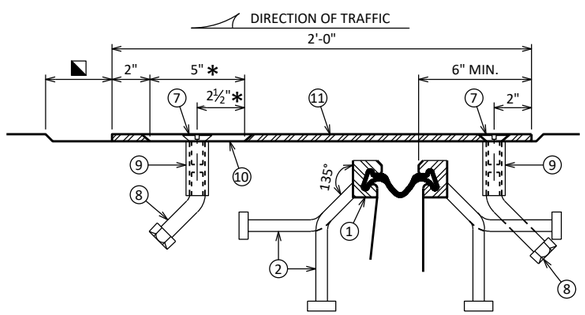
PLAN OF SIDEWALK COVER PLATE WITH SLIP-RESISTANT SURFACE

PLACE SLIP-RESISTANT SURFACE ON TOP WALKING SURFACE IN SHADED AREA ONLY.

APPROVED SLIP-RESISTANT APPLIED SURFACES FOR STEEL PLATES		
PRODUCT	MANUFACTURER	CONTACT AT
SLIPNOT GRADE 2, STEEL	W. S. MOLNAR COMPANY	1-800-SLIPNOT
ALGRIP, STEEL	ROSS TECHNOLOGY CORP.	1-800-345-8170



SECTION AT SIDEWALK



SECTION C-C

✱ DIMENSION ALONG DIRECTION OF MOVEMENT

BLOCK OUT CONCRETE 2" EACH SIDE OF JOINT OPENING.

JOINT OPENING DIMENSION ALONG SKEW PLUS ½".

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STRUCTURE B-17-2

DRAWN BY ZSS | PLANS CK'D AEB

COVER PLATE DETAILS

SHEET 20 OF 24

107

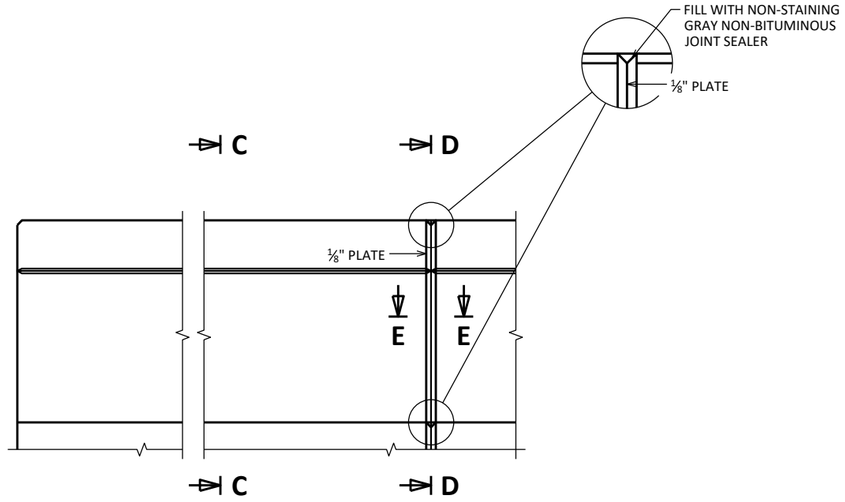
SCALE = 2.00

8

8

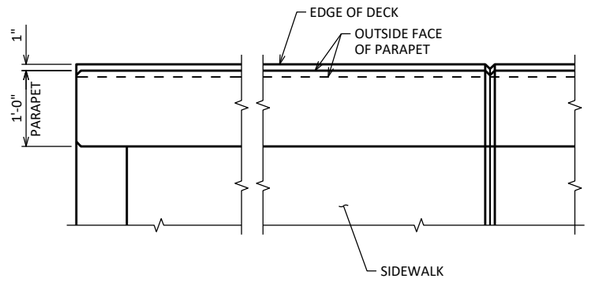
STATE PROJECT NUMBER

8630-00-70

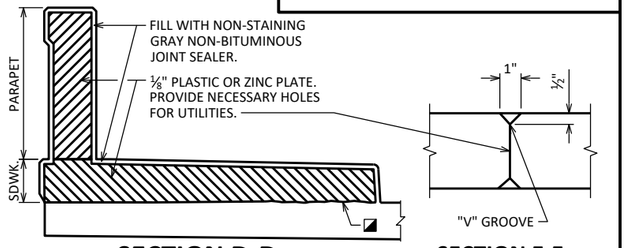


AT DEFLECTION JOINT

INSIDE ELEVATION OF PARAPET



PLAN OF PARAPET

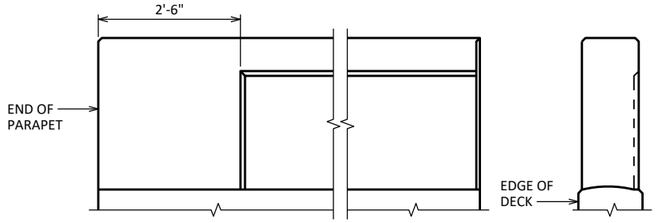


SECTION D-D

(SHOWING DEFLECTION JOINT IN PARAPET AND SIDEWALK.)

SECTION E-E

WHEN PARAPETS ARE POURED CONTINUOUSLY FROM END TO END, THEY SHALL BE SEPARATED AT THE DEFLECTION JOINTS BY A PIECE OF ⅛" ZINC OR PLASTIC PLATE CUT AS SHOWN IN SECTION D-D BY SHADED AREA. IF CONSTRUCTION JOINTS IN PARAPETS ARE USED AT THE DEFLECTION JOINTS, ONE SIDE OF JOINT SHALL BE COATED WITH AN APPROVED LIQUID BOND BREAKER AND PLATE SEPARATORS MAY BE OMITTED.



OUTSIDE FACE OF PARAPET

END VIEW

BILL OF BARS

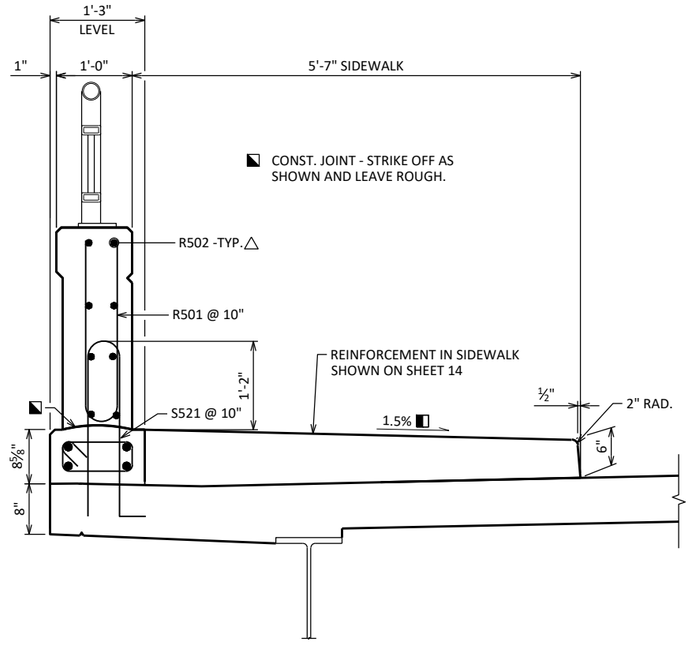
R501

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
R501	X	264	5'-8"	X		PARAPET VERT.
R502	X	64	38'-0"			PARAPET HORIZ.

◧ ± 0.5% CONSTRUCTION TOLERANCE IN SIDEWALK CROSS SLOPE. THE SIDEWALK CROSS SLOPE SHALL NOT EXCEED 2% WITHOUT PRIOR APPROVAL FROM THE ENGINEER.

△ OPTIONAL CONSTRUCTION JOINTS IN THE PARAPETS MAY BE USED. RUN REIN. THRU THE JOINT, LAP LONGIT. BARS A MIN. OF 1-'9". MIN. JOINT SPACING OF 80'-0". DEFINE CONST. JOINT WITH A ¾" - 'V' GROOVE.



SECTION C-C

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE B-17-2

DRAWN BY ZSS | PLANS CK'D AEB

VERTICAL FACE PARAPET "A"

SHEET 21 OF 24

108

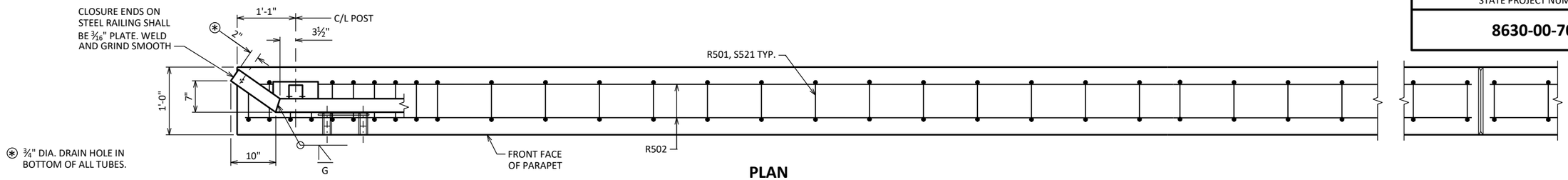
SCALE = 2.00

8

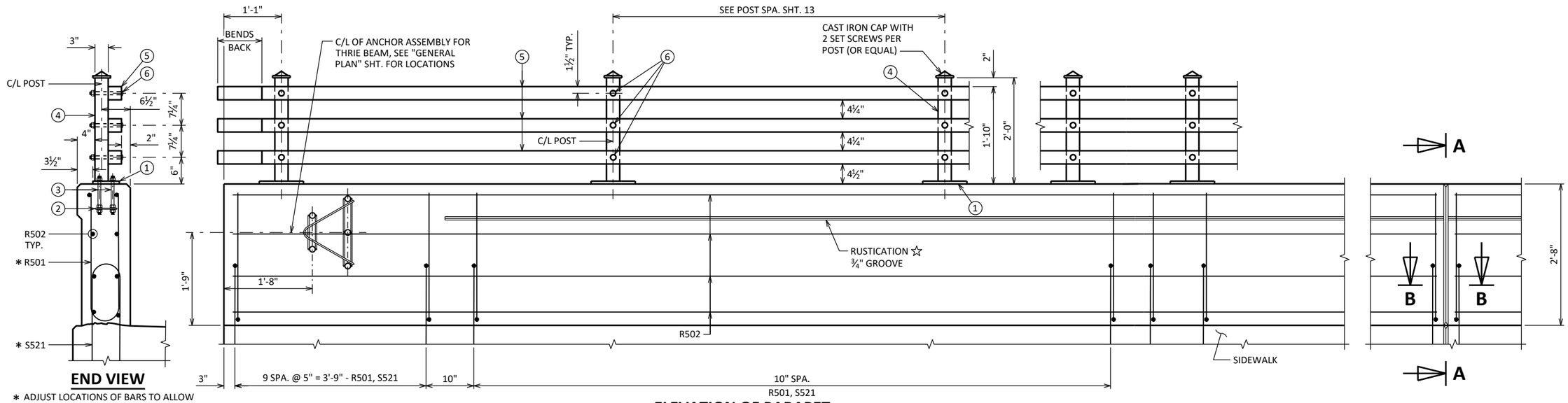
8

STATE PROJECT NUMBER

8630-00-70



PLAN

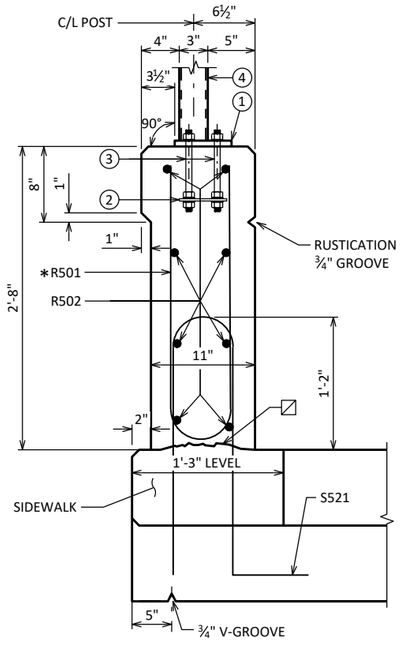


ELEVATION OF PARAPET

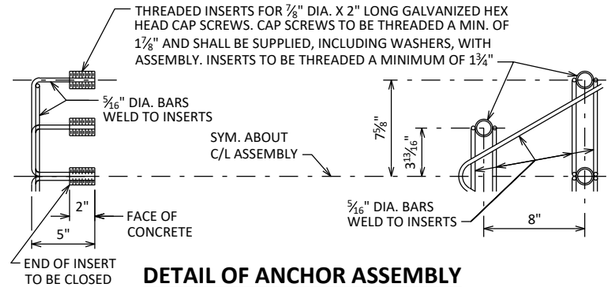
☆ END ¾" GROOVE 3" FROM NAME PLATE OR BEAM GUARD (IF NAME PLATE IS NOT PRESENT). OTHERWISE RUN TO END OF PARAPET.

END VIEW

∗ ADJUST LOCATIONS OF BARS TO ALLOW PLACEMENT OF ANCHOR ASSEMBLY FOR RAILING AND BEAM GUARD.



SECTION THRU PARAPET



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.

▨ HORIZ. CONST. JOINT - STRIKE OFF AS SHOWN AND LEAVE ROUGH.

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STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-17-2

DRAWN BY ZSS | PLANS CK'D AEB

COMBINATION RAILING TYPE "3T"

SHEET 22 OF 24

109

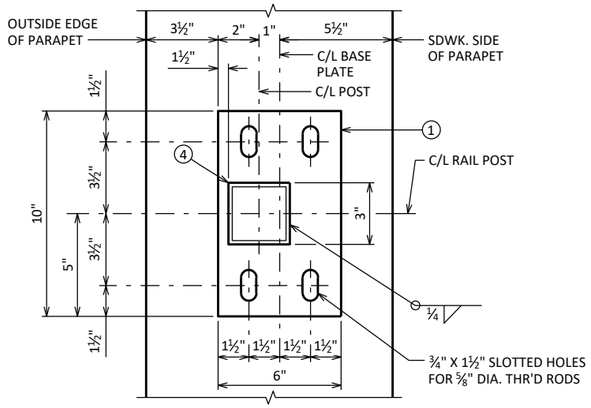
SCALE = 2.00

8

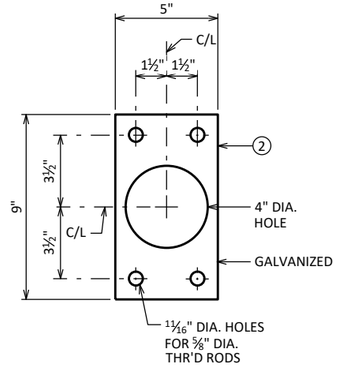
8

STATE PROJECT NUMBER

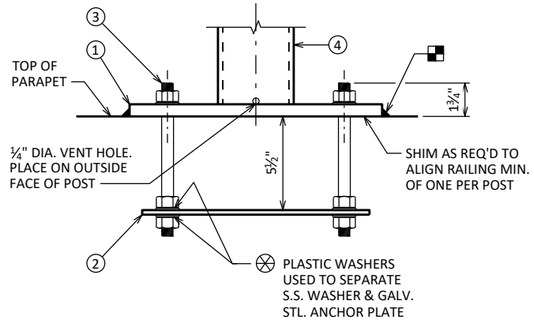
8630-00-70



TYPICAL RAIL POST BASE PLATE



ANCHOR PLATE



ANCHORAGE FOR RAIL POSTS

☆ NOTE: ANCHOR PLATE NOT REQUIRED WHEN ADHESIVE ANCHORS ARE USED.

LEGEND

(1) BASE PLATE ⅝" X 6" X 10" WITH ¾" X 1½" SLOTTED HOLES FOR THR'D RODS NO. 3. WELD TO NO. 4 AS SHOWN. SLOTS PARALLEL TO LONG SIDE OF PLATE.

(2) ¼" X 5" X 9" ANCHOR PLATE (GALVANIZED) WITH 1¹⁄₁₆" DIA. HOLES FOR THR'D. RODS NO. 3.

(3) ⅝" DIA. X 9" LONG, TYPE 316 STAINLESS STEEL THREADED RODS (MIN. TENSILE STRENGTH = 70 KSI) WITH NUT AND WASHERS OF SAME ALLOY GROUP.☆

(4) STRUCTURAL TUBING 3" X 3" X 3⁄16" POSTS, PLACE VERTICAL. WELD TO NO. 1, AND USE 1" DIA. HOLES (FRONT AND BACK) FOR BOLT NO. 6.

(5) STRUCTURAL TUBING 3" X 3" X 3⁄16" RAILS, WITH 1¹⁄₁₆" DIA. HOLES (FRONT AND BACK) FOR BOLT NO. 6. BOLT TO NO. 4.

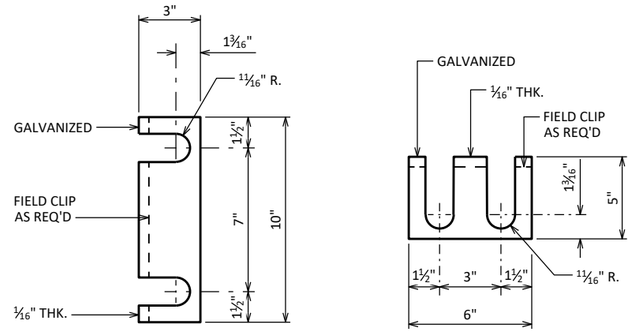
(6) ⅝" DIA. A325 SLOTTED ROUND HEAD BOLT WITH HEX NUT, 3⁄16" X 1½" X 1½" WASHER, AND LOCK WASHER.

(9) RECTANGULAR SLEEVE FABRICATED FROM 3⁄16" PLATES. PROVIDE "SLIDING FIT".

(10) RECTANGULAR SLEEVE FABRICATED FROM 3⁄16" PLATES. (1'-4" @ FIELD ERECTION JTS.) (1'-4" @ STRIP SEAL EXP. JTS.)

(12) ½" DIA. STAINLESS STEEL BOLT WITH NUT AND LOCKWASHER.

☆ ALTERNATIVE ANCHORAGE: 4 EQUIVALENT STAINLESS STEEL CONCRETE ADHESIVE ANCHORS ⅝-INCH. EMBED 7" IN CONCRETE. ADHESIVE ANCHORS SHALL CONFORM TO SECTIONS 502.2.12 AND 502.3.14 OF THE STANDARD SPECIFICATIONS.



RAIL POST SHIM DETAIL

(2 SETS PER POST)

RAILING NOTES

BID ITEM SHALL BE "RAILING STEEL TYPE 3T", WHICH SHALL INCLUDE ALL STEEL ITEMS SHOWN.

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.

ENDS OF STRUCTURAL TUBING SHALL BE SAWED. GRIND SMOOTH EXPOSED EDGES. ALL CUT ENDS SHALL BE TRUE AND SMOOTH.

ALL PLATES, AND RECTANGULAR SLEEVES SHALL CONFORM TO ASTM A709 GRADE 36. ALL STRUCTURAL TUBING SHALL CONFORM TO ASTM A500 GRADE B.

ANCHORAGES SHALL BE ACCURATELY PLACED TO PROVIDE CORRECT ALIGNMENT OF RAILING. SET NORMAL TO GRADE.

CUT BOTTOM OF POST TO MAKE POST VERTICAL IN BOTH TRANSVERSE AND LONGITUDINAL DIRECTION.

STEEL SHIMS SHALL BE PROVIDED & USED UNDER BASE PLATE NO. 1, WHERE REQUIRED FOR ALIGNMENT, AND SHALL BE GALVANIZED.

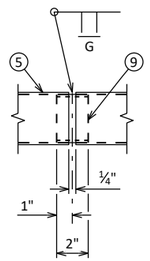
▩ CAULK AROUND PERIMETER OF BASE PLATES, NO. 1, AND FILL BOLT SLOT OPENINGS IN SHIMS AND BASE PLATES WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER.

ALL JOINTS IN CONCRETE PARAPET ARE TO BE VERTICAL.

ALL MATERIAL (EXCEPT NO. 3 & 12) SHALL BE GALVANIZED AFTER FABRICATION. PRIOR TO GALVANIZING, THE STEEL RAILING SHALL BE GIVEN A NO. 6 BLAST CLEANING PER SSPC SPECIFICATIONS.

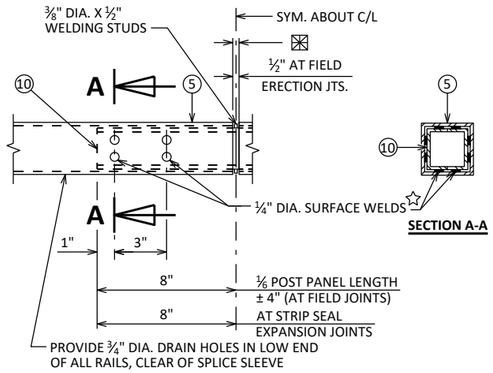
VENT HOLES SHALL BE DRILLED IN POST AND RAIL MEMBERS AS REQUIRED TO FACILITATE GALVANIZING AND DRAINAGE.

RAILING SHALL BE FABRICATED IN LENGTHS THAT INCLUDE 3 OR 4 POSTS.



SHOP RAIL SPLICE DETAIL

(LOCATION MUST BE SHOWN ON SHOP DRAWINGS)



FIELD ERECTION JOINT DETAIL

☆ MIN. ⅝" FLAT SURFACE DIA. PUNCHINGS OR STUDS MAY BE USED AS AN ALTERNATE.

▩ RDWY. OPENING OR 2½" MIN. FOR STRIP SEAL EXP. JOINT AND ½" OPENING FOR A1 ABUTMENTS

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STATE OF WISCONSIN
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STRUCTURES DESIGN SECTION

STRUCTURE B-17-2

DRAWN BY ZSS | PLANS CK'D AEB

COMBINATION RAILING TYPE "3T" DETAILS

SHEET 23 OF 24
110

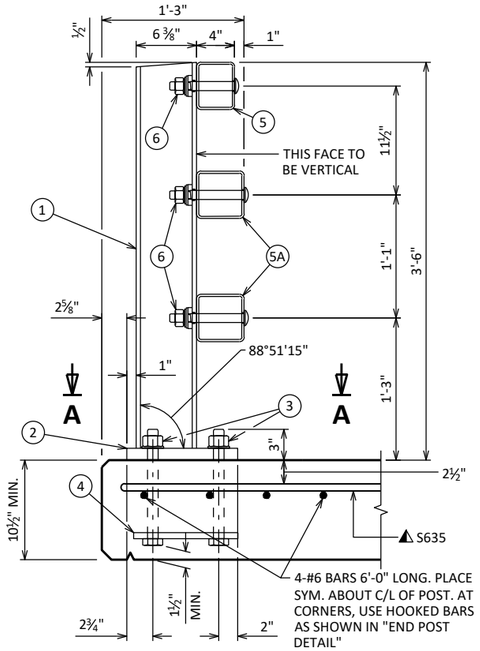
SCALE = 2.00

8

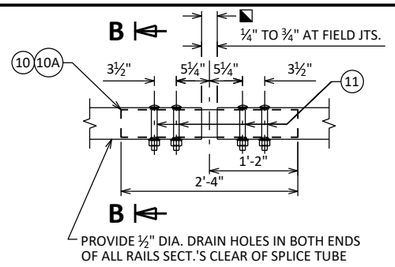
8

STATE PROJECT NUMBER

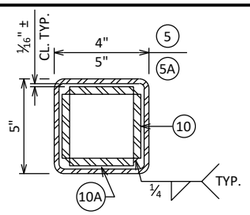
8630-00-70



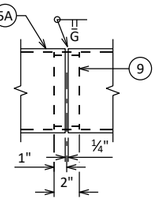
SECTION THRU RAILING ON DECK



FIELD ERECTION JOINT DETAIL

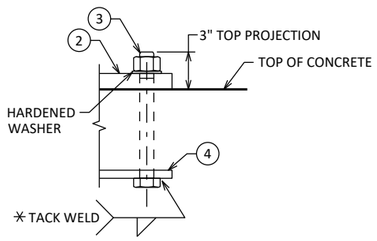


SECTION B-B

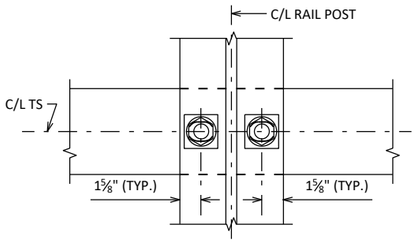


SHOP RAIL SPLICE DETAIL

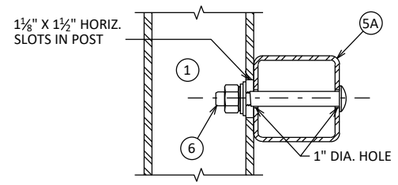
LOCATION MUST BE SHOWN ON SHOP DRAWINGS



ANCHOR BOLTS



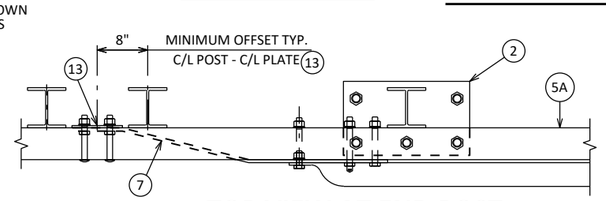
SECTION THRU POST WEB



SECTION THRU RAIL

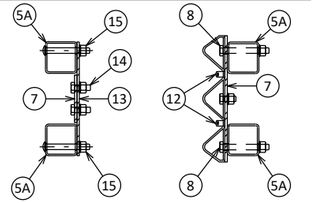
NOTE: CONNECTIONS AT LOWER RAILS SHOWN. CONNECTIONS AT TOP RAIL SIMILAR.

TYPICAL RAIL TO POST CONNECTIONS



TOP VIEW AT END POST

THRIE BEAM RAIL ATTACHMENT



SECTION C-C

SECTION D-D

LEGEND

1. W6 X 25 WITH 1⅛" X 1½" HORIZ. SLOTS ON EACH SIDE OF POST FOR BOLT NO. 6. CUT BOTTOM OF POST TO MATCH CROSS SLOPE OF ROADWAY. PLACE POST VERTICAL. PLACE POSTS NORMAL TO GRADE LINE.
2. PLATE 1¼" X 11¾" X 1'-8" WITH 1 7/16" DIA. OVERSIZED HOLES FOR ANCHOR BOLTS NO. 3. WELD TO NO. 1 AS SHOWN.
3. ASTM A449 - 1⅛" DIA. ANCHOR BOLTS WITH NUT AND HARDENED WASHER (ALL GALVANIZED). 5 REQ'D. PER POST. THREAD 3" AND PLACE NORMAL TO PLATE NO. 2. CHAMFER TOP OF BOLTS BEFORE THREADING. USE 1'-9" LONG IN ABUTMENT WINGS. AT POSTS ON CONCRETE SLAB SUPERSTRUCTURES WHERE THE SLAB THICKNESS IS > 16" USE 1'-3" LONG. USE 10¾" LONG AT ALL OTHER LOCATIONS. (AN EQUIVALENT THREADED ROD WITH NUTS AND HARDENED WASHERS MAY BE SUBSTITUTED FOR ANCHOR BOLTS IN WINGS IF REQ'D. FOR CONSTRUCTABILITY.)
4. ⅝" X 11" X 1'-8" ANCHOR PLATE (GALVANIZED) WITH 1 3/16" DIA. HOLES FOR ANCHOR BOLTS NO. 3
5. TS 5 X 4 X 0.25 STRUCTURAL TUBING. ATTACH TO NO. 1 WITH NO. 6.
5A. TS 5 X 5 X 0.25 STRUCTURAL TUBING. ATTACH TO NO. 1 WITH NO. 6.
6. ⅞" DIA. A325 SLOTTED ROUND HEAD BOLT WITH NUT, 3/16" X 1⅝" X 1⅝" MIN. WASHER, AND LOCK WASHER (2 REQ'D. AT EACH RAIL TO POST LOCATION.)
7. ½" THK. BACK-UP PLATE WITH 2 - ⅞" X 1½" THREADED SHOP WELDED STUDS (NO. 12). BOLT TO RAIL AS SHOWN IN DETAIL. REQUIRED AT THRIE BEAM GUARD RAIL ATTACHMENTS ONLY. PLACE SYMMETRICALLY ABOUT TUBES NO. 5A.
8. 1" DIA. HOLES IN PLATE NO. 7 & TUBES NO. 5A FOR ⅞" DIA. A325 BOLTS WITH HEX NUTS AND WASHERS. 6 HOLES IN TUBES AND PLATE NO. 7.
9. SPLICE SLEEVE FABRICATED FROM ¼" PLATE. PROVIDE "SLIDING FIT".
10. ⅜" X 3⅝" X 2'-4" PLATE. 2 PER RAIL. USED IN NO. 5 & 5A.
10A. ⅜" X 2⅝" X 2'-4" PLATE USED IN NO. 5, ⅜" X 3⅝" X 2'-4" PLATE USED IN NO. 5A. 2 PER RAIL.
11. ⅞" DIA. A325 ROUND HEAD BOLT WITH NUT, WASHER, AND LOCK WASHER. USE 15/16" X 1¼" LONGIT. SLOTTED HOLES IN PLATE NO. 10A. AT FIELD JOINTS AND 15/16" X 2¼" MIN. LONGIT. SLOTTED HOLES AT EXP. JOINTS IN PLATE NO. 10A. PROVIDE 15/16" DIA. ROUND HOLES IN TUBES NO. 5 AND NO. 5A.
12. ⅞" DIA. X 1½" LONG THREADED SHOP WELDED STUDS (2 REQ'D).
13. ⅜" X 8" X 1'-6" PLATE. BOLT TO RAIL AS SHOWN IN DETAIL. REQ'D. AT THRIE BEAM GUARD RAIL ATTACHMENTS ONLY. PLACE SYM. ABOUT TUBES NO. 5A.
14. ⅞" DIA. X 2" LONG A325 HEX BOLT WITH NUT AND WASHER (5 REQ'D.).
15. 1" DIA. HOLES IN TUBES NO. 5A FOR ⅞" DIA. A325 ROUND HEAD BOLT WITH NUT, WASHER AND LOCK WASHER (4 REQ'D.). 4 HOLES IN TUBES.

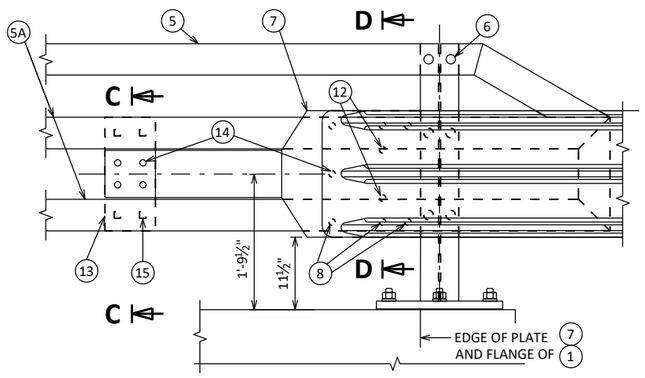
GENERAL NOTES

1. BID ITEM SHALL BE "RAILING TUBULAR TYPE M" WHICH INCLUDES ALL ITEMS SHOWN.
2. RAIL POST AND BASE PLATES SHALL CONFORM TO THE REQUIREMENTS OF ASTM A709 GRADE 50. HOLLOW RAILING STRUCTURAL TUBING SHALL CONFORM TO THE REQUIREMENTS OF ASTM A500 GRADE B OR C WITH A CERTIFIED FY = 50 KSI. ANCHOR PLATES, AND SPLICE TUBE PLATES SHALL CONFORM TO THE REQUIREMENTS OF ASTM A709 GRADE 36.
3. THE NUT SECURING THE POST BASE PLATE TO THE CONCRETE SHALL BE TIGHTENED TO A SNUG FIT AND GIVEN AN ADDITIONAL ⅛ TURN.
4. RAILS SHALL BE CONTINUOUS OVER A MINIMUM OF THREE (3) POSTS WITHOUT SPLICES WHERE POSSIBLE. RAILS SHALL BE SPLICED IN A PANEL OVER EXPANSION JOINTS.
5. ENDS OF TUBE SECTIONS SHALL BE SAWED. GRIND SMOOTH EXPOSED EDGES. ALL CUT ENDS SHALL BE TRUE AND SMOOTH.
6. WELD IS THE SAME ON BOTH FLANGES. FLANGE WELD DOES NOT REQUIRE MAGNETIC PARTICLE TESTING.
7. FILL BOLT SLOT OPENINGS IN POST SHIMS AND PLATE NO. 2 AND CAULK AROUND PERIMETER OF PLATE NO. 2 WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. STEEL POST SHIMS MAY BE USED UNDER POSTS WHERE REQ'D. FOR ALIGNMENT.
8. POST BASE PLATES SHALL BE FLAT WITH ALL SURFACES SMOOTH AND FREE FROM WARP AND ALL EDGES SMOOTH, STRAIGHT AND VERTICAL. ALL PLATE CUTS SHALL BE MACHINE OR MACHINE FLAME CUT.
9. ALL MATERIAL SHALL BE GALVANIZED AFTER FABRICATION. PRIOR TO GALVANIZING, ALL STEEL RAILING POSTS & STEEL TUBING SHALL BE GIVEN A NO. 6 BLAST CLEANING BY SSPC SPECIFICATIONS.

SECTION A-A

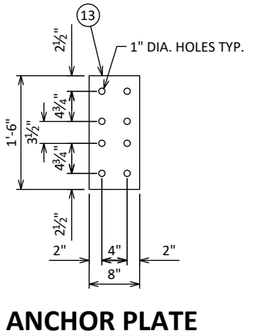
END POST DETAIL

REINFORCEMENT AT CORNERS



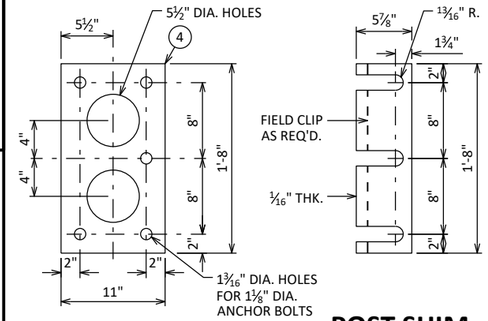
DETAIL AT END POST

THRIE BEAM RAIL ATTACHMENT



ANCHOR PLATE

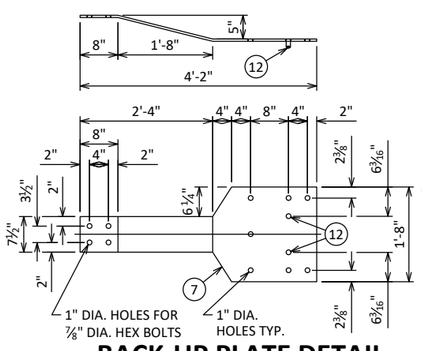
AT BEAM GUARD ATTACHMENT



ANCHOR PLATE

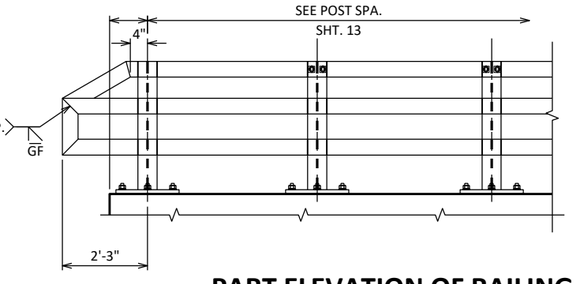
AT RAIL TO DECK CONNECTION

POST SHIM DETAIL



BACK-UP PLATE DETAIL

AT BEAM GUARD ATTACHMENT



PART ELEVATION OF RAILING

▲ TIE TO TOP MAT OF STEEL.

✳ ANCHOR BOLT ASSEMBLY MAY BE TACK WELDED, EITHER IN THE SHOP, OR IN THE FIELD AFTER THE ANCHOR PLATE IS PLACED.

◥ RDWY. OPENING OR 2½" MIN. FOR STRIP SEAL EXP. JOINT

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-17-2

DRAWN BY ZSS | PLANS CK'D AEB

TUBULAR STEEL RAILING TYPE "M"

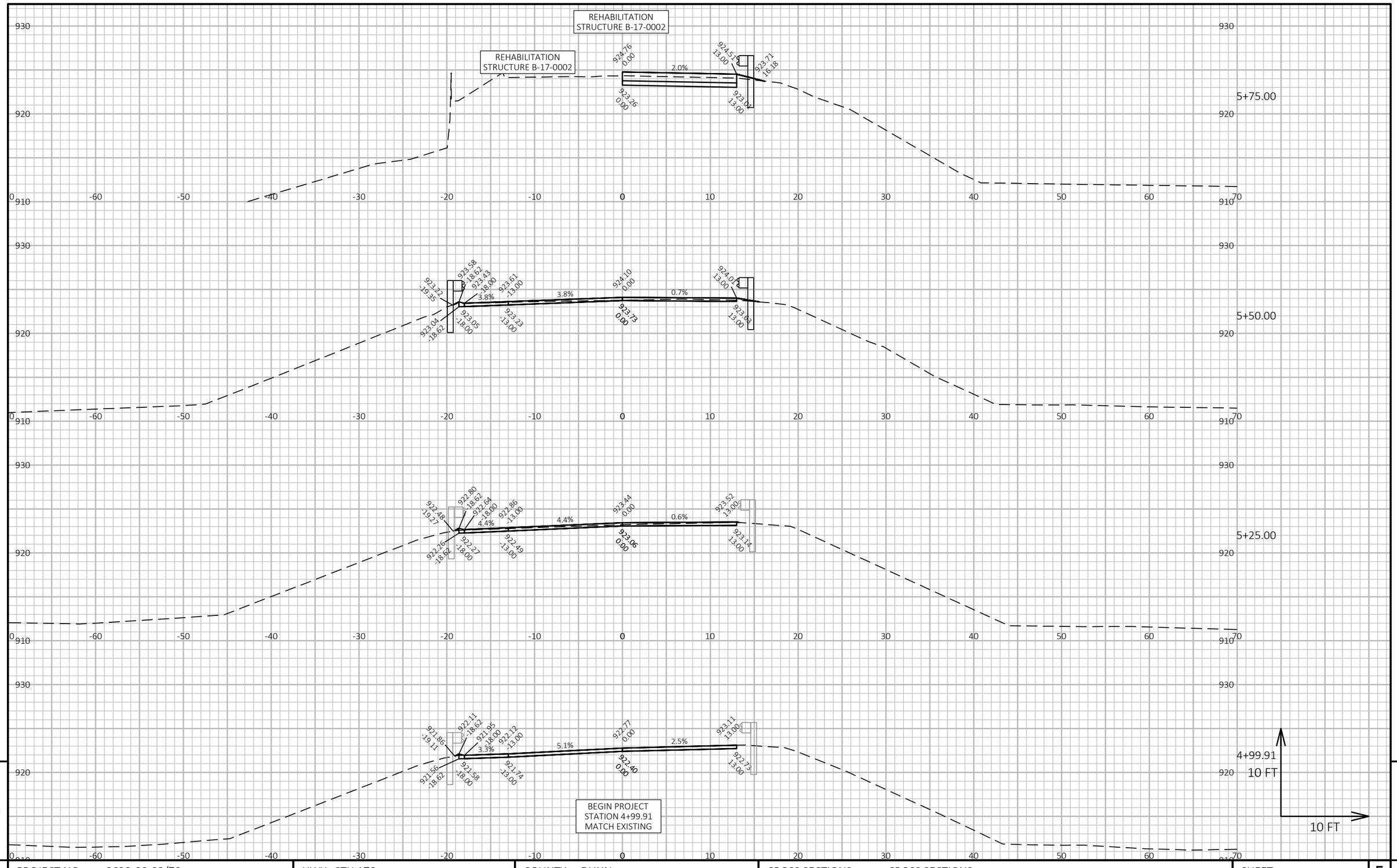
SHEET 24 OF 24

111

SCALE = 2.00

8

8



9

9

PROJECT NO: 8630-00-00/70	HWY: STH 170	COUNTY: DUNN	CROSS SECTIONS: CROSS SECTIONS	SHEET 112	E

FILE NAME : I:\42\42-1334.00 - DUNN CO, STH 170\C3D\DSGN\CRDR\CRDR-STH 170-DUNNCO.DWG PLOT DATE : 7/22/2025 3:52 PM PLOT BY : WRIGHT, JAMES PLOT NAME :

END PROJECT
STATION 8+53.30
MATCH EXISTING

930.35
-19.73
930.21
-18.86
929.71
-11.36
1.1%
929.84
0.00
3.8%
929.35
13.00
929.38
-18.86
929.34
-11.36
929.46
0.00
928.97
13.00
8+53.30

930.30
-19.52
930.20
-18.86
929.70
-11.36
0.9%
929.80
0.00
3.9%
929.29
13.00
929.36
-18.86
929.33
-11.36
929.43
0.00
928.92
13.00
8+50.00

929.85
-18.86
929.35
-11.36
1.5%
929.52
0.00
2.9%
929.15
13.00
6.3%
928.77
19.04
929.02
-18.86
928.98
-11.36
929.15
0.00
928.77
13.00
928.39
19.04
8+25.00

929.36
-19.84
928.52
-18.86
929.03
-11.36
2.0%
929.24
0.00
REHABILITATION
STRUCTURE B-17-0002
928.68
-18.86
927.52
-11.36
927.74
0.00
8+00.00
10 FT
10 FT

930
920
915
0
-60
-50
-40
-30
-20
-10
0
10
20
30
40
50
60
70

9

9

PROJECT NO: 8630-00-00/70	HWY: STH 170	COUNTY: DUNN	CROSS SECTIONS: CROSS SECTIONS	SHEET 113	E

FILE NAME : I:\42\42-1334.00 - DUNN CO, STH 170\C3D\DSGN\CRDR\CRDR-STH 170-DUNNCO.DWG
PLOT DATE : 7/22/2025 3:52 PM
PLOT BY : WRIGHT, JAMES
PLOT NAME :

Wisconsin Department of Transportation

Dedicated people creating transportation solutions
through innovation and exceptional service.

http://www.dot.wisconsin.gov