WKE

MARCH 2019

PROJECT ID: 2984-38-71

COUNTY: MILWAUKEE

ORDER OF SHEETS

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

TOTAL SHEETS = 124

22

N

DESIGN DESIGNATION

A.A.D.T.	=	(2018) 181 - 32000 SILVER SPRING DR - 32200
A.A.D.T.	=	(2038) 181- 35200 SILVER SPRING- 35400
D.H.V.	=	
D.D.	=	
T.	=	
DESIGN SPEED	=	
ESALS	=	

CONVENTIONAL SYMBOLS

PLAN

- CORPORATE LIMITS
- PROPERTY LINE
- LOT LINE
- LIMITED HIGHWAY EASEMENT
- EXISTING RIGHT OF WAY
- PROPOSED OR NEW R/W LINE
- SLOPE INTERCEPT
- REFERENCE LINE (300'E&F)
- 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 (955.36)
- CULVERT (Profile View)

UTILITIES

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

STATE OF WISCONSIN

DEPARTMENT OF TRANSPORTATION

PLAN OF PROPOSED IMPROVEMENT

VARIOUS HIGHWAYS

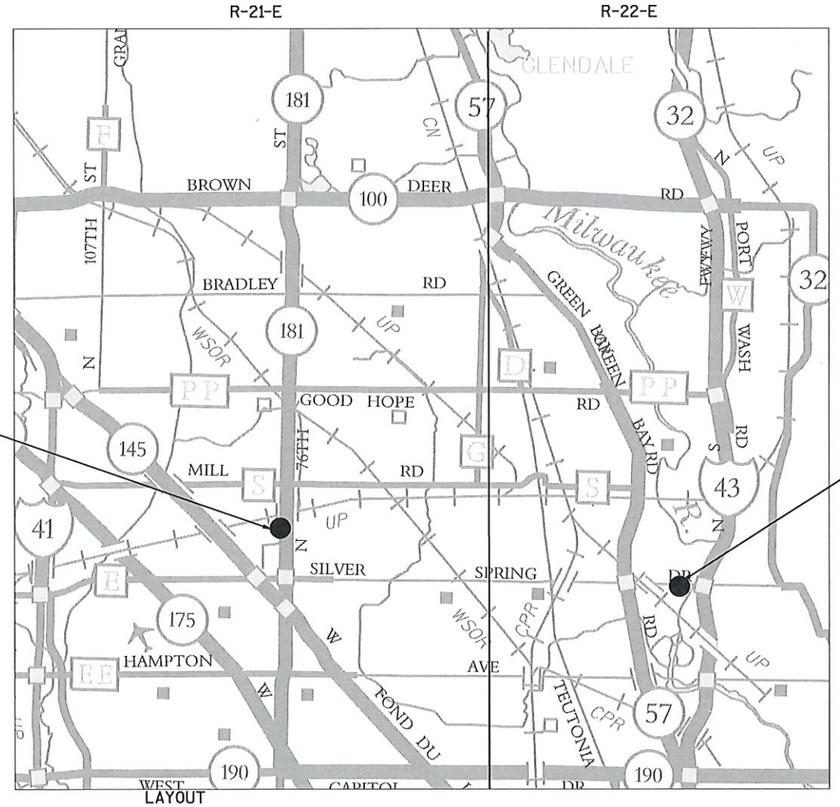
VARIOUS BRIDGES B-40-378, 579, 580

VARIOUS HIGHWAYS

MILWAUKEE COUNTY

STATE PROJECT NUMBER
2984-38-71

STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
2984-38-71	WISC 2018376	1



TOTAL NET LENGTH OF CENTERLINE = 0.080 MILES

ALIGNMENT IS FOR REFERENCE ONLY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PREPARED BY

Surveyor	
Designer	CRYSTAL STRAIT
Project Manager	GARY METZER
Regional Examiner	
Regional Supervisor	Janet Cannon

APPROVED FOR THE DEPARTMENT

DATE: 23 April 2018 (Signature)

E

GENERAL NOTES

THE CONTRACTOR SHALL NOTIFY DIGGERS HOTLINE AND AFFECTED UTILITIES PRIOR TO THE START OF WORK. ANY UTILITY WHICH IS NOT A MEMBER OF DIGGERS HOTLINE MUST BE CONTACTED SEPARATELY.

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

THE LOCATIONS OF JOINTS IN THE HMA PAVEMENT SHALL BE APPROVED BY THE ENGINEER.

THE CONTRACTOR WILL MAINTAIN ACCESS TO ALL DRIVEWAYS AND BUSINESSES AT ALL TIMES.

A SAWED JOINT WILL BE REQUIRED WHERE NEW PAVEMENT IS TO MEET AN EXISTING PAVED SURFACE.

TRAFFIC CONTROL LOCATIONS AS SHOWN IN THE PLAN ARE SUGGESTED LOCATIONS. EXACT LOCATIONS WILL BE DETERMINED BY THE ENGINEER IN THE FIELD.

ALL SIGN LOCATIONS SHALL BE REVIEWED BY THE ENGINEER PRIOR TO INSTALLATION.

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

EROSION CONTROL DEVICES ARE AT SUGGESTED LOCATIONS. THE ACTUAL LOCATIONS WILL BE DETERMINED BY THE CONTRACTOR'S ECIP AND BY THE ENGINEER. EROSION CONTROL DEVICES SHALL BE MAINTANINED UNTIL PERMANENT VEGETATION IS ESTABLISHED OR UNTIL THE ENGINEER DETERMINES THAT THE DEVICE IS NO LONGER REQUIRED.

COORDINATE WITH SOUTHEASTERN WISCONSIN REGIONAL PLANNING COMMISSION (SEWRPC) FOR THE PERPETUATION OF SECTION CORNER (PUBLIC LAND SURVEY SYSTEM - PLSS) MONUMENTS. THE CONTRACTOR IS RESPONSIBLE TO COORDINATE WITH SEWRPC AND THE WISDOT PROJECT MANAGER THROUGHOUT THE PERPETUATION PROCESS. THE CONTRACTOR WILL CONTACT SEWRPC AT (262) 953-4295 AT LEAST TWO WEEKS BEFORE STARTING CONSTRUCTION OPERATIONS OR THE PRECONSTRUCTION MEETING TO ALLOW FOR SECTION CORNER MONUMENT PERPETUATION COORDINATION.

CONTRACTOR SHALL PLACE RING(S) AT SECTION CORNER DURING HMA PAVING OPERATIONS TO PERPETUATE MONUMENT. RING WILL BE REUSED FROM EXISTING MONUMENT OR SUPPLIED BY SEWRPC. RING INSTALLATION SHALL BE INCIDENTAL TO HMA PAVING.

THE CONTRACTOR SHALL USE CARE TO NOT DAMAGE THE EXISTING SECTION CORNER MONUMENT DURING ANY OPERATIONS AND WILL BE RESPONSIBLE TO COORDINATE WITH AND REPLACE MONUMENT ACCORDING TO SEWRPC REQUIREMENTS AT OWN COST IF DAMAGE OCCURS. REPLACEMENT WORK WILL INCLUDE, BUT IS NOT LIMITED TO; COMPLETELY REMOVE EXISTING MONUMENT THAT WAS DAMAGED, BACKFILLING 3 TO 4 FOOT DEEP HOLE WHERE EXISTING MONUMENT WAS REMOVED AND COORDINATING THE METHODOLOGY AND PROVIDING THE MATERIALS TO COMPLETE THE CONSTRUCTION OF THE SURFACE SURROUNDING THE MONUMENT. SEWRPC WILL THEN REPLACE THE DAMAGED MONUMENTS UNDER A SEPARATE CONTRACT WITH WISDOT. A $1,500 DEDUCTION PER DAMAGED SECTION CORNER WILL BE MADE FROM MONIES OWED TO THE CONTRACTOR TO COVER COSTS OF WISDOT'S CONTRACT WITH SEWRPC.

2

LOCATION		THICKNESS	HMA PAVEMENT
PROJECT LIMITS	UPPER LAYER	2 - INCH	4MT58-28S
	LOWER LAYER	4 1/2 - INCH	4MT58-28S

HMA PAVING

6 1/2" HMA PAVEMENT

2" - 4MT 58-28 S UPPER LAYER

4 1/2" - 4MT 58-28 S LOWER LAYER (DONE IN 2 LIFTS, EACH 2 1/4")

ORDER OF SHEETS

GENERAL NOTES
PROJECT OVERVIEW
TYPICAL SECTIONS
CONSTRUCTION DETAILS
PERMANENT PAVEMENT MARKING & SIGNING
TRAFFIC SIGNALS
TRAFFIC CONTROL
STREET LIGHTING

UTILITY CONTACTS

WE ENERGIES (ELECTRIC & GAS)
ALEX DANTINNE
500 S. 116TH ST.
WEST ALLIS, WI 53214
PHONE: (920) 621-6903
FAX: (414) 221-2336
ALEX.DANTINNE@WE-ENERGIES.COM

SPRINT COMMUNICATIONS
DAN HILLARD
849 EARL ST
ST PAUL MN 55106
PHONE: (612) 217-3526

CITY OF MILWAUKEE
JEFFREY POLENSKE
841 N BROADWAY ROOM 701
MILWAUKEE, WI 53202
PHONE: (414) 286-3701
FAX: (414) 286-5994
JEFFREY.POLENSKE@MILWAUKEE.GOV

CITY OF GLENDALE
CHARLIE IMIG
5909 NORTH MILWAUKEE RIVER PKWY
GLENDALE, WI 53209
PHONE: (414) 228-1742
C.IMIG@GLENDALE-WI.ORG

PAETEC
MARY FISHER
13935 BISHOPS DR
BROOKFIELD WI 53005
PHONE: (262) 792-7938
MARY.B.FISHER@WINDSTREAM.COM

CHARTER
PETE KRUZELA
1320 N DR. MARTIN LUTHER KING DR.
MILWAUKEE, WI 53212
PHONE: (414) 908-1339
WIS.ENGINEERING@CHARTER.COM

SPRING COMMUNICATIONS
DAN HILLIAND
849 EARL STREET
ST PAUL, MN 55106
PHONE: (612) 217-3526

AT&T WISCONSIN
JAY C BULANEK
2005 PEWAUKEE RD
WAUKESHA, WI 53188
PHONE: (414) 491-2855

VILLAGE OF WHITEFISH BAY
JOHN EDLEBECK
115 W. FAIRMOUNT AVE
WHITEFISH BAY, WI 53217
PHONE: (715) 496-3080

LEVEL 3
SASHA DEMIAN
3235 INTERTECH DR
BROOKFIELD WI
PHONE: (414) 908-1042

CITY OF MILWAUKEE - WATER
DAVE GOLDAPP
841 N. BROADWAY, ROOM 409
MILWAUKEE, WI 53211
PHONE: (414) 286-6301

CITY OF MILWAUKEE - STREET LIGHTING
DENNIS MILLER
1540 W CANAL ST
MILWAUKEE, WI 53233
PHONE: (414) 708-4251

MILWAUKEE METRO SEWERAGE DIST
MICKI KLAPPA-SULLIVAN, PE
260 W SEEBOOTH ST
MILWAUKEE, WI 53204
PHONE: (414) 225-2178
MKLAPPASULLIVAN@MMSD.COM

AMERICAN TRANSMISSION COMPANY
TONY MARCINIAK
W234 N2000 RIDGEVIEW PARKWAY CT
WAUKESHA, WI 53187
PHONE: (262) 506-6814
TMARCINIAK@ATCLLC.COM

WISDOT CONTACTS

PROJECT MANAGER
GARY METZER, PE
141 NW BARSTOW ST
PO BOX 798
WAUKESHA, WI 53187-0798
PHONE: (262) 548-5685
GARY.METZER@DOT.WI.GOV

DNR LIASON
KRISTINA BETZOLD
2300 N DR. MARTIN LUTHER KING JR. DR
MILWAUKEE, WI 53212
PHONE: (414) 507-4946
KRISTINA.BETZOLD@WISCONSIN.GOV

WISDOT SIGNALS
DERRIN WOLFORD
141 NW BARSTOW STREET
PO BOX 798
WAUKESHA, WI 53187-0798
PHONE: (262) 521-4409

WisDOT STOC
JEFF MADSON
433 W ST PAUL AVE
STE 300
MILWAUKEE, WI 53203
PHONE: (414) 225-3723

NOT A UTILITY - FOR INFORMATION ONLY

SOUTHEASTERN WI REGIONAL PLANNING COMMISSION
JOHN WASHBURN
W239 N1812 ROCKWOOD DR
PO BOX 1607
WAUKESHA, WI 53187-1607
PHONE: (262) 953-4295
FAX: (262) 547-1103
JWASHBURN@SEWRPC.ORG

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

PROJECT NO: 2984-38-71	HWY: VARIOUS HIGHWAYS	COUNTY: MILWAUKEE	UTILITY CONTACTS	SHEET: 3	E

FILE NAME : _____ PLOT DATE : _____ PLOT BY : _____ PLOT NAME : _____ PLOT SCALE : 1:1

2

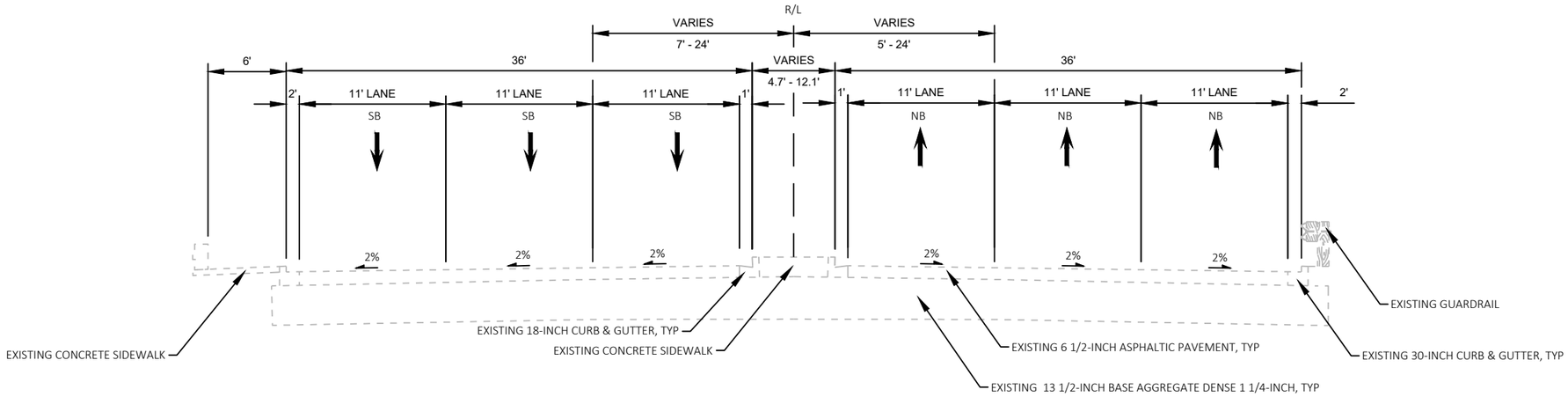
PROJECT NO: 2984-38-71	HWY: STH 181	COUNTY: MILWAUKEE	PROJECT OVERVIEW - B-40-378	SHEET 4	E

PROJECT NO: 2984-38-71	HWY: SILVER SPRING DR	COUNTY: MILWAUKEE	PROJECT OVERVIEW - B-40-579/580	SHEET 5	E

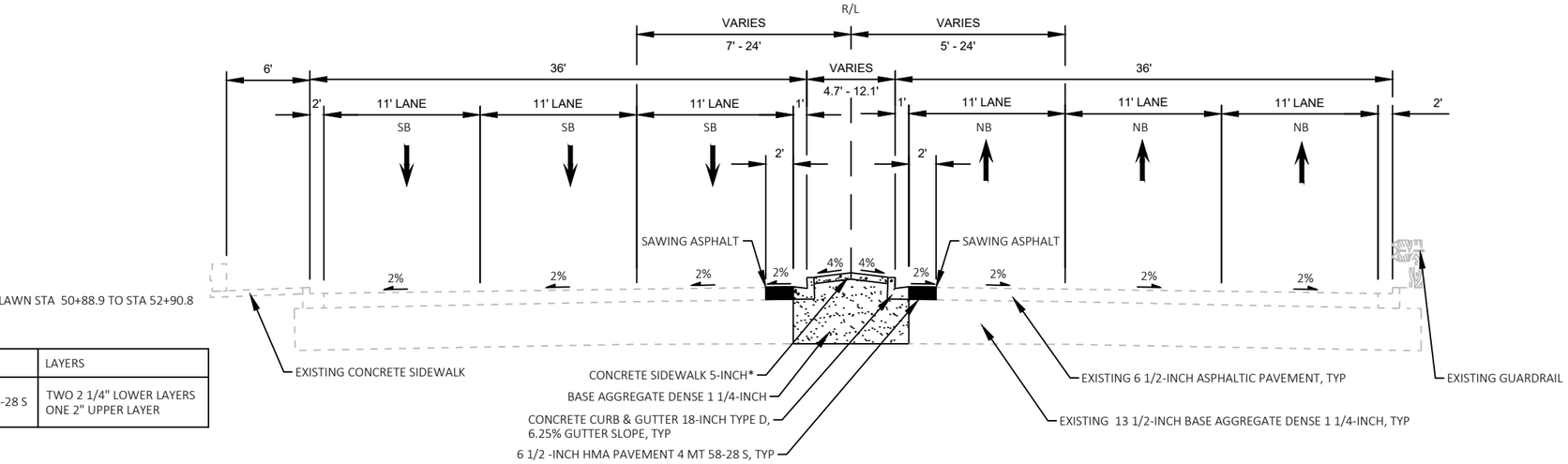
FILE NAME : N:\PDS\PROJECTS\2984380 1\PLAN SHEETS DWG\031201_PO.DWG
LAYOUT NAME - ****

PLOT DATE : 5/14/2018 11:18 AM PLOT BY : STRAIT, CRYSTAL A PLOT NAME : PLOT SCALE : 1 IN:100 FT

WISDOT/CADDS SHEET 42



TYPICAL EXISTING SECTION
STH 181
STA 50+88.5 TO STA 60+72.4

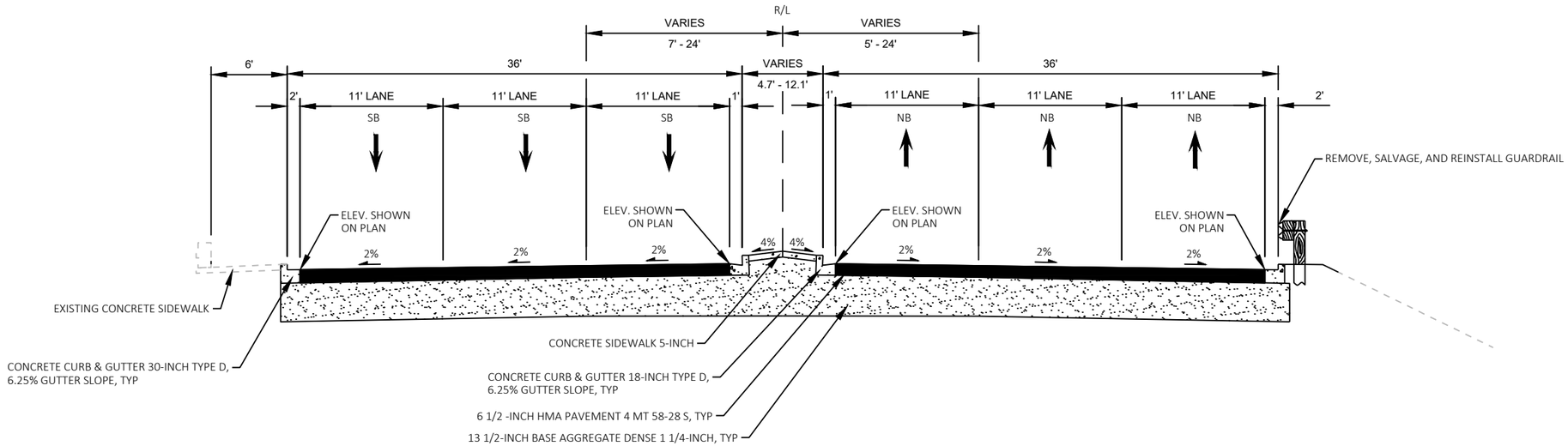


* TOPSOIL, FERTILIZER TYPE B, AND SOD LAWN STA 50+88.9 TO STA 52+90.8

PAVEMENT DEPTH	LAYERS
6 1/2-INCH HMA PAVEMENT 4 MT 58-28 S	TWO 2 1/4" LOWER LAYERS ONE 2" UPPER LAYER

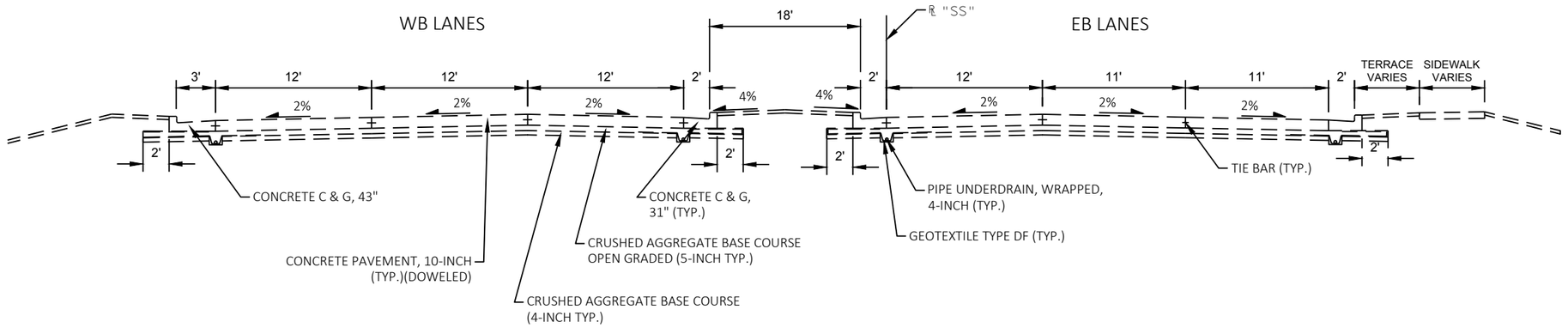
TYPICAL FINISHED SECTION
STH 181
STA 50+88.5 TO STA 53+54.0
STA 58+16.2 TO STA 60+72.4

2

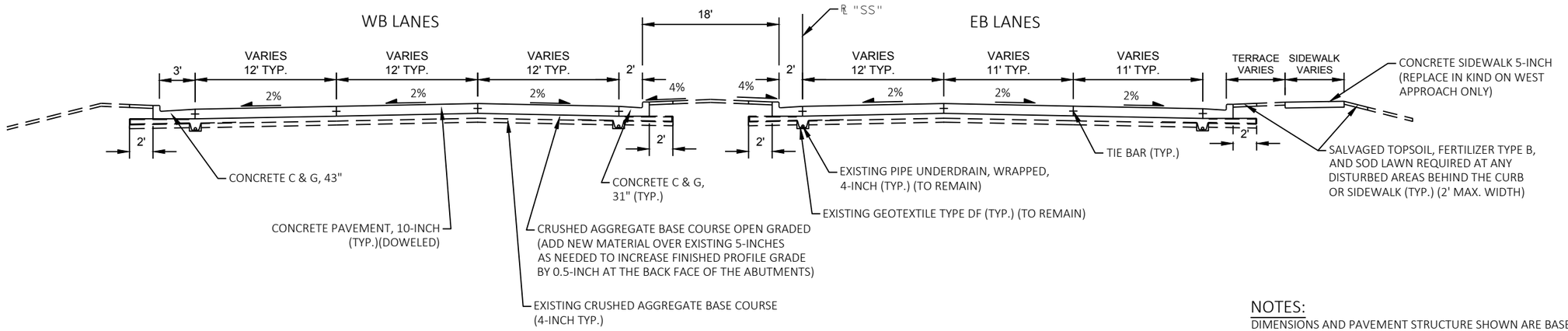


TYPICAL FINISHED SECTION
STH 181
STA 53+54.0 TO STA 53+64.0
STA 57+30.9 TO STA 57+40.9

PAVEMENT DEPTH	LAYERS
6 1/2-INCH HMA PAVEMENT 4 MT 58-28 S	TWO 2 1/4" LOWER LAYERS ONE 2" UPPER LAYER



EXISTING TYPICAL SECTION
(LOOKING EAST)

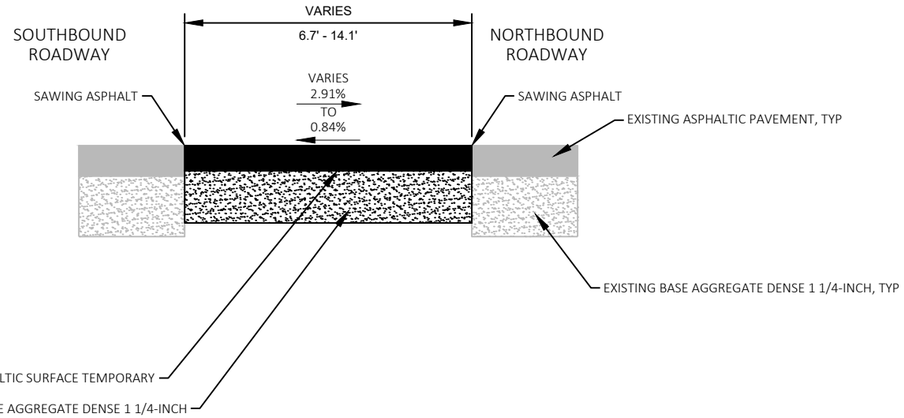


PROPOSED TYPICAL SECTION
(LOOKING EAST)

NOTES:

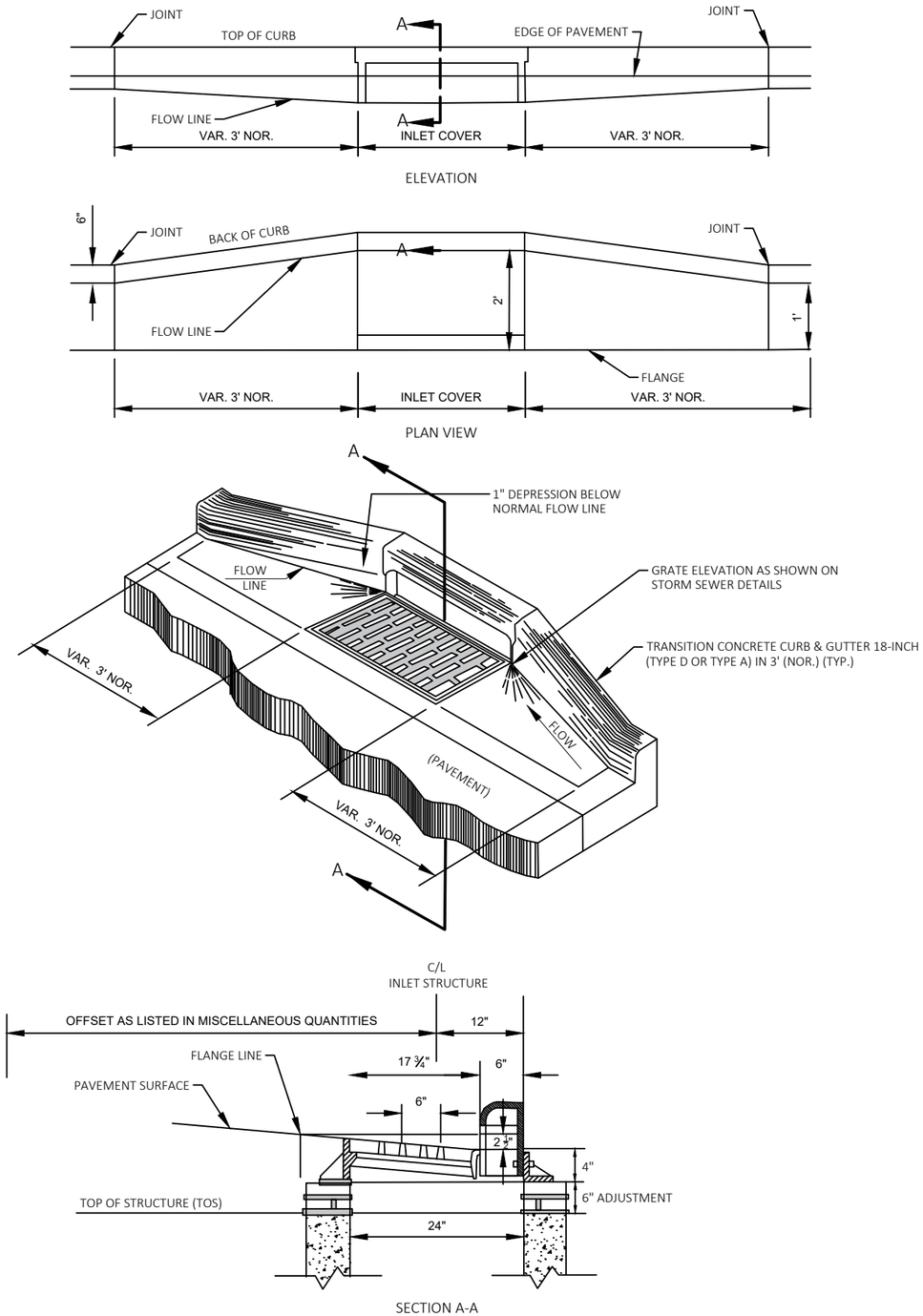
DIMENSIONS AND PAVEMENT STRUCTURE SHOWN ARE BASED ON THE AS BUILT PLANS FROM PROJECT ID 2090-00-71. LANE WIDTH DIMENSIONS WERE MODIFIED BASED ON FIELD MEASUREMENTS.

LANE WIDTH DIMENSIONS ARE APPROXIMATE. NEW LONGITUDINAL PAVEMENT JOINTS SHALL LINE UP WITH EXISTING LONGITUDINAL PAVEMENT JOINTS.



TEMPORARY MEDIAN CROSSOVER DETAIL

STA 50+88.9 TO STA 53+51.4
STA 58+45.6 TO STA 60+72.4



DETAIL OF CONCRETE CURB AND GUTTER 18-INCH TYPE D AT INLETS

2

LEGEND

TOPSOIL, FERTILIZER TYPE B, AND SOD LAWN REQUIRED IN THIS AREA.

RIPRAP MEDIUM (1.5' THICK) PLACED ABOVE EXISTING GRADE. DO NOT EXCAVATE PRIOR TO RIPRAP PLACEMENT.

SILT FENCE

NOTE: UTILITIES NOT SHOWN. SEE STRUCTURE PLANS FOR UTILITY LOCATIONS.

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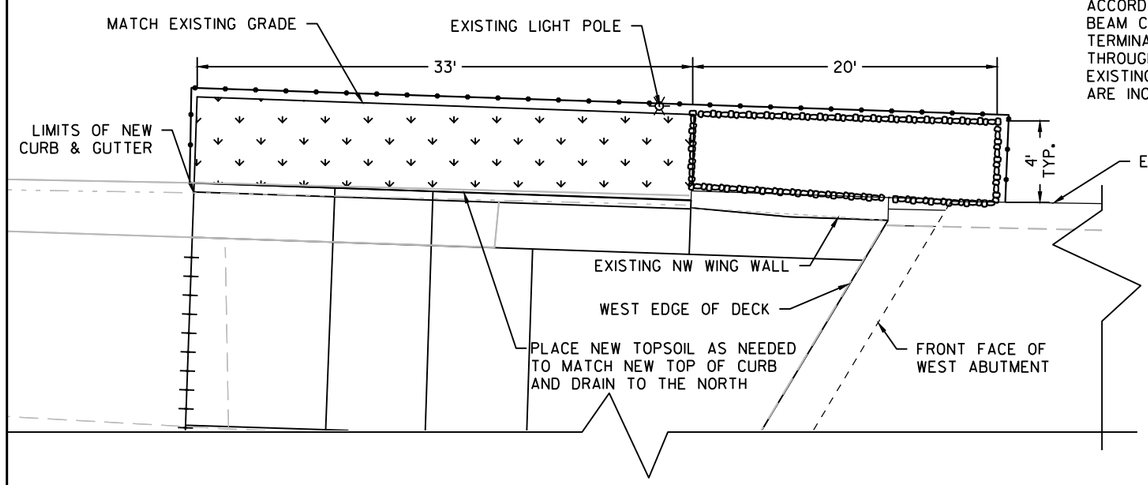
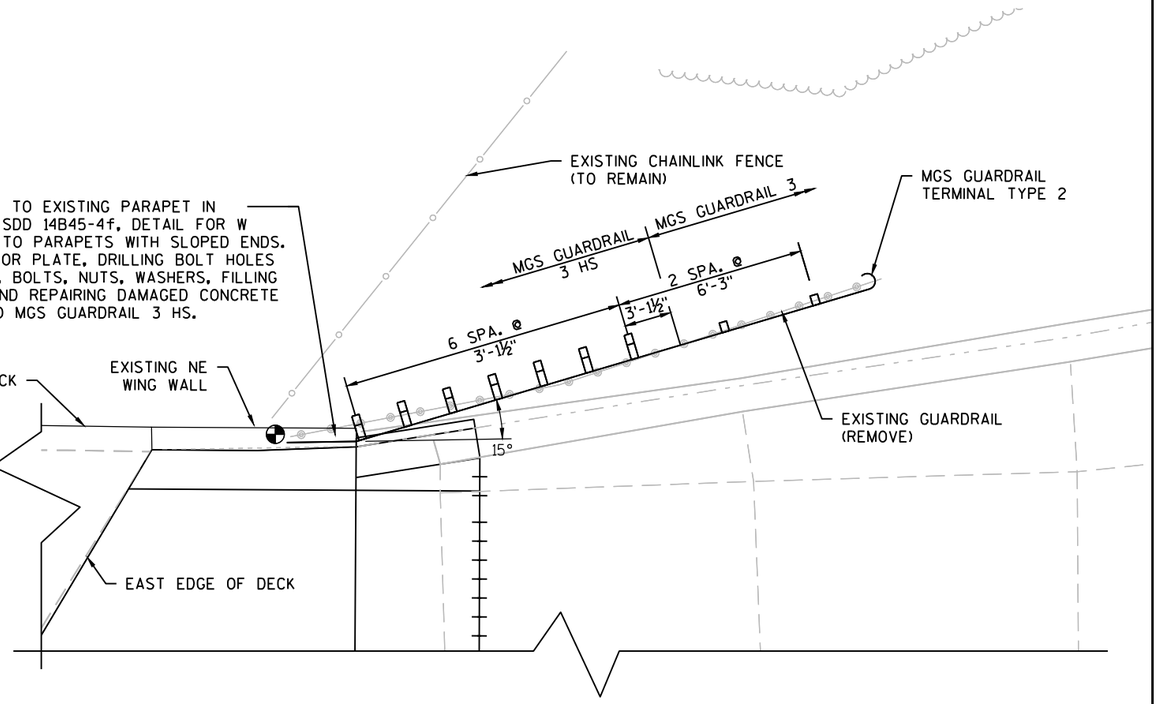


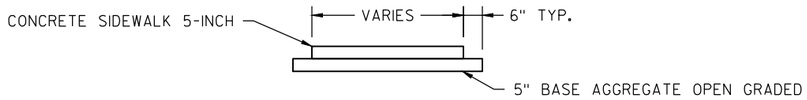
NW WING WALL GRADING DETAIL



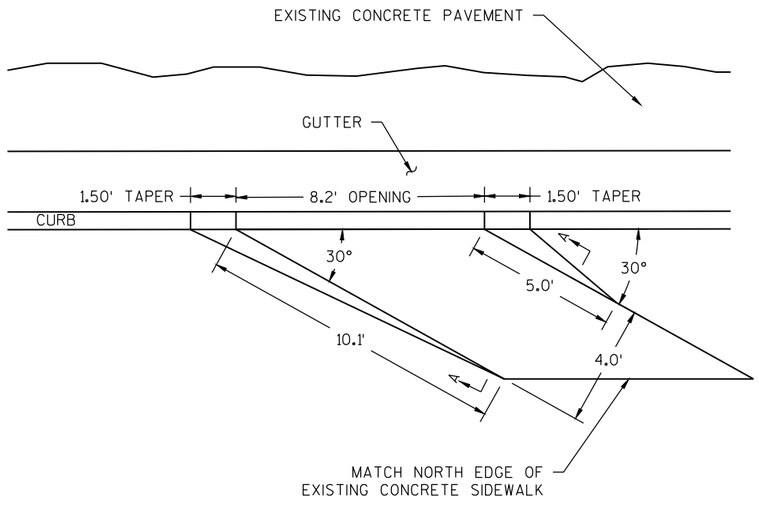
NE WING WALL GUARDRAIL DETAIL

PROJECT NO: 2984-38-71	HWY: W SILVER SPRING DRIVE	COUNTY: MILWAUKEE	PLAN: GUARDRAIL AND GRADING DETAIL	SHEET 10	E

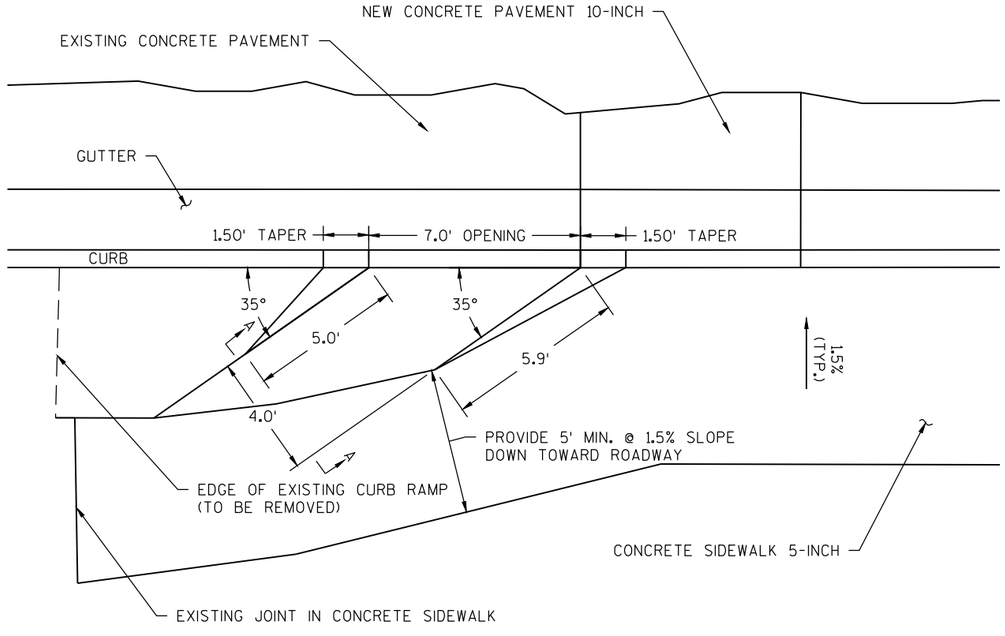
2



SECTION A-A
SECTION THRU BIKE SLIP LANE
(TAPERS NOT SHOWN)



BIKE SLIP LANE DETAIL
STA. 14+42SS - EB, RT.



BIKE SLIP LANE DETAIL
STA. 14+83SS - EB, RT.

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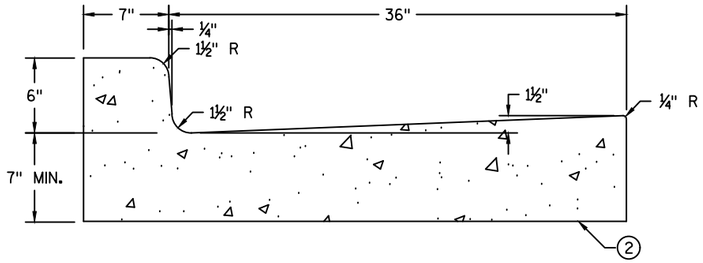
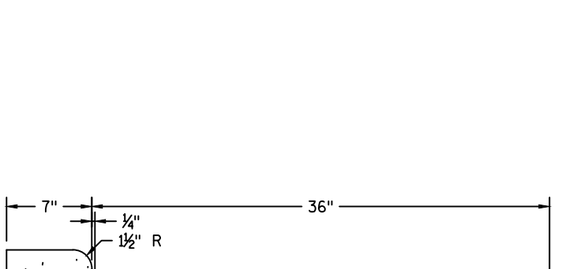
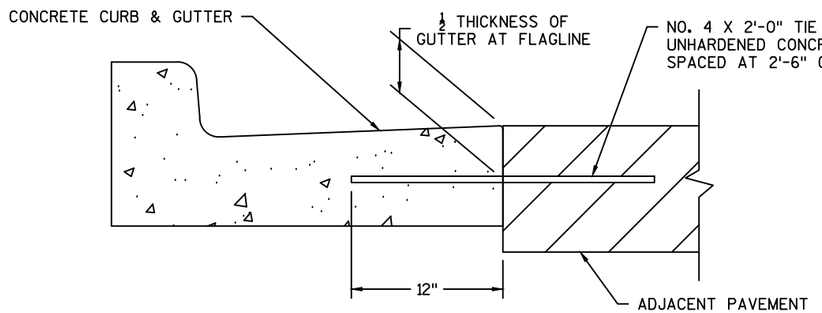


① CONCRETE CURB & GUTTER 43"



① CONCRETE CURB & GUTTER 31"

* - ADJUST CURB HEAD HEIGHT AS CURB & GUTTER APPROACHES THE BRIDGE TO MATCH EXISTING SIDEWALK



① TYPICAL TIE BAR LOCATION

GENERAL NOTES

① TIE BARS ARE REQUIRED FOR ALL CURB & GUTTER.

② THE BOTTOM OF CURB AND GUTTER MAY BE CONSTRUCTED EITHER LEVEL OR PARALLEL TO THE SLOPE OF THE SUBGRADE OR BASE COURSE PROVIDED A 7" MINIMUM GUTTER THICKNESS IS MAINTAINED.

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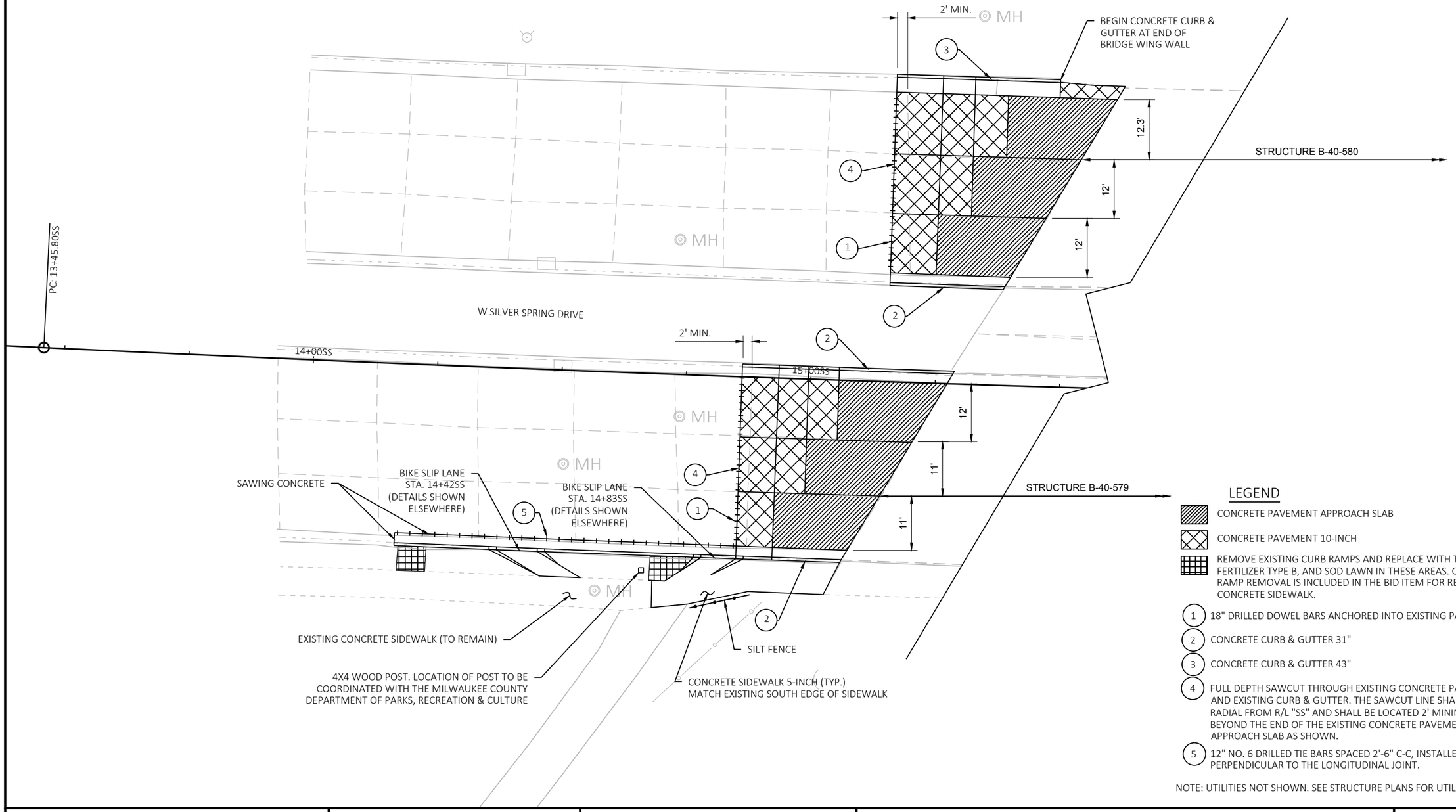

LEGEND

- CONCRETE PAVEMENT APPROACH SLAB
- CONCRETE PAVEMENT 10-INCH
- REMOVE EXISTING CURB RAMPS AND REPLACE WITH TOPSOIL, FERTILIZER TYPE B, AND SOD LAWN IN THESE AREAS. CURB RAMP REMOVAL IS INCLUDED IN THE BID ITEM FOR REMOVING CONCRETE SIDEWALK.

1. 18" DRILLED DOWEL BARS ANCHORED INTO EXISTING PAVEMENT, 15" C-C (TYP.)
2. CONCRETE CURB & GUTTER 31"
3. CONCRETE CURB & GUTTER 43"
4. FULL DEPTH SAWCUT THROUGH EXISTING CONCRETE PAVEMENT AND EXISTING CURB & GUTTER. THE SAWCUT LINE SHALL BE RADIAL FROM R/L "SS" AND SHALL BE LOCATED 2' MINIMUM BEYOND THE END OF THE EXISTING CONCRETE PAVEMENT APPROACH SLAB AS SHOWN.
5. 12" NO. 6 DRILLED TIE BARS SPACED 2'-6" C-C, INSTALLED PERPENDICULAR TO THE LONGITUDINAL JOINT.

NOTE: UTILITIES NOT SHOWN. SEE STRUCTURE PLANS FOR UTILITY LOCATIONS.

PROJECT NO: 2984-38-71	HWY: W SILVER SPRING DRIVE	COUNTY: MILWAUKEE	PAVING & CONSTRUCTION DETAILS	SHEET 13	E

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EXISTING CHAINLINK FENCE
(TO REMAIN)

NEW MGS GUARDRAIL
(SEE DETAILS ELSEWHERE IN THE PLANSET)

BEGIN CONCRETE CURB & GUTTER
AT END OF BRIDGE WING WALL

EXISTING GUARDRAIL (REMOVE)

STRUCTURE B-40-580

12.7'

12'

12'

PT: 18+45.96SS

PI: 18+77.02SS

2' MIN.

W SILVER SPRING DRIVE

2' MIN.

18+00SS

19+00SS

STRUCTURE B-40-579

12'

11'

11'

EXISTING LOOP DETECTORS ARE LOCATED IN THESE THREE PAVEMENT SEGMENTS. USE CAUTION TO AVOID DAMAGE TO THE LOOP DETECTORS DURING CONSTRUCTION.

EXISTING CONCRETE SIDEWALK (TO REMAIN)

MH

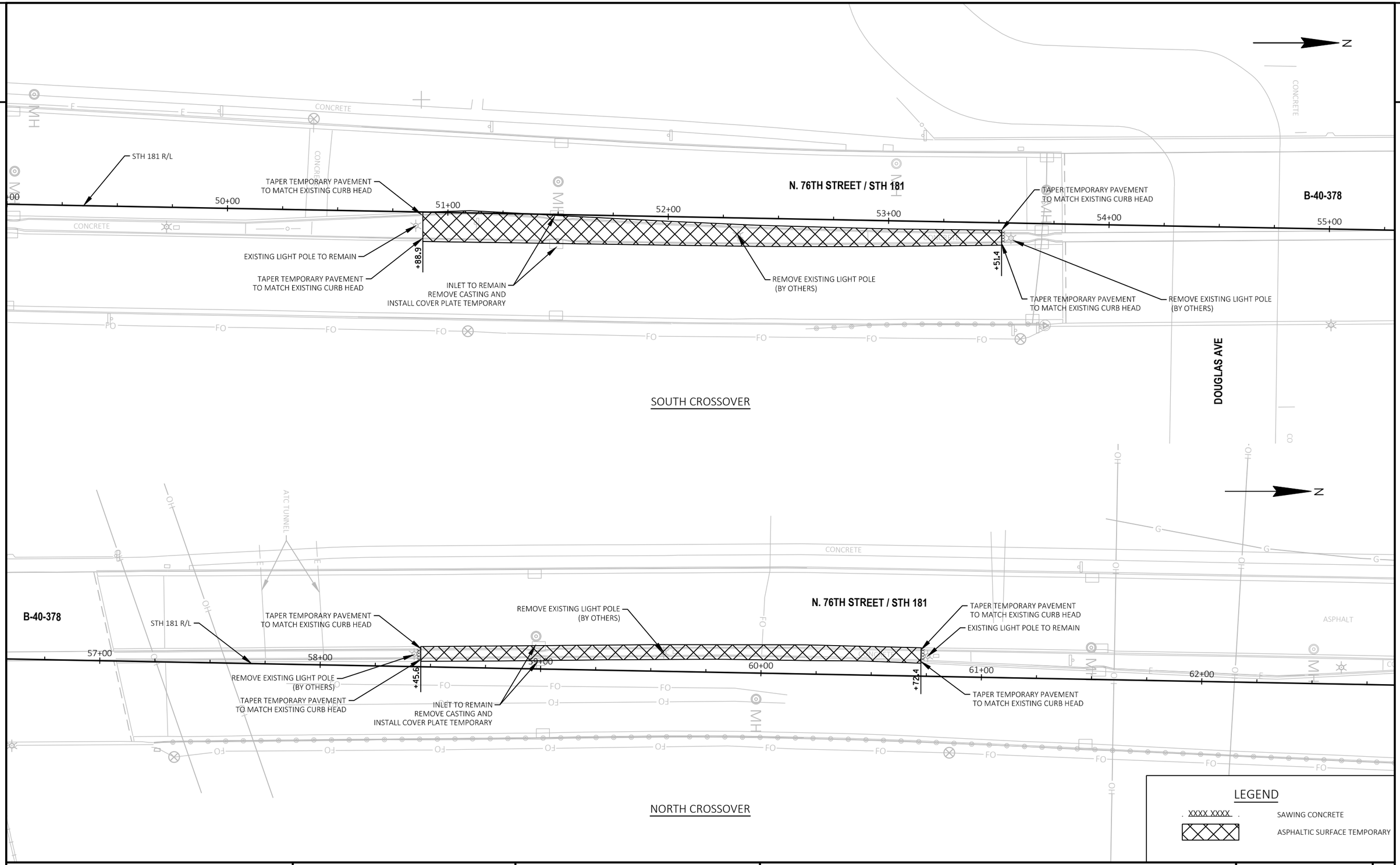
LEGEND

- CONCRETE PAVEMENT APPROACH SLAB
- CONCRETE PAVEMENT 10-INCH
- (1) 18" DRILLED DOWEL BARS ANCHORED INTO EXISTING PAVEMENT, 15" C-C (TYP.)
- (2) CONCRETE CURB & GUTTER 31"
- (4) FULL DEPTH SAWCUT THROUGH EXISTING CONCRETE PAVEMENT AND EXISTING CURB & GUTTER. THE SAWCUT LINE SHALL BE RADIAL FROM R/L "SS" AND SHALL BE LOCATED 2' MINIMUM BEYOND THE END OF THE EXISTING CONCRETE PAVEMENT APPROACH SLAB AS SHOWN.
- (6) POUR CURB & GUTTER INTEGRAL WITH CONCRETE PAVEMENT. THICKEN GUTTER PAN TO MATCH BOTTOM OF ADJACENT CONCRETE PAVEMENT.

NOTE: UTILITIES NOT SHOWN. SEE STRUCTURE PLANS FOR UTILITY LOCATIONS.

PROJECT NO: 2984-38-71	HWY: W SILVER SPRING DRIVE	COUNTY: MILWAUKEE	PAVING DETAIL	SHEET 14	E

2



PROJECT NO: 2984-38-71	HWY: STH 181	COUNTY: MILWAUKEE	CONSTRUCTION DETAILS	SHEET 15	E

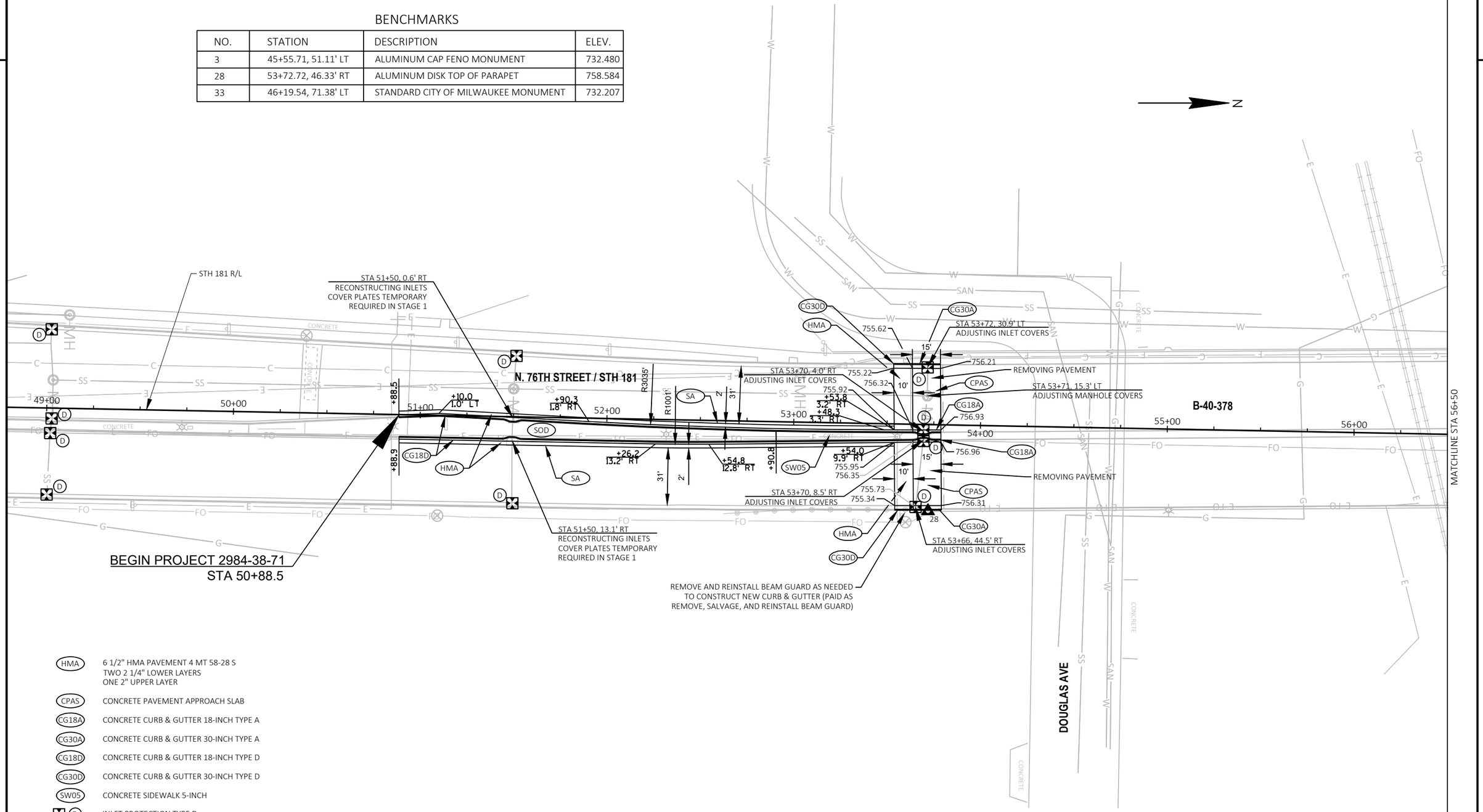
FILE NAME : T:\1162710.09\CIVIL3D\29843801\SHEETSPLAN\021001-CD.DWG
LAYOUT NAME - Plan 1 IN 40 FT

PLOT DATE : 1/23/2018 9:58 AM PLOT BY : NIKOLAI, ADAM PLOT NAME : PLOT SCALE : 1 IN:40 FT

2

BENCHMARKS

NO.	STATION	DESCRIPTION	ELEV.
3	45+55.71, 51.11' LT	ALUMINUM CAP FENO MONUMENT	732.480
28	53+72.72, 46.33' RT	ALUMINUM DISK TOP OF PARAPET	758.584
33	46+19.54, 71.38' LT	STANDARD CITY OF MILWAUKEE MONUMENT	732.207

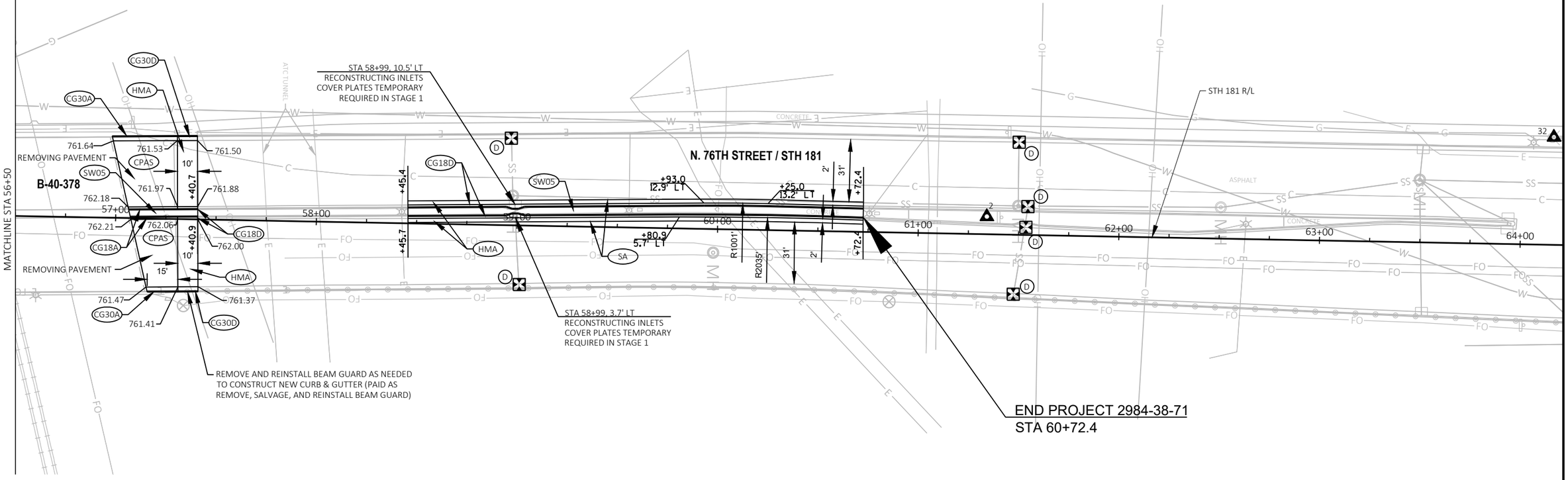


HMA	6 1/2" HMA PAVEMENT 4 MT 58-28 S TWO 2 1/4" LOWER LAYERS ONE 2" UPPER LAYER
CPAS	CONCRETE PAVEMENT APPROACH SLAB
CG18A	CONCRETE CURB & GUTTER 18-INCH TYPE A
CG30A	CONCRETE CURB & GUTTER 30-INCH TYPE A
CG18D	CONCRETE CURB & GUTTER 18-INCH TYPE D
CG30D	CONCRETE CURB & GUTTER 30-INCH TYPE D
SW05	CONCRETE SIDEWALK 5-INCH
D	INLET PROTECTION TYPE D
SOD	TOPSOIL, FERTILIZER TYPE B, AND SOD LAWN
SA	SAWING ASPHALT

2

BENCHMARKS

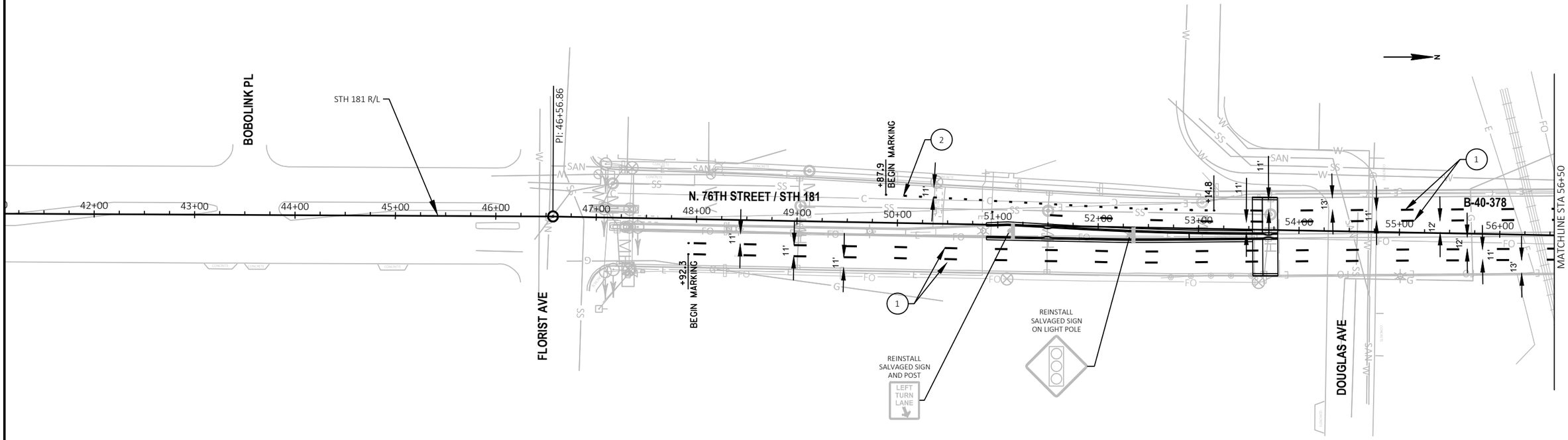
NO.	STATION	DESCRIPTION	ELEV.
1	69+91.35, 65.21' RT	ALUMINUM CAP FENO MONUMENT	734.909
2	61+34.04, 8.73' LT	ALUMINUM CAP FENO MONUMENT	752.762
31	69+76.50, 78.05' RT	NW FLANGE BOLT HYDRANT	735.839
32	64+15.86, 53.60' LT	NW FLANGE BOLT HYDRANT	741.623



HMA	6 1/2" HMA PAVEMENT 4 MT 58-28 S TWO 2 1/4" LOWER LAYERS ONE 2" UPPER LAYER
CPAS	CONCRETE PAVEMENT APPROACH SLAB
CG18A	CONCRETE CURB & GUTTER 18-INCH TYPE A
CG30A	CONCRETE CURB & GUTTER 30-INCH TYPE A
CG18D	CONCRETE CURB & GUTTER 18-INCH TYPE D
CG30D	CONCRETE CURB & GUTTER 30-INCH TYPE D
SW05	CONCRETE SIDEWALK 5-INCH
D	INLET PROTECTION TYPE D
SOD	TOPSOIL, FERTILIZER TYPE B, AND SOD LAWN
SA	SAWING ASPHALT

PROJECT NO: 2984-38-71	HWY: STH 181	COUNTY: MILWAUKEE	PLAN DETAIL	SHEET 17	E

2



1 MARKING LINE GROOVED WET REF CONTRAST EPOXY 4-INCH (12.5' LINE, 37.5' GAP, WHITE)

2 MARKING LINE GROOVED WET REF CONTRAST EPOXY 8-INCH (3' LINE, 9' GAP WHITE)

REINSTALL EXISTING SIGN

PROJECT NO: 2984-38-71	HWY: STH 181	COUNTY: MILWAUKEE	PERMANENT PAVEMENT MARKING & PERMANENT SIGNING	SHEET 18	E

2

N

MATCHLINE STA 56+50

B-40-378

57+00 58+00 59+00 60+00 61+00 62+00 63+00 64+00 65+00 66+00 67+00 68+00 69+00 70+00 71+00

11' 11' 11' 11' 11' 11'

+84.4 END MARKING

+522 END MARKING

STH 181 R/L

N. 76TH STREET / STH 181

WINFIELD AVE

1 MARKING LINE GROOVED WET REF CONTRAST EPOXY 4-INCH
(12.5' LINE, 37.5' GAP, WHITE)

2 MARKING LINE GROOVED WET REF CONTRAST EPOXY 8-INCH
(3' LINE, 9' GAP WHITE)

REINSTALL EXISTING SIGN

PROJECT NO: 2984-38-71	HWY: STH 181	COUNTY: MILWAUKEE	PERMANENT PAVEMENT MARKING & PERMANENT SIGNING	SHEET 19	E

FILE NAME : T:\1162710.09\CIVIL3D\29843801\SHEETSPLAN\024501-PM.DWG
LAYOUT NAME - Plan 1 IN 50 FT (2)

PLOT DATE : 1/23/2018 8:20 AM PLOT BY : NIKOLAI, ADAM PLOT NAME : PLOT SCALE : 1 IN:100 FT

LEGEND

- CONTROL CABINET
- NONMETALLIC CONDUIT 2", UNLESS OTHERWISE NOTED
- LOOP DETECTOR CONDUIT, 1" NONMETALLIC
- LOOP DETECTOR IN 1" NONMETALLIC CONDUIT
- SIGNAL HEAD, TRAFFIC SIGNAL STANDARD, PEDESTAL BASE
- SIGNAL HEAD, DUAL MOUNT TRAFFIC SIGNAL POLE, 20-FOOT, TRANSFORMER BASE
- (XX) SIGNAL HEAD, TRAFFIC SIGNAL POLE, TRANSFORMER BASE
- (XX) MONOTUBE BASE, POLE, 15'-30' ARM
- PEDESTRIAN HEAD WITH PUSH BUTTON
- PUSH BUTTON
- LUMINAIRE, TRAFFIC POLE, TRANSFORMER BASE
- PULL BOX, 12" X 24"
- PULL BOX, 24" X 36"
- PULL BOX, 24" X 42"
- XX SIGNAL HEAD NUMBER
- R RED CIRCULAR INDICATOR
- Y YELLOW CIRCULAR INDICATOR
- G GREEN CIRCULAR INDICATOR
- RED ARROW
- YELLOW ARROW
- AG GREEN ARROW
- WALK/DON'T WALK INDICATOR 16" (COUNTDOWN TIMER)
- Y YIELD SIGN

NOTE: ALL LENSES ARE 12-INCH
GRAYSHADE REPRESENTS EXISTING

W. SILVER SPRING DRIVE

IH 43 SB OFF RAMP

IH 43 SB ON RAMP

SPEED LIMIT = 35 MPH

SPEED LIMIT = 35 MPH

19+00 20+00 21+00 22+00

1036+00 1035+00 1034+00

2 6'X10' 2 TURNS — PB19 — 53
165' TO NEAR RIGHT SIGNAL — 52 — PB18
6'X6' 3 TURNS — 51

4 6'X20' 3 TURNS EACH

6 6'X20' 4 TURNS EACH

RIPRAP

PB1 PB2 PB3 PB4 PB5 PB6 PB10 PB11 PB12 PB14 PB15 PB16 PB17 PB20 PB21 PB22 PB23

SB1 SB2 SB3 SB4 SB5 SB6 SB7 SB8

CB1

2-3" 3-3" 2-2" I/C 3"

CONSTRUCTION NOTES:

1. EXISTING CONDUIT RUNS TO BE ABANDONED IN PLACE. CONTRACTOR TO REMOVE ANY CONDUCTORS REMAINING IN THE CONDUIT.
2. ABANDONED LOOP DETECTOR CONDUIT TO REMAIN IN PLACE. LOOP DETECTOR WIRE AND LEAD-IN CABLE TO BE REMOVED BY THE CONTRACTOR.
3. THE LOCATIONS OF EXISTING UTILITY INSTALLATIONS ARE APPROXIMATE. THERE MAY BE OTHER UTILITY INSTALLATIONS WITHIN THE PROJECT WHICH ARE NOT SHOWN.
4. GRAYSHADE REPRESENTS EXISTING. BOLD REPRESENTS ITEMS TO BE REMOVED.

TRAFFIC CONTROL SIGNAL
IH 43 & SILVER SPRING DRIVE
CITY OF GLENDALE
MILWAUKEE COUNTY

SIGNAL NO. S40-1194

REGION CONTACT: P. VIRK
DESIGNED BY:
REVISED BY: S. WAGNER

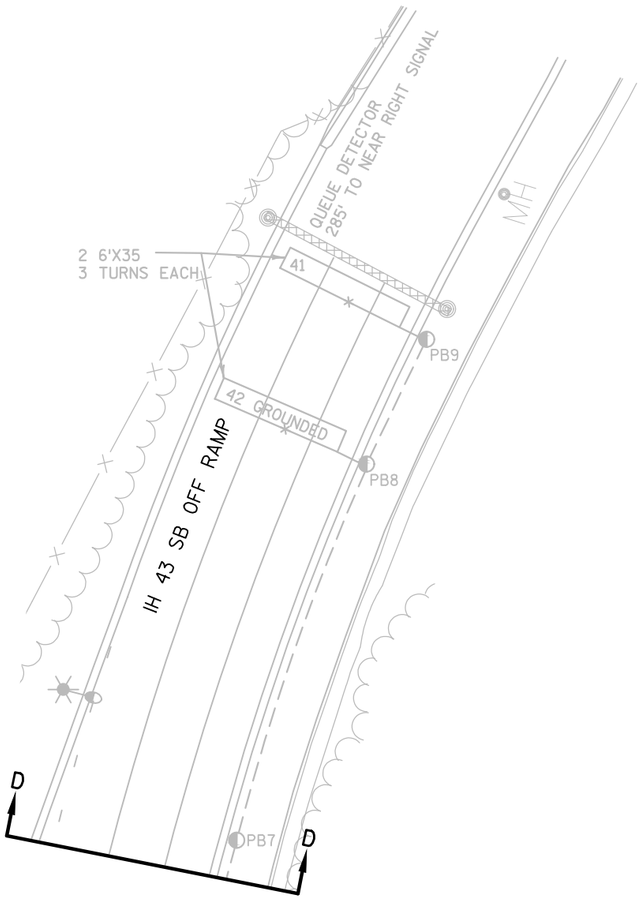
PAGE 1 OF 2

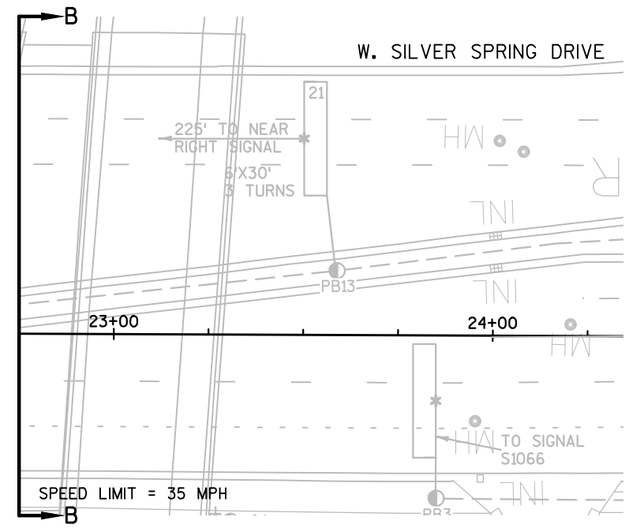
PROJECT NO: 2984-38-71	HWY: IH 43	COUNTY: MILWAUKEE	TRAFFIC SIGNAL REMOVAL PLAN	SHEET 20	E

FILE NAME : N:\PDS\C3D\CAD\29843801\SIG\S40-1194_REM.DWG
LAYOUT NAME - S40-1194_F_PG1

PLOT DATE : 4/18/2018 9:19 AM PLOT BY : WAGNER, SCOTT H PLOT NAME : PLOT SCALE : 1 IN:40 FT

2





N

TRAFFIC CONTROL SIGNAL
IH 43 & SILVER SPRING DRIVE
CITY OF GLENDALE
MILWAUKEE COUNTY

SIGNAL NO. S40-1194

REGION CONTACT: P. VIRK
DESIGNED BY:
REVISED BY: S. WAGNER

PAGE 2 OF 2

PROJECT NO: 2984-38-71	HWY: IH 43	COUNTY: MILWAUKEE	TRAFFIC SIGNAL REMOVAL PLAN	SHEET 21	E

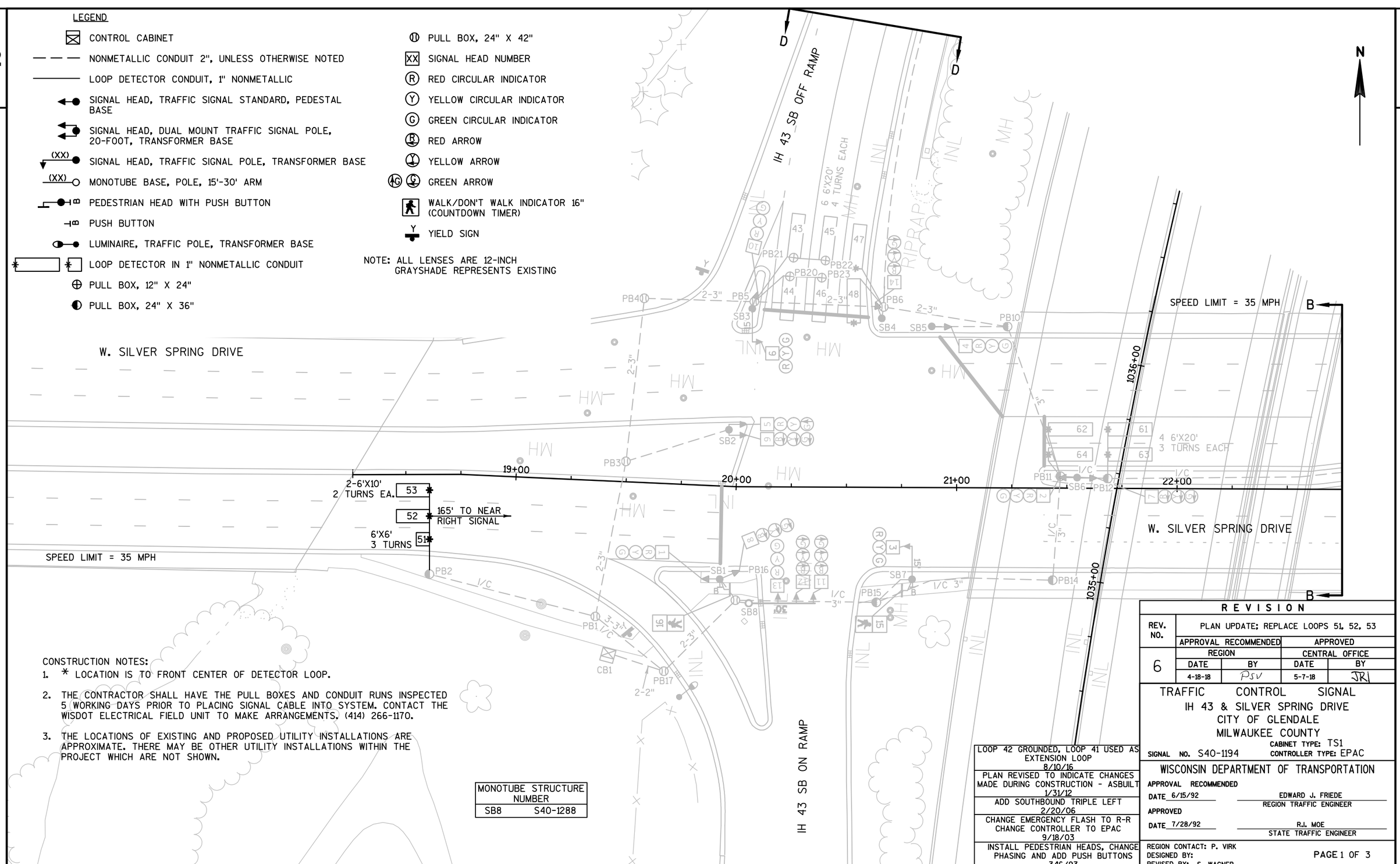
FILE NAME : N:\PDS\C3D\CAD\29843801\SIG\S40-1194_REM.DWG
LAYOUT NAME - S40-1194_F_PG2
PLOT DATE : 4/18/2018 9:19 AM PLOT BY : WAGNER, SCOTT H PLOT NAME : PLOT SCALE : 1 IN:40 FT
WISDOT/CADDS SHEET 42

2

LEGEND

- CONTROL CABINET
- NONMETALLIC CONDUIT 2", UNLESS OTHERWISE NOTED
- LOOP DETECTOR CONDUIT, 1" NONMETALLIC
- SIGNAL HEAD, TRAFFIC SIGNAL STANDARD, PEDESTAL BASE
- SIGNAL HEAD, DUAL MOUNT TRAFFIC SIGNAL POLE, 20-FOOT, TRANSFORMER BASE
- (XX) SIGNAL HEAD, TRAFFIC SIGNAL POLE, TRANSFORMER BASE
- (XX) MONOTUBE BASE, POLE, 15'-30' ARM
- PEDESTRIAN HEAD WITH PUSH BUTTON
- PUSH BUTTON
- LUMINAIRE, TRAFFIC POLE, TRANSFORMER BASE
- LOOP DETECTOR IN 1" NONMETALLIC CONDUIT
- PULL BOX, 12" X 24"
- PULL BOX, 24" X 36"
- PULL BOX, 24" X 42"
- XX SIGNAL HEAD NUMBER
- R RED CIRCULAR INDICATOR
- Y YELLOW CIRCULAR INDICATOR
- G GREEN CIRCULAR INDICATOR
- R RED ARROW
- Y YELLOW ARROW
- AG GREEN ARROW
- WALK/DON'T WALK INDICATOR 16" (COUNTDOWN TIMER)
- Y YIELD SIGN

NOTE: ALL LENSES ARE 12-INCH
GRAYSHADE REPRESENTS EXISTING



CONSTRUCTION NOTES:

1. * LOCATION IS TO FRONT CENTER OF DETECTOR LOOP.
2. THE CONTRACTOR SHALL HAVE THE PULL BOXES AND CONDUIT RUNS INSPECTED 5 WORKING DAYS PRIOR TO PLACING SIGNAL CABLE INTO SYSTEM. CONTACT THE WISDOT ELECTRICAL FIELD UNIT TO MAKE ARRANGEMENTS. (414) 266-1170.
3. THE LOCATIONS OF EXISTING AND PROPOSED UTILITY INSTALLATIONS ARE APPROXIMATE. THERE MAY BE OTHER UTILITY INSTALLATIONS WITHIN THE PROJECT WHICH ARE NOT SHOWN.

MONOTUBE STRUCTURE NUMBER	
SB8	S40-1288

LOOP 42 GROUNDED, LOOP 41 USED AS EXTENSION LOOP 8/10/16

PLAN REVISED TO INDICATE CHANGES MADE DURING CONSTRUCTION - ASBUILT 1/31/12

ADD SOUTHBOUND TRIPLE LEFT 2/20/06

CHANGE EMERGENCY FLASH TO R-R CHANGE CONTROLLER TO EPAC 9/18/03

INSTALL PEDESTRIAN HEADS, CHANGE PHASING AND ADD PUSH BUTTONS 3/16/93

REVISION

REV. NO.	PLAN UPDATE; REPLACE LOOPS 51, 52, 53			
	APPROVAL RECOMMENDED		APPROVED	
	REGION		CENTRAL OFFICE	
6	DATE	BY	DATE	BY
	4-18-18	PSV	5-7-18	JRJ

TRAFFIC CONTROL SIGNAL
IH 43 & SILVER SPRING DRIVE
CITY OF GLENDALE
MILWAUKEE COUNTY
CABINET TYPE: TS1
SIGNAL NO. S40-1194 CONTROLLER TYPE: EPAC

WISCONSIN DEPARTMENT OF TRANSPORTATION

APPROVAL RECOMMENDED
DATE 6/15/92 — EDWARD J. FRIEDE, REGION TRAFFIC ENGINEER

APPROVED
DATE 7/28/92 — R.J. MOE, STATE TRAFFIC ENGINEER

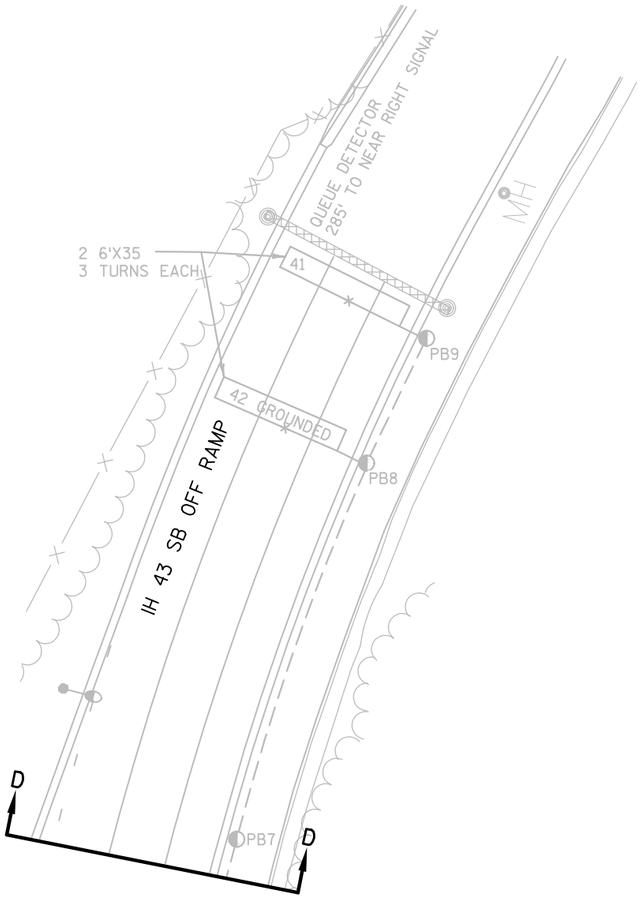
REGION CONTACT: P. VIRK
DESIGNED BY:
REVISED BY: S. WAGNER

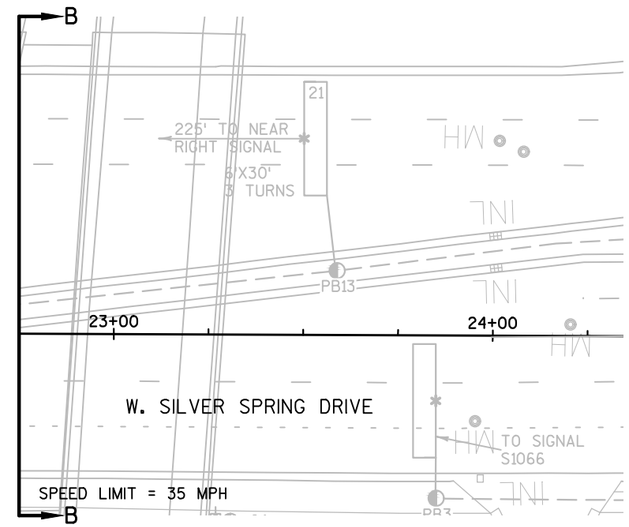
PROJECT NO: 2984-38-71	HWY: IH 43	COUNTY: MILWAUKEE	TRAFFIC SIGNAL PLAN	SHEET 22 E

FILE NAME : N:\PDS\C3D\CAD\29843801\SIG\S40-1194_F.DWG
LAYOUT NAME - S40-1194_F_PG1
PLOT DATE : 5/11/2018 1:50 PM PLOT BY : VANDE LEEST, CYNTHIAPLOT NAME : PLOT SCALE : 1 IN:40 FT
WISDOT/CADDS SHEET 42

2

N





TRAFFIC CONTROL SIGNAL
IH 43 & SILVER SPRING DRIVE
CITY OF GLENDALE
MILWAUKEE COUNTY

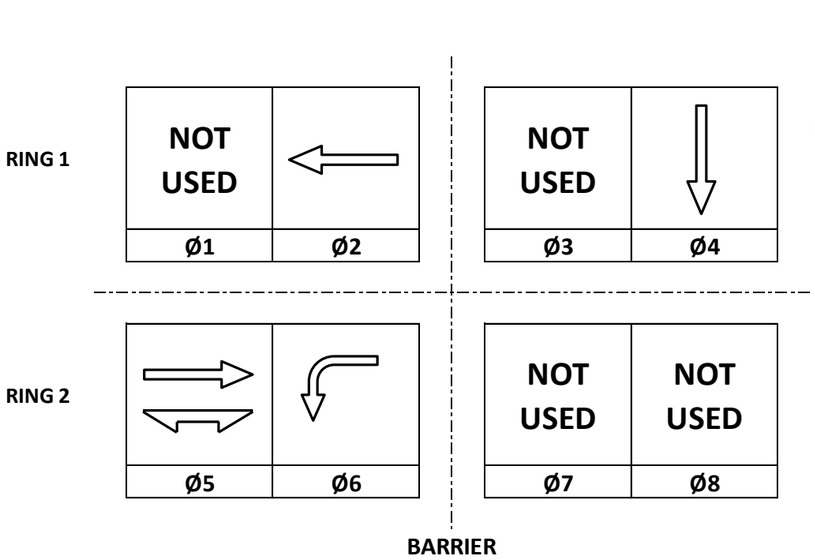
SIGNAL NO. S40-1194

REGION CONTACT: P. VIRK
DESIGNED BY:
REVISED BY: S. WAGNER

PAGE 2 OF 3

PROJECT NO: 2984-38-71	HWY: IH 43	COUNTY: MILWAUKEE	TRAFFIC SIGNAL PLAN	SHEET 23	E

	HEAD NUMBERS	FLASH
Ø1		
Ø2	4,5,6	R
Ø3		
Ø4	10,11,12,13,14	R, R
Ø5	1,2,3	R
Ø6	7,8,9	R
Ø7		
Ø8		
Ø2P		
Ø4P		
Ø5P	15,16	
Ø8P		
OLA		
OLB		
OLC		
OLD		



DETECTOR LOGIC

DETECTOR NUMBER	AMPLIFIER CHANNEL	DETECTOR OPERATION			PHASE CALLED	PHASE EXTENDED	DETECTOR DISCONNECT PHASE	CALLING DELAY	EXTENSION STRETCH	SIZE	NUMBER OF TURNS
		CALLS AND EXTENDS	CALLS ONLY	EXTENDS ONLY							
21	1	X			2	2				6X30	3
41	2	X			4	4			X	6X35	3
42	GROUNDED									6X35	3
43	4	X			4	4				6X20	4
44	4	X			4	4				6X20	4
45	5	X			4	4				6X20	4
46	5	X			4	4				6X20	4
47	6	X			4	4				6X20	4
48	6	X			4	4				6X20	4
51	7	X			5	5				6X6	3
52	8	X			5	5				6X10	2
53	8	X			5	5				6X10	2
61	9	X			6	6				6X20	3
62	9	X			6	6				6X20	3
63	10	X			6	6				6X20	3
64	10	X			6	6				6X20	3

CONTROLLER LOGIC

PHASE NUMBER	PHASE LOCKING	DUAL ENTRY W / Ø	PHASE RECALL	PHASE ACTIVE
1				
2	X	6	MIN	X
3				
4				X
5	X	2	MIN	X
6		2		X
7				
8				

TYPE OF INTERCONNECT/COMMUNICATION	
NONE	X
CLOSED LOOP	
TWISTED PAIR	
FIBER OPTIC*	
FIBER OPTIC (ETHERNET)	
RADIO	
CELL MODEM	

TYPE OF COORDINATION	
NONE	
TBC	X
TRAFFIC RESPONSIVE	
ADAPTIVE	
*LOCATION OF MASTER CONTROLLER NO:	S-
SIGNAL SYSTEM NO:	SS- 40-0026

TYPE OF LIGHTING	
BY OTHER AGENCY	
IN TRAFFIC CABINET	
IN SEPARATE DOT LIGHTING CABINET	X

TYPE OF PRE-EMPT	
NONE	X
RAILROAD	
EMERGENCY VEHICLE	
GTT	
TOMAR	
HARDWIRE	
OTHER	
LIFT BRIDGE	
QUEUE DETECTION	

IH 43 SB Off RAMP & SILVER SPRING DR

CITY OF GLENDALE

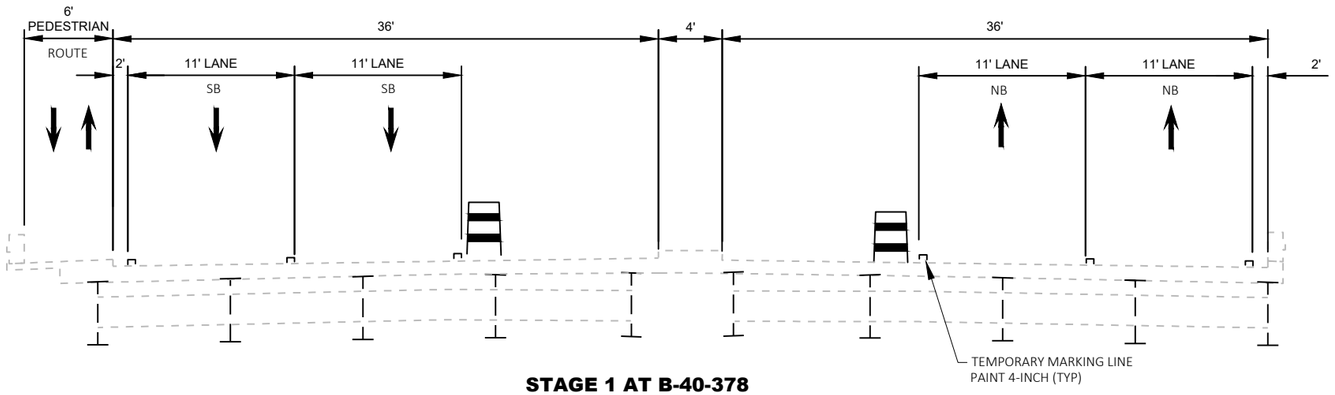
MILWAUKEE COUNTY

SIGNAL NO: S40-1194 CABINET TYPE: TS1

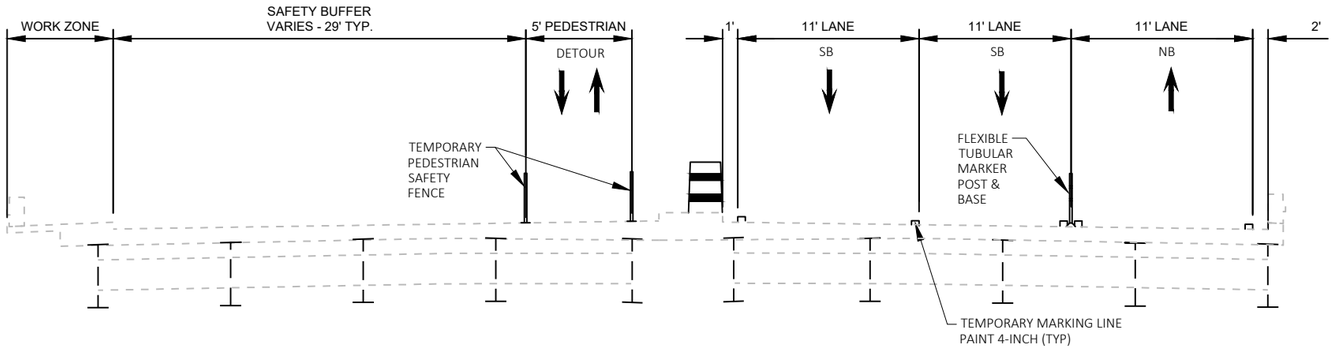
CONTROLLER TYPE: EPAC

DATE: 04/18 PAGE NUMBER: 3 OF 3

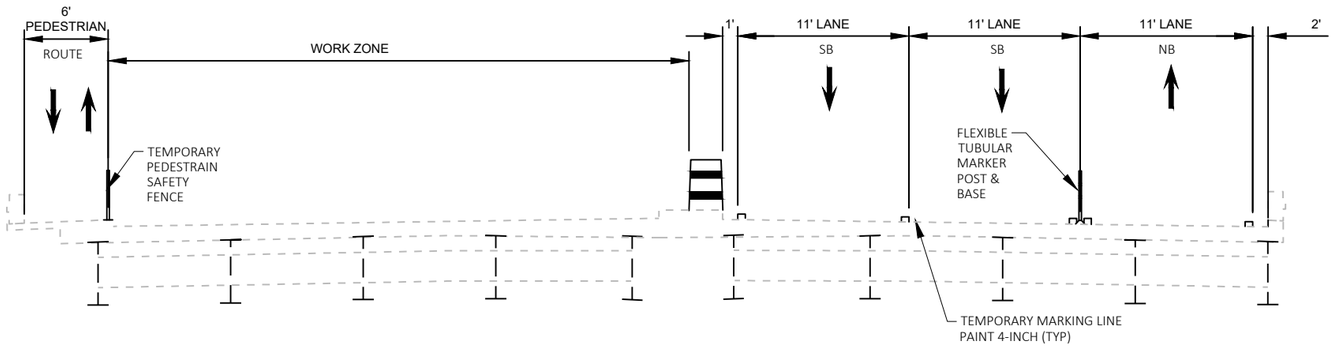
2



STAGE 1 AT B-40-378

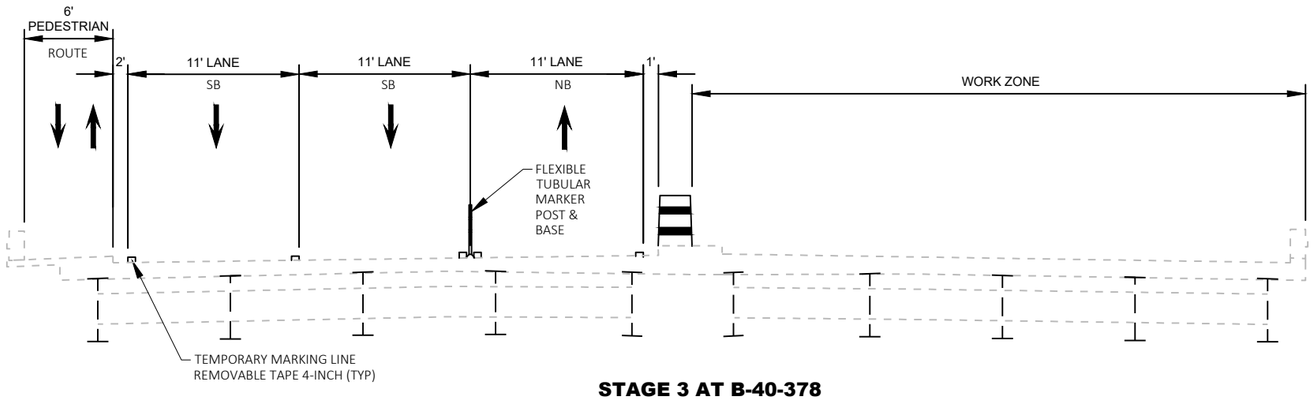


STAGE 2A AT B-40-378

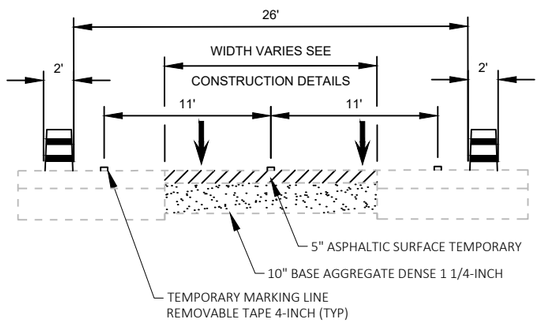


STAGE 2B AT B-40-378

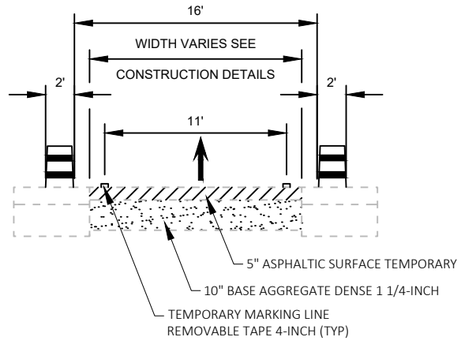
2



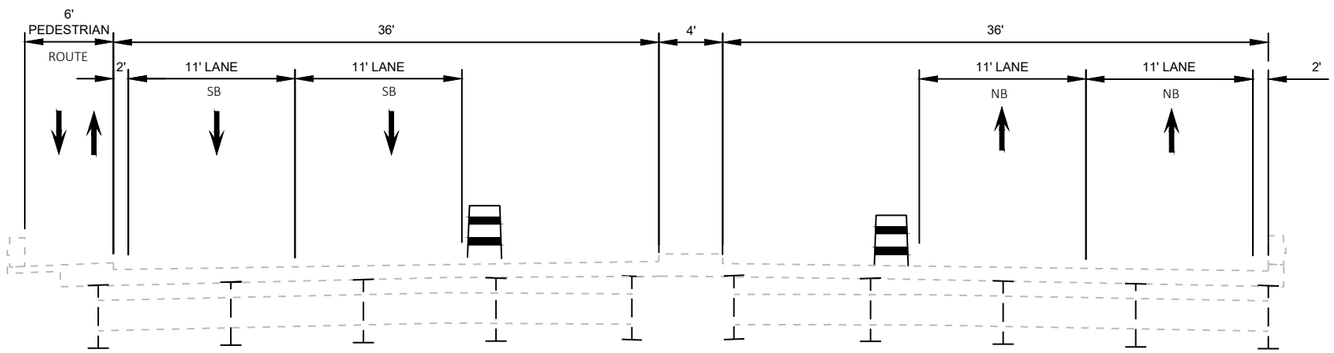
STAGE 3 AT B-40-378



TEMPORARY CROSSOVER - STAGE 2A & 2B



TEMPORARY CROSSOVER - STAGE 3

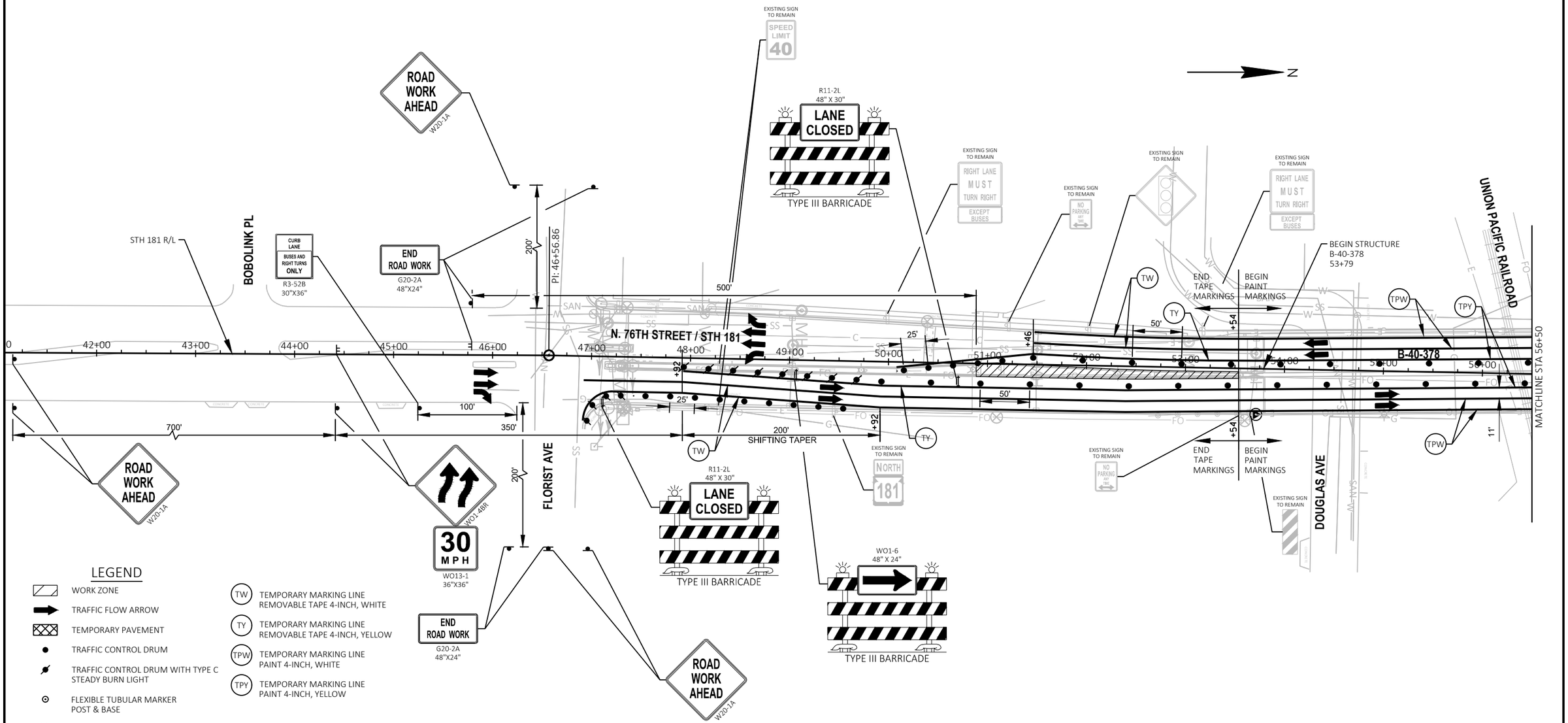


STAGE 4 AT B-40-378

2

STAGE 1

- CLOSE NORTHBOUND AND SOUTHBOUND INSIDE LANES. SHIFT NORTHBOUND AND SOUTHBOUND TRAFFIC TO CENTER AND OUTSIDE LANES.
- BUILD CROSS-OVERS NORTH AND SOUTH OF BRIDGE.



LEGEND

- WORK ZONE
- TRAFFIC FLOW ARROW
- TEMPORARY PAVEMENT
- TRAFFIC CONTROL DRUM
- TRAFFIC CONTROL DRUM WITH TYPE C STEADY BURN LIGHT
- FLEXIBLE TUBULAR MARKER POST & BASE
- FLASHING ARROW BOARD
- POST MOUNTED TRAFFIC CONTROL SIGN
- TRAFFIC CONTROL SIGN MOUNTED ON TEMPORARY SUPPORT
- TRAFFIC CONTROL BARRICADE, TYPE III WITH TWO WARNING LIGHTS, TYPE "A" WITH/WITHOUT SIGN

(TW) TEMPORARY MARKING LINE REMOVABLE TAPE 4-INCH, WHITE

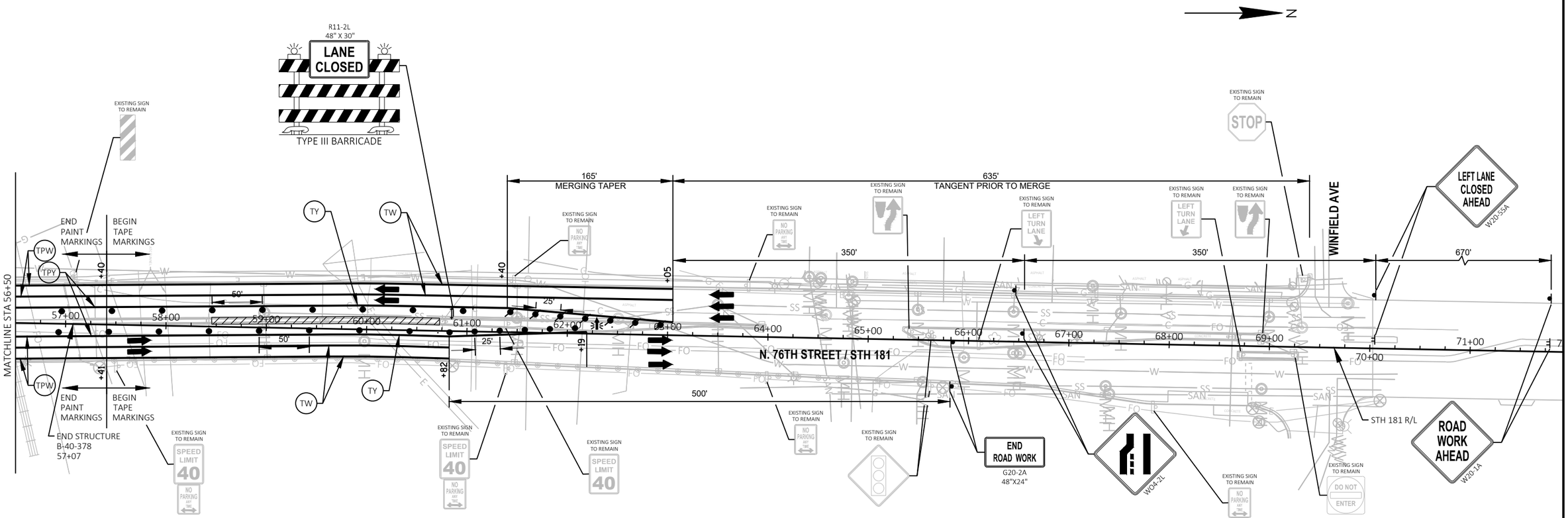
(TY) TEMPORARY MARKING LINE REMOVABLE TAPE 4-INCH, YELLOW

(TPW) TEMPORARY MARKING LINE PAINT 4-INCH, WHITE

(TPY) TEMPORARY MARKING LINE PAINT 4-INCH, YELLOW

PROJECT NO: 2984-38-71	HWY: STH 181	COUNTY: MILWAUKEE	STAGE CONSTRUCTION - STAGE 1	SHEET 27	E

2



LEGEND

- WORK ZONE
- TRAFFIC FLOW ARROW
- TEMPORARY PAVEMENT
- TRAFFIC CONTROL DRUM
- TRAFFIC CONTROL DRUM WITH TYPE C STEADY BURN LIGHT
- FLEXIBLE TUBULAR MARKER POST & BASE
- FLASHING ARROW BOARD
- POST MOUNTED TRAFFIC CONTROL SIGN
- TRAFFIC CONTROL SIGN MOUNTED ON TEMPORARY SUPPORT
- TRAFFIC CONTROL BARRICADE, TYPE III WITH TWO WARNING LIGHTS, TYPE "A" WITH/WITHOUT SIGN
- (TW) TEMPORARY MARKING LINE REMOVABLE TAPE 4-INCH, WHITE
- (TY) TEMPORARY MARKING LINE REMOVABLE TAPE 4-INCH, YELLOW
- (TPW) TEMPORARY MARKING LINE PAINT 4-INCH, WHITE
- (TPY) TEMPORARY MARKING LINE PAINT 4-INCH, YELLOW

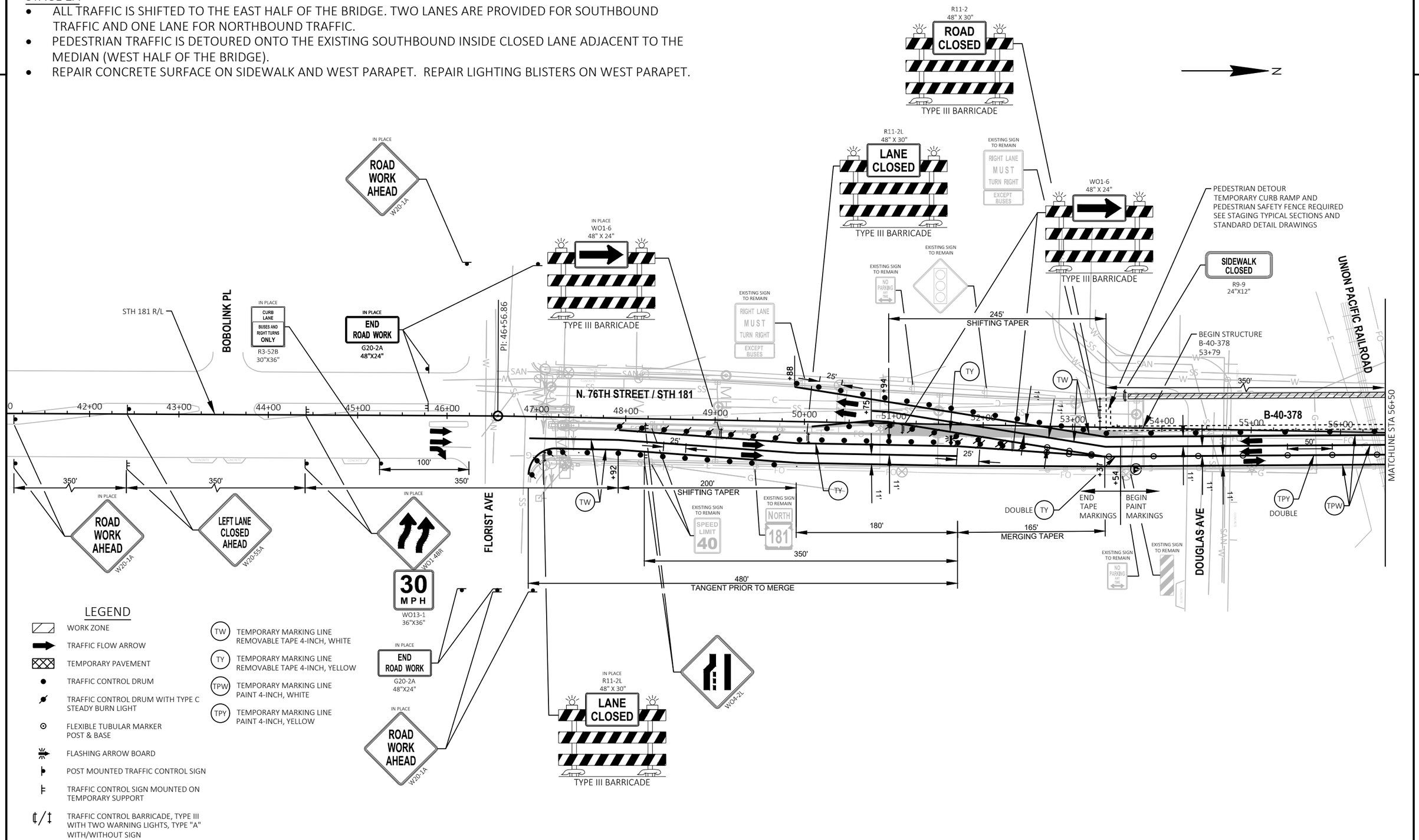
PROJECT NO: 2984-38-71	HWY: STH 181	COUNTY: MILWAUKEE	STAGE CONSTRUCTION - STAGE 1	SHEET 28	E

FILE NAME : T:\1162710.09\CIVIL3D\29843801\SHEETSPLAN\026001_S1.DWG
LAYOUT NAME - Plan 1 IN 100 FT (2)
PLOT DATE : 1/23/2018 8:21 AM
PLOT BY : NIKOLAI, ADAM
PLOT NAME :
PLOT SCALE : 1 IN:100 FT
WISDOT/CADDS SHEET 42

STAGE 2A

- ALL TRAFFIC IS SHIFTED TO THE EAST HALF OF THE BRIDGE. TWO LANES ARE PROVIDED FOR SOUTHBOUND TRAFFIC AND ONE LANE FOR NORTHBOUND TRAFFIC.
- PEDESTRIAN TRAFFIC IS DETOURED ONTO THE EXISTING SOUTHBOUND INSIDE CLOSED LANE ADJACENT TO THE MEDIAN (WEST HALF OF THE BRIDGE).
- REPAIR CONCRETE SURFACE ON SIDEWALK AND WEST PARAPET. REPAIR LIGHTING BLISTERS ON WEST PARAPET.

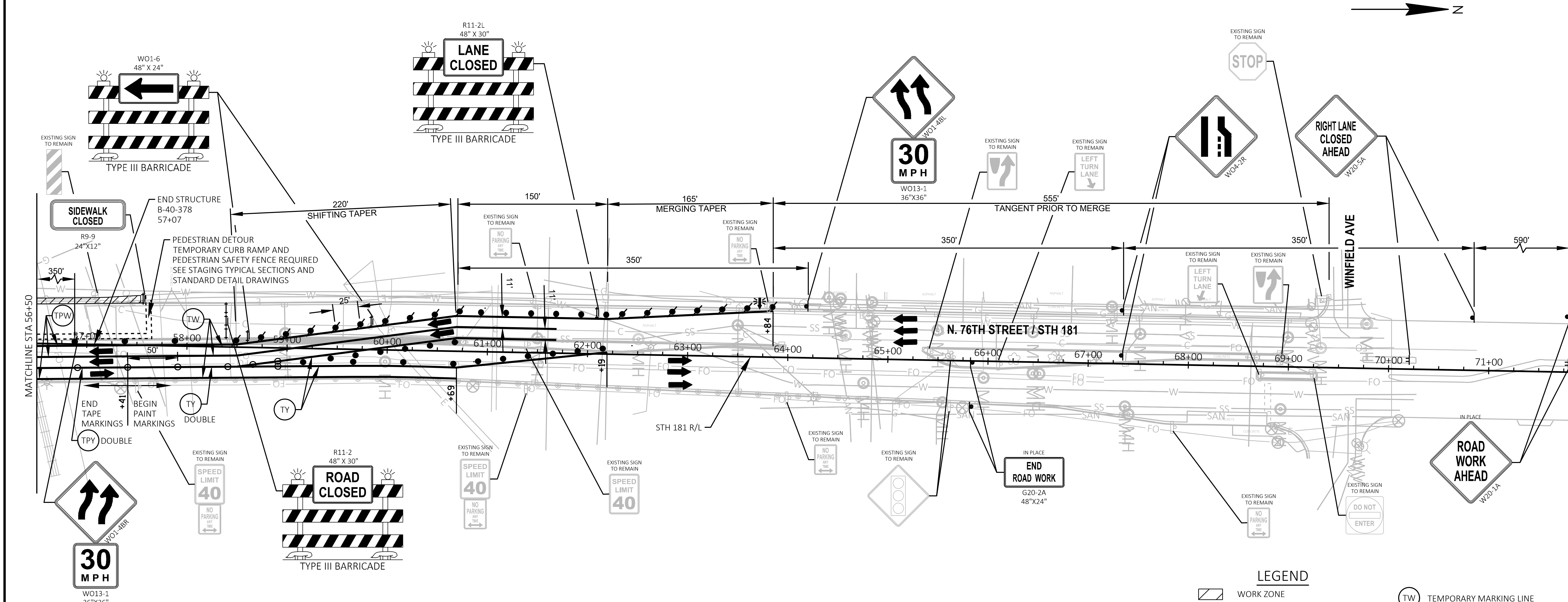
2



PROJECT NO: 2984-38-71	HWY: STH 181	COUNTY: MILWAUKEE	STAGE CONSTRUCTION - STAGE 2A	SHEET 29	E

FILE NAME : T:\1162710.09\CIVIL3D\29843801\SHEETSPLAN\026001_S2A.DWG
LAYOUT NAME - Plan 1 IN 100 FT

PLOT DATE : 1/23/2018 8:22 AM PLOT BY : NIKOLAI, ADAM PLOT NAME : PLOT SCALE : 1 IN:100 FT


WO1-6
48" X 24"
TYPE III BARRICADE
R11-2L
48" X 30"
LANE CLOSED
TYPE III BARRICADE
EXISTING SIGN TO REMAIN
SIDEWALK CLOSED
R9-9
24"X12"
END STRUCTURE
B-40-378
57+07
PEDESTRIAN DETOUR
TEMPORARY CURB RAMP AND
PEDESTRIAN SAFETY FENCE REQUIRED
SEE STAGING TYPICAL SECTIONS AND
STANDARD DETAIL DRAWINGS
220'
SHIFTING TAPER
150'
165'
MERGING TAPER
555'
TANGENT PRIOR TO MERGE
350'
350'
350'
590'
25'
50'
11'
11'
WO1-4BL
30 MPH
WO13-1
36"X36"
WO4-2R
RIGHT LANE CLOSED AHEAD
W20-5A
STOP
LEFT TURN LANE
WINFIELD AVE
N. 76TH STREET / STH 181
MATCHLINE STA 56+50
TPW
TW
TY
TPY
58+00
59+00
60+00
61+00
62+00
63+00
64+00
65+00
66+00
67+00
68+00
69+00
70+00
71+00
+84
+19
+69
+41
END TAPE MARKINGS
BEGIN PAINT MARKINGS
DOUBLE
TPY DOUBLE
STH 181 R/L
SPEED LIMIT 40
NO PARKING
WO1-4BR
30 MPH
WO13-1
36"X36"
R11-2
48" X 30"
ROAD CLOSED
TYPE III BARRICADE
IN PLACE
END ROAD WORK
G20-2A
48"X24"
IN PLACE
ROAD WORK AHEAD
W20-1A
DO NOT ENTER
N

LEGEND

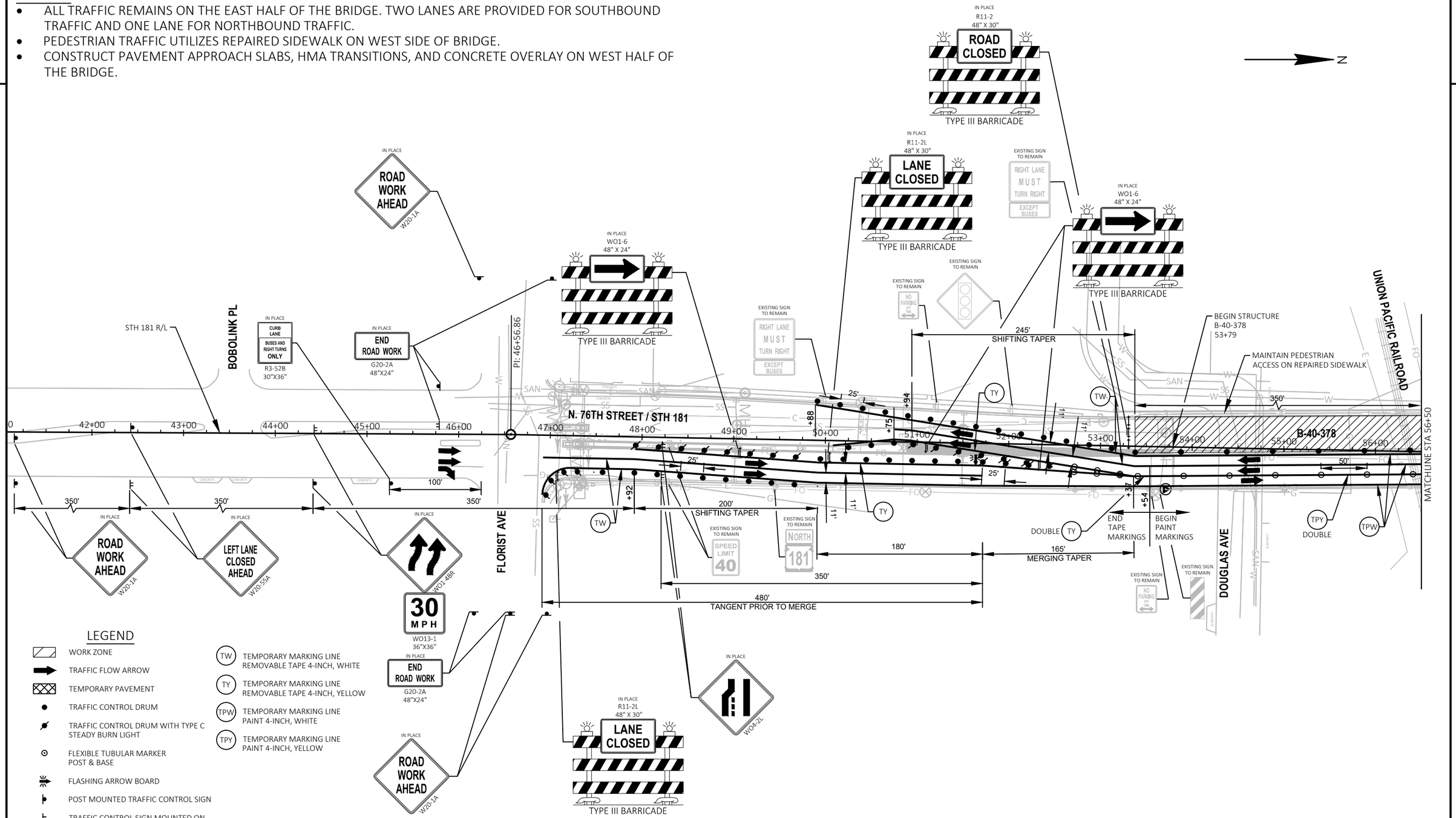
- WORK ZONE
- TRAFFIC FLOW ARROW
- TEMPORARY PAVEMENT
- TRAFFIC CONTROL DRUM
- TRAFFIC CONTROL DRUM WITH TYPE C STEADY BURN LIGHT
- FLEXIBLE TUBULAR MARKER POST & BASE
- FLASHING ARROW BOARD
- POST MOUNTED TRAFFIC CONTROL SIGN
- TRAFFIC CONTROL SIGN MOUNTED ON TEMPORARY SUPPORT
- TRAFFIC CONTROL BARRICADE, TYPE III WITH TWO WARNING LIGHTS, TYPE "A" WITH/WITHOUT SIGN
- TW — TEMPORARY MARKING LINE REMOVABLE TAPE 4-INCH, WHITE
- TY — TEMPORARY MARKING LINE REMOVABLE TAPE 4-INCH, YELLOW
- TPW — TEMPORARY MARKING LINE PAINT 4-INCH, WHITE
- TPY — TEMPORARY MARKING LINE PAINT 4-INCH, YELLOW

PROJECT NO: 2984-38-71	HWY: STH 181	COUNTY: MILWAUKEE	STAGE CONSTRUCTION - STAGE 2A	SHEET 30	E

STAGE 2B

- ALL TRAFFIC REMAINS ON THE EAST HALF OF THE BRIDGE. TWO LANES ARE PROVIDED FOR SOUTHBOUND TRAFFIC AND ONE LANE FOR NORTHBOUND TRAFFIC.
- PEDESTRIAN TRAFFIC UTILIZES REPAIRED SIDEWALK ON WEST SIDE OF BRIDGE.
- CONSTRUCT PAVEMENT APPROACH SLABS, HMA TRANSITIONS, AND CONCRETE OVERLAY ON WEST HALF OF THE BRIDGE.

2



PROJECT NO: 2984-38-71	HWY: STH 181	COUNTY: MILWAUKEE	STAGE CONSTRUCTION - STAGE 2B	SHEET 31	E

FILE NAME : T:\1162710.09\CIVIL3D\29843801\SHEETSPLAN\026001_S2B.DWG
LAYOUT NAME - Plan 1 IN 100 FT

PLOT DATE : 1/23/2018 8:22 AM PLOT BY : NIKOLAI, ADAM PLOT NAME : PLOT SCALE : 1 IN:100 FT

2

N

IN PLACE
WO1-6
48" X 24"

TYPE III BARRICADE

IN PLACE
R11-2L
48" X 30"
LANE CLOSED

TYPE III BARRICADE

IN PLACE
WO1-4BL

30 MPH

WO13-1
36"X36"

EXISTING SIGN TO REMAIN
STOP

IN PLACE
WO4-2R

IN PLACE
RIGHT LANE CLOSED AHEAD
W20-5A

EXISTING SIGN TO REMAIN
LEFT TURN LANE

EXISTING SIGN TO REMAIN

EXISTING SIGN TO REMAIN
NO PARKING ANY TIME

EXISTING SIGN TO REMAIN
NO PARKING ANY TIME

MAINTAIN PEDESTRIAN ACCESS ON REPAIRED SIDEWALK

END STRUCTURE
B-40-378
57+07

350'
220'
SHIFTING TAPER
150'
165'
MERGING TAPER
350'
555'
TANGENT PRIOR TO MERGE
350'
350'
590'

MATCHLINE STA 56+50

TPW
TW
TY
TPY

25'
50'
11'
11'

57+00
58+00
59+00
60+00
61+00
62+00
63+00
64+00
65+00
66+00
67+00
68+00
69+00
70+00
71+00

+41
+69
+19
+84

N. 76TH STREET / STH 181

WINFIELD AVE

END TAPE MARKINGS DOUBLE

BEGIN PAINT MARKINGS

TY DOUBLE

IN PLACE
WO1-4BR

30 MPH

WO13-1
36"X36"

EXISTING SIGN TO REMAIN
SPEED LIMIT 40
NO PARKING ANY TIME

IN PLACE
R11-2
48" X 30"
ROAD CLOSED

TYPE III BARRICADE

EXISTING SIGN TO REMAIN
SPEED LIMIT 40
NO PARKING ANY TIME

EXISTING SIGN TO REMAIN
SPEED LIMIT 40

EXISTING SIGN TO REMAIN
NO PARKING ANY TIME

EXISTING SIGN TO REMAIN

IN PLACE
END ROAD WORK
G20-2A
48"X24"

STH 181 R/L

EXISTING SIGN TO REMAIN
NO PARKING ANY TIME

EXISTING SIGN TO REMAIN
DO NOT ENTER

IN PLACE
ROAD WORK AHEAD
W20-1A

LEGEND

- WORK ZONE
- TRAFFIC FLOW ARROW
- TEMPORARY PAVEMENT
- TRAFFIC CONTROL DRUM
- TRAFFIC CONTROL DRUM WITH TYPE C STEADY BURN LIGHT
- FLEXIBLE TUBULAR MARKER POST & BASE
- FLASHING ARROW BOARD
- POST MOUNTED TRAFFIC CONTROL SIGN
- TRAFFIC CONTROL SIGN MOUNTED ON TEMPORARY SUPPORT
- TRAFFIC CONTROL BARRICADE, TYPE III WITH TWO WARNING LIGHTS, TYPE "A" WITH/WITHOUT SIGN

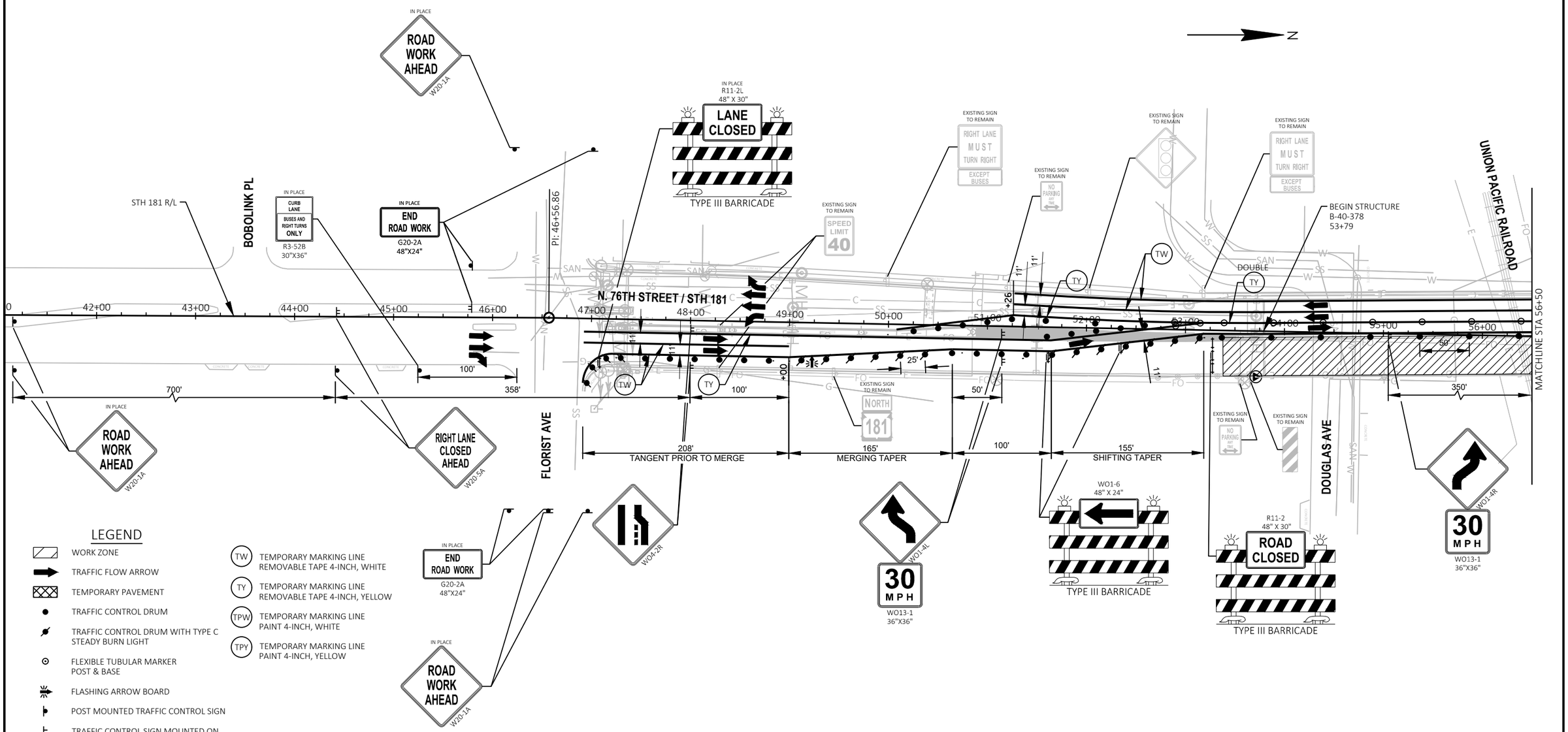
- TW — TEMPORARY MARKING LINE REMOVABLE TAPE 4-INCH, WHITE
- TY — TEMPORARY MARKING LINE REMOVABLE TAPE 4-INCH, YELLOW
- TPW — TEMPORARY MARKING LINE PAINT 4-INCH, WHITE
- TPY — TEMPORARY MARKING LINE PAINT 4-INCH, YELLOW

PROJECT NO: 2984-38-71	HWY: STH 181	COUNTY: MILWAUKEE	STAGE CONSTRUCTION - STAGE 2B	SHEET 32	E

2

STAGE 3

- ALL TRAFFIC IS SHIFTED TO THE WEST HALF OF THE BRIDGE. TWO LANES ARE PROVIDED FOR SOUTHBOUND TRAFFIC AND ONE LANE FOR NORTHBOUND TRAFFIC.
- PEDESTRIAN TRAFFIC UTILIZES REPAIRED SIDEWALK ON WEST SIDE OF BRIDGE.
- CONSTRUCT PAVEMENT APPROACH SLABS, HMA TRANSITIONS, AND CONCRETE OVERLAY ON EAST HALF OF THE BRIDGE.



PROJECT NO: 2984-38-71	HWY: STH 181	COUNTY: MILWAUKEE	STAGE CONSTRUCTION - STAGE 3	SHEET 33	E

FILE NAME : T:\1162710.09\CIVIL3D\29843801\SHEETSPLAN\026001_S3.DWG
LAYOUT NAME - Plan 1 IN 100 FT

PLOT DATE : 1/23/2018 8:23 AM PLOT BY : NIKOLAI, ADAM PLOT NAME : PLOT SCALE : 1 IN:100 FT

WISDOT/CADDS SHEET 42

2

N

WO1-6
48" X 24"
TYPE III BARRICADE

R11-2L
48" X 30"
LANE CLOSED
TYPE III BARRICADE

165'
MERGING TAPER

635'
TANGENT PRIOR TO MERGE

WINFIELD AVE

LEFT LANE CLOSED AHEAD
W20-5A

350'

350'

670'

MATCHLINE STA 56+50

DOUBLE TY

TW

TY

11'

11'

50'

50'

25'

25'

+55

+91

+05

N. 76TH STREET / STH 181

57+00

58+00

59+00

60+00

61+00

62+00

63+00

64+00

65+00

66+00

67+00

68+00

69+00

70+00

71+00

350'

135'
SHIFTING TAPER

END STRUCTURE
B-40-378
57+07

R11-2
48" X 30"
ROAD CLOSED
TYPE III BARRICADE

STH 181 R/L

IN PLACE
END ROAD WORK
G20-2A
48"X24"

W04-2L

IN PLACE
ROAD WORK AHEAD
W20-1A

LEGEND

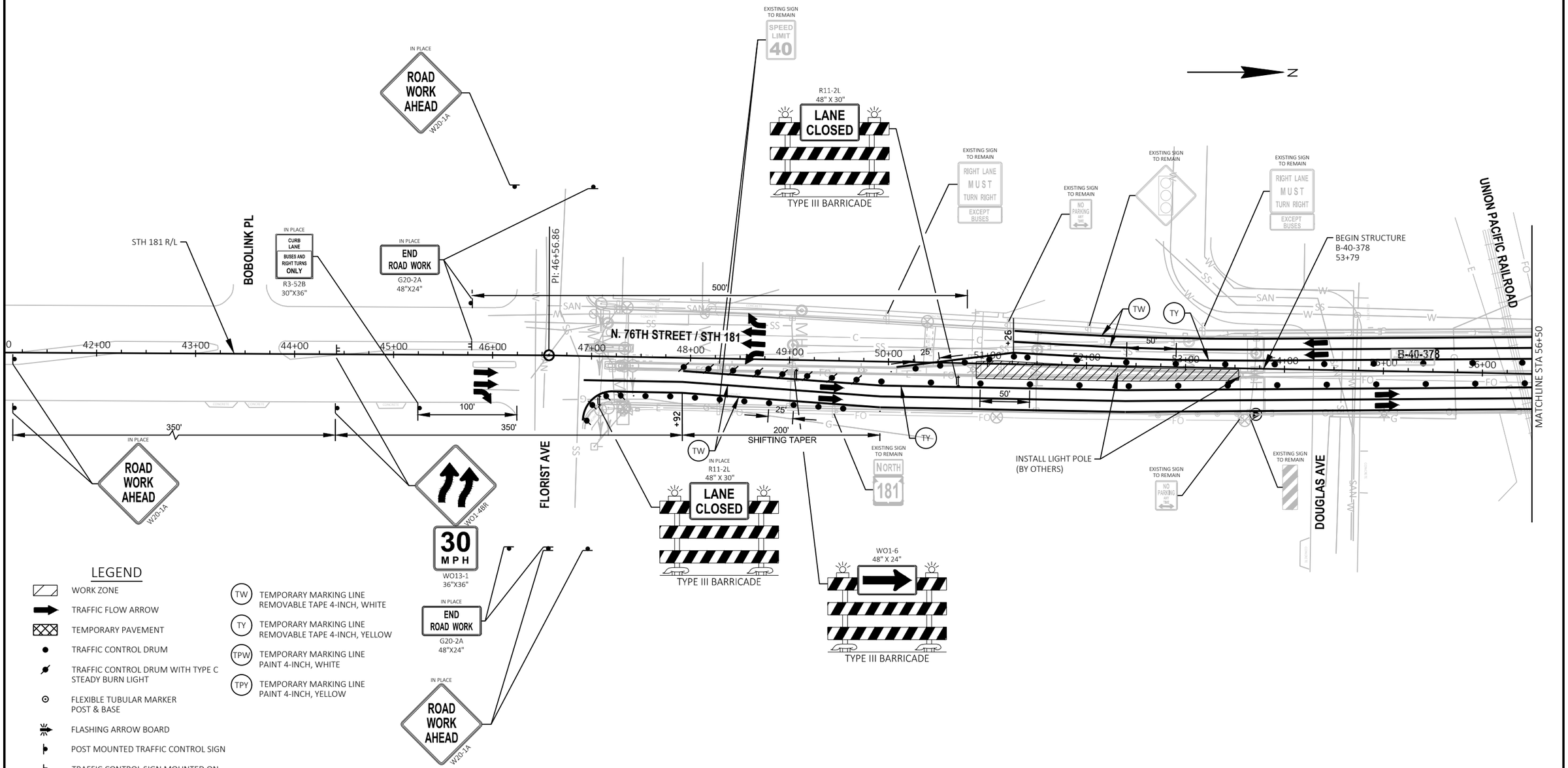
- WORK ZONE
- TRAFFIC FLOW ARROW
- TEMPORARY PAVEMENT
- TRAFFIC CONTROL DRUM
- TRAFFIC CONTROL DRUM WITH TYPE C STEADY BURN LIGHT
- FLEXIBLE TUBULAR MARKER POST & BASE
- FLASHING ARROW BOARD
- POST MOUNTED TRAFFIC CONTROL SIGN
- TRAFFIC CONTROL SIGN MOUNTED ON TEMPORARY SUPPORT
- TRAFFIC CONTROL BARRICADE, TYPE III WITH TWO WARNING LIGHTS, TYPE "A" WITH/WITHOUT SIGN
- (TW) TEMPORARY MARKING LINE REMOVABLE TAPE 4-INCH, WHITE
- (TY) TEMPORARY MARKING LINE REMOVABLE TAPE 4-INCH, YELLOW
- (TPW) TEMPORARY MARKING LINE PAINT 4-INCH, WHITE
- (TPY) TEMPORARY MARKING LINE PAINT 4-INCH, YELLOW

PROJECT NO: 2984-38-71	HWY: STH 181	COUNTY: MILWAUKEE	STAGE CONSTRUCTION - STAGE 3	SHEET 34	E

2

STAGE 4

- CLOSE NORTHBOUND AND SOUTHBOUND INSIDE TRAVEL LANES.
- REMOVE TEMPORARY CROSSOVER PAVEMENT NORTH AND SOUTH OF BRIDGE.
- CONSTRUCT PERMANENT CURB & GUTTER AND MEDIAN. LIGHT POLES INSTALLED BY OTHERS.



LEGEND

- WORK ZONE
- TRAFFIC FLOW ARROW
- TEMPORARY PAVEMENT
- TRAFFIC CONTROL DRUM
- TRAFFIC CONTROL DRUM WITH TYPE C STEADY BURN LIGHT
- FLEXIBLE TUBULAR MARKER POST & BASE
- FLASHING ARROW BOARD
- POST MOUNTED TRAFFIC CONTROL SIGN
- TRAFFIC CONTROL SIGN MOUNTED ON TEMPORARY SUPPORT
- TRAFFIC CONTROL BARRICADE, TYPE III WITH TWO WARNING LIGHTS, TYPE "A" WITH/WITHOUT SIGN

- (TW) TEMPORARY MARKING LINE REMOVABLE TAPE 4-INCH, WHITE
- (TY) TEMPORARY MARKING LINE REMOVABLE TAPE 4-INCH, YELLOW
- (TPW) TEMPORARY MARKING LINE PAINT 4-INCH, WHITE
- (TPY) TEMPORARY MARKING LINE PAINT 4-INCH, YELLOW

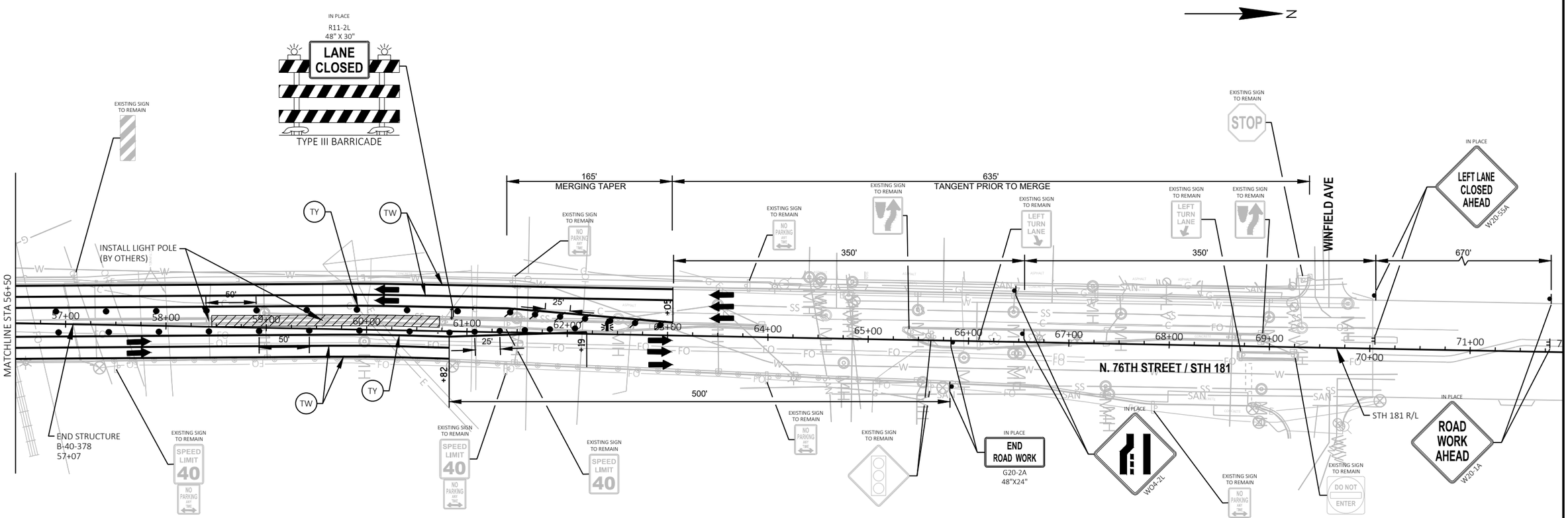
PROJECT NO: 2984-38-71	HWY: STH 181	COUNTY: MILWAUKEE	STAGE CONSTRUCTION - STAGE 4	SHEET 35	E

FILE NAME : T:\1162710.09\CIVIL3D\29843801\SHEETSPLAN\026001_S4.DWG
LAYOUT NAME - Plan 1 IN 100 FT

PLOT DATE : 1/23/2018 8:24 AM PLOT BY : NIKOLAI, ADAM PLOT NAME : PLOT SCALE : 1 IN:100 FT

WISDOT/CADDS SHEET 42

2



LEGEND

- WORK ZONE
- TRAFFIC FLOW ARROW
- TEMPORARY PAVEMENT
- TRAFFIC CONTROL DRUM
- TRAFFIC CONTROL DRUM WITH TYPE C STEADY BURN LIGHT
- FLEXIBLE TUBULAR MARKER POST & BASE
- FLASHING ARROW BOARD
- POST MOUNTED TRAFFIC CONTROL SIGN
- TRAFFIC CONTROL SIGN MOUNTED ON TEMPORARY SUPPORT
- TRAFFIC CONTROL BARRICADE, TYPE III WITH TWO WARNING LIGHTS, TYPE "A" WITH/WITHOUT SIGN

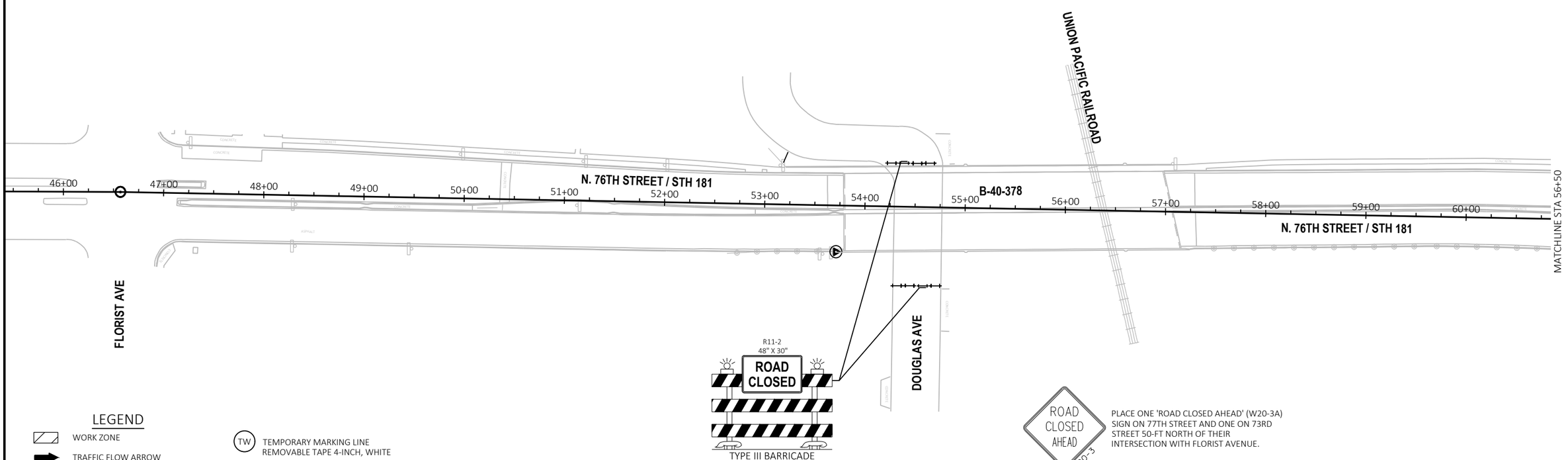
- (TW) TEMPORARY MARKING LINE REMOVABLE TAPE 4-INCH, WHITE
- (TY) TEMPORARY MARKING LINE REMOVABLE TAPE 4-INCH, YELLOW
- (TPW) TEMPORARY MARKING LINE PAINT 4-INCH, WHITE
- (TPY) TEMPORARY MARKING LINE PAINT 4-INCH, YELLOW

PROJECT NO: 2984-38-71	HWY: STH 181	COUNTY: MILWAUKEE	STAGE CONSTRUCTION - STAGE 4	SHEET 36	E

2

TRAFFIC CONTROL - BRIDGE PAINTING

- CLOSE DOUGLAS AVENUE TO THROUGH TRAFFIC AT THE B-40-378 OVERPASS FOR BRIDGE PAINTING OPERATIONS

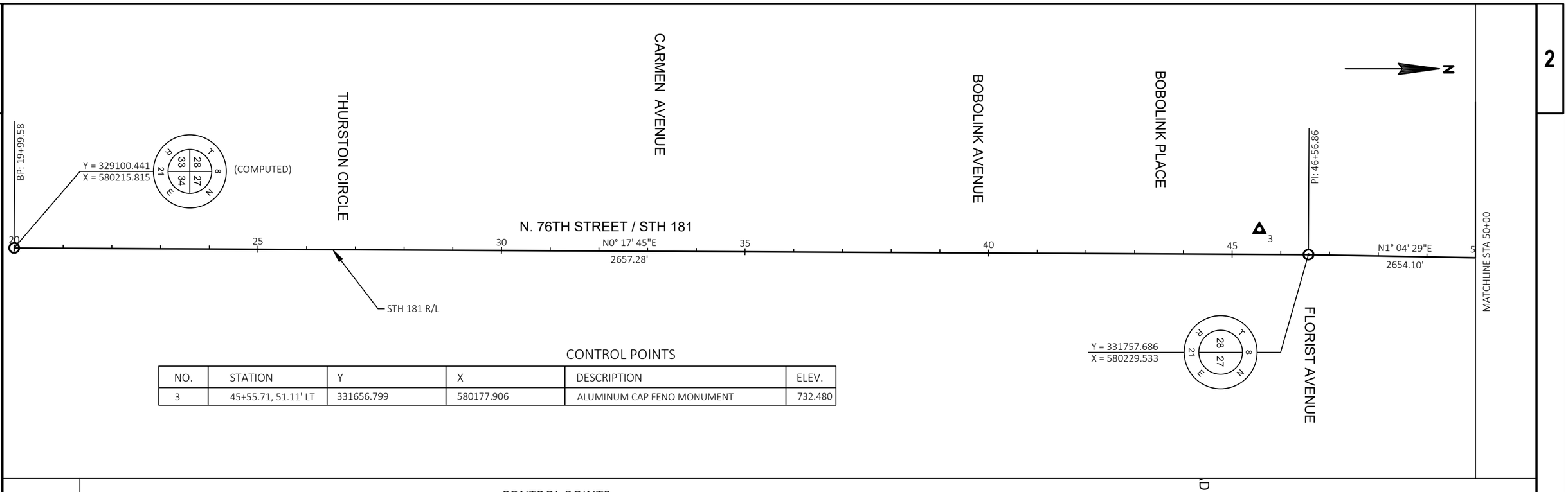


LEGEND

- WORK ZONE
- TRAFFIC FLOW ARROW
- TEMPORARY PAVEMENT
- TRAFFIC CONTROL DRUM
- TRAFFIC CONTROL DRUM WITH TYPE C STEADY BURN LIGHT
- FLEXIBLE TUBULAR MARKER POST & BASE
- FLASHING ARROW BOARD
- POST MOUNTED TRAFFIC CONTROL SIGN
- TRAFFIC CONTROL SIGN MOUNTED ON TEMPORARY SUPPORT
- TRAFFIC CONTROL BARRICADE, TYPE III WITH TWO WARNING LIGHTS, TYPE "A" WITH/WITHOUT SIGN
- (TW) TEMPORARY MARKING LINE REMOVABLE TAPE 4-INCH, WHITE
- (TY) TEMPORARY MARKING LINE REMOVABLE TAPE 4-INCH, YELLOW
- (TPW) TEMPORARY MARKING LINE PAINT 4-INCH, WHITE
- (TPY) TEMPORARY MARKING LINE PAINT 4-INCH, YELLOW

PROJECT NO: 2984-38-71	HWY: STH 181	COUNTY: MILWAUKEE	STAGE CONSTRUCTION - DOUGLAS AVENUE	SHEET 37	E

FILE NAME : T:\1162710.09\CIVIL3D\29843801\SHEETSPLAN\026001_S5.DWG
LAYOUT NAME - Plan 1 IN 100 FT
PLOT DATE : 11/6/2018 8:35 AM
PLOT BY : MANSKE, CALEB
PLOT NAME :
PLOT SCALE : 1 IN:100 FT
WISDOT/CADDS SHEET 42

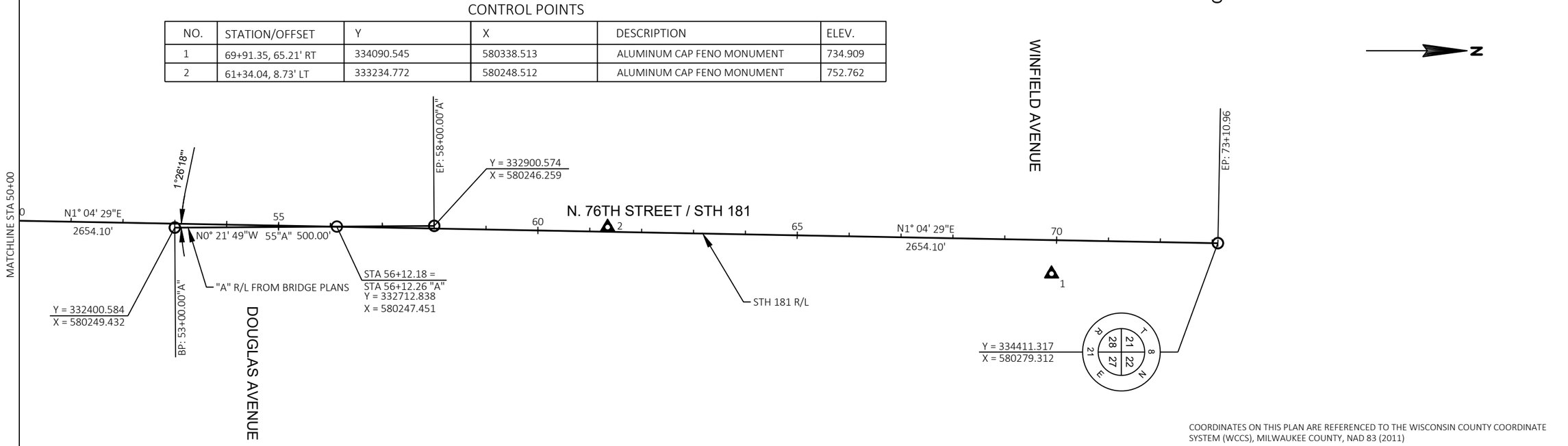


CONTROL POINTS

NO.	STATION	Y	X	DESCRIPTION	ELEV.
3	45+55.71, 51.11' LT	331656.799	580177.906	ALUMINUM CAP FENO MONUMENT	732.480

CONTROL POINTS

NO.	STATION/OFFSET	Y	X	DESCRIPTION	ELEV.
1	69+91.35, 65.21' RT	334090.545	580338.513	ALUMINUM CAP FENO MONUMENT	734.909
2	61+34.04, 8.73' LT	333234.772	580248.512	ALUMINUM CAP FENO MONUMENT	752.762



COORDINATES ON THIS PLAN ARE REFERENCED TO THE WISCONSIN COUNTY COORDINATE SYSTEM (WCCS), MILWAUKEE COUNTY, NAD 83 (2011)

ELEVATIONS SHOWN ON THIS PLAN ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988, NAVD 88 (2012)

PROJECT NO: 2984-38-71	HWY: STH 181	COUNTY: MILWAUKEE	ALIGNMENT PLAN	SHEET 38	E

LEGEND

SIGN ON PERMANENT SUPPORT

WORK AREA. MAINLINE CLOSURE SIGNS PER SDDS.

DIRECTION OF TRAFFIC

XXXX RAMP CLOSURE PER S.D.D. 15D16-3

GENERAL NOTES

- ALL SIGNS SHALL BE PLACED IN ACCORDANCE WITH THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES.
- LOCATION AND SPACING OF SIGNS MAY BE ADJUSTED TO FIT FIELD CONDITIONS AS DIRECTED BY THE FIELD ENGINEER.
- ANY EXISTING TRAFFIC SIGNS THAT CONFLICT WITH THIS DETOUR ROUTE SHALL BE COVERED AS DIRECTED BY THE ENGINEER.

1 — DETOUR (M4-8 36"X18") / W SILVER SPRING DR (60"X30") / WEST (M3-4 36"X18") / MO5-2R 30"X30"

2 — DETOUR (M4-8 36"X18") / W SILVER SPRING DR (60"X30") / WEST (M3-4 36"X18") / MO6-2R 30"X30"

3 — DETOUR (M4-8 36"X18") / W SILVER SPRING DR (60"X30") / WEST (M3-4 36"X18") / MO6-1R 30"X30"

4 — DETOUR (M4-8 24"X12") / W SILVER SPRING DR (48"X24") / WEST (M3-4 24"X12") / MO6-1 21"X21"

5 — DETOUR (M4-8 24"X12") / W SILVER SPRING DR (48"X24") / WEST (M3-4 24"X12") / MO6-1L 21"X21"

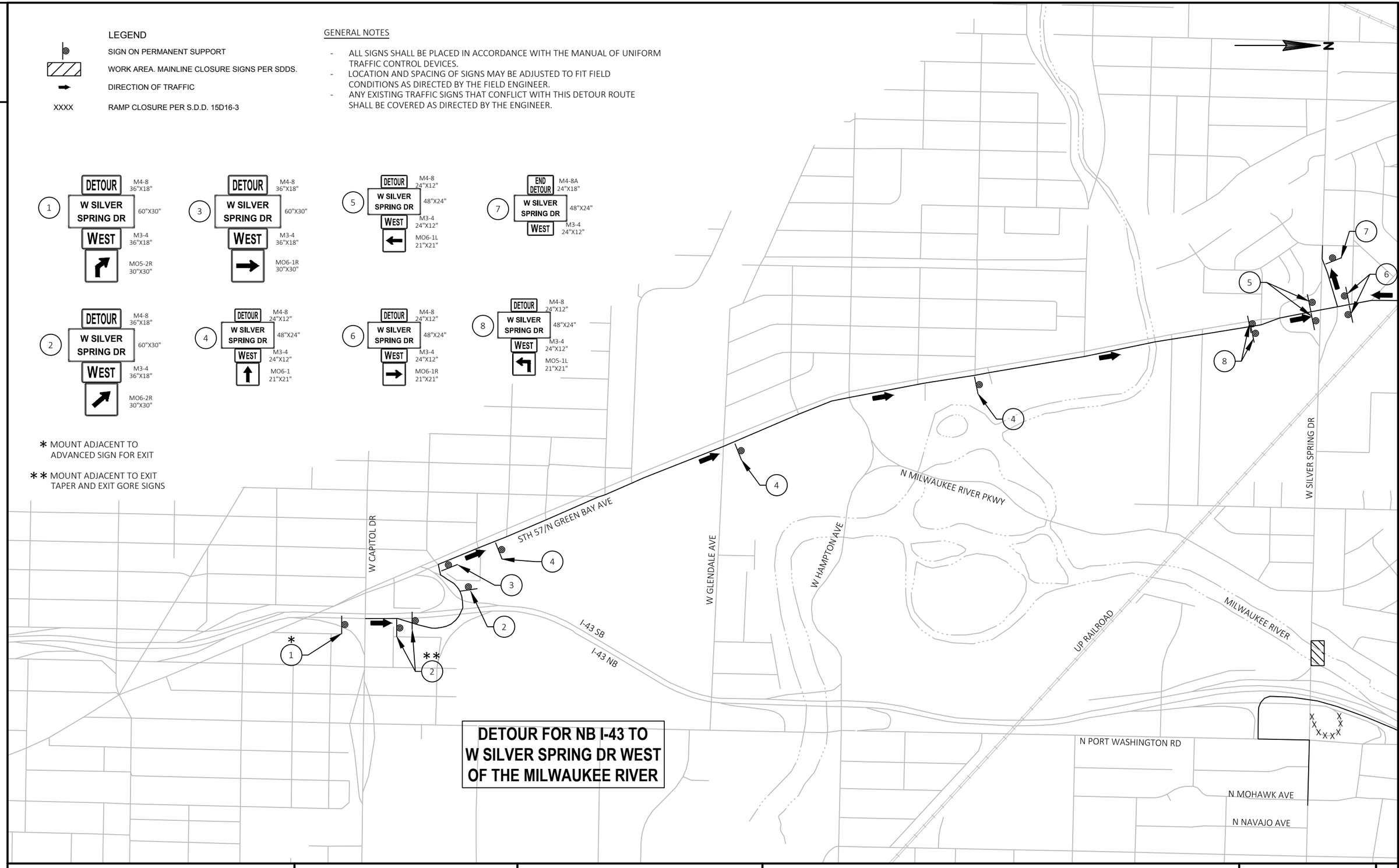
6 — DETOUR (M4-8 24"X12") / W SILVER SPRING DR (48"X24") / WEST (M3-4 24"X12") / MO6-1R 21"X21"

7 — END DETOUR (M4-8A 24"X18") / W SILVER SPRING DR (48"X24") / WEST (M3-4 24"X12")

8 — DETOUR (M4-8 24"X12") / W SILVER SPRING DR (48"X24") / WEST (M3-4 24"X12") / MO5-1L 21"X21"

* MOUNT ADJACENT TO ADVANCED SIGN FOR EXIT

** MOUNT ADJACENT TO EXIT TAPER AND EXIT GORE SIGNS



DETOUR FOR NB I-43 TO W SILVER SPRING DR WEST OF THE MILWAUKEE RIVER

PROJECT NO: 2984-38-71	HWY: W SILVER SPRING DRIVE	COUNTY: MILWAUKEE	DETOUR - NB I-43 TO WESTBOUND W SILVER SPRING DR - STAGE 1	SHEET 39	E

FILE NAME : P:\90S\93\00093427\CADD\SHEETSPLAN\027001_DT.DWG
LAYOUT NAME - 027001_dt

PLOT DATE : 1/19/2018 3:55 PM PLOT BY : JOLIE SNYDER PLOT NAME : PLOT SCALE : 1 IN:1000 FT

LEGEND

SIGN ON PERMANENT SUPPORT

WORK AREA. MAINLINE CLOSURE SIGNS PER SDDS.

DIRECTION OF TRAFFIC

XXXX RAMP CLOSURE PER S.D.D. 15D16-3

GENERAL NOTES

- ALL SIGNS SHALL BE PLACED IN ACCORDANCE WITH THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES.
- LOCATION AND SPACING OF SIGNS MAY BE ADJUSTED TO FIT FIELD CONDITIONS AS DIRECTED BY THE FIELD ENGINEER.
- ANY EXISTING TRAFFIC SIGNS THAT CONFLICT WITH THIS DETOUR ROUTE SHALL BE COVERED AS DIRECTED BY THE ENGINEER.

DETOUR FOR WESTBOUND W SILVER SPRING DR

STH 57/N GREEN BAY AVE
W SILVER SPRING DR
N MILWAUKEE RIVER PKWY
MILWAUKEE RIVER
UP RAILROAD
W BENDER RD
W GREEN TREE RD
W GOOD HOPE RD
N PORT WASHINGTON RD
N MOHAWK AVE
N NAVAJO AVE
I-43 SB
I-43 NB

1 DETOUR M4-8 36"X18" / W SILVER SPRING DR 60"X30" / WEST M3-4 36"X18" / MO5-2R 30"X30"

2 DETOUR M4-8 36"X18" / W SILVER SPRING DR 60"X30" / WEST M3-4 36"X18" / MO6-2R 30"X30"

3 DETOUR M4-8 36"X18" / W SILVER SPRING DR 60"X30" / WEST M3-4 36"X18" / MO6-1R 30"X30"

4 DETOUR M4-8 24"X12" / W SILVER SPRING DR 48"X24" / WEST M3-4 24"X12" / MO6-1 21"X21"

5 DETOUR M4-8 24"X12" / W SILVER SPRING DR 48"X24" / WEST M3-4 24"X12" / MO6-1L 21"X21"

6 DETOUR M4-8 24"X12" / W SILVER SPRING DR 48"X24" / WEST M3-4 24"X12" / MO6-1R 21"X21"

7 END DETOUR M4-8A 24"X18" / W SILVER SPRING DR 48"X24" / WEST M3-4 24"X12"

8 DETOUR M4-8 24"X12" / W SILVER SPRING DR 48"X24" / WEST M3-4 24"X12" / MO5-1L 21"X21"

9 DETOUR M4-8 24"X12" / W SILVER SPRING DR 48"X24" / WEST M3-4 24"X12" / MO5-1R 21"X21"

* MOUNT ADJACENT TO ADVANCED SIGN FOR EXIT

** MOUNT ADJACENT TO EXIT TAPER AND EXIT GORE SIGNS

*** MOUNT ADJACENT TO EXISTING I-43 NB SIGNS

PROJECT NO: 2984-38-71	HWY: W SILVER SPRING DRIVE	COUNTY: MILWAUKEE	DETOUR - WESTBOUND W SILVER SPRING DR - STAGE 1	SHEET 40	E

FILE NAME : P:\90S\93\00093427\CADD\SHEETSPLAN\027001_DT.DWG
LAYOUT NAME - 027002_dt

PLOT DATE : 1/19/2018 3:55 PM PLOT BY : JOLIE SNYDER PLOT NAME : PLOT SCALE : 1 IN:1000 FT

WISDOT/CADDS SHEET 44

2

LEGEND

SIGN ON PERMANENT SUPPORT

WORK AREA. MAINLINE CLOSURE SIGNS PER SDDS.

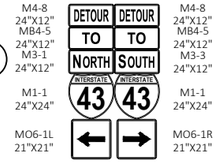
DIRECTION OF TRAFFIC

GENERAL NOTES

- ALL SIGNS SHALL BE PLACED IN ACCORDANCE WITH THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES.
- LOCATION AND SPACING OF SIGNS MAY BE ADJUSTED TO FIT FIELD CONDITIONS AS DIRECTED BY THE FIELD ENGINEER.
- ANY EXISTING TRAFFIC SIGNS THAT CONFLICT WITH THIS DETOUR ROUTE SHALL BE COVERED AS DIRECTED BY THE ENGINEER.

10

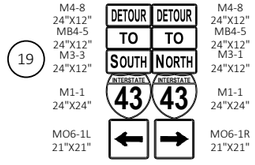

M4-8 24"X12"
MB4-5 24"X12"
M1-1 24"X24"
MO5-2R 21"X21"

12


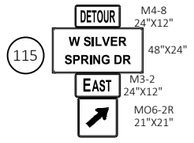
M4-8 24"X12"
MB4-5 24"X12"
M3-1 24"X12"
M1-1 24"X24"
MO6-1L 21"X21"
M3-3 24"X12"
M1-1 24"X24"
MO6-1R 21"X21"

14

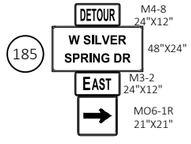

M4-8 24"X12"
MB4-5 24"X12"
M3-1 24"X12"
M1-1 24"X24"
MO6-1 21"X21"

19


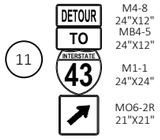
M4-8 24"X12"
MB4-5 24"X12"
M3-3 24"X12"
M1-1 24"X24"
MO6-1L 21"X21"
M3-1 24"X12"
M1-1 24"X24"
MO6-1R 21"X21"

115


M4-8 24"X12"
48"X24"
M3-2 24"X12"
MO6-2R 21"X21"

185


M4-8 24"X12"
48"X24"
M3-2 24"X12"
MO6-1R 21"X21"

11


M4-8 24"X12"
MB4-5 24"X12"
M1-1 24"X24"
MO6-2R 21"X21"

13

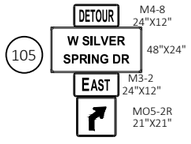

M4-8 24"X12"
MB4-5 24"X12"
M3-3 24"X12"
M1-1 24"X24"
MO6-1 21"X21"

15

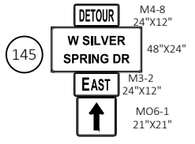

M4-8 24"X12"

16

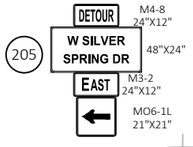

M4-8A 24"X18"

105


M4-8 24"X12"
48"X24"
M3-2 24"X12"
MO5-2R 21"X21"

145


M4-8 24"X12"
48"X24"
M3-2 24"X12"
MO6-1 21"X21"

205


M4-8 24"X12"
48"X24"
M3-2 24"X12"
MO6-1L 21"X21"

* MOUNT ABOVE EXISTING SOUTHBOUND I-43 ROUTE MARKER SIGNS

N

105 10
115 11
205 12
13
14 145
19 185
11 115
10 105
20

13
13
13
16
15

STH 57/N GREEN BAY AVE
W CAPITOL DR
W GLENDALE AVE
W HAMPTON AVE
N MILWAUKEE RIVER PKWY
W SILVER SPRING DR
I-43 SB
I-43 NB
UP RAILROAD
MILWAUKEE RIVER
N PORT WASHINGTON RD
N MOHAWK AVE
N NAVAJO AVE

DETOUR FOR W SILVER SPRING DR WEST OF THE MILWAUKEE RIVER TO SB I-43

2

PROJECT NO: 2984-38-71	HWY: W SILVER SPRING DRIVE	COUNTY: MILWAUKEE	DETOUR - EASTBOUND W SILVER SPRING DR TO SB I-43 - STAGE 2	SHEET 41	E

FILE NAME : P:\90S\93\00093427\CADD\SHEETSPLAN\027001_DT.DWG
LAYOUT NAME - 027003_dt

PLOT DATE : 1/19/2018 3:55 PM PLOT BY : JOLIE SNYDER PLOT NAME : PLOT SCALE : 1 IN:1000 FT

LEGEND

SIGN ON PERMANENT SUPPORT

WORK AREA. MAINLINE CLOSURE SIGNS PER SDDS.

DIRECTION OF TRAFFIC

GENERAL NOTES

- ALL SIGNS SHALL BE PLACED IN ACCORDANCE WITH THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES.
- LOCATION AND SPACING OF SIGNS MAY BE ADJUSTED TO FIT FIELD CONDITIONS AS DIRECTED BY THE FIELD ENGINEER.
- ANY EXISTING TRAFFIC SIGNS THAT CONFLICT WITH THIS DETOUR ROUTE SHALL BE COVERED AS DIRECTED BY THE ENGINEER.

DETOUR FOR W SILVER SPRING DR WEST OF THE MILWAUKEE RIVER TO NB I-43

DETOUR FOR EASTBOUND THROUGH TRAFFIC ON W SILVER SPRING DR

STH 57/N GREEN BAY AVE
W SILVER SPRING DR
N MILWAUKEE RIVER PKWY
UP RAILROAD
MILWAUKEE RIVER
W BENDER RD
UP RAILROAD
W GREEN TREE RD
W GOOD HOPE RD
N PORT WASHINGTON RD
N MOHAWK AVE
I-43 SB
I-43 NB
N PORT WASHINGTON RD

105: DETOUR / W SILVER SPRING DR / EAST — M4-8 24"X12", 48"X24", M3-2 24"X12", MO5-2R 21"X21"

115: DETOUR / W SILVER SPRING DR / EAST — M4-8 24"X12", 48"X24", M3-2 24"X12", MO6-2R 21"X21"

145: DETOUR / W SILVER SPRING DR / EAST — M4-8 24"X12", 48"X24", M3-2 24"X12", MO6-1 21"X21"

175: DETOUR / W SILVER SPRING DR / EAST — M4-8 24"X12", 48"X24", M3-2 24"X12", MO5-1R 21"X21"

185: DETOUR / W SILVER SPRING DR / EAST — M4-8 24"X12", 48"X24", M3-2 24"X12", MO6-1R 21"X21"

205: DETOUR / W SILVER SPRING DR / EAST — M4-8 24"X12", 48"X24", M3-2 24"X12", MO6-1L 21"X21"

10: DETOUR / TO / I-43 — M4-8 24"X12", MB4-5 24"X12", M1-1 24"X24", MO5-2R 21"X21"

11: DETOUR / TO / I-43 — M4-8 24"X12", MB4-5 24"X12", M1-1 24"X24", MO6-2R 21"X21"

12: DETOUR / TO / NORTH / SOUTH / I-43 I-43 — M4-8 24"X12", MB4-5 24"X12", M3-1 24"X12", M1-1 24"X24", MO6-1L 21"X21", M3-3 24"X12", M1-1 24"X24", MO6-1R 21"X21"

13: DETOUR / TO / SOUTH / I-43 — M4-8 24"X12", MB4-5 24"X12", M3-3 24"X12", M1-1 24"X24", MO6-1 21"X21"

14: DETOUR / TO / NORTH / I-43 — M4-8 24"X12", MB4-5 24"X12", M3-1 24"X12", M1-1 24"X24", MO6-1 21"X21"

15: DETOUR — M4-8 24"X12"

16: END DETOUR — M4-8A 24"X18"

17: DETOUR / TO / NORTH / I-43 — M4-8 24"X12", MB4-5 24"X12", M3-1 24"X12", M1-1 24"X24", MO5-1R 21"X21"

18: DETOUR / TO / NORTH / I-43 — M4-8 24"X12", MB4-5 24"X12", M3-1 24"X12", M1-1 24"X24", MO6-1R 21"X21"

19: DETOUR / TO / SOUTH / NORTH / I-43 I-43 — M4-8 24"X12", MB4-5 24"X12", M3-3 24"X12", M1-1 24"X24", MO6-1L 21"X21", M3-1 24"X12", M1-1 24"X24", MO6-1R 21"X21"

20: END DETOUR / W SILVER SPRING DR / EAST — M4-8A 24"X18", 48"X24", M3-2 24"X12"

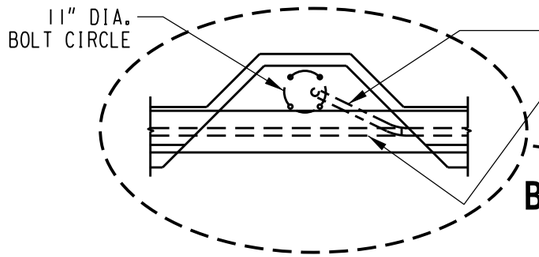
* MOUNT ABOVE EXISTING NORTHBOUND I-43 ROUTE MARKER SIGNS

** MOUNT ADJACENT TO EXISTING SOUTHBOUND I-43 ROUTE MARKER SIGN

PROJECT NO: 2984-38-71	HWY: W SILVER SPRING DRIVE	COUNTY: MILWAUKEE	DETOUR - EASTBOUND W SILVER SPRING DR - STAGE 2	SHEET 42 E

FILE NAME : P:\90S\93\00093427\CADD\SHEETSPLAN\027001_DT.DWG
LAYOUT NAME - 027004_dt

PLOT DATE : 1/19/2018 3:55 PM PLOT BY : JOLIE SNYDER PLOT NAME : PLOT SCALE : 1 IN:1000 FT



2"PVC (SCH.40) 18" MINIMUM RADIUS
FROM BLISTER TO JUNCTION BOX
2"PVC IN PARAPET
SEE CONDUIT DETAIL SHEET 6 OF 6

BLISTER DETAIL

W. DOUGLAS AV.

INSTALL 2" PVC (SCH.40) IN PARAPET
SECTION THAT WILL BE REPLACED.
CONNECT TO EXISTING 2" PVC

INSTALL 2" PVC (SCH.40) FROM
LIGHT POLE BLISTER TO LARGEST
POSSIBLE JUNCTION BOX IN PARAPET
SEE CONDUIT DETAIL SHEET 6 OF 6

2" PVC
IN PARAPET

CITY FORCES
TO INSTALL
35' WOOD POLE
TEMP LIGHTING

CITY FORCES
TO INSTALL
40' WOOD POLE
TEMP LIGHTING

13"X24"X18"
PULL BOX

2.5"PVC
AT CURB

13"X 24"X 24"
PULL BOX
STA.53+59.4'
CENTERED IN ISLAND
112

ENCLOSURE
T18N

N. 76TH ST. (STH 181)

2-2.5"PVC

2-2.5"PVC (SCH.80)
112 CONNECT TO EXISTING CONDUIT
EXTEND 3' EAST OF WEST CURB

1.5"PVC (SCH.40)
2.5"PVC (SCH.40)
COORDINIATE WORK 108
WITH STREET LIGHTING

2.5"PVC (SCH.80)
112 CONNECT TO
EXISTING PULL BOX

1.5"PVC
2.5"PVC

50 51 52 53 54 54"A" 55 55"A"

13"X24"X18"
PULL BOX

2-2.5"PVC
LOCATION
UNKNOWN

100 2.5"PVC (SCH.40)
3'EAST OF
WEST CURB

100 2.5"PVC (SCH.40)
3'EAST OF
WEST CURB

100 2.5"PVC (SCH.40)

13" X 24" X 24"
112 PULL BOX
STA. 53+52.1'
CENTERED IN MEDIAN

2.5"PVC
112 (SCH.80)

N. 76TH ST. (STH 181)

#6036
31'ALUM.
LIGHT POLE

2.5"PVC
AT CURB

#6056
31'ALUM.
LIGHT POLE

#6076
31'ALUM. LIGHT POLE
CITY FORCES TO REMOVE
POLE PRECONSTRUCTION
CITY FORCES TO INSTALL
NEW 31' ALUM. POLE
AT STA. 52+31.8'
CENTERED IN ISLAND

CITY FORCES TO INSTALL
35' WOOD POLE TEMP LIGHTING

2.5"PVC (SCH.40)
100 FROM PULL BOX
TO PULL BOX

13" X 24" X 24"
112 PULL BOX
STA. 53+52.1'

CITY FORCES
TO INSTALL
40' WOOD POLE
TEMP LIGHTING

2"PVC (SCH.40)
100 CONNECT TO EXISTING
2"PVC IN PARAPET

#6096
31'ALUM. LIGHT POLE
CITY FORCES TO
REMOVE POLE
PRECONSTRUCTION

CONTRACTOR TO GIVE
STREET LIGHTING A MINIMUM
OF 3 BUSINESS DAYS ADVANCE
NOTICE TO COORDINIATE
CONDUIT WORK FROM PULL BOX
TO NEW 31' ALUM. LIGHT POLE

INSTALLED BY CONTRACTOR
1.5" & 2.5" PVC (SCH.40) 108
FROM PULL BOX TO POLE

CITY FORCES TO
INSTALL NEW 31' ALUM. POLE
AT STA. 53+55.6'

2"PVC IN PARAPET

W. DOUGLAS AV.

#6122
30'ALUM.
LIGHT POLE ON BLISTER

2"PVC IN PARAPET

SHEET 1 OF 3

PROJECT NO: 2984–38–71	HWY: S.T.H. 181	COUNTY: MILWAUKEE	STREET LIGHTING CONDUIT PLAN	SHEET OF 43	E

FILE NAME : W:\bes\pavings\Bridge Work\2018 work\n76th St STH 181 (B–40–378) – Bridge over wDouglas Ave & UPRR\SL Conduit\Conduit Design.dgn
PLOT DATE : 30–JAN–2018 14:40
PLOT BY : cblack
PLOT NAME :
PLOT SCALE : 40.000000:1.000000
WISDOT/CADDS SHEET 42

2

2

CONDUIT DETAIL TO POLE

CONDUIT DETAIL TO POLE

CONDUIT DETAIL TO POLE

ATC OVERHEAD TRANSMISSION LINES

ATC OVERHEAD TRANSMISSION LINES

ATC TUNNEL

INSTALL 2" PVC (SCH.40) IN PARAPET SECTION THAT WILL BE REPLACED. CONNECT TO EXISTING 2" PVC

INSTALL 2" PVC (SCH.40) FROM LIGHT POLE BLISTER TO LARGEST POSSIBLE JUNCTION BOX IN PARAPET SEE CONDUIT DETAIL SHEET 6 OF 6

2"PVC IN PARAPET

2"PVC BACK OF WALK

100

INSTALL 2.5" PVC (SCH. 40) CONNECT TO EXSTING 2.5" PVC CONNECT TO EXISTING PULL BOX

2.5"PVC AT CURB

CITY FORCES TO INSTALL 35' WOOD POLE TEMP LIGHTING

13"X24"X18" PULL BOX

2.5"PVC

1.5'PVC (SCH.40)
2.5"PVC (SCH.40)
COORDINATE WORK WITH STREET LIGHTING 108

112 2.5"PVC (SCH.80) CONNECT TO EXISTING PVC

INSTALL 2.5"PVC (SCH.40)

CITY FORCES TO INSTALL 35' WOOD POLE TEMP LIGHTING

1.5"PVC (SCH.40)
2.5"PVC (SCH.40) 108
COORDINATE WORK WITH STREET LIGHTING

INSTALL 2.5"PVC (SCH.40)

2.5"PVC (SCH.40) CONNECTS TO EXISTING 2.5"PVC THAT RUNS FROM EXISTING PULL BOX 108

CITY FORCES TO INSTALL 35' WOOD POLE TEMP LIGHTING

ATC OVERHEAD TRANSMISSION LINES

N. 76TH ST. (STH 181)

55"A" 56 57"A" 57 58 59 60 61 62

13"X 24"X 24" PULL BOX STA.58+46.8' CENTERED IN MEDIAN 112

13"X 24"X 24" PULL BOX STA.53+59.4' CENTERED IN MEDIAN 112

108 2.5"PVC (SCH.40) FROM PULL BOX (BYPASSES POLE)

#6200 31'ALUM. LIGHT POLE

N. 76TH ST. (STH 181)

#6140 30'ALUM. LIGHT POLE ON BLISTER

100 INSTALL 2"PVC (SCH.40) CONNECT TO EXISTING 2"PVC IN PARAPET

13" X 24" X 24" PULL BOX AT STA. 57+40.9' 112

2.5"PVC AT CURB

#6160
31'ALUM. LIGHT POLE
CITY FORCES TO REMOVE POLE PRECONSTRUCTION

CONTRACTOR TO GIVE STREET LIGHTING A MINIMUM OF 3 BUSINESS DAYS ADVANCE NOTICE TO COORDINIATE CONDUIT WORK FROM PULL BOX TO NEW 31' ALUM. LIGHT POLE

INSTALLED BY CONTRACTOR 1.5" & 2.5" PVC (SCH.40) 108 FROM PULL BOX TO POLE

CITY FORCES TO INSTALL NEW 31' ALUM. POLE AT STA. 58+42.7', CENTERED IN MEDIAN

112 INSTALL 2.5"PVC (SCH.40) CONNECT TO EXISTING PVC

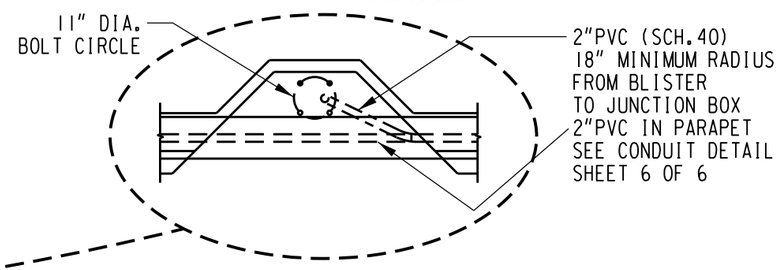
#6180
31'ALUM. LIGHT POLE
CITY FORCES TO REMOVE POLE PRECONSTRUCTION

CONTRACTOR TO GIVE STREET LIGHTING A MINIMUM OF 3 BUSINESS DAYS ADVANCE NOTICE TO COORDINIATE CONDUIT WORK FROM PULL BOX TO NEW 31' ALUM. LIGHT POLE

INSTALLED BY CONTRACTOR 1.5" & 2.5" PVC (SCH.40) 108 FROM PULL BOX TO POLE

CITY FORCES TO INSTALL NEW 31' ALUM. POLE AT STA. 59+55.8', CENTERED IN MEDIAN

BLISTER DETAIL



SHEET 2 OF 3

PROJECT NO: 2984-38-71	HWY: S.T.H. 181	COUNTY: MILWAUKEE	STREET LIGHTING CONDUIT PLAN	SHEET OF 44	E

FILE NAME : W:\bes\pavings\Bridge Work\2018 work\n76th St STH 181 (B-40-378) - Bridge over wDouglas Ave & UPRR\SL Conduit\Conduit Design.dgn
PLOT DATE : 30-JAN-2018 14:40
PLOT BY : cblack
PLOT NAME :
PLOT SCALE : 40.000000:1.000000
WISDOT/CADDS SHEET 42

2

2

WE ENERGIES
OVERHEAD LINES

2.5"PVC
AT CURB

#6243
31' ALUM.
LIGHT POLE

2.5"PVC
AT CURB

2.5"PVC

N. 76TH ST. (STH 181)

2.5"PVC

2.5"PVC

2.5"PVC

63 64 65 66 67 68

#6222
31' ALUM.
LIGHT POLE

#6242
31' ALUM.
LIGHT POLE

#6268
31' ALUM.
LIGHT POLE

#6288
31' ALUM.
LIGHT POLE

N. 76TH ST. (STH 181)

SHEET 3 OF 3

PROJECT NO: 2984–38–71	HWY: S.T.H. 181	COUNTY: MILWAUKEE	STREET LIGHTING CONDUIT PLAN	SHEET OF 45	E

TRAFFIC & STREET LIGHTING GENERAL NOTES:

PRIOR TO CONSTRUCTION, THE LOCATION OF UNDERGROUND UTILITIES SHALL BE DETERMINED IN THE FIELD BY CONTACTING "DIGGERS HOTLINE."

STREET LIGHTING & TRAFFIC SIGNALS SHALL BE INSTALLED IN COMPLIANCE WITH WISCONSIN DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS SECTION 652 EXCEPT:

THE CONTRACTOR IS RESPONSIBLE FOR ALL COSTS INCLUDING REPAIRS, REPLACEMENT OR RELOCATION ETC. OF STREET LIGHTING OR TRAFFIC SIGNAL FACILITIES IF THE CONTRACTOR DOES ANY DEVIATION FROM THE STREET LIGHTING OR TRAFFIC SIGNAL DESIGN WITHOUT THE STREET LIGHTING ENGINEERS SIGNED PERMISSION.

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

2 LOCATIONS OF THE PVC CONDUITS WHERE THEY ARE REQUIRED ARE IDENTIFIED IN THE PRINTS. HOWEVER, INSTALLATION MAY REQUIRE INTEGRATION WITH EXISTING FIELD CONDITIONS. APPROPRIATE ADJUSTMENT ON CONDUIT LOCATIONS MAY BE MADE IF THE FIELD CONDITIONS ARE SUCH THAT THE CONDUIT CANNOT BE INSTALLED AT THE SPECIFIED LOCATIONS. ANY RELOCATIONS MUST BE APPROVED BY THE ENGINEER. FIELD MARK EACH CONDUIT LOCATION BY STAMPING AND PAINTING WITH RED PAINT ON TOP AND BACKSIDE OF CURB.

3 TYPICAL CONDUIT INSTALLED UP TO DIRECT BURIED STREET LIGHT POLES IS AS FOLLOWS 3-INCH OR 2.5-INCH (AS NOTED) SCHEDULE 40 RIGID PVC TO STREET LIGHTING METAL HOUSING (PEDESTAL), THE 1.5-INCH SCHEDULE 40 RIGID PVC TO STREET LIGHT POLE CABLE SLOT, AND THE 2-INCH SCHEDULE 40 RIGID PVC TO SIGNAL STANDARD BASE AND RISER FOR TRAFFIC SIGNAL ON STREET LIGHT POLE.

4 DEPTH OF CONDUIT INSTALLED BELOW THE STREETS, HIGHWAYS, ROADS, AND ALLEYS SHALL BE 24-INCHES MINIMUM AND 36-INCHES MAXIMUM. (MEASURED FROM FINISHED FLANGE LINE)

5 CONDUIT INSTALLED BEHIND CURB, AND UNDER DRIVEWAYS SHALL BE INSTALLED AT THE BASE OF THE BACKSIDE OF THE CURB/GUTTER SECTION.

6 WHEN THERE IS MORE THAN ONE CONDUIT TO BE LAID BEHIND THE CURB, PLACE ALL CONDUITS IN THE SAME TRENCH.

7 ANY EXCEPTION TO THE MINIMUM OR MAXIMUM DEPTH SHALL BE ONLY WITH THE WRITTEN APPROVAL OF THE ENGINEER.

8 THE CONTRACTOR OR HIS SUBCONTRACTOR MUST MAKE SURE THE AREA BEHIND CURB AND/OR WITHIN TRENCH SHALL BE FREE OF DEBRIS AND OVERPOUR AND SHALL NOT BE BACKFILLED PRIOR TO INSPECTION OF THE CONDUIT.

9 BENDING OF PVC ELECTRICAL CONDUIT SHALL BE ACCOMPLISHED BY USING A BLANKET OR EMERSION TYPE TANK DESIGNED FOR THE PURPOSE OF BENDING PVC ELECTRICAL CONDUIT.

10 ALL CUT ENDS SHALL BE TRIMMED INSIDE AND OUTSIDE TO REMOVE ALL ROUGH EDGES ON ALL CONDUITS. (SEE NEC 352.28 2008 CODE)

11 PRIOR TO CONDUIT ACCEPTANCE, ALL CONDUIT ENDS SHALL BE THOROUGHLY CLEANED AND BE CAPPED IMMEDIATELY AFTER INSTALLATION WITH THE APPROPRIATE CAST PLASTIC CAP WHICH FITS SNUGGLY ON THE CONDUIT, BUT EASILY REMOVED IN THE FUTURE. DUCT TAPE OR ANY OTHER CAPPING METHOD IS NOT ACCEPTABLE.

12 ALL CONDUIT BEING FURNISHED AND INSTALLED SHALL HAVE THE U.L. LABEL FIRMLY ATTACHED.

13 CONDUIT RUNS SHALL BE THE SAME SIZE PIPE FROM ONE END TO THE OTHER (FROM PULL BOX TO PULL BOX OR JUNCTION BOX OR BASE TO BASE, ETC.).

14 PULL ROPE (3/8-INCH NYLON) SHALL BE INSTALLED IN ALL NEW CONDUIT.

15 ALL CONDUIT RUNS SHALL BE STRAIGHT (WITHOUT BENDS) FROM PULL BOX TO PULL BOX, PULL BOX TO BASE AND BASE TO BASE AS SHOWN ON THE PLANS UNLESS OTHERWISE APPROVED BY THE STREET LIGHTING ENGINEER.

16 WHEN ENDS OF CONDUIT DO NOT CONNECT TO A VAULT AND WILL END UP UNDER CONCRETE WALK. THE CONTRACTOR IS REQUIRED TO LEAVE A 24" X 24" BOX FORM CENTERED OVER THE END OF CONDUIT AND FILL THE BOXFORM WITH CRUSHED GRAVEL. (PER WISDOT SPEC 209.2.1(1) GRANULAR BACKFILL)

17 ALL PIPE CROSSINGS AND VAULTS SHALL BE AT LEAST SIX (6) FEET AWAY FROM FIRE HYDRANTS, UNLESS NOTED OTHERWISE, OR APPROVED BY THE STREET LIGHTING ENGINEER.

18 ALL POLES AND TRAFFIC STANDARDS IN CONCRETE ARE REQUIRED TO HAVE A 30"X30" BOX SHAPED JOINT PLACED AROUND THEM USING AN EXPANSION JOINT FILLER. UNLESS NOTED OTHERWISE (SEE DETAIL 122)

19 TYPICAL RECTANGULAR VAULTS SHOULD BE INSTALLED AS SHOWN ON PLANS, BUT WHEN IT IS NOT POSSIBLE, A 5 FT. TO 6 FT. OFFSET FROM STREET LIGHT POLES, SIGNAL STANDARDS AND FIRE HYDRANTS SHOULD BE USED, OTHERWISE APPROVED BY THE STREET LIGHTING ENGINEER.

20 COORDINATE NEW CONDUIT CONNECTIONS WITH EXISTING CONDUIT, DUCT PACKAGES, AND VAULTS/ MANHOLES WITH CITY OF MILWAUKEE STREET LIGHTING. THE CITY REQUIRES THREE WORKING DAYS ADVANCED NOTICE. CONTACT ELECTRICAL SUPERVISOR
STREET LIGHTING - DENNIS MILLER (OFFICE) 414-286-5942 (CELL) 414-708-4251 OR DISPATCHER @ 414-286-5944
TRAFFIC SIGNALS - AL NICHOLS (OFFICE) 414-286-3687 (CELL) 414-708-5148 OR DISPATCHER @ 414-286-3687

21 IMMEDIATELY AFTER THE CONTRACTOR HAS COMPLETED ALL THE ELECTRICAL VAULT, CONDUIT AND CONDUIT CONNECTIONS, AND JUST BEFORE ELECTRICAL WORK IS COVERED UP WITH CONRETE, SOIL, OR ETC. THE CONTRACTOR IS REQUIRED TO CONTACT THE CITY OF MILWAUKEE ELECTRICAL SHOP SUPERVISORS FOR FINAL INSPECTION AND APPROVAL OF ALL WORK.
STREET LIGHTING - DENNIS MILLER (OFFICE) 414-286-5942 (CELL) 414-708-4251
STREET LIGHTING - MARK MACRAE (OFFICE) 414-286-5928 (CELL) 414-708-0434
STREET LIGHTING - NEAL KARWEIK (OFFICE) 414-286-5943 (CELL) 414-708-4245
STREET LIGHTING - THOMAS HUGHES (OFFICE) 414-286-3457 (CELL) 414-708-3175
STREET LIGHTING - DISPATCHER @ 414-286-5944
TRAFFIC SIGNALS - AL NICHOLS (OFFICE) 414-286-3687 (CELL) 414-708-5148
TRAFFIC SIGNALS - DISPATCHER @ 414-286-3687

22 CONDUIT WILL ONLY BE INSTALLED AFTER THE CURB IS POURED, UNLESS APPROVED BY BOTH THE ENGINEER & STREET LIGHTING SHOP SUPERVISOR.

23 CONDUIT END CAPS REQUIRED ON ALL EMPTY CONDUIT.

24 CONTRACTOR IS REQUIRED TO CONTACT THE CITY OF MILWAUKEE ELECTRICAL SERVICES FOR FINAL INSPECTION AND APPROVAL OF ALL ELECTRICAL WORK BEFORE ANY MATERIALS ARE COVERED UP OR BACKFILLED.

25 ALL PURPOSE ANTISEIZE (OR EQUIV) TO BE APPLIED ON ALL BOLTS AND SCREWS ESPECIALLY THE LIGHT POLE HAND HOLE PANEL. OXIDE INHIBITOR OX-4 (OR EQUIV) TO BE APPLIED ON ALL WIRE CONNECTION AND WIRE NUTS. TAG ALL CABLE DIRECTION IN VAULT AND HAND HOLE PANEL.

26 Provide three sets as-built drawings detailing the final placement of conduit, cabling, equipment, and geometric modifications under the contract. Provide PDF copy conforming to CMM 1-65.14, or record all changes in Red ink Only on the As-Let (Design) paper drawings. The City will reject as-builts with incomplete or incorrect content or not conforming to CMM standards.

As-Built Guidelines:

< Locate and clearly label all conduit runs, fittings, splice vaults, pull boxes, meter pedestals, concrete bases, transformers, poles and other appurtenances in two directions. Swing ties should be made from objects that are permanent in nature and visible on the finished surface.
< Street names shall be on all sheets.
< Show all sizes and material types of pipes and conduits, if changed or modified from original design.
< All horizontal distances shall be shown to the nearest tenth of a foot (i.e., 205.3'). All vertical distances shall be shown to the nearest inch (i.e., 24").
< Show location and elevations on pipes and fittings where changes or deflections in direction occur.
< Special detail drawings may be required where installations are not shown on approved construction drawings for whatever reason or where required for clarity.
< Typical service installation details with deviations from original plans or standard details shall be noted on as-built drawings.
< No arbitrary mark-ups will be permitted.

If there are no corrections or additions to the As-Let plan(s) put "NO CHANGE" on the sheet with other required As-Built information.

Send to:
City of Milwaukee
Infrastructure Services Division
Transportation Section
Street Lighting & CUC Manager
841 N. Broadway (Room 920)
Milwaukee, WI. 53202

UTILITY LINE CODE

SAN	SANITARY SEWER
STO	STORM SEWER
W	WATER
G	GAS
6	PROPOSED GAS
E	ELECTRIC
TE&ES	TRAFFIC & STREET LIGHTING
	OLD CITY UNDERGROUND CONDUIT
CUC	PROPOSED CITY UNDERGROUND CONDUIT
T	TELEPHONE
TV	CABLE

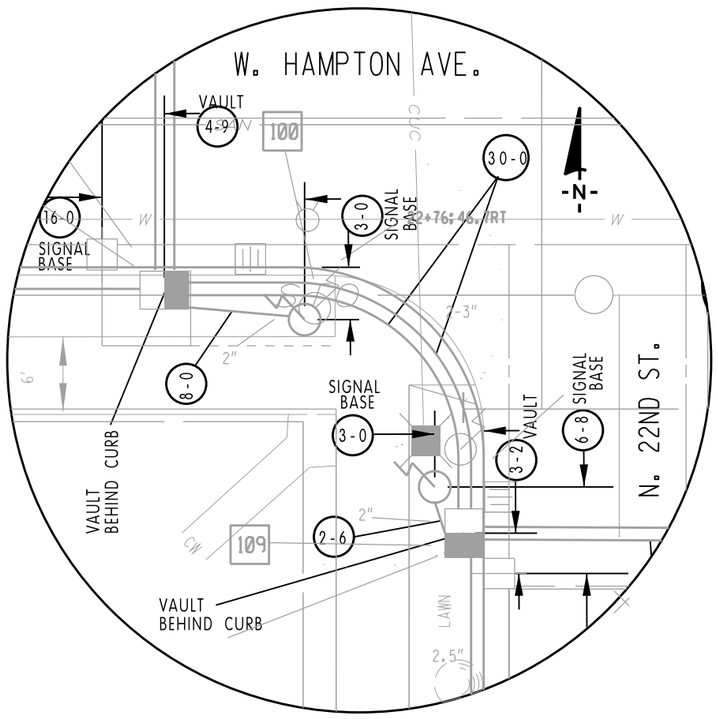
SHEET 1 OF 6

PROJECT NO: 2984–38–71	HWY: S.T.H. 181	COUNTY: MILWAUKEE	STREET LIGHTING CONDUIT DETAILS	SHEET 46 OF	E

RECORD RETENTION REQUIREMENTS:

- CONTRACTOR TO LOCATE AND CLEARLY DIMENSION ALL OF THERE NEWLY INSTALLED CONDUIT RUNS, FITTINGS, SPLICE VAULTS, PULL BOXES, METER PEDESTALS, CONCRETE BASES, TRANSFORMERS, POLES AND OTHER APPURTENANCES IN TWO (2) DIRECTIONS. SWING TIES SHOULD BE MADE FROM OBJECTS THAT ARE PERMANENT IN NATURE AND VISIBLE ON THE FINISHED SURFACE.
- STREET NAMES SHALL BE ON ALL SHEETS.
- SHOW ALL SIZES AND MATERIAL TYPES OF PIPES AND CONDUITS, IF CHANGED OR MODIFIED FROM ORGINAL DESIGN.
- ALL HORIZONTAL DISTANCES SHALL BE SHOWN TO THE NEAREST TENTH OF A FOOT (I.E., 205.3'). ALL VERTICAL DISTANCES SHALL BE SHOWN TO THE NEAREST INCH (I.E. 24").
- SHOW LOCATION AND ELEVATIONS OF PIPES AND FITTINGS WHERE CHANGES OR DEFLECTIONS IN DIRECTION OCCUR.
- SPECIAL DETAIL DRAWINGS WILL BE SUPPLIED WHERE REQUIRED FOR CLARITY.
- DEVIATIONS FROM ORIGINAL PLANS OR STANDARD DETAILS SHALL BE NOTED ON AS-BUILT DRAWINGS.
- IF THERE ARE NO CORRECTIONS OR ADDITIONS TO THE AS-LET PLAN(S) PUT "NO CHANGE" ON THE SHEET.

SUPERVISOR:_____
PROJECT MANAGER:_____
CONTRACTOR LEADER:_____
CONTRACTOR COMPANY:_____
WORK STARTED:_____
WORK COMPLETED:_____



FIELD RECORD EXAMPLE DETAIL NOT TO SCALE

TYPICAL DIMENSIONING OF CONDUIT, VAULTS, AND CONCRETE BASES

MEASURING GUIDE LINES

IF CONDUIT IS NOT PLACED DIRECTLY BEHIND THE CURB IN THE ISLANDS & SIDE TERRACE AREAS, A MEASURED DISTANCE FROM THE FACE OF CURB TO THE CONDUIT WILL NEED TO BE PROVIDED.

PROVIDE A MEASURED DISTANCE OF UNINTERRUPTED CONDUIT RUNS

USE PERMANENT OBJECTS LIKE HYDRANTS, CATCH BASINS, OR EVEN CURB FACE LINES EXTENED TO MEASURE OFF WHEN LOCATING CONDUIT, VAULTS AND CONCRETE BASES.

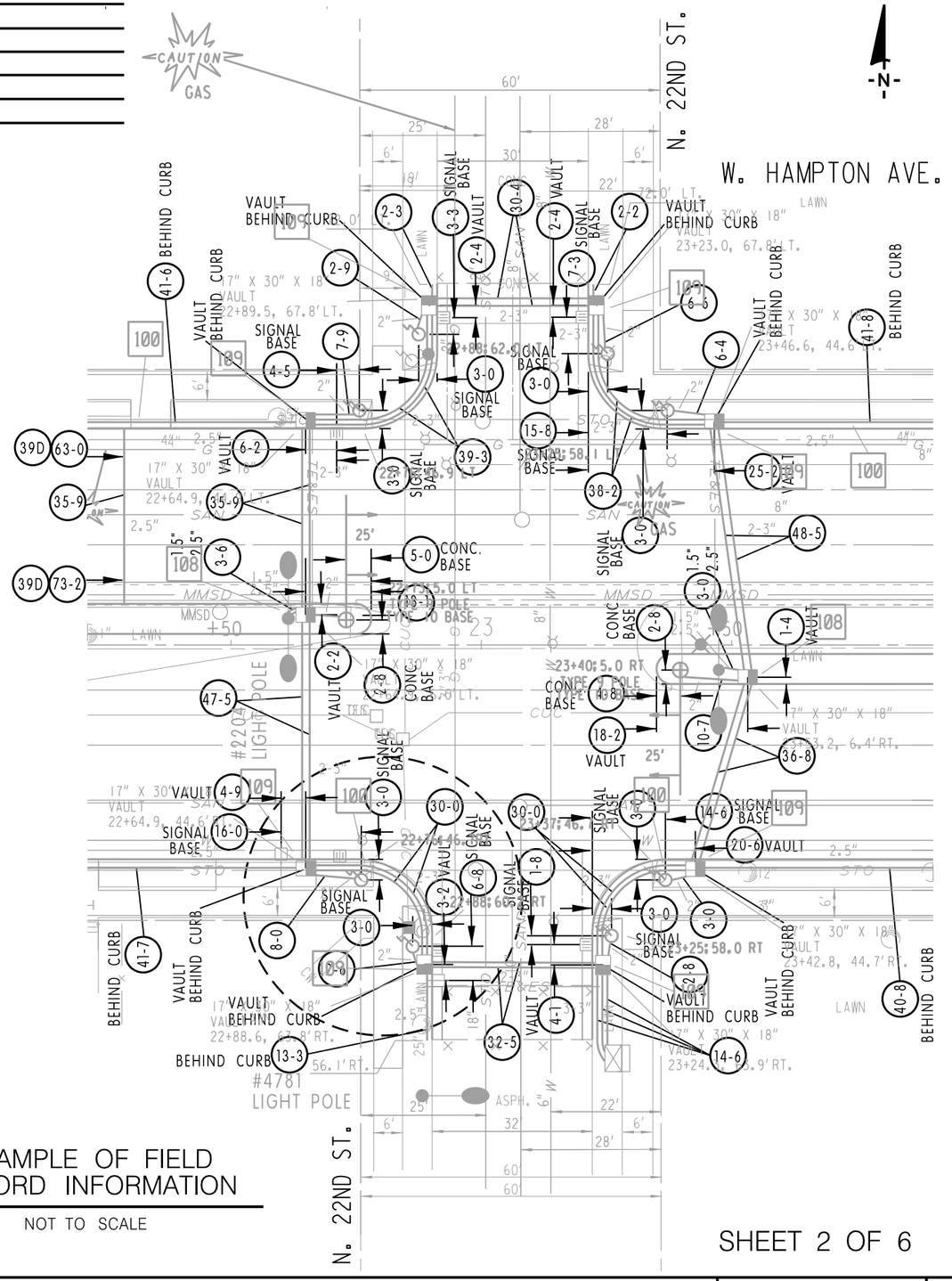
MEASURE TO OR FROM THE CENTERS OF OBJECTS FOR DISTANCE TAKING.

(39D) MEANS = CONDUIT IS 39" DEEP

(48-5) MEANS = LENGTH OF CONDUIT IS 48.5 FT. LONG (MEASURED TO NEAREST TENTH OF A FOOT)

OR

(25-6) MEANS = DISTANCE OF 25.6 FT. BETWEEN PERMANENT OBJECT OR CURB FACE TO CONDUIT, VAULT, AND CONCRETE BASE (MEASURED TO NEAREST TENTH OF A FOOT)



EXAMPLE OF FIELD RECORD INFORMATION

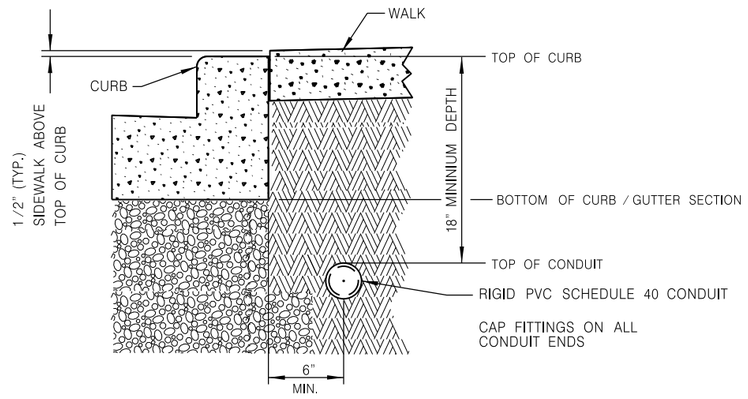
NOT TO SCALE

SHEET 2 OF 6

PROJECT NO: 2984–38–71	HWY: S.T.H. 181	COUNTY: MILWAUKEE	STREET LIGHTING CONDUIT DETAILS	SHEET OF 47	E

2

NOTE: 1.) KEEP AREA BEHIND CURB FREE OF DEBRIS AND CONCRETE OVERPOUR.
2.) CONDUIT TO BE PLACED 6 INCHES ON CENTER DIRECTLY BEHIND CURB, UNLESS NOTED OR APPROVED BY ENGINEER.



100 DETAIL "A"

NOT TO SCALE

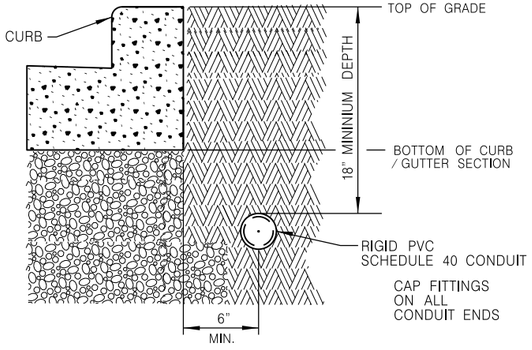
TYPICAL CONDUIT INSTALLATION
BEHIND CURB

ANY DEVIATIONS FROM DETAIL WILL REQUIRE PERMISSION FROM STREET LIGHTING FORCES.
CONTACT DISPATCHER AT (414) 286–5944 FOR THE APPROPRIATE SHOP SUPERVISOR.

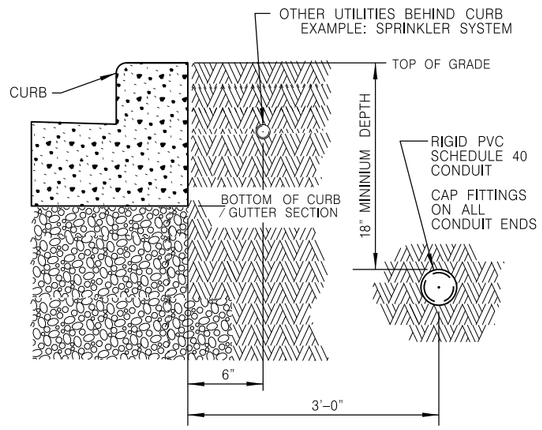
NOTE: 1.) KEEP AREA BEHIND CURB FREE OF DEBRIS AND CONCRETE OVERPOUR.

DETAIL "B"

CONDUIT TO BE PLACED 6" ON CENTER DIRECTLY BEHIND CURB,
UNLESS NOTED OR APPROVED BY ENGINEER.



DETAIL "C"

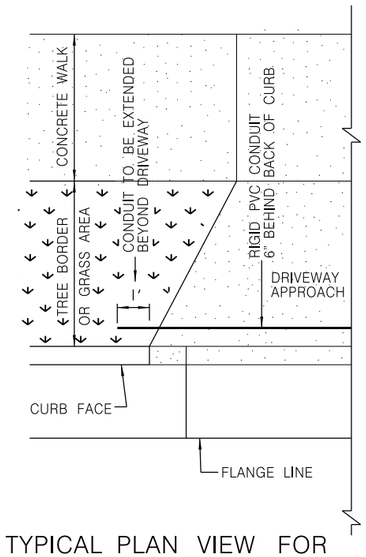


100 DETAIL "B" & "C"

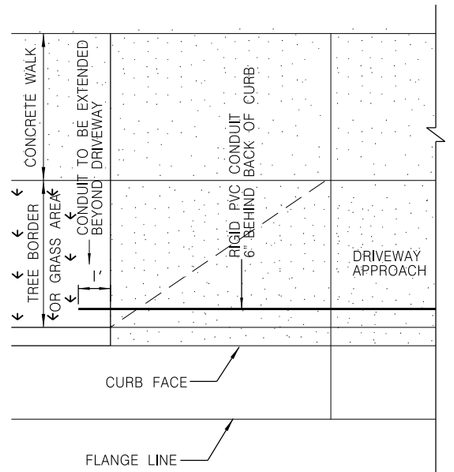
NOT TO SCALE

TYPICAL CONDUIT INSTALLATION
BEHIND CURB

ANY DEVIATIONS FROM DETAIL WILL REQUIRE PERMISSION FROM STREET LIGHTING FORCES.
CONTACT DISPATCHER AT (414) 286–5944 FOR THE APPROPRIATE SHOP SUPERVISOR.

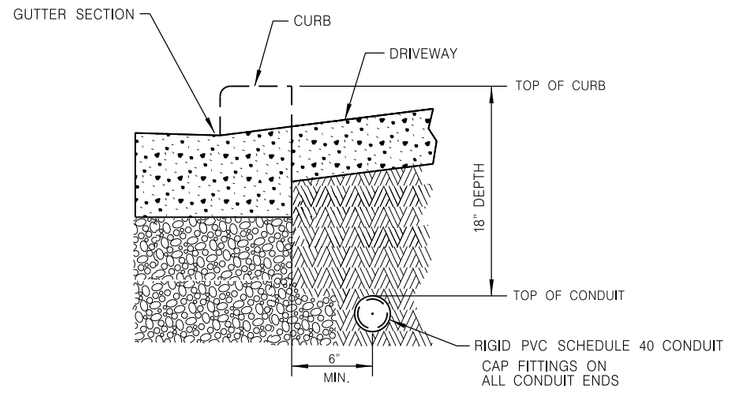


TYPICAL PLAN VIEW FOR
FLARED DRIVEWAY



TYPICAL PLAN VIEW FOR
DEPRESSED DRIVEWAY

NOTE: 1.) KEEP AREA BEHIND CURB FREE OF DEBRIS AND CONCRETE OVERPOUR.
2.) CONDUIT TO BE PLACED 6 INCHES ON CENTER DIRECTLY BEHIND CURB, UNLESS NOTED OR APPROVED BY ENGINEER.



101 DETAIL

NOT TO SCALE

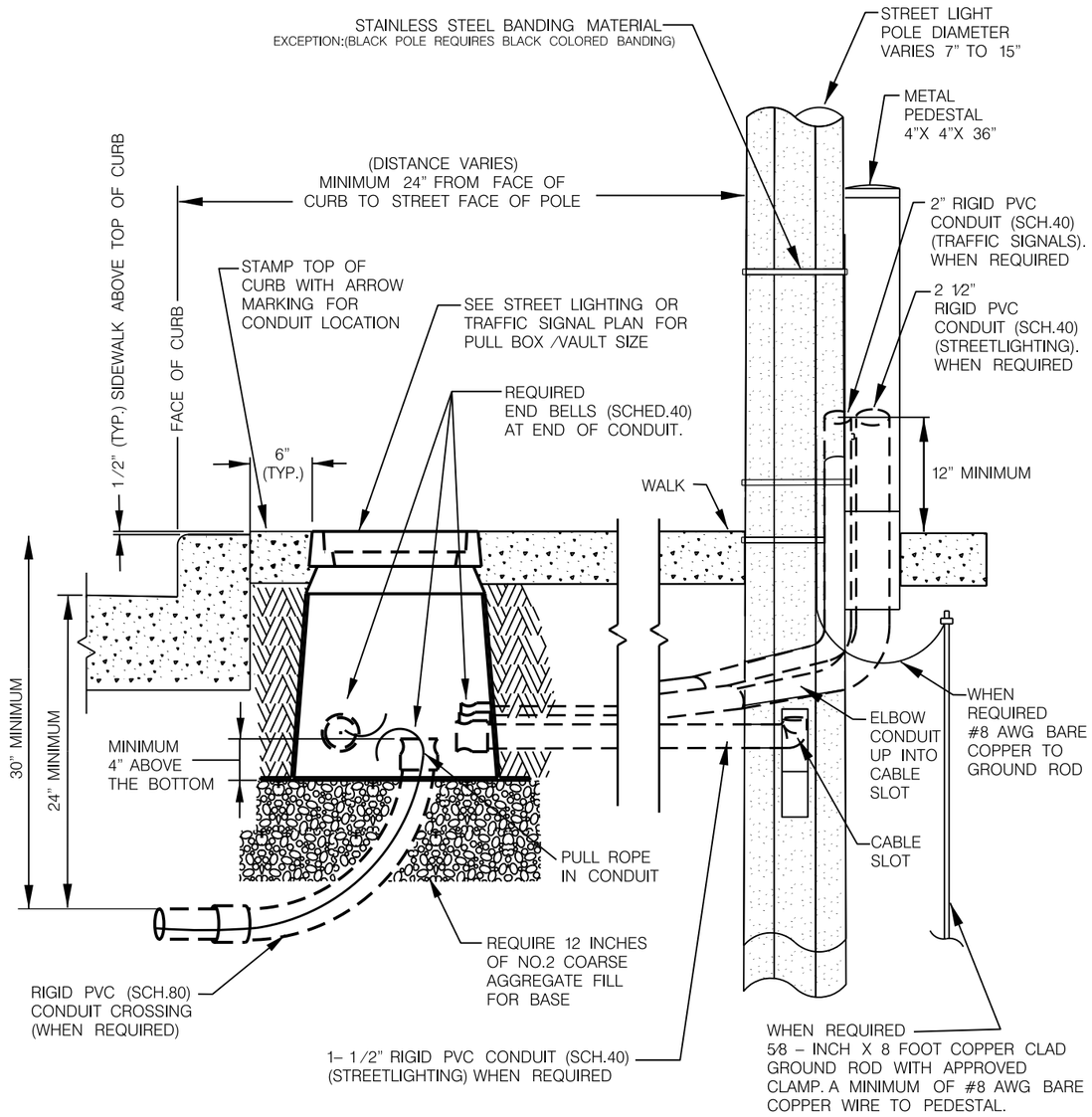
TYPICAL CONDUIT INSTALLATION
UNDER DRIVEWAYS OR PEDESTRIAN RAMPS

ANY DEVIATIONS FROM DETAIL WILL REQUIRE PERMISSION FROM STREET LIGHTING FORCES.
CONTACT DISPATCHER AT (414) 286–5944 FOR THE APPROPRIATE SHOP SUPERVISOR.

SHEET 3 OF 6

PROJECT NO: 2984–38–71	HWY: S.T.H. 181	COUNTY: MILWAUKEE	STREET LIGHTING CONDUIT DETAILS	SHEET OF 48	E

2



108

DETAIL VERSION

TYPICAL CONDUIT INSTALLATION FROM PULL BOX / VAULT TO POLE

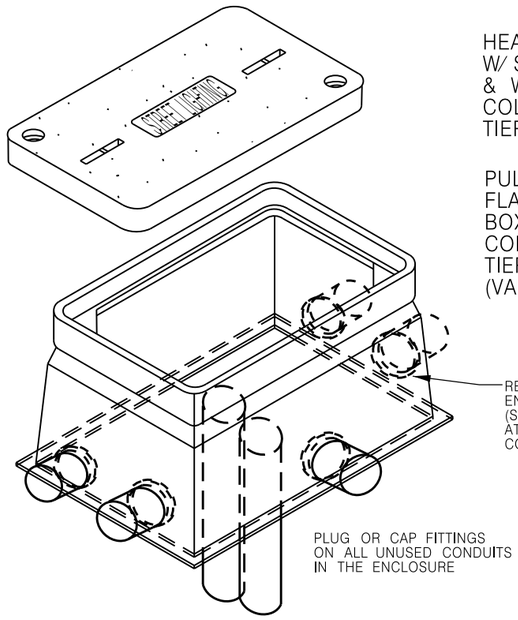
ANY DEVIATIONS FROM DETAIL WILL REQUIRE PERMISSION FROM STREET LIGHTING FORCES. CONTACT DISPATCHER AT (414) 286-5944 FOR THE APPROPRIATE SHOP SUPERVISOR.

NOT TO SCALE

PROJECT NO: 2984-38-71	HWY: S.T.H. 181	COUNTY: MILWAUKEE	STREET LIGHTING CONDUIT DETAILS	SHEET OF 49	E

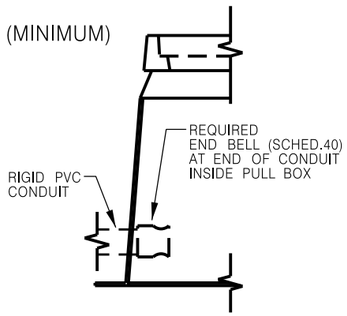
FILE NAME : W:\bes\pavings\Bridge Work\2018 work\n76th St STH 181 (B-40-378) - Bridge over wDouglas Ave & UPRR\SL Conduit\Conduit Details.dgn PLOT DATE : 30-JAN-2018 14:40 PLOT BY : cblack PLOT NAME : PLOT SCALE :
WISDOT/CADDS SHEET 42

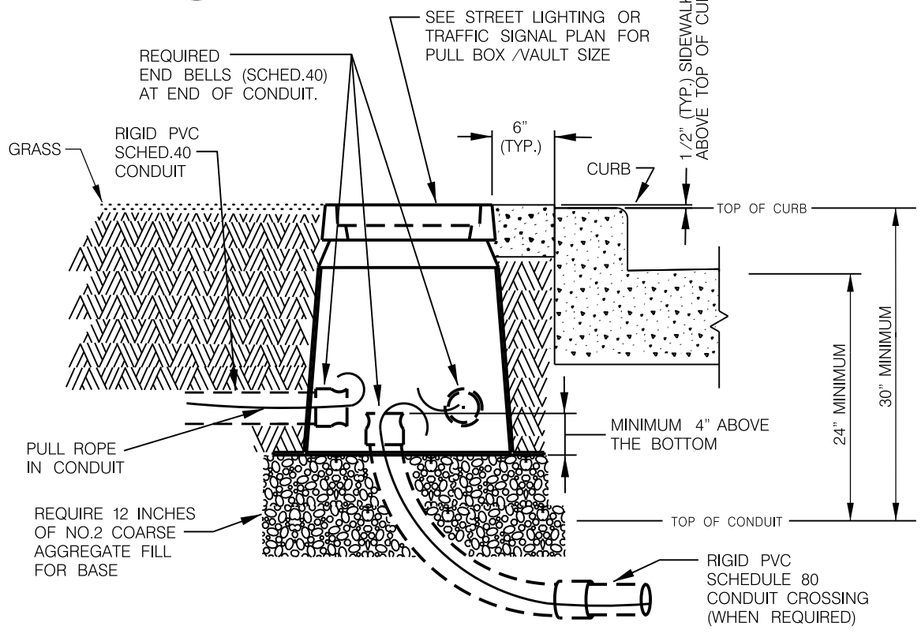
2



HEAVY DUTY COVER
W/ STREETLIGHTING LOGO
& W / 2 BOLTS
COLOR: GRAY
TIER 15 RATING (MINIMUM)

PULL BOX /VAULT
FLARED WALL
BOX W / NO BASE
COLOR: GRAY
TIER 15 RATING (MINIMUM)
(VARIOUS SIZES)





112 DETAIL

TYPICAL PULL BOX /VAULT INSTALLATION
IN EITHER PAVEMENT OR GRASS AREAS

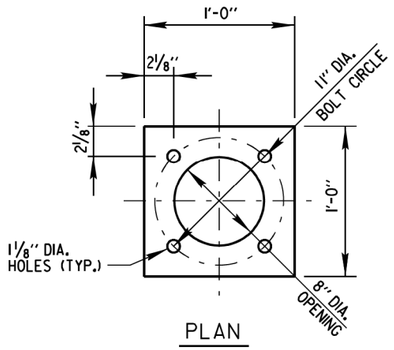
ANY DEVIATIONS FROM DETAIL WILL REQUIRE PERMISSION FROM STREET LIGHTING FORCES.
CONTACT DISPATCHER AT (414) 286-5944 FOR THE APPROPRIATE SHOP SUPERVISOR.

NOT TO SCALE

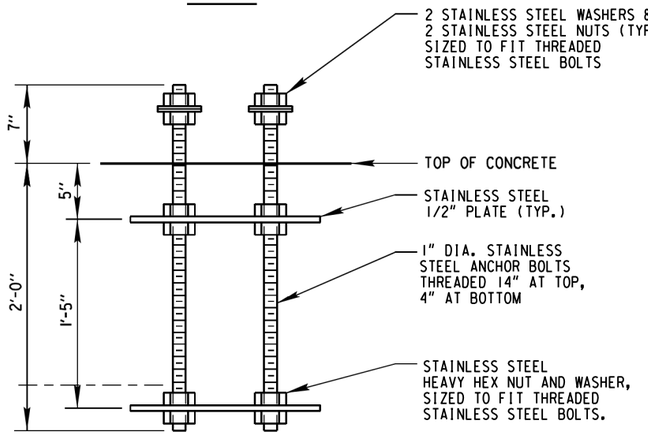
SHEET 5 OF 6

PROJECT NO: 2984-38-71	HWY: S.T.H. 181	COUNTY: MILWAUKEE	STREET LIGHTING CONDUIT DETAILS	SHEET OF 50	E

2

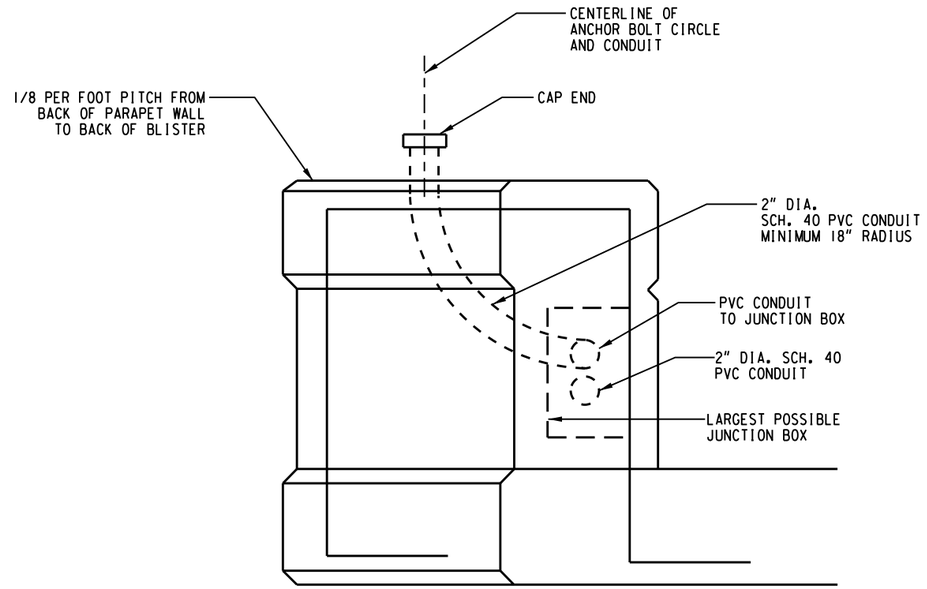


PLAN



ELEVATION

ANCHOR ASSEMBLY LIGHT POLE STRUCTURES



SECTION

WEST PARAPET WALL AND BLISTER

LOOKING NORTH

SHEET 6 OF 6

PROJECT NO: 2984–38–71	HWY: S.T.H. 181	COUNTY: MILWAUKEE	STREET LIGHTING CONDUIT DETAILS	SHEET OF 51	E

2984-38-71

Line	Item	Item Description	Unit	Total	Qty
0002	203.0200	Removing Old Structure (station) 01. 55+42	LS	1.000	1.000
0004	203.0225.S	Debris Containment (structure) 01. B-40-579	LS	1.000	1.000
0006	203.0225.S	Debris Containment (structure) 02. B-40-580	LS	1.000	1.000
0008	203.0225.S	Debris Containment (structure) 03. B-40-378	LS	1.000	1.000
0010	204.0100	Removing Pavement	SY	863.000	863.000
0012	204.0150	Removing Curb & Gutter	LF	1,445.000	1,445.000
0014	204.0155	Removing Concrete Sidewalk	SY	229.000	229.000
0016	204.0165	Removing Guardrail	LF	41.000	41.000
0018	204.9105.S	Removing (item description) 01. (Loop Detector wire & Lead-in Cable) .01 IH 43 & Silver Spring Drive	LS	1.000	1.000
0020	205.0100	Excavation Common	CY	470.000	470.000
0022	211.0200	Prepare Foundation for Concrete Pavement (project) 01. 2984-38-71	LS	1.000	1.000
0024	213.0100	Finishing Roadway (project) 01. 2984-38-71	EACH	1.000	1.000
0026	305.0120	Base Aggregate Dense 1 1/4-Inch	TON	650.000	650.000
0028	310.0110	Base Aggregate Open-Graded	TON	11.000	11.000
0030	415.0100	Concrete Pavement 10-Inch	SY	240.000	240.000
0032	415.0410	Concrete Pavement Approach Slab	SY	583.000	583.000
0034	416.0610	Drilled Tie Bars	EACH	28.000	28.000
0036	416.0620	Drilled Dowel Bars	EACH	115.000	115.000
0038	455.0605	Tack Coat	GAL	50.000	50.000
0040	460.2000	Incentive Density HMA Pavement	DOL	100.000	100.000
0042	460.6224	HMA Pavement 4 MT 58-28 S	TON	150.000	150.000
0044	465.0125	Asphaltic Surface Temporary	TON	150.000	150.000
0046	502.0100	Concrete Masonry Bridges	CY	4.000	4.000
0048	502.3100	Expansion Device (structure) 01. B-40-378	LS	1.000	1.000
0050	502.3200	Protective Surface Treatment	SY	6,590.000	6,590.000
0052	502.3210	Pigmented Surface Sealer	SY	395.000	395.000
0054	502.4204	Adhesive Anchors No. 4 Bar	EACH	40.000	40.000
0056	502.4205	Adhesive Anchors No. 5 Bar	EACH	174.000	174.000
0058	502.4206	Adhesive Anchors No. 6 Bar	EACH	88.000	88.000
0060	505.0600	Bar Steel Reinforcement HS Coated Structures	LB	6,640.000	6,640.000
0062	505.0904	Bar Couplers No. 4	EACH	36.000	36.000
0064	505.0905	Bar Couplers No. 5	EACH	12.000	12.000
0066	505.0906	Bar Couplers No. 6	EACH	40.000	40.000
0068	509.0310.S	Sawing Pavement Deck Preparation Areas	LF	100.000	100.000
0070	509.0351	Preparation Decks Type 1	SY	38.000	38.000
0072	509.0352	Preparation Decks Type 2	SY	9.000	9.000
0074	509.0500	Cleaning Decks	SY	5,287.000	5,287.000
0076	509.1050	Joint Repair	SY	77.000	77.000

2984-38-71

Line	Item	Item Description	Unit	Total	Qty
0078	509.1250	Curb Repair	LF	2.000	2.000
0080	509.1500	Concrete Surface Repair	SF	22.000	22.000
0082	509.2050	Full-Depth Deck Repair	SY	3.000	3.000
0084	509.2550	Concrete Masonry Overlay Decks	SY	5,287.000	5,287.000
0086	517.1800.S	Structure Repainting Recycled Abrasive (structure) 01. B-40-378	LS	1.000	1.000
0088	517.3000.S	Structure Overcoating Cleaning and Priming (structure) 01. B-40-378	LS	1.000	1.000
0090	517.4000.S	Containment and Collection of Waste Materials (structure) 01. B-40-378	LS	1.000	1.000
0092	517.4500.S	Negative Pressure Containment and Collection of Waste Materials (structure) 01. B-40-378	LS	1.000	1.000
0094	517.6001.S	Portable Decontamination Facility	EACH	1.000	1.000
0096	601.0331	Concrete Curb & Gutter 31-Inch	LF	277.000	277.000
0098	601.0405	Concrete Curb & Gutter 18-Inch Type A	LF	85.000	85.000
0100	601.0407	Concrete Curb & Gutter 18-Inch Type D	LF	1,090.000	1,090.000
0102	601.0409	Concrete Curb & Gutter 30-Inch Type A	LF	50.000	50.000
0104	601.0411	Concrete Curb & Gutter 30-Inch Type D	LF	70.000	70.000
0106	602.0410	Concrete Sidewalk 5-Inch	SF	2,130.000	2,130.000
0108	606.0200	Riprap Medium	CY	35.000	35.000
0110	611.0430	Reconstructing Inlets	EACH	4.000	4.000
0112	611.8110	Adjusting Manhole Covers	EACH	1.000	1.000
0114	611.8115	Adjusting Inlet Covers	EACH	2.000	2.000
0116	611.8120.S	Cover Plates Temporary	EACH	4.000	4.000
0118	614.2300	MGS Guardrail 3	LF	14.000	14.000
0120	614.2310	MGS Guardrail 3 HS	LF	25.000	25.000
0122	614.2620	MGS Guardrail Terminal Type 2	EACH	1.000	1.000
0124	619.1000	Mobilization	EACH	1.000	1.000
0126	624.0100	Water	MGAL	8.000	8.000
0128	625.0100	Topsoil	SY	237.000	237.000
0130	625.0500	Salvaged Topsoil	SY	65.000	65.000
0132	628.1504	Silt Fence	LF	110.000	110.000
0134	628.1520	Silt Fence Maintenance	LF	110.000	110.000
0136	628.1905	Mobilizations Erosion Control	EACH	6.000	6.000
0138	628.1910	Mobilizations Emergency Erosion Control	EACH	5.000	5.000
0140	628.7015	Inlet Protection Type C	EACH	4.000	4.000
0142	628.7020	Inlet Protection Type D	EACH	23.000	23.000
0144	629.0210	Fertilizer Type B	CWT	0.400	0.400
0146	631.0300	Sod Water	MGAL	7.500	7.500
0148	631.1000	Sod Lawn	SY	302.000	302.000
0150	634.0410	Posts Wood 4x4-Inch X 10-FT	EACH	1.000	1.000

2984-38-71

Line	Item	Item Description	Unit	Total	Qty
0152	642.5001	Field Office Type B	EACH	1.000	1.000
0154	643.0300	Traffic Control Drums	DAY	22,216.000	22,216.000
0156	643.0410	Traffic Control Barricades Type II	DAY	18.000	18.000
0158	643.0420	Traffic Control Barricades Type III	DAY	4,970.000	4,970.000
0160	643.0500	Traffic Control Flexible Tubular Marker Posts	EACH	70.000	70.000
0162	643.0600	Traffic Control Flexible Tubular Marker Bases	EACH	70.000	70.000
0164	643.0705	Traffic Control Warning Lights Type A	DAY	8,562.000	8,562.000
0166	643.0715	Traffic Control Warning Lights Type C	DAY	7,440.000	7,440.000
0168	643.0800	Traffic Control Arrow Boards	DAY	315.000	315.000
0170	643.0900	Traffic Control Signs	DAY	20,531.000	20,531.000
0172	643.0910	Traffic Control Covering Signs Type I	EACH	3.000	3.000
0174	643.0920	Traffic Control Covering Signs Type II	EACH	24.000	24.000
0176	643.1000	Traffic Control Signs Fixed Message	SF	500.500	500.500
0178	643.1050	Traffic Control Signs PCMS	DAY	20.000	20.000
0180	643.5000	Traffic Control	EACH	1.000	1.000
0182	644.1420.S	Temporary Pedestrian Surface Plywood	SF	25.000	25.000
0184	644.1601.S	Temporary Curb Ramp	EACH	4.000	4.000
0186	644.1616.S	Temporary Pedestrian Safety Fence	LF	2,255.000	2,255.000
0188	646.1020	Marking Line Epoxy 4-Inch	LF	375.000	375.000
0190	646.1545	Marking Line Grooved Wet Ref Contrast Epoxy 4-Inch	LF	1,580.000	1,580.000
0192	646.3545	Marking Line Grooved Wet Ref Contrast Epoxy 8-Inch	LF	85.000	85.000
0194	646.9000	Marking Removal Line 4-Inch	LF	1,580.000	1,580.000
0196	646.9100	Marking Removal Line 8-Inch	LF	85.000	85.000
0198	649.0105	Temporary Marking Line Paint 4-Inch	LF	3,890.000	3,890.000
0200	649.0150	Temporary Marking Line Removable Tape 4-Inch	LF	19,850.000	19,850.000
0202	649.0960	Temporary Marking Removable Mask Out Tape 6-Inch	LF	280.000	280.000
0204	650.8500	Construction Staking Electrical Installations (project) 01. 2984-38-71	LS	1.000	1.000
0206	652.0220	Conduit Rigid Nonmetallic Schedule 40 1 1/2-Inch	LF	36.000	36.000
0208	652.0225	Conduit Rigid Nonmetallic Schedule 40 2-Inch	LF	118.000	118.000
0210	652.0230	Conduit Rigid Nonmetallic Schedule 40 2 1/2-Inch	LF	570.000	570.000
0212	652.0330	Conduit Rigid Nonmetallic Schedule 80 2 1/2-Inch	LF	115.000	115.000
0214	652.0800	Conduit Loop Detector	LF	242.000	242.000
0216	653.0222	Junction Boxes 18x12x6-Inch	EACH	2.000	2.000
0218	655.0700	Loop Detector Lead In Cable	LF	474.000	474.000
0220	655.0800	Loop Detector Wire	LF	534.000	534.000
0222	657.6005	Anchor Assemblies Light Poles on Structures	EACH	2.000	2.000
0224	690.0150	Sawing Asphalt	LF	1,200.000	1,200.000
0226	690.0250	Sawing Concrete	LF	282.000	282.000
0228	715.0415	Incentive Strength Concrete Pavement	DOL	500.000	500.000

2984-38-71

Line	Item	Item Description	Unit	Total	Qty
0230	715.0502	Incentive Strength Concrete Structures	DOL	500.000	500.000
0232	801.0117	Railroad Flagging Reimbursement	DOL	32,000.000	32,000.000
0234	ASP.1T0A	On-the-Job Training Apprentice at $5.00/HR	HRS	1,000.000	1,000.000
0236	ASP.1T0G	On-the-Job Training Graduate at $5.00/HR	HRS	1,250.000	1,250.000
0238	SPV.0060	Special 01. Remove, Salvage, and Reinstall Sign	EACH	2.000	2.000
0240	SPV.0060	Special 02. Bearing Seat Repair	EACH	2.000	2.000
0242	SPV.0060	Special 302. Fiberglass/Polymer Concrete Pull Boxes 13" x 24" x 24"	EACH	6.000	6.000
0244	SPV.0090	Special 01. Remove, Salvage, and Reinstall Beam Guard	LF	92.000	92.000
0246	SPV.0090	Special 02. Concrete Curb & Gutter 43-Inch	LF	33.000	33.000
0248	SPV.0105	Special 01. Survey Project 2984-38-71	LS	1.000	1.000

ESTIMATE OF QUANTITIES; STREET LIGHTING & TRAFFIC SIGNALS

PROJECT ID. 2984-38-71

MILWAUKEE COUNTY

	Std.Bid Item No.	Description	Unit	Quantity
-	650.8500	Construction Staking Electrical	LS	1
-	652.0220	Conduit Rigid Nonmetallic Schedule 40 1.5-Inch	LF	36
-	652.0225	Conduit Rigid Nonmetallic Schedule 40 2-Inch	LF	90
-	652.0230	Conduit Rigid Nonmetallic Schedule 40 2 1/2-Inch	LF	570
-	652.0330	Conduit Rigid Nonmetallic Schedule 80 2 1/2-Inch	LF	115
-	SPV.0060.302	Fiberglass/Polymer Concrete Pull Boxes 13" x 24" x 24"	EACH	6

3

REMOVING PAVEMENT

ROADWAY	STATION	-	STATION	SIDE	* 204.0100 SY
STH 181	53+63	-	53+79	LT/RT	140
	138+56	-	145+78	LT/RT	195
	TOTAL				**335**

* REMOVING EXISTING CONCRETE APPROACH SLABS

REMOVING CURB & GUTTER

ROADWAY	STATION	-	STATION	SIDE	204.0150 LF
STH 181	50+89	-	53+63	MED	550
	53+55	-	53+64	RT	10
	53+53	-	53+62	LT	10
	57+28	-	57+40	LT	15
	57+29	-	57+41	MED	25
	57+31	-	57+42	RT	10
	58+46	-	60+73	MED	515
	TOTAL				**1,135**

REMOVING CONCRETE SIDEWALK

ROADWAY	STATION	-	STATION	SIDE	204.0155 SY
STH 181	52+91	-	53+79	MED	40
	57+06	-	57+41	MED	15
	58+46	-	60+72	MED	95
	STH 181 SUBTOTAL				150
	UNDISTRIBUTED				45
	TOTAL				**195**

3

EXCAVATION COMMON

ROADWAY	STATION	-	STATION	205.0100 CY
STH 181	50+89	-	53+79	260
	56+98	-	60+72	210
	TOTAL			**470**

CONCRETE PAVEMENT APPROACH SLAB

ROADWAY	STATION	-	STATION	415.0410 SY
STH 181	53+64	-	53+79	115
	56+98	-	57+31	180
	TOTAL			**295**

BASE AGGREGATE DENSE 1 1/4 - INCH

ROADWAY	STATION	-	STATION	305.0120 TON	624.0100 WATER MGAL
STH 181	50+89	-	53+79	300	3
	56+98	-	60+72	290	3
	STH 181 SUBTOTAL			590	6
	UNDISTRIBUTED			60	1
	TOTAL			**650**	**7**

HMA PAVEMENT ITEMS

ROADWAY	STATION	-	STATION	455.0605 TACK COAT GAL	460.6224 HMA PAVEMENT 4 MT 58-28 S TON
STH 181	50+89	-	53+79	25	75
	56+98	-	60+72	25	75
	TOTAL			**50**	**150**

ASPHALTIC SURFACE TEMPORARY

ROADWAY	STATION	-	STATION	465.0125 TON
STH 181	50+89	-	53+79	90
	56+98	-	60+72	60
	TOTAL			**150**

CONCRETE CURB & GUTTER

ROADWAY	STATION	-	STATION	601.0405 18-INCH TYPE A LF	601.0407 18-INCH TYPE D LF	601.0409 30-INCH TYPE A LF	601.0411 30-INCH TYPE D LF
STH 181	50+89	-	53+79	35	555	30	50
	56+98	-	60+72	50	535	20	20
	TOTAL			**85**	**1,090**	**50**	**70**

ALL ITEMS CATEGORY 0010 UNLESS NOTED.

ADDITIONAL QUANTITIES ARE INCLUDED ELSEWHERE IN THE PLAN SET.

3

CONCRETE SIDEWALK

ROADWAY	STATION	-	STATION	602.0410 5-INCH SF
STH 181	50+89	-	53+79	350
	56+98	-	60+72	1,080
	STH 181 SUBTOTAL			1,430
	UNDISTRIBUTED			405
	TOTAL			**1,835**

STORM SEWER ITEMS

ROADWAY	STATION	OFFSET	SIDE	611.0430 RECONSTRUCTING INLETS EACH	611.8110 ADJUSTING MANHOLE COVERS EACH	611.8115 ADJUSTING INLET COVERS EACH	611.8120.S COVER PLATES TEMPORARY EACH
STH 181	51+50	0.6'	RT	1	---	---	1
	51+50	13.1'	RT	1	---	---	1
	53+66	44.5'	RT	---	---	1	---
	53+71	15.3'	LT	---	1	---	---
	53+72	30.9'	LT	---	---	1	---
	58+99	3.7'	LT	1	---	---	1
	58+99	10.5'	LT	1	---	---	1
	TOTAL			**4**	**1**	**2**	**4**

3

RESTORATION ITEMS

ROADWAY	STATION		STATION	625.0100 TOPSOIL SY	629.0210 FERTILIZER TYPE B CWT	631.0300 SOD WATER MGAL	631.1000 SOD LAWN SY
STH 181	50+89	-	52+91	190	0.2	5	190
	STH 181 SUBTOTALS			190	0.2	5	190
UNDISTRIBUTED				20	0.1	0.5	20
PROJECT TOTALS				**210**	**0.3**	**5.5**	**210**

EROSION CONTROL

ROADWAY	STATION		STATION	628.1905 MOBILIZATIONS EROSION CONTROL EACH	628.1910 MOBILIZATIONS EMERGENCY EROSION CONTROL EACH	628.7020 INLET PROTECTION TYPE D EACH
STH 181	50+89	-	53+79	---	---	10
	56+98	-	60+72	---	---	8
	STH 181 SUBTOTAL			---	---	18
UNDISTRIBUTED				4	3	5
PROJECT TOTALS				**4**	**3**	**23**

TRAFFIC CONTROL

ROADWAY	STAGE	* DURATION DAYS	643.0300 TRAFFIC CONTROL DRUMS * DRUMS	DAYS	643.0420 TRAFFIC CONTROL BARRICADES TYPE III * BARRICADES	DAYS	643.0500 TRAFFIC CONTROL FLEXIBLE TUBULAR MARKER POSTS EACH	643.0600 BASES EACH	643.0705 TRAFFIC CONTROL WARNING LIGHTS TYPE A * LIGHTS	DAYS	643.0715 TRAFFIC CONTROL WARNING LIGHTS TYPE C * LIGHTS	DAYS	643.0800 TRAFFIC CONTROL ARROW BOARDS * BOARDS	DAYS	643.0900 TRAFFIC CONTROL SIGNS * SIGNS	DAYS	** 643.1050 TRAFFIC CONTROL SIGNS PCMS * SIGNS	DAYS
STH 181	STAGE 1	21	95	1,995	4	84	---	---	8	168	24	504	1	21	27	567	---	---
	STAGE 2A	10	112	1,120	22	220	20	20	44	440	43	430	2	20	45	450	---	---
	STAGE 2B	56	112	6,272	20	1,120	20	20	40	2,240	43	2,408	2	112	43	2,408	---	---
	STAGE 3	56	149	8,344	22	1,232	17	17	44	2,464	52	2,912	2	112	40	2,240	---	---
	STAGE 4	21	95	1,995	4	84	---	---	8	168	24	504	1	21	27	567	---	---
	STH 181 SUBTOTALS	---	---	19,726	---	2,740	57	57	---	5,480	---	6,758	---	286	---	6,232	--	---
DOUGLAS AVE	DURING BRIDGE PAINTING	28	---	---	8	224	---	---	16	448	---	---	---	---	4	112	---	---
	UNDISTRIBUTED	---	---	1,974	---	286	13	13	---	552	---	682	---	29	---	636	2	20
	TOTAL	**---**	**---**	**21,700**	**---**	**3,250**	**70**	**70**	**---**	**6,480**	**---**	**7,440**	**---**	**315**	**---**	**6,980**	**---**	**20**

*FOR INFORMATION ONLY

** PLACE ONE PCMS SIGN IN ADVANCE OF WORK AREA, NORTH AND SOUTH OF THE CONSTRUCTION ZONE, ON STH 181 FOR 10 DAYS PRIOR TO CONSTRUCTION

ALL ITEMS CATEGORY 0010 UNLESS NOTED.

ADDITIONAL QUANTITIES ARE INCLUDED ELSEWHERE IN THE PLAN SET.

3

TEMPORARY PEDESTRIAN ACCESS

ROADWAY	STAGE	644.1601.S TEMPORARY CURB RAMP EACH	644.1616.S TEMPORARY PEDESTRIAN SAFETY FENCE LF
STH 181	2A	2	990
	2B	---	420
	TOTAL	**2**	**1,410**

PAVEMENT MARKING ITEMS

ROADWAY	STATION		STATION	646.1545 MARKING LINE GROOVED WET REF CONTRAST EPOXY 4-INCH (WHITE) LF	646.3545 MARKING LINE GROOVED WET REF CONTRAST EPOXY 8-INCH (WHITE) LF	646.9000 MARKING REMOVAL LINE 4-INCH LF	646.9100 MARKING REMOVAL LINE 8-INCH LF
STH 181	47+92	-	56+50	660	85	660	85
	56+50	-	63+84	920	---	920	---
	TOTALS			**1580**	**85**	**1580**	**85**

TEMPORARY MARKING LINES

ROADWAY	STAGE	649.0105 PAINT 4-INCH (WHITE) LF	649.0105 PAINT 4-INCH (YELLOW) LF	649.0150 REMOVABLE TAPE 4-INCH (WHITE) LF	649.0150 REMOVABLE TAPE 4-INCH (YELLOW) LF	649.0960 REMOVABLE MASK OUT TAPE 6-INCH LF
STH 181	1	1,550	780	4,040	2,590	---
	2A	780	780	1,640	1,450	---
	3	---	---	3,880	3,140	280
	4	---	---	1,680	1,430	---
	SUBTOTAL	2,330	1,560	11,240	8,610	280
	TOTALS	**3,890**		**19,850**		**280**

3

SAWING

ROADWAY	STATION		STATION	SIDE	690.0150 ASPHALT LF	690.0250 CONCRETE LF
STH 181	50+89	-	50+89	MED	---	3
	50+89	-	53+54	MED	535	---
	53+53	-	53+53	LT	35	3
	53+54	-	53+54	MED	---	7
	53+55	-	53+55	RT	35	3
	57+40	-	57+40	LT	35	3
	57+41	-	57+41	MED	---	7
	57+42	-	57+42	RT	35	3
	58+46	-	58+46	MED	---	7
	58+46	-	60+72	MED	525	---
	60+72	-	60+72	MED	---	8
	TOTAL				**1,200**	**44**

REMOVE, SALVAGE, AND REINSTALL SIGN

ROADWAY	STATION	OFFSET	SIDE	SPV.0060.01 EACH
STH 181	51+12	4.7'	RT	1
	52+32*	7.9	RT	1
	TOTAL			**2**

*SIGN ON STREET LIGHT TO BE REMOVED BY OTHERS. COORDINATE RETRIEVAL OF SIGN WITH CITY OF MILWAUKEE LIGHTING UNIT.

REMOVE, SALVAGE, AND REINSTALL GUARDRAIL

ROADWAY	STATION	SIDE	SPV.0090.01 LF
STH 181	53+68	RT	46
	57+29	RT	46
	TOTAL		**92**

ALL ITEMS CATEGORY 0010 UNLESS NOTED.

ADDITIONAL QUANTITIES ARE INCLUDED ELSEWHERE IN THE PLAN SET.

3

REMOVING PAVEMENT

CATEGORY	STATION	LOCATION	204.0100* REMOVING PAVEMENT SY
0010	14+86SS - 15+27SS	EB	120
	15+15SS - 15+61SS	WB	142
	18+06SS - 18+48SS	EB	122
	18+38SS - 18+82SS	WB	144
	TOTAL:		528

*BID ITEM "REMOVING PAVEMENT" INCLUDES REMOVAL OF REINFORCED CONCRETE PAVEMENT APPROACH SLABS.

FINISHING ROADWAY

CATEGORY	PROJECT	213.0100.01 FINISHING ROADWAY LS
0010	2984-38-71	1
TOTAL:		1

PREPARE FOUNDATION

CATEGORY	PROJECT	211.0200.01* PREPARE FOUNDATION FOR CONCRETE PAVEMENT LS
0010	2984-38-71	1
TOTAL:		1

*BID ITEM "PREPARE FOUNDATION FOR CONCRETE PAVEMENT" INCLUDES FOUNDATION PREPARATION FOR AREAS WHERE SIDEWALK AND CURB & GUTTER ARE REPLACED.

3

REMOVING SIDEWALK

CATEGORY	STATION	LOCATION	204.0155 REMOVING CONCRETE SIDEWALK SY
0010	14+21SS	EB, RT, CURB RAMP	3
	14+69SS - 15+07SS	EB, RT, CURB RAMP & SIDEWALK	31
	TOTAL:		34

BASE AGGREGATE

CATEGORY	STATION	LOCATION	310.0110* BASE AGGREGATE OPEN GRADED TON	624.0100 WATER MGAL
0010	14+18SS - 15+27SS	EB	2	0.2
	15+15SS - 15+61SS	WB	2	0.2
	18+06SS - 18+48SS	EB	2	0.2
	18+38SS - 18+82SS	WB	2	0.2
	BIKE SLIP RAMPS		3	0.2
	TOTAL:		11	1

*EXCAVATION FOR BIKE SLIP RAMP BASE AGGREGATE IS INCIDENTAL TO BASE AGGREGATE OPEN GRADED.

REMOVING GUARDRAIL

CATEGORY	LOCATION	204.0165 REMOVING GUARDRAIL LF
0010	NE WING WALL	41
	TOTAL:	41

CONCRETE PAVEMENT

CATEGORY	STATION	LOCATION	415.0100 CONCRETE PAVEMENT 10-INCH SY	415.0410 CONCRETE PAVEMENT APPROACH SLAB SY
0010	14+86SS - 15+27SS	EB	51	69
	15+15SS - 15+61SS	WB	68	74
	18+06SS - 18+48SS	EB	53	69
	18+38SS - 18+82SS	WB	68	76
	TOTALS:		240	288

REMOVING CURB & GUTTER

CATEGORY	STATION	LOCATION	204.0150 REMOVING CURB & GUTTER LF
0010	14+18SS - 15+08SS	EB, RT	90
	14+86SS - 15+29SS	EB, LT	43
	15+15SS - 15+39SS	WB, RT	24
	15+15SS - 15+48SS	WB, LT	33
	18+04SS - 18+48SS	EB, RT	44
	18+26SS - 18+48SS	EB, LT	22
	18+37SS - 18+83SS	WB, RT	46
	18+75SS - 18+81SS	WB, LT	8
	TOTAL:		310

DRILLED BARS

CATEGORY	STATION	LOCATION	416.0610 DRILLED TIE BARS EACH	416.0620 DRILLED DOWEL BARS EACH
0010	14+18SS - 14+86SS	EB, RT	28	-
	14+86SS	EB	-	28
	15+15SS	WB	-	29
	18+48SS	EB	-	28
	18+82SS	WB	-	30
	TOTALS:		28	115

NOTE: ADDITIONAL QUANTITIES ARE INCLUDED ELSEWHERE IN THE PLAN SET

CURB & GUTTER

CATEGORY	STATION	LOCATION	601.0331 CONCRETE CURB & GUTTER 31-INCH LF	SPV.0090.02 CONCRETE CURB & GUTTER 43-INCH LF
0010	14+18SS - 15+08SS	EB, RT	90	-
	14+86SS - 15+29SS	EB, LT	43	-
	15+15SS - 15+39SS	WB, RT	24	-
	15+15SS - 15+48SS	WB, LT	-	33
	18+04SS - 18+48SS	EB, RT	44	-
	18+26SS - 18+48SS	EB, LT	22	-
	18+37SS - 18+83SS	WB, RT	46	-
	18+75SS - 18+81SS	WB, LT	8	-
	TOTALS:		277	33

CONCRETE SIDEWALK

CATEGORY	STATION	LOCATION	602.0410 CONCRETE SIDEWALK 5-INCH SF
0010	14+43SS	BIKE SLIP LANE	45
	14+70SS - 15+07SS	BIKE SLIP LANE & SIDEWALK	250
	TOTAL:		295

RIPRAP

CATEGORY	LOCATION	606.0200 RIPRAP MEDIUM CY
0010	NW WING	5
	TOTALS:	5

GUARDRAIL

CATEGORY	LOCATION	614.2300 MGS GUARDRAIL 3 LF	614.2310 MGS GUARDRAIL 3 HS LF	614.2620 MGS GUARDRAIL TERMINAL TYPE 2 EACH
0010	NE WING	14	25	1
	TOTALS:	14	25	1

RESTORATION ITEMS

CATEGORY	LOCATION	625.0100 TOPSOIL SY	625.0500 SALVAGED TOPSOIL SY	629.0210 FERTILIZER TYPE B CWT	631.1000 SOD LAWN SY	631.0300 SOD WATER MGAL
0010	NW WING	15	0	0.01	15	0.3
	CURB RAMPS	7	-	0.01	7	0.2
	BEHIND NEW CURB & GUTTER	-	60	0.04	60	1.4
	UNDISTRIBUTED	5	5	0.05	10	0.1
	TOTALS:	27	65	0.10	92	2

SILT FENCE

CATEGORY	LOCATION	628.1504 SILT FENCE LF	628.1520 SILT FENCE MAINTENANCE LF
0010	NW WING WALL GRADING	70	70
	BIKE SLIP LANE	15	15
	UNDISTRIBUTED	25	25
	TOTALS:	110	110

INLET PROTECTION

CATEGORY	LOCATION	628.7015 INLET PROTECTION TYPE C EACH
0010	*UNDISTRIBUTED	4
	TOTAL:	4

*PROVIDE INLET PROTECTION AT THE FIRST INLET WEST OF THE PROJECT LIMITS ON EACH SECTION OF CURB & GUTTER ON THE WEST APPROACH.

MOBILIZATION EROSION CONTROL

DESCRIPTION	628.1905 MOBILIZATION EROSION CONTROL EACH	628.1910 MOBILIZATION EMERGENCY EROSION CONTROL EACH
PROJECT 2984-38-71	2	2
TOTALS:	2	2

SIGNING ITEMS

CATEGORY	LOCATION	634.0410 POSTS WOOD 4X4-INCH X 10-FT EACH
0010	*BIKE PATH, SW QUADRANT	1
	TOTAL:	1

*LOCATION OF POST TO BE COORDINATED WITH THE MILWAUKEE COUNTY DEPARTMENT OF PARKS, RECREATION & CULTURE.

NOTE: ADDITIONAL QUANTITIES ARE INCLUDED ELSEWHERE IN THE PLAN SET

TRAFFIC CONTROL SIGNS

CATEGORY	STAGE	LOCATION	SIZE	QTY	DAYS	TRAFFIC CONTROL DRUMS EACH	643.0300 TRAFFIC CONTROL DRUMS DAYS	TRAFFIC CONTROL BARRICADES TYPE II EACH	643.0410 TRAFFIC CONTROL BARRICADES TYPE II DAYS	TRAFFIC CONTROL BARRICADES TYPE III EACH	643.0420 TRAFFIC CONTROL BARRICADES TYPE III DAYS	TRAFFIC CONTROL WARNING LIGHTS TYPE A EACH	643.0705 TRAFFIC CONTROL WARNING LIGHTS TYPE A DAYS	TRAFFIC CONTROL SIGNS EACH	643.0900 TRAFFIC CONTROL SIGNS DAYS	643.1000 TRAFFIC CONTROL SIGNS FIXED MESSAGE SF	644.1420.S TEMPORARY PEDESTRIAN SURFACE PLYWOOD SF	644.1601.S TEMPORARY CURB RAMP EACH	644.1616.S TEMPORARY PEDESTRIAN SAFETY FENCE LF	COMMENTS
0010	STAGE 1 - WB DETOUR	DETOUR ROUTE	-	-	43	-	-	-	-	-	-	-	-	134	5762	-	-	-	-	-
	STAGE 1 - WB DETOUR	I-43 NB	54"x30"	3	-	-	-	-	-	-	-	-	-	-	-	33.75	-	-	-	"W SILVER SPRING DR"
	STAGE 1 - WB DETOUR	I-43 NB, STH 57 OFF RAMP	54"x30"	4	-	-	-	-	-	-	-	-	-	-	-	45	-	-	-	"W SILVER SPRING DR"
	STAGE 1 - WB DETOUR	STH 57	42"x24"	14	-	-	-	-	-	-	-	-	-	-	-	98	-	-	-	"W SILVER SPRING DR"
	STAGE 1 - WB DETOUR	W SILVER SPRING DR	42"x24"	6	-	-	-	-	-	-	-	-	-	-	-	42	-	-	-	"W SILVER SPRING DR"
	STAGE 1 - WB DETOUR	W GOOD HOPE RD	42"x24"	6	-	-	-	-	-	-	-	-	-	-	-	42	-	-	-	"W SILVER SPRING DR"
	STAGE 1 - WB DETOUR	I-43 SB	54"x30"	2	-	-	-	-	-	-	-	-	-	-	-	22.5	-	-	-	"W SILVER SPRING DR"
	STAGE 1 - WB DETOUR	I-43 SB, GOOD HOPE RD OFF RAMP	54"x30"	4	-	-	-	-	-	-	-	-	-	-	-	45	-	-	-	"W SILVER SPRING DR"
	STAGE 1 - WB DETOUR	I-43 NB, GOOD HOPE RD OFF RAMP	54"x30"	1	-	-	-	-	-	-	-	-	-	-	-	11.25	-	-	-	"W SILVER SPRING DR"
	STAGE 1 - WB DETOUR	I-43 NB, GOOD HOPE RD OFF RAMP	42"x24"	3	-	-	-	-	-	-	-	-	-	-	-	21	-	-	-	"W SILVER SPRING DR"
	STAGE 1 - WB DETOUR	N PORT WASHINGTON RD	42"x24"	2	-	-	-	-	-	-	-	-	-	-	-	14	-	-	-	"W SILVER SPRING DR"
	STAGE 1 - WB DETOUR	I-43 SB OFF RAMP (1)	-	-	43	12	516	-	-	-	-	-	-	-	-	-	-	-	-	-
	STAGE 2 - EB DETOUR	DETOUR ROUTE	-	-	43	-	-	-	-	-	-	-	-	163	7009	-	-	-	-	-
	STAGE 2 - EB DETOUR	W SILVER SPRING DR	42"x24"	7	-	-	-	-	-	-	-	-	-	-	-	49	-	-	-	"W SILVER SPRING DR"
	STAGE 2 - EB DETOUR	STH 57	42"x24"	7	-	-	-	-	-	-	-	-	-	-	-	49	-	-	-	"W SILVER SPRING DR"
	STAGE 2 - EB DETOUR	W GOODHOPE RD	42"x24"	4	-	-	-	-	-	-	-	-	-	-	-	28	-	-	-	"W SILVER SPRING DR"
	STAGE 1 - AT PROJECT	BEGINNING/END OF PROJECT (2)	-	-	43	-	-	-	-	20	860	24	1032	8	344	-	-	-	-	-
	STAGE 2 - AT PROJECT	BEGINNING/END OF PROJECT (2)	-	-	43	-	-	-	-	20	860	24	1032	10	430	-	-	-	-	-
	STAGE 2 - AT PROJECT	SW QUAD SDWK REPLACEMENT (3)	-	-	3	-	-	6	18	-	-	6	18	2	6	-	25	2	845	-
	TOTALS:						516		18		1720		2082		13551	500.5	25	2	845	

(1) - PLACE TRAFFIC CONTROL DRUMS TO CLOSE THE RIGHT TURN LANE ON THE I-43 SB EXIT RAMP TO W SILVER SPRING DRIVE WB.
(2) - MAINLINE CLOSURE PER SDD 15C2-6A. BARRICADE DOWNSTREAM END OF WORK ZONE PER SDD 15C2-6B, DETAIL D.
(3) - CLOSE SIDEWALK AND PROVIDE TEMPORARY PEDESTRIAN ACCOMMODATIONS DURING SIDEWALK REPLACEMENT ON THE WEST APPROACH, APPLICATION OF PROTECTIVE SURFACE TREATMENT ON THE BRIDGE SIDEWALK, AND APPLICATION OF PIGMENTED SURFACE SEALER ON THE SOUTHERN PARAPET. THIS WORK SHOULD BE SCHEDULED TO MINIMIZE THE DURATION OF SIDEWALK CLOSURE.

COVERING SIGNS

CATEGORY	STAGE	643.0910 TRAFFIC CONTROL COVERING SIGNS TYPE I EACH	NUMBER OF CYCLES	NUMBER OF SIGNS	643.0920 TRAFFIC CONTROL COVERING SIGNS TYPE II EACH	NUMBER OF CYCLES	NUMBER OF SIGNS
0010	STAGE 1 - WB DETOUR	3	1	3	-	-	-
	STAGE 2 - EB DETOUR	-	-	-	24	1	24
	TOTALS:			3			24

PAVEMENT MARKINGS

CATEGORY	STATION	LOCATION	646.1020 MARKING LINE EPOXY 4-INCH WHITE LF	NOTES
0010	14+86SS - 18+48SS	EB CENTERLINES - DASHED	187.5	MATCH EXISTING
	15+15SS - 18+82SS	WB CENTERLINES - DASHED	187.5	MATCH EXISTING
	TOTAL:		375	

SAWING

CATEGORY	STATION	LOCATION	690.0250 SAWING CONCRETE LF
0010	14+18SS	EB	3
	14+18SS - 14+86SS	EB	69
	14+86SS	EB	40
	15+15SS	WB	42
	18+48SS	EB	40
	18+82SS	WB	44
	TOTAL:		238

NOTE: ADDITIONAL QUANTITIES ARE INCLUDED ELSEWHERE IN THE PLAN SET

IH 94 & SILVER SPRING DRIVE
MILWAUKEE COUNTY
CATEGORY 0060
S40-1194

3

REMOVE LOOP DETECTOR WIRE AND LEAD-IN CABLE

LOCATION		204.9105.S.01 REMOVING LOOP DETECTOR WIRE & LEAD-IN CABLE L.S.
IH 43 & SILVER SPRING DRIVE		1
	TOTAL	1

TRAFFIC DETECTOR LOOPS

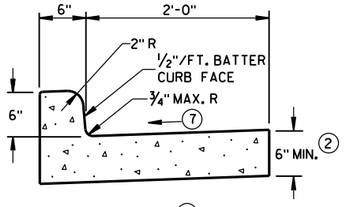
LOOP NO.	HOME RUN PB	LOCATION*	SIZE (FT)x(FT)	NO. OF TURNS	PAVEMENT TYPE	SDD INSTALLATION REFERENCE	652.0800 CONDUIT LOOP DETECTOR L.F.	655.0700 LOOP DETECTOR LEAD IN CABLE L.F.	655.0800 LOOP DETECTOR WIRE L.F.
51	PB2	18+60.6, 29.3' RT	6X6	3		LOOP DETECTOR INSTALLED IN BASE COURSE WITH PULL (SPLICE) BOX OFF ROADWAY (OPTION 1)	50	158	150
52	PB2	18+60.6, 18.9' RT	6X10	2		LOOP DETECTOR INSTALLED IN BASE COURSE WITH PULL (SPLICE) BOX OFF ROADWAY (OPTION 2)	84	158	168
53	PB2	18+60.6, 7.1' RT	6X10	2		LOOP DETECTOR INSTALLED IN BASE COURSE WITH PULL (SPLICE) BOX OFF ROADWAY (OPTION 2)	108	158	216
						TOTAL	242	474	534

* LOCATION IS TO FRONT CENTER OF DETECTOR LOOP
* * FINAL LOCATION TO BE DETERMINED BY THE ENGINEER IN THE FIELD.

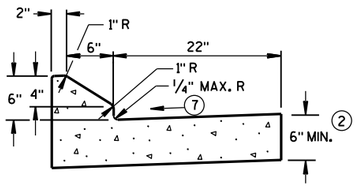
Standard Detail Drawing List

08D01-20A	CONCRETE CURB & GUTTER
08D01-20B	CONCRETE CURB, TIES AND CURB AND GUTTER APPLICATIONS
08E09-06	SILT FENCE
08E10-02	INLET PROTECTION TYPE A, B, C AND D
09F15-04A	LOOP DETECTOR INSTALLED IN BASE COURSE WITH PULL (SPLICE) BOX OFF ROADWAY (OPTION 1)
09F15-04B	LOOP DETECTOR INSTALLED IN BASE COURSE WITH PULL (SPLICE) BOX OFF ROADWAY (OPTION 2)
13B02-08A	CONCRETE PAVEMENT APPROACH SLAB
13C01-19	CONCRETE PAVEMENT LONGITUDINAL JOINTS AND TIES
13C09-15B	CONCRETE PAVEMENT REPAIR AND REPLACEMENT
13C09-15C	CONCRETE PAVEMENT REPAIR AND REPLACEMENT
13C13-09	URBAN DOWELED CONCRETE PAVEMENT
13C18-06A	CONCRETE PAVEMENT JOINTING
13C18-06B	CONCRETE PAVEMENT STEEL REINFORCEMENT
13C18-06C	CONCRETE PAVEMENT JOINT TYPES
14B15-11A	STEEL PLATE BEAM GUARD, CLASS "A" INSTALLATION & ELEMENTS
14B15-11B	STEEL PLATE BEAM GUARD, CLASS "A" INSTALLATION & ELEMENTS
14B15-11C	STEEL PLATE BEAM GUARD, CLASS "A", INSTALLATION & ELEMENTS
14B20-11B	STEEL THRIE BEAM STRUCTURE APPROACH, CONNECTION TO SQUARE END PARAPETS
14B20-11C	STEEL THRIE BEAM STRUCTURE APPROACH, CONNECTION TO VERTICAL FACED PARAPETS
14B42-06A	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-06B	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-06C	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B45-05F	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B47-02A	MIDWEST GUARDRAIL SYSTEM (MGS) TYPE 2 TERMINAL
14B47-02B	MIDWEST GUARDRAIL SYSTEM (MGS) TYPE 2 TERMINAL
14B47-02C	MIDWEST GUARDRAIL SYSTEM (MGS) TYPE 2 TERMINAL
15C02-06A	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C02-06B	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C02-06C	DETOUR SIGNING FOR MAINLINE CLOSURES
15C08-19A	LONGITUDINAL MARKING (MAINLINE)
15C08-19B	PAVEMENT MARKING (TURN LANES)
15C08-19C	PAVEMENT MARKING (TURN LANES)
15C11-07A	CHANNELIZING DEVICES FLEXIBLE TUBULAR MARKER POST
15C11-07B	CHANNELIZING DEVICES DRUMS, CONES, BARRICADES AND VERTICAL PANELS
15D16-03	TRAFFIC CONTROL, EXIT RAMP CLOSURE
15D20-04	TRAFFIC CONTROL, SINGLE LANE CLOSURE, NON-FREEWAY/EXPRESSWAY
15D21-06	TRAFFIC CONTROL, INTERSECTION WITHIN SINGLE LANE CLOSURE
15D22-03	TRAFFIC CONTROL, TWO LANE CLOSURE, NON-FREEWAY/EXPRESSWAY
15D30-04A	TRAFFIC CONTROL, PEDESTRIAN ACCOMMODATION
15D30-04B	TRAFFIC CONTROL, TEMPORARY ADA COMPLIANT PEDESTRIAN ACCOMMODATION
15D30-04C	TRAFFIC CONTROL, PEDESTRIAN ACCOMMODATION
15D38-02A	TEMPORARY TRAFFIC CONTROL SIGN MOUNTING
15D38-02B	ATTACHMENT OF SIGNS TO POSTS

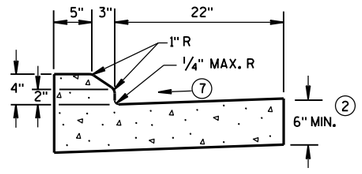
6



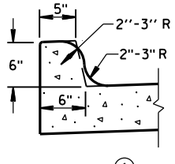
TYPES A (1) & D



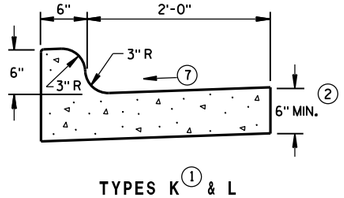
6" SLOPED CURB TYPES G (1) & J



4" SLOPED CURB TYPES G (1) & J

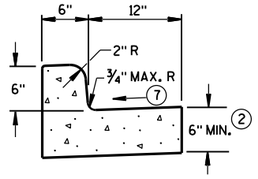


TYPES K (1) & L
(OPTIONAL CURB SHAPE)



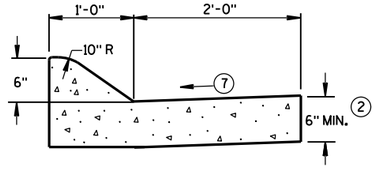
TYPES K (1) & L

CONCRETE CURB & GUTTER 30"

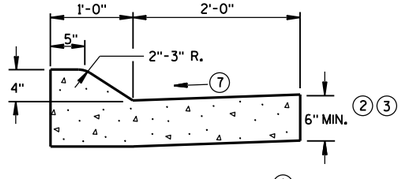


TYPES A (1) & D

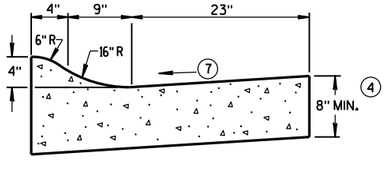
CONCRETE CURB & GUTTER 18"



6" SLOPED CURB TYPES A (1) & D

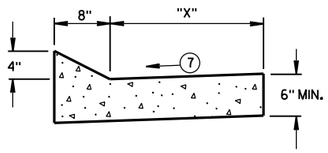


4" SLOPED CURB TYPES A (1) & D



4" SLOPED CURB TYPES R (1) & T (5)

CONCRETE CURB & GUTTER 36"



TYPES TBT & TBTT (1)

CONCRETE CURB & GUTTER

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

GENERAL NOTES

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

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

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

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

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

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

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

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

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

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

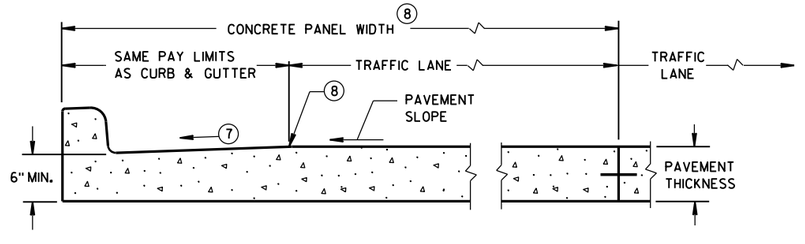
(6) WHEN REVERSE SLOPE GUTTER IS REQUIRED, THE LOCATION(S) WILL BE SHOWN ELSEWHERE IN THE PLAN.

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

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

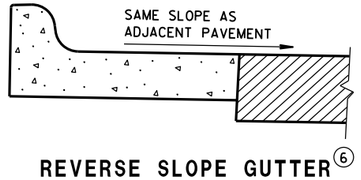
PAVEMENT THICKNESS AND MAXIMUM CONCRETE PANEL WIDTH TABLE

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



PARTIAL SECTION OF PAVEMENT *
WITH INTEGRAL CURB & GUTTER

* BIKE LANE IS NOT SHOWN.

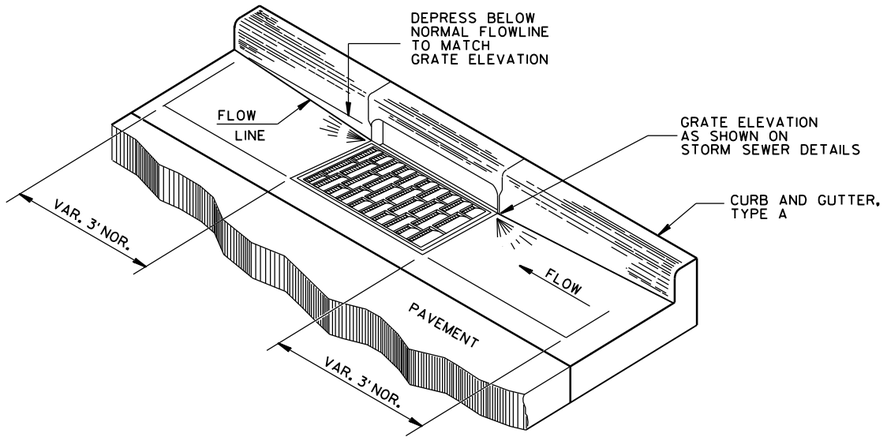


REVERSE SLOPE GUTTER (6)
(TYPICAL FOR ALL CURB & GUTTER TYPES)

CONCRETE CURB & GUTTER

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

S.D.D. 8 D 1-20a



DETAIL OF CURB AND GUTTER AT INLETS

(TYPE H INLET COVER SHOWN)

GENERAL NOTES

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

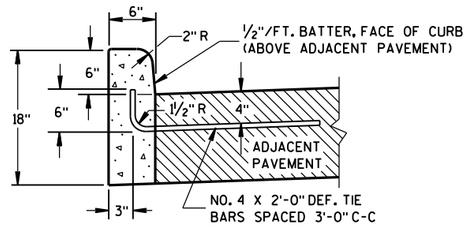
PAVEMENT TIES AND TIE BARS SHALL BE EPOXY COATED IN CONFORMANCE WITH SUBSECTION 505.2.6.2 OF THE STANDARD SPECIFICATIONS.

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

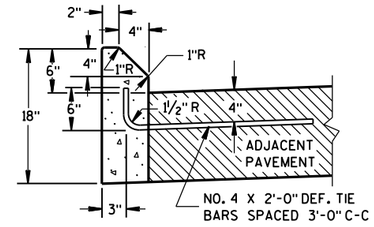
(1) TIE BARS ARE REQUIRED FOR CURB AND GUTTER TYPES A, G, K, R AND TBTT.

(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.

(9) REFER TO SDD 8D18 AND SDD 8D19 FOR ADDITIONAL DRIVEWAY ENTRANCE CURB DETAILS.

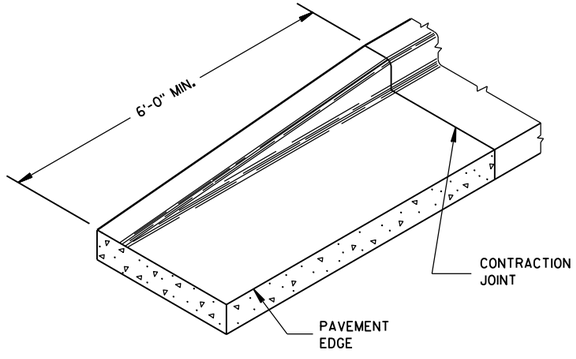


TYPES A(1) & D

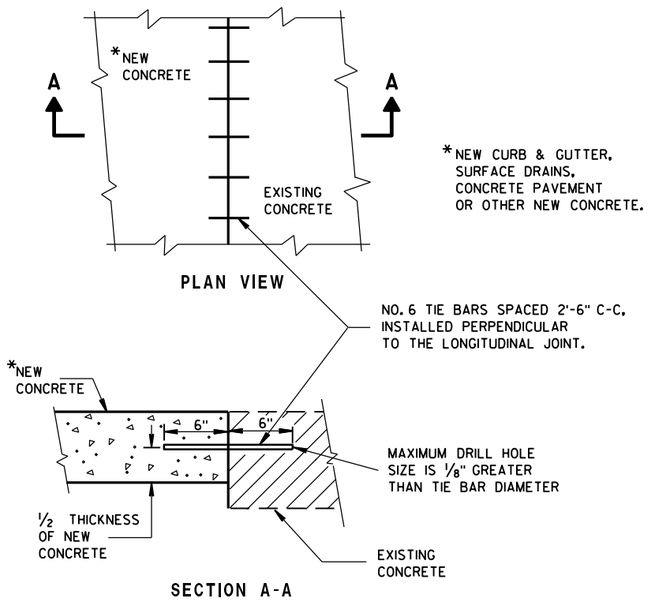


TYPES G(1) & J

CONCRETE CURB



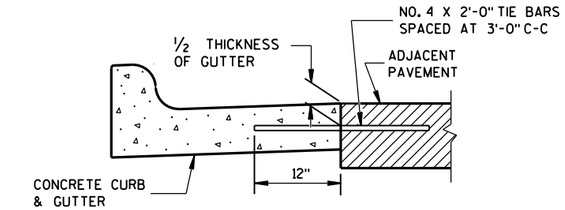
END SECTION CURB & GUTTER



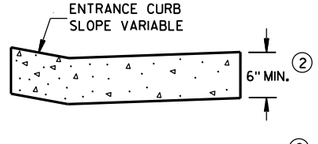
PLAN VIEW

SECTION A-A

TIE BARS DRILLED INTO EXISTING PAVEMENT



TYPICAL TIE BAR LOCATION (1)



DRIVEWAY ENTRANCE CURB (9)

(WHEN DIRECTED BY THE ENGINEER)

CONCRETE CURB, TIES AND CURB AND GUTTER APPLICATIONS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

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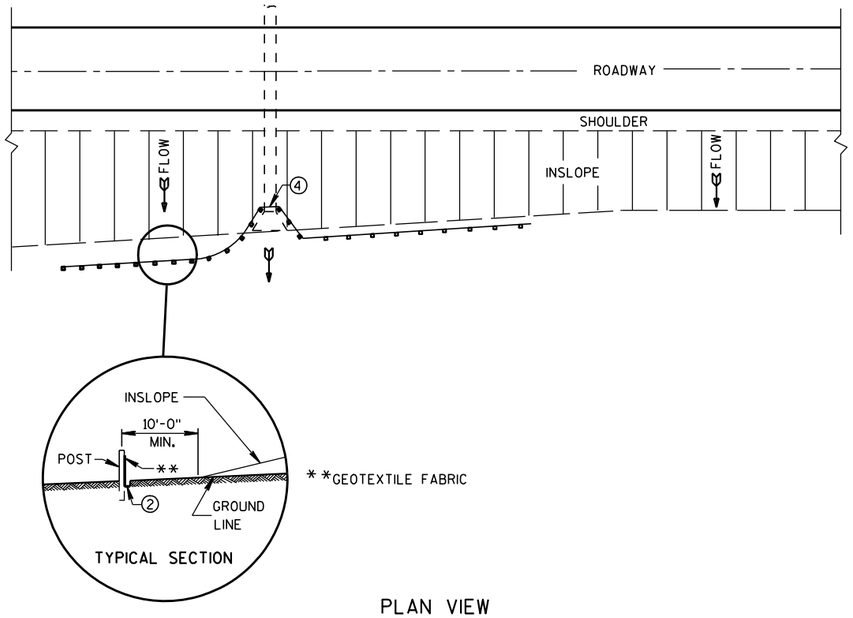
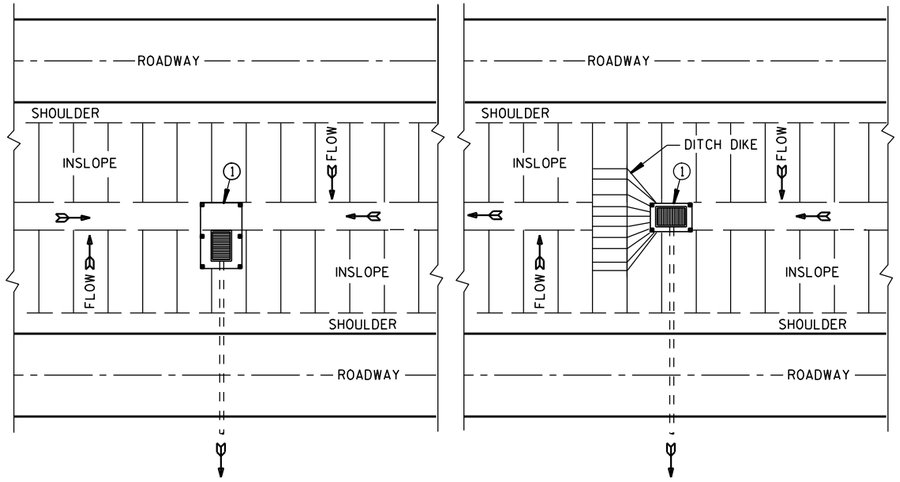
S.D.D. 8 D 1-20b



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.

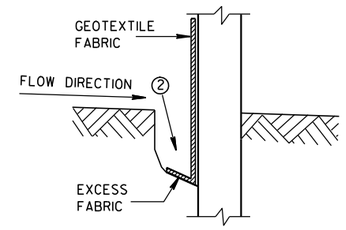
① HORIZONTAL BRACE REQUIRED WITH 2" X 4" WOODEN FRAME OR EQUIVALENT AT TOP OF POSTS.

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.

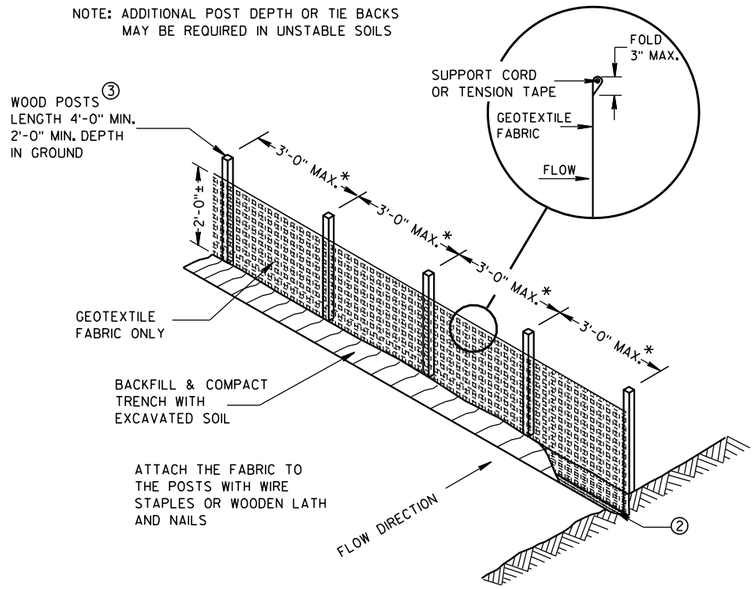
③ WOOD POSTS SHALL BE A MINIMUM SIZE OF 1⅛" X 1⅛" OF OAK OR HICKORY.

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.

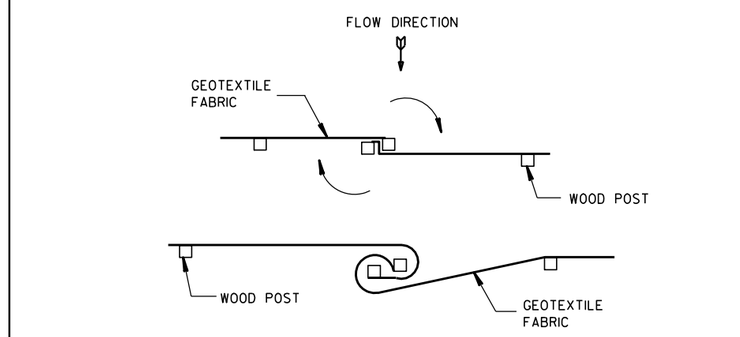


TRENCH DETAIL

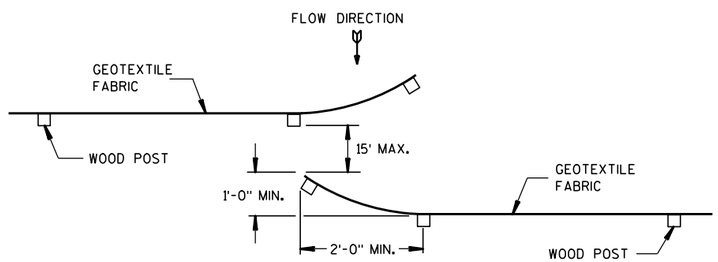


*NOTE: 8'-0" POST SPACING ALLOWED IF A WOVEN GEOTEXTILE FABRIC IS USED.

SILT FENCE

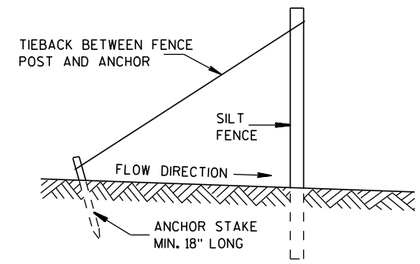


TWIST METHOD



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

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S.D.D. 8 E 9-6

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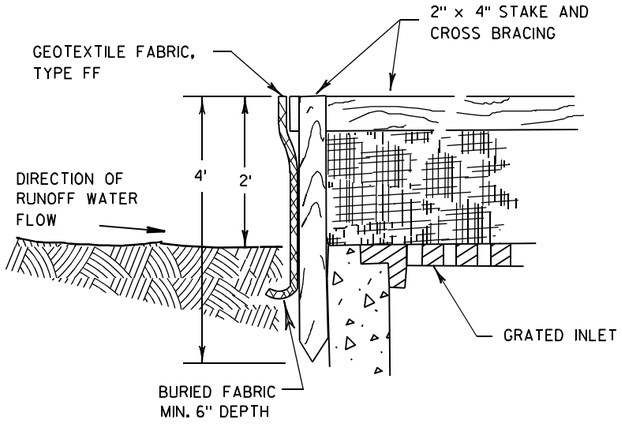
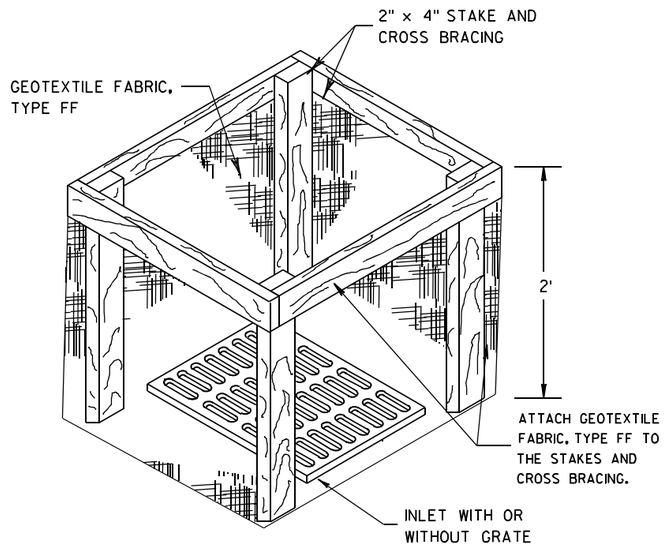
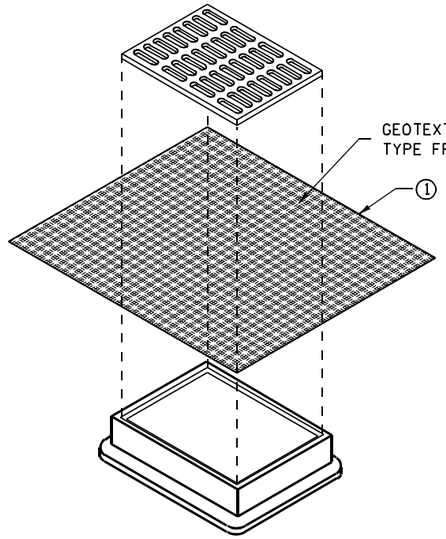
S.D.D. 8 E 9-6



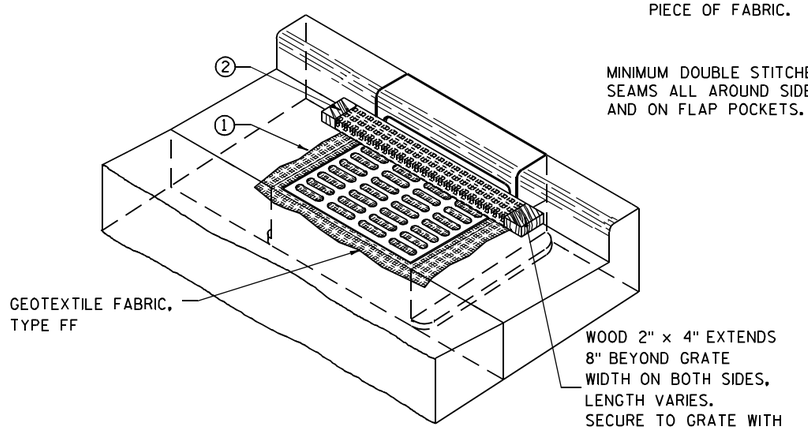


INLET PROTECTION, TYPE A

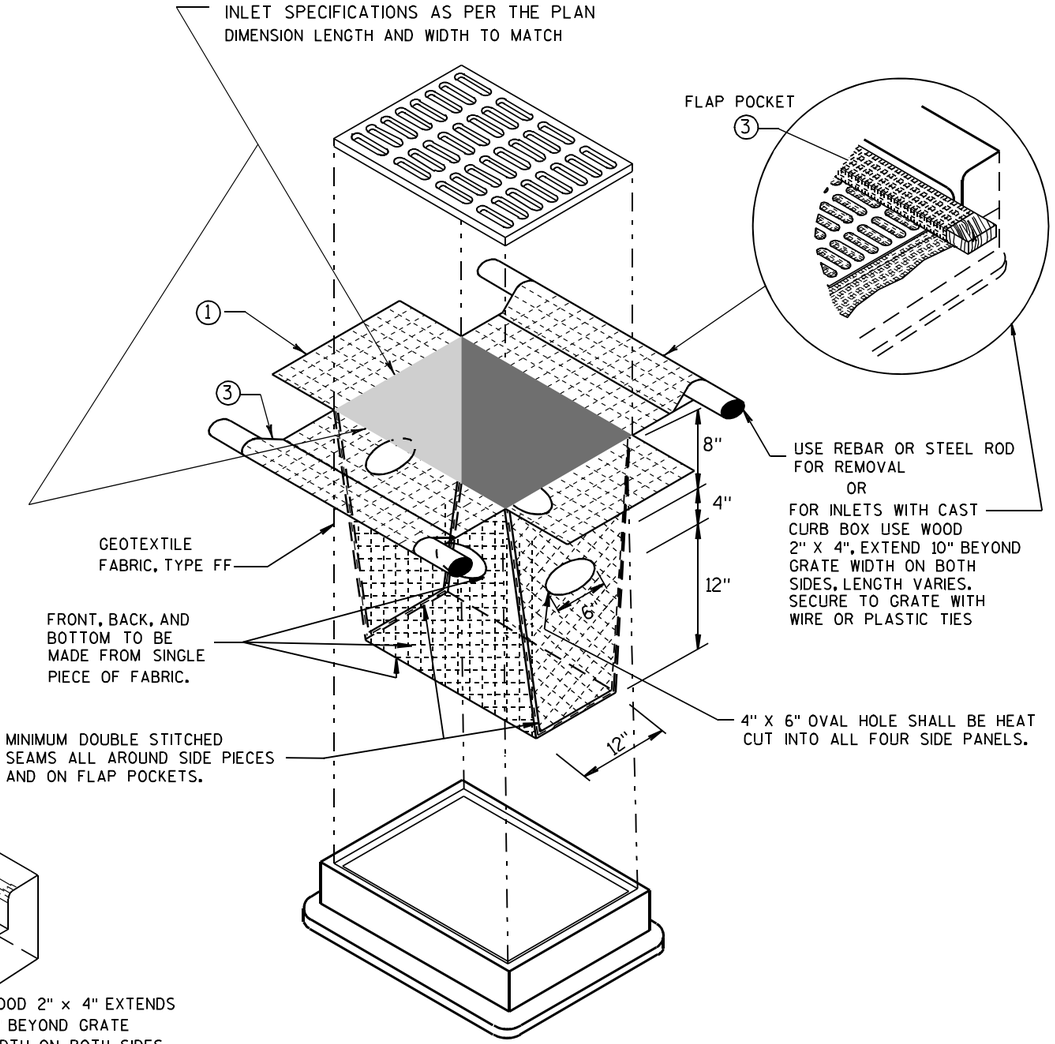


INLET PROTECTION, TYPE B
(WITHOUT CURB BOX)

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



INLET PROTECTION, TYPE C (WITH CURB BOX)



INLET PROTECTION, TYPE D

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

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

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S.D.D. 8 E 10-2

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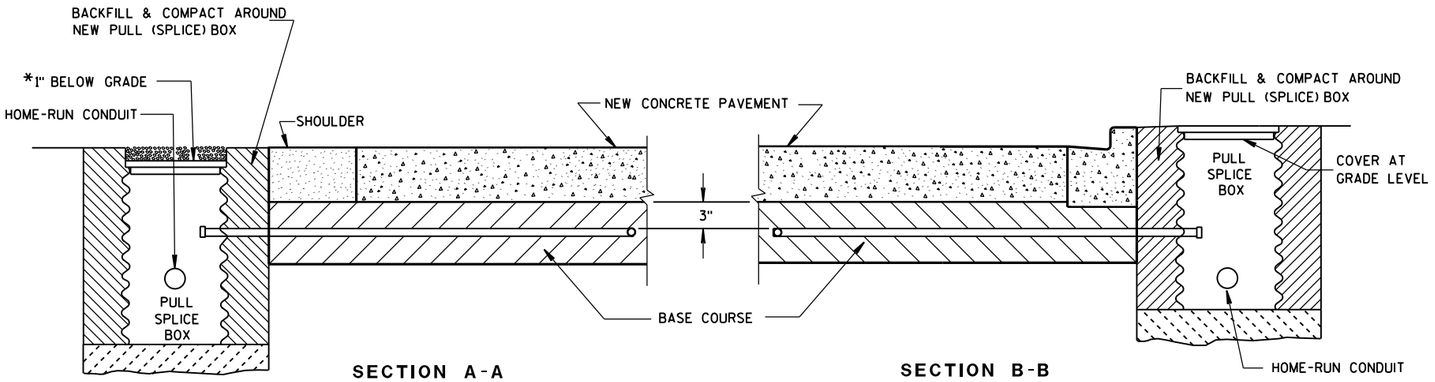
S.D.D. 8 E 10-2



SECTION A-A
NO CURB & GUTTER

SECTION B-B
CURB & GUTTER

*RECESS PULL (SPLICE) BOX SO THAT THE COVER IS 3" BELOW GRADE IN SHOULDER AREAS OF CRUSHED AGGREGATE. BACKFILL OVER COVER WITH THE CRUSHED AGGREGATE TO BRING THE AREA TO GRADE LEVEL.

LOOP DETECTOR INSTALLATION DETAIL

GENERAL NOTES

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

LOOP SIZE, CONFIGURATION LOCATION, NUMBER OF TURNS OF WIRE AND ASSOCIATED SIGNAL PHASE SHALL BE AS SHOWN ON THE PLANS.

PITCH LEAD OUT CONDUIT TO DRAIN TO ROADSIDE PULL (SPLICE) BOX.

SPLICES SHALL BE INSTALLED BY USING CAST IN PLACE SPLICE KITS LISTED ON THE DEPARTMENTS APPROVED PRODUCTS LIST OR AN ENGINEER APPROVED EQUAL. NON-INSULATED BUTT SPLICES TO FIT #12 AWG STRANDED WIRE SHALL BE USED. SPLICES SHALL BE SOLDERED AND INSULATED FROM EACH OTHER AS PER INSTRUCTIONS INCLUDED IN THE SPLICE KIT.

MEASURE GROUND RESISTANCE USING A MEGGER. REPLACE LOOP WIRE NOT ATTAINING A READING OF INFINITY TO GROUND.

AFTER SPLICING THE LOOP WIRE TO THE LOOP LEAD-IN CABLE, THE CONTRACTOR SHALL MEASURE INDUCTANCE, GROUND RESISTANCE AND WIRE RESISTANCE AT THE CABINET END OF THE LEAD-IN CABLE AND FURNISH A COPY OF THE READINGS TO THE PROJECT ENGINEER FOR EVALUATION.

LOOP DETECTOR LEADS SHALL BE IDENTIFIED WITH THEIR ASSOCIATED LOOP BY USE OF WATERPROOF TAGS AT BOTH ENDS OF THE CABLE. A LISTING OF THE CABLE IDENTIFICATION PER INDIVIDUAL LOOP LEAD-IN SHALL BE PLACED IN THE CABINET.

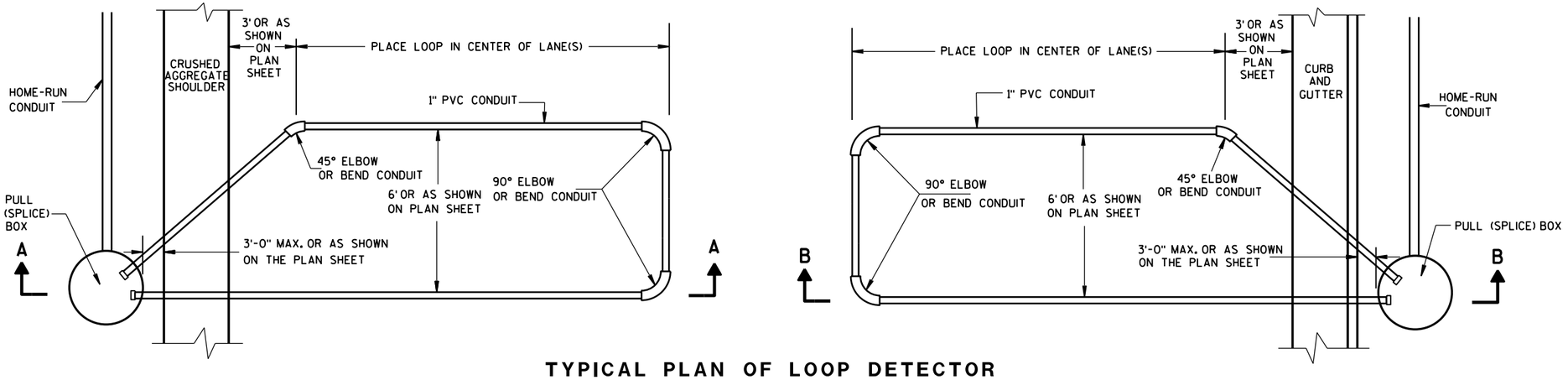
THE #12 AWG. LOOP WIRE IN THE PULL (SPLICE) BOX SHALL BE HAND TWISTED AT LEAST 3 TWISTS PER FOOT BEFORE BEING SPLICED TO THE LOOP LEAD-IN CABLE.

SPLICES OF LOOP WIRE TO LEAD-IN CABLE SHALL BE MADE ONLY IN PULL (SPLICE) BOXES AT THE SIDE OF THE ROAD.

THE #12 AWG LOOP WIRE SHALL BE INSTALLED FROM THE ROADSIDE PULL (SPLICE) BOX THROUGH THE LOOP CONDUIT, BACK TO THE ROADSIDE PULL (SPLICE) BOX, AND BE INSTALLED IN ONE, NON-SPLICE CONTINUOUS LENGTH.

PROTECTION OF THE CONDUIT IN THE BASE COURSE, SHALL BE REQUIRED AFTER INSTALLATION AND BEFORE NEW PAVEMENT IS INSTALLED.

SHOULD INSTALLATION REPAIR BE REQUIRED, IT SHALL BE DONE UNDER THE DIRECTION OF THE PROJECT ENGINEER.



TYPICAL PLAN OF LOOP DETECTOR WITH 18" OR 24" PULL (SPLICE) BOX

LOOP DETECTOR INSTALLED IN BASE COURSE WITH PULL (SPLICE) BOX OFF ROADWAY (OPTION 1)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
Sept. 2014 — DATE
/S/ Ahmet Demirbilek — STATE ELECTRICAL
FHWA

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S.D.D. 9 F 15-4a

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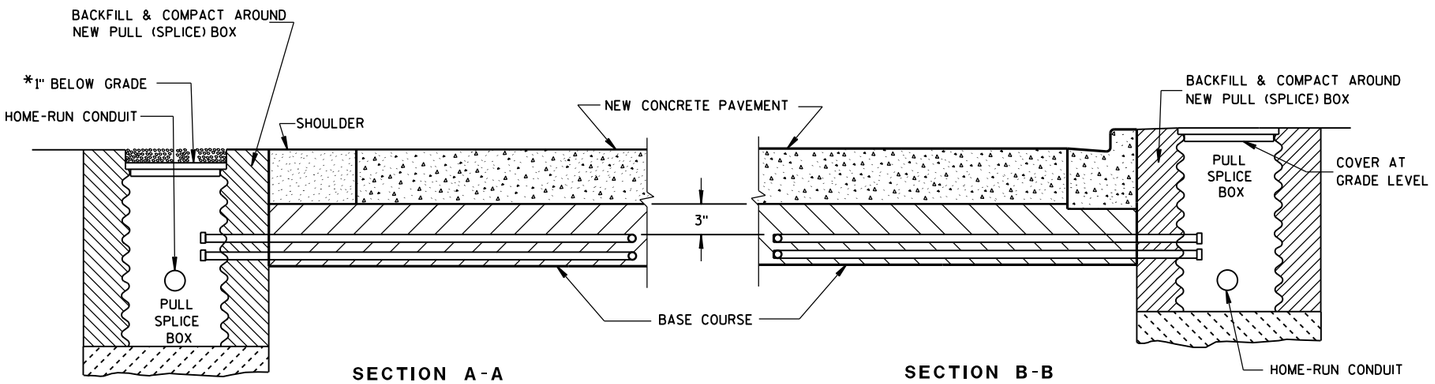
S.D.D. 9 F 15-4a



SECTION A-A
NO CURB & GUTTER

SECTION B-B
CURB & GUTTER

*RECESS PULL (SPLICE) BOX SO THAT THE COVER IS 3" BELOW GRADE IN SHOULDER AREAS OF CRUSHED AGGREGATE. BACKFILL OVER COVER WITH THE CRUSHED AGGREGATE TO BRING THE AREA TO GRADE LEVEL.

LOOP DETECTOR INSTALLATION DETAIL

GENERAL NOTES

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

LOOP SIZE, CONFIGURATION LOCATION, NUMBER OF TURNS OF WIRE AND ASSOCIATED SIGNAL PHASE SHALL BE AS SHOWN ON THE PLANS.

PITCH LEAD OUT CONDUIT TO DRAIN TO ROADSIDE PULL (SPLICE) BOX.

SPLICES SHALL BE INSTALLED BY USING CAST IN PLACE SPLICE KITS LISTED ON THE DEPARTMENTS APPROVED PRODUCTS LIST OR AN ENGINEER APPROVED EQUAL. NON-INSULATED BUTT SPLICES TO FIT #12 AWG STRANDED WIRE SHALL BE USED. SPLICES SHALL BE SOLDERED AND INSULATED FROM EACH OTHER AS PER INSTRUCTIONS INCLUDED IN THE SPLICE KIT.

MEASURE GROUND RESISTANCE USING A MEGGER. REPLACE LOOP WIRE NOT ATTAINING A READING OF INFINITY TO GROUND.

AFTER SPLICING THE LOOP WIRE TO THE LOOP LEAD-IN CABLE, THE CONTRACTOR SHALL MEASURE INDUCTANCE, GROUND RESISTANCE AND WIRE RESISTANCE AT THE CABINET END OF THE LEAD-IN CABLE AND FURNISH A COPY OF THE READINGS TO THE PROJECT ENGINEER FOR EVALUATION.

LOOP DETECTOR LEADS SHALL BE IDENTIFIED WITH THEIR ASSOCIATED LOOP BY USE OF WATERPROOF TAGS AT BOTH ENDS OF THE CABLE. A LISTING OF THE CABLE IDENTIFICATION PER INDIVIDUAL LOOP LEAD-IN SHALL BE PLACED IN THE CABINET.

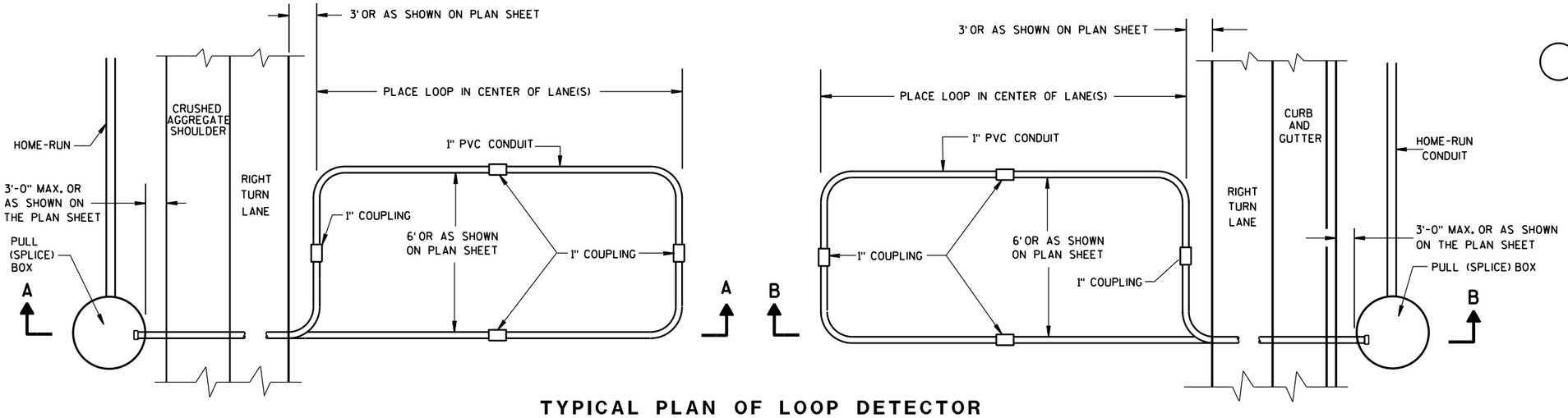
THE #12 AWG. LOOP WIRE IN THE PULL (SPLICE) BOX SHALL BE HAND TWISTED AT LEAST 3 TWISTS PER FOOT BEFORE BEING SPLICED TO THE LOOP LEAD-IN CABLE.

SPLICES OF LOOP WIRE TO LEAD-IN CABLE SHALL BE MADE ONLY IN PULL (SPLICE) BOXES AT THE SIDE OF THE ROAD.

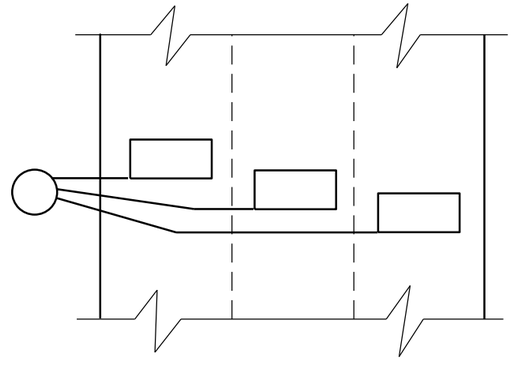
THE #12 AWG LOOP WIRE SHALL BE INSTALLED FROM THE ROADSIDE PULL (SPLICE) BOX, THROUGH THE LOOP CONDUIT, BACK TO THE ROADSIDE PULL (SPLICE) BOX, AND BE INSTALLED IN ONE, NON-SPLICED CONTINUOUS LENGTH.

PROTECTION OF THE CONDUITS IN THE BASE COURSE SHALL BE REQUIRED AFTER INSTALLATION AND BEFORE NEW PAVEMENT IS INSTALLED.

SHOULD INSTALLATION REPAIR BE REQUIRED, IT SHALL BE DONE UNDER THE DIRECTION OF THE PROJECT ENGINEER.

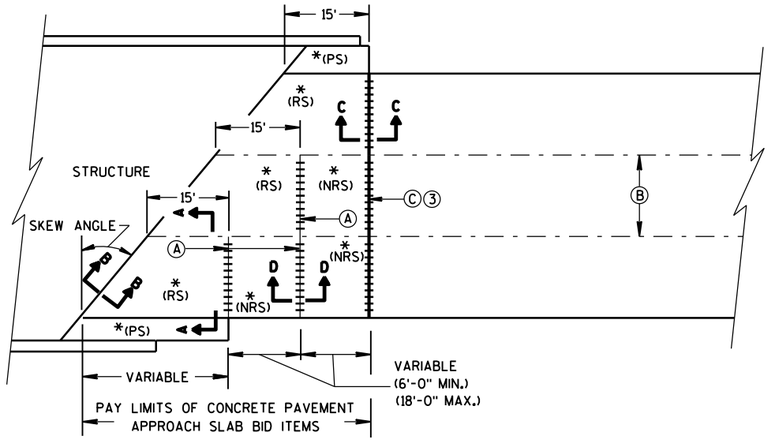


TYPICAL PLAN OF LOOP DETECTOR WITH 24" PULL (SPLICE) BOX

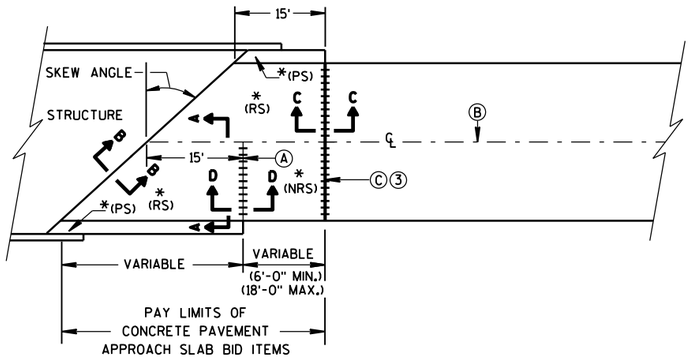


MULTI-LANE INSTALLATION

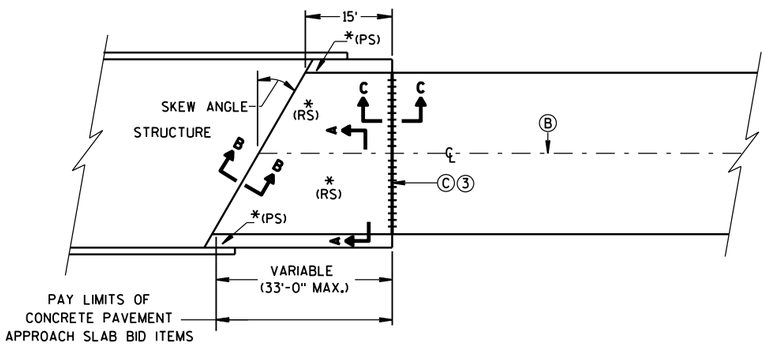
LOOP DETECTOR INSTALLED IN BASE COURSE WITH PULL (SPLICE) BOX OFF ROADWAY (OPTION 2)
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION
APPROVED Sept. 2014 — DATE /S/ Ahmet Demirbilek — STATE ELECTRICAL FHWA



SKEWED APPROACH
(PAVEMENT MORE THAN 2 LANES)



SKEWS >20°
(PAVEMENT WIDTH ≤30')



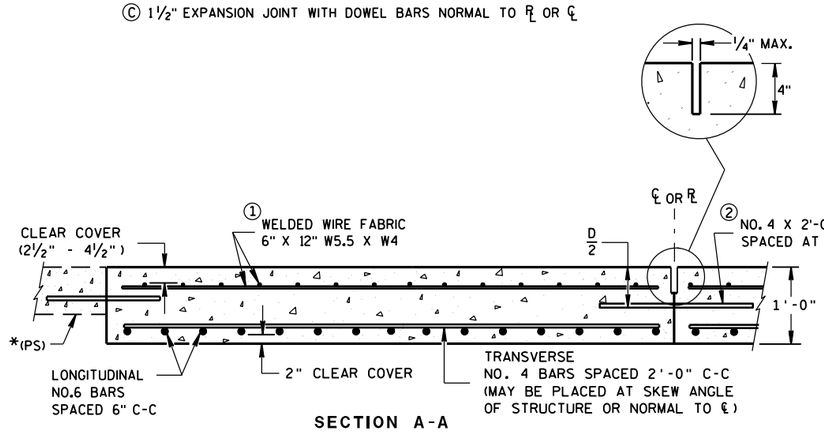
SKEWS ≤20°
(PAVEMENT WIDTH ≤30')

APPROACH SLAB AND ADJACENT PAVEMENT

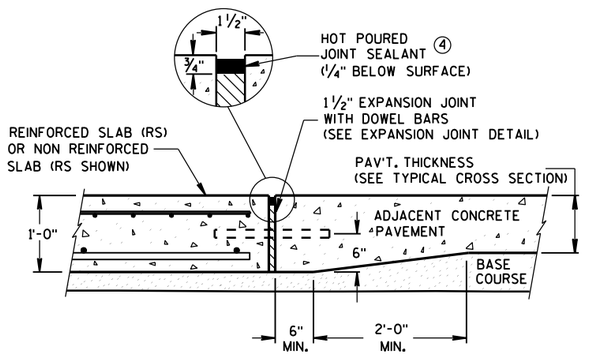
*(RS) = REINFORCED CONCRETE SLAB
*(PS) = PAVED CONCRETE SHOULDER OR CONCRETE DRAINAGE SLAB
(SEE DETAILS ELSEWHERE IN THE PLAN)
*(NRS) = NON-REINFORCED CONCRETE SLAB

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

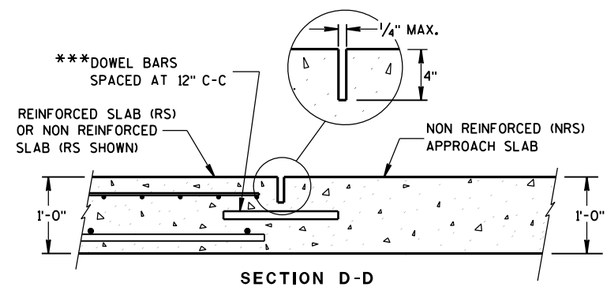
Ⓐ STANDARD CONTRACTION JOINT NORMAL TO ℄ OR ℄
Ⓑ STANDARD LONGITUDINAL JOINT WITH TIE BARS.
Ⓒ 1½" EXPANSION JOINT WITH DOWEL BARS NORMAL TO ℄ OR ℄



SECTION A-A
REINFORCEMENT POSITIONING DETAIL



SECTION C-C
TRANSITION DETAIL
APPROACH SLAB TO ADJACENT PAVEMENT



SECTION D-D
CONTRACTION JOINT

GENERAL NOTES

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

TACK WELD DOWEL BARS TO THE BASKETS ON ALTERNATE ENDS.

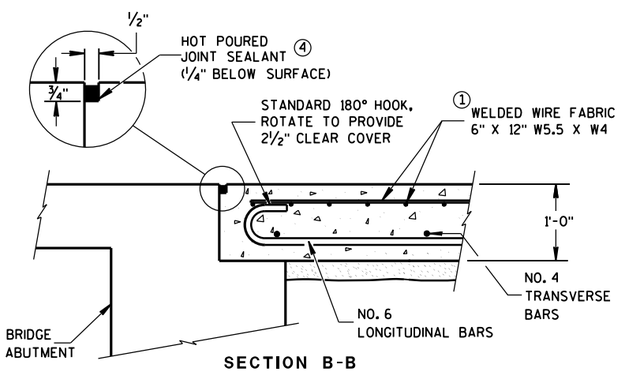
① THE CONTRACTOR MAY USE NO. 4 BARS SPACED AT 2'-0" C-C IN BOTH THE LONGITUDINAL AND TRANSVERSE DIRECTIONS FOR TOP REINFORCEMENT AS AN ALTERNATIVE TO THE WELDED WIRE FABRIC.

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

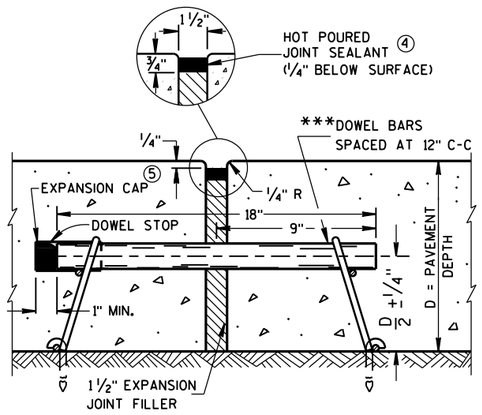
③ DO NOT CONSTRUCT AN EXPANSION JOINT OR INSTALL DOWEL BARS WHEN ABUTTING AN HMA PAVEMENT.

④ USE A JOINT SEALANT MEETING THE REQUIREMENTS OF ASTM D6690.

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



SECTION B-B
BEND DETAIL
BOTTOM REINFORCEMENT



EXPANSION JOINT DETAIL

CONCRETE PAVEMENT APPROACH SLAB

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June, 2015
DATE
/S/ Peter Kemp, P.E.
PAVEMENT SUPER
FHWA

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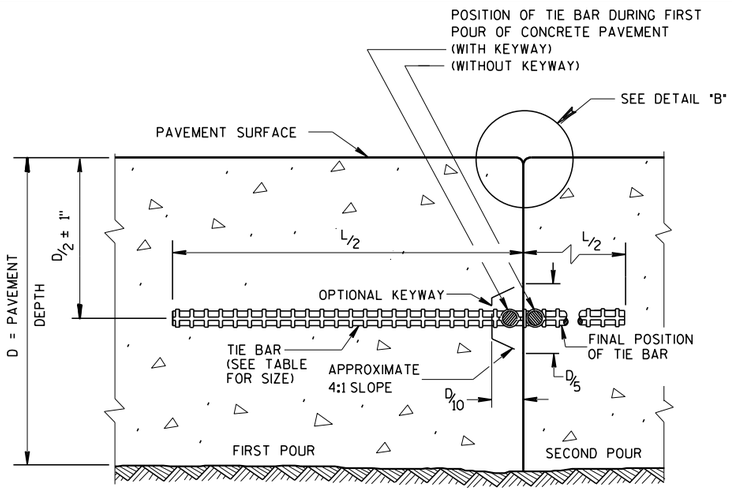
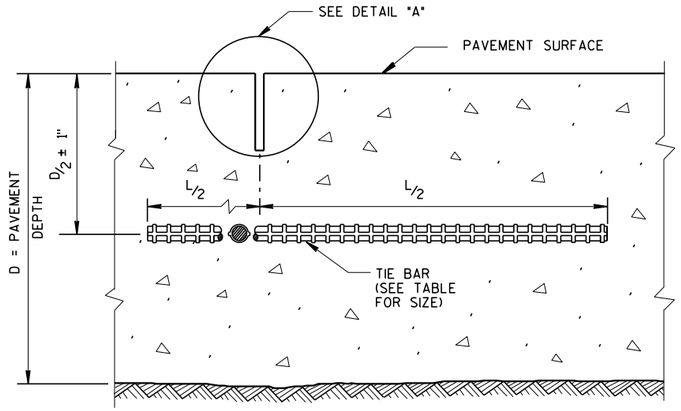
S.D.D. 13 B 2-8a



CONSTRUCTION JOINT



SAWED JOINT

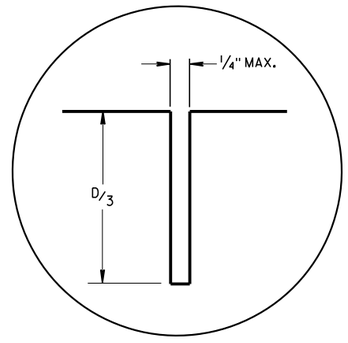
GENERAL NOTES

CREATE A LONGITUDINAL JOINT FOR PAVEMENT WIDTHS GREATER THAN 15 FEET.

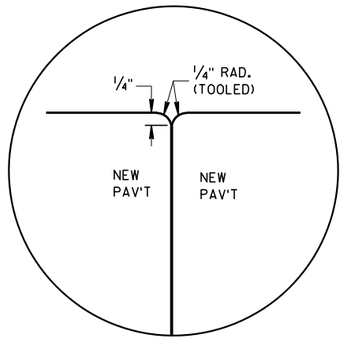
CORRELATE LONGITUDINAL JOINTS WITH LANE LINES WHEN POSSIBLE.

(1) ANCHOR TIE BARS INTO DRILLED HOLES WITH AN EPOXY.

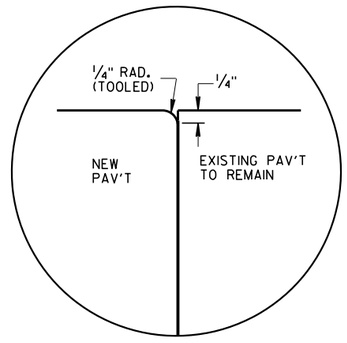
(2) PAVEMENT THAT WAS IN PLACE PRIOR TO THE CONTRACT.



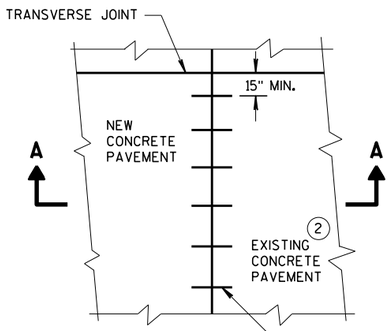
DETAIL "A"



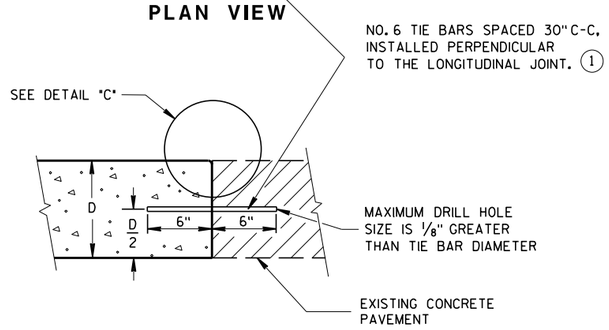
DETAIL "B"



DETAIL "C"



PLAN VIEW



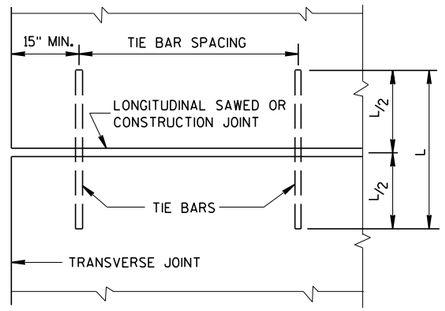
SECTION A-A
LONGITUDINAL CONSTRUCTION JOINT TIE BARS ANCHORED INTO EXISTING PAVEMENT

TIE BAR TABLE

PAVEMENT DEPTH (D)	TIE BAR SIZE	TIE BAR LENGTH (L)	MAX. TIE BAR SPACING
< 10 1/2"	NO. 4	30"	36"
≥ 10 1/2"	NO. 5	36"	36"
	NO. 4 *	30"	24" **

* SUBSTITUTE BENT BARS AT LONGITUDINAL JOINTS WHEN EQUIPMENT LIMITATIONS DURING CONSTRUCTION WARRANT (e.g. AUXILIARY LANES OR TURN LANES)

** CONFORM TO 15" MINUMUM SPACING FROM TRANSVERSE JOINTS; SPACING BETWEEN TIE BARS WILL BE 30" AT TRANSVERSE JOINTS.



PLAN VIEW
SHOWING LOCATION OF TIE BARS

CONCRETE PAVEMENT LONGITUDINAL JOINTS AND TIES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
March 2018 — DATE
/S/ Peter Kemp — PAVEMENT SUPE
FHWA

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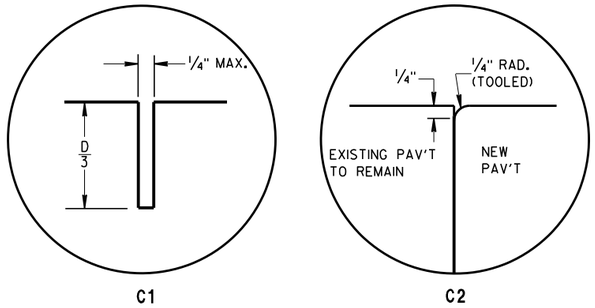
S.D.D. 13 C 1-19



C1 C2

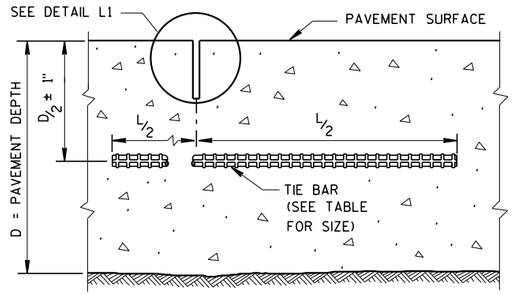
TRANSVERSE JOINTS

TIE BAR TABLE

PAVEMENT DEPTH (D)	TIE BAR SIZE	TIE BAR LENGTH (L)	MAX. TIE BAR SPACING
< 10 1/2"	NO. 4	30"	36"
≥ 10 1/2"	NO. 5	36"	36"
	NO. 4 *	30"	24" **

* SUBSTITUTE BENT BARS AT LONGITUDINAL JOINTS WHEN EQUIPMENT LIMITATIONS DURING CONSTRUCTION WARRANT (e.g. AUXILIARY LANES OR TURN LANES)

** CONFORM TO 15" MINUMUM SPACING FROM TRANSVERSE JOINTS; SPACING BETWEEN TIE BARS WILL BE 30" AT TRANSVERSE JOINTS.



SECTION C-C

SAWED LONGITUDINAL JOINT

GENERAL NOTES

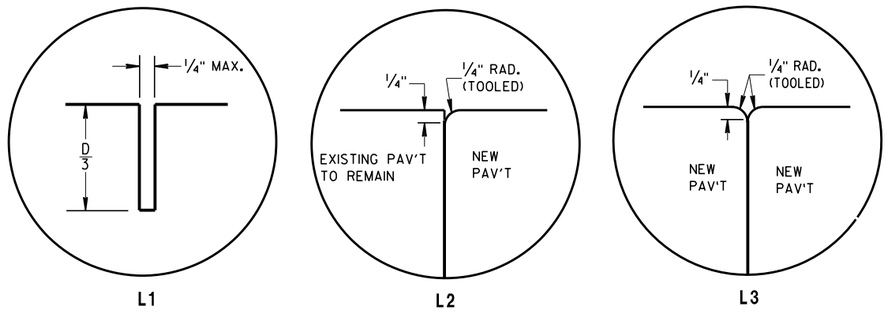
INSTALL DOWEL BARS PARALLEL TO THE PAVEMENT CENTERLINE AND PAVEMENT SURFACE.

CONCRETE PAVEMENT REPAIRS OF EXISTING NONDOWELED CONCRETE PAVEMENTS DO NOT NEED TO BE DOWELED.

ANCHOR DOWEL BARS AND TIE BARS INTO DRILLED HOLES WITH AN EPOXY.

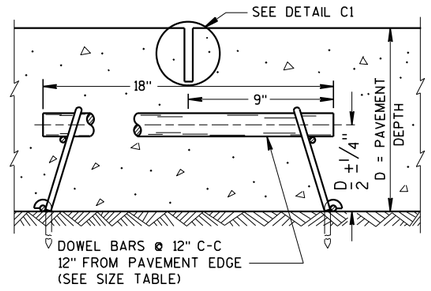
FOR MULTI-LANE CONCRETE PAVEMENT REPLACEMENTS, PROVIDE A MINIMUM DISTANCE OF 15 INCHES FROM ALL TRANSVERSE JOINTS OR EDGES OF REPLACEMENT TO THE CENTER OF THE TIE BAR NEAREST THAT JOINT OR EDGE.

(1) APPLY A THIN UNIFORM COATING OF SURFACE TREATMENT TO THE FREE END OF DOWEL BARS TO PREVENT BONDING.



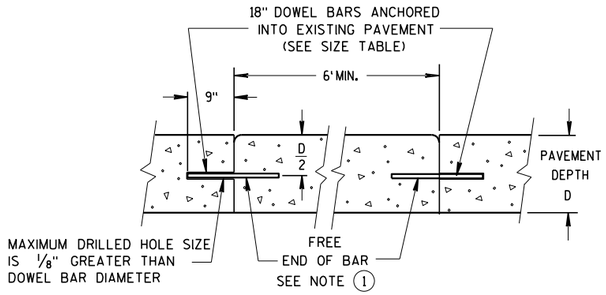
L1 L2 L3

LONGITUDINAL JOINTS

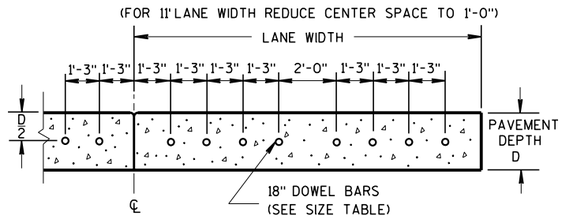


SECTION F-F

CONTRACTION JOINT



SECTION D-D

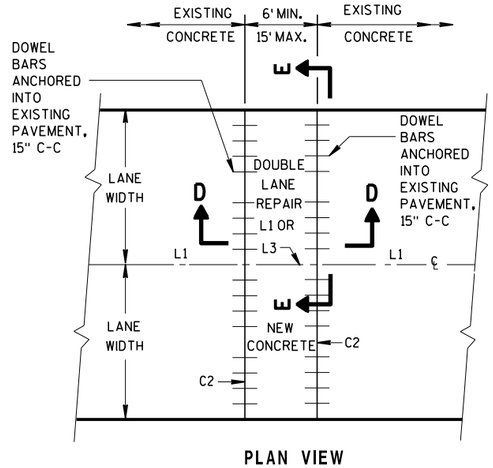


SECTION E-E

DRILLED DOWEL BAR CONSTRUCTION JOINT

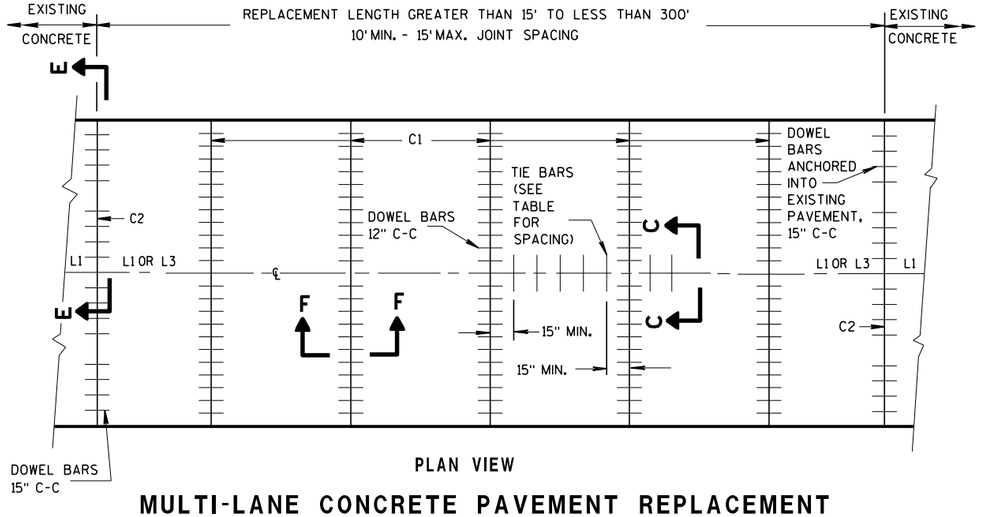
PAVEMENT DEPTH, DOWEL BAR SIZE AND JOINT SPACING TABLE

PAVEMENT DEPTH (D)	DOWEL BAR DIAMETER	DRILLED DOWEL BAR DIAMETER	CONTRACTION JOINT SPACING
5 1/2", 6", 6 1/2"	NONE	NONE	12'
7", 7 1/2"	1"	1"	14'
8", 8 1/2"	1 1/4"	1 1/4"	15'
9", 9 1/2"	1 1/4"	1 1/4"	15'
10" & ABOVE	1 1/2"	1 1/4"	15'



PLAN VIEW

MULTI-LANE CONCRETE PAVEMENT REPAIR



PLAN VIEW

MULTI-LANE CONCRETE PAVEMENT REPLACEMENT

CONCRETE PAVEMENT REPAIR AND REPLACEMENT

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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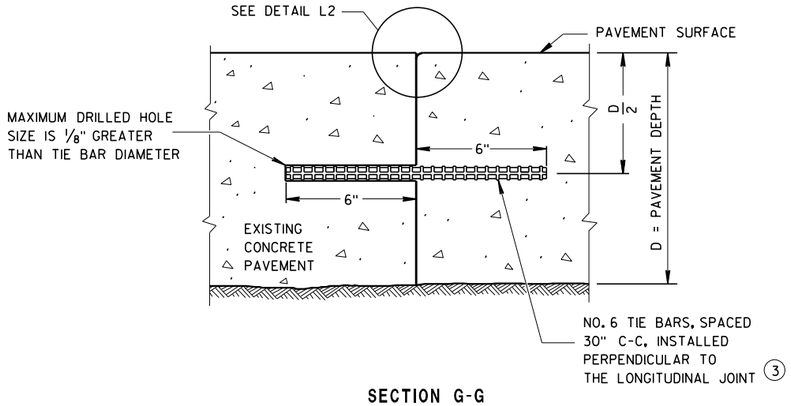


SECTION G-G

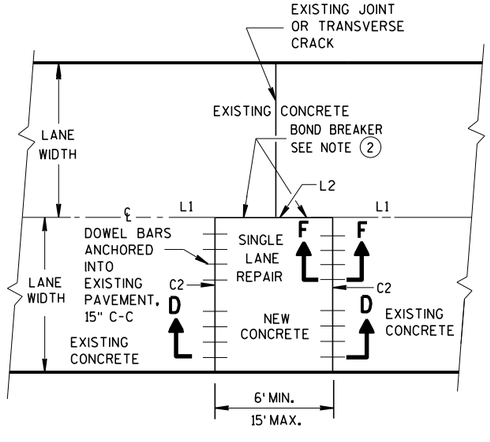
TIE BARS ANCHORED INTO EXISTING PAVEMENT

GENERAL NOTES

(1) WITH THE APPROVAL OF THE ENGINEER, FOR SINGLE LANE PAVEMENT REPLACEMENTS LESS THAN 30 FEET IN LENGTH, THE CONTRACTOR MAY INSTALL DRILLED TIE BARS ON 6:1 SKEW HORIZONTALLY, DIRECTION OF SKEW ALTERNATING WITH EACH SUCCESSIVE BAR. DRIVE SKEWED TIE BARS TO A DEPTH OF 6 INCHES IN A HOLE OF SUCH A DIAMETER AS TO PROVIDE A TIGHT DRIVEN FIT.

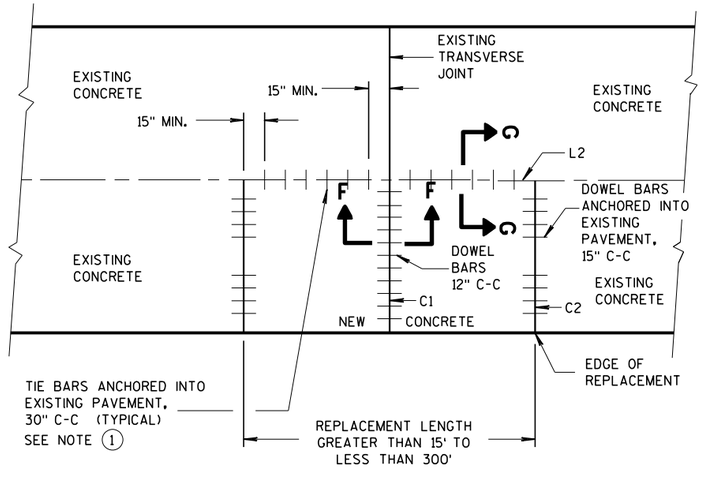
(2) USE AN ENGINEER-APPROVED BOND BREAKER (E.G. RELEASE AGENT, CURING COMPOUND) FOR SINGLE LANE REPAIRS UP TO 15 FEET IN LENGTH.

(3) ANCHOR TIE BARS INTO DRILLED HOLES WITH AN EPOXY.



PLAN VIEW

SINGLE LANE CONCRETE PAVEMENT REPAIR



PLAN VIEW

SINGLE LANE CONCRETE PAVEMENT REPLACEMENT

CONCRETE PAVEMENT REPAIR AND REPLACEMENT

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
March 2018 — DATE
/S/ Peter Ken... — PAVEMENT SUPE...
FHWA

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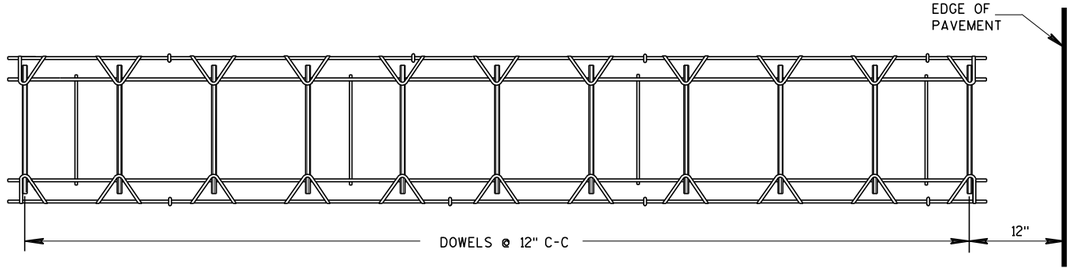
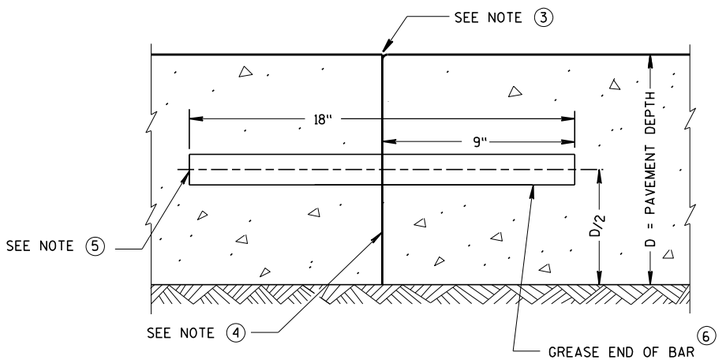


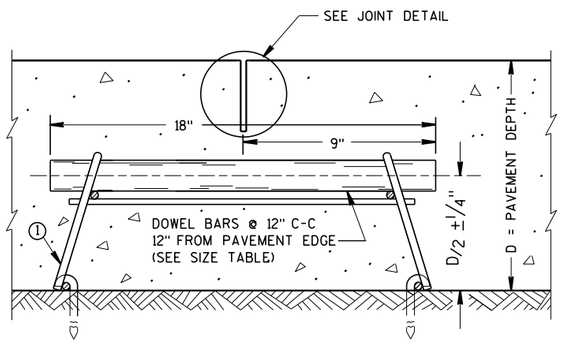
PLAN VIEW

SIDE VIEW

CONTRACTION JOINT DOWEL ASSEMBLY ①



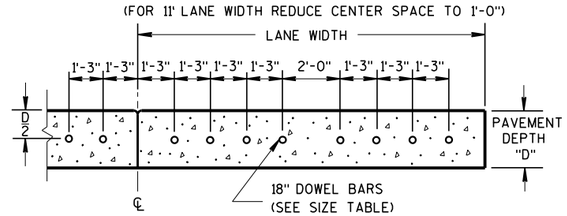
TRANSVERSE CONSTRUCTION JOINT



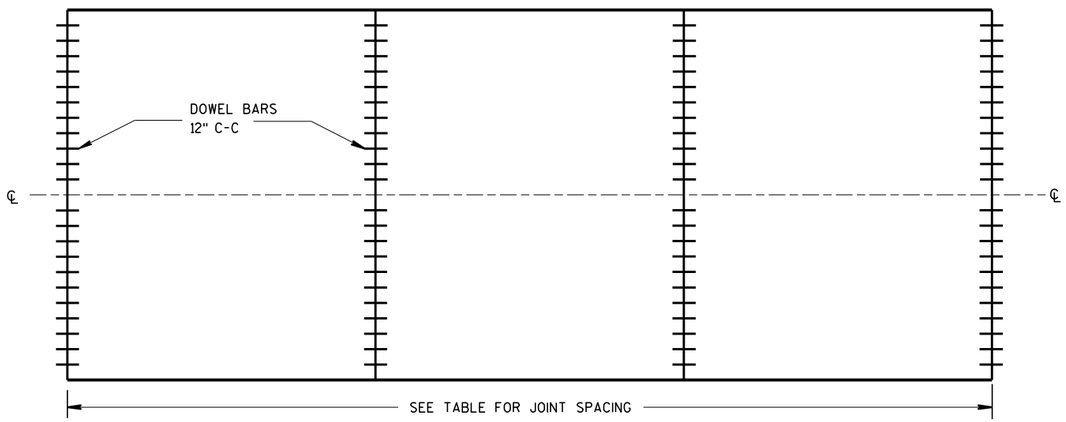
DOWELED CONTRACTION JOINT

PAVEMENT DEPTH, DOWEL BAR SIZE AND JOINT SPACING TABLE

PAVEMENT DEPTH (D)	DOWEL BAR DIAMETER	CONTRACTION JOINT SPACING
5 ½", 6", 6 ½"	NONE	12'
7", 7 ½"	1"	14'
8", 8 ½"	1 ¼"	15'
9", 9 ½"	1 ¼"	15'
10" & ABOVE	1 ½"	15'



DRILLED DOWEL BAR CONSTRUCTION JOINT ⑦



CONTRACTION JOINT LOCATIONS

GENERAL NOTES

CONTRACTION JOINTS

CONSTRUCT TRANSVERSE CONTRACTION JOINTS NORMAL TO THE CENTERLINE. SHOW THE LOCATION OF CONTRACTION JOINTS THROUGH INTERSECTIONS ON THE PLANS OR AS DIRECTED BY THE ENGINEER.

INSTALL DOWEL BARS PARALLEL TO THE PAVEMENT CENTERLINE AND PAVEMENT SURFACE.

FOR PAVEMENT SLABS OF VARYING WIDTHS, LOCATE THE OUTER MOST DOWEL BAR SO THAT THE CENTER OF THE BAR IS A MINIMUM OF 6 INCHES AND A MAXIMUM OF 18 INCHES FROM THE LONGITUDINAL JOINT AND THE FREE EDGE OF PAVEMENT.

CONSTRUCTION JOINTS

LOCATE CONSTRUCTION JOINTS A MINIMUM OF 6 FEET FROM THE NEAREST CONTRACTION JOINT AND ALIGN PARALLEL TO CONTRACTION JOINTS.

① OBTAIN THE ENGINEER'S APPROVAL FOR THE USE OF ALTERNATIVE DESIGNS OF THE DOWEL ASSEMBLY. USE MECHANICAL DOWEL BAR INSERTERS OR DOWEL ASSEMBLIES WHEN CONSTRUCTING CONTRACTION JOINTS.

② SECURE BASKETS WITH ANCHORS TO HOLD DOWEL BARS IN THE CORRECT POSITION AND ALIGNMENT. TYPE, LOCATION, NUMBER AND LENGTH OF ANCHORS ARE DEPENDENT UPON FIELD CONDITIONS.

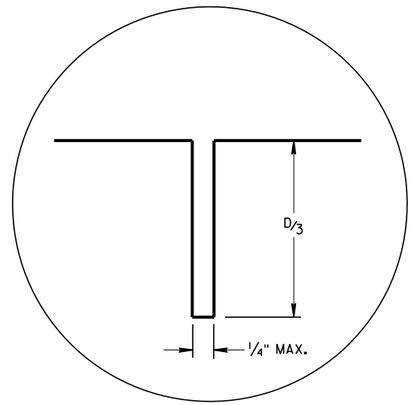
③ FORM OR SAW CONSTRUCTION JOINTS. PROVIDE A ¼-INCH RADIUS AT FORMED JOINTS.

④ PROVIDE A SMOOTH VERTICAL FACE FOR THE ENTIRE DEPTH OF THE PAVEMENT WHEN FORMING CONSTRUCTION JOINTS.

⑤ INSTALL DOWEL BARS AT CONSTRUCTION JOINTS BY FORMING OR DRILLING. INSTALL FORMED DOWEL BARS 12 INCHES C-C AND 12 INCHES FROM PAVEMENT EDGE. REMOVE EXCESS CONCRETE FROM THE FREE END OF THE DOWEL BAR IF DOWEL BARS ARE FORMED THROUGH A HEADER BOARD. INSTALL DRILLED DOWEL BARS ACCORDING TO *DRILLED DOWEL BAR CONSTRUCTION JOINT* DETAIL.

⑥ APPLY A THIN UNIFORM COATING OF SURFACE TREATMENT TO THE FREE END OF DOWEL BARS TO PREVENT BONDING.

⑦ ANCHOR DOWEL BARS INTO DRILLED HOLES WITH AN EPOXY. MAXIMUM DRILLED HOLE SIZE IS ⅛-INCH GREATER THAN DOWEL BAR DIAMETER, 9 INCHES IN LENGTH.



JOINT DETAIL

URBAN DOWELED CONCRETE PAVEMENT

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
March 2018 — DATE
/S/ Peter Kemp P.E. — PAVEMENT SUP
75
FHWA

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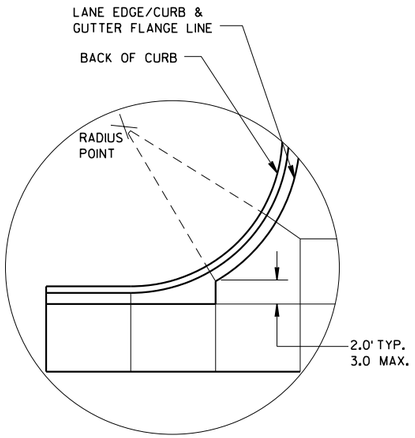
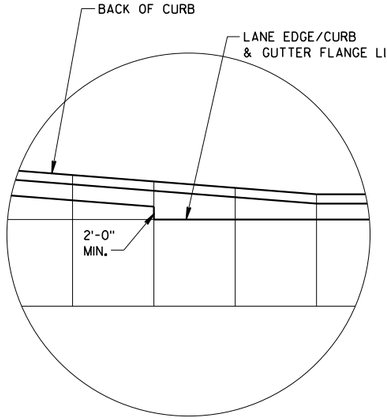
S.D.D. 13 C 13-9

6

S.D.D. 13 C 13-9



DETAIL "A"



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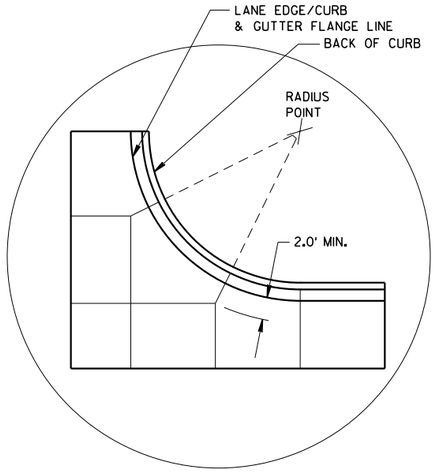

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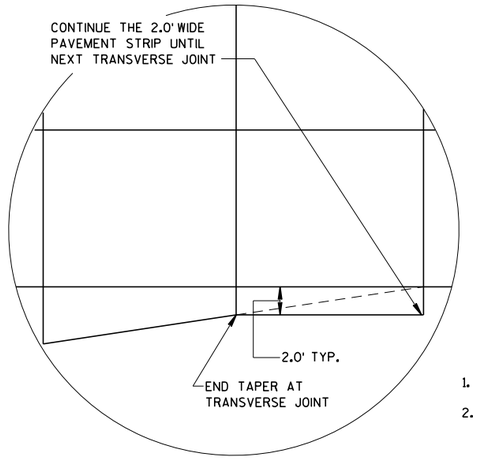


DETAIL "D"

GENERAL NOTES

THE PRIMARY ROADWAY CONTROLS THE TRANSVERSE JOINT PATTERN.

ALIGN NEW JOINTS WITH EXISTING JOINTS OR CRACKS.

CONSTRUCT TRANSVERSE JOINTS PERPENDICULAR TO THE ROADWAY.

ADJUST TRANSVERSE JOINTS TO ALIGN WITH UTILITY FIXTURES (E.G. MANHOLES AND INLETS) IN THE PAVEMENT STRUCTURE WHEN POSSIBLE. WATER VALVES DO NOT REQUIRE JOINT ADJUSTMENT.

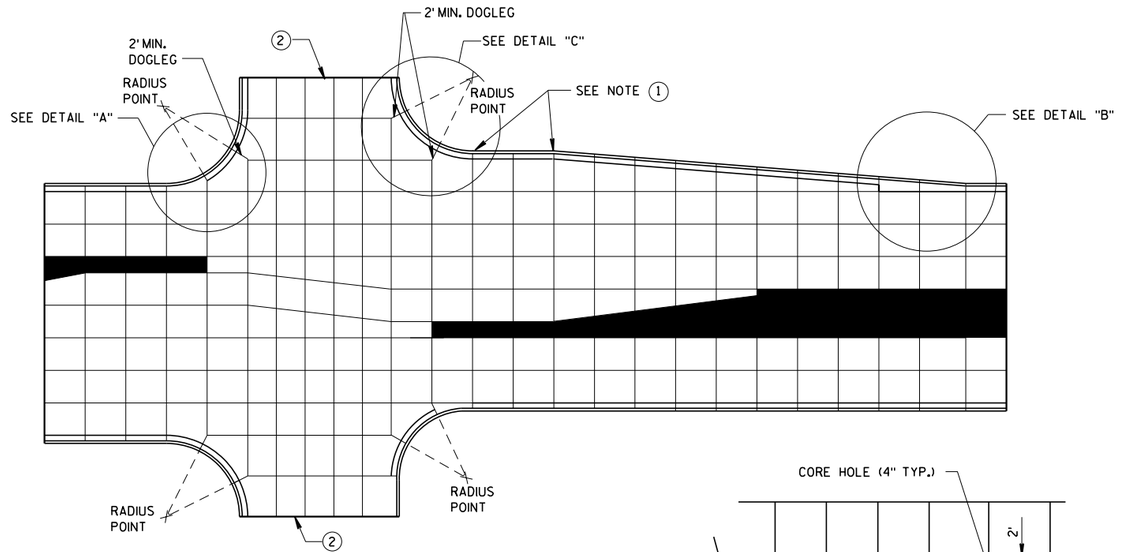
AVOID SLABS LESS THAN 2 FEET WIDE OR GREATER THAN 15 FEET WIDE.

SEE TABLE FOR TRANSVERSE JOINT SPACING. JOINT SPACING SPECIFIED IS MAXIMUM AND ACTUAL SPACING CAN BE ADJUSTED TO ACCOMMODATE INTERSECTIONS.

AVOID ANGLES LESS THAN 60° BY DOGLEGGING JOINTS THROUGH CURVE RADIUS POINTS. USE 90° ANGLES WHEN POSSIBLE.

CORRELATE LONGITUDINAL JOINTS WITH LANE LINES WHEN POSSIBLE.

1. PROVIDE TRANSVERSE JOINTS AT ALL PAVEMENT WIDTH CHANGES.
2. CONSTRUCT DOWELED EXPANSION JOINT ON THE SIDE ROAD OF AN INTERSECTION IF THE SIDE ROAD IS CONCRETE PAVEMENT AND GREATER THAN 300 FEET IN LENGTH. ALIGN EXPANSION JOINT WITH EDGE OF RADIUS.
3. THE ENGINEER MAY APPROVE SLIGHT VARIATIONS FROM THESE JOINTING DETAILS.

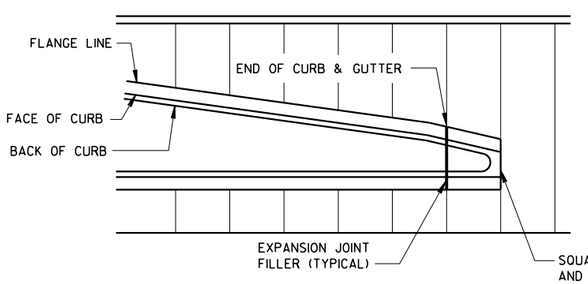


STANDARD INTERSECTION

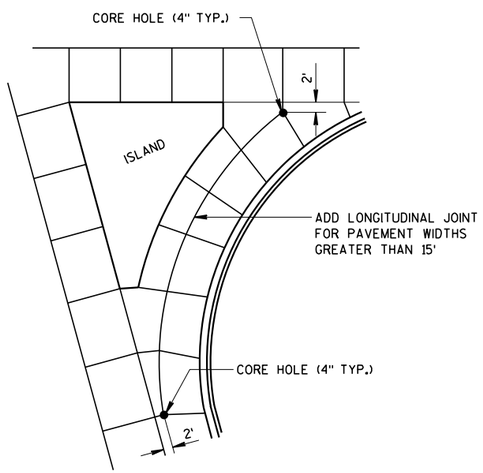
PAVEMENT DEPTH AND JOINT SPACING TABLE

PAVEMENT DEPTH (D)	CONTRACTION JOINT SPACING
6", 6½"	12'
7", 7½"	14'
8" & ABOVE	15'

SKEWED INTERSECTION



APPROACH TO MEDIAN



LARGE RIGHT TURN

CONCRETE PAVEMENT JOINTING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

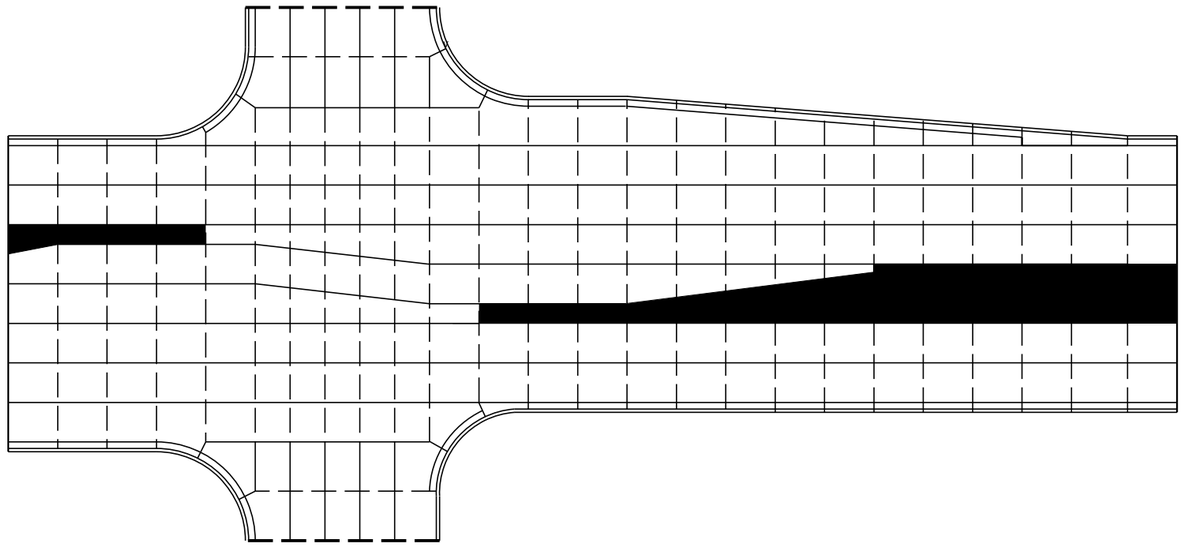
6
S.D.D. 13 C 18-6a

LEGEND

POTENTIAL DOWELED EXPANSION JOINT

DOWELED JOINT

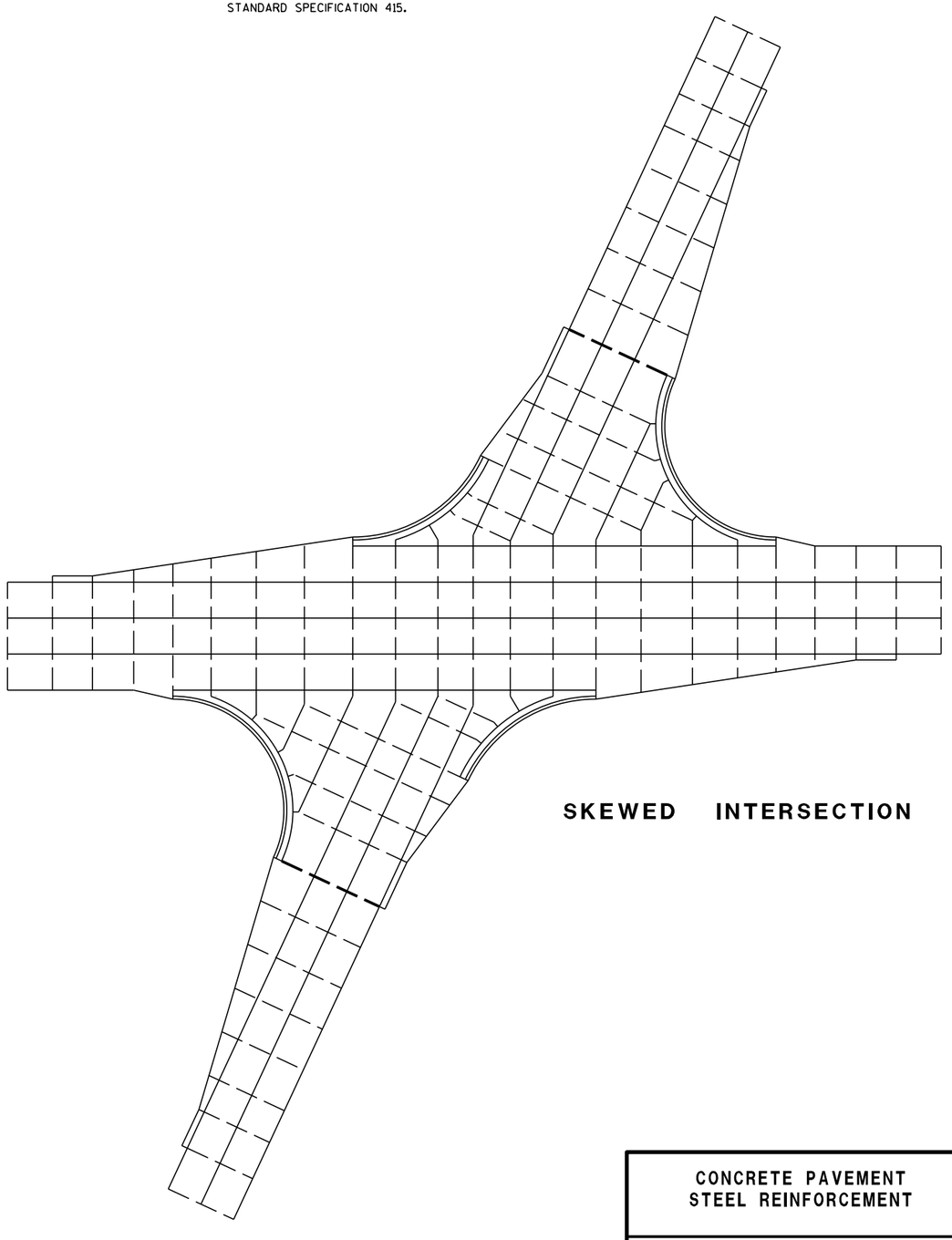
TIED JOINT



STANDARD INTERSECTION

GENERAL NOTES

USE AN EXPANSION JOINT FILLER MEETING THE REQUIREMENTS OF STANDARD SPECIFICATION 415.



SKEWED INTERSECTION

6

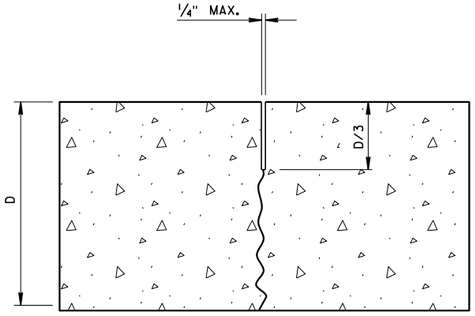
S.D.D. 13 C 18-6b

CONCRETE PAVEMENT
STEEL REINFORCEMENT

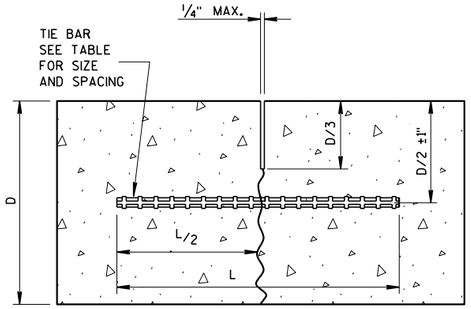
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6

S.D.D. 13 C 18-6b



UNDOWELED-TRANSVERSE



TIED LONGITUDINAL

TIE BAR TABLE

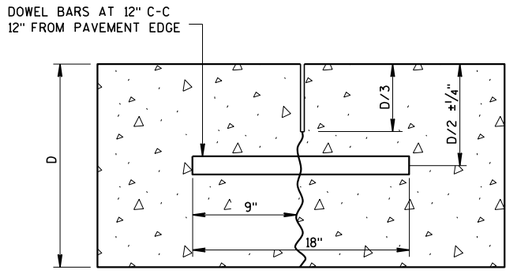
PAVEMENT DEPTH (D)	TIE BAR SIZE	TIE BAR LENGTH (L)	MAX. TIE BAR SPACING
< 10 1/2"	NO. 4	30"	36"
≥ 10 1/2"	NO. 5	36"	36"
	NO. 4 *	30"	24" **

* SUBSTITUTE BENT BARS AT LONGITUDINAL JOINTS WHEN EQUIPMENT LIMITATIONS DURING CONSTRUCTION WARRANT (e.g. AUXILIARY LANES OR TURN LANES)

** CONFORM TO 15" MINUMUM SPACING FROM TRANSVERSE JOINTS; SPACING BETWEEN TIE BARS WILL BE 30" AT TRANSVERSE JOINTS.

GENERAL NOTES

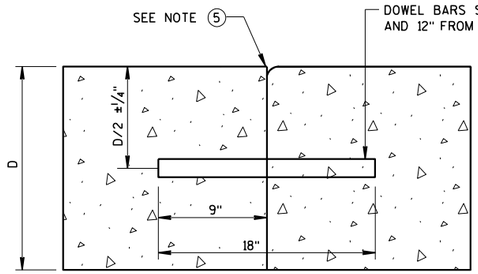
1. USE DOWELED EXPANSION JOINTS ON SIDE ROADS AT INTERSECTIONS (TO ISOLATE THE SIDE ROAD FROM THE THROUGH STREET) IF THE SIDE ROAD IS CONCRETE PAVEMENT AND GREATER THAN 300 FEET IN LENGTH.
2. SPACE CONTRACTION JOINTS IN ACCORDANCE WITH 13C4, 13C11 OR 13C13.
3. LOCATE CONSTRUCTION JOINTS A MINIMUM OF 6 FEET FROM THE NEAREST CONTRACTION JOINT AND ALIGN PARALLEL TO CONTRACTION JOINTS.
4. CONSTRUCTION JOINTS CAN BE FORMED OR SAWED.
5. IF JOINT IS FORMED, PROVIDE A 1/4-INCH RADIUS.
6. ANCHOR TIE BARS INTO DRILLED HOLES WITH AN EPOXY.



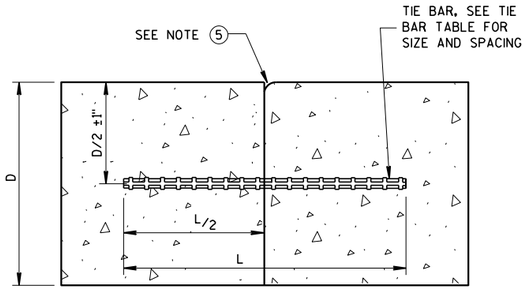
DOWELED-TRANSVERSE

CONTRACTION JOINTS

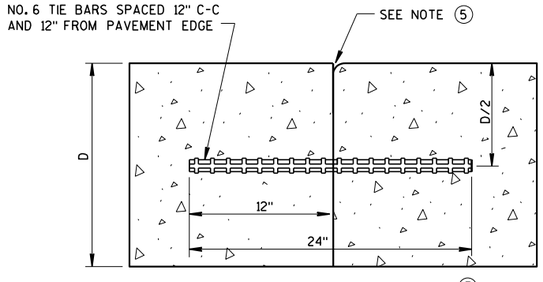
SEE NOTE (2)



DOWELED TRANSVERSE (3)

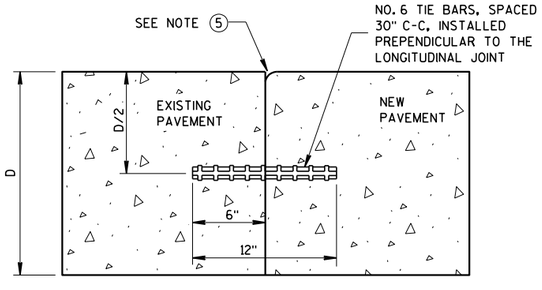


TIED LONGITUDINAL



TIED TRANSVERSE (3)

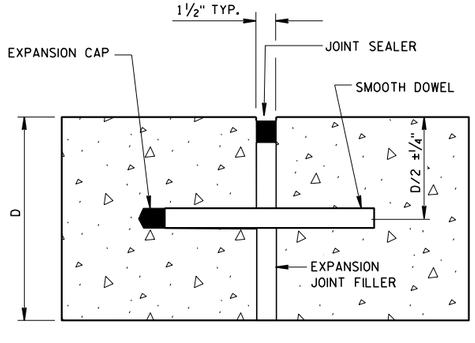
(FOR USE ON NON-DOWELED PAVEMENTS ONLY)



TIED LONGITUDINAL TO EXISTING

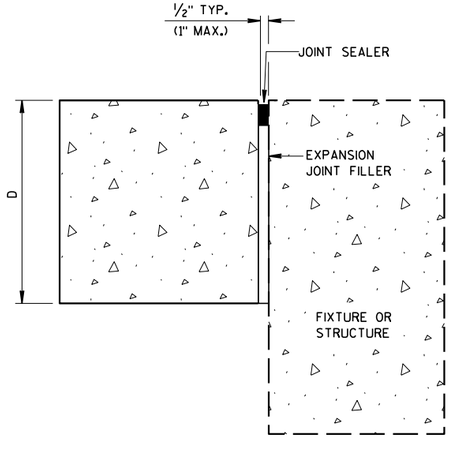
CONSTRUCTION JOINTS

SEE NOTE (4)



DOWELED-TRANSVERSE

SEE NOTE (1)



UNTIED-LONGITUDINAL

EXPANSION JOINTS

CONCRETE PAVEMENT
JOINT TYPES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6

S.D.D. 13 C 18-6c

GENERAL NOTES

(1) W6 X 9 OR W6 X 8.5 STEEL POSTS AND NOTCHED PLASTIC BLOCKOUTS ARE ACCEPTABLE ALTERNATIVES FOR 6" X 8" WOOD POSTS WITH WOOD OR PLASTIC BLOCKOUTS. USE APPROVED NOTCHED PLASTIC BLOCKOUTS WITH STEEL POSTS. APPROVED PLASTIC BLOCKOUT DESIGNS MAY VARY FROM THIS TYPICAL DETAIL WHEN USED IN CONJUNCTION WITH STEEL POSTS.

DO NOT MIX STEEL POSTS AND WOOD POSTS IN A SINGLE INSTALLATION.

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

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

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

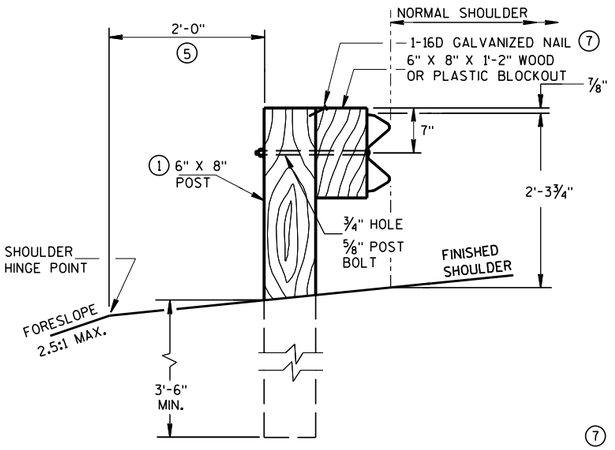
(5) IF THE DISTANCE FROM BACK OF POST TO SHOULDER HINGE POINT IS LESS THAN 2 FEET INSTALL LONGER POST AT HALF POST SPACING, W BEAM (LHW).

(6) IF ROCK IS ENCOUNTERED DURING EXCAVATION, THE ENGINEER MAY APPROVE USING A 12 INCH DIAMETER POST HOLE EXTENDING 20 INCHES DEEP INTO THE ROCK. PLACE GRANULAR MATERIAL IN THE BOTTOM OF THE HOLE APPROXIMATELY 2½ INCHES DEEP. CUT THE POSTS TO LENGTH AND PLACE IN YHE HOLE. BACKFILL WITH MATERIAL EXCAVATED FROM THE HOLE AND COMPACT ADEQUATEY.

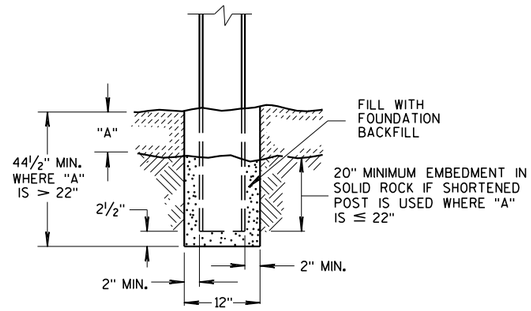
(7) WHEN USING STEEL POSTS AND WOOD BLOCKOUTS INSTALL FOUR 16D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.

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

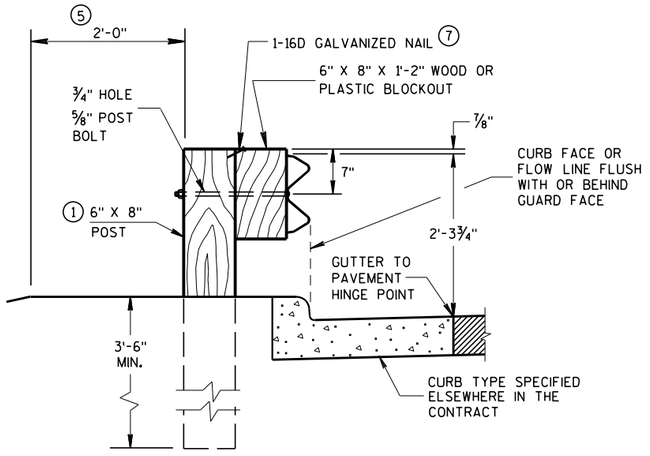
ALL DIMENSIONS ARE SUBJECT TO MANUFACTURER'S TOLERANCES EXCEPT WHERE ALLOWABLE TOLERANCES ARE SHOWN.



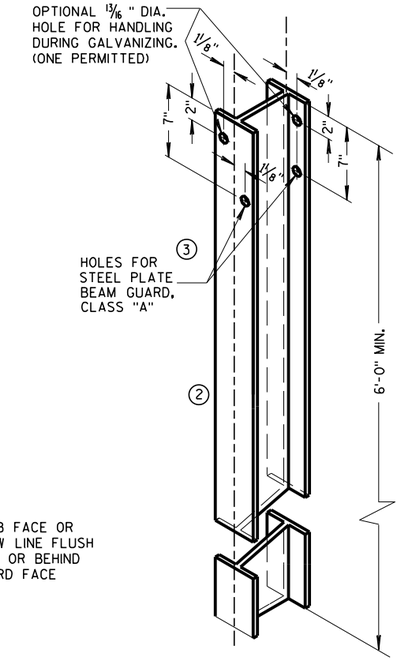
END VIEW
LOCATED ALONG A ROADWAY SHOULDER
STANDARD INSTALLATION



END VIEW
SETTING STEEL OR WOOD POST IN ROCK (6)

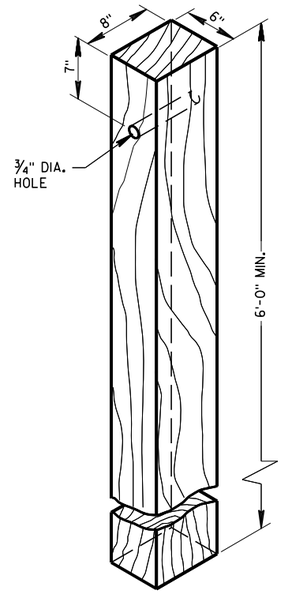


END VIEW
LOCATED ALONG A CURBED ROADWAY

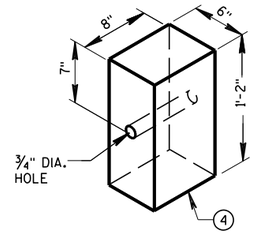


STEEL POST &
HOLE PUNCHING DETAIL
(W6 X 9) (1)

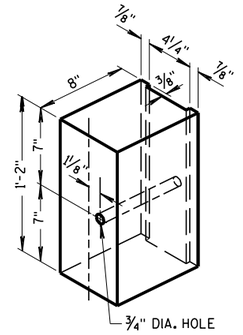
ALL HOLES 13/16" DIAMETER EXCEPT AS NOTED



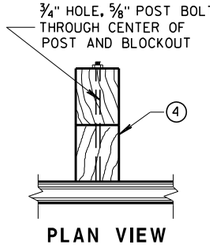
WOOD POST
(6"X8") NOMINAL



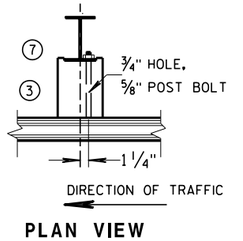
WOOD OR PLASTIC
BLOCKOUT FOR
WOOD POSTS



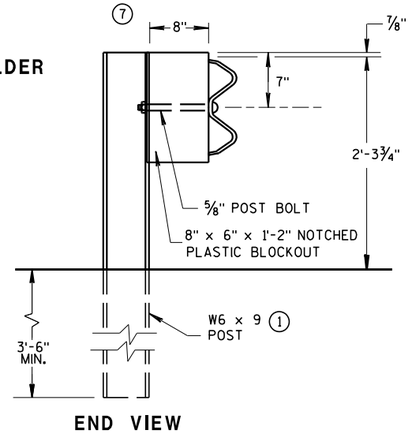
TYPICAL NOTCHED
PLASTIC BLOCKOUT
FOR STEEL POSTS (1)



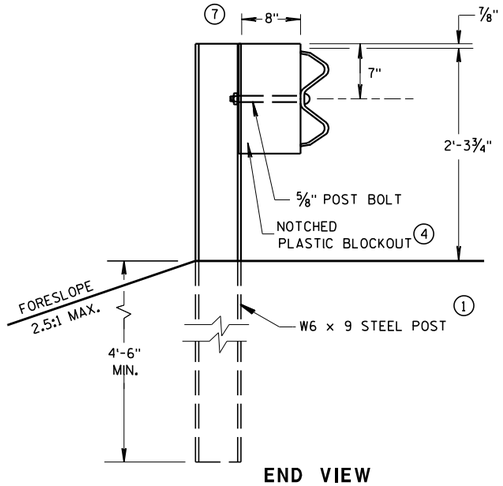
PLAN VIEW
WOOD POST, BLOCKOUT & BEAM



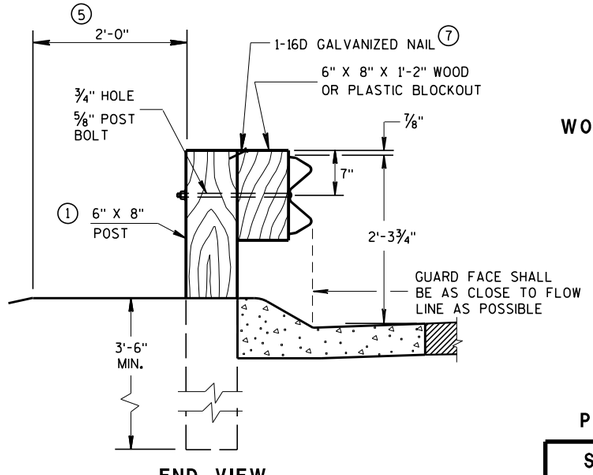
PLAN VIEW
STEEL POST, NOTCHED
PLASTIC BLOCKOUT & BEAM



END VIEW
STEEL POST & NOTCHED
PLASTIC BLOCKOUT ALTERNATIVE
STANDARD INSTALLATION



END VIEW
LONGER POST AT HALF
POST SPACING W BEAM
(LHW)



END VIEW
LOCATED ALONG A
MOUNTABLE CURBED ROADWAY

TYPICAL INSTALLATION OF STEEL PLATE BEAM GUARD

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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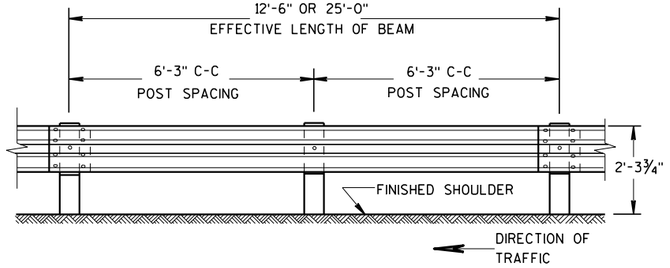
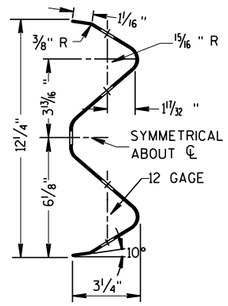
S.D.D. 14 B 15-11a

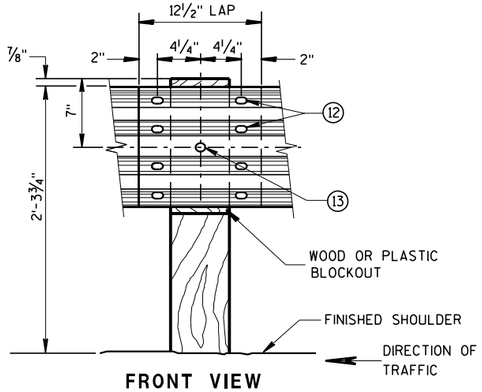


FRONT VIEW

POST SPACING STANDARD INSTALLATION



SECTION THRU W BEAM



FRONT VIEW

BEAM SPLICE AT WOOD POST AND POST MOUNTING DETAIL

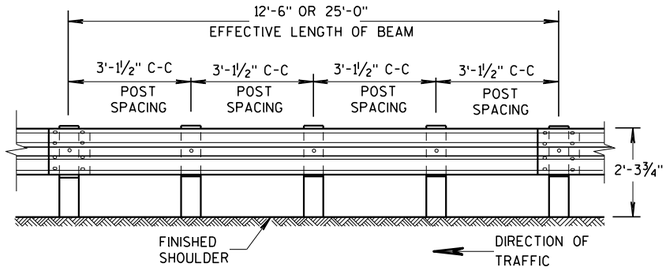
GENERAL NOTES

FURNISH GUARDRAIL DEFLECTORS FROM APPROVED PRODUCTS LIST.

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

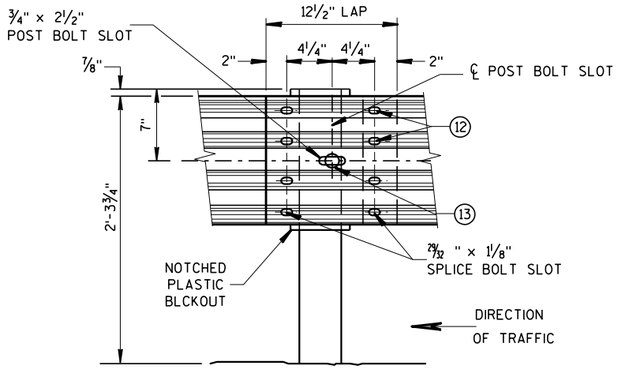
(12) 8 -⅝" ϕ X 2" BUTTON HEAD BOLTS WITH OVAL SHOULDERS & RECESS NUTS.

(13) ⅝" DIA. BUTTON HEAD BOLT AND RECESS NUT WITH ⅝" DIA. F844 FLAT WASHER UNDER NUT.



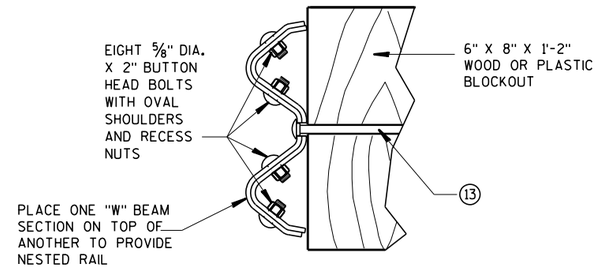
FRONT VIEW

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



FRONT VIEW

BEAM SPLICE AT STEEL POST

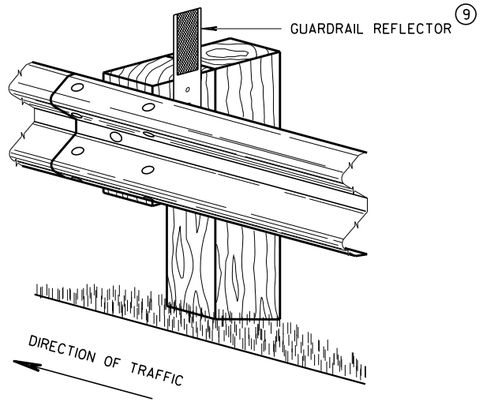


NESTED W BEAM (NW)

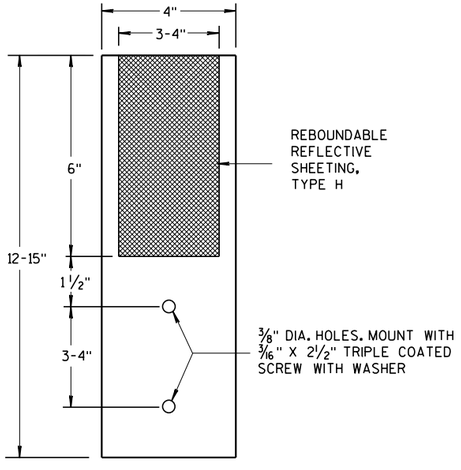
USE ALL OTHER STANDARD BEAM GUARD DETAILS FOR CONSTRUCTING NESTED W BEAM (NW)

TYPICAL SPLICING DETAILS OF STEEL PLATE BEAM GUARD

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



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



4"x 12" GUARDRAIL REFLECTOR

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

STATE OF WISCO 80
DEPARTMENT OF TRANSPORTATION

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S.D.D. 14 B 15-11b

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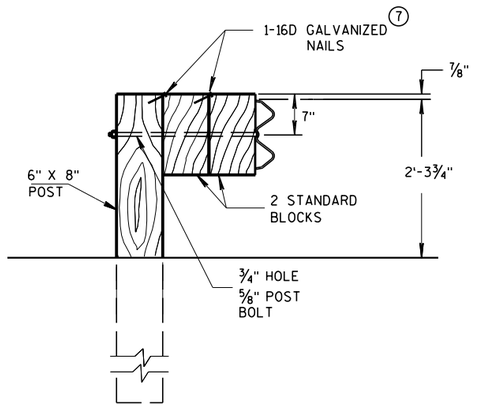
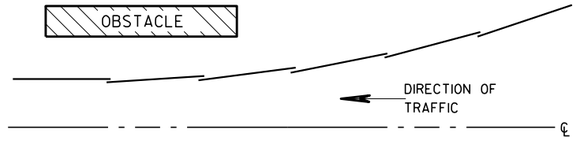


DETAIL FOR DOUBLE BLOCKS

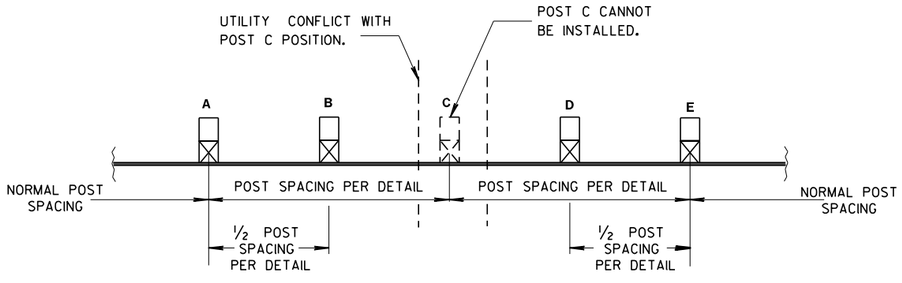
THE NUMBER OF DOUBLE BLOCK POSTS WITHIN A BARRIER RUN IS UNLIMITED



PLAN VIEW
BEAM LAPPING DETAIL

DETAIL FOR TRIPLE BLOCKS

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



POST DRIVING FOR CONTINUOUS UNDERGROUND OBSTRUCTION

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

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

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

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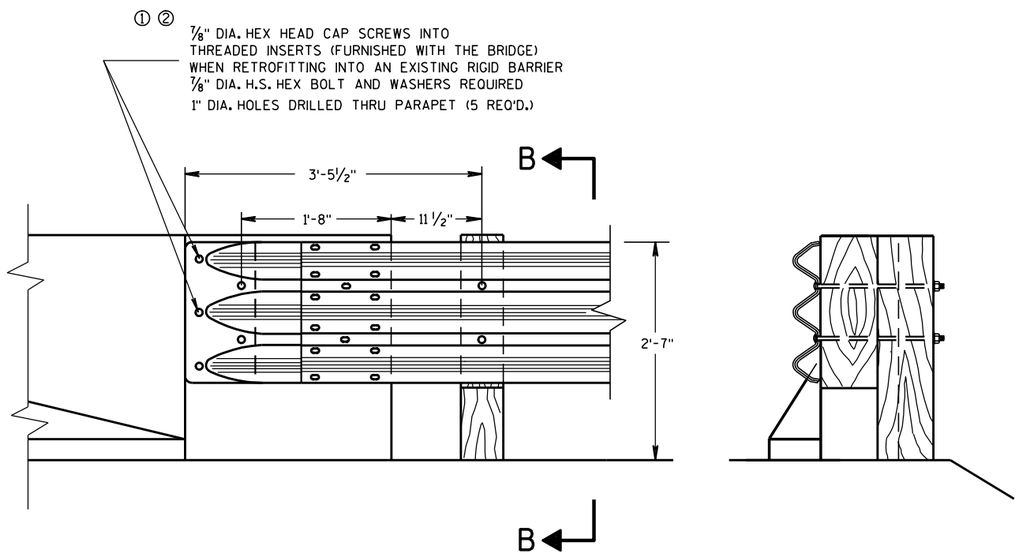
S.D.D. 14 B 15-11c



FRONT VIEW

SECTION B-B

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.

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

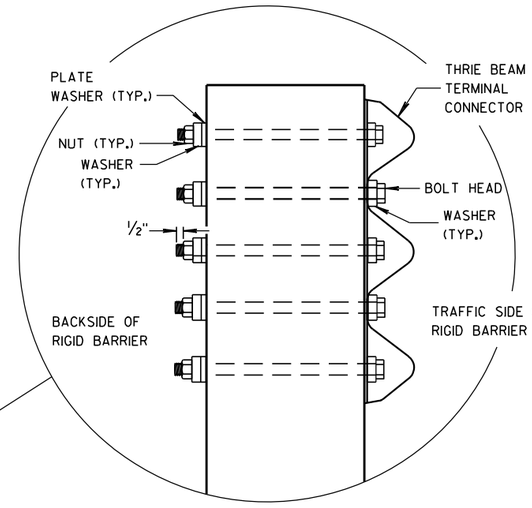
① DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.

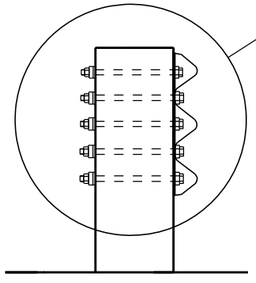
② BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM TERMINAL CONNECTOR. BOLTS THAT EXTEND THROUGH THE PARAPET AND OUT THE BACK FACE REQUIRE A HARDENED ROUND STEEL WASHER THAT IS 2" O.D. X ⅝" THICK AND ONE PLATE WASHER. REPAIR ANY DAMAGED CONCRETE FROM BOLT INSTALLATION.

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

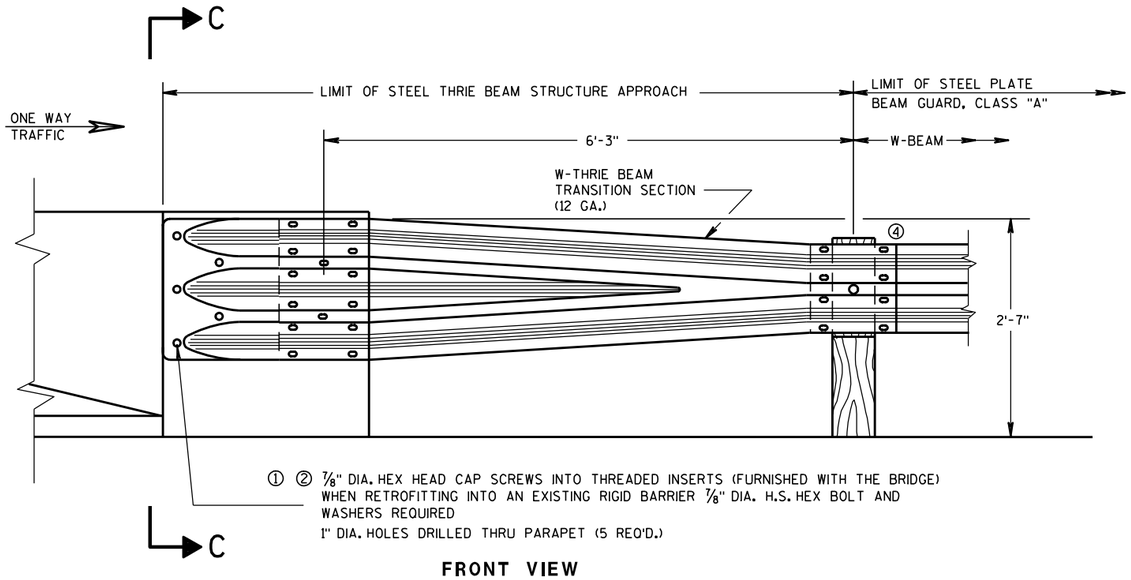
④ W6 X 9 OR W6 X 8.5 STEEL POSTS AND NOTCHED PLASTIC BLOCKOUTS ARE ACCEPTABLE ALTERNATIVES FOR 6" X 8" WOOD POST WITH WOOD OR PLASTIC BLOCKOUTS. USE APPROVED NOTCHED PLASTIC BLOCKOUTS WITH STEEL POSTS.

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





SECTION C-C



① ② ⅞" DIA. HEX HEAD CAP SCREWS INTO THREADED INSERTS (FURNISHED WITH THE BRIDGE) WHEN RETROFITTING INTO AN EXISTING RIGID BARRIER ⅞" DIA. H.S. HEX BOLT AND WASHERS REQUIRED
1" DIA. HOLES DRILLED THRU PARAPET (5 REQ'D.)

FRONT VIEW

W BEAM TRANSITION AND CONNECTION TO BRIDGE PARAPETS WITH SQUARE ENDS

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

STEEL THRIE BEAM STRUCTURE APPROACH, CONNECTION TO SQUARE END PARAPETS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

8/31/2012
DATE

/S/ Jerry H. Zaa
ROADWAY STANDARDS ENGINEER

FHWA

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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.

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

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

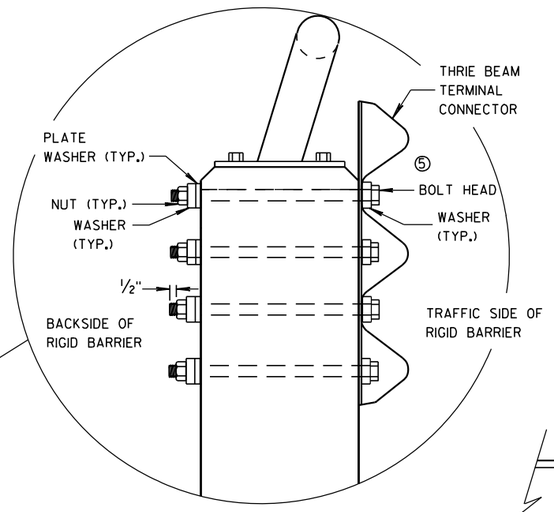
② BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM TERMINAL CONNECTOR. BOLTS THAT EXTEND THROUGH THE PARAPET AND OUT THE BACK FACE REQUIRE A HARDENED ROUND STEEL WASHER THAT IS 2" O.D. X ⅝" THICK AND ONE PLATE WASHER. REPAIR ANY DAMAGED CONCRETE FROM BOLT INSTALLATION.

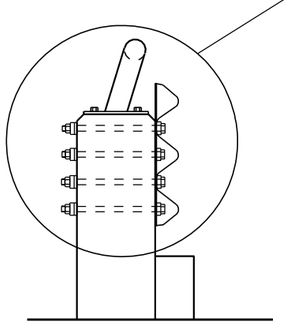
③ THE RECESS FOR A W-BEAM CONNECTION, WHICH EXISTS ON SOME PARAPETS OF THIS TYPE, SHALL BE FILLED WITH A TREATED TIMBER BLOCKOUT. BLOCKOUT SIZE IS 1'-6" X 2'-0" X 3 ½".

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

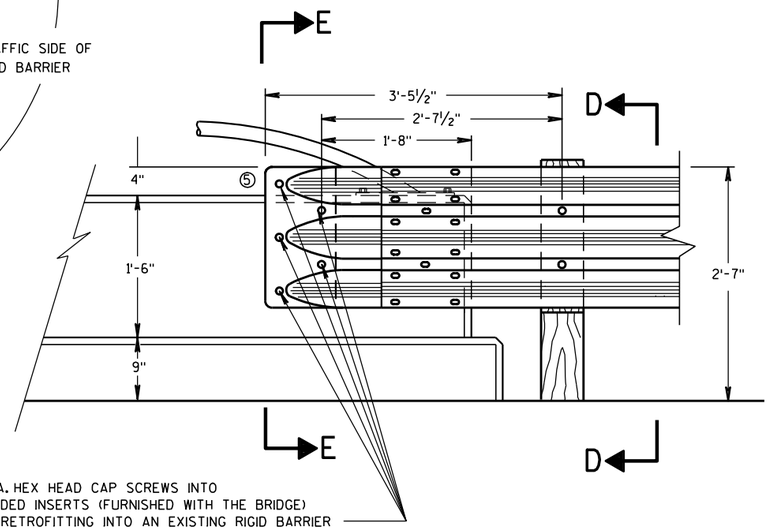
⑤ BOLT, NUT AND WASHERS NOT REQUIRED FOR THIS LOCATION WHEN RETROFITTING AN EXISTING PAPAPET AND THE HOLE IS EITHER ABOVE PARAPET OR WITHIN 4 INCHES OF THE EDGE OF PARAPET.

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





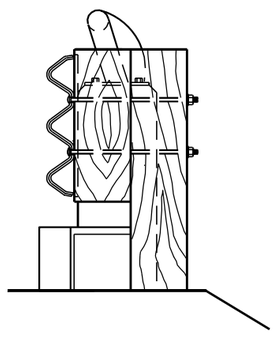
SECTION E-E



① ② ⅞" DIA. HEX HEAD CAP SCREWS INTO THREADED INSERTS (FURNISHED WITH THE BRIDGE) WHEN RETROFITTING INTO AN EXISTING RIGID BARRIER
⅞" DIA. H.S. HEX BOLT AND WASHERS REQUIRED

1" DIA. HOLES DRILLED THRU PARAPET (4 REQ'D.)

FRONT VIEW

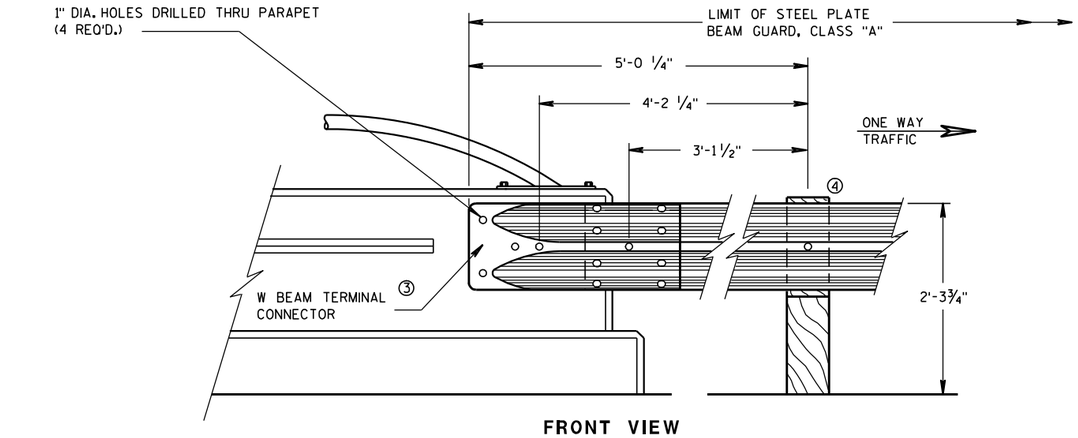


SECTION D-D

THRIE BEAM CONNECTION TO VERTICAL FACED PARAPETS

① ② ⅞" DIA. HEX HEAD CAP SCREWS INTO THREADED INSERTS (FURNISHED WITH THE BRIDGE) WHEN RETROFITTING INTO AN EXISTING RIGID BARRIER
⅞" DIA. HEX HEAD CAP SCREWS INTO THREADED INSERTS (FURNISHED WITH THE BRIDGE) WHEN RETROFITTING INTO AN EXISTING RIGID BARRIER
⅞" DIA. H.S. HEX BOLT AND WASHERS REQUIRED

1" DIA. HOLES DRILLED THRU PARAPET (4 REQ'D.)



FRONT VIEW

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

STEEL THRIE BEAM STRUCTURE APPROACH, CONNECTION TO VERTICAL FACED PARAPETS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
8/31/2012 — DATE
/S/ Jerry H. Zogg — ROADWAY STANDARDS DEVELOPMENT ENGINEER
FHWA

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

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

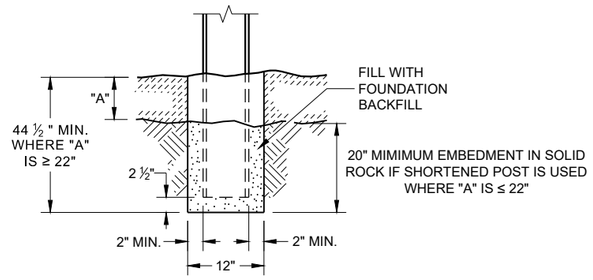
3. IF ROCK IS ENCOUNTERED DURING EXCAVATION, PROVIDE A HOLE 12 INCHES IN DIAMETER EXTENDING 20 INCHES DEEP INTO THE ROCK. PLACE APPROXIMATELY 2 1/2" INCHES OF GRANULAR MATERIAL IN THE BOTTOM OF THE HOLE. CUT THE POSTS THE TO LENGTH AMD INSTALL. BACKFILL WITH EXCAVATED MATERIAL AND COMPACT. BACKFILL IS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

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

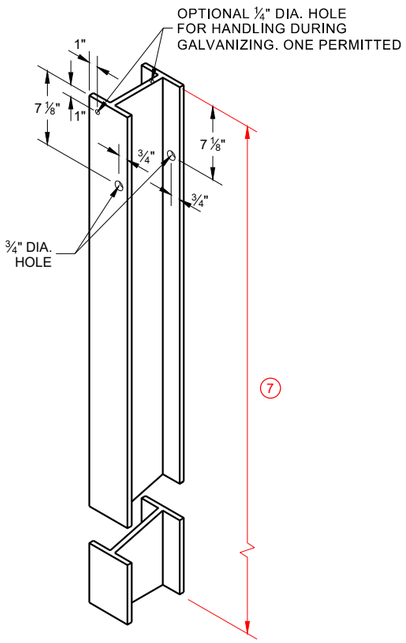
5. FOR NEW MGS INSTALLATION TOP OF W-BEAM RAIL TOLERANCE IS ±1". FOR EXISTING MGS INSTALLATION TOP OF W-BEAM IS BETWEEN 27 ¾" TO 32".

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

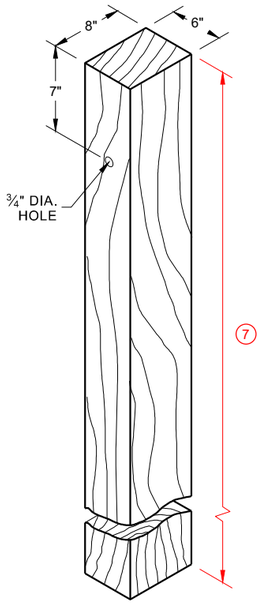
7. TOTAL POST LENGTH FOR TYPE K IS 7' - 0".
TOTAL POST LENGTH FOR OTHER MGS TYPES IS 6' - 0".



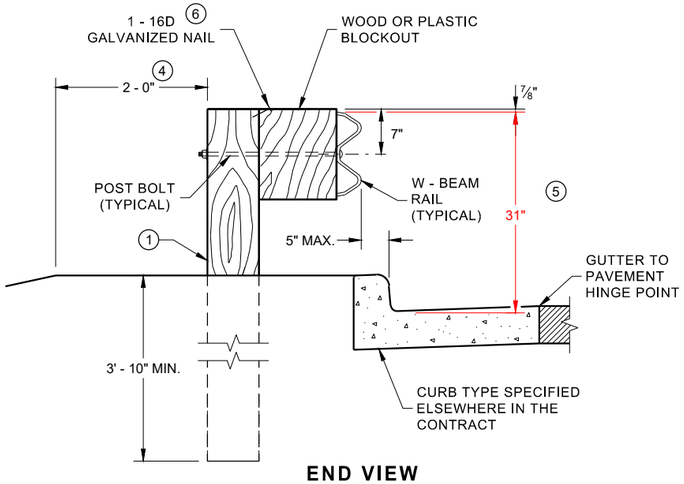
END VIEW
SETTING STEEL OR WOOD POST IN ROCK (3)



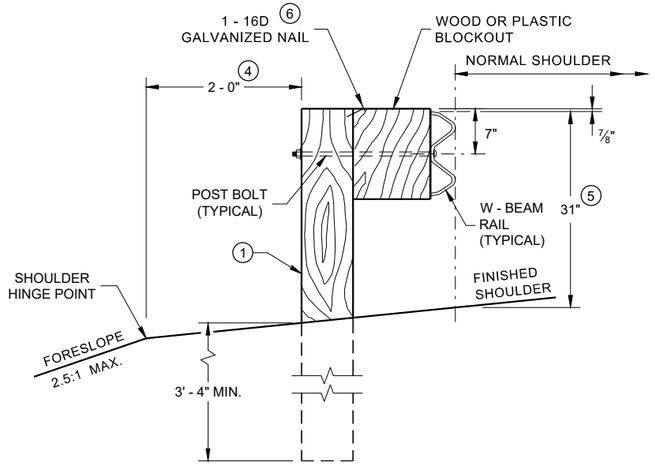
STEEL POST & HOLE PUNCHING DETAIL (W 6 X 9) (1)



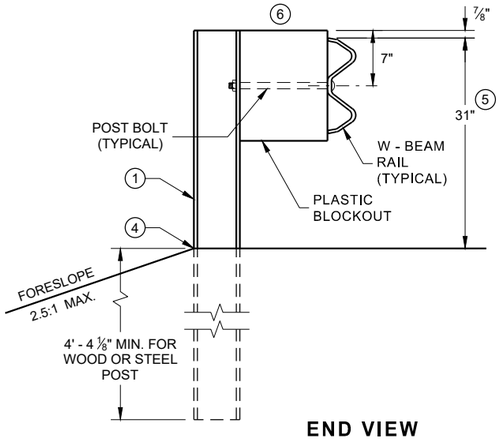
WOOD POST (6" X 8") NOMINAL (1)



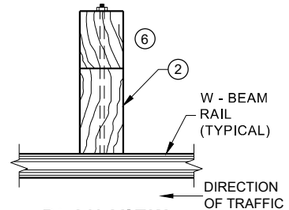
END VIEW
LOCATED ALONG A CURBED ROADWAY



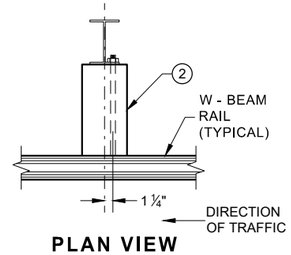
END VIEW
LOCATED ALONG A ROADWAY SHOULDER STANDARD INSTALLATION



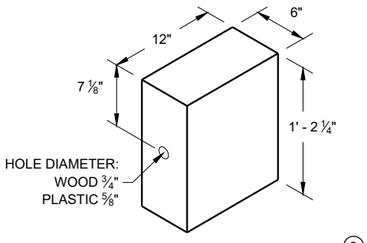
END VIEW
MGS LONGER POST AT HALFPOST SPACING W BEAM (K)



PLAN VIEW
WOOD POST, BLOCKOUT & BEAM



PLAN VIEW
STEEL POST, PLASTIC BLOCKOUT & BEAM



WOOD OR PLASTIC BLOCKOUT (2)

MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL

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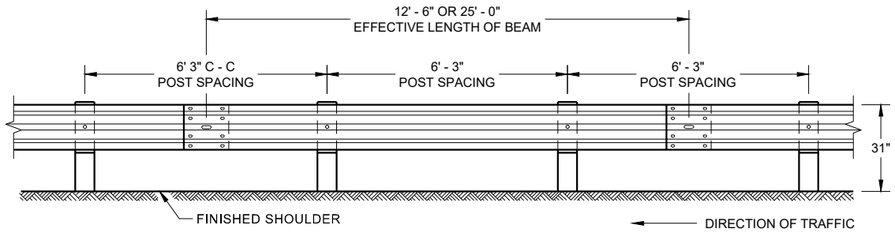
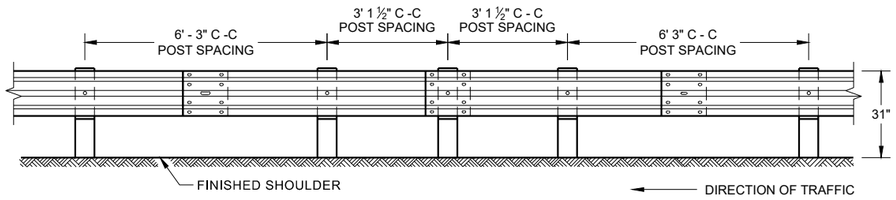
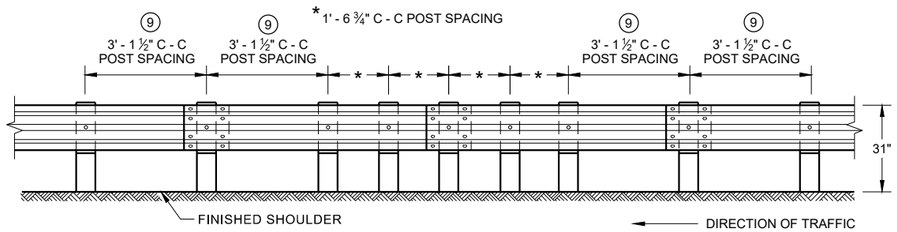


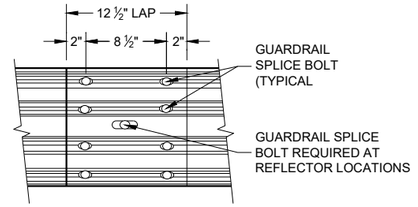
FRONT VIEW
POST SPACING STANDARD INSTALLATION



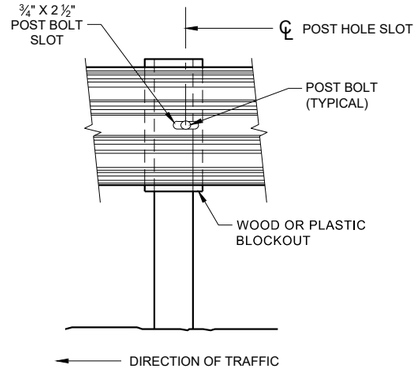
FRONT VIEW
HALF POST SPACING (HS) AND HALF POST SPACING WITH LONGER POSTS (K)



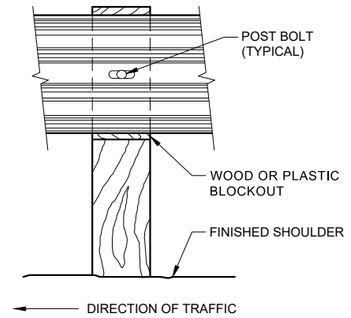
FRONT VIEW
QUARTER POST SPACING (QS)



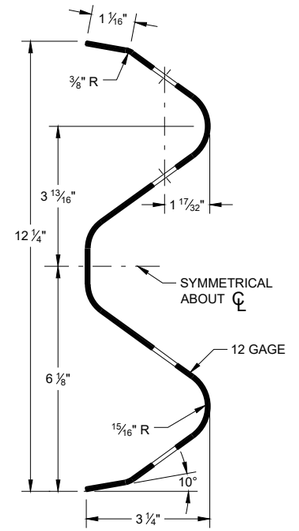
FRONT VIEW
MID-SPAN BEAM SPLICE



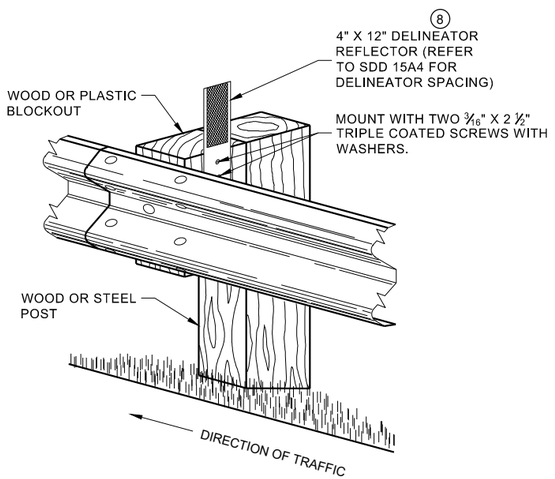
FRONT VIEW AT STEEL POST



FRONT VIEW AT WOOD POST



SECTION THRU W-BEAM RAIL



ONE SIDED REFLECTOR DETAIL AND TYPICAL INSTALLATION

GENERAL NOTES

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

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

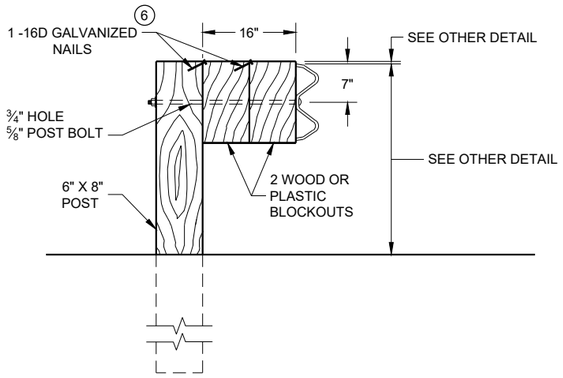
POST BOLTS ARE A ¾" DIAMETER ASTM A307 GUARDRAIL BOLT. A POST BOLT REQUIRES ⅝" DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX NUT AND ⅝" DIAMETER F844 FLAT WASHER. POST BOLTS MAY BE LONGER IF MULTIPLE BLOCKOUTS ARE BEING USED.

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

MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6
SDD 14B42 - 06b

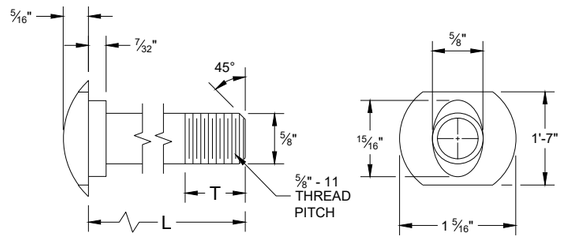


DETAIL FOR 16" BLOCKOUT DEPTH

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

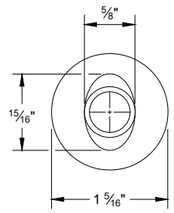
NOTE:

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

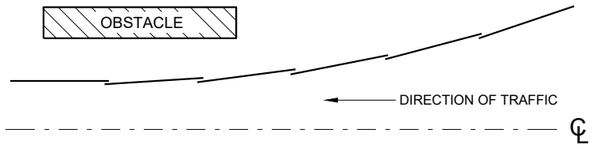


POST BOLT TABLE

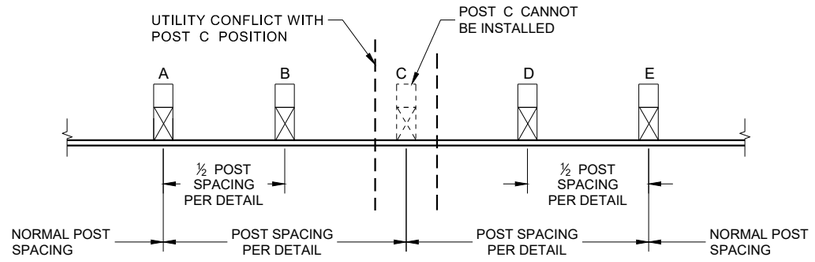
L	T (MIN.)
1 ¼"	1 ⅛"
2"	1 ¾"
10"	4"
14"	4 1⁄16"
18"	4"
21"	4 1⁄16"
25"	4"



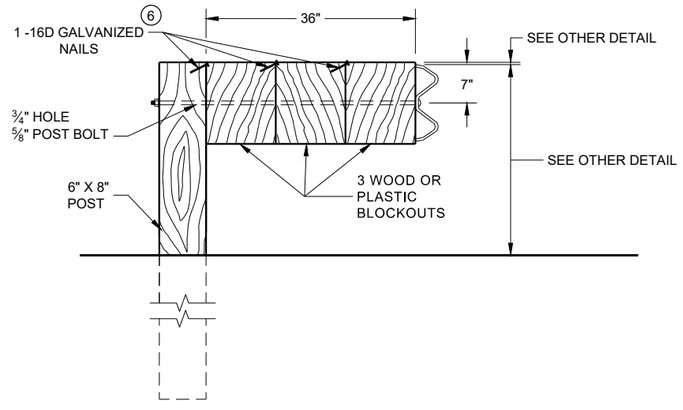
ALTERNATE BOLT HEAD



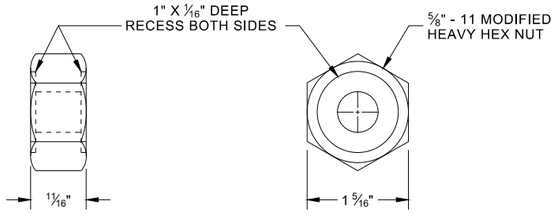
PLAN VIEW
BEAM LAPPING DETAIL



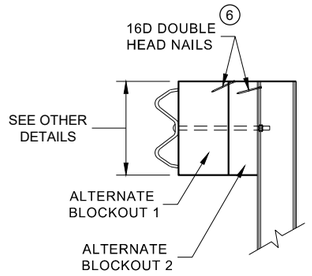
POST DRIVING FOR CONTINUOUS UNDERGROUND OBSTRUCTION



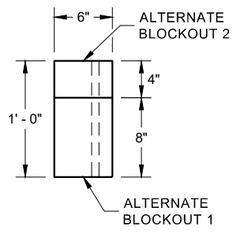
DETAIL FOR 36" BLOCKOUT DEPTH



POST BOLT, SPLICE BOLT AND RECESS NUT



SIDE VIEW



PLAN VIEW

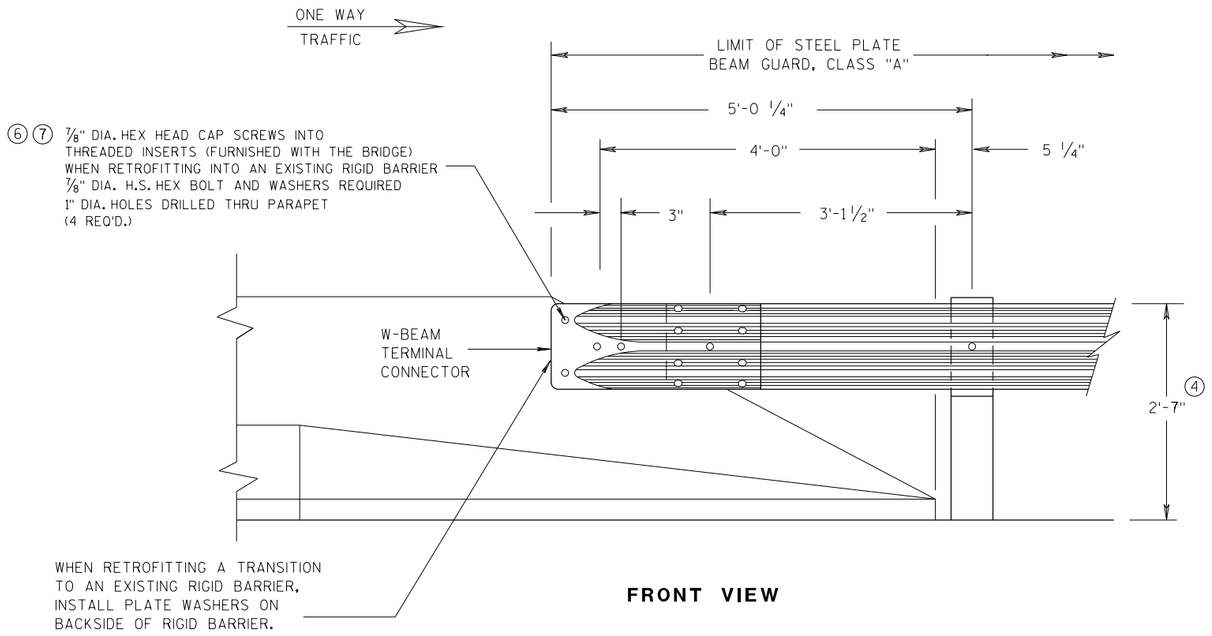
ALTERNATE WOOD BLOCKOUT DETAIL

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

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

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

MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL



FRONT VIEW

W BEAM CONNECTION TO PARAPETS WITH SLOPED ENDS

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

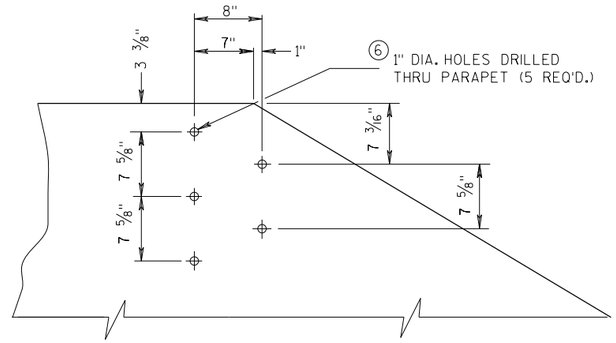
GENERAL NOTES

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

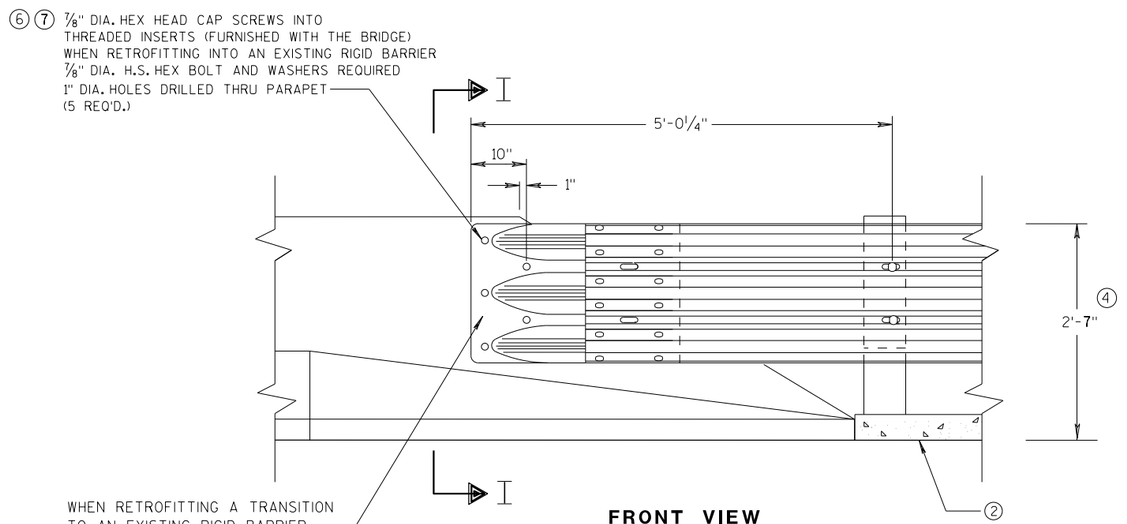
④ TOLERANCE FOR TOP OF BEAM IS ± 1".

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

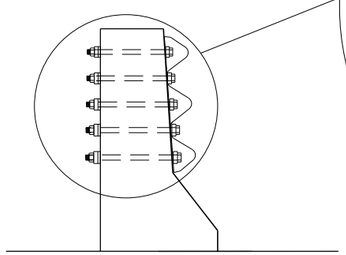
⑦ BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM CONNECTOR PLATE. 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.



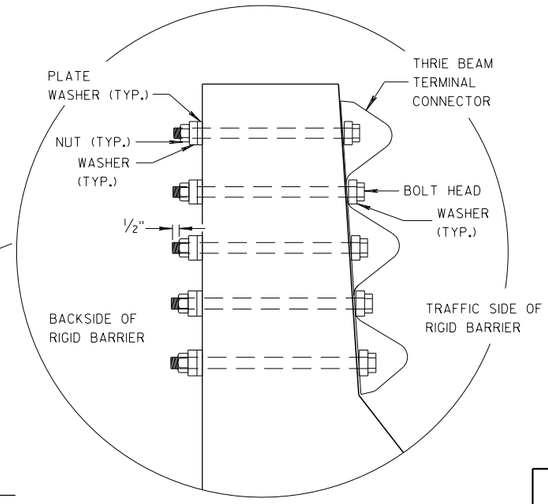
DRILL HOLE LOCATION AND PATTERN
FOR THRIE BEAM CONNECTION



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
07/2018 — DATE
/S/ Rodney Taylor — ROADWAY STANDARDS [illegible] UNIT SUPERVI[illegible]ENT
FHWA

6

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

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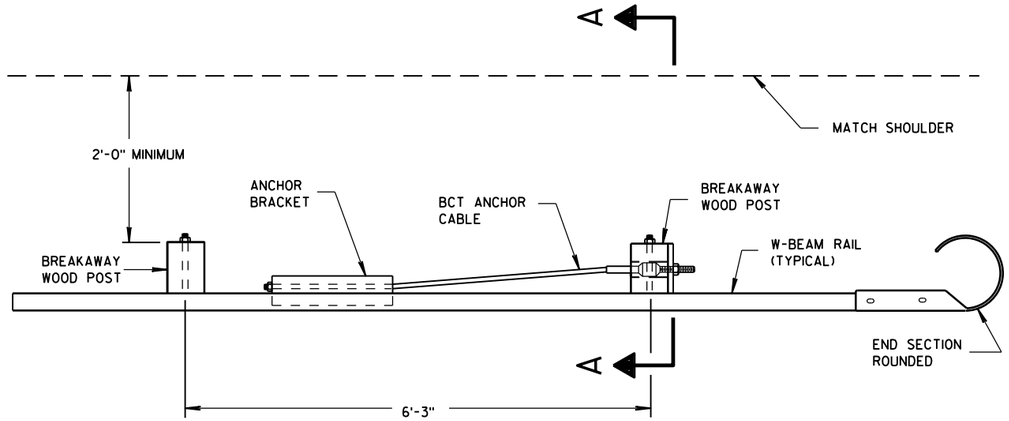
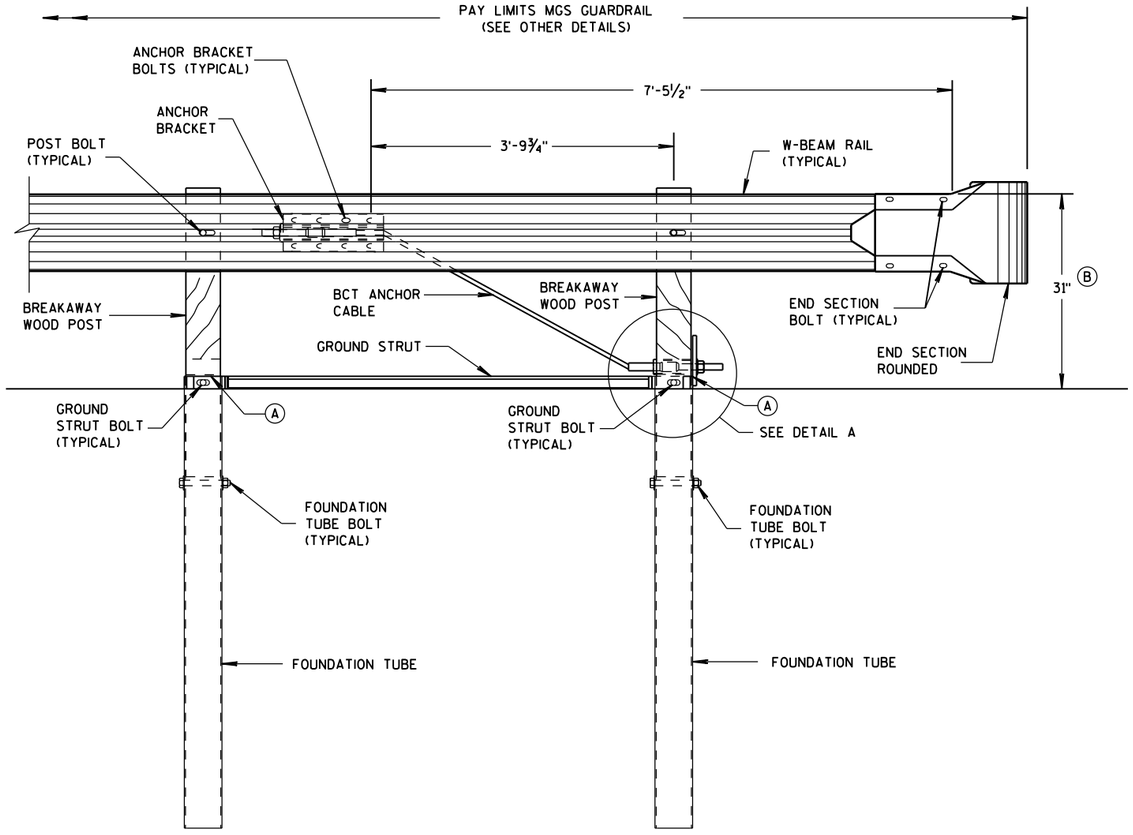
S.D.D. 14 B 45-5f

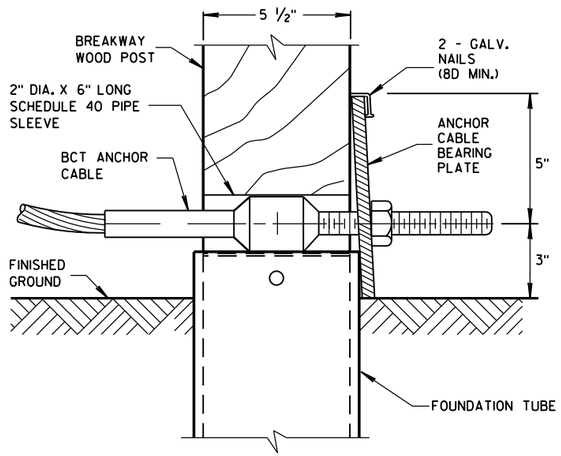


PLAN VIEW



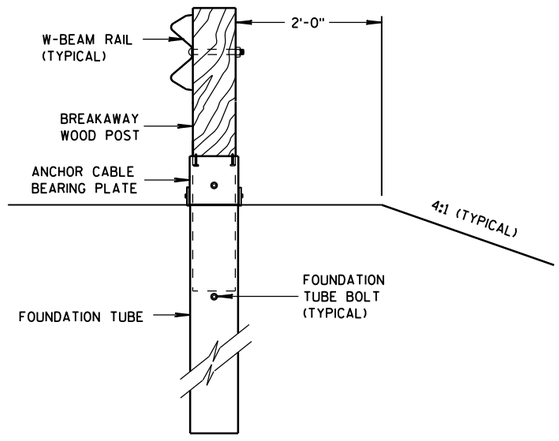
FRONT VIEW

END RAIL DETAIL



DETAIL A

POST NO. 1
GROUNG STRUT NOT SHOWN FOR CLARITY.



SECTION A-A

GENERAL NOTES

SEE SDD 14 B 42 FOR MORE INFORMATION.

END SECTION BOLTS AND NUTS HAVE THE SAME MATERIAL REQUIREMENTS AS SPLICE BOLTS.

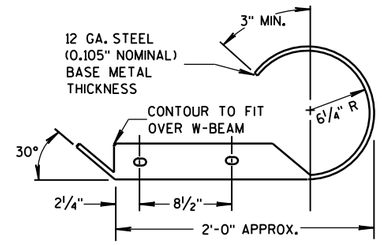
FOUNDATION TUBE BOLTS ARE ⅞" DIAMETER ASTM A307 HEX HEAD BOLT. FOUNDATION TUBE BOLTS REQUIRE ASTM A563 A NUT AND TWO ASTM F844 ⅞" DIAMETER FLAT WASHERS. INSTALL ONE WASHER UNDER BOLT HEAD AND ONE WASHER UNDER NUT.

ANCHOR BRACKET AND GROUND STRUT BOLTS ARE A ⅝" DIAMETER ASTM A307 HEX HEAD BOLT. ANCHOR BRACKET BOLTS REQUIRE ASTM A563 A NUT AND TWO ASTM F844 ⅝" DIAMETER FLAT WASHERS. INSTALL ONE WASHER UNDER BOLT HEAD AND ONE WASHER UNDER NUT.

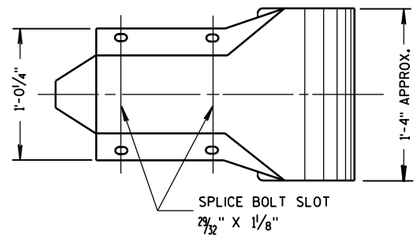
W-BEAM END SECTION ROUNDED HAS THE SAME MATERIAL PROPERTIES AS STANDARD STEEL RAIL.

(A) TOP OF FOUNDATION TUBE SHALL BE NO MORE THAN 3" ABOVE FINISHED GROUND.

(B) FOR NEW CONSTRUCTION TOP OF RAIL IS 31" ± 1".
FOR EXISTING INSTALLATIONS TOP OF RAIL IS BETWEEN 27¾" TO 32" ± 1".



PLAN VIEW



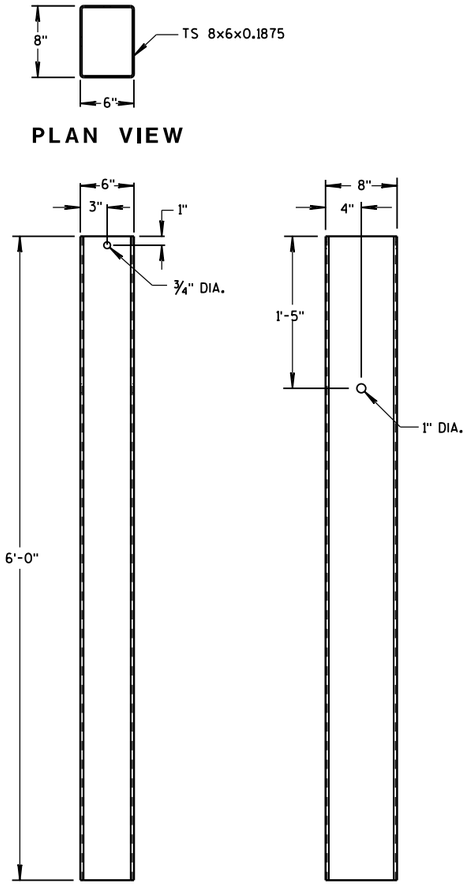
FRONT VIEW

W BEAM END SECTION ROUNDED

MIDWEST GUARDRAIL SYSTEM (MGS) TYPE 2 TERMINAL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPO

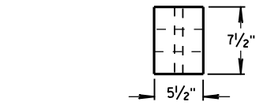
6
S.D.D. 14 B 47-2a



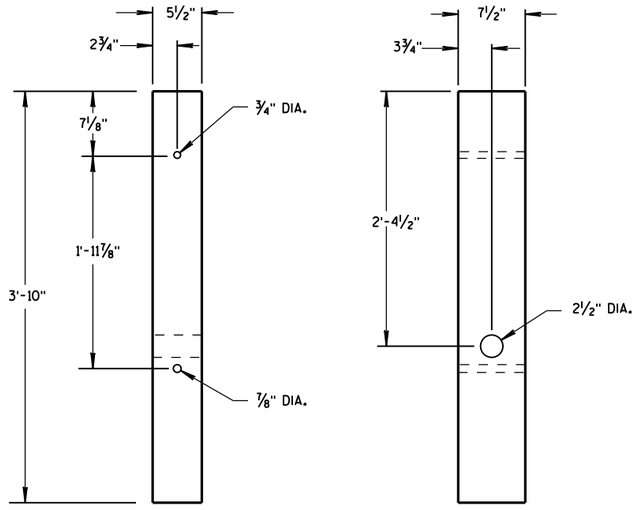
PLAN VIEW

FRONT VIEW SIDE VIEW

FOUNDATION TUBE



PLAN VIEW



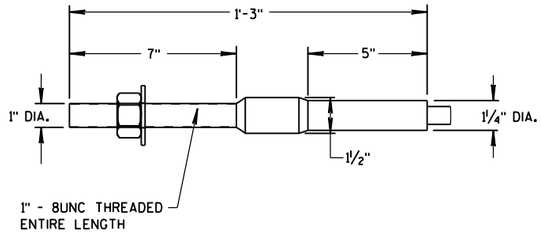
FRONT VIEW SIDE VIEW

BREAKAWAY WOOD POST

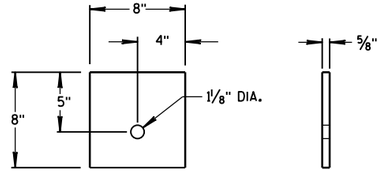
GENERAL NOTES

BCT ANCHOR CABLE IS A ¾" DIAMETER 6X19 IWRC IPS GALVANIZED WIRE ROPE. THE SWAGED FITTINGS AND STUD ARE REQUIRED. END FITTING SHALL BE MACHINED FROM HOT-ROLLED CARBON STEEL CONFORMING TO ASTM A576 GRADE 1035 AND GALVANIZED ACCORDING TO ASTM A123. TREADED STUD SHALL CONFORM TO ASTM A325 OR SAE GRADE 5. MINIMUM BREAKING STRENGTH OF WIRE ROPE IS 43,000 LB. WIRE ROPE IS TO BE TAUT.

BCT ANCHOR CABLE



DETAIL B



SIDE VIEW FRONT VIEW

ANCHOR CABLE
BEARING PLATE

MIDWEST GUARDRAIL
SYSTEM (MGS) TYPE 2 TERMINAL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI

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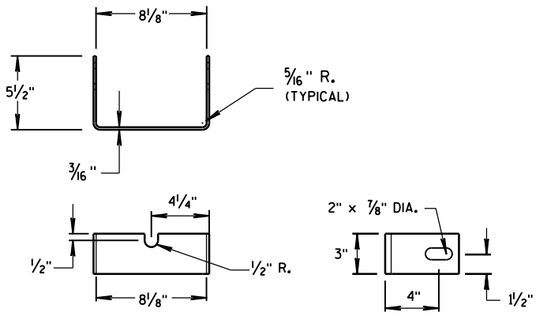
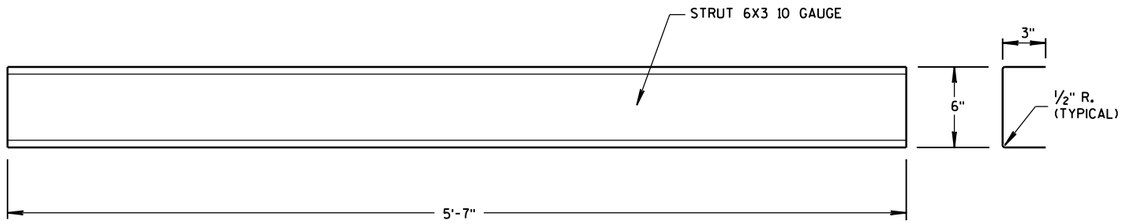
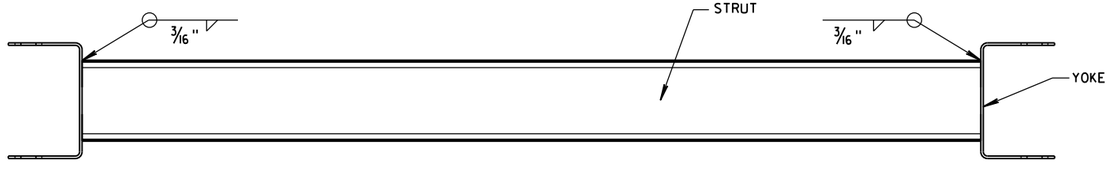
S.D.D. 14 B 47-2b



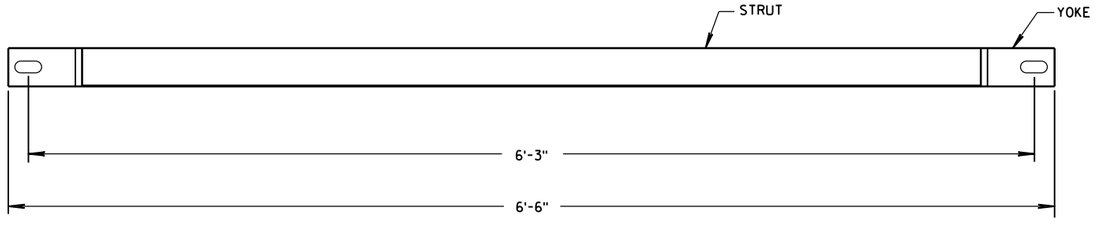
YOKE DETAIL



STRUT DETAIL

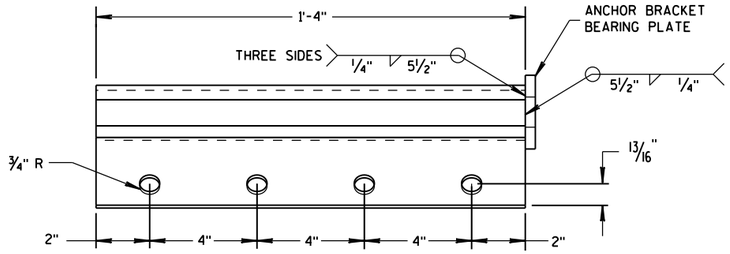


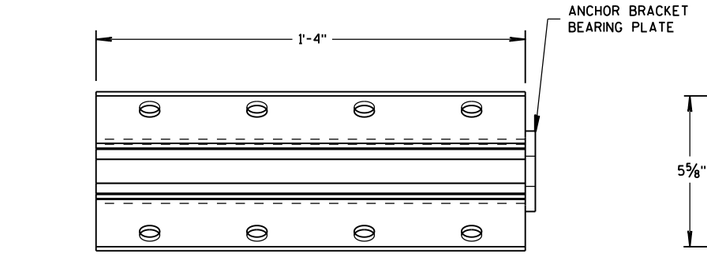
PLAN VIEW

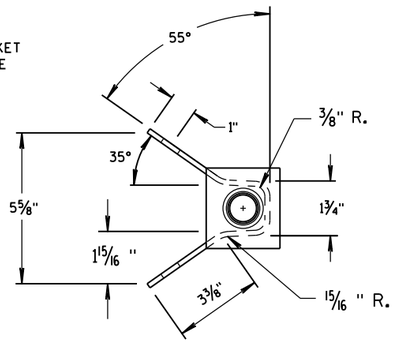


FRONT VIEW

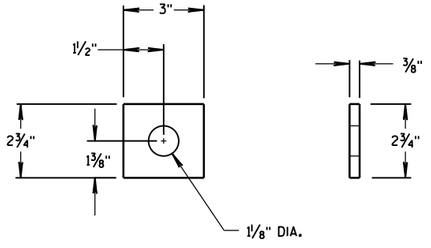
GROUND STRUT DETAIL







ANCHOR BRACKET

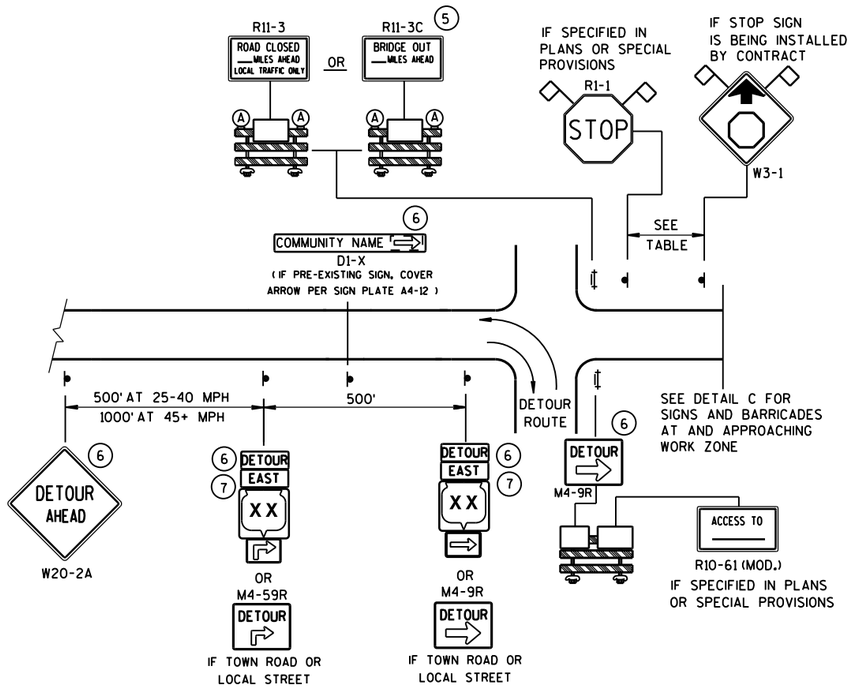


ANCHOR BRACKET BEARING PLATE

MIDWEST GUARDRAIL SYSTEM (MGS) TYPE 2 TERMINAL

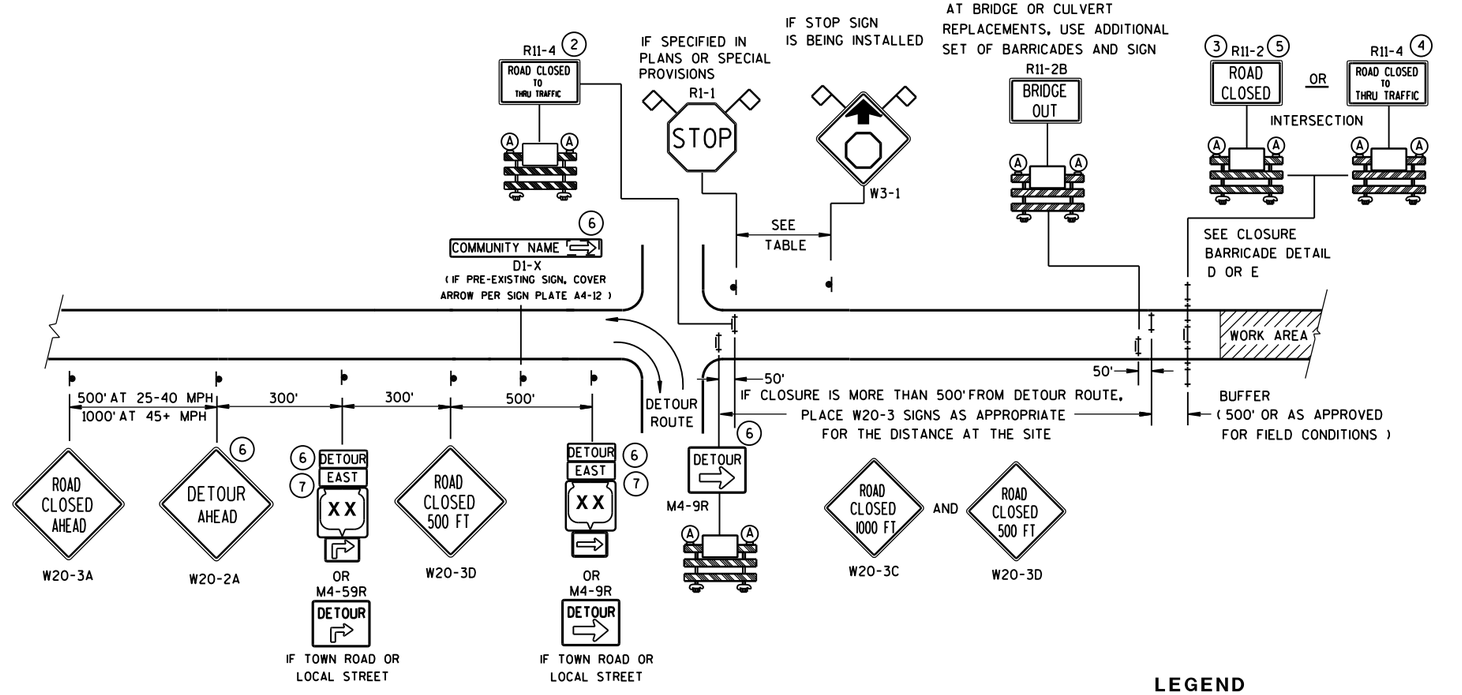
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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



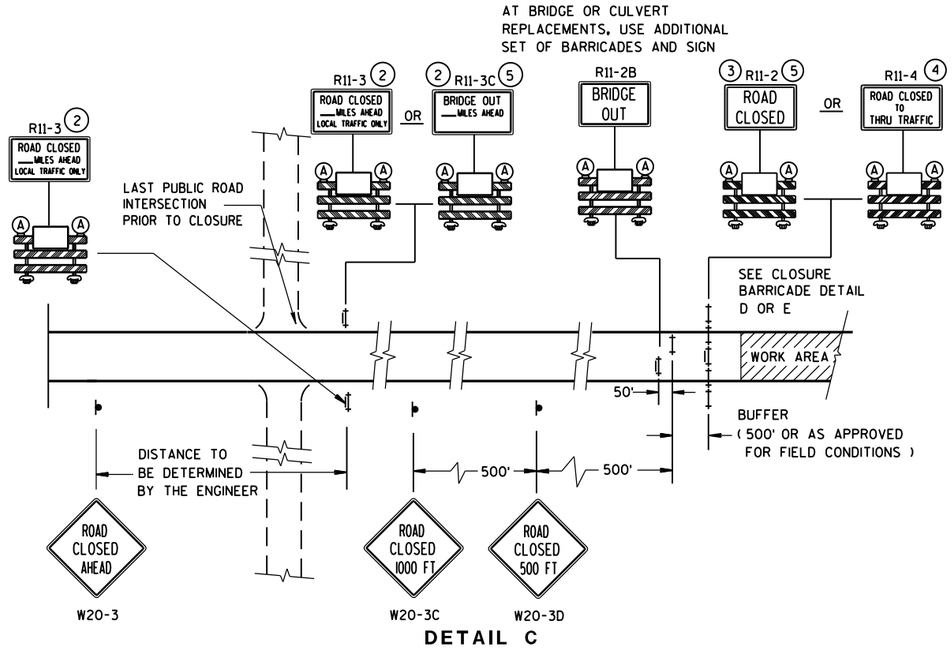
DETAIL A
MAINLINE CLOSURE WITH POSTED DETOUR

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

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)

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

BARRICADES AND SIGNS FOR MAINLINE CLOSURES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

6

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

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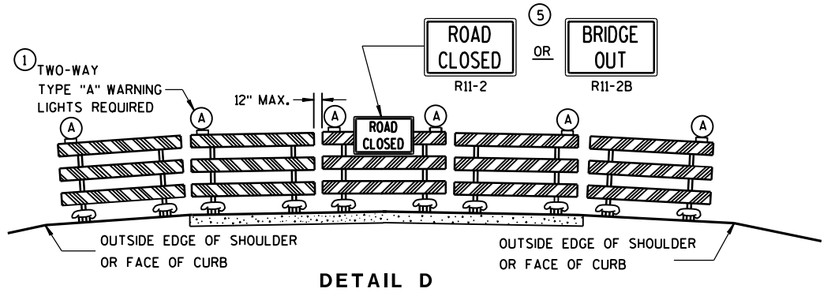
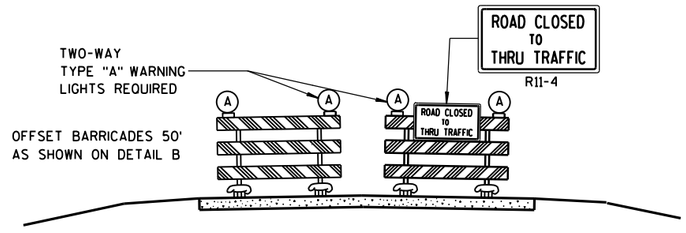
S.D.D. 15 C 2-6a



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 92 FIC
SAFETY ENGI
FHWA

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.

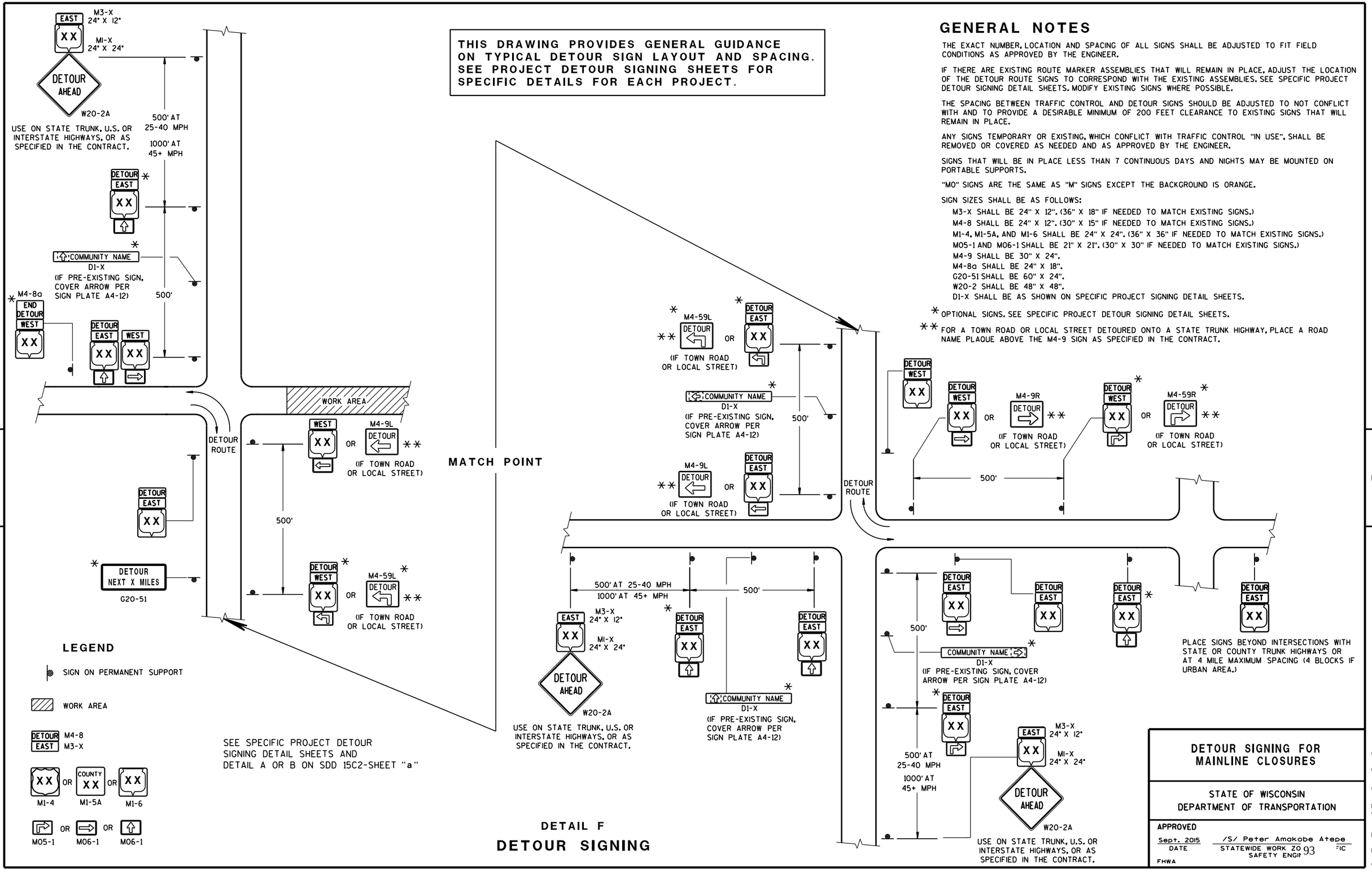
"MO" SIGNS ARE THE SAME AS "M" SIGNS EXCEPT THE BACKGROUND IS ORANGE.

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.)
- M05-1 AND M06-1 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

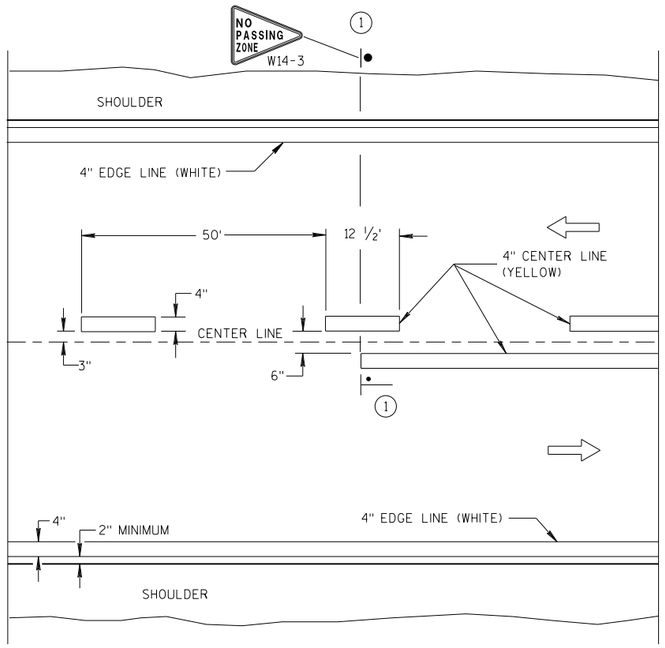
Sept. 2015 — DATE

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

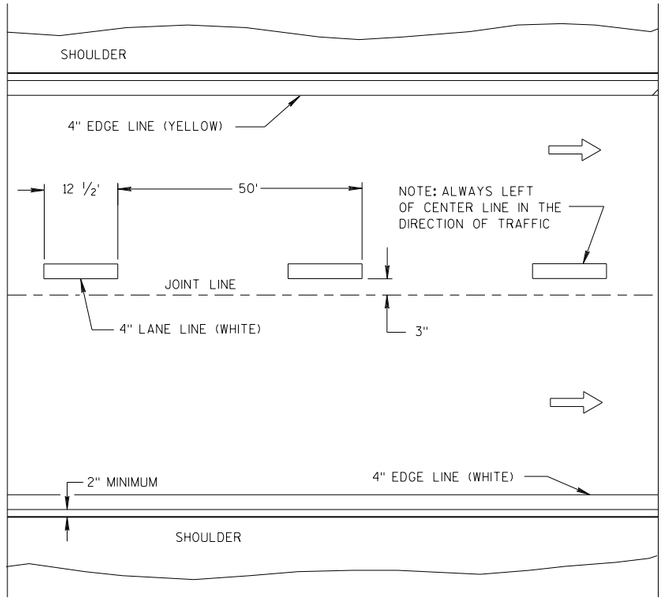
FHWA

6

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



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

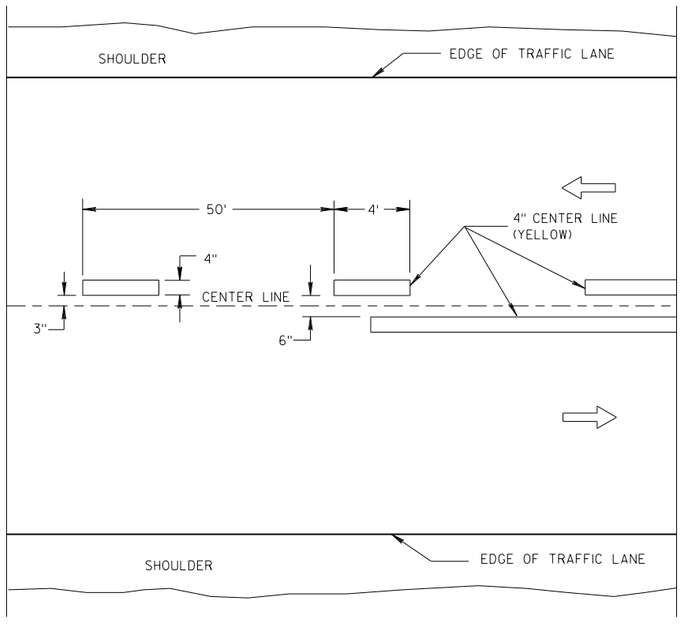
NOTE

ARROW SYMBOL (⇨) SHOWS DIRECTION OF TRAVEL

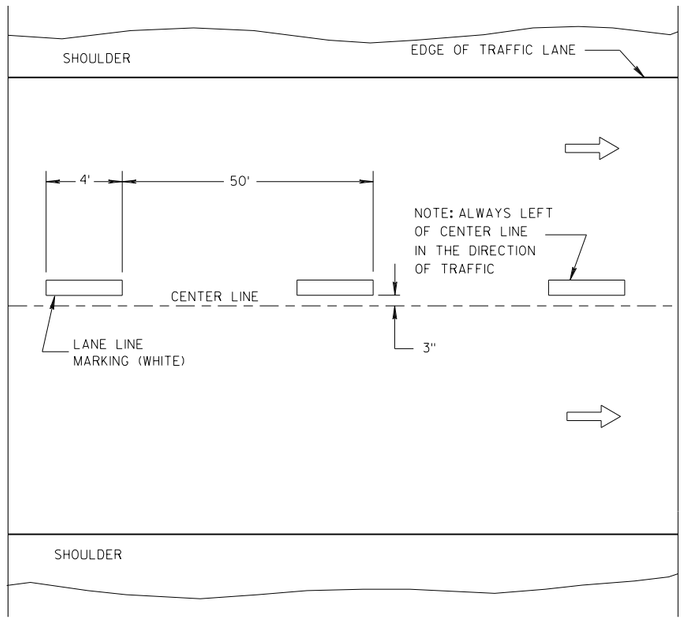
LEGEND

"T" MARKING

POST MOUNTED SIGN



TWO WAY TRAFFIC



ONE WAY TRAFFIC

TEMPORARY PAVEMENT MARKING

LONGITUDINAL MARKING (MAINLINE)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

7/2018 DATE

/S/ Matthew R. Rauch
STATE SIGNING AND MARKING ENGINEER

FHWA

6

S.D.D. 15 C 8-19a

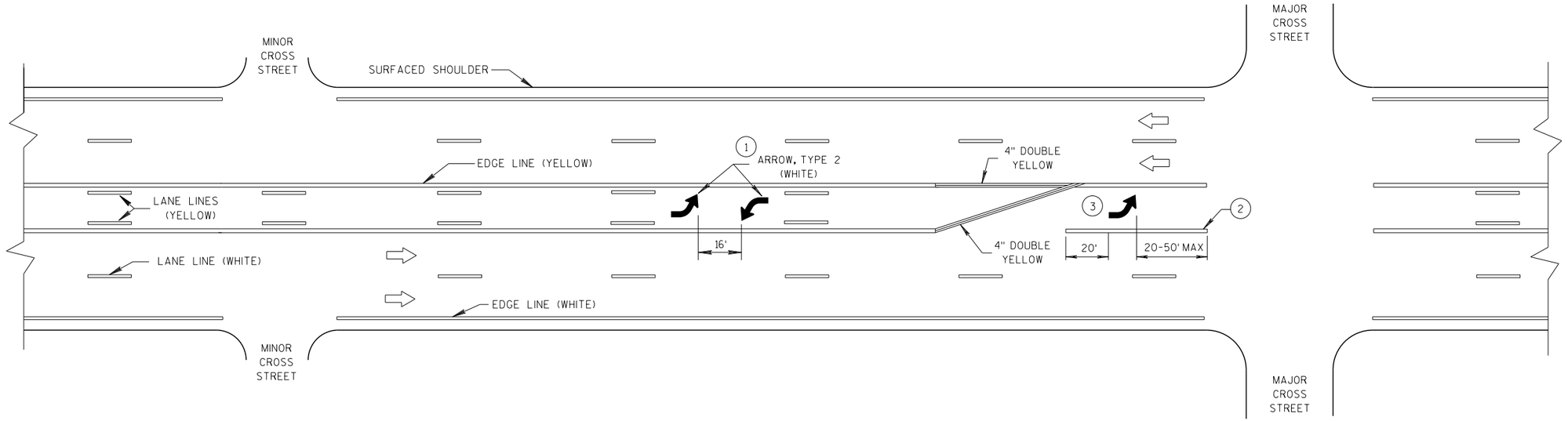
6

S.D.D. 15 C 8-19a

GENERAL NOTES

1. A SET OF ARROWS IS REQUIRED EVERY 400 FEET OR NEAR INTERSECTIONS OR DRIVEWAYS WITH TURNING TRAFFIC.
2. 8" WHITE
3. TURN BAY LENGTH OF LESS THAN 48'DOES NOT REQUIRE PAVEMENT ARROWS OR TEXT

DIRECTION OF TRAFFIC



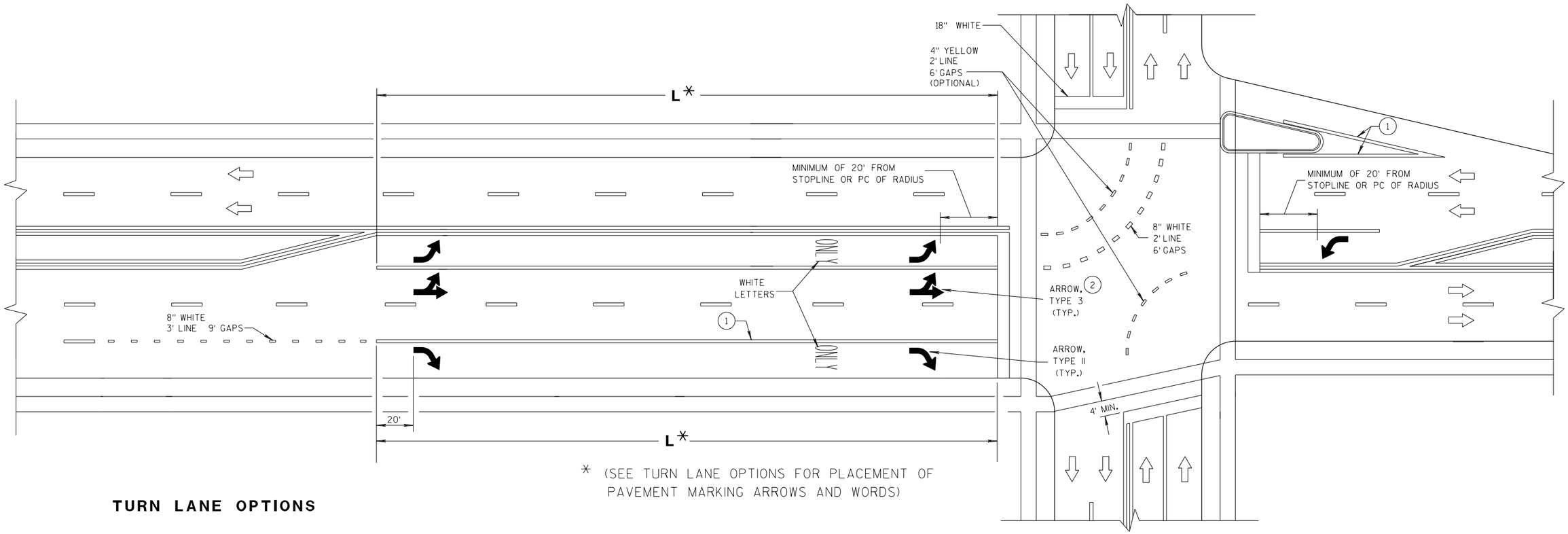
TWO WAY LEFT TURN LANE

PAVEMENT MARKING (TURN LANES)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6

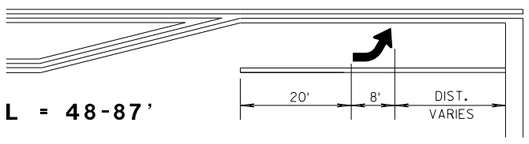
S.D.D. 15 C 8-19b



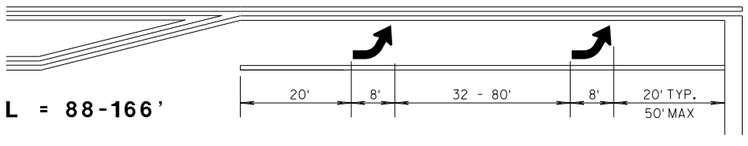
* (SEE TURN LANE OPTIONS FOR PLACEMENT OF PAVEMENT MARKING ARROWS AND WORDS)

TURN LANE OPTIONS

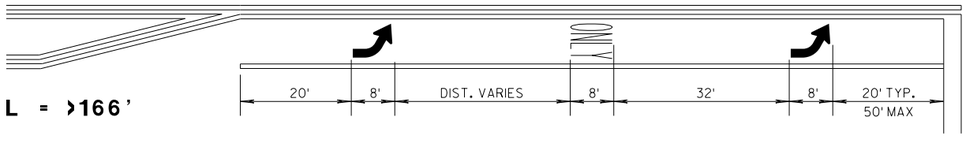
LENGTH OF TURN BAY (**L**) OF 0-47' DOES NOT REQUIRE PAVEMENT MARKING ARROWS OR WORDS



L = 48-87'



L = 88-166'



L = >166'

GENERAL NOTES

(1) 8" WHITE

(2) QUANTITY AND LOCATION OF TYPE 3 ARROW ARE THE SAME AS THE TYPE II ARROWS IN THE ADJACENT TURN LANE. FOR TURN LANES WITH A PHYSICAL SEPARATION, THE ARROWS AND ONLY MARKING ARE ELIMINATED.

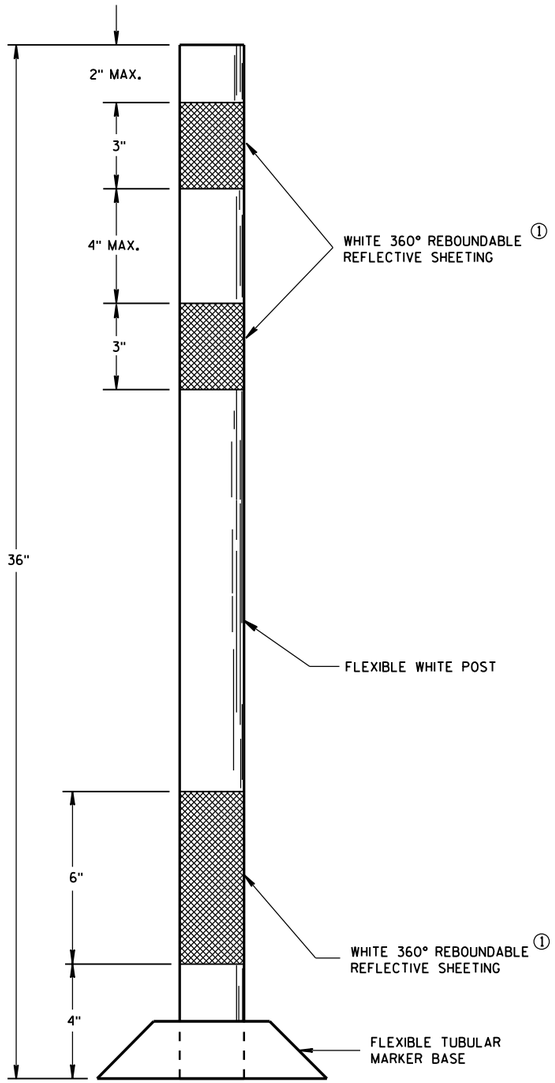
⇨ DIRECTION OF TRAFFIC

L = LENGTH OF TURN BAY

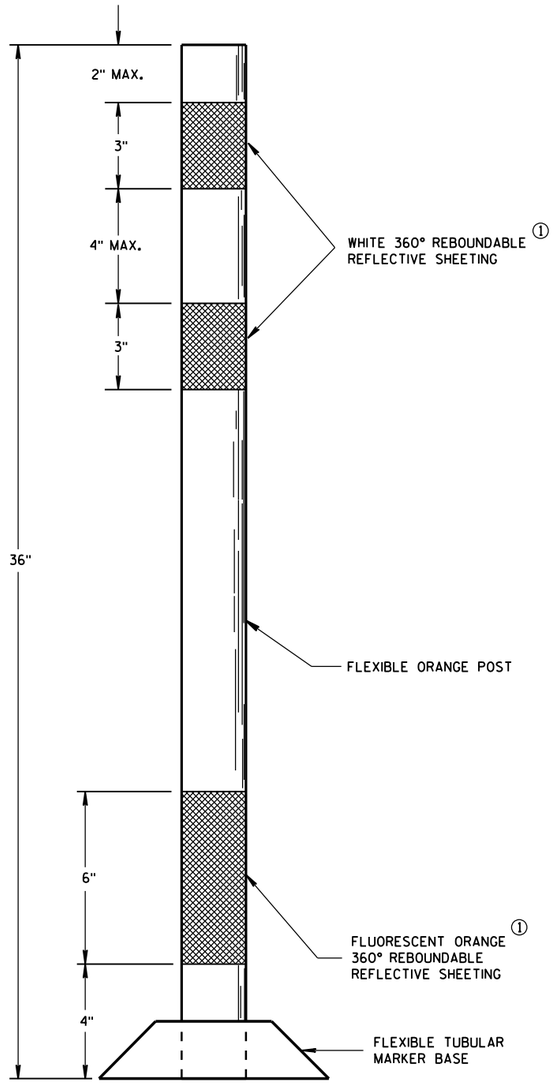
PAVEMENT MARKING (TURN LANES)

6

S.D.D. 15 C 8-19c



FLEXIBLE
TUBULAR MARKER POST
PERMANENT CROSSOVER



FLEXIBLE
TUBULAR MARKER POST
WORK ZONE

GENERAL NOTES

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

SURFACE MOUNTED BASES SHALL BE FURNISHED IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS TO BE COMPATIBLE WITH FLEXIBLE TUBULAR MARKER POSTS TO A SIZE AND SHAPE THAT WILL PROVIDE A STABLE POST FOUNDATION WHEN SECURED TO THE PAVEMENT.

THE ASPHALTIC ADHESIVE OR BUTYL PAD FURNISHED SHALL BE IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS, UNLESS DIRECTED BY THE ENGINEER TO USE BOLTS.

① REFLECTIVE SHEETING SHALL FOLLOW THE REQUIREMENTS IN THE APPROVED PRODUCTS LISTING FOR SIGN SHEETING.

CHANNELIZING DEVICES
FLEXIBLE TUBULAR MARKER POST

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June 2017 — DATE
/S/ Andrew Heldtke — WORK ZONE ENGR
FHWA

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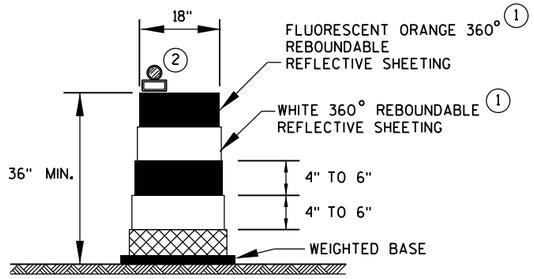
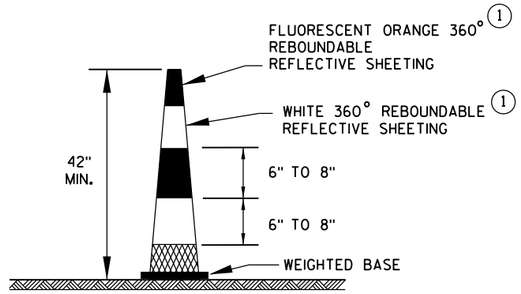
S.D.D. 15 C 11-7a



DRUM

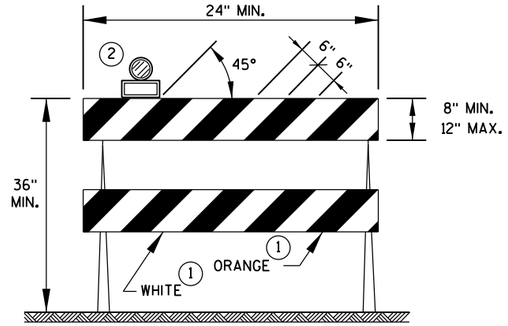


42" CONE

DO NOT USE IN TAPERS
1/2 SPACING OF DRUMS

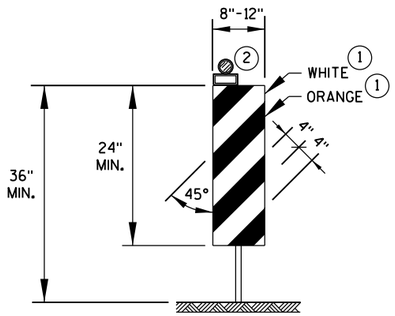
GENERAL NOTES

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



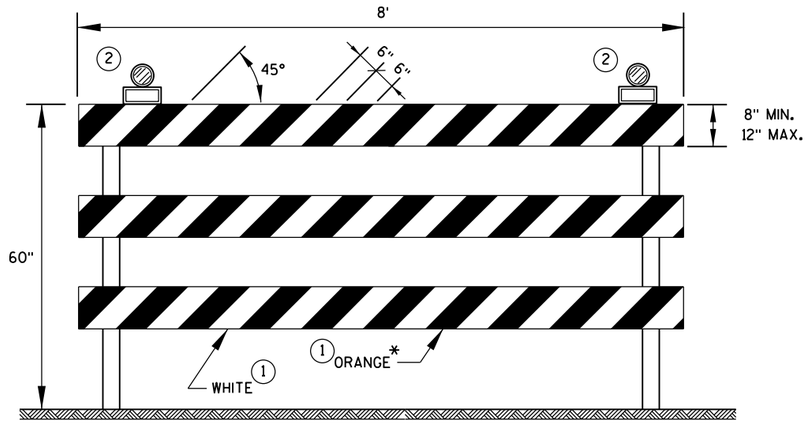
TYPE 2 BARRICADE

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



VERTICAL PANEL

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



TYPE 3 BARRICADE

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

* IF USED FOR A PERMANENT APPLICATION, USE RED SHEETING.

CHANNELIZING DEVICES DRUMS, CONES, BARRICADES AND VERTICAL PANELS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

June 2017 — DATE

/S/ Andrew Heidtke — WORK ZONE ENG

FHWA

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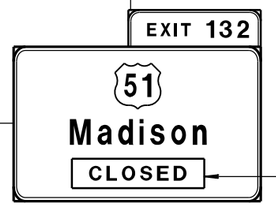
S.D.D. 15 C 11-7b

G20-60
108"x24"

OR



G20-60
108"x24"

PLACE SIGN G20-60 OVER MILEAGE
ON EXISTING E1-1A SIGN

COVER ARROW ON
EXISTING E4-1A
SIGN (COVERING
SIGNS TYPE I)

G20-61
120"x30"

TEMPORARY PAVEMENT MARKING
4" REMOVABLE TAPE, WHITE
(ACROSS THE RAMP OPENING)

END
ROAD WORK
*G20-2A
48"x24"

25' TYP.

100' MIN.

200'

EDGE OF SHOULDER

COVER EXISTING
EXIT SIGN

ROAD
WORK
AHEAD
*W20-1A

RAMP
CLOSED
AHEAD
W20-53A

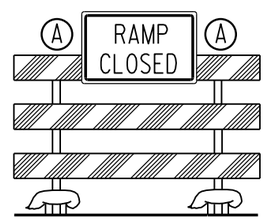
RAMP
CLOSED
1000 FT
W20-53C

1500'

1500'

1000'

R11-2R
48" X 30"
MOUNTED ON
TYPE III BARRICADE



RAMP WILL
BE CLOSED
(TIME)
BEGINNING
(DATE)

**R11-51
48"X48"
(OR SPECIAL SIGN IF INDICATED IN PLAN)

GENERAL NOTES

THIS RAMP CLOSURE DETAIL IS TYPICAL FOR CLOSING A RIGHT SIDE EXIT RAMP. FOR A LEFT SIDE EXIT RAMP, REVERSE THE TRAFFIC CONTROL.

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

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

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

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

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

PLACE TEMPORARY PAVEMENT MARKING, REMOVABLE TAPE IF RAMP CLOSURE IS TO BE IN PLACE FOR 4 OR MORE CONTINUOUS DAYS AND NIGHTS.

WORK AREAS WITH A DROPOFF ALONG THE EDGE OF AN OPEN TRAVEL LANE SHALL BE LEVELED WITH TEMPORARY FILL WHEN THE CONTRACTOR IS NOT WORKING ADJACENT TO THE TRAVEL LANE. DRUMS SHALL BE PLACED ENTIRELY OUTSIDE THE TRAVEL LANE, ALLOWING THE FULL UNOBSTRUCTED LANE WIDTH, WHEN THE WORK IS NOT IN PROGRESS.

WHERE MEDIAN BARRIER IS IN PLACE, SIGNS SHOWN ON LEFT SIDE OF ROADWAY MAY BE OMITTED FOR RIGHT SIDE RAMP CLOSURES OF LESS THAN 12-HOUR DURATION.

* W20-1 AND G20-2A SIGNS ARE NOT REQUIRED IF THE RAMP CLOSURE IS WITHIN A LARGER WORK ZONE WHERE THESE SIGNS ARE ALREADY PRESENT.

** PLACE "RAMP WILL BE CLOSED" SIGN 7 CALENDAR DAYS PRIOR TO CLOSURE OR AS DIRECTED BY THE ENGINEER. SEE WISCONSIN STANDARD SIGN PLATES FOR SIGN LAYOUT.

LEGEND

- TYPE III BARRICADE
- TYPE III BARRICADE WITH ATTACHED SIGN
- TRAFFIC CONTROL DRUM
- SIGN ON PERMANENT SUPPORT
- (A) TYPE "A" WARNING LIGHT (FLASHING)
- DIRECTION OF TRAFFIC

TRAFFIC CONTROL, EXIT RAMP CLOSURE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
Sept. 2015 — DATE
/S/ Peter Amakobe Atepe — STATEWIDE WORK ZO SAFETY ENGI
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FIC
FHWA

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S.D.D. 15 D 16-3

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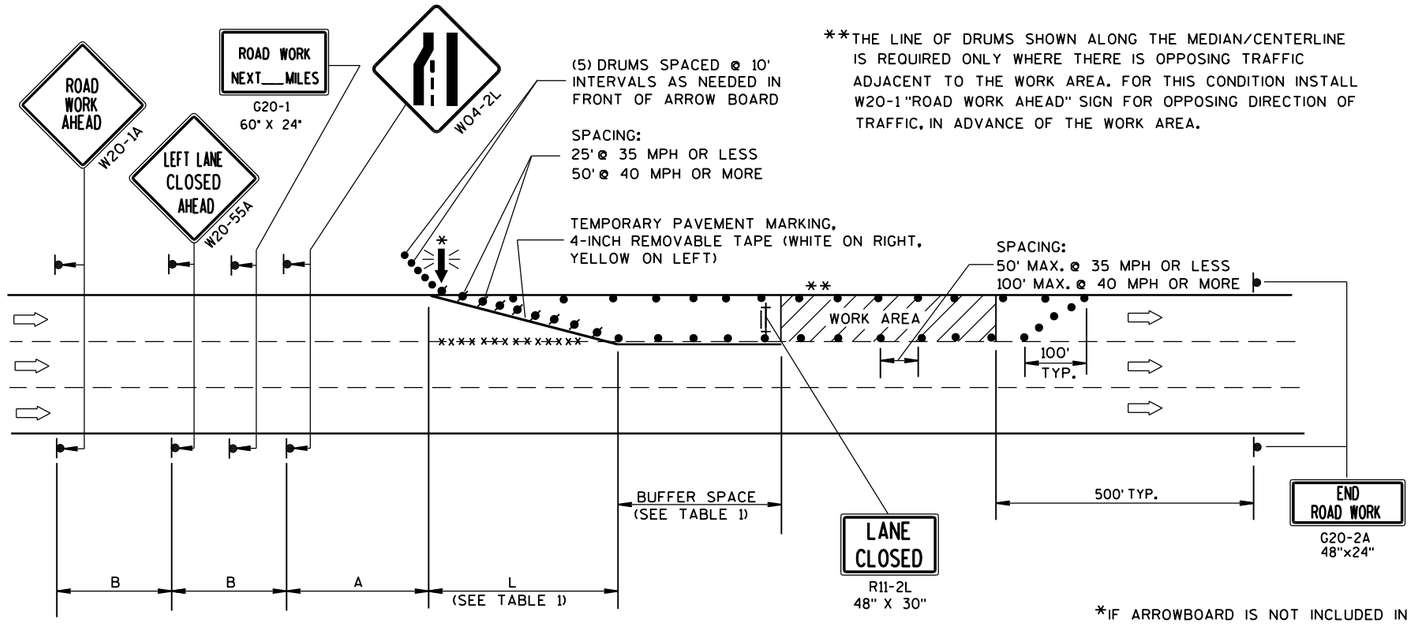
S.D.D. 15 D 16-3



**THE LINE OF DRUMS SHOWN ALONG THE MEDIAN/CENTERLINE IS REQUIRED ONLY WHERE THERE IS OPPOSING TRAFFIC ADJACENT TO THE WORK AREA. FOR THIS CONDITION INSTALL W20-1 "ROAD WORK AHEAD" SIGN FOR OPPOSING DIRECTION OF TRAFFIC, IN ADVANCE OF THE WORK AREA.

B=400' AT 25-30 MPH
700' AT 35-40 MPH
1000' AT 45-55 MPH

A=200' AT 25-30 MPH
350' AT 35-40 MPH
500' AT 45-55 MPH

(PLACE BARRICADE AND SIGN APPROX. EVERY 1000' ACROSS THE CLOSED LANE)

*IF ARROWBOARD IS NOT INCLUDED IN MISCELLANEOUS QUANTITIES, SUBSTITUTE A TYPE III BARRICADE WITH W01-6 SIGN IN THE LANE CLOSURE TAPER.

W01-6
48"x24"

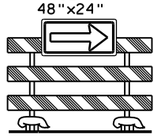


TABLE 1
TAPER AND BUFFER SPACE FOR 12' LANE WIDTH

S	L	BUFFER SPACE
25	125'	55'
30	180'	85'
35	245'	120'
40	320'	170'
45	540'	220'
50	600'	280'
55	660'	335'

FOR LANE WIDTH OTHER THAN 12':

L = WS AT 45 MPH OR GREATER

$L = \frac{WS^2}{60}$ AT 40 MPH OR LESS

L = TAPER LENGTH IN FEET

S = NON-CONSTRUCTION SPEED LIMIT (MPH)

W = WIDTH OF LANE CLOSURE

LEGEND

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

GENERAL NOTES

THIS LANE CLOSURE DETAIL IS TYPICAL FOR CLOSING THE LEFT LANE. FOR A RIGHT LANE CLOSURE, REVERSE THE TRAFFIC CONTROL.

THIS DETAIL MAY BE USED FOR ROADWAYS WITH EITHER TWO OR THREE LANES IN EACH DIRECTION.

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

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

ALL SIGNS ARE 48"x48" UNLESS OTHERWISE NOTED. IF NECESSARY DUE TO SPACE CONSTRAINTS IN URBAN AREAS, 36" X 36" SIGNS MAY BE USED IF APPROVED BY DISTRICT TRAFFIC UNIT.

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

SIGNS THAT WILL BE IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS, OR THAT WILL BE PLACED IN A CLOSED LANE, MAY BE MOUNTED ON PORTABLE SUPPORTS.

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

REMOVE PAVEMENT MARKINGS AND PLACE TEMPORARY PAVEMENT MARKING, REMOVABLE TAPE IF LANE CLOSURE IS TO BE IN PLACE FOR 4 OR MORE CONTINUOUS DAYS AND NIGHTS.

ON UNDIVIDED ROADWAYS, OMIT THE SIGNS SHOWN ON LEFT SIDE OF ROAD.

W20-1A, G20-1 AND G20-2A SIGNS ARE NOT REQUIRED IF THE LANE CLOSURE IS WITHIN A LARGER WORK ZONE WHERE THESE SIGNS ARE ALREADY PRESENT.

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

CONSIDER GEOMETRICS WHEN LOCATING SIGNS AND ARROWBOARDS SO THE APPROACHING DRIVER HAS A CLEAR VIEW OF THE ARROWBOARDS AND LANE CLOSURE DRUMS.

PLACE THE ARROWBOARD AS CLOSE AS POSSIBLE TO THE BEGINNING OF THE LANE CLOSURE TAPER, PREFERABLY ON THE SHOULDER OR TERRACE.

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

BARRICADES IN A CLOSED LANE 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.

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

TRAFFIC CONTROL, SINGLE LANE CLOSURE, NON-FREEWAY/EXPRESSWAY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June 2016 — DATE
/S/ Peter Amakobe Atepe — STATEWIDE WORK ZONE SAFETY ENGINEER
FHWA

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S.D.D. 15 D 20-4

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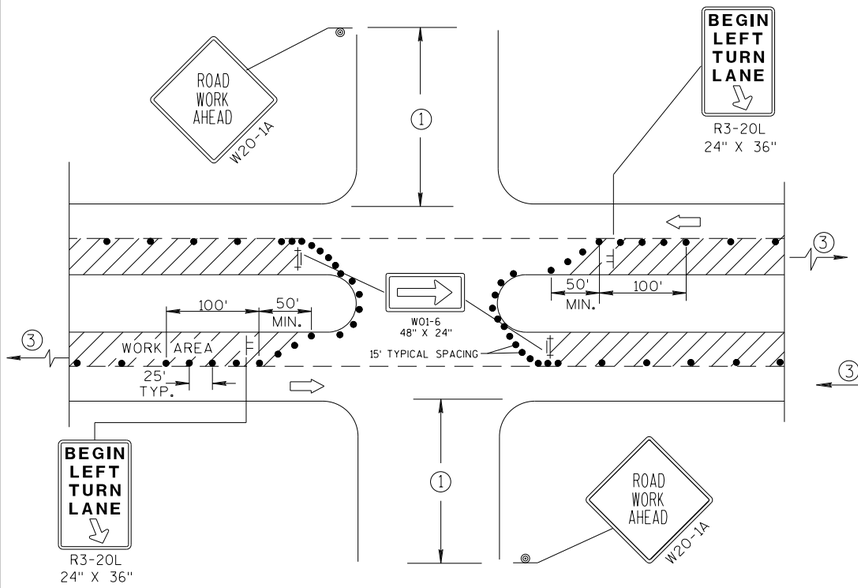
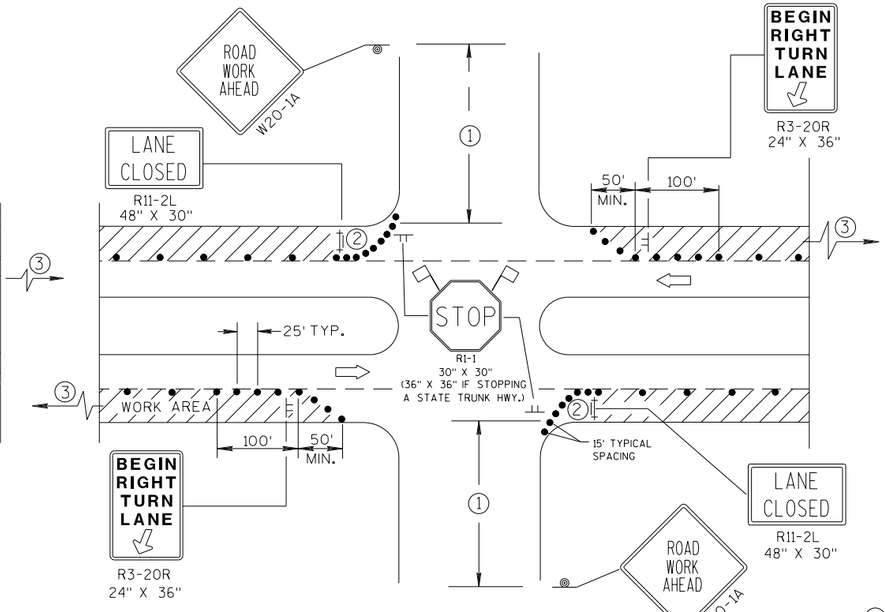
S.D.D. 15 D 20-4



DETAIL A

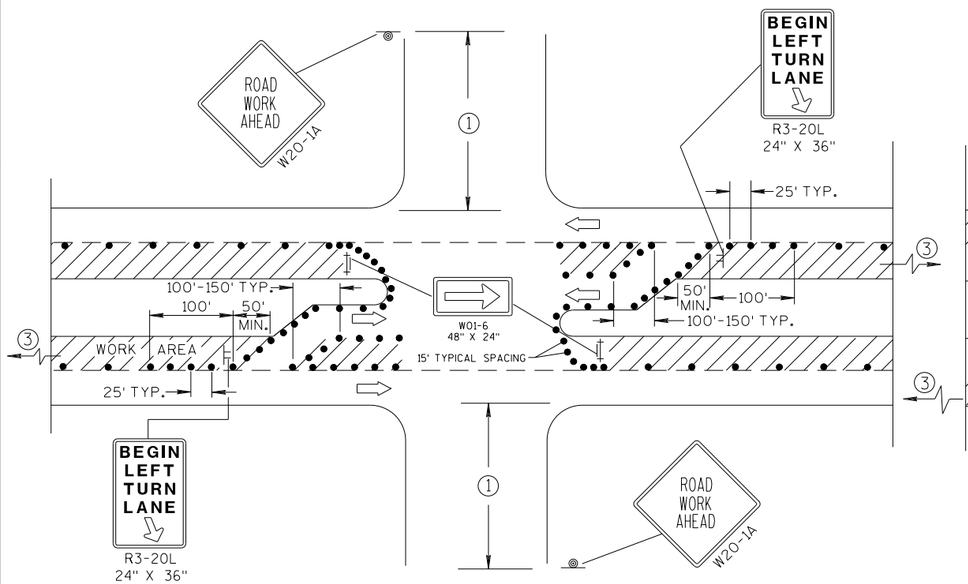
FOR LEFT LANE CLOSURE AT INTERSECTION OR MEDIAN OPENING



DETAIL B

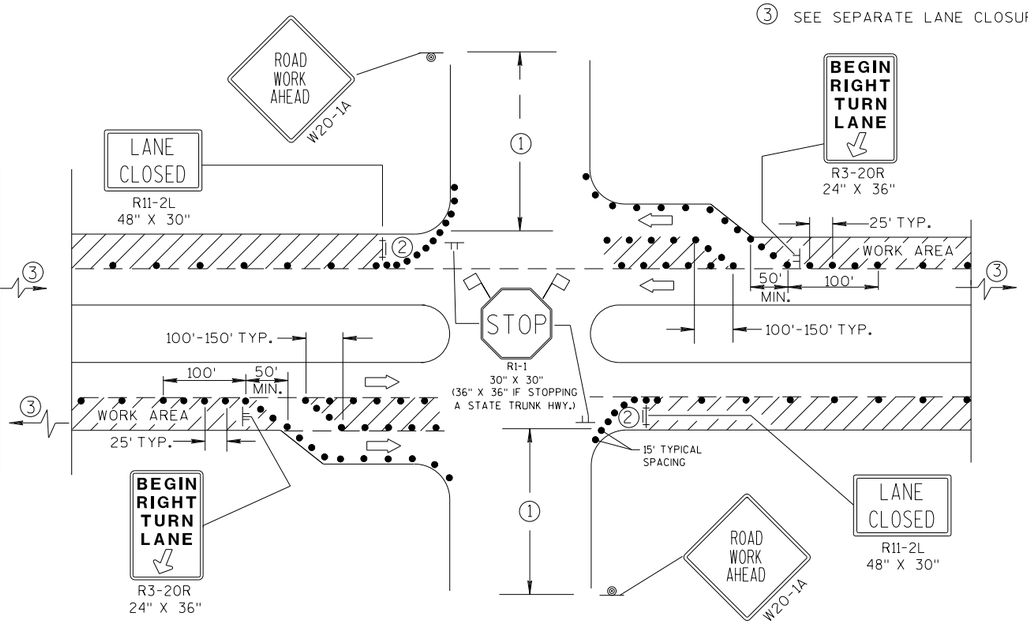
FOR RIGHT LANE CLOSURE AT INTERSECTION

PROVIDE TURN LANES AT INTERSECTIONS WHENEVER STAGING OF WORK ALLOWS. TAPER AND TURN LANE LENGTHS BASED ON FIELD CONDITIONS AS APPROVED BY THE ENGINEER.



DETAIL C

FOR LEFT LANE CLOSURE AT INTERSECTION OR MEDIAN OPENING (WITH LEFT TURN BAY OPEN)



DETAIL D

FOR RIGHT LANE CLOSURE AT INTERSECTION (WITH RIGHT TURN BAY OPEN)

GENERAL NOTES

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

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

ALL SIGNS ARE 48"x48" UNLESS OTHERWISE NOTED. IF NECESSARY DUE TO SPACE CONSTRAINTS IN URBAN AREAS, 36" X 36" SIGNS MAY BE USED IF APPROVED BY DISTRICT TRAFFIC UNIT.

"WO" SIGNS ARE THE SAME AS "W" SIGNS 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.

SIGNS THAT WILL BE IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS, OR THAT WILL BE PLACED IN A CLOSED LANE, MAY BE MOUNTED ON PORTABLE SUPPORTS.

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

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

BARRICADES IN A CLOSED LANE 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.

① 500' TYPICAL OR AT LAST INTERSECTION, WHICHEVER IS CLOSER.
350' IF 35-40 MPH.
200' IF 25-30 MPH.

② ALSO USE BARRICADE AND 15-FOOT TYPICAL DRUM SPACING AT COMMERCIAL DRIVEWAYS.

③ SEE SEPARATE LANE CLOSURE DETAIL FOR ADDITIONAL TRAFFIC CONTROL.

LEGEND

- TRAFFIC CONTROL DRUM
- SIGN ON PERMANENT SUPPORT
- SIGN ON TEMPORARY SUPPORT (5' MIN. MOUNTING HEIGHT)
- TYPE III BARRICADE WITH ATTACHED SIGN AND TYPE "A" WARNING LIGHT (FLASHING)
- DIRECTION OF TRAFFIC
- FLAGS, 16" X 16" MIN., (ORANGE)
- WORK AREA

TRAFFIC CONTROL, INTERSECTION WITHIN SINGLE LANE CLOSURE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

7/2018
DATE

/S/ Andrew Heldtke
WORK ZONE ENG

FHWA

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S.D.D. 15 D 21-6

TABLE 1
TAPER AND BUFFER SPACE
FOR 12' LANE WIDTH

S	L	BUFFER SPACE
25	125'	55'
30	180'	85'
35	245'	120'
40	320'	170'
45	540'	220'
50	600'	280'
55	660'	335'

FOR LANE WIDTH OTHER THAN 12':

L = WS AT 45 MPH OR GREATER

$L = \frac{WS^2}{60}$ AT 40 MPH OR LESS

L = TAPER LENGTH IN FEET

S = NON-CONSTRUCTION SPEED LIMIT (MPH)

W = WIDTH OF LANE CLOSURE

LEGEND

TYPE III BARRICADE

TYPE III BARRICADE WITH ATTACHED SIGN

SIGN ON PERMANENT SUPPORT

SIGN ON TEMPORARY SUPPORT

TRAFFIC CONTROL DRUM WITH TYPE "C" STEADY BURN LIGHT

TRAFFIC CONTROL DRUM

FLASHING ARROW BOARD

DIRECTION OF TRAFFIC

REMOVING PAVEMENT MARKING (SEE GENERAL NOTES)

WORK AREA

GENERAL NOTES

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

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

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

ALL SIGNS ARE 48"x48" UNLESS OTHERWISE NOTED. IF NECESSARY DUE TO SPACE CONSTRAINTS IN URBAN AREAS, 36" X 36" SIGNS MAY BE USED IF APPROVED BY THE DISTRICT TRAFFIC UNIT.

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

SIGNS THAT WILL BE IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS, OR THAT WILL BE PLACED IN A CLOSED LANE, MAY BE MOUNTED ON PORTABLE SUPPORTS.

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

REMOVE PAVEMENT MARKINGS AND PLACE TEMPORARY PAVEMENT MARKING, REMOVABLE TAPE IF LANE CLOSURE IS TO BE IN PLACE FOR 4 OR MORE CONTINUOUS DAYS AND NIGHTS.

W20-1A, G20-1 AND G20-2A SIGNS ARE NOT REQUIRED IF THE LANE CLOSURE IS WITHIN A LARGER WORK ZONE WHERE THESE SIGNS ARE ALREADY PRESENT.

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

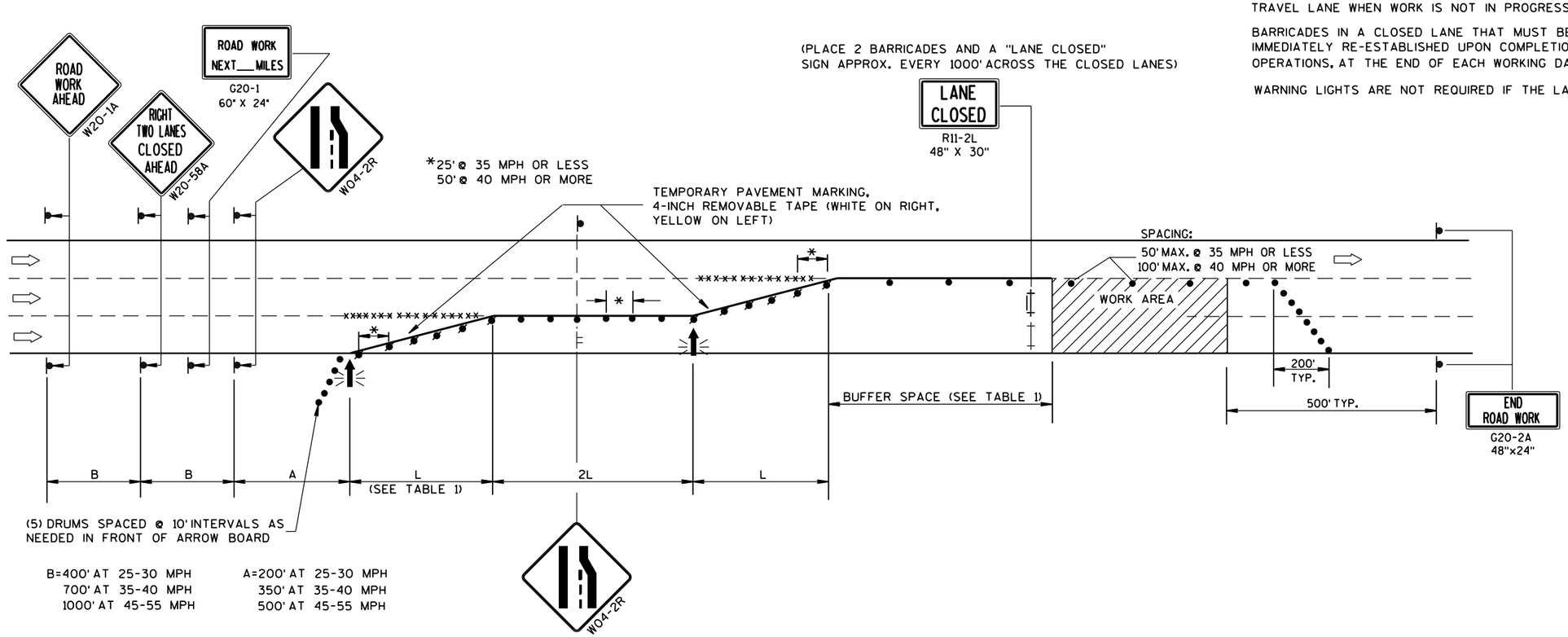
CONSIDER GEOMETRICS WHEN LOCATING SIGNS AND ARROWBOARDS SO THE APPROACHING DRIVER HAS A CLEAR VIEW OF THE ARROWBOARDS AND LANE CLOSURE DRUMS.

WHERE THE SHOULDER OR TERRACE HAS INSUFFICIENT SPACE TO LOCATE THE ARROWBOARD AS SHOWN, PLACE THE ARROWBOARD IN THE LANE CLOSURE TAPER AS CLOSE AS POSSIBLE TO THE BEGINNING OF THE TAPER.

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

BARRICADES IN A CLOSED LANE 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.

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



B=400' AT 25-30 MPH
700' AT 35-40 MPH
1000' AT 45-55 MPH

A=200' AT 25-30 MPH
350' AT 35-40 MPH
500' AT 45-55 MPH

TRAFFIC CONTROL, TWO LANE CLOSURE, NON-FREEWAY/EXPRESSWAY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June 2016 — DATE
/S/ Peter Amakobe Atepe
STATEWIDE WORK ZONE TRAFFIC SAFETY ENGINEER
FHWA

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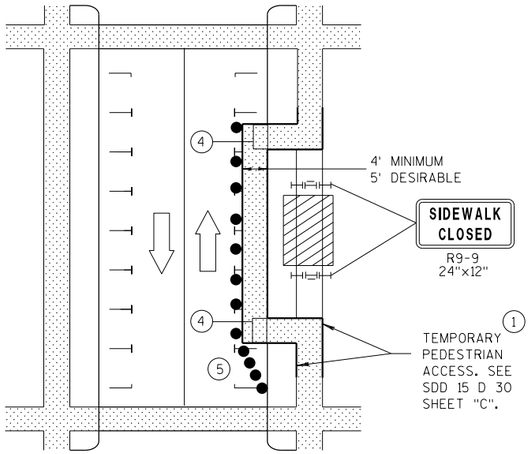
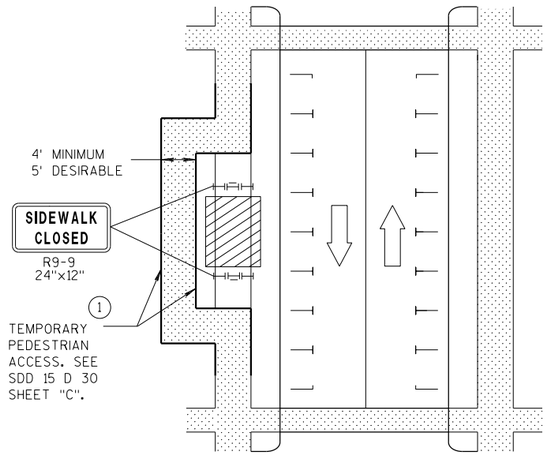
S.D.D. 15 D 22-3

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

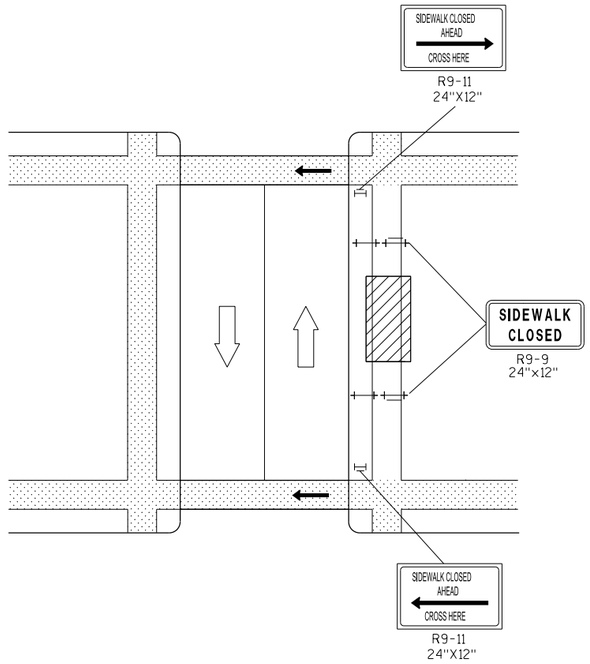


MID-BLOCK SIDEWALK CLOSURE IN PARKING LANE

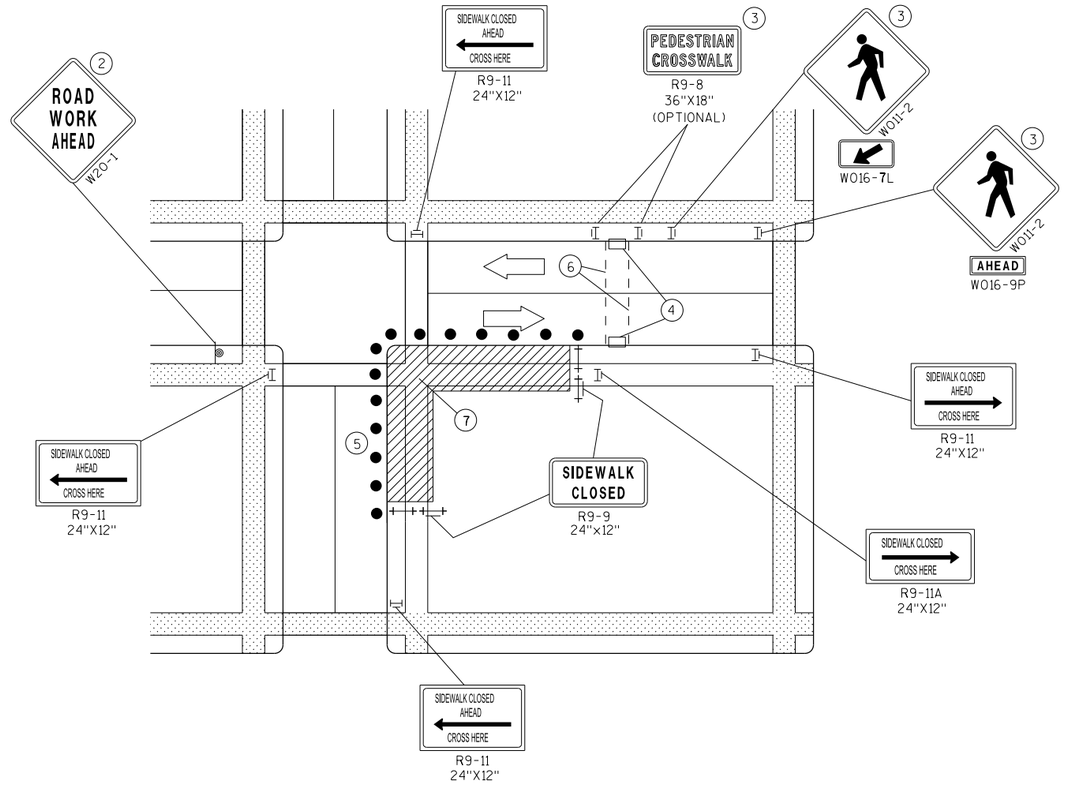
NOTE: LAYOUT SAME AS ABOVE.



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.

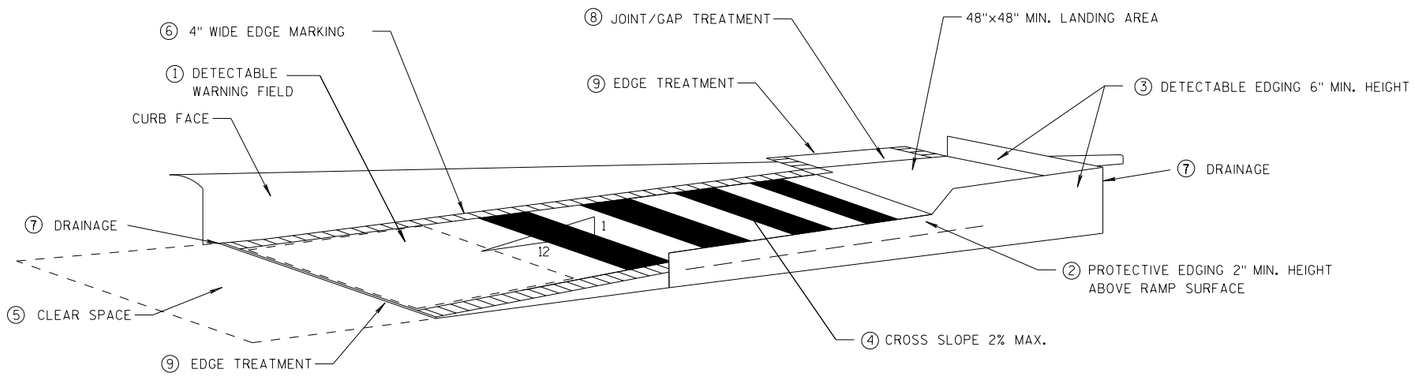
LEGEND

- 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

6

S.D.D. 15 D 30-4a



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.

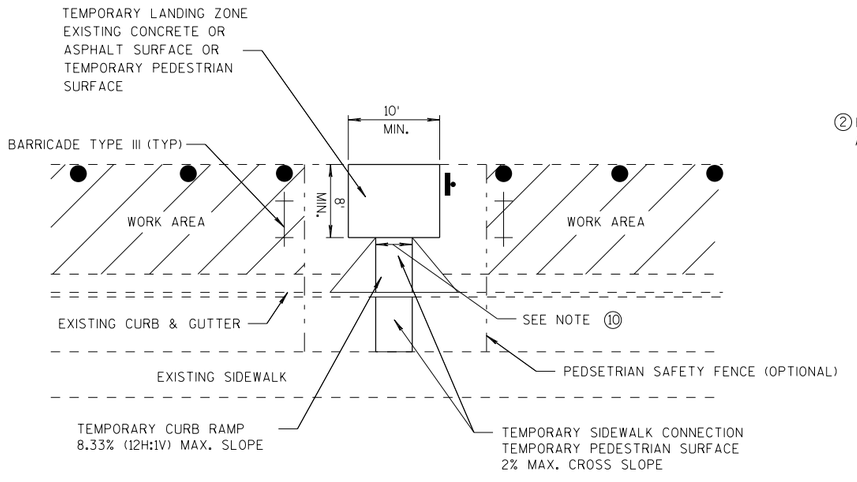
⑥ THE CURB RAMP WALKWAY EDGE SHALL BE MARKED WITH A YELLOW COLOR, 4" WIDE MARKING, UNLESS A CONTRASTING DETECTABLE WARNING FIELD IS PROVIDED.

⑦ DO NOT RESTRICT WATER FLOW IN THE GUTTER SYSTEM.

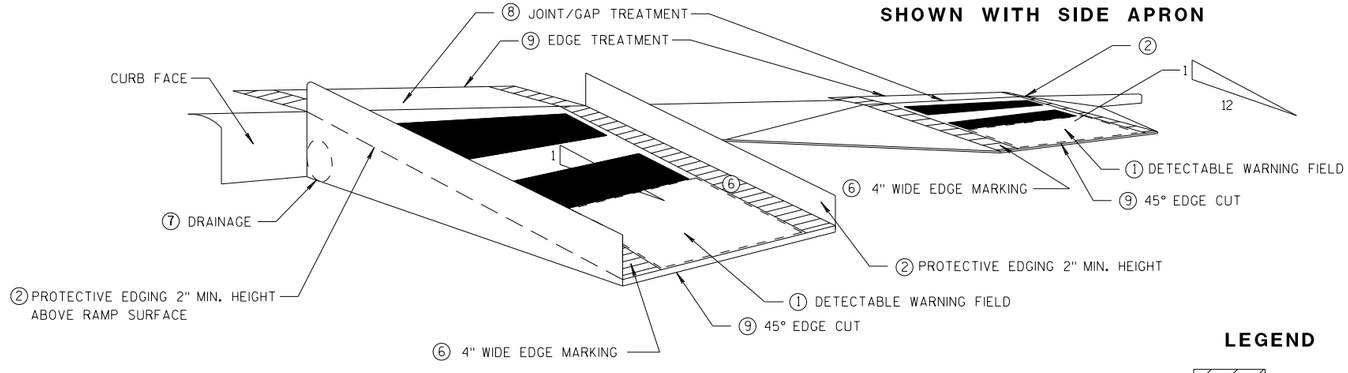
⑧ LATERAL JOINTS OR GAPS BETWEEN SURFACES SHALL BE LESS THAN 1/2" WIDTH.

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

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

7/2018
DATE

/S/ Andrew Heidtke
WORK ZONE ENG

FHWA

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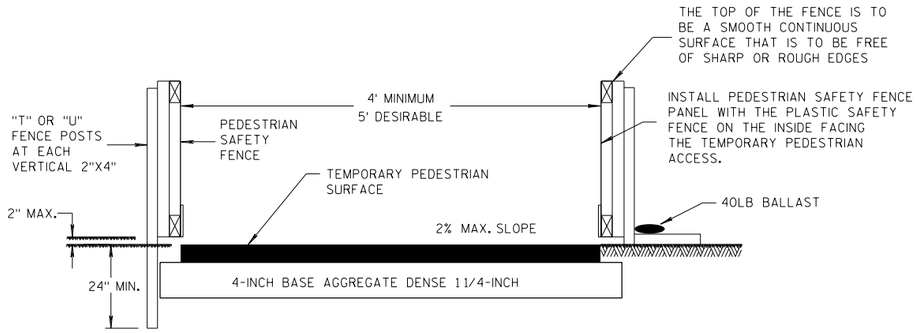
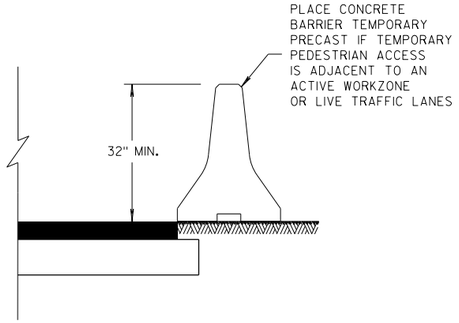
S.D.D. 15 D 30-4b

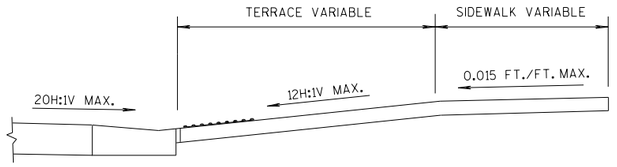




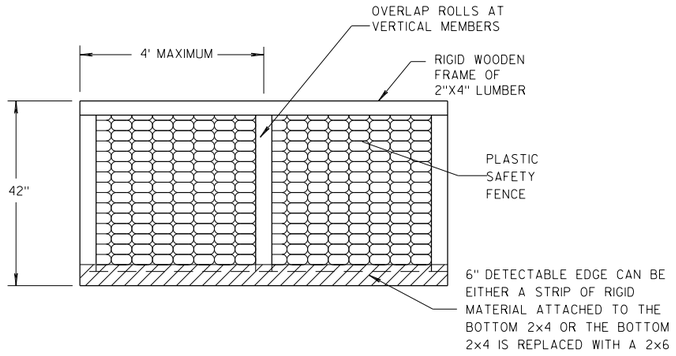
TEMPORARY PEDESTRIAN ACCESS

GENERAL NOTES

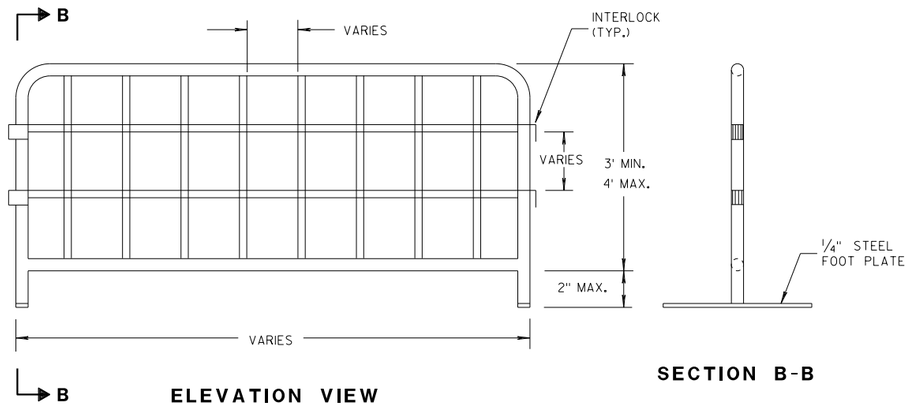
(1) INTERCHANGEABLE WITH THE PEDESTRIAN SAFETY FENCE.



SECTION A-A



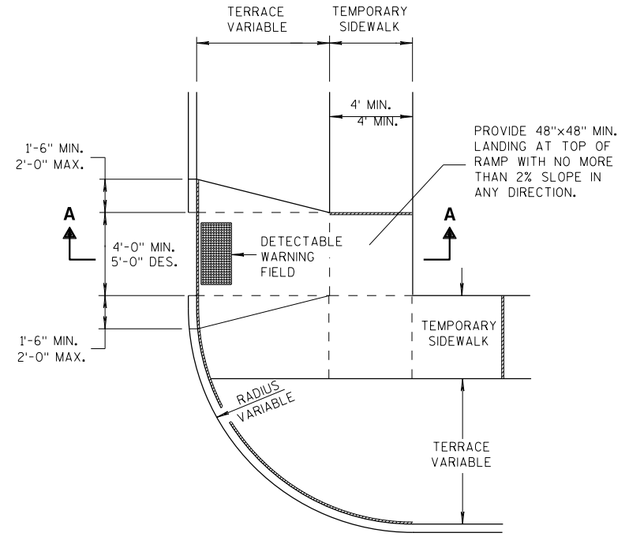
PEDESTRIAN SAFETY FENCE



ELEVATION VIEW

SECTION B-B

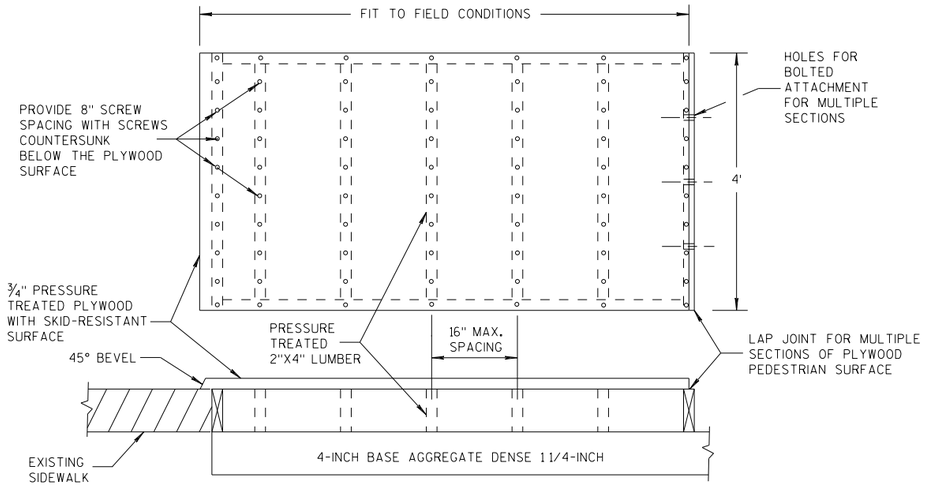
TEMPORARY PEDESTRIAN STEEL BARRICADE (1)



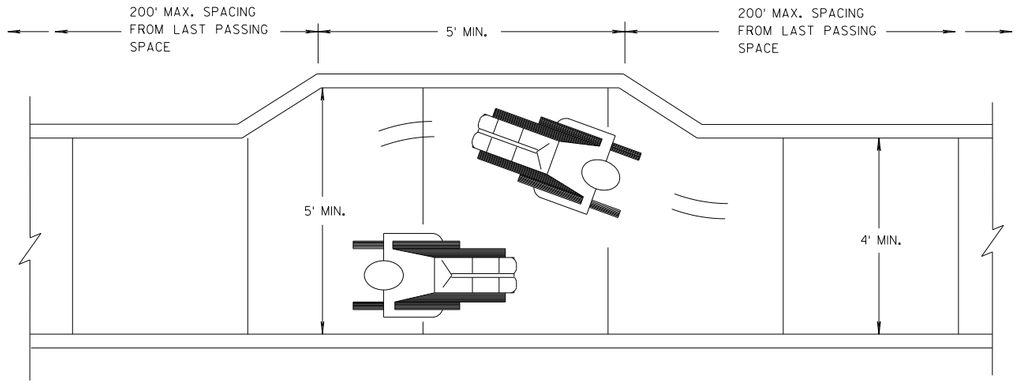
PLAN VIEW

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

7/2018 — DATE

/S/ Andrew Heidtke — WORK ZONE ENG

FHWA

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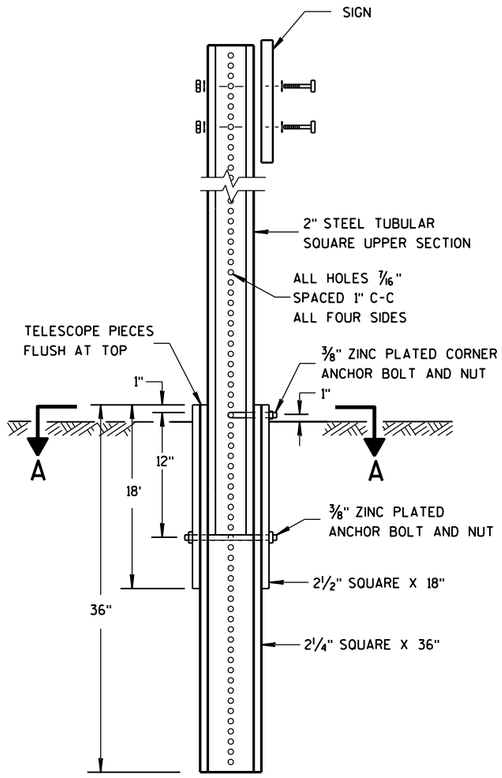
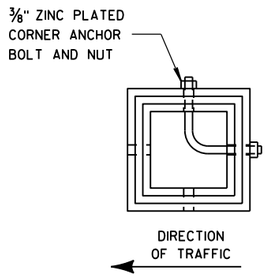
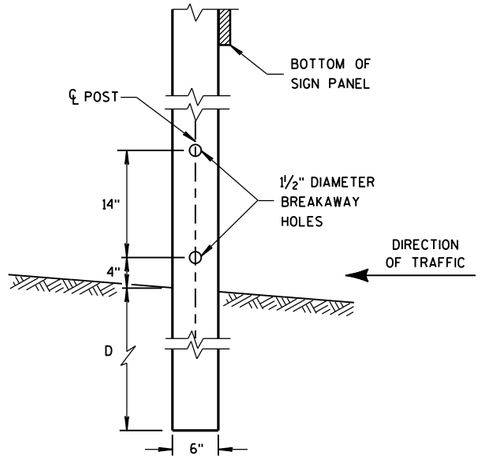
S.D.D. 15 D 30-4c



DETAIL OF TUBULAR STEEL SIGN POST



SECTION A-A



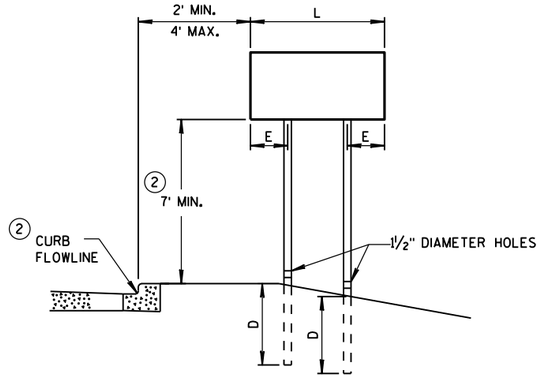
4"x6" WOOD POST MODIFICATION

GENERAL NOTES

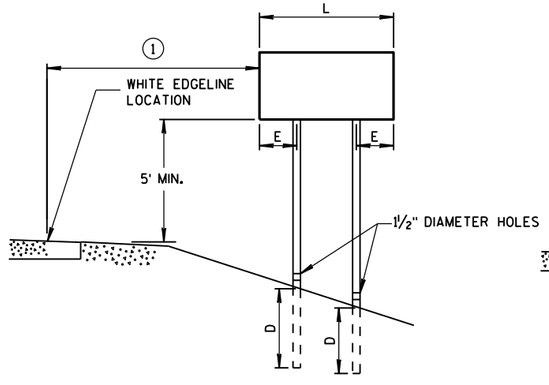
(1) 6 FEET FROM THE EDGE OF PAVEMENT (EDGE LINE LOCATION) UNLESS OTHERWISE DIRECTED BY THE PROJECT ENGINEER. LATERAL OFFSET SHOULD BE ADJUSTED TO AVOID THE DITCH FLOWLINE.

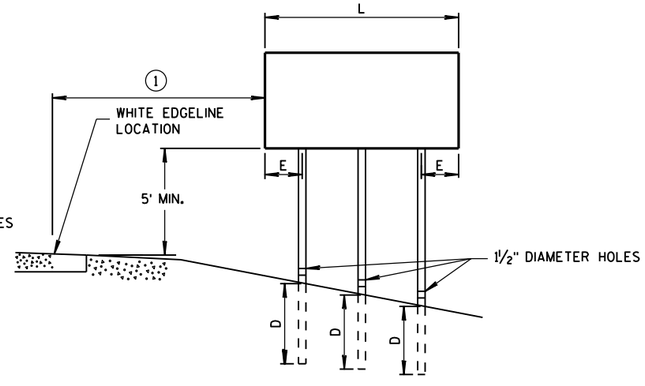
(2) THE EXISTENCE OF CURB AND GUTTER DOES NOT IN ITSELF MANDATE THE VERTICAL CLEARANCE ILLUSTRATED. THAT HEIGHT IS TYPICALLY MEASURED WHERE THERE IS SIDEWALK ADJACENT TO THE ROADWAY OR PARKING IS PERMITTED. IN THE ABSENCE OF SIDEWALK, VERTICAL CLEARANCE IS MEASURED FROM THE TOP OF THE CURB. IF NO SIDEWALK 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 SIGN MOUNTING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI

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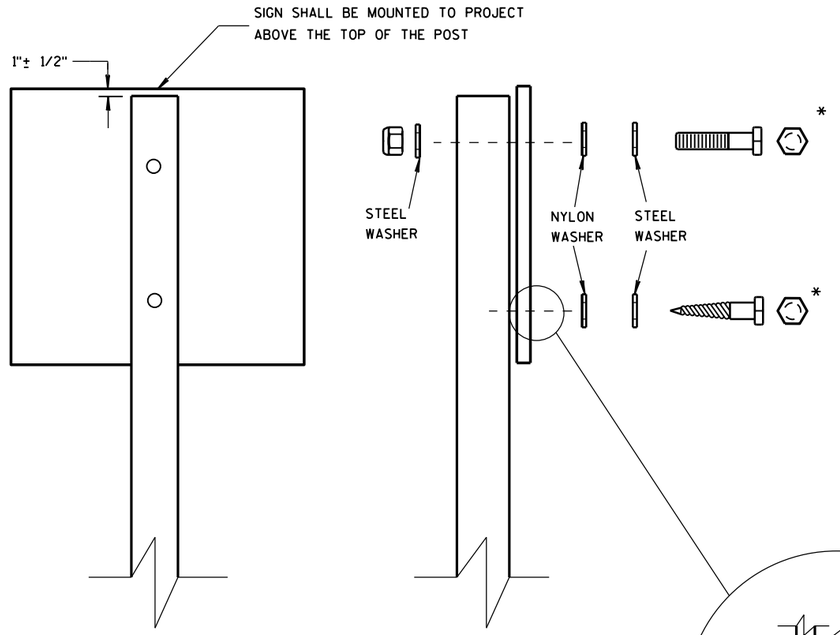
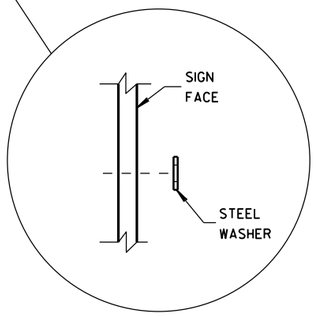
S.D.D. 15 D 38-2a





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 38-2b

S.D.D. 15 D 38-2b

ATTACHMENT OF SIGNS TO POSTS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

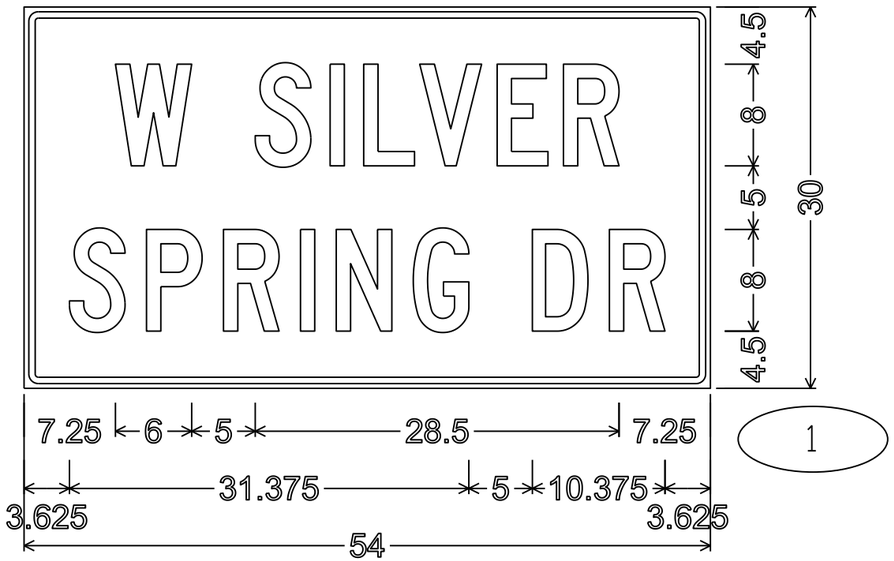
June 2017
DATE

/S/ Andrew Heldtke
WORK ZONE ENG

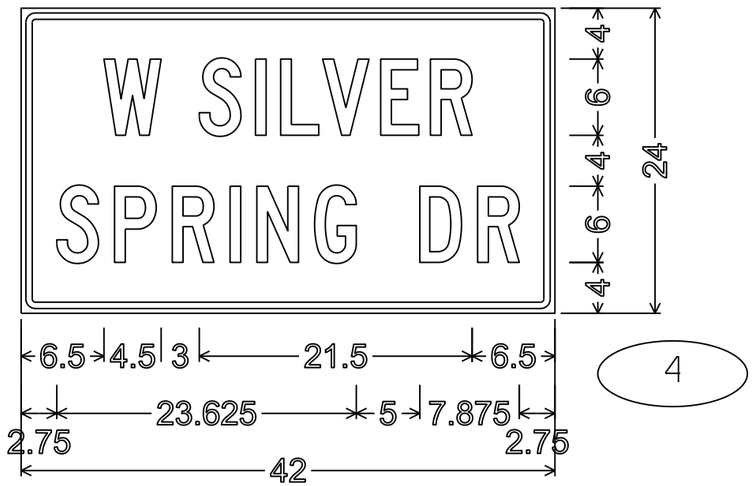
FHWA

NOTES

1. Fixed Message Type II Signs - Type F Reflective
2. Color:
   Background - Orange
   Message - Black
3. Message Series - C



1.125" Radius, 0.500" Border, 0.375" Indent



1.125" Radius, 0.500" Border, 0.375" Indent

STATE PROJECT NUMBER

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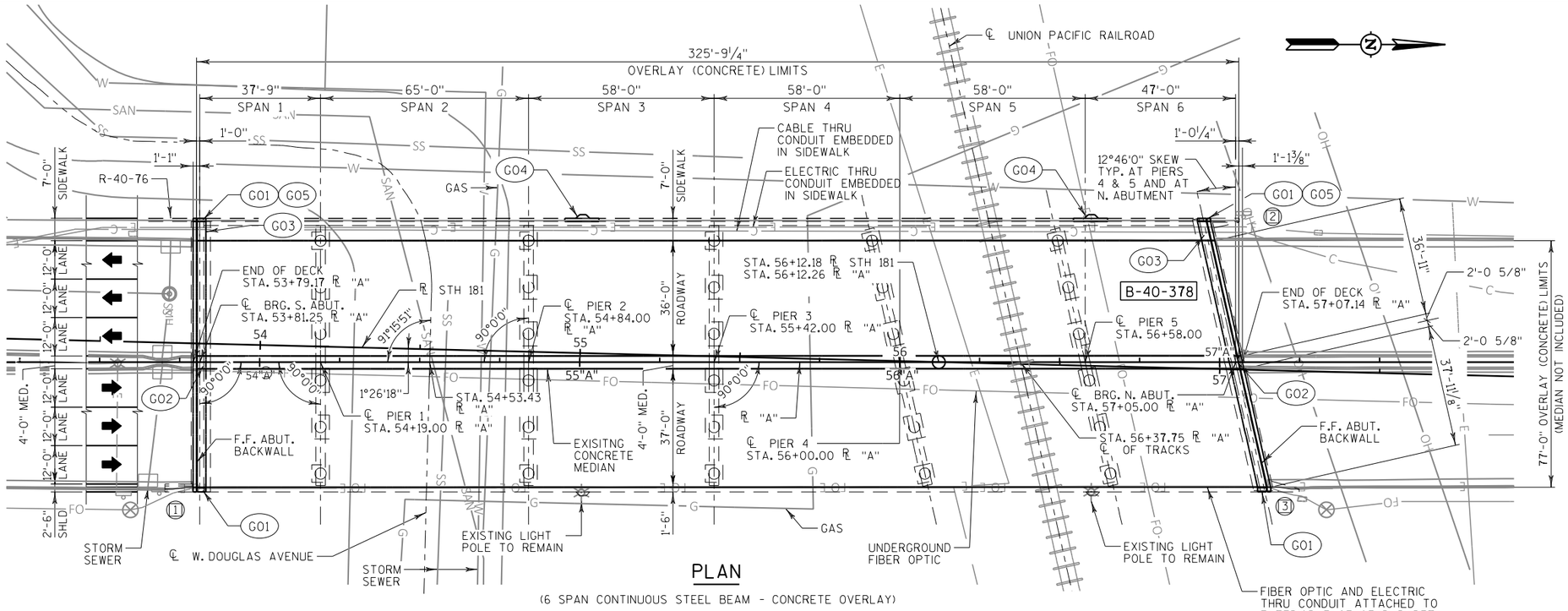
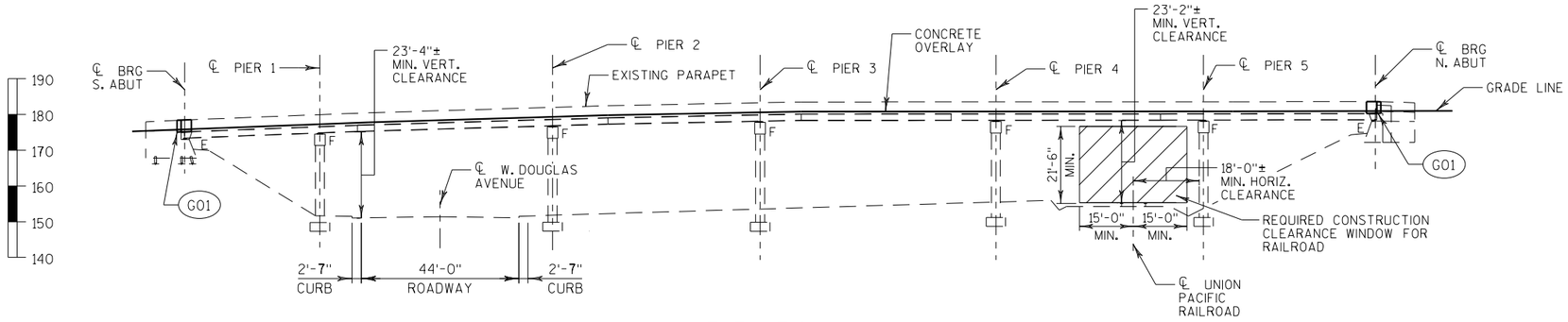


PLAN

(6 SPAN CONTINUOUS STEEL BEAM - CONCRETE OVERLAY)



ELEVATION

(LOOKING WEST)

BENCHMARKS

NO.	DESCRIPTION	NORTHING	EASTING	ELEVATION
1	SET ON THE NE CORNER OF 76TH STREET AND WINFIELD AVENUE APPROXIMATELY ONE FOOT BEHIND BACK OF WALK.	334090.545	580338.513	734.91
2	SET IN GRASS MEDIAN OF 76TH STREET APPROXIMATELY 450 FEET NORTH OF B-40-378.	333234.772	580248.512	752.76
28	ALUMINUM DISK ON SOUTHEAST WING WALL PARAPET.	332472.547	580289.278	758.58

DESIGN DATA

LIVE LOAD:

DESIGN LOADING:	HS-20
INVENTORY RATING:	HS-28
OPERATING RATING:	HS-47
WISCONSIN STANDARD PERMIT VEHICLE (WIS-SPV):	207 KIPS

MATERIAL PROPERTIES:

CONCRETE MASONRY
OVERLAY DECKS ——— f'c = 4,000 P.S.I.
LIGHT BLISTERS, PARAPET,
& SIDEWALK ——— f'c = 4,000 P.S.I.

BAR STEEL REINFORCEMENT,
HIGH STRENGTH, GRADE 60 ——— fy = 60,000 P.S.I.

LIST OF DRAWINGS

1. GENERAL PLAN
2. SECTION, NOTES AND QUANTITIES
3. EXPANSION JOINT PLANS
4. EXPANSION JOINT DETAILS
5. EXPANSION JOINT AND LIGHT BLISTER DETAILS
6. BILL OF BARS
7. COVER PLATE DETAILS
8. DECK REHAB AREAS

TRAFFIC VOLUME

STH 181 - N. 76TH STREET	W. DOUGLAS AVENUE
A.D.T. = 35,200 (2038)	A.D.T. = 4,800 (2038)
R.D.S. = 45 M.P.H.	R.D.S. = 30 M.P.H.

LEGEND

- (GO1) REMOVE PARAPET IN THIS AREA AS REQUIRED TO PERMIT INSTALLATION OF NEW EXPANSION DEVICE.
- (GO2) REMOVE MEDIAN IN THIS AREA AS REQUIRED TO PERMIT INSTALLATION OF NEW EXPANSION DEVICE.
- (GO3) REMOVE SIDEWALK IN THIS AREA AS REQUIRED TO PERMIT INSTALLATION OF NEW EXPANSION DEVICE.
- (GO4) NEW LIGHT POLE AND LIGHT BLISTER. REMOVE EXISTING ANCHOR ASSEMBLIES LIGHT BLISTER AND PORTIONS OF ADJACENT PARAPET AS REQUIRED TO PERMIT CONSTRUCTION OF NEW LIGHT BLISTER AND INSTALLATION OF NEW LIGHT POLES.
- (GO5) REMOVE AND REATTACH EXISTING RAILING POSTS AFTER EXPANSION JOINT WORK IS COMPLETED.
- ⬡ INDICATES WING NUMBER

DESIGN CONTACT:
SCOTT GINAL
(262)-317-3344

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

NO.	DATE	REVISION	BY

raSmith
CREATIVITY BEYOND ENGINEERING
16745 W. Bluemound Road
Brookfield, WI 53005-5938
(262) 781-1000
rasmith.com

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

ACCEPTED William C. Dreher SDR 02/04/19
CHIEF STRUCTURES DESIGN ENGINEER — DATE

STRUCTURE B-40-378

STH 181 OVER DOUGLAS AVE & UNION PACIFIC RAILROAD

COUNTY	TOWN/CITY/VILLAGE
MILWAUKEE	MILWAUKEE

DESIGN SPEC. REHABILITATION N/A

DESIGNED BY	DESIGN CK'D.	DRAWN BY	PLANS CK'D.
JAD	SJG	JAD	SJG

GENERAL PLAN

SHEET 1 OF 8
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STATE PROJECT NUMBER
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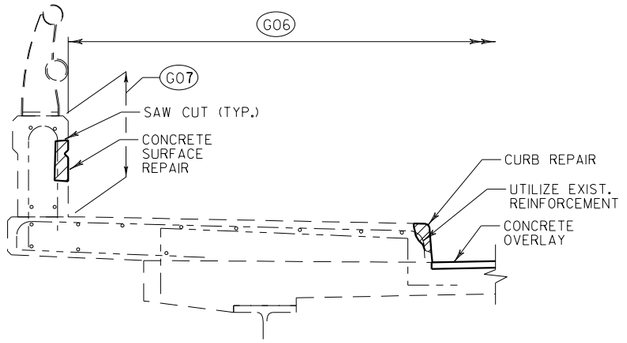
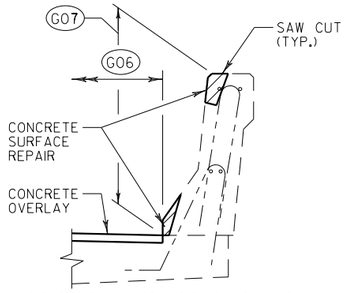
TOTAL ESTIMATED QUANTITIES

BID ITEM NUMBER	BID ITEMS	UNIT	QUANTITY
203.0200	REMOVING OLD STRUCTURE (55+42)	LS	1
203.0225.S.03	DEBRIS CONTAINMENT B-40-378	LS	1
502.0100	CONCRETE MASONRY BRIDGES	CY	4
502.3100	EXPANSION DEVICE B-40-378	LS	1
502.3200	PROTECTIVE SURFACE TREATMENT	SY	3080
502.3210	PIGMENTED SURFACE SEALER	SY	165
502.4204	ADHESIVE ANCHORS NO. 4 BAR	EACH	40
502.4205	ADHESIVE ANCHORS NO. 5 BAR	EACH	174
502.4206	ADHESIVE ANCHORS NO. 6 BAR	EACH	88
505.0600	BAR STEEL REINFORCEMENT HS COATED STRUCTURES	LB	6640
505.0904	BAR COUPLERS NO. 4	EACH	36
505.0905	BAR COUPLERS NO. 5	EACH	12
505.0906	BAR COUPLERS NO. 6	EACH	40
509.0351	PREPARATION DECKS TYPE 1	SY	10
509.0352	PREPARATION DECKS TYPE 2	SY	1
509.0310.S	SAWING PAVEMENT DECK PREPARATION AREAS	LF	100
509.0500	CLEANING DECKS	SY	2657
509.1050	JOINT REPAIR	SY	77
509.1250	CURB REPAIR	LF	2
509.1500	CONCRETE SURFACE REPAIR	SF	17
509.2050	FULL-DEPTH DECK REPAIR	SY	1
509.2550	CONCRETE MASONRY OVERLAY DECKS	SY	2657
517.1800.S.01	STRUCTURE REPAINTING RECYCLED ABRASIVE B-40-378	LS	1
517.3000.S.01	STRUCTURE OVERCOATING AND PRIMING B-40-378	LS	1
517.4000.S.01	CONTAINMENT AND COLLECTION OF WASTE MATERIALS B-40-378	LS	1
517.4500.S.01	NEGATIVE PRESSURE CONTAINMENT AND COLLECTION OF WASTE MATERIALS B-40-378	LS	1
517.6001.S	PORTABLE DECONTAMINATION FACILITY	EACH	1
652.0225	CONDUIT RIGID NONMETALLIC SCHEDULE 40 2-INCH	LF	28
653.0222	JUNCTION BOXES 18X12X6-INCH	EACH	2
657.6005	ANCHOR ASSEMBLIES LIGHT POLES ON STRUCTURES	EACH	2

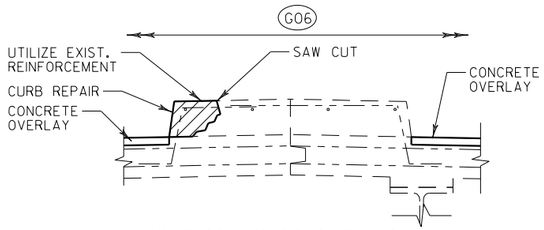
ALL ITEMS ARE CATEGORY 0020.



SIDEWALK AND PARAPET REPAIR DETAIL



PARAPET REPAIR DETAIL



MEDIAN REPAIR DETAIL

GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.

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

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

DIMENSIONS SHOWN ARE BASED ON THE ORIGINAL STRUCTURE PLANS AND SUBSEQUENT NEW SUPERSTRUCTURE PLANS.

"PROTECTIVE SURFACE TREATMENT" SHALL BE APPLIED TO THE ENTIRE TOP SURFACE OF THE NEW CONCRETE OVERLAY, THE CONCRETE MEDIAN AND THE CONCRETE SIDEWALK.

UTILIZE EXISTING BAR STEEL REINFORCEMENT WHERE SHOWN AND EXTEND 24 BAR DIAMETERS INTO NEW WORK, UNLESS SPECIFIED OTHERWISE.

"PREPARATION DECKS TYPE 1", "PREPARATION DECKS TYPE 2", AND "FULL-DEPTH DECK REPAIR" AREAS ARE BASED ON THE PLANS AND AS DETERMINED BY THE ENGINEER.

"PREPARATION DECKS TYPE 1" SHALL BE DEFINED BY A SAW CUT.

A MINIMUM OF 1-INCH OF CONCRETE SHALL BE REMOVED FROM THE ENTIRE BRIDGE DECK UNDER THE BID ITEM "CLEANING DECKS".

ALL CONCRETE REMOVAL NOT COVERED WITH A CONCRETE OVERLAY SHALL BE DEFINED BY A 1-INCH DEEP SAW CUT.

AT "CURB REPAIR" EXPOSE EXISTING REINFORCEMENT A MINIMUM OF 1½" CLEAR BEYOND REINFORCING.

EXPANSION JOINT ASSEMBLY, INCLUDING ANCHOR STUDS AND HARDWARE SHALL BE PAID FOR IN THE LUMP SUM PRICE, BID AS "EXPANSION DEVICE B-40-378".

PROFILE GRADE LINE SHALL BE DETERMINED IN THE FIELD BASED ON A MINIMUM OVERLAY THICKNESS OF 1½" PLACED ABOVE THE DECK SURFACE AFTER "CLEANING DECKS". IF EXPECTED AVERAGE OVERLAY THICKNESS IS EXCEEDED BY MORE THAN ½", CONTACT THE STRUCTURES DESIGN SECTION.

MEDIAN SHALL BE CLEANED PRIOR TO APPLICATION OF "PROTECTIVE SURFACE TREATMENT". CLEANING OF MEDIAN SHALL BE PAID UNDER BID ITEM "PROTECTIVE SURFACE TREATMENT".

PARAPETS SHALL BE CLEANED PRIOR TO APPLICATION OF "PIGMENTED SURFACE SEALER". CLEANING OF PARAPETS SHALL BE PAID UNDER BID ITEM "PIGMENTED SURFACE SEALER".

THE EXISTING STRUCTURE, B-40-378, IS A 6-SPAN STEEL GIRDER STRUCTURE WITH AN OVERALL WIDTH OF 85'-6" AND AN OVERALL LENGTH BETWEEN BACK OF ABUTMENTS OF 329'-1¾". THE ENTIRE BRIDGE DECK SHALL BE PREPARED FOR A NEW CONCRETE OVERLAY. THE EXPANSION JOINTS AT BOTH ABUTMENTS SHALL BE REPLACED. ALL BEARINGS AT BOTH ABUTMENTS SHALL BE CLEANED AND PAINTED. CONCRETE SURFACE REPAIRS SHALL BE PERFORMED AS DIRECTED BY THE FIELD ENGINEER, AND ALL STEEL ELEMENTS OF THE SUPERSTRUCTURE SHALL BE PAINTED AS DETAILED ON THE PLANS.

THE BID ITEM "STRUCTURE REPAINTING RECYCLED ABRASIVE B-40-378" INCLUDES CLEANING AND PAINTING ALL STEEL ELEMENTS INCLUDING GIRDERS, BRACING ELEMENTS AND EXISTING BEARINGS.

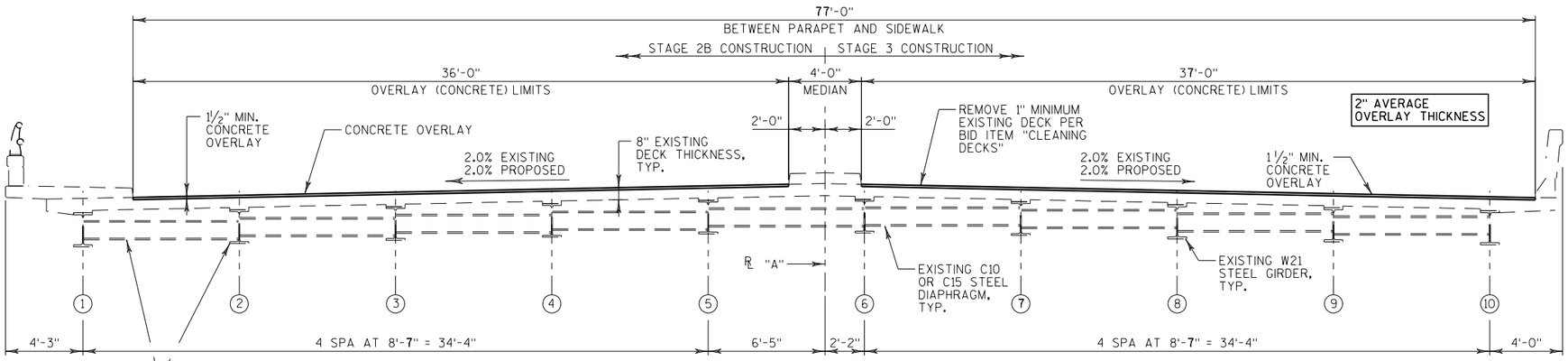
THE COLOR OF THE FINISH EPOXY TOP COAT ON THE STEEL GIRDERS AND CONNECTING STRUCTURAL STEEL SHALL BE REDDISH-BROWN (FEDERAL STANDARD COLOR NO. 20152).

ANY EXCAVATION NECESSARY TO COMPLETE THE JOINT REPAIR AT THE ABUTMENTS IS TO BE CONSIDERED INCIDENTAL TO THE BID ITEM "CONCRETE MASONRY OVERLAY DECKS".

REFER TO ROADWAY PLANS FOR TRAFFIC CONTROL PLANS AND STAGED CONSTRUCTION DETAILS. REPAIR WORK FOR SIDEWALK AND WEST PARAPET SHALL BE DONE DURING STAGE 2A. REPAIR WORK FOR SOUTHBOUND LANES SHALL BE DONE DURING STAGE 2B. REPAIR WORK FOR NORTHBOUND LANES AND EAST PARAPET SHALL BE DONE DURING STAGE 3.

REFERENCE LINE "A" REPRESENTS THE CENTER LINE OF BRIDGE B-40-378 AND IS A TANGENT LINE TO REFERENCE LINE STH 181 AT STATION 56+12.18 (R/L STH 181) AND STATION 56+12.26 (R/L "A").

1992 PLANS INDICATE THE EXISTING DECK AND PARAPETS HAVE COATED REINFORCEMENT. ANY AREAS OF CORROSION, MISSING COATING, OR DAMAGED COATING CAUSED BY CONTRACTOR OPERATIONS SHALL BE REPAIRED PER STANDARD SPECIFICATION SECTION 509.3.1.



CROSS SECTION THRU ROADWAY

(LOOKING NORTH)

LEGEND

(G06) "PROTECTIVE SURFACE TREATMENT" LIMITS

(G07) "PIGMENTED SURFACE SEALER" LIMITS

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-40-378

DRAWN BY JAD | PLANS CK'D. SJG

SECTIONS, NOTES AND QUANTITES

SHEET 2 OF 8

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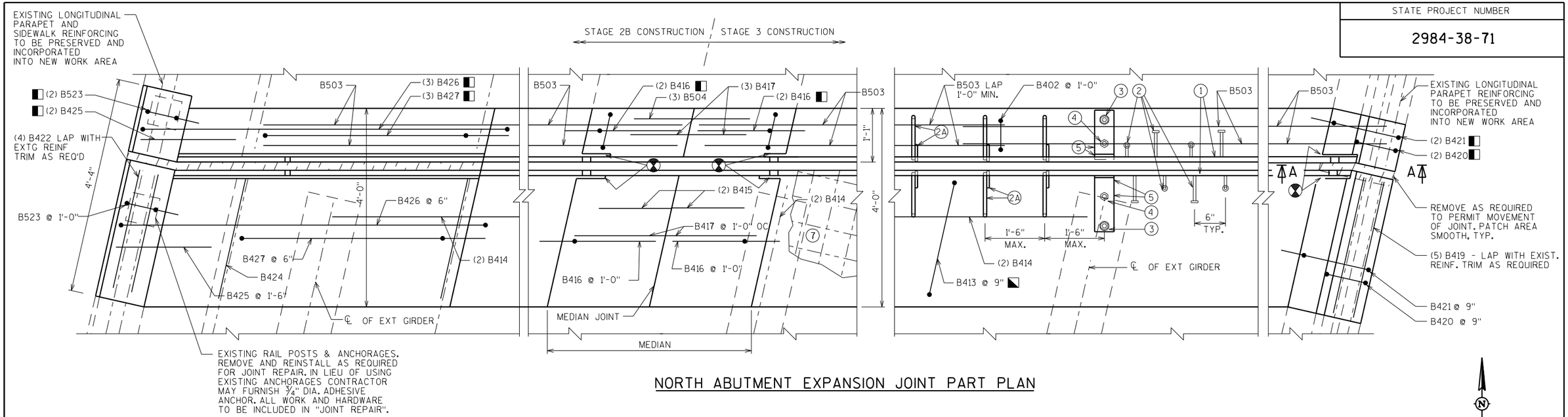
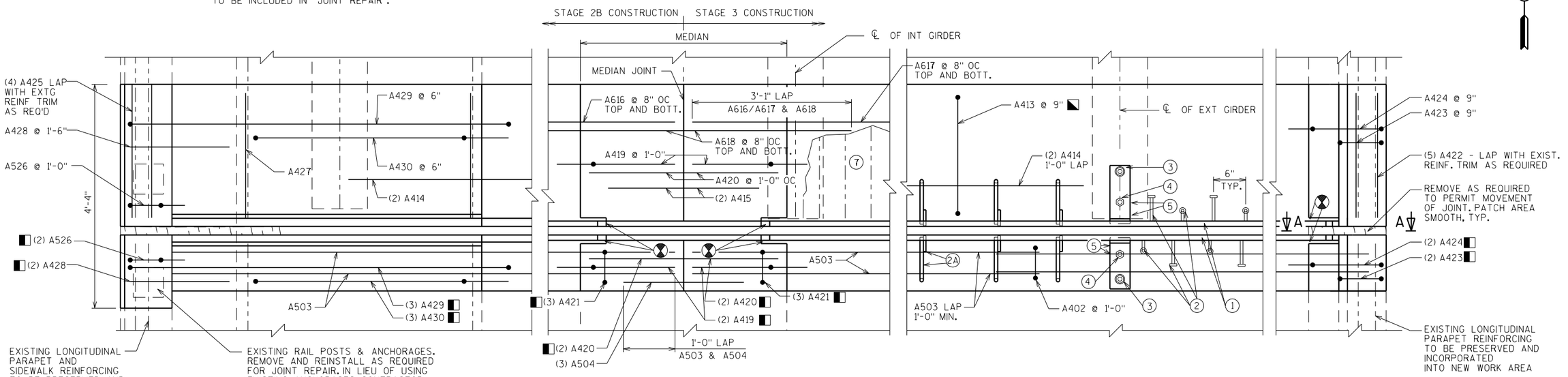


NORTH ABUTMENT EXPANSION JOINT PART PLAN



SOUTH ABUTMENT EXPANSION JOINT PART PLAN

LEGEND

1. NEOPRENE STRIP SEAL (4 - INCH) AND STEEL EXTRUSIONS.
2. STUDS ⅝"Φ X 6⅜" LONG AT 6" ALTERNATE CENTERS. WELD TO EXTRUSIONS & BEND AS SHOWN AFTER WELDING.
2A. ½" THICK ANCHOR PLATE WITH ⅝"Φ ROD (OR ALTERNATE STRIP SEAL ANCHOR). WELD ROD TO ANCHOR PLATE, WELD ANCHOR PLATE TO NO. 1 AT 1'-6" CENTERS BETWEEN GIRDERS.
3. ¾" Φ THREADED ROD WITH 2 NUTS AND PLATE WASHERS. ON GIRDER SIDE WELD THREADED ROD TO TOP FLANGE OR ATTACH BY BOLTING THRU FLANGE. ON ABUTMENT SIDE GROUT THREADED ROD INTO FIELD DRILLED HOLES IN ABUTMENT BACKWALL AS SHOWN.
4. ¾"Φ THREADED ROD WITH NUT. TACK WELD NUT TO NO. 5.
5. FABRICATE SUPPORT FROM 3" X ½" BAR AS SHOWN OR EQUIVALENT, ONE PER GIRDER PER SIDE. FIELD OR SHOP WELD TO NO. 1. IF FIELD WELDED, COVER WELDED AREAS WITH EPOXY-COATING MATERIAL. PROVIDE 1½" Φ HOLE FOR NO. 3 & 1" Φ HOLE FOR NO. 4.
6. ADHESIVE ANCHORS NO. 5 BAR. EMBED 1'-0" IN CONCRETE. SPACE AT 1'-0". TURN HORIZONTAL LEG AS NECESSARY TO FIT.
7. EXISTING LONGITUDINAL DECK REINFORCEMENT (LONGITUDINAL AND TRANSVERSE AT NORTH ABUTMENT) TO BE PRESERVED AND INCORPORATED INTO JOINT REPAIR AREA

- BLOCK OUT CONCRETE 2" EACH SIDE OF JOINT OPENING.
- DIMENSIONS GIVEN ARE NORMAL TO ℄ OF SUBSTRUCTURE UNIT.
- BARS PLACED PARALLEL TO GIRDERS. SPACING PERPENDICULAR TO ℄ GIRDERS.
- EQUALLY SPACE BARS WITHIN LIMITS OF NEW CONSTRUCTION.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-40-378

DRAWN BY JAD | PLANS CK'D. SJG

EXPANSION JOINT PLANS

SHEET 3 OF 8
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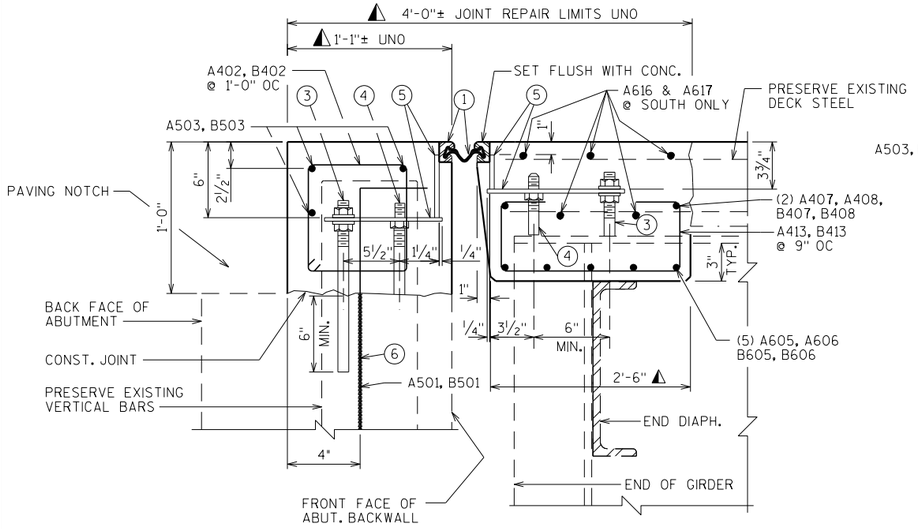
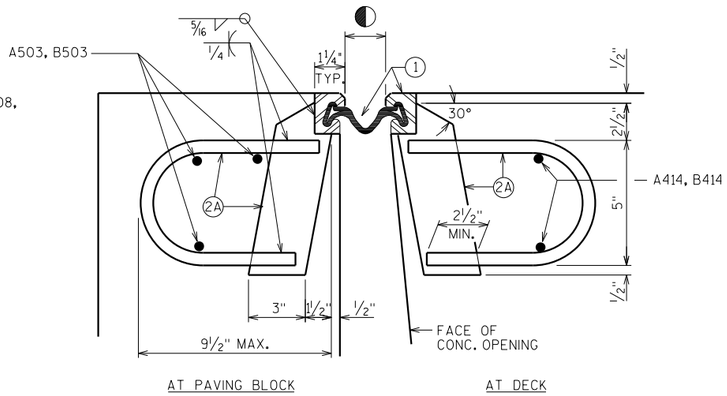


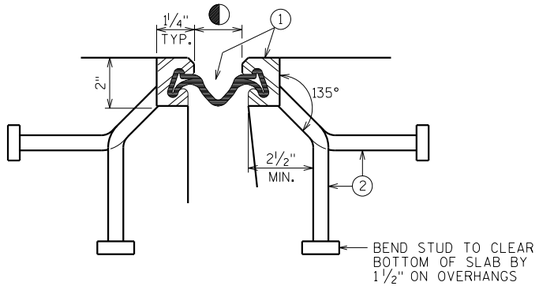
SECTION THRU JOINT AT ABUTMENT

NORMAL TO ℄ SUBSTRUCTURE



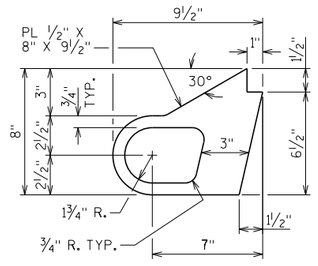
SECTION THRU JOINT

ROADWAY TRAFFIC AREA BETWEEN EXTERIOR GIRDERS.

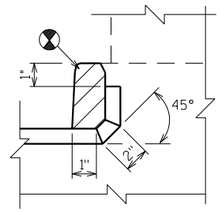


SECTION THRU JOINT

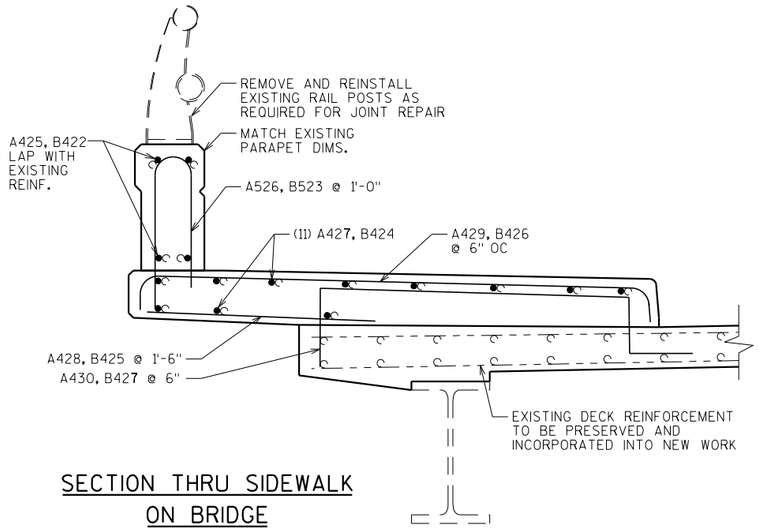
EXTERIOR GIRDER TO EDGE OF SLAB & AT PARAPETS, MEDIANS & SIDEWALKS



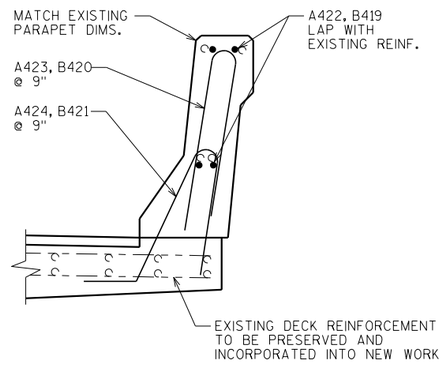
ALTERNATE STRIP SEAL ANCHOR



SECTION A-A



SECTION THRU SIDEWALK ON BRIDGE



SECTION THRU PARAPET ON BRIDGE

GENERAL NOTES

ONE FIELD SPLICE PERMITTED IN STEEL EXTRUSIONS. IF USED, DETAILS SHALL BE SUBMITTED FOR APPROVAL. NO SPLICING PERMITTED IN NEOPRENE STRIP SEAL.

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

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

SANDBLAST PLATES & EXTRUSIONS AFTER FABRICATION IN ACCORDANCE WITH SSPC SP. #6 "COMMERCIAL BLAST CLEANING". AFTER BLAST CLEANING THE PLATES & EXTRUSIONS SHALL BE HOT DIPPED GALVANIZED.

STRIP SEAL EXPANSION JOINT ASSEMBLY, INCLUDING ANCHOR STUDS & HARDWARE WILL BE PAID FOR AT THE LUMP SUM PRICE BID FOR "EXPANSION DEVICE B-40-378".

TEMPERATURE TABLE

SHADED UNDERSIDE DECK TEMP. (°F)	DIM. MEASURED NORMAL TO JOINT OPENING
90	1⅞"
80	2"
70	2"
60	2⅛"
50	2¼"
40	2¼"
30	2⅜"

LEGEND

(1) NEOPRENE STRIP SEAL (4 - INCH) AND STEEL EXTRUSIONS.

(2) STUDS ⅝"Φ X 6⅜" LONG AT 6" ALTERNATE CENTERS. WELD TO EXTRUSIONS & BEND AS SHOWN AFTER WELDING.

(2A) ½" THICK ANCHOR PLATE WITH ⅝"Φ ROD (OR ALTERNATE STRIP SEAL ANCHOR). WELD ROD TO ANCHOR PLATE, WELD ANCHOR PLATE TO NO. 1 AT 1'-6" CENTERS BETWEEN GIRDERS.

(3) ¾" Φ THREADED ROD WITH 2 NUTS AND PLATE WASHERS. ON GIRDER SIDE WELD THREADED ROD TO TOP FLANGE OR ATTACH BY BOLTING THRU FLANGE. ON ABUTMENT SIDE GROUT THREADED ROD INTO FIELD DRILLED HOLES IN ABUTMENT BACKWALL AS SHOWN.

(4) ¾"Φ THREADED ROD WITH NUT. TACK WELD NUT TO NO. 5.

(5) FABRICATE SUPPORT FROM 3" X ½" BAR AS SHOWN OR EQUIVALENT, ONE PER GIRDER PER SIDE. FIELD OR SHOP WELD TO NO. 1. IF FIELD WELDED, COVER WELDED AREAS WITH EPOXY-COATING MATERIAL. PROVIDE 1½" Φ HOLE FOR NO. 3 & 1" Φ HOLE FOR NO. 4.

(6) ADHESIVE ANCHORS NO. 5 BAR. EMBED 1'-0" IN CONCRETE. SPACE AT 1'-0". TURN HORIZONTAL LEG AS NECESSARY TO FIT.

BLOCK OUT CONCRETE 2" EACH SIDE OF JOINT OPENING.

DIMENSIONS GIVEN ARE NORMAL TO ℄ OF SUBSTRUCTURE UNIT.

BARS PLACED PARALLEL TO GIRDERS. SPACING PERPENDICULAR TO ℄ GIRDERS.

EQUALLY SPACE BARS WITHIN LIMITS OF NEW CONSTRUCTION.

DIMENSION MEASURED NORMAL TO JOINT OPENING. REFER TO TEMPERATURE TABLE ON THIS SHEET.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-40-378

DRAWN BY JAD | PLANS CK'D. SJG

EXPANSION JOINT DETAILS

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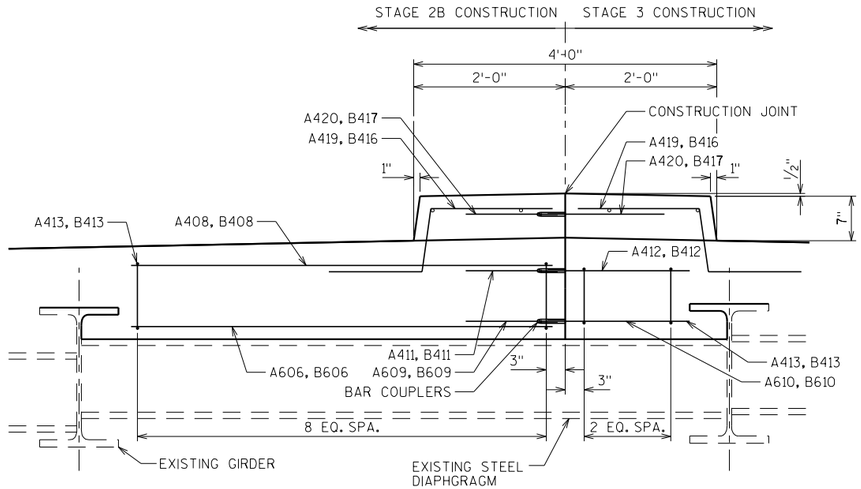
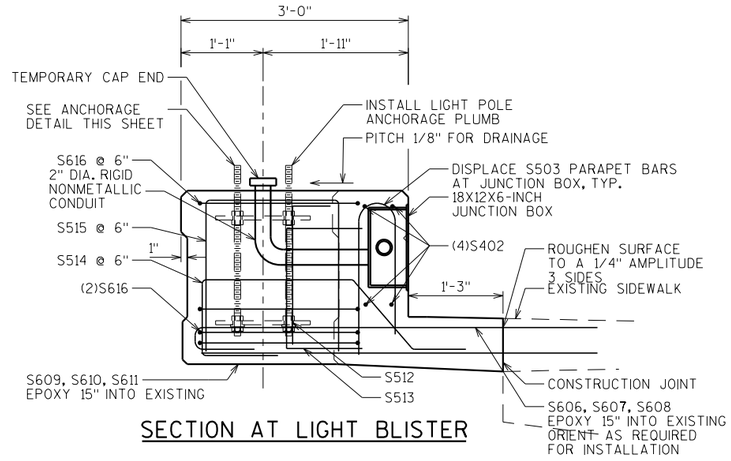


SECTION THRU MEDIAN ON BRIDGE AT DIAPHRAGM



SECTION AT LIGHT BLISTER

GENERAL NOTES

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

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

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

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

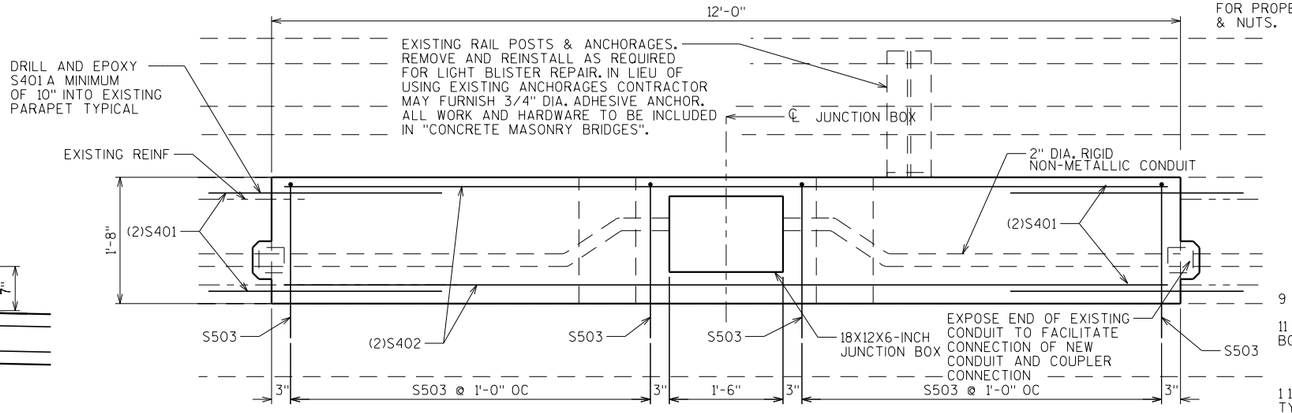
SPLICER (COUPLER) ASSEMBLY IN THE SLAB SHALL BE EPOXY COATED IN ACCORDANCE WITH THE REQUIREMETNS FOR REINFORCEMENT BARS.

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

MINIMUM CAPACITY = 1.25 X FY X AREA OF SPLICED REINFORCEMENT BAR.
WHERE FY = YIELD STRENGTH OF SPLICED REINFORCEMENT BARS.

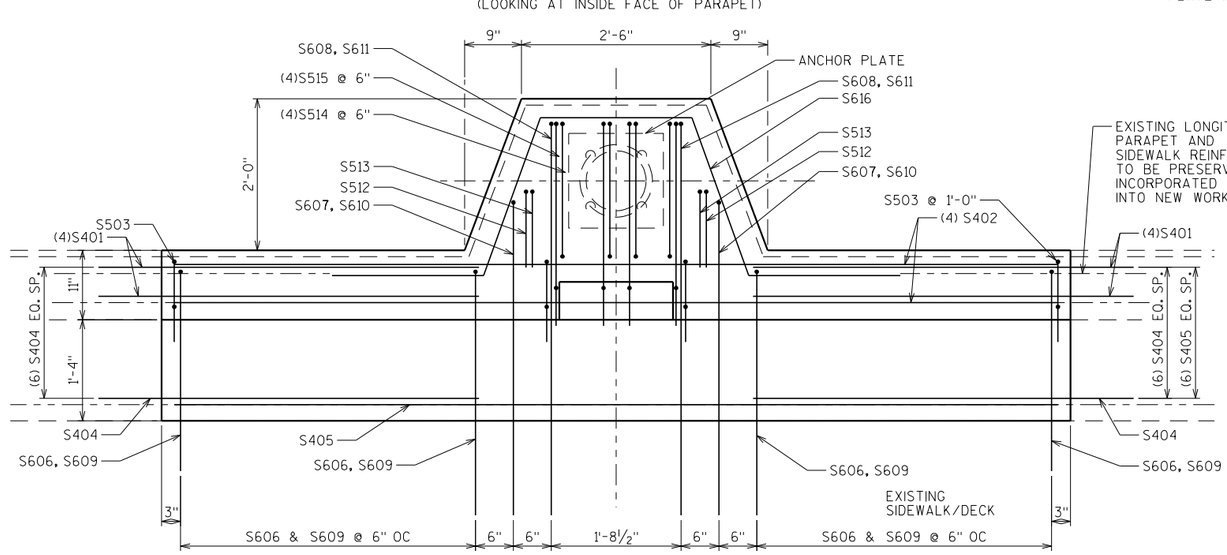
LEGEND

(8) 1" DIA. THREADED ANCHOR BOLTS ASTM A449 OR AASHTO M 314-90 GR 55. HOT DIP ASTM A153, CLASS C, UPPER 8" (MIN.) OF BOLT INCLUDING NUTS & WASHERS. PROVIDE ENLARGED THREAD ON NUTS FOR PROPER FIT AFTER GALVANIZING. PROVIDE DOUBLE FLAT WASHERS & NUTS.

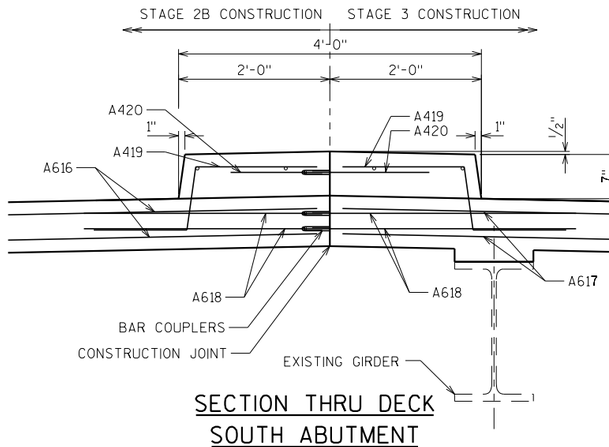


ELEVATION AT LIGHT BLISTER

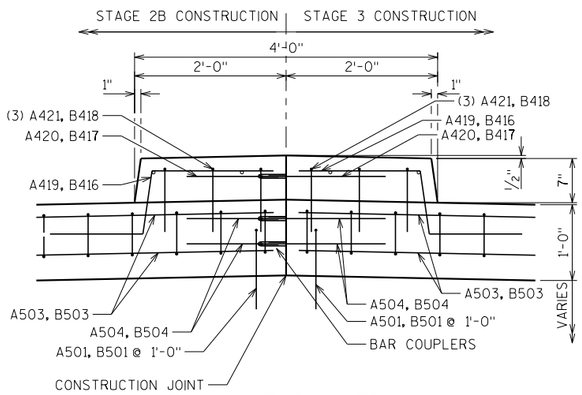
(LOOKING AT INSIDE FACE OF PARAPET)



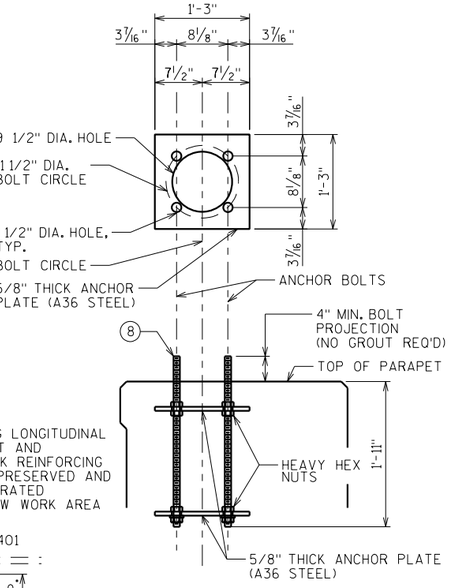
PLAN AT LIGHT BLISTER



SECTION THRU DECK SOUTH ABUTMENT



SECTION THRU MEDIAN ON PAVING BLOCK



ANCHORAGE DETAIL

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-40-378

DRAWN BY JAD | PLANS CK'D. SJG

EXPANSION JOINT AND LIGHT BLISTER DETAILS

SHEET 5 OF 8

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8

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STATE PROJECT NUMBER

2984-38-71

BILL OF BARS - SOUTH ABUTMENT

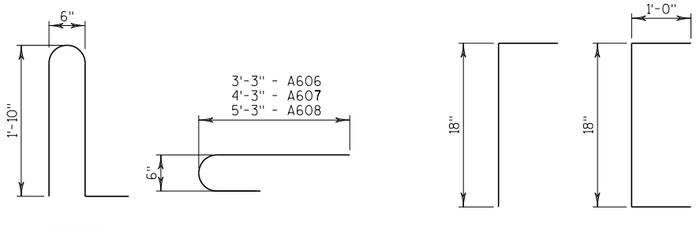
BAR MARK	COAT	NO. REQ'D.	LENGTH	BENT	BAR SERIES	LOCATION
A501	X	85	2'-5"	X		PAVING BLOCK VERTICAL - ADHESIVE ANCHORS
A402	X	85	3'-4"	X		PAVING BLOCK STIRRUPS
A503	X	39	7'-7"			PAVING BLOCK HORIZONTAL
A504	X	6	1'-2"			PAVING BLOCK HORIZONTAL - COUPLER
A605	X	40	7'-2"			DIAPHRAGM HORIZONTAL BOTTOM
A606	X	5	5'-6"			DIAPHRAGM HORIZONTAL BOTTOM
A407	X	16	7'-2"			DIAPHRAGM HORIZONTAL TOP
A408	X	2	5'-6"			DIAPHRAGM HORIZONTAL TOP
A609	X	5	4'-0"			DIAPHRAGM HORIZONTAL BOTTOM - COUPLER
A610	X	5	1'-6"			DIAPHRAGM HORIZONTAL BOTTOM - COUPLER
A411	X	2	1'-11"			DIAPHRAGM HORIZONTAL TOP - COUPLER
A412	X	2	1'-6"			DIAPHRAGM HORIZONTAL TOP - COUPLER
A413	X	100	4'-2"	X		DIAPHRAGM STIRRUP
A414	X	26	6'-11"			SLAB TRANSVERSE
A415	X	4	1'-2"			SLAB TRANSVERSE - COUPLER
A616	X	10	42'-5"			SLAB TRANSVERSE
A617	X	10	39'-9"			SLAB TRANSVERSE
A618	X	20	4'-0"			SLAB TRANSVERSE - COUPLER
A419	X	10	3'-5"	X		MEDIAN TRANSVERSE
A420	X	10	1'-2"			MEDIAN TRANSVERSE - COUPLER
A421	X	6	2'-11"	X		MEDIAN HAIRPIN
A422	X	4	2'-5"			PARAPET LONGITUDINAL
A423	X	6	4'-10"	X		PARAPET STIRRUP
A424	X	6	4'-3"	X		PARAPET STIRRUP
A425	X	4	2'-5"			SIDEWALK PARAPET LONGITUDINAL
A526	X	6	4'-9"	X		SIDEWALK PARAPET STIRRUPS
A427	X	11	2'-5"			SIDEWALK LONGITUDINAL
A428	X	5	3'-6"			SIDEWALK TRANSVERSE
A429	X	9	7'-3"	X		SIDEWALK TRANSVERSE
A430	X	9	6'-4"	X		SIDEWALK TRANSVERSE

BILL OF BARS - NORTH ABUTMENT

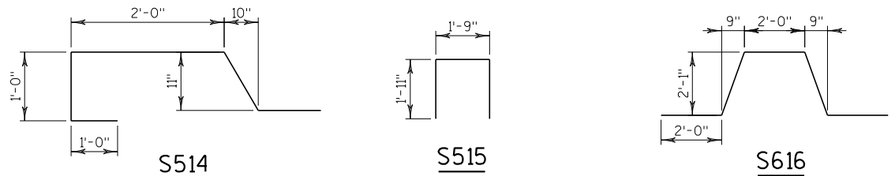
BAR MARK	COAT	NO. REQ'D.	LENGTH	BENT	BAR SERIES	LOCATION
B501	X	87	2'-5"	X		PAVING BLOCK VERTICAL - ADHESIVE ANCHORS
B402	X	87	3'-4"	X		PAVING BLOCK STIRRUPS
B503	X	39	7'-9"			PAVING BLOCK HORIZONTAL
B504	X	6	1'-2"			PAVING BLOCK HORIZONTAL - COUPLER
B605	X	40	7'-4"			DIAPHRAGM HORIZONTAL BOTTOM
B606	X	5	5'-8"			DIAPHRAGM HORIZONTAL BOTTOM
B407	X	16	7'-4"			DIAPHRAGM HORIZONTAL TOP
B408	X	2	5'-8"			DIAPHRAGM HORIZONTAL TOP
B609	X	5	4'-1"			DIAPHRAGM HORIZONTAL BOTTOM - COUPLER
B610	X	5	1'-6"			DIAPHRAGM HORIZONTAL BOTTOM - COUPLER
B411	X	2	1'-11"			DIAPHRAGM HORIZONTAL TOP - COUPLER
B412	X	2	1'-6"			DIAPHRAGM HORIZONTAL TOP - COUPLER
B413	X	100	4'-2"	X		DIAPHRAGM STIRRUP
B414	X	26	7'-1"			SLAB TRANSVERSE
B415	X	4	1'-2"			SLAB TRANSVERSE - COUPLER
B416	X	10	3'-5"	X		MEDIAN TRANSVERSE
B417	X	10	1'-2"			MEDIAN TRANSVERSE - COUPLER
B418	X	6	2'-11"			MEDIAN HAIRPIN
B419	X	4	2'-7"			PARAPET LONGITUDINAL
B420	X	6	4'-10"	X		PARAPET STIRRUP
B421	X	6	4'-3"	X		PARAPET STIRRUP
B422	X	4	2'-7"			SIDEWALK PARAPET LONGITUDINAL
B523	X	6	4'-9"	X		SIDEWALK PARAPET STIRRUPS
B424	X	11	2'-7"			SIDEWALK LONGITUDINAL
B425	X	5	3'-6"			SIDEWALK TRANSVERSE
B426	X	9	7'-3"	X		SIDEWALK TRANSVERSE
B427	X	9	6'-4"	X		SIDEWALK TRANSVERSE

BILL OF BARS - LIGHT BLISTER

BAR MARK	COAT	NO. REQ'D.	LENGTH	BENT	BAR SERIES	LOCATION
S401	X	16	3'-1"			PARAPET LONGITUDINAL - ADHESIVE ANCHOR
S402	X	16	11'-8"			PARAPET LONGITUDINAL
S503	X	24	4'-9"	X		PARAPET STIRRUPS
S404	X	24	3'-1"			SIDEWALK LONGITUDINAL - ADHESIVE ANCHOR
S405	X	24	11'-8"			SIDEWALK LONGITUDINAL
S606	X	36	4'-3"	X		SIDEWALK TRANSVERSE - ADHESIVE ANCHOR
S607	X	4	5'-3"	X		SIDEWALK TRANSVERSE - ADHESIVE ANCHOR
S608	X	4	6'-3"	X		SIDEWALK TRANSVERSE - ADHESIVE ANCHOR
S609	X	36	3'-3"			SIDEWALK TRANSVERSE - ADHESIVE ANCHOR
S610	X	4	4'-3"			SIDEWALK TRANSVERSE - ADHESIVE ANCHOR
S611	X	4	5'-3"			SIDEWALK TRANSVERSE - ADHESIVE ANCHOR
S512	X	4	2'-2"	X		LIGHT BLISTER TRANSVERSE
S513	X	4	3'-3"	X		LIGHT BLISTER TRANSVERSE
S514	X	8	5'-10"	X		LIGHT BLISTER TRANSVERSE
S515	X	8	5'-4"	X		LIGHT BLISTER TRANSVERSE
S616	X	12	10'-0"	X		LIGHT BLISTER LONGITUDINAL



S503 | S606, S607, S608 | S512 | S513

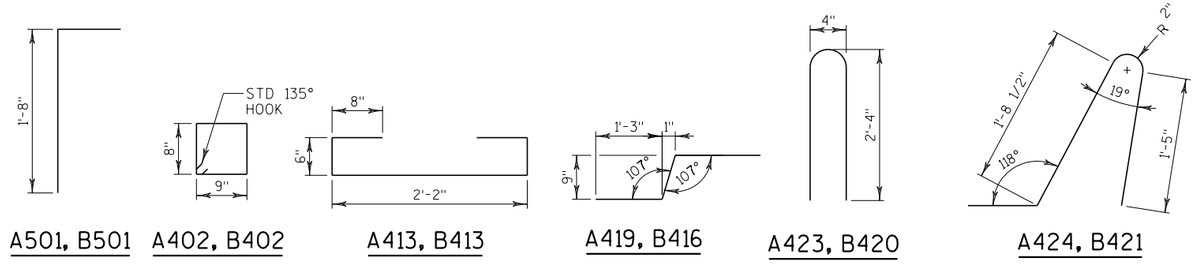


S514 | S515 | S616

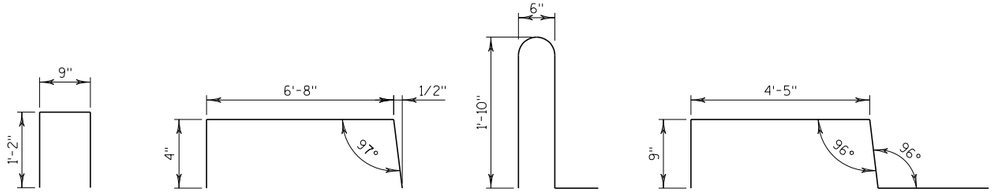
NOTES

BENDING DIMENSIONS ARE OUT TO OUT OF BARS.

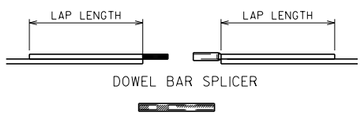
THE FIRST OR FIRST TWO DIGITS OF THE BAR MARK SIGNIFIES THE BAR SIZE.



A501, B501 | A402, B402 | A413, B413 | A419, B416 | A423, B420 | A424, B421



A421, B418 | A429, B426 | A526, B523 | A430, B427

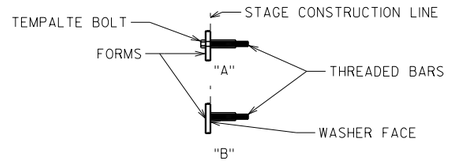


SPLICER ALTERNATIVES

DOWEL BAR SPLICER LAP LENGTHS

CONCRETE UNDER BAR	BAR SIZE	4	5	6	7	8	9	10	11
12" OR LESS	F'C = 3500	1'-8"	2'-8"	3'-2"	4'-3"	5'-6"	7'-0"	8'-9"	10'-11"
	F'C = 4000	1'-8"	2'-8"	3'-2"	4'-0"	5'-2"	6'-6"	8'-3"	10'-2"
MORE THAN 12"	F'C = 3500	2'-3"	2'-11"	3'-6"	4'-8"	6'-1"	7'-10"	9'-10"	12'-1"
	F'C = 4000	2'-3"	2'-11"	3'-6"	4'-5"	5'-8"	7'-4"	9'-2"	11'-4"

REFER TO SHEET 5 FOR DOWEL SPLICER GENERAL NOTES.



INSTALLATION AND SETTING METHODS

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

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-40-378

DRAWN BY JAD | PLANS CK'D. SJG

BILL OF BARS

SHEET 6 OF 8
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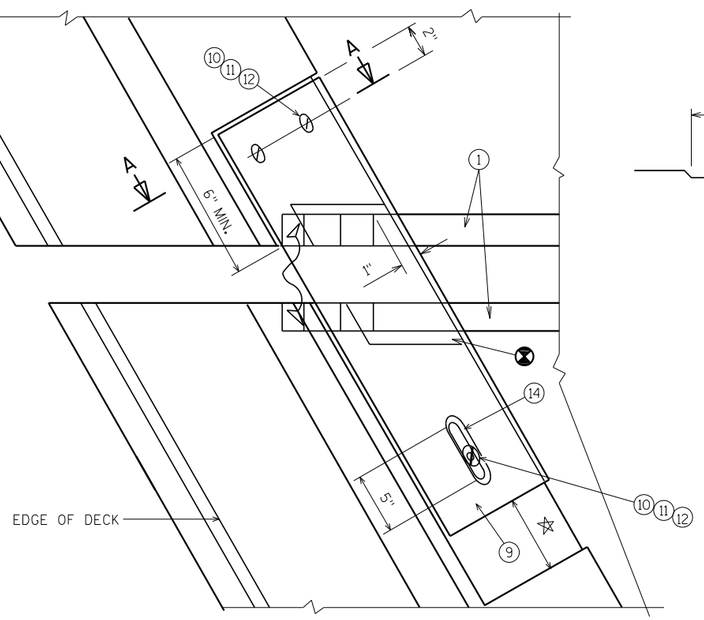
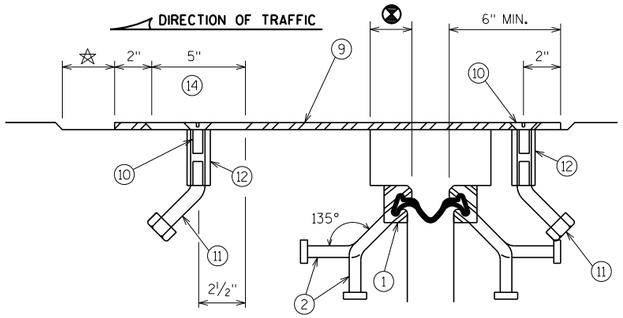
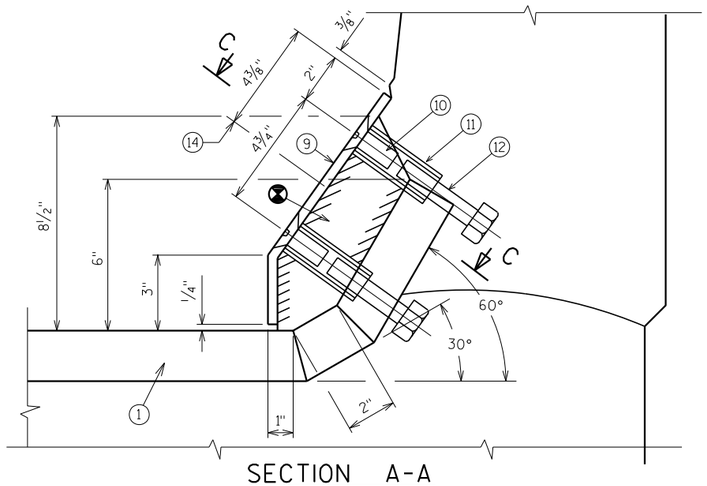


PLAN AT PARAPET

SLOPED FACE PARAPET

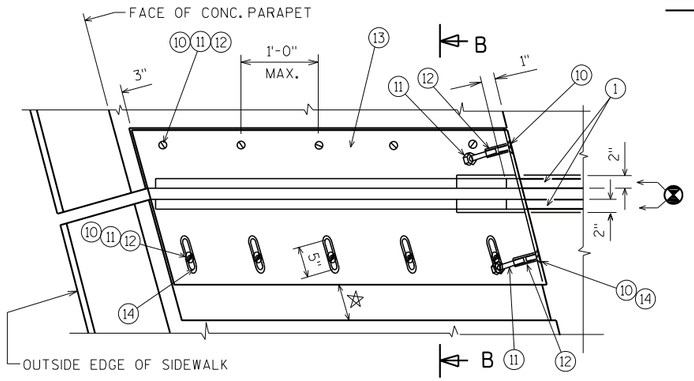


SECTION C-C

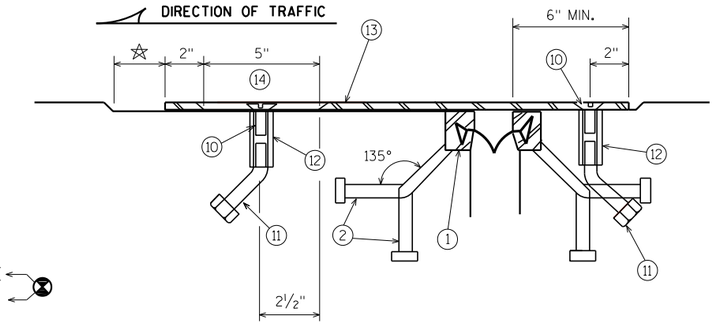


SECTION A-A

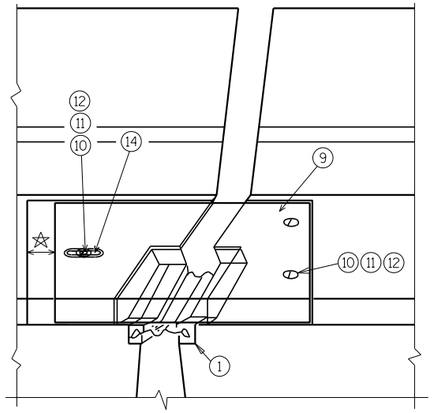
SLOPED FACE PARAPET



PLAN AT SIDEWALK



SECTION B-B



VIEW OF PARAPET PLATES FROM ROADWAY

SLOPED FACE PARAPET

LEGEND

(9) GALVANIZED PLATE 3/8" X 10½" X (2'-2" LONG FOR SKEWS TO 45° AND 3'-0" LONG FOR SKEWS ≥ 45°) WITH HOLES FOR NO. 10. BEND AS SHOWN.

(10) 3/4" DIA. X 1½" STAINLESS STEEL SOCKET FLAT HEAD SCREWS WITH ANTI-SEIZE LUBRICANT. PLACE IN COUNTERSUNK HOLE. RECESS 1/16" BELOW PLATE SURFACE.

(11) 3/4" DIA. X 4" GALVANIZED HEX HEAD BOLT, BEND 45°.

(12) 3/4" DIA. X 2 1/4" GALVANIZED THREADED COUPLING.

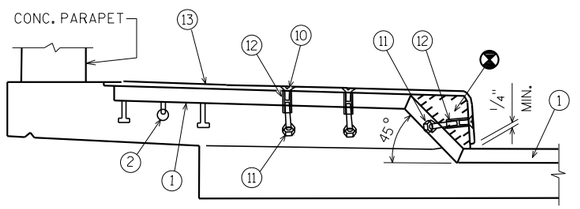
(13) SIDEWALK COVER PLATE 3/8" X (2'-0" WIDE FOR SKEWS TO 45° AND 3'-0" WIDE FOR SKEWS > 45°) X LIMITS SHOWN. BEND DOWN FACE OF SIDEWALK WITH HOLES FOR NO. 10. GALVANIZE PLATE AFTER SLIP-RESISTANT SURFACE IS APPLIED.

(14) 1" X 5" SLOTTED COUNTERSUNK HOLE FOR NO. 10. PLACE SLOT PARALLEL TO DIRECTION OF MOVEMENT.

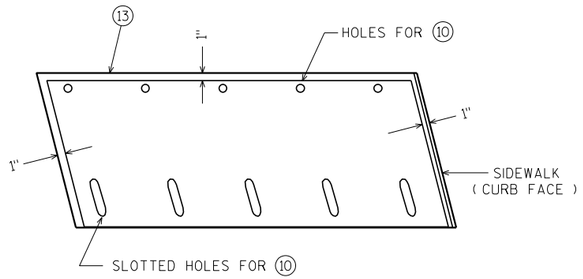
⊗ BLOCK OUT CONCRETE 2" EACH SIDE OF JOINT OPENING.

☆ JOINT OPENING DIM. ALONG SKEW PLUS ½".

REFER TO LEGEND ON SHEET 4 FOR ADDITIONAL CALL-OUTS.



SECTION AT SIDEWALK



PLAN OF SIDEWALK COVER PLATE WITH SLIP-RESISTANT SURFACE

PLACE SLIP-RESISTANT SURFACE ON TOP WALKING SURFACE IN SHADED AREA ONLY (NOT ON CURB FACE).

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

NO.	DATE	REVISION	BY

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DEPARTMENT OF TRANSPORTATION

STRUCTURE B-40-378

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COVER PLATE DETAILS

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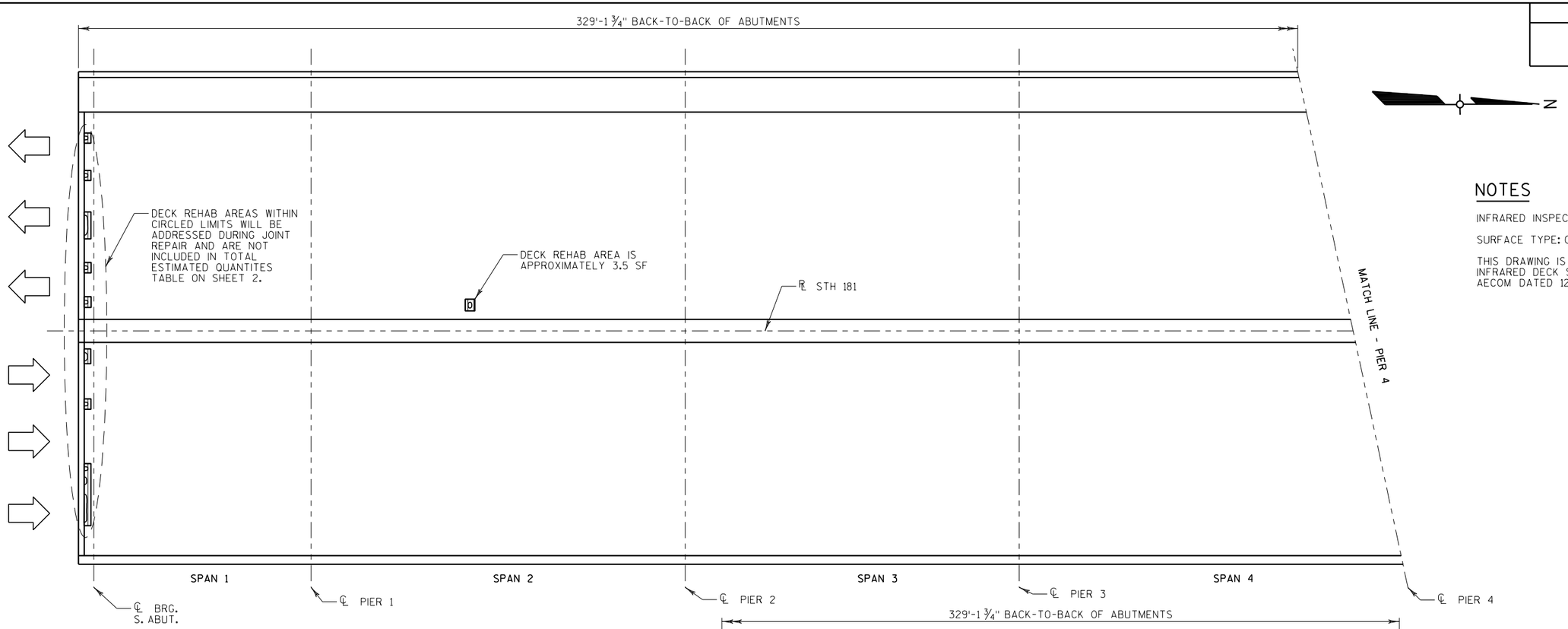


PLAN

NOTES

INFRARED INSPECTION DATE: 11/20/17

SURFACE TYPE: CONCRETE - NO OVERLAY

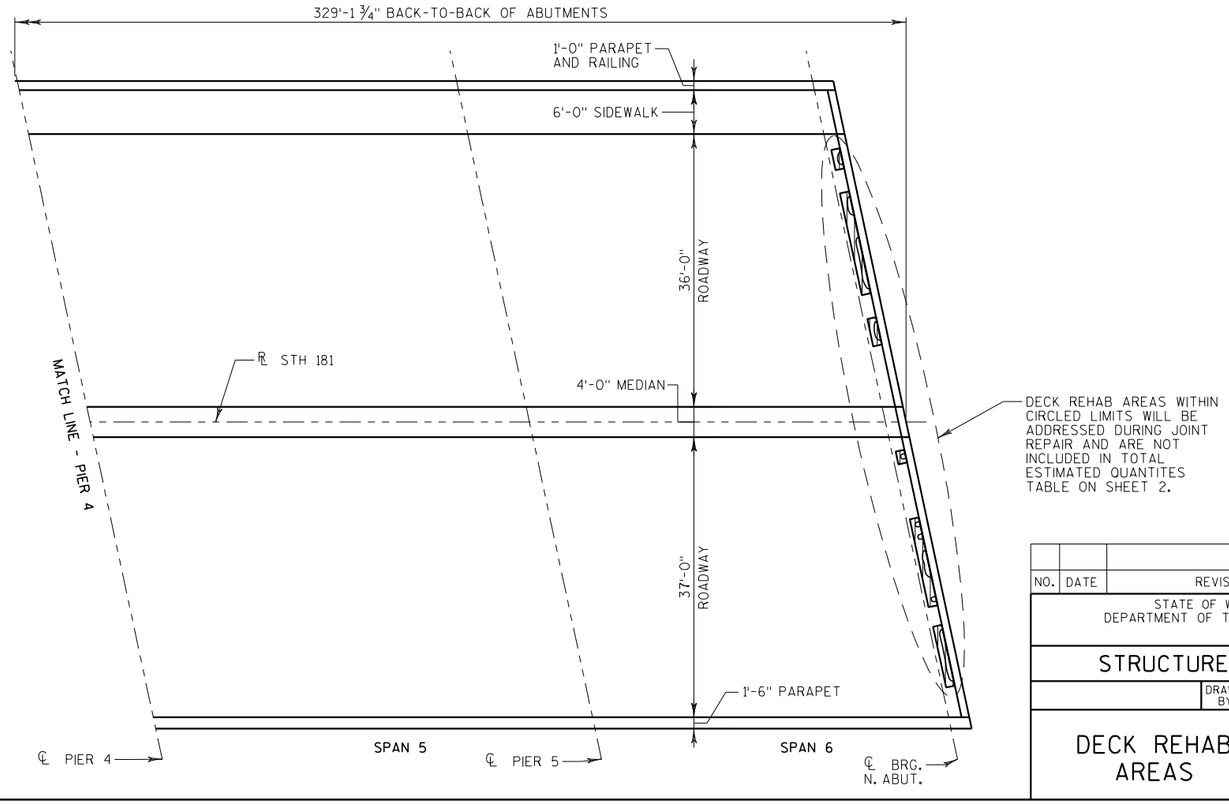
THIS DRAWING IS ADAPTED FROM ORIGINAL INFRARED DECK SURVEY PLANS PROVIDED BY AECOM DATED 12/8/17.

PROPOSED REHABILITATION AREAS

REHABILITATION AREA SUMMARY		S.N. B-40-378	
ITEM	UNIT	QUANT.	%
TOTAL AREA	YD^2	2666.9	
SHADE/DEBRIS	YD^2	0	
PREPARATION, DECKS, TYPE 1	YD^2	9.4	0.4
PREPARATION, DECKS, TYPE 2	YD^2	0.9	<0.1
FULL DEPTH DECK REPAIR	YD^2	1.0	<0.1

LEGEND

DECK PREPARATION AREA	DELAMINATION
SHADE/DEBRIS	SPALL
	DEBOND
	ASPHALT PATCH
	CONCRETE PATCH



NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-40-378

DRAWN BY JAD | PLANS CK'D. SJG

DECK REHAB AREAS

SHEET 8 OF 8

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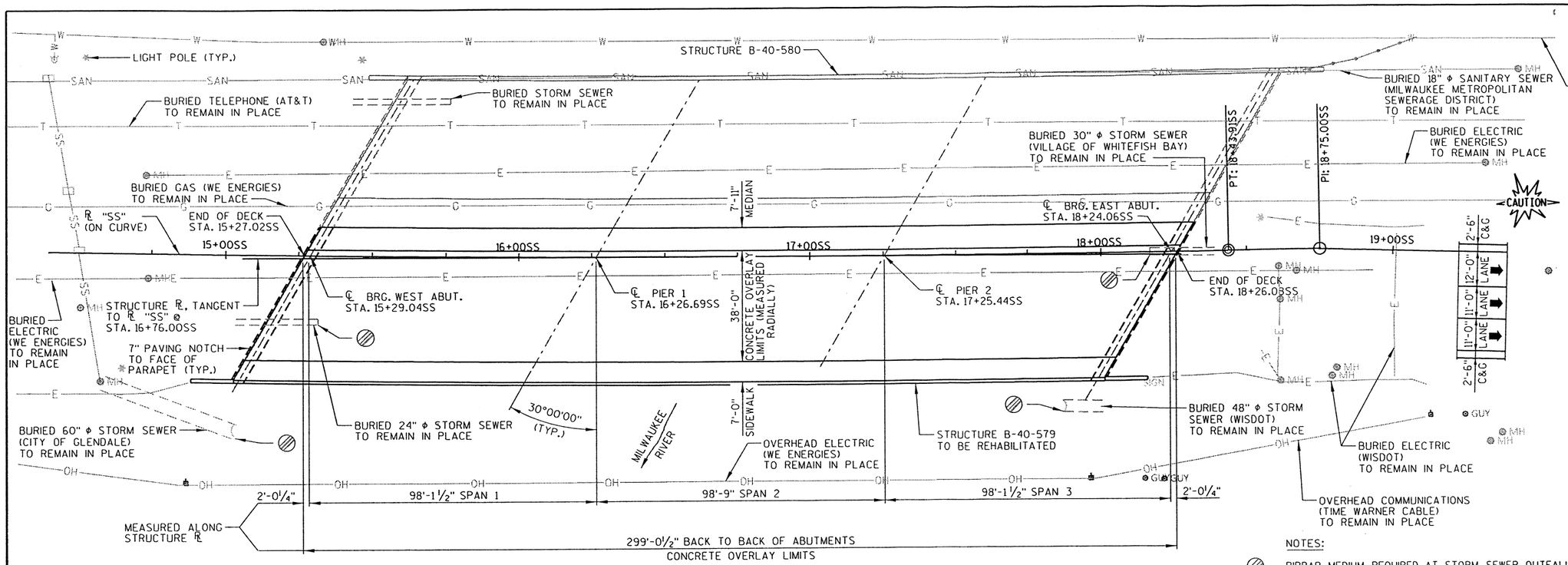


PLAN

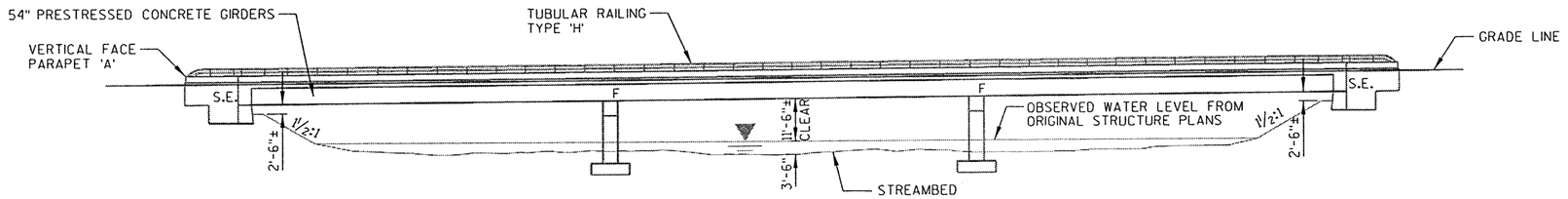
(REHAB - CONCRETE OVERLAY ON EXISTING THREE SPAN 54" PRESTRESSED CONCRETE GIRDER)

HORIZONTAL CURVE DATA:
PC = STA. 13+45.80SS
PI = STA. 15+94.90SS
PT = STA. 18+43.91SS
△ = 2° 29' 26" LT.
D = 0° 30' 00"
R = 11459.16'
T = 249.09'
L = 498.11'

NOTES:

— RIPRAP MEDIUM REQUIRED AT STORM SEWER OUTFALL. RIPRAP SHALL NOT BE PLACED BELOW THE OBSERVED WATER ELEVATION AT THE TIME OF CONSTRUCTION.

ENDS OF DECK MATCH BACKFACES OF ABUTMENTS. 7" PAVING NOTCHES ARE ON CORBELS PROTRUDING BEYOND ENDS OF DECK. SEE ROAD PLANS FOR DETAILS TO REPLACE CONCRETE PAVEMENT APPROACH SLABS.



ELEVATION

(LOOKING NORTH)

DESIGN DATA

LIVE LOAD:
DESIGN LOADING: HS20
INVENTORY RATING: HS23
OPERATING RATING: HS43
WISCONSIN STANDARD PERMIT VEHICLE (WIS-SPV): 240 KIPS

TRAFFIC DATA:
A.A.D.T. (2018) = 32,200
A.A.D.T. (2038) = 35,400
R.D.S. = 35 MPH

MATERIAL PROPERTIES:
CONCRETE MASONRY OVERLAY DECKS — f'c = 4,000 P.S.I.

LIST OF DRAWINGS

1. OVERLAY PLAN
2. CROSS SECTION, QUANTITIES & NOTES
3. DECK PREPARATION DETAILS

DESIGN CONTACT:
LEAH RHODES
(608) 355-8945

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

WISCONSIN
LEAH J. RHODES
E-41726
BARABOO
WI
PROFESSIONAL ENGINEER

Leah J. Rhodes
1/30/2019

NO.	DATE	REVISION	BY

MSA PROFESSIONAL SERVICES
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1230 South Boulevard Baraboo, WI 53913
608-356-2771 1-800-362-4505 Fax: 608-356-2770

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

ACCEPTED William C. Dreher TAB 02/04/2019
CHIEF STRUCTURES DESIGN ENGINEER DATE

STRUCTURE B-40-579

W SILVER SPRING DR EB OVER MILWAUKEE RIVER

COUNTY	TOWN/CITY/VILLAGE
MILWAUKEE	GLENDALE

DESIGN SPEC.
REHABILITATION - N/A

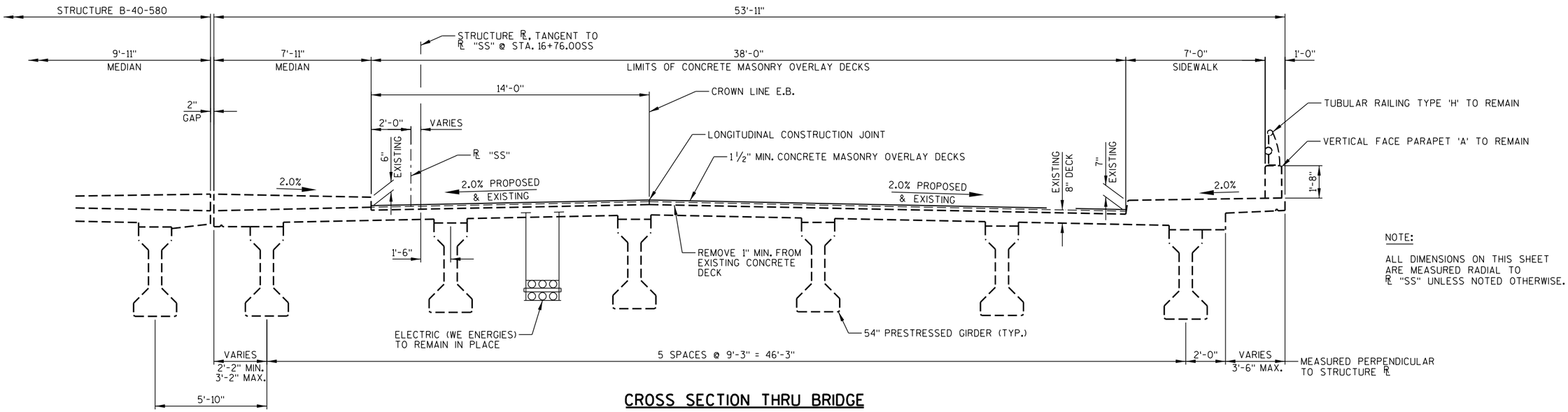
DESIGNED BY	DESIGN CK'D.	DRAWN BY	PLANS CK'D.
JAS	DHW	RLR	LJR

OVERLAY PLAN

SHEET 117 OF 3

FILE= 93427-B-40-579_01.DGN
DATE= 1/31/2018

STATE PROJECT NUMBER
2984-38-71



CROSS SECTION THRU BRIDGE

(LOOKING EAST)

NOTE:

ALL DIMENSIONS ON THIS SHEET ARE MEASURED RADIAL TO ℄ "SS" UNLESS NOTED OTHERWISE.

ESTIMATED QUANTITIES

	ITEM NUMBER	BID ITEM	UNIT	TOTAL
	502.3200	PROTECTIVE SURFACE TREATMENT	SY	1795
	502.3210	PIGMENTED SURFACE SEALER	SY	95
*	509.0351	PREPARATION DECKS TYPE 1	SY	1
*	509.0352	PREPARATION DECKS TYPE 2	SY	1
	509.0500	CLEANING DECKS	SY	1265
*	509.2050	FULL-DEPTH DECK REPAIR	SY	1
	509.2550	CONCRETE MASONRY OVERLAY DECKS	SY	1265
	606.0200	RIPRAP MEDIUM	CY	25

* THE CONTRACTOR SHALL COORDINATE THE FIELD IDENTIFICATION OF ALL DECK REPAIR LOCATIONS WITH THE ENGINEER.

GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.

SEE ROAD PLANS FOR TRAFFIC CONTROL.

DIMENSIONS SHOWN ARE BASED ON THE ORIGINAL STRUCTURE PLANS, EXCEPT THE SIDEWALK WIDTH, WHICH IS BASED ON FIELD MEASUREMENT.

NAVIGATIONAL CLEARANCE AND WATER DEPTH ARE APPROXIMATE BASED ON ORIGINAL STRUCTURE PLANS.

THIS PROJECT WILL REHABILITATE THE EXISTING STRUCTURE, B-40-579, A THREE SPAN, 299.04' PRESTRESSED CONCRETE GIRDER BRIDGE SET ON CONCRETE SILL ABUTMENTS AND CONCRETE HAMMERHEAD PIERS.

PROTECTIVE SURFACE TREATMENT SHALL BE APPLIED TO THE ENTIRE TOP SURFACE OF THE NEW CONCRETE OVERLAY, TO THE TOP AND INSIDE FACE OF THE SIDEWALK, AND TO THE TOP AND INSIDE FACE OF THE MEDIAN.

PIGMENTED SURFACE SEALER SHALL BE APPLIED TO THE INSIDE, TOP FACE, AND ENDS OF THE VERTICAL FACE PARAPET 'A'.

A MINIMUM OF 1-INCH OF CONCRETE SHALL BE REMOVED FROM THE ENTIRE BRIDGE DECK BETWEEN THE CURBS UNDER THE BID ITEM "CLEANING DECKS".

PREPARATION DECKS TYPE 1, PREPARATION DECKS TYPE 2, AND FULL DEPTH DECK REPAIR AREAS ARE BASED ON THE PLANS AND AS DETERMINED BY THE ENGINEER. DECK PREPARATION AND FULL DEPTH DECK REPAIR AREAS SHALL BE FILLED WITH CONCRETE MASONRY AS NOTED IN THE SPECIAL PROVISIONS.

PROFILE GRADE LINE SHALL BE DETERMINED IN THE FIELD BASED ON A MINIMUM OVERLAY THICKNESS OF 1 ½" PLACED ABOVE THE DECK SURFACE AFTER SURFACE PREPARATION. EXPECTED AVERAGE OVERLAY THICKNESS IS 2". IF EXPECTED AVERAGE OVERLAY THICKNESS IS EXCEEDED BY MORE THAN ½", CONTACT THE STRUCTURES DESIGN SECTION.

SEAL LONGITUDINAL CONSTRUCTION JOINT WITH CRACK SEALER PER STANDARD SPECIFICATION 502.

ADD RIPRAP MEDIUM OVER EXISTING GEOTEXTILE AT STORM SEWER OUTFALL PIPES AS NOTED ON SHEET 1 AND AS DIRECTED BY THE ENGINEER.

SEE ROAD PLANS FOR STAGING DETAILS.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-40-579

DRAWN BY JAS | PLANS CK'D. LJR

CROSS SECTION, QUANTITIES & NOTES

SHEET 2 OF 3
118

8

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FILE= 93427-B-40-579_02.DGN
DATE= 2/4/2019

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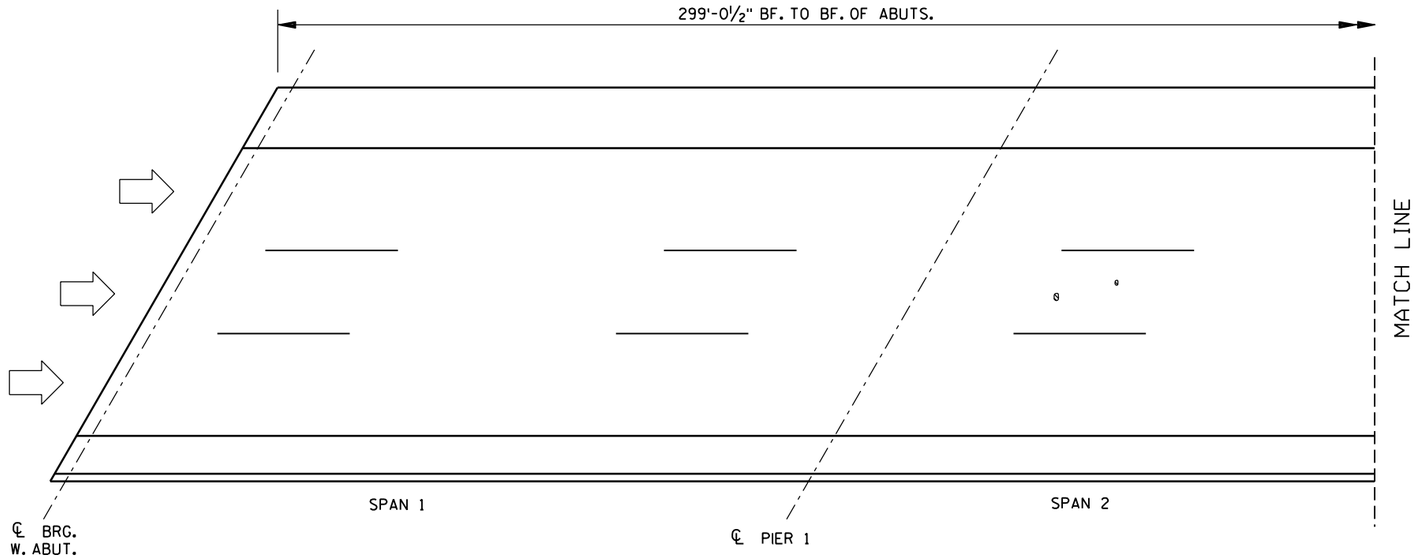
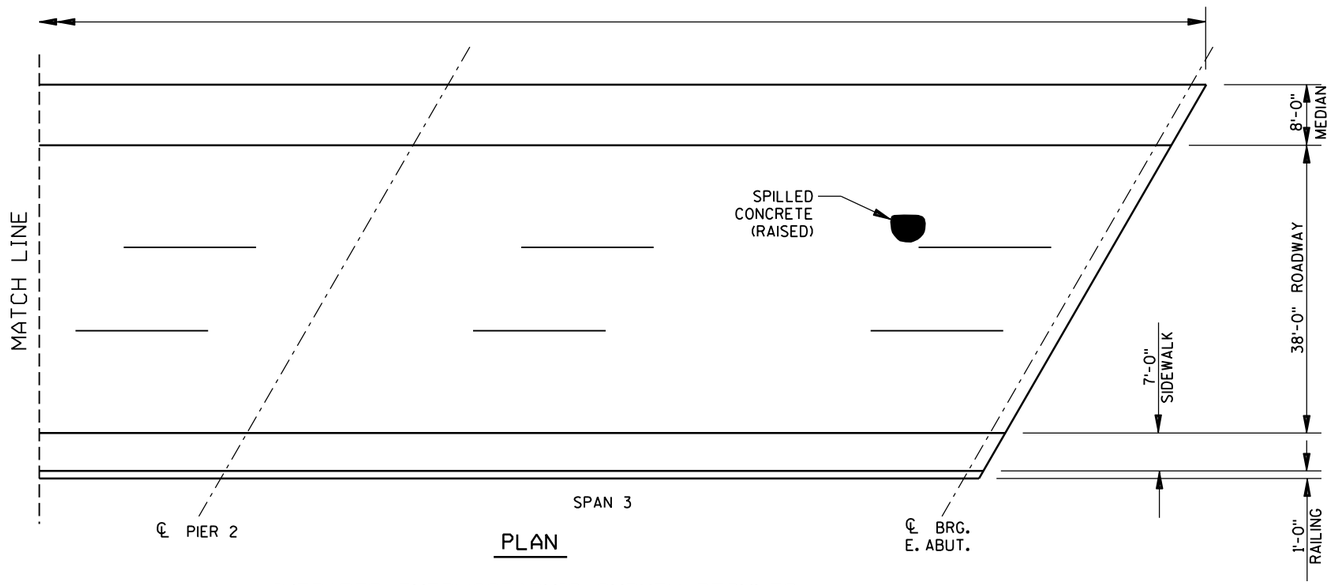
STATE PROJECT NUMBER
2984-38-71



FOR REFERENCE ONLY



PLAN

N

INFRARED THERMOGRAPHIC SURVEY RESULTS

INFRARED INSPECTION DATE: 11/20/17
SURFACE TYPE: CONCRETE - NO OVERLAY

FIELD OBSERVATIONS SUMMARY		S.N. B-40-579	
ITEM	UNIT	QUANT.	%
TOTAL AREA	ft^2	11362	
SHADE/DEBRIS	ft^2	0	
DELAMINATION	ft^2	2	<0.1
SPALL	ft^2	0	0
DEBOND	ft^2	N/A	N/A
AC PATCH	ft^2	0	0
CONCRETE PATCH	ft^2	0	0

LEGEND
- DELAMINATION
- SPALL
- DEBOND
- AC PATCH
- CONCRETE PATCH
- SHADE/DEBRIS

SCALE 0' 5' 10' 20'

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-40-579

DRAWN BY JAS | PLANS CK'D. LJR

DECK PREPARATION DETAILS

SHEET 3 OF 3
119

FILE= 93427_B-40-579_03.DGN
DATE= 12/28/2017

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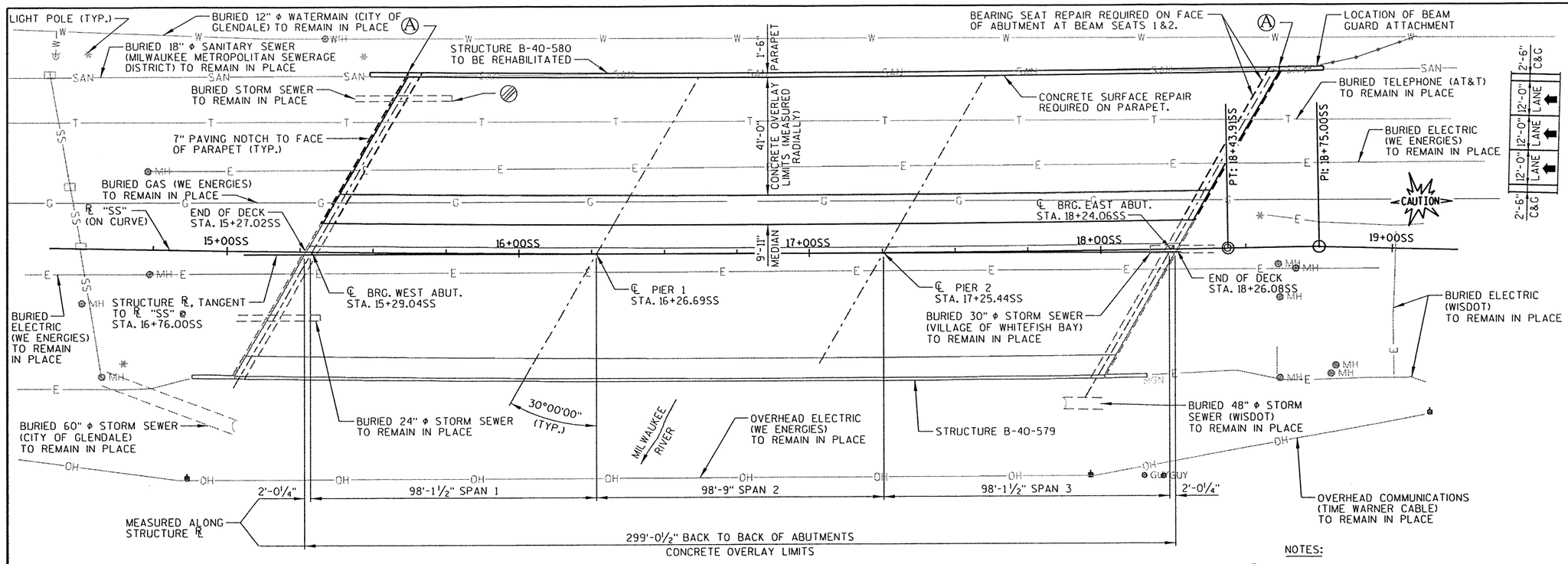
STATE PROJECT NUMBER
2984-38-71



PLAN

(REHAB - CONCRETE OVERLAY ON EXISTING THREE SPAN 54" PRESTRESSED CONCRETE GIRDER)

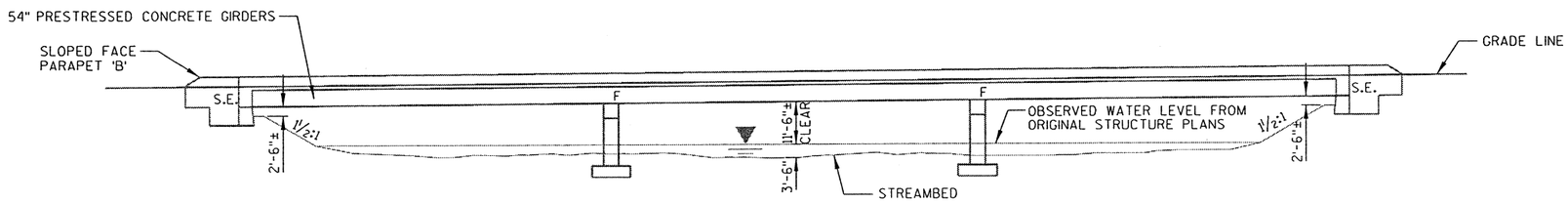
HORIZONTAL CURVE DATA:
PC = STA. 13+45.80SS
PI = STA. 15+94.90SS
PT = STA. 18+43.91SS
△ = 2° 29' 26" LT.
D = 0° 30' 00"
R = 11459.16'
T = 249.09'
L = 498.11'

NOTES:

(Riprap) — RIPRAP MEDIUM REQUIRED AT STORM SEWER OUTFALL. RIPRAP SHALL NOT BE PLACED BELOW THE OBSERVED WATER ELEVATION AT THE TIME OF CONSTRUCTION.

Ⓐ — ASBESTOS CONTAINING MATERIAL FOUND IN CAULK AT PARAPET AND ABUTMENT JOINT (DISTURBANCE NOT ANTICIPATED).

ENDS OF DECK MATCH BACKFACES OF ABUTMENTS. 7" PAVING NOTCHES ARE ON CORBELS PROTRUDING BEYOND ENDS OF DECK. SEE ROAD PLANS FOR DETAILS TO REPLACE CONCRETE PAVEMENT APPROACH SLABS.



ELEVATION

(LOOKING NORTH)

DESIGN DATA

LIVE LOAD:
DESIGN LOADING: HS20
INVENTORY RATING: HS23
OPERATING RATING: HS43
WISCONSIN STANDARD PERMIT VEHICLE (WIS-SPV): 250 KIPS

TRAFFIC DATA:
A.A.D.T. (2018) = 32,200
A.A.D.T. (2038) = 35,400
R.D.S. = 35 MPH

MATERIAL PROPERTIES:
CONCRETE MASONRY OVERLAY DECKS ——— f'c = 4,000 P.S.I.
CONCRETE MASONRY, OTHER ——— f'c = 3,500 P.S.I.
HIGH STRENGTH BAR STEEL REINFORCEMENT, GRADE 60 ——— fy = 60,000 P.S.I.

LIST OF DRAWINGS

1. OVERLAY PLAN
2. CROSS SECTION, QUANTITIES & NOTES
3. DECK PREPARATION DETAILS

DESIGN CONTACT:
LEAH RHODES
(608) 355-8945

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

WISCONSIN
LEAH J. RHODES
E-41726
BARABOO
WI
PROFESSIONAL ENGINEER

Leah Rhodes
1/30/2019

NO.	DATE	REVISION	BY

MSA PROFESSIONAL SERVICES
TRANSPORTATION • MUNICIPAL DEVELOPMENT • ENVIRONMENTAL
1230 South Boulevard Baraboo, WI 53913
608-356-2771 1-800-362-4505 Fax: 608-356-2770

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
ACCEPTED William C. Dreher TAB — CHIEF STRUCTURES DESIGN ENGINEER — 02/04/2019 DATE

STRUCTURE B-40-580

W SILVER SPRING DR WB OVER MILWAUKEE RIVER

COUNTY	~~TOWN~~/CITY/~~VILLAGE~~
MILWAUKEE	GLENDALE

DESIGN SPEC.
REHABILITATION - N/A

DESIGNED BY	DESIGN CK'D.	DRAWN BY	PLANS CK'D.
JAS	DHW	RLR	LJR

OVERLAY PLAN

SHEET 120 3

8

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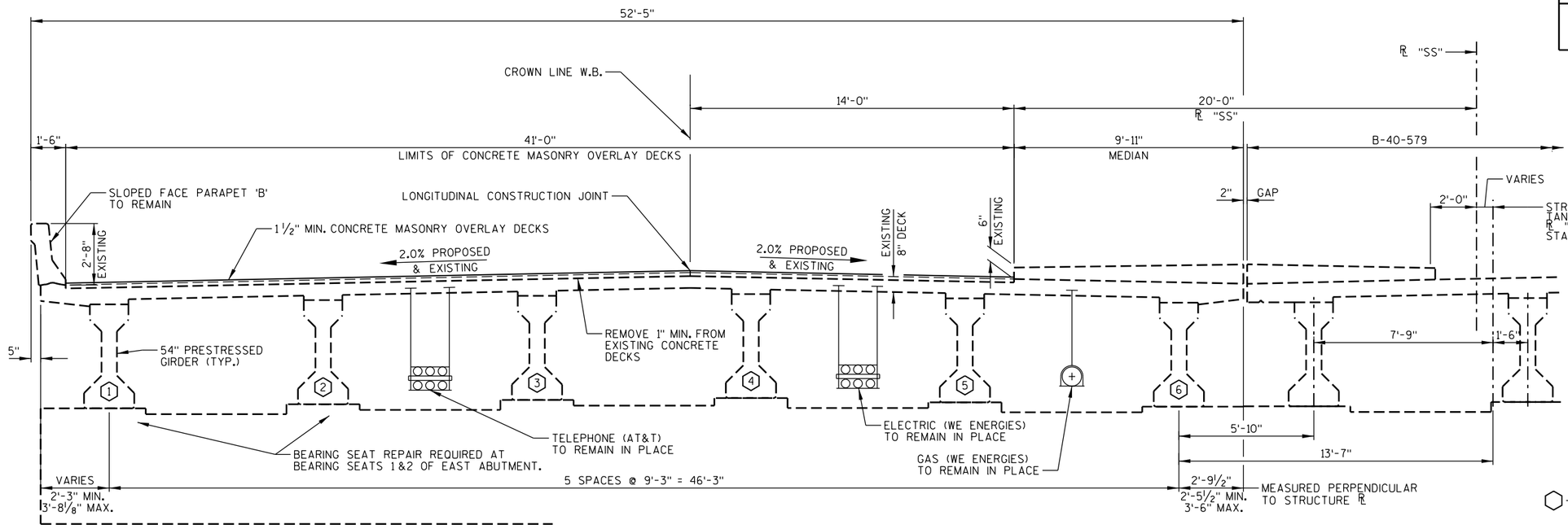
STATE PROJECT NUMBER

2984-38-71



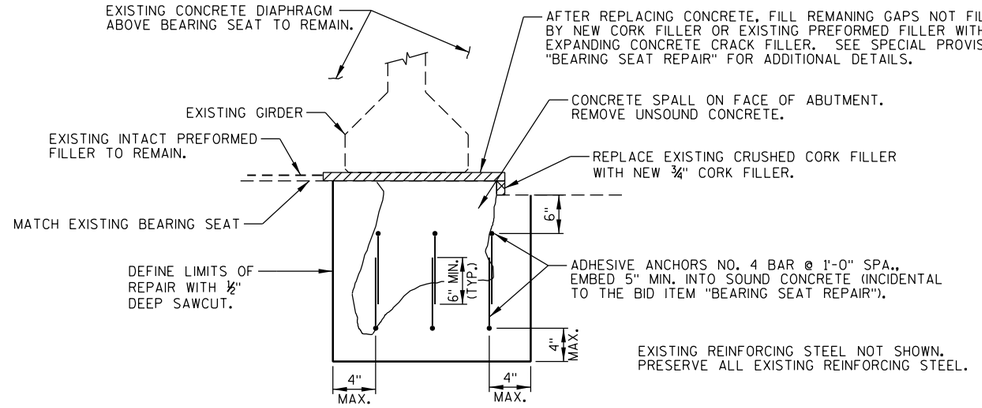
NOTE:

ALL DIMENSIONS ON THIS SHEET ARE MEASURED RADIAL TO ℄ "SS" UNLESS NOTED OTHERWISE.

⬡ — INDICATES GIRDER NUMBER

CROSS SECTION THRU BRIDGE

(LOOKING EAST)



BEARING SEAT REPAIR

(BEARING SEAT 1 AT EAST ABUTMENT SHOWN, BEARING SEAT 2 SIMILAR)
(LOOKING EAST AT F.F. OF ABUTMENT)

GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.

SEE ROAD PLANS FOR TRAFFIC CONTROL.

DIMENSIONS SHOWN ARE BASED ON THE ORIGINAL STRUCTURE PLANS.

NAVIGATIONAL CLEARANCE AND WATER DEPTH ARE APPROXIMATE BASED ON ORIGINAL STRUCTURE PLANS.

THIS PROJECT WILL REHABILITATE THE EXISTING STRUCTURE, B-40-580, A THREE SPAN, 299.04' PRESTRESSED CONCRETE GIRDER BRIDGE SET ON CONCRETE SILL ABUTMENTS AND CONCRETE HAMMERHEAD PIERS.

PROTECTIVE SURFACE TREATMENT SHALL BE APPLIED TO THE ENTIRE TOP SURFACE OF THE NEW CONCRETE OVERLAY AND TO THE TOP AND INSIDE FACE OF THE MEDIAN.

PIGMENTED SURFACE SEALER SHALL BE APPLIED TO THE INSIDE, TOP FACE, AND ENDS OF THE SLOPED FACE PARAPET 'B'.

A MINIMUM OF 1-INCH OF CONCRETE SHALL BE REMOVED FROM THE ENTIRE BRIDGE DECK BETWEEN THE PARAPET AND CURB UNDER THE BID ITEM "CLEANING DECKS".

PREPARATION DECKS TYPE 1, PREPARATION DECKS TYPE 2, AND FULL DEPTH DECK REPAIR AREAS ARE BASED ON THE PLANS AND AS DETERMINED BY THE ENGINEER. DECK PREPARATION AND FULL DEPTH DECK REPAIR AREAS SHALL BE FILLED WITH CONCRETE MASONRY AS NOTED IN THE SPECIAL PROVISIONS.

PROFILE GRADE LINE SHALL BE DETERMINED IN THE FIELD BASED ON A MINIMUM OVERLAY THICKNESS OF 1 ½" PLACED ABOVE THE DECK SURFACE AFTER SURFACE PREPARATION. EXPECTED AVERAGE OVERLAY THICKNESS IS 2". IF EXPECTED AVERAGE OVERLAY THICKNESS IS EXCEEDED BY MORE THAN ½", CONTACT THE STRUCTURES DESIGN SECTION.

SEAL LONGITUDINAL CONSTRUCTION JOINT WITH CRACK SEALER PER STANDARD SPECIFICATION 502.

ADD RIPRAP MEDIUM OVER EXISTING GEOTEXTILE AT STORM SEWER OUTFALL PIPE AS NOTED ON SHEET 1 AND AS DIRECTED BY THE ENGINEER.

REPAIR EAST ABUTMENT BEARING SEATS AT GIRDERS 1 AND 2. REMOVE CONCRETE TO 1" MINIMUM BEHIND EXISTING FRONT FACE REINFORCING STEEL. PRESERVE ALL EXISTING REINFORCING STEEL AND ADD ADHESIVE ANCHORS AS SHOWN IN THE BEARING SEAT REPAIR DETAIL.

SEE ROAD PLANS FOR STAGING DETAILS.

ESTIMATED QUANTITIES

	ITEM NUMBER	BID ITEM	UNIT	TOTAL
	502.3200	PROTECTIVE SURFACE TREATMENT	SY	1715
	502.3210	PIGMENTED SURFACE SEALER	SY	135
*	509.0351	PREPARATION DECKS TYPE 1	SY	27
*	509.0352	PREPARATION DECKS TYPE 2	SY	7
	509.0500	CLEANING DECKS	SY	1365
*	509.1500	CONCRETE SURFACE REPAIR	SF	5
*	509.2050	FULL-DEPTH DECK REPAIR	SY	1
	509.2550	CONCRETE MASONRY OVERLAY DECKS	SY	1365
	606.0200	RIPRAP MEDIUM	CY	5
	SPV.0060.02	BEARING SEAT REPAIR	EACH	2
		NON-BID ITEM		
		CORK FILLER	SIZE	¾"

* THE CONTRACTOR SHALL COORDINATE THE FIELD IDENTIFICATION OF ALL DECK REPAIR AND SURFACE REPAIR LOCATIONS WITH THE ENGINEER.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-40-580

DRAWN BY RLR | PLANS CK'D. LJR

CROSS SECTION, QUANTITIES & NOTES

SHEET 2 OF 3
121

FILE= 93427-B-40-580-02.DGN
DATE= 2/4/2019

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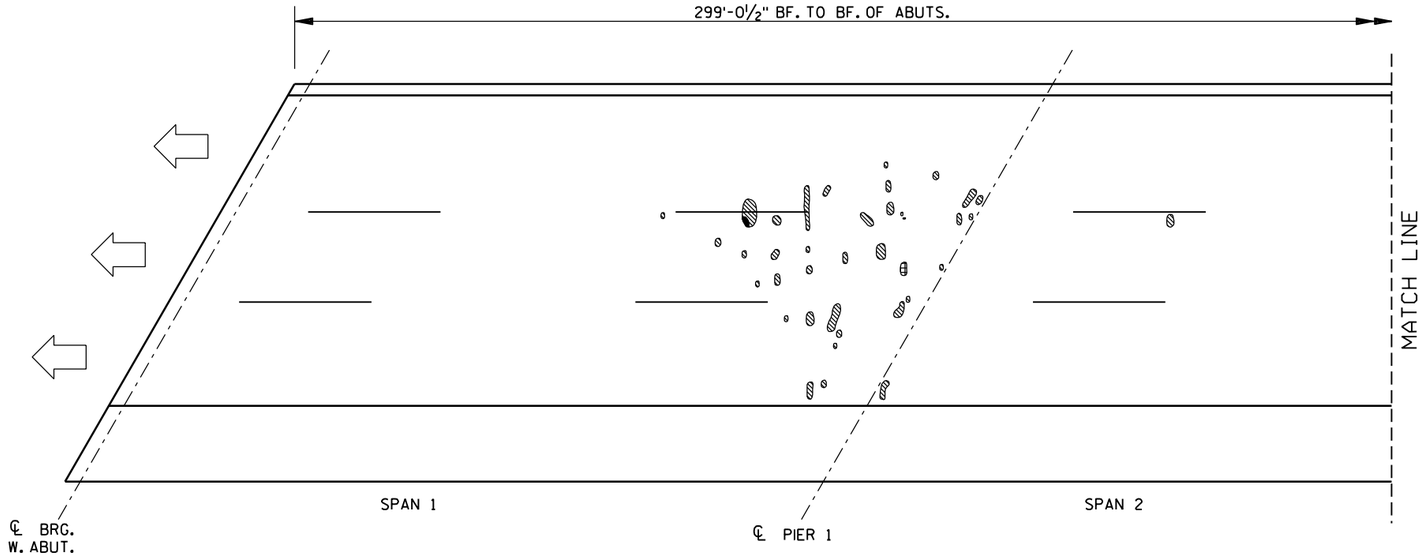
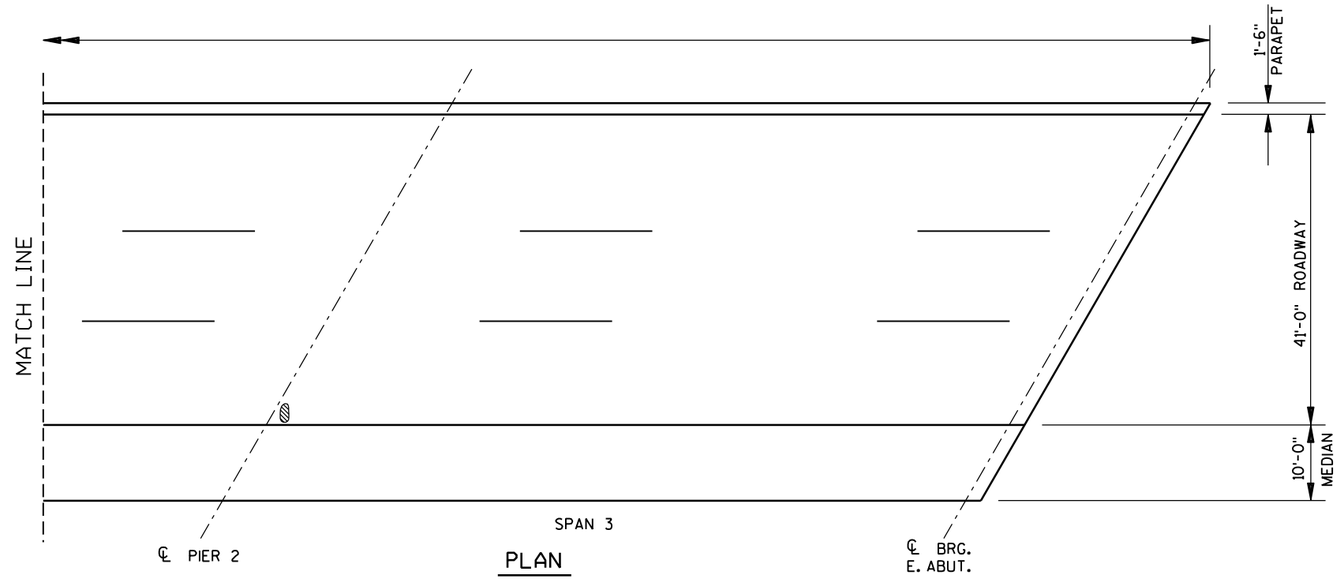
STATE PROJECT NUMBER
2984-38-71



FOR REFERENCE ONLY



PLAN

N

INFRARED THERMOGRAPHIC SURVEY RESULTS

INFRARED INSPECTION DATE: 11/20/17
SURFACE TYPE: CONCRETE - NO OVERLAY

FIELD OBSERVATIONS SUMMARY		S.N. B-40-580		LEGEND
ITEM	UNIT	QUANT.	%	DELAMINATION
TOTAL AREA	ft^2	12259		SPALL
SHADE/DEBRIS	ft^2	0		DEBOND
DELAMINATION	ft^2	43	0.4	AC PATCH
SPALL	ft^2	2	<0.1	CONCRETE PATCH
DEBOND	ft^2	N/A	N/A	SHADE/DEBRIS
AC PATCH	ft^2	2	<0.1	
CONCRETE PATCH	ft^2	0	0	

SCALE 0' 5' 10' 20'

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE B-40-580

DRAWN BY JAS | PLANS CK'D. LJR

DECK PREPARATION DETAILS

SHEET 3 OF 3
122

FILE= 93427_B-40-580_03.DGN
DATE= 12/28/2017

93427_B-40-580_03.dgn 12/28/2017 3:54:32 PM jsnyder

Notes

Wisconsin Department of Transportation

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through innovation and exceptional service.

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