WKE

MAY 2017

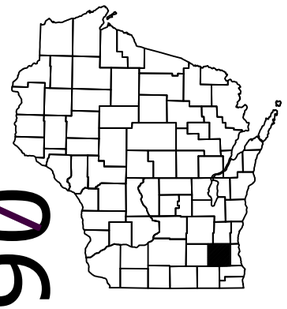
PROJECT ID: 1060-21-71

WITH: NA

COUNTY: WAUKESHA

ORDER OF SHEETS

TOTAL SHEETS = 38



N

DESIGN DESIGNATION

A.A.D.T.	2015	=	81,600
A.A.D.T.	2038	=	102,900
D.H.V.		=	7.6
D.D.		=	56/44
T.		=	9.3
DESIGN SPEED		=	70
ESALS		=	17,000,000 (CONCRETE) AND 13,000,000 (HMA)

CONVENTIONAL SYMBOLS

PLAN

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

PROFILE

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

UTILITIES

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PLAN OF PROPOSED IMPROVEMENT

EAST WEST FREEWAY

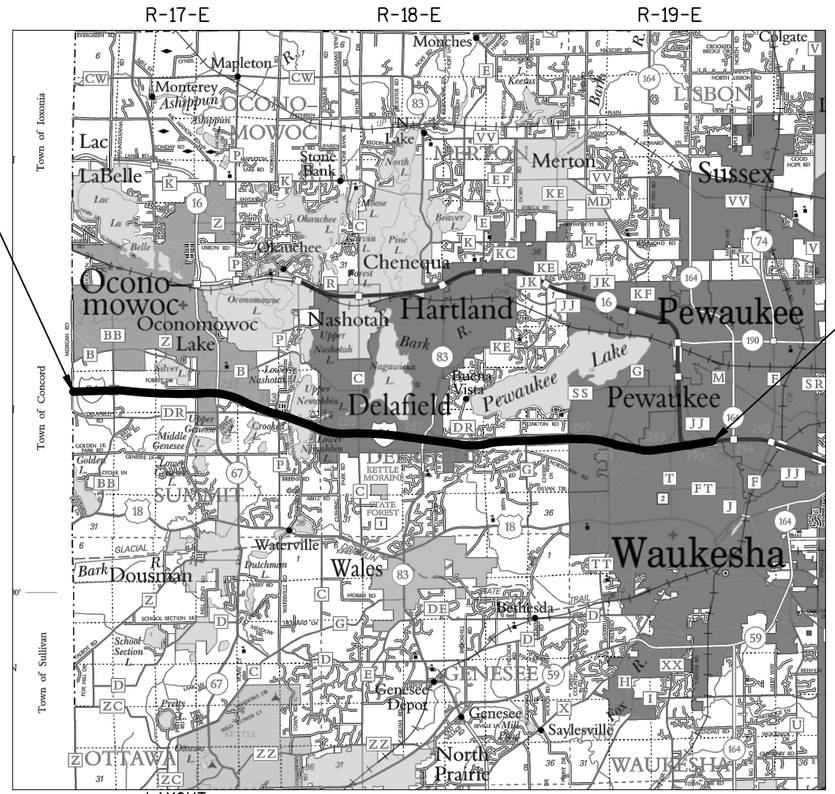
WEST WAUKESHA COUNTY LINE TO STH 16

IH 94

WAUKESHA COUNTY

STATE PROJECT NUMBER
1060-21-71

STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
1060-21-71	WISC 2017264	1



BEGIN PROJECT
STA. 2+12.19
1060-21-71
Y=182746.89
X=600767.40

T-7-N

END PROJECT
STA. 817+67.07
1060-21-71

TOTAL NET LENGTH OF CENTERLINE = 15.446 MILE

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PREPARED BY

Surveyor	WISDOT
Designer	BHUVAN MANANDHAR
Project Manager	BHUVAN MANANDHAR
Regional Examiner	
Regional Supervisor	JOE GALLAMORE

APPROVED FOR THE DEPARTMENT
DATE: 2/1/2017 B. Manandhar (Signature)

E

FILE NAME : N:\PDS\C3D\10602101\SHEETSPLAN\010101-TI.DWG
LAYOUT NAME - 010101-TI - TITLESHEET

PLOT DATE : 1/31/2017 1:03 PM

PLOT BY : MANANDHAR, BHUVAN K PLOT NAME :

UTILITY CONTACT LIST

CARL DONAHUE
AT&T LEGACY - COMMUNICATION LINE
866 ROCK CREEK RD
PLANO, IL 60545
(715) 833-2054
cd8729@att.com

JANE OLDENBURG
WISDOT ATR PULL BOXES - ELECTRICITY
TRAVEL SURVEYS SHOP, 3633 PIERSTORFF ST
MADISON, WI 53704-2583
(608) 245-2679
jane.oldenburg@dot.wi.gov

PAUL ZELLNER, SUPERINTENDENT
CITY OF DELAFIELD DEPARTMENT OF PUBLIC WORKS – WATER/SEWER
500 GENESSEE ST
DELAFIELD, WI 53018
(262) 303-4627
pzellner@ci.delafield.wi.us

MARK FRYE
CITY OF OCONOMOWOC (ENGINEERING) - STORM SEWER
174 E WISCONSIN AVE
P.O. BOX 27
OCONOMOWOC, WI 53066
(262) 569-2184
mfrye@oconomowoc-wi.gov

MR. ALEX DAMIEN
CITY OF WAUKESHA - SANITARY & STORM SEWER
130 DELAFIELD STREET
WAUKESHA, WI 53188 3616
(262) 524-3907
adamien@ci.waukesha.wi.us

MR. FRED ABADI, P.E., DIRECTOR OF PUBLIC WORKS
CITY OF WAUKESHA-ENGINEERING
130 DELAFIELD STREET
WAUKESHA, WI 53188 3616
(262) 524-3596
fabadi@ci.waukesha.wi.us

MR. ANTHONY MARCINIAK
ATC MANAGEMENT, INC.
W234 N 200 RIDGEVIEW PARKWAY COURT
P.O. BOX 47
WAUKESHA, WI 53187 0047
(262) 506-6814
amarciniak@atcllc.com

MR. MARK MURN
CENTURYLINK - COMMUNICATION LINE
224 INDUSTRIAL DR
NORTH PRAIRIE, WI 53153
(262) 392-5210
mark.murn@centurylink.com

MR. CASEY LEMKE, ELECTRIC ENGINEER
OCONOMOWOC UTILITIES (ELECTRIC
808 S WORTHINGTON STREET
OCONOMOWOC, WI 53066
(262) 569-3197
clemke@oconomowoc-wi.gov

SCOTT OSBORN, SUPERINTENDENT
CITY OF OCONOMOWOC (ENGINEERING) - WATER
808 SOUTH WORTHINGTON ST
OCONOMOWOC, WI 53066
(262) 569-6421
sosborn@ocomowoc-wi.gov

MS. KELLY ZYLSTRA, P.E.,
TECHNICAL SERVICE MANAGER
CITY OF WAUKESHA - WATER
P.O. BOX 1648
WAUKESHA, WI 53187-1648
(262) 521-5272 EXT. 536
contactus@waukesha-water.com

MR. HENRY ELLING, TOWN MANAGER
SUMMIT UTILITY DISTRICT 2
2911 N. DOUSMAN ROAD
OCONOMOWOC, WI 53066
(262) 567-2757
ellingh@summittown.org

PROJECT CONTACTS

WISDOT SE REGION
BHUVAN MANANDHAR
141 NW BARSTOW STREET
WAUKESHA, WI 53187
262-548-5953
BHUVAN.MANANDHAR@DOT.WI.GOV

WDNR
CRAIG WEBSTER
141 NW BARSTOW STREET
WAUKESHA, WI 53188
262-574-2141
CRAIG.WEBSTER@WISCONSIN.GOV

ORDER OF SECTION 2 DETAIL SHEETS

UTILITY CONTACT LIST CONTINUED

MR. SCOTT LUCZAK, GENERAL MANAGER
DELAFIELD-HARTLAND WPCC - SEWER
416 BUTLER DR
DELAFIELD, WI 53018
(262) 646-4364
sldelhart@centurytel.net

NETWORK RELOCATIONS
LEVEL 3 COMMUNICATIONS
1025 ELDORADO BLVD
BROOMFIELD, CO 80021
(720) 888-1089
level3.networkrelocations@level3.com

TOM STEINBACH
OCONOMOWOC UTILITIES - WASTEWATER
900 S WORTHINGTON ST
OCONOMOWOC, WI 53066
(262) 569-2192
tsteinbach@oconomowoc-wi.gov

JEFF MADSON
WISCONSIN DEPARTMENT OF TRANSPORTATION - COMMUNICATION LINE
433 W. ST. PAUL AVE.
STE. 300
MILWAUKEE, WI 53203-3007
(414) 225-3723
Jeffrey.Madson@dot.wi.gov

JUSTIN EFFINGER
WISCONSIN DEPARTMENT OF TRANSPORTATION - WISCONSIN SIGNAL
141 NW BARSTOW ST
P.O. BOX 798
WAUKESHA, WI 53187-0798
(262) 548-5676
Justin.effinger@dot.wi.gov

LATROY BRUMFIELD
WE ENERGIES - ELECTRICITY AND GAS OPERATION
333 WEST EVERETT ST, ROOM A299
MILWAUKEE, WI 53203
(414) 221-5617
LaTroy.Brumfield@we-energies.com

BOB BOYD, DIRECTOR OF TECHNOLOGY
KETTLE MORAINE SCHOOL DISTRICT - COMMUNICATION LINE
563 AJ ALLEN CIR
WALES, WI 53183
(262) 968-6300
boydb@kmsd.edu

RICHARD TRGOVEC, OSP ENGINEER
MIDWEST FIBER NETWORKS LLC - COMMUNICATION LINE
6070 NORTH FLINT RD
GLENDALE, WI 53209
(414) 459-3554
rtrgovec@midwestfibernetworks.com

TW CABLE ENGINEERING
TIME WARNER CABLE - COMMUNICATION LINE
1320 N DR MARTIN LUTHER KING JR DR
MILWAUKEE, WI 53212-4002
(414) 277-4045
wis.engineering@charter.com

ERIC PEREA
WISCONSIN DEPARTMENT OF TRANSPORTATION - STREET LIGHTING
141 NW BARSTOW STREET
WAUKESHA, WI 53087-0798
(262) 574-5422
eric.perea@dot.wi.gov

MR. TERRY ANDRUS, ENVIRONMENTAL HEALTH & SAFETY MANAGER
BRUNO INDEPENDENT LIVING AIDS
1780 EXECUTIVE DRIVE
OCONOMOWOC, WI 53066
(262) 953-5323
terry.andrus@bruno.com

MR. NATHAN BECKER, OSP PRODUCTION MANAGER
WINDSTREAM NTI/KDL, INC. - COMMUNICATION LINE
13935 BISHOPS DRIVE
BROOKFIELD, WI 53005
(262) 792-7938
Nathan.becker@windstream.com

GENERAL NOTES

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

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

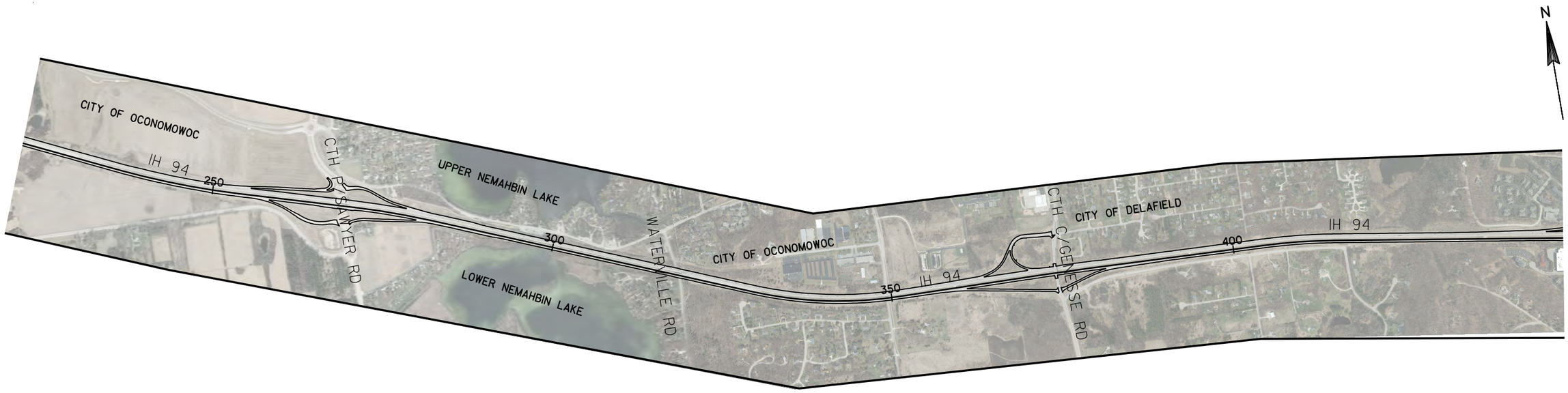
REMOVAL OF EROSION CONTROL DEVICES IS INCLUDED IN THE COST OF THEIR RESPECTIVE BID ITEMS.

THE CONCRETE SAWCUT SLURRY SHALL BE DISPOSED OF AT AN ACCEPTABLE MATERIAL DISPOSAL SITE OR AN ENGINEER APPROVED AREA OF THE ROADWAY. IN NO CASE SHALL THE SLURRY BE ALLOWED TO ENTER A STORM SEWER, DITCHLINE, WATERWAY OR WETLAND.

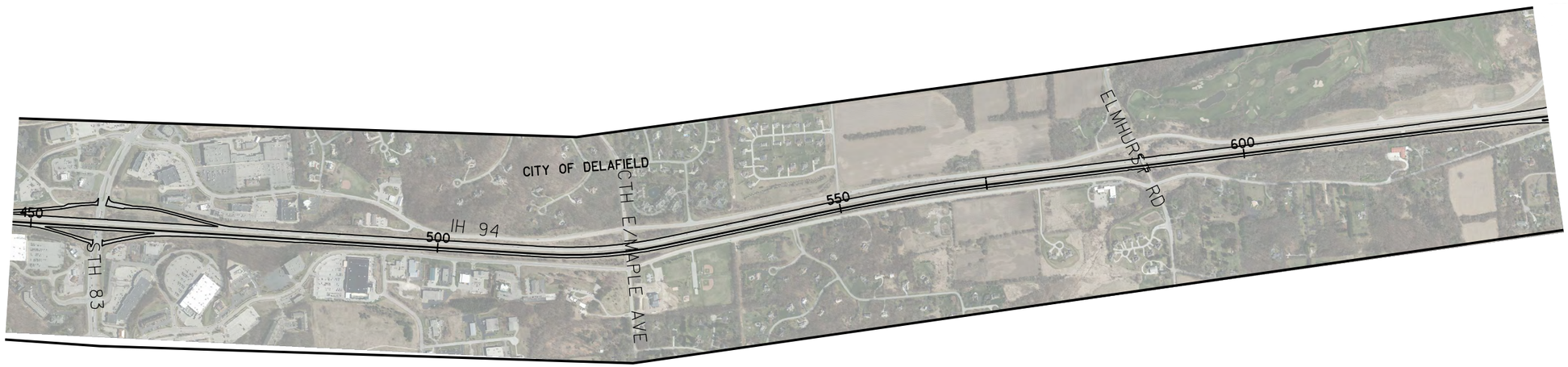
THE REMOVAL OF ANY EXISTING REFLECTOR MARKERS IN THE ROADWAY WILL BE INCIDENTAL TO THE ITEMS 204.0120 AND SPV.0195.0001.

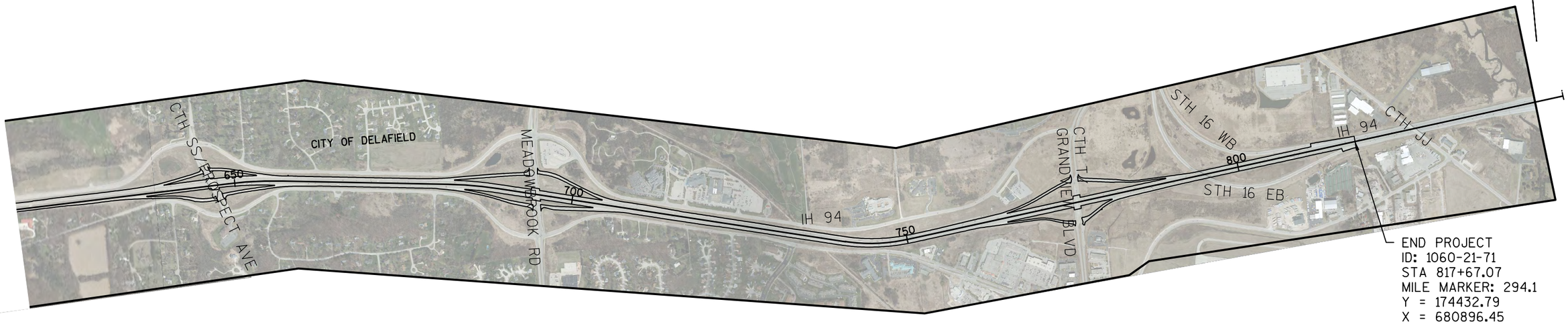
ALL LANE AND RAMP CLOSURES TO PERFORM CONTRACT WORK SHALL BE INCIDENTAL TO ITEM 631.0100.0001 TRAFFIC CONTROL.

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



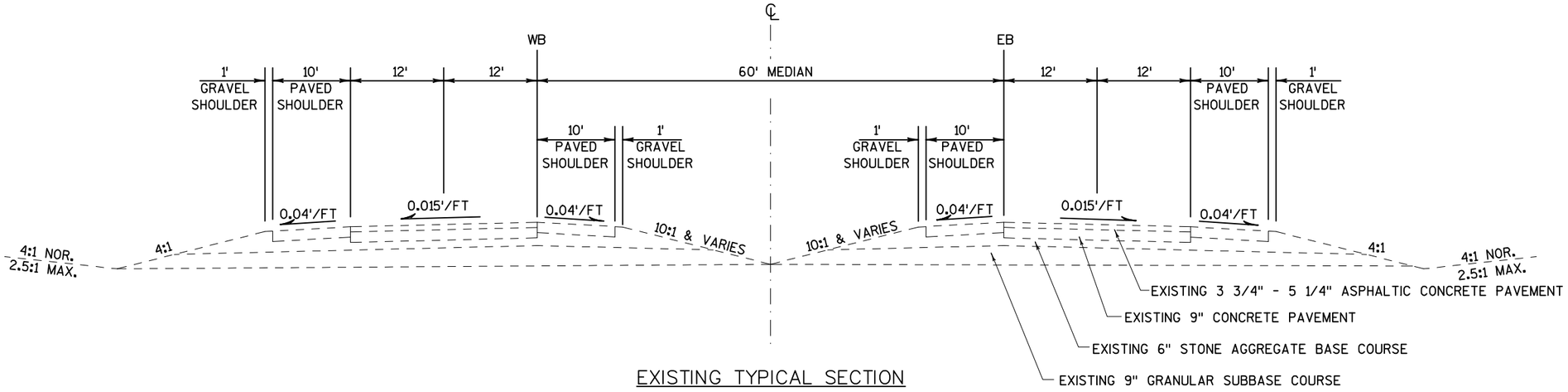
PROJECT NO: 1060-21-71	HWY: IH 94	COUNTY: WAUKESHA	PROJECT OVERVIEW	SHEET 4	E



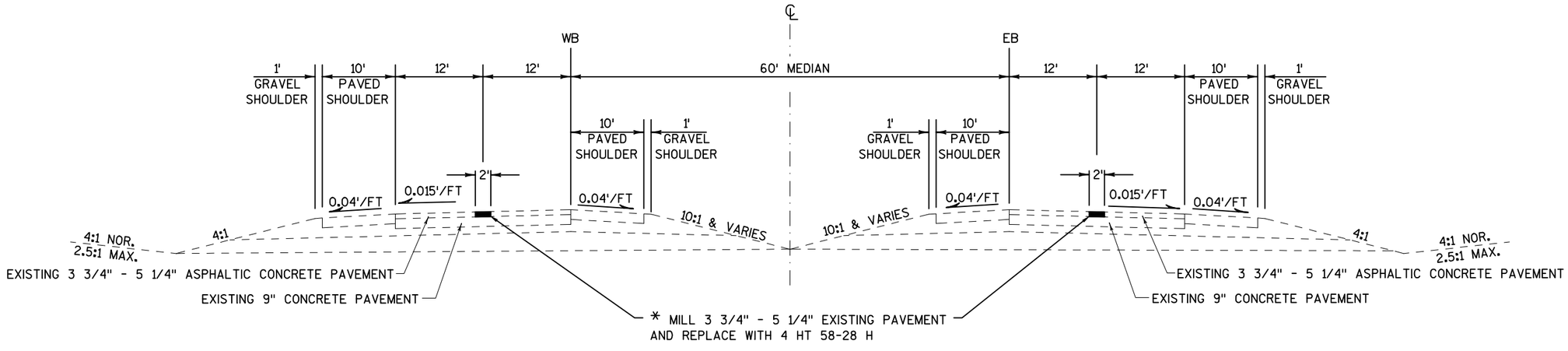


PROJECT NO: 1060-21-71	HWY: IH 94	COUNTY: WAUKESHA	PROJECT OVERVIEW	SHEET 5	E

FILE NAME : N:\PDS\C3D\10602101\SHEETSPLAN\020201-PO.DWG
LAYOUT NAME - 020201 PO 2
PLOT DATE : 9/10/2015 8:46 AM PLOT BY : MANANDHAR, BHUVAN K PLOT NAME : PLOT SCALE : 1 IN 1500
WISDOT/CADDS SHEET 42



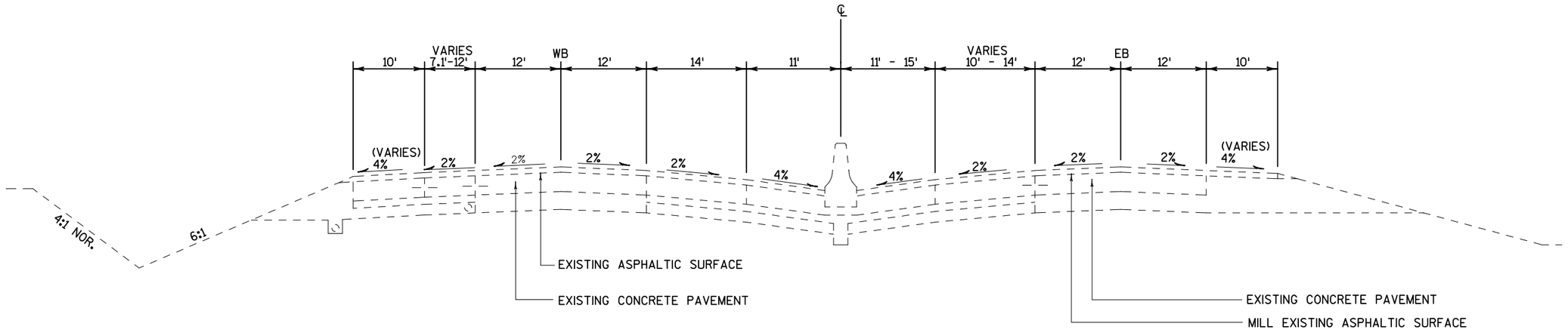
EXISTING TYPICAL SECTION
I–94



FINISHED TYPICAL SECTION
I–94

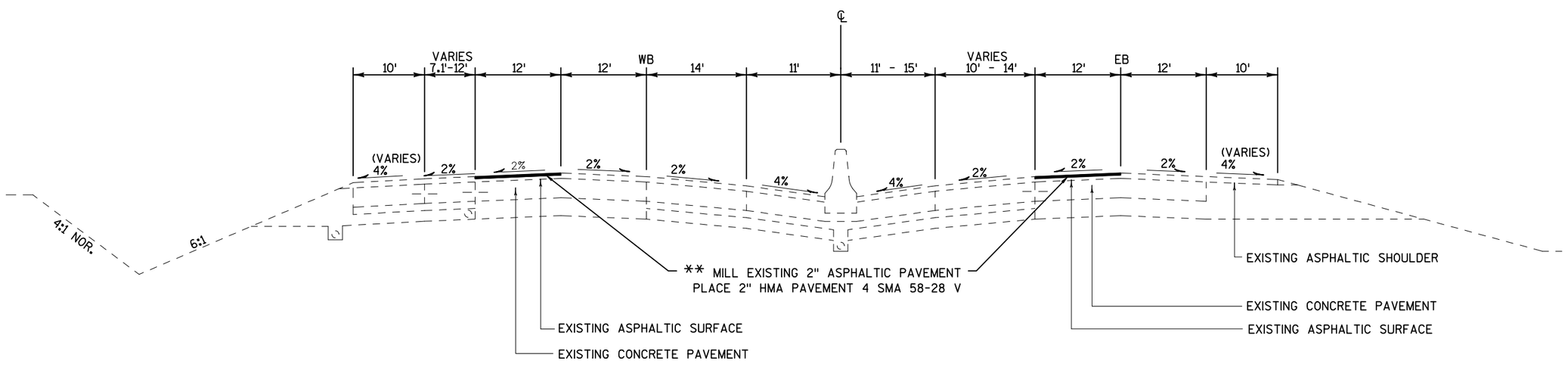
*LOCATION TO BE DETERMINED BY THE ENGINEER IN THE FIELD.

PROJECT NO: 1060-21-71	HWY: IH 94	COUNTY: WAUKESHA	TYPICAL SECTION	SHEET 6	E



EXISTING TYPICAL SECTION

STA. 640+00 TO STA 817+67.07



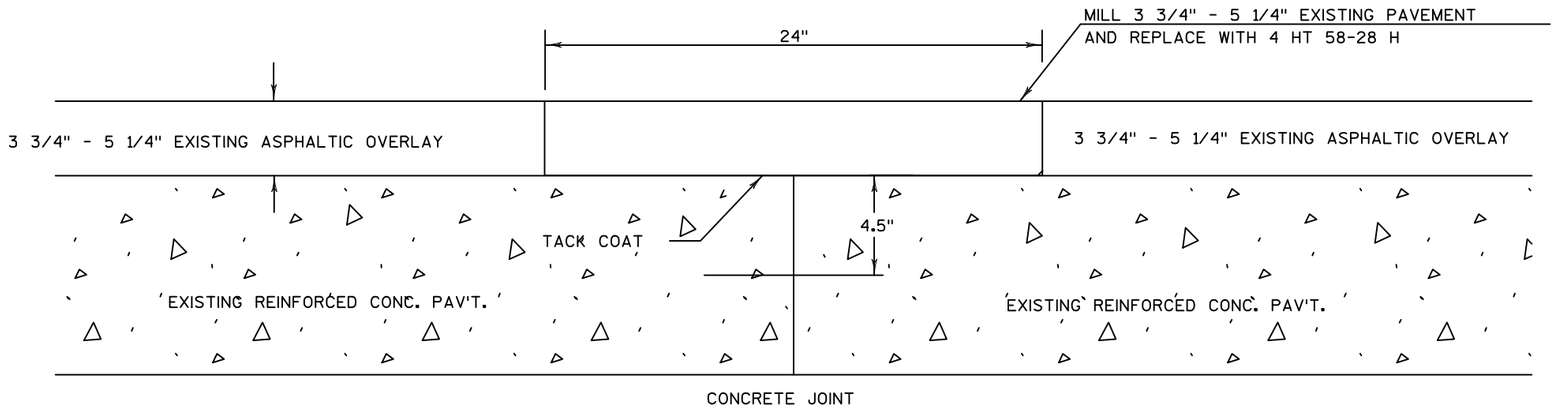
FINISHED TYPICAL SECTION

STA. 640+00 TO STA 817+67.07

**LOCATION TO BE DETERMINED BY THE ENGINEER IN THE FIELD.

PROJECT NO: 1060-21-71	HWY: IH 94	COUNTY: WAUKESHA	TYPICAL SECTION	SHEET 7	E

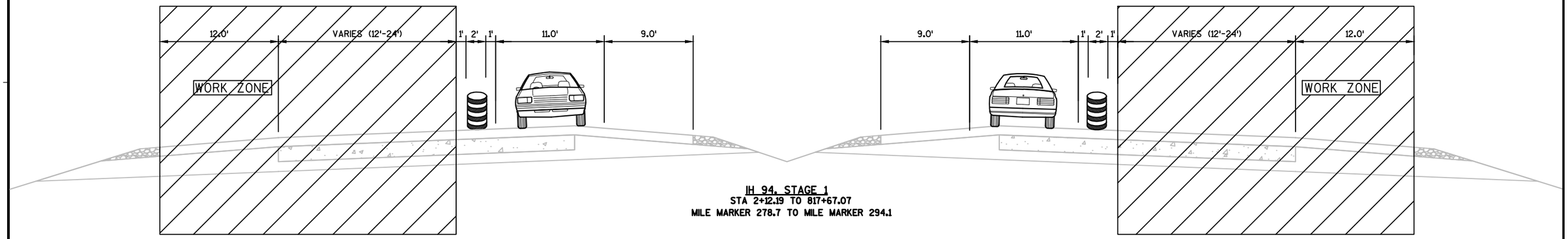
2



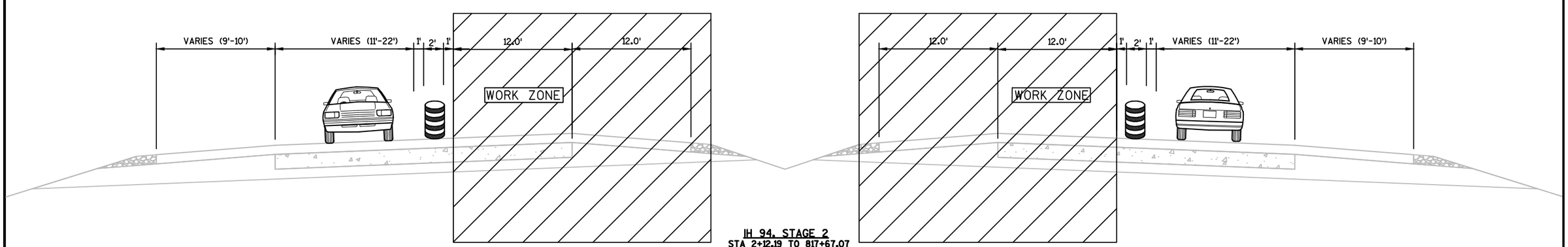
LONGITUDINAL JOINT REPAIR DETAIL

NOTE:
EXACT LOCATIONS TO BE DETERMINED BY THE ENGINEER BEFORE LONGITUDINAL JOINT REPAIRS BEGIN.

THE MILLINGS MUST BE HAULED AWAY AND DISPOSED OF AWAY FROM THE PROJECT.



IH 94, STAGE 1
STA 2+12.19 TO 817+67.07
MILE MARKER 278.7 TO MILE MARKER 294.1



IH 94, STAGE 2
STA 2+12.19 TO 817+67.07
MILE MARKER 278.7 TO MILE MARKER 294.1

PROJECT NO: 1060-21-71	HWY: IH 94	COUNTY: WAUKESHA	PLAN: STAGING TYPICAL SECTIONS	SHEET 9	E

FREEWAY
FIXED MESSAGE SIGN

(1) LANE CLOSURES AHEAD
XX/XX-XX/XX
XX:XX-XX:XX
EXPECT DELAYS

(2) CLOSED

JEFFERSON COUNTY

WAUKESHA COUNTY

VILLAGE OF SUMMIT

CITY OF OCONOMOWOC

CITY OF DELAFIELD

WILLOW GLEN RD

N MORGAN RD

CTH P/SAWYER RD

CTH C/GENESSE RD

STH 83

STH 67/SUMMIT AVE

IH 94

LOCATION:
MEDIAN

BEGIN PROJECT
ID: 1060-21-71
STA 2+12.19
MILE MARKER: 278.7

CTH SS/PROSPECT AVE

CTH JJ

STH 16

CTH F

MEADOWBROOK RD

CTH T/GRANDVIEW BLVD

STH 164/PEWAUKEE RD

EXIT 293
Waukesha
Pewaukee
1/2 MILE
CLOSED

END PROJECT
ID: 1060-21-71
STA 817+67.07
MILE MARKER: 294.1

FOR PLAN SHEETS

LEGEND: FIXED MESSAGE SIGNS
FIXED MESSAGE SIGN(S) ON WOOD POST SUPPORTS
(1) FIXED MESSAGE SIGN NUMBER

NOTES: FIXED MESSAGE SIGNS

1. CONTRACTOR SHOULD LOCATE FIXED MESSAGE SIGNS A MINIMUM OF 400' FROM EXISTING TYPE "I" SIGN.
2. ALL FIXED MESSAGE SIGNS SHALL BE BLACK NON-REFLECTIVE MESSAGE ON ORANGE FLORESCENT REFLECTIVE BACKGROUND PER SPEC 643 & 637 LAYOUT SHEETS FOR INFORMATION.
3. SEE FIXED MESSAGE SIGNS LAYOUT SHEETS FOR INFORMATION.
4. SIGN *2 (CLOSED) PLAQUE APPLIES TO ALL OTHER RAMP CLOSURES

PROJECT NO: 1060-21-71	HWY: IH 94	COUNTY: WAUKESHA	FIXED MESSAGE SIGNS LOCATIONS	SHEET 10	E

Estimate Of Quantities

1060-21-71

Line	Item	Item Description	Unit	Total	Qty
0010	204.0120	Removing Asphaltic Surface Milling	SY	5,094.000	5,094.000
0020	213.0100	Finishing Roadway (project) 0001. 1060-21-71	EACH	1.000	1.000
0030	416.0610	Drilled Tie Bars	EACH	3,394.000	3,394.000
0040	416.0620	Drilled Dowel Bars	EACH	8,280.000	8,280.000
0050	416.1715	Concrete Pavement Repair SHES	SY	4,908.000	4,908.000
0060	416.1725	Concrete Pavement Replacement SHES	SY	197.000	197.000
0070	450.4000	HMA Cold Weather Paving	TON	988.000	988.000
0080	455.0605	Tack Coat	GAL	510.000	510.000
0090	460.8624	HMA Pavement 4 SMA 58-28 V	TON	611.000	611.000
0100	495.1000.S	Cold patch	TON	50.000	50.000
0110	619.1000	Mobilization	EACH	1.000	1.000
0120	628.1905	Mobilizations Erosion Control	EACH	2.000	2.000
0130	628.1910	Mobilizations Emergency Erosion Control	EACH	2.000	2.000
0140	628.7020	Inlet Protection Type D	EACH	50.000	50.000
0150	643.0100	Traffic Control (project) 0001. 1060-21-71	EACH	1.000	1.000
0160	643.0300	Traffic Control Drums	DAY	28,176.000	28,176.000
0170	643.0420	Traffic Control Barricades Type III	DAY	2,376.000	2,376.000
0180	643.0705	Traffic Control Warning Lights Type A	DAY	4,752.000	4,752.000
0190	643.0715	Traffic Control Warning Lights Type C	DAY	5,400.000	5,400.000
0200	643.0800	Traffic Control Arrow Boards	DAY	216.000	216.000
0210	643.0900	Traffic Control Signs	DAY	5,520.000	5,520.000
0220	643.1000	Traffic Control Signs Fixed Message	SF	684.000	684.000
0230	643.1050	Traffic Control Signs PCMS	DAY	120.000	120.000
0240	646.0106	Pavement Marking Epoxy 4-Inch	LF	263,900.000	263,900.000
0250	646.0126	Pavement Marking Epoxy 8-Inch	LF	25,630.000	25,630.000
0260	646.2304.S	Pavement Marking Grooved Wet Reflective Epoxy 4-Inch	LF	44,070.000	44,070.000
0270	690.0250	Sawing Concrete	LF	17,594.000	17,594.000
0280	ASP.1T0A	On-the-Job Training Apprentice at $5.00/HR	HRS	600.000	600.000
0290	ASP.1T0G	On-the-Job Training Graduate at $5.00/HR	HRS	700.000	700.000
0300	SPV.0060	Special 0001. Field Facilities Office Space	EACH	1.000	1.000
0310	SPV.0075	Special 0001. Pavement Cleanup Project 1060-21-71	HRS	100.000	100.000
0320	SPV.0195	Special 0001. HMA Longitudinal Joint Repair	TON	9,270.000	9,270.000

CONCRETE PAVEMENT REPAIR SHES

ROADWAY	MILE MARKER	MILE MARKER	CONCRETE BASE PATCHES BY LANE (EST. 9 FT X 12 FT FULL DEPTH) * LN 1	LN 2	LN 3	416.1715 CONCRETE PAVEMENT REPAIR SHES SY	416.1725 CONCRETE PAVEMENT REPLACEMENT SHES SY	416.0610 DRILLED TIE BARS (30" c - c) EACH	416.0620 DRILLED DOWEL BARS (15" c - c) EACH	690.0250 SAWING CONCRETE LF
IH 94 EB	279.2	279.4	1	1	-	24	-	16	40	84
	280	280.2	-	2	-	24	-	16	40	84
	280.2	280.4	-	1	-	12	-	8	20	42
	280.4	280.6	-	1	-	12	-	8	20	42
	280.8	281	3	1	-	48	-	32	80	168
	281	281.2	1	1	-	24	-	16	40	84
	281.2	281.4	1	1	-	24	-	16	40	84
	281.4	281.6	1	-	-	12	-	8	20	42
	281.8	282	1	3	-	48	-	32	80	168
	282.2	282.4	-	3	-	36	-	24	60	126
	282.4	282.6	-	1	-	12	-	8	20	42
	282.6	282.8	-	1	-	12	-	8	20	42
	282.8	283	-	2	-	24	-	16	40	84
	285	285.2	-	1	-	12	-	8	20	42
	285.2	285.4	-	1	-	12	-	8	20	42
	285.6	285.8	3	-	-	36	-	24	60	126
	285.8	286	-	1	-	12	-	8	20	42
	286.2	286.4	1	-	-	12	-	8	20	42
	286.4	286.6	-	1	-	12	-	8	20	42
	286.6	286.8	1	1	-	24	-	16	40	84
	286.8	287	1	1	-	24	-	16	40	84
	287	287.2	1	1	-	24	-	16	40	84
	287.2	287.4	1	-	-	12	-	8	20	42
	287.4	287.6	1	1	-	24	-	16	40	84
	287.6	287.8	1	2	-	36	-	24	60	126
	287.8	288	1	-	-	12	-	8	20	42
	288	288.2	-	2	-	24	-	16	40	84
	288.2	288.4	2	3	-	60	-	40	100	210
	288.4	288.6	1	1	-	24	-	16	40	84
	288.6	288.8	1	2	-	36	-	24	60	126
	288.8	289	2	2	-	48	-	32	80	168
	289	289.2	1	1	-	24	-	16	40	84
	289.2	289.4	3	3	-	72	-	48	120	252
	289.4	289.6	2	2	-	48	-	32	80	168
	289.6	289.8	3	1	-	48	-	32	80	168
	289.8	290	2	-	-	24	-	16	40	84
	290	290.2	3	1	-	48	-	32	80	168
	290.2	290.4	3	5	-	96	-	64	160	336
	290.4	290.6	2	2	-	48	-	32	80	168
	290.6	290.8	1	2	-	36	-	24	60	126
	291.2	291.4	-	2	3	60	-	40	100	210
	291.4	291.6	-	1	1	24	-	16	40	84
	292	292.2	-	2	6	96	-	64	160	336
	292.2	292.4	-	3	4	84	-	56	140	294
	292.4	292.6	-	4	5	108	-	72	180	378
	292.6	292.8	-	-	3	36	-	24	60	126
	292.8	293	-	2	1	36	-	24	60	126
	293	293.2	-	4	5	108	-	72	180	378
	293.2	293.4	1	5	3	108	-	72	180	378
	293.4	293.6	3	1	1	60	-	40	100	210
	293.6	293.8	5	3	6	168	60	148	300	702
	293.8	294	2	3	4	108	30	90	200	447
	294	294.2	3	3	8	168	-	112	280	588
	294.2	294.4	-	-	4	48	-	32	80	168
	SUBTOTAL					2412	90	1662	4060	8625

NOTE:
* = FOR INFORMATION ONLY

3

CONCRETE PAVEMENT REPAIR SHES CONTD...

ROADWAY	MILE MARKER	MILE MARKER	CONCRETE BASE PATCHES BY LANE (EST. 9 FT X 12 FT FULL DEPTH) * LN 1	LN 2	LN 3	416.1715 CONCRETE PAVEMENT REPAIR SHES SY	416.1725 CONCRETE PAVEMENT REPLACEMENT SHES SY	416.0610 DRILLED TIE BARS (30" c - c) EACH	416.0620 DRILLED DOWEL BARS (15" c - c) EACH	690.0250 SAWING CONCRETE LF
IH 94 WB	294.2	294	1	-	-	12	-	8	20	42
	294	293.8	2	5	-	84	-	56	140	294
	293.8	293.6	2	4	-	72	-	48	120	252
	293.6	293.4	-	4	5	108	-	72	180	378
	293.4	293.2	3	4	4	132	-	88	220	462
	293.2	293	-	1	2	36	-	24	60	126
	293	292.8	-	-	1	12	-	8	20	42
	292.6	292.4	1	1	2	48	-	32	80	168
	292.4	292.2	-	5	6	132	-	88	220	462
	292.2	292	-	1	2	36	-	24	60	126
	291.4	291.2	-	2	0	24	-	16	40	84
	291.2	291	-	1	2	36	-	24	60	126
	291	290.8	1	6	-	84	-	56	140	294
	290.8	290.6	1	2	-	36	-	24	60	126
	290.6	290.4	2	2	-	48	-	32	80	168
	290.4	290.2	1	1	-	24	-	16	40	84
	209	289.8	1	-	-	12	-	8	20	42
	289.8	289.6	2	2	-	48	-	32	80	168
	289.6	289.4	1	2	-	36	-	24	60	126
	289.4	289.2	-	2	-	24	-	16	40	84
	289.2	289	2	1	-	36	-	24	60	126
	288.8	288.6	2	5	-	84	-	56	140	294
	288.4	288.2	-	2	-	24	-	16	40	84
	288.2	288	1	1	-	24	-	16	40	84
	288	287.8	1	1	-	24	-	16	40	84
	287.8	287.6	-	1	-	12	-	8	20	42
	287.8	287.6	-	1	-	12	-	8	20	42
	287.6	287.4	-	1	-	12	-	8	20	42
	287.4	287.2	-	1	-	12	-	8	20	42
	287.2	287	-	1	-	12	-	8	20	42
	287	286.8	-	1	-	12	-	8	20	42
	286.8	286.6	-	1	-	12	-	8	20	42
	286.6	286.4	-	1	-	12	-	8	20	42
	286.4	286.2	1	1	-	24	-	16	40	84
	286.2	286	-	1	-	12	-	8	20	42
	286	285.8	-	1	-	12	-	8	20	42
	285.8	285.6	1	1	-	24	-	16	40	84
	285.6	285.4	-	2	-	24	-	16	40	84
	285.2	285	1	3	-	48	-	32	80	168
	284.6	284.4	2	3	-	60	-	40	100	210
	284.2	284	-	1	-	12	-	8	20	42
	283.2	283	-	1	-	12	-	8	20	42
	283	282.8	1	1	-	24	-	16	40	84
	282.8	282.6	1	1	-	24	-	16	40	84
	282.6	282.4	-	1	-	12	-	8	20	42
	282.4	282.2	-	1	-	12	-	8	20	42
	282.2	282	1	2	-	36	-	24	60	126
	282	281.8	-	1	-	12	-	8	20	42
	281.8	280.6	-	1	-	12	-	8	20	42
	SUBTOTAL					1680		1120	2800	5880

NOTE:
* = FOR INFORMATION ONLY

3

CONCRETE PAVEMENT REPAIR SHES CONTD...

ROADWAY	MILE MARKER	MILE MARKER	CONCRETE BASE PATCHES BY LANE (EST. 9 FT X 12 FT FULL DEPTH) * LN 1	LN 2	LN 3	416.1715 CONCRETE PAVEMENT REPAIR SHES SY	416.1725 CONCRETE PAVEMENT REPLACEMENT SHES SY	416.0610 DRILLED TIE BARS (30" c - c) EACH	416.0620 DRILLED DOWEL BARS (15" c - c) EACH	690.0250 SAWING CONCRETE LF
CTH T Ramp EB EXIT	-	-	1	1	-	24	-	16	40	84
CTH T Ramp EB ENTR	-	-	2	1	Lane	36	Lane1	24	60	126
CTH T Ramp WB EXIT	-	-	2	1	-	36	54	58	80	231
CTH T Ramp WB ENTR	-	-	3	3	-	72	27	66	140	317
UNDISTRIBUTED	-	-	-	-	-	648	26	448	1100	2331
SUBTOTAL						816	107	612	1420	3089
TOTAL						4908	197	3394	8280	17594

NOTE:
* = FOR INFORMATION ONLY

LONGITUDINAL JOINT REPAIR

ROADWAY	MILE MARKER	MILE MARKER	SPV.0195.0001 HMA LONGITUDINAL JOINT REPAIR TON	REMARKS
IH 94 EB	278.7	283.1	1,394	Between Lanes 1 & 2
	285.1	287.6	792	Between Lanes 1 & 2
	288.3	288.8	158	Between Lanes 1 & 2
	289.6	290.5	285	Between Lanes 1 & 2
	291.1	293.3	697	Between Lanes 1 & 2
	291.1	293.3	697	Between Lanes 2 & 3
IH 94 WB	293.3	292	412	Between Lanes 2 & 3
	291.2	290.8	127	Between Lanes 2 & 3
	290.4	284.2	1,964	Between Lanes 1 & 2
	283.1	278.7	1,394	Between Lanes 1 & 2
UNDISTRIBUTED			1,350	-
TOTAL			9,270	

3

HMA PAVEMENT

ROADWAY	MILE MARKER	MILE MARKER	460.8624 HMA PAVEMENT 4 SMA 58-28 V TON	455.0605 TACK COAT GAL	450.4000 HMA COLD WEATHER PAVING TON	495.1000.S COLD PATCH TON	204.0120 REMOVING ASPHALTIC SURFACE MILLING SY	REMARKS
IH 94 EB	278.7	278.8	26	22	-	-	220	Lane 2 Full Width
IH 94 WB	292	291.4	507	423	-	-	4224	Lane 3 Full Width
UNDISTRIBUTED			78	65	988	50	650	-
TOTAL			611	510	988	50	5094	

ROADWAY

ROADWAY	HRS	SPV.0075.0001 PAVEMENT CLEANUP PROJECT 1060-21-71 EACH	213.0100 FINISHING ROADWAY (PROJECT) 01. 1060-21-71 EACH
IH 94	100	1	1
TOTAL	100	1	1

MOBILIZATION

ROADWAY	619.1000 MOBILIZATION EACH
IH 94	1
TOTAL	1

EROSION CONTROL

ROADWAY	628.7020 INLET PROTECTION TYPE D EACH	628.1905 MOBILIZATIONS EROSION CONTROL EACH	628.1910 MOBILIZATIONS EMERGENCY EROSION CONTROL EACH
UNDISTRIBUTED	50	2	2
TOTAL	50	2	2

TRAFFIC CONTROL

ROADWAY	643.0100 TRAFFIC CONTROL (PROJECT) 01. 1060-21-71 EACH
IH 94	1
TOTAL	1

PROJECT NO: 1060-21-71	HWY: IH 94	COUNTY: WAUKESHA	MISCELLANEOUS QUANTITIES	SHEET:	E

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

3

PAVEMENT MARKING

ROADWAY	MILE MARKER	MILE MARKER	646.0106 PAVEMENT MARKING EPOXY 4-INCH EDGELINE WHITE LF	646.0106 PAVEMENT MARKING EPOXY 4-INCH EDGELINE YELLOW LF	646.0126 PAVEMENT MARKING EPOXY 8-INCH GORE OUTER LINE WHITE LF	646.2304.S PAVEMENT MARKING GROOVED WET REFLECTIVE EPOXY 4-INCH LANELINE WHITE LF
IH 94 EB	278.7	282	18,650	18,650	-	4,663
	282.2	288	5,025	5,025	-	1,256
	288	290.8	18,850	18,150	-	4,713
	291.2	294.4	17,800	17,800	-	8,900
IH 94 WB	294.4	290.8	18,650	18,650	-	4,663
	290.8	287.2	5,025	5,025	-	1,256
	287.2	282.2	18,850	18,150	-	4,713
	282.2	280.6	17,800	17,800	-	8,900
RAMPS	STH 67	-	-	-	4880	-
	CTH P/Sawyer Rd	-	-	-	2740	-
	CTH C/Kettle Moraine	-	-	-	2550	-
	STH 83	-	-	-	3,380	-
	STH SS	-	-	-	3790	-
	CTH G/CTH TT	-	-	-	3240	-
	CTH T	-	-	-	3440	-
	STH 16	-	-	-	1,610	-
	UNDISTRIBUTED		12,000	12,000		5,000
	TOTAL		132,650	131,250		
	GRAND TOTAL		263,900		25,630	44,070

TRAFFIC CONTROL

ROADWAY	MILE MARKER	MILE MARKER	DURATION*	643.0300 TRAFFIC CONTROL DRUMS EACH*	643.0300 TRAFFIC CONTROL DRUMS DAY	643.0420 TRAFFIC CONTROL BARRICADE TYPE III EACH*	643.0420 TRAFFIC CONTROL BARRICADE TYPE III DAY	643.0705 TRAFFIC CONTROL WARNING LIGHTS TYPE A EACH*	643.0705 TRAFFIC CONTROL WARNING LIGHTS TYPE A DAY	643.0715 TRAFFIC CONTROL WARNING LIGHTS TYPE C EACH*	643.0715 TRAFFIC CONTROL WARNING LIGHTS TYPE C DAY	643.0800 TRAFFIC CONTROL ARROW BOARDS EACH*	643.0800 TRAFFIC CONTROL ARROW BOARDS DAY	643.0900 TRAFFIC CONTROL SIGNS EACH*	643.0900 TRAFFIC CONTROL SIGNS DAY	643.1050 TRAFFIC CONTROL SIGNS PCMS EACH*	643.1050 TRAFFIC CONTROL SIGNS PCMS DAY	643.1000 TRAFFIC CONTROL SIGNS FIXED MESSAGES SIGN # & SIZE	643.1000 TRAFFIC CONTROL SIGNS FIXED MESSAGES NUMBER	643.1000 TRAFFIC CONTROL SIGNS FIXED MESSAGES SF
IH 94 EB	278.7	282	12	230	2,760	3	36	6	72	17	204	2	24	11	132	-	-	1, (12'x8')	1	96
	282.2	288	12	95	1,140	3	36	6	72	17	204	2	24	11	132	-	-	1, (12'x8')	1	96
	288	290.8	12	225	2,700	3	36	6	72	17	204	2	24	11	132	-	-	-	-	-
	291.2	294.4	12	260	3,120	6	72	12	144	34	408	3	36	15	180	-	-	-	-	-
IH 94 WB	294.4	290.8	12	230	2,760	3	36	6	72	17	204	2	24	11	132	-	-	1, (12'x8')	1	96
	290.8	287.2	12	95	1,140	3	36	6	72	17	204	2	24	11	132	-	-	1, (12'x8')	1	96
	287.2	282.2	12	225	2,700	3	36	6	72	17	204	2	24	11	132	-	-	-	-	-
	282.2	280.6	12	260	3,120	6	72	12	144	34	408	3	36	15	180	-	-	-	-	-
ON RAMPS			12	364	4,368	84	1,008	168	2,016	168	2,016	0	0	196	2,352	-	-	-	-	-
OFF RAMPS			12	364	4,368	84	1,008	168	2,016	112	1,344	0	0	168	2,016	-	-	-	-	-
	UNDISTRIBUTED															4	120	2, (12'x2.5')	12	300
					28,176		2,376		4,752		5,400		216	TOTAL	5,520	4	120			684

NOTE:

1. *=FOR INFORMATION ONLY
2. CATEGORY IS 1000

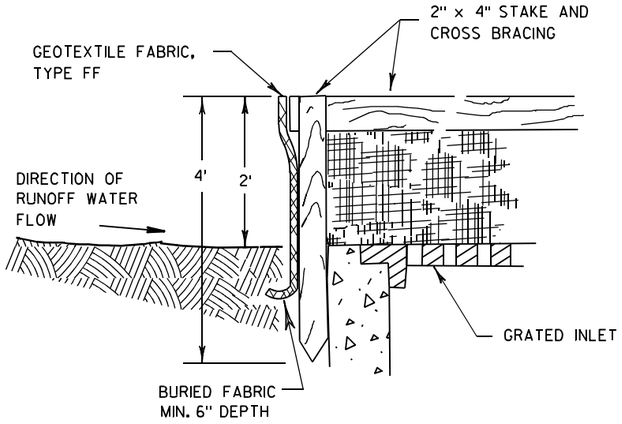
PROJECT NO: 1060-21-71	HWY: IH 94	COUNTY: WAUKESHA	MISCELLANEOUS QUANTITIES	SHEET:	E

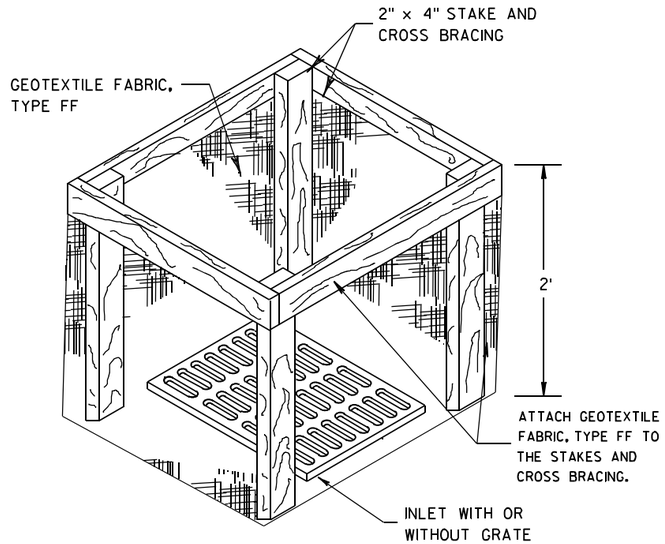
FILE NAME : _____ PLOT DATE : _____ PLOT BY : _____ PLOT NAME : _____ PLOT SCALE : 1:1

Standard Detail Drawing List

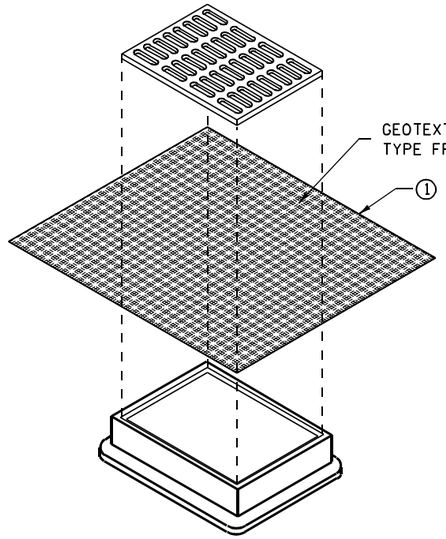
08E10-02	INLET PROTECTION TYPE A, B, C AND D
13C09-13A	CONCRETE PAVEMENT REPAIR AND REPLACEMENT
13C09-13B	CONCRETE PAVEMENT REPAIR AND REPLACEMENT
13C09-13C	CONCRETE PAVEMENT REPAIR AND REPLACEMENT
13C10-02	RETROFIT DOWEL BARS
13C14-06A	BASE PATCHING CONCRETE
13C14-06B	BASE PATCHING CONCRETE
13C14-06C	BASE PATCHING CONCRETE
15C08-16A	PAVEMENT MARKING (MAINLINE)
15C18-03	MEDIAN ISLAND MARKING
15C19-04C	MOVING PAVEMENT MARKING OPERATION MULTI-LANE DIVIDED ROADWAY
15C31-02A	PAVEMENT MARKING (RAMPS AND GORES)
15C31-02B	PAVEMENT MARKING MAJOR SPLIT FREEWAY TO FREEWAY
15D12-06A	TRAFFIC CONTROL, LANE CLOSURE
15D12-06B	TRAFFIC CONTROL, LANE CLOSURE, SPEED REDUCTION
15D14-03	TRAFFIC CONTROL, TWO LANE CLOSURE ON FREEWAY OR EXPRESSWAY, SHORT-TERM (LESS THAN 24 HOURS)
15D15-02	TRAFFIC CONTROL, EXIT AND ENTRANCE RAMP WITHIN LANE CLOSURE
15D16-03	TRAFFIC CONTROL, EXIT RAMP CLOSURE
15D38-01A	TEMPORARY TRAFFIC CONTROL FIXED MESSAGE SIGNS
15D38-01B	ATTACHMENT OF SIGNS TO POSTS

6



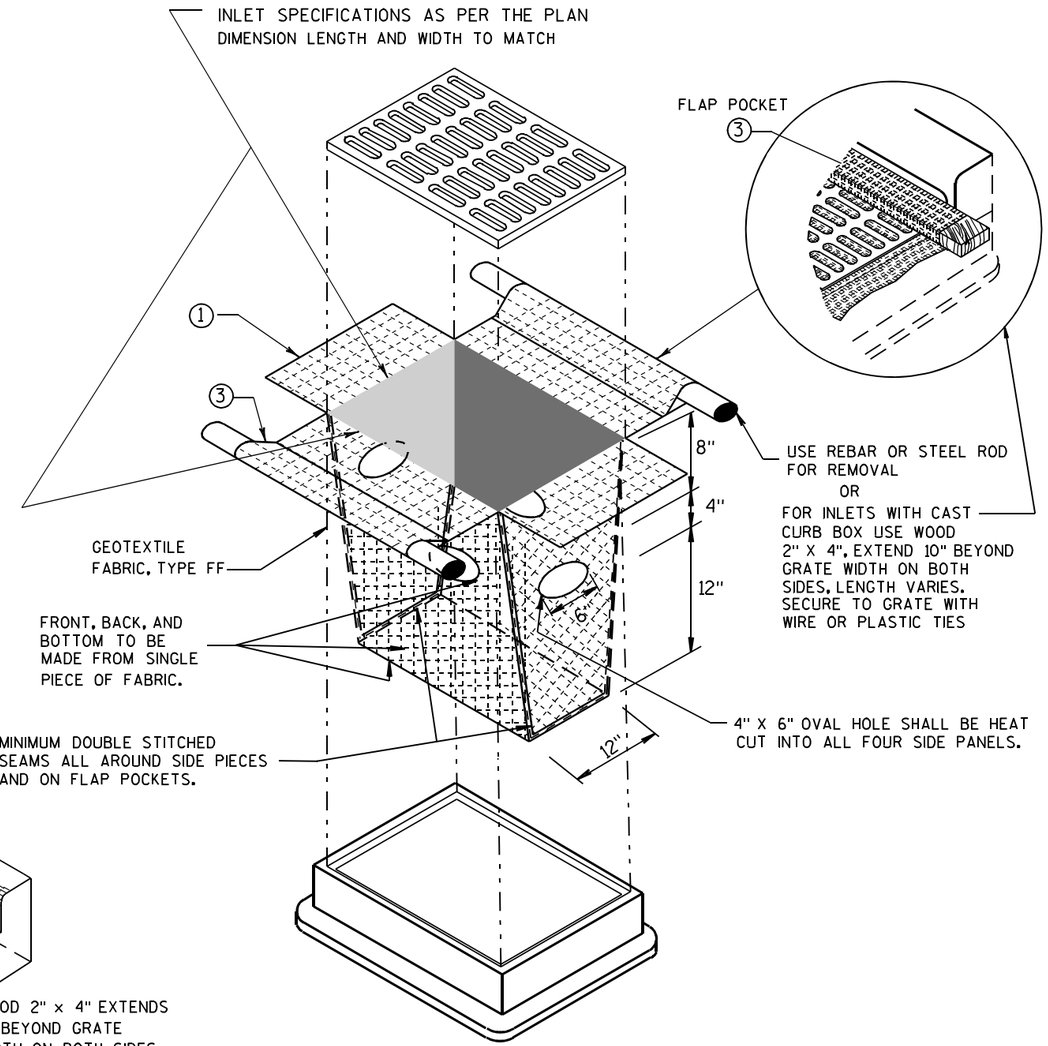


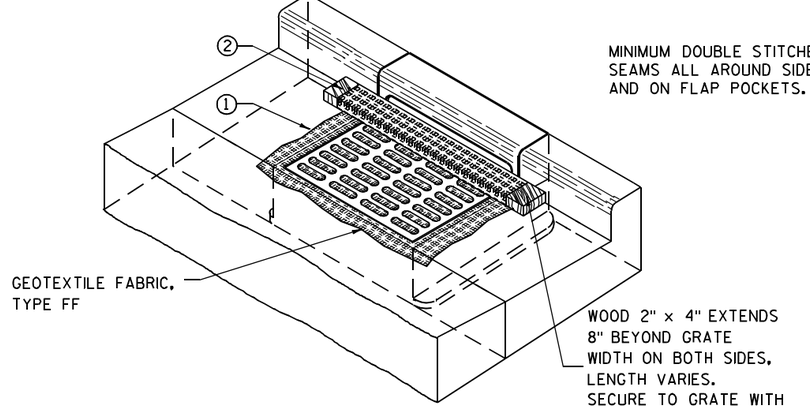
INLET PROTECTION, TYPE A



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

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

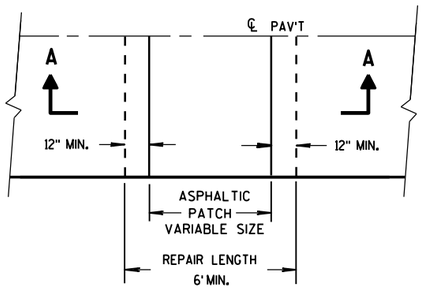
GENERAL NOTES

SAW CUT, DRILL, AND LIFT OUT EXISTING CONCRETE PAVEMENT WITHIN THE BOUNDARIES OF CONCRETE REPAIR AREAS. THE CONTRACTOR MAY MAKE ADDITIONAL SAW CUTS INSIDE THE REPAIR LIMITS TO REDUCE WEIGHT AND SIZE OF CONCRETE PIECES.

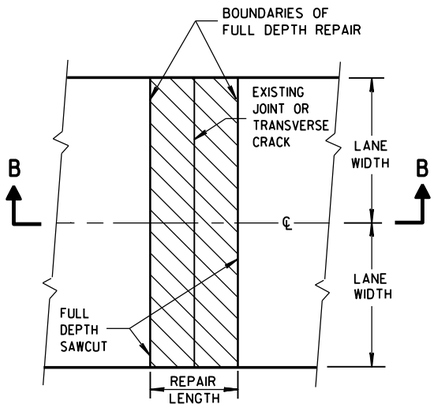
PROVIDE A 6-FOOT MINIMUM DISTANCE FROM BOUNDARIES OF CONCRETE REPAIR AREAS TO ADJACENT TRANSVERSE JOINT OR CRACK IN THE SAME LANE.

THE LENGTH OF THE REPAIRS MAY VARY FROM THE DIMENSIONS SHOWN IF THE EXISTING CONCRETE PAVEMENT IS NONDOWELED AND THE PAVEMENT IS TO BE OVERLAID AFTER REPAIRING.

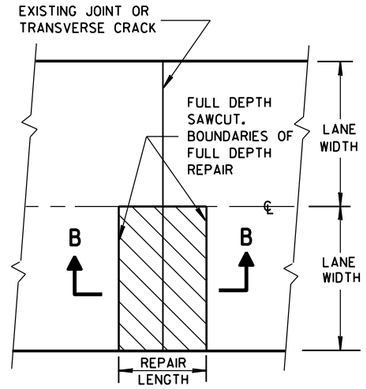
(1) DOWEL BARS MIGHT NOT EXIST.



PLAN VIEW

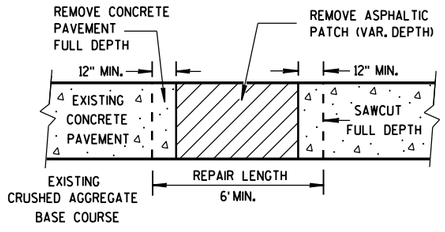


PLAN VIEW
(DOUBLE LANE REPAIR)



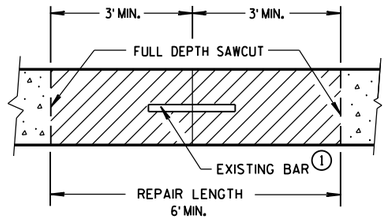
PLAN VIEW
(SINGLE LANE REPAIR)

FULL DEPTH CONCRETE PAVEMENT REMOVAL



SECTION A-A

HMA PATCH REMOVAL



SECTION B-B

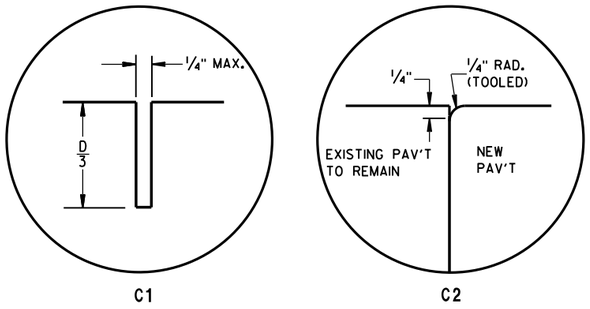
CONCRETE REMOVAL

CONCRETE PAVEMENT REPAIR AND REPLACEMENT

STATE OF WISCONSIN
DEPARTMENT OF TRANSPO

6

S.D.D. 13 C 9-13a



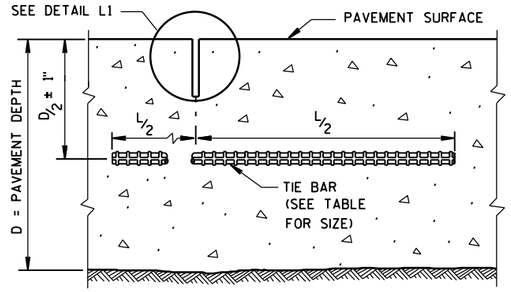
TRANSVERSE JOINTS

TIE BAR TABLE

PAVEMENT DEPTH (D)	TIE BAR SIZE	TIE BAR LENGTH (L)	MAX. TIE BAR SPACING
< 10 ½"	NO. 4	30"	36"
≥ 10 ½"	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.

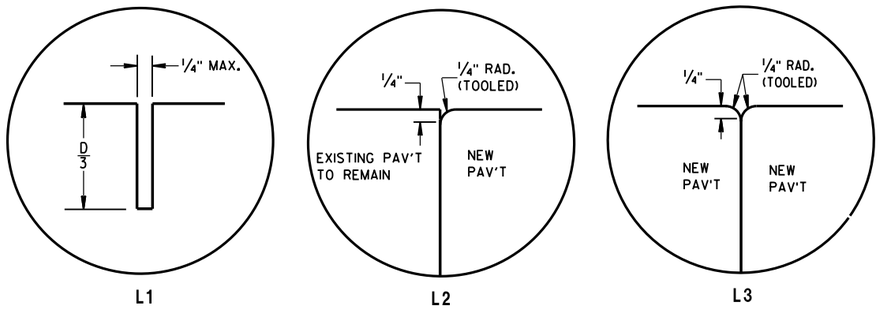
CONCRETE PAVEMENT REPAIRS OF EXISTING NONDOWELED CONCRETE PAVEMENTS DO NOT NEED TO BE DOWELED.

DO NOT SEAL OR FILL JOINTS.

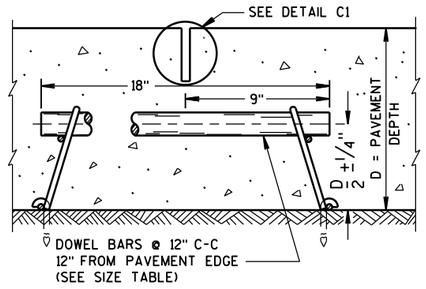
ANCHOR DOWEL BARS AND TIE BARS INTO DRILLED HOLES WITH AN EPOXY.

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.

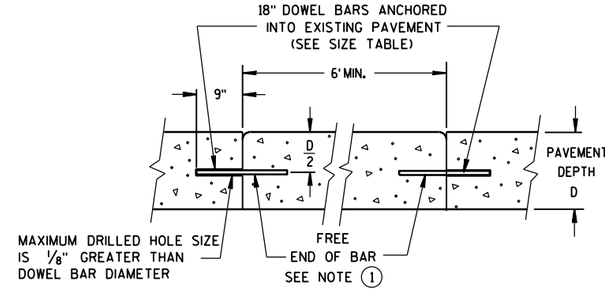


LONGITUDINAL JOINTS

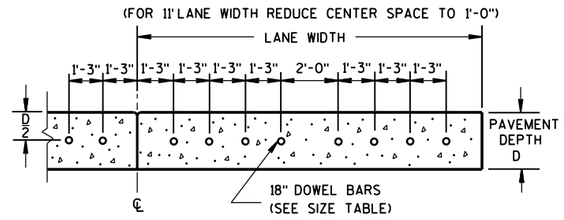


SECTION F-F

CONTRACTION JOINT



SECTION D-D

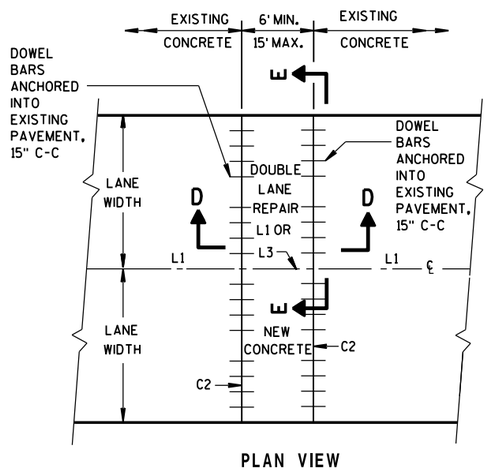


SECTION E-E

DRILLED DOWEL BAR CONSTRUCTION JOINT

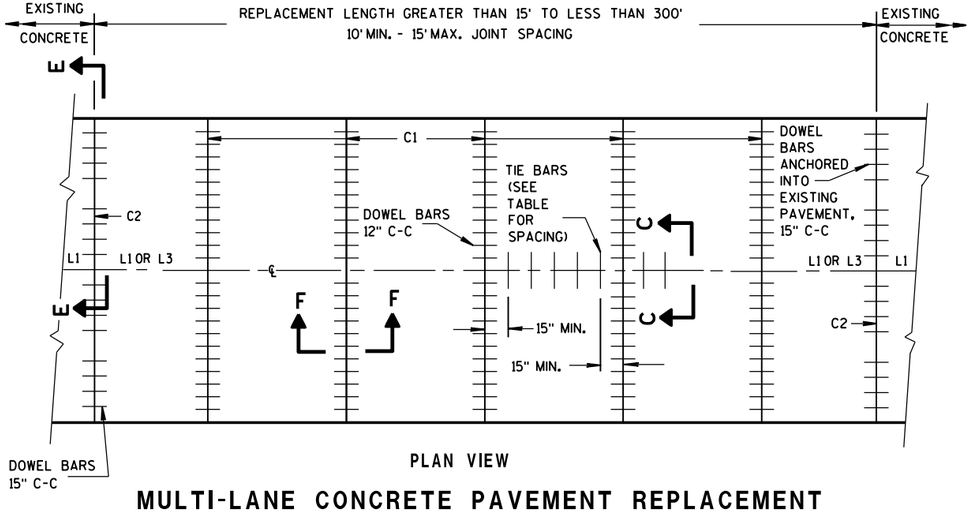
PAVEMENT DEPTH, DOWEL BAR SIZE AND JOINT SPACING TABLE

PAVEMENT DEPTH (D)	DOWEL BAR DIAMETER	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'



PLAN VIEW

MULTI-LANE CONCRETE PAVEMENT REPAIR



PLAN VIEW

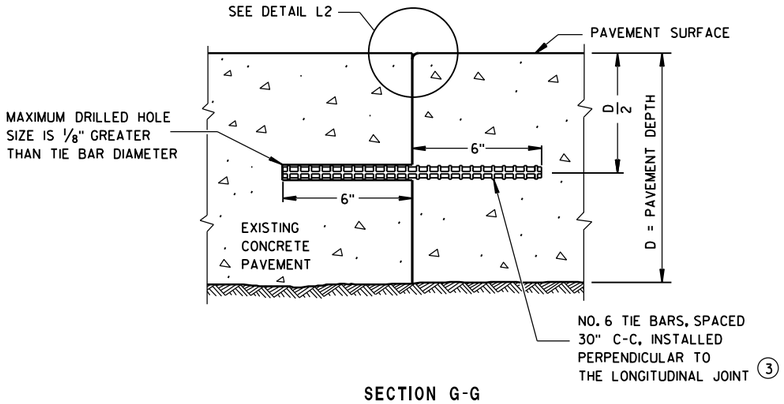
MULTI-LANE CONCRETE PAVEMENT REPLACEMENT

CONCRETE PAVEMENT REPAIR AND REPLACEMENT

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR

6

S.D.D. 13 C 9-13b



SECTION G-G

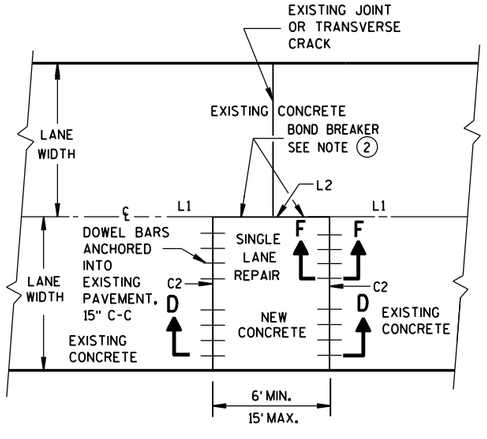
TIE BARS ANCHORED INTO EXISTING PAVEMENT

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.

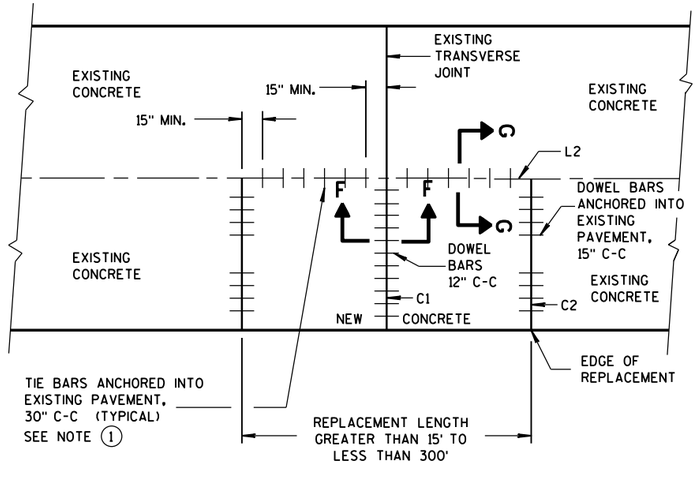
(2) USE AN ENGINEER-APPROVED BOND BREAKER (E.G. RELEASE AGENT, CURING COMPOUND) FOR SINGLE LANE REPAIRS UP TO 15 FEET IN LENGTH.

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



PLAN VIEW

SINGLE LANE CONCRETE PAVEMENT REPAIR



PLAN VIEW

SINGLE LANE CONCRETE PAVEMENT REPLACEMENT

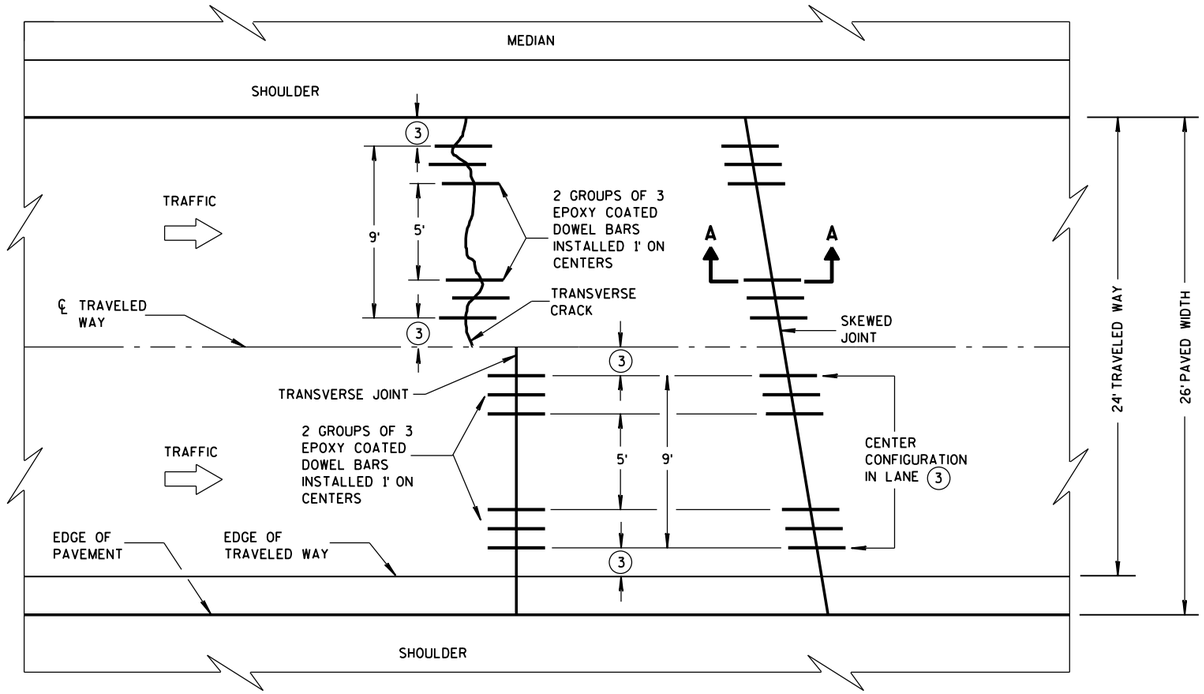
CONCRETE PAVEMENT REPAIR AND REPLACEMENT

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

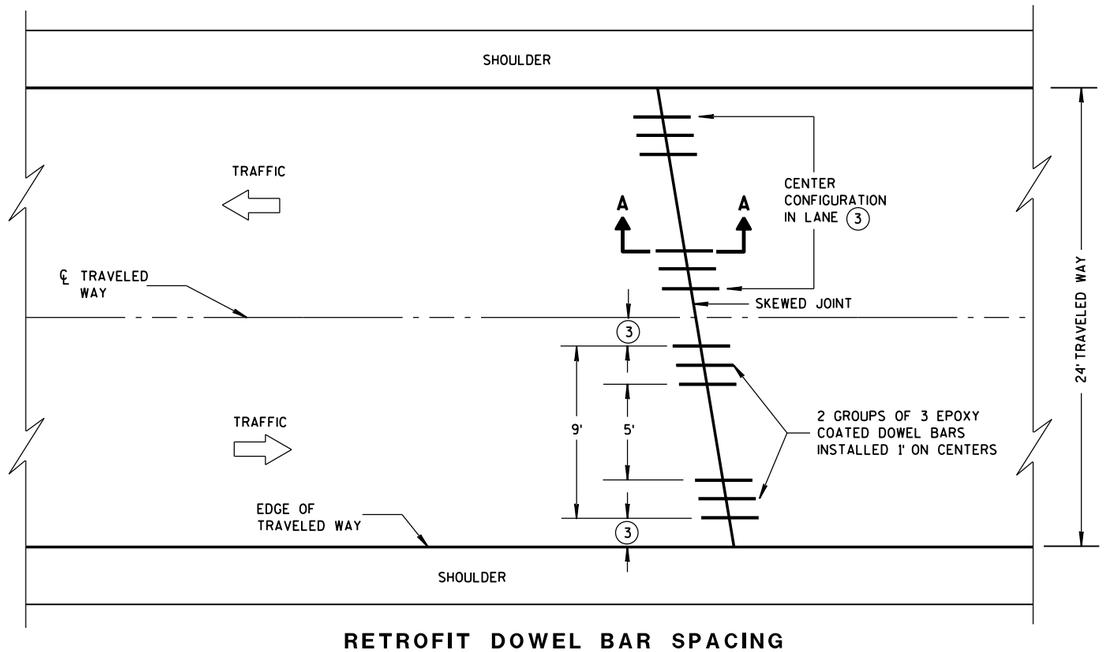
APPROVED
Sept., 2015 — DATE
/S/ Peter Kemp, P.E. — PAVEMENT SUPER
FHWA

6

S.D.D. 13 C 9-13c



RETROFIT DOWEL BAR SPACING
DIVIDED HIGHWAY

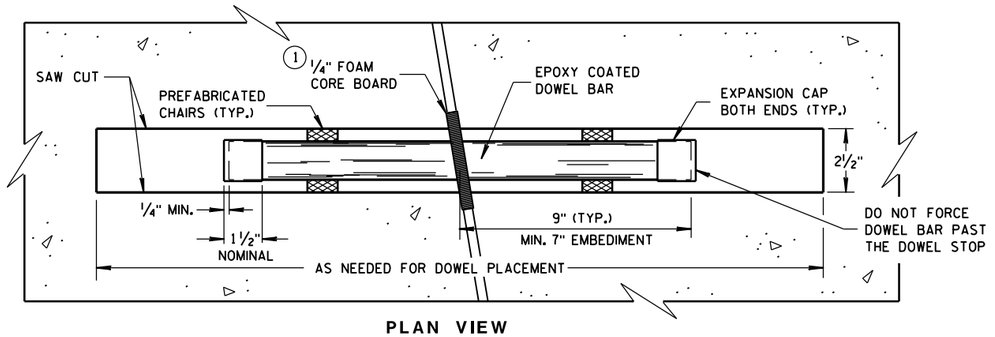


RETROFIT DOWEL BAR SPACING
TWO-LANE TWO-WAY HIGHWAY

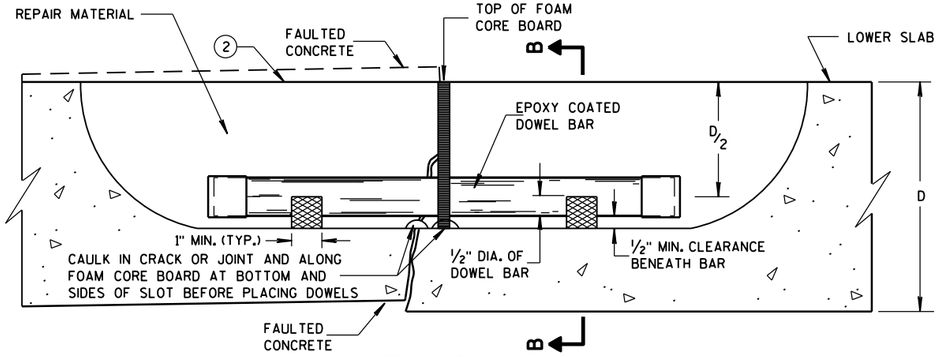
GENERAL NOTES

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

1. FOAM CORE BOARD IS TO BE SIZED AND SHAPED TO FIT INTO THE JOINT OR CRACK, EXTEND TO OR BEYOND THE TOP SURFACE OF THE LOWER SLAB, AND FIT TIGHTLY AROUND THE DOWEL.
2. FINISHED ELEVATION AFTER CONTINUOUS DIAMOND GRINDING, WHEN REQUIRED.
3. SAW THE SLOTS SO THAT THE OUTERMOST AND INNERMOST SLOTS ARE EQUALLY SPACED FROM THE EDGE OF PAVEMENT AND THE LONGITUDINAL JOINT, RESPECTIVELY.



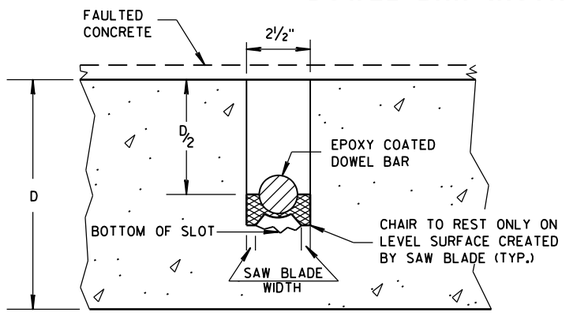
PLAN VIEW



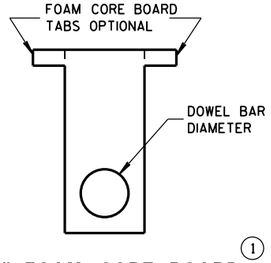
SIDE VIEW

SECTION A-A

DOWEL BAR INSTALLATION DETAIL



SECTION B-B



1/4" FOAM CORE BOARD (1)

PAVEMENT DEPTH	DOWEL BAR SIZE
9" OR LESS	1¼" X 18"
MORE THAN 9"	1½" X 18"

DOWEL BAR SIZE TABLE

RETROFIT DOWEL BAR INSTALLATION

RETROFIT DOWEL BARS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
December, 2014 — /S/ Laura Fenley
DATE — PAVEMENT POLICY & DESIGNER
FHWA

6

S.D.D. 13 C 10-2

6

S.D.D. 13 C 10-2

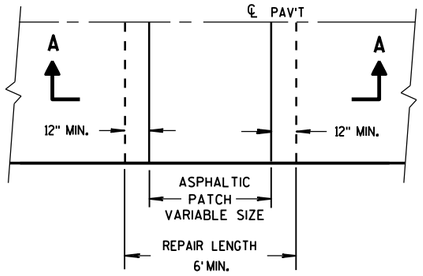
GENERAL NOTES

SAW CUT, DRILL, AND LIFT OUT EXISTING CONCRETE PAVEMENT WITHIN THE BOUNDARIES OF CONCRETE REPAIR AREAS. THE CONTRACTOR MAY MAKE ADDITIONAL SAW CUTS INSIDE THE REPAIR LIMITS TO REDUCE WEIGHT AND SIZE OF CONCRETE PIECES.

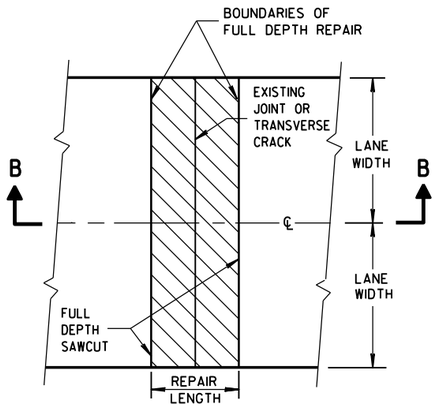
PROVIDE 6-FOOT MINIMUM DISTANCE FROM BOUNDARIES OF CONCRETE REPAIR AREAS TO ADJACENT TRANSVERSE JOINT OR CRACK.

THE LENGTH OF THE REPAIRS MAY VARY FROM THE DIMENSIONS SHOWN IF THE EXISTING CONCRETE PAVEMENT IS NONDOWELED AND THE PAVEMENT IS TO BE OVERLAID AFTER REPAIRING.

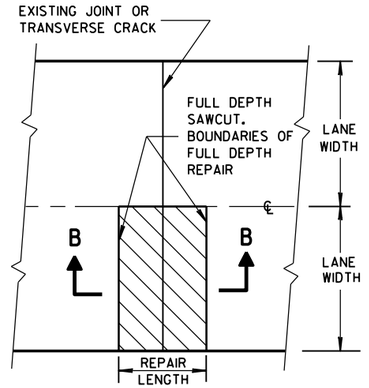
(1) DOWEL BARS MIGHT NOT EXIST.



PLAN VIEW

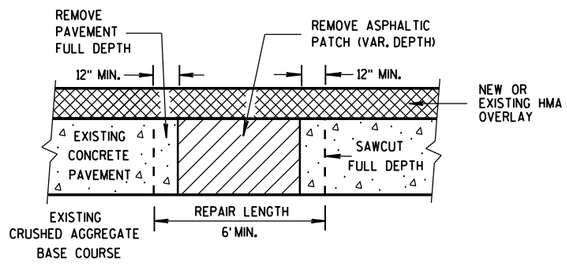


PLAN VIEW
(DOUBLE LANE REPAIR)



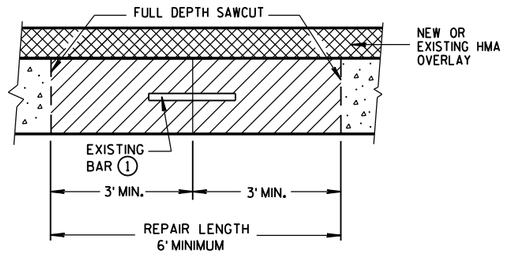
PLAN VIEW
(SINGLE LANE REPAIR)

FULL DEPTH CONCRETE PAVEMENT REMOVAL



SECTION A-A

HMA PATCH REMOVAL



SECTION B-B

CONCRETE REMOVAL

BASE PATCHING CONCRETE

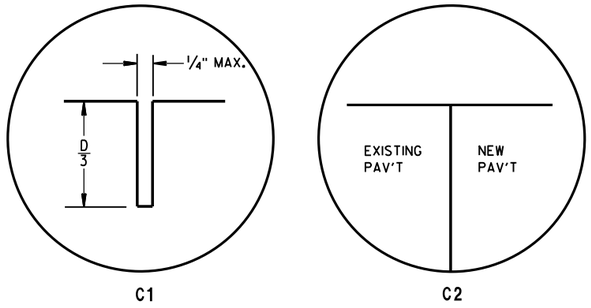
STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR

6

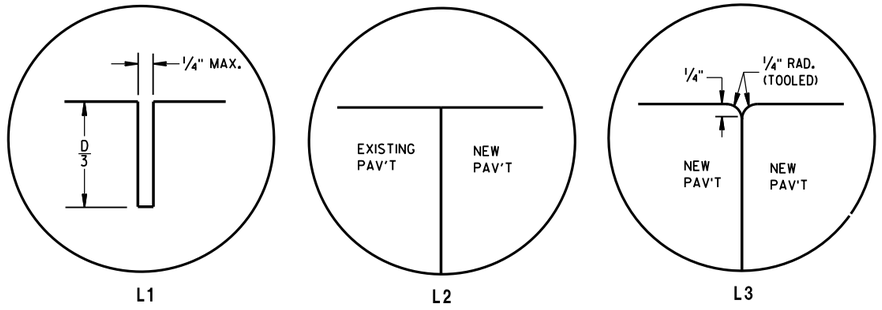
S.D.D. 13 C 14-6a

6

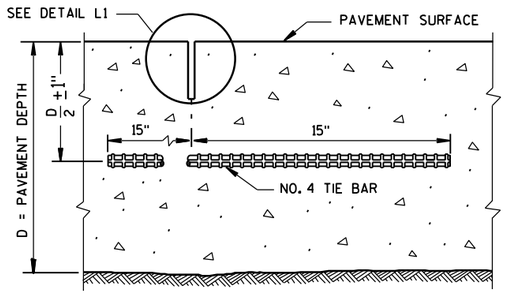
S.D.D. 13 C 14-6a



TRANSVERSE JOINTS

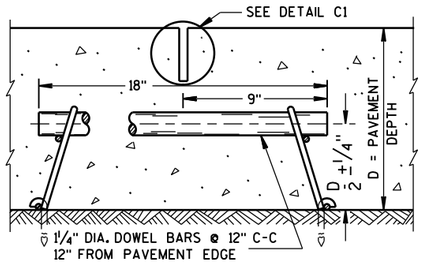


LONGITUDINAL JOINTS



SECTION C-C

SAWED LONGITUDINAL JOINT



SECTION F-F

CONTRACTION JOINT

GENERAL NOTES

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

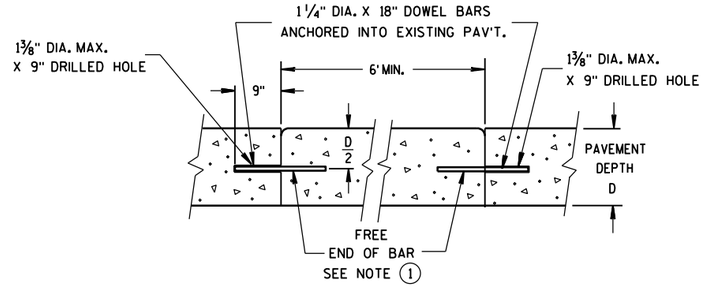
CONCRETE BASE PATCHES OF EXISTING NONDOWELED CONCRETE PAVEMENTS DO NOT NEED TO BE DOWELED.

DO NOT SEAL OR FILL JOINTS.

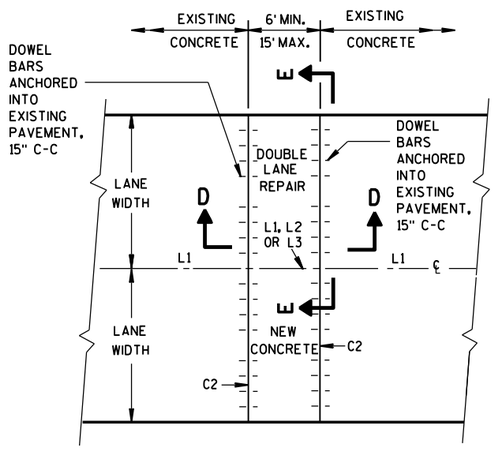
ANCHOR DOWEL BARS AND TIE BARS INTO DRILLED HOLES WITH AN EPOXY.

PROVIDE A MINIMUM DISTANCE OF 15 INCHES FROM AN EXISTING TRANSVERSE JOINT OR THE EDGE 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.

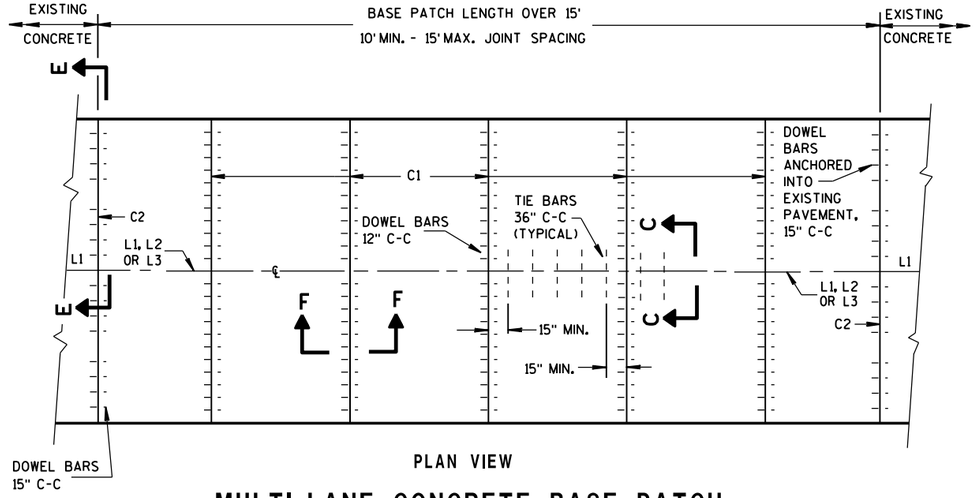


SECTION D-D



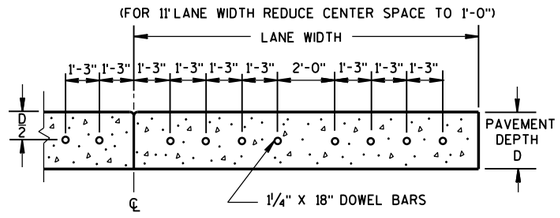
PLAN VIEW

MULTI-LANE CONCRETE BASE PATCH 15' MAXIMUM LENGTH



PLAN VIEW

MULTI-LANE CONCRETE BASE PATCH GREATER THAN 15' IN LENGTH



SECTION E-E

SPACING OF DOWEL BARS ANCHORED INTO EXISTING PAVEMENT

BASE PATCHING CONCRETE

6

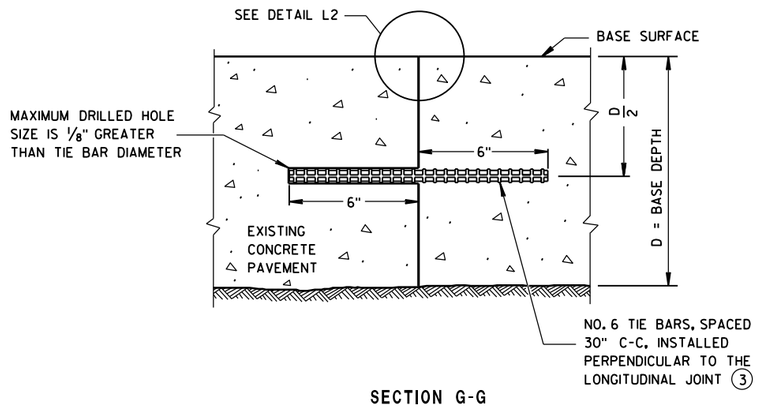
S.D.D. 13 C 14-6b

GENERAL NOTES

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

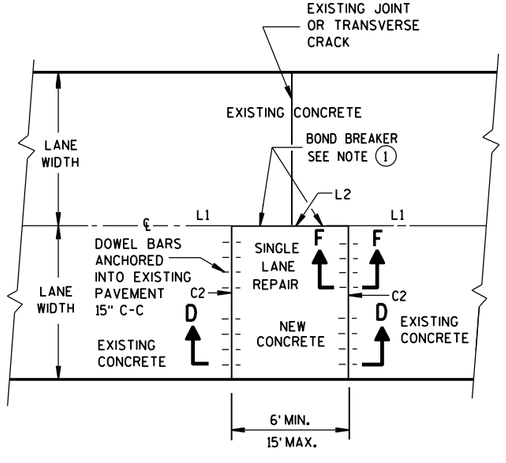
(2) WITH THE APPROVAL OF THE ENGINEER, FOR SINGLE LANE PAVEMENT REPLACEMENTS LESS THAN 30 FEET IN LENGTH, DRILLED TIE BARS MAY BE INSTALLED ON 6:1 SKEW HORIZONTALLY, DIRECTION OF SKEW ALTERNATING WITH EACH SUCCESSIVE BAR. DRIVE SKEWED TIE BARS TO A DEPTH OF 6 INCHES IN A HOLE OF SUCH A DIAMETER AS TO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

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



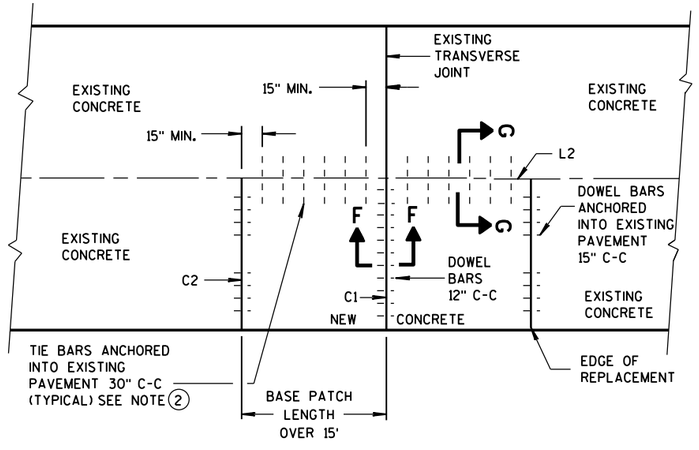
SECTION G-G

TIE BARS ANCHORED INTO EXISTING PAVEMENT



PLAN VIEW

SINGLE LANE CONCRETE BASE PATCH 15' MAXIMUM LENGTH



PLAN VIEW

SINGLE LANE CONCRETE BASE PATCH GREATER THAN 15' IN LENGTH

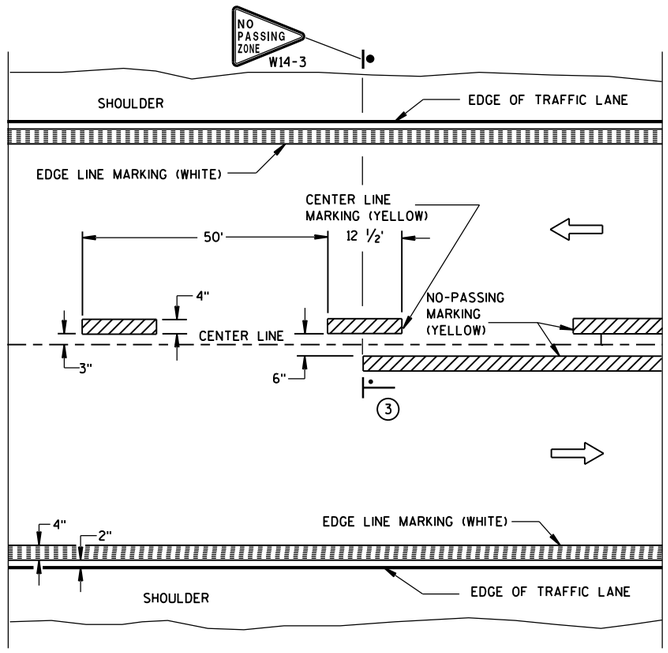
BASE PATCHING CONCRETE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

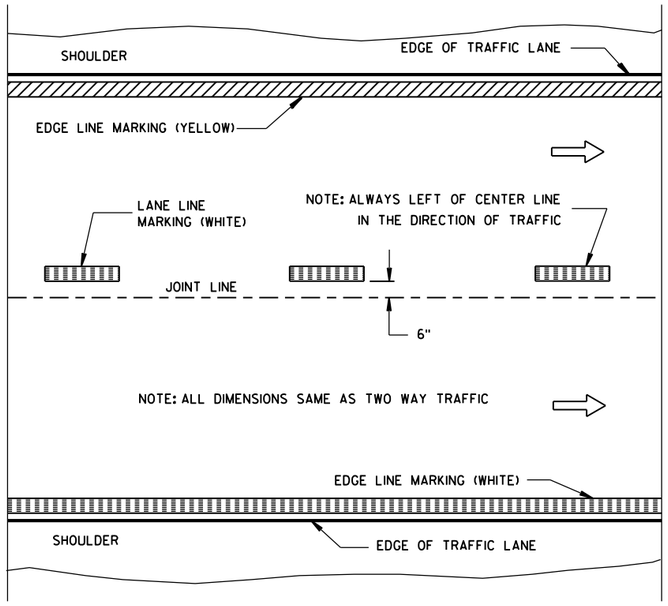
APPROVED
Sept., 2015 — DATE
/S/ Peter Kemp, P.E. — PAVEMENT SUPER
FHWA

6

S.D.D. 13 C 14-6c

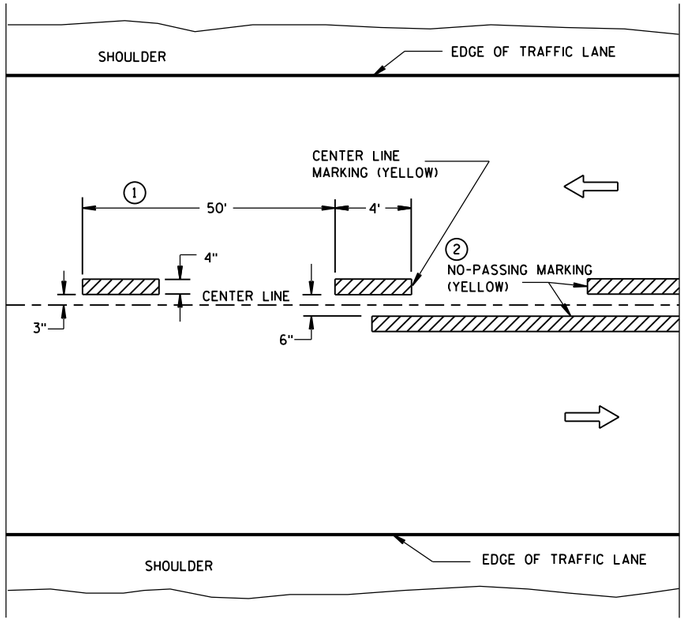


TWO WAY TRAFFIC

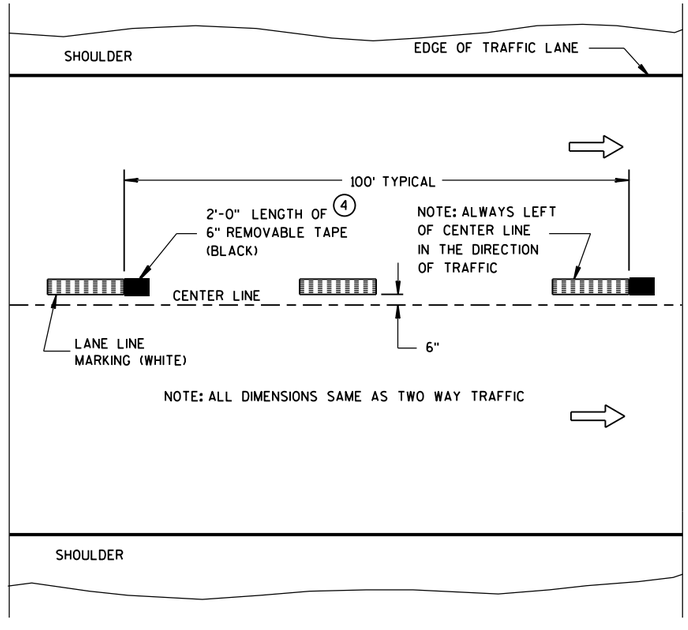


ONE WAY TRAFFIC

PERMANENT PAVEMENT MARKING



TWO WAY TRAFFIC



ONE WAY TRAFFIC

TEMPORARY (INTERMEDIATE) PAVEMENT MARKING

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

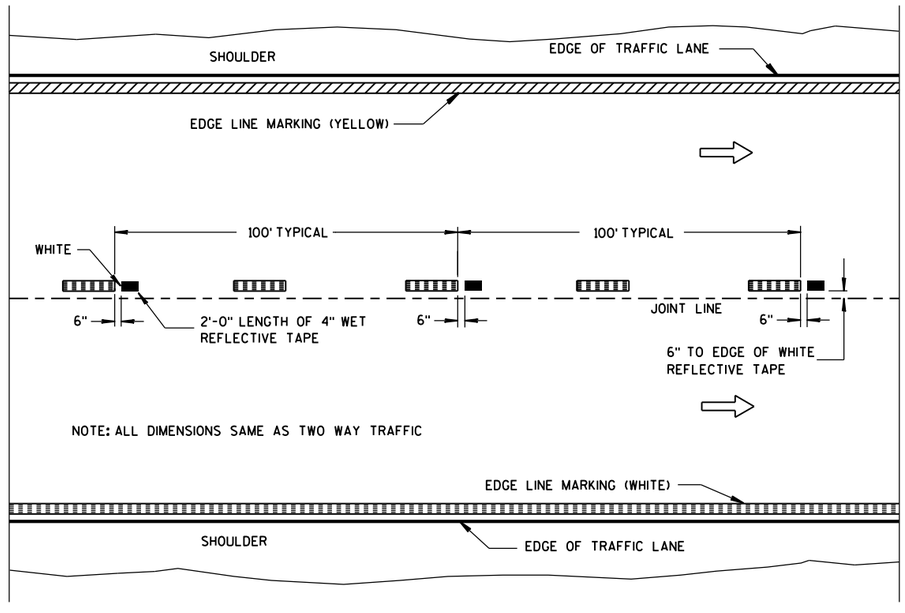
GENERAL NOTES

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

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

NOTE

ARROW SYMBOL (⇨) SHOWS DIRECTION OF TRAVEL



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

LEGEND

"T" MARKING

POST MOUNTED SIGN

PAVEMENT MARKING (MAINLINE)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

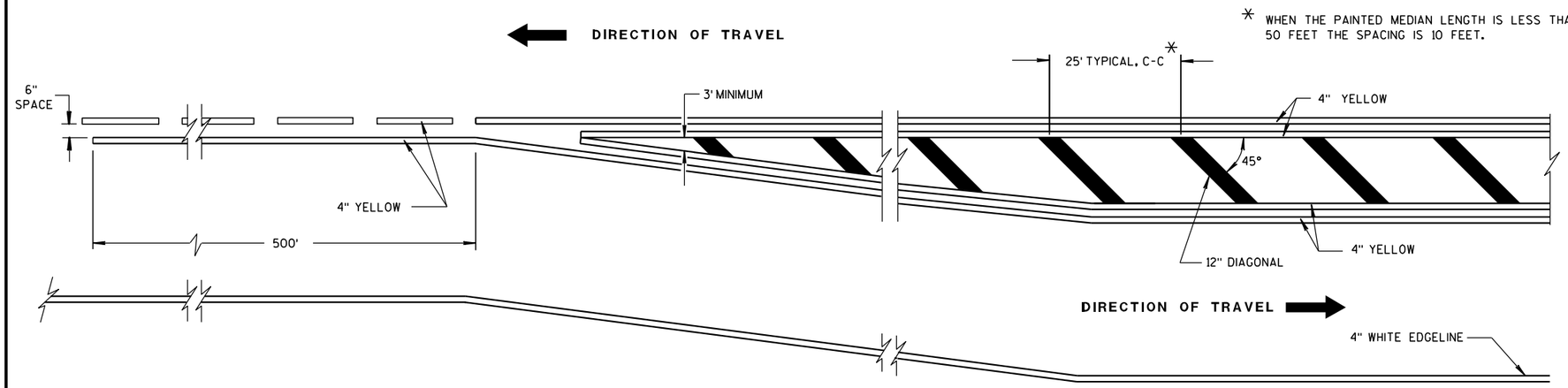
APPROVED
5-13-2013 DATE
/S/ Travis Feltes STATE TRAFFIC E
FHWA

6

S.D.D. 15 C 8-16a

6

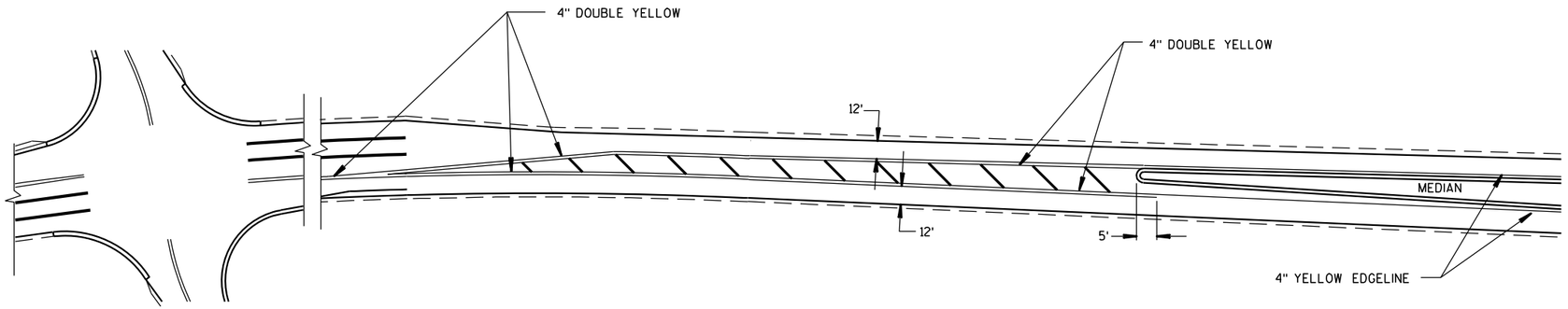
S.D.D. 15 C 8-16a



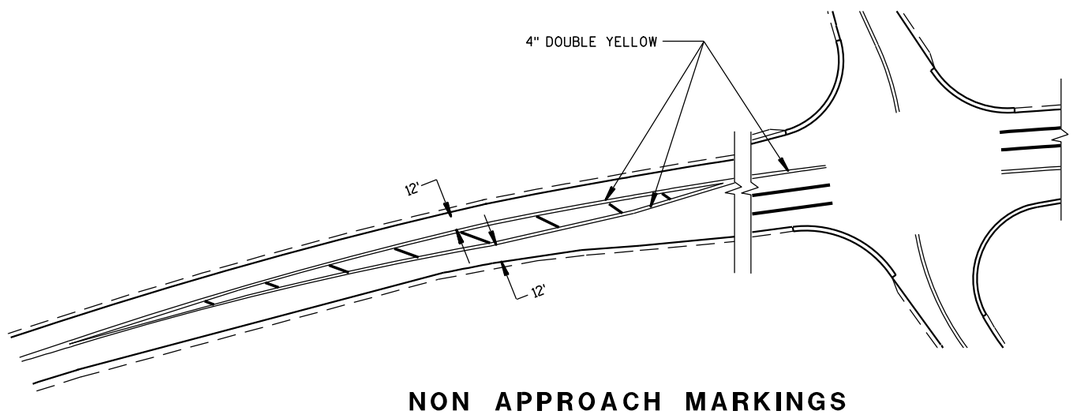
MEDIAN ISLAND DETAIL

GENERAL NOTE

DIAGONALS ARE OPTIONAL WHEN PAINTED ISLAND IS LESS THAN 6 FEET AT WIDEST POINT.



APPROACH MARKINGS FOR OTHER MEDIAN TYPES



NON APPROACH MARKINGS

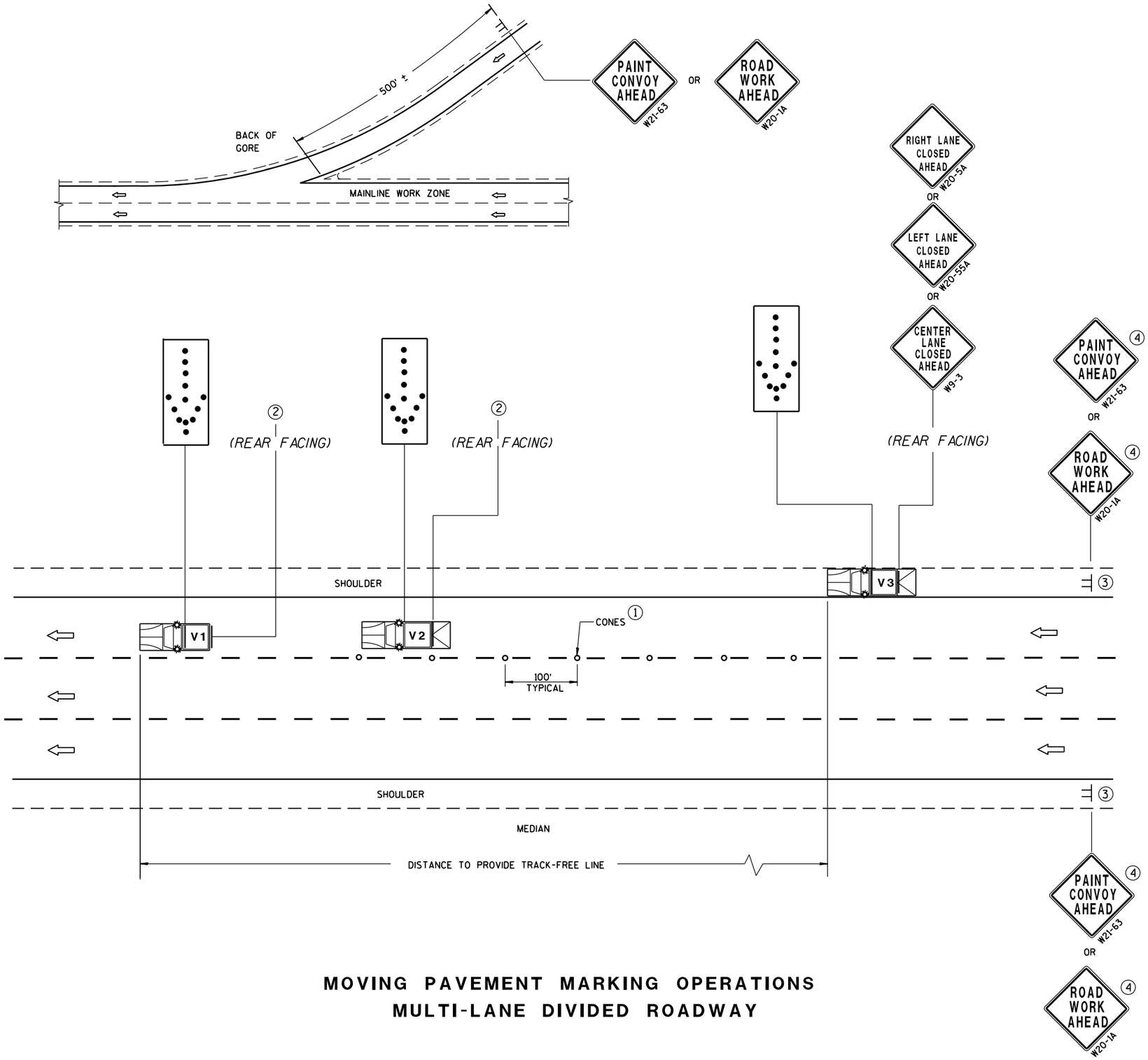
MEDIAN ISLAND MARKING	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 2-5-09 DATE	/S/ Thomas N. Nothohm STATE TRAFFIC ENGINEER
FHWA	

6

S.D.D. 15 C 18-3

6

S.D.D. 15 C 18-3



MOVING PAVEMENT MARKING OPERATIONS
MULTI-LANE DIVIDED ROADWAY

GENERAL NOTES

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

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

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

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

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

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

WHEN WORK ACTIVITY BLOCKS THE LEFT LANE, REVERSE TRAFFIC CONTROL.

WHEN A RAMP INTERSECTS THE FACILITY ON WHICH THE WORK IS BEING PERFORMED, PROVIDE ADDITIONAL TRAFFIC CONTROLS AS SPECIFIED IN THE CONTRACT OR AS APPROVED BY THE ENGINEER.

USE AN ATTENUATOR ON THE REARMOST VEHICLE THAT BLOCKS ALL OR PART OF THE TRAFFIC LANE.

FOR EDGELINE MARKING OR IF CONES ARE NOT USED, POSITION THE REARMOST SHADOW VEHICLE ON THE SHOULDER AS SHOWN IN THE MUTCD IF THE SHOULDER HAS ADEQUATE WIDTH. USE DOUBLE ARROWS WHEN CONVOY IS IN CENTER LANE ONLY.

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

THIS DRAWING SHALL BE USED FOR EDGELINE OR LANELINE MARKING FOR MULTILANE DIVIDED ROADWAYS.

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

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

WET PAINT W21-64 OR WET PAINT W21-64

(3) SIGNS SHALL BE REPEATED AFTER EVERY ON RAMP OR EVERY THREE MILES.

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

LEGEND

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

MOVING PAVEMENT MARKING OPERATION
MULTI-LANE DIVIDED ROADWAY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

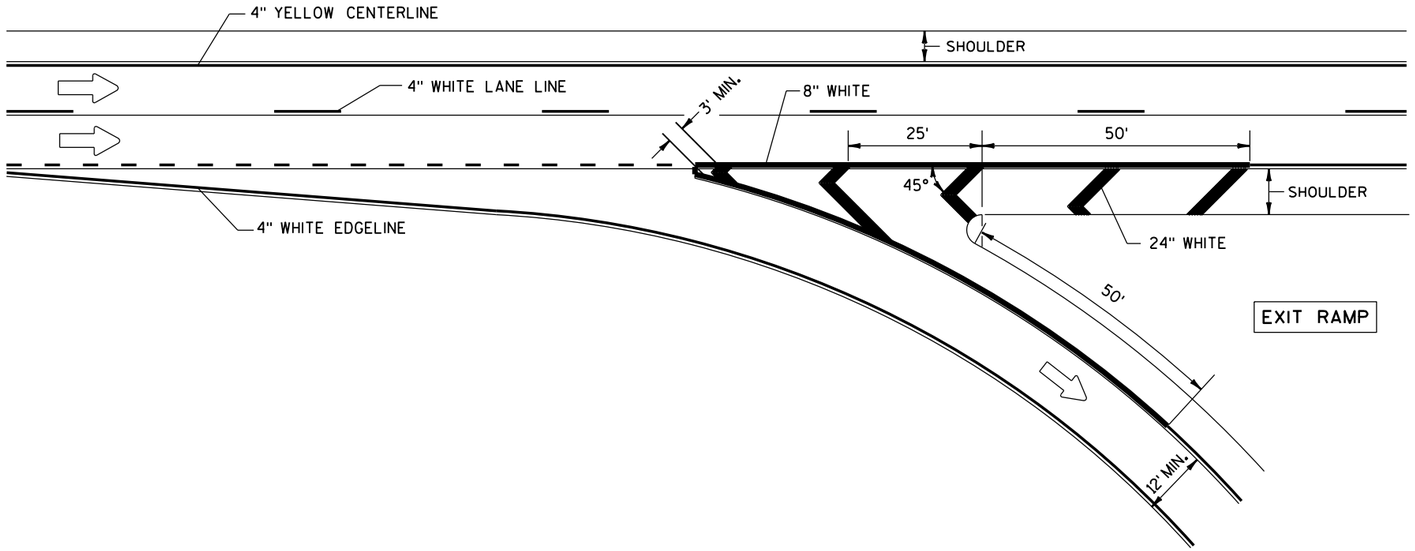
APPROVED
June 2016 — DATE
/S/ Peter Amakobe Atepe
STATEWIDE WORK ZONE SAFETY ENGINEER
FHWA

6

S.D.D. 15 C 19-4c

6

S.D.D. 15 C 19-4c



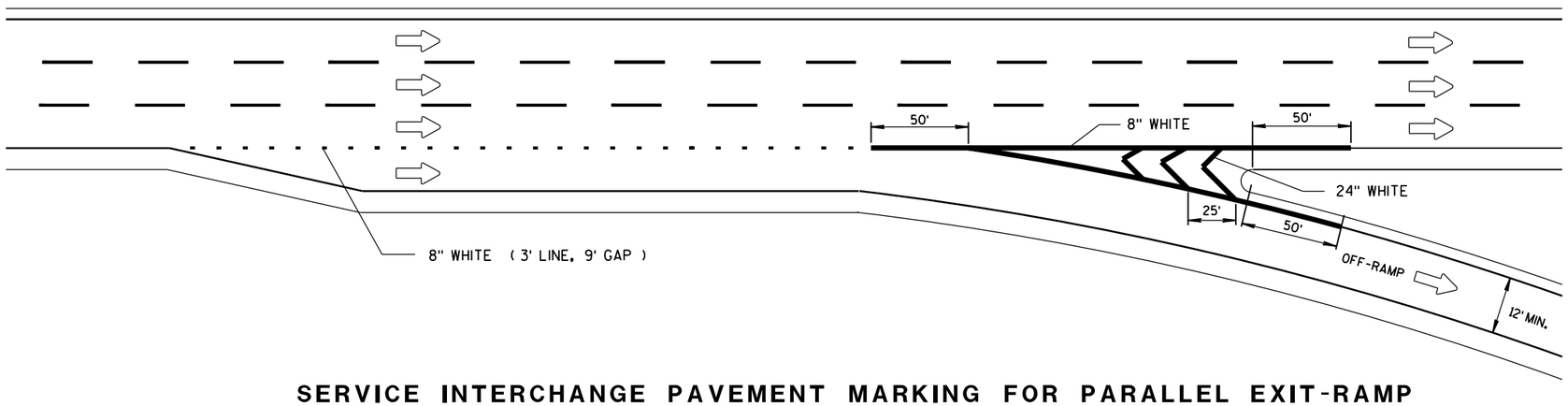
PAVEMENT MARKING FOR EXIT RAMP

GENERAL NOTES

PLACE GROOVE 3 INCHES LEFT OF JOINT.

LEGEND

DIRECTION OF TRAVEL



SERVICE INTERCHANGE PAVEMENT MARKING FOR PARALLEL EXIT-RAMP

6

S.D.D. 15 C 31-2a

PAVEMENT MARKING (RAMPS AND GORES)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI

6

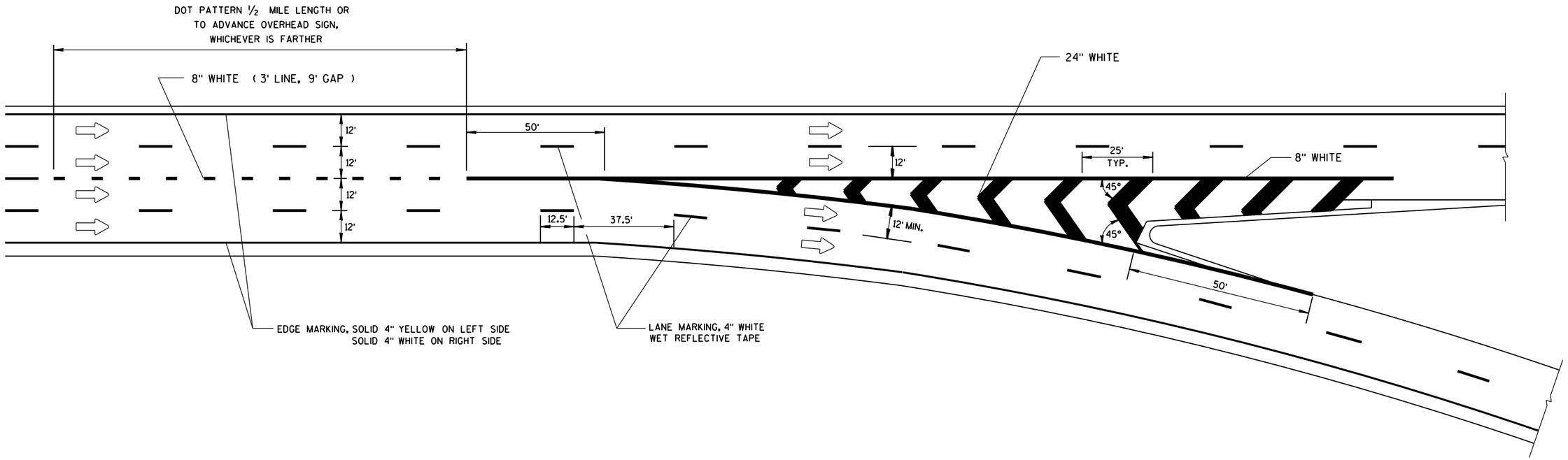
S.D.D. 15 C 31-2a

GENERAL NOTES

PLACE GROOVE 3 INCHES LEFT OF JOINT.

LEGEND

DIRECTION OF TRAVEL



6

6

S.D.D. 15 C 31-2b

S.D.D. 15 C 31-2b

PAVEMENT MARKING
MAJOR SPLIT
FREEWAY TO FREEWAY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI

LEGEND

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

GENERAL NOTES

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

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

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

ALL SIGNS ARE 48"x48" UNLESS OTHERWISE NOTED.

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

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

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

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

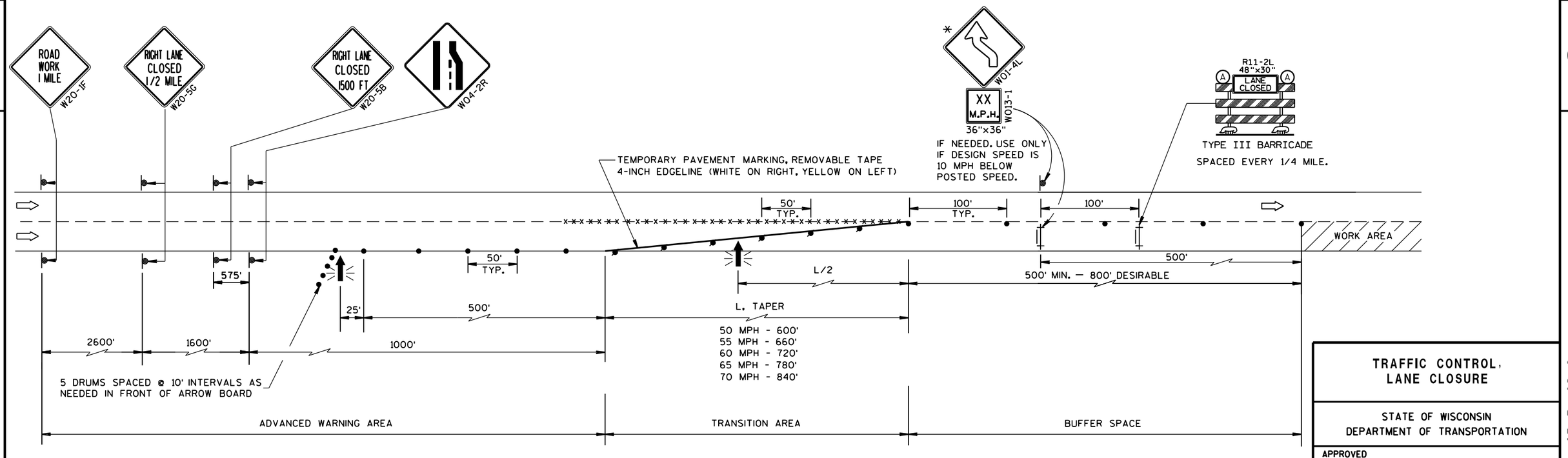
REMOVE PAVEMENT MARKINGS IF LANE CLOSURE IS TO BE IN PLACE FOR LONGER THAN 4 OR MORE DAYS AND NIGHTS.

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

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

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

* THE LEFT REVERSE CURVE SIGN (WO1-4L) IS ONLY REQUIRED WHEN THIS DETAIL IS USED IN COMBINATION WITH "SINGLE LANE CROSSOVER" DETAIL.



TRAFFIC CONTROL, LANE CLOSURE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

6

S.D.D. 15 D 12-6a

LEGEND

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

GENERAL NOTES

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

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

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

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

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

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

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

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

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

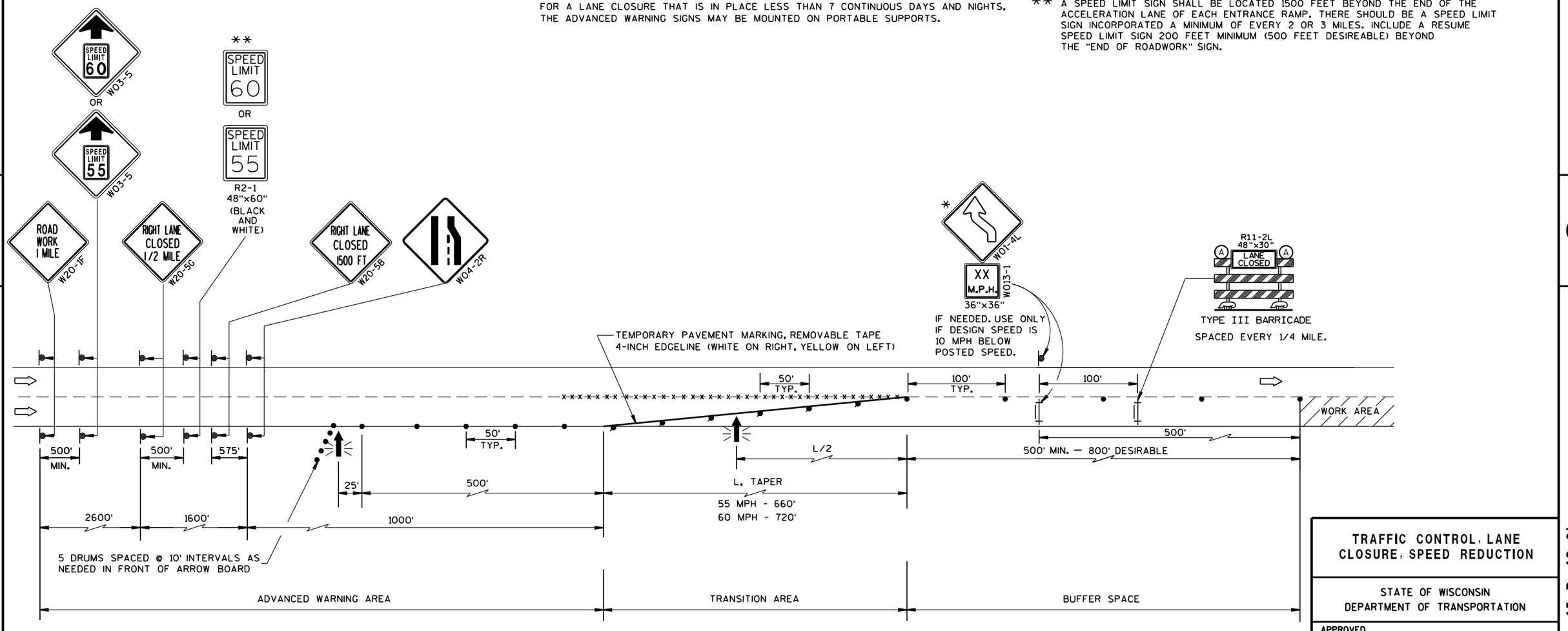
WARNING LIGHTS ARE NOT REQUIRED IF THE LANE CLOSURE IS A DAYTIME ONLY OPERATION.

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

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

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

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



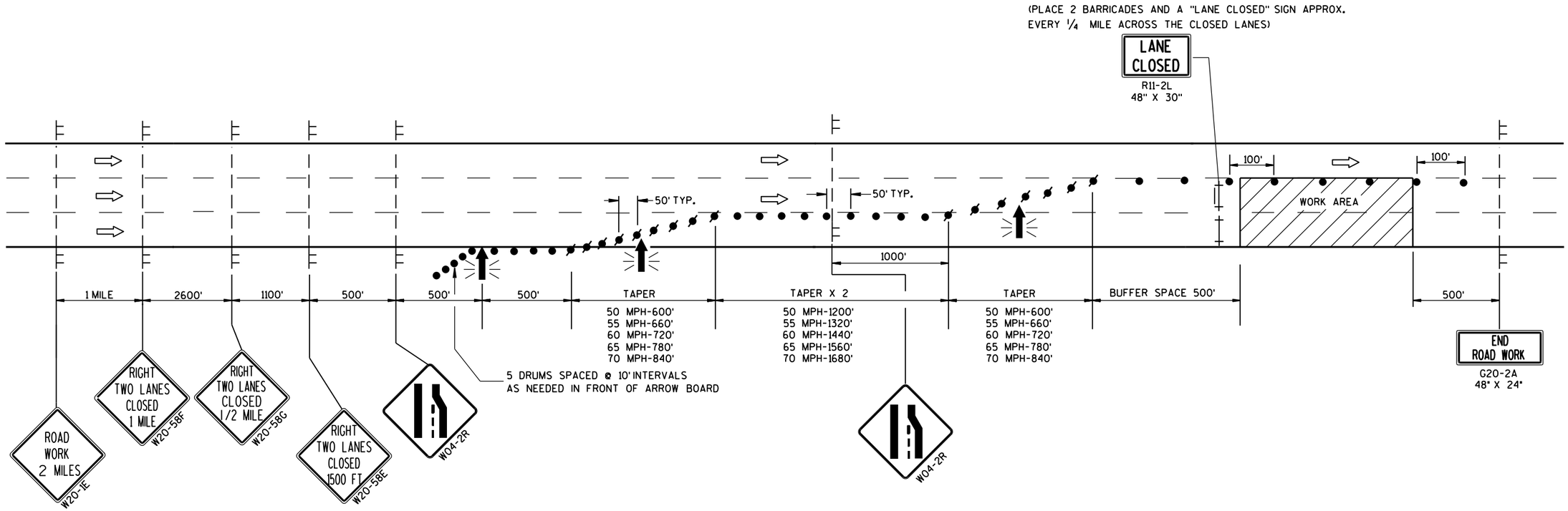
TRAFFIC CONTROL, LANE CLOSURE, SPEED REDUCTION

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

6

S.D.D. 15 D 12-6b



LEGEND

- TYPE III BARRICADE
- TYPE III BARRICADE WITH ATTACHED SIGN
- SIGN ON TEMPORARY SUPPORT
- TRAFFIC CONTROL DRUM WITH TYPE "C" STEADY BURN LIGHT
- TRAFFIC CONTROL DRUM
- FLASHING ARROW BOARD
- DIRECTION OF TRAFFIC
- 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 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.

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

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

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

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

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

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.

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

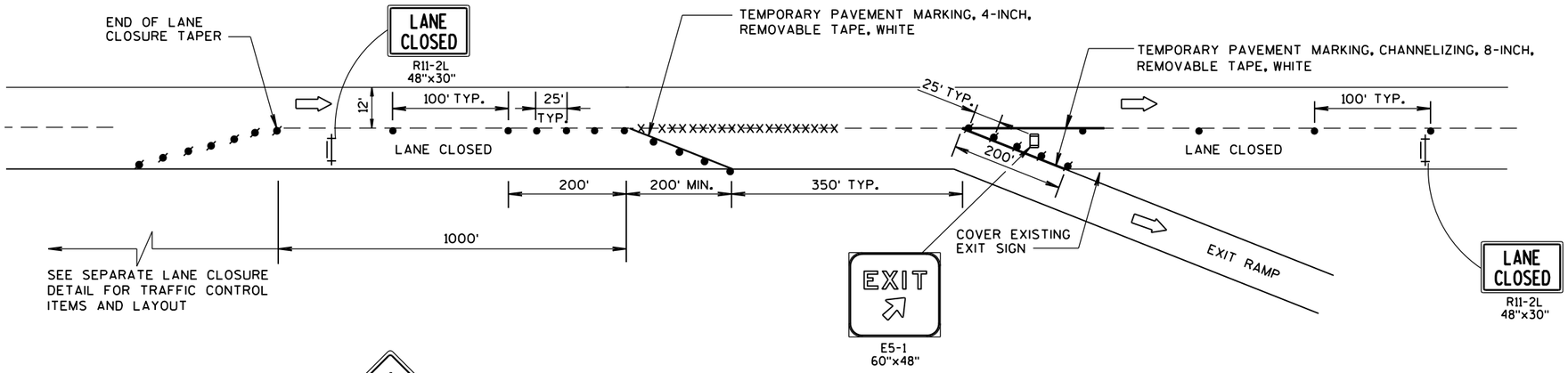
WARNING LIGHTS ARE NOT REQUIRED IF THE LANE CLOSURE IS A DAYTIME ONLY OPERATION.

TRAFFIC CONTROL, TWO LANE CLOSURE ON FREEWAY OR EXPRESSWAY, SHORT TERM (LESS THAN 24 HOURS)

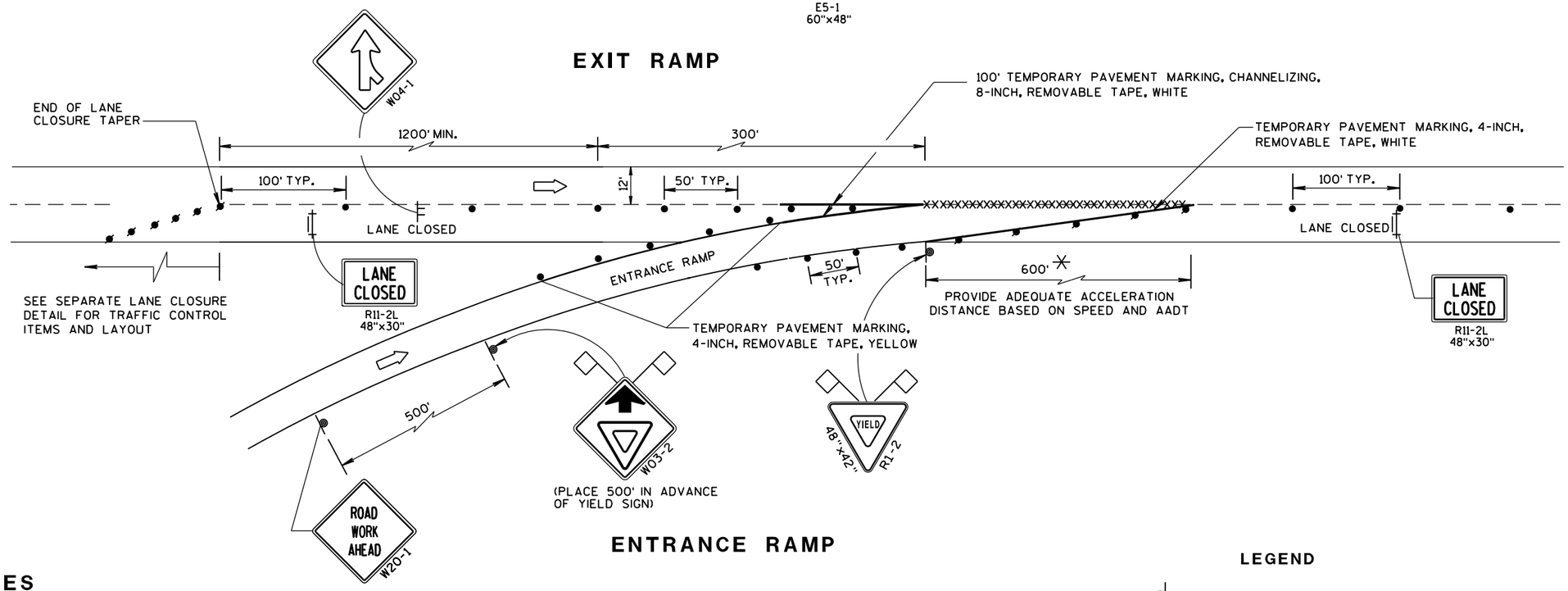
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
July 14, 2015 — DATE
/S/ Peter Amakobe Atepe — STATEWIDE WORK ZONE TRAFFIC SAFETY ENGINEER
FHWA

6
S.D.D. 15 D 14-3



EXIT RAMP



ENTRANCE RAMP

GENERAL NOTES

THE INSTALLATIONS SHOWN ON THIS SHEET ARE TYPICAL EXAMPLES AND ARE NOT INTENDED TO REPRESENT ANY PARTICULAR RAMP. AT SPECIFIC FIELD LOCATIONS, SIMILAR INSTALLATIONS SHALL BE USED AND ADJUSTED TO THE GEOMETRICS OF THE RAMP AS COORDINATED WITH THE ENGINEER.

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"x48" UNLESS OTHERWISE NOTED.

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

SEE SEPARATE LANE CLOSURE DETAIL FOR TYPICAL SPACING OF TYPE III BARRICADES AND R11-2L "LANE CLOSED" SIGNS.

YIELD SIGN AND WARNING SIGNS ON ENTRANCE RAMP ARE ALSO APPROPRIATE FOR CLOSURE OF THE MAINLINE LEFT LANE. OMIT THE YIELD SIGN IF MORE THAN ONE LANE REMAINS OPEN ON THE MAINLINE AND THE RAMP TAPER IS AT LEAST AS LONG AS THE NORMAL ENTRANCE RAMP TAPER AT THE SITE.

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.

IF INDICATED IN MISCELLANEOUS QUANTITIES, SUBSTITUTE FLEXIBLE TUBULAR MARKERS FOR DRUMS IN THE GORE BETWEEN THE ENTRANCE RAMP AND MAINLINE TRAFFIC.

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 7 OR MORE CONTINUOUS DAYS AND NIGHTS.

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

* LENGTH OF OPENING MAY BE REDUCED TO 150 FEET DURING STAGING OF WORK IN IMMEDIATE AREA OF RAMP TAPER.

LEGEND

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

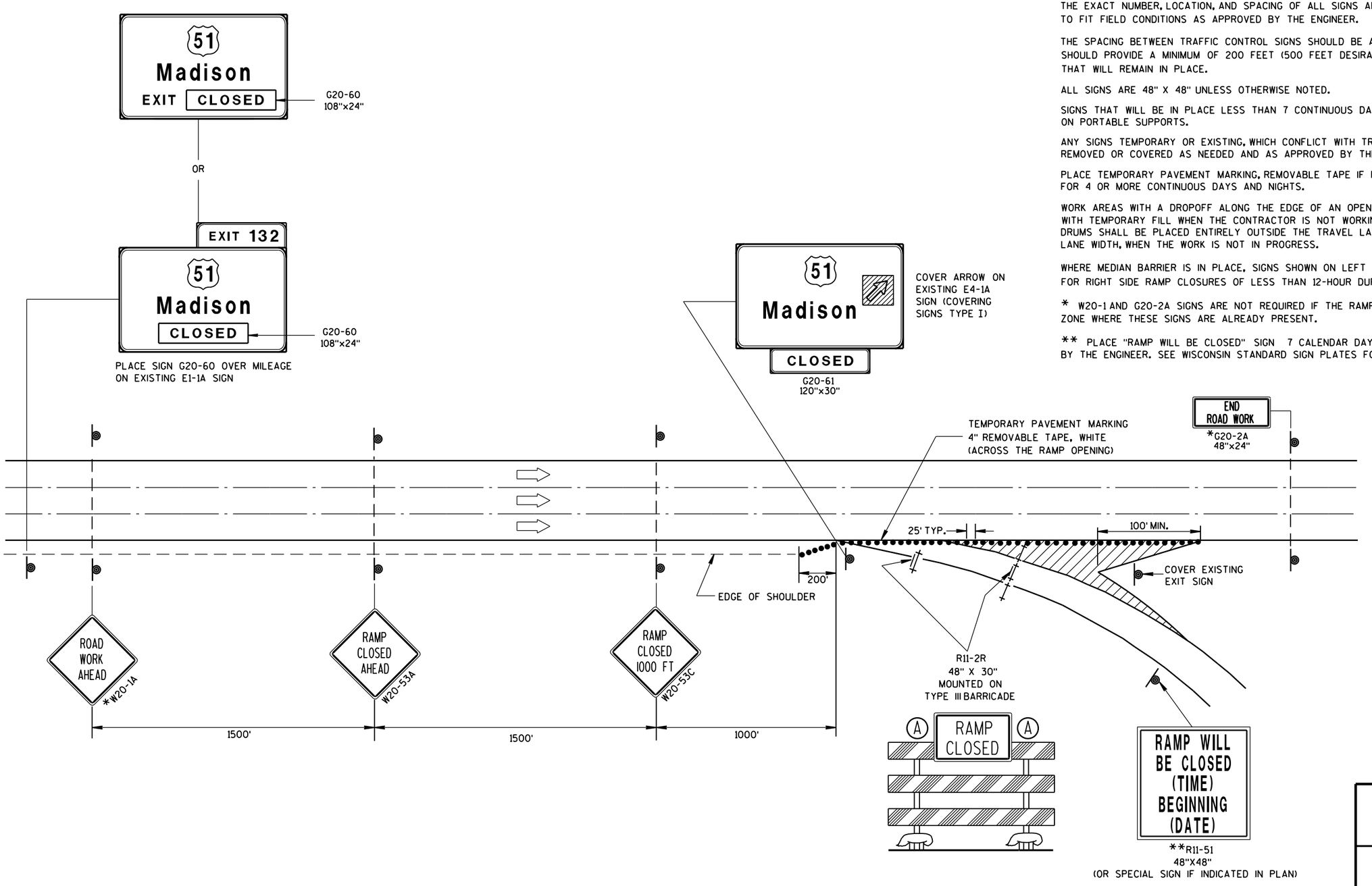
TRAFFIC CONTROL, EXIT AND ENTRANCE RAMP WITHIN LANE CLOSURE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

S.D.D. 15 D 15-2

S.D.D. 15 D 15-2



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

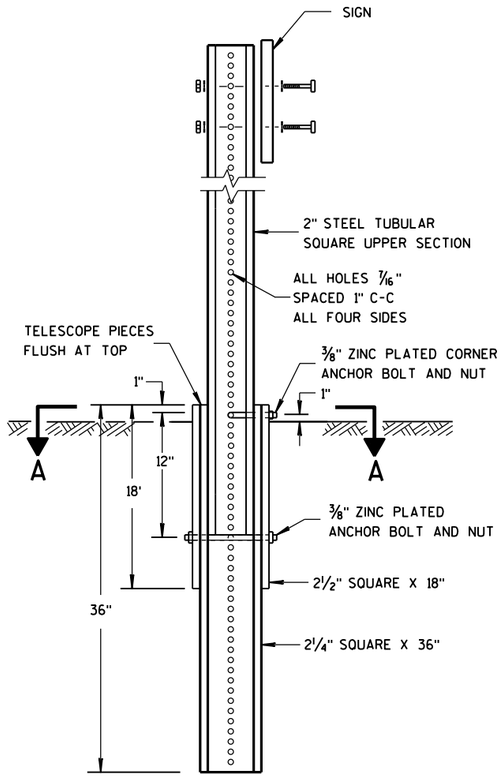
APPROVED
Sept. 2015 — DATE
/S/ Peter Amakobe Atepe — STATEWIDE WORK ZO SAFETY ENGII — FIC
FHWA

6

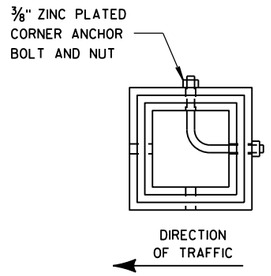
S.D.D. 15 D 16-3

6

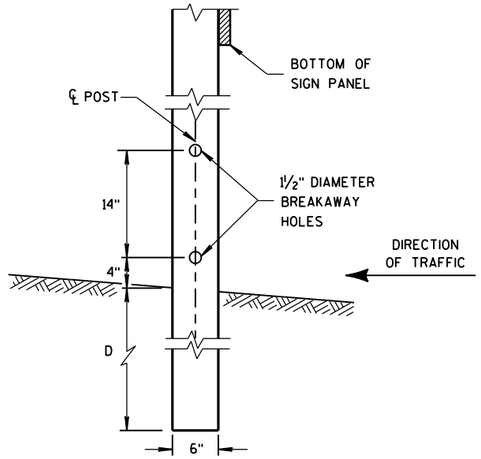
S.D.D. 15 D 16-3



DETAIL OF TUBULAR STEEL SIGN POST



SECTION A-A



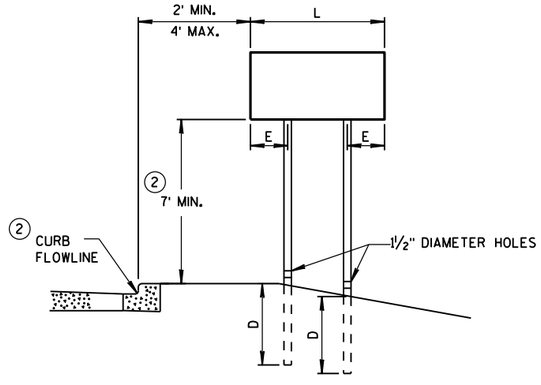
4"x6" WOOD POST MODIFICATION

GENERAL NOTES

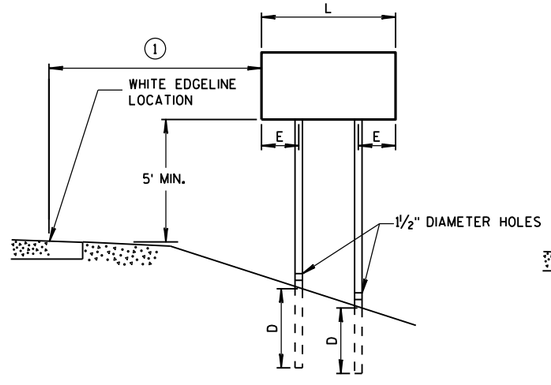
(1) 6 FEET FROM THE EDGE OF PAVEMENT (EDGE LINE LOCATION) UNLESS OTHERWISE DIRECTED BY THE PROJECT ENGINEER. LATERAL OFFSET SHOULD BE ADJUSTED TO AVOID THE DITCH FLOWLINE.

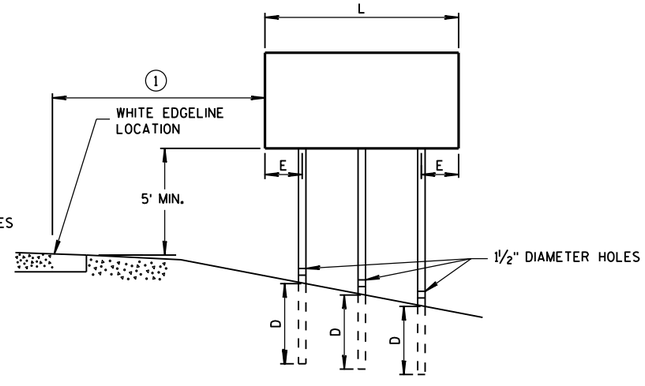
(2) THE EXISTENCE OF CURB AND GUTTER DOES NOT IN ITSELF MANDATE THE VERTICAL CLEARANCE ILLUSTRATED. THAT HEIGHT IS TYPICALLY MEASURED WHERE THERE IS SIDEWALK ADJACENT TO THE ROADWAY OR PARKING IS PERMITTED. IN THE ABSENCE OF SIDEWALK, VERTICAL CLEARANCE IS MEASURED FROM THE TOP OF THE CURB. IF NO SIDEWALK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

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



URBAN AREA





RURAL AREA

POST MOUNTING DETAIL FOR TEMPORARY TRAFFIC CONTROL FIXED MESSAGE SIGNS

TUBULAR STEEL POSTS

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

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

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

WOOD POST EMBEDMENT DEPTH

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

4" X 6" WOOD POST

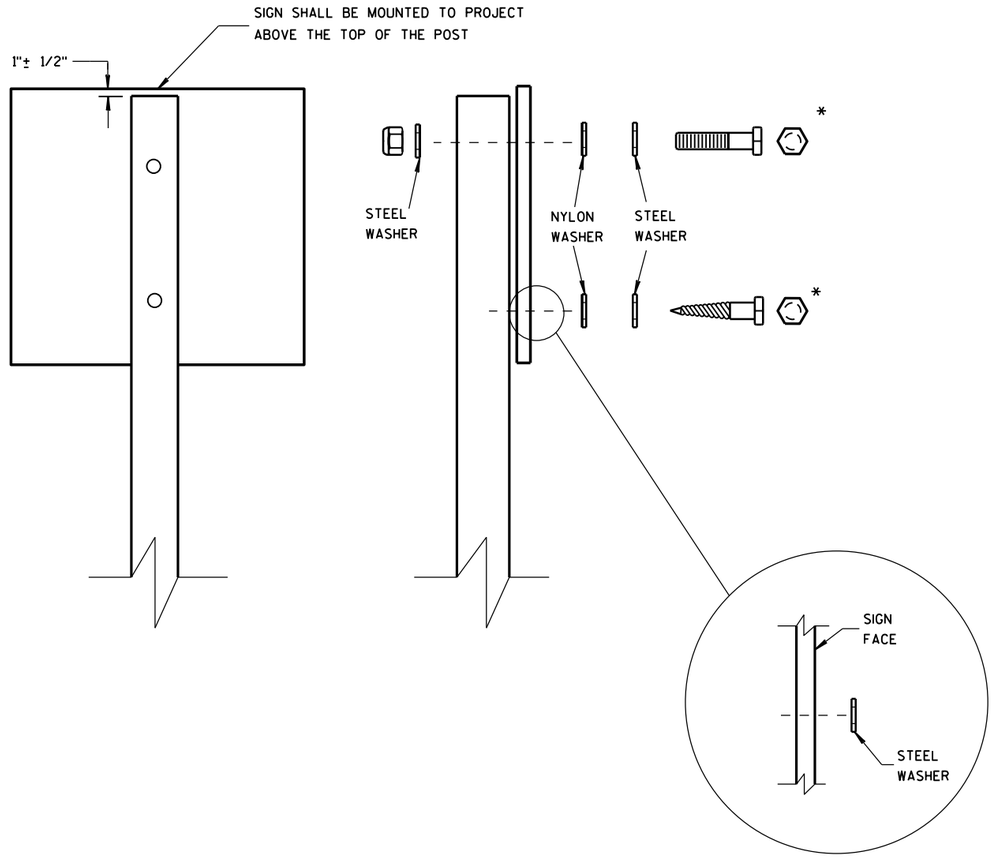
POST SPACING REQUIREMENTS		NUMBER OF WOOD POSTS REQUIRED
L	E	
48" OR LESS AND LESS THAN 20 SQ. FT.	-	1
LESS THAN 60"	12"	2
60" TO 120"	L/5	2
GREATER THAN 120" LESS THAN 168"	12"	3
168" AND GREATER	12"	4

SEE NOTE (3)

TEMPORARY TRAFFIC CONTROL FIXED MESSAGE SIGNS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI

6
S.D.D. 15 D 38-1a



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

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

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

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

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

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

LAG SCREWS - 3/8" X 3"

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

SQUARE STEEL POSTS (2" x 2")

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

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

WASHERS (ALL POSTS) -

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

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

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

6

6

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

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

ATTACHMENT OF SIGNS TO POSTS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

Feb. 2015 — DATE

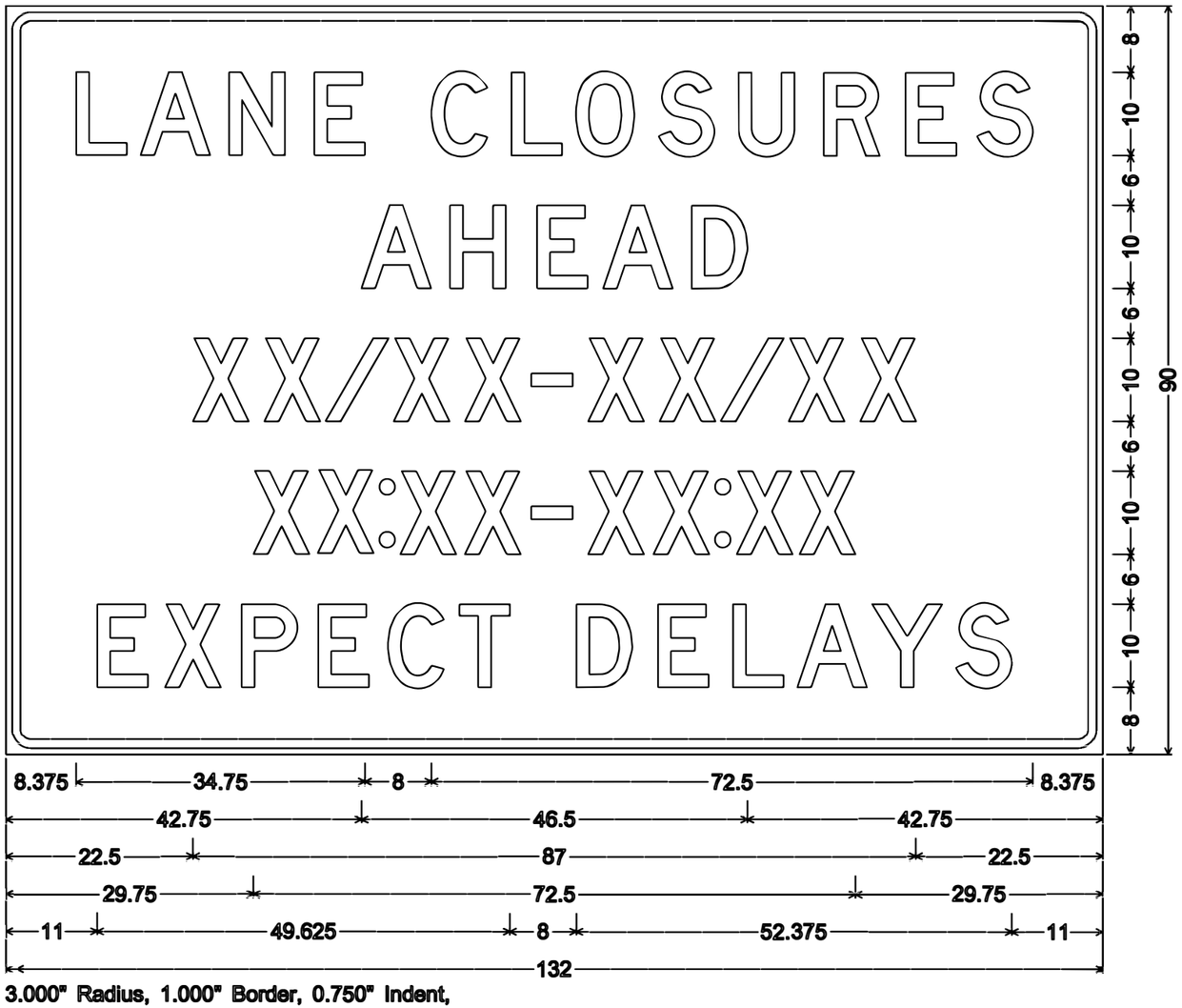
/S/ Travis Feltes — STATE TRAFFIC ENGINEER

FHWA

SIGN

NOTES

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



3.000" Radius, 1.000" Border, 0.750" Indent,

Wisconsin Department of Transportation

Dedicated people creating transportation solutions
through innovation and exceptional service.

http://www.dot.wisconsin.gov