MAD APR 2017

PROJECT ID: 3700-10-93
WITH: N/A

COUNTY: DANE

ORDER OF SHEETS

TOTAL SHEETS = 68

N

108

DESIGN DESIGNATION USH 12/18

A.A.D.T.	=	128,000 (2015)
A.A.D.T.	=	145,600 (2035)
D.H.V.	=	7.3%
D.D.	=	59/41
T.	=	7.3%
DESIGN SPEED	=	60 MPH
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 (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

DANE COUNTY, TRAFFIC OPS

MONONA DR

USH 12

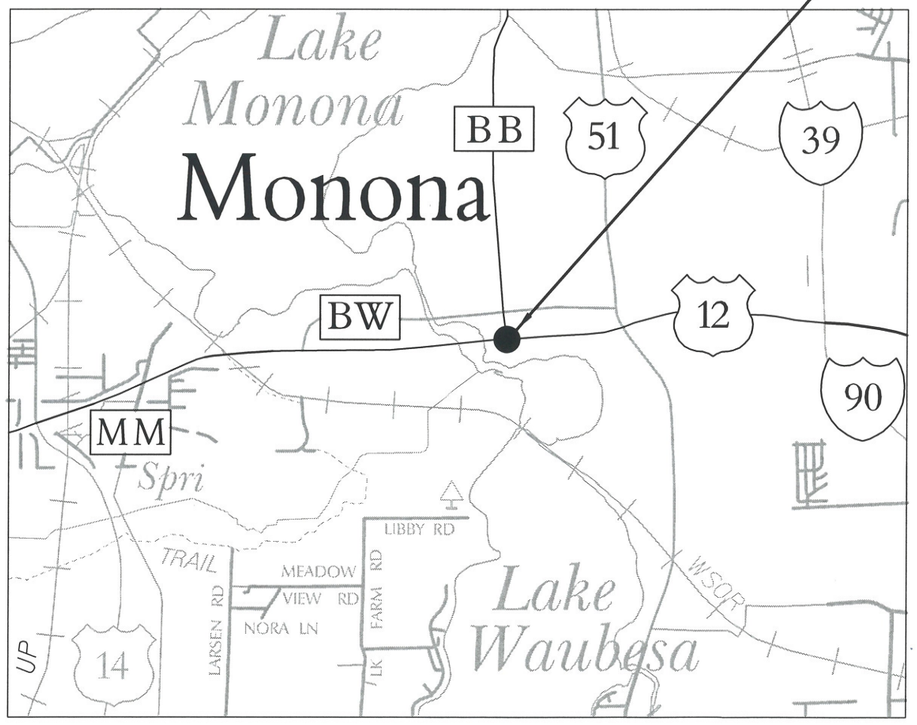
DANE COUNTY

STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
3700-10-93	———	—

STATE PROJECT NUMBER
3700-10-93

R-10-E

PROJECT LOCATION
15+50 MD



T-7-N

LAYOUT
SCALE 0 0.5 MI.

TOTAL NET LENGTH OF CENTERLINE = 0.000 MI.

COORDINATES AND BEARINGS ON THE PLAN ARE REFERENCED TO THE WISCONSIN COUNTY COORDINATE SYSTEM (WCCS), DANE COUNTY ZONE, NAD 83 (2007) ADJUSTMENT. THE ELEVATIONS ARE NAVD88.

ORIGINAL PLANS PREPARED BY:

STRAND ASSOCIATES®
910 WEST WINGRA DRIVE
MADISON, WISCONSIN 53715
(608) 251-4843

WISCONSIN
LUCAS R. HOLMAN
E-38316
MADISON, WI
PROFESSIONAL ENGINEER
1/13/17

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PREPARED BY

Surveyor	STRAND ASSOCIATES, INC.
Designer	STRAND ASSOCIATES, INC.
Project Manager	GREG BRECKA, P.E.
Regional Examiner	
Regional Supervisor	BRENDA SCHOENFELD, P.E.
C.O. Examiner	

APPROVED FOR THE DEPARTMENT
DATE: 1/13/17 (Signature)

E

FILE NAME : icros . . onona lan eets ti.dgn PLOT DATE : PLOT BY : userna e PLOT NAME : PLOT SCALE : $$.....plotscale.....$$ WISDOT/CADDS SHEET 10

GENERAL NOTES

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

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

EROSION CONTROL FEATURES AS SHOWN IN THE PLANS ARE AT SUGGESTED LOCATIONS. EXACT LOCATIONS WILL BE DETERMINED BY THE CONTRACTOR'S EROSION CONTROL IMPLEMENTATION PLAN (ECIP) AND APPROVED BY THE ENGINEER IN CONSULTATION WITH THE WISCONSIN DEPARTMENT OF NATURAL RESOURCES. ALL EROSION CONTROL MEASURES SHALL BE MAINTAINED UNTIL SUCH TIME AS THE ENGINEER DETERMINES THE MEASURE IS NO LONGER NECESSARY.

THE LOCATION OF PROPOSED SIGNS AS SHOWN ON THE PLANS ARE APPROXIMATE. THE EXACT NUMBER OF SIGNS AND SIGN LOCATIONS ARE TO BE REVIEWED BY THE ENGINEER IN THE FIELD.

REMOVING SIGNS SHALL BE PAID FOR AS REMOVING SIGNS TYPE II.

DISTURBED AREAS WITHIN THE RIGHT-OF-WAY SHALL BE RESTORED AS DIRECTED BY THE ENGINEER.

REMOVAL ITEMS SHALL BE REMOVED TO AN EXISTING JOINT, SAWCUT WHERE SHOWN ON THE PLANS, OR AS DIRECTED BY THE ENGINEER.

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

SUBSURFACE EXPLORATION REPORTS FOR THE PROPOSED MONOTUBES ARE AVAILABLE FROM WISDOT SOUTHWEST REGION BY CONTACTING DAVID WRONSKI.

WISDOT REGION CONTACT

DAVID WRONSKI, P.E.
WISDOT SOUTHWEST REGION
2010 WRIGHT STREET
MADISON, WI 53704
(608) 243-3383
E-MAIL: david.wronski@dot.wi.gov

DESIGN CONSULTANT

LUKE HOLMAN, P.E.
STRAND ASSOCIATES, INC.
910 WEST WINGRA DRIVE
MADISON, WI 53715
(608) 251-4843
E-MAIL: luke.holman@strand.com

WISDNR REGION CONTACT

ERIC HEGGELUND
WISCONSIN DEPARTMENT OF NATURAL RESOURCES
SOUTH CENTRAL REGION
3911 FISH HATCHERY ROAD
FITCHBURG, WI 53711-5397
(608) 275-3301
E-MAIL: eric.heggelund@wisconsin.gov

UTILITIES

* AT&T WISCONSIN (COMMUNICATION)
  ATTENTION: CAROL ANASON
  316 W. WASHINGTON AVENUE
  MADISON, WI 53703
  OFFICE: (608) 252-2385
  MOBILE: (920) 475-2799
  EMAIL: ca2624@att.com

  ATC MANAGEMENT, INC. (ELECTRIC)
  ATTENTION: DOUG VOSBERG
  5303 FEN OAK DRIVE
  MADISON, WI 53718
  OFFICE: (608) 877-7650
  E-MAIL: dvosberg@atcllc.com

* CHARTER COMMUNICATIONS (COMMUNICATION)
  ATTENTION: GLEN JAKUSZ
  2701 DANIELS STREET
  MADISON, WI 53718
  MOBILE: (608) 209-3202
  E-MAIL: glen.jakusz@chartercom.com

* TDS METROCOM - COMMUNICATION LINE
  ATTENTION: JERRY MYERS
  525 JUNCTION ROAD
  MADISON, WI 53717
  MOBILE: (608) 664-4404
  E-MAIL: jerry.myers@tdstelecom.com

* WISCONSIN DOT RWIS PROGRAM
  ATTENTION: MIKE ADAMS
  P.O. BOX 7986
  MADISON, WI 53707
  OFFICE: (608) 266-5004
  E-MAIL: Michael.Adams@dot.wi.gove

* WISCONSIN DEPARTMENT OF TRANSPORATION - COMMUNICATION LINE
  ATTENTION: JEFF MADSON
  433 W. ST. PAUL AVENUE
  SUITE 300
  MILWAUKEE, WI 53203
  OFFICE: (414) 225-3723
  E-MAIL: Jeffrey.Madson@dot.wi.gov

* MADISON GAS AND ELECTRIC COMPANY (ELECTRIC)
  ATTENTION: RICH PARKER
  133 SOUTH BLAIR STREET
  MADISON, WI 53703
  OFFICE: (608) 252-7379
  MOBILE: (608) 444-9619
  E-MAIL: rparker@mge.com

* MADISON GAS & ELECTRIC COMPANY (GAS/PETROLEUM)
  ATTENTION: STEVE BEVERSDORF
  133 SOUTH BLAIR STREET
  MADISON, WI 53703
  OFFICE: (608) 252-1552
  MOBILE: (608) 444-9620
  E-MAIL: sbeversdorf@mge.com

* MADISON METROPOLITAN SEWERAGE DISTRICT (SEWER)
  ATTENTION: RAY SCHNEIDER
  1610 MOORLAND ROAD
  MADISON, WI 53713
  OFFICE: (608) 222-1201 X259
  MOBILE: (608) 347-3628
  E-MAIL: rays@madsewer.org

* US SIGNAL COMPANY LLC - COMMUNICATION LINE
  ATTENTION: RICK ANDRICKS
  7020 SOUTHBELT DRIVE SE
  CALEDONIA, MI 49316
  MOBILE: (614) 483-6350
  E-MAIL: randricks@tkns.net

  DIVISION OF ENTERPRISE TECHNOLOGY
  ATTENTION: TODD PALMER
  5830 FEMRITE DRIVE
  MADISON, WI 53718-6833
  MOBILE: (608) 224-4010
  E-MAIL: todda.palmer@wisconsin.gov

SECTION 2 ORDER OF SHEETS

*DENOTES DIGGERS HOTLINE MEMBER

2

N

MONONA DRIVE

21+00 MD
20+00 MD
19+00 MD
18+00 MD
17+00 MD
16+00 MD
15+00 MD
14+00 MD
13+00 MD
12+00 MD
11+00 MD
10+00 MD

NANA LANE

WB ENTRANCE RAMP

WB EXIT RAMP

EB EXIT RAMP

EB ENTRANCE RAMP

USH 12/18

USH 12/18

28

MH

SIGN

INL

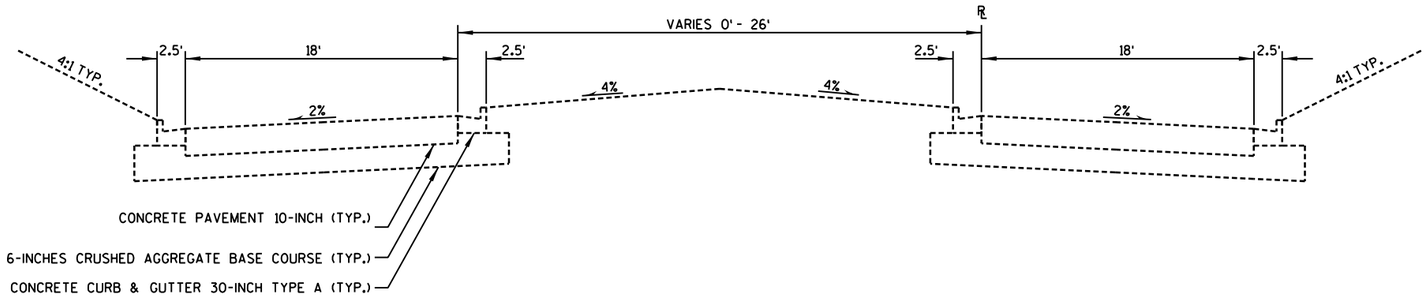
W

A/C

H209

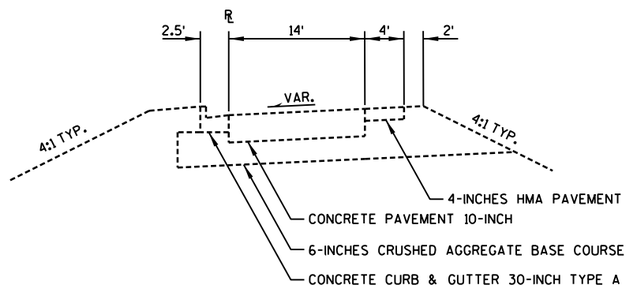
PROJECT NO: 3700-10-93	HWY: USH 12	COUNTY: DANE	PROJECT OVERVIEW	SHEET	E

FILE NAME : S:\MAD\1000--1099\1089\697\Micros\PLAN\2017.01.04 Monona Plan Sheets\020201_po.dgn PLOT DATE : 1/11/2017 PLOT BY : _username_ PLOT NAME : PLOT SCALE : $$.....plotscale.....$$



TYPICAL EXISTING SECTION - MONONA DRIVE

16+00 MD - 18+00 MD



TYPICAL EXISTING SECTION - RAMP

MD RAMP
10+00 MD - 16+00 MD

PROJECT NO: 3700-10-93	HWY: USH 12	COUNTY: DANE	EXISTING TYPICAL SECTIONS	SHEET 4	E

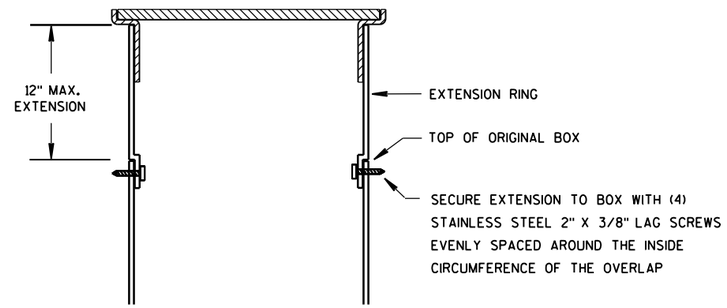
2

TABLE OF NOMINAL DIMENSIONS AND WEIGHTS

DIMENSION IN INCHES		NON-CONDUCTIVE PULL BOX	
BOX DIAMETER ** (INSIDE)	A	24	24
BOX DIAMETER ** (OUTSIDE)	B	25	25
BOX LENGTH	C	36	42
COVER	D	25 1/2	25 1/2
FRAME	E	27	27
FRAME	F	25 3/4	25 3/4
FRAME	G	22 1/2	22 1/2
WEIGHT IN POUNDS *			
COVER		50	50

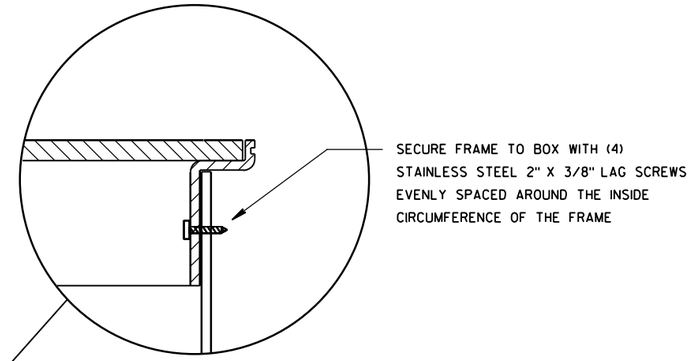
* THE ACTUAL WEIGHT OF THE COVER MAY VARY NOT TO EXCEED 100 LBS.

** DIAMETER VARIES FROM TOP TO BOTTOM WITH THE DIAMETER LARGER AT THE BOTTOM TO PREVENT FROST HEAVE

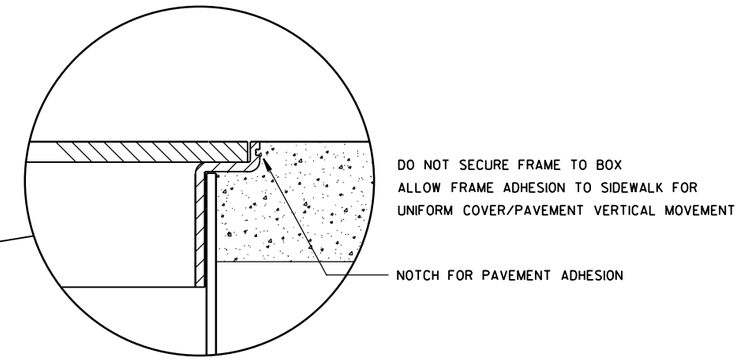


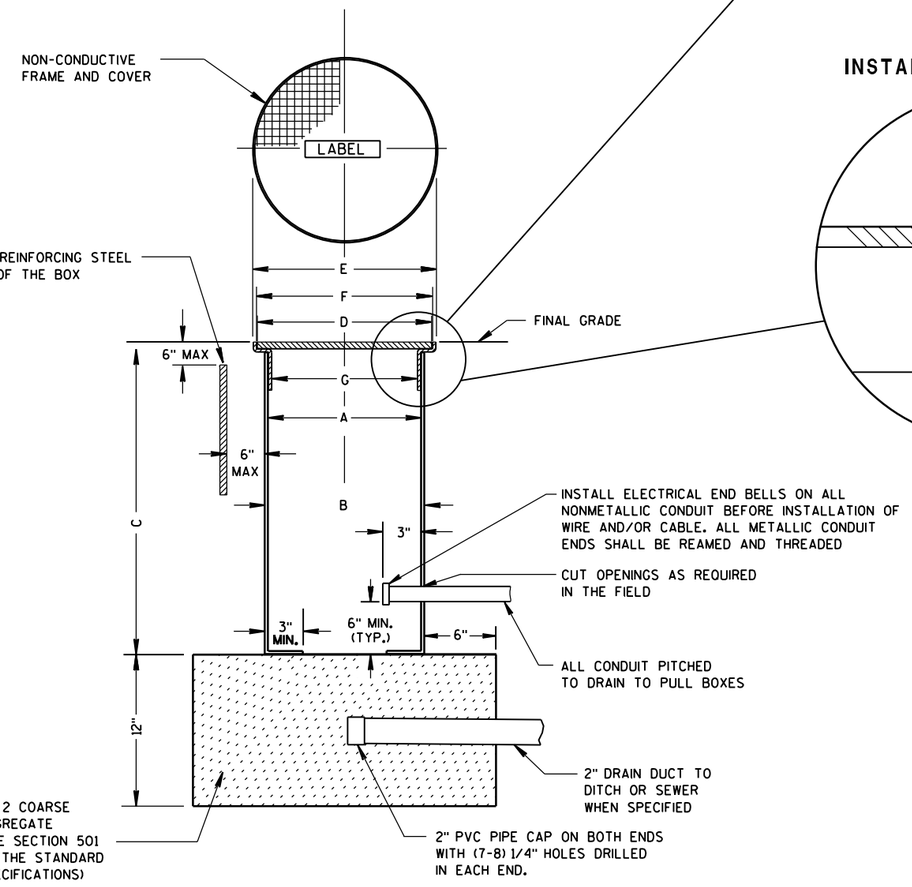
BOX EXTENSION

INSTALLED IN SOD OR CRUSHED AGGREGATE



INSTALLED IN SIDEWALK





NON-CONDUCTIVE PULL BOX

GENERAL NOTES

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

ALL BOXES, FRAMES AND COVERS SHALL BE SUITABLE FOR TIER 15 LOADING AS SPECIFIED IN ANSI/SCTE 77.

PROVIDE AN OPENING FOR TOOL ASSISTED COVER REMOVAL NOT LARGE ENOUGH TO PERMIT PASSAGE OF A SPHERE MORE THAN 1/2" DIAMETER

ENSURE COVER SURFACE IS SKID RESISTANT WITH A COEFFICIENT OF FRICTION OF AT LEAST 0.5 AND VERTICAL SURFACE DISCONTINUITIES LESS THAN 1/4".

BOXES AND EXTENSIONS ARE TRIMMABLE FOR CUSTOM LENGTHS. TRIMMED PIECES SHALL MAINTAIN A UNIFORM LENGTH.

ENTRANCE HOLES INTO PULL BOXES SHALL BE CUT WITH A CIRCULAR HOLE SAW OR HYDRAULIC CONDUIT PUNCH. HOLE SIZE SHALL BE THE OUTSIDE DIAMETER OF THE CONDUIT THAT IS TO FIT IN THE OPENING PLUS NO MORE THAN 1/4".

THE CONTRACTOR SHALL NOT INSTALL WIRE IN ANY PULL BOX UNTIL ITS INSTALLATION HAS BEEN INSPECTED AND ACCEPTED BY THE ENGINEER.

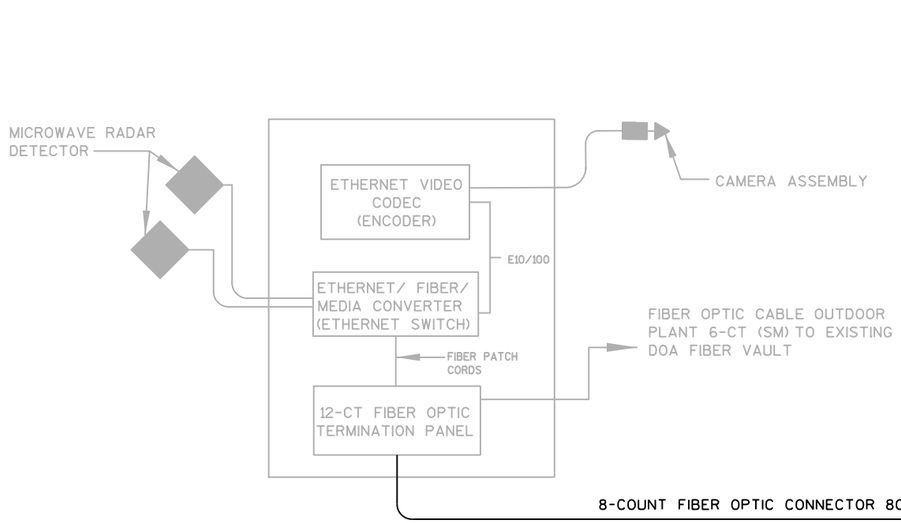
ALL METALLIC CONDUIT IN WHICH WIRE AND/OR CABLE IS TO BE INSTALLED, SHALL BE BUSHED BEFORE INSTALLATION OF THE WIRE AND/OR CABLE.

ENTIRE BOX MUST BE CONSTRUCTED OF NON-CONDUCTIVE MATERIALS WITH THE EXCEPTION OF STAINLESS STEEL FASTENERS.

WHEN A PULL BOX IS INSTALLED IN BASE AGGREGATE DENSE SHOULDERS, PLACE IT 2-3 INCHES BELOW GRADE AND COVER IT WITH 2-3 INCHES OF BASE AGGREGATE DENSE.

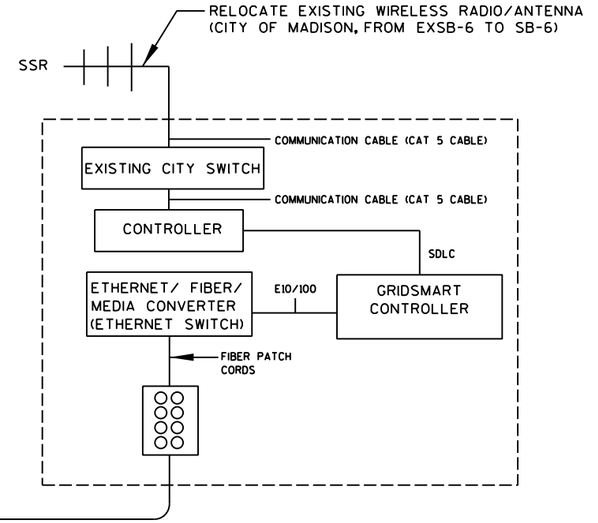
LABEL ON COVER SHALL READ "ELECTRIC" FOR SIGNAL OR LIGHTING SYSTEMS. "WISDOT COMMUNICATIONS" FOR COMMUNICATIONS SYSTEMS.

NOTE: REFER TO S.D.D. "PULL BOX" FOR MEASUREMENT OF WIRE/CABLE IN THE PULL BOX



EXISTING CABINET DETAIL (EX-ITS-2)

CCTV-13-009 (MONONA DRIVE)



SIGNAL CABINET (CB-1)

S-13-0388 (MONONA DRIVE)

MONONA DRIVE INTERCHANGE

NOTES

SSR = SPREAD SPECTRUM RADIO

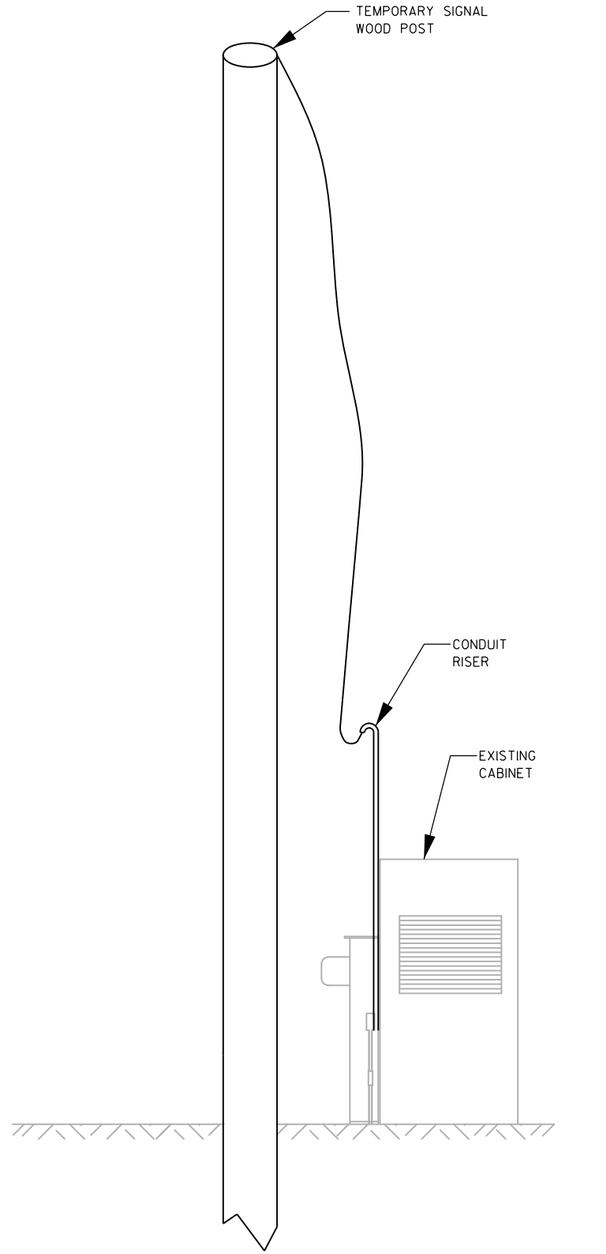
ALL RS 232/485, FIBER PATCH CORDS AND E10/100 (ETHERNET) CABLES ARE INCIDENTAL TO BID ITEMS.

ALL FIBER OPTIC ON THIS PROJECT IS SINGLE-MODE FIBER (SM) UNLESS OTHERWISE NOTED.

CABINETS ARE DEPARTMENT FURNISHED

PROJECT NO: 3700-10-93	HWY: USH 12	COUNTY: DANE	CONSTRUCTION DETAILS - COMMUNICATIONS OVERVIEW	SHEET 6	E

2



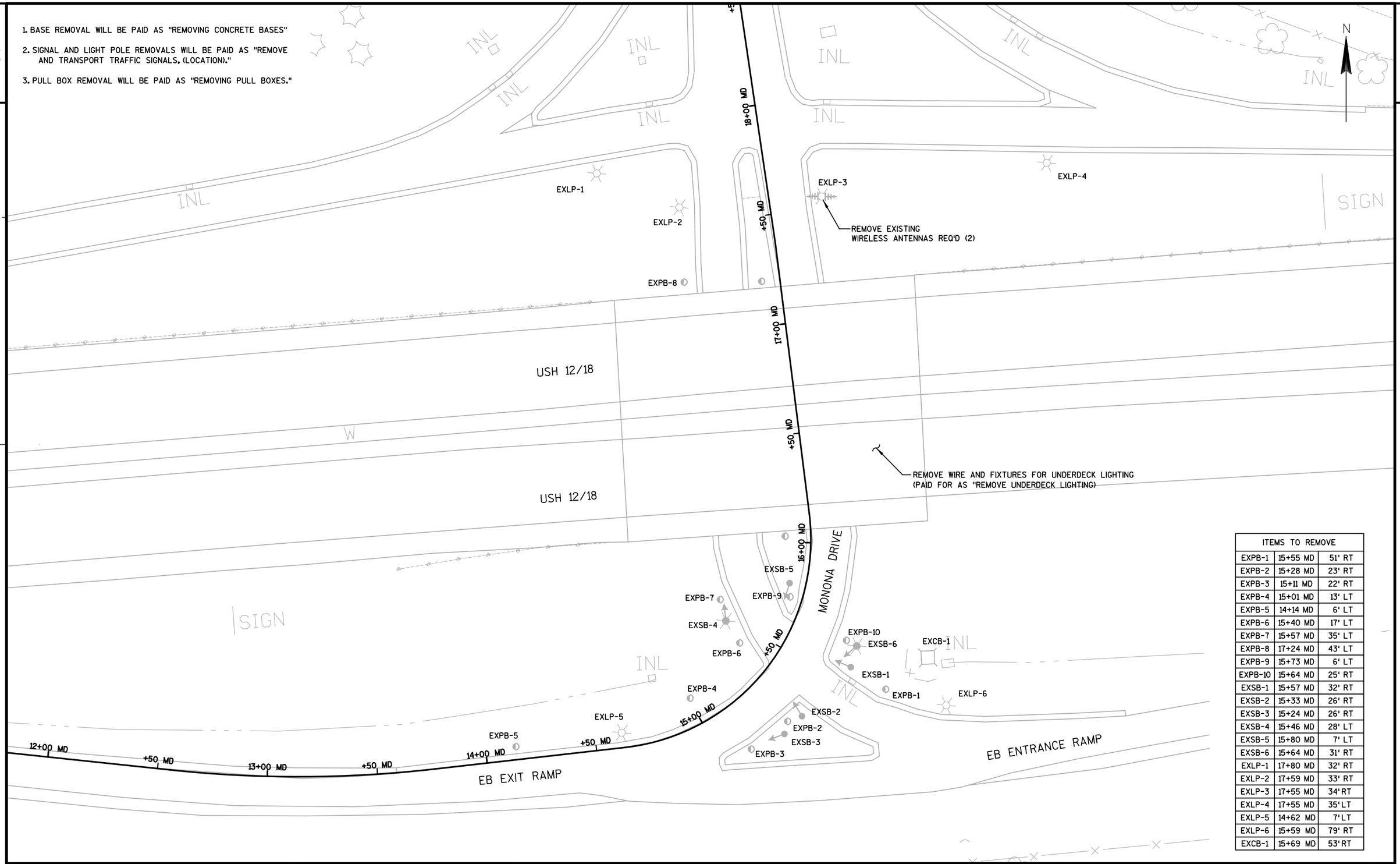
TEMPORARY TRAFFIC SIGNALS FOR INTERSECTIONS
USH 12/18 & MONONA DRIVE

PROJECT NO: 3700-10-93	HWY: USH 12	COUNTY: DANE	CONSTRUCTION DETAILS - TEMPORARY TRAFFIC SIGNALS	SHEET 7	E

1. BASE REMOVAL WILL BE PAID AS "REMOVING CONCRETE BASES"

2. SIGNAL AND LIGHT POLE REMOVALS WILL BE PAID AS "REMOVE AND TRANSPORT TRAFFIC SIGNALS, (LOCATION)."

3. PULL BOX REMOVAL WILL BE PAID AS "REMOVING PULL BOXES."

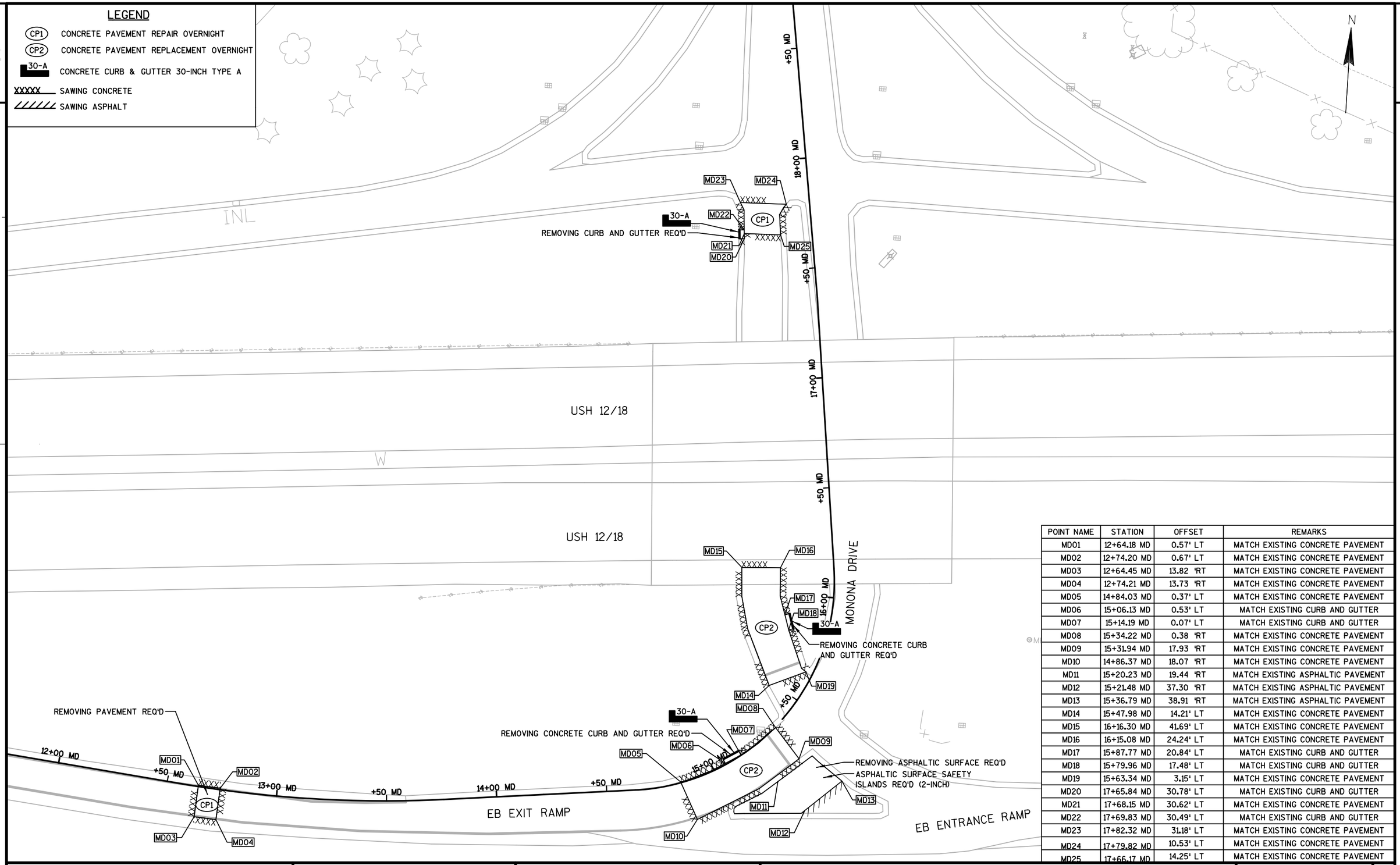


ITEMS TO REMOVE		
EXPB-1	15+55 MD	51' RT
EXPB-2	15+28 MD	23' RT
EXPB-3	15+11 MD	22' RT
EXPB-4	15+01 MD	13' LT
EXPB-5	14+14 MD	6' LT
EXPB-6	15+40 MD	17' LT
EXPB-7	15+57 MD	35' LT
EXPB-8	17+24 MD	43' LT
EXPB-9	15+73 MD	6' LT
EXPB-10	15+64 MD	25' RT
EXSB-1	15+57 MD	32' RT
EXSB-2	15+33 MD	26' RT
EXSB-3	15+24 MD	26' RT
EXSB-4	15+46 MD	28' LT
EXSB-5	15+80 MD	7' LT
EXSB-6	15+64 MD	31' RT
EXLP-1	17+80 MD	32' RT
EXLP-2	17+59 MD	33' RT
EXLP-3	17+55 MD	34'RT
EXLP-4	17+55 MD	35'LT
EXLP-5	14+62 MD	7'LT
EXLP-6	15+59 MD	79' RT
EXCB-1	15+69 MD	53'RT

PROJECT NO: 3700-10-93	HWY: USH 12	COUNTY: DANE	TRAFFIC SIGNAL REMOVAL PLAN	SHEET 8	E

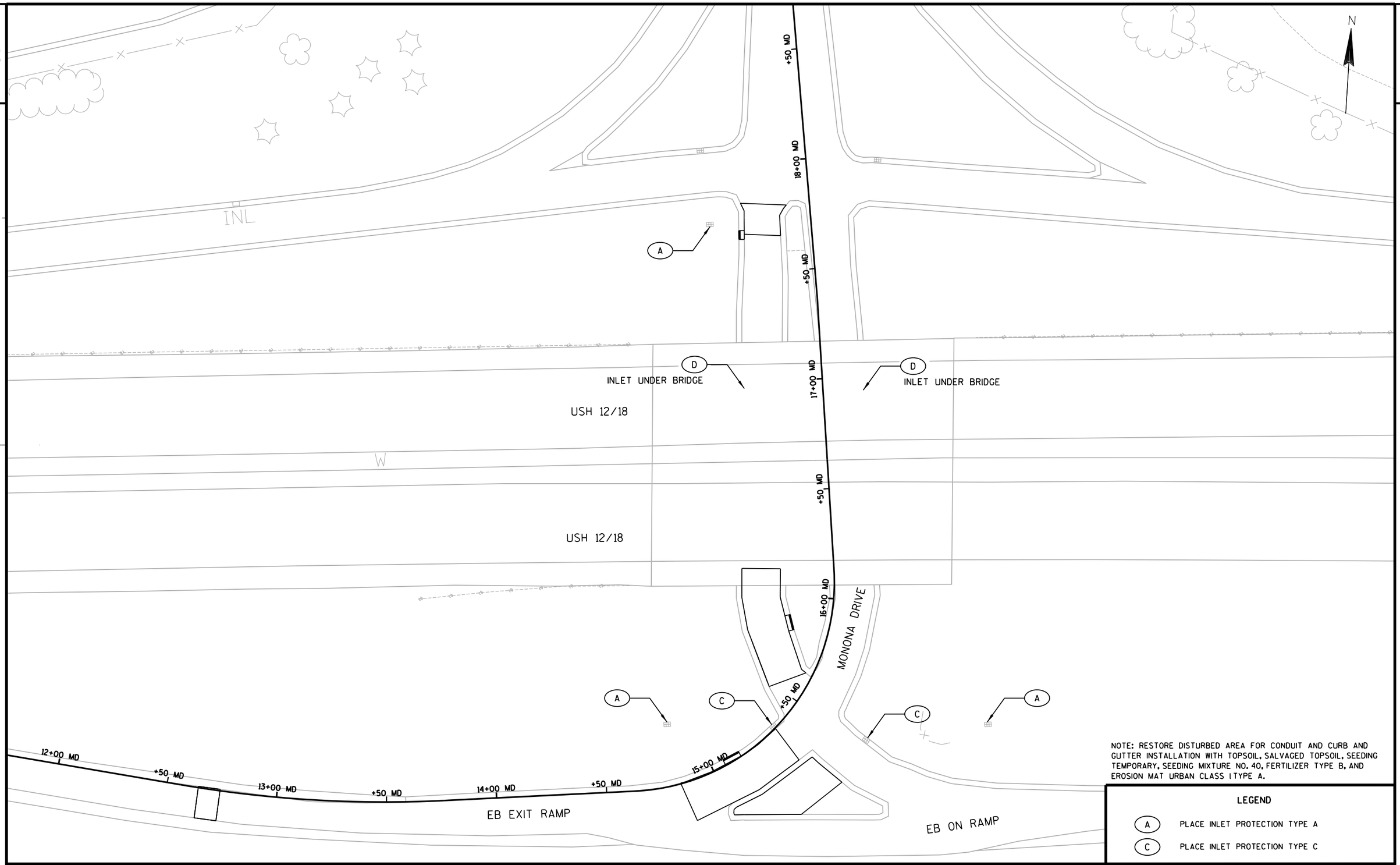
LEGEND

- (CP1) CONCRETE PAVEMENT REPAIR OVERNIGHT
- (CP2) CONCRETE PAVEMENT REPLACEMENT OVERNIGHT
- 30-A CONCRETE CURB & GUTTER 30-INCH TYPE A
- XXXXX SAWING CONCRETE
- ////// SAWING ASPHALT

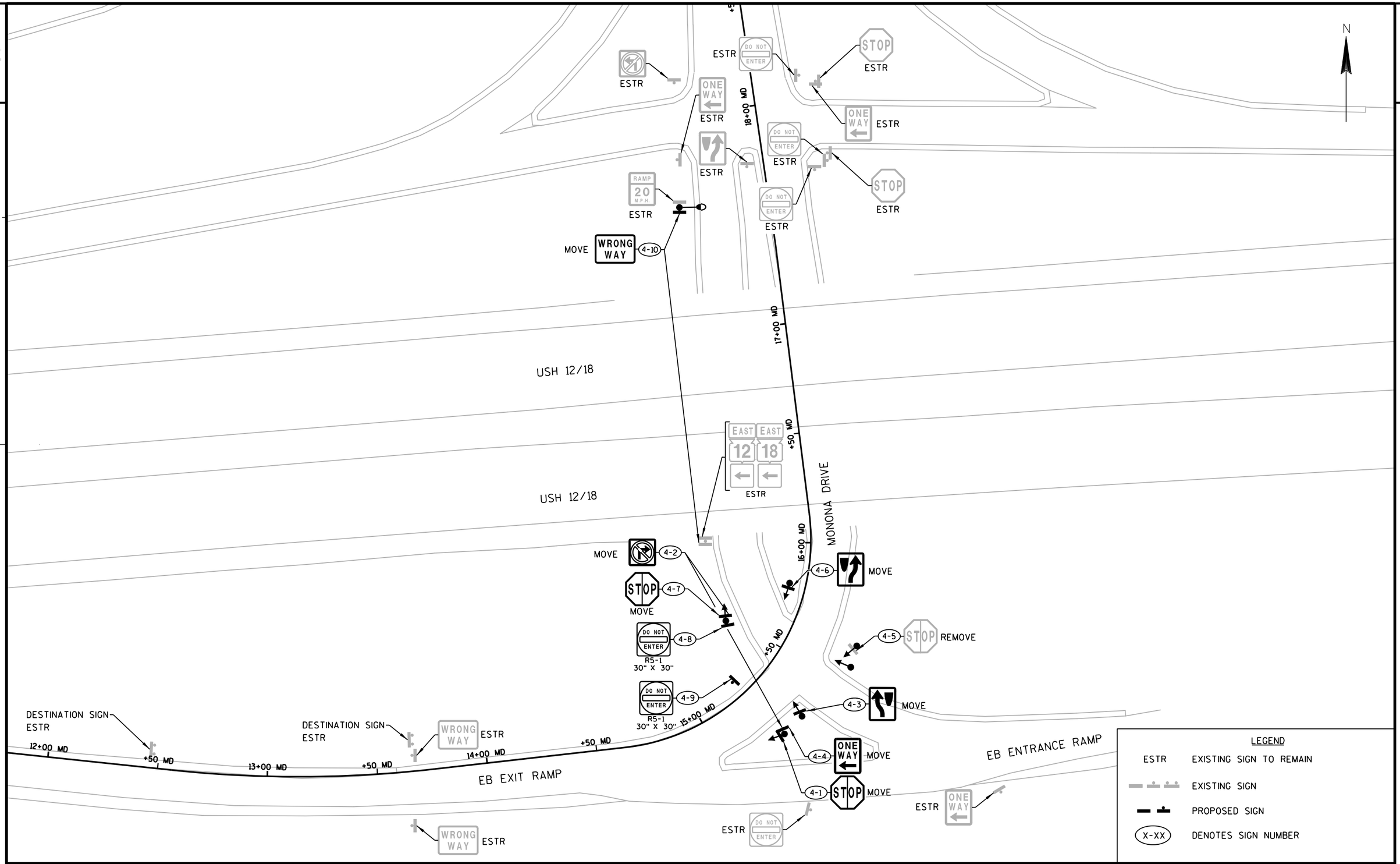


POINT NAME	STATION	OFFSET	REMARKS
MD01	12+64.18 MD	0.57' LT	MATCH EXISTING CONCRETE PAVEMENT
MD02	12+74.20 MD	0.67' LT	MATCH EXISTING CONCRETE PAVEMENT
MD03	12+64.45 MD	13.82 'RT	MATCH EXISTING CONCRETE PAVEMENT
MD04	12+74.21 MD	13.73 'RT	MATCH EXISTING CONCRETE PAVEMENT
MD05	14+84.03 MD	0.37' LT	MATCH EXISTING CONCRETE PAVEMENT
MD06	15+06.13 MD	0.53' LT	MATCH EXISTING CURB AND GUTTER
MD07	15+14.19 MD	0.07' LT	MATCH EXISTING CURB AND GUTTER
MD08	15+34.22 MD	0.38 'RT	MATCH EXISTING CONCRETE PAVEMENT
MD09	15+31.94 MD	17.93 'RT	MATCH EXISTING CONCRETE PAVEMENT
MD10	14+86.37 MD	18.07 'RT	MATCH EXISTING CONCRETE PAVEMENT
MD11	15+20.23 MD	19.44 'RT	MATCH EXISTING ASPHALTIC PAVEMENT
MD12	15+21.48 MD	37.30 'RT	MATCH EXISTING ASPHALTIC PAVEMENT
MD13	15+36.79 MD	38.91 'RT	MATCH EXISTING ASPHALTIC PAVEMENT
MD14	15+47.98 MD	14.21' LT	MATCH EXISTING CONCRETE PAVEMENT
MD15	16+16.30 MD	41.69' LT	MATCH EXISTING CONCRETE PAVEMENT
MD16	16+15.08 MD	24.24' LT	MATCH EXISTING CONCRETE PAVEMENT
MD17	15+87.77 MD	20.84' LT	MATCH EXISTING CURB AND GUTTER
MD18	15+79.96 MD	17.48' LT	MATCH EXISTING CURB AND GUTTER
MD19	15+63.34 MD	3.15' LT	MATCH EXISTING CONCRETE PAVEMENT
MD20	17+65.84 MD	30.78' LT	MATCH EXISTING CURB AND GUTTER
MD21	17+68.15 MD	30.62' LT	MATCH EXISTING CONCRETE PAVEMENT
MD22	17+69.83 MD	30.49' LT	MATCH EXISTING CURB AND GUTTER
MD23	17+82.32 MD	31.18' LT	MATCH EXISTING CONCRETE PAVEMENT
MD24	17+79.82 MD	10.53' LT	MATCH EXISTING CONCRETE PAVEMENT
MD25	17+66.17 MD	14.25' LT	MATCH EXISTING CONCRETE PAVEMENT

PROJECT NO: 3700-10-93	HWY: USH 12	COUNTY: DANE	PLAN DETAILS	SHEET 9	E



PROJECT NO: 3700-10-93	HWY: USH 12	COUNTY: DANE	EROSION CONTROL	SHEET 10	E



PROJECT NO: 3700-10-93	HWY: USH 12	COUNTY: DANE	PERMANENT SIGNING	SHEET	E

FILE NAME : S:\MAD\1000--1099\1089\697\Micros\PLAN\2017.01.04 Monona Plan Sheets\023201_ps.dgn PLOT DATE : 1/11/2017 PLOT BY : _username_ PLOT NAME : PLOT SCALE : $$.....plotscale.....$$ WISDOT/CADDS SHEET 42

LEGEND

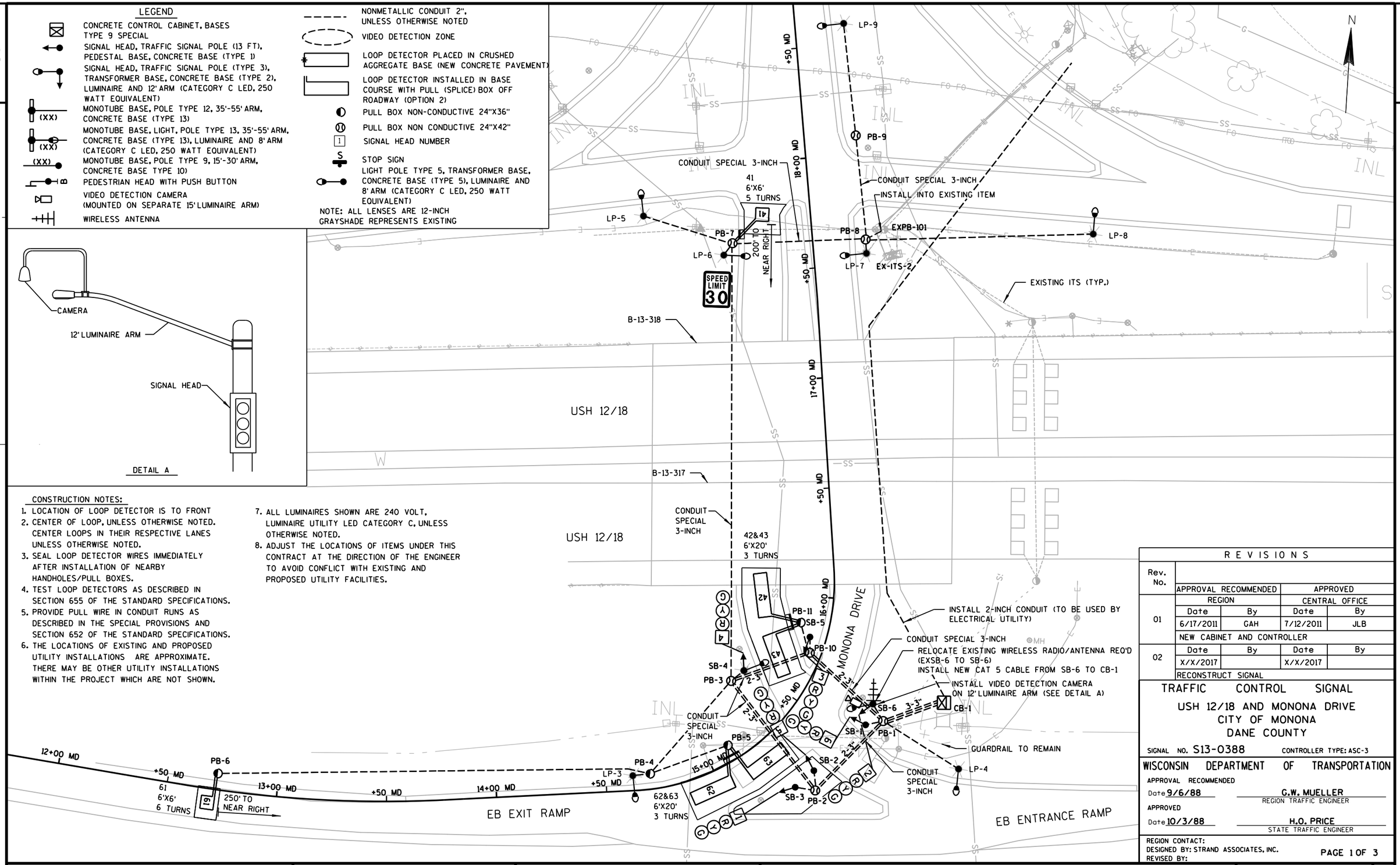
- CONCRETE CONTROL CABINET, BASES TYPE 9 SPECIAL
- SIGNAL HEAD, TRAFFIC SIGNAL POLE (13 FT), PEDESTAL BASE, CONCRETE BASE (TYPE 1)
- SIGNAL HEAD, TRAFFIC SIGNAL POLE (TYPE 3), TRANSFORMER BASE, CONCRETE BASE (TYPE 2), LUMINAIRE AND 12' ARM (CATEGORY C LED, 250 WATT EQUIVALENT)
- (XX) MONOTUBE BASE, POLE TYPE 12, 35'-55' ARM, CONCRETE BASE (TYPE 13)
- (XX) MONOTUBE BASE, LIGHT, POLE TYPE 13, 35'-55' ARM, CONCRETE BASE (TYPE 13), LUMINAIRE AND 8' ARM (CATEGORY C LED, 250 WATT EQUIVALENT)
- (XX) MONOTUBE BASE, POLE TYPE 9, 15'-30' ARM, CONCRETE BASE TYPE 10)
- PEDESTRIAN HEAD WITH PUSH BUTTON
- VIDEO DETECTION CAMERA (MOUNTED ON SEPARATE 15' LUMINAIRE ARM)
- WIRELESS ANTENNA
- NONMETALLIC CONDUIT 2", UNLESS OTHERWISE NOTED
- VIDEO DETECTION ZONE
- LOOP DETECTOR PLACED IN CRUSHED AGGREGATE BASE (NEW CONCRETE PAVEMENT)
- LOOP DETECTOR INSTALLED IN BASE COURSE WITH PULL (SPLICE) BOX OFF ROADWAY (OPTION 2)
- PULL BOX NON-CONDUCTIVE 24"X36"
- PULL BOX NON CONDUCTIVE 24"X42"
- [1] SIGNAL HEAD NUMBER
- S STOP SIGN
- LIGHT POLE TYPE 5, TRANSFORMER BASE, CONCRETE BASE (TYPE 5), LUMINAIRE AND 8' ARM (CATEGORY C LED, 250 WATT EQUIVALENT)

NOTE: ALL LENSES ARE 12-INCH
GRAYSHADE REPRESENTS EXISTING

DETAIL A

CONSTRUCTION NOTES:

1. LOCATION OF LOOP DETECTOR IS TO FRONT
2. CENTER OF LOOP, UNLESS OTHERWISE NOTED. CENTER LOOPS IN THEIR RESPECTIVE LANES UNLESS OTHERWISE NOTED.
3. SEAL LOOP DETECTOR WIRES IMMEDIATELY AFTER INSTALLATION OF NEARBY HANDHOLES/PULL BOXES.
4. TEST LOOP DETECTORS AS DESCRIBED IN SECTION 655 OF THE STANDARD SPECIFICATIONS.
5. PROVIDE PULL WIRE IN CONDUIT RUNS AS DESCRIBED IN THE SPECIAL PROVISIONS AND SECTION 652 OF THE STANDARD SPECIFICATIONS.
6. THE LOCATIONS OF EXISTING AND PROPOSED UTILITY INSTALLATIONS ARE APPROXIMATE. THERE MAY BE OTHER UTILITY INSTALLATIONS WITHIN THE PROJECT WHICH ARE NOT SHOWN.
7. ALL LUMINAIRES SHOWN ARE 240 VOLT, LUMINAIRE UTILITY LED CATEGORY C, UNLESS OTHERWISE NOTED.
8. ADJUST THE LOCATIONS OF ITEMS UNDER THIS CONTRACT AT THE DIRECTION OF THE ENGINEER TO AVOID CONFLICT WITH EXISTING AND PROPOSED UTILITY FACILITIES.



REVISIONS				
Rev. No.				
	APPROVAL RECOMMENDED		APPROVED	
	REGION		CENTRAL OFFICE	
	Date	By	Date	By
01	6/17/2011	GAH	7/12/2011	JLB
	NEW CABINET AND CONTROLLER			
	Date	By	Date	By
02	X/X/2017		X/X/2017	
	RECONSTRUCT SIGNAL			

TRAFFIC CONTROL SIGNAL

USH 12/18 AND MONONA DRIVE
CITY OF MONONA
DANE COUNTY

SIGNAL NO. S13-0388 CONTROLLER TYPE: ASC-3

WISCONSIN DEPARTMENT OF TRANSPORTATION

APPROVAL RECOMMENDED
Date 9/6/88 — G.W. MUELLER, REGION TRAFFIC ENGINEER

APPROVED
Date 10/3/88 — H.O. PRICE, STATE TRAFFIC ENGINEER

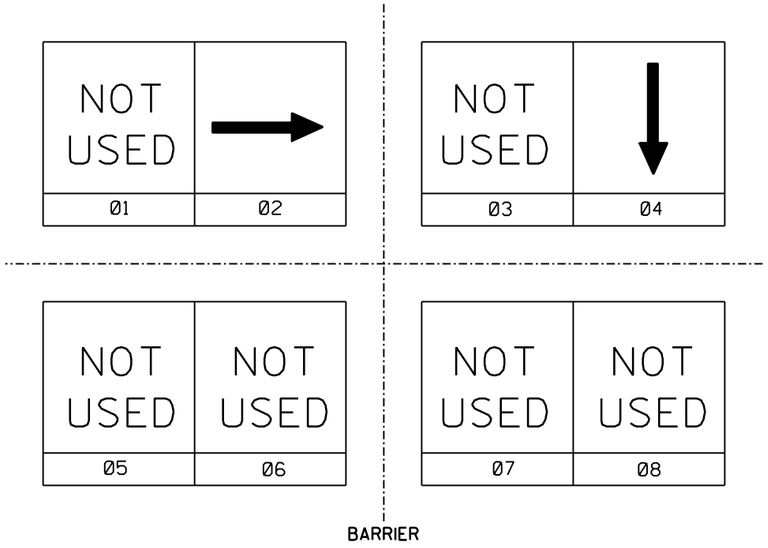
REGION CONTACT:
DESIGNED BY: STRAND ASSOCIATES, INC.
REVISED BY:

PAGE 1 OF 3

PROJECT NO: 3700-10-93	HWY: USH 12	COUNTY: DANE	TRAFFIC SIGNAL PLAN	SHEET 12 E

	HEAD NUMBERS	FLASH
01		
02	1-3	R
03		
04	4-6	R
05		
06		
07		
08		
O.L. A		
O.L. B		
O.L. C		
O.L. D		
02P		
04P		
06P		
08P		
01R		

RING 1



CONTROLLER LOGIC

PHASE NUMBER	PHASE LOCKING	DUAL ENTRY W / 0	PHASE RECALL	PHASE ACTIVE
1				
2	X		MIN	X
3				
4	X			X
5				
6				
7				
8				

TYPE OF INTERCONNECT COMMUNICATION	
NONE	X
TBC	
CLOSED LOOP TWISTED PAIR*	
CLOSED LOOP FIBER OPTIC*	
RADIO	
*LOCATION OF MASTER CONTROLLER NO:	S13-0165
SIGNAL SYSTEM *:	SS- -

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

OVERLAPS

O.L. "A" =
O.L. "B" =
O.L. "C" =
O.L. "D" =
NONE

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

DETECTOR LOGIC

DETECTOR INPUT	3	1	7	5	11	9	15	13
DETECTOR #(S)	41	-	61					
PHASE CALLED	4		6					
PHASE EXTENDED	4		6					
DISCONNECT TIME								
CALLING DELAY								
EXTENSION STRETCH	X		X					
LOOP FUNCTION								

19	17	23	21	27	25	31	29	DETECTOR INPUT
								DETECTOR #(S)
								PHASE CALLED
								PHASE EXTENDED
								DISCONNECT TIME
								CALLING DELAY
								EXTENSION STRETCH
								LOOP FUNCTION

DETECTOR INPUT	4	2	8	6	12	10	16	14
DETECTOR #(S)	42	43	62	63				
PHASE CALLED	4	4	6	6				
PHASE EXTENDED	4	4	6	6				
DISCONNECT TIME								
CALLING DELAY								
EXTENSION STRETCH								
LOOP FUNCTION								

20	18	24	22	28	26	32	30	DETECTOR INPUT
								DETECTOR #(S)
								PHASE CALLED
								PHASE EXTENDED
								DISCONNECT TIME
								CALLING DELAY
								EXTENSION STRETCH
								LOOP FUNCTION

GENERAL NOTES:
1. SEQUENCE OF OPERATIONS PROVIDED FOR INFORMATION ONLY.
2. ANY ACTUATED PHASE FOR WHICH THERE IS NO CALL SHALL BE SKIPPED.
3. WHEN ONE PHASE IS ON ALONE, ANY NONCONFLICTING PHASE MAY START TIMING CONCURRENTLY WITHOUT A CLEARANCE INTERVAL.

USH 12/18 AND MONONA DRIVE
CITY OF MONONA
DANE

SIGNAL NO. S13-0388
CONTROLLER TYPE: ASC-3
DATE ----
PAGE NO. 2 OF 3

FILE NAME : S:\MAD\1000--1099\1089\697\Micros\PLAN\2017.01.04 Monona Plan Sheets\024002_ph.dgn PLOT DATE : 1/11/2017 PLOT BY : _username_ PLOT NAME : PLOT SCALE : $$.....plotscale.....$$ WISDOT/CADDS SHEET 42

USH 12/18 AND MONONA DRIVE TRAFFIC SIGNAL CABLING CHART NO. 14 CABLE						
CABLE RUN	CABLE	HEAD NO.	MOVEMENT	LENS	CONDUCTOR COLOR	REMARKS
CONTROL CABINET TO SB-1	5/C	6	SB	R	R	
				Y	O	
				G	G	
CONTROL CABINET TO SB-2	5/C	5	SB	R	R	
				Y	O	
				G	G	
CONTROL CABINET TO SB-3	5/C	1	EB	R	R	
				Y	O	
				G	G	
CONTROL CABINET TO SB-4	5/C	4	SB	R	R	
				Y	O	
				G	G	
CONTROL CABINET TO SB-5	5/C	3	EB	R	R	
				Y	O	
				G	G	
CONTROL CABINET TO SB-6	5/C	2	EB	R	R	
				Y	O	
				G	G	

EQUIPMENT GROUNDING CONDUCTOR 10 AWG	
FROM	TO
CB-1	SB-1
SB-1	SB-2
SB-2	SB-3
SB-3	SB-4
SB-4	SB-5
SB-5	SB-6
SB-6	CB-1

LIGHTING UF 12 AWG W/ GROUND	
FROM	TO
CB-1	LP-4
LP-4	LP-3
CB-1	SB-6
SB-6	SB-4
CB-1	LP-5
LP-5	LP-6
LP-6	LP-7
LP-7	LP-8
LP-8	LP-9

VIDEO DETECTION	
FROM	TO
CB-1	SB-6
EXCB-1	CB-1

1. ENSURE THE GROUNDED CONDUCTORS AND THE POLE CABLES ARE BOTH 12" LONGER THAN THE UNGROUNDED CONDUCTORS.
2. AT THE SIGNAL BASES, CONNECT ONE TERMINAL FROM THE PEDESTRIAN PUSH BUTTONS TO THE COLOR INDICATED IN THE CHART.
3. USE SEPARATE WHITE CONDUCTOR AS THE GROUNDED CONDUCTOR (NEUTRAL) FOR ALL TRAFFIC SIGNAL INDICATIONS.

BLK = BLACK
W = WHITE
R = RED
G = GREEN
O = ORANGE
BLU = BLUE

TRAFFIC CONTROL SIGNAL
USH 12/18 AND MONONA DRIVE
CITY OF MONONA
DANE COUNTY

SIGNAL NO. S13-0388

DESIGNED BY: STRAND
REVISED BY:

PAGE 3 OF 3

PROJECT NO: 3700-10-93 | HWY: USH 12 | COUNTY: DANE | CABLE ROUTING | SHEET 14 | E

LEGEND

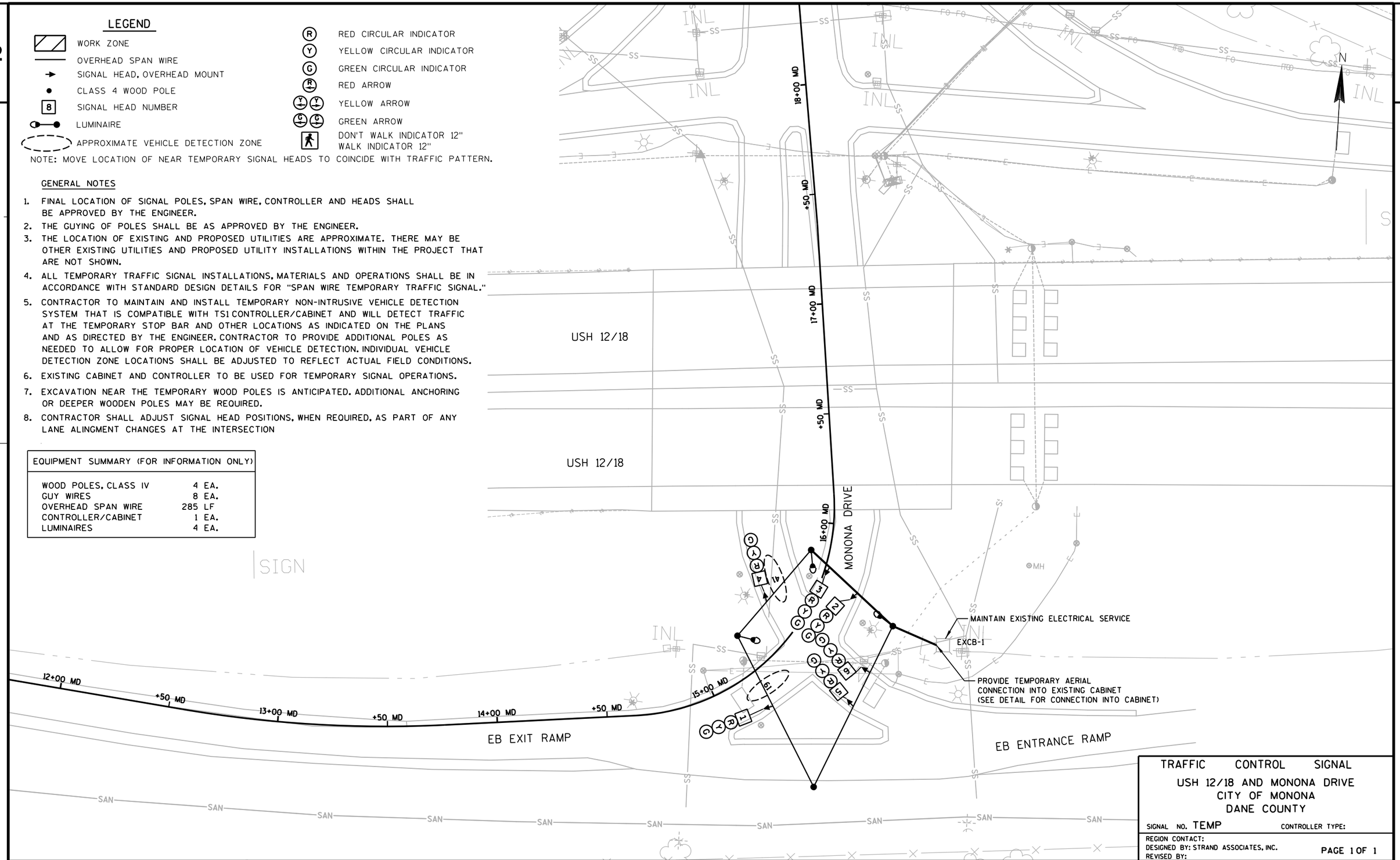
- WORK ZONE
- OVERHEAD SPAN WIRE
- SIGNAL HEAD, OVERHEAD MOUNT
- CLASS 4 WOOD POLE
- 8 — SIGNAL HEAD NUMBER
- LUMINAIRE
- APPROXIMATE VEHICLE DETECTION ZONE
- (R) RED CIRCULAR INDICATOR
- (Y) YELLOW CIRCULAR INDICATOR
- (G) GREEN CIRCULAR INDICATOR
- (R) RED ARROW
- (Y)(Y) YELLOW ARROW
- (G)(G) GREEN ARROW
- DON'T WALK INDICATOR 12"
  WALK INDICATOR 12"

NOTE: MOVE LOCATION OF NEAR TEMPORARY SIGNAL HEADS TO COINCIDE WITH TRAFFIC PATTERN.

GENERAL NOTES

1. FINAL LOCATION OF SIGNAL POLES, SPAN WIRE, CONTROLLER AND HEADS SHALL BE APPROVED BY THE ENGINEER.
2. THE GUYING OF POLES SHALL BE AS APPROVED BY THE ENGINEER.
3. THE LOCATION OF EXISTING AND PROPOSED UTILITIES ARE APPROXIMATE. THERE MAY BE OTHER EXISTING UTILITIES AND PROPOSED UTILITY INSTALLATIONS WITHIN THE PROJECT THAT ARE NOT SHOWN.
4. ALL TEMPORARY TRAFFIC SIGNAL INSTALLATIONS, MATERIALS AND OPERATIONS SHALL BE IN ACCORDANCE WITH STANDARD DESIGN DETAILS FOR "SPAN WIRE TEMPORARY TRAFFIC SIGNAL."
5. CONTRACTOR TO MAINTAIN AND INSTALL TEMPORARY NON-INTRUSIVE VEHICLE DETECTION SYSTEM THAT IS COMPATIBLE WITH TS1 CONTROLLER/CABINET AND WILL DETECT TRAFFIC AT THE TEMPORARY STOP BAR AND OTHER LOCATIONS AS INDICATED ON THE PLANS AND AS DIRECTED BY THE ENGINEER. CONTRACTOR TO PROVIDE ADDITIONAL POLES AS NEEDED TO ALLOW FOR PROPER LOCATION OF VEHICLE DETECTION. INDIVIDUAL VEHICLE DETECTION ZONE LOCATIONS SHALL BE ADJUSTED TO REFLECT ACTUAL FIELD CONDITIONS.
6. EXISTING CABINET AND CONTROLLER TO BE USED FOR TEMPORARY SIGNAL OPERATIONS.
7. EXCAVATION NEAR THE TEMPORARY WOOD POLES IS ANTICIPATED. ADDITIONAL ANCHORING OR DEEPER WOODEN POLES MAY BE REQUIRED.
8. CONTRACTOR SHALL ADJUST SIGNAL HEAD POSITIONS, WHEN REQUIRED, AS PART OF ANY LANE ALINGMENT CHANGES AT THE INTERSECTION

EQUIPMENT SUMMARY (FOR INFORMATION ONLY)	
WOOD POLES, CLASS IV	4 EA.
GUY WIRES	8 EA.
OVERHEAD SPAN WIRE	285 LF
CONTROLLER/CABINET	1 EA.
LUMINAIRES	4 EA.



TRAFFIC CONTROL SIGNAL

USH 12/18 AND MONONA DRIVE
CITY OF MONONA
DANE COUNTY

SIGNAL NO. TEMP CONTROLLER TYPE:

REGION CONTACT:
DESIGNED BY: STRAND ASSOCIATES, INC.
REVISED BY:

PAGE 1 OF 1

PROJECT NO: 3700-10-93	HWY: USH 12	COUNTY: DANE	TEMPORARY SIGNAL PLAN	SHEET	E

FILE NAME : S:\MAD\1000--1099\1089\697\Micros\PLAN\2017.01.04 Monona Plan Sheets\024101_sp.dgn PLOT DATE : 1/11/2017 PLOT BY : _username_ PLOT NAME : PLOT SCALE : $$.....plotscale.....$$ WISDOT/CADDS SHEET 42

PAVEMENT MARKING LEGEND

① PAVEMENT MARKING EPOXY 4-INCH, WHITE
② PAVEMENT MARKING EPOXY 4-INCH, YELLOW
③ PAVEMENT MARKING STOP LINE EPOXY 18-INCH

2

2

N

18+00 MD
+50 MD
17+00 MD
+50 MD
MONONA DRIVE
16+00 MD
+50 MD
15+00 MD
+06
17' RT
+86
17' RT
14+00 MD
+50 MD
13+00 MD
+50 MD
12+00 MD
+64
+50 MD
+74
+64
13' RT
+74
13' RT

USH 12/18

USH 12/18

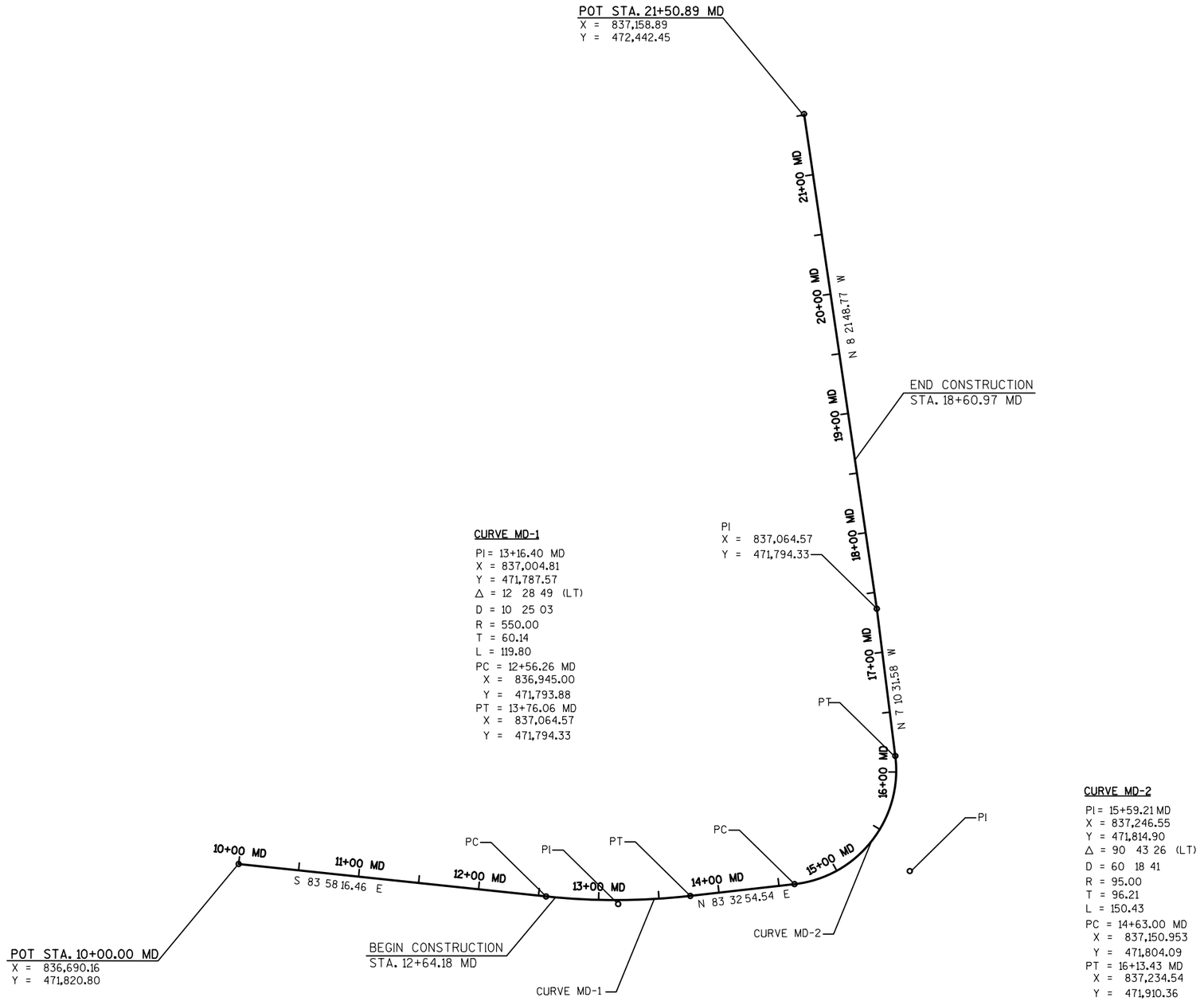
EB EXIT RAMP

EB ENTRANCE RAMP

PROJECT NO: 3700-10-93	HWY: USH 12	COUNTY: DANE	PAVEMENT MARKING	SHEET	E

FILE NAME : S:\MAD\1000--1099\1089\697\Micros\PLAN\2017.01.04 Monona Plan Sheets\024501_pm.dgn PLOT DATE : 1/19/2017 PLOT BY : _username_ PLOT NAME : PLOT SCALE : $$.....plotscale.....$$ WISDOT/CADDS SHEET 42

2



CURVE MD-1

PI = 13+16.40 MD
X = 837,004.81
Y = 471,787.57
Δ = 12 28 49 (LT)
D = 10 25 03
R = 550.00
T = 60.14
L = 119.80
PC = 12+56.26 MD
X = 836,945.00
Y = 471,793.88
PT = 13+76.06 MD
X = 837,064.57
Y = 471,794.33

CURVE MD-2

PI = 15+59.21 MD
X = 837,246.55
Y = 471,814.90
Δ = 90 43 26 (LT)
D = 60 18 41
R = 95.00
T = 96.21
L = 150.43
PC = 14+63.00 MD
X = 837,150.953
Y = 471,804.09
PT = 16+13.43 MD
X = 837,234.54
Y = 471,910.36

PROJECT NO: 3700-10-93	HWY: USH 12	COUNTY: DANE	ALIGNMENT DETAIL: MONONA DRIVE	SHEET	E

FILE NAME : icros . . onona lan eets ad. PLOT DATE : PLOT BY : userna e PLOT NAME : PLOT SCALE : $$.....plotscale.....$$

COORDINATES FOR THIS PROJECT
WERE ESTABLISHED BY CALIBRATING
TO NGS POINT DG4920 USING
THE WISCORS NETWORK ON THE
WISCONSIN COUNTY COORDINATE SYSTEM,
DANE COUNTY NAD83 (2011) DATUM.

PROJECT NO: 3700-10-93	HWY: USH 12	COUNTY: DANE	CONTROL POINT DATA SHEET	SHEET	E

FILE NAME : S:\MAD\1000--1099\1089\697\Micros\PLAN\2017.01.04 Monona Plan Sheets\027301_cp.dgn PLOT DATE : 1/11/2017 PLOT BY : _username_ PLOT NAME : PLOT SCALE : $$.....plotscale.....$$ WISDOT/CADDS SHEET 42

3700-10-93

Line	Item	Item Description	Unit	Total	Qty
0010	204.0110	Removing Asphaltic Surface	SY	70.000	70.000
0020	204.0150	Removing Curb & Gutter	LF	19.000	19.000
0030	204.0195	Removing Concrete Bases	EACH	13.000	13.000
0040	213.0100	Finishing Roadway (project) 01. 3700-10-93	EACH	1.000	1.000
0050	305.0110	Base Aggregate Dense 3/4-Inch	TON	5.000	5.000
0060	305.0120	Base Aggregate Dense 1 1/4-Inch	TON	25.000	25.000
0070	416.0610	Drilled Tie Bars	EACH	8.000	8.000
0080	416.0620	Drilled Dowel Bars	EACH	85.000	85.000
0090	465.0305	Asphaltic Surface Safety Islands	TON	7.000	7.000
0100	601.0409	Concrete Curb & Gutter 30-Inch Type A	LF	19.000	19.000
0110	619.1000	Mobilization	EACH	1.000	1.000
0120	625.0100	Topsoil	SY	100.000	100.000
0130	625.0500	Salvaged Topsoil	SY	490.000	490.000
0140	628.1905	Mobilizations Erosion Control	EACH	1.000	1.000
0150	628.1910	Mobilizations Emergency Erosion Control	EACH	1.000	1.000
0160	628.2006	Erosion Mat Urban Class I Type A	SY	488.000	488.000
0170	628.7005	Inlet Protection Type A	EACH	3.000	3.000
0180	628.7015	Inlet Protection Type C	EACH	2.000	2.000
0190	628.7020	Inlet Protection Type D	EACH	2.000	2.000
0200	629.0210	Fertilizer Type B	CWT	0.300	0.300
0210	630.0140	Seeding Mixture No. 40	LB	9.000	9.000
0220	630.0200	Seeding Temporary	LB	15.000	15.000
0230	634.0614	Posts Wood 4x6-Inch X 14-FT	EACH	1.000	1.000
0240	637.2210	Signs Type II Reflective H	SF	12.500	12.500
0250	638.2102	Moving Signs Type II	EACH	7.000	7.000
0260	638.2602	Removing Signs Type II	EACH	1.000	1.000
0270	642.5001	Field Office Type B	EACH	1.000	1.000
0280	643.0100	Traffic Control (project) 01. 3700-10-93	EACH	1.000	1.000
0290	643.0300	Traffic Control Drums	DAY	88.000	88.000
0300	643.0420	Traffic Control Barricades Type III	DAY	14.000	14.000
0310	643.0900	Traffic Control Signs	DAY	10.000	10.000
0320	643.1050	Traffic Control Signs PCMS	DAY	4.000	4.000
0330	646.0106	Pavement Marking Epoxy 4-Inch	LF	43.000	43.000
0340	647.0566	Pavement Marking Stop Line Epoxy 18-Inch	LF	34.000	34.000
0350	650.8500	Construction Staking Electrical Installations (project) 01. 3700-10-93	LS	1.000	1.000
0360	652.0225	Conduit Rigid Nonmetallic Schedule 40 2-Inch	LF	752.000	752.000
0370	652.0235	Conduit Rigid Nonmetallic Schedule 40 3-Inch	LF	99.000	99.000
0380	652.0605	Conduit Special 2-Inch	LF	405.000	405.000
0390	652.0615	Conduit Special 3-Inch	LF	468.000	468.000

Line	Item	Item Description	Unit	Total	Qty
0400	652.0700.S	Install Conduit into Existing Item	EACH	1.000	1.000
0410	652.0800	Conduit Loop Detector	LF	416.000	416.000
0420	653.0905	Removing Pull Boxes	EACH	10.000	10.000
0430	654.0101	Concrete Bases Type 1	EACH	4.000	4.000
0440	654.0102	Concrete Bases Type 2	EACH	2.000	2.000
0450	654.0105	Concrete Bases Type 5	EACH	7.000	7.000
0460	654.0217	Concrete Control Cabinet Bases Type 9 Special	EACH	1.000	1.000
0470	655.0230	Cable Traffic Signal 5-14 AWG	LF	799.000	799.000
0480	655.0305	Cable Type UF 2-12 AWG Grounded	LF	1,560.000	1,560.000
0490	655.0515	Electrical Wire Traffic Signals 10 AWG	LF	1,144.000	1,144.000
0500	655.0610	Electrical Wire Lighting 12 AWG	LF	1,107.000	1,107.000
0510	655.0700	Loop Detector Lead In Cable	LF	1,720.000	1,720.000
0520	655.0800	Loop Detector Wire	LF	1,495.000	1,495.000
0530	657.0100	Pedestal Bases	EACH	4.000	4.000
0540	657.0255	Transformer Bases Breakaway 11 1/2-Inch Bolt Circle	EACH	9.000	9.000
0550	657.0310	Poles Type 3	EACH	2.000	2.000
0560	657.0322	Poles Type 5-Aluminum	EACH	7.000	7.000
0570	657.0420	Traffic Signal Standards Aluminum 13-FT	EACH	4.000	4.000
0580	657.0614	Luminaire Arms Single Member 4-Inch Clamp 8-FT	EACH	1.000	1.000
0590	657.0615	Luminaire Arms Single Member 4 1/2-Inch Clamp 8-FT	EACH	7.000	7.000
0600	657.0709	Luminaire Arms Truss Type 4-Inch Clamp 12-FT	EACH	1.000	1.000
0610	658.0110	Traffic Signal Face 3-12 Inch Vertical	EACH	6.000	6.000
0620	658.0215	Backplates Signal Face 3 Section 12-Inch	EACH	6.000	6.000
0630	658.0600	Led Modules 12-Inch Red Ball	EACH	6.000	6.000
0640	658.0605	Led Modules 12-Inch Yellow Ball	EACH	6.000	6.000
0650	658.0610	Led Modules 12-Inch Green Ball	EACH	6.000	6.000
0660	658.5069	Signal Mounting Hardware (location) 01. USH 12/18 & Monona Drive	LS	1.000	1.000
0670	659.1125	Luminaires Utility LED C	EACH	9.000	9.000
0680	661.0200	Temporary Traffic Signals for Intersections (location) 01. USH 12/18 & Monona Drive	LS	1.000	1.000
0690	675.0400.S	Install Ethernet Switch	EACH	1.000	1.000
0700	678.0400	Fiber Optic Termination	EACH	4.000	4.000
0710	690.0150	Sawing Asphalt	LF	24.000	24.000
0720	690.0250	Sawing Concrete	LF	396.000	396.000
0730	SPV.0060	Special 01. Pull Box Non-Conductive 24x36-Inch	EACH	4.000	4.000
0740	SPV.0060	Special 02. Pull Box Non-Conductive 24x42-Inch	EACH	7.000	7.000
0750	SPV.0060	Special 03. 8-Count Fiber Optic Connector 800-FT	EACH	1.000	1.000
0760	SPV.0060	Special 04. Relocate Existing Wireless Radio/Antenna	EACH	1.000	1.000
0770	SPV.0105	Special 01. Remove Underdeck Lighting	LS	1.000	1.000

3700-10-93

Line	Item	Item Description	Unit	Total	Qty
0780	SPV.0105	Special 02. Remove and Transport Traffic Signals, USH 12/18 & Monona Drive	LS	1.000	1.000
0790	SPV.0105	Special 03. Install Department Furnished Video Detection, USH 12/18 & Monona Drive	LS	1.000	1.000
0800	SPV.0180	Special 01. Concrete Pavement Repair Overnight	SY	40.000	40.000
0810	SPV.0180	Special 02. Concrete Pavement Replacement Overnight	SY	200.000	200.000

REMOVING ASPHALTIC SURFACE

CATEGORY	STATION - STATION	LOCATION	204.0110 SY
0010	15+20 MD - 15+37 MD	RT	70

REMOVING CURB AND GUTTER

CATEGORY	STATION - STATION	LOCATION	204.0150 LF
0010	15+06 MD - 15+14 MD	LT	8
	15+80 MD - 15+88 MD	LT	7
	17+68 MD - 17+70 MD	LT	4
	TOTAL		19

FINISHING ROADWAY

CATEGORY	PROJECT	213.0100 EACH
0010	3700-10-93	1

BASE AGGREGATE DENSE

CATEGORY	STATION - STATION	LOCATION	305.0110 3/4-INCH TON	305.0120 1 1/4-INCH TON
0010	UNDISTRIBUTED	LT/RT	5	25

REMOVING CONCRETE BASES

CATEGORY	LOCATION	CONCRETE BASE NUMBER	STATION	LOCATION	204.0195 EACH
0010	USH 12/18 & MONONA DRIVE	EXCB-1	15+69 MD	53'RT	1
		EXSB-1	15+57 MD	32'RT	1
		EXSB-2	15+33 MD	26'RT	1
		EXSB-3	15+24 MD	26'RT	1
		EXSB-4	15+46 MD	28'RT	1
		EXSB-5	15+80 MD	7'LT	1
		EXSB-6	15+64 MD	31'RT	1
		EXLP-1	17+80 MD	76'LT	1
		EXLP-2	17+59 MD	41'LT	1
		EXLP-3	17+55 MD	24'RT	1
		EXLP-4	17+55 MD	35'LT	1
		EXLP-5	14+62 MD	127'RT	1
		EXLP-6	15+59 MD	79'RT	1
				TOTAL	13

CONCRETE PAVEMENT

CATEGORY	STATION - STATION	LOCATION	SPV.0180.01 REPAIR OVERNIGHT SY	SPV.0108.02 REPLACEMENT OVERNIGHT SY
0010	12+64 MD - 12+74 MD	RT	15	---
	14+48 MD - 15+34 MD	RT	---	100
	15+48 MD - 16+16 MD	LT	---	100
	17+66 MD - 17+82 MD	LT	25	---
		TOTALS	40	200

CONCRETE CURB AND GUTTER 30-INCH TYPE A

CATEGORY	STATION - STATION	LOCATION	601.0409 LF
0010	15+06 MD - 15+14 MD	LT	8
	15+80 MD - 15+88 MD	LT	7
	17+68 MD - 17+70 MD	LT	4
	TOTALS		19

SAWING

CATEGORY	STATION	LOCATION	SAWING ASPHALT 690.0150 LF	SAWING CONCRETE 690.0250 LF
0010	12+64 MD - 12+74 MD	RT	---	49
	14+48 MD - 15+34 MD	RT	24	135
	15+48 MD - 16+16 MD	LT	---	140
	17+66 MD - 17+82 MD	LT	---	72
		TOTALS	24	396

DRILLED TIE BARS AND DOWEL BARS

CATEGORY	STATION - STATION	LOCATION	416.0610 DRILLED TIE BARS EACH	416.0620 DRILLED DOWEL BARS EACH
0010	MONONA DRIVE	LT/RT	8	85
		TOTALS	8	85

ASPHALTIC SURFACE SAFETY ISLANDS

CATEGORY	STATION - STATION	LOCATION	465.0305 TON
0010	15+20 MD - 15+37 MD	RT	7

MOBILIZATION

CATEGORY	PROJECT	619.1000 EACH
0010	3700-10-93	1

MOBILIZATIONS EROSION CONTROL

CATEGORY	628.1905 MOBILIZATIONS EROSION CONTROL EACH	628.1910 MOBILIZATIONS EMERGENCY EROSION CONTROL EACH
0010	1	1

INLET PROTECTION

CATEGORY	STATION	LOCATION	628.7005 TYPE A EACH	628.7015 TYPE C EACH	628.7020 TYPE D EACH	REMARKS
0100	14+86 MD	27.7'LT	1	---	---	EXISTING INLET
	15+34 MD	1.1'LT	---	1	---	EXISTING INLET
	15+53 MD	35.8'RT	---	1	---	EXISTING INLET
	15+72 MD	81.9'RT	1	---	---	EXISTING INLET
	17+00 MD	17.5' RT	---	---	1	EXISTING INLET
	17+00 MD	35'LT	---	---	1	EXISTING INLET
	17+74 MD	45.8'LT	1	---	---	EXISTING INLET
		TOTALS	3	2	2	

FINISHING ITEMS

CATEGORY	STATION - STATION	LOCATION	625.0100 TOPSOIL SY	625.0500 SALVAGED TOPSOIL SY	628.2006 EROSION MAT URBAN CLASS I TYPE A SY	629.0210 FERTILIZER TYPE B CWT	630.0140 SEEDING MIXTURE NO. 40 LB	630.0200 SEEDING TEMPORARY LB
0010	UNDISTRIBUTED	LT/RT	100	490	488	0.3	9	15

PERMANENT SIGNING SUMMARY

CATEGORY	SIGN NO.	APPROX. STA.	LOC.	SIGN CODE	SIGN MESSAGE	SIGN SIZE (W x H) IN	637.2210 SIGNS TYPE II REFLECTIVE H SF	634.0614 POSTS WOOD 4x6-INCH x 14-FT EACH	638.2102 MOVING SIGNS TYPE II EACH	638.2602 REMOVING SIGNS TYPE II EACH	REMARKS
0010											
	4-1	15+23 MD	RT	R1-1F	STOP (FOLDING)	36x36	---	---	1	---	SIGN MOUNTED ON SIGNAL POLE
	4-2	15+48 MD	LT	R3-1	NO RIGHT TURN SYMBOL	24x24	---	---	1	---	SIGN MOUNTED ON SAME POLE AS 4-7
	4-3	15+33 MD	RT	R4-8	KEEP LEFT	24x30	---	---	1	---	SIGN MOUNTED ON SIGNAL POLE
	4-4	15+23 MD	RT	R6-2L	ONE WAY LEFT ARROW	24x30	---	---	1	---	SIGN MOUNTED ON SAME POLE AS 4-1
	4-5	15+63 MD	RT	R1-1F	STOP (FOLDING)	36x36	---	---	---	1	
	4-6	15+78 MD	LT	R4-7	KEEP RIGHT	24x30	---	---	1	---	SIGN MOUNTED ON SIGNAL POLE
	4-7	15+48 MD	LT	R1-1F	STOP (FOLDING)	36x36	---	---	1	---	SIGN MOUNTED ON SIGNAL POLE
	4-8	15+48 MD	LT	R5-1	DO NOT ENTER	30x30	6.25	---	---	---	SIGN MOUNTED ON SAME POLE AS 4-7
	4-9	15+23 MD	LT	R5-1	DO NOT ENTER	30x30	6.25	1	---	---	
	4-10	17+58 MD	LT	R5-1A	WRONG WAY	36x24	---	---	1	---	SIGN MOUNTED ON LIGHT POLE
	TOTAL						12.50	1	7	1	

FIELD OFFICE TYPE B

CATEGORY	PROJECT	642.5001 EACH
0010	3700-10-93	1

TRAFFIC CONTROL PROJECT

CATEGORY	PROJECT	643.0100 EACH
0010	3700-10-93	1

TRAFFIC CONTROL

CATEGORY	STAGE	STATION - STATION	DURATION (DAYS)	643.0300 DRUMS EACH	643.0300 DRUMS DAYS	643.0420 BARRICADES TYPE III EACH	643.0420 BARRICADES TYPE III DAYS	643.0900 SIGNS EACH	643.0900 SIGNS DAYS	643.1050 SIGNS PCMS EACH	643.1050 SIGNS PCMS DAYS
0010	STAGE 1	MONONA DRIVE INTERCHANGE	2	44	88	7	14	5	10	2	4
		TOTALS			88		14		10		4

PAVEMENT MARKING ITEMS

CATEGORY	STATION - STATION	646.0106 PAVEMENT MARKING EPOXY 4-INCH (WHITE) LF	646.0106 PAVEMENT MARKING EPOXY 4-INCH (YELLOW) LF	647.0566 STOP LINE 18-INCH (WHITE) LF
0010	12+65 MD - 12+74 MD	10	10	---
	14+86 MD - 15+66 MD	23	---	34
	TOTALS	43		34

3

TRAFFIC SIGNAL CONDUIT SUMMARY

CATEGORY	INTERSECTION	LOCATION FROM	LOCATION TO	652.0225 CONDUIT RIGID NONMETALLIC SCHEDULE 40 2-INCH LF	652.0235 CONDUIT RIGID NONMETALLIC SCHEDULE 40 3-INCH LF	652.0605 CONDUIT SPECIAL 2-INCH LF	652.0615 CONDUIT SPECIAL 3-INCH LF
0010	USH 12/18 & MONONA DRIVE	CB-1	PB-1	---	81	---	---
		CB-1	ELECTRIC UTILITY	130	---	205	---
		PB-1	SB-1	8	---	---	---
		PB-1	SB-6	9	---	---	---
		PB-1	LP-4	45	---	---	---
		PB-1	PB-2	---	---	---	88
		PB-1	PB-10	---	18	---	72
		PB-2	SB-2	9	---	---	---
		PB-2	SB-3	9	---	---	---
		PB-2	PB-3	---	---	---	125
		PB-3	PB-4	56	---	---	---
		PB-4	PB-6	200	---	---	---
		PB-4	LP-3	8	---	---	---
		PB-4	PB-5	38	---	---	---
		PB-3	SB-4	8	---	---	---
		PB-3	PB-10	---	---	---	76
		PB-3	PB-7	---	---	200	---
		PB-7	LP-5	42	---	---	---
		PB-7	LP-6	7	---	---	---
		PB-7	PB-8	---	---	---	60
		PB-8	LP-7	6	---	---	---
		PB-8	LP-8	105	---	---	---
		PB-8	PB-9	---	---	---	47
		PB-9	LP-9	51	---	---	---
		PB-10	SB-5	7	---	---	---
		PB-10	PB-11	14	---	---	---
			TOTALS	752	99	405	468

CONSTRUCTION STAKING ELECTRICAL INSTALLATIONS

CATEGORY	PROJECT	650.8500 LS
0010	3700-10-93	1

INSTALL CONDUIT INTO EXISTING ITEM

CATEGORY	LOCATION	STATION	LOCATION	652.0700.S EACH	REMARKS
0010	USH 12/18 & MONONA DRIVE	17+64.8 MD	32.9'RT	1	EXPB-101
		TOTAL		1	

REMOVING PULL BOXES

CATEGORY	LOCATION	PULL BOX NUMBER	STATION	LOCATION	653.0905 EACH
0010	USH 12/18 & MONONA DRIVE	EXPB-1	15+55 MD	51'RT	1
		EXPB-2	15+28 MD	23'RT	1
		EXPB-3	15+11 MD	22'RT	1
		EXPB-4	15+01 MD	13'LT	1
		EXPB-5	14+14 MD	6'LT	1
		EXPB-6	15+40 MD	17'LT	1
		EXPB-7	15+57 MD	35'LT	1
		EXPB-8	17+24 MD	43'LT	1
		EXPB-9	15+73 MD	6'LT	1
		EXPB-10	15+64 MD	25'RT	1
			TOTAL		10

LOOP DETECTOR INSTALLATION

CATEGORY	INTERSECTION	LOOP NO.	STATION	LOCATION	SIZE FT x FT	NO. OF TURNS	652.0800 CONDUIT LOOP DETECTOR LF	655.0700 LOOP DETECTOR LEAD IN CABLE LF	655.0800 LOOP DETECTOR WIRE LF	REMARKS/SDD INSTALLATION REFERENCE
0010	USH 12/18 & MONONA DRIVE	41	17+73.17 MD	22.1'LT	6X6	5	54	385	270	LOOP DETECTOR INSTALLED IN BASE COURSE WITH PULL (SPLICE) BOX OFF ROADWAY (OPTION 2)
		42	15+83.95 MD	29.4'LT	6X20	3	80	145	240	LOOP DETECTOR INSTALLED IN BASE COURSE WITH PULL (SPLICE) BOX OFF ROADWAY (OPTION 2)
		43	15+56.79 MD	11.1'LT	6X20	3	76	145	230	LOOP DETECTOR INSTALLED IN BASE COURSE WITH PULL (SPLICE) BOX OFF ROADWAY (OPTION 2)
		61	12+72.23 MD	6.3'RT	6X6	6	46	455	275	LOOP DETECTOR INSTALLED IN BASE COURSE WITH PULL (SPLICE) BOX OFF ROADWAY (OPTION 2)
		62	15+05.53 MD	8.0'RT	6X20	3	80	295	240	LOOP DETECTOR INSTALLED IN BASE COURSE WITH PULL (SPLICE) BOX OFF ROADWAY (OPTION 2)
		63	15+31.08 MD	9.7'RT	6X20	3	80	295	240	LOOP DETECTOR INSTALLED IN BASE COURSE WITH PULL (SPLICE) BOX OFF ROADWAY (OPTION 2)
						TOTALS	416	1,720	1,495	

3

TRAFFIC SIGNAL BASES

CATEGORY	INTERSECTION	BASE NO.	STATION	LOCATION	654.0101 CONCRETE BASES TYPE 1 EACH	654.0102 CONCRETE BASES TYPE 2 EACH	654.0105 CONCRETE BASES TYPE 5 EACH	657.0100 PEDESTAL BASES EACH	657.0255 TRANSFORMER BASES BREAKAWAY 11 1/2-INCH BOLT CIRCLE EACH	REMARKS
0010	USH 12/18 & MONONA DRIVE	SB-1	15+56.5 MD	32.1'RT	1	---	---	1	---	---
		SB-2	15+32.9 MD	26.3'RT	1	---	---	1	---	---
		SB-3	15+24.0 MD	26.2'RT	1	---	---	1	---	---
		SB-4	15+46.5 MD	27.6'LT	---	1	---	---	1	---
		SB-5	15+79.8 MD	7.4'LT	1	---	---	1	---	---
		SB-6	15+64.0 MD	30.5'RT	---	1	---	---	1	---
		LP-3	14+62.2 MD	6.8'LT	---	---	1	---	1	---
		LP-4	15+58.9 MD	78.6'RT	---	---	1	---	1	---
		LP-5	17+79.9 MD	75.5'LT	---	---	1	---	1	---
		LP-6	17+59.2 MD	40.7'LT	---	---	1	---	1	---
		LP-7	17+54.7 MD	23.9'RT	---	---	1	---	1	---
		LP-8	17+54.9 MD	127.2'RT	---	---	1	---	1	---
		LP-9	18+59.5 MD	22.2'RT	---	---	1	---	1	---
			TOTALS		4	2	7	4	9	

TRAFFIC SIGNAL CABLE SUMMARY

CATEGORY	INTERSECTION	LOCATION FROM	LOCATION TO	655.0230 CABLE TRAFFIC SIGNAL 5-14 AWG LF
0010	USH 12/18 & MONONA DRIVE	CB-1	SB-1	65
		SB-1	HEAD 6	19
		CB-1	SB-2	125
		SB-2	HEAD 5	19
		CB-1	SB-3	125
		SB-3	HEAD 1	19
		CB-1	SB-4	180
		SB-4	HEAD 4	19
		CB-1	SB-5	125
		SB-5	HEAD 3	19
		CB-1	SB-6	65
		SB-6	HEAD 2	19
			TOTALS	799

CONCRETE CONTROL CABINET BASES TYPE 9 SPECIAL

CATEGORY	INTERSECTION	BASE NO.	STATION	LOCATION	654.0217 EACH
0010	USH 12/18 & MONONA DRIVE	CB-1	15+68 MD	62'RT	1
				TOTAL	1

ELECTRICAL WIRE, LIGHTING (LUMINAIRES)

CATEGORY	LOCATION	LOCATION FROM	LOCATION TO	655.0305 CABLE TYPE UF 2-12 AWG GROUNDED LF	655.0610 ELECTRICAL WIRE LIGHTING 12 AWG LF
0010	USH 12/18 & MONONA DRIVE	CB-1	LP-4	100	---
			POLE	---	123
		LP-4	LP-3	275	---
			POLE	---	123
		CB-1	SB-6	68	---
			POLE	---	123
		SB-6	SB-4	150	---
			POLE	---	123
		CB-1	LP-5	430	---
			POLE	---	123
		LP-5	LP-6	67	---
			POLE	---	123
		LP-6	LP-7	105	---
			POLE	---	123
		LP-7	LP-8	130	---
			POLE	---	123
		LP-8	LP-9	235	---
			POLE	---	123
			TOTALS	1,560	1,107

TRAFFIC SIGNAL EQUIPMENT GROUNDING AND GROUNDED CONDUCTORS

CATEGORY	INTERSECTION	LOCATION FROM	LOCATION TO	655.0515 ELECTRICAL WIRE TRAFFIC SIGNALS 10 AWG (GREEN) LF	655.0515 ELECTRICAL WIRE TRAFFIC SIGNALS 10 AWG (WHITE) LF
0010	USH 12/18 & MONONA DRIVE	CB-1	SB-1	67	67
		SB-1	SB-2	97	97
		SB-2	SB-3	39	39
		SB-3	SB-4	115	115
		SB-4	SB-5	88	88
		SB-5	SB-6	98	98
		SB-6	CB-1	68	68
			SUBTOTAL	572	572
			TOTAL	1,144	

3

PROJECT NO: 3700-10-93	HWY: USH 12	COUNTY: DANE	MISCELLANEOUS QUANTITIES	SHEET 25	E

TRAFFIC SIGNAL POLES

CATEGORY	INTERSECTION	BASE NO.	STATION	LOCATION	657.0310 POLES TYPE 3 EACH	657.0322 POLES TYPE 5 ALUMINUM EACH	657.0420 TRAFFIC SIGNAL STANDARDS ALUMINUM 13-FT EACH	657.0614 LUMINAIRE ARMS SINGLE MEMBER 4-INCH CLAMP 8-FT EACH	657.0615 LUMINAIRE ARMS SINGLE MEMBER 4 1/2-INCH CLAMP 8-FT EACH	657.0709 LUMINAIRE ARMS TRUSS TYPE 4-INCH CLAMP 12-FT EACH	659.1125 LUMINAIRES UTILITY LED C EACH
0010	USH 12/18 & MONONA DRIVE	SB-1	15+56.5 MD	32.1'RT	---	---	1	---	---	---	---
		SB-2	15+32.9 MD	26.3'RT	---	---	1	---	---	---	---
		SB-3	15+24.0 MD	26.2'RT	---	---	1	---	---	---	---
		SB-4	15+46.5 MD	27.6'LT	1	---	---	1	---	---	1
		SB-5	15+79.8 MD	7.4'LT	---	---	1	---	---	---	---
		SB-6	15+64.0 MD	30.5'RT	1	---	---	---	---	1	1
		LP-3	14+62.2 MD	6.8'LT	---	1	---	---	1	---	1
		LP-4	15+58.9 MD	78.6'RT	---	1	---	---	1	---	1
		LP-5	17+79.9 MD	75.5'LT	---	1	---	---	1	---	1
		LP-6	17+59.2 MD	40.7'LT	---	1	---	---	1	---	1
		LP-7	17+54.7 MD	23.9'RT	---	1	---	---	1	---	1
		LP-8	17+54.9 MD	127.2'RT	---	1	---	---	1	---	1
		LP-9	18+59.5 MD	22.2'RT	---	1	---	---	1	---	1
				TOTALS	2	7	4	1	7	1	9

TRAFFIC SIGNAL FACES SUMMARY

CATEGORY	INTERSECTION	BASE NO.	HEAD NO.	658.0110 TRAFFIC SIGNAL FACE 3-12 INCH VERTICAL EACH	658.0215 BACKPLATES SIGNAL FACE 3 SECTION 12-INCH EACH	658.0600 658.0605 658.0610 LED MODULES 12-INCH RED BALL EACH	YELLOW BALL EACH	GREEN BALL EACH
0010	USH 12/18 & MONONA DRIVE	SB-1	6	1	1	1	1	1
		SB-2	5	1	1	1	1	1
		SB-3	1	1	1	1	1	1
		SB-4	4	1	1	1	1	1
		SB-5	3	1	1	1	1	1
		SB-6	2	1	1	1	1	1
			TOTALS	6	6	6	6	6

TRAFFIC SIGNAL MOUNTING HARDWARE

CATEGORY	LOCATION	658.5069.01 SIGNAL MOUNTING HARDWARE LS
0010	USH 12/18 & MONONA DRIVE	1

TEMPORARY TRAFFIC SIGNALS FOR INTERSECTIONS

CATEGORY	LOCATION	661.0200.01 LS
0010	USH 12/18 & MONONA DRIVE	1

ITS SUMMARY

CATEGORY	INTERSECTION	LOCATION	675.0400.S INSTALL ETHERNET SWITCH EACH	678.0400 FIBER OPTIC TERMINATION EACH	SPV.0060.03 8-COUNT FIBER OPTIC CONNECTOR 800-FT EACH	SPV.0060.04 RELOCATE EXISTING WIRELESS RADIO/ANTENNA EACH
0010	USH 12/18 & MONONA DRIVE	FROM EXSB-6 TO SB6	---	---	---	1
		CB-1	1	2	---	---
		EX-ITS-2	---	2	---	---
		FROM CB-1 TO EX-ITS-2	---	---	1	---
	TOTALS		1	4	1	1

TRAFFIC SIGNAL PULL BOX SUMMARY

CATEGORY	INTERSECTION	PULL BOX NO.	STATION	LOCATION	SPV.0060.01 PULL BOX NON-CONDUCTIVE 24X36-INCH EACH	SPV.0060.02 PULL BOX NON-CONDUCTIVE 24X42-INCH EACH
0010	USH 12/18 & MONONA DRIVE	PB-1	15+60.48 MD	38.2' RT	---	1
		PB-2	15+28.50 MD	33.2' RT	---	1
		PB-3	15+36.04 MD	29.0' LT	---	1
		PB-4	14+70.65 MD	7.1' LT	1	---
		PB-5	15+11.56 MD	7.3' LT	1	---
		PB-6	12+72.16 MD	7.4' LT	1	---
		PB-7	17+64.29 MD	36.3' LT	---	1
		PB-8	17+61.01 MD	24.0' RT	---	1
		PB-9	18+08.41 MD	23.5' RT	---	1
		PB-10	15+72.60 MD	5.1' LT	---	1
		PB-11	15+85.76 MD	13.1' LT	1	---
				TOTALS	4	7

STATE FURNISHED ITEMS

ITEM	FOR INFORMATION ONLY EACH
TRAFFIC SIGNAL CABINET	1
VIDEO DETECTION CAMERA SYSTEM	1

REMOVE UNDERDECK LIGHTING

CATEGORY	LOCATION	SPV.0105.01 LS
0010	USH 12/18 & MONONA DRIVE	1

REMOVE AND TRANSPORT TRAFFIC SIGNALS

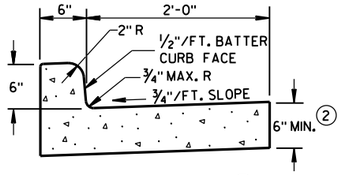
CATEGORY	SPV.0105.02 USH 12/18 & MONONA DRIVE LS
0010	1

INSTALL DEPARTMENT FURNISHED VIDEO DETECTION

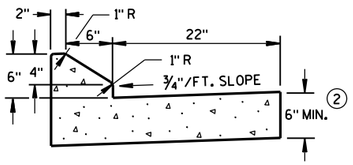
CATEGORY	SPV.0105.03 USH 12/18 & MONONA DRIVE LS
0010	1

Standard Detail Drawing List

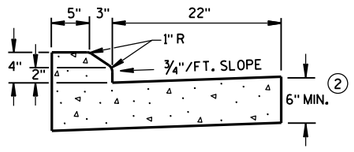
08D01-19	CONCRETE CURB, CONCRETE CURB AND GUTTER AND TIES
08E10-02	INLET PROTECTION TYPE A, B, C AND D
09B02-09	CONDUIT
09B04-11	PULL BOX
09C02-07	CONCRETE BASES, TYPES 1, 2, 5, & 6
09C03-04	TRANSFORMER/PEDESTAL BASES
09C06-07	CONCRETE CONTROL CABINET BASE, TYPE 9, SPECIAL
09E01-14B	POLE MOUNTINGS FOR TRAFFIC SIGNALS AND LIGHTING UNITS, TYPE 3 (HEAVY DUTY)
09E01-14D	POLE MOUNTINGS FOR LIGHTING UNITS, TYPE 5 (30 FEET)
09E01-14G	HARDWARE DETAILS FOR POLE MOUNTINGS
09E03-05	NON-FREEWAY LIGHTING UNIT POLE WIRING
09E06-05	TRAFFIC SIGNAL STANDARD POLY BRACKET MOUNTINGS (TYPICAL) 13 FT. OR 15 FT.
09F09-04	LOOP DETECTOR PLACED IN CRUSHED AGGREGATE BASE (NEW CONCRETE PAVEMENT)
09F15-04B	LOOP DETECTOR INSTALLED IN BASE COURSE WITH PULL (SPLICE) BOX OFF ROADWAY (OPTION 2)
09G01-04A	SPAN WIRE TEMPORARY TRAFFIC SIGNAL
09G01-04B	SPAN WIRE TEMPORARY TRAFFIC SIGNAL
09G01-04C	SPAN WIRE TEMPORARY TRAFFIC SIGNAL
09G01-04D	SPAN WIRE TEMPORARY TRAFFIC SIGNAL
09G01-04E	SPAN WIRE TEMPORARY TRAFFIC SIGNAL
09G01-04F	SPAN WIRE TEMPORARY TRAFFIC SIGNAL
09G01-04G	SPAN WIRE TEMPORARY TRAFFIC SIGNAL
10A01-03	ELECTRICAL HANDHOLE WIRING
15C02-06A	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C02-06B	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C05-03	TRAFFIC CONTROL, ADVANCE WARNING SIGNS 40 M.P.H. OR LESS
15C08-16A	PAVEMENT MARKING (MAINLINE)
15C33-02	STOP LINE AND CROSSWALK PAVEMENT MARKING
15D16-03	TRAFFIC CONTROL, EXIT RAMP CLOSURE
15D21-04	TRAFFIC CONTROL, INTERSECTION WITHIN SINGLE LANE CLOSURE
15D27-03	TRAFFIC CONTROL, SHOULDER CLOSURE ON DIVIDED ROADWAY, SPEEDS GREATER THAN 40 MPH



TYPES A & D ①

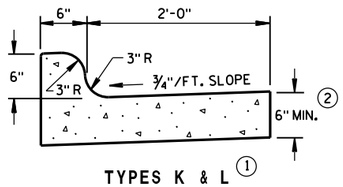


6" SLOPED CURB TYPES G & J ①

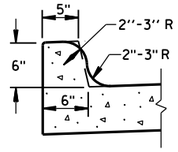


4" SLOPED CURB TYPES G & J ①

CONCRETE CURB & GUTTER 30"

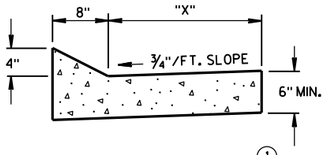


TYPES K & L ①



OPTIONAL CURB SHAPE FOR TYPES K & L ①

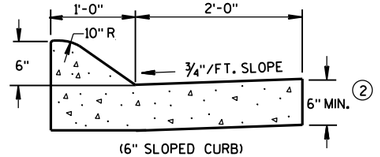
CONCRETE CURB & GUTTER 30"



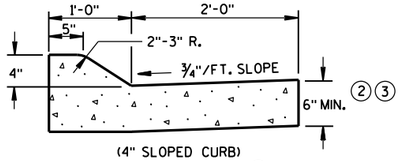
TYPES TBT & TBTT ①

CONCRETE CURB & GUTTER

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

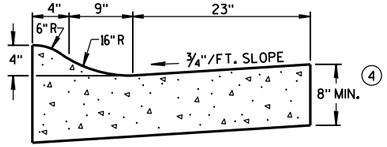


(6" SLOPED CURB)



(4" SLOPED CURB)

TYPES A & D ①



4" SLOPED CURB TYPES R & T ①⑤

CONCRETE CURB & GUTTER 36"

GENERAL NOTES

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

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

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

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

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

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

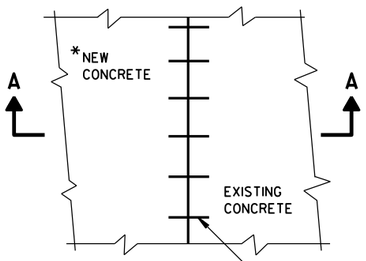
② THE BOTTOM OF CURB AND GUTTER MAY BE CONSTRUCTED EITHER LEVEL OR PARALLEL TO THE SLOPE OF THE SUBGRADE OR BASE AGGREGATE PROVIDED A 6" MINIMUM GUTTER THICKNESS IS MAINTAINED.

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

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

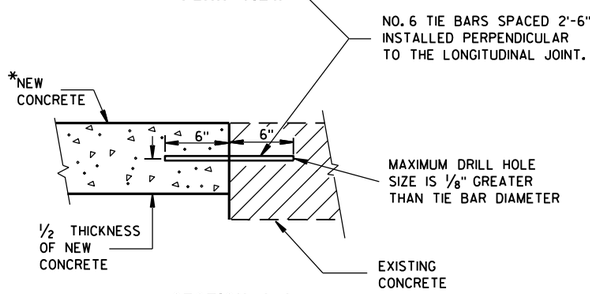
⑤ THE FACE OF CURB IS 6" FROM THE BACK OF CURB.

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



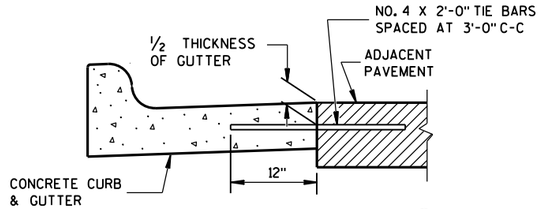
PLAN VIEW

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

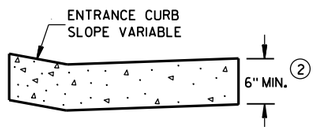


SECTION A-A

TIE BARS DRILLED INTO EXISTING PAVEMENT

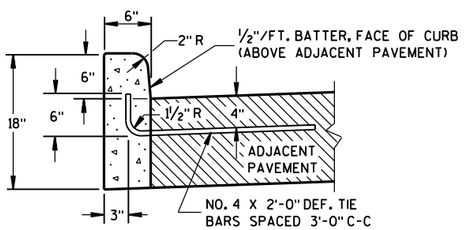


TYPICAL TIE BAR LOCATION ①

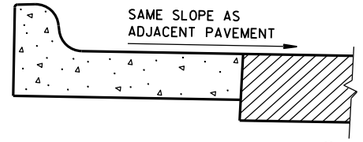


DRIVEWAY ENTRANCE CURB

(WHEN DIRECTED BY THE ENGINEER)

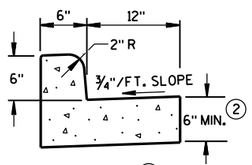


① TYPES A & D



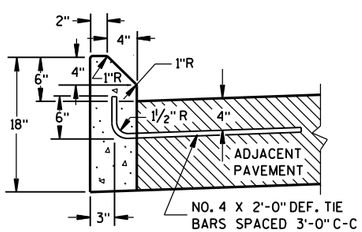
⑥ REVERSE SLOPE GUTTER

(TYPICAL FOR ALL CURB & GUTTER TYPES)



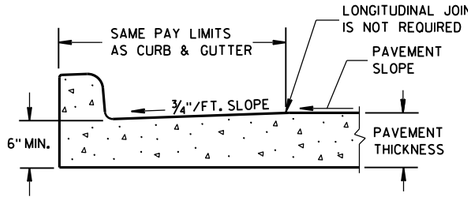
① TYPES A & D

CONCRETE CURB & GUTTER 18"

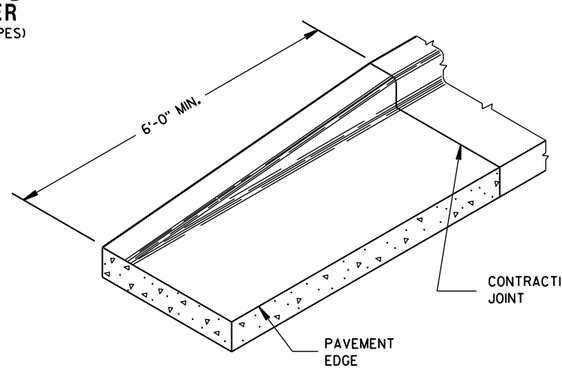


① TYPES G & J

CONCRETE CURB



PARTIAL SECTION OF PAVEMENT WITH INTEGRAL CURB & GUTTER



END SECTION CURB & GUTTER

CONCRETE CURB, CONCRETE CURB & GUTTER AND TIES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

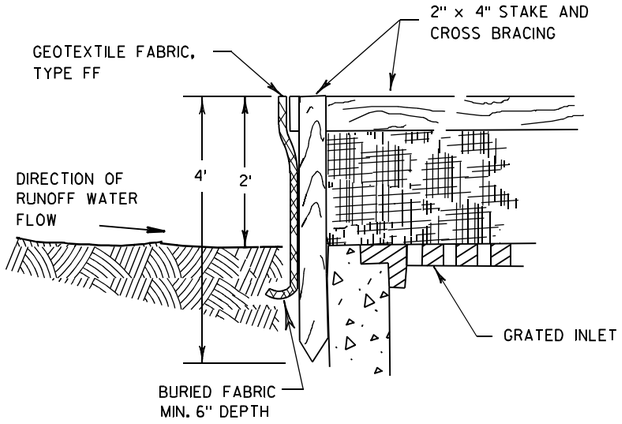
June, 2016 — DATE

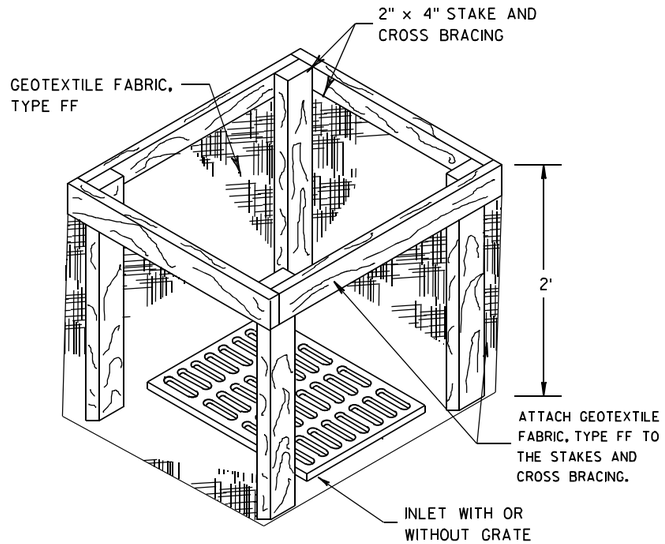
/S/ Jerry H. Zogg — ROADWAY STANDARDS DEVELOPMENT ENGINEER

FHWA

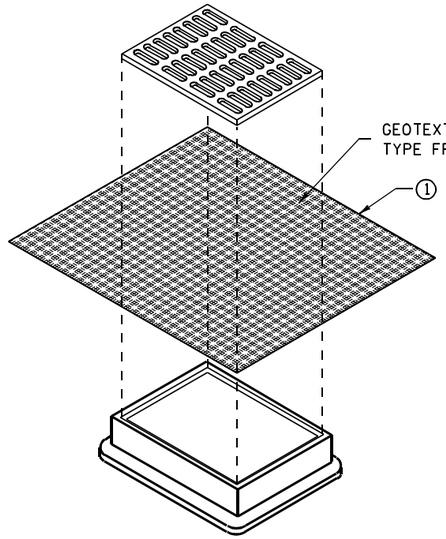
6

S.D.D. 8 D 1-19



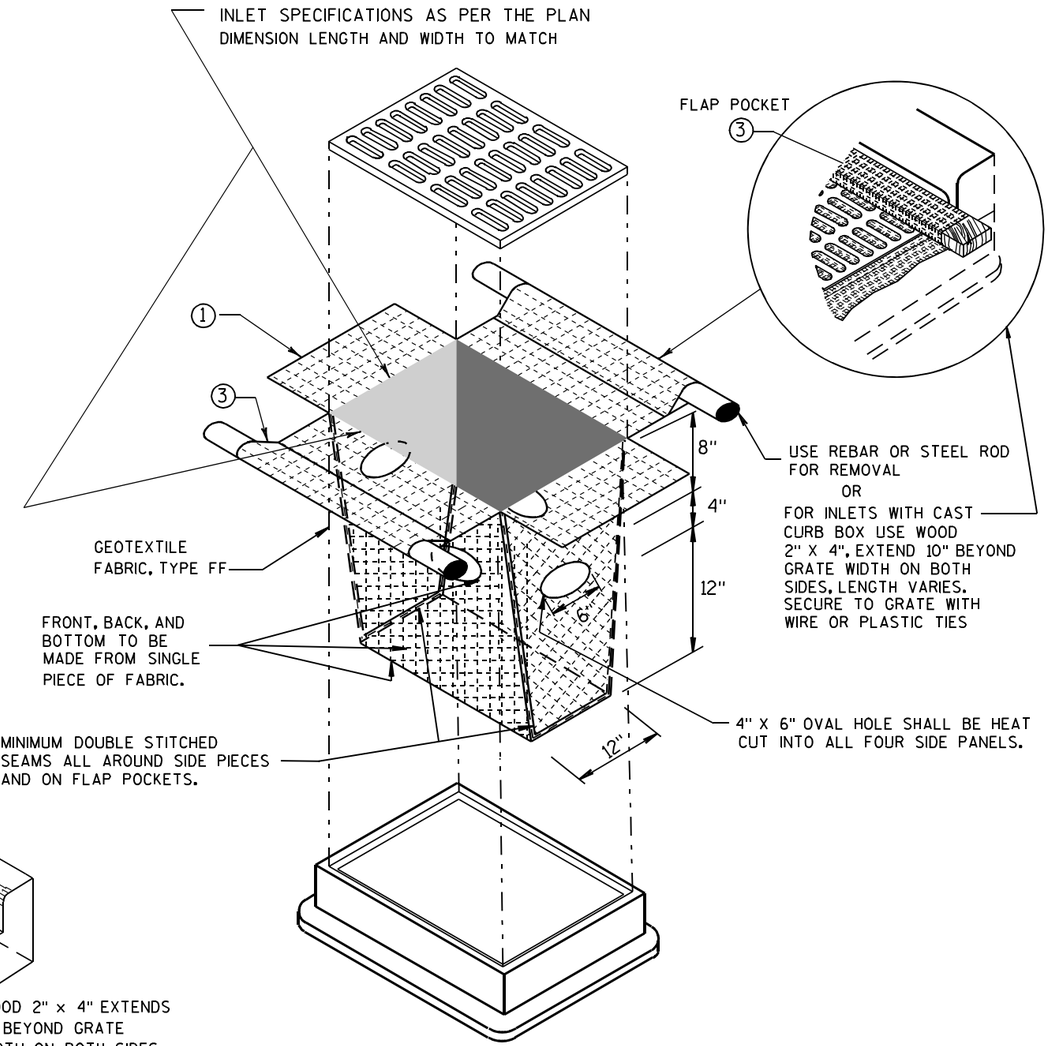


INLET PROTECTION, TYPE A



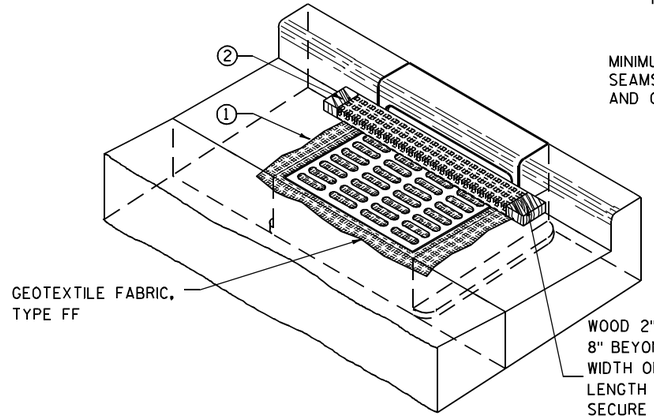
INLET PROTECTION, TYPE B
(WITHOUT CURB BOX)

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



INLET PROTECTION, TYPE D

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



INLET PROTECTION, TYPE C (WITH CURB BOX)

GENERAL NOTES

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

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

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

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

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

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

INSTALLATION NOTES

TYPE B & C

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

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

TYPE D

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

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

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

INLET PROTECTION
TYPE A, B, C, AND D

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

10/16/02
DATE

/S/ Beth Cannestra
CHIEF ROADWAY DEVELOPMENT ENGINEER

FHWA

6

S.D.D. 8 E 10-2

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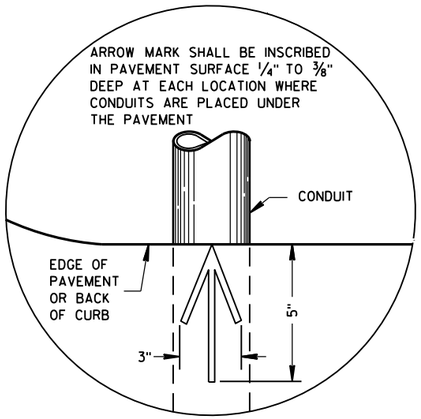
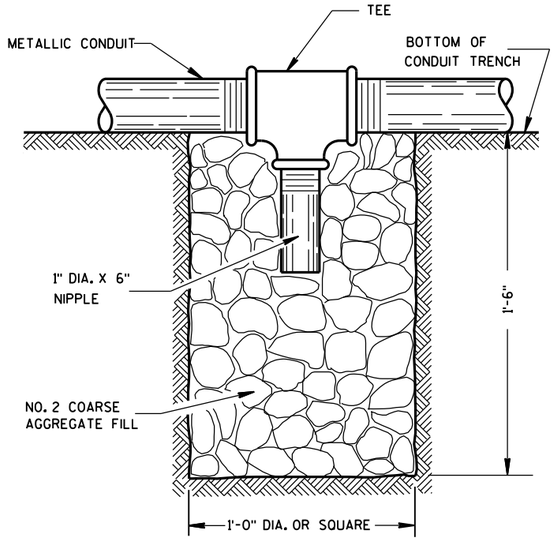
S.D.D. 8 E 10-2



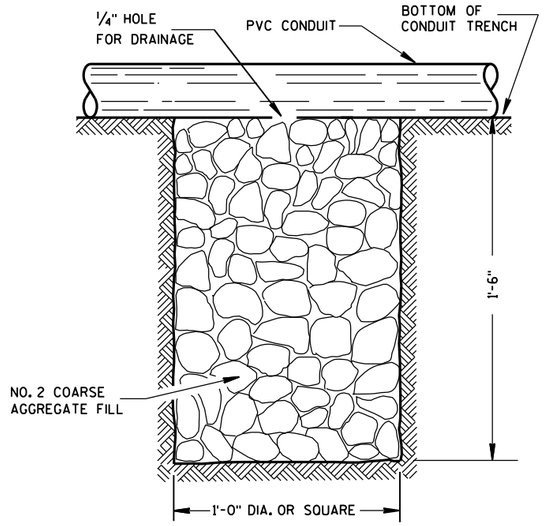
PLAN VIEW

ARROW MARK



NOTE: INSTALL AT LOCATIONS WHERE METALLIC CONDUITS CANNOT BE PITCHED TO DRAIN INTO A PULL BOX.

DRAIN SUMP FOR METALLIC CONDUIT



NOTE: INSTALL AT LOCATIONS WHERE PVC CONDUITS CANNOT BE PITCHED TO DRAIN INTO A PULL BOX.

DRAIN SUMP FOR PVC CONDUIT

GENERAL NOTES

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

METALLIC (STANDARD SPECIFICATION 652.2.2) OR NONMETALLIC (STANDARD SPECIFICATION 652.2.3) CONDUIT SHALL BE FURNISHED AND PLACED AS SHOWN.

DEPTH OF CONDUIT INSTALLED BELOW THE TRAVELED WAY SHALL BE 24 INCHES MINIMUM AND 36 INCHES MAXIMUM.

DEPTH OF CONDUIT INSTALLED THAT IS NOT BELOW THE TRAVELED WAY SHALL BE 18 INCHES MINIMUM AND 36 INCHES MAXIMUM.

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

THE TRENCH SHALL NOT BE BACKFILLED PRIOR TO INSPECTION OF THE CONDUIT.

ALL METALLIC CONDUIT RACEWAY ENDS SHALL BE REAMED AND THREADED.

ALL METALLIC CONDUIT IN WHICH WIRE OR CABLE IS TO BE INSTALLED SHALL BE BUSHED WITH APPROVED THREADED BUSHINGS BEFORE INSTALLATION OF THE WIRE OR CABLE.

ALL METALLIC CONDUITS IN WHICH WIRE OR CABLE IS NOT TO BE INSTALLED SHALL BE CAPPED WITH THREADED PROTECTIVE CAPS, AS APPROVED BY THE ENGINEER.

ALL NONMETALLIC CONDUIT SHALL BE CAPPED OR PLUGGED IMMEDIATELY AFTER INSTALLATION AND SHALL REMAIN CAPPED OR PLUGGED UNTIL WIRE/CABLES ARE INSTALLED.

NONMETALLIC CONDUITS IN WHICH WIRE OR CABLE IS NOT BEING INSTALLED SHALL REMAIN CAPPED OR PLUGGED.

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

ALL CUT ENDS SHALL BE TRIMMED INSIDE AND OUTSIDE TO REMOVE ALL ROUGH EDGES ON NONMETALLIC CONDUIT. (SEE NEC 347.5)

WHEN REQUIRED TO CONNECT NONMETALLIC CONDUIT TO METALLIC CONDUIT, ONLY U.L. LISTED ADAPTER FITTINGS SHALL BE USED.

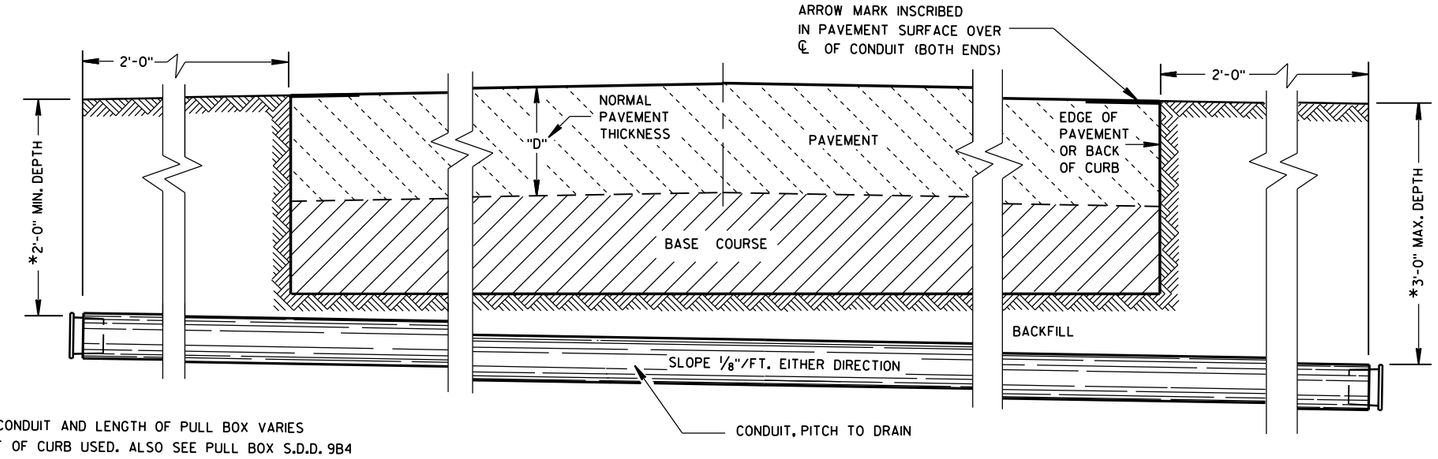
PRIOR TO CONDUIT ACCEPTANCE, CONDUIT CAPS OR PLUGS SHALL BE REMOVED, AND THE CAPS, PLUGS AND CONDUIT ENDS SHALL BE THOROUGHLY CLEANED AND THEN THE CAPS OR PLUGS REINSTALLED TO ENSURE THAT THE CAPS OR PLUGS CAN BE EASILY REMOVED IN THE FUTURE.

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

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

TRACER WIRE SHALL BE INSTALLED AS STATED IN THE STANDARD SPECIFICATION, ITEM 652.3.1.1.

ALL CONDUIT RUNS SHALL BE STRAIGHT (WITHOUT BENDS) FROM PULL BOX TO PULL BOX, PULL BOX TO BASE AND BASE TO BASE AS SHOWN ON THE PLANS.



*DEPTH OF CONDUIT AND LENGTH OF PULL BOX VARIES WITH HEIGHT OF CURB USED. ALSO SEE PULL BOX S.D.D. 9B4

SIDE ELEVATION

DETAIL FOR CONDUIT UNDER PAVED HIGHWAYS

CONDUIT

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June, 2015 — DATE
/S/ Ahmet Demirbilek — STATE ELECTRICAL
FHWA

6

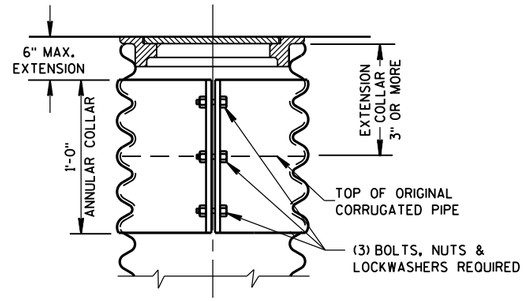
S.D.D. 9 B 2-9

TABLE OF NOMINAL DIMENSIONS AND WEIGHTS

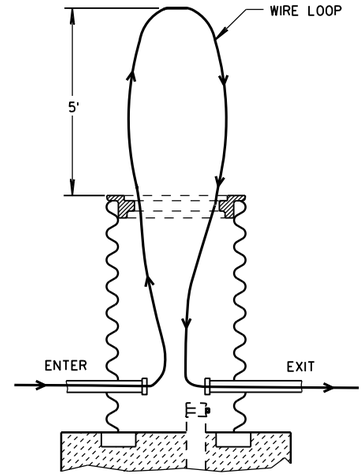
DIMENSION IN INCHES		CORRUGATED STEEL PIPE								
PIPE DIAMETER (INSIDE)	A	12	12	12	18	18	18	24	24	24
PIPE LENGTH **	B	24	30	36	24	30	36	36	42	48
WALL THICKNESS	C	0.064	0.064	0.064	0.064	0.064	0.064	0.064	0.064	0.064
COVER	D	10 1/4	10 1/4	10 1/4	16 1/4	16 1/4	16 1/4	22 1/4	22 1/4	22 1/4
FRAME	E	14 1/2	14 1/2	14 1/2	20 1/2	20 1/2	20 1/2	26 1/2	26 1/2	26 1/2
FRAME	F	8 1/2	8 1/2	8 1/2	14 1/2	14 1/2	14 1/2	20 1/2	20 1/2	20 1/2
FRAME	G	11 1/2	11 1/2	11 1/2	17 1/2	17 1/2	17 1/2	23 1/2	23 1/2	23 1/2
WEIGHT IN POUNDS *										
FRAME AND COVER		60	60	60	110	110	110	155	155	155

* THE ACTUAL WEIGHT OF THE MANHOLE FRAME AND COVER MAY VARY WITHIN 5 PERCENT PLUS OR MINUS OF THE WEIGHTS SHOWN.

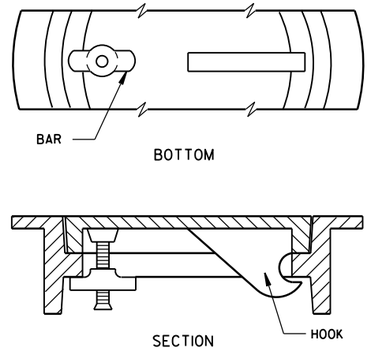
** NORMALLY USED LENGTHS. THE PROJECT ENGINEER SHALL DETERMINE IF PIPE LENGTHS, OTHER THAN THOSE SPECIFIED, SHALL BE USED, TO A MAXIMUM OF 48" (CONTINUOUS LENGTH, NON-SPLICED). THE ADDITIONAL LENGTH SHALL BE INCIDENTAL TO THE PULL BOX BID PRICE.



CORRUGATED PIPE EXTENDER

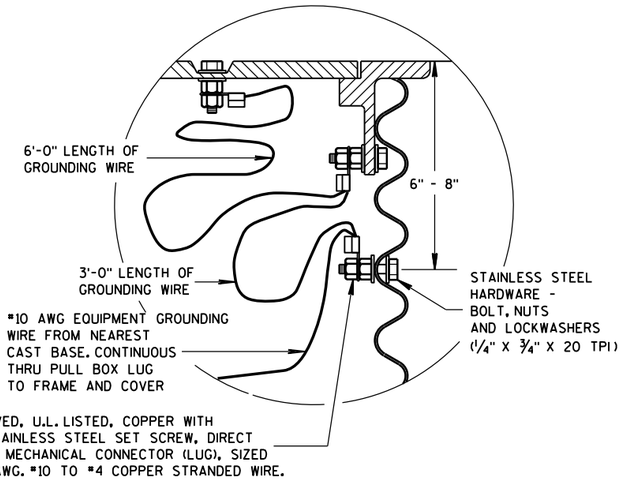


MEASUREMENT DETAIL FOR WIRE/CABLE IN THE PULL BOX

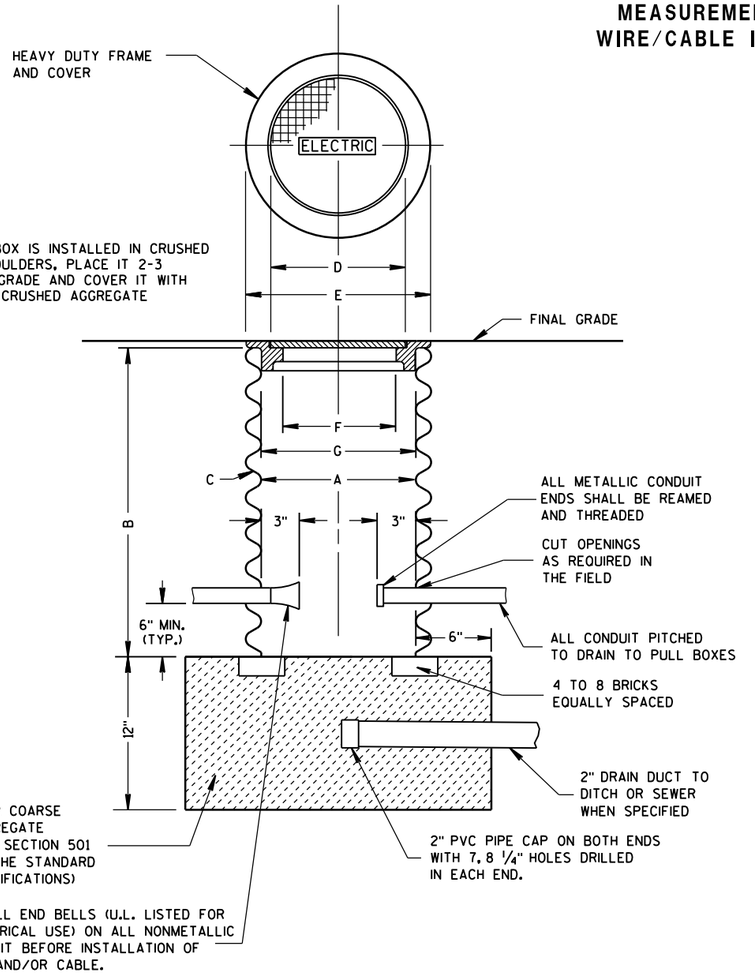


ALTERNATE COVER (LOCKING)

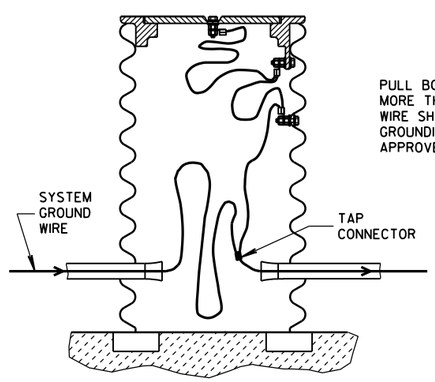
TIGHTENING BAR TYPE



EQUIPMENT GROUNDING LUG AND LOCATION IN STEEL PULL BOXES



PULL BOX



PULL BOX TO NEAREST BASE DISTANCE MORE THAN 20 FEET. PULL BOX GROUND WIRE SHALL CONNECT AT SYSTEM GROUNDING WIRE. USE DEPARTMENT APPROVED TAP CONNECTOR.

EQUIPMENT GROUNDING LUG AND LOCATION IN STEEL PULL BOXES

GENERAL NOTES

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

ALL FRAMES AND COVERS SHALL BE HEAVY DUTY TYPE, SUITABLE FOR VEHICULAR TRAFFIC LOADS.

PULL BOXES LOCATED IN THE ROADWAYS SHALL HAVE LOCKING COVERS.

ENTRANCE HOLES INTO PULL BOXES SHALL BE CUT WITH A CIRCULAR HOLE SAW OR HYDRAULIC CONDUIT PUNCH. HOLE SIZE SHALL BE THE OUTSIDE DIAMETER OF THE CONDUIT THAT IS TO FIT IN THE OPENING PLUS NO MORE THAN 1/4".

THE CONTRACTOR SHALL NOT INSTALL WIRE IN ANY PULL BOX UNTIL ITS INSTALLATION HAS BEEN INSPECTED AND ACCEPTED BY THE ENGINEER.

GROUNDING LUGS (MECHANICAL CONNECTORS) SHALL BE U.L. LISTED AND APPROVED FOR USE WITH COPPER WIRE.

ALL METALLIC CONDUIT IN WHICH WIRE AND/OR CABLE IS TO BE INSTALLED, SHALL BE BUSHED BEFORE INSTALLATION OF THE WIRE AND/OR CABLE.

WHEN PULL BOXES ARE INSTALLED FOR FUTURE USE, DO NOT INSTALL THE EQUIPMENT GROUNDING LUG. THE EQUIPMENT GROUNDING LUG, THE EQUIPMENT GROUNDING ELECTRODE AND THE EQUIPMENT GROUNDING CONDUCTOR SHALL BE REQUIRED AND INSTALLED UNDER A FUTURE WIRING CONTRACT.

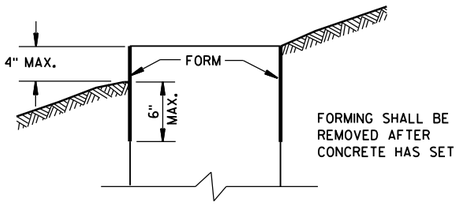
PULL BOX

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

6
S.D.D. 9 B 4-11

FORM DEPTH SHALL BE NO MORE THAN 6" BELOW GRADE ON THE LOWER SIDE OF BASE



FORMING DETAIL

QUANTITY REQUIREMENTS	CONCRETE BASE TYPE		
	1	2	5 & 6
APPROX. CUBIC YARDS OF CONCRETE	0.40	0.57	0.40
LBS. OF HOOP BAR STEEL	NONE	23	16
LBS. OF VERTICAL BAR STEEL	NONE	60	18

GENERAL NOTES

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

BASES SHALL BE EXCAVATED BY USE OF A CIRCULAR AUGER.

TOP SURFACES OF CONCRETE BASES SHALL BE TROWEL FINISHED SMOOTH AND LEVEL.

CONDUIT SIZES AND LOCATIONS SHALL BE AS SHOWN ON THE PLANS.

THE FINAL OR TERMINATING CONCRETE BASE IN A CONDUIT RUN SHALL HAVE A 6" EXIT STUB INSTALLED FOR FUTURE CABLING USE. THE EXIT STUB SHALL BE SIZED AS USED THROUGHOUT THE CONDUIT RUN AS SHOWN AT THE ENTRANCE OF THE BASE.

MINIMUM BENDING RADIUS OF CONDUIT IS EQUAL TO 6 X THE DIAMETER.

CONDUIT HEIGHT ABOVE CONCRETE BASES SHALL BE 1 INCH. ALL METALLIC CONDUIT ENDS SHALL BE REAMED AND THREADED.

ALL CONDUIT ENDS AT THE TOP OF CONCRETE BASES SHALL BE CAPPED IF METALLIC OR PLUGGED IF NONMETALLIC IMMEDIATELY AFTER PLACEMENT AND BEFORE CONCRETE IS POURED. CONDUITS IN WHICH WIRE OR CABLE IS NOT INSTALLED SHALL REMAIN CAPPED OR PLUGGED.

GENERAL NOTES (CONTINUED)

BELL ENDS SHALL BE INSTALLED ON ALL PVC CONDUIT EXPOSED AT THE TOP OF CONCRETE BASES BEFORE INSTALLATION OF CABLE OR WIRE.

ENDS OF CONDUIT INSTALLED BELOW GRADE FOR FUTURE USE SHALL BE CAPPED IF METALLIC OR PLUGGED IF NONMETALLIC.

WHEN REQUIRED TO CONNECT NONMETALLIC CONDUIT TO METALLIC CONDUIT, ONLY ADAPTER FITTINGS, U.L. LISTED FOR ELECTRICAL USE, SHALL BE USED.

IF A BASE REQUIRES A DEEP FORM BECAUSE OF LOOSE DIRT OR FILL, THE FORM SHALL BE REMOVED BEFORE BACKFILLING AROUND THE BASE. BACKFILL SHALL BE TAMPED TIGHT AGAINST THE BARE CONCRETE BASE IN LAYERS OF 1 FOOT OR LESS.

A NO. 4 AWG, STRANDED COPPER EQUIPMENT GROUNDING CONDUCTOR SHALL BE EXOTHERMICALLY WELDED TO THE EQUIPMENT GROUNDING ELECTRODE (GROUND ROD) FOR TYPE 1, TYPE 2, TYPE 5, AND TYPE 6 BASES.

THE EQUIPMENT GROUNDING CONDUCTOR SHALL BE FURNISHED AND INSTALLED TO ENTER THE BASE OF THE TYPE 2 AND TYPE 5 BASES THROUGH A 1 INCH CONDUIT INSTALLED FOR GROUNDING PURPOSES, LEAVING A 4 FOOT COIL OF WIRE ABOVE THE CONCRETE BASE. THE EQUIPMENT GROUNDING CONDUCTOR SHALL BE NEATLY COILED AND THE COILS TIED TOGETHER.

ANCHOR RODS SHALL BE THREADED 12" IN LENGTH ON EACH END OF THE ROD. ANCHOR RODS SHALL BE MANUFACTURED IN ACCORDANCE WITH SECTION 654.2.1 OF THE STANDARD SPECIFICATIONS.

WASHERS AND LOCK WASHERS ARE REQUIRED ON ALL ANCHOR RODS.

WHEN ANCHOR RODS USING THE ALTERNATE "L" BEND ARE FURNISHED, THE 4" "L" BEND SHALL BE IN ADDITION TO THE SPECIFIED ANCHOR ROD BAR LENGTH. THE "L" BEND END SHALL NOT BE THREADED.

ANCHOR RODS SHALL BE INSTALLED WITH MISALIGNMENTS OF LESS THAN 1:40 FROM VERTICAL.

WELDING OF THE ANCHOR RODS TO THE CAGE IS UNACCEPTABLE. TIE WIRES SHALL BE USED.

BAR STEEL REINFORCEMENT SHALL BE COATED WITH POWDERED EPOXY RESIN IN ACCORDANCE WITH SECTION 505 OF THE STANDARD SPECIFICATIONS (LATEST EDITION).

(1) THE MINIMUM DEPTH OF CONDUIT EXITING THE CONCRETE BASE AND INSTALLED BELOW THE TRAVELED WAY SHALL BE 24 INCHES. THE MINIMUM DEPTH OF CONDUIT EXITING THE CONCRETE BASE THAT IS NOT INSTALLED BELOW THE TRAVELED WAY SHALL BE 18 INCHES. THE MAXIMUM DEPTH OF ALL CONDUIT SHALL BE 36 INCHES EXCEPT WITH WRITTEN APPROVAL BY THE ENGINEER.

(2) (4) 1" DIA. X 3'-6" ANCHOR RODS.

(3) (4) 1" DIA. X 5'-0" ANCHOR RODS.

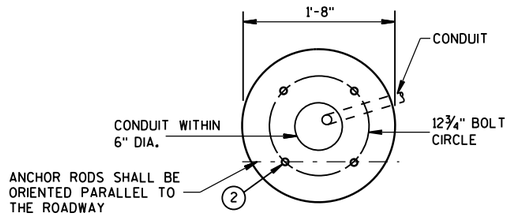
(4) (6) NO. 6 X 6'-8" BAR STEEL REINFORCEMENT.

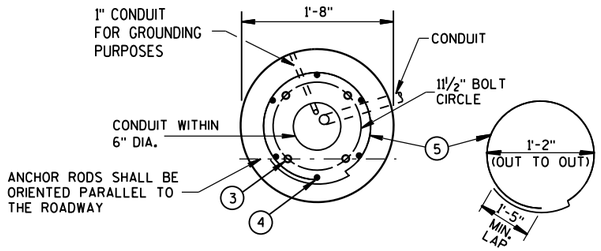
(5) (7) NO. 4 X 5'-1" BAR STEEL REINFORCEMENT @ 1'-0" C-C.

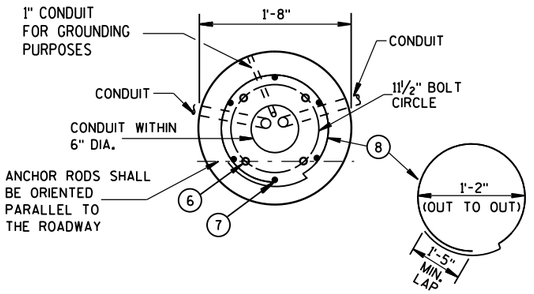
(6) (4) 1" DIA. X 3'-6" ANCHOR RODS.

(7) (6) NO.4 X 4'-8" BAR STEEL REINFORCEMENT.

(8) (5) NO. 4 X 5'-1" BAR STEEL REINFORCEMENT @ 1'-0" C-C.



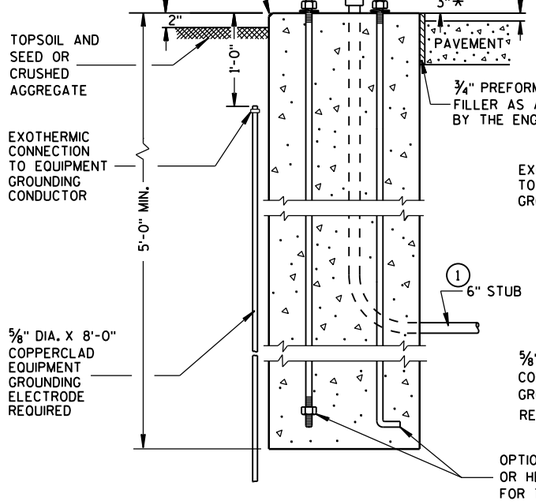




FORM ALL EXPOSED CONCRETE. PROVIDE 1" CHAMFER ALL AROUND

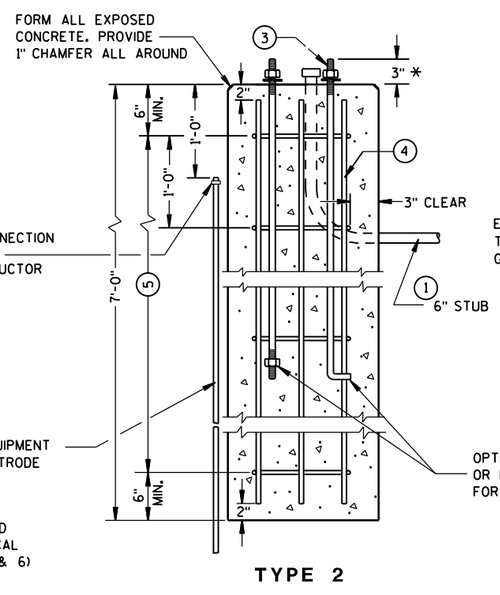
HALF SECTION IN UNPAVED AREA

(TYPICAL FOR TYPES 1, 2, 5, & 6)

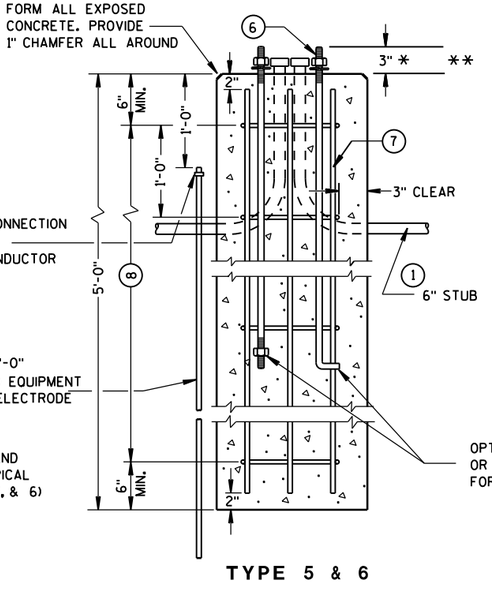


HALF SECTION IN PAVEMENT

(TYPICAL FOR TYPES 1, 2, 5, & 6)



TYPE 2



TYPE 5 & 6

CONCRETE BASES

* ANY ANCHOR ROD PROJECTION SHORTER THAN 2¾" OR LONGER THAN 3¼" SHALL REQUIRE THE BASE TO BE REMOVED AND REPLACED AT THE CONTRACTORS EXPENSE.

** FOR NONBREAKAWAY INSTALLATIONS, 4½" ± ANCHOR ROD PROJECTION WITH THE USE OF LEVELING NUTS. RODENT SCREEN REQUIRED.

CONCRETE BASES, TYPES 1, 2, 5, & 6

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

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

FOUR (4) BOLTS SHALL BE FURNISHED WITH EACH TRANSFORMER BASE. BOLTS SHALL BE 1" DIAMETER, 4" IN LENGTH, WITH WASHERS, LOCK WASHERS AND NUTS. BOLTS, NUTS AND WASHERS SHALL BE MANUFACTURED IN ACCORDANCE WITH SECTION 641.2.2 OF THE STANDARD SPECIFICATIONS.

LEVELING SHIMS, IF NEEDED, SHALL BE DESIGNED FOR THE PURPOSE AND USED UNDER CAST BASES WHEN PLUMBING POLES OR STANDARDS DURING INSTALLATION. THE USE OF WASHERS IN LIEU OF PROPER LEVELING SHIMS IS NOT ACCEPTABLE.

SHIM LENGTH SHALL BE LONG ENOUGH TO COMPLETELY COVER THE AREA UNDER THE LENGTH AND WIDTH OF THE BASE MOUNTING FLANGE.

DOUBLE NUTTING IS NOT ACCEPTABLE FOR LEVELING OR MOUNTING PURPOSES.

A NEMA APPROVED, U.L. LISTED, COPPER WITH BRASS OR STAINLESS STEEL SET SCREW, DIRECT BURY RATED, MECHANICAL CONNECTOR (LUG), SIZED TO ACCEPT AWG. #10 TO #4 COPPER STRANDED WIRE SHALL BE FURNISHED AND INSTALLED IN THE PEDESTAL AND TRANSFORMER BASES.

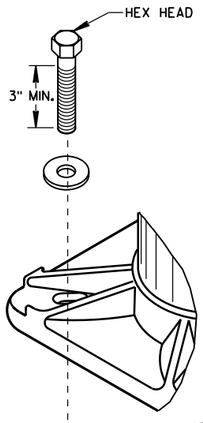
THE MECHANICAL CONNECTOR SHALL BE INSTALLED USING A 1/4" - 20 (TPI) STAINLESS STEEL HEX HEAD BOLT OF SUFFICIENT LENGTH TO FIRMLY ATTACH THE LUG TO THE BASE.

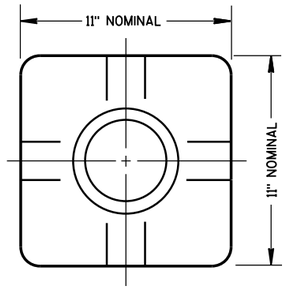
SHOULD THE MANNER OF ATTACHMENT OF THE LUG REQUIRE WASHERS, HEX NUTS, LOCK WASHER - THEY SHALL BE STAINLESS STEEL AS IS THE BOLT. THE MANNER OF ATTACHMENT SHALL NOT BLOCK ACCESSIBILITY TO WIRE PLACEMENT IN THE CONNECTOR.

PEDESTAL BASE COLLAR THREADING SHALL BE TAPERED AND IN ACCORDANCE WITH NATIONAL PIPE THREADING DIMENSIONS.

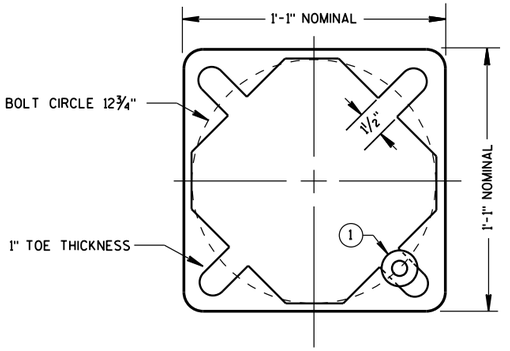
BASE COLLAR THREADING SHALL EXTEND INTO THE BASE COLLAR WITH SUFFICIENT DEPTH TO ACCEPT THE INSTALLATION OF TRAFFIC SIGNAL STANDARDS TO A DEPTH OF 1 1/2", THEN TIGHTENING TO A POINT OF BEING IMMOVABLE.

THE ACCESS DOOR SHALL BE OF THE SAME MATERIAL AS THE BASE.

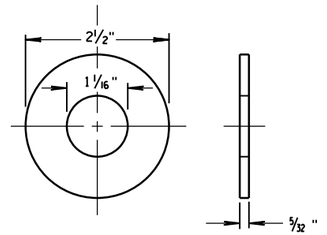




TOP VIEW
(PEDESTAL BASE)

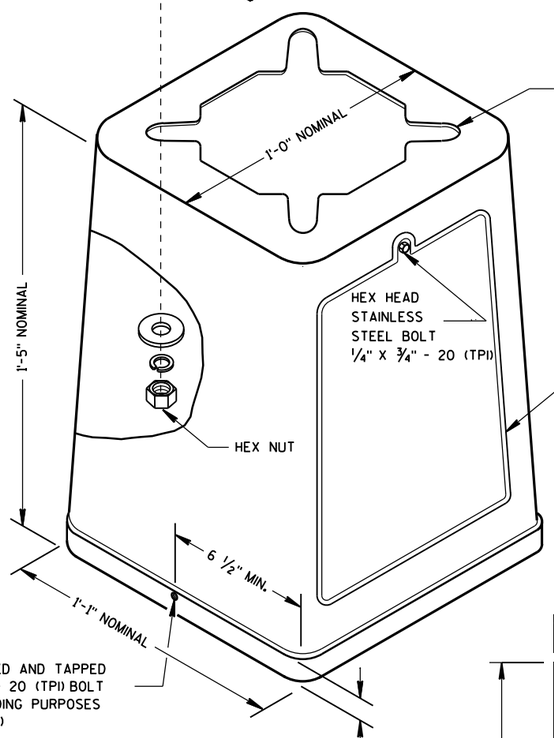


BOTTOM VIEW
(PEDESTAL BASE)

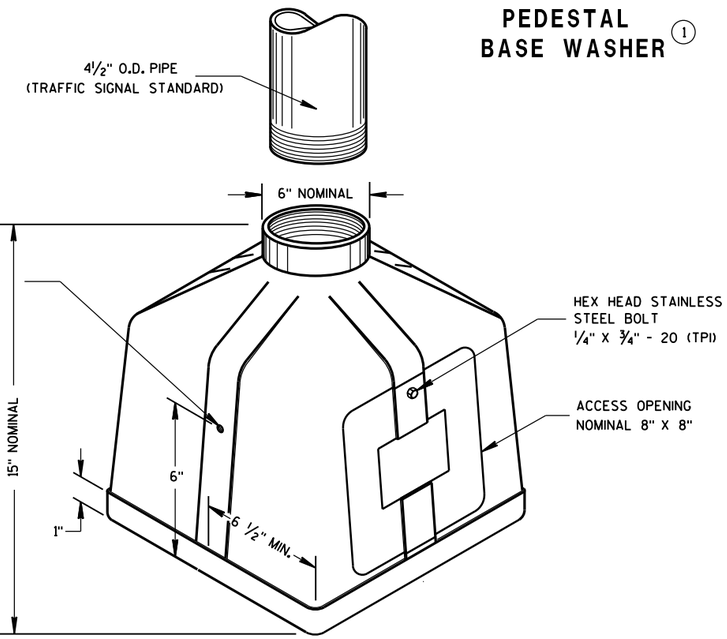


ZINC COATED STEEL WASHER
TO BE PROVIDED BY THE CONTRACTOR

PEDESTAL BASE WASHER (1)

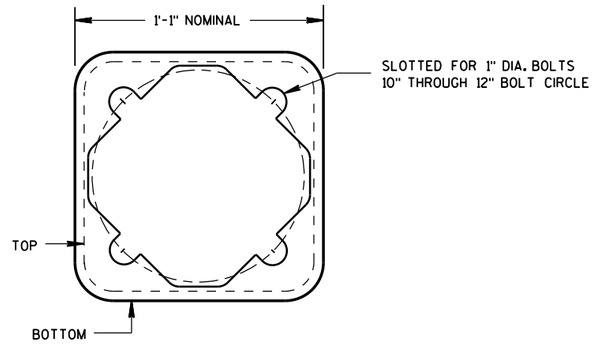


ISOMETRIC VIEW

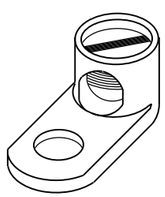


ISOMETRIC VIEW

PEDESTAL BASE



BOTTOM VIEW
(TRANSFORMER BASE)

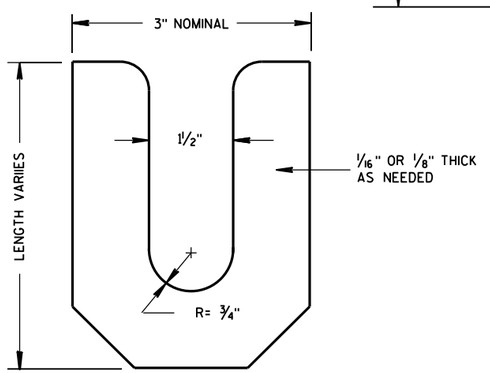


TYPICAL MECHANICAL CONNECTOR LUG

TO BE FURNISHED WITH EACH BASE

TRANSFORMER BASE

INTENDED FOR USE WITH TYPE 2, 3, 4, 5 & 6 POLES



LEVELING SHIM

TRANSFORMER/PEDESTAL BASES

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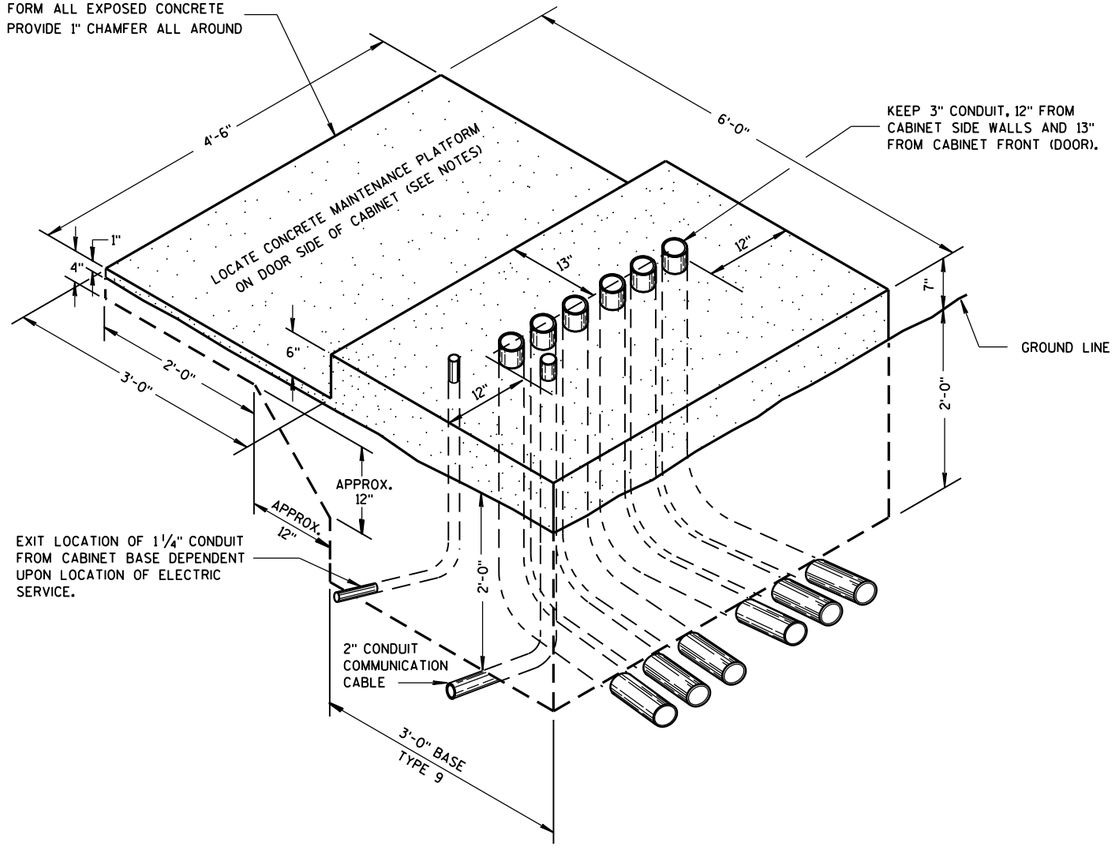
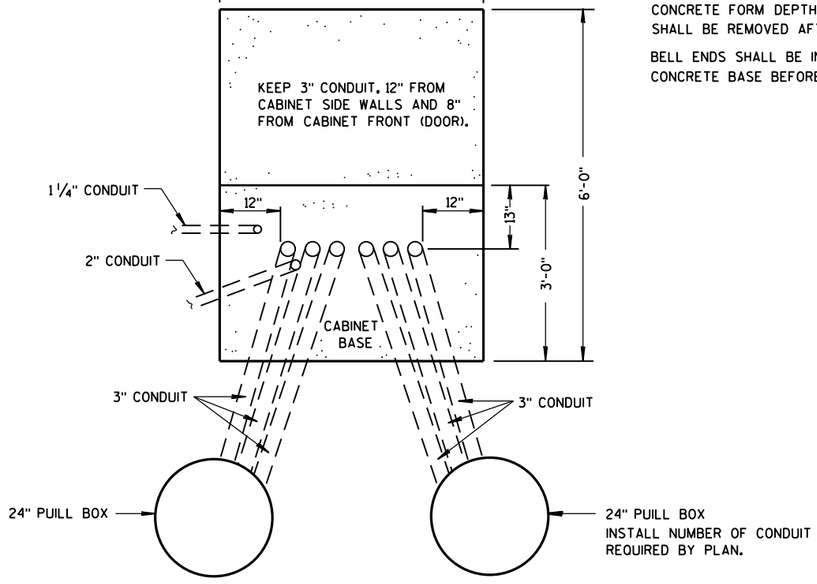


ISOMETRIC VIEW

TYPE 9, SPECIAL

(C.Y. CONCRETE = APPROX. 1.56)



PLAN VIEW

CONCRETE CONTROL CABINET BASE, TYPE 9, SPECIAL

GENERAL NOTES

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

INSTALL FOUR ½ INCH MINIMUM DIAMETER X 4 INCH MINIMUM LENGTH STAINLESS STEEL APPROVED CONCRETE MASONRY ANCHORS WITH A PULLOUT STRENGTH OF 9,000 LBS. TO ANCHOR THE CABINET TO TYPE 6, 7, 8, AND 9 BASES. THE ANCHOR STUDS SHALL BE LOCATED AS DIRECTED BY THE ENGINEER TO PROPERLY ANCHOR THE CONTROL CABINET TO THE BASE.

WHEN REQUIRED TO CONNECT NONMETALLIC CONDUIT TO METALLIC CONDUIT, ONLY ADAPTER FITTINGS, U.L. LISTED FOR ELECTRICAL USE, SHALL BE USED.

CONDUIT HEIGHT ABOVE THE CONCRETE BASE SHALL BE 1 INCH.

DEPTH OF CONDUIT INSTALLED BELOW THE TRAVELED WAY SHALL BE 24 INCHES MINIMUM AND 36 INCHES MAXIMUM.

DEPTH OF CONDUIT INSTALLED THAT IS NOT BELOW THE TRAVELED WAY SHALL BE 18 INCHES MINIMUM AND 36 INCHES MAXIMUM.

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

CONTROL CABINET BASE TOP SURFACE SHALL BE TROWEL FINISHED SMOOTH AND LEVEL.

MAINTENANCE PLATFORM SHALL BE FLOAT OR BROOM FINISHED AND BE LEVEL.

MAINTENANCE PLATFORMS ARE NOT REQUIRED WHEN THE SURROUNDING AREA IS PAVED.

MINIMUM BENDING RADIUS OF CONDUIT = 6 X THE DIAMETER.

ALL METALLIC CONDUIT ENDS SHALL BE REAMED AND THREADED.

CAP ALL BELOW GRADE METALLIC CONDUIT ENDS IN WHICH WIRE OR CABLE IS NOT BEING INSTALLED.

PLUG ALL BELOW GRADE NONMETALLIC CONDUIT ENDS IN WHICH WIRE OR CABLE IS NOT BEING INSTALLED.

ALL CONDUIT ENDS AT THE TOP OF CONCRETE BASES SHALL BE CAPPED IF METALLIC OR PLUGGED IF NONMETALLIC IMMEDIATELY AFTER PLACEMENT AND BEFORE CONCRETE IS POURED. CONDUITS IN WHICH WIRE OR CABLE IS NOT BEING INSTALLED SHALL REMAIN CAPPED OR PLUGGED.

CONDUIT EXITING THE CONCRETE BASE (SIX THREE INCH) SHALL TERMINATE IN PULL BOXES AS SHOWN ON THE PLANS.

CONCRETE FORM DEPTH BELOW FINISHED GRADE SHALL BE 6" MAXIMUM. CONCRETE FORMS SHALL BE REMOVED AFTER CONCRETE HAS SET.

BELL ENDS SHALL BE INSTALLED ON ALL PVC CONDUIT EXPOSED AT THE TOP OF THE CONCRETE BASE BEFORE INSTALLATION OF CABLE OR WIRE.

CONCRETE CONTROL CABINET BASE, TYPE 9, SPECIAL

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DEPARTMENT OF TRANSPORTATION

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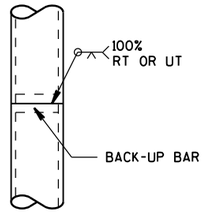
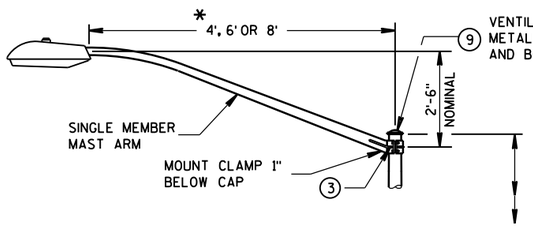
FOR MANUFACTURERS USE ONLY

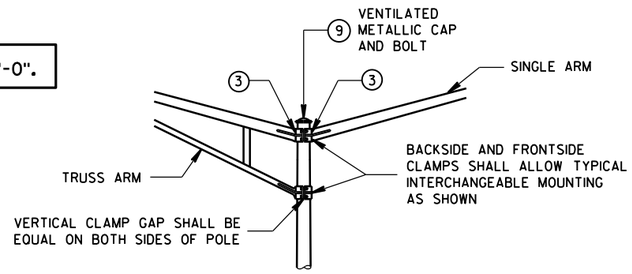
WELD TO BE 100% R.T. OR U.T. TESTED AS PER THE REQUIREMENTS OF AWS D 1.5-88. RECORDS OF COMPLIANCE OF SUCH TESTING SHALL BE FURNISHED TO THE OFFICE OF DESIGN/BRIDGE FOR VERIFICATION AND APPROVAL.

*RISE FOR 4' ARM SHALL BE 2'-0".





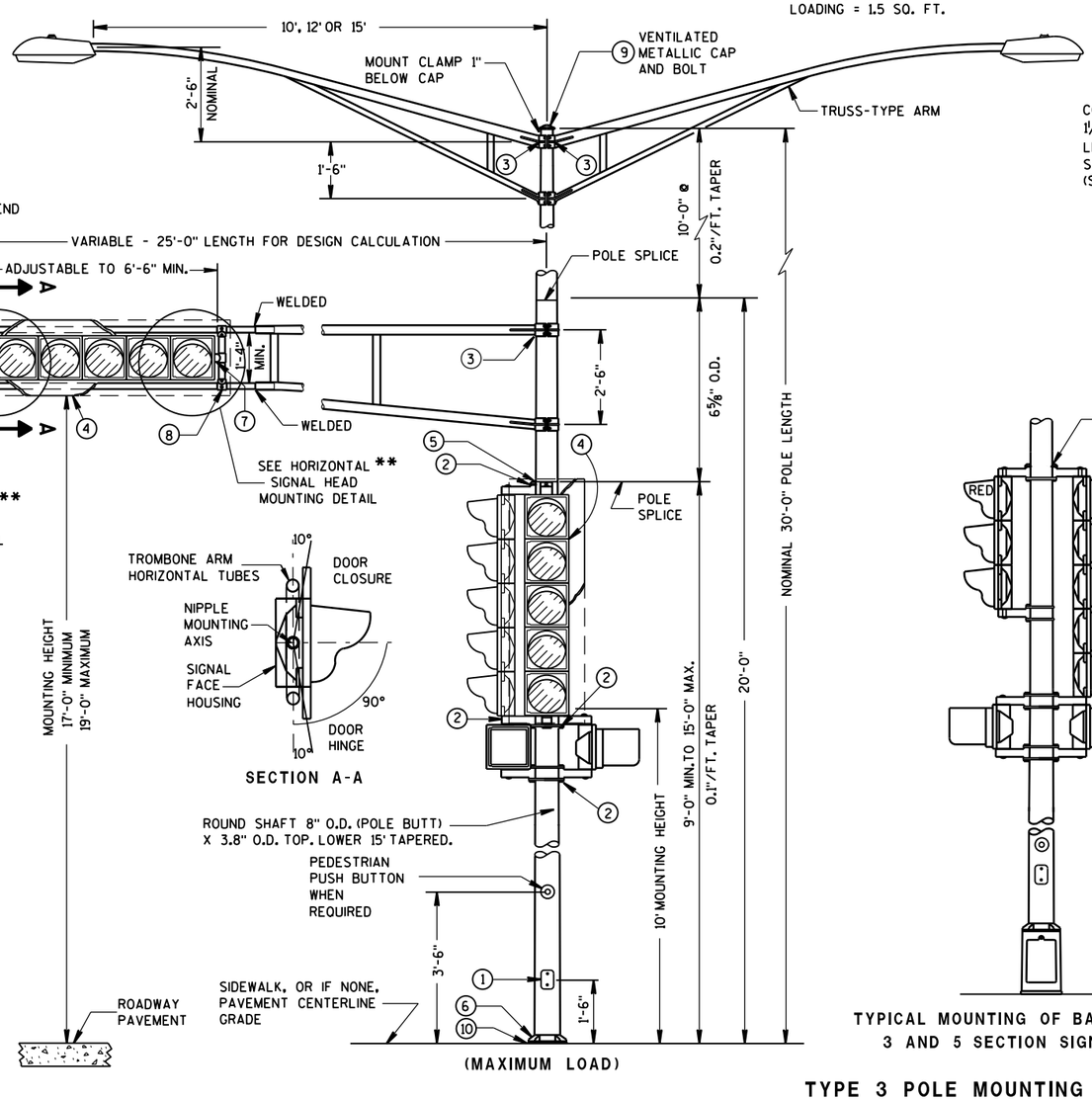
POLE SPLICE DETAIL

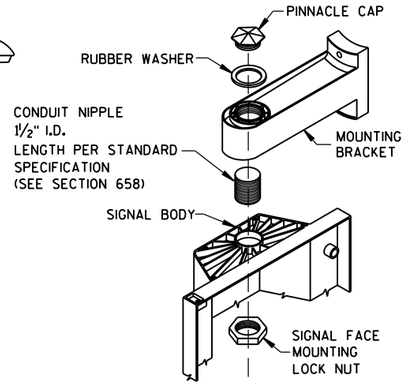


INTERCHANGEABLE MOUNTING DETAIL

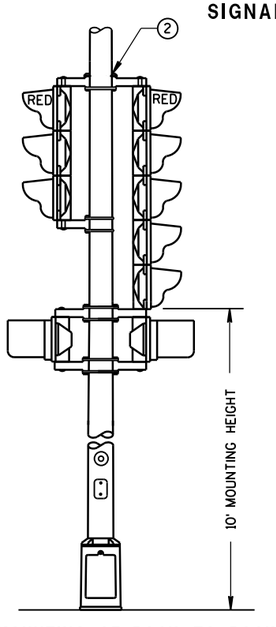
LUMINAIRE

WT. - 50 LBS.
EFFECTIVE PROJECTED AREA FOR WIND LOADING = 1.5 SQ. FT.

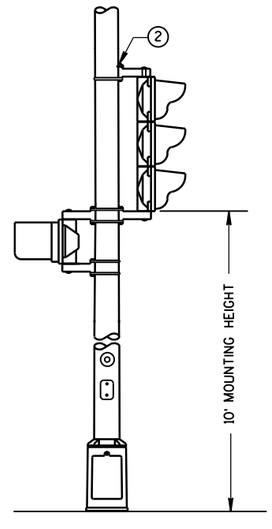




SIGNAL FACE MOUNTING DETAIL (BANDED)



TYPICAL MOUNTING OF BACK TO BACK 3 AND 5 SECTION SIGNAL FACES



TYPICAL MOUNTING OF 3 SECTION SIGNAL FACE

GENERAL NOTES

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

ALL TYPE 3 POLE MOUNTINGS SHALL BE DESIGNED TO INCLUDE TWIN 15' ARMS WITH LUMINAIRES.

POLES SHALL BE GALVANIZED STEEL.

SECTION 657, POLES, OF THE STANDARD SPECIFICATIONS SHALL APPLY TO THIS DRAWING.

A PULL WIRE/ROPE IN ACCORDANCE WITH STANDARD SPECIFICATION 652, SHALL BE INSTALLED IN EACH TROMBONE ARM RACEWAY DURING THE MANUFACTURING PROCESS.

THE SLIPFITTER END OF THE LUMINAIRE MAST ARM SHALL BE A NOMINAL 2⅜ INCHES IN OUTSIDE DIAMETER. THE STRAIGHT PORTION OF THE SLIPFITTER END OF THE LUMINAIRE MAST ARM SHALL BE A NOMINAL 12 INCHES IN LENGTH.

WHEN TRANSFORMER BASES ARE USED, WIRE CONNECTIONS SHALL BE MADE IN THE TRANSFORMER BASE.

(1) 4" X 6" REINFORCED HANDHOLE & COVER ASSEMBLY WITH 2 (TWO) ¼" X ¾" - 20 TPI HEX HEAD STAINLESS STEEL BOLTS.

(2) SIGNAL FACE MOUNTING BRACKETS, MOUNT WITH CAP SCREWS AND BANDING. (SEE STANDARD SPECIFICATIONS - SEC. 658)

(3) GROMMETS, 1" CHASE NIPPLES OR 1" CLOSE CONDUIT NIPPLES WITH BUSHINGS SHALL BE PROVIDED FOR 1⅜" HOLE IN POLE SHAFT FOR WIRING.

(4) SECURELY MOUNT DULL BLACK POLYCARBONATE BACKPLATES, PROJECTING 5" BEYOND ALL SIDES OF THE SIGNAL FACE HOUSING, PER MANUFACTURER'S RECOMMENDATIONS.

(5) POLE MOUNTED SIGNAL FACES SHALL REQUIRE 1 OR MORE MOUNTING SPACERS UNDER THE TOP MOUNTING BRACKET(S) AS REQUIRED, TO PLUMB THE SIGNAL FACE.

(6) TYPE 3 POLE CONFIGURATIONS SHALL BE MOUNTED DIRECTLY TO THEIR CONCRETE BASES.

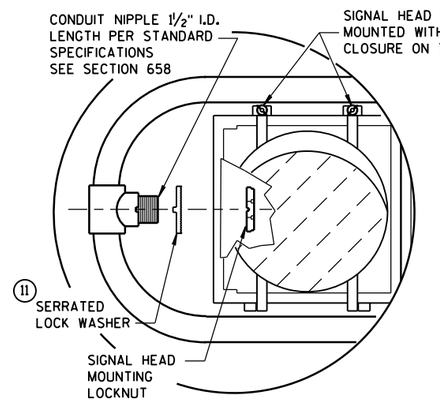
(7) MOUNTING BRACKET NIPPLES FOR THE SIGNAL FACE(S) SHALL BE 2 INCHES IN LENGTH AND 1½ INCHES IN DIAMETER. (SEE STANDARD SPECIFICATION - SECTION 658)

(8) VERTICAL STRUT (ADJUSTABLE). ONE (1) SET SCREW (1/4 " X ¾" -20 TPI, STAINLESS STEEL, HEX HEAD) INTO EACH ARM MEMBER IF STRUT IS THE SLIDING TYPE.

(9) FURNISH AND INSTALL VENTILATED, CAST, METALLIC (ALUMINUM ALLOY) CAPS. FASTEN CAPS WITH ONE (1) ¼" X ¾" - 20 TPI STAINLESS STEEL, HEX HEAD BOLT.

(10) SHIMMING, IF NEEDED, SHALL BE LOCATED BETWEEN THE CONCRETE FOUNDATION AND POLE.

(11) USE SERRATED LOCK WASHERS WITH NOTCHES BETWEEN END TEE AND SIGNAL HEAD.



HORIZONTAL SIGNAL HEAD MOUNTING DETAIL **

** SIGNAL HEAD ATTACHMENT ALSO APPLYS TO MOUNTING AT CROSS BAR

TYPE 3 POLE MOUNTING CONFIGURATION

POLE MOUNTINGS FOR TRAFFIC SIGNALS AND LIGHTING UNITS, TYPE 3 (HEAVY DUTY)

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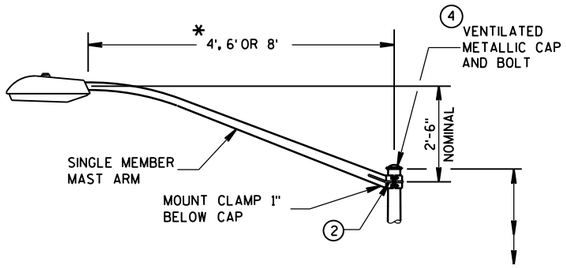
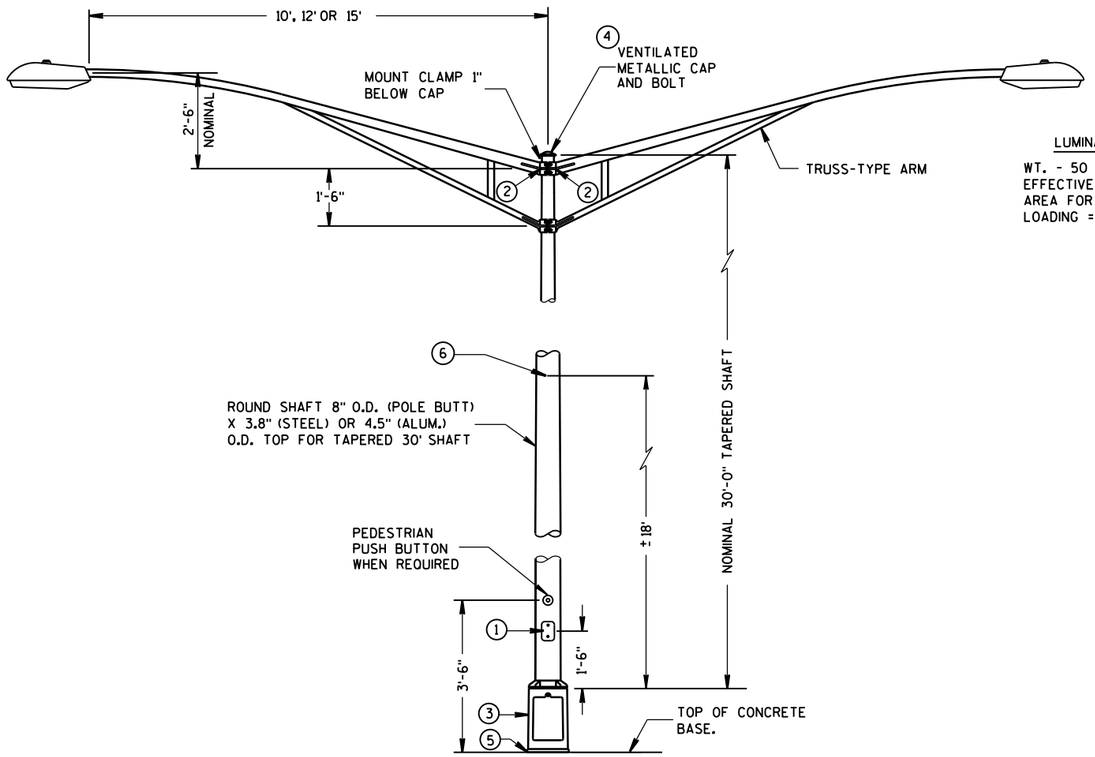
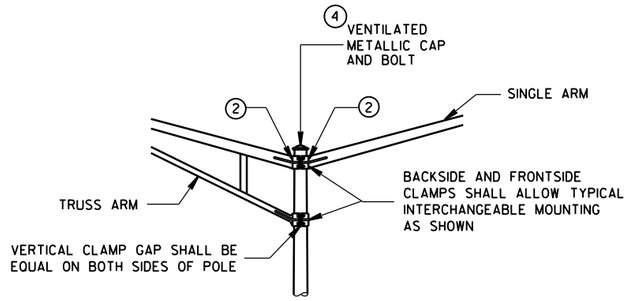
*RISE FOR 4' ARM SHALL BE 2'-0".





TYPE 5 POLE MOUNTING CONFIGURATION
(MAXIMUM LOAD)
LIGHTING ONLY



INTERCHANGEABLE MOUNTING DETAIL

LUMINAIRE

WT. - 50 LBS.
EFFECTIVE PROJECTED
AREA FOR WIND
LOADING = 1.5 SQ. FT.

GENERAL NOTES

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

ALL TYPE 5 POLE MOUNTINGS SHALL BE DESIGNED TO INCLUDE TWIN 15' ARMS WITH LUMINAIRES.

POLES SHALL BE GALVANIZED STEEL OR ALUMINUM, AS CALLED FOR IN THE CONTRACT.

TYPE 5 ALUMINUM POLES SHALL BE CONSTRUCTED OF 6063-T6 ALUMINUM ALLOY. SLEEVING INSIDE THE POLE IS NOT ACCEPTABLE.

THE TYPE 5 ALUMINUM POLES SHALL HAVE A MINIMUM WALL THICKNESS OF 0.188".

TYPE 5 STEEL POLES SHALL HAVE A MINIMUM WALL THICKNESS OF U.S. STANDARD 11 GAGE (.1196").

THE SLIPFITTER END OF THE LUMINAIRE MAST ARM SHALL BE A NOMINAL 2⅜ INCHES IN OUTSIDE DIAMETER. THE STRAIGHT PORTION OF THE SLIPFITTER END OF THE LUMINAIRE ARM SHALL BE A NOMINAL 12 INCHES IN LENGTH.

WHEN TRANSFORMER BASES ARE USED, WIRE CONEECTIONS SHALL BE MADE IN THE TRANSFORMER BASE.

(1) 4" x 6" REINFORCED HANDHOLE & COVER ASSEMBLY WITH 2 (TWO) ¼" X ¾" - 20 TPI HEX HEAD STAINLESS STEEL BOLTS.

(2) GROMMETS, 1" CHASE NIPPLES OR 1" CLOSE CONDUIT NIPPLES WITH BUSHINGS SHALL BE PROVIDED FOR 1⅜" HOLE IN POLE SHAFT FOR WIRING.

(3) CAST ALUMINUM TRANSFORMER BASE, WHEN REQUIRED.

(4) FURNISH AND INSTALL VENTILATED, CAST, METALLIC (ALUMINUM ALLOY) CAPS. FASTEN CAPS WITH ONE (1) ¼" X ¾" - 20 TPI STAINLESS STEEL, HEX HEAD BOLT.

(5) SHIMMING, IF NEEDED, SHALL BE LOCATED BETWEEN THE CONCRETE FOUNDATION AND THE TRANSFORMER BASE.

(6) INTERNAL DUMBBELL-TYPE VIBRATION DAMPER.

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POLE MONTINGS FOR
LIGHTING UNITS, TYPE 5
(30 FEET)

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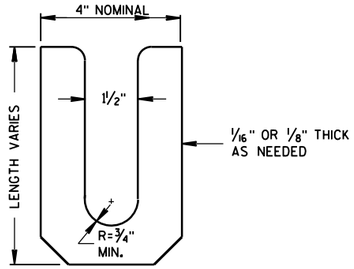
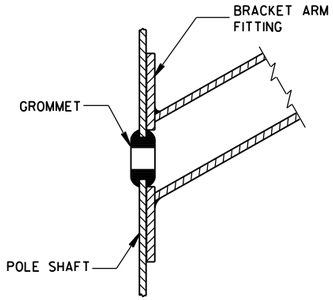
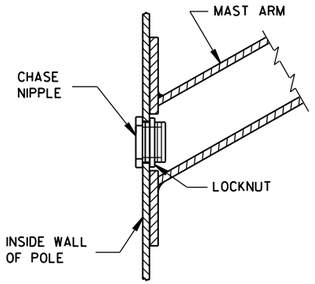


LEVELING SHIM (13)

SHALL BE ALUMINUM



TYPICAL APPLICATION OF GROMMET IN POLE SHAFT



TYPICAL APPLICATION OF CHASE NIPPLE IN POLE SHAFT

GENERAL NOTES

CLAMP BOLT-NUT TIGHTENING TORQUE SHALL BE INDICATED BY INDENT STAMPING (1/2 INCH NUMERALS AND LETTERS) OR WEATHERPROOF PRINTING ON THE INSIDE OF THE CLAMP THAT IS WELDED TO THE ARM MEMBER.

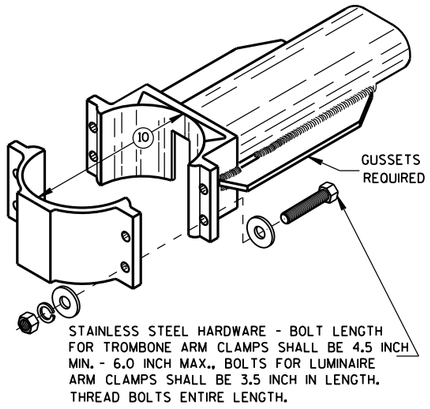
(10) 4.5" I.D. FOR LUMINAIRE MAST ARM CLAMP.
6.625" I.D. FOR TROMBONE MAST ARM CLAMP.

(11) INDIVIDUAL BASE PLATE ANCHOR ROD COVERS. (4 REQUIRED)

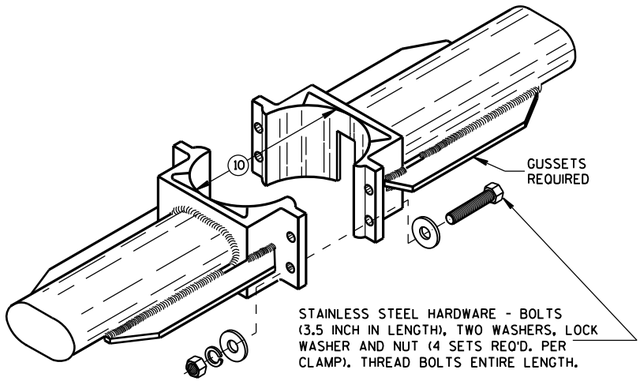
(12) BASE PLATE SLOTTED TO ACCEPT 11" THROUGH 12" BOLT CIRCLE USING 1" DIAMETER ANCHOR RODS.

(13) LEVELING SHIMS, DESIGNED FOR THE PURPOSE, SHALL BE USED WHEN PLUMBING POLES. THE USE OF WASHERS IN LIEU OF PROPER LEVELING SHIMS IS NOT ACCEPTABLE. LEVELING SHIMS SHALL BE USED ONLY BETWEEN THE TOP OF THE CONCRETE BASE AND A METALLIC BASE PLATE.

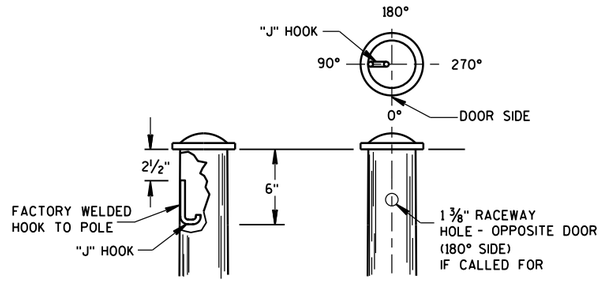
SHIMS SHALL BE LONG ENOUGH AND WIDE ENOUGH TO COMPLETELY COVER THE AREA UNDER THE LENGTH AND WIDTH OF THE BASE MOUNTING FLANGE.



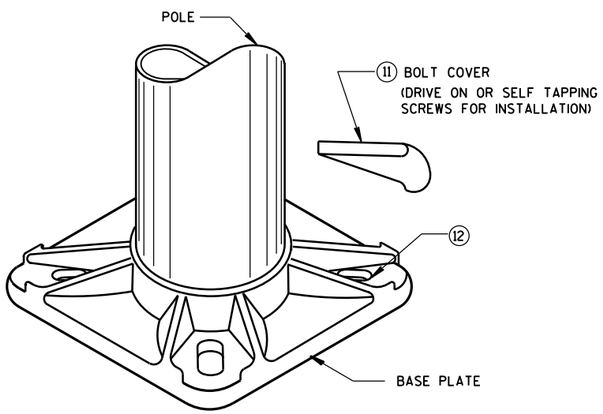
TYPICAL TROMBONE MAST ARM AND SINGLE LUMINAIRE MAST ARM MOUNTING CLAMP



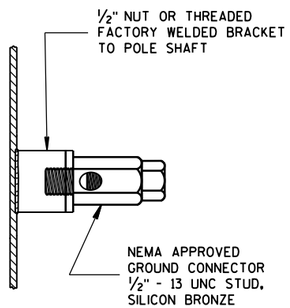
TYPICAL LUMINAIRE MAST ARM (DOUBLE) MOUNTING BRACKETS

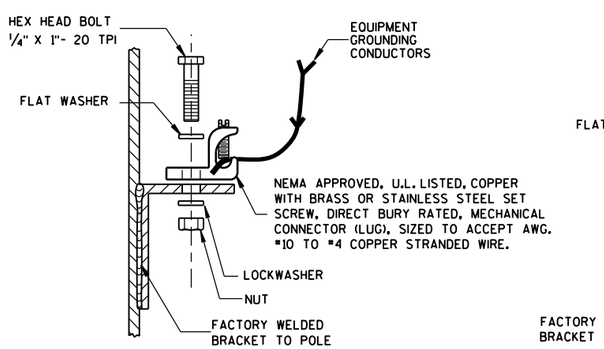


TYPICAL "J" HOOK LOCATION



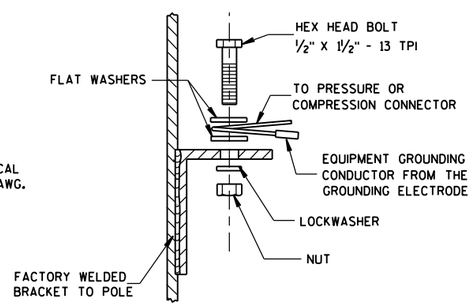
BASE PLATE





TYPICAL GROUNDING CONNECTIONS

NUT, BOLT AND WASHERS SHALL BE STAINLESS STEEL



HARDWARE DETAILS FOR POLE MOUNTINGS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
Feb. 2015 — DATE
/S/ Ahmet Demirbilek — STATE ELECTRICAL
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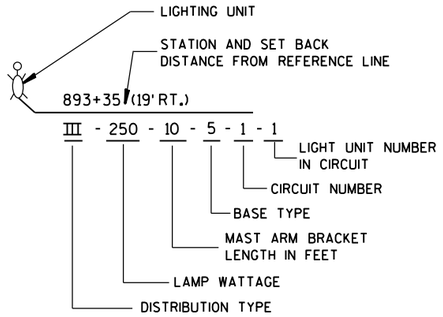
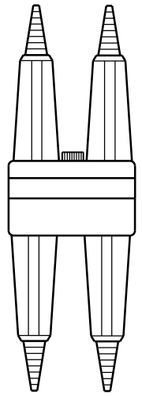
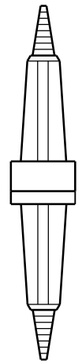


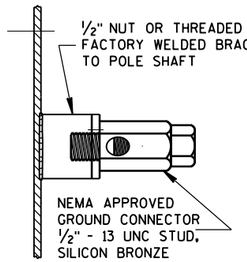
LIGHTING UNIT CODE
(TYPICAL)

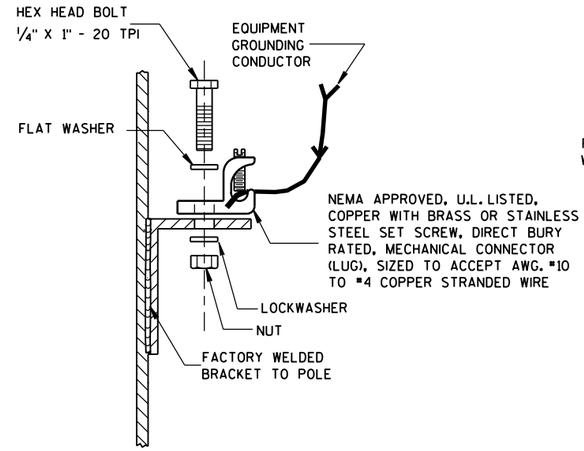


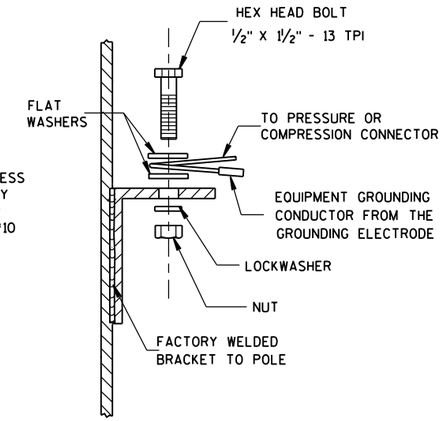
DETAIL "A"
BREAKAWY DOUBLE POLE WITH WATERPROOF INSULATING BOOT



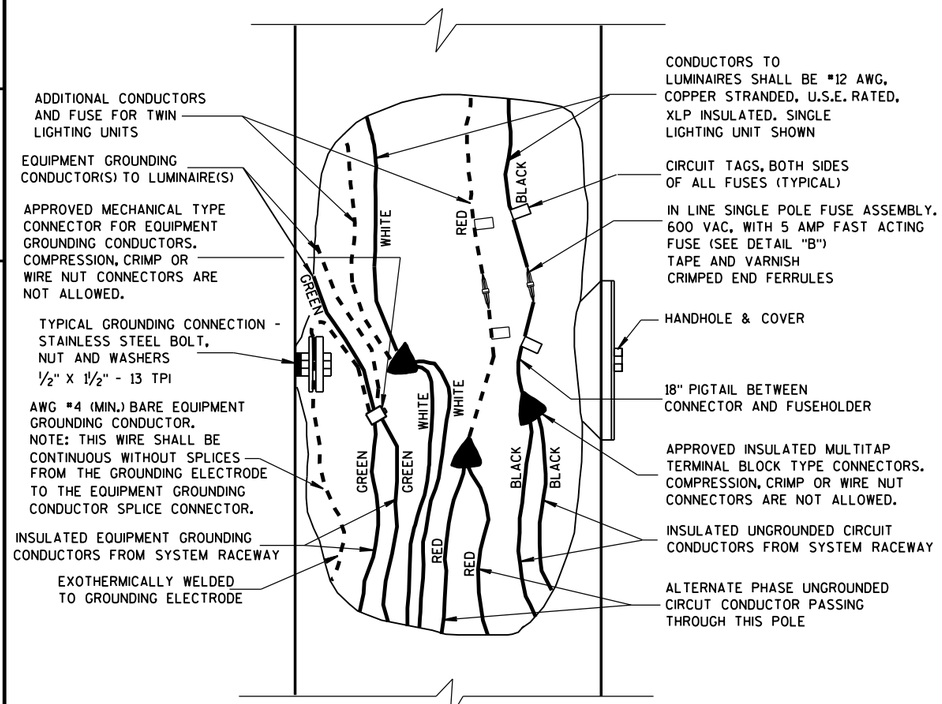
DETAIL "B"
BREAKAWY SINGLE POLE WITH WATERPROOF INSULATING BOOT



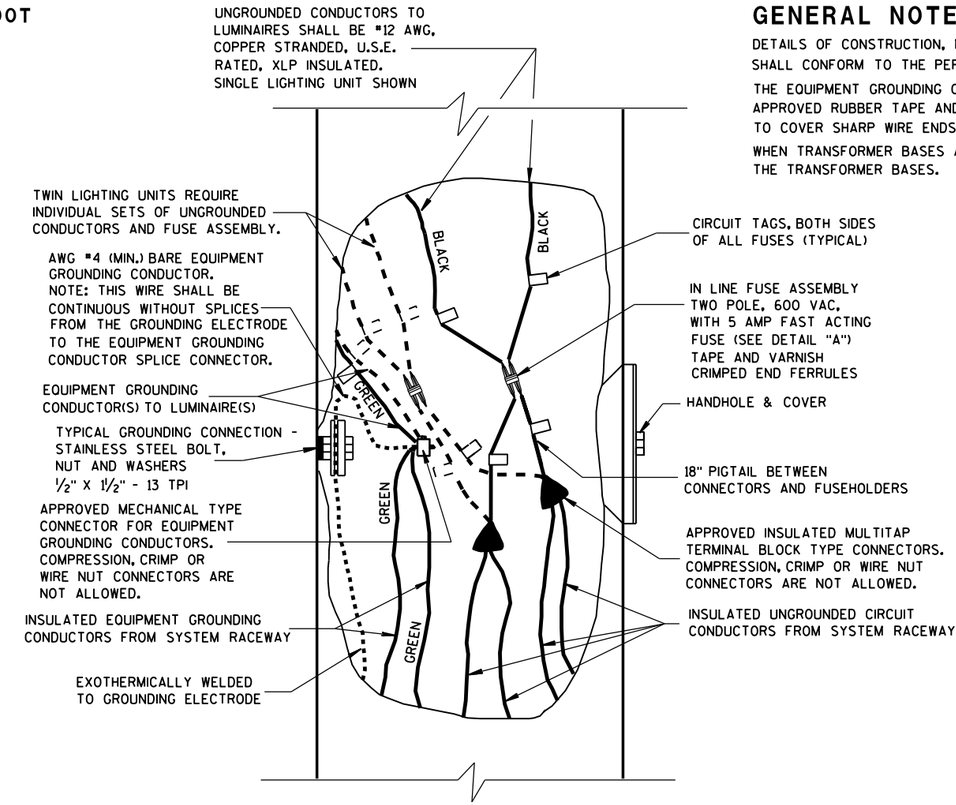




TYPICAL GROUNDING CONNECTIONS
NUT, BOLT, WASHERS AND LOCKWASHERS SHALL BE STAINLESS STEEL



3 WIRE - 120, 240 OR 480 VAC (UNGROUNDED CONDUCTOR) WITH GROUNDED CONDUCTOR AND WITH EQUIPMENT GROUNDING CONDUCTOR



2 WIRE - 240 OR 480 VAC (UNGROUNDED CONDUCTORS) WITH EQUIPMENT GROUNDING CONDUCTOR

GENERAL NOTES

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

THE EQUIPMENT GROUNDING CONNECTOR SHALL BE TAPED WITH 3 WRAPS (MINIMUM) OF APPROVED RUBBER TAPE AND THEN 3 WRAPS (MINIMUM) OF APPROVED VINYL TAPE TO COVER SHARP WIRE ENDS AFTER THE CONNECTION IS COMPLETED.

WHEN TRANSFORMER BASES ARE USED, ALL WIRING CONNECTIONS SHALL OCCUR WITHIN THE TRANSFORMER BASES.

NON-FREEWAY LIGHTING UNIT POLE WIRING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

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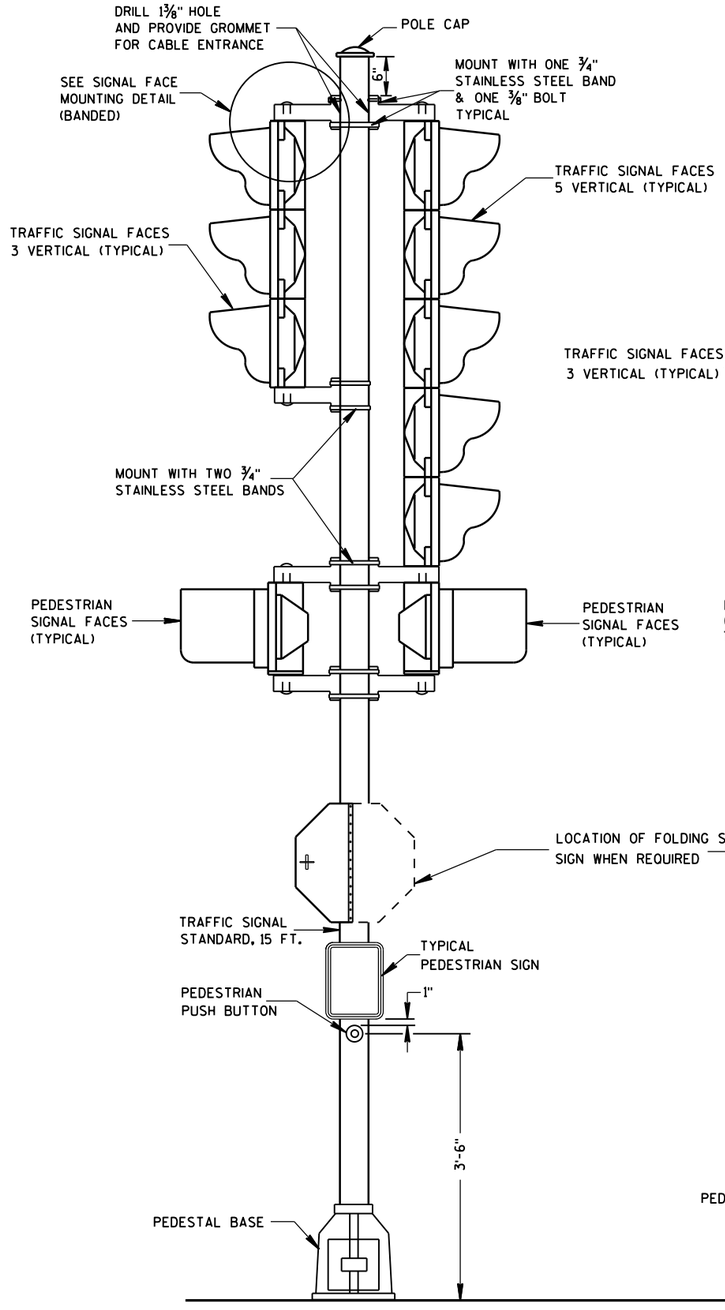
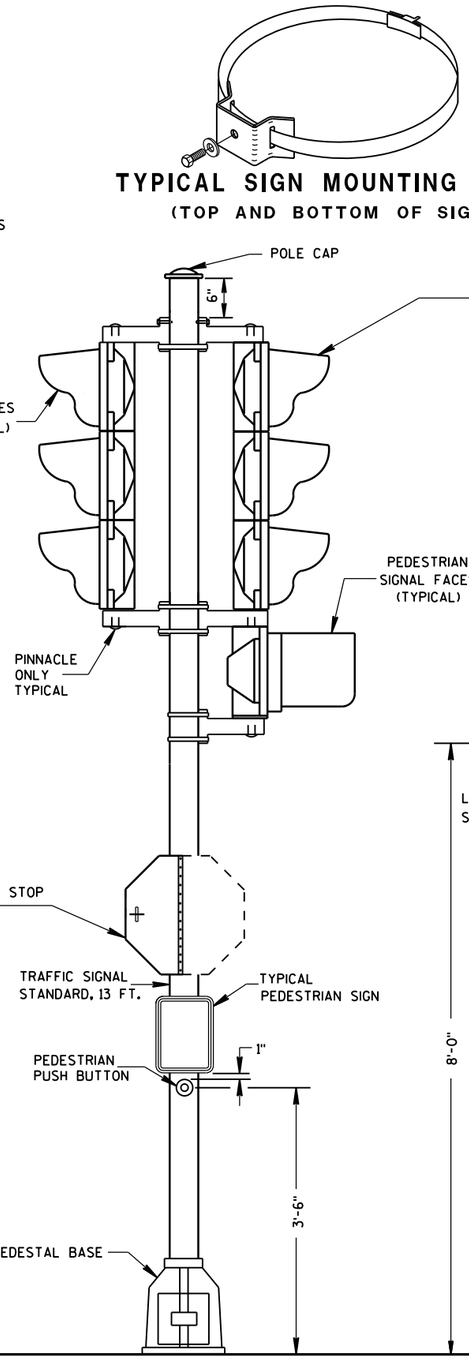
S.D.D. 9 E 3-5

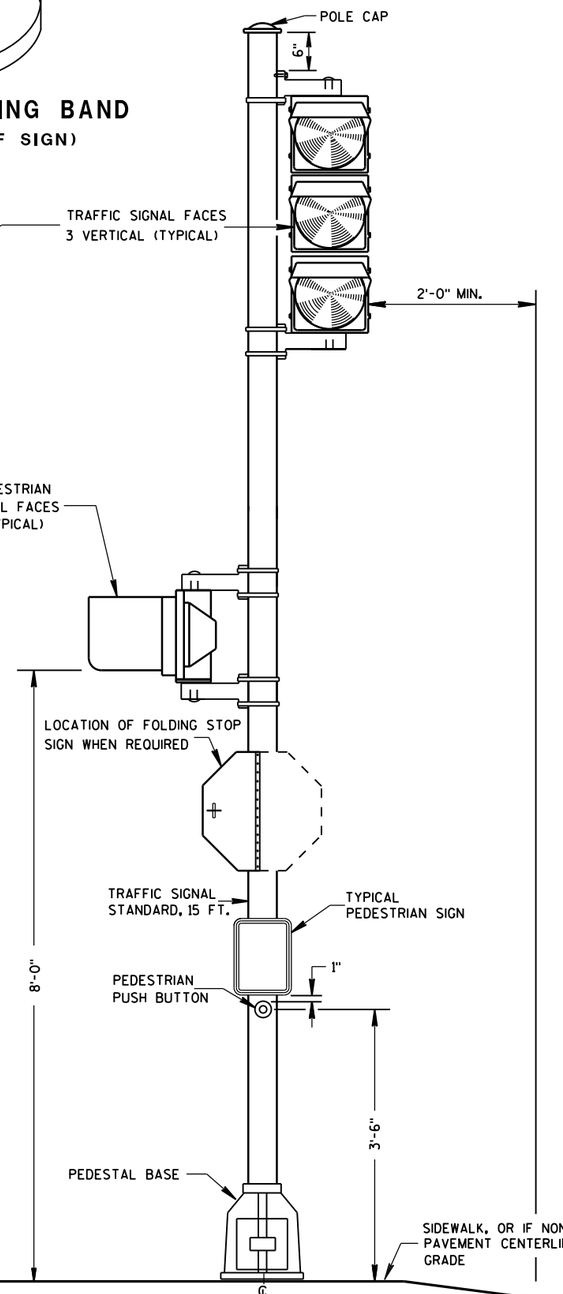


TRAFFIC SIGNAL STANDARD-15 FT.



TRAFFIC SIGNAL STANDARD-13 FT.

TYPICAL SIGN MOUNTING BAND
(TOP AND BOTTOM OF SIGN)



TRAFFIC SIGNAL STANDARD-15 FT.
3M MOUNTING (TYPICAL)

GENERAL NOTES

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

SEE THE SIGNAL PLAN FOR REQUIRED SIGNAL FACE SIZES.

ALL PEDESTAL BASES SHALL BE MOUNTED ON CONCRETE BASE - TYPE 1.

FOR APPROVED MOUNTING HARDWARE, SEE THE CONTRACT SPECIAL PROVISIONS.

POLYCARBONATE MOUNTING BRACKETS SHALL BE USED.

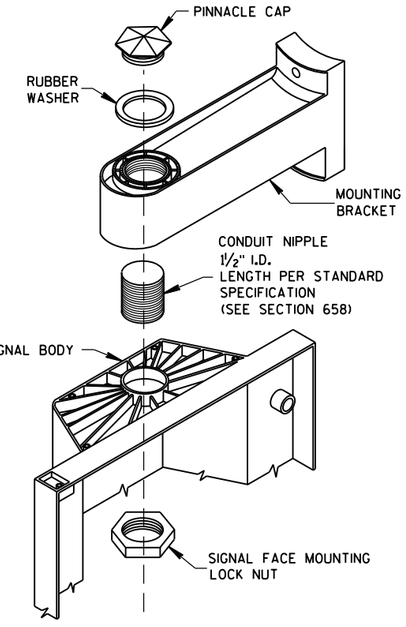
LENGTH AND LOCATION OF TRAFFIC SIGNAL STANDARDS SHALL BE AS SHOWN ON THE PLANS.

OPTICALLY PROGRAMMED SIGNAL FACES SHALL BE MASKED IN ACCORDANCE WITH MANUFACTURERS INSTRUCTIONS, AND UNDER THE DIRECTIONS OF THE REGION TRAFFIC ENGINEER.

FOLDING STOP SIGNS SHALL BE IN ACCORDANCE WITH THE MUTCD AND/OR THE LATEST WISCONSIN SUPPLEMENT. THE SIGNS SHALL BE SIZED AND LOCATED AS CALLED FOR IN IN THE PLANS.

PEDESTRIAN SIGNS SHALL BE AS DESIGNATED IN THE PLANS.

FURNISH AND INSTALL VENTILATED, CAST, METALLIC (ALUMINUM ALLOY) CAPS. FASTEN CAPS WITH ONE (1) ¼" X ¾" - 20 TPI STAINLESS STEEL, HEX HEAD BOLT.



SIGNAL FACE MOUNTING DETAIL
(BANDED)

TRAFFIC SIGNAL STANDARD POLY BRACKET MOUNTINGS (TYPICAL) 13 FT. OR 15 FT.

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
2/28/2013 — DATE
/S/ Ahmet Demirbilek — STATE ELECTRICAL
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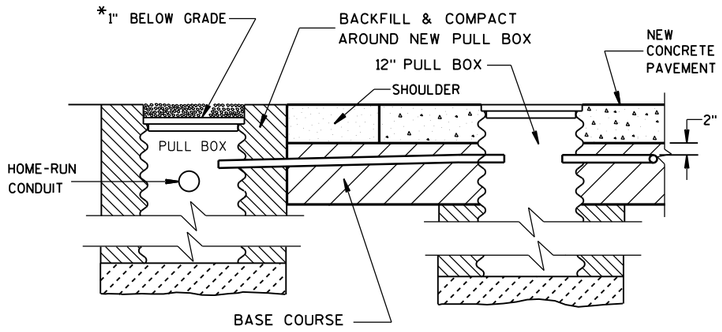


SECTION A-A

NO CURB & GUTTER

LOOP DETECTOR INSTALLATION DETAILS

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

GENERAL NOTES

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

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

PITCH LEAD OUT CONDUIT TO DRAIN TO ROADSIDE PULL BOX.

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

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

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

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

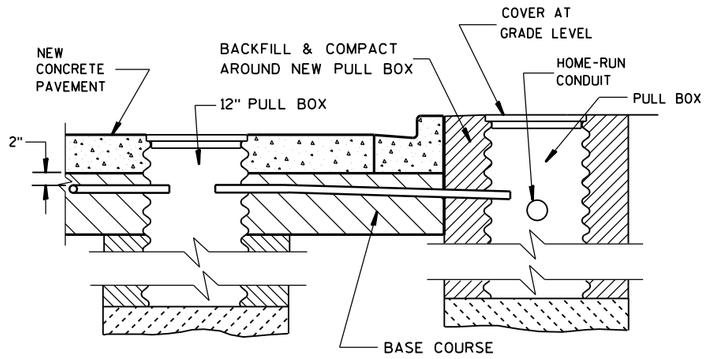
THE #12 AWG LOOP WIRE FROM THE LOOP TO THE ROADSIDE PULL BOX, SHALL BE HAND TWISTED AT LEAST 3 TWISTS PER FOOT BEFORE INSTALLATION.

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

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

PROTECTION OF THE CONDUIT, CONDULET AND PULL BOX SHALL BE REQUIRED AFTER INSTALLATION AND BEFORE THE NEW CONCRETE PAVEMENT IS PLACED.

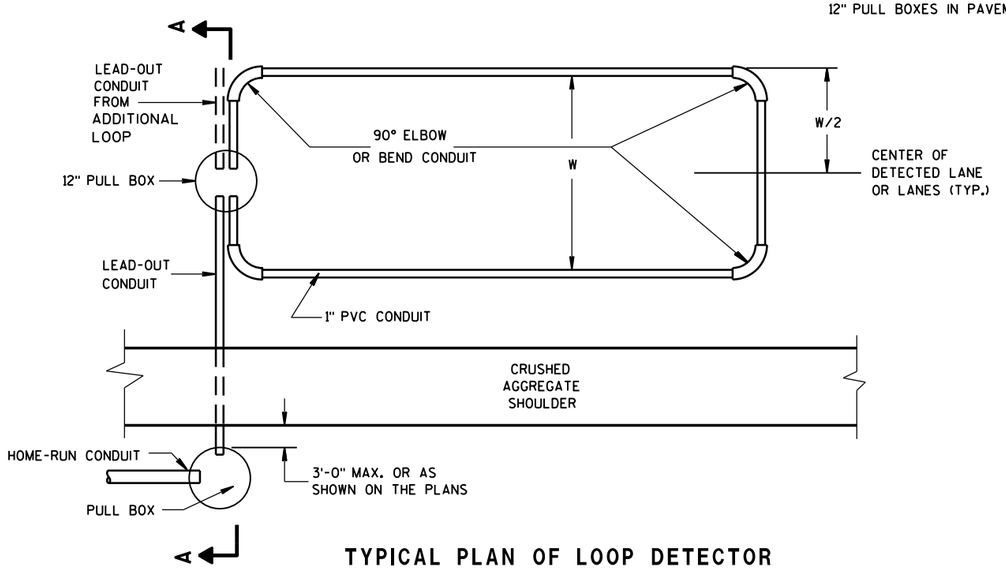
12" PULL BOXES IN PAVEMENT SHALL BE CORRUGATED STEEL ONLY.



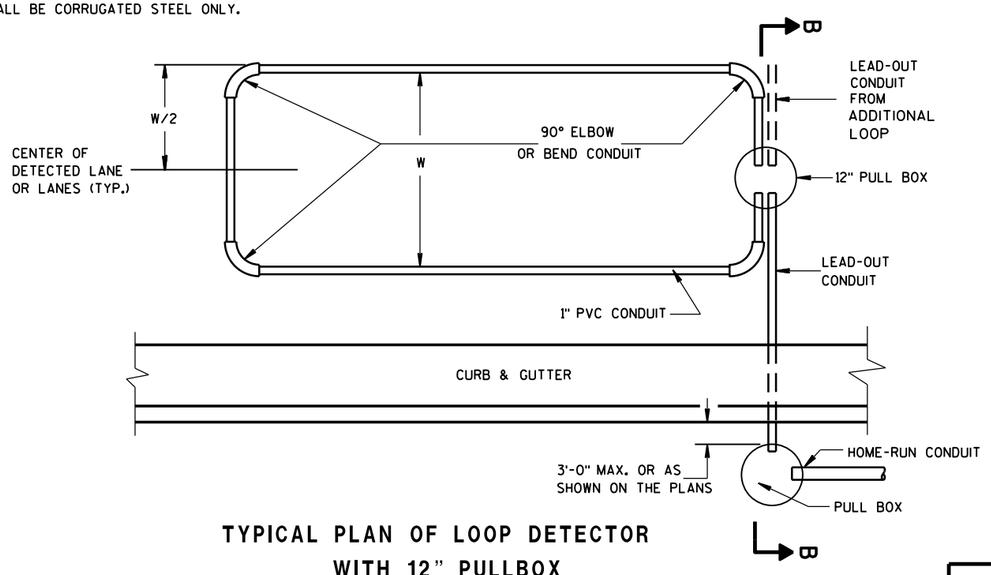
SECTION B-B

CURB & GUTTER

LOOP DETECTOR INSTALLATION DETAILS



TYPICAL PLAN OF LOOP DETECTOR WITH 12" PULLBOX



TYPICAL PLAN OF LOOP DETECTOR WITH 12" PULLBOX

LOOP DETECTOR PLACED IN CRUSHED AGGREGATE BASE (NEW CONCRETE PAVEMENT)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

Sept. 2014 — DATE

/S/ Ahmet Demirbilek — STATE ELECTRICAL

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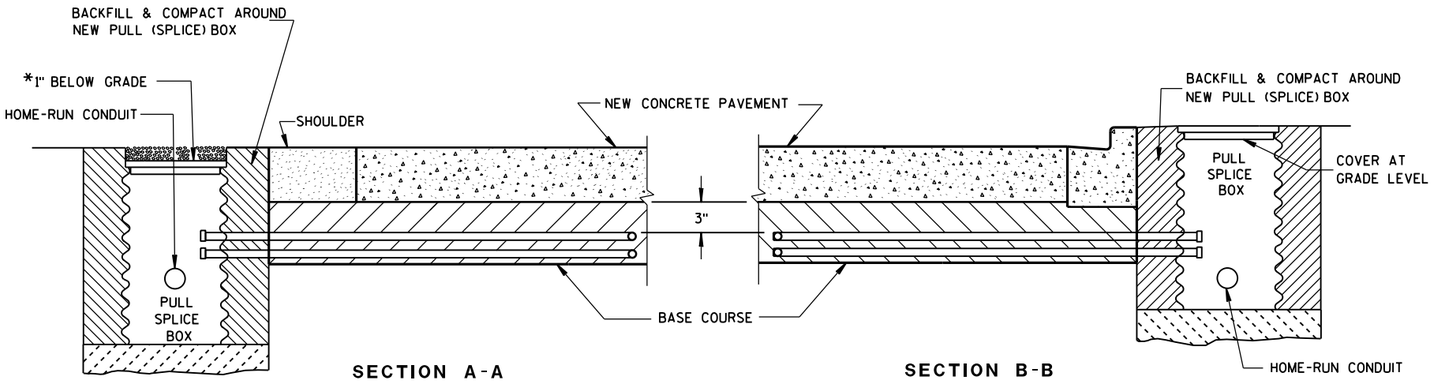


SECTION A-A
NO CURB & GUTTER

SECTION B-B
CURB & GUTTER

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

LOOP DETECTOR INSTALLATION DETAIL

GENERAL NOTES

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

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

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

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

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

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

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

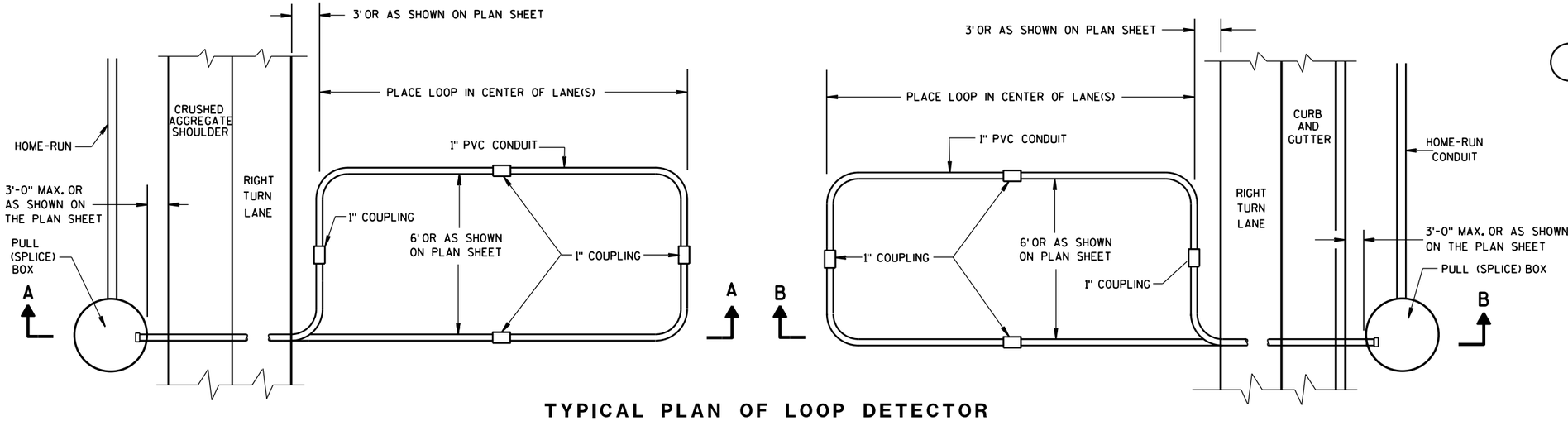
THE #12 AWG. LOOP WIRE IN THE PULL (SPLICE) BOX SHALL BE HAND TWISTED AT LEAST 3 TWISTS PER FOOT BEFORE BEING SPLICED TO THE LOOP LEAD-IN CABLE.

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

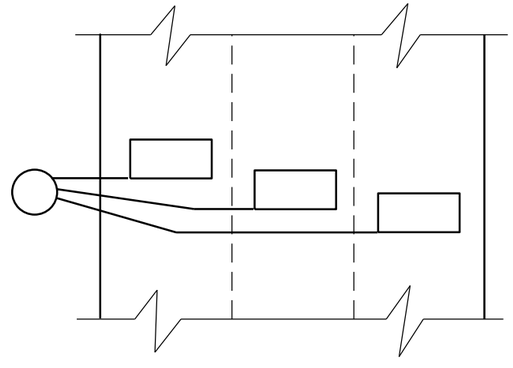
THE #12 AWG LOOP WIRE SHALL BE INSTALLED FROM THE ROADSIDE PULL (SPLICE) BOX, THROUGH THE LOOP CONDUIT, BACK TO THE ROADSIDE PULL (SPLICE) BOX, AND BE INSTALLED IN ONE, NON-SPLICED CONTINUOUS LENGTH.

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

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



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



MULTI-LANE INSTALLATION

LOOP DETECTOR INSTALLED IN BASE COURSE WITH PULL (SPLICE) BOX OFF ROADWAY (OPTION 2)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

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

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

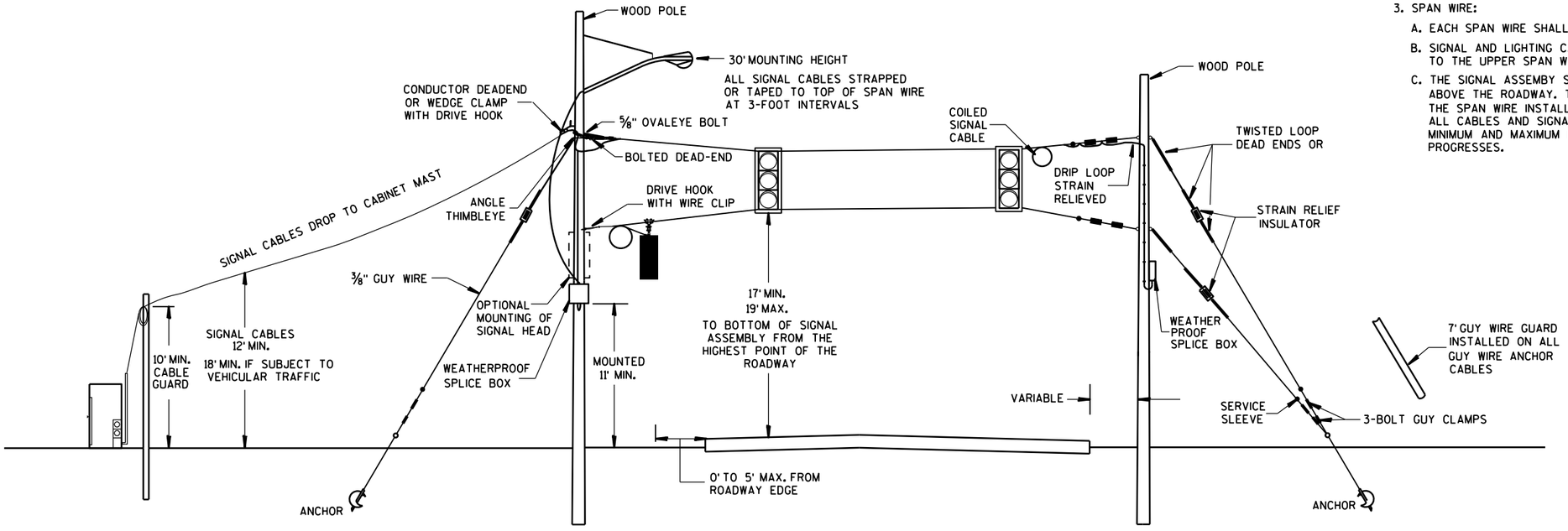
GENERAL NOTES

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

1. WOOD POLES SHALL BE CLASS 4. LENGTH DETERMINED BY SIGNAL PLAN.

2. SIGNAL FACES:
   A. ALL SECTIONS SHALL BE 12" AND POLYCARBONATE.
   B. EACH SHALL CONTAIN A 5" WIDE DULL BLACK POLYCARBONATE BACKPLATE.
   C. EACH SHALL BE WIRED FROM THE TOP SIGNAL MOUNTING BRACKET.
   D. NEAR RIGHT SIGNAL FACE SUSPENDED ON THE TETHER (NO BACKPLATE) SHALL NOT BE OVER THE TRAVELED WAY. IF THE POLE IS WITHIN 5 FEET OF THE TRAVELED WAY MOUNT THE SIGNAL FACE ON THE WOOD POLE WITH BACKPLATE.

3. SPAN WIRE:
   A. EACH SPAN WIRE SHALL BE INDIVIDUALLY DOWN GUYED.
   B. SIGNAL AND LIGHTING CABLES SHALL ONLY BE ATTACHED TO THE UPPER SPAN WIRE.
   C. THE SIGNAL ASSEMBY SHALL HAVE A 17' MIN. HEIGHT ABOVE THE ROADWAY. THIS SHALL BE MEASURED AFTER THE SPAN WIRE INSTALLATION IS COMPLETED WITH ALL CABLES AND SIGNAL FACES IN PLACE. MAINTAIN MINIMUM AND MAXIMUM HEIGHTS AS ROADWAY WORK PROGRESSES.



SPAN WIRE
TEMPORARY SIGNALS

MINIMUM POLE LENGTHS	POLE BURIEL DEPTHS
25'	5'
30'	6'
35'	7'
40'	8'
45'	9'

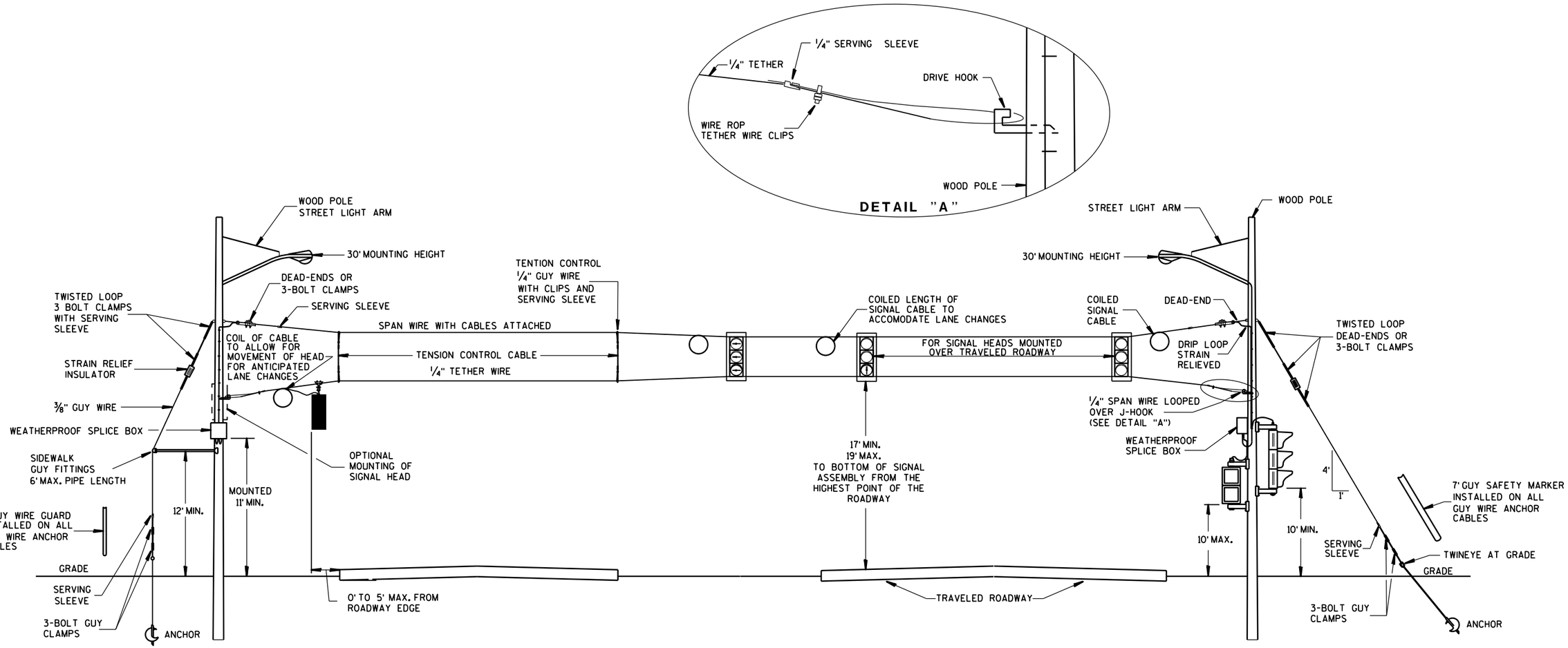
SPAN WIRE
TEMPORARY TRAFFIC SIGNAL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June, 2015 — DATE
/S/ Ahmet Demirbilek — STATE ELECTRICAL
FHWA

6

S.D.D. 9 G 1-4a



GENERAL NOTES

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

1. WOOD POLES SHALL BE CLASS 4. LENGTH DETERMINED BY SIGNAL PLAN.
2. SIGNAL FACES:
   A. ALL SECTIONS SHALL BE 12" AND POLYCARBONATE.
   B. EACH SHALL CONTAIN A 5" WIDE DULL BLACK POLYCARBONATE BACKPLATE.
   C. EACH SHALL BE WIRED FROM THE TOP SIGNAL MOUNTING BRACKET.
   D. NEAR RIGHT SIGNAL FACE SUSPENDED ON THE TETHER (NO BACKPLATE) SHALL NOT BE OVER THE TRAVELED WAY. IF THE POLE IS WITHIN 5 FEET OF THE TRAVELED WAY MOUNT THE SIGNAL FACE ON THE WOOD POLE WITH BACKPLATE.
   E. FAR INDICATION SHALL BE MAINTAINED OVER CENTER OF TRAFFIC LANE.
3. SPAN WIRE:
   A. EACH SPAN WIRE SHALL BE INDIVIDUALLY DOWN GUYED.
   B. SIGNAL AND LIGHTING CABLES SHALL ONLY BE ATTACHED TO THE UPPER SPAN WIRE.
   C. THE SIGNAL ASSEMBY SHALL HAVE A 17' MIN. HEIGHT ABOVE THE ROADWAY. THIS SHALL BE MEASURED AFTER THE SPAN WIRE INSTALLATION IS COMPLETED WITH ALL CABLES AND SIGNAL FACES IN PLACE. MAINTAIN MINIMUM AND MAXIMUM HEIGHTS AS ROADWAY WORK PROGRESSES.

SPAN WIRE
TEMPORARY SIGNALS
4 LANE ROADWAYS

MINIMUM POLE LENGTHS	CLASS	MIN. BURIAL DEPTHS
25'	V	5'
30'	V	6'
35'	IV	7'
40'	IV	8'
45'	IV	9'

SPAN WIRE
TEMPORARY TRAFFIC SIGNAL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June, 2015 — DATE
/S/ Ahmet Demirbilek — STATE ELECTRICAL
FHWA

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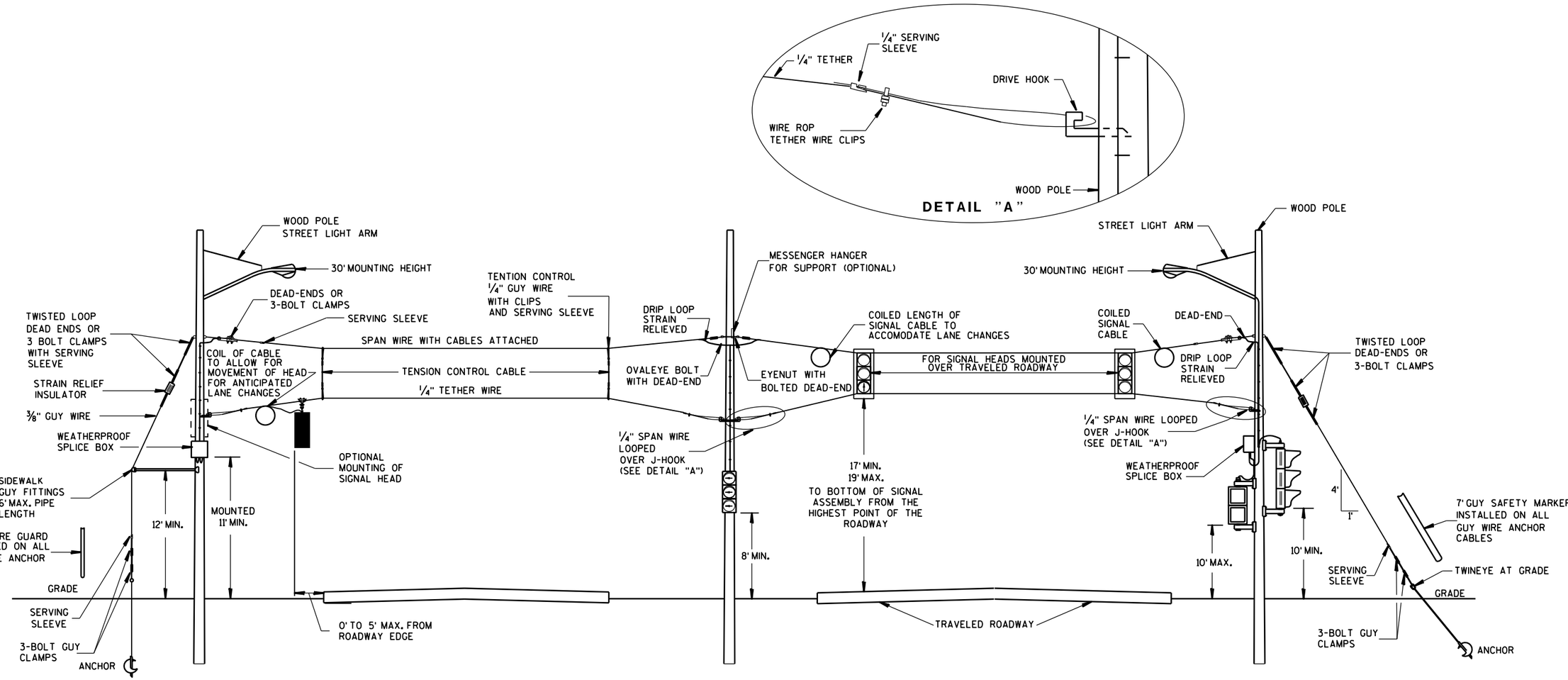
S.D.D. 9 G 1-4b



SPAN WIRE
TEMPORARY SIGNALS
4 LANE ROADWAYS

GENERAL NOTES

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

1. WOOD POLES SHALL BE CLASS 4. LENGTH DETERMINED BY SIGNAL PLAN.

2. SIGNAL FACES:
   A. ALL SECTIONS SHALL BE 12" AND POLYCARBONATE.
   B. EACH SHALL CONTAIN A 5" WIDE DULL BLACK POLYCARBONATE BACKPLATE.
   C. EACH SHALL BE WIRED FROM THE TOP SIGNAL MOUNTING BRACKET.
   D. NEAR RIGHT SIGNAL FACE SUSPENDED ON THE TETHER (NO BACKPLATE) SHALL NOT BE OVER THE TRAVELED WAY. IF THE POLE IS WITHIN 5 FEET OF THE TRAVELED WAY MOUNT THE SIGNAL FACE ON THE WOOD POLE WITH BACKPLATE.
   E. FAR INDICATION SHALL BE MAINTAINED OVER CENTER OF TRAFFIC LANE.

3. SPAN WIRE:
   A. EACH SPAN WIRE SHALL BE INDIVIDUALLY DOWN GUYED.
   B. SIGNAL AND LIGHTING CABLES SHALL ONLY BE ATTACHED TO THE UPPER SPAN WIRE.
   C. THE SIGNAL ASSEMBY SHALL HAVE A 17' MIN. HEIGHT ABOVE THE ROADWAY. THIS SHALL BE MEASURED AFTER THE SPAN WIRE INSTALLATION IS COMPLETED WITH ALL CABLES AND SIGNAL FACES IN PLACE. MAINTAIN MINIMUM AND MAXIMUM HEIGHTS AS ROADWAY WORK PROGRESSES.

MINIMUM POLE LENGTHS	CLASS	MIN. BURIAL DEPTHS
25'	V	5'
30'	V	6'
35'	IV	7'
40'	IV	8'
45'	IV	9'

SPAN WIRE
TEMPORARY TRAFFIC SIGNAL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June. 2015 — DATE
/S/ Ahmet Demirbilek — STATE ELECTRICAL
FHWA

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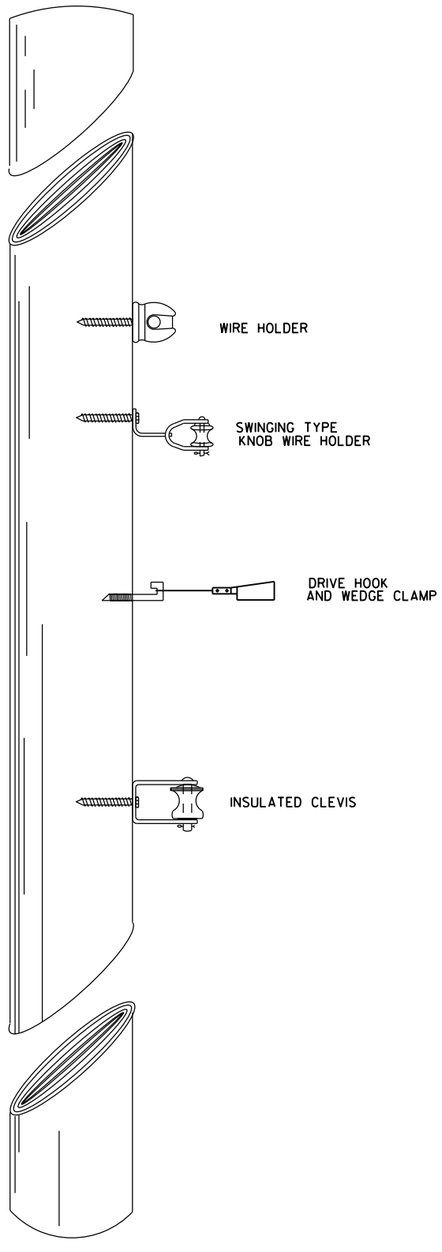
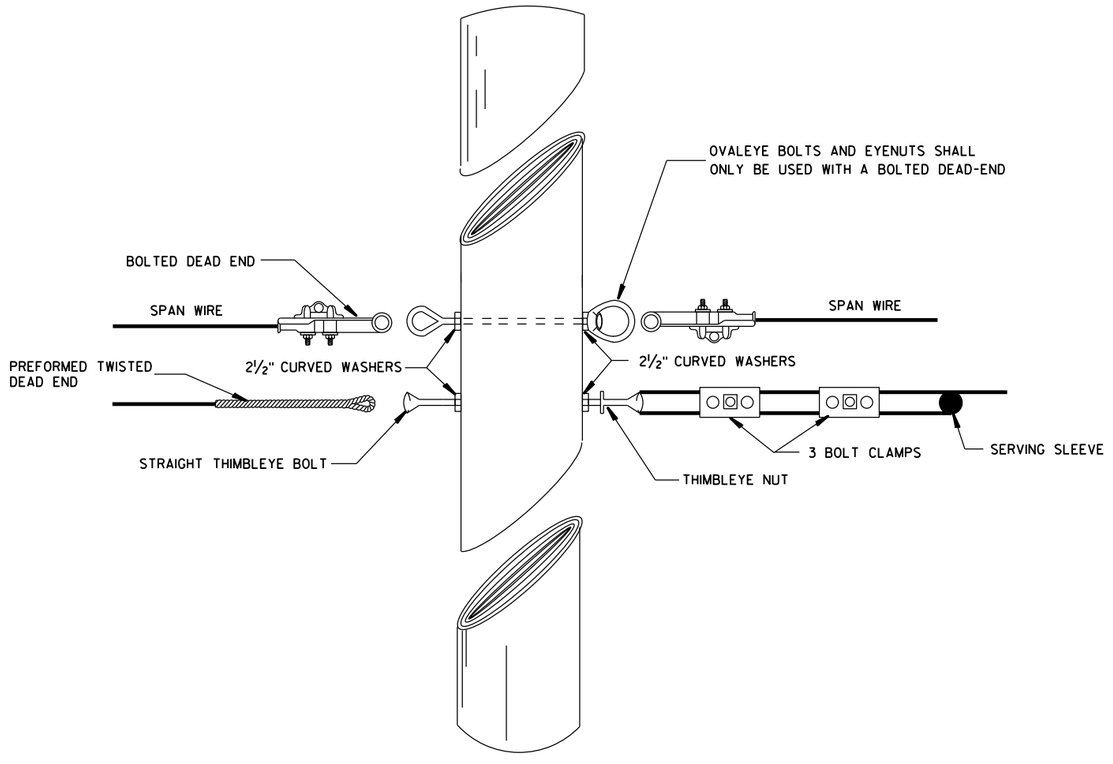
S.D.D. 9 G 1-4c



TYPICAL CABLE HANGERS



TYPICAL DEAD-ENDING

SPAN WIRE
TEMPORARY TRAFFIC SIGNAL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June, 2015 — DATE
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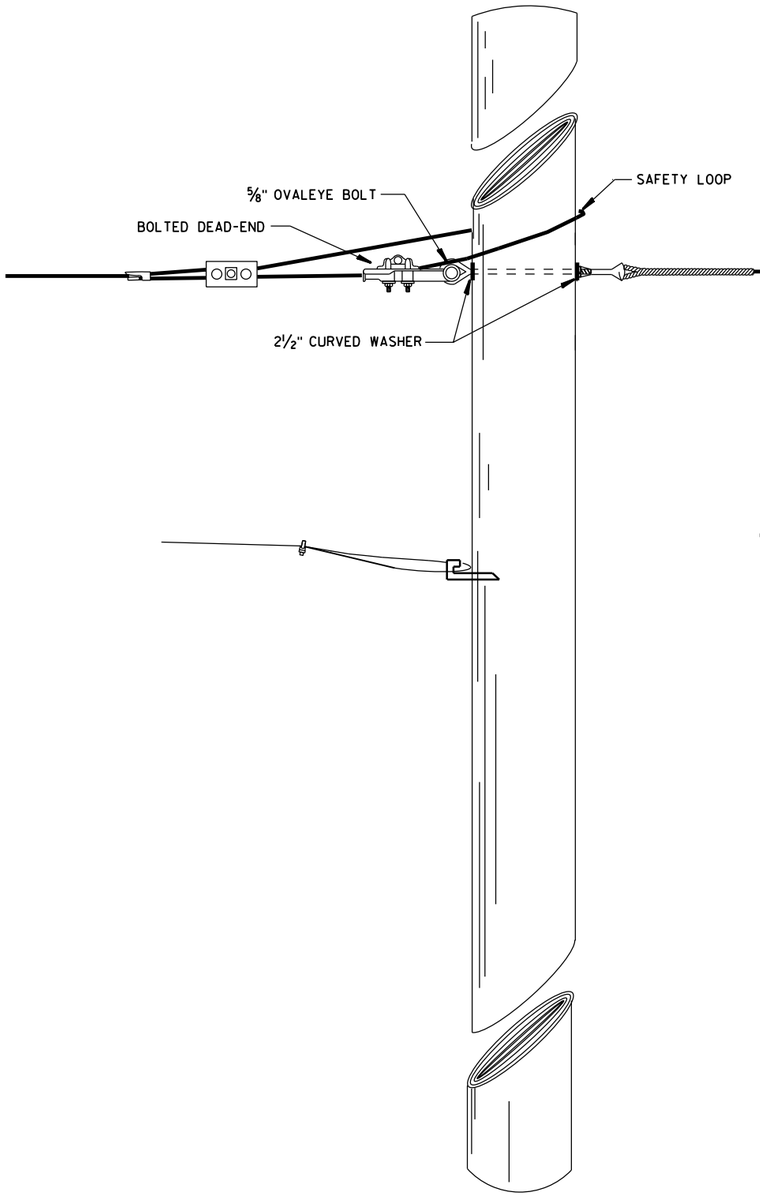
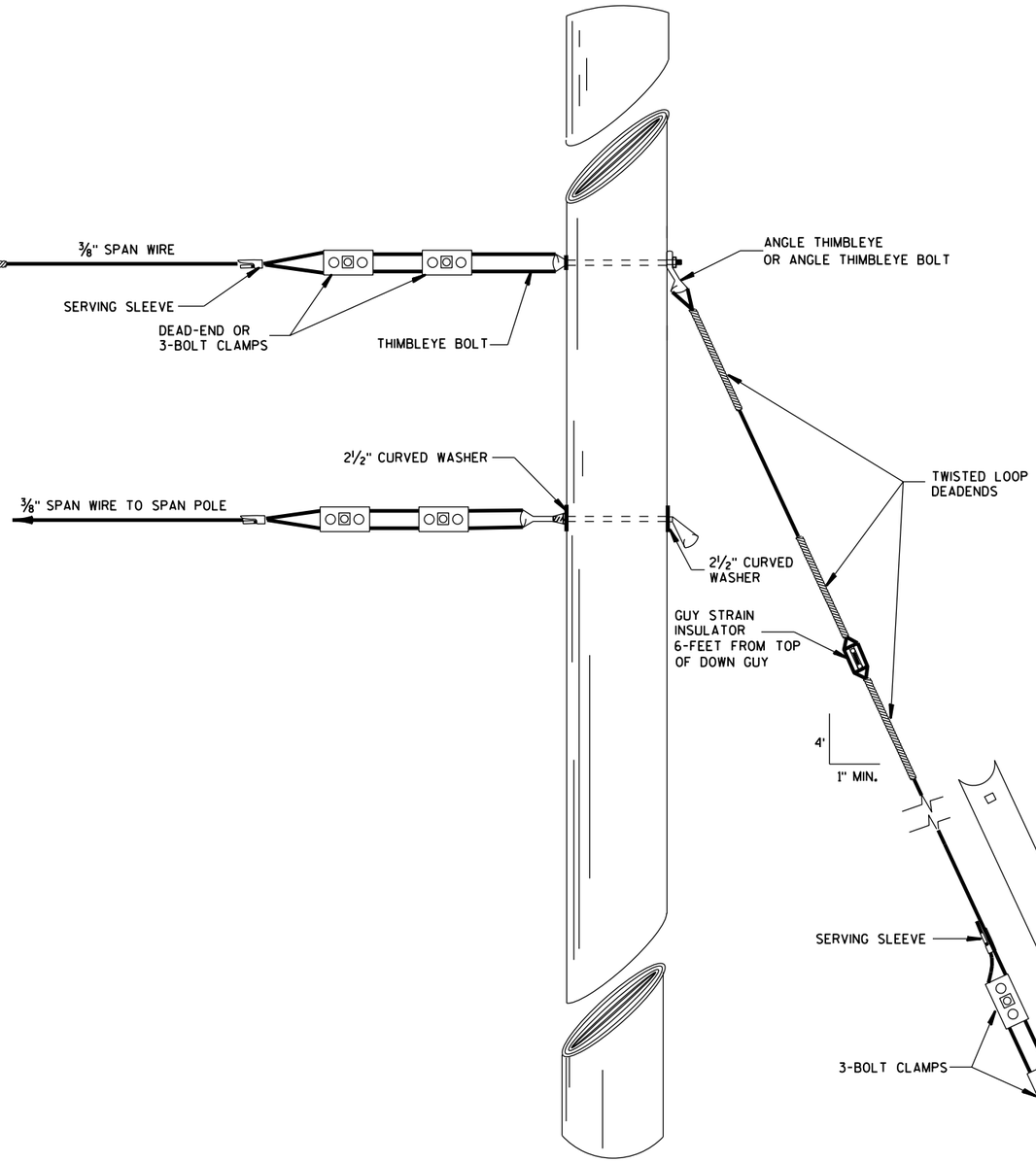
S.D.D. 9 G 1-4d

GENERAL NOTES

1. USE ¾" DRILL IN WOOD POLE TO PROVIDE HOLE FOR ⅝" BOLTS.
2. SAFTY LOOP REQUIRED ON EACH END OF ALL SPAN WIRES.



SPAN WIRE POLE



GUY POLE

TYPICAL DEAD-ENDINGS OR GUYING

SPAN WIRE TEMPORARY TRAFFIC SIGNAL
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION
APPROVED June. 2015 (DATE) — /S/ Ahmet Demirbilek (STATE ELECTRICAL)
FHWA

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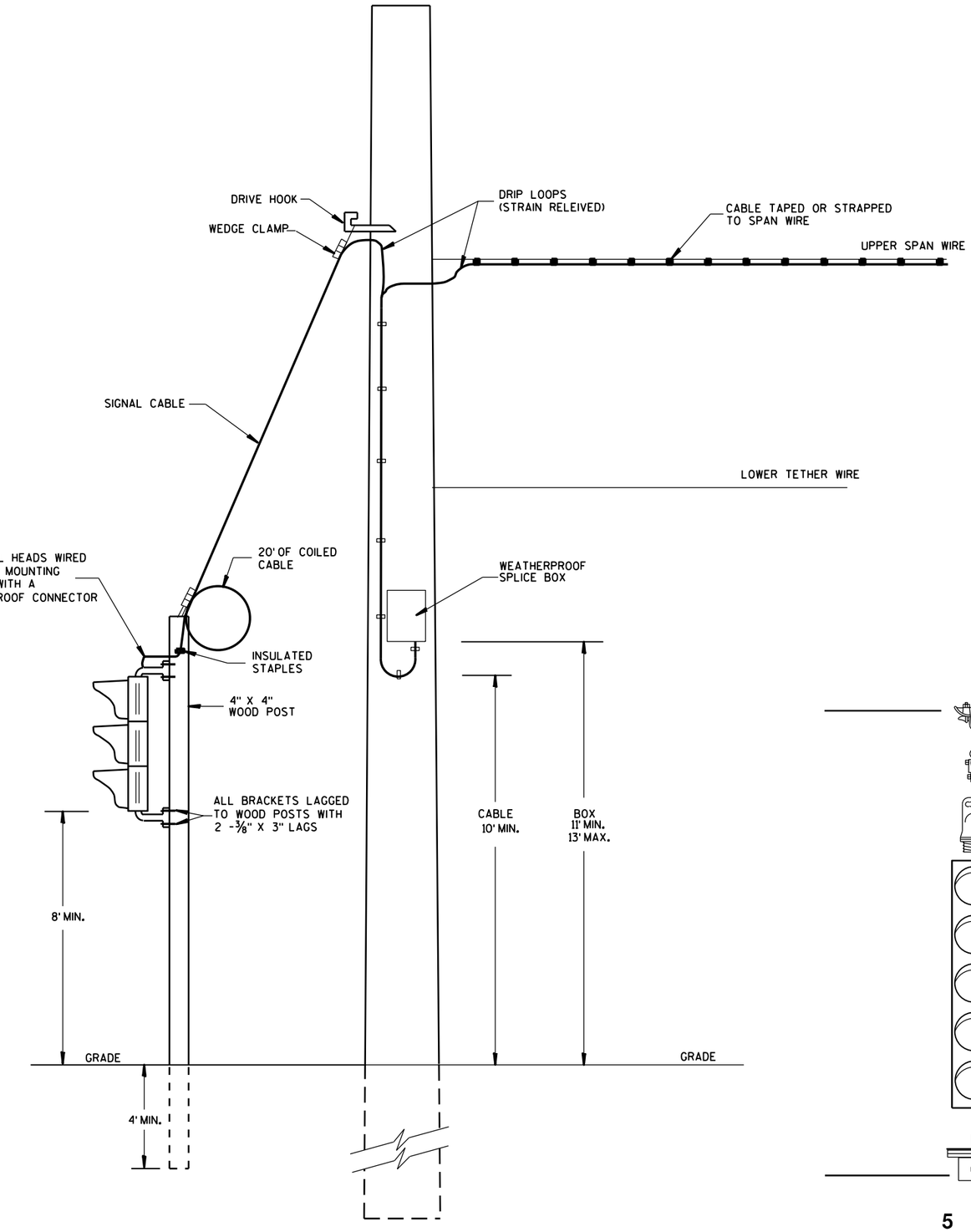
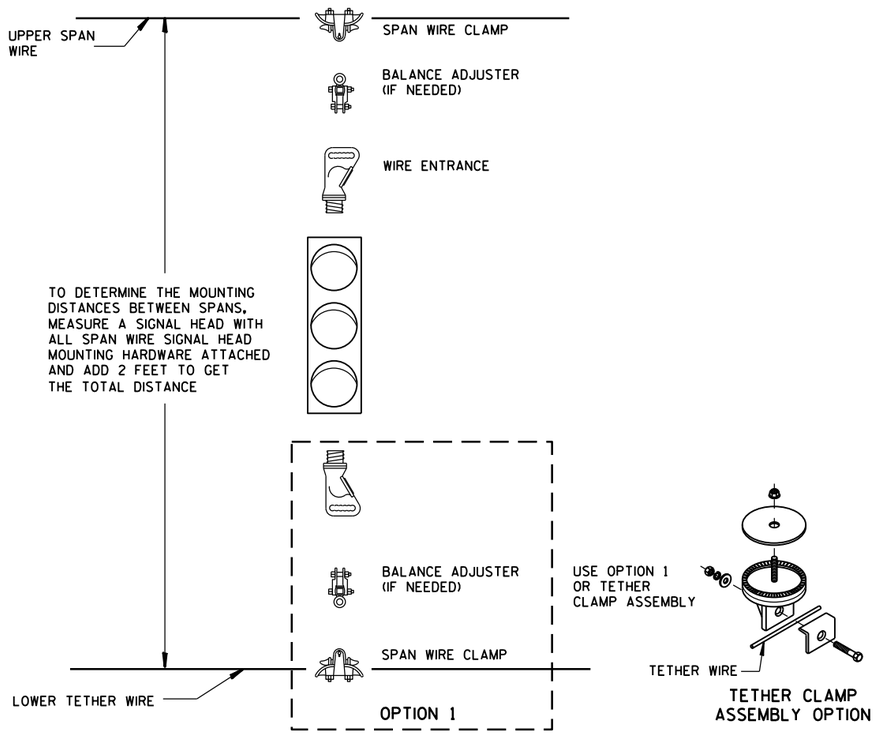
S.D.D. 9 G 1-4e

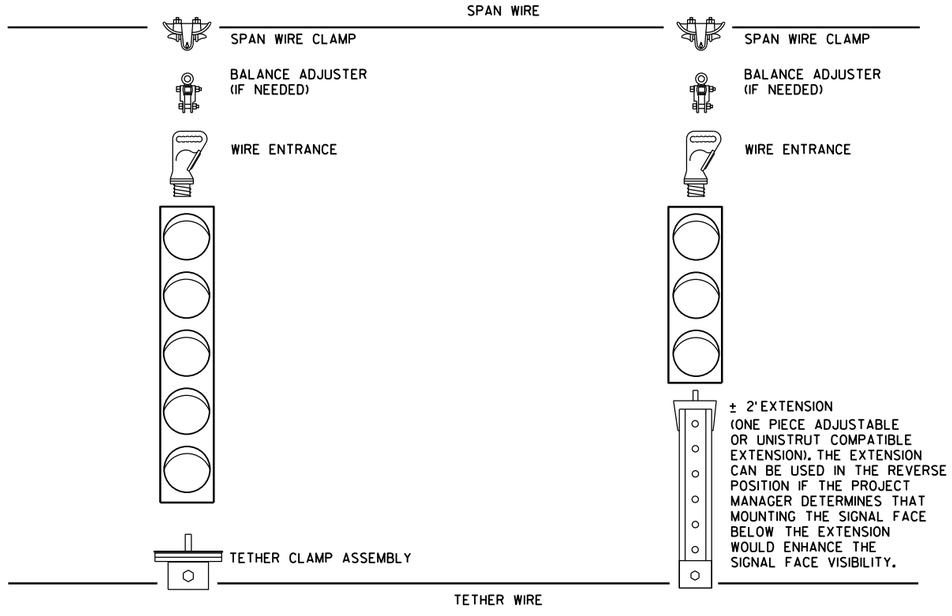


TYPICAL DROP TO TEMPORARY MOVEABLE SIGNAL



TETHER CLAMP ASSEMBLY OPTION

TYPICAL SPAN WIRE MOUNTING HARDWARE



5 SECTION VERTICAL WITH 3 SECTION VERTICAL ON ONE SPAN WIRE

SPAN WIRE
TEMPORARY TRAFFIC SIGNAL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

June. 2015
DATE

/S/ Ahmet Demirbilek
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S.D.D. 9 G 1-4f

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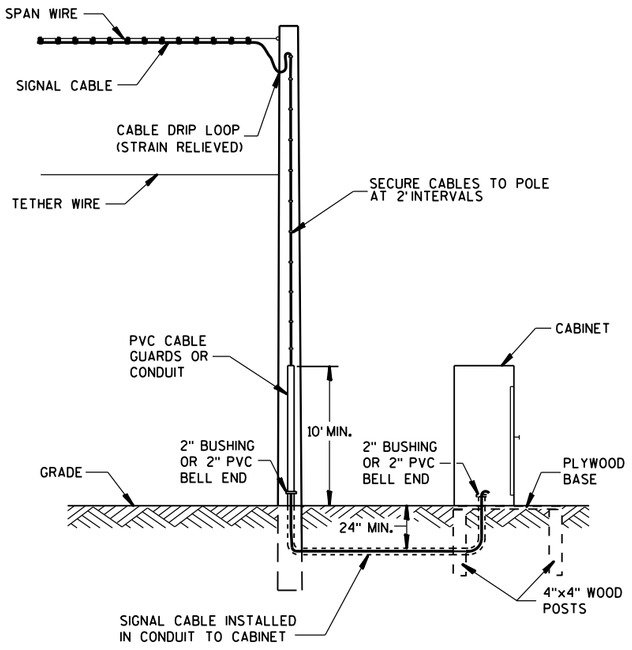
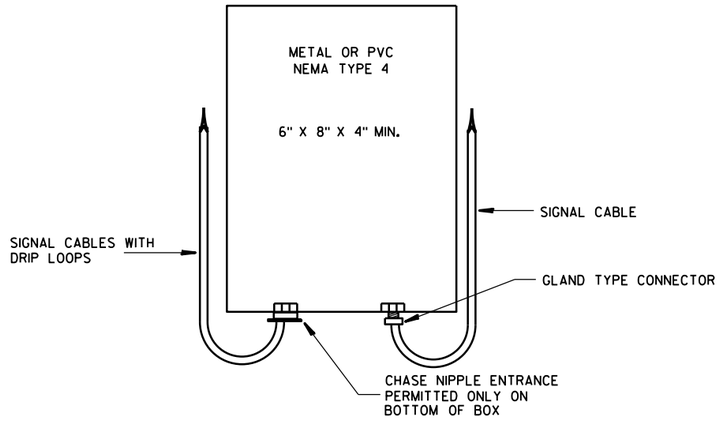
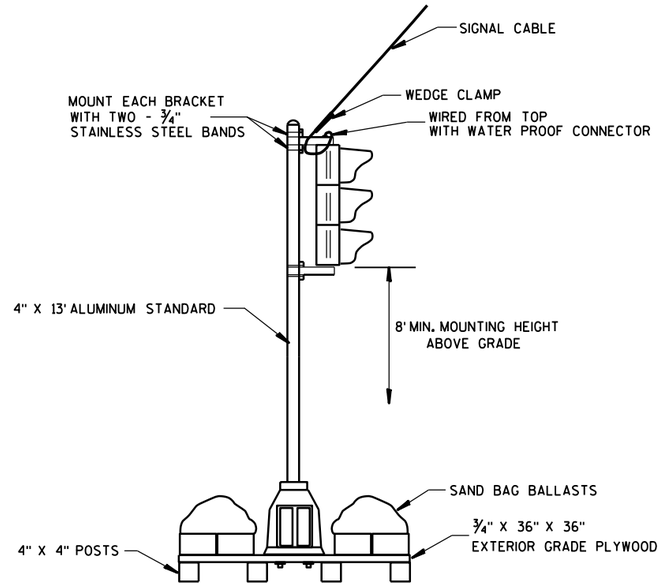
S.D.D. 9 G 1-4f

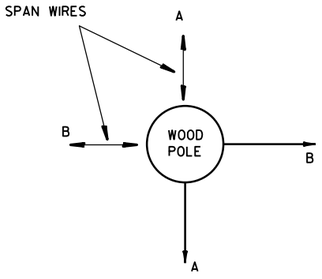




SPLICE BOX

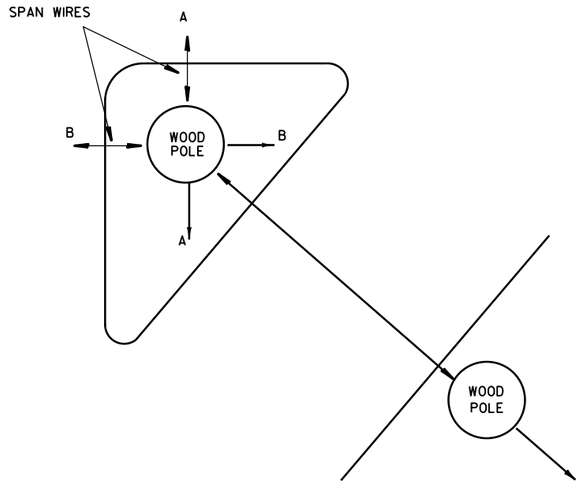


TYPICAL SKID TYPE TEMPORARY

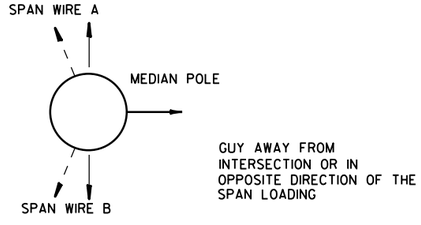


ALL DOWN OR SIDEWALK GUYS
SHALL BE INSTALLED IN THE
OPPOSITE DIRECTION OF THE
STRAIN OF THE SPAN WIRE

CORNER POLES



ISLAND POLES



MEDIAN POLES

SPAN WIRE
TEMPORARY TRAFFIC SIGNAL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June, 2015 — DATE
/S/ Ahmet Demirbilek — STATE ELECTRICAL
FHWA

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S.D.D. 9 G 1-4g

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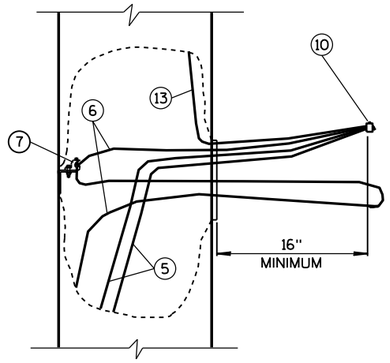
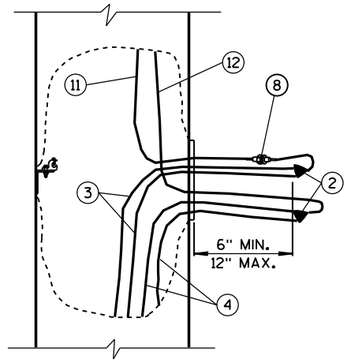
S.D.D. 9 G 1-4g

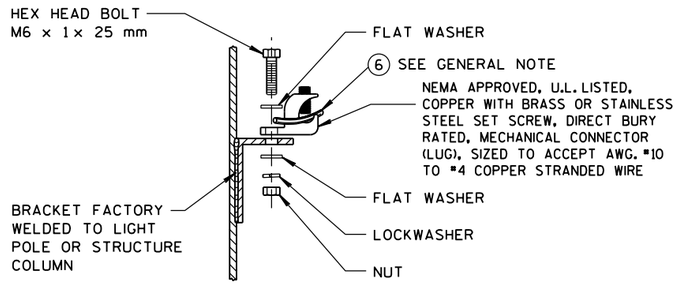


EQUIPMENT GROUNDING CONDUCTOR SLACK



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

TYPICAL CONDUCTOR SLACK AT HANDHOLES



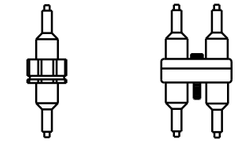
HANDHOLE GROUNDING LUG

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

CONDUCTOR COLOR CODES

KEY	CONDUCTOR	COLOR
3	UNGROUNDED LINE WIRE	*
4	GROUNDED LINE WIRE	WHITE
5	SYSTEM GROUNDING LINE WIRE	GREEN
6	GROUNDING ELECTRODE CONDUCTOR	BARE
11	UNGROUNDED 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.

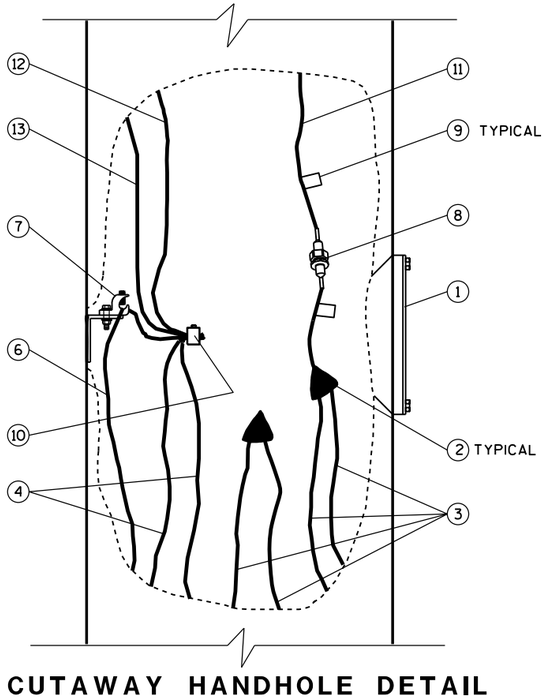
USE THIS DETAIL IN CONJUNCTION WITH THE ELECTRICAL DETAILS FOR THE APPLICATION, WHICH MAY BE A LIGHT POLE, SIGN BRIDGE, ETC.

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

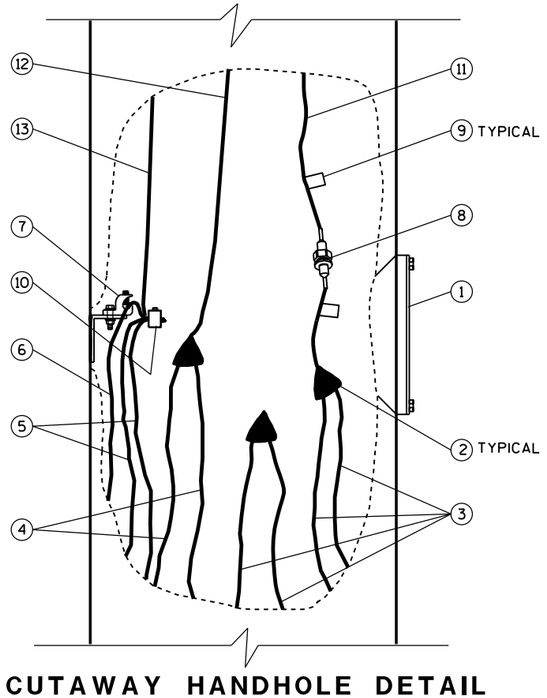
THREE POLE WIRES ARE SHOWN FOR A SINGLE LUMINAIRE LIGHT POLE. THREE ADDITIONAL POLE WIRES REQUIRED FOR TWIN LUMINAIRE LIGHT POLES ARE OMITTED FROM THE DRAWING FOR CLARITY. IN THE TWIN POLE CASE, BUNDLE EACH SET OF THREE WIRES WITH A NYLON CABLE TIE.

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

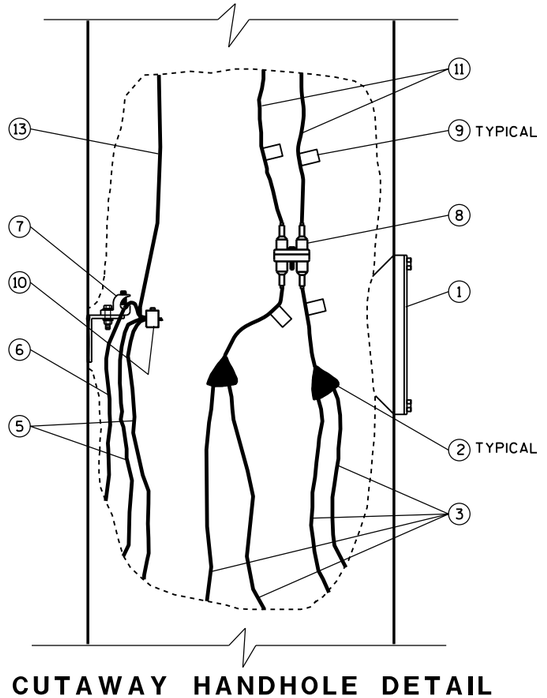
CIRCUIT TAGS SHALL BE INSTALLED ONLY WHERE REQUIRED IN THE SPECIAL PROVISIONS.



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)

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

1. HANDHOLE AND COVER
2. INSULATED SPLICE
3. UNGROUNDED LINE WIRE
4. GROUNDED LINE WIRE
5. SYSTEM GROUNDING LINE WIRE
6. GROUNDING ELECTRODE CONDUCTOR
7. HANDHOLE GROUNDING LUG
8. FUSE ASSEMBLY, 1P OR 2P AS REQUIRED
9. CIRCUIT TAG (SEE GENERAL NOTE)
10. REVERSIBLE PRESSURE OR COMPRESSION GROUNDING CONNECTOR (NOT INSULATED)
11. UNGROUNDED POLE WIRE
12. GROUNDED POLE WIRE
13. EQUIPMENT GROUNDING POLE WIRE

ELECTRICAL HANDHOLE WIRING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

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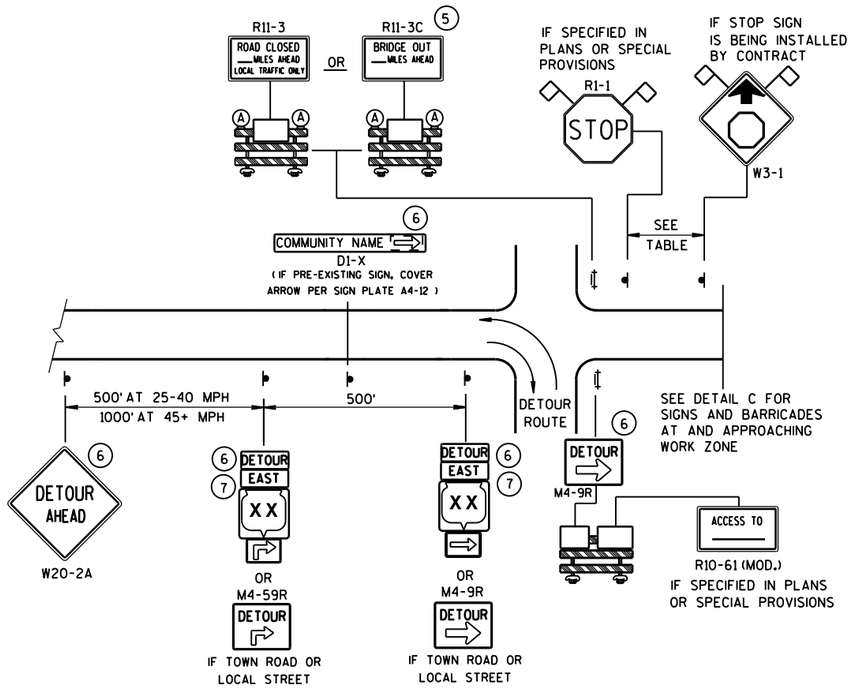
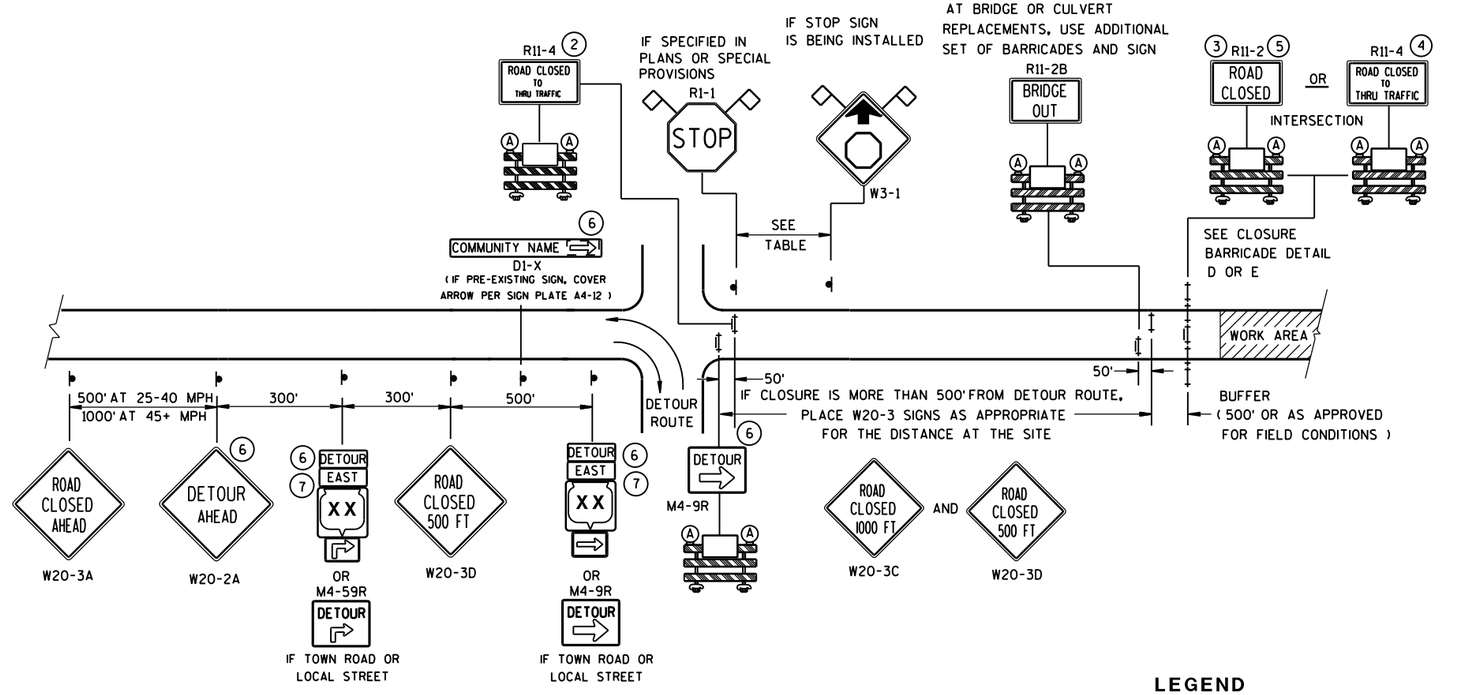
S.D.D. 10 A 1-3



DETAIL A

MAINLINE CLOSURE WITH POSTED DETOUR

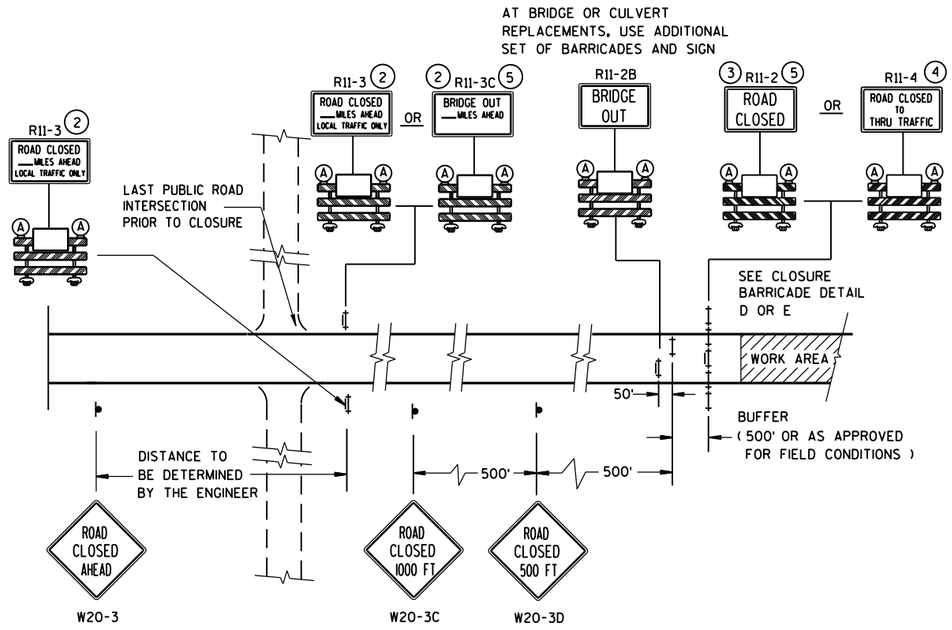
WORK ZONE GREATER THAN ½ MILE FROM DETOUR ROUTE (1000 FEET IF URBAN)



DETAIL B

MAINLINE CLOSURE WITH POSTED DETOUR

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



DETAIL C

MAINLINE CLOSURE, NO POSTED DETOUR

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

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

LEGEND

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

BARRICADES AND SIGNS FOR MAINLINE CLOSURES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

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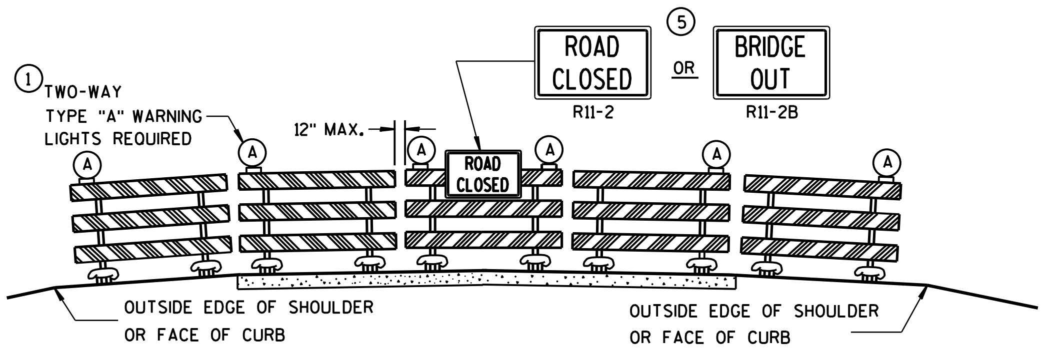
S.D.D. 15 C 2-6a

6

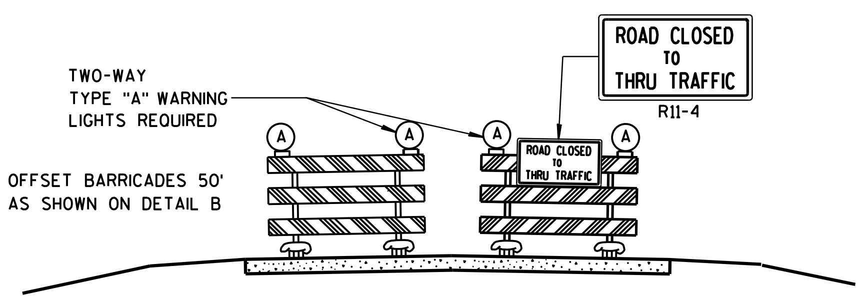
S.D.D. 15 C 2-6a



DETAIL D

ROAD CLOSURE BARRICADE DETAIL

APPROACH VIEW



DETAIL E

LANE CLOSURE BARRICADE DETAIL

APPROACH VIEW

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

GENERAL NOTES

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

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

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

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

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

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

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

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

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

ALL SIGNS SHALL BE 48" X 48" UNLESS OTHERWISE NOTED BELOW:

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

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

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

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

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

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

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

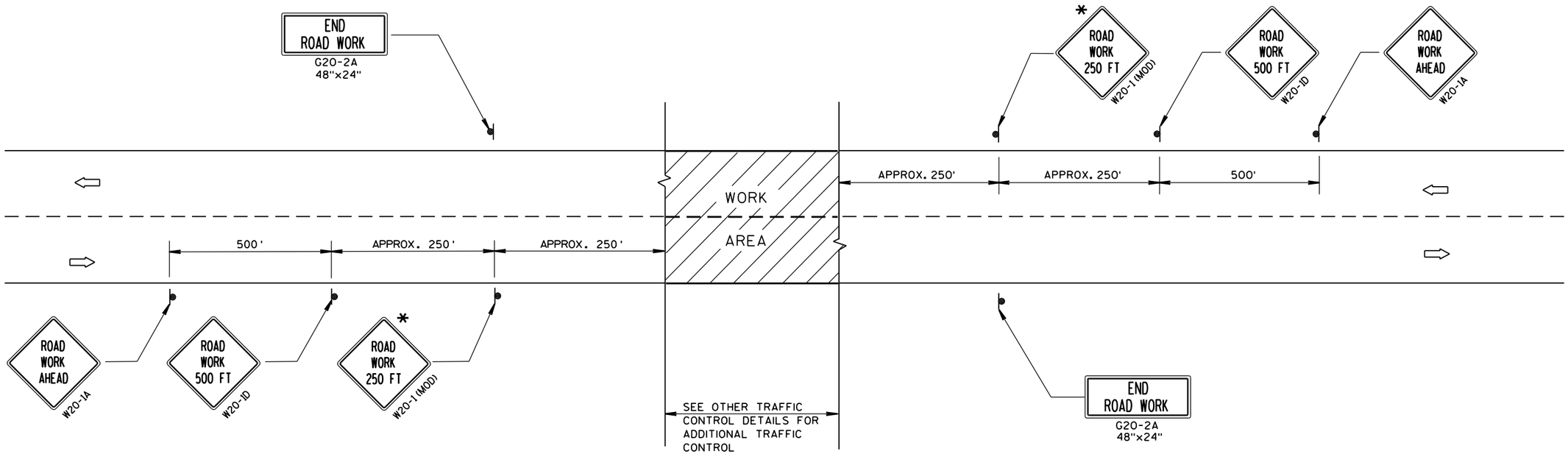
(7) "EAST" CARDINAL DIRECTION MARKERS AND RIGHT TURN ARROWS ARE SHOWN. USE OTHER CARDINAL DIRECTIONS AND ARROWS AS APPROPRIATE.

BARRICADES AND SIGNS FOR MAINLINE CLOSURES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

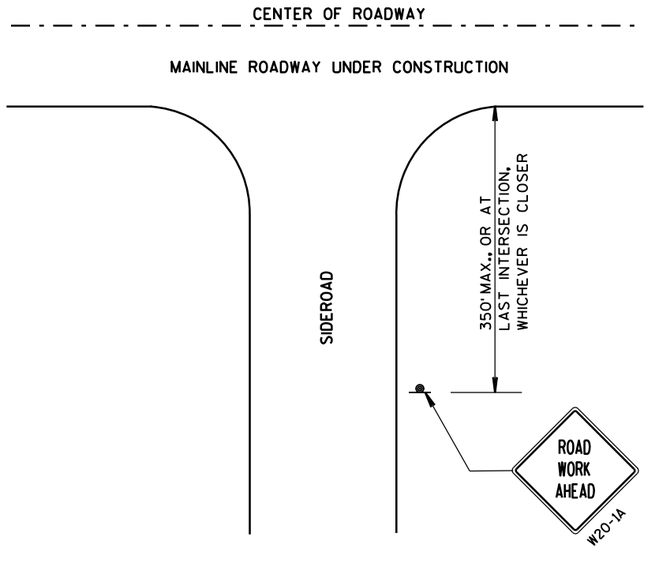
THE SPACING BETWEEN TRAFFIC CONTROL SIGNS SHOULD BE ADJUSTED TO NOT CONFLICT WITH AND SHOULD PROVIDE A DESIRABLE MINIMUM OF 200 FEET CLEARANCE TO EXISTING SIGNS THAT WILL REMAIN IN PLACE.

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

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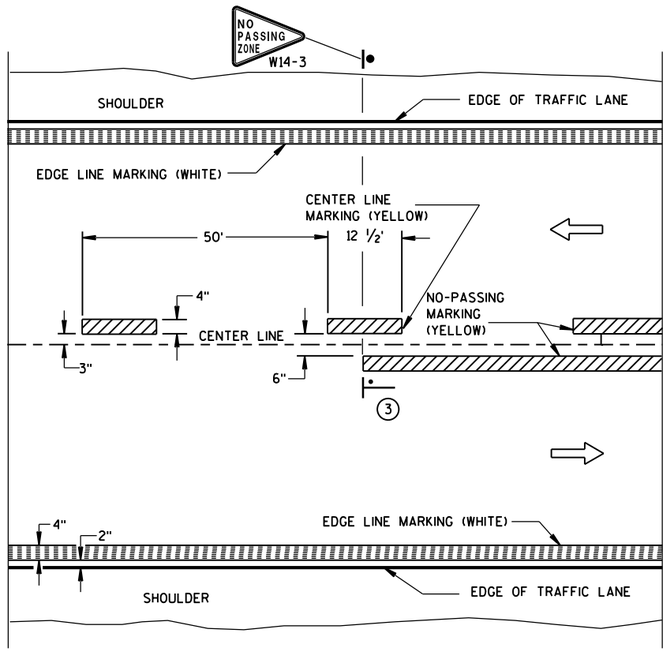
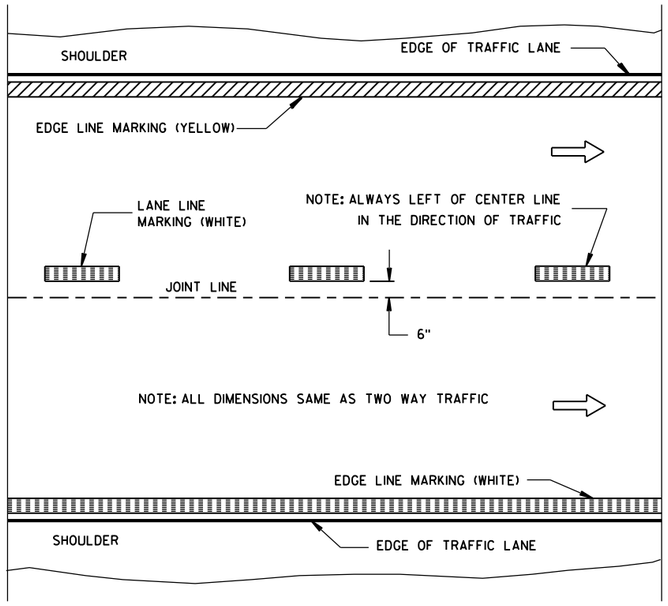
S.D.D. 15 C 5-3

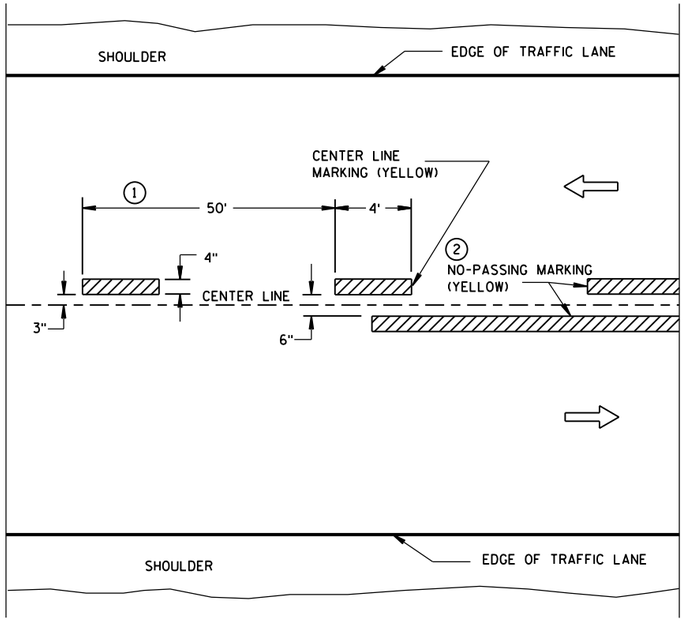


TWO WAY TRAFFIC

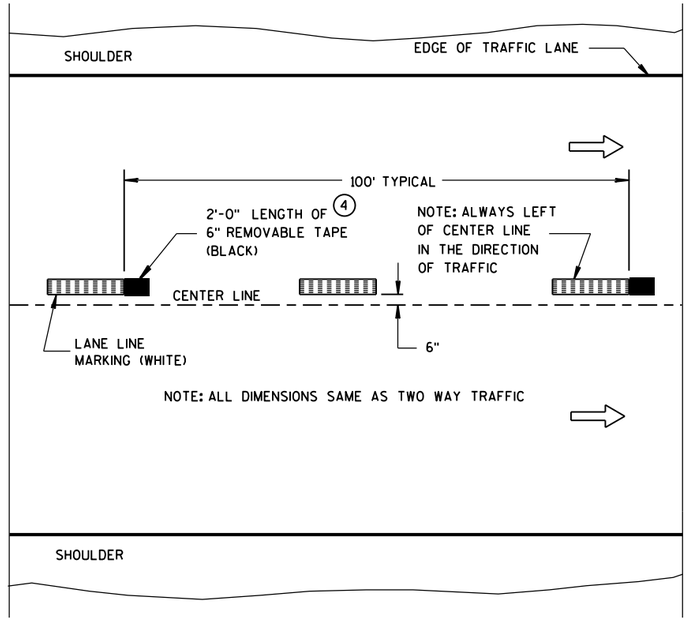


ONE WAY TRAFFIC

PERMANENT PAVEMENT MARKING



TWO WAY TRAFFIC



ONE WAY TRAFFIC

TEMPORARY (INTERMEDIATE) PAVEMENT MARKING

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

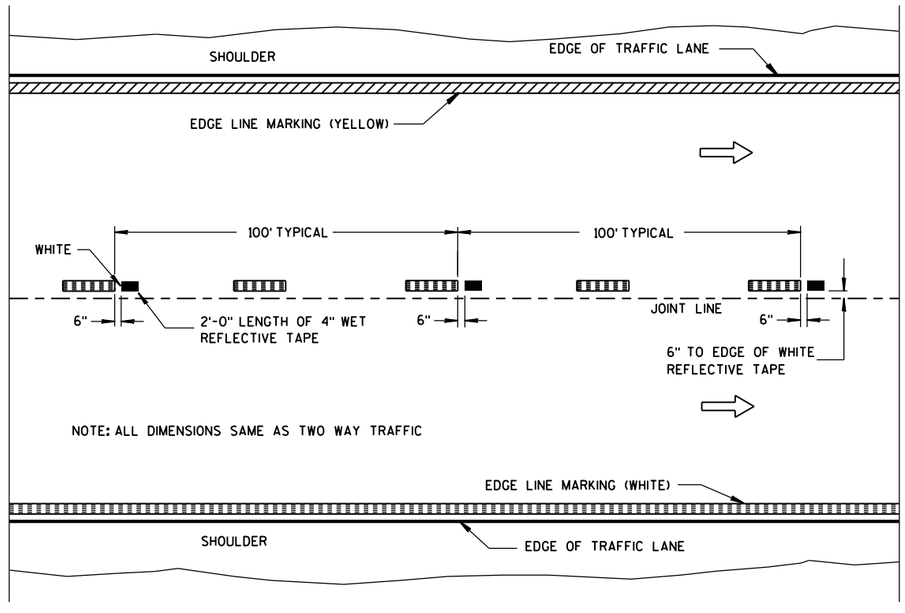
GENERAL NOTES

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

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

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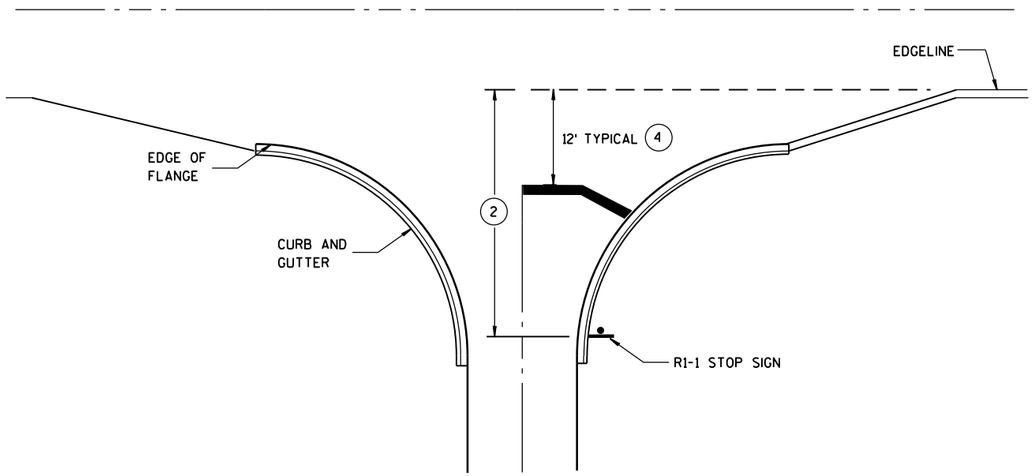
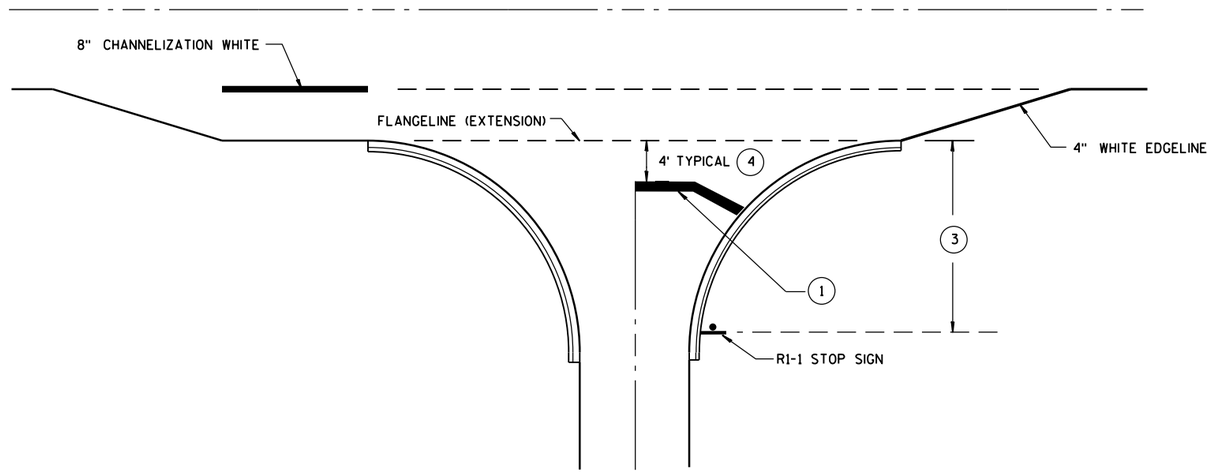
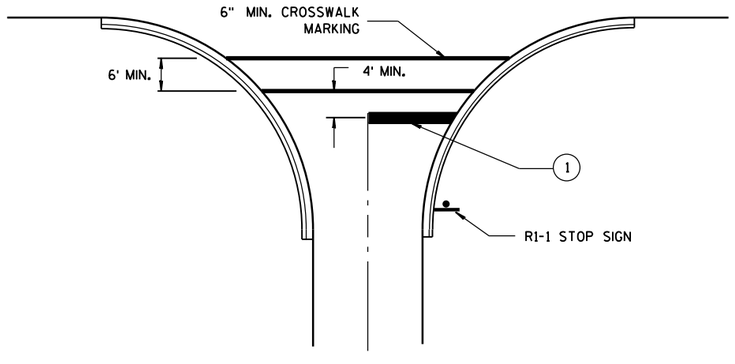
S.D.D. 15 C 8-16a



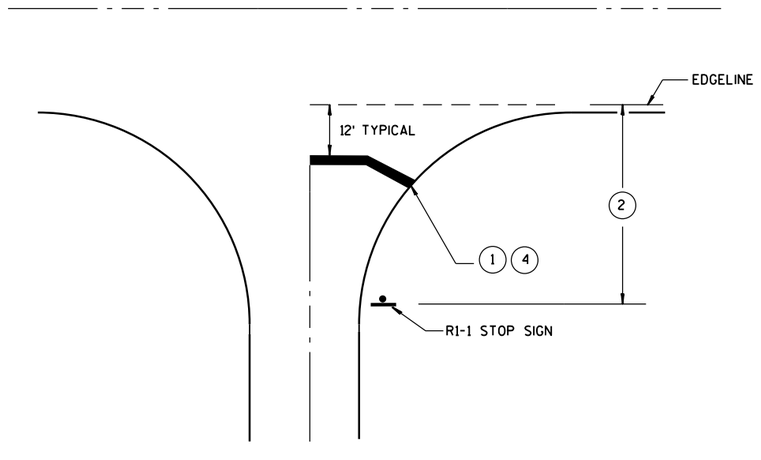
TYPICAL STOP LINE PAVEMENT MARKING WITH CURB AND GUTTER



TYPICAL STOP LINE PAVEMENT MARKING FOR SIDEROADS WITH RIGHT TURN LANE



TYPICAL STOP LINE PAVEMENT MARKING FOR SIDEROADS WITH CROSSWALK MARKING



TYPICAL STOP LINE PAVEMENT MARKING WITHOUT CURB AND GUTTER

GENERAL NOTES

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

STOP LINE AND CROSSWALK PAVEMENT MARKING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

4-18-2016
DATE

/S/ Matthew R. Rauch
STATE SIGNING AND MAR 55 NEER

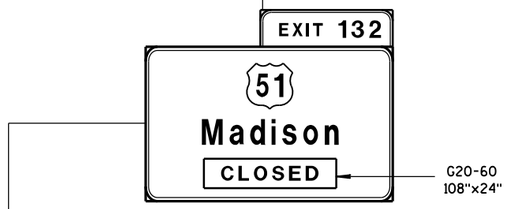
FHWA

6

S.D.D. 15 C 33-2

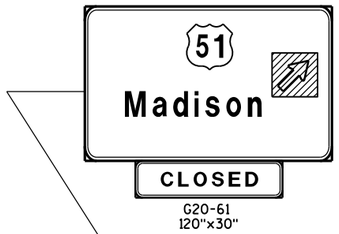
G20-60
108"x24"

OR



G20-60
108"x24"

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



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

G20-61
120"x30"

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

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

25' TYP.

100' MIN.

200'

EDGE OF SHOULDER

COVER EXISTING
EXIT SIGN

ROAD
WORK
AHEAD
*W20-1A

RAMP
CLOSED
AHEAD
W20-53A

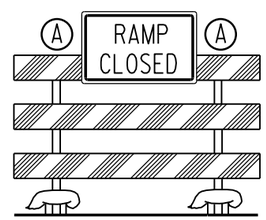
RAMP
CLOSED
1000 FT
W20-53C

1500'

1500'

1000'

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



RAMP WILL
BE CLOSED
(TIME)
BEGINNING
(DATE)

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

GENERAL NOTES

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

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

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

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

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

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

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

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

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

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

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

LEGEND

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

TRAFFIC CONTROL, EXIT RAMP CLOSURE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

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S.D.D. 15 D 16-3

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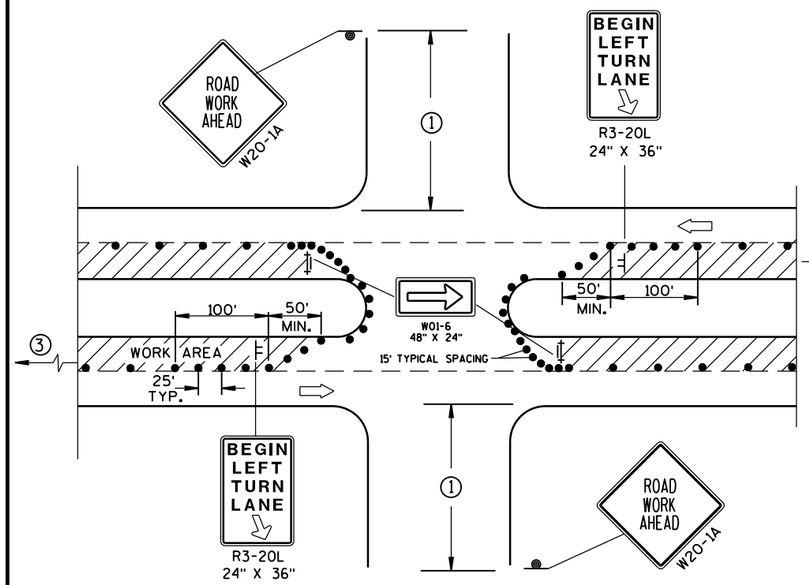
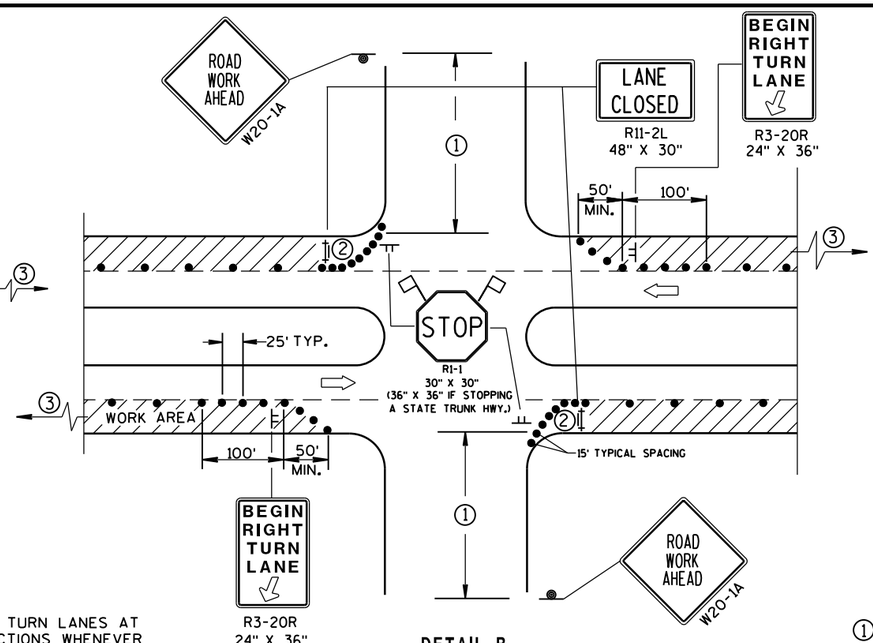
S.D.D. 15 D 16-3



DETAIL A

FOR LEFT LANE CLOSURE AT INTERSECTION OR MEDIAN OPENING

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



DETAIL B

FOR RIGHT LANE CLOSURE AT INTERSECTION

GENERAL NOTES

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

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

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

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

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

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

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

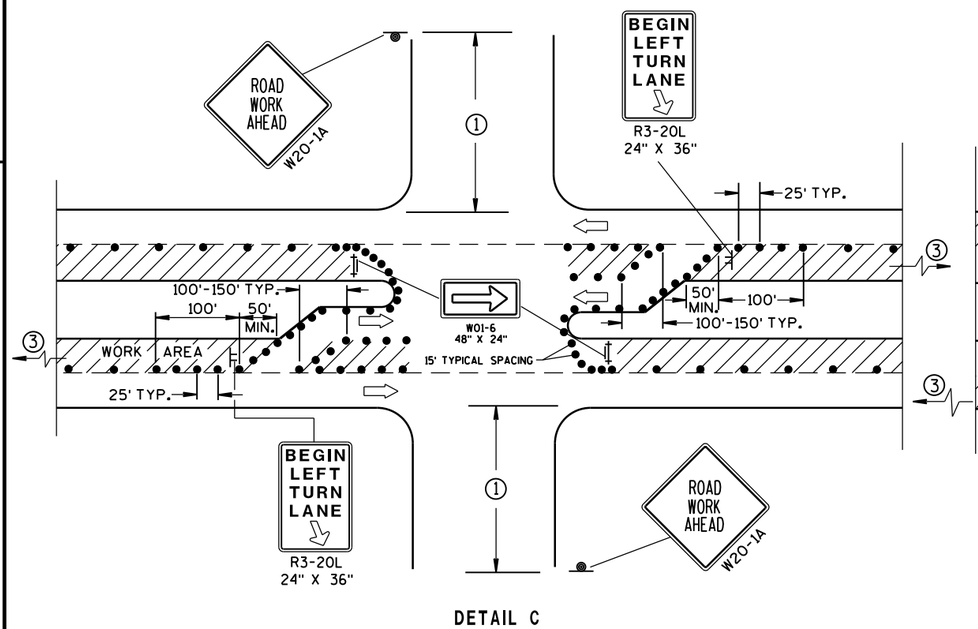
CHANNELIZING DEVICES PLACED ADJACENT TO WORK AREA SHALL BE PULLED BACK FROM THE TRAVEL LANE WHEN WORK IS NOT IN PROGRESS.

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

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

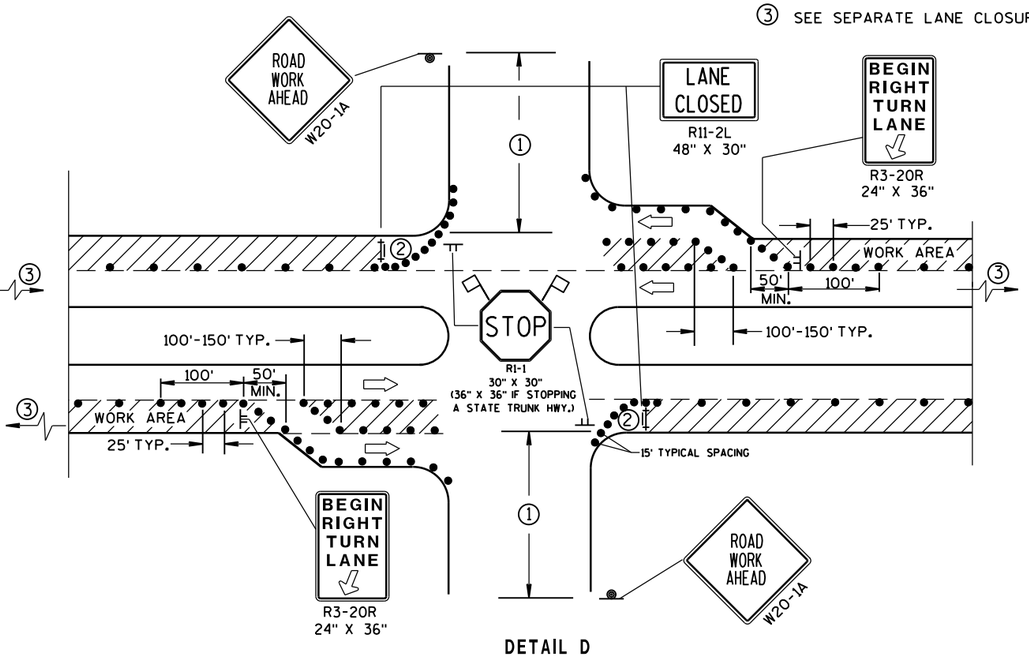
② ALSO USE BARRICADE AND 15-FOOT TYPICAL DRUM SPACING AT COMMERCIAL DRIVEWAYS.

③ SEE SEPARATE LANE CLOSURE DETAIL FOR ADDITIONAL TRAFFIC CONTROL.



DETAIL C

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



DETAIL D

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

LEGEND

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

TRAFFIC CONTROL, INTERSECTION WITHIN SINGLE LANE CLOSURE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June 2016 — DATE
/S/ Peter Anakobe Atepe — STATEWIDE WORK ZO... SAFETY ENGI... FIC
FHWA

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S.D.D. 15 D 21-4

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S.D.D. 15 D 21-4

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.

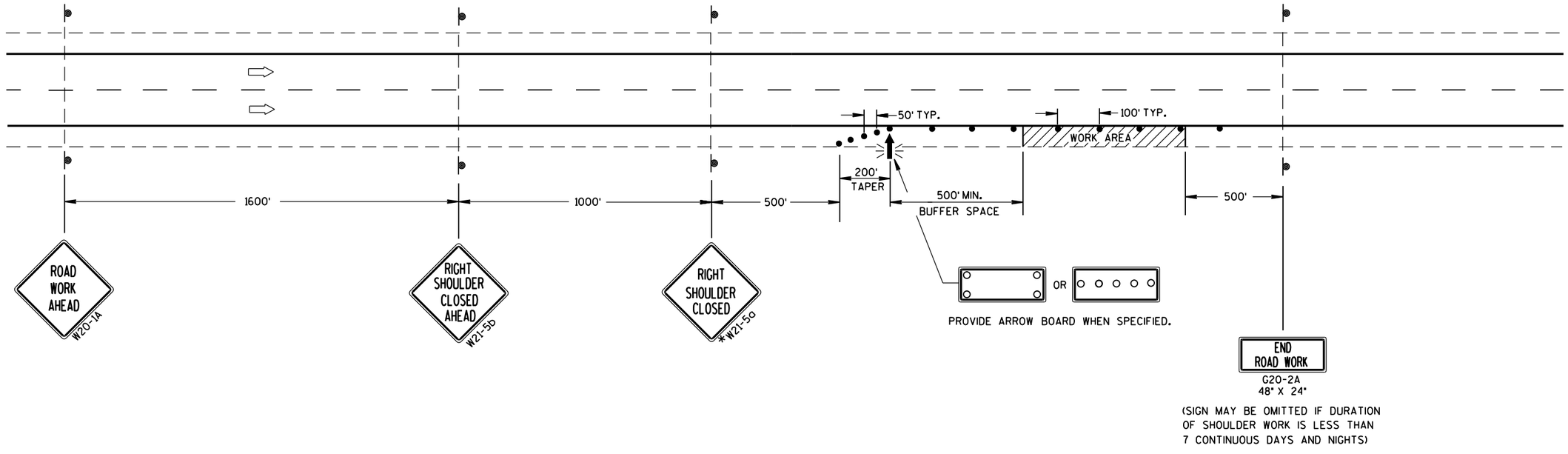
SIGNS THAT WILL BE IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS MAY BE MOUNTED ON PORTABLE SUPPORTS.

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 — DATE

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

FHWA

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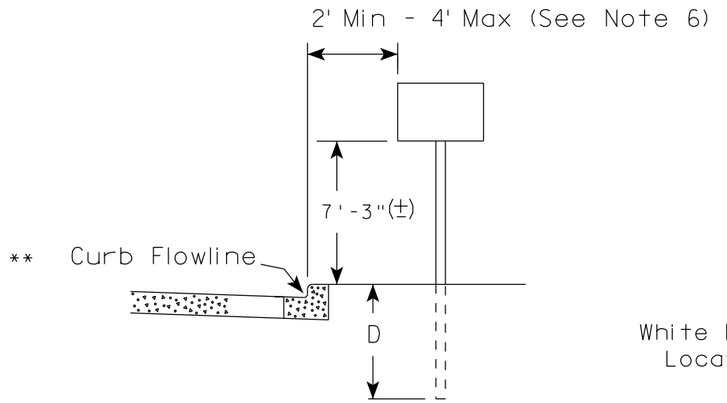
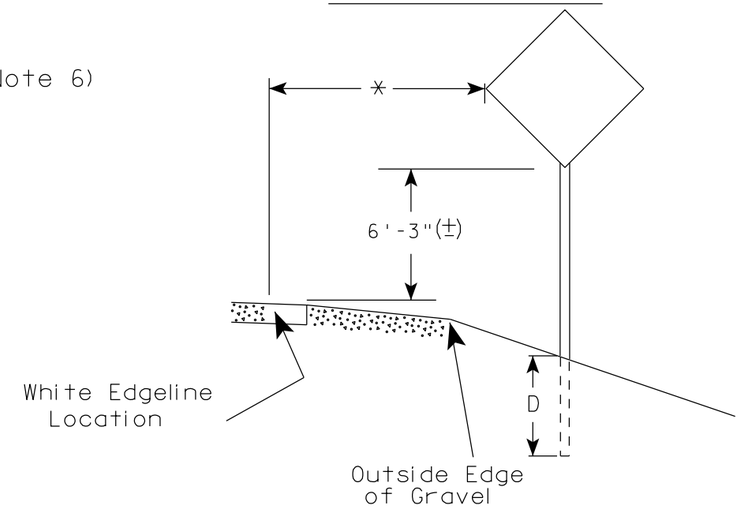
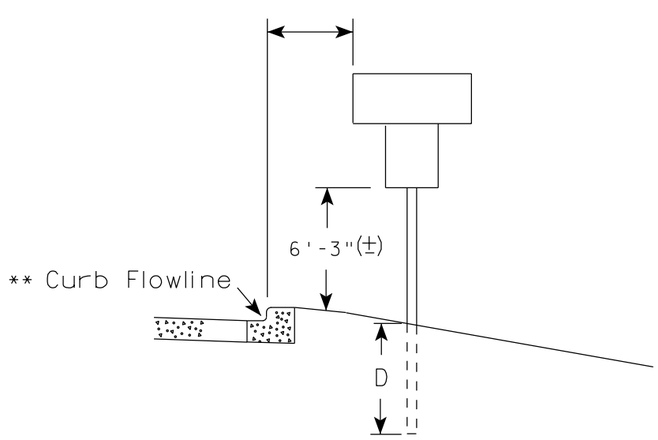
S.D.D. 15 D 27-3

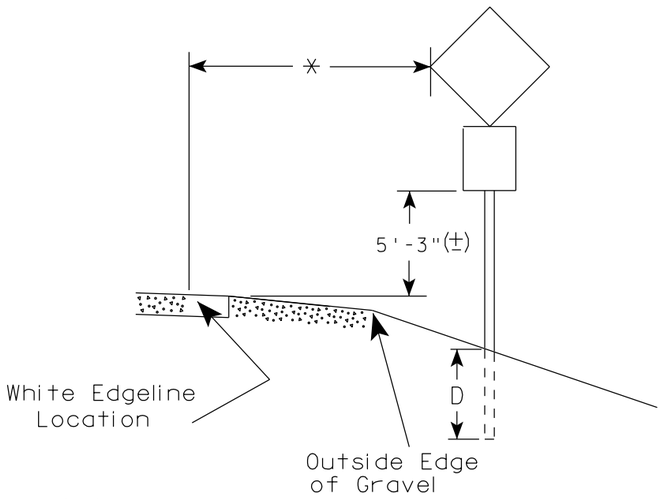
URBAN AREA



RURAL AREA (See Note 2)







GENERAL NOTES

1. Signs wider than 4 feet or 20 sq.ft or larger, shall be mounted on multiple posts. Refer to plate A4-4.
2. If signs are mounted on barrier wall, see A4-10 sign plate.
3. For expressways and freeways, mounting height is 7'- 3" (±) or 6'-3" (±) depending upon existence of a sub-sign.
4. Minimum mounting height for J assemblies (A2-1S) is 7'-3" (±) or 6'-3" (±) per urban or rural detail respectively.
5. Minimum mounting height for signs mounted on traffic signal poles is 5'- 3" (±).
6. Offset distance shall be consistent with existing signs or consistent throughout length of project.
7. The (±) tolerance for mounting height is 3 inches.
8. Folding signs shall be mounted at a height of 5'-3" (±) or as directd by the Engineer.
9. The Double Arrow sign (W12-1) shall be mounted at a height of 2'-3" (±). The Chevron sign (W1-8), Roundabout Chevron panel (R6-4B), Enhanced Reference Markers, Clearance Markers (W5-52), Mile Markers (D10 series), In Road Object Markers (W5-54) & End of Road Markers (W5-56) shall be mounted at a height of 4'-3" (±).

POST EMBEDMENT DEPTH

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

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

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

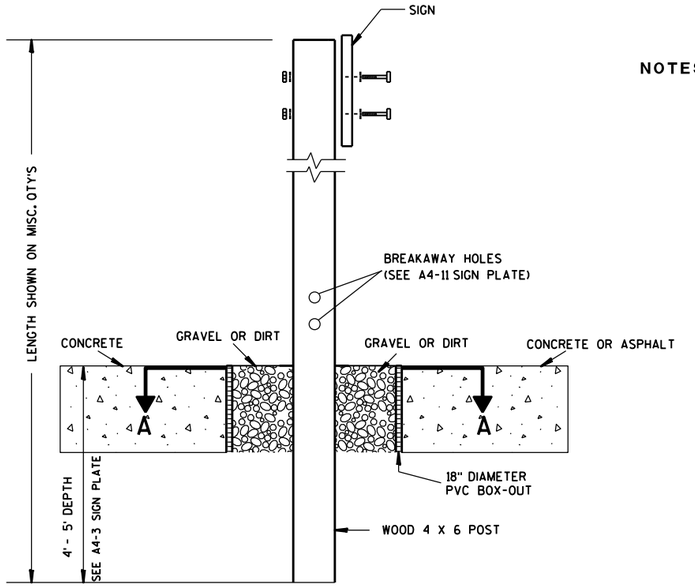
TYPICAL INSTALLATION OF PERMANENT TYPE II SIGNS ON SINGLE POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 7/23/15 PLATE NO. A4-3.20

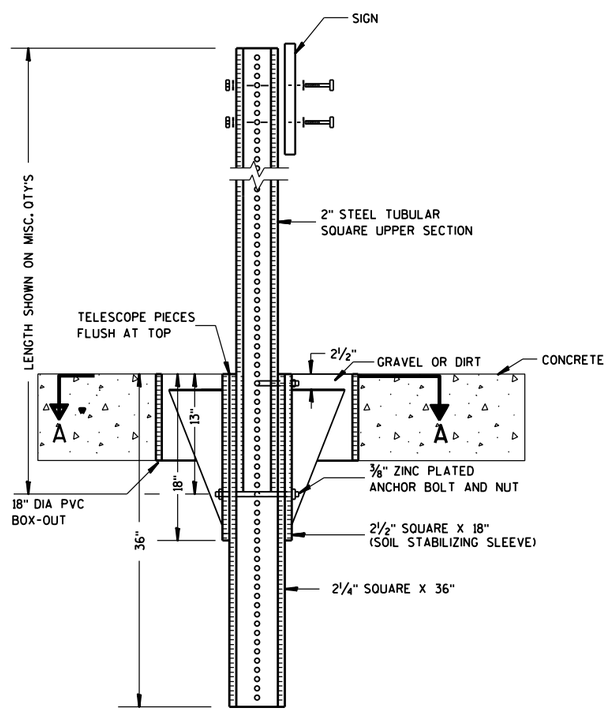
PROJECT NO:	HWY:	COUNTY:		SHEET NO:	E



ELEVATION VIEW

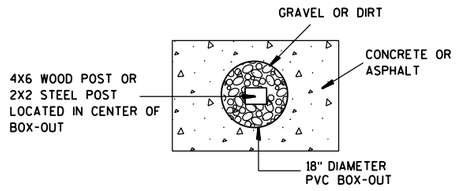
DETAIL OF WOOD 4 X 6 SIGN POST IN BOX-OUT

NOTES:
1. ALL MATERIAL TO BE APPROVED BY ENGINEER PRIOR TO INSTALLATION
2. SEE SIGN PLATE A4-8 FOR SIGN HARDWARE REQUIREMENTS
3. 18 INCH X 18 INCH SQUARE BOX-OUTS MAY BE USED FOR INSTALLATIONS IN EXISTING CONCRETE OR ASPHALT LOCATIONS.



ELEVATION VIEW

DETAIL OF STEEL 2 X 2 SIGN POST IN BOX-OUT



PLAN VIEW

FOR NEW CONCRETE/ASPHALT INSTALLATIONS

SIGN POST BOX-OUTS A4-3B

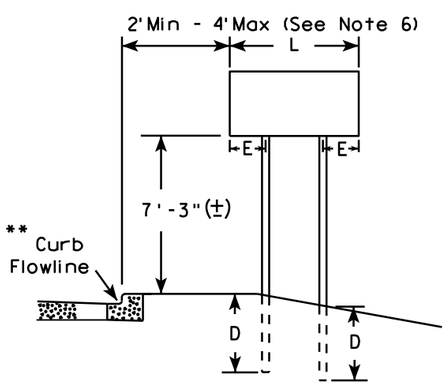
WISCONSIN DEPT OF TRANSPORTATION

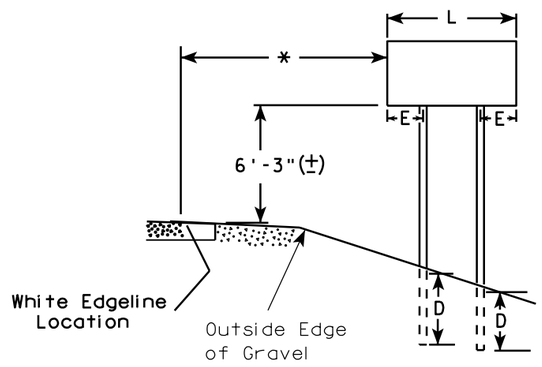
APPROVED Matthew R Rauch
for State Traffic Engineer

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

PROJECT NO:	HWY:	COUNTY:		SHEET NO:	E

URBAN AREA

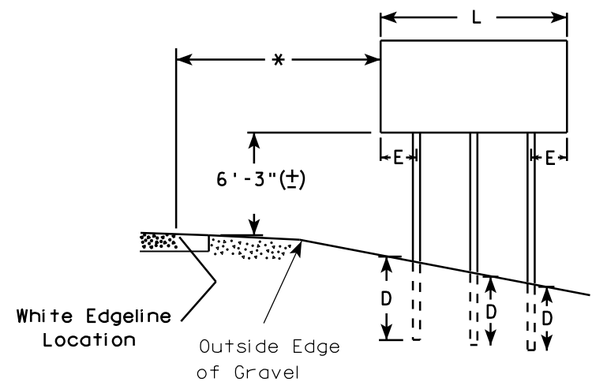




48" DIAMOND WARNING SIGN

RURAL AREA (See Note 3)

48" DIAMOND WARNING SIGN



GENERAL NOTES

1. For 3 or 4 post installations, individual post spacing shall be greater than 3'-6".
2. See tables below for required number of posts.
3. For expressways and freeways, mounting height is 7'-3" (±) or 6'-3" (±) depending upon existence of sub-sign.
4. The (±) tolerance for mounting height is 3 inches.
5. Minimum mounting height for J assemblies (A2-1S) is 7'-3" (±) or 6'-3" (±) per urban or rural detail respectively.
6. Offset distance shall be consistent with existing signs or consistent throughout length of project.
7. Folding signs shall be mounted at a height of 5'-3" (±) or as directed by the engineer.
8. The Double Arrow sign (W12-1) shall be mounted at a height of 2'-3" (±). The Chevron sign (W1-8), Roundabout Chevron panel (R6-4B), Clearance Markers (W5-52), Mile Markers (D10 series), In Road Object Markers (W5-54) & End of Road Markers (W5-56) shall be mounted at a height of 4"-3" (±).

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

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

*** See A4-3 sign plate for signs 4' or less in width and less than 20 S.F. in area.

SIGN SHAPE OTHER THAN DIAMOND (TWO POSTS REQUIRED)	
L	E
Greater than 48" Less than 60"	12"
60" to 120"	L/5

***

SIGN SHAPE OTHER THAN DIAMOND (THREE POSTS REQUIRED)	
L	E
Greater than 120" less than 168"	12"

SIGN SHAPE OTHER THAN DIAMOND (FOUR POSTS REQUIRED)	
L	E
168" and greater	12"

POST EMBEDMENT DEPTH

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

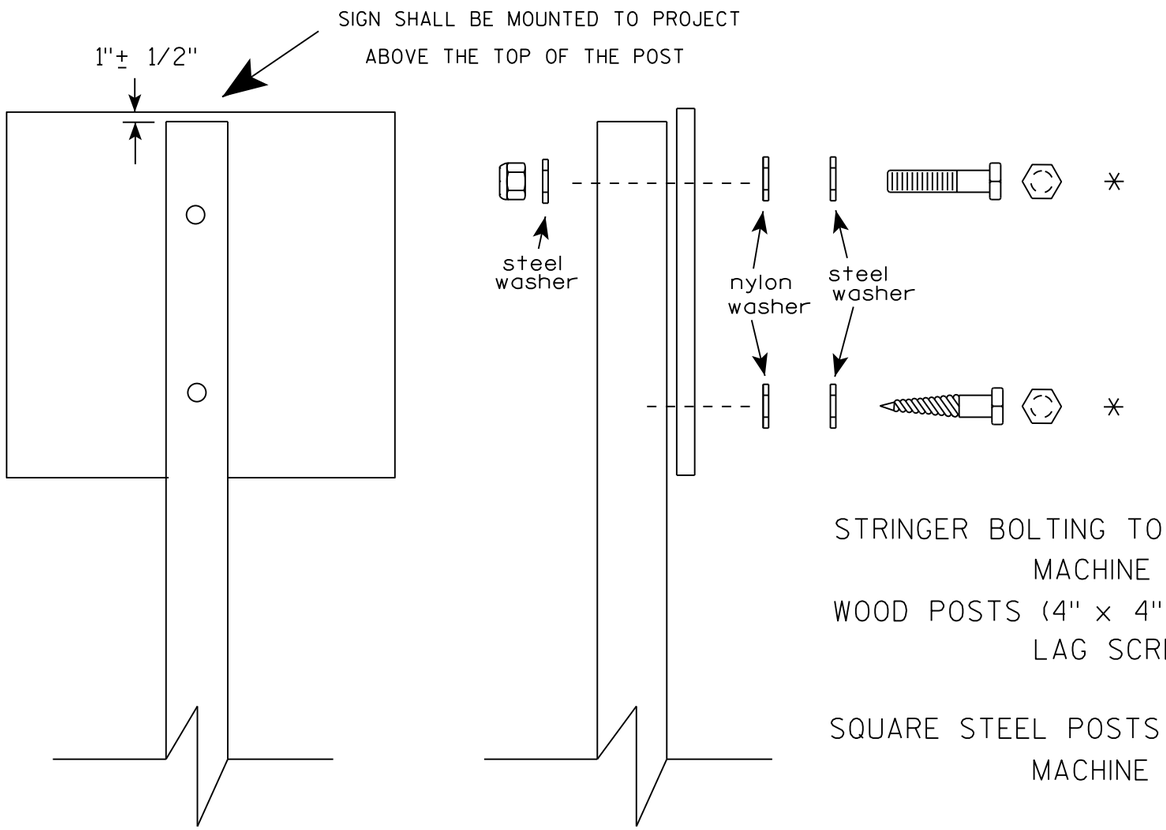
TYPICAL INSTALLATION OF TYPE II SIGNS ON MULTIPLE POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 7/23/15 PLATE NO. A4-4 14
61

PROJECT NO:	HWY:	COUNTY:		SHEET NO:	E



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

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

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

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

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

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

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

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

3/8" X 4" (STRINGERS ON BACK OF SIGN)

SQUARE STEEL POSTS (2" x 2")

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

3/8" X 5" Length w/ nuts (STRINGERS ON BACK OF SIGN)

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

WASHERS (ALL POSTS) -

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

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

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

ATTACHMENT OF SIGNS TO POSTS

WISCONSIN DEPT OF TRANSPORTATION

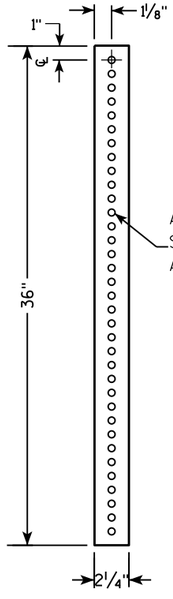
APPROVED Matthew R Rauch
For State Traffic Engineer

DATE 8/11/16 PLATE NO. A4-8.8

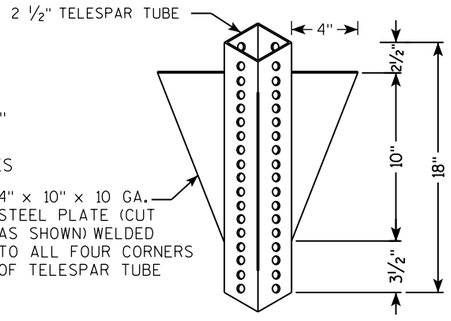
PROJECT NO: SHEET NO: E

TELESCOPIC TUBING ANCHORS
TWO PIECE SYSTEM

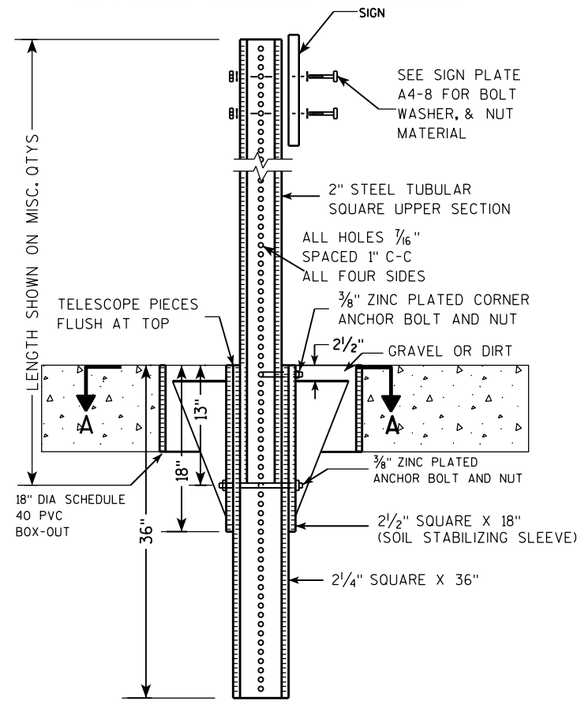
2 1/4 " SQUARE
12 GAUGE
PERFORATED
GALVANIZED FINISH



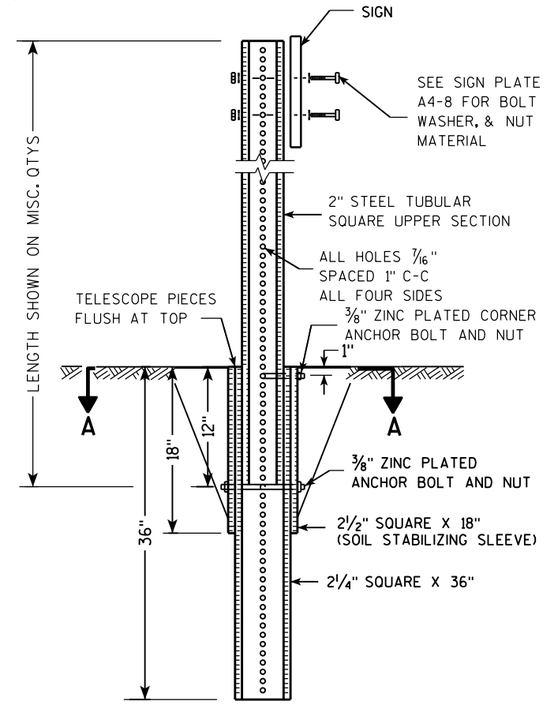
2 1/2 " SQUARE
12 GAUGE
OMNI-DIRECTIONAL
PERFORATED
SOIL STABILIZING SLEEVE
GALVANIZED FINISH

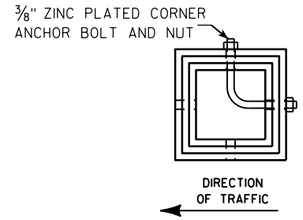


DETAIL OF TUBULAR STEEL SIGN POST
(IN POURED CONCRETE OR ASPHALT)



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





SECTION A-A

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

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

TUBULAR STEEL
SIGN POST
A4-9

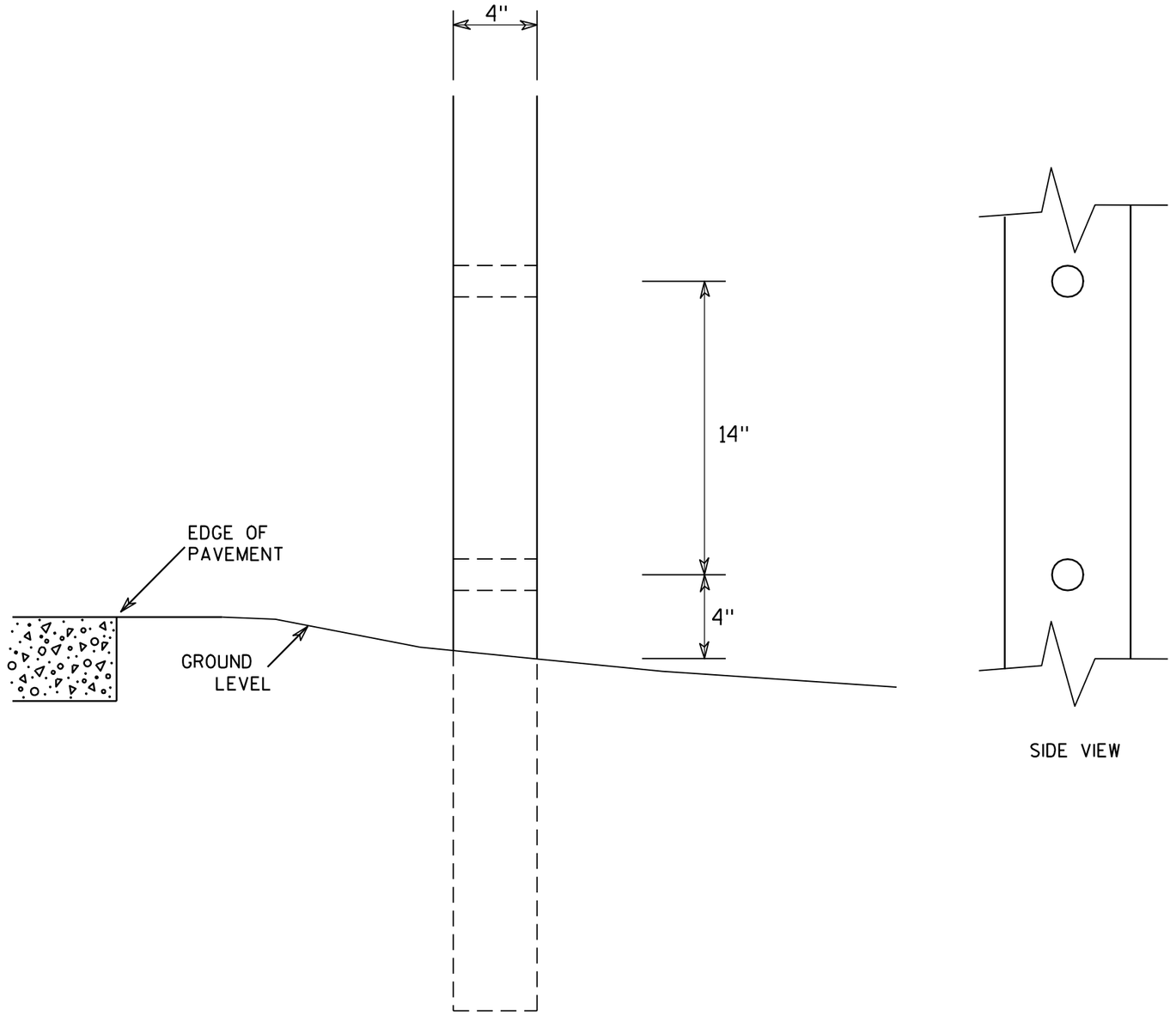
WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 2/05/15 PLATE A4-9.9

PROJECT NO:	HWY:	COUNTY:		SHEET NO:	E

FILE NAME : C:\CAEFiles\Projects\tr_stdplate\A49.DGN PLOT DATE : 05-FEB-2015 17:09 PLOT BY : mscsja PLOT NAME : PLOT SCALE : 13.659812:1.000000
WISDOT/CADDS SHEET 42



SIDE VIEW

GENERAL NOTES

1. All 4 x 6 Wood Posts shall be modified by having two 1½" diameter holes drilled perpendicular to the roadway centerline.

7

7

4 X 6 WOOD POST MODIFICATIONS

WISCONSIN DEPT OF TRANSPORTATION

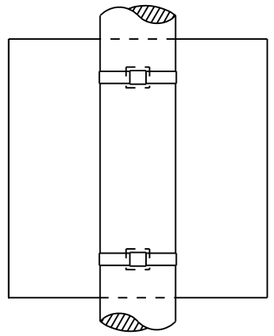
APPROVED Chester J Spang for State Traffic Engineer

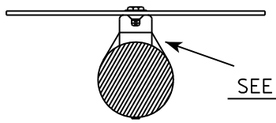
DATE 3/27/97 PLATE NO. A4-11.2

PROJECT NO:	HWY:	COUNTY:		SHEET NO: 64	E

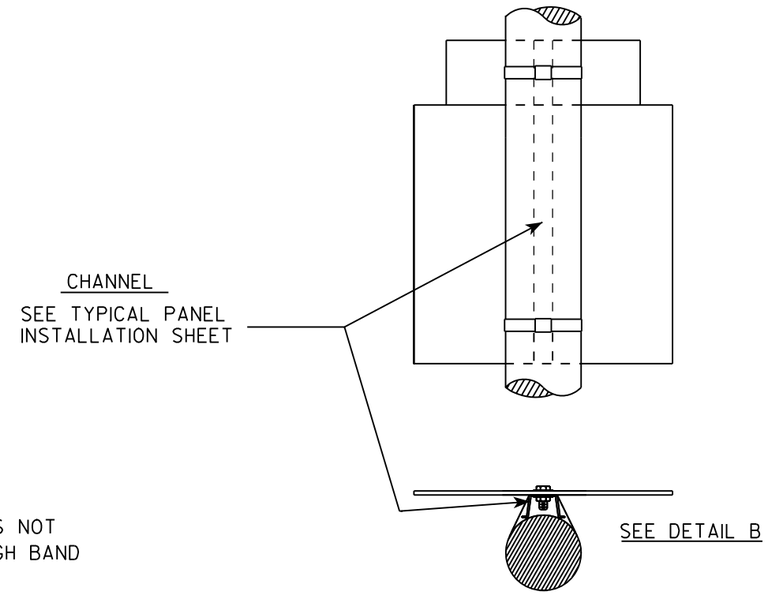
BANDING

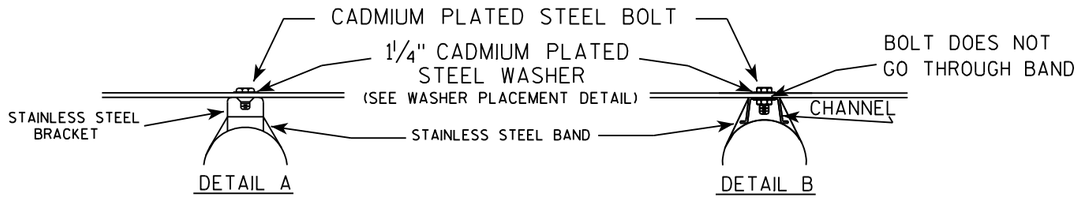
SINGLE SIGN



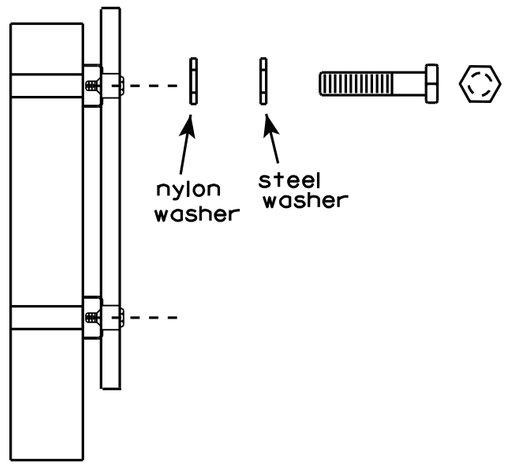


"J" ASSEMBLY





WASHER PLACEMENT



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

GENERAL NOTES

1. Any sign over 3 feet in width shall use the V-Block banding method. See A5-10 standard plate.
2. Signs 3 feet or greater in height shall have three bracket bands installed. Signs less than 3 feet in height shall have two bracket bands installed.
3. Banding and assembly bracket shall be stainless steel. All bands shall be 3/4" in width and 0.025" thickness.

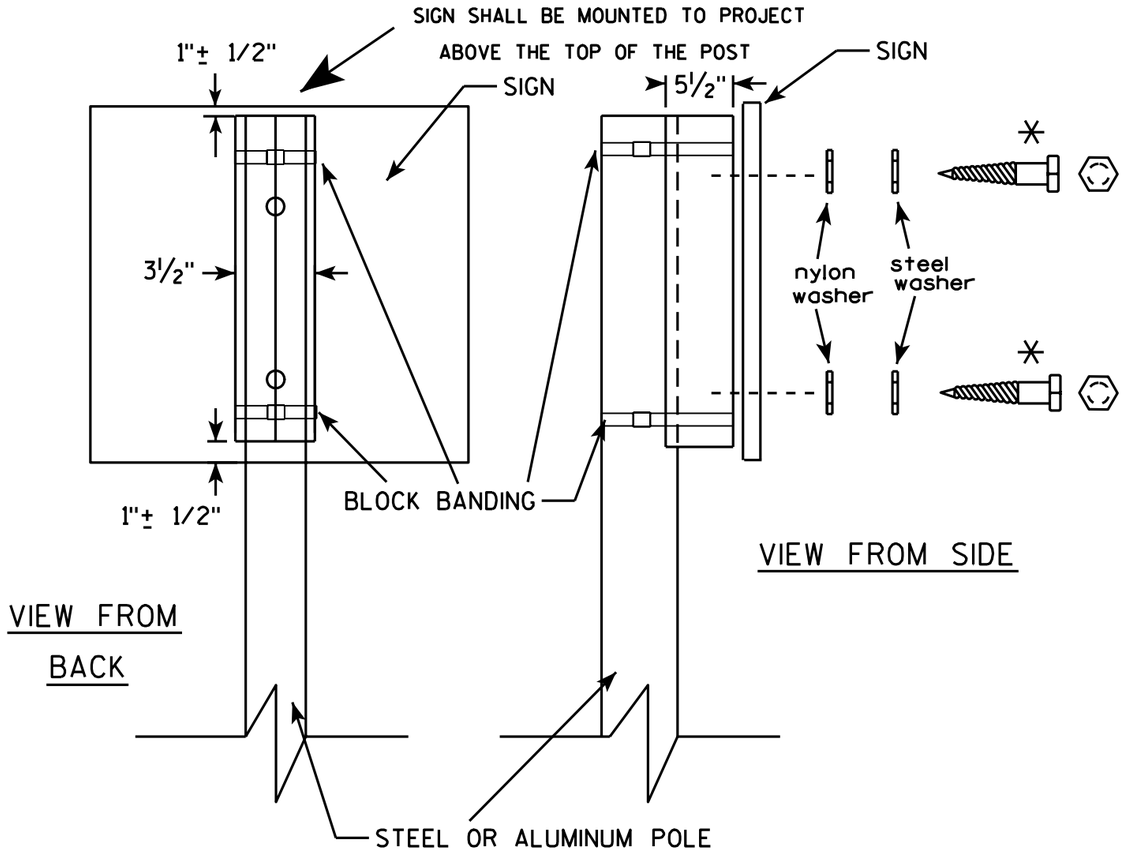
STANDARD SIGN
SIGN BANDING DETAILS

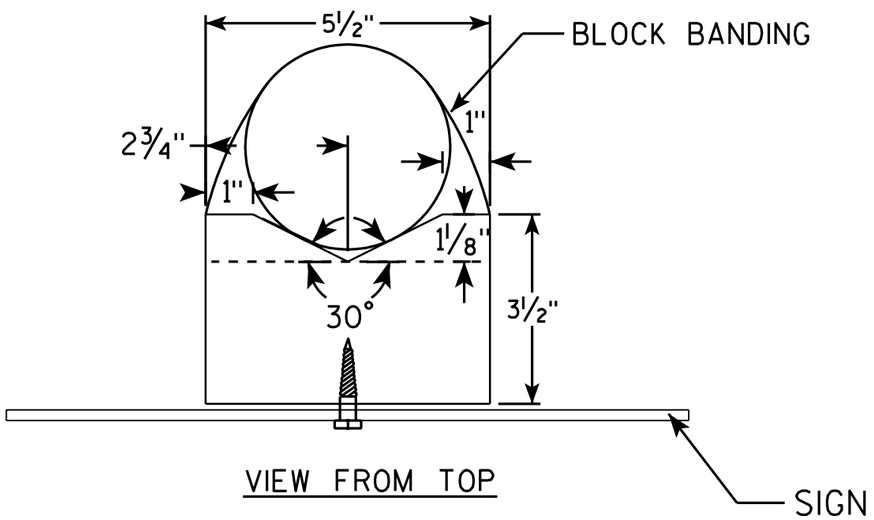
WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 8/16/13 PLATE NO. A5-9.3

PROJECT NO:	HWY:	COUNTY:		SHEET NO: 65	E





GENERAL NOTES

1. WOOD 4"X6" POST MATERIAL SHALL CONFORM TO 507.2.2 OF THE WisDOT STANDARD SPECIFICATIONS
2. BLOCK BANDING AND CLIPS SHALL BE STAINLESS STEEL, ¾" WIDTH AND 0.025" THICKNESS
3. SIGNS 3' OR GREATER IN HEIGHT SHALL UTILIZE 3 BLOCK BANDS. SIGNS UNDER 3' IN HEIGHT SHALL UTILIZE 2 BLOCK BANDS
4. ACTUAL NUMBER OF FASTENERS PER SIGN VARIES WITH THE SIGN AREA, BUT NORNALLY THERE ARE TWO. FOR SIGNS GREATER THAN 9 S.F. 3 FASTENERS SHALL BE USED.
5. ALL SIGN MOUNTING BOLTS AND WASHERS SHALL BE EITHER:
   a. Hot dip or mechanically galvanized in accordance with ASTM Designation: A 153, Class D, or
   b. Cadmium plated in accordance with ASTM Designation : B 766 TYPE 3, Class 12, or
   c. Electro-galvanized in accordance with ASTM Designation : B 633, TYPE III, SC 3.
6. ALL BOLTS SHALL HAVE HEXAGONAL HEADS.
7. STEEL WASHERS SHALL BE 1¼" O.D. X ⅜" I.D. X 1/16"
8. NYLON WASHERS SHALL BE 1¼" O.D. X ⅜" I.D. X .080 FOR TYPE H OR TYPE F FACE SIGN

✳ LAG BOLTS SHALL BE ⅜" X 2½"

BLOCK BANDING DETAIL (V-BLOCK OPTION)

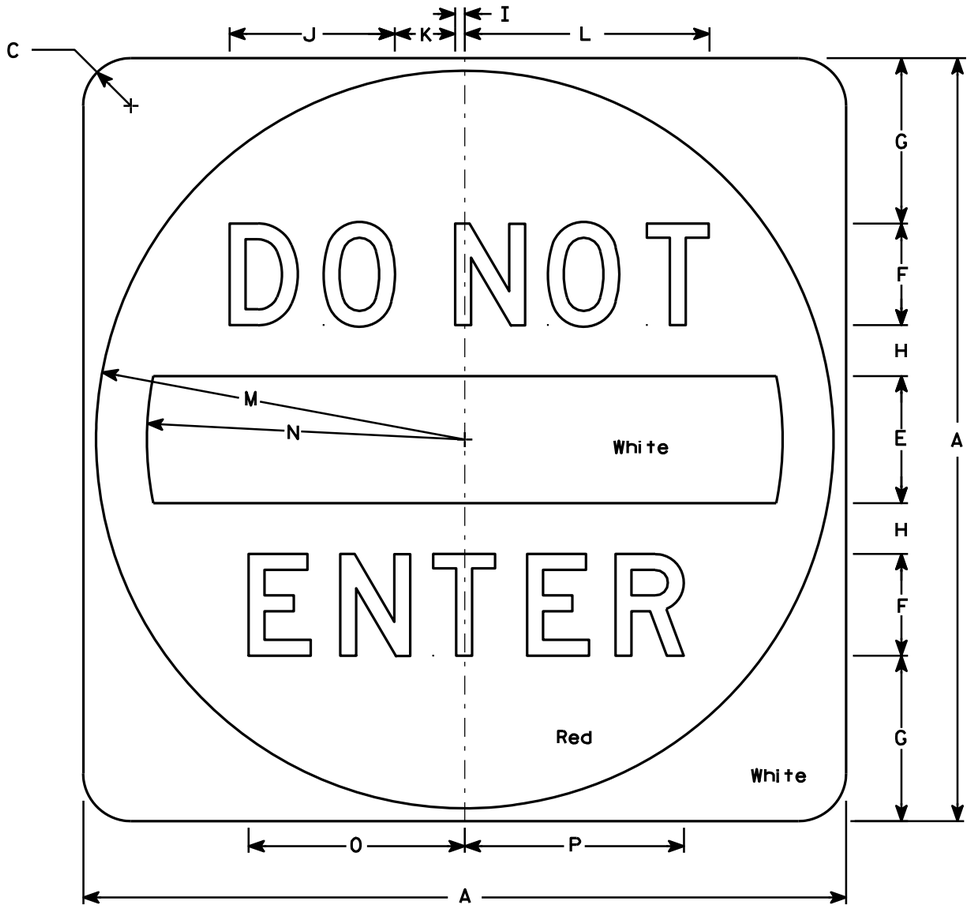
WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 7/12/07 PLATE NO. A5-10.1

PROJECT NO:

SHEET NO: 66 E



R5-1

NOTES

1. Sign is Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
   Background - See detail
   Message - White - Type H Reflective
3. Message Series - D
4. Corners may be square or rounded when base material is plywood but when base material is metal, the cornors shall be rounded.

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	30		1 7/8		5	4	6 1/2	2	3/8	6 1/2	2 3/8	9 5/8	14 1/2	12 1/2	8 1/2	8 5/8											6.26
2M	36		2 1/4		6	5	7 1/2	2 1/2	1/2	8 1/8	3	12 1/8	17 1/2	15	10 5/8	10 3/4											9.0
3	36		2 1/4		6	5	7 1/2	2 1/2	1/2	8 1/8	3	12 1/8	17 1/2	15	10 5/8	10 3/4											9.0
4	36		2 1/4		6	5	7 1/2	2 1/2	1/2	8 1/8	3	12 1/8	17 1/2	15	10 5/8	10 3/4											9.0
5	48		3		8	6	11	3	5/8	9 3/4	3 5/8	14 1/2	23 1/2	20	12 3/4	12 7/8											16.0

STANDARD SIGN
R5-1

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 12/17/10 PLATE NO. R5-1.15

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

Wisconsin Department of Transportation

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