WIS

MAY 2017

PROJECT ID: 6220-03-74
WITH: N/A

COUNTY: WAUPACA

ORDER OF SHEETS

TOTAL SHEETS = 170

33

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PLAN OF PROPOSED IMPROVEMENT

WAUPACA - NEW LONDON

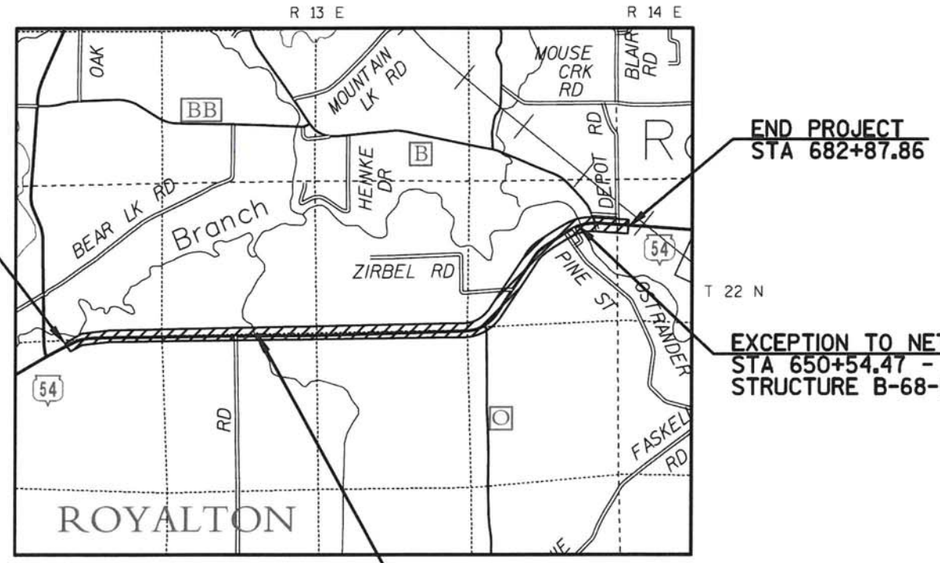
E JCT STH 22 TO ROYALTON OVERHEAD

STH 54

WAUPACA COUNTY

STATE PROJECT NUMBER
6220-03-74

STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
6220-03-74	WISC 2017287	1



BEGIN PROJECT
STA 454+26.96
Y = 357659.863
X = 576352.575

END PROJECT
STA 682+87.86

EXCEPTION TO NET C/L LENGTH
STA 650+54.47 - STA 652+79.61
STRUCTURE B-68-0739

EXISTING STRUCTURE C-68-9013
STA 522+08

PROPOSED STRUCTURE B-68-140
STA 522+24.35

LAYOUT
SCALE 0 .5 MI.

TOTAL NET LENGTH OF CENTERLINE = 4.288 MI.

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

ELEVATIONS SHOWN ON THIS PLAN ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 NAVD 88 (2007).

DESIGN DESIGNATION

		RURAL	URBAN
A.A.D.T. (2017)	=	3,300	7,300
A.A.D.T. (2037)	=	4,400	9,500
D.H.V. (2037)	=	467	1,007
D.D.	=	60/40	60/40
T.	=	10.0%	10.0%
DESIGN SPEED	=	55 MPH	35 MPH
ESALS	=	978,200	1,255,600

CONVENTIONAL SYMBOLS

PLAN
- CORPORATE LIMITS
- PROPERTY LINE
- LOT LINE
- LIMITED HIGHWAY EASEMENT
- EXISTING RIGHT OF WAY
- PROPOSED OR NEW R/W LINE
- SLOPE INTERCEPT
- REFERENCE LINE
- EXISTING CULVERT
- PROPOSED CULVERT (Box or Pipe)
- COMBUSTIBLE FLUIDS (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

ORIGINAL PLANS PREPARED BY:
CBS SQUARED INC.

1-19-2017

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PREPARED BY

Surveyor	CBS SQUARED INC.
Designer	CBS SQUARED INC.
Project Manager	WENDY ARNESON
Regional Examiner	CHERYL SIMON
Regional Supervisor	MICHAEL KRETSCHMER

APPROVED FOR THE DEPARTMENT

DATE: 1/23/2017 (Signature)

FILE NAME : O:\PDS\C3D\62200304\SHEETSPLAN\TTSTH54.DWG

SHEET NAME: 010101TI

WISDOT/CADDS SHEET 10

GENERAL NOTES

THE ALIGNMENT ON THIS PLAN IS BASED ON AERIAL DRAWINGS AND AS BUILTS (PROJECT ID'S 6220-04-71 AND 6220-02-71).
THE CENTERLINE AS SHOWN IN THE PLANS MAY REQUIRE ADJUSTMENT TO MATCH FIELD CONDITIONS. ANY ADJUSTMENTS SHALL BE INCIDENTAL TO OTHER ITEMS IN THE CONTRACT.

THE CONTRACTOR IS TO WORK WITH UTMOST CARE AND PROTECT ALL SURVEY MARKERS.
SURVEY MARKERS SHALL NOT BE REMOVED WITHOUT THE APPROVAL OF THE ENGINEER.

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

HMA PAVEMENT SHALL BE CONSTRUCTED WITH THE FOLLOWING LAYER THICKNESS:

PAVEMENT THICKNESS (INCH)	LOWER (INCH)	MIDDLE (INCH)	UPPER (INCH)
1.75	-	-	1.75
3.50	1.75	-	1.75
6.00	2.50	1.75	1.75
7.00	3.00	2.25	1.75

ORDER OF TYPICAL SECTION AND DETAIL SHEETS

GENERAL NOTES
PROJECT OVERVIEW
TYPICAL SECTIONS
CONSTRUCTION DETAILS
EXISTING + PROPOSED CONTOURS
PERMANENT SIGNING
PAVEMENT MARKING
TRAFFIC CONTROL
DETOURS

UTILITY CONTACTS

LAWRENCE HUBER
ANR PIPELINE COMPANY - GAS/PETROLEUM
W3925 PIPELINE LN
EDEN, WI 53019
(920)477-2235
LAWRENCE_HUBER@TRANSCANADA.COM

MATT GUNDERSON
CENTURYLINK - COMMUNICATION LINE
212 CHURCH AVE
CASCO, WI 54205
(920)837-2344
(920)896-2867 (MOBILE)
MATT.GUNDERSON@CENTURYLINK.COM

JOE KASSAB
AT&T WISCONSIN
205 S. JEFFERSON ST
GREEN BAY, WI 54301
(920)433-4200 (MOBILE)
JK572K@ATT.COM

RUDI RUDIGER
CHARTER COMMUNICATIONS - COMMUNICATION LINE
5024 HEFFRON ST
STEVENS POINT, WI 54481
(715)204-5339 (MOBILE)
RUDI.RUDIGER@CHARTER.COM

VERN JOSIE
MANAWA TELEPHONE COMPANY INC -
COMMUNICATION LINE
131 SECOND ST
P.O. BOX 130
MANAWA, WI 54949-0130
(920)250-6661 (MOBILE)
VERNJ@WOLFNET.NET

STEVE ARMSTRONG
WE ENERGIES - ELECTRICITY
800 S. LYNNDALE DRIVE
APPLETON, WI. 54912-1699
(920)380-3563
STEVEN.ARMSTRONG@WE-ENERGIES.COM

DNR CONTACTS

MARC HERSHFIELD
WDNR
WAUTOMA SERVICE CENTER
427 EAST TOWER DRIVE, SUITE 100
WAUTOMA, WI 54982
(715) 421-7867
MARC.HERSHFIELD@WISCONSIN.GOV

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

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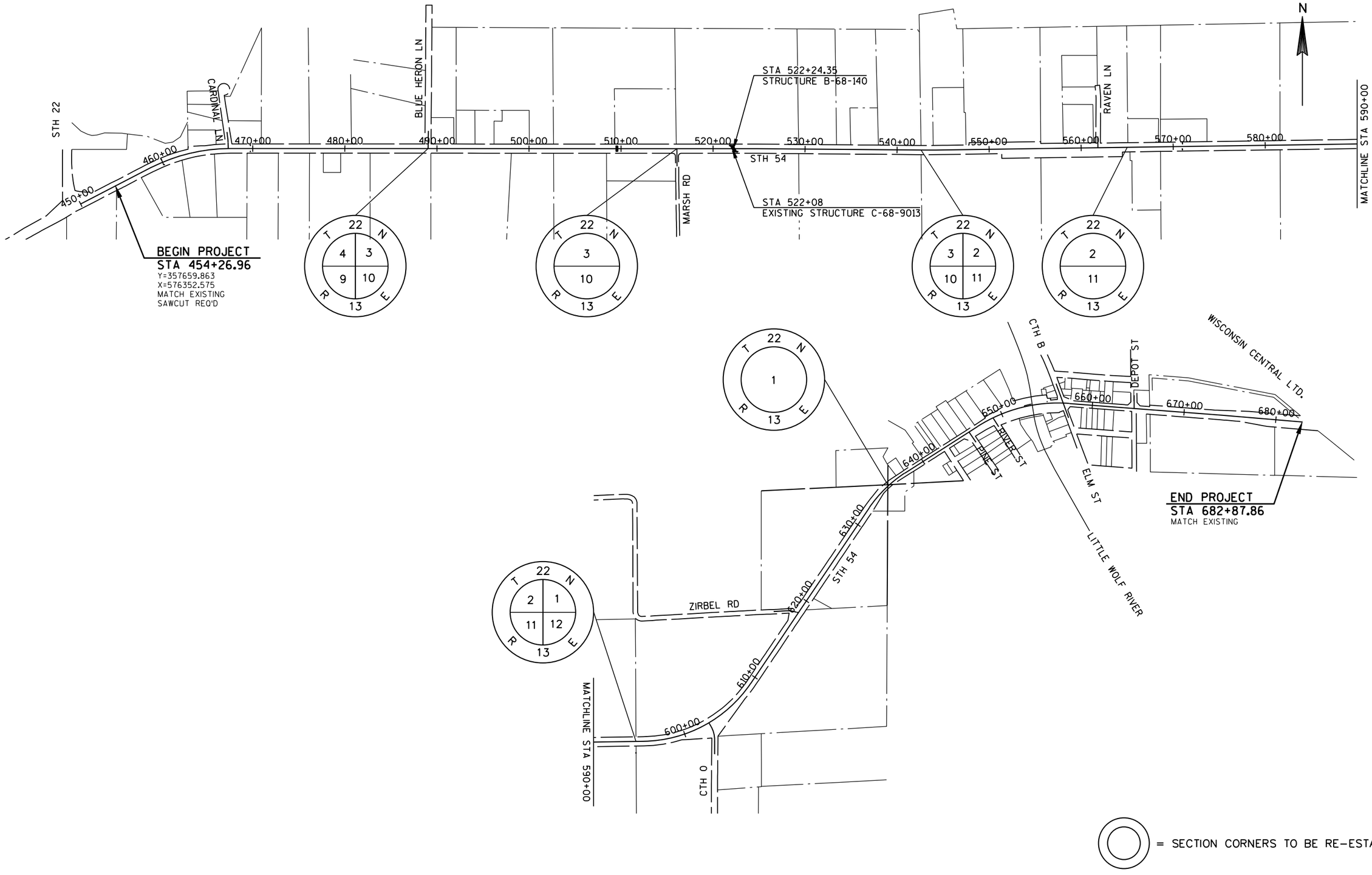
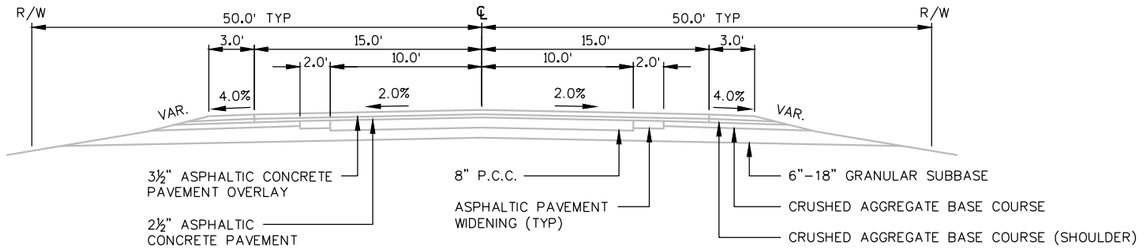


= SECTION CORNERS TO BE RE-ESTABLISHED

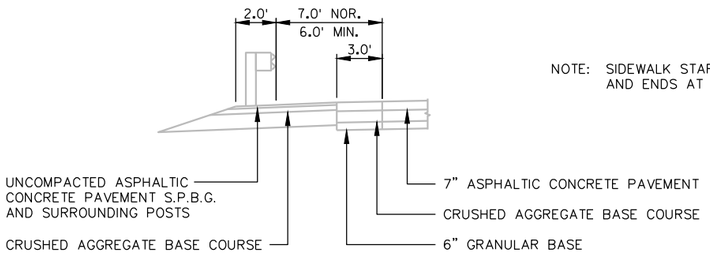
PROJECT NO: 6220-03-74	HWY: STH 54	COUNTY: WAUPACA	PROJECT OVERVIEW	SHEET	E

FILE NAME : O:\PDS\C3D\62200304\SHEETSPLAN\POSTH54.DWG

SHEET NAME: 020201PO

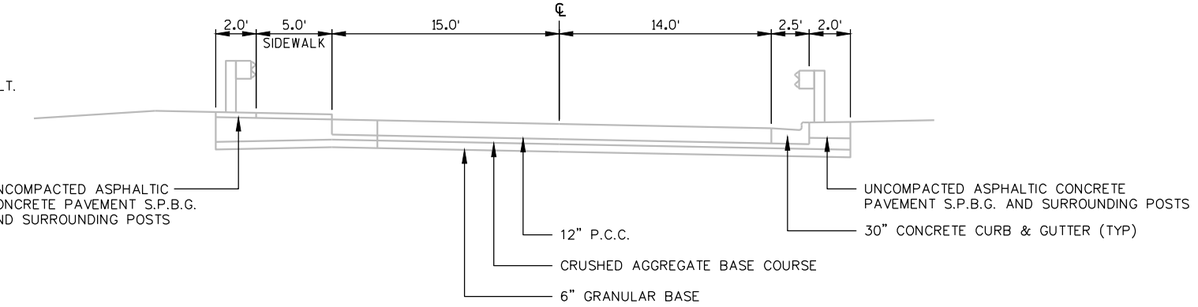


TYPICAL EXISTING SECTION
STA 454+26.96 TO STA 648+65.57

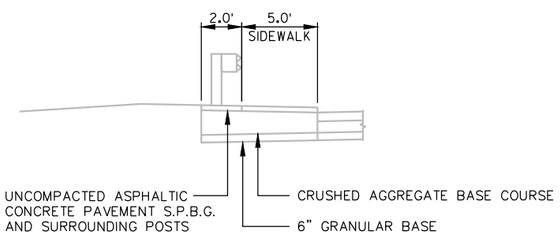


NOTE: SIDEWALK STARTS AT STA 650+51 LT. AND ENDS AT STA 652+51 LT.

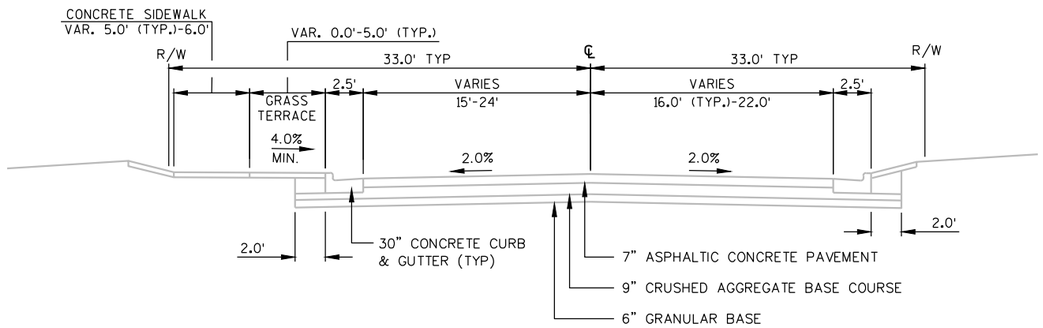
TYPICAL EXISTING BEAM GUARD SECTION
STA 649+21.71 TO STA 650+54.47 LT



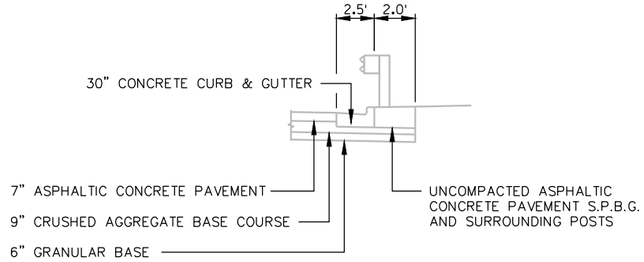
TYPICAL EXISTING SECTION
STA 650+54.47 TO STA 650+76.04
STA 652+58.05 TO STA 652+79.61



TYPICAL EXISTING BEAM GUARD SECTION
STA 652+79.61 TO STA 654+74.37 LT



TYPICAL EXISTING URBAN SECTION
STA 648+65.57 TO STA 650+54.47
STA 652+79.61 TO STA 666+36.49

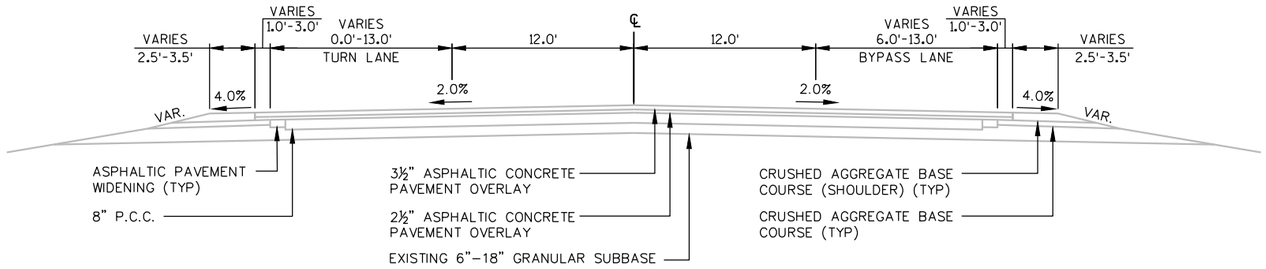


TYPICAL EXISTING BEAM GUARD SECTION
STA 649+31.52 TO STA 650+54.47 RT
STA 652+79.61 TO STA 654+92.61 RT

PROJECT NO: 6220-03-74	HWY: STH 54	COUNTY: WAUPACA	TYPICAL SECTIONS	SHEET 4	E

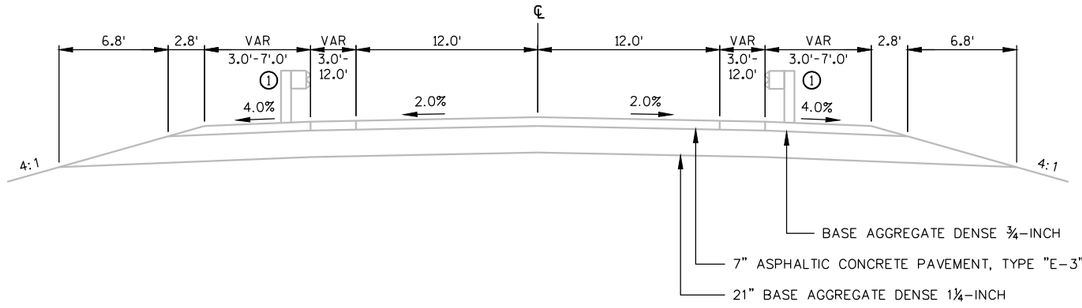
FILE NAME : O:\PDS\C3D\62200304\SHEETSPLAN\TYSTH54 (EXISTING).DWG
SHEET NAME: 0203TS01

2



TYPICAL EXISTING SECTION

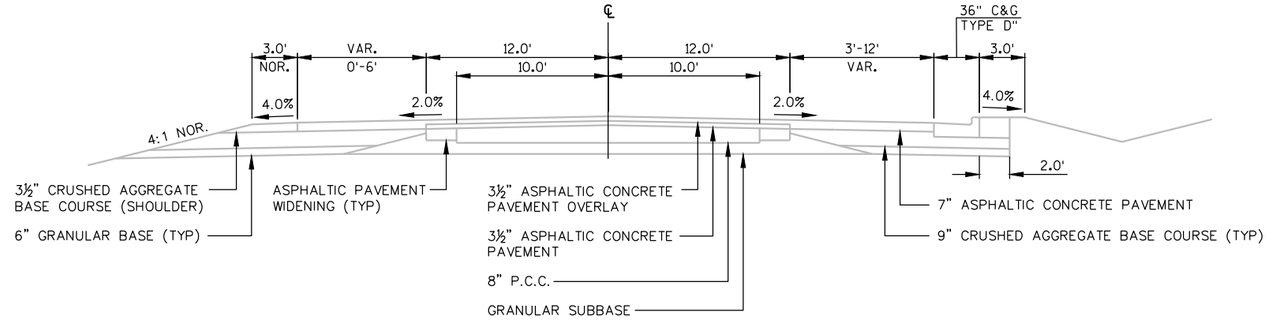
STA 666+36.49 - STA 673+38.18



① EXISTING BEAM GUARD
STA 678+62.32 TO STA 682+87.86

TYPICAL EXISTING SECTION

STA 673+38.18 - STA 682+87.86



TYPICAL EXISTING HALF SECTION - INTERSECTION WIDENING

AT SIDE ROAD INTERSECTIONS WITHOUT CURB & GUTTER

TYPICAL EXISTING HALF SECTION - INTERSECTION WIDENING

AT SIDE ROAD INTERSECTIONS WITH CURB & GUTTER

PROJECT NO: 6220-03-74	HWY: STH 54	COUNTY: WAUPACA	TYPICAL SECTIONS	SHEET 5	E

FILE NAME : O:\PDS\C3D\62200304\SHEETSPLAN\TYSTH54 (EXISTING).DWG

SHEET NAME: 0203TS02

NOTES:

DEPTH OF MILLING/HMA PAVEMENT AT THE CENTERLINE IS TO BE HELD AT 1 ¾". ROADWAY CROSS SLOPE IS TO BE APPLIED FROM THIS DEPTH. ACTUAL DEPTHS OF MILLING/HMA PAVEMENT ACROSS ROADWAY MAY VARY DUE TO EXISTING ROADWAY CONDITIONS. ANY VARIATIONS FROM THE PLAN DEPTHS ARE TO BE BROUGHT TO THE ATTENTION OF THE ENGINEER.

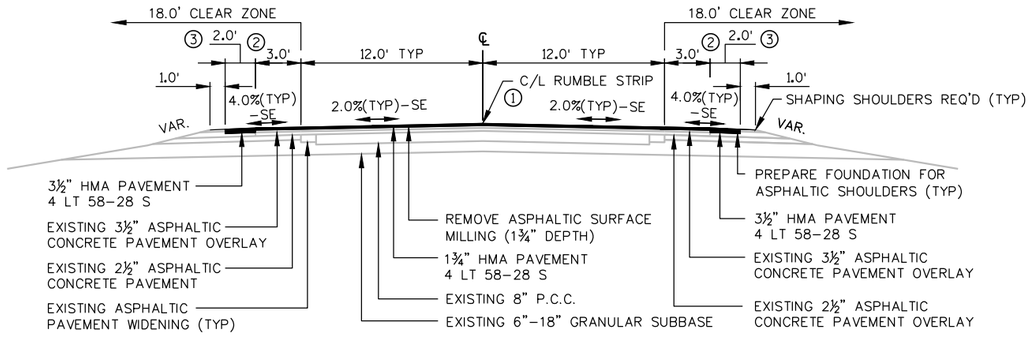
① ASPHALT CENTERLINE RUMBLE STRIPS 2-LANE RURAL REQ'D STA 454+26.96 TO STA 630+00.00.

② ASPHALTIC SHOULDER RUMBLE STRIPS 2-LANE RURAL REQ'D STA 454+26.96 TO STA 630+00.00.

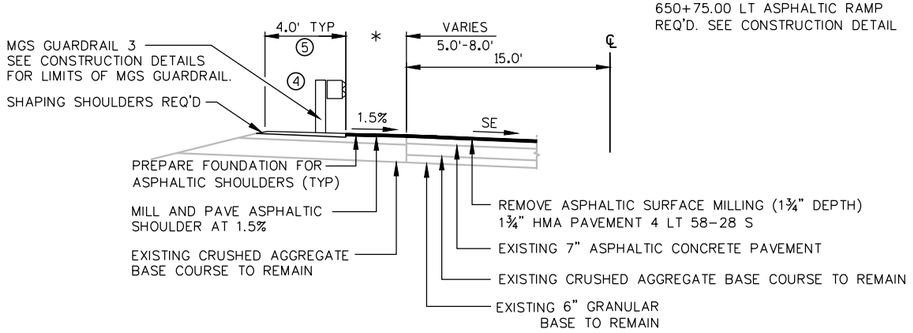
③ DO NOT RUN OR STORE, STOCKPILE MATERIALS, SETUP MATERIALS PROCESSING OR PAINT SITES, EXCAVATE OR IN ANY WAY DISTURB AREAS OUTSIDE OF THE EDGE OF SHOULDER IN THE FOLLOWING AREAS: STA 527+16 TO STA 529+37 LT, STA 632+14 TO STA 638+59 RT. ANY EXCESS MATERIAL SHALL BE REMOVED FROM THESE AREAS (INCIDENTAL TO THE BID ITEM "PREPARE FOUNDATION FOR ASHALTIC SHOULDERS").

④ REMOVE EXISTING UNCOMPACTED ASPHALTIC CONCRETE. TO BE PAID FOR UNDER BID ITEM "REMOVING ASPHALTIC SURFACE".

⑤ GUARDRAIL MOW STRIP EMULSIFIED ASPHALT REQ'D.

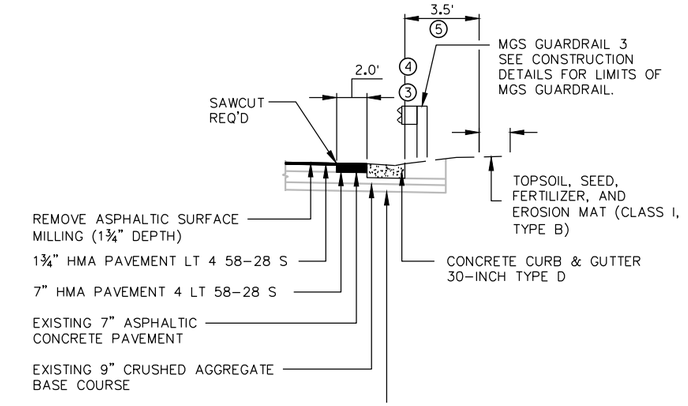


TYPICAL FINISHED SECTION
STA 454+26.96 TO STA 650+54.47

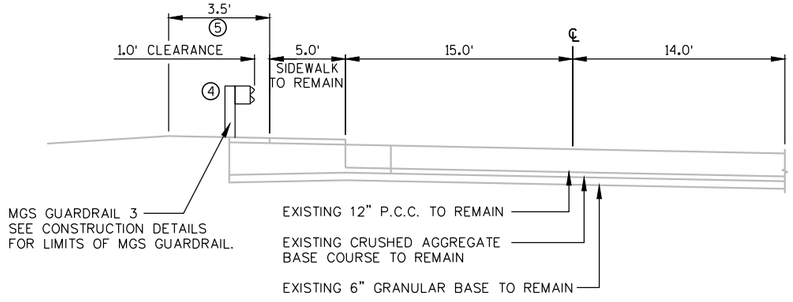


* STA 650+51.95 TO STA 650+75.00 LT ASPHALTIC RAMP REQ'D. SEE CONSTRUCTION DETAIL

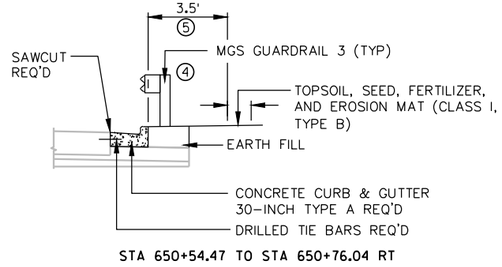
TYPICAL FINISHED SECTION
STA 649+22.49 TO STA 650+54.47 LT



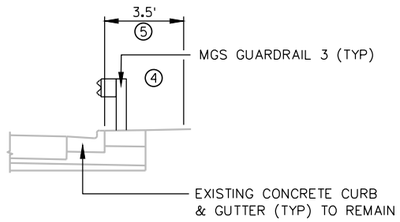
TYPICAL FINISHED BEAM GUARD SECTION
STA 649+15.70 TO STA 650+54.47 RT



TYPICAL FINISHED SECTION
STA 650+54.47 TO STA 650+76.04
STA 652+58.05 TO STA 652+79.61



STA 650+54.47 TO STA 650+76.04 RT



STA 652+58.05 TO STA 652+79.61 RT

PROJECT NO: 6220-03-74	HWY: STH 54	COUNTY: WAUPACA	TYPICAL SECTIONS	SHEET 6	E

FILE NAME : O:\PDS\C3D\62200304\SHEETSPLAN\TYSTH54 (FINISHED).DWG
SHEET NAME: 0203TS03

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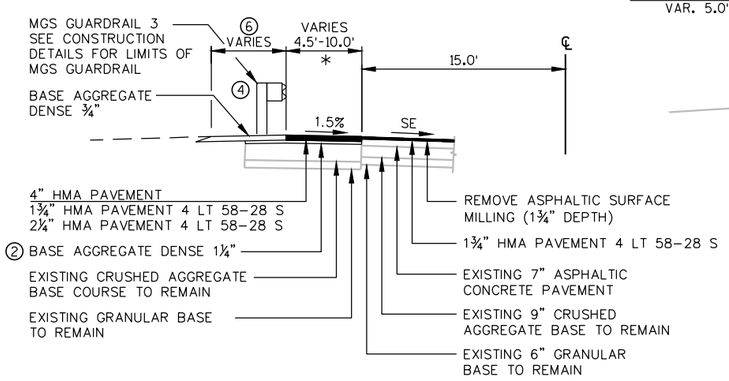
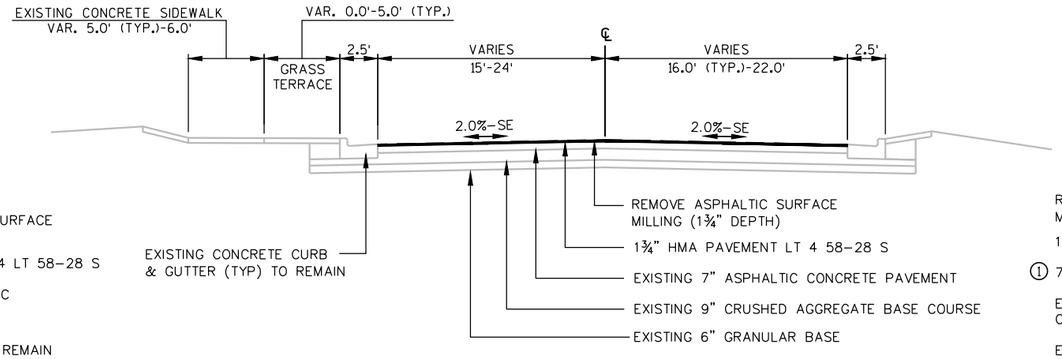
* STA 652+77.36 TO STA 653+50.00 LT ASPHALTIC RAMP REQ'D. SEE CONSTRUCTION DETAIL



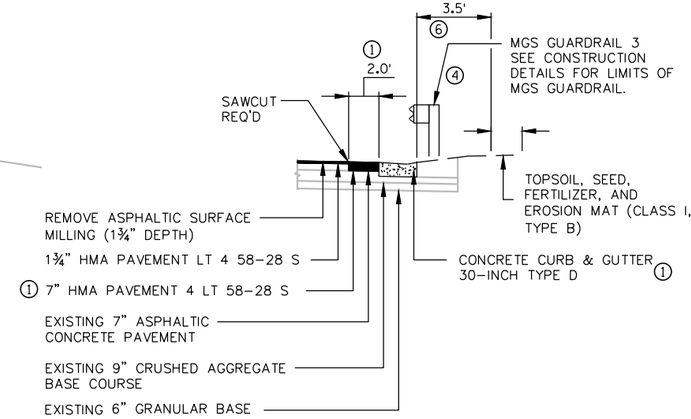
TYPICAL FINISHED URBAN SECTION

STA 652+77.36 TO STA 654+89.58 LT



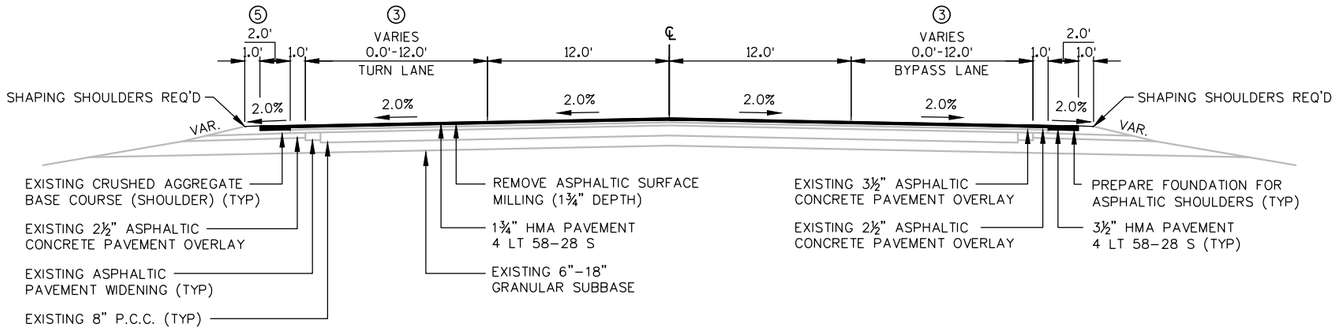
TYPICAL FINISHED URBAN SECTION

STA 652+79.61 TO STA 666+36.49



TYPICAL FINISHED BEAM GUARD SECTION

STA 652+79.61 TO STA 655+91.06 RT



TYPICAL FINISHED SECTION

STA 666+36.49 - STA 673+38.18

NOTES:

DEPTH OF MILLING/HMA PAVEMENT AT THE CENTERLINE IS TO BE HELD AT 1 ¾". ROADWAY CROSS SLOPE IS TO BE APPLIED FROM THIS DEPTH. ACTUAL DEPTHS OF MILLING/HMA PAVEMENT ACROSS ROADWAY MAY VARY DUE TO EXISTING ROADWAY CONDITIONS. ANY VARIATIONS FROM THE PLAN DEPTHS ARE TO BE BROUGHT TO THE ATTENTION OF THE ENGINEER.

① CONCRETE CURB & GUTTER 30-INCH TYPE D REQ'D (DRIVEWAY CURB HEAD REQ'D):
STA 654+23.40 TO 655+91.06 RT

EXISTING CURB & GUTTER TO REMAIN:
STA 652+79.61 TO 654+23.40 RT

② BASE AGGREGATE DENSE 1 ¼" MAY BE REQ'D AFTER REMOVAL OF EXISTING CONCRETE SIDEWALK. TOP OF BASE SHALL BE 4" BELOW TOP OF ADJACENT EXISTING
③ ASPHALTIC SURFACE.

④ SEE PLAN SHEETS FOR TAPER BEGIN AND END STATIONING.

REMOVE EXISTING UNCOMPACTED ASPHALTIC CONCRETE. TO BE PAID FOR UNDER BID ITEM "REMOVING
⑤ ASPHALTIC SURFACE".

⑥ STA 666+39 TO 668+25 LT WIDTH VARIES 0.0'-7.8'

GUARDRAIL MOW STRIP EMULSIFIED

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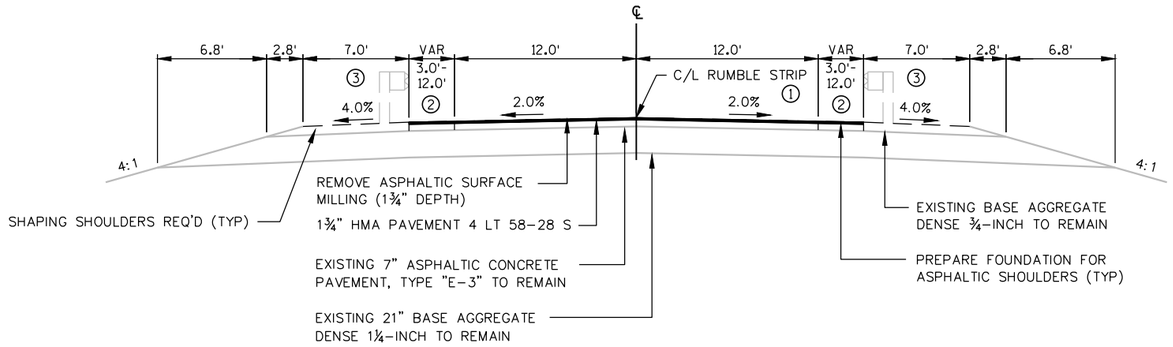


TYPICAL FINISHED SECTION

STA 673+38.18 - STA 682+87.86

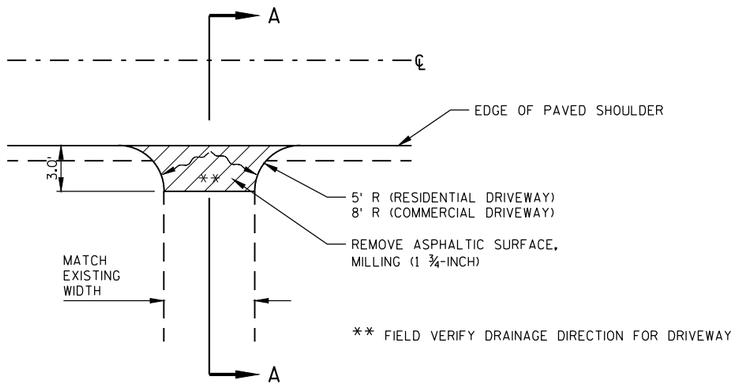
NOTES:

DEPTH OF MILLING/HMA PAVEMENT AT THE CENTERLINE IS TO BE HELD AT 1 ¾". ROADWAY CROSS SLOPE IS TO BE APPLIED FROM THIS DEPTH. ACTUAL DEPTHS OF MILLING/HMA PAVEMENT ACROSS ROADWAY MAY VARY DUE TO EXISTING ROADWAY CONDITIONS. ANY VARIATIONS FROM THE PLAN DEPTHS ARE TO BE BROUGHT TO THE ATTENTION OF THE ENGINEER.

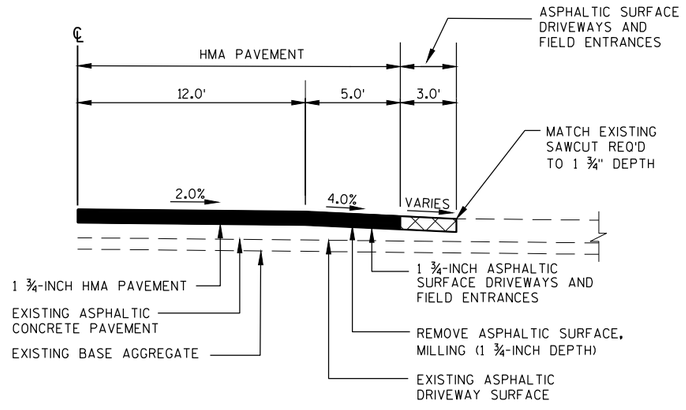
① ASPHALTIC CENTERLINE RUMBLE STRIPS 2-LANE RURAL REQ'D

② ASPHALTIC SHOULDER RUMBLE STRIPS 2-LANE RURAL REQ'D

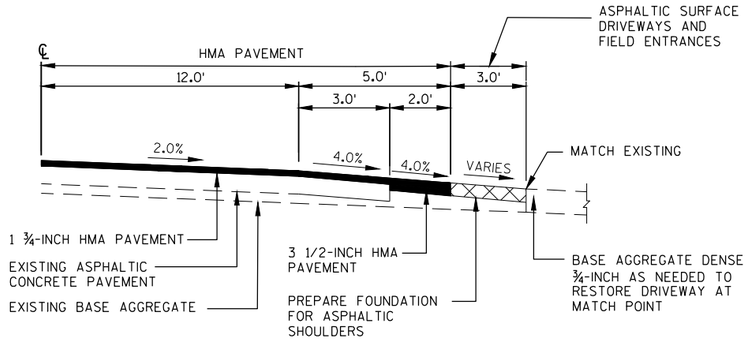
③ EXISTING BEAM GUARD TO REMAIN STA 678+62.32 TO STA 682+87.86



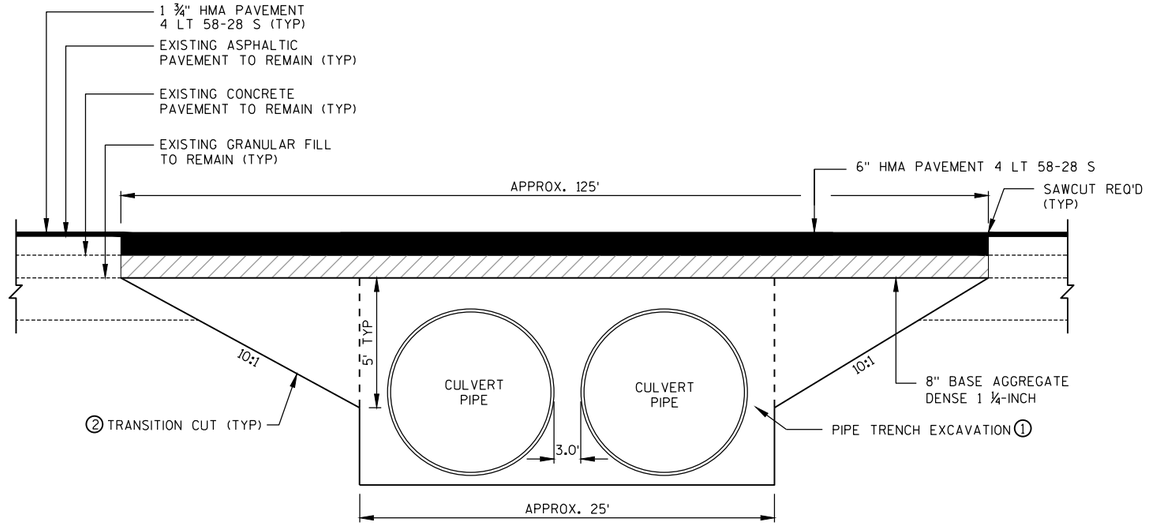
DRIVEWAY



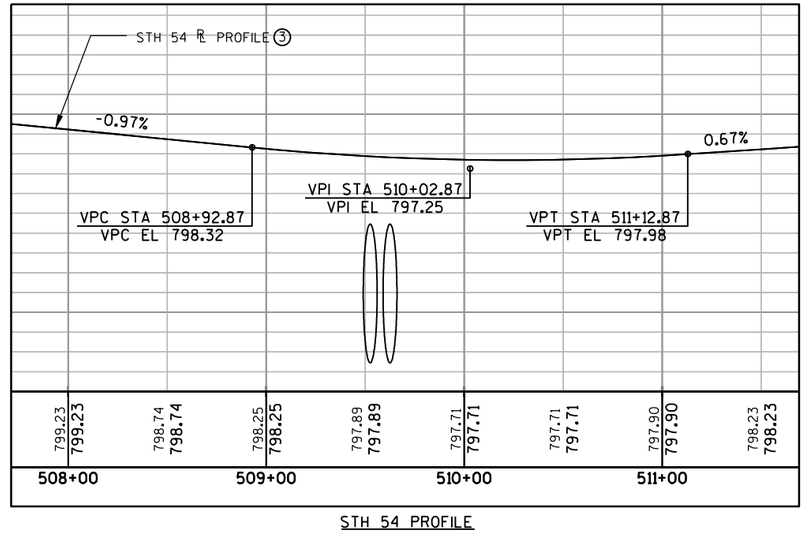
SECTION A-A DRIVEWAY PAVING - EXISTING ASPHALTIC DRIVEWAY



SECTION A-A DRIVEWAY PAVING - EXISTING GRAVEL DRIVEWAY



CULVERT PIPE TRANSITION
STA 508+95 TO STA 510+20
INV 787.28 (N)
INV 787.62 (S)



STH 54 PROFILE

CONSTRUCTION OF CULVERTS SHALL BE IN THE DRY. SEE SPECIAL PROVISIONS.

NOTES

① PIPE TRENCH EXCAVATION IS CONSIDERED INCIDENTAL TO PIPE INSTALLATION. BACKFILL PIPE TRENCH EXCAVATION AND TRANSITION CUT WITH CULVERT FOUNDATION BACKFILL, PAYMENT FOR PIPE TRENCH EXCAVATION BACKFILL IS INCIDENTAL.

② TRANSITION CUT WILL BE PAID FOR AS COMMON EXCAVATION. TRANSITION CUT SHALL BE SHOULDER POINT TO SHOULDER POINT. PAYMENT FOR TRANSITION CUT BACKFILL WILL BE PAID FOR AS "CULVERT PIPE TRANSITION BACKFILL".

③ PROFILE AS SHOWN FOR STH 54 REFERENCE LINE REPRESENTS BEST FIT TO EXISTING CONDITIONS.

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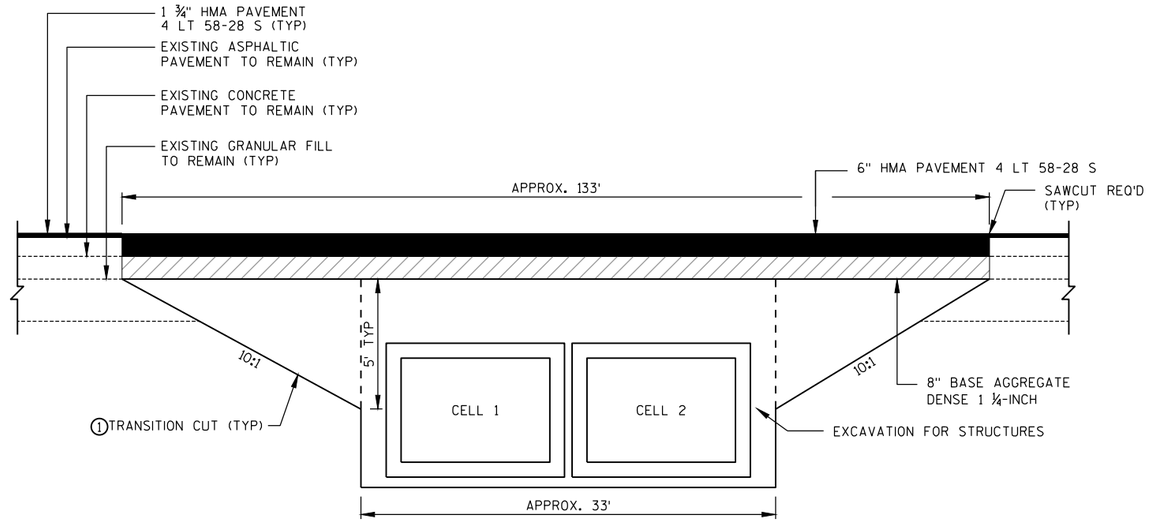
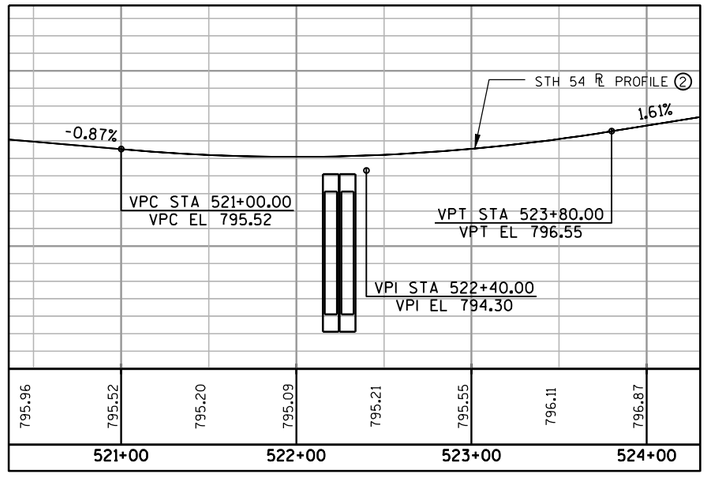


STRUCTURE B-68-140 TRANSITION

STA 521+58 TO STA 522+91

INV 785.00 (N)

INV 785.22 (S)



STH 54 PROFILE

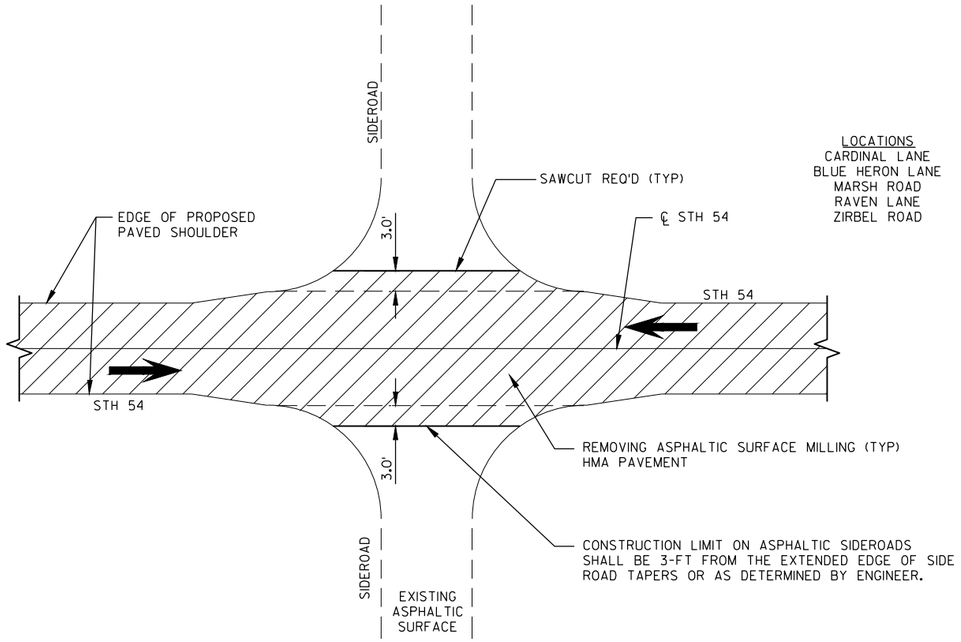
NOTES

SEE B-68-140 STRUCTURE PLANS FOR ADDITIONAL DETAILS.

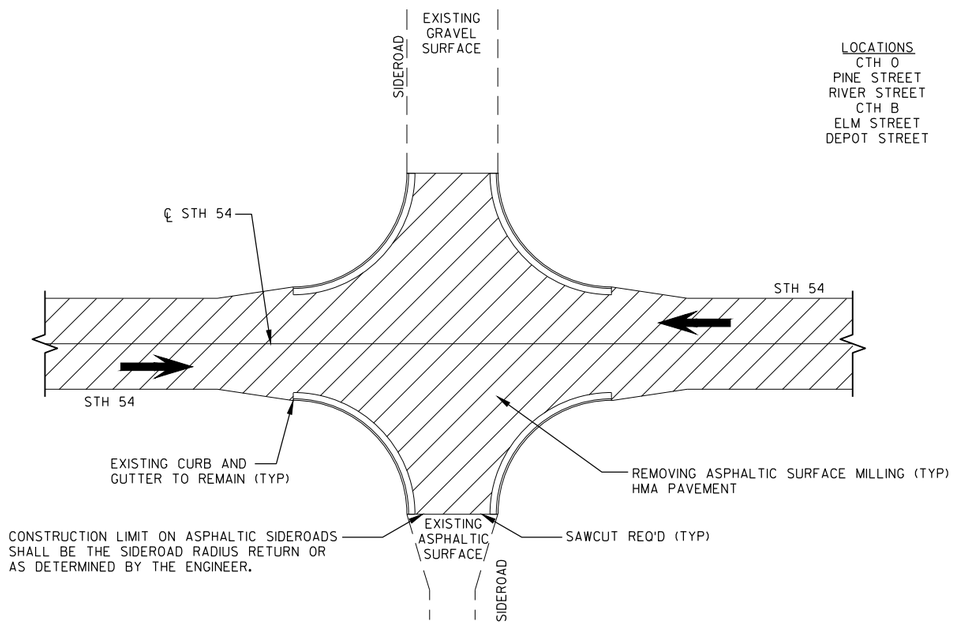
1. TRANSITION CUT WILL BE PAID FOR AS COMMON EXCAVATION. TRANSITION CUT SHALL BE SHOULDER POINT TO SHOULDER POINT. BACKFILL TRANSITION CUT WITH BACKFILL STRUCTURE TYPE B.

2. PROFILE AS SHOWN FOR STH 54 REFERENCE LINE REPRESENTS BEST FIT TO EXISTING CONDITIONS.

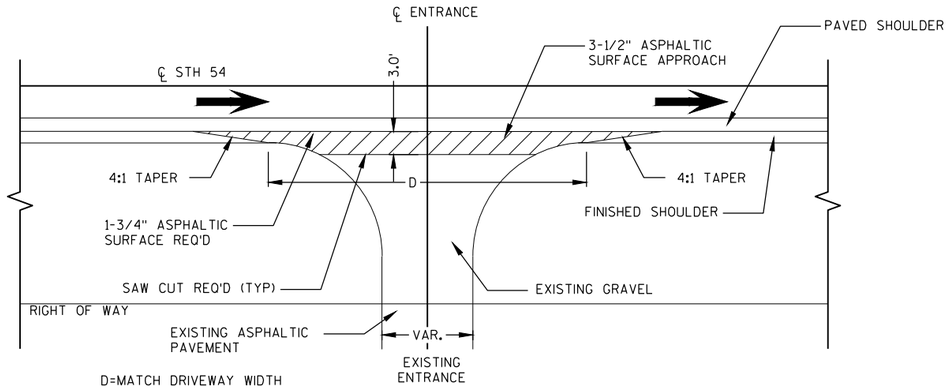
   CONSTRUCTION OF STRUCTURE B-68-140 SHALL BE IN THE DRY. SEE SPECIAL PROVISIONS.



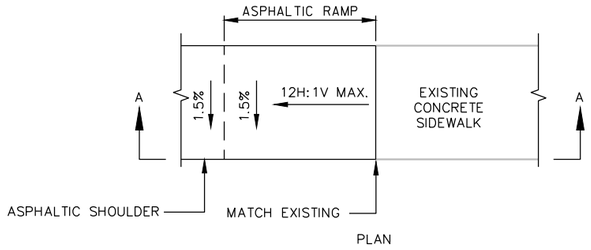
MAINLINE AND SIDEROAD / INTERSECTION PAVING WITH NO CURB & GUTTER

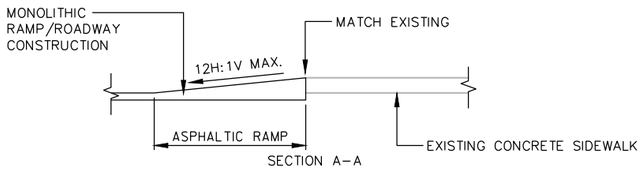


SIDEROAD / INTERSECTION PAVING WITH CURB & GUTTER



RURAL DRIVEWAY INTERSECTION DETAIL
(PE's, FE's & CE's)





ASPHALTIC RAMP DETAIL
STA 650+54.63 LT
STA 652+79.53 LT

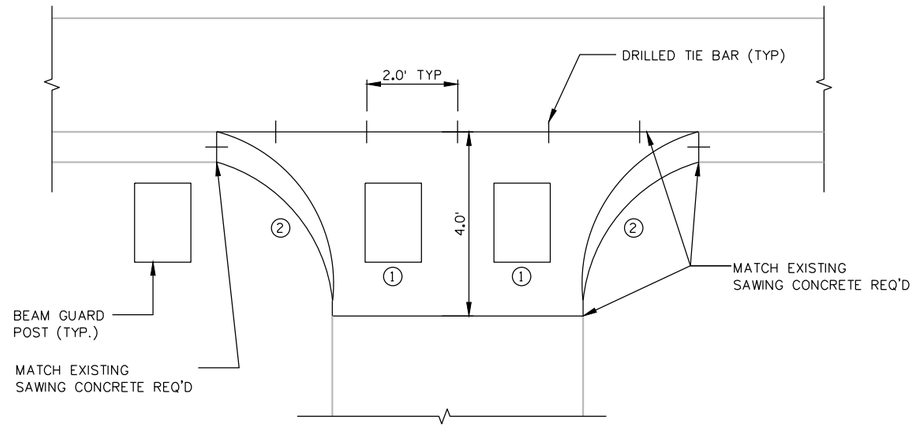
NOTE: ASPHALTIC RAMP CONSTRUCTION WILL BE PAID UNDER BID ITEM "HMA PAVEMENT 4 LT 58-28 S"

NOTES:

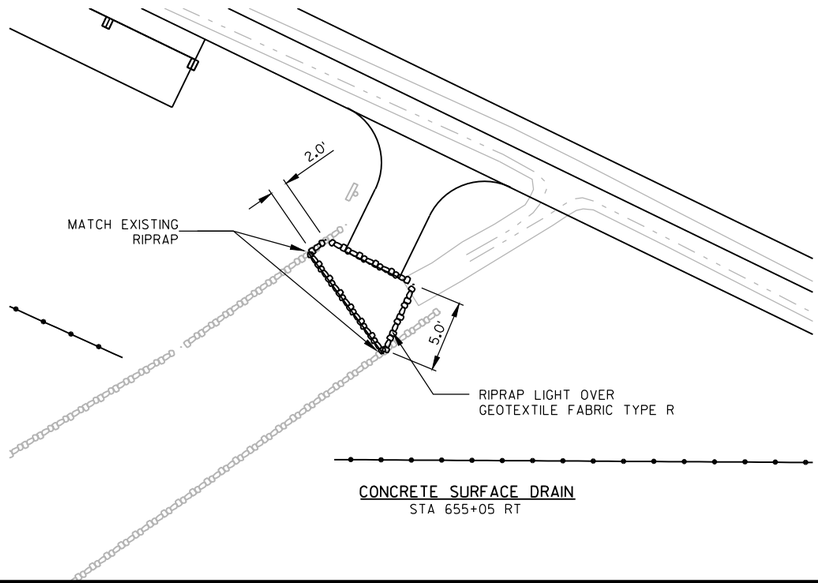
SEE SDD 8D4 "CONCRETE SURFACE DRAINS & ASPHALTIC FLUMES" FOR ADDITIONAL DETAILS.

(1) SEE SDD 14B28 "GUARDRAIL MOW STRIP" FOR GUARDRAIL POST PLACEMENT IN CONCRETE. ESTIMATED NUMBER OF BLOCKOUTS: STA 650+54 RT = 3
STA 652+90 RT = 5

(2) ADJUST RADIUS AS NEEDED TO ACCOMMODATE POST PLACEMENT.

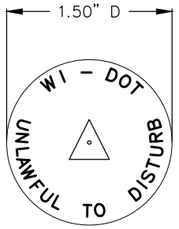


CONCRETE SURFACE DRAIN
STA 650+54 RT
STA 652+90 RT



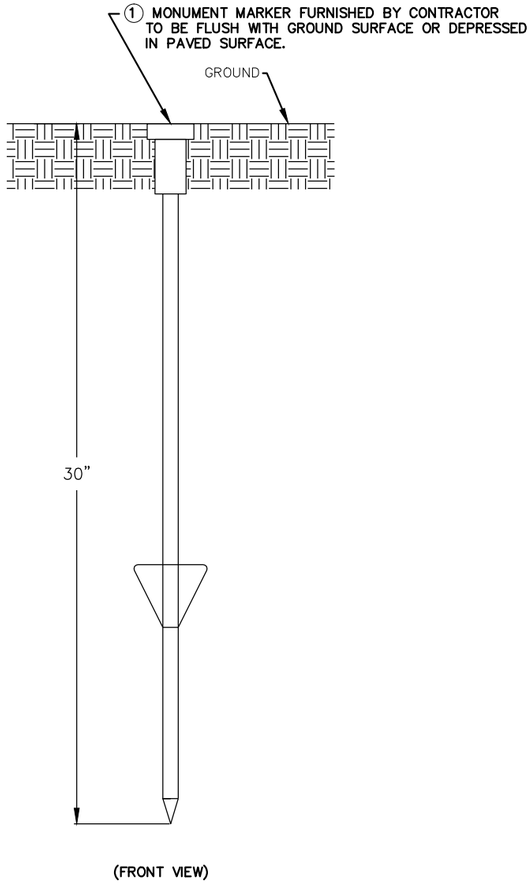
CONCRETE SURFACE DRAIN
STA 655+05 RT

2



① WIS DOT MONUMENT CAP MARKER LOGO (SSDR130)

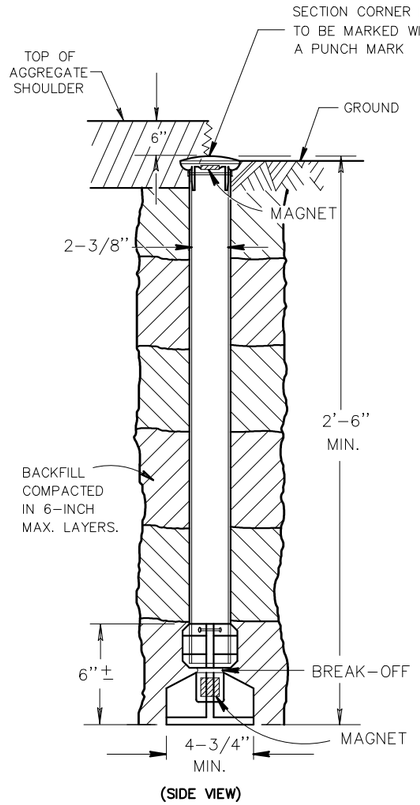
CONTRACTOR TO ORDER LANDMARK REFERENCE MONUMENTS WITH THE ABOVE STAMPING



(FRONT VIEW)

BERNTSEN DRIVABLE MONUMENT SSDR130

LANDMARK REFERENCE MONUMENT (TIES ONLY)

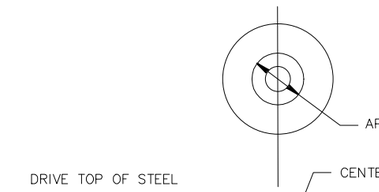


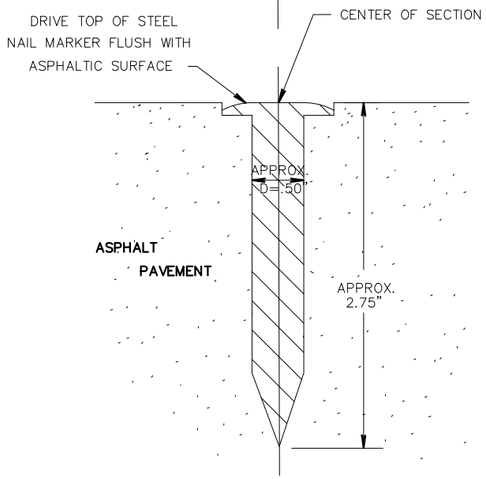
(SIDE VIEW)

OUTSIDE OF PAVEMENT

Ⓑ BERNTSEN A1BR30 ALUMINUM BREAK-OFF MONUMENT

CENTER OF SECTION CORNER (PLAN VIEW)



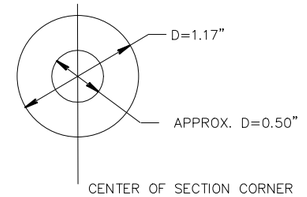


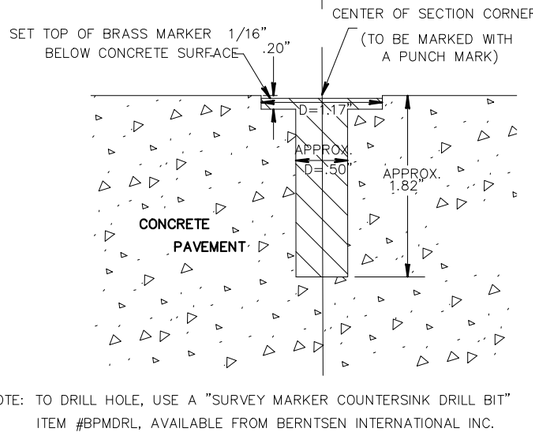
(SIDE VIEW)

IN ASPHALTIC PAVEMENT

Ⓑ BERNTSEN SNM1 STEEL NAIL MARKER

CENTER OF SECTION CORNER (PLAN VIEW OF DRILL HOLE)





NOTE: TO DRILL HOLE, USE A "SURVEY MARKER COUNTERSINK DRILL BIT" ITEM #BPMDRL, AVAILABLE FROM BERNTSEN INTERNATIONAL INC.

(SIDE VIEW OF DRILL HOLE)

IN CONCRETE PAVEMENT

Ⓑ BERNTSEN BP – 1 BRASS MARKER WITH ANCHOR PLUG

SECTION CORNER MONUMENTS

GENERAL NOTES

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

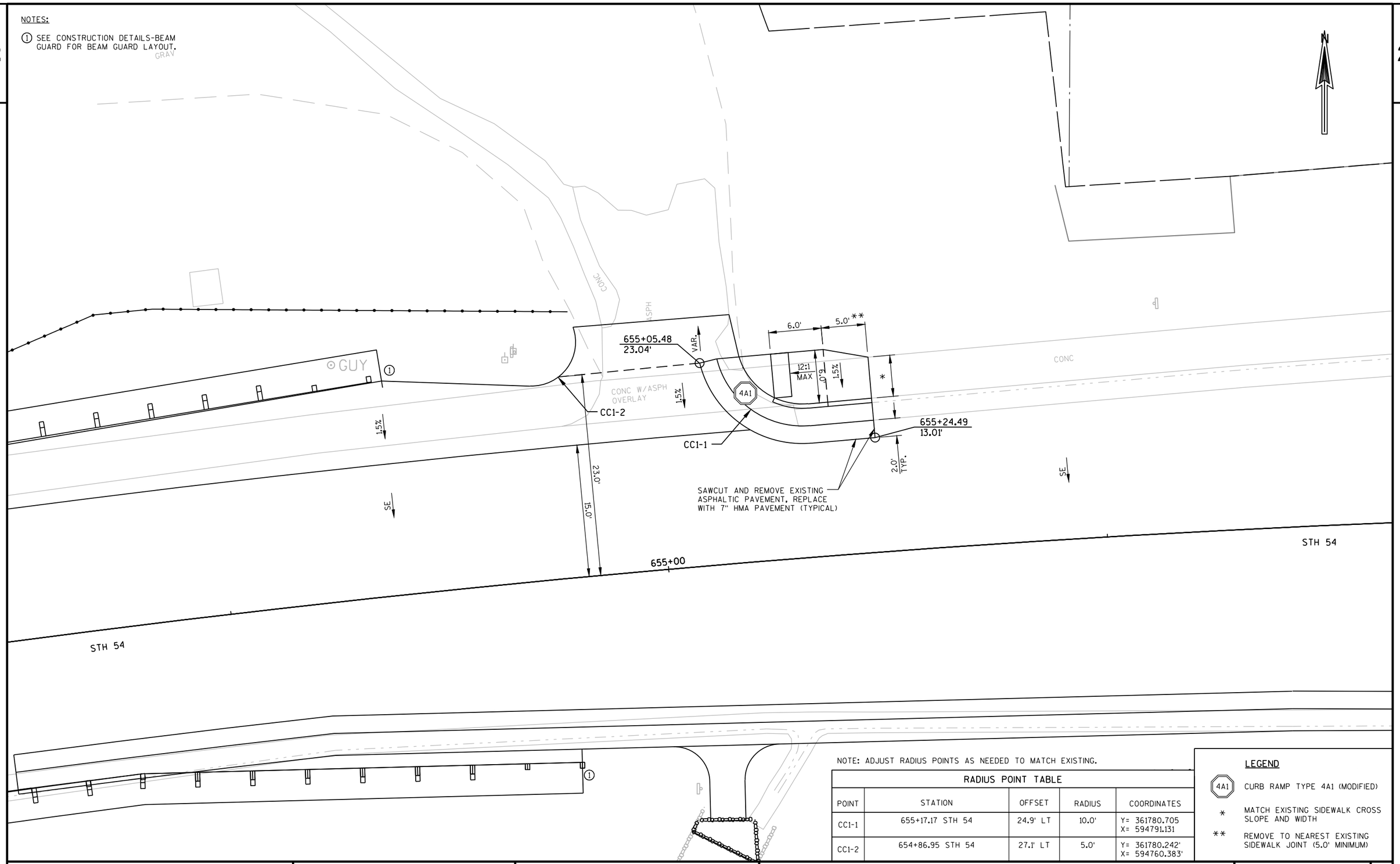
LOCATE LANDMARK REFERENCE MONUMENTS OUTSIDE THE CONSTRUCTION LIMITS AND WITHIN WISDOT RIGHT OF WAY. LOCATION TO BE APPROVED BY THE ENGINEER.

Ⓑ CONTRACTOR WILL SUPPLY.

SECTION CORNER MONUMENT AND LANDMARK REFERENCE MONUMENT DETAIL

NOTES:

① SEE CONSTRUCTION DETAILS-BEAM GUARD FOR BEAM GUARD LAYOUT.



NOTE: ADJUST RADIUS POINTS AS NEEDED TO MATCH EXISTING.

RADIUS POINT TABLE

POINT	STATION	OFFSET	RADIUS	COORDINATES
CC1-1	655+17.17 STH 54	24.9' LT	10.0'	Y= 361780.705 X= 594791.131
CC1-2	654+86.95 STH 54	27.1' LT	5.0'	Y= 361780.242' X= 594760.383'

LEGEND

4A1 — CURB RAMP TYPE 4A1 (MODIFIED)

* — MATCH EXISTING SIDEWALK CROSS SLOPE AND WIDTH

** — REMOVE TO NEAREST EXISTING SIDEWALK JOINT (5.0' MINIMUM)

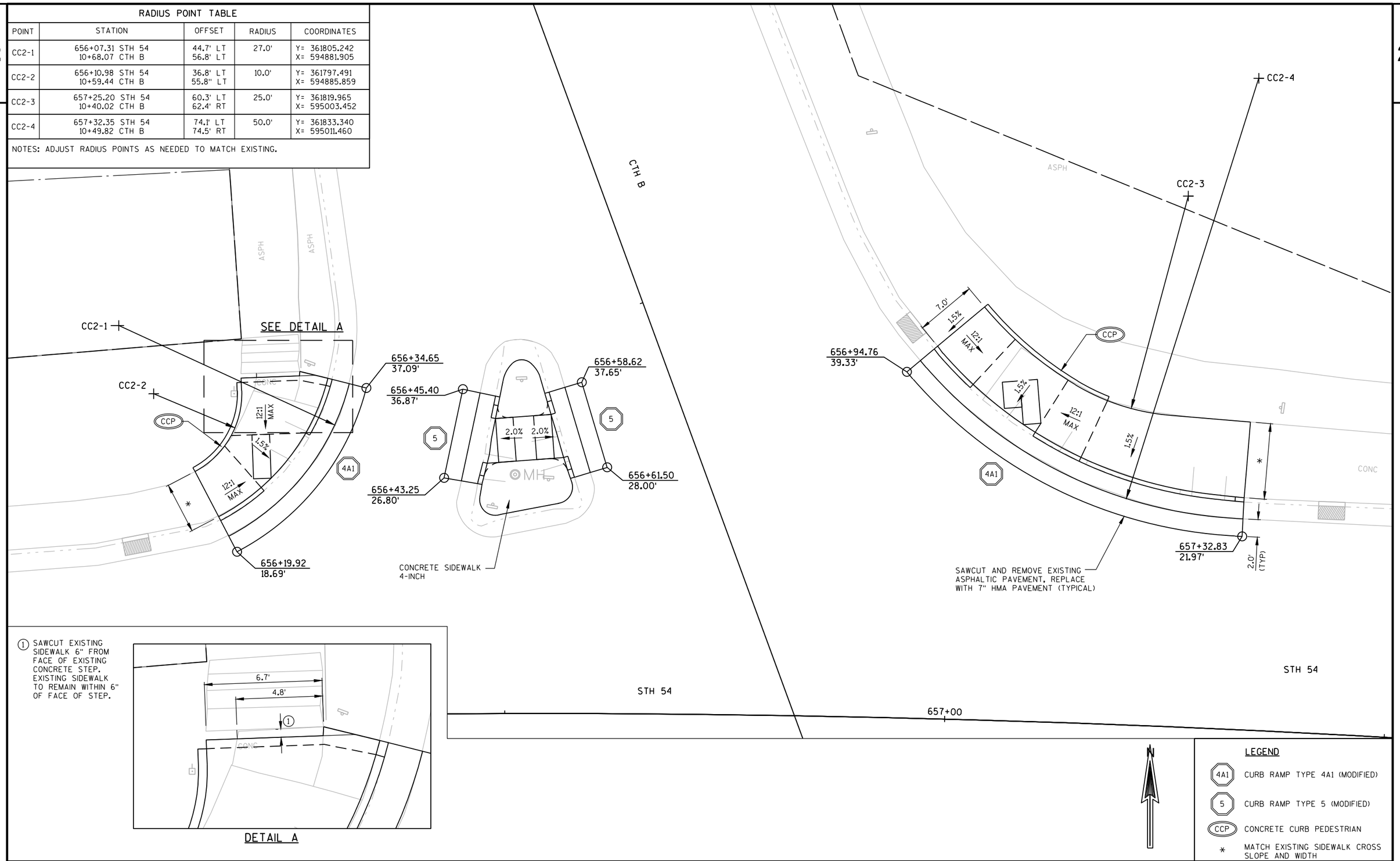
PROJECT NO: 6220-03-74	HWY: STH 54	COUNTY: WAUPACA	CONSTRUCTION DETAILS-CURB RAMPS	SHEET 14	E

FILE NAME : O:\PDS\C3D\62200304\SHEETSPLAN\CDSTH54.DWG

SHEET NAME: CDSTH5405A

RADIUS POINT TABLE				
POINT	STATION	OFFSET	RADIUS	COORDINATES
CC2-1	656+07.31 STH 54 10+68.07 CTH B	44.7' LT 56.8' LT	27.0'	Y= 361805.242 X= 594881.905
CC2-2	656+10.98 STH 54 10+59.44 CTH B	36.8' LT 55.8'' LT	10.0'	Y= 361797.491 X= 594885.859
CC2-3	657+25.20 STH 54 10+40.02 CTH B	60.3' LT 62.4' RT	25.0'	Y= 361819.965 X= 595003.452
CC2-4	657+32.35 STH 54 10+49.82 CTH B	74.1' LT 74.5' RT	50.0'	Y= 361833.340 X= 595011.460

NOTES: ADJUST RADIUS POINTS AS NEEDED TO MATCH EXISTING.



① SAWCUT EXISTING SIDEWALK 6" FROM FACE OF EXISTING CONCRETE STEP. EXISTING SIDEWALK TO REMAIN WITHIN 6" OF FACE OF STEP.

DETAIL A

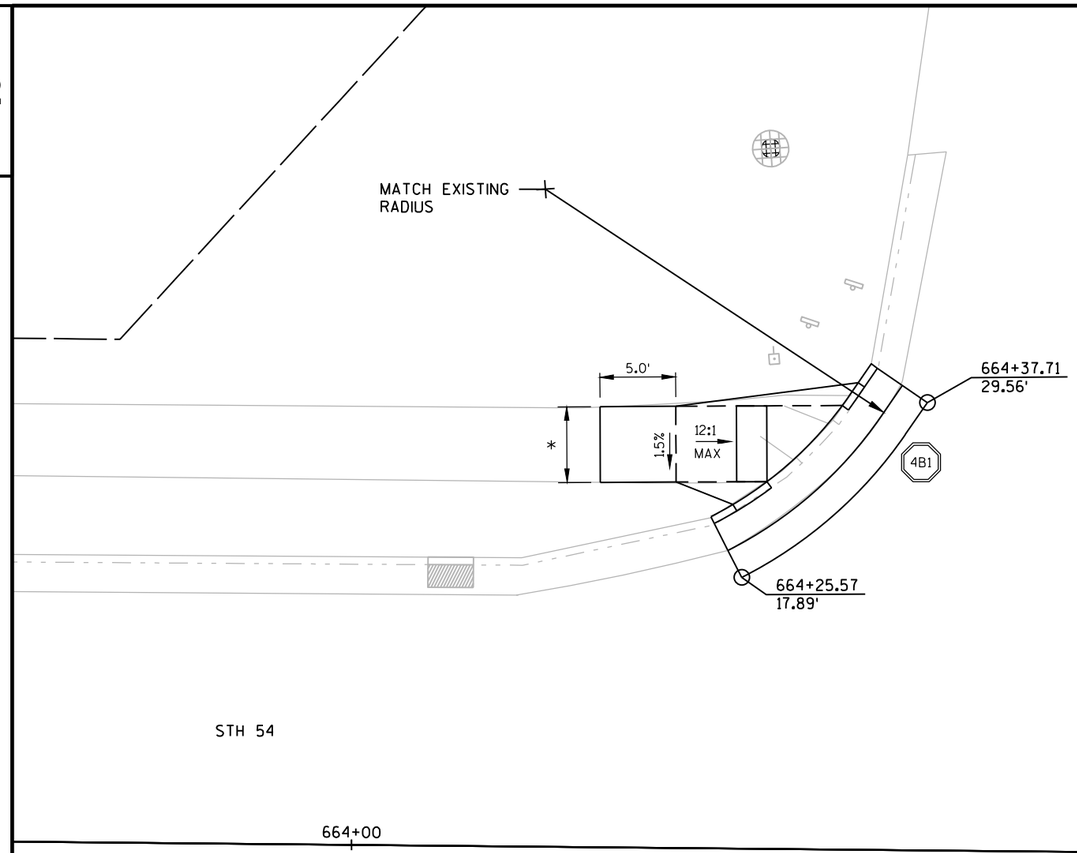
LEGEND

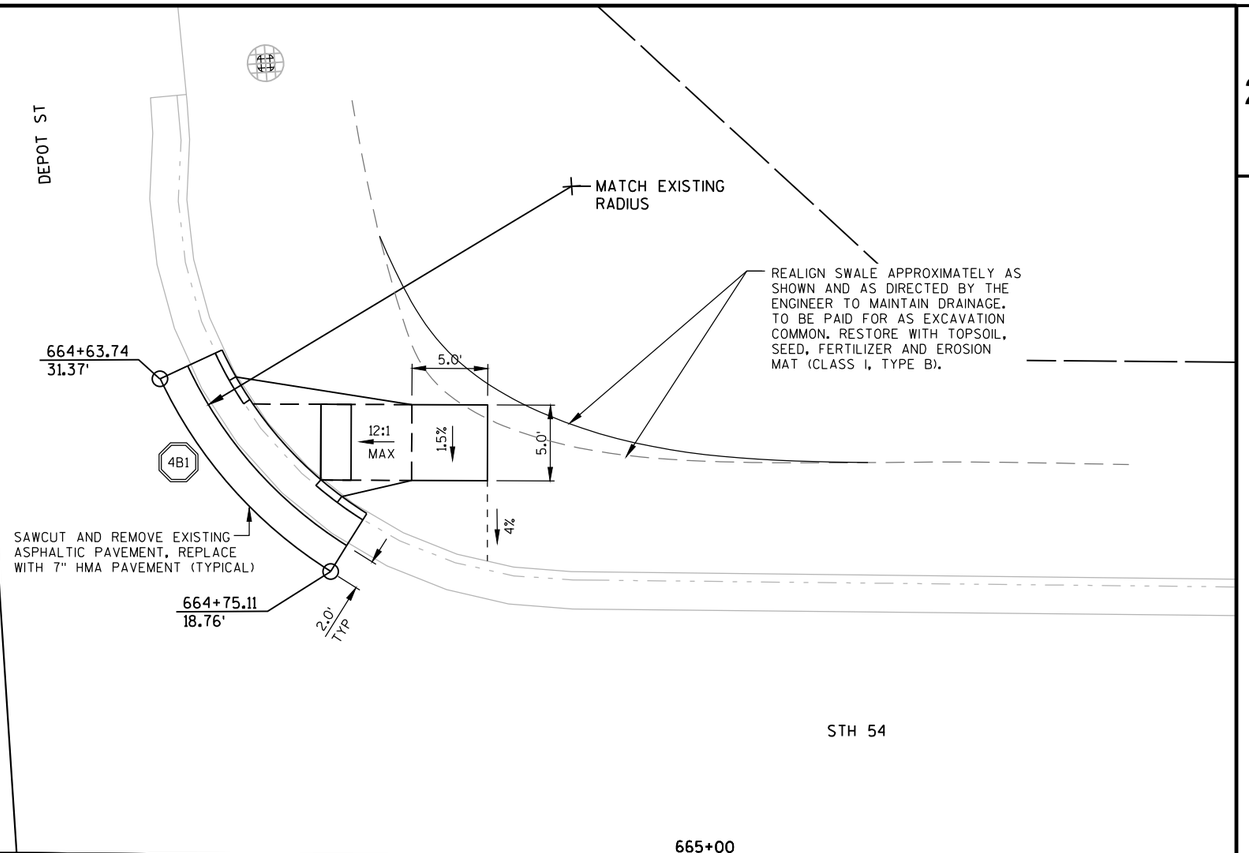
- 4A1 — CURB RAMP TYPE 4A1 (MODIFIED)
- 5 — CURB RAMP TYPE 5 (MODIFIED)
- CCP — CONCRETE CURB PEDESTRIAN
- * — MATCH EXISTING SIDEWALK CROSS SLOPE AND WIDTH

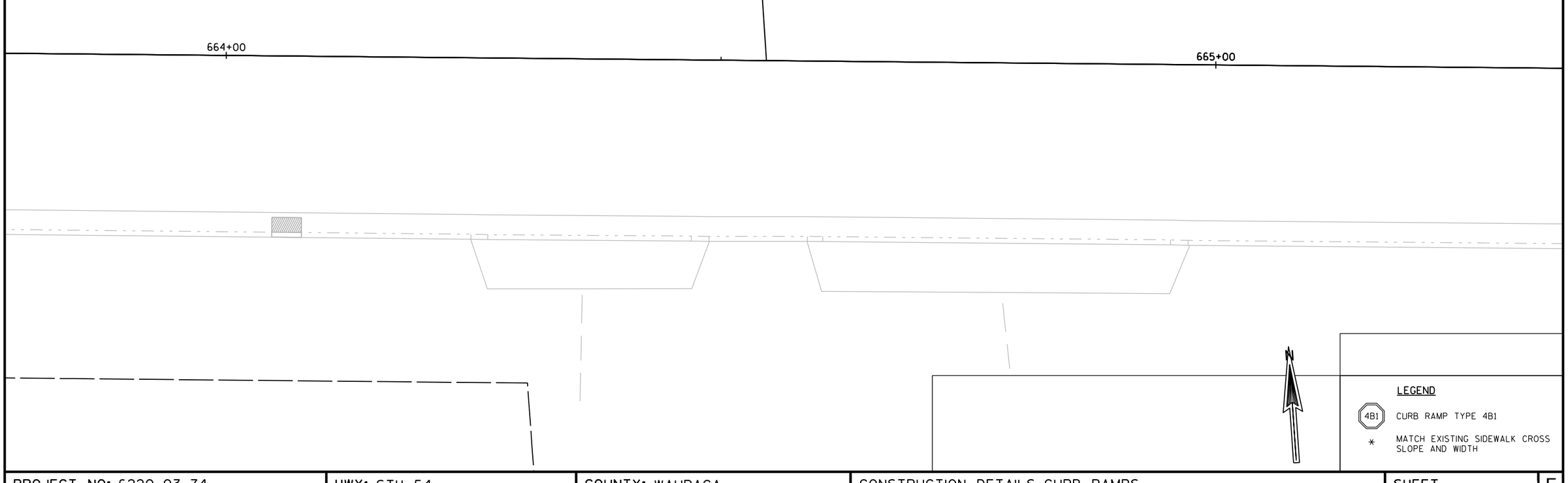
PROJECT NO: 6220-03-74	HWY: STH 54	COUNTY: WAUPACA	CONSTRUCTION DETAILS-CURB RAMPS	SHEET 15	E

FILE NAME : O:\PDS\C3D\62200304\SHEETSPLAN\CDSTH54.DWG

SHEET NAME: CDSTH5405







PROJECT NO: 6220-03-74	HWY: STH 54	COUNTY: WAUPACA	CONSTRUCTION DETAILS-CURB RAMPS	SHEET 16	E

FILE NAME : O:\PDS\C3D\62200304\SHEETSPLAN\CDSTH54.DWG

SHEET NAME: CDSTH5406

2

MGS EAT POST 1
STA 649+24.98, 21.81' LT

STA 650+26.74 TO
STA 650+39.24
MGS GUARDRAIL 3 QS
REQ'D

ASPHALTIC RAMP REQ'D
SEE DETAIL

MIDWEST GUARDRAIL SYSTEMS (NW QUAD)

39 LF MGS THRIE BEAM TRANSITION
50 LF MGS GUARDRAIL 3
12.5 LF MGS GUARDRAIL 3 QS
1 EA MGS GUARDRAIL TERMINAL EAT

+75.2
14.7' LT

+22.5
15.0' LT

15.0'

MILL AND PAVE ASPHALTIC
SHOULDER AT 1.5%

18.6'
FACE OF RAIL

649+00

650+00

651+00

STRUCTURE B-68-0739
TO REMAIN

STA 649+53.53
END DRIVEWAY CURB HEAD

+28.66
15.0' RT

16.7'
FACE OF RAIL

SAWCUT REQ'D

2.0'
(TYP.)

SAWCUT AND REMOVE
ASPHALTIC PAVEMENT.
REPLACE WITH 7" HMA
PAVEMENT.

MGS EAT POST 1
STA 649+41.10, 26.21' RT

CONCRETE SURFACE
DRAIN, SEE DETAIL

SEE SDD "GUARDRAIL MOW STRIP" FOR
DIMENSIONS AND LOCATIONS OF TYPICAL
BLOCKOUT LAYOUT.

SEE TYPICAL SECTIONS FOR CURB &
GUTTER REPLACEMENT INFORMATION.

+17.76
52.5' RT

BEAM GUARD LAYOUT (WEST)

MIDWEST GUARDRAIL SYSTEMS (SW QUAD)

39 LF MGS THRIE BEAM TRANSITION
44 LF MGS GUARDRAIL 3
1 EA MGS GUARDRAIL TERMINAL EAT

MIDWEST GUARDRAIL SYSTEMS (NE QUAD)

39 LF MGS THRIE BEAM TRANSITION
122 LF MGS GUARDRAIL 3
1 EA MGS GUARDRAIL TERMINAL EAT

MIDWEST GUARDRAIL SYSTEMS (SE QUAD)

39 LF MGS THRIE BEAM TRANSITION
138 LF MGS GUARDRAIL 3
1 EA MGS GUARDRAIL TERMINAL EAT

655+03.48
23.04'

SEE CONSTRUCTION
DETAILS-CURB RAMPS

655+24.49
13.01'

MGS EAT POST 1
STA 654+68.40, 24.44' LT

15.0'

655+00

654+00

ASPHALTIC SHOULDER AT 1.5%

MGS EAT POST 1
STA 654+88.16, 20.95' RT

CONCRETE SURFACE
DRAIN, SEE DETAIL

2.0'
(TYP.)

+23.40
14.8' RT

+60.14
14.8' RT

ASPHALTIC RAMP REQ'D
SEE DETAIL

14.1'

653+00

SAWCUT AND REMOVE
ASPHALTIC PAVEMENT.
REPLACE WITH 7" HMA
PAVEMENT.

656+00

STRUCTURE B-68-0739
TO REMAIN

SEE TYPICAL SECTIONS FOR CURB &
GUTTER REPLACEMENT INFORMATION.

+91.06
19.52' RT

2.0'
(TYP.)

CONCRETE SURFACE
DRAIN, SEE DETAIL

SEE SDD "GUARDRAIL MOW STRIP" FOR
DIMENSIONS AND LOCATIONS OF TYPICAL
BLOCKOUT LAYOUT.

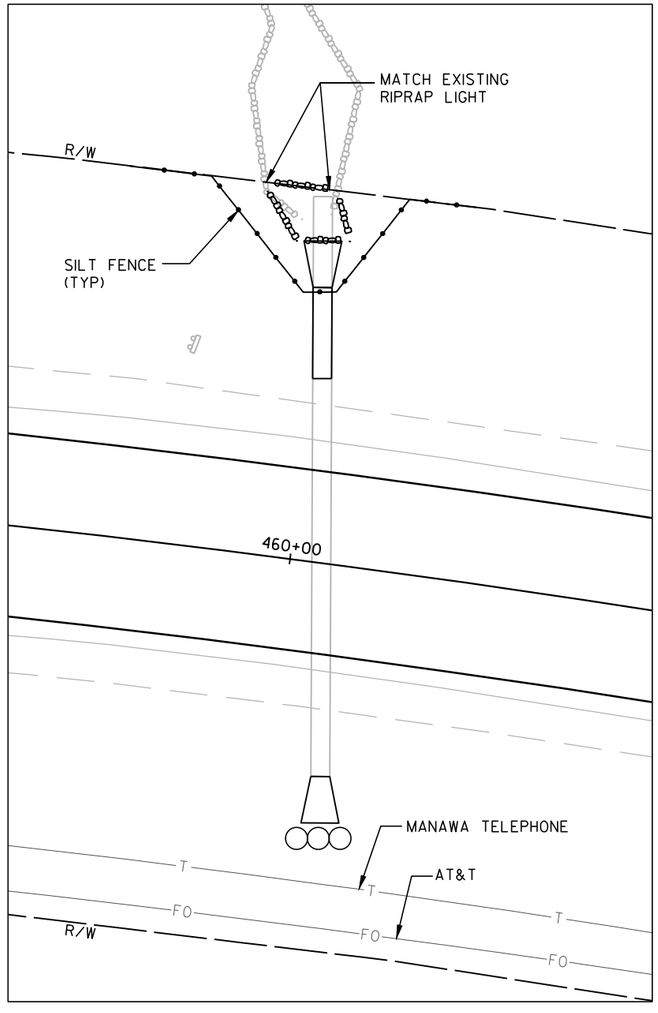
BEAM GUARD LAYOUT (EAST)

PROJECT NO: 6220-03-74	HWY: STH 54	COUNTY: WAUPACA	CONSTRUCTION DETAILS-BEAM GUARD	SHEET 17	E

FILE NAME : O:\PDS\C3D\62200304\SHEETSPLAN\CDSTH54.DWG

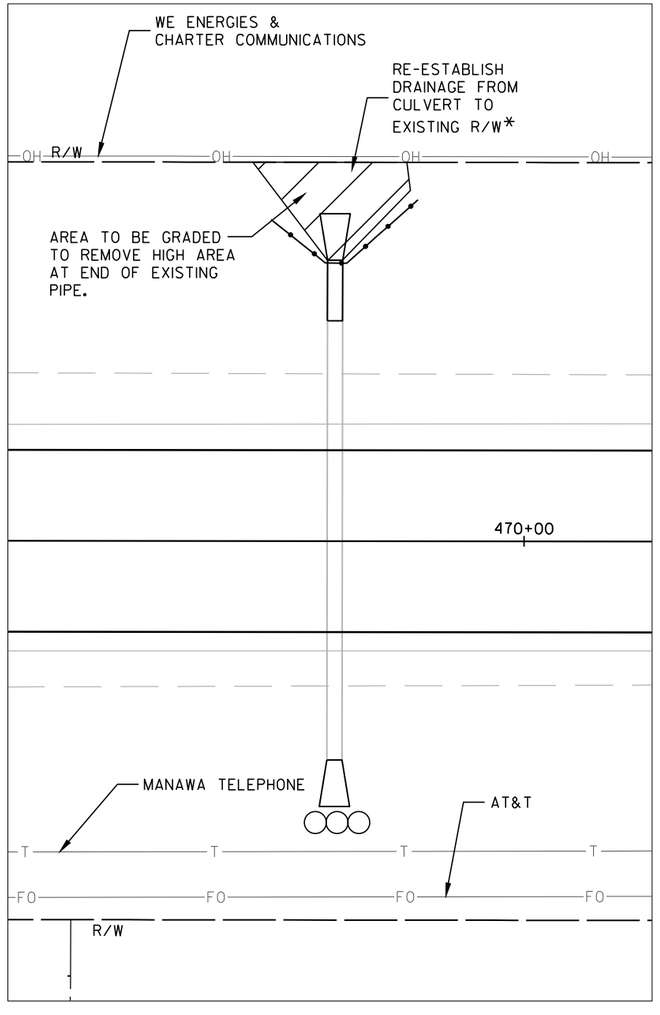
SHEET NAME: CDSTH5407

DETAIL A - STA 460+04

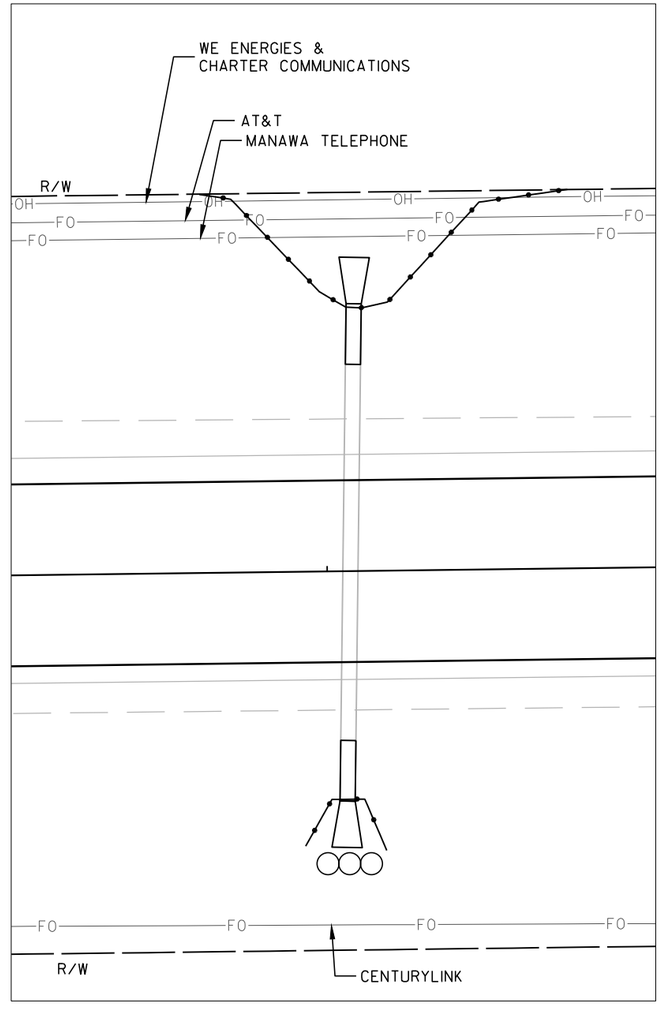


DITCH RE-ESTABLISHMENT*		
STA	EXISTING ELEVATION	PROPOSED ELEVATION
459+70 RT	802.00	MATCH
459+85 RT	801.70	801.30
460+04 RT	802.90	800.60
460+40 RT	803.60	801.86
460+84 RT	803.40	MATCH

DETAIL B - STA 469+75



DETAIL E - STA 571+03



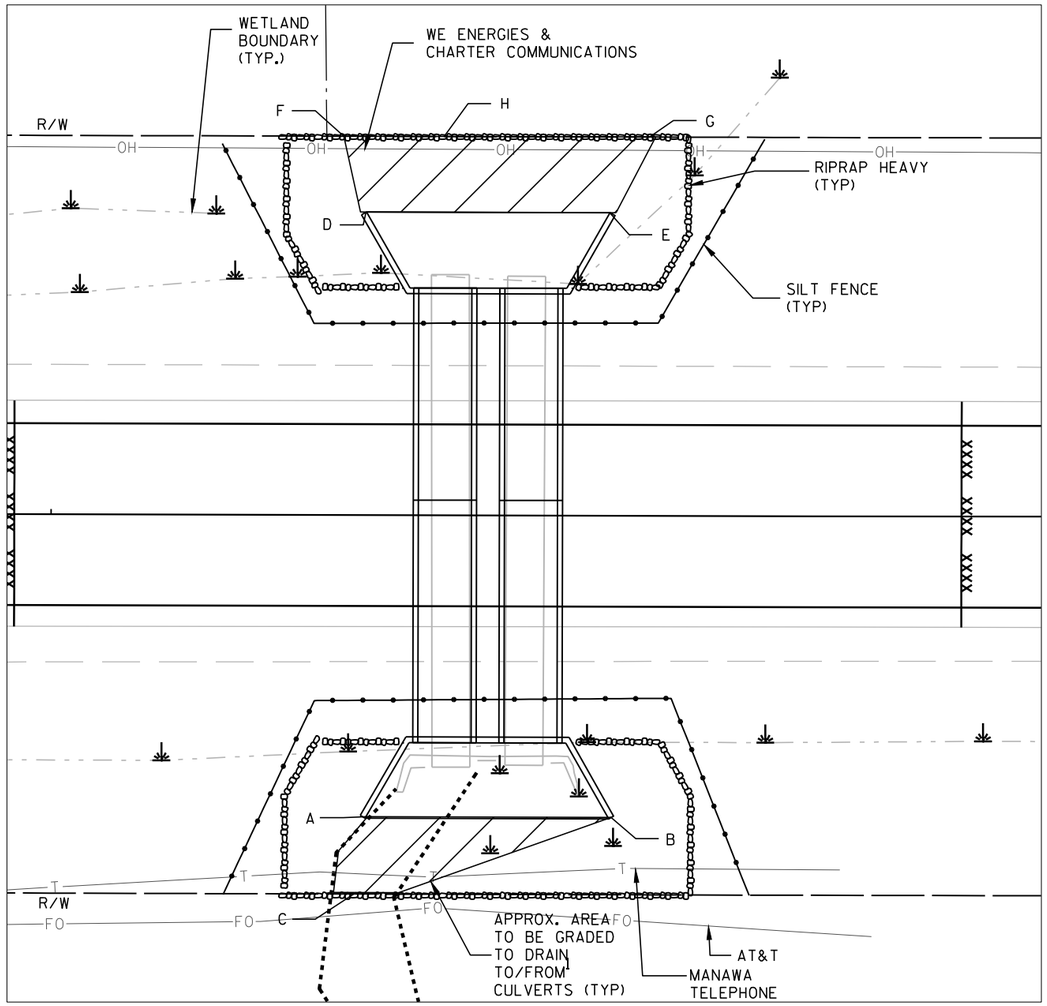
LEGEND	
	SILT FENCE
	CULVERT PIPE CHECK

NOTE: RESTORE DISTURBED AREAS WITH TOPSOIL, SEED, FERTILIZER, AND EROSION MAT (CLASS I TYPE B).

*CONTRACTOR TO FIELD VERIFY ELEVATIONS

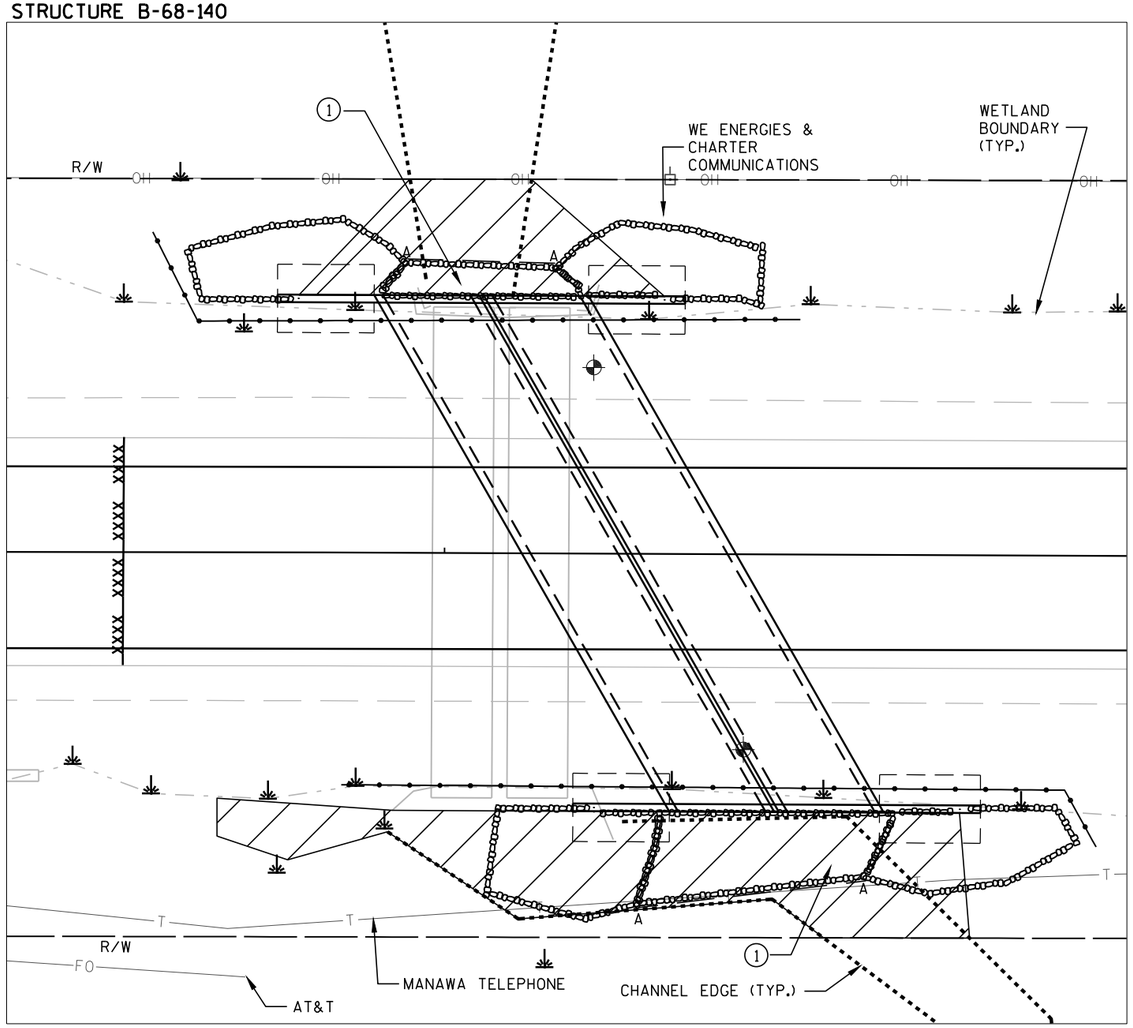
*CONTRACTOR TO FIELD VERIFY ELEVATIONS

DETAIL C - STA 509+58
CULVERT 68054018



CHANNEL RE-ESTABLISHMENT*					
POINT	EXISTING ELEVATION	PROPOSED STREAMBED ELEVATION	POINT	EXISTING ELEVATION	PROPOSED STREAMBED ELEVATION
A	791.75	789.62	E	791.38	789.28
B	791.64	789.62	F	792.76	MATCH
C	790.00	MATCH	G	790.45	MATCH
D	790.98	789.28	H	789.11	MATCH

DETAIL D - STA 522+24
STRUCTURE B-68-140



SEE CONSTRUCTION DETAIL - CONTOUR MAP AND B-68-140 STRUCTURE PLANS FOR CHANNEL RE-ESTABLISHMENT INFORMATION*

NOTE: RESTORE DISTURBED AREAS WITH TOPSOIL, SEED, FERTILIZER, AND EROSION MAT (CLASS I TYPE B).

(1) PLACE RIPRAP LIGHT OVER GEOTEXTILE FABRIC TYPE R BETWEEN END OF CULVERTS AND LIMITS OF RIPRAP HEAVY. ELEVATION OF TOP OF RIPRAP LIGHT TO MATCH ELEVATION OF BOTTOM OF RIPRAP HEAVY. DEPTH OF RIPRAP LIGHT TO BE 2' AT CULVERT END, 1' AT LINE A-A. TAPER TO BOTTOM OF CULVERTS IN 6' WITHIN CULVERT BARREL.

2

N

EXISTING R/W

WE ENERGIES

PROPOSED STRUCTURE B-68-140

EXISTING STRUCTURE C-68-9013

EXISTING R/W

STH 54

520+00 521+00 522+00 523+00 524+00

790 795 796

PROJECT NO: 6220-03-74	HWY: STH 54	COUNTY: WAUPACA	CONTOUR MAP	SHEET 20	E

FILE NAME : O:\PDS\C3D\62200304\SHEETSOTHER\STH54_CONTOURMAP.DWG

SHEET NAME: B68140 CONTOURS

2

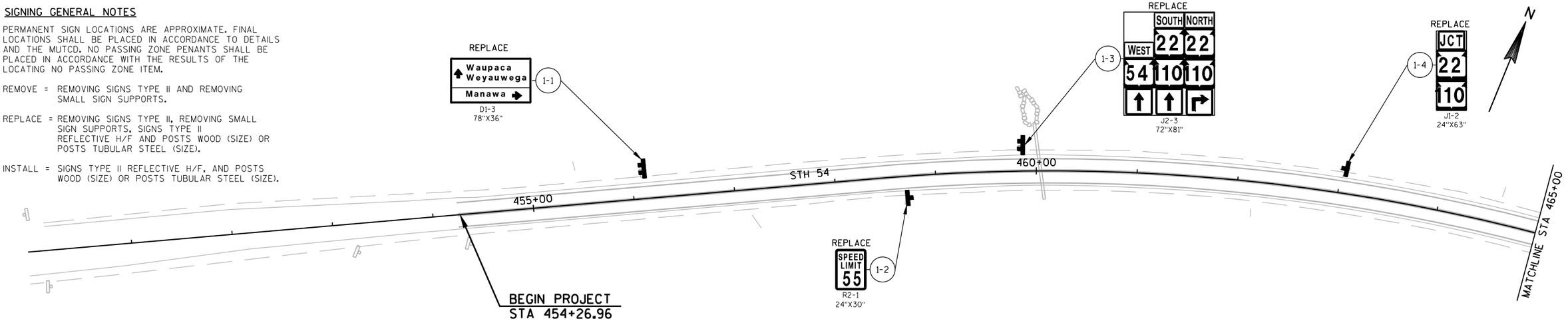
SIGNING GENERAL NOTES

PERMANENT SIGN LOCATIONS ARE APPROXIMATE. FINAL LOCATIONS SHALL BE PLACED IN ACCORDANCE TO DETAILS AND THE MUTCD. NO PASSING ZONE PENANTS SHALL BE PLACED IN ACCORDANCE WITH THE RESULTS OF THE LOCATING NO PASSING ZONE ITEM.

REMOVE = REMOVING SIGNS TYPE II AND REMOVING SMALL SIGN SUPPORTS.

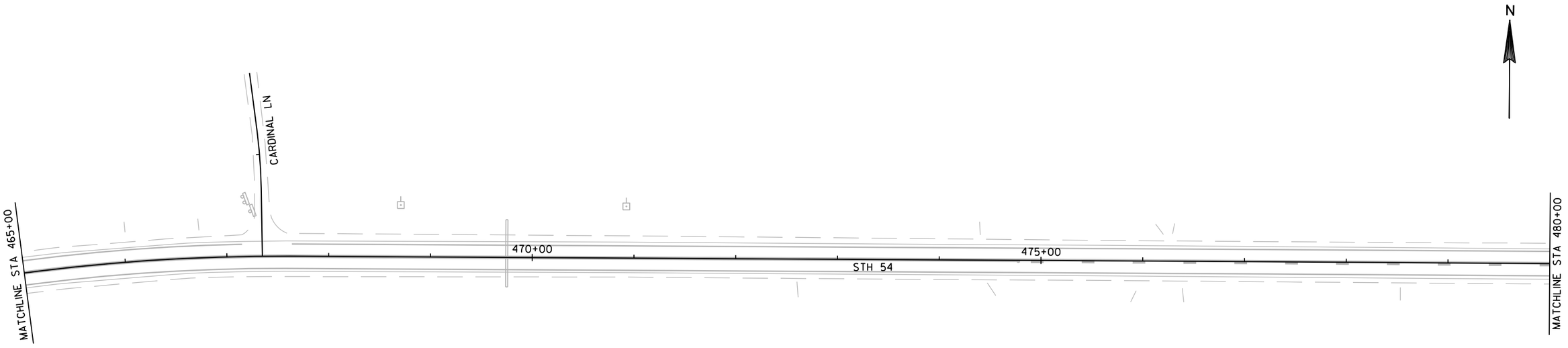
REPLACE = REMOVING SIGNS TYPE II, REMOVING SMALL SIGN SUPPORTS, SIGNS TYPE II REFLECTIVE H/F AND POSTS WOOD (SIZE) OR POSTS TUBULAR STEEL (SIZE).

INSTALL = SIGNS TYPE II REFLECTIVE H/F, AND POSTS WOOD (SIZE) OR POSTS TUBULAR STEEL (SIZE).



SIGN LEGEND

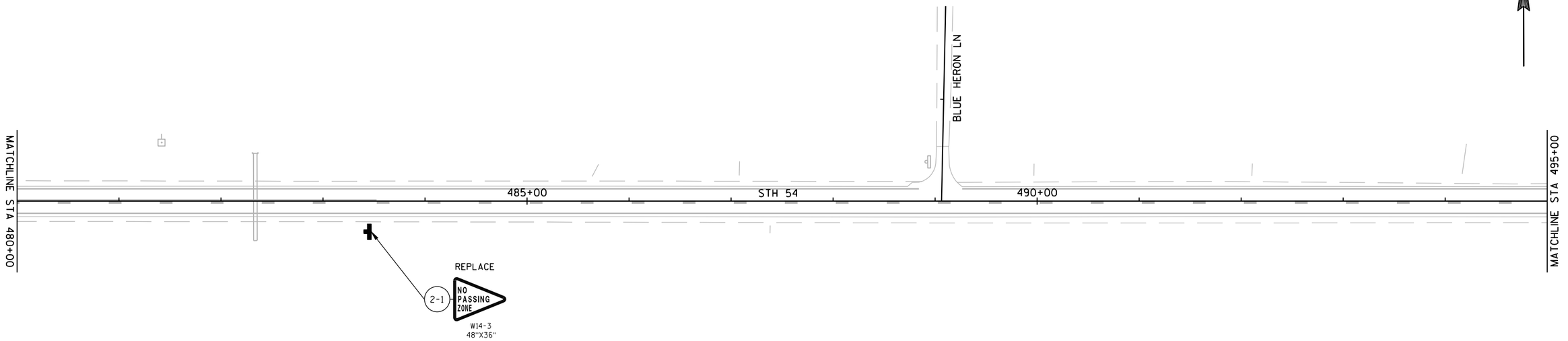
- X-X — SIGN GROUP NUMBER
- SIGNS TYPE II ON ONE/TWO POSTS
- EXISTING SIGNS TYPE II ON POSTS



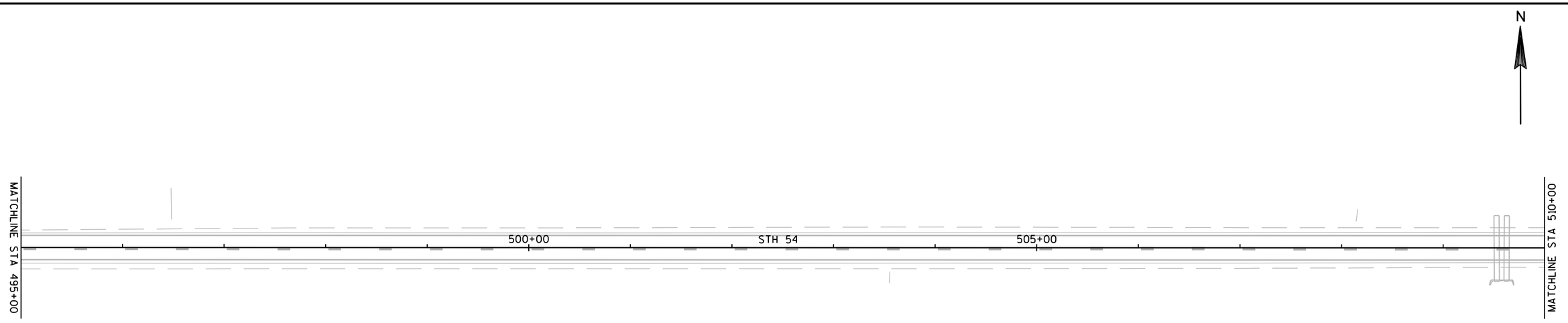
PROJECT NO: 6220-03-74	HWY: STH 54	COUNTY: WAUPACA	SIGNING	SHEET 21	E

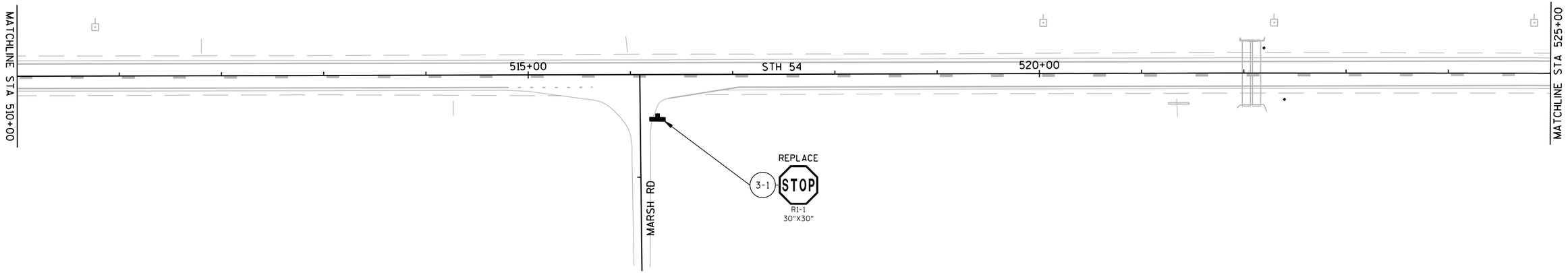
FILE NAME : O:\PDS\C3D\62200304\SHEETSPLAN\SNSTH54.DWG

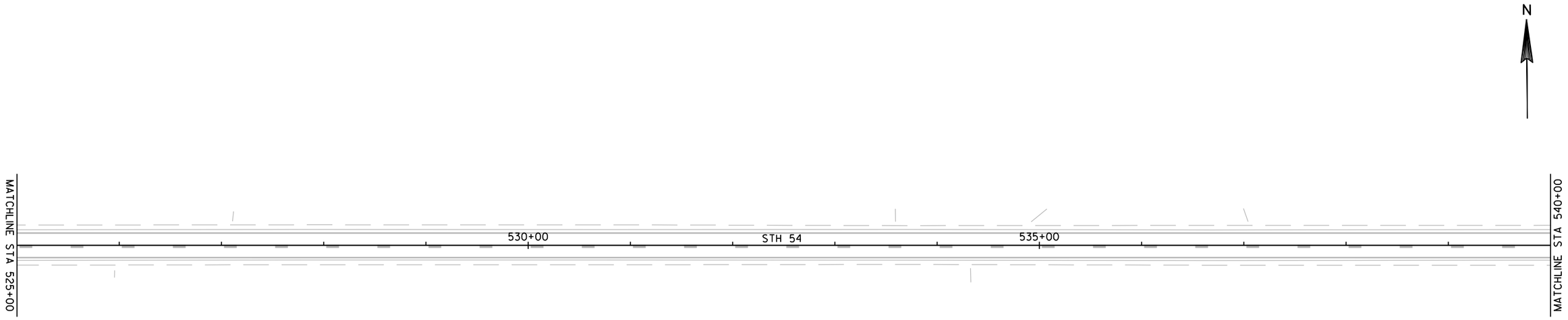
SHEET NAME: 023201PS


N
BLUE HERON LN
MATCHLINE STA 480+00
485+00
STH 54
490+00
MATCHLINE STA 495+00
REPLACE
2-1
NO PASSING ZONE
W14-3
48"X36"

2


N
MATCHLINE STA 495+00
500+00
STH 54
505+00
MATCHLINE STA 510+00



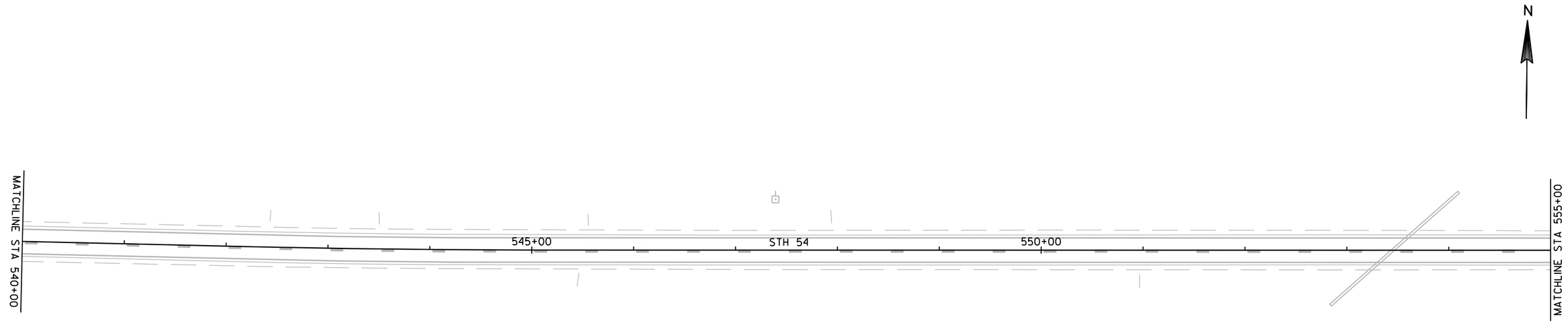


PROJECT NO: 6220-03-74	HWY: STH 54	COUNTY: WAUPACA	SIGNING	SHEET 23	E

FILE NAME : O:\PDS\C3D\62200304\SHEETSPLAN\SNSTH54.DWG

SHEET NAME: 023203PS

2

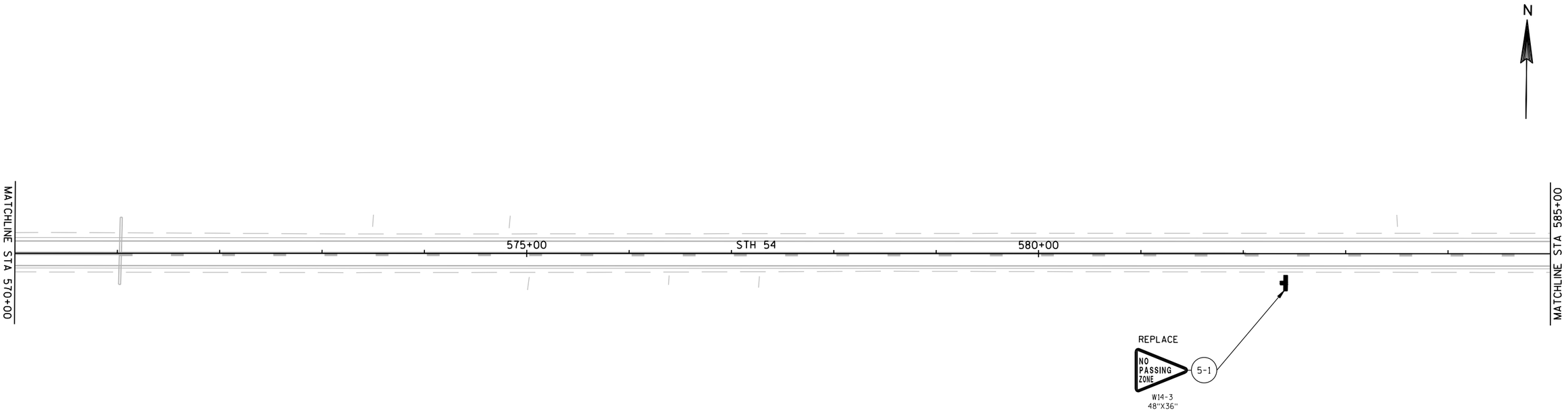


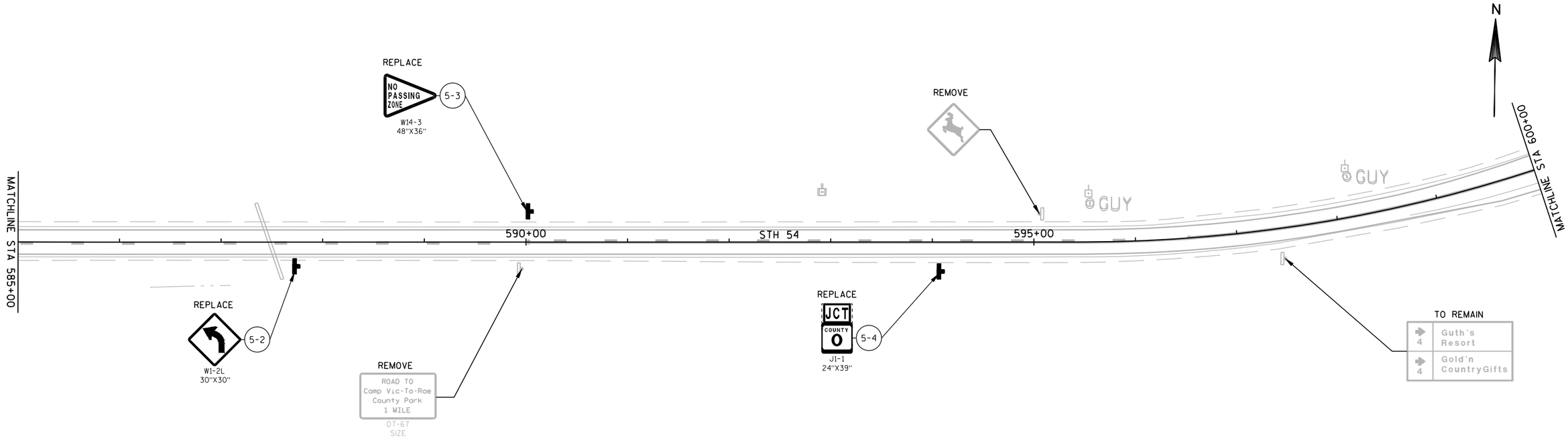
PROJECT NO: 6220-03-74	HWY: STH 54	COUNTY: WAUPACA	SIGNING	SHEET 24	E

FILE NAME : O:\PDS\C3D\62200304\SHEETSPLAN\SNSTH54.DWG

SHEET NAME: 023204PS

2

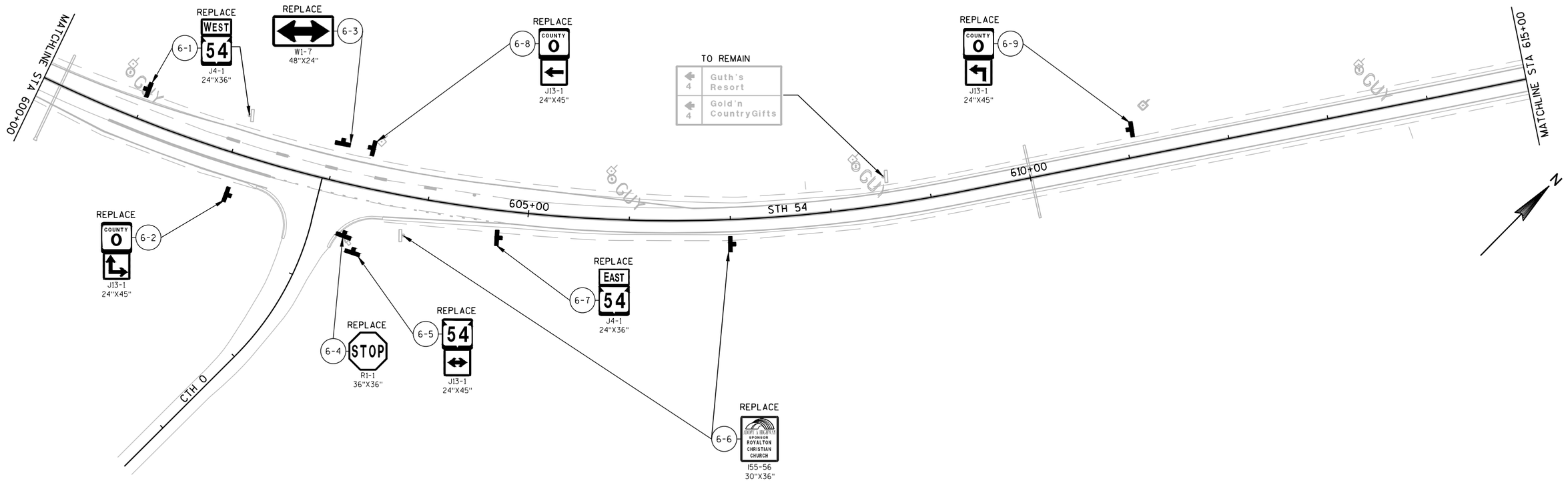


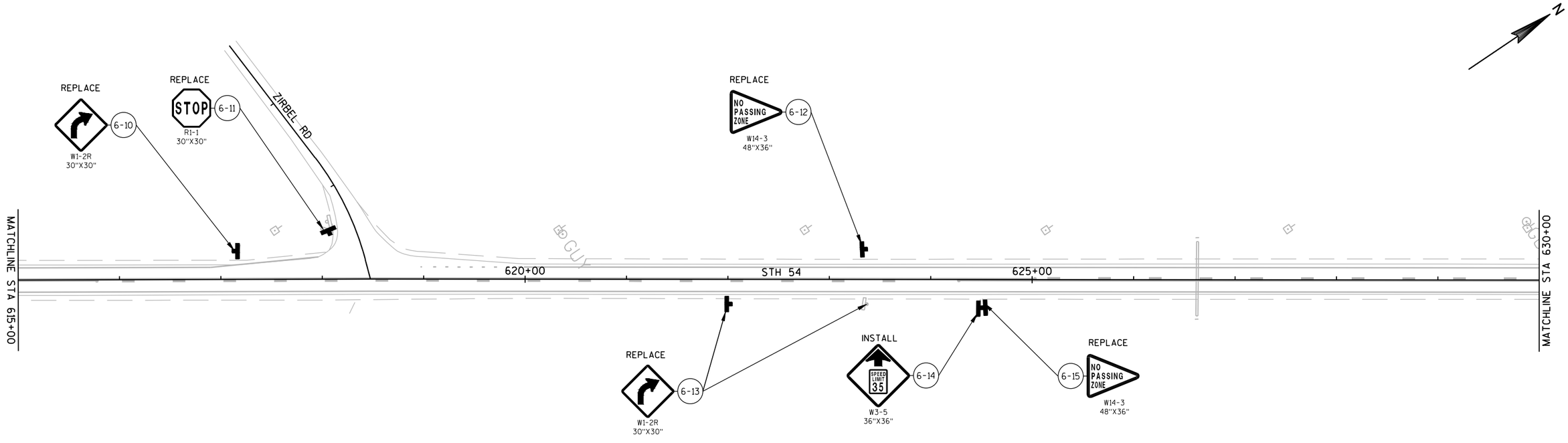


PROJECT NO: 6220-03-74	HWY: STH 54	COUNTY: WAUPACA	SIGNING	SHEET 25	E

FILE NAME : O:\PDS\C3D\62200304\SHEETSPLAN\SNSTH54.DWG

SHEET NAME: 023205PS



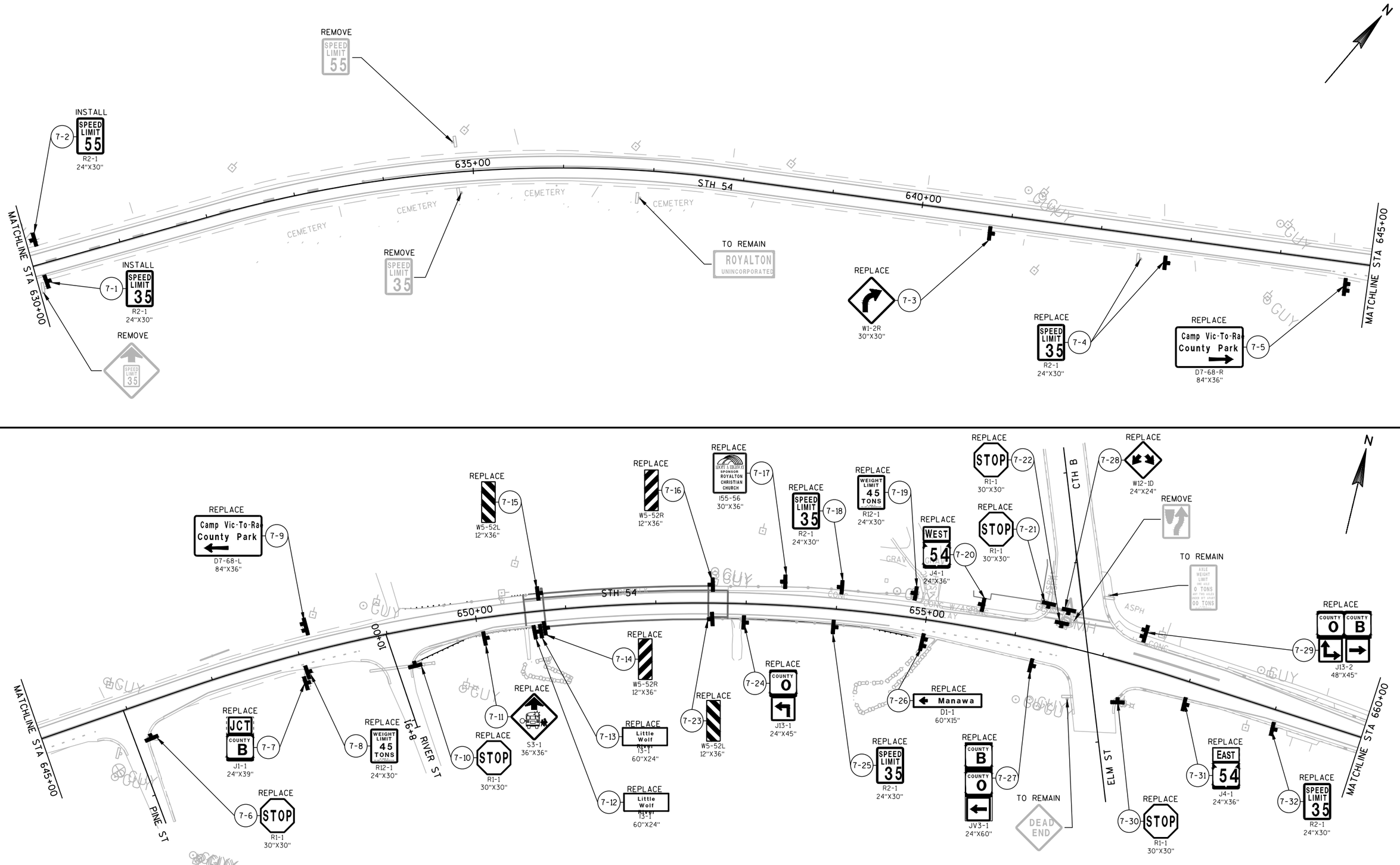


PROJECT NO: 6220-03-74	HWY: STH 54	COUNTY: WAUPACA	SIGNING	SHEET	E

FILE NAME : O:\PDS\C3D\62200304\SHEETSPLAN\SNSTH54.DWG

SHEET NAME: 023206PS

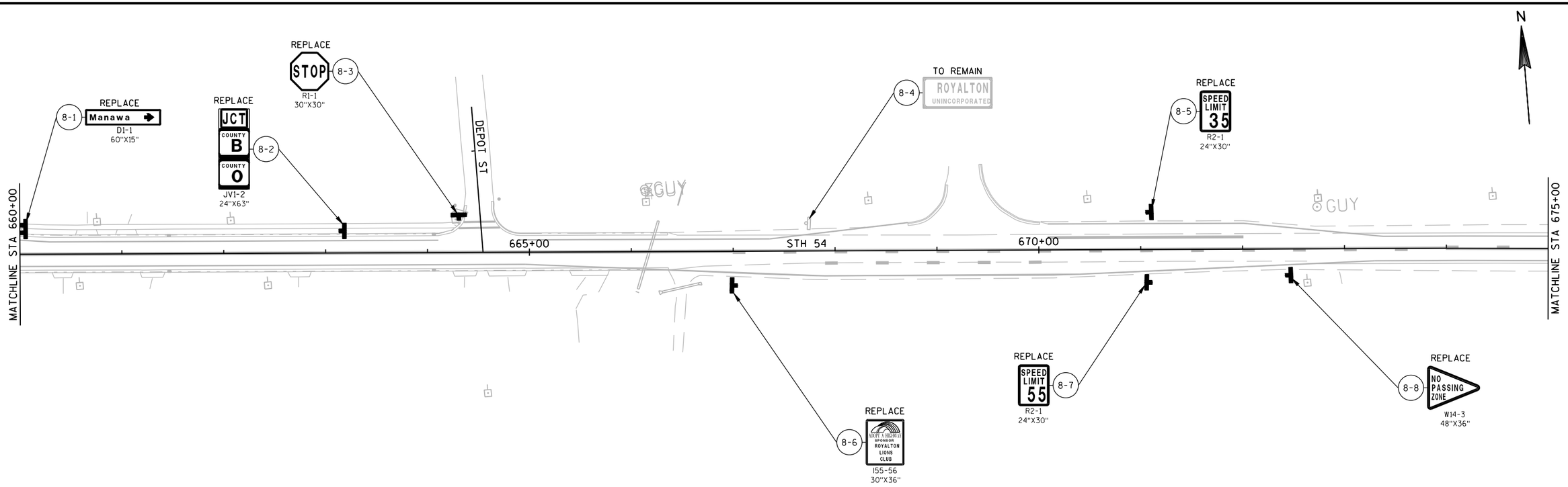
2

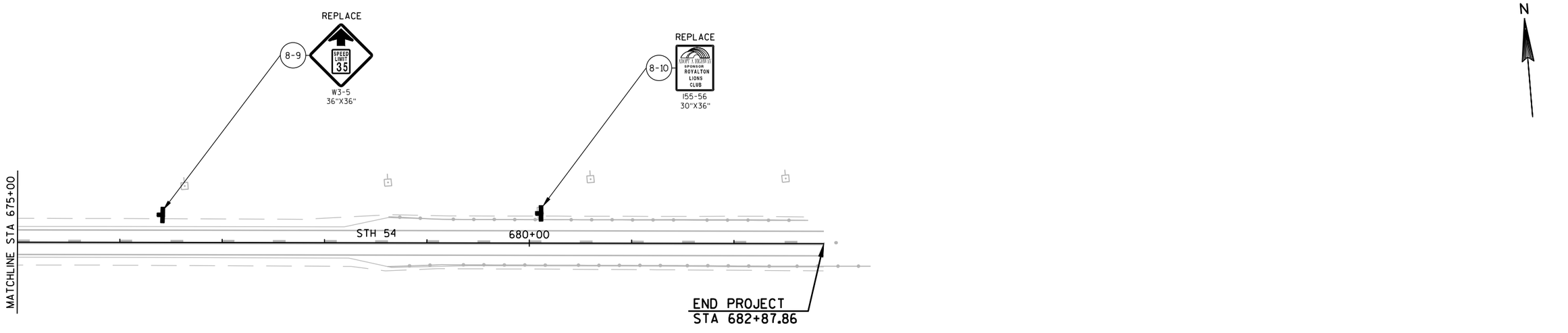


PROJECT NO: 6220-03-74	HWY: STH 54	COUNTY: WAUPACA	SIGNING	SHEET 27	E

FILE NAME : O:\PDS\C3D\62200304\SHEETSPLAN\SNSTH54.DWG

SHEET NAME: 023207PS



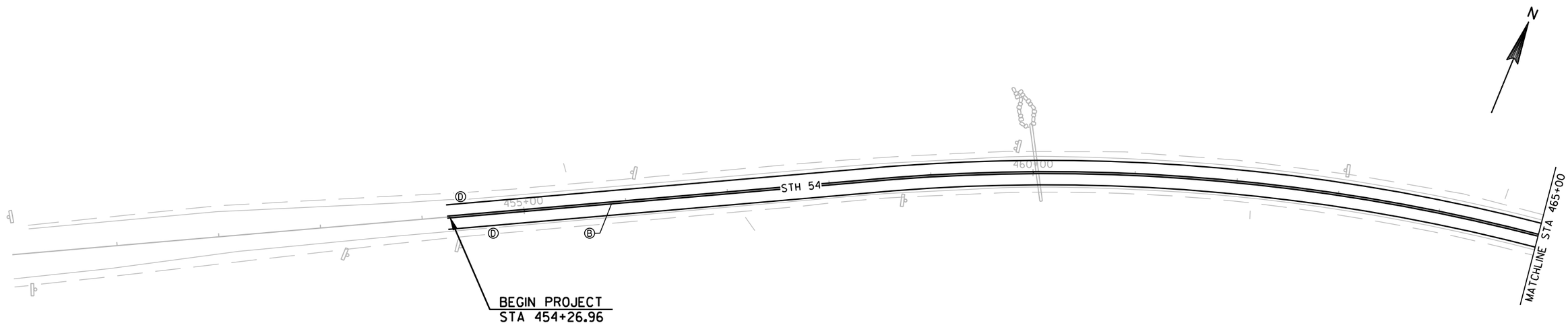


PROJECT NO: 6220-03-74	HWY: STH 54	COUNTY: WAUPACA	SIGNING	SHEET 28	E

FILE NAME : O:\PDS\C3D\62200304\SHEETSPLAN\SNSTH54.DWG

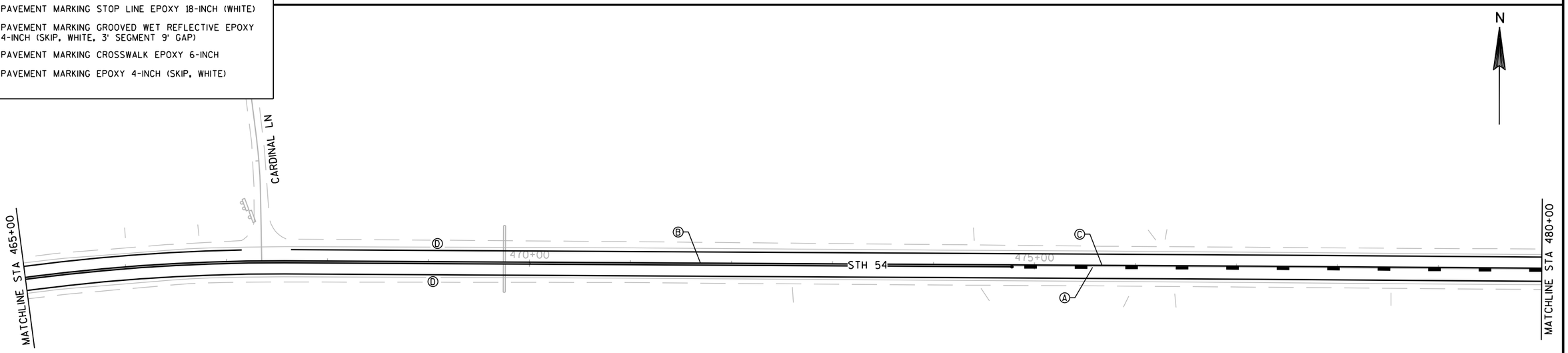
SHEET NAME: 023208PS

2



LEGEND

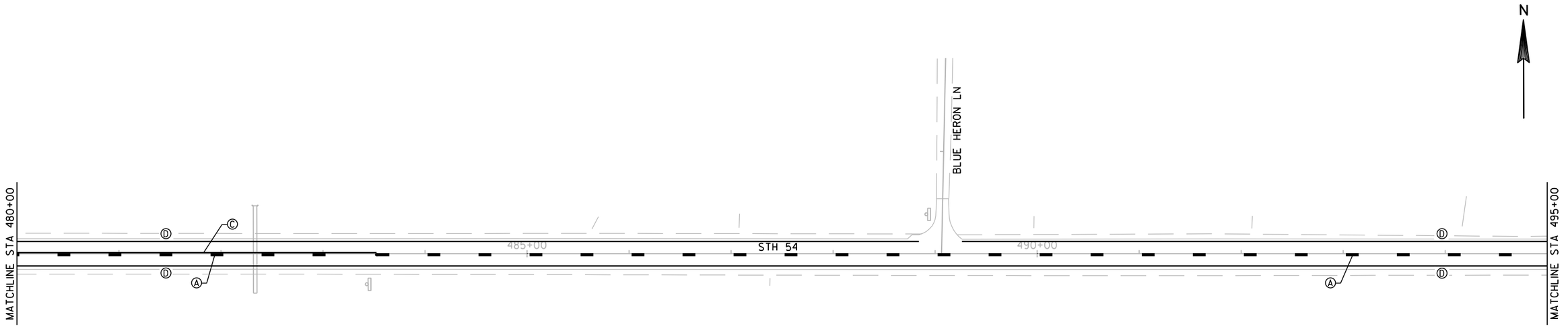
- Ⓐ PAVEMENT MARKING EPOXY 4-INCH (SKIP, YELLOW)
- Ⓑ PAVEMENT MARKING EPOXY 4-INCH (DOUBLE, YELLOW)
- Ⓒ PAVEMENT MARKING EPOXY 4-INCH (YELLOW)
- Ⓓ PAVEMENT MARKING GROOVED WET REFLECTIVE EPOXY 4-INCH (WHITE)
- Ⓔ PAVEMENT MARKING GROOVED WET REFLECTIVE EPOXY 8-INCH (WHITE)
- Ⓕ PAVEMENT MARKING STOP LINE EPOXY 18-INCH (WHITE)
- Ⓖ PAVEMENT MARKING GROOVED WET REFLECTIVE EPOXY 4-INCH (SKIP, WHITE, 3' SEGMENT 9' GAP)
- Ⓗ PAVEMENT MARKING CROSSWALK EPOXY 6-INCH
- Ⓘ PAVEMENT MARKING EPOXY 4-INCH (SKIP, WHITE)



PROJECT NO: 6220-03-74	HWY: STH 54	COUNTY: WAUPACA	PAVEMENT MARKING	SHEET 29	E

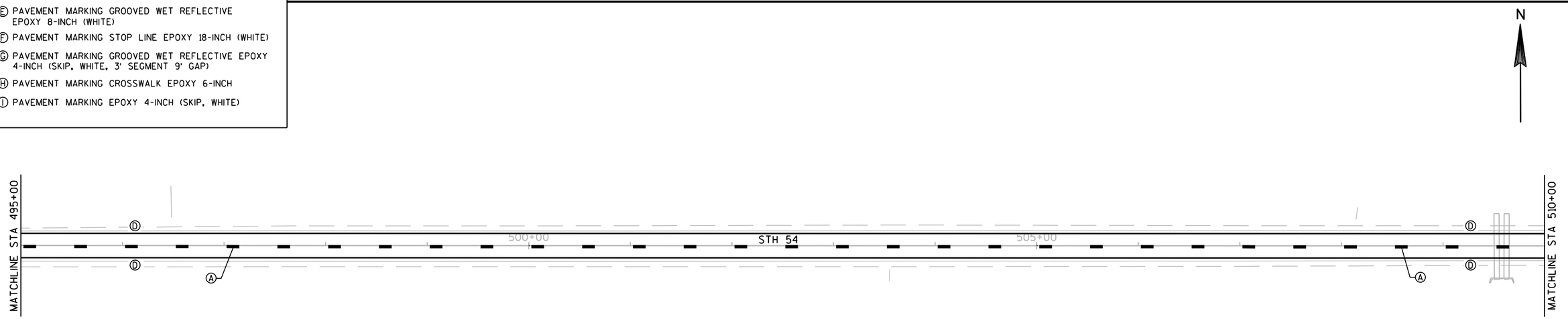
FILE NAME : O:\PDS\C3D\62200304\SHEETSPLAN\PMSTH54.DWG

SHEET NAME: 023201PM



LEGEND

- Ⓐ PAVEMENT MARKING EPOXY 4-INCH (SKIP, YELLOW)
- Ⓑ PAVEMENT MARKING EPOXY 4-INCH (DOUBLE, YELLOW)
- Ⓒ PAVEMENT MARKING EPOXY 4-INCH (YELLOW)
- Ⓓ PAVEMENT MARKING GROOVED WET REFLECTIVE EPOXY 4-INCH (WHITE)
- Ⓔ PAVEMENT MARKING GROOVED WET REFLECTIVE EPOXY 8-INCH (WHITE)
- Ⓕ PAVEMENT MARKING STOP LINE EPOXY 18-INCH (WHITE)
- Ⓖ PAVEMENT MARKING GROOVED WET REFLECTIVE EPOXY 4-INCH (SKIP, WHITE, 3' SEGMENT 9' GAP)
- Ⓗ PAVEMENT MARKING CROSSWALK EPOXY 6-INCH
- Ⓘ PAVEMENT MARKING EPOXY 4-INCH (SKIP, WHITE)

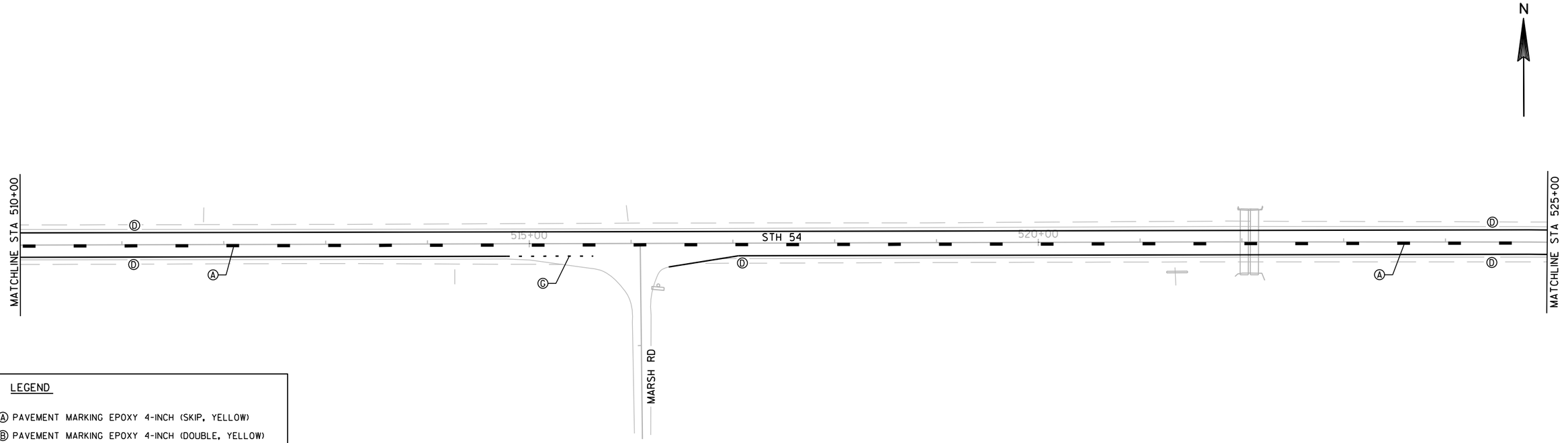


PROJECT NO: 6220-03-74	HWY: STH 54	COUNTY: WAUPACA	PAVEMENT MARKING	SHEET 30	E

FILE NAME : O:\PDS\C3D\62200304\SHEETSPLAN\PMSTH54.DWG

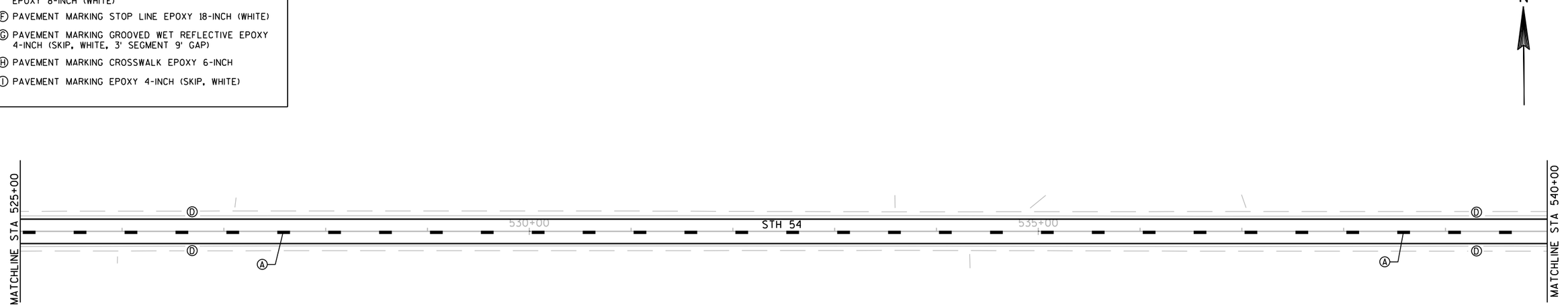
SHEET NAME: 023202PM

2



LEGEND

- Ⓐ PAVEMENT MARKING EPOXY 4-INCH (SKIP, YELLOW)
- Ⓑ PAVEMENT MARKING EPOXY 4-INCH (DOUBLE, YELLOW)
- Ⓒ PAVEMENT MARKING EPOXY 4-INCH (YELLOW)
- Ⓓ PAVEMENT MARKING GROOVED WET REFLECTIVE EPOXY 4-INCH (WHITE)
- Ⓔ PAVEMENT MARKING GROOVED WET REFLECTIVE EPOXY 8-INCH (WHITE)
- Ⓕ PAVEMENT MARKING STOP LINE EPOXY 18-INCH (WHITE)
- Ⓖ PAVEMENT MARKING GROOVED WET REFLECTIVE EPOXY 4-INCH (SKIP, WHITE, 3' SEGMENT 9' GAP)
- Ⓗ PAVEMENT MARKING CROSSWALK EPOXY 6-INCH
- Ⓘ PAVEMENT MARKING EPOXY 4-INCH (SKIP, WHITE)

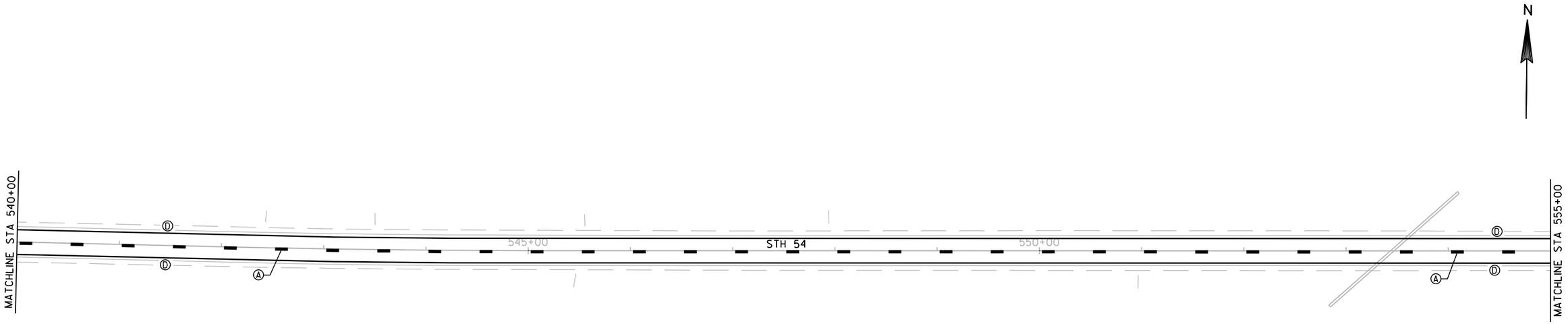


PROJECT NO: 6220-03-74	HWY: STH 54	COUNTY: WAUPACA	PAVEMENT MARKING	SHEET 31	E

FILE NAME : O:\PDS\C3D\62200304\SHEETSPLAN\PMSTH54.DWG

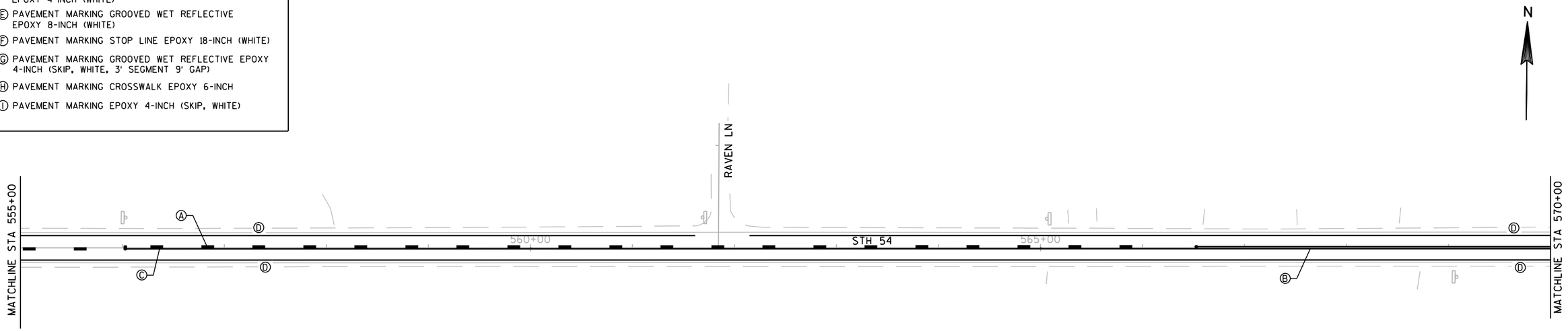
SHEET NAME: 023203PM

2



LEGEND

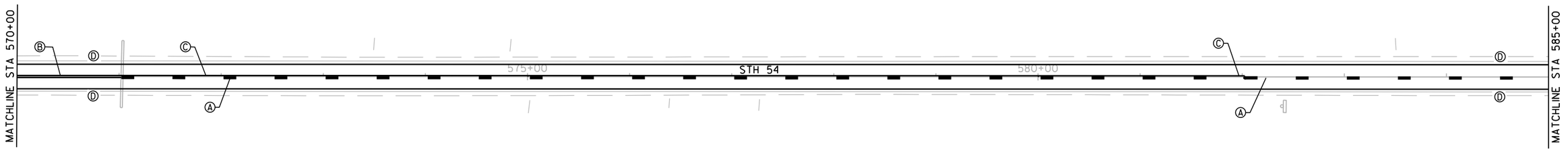
- Ⓐ PAVEMENT MARKING EPOXY 4-INCH (SKIP, YELLOW)
- Ⓑ PAVEMENT MARKING EPOXY 4-INCH (DOUBLE, YELLOW)
- Ⓒ PAVEMENT MARKING EPOXY 4-INCH (YELLOW)
- Ⓓ PAVEMENT MARKING GROOVED WET REFLECTIVE EPOXY 4-INCH (WHITE)
- Ⓔ PAVEMENT MARKING GROOVED WET REFLECTIVE EPOXY 8-INCH (WHITE)
- Ⓕ PAVEMENT MARKING STOP LINE EPOXY 18-INCH (WHITE)
- Ⓖ PAVEMENT MARKING GROOVED WET REFLECTIVE EPOXY 4-INCH (SKIP, WHITE, 3' SEGMENT 9' GAP)
- Ⓗ PAVEMENT MARKING CROSSWALK EPOXY 6-INCH
- Ⓘ PAVEMENT MARKING EPOXY 4-INCH (SKIP, WHITE)



PROJECT NO: 6220-03-74	HWY: STH 54	COUNTY: WAUPACA	PAVEMENT MARKING	SHEET 32	E

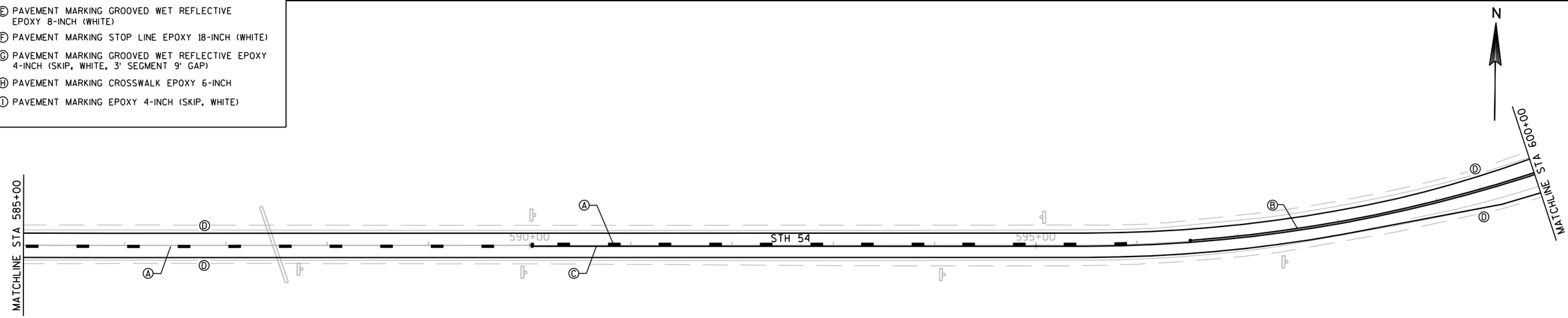
FILE NAME : O:\PDS\C3D\62200304\SHEETSPLAN\PMSTH54.DWG

SHEET NAME: 023204PM



LEGEND

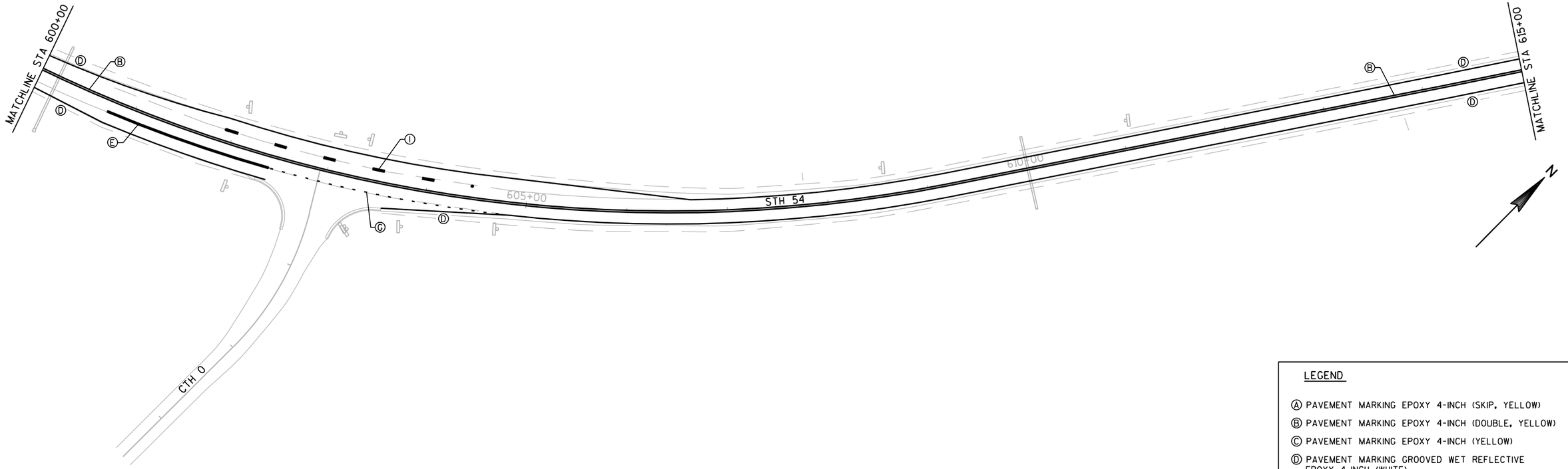
- Ⓐ PAVEMENT MARKING EPOXY 4-INCH (SKIP, YELLOW)
- Ⓑ PAVEMENT MARKING EPOXY 4-INCH (DOUBLE, YELLOW)
- Ⓒ PAVEMENT MARKING EPOXY 4-INCH (YELLOW)
- Ⓓ PAVEMENT MARKING GROOVED WET REFLECTIVE EPOXY 4-INCH (WHITE)
- Ⓔ PAVEMENT MARKING GROOVED WET REFLECTIVE EPOXY 8-INCH (WHITE)
- Ⓕ PAVEMENT MARKING STOP LINE EPOXY 18-INCH (WHITE)
- Ⓖ PAVEMENT MARKING GROOVED WET REFLECTIVE EPOXY 4-INCH (SKIP, WHITE, 3' SEGMENT 9' GAP)
- Ⓗ PAVEMENT MARKING CROSSWALK EPOXY 6-INCH
- Ⓘ PAVEMENT MARKING EPOXY 4-INCH (SKIP, WHITE)



PROJECT NO: 6220-03-74	HWY: STH 54	COUNTY: WAUPACA	PAVEMENT MARKING	SHEET 33	E

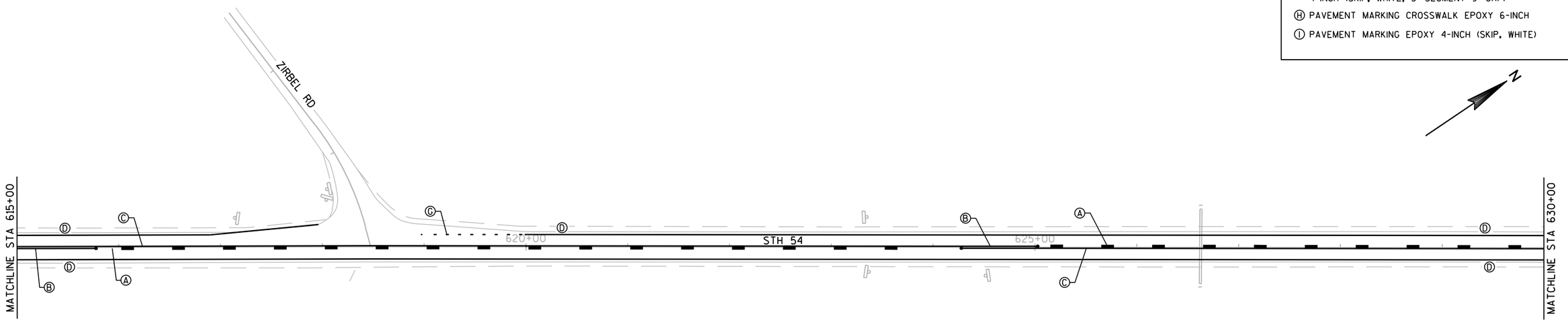
FILE NAME : O:\PDS\C3D\62200304\SHEETSPLAN\PMSTH54.DWG

SHEET NAME: 023205PM



LEGEND

- Ⓐ PAVEMENT MARKING EPOXY 4-INCH (SKIP, YELLOW)
- Ⓑ PAVEMENT MARKING EPOXY 4-INCH (DOUBLE, YELLOW)
- Ⓒ PAVEMENT MARKING EPOXY 4-INCH (YELLOW)
- Ⓓ PAVEMENT MARKING GROOVED WET REFLECTIVE EPOXY 4-INCH (WHITE)
- Ⓔ PAVEMENT MARKING GROOVED WET REFLECTIVE EPOXY 8-INCH (WHITE)
- Ⓕ PAVEMENT MARKING STOP LINE EPOXY 18-INCH (WHITE)
- Ⓖ PAVEMENT MARKING GROOVED WET REFLECTIVE EPOXY 4-INCH (SKIP, WHITE, 3' SEGMENT 9' GAP)
- Ⓗ PAVEMENT MARKING CROSSWALK EPOXY 6-INCH
- Ⓘ PAVEMENT MARKING EPOXY 4-INCH (SKIP, WHITE)

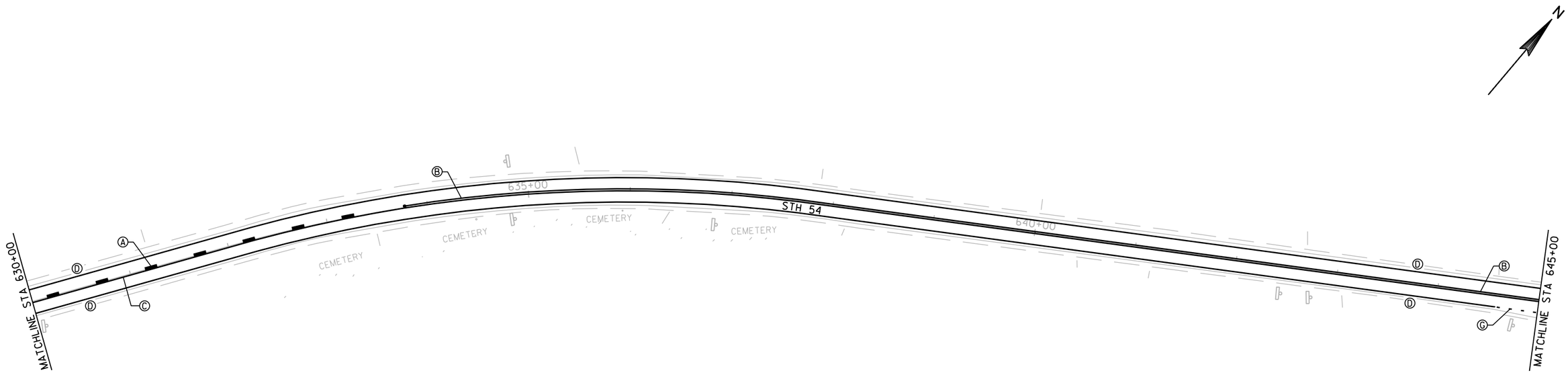


PROJECT NO: 6220-03-74	HWY: STH 54	COUNTY: WAUPACA	PAVEMENT MARKING	SHEET 34	E

FILE NAME : O:\PDS\C3D\62200304\SHEETSPLAN\PMSTH54.DWG

SHEET NAME: 023206PM

2



LEGEND

Ⓐ PAVEMENT MARKING EPOXY 4-INCH (SKIP, YELLOW)

Ⓑ PAVEMENT MARKING EPOXY 4-INCH (DOUBLE, YELLOW)

Ⓒ PAVEMENT MARKING EPOXY 4-INCH (YELLOW)

Ⓓ PAVEMENT MARKING GROOVED WET REFLECTIVE EPOXY 4-INCH (WHITE)

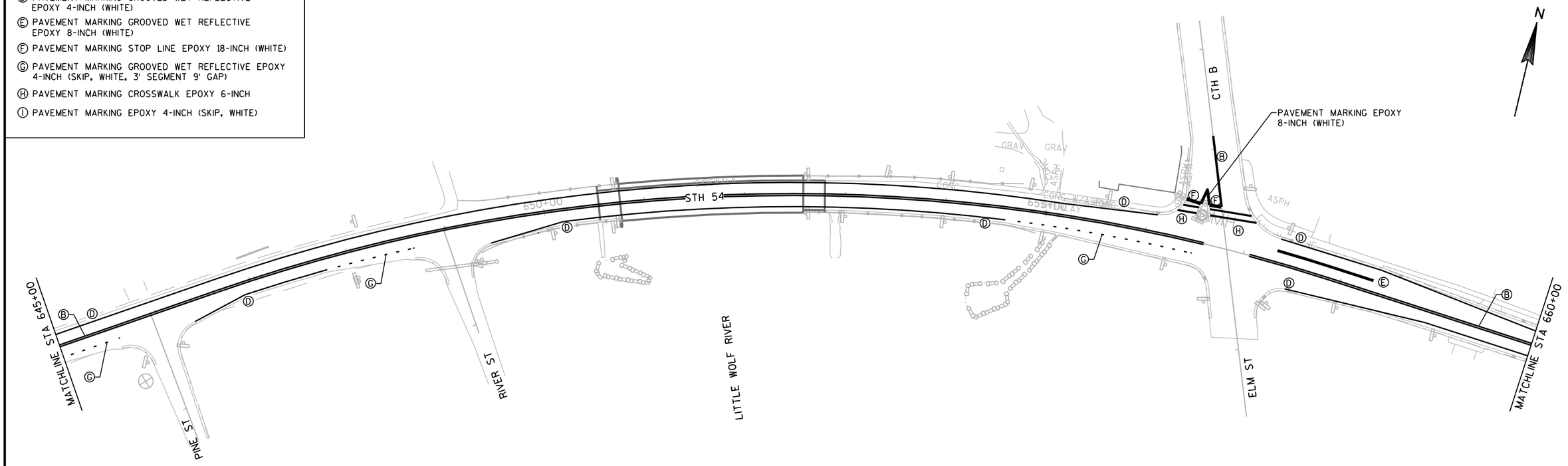
Ⓔ PAVEMENT MARKING GROOVED WET REFLECTIVE EPOXY 8-INCH (WHITE)

Ⓕ PAVEMENT MARKING STOP LINE EPOXY 18-INCH (WHITE)

Ⓖ PAVEMENT MARKING GROOVED WET REFLECTIVE EPOXY 4-INCH (SKIP, WHITE, 3' SEGMENT 9' GAP)

Ⓗ PAVEMENT MARKING CROSSWALK EPOXY 6-INCH

Ⓘ PAVEMENT MARKING EPOXY 4-INCH (SKIP, WHITE)

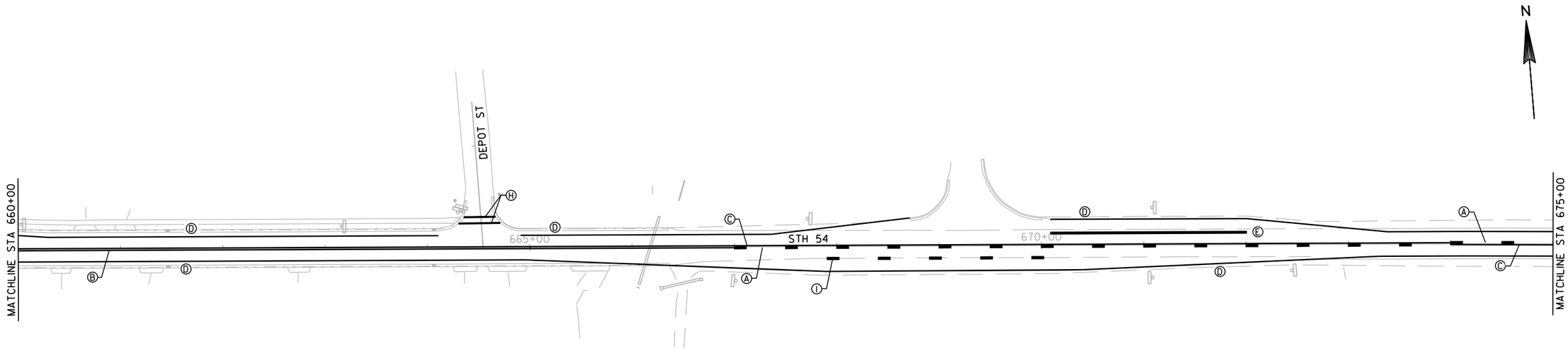


PROJECT NO: 6220-03-74	HWY: STH 54	COUNTY: WAUPACA	PAVEMENT MARKING	SHEET 35	E

FILE NAME : O:\PDS\C3D\62200304\SHEETSPLAN\PMSTH54.DWG

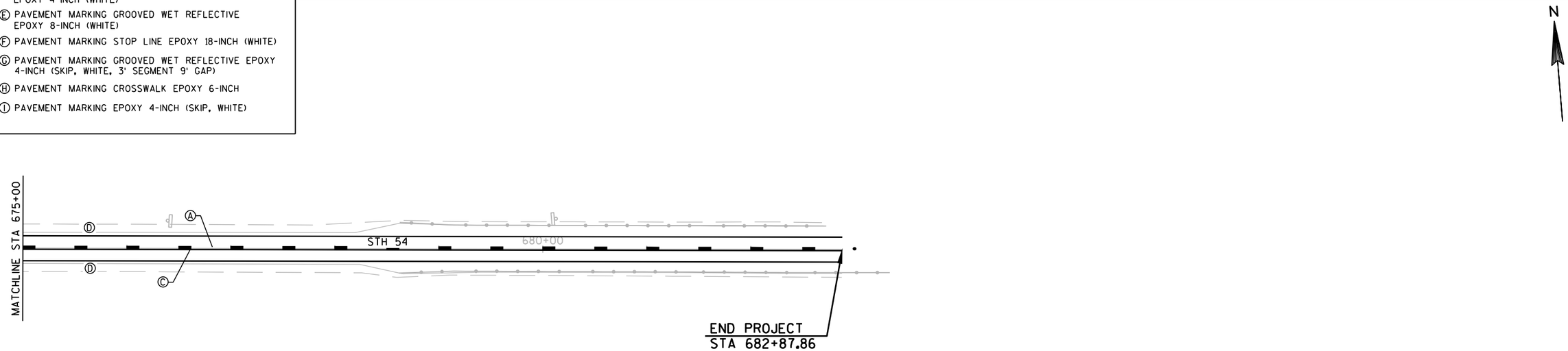
SHEET NAME: 023207PM

2



LEGEND

- Ⓐ PAVEMENT MARKING EPOXY 4-INCH (SKIP, YELLOW)
- Ⓑ PAVEMENT MARKING EPOXY 4-INCH (DOUBLE, YELLOW)
- Ⓒ PAVEMENT MARKING EPOXY 4-INCH (YELLOW)
- Ⓓ PAVEMENT MARKING GROOVED WET REFLECTIVE EPOXY 4-INCH (WHITE)
- Ⓔ PAVEMENT MARKING GROOVED WET REFLECTIVE EPOXY 8-INCH (WHITE)
- Ⓕ PAVEMENT MARKING STOP LINE EPOXY 18-INCH (WHITE)
- Ⓖ PAVEMENT MARKING GROOVED WET REFLECTIVE EPOXY 4-INCH (SKIP, WHITE, 3' SEGMENT 9' GAP)
- Ⓗ PAVEMENT MARKING CROSSWALK EPOXY 6-INCH
- Ⓘ PAVEMENT MARKING EPOXY 4-INCH (SKIP, WHITE)



PROJECT NO: 6220-03-74	HWY: STH 54	COUNTY: WAUPACA	PAVEMENT MARKING	SHEET 36	E

FILE NAME : O:\PDS\C3D\62200304\SHEETSPLAN\PMSTH54.DWG

SHEET NAME: 023208PM

2

N

LEGEND

]|/[TYPE II BARRICADE WITH/WITHOUT SIGN (ALL WITH ONE WARNING LIGHT, TYPE A, LOW-INTENSITY FLASHING)

DIRECTION OF PEDESTRIAN ACCESS

(1) TEMPORARY CURB RAMPS, SEE SDD "TRAFFIC CONTROL TEMPORARY ADA COMPLIANT PEDESTRIAN ACCOMMODATION"

(2) TEMPORARY PAVEMENT MARKING REMOVABLE TAPE 6-INCH (WHITE)

GRAV

CONC

ASPH

TEMPORARY PEDESTRIAN ACCESS. SEE SDD "TRAFFIC CONTROL, PEDESTRIAN ACCOMMODATION".

5.0'

5.0'

(2)

CONC W/ASPH OVERLAY (2)

CONC

SIDEWALK CLOSED R9-9 24"X12"

STH 54

655+00

CTH B

ASPH

ASPH

CONC

SIDEWALK CLOSED R9-9 24"X12"

MH

(1)

(2)

4.0' MIN.

5.0'

5.0'

(2)

STH 54

656+00

PROJECT NO: 6220-03-74	HWY: STH 54	COUNTY: WAUPACA	TRAFFIC CONTROL - TEMPORARY PEDESTRIAN CROSSINGS	SHEET 37	E

FILE NAME : O:\PDS\C3D\62200304\SHEETSPLAN\CDSTH54_2.DWG

SHEET NAME: TEMP PEDX 01

2

2

LEGEND

]I/[TYPE II BARRICADE WITH/WITHOUT SIGN (ALL WITH ONE WARNING LIGHT, TYPE A, LOW-INTENSITY FLASHING)

DIRECTION OF PEDESTRIAN ACCESS

(1) TEMPORARY CURB RAMPS, SEE SDD "TRAFFIC CONTROL TEMPORARY ADA COMPLIANT PEDESTRIAN ACCOMMODATION"

(2) TEMPORARY PAVEMENT MARKING REMOVABLE TAPE 6-INCH (WHITE)

N

ASPH

CTH B

SIDEWALK CLOSED
R9-9
24"X12"

TEMPORARY PEDESTRIAN ACCESS.
SEE SDD "TRAFFIC CONTROL,
PEDESTRIAN ACCOMMODATION"

5.0'

CONC

(1)

STH 54

(2)

5.0'

(2)

657+00

DEPOT ST

SIDEWALK CLOSED
R9-9
24"X12"

STH 54

PROJECT NO: 6220-03-74	HWY: STH 54	COUNTY: WAUPACA	TRAFFIC CONTROL - TEMPORARY PEDESTRIAN CROSSINGS	SHEET 38	E

FILE NAME : O:\PDS\C3D\62200304\SHEETSPLAN\CDSTH54_2.DWG

SHEET NAME: TEMP PEDX 02

2

N

LEGEND

TRAFFIC CONTROL DRUM

TYPE III BARRICADE WITH/WITHOUT SIGN (ALL WITH ONE WARNING LIGHT, TYPE A, LOW-INTENSITY FLASHING)

NOTE: DRUMS @ 8'-10' SPACING WHEN IMMEDIATELY NEXT TO WORK AREA

GRAV

CONC

ASPH

CONC

CONC W/ASPH OVERLAY

TEMPORARY PEDESTRIAN ACCESS. SEE "TRAFFIC CONTROL, TEMPORARY PEDESTRIAN CROSSINGS".

STH 54

655+00

ASPH

ASPH

CTH B

CONC

MH

10.0' MIN

STH 54

11.0' MIN

656+00

N

2

PROJECT NO: 6220-03-74	HWY: STH 54	COUNTY: WAUPACA	TRAFFIC CONTROL - CURB REPLACEMENT	SHEET 39	E

FILE NAME : O:\PDS\C3D\62200304\SHEETSPLAN\CDSTH54_2.DWG

SHEET NAME: CURB REPL 01

2

LEGEND

- TRAFFIC CONTROL DRUM
- TYPE III BARRICADE WITH/WITHOUT SIGN (ALL WITH ONE WARNING LIGHT, TYPE A, LOW-INTENSITY FLASHING)

NOTE: DRUMS @ 8'-10' SPACING WHEN IMMEDIATELY NEXT TO WORK AREA

N

CTH B

ASPH

CONC

GUY

25' MAX SPACING

LANE CLOSED
R11-2-L
48"X30"

25.0'

11.0' MIN

11.0' MIN

657+00

658+00

659+00

660+00

661+00

STH 54

PROJECT NO: 6220-03-74	HWY: STH 54	COUNTY: WAUPACA	TRAFFIC CONTROL - CURB REPLACEMENT	SHEET 40	E

FILE NAME : O:\PDS\C3D\62200304\SHEETSPLAN\CDSTH54_2.DWG

SHEET NAME: CURB REPL 02

2

N

TEMPORARY PEDESTRIAN ACCESS.
SEE "TRAFFIC CONTROL, TEMPORARY
PEDESTRIAN CROSSINGS"

DEPOT ST

LEGEND

TRAFFIC CONTROL DRUM

TYPE III BARRICADE WITH/WITHOUT SIGN
(ALL WITH ONE WARNING LIGHT, TYPE A,
LOW-INTENSITY FLASHING)

NOTE: DRUMS @ 8'-10' SPACING WHEN IMMEDIATELY NEXT
TO WORK AREA

664+00

665+00

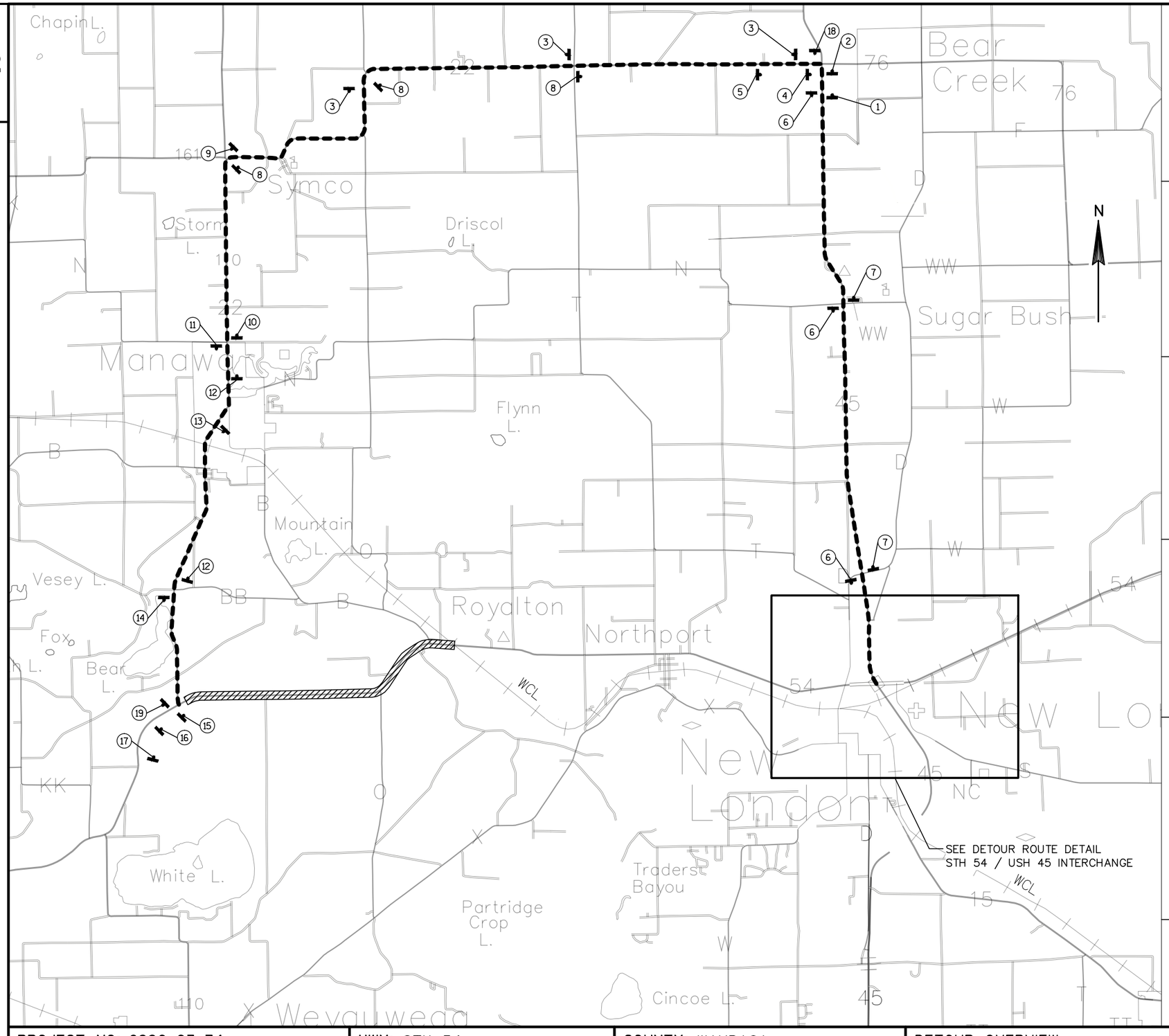
STH 54

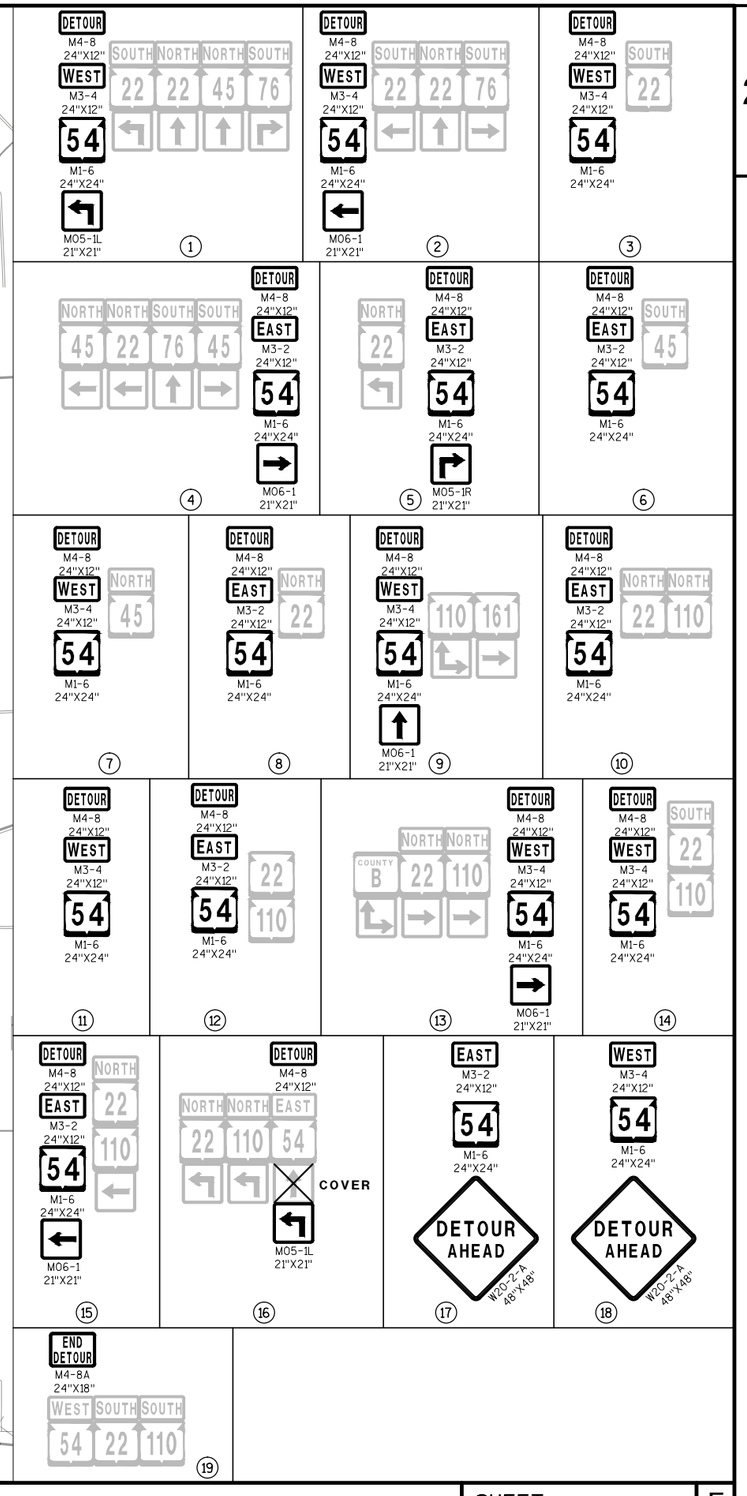
2

PROJECT NO: 6220-03-74	HWY: STH 54	COUNTY: WAUPACA	TRAFFIC CONTROL - CURB REPLACEMENT	SHEET 41	E

FILE NAME : O:\PDS\C3D\62200304\SHEETSPLAN\CDSTH54_2.DWG

SHEET NAME: CURB REPL 03

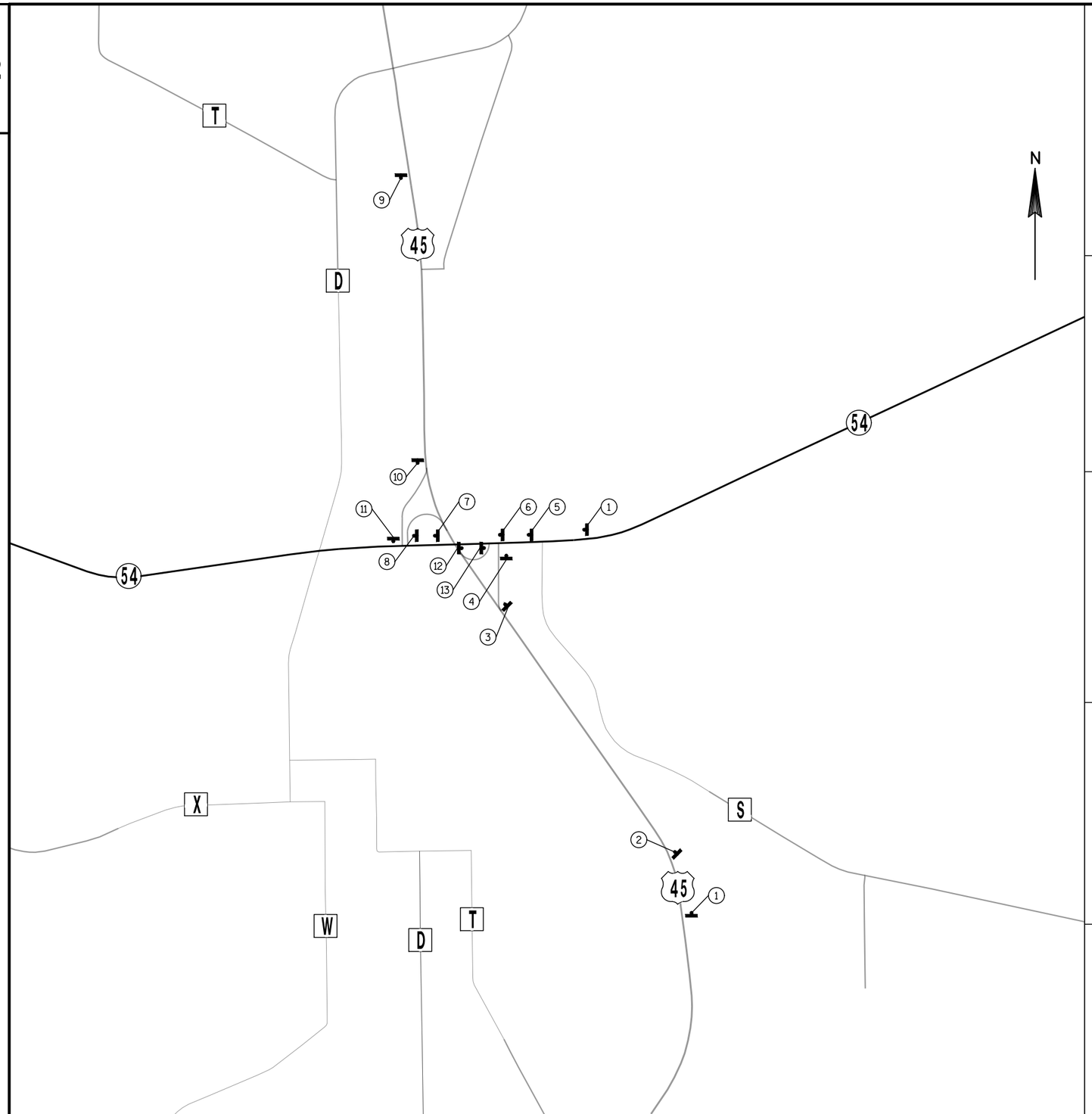


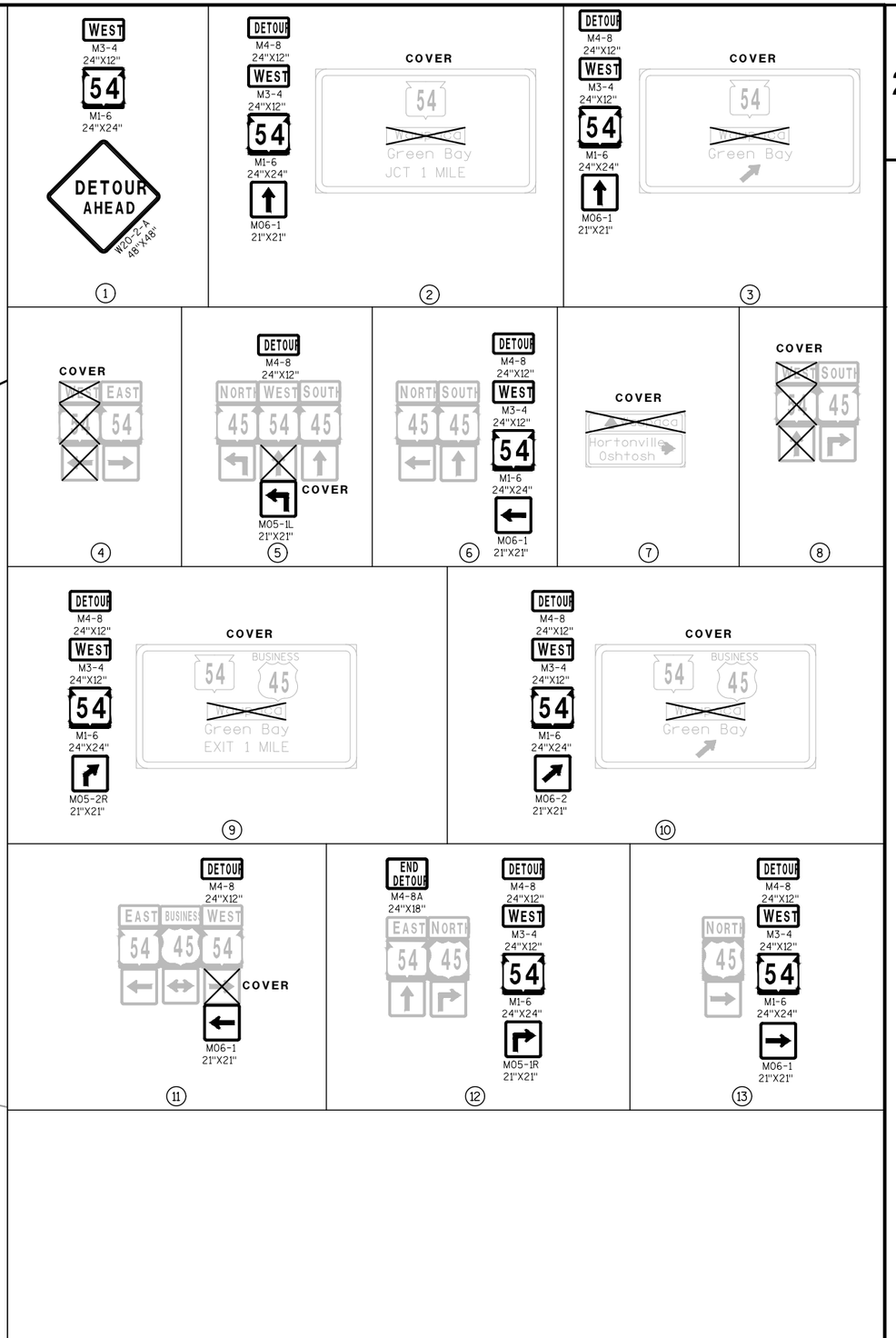


PROJECT NO: 6220-03-74	HWY: STH 54	COUNTY: WAUPACA	DETOUR OVERVIEW	SHEET 42	E

FILE NAME : Q:\WIDOT\14010 - STH 54\CAD\DETOUR OVERVIEW.DWG

SHEET NAME: 29





PROJECT NO: 6220-03-74	HWY: STH 54	COUNTY: WAUPACA	DETOUR INTERCHANGE DETAIL	SHEET 43	E

FILE NAME : Q:\WIDOT\14010 – STH 54\CAD\DETOUR INTERCHANGE DETAIL.DWG

SHEET NAME: 30

6220-03-74

Line	Item	Item Description	Unit	Total	Qty
0010	201.0105	Clearing	STA	2.000	2.000
0020	201.0205	Grubbing	STA	3.000	3.000
0030	201.0220	Grubbing	ID	40.000	40.000
0040	203.0100	Removing Small Pipe Culverts	EACH	3.000	3.000
0050	203.0200	Removing Old Structure (station) 01. 509+58	LS	1.000	1.000
0060	203.0200	Removing Old Structure (station) 02. 522+07	LS	1.000	1.000
0070	204.0100	Removing Pavement	SY	1,525.000	1,525.000
0080	204.0110	Removing Asphaltic Surface	SY	158.000	158.000
0090	204.0120	Removing Asphaltic Surface Milling	SY	79,584.000	79,584.000
0100	204.0150	Removing Curb & Gutter	LF	478.000	478.000
0110	204.0155	Removing Concrete Sidewalk	SY	197.000	197.000
0120	204.0165	Removing Guardrail	LF	762.000	762.000
0130	204.0190	Removing Surface Drains	EACH	3.000	3.000
0140	205.0100	Excavation Common	CY	1,085.000	1,085.000
0150	206.2000	Excavation for Structures Culverts (structure) 01. B-68-140	LS	1.000	1.000
0160	210.2100	Backfill Structure Type B	CY	736.000	736.000
0170	211.0100	Prepare Foundation for Asphaltic Paving (project) 01. 6220-03-74	LS	1.000	1.000
0180	211.0400	Prepare Foundation for Asphaltic Shoulders	STA	418.000	418.000
0190	213.0100	Finishing Roadway (project) 01. 6220-03-74	EACH	1.000	1.000
0200	305.0110	Base Aggregate Dense 3/4-Inch	TON	92.000	92.000
0210	305.0120	Base Aggregate Dense 1 1/4-Inch	TON	442.000	442.000
0220	305.0500	Shaping Shoulders	STA	418.000	418.000
0230	416.0610	Drilled Tie Bars	EACH	55.000	55.000
0240	416.1010	Concrete Surface Drains	CY	2.700	2.700
0250	440.4410	Incentive IRI Ride	DOL	17,148.000	17,148.000
0260	455.0605	Tack Coat	GAL	5,750.000	5,750.000
0270	460.2000	Incentive Density HMA Pavement	DOL	6,410.000	6,410.000
0280	460.4110.S	Reheating HMA Pavement Longitudinal Joints	LF	23,035.000	23,035.000
0290	460.5224	HMA Pavement 4 LT 58-28 S	TON	10,011.000	10,011.000
0300	465.0120	Asphaltic Surface Driveways and Field Entrances	TON	85.000	85.000
0310	465.0425	Asphaltic Shoulder Rumble Strips 2-Lane Rural	LF	36,358.000	36,358.000
0320	465.0475	Asphalt Center Line Rumble Strips 2-Lane Rural	LF	16,544.000	16,544.000
0330	504.0100	Concrete Masonry Culverts	CY	47.000	47.000
0340	504.0900	Concrete Masonry Endwalls	CY	25.000	25.000
0350	504.2000.S	Precast Concrete Box Culvert (ft X ft) 01. 10 FT X 7 FT	LF	157.000	157.000
0360	505.0400	Bar Steel Reinforcement HS Structures	LB	2,184.000	2,184.000
0370	505.0600	Bar Steel Reinforcement HS Coated Structures	LB	2,752.000	2,752.000
0380	511.1300	Temporary Shoring (location) 01. 509+58	SF	250.000	250.000

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Line	Item	Item Description	Unit	Total	Qty
0390	516.0500	Rubberized Membrane Waterproofing	SY	11.000	11.000
0400	520.8000	Concrete Collars for Pipe	EACH	4.000	4.000
0410	520.8700	Cleaning Culvert Pipes	EACH	2.000	2.000
0420	522.0124	Culvert Pipe Reinforced Concrete Class III 24-Inch	LF	24.000	24.000
0430	522.0130	Culvert Pipe Reinforced Concrete Class III 30-Inch	LF	12.000	12.000
0440	522.0384	Culvert Pipe Reinforced Concrete Class IV 84-Inch	LF	120.000	120.000
0450	522.1024	Apron Endwalls for Culvert Pipe Reinforced Concrete 24-Inch	EACH	4.000	4.000
0460	522.1030	Apron Endwalls for Culvert Pipe Reinforced Concrete 30-Inch	EACH	2.000	2.000
0470	601.0409	Concrete Curb & Gutter 30-Inch Type A	LF	22.000	22.000
0480	601.0411	Concrete Curb & Gutter 30-Inch Type D	LF	444.000	444.000
0490	601.0600	Concrete Curb Pedestrian	LF	30.000	30.000
0500	602.0405	Concrete Sidewalk 4-Inch	SF	688.000	688.000
0510	602.0505	Curb Ramp Detectable Warning Field Yellow	SF	62.000	62.000
0520	606.0100	Riprap Light	CY	107.000	107.000
0530	606.0300	Riprap Heavy	CY	185.000	185.000
0540	611.8110	Adjusting Manhole Covers	EACH	1.000	1.000
0550	612.0406	Pipe Underdrain Wrapped 6-Inch	LF	248.000	248.000
0560	614.0010	Barrier System Grading Shaping Finishing	EACH	4.000	4.000
0570	614.0397	Guardrail Mow Strip Emulsified Asphalt	SY	262.000	262.000
0580	614.2300	MGS Guardrail 3	LF	354.000	354.000
0590	614.2320	MGS Guardrail 3 QS	LF	12.500	12.500
0600	614.2500	MGS Thrie Beam Transition	LF	156.000	156.000
0610	614.2610	MGS Guardrail Terminal EAT	EACH	4.000	4.000
0620	616.0700.S	Fence Safety	LF	865.000	865.000
0630	618.0100	Maintenance And Repair of Haul Roads (project) 01. 6220-03-74	EACH	1.000	1.000
0640	619.1000	Mobilization	EACH	1.000	1.000
0650	621.0100	Landmark Reference Monuments	EACH	10.000	10.000
0660	624.0100	Water	MGAL	18.000	18.000
0670	625.0100	Topsoil	SY	1,705.000	1,705.000
0680	627.0200	Mulching	SY	187.000	187.000
0690	628.1504	Silt Fence	LF	1,416.000	1,416.000
0700	628.1520	Silt Fence Maintenance	LF	1,416.000	1,416.000
0710	628.1905	Mobilizations Erosion Control	EACH	4.000	4.000
0720	628.1910	Mobilizations Emergency Erosion Control	EACH	4.000	4.000
0730	628.2004	Erosion Mat Class I Type B	SY	1,580.000	1,580.000
0740	628.7015	Inlet Protection Type C	EACH	11.000	11.000
0750	628.7555	Culvert Pipe Checks	EACH	14.000	14.000

6220-03-74

Line	Item	Item Description	Unit	Total	Qty
0760	629.0210	Fertilizer Type B	CWT	1.190	1.190
0770	630.0130	Seeding Mixture No. 30	LB	31.000	31.000
0780	633.5200	Markers Culvert End	EACH	14.000	14.000
0790	634.0614	Posts Wood 4x6-Inch X 14-FT	EACH	30.000	30.000
0800	634.0616	Posts Wood 4x6-Inch X 16-FT	EACH	39.000	39.000
0810	634.0618	Posts Wood 4x6-Inch X 18-FT	EACH	6.000	6.000
0820	634.0622	Posts Wood 4x6-Inch X 22-FT	EACH	2.000	2.000
0830	637.2210	Signs Type II Reflective H	SF	388.650	388.650
0840	637.2230	Signs Type II Reflective F	SF	136.000	136.000
0850	638.2602	Removing Signs Type II	EACH	77.000	77.000
0860	638.3000	Removing Small Sign Supports	EACH	83.000	83.000
0870	642.5001	Field Office Type B	EACH	1.000	1.000
0880	643.0100	Traffic Control (project) 01. 6220-03-74	EACH	1.000	1.000
0890	643.0300	Traffic Control Drums	DAY	1,670.000	1,670.000
0900	643.0310.S	Temporary Portable Rumble Strips	LS	1.000	1.000
0910	643.0410	Traffic Control Barricades Type II	DAY	231.000	231.000
0920	643.0420	Traffic Control Barricades Type III	DAY	77.000	77.000
0930	643.0705	Traffic Control Warning Lights Type A	DAY	320.000	320.000
0940	643.0715	Traffic Control Warning Lights Type C	DAY	160.000	160.000
0950	643.0900	Traffic Control Signs	DAY	2,033.000	2,033.000
0960	643.0920	Traffic Control Covering Signs Type II	EACH	10.000	10.000
0970	643.1050	Traffic Control Signs PCMS	DAY	16.000	16.000
0980	643.2000	Traffic Control Detour (project) 01. 6220-03-74	EACH	1.000	1.000
0990	643.3000	Traffic Control Detour Signs	DAY	1,596.000	1,596.000
1000	644.1420.S	Temporary Pedestrian Surface Plywood	SF	320.000	320.000
1010	644.1601.S	Temporary Curb Ramp	EACH	3.000	3.000
1020	645.0105	Geotextile Type C	SY	261.000	261.000
1030	645.0120	Geotextile Type HR	SY	353.000	353.000
1040	645.0130	Geotextile Type R	SY	214.000	214.000
1050	646.0106	Pavement Marking Epoxy 4-Inch	LF	22,065.000	22,065.000
1060	646.0126	Pavement Marking Epoxy 8-Inch	LF	30.000	30.000
1070	646.0406	Pavement Marking Same Day Epoxy 4-Inch	LF	29,217.000	29,217.000
1080	646.2304.S	Pavement Marking Grooved Wet Reflective Epoxy 4-Inch	LF	45,506.000	45,506.000
1090	646.2308.S	Pavement Marking Grooved Wet Reflective Epoxy 8-Inch	LF	321.000	321.000
1100	647.0566	Pavement Marking Stop Line Epoxy 18-Inch	LF	27.000	27.000
1110	647.0766	Pavement Marking Crosswalk Epoxy 6-Inch	LF	215.000	215.000
1120	648.0100	Locating No-Passing Zones	MI	3.550	3.550
1130	649.0400	Temporary Pavement Marking Removable Tape 4-Inch	LF	2,800.000	2,800.000

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Line	Item	Item Description	Unit	Total	Qty
1140	649.0402	Temporary Pavement Marking Paint 4-Inch	LF	29,217.000	29,217.000
1150	649.0600	Temporary Pavement Marking Removable Tape 6-Inch	LF	348.000	348.000
1160	649.1400	Temporary Pavement Marking Stop Line Removable Tape 24-Inch	LF	48.000	48.000
1170	650.4500	Construction Staking Subgrade	LF	258.000	258.000
1180	650.5000	Construction Staking Base	LF	258.000	258.000
1190	650.6000	Construction Staking Pipe Culverts	EACH	2.000	2.000
1200	650.6500	Construction Staking Structure Layout (structure) 01. B-68-140	LS	1.000	1.000
1210	650.8000	Construction Staking Resurfacing Reference	LF	22,636.000	22,636.000
1220	650.9910	Construction Staking Supplemental Control (project) 01. 6220-03-74	LS	1.000	1.000
1230	690.0150	Sawing Asphalt	LF	1,212.000	1,212.000
1240	690.0250	Sawing Concrete	LF	201.000	201.000
1250	ASP.1T0A	On-the-Job Training Apprentice at $5.00/HR	HRS	1,200.000	1,200.000
1260	ASP.1T0G	On-the-Job Training Graduate at $5.00/HR	HRS	600.000	600.000
1270	SPV.0035	Special 01. Culvert Pipe Transition Backfill	CY	370.000	370.000
1280	SPV.0060	Special 01. Reestablish Section Corner Monuments	EACH	6.000	6.000
1290	SPV.0105	Special 01. Temporary Water Diversion - Sta 509+58	LS	1.000	1.000
1300	SPV.0105	Special 02. Temporary Water Diversion - B-68-140	LS	1.000	1.000
1310	SPV.0180	Special 01. Ditch and Channel Reestablishment Grading Shaping	SY	410.000	410.000

3

CLEARING

STATION - STATION	LOCATION	201.0205 STA	REMARKS
STH 54			
655+66 - 656+20	LT	2	CLEAR SHRUBBERY WITHIN EXISTING RIGHT OF WAY
ITEM TOTAL		2	

REMOVING ASPHALTIC SURFACE

STATION - STATION	LOCATION	204.0110 SY
STH 54		
649+22 - 650+76	LT & RT	68
652+80 - 654+74	LT	43
652+80 - 654+93	RT	47
ITEM TOTAL		158

NOTE: REMOVING ASPHALTIC CONCRETE PAVEMENT AT EXISTING BEAMGUARD.

REMOVING CONCRETE SIDEWALK

STATION - STATION	LOCATION	204.0155 SY
STH 54		
650+78.65 - 682+87.86	LT & RT	197
ITEM TOTAL		197

3

GRUBBING ITEMS

STATION-STATION	LOCATION	201.0205 STA	201.0220 ID
STH 54			
479+00 - 482+00	RT	3	
492+00	LT		16
551+75	RT		24
ITEM TOTAL		3	40

REMOVING ASPHALTIC SURFACE MILLING

STATION - STATION	LOCATION	204.0120 SY
STH 54		
454+24.48 - 508+95.16	LT & RT	18338
508+95.16 - 522+97.00	LT & RT	3864
522+97.00 - 602+32.71	LT & RT	26850
602+32.71 - 650+76.04	LT & RT	17142
650+78.65 - 682+87.86	LT & RT	13390
ITEM TOTAL		79584

REMOVING GUARDRAIL

STATION - STATION	LOCATION	204.0165 LF
STH 54		
649+21.71 - 650+78.24	LT	159
649+31.52 - 650+78.32	RT	147
652+56.66 - 654+74.37	LT	221
652+56.03 - 654+92.61	RT	235
ITEM TOTAL		762

REMOVING SMALL PIPE CULVERTS

STATION	LOCATION	203.0100 EACH	REMARKS
STH 54			
460+04	LT	1	REMOVE DAMAGED SECTIONS ONLY
469+75	LT	1	REMOVE DAMAGED SECTIONS ONLY
571+03	LT & RT	1	REMOVE DAMAGED SECTIONS ONLY
ITEM TOTAL		3	

REMOVING CURB & GUTTER

STATION - STATION	LOCATION	204.0150 LF
STH 54		
649+17.76 - 650+76.04	RT	176
650+78.65 - 682+87.86	LT & RT	302
ITEM TOTAL		478

REMOVING SURFACE DRAINS

STATION - STATION	LOCATION	204.0190 EACH	REMARKS
STH 54			
650+54.21	RT	1	PARTIAL REMOVAL
652+90.24	RT	1	PARTIAL REMOVAL
655+05	RT	1	
ITEM TOTAL		3	

REMOVING OLD STRUCTURE

STATION	LOCATION	203.0200 LS
STH 54		
509+58		1
ITEM TOTAL		1

REMOVING PAVEMENT

STATION - STATION	LOCATION	204.0100 SY
STH 54		
508+95.16 - 510+20.16	LT & RT	417
521+51.54 - 522+97.00	LT & RT	902
650+78.65 - 682+87.86	LT & RT	206
ITEM TOTAL		1525

EARTHWORK SUMMARY

STATION - STATION	LOCATION	(1) 205.0100 EXCAVATION COMMON CY	(2) SALVAGED/ UNUSABLE PAVEMENT MATERIAL CY	(3) AVAILABLE MATERIAL CY	REMARKS
STH 54					
508+95 - 510+20	LT & RT	549	130	419	TRANSITIONAL CUT
521+58 - 522+91	LT & RT	533	138	395	TRANSITIONAL CUT
664+78 - 665+10	LT	3		3	SWALE REALIGNMENT
ITEM TOTAL		1085	268	817	

(1) EXCAVATION COMMON, ITEM NUMBER 205.0100, IS THE TOTAL VOLUME OF CUT AND INCLUDES THE UNUSABLE PAVEMENT MATERIAL.
(2) SALVAGED/UNUSABLE MATERIAL IS INCLUDED IN THE EXCAVATION COMMON
(3) AVAILABLE MATERIAL = EXCAVATION COMMON - UNUSABLE PAVEMENT MATERIAL.

NOTE: ALL ITEMS AND QUANTITIES ON THIS SHEET ARE FOR ENGINEER ESTIMATE CATEGORY 0010 UNLESS OTHERWISE NOTED.

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BACKFILL STRUCTURE

STATION - STATION	210.2100 * CY	REMARKS
STH 54		
521+58 - 522+08	185	TRANSITION BACKFILL
522+41 - 522+91	185	TRANSITION BACKFILL
ITEM TOTAL	370	

* ADDITIONAL QUANTITIES SHOWN ELSEWHERE

PREPARE FOUNDATION FOR ASPHALTIC PAVING (PROJECT)

STATION - STATION	LOCATION	211.0100 LS
STH 54		
6220-03-74	LT & RT	1
ITEM TOTAL		1

PREPARE FOUNDATION FOR ASPHALTIC SHOULDERS

STATION - STATION	LOCATION	211.0400 STA
STH 54		
454+24.48 - 508+95.16	LT & RT	110
508+95.16 - 522+97.00	LT & RT	24
522+97.00 - 602+32.71	LT & RT	160
602+32.71 - 650+54.47	LT & RT	98
666+36.49 - 678+61.84	LT & RT	26
ITEM TOTAL		418

SHAPING SHOULDERS

STATION - STATION	LOCATION	305.0500 STA
STH 54		
454+24.48 - 508+95.16	LT &RT	110
508+95.16 - 522+97.00	LT &RT	24
522+97 - 602+32.71	LT &RT	160
602+32.71 - 648+65.57	LT &RT	98
666+30.49 - 678+61.84	RT & LT	26
ITEM TOTAL		418

DRILLED TIE BARS

STATION	LOCATION	416.0610 EACH
STH 54		
650+54.21	21.5' RT	3
650+51.95 - 650+76.04	RT	10
653+00.00	RT	10
655+07.43	23.4' LT	2
655+24.47	15.0' LT	2
654+23.40	15.0' RT	2
655+90.95	21.7' RT	2
656+19.03	20.5' LT	2
656+32.76	37.6' LT	2
656+48.09	31.4' LT	4
656+56.29	32.1' LT	4
656+97.16	41.5' LT	2
657+32.84	24.9' LT	2
664+24.07	20.8' LT	2
664+35.22	31.2' LT	2
664+66.67	32.8' LT	2
664+76.81	21.5' LT	2
ITEM TOTAL		55

CONCRETE SURFACE DRAIN

STATION	LOCATION	416.1010 CY	645.0130 * GEOTEXTILE FABRIC TYPE R SY
STH 54			
650+54.21	RT	1	3
625+90.24	RT	1.2	6
655+05	RT	0.5	5
ITEM TOTAL		2.7	14

* ADDITIONAL QUANTITIES SHOWN ELSEWHERE

ASPHALTIC RUMBLE STRIPS 2-LANE RURAL

STATION - STATION	LOCATION	465.0425 SHOULDER LF	465.0475 CENTERLINE LF
STH 54			
454+24.48 - 508+95.16	LT & RT	10813	4671
508+95.16 - 522+97.00	LT & RT	2550	1002
522+97.00 - 602+32.71	LT & RT	15900	7940
602+32.71 - 630+00.00	LT & RT	5187	1981
673+29.82 - 682+87.86	LT & RT	1908	950
ITEM TOTAL		36358	16544

3

CONCRETE MASONRY ENDWALLS

STATION - STATION	LOCATION	504.0900 CY
STH 54		
509+58	LT & RT	25
ITEM TOTAL		25

TEMPORARY SHORING

STATION - STATION	511.1300 SF
STH 54	
509+58	250
ITEM TOTAL	250

BASE COURSE ITEMS

STATION - STATION	LOCATION	305.0110 BASE AGGREGATE DENSE 3/4-INCH TON	305.0120 BASE AGGREGATE DENSE 1 1/4-INCH TON	REMARKS
STH 54				
454+24.48 - 508+95.16	LT & RT	23		DRIVEWAYS
508+95.16 - 522+97.00	LT & RT	40	402	DRIVEWAYS & CULVERT REPLACEMENT AREAS
522+97.00 - 602+32.71	LT & RT	7		DRIVEWAYS
602+32.71 - 650+76.04	LT & RT	11		DRIVEWAYS
650+78.65 - 682+87.86	LT & RT	1		DRIVEWAYS
UNDISTRIBUTED		10	40	
ITEM TOTAL		92	442	

HMA PAVEMENT ITEMS

STATION	LOCATION	455.0605 TACK COAT GAL	460.4110.S REHEATING HMA PAVEMENT LONGITUDINAL JOINTS LF	460.5224 HMA PAVEMENT 4 LT 58-28S TON	465.0120 ASPHALTIC SURFACE DRIVEWAYS & FIELD ENTRANCES TON
STH 54					-
454+24.48 - 508+95.16	LT & RT	1450	5471	2248	-
508+95.16 - 522+97.00	LT & RT	375	1402	799	-
522+97.00 - 602+32.71	LT & RT	2125	7950	3257	-
602+32.71 - 650+76.04	LT & RT	800	4844	2031	-
650+78.65 - 682+87.86	LT & RT	995	3368	1676	-
DRIVEWAYS	LT & RT	5	-	-	85
ITEM TOTAL		5750	23035	10011	85

CONCRETE COLLARS FOR PIPE

STATION - STATION	LOCATION	520.8000 EACH
STH 54		
460+00	LT	1
469+73	LT	1
571+01	LT	2
ITEM TOTAL		4

NOTE: ALL ITEMS AND QUANTITIES ON THIS SHEET ARE FOR ENGINEER ESTIMATE CATEGORY 0010 UNLESS OTHERWISE NOTED.

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CULVERT PIPE

STATION - STATION	LOCATION	522.0124 REINFORCED CONCRETE CLASS III 24-INCH LF	522.0130 REINFORCED CONCRETE CLASS III 30-INCH LF	522.0384 REINFORCED CONCRETE CLASS IV 84-INCH LF	522.1024 APRON ENDWALLS REINFORCED CONCRETE 24-INCH EACH	522.1030 APRON ENDWALLS REINFORCED CONCRETE 30-INCH EACH	520.8700 CLEANING CULVERT PIPES EACH
STH 54							
460+04	LT & RT		12			2	
469+75	LT & RT	8			2		1
509+58	LT & RT			120			
571+03	LT & RT	16			2		1
ITEM TOTAL		24	12	120	4	2	2

CURB RAMP DETECTABLE WARNING FIELD YELLOW

STATION - STATION	LOCATION	602.0505 SF
STH 54		
650+76.04-682+87.86	LT	62
ITEM TOTAL		62

LANDMARK REFERENCE MONUMENTS

STATION - STATION	LOCATION	621.0100 EACH
STH 54		
489+06	CL	4
516+10	CL	1
594+90	LT	2
635+45	CL	3
ITEM TOTAL		10

3

ADJUSTING MANHOLE COVERS

STATION - STATION	LOCATION	611.8110 EACH
STH 54		
656+51	LT	1
ITEM TOTAL		1

CONCRETE CURB & GUTTER

STATION - STATION	LOCATION	601.0409 30-INCH TYPE A LF	601.0411 30-INCH TYPE D LF	601.0600 CONCRETE CURB PEDESTRIAN LF
STH 54				
649+17.76 - 650+54.47	RT		155	
650+54.47 - 650+76.04	RT	22		
654+23.40 - 655+90.95	RT		166	
655+07.43 - 655+24.47	LT		22	
656+15.28 - 656+20.51	LT			12
656+19.03 - 656+32.76	LT		23	
656+47.01 - 656+49.03	LT		10	
656+54.99 - 656+57.85	LT		10	
657+03.36 - 657+17.25	LT			18
656+97.73 - 657+32.84	LT		26	
664+23.73 - 664+23.73	LT		16	
664+63.74 - 664+77.20	LT		16	
ITEM TOTAL		22	444	30

MIDWEST GUARDRAIL SYSTEM

STATION - STATION	LOCATION	614.0010 BARRIER SYSTEM GRADING SHAPING FINISHING EACH	614.0397 MOWSTRIP EMULSIFIED ASPHALT SY	614.2300 MGS GUARDRAIL 3 LF	614.2320 MGS GUARDRAIL 3 QS LF	614.2500 MGS THRIE BEAM TRANSITION LF	614.2610 MGS GUARDRAIL TERMINAL EAT EACH
STH 54							
649+24.98 - 650+78.24	LT	1	59	50	12.5	39	1
649+41.10 - 650+78.32	RT	1	41	44		39	1
652+56.66 - 654+68.40	LT	1	84	122		39	1
652+56.03 - 654+88.16	RT	1	78	138		39	1
ITEM TOTAL		4	262	354	12.5	156	4

CONCRETE SIDEWALK 4-INCH

STATION - STATION	LOCATION	602.0405 SF
STH 54		
655+17	LT	74
656+24	LT	125
656+52	LT	38
657+15	LT	290
664+25	LT	82
664+78	LT	79
ITEM TOTAL		688

FENCE SAFETY

STATION - STATION	LOCATION	616.0700.S LF	REMARKS
STH 54			
527+18 - 529+43	LT	280	SEE PLAN SHEET FOR LAYOUT OF FENCE
632+00 - 638+60	19' RT	585	
ITEM TOTAL		865	

MAINTENANCE AND REPAIR OF HAUL ROADS

STATION - STATION	618.0100 EACH
STH 54	1
ITEM TOTAL	1

NOTE: ALL ITEMS AND QUANTITIES ON THIS SHEET ARE FOR ENGINEER ESTIMATE CATEGORY 0010 UNLESS OTHERWISE NOTED.

3

WATER

STATION - STATION	624.0100 MGAL
STH 54	18
ITEM TOTAL	18

MOBILIZATIONS EROSION CONTROL

STATION - STATION	LOCATION	628.1905 EACH	628.1910 EMERGENCY EACH
STH 54	LT & RT	4	4
ITEM TOTAL		4	4

3

EROSION CONTROL ITEMS

STATION - STATION	LOCATION	606.0100* RIPRAP LIGHT CY	606.0300* RIPRAP HEAVY CY	628.1504 SILT FENCE LF	628.1520 SILT FENCE MAINTENANCE LF	628.2004 EROSION MAT CLASS I TYPE B SY	628.7555 CULVERT PIPE CHECKS EACH	645.0120* GEOTEXTILE TYPE HR SY	645.0130* GEOTEXTILE TYPE R SY
CATEGORY 0010									
STH 54									
460+04	LT	2		60	60	14			10
460+04	RT						6		
459+91 - 460+92	RT					200			
469+73	LT			25	25	28			
469+73	RT					5	4		
509+58	LT &RT		113	203	203	301		246	
522+04	LT	10							10
522+42	RT	24							35
522+24	LT &RT			196	196	404			
522+24	LT								
571+03.42	LT			66	66	15			
571+03.42	RT			17	17		4		
649+16.91 - 650+75.88	LT			163	163	80			
649+22.75 - 650+74.52	RT			154	154	86			
652+59.82 - 654+91.80	LT			242	242	150			
652+79.76 - 655+41.14	RT			290	290	297			
655+05	RT	1							5
ITEM TOTAL		37	113	1416	1416	1580	14	246	60

* ADDITIONAL QUANTITIES SHOWN ELSEWHERE

INLET PROTECTION TYPE C

STATION - STATION	LOCATION	628.7015 EACH
STH 54		
650+78.65 - 682+87.86	LT & RT	11
ITEM TOTAL		11

TURF ESTABLISHMENT ITEMS

STATION - STATION	LOCATION	625.0100 TOPSOIL SY	627.0200 MULCH SY	629.0210 FERTILIZER TYPE B CWT	630.0130 SEEDING MIXTURE NO. 30 LB
STH 54					
454+24.48 - 508+95.16	LT & RT	214	168	0.24	3.9
508+95.16 - 522+97.00	LT & RT	705		0.44	12.7
522+97.00 - 602+32.71	LT & RT		2	0.01	0.1
602+32.71-650.76.04	LT & RT	171		0.11	3.1
650+76.04-682+87.86	LT & RT	460		0.29	8.4
UNDISTRIBUTED		155	17	0.10	2.8
ITEM TOTAL		1705	187	1.19	31.0

MARKERS CULVERT END

STATION - STATION	LOCATION	633.5200 EACH
STH 54		
460+00	LT & RT	2
469+73	LT & RT	2
482+31	LT & RT	2
509+58	LT & RT	2
609+98	LT & RT	2
626+61	LT & RT	2
666+14	LT & RT	2
ITEM TOTAL		14

NOTE: ALL ITEMS AND QUANTITIES ON THIS SHEET ARE FOR ENGINEER ESTIMATE CATEGORY 0010 UNLESS OTHERWISE NOTED.

PERMANENT SIGNING ITEMS

SIGN GROUP NUMBER	SIGN CODE	SIGN MESSAGE	SIZE	637.2210 SIGNS TYPE II REFLECTIVE H SF	637.2230 SIGNS TYPE II REFLECTIVE F SF	634.0614 POSTS WOOD 4X6-INCH 14-FT EACH	634.0616 POSTS WOOD 4X6-INCH 16-FT EACH	634.0618 POSTS WOOD 4X6-INCH 18-FT EACH	634.0622 POSTS WOOD 4X6-INCH 22-FT EACH	REMARKS
1-1	D1-3	WAUPACA / WEYAUWEGA / MANAWA	78 X 36	19.50			2			
1-2	R2-1	SPEED LIMIT 55	24 X 30	5.00			1			
1-3	JV	WEST STH 54 / SOUTH STH 22 STH 110/ NORTH STH 22 / STH 110	72 X 81	40.50					2	
1-4	JV	JCT / STH 22 / STH 110	24 X 63	10.50				1		
2-1	W14-3	NO PASSING ZONE	48 X 36		6.00		1			
3-1	R1-1	STOP	30 X 30	5.18		1				
4-1	W14-3	NO PASSING ZONE	48 X 36		6.00		1			
4-2	S3-1	SCHOOL BUS STOP AHEAD	36 X 36		9.00		1			
4-3	S3-1	SCHOOL BUS STOP AHEAD	36 X 36		9.00		1			
5-1	W14-3	NO PASSING ZONE	48 X 36		6.00		1			
5-2	W1-2L	ROAD CURVES LEFT	30 X 30		6.25		1			
5-3	W14-3	NO PASSING ZONE	48 X 36		6.00		1			
5-4	J1-1	JCT / CTH O	24 X 39	6.50				1		
6-1	J4-1	WEST / CTH 54	24 X 36	6.00			1			
6-2	J13-1	CTH O / DBL ARROWS	24 X 45	7.50				1		
6-3	W1-7	TWO-DIRECTION LARGE ARROW	48 X 24		8.00	1				
6-4	R1-1	STOP	36 X 36	7.46		1				
6-5	J13-1	STH 54 / DOUBLE ARROW	24 X 45	7.50			1			
6-6	I-55-56	ADOPT A HIGHWAY	30 X 36	7.50			1			ROLLUP SIGN BRACKET IS INCIDENTAL
6-7	J4-1	EAST / STH 54	24 X 36	6.00			1			
6-8	J13-1	CTH O / LEFT ARROW	24 X 45	7.50			1			
6-9	J13-1	CTH O / LEFT ARROW	24 X 45	7.50			1			
6-10	W1-2R	ROAD CURVES RIGHT	30 X 30		6.25		1			
6-11	R1-1	STOP	30 X 30	5.18		1				
6-12	W14-3	NO PASSING ZONE	48 X 36		6.00		1			
6-13	W1-2R	ROAD CURVES RIGHT	30 X 30		6.25		1			
6-14	W3-5	SPEED REDUCTION AHEAD 35 MPH	36 X 36		9.00		1			
6-15	W14-3	NO PASSING ZONE	48 X 36		6.00		1			
7-1	R2-1	SPEED LIMIT 35	24 X 30	5.00			1			
7-2	R2-1	SPEED LIMIT 55	24 X 30	5.00			1			
7-3	W1-2R	ROAD CURVES RIGHT	30 X 30		6.25		1			
7-4	R2-1	SPEED LIMIT 35	24 X 30	5.00			1			
7-5	D7-68R	CAMP VIC-TO-RAE / COUNTY PARK / ARROW RIGHT	84 X 36	21.00			2			
7-6	R1-1	STOP	30 X 30	5.18		1				
7-7	J1-1	JCT / CTH B	24 X 39	6.25			1			
7-8	R12-1	WEIGHT / LIMIT / 45 / TONS	24 X 30	5.00			1			
7-9	D7-68L	CAMP VIC-TO-RAE / COUNTY PARK / ARROW LEFT	84 X 36	21.00			2			
7-10	R1-1	STOP	30 X 30	5.18		1				
7-11	S3-1	SCHOOL BUS STOP AHEAD	36 X 36		9.00		1			
7-12	I3-1	LITTLE WOLF RIVER	60 x 24	10.00		2				
7-13	I3-1	LITTLE WOLF RIVER	60 x 24	10.00						MOUNTED BACK TO BACK
7-14	W5-52R	BRIDGE HASH MARKS RIGHT	12 X 36		3.00		1			
7-15	W5-52L	BRIDGE HASH MARKS LEFT	12 X 36		3.00		1			
7-16	W5-52R	BRIDGE HASH MARKS RIGHT	12 X 36		3.00		1			
7-17	I55-56	ADOPT A HIGHWAY	30 X 36	7.50		1				ROLLUP SIGN BRACKET IS INCIDENTAL
7-18	R2-1	SPEED LIMIT 35	24 X 30	5.00		1				
7-19	R12-1	WEIGHT / LIMIT / 45 / TONS	24 X 30	5.00		1				
7-20	J4-1	WEST / STH 54	24 X 36	6.00		1				
7-21	R1-1	STOP	30 X 30	5.18		1				
7-22	R1-1	STOP	30 X 30	5.18		1				
7-23	W5-52L	BRIDGE HASH MARKS LEFT	12 X 36		3.00		1			
7-24	J13-1	CTH O / ARROW LEFT	24 X 45	7.50			1			
7-25	R2-1	SPEED LIMIT 35	24 X 30	5.00		1				
7-26	D1-1	MANAWA	60 x 15	6.25		2				
7-27	JV3-1	CTH B / CTH O / ARROW LEFT	24 X 60	10.00				2		
7-28	W12-1D	DOUBLE DIAGONAL ARROWS	24 X 24		4.00	1				
7-29	J13-2	CTH O / DOUBLE ARROW / CTH B / ARROW RIGHT	48 X 45	15.00			2			
7-30	R1-1	STOP	30 X 30	5.18		1				
7-31	J4-1	EAST / STH 54	24 X 36	6.00		1				
7-32	R2-1	SPEED LIMIT 35	24 X 30	5.00		1				
8-1	D1-1	MANAWA	60 X 15	6.25		2				
8-2	JV1-2	JCT / CTH B / CTH O	24 X 63	10.50				1		
8-3	R1-1	STOP	30 X 30	5.18		1				
8-4	R2-1	SPEED LIMIT 35	24 X 30	5.00		1				
8-5	I-55-56	ADOPT A HIGHWAY	30 X 36	7.50		1				ROLLUP SIGN BRACKET IS INCIDENTAL
8-6	R2-1	SPEED LIMIT 55	24 X 30	5.00		1				
8-7	W14-3	NO PASSING ZONE	48 X 36		6.00	1				
8-8	W3-5	SPEED LIMIT AHEAD / 35 MPH	36 X 36		9.00	1				
8-9	I55-56	ADOPT A HIGHWAY	30 X 36	7.50		1				ROLLUP SIGN BRACKET IS INCIDENTAL
ITEM TOTAL				388.65	136.00	30	39	6	2	

NOTE: ALL ITEMS AND QUANTITIES ON THIS SHEET ARE FOR ENGINEER ESTIMATE CATEGORY 0010 UNLESS OTHERWISE NOTED.

3

SIGNING REMOVAL ITEMS

STATION - STATION	LOCATION	638.2602 REMOVING SIGNS TYPE II EACH	638.3000 REMOVING SMALL SIGN SUPPORTS EACH
STH 54			
454+24.48 - 508+95.16	LT & RT	5	7
508+95.16 - 522+97.00	LT & RT	1	1
522+97 - 602+32.71	LT & RT	13	13
602+32.71 - 650+76.04	LT & RT	31	32
650+78.65 - 682+87.86	LT & RT	27	30
ITEM TOTAL		77	83

TEMPORARY PORTABLE RUMBLE STRIPS

STATION - STATION	643.0310.S LS
STH 54	1
ITEM TOTAL	1

TRAFFIC CONTROL

STATION - STATION	643.0300 DRUMS DAY	643.0410 BARRICADES TYPE II DAY	643.0420 BARRICADES TYPE III DAY	643.0705 WARNING LIGHTS TYPE A DAY	643.0715 WARNING LIGHTS TYPE C DAY	643.0900 SIGNS DAY	643.1050 SIGNS PCMS DAY	643.3000 DETOUR SIGNS DAY
STH 54	1670	231	77	320	160	2033	16	190
STH 22								969
USH 45								437
ITEM TOTAL	1670	231	77	320	160	2033	16	1596

3

TRAFFIC CONTROL COVERING SIGNS

SIGN DETAIL NUMBER	PLAN SHEET	SIGN COVERED	NO. OF COVERING CYCLES	643.0920 COVERING SIGNS TYPE II EACH
16	DETOUR OVERVIEW	AHEAD ARROW	1	1
2	INTERCHANGE DETAIL	WAUPACA	1	1
3	INTERCHANGE DETAIL	WAUPACA	1	1
4	INTERCHANGE DETAIL	WEST, WIS 54, LEFT ARROW	1	1
5	INTERCHANGE DETAIL	AHEAD ARROW	1	1
7	INTERCHANGE DETAIL	WAUPACA AHEAD	1	1
8	INTERCHANGE DETAIL	WEST, WIS 54, LEFT ARROW	1	1
9	INTERCHANGE DETAIL	WAUPACA	1	1
10	INTERCHANGE DETAIL	WAUPACA	1	1
11	INTERCHANGE DETAIL	RIGHT ARROW	1	1
ITEM TOTAL				10

TEMPORARY PEDESTRIAN ITEMS

STATION - STATION	LOCATION	644.1420.S SURFACE PLYWOOD SF	644.1601.S CURB RAMP EACH	649.0600 TEMPORARY PAVEMENT MARKING REMOVABLE TAPE 6-INCH EACH
STH 54				
655+00 - 655+50	LT	150		38
656+00	LT		1	
656+00 - 657+50	LT			310
657+50	LT		1	
664+35	LT		1	
664+00 - 664+50	LT	170		
ITEM TOTAL		320	3	348

PAVEMENT MARKING

STATION - STATION	LOCATION	646.0106 EPOXY 4-INCH (YELLOW CL) LF	646.0126 EPOXY 8-INCH (WHITE) LF	646.0406 SAME-DAY EPOXY 4-INCH (YELLOW CL) LF	646.2304.S GROOVED WET REFLECTIVE EPOXY 4-INCH (WHITE) LF	646.2308.S GROOVED WET REFLECTIVE EPOXY 8-INCH (WHITE) LF	647.0566 STOP LINE EPOXY 18-INCH LF	647.0766 CROSSWALK EPOXY 6-INCH LF	648.0100 LOCATING NO PASSING ZONES MILES	649.0400 TEMPORARY REMOVABLE TAPE 4-INCH LF	649.0402 TEMPORARY PAINT 4-INCH (YELLOW CL) LF	649.1400 TEMPORARY STOP LINE REMOVABLE TAPE 24-INCH LF
STH 54												
454+24.48 - 508+95.16	LT & RT	4981		4981	11804				1.04		4981	
508+95.16 - 522+97.00	LT & RT	351		351	2688				0.27	2800	351	48
522+97.00 - 602+32.71	LT & RT	10768		10768	15870				1.50		10768	
602+32.71 - 650.76.04	LT & RT	4778		7965	9269	11			0.52		7965	
650+76.04 - 682+87.86	LT & RT	1187	30	5152	5875	310	27	215			5152	
671+08.56 - 682+87.86									0.22			
ITEM TOTAL		22065	30	29217	45506	321	27	215	3.55	2800	29217	48

NOTE: ALL ITEMS AND QUANTITIES ON THIS SHEET ARE FOR ENGINEER ESTIMATE CATEGORY 0010 UNLESS OTHERWISE NOTED.

3

CONSTRUCTION STAKING

STATION - STATION	LOCATION	650.4500 SUBGRADE LF	650.5000 BASE LF	650.6000 PIPE CULVERTS EACH	650.8000 RESURFACING REFERENCE LF
STH 54					
454+26.96 - 650+54.47	LT & RT				19628
652+79.61 - 682+87.86	LT & RT				3008
508+95 - 510+20	LT & RT	125	125		
509+55	LT & RT			2	
521+58 - 522+91	LT & RT	133	133		
ITEM TOTAL		258	258	2	22636

SAWING CONCRETE

STATION - STATION	LOCATION	690.0250 LF	REMARKS
STH 54			
508+95.16	CL	20	
510+20.16	CL	20	
521+58	CL	20	
522+91	CL	20	
650+54.21	RT	5	SURFACE DRAIN
650+54.40 - 650+76.25	RT	22	
652+90.13	RT	11	SURFACE DRAIN
654+23.40	RT	3	
655+08.34	LT	3	
655+24.48	LT	7	
655+91.06	RT	3	
656+18.48	LT	8	
656+30.42	LT	9	SIDEWALK AT STEPS AND C&G
656+46.26	LT	6	
656+58.18	LT	6	
656+97.16	LT	10	
657+32.84	LT	11	
664+16.15	LT	5	
664+24.07	LT	3	
664+35.22	LT	3	
664+66.67	LT	3	
664+76.81	LT	3	
ITEM TOTAL		201	

DITCH AND CHANNEL REESTABLISHMENT GRADING SHAPING

STATION - STATION	LOCATION	SPV.0180.01 SY
STH 54		
459+91 - 460+92	RT	200
469+75	LT	18
509+58	LT	28
522+07	LT	45
521+47 - 522+68	RT	119
ITEM TOTAL		410

3

SAWING ASPHALT

STATION - STATION	LOCATION	690.0150 LF
STH 54		
454+24.48 - 508+95.16	LT & RT	63
508+95.16	LT & RT	10
510+20.16	LT & RT	10
521+51.54	LT & RT	10
522+97.00	LT & RT	10
MARSH RD	LT & RT	130
558+00.00	LT	20
RAVEN LN	LT	40
649+00.00 - 650+54.55	LT	161
649+15.70 - 650+54.40	RT	162
654+23.40 - 655+91.05	RT	170
655+07.43 - 655+24.47	LT	28
656+18.97 - 656+32.79	LT	29
656+45.20 - 656+47.41	LT	14
656+56.84 - 656+59.54	LT	15
656+96.25 - 657+32.86	LT	48
664+24.72 - 664+36.06	LT	21
664+65.44 - 664+76.14	LT	21
CTH B	LT	56
CTH B	RT	42
DEPOT ST	LT	24
GAS STATION ENTRANCE	LT	128
ITEM TOTAL		1212

REESTABLISH SECTION CORNER MONUMENTS

STATION - STATION	LOCATION	SPV.0060.01 EACH
STH 54		
489+06		1
516+09		1
542+63		1
568+64		1
594+64		1
635+45	LT	1
ITEM TOTAL		6

CULVERT PIPE TRANSITION BACKFILL

STATION - STATION	SPV.0035.01 CY
STH 54	
508+95 - 509+45	185
509+70 - 510+20	185
ITEM TOTAL	370

NOTE: ALL ITEMS AND QUANTITIES ON THIS SHEET ARE FOR ENGINEER ESTIMATE CATEGORY 0010 UNLESS OTHERWISE NOTED.

BENCH MARKS			
No.	STATION	DESCRIPTION	ELEV.
1	464+88, 52' LT	RR SPIKE IN PP	813.70

5

5

BEGIN PROJECT
STA 454+26.96
Y=357659.863
X=576352.575
MATCH EXISTING
SAWCUT REQ'D

BEGIN ASPHALT CENTERLINE & SHOULDER RUMBLE STRIP 2-LANE RURAL
STA 454+26.96

STA 455+44 LT
PE AGG

CP 1

455+00

N62° 47' 16.24"E

STH 54

PC STA 458+46.76

STA 457+15 RT
PE AGG

MANAWA TELEPHONE
AT&T

STA 460+04
EXISTING 30" RCP
REMOVE 24 LF 30" RCP LT
(REMOVE DAMAGED SECTIONS ONLY)
30" RCP REQ'D LT
CONCRETE COLLAR FOR PIPE REQ'D LT
30" AEW'S REQ'D

SILT FENCE (TYP)

460+00

DETAIL A

CULVERT PIPE CHECK

CURVE DATA
DELTA = 27°17'19"
T = 466.61
L = 915.51
R = 1922.22
PI STA 463+13.36
PI Y = 358065.2059
PI X = 577140.8744
SE = 6.0%

RE-ESTABLISH DRAINAGE TO CULVERT WITHIN EXISTING R/W

PLACE TOPSOIL, SEED, FERTILIZER, AND EROSION MAT CLASS 1 TYPE B ON DISTURBED AREAS

STA 464+59 LT
PE AGG

BM 1

MATCHLINE STA 465+00

N

RE-ESTABLISH DRAINAGE FROM CULVERT TO EXISTING R/W

PLACE TOPSOIL, SEED, FERTILIZER, AND EROSION MAT CLASS 1 TYPE B ON DISTURBED AREAS

PT STA 11+22.51

CARDINAL LN

PT STA 467+62.26

SILT FENCE (TYP)

WE ENERGIES & CHARTER COMMUNICATIONS

PC STA 10+66.85

STA 466+01 LT
PE AGG

MATCHLINE STA 465+00

470+00

S89° 55' 24.88"E

STH 54

STA 472+60 RT
PE AGG

STA 474+47 RT
PE AGG

STA 474+40 LT
PE AGG

475+00

S89° 50' 13.01"E

PI STA 477+23.80
N = 358063.301
E = 578569.016
Δ = 0°05'11.88" RT

CP 2

STA 475+93 RT
CE AGG

STA 476+39 RT
CE AGG

STA 478+53 RT
PE AGG

MATCHLINE STA 480+00

MANAWA TELEPHONE
AT&T

STA 469+75
EXISTING 24" RCP
REMOVE 8 LF 24" RCP LT
(REMOVE DAMAGED SECTIONS ONLY)
24" RCP REQ'D LT
CONCRETE COLLAR FOR PIPE REQ'D LT
24" AEW'S REQ'D
CLEANING CULVERT PIPE REQ'D

DETAIL B

CULVERT PIPE CHECK
PLACE TOPSOIL, SEED, FERTILIZER, AND EROSION MAT CLASS 1 TYPE B ON DISTURBED AREAS

X = REMOVE STUMP. RESTORE AREA WITH TOPSOIL, SEED, FERTILIZER, AND MULCH

CONTROL POINT DATA					
POINT NO.	FEATURE	NORTHING	EASTING	ELEVATION	DESCRIPTION
1	CP	357748.781	576429.685	804.45	3/4 REBAR
2	CP	358015.211	578537.073	809.90	3/4 REBAR

PROJECT NO: 6220-03-74	HWY: STH 54	COUNTY: WAUPACA	PLAN	SHEET	E

FILE NAME : 0:\PDS\C3D\62200304\SHEETSPLAN\PPSTH54.DWG

SHEET NAME: 050201PN

BENCH MARKS			
No.	STATION	DESCRIPTION	ELEV.
2	488+72, 50' LT	RR SPIKE IN PP	802.85
3	508+08, 48' LT	RR SPIKE IN PP	797.07

MATCHLINE STA 480+00

WETLAND BOUNDARY (TYP)

WE ENERGIES & CHARTER COMMUNICATIONS

STA 485+63 LT
FE AGG

STA 487+07 LT
PE AGG

BM 2

BLUE HERON LN

STA 489+96 LT
PE AGG

STA 492+10 LT
CE AGG

STA 494+16 LT
CE ASPH

MATCHLINE STA 495+00

S89° 50' 13.01"E

485+00

STH 54

490+00

S89° 50' 13.01"E

STA 487+38 RT
PE AGG

AT&T
MANAWA TELEPHONE

RE-ESTABLISH SECTION CORNER MONUMENT

STA 482+34
EXISTING 42" RCP TO REMAIN

X = REMOVE STUMP. RESTORE AREA WITH TOPSOIL, SEED, FERTILIZER, AND MULCH

STA 509+58
CULVERT 68054018
REMOVE 2 EXISTING 65 LF 83"X57" CSPA
REMOVE EXISTING STONE MASONRY ENDWALLS
2 - CULVERT PIPE REINFORCED CONCRETE CLASS IV 84-INCH REQ'D
CONCRETE MASONRY ENDWALLS REQ'D

PERMITTED WETLAND IMPACTS
0.012 ACRES (WS)

RE-ESTABLISH DRAINAGE FROM CULVERT WITHIN EXISTING R/W BEGINNING APPROX. 13-FT FROM CULVERT END

PLACE TOPSOIL, SEED, FERTILIZER, AND EROSION MAT CLASS 1 TYPE B ON DISTURBED AREAS OUTSIDE OF CHANNEL BOTTOM

WETLAND BOUNDARY (TYP)

MATCHLINE STA 495+00

CP 3

STA 496+48 LT
CE ASPH

WE ENERGIES & CHARTER COMMUNICATIONS

BM 3

MATCHLINE STA 510+00

S89° 50' 13.01"E

500+00

STH 54

505+00

S89° 50' 13.01"E

STA 503+55 RT
FE AGG

MANAWA TELEPHONE

AT&T

PERMITTED WETLAND IMPACTS
0.009 ACRES (WS)

RE-ESTABLISH DRAINAGE TO CULVERT WITHIN EXISTING R/W BEGINNING APPROX. AT EXISTING R/W

PLACE TOPSOIL, SEED, FERTILIZER, AND EROSION MAT CLASS 1 TYPE B ON DISTURBED AREAS OUTSIDE OF CHANNEL BOTTOM

DETAIL C

CONTROL POINT DATA					
POINT NO.	FEATURE	NORTHING	EASTING	ELEVATION	DESCRIPTION
3	CP	358103.122	580508.557	803.45	3/4 REBAR

PROJECT NO: 6220-03-74	HWY: STH 54	COUNTY: WAUPACA	PLAN	SHEET	E

FILE NAME : O:\PDS\C3D\62200304\SHEETSPLAN\PPSTH54.DWG

SHEET NAME: 050202PN

BENCH MARKS			
No.	STATION	DESCRIPTION	ELEV.
4	524+85, 49' LT	RR SPIKE IN PP	793.42

PI STA 510+00.52
N = 358053.976
E = 581845.729
Δ = 0°05'08.71" LT

MATCHLINE STA 510+00

STA 511+80 LT
PE AGG

S89° 55' 21.71"E

515+00

STA 514+26 RT
PE AGG

STA 515+97 LT
CE AGG

RE-ESTABLISH SECTION
CORNER MONUMENT

WE ENERGIES &
CHARTER COMMUNICATIONS

STH 54

520+00

CP 4

MARSH RD

RE-ESTABLISH DRAINAGE FROM CULVERT
WITHIN EXISTING R/W BEGINNING APPROX.
AT EXISTING R/W

PLACE TOPSOIL, SEED, FERTILIZER, AND
EROSION MAT CLASS 1 TYPE B ON
DISTURBED AREAS

PERMITTED WETLAND IMPACTS
0.014 ACRES (SS)

PI STA 521+84.21
N = 358052.379
E = 583029.417
Δ = 0°10'33.97" RT

STA 522+24.35
STRUCTURE B-68-140 REQ'D
78' SPAN 2-CELL BOX CULVERT
20' CLEAR ROADWAY WIDTH
SKEW 30° RHF

WETLAND BOUNDARY (TYP)

PI STA 524+81.99
N = 358051.062
E = 583327.194
Δ = 0°19'30.13" RT

BM 4

S89° 44' 47.74"E

MATCHLINE STA 525+00

AT&T

DETAIL D

MANAWA TELEPHONE

PERMITTED WETLAND IMPACTS
0.025 ACRES (SS)

BEGINNING AT APPROX. STA 521+90 RT
GRADE DITCH TO DRAIN TO BOX CULVERT

PLACE TOPSOIL, SEED, FERTILIZER, AND
EROSION MAT CLASS 1 TYPE B ON
DISTURBED AREAS

STA 522+07
REMOVE OLD STRUCTURE C-68-9013
2-65 LF 83"X57" CSPA

N

5

5

STA 527+18 - 529+43 LT
FENCE SAFETY REQ'D

ENVIRONMENTALLY
SENSITIVE AREA

WE ENERGIES &
CHARTER COMMUNICATIONS

MATCHLINE STA 525+00

STA 527+10 LT
CE AGG

S89° 25' 17.62"E

530+00

STH 54

535+00

STA 533+59 LT
PE AGG

STA 534+91 LT
CE AGG

CP 5

STA 537+04 LT
CE AGG

S89° 25' 17.62"E

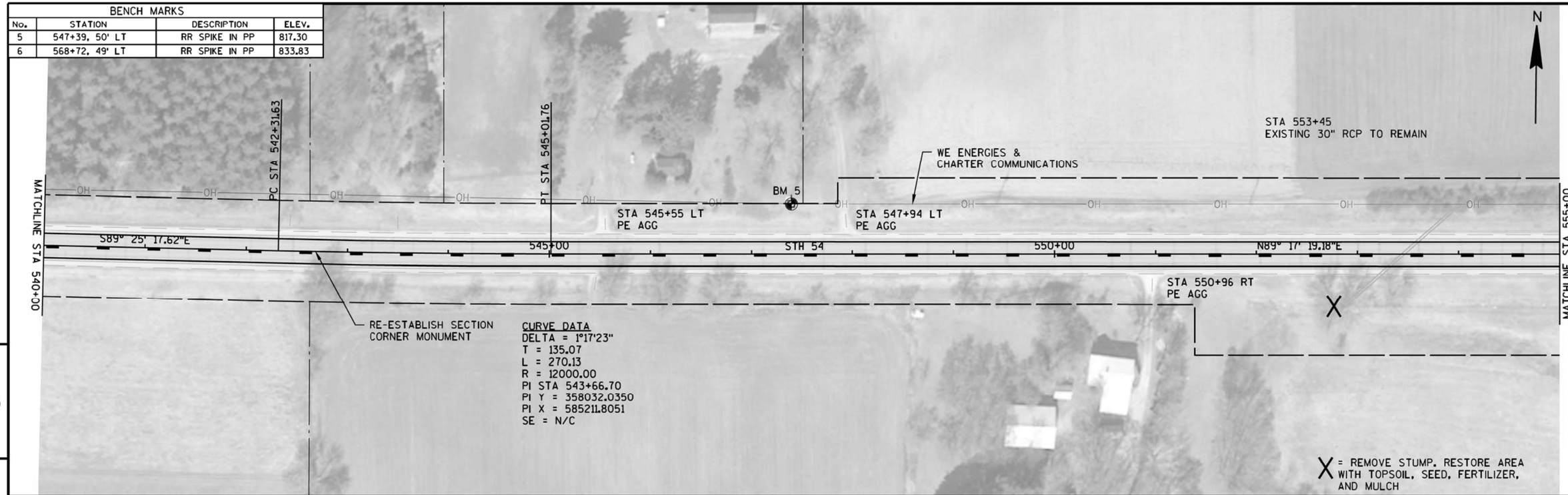
STA 534+32 RT
CE AGG

MATCHLINE STA 540+00

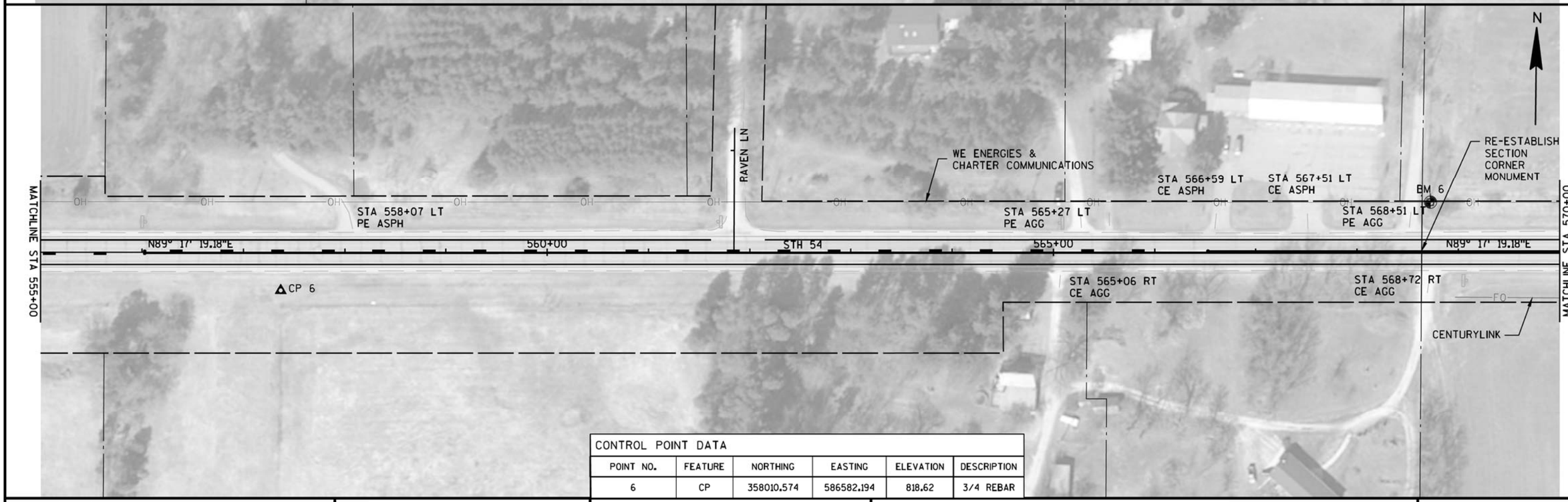
N

CONTROL POINT DATA					
POINT NO.	FEATURE	NORTHING	EASTING	ELEVATION	DESCRIPTION
4	CP	358005.491	582513.371	798.52	3/4 REBAR
5	CP	358077.001	584555.695	816.73	3/4 REBAR

BENCH MARKS			
No.	STATION	DESCRIPTION	ELEV.
5	547+39, 50' LT	RR SPIKE IN PP	817.30
6	568+72, 49' LT	RR SPIKE IN PP	833.83



CURVE DATA
DELTA = 1°17'23"
T = 135.07
L = 270.13
R = 12000.00
PI STA 543+66.70
PI Y = 358032.0350
PI X = 585211.8051
SE = N/C



CONTROL POINT DATA					
POINT NO.	FEATURE	NORTHING	EASTING	ELEVATION	DESCRIPTION
6	CP	358010.574	586582.194	818.62	3/4 REBAR

PROJECT NO: 6220-03-74	HWY: STH 54	COUNTY: WAUPACA	PLAN	SHEET	E

FILE NAME : O:\PDS\C3D\62200304\SHEETSPLAN\PPSTH54.DWG
SHEET NAME: 050204PN

BENCH MARKS			
No.	STATION	DESCRIPTION	ELEV.
7	592+92, 49' LT	RR SPIKE IN PP	816.26

MANAWA TELEPHONE
AT&T
SILT FENCE (TYP)
CENTURYLINK
CULVERT PIPE CHECK
DETAIL E

STA 571+03
EXISTING 24" RCP
REMOVE 8 LF 24" RCP LT & RT
(REMOVE DAMAGED SECTIONS ONLY)
24" RCP REQ'D LT & RT
CONCRETE COLLAR FOR PIPE REQ'D LT & RT
24" AEW'S REQ'D
CLEANING CULVERT PIPE REQ'D

MATCHLINE STA 570+00

WE ENERGIES &
CHARTER COMMUNICATIONS

STA 573+49 LT
PE AGG

STA 574+82 LT
FE AGG

CP 7

N89° 17' 19.18"E

575+00

STH 54

580+00

N89° 17' 19.18"E

STA 575+02 RT
PE AGG

STA 576+39 RT
PE AGG

STA 577+27 RT
CE AGG

MATCHLINE STA 585+00

N

5

5

PI STA 585+82.51
N = 358084.374
E = 589427.304
Δ = 0°04'56.96" RT

STA 587+45
EXISTING 36" RCP TO REMAIN

WE ENERGIES &
CHARTER COMMUNICATIONS

BM 7

PC STA 595+48.10

GUY

GUY

MATCHLINE STA 600+00

MATCHLINE STA 585+00

590+00

N89° 12' 22.22"E

STH 54

595+00

WETLAND BOUNDARY (TYP)

CENTURYLINK

RE-ESTABLISH SECTION
CORNER MONUMENT

CURVE DATA
DELTA = 54°59'34"
T = 745.34
L = 1374.44
R = 1432.00
PI STA 602+93.43
PI Y = 358108.0779
PI X = 591138.0597
SE = 6.0%

N

CONTROL POINT DATA					
POINT NO.	FEATURE	NORTHING	EASTING	ELEVATION	DESCRIPTION
7	CP	358121.251	588860.458	821.17	3/4 REBAR

PROJECT NO: 6220-03-74	HWY: STH 54	COUNTY: WAUPACA	PLAN	SHEET	E

FILE NAME : O:\PDS\C3D\62200304\SHEETSPLAN\PPSTH54.DWG

SHEET NAME: 050205PN

BENCH MARKS			
No.	STATION	DESCRIPTION	ELEV.
8	617+53, 48' LT	RR SPIKE IN PP	824.46

MATCHLINE STA 600+00

STA 600+18
EXISTING 30" RCP TO REMAIN

WE ENERGIES &
CHARTER COMMUNICATIONS

PT STA 609+22.54

WETLAND BOUNDARY (TYP)

MATCHLINE STA 615+00

N34° 12' 48.08"E

STA 613+77 RT
CE AGG

610+00

605+00

STH 54

PT STA 9+56.25

CENTURYLINK

CP 8

PC STA 8+00.65

CENTURYLINK

CURVE DATA
DELTA = 54°59'34"
T = 745.34
L = 1374.44
R = 1432.00
PI STA 602+93.43
PI Y = 358108.0779
PI X = 591138.0597
SE = 6.0%

STA 610+00
EXISTING 24" RCP TO REMAIN

PI STA 614+20.34
N = 359135.089
E = 591837.045
Δ = 0°15'27.88" LT

CTH O

ZIRBEL RD

PT STA 11+32.41

PC STA 10+19.96

BM 8

WE ENERGIES &
CHARTER COMMUNICATIONS

CENTURYLINK

MATCHLINE STA 615+00

N33° 57' 20.20"E

620+00

N34° 10' 00.03"E

STH 54

625+00

N34° 10' 00.03"E

MATCHLINE STA 630+00

STA 618+32 RT
CE AGG

PI STA 618+47.50
N = 359490.410
E = 592075.639
Δ = 0°12'39.83" RT

CENTURYLINK

STA 626+63
EXISTING 24" RCP TO REMAIN

CONTROL POINT DATA					
POINT NO.	FEATURE	NORTHING	EASTING	ELEVATION	DESCRIPTION
8	CP	358275.505	591210.068	811.84	3/4 REBAR

PROJECT NO: 6220-03-74	HWY: STH 54	COUNTY: WAUPACA	PLAN	SHEET	E

FILE NAME : 0:\PDS\C3D\62200304\SHEETSPLAN\PPSTH54.DWG

SHEET NAME: 050206PN

BENCH MARKS			
No.	STATION	DESCRIPTION	ELEV.
9	641+31, 32' LT	RR SPIKE IN PP	812.21
10	656+20, 36' LT	RR SPIKE IN PP	807.10

RE-ESTABLISH SECTION CORNER MONUMENT

WE ENERGIES & CHARTER COMMUNICATIONS

AT&T

PT STA 637+89.42

STA 635+80 LT PE ASPH

STA 637+85 LT PE AGG

STA 640+03 LT PE AGG

MANAWA TELEPHONE

BM 9

STA 642+67 LT PE ASPH

STA 644+54 LT PE ASPH

END ASPHALT CENTERLINE RUMBLE STRIP 2-LANE RURAL STA 630+00.00

PC STA 632+05.45

CP 9

635+00

STH 54

640+00

N34° 10' 00.03"E

N57° 31' 31.68"E

STA 633+46 RT CE AGG

STA 636+39 RT CE AGG

STA 638+14 RT CE AGG

SENSITIVE AREA ROYALTON CEMETERY

CURVE DATA
DELTA = 23°21'32"
T = 296.10
L = 583.97
R = 1432.40
PI STA 635+01.54
PI Y = 360858.9771
PI X = 593004.5530
SE = 6.0%

STA 640+44 RT PE AGG

WE ENERGIES & CHARTER COMMUNICATIONS CROSSOVER

STA 643+07 RT PE ASPH

MATCHLINE STA 630+00

MATCHLINE STA 645+00

STA 632+00 - 638+62, 19' RT FENCE SAFETY REQ'D

END ASPHALT SHOULDER RUMBLE STRIPS 2-LANE RURAL STA 630+00.00

5

5

CURVE DATA
DELTA = 36°59'12"
T = 581.97
L = 1123.24
R = 1740.00
PI STA 652+48.83
PI Y = 361801.5532
PI X = 594485.5533
SE = 3.6%

EXCEPTION TO NET C/L LENGTH
STA 650+54.47 TO STA 652+79.61
STRUCTURE B-68-0739 TO REMAIN

INSTALL MGS GUARDRAIL (SEE DETAIL)

STA 655+66+656+20 LT CLEAR SHRUBBERY WITHIN EXISTING R/W

CTH B

WE ENERGIES & CHARTER COMMUNICATIONS CROSSOVER

REMOVE GUARDRAIL

STA 649+11 LT PE AGG

AT&T

SILT FENCE (TYP)

STA 655+02 LT CE ASPH

CP 11 BM 10

PT STA 657+90.10

STA 657+69 LT PE CONC. SW/ASPH

STA 659+49 LT PE CONC

STH 54

650+00

655+00

PC STA 646+69.85

STA 646+00 LT PE AGG

CP 10

STA 645+80 LT PE ASPH

N57° 31' 31.68"E

S85° 29' 15.94"E

MATCHLINE STA 645+00

MATCHLINE STA 660+00

REMOVE GUARDRAIL

INSTALL MGS GUARDRAIL (SEE DETAIL)

MANAWA TELEPHONE

SLOPE INTERCEPT

SLOPE INTERCEPT

LITTLE WOLF RIVER

RIVER ST

PLACE TOPSOIL, SEED, FERTILIZER, AND EROSION MAT CLASS 1 TYPE B ON DISTURBED AREAS

PLACE TOPSOIL, SEED, FERTILIZER, AND EROSION MAT CLASS 1 TYPE B ON DISTURBED AREAS

WE ENERGIES & CHARTER COMMUNICATIONS CROSSOVER

INLET PROTECTION TYPE C (TYP)

ELM ST

PINE ST

WE ENERGIES & CHARTER COMMUNICATIONS CROSSOVER

WE ENERGIES & CHARTER COMMUNICATIONS CROSSOVER

STA 659+27 RT PE AGG

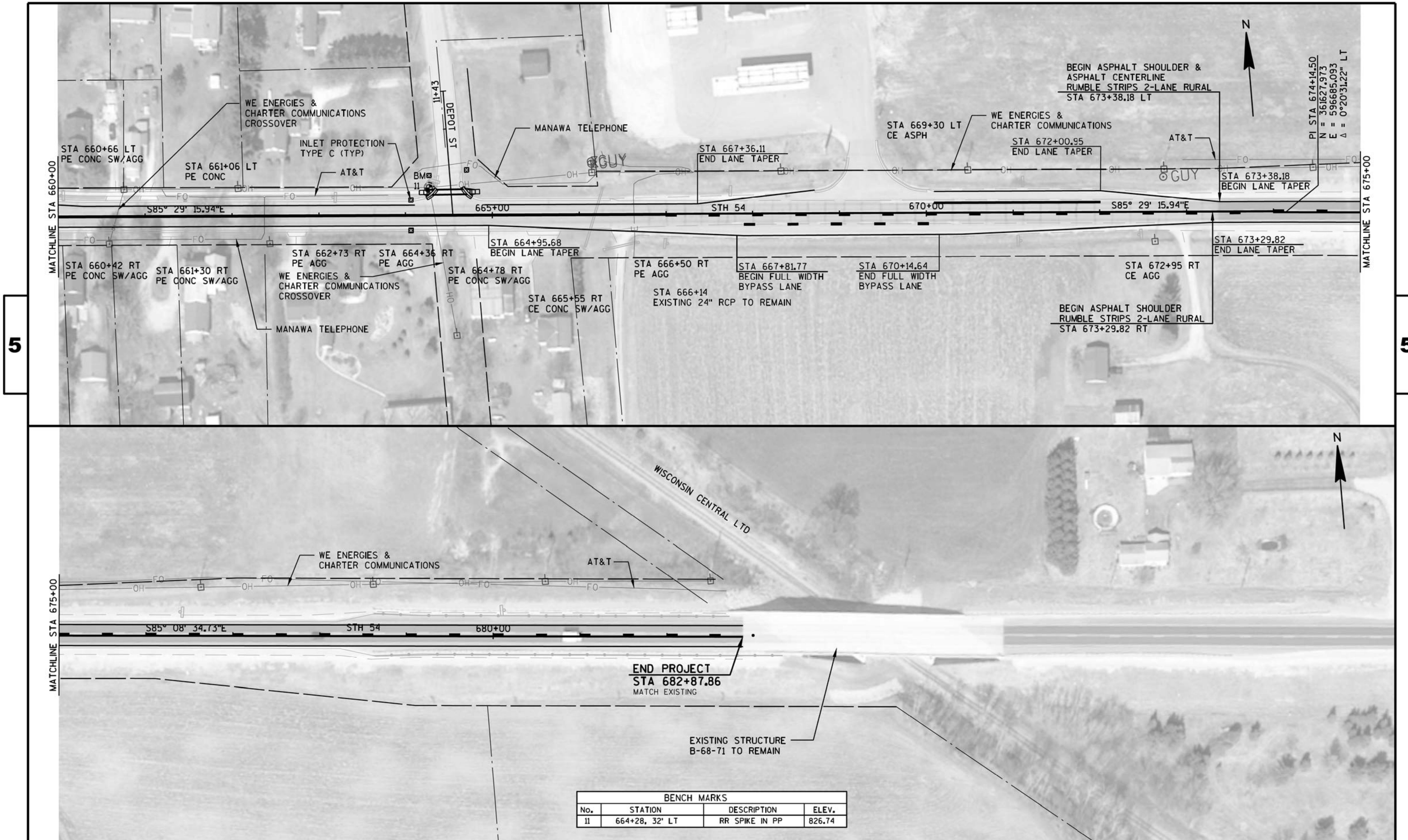
STA 659+50 RT PE AGG

CONTROL POINT DATA					
POINT NO.	FEATURE	NORTHING	EASTING	ELEVATION	DESCRIPTION
9	CP	360569.654	592755.237	821.39	3/4 REBAR
10	CP	361496.158	593951.619	808.99	3/4 REBAR
11	CP	361796.528	594882.852	807.01	3/4 REBAR

PROJECT NO: 6220-03-74	HWY: STH 54	COUNTY: WAUPACA	PLAN	SHEET	E

FILE NAME : 0:\PDS\C3D\62200304\SHEETSPLAN\PPSTH54.DWG

SHEET NAME: 050207PN



BENCH MARKS

No.	STATION	DESCRIPTION	ELEV.
11	664+28, 32' LT	RR SPIKE IN PP	826.74

PROJECT NO: 6220-03-74	HWY: STH 54	COUNTY: WAUPACA	PLAN	SHEET	E

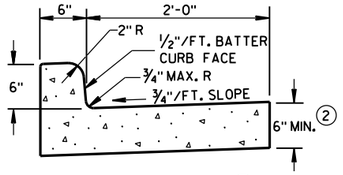
FILE NAME : O:\PDS\C3D\62200304\SHEETSPLAN\PPSTH54.DWG

SHEET NAME: 050208PN

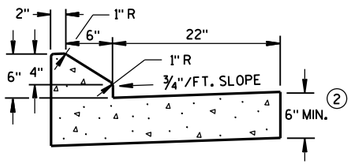
Standard Detail Drawing List

08D01-19	CONCRETE CURB, CONCRETE CURB AND GUTTER AND TIES
08D04-05	CONCRETE SURFACE DRAINS & ASPHALTIC FLUMES
08D05-18A	CURB RAMPS TYPES 1 AND 1-A
08D05-18B	CURB RAMPS TYPES 2 AND 3
08D05-18C	CURB RAMPS TYPES 4A AND 4A1
08D05-18D	CURB RAMPS TYPE 4B AND 4B1
08D05-18E	CURB RAMPS TYPES 5, 6, 7A, 7B & 8
08E09-06	SILT FENCE
08E10-02	INLET PROTECTION TYPE A, B, C AND D
08F01-11	APRON ENDWALLS FOR CULVERT PIPE
08F04-07	JOINT TIES FOR CONCRETE PIPE AND CONCRETE COLLAR DETAIL
08F10-01	CONCRETE MASONRY ENDWALLS FOR CULVERT PIPE AND PIPE ARCH
12A03-10	NAME PLATE (STRUCTURES)
13A10-01A	2-LANE RURAL SHOULDER RUMBLE STRIP, MILLING
13A10-01B	2-LANE RURAL SHOULDER RUMBLE STRIP, MILLING
13A10-01C	2-LANE RURAL SHOULDER RUMBLE STRIP, MILLING
13A10-01D	2-LANE RURAL SHOULDER RUMBLE STRIP, MILLING
13A11-02A	2-LANE RURAL CENTER LINE RUMBLE STRIP, MILLING
13A11-02B	2-LANE RURAL CENTER LINE RUMBLE STRIP, MILLING
14B28-03	GUARDRAIL MOW STRIP
14B42-04A	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-04B	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-04C	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B44-02A	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B44-02B	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B44-02C	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B45-04A	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-04B	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-04C	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-04D	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-04E	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-04F	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-04G	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-04H	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-04I	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-04J	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-04K	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-04L	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
15A03-02A	FLEXIBLE MARKER POST FOR CULVERT END
15A03-02B	FLEXIBLE MARKER POST FOR CULVERT END
15C02-06A	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C02-06B	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C02-06C	DETOUR SIGNING FOR MAINLINE CLOSURES
15C04-03	TRAFFIC CONTROL, ADVANCE WARNING SIGNS 45 M.P.H. OR GREATER TWO-WAY UNDIVIDED ROAD OPEN TO TRAFFIC
15C06-08	SIGNING & MARKING FOR TWO LANE BRIDGES
15C08-17A	LONGITUDINAL MARKING (MAINLINE)
15C08-17B	PAVEMENT MARKING (TURN LANES)
15C08-17C	PAVEMENT MARKING (ISLANDS)
15C12-05	TRAFFIC CONTROL FOR LANE CLOSURE WITH FLAGGING OPERATION
15C19-04A	MOVING PAVEMENT MARKING OPERATION TWO-LANE TWO-WAY ROADWAY
15C33-02	STOP LINE AND CROSSWALK PAVEMENT MARKING
15C35-01A	PAVEMENT MARKING (INTERSECTIONS)
15D30-03A	TRAFFIC CONTROL, PEDESTRIAN ACCOMMODATION
15D30-03B	TRAFFIC CONTROL, TEMPORARY ADA COMPLIANT PEDESTRIAN ACCOMMODATION
15D30-03C	TRAFFIC CONTROL, PEDESTRIAN ACCOMMODATION
15D32-04	TRAFFIC CONTROL, ONE LANE ROAD STOP CONDITION
15D38-01A	TEMPORARY TRAFFIC CONTROL FIXED MESSAGE SIGNS
15D38-01B	ATTACHMENT OF SIGNS TO POSTS
16A01-06	LANDMARK REFERENCE MONUMENTS AND COVERS

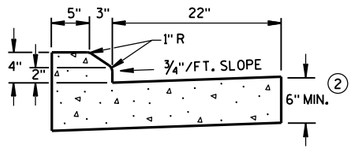
6



TYPES A & D ①

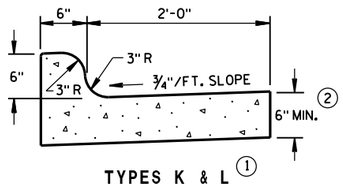


6" SLOPED CURB TYPES G & J ①

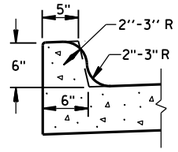


4" SLOPED CURB TYPES G & J ①

CONCRETE CURB & GUTTER 30"

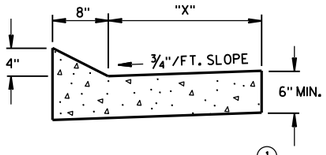


TYPES K & L ①



OPTIONAL CURB SHAPE FOR TYPES K & L ①

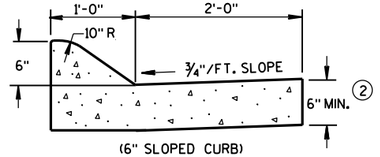
CONCRETE CURB & GUTTER 30"



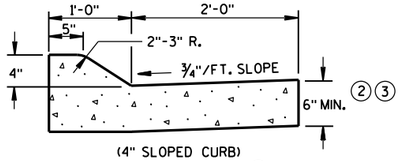
TYPES TBT & TBTT ①

CONCRETE CURB & GUTTER

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

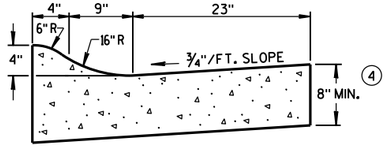


(6" SLOPED CURB)



(4" SLOPED CURB)

TYPES A & D ①



4" SLOPED CURB TYPES R & T ①⑤

CONCRETE CURB & GUTTER 36"

GENERAL NOTES

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

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

INTEGRAL CURB & GUTTER SHALL CONFORM TO THE DETAILS SHOWN FOR CONCRETE CURB & GUTTER INCLUDING THE TRANSVERSE GUTTER SLOPE. A LONGITUDINAL CONSTRUCTION JOINT IS NOT REQUIRED WITH INTEGRAL CURB AND GUTTER.

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

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

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

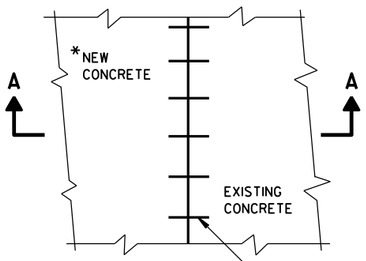
② THE BOTTOM OF CURB AND GUTTER MAY BE CONSTRUCTED EITHER LEVEL OR PARALLEL TO THE SLOPE OF THE SUBGRADE OR BASE AGGREGATE PROVIDED A 6" MINIMUM GUTTER THICKNESS IS MAINTAINED.

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

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

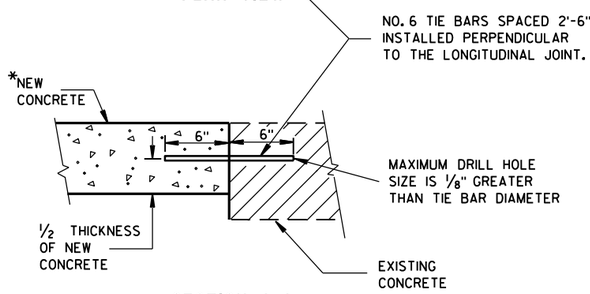
⑤ THE FACE OF CURB IS 6" FROM THE BACK OF CURB.

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



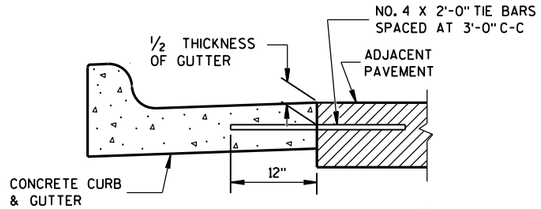
PLAN VIEW

*NEW CURB & GUTTER, SURFACE DRAINS, CONCRETE PAVEMENT OR OTHER NEW CONCRETE.

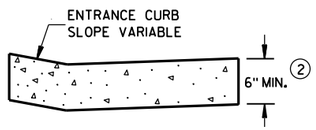


SECTION A-A

TIE BARS DRILLED INTO EXISTING PAVEMENT

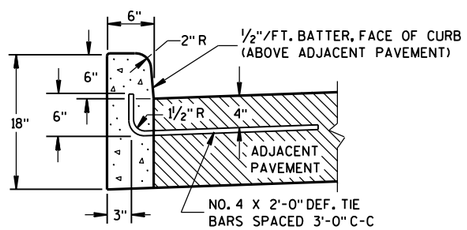


TYPICAL TIE BAR LOCATION ①

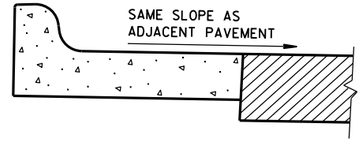


DRIVEWAY ENTRANCE CURB

(WHEN DIRECTED BY THE ENGINEER)

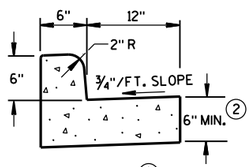


① TYPES A & D



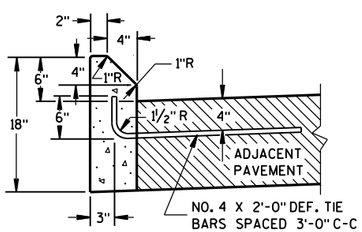
⑥ REVERSE SLOPE GUTTER

(TYPICAL FOR ALL CURB & GUTTER TYPES)



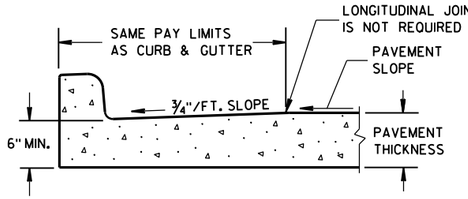
① TYPES A & D

CONCRETE CURB & GUTTER 18"

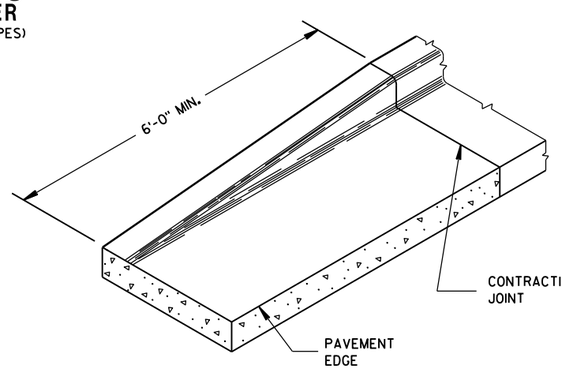


① TYPES G & J

CONCRETE CURB



PARTIAL SECTION OF PAVEMENT WITH INTEGRAL CURB & GUTTER



END SECTION CURB & GUTTER

CONCRETE CURB, CONCRETE CURB & GUTTER AND TIES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

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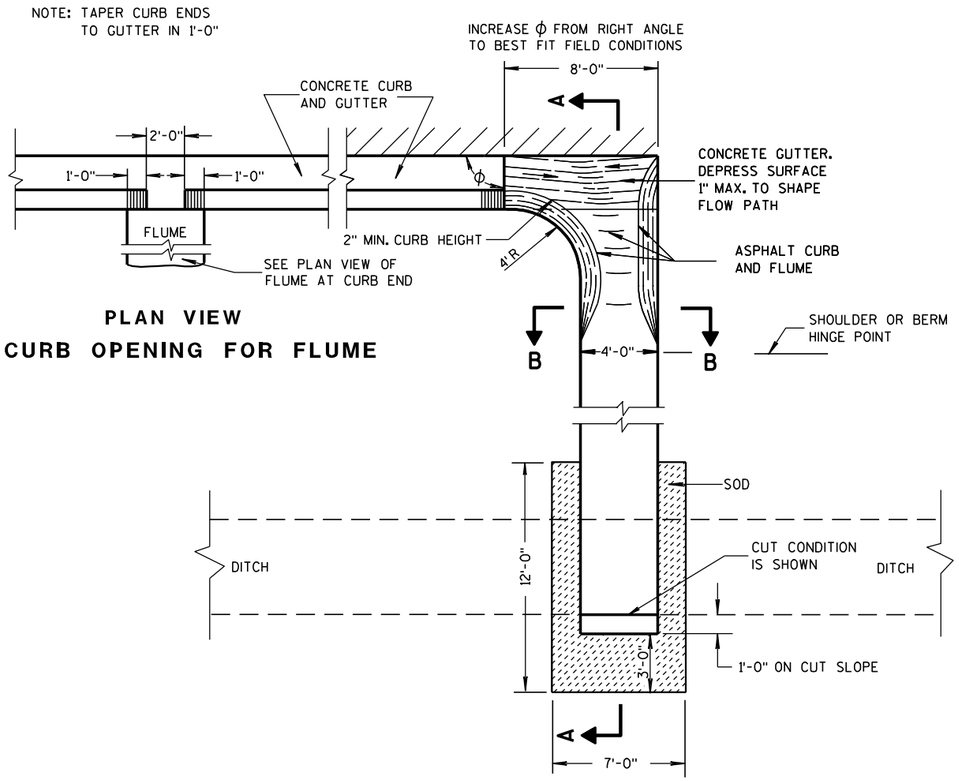
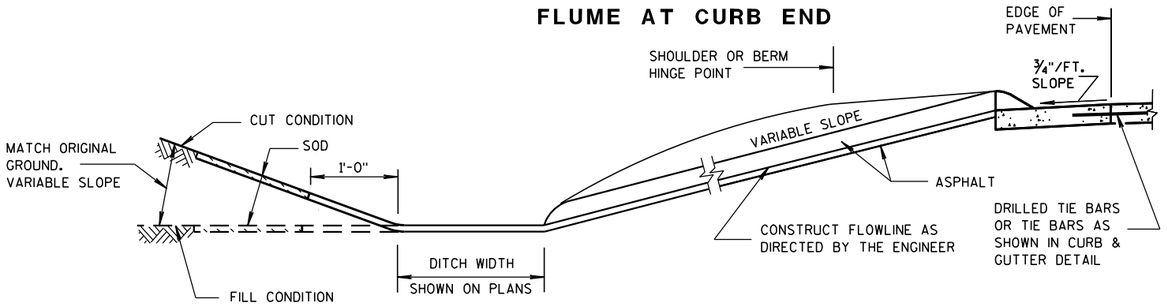
ASPHALTIC FLUME

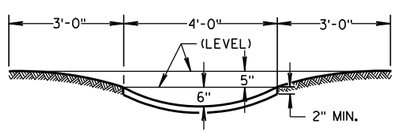


PLAN VIEW
CURB OPENING FOR FLUME

PLAN VIEW
FLUME AT CURB END



SECTION A-A



SECTION B-B

GENERAL NOTES

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

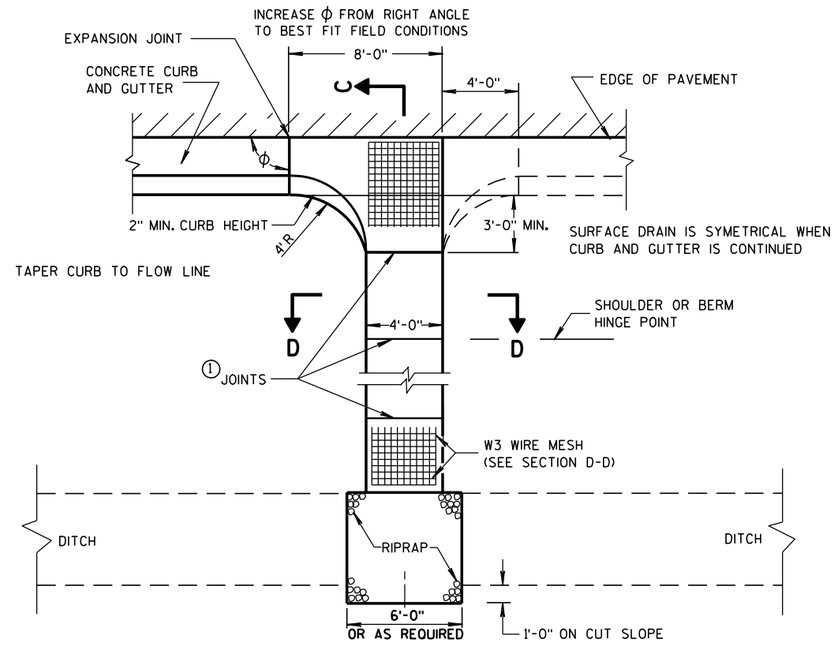
WELDED STEEL WIRE FABRIC SHALL BE IN ACCORDANCE WITH AASHTO SPECIFICATION M55.

① JOINTS SHALL BE $\frac{1}{8}$ TO $\frac{1}{4}$ INCH WIDE BY $1\frac{1}{2}$ INCHES DEEP AND SPACED AT UNIFORM INTERVALS OF APPROXIMATELY 4 FEET.

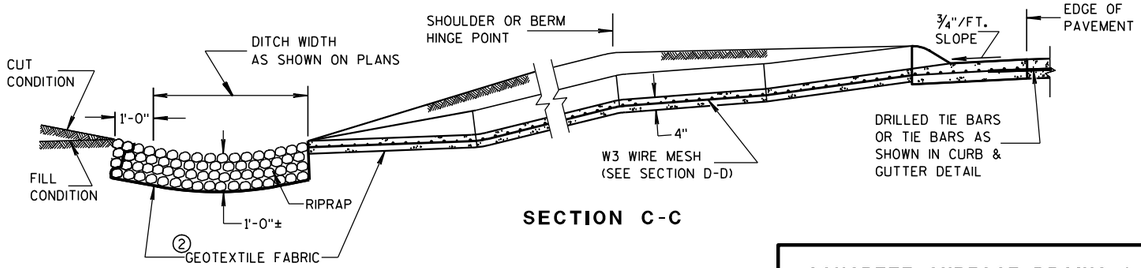
② GEOTEXTILE FABRIC TYPE "R" SHALL UNDERLAY THE FULL LENGTH AND WIDTH OF THE CONCRETE SURFACE DRAIN AND RIPRAP.

③ CONCRETE SURFACE DRAIN WITHOUT CURB AND GUTTER MAY BE USED ON BACKSLOPES WHEN SPECIFIED

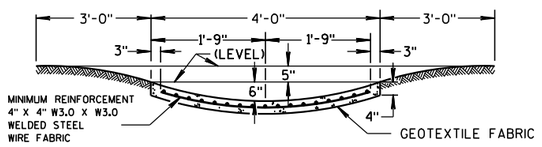
③ CONCRETE SURFACE DRAIN



PLAN VIEW



SECTION C-C



SECTION D-D

CONCRETE SURFACE DRAINS & ASPHALTIC FLUMES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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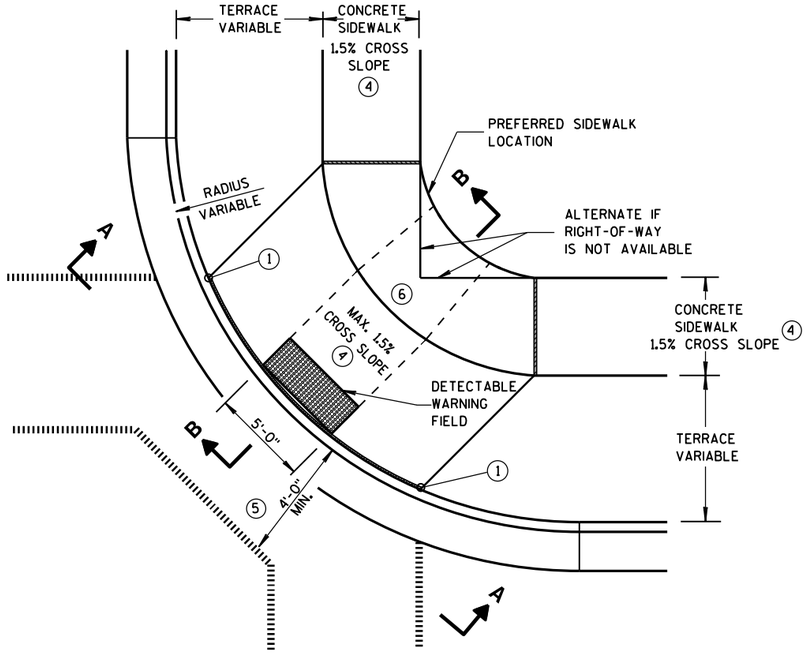
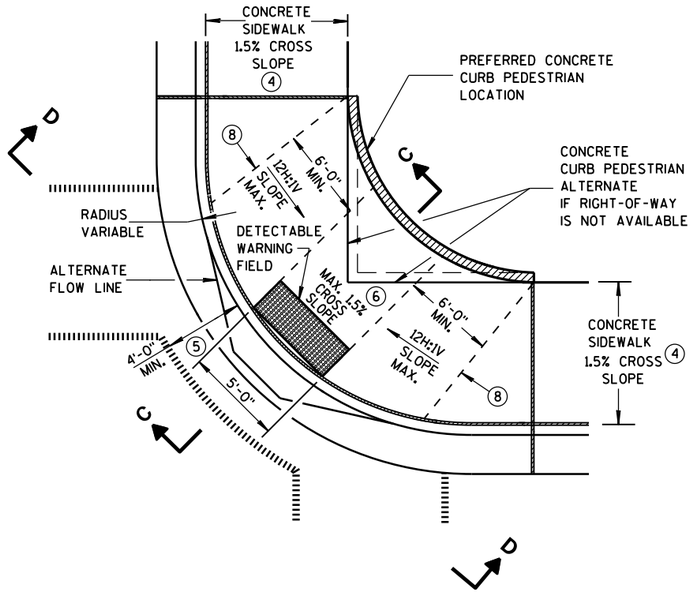


PLAN VIEW

TYPE 1 RAMP

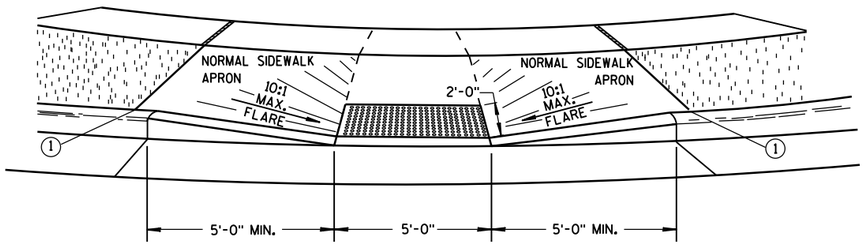
(CENTER OF CORNER RADIUS)



PLAN VIEW

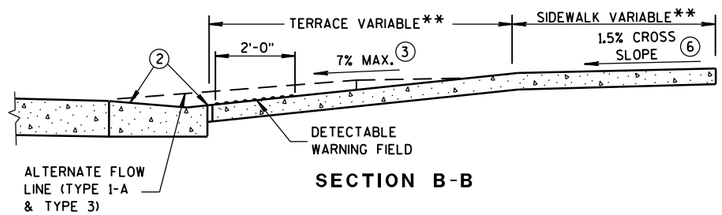
TYPE 1-A RAMP

(NO TERRACE)

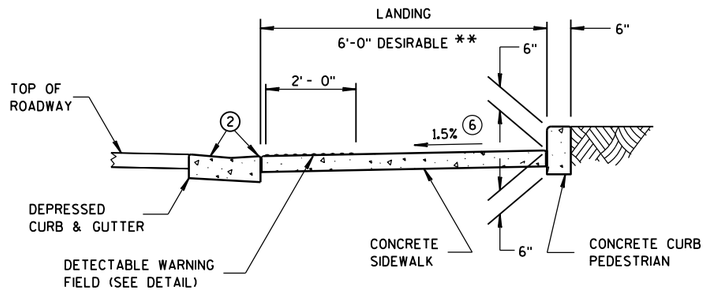


VIEW A-A

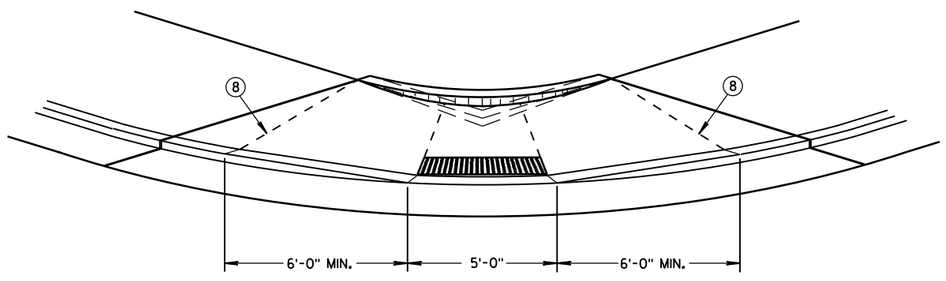
** WIDTH SHOWN ELSEWHERE IN THE PLANS



SECTION B-B



SECTION C-C



VIEW D-D

GENERAL NOTES

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

WHEN NECESSARY, THE SIDEWALK ELEVATION MAY BE LOWERED TO MEET THE HIGH POINT ON THE RAMP.

TYPE 1 RAMPS SHALL HAVE A NORMAL SIDEWALK APRON AND CURB ON BOTH SIDES OF RAMP.

DETECTABLE WARNING FIELD SHALL BE MEASURED AND PAID BY THE SQUARE FOOT AS "CURB RAMP DETECTABLE WARNING FIELD". THE CONCRETE PEDESTRIAN CURB, IF NEEDED, SHALL BE MEASURED AND PAID BY THE LINEAL FOOT AS "CONCRETE CURB PEDESTRIAN". CONCRETE SIDEWALK IN THE CURB RAMP AREA SHALL BE MEASURED AND PAID BY THE SQUARE FOOT AS CONCRETE SIDEWALK, INCLUDING THE AREA UNDER THE DETECTABLE WARNING FIELD.

SELECT CURB RAMP DETECTABLE WARNING FIELD MATERIALS AND DEVICES FROM THE DEPARTMENT'S APPROVED MATERIALS LIST. THE COLOR OF THE DETECTABLE WARNING FIELD IS SPECIFIED ELSEWHERE AND IS INCIDENTAL TO THE BID ITEM OF "CURB RAMP DETECTABLE WARNING FIELD".

DETECTABLE WARNING FIELDS THAT ARE INSTALLED AS A GROUP OR SIDE BY SIDE, SHALL BE FROM THE SAME MANUFACTURER.

SURFACE TEXTURE OF THE RAMP SHALL BE OBTAINED BY COARSE BROOMING TRANSVERSE TO THE SLOPE OF THE RAMP.

(1) THIS POINT IS AN EXTENSION OF OUTSIDE EDGE OF APPROACHING SIDEWALK WHERE IT MEETS THE BACK OF CONCRETE CURB. POINT LOCATION MAY BE ADJUSTED TO ALIGN WITH BEGINNING OF FULL-HEIGHT CURB IF THIS DISTANCE IS SHORT.

(2) GRADE CHANGE BETWEEN GUTTER FLAG SLOPE AND THE CURB RAMP SLOPE SHALL NOT EXCEED 11%. MAXIMUM GUTTER FLAG SLOPE IS 4%. PROVIDE LONGITUDINAL DRAINAGE AROUND CURB AND AWAY FROM CURB RAMP. NO VERTICAL LIPS OR DISCONTINUITIES GREATER THAN 1/4-INCH ARE ALLOWED. SLOPE OF CURB HEAD OPENING SHALL NOT EXCEED 7%.

(3) ABSOLUTE MAXIMUM 12H:1V (8.33%) CURB RAMP SLOPE IS ALLOWABLE WITH FLATTENED GUTTER FLAG SLOPE AND NOT TO EXCEED 11% GRADE CHANGE.

(4) ±0.5% CONSTRUCTION TOLERANCE IN SIDEWALK CROSS SLOPE. THE SIDEWALK CROSS SLOPE SHALL NOT EXCEED 2% WITHOUT PRIOR APPROVAL FROM THE ENGINEER.

(5) PROVIDE A LEVEL LANDING IN THE STREET AND GUTTER AREA. (2% MAXIMUM SLOPE IN ANY DIRECTION). WHEN THE GUTTER SLOPE EXCEEDS 2%, CONSTRUCT THE LEVEL LANDING IN THE STREET AREA.

(6) PROVIDE A LEVEL LANDING (MAXIMUM 2% SLOPE) IN ANY DIRECTION OF PEDESTRIAN TRAVEL. STANDARD LANDING SIZE IS 5 FEET X 5 FEET.

(8) PROVIDE GRADE BREAK PERPENDICULAR TO DIRECTION OF WHEELCHAIR TRAVEL.

LEGEND

- 1/2" EXPANSION JOINT-SIDEWALK
- CONTRACTION JOINT FIELD LOCATED
- PAVEMENT MARKING CROSSWALK (WHITE)
- ALTERNATIVE LAYOUT

CURB RAMPS TYPES 1 AND 1-A

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI

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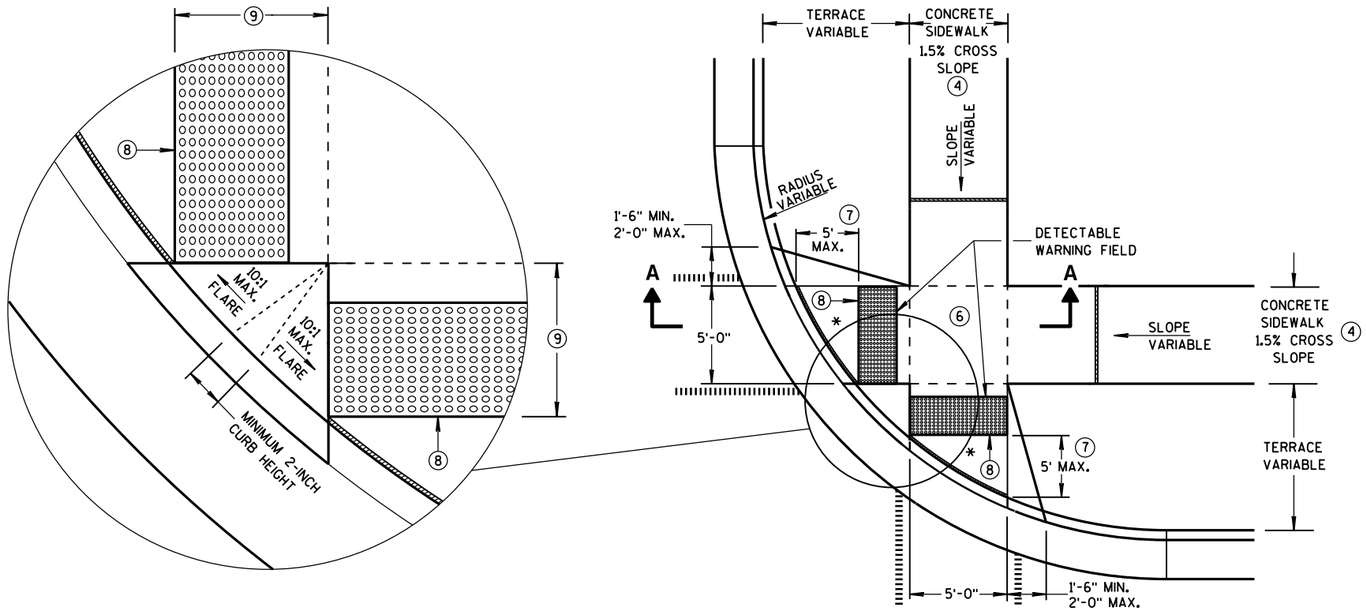
S.D.D. 8 D 5-18a

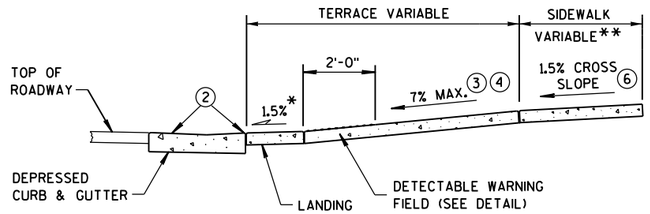


PLAN VIEW

TYPE 2 RAMP

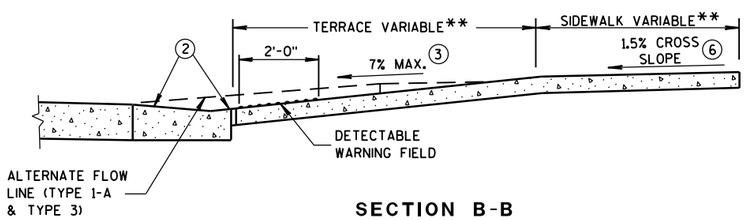
(ON LINE WITH SIDEWALK)

* MAXIMUM 2.0% SLOPE IN ALL DIRECTIONS IN FRONT OF GRADE BREAK



SECTION A-A

** WIDTH SHOWN ELSEWHERE IN THE PLANS



SECTION B-B

GENERAL NOTES

DETECTABLE WARNING FIELDS THAT ARE INSTALLED AS A GROUP OR SIDE BY SIDE, SHALL BE FROM THE SAME MANUFACTURER.

(2) GRADE CHANGE BETWEEN GUTTER FLAG SLOPE AND THE CURB RAMP SLOPE SHALL NOT EXCEED 11%. MAXIMUM GUTTER FLAG SLOPE IS 4%. PROVIDE LONGITUDINAL DRAINAGE AROUND CURB AND AWAY FROM CURB RAMP. NO VERTICAL LIPS OR DISCONTINUITIES GREATER THAN 1/4-INCH ARE ALLOWED. SLOPE OF CURB HEAD OPENING SHALL NOT EXCEED 7%.

(3) ABSOLUTE MAXIMUM 12H:1V (8.33%) CURB RAMP SLOPE IS ALLOWABLE WITH FLATTENED GUTTER FLAG SLOPE AND NOT TO EXCEED 11% GRADE CHANGE.

(4) ±0.5% CONSTRUCTION TOLERANCE IN SIDEWALK CROSS SLOPE. THE SIDEWALK CROSS SLOPE SHALL NOT EXCEED 2% WITHOUT PRIOR APPROVAL FROM THE ENGINEER.

(6) PROVIDE A LEVEL LANDING (MAXIMUM 2% SLOPE) IN ANY DIRECTION OF PEDESTRIAN TRAVEL. STANDARD LANDING SIZE IS 5 FEET X 5 FEET.

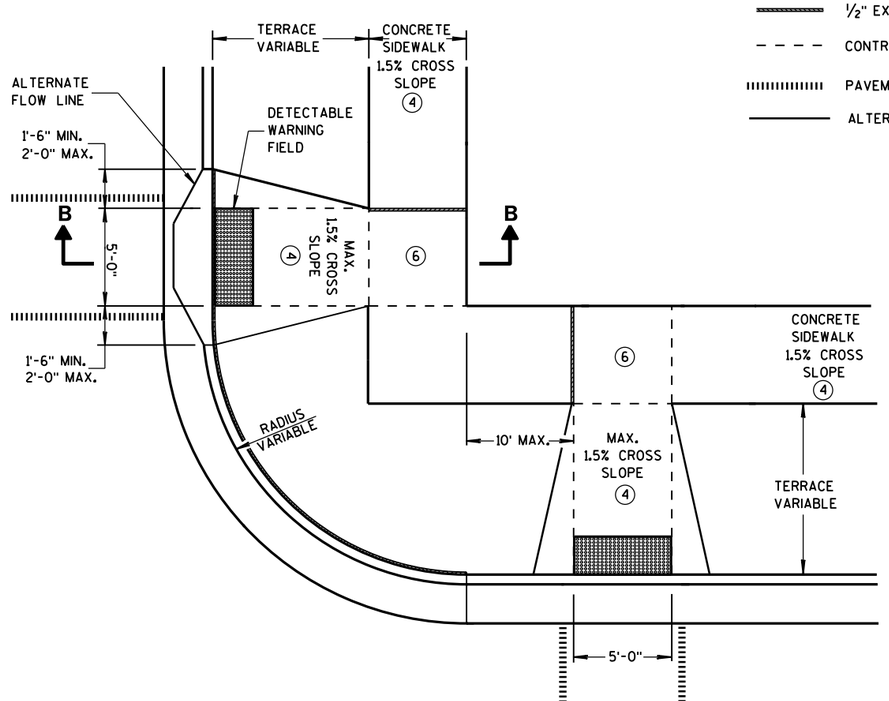
(7) WHEN THIS DISTANCE EXCEEDS 5 FEET, STAGGER ADDITIONAL DETECTABLE WARNING PANEL FORWARD TO REDUCE THIS DISTANCE. PROVIDE MINIMUM 12-INCH ROW OVERLAP TO AVOID SIDESTEP OF DOME DETECTION. USE EQUAL-SIZE PANELS TO DEVELOP OVERLAPPING, STAGGERED ROWS. ALIGN DOMES BETWEEN OVERLAPPING ROWS AND IN DIRECTION OF PEDESTRIAN TRAVEL.

(8) PROVIDE GRADE BREAK PERPENDICULAR TO DIRECTION OF WHEELCHAIR TRAVEL.

(9) WHEN THIS DISTANCE IS LESS THAN 6'-0", IT MAY BE DIFFICULT TO ACHIEVE A 7% SLOPE OR FLATTER ALONG THE RAMP. REDUCE CURB HEIGHT IN TRIANGLE AREA TO ACHIEVE 7% SLOPE OR FLATTER ON RAMP. CONSTRUCT 2-INCH MINIMUM CURB HEIGHT BETWEEN 10:1 FLARES.

LEGEND

- 1/2" EXPANSION JOINT-SIDEWALK
- CONTRACTION JOINT FIELD LOCATED
- PAVEMENT MARKING CROSSWALK (WHITE)
- ALTERNATIVE LAYOUT



PLAN VIEW

TYPE 3 RAMP

(OUTSIDE OF CROSSWALK AREA)

CURB RAMPS TYPES 2 AND 3

STATE OF WISCONSIN
DEPARTMENT OF TRANSPO

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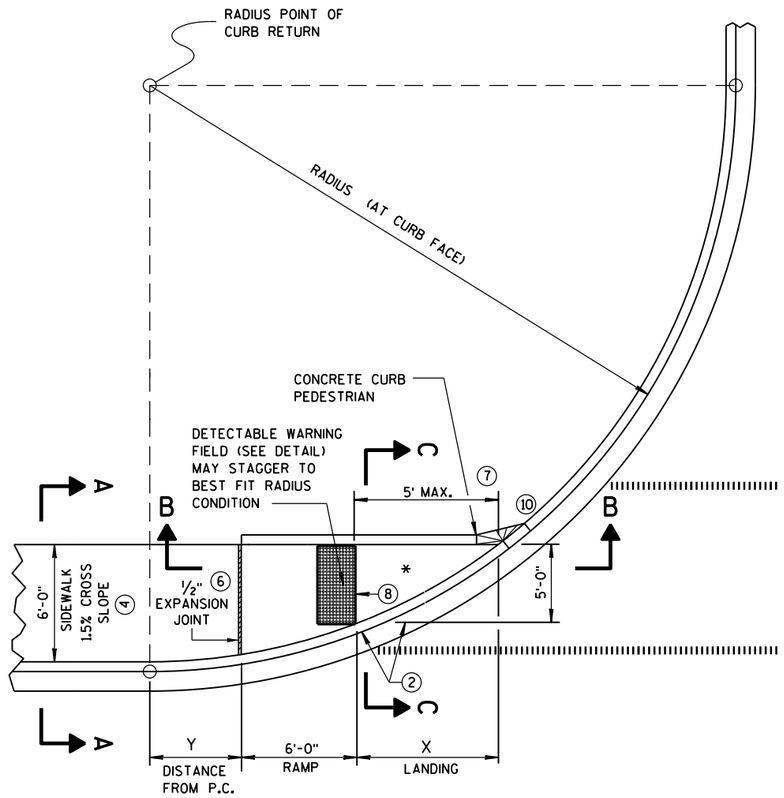
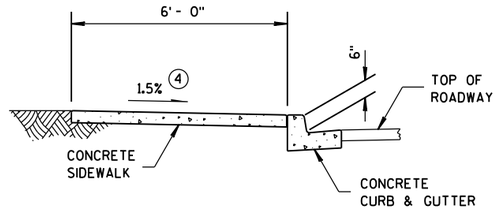
S.D.D. 8 D 5-18b



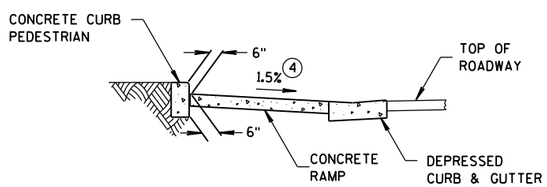
CURB RAMP TYPE 4A
PLAN VIEW

RADIUS (AT CURB FACE)	X	Y
20 FEET	7'-11"	0'-2"
30 FEET	10'-2¾"	1'-7½"
40 FEET	12'-1¼"	2'-10"
50 FEET	13'-8¾"	3'-10¾"
60 FEET	15'-2"	4'-10¼"

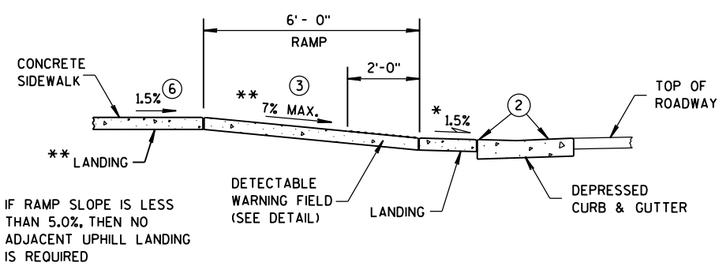
INTERMEDIATE RADII CAN BE INTERPOLATED



SECTION A-A FOR TYPE 4A



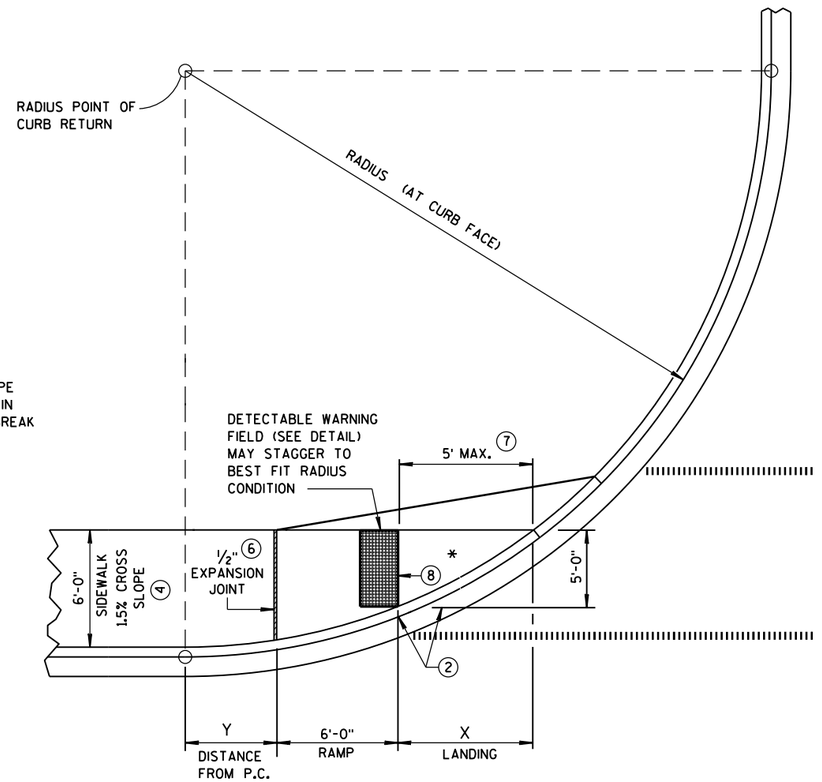
SECTION C-C FOR TYPE 4A



** IF RAMP SLOPE IS LESS THAN 5.0%, THEN NO ADJACENT UPHILL LANDING IS REQUIRED

SECTION B-B FOR TYPE 4A

* MAXIMUM 2.0% SLOPE IN ALL DIRECTIONS IN FRONT OF GRADE BREAK



CURB RAMP TYPE 4A1
PLAN VIEW

GENERAL NOTES

AVOID PLACING DRAINAGE STRUCTURES, JUNCTION BOXES OR OTHER OBSTRUCTIONS IN FRONT OF RAMP ACCESS AREAS.

DETECTABLE WARNING FIELDS THAT ARE INSTALLED AS A GROUP OR SIDE BY SIDE, SHALL BE FROM THE SAME MANUFACTURER.

(2) GRADE CHANGE BETWEEN GUTTER FLAG SLOPE AND THE CURB RAMP SLOPE SHALL NOT EXCEED 11%. MAXIMUM GUTTER FLAG SLOPE IS 4%. PROVIDE LONGITUDINAL DRAINAGE AROUND CURB AND AWAY FROM CURB RAMP. NO VERTICAL LIPS OR DISCONTINUITIES GREATER THAN 1/4-INCH ARE ALLOWED. SLOPE OF CURB HEAD OPENING SHALL NOT EXCEED 7%.

(3) ABSOLUTE MAXIMUM 12H:1V (8.33%) CURB RAMP SLOPE IS ALLOWABLE WITH FLATTENED GUTTER FLAG SLOPE AND NOT TO EXCEED 11% GRADE CHANGE.

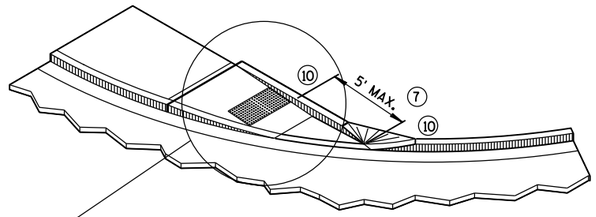
(4) ±0.5% CONSTRUCTION TOLERANCE IN SIDEWALK CROSS SLOPE. THE SIDEWALK CROSS SLOPE SHALL NOT EXCEED 2% WITHOUT PRIOR APPROVAL FROM THE ENGINEER.

(6) PROVIDE A LEVEL LANDING (MAXIMUM 2% SLOPE) IN ANY DIRECTION OF PEDESTRIAN TRAVEL. STANDARD LANDING SIZE IS 5 FEET X 5 FEET.

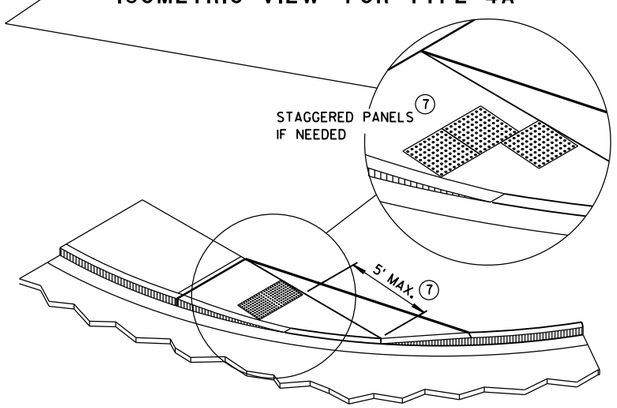
(7) WHEN THIS DISTANCE EXCEEDS 5 FEET, STAGGER ADDITIONAL DETECTABLE WARNING PANEL FORWARD TO REDUCE THIS DISTANCE. PROVIDE MINIMUM 12-INCH ROW OVERLAP TO AVOID SIDESTEP OF DOME DETECTION. USE EQUAL-SIZE PANELS TO DEVELOP OVERLAPPING, STAGGERED ROWS. ALIGN DOMES BETWEEN OVERLAPPING ROWS AND IN DIRECTION OF PEDESTRIAN TRAVEL.

(8) PROVIDE GRADE BREAK PERPENDICULAR TO DIRECTION OF WHEELCHAIR TRAVEL.

(10) INSTALL TRANSITION NOSE. (INCIDENTAL TO OTHER PAY ITEMS). DO NOT MARK TRANSITION NOSE.



ISOMETRIC VIEW FOR TYPE 4A



ISOMETRIC VIEW FOR TYPE 4A1

LEGEND

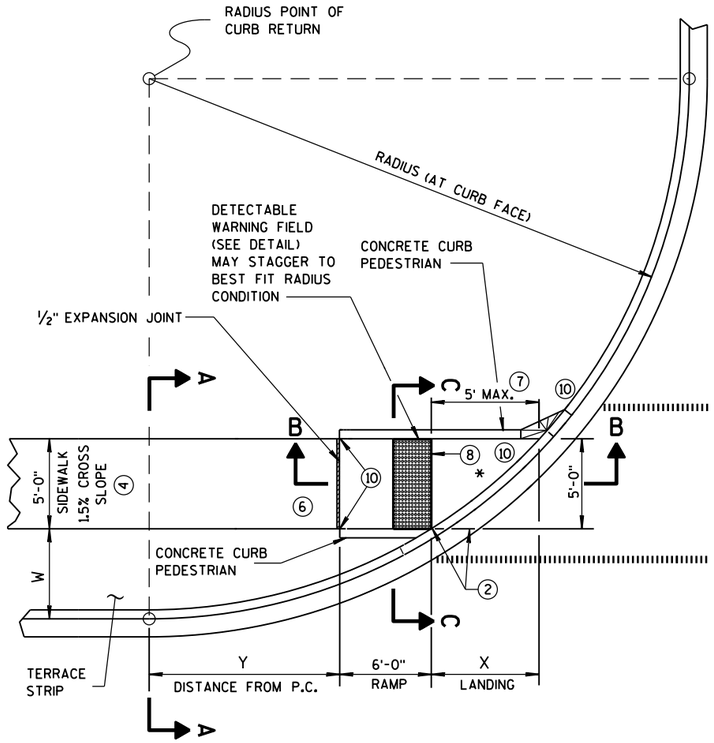
- ½" EXPANSION JOINT-SIDEWALK
- CONTRACTION JOINT FIELD LOCATED
- PAVEMENT MARKING CROSSWALK (WHITE)

CURB RAMPS TYPES 4A AND 4A1

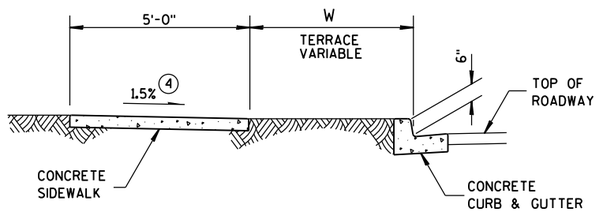
STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR

6

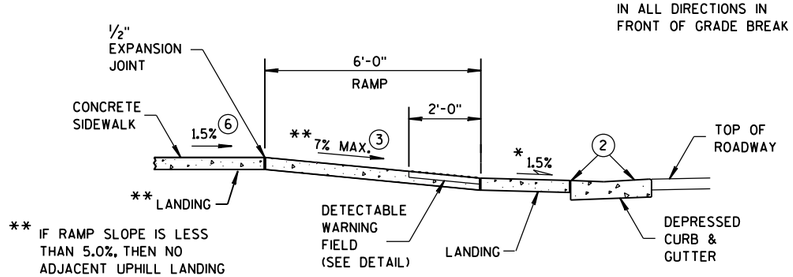
S.D.D. 8 D 5-18c



CURB RAMP TYPE 4B
PLAN VIEW



SECTION A-A FOR TYPE 4B



* MAXIMUM 2.0% SLOPE IN ALL DIRECTIONS IN FRONT OF GRADE BREAK

** IF RAMP SLOPE IS LESS THAN 5.0%, THEN NO ADJACENT UPHILL LANDING IS REQUIRED

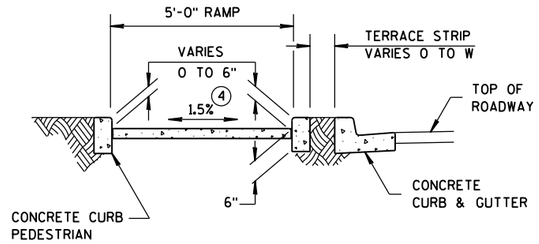
SECTION B-B FOR TYPE 4B

LEGEND

½" EXPANSION JOINT-SIDEWALK

CONTRACTION JOINT FIELD LOCATED

PAVEMENT MARKING CROSSWALK (WHITE)



SECTION C-C FOR TYPE 4B

RADIUS (AT CURB FACE)	W = 3'-0"		W = 4'-0"		W = 5'-0"		W = 6'-0"		W = 7'-0"	
	X	Y	X	Y	X	Y	X	Y	X	Y
20 FEET	5'-9¾"	3'-6½"	4'-11½"	5'-1¾"	4'-3¼"	6'-5½"	3'-8¾"	7'-6¾"	3'-3"	8'-6¼"
30 FEET	7'-9¼"	5'-10½"	6'-9½"	7'-11¼"	6'-0¼"	9'-8"	5'-5"	11'-1¾"	4'-10¾"	12'-5¾"
40 FEET	9'-4"	7'-10"	8'-2¾"	10'-3"	7'-4¾"	12'-3¾"	6'-8½"	14'-1¼"	6'-1¾"	15'-8½"
50 FEET	10'-8"	9'-6½"	9'-5½"	12'-3¼"	8'-6½"	14'-7½"	7'-9¾"	16'-8¼"	7'-2½"	18'-6¼"
60 FEET	11'-10¼"	11'-0¾"	10'-6½"	14'-1¼"	9'-6½"	16'-8½"	8'-9¼"	18'-11¾"	8'-1½"	21'-0½"

INTERMEDIATE RADII CAN BE INTERPOLATED

GENERAL NOTES

AVOID PLACING DRAINAGE STRUCTURES, JUNCTION BOXES OR OTHER OBSTRUCTIONS IN FRONT OF RAMP ACCESS AREAS.

DETECTABLE WARNING FIELDS THAT ARE INSTALLED AS A GROUP OR SIDE BY SIDE, SHALL BE FROM THE SAME MANUFACTURER.

(2) GRADE CHANGE BETWEEN GUTTER FLAG SLOPE AND THE CURB RAMP SLOPE SHALL NOT EXCEED 11%. MAXIMUM GUTTER FLAG SLOPE IS 4%. PROVIDE LONGITUDINAL DRAINAGE AROUND CURB AND AWAY FROM CURB RAMP. NO VERTICAL LIPS OR DISCONTINUITIES GREATER THAN ¼-INCH ARE ALLOWED. SLOPE OF CURB HEAD OPENING SHALL NOT EXCEED 7%.

(3) ABSOLUTE MAXIMUM 12H:1V (8.33%) CURB RAMP SLOPE IS ALLOWABLE WITH FLATTENED GUTTER FLAG SLOPE AND NOT TO EXCEED 11% GRADE CHANGE.

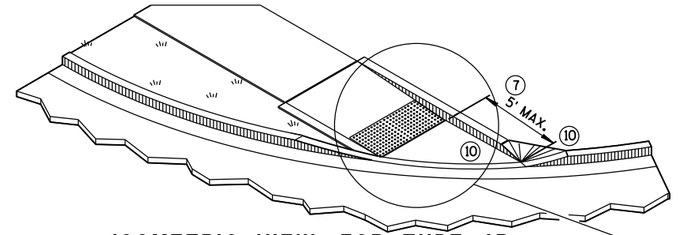
(4) ±0.5% CONSTRUCTION TOLERANCE IN SIDEWALK CROSS SLOPE. THE SIDEWALK CROSS SLOPE SHALL NOT EXCEED 2% WITHOUT PRIOR APPROVAL FROM THE ENGINEER.

(6) PROVIDE A LEVEL LANDING (MAXIMUM 2% SLOPE) IN ANY DIRECTION OF PEDESTRIAN TRAVEL. STANDARD LANDING SIZE IS 5 FEET X 5 FEET.

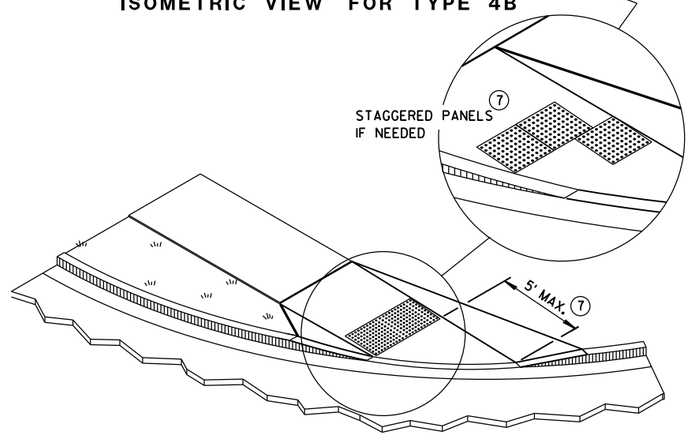
(7) WHEN THIS DISTANCE EXCEEDS 5 FEET, STAGGER ADDITIONAL DETECTABLE WARNING PANEL FORWARD TO REDUCE THIS DISTANCE. PROVIDE MINIMUM 12-INCH ROW OVERLAP TO AVOID SIDESTEP OF DOME DETECTION. USE EQUAL-SIZE PANELS TO DEVELOP OVERLAPPING, STAGGERED ROWS. ALIGN DOMES BETWEEN OVERLAPPING ROWS AND IN DIRECTION OF PEDESTRIAN TRAVEL.

(8) PROVIDE GRADE BREAK PERPENDICULAR TO DIRECTION OF WHEELCHAIR TRAVEL.

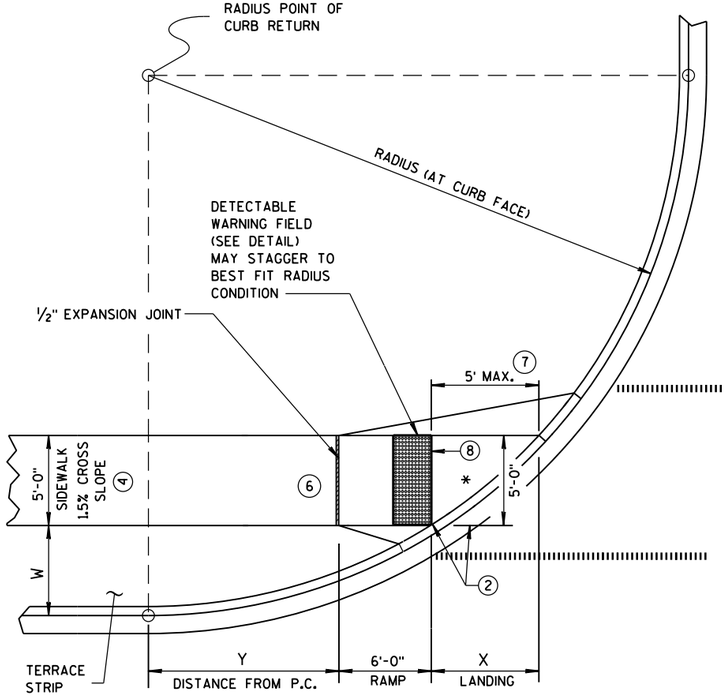
(10) INSTALL TRANSITION NOSE. (INCIDENTAL TO OTHER PAY ITEMS). DO NOT MARK TRANSITION NOSE.



ISOMETRIC VIEW FOR TYPE 4B



ISOMETRIC VIEW FOR TYPE 4B1



CURB RAMP TYPE 4B1
PLAN VIEW

CURB RAMPS TYPE 4B AND 4B1

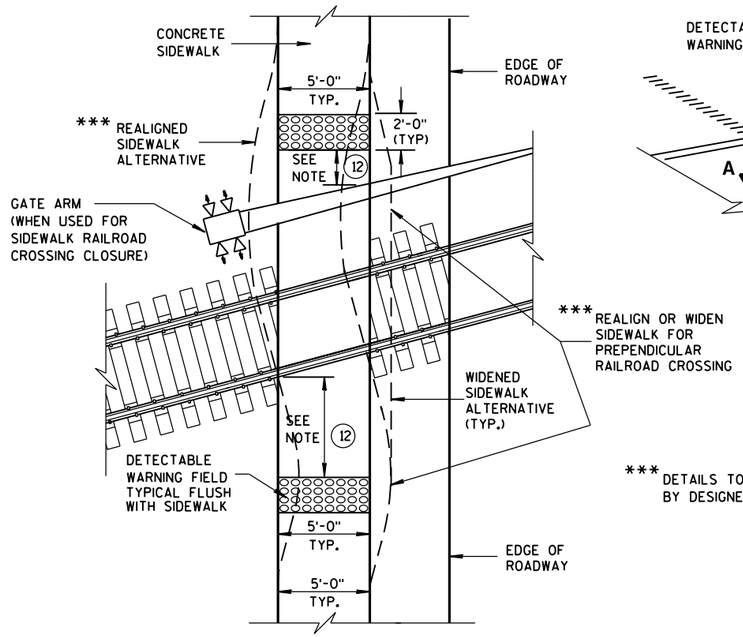
STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR

6

S.D.D. 8 D 5-18d

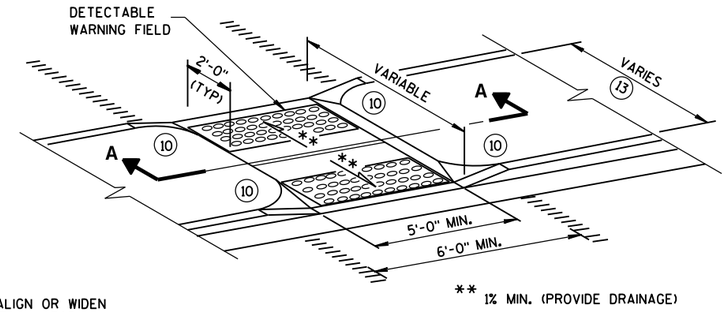
6

S.D.D. 8 D 5-18d



*** DETAILS TO BE DETERMINED BY DESIGNER

TYPE 8
DETECTABLE WARNINGS AT RAILROAD CROSSING



MEDIAN ISLAND NON-ELEVATED CROSSING
TYPE 5

GENERAL NOTES

SIDEWALK CROSS SLOPE SHALL NOT EXCEED 2%.

DETECTABLE WARNING FIELDS THAT ARE INSTALLED AS A GROUP OR SIDE BY SIDE, SHALL BE FROM THE SAME MANUFACTURER.

(2) GRADE CHANGE BETWEEN GUTTER FLAG SLOPE AND THE CURB RAMP SLOPE SHALL NOT EXCEED 11%. MAXIMUM GUTTER FLAG SLOPE IS 4%. PROVIDE LONGITUDINAL DRAINAGE AROUND CURB AND AWAY FROM CURB RAMP. NO VERTICAL LIPS OR DISCONTINUITIES GREATER THAN 1/4-INCH ARE ALLOWED. SLOPE OF CURB HEAD OPENING SHALL NOT EXCEED 7%.

(3) ABSOLUTE MAXIMUM 12H:1V (8.33%) CURB RAMP SLOPE IS ALLOWABLE WITH FLATTENED GUTTER FLAG SLOPE AND NOT TO EXCEED 11% GRADE CHANGE.

(4) ±0.5% CONSTRUCTION TOLERANCE IN SIDEWALK CROSS SLOPE. THE SIDEWALK CROSS SLOPE SHALL NOT EXCEED 2% WITHOUT PRIOR APPROVAL FROM THE ENGINEER.

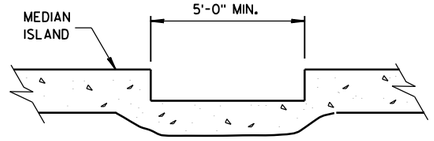
(6) PROVIDE A LEVEL LANDING (MAXIMUM 2% SLOPE) IN ANY DIRECTION OF PEDESTRIAN TRAVEL. STANDARD LANDING SIZE IS 5 FEET X 5 FEET.

(10) INSTALL TRANSITION NOSE. (INCIDENTAL TO OTHER PAY ITEMS). DO NOT MARK TRANSITION NOSE.

(11) SLOPE SIDEWALK TOWARD LANDING AS SHOWN WHERE THERE IS NO TERRACE OR WHERE THE TERRACE WIDTH IS LESS THAN 6 FEET WIDE.

(12) THE EDGE OF THE DETECTABLE WARNING FIELD NEAREST TO A RAILROAD CROSSING SHALL BE 1.5 FEET ± 0.1' FROM THE FACE OF THE GATE ARM IF THE GATE ARM EXTENDS ACROSS THE SIDEWALK. WHERE THERE IS NO PEDESTRIAN GATE, THE EDGE OF THE DETECTABLE WARNING FIELD NEAREST TO THE RAILROAD CROSSING SHALL BE 15 FEET FROM THE NEAREST RAIL.

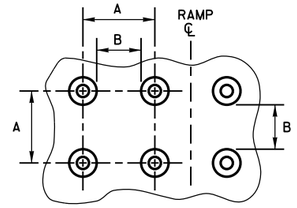
(13) DO NOT INSTALL DETECTABLE WARNING FIELDS IF MEDIAN WIDTH BETWEEN BACK OF CURBS IS LESS THAN 6 FEET.



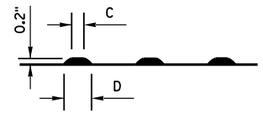
SECTION A-A

	MIN.	MAX.
A	1.6"	2.4"
B	0.65"	1.5"
C	*	*
D	0.9"	1.4"

* THE C DIMENSION IS 50% TO 65% OF THE D DIMENSION.

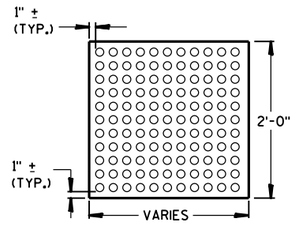


PLAN VIEW

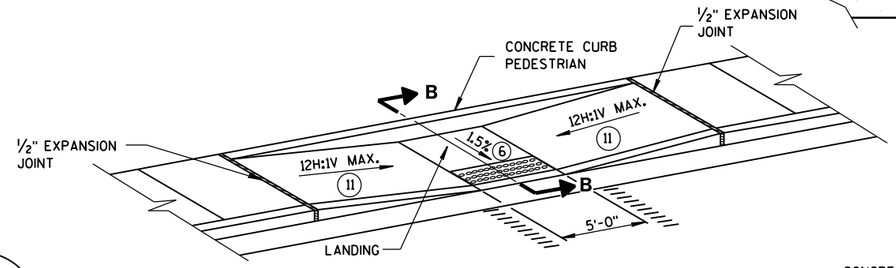


ELEVATION VIEW

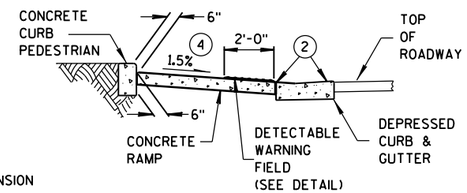
TRUNCATED DOMES
DETECTABLE WARNING PATTERN DETAIL



PLAN VIEW
DETECTABLE WARNING FIELD (TYPICAL)

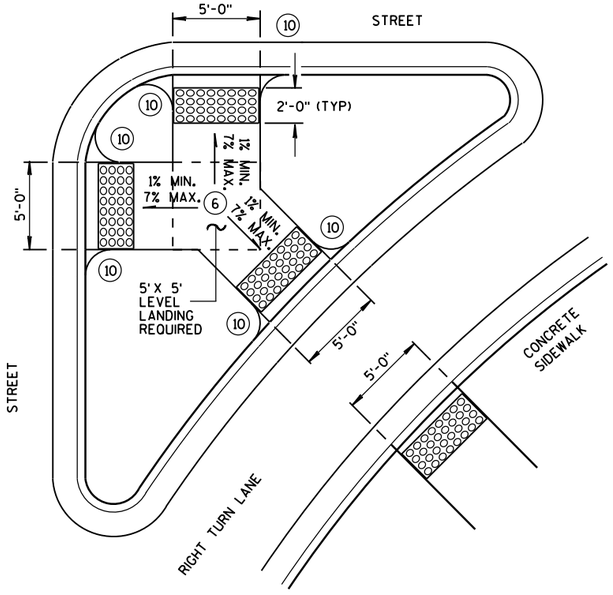


MID-BLOCK CROSSING
TYPE 7A

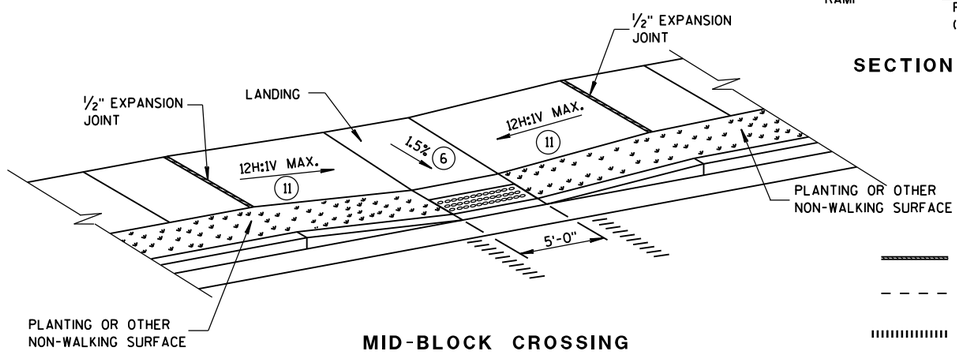


SECTION B-B

REFER TO GENERAL NOTES (2) AND (3) FOR ALL ISLAND CURB RAMPS



TYPE 6
DETECTABLE WARNING AT ISLANDS



MID-BLOCK CROSSING
TYPE 7B

NOTE: THESE PARALLEL AND PARALLEL/PERPENDICULAR CURB RAMPS MAY BE USED AT INTERSECTIONS AND MID BLOCK LOCATIONS.

LEGEND

- 1/2" EXPANSION JOINT-SIDEWALK
- CONTRACTION JOINT FIELD LOCATED
- PAVEMENT MARKING CROSSWALK (WHITE)

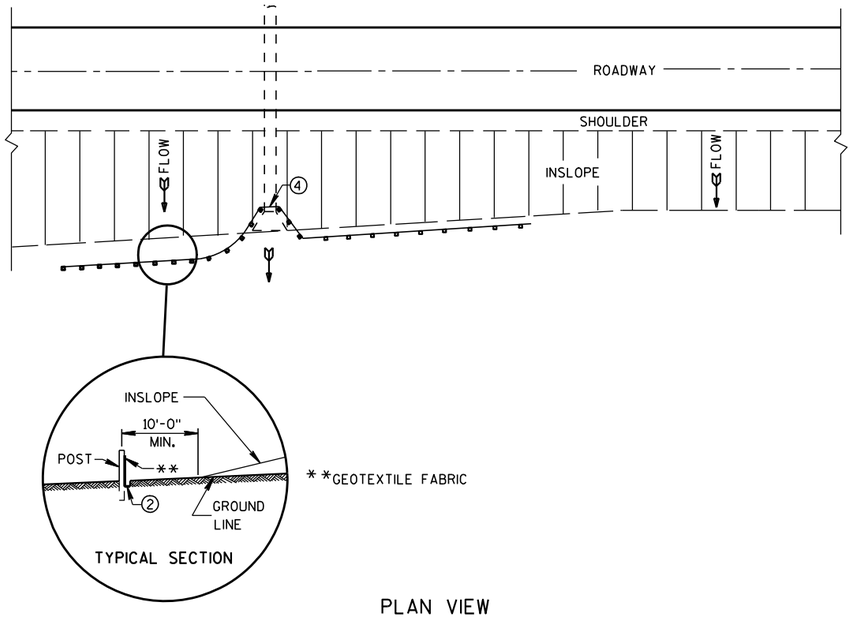
CURB RAMPS TYPES 5, 6, 7A, 7B & 8

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
Sept., 2016
DATE
/S/ Rodney Taylor
ROADWAY STANDARDS UNIT SUPERV
ENT
FHWA

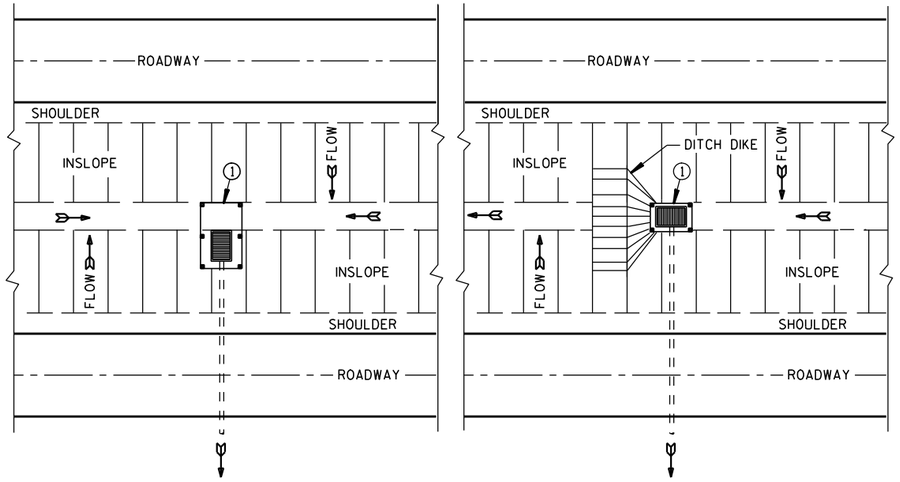
6

S.D.D. 8 D 5-18e



PLAN VIEW

TYPICAL APPLICATION OF SILT FENCE



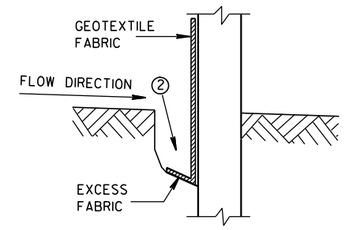
PLAN VIEW

SILT FENCE AT MEDIAN SURFACE DRAINS

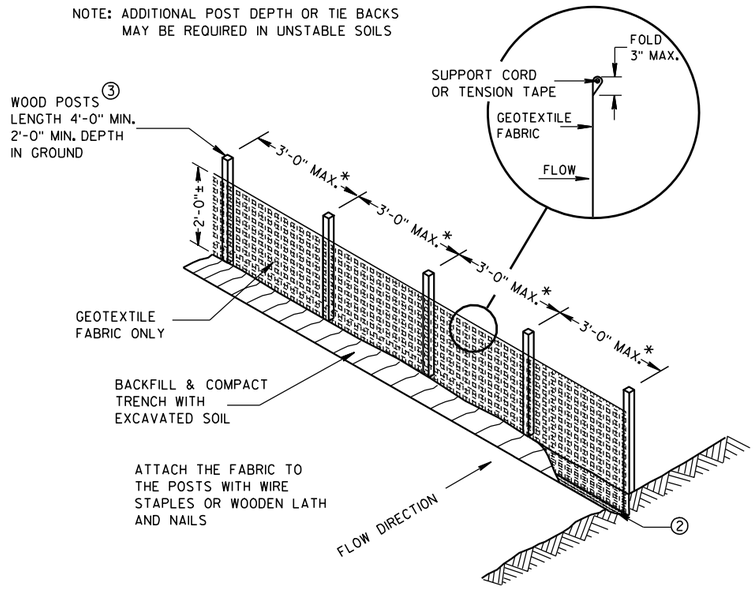
GENERAL NOTES

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

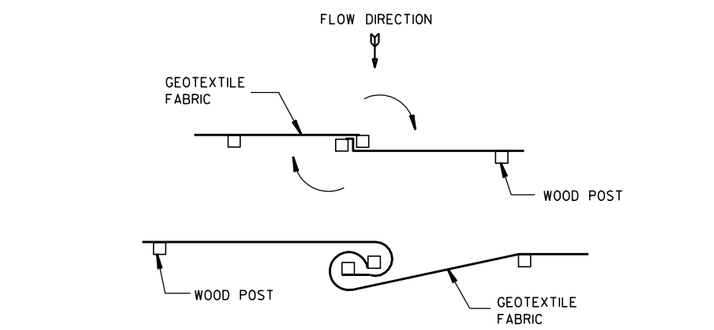
1. HORIZONTAL BRACE REQUIRED WITH 2" X 4" WOODEN FRAME OR EQUIVALENT AT TOP OF POSTS.
2. FOR MANUAL INSTALLATIONS THE TRENCH SHALL BE A MINIMUM OF 4" WIDE & 6" DEEP TO BURY AND ANCHOR THE GEOTEXTILE FABRIC. FOLD MATERIAL TO FIT TRENCH AND BACKFILL & COMPACT TRENCH WITH EXCAVATED SOIL.
3. WOOD POSTS SHALL 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.



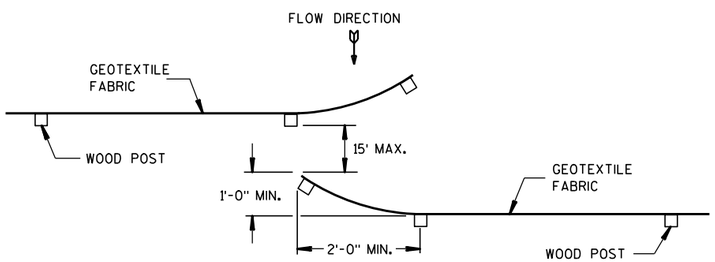
TRENCH DETAIL



SILT FENCE

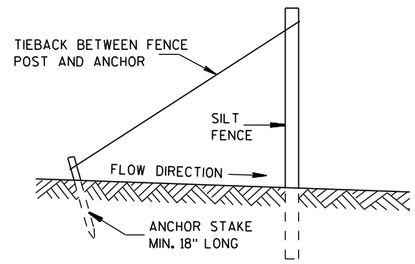


TWIST METHOD



HOOK METHOD

JOINING TWO LENGTHS OF SILT FENCE 5



SILT FENCE TIE BACK

(WHEN REQUIRED BY THE ENGINEER)

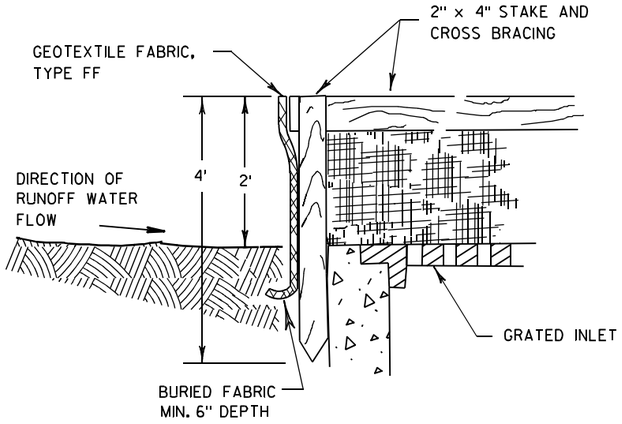
SILT FENCE	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED	
4-29-05 DATE	/S/ Beth Cannestra CHIEF ROADWAY DEVELOPMENT ENGINEER
FHWA	

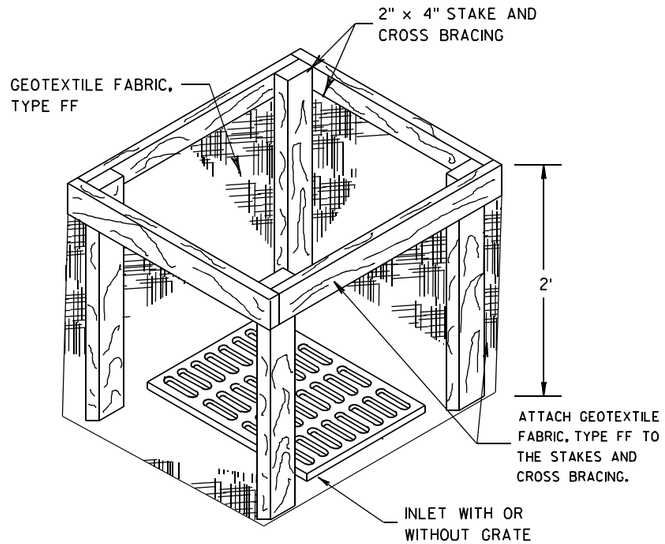
6

S.D.D. 8 E 9-6

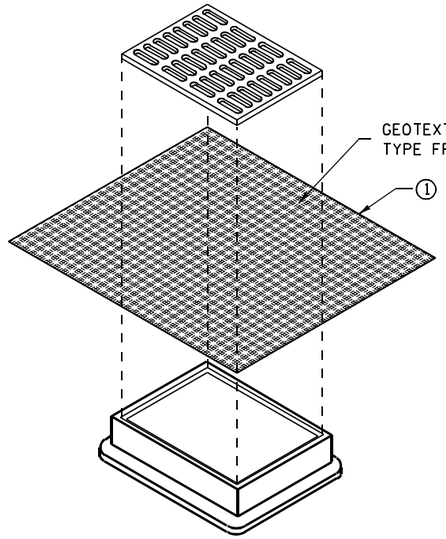
6

S.D.D. 8 E 9-6



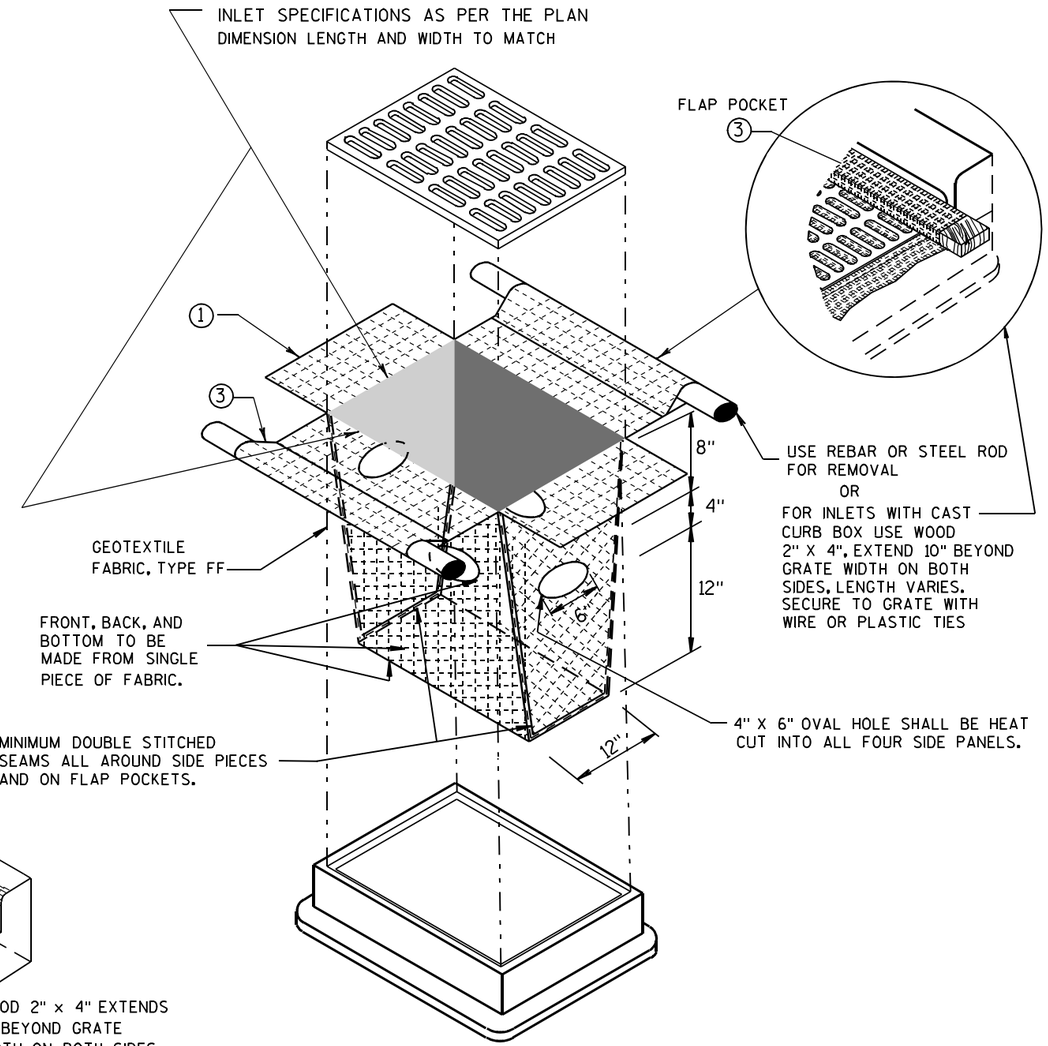


INLET PROTECTION, TYPE A



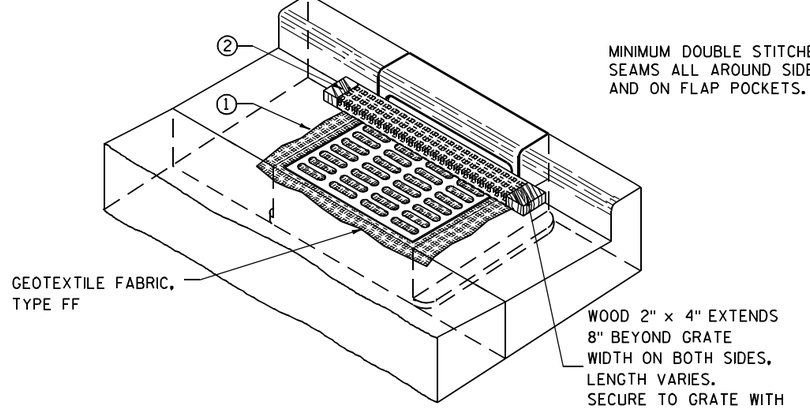
INLET PROTECTION, TYPE B
(WITHOUT CURB BOX)

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



INLET PROTECTION, TYPE D

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



INLET PROTECTION, TYPE C (WITH CURB BOX)

GENERAL NOTES

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

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

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

① FINISHED SIZE, INCLUDING FLAP POCKETS WHERE REQUIRED, SHALL EXTEND A MINIMUM OF 10" AROUND THE PERIMETER TO FACILITATE MAINTENANCE OR REMOVAL.

② FOR INLET PROTECTION, TYPE C (WITH CURB BOX), AN ADDITIONAL 18" OF FABRIC IS WRAPPED AROUND THE WOOD AND SECURED WITH STAPLES. THE WOOD SHALL NOT BLOCK THE ENTIRE HEIGHT OF THE CURB BOX OPENING.

③ FLAP POCKETS SHALL BE LARGE ENOUGH TO ACCEPT WOOD 2X4.

INSTALLATION NOTES

TYPE B & C

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

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

TYPE D

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

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

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

INLET PROTECTION
TYPE A, B, C, AND D

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
10/16/02
DATE
/S/ Beth Cannestra
CHIEF ROADWAY DEVELOPMENT ENGINEER
FHWA

6
S.D.D. 8 E 10-2

METAL APRON ENDWALLS

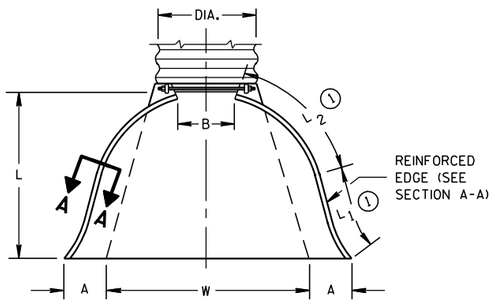
PIPE DIA. (IN.)	MIN. THICK. (Inches)		DIMENSIONS (Inches)							APPROX. SLOPE	BODY
	STEEL	ALUM.	A (±1")	B (MAX.)	H (±1")	L (±1 1/2")	L_1 ①	L_2 ①	W (±2")		
12	.064	.060	6	6	6	21	12	17 1/2	24	2 1/2 to 1	1 Pc.
15	.064	.060	7	8	6	26	14	21 3/4	30	2 1/2 to 1	1 Pc.
18	.064	.060	8	10	6	31	15	28 1/4	36	2 1/2 to 1	1 Pc.
21	.064	.060	9	12	6	36	18	29 5/8	42	2 1/2 to 1	1 Pc.
24	.064	.075	10	13	6	41	18	37 1/4	48	2 1/2 to 1	1 Pc.
30	.079	.075	12	16	8	51	18	52 1/4	60	2 1/2 to 1	1 Pc.
36	.079	.105	14	19	9	60	24	59 3/4	72	2 1/2 to 1	2 Pc.
42	.109	.105	16	22	11	69	24	75 5/8	84	2 1/2 to 1	2 Pc.
48	.109	.105	18	27	12	78	24	81	90	2 1/4 to 1	3 Pc.
54	.109	.105	18	30	12	84	30	85 1/2	102	2 1/4 to 1	3 Pc.
60	.109×	.105×	18	33	12	87	—	—	114	2 to 1	3 Pc.
66	.109×	.105×	18	36	12	87	—	—	120	2 to 1	3 Pc.
72	.109×	.105×	18	39	12	87	—	—	126	2 to 1	3 Pc.
78	.109×	.105×	18	42	12	87	—	—	132	1 1/2 to 1	3 Pc.
84	.109×	.105×	18	45	12	87	—	—	138	1 1/2 to 1	3 Pc.
90	.109×	.105×	18	37	12	87	—	—	144	1 1/2 to 1	3 Pc.
96	.109×	.105×	18	35	12	87	—	—	150	1 1/2 to 1	3 Pc.

× EXCEPT CENTER PANEL SEE GENERAL NOTES

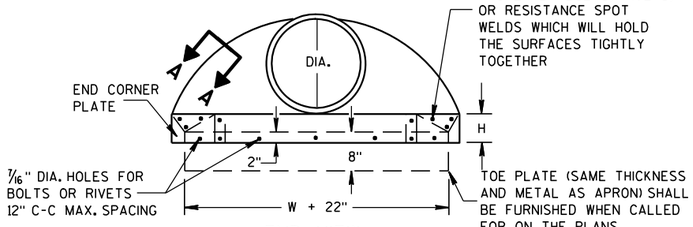
REINFORCED CONCRETE APRON ENDWALLS

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

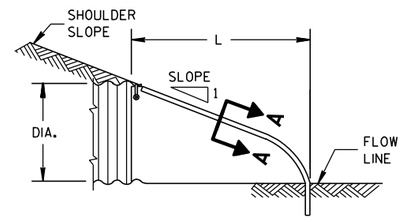
*MINIMUM
**MAXIMUM



PLAN VIEW

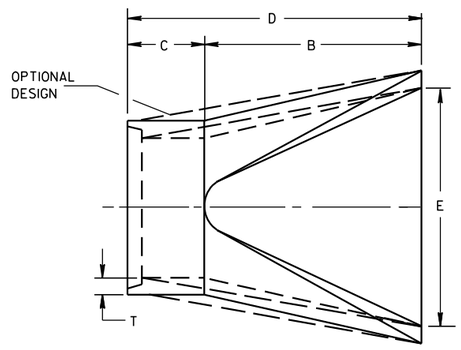


END VIEW

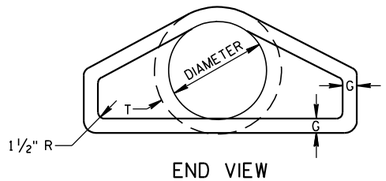


SIDE ELEVATION

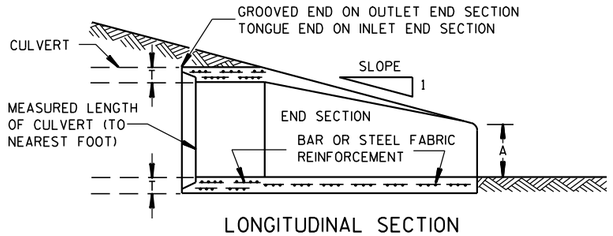
METAL ENDWALLS



PLAN

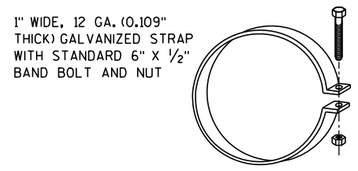


END VIEW



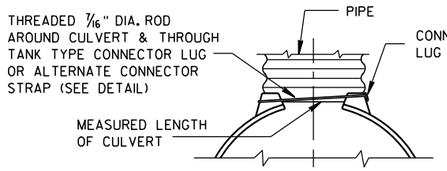
LONGITUDINAL SECTION

CONCRETE ENDWALLS

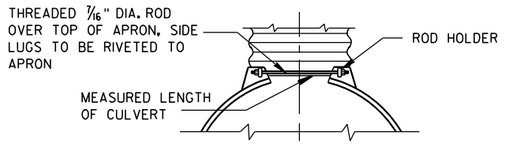


ALTERNATE FOR TYPE 1 CONNECTION

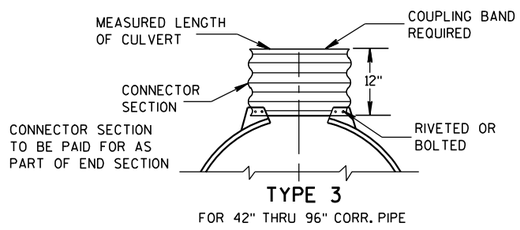
END SECTION CONNECTOR STRAP



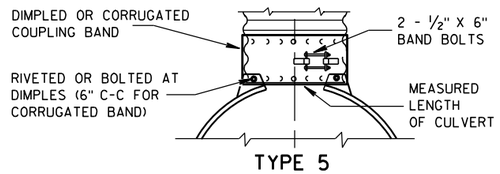
TYPE 1
FOR 12" THRU 24" CORR. PIPE



TYPE 2
FOR 30" THRU 96" CORR. PIPE



TYPE 3
FOR 42" THRU 96" CORR. PIPE



TYPE 5
ALTERNATE FOR:
ALL SIZES CORRUGATED CIRCULAR PIPE

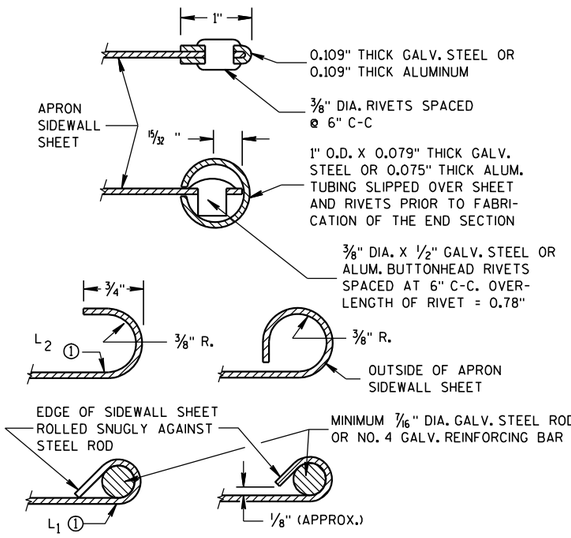
NOTE: DIMPLED BAND FITS OVER OUTSIDE OF ENDWALL. AND CORRUGATED BAND FITS INSIDE ENDWALL. DIMPLED BAND MAY BE USED WITH HELICALLY CORRUGATED PIPE.

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

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

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

CONNECTION DETAILS



SECTION A-A

GENERAL NOTES

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

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

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

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

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

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

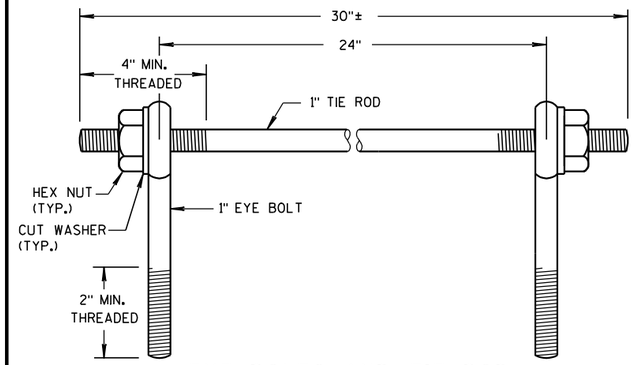
APRON ENDWALLS FOR CULVERT PIPE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

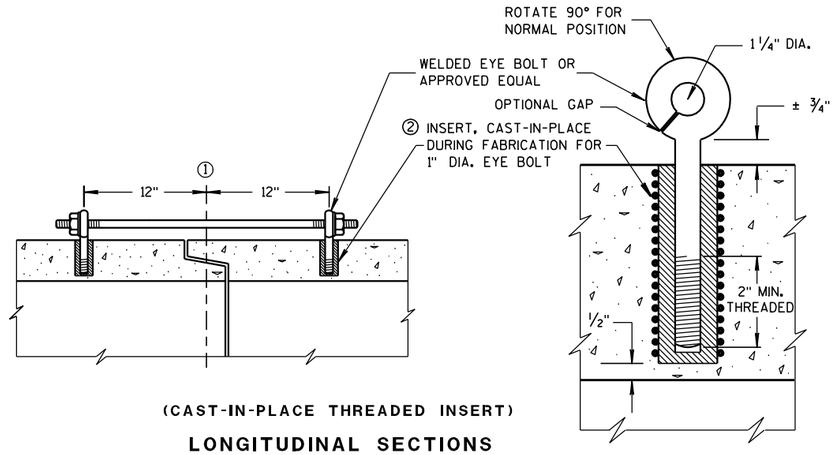
APPROVED
11/30/94 — DATE
/S/ Rory L. Rhinesmith — CHIEF ROADWAY DEVELOPMENT ENGINEER
FHWA

6

S.D.D. 8 F 1-11



EYE BOLTS AND TIE ROD



(CAST-IN-PLACE THREADED INSERT)

LONGITUDINAL SECTIONS

EYE BOLT AND TIE ROD ASSEMBLY (ALTERNATE NO. 1)

GENERAL NOTES

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

CONCRETE CULVERT AND STORM SEWER PIPE SHALL BE TIED TOGETHER IN THE MANNER ILLUSTRATED BY THIS DETAIL AT LOCATIONS DESIGNATED IN THE STANDARD SPECIFICATIONS AND THE PLAN. THE CONTRACTOR MAY USE EITHER ALTERNATE 1, 2 OR 3 FOR DRAINAGE STRUCTURES. ONLY ALTERNATE 1 AND 3 MAY BE USED FOR CATTLE PASSES, UNLESS OTHERWISE STATED IN THE CONTRACT. THE MATERIALS, FABRICATION AND WORK NECESSARY TO TIE THE PIPE BY THIS DETAIL WILL BE CONSIDERED INCIDENTAL TO THE PIPE AND APRON ENDWALLS IF REQUIRED.

DETAILED DRAWINGS FOR PROPOSED ALTERNATE DESIGNS FOR JOINT TIES SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL.

JOINT TIES TO BE HOT-DIP GALVANIZED PER ASTM A 153.

① ℄ OF TONGUE AND GROOVE OR BELL AND SPIGOT JOINTS.

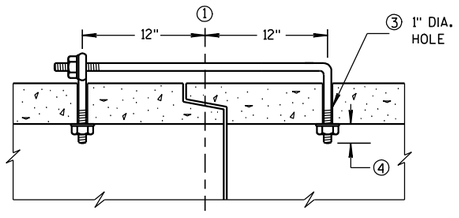
② THE INSIDE OF THE THREADED INSERTS SHALL BE CLEAN TO ALLOW THE INSERTION OF THREADED EYE BOLTS.

③ HOLES SHALL BE CAST-IN-PLACE OR DRILLED 12 INCHES FROM ℄ OF TONGUE AND GROOVE.

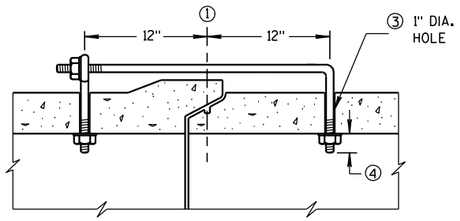
④ BOLT PROJECTION INSIDE OF PIPE SHALL NOT EXCEED 2 INCHES.

⑤ OPENING TO BE ROD DIAMETER PLUS 1 INCH.

⑥ LENGTH ADEQUATE TO EXTEND TO WITHIN 1/2 INCH OF THE INNER SURFACE OF THE PIPE.



(TONGUE & GROOVE PIPE)

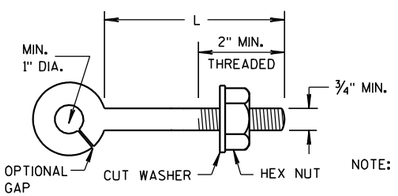


(MODIFIED BELL PIPE)

LONGITUDINAL SECTION

EYE BOLT DIMENSION TABLE

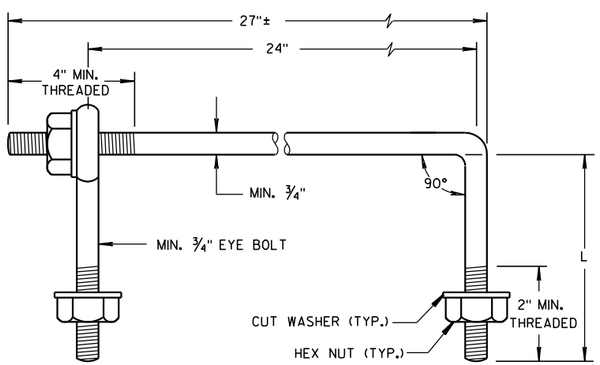
PIPE SIZE	L = LENGTH	
	TONGUE & GROOVE PIPE	MODIFIED BELL PIPE
18" TO 24"	4 1/2"	6 1/4"
30"	5"	7"
36"	5 1/2"	7"
42"	6"	
48"	6 1/2"	
60"	7 1/2"	
66"	8"	



NOTE:

EYE BOLT

NOTE: TWO EYE BOLTS MAY BE USED WITH A 30" LONG THREADED ROD IN LIEU OF THE 90° BENT TIE ROD.



EYE BOLT AND TIE ROD

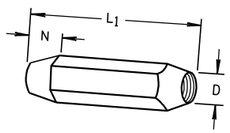
(JOINT TIES FOR 18" TO 66" DIA. CONCRETE PIPE)

EYE BOLT AND TIE ROD ASSEMBLY (ALTERNATE NO. 2)

ADJUSTABLE TIE ROD TABLE

PIPE DIAMETER	TIE ROD DIAMETER	D	L_1	N
12-60	5/8	5/8	5	1/2
66-84	3/4	3/4	5	1/2
90-108	1	1	7	1 1/16

DIMENSIONS SHOWN ARE IN INCHES



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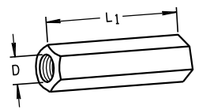
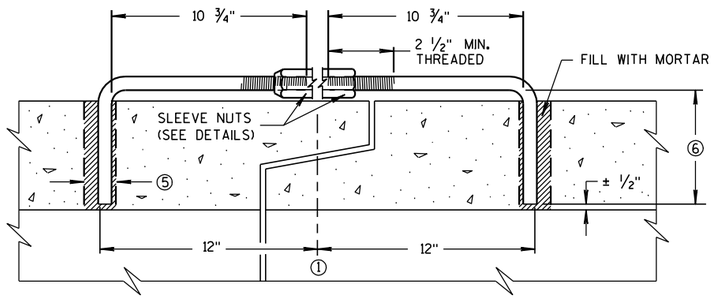


PLAIN

RIGHT AND LEFT THREADS

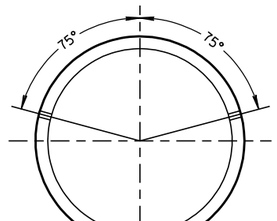
SLEEVE NUTS



LONGITUDINAL SECTION

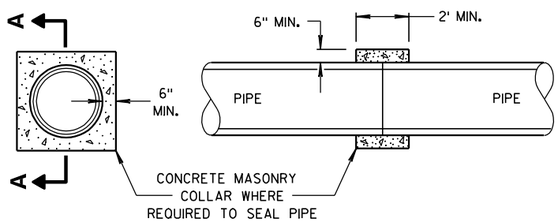
(JOINT TIES FOR 12" TO 108" DIA. CONCRETE PIPE)

ADJUSTABLE TIE ROD (ALTERNATE NO. 3)



PLACEMENT OF (2) CAST-IN-PLACE INSERTS OR HOLES DURING FABRICATION FOR PIPE SECTIONS REQUIRING TIE RODS

TRANSVERSE SECTION



SECTION A-A

CONCRETE COLLAR DETAIL

JOINT TIES FOR CONCRETE PIPE AND CONCRETE COLLAR DETAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
6/5/2012 — DATE
/S/ Jerry H. Zogg — ROADWAY STANDARDS ENGINEER
74 — 'MENT

FHWA

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S.D.D. 8 F 4-7

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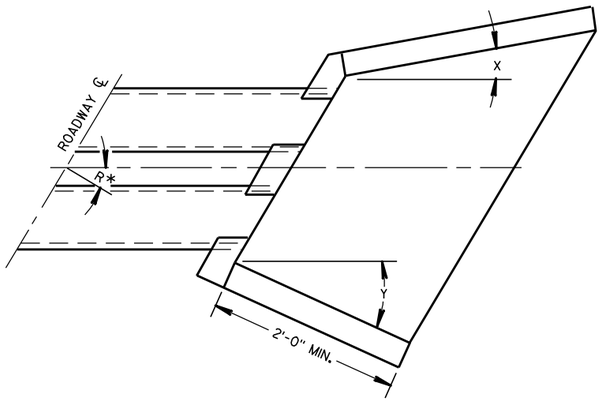
S.D.D. 8 F 4-7



WINGWALL ANGLE DETAILS

INLET			OUTLET		
R*	X	Y	R*	X	Y
0 - 7°	30°	30°	0 - 15°	15°	15°
8 - 22°	25°	"	16 - 45°	10°	"
23 - 37°	20°	"	46 - 75°	5°	"
38 - 52°	15°	"	OVER 75°	0°	"
53 - 67°	10°	"			
68 - 82°	5°	"			
OVER 82°	0°	"			

*R = NUMBER OF DEGREES RIGHT OR LEFT HAND FORWARD

GENERAL NOTES

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

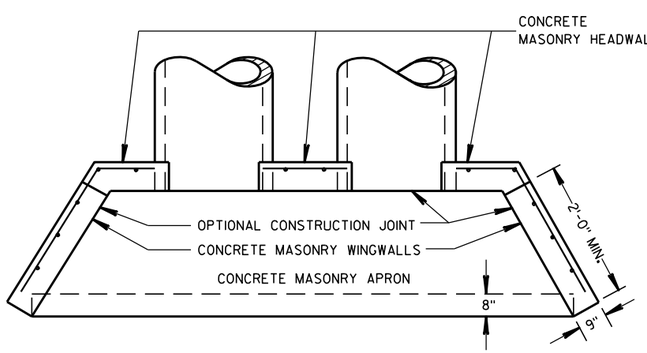
FILL SLOPES FLATTER THAN 2 ½:1 SHALL BE WARPED TO MEET THE TOP OF THE WINGWALLS.

ALL STEEL REINFORCEMENT AND WELDED STEEL WIRE FABRIC SHALL BE EMBEDDED 2 INCHES CLEAR UNLESS OTHERWISE NOTED.

(1) MINIMUM REINFORCEMENT SHALL BE 6" X 6" - W4.0 X W4.0 OR NO. 3 BARS SPACED 12" C-C IN BOTH DIRECTIONS.

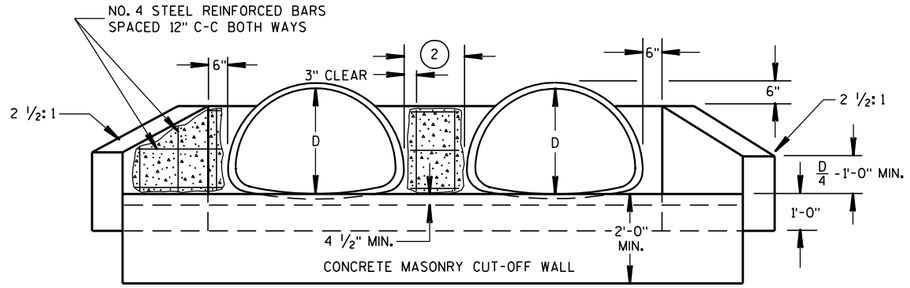
(2) THE SPACE BETWEEN PIPES SHALL BE AS FOLLOWS:

DIAMETER OR SPAN	SPACE
UP TO AND INCLUDING 48"	2'-0"
OVER 48" TO 72"	½ DIA. OR SPAN
OVER 72"	3'-0"



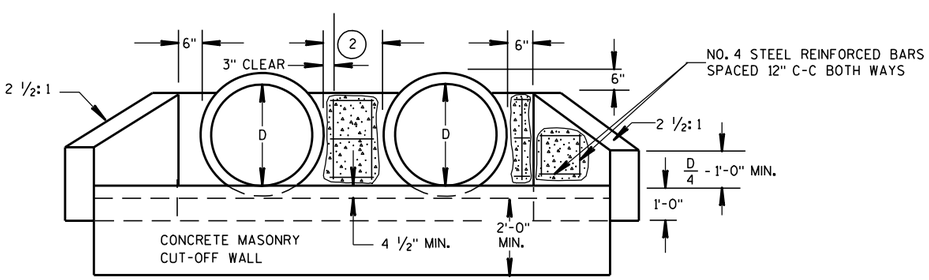
PLAN VIEW

CULVERT PIPE AND PIPE ARCH



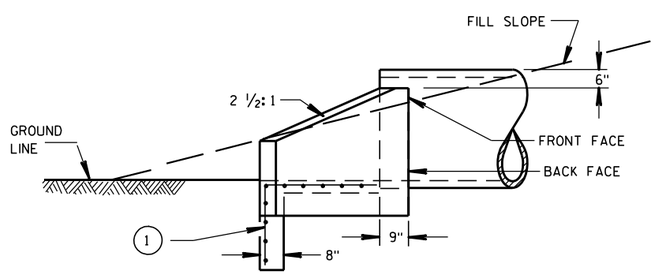
END ELEVATION

PIPE ARCH



END ELEVATION

CULVERT PIPE



SIDE ELEVATION

CULVERT PIPE AND PIPE ARCH

CONCRETE MASONRY ENDWALLS FOR CULVERT PIPE AND PIPE ARCH

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

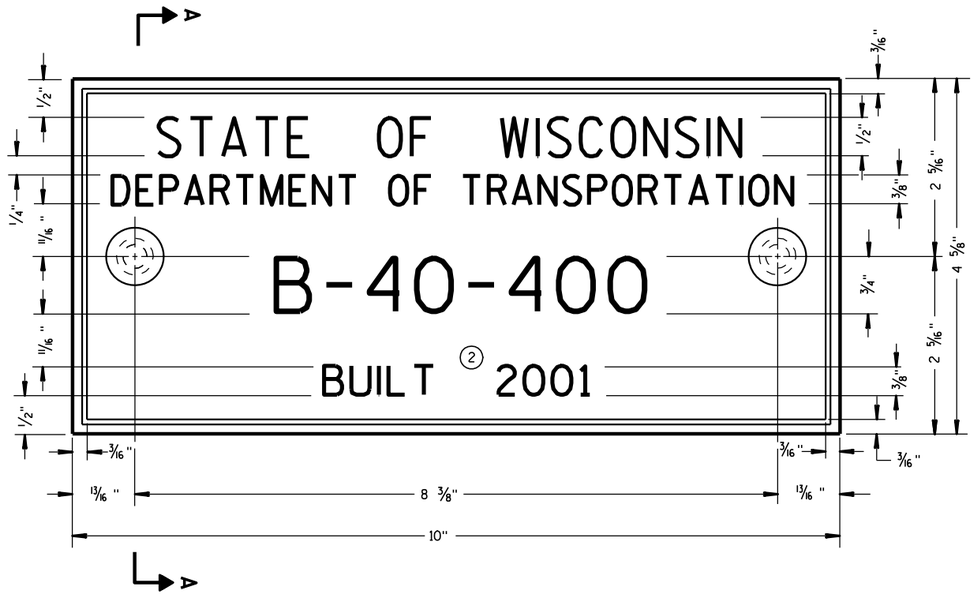
9/14/98 — DATE

/S/ Rory L. Rhinehart — CHIEF ROADWAY DEVELOPMENT ENGINEER

FHWA

6

S.D.D. 8 F 10-1



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

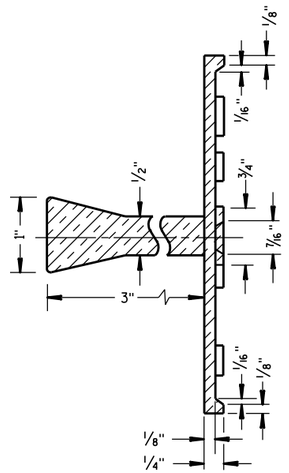
GENERAL NOTES

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

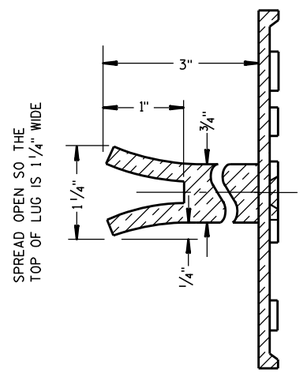
THE BRIDGE NUMBER AND YEAR BUILT SHOWN ON THIS DRAWING ARE EXAMPLES ONLY. SEE CONSTRUCTION PLANS FOR INDIVIDUAL NUMBERING AND YEAR BUILT.

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

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



SECTION A-A



ALTERNATE LUG

FOR MULTI-UNIT STRUCTURES
LINE 3 ABOVE SHALL READ

B = BRIDGE
C = CULVERT
R = RETAINING WALL

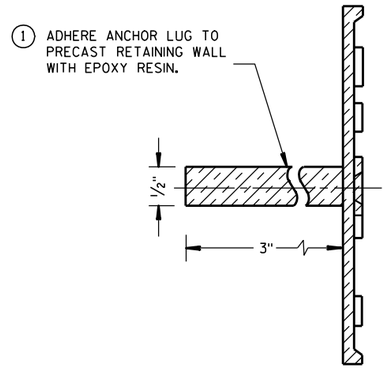
COUNTY NO.

BRIDGE NO.

UNIT NO. FOR MULTIPLE UNIT BRIDGE

B-40-400-1A

NUMBERING DESIGNATION
MULTI-UNIT STRUCTURES



ALTERNATE LUG
(FOR ATTACHMENT TO PRECAST STRUCTURES)

NAME PLATE (STRUCTURES)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

3/26/10 DATE

/S/ Scot Beck -- CHIEF STRUCTURAL DEVELOP ENGINEER

FHWA

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S.D.D. 12 A 3-10

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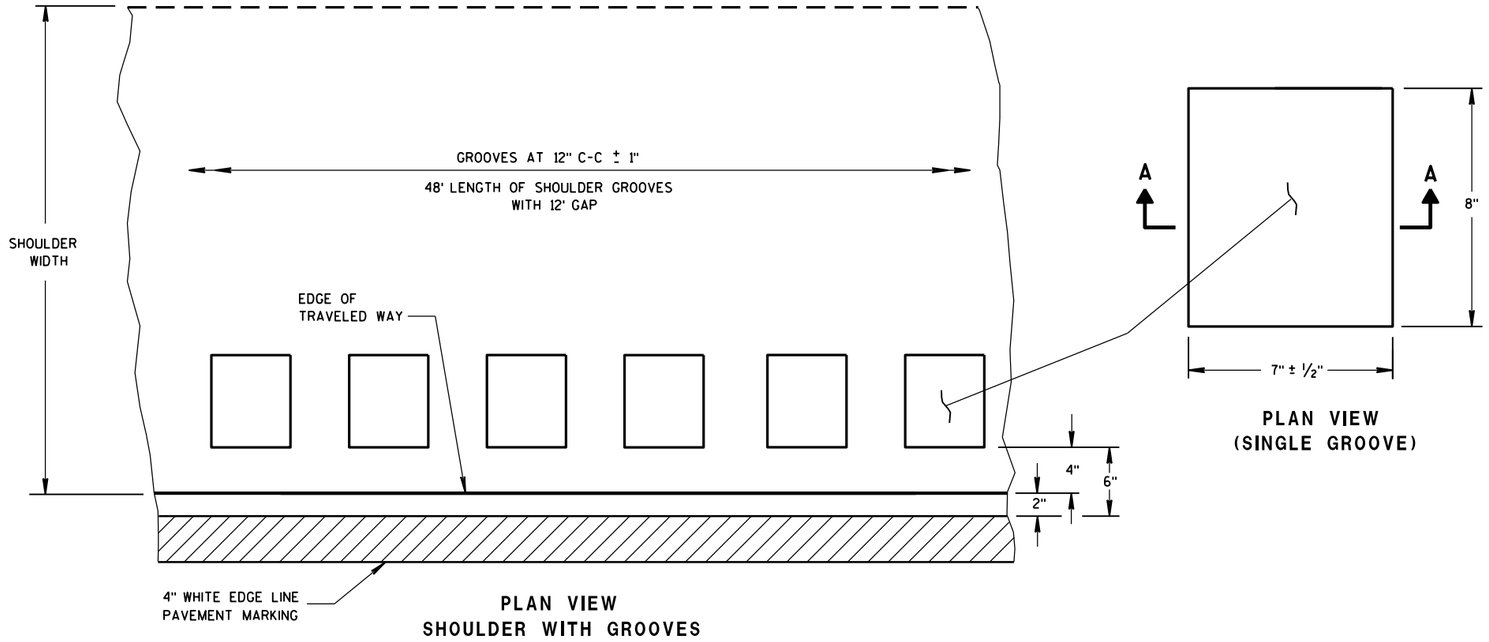
S.D.D. 12 A 3-10



PLAN VIEW
SHOULDER WITH GROOVES

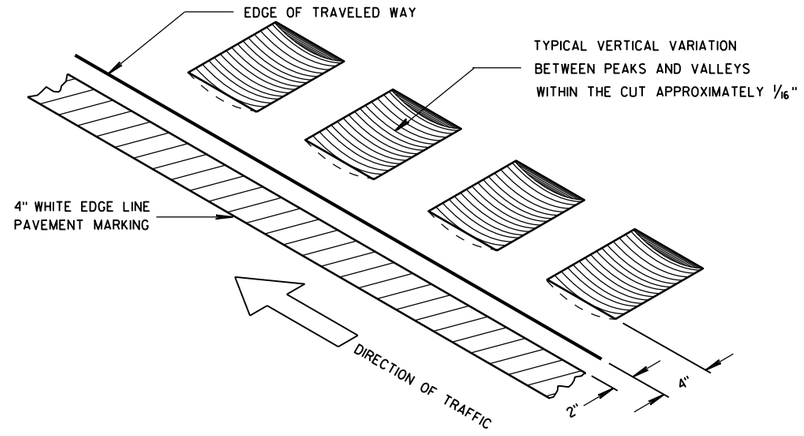
PLAN VIEW
(SINGLE GROOVE)

GENERAL NOTES

DETAILS OF CONSTRUCTION SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.

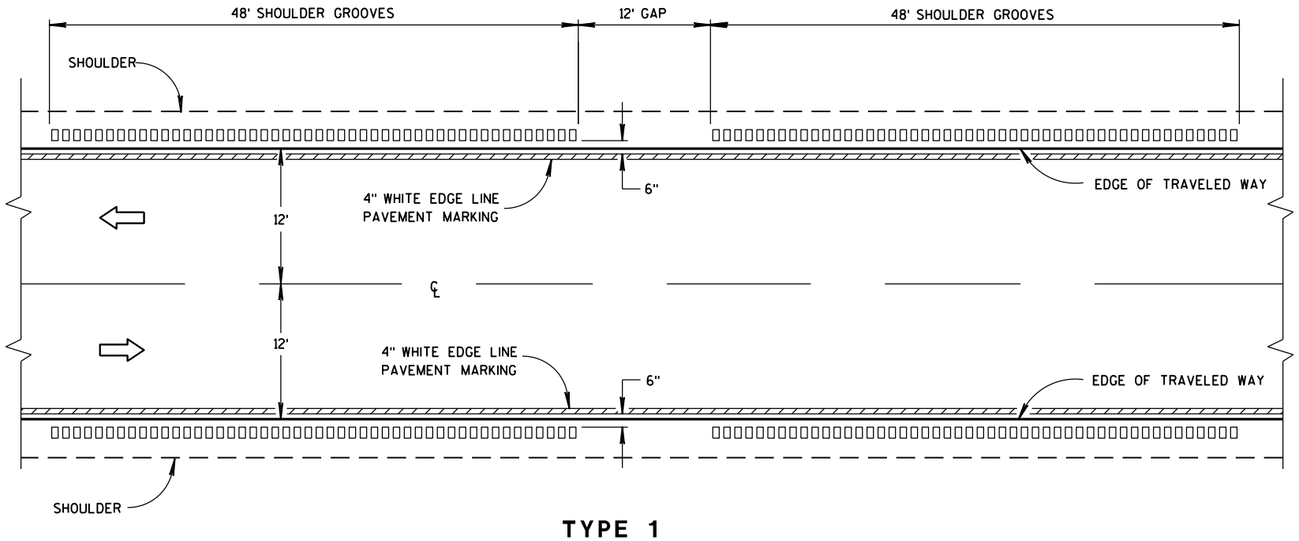
DO NOT MILL SHOULDER GROOVES THROUGH ANY INTERSECTION, MARKED CROSSWALK, NON-MOTORIZED PATH CROSSING, OR SNOWMOBILE CROSSING.

(1) SHOULDER GROOVES MAY BE OMITTED IN AREAS WITH HIGH CONCENTRATIONS OF DRIVEWAYS, WHEN DIRECTED BY THE ENGINEER.

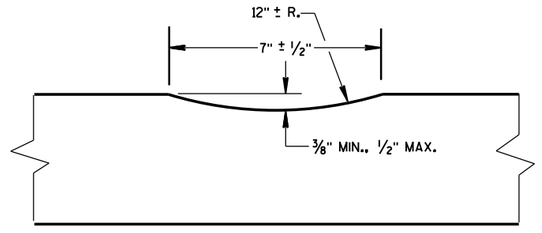


ISOMETRIC

PLACEMENT DETAIL FOR TYPE 1 MILLED RUMBLE STRIP



TYPE 1
2-LANE SHOULDER RUMBLE STRIP



SECTION A-A

2-LANE RURAL
SHOULDER RUMBLE STRIP, MILLING

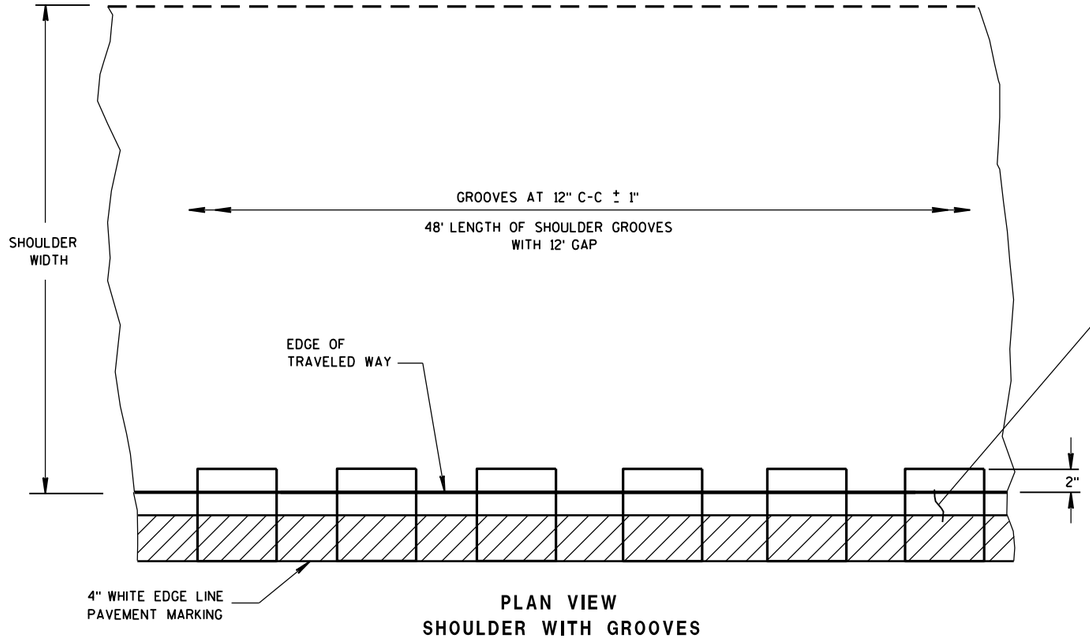
STATE OF WISCONSIN
DEPARTMENT OF TRANSPO

6

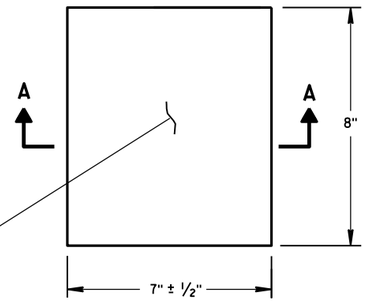
S.D.D. 13 A 10-1a

6

S.D.D. 13 A 10-1a



PLAN VIEW
SHOULDER WITH GROOVES



PLAN VIEW
(SINGLE GROOVE)

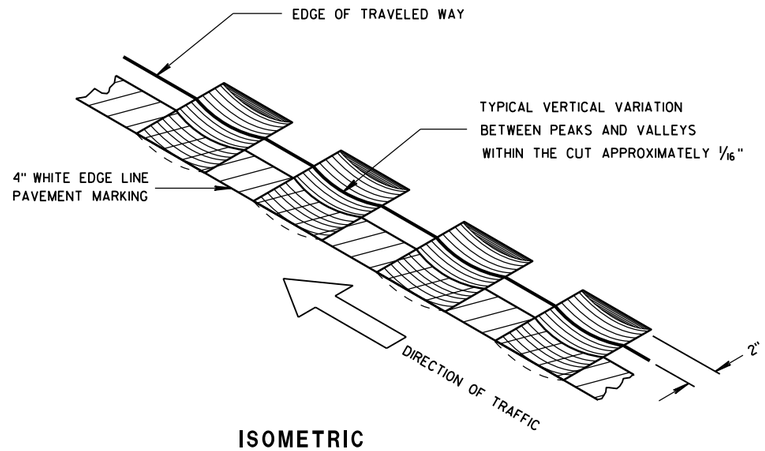
PLACEMENT DETAIL FOR TYPE 2 MILLED RUMBLE STRIP

GENERAL NOTES

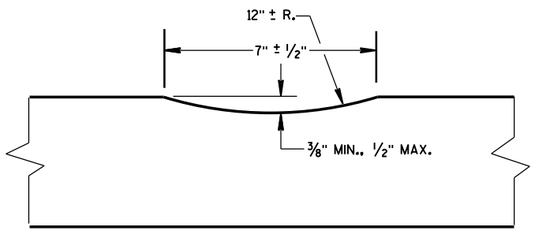
DETAILS OF CONSTRUCTION SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.

DO NOT MILL SHOULDER GROOVES THROUGH ANY INTERSECTION, MARKED CROSSWALK, NON-MOTORIZED PATH CROSSING, OR SNOWMOBILE CROSSING.

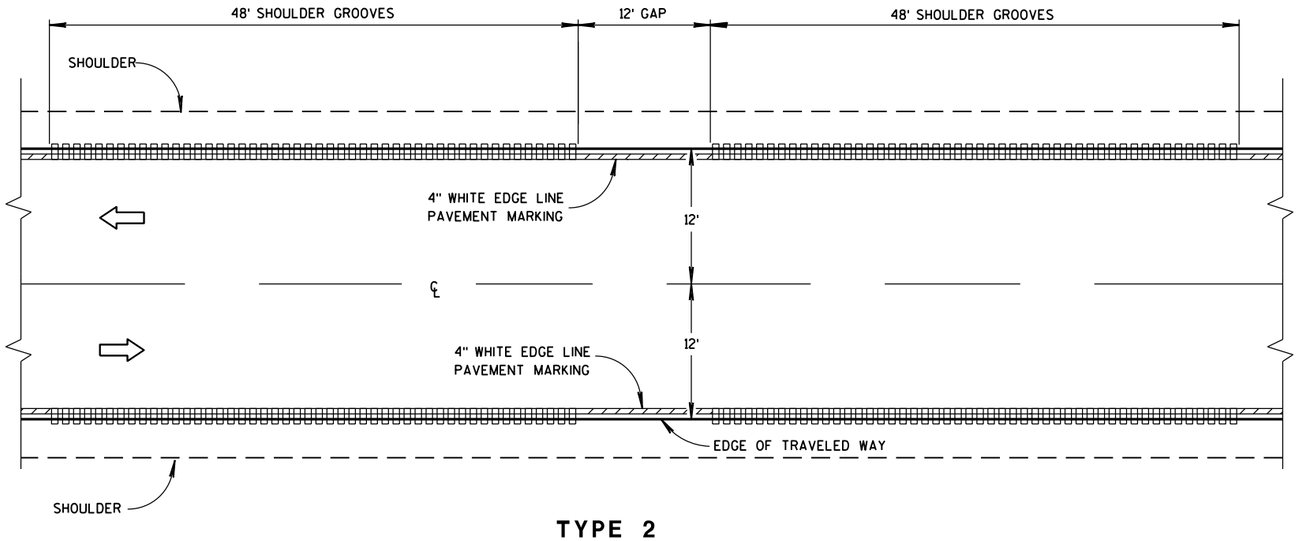
(1) SHOULDER GROOVES MAY BE OMITTED IN AREAS WITH HIGH CONCENTRATIONS OF DRIVEWAYS, WHEN DIRECTED BY THE ENGINEER.



ISOMETRIC



SECTION A-A



TYPE 2
2-LANE SHOULDER RUMBLE STRIP

2-LANE RURAL
SHOULDER RUMBLE STRIP, MILLING

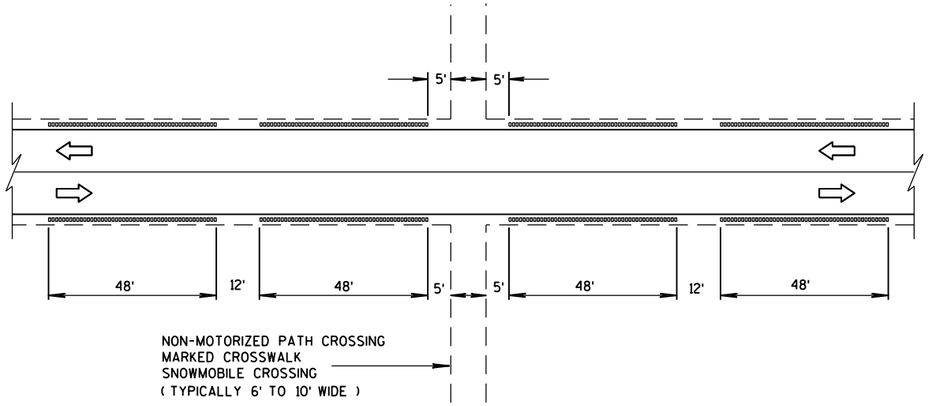
STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR

6

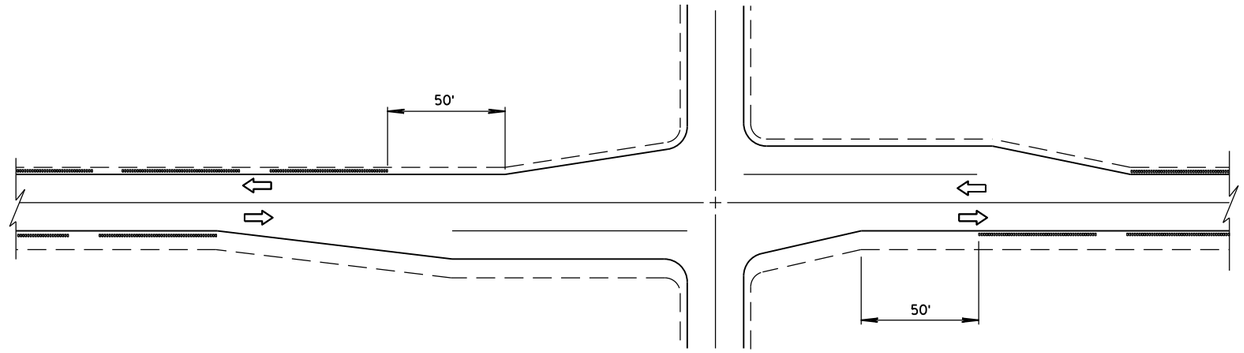
S.D.D. 13 A 10-1b

6

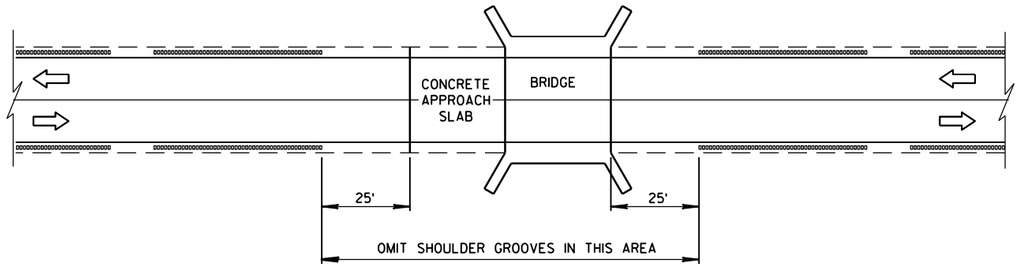
S.D.D. 13 A 10-1b



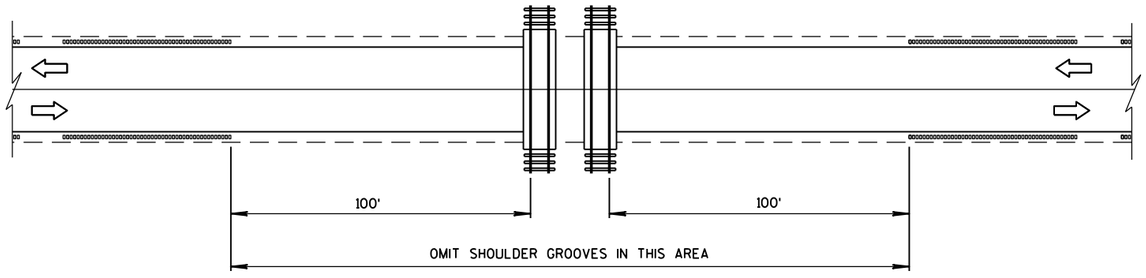
SHOULDER GROOVES AT MISCELLANEOUS CROSSINGS



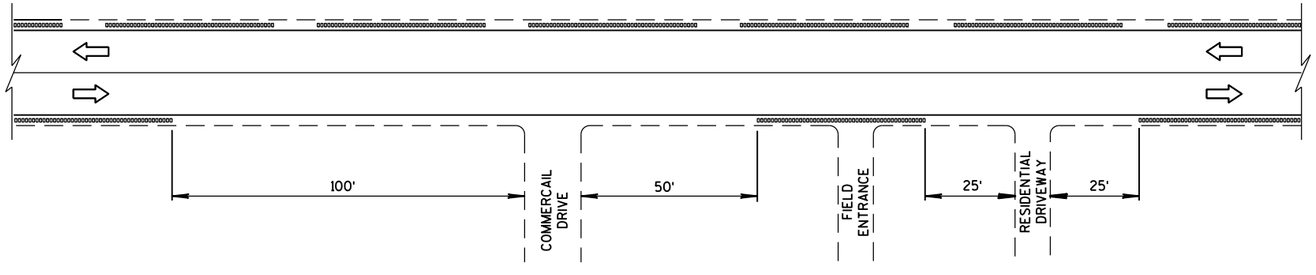
SHOULDER GROOVES AT INTERSECTIONS



SHOULDER GROOVES AT BRIDGES



SHOULDER GROOVES AT RAILROADS

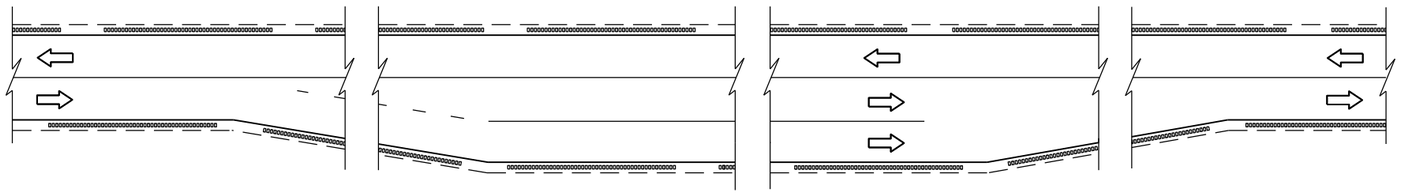


SHOULDER GROOVES AT DRIVEWAYS (1)

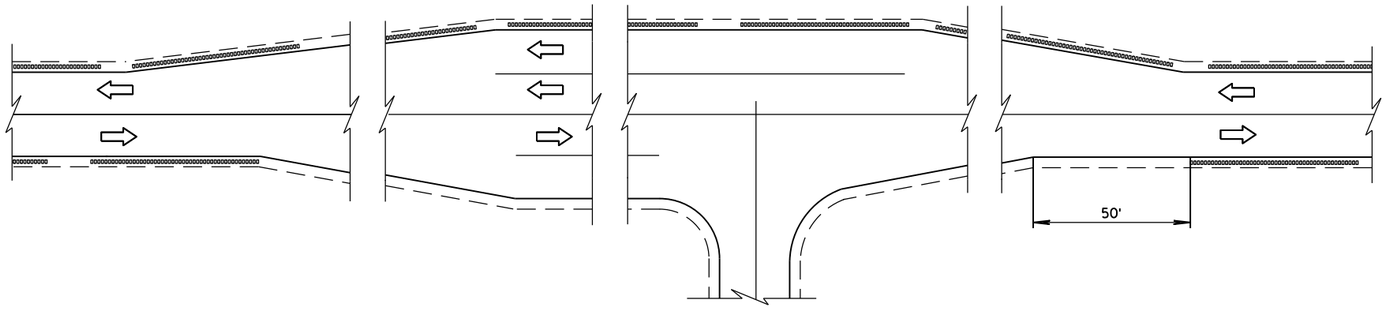
2-LANE RURAL
SHOULDER RUMBLE STRIP, MILLING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI

6
S.D.D. 13 A 10-1c



SHOULDER GROOVES AT PASSING AND CLIMBING LANES



SHOULDER GROOVES AT BYPASS LANES

6

6

S.D.D. 13 A 10-1d

S.D.D. 13 A 10-1d

2-LANE RURAL
SHOULDER RUMBLE STRIP, MILLING

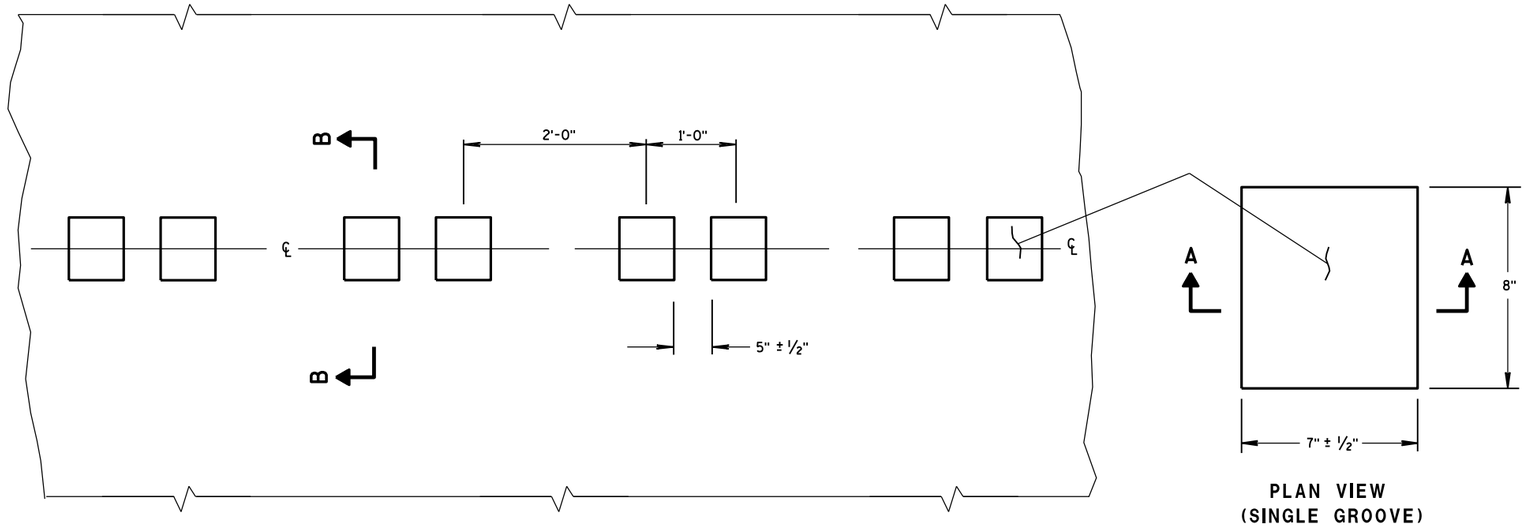
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

12/17/2012
DATE

/S/ Jerry H. Zoga
ROADWAY STANDARDS ENGINEER

FHWA



PLAN VIEW
CENTER LINE WITH GROOVES

PLAN VIEW
(SINGLE GROOVE)

PLACEMENT DETAIL FOR MILLED RUMBLE STRIP

GENERAL NOTES

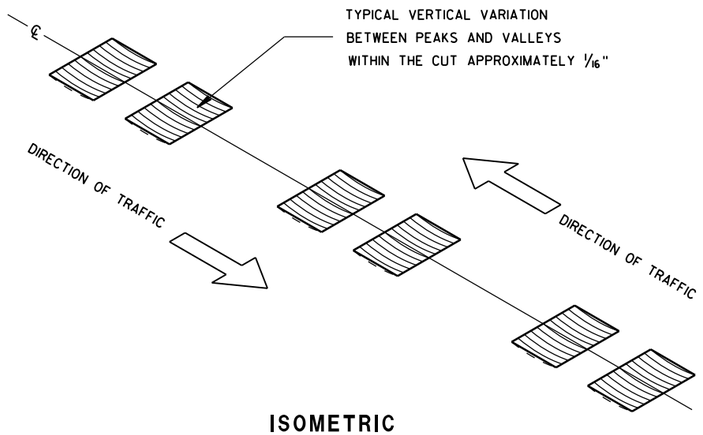
DETAILS OF CONSTRUCTION SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.

DO NOT MILL CENTER LINE GROOVES THROUGH ANY INTERSECTION, MARKED CROSSWALK, NON-MOTORIZED PATH CROSSING, OR SNOWMOBILE CROSSING.

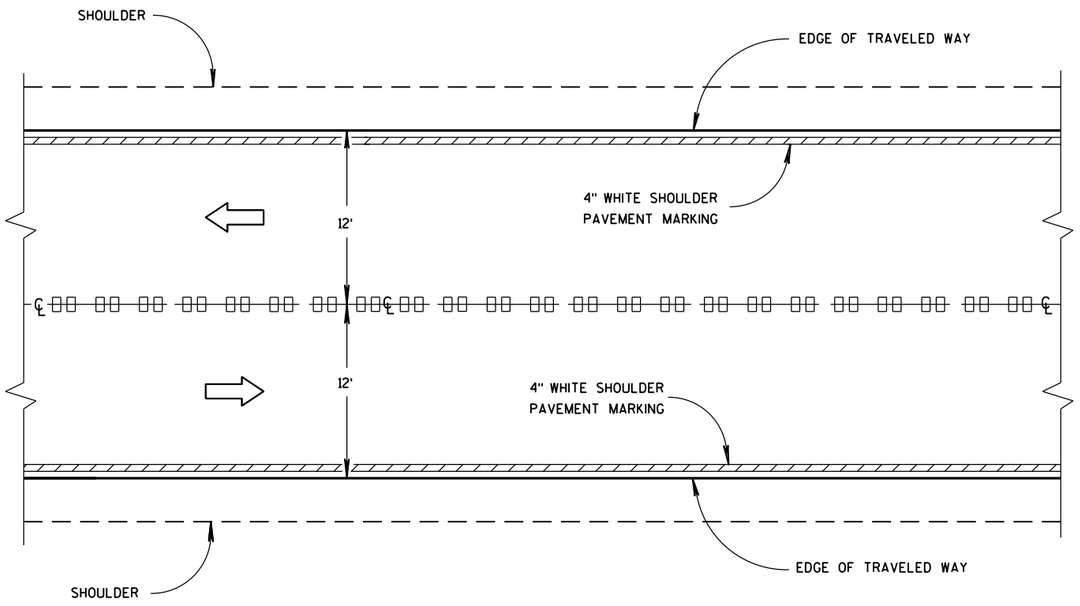
INSTALL PAVEMENT MARKING AFTER THE GROOVES ARE INSTALLED.

SEE SIGNING PLAN FOR SIGN REQUIREMENTS THAT MAY BE NEEDED.

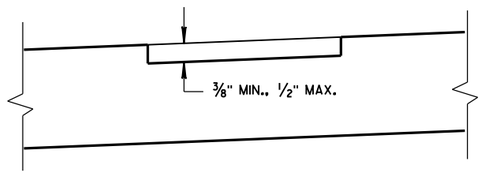
① CENTERLINE GROOVES MAY BE OMITTED IN AREAS WITH HIGH CONCENTRATIONS OF DRIVEWAYS, WHEN DIRECTED BY THE ENGINEER.



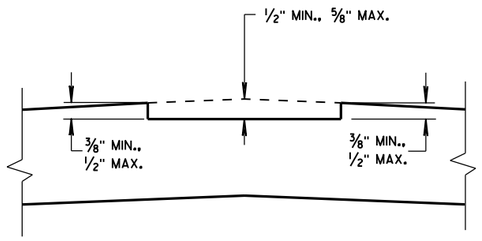
ISOMETRIC



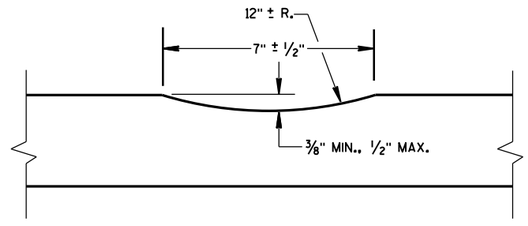
CENTER LINE GROOVES ON TWO-WAY ROADWAYS



SECTION B-B
SUPERELEVATED ROADWAY



SECTION B-B
CROWNED ROADWAY



SECTION A-A

2-LANE RURAL
CENTER LINE RUMBLE STRIP, MILLING

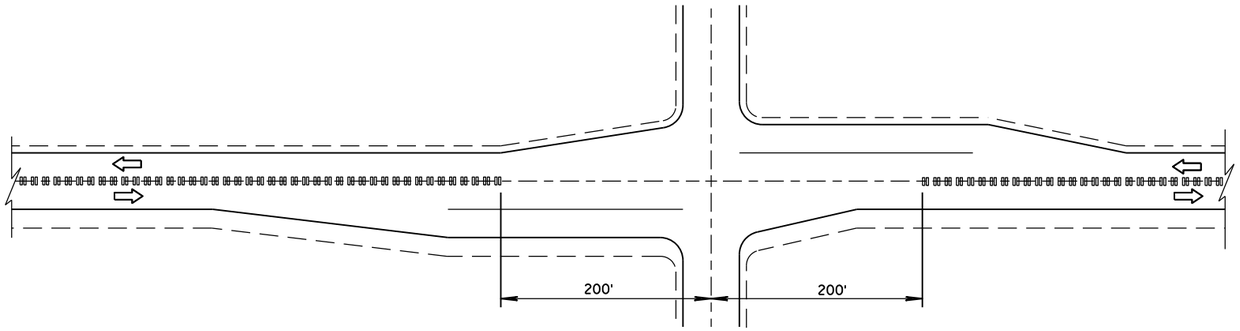
STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI

6

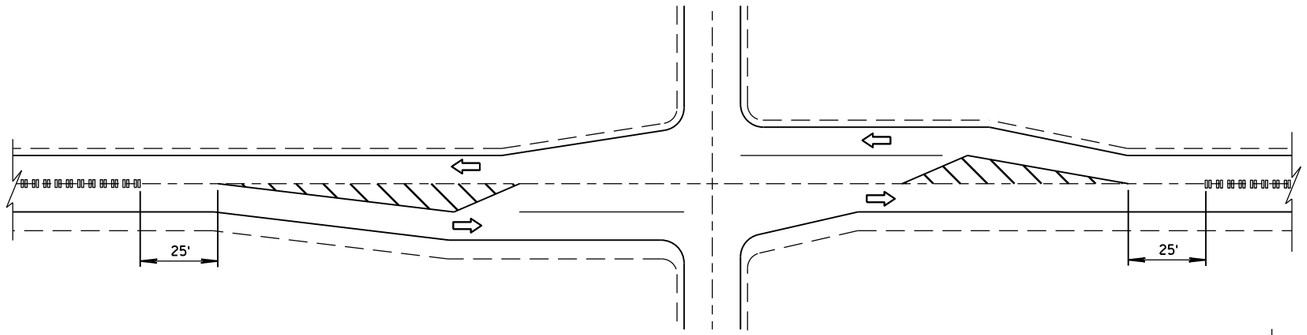
S.D.D. 13 A 11-2a

6

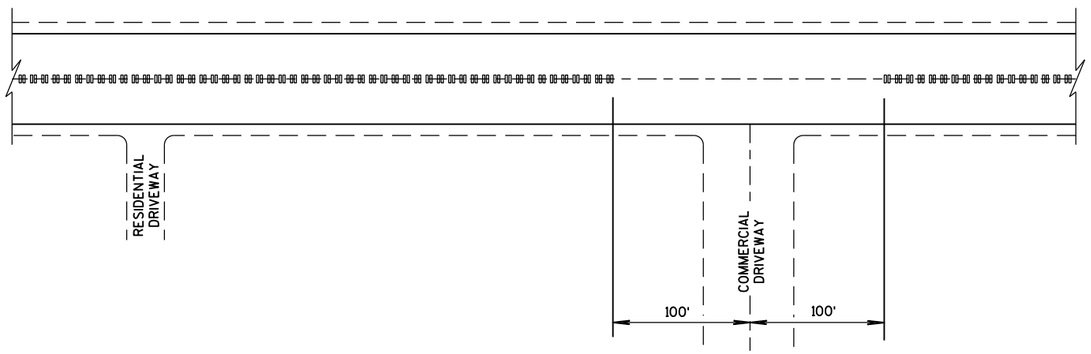
S.D.D. 13 A 11-2a



CENTER LINE GROOVES AT INTERSECTIONS

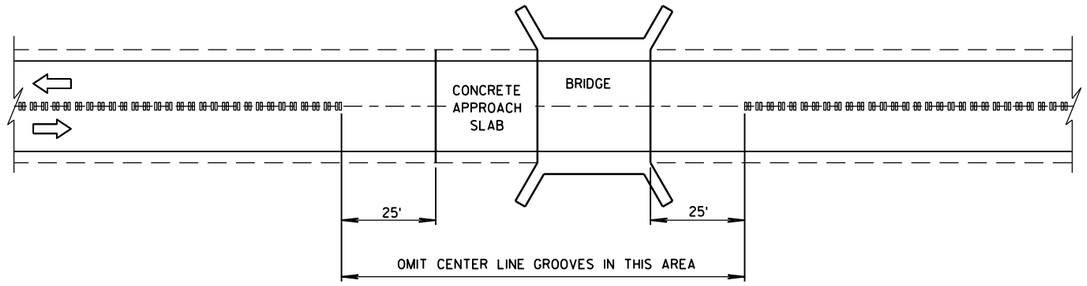


CENTER LINE GROOVES AT INTERSECTIONS
(WITH LEFT TURN LANES)

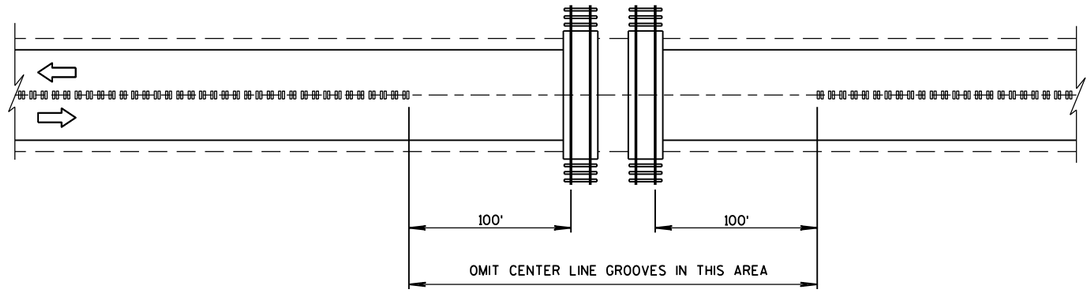


CENTER LINE GROOVES AT DRIVEWAYS (1)

(1) CENTERLINE GROOVES MAY BE OMITTED IN AREAS WITH HIGH CONCENTRATIONS OF DRIVEWAYS, WHEN DIRECTED BY THE ENGINEER.



CENTER LINE GROOVES AT BRIDGES



CENTER LINE GROOVES AT RAILROADS

6

S.D.D. 13 A 11-2b

6

S.D.D. 13 A 11-2b

2-LANE RURAL
CENTER LINE RUMBLE STRIP, MILLING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

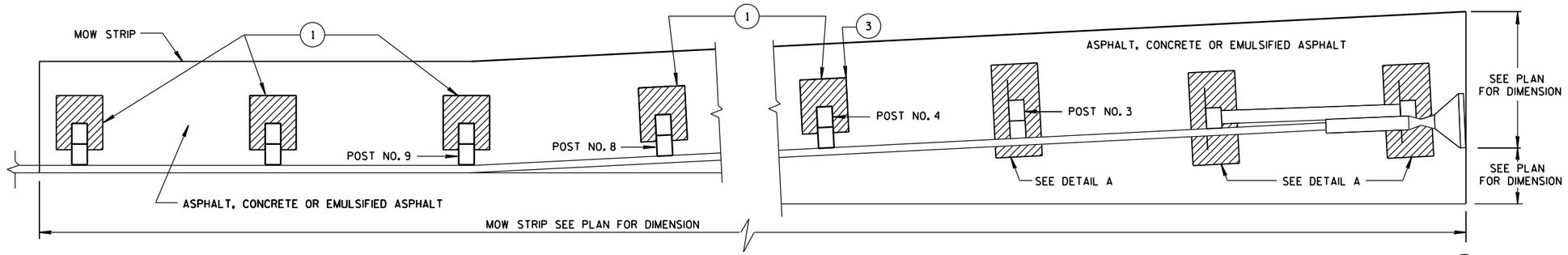
APPROVED

5/15/2013
DATE

/S/ Jerry H. Zoda
ROADWAY STANDARDS DEVELOPMENT ENGINEER

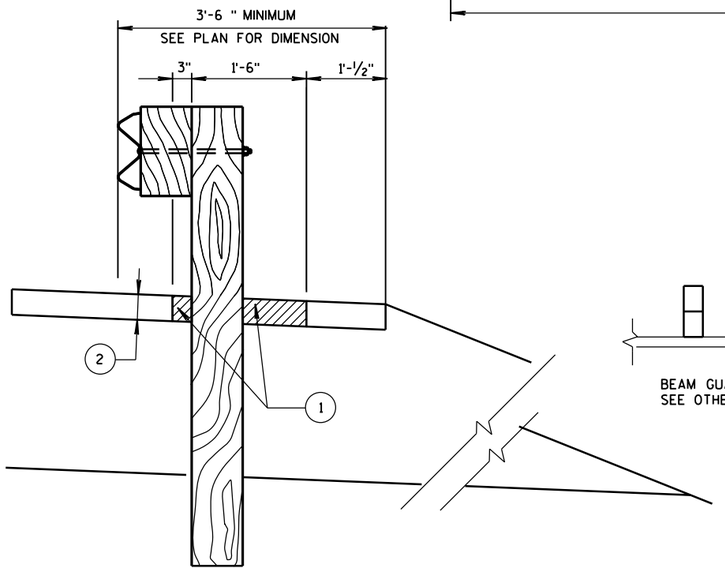
NT

FHWA

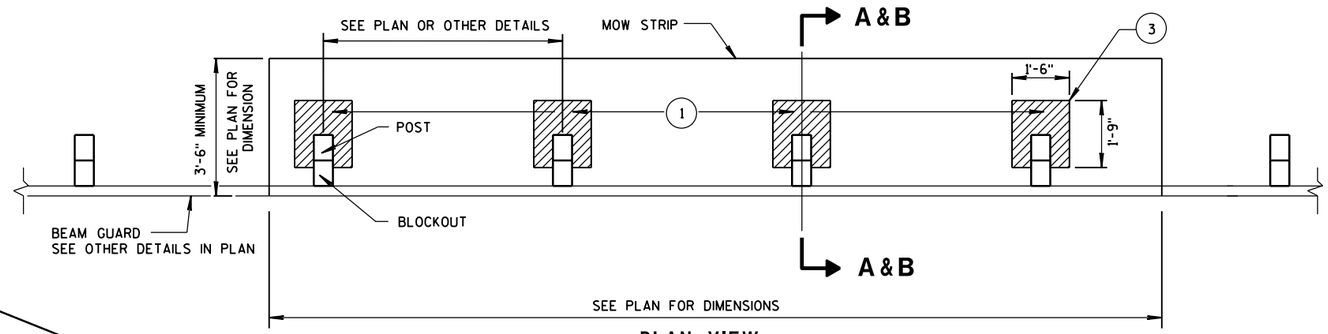


PLAN VIEW

MOW STRIP LAYOUT FOR ENERGY ABORBING TERMINAL

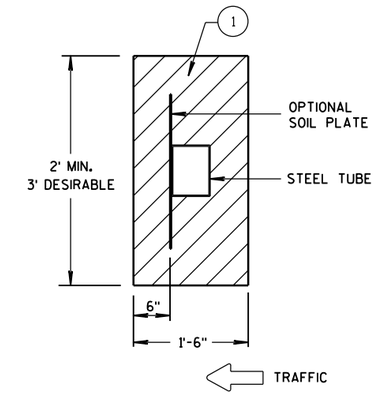


SECTION A-A

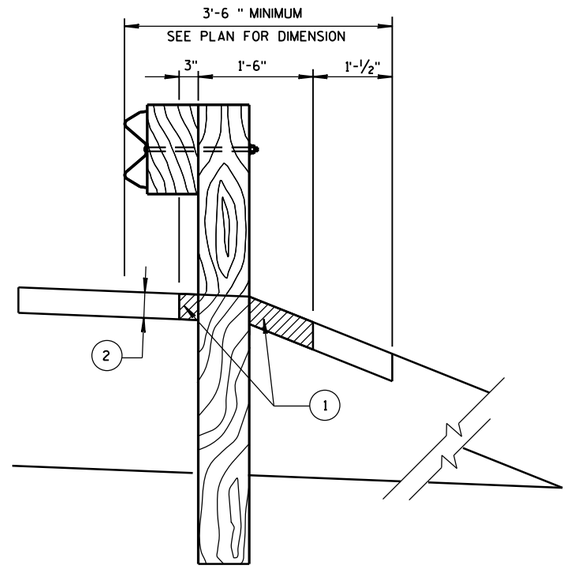


PLAN VIEW

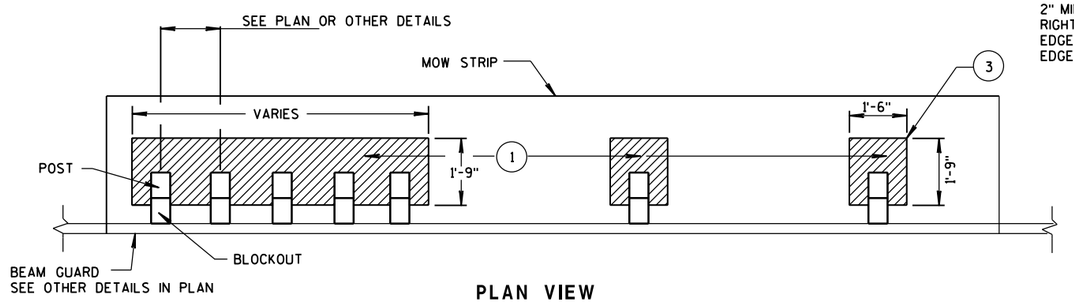
MOW STRIP FOR TYPICAL BLOCKOUT LAYOUT



DETAIL A

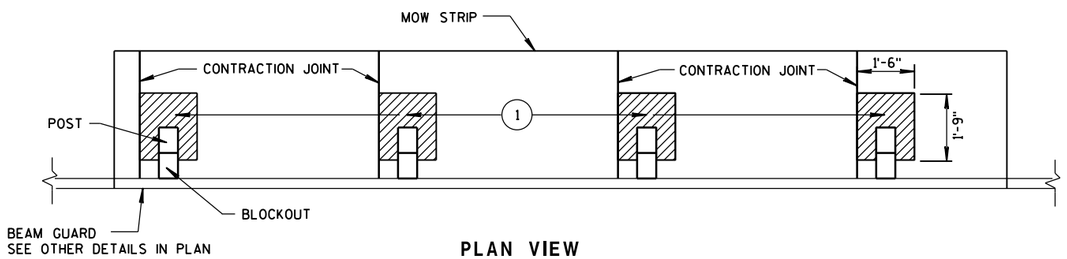


SECTION B-B



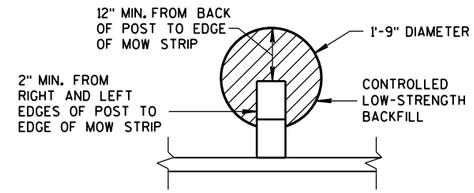
PLAN VIEW

MOW STRIP FOR TIGHT SPACING LAYOUT



PLAN VIEW

JOINT PLACEMENT FOR CONCRETE MOW STRIP



ALTERNATIVE HMA
MOW STRIP DESIGN

(1) CONTROLLED LOW-STRENGTH BACKFILL OR EMULSIFIED ASPHALT.

(2) DEPTH OF MOW STRIP:
ASPHALT - 4"
CONCRETE - 4"
EMULSIFIED ASPHALT - 1" OR LESS

(3) FOR EMULSIFIED ASPHALT MOW STRIP LEAVE OUTS NOT REQUIRED. (TYPICAL FOR ALL POSTS.)

GUARDRAIL MOW STRIP

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

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

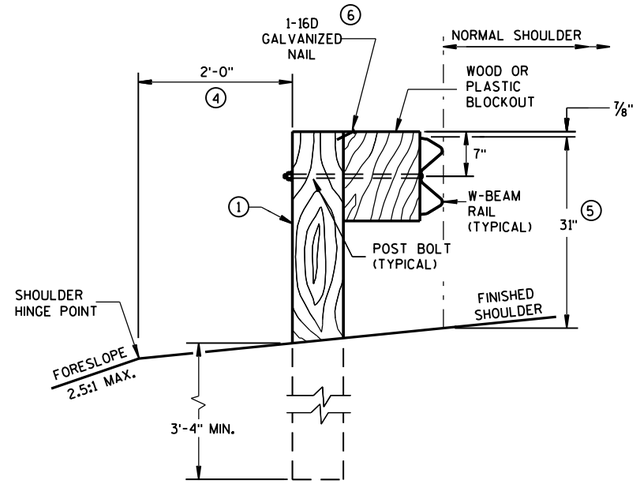
(2) USE WOOD OR APPROVED PLASTIC BLOCKOUTS. WOOD BLOCKOUTS MAY BE CONSTRUCTED OUT OF TWO OR MORE WOOD BLOCKOUTS. SEE ALTERNATE WOOD BLOCKOUT DETAIL. DIMENSIONS OF APPROVED PLASTIC BLOCKOUTS MAY VARY.

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

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

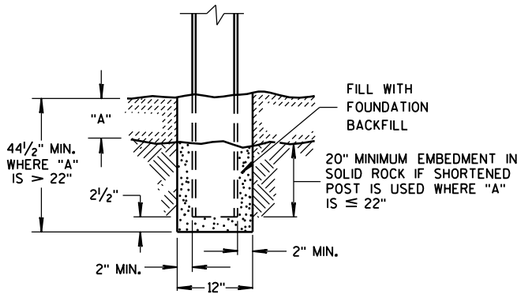
(5) FOR NEW MGS INSTALLATION TOP OF W-BEAM RAIL TOLERANCE IS ± 1". FOR EXISTING MGS INSTALLATION TOP OF W-BEAM IS BETWEEN 27¾" TO 32".

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



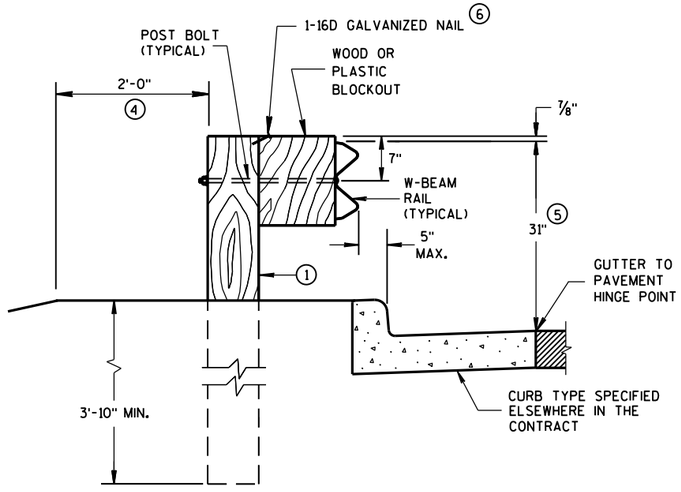
END VIEW

LOCATED ALONG A ROADWAY SHOULDER
STANDARD INSTALLATION



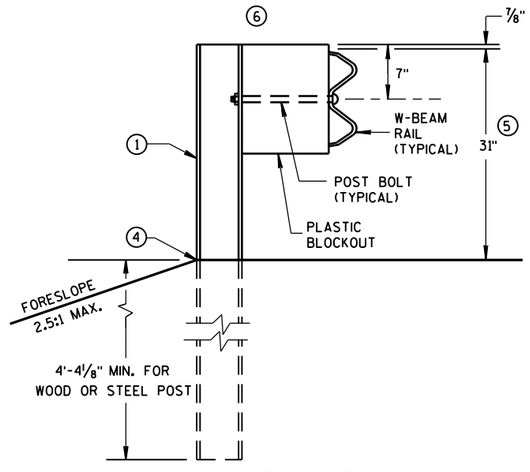
END VIEW

SETTING STEEL OR WOOD POST IN ROCK (3)



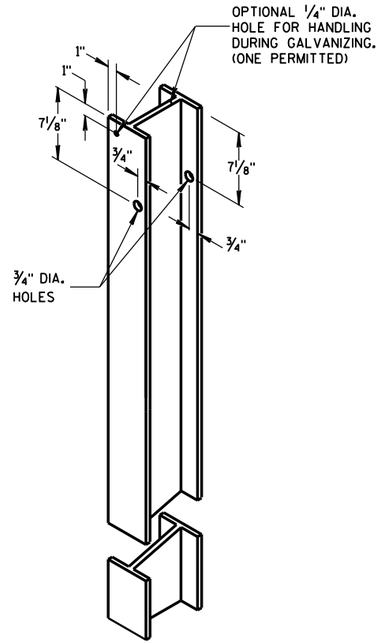
END VIEW

LOCATED ALONG A CURBED ROADWAY

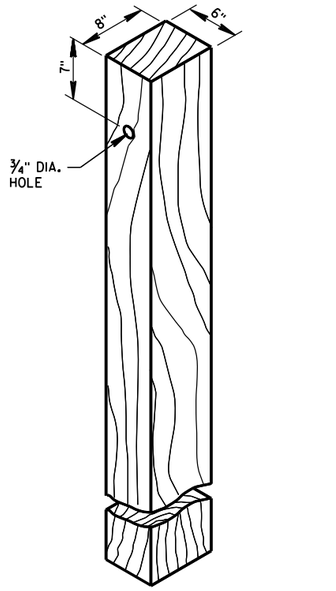


END VIEW

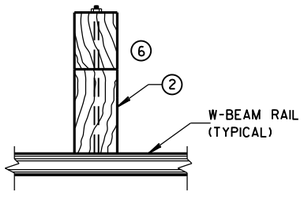
MGS LONGER POST AT HALFPOST SPACING W BEAM (K)



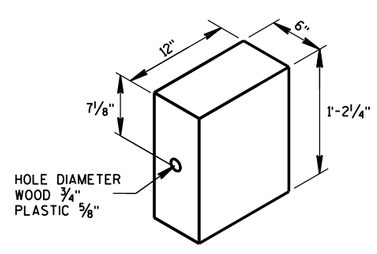
STEEL POST &
HOLE PUNCHING DETAIL
(w6X9) (1)



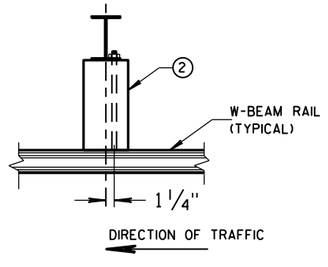
WOOD POST
(6" X 8") NOMINAL (1)



PLAN VIEW
WOOD POST,
BLOCKOUT & BEAM



WOOD OR
PLASTIC BLOCKOUT (2)



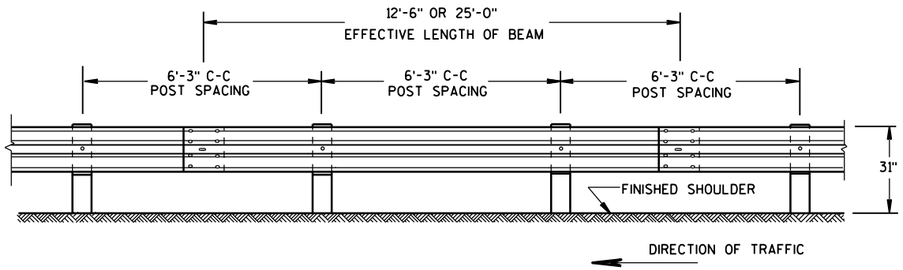
PLAN VIEW
STEEL POST,
PLASTIC BLOCKOUT & BEAM

MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI

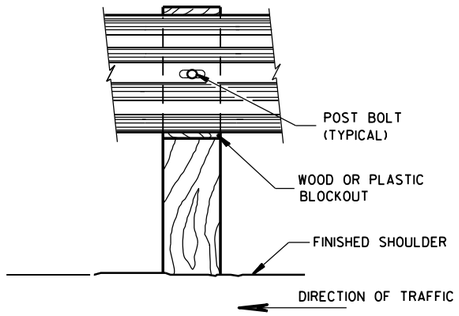
6

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



FRONT VIEW

POST SPACING STANDARD INSTALLATION



FRONT VIEW AT WOOD POST

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

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

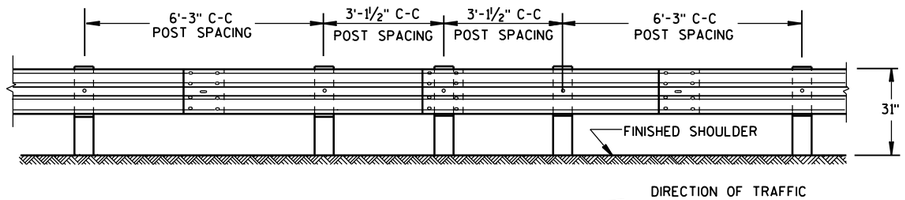
9. REVERSE EVERY OTHER REFLECTOR FOR 2-WAY VISIBILITY. THE CONTRACTOR MAY FURNISH TWO-SIDED REFLECTORS IN LIEU OF ONE-SIDED REFLECTORS.

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

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

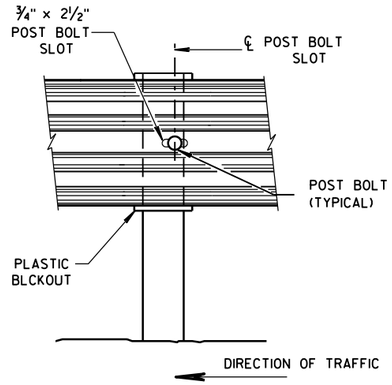
POST BOLTS ARE A 5/8" DIAMETER ASTM A307 GUARDRAIL BOLT. A POST BOLT REQUIRES 5/8" DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX NUT AND 5/8" DIAMETER F844 FLAT WASHER. POST BOLTS MAY BE LONGER IF MULTIPLE BLOCKOUTS ARE BEING USED.

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

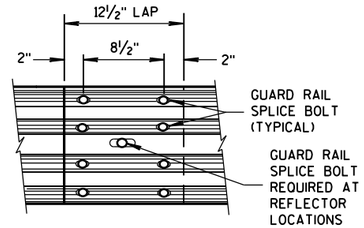


FRONT VIEW

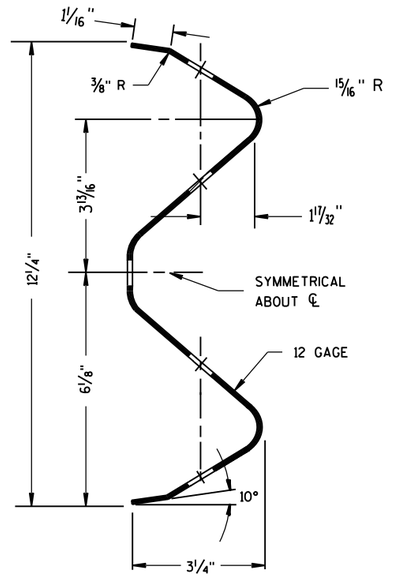
HALF POST SPACING (HS) AND HALF POST SPACING WITH LONGER POSTS (K)



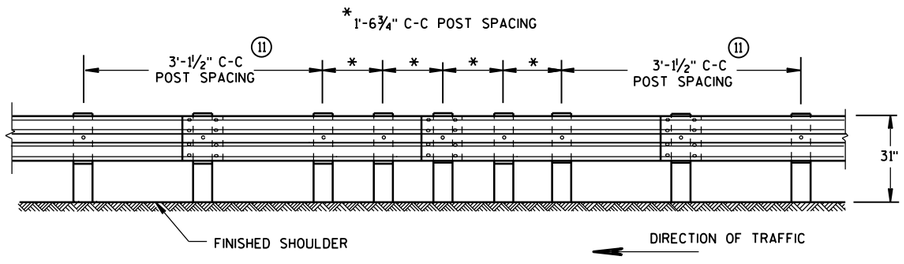
FRONT VIEW AT STEEL POST



FRONT VIEW
MID-SPAN BEAM SPLICE

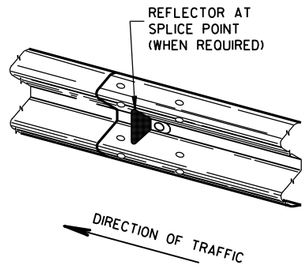


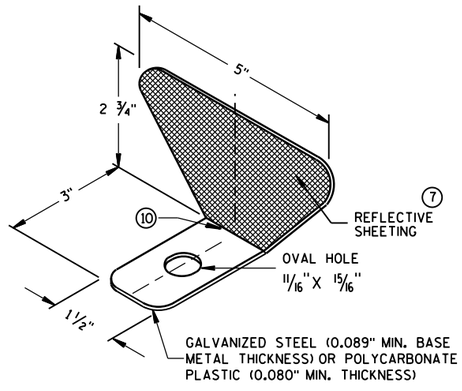
SECTION THRU W-BEAM RAIL



FRONT VIEW

QUARTER POST SPACING (QS)





ONE SIDED REFLECTOR DETAIL AND TYPICAL INSTALLATION 7

REFLECTOR SPACING 8

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

MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL

STATE OF WISCONSIN
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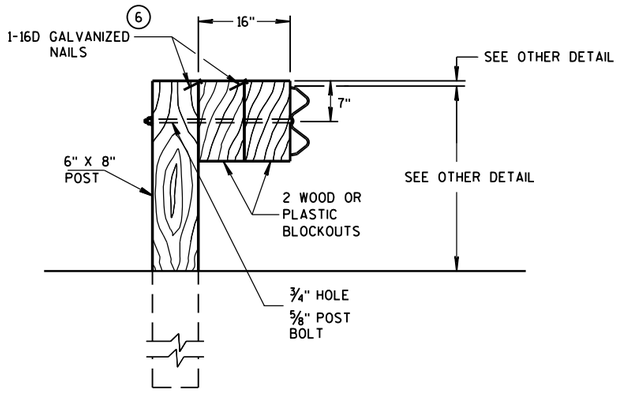
S.D.D. 14 B 42-4b

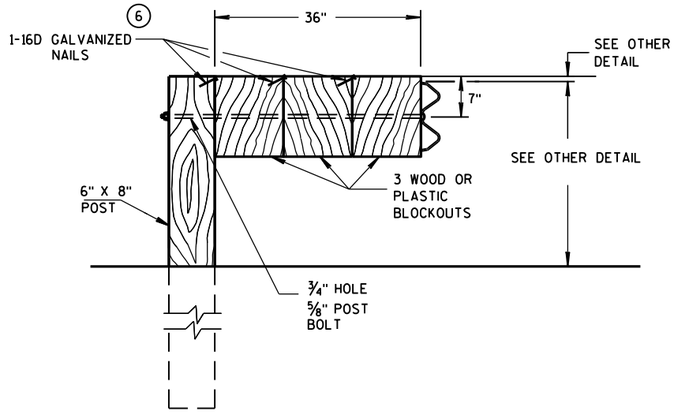
6

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



DETAIL FOR 16" BLOCKOUT DEPTH

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

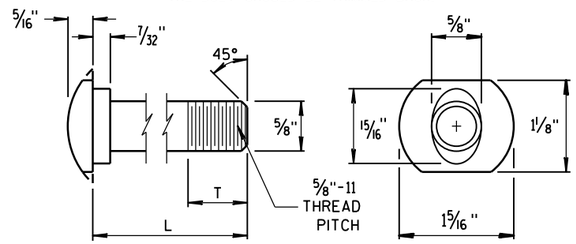


DETAIL FOR 36" BLOCKOUT DEPTH

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

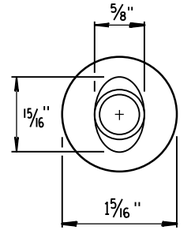
DO NOT USE 16" OR 36" BLOCKOUTS IF IT CAUSES THE POST TO BE DRIVEN BEYOND SHOULDER HINGE POINT OR CAUSES A FIXED OBJECT TO BE WITHIN THE DEFLECTION DISTANCE OF THE BARRIER.

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

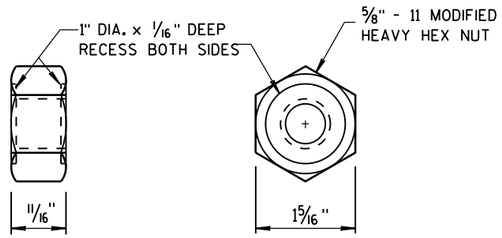


POST BOLT TABLE

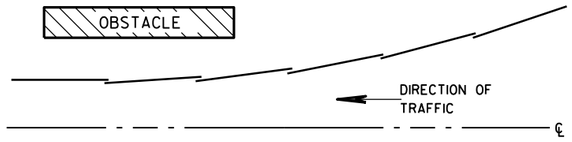
L	T (MIN.)
1 1/4"	1 1/8"
2"	1 3/4"
10"	4"
14"	4 1/16"
18"	4"
21"	4 1/16"
25"	4"



ALTERNATE BOLT HEAD

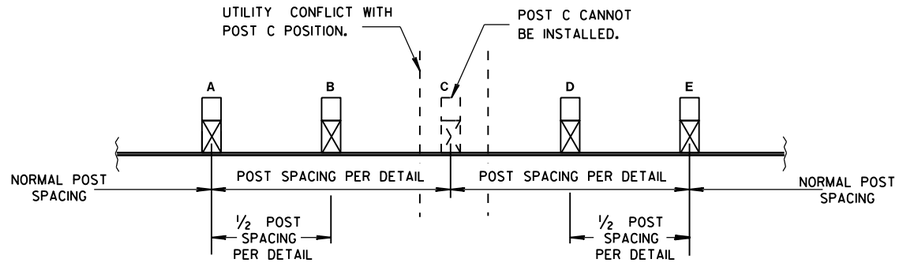


POST BOLT, SPLICE BOLT AND RECESS NUT

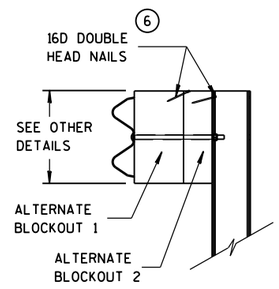


PLAN VIEW

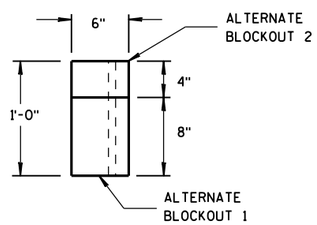
BEAM LAPPING DETAIL



POST DRIVING FOR CONTINUOUS UNDERGROUND OBSTRUCTION



SIDE VIEW



TOP VIEW

ALTERNATE WOOD BLOCKOUT DETAIL

MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

GENERAL NOTES

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

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

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

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

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

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

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

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

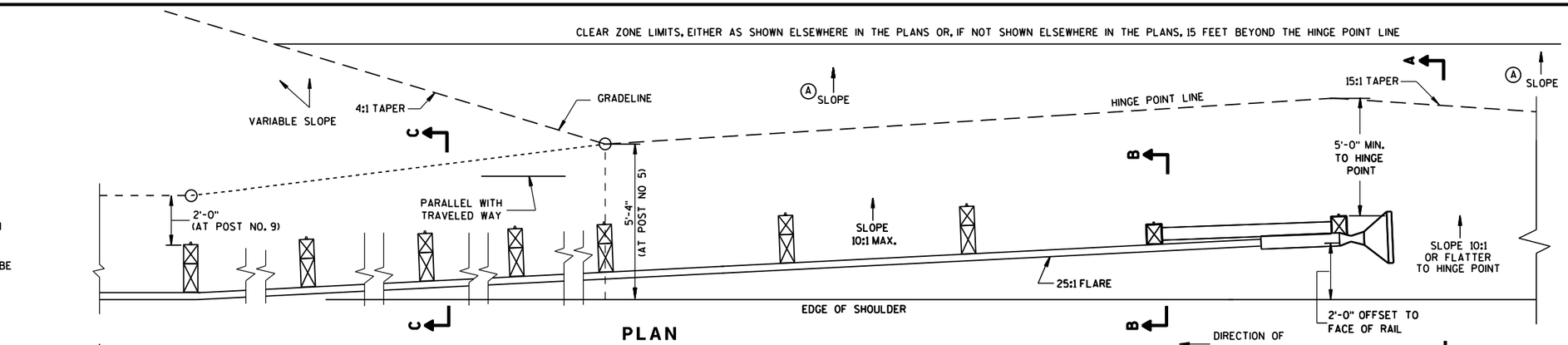
SEE SDD 14B42 FOR MORE INFORMATION.

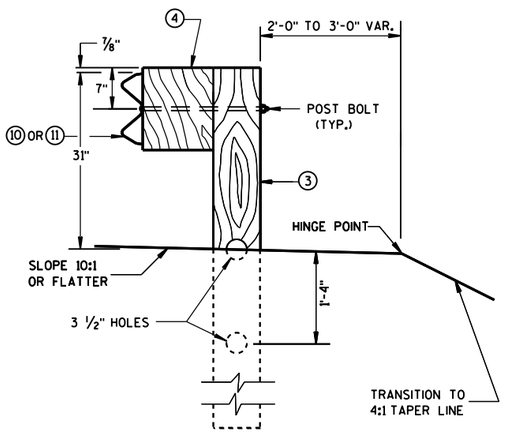
* DO NOT ATTACH BLOCKOUTS TO POSTS 1 AND 2.

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

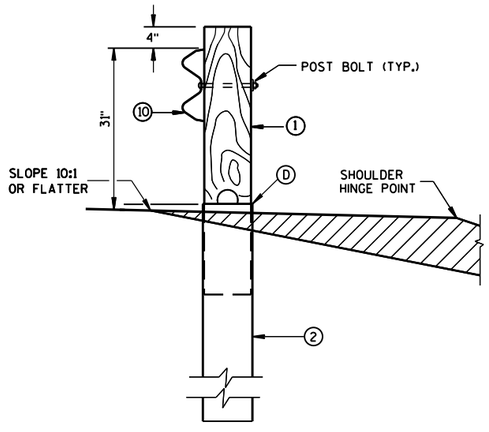
W-BEAM RAIL SPLICES ARE LOCATED AT POST NUMBER 3, AND BETWEEN POST 5 AND 6, BETWEEN POSTS 7 AND 8, AND MIDDLE OF THE SPAN AFTER POST 9.

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

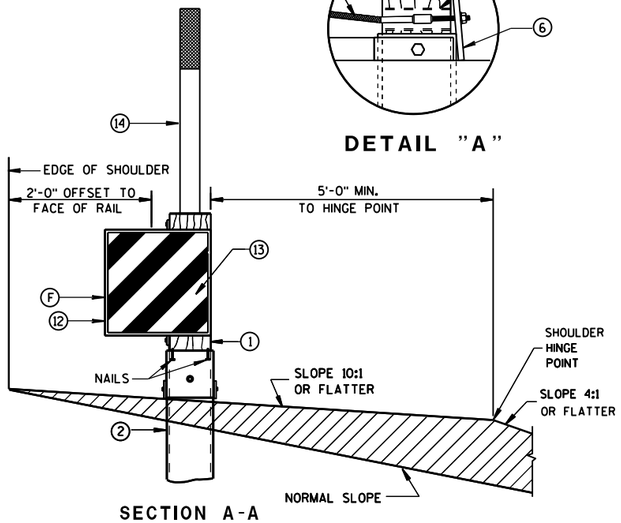




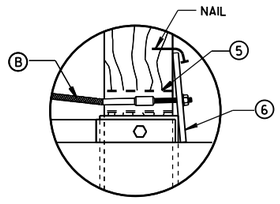
SECTION C-C
TYPICAL AT POST NOS. 3-9



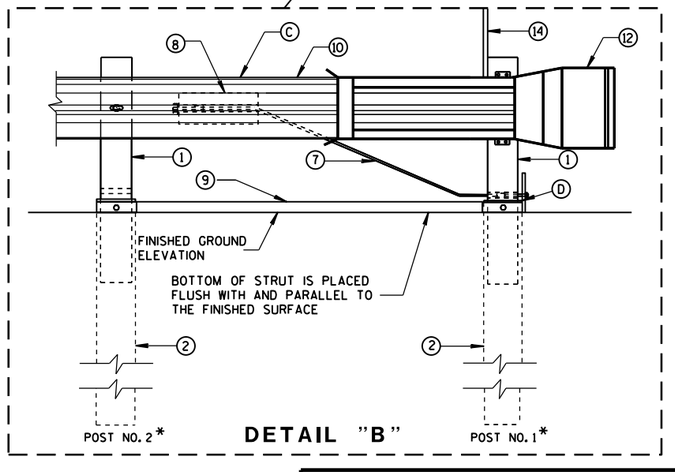
SECTION B-B
TYPICAL AT POST NO. 2*



SECTION A-A
TYPICAL AT POST NO. 1*



DETAIL "A"



DETAIL "B"

MIDWEST GUARDRAIL SYSTEM
ENERGY ABSORBING TERMINAL (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPO 87

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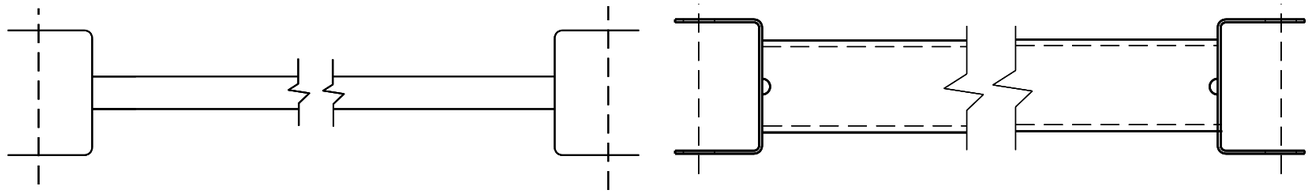
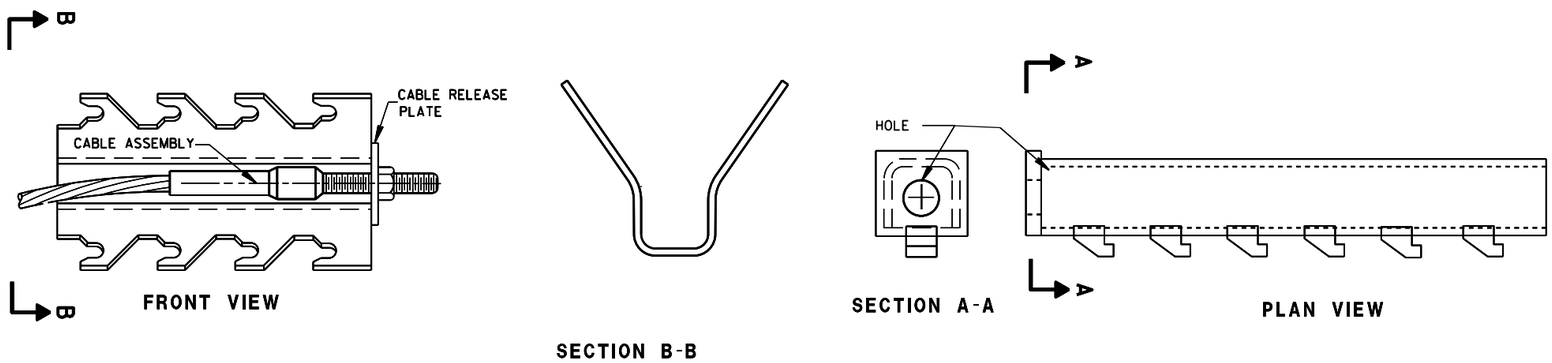


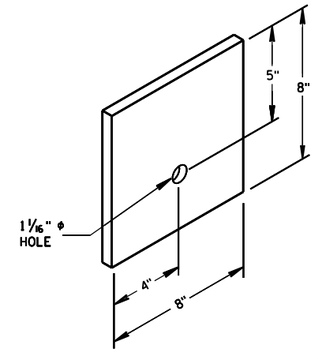
GENERIC GROUND STRUT (9) (H)

BILL OF MATERIALS

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



GENERIC ANCHOR CABLE BOX (8) (H)



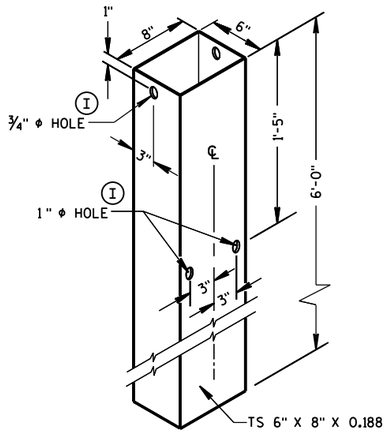
BEARING PLATE (6)

MIDWEST GUARDRAIL SYSTEM
ENERGY ABSORBING TERMINAL
(MGS)

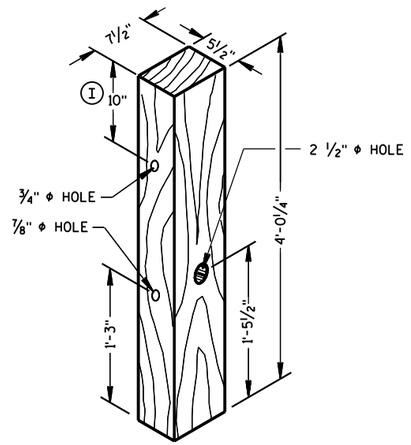
STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR

6

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

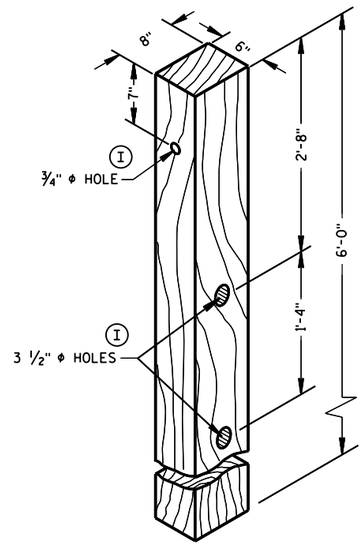


FOUNDATION TUBE (2)



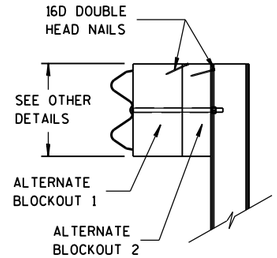
POSTS NUMBER 1 AND 2

WOOD BREAKAWAY POST (1)

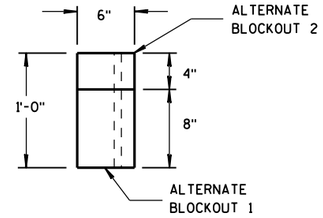


POSTS NUMBER 3-9

WOOD CRT POST (3)

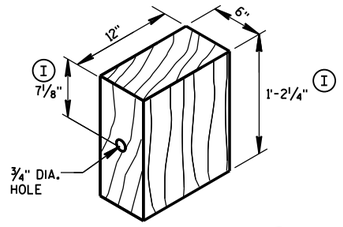


SIDE VIEW



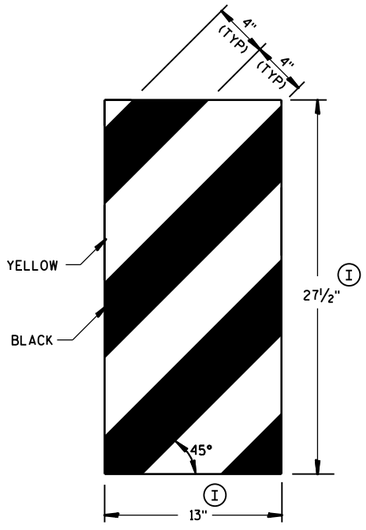
TOP VIEW

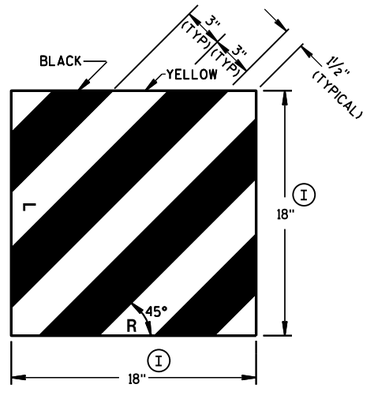
ALTERNATE WOOD BLOCKOUT DETAIL



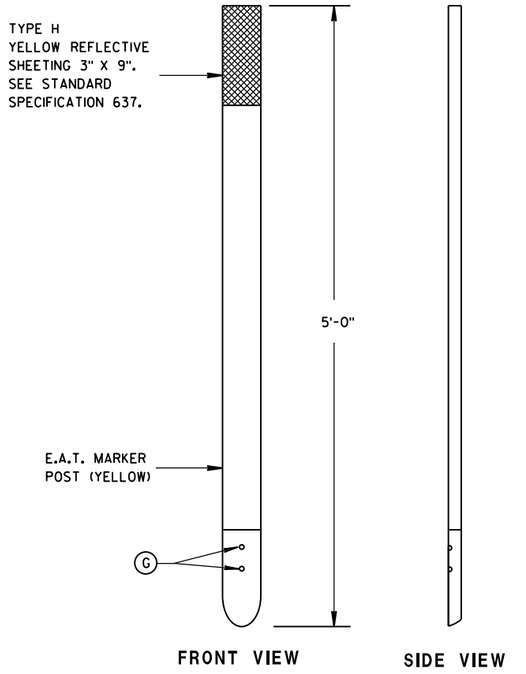
WOOD BLOCKOUT (4)

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





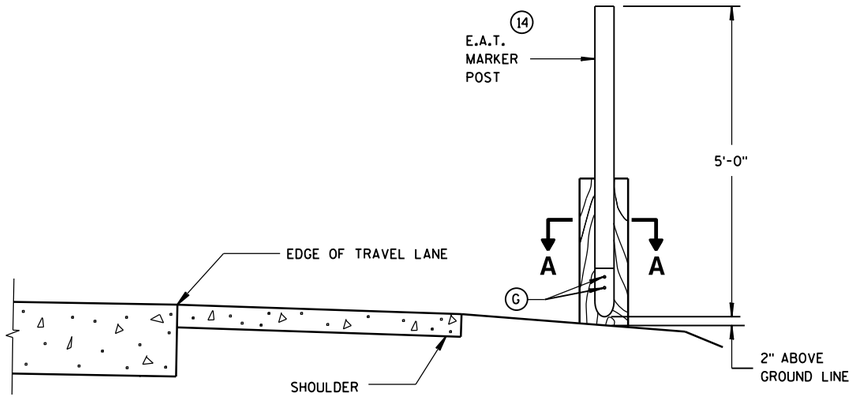
GENERIC REFLECTIVE SHEETING (13) (H)



FRONT VIEW

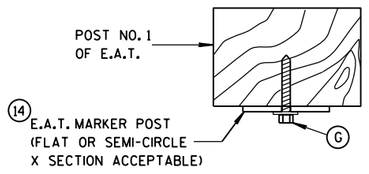
SIDE VIEW

E.A.T. MARKER POST (14)



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

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



SECTION A-A

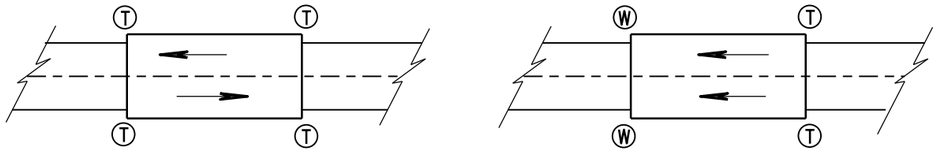
MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

6

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



TWO WAY TRAFFIC

ONE WAY TRAFFIC

Ⓣ THRIE BEAM CONNECTION

Ⓦ W-BEAM CONNECTION WHEN REQUIRED

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

GENERAL NOTES

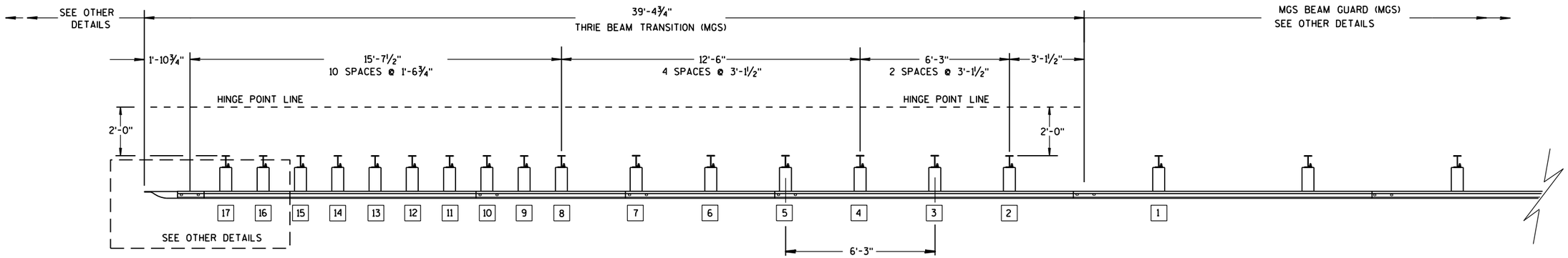
IF ROCK IS ENCOUNTERED, REMOVE ROCK TO FULL DEPTH OF POST PLUS 2½", AND 12" DIAMETER AROUND POST. SEE 14B42 FOR MORE DETAILS.

TRANSITION USES STEEL POSTS ONLY.

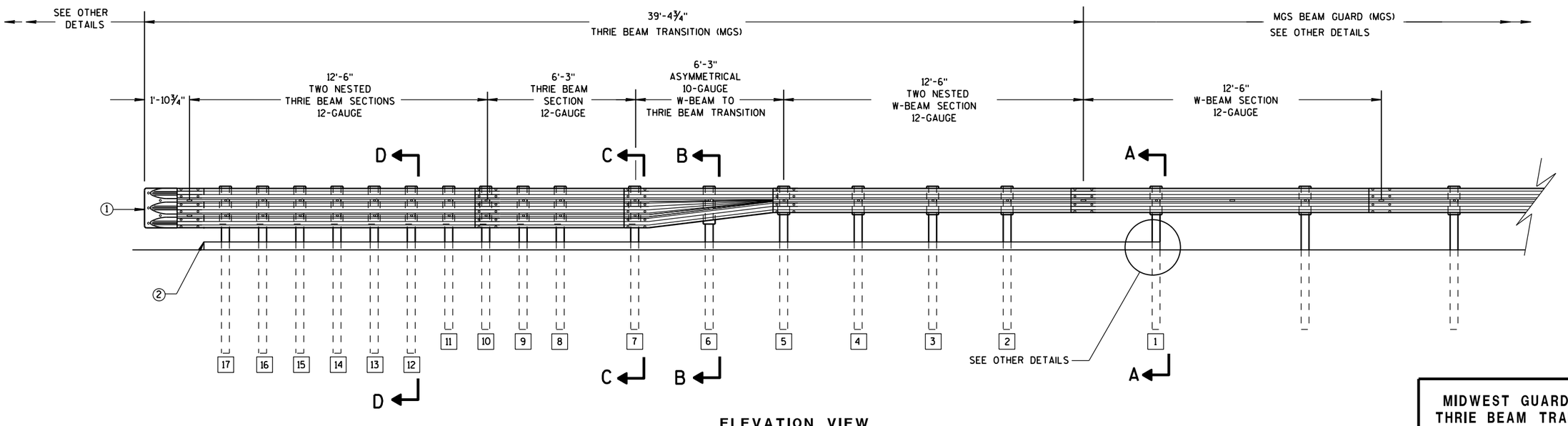
SEE STANDARD DETAIL DRAWING 14 B 42 FOR MORE INFORMATION.

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

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



PLAN VIEW



ELEVATION VIEW

MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR

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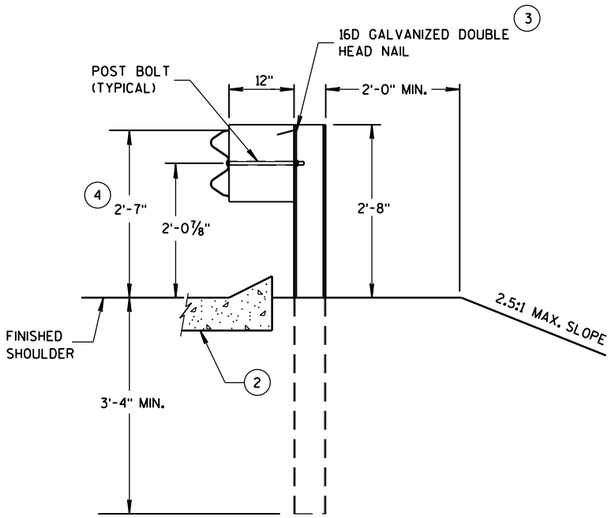
S.D.D. 14 B 45-4a

GENERAL NOTES

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

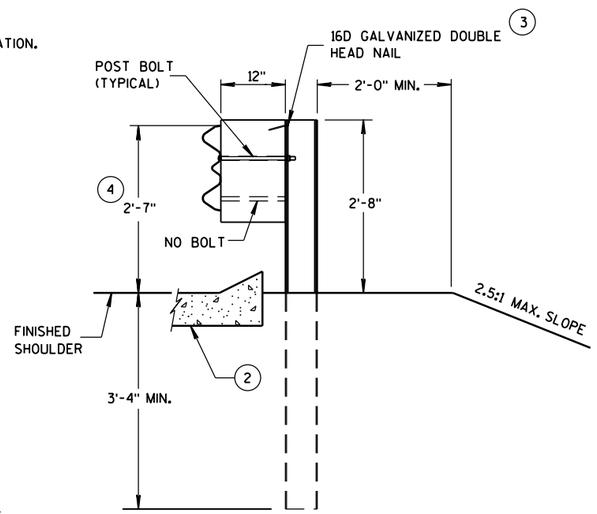
(3) WHEN USING STEEL POSTS AND WOOD BLOCKOUTS INSTALL FOUR 10D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.

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



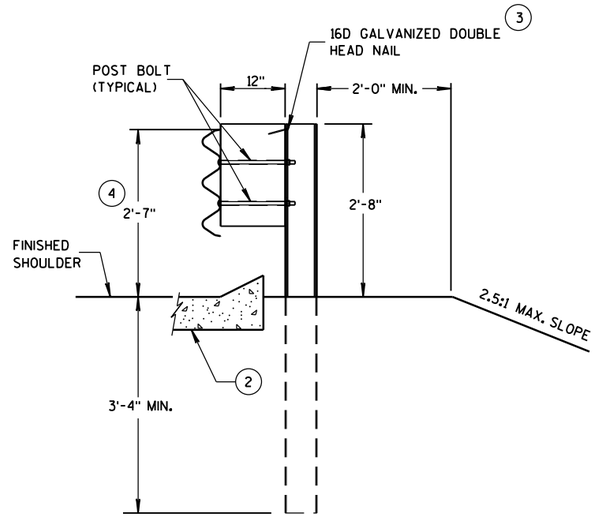
SECTION A-A

POSTS 1-5



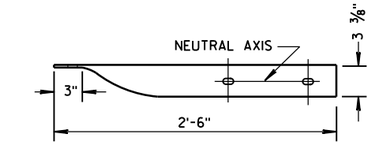
SECTION B-B

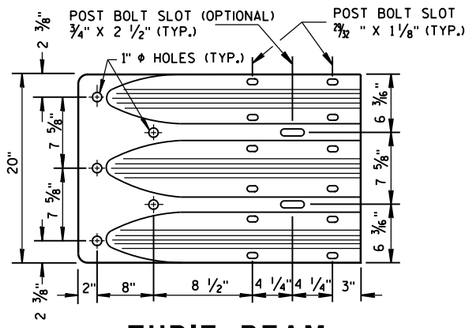
POST 6



SECTION C-C

POSTS 7-11





THRIE BEAM TERMINAL CONNECTOR

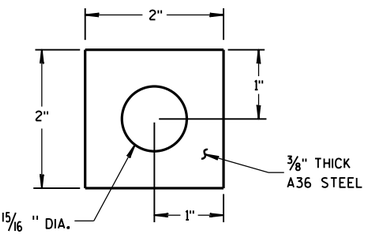
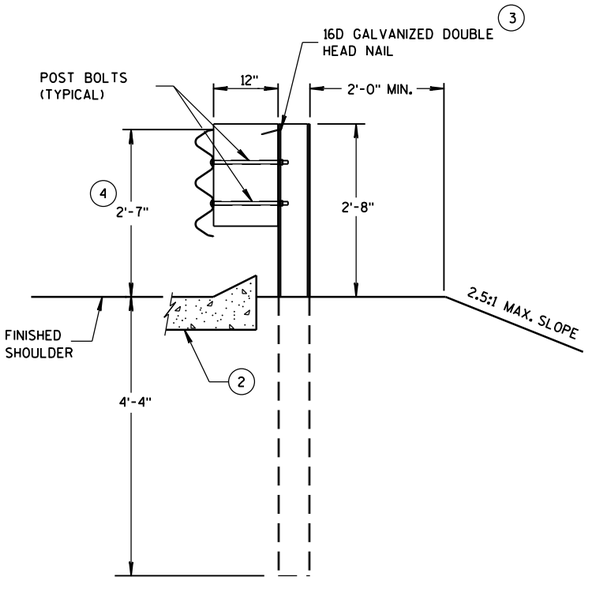
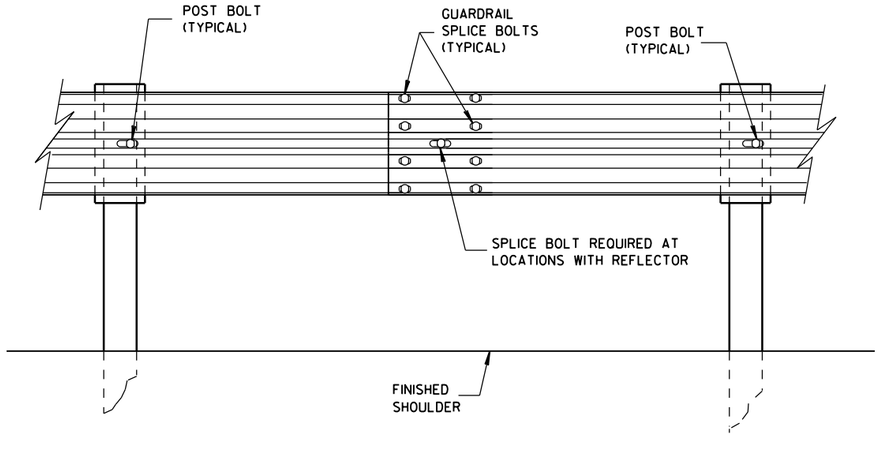


PLATE WASHER DETAIL

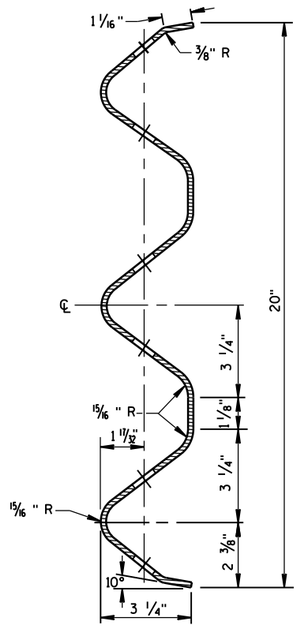


SECTION D-D

POSTS 12-17



SPLICE DETAIL



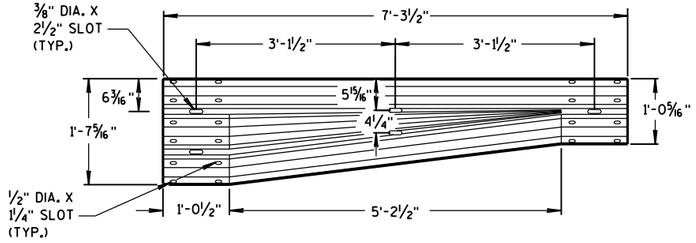
SECTION THRU THRIE BEAM RAIL ELEMENT

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

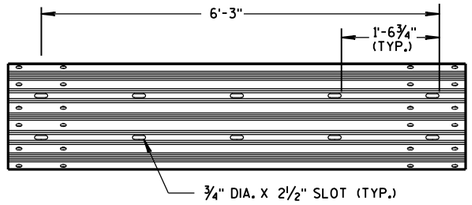
STATE OF WISCONSIN
DEPARTMENT OF TRANSPO

6

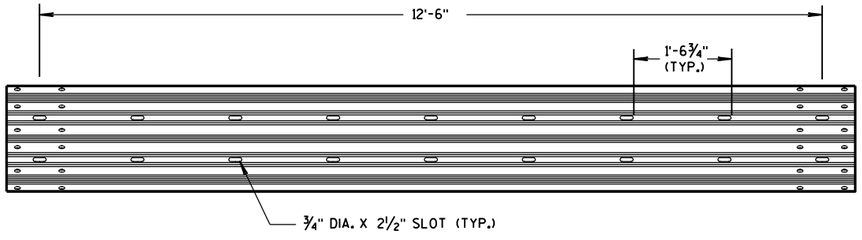
S.D.D. 14 B 45-4b



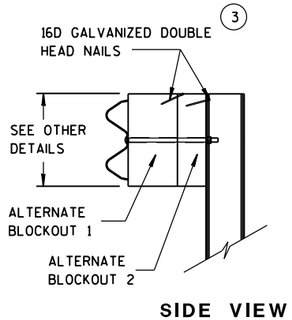
W-BEAM TO THRIE BEAM TRANSITION SECTION



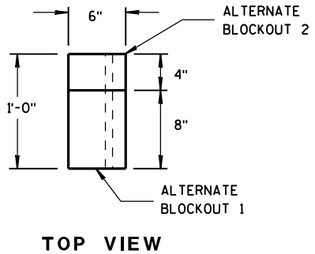
6'-3" THRIE BEAM SECTION



12'-6" THRIE BEAM SECTION

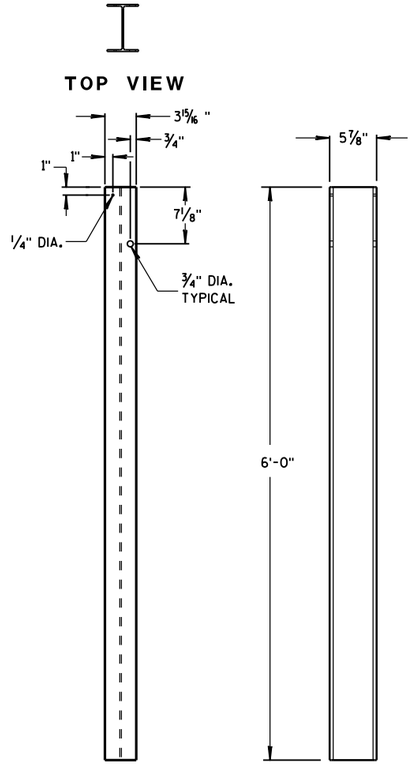


SIDE VIEW



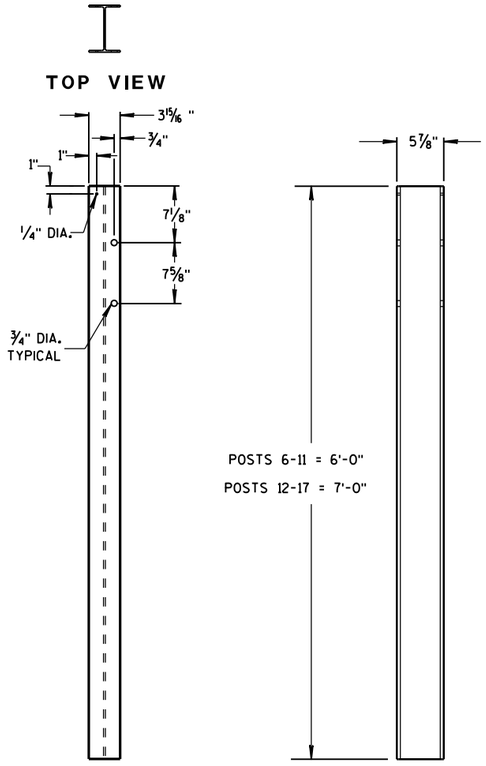
TOP VIEW

ALTERNATE WOOD BLOCKOUT DETAIL



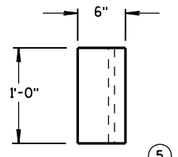
FRONT VIEW SIDE VIEW

STEEL POSTS 1-5

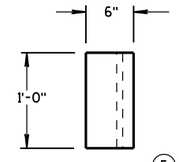


FRONT VIEW SIDE VIEW

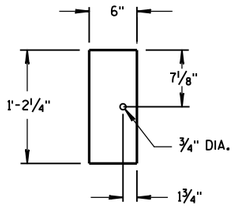
STEEL POSTS 6-17



TOP VIEW (5)

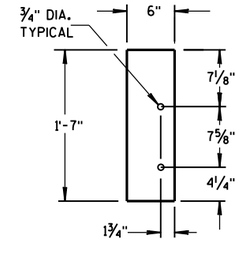


TOP VIEW (5)



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.

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR

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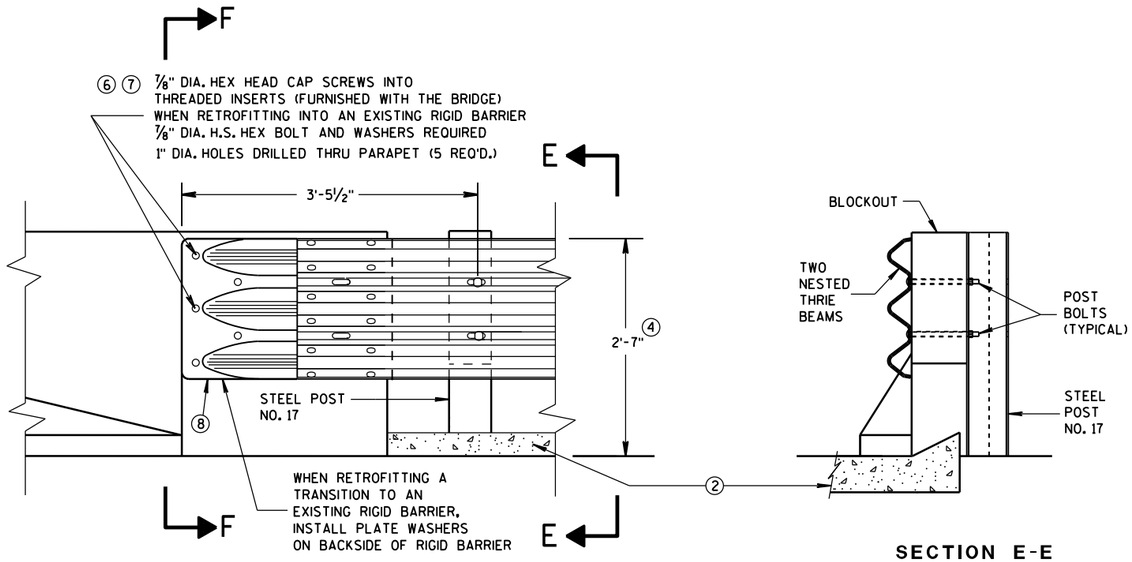


FRONT VIEW

SECTION E-E

THRIE BEAM CONNECTION TO BRIDGE PARAPET WITH SQUARE ENDS

GENERAL NOTES

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

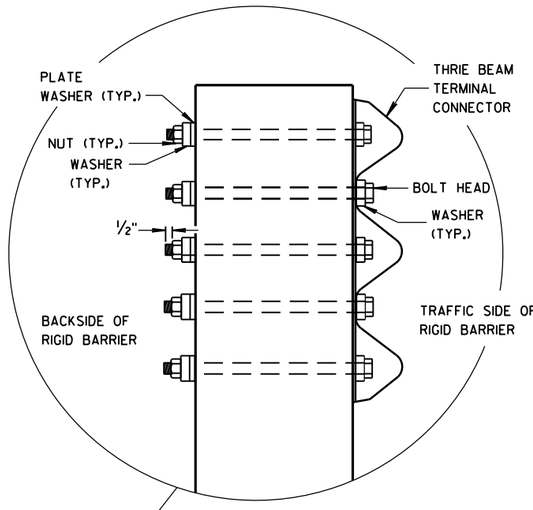
② OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.

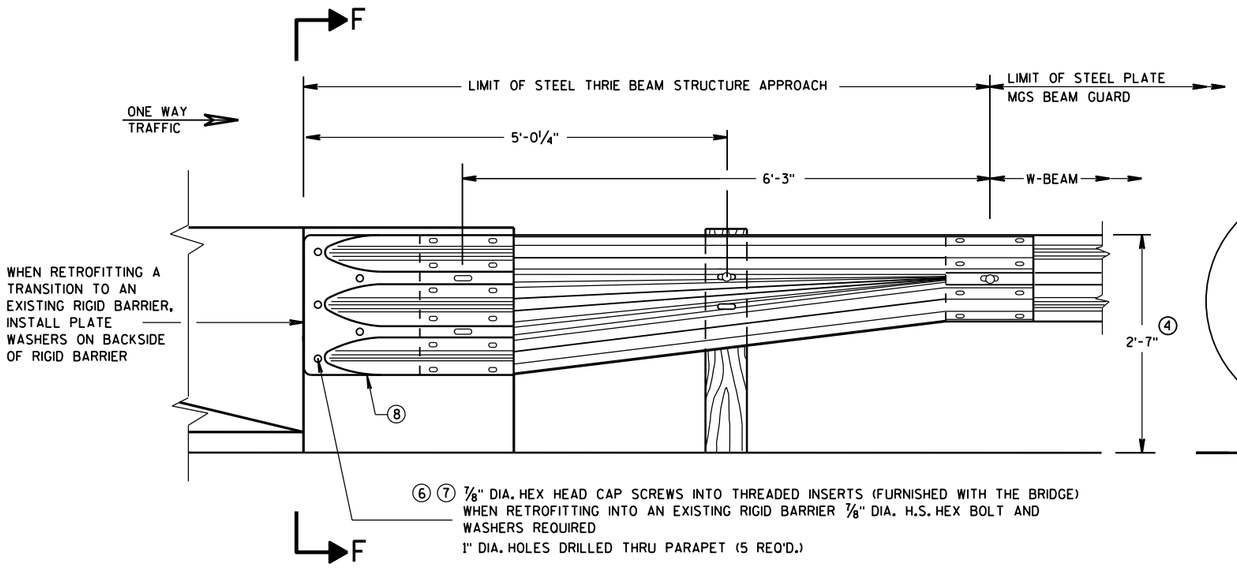
④ TOLERANCE FOR TOP OF BEAM IS ± 1".

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

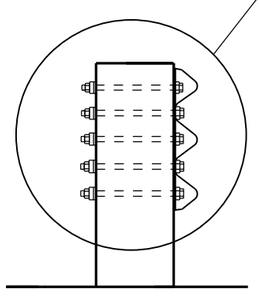
⑦ BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM CONNECTOR PLATE. BOLTS THAT EXTEND THROUGH THE PARAPET AND OUT THE BACK FACE REQUIRE A HARDENED ROUND STEEL WASHER THAT IS 2" O.D. X 5/8" THICK AND ONE PLATE WASHER. REPAIR ANY DAMAGED CONCRETE FROM BOLT INSTALLATION.

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

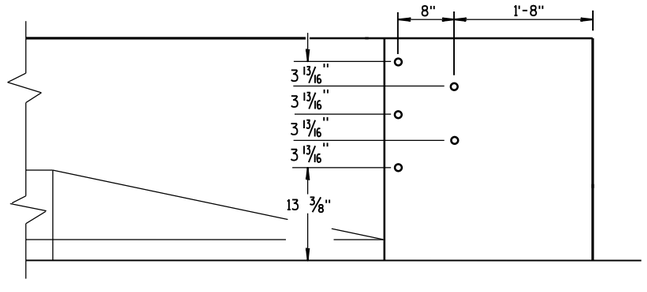




FRONT VIEW



SECTION F-F



DRILL HOLE LOCATION

W BEAM TRANSITION AND CONNECTION TO BRIDGE PARAPETS WITH SQUARE ENDS

(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
June, 2015 — DATE
/S/ Jerry H. Zogg — ROADWAY STANDARDS DEVELOPMENT ENGINEER
FHWA
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NT

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

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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.

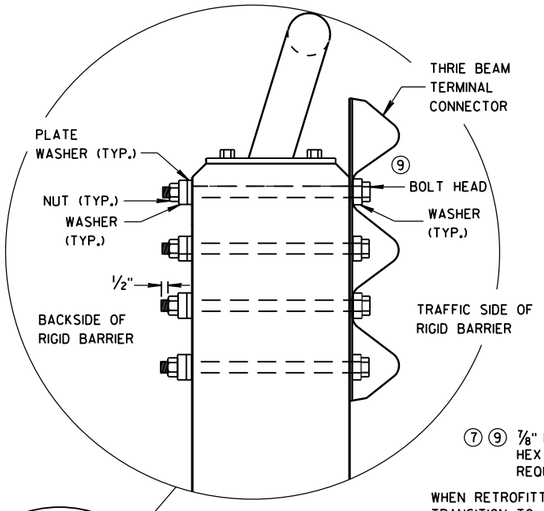
(4) TOLERANCE FOR TOP OF BEAM IS ± 1".

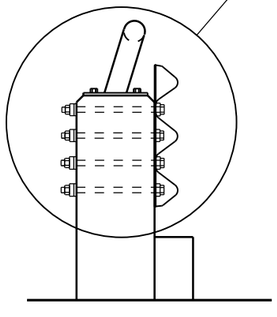
(6) DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.

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

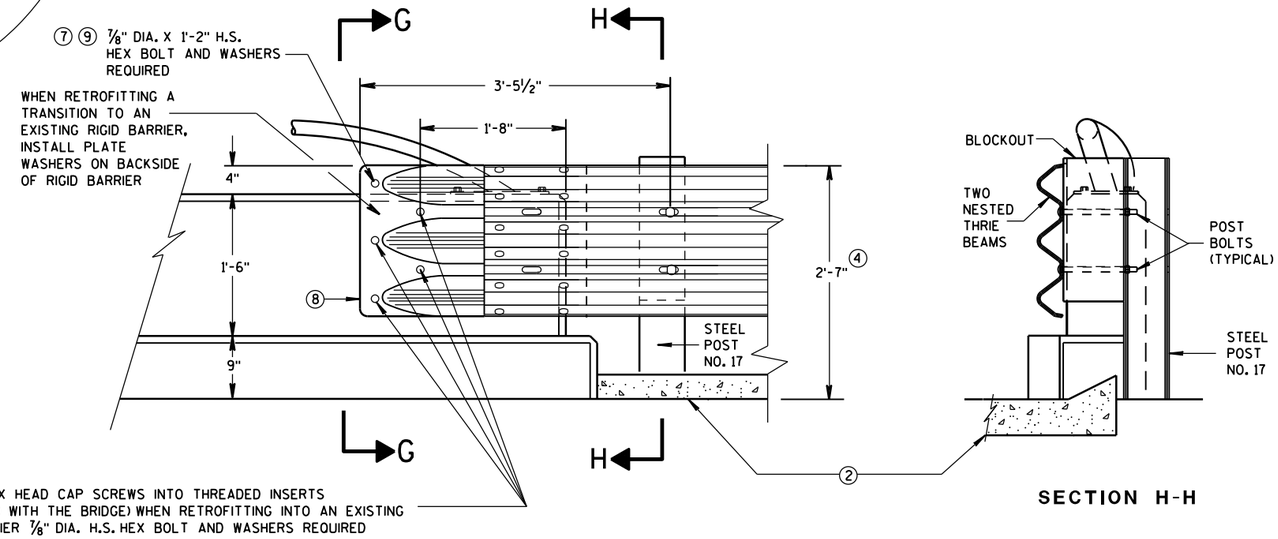
(8) THE RECESS FOR A W-BEAM CONNECTION, WHICH EXISTS ON SOME PARAPETS OF THIS TYPE, SHALL BE FILLED WITH A TREATED TIMBER BLOCKOUT. BLOCKOUT SIZE IS 1'-6" X 2'-0" X 3 1/2".

(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.





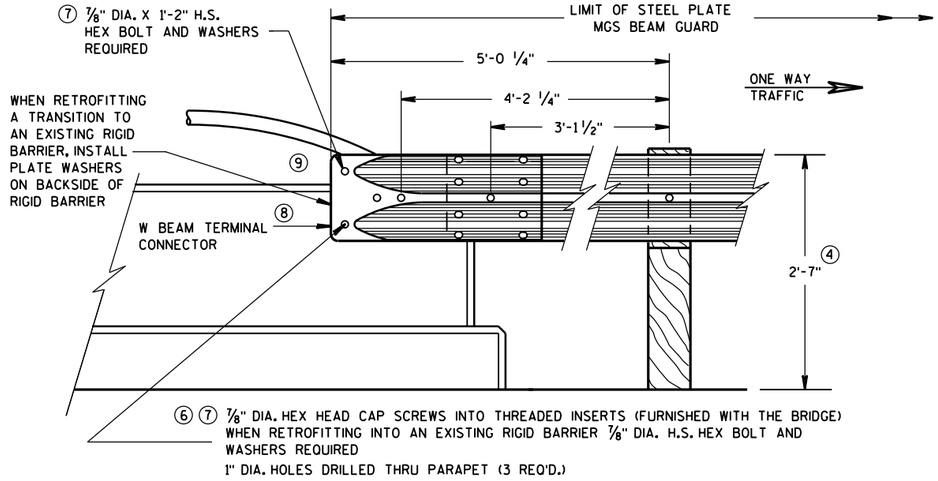
SECTION G-G



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
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June, 2015 — DATE
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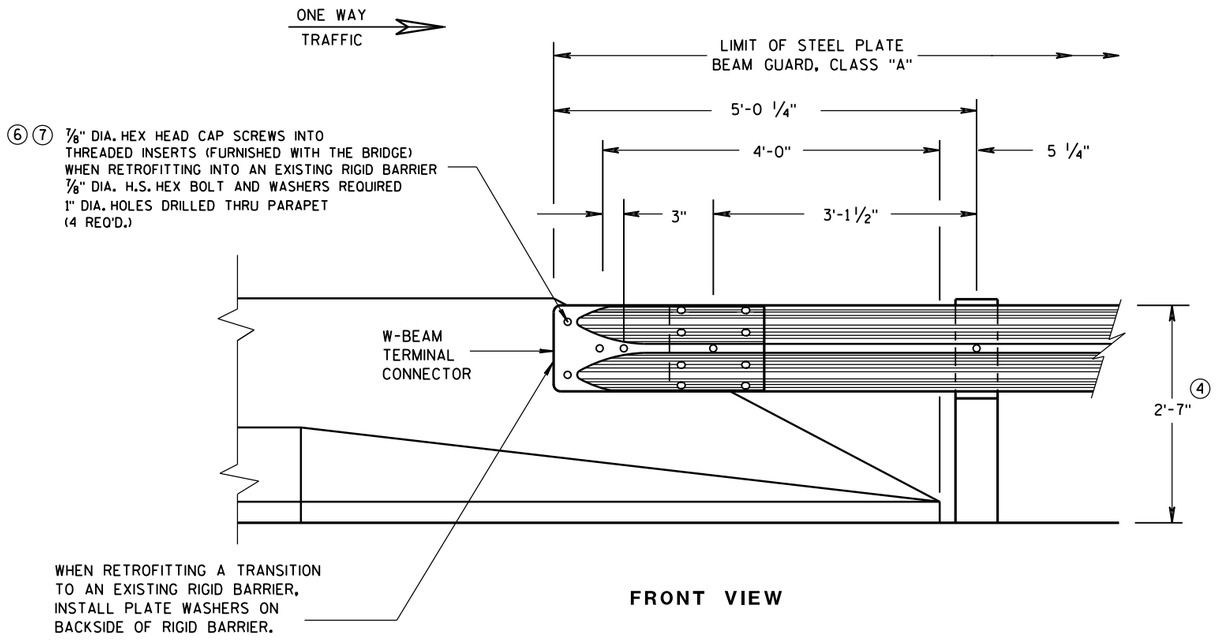


FRONT VIEW

W BEAM CONNECTION TO PARAPETS WITH SLOPED ENDS

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

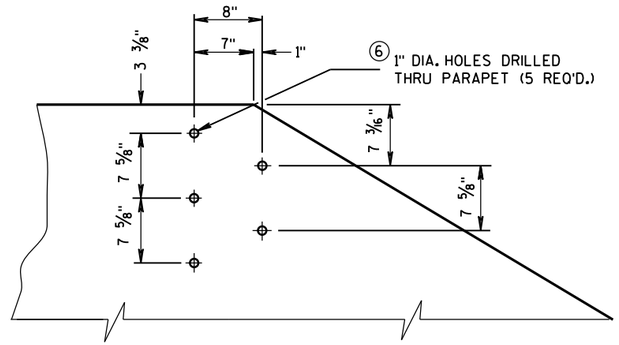
GENERAL NOTES

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

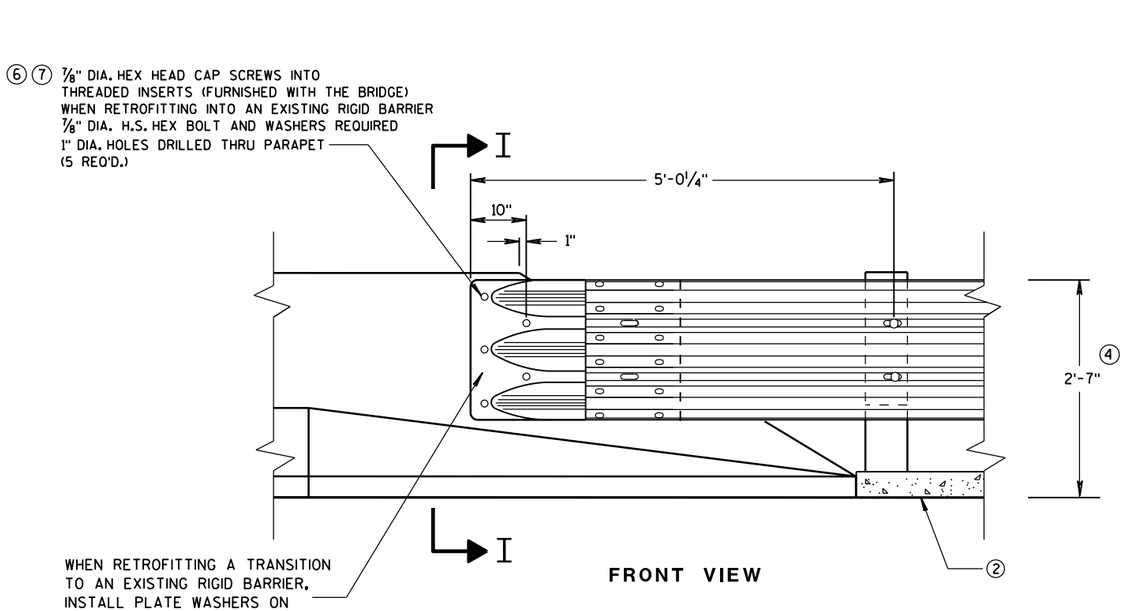
④ TOLERANCE FOR TOP OF BEAM IS ± 1".

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

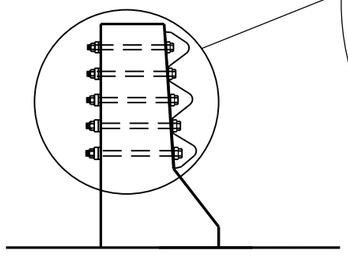
⑦ BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM CONNECTOR PLATE. BOLTS THAT EXTEND THROUGH THE PARAPET AND OUT THE BACK FACE REQUIRE A HARDENED ROUND STEEL WASHER THAT IS 2" O.D. X 5/8" THICK AND ONE PLATE WASHER. REPAIR ANY DAMAGED CONCRETE FROM BOLT INSTALLATION.



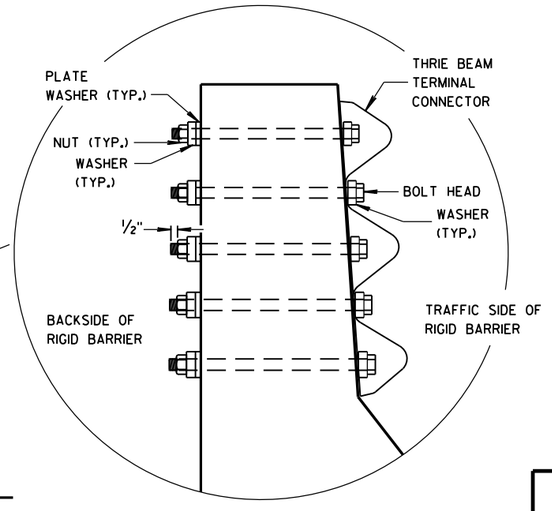
DRILL HOLE LOCATION AND PATTERN
FOR THRIE BEAM CONNECTION



FRONT VIEW



SECTION I-I



THRIE BEAM CONNECTION TO BRIDGE PARAPETS WITH SLOPED ENDS

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June, 2015 — DATE
/S/ Jerry H. Zogg — ROADWAY STANDARDS DEVELOPMENT ENGINEER
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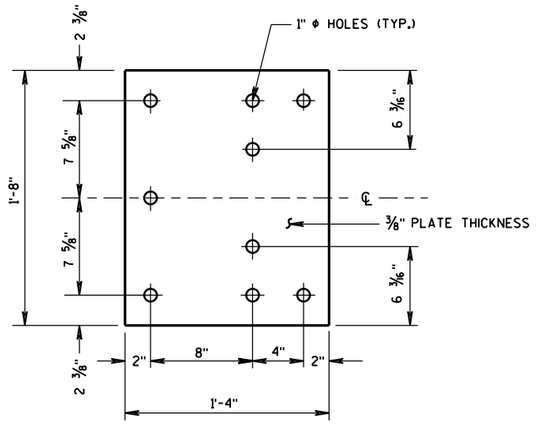
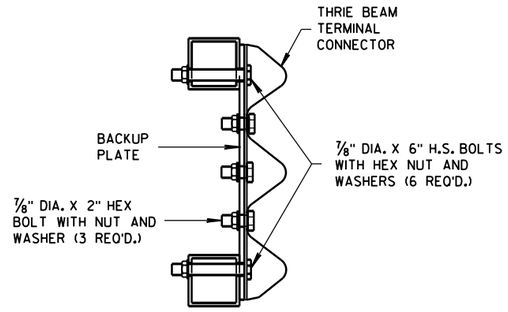
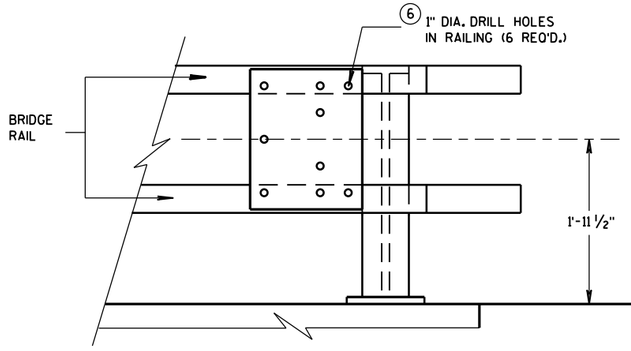
S.D.D. 14 B 45-4f



BACK-UP PLATE DETAIL



SECTION J-J

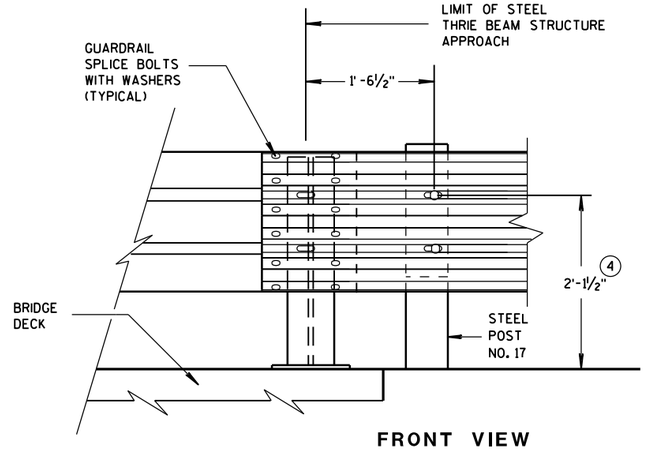


BACK-UP PLATE MOUNTING ONTO BRIDGE RAILING

GENERAL NOTES

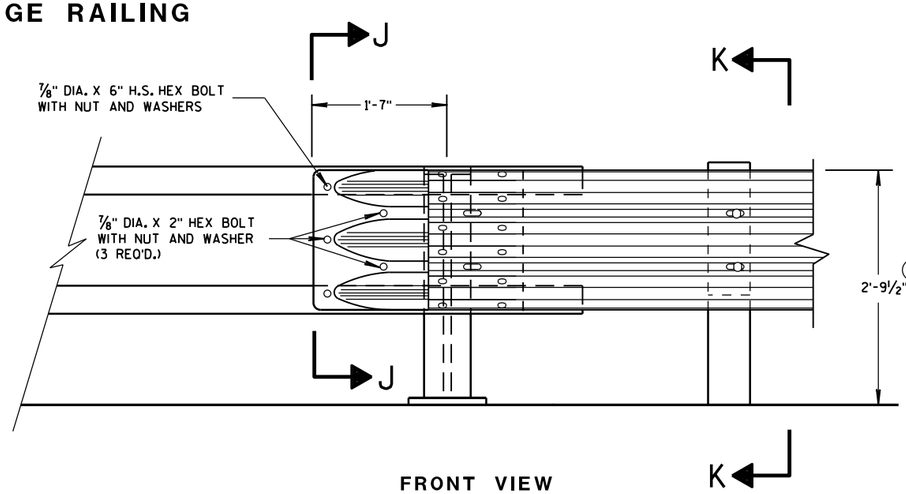
④ TOLERANCE FOR TOP OF BEAM IS ± 1".

⑥ DRILLING HOLES THROUGH THE PAPRPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.

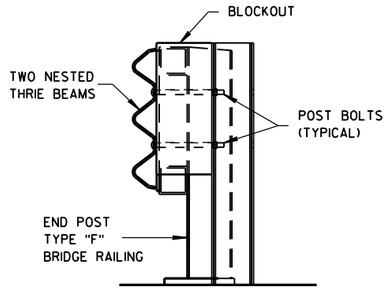


FRONT VIEW

THRIE BEAM CONNECTION TO STEEL RAILING TYPE "W"



FRONT VIEW



SECTION K-K

THRIE BEAM CONNECTION TO TUBULAR RAILING TYPE "F"

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June, 2015 — DATE
/S/ Jerry H. Zogg — ROADWAY STANDARDS DEVELOPMENT ENGINEER
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S.D.D. 14 B 45-4g

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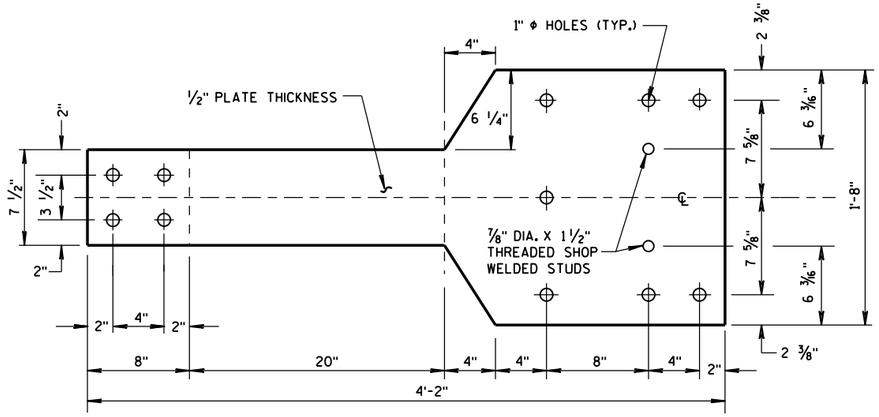
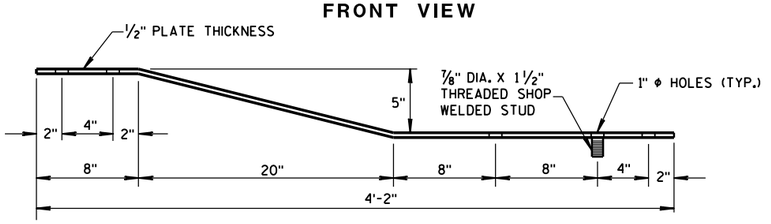
S.D.D. 14 B 45-4g

GENERAL NOTES

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

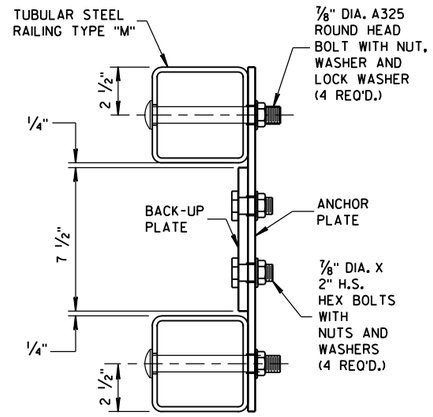


FRONT VIEW

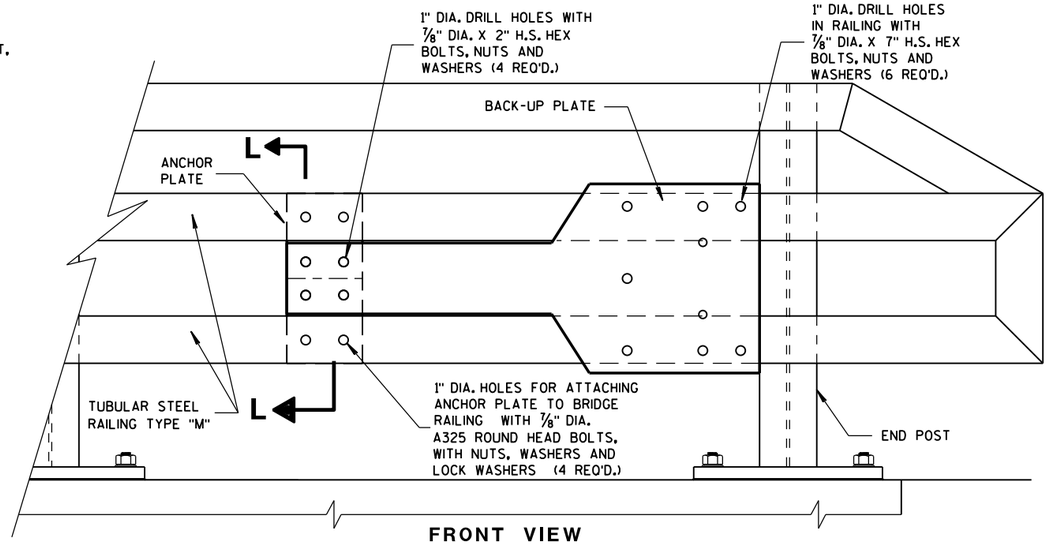


PLAN VIEW

BACK-UP PLATE DETAIL, TYPE "M"

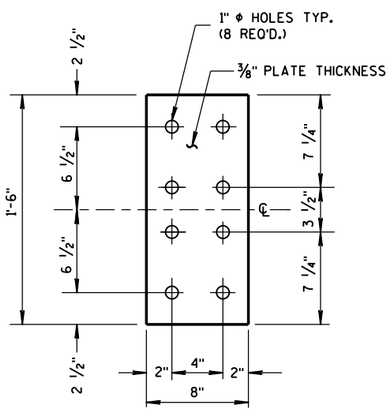


SECTION L-L



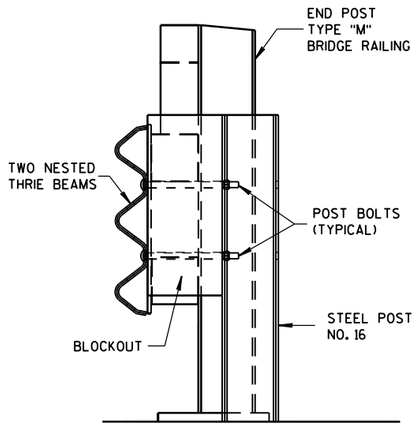
FRONT VIEW

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

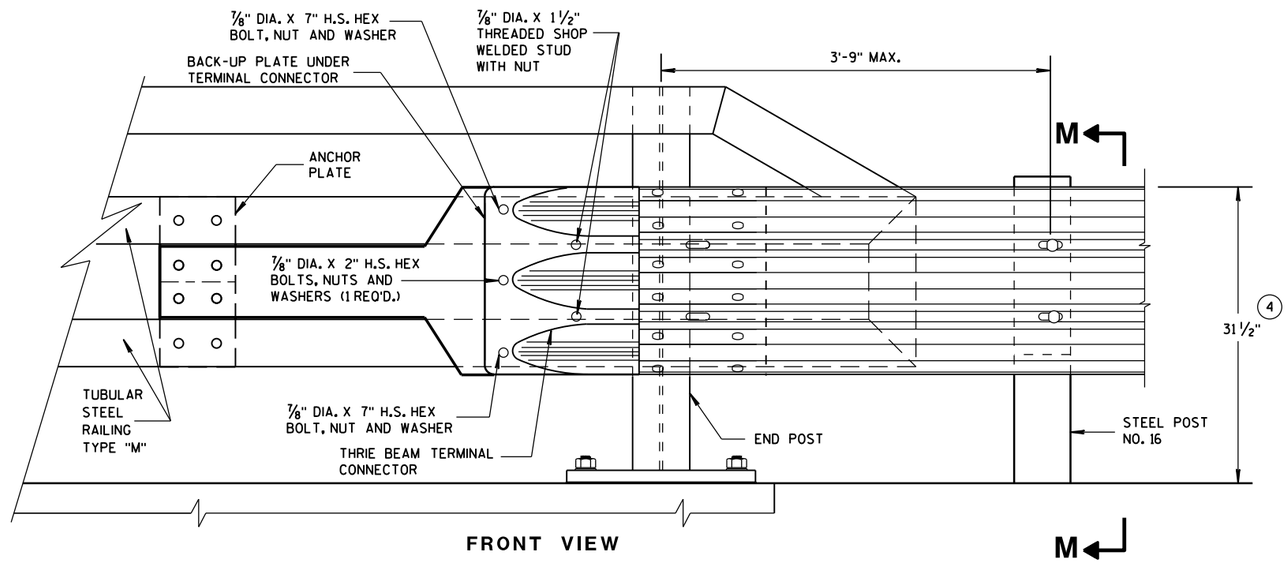


FRONT VIEW

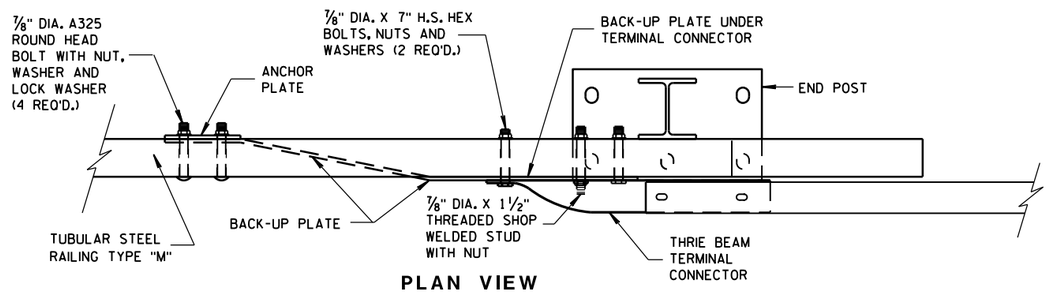
ANCHOR PLATE DETAIL, TYPE "M"



SECTION M-M



FRONT VIEW



PLAN VIEW

THRIE BEAM CONNECTION TO TUBULAR RAILING, TYPE "M"

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

6

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

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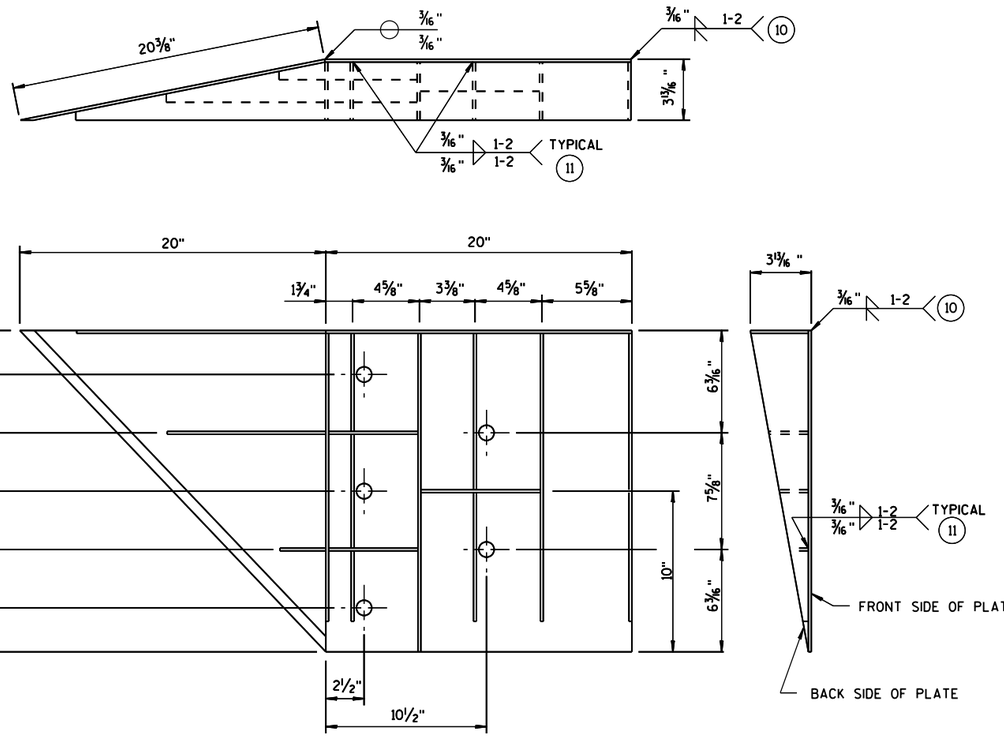
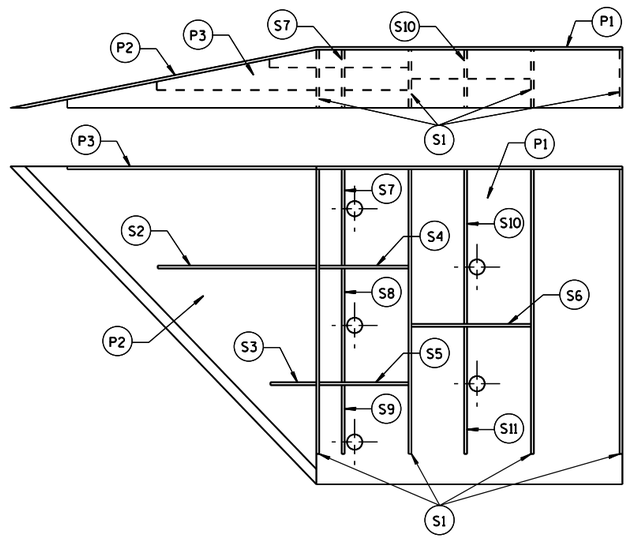


WELDING INSTRUCTION

(VIEWED FROM BACK SIDE OF PLATE)



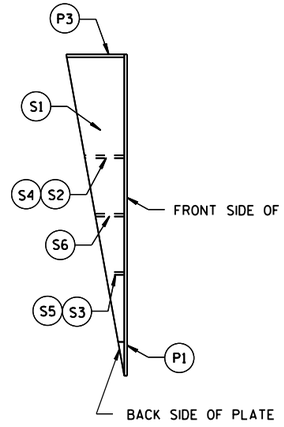


PLATE AND STIFFENER IDENTIFICATION

(VIEWED FROM BACK SIDE OF PLATE)

GENERAL NOTES

COVER PLATE PANELS ARE 3/16" THICK.

ALL STIFFENERS ARE 1/4" THICK.

CONNECTOR PLATE SHALL BE FABRICATED FROM ASTM GRADE A36 STEEL AND GALVANIZED.

FOR GALVANIZED REQUIREMENTS, SEE SECTION 614 OF THE STANDARD SPECIFICATIONS.

ALL HOLE DIAMETERS SHALL BE 1".

FOR OPPOSITE SIDE INSTALLATION MIRROR DRAWINGS.

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

(11) STIFFENERS LOCATED ON THE INSIDE OF THE COVER PLATE SHALL BE WELDED AS FOLLOWS:
3/16" FILLET WELD BY 1" LONG SPACED AT 2".

CONNECTOR PLATE DIMENSION (PER ASSEMBLY)

PLATE	QUANTITY	SHAPE	SIZE (A x B x C x D)	THICKNESS
P1	1		20" x 20"	3/16"
P2	1		20" x 20" x 28 9/16"	3/16"
P3	1		39" x 3 5/8" x 20" x 19 5/16"	3/16"
S1	4		18 7/16" x 3 3/8" x 18 3/4"	1/4"
S2	1		10 1/4" x 2 7/16" x 10 3/8" x 1/2"	1/4"
S3	1		3" x 1 1/16" x 3 1/8" x 1/2"	1/4"
S4	1		6 1/8" x 2 7/16"	1/4"
S5	1		6 1/8" x 1 1/16"	1/4"
S6	1		7 3/4" x 1 3/4"	1/4"
S7	1		2 9/16" x 6" x 3 5/8" x 5 7/8"	1/4"
S8	1		1 5/32" x 7 1/2" x 2 1/2" x 7 3/8"	1/4"
S9	1		6 1/16" x 6 3/16" x 1 1/32"	1/4"
S10	1		1 7/8" x 9 7/8" x 3 5/8" x 9 11/16"	1/4"
S11	1		8 1/2" x 8 3/4" x 1 13/16"	1/4"

SINGLE SLOPE CONNECTION PLATE

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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June, 2015 — DATE
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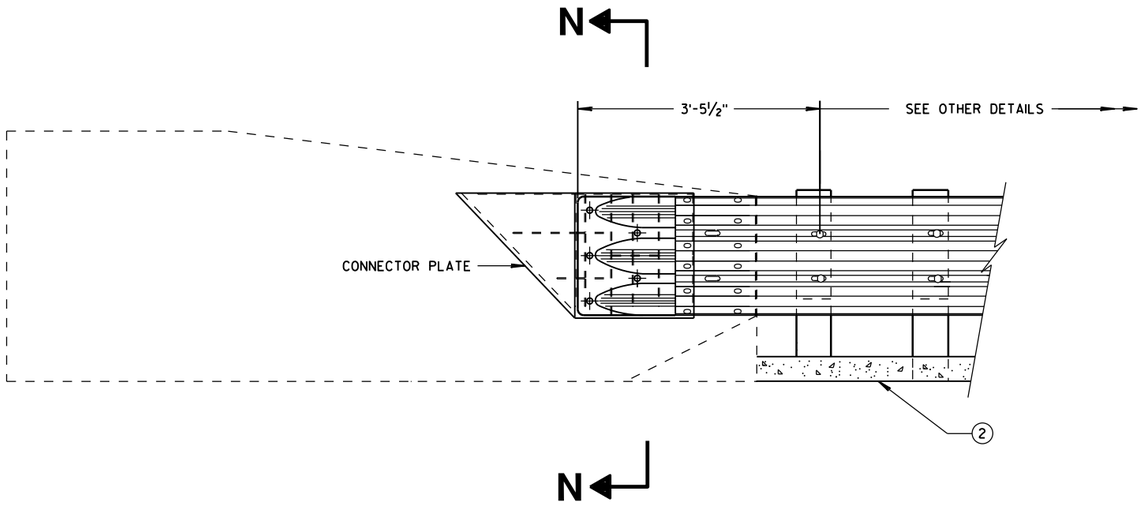
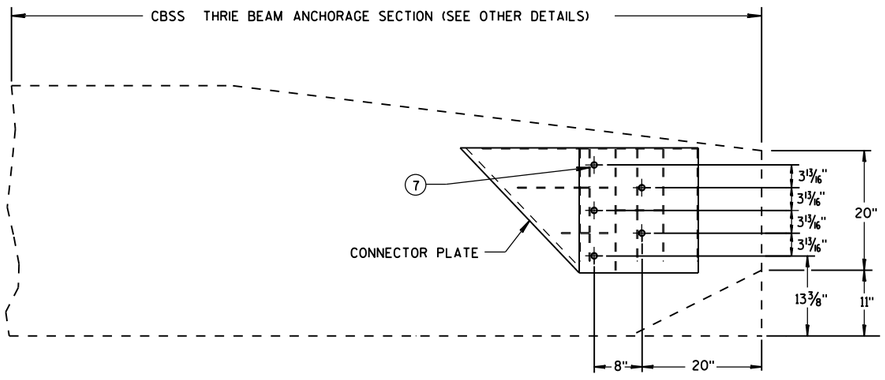


THRIE BEAM CONNECTION TO SINGLE SLOPE BARRIER



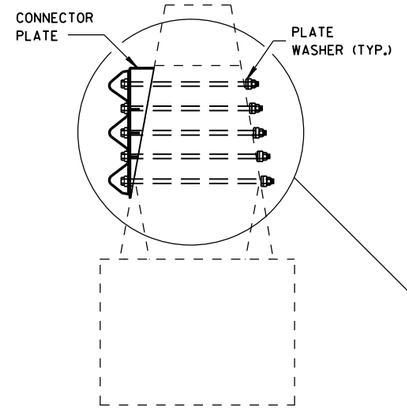
SINGLE SLOPE CONNECTION PLATE PLACEMENT

GENERAL NOTES

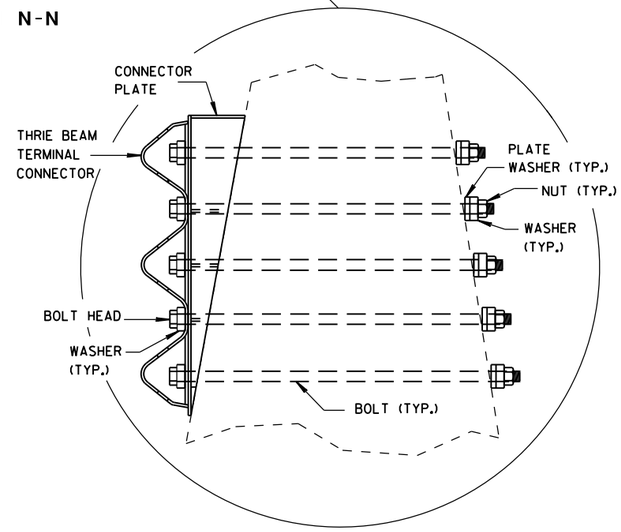
CONNECTOR PLATE, DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.

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

(7) BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM CONNECTOR PLATE. BOLTS THAT EXTEND THROUGH THE PARAPET AND OUT THE BACK FACE REQUIRE A HARDENED ROUND STEEL WASHER THAT IS 2" O.D. X 5/8" THICK AND ONE PLATE WASHER. REPAIR ANY DAMAGED CONCRETE FROM BOLT INSTALLATION.



SECTION N-N



MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June, 2015 — DATE
/S/ Jerry H. Zoga — ROADWAY STANDARDS DEVELOPMENT ENGINEER
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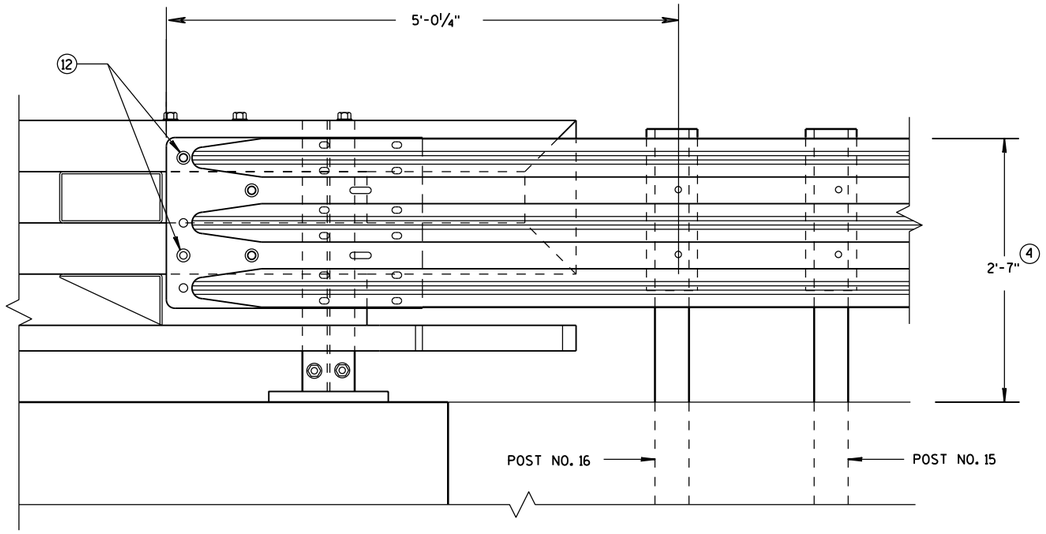
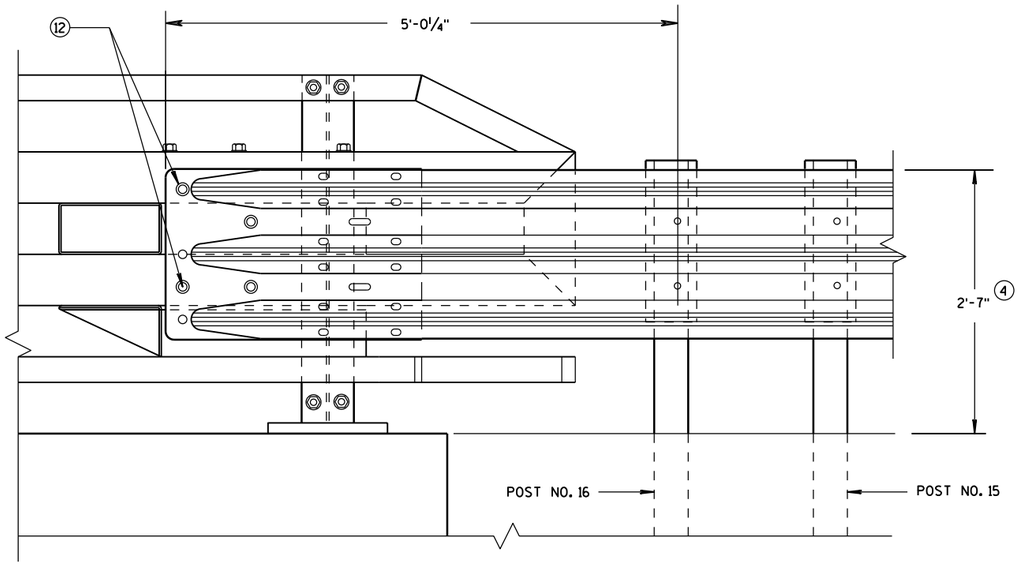


ELEVATION OF DETAIL AT NY3 END POST

THRIE BEAM RAIL ATTACHMENT



ELEVATION OF DETAIL AT NY4 END POST

THRIE BEAM RAIL ATTACHMENT

GENERAL NOTES

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

(12) BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM CONNECTOR PLATE. ON BACKSIDE OF PARAPET ONE ROUND WASHER, AND NUT REQUIRED. BOLT THREAD IS TO EXTEND ½-INCH BEYOND NUT.

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June, 2015
DATE

/S/ Jerry H. Zogg
ROADWAY STANDARDS D ENGINEER

FHWA

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

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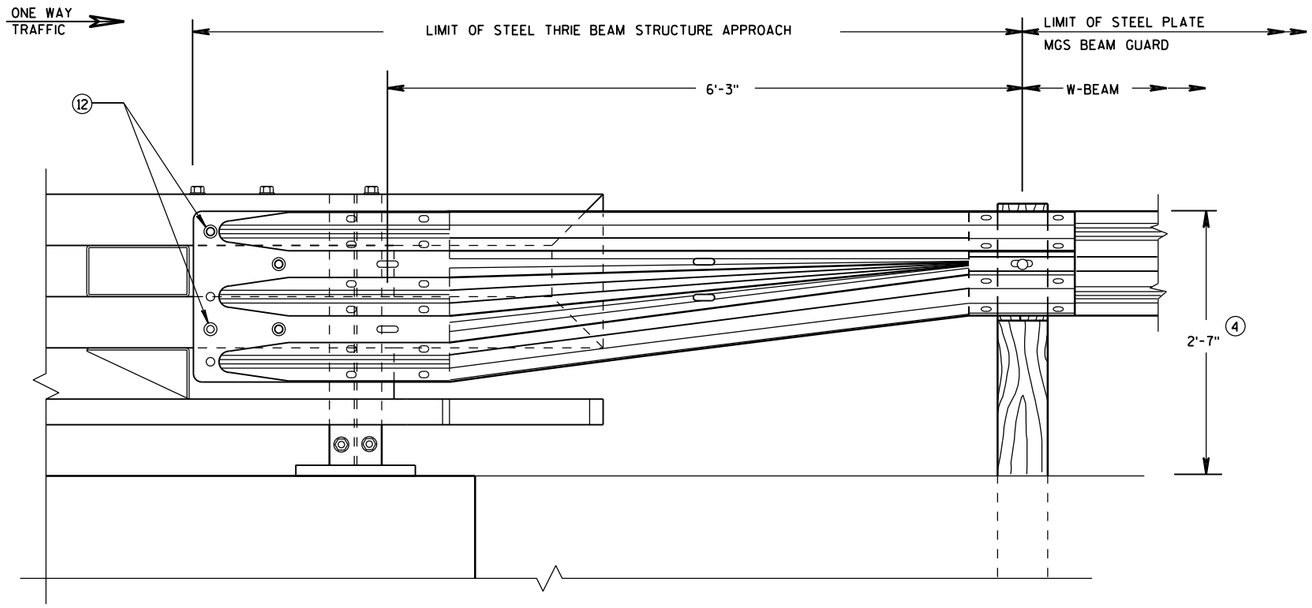
S.D.D. 14 B 45-4k



FRONT VIEW

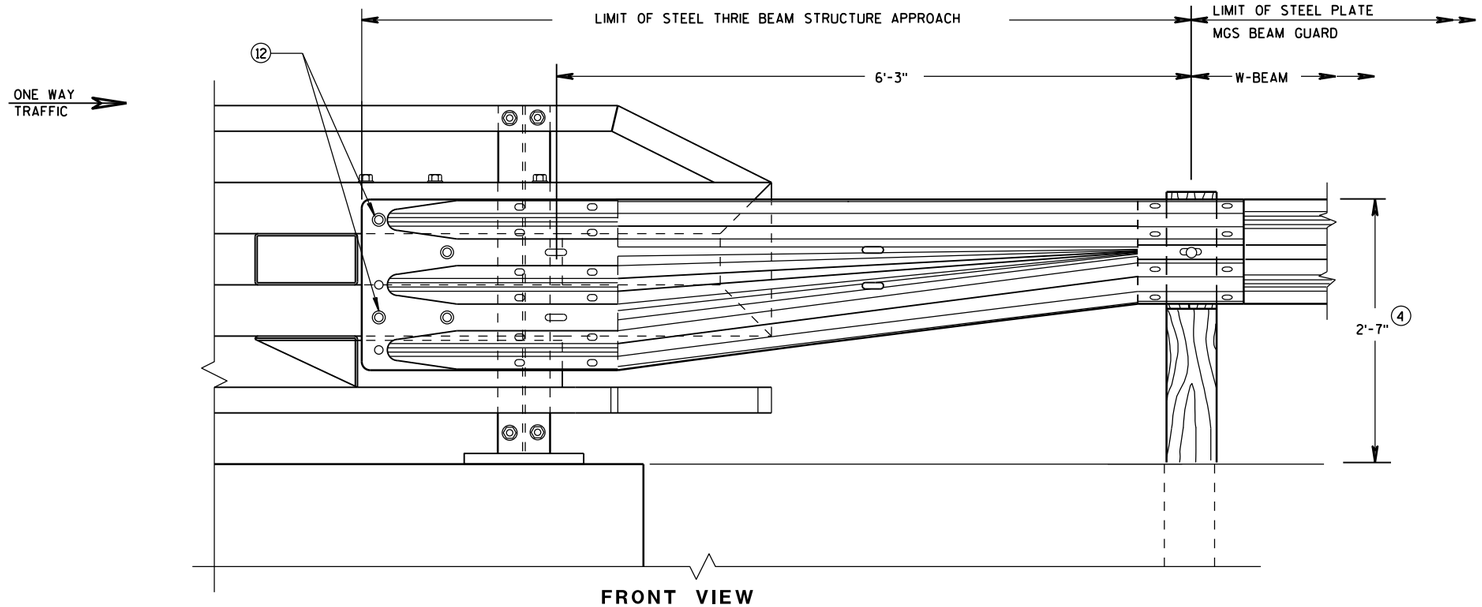
W BEAM TRANSITION AND CONNECTION TO BRIDGE RAILING TYPE "NY3"

(USE ONLY ON THE TRAFFIC EXIT END OF ONE WAY BRIDGES)

GENERAL NOTES

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

(12) BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM CONNECTOR PLATE. ON BACKSIDE OF PARAPET ONE ROUND WASHER, AND NUT REQUIRED. BOLT THREAD IS TO EXTEND ½-INCH BEYOND NUT.



FRONT VIEW

W BEAM TRANSITION AND CONNECTION TO BRIDGE RAILING TYPE "NY4"

(USE ONLY ON THE TRAFFIC EXIT END OF ONE WAY BRIDGES)

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

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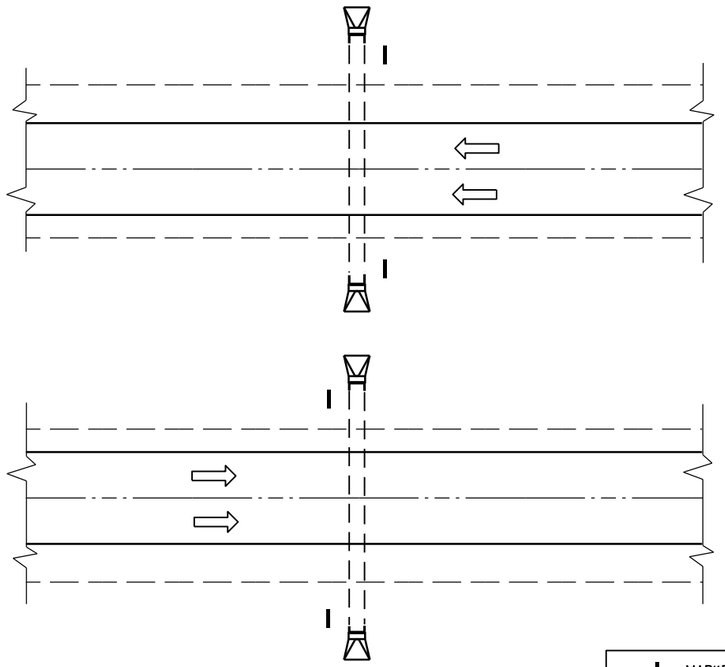
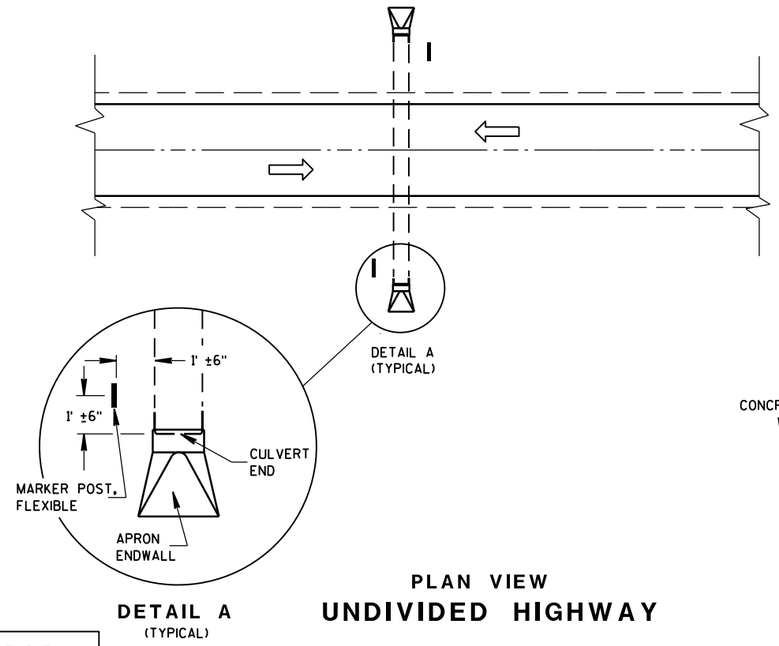


PLAN VIEW

DIVIDED HIGHWAY



DETAIL A
(TYPICAL)

PLAN VIEW

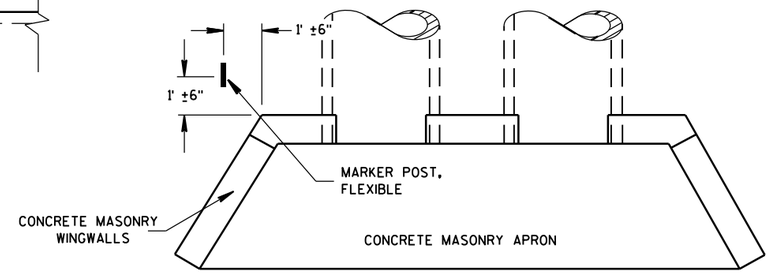
UNDIVIDED HIGHWAY

MARKER POST, FLEXIBLE

DIRECTION OF TRAFFIC FLOW

GENERAL NOTES

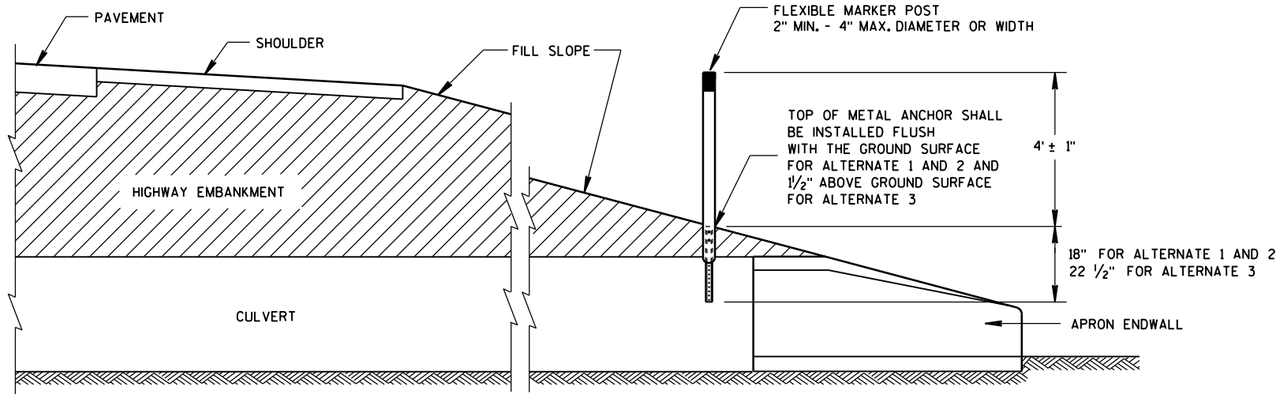
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.



PLAN VIEW

CONCRETE MASONRY ENDWALLS FOR CULVERT PIPE AND PIPE ARCH

FLEXIBLE MARKER POST LOCATION



CROSS SECTION

FLEXIBLE MARKER POST

FLEXIBLE MARKER POST FOR CULVERT END

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI

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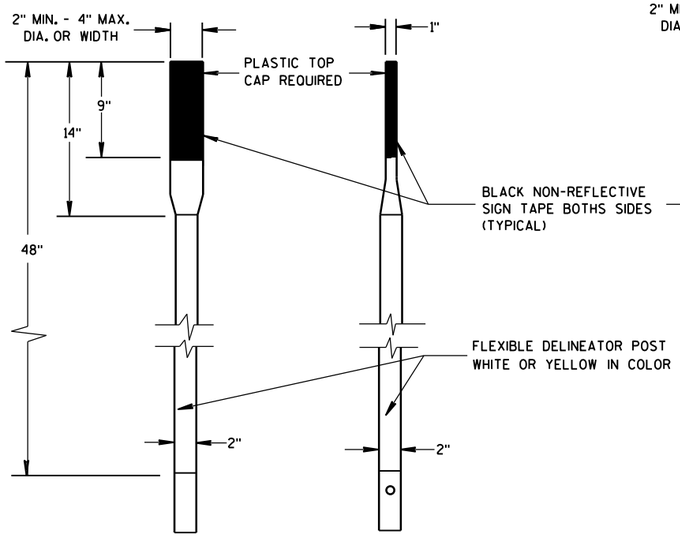
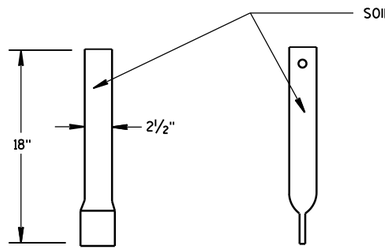
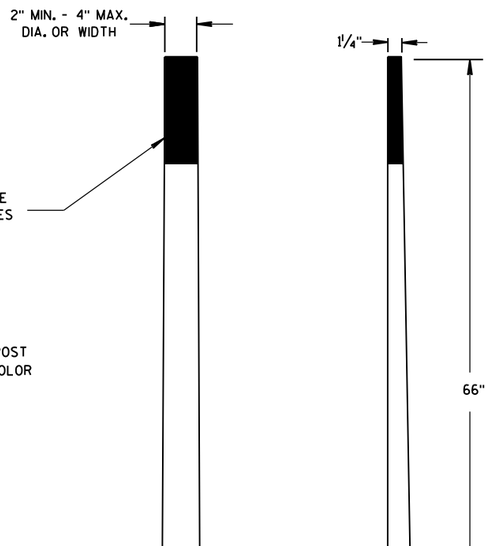
S.D.D. 15 A 3-2a





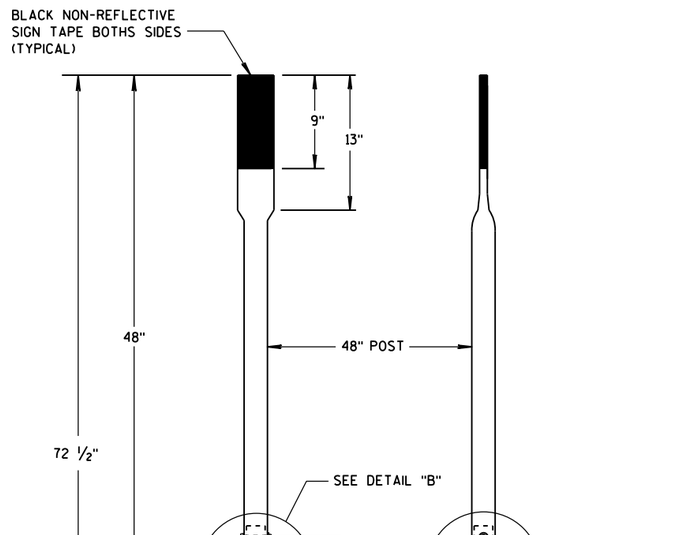
FRONT VIEW SIDE VIEW

ALTERNATE 1



FRONT VIEW SIDE VIEW

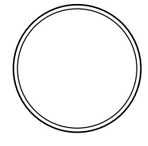
ALTERNATE 2



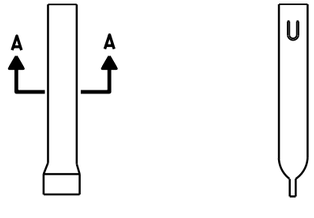
FRONT VIEW SIDE VIEW

ALTERNATE 3

FLEXIBLE MARKER POSTS

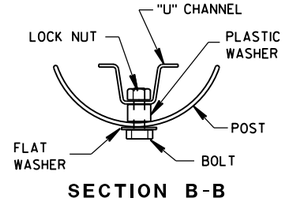


SECTION A-A

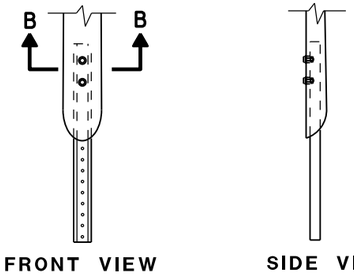


FRONT VIEW SIDE VIEW

ALTERNATE 1

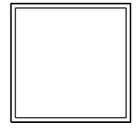


SECTION B-B

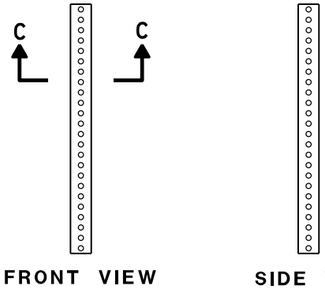


FRONT VIEW SIDE VIEW

ALTERNATE 2



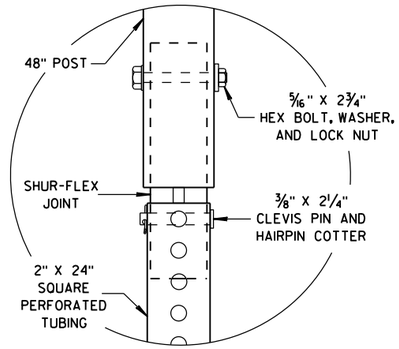
SECTION C-C



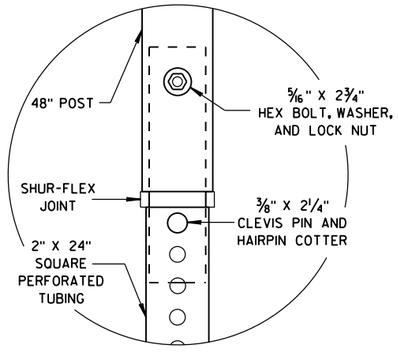
FRONT VIEW SIDE VIEW

ALTERNATE 3

FLEXIBLE MARKER POST ANCHORS



DETAIL B



DETAIL C

FLEXIBLE MARKER POST
FOR CULVERT END

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
10/1/2012
DATE
/S/ Travis Feltes
STATE TRAFFIC ENGINEER
FHWA

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S.D.D. 15 A 3-2b

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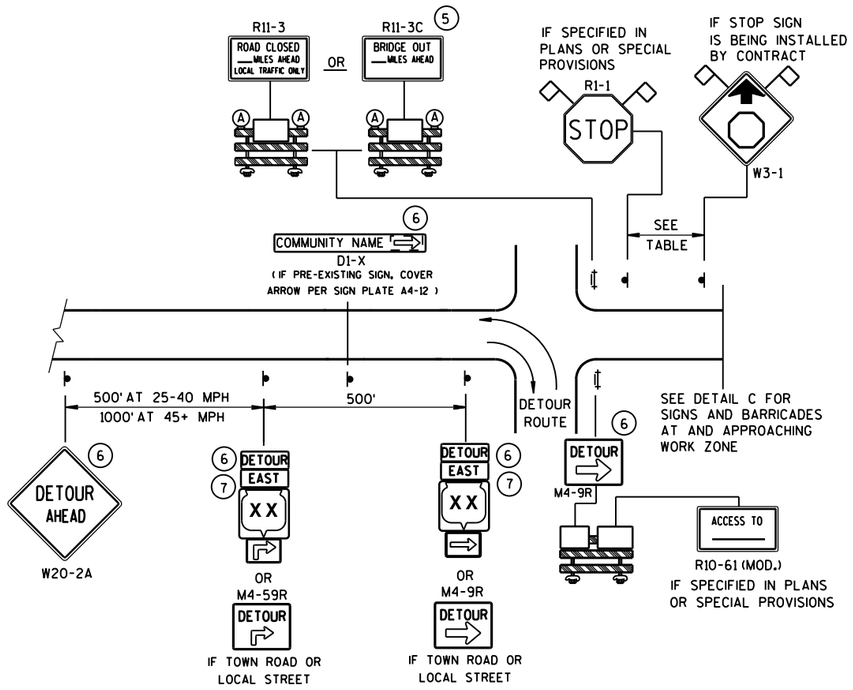
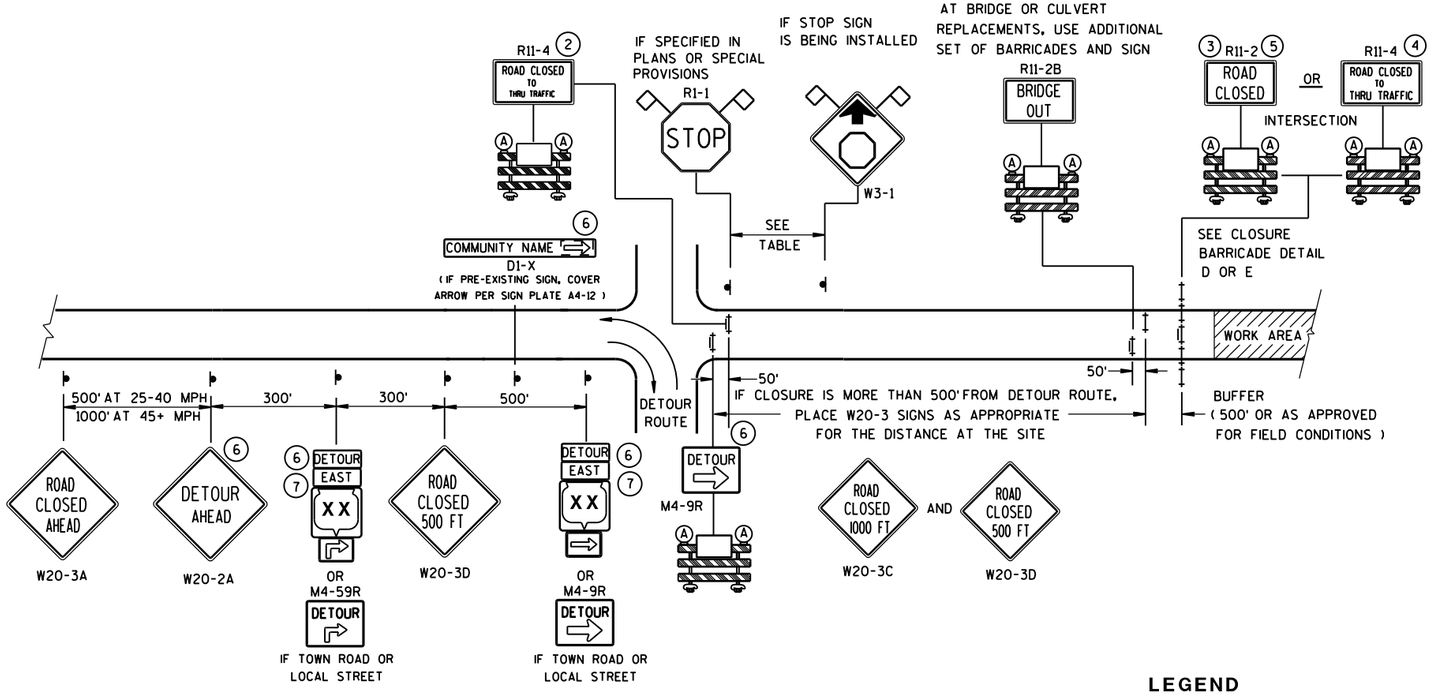
S.D.D. 15 A 3-2b



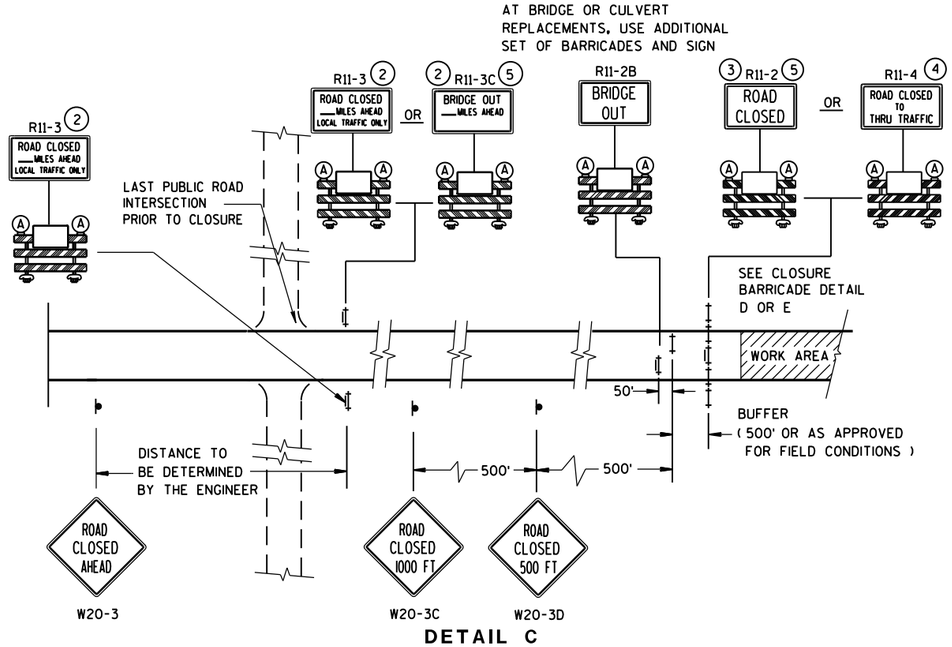


DETAIL A
MAINLINE CLOSURE WITH POSTED DETOUR

WORK ZONE GREATER THAN ½ MILE FROM DETOUR ROUTE (1000 FEET IF URBAN)

DETAIL B
MAINLINE CLOSURE WITH POSTED DETOUR

WORK ZONE LESS THAN ½ MILE FROM DETOUR ROUTE (1000 FEET IF URBAN)



DETAIL C
MAINLINE CLOSURE, NO POSTED DETOUR

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

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

LEGEND

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

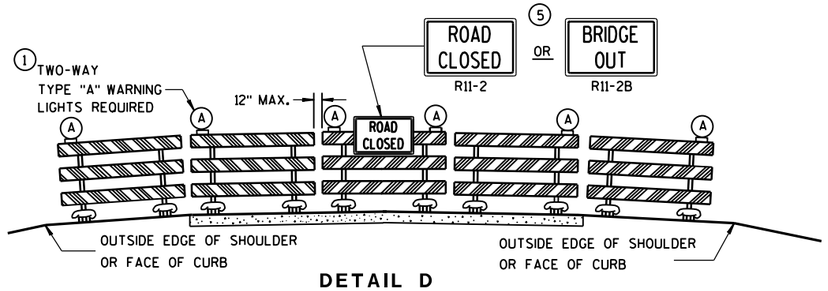
BARRICADES AND SIGNS FOR MAINLINE CLOSURES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

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

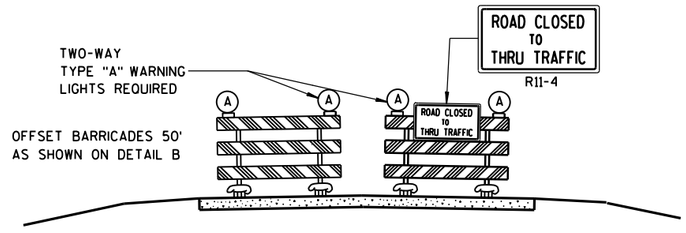
S.D.D. 15 C 2-6a



DETAIL D

ROAD CLOSURE BARRICADE DETAIL

APPROACH VIEW



DETAIL E

LANE CLOSURE BARRICADE DETAIL

APPROACH VIEW

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

GENERAL NOTES

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

BARRICADES AND SIGNS FOR MAINLINE CLOSURES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

Sept. 2015 — DATE

/S/ Peter Amakobe Atepe
STATEWIDE WORK ZO SAFETY ENGI

FHWA

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

6

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

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

GENERAL NOTES

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

IF THERE ARE EXISTING ROUTE MARKER ASSEMBLIES THAT WILL REMAIN IN PLACE, ADJUST THE LOCATION OF THE DETOUR ROUTE SIGNS TO CORRESPOND WITH THE EXISTING ASSEMBLIES. SEE SPECIFIC PROJECT DETOUR SIGNING DETAIL SHEETS. MODIFY EXISTING SIGNS WHERE POSSIBLE.

THE SPACING BETWEEN TRAFFIC CONTROL AND DETOUR 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.

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

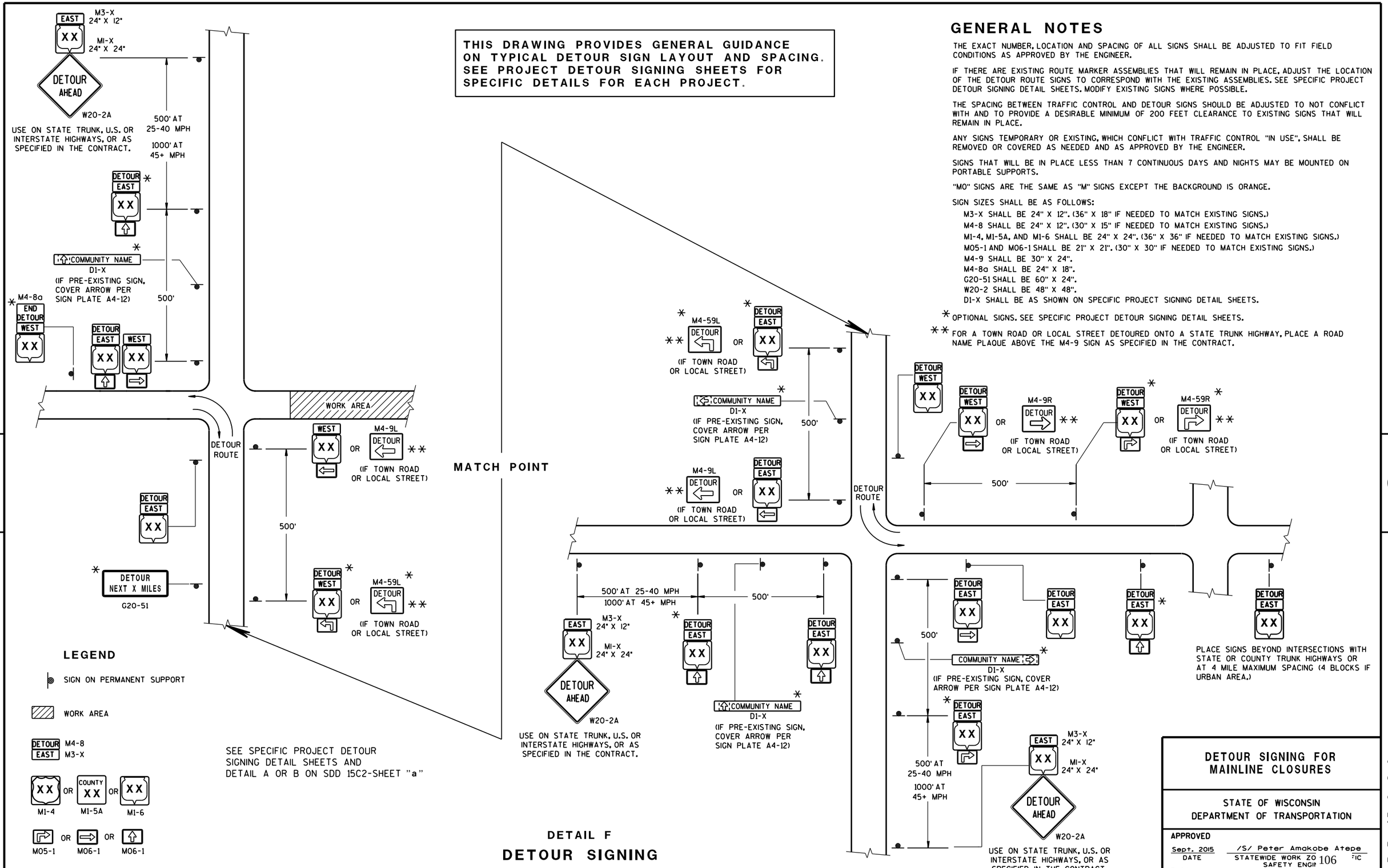
"MO" SIGNS ARE THE SAME AS "M" SIGNS EXCEPT THE BACKGROUND IS ORANGE.

SIGN SIZES SHALL BE AS FOLLOWS:

- M3-X SHALL BE 24" X 12". (36" X 18" IF NEEDED TO MATCH EXISTING SIGNS.)
- M4-8 SHALL BE 24" X 12". (30" X 15" IF NEEDED TO MATCH EXISTING SIGNS.)
- M1-4, M1-5A, AND M1-6 SHALL BE 24" X 24". (36" X 36" IF NEEDED TO MATCH EXISTING SIGNS.)
- MO5-1 AND MO6-1 SHALL BE 21" X 21". (30" X 30" IF NEEDED TO MATCH EXISTING SIGNS.)
- M4-9 SHALL BE 30" X 24".
- M4-8a SHALL BE 24" X 18".
- G20-51 SHALL BE 60" X 24".
- W20-2 SHALL BE 48" X 48".
- D1-X SHALL BE AS SHOWN ON SPECIFIC PROJECT SIGNING DETAIL SHEETS.

* OPTIONAL SIGNS. SEE SPECIFIC PROJECT DETOUR SIGNING DETAIL SHEETS.

** FOR A TOWN ROAD OR LOCAL STREET DETOURED ONTO A STATE TRUNK HIGHWAY, PLACE A ROAD NAME PLAQUE ABOVE THE M4-9 SIGN AS SPECIFIED IN THE CONTRACT.



LEGEND

- SIGN ON PERMANENT SUPPORT
- WORK AREA
- DETOUR EAST — M4-8 / M3-X
- XX OR COUNTY XX OR XX — M1-4 / M1-5A / M1-6
- MO5-1 OR MO6-1 OR MO6-1

SEE SPECIFIC PROJECT DETOUR SIGNING DETAIL SHEETS AND DETAIL A OR B ON SDD 15C2-SHEET "a"

DETAIL F

DETOUR SIGNING

DETOUR SIGNING FOR MAINLINE CLOSURES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

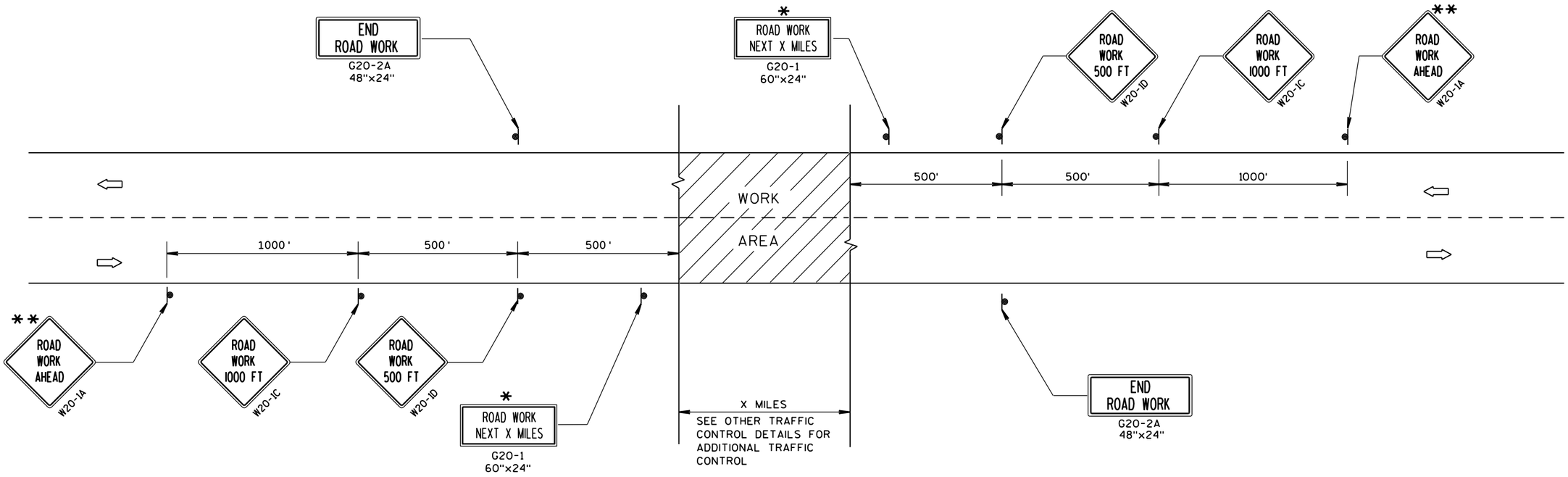
APPROVED

Sept. 2015 — DATE

/S/ Peter Amakobe Atepe
STATEWIDE WORK ZO[illegible] SAFETY ENGI[illegible]

FHWA

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



TYPICAL SIDEROAD APPROACH WARNING SIGN DETAIL

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.

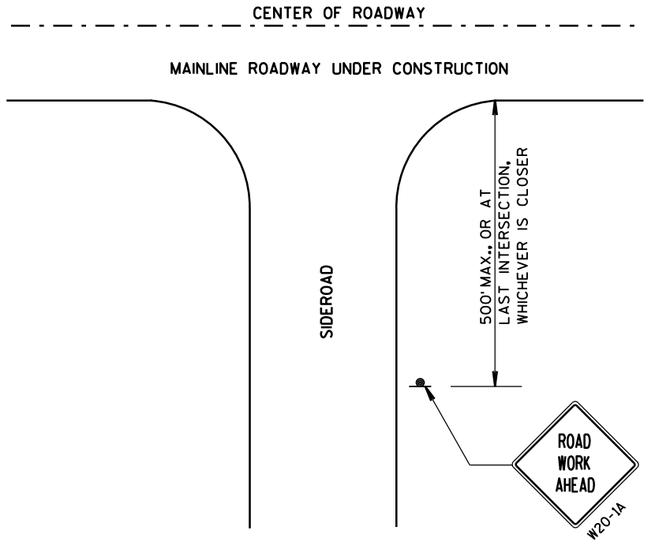
ALL SIGNS ARE 48"x48" UNLESS OTHERWISE NOTED.

SIGNS THAT WILL BE IN PLACE LESS THAN 7 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 RE-ESTABLISHED.

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

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



LEGEND

- SIGN ON PERMANENT SUPPORT
- DIRECTION OF TRAFFIC
- WORK AREA

TRAFFIC CONTROL, ADVANCE WARNING SIGNS 45 M.P.H. OR GREATER TWO-WAY UNDIVIDED ROAD OPEN TO TRAFFIC

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

Sept. 2015 — DATE

/S/ Peter Amakobe Atepe — STATEWIDE WORK ZONE SAFETY ENGINEER

FHWA

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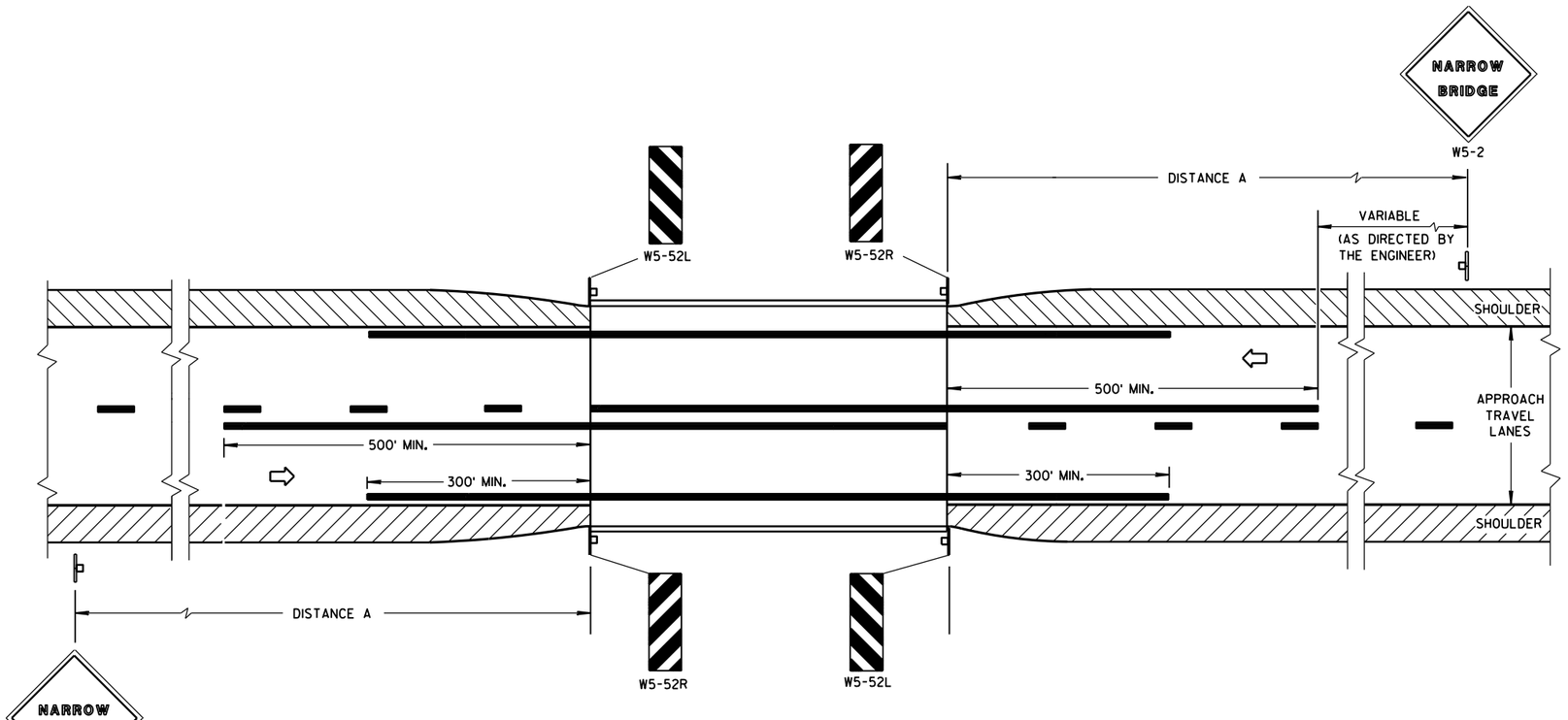
S.D.D. 15 C 4-3



SITUATION 1

WARRANTING CRITERIA:

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

DISTANCE TABLE

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

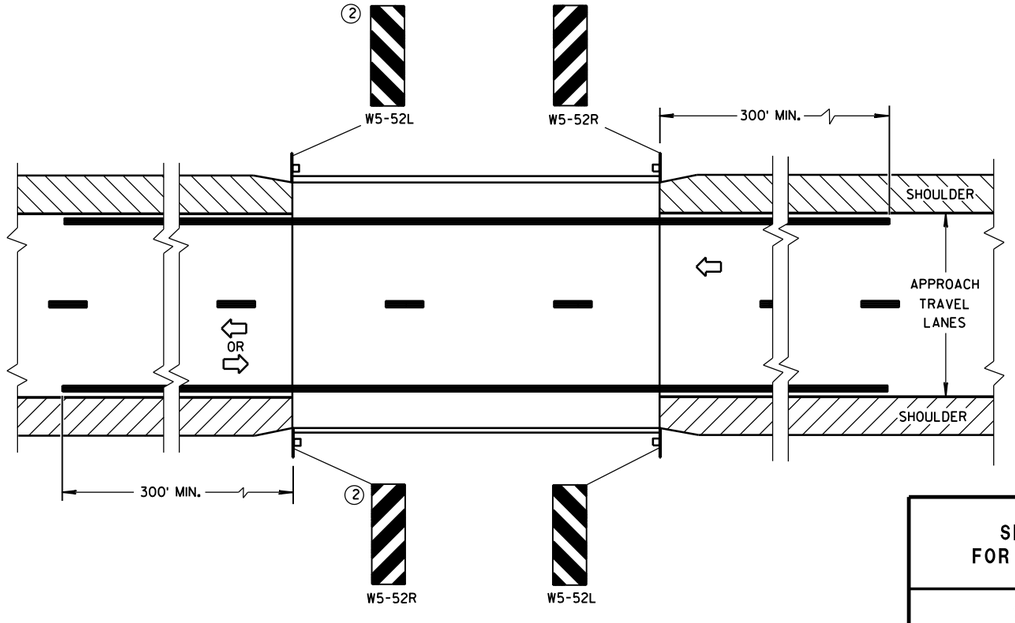
GENERAL NOTES

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

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

(2) OMIT ON ONE-WAY TRAVELLED WAYS.

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



SITUATION 2

WARRANTING CRITERIA:

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

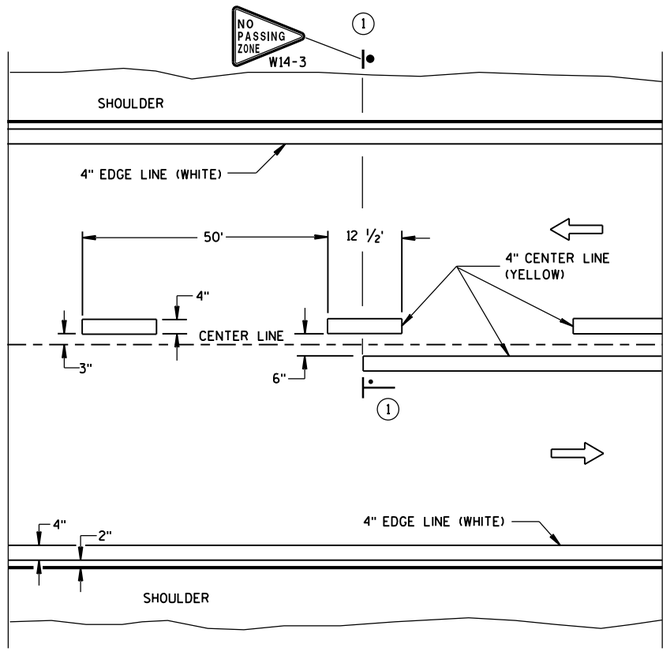
SIGNING & MARKING FOR TWO LANE BRIDGES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

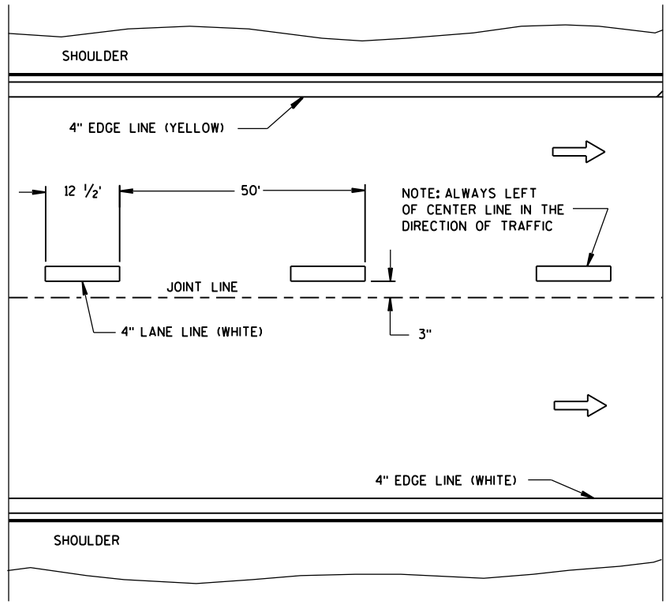
APPROVED
4-18-16 — DATE
/S/ Matthew R. Rauch — STATE SIGNING AND MAR ...EER
FHWA

6

S.D.D. 15 C 6-8



TWO WAY TRAFFIC



ONE WAY TRAFFIC

PERMANENT PAVEMENT MARKING

GENERAL NOTES

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

(1) NO PASSING ZONE W14-3 SIGN SHALL BE LOCATED WITHIN 50 FEET OF THE "T" MARKING.

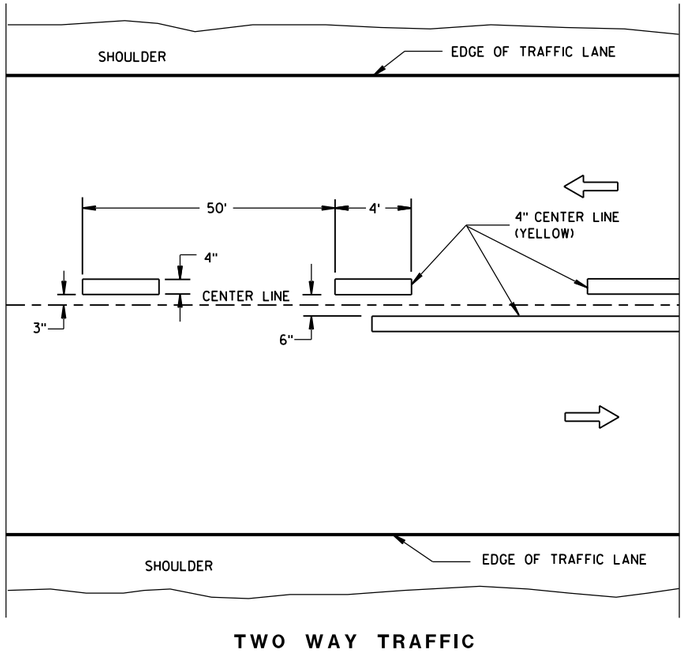
NOTE

ARROW SYMBOL (⇨) SHOWS DIRECTION OF TRAVEL

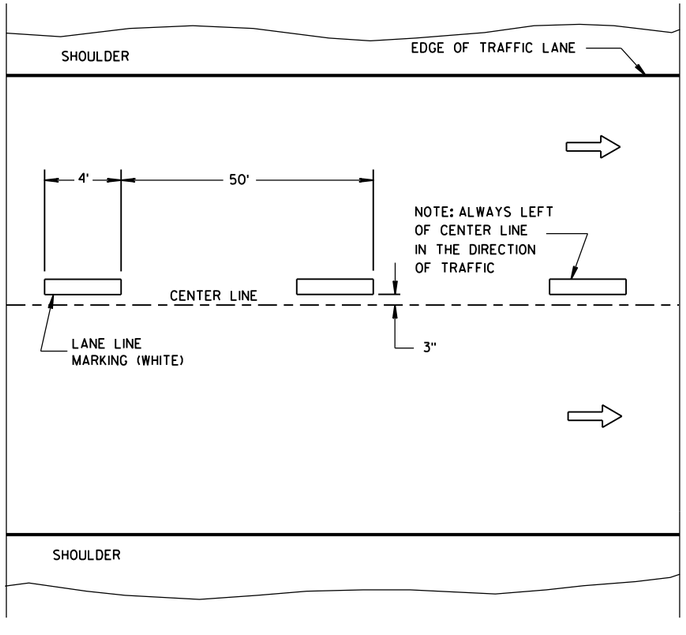
LEGEND

"T" MARKING

POST MOUNTED SIGN



TWO WAY TRAFFIC



ONE WAY TRAFFIC

TEMPORARY PAVEMENT MARKING

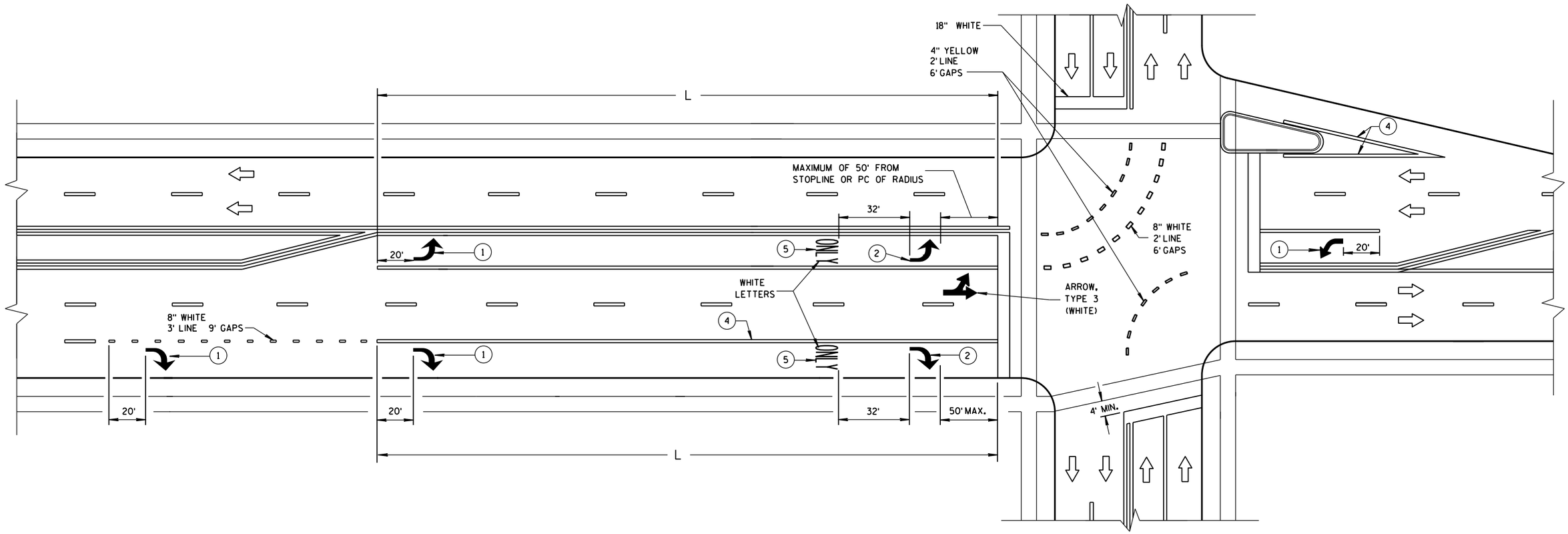
LONGITUDINAL MARKING (MAINLINE)	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED	
Sept., 2016	/S/ Matthew R. Rauch
DATE	STATE SIGNING AND MAR ENGINEER
FHWA	

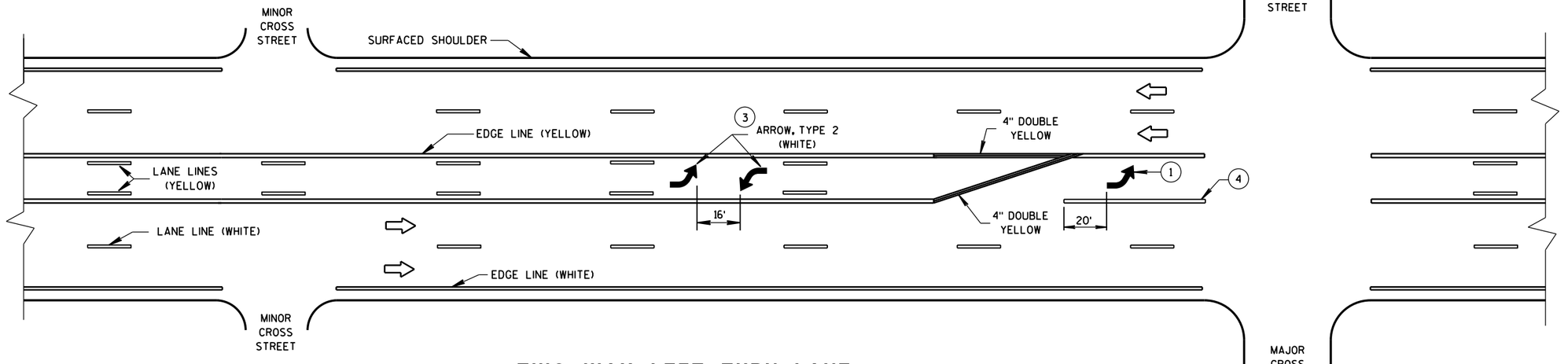
6

S.D.D. 15 C 8-17a

6

S.D.D. 15 C 8-17a





TWO WAY LEFT TURN LANE

GENERAL NOTES

(1) REQUIRED ARROW, TYPE 2 (WHITE).

(2) REQUIRED ARROW, TYPE 2 (WHITE) WHEN L IS GREATER THAN 78 FEET AND LESS THAN OR EQUAL TO 166 FEET.

(3) A SET OF ARROWS IS REQUIRED EVERY 400 FEET OR NEAR INTERSECTIONS OR DRIVEWAYS WITH TURNING TRAFFIC.

(4) 8" WHITE

(5) REQUIRED WORD ONLY WHEN L IS GREATER THAN 166 FEET.

NOTE:
ARROW SYMBOL (⇨)
SHOWS DIRECTION OF TRAVEL

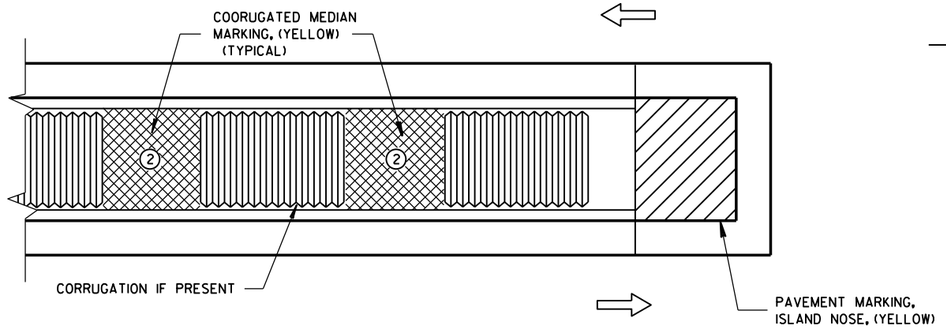
L = LENGTH OF TURN BAY

PAVEMENT MARKING (TURN LANES)

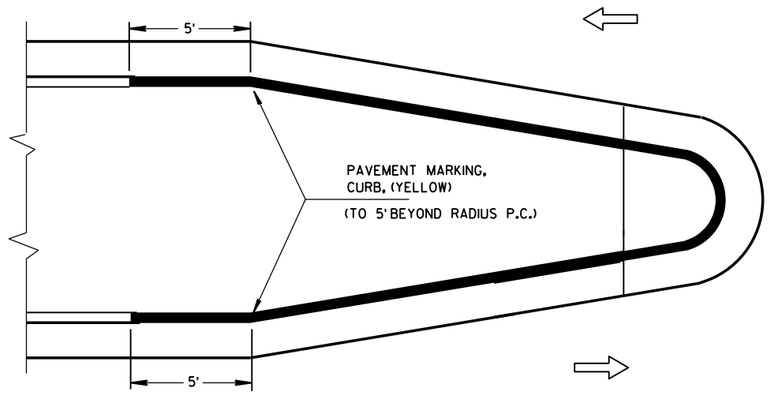
STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI

6

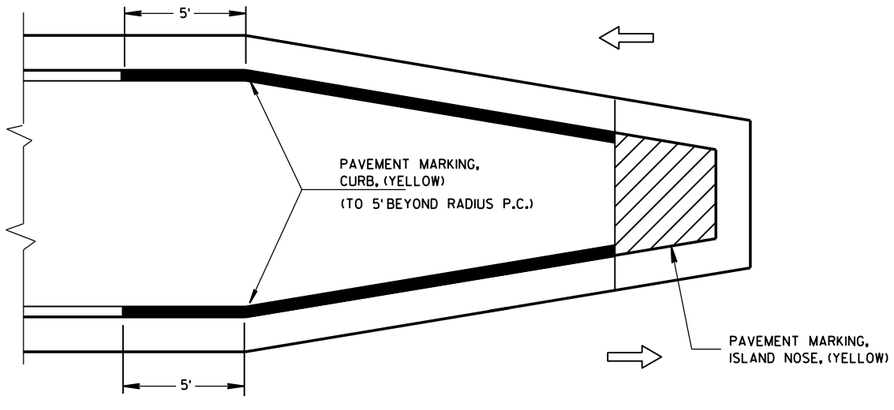
S.D.D. 15 C 8-17b



MEDIAN ISLAND WITH SQUARE BLUNT NOSE

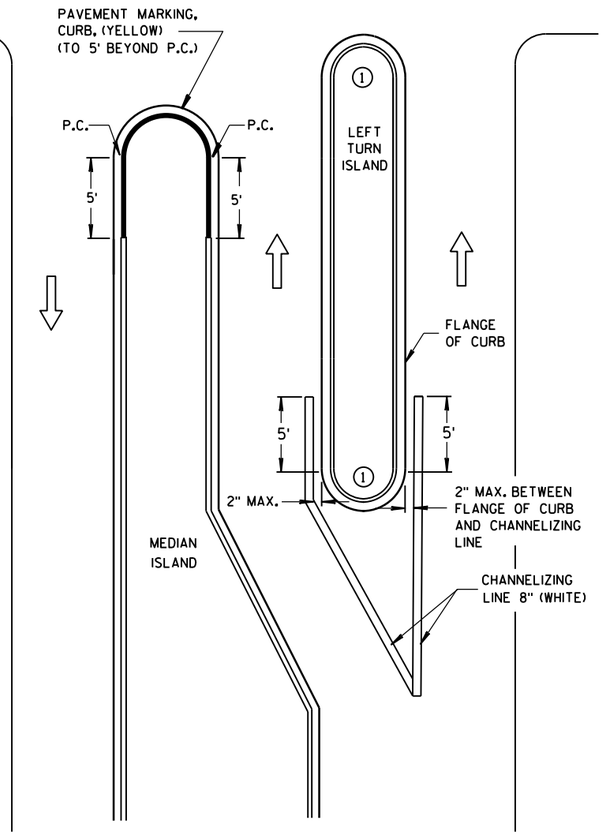


MEDIAN ISLAND WITH ROUND BLUNT NOSE



MEDIAN ISLAND WITH SLOPED NOSE

TYPICAL PLACEMENT OF PAVEMENT MARKING ON MEDIAN ISLANDS

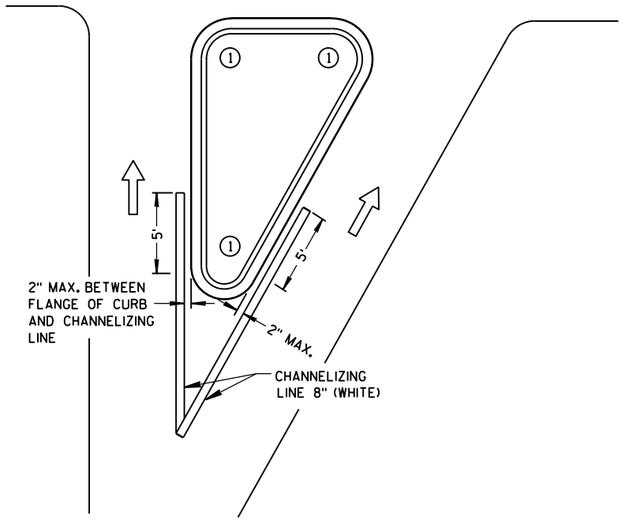


LEFT TURN & MEDIAN ISLAND

GENERAL NOTES

1. DO NOT MARK CURB NOSES THAT SEPARATE LANES OF TRAFFIC TRAVELING IN THE SAME DIRECTION.

2. WHEN CONCRETE CORRUGATED MEDIAN IS CONSTRUCTED TO SEPARATE TRAFFIC OPERATING IN THE OPPOSING DIRECTION YELLOW PAVEMENT MARKING SHALL BE APPLIED TO THE FLAT PORTION OF THE CONCRETE CORRUGATED MEDIAN. THE ITEM OF PAVEMENT MARKING, CONCRETE CORRUGATED MEDIAN, WILL BE MEASURED IN PLACE AND AND ACCEPTED IN ACCORDANCE WITH THE CONTRACT AND PAID FOR AT THE CONTRACT UNIT PRICE PER SQUARE FOOT.



RIGHT TURN ISLAND

LEGEND

- ISLAND NOSE MARKING
- CURB MARKING
- CORRUGATED MEDIAN MARKING
- DIRECTION OF TRAVEL

PAVEMENT MARKING
(ISLANDS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI

6

S.D.D. 15 C 8-17c

6

S.D.D. 15 C 8-17c

LEGEND

SIGN ON PORTABLE OR PERMANENT SUPPORT

DIRECTION OF TRAFFIC

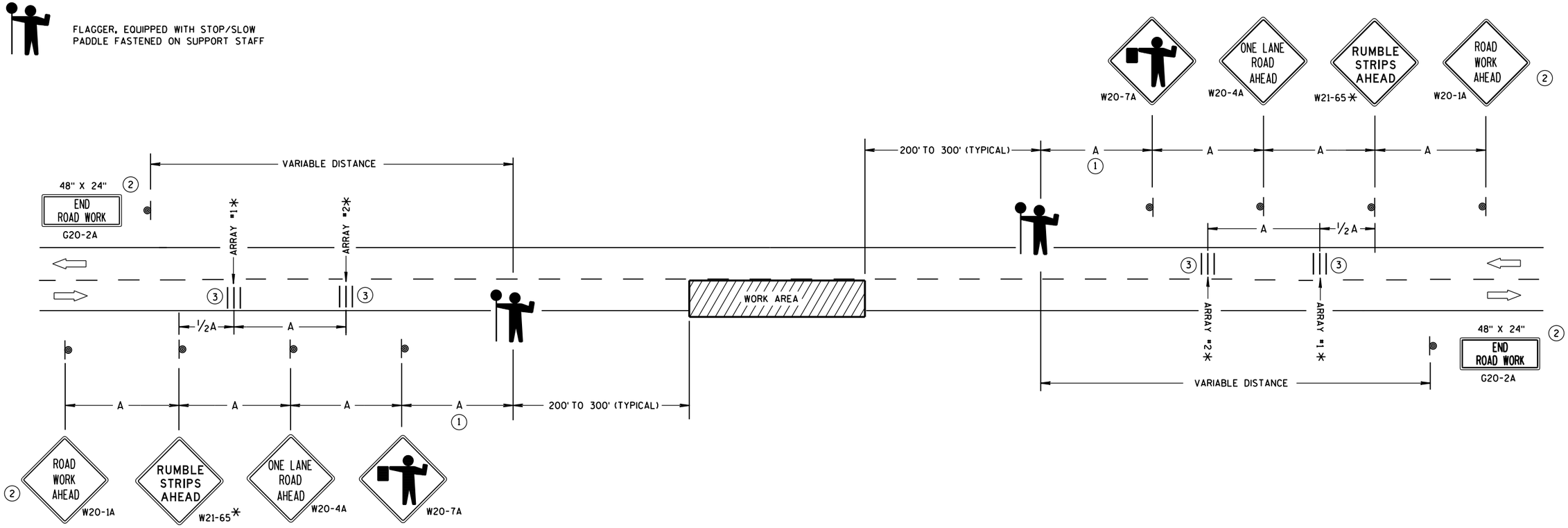
WORK AREA

FLAGGER, EQUIPPED WITH STOP/SLOW PADDLE FASTENED ON SUPPORT STAFF

SIGN AND TEMPORARY RUMBLE STRIP ARRAY SPACING TABLE

SPEED LIMIT	SPACING A
25-35 MPH	200'
35-40 MPH	350'
45-55 MPH	500'

USE OF THE "BE PREPARED TO STOP" SIGN IS OPTIONAL. WHEN USED, THIS SIGN SHALL BE LOCATED BETWEEN THE W20-7A AND W20-4A SIGNS, USING SPACING A.



TRAFFIC CONTROL FOR LANE CLOSURE WITH FLAGGING OPERATION

GENERAL NOTES

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

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

THE FIRST ADVANCE WARNING SIGN SHOULD TYPICALLY BE LOCATED IN ADVANCE OF THE ANTICIPATED TRAFFIC BACKUP OR QUEUE.

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

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

INSTALL TEMPORARY RUMBLE STRIPS PER MANUFACTURER'S RECOMMENDATIONS.

PLACE ADVANCE SIGNING PRIOR TO INSTALLING TEMPORARY RUMBLE STRIPS.

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

FLAGGERS SHALL BE IN SIGHT OF EACH OTHER OR IN DIRECT COMMUNICATION AT ALL TIMES. THEY SHALL BE EQUIPPED WITH STOP/SLOW PADDLES FASTENED ON SUPPORT STAFFS. WHEN THE FLAGGING OPERATION IS NOT IN EFFECT, REMOVE TEMPORARY RUMBLE STRIPS PRIOR TO COVERING OR REMOVING ALL ADVANCE SIGNING.

* UTILIZE TEMPORARY RUMBLE STRIPS WHEN FLAGGING OPERATION IS ANTICIPATED TO BE STATIONARY IN EXCESS OF TWO HOURS.

(1) FOR A MOVING WORK OPERATION, SIGNING AND TEMPORARY RUMBLE STRIPS (IF USED) SHALL BE REESTABLISHED (AS SIMULTANEOUSLY AS PRACTICAL) AT APPROXIMATELY 3,500 FOOT INTERVALS IN THE MOVING WORK OPERATION OR AS APPROVED BY THE ENGINEER.

(2) SIGN NOT REQUIRED IF FLAGGING OPERATION OCCURS WITHIN A SIGNED ROAD WORK ZONE AREA.

(3) EACH TEMPORARY RUMBLE STRIP ARRAY CONSISTS OF THREE RUMBLE STRIPS SPACED ACCORDING TO MANUFACTURER'S RECOMMENDATION, PLACED TRANSVERSE ACROSS THE LANE AT LOCATIONS SHOWN.

TRAFFIC CONTROL FOR LANE CLOSURE WITH FLAGGING OPERATION

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
December, 2016 — /S/ Andrew Heldtke
DATE — WORK ZONE ENG
FHWA

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S.D.D. 15 C 12-5

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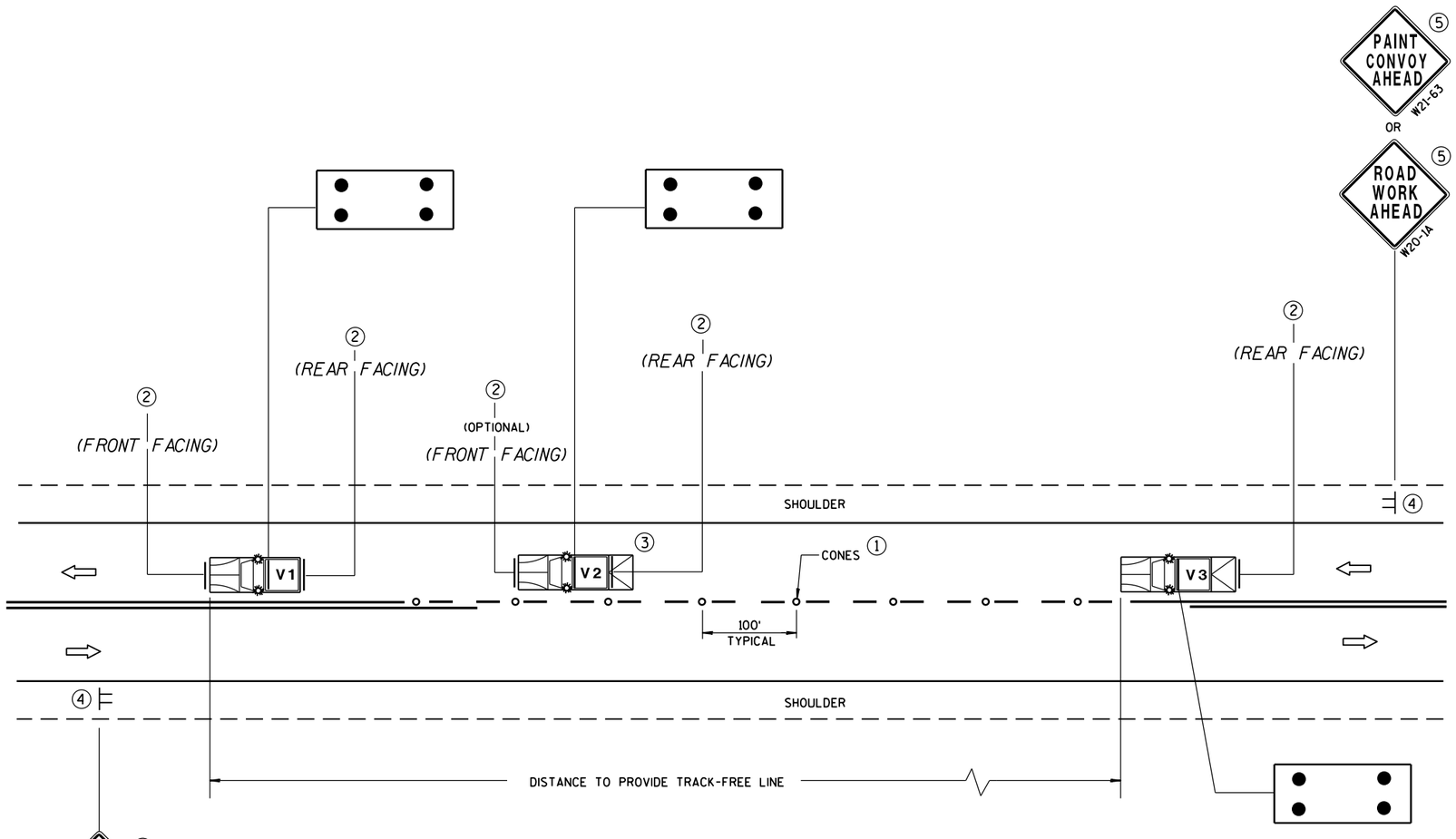
S.D.D. 15 C 12-5



MOVING PAVEMENT MARKING OPERATIONS
TWO-LANE TWO-WAY ROADWAY

GENERAL NOTES

ALL VEHICLES SHALL BE EQUIPPED WITH TWO 360 DEGREE HIGH INTENSITY YELLOW FLASHING LIGHTS OR STROBE LIGHTS AND OPERATED WITH HEADLIGHTS TURNED ON.

VEHICLES SHALL BE EQUIPPED WITH REAR FACING TYPE B OR C FLASHING ARROW PANEL OPERATING IN CAUTION MODE. SIGNS PLACED ON VEHICLES MUST NOT OBSCURE THE ARROW PANEL.

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

IF SPEED LIMIT IS 40 MPH OR LESS STATIONARY SIGNS MAY BE OMITTED IF CONES ARE USED.

ALTERNATE SIGN MESSAGES, SUCH AS "PAINT CREW AHEAD" OR "ROAD PAINTING AHEAD" MAY BE USED.

DISTANCE BETWEEN VEHICLES MAY VARY ACCORDING TO TERRAIN, SIGHT DISTANCE, PAINT DRYING TIME, AND OTHER FACTORS. WHENEVER ADEQUATE STOPPING SIGHT DISTANCE EXISTS TO THE REAR, SHADOW VEHICLES SHOULD MAINTAIN THE MINIMUM DISTANCE FROM THE WORK VEHICLE AND PROCEED AT THE SAME SPEED AS THE WORK VEHICLE. SHADOW VEHICLES SHOULD SLOW DOWN IN ADVANCE OF VERTICAL OR HORIZONTAL CURVES THAT RESTRICT SIGHT DISTANCE.

THE WORK AND SHADOW VEHICLES SHOULD PULL OVER PERIODICALLY TO ALLOW TRAFFIC TO PASS.

THIS DRAWING SHALL BE USED FOR CENTERLINE OR EDGELINE MARKING.

WHEN NO WORK ACTIVITY IS TAKING PLACE, REMOVE OR TURN THE STATIONARY WARNING SIGNS AWAY FROM TRAFFIC.

(1) CONES MAY BE OMITTED ON PAINTED LINE IF APPROVED BY THE ENGINEER. CONSIDER PAVEMENT MARKING DRY OR CURE TIMES AND TRAFFIC VOLUME.

(2) USE STANDARD SIGN W21-64 WITH APPROPRIATE ARROW.

WET PAINT W21-64 OR WET PAINT W21-64

(3) OPTIONAL TRUCK-MOUNTED ATTENUATOR.

(4) SIGNS SHALL BE REPEATED APPROXIMATELY EVERY THREE MILES.

(5) IF CONSTRUCTION WORK ZONE SIGNS ARE IN PLACE, W20-1 OR W21-63 ARE NOT REQUIRED.

LEGEND

V1	LEAD VEHICLE
V2	SHADOW VEHICLE
V3	TRAIL VEHICLE WITH TMA
TMA	TRUCK-MOUNTED ATTENUATOR
	SIGN ON TEMPORARY SUPPORT
	DIRECTION OF TRAFFIC
	CONES
	FLASHING ARROW PANEL (CAUTION)

MOVING PAVEMENT MARKING OPERATION TWO-LANE TWO-WAY ROADWAY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION
APPROVED June 2016 — DATE /S/ Peter Amakobe Atepe — STATEWIDE WORK ZONE SAFETY ENGINEER FHWA

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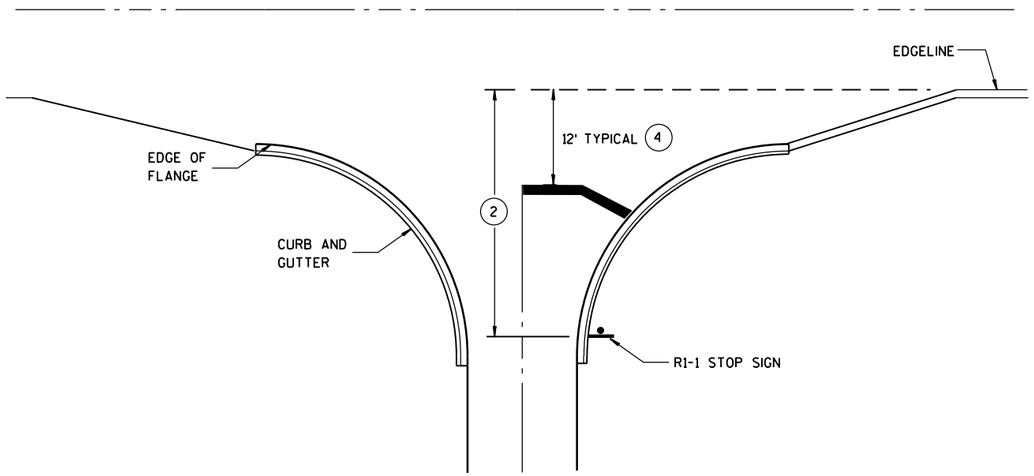
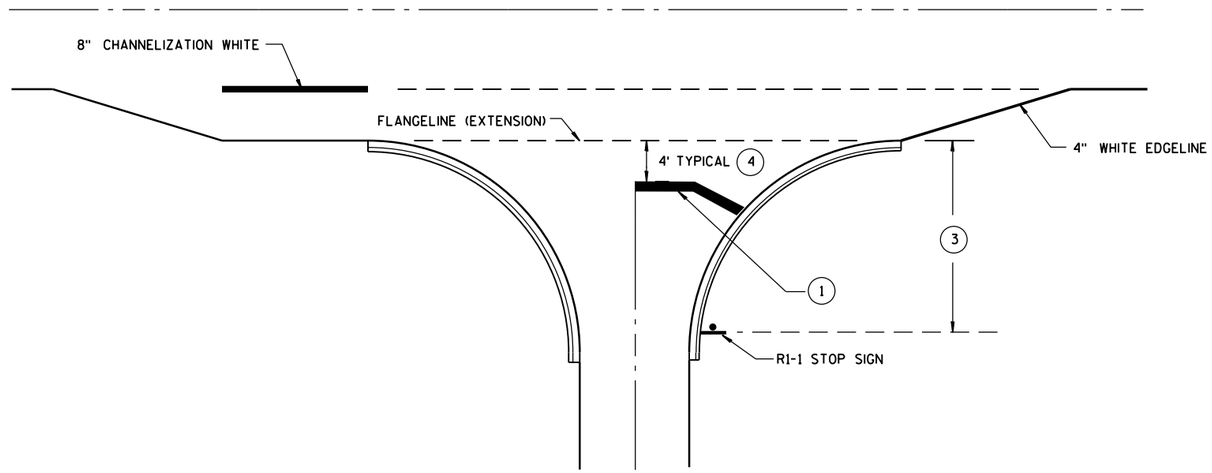
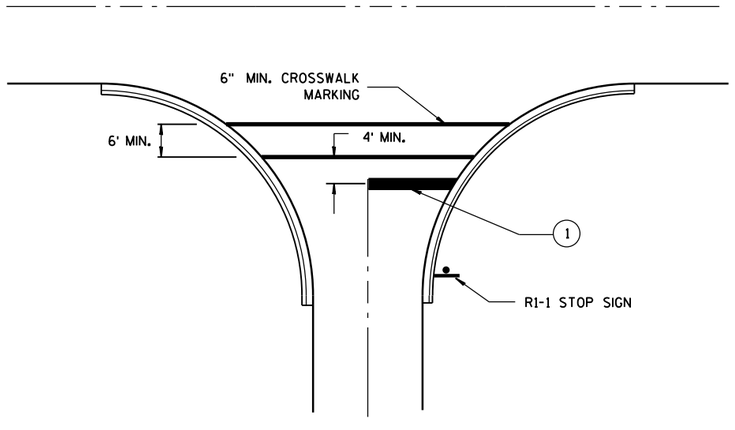


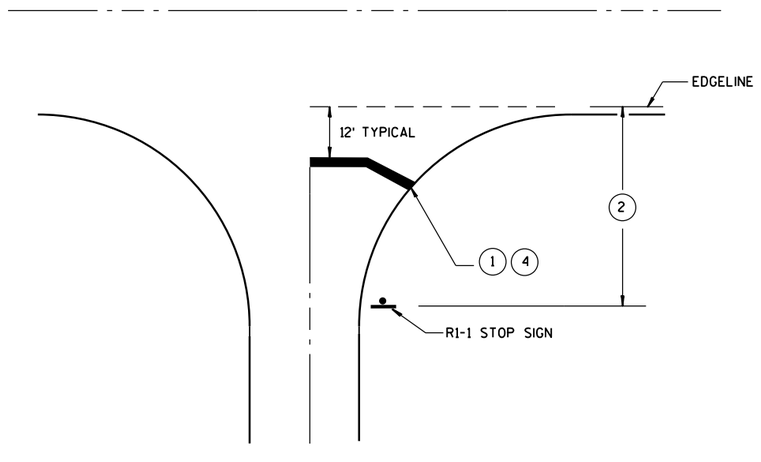
TYPICAL STOP LINE PAVEMENT MARKING WITH CURB AND GUTTER



TYPICAL STOP LINE PAVEMENT MARKING FOR SIDEROADS WITH RIGHT TURN LANE



TYPICAL STOP LINE PAVEMENT MARKING FOR SIDEROADS WITH CROSSWALK MARKING



TYPICAL STOP LINE PAVEMENT MARKING WITHOUT CURB AND GUTTER

GENERAL NOTES

1. 18-INCH STOP LINES MAY BE DELETED OR ADDED BY THE PROJECT ENGINEER BASED ON VISIBILITY AND SIGHT LINES.
2. IF STOP SIGN IS LESS THAN OR EQUAL TO 40 FEET FROM THE EDGELINE THAN NO STOP LINE IS REQUIRED.
3. IF STOP SIGN IS LESS THAN OR EQUAL TO 30 FEET FROM THE FLANGELINE EXTENSION THAN NO STOP LINE IS REQUIRED.
4. MOVE CLOSER TO EDGE OF TRAVEL LANE AS NEEDED FOR VISIBILITY AND SIGHT LINES. (NO CLOSER THAN 4 FEET).

STOP LINE AND CROSSWALK PAVEMENT MARKING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

4-18-2016
DATE

/S/ Matthew R. Rauch
STATE SIGNING AND MAR[illegible] ENGINEER

FHWA

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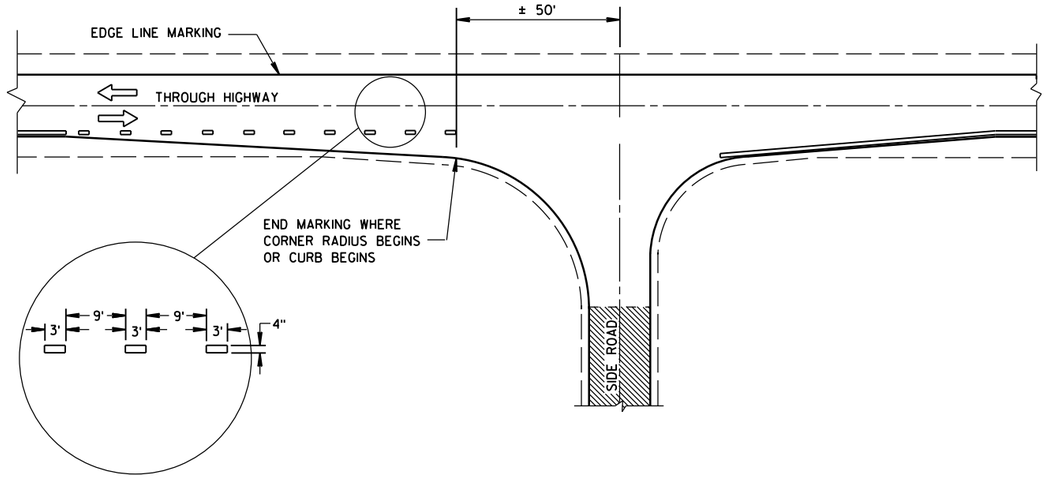
S.D.D. 15 C 33-2



MINOR INTERSECTION WITHOUT CURBS

GENERAL NOTES

EDGE LINES SHALL BE OMITTED THROUGH INTERSECTIONS. EDGE LINES SHALL BE CONTINUED THROUGH DRIVEWAYS.

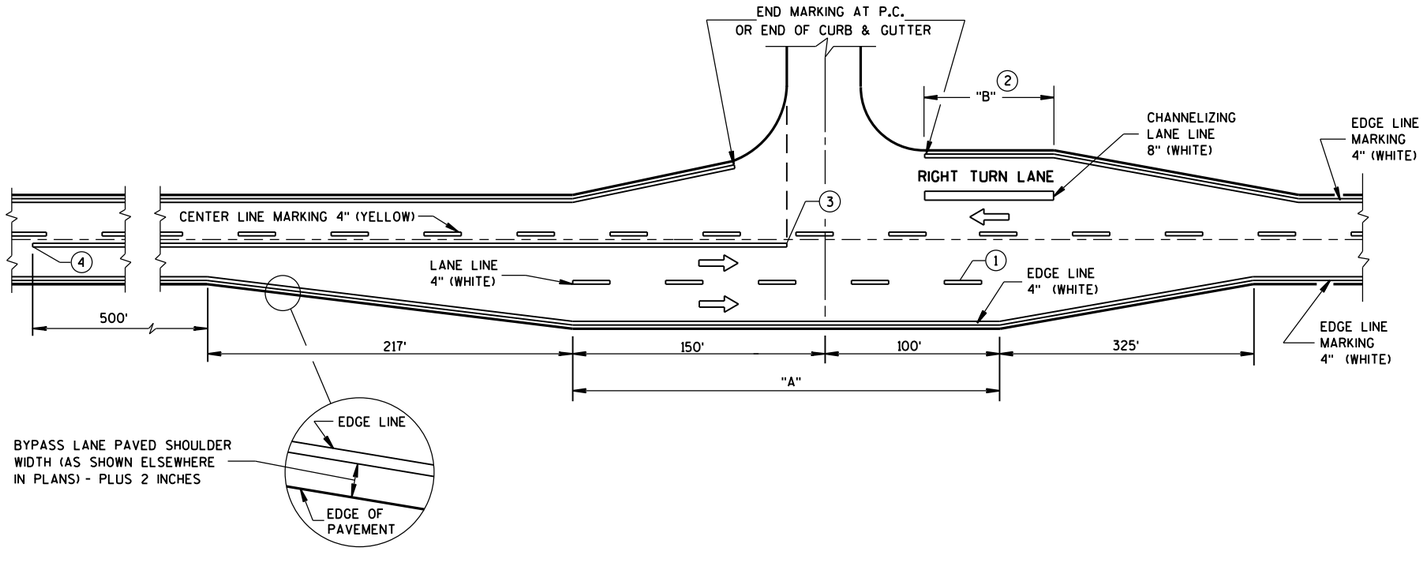
(1) WHEN DISTANCE "A" IS LESS THAN 250 FEET, OMIT LANE LINE.

(2) WHEN DISTANCE "B" IS LESS THAN 100 FEET, OMIT CHANNELIZING LANE LINE.

(3) BARRIER LINE ENDS AT SIDE ROAD PAVEMENT/SURFACE EDGE EXTENSION.

(4) BARRIER LINE STARTS 500 FEET PRIOR TO THE BYPASS TAPER.

ARROW SYMBOL (⇨) SHOWS DIRECTION OF TRAVEL



MAJOR INTERSECTIONS

(INTERSECTION WITH FULL RIGHT TURN LANE OR BYPASS LANES)

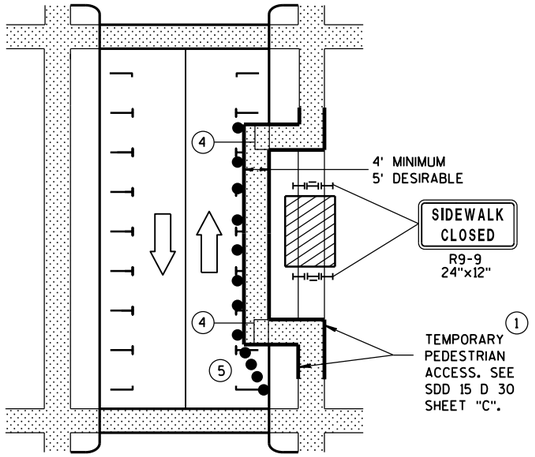
PAVEMENT MARKING
(INTERSECTIONS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI

6

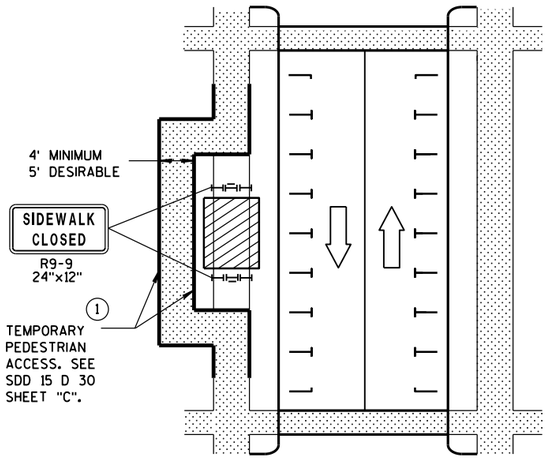
S.D.D. 15 C 35-1a

NOTE: MAY BE USED ON ROADWAY WITH POSTED SPEED OF LESS THAN 40 MPH.

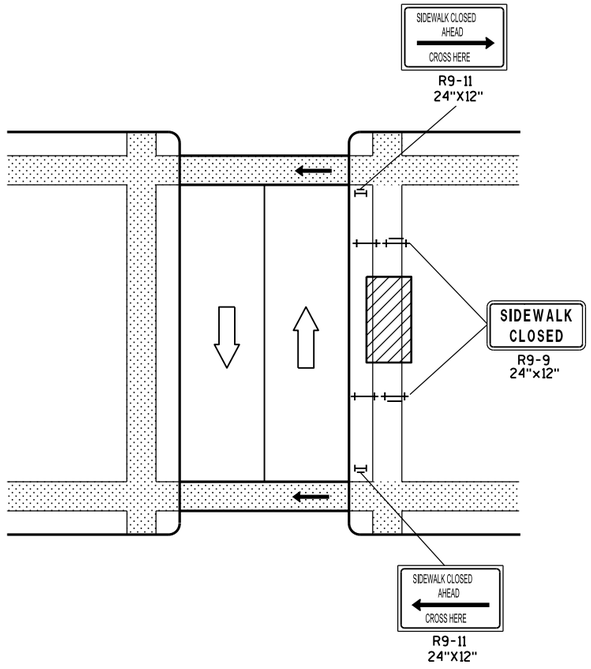


MID-BLOCK SIDEWALK CLOSURE IN PARKING LANE

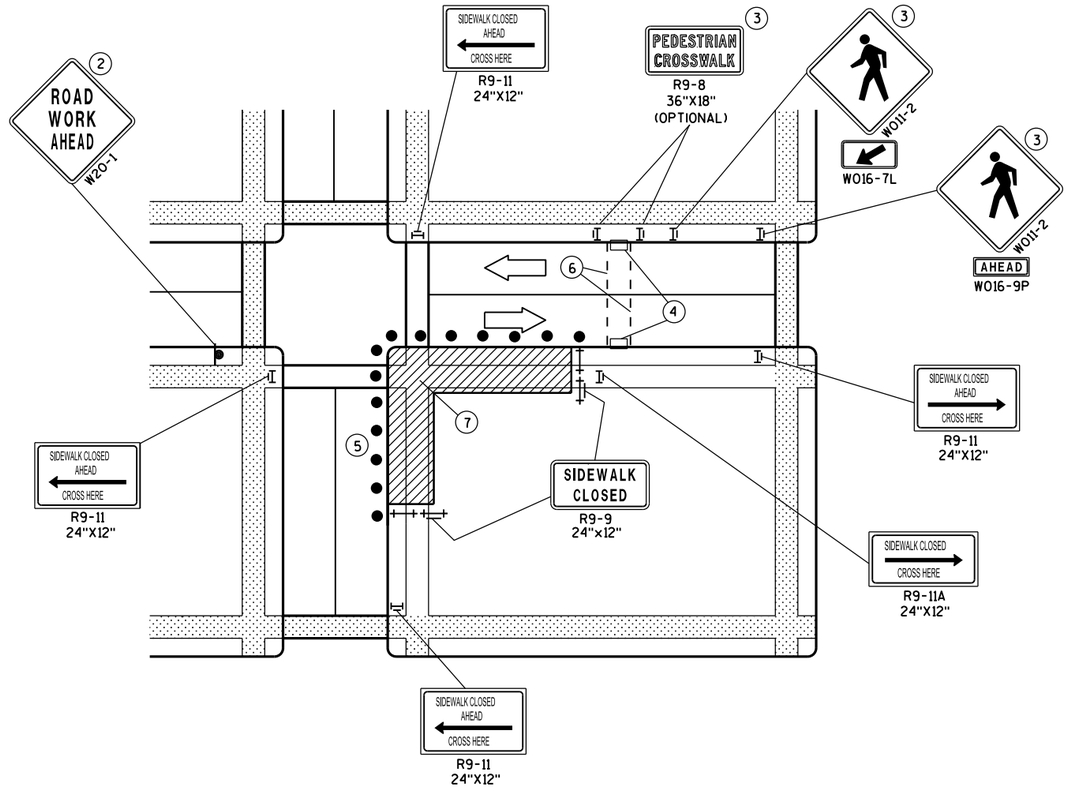
NOTE: LAYOUT SAME AS ABOVE.



SIDEWALK DIVERSION



MID-BLOCK SIDEWALK CLOSURE



CORNER SIDEWALK CLOSURE WITH TEMPORARY CROSSWALK

GENERAL NOTES

WHEN CLOSING OR RELOCATING CROSSWALKS OR SIDEWALKS, PROVIDE DETECABLE TEMPORARY FACILITIES AND INCLUDE ACCESSIBILITY FEATURES CONSISTENT WITH EXISTING PEDESTRIAN FACILITIES.

TEMPORARY TRAFFIC CONTROL DEVICES FOR PEDESTRIANS ARE SHOWN. OTHER DEVICES MAY BE NECESSARY TO CONTROL VEHICULAR TRAFFIC. STAGE WORK, AS NECESSARY, TO PROVIDE A TEMPORARY PEDESTRIAN ACCESS ROUTE AT ALL TIMES. FOR ROADWAYS WITH NO AVAILABLE DETOURS, MAINTAIN ONE OPEN SIDEWALK AT ALL TIMES.

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

FOR NIGHTTIME CLOSURE USE TYPE "A" FLASHING WARNING LIGHTS ON BARRICADES, SUPPORTING SIGNS AND CLOSING SIDEWALK. USE TYPE "C" STEADY BURN LIGHTS ON CHANNELIZING DEVICES SEPARATING THE WORK AREA FROM VEHICULAR TRAFFIC.

PEDESTRIAN TRAFFIC SIGNAL DISPLAY CONTROLLING CLOSED CROSSWALK SHALL BE COVERED OR DEACTIVATED.

POST MOUNTED SIGNS LOCATED ADJACENT TO A SIDEWALK SHALL HAVE A 7 FOOT MINIMUM CLEARANCE FROM THE BOTTOM OF THE SIGN TO THE SIDEWALK SURFACE.

ALTERNATE SIDEWALK WORK BETWEEN LEFT AND RIGHT SIDE OF ROADWAY TO MAINTAIN PEDESTRIAN ACCESS.

(1) IF SIDEWALK CLOSURE AFFECTS AN ACCESSIBLE AND DETECTABLE FACILITY, MAINTAIN ACCESSIBILITY AND DETECTABILITY ALONG THE ALTERNATE PEDESTRIAN ROUTE.

(2) "ROAD WORK AHEAD" SIGNS ARE NOT REQUIRED IF THE SIDEWALK CLOSURE OCCURS WITHIN A LARGER WORK ZONE WHERE ADVANCE WARNING SIGNS ARE ALREADY PRESENT, OR IF THE WORK AREA AND EQUIPMENT ARE MORE THAN 2 FEET BEHIND THE CURB.

(3) IF TEMPORARY PEDESTRIAN CROSSWALK IS NOT PROVIDED, OMIT R9-8 AND W011-2 SIGN ASSEMBLIES. IF PROVIDED INCLUDE ON BOTH SIDES OF THE CROSSWALK.

(4) TEMPORARY CURB RAMPS. SEE SDD 15 D 30 SHEET "B".

(5) DRUMS OR BARRICADES AT 25 FOOT SPACING. STREET PARKING SHALL BE PROHIBITED FOR AT LEAST 50 FEET IN ADVANCE OF THE MID-BLOCK CROSSWALK.

(6) TEMPORARY PAVEMENT MARKING FOR CROSSWALK LINES.

(7) LIMIT WORK TO ONE QUADRANT AT A TIME TO MINIMIZE PEDESTRIAN DISRUPTION.

LEGEND

- SIGN ON PERMANENT SUPPORT
- UNDER PEDESTRIAN TRAFFIC
- WORK AREA
- PEDESTRIAN CHANNELIZATION DEVICE
- TYPE II BARRICADE WITH/WITHOUT SIGN (ALL WITH ONE WARNING LIGHT, TYPE A, LOW-INTENSITY FLASHING)
- TYPE III BARRICADE WITH/WITHOUT SIGN (ALL WITH ONE WARNING LIGHT, TYPE A, LOW-INTENSITY FLASHING)
- DIRECTION OF TRAFFIC
- TRAFFIC CONTOL DRUM

TRAFFIC CONTROL, PEDESTRIAN ACCOMMODATION

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI

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S.D.D. 15 D 30-3a

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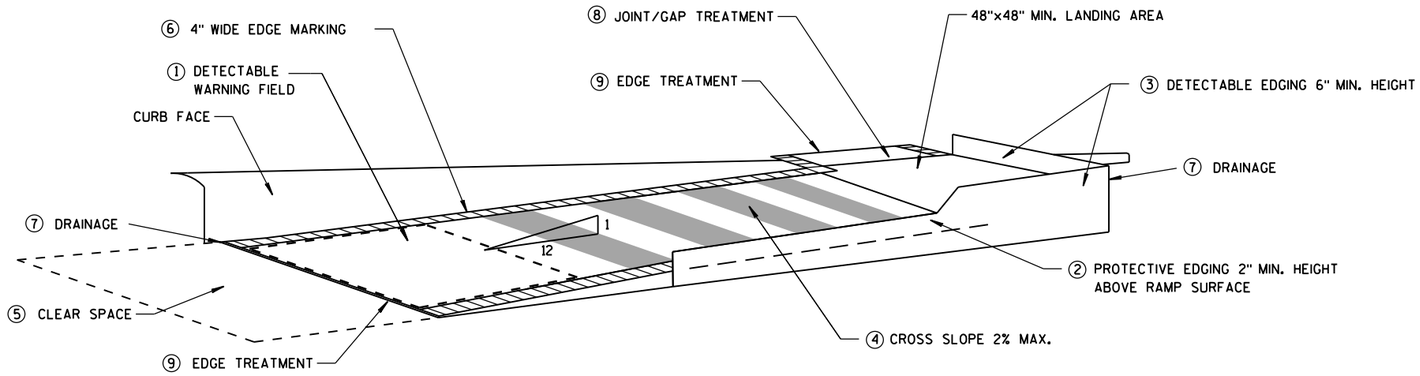
S.D.D. 15 D 30-3a



TEMPORARY CURB RAMP PARALLEL TO CURB

GENERAL NOTES

NOTIFY THE BUS COMPANY 7 DAYS IN ADVANCE OF THE BUS STOP RELOCATION.

ALTERNATE SIDEWALK WORK BETWEEN LEFT AND RIGHT SIDE OF ROADWAY TO MAINTAIN PEDESTRIAN ACCESS.

① CURB RAMPS SHALL BE 48" MIN. WIDTH WITH A FIRM, STABLE AND SLIP RESISTANT SURFACE. INSTALL CONTRASTING DETECTABLE WARNING FIELD AT PEDESTRIAN STREET CROSSINGS. REFER TO SDD 8D5 SHEET "E".

② PROTECTIVE EDGING WITH A 2" MIN. HEIGHT SHALL BE INSTALLED WHEN A CURB RAMP OR LANDING PLATFORM HAS A VERTICAL DROP OF 6" OR GREATER OR HAS A SIDE APRON SLOPE STEEPER THAN 1:3 (33%). PROTECTIVE EDGING SHOULD BE CONSIDERED WHEN CURB RAMPS OR LANDING PLATFORMS HAVE A VERTICAL DROP OF 3" OR MORE.

③ DETECTABLE EDGING WITH 6" MIN. HEIGHT AND CONTRASTING COLOR SHALL BE INSTALLED ON ALL CURB RAMP LANDINGS WHERE THE WALKWAY CHANGES DIRECTION (TURNS).

④ CURB RAMPS AND LANDINGS SHALL HAVE A 1:50 (2%) MAX. CROSS-SLOPE.

⑤ CLEAR SPACE OF 48"X48" MIN. SHALL BE PROVIDED ABOVE AND BELOW THE CURB RAMP.

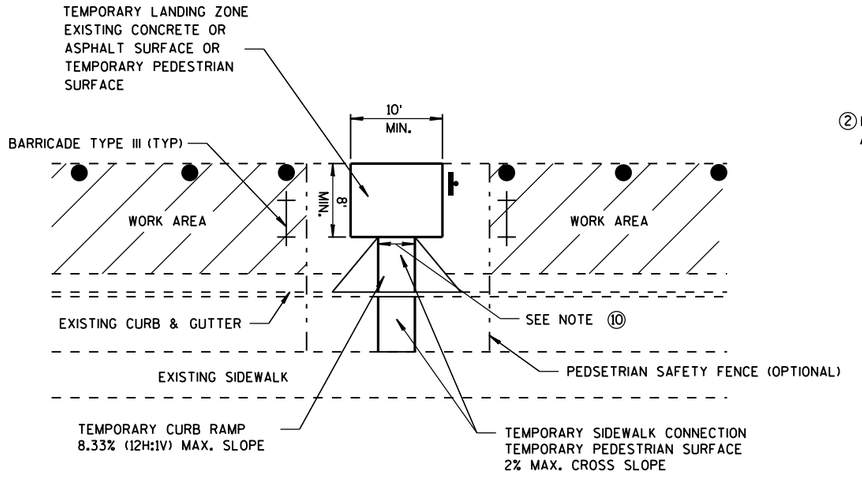
⑥ THE CURB RAMP WALKWAY EDGE SHALL BE MARKED WITH A YELLOW COLOR, 4" WIDE MARKING, UNLESS A CONTRASTING DETECTABLE WARNING FIELD IS PROVIDED.

⑦ DO NOT RESTRICT WATER FLOW IN THE GUTTER SYSTEM.

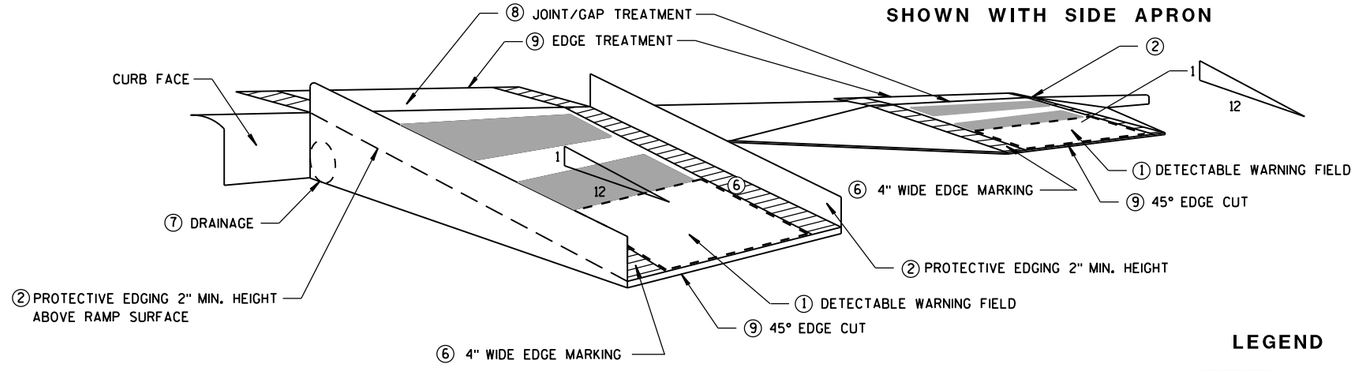
⑧ LATERAL JOINTS OR GAPS BETWEEN SURFACES SHALL BE LESS THAN 1/2" WIDTH.

⑨ CHANGES BETWEEN SURFACE HEIGHTS SHALL NOT EXCEED 1/2". LATERAL EDGES SHALL BE VERTICAL UP TO 1/4" HIGH, AND BEVELED AT 1:2 BETWEEN 1/4" AND 1/2".

⑩ 5' WIDE MIN. WITH PEDSETRIAN SAFETY FENCE, 10' WIDE MIN. WITHOUT PEDESTRIAN SAFETY FENCE.



TEMPORARY BUS STOP PAD



SHOWN WITH PROTECTIVE EDGE

SHOWN WITH SIDE APRON

TEMPORARY CURB RAMP PERPENDICULAR TO CURB

LEGEND

WORK AREA

TYPE III BARRICADE

TRAFFIC CONTOL DRUM

TRAFFIC CONTROL, TEMPORARY ADA COMPLIANT PEDESTRIAN ACCOMMODATION

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

June 2016 — DATE

/S/ Peter Amakobe Atepe — STATEWIDE WORK ZO SAFETY ENGI IC

FHWA

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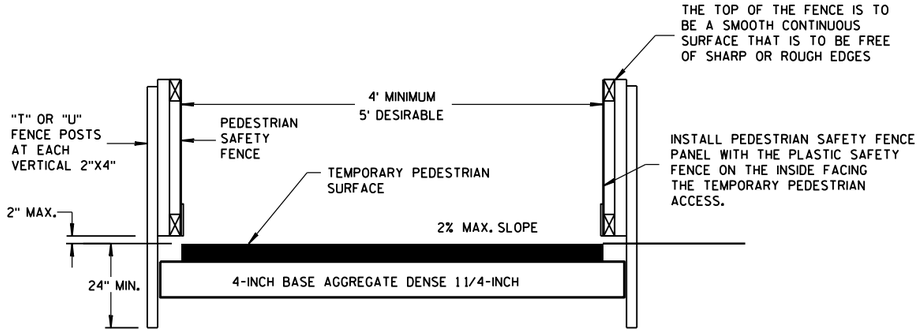
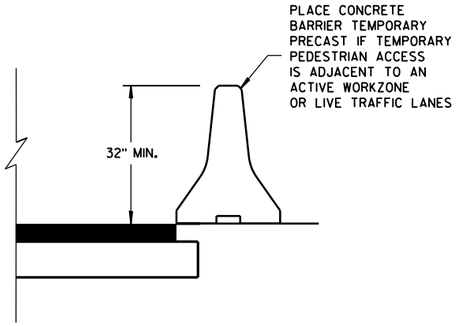
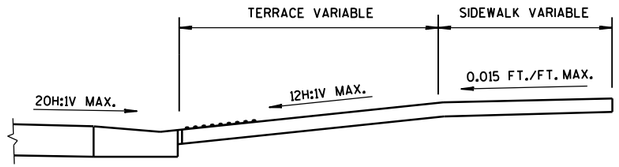




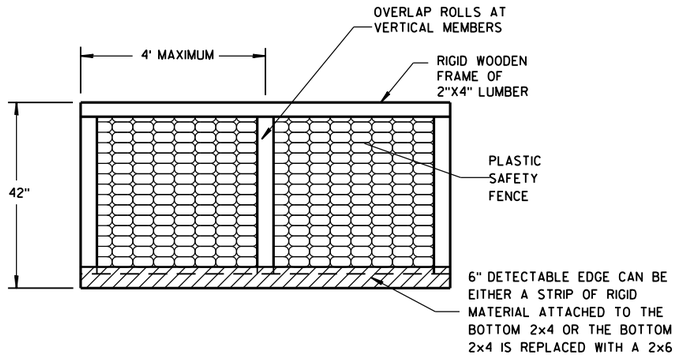
TEMPORARY PEDESTRIAN ACCESS

GENERAL NOTES

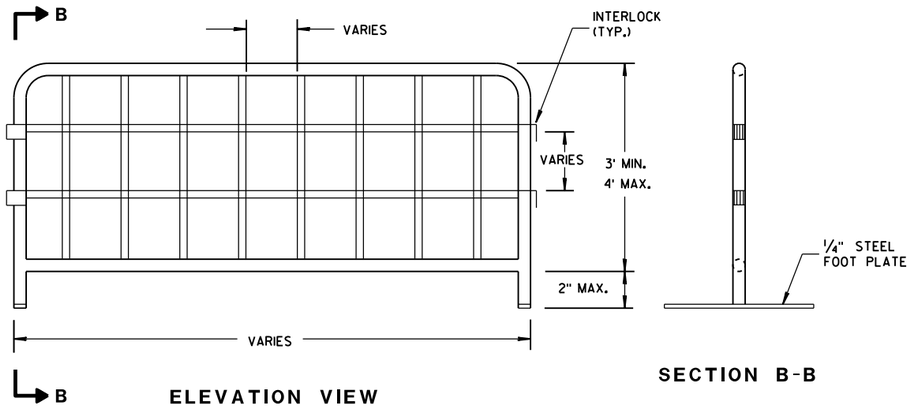
(1) INTERCHANGEABLE WITH THE PEDESTRIAN SAFETY FENCE.



SECTION A-A



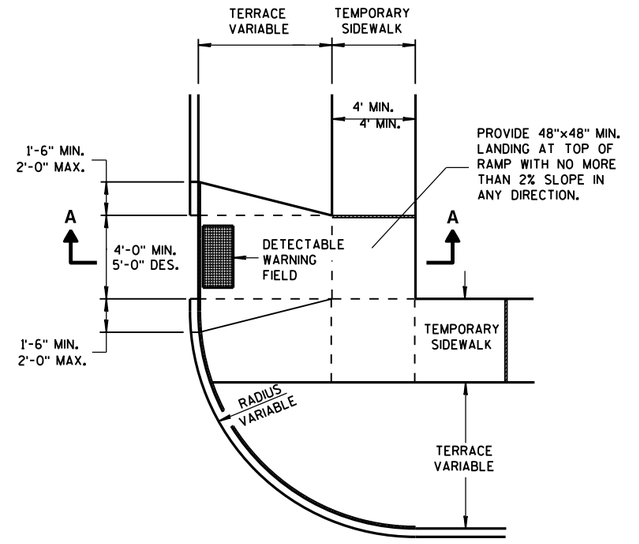
PEDESTRIAN SAFETY FENCE



ELEVATION VIEW

SECTION B-B

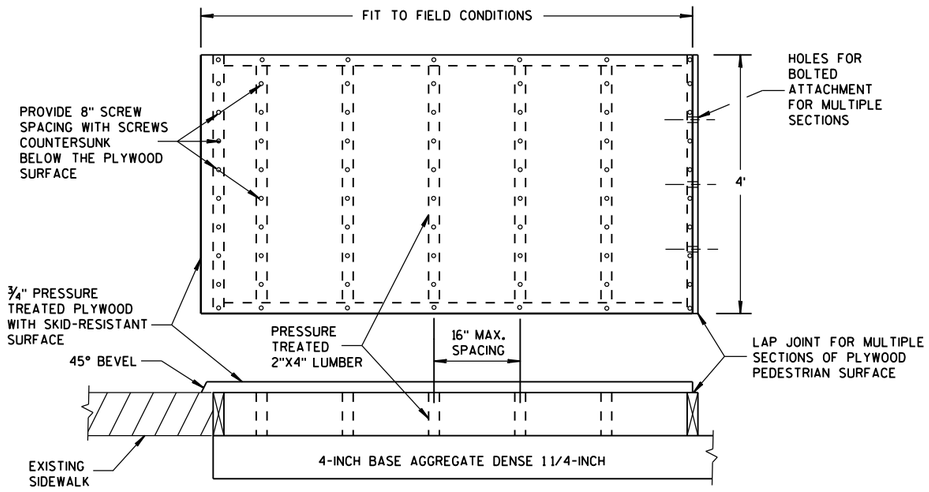
TEMPORARY PEDESTRIAN STEEL BARRICADE (1)



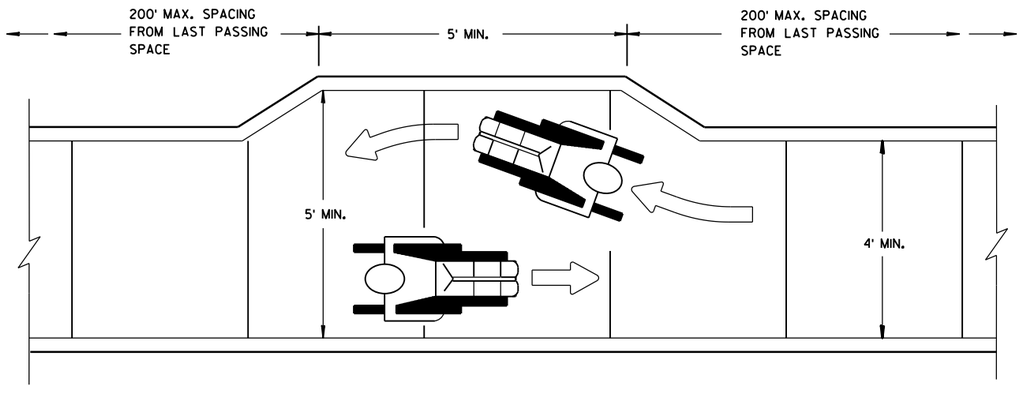
PLAN VIEW

TEMPORARY TYPE 3 RAMP

(OUTSIDE OF CROSSWALK AREA)



TEMPORARY PEDESTRIAN SURFACE PLYWOOD



NARROW SIDEWALK PASSING DETAIL

TRAFFIC CONTROL, PEDESTRIAN ACCOMMODATION

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June 2016
DATE
/S/ Peter Amakobe Atepe
STATEWIDE WORK ZON SAFETY ENGIN IC
FHWA

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S.D.D. 15 D 30-3c

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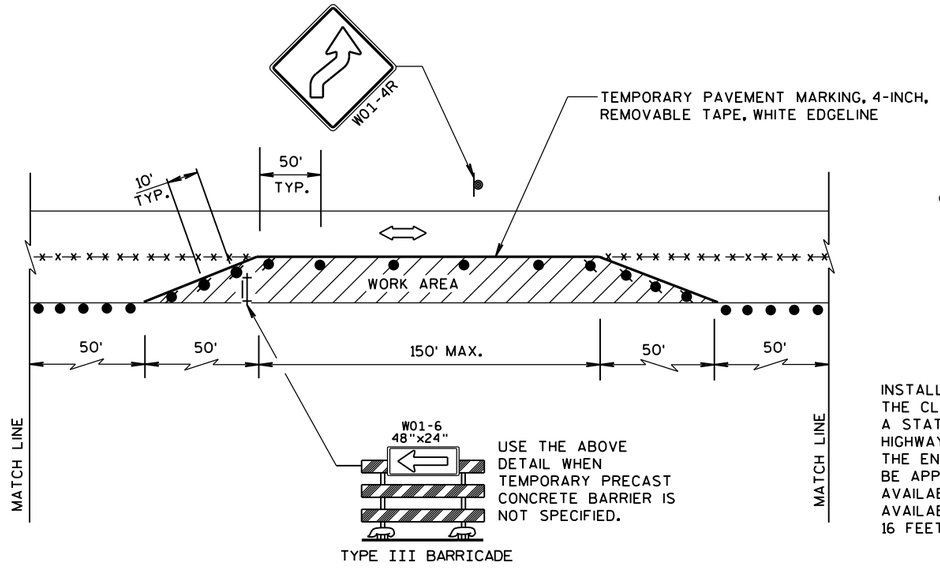
S.D.D. 15 D 30-3c

LEGEND

- SIGN ON PERMANENT SUPPORT
- REMOVING PAVEMENT MARKING
- TYPE III BARRICADE WITH ATTACHED SIGN
- CONCRETE BARRIER TEMPORARY PRECAST
- FLAGS, 16" x 16" MIN., (ORANGE)
- TRAFFIC CONTROL DRUM
- TRAFFIC CONTROL DRUM WITH TYPE "C" STEADY BURN LIGHT
- ASPHALTIC PAVEMENT WIDENING
- DIRECTION OF TRAFFIC



TYPE III BARRICADE

W057-52
36"x24"

INSTALL ON EACH APPROACH AT THE CLOSEST INTERSECTION WITH A STATE OR COUNTY TRUNK HIGHWAY, OR AS DIRECTED BY THE ENGINEER. WIDTH ON SIGN TO BE APPROX. 1-FOOT LESS THAN AVAILABLE WIDTH. (OMIT IF AVAILABLE WIDTH IS MORE THAN 16 FEET.)

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"x48" UNLESS OTHERWISE NOTED.

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

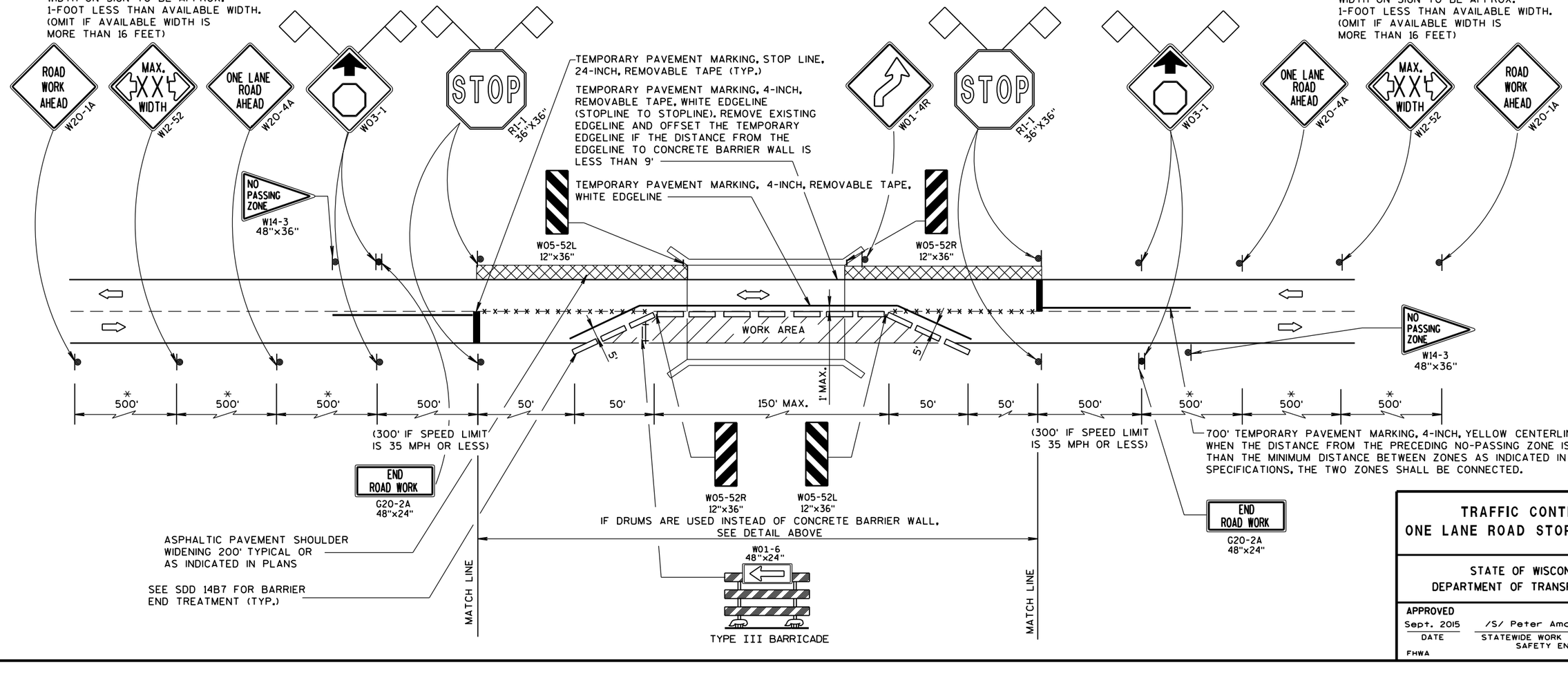
SIGN LAYOUTS SHALL BE IN ACCORDANCE WITH THE FHWA'S MANUAL OF STANDARD HIGHWAY SIGNS OR THE WISCONSIN STANDARD SIGN PLATES.

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.

PLACE TEMPORARY PAVEMENT MARKING EDGELINE AND CENTERLINE, AND REMOVE EXISTING PAVEMENT MARKINGS IF LANE CLOSURE IS TO BE IN PLACE FOR 4 OR MORE CONTINUOUS DAYS AND NIGHTS OR AS NOTED ON DETAIL.

* 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.

WIDTH ON SIGN TO BE APPROX. 1-FOOT LESS THAN AVAILABLE WIDTH. (OMIT IF AVAILABLE WIDTH IS MORE THAN 16 FEET)



TYPE III BARRICADE

TRAFFIC CONTROL, ONE LANE ROAD STOP CONDITION

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

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S.D.D. 15 D 32-4

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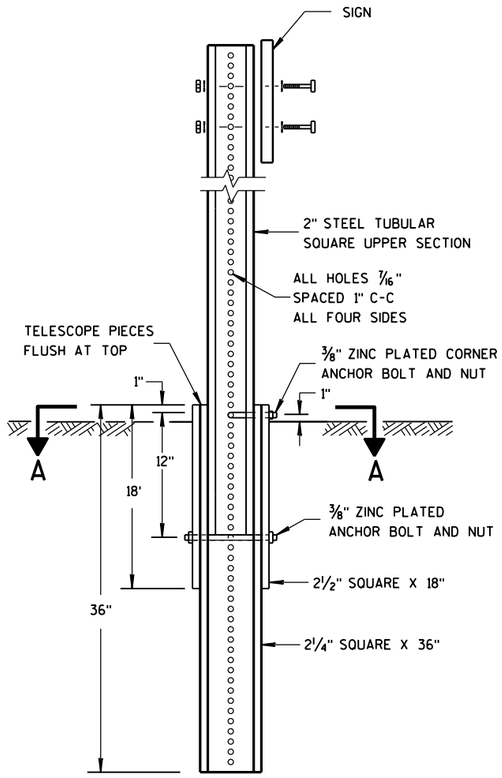
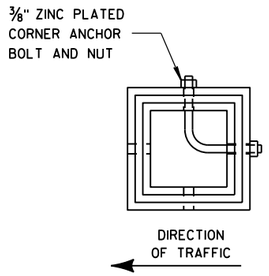
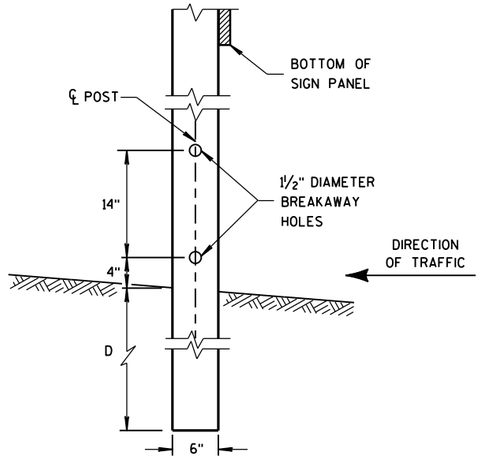
S.D.D. 15 D 32-4



DETAIL OF TUBULAR STEEL SIGN POST



SECTION A-A



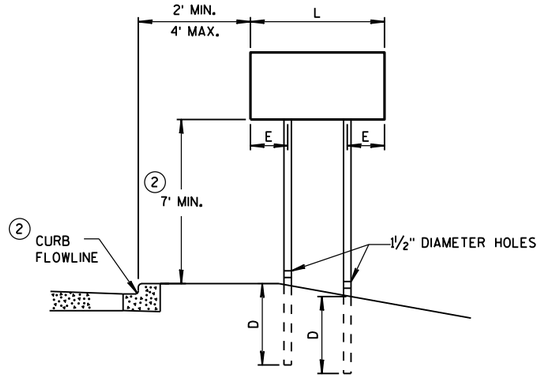
4"x6" WOOD POST MODIFICATION

GENERAL NOTES

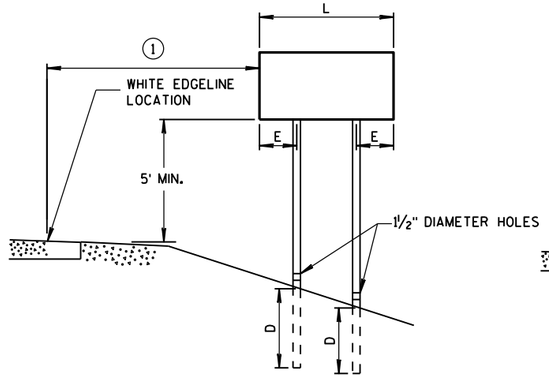
(1) 6 FEET FROM THE EDGE OF PAVEMENT (EDGE LINE LOCATION) UNLESS OTHERWISE DIRECTED BY THE PROJECT ENGINEER. LATERAL OFFSET SHOULD BE ADJUSTED TO AVOID THE DITCH FLOWLINE.

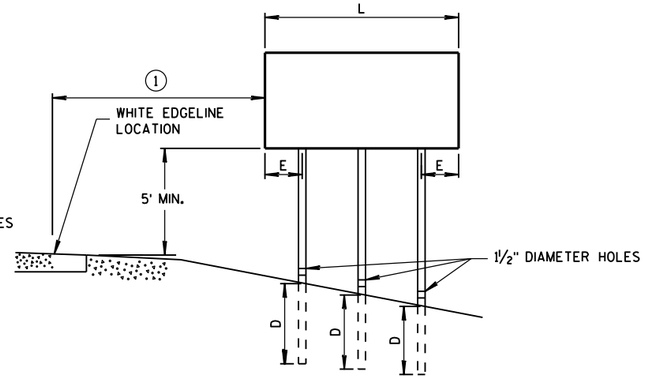
(2) THE EXISTENCE OF CURB AND GUTTER DOES NOT IN ITSELF MANDATE THE VERTICAL CLEARANCE ILLUSTRATED. THAT HEIGHT IS TYPICALLY MEASURED WHERE THERE IS SIDEWALK ADJACENT TO THE ROADWAY OR PARKING IS PERMITTED. IN THE ABSENCE OF SIDEWALK, VERTICAL CLEARANCE IS MEASURED FROM THE TOP OF THE CURB. IF NO SIDEWALK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

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



URBAN AREA





RURAL AREA

POST MOUNTING DETAIL FOR TEMPORARY TRAFFIC CONTROL FIXED MESSAGE SIGNS

TUBULAR STEEL POSTS

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

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

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

WOOD POST EMBEDMENT DEPTH

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

4" X 6" WOOD POST

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

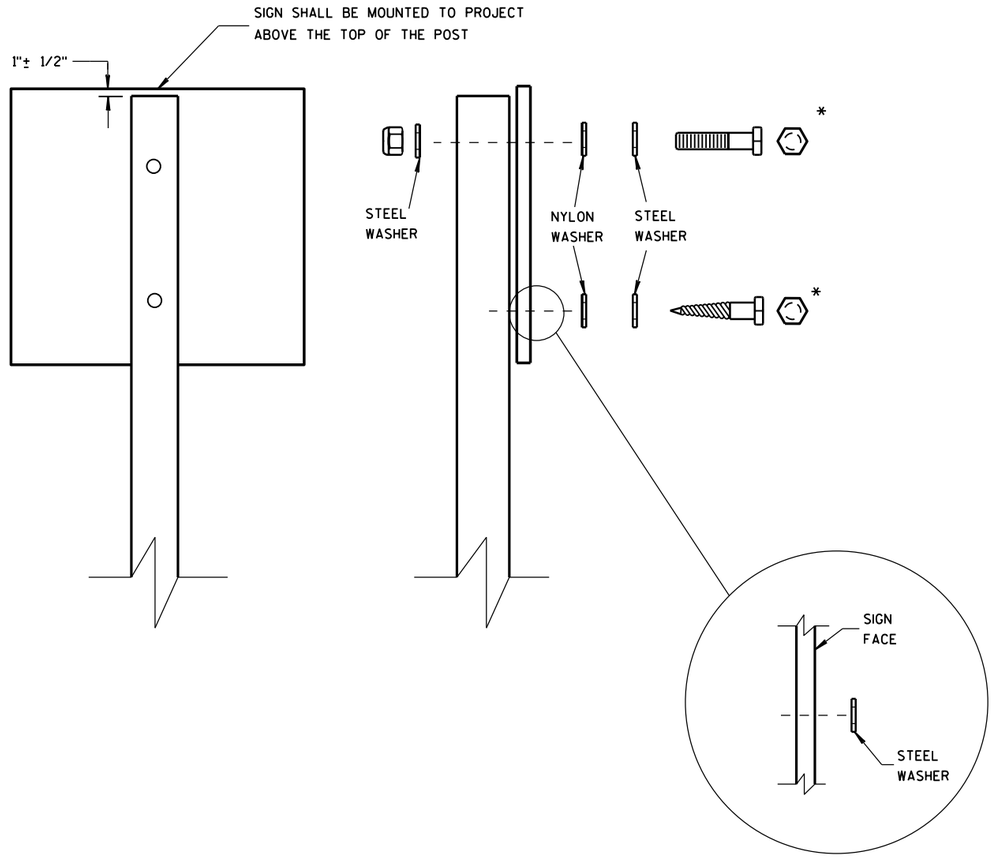
SEE NOTE (3)

TEMPORARY TRAFFIC CONTROL FIXED MESSAGE SIGNS

STATE OF WISCONSIN DEPARTMENT OF TRANSPOR

6

S.D.D. 15 D 38-1a



WASHER PLACEMENT WHEN SIGN HAS OTHER THAN TYPE H OR TYPE F FACE

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

A. HOT DIP GALVANIZED IN ACCORDANCE WITH ASTM DESIGNATION: A 153, CLASS D, OR SC 3

B. ELECTRO-GALVANIZED IN ACCORDANCE WITH ASTM DESIGNATION: B 633, TYPE III, SC 3

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

WOOD POSTS (4" x 4" or 4" x 6")

LAG SCREWS - 3/8" X 3"

MACHINE BOLTS - 5/16" X 6-1/2" OR 7" LENGTH W/ NUTS

SQUARE STEEL POSTS (2" x 2")

MACHINE BOLTS - 3/8" X 3-1/4" LENGTH W/ NUTS

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

WASHERS (ALL POSTS) -

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

1-1/4" O.D. X 3/8" I.D. X .080 NYLON FOR ALL TYPE H SIGNS

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

6

6

S.D.D. 15 D 38-1b

S.D.D. 15 D 38-1b

ATTACHMENT OF SIGNS TO POSTS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

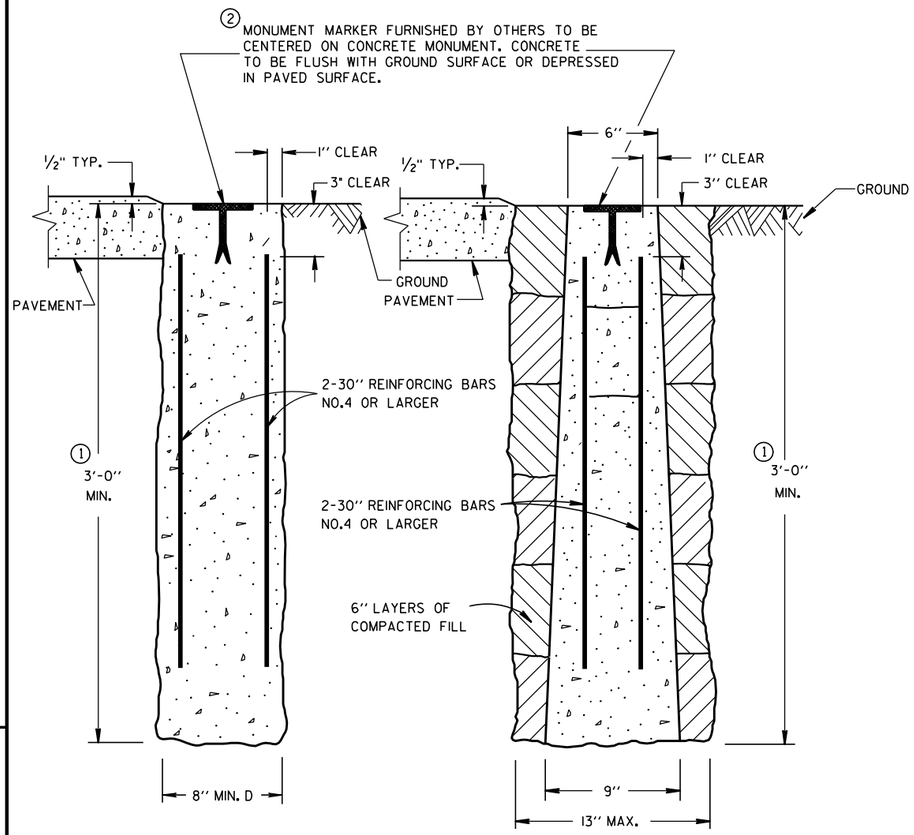
APPROVED

Feb. 2015
DATE

/S/ Travis Feltes
STATE TRAFFIC ENGINEER

FHWA

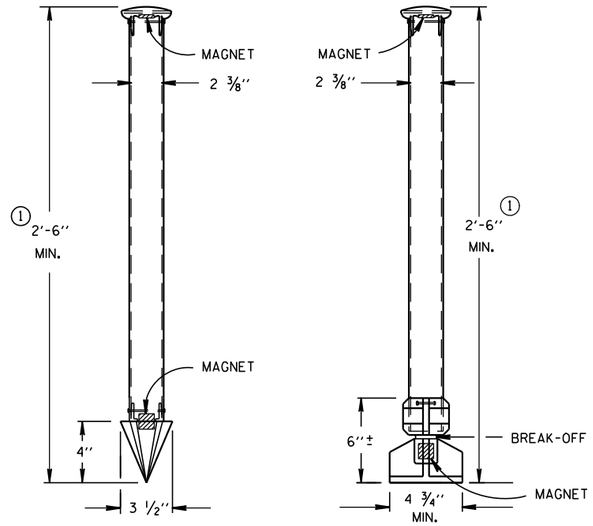
SIGN



CAST-IN-PLACE PRECAST

CONCRETE MONUMENTS

TYPE A



TYPE C DRIVE-IN MONUMENT

TYPE D BREAK-OFF MONUMENT

ALUMINUM MONUMENTS

(INCLUDES MARKER)

GENERAL NOTES

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

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

INSTALLED METAL MONUMENTS MUST BE EASILY DETECTED WITH A DIP NEEDLE. INSERT PERMANENT MAGNETS SHALL BE ATTACHED NEAR THE TOP AND BOTTOM OF THOSE MONUMENTS CONSTRUCTED OF A METAL ALLOY WHICH IS NOT ATTRACTIVE TO A DIP NEEDLE.

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

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

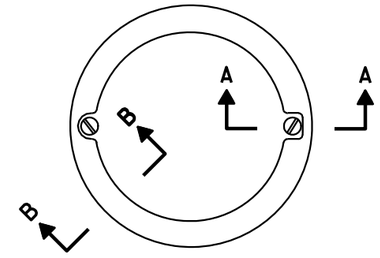
ALUMINUM MONUMENTS AND MONUMENT COVERS SHALL BE MADE FROM AN ALUMINUM AND MAGNESIUM ALLOY AS DETERMINED BY THE MANUFACTURER.

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

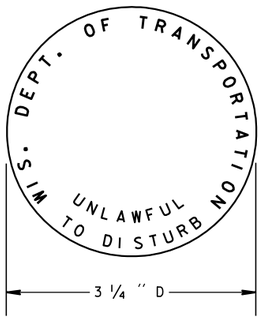
MONUMENT SHALL BE CAST-IN-PLACE CONCRETE UNLESS PRECAST CONCRETE OR ALUMINUM MONUMENTS ARE SPECIFIED IN THE CONTRACT OR PERMITTED BY THE ENGINEER.

① MINIMUM LENGTH SHALL BE 4'-0" FOR MONUMENTS INSTALLED IN PAVED AREAS.

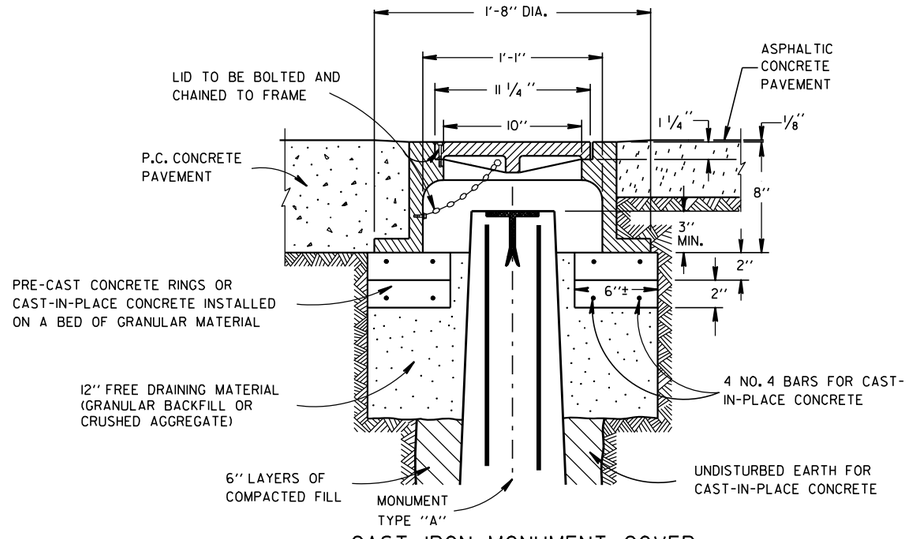
② AN OFFICIAL COUNTY MONUMENT MARKER SUPPLIED BY A COUNTY MAY BE REQUIRED FOR SOME SECTION CORNERS AND WITNESS MONUMENTS INSTEAD OF THIS WIS DOT MARKER.



TOP VIEW

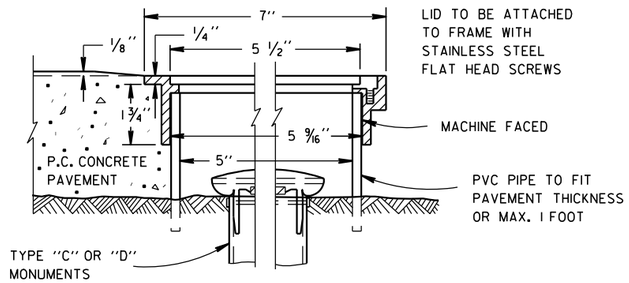


② WIS DOT MONUMENT MARKER LOGO FOR TYPES "A", "C" & "D"



CAST IRON MONUMENT COVER

(APPROXIMATE WEIGHT - 95 LBS.)



SECTION B-B SECTION A-A

ALUMINUM MONUMENT COVER

(APPROXIMATE WEIGHT 2 LBS)

(FOR CONCRETE PAVEMENT ONLY)

LANDMARK REFERENCE MOUNMENTS AND COVERS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

9/22/1999 DATE

/S/ Rory L. Rhinesmith
CHIEF ROADWAY DEVELOPMENT ENGINEER

FHWA

6

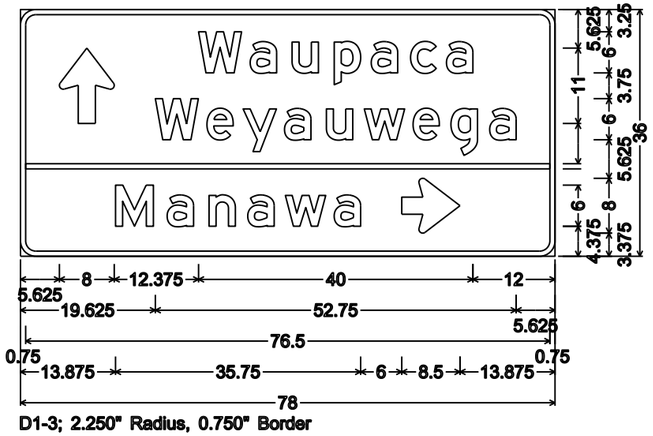
S.D.D. 16 A 1-6

6

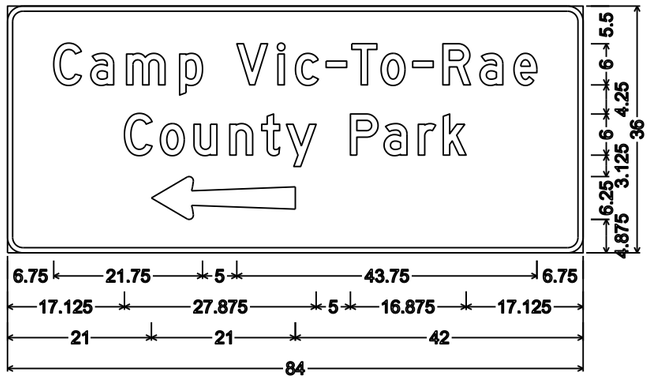
S.D.D. 16 A 1-6

NOTES

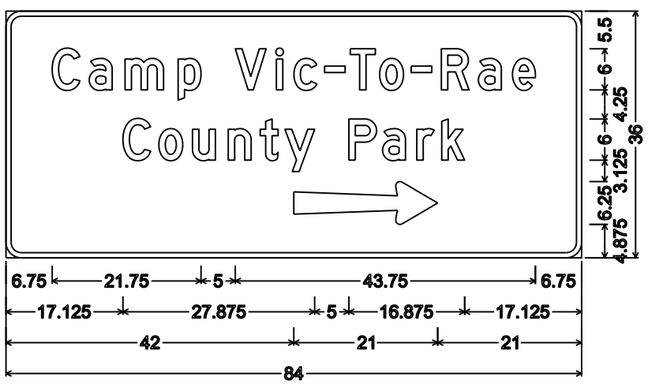
1. All Signs Type II - Type H Reflective
2. Color:
   Background - Green except as noted
   Message - White
3. Message Series - E except as noted



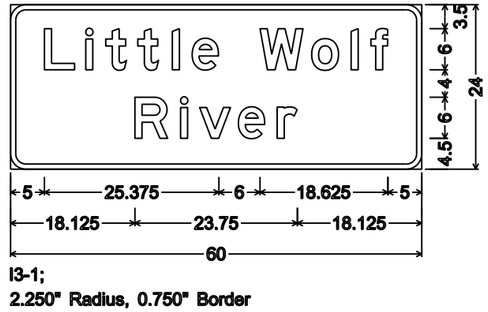
D1-3; 2.250" Radius, 0.750" Border



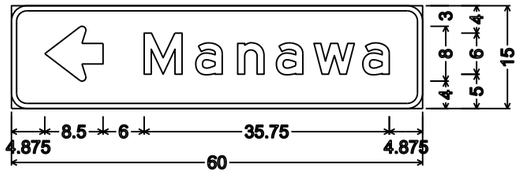
D7-68L; 2.250" Radius, 0.750" Border, White on Brown;
"Camp" D; "Vic-To-Rae" D; "County" D; "Park" D



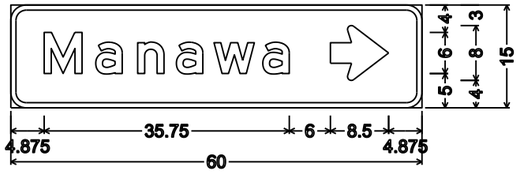
D7-68R; 2.250" Radius, 0.750" Border, White on Brown;
"Camp" D; "Vic-To-Rae" D; "County" D; "Park" D



I3-1;
2.250" Radius, 0.750" Border



D1-1;
2.250" Radius, 0.750" Border



D1-1;
2.250" Radius, 0.750" Border

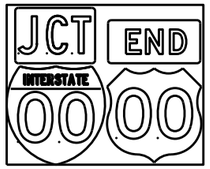
7

7

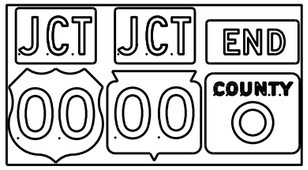
PROJECT NO: 6220-03-74	HWY: STH 54	COUNTY: WAUPACA	PERMANENT SIGNING	SHEET NO: 123	E

TYPICAL ASSEMBLIES

J1-1

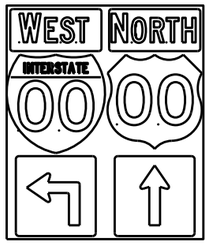


J1-2

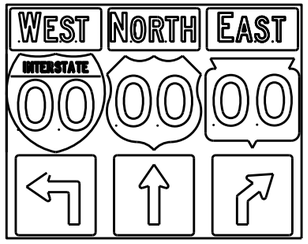


J1-3

J2-1



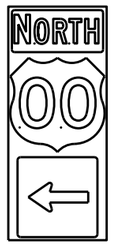
J2-2



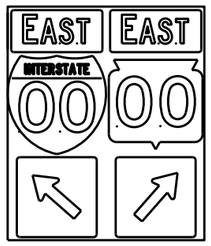
J2-3

JV

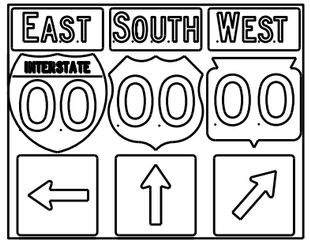
(Typical Vertical J-Assembly
See Note 10 and 11)



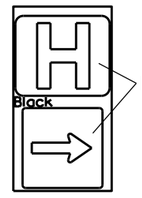
J3-1



J3-2



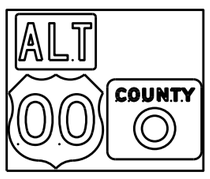
J3-3



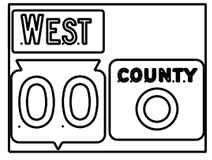
Blue Background

JH-1

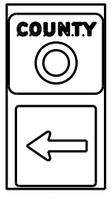
J4-1



J4-2



J4-2



J13-1

J12-1

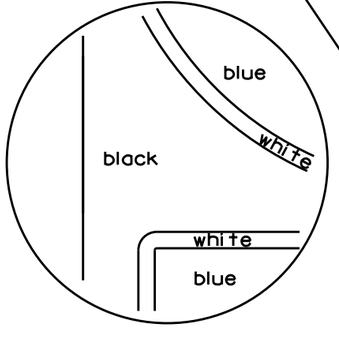
J32-1

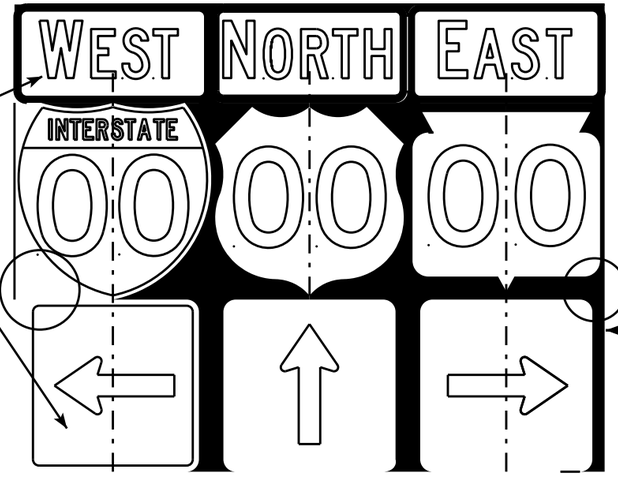
J33-1

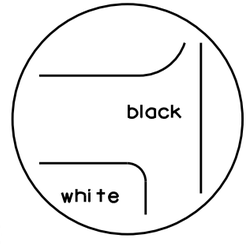
J23-1

J22-1

[blue background with interstate]







[black background]

NOTES

1. Signs are Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
   Background - Black Non-reflective
   Message - see Note 5
3. Message Series - See Note 5
4. Corners shall be square or rounded if base material is plywood. If base material is metal the corners shall be rounded.
5. The colors and message spacing on each marker shall be according to the applicable route marker panel specifications.
6. Certain marker heads require the component pieces to be the same color. As an example, all the components used with an M1-1 Interstate marker shall be blue.
7. Single panel j-assemblies shall only be used with route marker shields that are same size. If the route marker shields are different size use multiple piece component.
8. Route assemblies that have 24 inch route shields and have dimensions greater than 48 inches (both vertical and horizontal) shall have one horizontal splice between the arrows and route shields. Vertical splices shall not be used on route assemblies with a horizontal dimension of 144 inches or less. The contractor shall not use more than one vertical joint per sign and the joint shall be between route shields.
9. Route assemblies that have 36 inch shields and have dimensions greater than 48 inchs (both vertical and horizontal) shall have two horizontal splices. One horizontal splice shall be between the cardinal direction and route shields and the other horizontal splice shall be between the arrows and route shields. Vertical splices shall not be used on route assemblies with a horizontal dimension of 144 or less. The contractor shall not use more than one vertical joint per sign and the joint shall be between route shields.
10. All Vertical J Assemblies are given a Sign Code of JV
11. For JV Assemblies that have a mixture of Interstate and non Interstate shields, arrows and cardinals shall be white on blue.

ROUTE MARKERS & COMPONENTS
IN TYPICAL ASSEMBLIES

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 2/06/14 PL... A2-1S.8

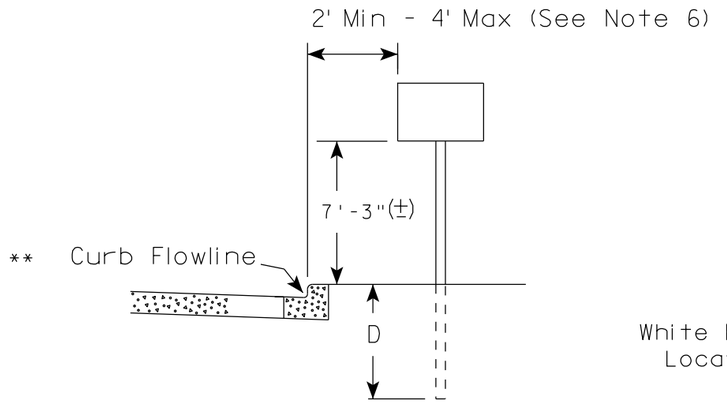
PROJECT NO:

SHEET NO: E

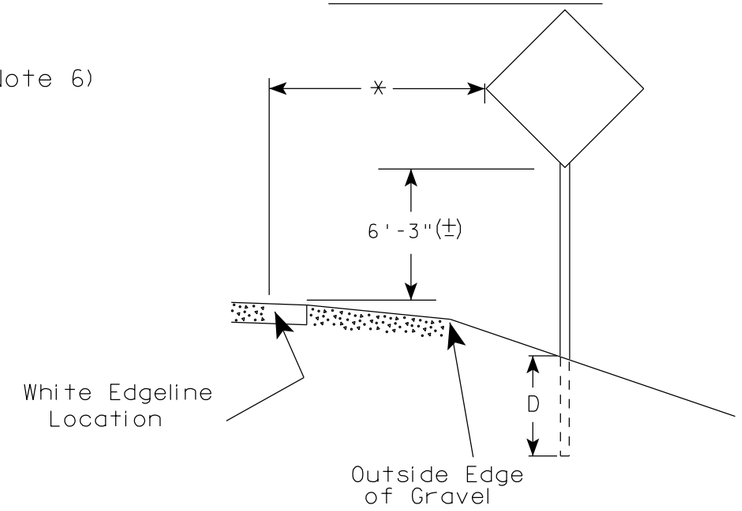
FILE NAME : C:\CAEFiles\Projects\tr_stdplate\A21S.DGN PLOT DATE : 06-FEB-2014 14:10 PLOT BY : mscsja PLOT NAME :

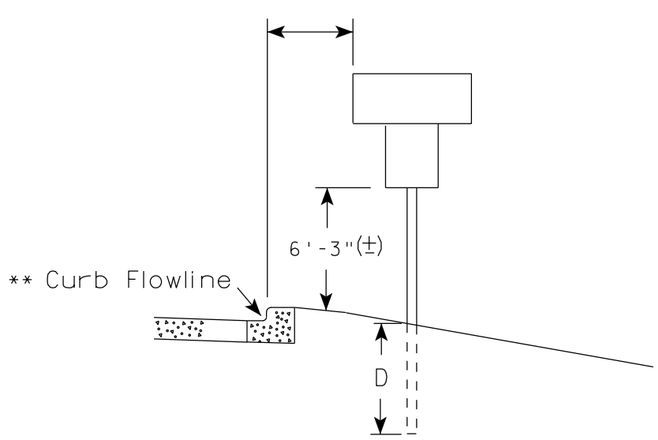
WISDOT/CADDS SHEET 42

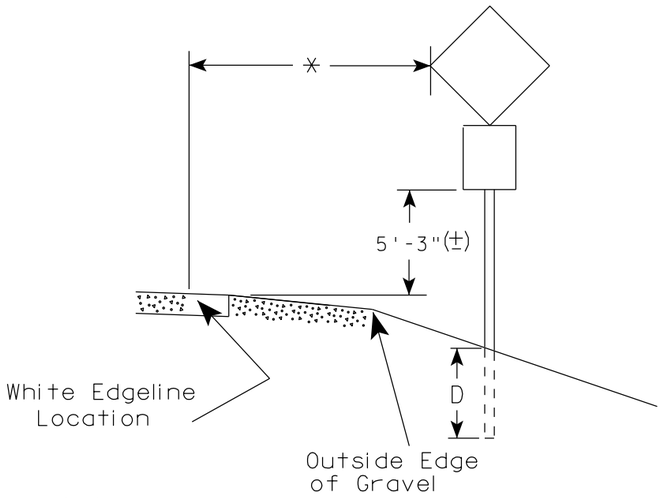
URBAN AREA



RURAL AREA (See Note 2)







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

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

POST EMBEDMENT DEPTH

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

GENERAL NOTES

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

TYPICAL INSTALLATION OF PERMANENT TYPE II SIGNS ON SINGLE POSTS

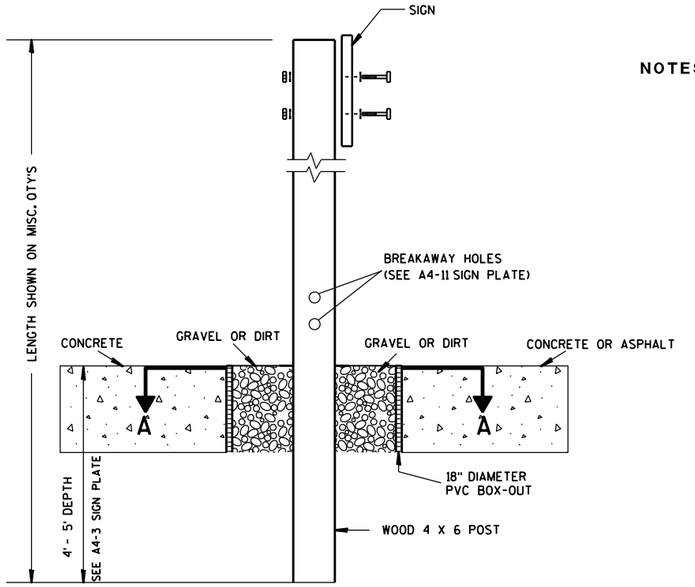
WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

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

PROJECT NO:	HWY:	COUNTY:		SHEET NO:	E

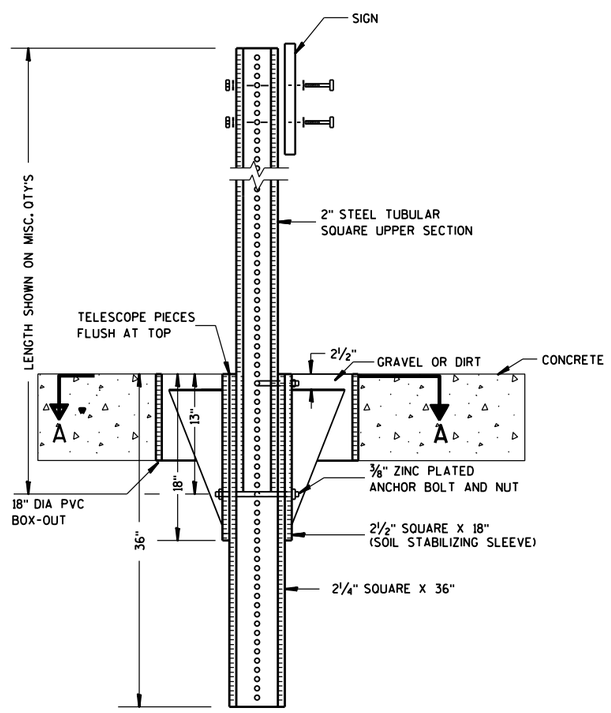
7



ELEVATION VIEW

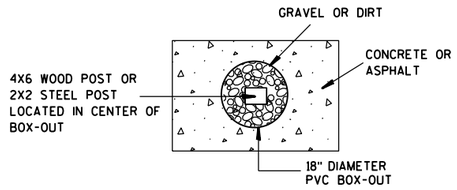
DETAIL OF WOOD 4 X 6 SIGN POST IN BOX-OUT

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

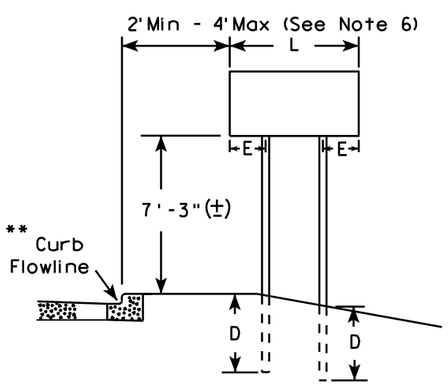
APPROVED Matthew R Rauch
for State Traffic Engineer

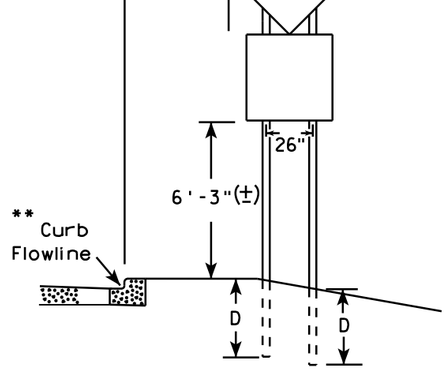
DATE 1/27/14 PLATE NO. A4-3B.1

PROJECT NO:	HWY:	COUNTY:		SHEET NO:	E

FILE NAME : C:\CAEFiles\Projects\tr_stdplate\A43B.DGN PLOT DATE : 27-JAN-2014 09:48 PLOT BY : mscsja PLOT NAME : PLOT SCALE : 13.659812:1.000000 WISDOT/CADDS SHEET 42

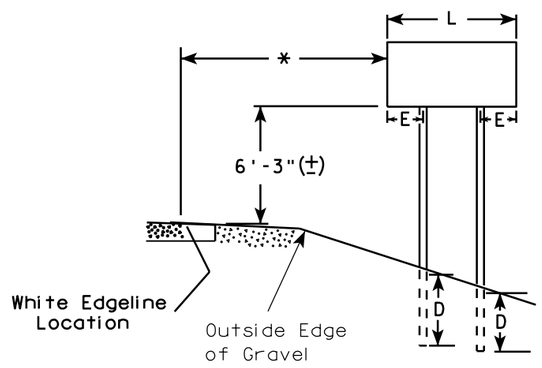
URBAN AREA

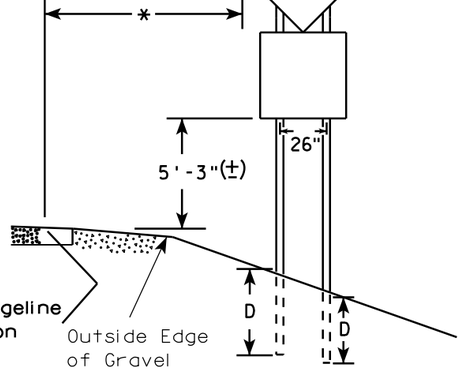




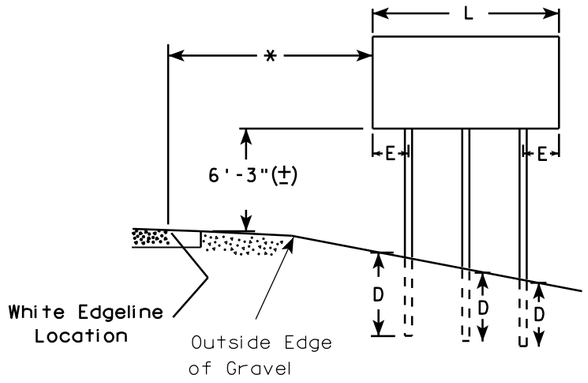
48" DIAMOND WARNING SIGN

RURAL AREA (See Note 3)





48" DIAMOND WARNING SIGN



GENERAL NOTES

1. For 3 or 4 post installations, individual post spacing shall be greater than 3'-6".
2. See tables below for required number of posts.
3. For expressways and freeways, mounting height is 7'-3" (±) or 6'-3" (±) depending upon existence of sub-sign.
4. The (±) tolerance for mounting height is 3 inches.
5. Minimum mounting height for J assemblies (A2-1S) is 7'-3" (±) or 6'-3" (±) per urban or rural detail respectively.
6. Offset distance shall be consistent with existing signs or consistent throughout length of project.
7. Folding signs shall be mounted at a height of 5'-3" (±) or as directed by the engineer.
8. The Double Arrow sign (W12-1) shall be mounted at a height of 2'-3" (±). The Chevron sign (W1-8), Roundabout Chevron panel (R6-4B), Clearance Markers (W5-52), Mile Markers (D10 series), In Road Object Markers (W5-54) & End of Road Markers (W5-56) shall be mounted at a height of 4"-3" (±).

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

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

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

SIGN SHAPE OTHER THAN DIAMOND (TWO POSTS REQUIRED)	
L	E
Greater than 48" Less than 60"	12"
60" to 120"	L/5

***

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

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

POST EMBEDMENT DEPTH

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

TYPICAL INSTALLATION OF TYPE II SIGNS ON MULTIPLE POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

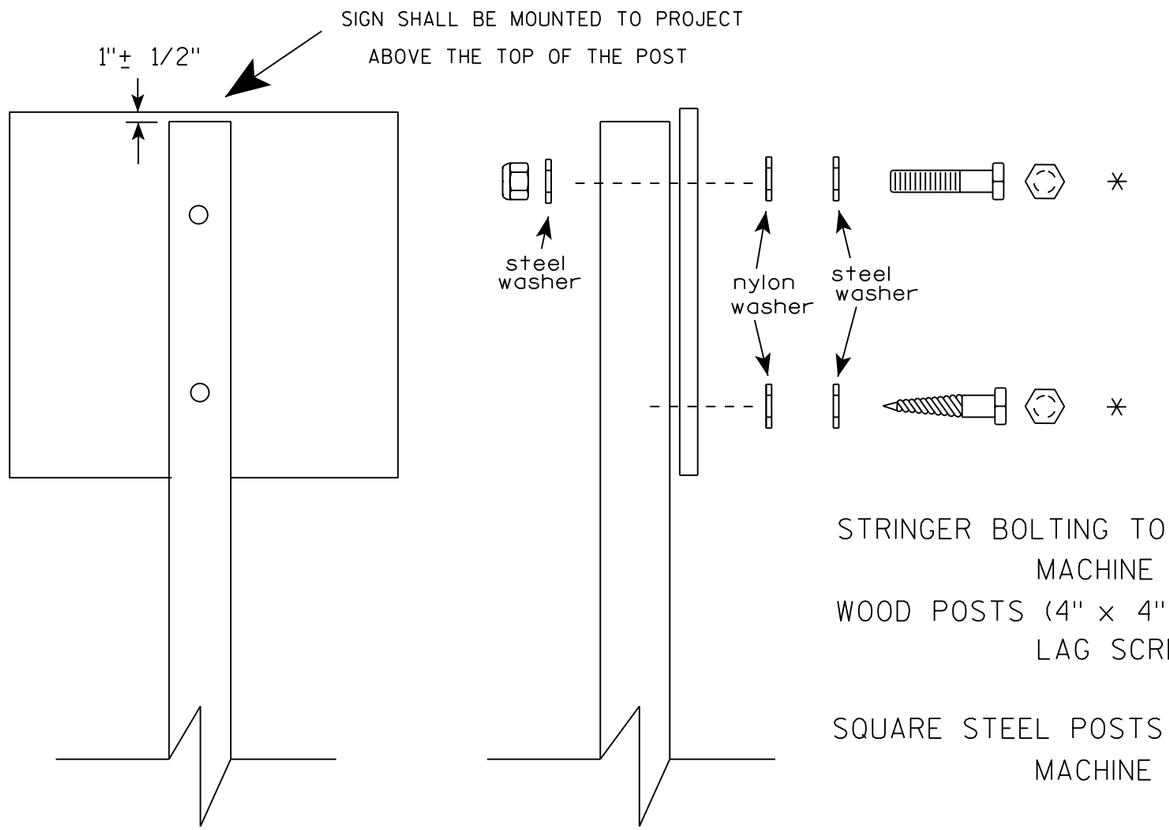
DATE 7/23/15 PLATE NO. A4-4 14

127

PROJECT NO:	HWY:	COUNTY:		SHEET NO:	E

FILE NAME : C:\CAEfiles\Projects\tr_stdplate\A44.DGN PLOT DATE : 23-JUL-2015 15:23 PLOT BY : mscj9h PLOT NAME : PLOT SCALE : 107.021305:1.000000

WISDOT/CADDS SHEET 42



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

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

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

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

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

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

WOOD POSTS (4" x 4" or 4" x 6")

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

3/8" X 4" (STRINGERS ON BACK OF SIGN)

SQUARE STEEL POSTS (2" x 2")

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

3/8" X 5" Length w/ nuts (STRINGERS ON BACK OF SIGN)

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

WASHERS (ALL POSTS) -

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

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

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

ATTACHMENT OF SIGNS TO POSTS

WISCONSIN DEPT OF TRANSPORTATION

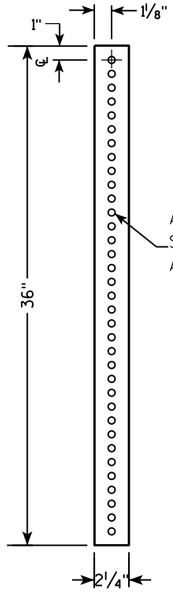
APPROVED Matthew R Rauch
For State Traffic Engineer

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

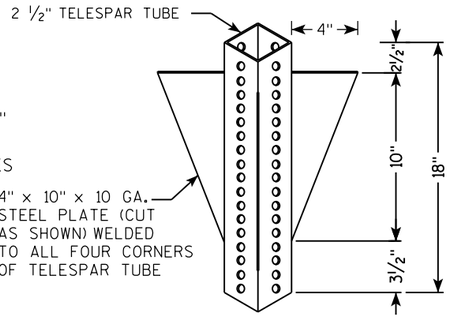
PROJECT NO: SHEET NO: E

TELESCOPIC TUBING ANCHORS
TWO PIECE SYSTEM

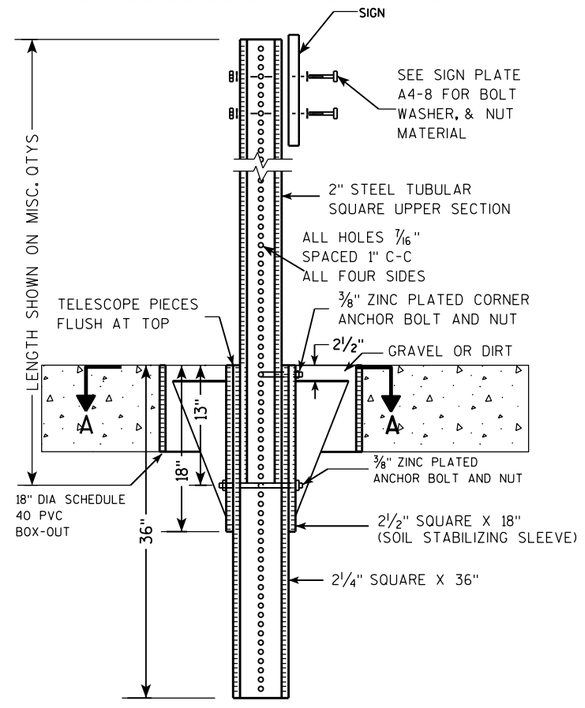
2 1/4 " SQUARE
12 GAUGE
PERFORATED
GALVANIZED FINISH



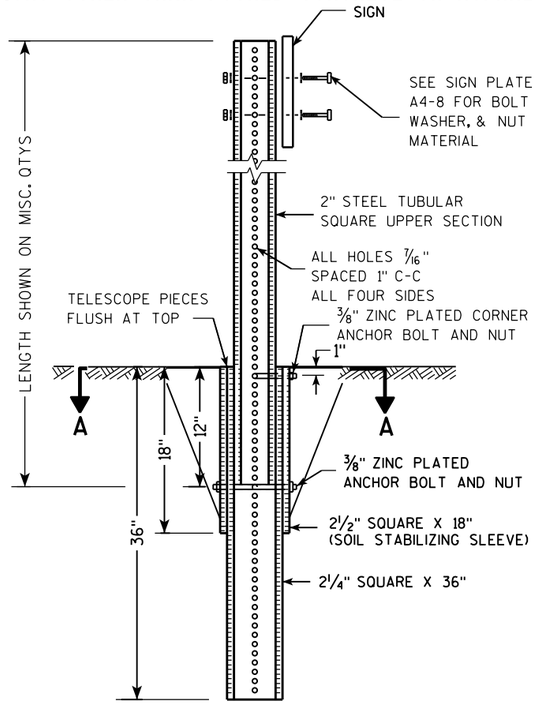
2 1/2 " SQUARE
12 GAUGE
OMNI-DIRECTIONAL
PERFORATED
SOIL STABILIZING SLEEVE
GALVANIZED FINISH

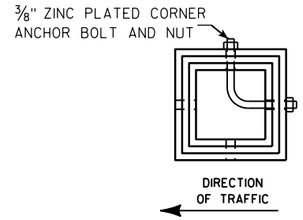


DETAIL OF TUBULAR STEEL SIGN POST
(IN POURED CONCRETE OR ASPHALT)



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

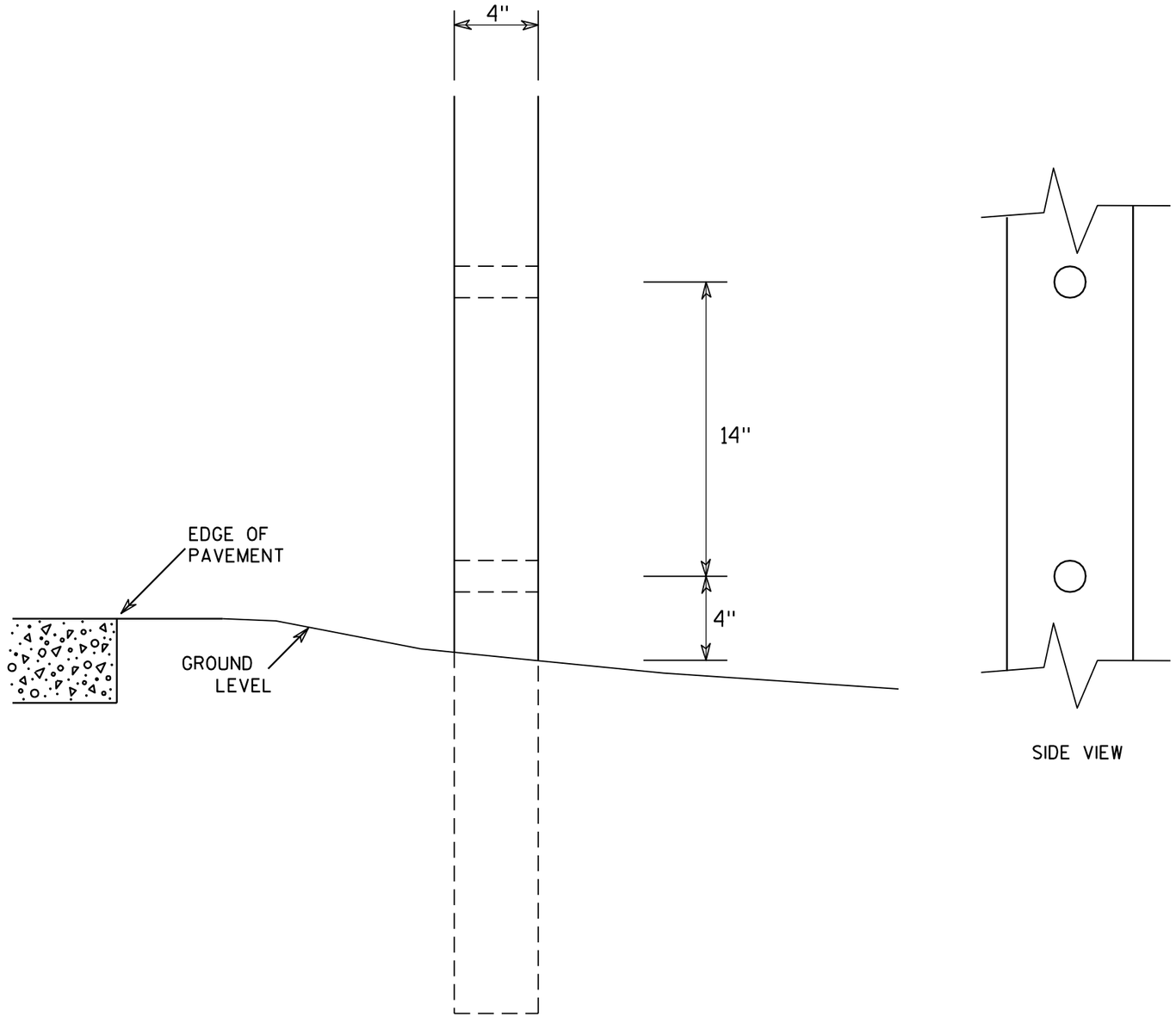
WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 2/05/15 PLATE A4-9.9

PROJECT NO:	HWY:	COUNTY:		SHEET NO:	E

FILE NAME : C:\CAEFiles\Projects\tr_stdplate\A49.DGN PLOT DATE : 05-FEB-2015 17:09 PLOT BY : mscsja PLOT NAME : PLOT SCALE : 13.659812:1.000000
WISDOT/CADDS SHEET 42



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

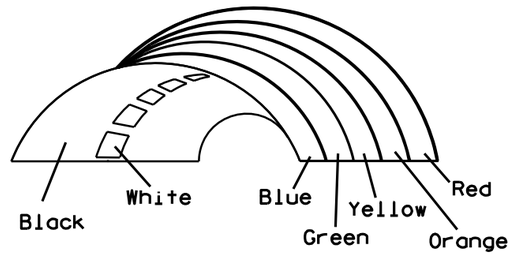
PROJECT NO:	HWY:	COUNTY:		SHEET NO: 130	E

* VARIES

NOTES

1. Sign is Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
   Background - White
   Message - (See Note 5)
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. Border - Blue
   Line 1 - Red
   Line 2 - Black
   Line 3-5 - Blue
6. Line 1 - Dutch 8011L
   Line 2 - Series E
   Line 3-5 - Series C
7. Contractor shall provide and install a new post bracket in accordance with the I55-56B sign detail.

Background Colors of Symbol*



*1/4" Black Border between each color of rainbow and border of rainbow

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	30	36	1 1/2	1/2	5/8	3	2	3 1/2	2 7/8	1	8	2 1/8	11 1/4	11 1/8	9 3/8	1 1/4		3/4	12 5/8	7 1/2							7.5
3																											
4																											
5																											

STANDARD SIGN
I55-56

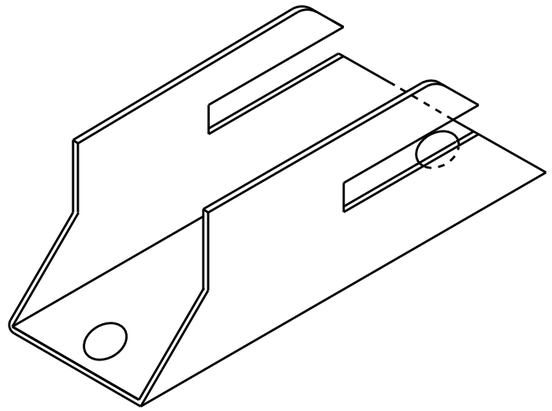
WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

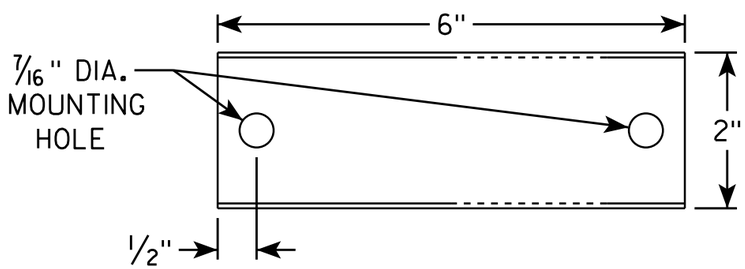
DATE 4/27/11 PLATE NO. 155-56.3

PROJECT NO:	HWY:	COUNTY:		SHEET NO: 131

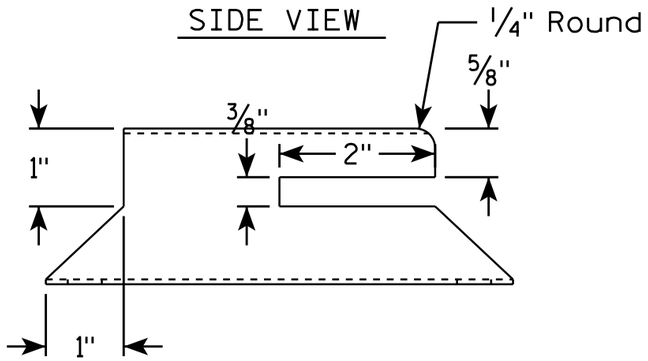
ISOMETRIC VIEW



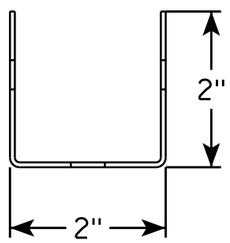
TOP VIEW



SIDE VIEW



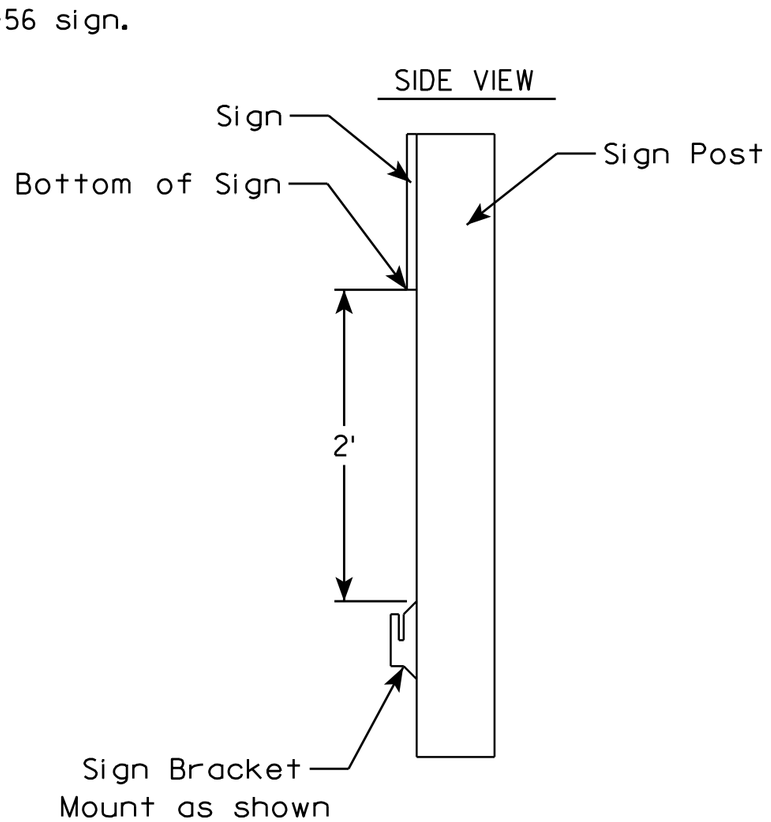
END VIEW



NOTES

1. Must be capable of permanent attachment to a wood or steel channel sign post utilizing the fastening hardware specified on the A4-8 sign plate.
2. Shall be entirely primed and painted with two coats of a black powder coated enamel paint.
3. Shall be made with 12 gauge steel, and incorporate no welds, no hinged components, no threaded lock-type components, and no parts which are loose or can be separated from the main body.
4. Shall have rounded edges with at least 1/8" radii.
5. Shall not have unrounded and uncoated metal edges which can contact the back surface of the roll-up sign.
6. Top of bracket shall be mounted 2' below the bottom of the I55-56 sign.
7. Cost of bracket and fastening hardware shall be incidental to the I55-56 sign.

SIDE VIEW



7

7

ROLLUP SIGN BRACKET
I55-56B

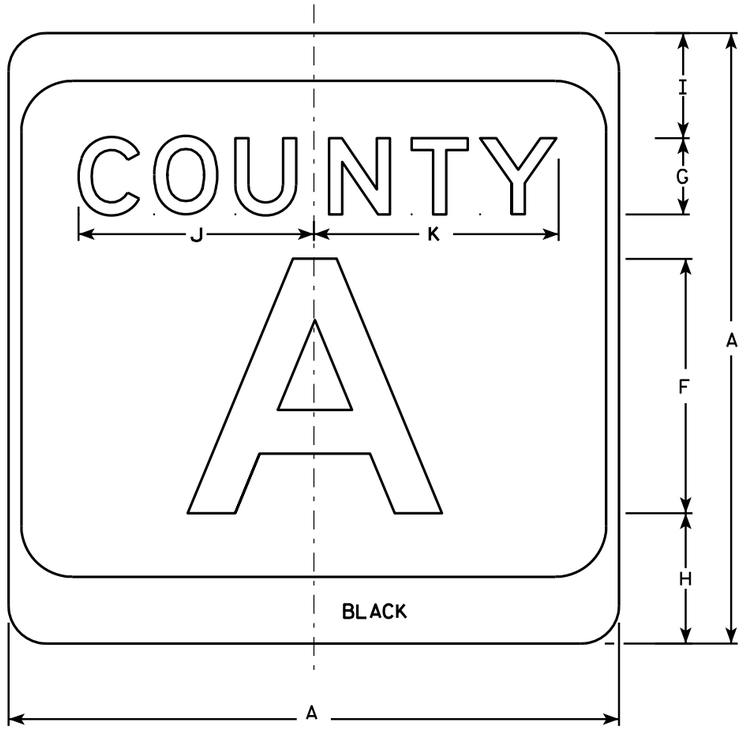
WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

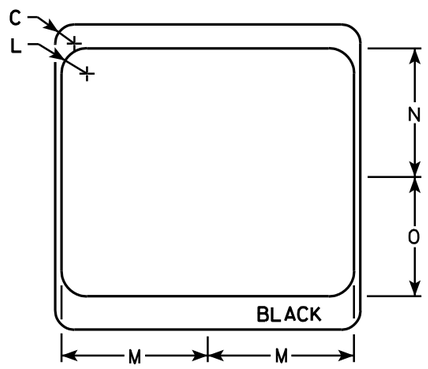
DATE 4/26/16 PLATE I55-56B.2

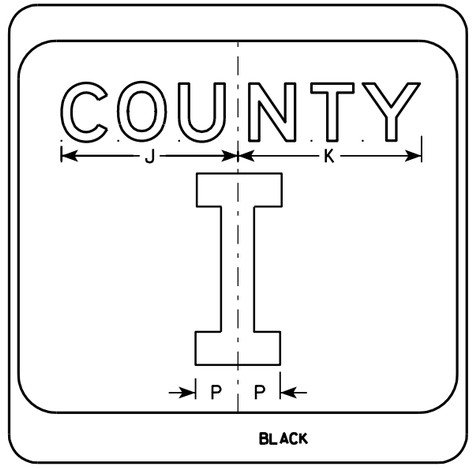
PROJECT NO:	HWY:	COUNTY:		SHEET NO:	E

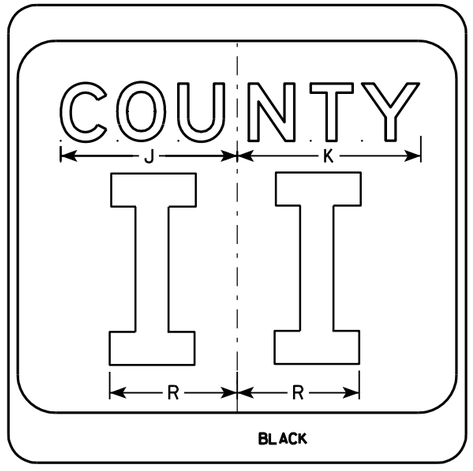
FILE NAME : C:\CAEfiles\Projects\tr_stdplate\I5556B.DGN PLOT DATE : 26-APR-2016 17:29 PLOT BY : mscj9h PLOT NAME : PLOT SCALE : 1.945842:1.000000 WISDOT/CADDS SHEET 42



M1-5A







NOTES

1. Sign is Type II - see Note 7 - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
   Background - White & Black - See Note 7
   Message - Black
3. Message Series - see Note 5
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. Message Series E for 1 letter.
   Message Series D for 2 letters unless message is too big then Series C.
   Message Series C for 3 letters unless message is too big then Series B.
6. Substitute appropriate letters & optically center to achieve proper balance.
7. Permanent Signs
   Background - Type H Reflective
   Detour or temporary Signs
   Background - Reflective

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2	24		1 1/2			10	3	5 1/8	4 1/8	9 1/4	9 5/8	2	11 1/2	10 1/8	9 3/8	2 1/4		6 5/8									4.0
3	36		2 1/4			16	4	7 5/8	5 5/8	12 1/4	12 7/8	3	17 1/8	15 1/4	14	3 3/8		10									9.0
4	36		2 1/4			16	4	7 5/8	5 5/8	12 1/4	12 7/8	3	17 1/8	15 1/4	14	3 3/8		10									9.0
5	36		2 1/4			16	4	7 5/8	5 5/8	12 1/4	12 7/8	3	17 1/8	15 1/4	14	3 3/8		10									9.0

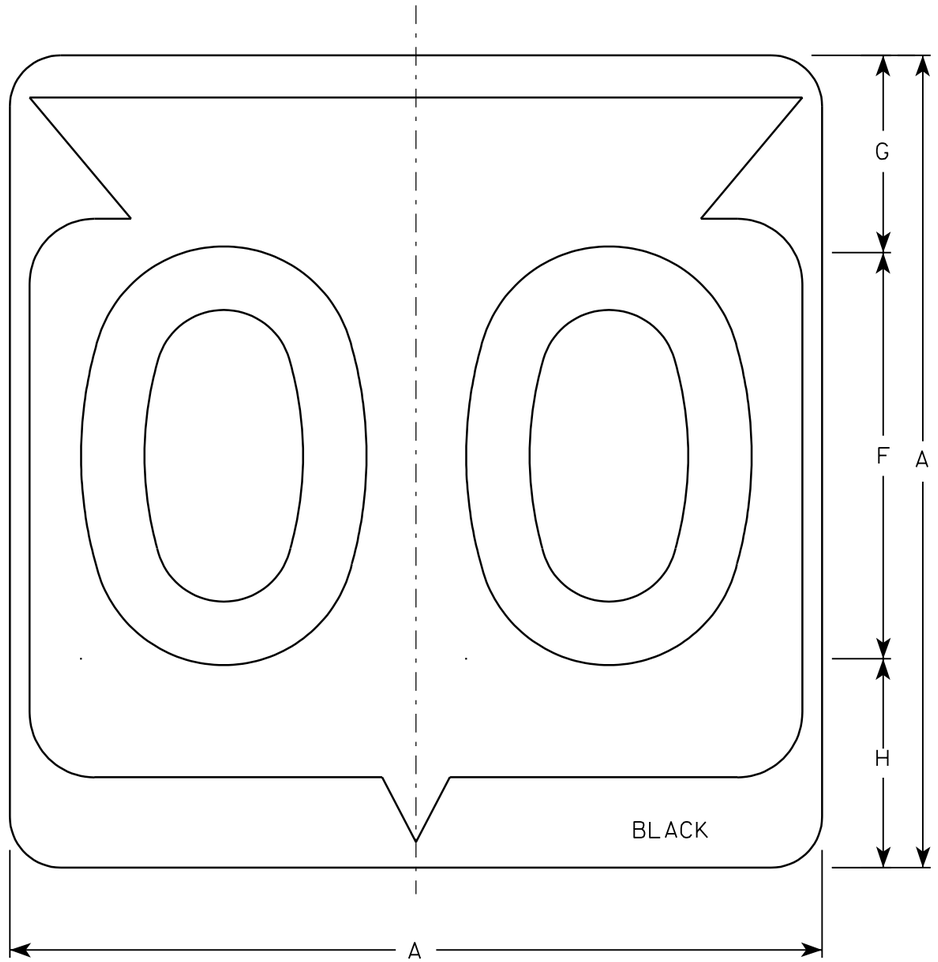
CTH MARKER
M1-5A FOR ASSEMBLIES

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 9/27/11 PLATE NO. M1-5A.8

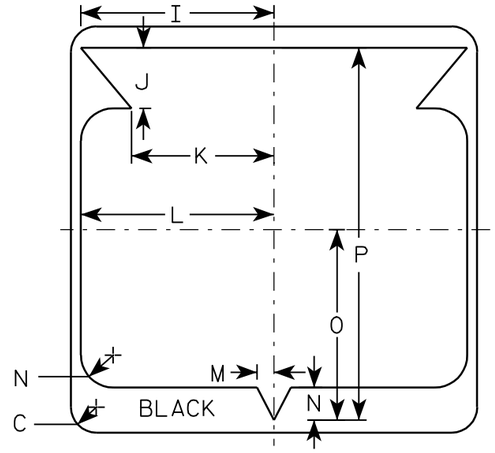
PROJECT NO:	HWY:	COUNTY:		SHEET NO: 133	E



M1-6

NOTES

1. Sign is Type II - See Note 6 - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
   Background - White & Black - See Note 6
   Message - Black
3. Message Series - See note 5
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. Substitute appropriate Series numerals and adjust spacing as per plate A10-1.
6. Permanent Signs
   Background - Type H Reflective
   Detour or temporary Signs
   Background - Reflective



Metric equivalent for this sign is:

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

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.	Area m2
1																												
2	24		1 1/2			12	5 1/2	6 1/2	10 1/4	2 1/2	8 7/8	11 1/2	1	1 7/8	11 1/4	21 7/8											4.0	.36
3	36		2 1/4			18	8 3/4	9 1/4	15 3/8	5 3/8	12 5/8	17 1/8	1 1/2	2 7/8	16 7/8	33											9.0	.81
4	36		2 1/4			18	8 3/4	9 1/4	15 3/8	5 3/8	12 5/8	17 1/8	1 1/2	2 7/8	16 7/8	33											9.0	.81
5	36		2 1/4			18	8 3/4	9 1/4	15 3/8	5 3/8	12 5/8	17 1/8	1 1/2	2 7/8	16 7/8	33											9.0	.81

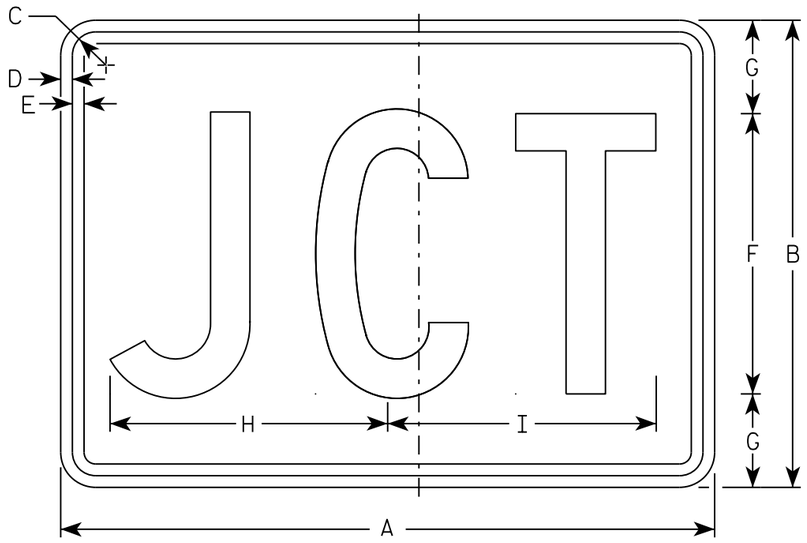
STATE ROUTE MARKER M1-6 FOR ASSEMBLIES

WISCONSIN DEPT OF TRANSPORTATION

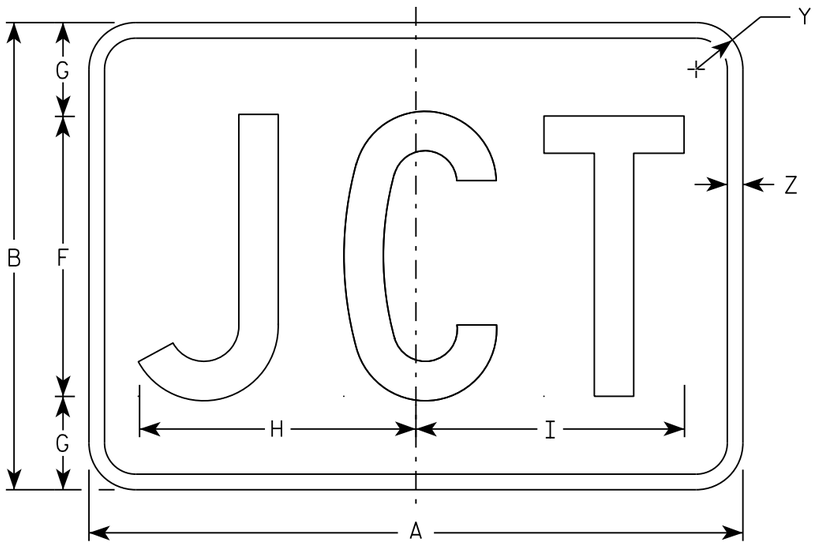
APPROVED Chester J Spang for State Traffic Engineer

DATE 3/20/02 PLATE NO. M1-6.9

PROJECT NO:	HWY:	COUNTY:		SHEET NO: 134	E



M2-1
MM2-1
MP2-1



MB2-1
MK2-1
MN2-1
MR2-1

NOTES

1. Sign is Type II - Type H
2. Color:
   Background - See note 5
   Message - See note 5
3. Message Series - C
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. M2-1 Background - White
   Message - Black
   MB2-1 Background - Blue
   Message - White
   MK2-1 Background - Green
   Message - White
   MM2-1 Background - White
   Message - Green
   MN2-1 Background - Brown
   Message - White
   MP2-1 Background - White
   Message - Blue
   MR2-1 Background - Brown
   Message - Yellow

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2	21	15	1 1/8	3/8	3/8	9	3	8 7/8	8 5/8																1 1/2	1/2	2.20
3	30	21	1 1/8	3/8	3/8	13	4	12 7/8	12 3/8																1 1/2	1/2	4.40
4	30	21	1 1/8	3/8	3/8	13	4	12 7/8	12 3/8																1 1/2	1/2	4.40
5	30	21	1 1/8	3/8	3/8	13	4	12 7/8	12 3/8																1 1/2	1/2	4.40

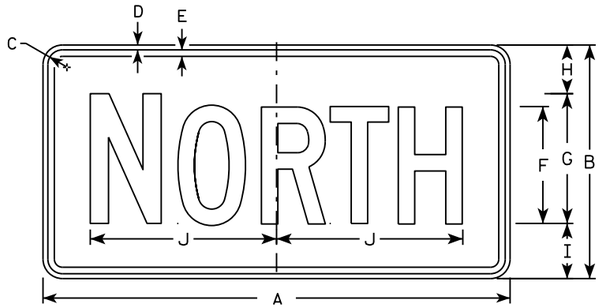
STANDARD SIGN
M2-1

WISCONSIN DEPT OF TRANSPORTATION

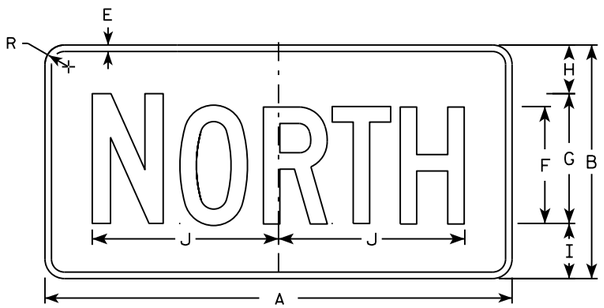
APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 10/15/15 PLATE 135 12-1.12

PROJECT NO:	HWY:	COUNTY:		SHEET NO:	E



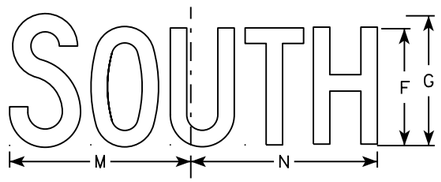
M3-1
MM3-1
MP3-1



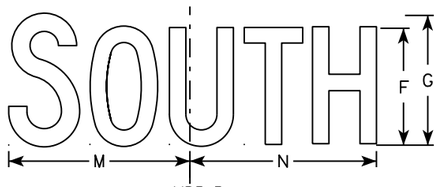
MB3-1
MK3-1
MN3-1

M3-2
MM3-2
MP3-2

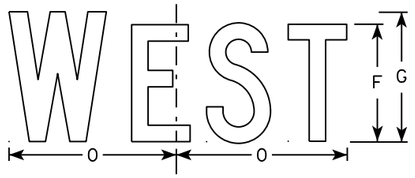
MB3-2
MK3-2
MN3-2



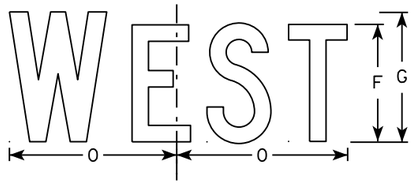
M3-3
MM3-3
MP3-3



MB3-3
MK3-3
MN3-3



M3-4
MM3-4
MP3-4



MB3-4
MK3-4
MN3-4

NOTES

1. All Signs Type II - Type H
2. Color:
   Background - See note 5
   Message - See note 5
3. Message Series - C
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. M3-1 thru M3-4 Background - White
   Message - Black
   MB3-1 thru MB3-4 Background - Blue
   Message - White
   MK3-1 thru MK3-4 Background - Green
   Message - White
   MM3-1 thru MM3-4 Background - White
   Message - Green
   MN3-1 thru MN3-4 Background - Brown
   Message - White
   MP3-1 thru MP3-4 Background - White
   Message - Blue
6. Note the first letter of each direction is larger than the remainder of the message.

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2	24	12	1 1/8	3/8	3/8	6	7	2 1/4	2 3/4	10 1/4	7 7/8	8 3/8	10 1/4	9 3/4	8 3/4			1 1/2									2.00
3	36	18	1 1/8	3/8	1/2	9	10	3 3/4	4 1/4	14 3/8	12	12 1/8	14	14 1/8	13			1 1/2									4.5
4	36	18	1 1/8	3/8	1/2	9	10	3 3/4	4 1/4	14 3/8	12	12 1/8	14	14 1/8	13			1 1/2									4.5
5	36	18	1 1/8	3/8	1/2	9	10	3 3/4	4 1/4	14 3/8	12	12 1/8	14	14 1/8	13			1 1/2									4.5

STANDARD SIGNS
M3-1 thur M3-4
SERIES

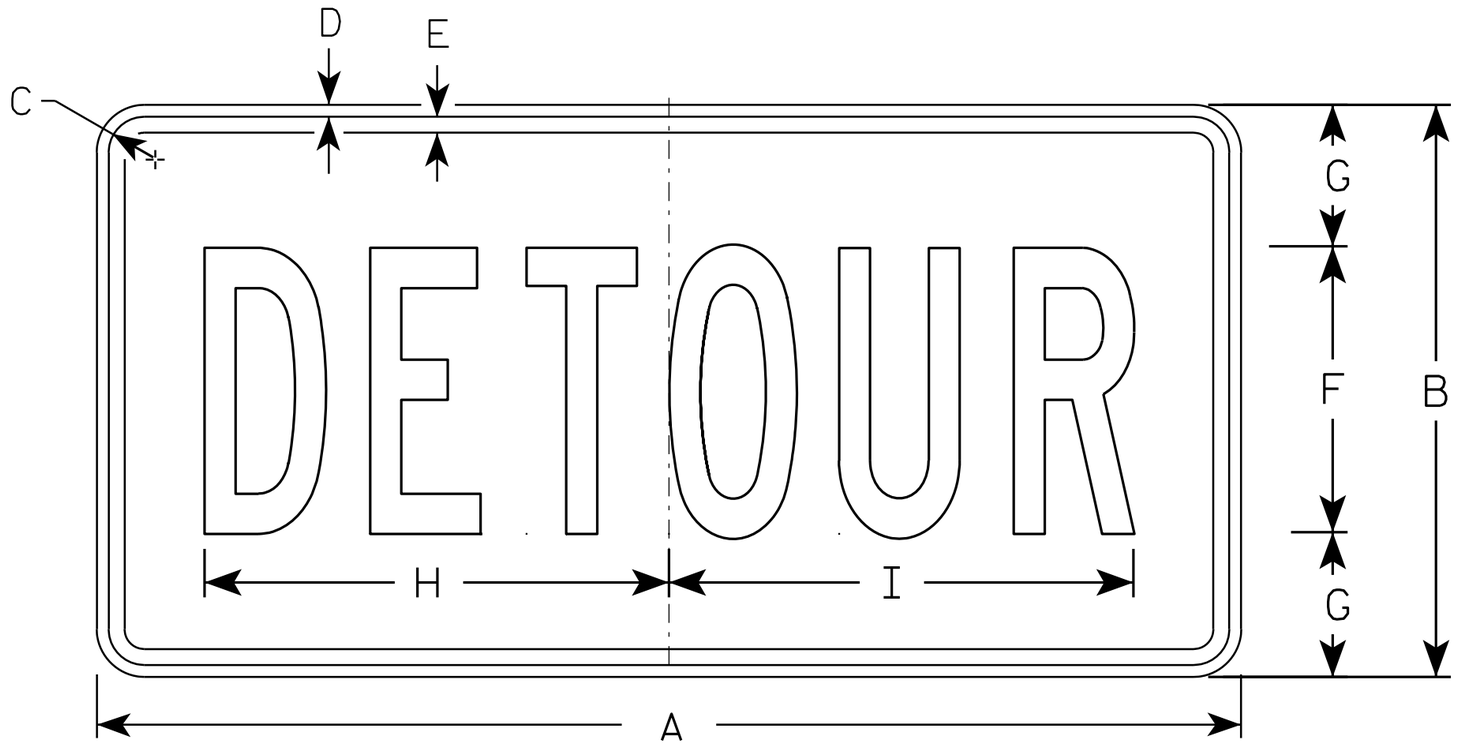
WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew P Rauch for State Traffic Engineer

DATE 10/15/15 PLATE NO M3-1.14

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

FILE NAME : C:\CAEfiles\Projects\tr_stdplate\M31.DGN PLOT DATE : 01-DEC-2015 17:54 PLOT BY : $$ plotuser $$ PLOT NAME : PLOT SCALE : 11.675051:1.000000



M4-8

NOTES

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

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

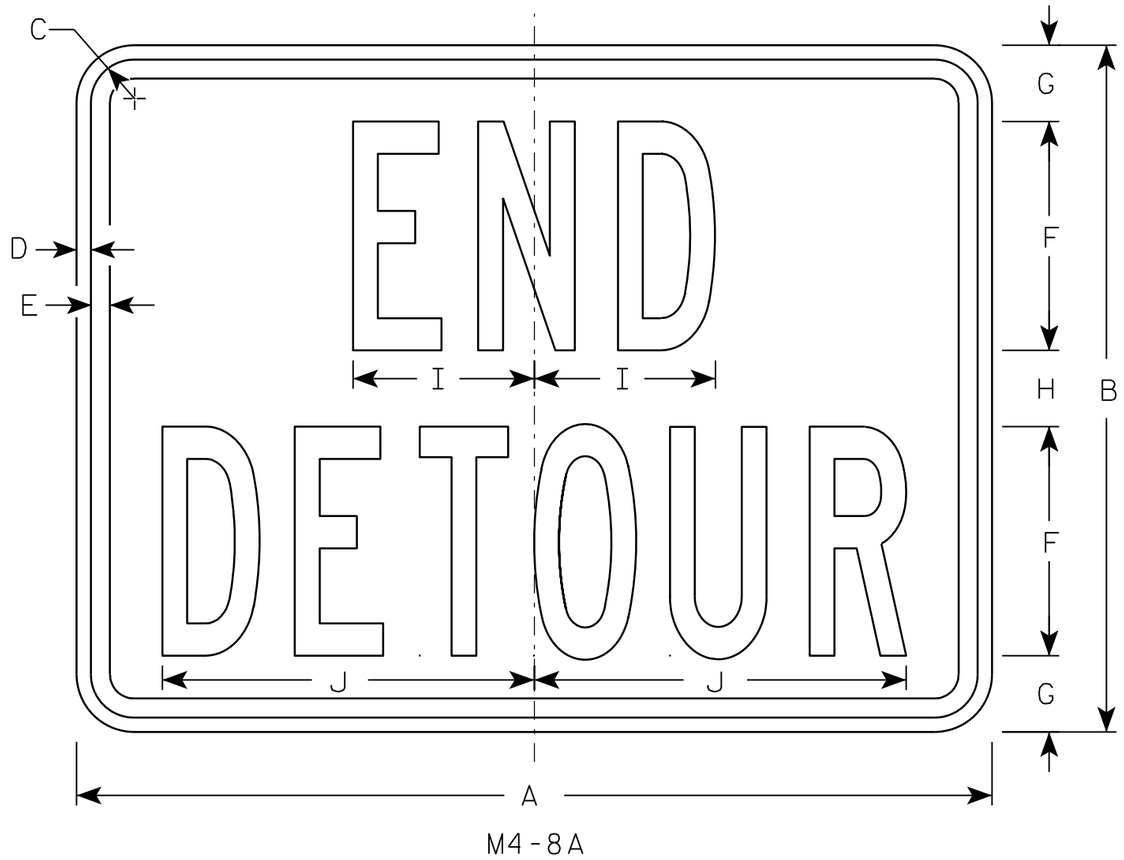
STANDARD SIGN
M4-8

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

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

PROJECT NO:	HWY:	COUNTY:		SHEET NO: 137	E



M4-8A

NOTES

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

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2	24	18	1 1/8	3/8	1/2	6	2	2	4 3/4	9 3/4																	3.0
3	30	24	1 1/8	3/8	1/2	8	2 1/2	3	6 3/4	13																	5.0
4																											
5																											

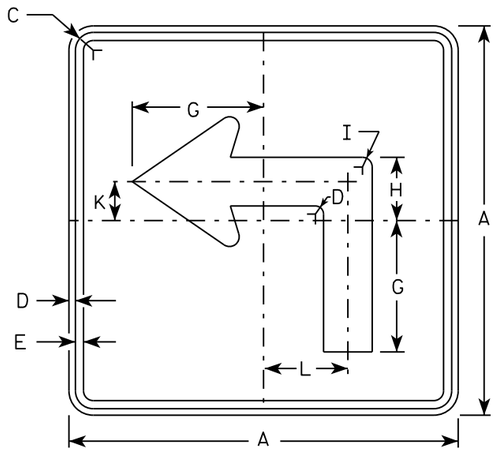
STANDARD SIGN
M4-8A

WISCONSIN DEPT OF TRANSPORTATION

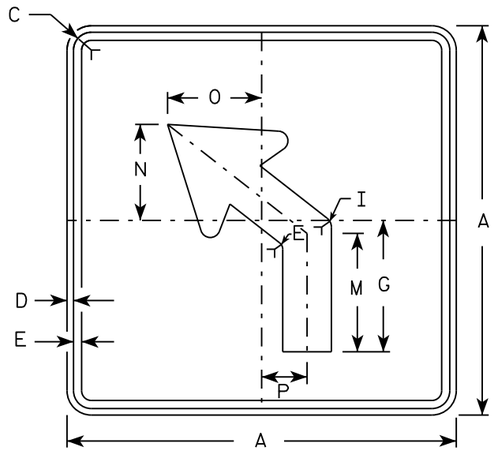
APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 3/9/11 PLATE NO. M4-8A.2

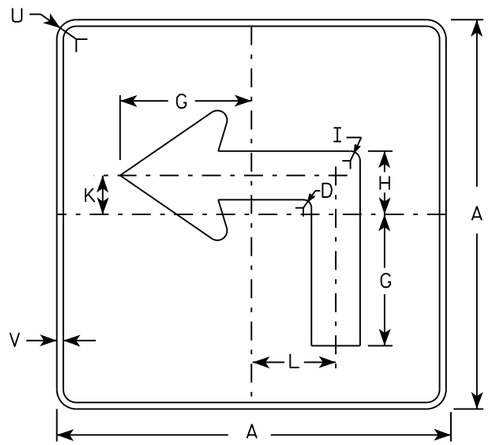
PROJECT NO:	HWY:	COUNTY:		SHEET NO: 138	E



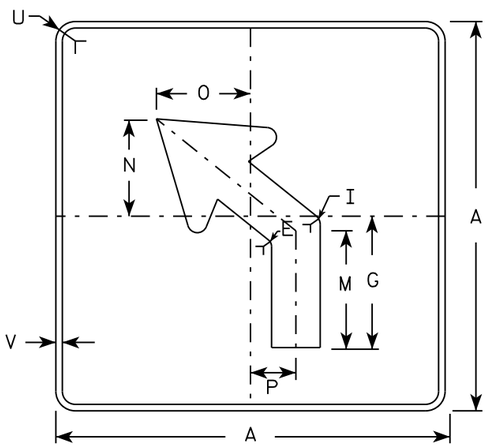
M5-1L
MM5-1L
MO5-1L
MP5-1L



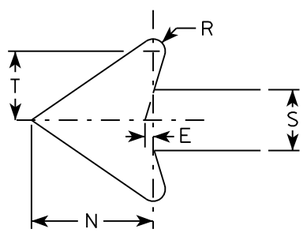
M5-2L
MM5-2L
MO5-2L
MP5-2L



MB5-1L
MK5-1L
MN5-1L
MR5-1L



MB5-2L
MK5-2L
MN5-2L
MR5-2L



NOTES

1. Signs are Type II - Type H reflective except as shown
2. Color:
   Background - See note 4
   Message - See note 4
3. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
4. M5-1 and M5-2 Background - White
   Message - Black
   MB5-1 and MB5-2 Background - Blue
   Message - White
   MK5-1 and MK5-2 Background - Green
   Message - White
   MM5-1 and MM5-2 Background - White
   Message - Green
   MN5-1 and MN5-2 Background - Brown
   Message - White
   MO5-1 and MO5-2 Background - Orange - Type F Reflective
   Message - Black
   MP5-1 and MP5-2 Background - White - Type H Reflective
   Message - Blue
   MR5-1 and MR5-2 Background - Brown
   Message - Yellow
5. M5-1R same as M5-1L except arrow points right.
6. M5-2R same as M5-2L except arrow tilts right.

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2	21		1 1/8	3/8	3/8		7	3 3/8	5/8		2 1/8	4 1/2	6 3/8	5 1/4	5	2 1/2		1/2	2 5/8	3	1 1/2	1/2					3.06
3	30		1 3/8	1/2	5/8		10 1/8	4 7/8	7/8		3	6 1/2	9 1/8	7 1/2	7 1/4	3 1/2		3/4	3 3/4	4 1/4	1 7/8	1/2					6.25
4	30		1 3/8	1/2	5/8		10 1/8	4 7/8	7/8		3	6 1/2	9 1/8	7 1/2	7 1/4	3 1/2		3/4	3 3/4	4 1/4	1 7/8	1/2					6.25
5	30		1 3/8	1/2	5/8		10 1/8	4 7/8	7/8		3	6 1/2	9 1/8	7 1/2	7 1/4	3 1/2		3/4	3 3/4	4 1/4	1 7/8	1/2					6.25

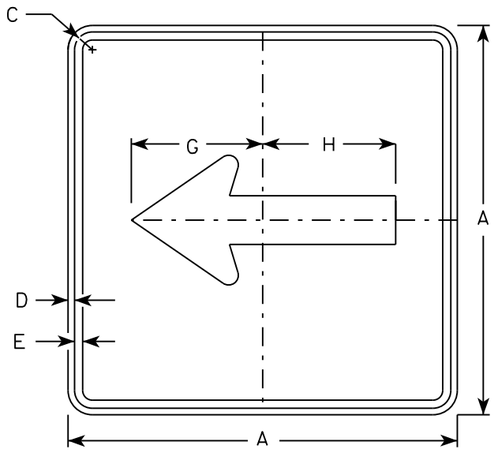
STANDARD SIGN
M5-1 & M5-2

WISCONSIN DEPT OF TRANSPORTATION

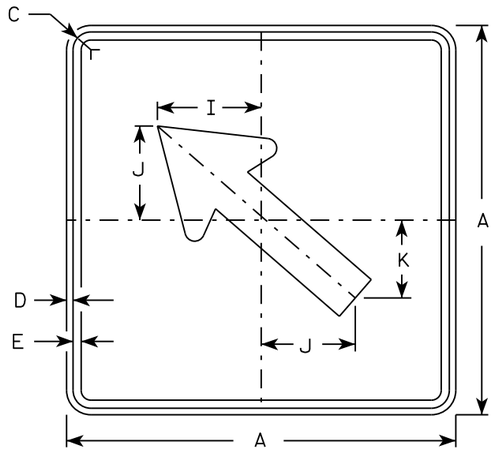
APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 10/15/15 PLATE NO. M5-1.13

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



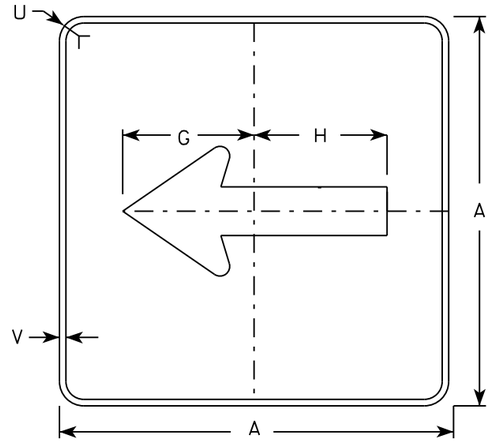
M6-1
MM6-1
MO6-1
MP6-1



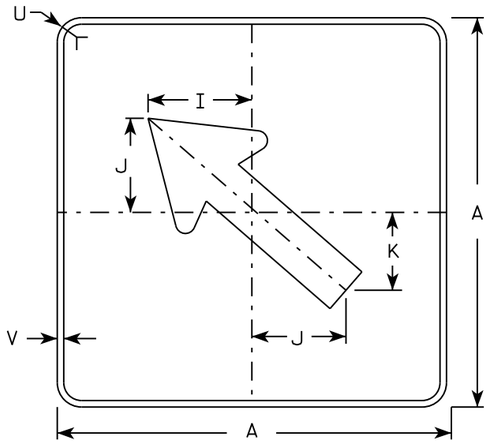
M6-2
MM6-2
MO6-2
MP6-2

NOTES

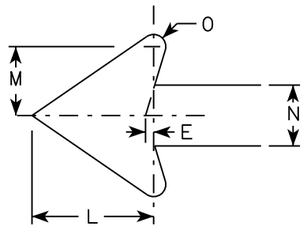
1. Signs are Type II - Type H except as Shown
2. Color:
   Background - See note 4
   Message - See note 4
3. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
4. M6-1 and M6-2 Background - White
   Message - Black
   MB6-1 and MB6-2 Background - Blue
   Message - White
   MK6-1 and MK6-2 Background - Green
   Message - White
   MM6-1 and MM6-2 Background - White
   Message - Green
   MN6-1 and MN6-2 Background - Brown
   Message - White
   MO6-1 and MO6-2 Background - Orange - Type F Reflective
   Message - Black
   MP6-1 and MP6-2 Background - White
   Message - Blue
   MR6-1 and MR6-2 Background - Brown
   Message - Yellow



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



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



SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2	21		1 1/8	3/8	3/8		7 1/2	7 1/8	5 5/8	5	4 1/4	5 1/4	3	2 5/8	1/2						1 1/2	1/2						3.06
3	30		1 3/8	1/2	5/8		10 3/4	10 1/4	8	7 1/4	6	7 1/2	4 1/4	3 3/4	3/4						1 7/8	1/2						6.25
4	30		1 3/8	1/2	5/8		10 3/4	10 1/4	8	7 1/4	6	7 1/2	4 1/4	3 3/4	3/4						1 7/8	1/2						6.25
5	30		1 3/8	1/2	5/8		10 3/4	10 1/4	8	7 1/4	6	7 1/2	4 1/4	3 3/4	3/4						1 7/8	1/2						6.25

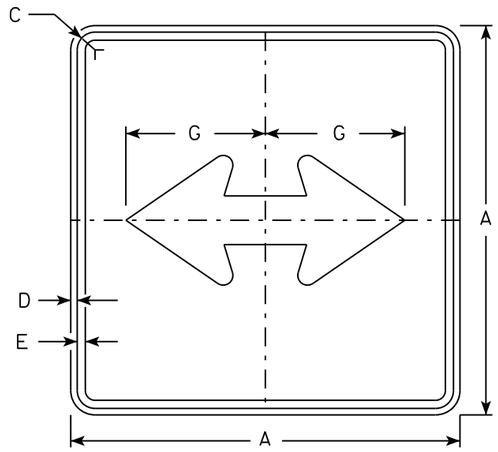
STANDARD SIGN
M6-1 & M6-2
SERIES

WISCONSIN DEPT OF TRANSPORTATION

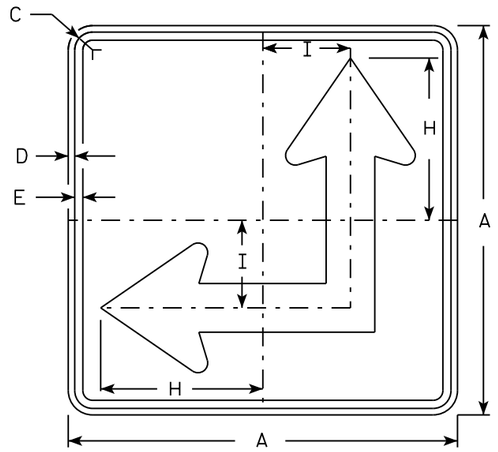
APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 10/15/15 PLATE 140 M6-1.15

PROJECT NO:	HWY:	COUNTY:		SHEET NO:	E



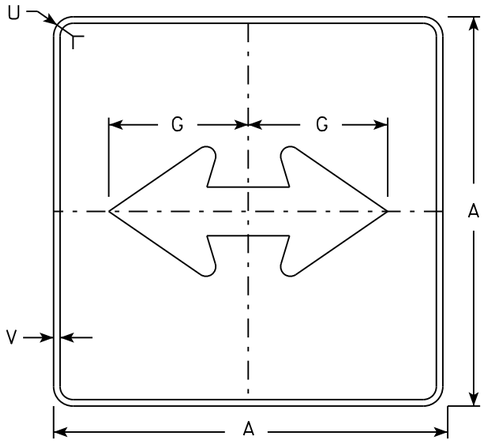
M6-4
MM6-4
MO6-4
MP6-4



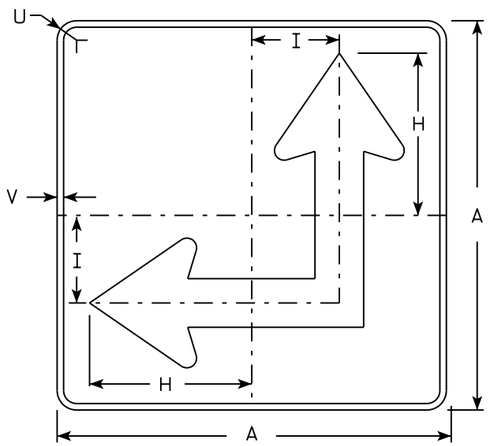
M6-6
MM6-6
MO6-6
MP6-6

NOTES

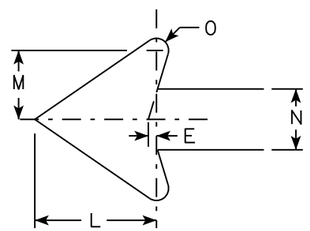
1. Signs are Type II - Type H except as Shown
2. Color:
   Background - See Note 4
   Message - See Note 4
3. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
4. M6-4 and M6-6 Background - White
   Message - Black
   MB6-4 and MB6-6 Background - Blue
   Message - White
   MK6-4 and MK6-6 Background - Green
   Message - White
   MM6-4 and MM6-6 Background - White
   Message - Green
   MN6-4 and MN6-6 Background - Brown
   Message - White
   MO6-4 and MO6-6 Background - Orange - Type F Reflective
   Message - Black
   MP6-4 and MP6-6 Background - White
   Message - Blue
   MR6-4 and MR6-6 Background - Brown
   Message - Yellow
5. M6-6R same as M6-6L except arrow points ahead and right.



MB6-4
MK6-4
MN6-4
MR6-4



MB6-6
MK6-6
MN6-6
MR6-6



SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2	21		1 1/8	3/8	3/8		7 1/2	8 3/4	4 1/4			5 1/4	3	2 5/8	1/2						1 1/2	1/2					3.06
3	30		1 3/8	1/2	5/8		10 3/4	12 1/2	6 3/4			7 1/2	4 1/4	3 3/4	3/4						1 7/8	1/2					6.25
4	30		1 3/8	1/2	5/8		10 3/4	12 1/2	6 3/4			7 1/2	4 1/4	3 3/4	3/4						1 7/8	1/2					6.25
5	30		1 3/8	1/2	5/8		10 3/4	12 1/2	6 3/4			7 1/2	4 1/4	3 3/4	3/4						1 7/8	1/2					6.25

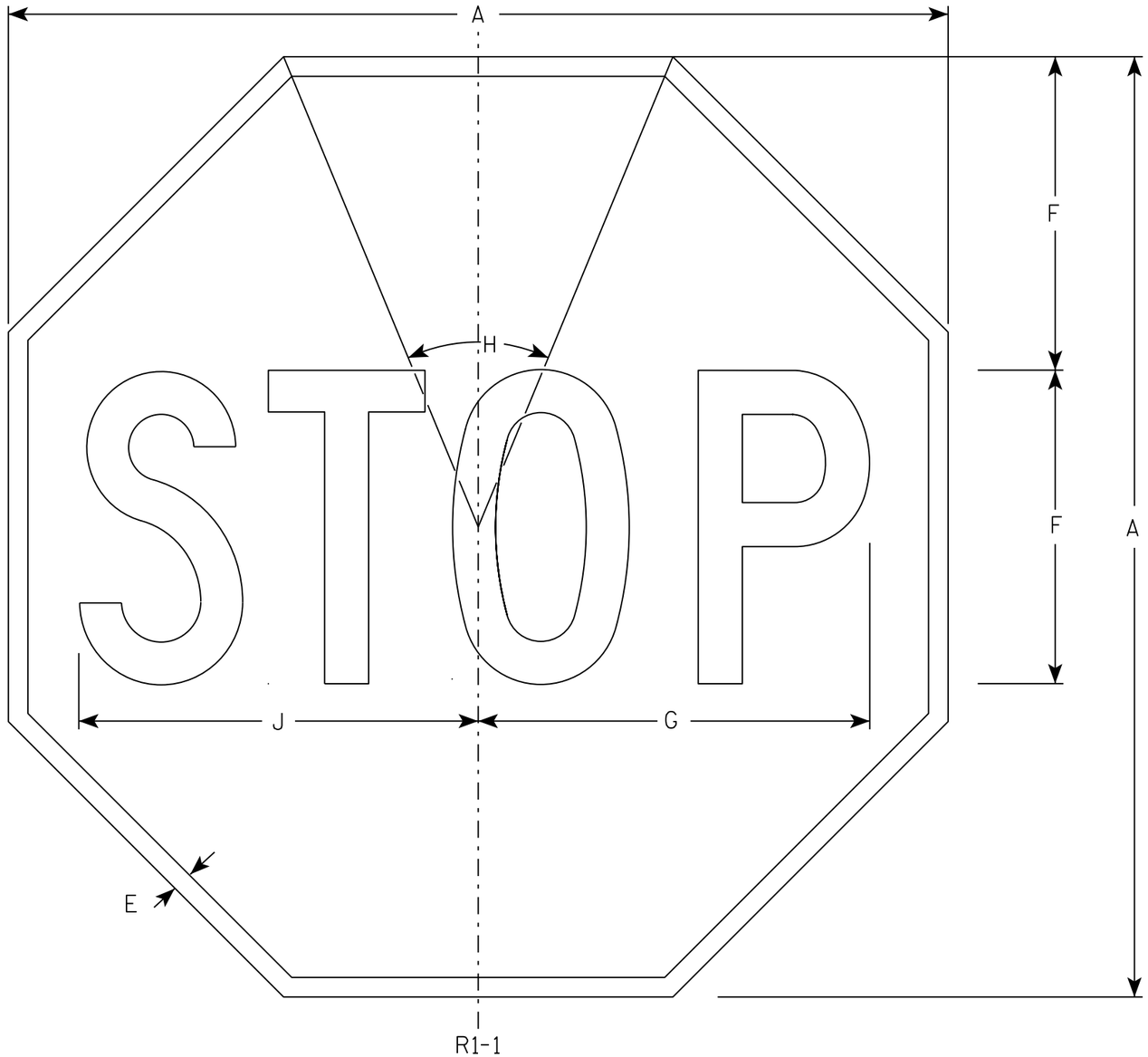
STANDARD SIGN
M6-4 & M6-6
SERIES

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 10/15/15 PLATE 141 M6-4.10

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



NOTES

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

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	30				5/8	10	12 1/2	45°		12 3/4																	5.18
2S	30				5/8	10	12 1/2	45°		12 3/4																	5.18
2M	36				3/4	12	15	45°		15 3/8																	7.46
3	36				3/4	12	15	45°		15 3/8																	7.46
4	48				1	16	20	45°		20 1/2																	13.25
5	48				1	16	20	45°		20 1/2																	13.25
6	18				3/8	6	7 3/4	45°		7 3/4																	1.86
7	12				1/4	4	5	45°		5 1/8																	0.78

STANDARD SIGN
R1-1

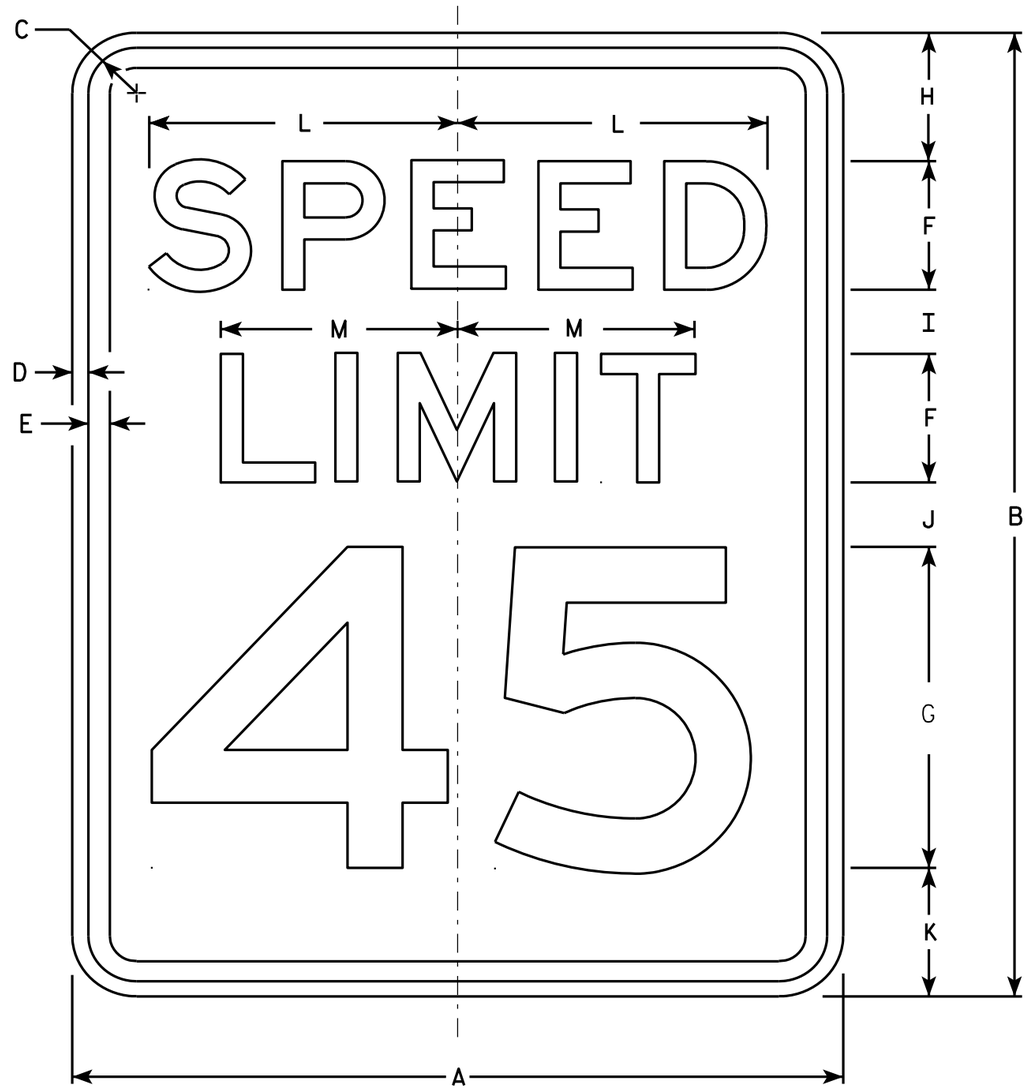
WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 11/12/15 PLATE R1-1.13

PROJECT NO:	HWY:	COUNTY:		SHEET NO: E

FILE NAME : C:\CAEfiles\Projects\tr_stdplate\R11.DGN PLOT DATE : 01-DEC-2015 18:07 PLOT BY : $$ plotuser $$ PLOT NAME : PLOT SCALE : 4.378143:1.000000



R2-1

NOTES

1. Sign is Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
   Background - White
   Message - Black
3. Message Series - E
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. Substitute appropriate numerals and optically adjust spacing to achieve proper balance.

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	18	24	1 1/8	3/8	1/2	3	8	3	2	2	3	7 1/4	5 1/2														3.0
2S	24	30	1 1/8	3/8	1/2	4	10	3	2 1/4	3 3/8	3 3/8	9 5/8	7 3/8														5.0
2M	30	36	1 3/8	1/2	5/8	5	12	5	2 1/2	2 1/2	4	12	9 1/4														7.5
3	36	48	1 3/8	1/2	5/8	6	14	6	5	5	6	14 3/8	11														12.0
4	36	48	1 3/8	1/2	5/8	6	14	6	5	5	6	14 3/8	11														12.0
5	48	60	2 1/4	3/4	1	8	20	6	4 1/2	6 3/4	6 3/4	19 1/4	14 5/8														20.0

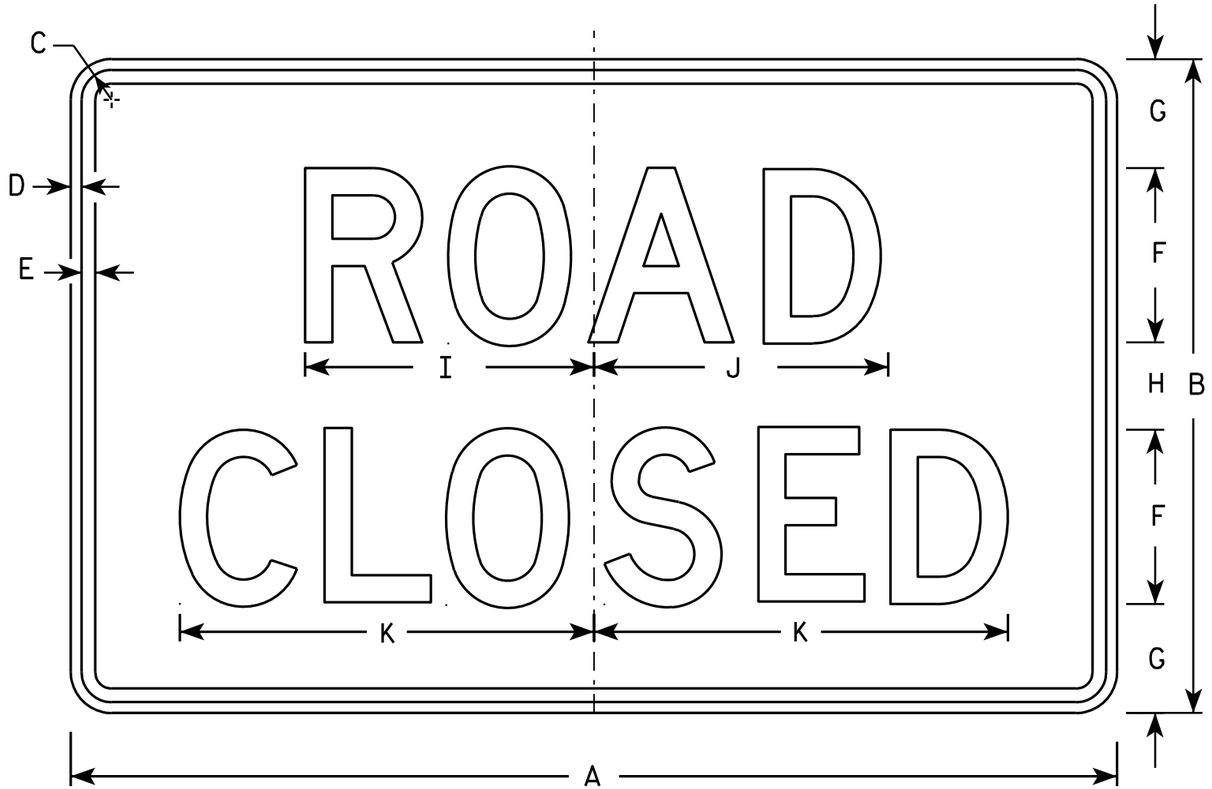
STANDARD SIGN
R2-1

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 5/26/10 PLATE NO. R2-1.13

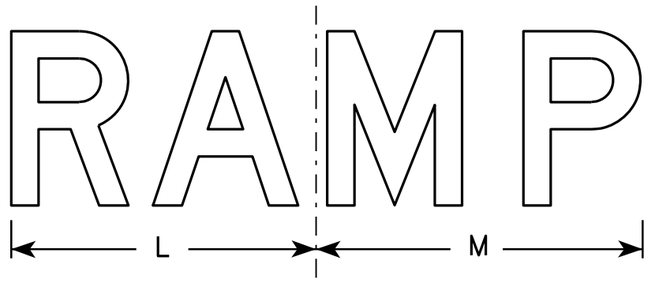
PROJECT NO: | HWY: | COUNTY: | SHEET NO: 143 | E



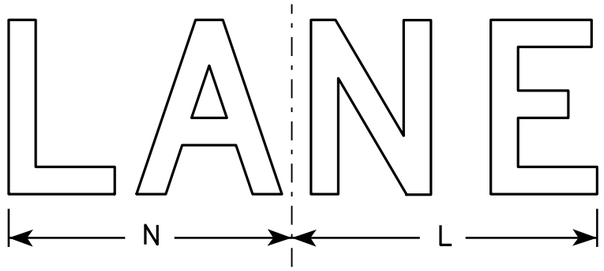
R11-2

NOTES

1. Sign is Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
   Background - White
   Message - Black
3. Message Series - D
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. Modify the message as required.



R11-2R



R11-2L

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	48	30	1 3/8	1/2	5/8	8	5	4	13 1/4	13 1/2	19	14	15	13													10.0
2M	48	30	1 3/8	1/2	5/8	8	5	4	13 1/4	13 1/2	19	14	15	13													10.0
3	48	30	1 3/8	1/2	5/8	8	5	4	13 1/4	13 1/2	19	14	15	13													10.0
4	48	30	1 3/8	1/2	5/8	8	5	4	13 1/4	13 1/2	19	14	15	13													10.0
5	48	30	1 3/8	1/2	5/8	8	5	4	13 1/4	13 1/2	19	14	15	13													10.0

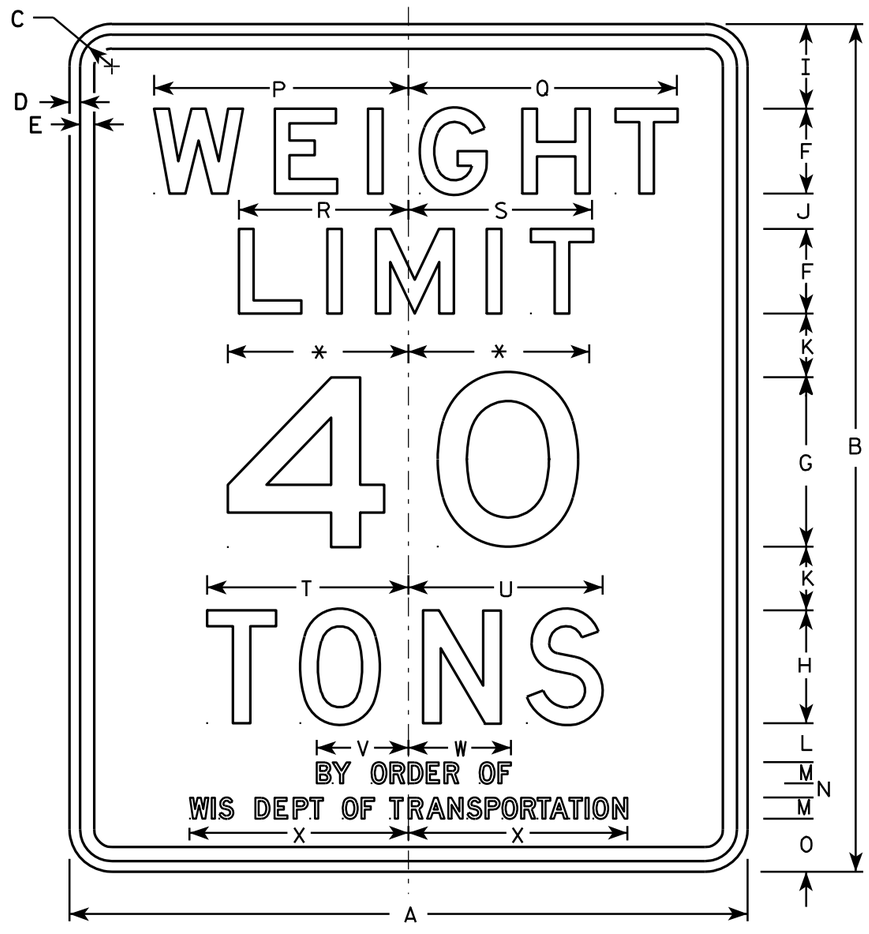
STANDARD SIGN
R11-2

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 4/1/11 PLATE NO. R11-2.10

PROJECT NO:	HWY:	COUNTY:		SHEET NO: 144	E



R12-1

NOTES

1. Sign is Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
   Background - White
   Message - Black
3. Message Series - See note 5
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. Lines 1, 2 & 3 are series E
   Lines 4, 5, & 6 are series D.
6. Substitute appropriate numeral and optically adjust spacing to achieve proper balance.
7. Substitute name of county or town on County Trunk and Town Highways respectively. Community name on City or Village Streets including Connecting Highways is optional.

* Varies (see note 6)

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	30	1 1/8	3/8	1/2	3	6	4	3	1 1/4	2 1/4	1 3/8	3/4	1/2	1 7/8	9	9 1/2	6	6 1/2	7 1/8	6 7/8	3 1/4	3 5/8	7 3/4			5.0
2S	24	30	1 1/8	3/8	1/2	3	6	4	3	1 1/4	2 1/4	1 3/8	3/4	1/2	1 7/8	9	9 1/2	6	6 1/2	7 1/8	6 7/8	3 1/4	3 5/8	7 3/4			5.0
2M	24	30	1 1/8	3/8	1/2	3	6	4	3	1 1/4	2 1/4	1 3/8	3/4	1/2	1 7/8	9	9 1/2	6	6 1/2	7 1/8	6 7/8	3 1/4	3 5/8	7 3/4			5.0
3	36	48	1 3/8	1/2	5/8	6	10	8	4 1/2	2 1/2	2 1/4	1 1/2	3/4	1/2	3	13 1/2	14 1/4	9	9 3/4	10 5/8	10 1/4	3 1/4	3 5/8	7 3/4			12.0
4	48	60	2 1/4	3/4	1	6	12	8	6	2 1/2	4 1/2	2 3/4	1 1/2	1	3 3/4	18	19	12	13	14 1/4	13 3/4	6 1/2	7 1/4	15 1/2			20.0
5																											

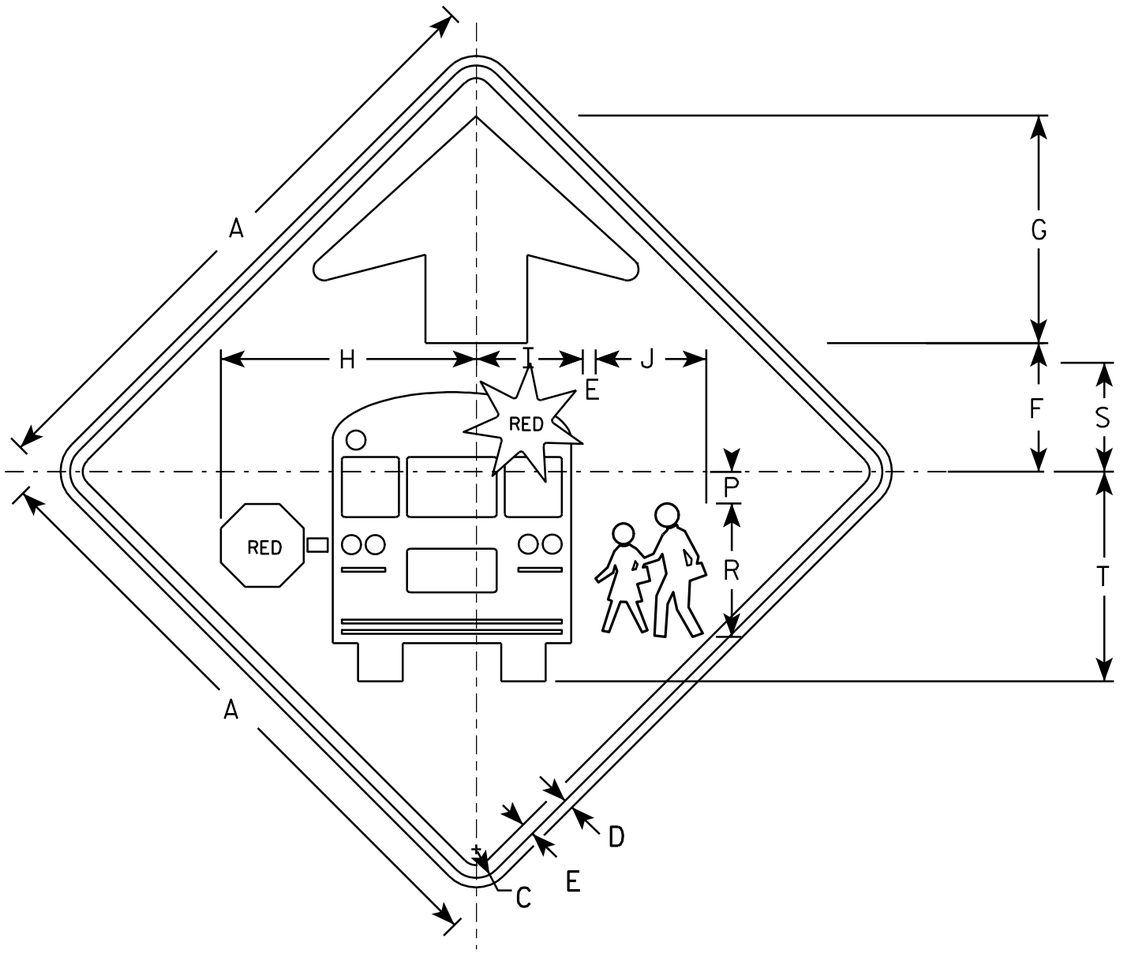
STANDARD SIGN
R12-1

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 4/1/11 PLATE NO. R12-1.8

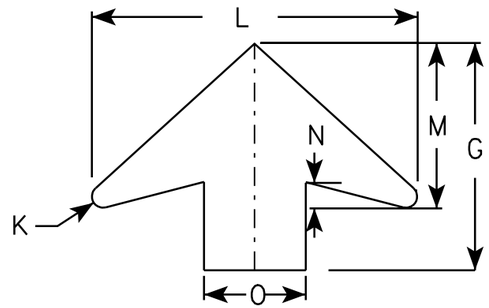
PROJECT NO: | HWY: | COUNTY: | SHEET NO: 145 | E



S3-1

NOTES

1. All Signs Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
   Background - YELLOW-GREEN
   Message - BLACK except as noted
   Circles except PEDS- RED BACKGROUND
3. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.



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	30		1 3/8	1/2	5/8	6 1/4	11 1/4	12 1/2	5 1/4	5 1/2	1/2	16	8	1 1/4	5	1 1/2		6 5/8	5 3/8	10 3/8							6.25
2	36		1 5/8	5/8	3/4	7 1/2	13 1/2	15 1/8	6 1/4	6 1/2	5/8	19 1/4	9 3/4	1 5/8	6	1 7/8		7 7/8	6 3/8	12 3/8							9.0
3	48		2 1/4	3/4	1	10	17 7/8	20 1/8	8 3/8	8 3/4	7/8	25 5/8	13	2	8	2 1/2		10 1/2	8 1/2	16 1/2							16.0
4	48		2 1/4	3/4	1	10	17 7/8	20 1/8	8 3/8	8 3/4	7/8	25 5/8	13	2	8	2 1/2		10 1/2	8 1/2	16 1/2							16.0
5																											

STANDARD SIGN
S3-1

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

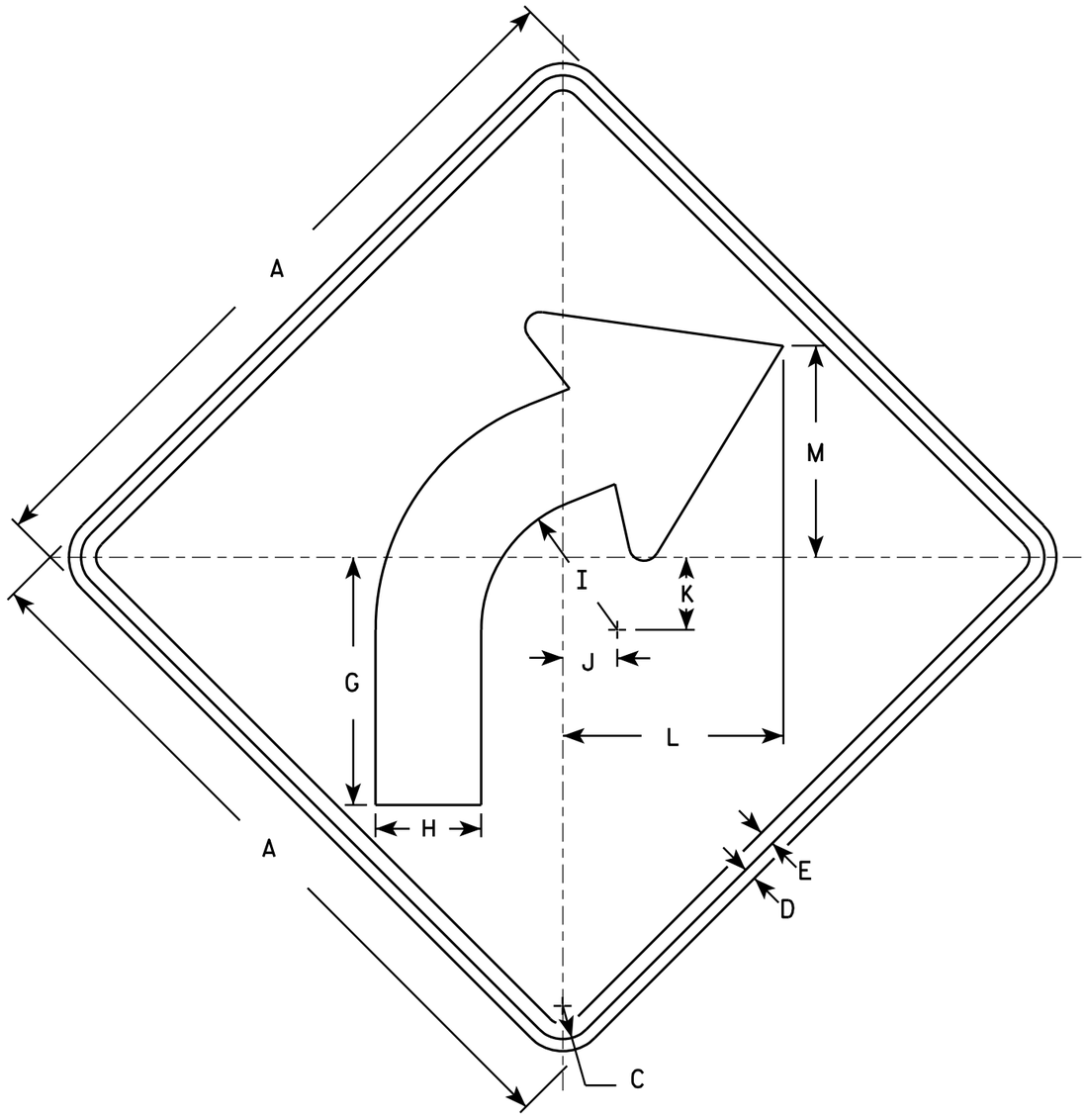
DATE 6/8/10 PLATE NO. S3-1.6

PROJECT NO:

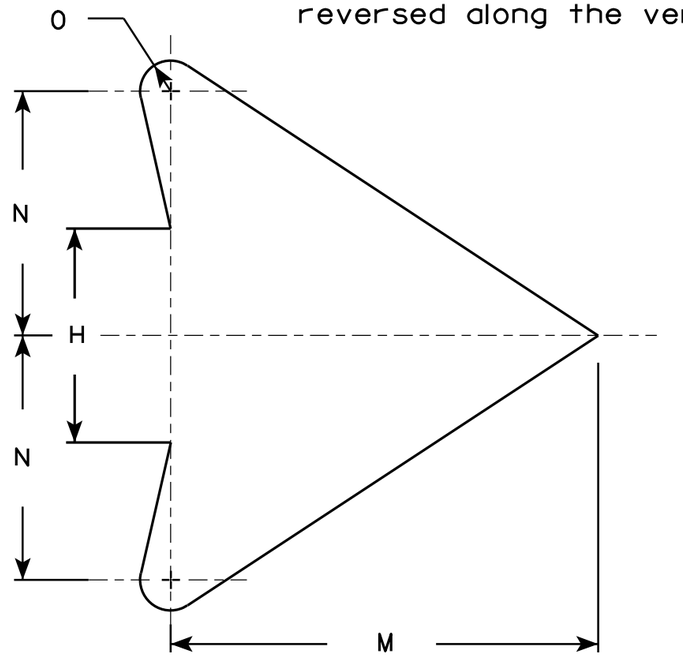
SHEET NO: 146 E

NOTES

1. Sign is Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
   Background - Yellow
   Message - Black
3. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
4. W1-2L is the same as W1-2R except the arrow is reversed along the vertical centerline.



W1-2R



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	24		1 1/8	3/8	1/2		8 1/4	3 1/2	4 1/2	1 3/4	2 3/8	7 1/4	7	4	1/2												4.0
2S	30		1 3/8	1/2	5/8		10 1/4	4 3/8	5 5/8	2 1/4	3	9 1/8	8 3/4	5	5/8												6.25
2M	36		1 5/8	5/8	3/4		12 3/8	5 1/4	6 3/4	2 5/8	3 1/2	10 7/8	10 1/2	6	3/4												9.0
3	36		1 5/8	5/8	3/4		12 3/8	5 1/4	6 3/4	2 5/8	3 1/2	10 7/8	10 1/2	6	3/4												9.0
4	36		1 5/8	5/8	3/4		12 3/8	5 1/4	6 3/4	2 5/8	3 1/2	10 7/8	10 1/2	6	3/4												9.0
5	48		2 1/4	3/4	1		16 1/2	7	9	3 1/2	4 5/8	14 1/2	14	8	1												16.0

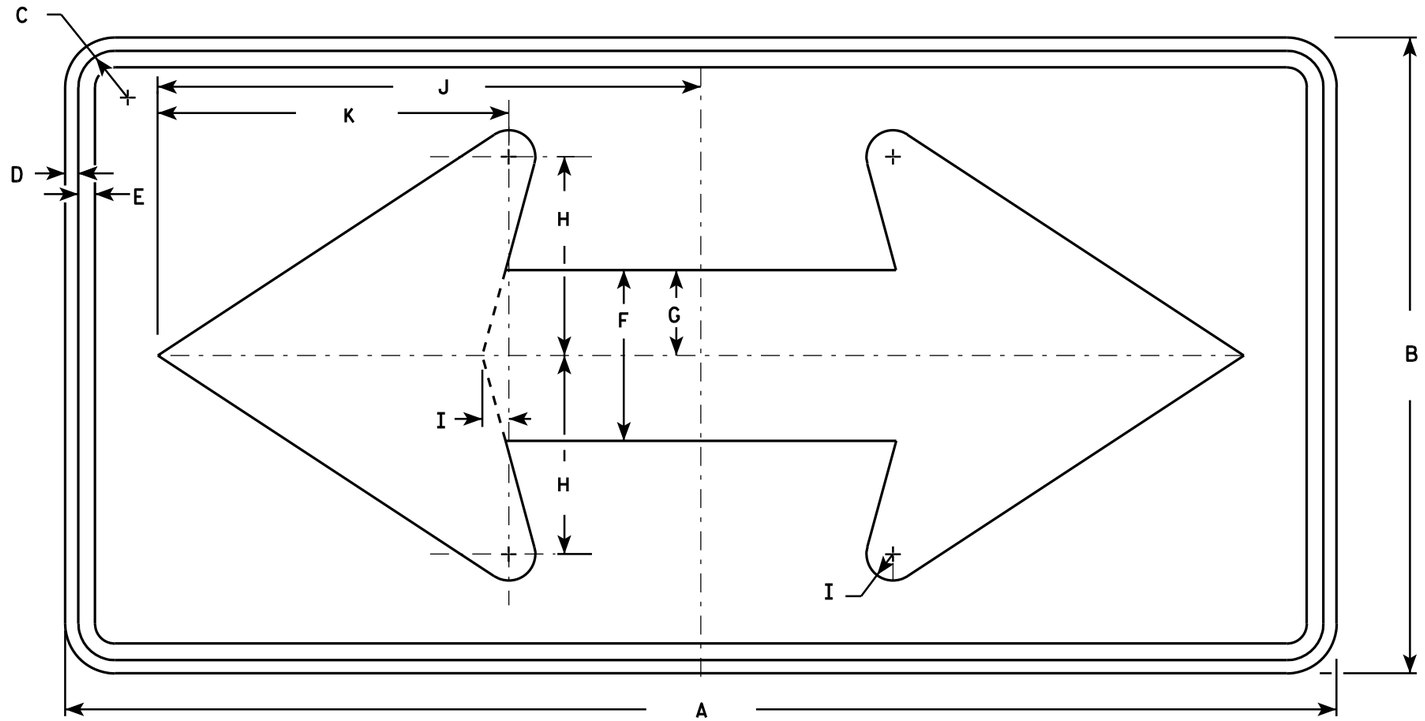
STANDARD SIGN
W1-2

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 5/15/12 PLATE NO. W1-2.10

PROJECT NO:	HWY:	COUNTY:		SHEET NO: 147	E



W1-7

NOTES

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

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	36	18	1 1/8	3/8	1/2	5	2 1/2	5 3/4	3/4	15 5/8	10 1/8																4.5
2S	48	24	1 3/8	1/2	5/8	6 1/2	3 1/4	7 1/2	1	20 1/2	13 1/4																8.0
2M	48	24	1 3/8	1/2	5/8	6 1/2	3 1/4	7 1/2	1	20 1/2	13 1/4																8.0
3	60	30	1 3/8	1/2	5/8	8	4	9 1/4	1 1/4	25 3/8	16 1/4																12.5
4	60	30	1 3/8	1/2	5/8	8	4	9 1/4	1 1/4	25 3/8	16 1/4																12.5
5	96	48	2 1/4	3/4	1	13	6 1/2	15	2	41	26 1/2																32.0

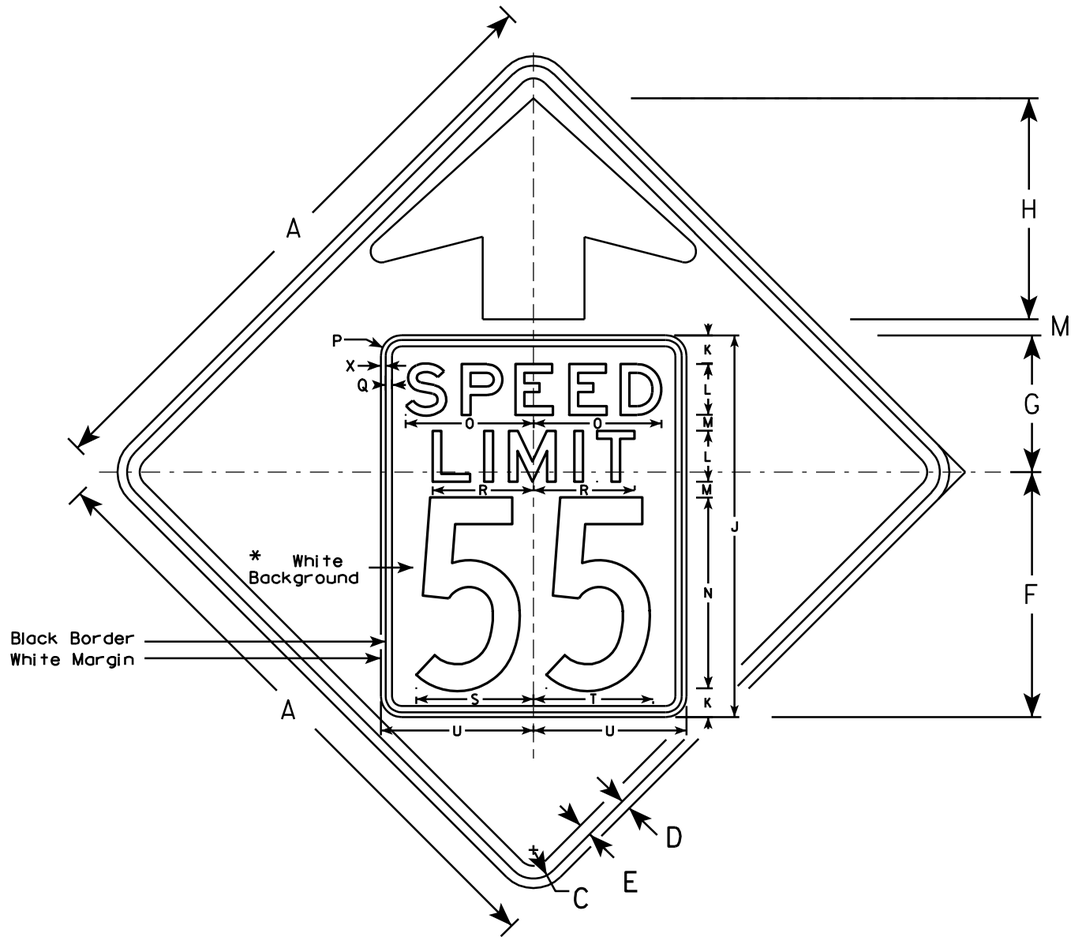
STANDARD SIGN
W1-7

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 6/7/10 PLATE NO. W1-7.7

PROJECT NO: | HWY: | COUNTY: | SHEET NO: 148 | E

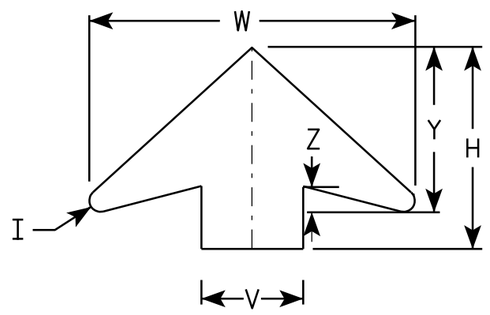


W3-5

NOTES

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

*Speed Limit Sign shall have a White Background



ARROW DETAIL

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

STANDARD SIGN
W3-5

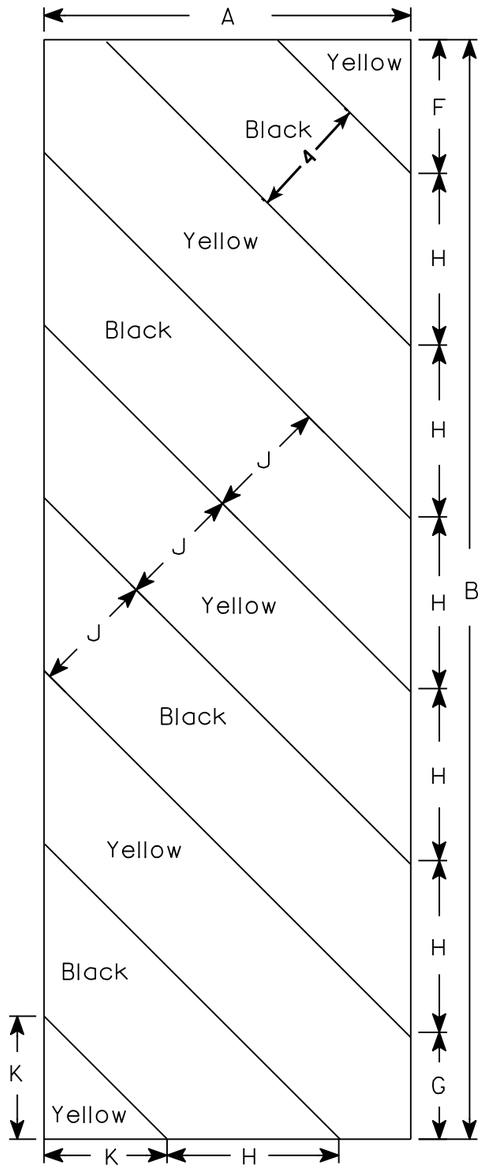
WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

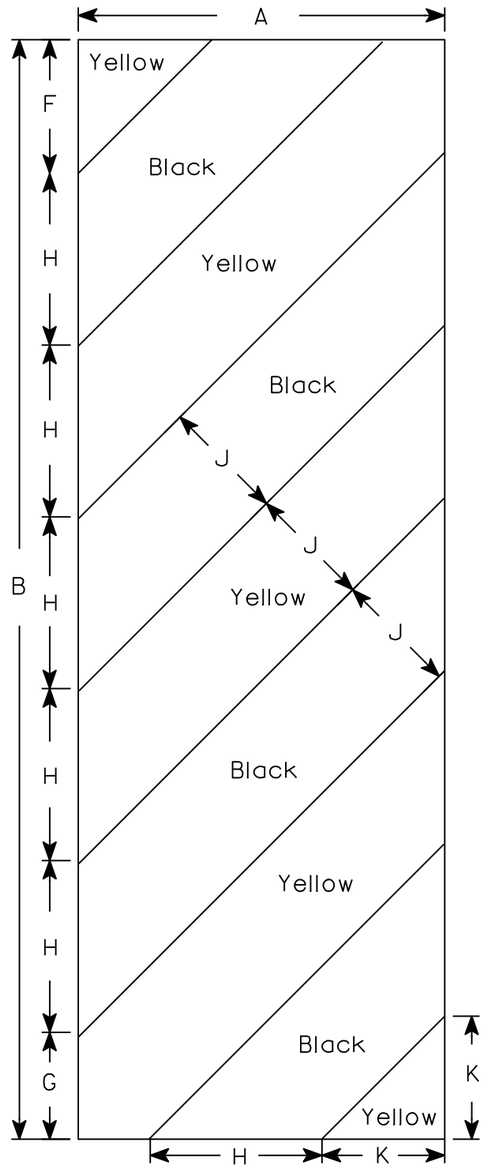
DATE 5/29/12 PLATE NO. W3-5.5

PROJECT NO:

SHEET NO: 149 E



W5-52L



W5-52R

NOTES

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

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

STANDARD SIGN

W5-52L & W5-52R

WISCONSIN DEPT OF TRANSPORTATION

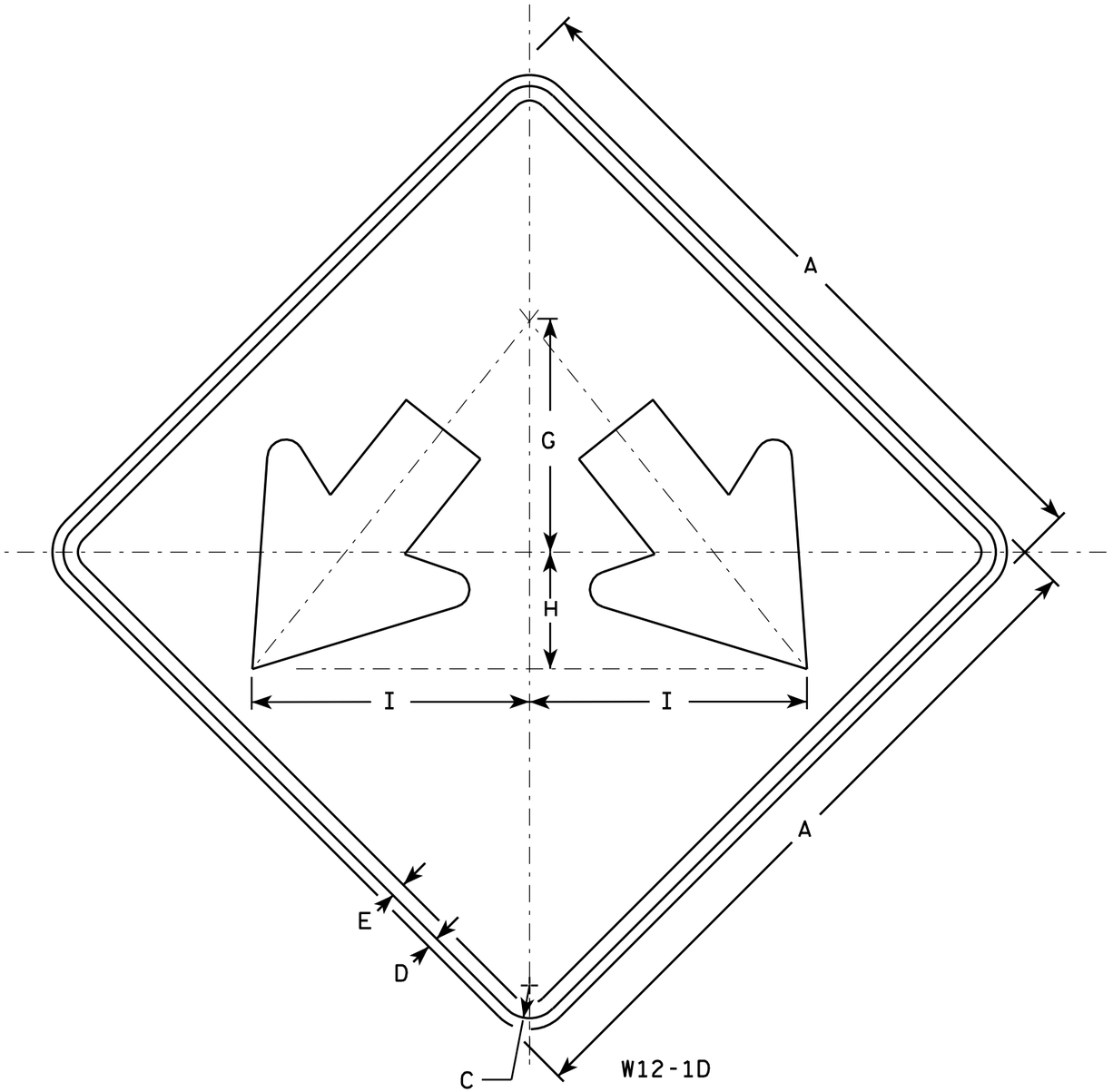
APPROVED Matthew R Rauch
for State Traffic Engineer

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

PROJECT NO:	HWY:	COUNTY:		SHEET NO: 150	E

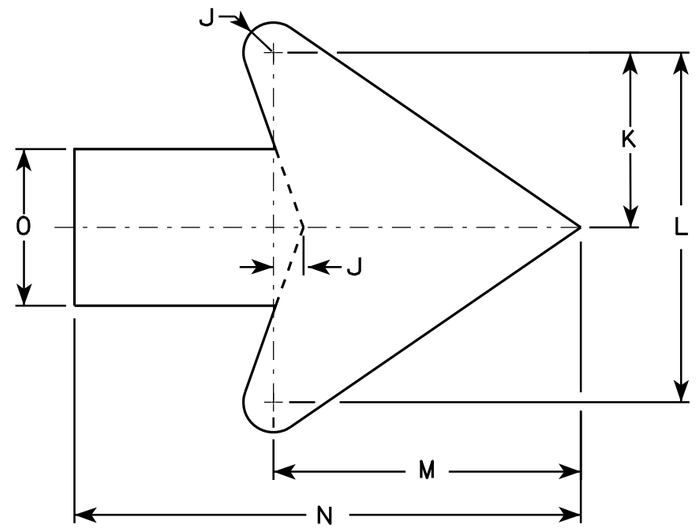
FILE NAME : C:\CAEFiles\Projects\tr_stdplate\W552.DGN PLOT DATE : 29-MAY-2012 13:03 PLOT BY : mscsja PLOT NAME : PLOT SCALE : 4.961899:1.000000

7



NOTES

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



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	24		1 1/8	1/2	3/8		8	4	9 1/2	3/8	3 3/8	7 1/4	6 3/8	10 3/8	3 1/4												4.0
2M	24		1 1/8	1/2	3/8		8	4	9 1/2	3/8	3 3/8	7 1/4	6 3/8	10 3/8	3 1/4												4.0
3	30		1 3/8	1/2	5/8		10	5	11 7/8	3/4	4 1/2	9	7 7/8	13	4												6.25
4	36		1 3/8	1/2	5/8		12	6	14 1/4	1	5 1/2	10 7/8	9 5/8	15 3/4	4 3/4												9.0
5	48		2 1/4	3/4	1		16	8	19	1 1/4	7 1/4	14 1/2	12 3/4	21	6 1/4												16.0

STANDARD SIGN
W12-1D

WISCONSIN DEPT OF TRANSPORTATION

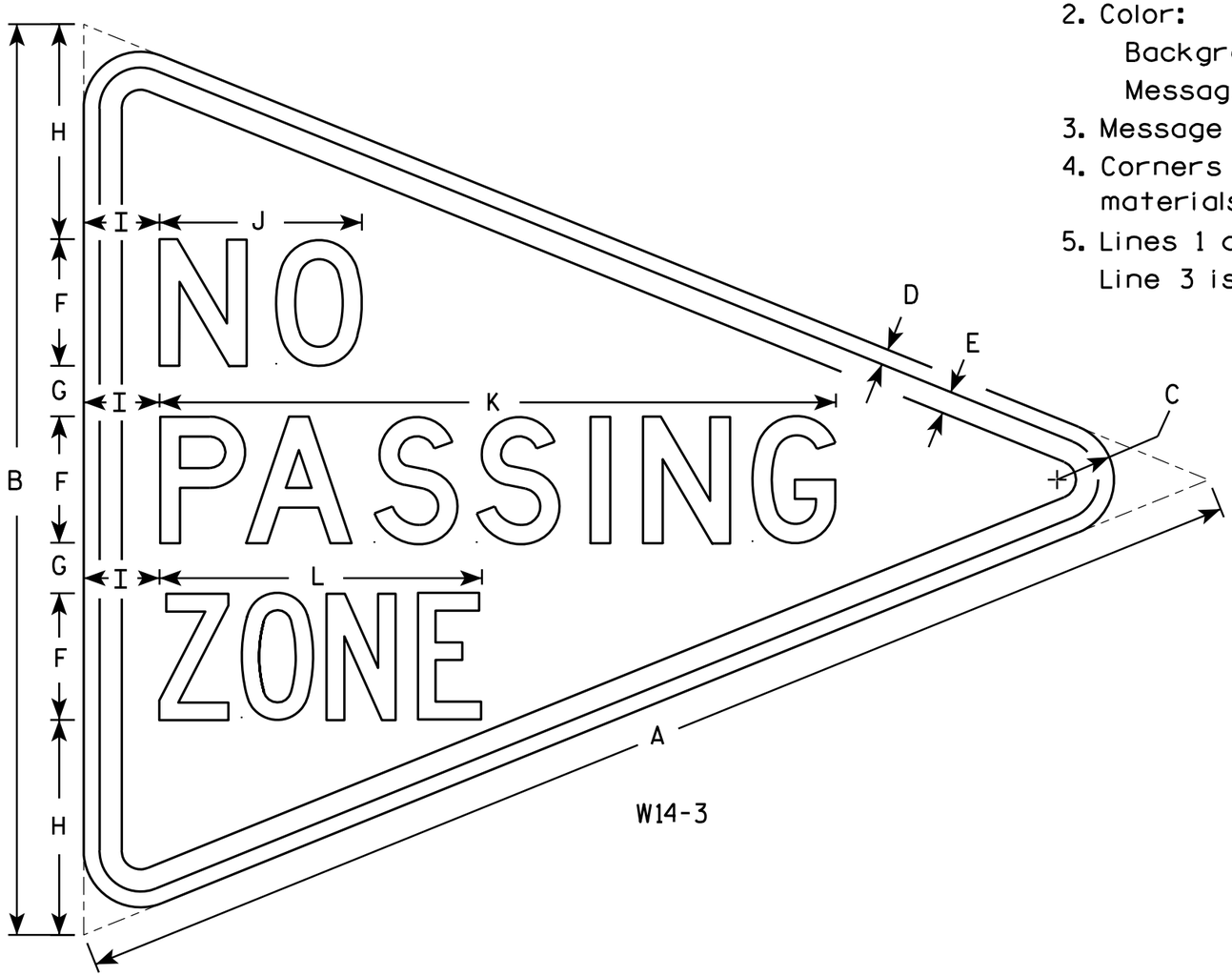
APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 3/13/13 PLATE NO. W12-1D.15

PROJECT NO:	HWY:	COUNTY:		SHEET NO: 151	E

NOTES

1. Sign is Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
   Background - Yellow
   Message - Black
3. Message Series - See note 5
4. Corners and borders shall be rounded on all base materials for this sign.
5. Lines 1 and 2 are Series D.
   Line 3 is series C.



W14-3

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	O	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	48	36	2 1/4	5/8	7/8	5	2	8 1/2	3	8	26 3/4	12 3/4															6.0
2M	48	36	2 1/4	5/8	7/8	5	2	8 1/2	3	8	26 3/4	12 3/4															6.0
3	64	48	3	3/4	1 1/4	6	3	12	4	10 3/4	33 5/8	16 1/2															10.7
4																											
5																											

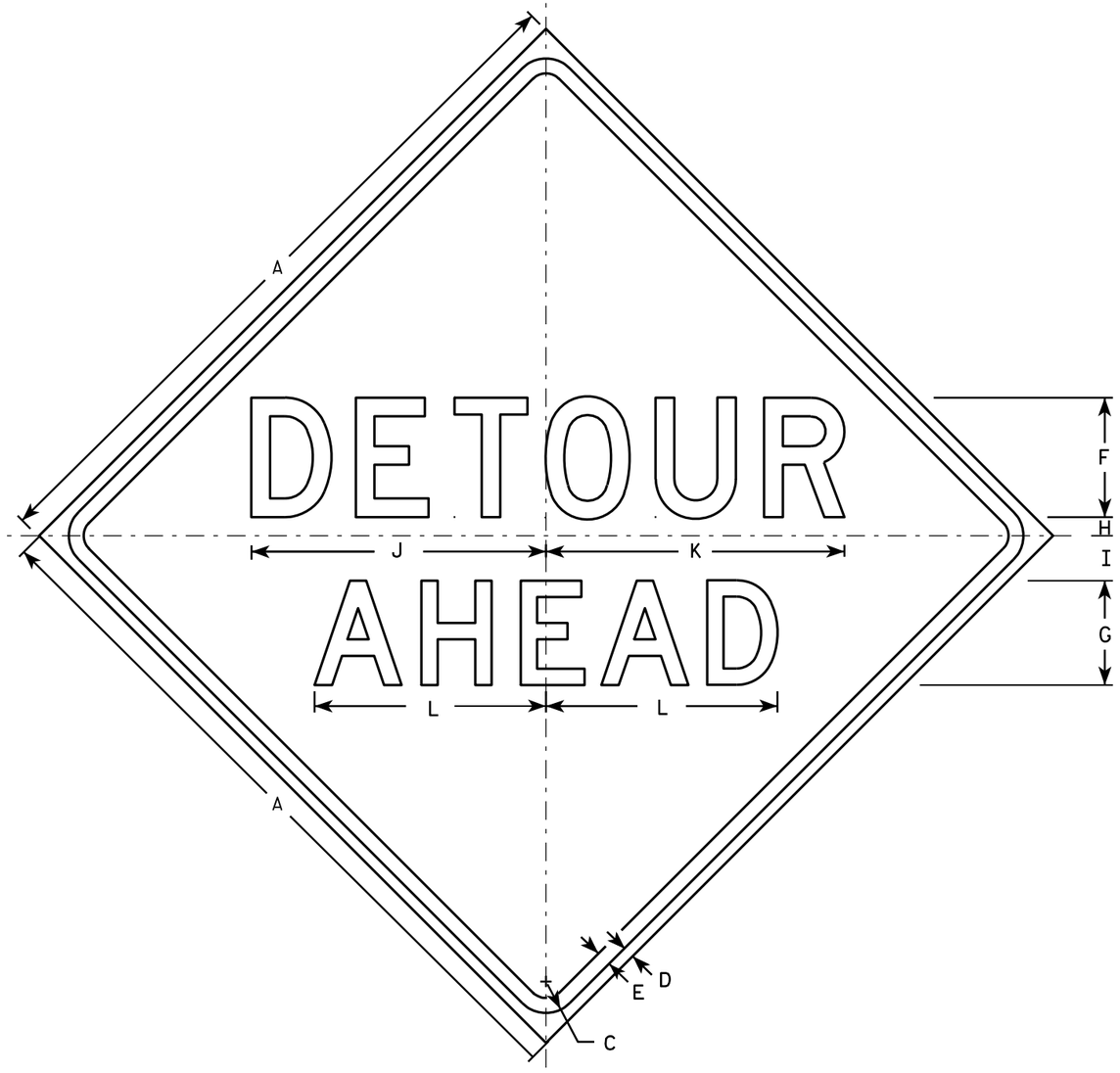
STANDARD SIGN
W14-3

WISCONSIN DEPT OF TRANSPORTATION

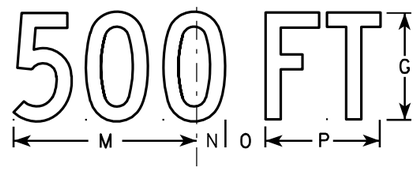
APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 6/7/10 PLATE NO. W14-3.9

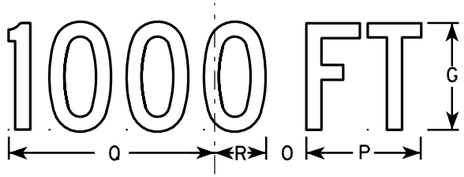
PROJECT NO:	HWY:	COUNTY:		SHEET NO: 152	E



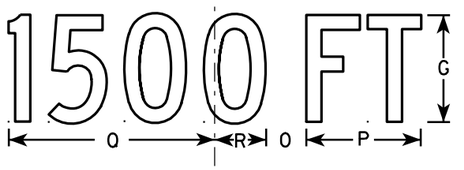
W20-2A



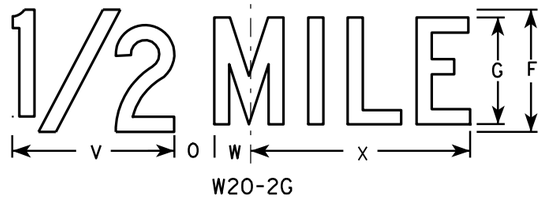
W20-2D



W20-2C



W20-2B



W20-2G

W20-2F

NOTES

1. Sign is Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
   Background - Orange
   Message - Black
3. Message Series - See note 5
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. Line 1 is Series D.
   Line 2 is Series D for AHEAD and Series C for all other distances.

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	O	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	36		1 5/8	5/8	3/4	6	5	1	2 1/4	14 3/4	15	11 5/8	9	1 3/8	1 7/8	5 5/8	10 1/8	2 1/2	1 1/8	4 1/2	3 1/2	8	1 3/4	10 3/4			9.0
2S	48		2 1/4	3/4	1	8	7	1 1/4	3	19 3/4	20	15 1/2	12	1 7/8	2 5/8	7 1/2	13 1/2	3 3/8	1 1/2	6	4 5/8	10 5/8	2 3/8	14 3/8			16.0
2M	48		2 1/4	3/4	1	8	7	1 1/4	3	19 3/4	20	15 1/2	12	1 7/8	2 5/8	7 1/2	13 1/2	3 3/8	1 1/2	6	4 5/8	10 5/8	2 3/8	14 3/8			16.0
3	48		2 1/4	3/4	1	8	7	1 1/4	3	19 3/4	20	15 1/2	12	1 7/8	2 5/8	7 1/2	13 1/2	3 3/8	1 1/2	6	4 5/8	10 5/8	2 3/8	14 3/8			16.0
4	48		2 1/4	3/4	1	8	7	1 1/4	3	19 3/4	20	15 1/2	12	1 7/8	2 5/8	7 1/2	13 1/2	3 3/8	1 1/2	6	4 5/8	10 5/8	2 3/8	14 3/8			16.0
5	48		2 1/4	3/4	1	8	7	1 1/4	3	19 3/4	20	15 1/2	12	1 7/8	2 5/8	7 1/2	13 1/2	3 3/8	1 1/2	6	4 5/8	10 5/8	2 3/8	14 3/8			16.0

STANDARD SIGN
W20-2A,B,C,D,F & G

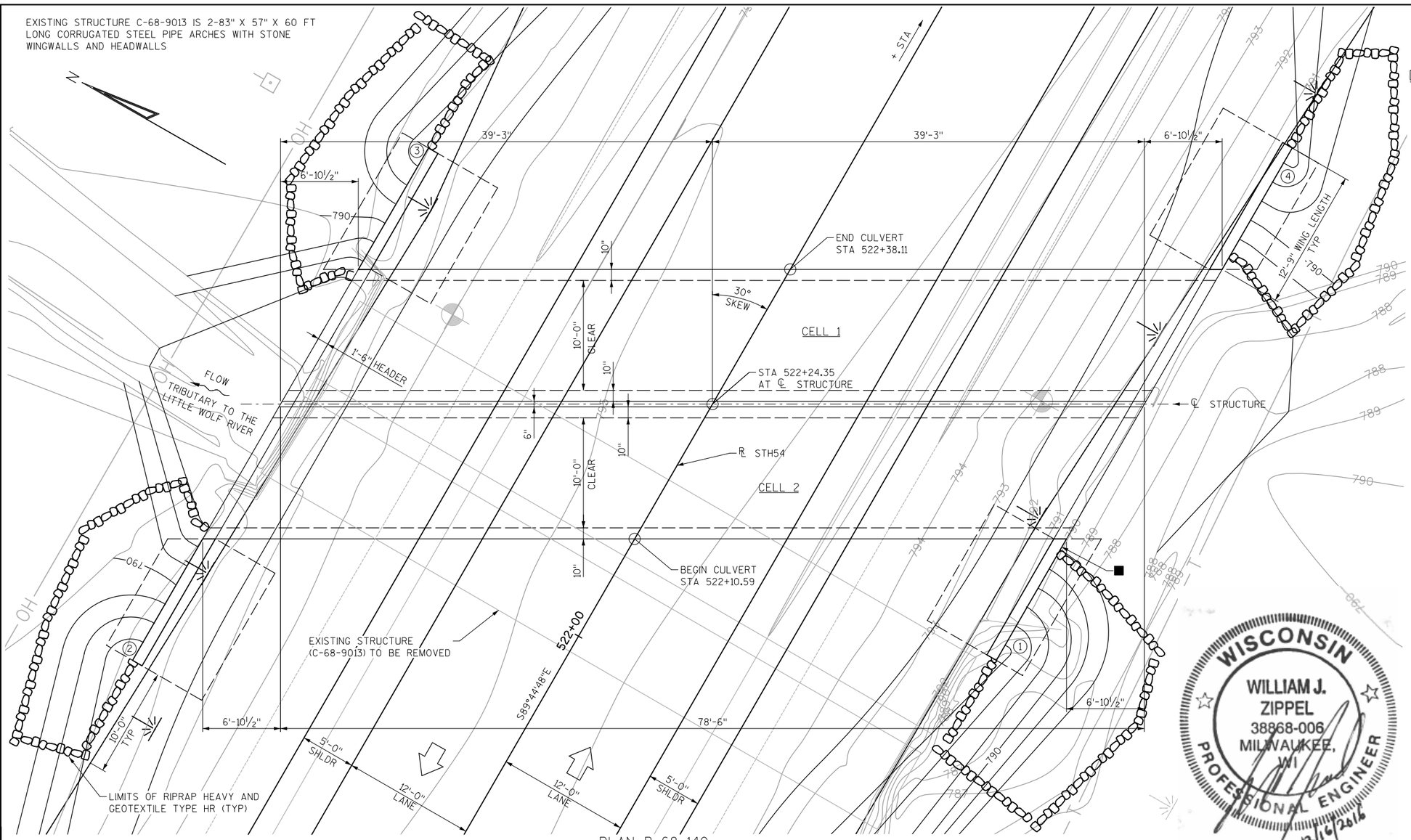
WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 3/18/11 PLATE NO. W20-2.6

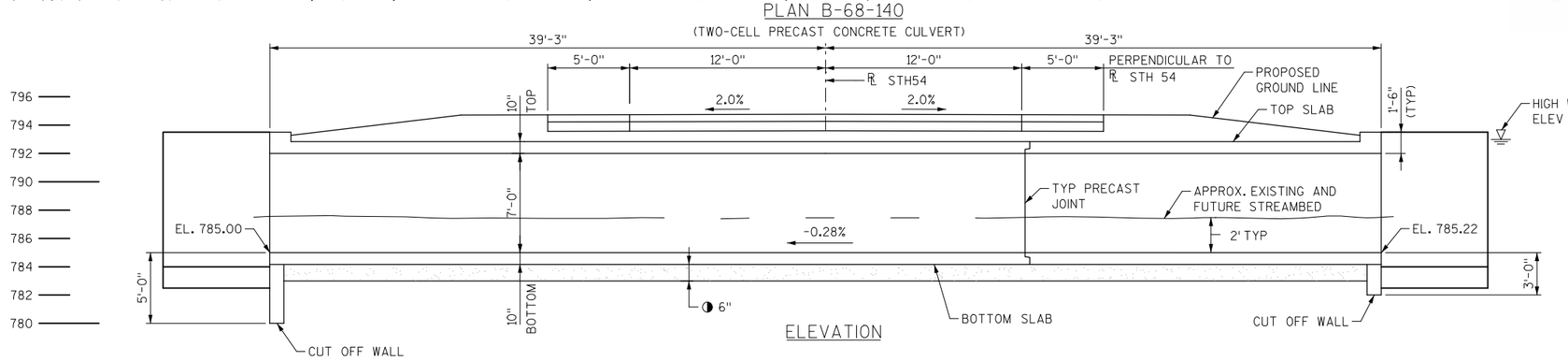
PROJECT NO:	HWY:	COUNTY:		SHEET NO: 153	E

EXISTING STRUCTURE C-68-9013 IS 2-83" X 57" X 60 FT LONG CORRUGATED STEEL PIPE ARCHES WITH STONE WINGWALLS AND HEADWALLS



PLAN B-68-140

(TWO-CELL PRECAST CONCRETE CULVERT)



ELEVATION

DESIGN DATA

LIVE LOAD:

DESIGN LOADING	HL-93
INVENTORY RATING FACTOR	RF = 1.05
OPERATING RATING FACTOR	RF = 1.35
WISCONSIN STANDARD PERMIT VEHICLE	255 kips

EARTH LOAD:

DESIGNED FOR 1.5 TO 2.5 FEET OF FILL

FOUNDATION DATA:

MAXIMUM FACTORED BEARING RESISTANCE 1,500 P.S.F.

MATERIAL PROPERTIES:

CONCRETE MASONRY CULVERTS	f'c = 3,500 P.S.I.
PRECAST CONCRETE	f'c = 4,000 P.S.I.
HIGH-STRENGTH BAR STEEL REINFORCEMENT	fy = 60,000 P.S.I.

TRAFFIC DATA

A.D.T. (2017)	3,300
A.D.T. (2037)	4,800
DESIGN SPEED	55 M.P.H.

HYDRAULIC DATA

100 YEAR FREQUENCY

DRAINAGE AREA	11.0 SQ. MI.
Q_{100} TOTAL	490 C.F.S.
THROUGH STRUCTURE	490 C.F.S.
OVERTOPPING ROADWAY	N/A
VELOCITY - THROUGH STRUCTURE	4.9 F.P.S.
WATERWAY AREA	100 SQ. FT.
HIGH WATER$_{100}$ ELEVATION	792.98

EROSION CONTROL

Q_2	165 C.F.S.
HIGH WATER$_2$ ELEVATION	791.46
SCOUR CRITICAL CODE	8

LEGEND

- ■ NAME PLATE LOCATION AND BENCHMARK CAP (WHEN SUPPLIED).
- ○ INDICATES WING NUMBER.
- ◑ UNDER CUT STRUCTURE (TO BE PAID FOR UNDER "EXCAVATION FOR STRUCTURES"). PLACE GEOTEXTILE TYPE C AND BACKFILL WITH STRUCTURE BACKFILL TYPE B. EXTEND 3FT BEYOND THE FOOTPRINT OF THE CULVERT.
- EDGE OF WETLAND

BENCHMARKS

NAME	STA, OFFSET	DESCRIPTION	ELEV.
BM 3	508+08, 48'LT	RR SPIKE IN POWER POLE	798.40
BM 4	524+85, 49'LT	RR SPIKE IN POWER POLE	793.98

WISCONSIN
WILLIAM J. ZIPPEL
38868-006
MILWAUKEE, WI
PROFESSIONAL ENGINEER
12/16/2016

DESIGN CONSULTANT

WILLIAM J. ZIPPEL, PE, SE
ALFRED BENESCH & CO
1300 W CANAL ST, SUITE 150
MILWAUKEE, WI 53233
(414) 308-1321

BRIDGE OFFICE CONTACT

WILLIAM DREHER, PE
(608) 266-8489

LIST OF DRAWINGS

1. GENERAL PLAN AND ELEVATION
2. SUBSURFACE EXPLORATION
3. PRECAST CULVERT
4. CULVERT DETAILS
5. WINGWALL DETAILS

NO.	DATE	REVISION	BY

benesch
Alfred Benesch & Company
1300 West Canal Street, Suite 150
Milwaukee, Wisconsin 53233
414-308-1310 Job No. 20226.00

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

ACCEPTED William C. Dreher SDR 03/08/17
CHIEF STRUCTURES DESIGN ENGINEER — DATE

STRUCTURE B-68-140

STH 54 OVER DRAINAGE CHANNEL

COUNTY	WAUPACA
TOWN/~~CITY/VILLAGE~~	ROYALTON
DESIGN SPEC.	AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS
DESIGNED BY	JAP
DESIGN CK'D.	WJZ
DRAWN BY	BJW
PLANS CK'D.	WJZ

GENERAL PLAN AND ELEVATION

SHEET 1 OF 5

154

STATE PROJECT NUMBER

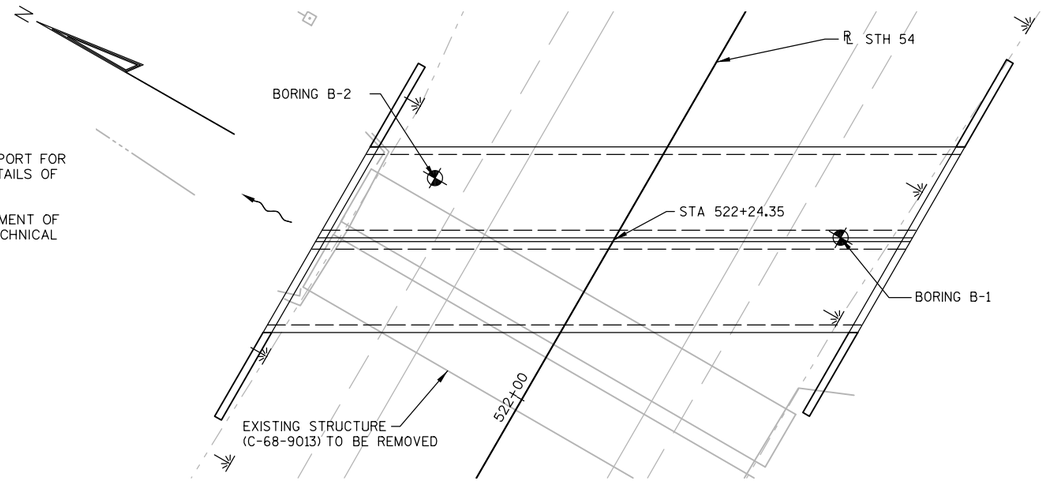
6220-03-74

FILE= 10_GP&E.DGN
SCALE = 1:10

NOTES

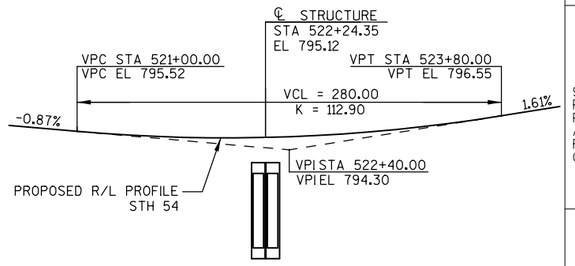
REFER TO THE GEOTECHNICAL REPORT FOR FULL SOIL DESCRIPTIONS AND DETAILS OF BORING LOGS.

CONTACT THE WISCONSIN DEPARTMENT OF TRANSPORTATION FOR THE GEOTECHNICAL REPORT AND BORING LOGS.



PLAN B-68-140

Boring #	Date Completed	Northing (Y)	Easting (X)
B-1	7/13/2016	358026.349	583084.632
B-2	7/13/2016	358076.754	583064.891
Borings Completed By: PROFESSIONAL SERVICE INDUSTRIES, INC (PSI)			
Report Completed By: PROFESSIONAL SERVICE INDUSTRIES, INC (PSI)			
All Coordinates Referenced to WCCS NAD 83(91) Waupaca County			



STH 54
PROPOSED PROFILE GRADE LINE

STATE PROJECT NUMBER

6220-03-74

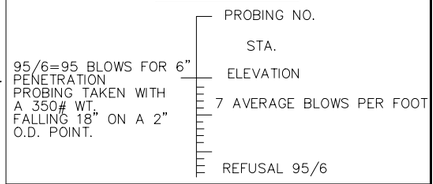
ABBREVIATIONS

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

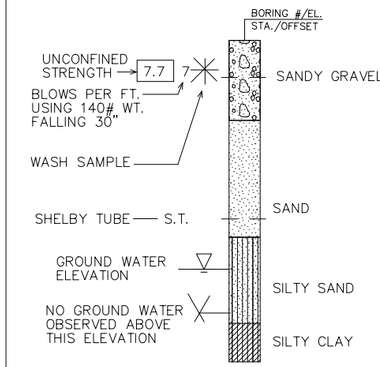
MATERIAL SYMBOLS

SAND GRAVEL LIMESTONE
SILT CLAY BEDROCK

LEGEND OF PROBING



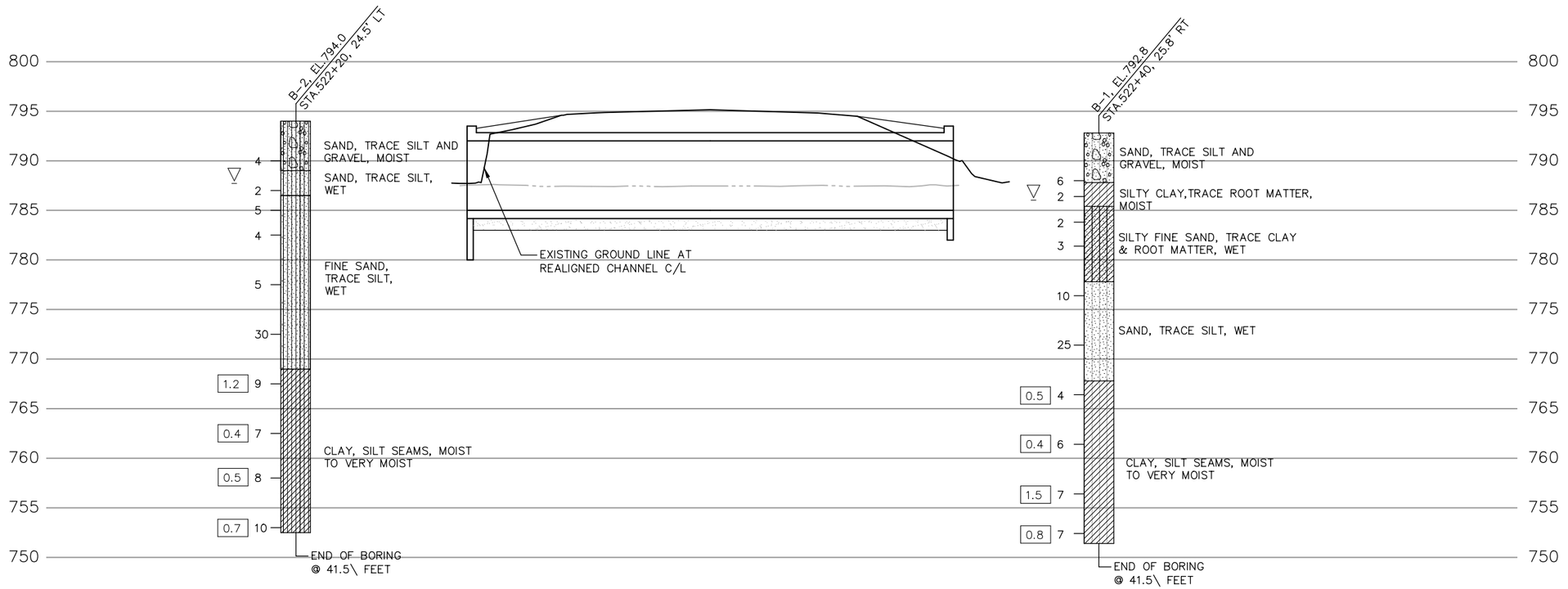
LEGEND OF BORING



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

SUBSURFACE EXPLORATION FOR FOUNDATION DESIGN AND BIDDERS INFORMATION

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



NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-68-140

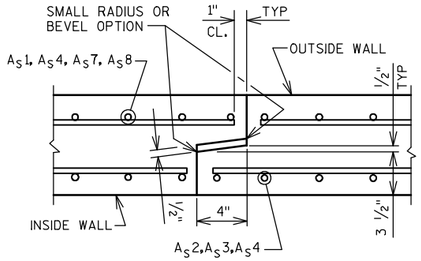
DRAWN BY EAO | PLANS CK'D. JWM

SUBSURFACE EXPLORATION

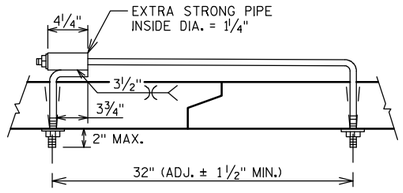
SHEET 2 OF 5

FILE NAME : Y:\MILWAUKEE\20200S\20226.00\ENG_DOCS\BASE\PRELIMSTRUCTUREPLAN.DWG

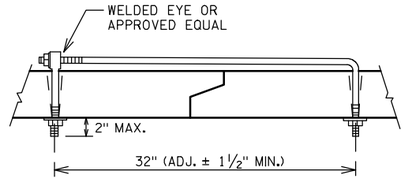
SHEET NAME: MODEL



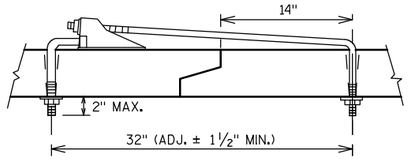
JOINT DETAIL



WELDED PIPE TIE



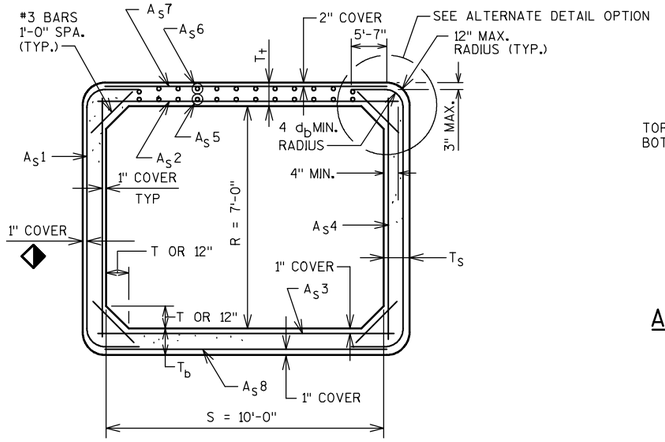
EYE BOLT TIE



CANOPY TIE

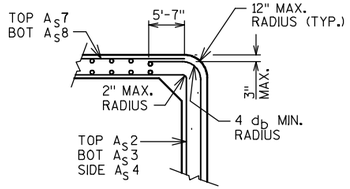
JOINT TIES

NOTES:
EITHER EYE BOLT TIES, WELDED PIPE TIES, OR CANOPY TIES MAY BE USED.
THREADS MAY BE CUT OR ROLLED. TIE NUTS SHALL BE TIGHTENED AS DIRECTED BY THE ENGINEER. (2 TIES REQ'D. PER JOINT.) (TIES TO BE GALVANIZED.)

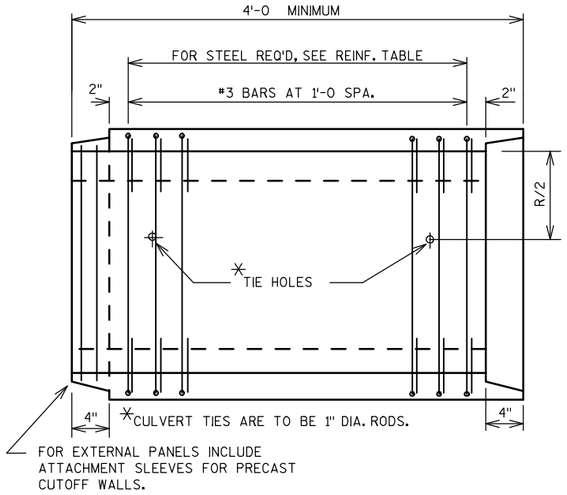


SECTION THRU BARREL

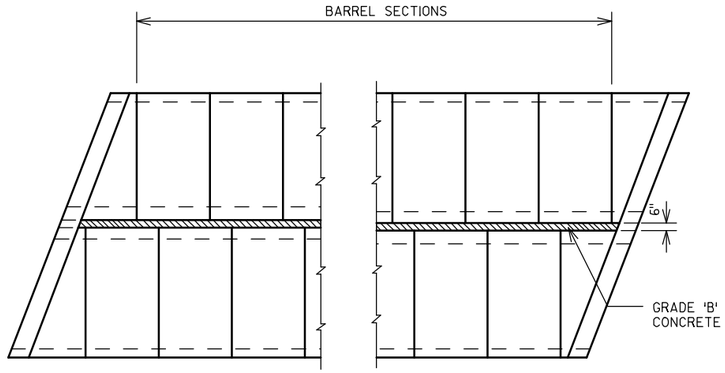
◆ 1" OR 3 x WIRE DIAMETER, WHICHEVER IS GREATER



ALTERNATE DETAIL OPTION



LONGITUDINAL SECTION



PLAN

MULTICELL INSTALLATION
(WINGWALLS NOT SHOWN FOR CLARITY)

BOX CULVERT DATA

DIMENSIONS				
S = 10.0 (FT.)	R= 7.0 (FT.)	T OR T_S, T_b, T_+ = 10 (IN)	EARTH COVER 1.5 TO 2.25 (FT)	
REINFORCEMENT			AREA/FT.	LENGTH
A_S 1			0.57	
A_S 2			0.56	
A_S 3			0.55	
A_S 4			0.24	
A_S 5			0.24	
A_S 6			0.24	
A_S 7			0.24	
A_S 8			0.24	
TOTAL BARREL OR PANEL LENGTH			78'-6"	

TOTAL ESTIMATED QUANTITIES

ITEM NUMBER	ITEM DESCRIPTION	UNIT	TOTAL
203.0200	REMOVING OLD STRUCTURE STATION 522+07	LS	1
206.2000	EXCAVATION FOR STRUCTURES CULVERTS B-68-140	LS	1
210.2100	BACKFILL STRUCTURE TYPE B	CY	366
504.0100	CONCRETE MASONRY CULVERTS	CY	47
504.2000.S	PRECAST CONCRETE BOX CULVERT 10FT X 7FT	LF	157
505.0400	BAR STEEL REINFORCEMENT HS STRUCTURES	LB	2184
505.0600	BAR STEEL REINFORCEMENT HS COATED STRUCTURES	LB	2752
516.0500	RUBBERIZED MEMBRANE WATERPROOFING	SY	11
606.0100	RIPRAP LIGHT	CY	70
606.0300	RIPRAP HEAVY	CY	72
612.0406	PIPE UNDERDRAIN WRAPPED 6-INCH	LF	248
645.0105	GEOTEXTILE TYPE C	SY	261
645.0120	GEOTEXTILE TYPE HR	SY	107
645.0130	GEOTEXTILE TYPE R	SY	140
NON-BID ITEMS			
JOINT FILLER - ½", ¾"			
NON-BITUMINOUS JOINT SEALER			
NAME PLATE			

STATE PROJECT NUMBER

6220-03-74

NOTES

DETAILS FOR MATERIALS, FABRICATION, CONSTRUCTION AND DESIGN OF PRECAST BOX CULVERTS NOT SHOWN OR STATED ON THIS DRAWING SHALL BE IN ACCORDANCE WITH THE CURRENT ASTM SPECIFICATION, C1577; AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS; WISCONSIN DOT BRIDGE MANUAL; WISCONSIN DOT STANDARD SPECIFICATIONS & APPLICABLE SPECIAL PROVISIONS, EXCEPT THAT THE CONCRETE MIXTURE SHALL CONTAIN NOT LESS THAN 565 LBS. OF CEMENTITIOUS MATERIALS PER CUBIC YARD.

THE DESIGN OF PRECAST BOX CULVERTS WITH ALL FILL HEIGHTS SHALL BE AS STATED IN ASTM C1577.

ALL PRECAST BOX SECTIONS SHALL BE PLACED ON A BEDDING OF "STRUCTURE BACKFILL" OF 6" MINIMUM DEPTH.

THE COVER OF CONCRETE OVER THE REINFORCEMENT SHALL BE 1 INCH OR 2 INCHES AS SHOWN WITH AN ALLOWABLE VARIATION OF -⅜" TO +½ INCH.

THE SPACING CTR. TO CTR. OF THE CIRCUMFERENTIAL WIRES SHALL NOT BE LESS THAN 2 INCHES NOR MORE THAN 4 INCHES. THE SPACING CTR. TO CTR. OF THE LONGITUDINAL WIRES SHALL NOT BE MORE THAN 8 INCHES.

NOT MORE THAN FOUR (4) HOLES MAY BE CAST, DRILLED OR OTHERWISE NEATLY MADE IN THE SHELL OF EACH PIECE OF BOX SECTION FOR HANDLING. THE HOLES SHALL BE TAPERED UNLESS DRILLED. HOLES SHALL BE FILLED WITH PORTLAND CEMENT MORTAR EXCEPT TAPERED HOLES MAY BE FILLED WITH CONCRETE PLUGS SECURED WITH PORTLAND CEMENT MORTAR OR OTHER APPROVED ADHESIVE.

THE JOINT ON THE BOTTOM OF THE CULVERT & THE SIDES OF THE CULVERT FROM THE BOTTOM TO A POINT 1'-0" FROM THE CEILING SHALL BE SEALED WITH A PREFORMED MASTIC. PREFORMED MASTIC MUST CONFORM TO AASHTO MATERIALS SPEC, M198, TYPE B, A 2'-0" STRIP OF GEOTEXTILE FABRIC SHALL BE PLACED OVER THE JOINTS ON THE TOP AND ON THE SIDES OF THE CULVERT. THE GEOTEXTILE FABRIC SHALL COMPLY WITH REQUIREMENTS OF STANDARD SPECIFICATION 645.2.4, SCHEDULE A. (FABRIC NOT REQUIRED OVER INSIDE WALL JOINTS OF MULTICELL INSTALLATION.)

THE CLEAR SPACING BETWEEN BARRELS SHALL BE 6 INCHES AND THE SPACE BETWEEN ADJACENT BARRELS FROM TOP OF BEDDING TO TOP OF TOP SLAB SHALL BE FILLED WITH GRADE "B" CONCRETE. THE COST OF GRADE "B" CONCRETE IS INCLUDED IN THE COST OF PRECAST CONCRETE BOX CULVERT.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-68-140

DRAWN BY JAP | PLANS CK'D. WJZ

PRECAST CULVERT

SHEET 3 OF 5

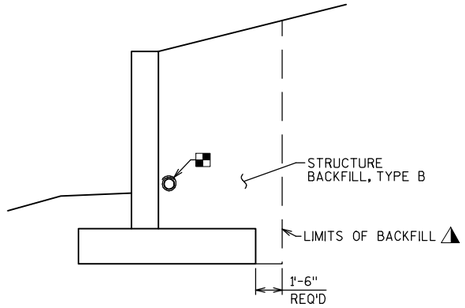
156

8

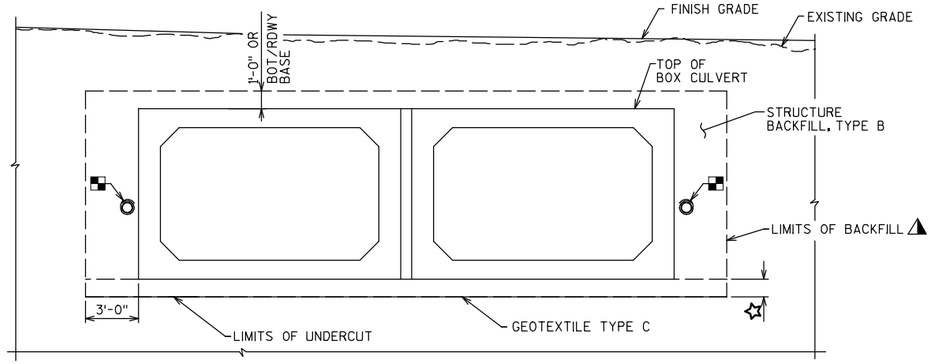
8

FILE= 30_CUL V.DGN

STATE PROJECT NUMBER
6220-03-74



TYPICAL SECTION THRU WING WALL



TYPICAL SECTION THRU BOX CULVERT

▩ PIPE UNDERDRAIN WRAPPED (6-INCH). SLOPE 0.5% TO SUITABLE DRAINAGE. ATTACH RODENT SHIELD AT ENDS OF PIPE UNDERDRAIN.

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

THE UPPER LIMITS OF "EXCAVATION FOR STRUCTURES CULVERTS B-68-140 SHALL BE THE EXISTING GROUNDLINE.

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

ALL VOLUME WHICH CANNOT BE PLACED BEFORE CULVERT CONSTRUCTION AND NOT OCCUPIED BY THE NEW STRUCTURE SHALL BE BACKFILLED WITH STRUCTURE BACKFILL WITHIN THE LENGTH OF THE CULVERT.

☆ ALL PRECAST BOX SECTIONS SHALL BE PLACED ON A BEDDING OF "STRUCTURE BACKFILL TYPE B" OF 6" MINIMUM DEPTH.

GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.

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

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

PRECAST BOX STEEL REINFORCEMENT MAY BE EITHER GRADE 60 DEFORMED BARS (FY = 60,000 P.S.I) OR WELDED DEFORMED WIRE FABRIC OF EQUIVALENT AREA (FY = 65,000 P.S.I).

ALTERNATIVE DETAILS OF EQUAL STRENGTH AND HYDRAULIC CAPACITY TO THE DETAILS SHOWN ON THIS SHEET MAY BE PROPOSED TO THE ENGINEER FOR REVIEW AND APPROVAL.

THE PRECAST ELEMENTS SHALL BE PROVIDED WITH SUITABLE LIFTING DEVICES FOR HANDLING AND PLACEMENT OF THE ELEMENTS.

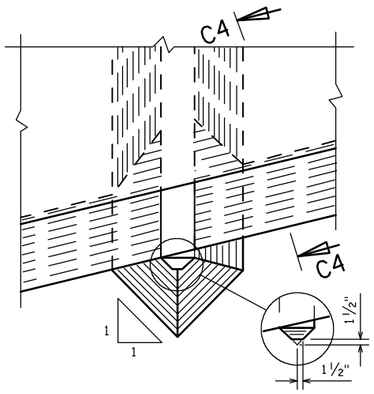
THE MAXIMUM BAR SIZE OF GRADE 60 DEFORMED BARS SHALL BE #5 UNLESS NOTED OTHERWISE.

PRECAST CUTOFF WALL AND HEADER ELEMENTS MAY BE CAST IN PLACE AT THE OPTION OF THE CONTRACTOR. COST FOR PRECAST CONCRETE BOX CULVERT WILL NOT BE ADJUSTED AND NO ADDITIONAL PAYMENT FOR CONCRETE MASONRY WILL BE PROVIDED.

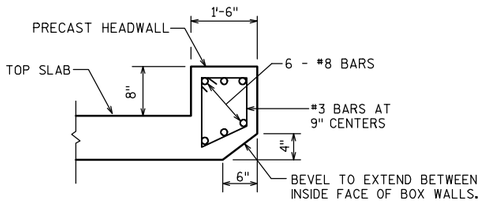
NON-SHRINK GROUT SHALL BE FURNISHED FROM THE DEPARTMENT'S APPROVED MATERIALS LIST. COST IS INCLUDED IN COST OF PRECAST CONCRETE BOX CULVERT.

SUBMIT SHOP ASSEMBLY DRAWINGS TO THE ENGINEER PRIOR TO FABRICATION.

SUBMIT ERECTION SEQUENCE DRAWINGS TO THE ENGINEER PRIOR TO DELIVERY OF PRECAST UNITS TO SITE.

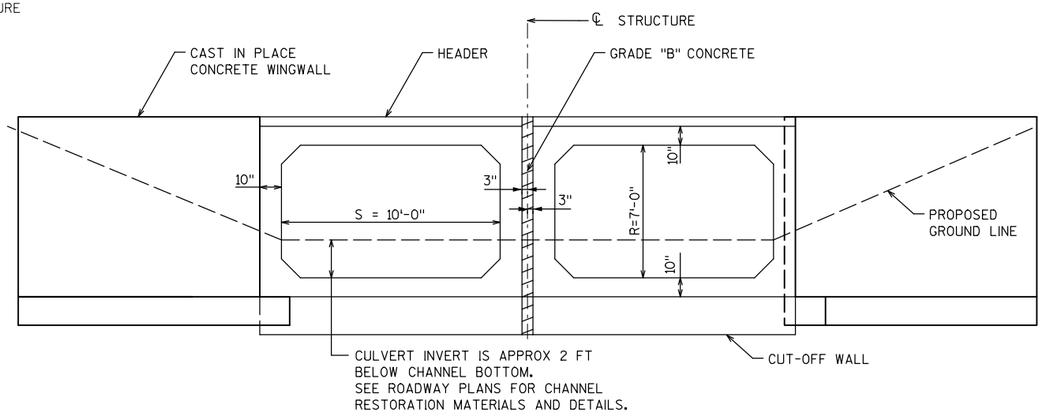


PLAN

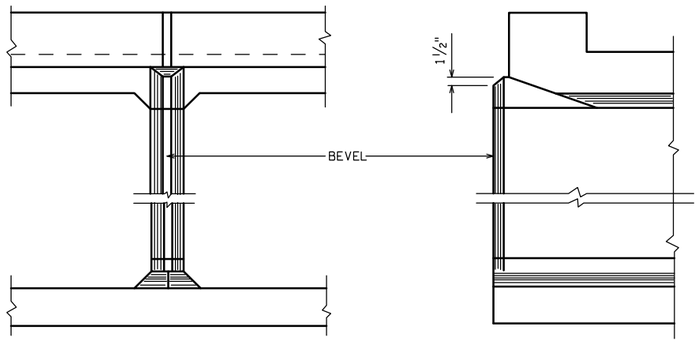


HEADWALL DETAIL

(TYPICAL AT INLET AND OUTLET)



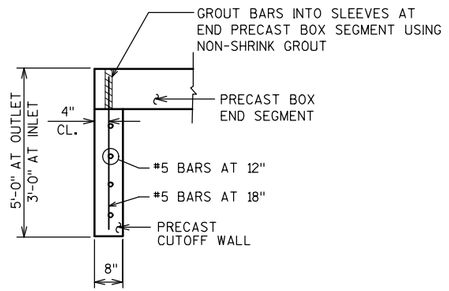
END VIEW



ELEVATION

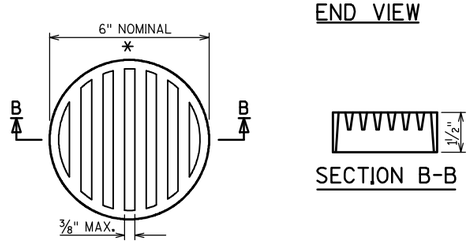
SECTION C4

INLET NOSE CENTERWALL DETAILS



CUTOFF WALL DETAIL

(REQUIRED AT INLET AND OUTLET)



RODENT SHIELD DETAIL

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

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

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

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-68-140

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CULVERT DETAILS

SHEET 4 OF 5

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FILE= 35_CULVDET.DGN

8

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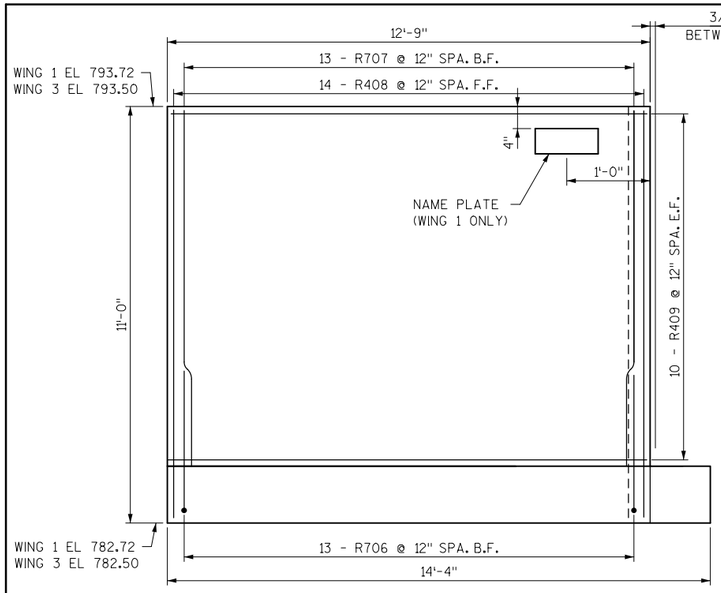
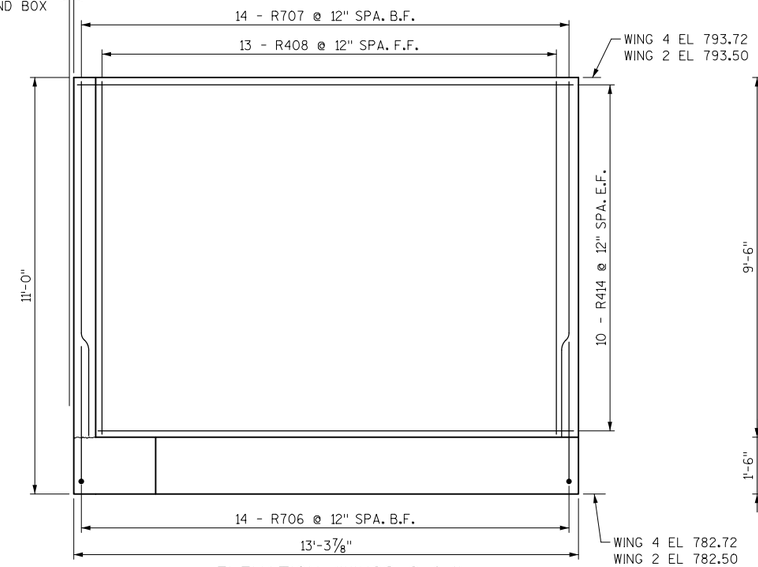
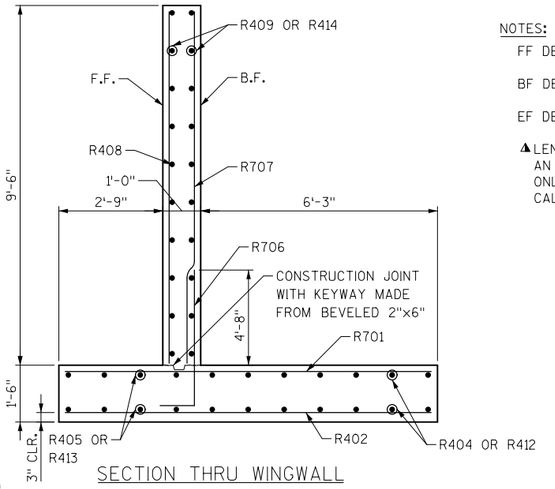
STATE PROJECT NUMBER
6220-03-74



ELEVATION (WINGS 1 &3)



ELEVATION (WINGS 2 &4)



SECTION THRU WINGWALL

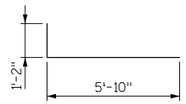
NOTES:

FF DENOTES FRONT FACE

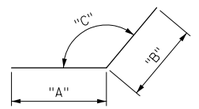
BF DENOTES BACK FACE

EF DENOTES EACH FACE

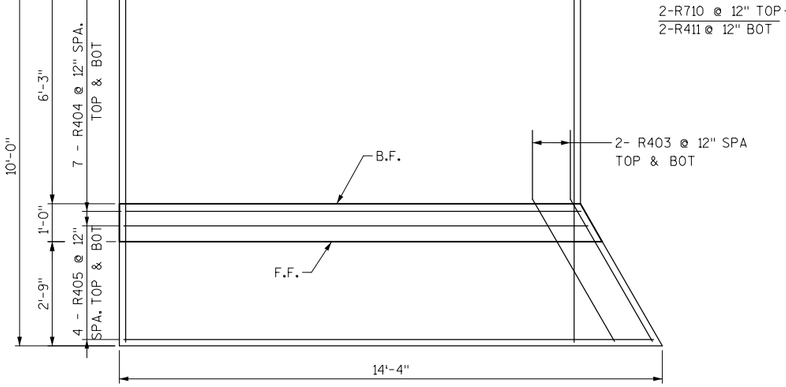
▲ LENGTH SHOWN FOR BAR SERIES IS AN AVERAGE LENGTH AND SHOULD ONLY BE USED FOR BAR WEIGHT CALCULATIONS.



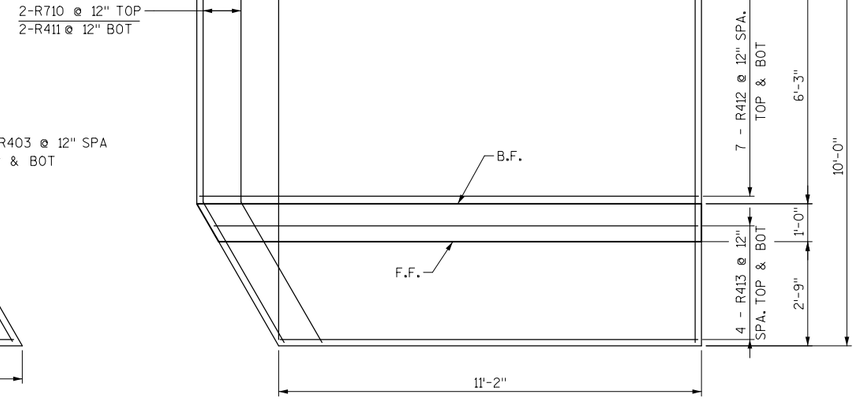
R706



BAR NO.	DIM "A"	DIM "B"	DIM "C"
R403	4'-4"	2'-0"	150°
R710	6'-0"	4'-2"	150°
R411	6'-0"	4'-2"	150°



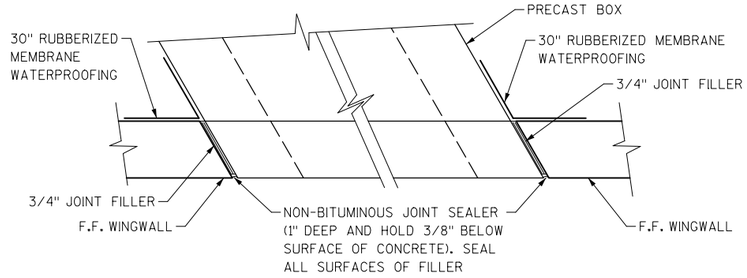
PLAN (WINGS 1 &3)



PLAN (WINGS 2 &4)

BAR SERIES TABLE

BAR NO.	NUMBER REQUIRED FOR 1 WINGWALL (TWO REQUIRED)	LENGTH
R405	1 SERIES OF 4 @ TOP	12'-2" TO 13'-10"
	1 SERIES OF 4 @ BOTTOM	
R413	1 SERIES OF 4 @ TOP	10'-10" TO 12'-7"
	1 SERIES OF 4 @ BOTTOM	



CORNER DETAILS
PLAN VIEW
(TYP. AT BOTH PORTALS)

BILL OF BARS FOR ONE WINGWALL (2 REQUIRED)
WINGS 1 & 3

BAR NO.	BAR SIZE	COATED BAR	NO. REQ'D	LENGTH	BENT BAR	BUNDLED	BAR SERIES ▲	672 # COATED 538 # UNCOATED LOCATION
R701	7		13	9'-8"				FOOTING TOP
R402	4		13	9'-8"				FOOTING BOTTOM
R403	4		4	6'-4"	X			FOOTING CORNER TOP AND BOTTOM
R404	4		14	11'-10"				FOOTING BACK LONGITUDINAL BARS
R405	4		8	13'-0"			X	FOOTING FRONT LONGITUDINAL BARS
R706	7	X	13	6'-10"	X			WALL BACK VERTICAL BARS
R707	7	X	13	9'-2"				WALL BACK VERTICAL BARS
R408	4	X	14	9'-2"				WALL FRONT VERTICAL BARS
R409	4	X	20	12'-0"				WALL FRONT AND BACK HORIZONTAL BARS

BILL OF BARS FOR ONE WINGWALL (2 REQUIRED)
WINGS 2 & 4

BAR NO.	BAR SIZE	COATED BAR	NO. REQ'D	LENGTH	BENT BAR	BUNDLED	BAR SERIES ▲	704 # COATED 554 # UNCOATED LOCATION
R701	7		12	9'-8"				FOOTING TOP
R402	4		12	9'-8"				FOOTING BOTTOM
R706	7	X	14	6'-10"	X			WALL BACK VERTICAL BARS
R707	7	X	14	9'-2"				WALL BACK VERTICAL BARS
R408	4	X	13	9'-2"				WALL FRONT VERTICAL BARS
R710	7		2	10'-2"	X			FOOTING TOP CORNER BARS
R411	4		2	10'-2"	X			FOOTING BOTTOM CORNER BARS
R412	4		14	13'-0"				FOOTING BACK LONGITUDINAL BARS
R413	4		8	11'-9"			X	FOOTING FRONT LONGITUDINAL BARS
R414	4	X	20	12'-5"				WALL FRONT AND BACK HORIZONTAL BARS

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DEPARTMENT OF TRANSPORTATION

STRUCTURE B-68-140

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WINGWALL DETAILS

SHEET 5 OF 5

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FILE= 40_WING.DGN
SCALE = 1:4

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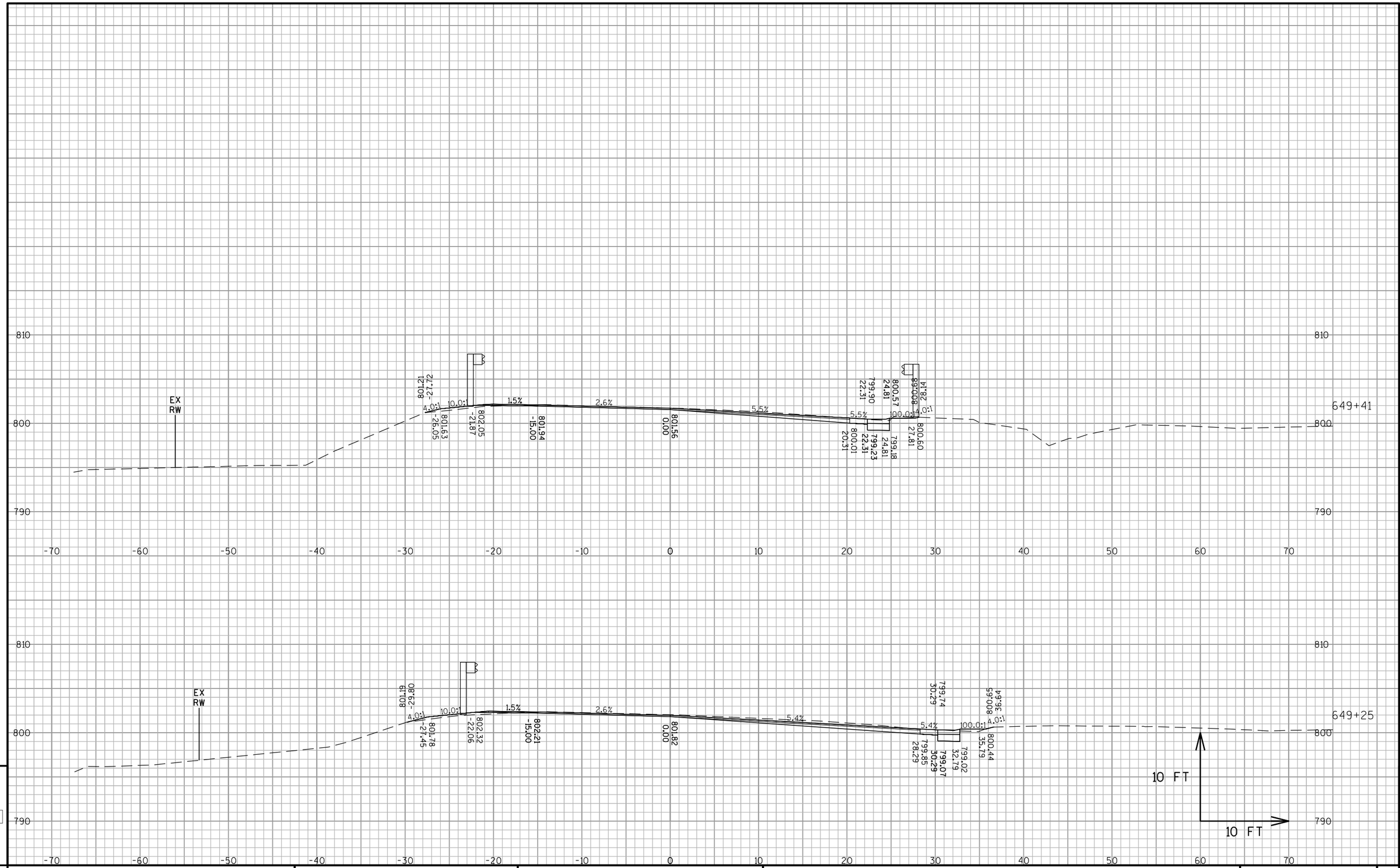
			AREA (SF)			Incremental Vol (CY) (Unadjusted)			Cumulative Vol (CY)		
	Real Station		Cut	Salvaged/Unusable	Fill	Cut	Salvaged/Unusable	Fill	Cut	Expanded Fill	Mass Ordinate
STATION		Distance		Pavement Material			Pavement Material		1.00	1.25	
						Note 1	Note 2	Note 3	Note 1		Note 8
508+95.00	50895		28	28	0	0	0	0	0	0	0
509+00.00	50900	5	65	28	0	9	5	0	9	0	9
509+45.00	50945	45	241	28	0	255	47	0	264	0	264
				Subtotal		264	52	0			
509+45.00	50945		28	28	0	0	0	0	264	0	264
509+70.00	50970	25	28	28	0	26	26	0	290	0	290
				Subtotal		26	26	0			
509+70.00	50970		241	28	0	0	0	0	290	0	290
510+00.00	51000	30	124	28	0	203	31	0	493	0	493
510+20.00	51020	20	28	28	0	56	21	0	549	0	549
				Subtotal		259	52	0			
521+58.00	52158		28	28	0	0	0	0	549	0	549
521+83.00	52183	25	135	28	0	75	26	0	624	0	624
522+08.00	52208	25	241	28	0	174	26	0	798	0	798
				Subtotal		250	52	0			
522+08.00	52208		28	28	0	0	0	0	798	0	798
522+41.00	52241	33	28	28	0	34	34	0	833	0	833
				Subtotal		34	34	0			
522+41.00	52241		241	28	0	0	0	0	833	0	833
522+66.00	52266	25	135	28	0	174	26	0	1007	0	1007
522+91.00	52291	25	28	28	0	75	26	0	1082	0	1082
				Subtotal		250	52	0			

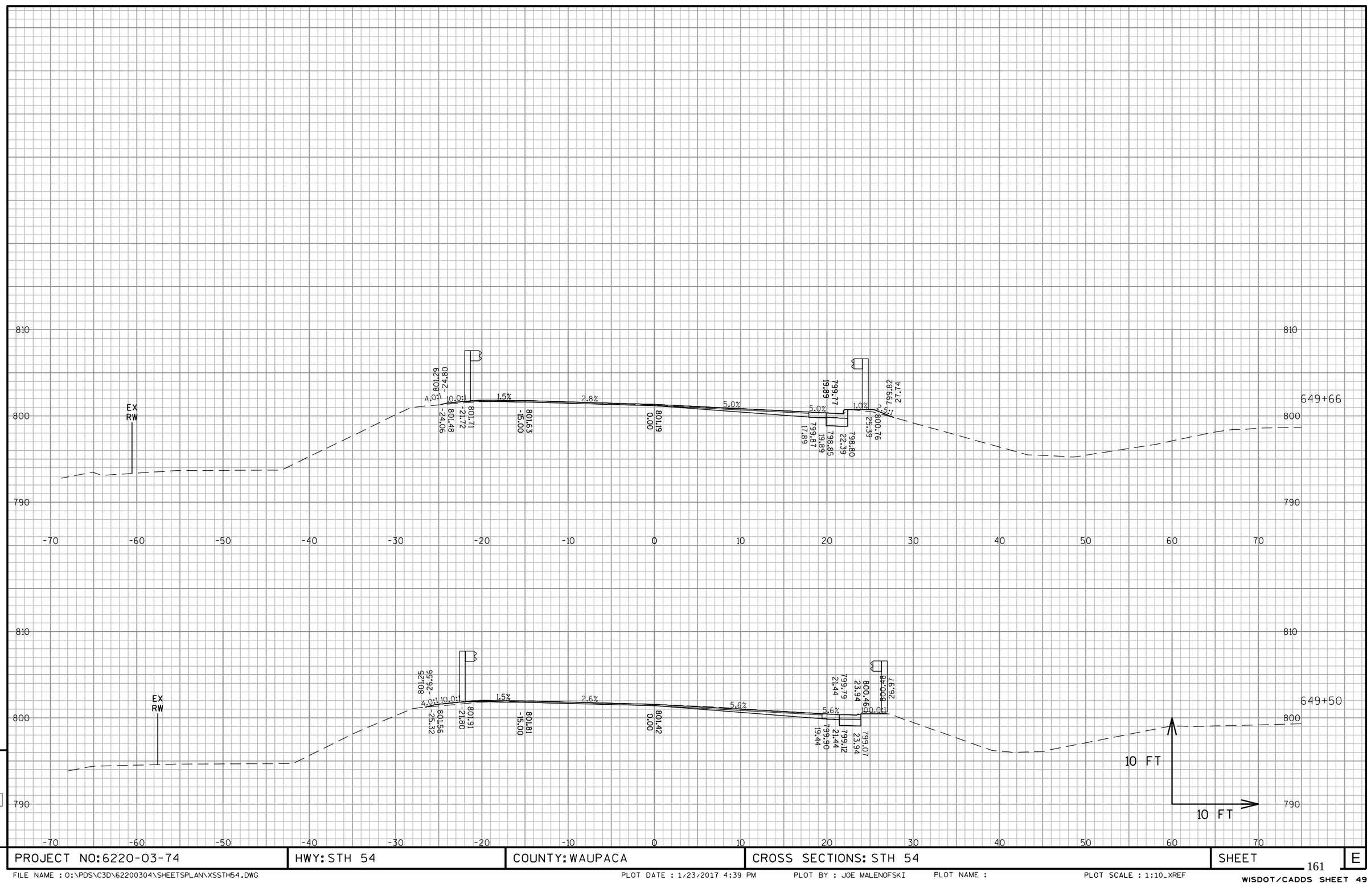
NOTES:

1-CUT	CUT INCLUDES SALVAGED/UNUSABLE PAVEMENT MATERIAL
2-SALVAGED/UNUSABLE PAVEMENT MATERIAL	PAVEMENT MATERIAL THIS DOES NOT SHOW UP IN CROSS SECTIONS
3-FILL	DOES NOT INCLUDE UNUSABLE PAVEMENT EXC VOLUME
4-EXPANDED MARSH BACKFILL	WILL BE BACKFILLED WITH SELECT BORROW
5-EXPANDED EBS	WILL BE BACKFILLED WITH SELECT BORROW
6-REDUVED MARSH IN FILL	REDUCED MARSH EXCAVATION THAT CAN BE USED IN FIL
7-REDUCED EBS IN FILL	REDUCED EBS EXCAVATION THAT CAN BE USED IN FILL
8-MASS ORDINATE	^{2}(CUT + MARSH EXC + EBS) - ((FILL - REDUCED MARSH IN FILL) - (REDUCED EBS IN FILL) - EXPANDED ROCK) * FILL FACTOR)^{3}



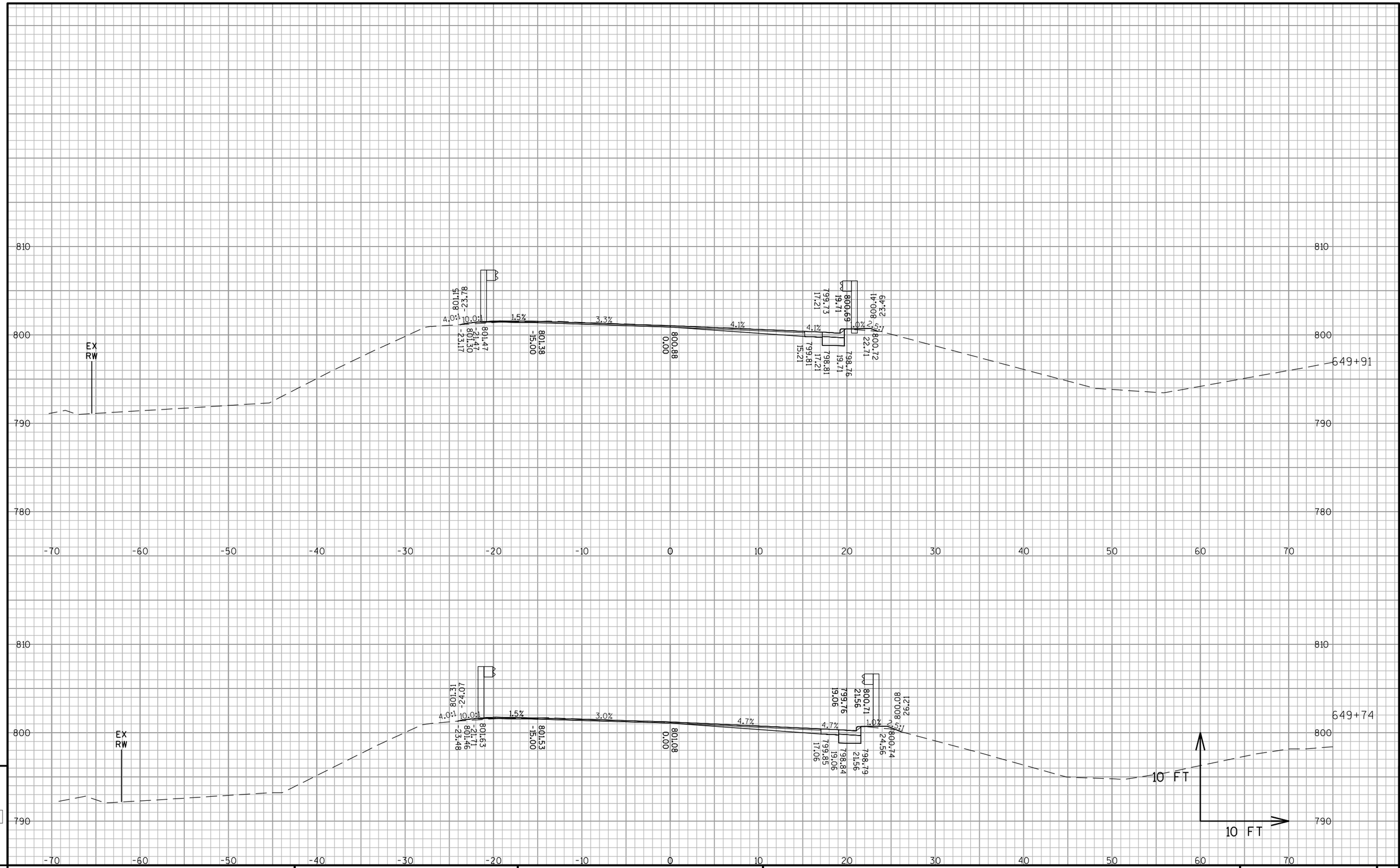
PROJECT NO: 6220-03-74	HWY: STH 54	COUNTY: WAUPACA	CROSS SECTIONS: STH 54	SHEET	E

FILE NAME : O:\PDS\C3D\62200304\SHEETSPLAN\XSSTH54.DWG PLOT DATE : 1/23/2017 4:39 PM PLOT BY : JOE MALENOFSKI PLOT NAME : PLOT SCALE : 1:10_XREF



PROJECT NO: 6220-03-74	HWY: STH 54	COUNTY: WAUPACA	CROSS SECTIONS: STH 54	SHEET	E

FILE NAME : O:\PDS\C3D\62200304\SHEETSPLAN\XSSTH54.DWG PLOT DATE : 1/23/2017 4:39 PM PLOT BY : JOE MALENOFSKI PLOT NAME : PLOT SCALE : 1:10_XREF



PROJECT NO: 6220-03-74	HWY: STH 54	COUNTY: WAUPACA	CROSS SECTIONS: STH 54	SHEET	E

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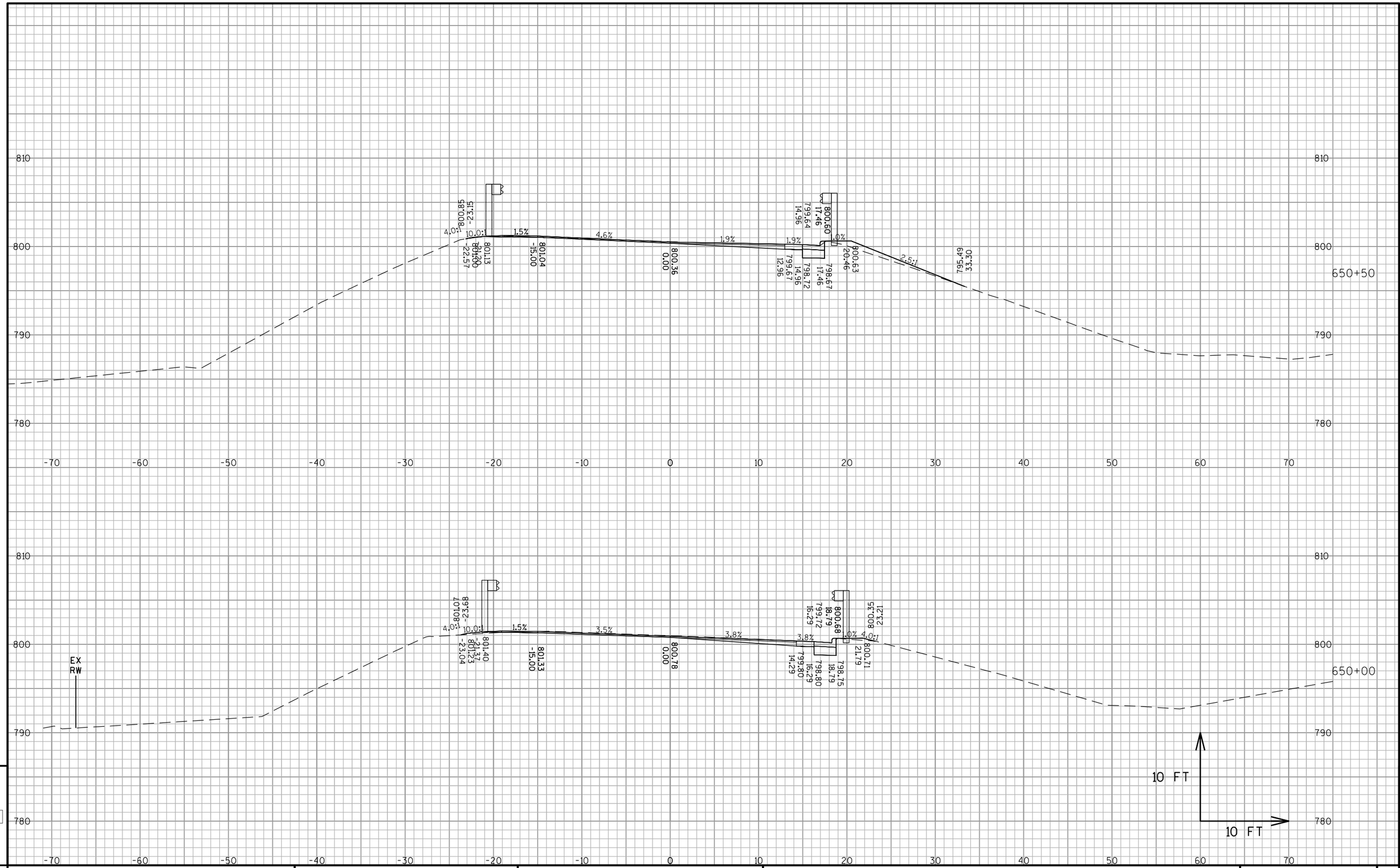
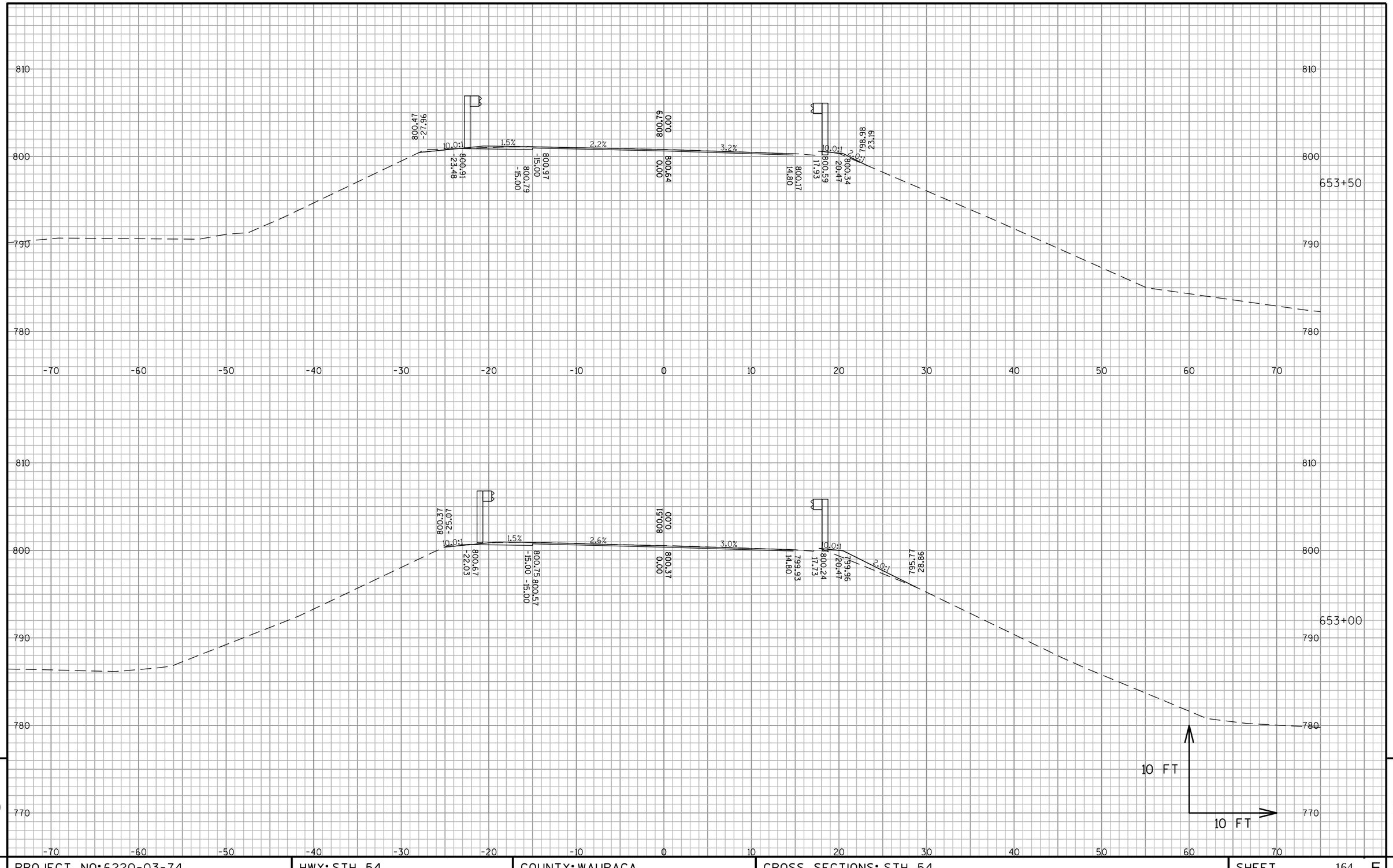


PROJECT NO:6220-03-74	HWY: STH 54	COUNTY: WAUPACA	CROSS SECTIONS: STH 54	SHEET	E

FILE NAME : O:\PDS\C3D\62200304\SHEETSPLAN\XSSTH54.DWG PLOT DATE : 1/23/2017 4:40 PM PLOT BY : JOE MALENOFSKI PLOT NAME : PLOT SCALE : 1:10_XREF



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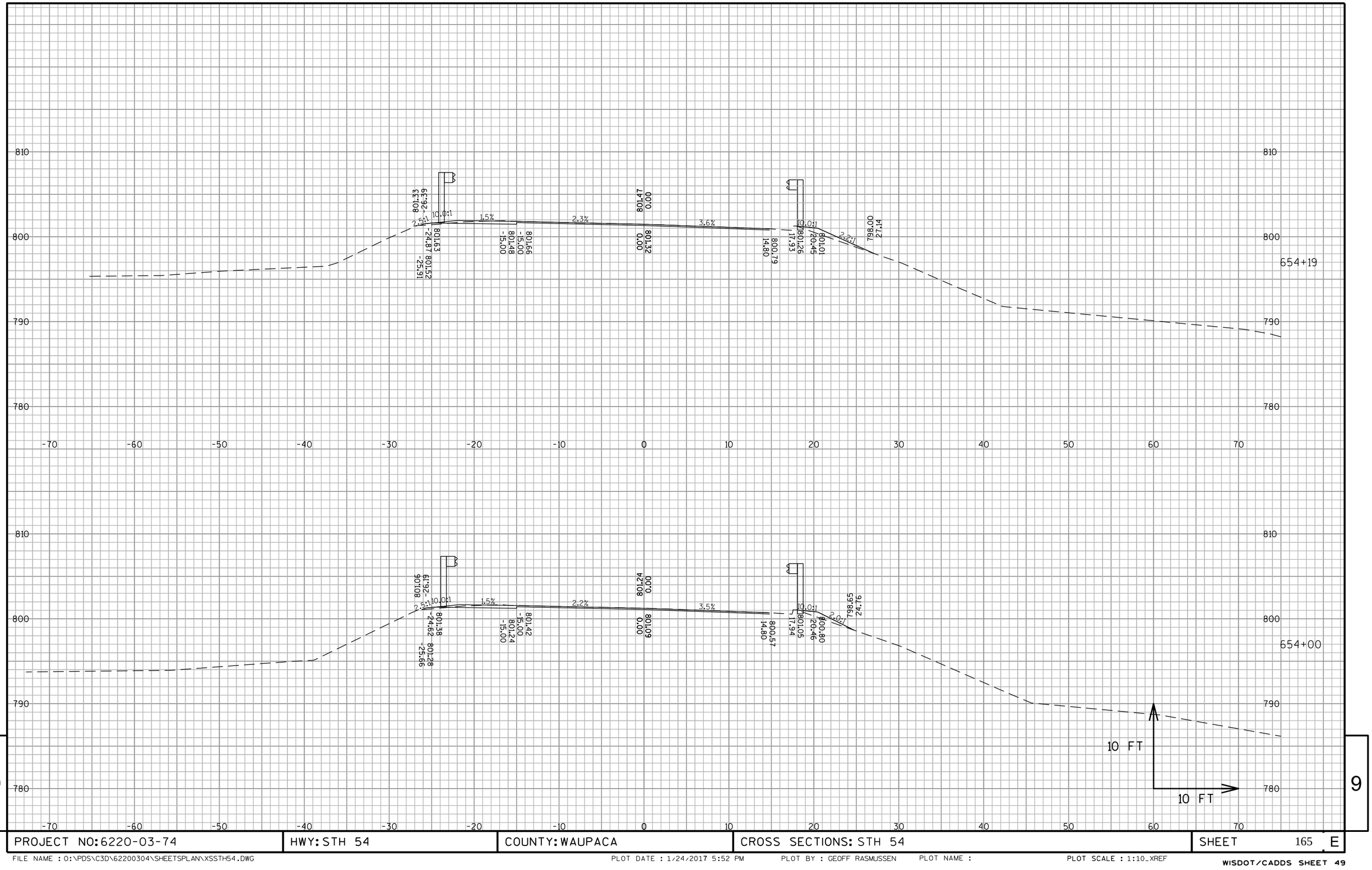

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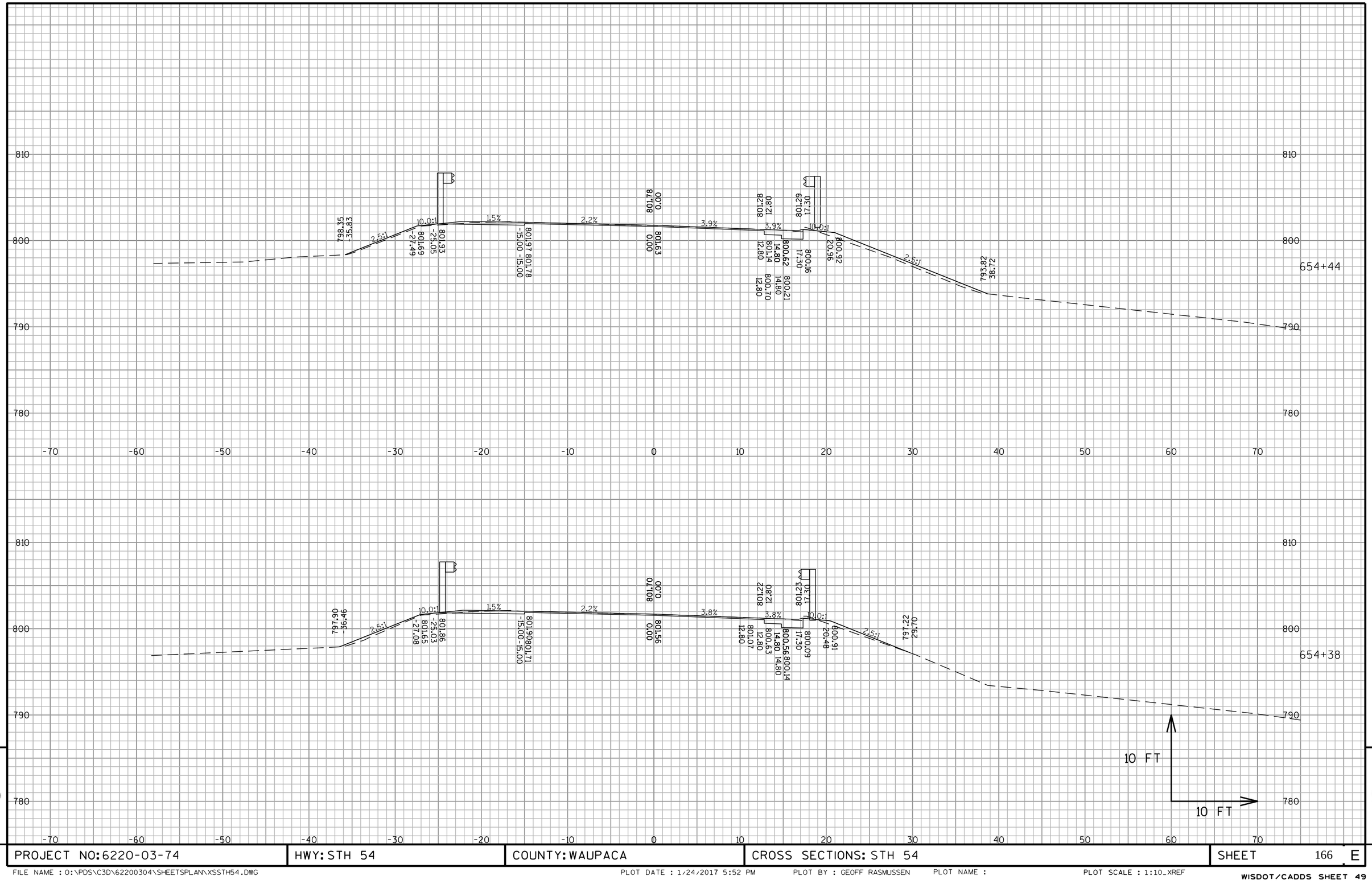

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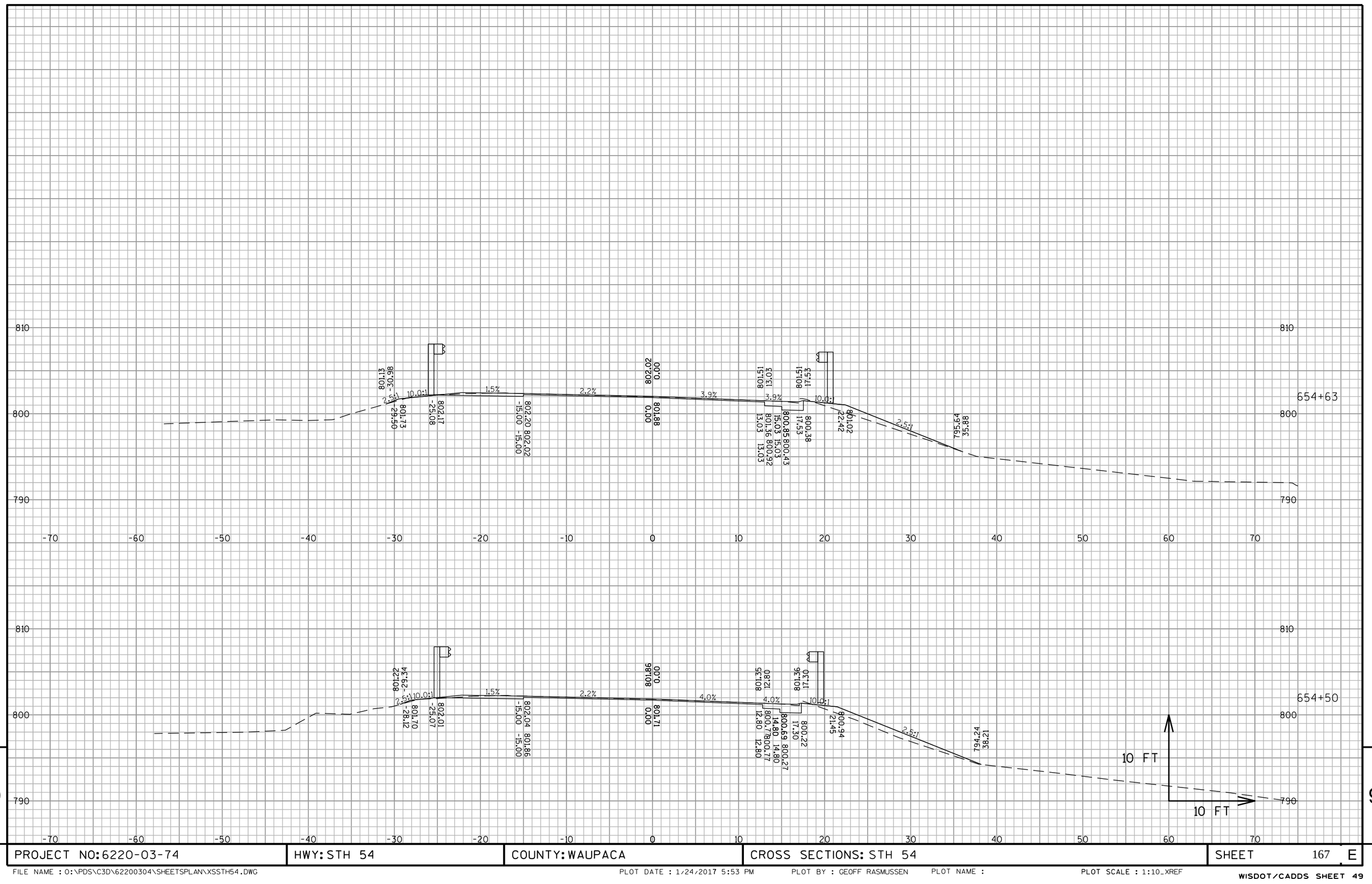
WISDOT/CADDS SHEET 49



PROJECT NO: 6220-03-74	HWY: STH 54	COUNTY: WAUPACA	CROSS SECTIONS: STH 54	SHEET 167 E

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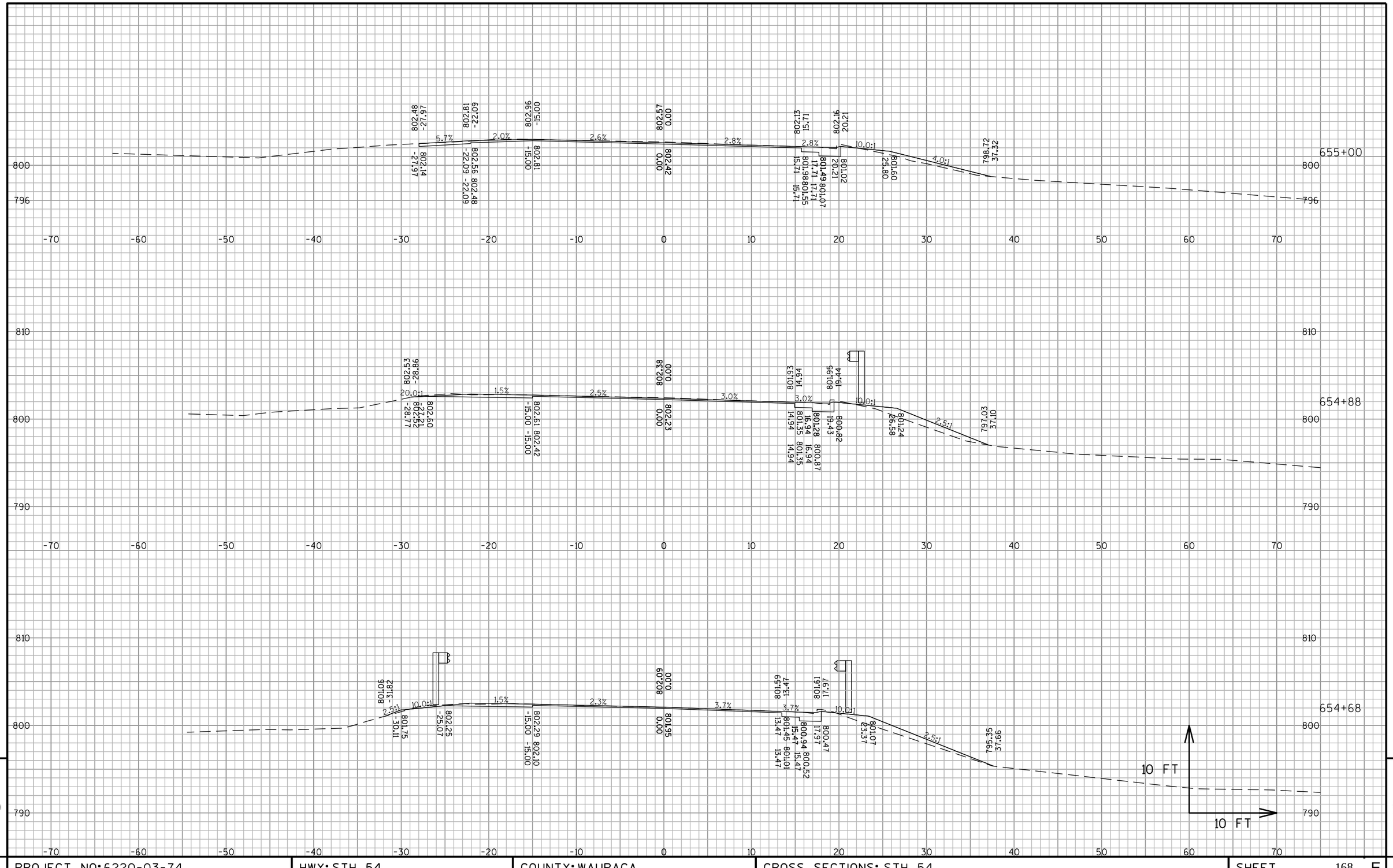
WISDOT/CADDS SHEET 49



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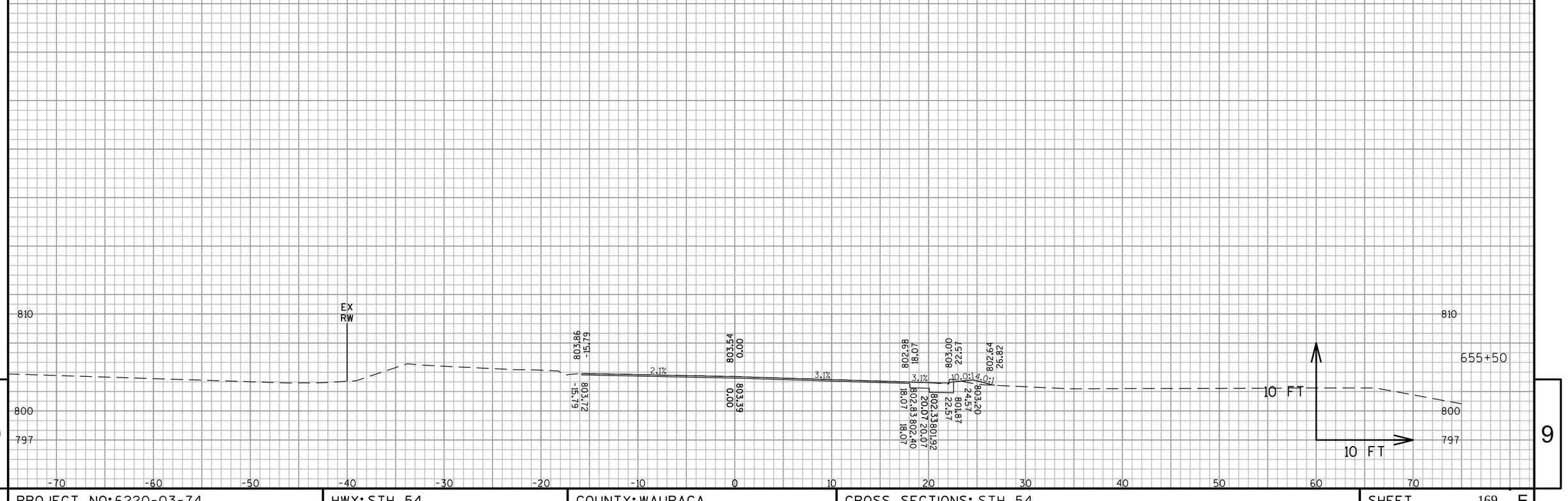

PROJECT NO: 6220-03-74	HWY: STH 54	COUNTY: WAUPACA	CROSS SECTIONS: STH 54	SHEET 169 E

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