

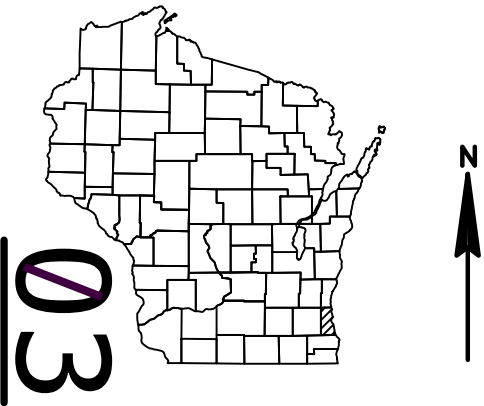
WKE
PROJECT ID: 1000-13-70
COUNTY: MILWAUKEE

JUNE 2018

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 = 32



DESIGN DESIGNATION

A.A.D.T.	=	N/A
A.A.D.T.	=	N/A
D.H.V.	=	N/A
D.D.	=	N/A
T.	=	N/A
DESIGN SPEED	=	N/A
ESALS	=	N/A

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	
MARSH AREA	
WOODED OR SHRUB AREA	

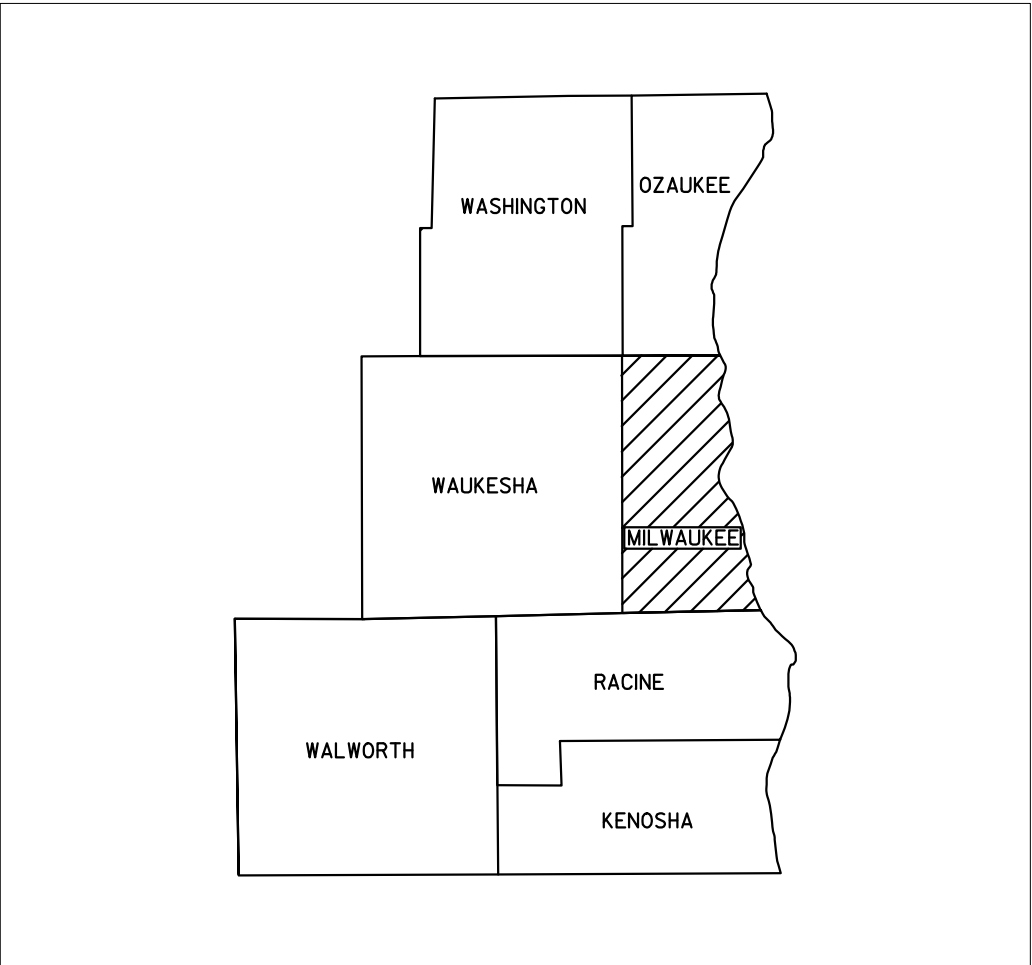
PROFILE	
GRADE LINE	
ORIGINAL GROUND	
MARSH OR ROCK PROFILE (To be noted as such)	
SPECIAL DITCH	
GRADE ELEVATION	
CULVERT (Profile View)	
UTILITIES	
ELECTRIC	
OVERHEAD UTILITY	
FIBER OPTIC	
GAS	
SANITARY SEWER	
STORM SEWER	
TELEPHONE	
WATER	
UTILITY PEDESTAL	
POWER POLE	
TELEPHONE POLE	

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PLAN OF PROPOSED IMPROVEMENT

SE REGION MILWAUKEE COUNTY
HIGHWAY LIGHTING 2018
VARIOUS HIGHWAYS
MILWAUKEE COUNTY

STATE PROJECT NUMBER
1000-13-70



LAYOUT
SCALE 0 *
TOTAL NET LENGTH OF CENTERLINE = 0.000 MI.

HORIZONTAL POSITIONS SHOWN ON THIS PLAN ARE WISCONSIN COUNTY COORDINATES, MILWAUKEE COUNTY, NAD83 (2007), IN U.S. SURVEY FEET. VALUES ARE GRID COORDINATES, GRID BEARINGS, AND GRID DISTANCES. GRID DISTANCES MAY BE USED AS GROUND DISTANCES.

STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
1000-13-70		

STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
PREPARED BY	
Surveyor	
Designer	WISDOT/SINGH
Project Manager	ERIC PEREA
Regional Examiner	
Regional Supervisor	MITZI DOBERSEK
APPROVED FOR THE DEPARTMENT	
DATE: 3/29/2018	<i>Eric Perea</i> (Signature)

E

UTILITY CONTACTS

TO OBTAIN LOCATION OF
PARTICIPANTS' UNDERGROUND
FACILITIES BEFORE YOU
DIG IN WISCONSIN

WIS. STATUTE 182.0175 (1974)
REQUIRES MIN. OF 3 WORK DAYS
NOTICE BEFORE YOU EXCAVATE



MILWAUKEE COUNTY - HIGHWAY MAINTENANCE

MR. GREG HEISEL
HIGHWAY MAINTENANCE MANAGER
10190 WATERTOWN PLK ROAD
WAUWATOSA, WI 53266
414-257-6566
GREG.HEISEL@MILWCNTY.COM

MILWAUKEE COUNTY - HIGHWAY MAINTENANCE

MILWAUKEE COUNTY - HIGHWAY MAINTENANCE
MR. STANLEY L. JACKSON
ELECTRICAL MECHANIC SUPERVISOR
10190 WATERTOWN PLK ROAD
WAUWATOSA, WI 53226
414-257-6593
STANLEY.JACKSON@MILWCNTY.COM

WISCONSIN DEPT. OF TRANSPORTATION

MS. RHONDA MOGILKA
SE REGION ELECTRICAL FIELD UNIT (EFU)
935 S 60TH STREET
WEST ALLIS, WI 53214
414-266-1167
RHONDA.MOGILKA@DOT.WI.GOV

STATE AGENCIES

WISCONSIN DEPARTMENT OF NATURAL RESOURCES

MS. KRISTINA BETZOLD - ENVIRONMENTAL SPECIALIST
2300 N. MARTIN LUTHER KING JR. DRIVE
MILWAUKEE, WI 53212
(414) 263-8517
KRISTINA.BETZOLD@WISCONSIN.GOV

WISCONSIN DEPARTMENT OF TRANPORTATION

MR. ERIC PEREA - PROJECT MANAGER
935 S. 60TH ST.
WEST ALLIS, WI 53214
(414) 750-0935
ERIC.PEREA@DOT.WI.GOV

WISCONSIN DEPARTMENT OF TRANSPORTATION

MR. STEVEN KUHLMAN PROJECT MANAGER
141 NW BARSTOW ST
WAUKESHA, WI 53187-0798
(414) 745.7569
STEVEN.KUHLMAN@DOT.WI.GOV



















WISCONSIN DEPARTMENT OF TRANSPORTATION

MS. RABI BISTA - SE REGION UTILITY COORDINATOR
141 NW BARSTOW ST
WAUKESHA, WI 53187-0798
(262) 548-5690
RABI.BISTA@DOT.WI.GOV

GENERAL NOTES

- 1. THE LOCATIONS ON EXISTING AND PROPOSED UTILITY INSTALLATIONS AS SHOWN ON THE PLANS ARE APPROXIMATE. THERE MAY BE OTHER UTILITY INSTALLATIONS WITHIN THE PROJECT AREA THAT ARE NOT SHOWN. SEE UTILITY OCCUPATION PLANS FOR ADDITIONAL INFORMATION.
- 2. THE CONTRACTOR SHALL 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.
- 3. TRAFFIC CONTROL DEVICES SHALL BE ADJUSTED TO FIT FIELD CONDITIONS AS DIRECTED BY THE ENGINEER.
- 4. TEMPORARY STORAGE OF ANY EXCAVATED MATERIAL WILL NOT BE PERMITTED IN WETLANDS

TRAFFIC CONTROL PLAN LEGEND

	TYPE III BARRICADE
	TYPE III BARRICADE WITH ATTACHED SIGN
	TRAFFIC CONTROL DRUM
	TRAFFIC CONTROL DRUM WITH TYPE C STEADY BURN LIGHT
	FLASHING ARROW BOARD
	SIGN ON PERMANENT SUPPORT
	SIGN ON TEMPORARY SUPPORT
	DELINEATOR FLEXIBLE/TUBULAR MARKER
	TYPE A WARNING LIGHT (FLASHING)
	TYPE B WARNING LIGHT (HIGH INTENSITY FLASHING)
	TYPE C WARNING LIGHT (STEADY BURN)
	CONCRETE BARRIER TEMPORARY PRECAST
	WORK AREA
	TEMPORARY RAISED PAVEMENT MARKER (ONE WAY REFLECTOR)
	TEMPORARY RAISED PAVEMENT MARKER (TWO WAY REFLECTOR)
	FLAGGER, EQUIPPED WITH STOP/SLOW PADDLE FASTENED ON SUPPORT STAFF
	DIRECTION OF TRAFFIC
	PORTABLE CHAGEABLE MESSAGE BOARD

HIGHWAY LIGHTING DISTRIBUTION CENTERS

Milwaukee County

40



LEGEND

FREEWAY LIGHTING

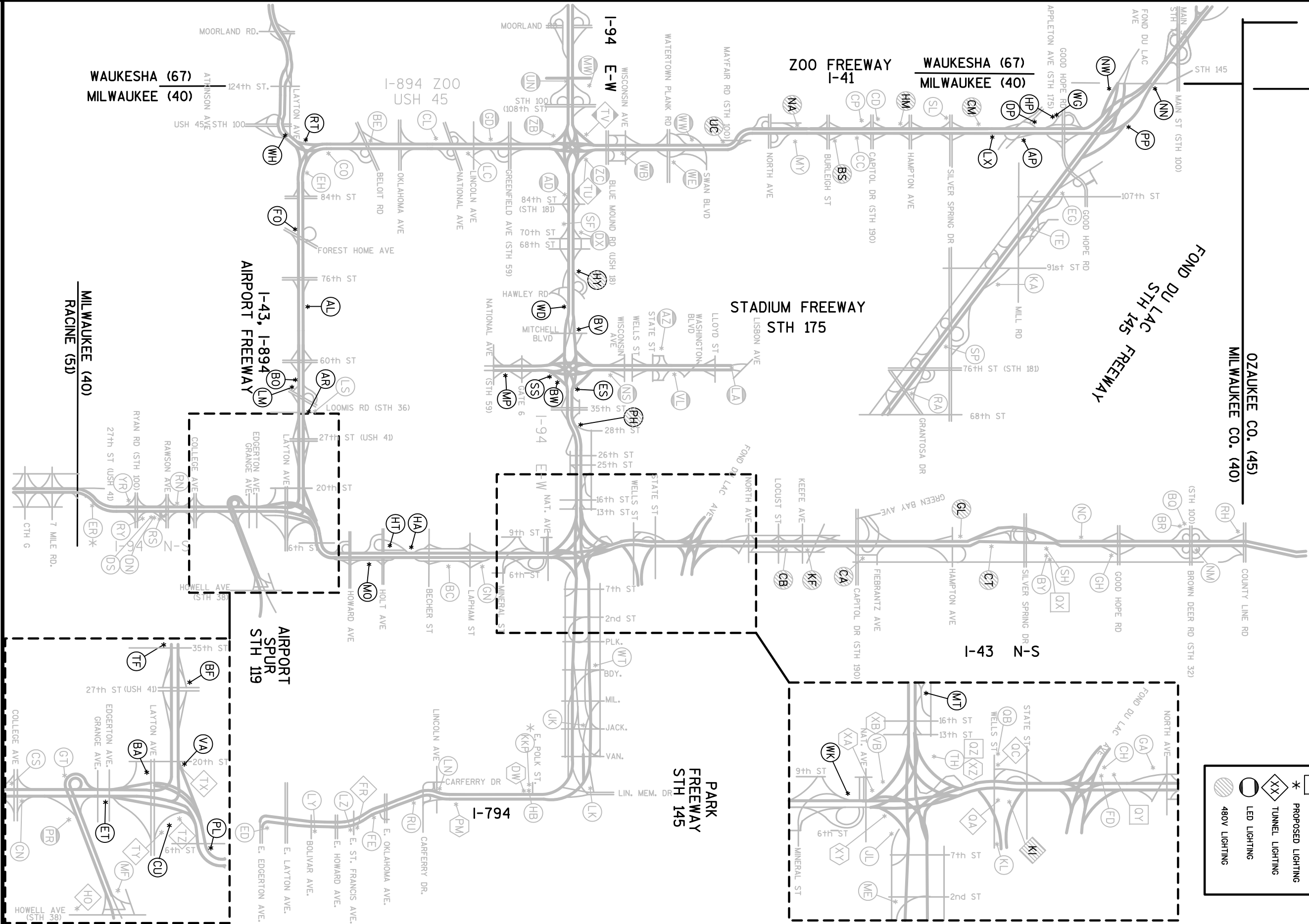
SPLITTER CABINETS

PROPOSED LIGHTING

TUNNEL LIGHTING

LED LIGHTING

480V LIGHTING



GENERAL NOTES:

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

LETTERS AND NUMBERS 2"
SERIES "D" SELF ADHESIVE
VINYL CUTOUTS

PLAQUE FACE BACKGROUND
SELF ADHESIVE SHEETING
WHITE (NON-RETROREFLECTIVE)

BASE MATERIAL TO BE
SHEET ALUMINUM, 0.060"
MIN. THICKNESS

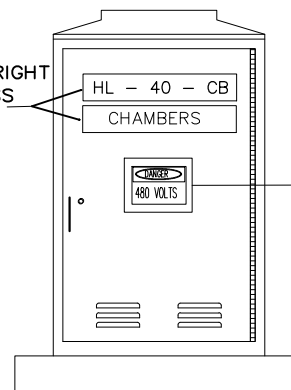
SPACING BETWEEN LETTERS
AND NUMBERS TO BE 1/2"
(IF QUANTITY OF NUMERALS
OR LETTERS IS LESS THAN
SHOWN, LEAVE SPACE AT
RIGHT SIDE OF PLAQUE)

DISTRIBUTION CENTER
IDENTIFICATION PLAQUE

CHAMBERS

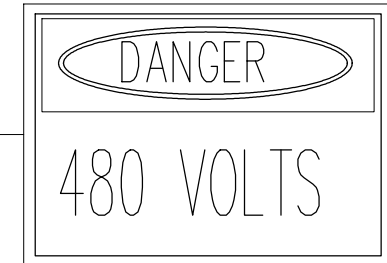
MNEMONIC
(SEE MISC. QTYS.)
(NO. OF CHARACTERS VARIES
THIRD PLAQUE MAY BE
NECESSARY)

FASTEN LEFT, CENTER AND RIGHT
OF PLAQUE WITH 3 STAINLESS
STEEL POP RIVETS



DISTRIBUTION CENTER IDENTIFICATION PLAQUE
REQUIREMENTS AND PLACEMENTS
(TYPICAL ALL CONTROL CABINETS)

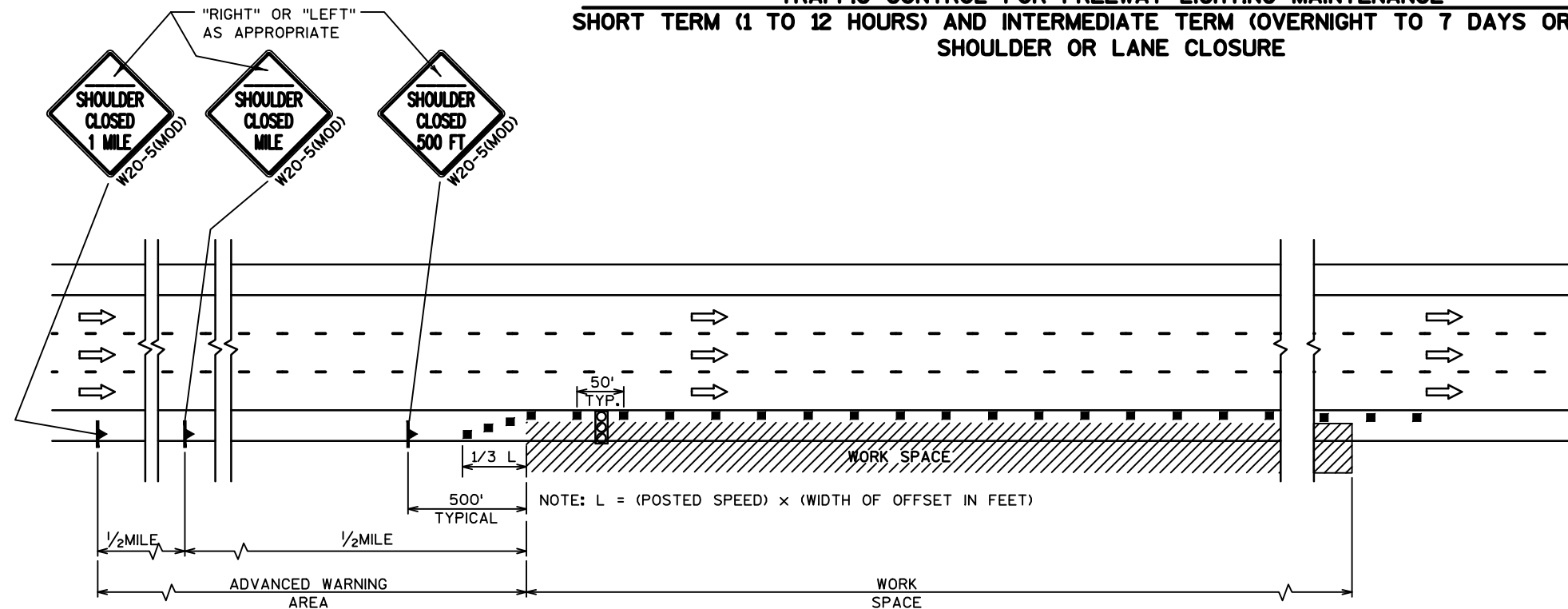
TWO REQUIRED CABINET AND METER PEDESTALS
(PAID AS PLAQUES SEQUENCE IDENTIFICATIONS)



APROX. 10 1/2" x
7"

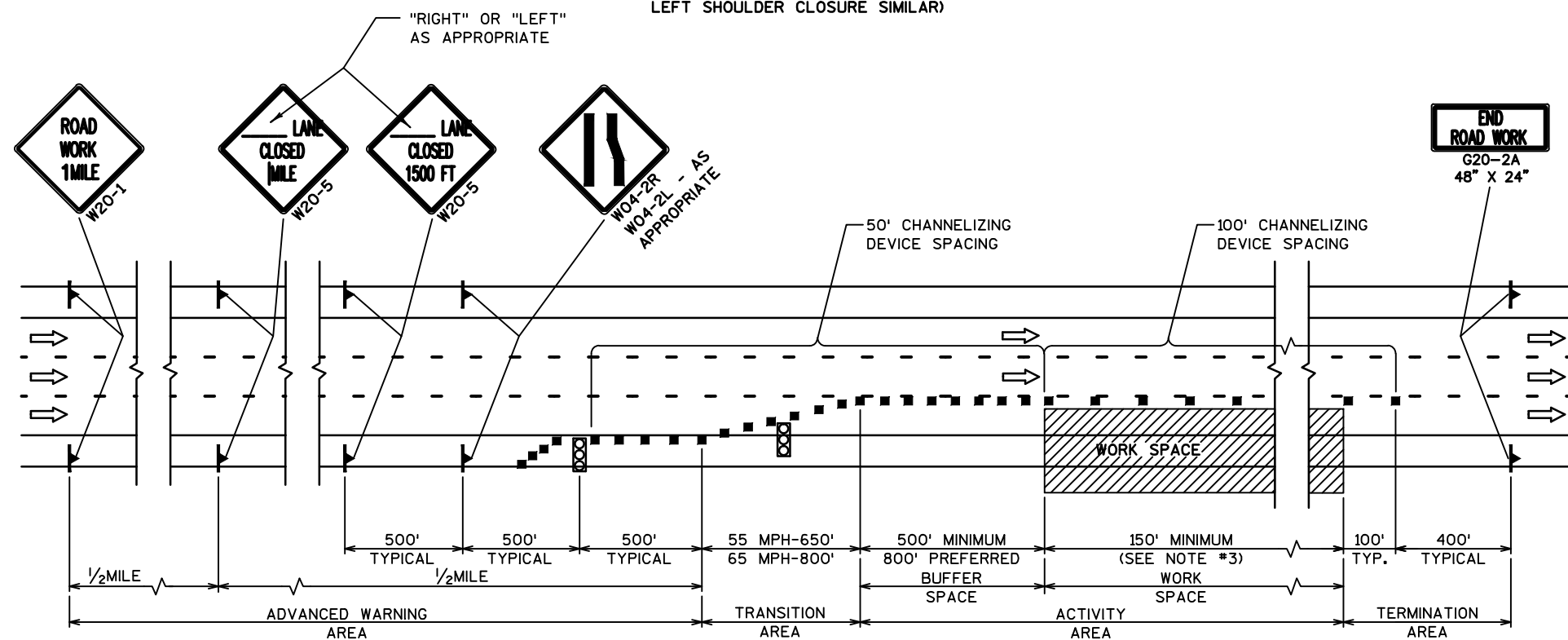
*SOME LOCATIONS WILL BE 240 VOLTS

TRAFFIC CONTROL FOR FREEWAY LIGHTING MAINTENANCE
SHORT TERM (1 TO 12 HOURS) AND INTERMEDIATE TERM (OVERNIGHT TO 7 DAYS OR LESS)
SHOULDER OR LANE CLOSURE



TYPICAL SHOULDER CLOSURE

(RIGHT SHOULDER CLOSURE SHOWN,
LEFT SHOULDER CLOSURE SIMILAR)



TYPICAL ONE-LANE CLOSURE

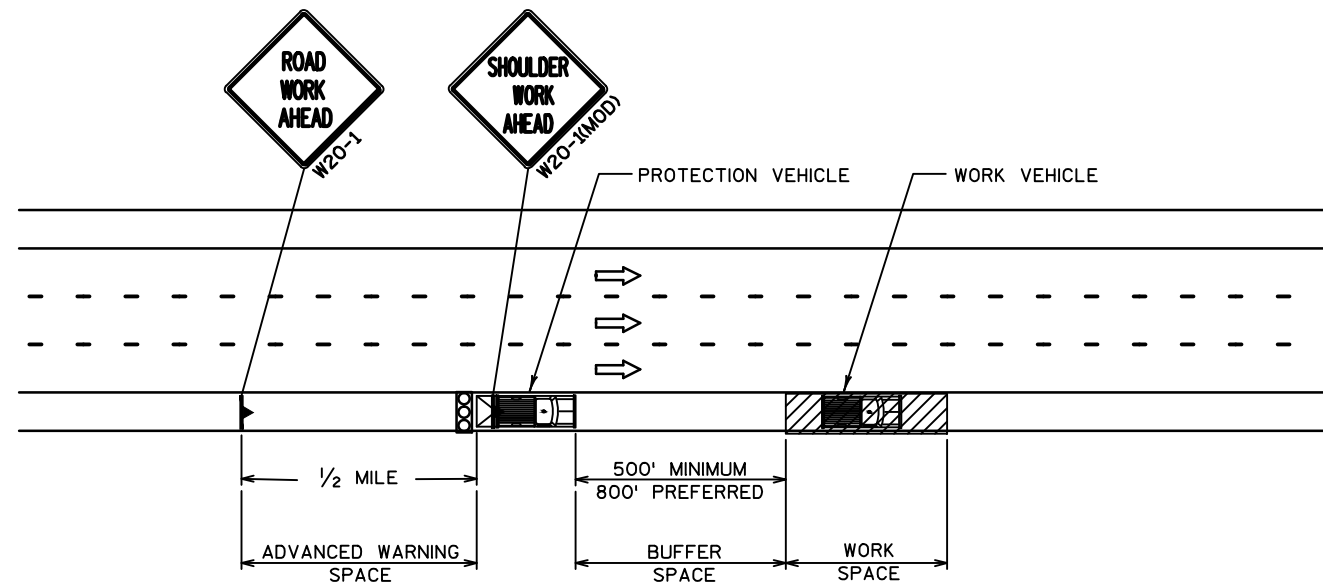
(RIGHT LANE CLOSURE SHOWN,
LEFT LANE CLOSURE SIMILAR)

GENERAL NOTES: TRAFFIC CONTROL

1. THE CONTRACTOR SHALL FURNISH, ERECT, MAINTAIN, MOVE AND REMOVE ALL TRAFFIC CONTROL SIGNS, SIGN SUPPORTS, CHANNELIZING DEVICES, ARROW BOARDS, WARNING LIGHTS, ETC. AS SPECIFIED IN THIS DETAIL, THE STANDARD SPECIFICATIONS, THE PLANS AND/OR THE SPECIAL PROVISIONS AND/OR AS DIRECTED BY THE ENGINEER.
2. THE EXACT NUMBER, LOCATION AND SPACING OF ALL SIGNS AND CHANNELIZING DEVICES SHALL BE ADJUSTED TO FIT FIELD CONDITIONS AND/OR AS DIRECTED BY THE ENGINEER.
3. IF THE HORIZONTAL ALIGNMENT IS SUCH THAT A CURVE MAY REQUIRE ADDITIONAL DELINEATION, THE CHANNELIZING DEVICE SPACING MAY BE DECREASED TO 50' IN THE WORK SPACE.
4. FOR DAYTIME ONLY OPERATION: WARNING LIGHTS ARE NOT REQUIRED. ALL LANE CLOSURE SIGNS SHALL BE COVERED OR TURNED FROM THE MOTORIST'S VIEW AND CHANNELIZING DEVICES SHALL BE REMOVED BEYOND THE SHOULDER AT THE END OF THE WORKDAY IF THE LANE IS RESTORED TO A SAFE OPERATING CONDITION.
5. FOR NIGHT TIME OPERATION: CHANNELIZING DEVICES IN THE TRANSITION SPACE SHALL HAVE TYPE "C" (STEADY BURN) WARNING LIGHTS, BARRICADES SHIELDING AN ISOLATED HAZARD, SHALL HAVE TYPE "A" (LOW INTENSITY FLASHING) WARNING LIGHTS.
6. ALL SIGNS ARE 48" X 48" UNLESS OTHERWISE NOTED.
7. "WO" SIGN DESIGNATIONS ARE THE SAME AS "W" SIGN DESIGNATIONS EXCEPT THAT BACKGROUND IS ORANGE.
8. IF LANE CLOSURE IS MORE THAN 1 MILE, PLACE TYPE III BARRICADES APPROXIMATELY EVERY 1000' ACROSS THE CLOSED LANE TO HELP ENFORCE THE DELINEATION.
9. 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' IN FRONT OF DRUMS.

LEGEND:

- SIGN ON TEMPORARY SUPPORT
- CHANNELIZING DEVICE (CONE OR DRUM)
- ARROW BOARD







**MOBILE OPERATION ON SHOULDER
FOR 10' OR WIDER SHOULDERS ONLY**
(RIGHT SHOULDER CLOSURE SHOWN,
LEFT SHOULDER CLOSURE SIMILAR)

TRAFFIC CONTROL FOR FREEWAY LIGHTING MAINTENANCE
MOBILE OPERATIONS - SHOULDER CLOSURE
CONTINUOUS OR INTERMITTENT MOVEMENT (STOPS LESS THAN 15 MINUTES)

GENERAL NOTES: TRAFFIC CONTROL

1. THE CONTRACTOR SHALL FURNISH, ERECT, MAINTAIN, MOVE AND REMOVE ALL TRAFFIC CONTROL SIGNS, SIGN SUPPORTS, CHANNELIZING DEVICES, TMAs, ARROW BOARDS, WARNING LIGHTS, ETC. AS SPECIFIED IN THIS DETAIL, THE STANDARD SPECIFICATIONS, THE PLANS AND/OR THE SPECIAL PROVISIONS AND/OR AS DIRECTED BY THE ENGINEER.
2. THE EXACT NUMBER, LOCATION AND SPACING OF ALL SIGNS AND CHANNELIZING DEVICES SHALL BE ADJUSTED TO FIT FIELD CONDITIONS AND/OR AS DIRECTED BY THE ENGINEER.
3. IF THE HORIZONTAL ALIGNMENT IS SUCH THAT A CURVE REDUCES VISIBILITY, PROTECTION VEHICLE OPERATORS SHOULD INCREASE THE LENGTH OF THE BUFFER SPACE TO MAINTAIN VISIBILITY TO VEHICLES APPROACHING FROM THE REAR.
4. MOBILE OPERATIONS ARE PERMITTED FOR DAYTIME OPERATIONS ONLY.
5. THE ENGINEER IN THE FIELD MAY PROHIBIT MOBILE OPERATIONS DURING RAIN OR WHEN FOGGY.
6. ALL SIGNS ARE 48" X 48" UNLESS OTHERWISE NOTED.
7. "WO" SIGN DESIGNATIONS ARE THE SAME AS "W" SIGN DESIGNATIONS EXCEPT THAT BACKGROUND IS ORANGE.

LEGEND:

-  SIGN ON TEMPORARY SUPPORT
-  ARROW BOARD
-  TMA (TRUCK MOUNTED ATTENUATOR)
-  WORK VEHICLE

Estimate Of Quantities

1000-13-70

Line	Item	Item Description	Unit	Total	Qty
0002	204.9060.S	Removing (item description) 1001. Luminaires	EACH	1,661.000	1,661.000
0004	619.1000	Mobilization	EACH	1.000	1.000
0006	643.0300	Traffic Control Drums	DAY	300.000	300.000
0008	643.0420	Traffic Control Barricades Type III	DAY	40.000	40.000
0010	643.0705	Traffic Control Warning Lights Type A	DAY	30.000	30.000
0012	643.0715	Traffic Control Warning Lights Type C	DAY	30.000	30.000
0014	643.0800	Traffic Control Arrow Boards	DAY	100.000	100.000
0016	643.0900	Traffic Control Signs	DAY	200.000	200.000
0018	643.1050	Traffic Control Signs PCMS	DAY	30.000	30.000
0020	643.1055.S	Truck or Trailer Mounted Attenuator	DAY	90.000	90.000
0022	643.5000	Traffic Control	EACH	1.000	1.000
0024	655.0610	Electrical Wire Lighting 12 AWG	LF	1,000.000	1,000.000
0026	659.0400	Luminaires High Mast Lighting LED	EACH	106.000	106.000
0028	659.1125	Luminaires Utility LED C	EACH	788.000	788.000
0030	659.1130	Luminaires Utility LED D	EACH	685.000	685.000
0032	659.1210	Luminaires Underdeck LED B	EACH	126.000	126.000
0034	SPV.0060	Special 1001. Distribution Center Preventative Maintenance	EACH	35.000	35.000
0036	SPV.0060	Special 1002. Group Luminaire Maintenance Sign Light 250W MV	EACH	86.000	86.000
0038	SPV.0060	Special 1003. Luminaire Probeam LED	EACH	62.000	62.000
0040	SPV.0060	Special 1004. Plaques Sequence Identificaion	EACH	100.000	100.000
0042	SPV.0060	Special 1005. Light Tower Rat Screens	EACH	100.000	100.000
0044	SPV.0060	Special 1006. Fuse Holders	EACH	100.000	100.000
0046	SPV.0060	Special 1007. Fuses Type FNQ	EACH	200.000	200.000
0048	SPV.0060	Special 1008. Plumbing Light Poles	EACH	100.000	100.000
0050	SPV.0060	Special 1009. Luminaires Utility 480V LED C	EACH	42.000	42.000
0052	SPV.0060	Special 1010. Luminaires Utility 480V LED D	EACH	67.000	67.000
0054	SPV.0060	Special 1011. Luminaires Underdecks 480V LED B	EACH	18.000	18.000

WISCONSIN DEPARTMENT OF TRANSPORTATION - SOUTHEAST REGION - WAUKESHA

LIGHTING MAINTENANCE - HIGHWAY LIGHTING DISTRIBUTION CENTERS

CATEGORY	STAGE	SYSTEM / LABEL	FORMAT / DESCRIPTION	MAINTENANCE / FIRST RESPONSE	COUNTY	HIGHWAY	DISTRIBUTION CENTER LOCATION	BRANCH CIRCUIT VOLTAGE	FIELD WARNING METHOD	COMMENTS
0010	1	HL-40-RT	SERVICE	MILW CO / MILW CO	MILWAUKEE	IH 41 / IH 894	ROOT RIVER - 10183 W. COLDSRING ROAD	240 / 480	GROUNDLED NEUTRAL	--
		HL-40-WH	"	"	"	"	WHITNALL HIGH SCHOOL - IH 43 HALE PARK & RIDE	"	"	--
		HL-40-FO	"	"	"	"	FOREST HOME AVENUE - SW QUADRANT WITH IH 43 / IH 894	"	"	--
		HL-40-AL	"	"	"	"	S. 68TH STREET - NW QUADRANT WITH IH 43 / IH 894	"	"	--
		HL-40-BO	SERVICE	MILW CO / MILW CO	MILWAUKEE	IH 43 / IH 894	S. 51ST STREET - NW QUADRANT WITH ARMOUR AVENUE	240 / 480	GROUNDLED NEUTRAL	--
		HL-40-LM	SERVICE	MILW CO / MILW CO	MILWAUKEE	IH 43 / IH 894	S. 46TH STREET - NE QUADRANT WITH ARMOUR AVENUE	240 / 480	GROUNDLED NEUTRAL	--
		HL-40-AR	"	"	"	"	S. 37TH STREET - NE QUADRANT WITH CHAPMAN AVENUE	"	"	--
		HL-40-TF	"	"	"	"	S. 35TH STREET - NW QUADRANT WITH CHAPMAN AVENUE	"	"	--
		HL-40-BF	"	"	"	"	S. 27TH STREET - NW QUADRANT WITH IH 43 / IH 894	240 / 480	ISOLATED NEUTRAL	--
		HL-40-VA	SERVICE	MILW CO / MILW CO	MILWAUKEE	IH 43 / IH 894	S. 20TH STREET - SW CORNER WITH VAN NORMAN AVENUE	240 / 480	ISOLATED NEUTRAL	DERIVED FROM MDP-1 (TUNNEL #1)
		HL-40-BA	SERVICE	MILW CO / MILW CO	MILWAUKEE	IH 43 / IH 94	W. LAYTON AVENUE - SW QUADRANT WITH IH 41 / IH 94	240 / 480	ISOLATED NEUTRAL	FEED TO ITS CABINET
		HL-40-ET	"	"	"	"	W. EDGERTON AVENUE - SE QUADRANT WITH IH 41 / IH 94	"	"	FEED TO ITS CABINET
		HL-40-PL	"	"	"	"	W. HOWARD AVENUE - SW QUADRANT WITH IH 41 / IH 94	"	"	--
		HL-40-CU	"	"	"	"	W. CUDAHY AVENUE - 1533 W. CUDAHY AVENUE	"	"	DERIVED FROM MDP-2 (TUNNEL #2)
		HL-40-MO	SERVICE	MILW CO / MILW CO	MILWAUKEE	IH 43	MORGAN-WARNIMONT - 500 W. WARNIMONT AVENUE	240 / 480	GROUNDLED NEUTRAL	--
		HL-40-HT	SERVICE	MILW CO / MILW CO	MILWAUKEE	IH 43	HOLT PARK & RIDE - 550 W. HOLT AVENUE	"	"	--
		HL-40-HA	"	"	"	"	HARRISON - 450 W. ARTHUR AVENUE	"	"	--
		HL-40-WK	"	"	"	"	W. WALKER STREET - WEST OF OFF RAMP TO S. 9TH STREET	"	"	--
		HL-40-MT	"	"	"	IH 94	MARQUETTE - SW OF 19TH STREET ON CLAYBOURN	240 / 480	ISOLATED NEUTRAL	--
		HL-40-PH	SERVICE	MILW CO / MILW CO	MILWAUKEE	IH 94	PARK HILL - 32ND STREET	480	GROUNDLED NEUTRAL	PHASE - PHASE
		HL-40-ES	SERVICE	MILW CO / MILW CO	MILWAUKEE	IH 94	EAST STADIUM - PARK HILL AVENUE AND 32ND STREET	240 / 480	ISOLATED NEUTRAL	--
		HL-40-BW	"	"	"	"	BREWER - 44TH STREET	"	"	--
		HL-40-SS	"	"	"	STH 175	SOUTH STADIUM - 101 S. 44TH STREET	240 / 480	GROUNDLED NEUTRAL	--
		HL-40-MP	"	"	"	STH 175	MILLER PARK - 651 S. HARNISCHFEGER	"	"	--
		HL-40-BV	SERVICE	MILW CO / MILW CO	MILWAUKEE	IH 94	MITCHELL BOULVERD - NW OF MITCHELL BLVD AND IH 94	240 / 480	ISOLATED NEUTRAL	--
		HL-40-WD	SERVICE	MILW CO / MILW CO	MILWAUKEE	IH 94	WOOD CEMETERY SUBPANEL - HAWLEY ROAD ON RAMP TO IH 94	120 / 240	ISOLATED NEUTRAL	--
		HL-40-HY	"	"	"	"	HAWLEY - 65TH STREET	480	GROUNDLED NEUTRAL	PHASE - PHASE
		HL-40-LX	"	"	"	IH 41	LYNX AVENUE	240 / 480	GROUNDLED NEUTRAL	--
		HL-40-DP	"	"	"	"	DAPHANE	240 / 480	"	--
		HL-40-AP	"	"	"	"	APPLETON	"	"	--
		HL-40-HP	SERVICE	MILW CO / MILW CO	MILWAUKEE	IH 41	GOOD HOPE	240 / 480	GROUNDLED NEUTRAL	--
		HL-40-WG	SERVICE	MILW CO / MILW CO	MILWAUKEE	IH 41	GOOD HOPE WEST	240 / 480	GROUNDLED NEUTRAL	--
		HL-40-PP	"	"	"	"	PARK PLACE	240 / 480	ISOLATED NEUTRAL	--
		HL-40-NW	"	"	"	"	NORTH IC WEST	"	"	--
		HL-40-NN	"	"	"	"	124TH STREET	240 / 480	ISOLATED NEUTRAL	--

3

LIGHTING MAINTENANCE - GROUP CABINET AND LUMINAIRE MAINTENANCE

SPV.0060.1001 DISTRIBUTION CENTER PREVENTIVE MAINTENANCE
SPV.0060.1002 GROUP LUMINAIRE MAINTENANCE SIGN LIGHT 250W MV

CATEGORY	STAGE	SYSTEM/ LABEL	HIGHWAY AND SEGMENT	SPV.0060.1001 DISTRIBUTION CENTER PREVENTIVE MAINTENANCE	SPV.0060.1002 GROUP LUMINAIRE MAINTENANCE SIGN LIGHT 250W MV	COMMENTS
				EACH	EACH	
0010	1	HL-40-RT	IH 41 / IH 894	1	2	SEE RETROFIT TABLE FOR LUMINAIRES LED INSTALLATION
		HL-40-WH	"	1	4	"
		HL-40-FO	"	1	--	"
		HL-40-AL	"	1	5	"
		HL-40-BO	IH 43 / IH 894	1	1	SEE RETROFIT TABLE FOR LUMINAIRES LED INSTALLATION
		HL-40-LM	IH 43 / IH 894	1	1	"
		HL-40-AR	"	1	--	"
		HL-40-TF	"	1	--	"
		HL-40-BF	"	1	--	"
		HL-40-VA	IH 43 / IH 894	1	--	SEE RETROFIT TABLE FOR LUMINAIRES LED INSTALLATION
		HL-40-BA	IH 41 / IH 94	1	--	"
		HL-40-ET	"	1	--	"
		HL-40-PL	IH 43 / IH 94	1	--	"
		HL-40-CU	"	1	--	"
		HL-40-MO	IH 43 / IH 894	1	3	SEE RETROFIT TABLE FOR LUMINAIRES LED INSTALLATION
		HL-40-HT	IH 43 / IH 894	1	2	"
		HL-40-HA	"	1	1	"
		HL-40-WK	"	1	2	"
		HL-40-MT	"	1	19	"
		HL-40-PH	IH 43 / IH 894	1	--	SEE RETROFIT TABLE FOR LUMINAIRES LED INSTALLATION
		HL-40-ES	IH 43 / IH 894	1	--	"
		HL-40-BW	"	1	--	"
		HL-40-SS	"	1	10	"
		HL-40-MP	"	1	17	"
		HL-40-BV	IH 43 / IH 894	1	--	SEE RETROFIT TABLE FOR LUMINAIRES LED INSTALLATION
		HL-40-WD	IH 43 / IH 894	1	--	"
		HL-40-HY	"	1	--	"
		HL-40-LX	IH 41	1	--	"
		HL-40-DP	IH 41	1	2	"
		HL-40-AP	"	1	2	"
		HL-40-HP	IH 43 / IH 894	1	7	SEE RETROFIT TABLE FOR LUMINAIRES LED INSTALLATION
		HL-40-WG	IH 43 / IH 894	1	--	"
		HL-40-PP	"	1	4	"
		HL-40-NW	"	1	--	"
		HL-40-NN	"	1	4	SEE RETROFIT TABLE FOR LUMINAIRES LED INSTALLATION
0010		TOTAL		35	86	

3

LIGHTING MAINTENANCE - REMOVAL AND RETROFIT

- 204.9060.S.1001 REMOVING LUMINAIRES
- 659.0400 LUMINAIRE HIGH MAST LIGHTING
- 659.1120 LUMINAIRES UTILITY LED C
- 659.1125 LUMINAIRES UTILITY LED D
- 659.1130 LUMINAIRES UNDERDECK LED B
- SPV.0060.1003 LUMINAIRES PROBEAM LED
- SPV.0060.1009 LUMINAIRES UTILITY 480V LED C
- SPV.0060.1010 LUMINAIRES UTILITY 480V LED D
- SPV.0060.1011 LUMINAIRES UNDERDECK 480V LED B

CATEGORY	STAGE	SYSTEM/ LABEL	HIGHWAY SEGMENT	204.9060.S.1001 REMOVING LUMINAIRES	659.0400 LUMINAIRE HIGH MAST LIGHTING	659.1125 LUMINAIRES UTILITY LED C	659.1130 LUMINAIRES UTILITY LED D	659.1210 LUMINAIRES UNDERDECK LED B	SPV.0060.1003 LUMINAIRES PROBEAM LED	SPV.0060.1009 LUMINAIRES UTILITY 480V LED C	SPV.0060.1010 LUMINAIRES UTILITY 480V LED D	SPV.0060.1011 LUMINAIRES UNDERDECK 480V LED B	COMMENTS
				EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	
0010	1	HL-40-RT	IH 41 / IH 894	0	30	--	--	--	--	--	--	--	--
		HL-40-WH	"	85	--	45	38	2	--	--	--	--	--
		HL-40-FO	"	52	--	12	24	16	--	--	--	--	--
		HL-40-AL	"	75	--	17	48	10	--	--	--	--	--
		HL-40-BO	IH 43 / IH 894	46	--	8	38	--	--	--	--	--	--
		HL-40-LM	IH 43 / IH 894	34	--	13	17	4	--	--	--	--	--
		HL-40-AR	"	25	--	6	19	--	--	--	--	--	--
		HL-40-TF	"	18	--	--	16	2	--	--	--	--	--
		HL-40-BF	"	116	--	69	23	--	24	--	--	--	UDL PROBEAM
		HL-40-VA	IH 43 / IH 894	60	--	31	21	--	8	--	--	--	"
		HL-40-BA	IH 41 / IH 94	68	--	17	33	--	18	--	--	--	UDL PROBEAM
		HL-40-ET	"	75	--	35	40	--	--	--	--	--	--
		HL-40-PL	IH 43 / IH 94	74	--	50	24	--	--	--	--	--	--
		HL-40-CU	"	77	--	20	57	--	--	--	--	--	--
		HL-40-MO	IH 43 / IH 894	67	--	33	28	6	--	--	--	--	--
		HL-40-HT	IH 43 / IH 894	35	8	12	23	--	--	--	--	--	--
		HL-40-HA	"	52	4	--	42	10	--	--	--	--	--
		HL-40-WK	"	34	16	8	20	6	--	--	--	--	--
		HL-40-MT	"	82	--	36	42	4	--	--	--	--	--
		HL-40-PH	IH 43 / IH 894	18	--	--	--	18	--	20	36	18	480VAC CONTROLLER
		HL-40-ES	IH 43 / IH 894	12	4	--	12	--	--	--	--	--	--
		HL-40-BW	"	0	24	--	--	--	--	--	--	--	--
		HL-40-SS	"	12	10	--	12	--	--	--	--	--	--
		HL-40-MP	"	84	--	76	--	8	--	--	--	--	--
		HL-40-BV	IH 43 / IH 894	32	10	--	20	--	12	--	--	--	--
		HL-40-WD	IH 43 / IH 894	3	--	3	--	--	--	--	--	--	--
		HL-40-HY	"	0	--	--	--	--	--	22	31	--	480VAC CONTROLLER
		HL-40-LX	IH 41	33	--	33	--	--	--	--	--	--	--
		HL-40-DP	IH 41	68	--	64	--	4	--	--	--	--	--
		HL-40-AP	"	46	--	42	--	4	--	--	--	--	--
		HL-40-HP	IH 43 / IH 894	42	--	39	3	--	--	--	--	--	--
		HL-40-WG	IH 43 / IH 894	46	--	8	30	8	--	--	--	--	--
		HL-40-PP	"	34	--	13	19	2	--	--	--	--	--
		HL-40-NW	"	100	--	77	7	16	--	--	--	--	--
		HL-40-NN	"	56	--	21	29	6	--	--	--	--	--
0010		TOTAL		1,661	106	788	685	126	62	42	67	18	

LIGHTING MAINTENANCE - MOBILIZATION

619.1000 MOBILIZATION

CATEGORY	STAGE	DESCRIPTION / LOCATION	619.1000 MOBILIZATION	COMMENTS
EACH				
0010	1	PROJECT I.D. 1000-13-70	1	--
0010		TOTAL	1	

LIGHTING MAINTENANCE - WORK ZONE TRAFFIC CONTROL

- 643.0300 TRAFFIC CONTROL DRUMS ***
- 643.0420 TRAFFIC CONTROL BARRICADES TYPE III
- 643.0705 TRAFFIC CONTROL WARNING LIGHTS TYPE A
- 643.0715 TRAFFIC CONTROL WARNING LIGHTS TYPE C
- 643.0800 TRAFFIC CONTROL ARROW BOARDS
- 643.0900 TRAFFIC CONTROL SIGNS
- 643.1050 TRAFFIC CONTROL SIGNS PCMS
- 643.1055.S TRUCK OR TRAILER MOUNTED ATTENUATOR
- 643.5000 TRAFFIC CONTROL

CATEGORY	STAGE	DESCRIPTION / LOCATION	643.0300 TRAFFIC CONTROL DRUMS	643.0420 TRAFFIC CONTROL BARRICADES TYPE III	643.0705 TRAFFIC CONTROL WARNING LIGHTS TYPE A	643.0715 TRAFFIC CONTROL WARNING LIGHTS TYPE C	643.0800 TRAFFIC CONTROL ARROW BOARDS	643.0900 TRAFFIC CONTROL SIGNS	643.1050 TRAFFIC CONTROL SIGNS PCMS	643.1055.S TRUCK OR TRAILER MOUNTED ATTENUATOR	643.5000 TRAFFIC CONTROL	COMMENTS
			DAY	DAY	DAY	DAY	DAY	DAY	DAY	DAY	EACH	
0010	1	PROJECT I.D. 1000-13-70	300	40	30	30	100	200	30	90	1	--
TOTAL			300	40	30	30	100	200	30	90	1	

*** APPROVED TRAFFIC CONES WILL BE ACCEPTED FOR THIS ITEM FOR SHORT-TERM DAYTIME WORK, BUT WILL NOT BE MEASURED FOR PAYMENT. SEE THE SPECIAL PROVISIONS.

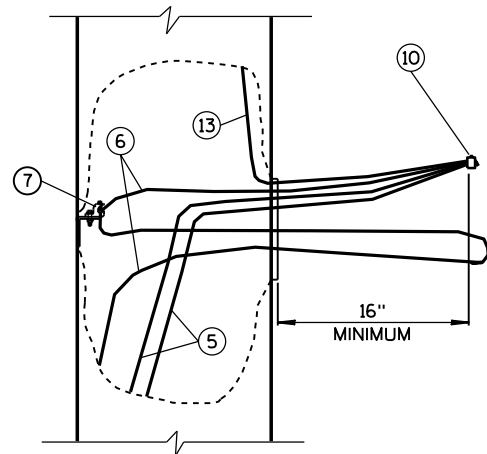
LIGHTING MAINTENANCE - UNDISTRIBUTED

- 655.0610 ELECTRICAL WIRE LIGHTING 12 AWG
- SPV.0060.1004 PLAQUES SEQUENCE IDENTIFICATION
- SPV.0060.1005 LIGHT TOWER RAT SCREENS
- SPV.0060.1006 FUSE HOLDERS
- SPV.0060.1007 FUSES TYPE FNQ
- SPV.0060.1008 PLUMBING LIGHT POLES

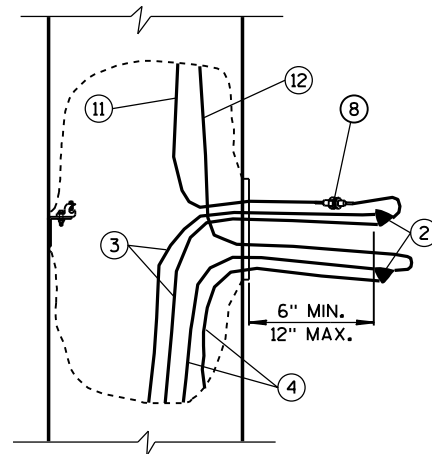
CATEGORY	STAGE	DESCRIPTION / LOCATION	655.0610 ELECTRICAL WIRE LIGHTING 12 AWG	SPV.0060.1004 PLAQUES SEQUENCE IDENTIFICATION	SPV.0060.1005 LIGHT TOWER RAT SCREEN	SPV.0060.1006 FUSE HOLDERS	SPV.0060.1007 FUSE TYPE FNQ	SPV.0060.1008 PLUMBING LIGHT POLES	COMMENTS
			L.F.	EACH	EACH	EACH	EACH	EACH	
0010	1	PROJECT I.D. 1000-13-70	1,000	100	100	100	200	100	--
TOTAL			1,000	100	100	100	200	100	

Standard Detail Drawing List

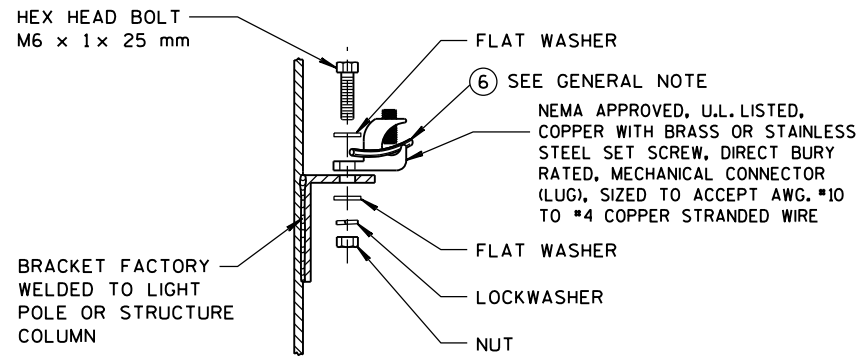
10A01-03	ELECTRICAL HANDHOLE WIRING
10A02-03	IDENTIFICATION PLAQUES LIGHT POLES
10A04-03	IDENTIFICATION PLAQUES UNDERDECK AND HIGH MAST LIGHTING
10A05-02	ELECTRICAL DETAILS GROUND MOUNT LIGHT POLES ISOLATED NEUTRAL SYSTEMS
10A06-02	ELECTRICAL DETAILS GROUND MOUNT LIGHT POLES GROUNDED NEUTRAL SYSTEMS
15C02-06A	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C02-06B	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C04-04	TRAFFIC CONTROL, ADVANCE WARNING SIGNS 45 M. P. H. OR GREATER TWO-WAY UNDIVIDED ROAD OPEN TO TRAFFIC
15C05-04	TRAFFIC CONTROL, ADVANCE WARNING SIGNS 40 M. P. H. OR LESS
15C12-06	TRAFFIC CONTROL FOR LANE CLOSURE WITH FLAGGING OPERATION
15D03-04	TRAFFIC CONTROL, LANE CLOSURE, SPEEDS GREATER THAN 40 M. P. H. WITH BARRIER
15D14-03	TRAFFIC CONTROL, TWO LANE CLOSURE ON FREEWAY OR EXPRESSWAY, SHORT-TERM (LESS THAN 24 HOURS)
15D15-04C	TRAFFIC CONTROL, TAPERED ENTRANCE RAMP WITHIN LANE CLOSURE
15D15-04E	TRAFFIC CONTROL, PARALLEL EXIT RAMP WITHIN LANE CLOSURE
15D16-03	TRAFFIC CONTROL, EXIT RAMP CLOSURE
15D27-03	TRAFFIC CONTROL, SHOULDER CLOSURE ON DIVIDED ROADWAY, SPEEDS GREATER THAN 40 MPH



EQUIPMENT GROUNDING
CONDUCTOR SLACK



UNGROUND CONDUCTOR SLACK
(AND GROUNDED NEUTRAL SLACK
IN GROUNDED NEUTRAL SYSTEM)



HANDHOLE GROUNDING LUG

(NUT, BOLT, WASHERS, AND LOCK WASHERS
SHALL BE STAINLESS STEEL)

CONDUCTOR COLOR CODES

KEY	CONDUCTOR	COLOR
3	UNGROUND LINE WIRE	*
4	GROUNDED LINE WIRE	WHITE
5	SYSTEM GROUNDING LINE WIRE	GREEN
6	GROUNDING ELECTRODE CONDUCTOR	BARE
11	UNGROUND POLE WIRE	*
12	GROUNDED POLE WIRE	WHITE
13	EQUIPMENT GROUNDING POLE WIRE	GREEN

* FOLLOW COLOR CODING SHOWN IN THE PLANS.
WHERE THE PLANS DO NOT SHOW COLOR CODING,
USE BLACK FOR SINGLE LUMINAIRE POLES; BLACK
AND RED FOR TWIN LUMINAIRE POLES.



1 POLE (1P)



2 POLE (2P)

FUSE ASSEMBLIES

GENERAL NOTES

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

USE THIS DETAIL IN CONJUNCTION WITH THE ELECTRICAL DETAILS FOR THE
APPLICATION, WHICH MAY BE A LIGHT POLE, SIGN BRIDGE, ETC.

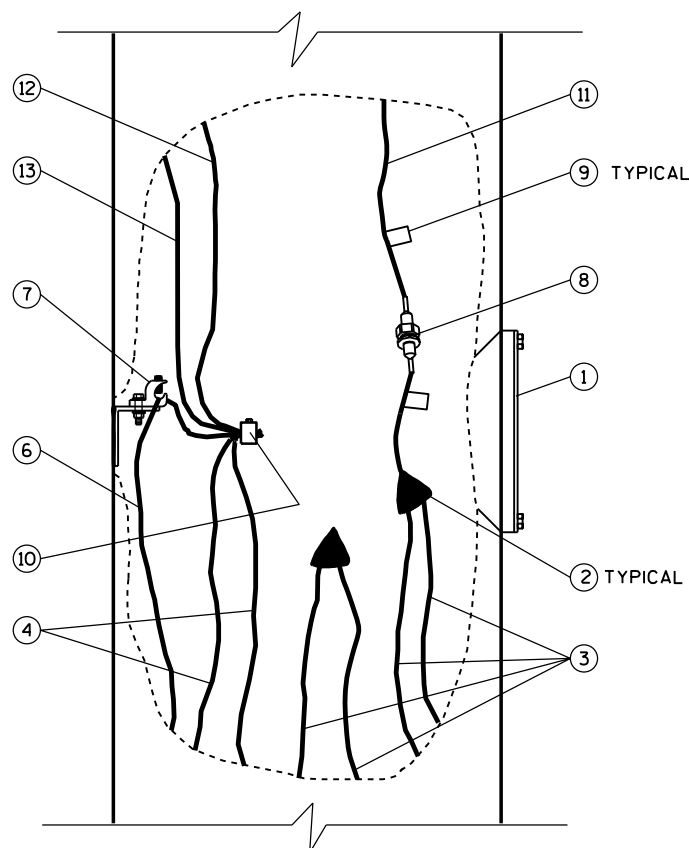
THE GROUNDING ELECTRODE CONDUCTOR SHALL BE CONTINUOUS WITHOUT
SPICES FROM THE GROUNDING ELECTRODE THROUGH THE HANDHOLE GROUNDING
LUG TO THE CONNECTOR.

THREE POLE WIRES ARE SHOWN FOR A SINGLE LUMINAIRE LIGHT POLE.
THREE ADDITIONAL POLE WIRES REQUIRED FOR TWIN LUMINAIRE LIGHT POLES
ARE OMITTED FROM THE DRAWING FOR CLARITY. IN THE TWIN POLE CASE,
BUNDLE EACH SET OF THREE WIRES WITH A NYLON CABLE TIE.

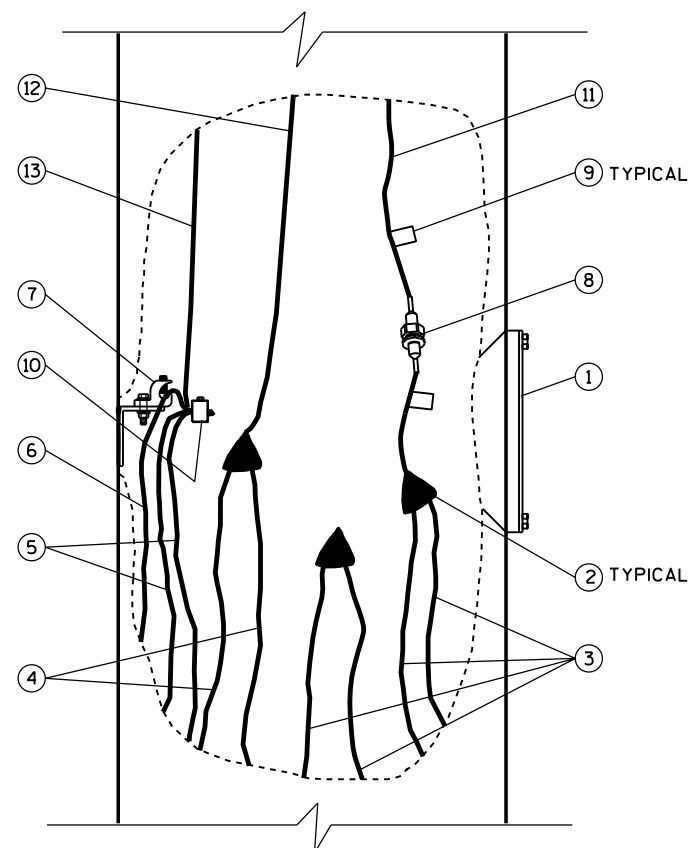
IN 3-PHASE SYSTEMS, THERE WILL BE ONE MORE UNGROUNDED LINE WIRE,
WHICH IS OMITTED FROM THE DRAWING FOR CLARITY.

CIRCUIT TAGS SHALL BE INSTALLED ONLY WHERE REQUIRED IN THE SPECIAL
PROVISIONS.

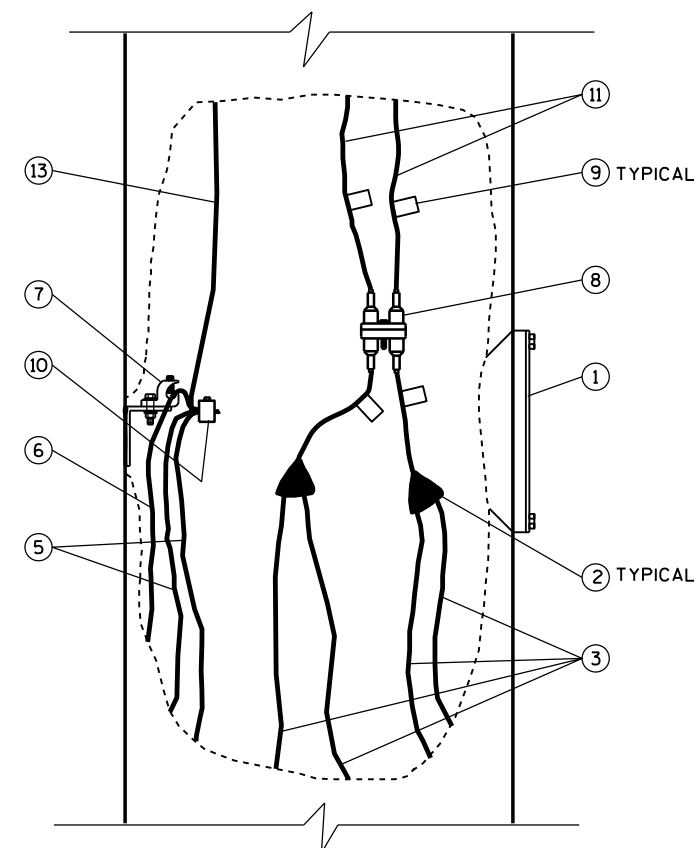
TYPICAL CONDUCTOR SLACK AT HANDHOLES



CUTAWAY HANDHOLE DETAIL
GROUNDED NEUTRAL SYSTEMS
1-φ



CUTAWAY HANDHOLE DETAIL
ISOLATED NEUTRAL SYSTEMS
1-φ SHOWN; 3-φ WYE SIMILAR
(SEE GENERAL NOTE)



CUTAWAY HANDHOLE DETAIL
PHASE-TO-PHASE SYSTEMS
1-φ SHOWN; 3-φ DELTA SIMILAR
(SEE GENERAL NOTE)

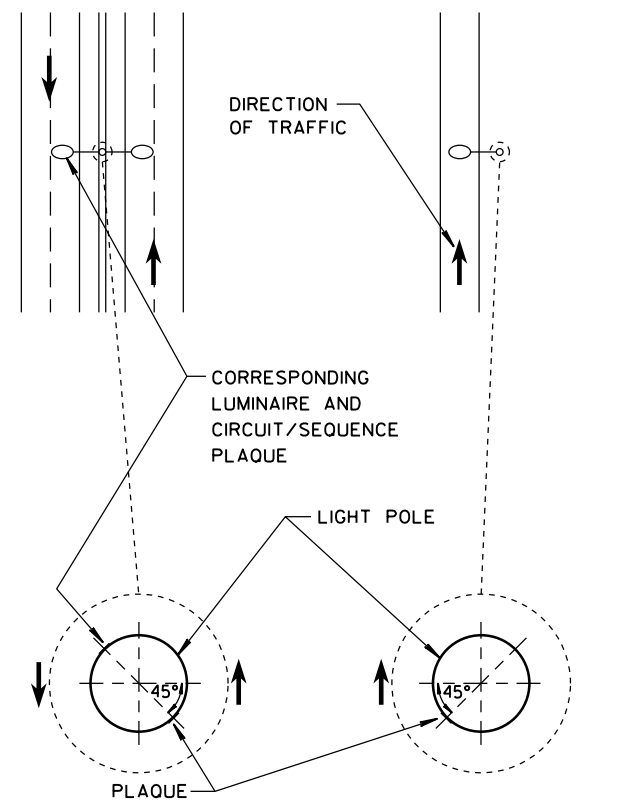
- HANDHOLE AND COVER
- INSULATED SPLICE
- UNGROUND LINE WIRE
- GROUNDED LINE WIRE
- SYSTEM GROUNDING LINE WIRE
- GROUNDING ELECTRODE CONDUCTOR
- HANDHOLE GROUNDING LUG
- FUSE ASSEMBLY, 1P OR 2P AS REQUIRED
- CIRCUIT TAG (SEE GENERAL NOTE)
- REVERSIBLE PRESSURE OR COMPRESSION
GROUNDING CONNECTOR (NOT INSULATED)
- UNGROUND POLE WIRE
- GROUNDED POLE WIRE
- EQUIPMENT GROUNDING POLE WIRE

ELECTRICAL HANDHOLE WIRING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

NOTE: REQUIRED CONDUCTOR SLACK NOT SHOWN ON "CUTAWAY HAND HOLE" DETAILS FOR
DRAWING CLARITY, SEE "TYPICAL CONDUCTOR SLACK AT HANDHOLES" ON THIS SHEET.



MEDIAN POLE SINGLE ARM POLE

**LOCATION OF LIGHT POLE
CIRCUIT/SEQUENCE PLAQUE**

GENERAL NOTES

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

PLAQUES SHALL BE INCIDENTAL TO ALL NEW INSTALLATIONS.

WHERE SHOWN IN THE PLANS, REPLACEMENT PLAQUES WILL BE MEASURED AND PAID SEPARATELY.

FASTEN TOP, CENTER AND BOTTOM OF PLAQUE TO POLE OR OTHER LOCATION AS FOLLOWS:

- GALVANIZED STEEL SHAFT - STAINLESS STEEL POP RIVETS
- A588 STEEL SHAFT - SHIM FOR DRAINAGE WITH STAINLESS WASHERS;
FASTEN WITH STAINLESS SELF-TAPPING SCREWS
- ALUMINUM SHAFTS - ALUMINUM POP RIVETS

MOUNTING HEIGHT SHALL BE APPROXIMATELY 5.0' ABOVE CURB OR SHOULDER. ADJUST IF IT IS KNOWN THAT REQUIRED TRAFFIC SIGNS WILL OBSTRUCT.

PLAQUE MATERIALS:

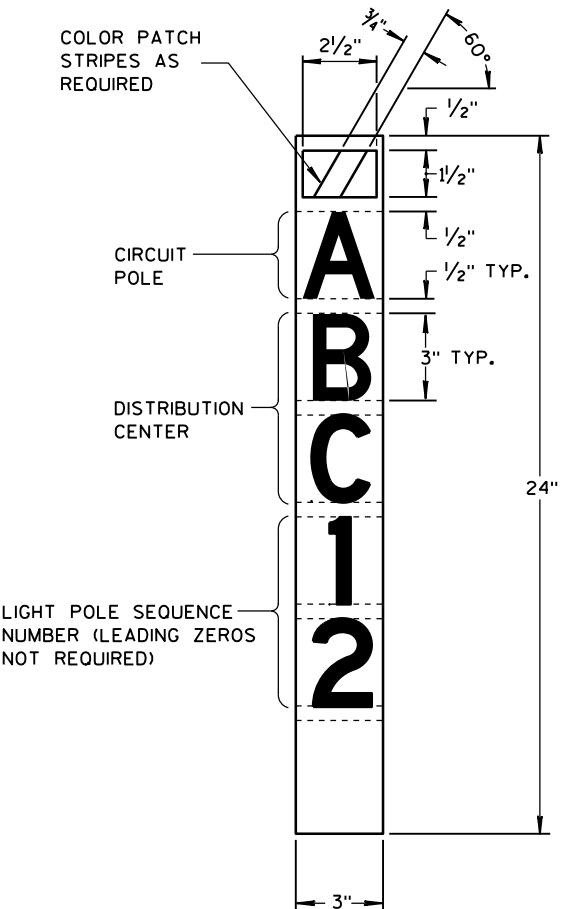
- BASE - SHEET ALUMINUM, 0.060" THICK.
- FACE - WHITE, SELF-ADHESIVE VINYL SHEETING, NON-RETRORFLECTIVE
- LINES - BLACK, 1/2" WIDE, SELF-ADHESIVE
- CHARACTERS - BLACK, SELF-ADHESIVE, SERIES "D", SIZE AS SHOWN
- COLOR PATCHES - VARIOUS COLORS, SELF-ADHESIVE VINYL SHEETING

WITH THE APPROVAL OF THE ENGINEER, THE BASE MATERIAL MAY BE OMITTED AND THE FACE ADHERED DIRECTLY TO THE SURFACE, IN CASES SUCH AS SMOOTH, CLEAN ALUMINUM POLES.

ALTERNATIVE COMPUTER-GENERATED SIGN LETTERING MAY BE ACCEPTED IF THE ENGINEER FINDS IT TO BE EQUIVALENT.

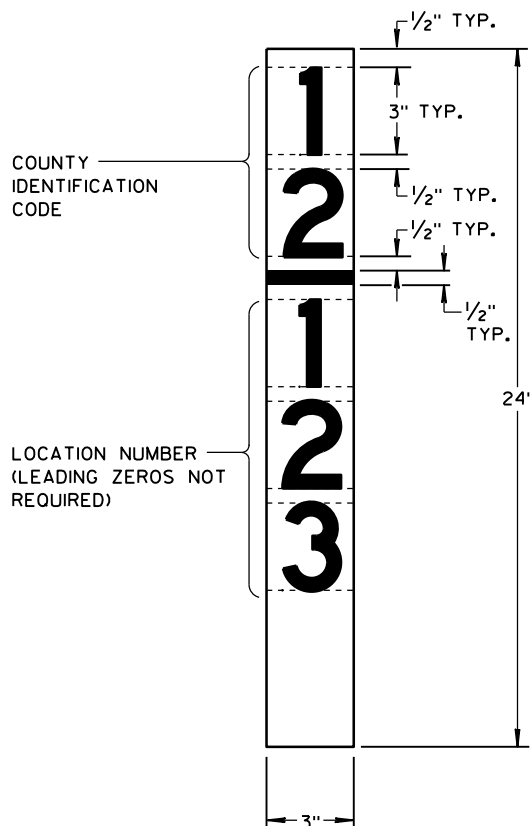
COLOR PATCH CODE FOR HPS AND LED LUMINAIRES

HPS	LED	COLOR PATCH CODE
1000 WATT		NO PATCH
400 WATT	CATEGORY D	ORANGE
310 WATT		BLUE
250 WATT	CATEGORY C	ORANGE WITH WHITE STRIPE
200 WATT		RED
150 WATT	CATEGORY B	GREEN
100 WATT	CATEGORY A	BROWN
70 WATT	CATEGORY UDL	BROWN WITH WHITE STRIPE

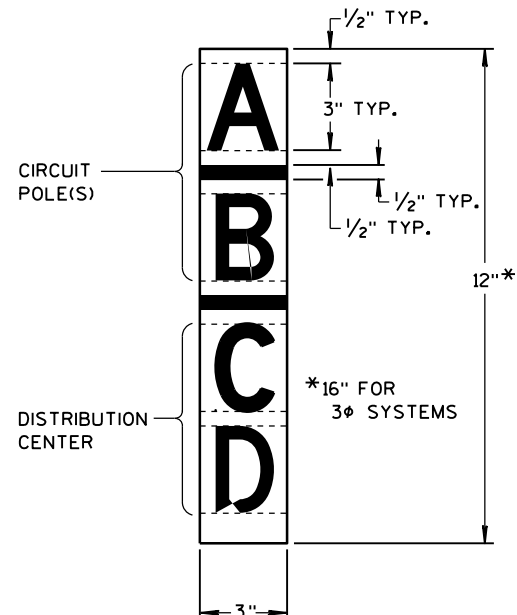


**LIGHT POLE CIRCUIT/SEQUENCE
PLAQUE**

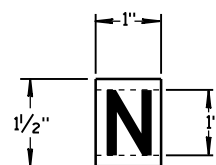
IDENTIFICATION PLAQUES LIGHT POLES	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED Feb. 2015 DATE	/S/ Ahmet Demirbilek STATE ELECTRICAL ENGINEER
FHWA	



**HIGH MAST LIGHT TOWER
STRUCTURE PLAQUE**

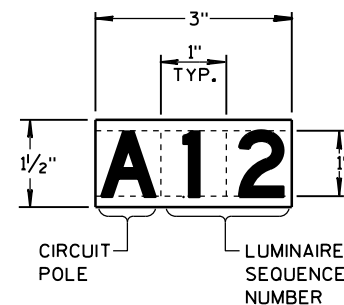


**UNDERDECK LIGHTING OR
HIGH MAST LIGHT
TOWER CIRCUIT PLAQUE**



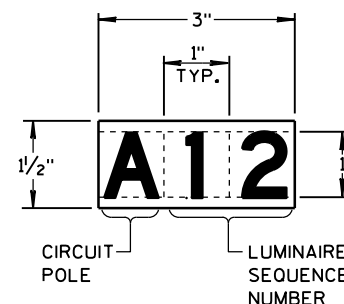
**HIGH MAST LIGHT TOWER
NORTH PLAQUE**

(MOUNT ON LOWERING RING - INDICATING NORTH
HEADING $2 \pm 10^\circ$ WHEN RING IS RAISED AND LATCHED)



**HIGH MAST LIGHT
TOWER LUMINAIRE
SEQUENCE PLAQUE**

(MOUNT ON LUMINAIRE RING)



**UNDER DECK LUMINAIRE
SEQUENCE DECAL**

(MOUNT ON LUMINAIRE)

GENERAL NOTES

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

PLAQUES SHALL BE INCIDENTAL TO ALL NEW INSTALLATIONS.

FASTEN TOP, CENTER AND BOTTOM OF PLAQUE TO POLE OR OTHER LOCATION AS FOLLOWS:

CONCRETE SURFACE - MASONRY ANCHORS

GALVANIZED STEEL SHAFT - STAINLESS STEEL POP RIVETS

A588 STEEL SHAFT - SHIM FOR DRAINAGE WITH STAINLESS WASHERS;
FASTEN WITH STAINLESS SELF-TAPPING SCREWS

PLAQUE MATERIALS:

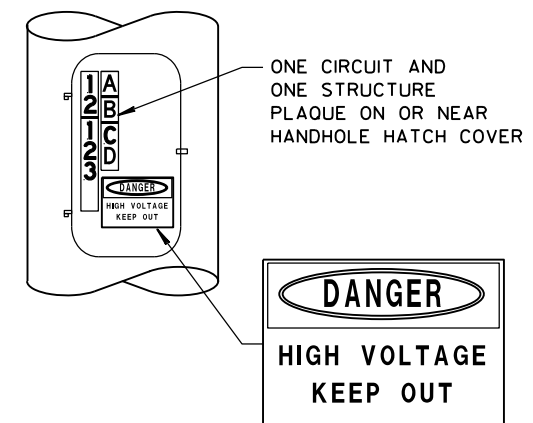
BASE - SHEET ALUMINUM, 0.060" THICK.

FACE - WHITE, SELF-ADHESIVE VINYL SHEETING, NON-RETROREFLECTIVE

LINES - BLACK, 1/2" WIDE, SELF-ADHESIVE

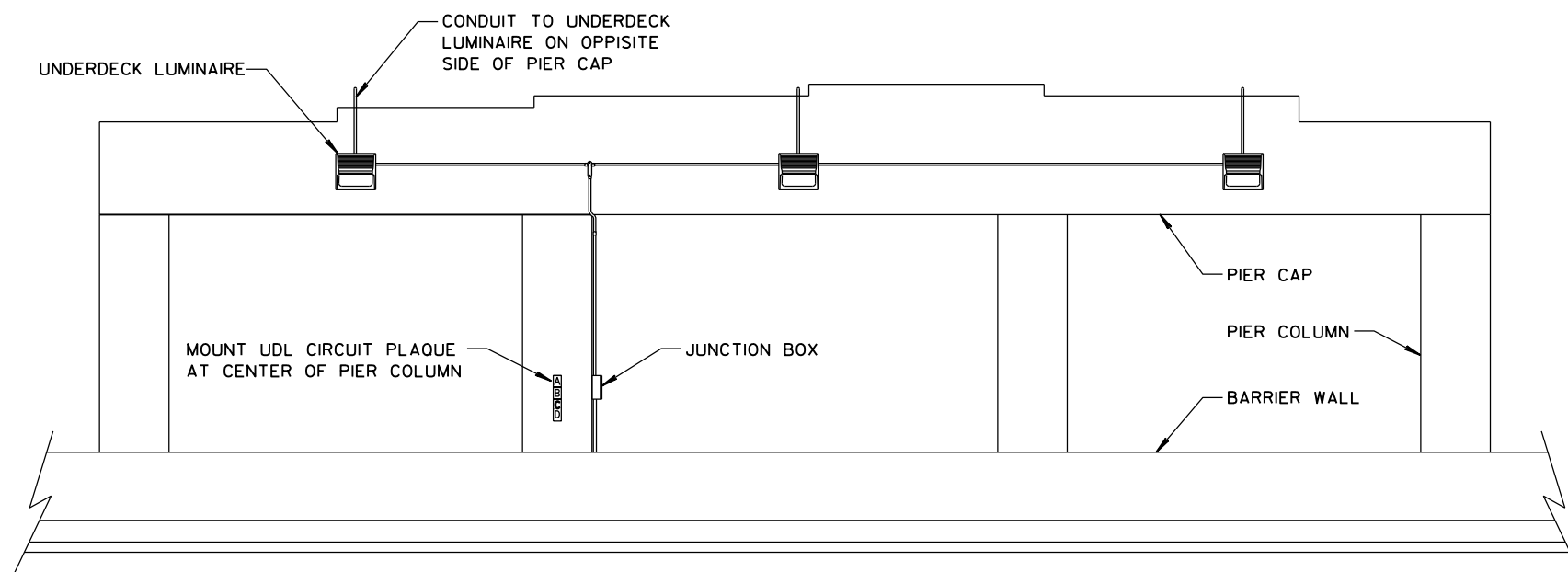
CHARACTERS - BLACK, SELF-ADHESIVE, SERIES "D", SIZE AS SHOWN

ALTERNATIVE COMPUTER-GENERATED SIGN LETTERING MAY BE ACCEPTED IF THE ENGINEER FINDS IT TO BE EQUIVALENT.



NOTE: NEMA PLAQUE SHOWN ABOVE IS REQUIRED ONLY IN PARK AND RIDE LOTS OR IN OTHER PED-ESTRIAN ACCESSIBLE AREAS.

**LOCATION OF HIGH MAST LIGHT TOWER
STRUCTURE PLAQUE AND CIRCUIT PLAQUE**



**LOCATION OF UNDERDECK LIGHTING
CIRCUIT PLAQUE**

**IDENTIFICATION PLAQUES
UNDERDECK AND HIGH
MAST LIGHTING**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June, 2015 /S/ Ahmet Demirelek
DATE STATE ELECTRICAL ENGINEER
FHWA

GENERAL NOTES

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

USE THIS DETAIL IN CONJUNCTION WITH THE DETAIL FOR ELECTRICAL HANDHOLE WIRING.

THE GROUNDING ELECTRODE CONDUCTOR SHALL BE CONTINUOUS WITHOUT SPLICES FROM THE GROUNDING ELECTRODE THROUGH THE HANDHOLE GROUNDING LUG TO THE CONNECTOR.

WIRING FOR SINGLE LUMINAIRE POLES IS SHOWN WITH SOLID LINES. WIRING FOR THE SECOND LUMINAIRE OF TWIN LUMINAIRE POLES IS SHOWN WITH DOTTED LINES.

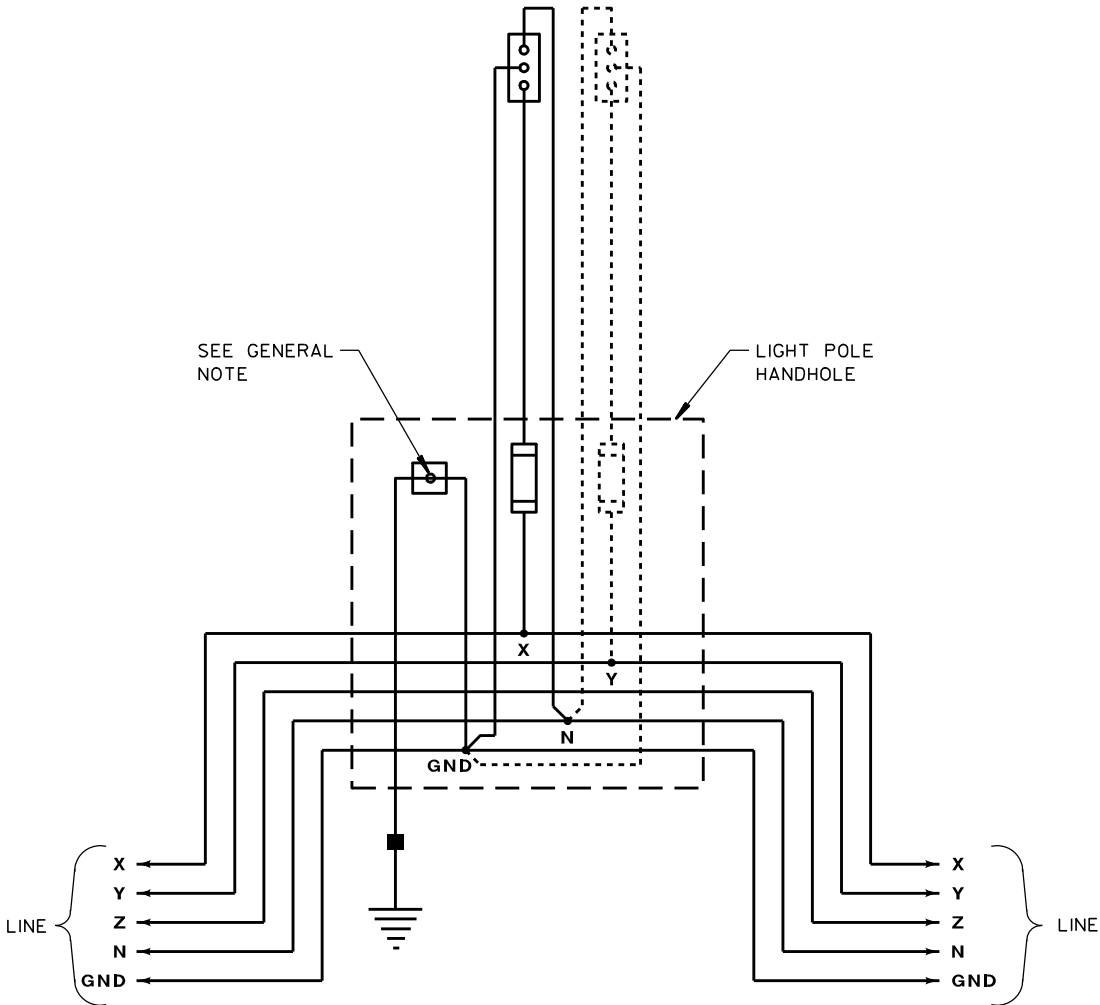
THE PLANS WILL SHOW WHICH CIRCUIT LEG(S) ARE CONNECTED TO EACH INSTALLATION.

HANDHOLE FUSE SCHEDULES

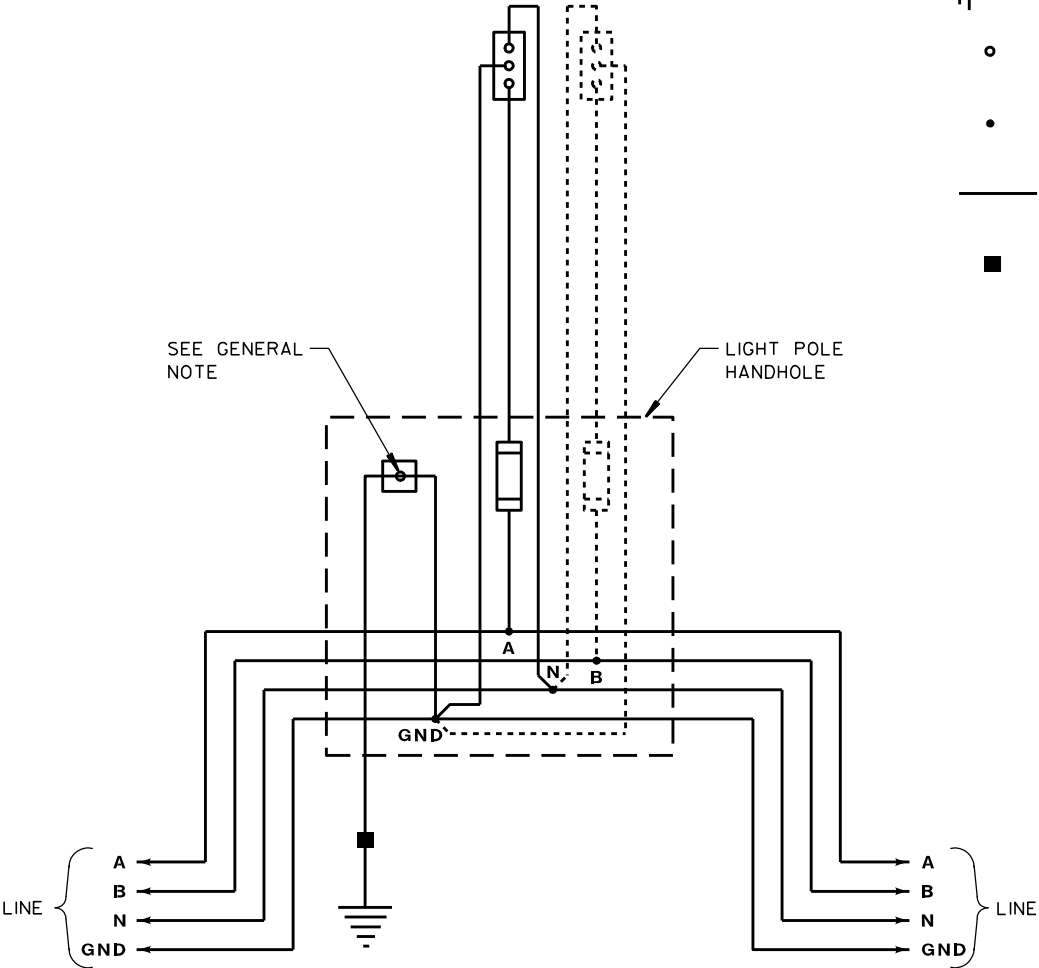
LINE VOLTAGE φ-GROUND	BALLAST WATTAGE	
	70-200 W	250-400 W
120 VAC	5 A	10 A
240 VAC	5 A	5 A
277 VAC	5 A	5 A
480 VAC	3 A	5 A

LEGEND

- A, B, X, Y, Z UNGROUNDED CIRCUIT CONDUCTORS
- N GROUNDED CIRCUIT CONDUCTORS
- GND EQUIPMENT GROUNDING CONDUCTOR
- P POLE (ELECTRICAL CIRCUIT)
- φ PHASE (ELECTRICAL CURRENT)
- [Symbol] HANDHOLE GROUND LUG
- [Symbol] SINGLE-POLE (1P) FUSE ASSEMBLY
- [Symbol] TWO-POLE (2P) FUSE ASSEMBLY
- [Symbol] UNFUSED LUMINAIRE
- [Symbol] EQUIPMENT GROUNDING ELECTRODE
- TERMINAL
- SPLICE
- CONDUCTOR
- EXOTHERMIC WELD



TYPICAL WIRING DIAGRAM
ISOLATED NEUTRAL SYSTEM
3-φ 208Y/120VAC OR 480Y/277VAC 4 WIRE



TYPICAL WIRING DIAGRAM
ISOLATED NEUTRAL SYSTEM
1-φ 120/240VAC OR 240/480VAC 3 WIRE

ELECTRICAL DETAILS
GROUND MOUNT LIGHT POLES
ISOLATED NEUTRAL SYSTEM

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
10/25/2010 /S/ John Corbin
DATE STATE ELECTRICAL ENGINEER FOR HWYS
FHWA

GENERAL NOTES

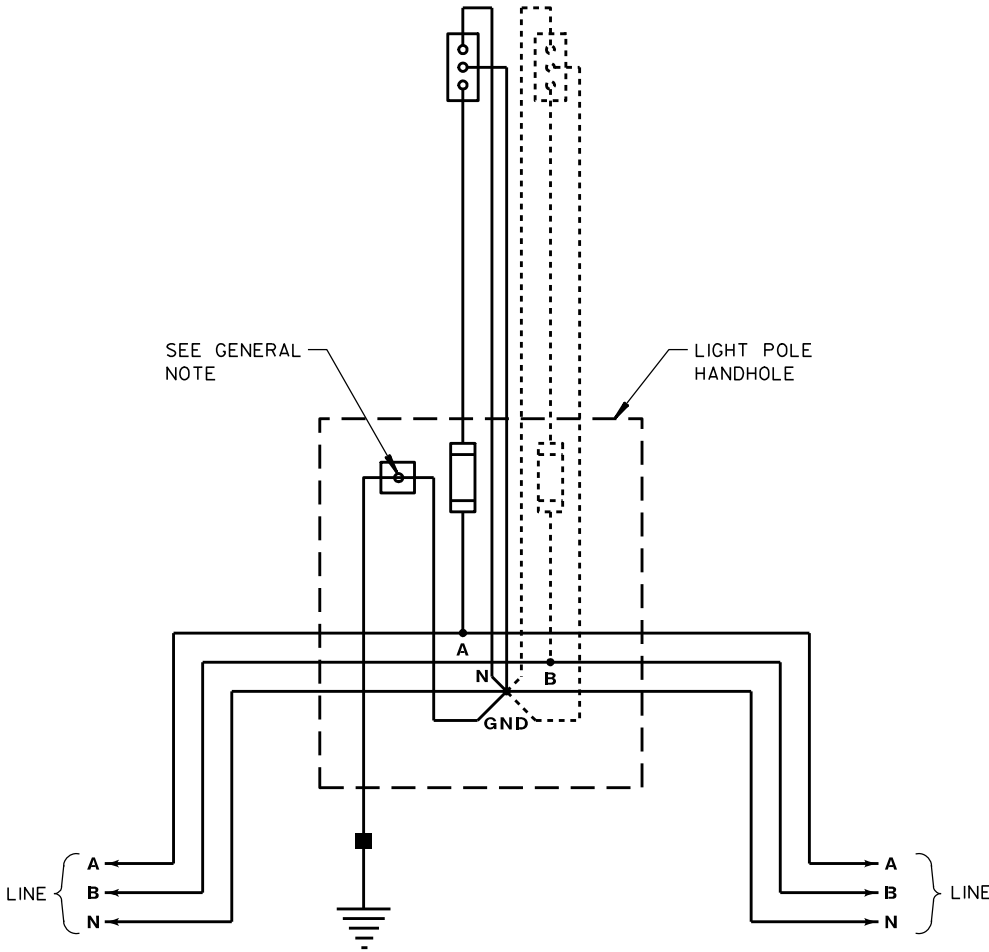
DETAILS OF CONSTRUCTION AND WORKMANSHIP NOT SHOWN IN THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE CONTRACT.

USE THIS DETAIL IN CONJUNCTION WITH THE DETAIL FOR ELECTRICAL HANDHOLE WIRING.

THE GROUNDING ELECTRODE CONDUCTOR SHALL BE CONTINUOUS WITHOUT SPLICES FROM THE GROUNDING ELECTRODE THROUGH THE HANDHOLE GROUNDING LUG TO THE CONNECTOR.

WIRING FOR SINGLE LUMINAIRE POLES IS SHOWN WITH SOLID LINES. WIRING FOR THE SECOND LUMINAIRE OF TWIN LUMINAIRE POLES IS SHOWN WITH DOTTED LINES.

THE PLANS WILL SHOW WHICH CIRCUIT LEG(S) ARE CONNECTED TO EACH INSTALLATION.



TYPICAL WIRING DIAGRAM
GROUNDED NEUTRAL SYSTEM
1- ϕ 240/480VAC 3 WIRE OR 480VAC 2 WIRE

HANDHOLE FUSE SCHEDULES

LINE VOLTAGE ϕ -GROUND	BALLAST WATTAGE	
	70-200 W	250-400 W
120 VAC	5 A	10 A
240 VAC	5 A	5 A
277 VAC	5 A	5 A
480 VAC	3 A	5 A

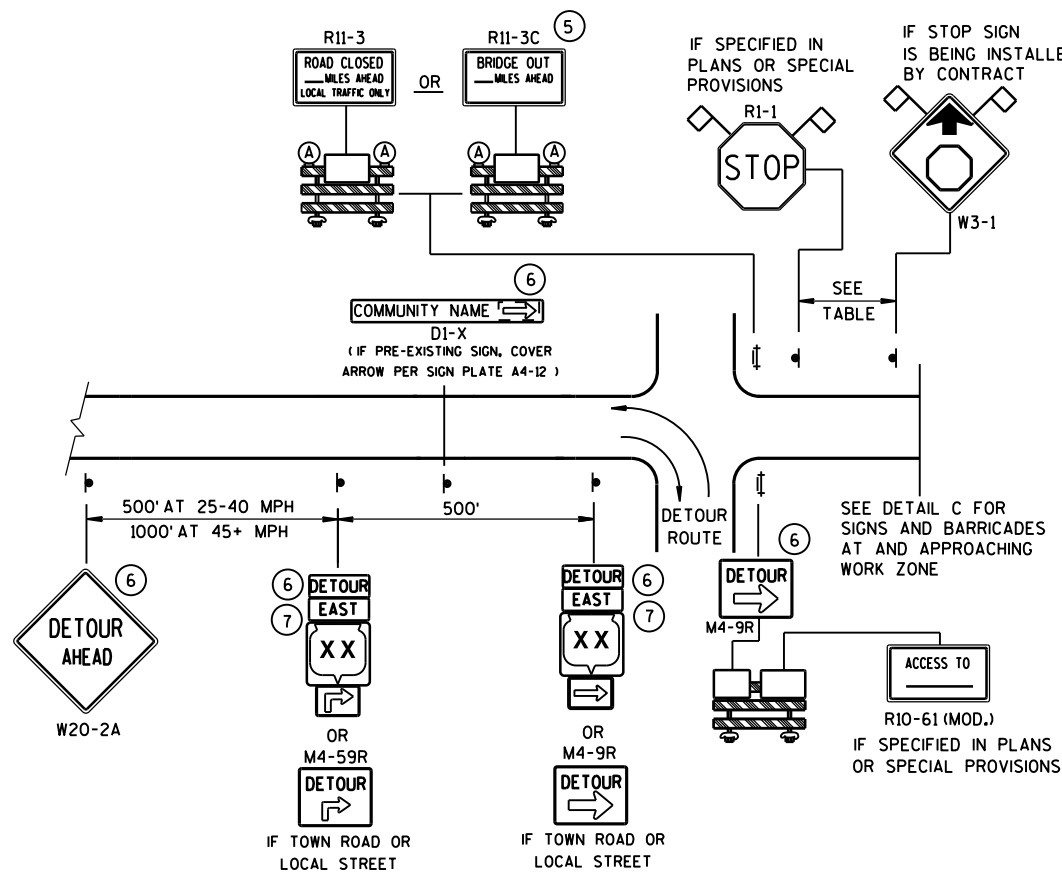
LEGEND

- A, B, X, Y, Z UNGROUNDED CIRCUIT CONDUCTORS
- N GROUNDED CIRCUIT CONDUCTORS
- GND EQUIPMENT GROUNDING CONDUCTOR
- P POLE (ELECTRICAL CIRCUIT)
- ϕ PHASE (ELECTRICAL CURRENT)
- [Symbol] HANDHOLE GROUND LUG
- [Symbol] SINGLE-POLE (1P) FUSE ASSEMBLY
- [Symbol] TWO-POLE (2P) FUSE ASSEMBLY
- [Symbol] UNFUSED LUMINAIRE
- [Symbol] EQUIPMENT GROUNDING ELECTRODE
- o TERMINAL
- SPLICE
- CONDUCTOR
- EXOTHERMIC WELD

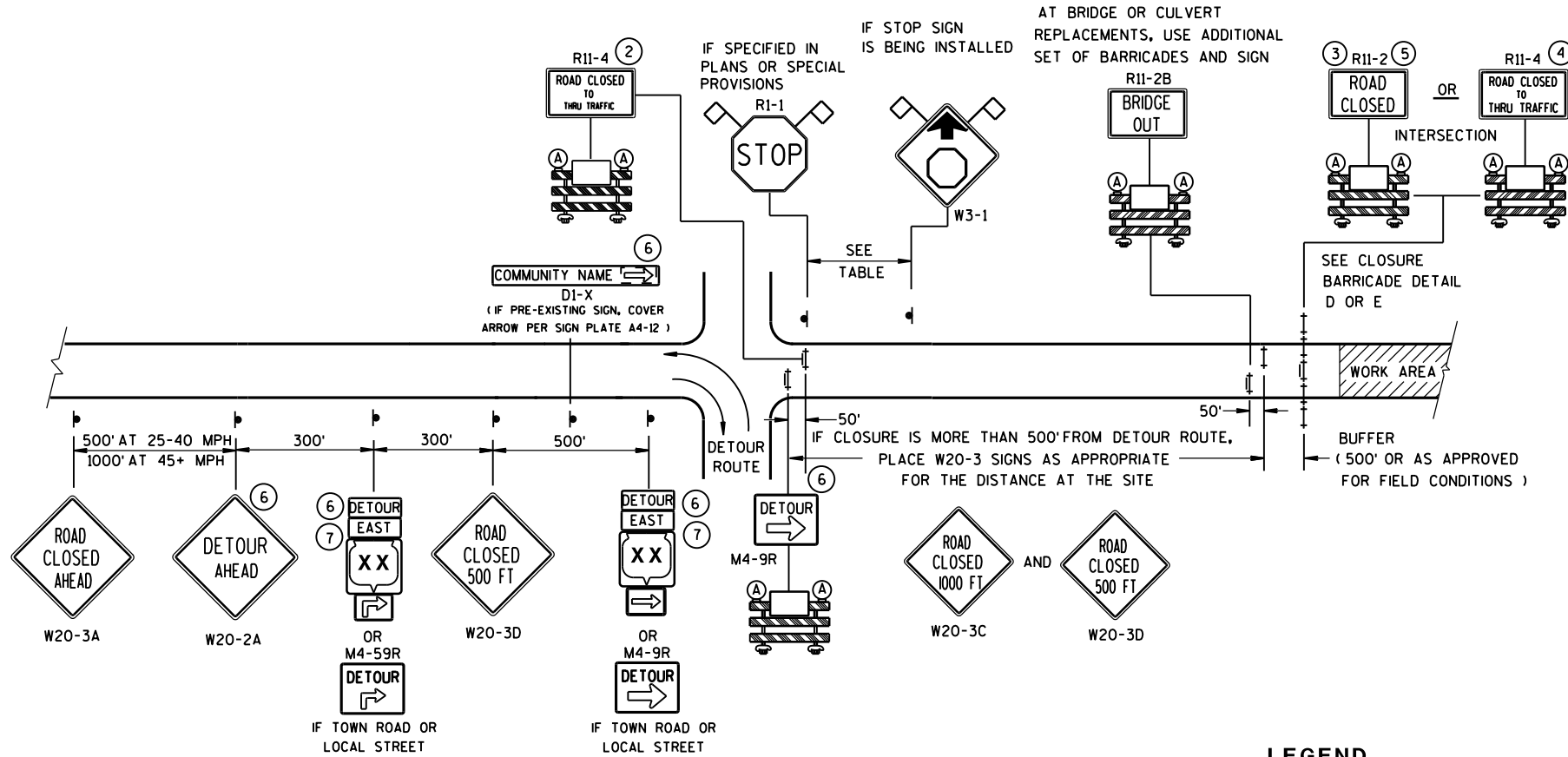
ELECTRICAL DETAILS
GROUND MOUNT LIGHT POLES
GROUNDED NEUTRAL SYSTEMS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

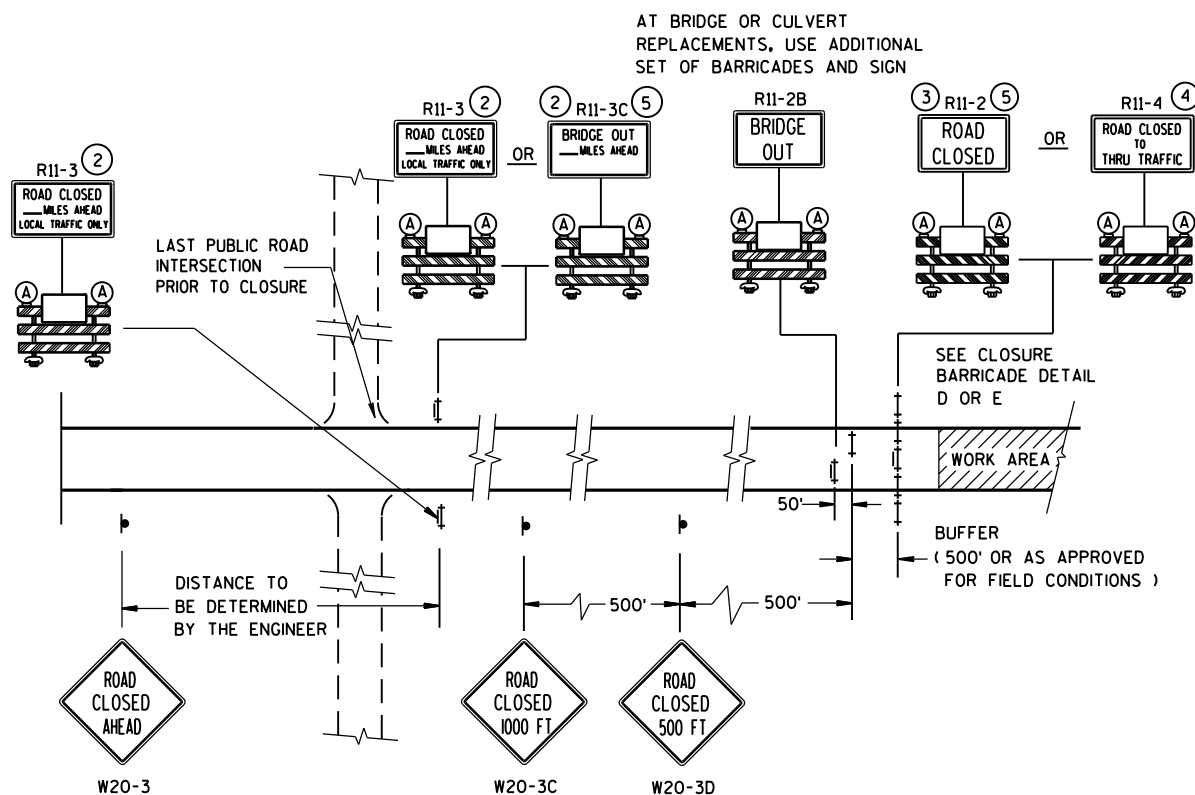
APPROVED
10/25/2010 /S/ John Corbin
DATE STATE ELECTRICAL ENGINEER FOR HWYS
FHWA



DETAIL A
MAINLINE CLOSURE WITH POSTED DETOUR
WORK ZONE GREATER THAN 1/2 MILE FROM DETOUR ROUTE (1000 FEET IF URBAN)



DETAIL B
MAINLINE CLOSURE WITH POSTED DETOUR
WORK ZONE LESS THAN 1/2 MILE FROM DETOUR ROUTE (1000 FEET IF URBAN)

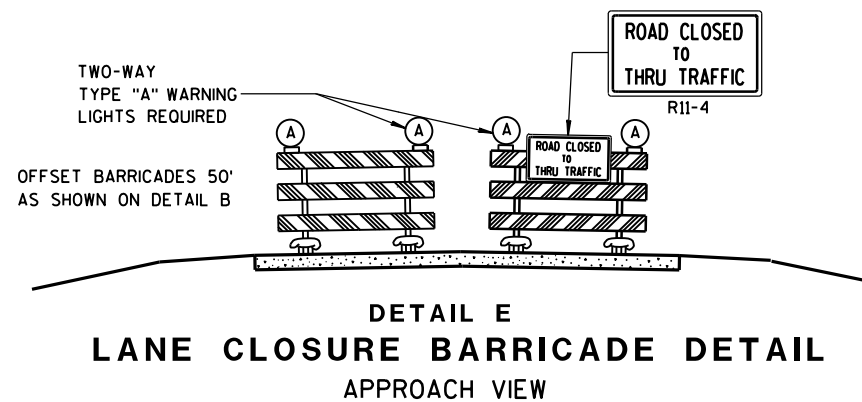
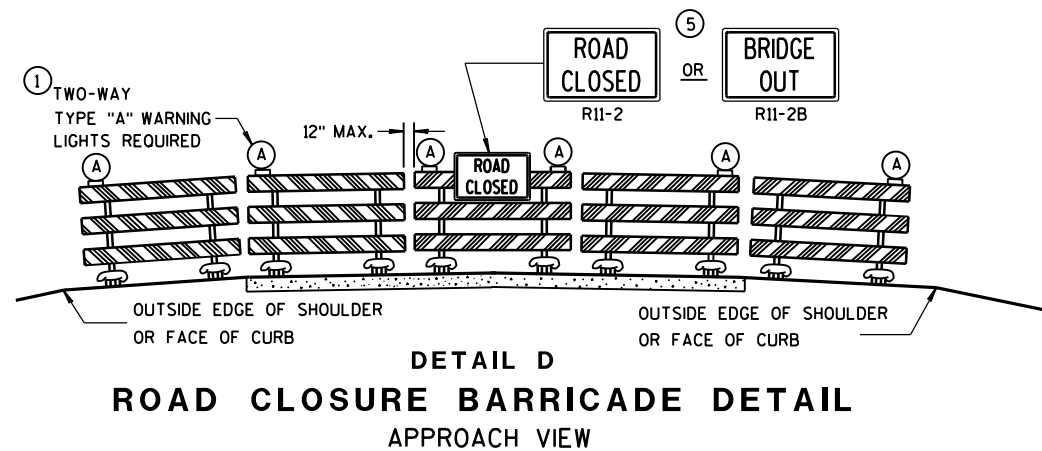


DETAIL C
MAINLINE CLOSURE, NO POSTED DETOUR

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

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 Amokobe Atepe STATEWIDE WORK ZONE TRAFFIC SAFETY ENGINEER



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.

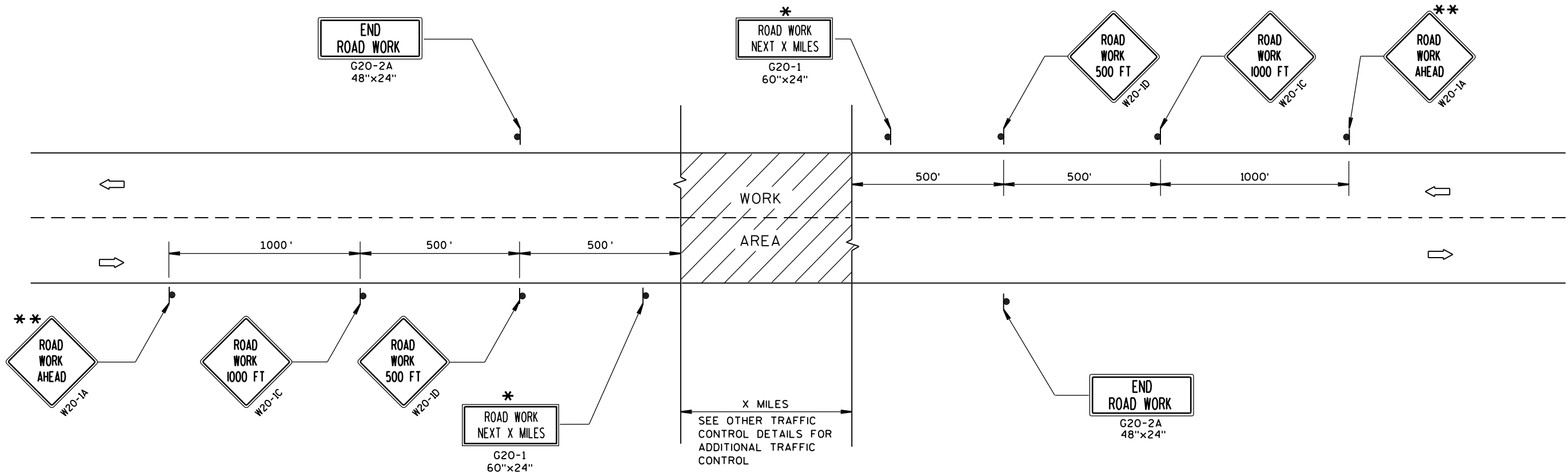
R1-1 SHALL BE 36" X 36".

- 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 /S/ Peter Amokobe Atepe
DATE STATEWIDE WORK ZONE TRAFFIC
FHWA SAFETY ENGINEER



TYPICAL SIDEROAD APPROACH WARNING SIGN DETAIL

GENERAL NOTES

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

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

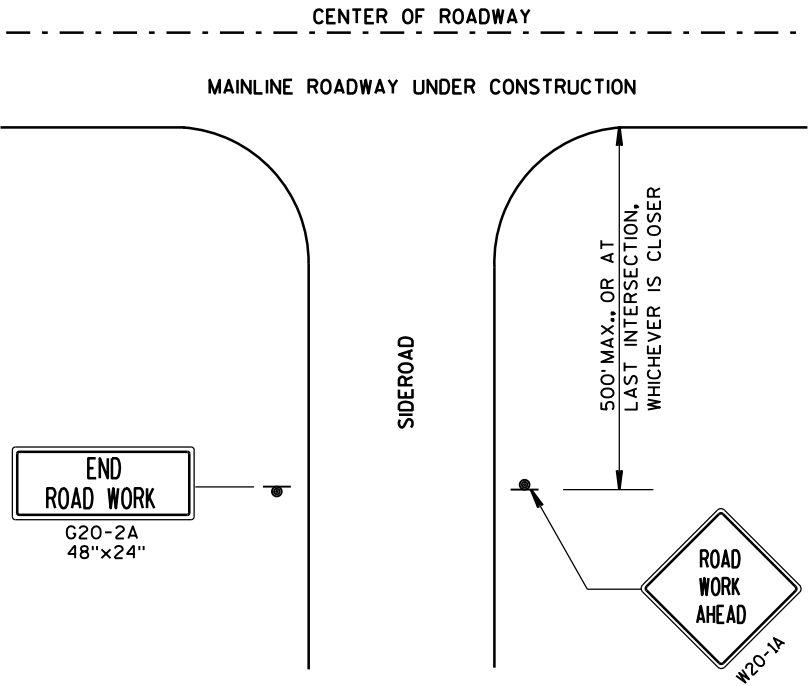
ALL SIGNS ARE 48"x48" UNLESS OTHERWISE NOTED.

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

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

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

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



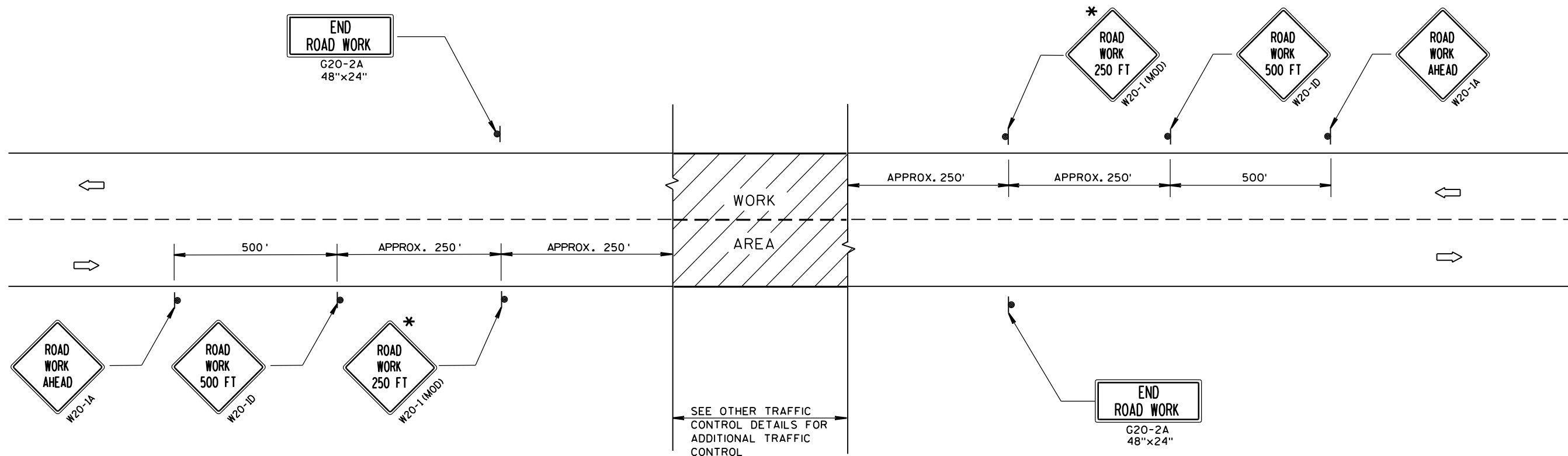
LEGEND

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

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
Sept. 2017 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER
FHWA



TYPICAL SIDEROAD APPROACH WARNING SIGN DETAIL

GENERAL NOTES

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

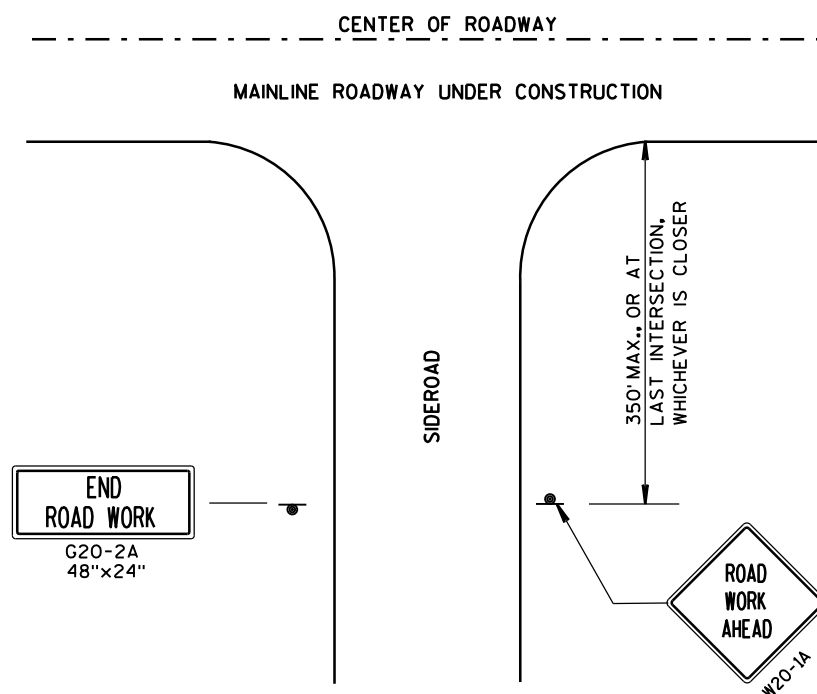
THE SPACING BETWEEN TRAFFIC CONTROL SIGNS SHOULD BE ADJUSTED TO NOT CONFLICT WITH AND SHOULD PROVIDE A DESIRABLE MINIMUM OF 200 FEET CLEARANCE TO EXISTING SIGNS THAT WILL REMAIN IN PLACE.

ALL SIGNS ARE 48"x48" UNLESS OTHERWISE NOTED. IF NECESSARY DUE TO SPACE CONSTRAINTS, 36"x36" SIGNS MAY BE USED INSTEAD OF 48"x48" SIGNS.

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

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

* THE THIRD W20-1 SIGN IS REQUIRED ONLY IF THERE IS AN INTERSECTION BETWEEN THE "ROAD WORK 500 FT" SIGN AND THE WORK ZONE. ADJUST THE PLACEMENT OF THIS SIGN BASED ON INTERSECTION LOCATION AND OTHER FIELD CONDITIONS.



LEGEND

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

TRAFFIC CONTROL, ADVANCE
WARNING SIGNS 40 M.P.H.
OR LESS TWO-WAY UNDIVIDED
ROAD OPEN TO TRAFFIC

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
Sept. 2017 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER
FHWA

LEGEND

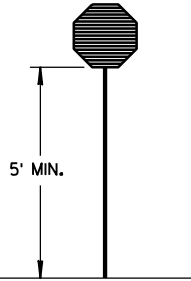
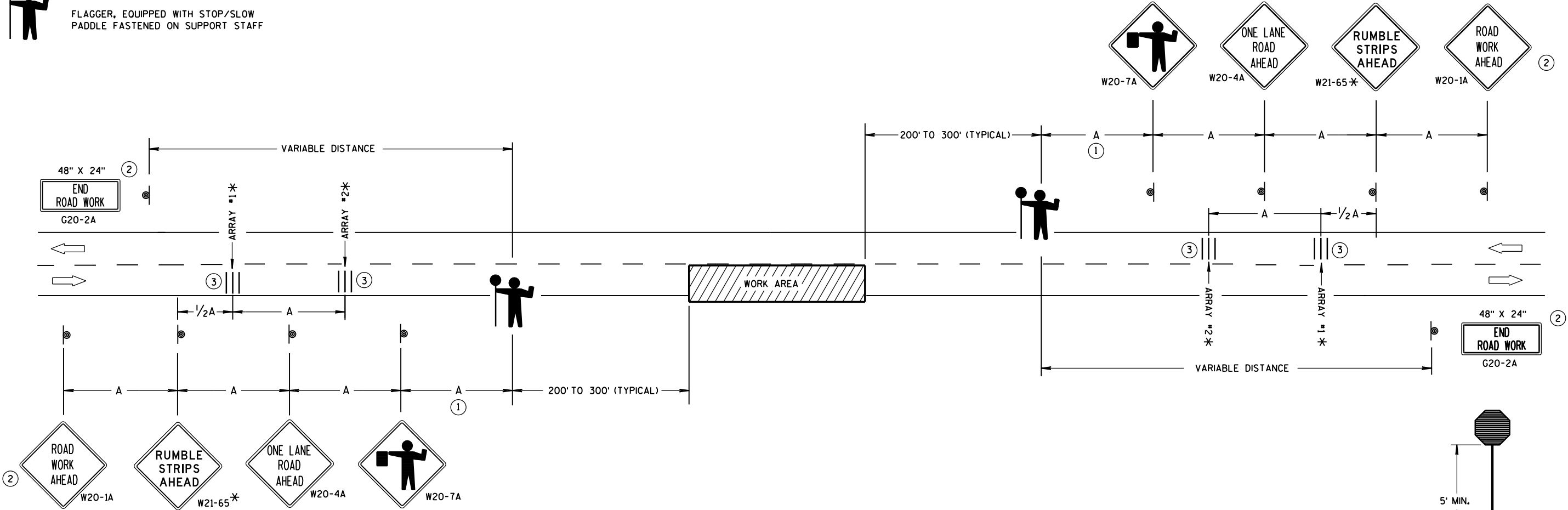
- SIGN ON PORTABLE OR PERMANENT SUPPORT
- DIRECTION OF TRAFFIC
- WORK AREA
- FLAGGER, EQUIPPED WITH STOP/SLOW PADDLE FASTENED ON SUPPORT STAFF

SIGN AND TEMPORARY RUMBLE STRIP ARRAY SPACING TABLE

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



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



STOP/SLOW PADDLE ON SUPPORT STAFF

TRAFFIC CONTROL FOR LANE CLOSURE WITH FLAGGING OPERATION

GENERAL NOTES

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

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

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

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

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

INSTALL TEMPORARY RUMBLE STRIPS PER MANUFACTURER'S RECOMMENDATIONS. PLACE ADVANCE SIGNING PRIOR TO INSTALLING TEMPORARY RUMBLE STRIPS.

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

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

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

- FOR A MOVING WORK OPERATION, SIGNING AND TEMPORARY RUMBLE STRIPS (IF USED) SHALL BE REESTABLISHED (AS SIMULTANEOUSLY AS PRACTICAL) AT APPROXIMATELY 3,500 FOOT INTERVALS IN THE MOVING WORK OPERATION OR AS APPROVED BY THE ENGINEER.
- SIGN NOT REQUIRED IF FLAGGING OPERATION OCCURS WITHIN A SIGNED ROAD WORK ZONE AREA.
- EACH TEMPORARY RUMBLE STRIP ARRAY CONSISTS OF THREE RUMBLE STRIPS SPACED ACCORDING TO MANUFACTURER'S RECOMMENDATION, PLACED TRANSVERSE ACROSS THE LANE AT LOCATIONS SHOWN.

TRAFFIC CONTROL FOR LANE CLOSURE WITH FLAGGING OPERATION

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June 2017 /S/ Andrew Heldtke
DATE WORK ZONE ENGINEER
FHWA

LEGEND

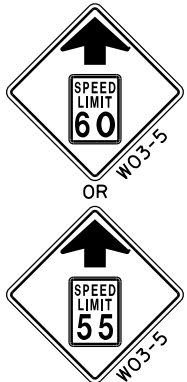
- SIGN ON PERMANENT SUPPORT
- TRAFFIC CONTROL DRUM WITH TYPE "C" STEADY BURN LIGHT
- TRAFFIC CONTROL DRUM
- FLASHING ARROW BOARD
- REMOVING PAVEMENT MARKING
- CONCRETE BARRIER TEMPORARY PRECAST
- DIRECTION OF TRAFFIC
- WORK AREA

L, TAPER LENGTH (MPH)						
SPEED (MPH)	W, LATERAL OFFSET (FT)					
	10	11	12	13	14	15
45	450	495	540	585	630	675
50	500	550	600	650	700	750
55	550	605	660	715	770	825
60	600	660	720	780	840	900
65	650	715	780	845	910	975
70	700	770	840	910	980	1050



W057-52
48"x36"

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



LOCATED 2600 FEET IN ADVANCE OF R2-1 SIGN AND 500 FEET BEYOND THE "ROAD WORK 1 MILE" SIGN.



R2-1
48"x60"
(BLACK AND WHITE)
LOCATED 500 FEET BEYOND W20-5G SIGN.



IF THE REGULATORY SPEED HAS BEEN REDUCED, 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 RESUME SPEED LIMIT SIGN A MINIMUM OF 200 FEET (500 FEET DESIRABLE) AFTER END ROAD WORK SIGNS.

GENERAL NOTES

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

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

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

ALL SIGNS ARE 48"x48" UNLESS OTHERWISE NOTED.

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

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

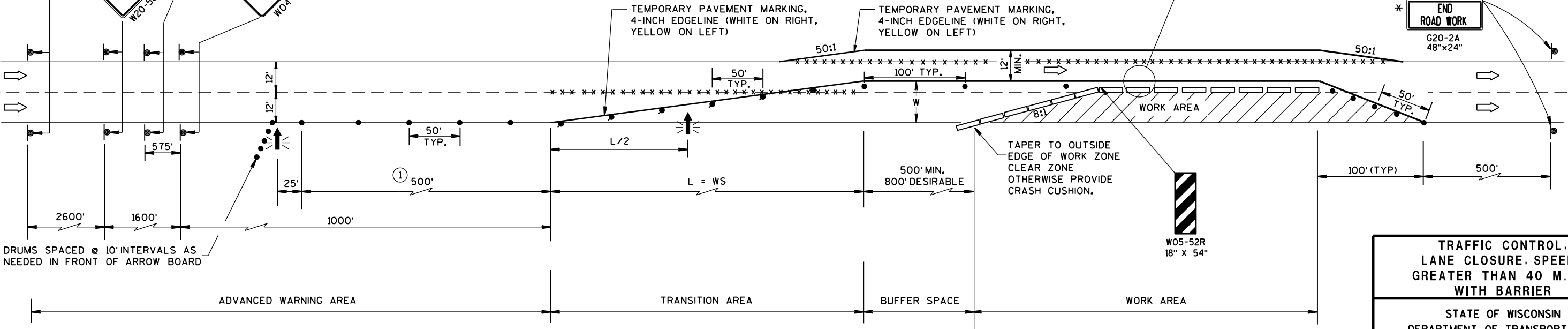
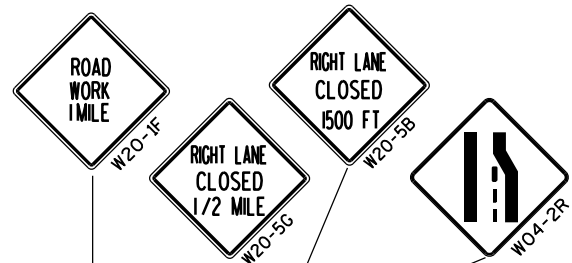
① CONSIDER ROADWAY GEOMETRICS WHEN LOCATING SIGNS AND ARROW BOARD SO THE DRIVER HAS A CLEAR VIEW OF THE ARROW BOARD AND LANE CLOSURE DRUMS FOR A MINIMUM 1500 FEET IN FRONT OF DRUM TAPER.

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 4 OR MORE CONTINUOUS DAYS AND NIGHTS.

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

ADJUSTMENTS IN BUFFER SPACE NEED TO BE INCORPORATED WHEN THE LANE CLOSURE OCCURS NEAR AN INTERCHANGE EXIT OR ENTRANCE RAMP OR INTERSECTION. THE LANE CLOSURE MUST TAKE PLACE FAR ENOUGH IN ADVANCE OF AN EXIT OR ENTRANCE RAMP TO STILL ALLOW FOR ADEQUATE BUFFER SPACE. THE MINIMUM LENGTH OF THE BUFFER SPACE BEFORE AN EXIT RAMP SHOULD BE 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.











TRAFFIC CONTROL,
LANE CLOSURE, SPEEDS
GREATER THAN 40 M.P.H.
WITH BARRIER

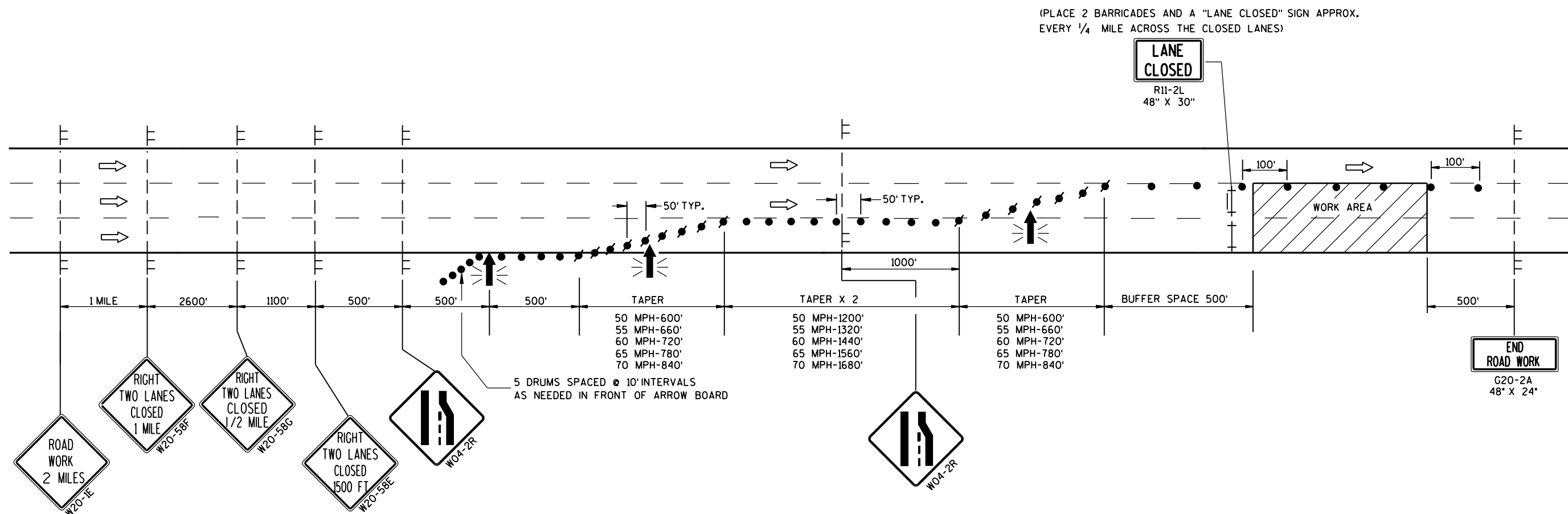
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
Sept., 2016
DATE
FWHA

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

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.

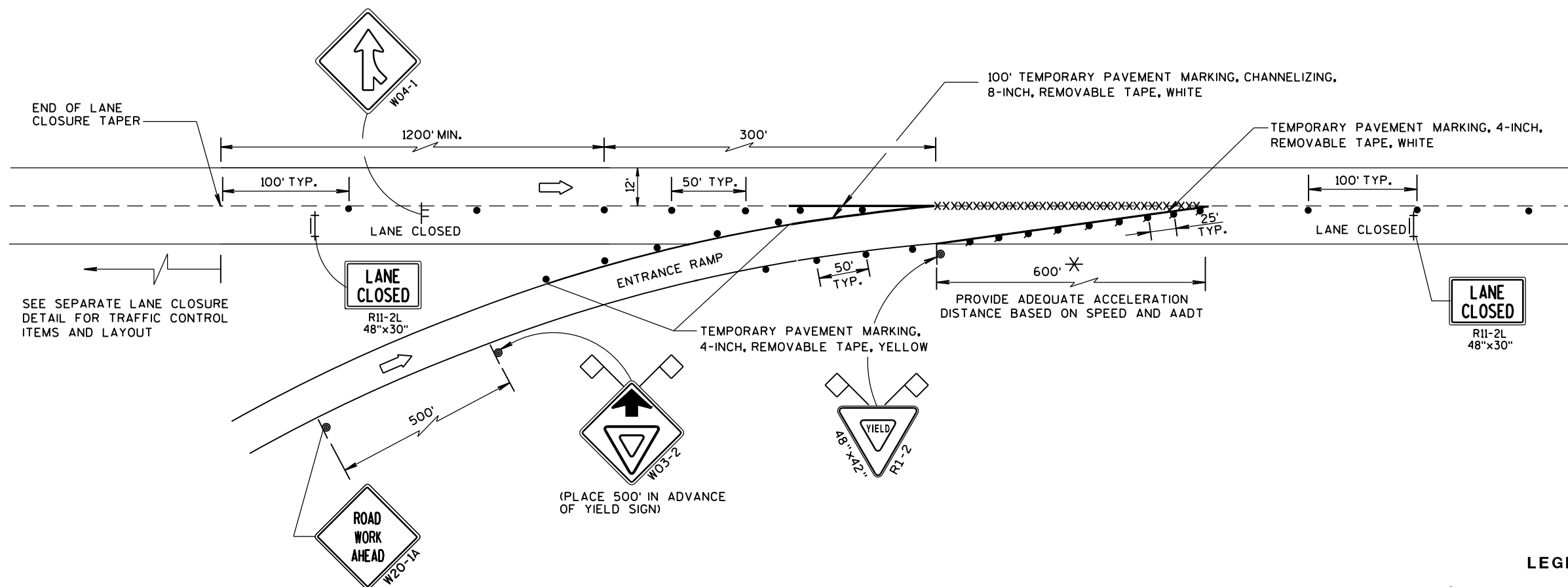
WHEN A RAMP OR SIDE ROAD INTERSECTS THE FACILITY ON WHICH THE WORK IS BEING PERFORMED, ADDITIONAL TRAFFIC CONTROLS SHALL BE PROVIDED AS SPECIFIED IN THE PLANS AND/OR SPECIAL PROVISIONS OR AS APPROVED BY THE ENGINEER.

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	



TAPERED ENTRANCE RAMP WITHIN RIGHT LANE CLOSURE

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 4 OR MORE CONTINUOUS DAYS AND NIGHTS.

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

✱ CONSULT WITH REGIONAL WORK ZONE ENGINEER IF NEED TO REDUCE LENGTH EXISTS.

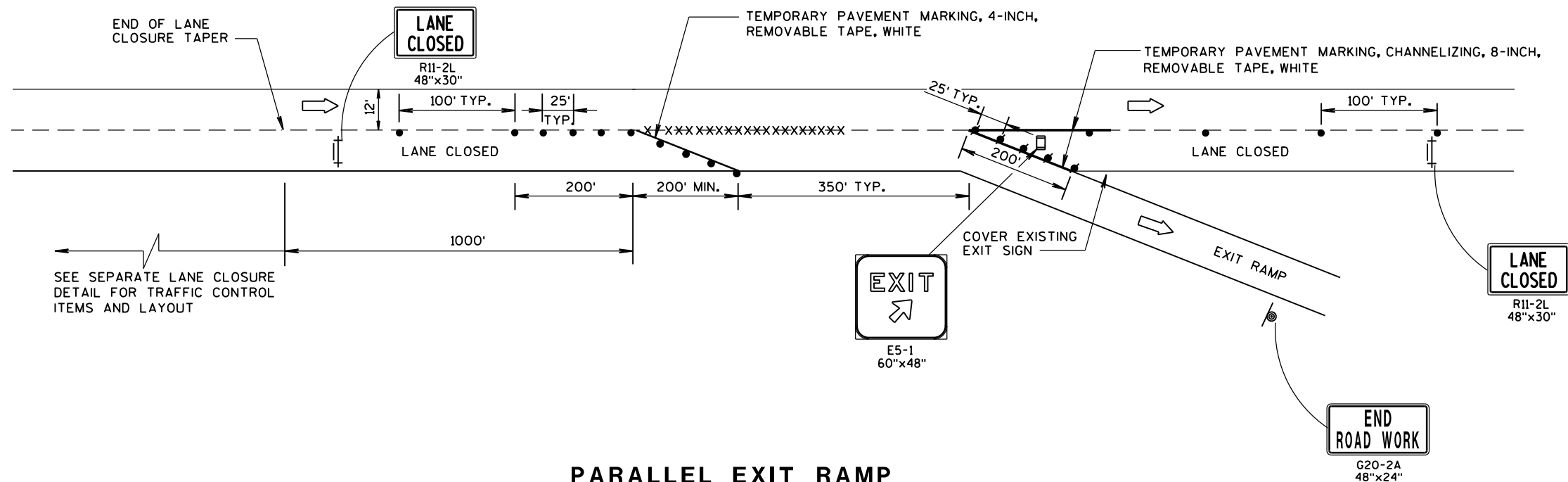
LEGEND

- 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,
TAPERED ENTRANCE RAMP
WITHIN LANE CLOSURE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
Sept., 2017 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER
FHWA



PARALLEL EXIT 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.

"W0" 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 4 OR MORE CONTINUOUS DAYS AND NIGHTS.

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

LEGEND

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

TRAFFIC CONTROL,
PARALLEL EXIT RAMP
WITHIN LANE CLOSURE

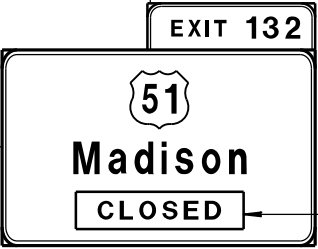
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
DATE: Sept., 2017 /S/ Andrew Heidtke
WORK ZONE ENGINEER
FHWA



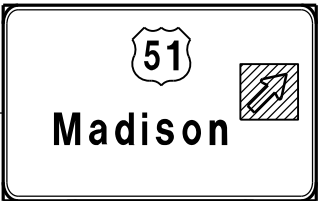
G20-60
108"x24"

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"

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.

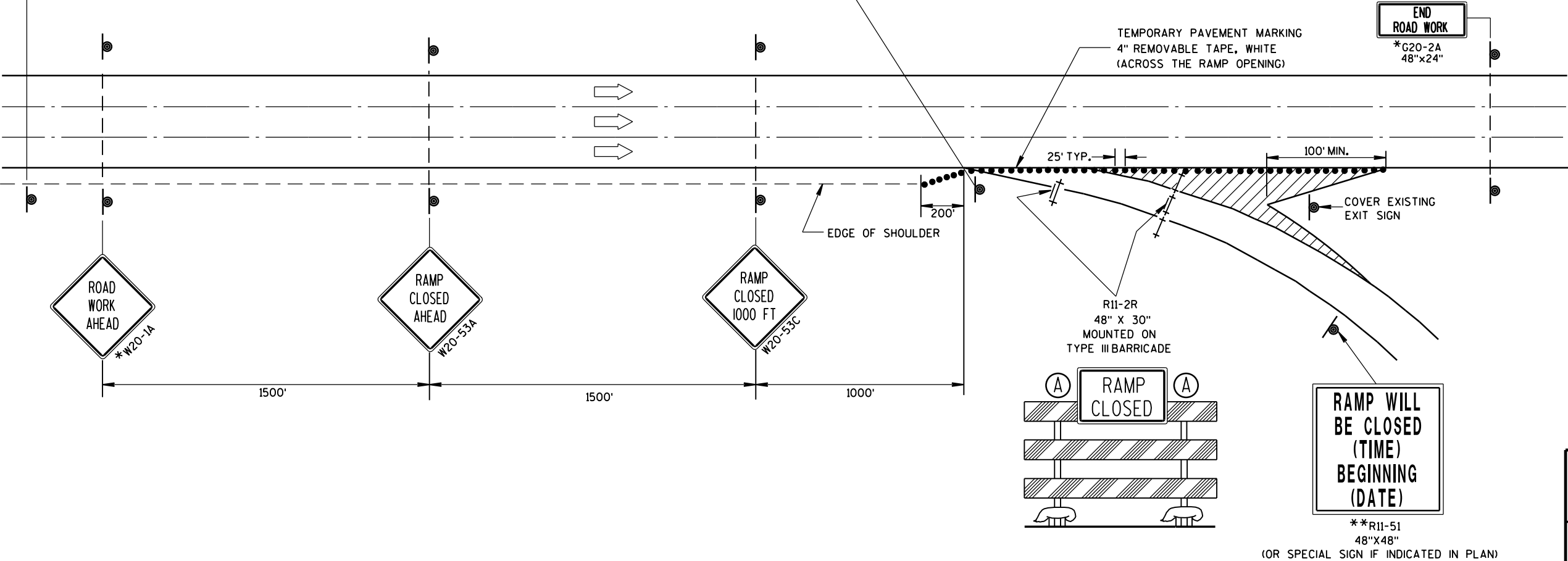
WHERE MEDIAN BARRIER IS IN PLACE, SIGNS SHOWN ON LEFT SIDE OF ROADWAY MAY BE OMITTED FOR RIGHT SIDE RAMP CLOSURES OF LESS THAN 12-HOUR DURATION.

* 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.

6

6



LEGEND

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

TRAFFIC CONTROL, EXIT RAMP CLOSURE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
Sept. 2015
DATE
FHWA

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

S.D.D. 15 D 16-3

S.D.D. 15 D 16-3

LEGEND

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

GENERAL NOTES

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

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

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

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

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

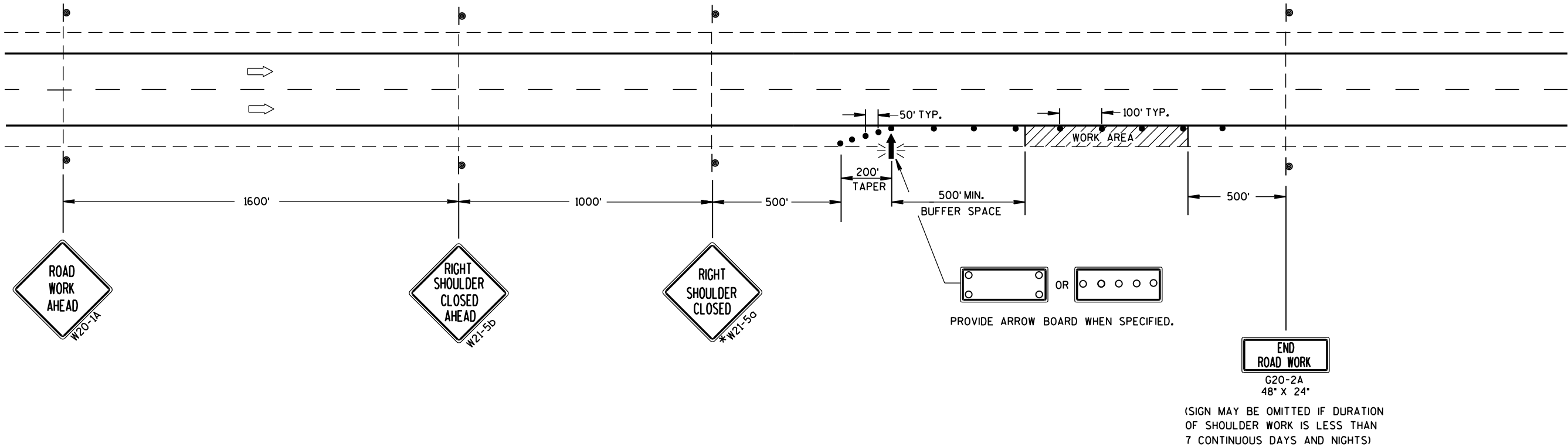
SIGNS THAT WILL BE IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS MAY BE MOUNTED ON PORTABLE SUPPORTS.

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

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

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

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



TRAFFIC CONTROL
SHOULDER CLOSURE ON DIVIDED
ROADWAY, SPEEDS GREATER
THAN 40 MPH

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

Notes



Wisconsin Department of Transportation

Dedicated people creating transportation solutions
through innovation and exceptional service.

<http://www.dot.wisconsin.gov>