WKE

FEB 2018

PROJECT ID: 2250-16-70

WITH: N/A

COUNTY: RACINE

ORDER OF SHEETS

TOTAL SHEETS = 198

N

DESIGN DESIGNATION

A.A.D.T.	2016	=	24,200
A.A.D.T.	2040	=	42,900
D.H.V.		=	4,419
D.D.		=	59/41
T.		=	15.1%
DESIGN SPEED		=	50-60 MPH
ESALS		=	18,000,000

CONVENTIONAL SYMBOLS

PLAN

- CORPORATE LIMITS
- PROPERTY LINE
- LOT LINE
- LIMITED HIGHWAY EASEMENT
- EXISTING RIGHT OF WAY
- PROPOSED OR NEW R/W LINE
- SLOPE INTERCEPT
- REFERENCE LINE (300'EB')
- 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

WASHINGTON AVE, V MOUNT PLEASANT

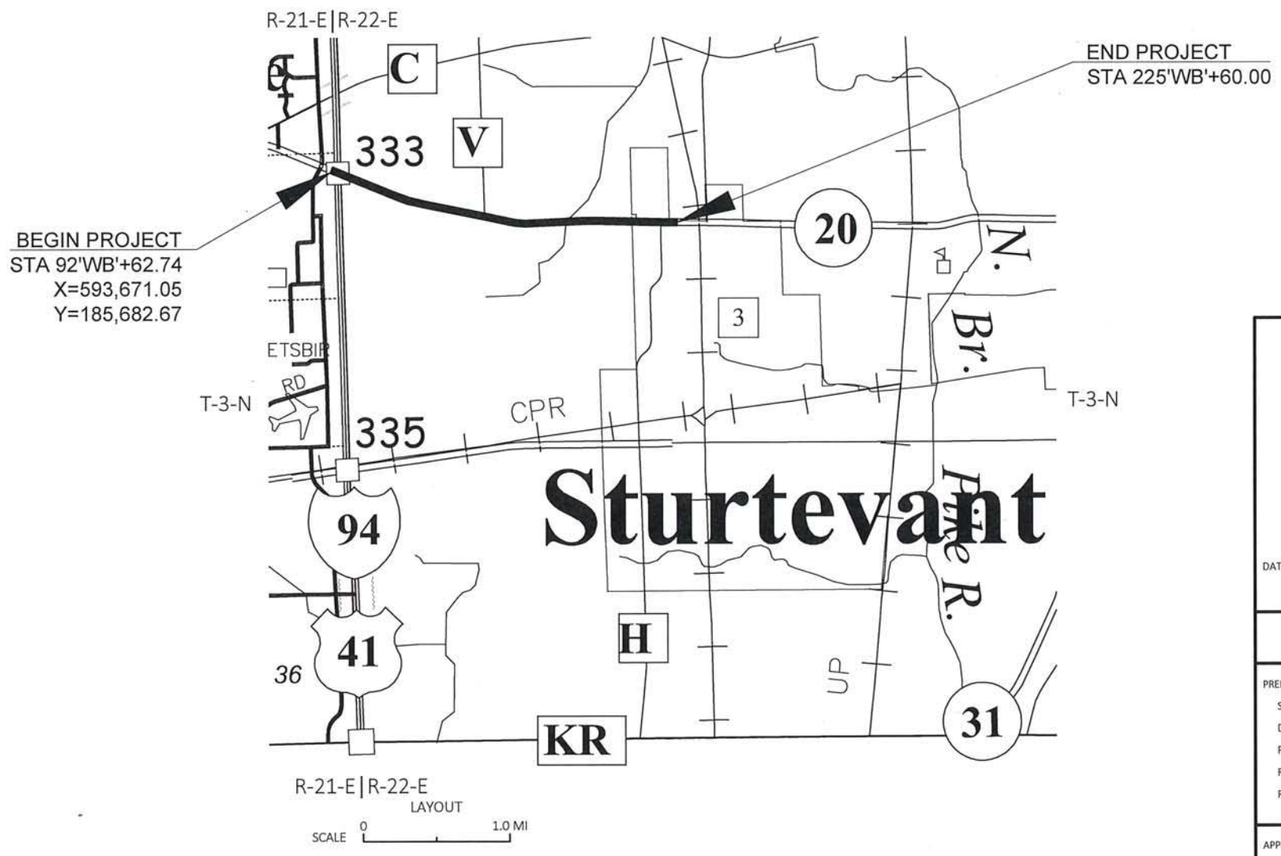
IH 94 TO CTH H

STH 20

RACINE COUNTY

STATE PROJECT NUMBER
2250-16-70

STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
2250-16-70	WISC 2018176	1



TOTAL NET LENGTH OF CENTERLINE = 2.518 MILES

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

ORIGINAL PLANS PREPARED BY

JT ENGINEERING, INC.

WISCONSIN PROFESSIONAL ENGINEER BRADLEY R. GROH E-41411 MADISON WI

DATE: 11/30/2017 (Professional Engineer Signature)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PREPARED BY

Surveyor	JT ENGINEERING, INC.
Designer	JT ENGINEERING, INC.
Project Manager	FRANK PRITZLAFF
Regional Examiner	REGIONAL EXAMINER
Regional Supervisor	WAFA ELQAQ

APPROVED FOR THE DEPARTMENT

DATE 11-29-17 (Signature)

E

FILE NAME : X:\PROJECTS\RACINE\STH 20\DESIGN\C3D\SHEETSPLAN\010101-TI.DWG

PLOT DATE : 11/29/2017 6:50 PM

PLOT BY : BRAD GROH

PLOT NAME :

2

GENERAL NOTES

COORDINATES SHOWN ON THIS PLAN ARE REFERENCED TO THE WISCONSIN COUNTY COORDINATE SYSTEM (WCCS), RACINE COUNTY, NAD 1983 (2007).

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

ALL EROSION CONTROL MEASURES SHALL BE IN PLACE PRIOR TO CONSTRUCTION AND SHALL CONFORM TO THE WISCONSIN DEPARTMENT OF NATURAL RESOURCES CONSTRUCTION SITE EROSION CONTROL AND TECHNICAL STANDARDS.

EXISTING UTILITIES SHOWN ON THE PLANS ARE APPROXIMATE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING EXACT LOCATIONS AND ELEVATIONS OF ALL UTILITIES, WHETHER SHOWN OR NOT, FROM THE OWNERS OF THE RESPECTIVE UTILITIES. ALL UTILITY OWNERS SHALL BE NOTIFIED BY THE CONTRACTOR 72 HOURS PRIOR TO EXCAVATION.

THE LOCATION OF DRIVEWAYS WILL BE DETERMINED BY THE ENGINEER.

EXCAVATION BELOW SUBGRADE (EBS) IS NOT USED TO BALANCE YARDAGE AND IS NOT SHOWN ON THE CROSS SECTIONS, BUT IS MEASURED AND PAID FOR AS COMMON EXCAVATION.

THE EXACT LOCATION AND SPACING OF ALL SIGNS AND TRAFFIC CONTROL DEVICES SHALL BE ADJUSTED TO FIT FIELD CONDITIONS AS APPROVED BY THE ENGINEER. THE CONTRACTOR SHALL PLACE ALL TRAFFIC CONTROL SIGNS BEFORE BEGINNING ANY WORK ON THE ROADWAY.

MUCH OF THE EXISTING CONCRETE PAVEMENT CONTAINS WIRE MESH, WELDED STEEL, OR OTHER REINFORCEMENT. REMOVAL OF THIS REINFORCEMENT SHALL BE INCIDENTAL TO THE REMOVING PAVEMENT ITEM.

THE ITEM OF REMOVING ASPHALTIC PAVEMENT MILLING SHALL ALSO INCLUDE INCIDENTAL QUANTITIES OF UNDERLYING CONCRETE PAVEMENT REMOVED DURING MILLING OPERATIONS

A TYPICAL AGGREGATE SHOULDER SLOPE OF 4% WITH A 4:1 FORESLOPE IS SHOWN ON THE PROPOSED TYPICAL SECTIONS. THE AGGREGATE SHOULDER SLOPE CAN INCREASE TO A MAXIMUM OF 6% AS NECESSARY TO HELP MATCH IN WITH EXISTING GROUND. THE SHOULDER FORESLOPE IS ALSO ALLOWED TO VARY BETWEEN 3:1 AND 4:1 FOR SHORT DISTANCES TO HELP MATCH IN WITH THE EXISTING GROUND. VARIATIONS IN SHOULDER SLOPES ARE TO BE DONE AS NECESSARY AT THE DISCRETION OF THE ENGINEER.

UTILITY CONTACTS

MS. NICOLE SMULLEN
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MILWAUKEE, WI 53203
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TBEYER@MTPLEASANTWI.GOV

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WAUKESHA, WI 53188-2443
PHONE: (262) 986-7434
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ME1754@ATT.COM

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PHONE: (262) 636-9434
FAX: (262) 636-3933
KIETH.HASS@CITYOFRACINE.ORG

MR. STEVE CRAMER, UTILITY COORD.
CHARTER COMMUNICATIONS
1320 N. MARTIN LUTHER KING JR. DR.
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PHONE: (414) 277-4045
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WIS.ENGINEERING@CHARTER.COM

WISDOT SIGNALS
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WAUKESHA, WI 53187-0798
PHONE: (414) 750-2605

Xan Marie Rypkema
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1025 ELDORADO BLVD.
BROOMFIELD, CO 80021
PHONE: (720) 888-1089
XAN.RYPKEMA@CENTURYLINK.COM

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YORKVILLE, TOWN OF
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UNION GROVE, WI 53182
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FAX: (262) 878-1680
MICHAEL@TOWNOFYORKVILLE.COM

MR. RICHARD TRGOVEC, OSP ENGINEER
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GLENDALE, WI 53209
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RTRGOVEC@MIDWESTFIBERNETWORKS.COM

WISDOT ELECTRICAL FIELD UNIT
935 S. 60TH STREET
WEST ALLIS, WI 53214
(414) 266-1170

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

DNR CONTACT

KRISTINA BETZOLD
DNR SOUTHEAST REGION HEADQUARTERS
2300 N. DR. MARTIN LUTHER KING JR. DR.
MILWAUKEE, W. 53212
PHONE: (414) 263-8517
KRINSTINA.BETZOLD@WISCONSIN.GOV

RUNOFF COEFFICIENT TABLE

	HYDROLOGIC SOIL GROUP											
	A			B			C			D		
	SLOPE RANGE (PERCENT)			SLOPE RANGE (PERCENT)			SLOPE RANGE (PERCENT)			SLOPE RANGE (PERCENT)		
LAND USE:	0-2	2-6	6 & OVER	0-2	2-6	6 & OVER	0-2	2-6	6 & OVER	0-2	2-6	6 & OVER
ROW CROPS	.08 .22	.16 .30	.22 .38	.12 .26	.20 .34	.27 .44	.15 .30	.24 .37	.33 .50	.19 .34	.28 .41	.38 .56
MEDIAN STRIP- TURF	.19 .24	.20 .26	.24 .30	.19 .25	.22 .28	.26 .33	.20 .26	.23 .30	.30 .37	.20 .27	.25 .32	.30 .40
SIDE SLOPE- TURF			.25 .32			.27 .34			.28 .36			.30 .38
PAVEMENT:												
ASPHALT	.70 - .95											
CONCRETE	.80 - .95											
BRICK	.70 - .80											
DRIVES, WALKS	.75 - .85											
ROOFS	.75 - .95											
GRAVEL ROADS, SHOULDERS	.40 - .60											

TOTAL PROJECT AREA = 68.09 ACRES
TOTAL AREA EXPECTED TO BE DISTURBED BY CONSTRUCTION ACTIVITIES = 38.27 ACRES

STANDARD ABREVIATIONS

ADT	AVERAGE DAILY TRAFFIC	N	NORTH
AGGR	AGGREGATE	NB	NORTHBOUND
AH	AHEAD	NC	NORMAL CROWN
ASPH	ASPHALT	NE	NORTHEAST
B/B	BACK TO BACK	NO	NUMBER
BARR	BARRICADE	NTS	NOT TO SCALE
BC	BACK OF CURB	NW	NORTHWEST
BK	BACK	O	OIL
BL	BASELINE	O&C	OIL AND CHIP
BLDG	BUILDING	OBLIT	OBLITERATE
BM	BENCHMARK	OD	OUTSIDE DIAMETER
BSMT	BASEMENT	PC	POINT OF CURVATURE
C	CUT	PCC	POINT OF COMPOUND CURVATURE
C&G	CURB AND GUTTER	PCC	PORTLAND CEMENT CONCRETE
C/C	CENTER TO CENTER	PED	PEDESTAL
CABC	CRUSHED AGGREGATE BASE COURSE	PLE	PERMANENT LIMITED EASEMENT
CB	CATCH BASIN	PVMT	PAVEMENT
CE	CONSTRUCTION ENTRANCE	PE	PRIVATE ENTRANCE
CI	CAST IRON PIPE	PI	POINT OF INTERSECTION
CL	CENTERLINE	PJF	PRE-FORMED JOINT FILLER
CMP	CORRUGATED METAL PIPE	PL	PROPERTY LINE
CNTY	COUNTY	POC	POINT OF CURVE
CO	CLEANOUT	POT	POINT ON TANGENT
CONC	CONCRETE	PP	POLYETHYLENE
CONSTR	CONSTRUCTION	PRC	POINT OF REVERSE CURVATURE
CONSTR JT	CONSTRUCTION JOINT	PROJ	PROJECT
CP	CONTROL POINT	PROP	PROPOSED
CTH	COUNTY TRUNK HIGHWAY	PSI	POUND PER SQUARE INCH
CTRL JT	CONTROL JOINT	PT	POINT OF TANGENCY
CTV	CABLE TV	PVC	POLYVINYL CHLORIDE
CY	CUBIC YARD	R	RANGE OR RADIUS
D	DEPTH	RCP	REINFORCED CONCRETE PIPE
DIA	DIAMETER	REBAR	REINFORCEMENT BAR
DI	DUCTILE IRON PIPE	REL	RELOCATE
DISCH	DISCHARGE	REM	REMAINING
DW	DRIVEWAY	REQD	REQUIRED
E	EAST (SEE ELECTRIC BELOW)	RL	REFERENCE LINE
EA	EACH	ROW	RIGHT OF WAY
EB	EASTBOUND	RP	REFERENCE POINT
EBS	EXCAVATION BELOW SUBGRADE	RR	RAILROAD
ECS	EXTERNAL CHIMNEY SEAL	RT	RIGHT
EL	ELEVATION	RW	RETAINING WALL
ELEC	ELECTRIC (E WHEN USED IN LINE STYLE)	S	SOUTH
EMB	EMBANKMENT	SALV	SALVAGE
ENTR	ENTRANCE	SAN	SANITARY
EP	EDGE OF PAVEMENT	SB	SOUTHBOUND
EW	ENDWALL	SDWK	SIDEWALK
EXC	EXCAVATION	SE	SOUTHEAST
EXIST	EXISTING	SF	SQUARE FEET
F	FILL	SHLDR	SHOULDER
F/F	FACE TO FACE	SY	SQUARE YARD
FDN	FOUNDATION	SS	STORM SEWER
FE	FIELD ENTRANCE	SSD	STOPPING SIGHT DISTANCE
FERT	FERTILIZER	STA	STATION
FIN GR	FINISHED GRADE	STD	STANDARD
FL	FLOWLINE	STH	STATE TRUNK HIGHWAY
FO	FIBER OPTIC	STM	STORM
FT	FOOT	STP	SEWAGE TREATMENT PLANT
FTG	FOOTING	STRUCT	STRUCTURE OR STRUCTURAL
G	GAS	SW	SOUTHWEST
GV	GAS VALVE	TAN	TANGENT
GW	GUY WIRE	T	TOWN (T WHEN USED FOR TELEPHONE LINE)
HR	HANDICAP RAMP	TEL	TELEPHONE
HSE	HOUSE	TEMP	TEMPORARY
HT	HEIGHT	TLE	TEMPORARY LIMITED EASEMENT
HYD	HYDRANT	TOC	TOP OF CURB
I	INTERSECTION ANGLE	TOW	TOP OF WATER
ICS	INTERNAL CHIMNEY SEAL	TRANS	TRANSITION
ID	INSIDE DIAMETER	TYP	TYPICAL
IN	INCH	UG	UNDERGROUND
INL	INLET	USH	US HIGHWAY
INTERS	INTERSECTION	VC	VERTICAL CURVE
INV	INVERT	VERT	VERTICAL
IP	IRON PIPE OR PIN	VOL	VOLUME
JCT	JUNCTION	VPC	VERTICAL POINT OF CURVATURE
L	LENGTH (OF CURVE)	VPI	VERTICAL POINT OF INTERSECTION
LC	LONG CHORD OF CURVE	VPRC	VERTICAL POINT OF REVERSE CURVE
LP	LIGHTPOLE	VPT	VERTICAL POINT OF TANGENCY
LS	LIFT STATION OR LUMP SUM	W	WEST
LT	LEFT	WB	WESTBOUND
MAINT	MAINTENANCE	WM	WATERMAIN
MATL	MATERIAL	WSO	WATER SHUTOFF VALVE
MB	MAILBOX	WTP	WATER TREATMENT PLANT
MH	MANHOLE	WV	WATER VALVE
MP	MARKER POST	WWTP	WASTE WATER TREATMENT PLANT
		YD	YARD

2

2

N

BEGIN PROJECT
STA 92'WB'+63

SB IH-94 RAMPS

NB IH-94 RAMPS

IH 94

E FRONTAGE ROAD

90'RT

100'WB'
100'EB'
110'WB'
110'EB'
120'WB'
120'EB'
130'WB'
130'EB'
140'WB'
140'EB'
150'WB'
150'EB'
160'WB'
160'EB'
170'WB'
170'EB'
180'WB'
180'EB'
190'WB'
190'EB'
200'WB'
200'EB'
210'WB'
210'EB'
220'WB'
220'EB'
230'WB'
230'EB'
240'WB'
240'EB'
250'WB'
250'EB'

STA BACK = 129+03.58'WB'
STA AHEAD = 129+12.81'WB'

30'V'
CTH V
24'V'
16'V'

INTERNATIONAL DRIVE

STA BACK = 168+17.29'WB'
STA AHEAD = 168+26.96'WB'

HOODS CREEK

STRUCTURE C-51-0017

STA BACK = 193+84.32'WB'
STA AHEAD = 193+81.77'WB'

STA BACK = 193+80.71'EB'
STA AHEAD = 193+81.77'EB'

40'WN'
W ROAD

RENAISSANCE BLVD

50'RN

10'RS

CTH H

STA BACK = 218+25.06'WB'
STA AHEAD = 218+24.89'WB'

STA BACK = 218+26.15'EB'
STA AHEAD = 218+24.89'EB'

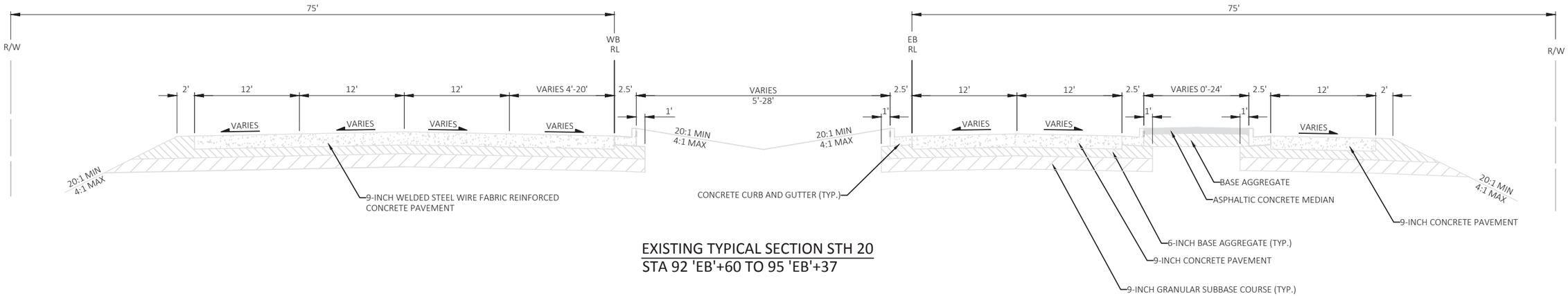
STA BACK = 244+15.23'EB'
STA AHEAD = 244+15.81'EB'

END PROJECT
STA 225'WB'+61

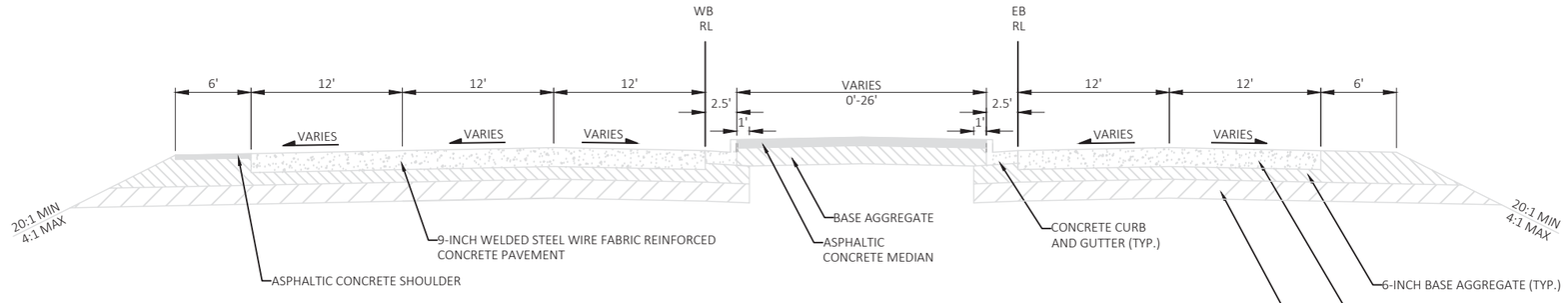
PROJECT NO: 2250-16-70	HWY: STH 20	COUNTY: RACINE	PROJECT OVERVIEW	SHEET 3	E

FILE NAME : X:\PROJECTS\RACINE\STH 20\DESIGN\C3D\SHEETSPLAN\020201-PO.DWG
LAYOUT NAME - 020201-po

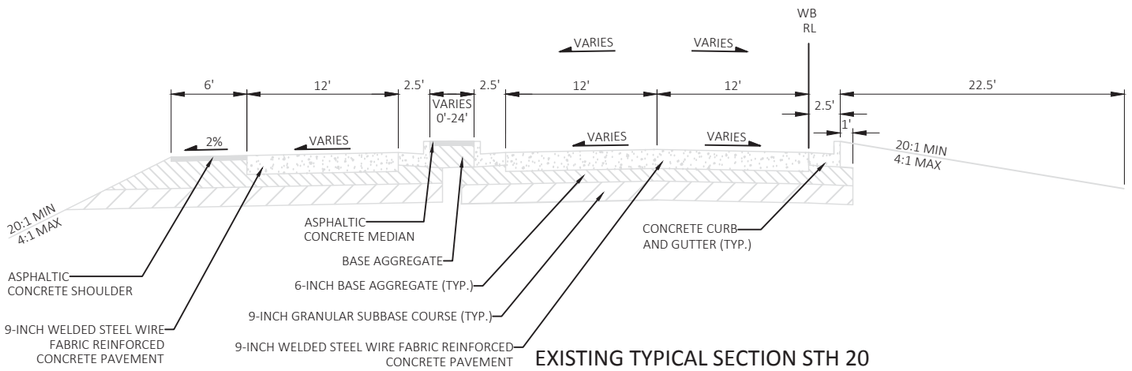
PLOT DATE : 11/30/2017 1:46 PM PLOT BY : BRAD GROH PLOT NAME : PLOT SCALE : 1 IN:1000 FT



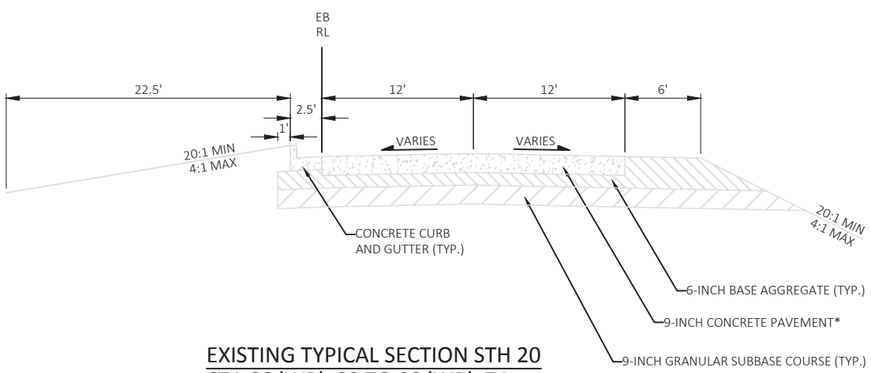
EXISTING TYPICAL SECTION STH 20
STA 92 'EB'+60 TO 95 'EB'+37



EXISTING TYPICAL SECTION STH 20
STA 95 'EB'+37 TO 98 'EB'+89



EXISTING TYPICAL SECTION STH 20
STA 98 'WB'+89 TO 100 'WB'+25



EXISTING TYPICAL SECTION STH 20
STA 98 'WB'+89 TO 99 'WB'+74

*NOTE: WELDED STEEL WIRE FABRIC REINFORCED
STA 98'EB'+50 TO 102'EB'+00

PROJECT NO: 2250-16-70	HWY: STH 20	COUNTY: RACINE	PLAN: EXISTING TYPICAL SECTIONS STH 20	SHEET 4	E

FILE NAME : X:\PROJECTS\RACINE\STH 20\DESIGN\C3D\SHEETSPLAN\020301-TS.DWG
LAYOUT NAME - 020301-ts
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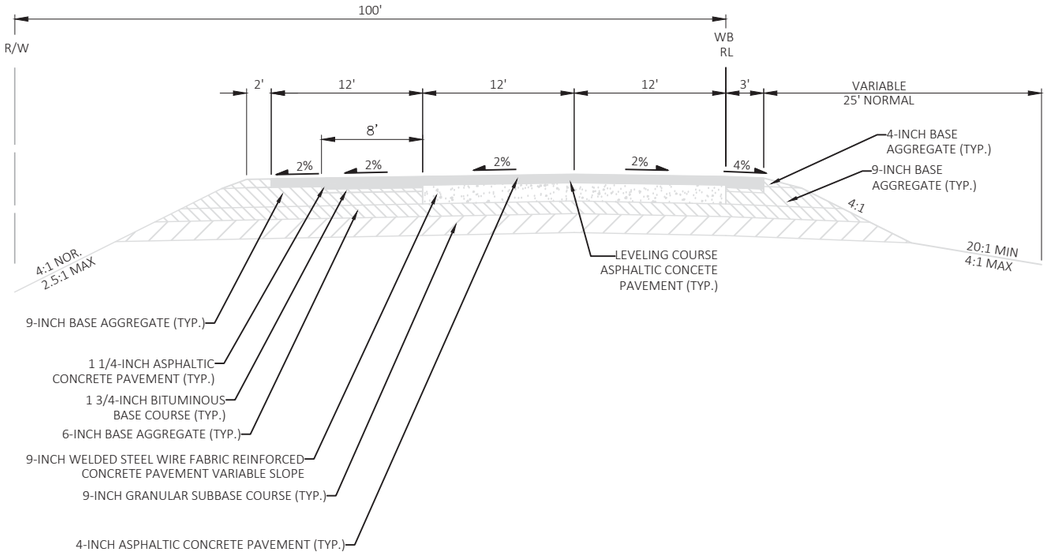
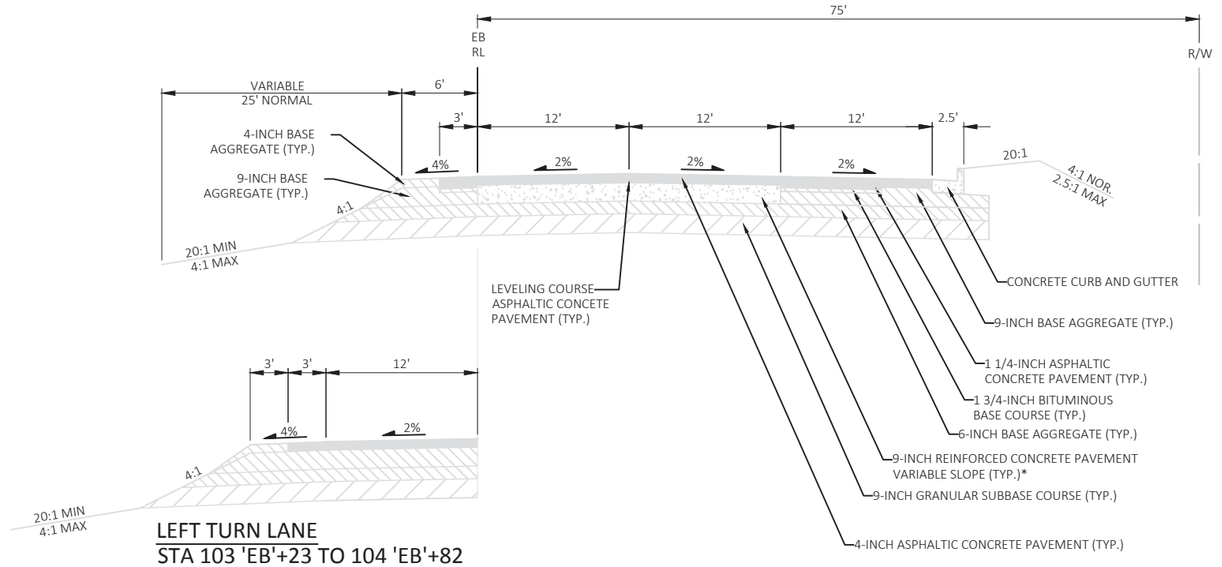
PLOT BY : BRAD GROH
PLOT NAME :
PLOT SCALE : ##########
WISDOT/CADDS SHEET 42



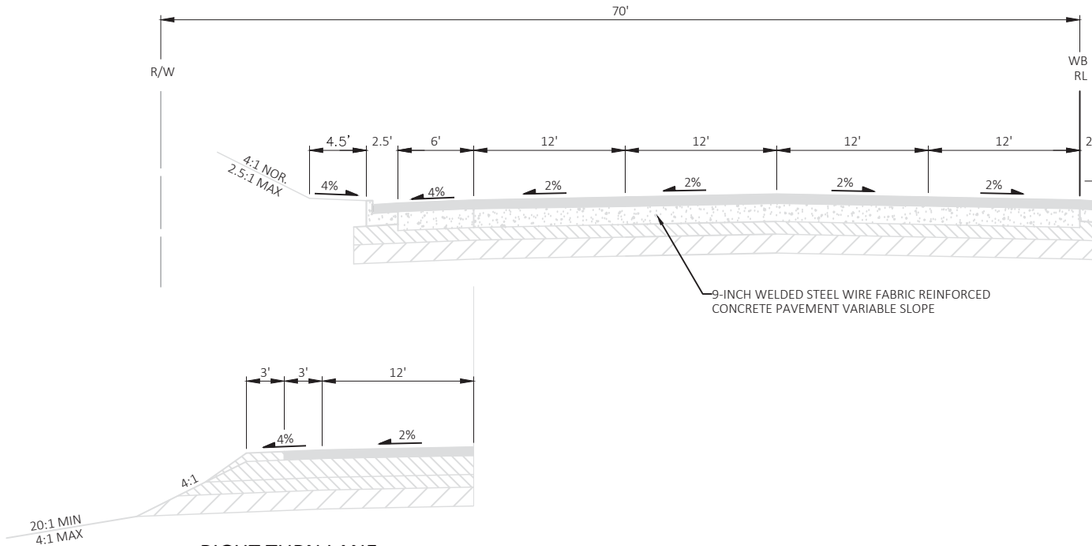
EXISTING TYPICAL SECTION STH 20
STA 100 'WB'+25 TO 105 'WB'+78



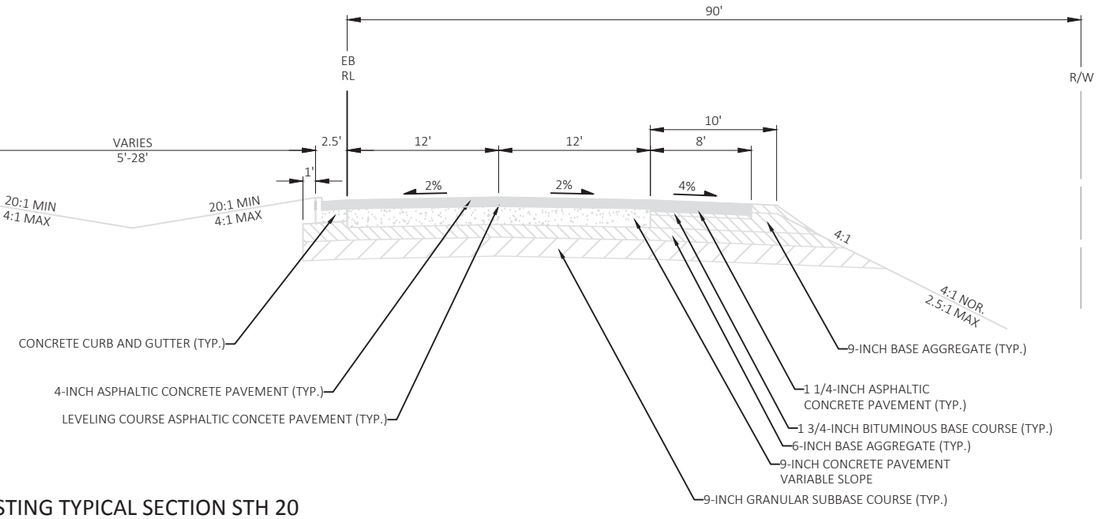
LEFT TURN LANE
STA 103 'EB'+23 TO 104 'EB'+82

EXISTING TYPICAL SECTION STH 20
STA 99 'EB'+74 TO 105 'EB'+78

*NOTE: WELDED STEEL WIRE FABRIC REINFORCED
STA 98'EB'+50 TO 102'EB'+00



RIGHT TURN LANE
STA 216 'WB'+14 TO 219 'WB'+53



EXISTING TYPICAL SECTION STH 20
STA 216 'EB'+14 TO 225 'EB'+61

PROJECT NO: 2250-16-70	HWY: STH 20	COUNTY: RACINE	PLAN: EXISTING TYPICAL SECTIONS STH 20	SHEET	E

FILE NAME : X:\PROJECTS\RACINE\STH 20\DESIGN\C3D\SHEETSPLAN\020301-TS.DWG
LAYOUT NAME - 020302-ts
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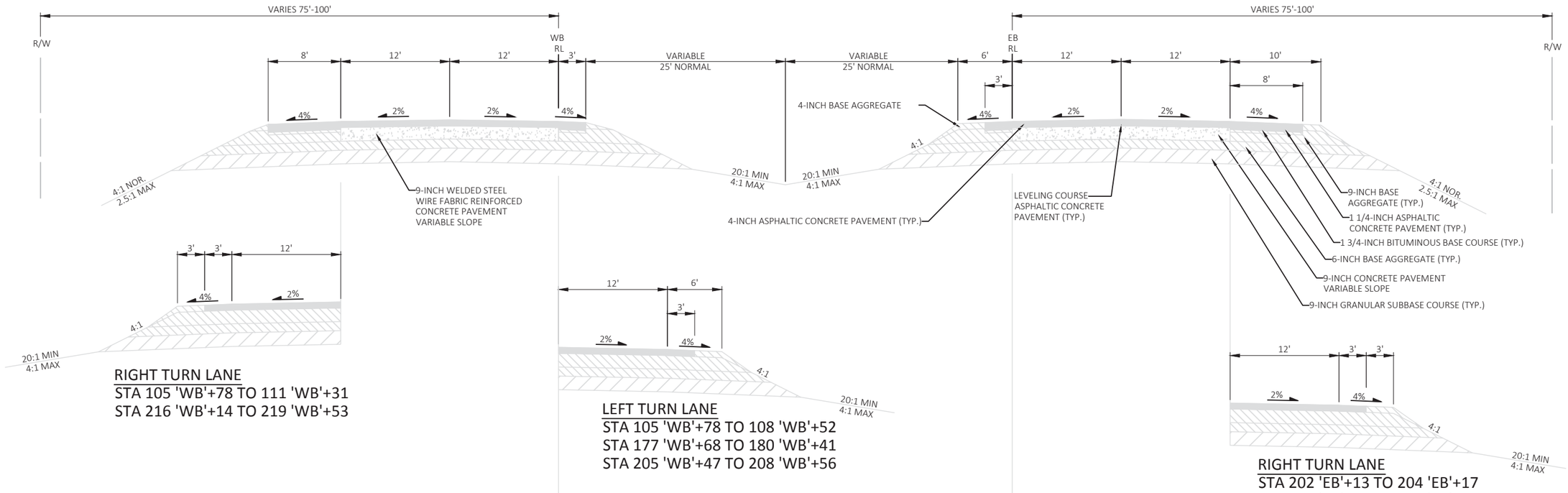
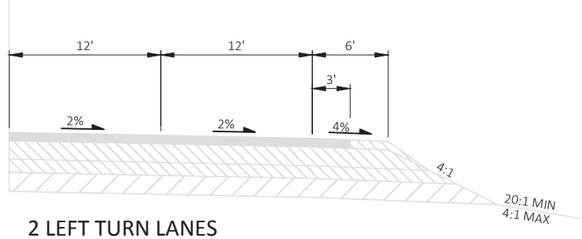


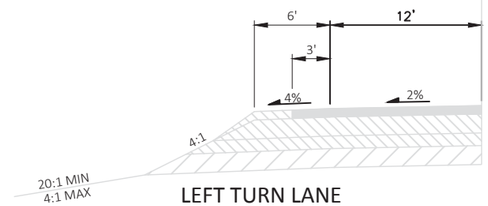
RIGHT TURN LANE
STA 105 'WB'+78 TO 111 'WB'+31
STA 216 'WB'+14 TO 219 'WB'+53

LEFT TURN LANE
STA 105 'WB'+78 TO 108 'WB'+52
STA 177 'WB'+68 TO 180 'WB'+41
STA 205 'WB'+47 TO 208 'WB'+56



2 LEFT TURN LANES
STA 216 'WB'+14 TO 224 'WB'+51

RIGHT TURN LANE
STA 202 'EB'+13 TO 204 'EB'+17
STA 210 'EB'+37 TO 214 'EB'+62

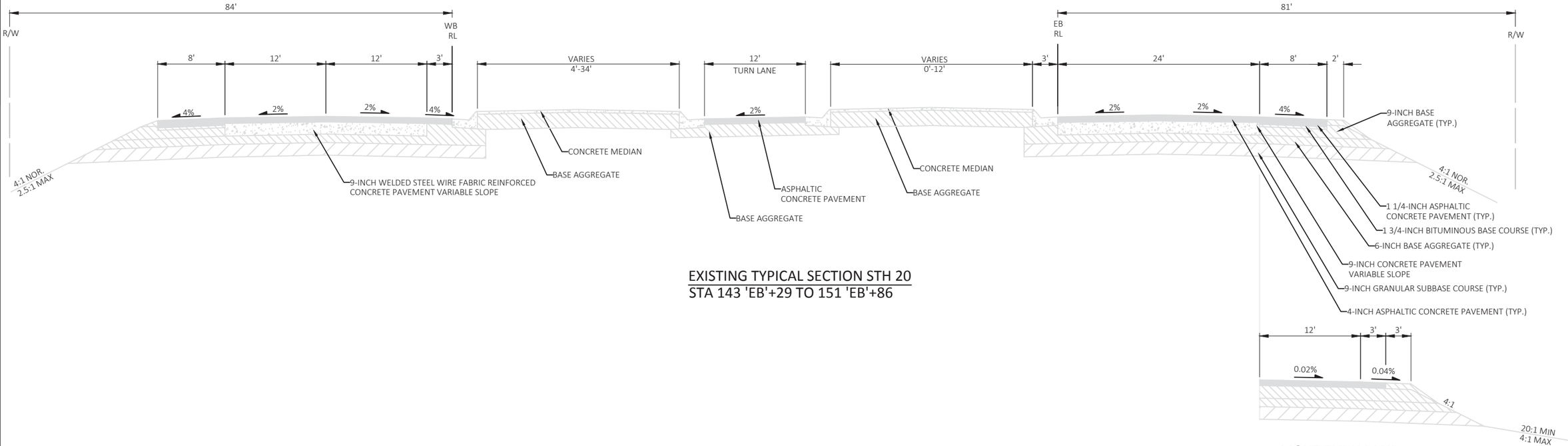


LEFT TURN LANE
STA 211 'EB'+36 TO 214 'EB'+62

TYPICAL EXISTING SECTION STH 20
STA 105 'EB'+78 TO 118 'EB'+28
STA 129 'EB'+13 TO 143 'EB'+29
STA 158 'EB'+17 TO 161 'EB'+33
STA 168 'EB'+27 TO 185 'EB'+63
STA 193 'EB'+82 TO 216 'EB'+14

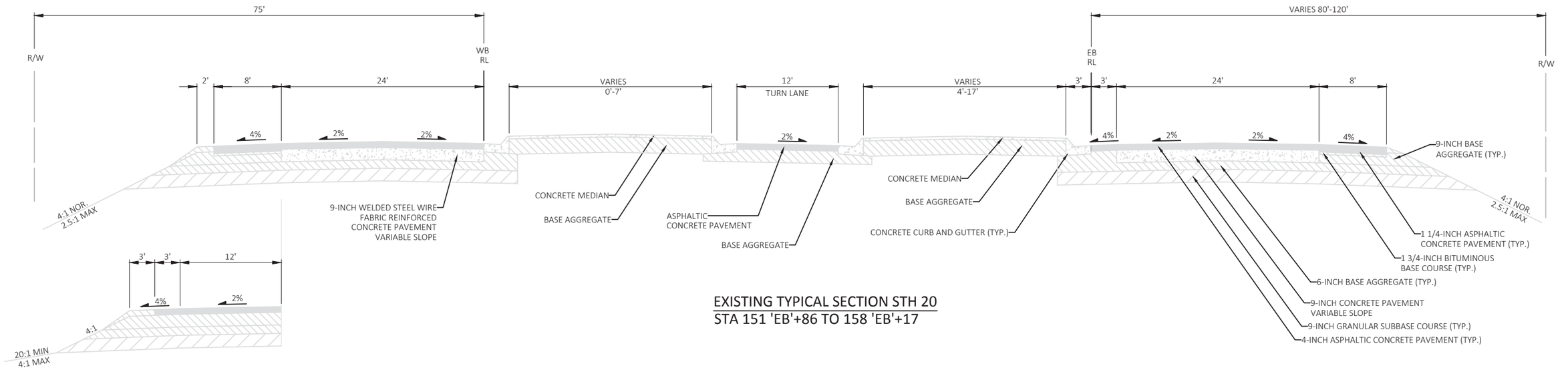
PROJECT NO: 2250-16-70	HWY: STH 20	COUNTY: RACINE	PLAN: EXISTING TYPICAL SECTIONS STH 20	SHEET 6	E

FILE NAME : X:\PROJECTS\RACINE\STH 20\DESIGN\C3D\SHEETSPLAN\020301-TS.DWG
LAYOUT NAME - 020303-ts
PLOT DATE : 11/30/2017 1:55 PM PLOT BY : BRAD GROH PLOT NAME : PLOT SCALE : ##########



EXISTING TYPICAL SECTION STH 20
STA 143 'EB'+29 TO 151 'EB'+86

RIGHT TURN LANE
STA 147 'EB'+54 TO 151 'EB'+38

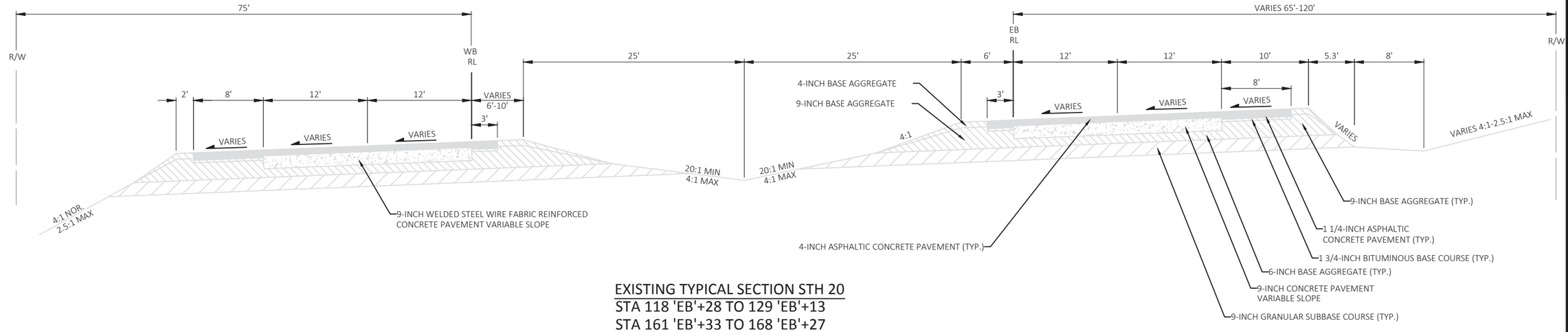


EXISTING TYPICAL SECTION STH 20
STA 151 'EB'+86 TO 158 'EB'+17

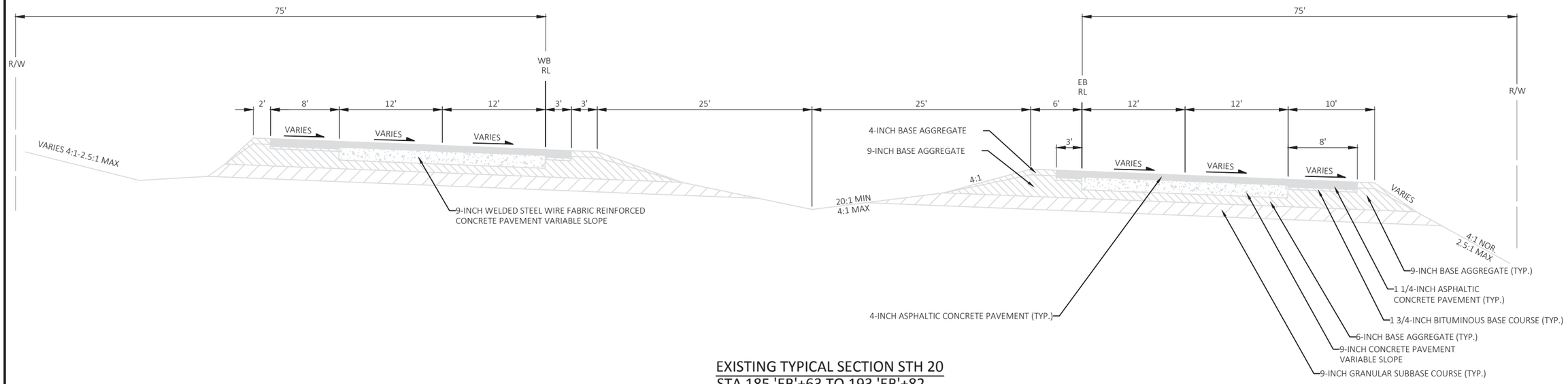
RIGHT TURN LANE
STA 152 'WB'+19 TO 155 'WB'+79

PROJECT NO: 2250-16-70	HWY: STH 20	COUNTY: RACINE	PLAN: EXISTING TYPICAL SECTIONS STH 20	SHEET 7	E

FILE NAME : X:\PROJECTS\RACINE\STH 20\DESIGN\C3D\SHEETSPLAN\020301-TS.DWG
LAYOUT NAME - 020304-ts
PLOT DATE : 11/30/2017 1:55 PM PLOT BY : BRAD GROH PLOT NAME : PLOT SCALE : ##########



EXISTING TYPICAL SECTION STH 20
STA 118 'EB'+28 TO 129 'EB'+13
STA 161 'EB'+33 TO 168 'EB'+27



EXISTING TYPICAL SECTION STH 20
STA 185 'EB'+63 TO 193 'EB'+82

PROJECT NO: 2250-16-70	HWY: STH 20	COUNTY: RACINE	PLAN: EXISTING TYPICAL SECTIONS STH 20	SHEET 8	E

FILE NAME : X:\PROJECTS\RACINE\STH 20\DESIGN\C3D\SHEETSPLAN\020301-TS.DWG
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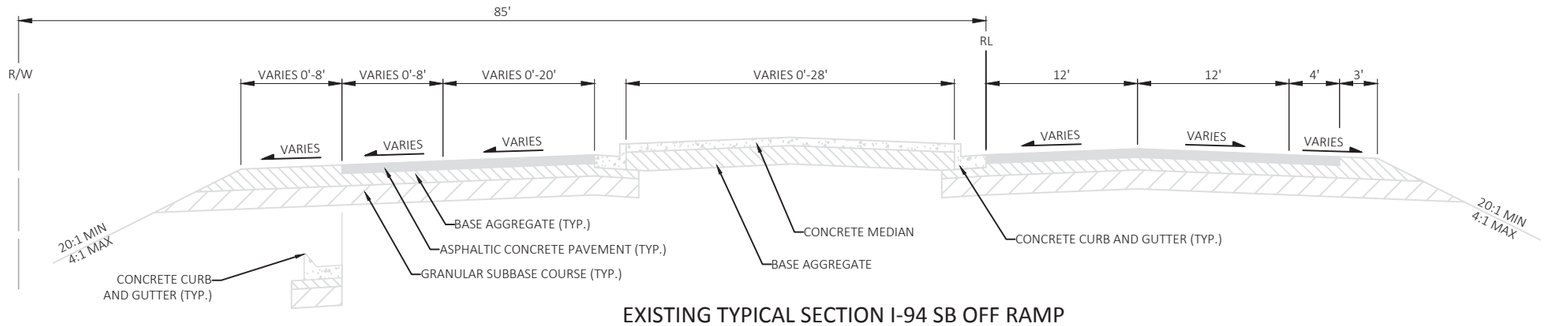
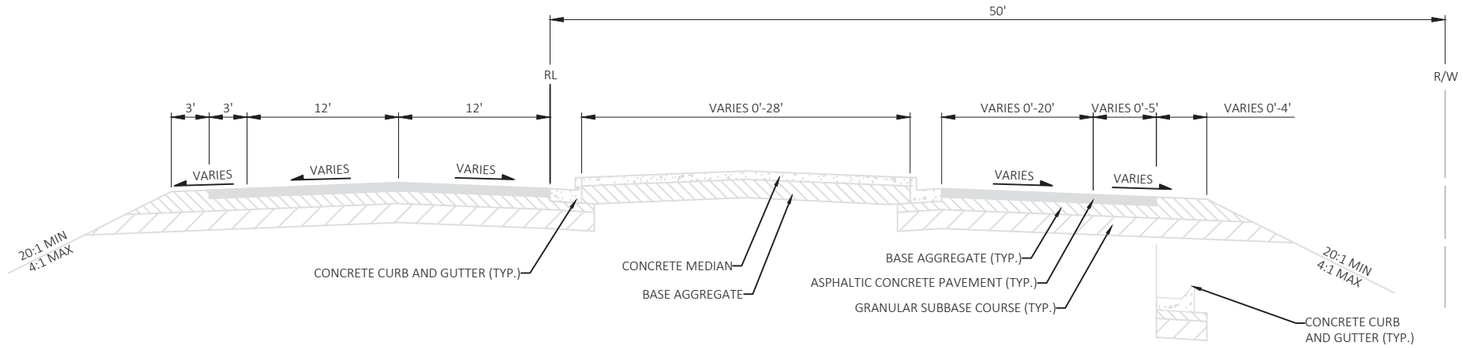
PLOT DATE : 11/30/2017 1:56 PM PLOT BY : BRAD GROH PLOT NAME : PLOT SCALE : ##########

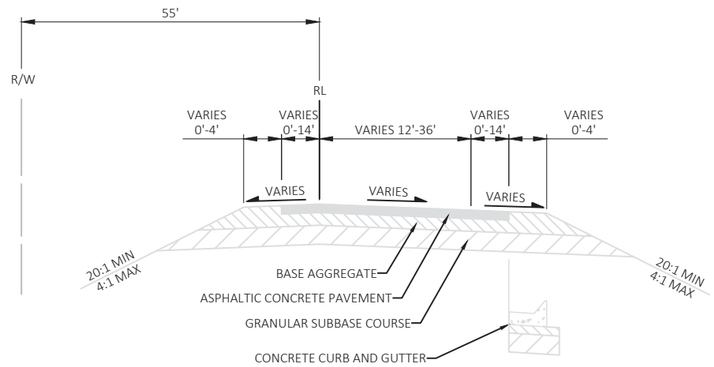
2



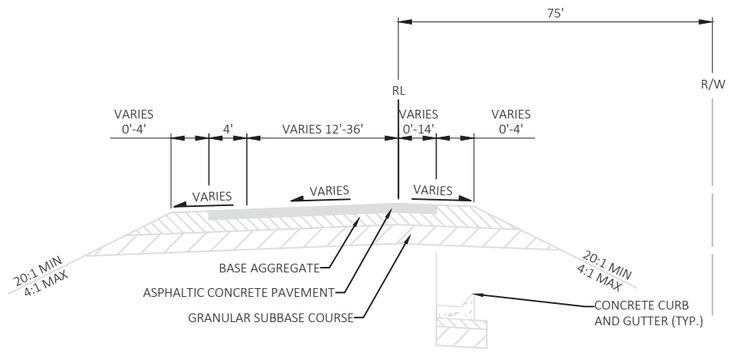
EXISTING TYPICAL SECTION I-94 SB OFF RAMP
STA 20 'NW'+81 TO 22 'NW'+08



EXISTING TYPICAL SECTION I-94 NB OFF RAMP
STA 26 'SE'+76 TO 29 'SE'+75



EXISTING TYPICAL SECTION I-94 SB ON RAMP
STA 7 'SW'+80 TO 09 'SW'+38



EXISTING TYPICAL SECTION I-94 NB ON RAMP
STA 41 'NE'+07 TO 43 'NE'+61

PROJECT NO: 2250-16-70	HWY: STH 20	COUNTY: RACINE	PLAN: EXISTING TYPICAL SECTIONS STH 20	SHEET 9	E

FILE NAME : X:\PROJECTS\RACINE\STH 20\DESIGN\C3D\SHEETSPLAN\020301-TS.DWG
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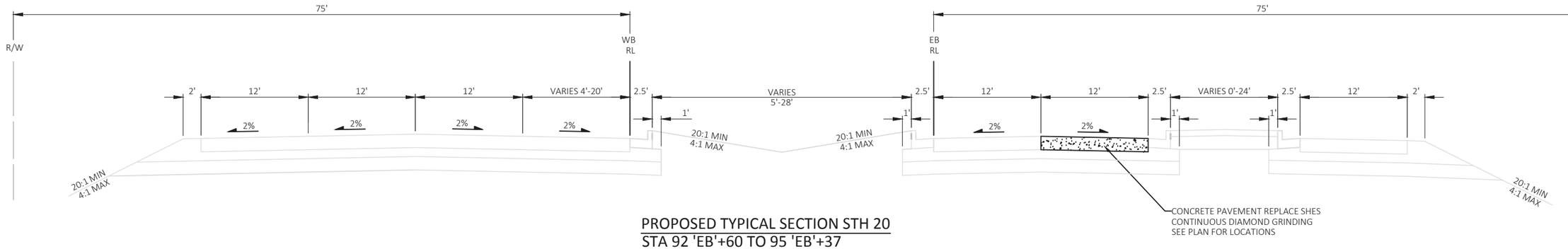
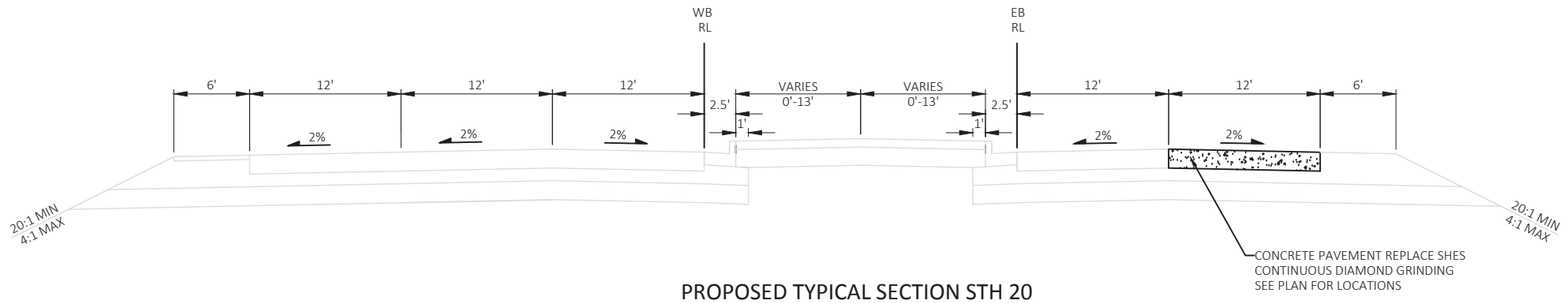
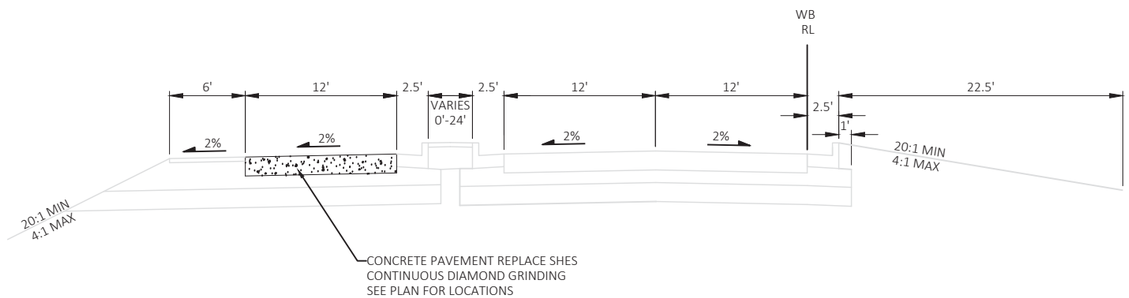


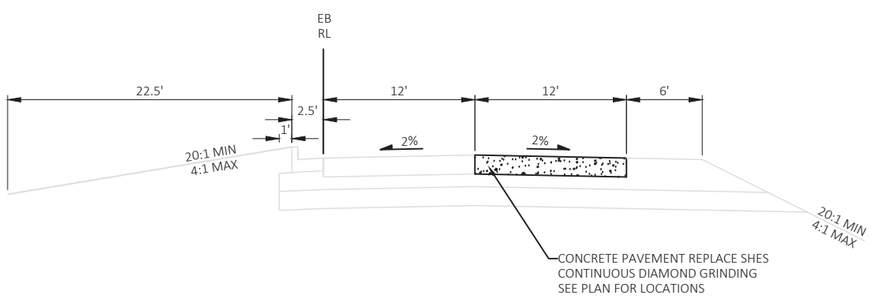
PROPOSED TYPICAL SECTION STH 20
STA 92 'EB'+60 TO 95 'EB'+37



PROPOSED TYPICAL SECTION STH 20
STA 95 'EB'+37 TO 98 'EB'+89



PROPOSED TYPICAL SECTION STH 20
STA 98 'WB'+89 TO 100 'WB'+25



PROPOSED TYPICAL SECTION STH 20
STA 98 'EB'+89 TO 99 'EB'+74

PROJECT NO: 2250-16-70	HWY: STH 20	COUNTY: RACINE	PLAN: PROPOSED TYPICAL SECTIONS STH 20	SHEET 10	E

FILE NAME : X:\PROJECTS\RACINE\STH 20\DESIGN\C3D\SHEETSPLAN\020301-TS.DWG
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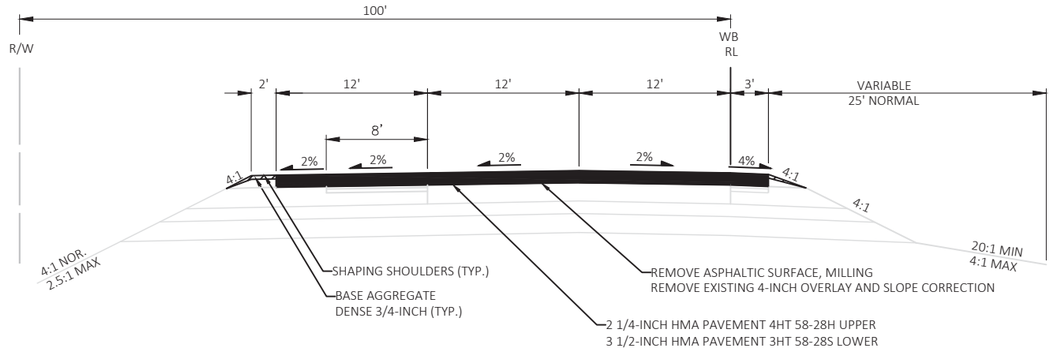
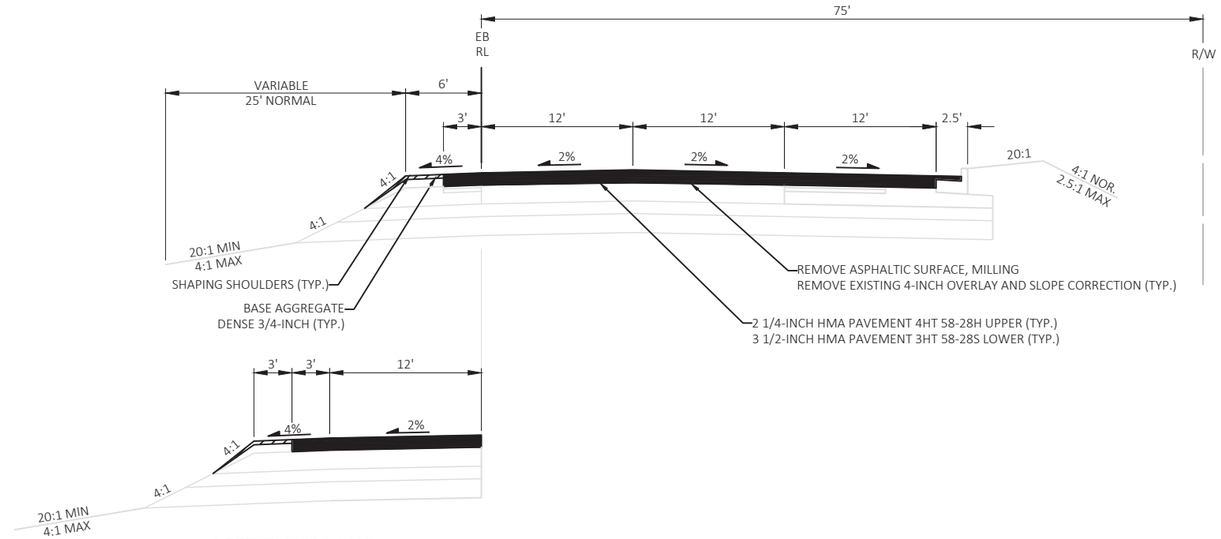
PLOT DATE : 11/30/2017 1:56 PM PLOT BY : BRAD GROH PLOT NAME : PLOT SCALE : ##########

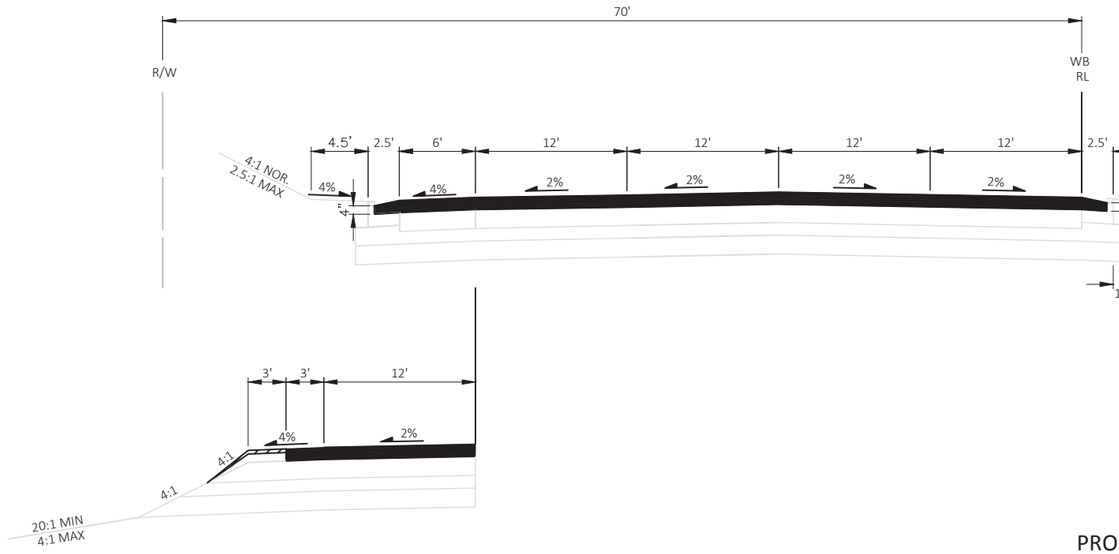


PROPOSED TYPICAL SECTION STH 20
STA 100 'WB'+25 TO STA 105 'WB'+78

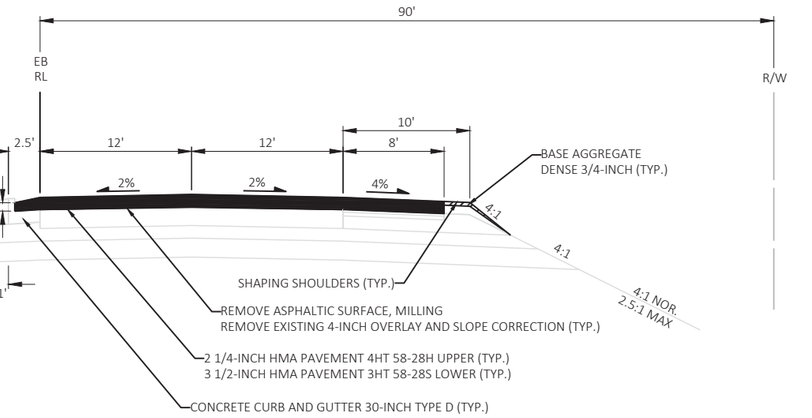


LEFT TURN LANE
STA 103 'EB'+23 TO 104 'EB'+82

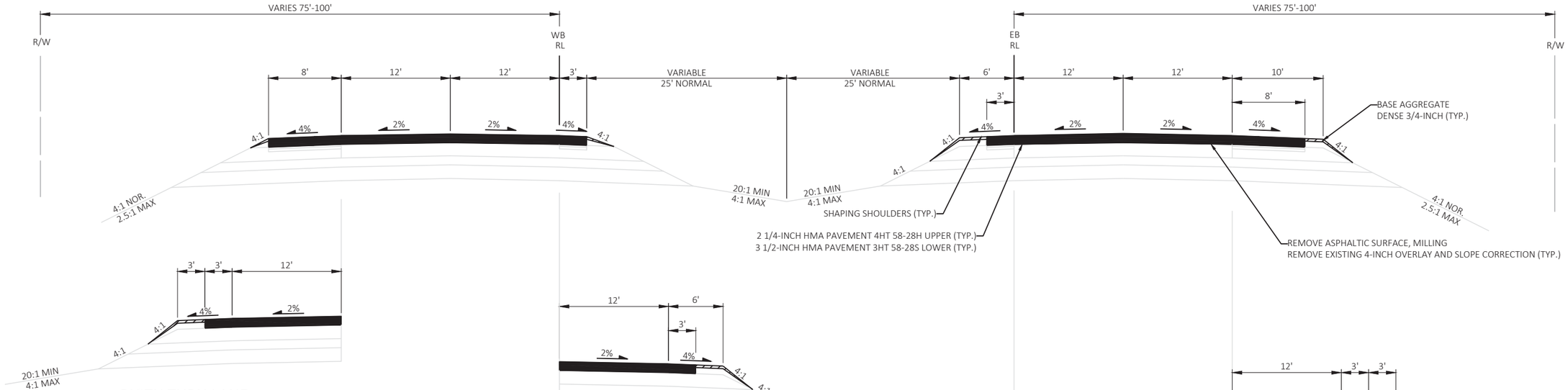
PROPOSED TYPICAL SECTION STH 20
STA 99 'EB'+74 TO 105 'EB'+78



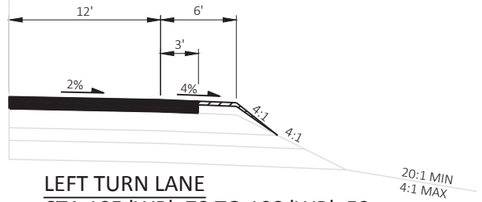
RIGHT TURN LANE
STA 216 'WB'+14 TO 219 'WB'+53



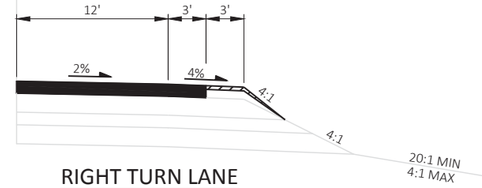
PROPOSED TYPICAL SECTION STH 20
STA 216 'EB'+14 TO 225 'EB'+61



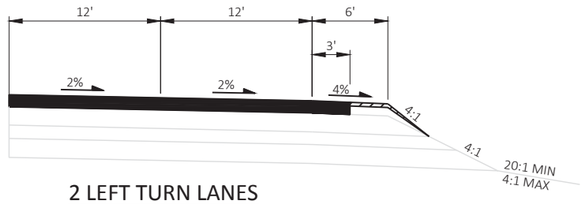
RIGTH TURN LANE
STA 105 'WB'+78 TO 111 'WB'+31
STA 216 'WB'+14 TO 219 'WB'+53



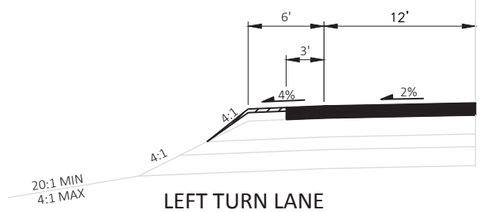
LEFT TURN LANE
STA 105 'WB'+78 TO 108 'WB'+52
STA 177 'WB'+68 TO 180 'WB'+41
STA 205 'WB'+47 TO 208 'WB'+56



RIGHT TURN LANE
STA 202 'EB'+13 TO 204 'EB'+71
STA 210 'EB'+37 TO 214 'EB'+62



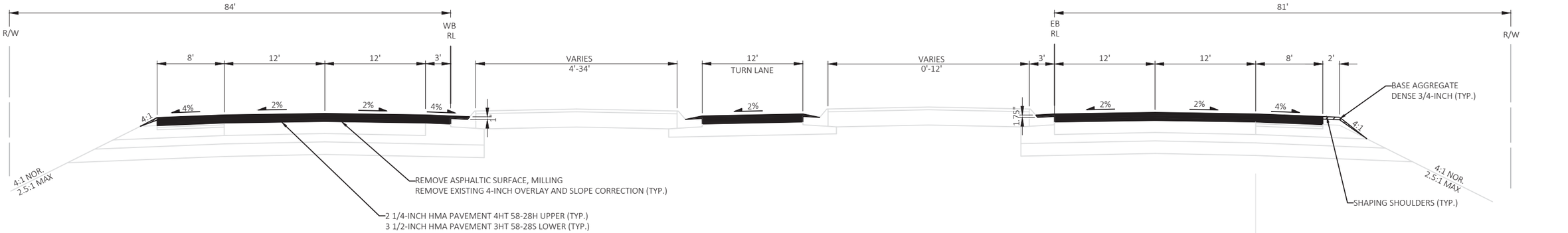
2 LEFT TURN LANES
STA 216 'WB'+14 TO 224 'WB'+51



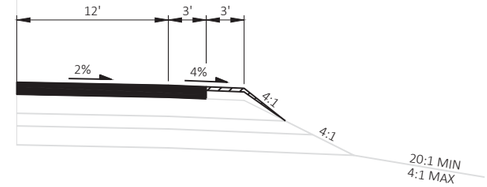
LEFT TURN LANE
STA 211 'EB'+36 TO 214 'EB'+62

PROPOSED TYPICAL SECTION STH 20
STA 105 'EB'+78 TO 118 'EB'+28
STA 129 'EB'+13 TO 143 'EB'+29
STA 158 'EB'+17 TO 161 'EB'+33
STA 168 'EB'+27 TO 185 'EB'+63
STA 193 'EB'+82 TO 216 'EB'+14

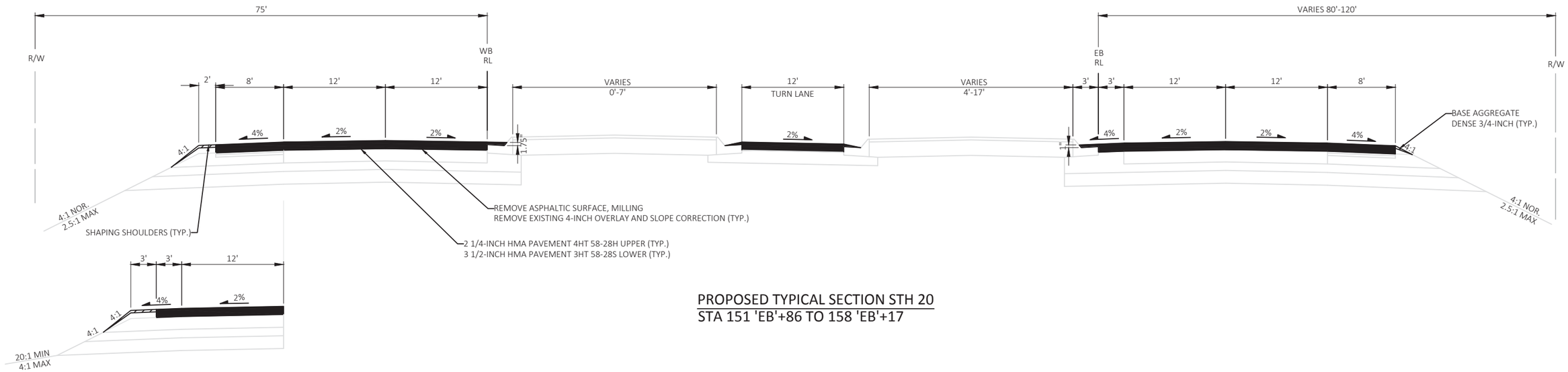
PROJECT NO: 2250-16-70	HWY: STH 20	COUNTY: RACINE	PLAN: PROPOSED TYPICAL SECTIONS STH 20	SHEET 12	E



PROPOSED TYPICAL SECTION STH 20
STA 143 'EB'+29 TO 151 'EB'+86



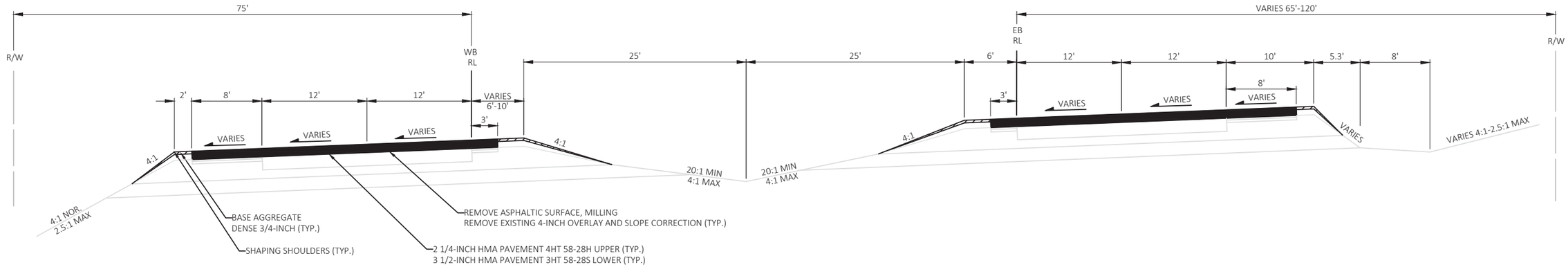
RIGHT TURN LANE
STA 147 'EB'+54 TO 151 'EB'+38



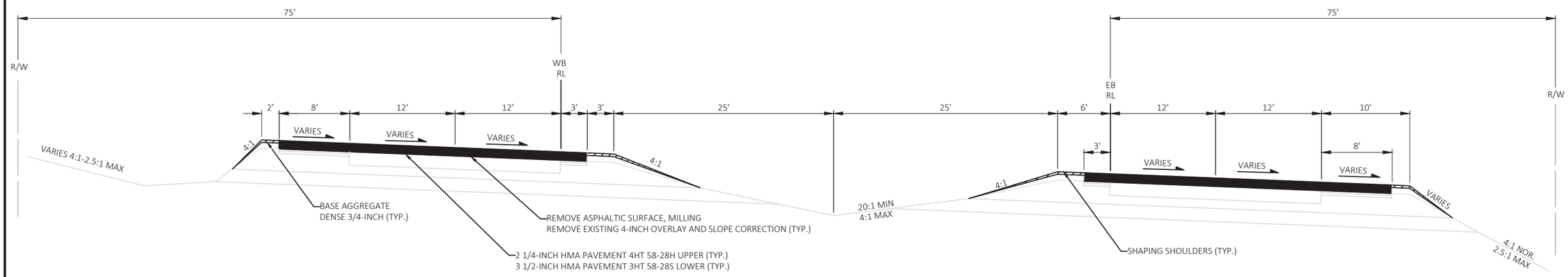
PROPOSED TYPICAL SECTION STH 20
STA 151 'EB'+86 TO 158 'EB'+17

RIGHT TURN LANE
STA 152 'WB'+19 TO 155 'WB'+79

PROJECT NO: 2250-16-70	HWY: STH 20	COUNTY: RACINE	PLAN: PROPOSED TYPICAL SECTIONS STH 20	SHEET 13	E



PROPOSED TYPICAL SECTION STH 20
STA 118 'EB'+28 TO 129 'EB'+13
STA 161 'EB'+33 TO 168 'EB'+27



PROPOSED TYPICAL SECTION STH 20
STA 185 'EB'+63 TO 193 'EB'+82

PROJECT NO: 2250-16-70	HWY: STH 20	COUNTY: RACINE	PLAN: PROPOSED TYPICAL SECTIONS STH 20	SHEET 14	E

FILE NAME : X:\PROJECTS\RACINE\STH 20\DESIGN\C3D\SHEETSPLAN\020301-TS.DWG
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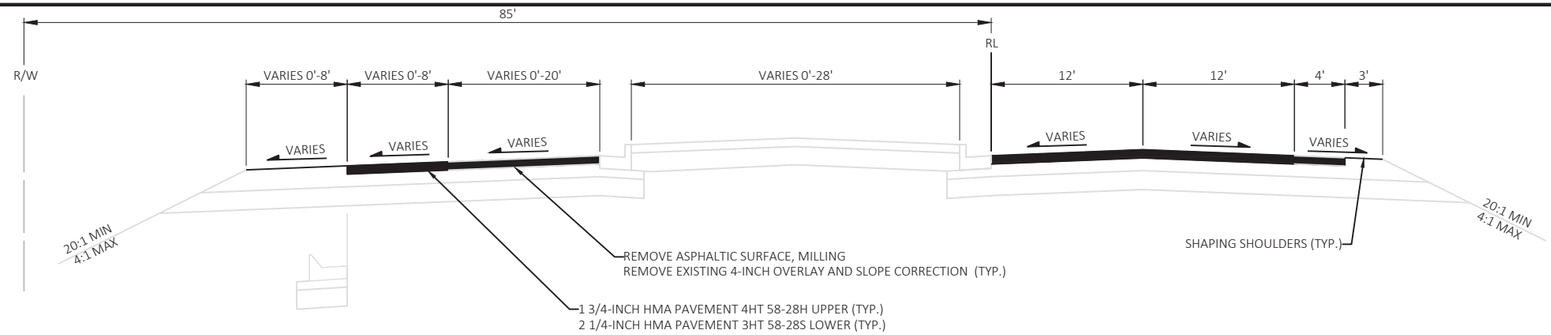
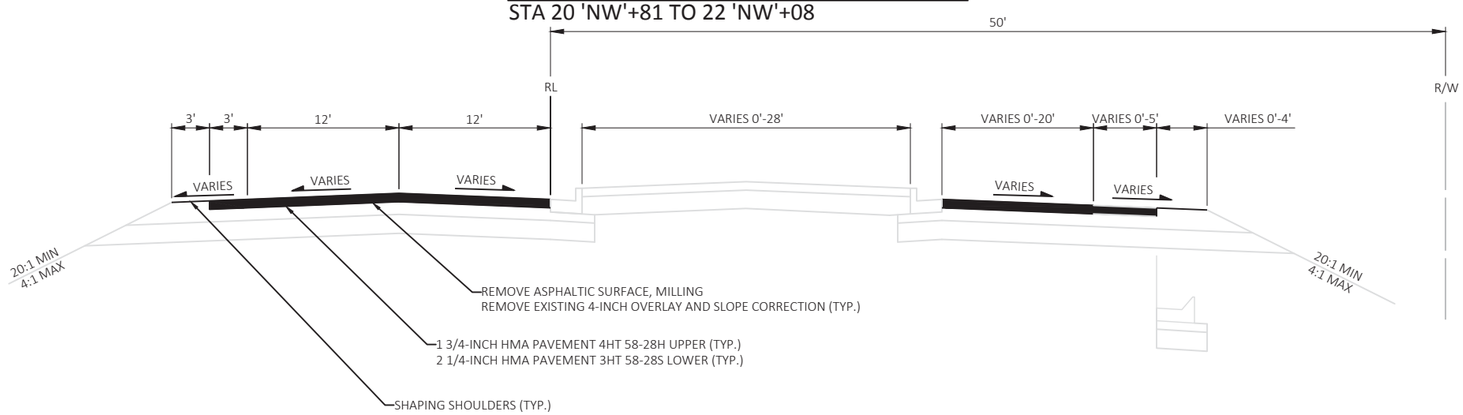
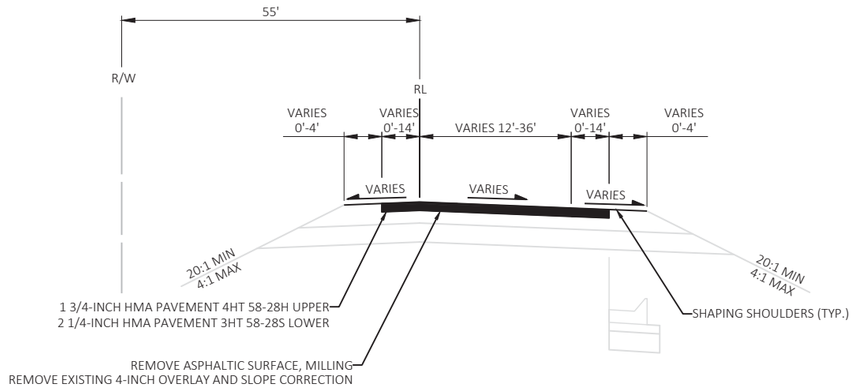


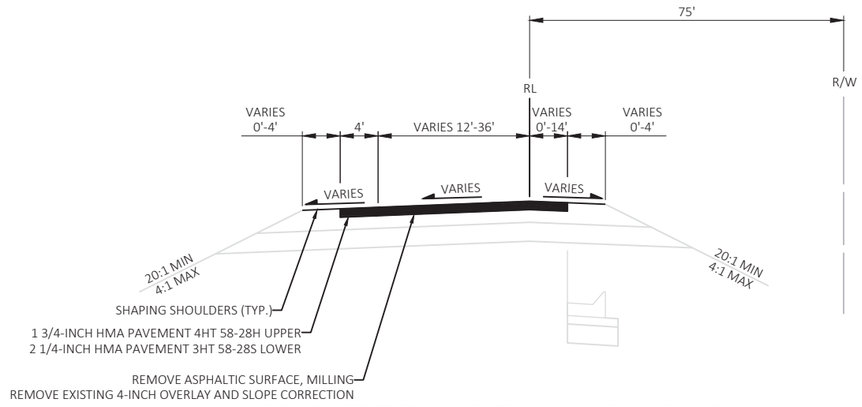
PROPOSED TYPICAL SECTION I-94 SB OFF RAMP
STA 20 'NW'+81 TO 22 'NW'+08



PROPOSED TYPICAL SECTION I-94 NB OFF RAMP
STA 26 'SE'+76 TO 29 'SE'+75

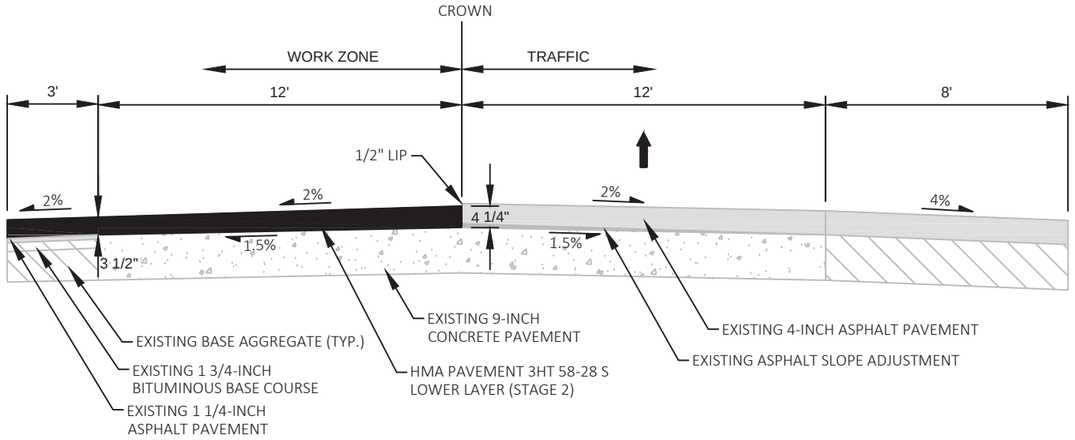


PROPOSED TYPICAL SECTION I-94 SB ON RAMP
STA 7 'SW'+80 TO 09 'SW'+38

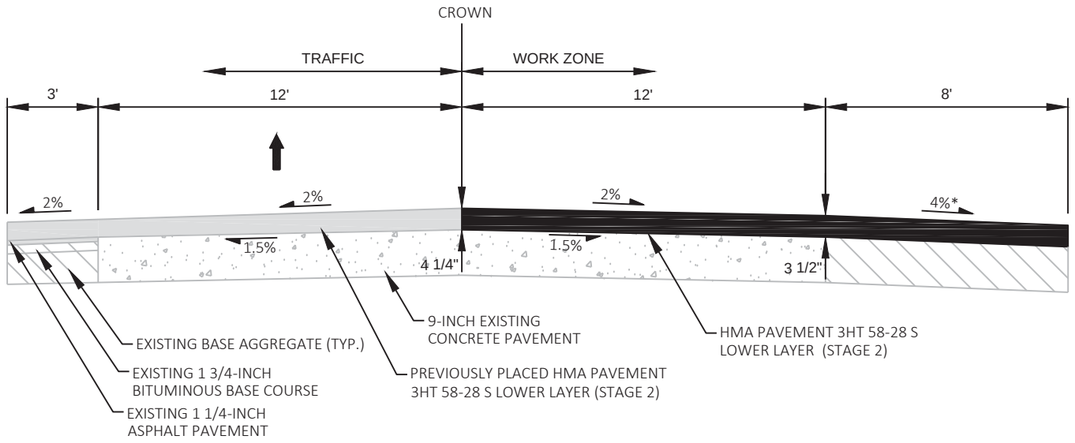


PROPOSED TYPICAL SECTION I-94 NB ON RAMP
STA 41 'NE'+07 TO 43 'NE'+61

PROJECT NO: 2250-16-70	HWY: STH 20	COUNTY: RACINE	PLAN: PROPOSED TYPICAL SECTIONS STH 20	SHEET 15	E



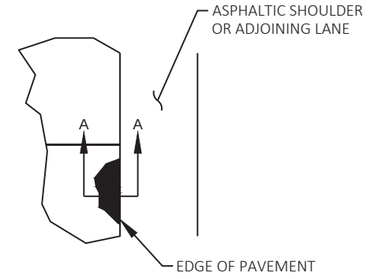
ASPHALT SLOPE ADJUSTMENT DETAIL (MEDIAN LANE)**



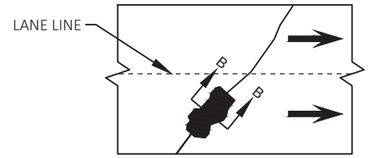
ASPHALT SLOPE ADJUSTMENT DETAIL (OUTSIDE LANE)**

*OUTSIDE SHOULDER TO BE MILLED AT 4% CROSS SLOPE

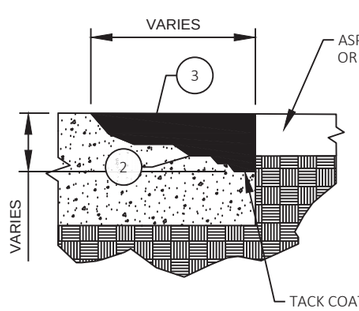
**EB TYPICAL SHOWN, SAME WORK EXPECTED FOR WB



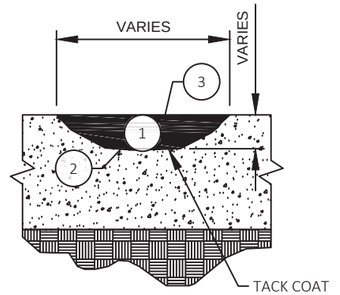
PLAN VIEW



PLAN VIEW



SECTION A-A



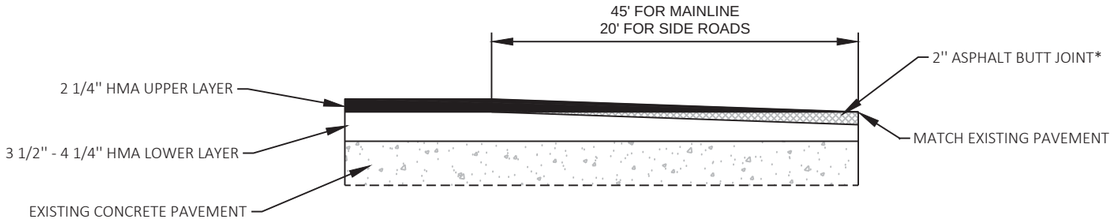
SECTION B-B

EDGE REPAIR

CRACK/JOINT REPAIR

1. REMOVE ALL UNSOUND AND DETERIORATED MATERIAL.
2. BLOW OUT REPAIR AREAS WITH 80 P.S.I. MINIMUM COMPRESSED AIR.
3. ASPHALTIC SURFACE (INCIDENTAL TO CONCRETE JOINT AND CRACK CLEANING)

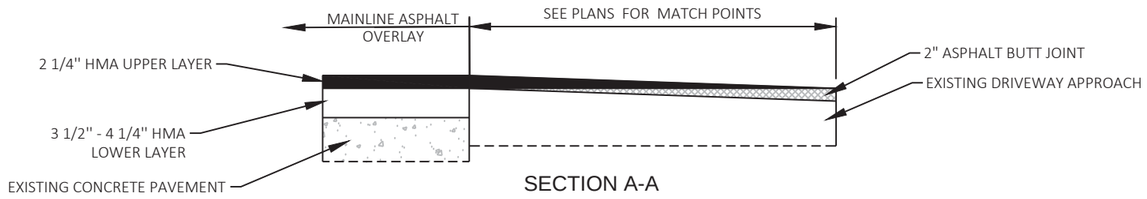
CONCRETE JOINT & CRACK CLEANING



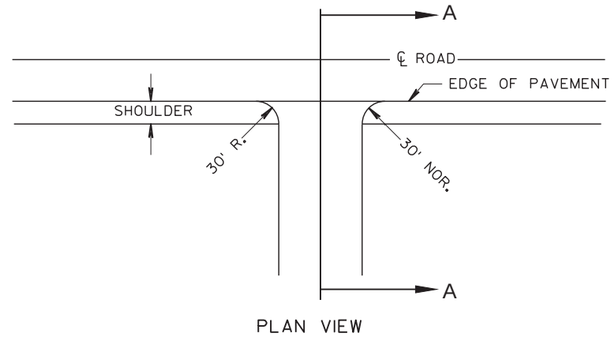
BUTT JOINT DETAIL

SEE PLAN FOR LOCATIONS
EAST PROJECT LIMITS STA 225'EB'+48 AND 225'WB'+60
ALL SIDEROADS

*CONCRETE CURB AND GUTTER AT SIDE ROADS



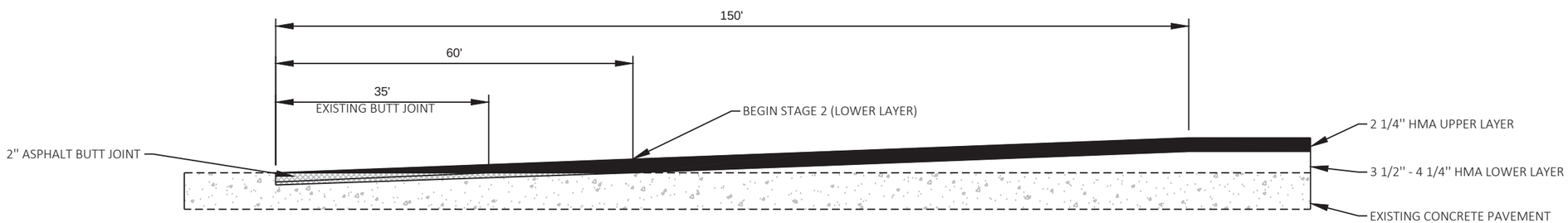
SECTION A-A



PLAN VIEW

REMOVING ASPHALTIC SURFACE BUTT JOINT AT DRIVEWAY DETAIL

SEE PLAN FOR LOCATIONS

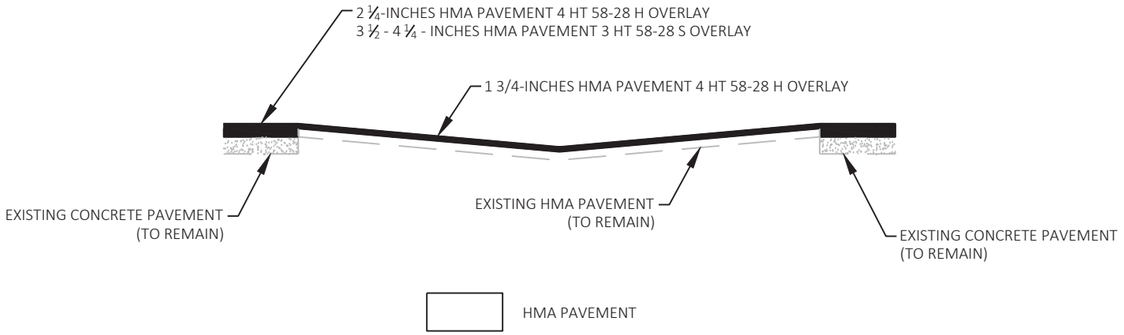


REMOVING ASPHALT SURFACE BUTT JOINT DETAIL

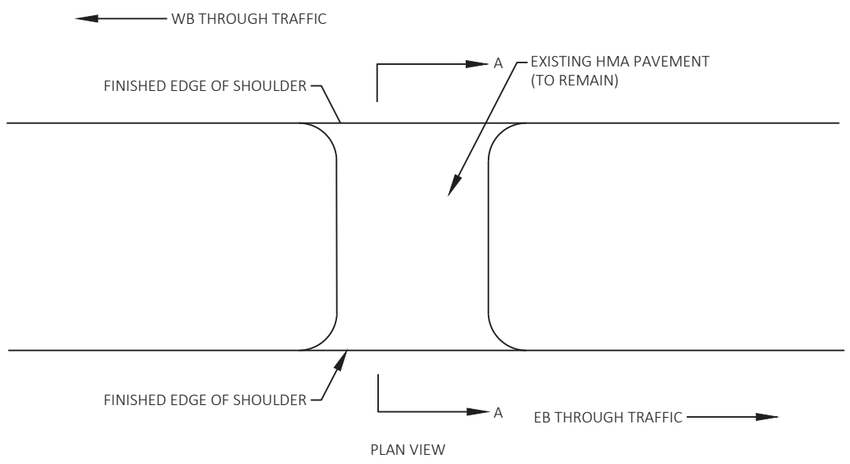
WEST END OF PROJECT STA 99'EB'+29 AND STA 99'WB'+81

*STAGE 2 REMOVALS PAID AS REMOVING ASPHALT SURFACE MILLING.

**STAGE 4 CONCRETE REMOVAL INCIDENTAL TO REMOVING ASPHALT SURFACE MILLING

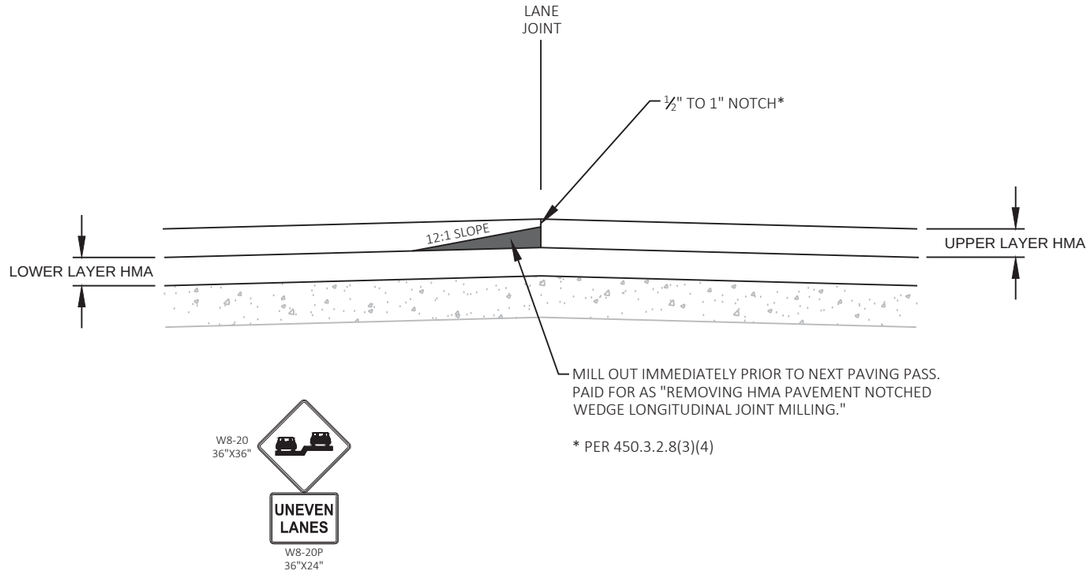


SECTION A-A



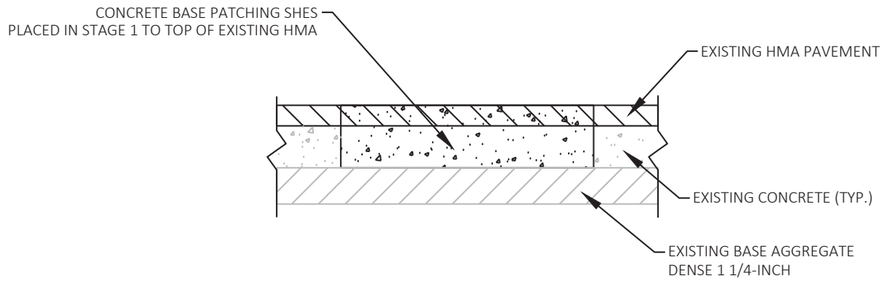
PLAN VIEW

PAVING DETAIL FOR MAINTENANCE CROSSOVER



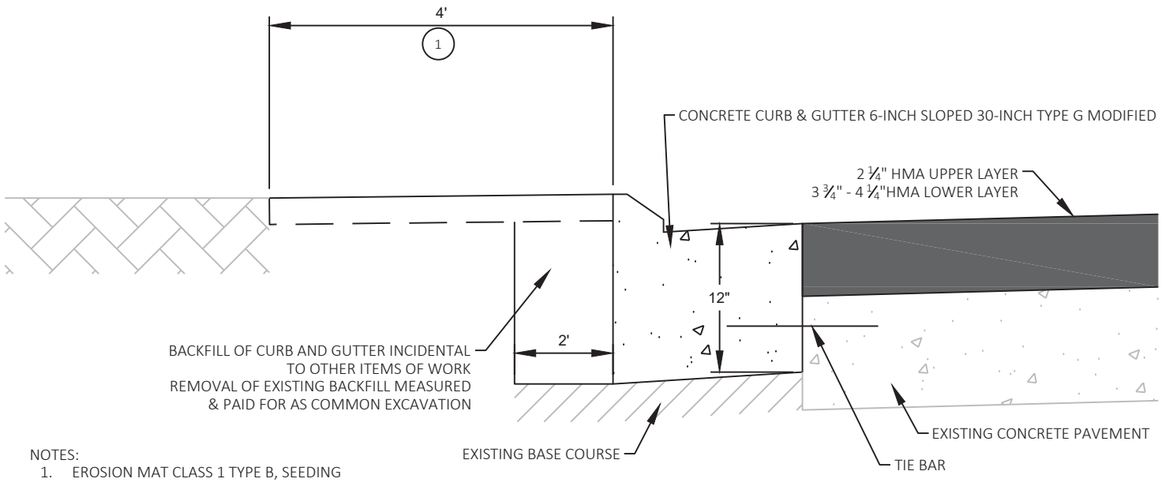
NOTES:
1. TO BE UTILIZED FOR TEMPORARY INSTALLATIONS IN WORK AREAS INVOLVING LONGITUDINAL JOINTS (SEE W8-20)
2. UNEVEN LANE SIGNS SHALL BE PLACED AT THE BEGINNING OF JOINT, AT ½ MILE INTERVALS, AND IMMEDIATELY AFTER INTERSECTIONS.
3. SIGNS WILL BE PAID AS TRAFFIC CONTROL SIGNS.

TYPICAL PAVEMENT CROSS SECTIONS OF TAPERED & NOTCHED LONGITUDINAL JOINTS



FINISHED SECTION

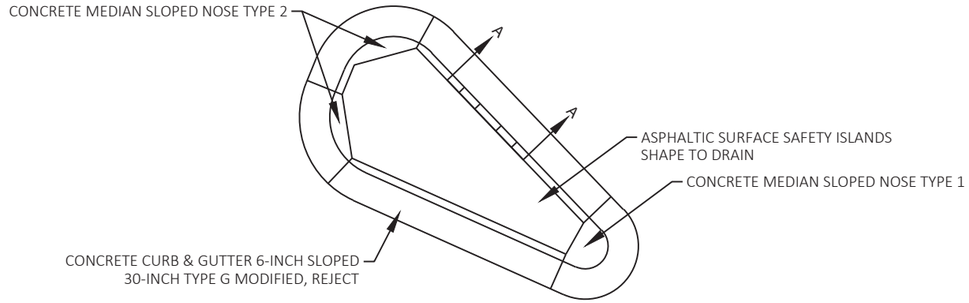
BASE PATCHING DETAIL

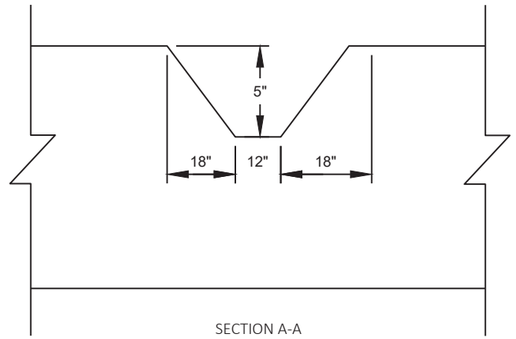


NOTES:
1. EROSION MAT CLASS 1 TYPE B, SEEDING MIXTURE NO. 20 & FERTILIZER TYPE B
   OR
   4" ASPHALTIC SURFACE SAFETY ISLANDS

DETAIL FOR 30 INCH CURB & GUTTER 6-INCH SLOPED 30-INCH TYPE G SPECIAL

SEE PLANS FOR LOCATIONS





SECTION A-A
BACK OF CURB DETAIL

PORKCHOP ISLAND DETAIL

STA 105'WB'+80

✿ FOR CULVERT WINGS:

WITH WING WALL THICKNESS ≥ 8" USE:
ADHESIVE ANCHORS ⅝-INCH.
EMBED 5" IN CONCRETE.
SEE DETAIL "A"

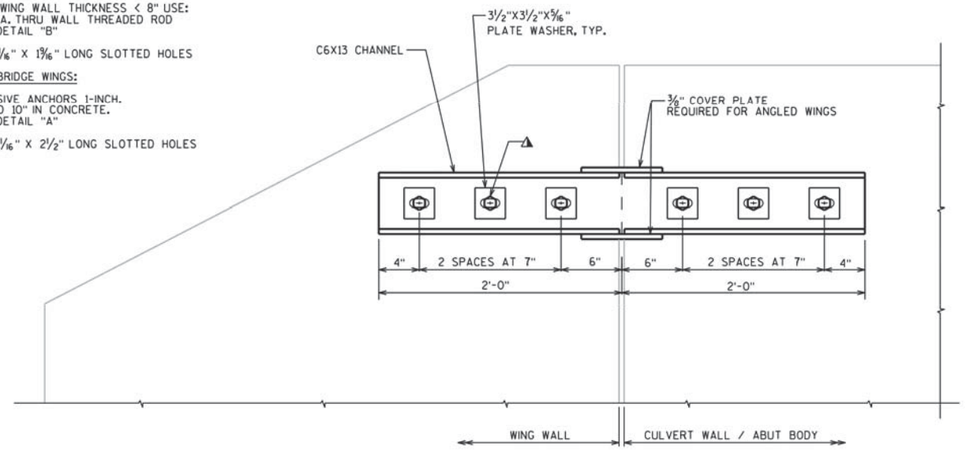
WITH WING WALL THICKNESS < 8" USE:
⅝" DIA. THRU WALL THREADED ROD
SEE DETAIL "B"

USE 11/16" X 1 3/16" LONG SLOTTED HOLES

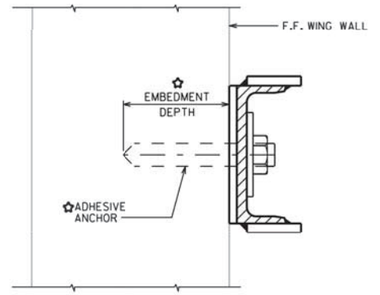
FOR BRIDGE WINGS:

ADHESIVE ANCHORS 1-INCH.
EMBED 10" IN CONCRETE.
SEE DETAIL "A"

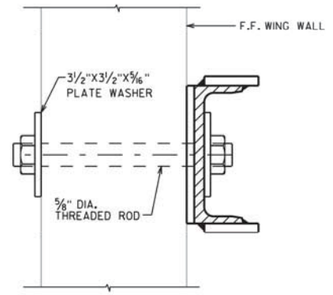
USE 1 1/16" X 2½" LONG SLOTTED HOLES



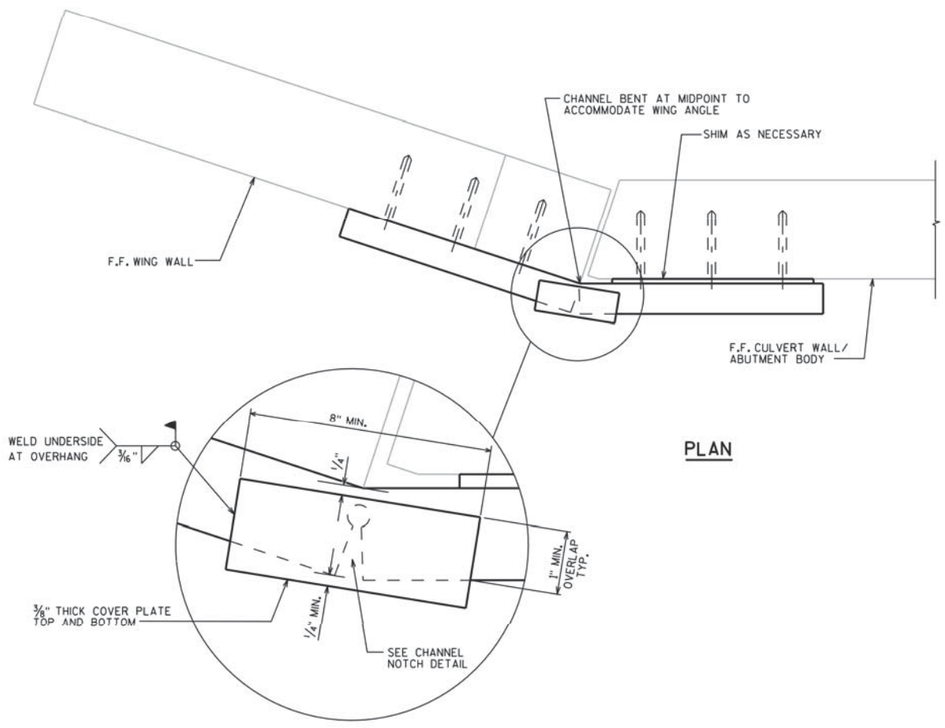
WING ELEVATION



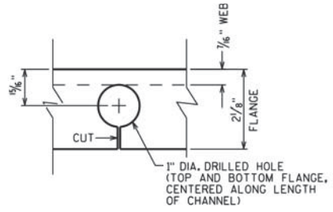
DETAIL "A"
SECTION THRU CHANNEL



DETAIL "B"
SECTION THRU CHANNEL



PLAN



CHANNEL NOTCH DETAIL
FOR USE WITH ANGLED WINGS ONLY

NOTES

BID ITEM SHALL BE "STRAPPING C-51-0017" WHICH INCLUDES ALL ITEMS SHOWN.

ALL PROVIDED STEEL MATERIAL SHALL CONFORM TO ASTM A36.

ALL STRUCTURAL STEEL SHOWN SHALL BE GALVANIZED. THREADED RODS, MASONRY ANCHORS, NUTS AND WASHERS SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153 CLASS C.

CUTTING AND DRILLING OF CHANNEL SHALL BE DONE IN FABRICATION SHOP, PRIOR TO GALVANIZING.

IF WELDING COVER PLATE IN FIELD, PRIOR TO WELDING, REMOVE GALVANIZING FROM AREA TO BE WELDED. TOUCH UP WITH PAINT ALL AREAS LACKING GALVANIZING WHEN COMPLETE.

CAULK AROUND PERIMETER OF CHANNEL AND FILL PORTION OF HOLD AROUND ANCHOR BOLT AND SHIM WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER.

ADHESIVE ANCHORS SHALL CONFORM TO SECTION 502.2.12 OF THE STANDARD SPECIFICATIONS.

WING STRAPPING

BUREAU OF STRUCTURES

APPROVED: Bill Oliva

DATE: 7-16

PROJECT NO: 2250-16-70	HWY: STH 20	COUNTY: RACINE	CONSTRUCTION DETAILS	SHEET 20	E

2

2

N

BEGIN PROJECT
STA 93'EB'+12
MATCH EXISTING

93'EB'+00

94'EB'+00

94'WB'+00

95'WB'+00

STH 20 WB

96'WB'+00

95'EB'+00

SAW CUT

REMOVE AND REPLACE
ASPHALT SURFACE
SAFETY ISLANDS

STH 20 EB

96'EB'+00

97'WB'+00

97'EB'+00

STA 94'EB'+79.08 =
STA 10'SW'+00.00
ANG = 65.8 DEG

END REMOVING ASPHALTIC
SURFACE MILLING
AT EXISTING TRANSITION - RT

SINK HOLE REPAIR
STA 95'EB'+75, LT MEDIAN
6 FT X 12 FT REPAIR AREA
STORM SEWER PIPE REINFORCED CONCRETE CLASS III,
CONCRETE COLLARS FOR PIPE, AND
REMOVE AND REPLACE ASPHALT SURFACE SAFETY ISLANDS REQ'D

END REMOVING ASPHALTIC SURFACE MILLING
AT EXISTING TRANSITION - STA 8'SW'+50 LT

US 41/94 SB ON RAMP

US 41/94 SB

US 41/94 NB

BEGIN CONSTRUCTION
STA 7'SW'+80
MATCH EXISTING

BEGIN REMOVING ASPHALTIC
SURFACE MILLING - LT AND RT

LEGEND

A CONCRETE BASE PATCHING

B CONCRETE PAVEMENT REPAIR

C CONCRETE PAVEMENT REPLACEMENT

PROJECT NO: 2250-16-70	HWY: STH 20	COUNTY: RACINE	INTERSECTION DETAILS - USH 41/94 SB ON RAMP	SHEET 21	E

FILE NAME : X:\PROJECTS\RACINE\STH 20\DESIGN\C3D\SHEETSPLAN\021101-ID.DWG
LAYOUT NAME - 021101-id

PLOT DATE : 11/30/2017 3:01 PM PLOT BY : BRAD GROH PLOT NAME : PLOT SCALE : 1 IN:40 FT

WISDOT/CADDS SHEET 42

2

N

I SIGN

I SIGN

I SIGN

SIGN

FLAG

SIGN

MH

MH

SIGN I

STH 20 WB

STH 20 EB

US 41/94 SB OFF RAMP

23'NW'+00

22'NW'+00

21'NW'+00

US 41/94 SB

US 41/94 NB

BEGIN PROJECT
STA 92'WB'+63
MATCH EXISTING

92'WB'+00

93'WB'+00

94'WB'+00

95'WB'+00

96'WB'+00

92'EB'+00

93'EB'+00

94'EB'+00

95'EB'+00

BEGIN PROJECT
STA 93'EB'+12
MATCH EXISTING

END CONSTRUCTION
STA 22'NW'+08
MATCH EXISTING

END REMOVING ASPHALTIC
SURFACE MILLING - RT

SAW CUT

REMOVE AND REPLACE
CONCRETE SIDEWALK 4-INCH

BEGIN REMOVING ASPHALTIC
SURFACE MILLING
AT EXISTING TRANSITION - RT

STA 94'WB'+59.79 =
STA 20'NW'+54.83
ANG = 65.8 DEG

LEGEND

- A — CONCRETE BASE PATCHING
- B — CONCRETE PAVEMENT REPAIR
- C — CONCRETE PAVEMENT REPLACEMENT

PROJECT NO: 2250-16-70	HWY: STH 20	COUNTY: RACINE	INTERSECTION DETAILS - USH 41/94 SB OFF RAMP	SHEET 22	E

2

N

98'EB'+00

98'WB'+00

100'WB'+00

99'EB'+00

STH 20 WB

101'WB'+00

SAW CUT

100'EB'+00

T103
764.990

STA 98'EB'+86.11 =
STA 30'SE'+00.00
ANG = 90.1 DEG

REMOVE AND REPLACE
ASPHALTIC SAFETY ISLANDS

US 41/94 NB OFF RAMP

29'SE'+00

101'EB'+00

STH 20 EB

1_094

END REMOVING ASPHALTIC
SURFACE MILLING AT EXISTING
TRANSITION - STA 29'SE'+08

US 41/94 SB

US 41/94 NB

28'SE'+00

1_093_2
767.66

1_093_12
770.42

27'SE'+00

SIGN

BEGIN REMOVING ASPHALTIC
SURFACE MILLING - LT AND RT

BEGIN CONSTRUCTION
STA 26'SE'+76
MATCH EXISTING

LEGEND

A CONCRETE BASE PATCHING

B CONCRETE PAVEMENT REPAIR

C CONCRETE PAVEMENT REPLACEMENT

PROJECT NO: 2250-16-70	HWY: STH 20	COUNTY: RACINE	INTERSECTION DETAILS - USH 41/94 NB OFF RAMP	SHEET 23	E

FILE NAME : X:\PROJECTS\RACINE\STH 20\DESIGN\C3D\SHEETSPLAN\021101-ID.DWG
LAYOUT NAME - 021103-id

PLOT DATE : 11/30/2017 3:02 PM PLOT BY : BRAD GROH PLOT NAME : PLOT SCALE : 1 IN:40 FT

WISDOT/CADDS SHEET 42

END REMOVING ASPHALTIC SURFACE MILLING

END CONSTRUCTION STA 43'NE'+61 MATCH EXISTING

N

2

2

43'NE'+00

US 41/94 NB ON RAMP

42'NE'+00

US 41/94 NB

BEGIN REMOVING ASPHALTIC SURFACE MILLING AT EXISTING TRANSITION - STA 41'NE'+72 LT AND RT

STA 98'WB'+86.18 = STA 40'NE'+50.00 ANG = 90.1 DEG

97'WB'+00

STH 20 WB

98'WB'+00

97'EB'+00

SIGN

98'EB'+00

41'NE'+00

99'WB'+00

STH 20 EB

99'EB'+00

100'WB'+00

SIGN

LEGEND

A CONCRETE BASE PATCHING

B CONCRETE PAVEMENT REPAIR

C CONCRETE PAVEMENT REPLACEMENT

PROJECT NO: 2250-16-70	HWY: STH 20	COUNTY: RACINE	INTERSECTION DETAILS - USH 41/94 NB OFF RAMP	SHEET 24	E

2

2

N

END CONSTRUCTION
STA 51'EF'+56.49
MATCH EXISTING
BUTT JOINT REQ'D

EAST FRONTAGE ROAD

52'EF'+00

BEGIN BUTT JOINT
MATCH EXISTING
STA 51'EF'+52.00

REMOVE AND REPLACE
CONCRETE SIDEWALK 4-INCH

SAW CUT

CONCRETE MEDIAN SLOPED
NOSE TYPE 2

REMOVE CURB AND GUTTER AND REPLACE WITH
CONCRETE CURB AND GUTTER 6 - INCH SLOPED
30 - INCH TYPE G MODIFIED

CONCRETE MEDIAN SLOPED
NOSE TYPE 1

STA 105'WB'+29.92 =
STA 50'EF'+50.00
ANG = 89.6 DEG

102'WB'+00
103'WB'+00
104'WB'+00
105'WB'+00
106'WB'+00
107'WB'+00
108'WB'+00

102'EB'+00
103'EB'+00
104'EB'+00
105'EB'+00
106'EB'+00
107'EB'+00
108'EB'+00

STH 20 WB
STH 20 EB

SIGN

50'EF'+00

REMOVE AND REPLACE
CONCRETE SIDEWALK 4-INCH

BEGIN BUTT JOINT
MATCH EXISTING
STA 49'EF'+15.00

SAW CUT

49'EF'+00

PT: 48'EF'+70.76

EAST FRONTAGE ROAD

STA 105'EB'+30.07 =
STA 50'EF'+00.00
ANG = 89.6 DEG

BEGIN CONSTRUCTION
STA 48'EF'+82.28
MATCH EXISTING
BUTT JOINT REQ'D

1_093_18
767.83

1_093_18
768.36

LEGEND

- A — CONCRETE BASE PATCHING
- B — CONCRETE PAVEMENT REPAIR
- C — CONCRETE PAVEMENT REPLACEMENT

PROJECT NO: 2250-16-70	HWY: STH 20	COUNTY: RACINE	INTERSECTION DETAILS - EAST FRONTAGE ROAD	SHEET 25	E

FILE NAME : X:\PROJECTS\RACINE\STH 20\DESIGN\C3D\SHEETSPLAN\021101-ID.DWG
LAYOUT NAME - 021105-id

PLOT DATE : 12/19/2017 2:20 PM PLOT BY : DYLAN DOUGLAS PLOT NAME : PLOT SCALE : 1 IN:40 FT

2

N

END CONSTRUCTION
STA 21'V'+50.88
BUTT JOINT REQ'D
MATCH EXISTING

CTH V

REMOVE AND REPLACE
CONCRETE SIDEWALK 4-INCH

SAW CUT

REMOVE AND REPLACE
CONCRETE SIDEWALK 4-INCH

SAW CUT

STA151'WB'+75.90 =
STA 20'V'+17.98
ANG = 76.5 DEG

149'WB'+00

STH 20 WB

150'WB'+00

151'WB'+00

149'EB'+00

150'EB'+00

STH 20 EB

151'EB'+00

152'WB'+00

REMOVE AND REPLACE
CONCRETE SIDEWALK 4-INCH

STH 20 WB

153'WB'+00

SAW CUT

154'WB'+00

155'WB'+

152'EB'+00

153'EB'+00

STH 20 EB

154'EB'+00

155'EB'+00

20'V'+00

STA 151'EB'+85.93 =
STA 19'V'+74.32
ANG = 76.5 DEG

19'V'+00

BEGIN BUTT JOINT
STA 18'V'+74.15
MATCH EXISTING

CTH V

BEGIN CONSTRUCTION
STA 18'V'+33.78
BUTT JOINT REQ'D
MATCH EXISTING

1_088_20
747.69

1_088_18
745.24

2_061_12
745.92

1_088

2_062

1_087_2
744.93

1_087_12
741.46

LEGEND

- A — CONCRETE BASE PATCHING
- B — CONCRETE PAVEMENT REPAIR
- C — CONCRETE PAVEMENT REPLACEMENT

PROJECT NO: 2250-16-70	HWY: STH 20	COUNTY: RACINE	INTERSECTION DETAILS - CTH V / INTERNATIONAL DRIVE	SHEET	E

FILE NAME : X:\PROJECTS\RACINE\STH 20\DESIGN\C3D\SHEETSPLAN\021101-ID.DWG
LAYOUT NAME - 021106-id

PLOT DATE : 11/30/2017 3:02 PM PLOT BY : BRAD GROH PLOT NAME : PLOT SCALE : 1 IN:40 FT

2

2

N

2_067_20
727.13

730.24

2_067_2
734.18

2_068

T322070
736.440

32'WN'+00

31'WN'+00

WEST ROAD

END CONSTRUCTION
STA 31'WN'+41.79
BUTT JOINT REQ'D
MATCH EXISTING

STA 204'EB'+97.00 =
STA 30'WN'+50.07
ANG = 87.0 DEG

STH 20 WB

202'WB'+00
203'WB'+00
204'WB'+00
205'WB'+00
206'WB'+00
207'WB'+00
208'W

A

202'EB'+00
203'EB'+00
204'EB'+00
205'EB'+00
206'EB'+00
207'EB'+00
208'EB

STH 20 EB

BP: 30'WN'+00.00

EP: 40'WS'+00.00

SIGN

STA 202+18 EB
47' RT

STA 205'EB'+08.67 =
STA 40'WS'+00.00
ANG = 87.0 DEG

39'WS'+00

BEGIN CONSTRUCTION
STA 38'WS'+90.64
BUTT JOINT REQ'D
MATCH EXISTING

WEST ROAD

LEGEND

A CONCRETE BASE PATCHING
B CONCRETE PAVEMENT REPAIR
C CONCRETE PAVEMENT REPLACEMENT

PROJECT NO: 2250-16-70	HWY: STH 20	COUNTY: RACINE	INTERSECTION DETAILS - WEST ROAD	SHEET 27	E

FILE NAME : X:\PROJECTS\RACINE\STH 20\DESIGN\C3D\SHEETSPLAN\021101-ID.DWG
LAYOUT NAME - 021107-id

PLOT DATE : 11/30/2017 3:02 PM PLOT BY : BRAD GROH PLOT NAME : PLOT SCALE : 1 IN:40 FT

WISDOT/CADDS SHEET 42

2

N

CTH H/RENAISSANCE BLVD

42'RN'+00

41'RN'+00

END CONSTRUCTION
STA 41'RN'+50.75
BUTT JOINT REQ'D
MATCH EXISTING

REMOVE AND REPLACE
CONCRETE SIDEWALK 4-INCH

SAW CUT

STA 215'WB'+22.14 =
STA 40'RN'+42.60
ANG = 86.9 DEG

STH 20 WB

212'WB'+00 213'WB'+00 214'WB'+00 215'WB'+00 216'WB'+00 217'WB'+00 218'WB'+00

212'EB'+00 213'EB'+00 214'EB'+00 215'EB'+00 216'EB'+00 217'EB'+00 218'EB'+00

STH 20 EB

EP: 16'RS'+00.00

BP: 40'RN'+00.00

STA 215'EB'+11.90 =
STA 14'RS'+00.00
ANG = 88.4 DEG

REMOVE AND REPLACE
CONCRETE SIDEWALK 4-INCH

SAW CUT

15'RS'+00

CTH H/RENAISSANCE BLVD

BEGIN BUTT JOINT
STA 14'RS'+95.13
MATCH EXISTING

BEGIN CONSTRUCTION
STA 14'RS'+53.81
BUTT JOINT REQ'D
MATCH EXISTING

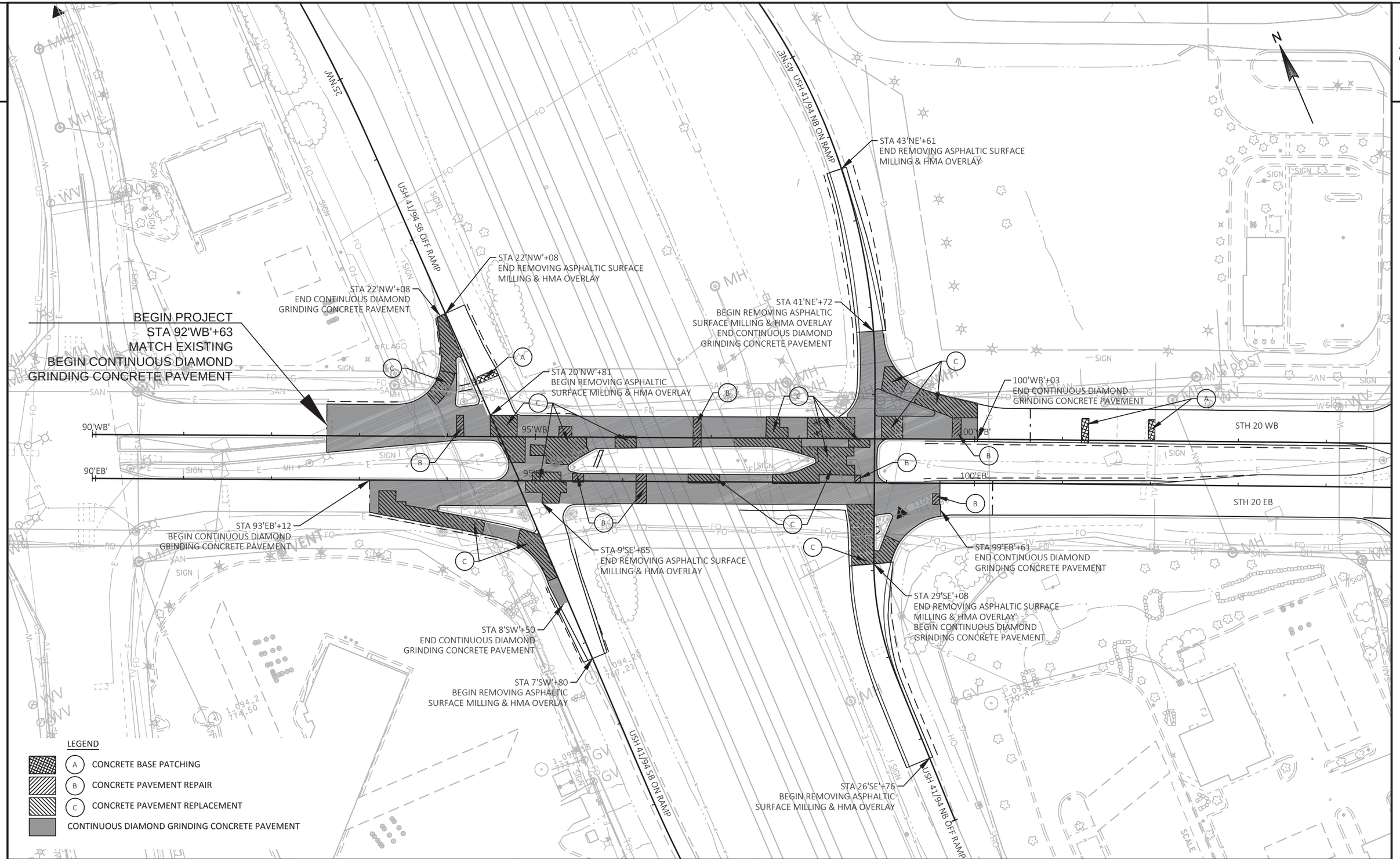
SIGN

LEGEND

- A — CONCRETE BASE PATCHING
- B — CONCRETE PAVEMENT REPAIR
- C — CONCRETE PAVEMENT REPLACEMENT

PROJECT NO: 2250-16-70	HWY: STH 20	COUNTY: RACINE	INTERSECTION DETAILS - RENAISSANCE BLVD / CTH H	SHEET 28	E

2

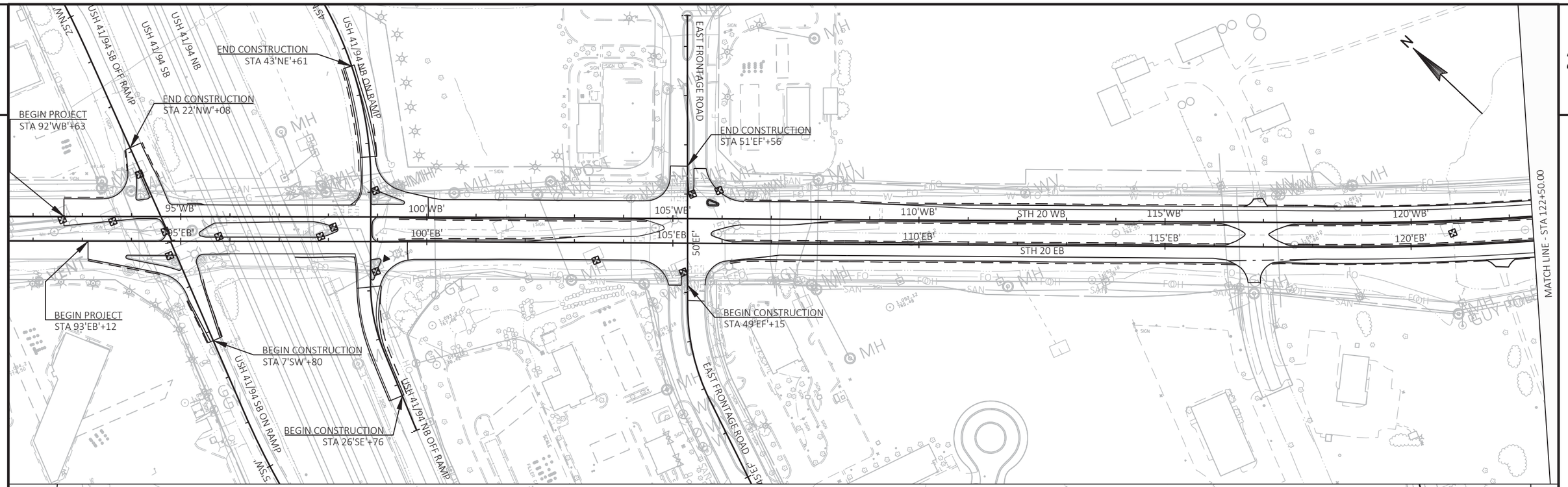


PROJECT NO: 2250-16-70	HWY: STH 20	COUNTY: RACINE	PLAN DETAILS: IH 41/94 INTERCHANGE	SHEET 29	E

FILE NAME : X:\PROJECTS\RACINE\STH 20\DESIGN\C3D\SHEETSPLAN\021201-PD.DWG
LAYOUT NAME - 021201-pd

PLOT DATE : 11/30/2017 3:27 PM PLOT BY : BRAD GROH PLOT NAME : PLOT SCALE : 1 IN:100 FT

2



PROJECT NO: 2250-16-70	HWY: STH 20	COUNTY: RACINE	EROSION CONTROL	SHEET 30	E

2

REMOVING GUARDRAIL
INSTALL MGS GUARDRAIL 3
INSTALL MGS GUARDRAIL TERMINAL EAT
INSTALL MGS GUARDRAIL TERMINAL TYPE 2
BARRIER SYSTEM GRADING SHAPING AND FINISHING

STRUCTURE C-51-0017

SILT FENCE

MATCH LINE - STA 153+00.00

155'WB'
155'EB'
160'WB'
160'EB'
165'WB'
165'EB'
STA BACK = 168+17.29'WB'
STA AHEAD = 168+26.96'WB'
170'WB'
170'EB'
STH 20 WB
STH 20 EB
175'WB'
175'EB'
180'WB'
180'EB'
S22063

SILT FENCE

REMOVING GUARDRAIL
INSTALL MGS GUARDRAIL 3
INSTALL MGS GUARDRAIL TERMINAL EAT
INSTALL MGS GUARDRAIL TERMINAL TYPE 2
BARRIER SYSTEM GRADING SHAPING AND FINISHING

HOODS CREEK

N

MATCH LINE - STA 183+50.00

185'WB'
185'EB'
190'WB'
190'EB'
195'WB'
195'EB'
STA BACK = 193+84.32'WB'
STA AHEAD = 193+81.77'WB'
STA BACK = 193+80.71'EB'
STA AHEAD = 193+81.77'EB'
STH 20 WB
STH 20 EB
200'WB'
200'EB'
205'WB'
205'EB'
S22070
210'WB'
210'EB'

WEST ROAD

END CONSTRUCTION
STA 31'WN'+42

BEGIN CONSTRUCTION
STA 38'WS'+91

N

MATCH LINE - STA 214+00.00

LEGEND

EROSION MAT CLASS I, TYPE A

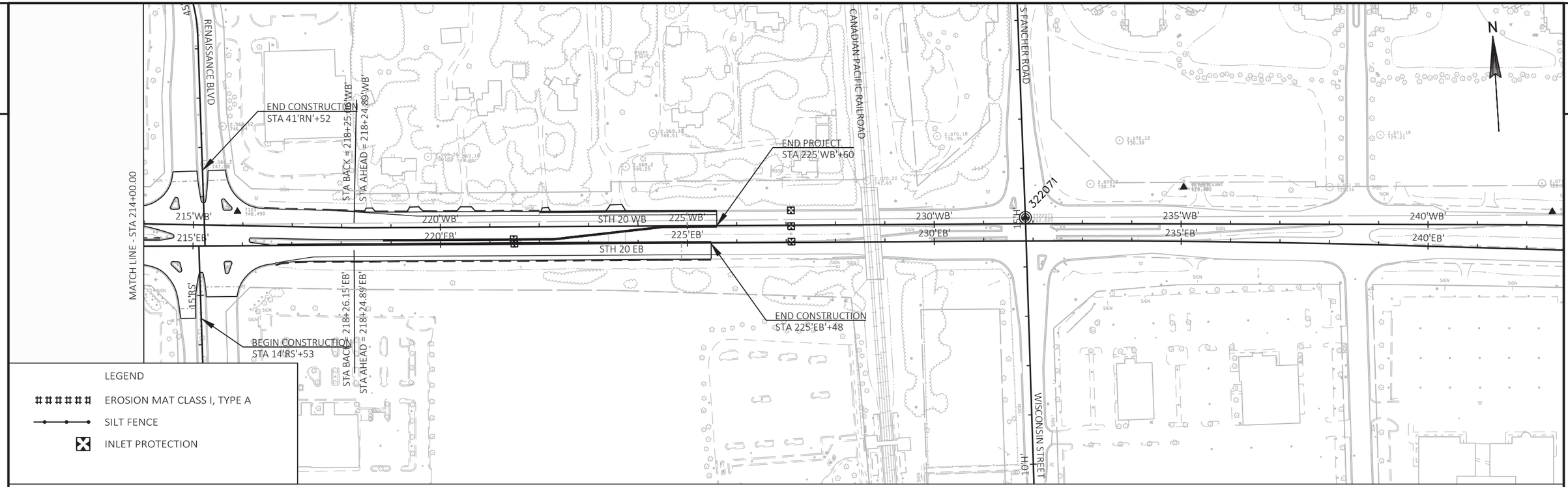
SILT FENCE

INLET PROTECTION

PROJECT NO: 2250-16-70	HWY: STH 20	COUNTY: RACINE	EROSION CONTROL	SHEET	E

FILE NAME : X:\PROJECTS\RACINE\STH 20\DESIGN\C3D\SHEETSPLAN\022001-EC.DWG
LAYOUT NAME - 050202-pn

PLOT DATE : 11/30/2017 3:49 PM PLOT BY : BRAD GROH PLOT NAME : PLOT SCALE : ##########



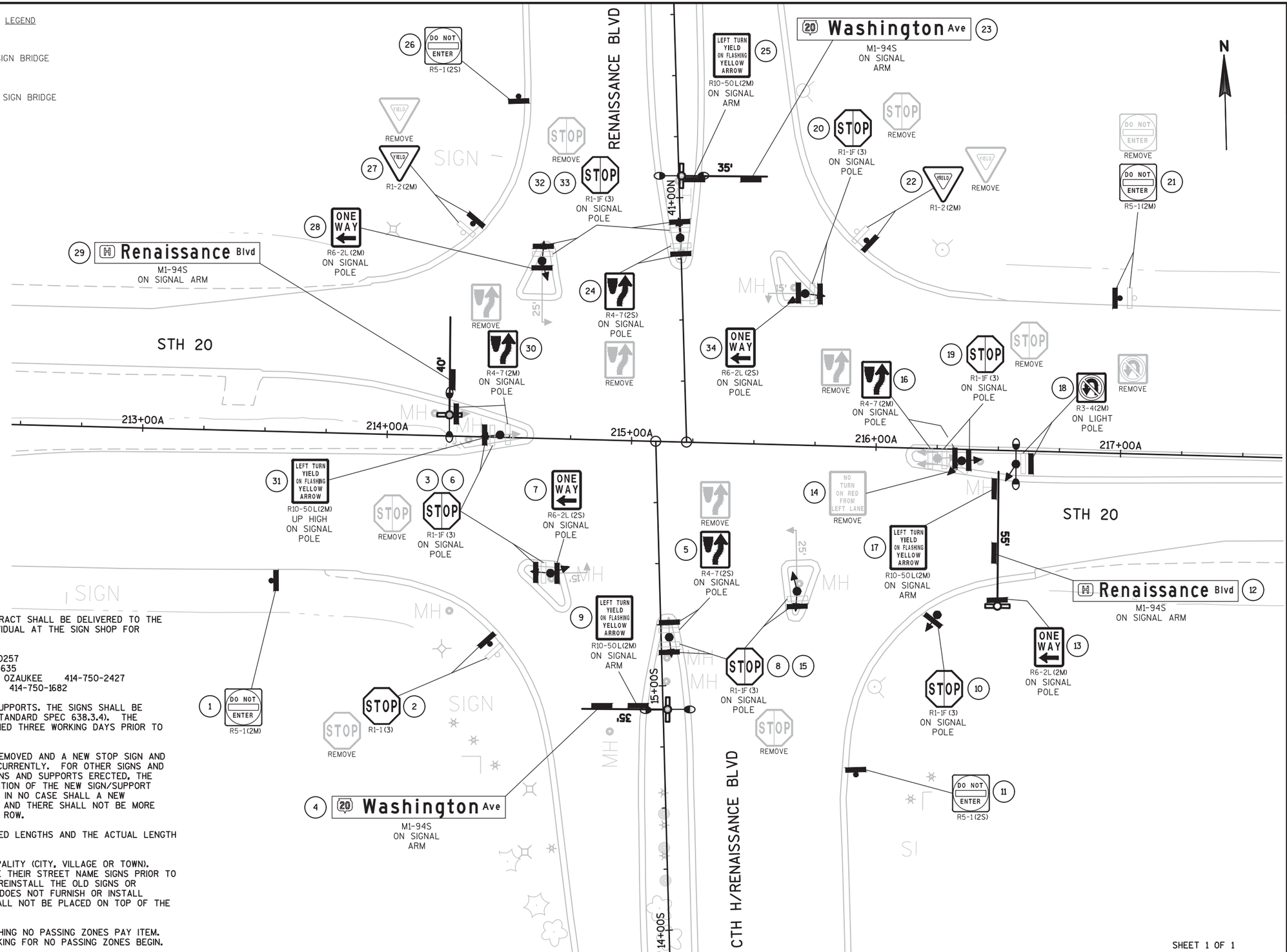
2

PROJECT NO: 2250-16-70	HWY: STH 20	COUNTY: RACINE	EROSION CONTROL	SHEET 32 E

FILE NAME : X:\PROJECTS\RACINE\STH 20\DESIGN\C3D\SHEETSPLAN\022001-EC.DWG
LAYOUT NAME - 050203-pn
PLOT DATE : 11/30/2017 3:49 PM
PLOT BY : BRAD GROH
PLOT NAME :
PLOT SCALE : ##########

LEGEND

- EXISTING SIGN MOUNTED ON POST(S)
- EXISTING SIGN MOUNTED ON BRIDGE OR SIGN BRIDGE
- PROPOSED SIGN MOUNTED ON POST(S)
- PROPOSED SIGN MOUNTED ON BRIDGE OR SIGN BRIDGE
- VMS VARIABLE MESSAGE SIGN
- EXISTING LIGHT OR SIGNAL POLE
- SIGN BRIDGE
- CANTILEVER SIGN BRIDGE
- (XXX) DENOTES SIGN NUMBER
- (X) INDICATES SIGN SIZE



TYPE II ALUMINUM SIGNS REMOVED UNDER THE CONTRACT SHALL BE DELIVERED TO THE COUNTY SIGN SHOP. CONTACT THE FOLLOWING INDIVIDUAL AT THE SIGN SHOP FOR DISTRIBUTION COUNTY LOCATION.
SIGNING COORDINATOR COUNTY(S) PHONE#

- DENNIS NEWTON MILWAUKEE 414-750-0257
- ANDRE CHAPMAN RACINE 414-531-2635
- JENNY BUCKETT KENOSHA, WASHINGTON, OZAUKEE 414-750-2427
- CHUCK SALDIVAR WALWORTH, WAUKESHA 414-750-1682

SIGNS SHALL BE CAREFULLY REMOVED FROM SIGN SUPPORTS. THE SIGNS SHALL BE PALLETIZED FOR HANDLING WITH A FORKLIFT (SEE STANDARD SPEC 638.3.4). THE REGIONAL SIGN SHOP (414-266-1165) SHALL BE NOTIFIED THREE WORKING DAYS PRIOR TO DELIVERY OF THE SIGNS.

WHEN AN EXISTING STOP SIGN SUPPORT IS TO BE REMOVED AND A NEW STOP SIGN AND SUPPORT ERECTED, THE WORK SHALL BE DONE CONCURRENTLY. FOR OTHER SIGNS AND SUPPORTS THAT ARE TO BE REMOVED AND NEW SIGNS AND SUPPORTS ERECTED, THE REMOVAL OF THE EXISTING SIGN/SUPPORT AND ERECTION OF THE NEW SIGN/SUPPORT SHOULD BE DONE AS CONCURRENTLY AS POSSIBLE. IN NO CASE SHALL A NEW SIGN/SUPPORT BE DOWN FOR MORE THAN 24 HOURS AND THERE SHALL NOT BE MORE THAN ONE SIGN OF THE SAME LEGEND MISSING IN A ROW.

WOOD POST SIZES, FOR TYPE II SIGNS ARE ESTIMATED LENGTHS AND THE ACTUAL LENGTH WILL BE DETERMINED IN THE FIELD.

STREET NAME SIGNS ARE PROPERTY OF THE MUNICIPALITY (CITY, VILLAGE OR TOWN). THE MUNICIPALITY SHALL BE CONTACTED TO REMOVE THEIR STREET NAME SIGNS PRIOR TO CONSTRUCTION AND IT IS THEIR RESPONSIBILITY TO REINSTALL THE OLD SIGNS OR REPLACE THEM FOLLOWING CONSTRUCTION. WISDOT DOES NOT FURNISH OR INSTALL STREET NAME SIGNS. THE STREET NAME SIGNS SHALL NOT BE PLACED ON TOP OF THE STOP SIGNS.

LOCATE NO PASSING PENNANTS BASED ON ESTABLISHING NO PASSING ZONES PAY ITEM. PLACE SIGNS BASED ON WHERE THE PAVEMENT MARKING FOR NO PASSING ZONES BEGIN.

SHEET 1 OF 1

PROJECT NO: 2250-16-70	HWY: STH 20	COUNTY: RACINE	PERMANENT SIGNING	SHEET 33	E

CONSTRUCTION NOTES:
1. THE LOCATIONS OF EXISTING AND PROPOSED UTILITY INSTALLATIONS ARE APPROXIMATE. THERE MAY BE OTHER UTILITY INSTALLATIONS WITHIN THE PROJECT WHICH ARE NOT SHOWN.

2. USE DROPS TO EXISTING HEADS 20, 21 AND 22.

N

STH 20 (WASHINGTON AVE)

SPEED LIMIT= 50 MPH

SPEED LIMIT= 35 MPH

RENAISSANCE BLVD

CTH H/RENAISSANCE BLVD

ON SIGNAL POLE

R1-1F 30"X30"

PB1 PB2 PB5 PB6 PB7 PB10 PB13 PB15 PB18 PB19 PB20 PB22 PB25

LEGEND

- OVERHEAD CABLE
- XX SIGNAL HEAD NUMBER
- R RED CIRCULAR INDICATOR
- Y YELLOW CIRCULAR INDICATOR
- G GREEN CIRCULAR INDICATOR
- RED ARROW
- YELLOW ARROW
- GREEN ARROW
- X EVP DESIGNATOR
- EVP DETECTOR HEAD
- V COMMUNICATIONS VAULT
- Y YIELD SIGN
- S STOP SIGN
- SIGNAL HEAD
- LUMINAIRE, WOOD POLE, DIRECT BURY

NOTE: ALL LENSES ARE 12-INCH
GRAYSHADE REPRESENTS EXISTING

STH 20 & CTH H/RENAISSANCE BLVD
VILLAGE OF MT. PLEASANT
RACINE COUNTY

SIGNAL NO. S51-719

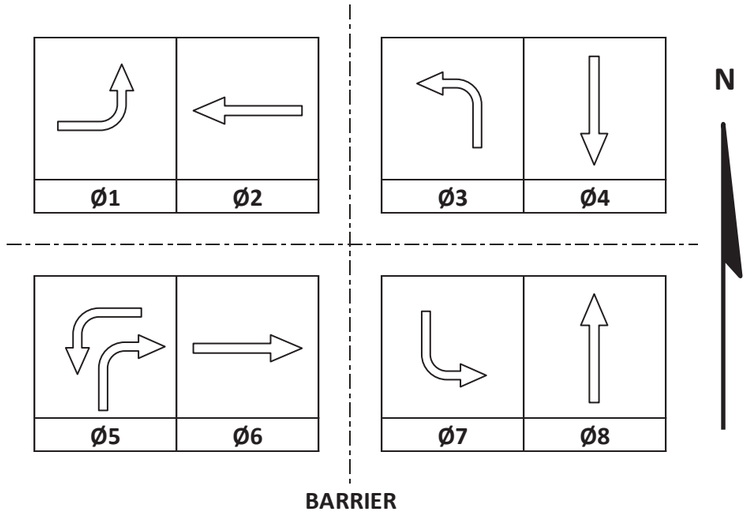
CONTROLLER TYPE: TEMP

DATE: 11/2017 PAGE 1 OF 2

PROJECT NO: 2250-16-70	HWY: STH 20	COUNTY: RACINE	TEMPORARY SIGNAL PLAN	SHEET 34	E

2

	HEAD NUMBERS	FLASH
Ø1	4, 5, 6	R
Ø2	7, 8, 9	R
Ø3	17, 18, 19	R
Ø4	23, 24, 25	R
Ø5	10, 11, 12, 13, 20, 21, 22	R
Ø6	1, 2, 3	R
Ø7	26, 27, 28	R
Ø8	14, 15, 16	R
Ø2P		
Ø4P		
Ø6P		
Ø8P		
OLA		
OLB		
OLC		
OLD		



CONTROLLER LOGIC

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

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

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

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

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

EMERGENCY VEHICLE PREEMPTION SEQUENCE

EMERGENCY VEHICLE PREEMPTOR	A	B	C	D
MOVEMENT				
PHASE	2+5	6+1	4+7	8+3

AFTER PREEMPTION SEQUENCE 2+5 OR 6+1, CONTROLLER SHALL RETURN TO PHASES 2+6.
AFTER PREEMPTION SEQUENCE 4+7 OR 8+3, CONTROLLER SHALL RETURN TO PHASES 4+8.

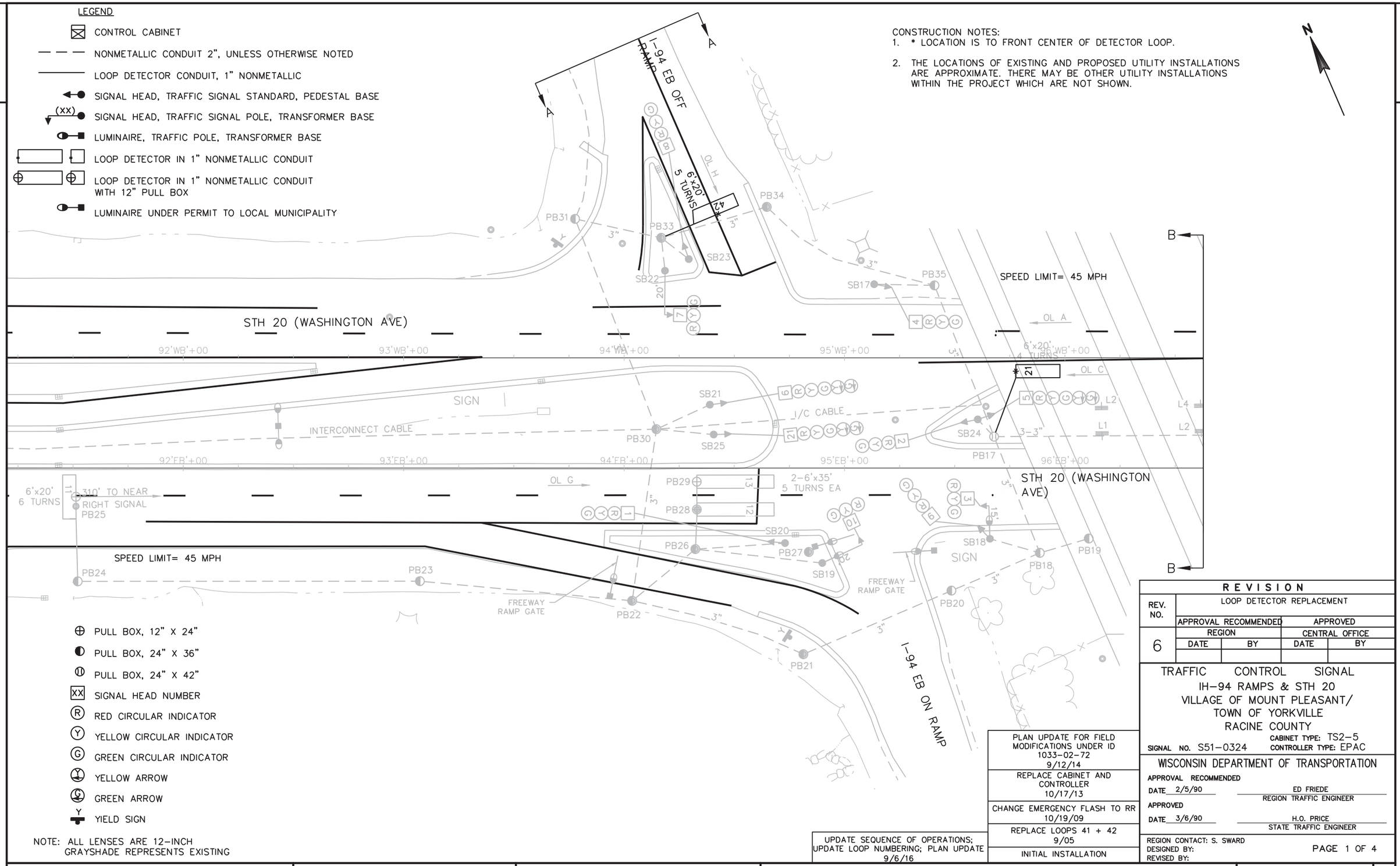
STH 20 & CTH H/Renaissance Blvd
Village of Mt. Pleasant
Racine COUNTY
SIGNAL NO: S51-0719 CABINET TYPE: Temp
CONTROLLER TYPE: Temp
DATE: 11/2017 PAGE NO. 2 OF 2

2

LEGEND

- CONTROL CABINET
- NONMETALLIC CONDUIT 2", UNLESS OTHERWISE NOTED
- LOOP DETECTOR CONDUIT, 1" NONMETALLIC
- SIGNAL HEAD, TRAFFIC SIGNAL STANDARD, PEDESTAL BASE
- (xx) SIGNAL HEAD, TRAFFIC SIGNAL POLE, TRANSFORMER BASE
- LUMINAIRE, TRAFFIC POLE, TRANSFORMER BASE
- LOOP DETECTOR IN 1" NONMETALLIC CONDUIT
- LOOP DETECTOR IN 1" NONMETALLIC CONDUIT WITH 12" PULL BOX
- LUMINAIRE UNDER PERMIT TO LOCAL MUNICIPALITY

CONSTRUCTION NOTES:
1. * LOCATION IS TO FRONT CENTER OF DETECTOR LOOP.
2. THE LOCATIONS OF EXISTING AND PROPOSED UTILITY INSTALLATIONS ARE APPROXIMATE. THERE MAY BE OTHER UTILITY INSTALLATIONS WITHIN THE PROJECT WHICH ARE NOT SHOWN.



- ⊕ PULL BOX, 12" X 24"
- ◐ PULL BOX, 24" X 36"
- ⓓ PULL BOX, 24" X 42"
- XX SIGNAL HEAD NUMBER
- Ⓡ RED CIRCULAR INDICATOR
- Ⓨ YELLOW CIRCULAR INDICATOR
- Ⓖ GREEN CIRCULAR INDICATOR
- YELLOW ARROW
- GREEN ARROW
- Y YIELD SIGN

NOTE: ALL LENSES ARE 12-INCH
GRAYSHADE REPRESENTS EXISTING

REVISION				
REV. NO.	LOOP DETECTOR REPLACEMENT			
	APPROVAL RECOMMENDED		APPROVED	
	REGION		CENTRAL OFFICE	
6	DATE	BY	DATE	BY

PLAN UPDATE FOR FIELD MODIFICATIONS UNDER ID 1033-02-72 9/12/14

REPLACE CABINET AND CONTROLLER 10/17/13

CHANGE EMERGENCY FLASH TO RR 10/19/09

REPLACE LOOPS 41 + 42 9/05

INITIAL INSTALLATION

UPDATE SEQUENCE OF OPERATIONS; UPDATE LOOP NUMBERING; PLAN UPDATE 9/6/16

TRAFFIC CONTROL SIGNAL
IH-94 RAMPS & STH 20
VILLAGE OF MOUNT PLEASANT/
TOWN OF YORKVILLE
RACINE COUNTY

CABINET TYPE: TS2-5
SIGNAL NO. S51-0324 CONTROLLER TYPE: EPAC

WISCONSIN DEPARTMENT OF TRANSPORTATION

APPROVAL RECOMMENDED
DATE 2/5/90 ED FRIEDE
REGION TRAFFIC ENGINEER

APPROVED
DATE 3/6/90 H.O. PRICE
STATE TRAFFIC ENGINEER

REGION CONTACT: S. SWARD
DESIGNED BY:
REVISED BY:

PAGE 1 OF 4

PROJECT NO: 2250-16-70	HWY: STH 20	COUNTY: RACINE	TRAFFIC SIGNAL PLAN – IH-94 RAMPS	SHEET 36	E

FILE NAME : X:\PROJECTS\RACINE\STH 20\DESIGN\C3D\SHEETSPLAN\024201-SP.DWG
LAYOUT NAME – 024201-SP – S51-0324_G_PG1

PLOT DATE : 12/20/2017 12:28 PM PLOT BY : DYLAN DOUGLAS PLOT NAME : PLOT SCALE : 1 IN: 40 FT

WISDOT/CADDS SHEET 42

2

N

I-94 WB ON RAMP

FREEWAY RAMP GATE

CB1

PB1

INTERCONNECT CABLE

PB2

SB28

SB30

PB3

PB4

INTERCONNECT CABLE

FREEWAY RAMP GATE

SPEED LIMIT= 45 MPH

STH 20 (WASHINGTON AVE)

300' TO NEAR RIGHT SIGNAL

6'x20' 5 TURNS

97'WB'+00 98'WB'+00 99'WB'+00 100'WB'+00 101'WB'+00 102'WB'+00

6'x20' 3 TURNS

OL E

PB6

SIGN

INTERCONNECT CABLE

PB5

SB27

PB16

SB32

INTERCONNECT CABLE

SIGN

97'EB'+00 98'EB'+00 99'EB'+00 100'EB'+00 101'EB'+00 102'EB'+00

6'x20' 2 TURNS

OL D

STH 20 (WASHINGTON AVE)

6'x20' 4 TURNS

200' TO NEAR RIGHT SIGNAL

OL B

PB15

SB35

SB34

SB33

PB14

PB13 PB12

PB11 PB10

PB7

PB8

8' (TYP.)

4-6'x20' 4 TURNS EA

OL F

I-94 WB OFF RAMP

B

B

C

C

TRAFFIC CONTROL SIGNAL
IH-94 RAMPS & STH 20
VILLAGE OF MOUNT PLEASANT/
TOWN OF YORKVILLE
RACINE COUNTY

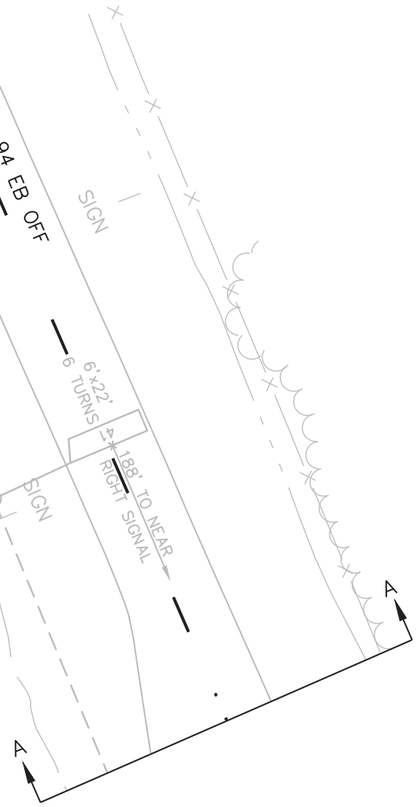
SIGNAL NO. S51-0324

REGION CONTACT: S. SWARD
DESIGNED BY:
REVISED BY:

PAGE 2 OF 4

PROJECT NO: 2250-16-70	HWY: STH 20	COUNTY: RACINE	TRAFFIC SIGNAL PLAN – IH-94 RAMPS	SHEET 37	E

2



TRAFFIC CONTROL SIGNAL
IH-94 RAMPS & STH 20
VILLAGE OF MOUNT PLEASANT/
TOWN OF YORKVILLE
RACINE COUNTY

SIGNAL NO. S51-0324

REGION CONTACT: S. SWARD
DESIGNED BY:
REVISED BY:

PAGE 3 OF 4

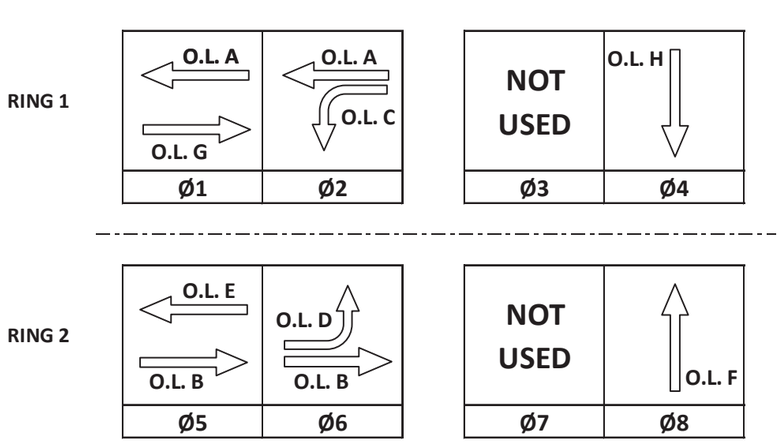
PROJECT NO: 2250-16-70	HWY: STH 20	COUNTY: RACINE	TRAFFIC SIGNAL PLAN – IH-94 RAMPS	SHEET 38	E

FILE NAME : X:\PROJECTS\RACINE\STH 20\DESIGN\C3D\SHEETSPLAN\024201-SP.DWG
LAYOUT NAME – 024201-SP – S51-0324_G_PG3

PLOT DATE : 12/20/2017 12:29 PM PLOT BY : DYLAN DOUGLAS PLOT NAME : PLOT SCALE : 1 IN: 40 FT

	HEAD NUMBERS	FLASH
OLA	4,5,6,7,21	R
OLB	11,12,13,14	R
OLC	5,21	-
OLD	12,13	-
OLE	15,16,17	R
OLF	18,19,20	R
OLG	1,2,3	R
OLH	8,9,10	R
Ø2P		
Ø4P		
Ø6P		
Ø8P		

** WEST RAMP INTERSECTION



** EAST RAMP INTERSECTION

* RING 1 SHALL CONTROL THE WEST RAMP
* RING 2 SHALL CONTROL THE EAST RAMP

N

CONTROLLER LOGIC

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

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

TYPE OF COORDINATION	
NONE	
TBC	X
TRAFFIC RESPONSIVE	
ADAPTIVE	
*LOCATION OF MASTER CONTROLLER NO:	S-
SIGNAL SYSTEM NO:	SS- 00-36

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

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

DETECTOR LOGIC

DETECTOR INPUT	3	1	7	5	11	9	15	13	DETECTOR INPUT
PLAN LOOP DETECTOR*(S)	81	82	84	21	41	42	61	11	PLAN LOOP DETECTOR*(S)
ASSIGNED PHASE	8	8	8	2	4	4	6	1	ASSIGNED PHASE
OPERATION MODE	VEH	VEH	VEH	VEH	VEH	VEH	VEH	VEH	OPERATION MODE
SWITCH									SWITCH
EXTEND	X				X			X	EXTEND
DELAY	X			X	X		X	X	DELAY

DETECTOR INPUT	19	17	23	21	27	25	31	29	DETECTOR INPUT
PLAN LOOP DETECTOR*(S)			51	52					PLAN LOOP DETECTOR*(S)
ASSIGNED PHASE			5	5					ASSIGNED PHASE
OPERATION MODE	VEH	VEH	VEH	VEH	VEH	VEH	VEH	VEH	OPERATION MODE
SWITCH									SWITCH
EXTEND			X						EXTEND
DELAY			X						DELAY

DETECTOR INPUT	4	2	8	6	12	10	16	14	DETECTOR INPUT
PLAN LOOP DETECTOR*(S)		83	85						PLAN LOOP DETECTOR*(S)
ASSIGNED PHASE		8	8						ASSIGNED PHASE
OPERATION MODE	VEH	VEH	VEH	VEH	VEH	VEH	VEH	VEH	OPERATION MODE
SWITCH									SWITCH
EXTEND									EXTEND
DELAY									DELAY

DETECTOR INPUT	20	18	24	22	28	26	32	30	DETECTOR INPUT
PLAN LOOP DETECTOR*(S)	12	13							PLAN LOOP DETECTOR*(S)
ASSIGNED PHASE	1	1							ASSIGNED PHASE
OPERATION MODE	VEH	VEH	VEH	VEH	VEH	VEH	VEH	VEH	OPERATION MODE
SWITCH									SWITCH
EXTEND									EXTEND
DELAY									DELAY

GENERAL NOTES:

1. PHASE 1 SHALL LAG PHASE 2, PHASE 5 SHALL LAG PHASE 6, AND A RING LAG SHALL EXIST DURING COODINATION IN ORDER TO RUN A 4-PHASE TTI OPERATION BECAUSE OF LEFT TURN STORAGE ISSUES.

IH-94 RAMPS & STH 20
VILLAGE OF MOUNT PLEASANT/VILLAGE OF YORKVILLE
RACINE COUNTY

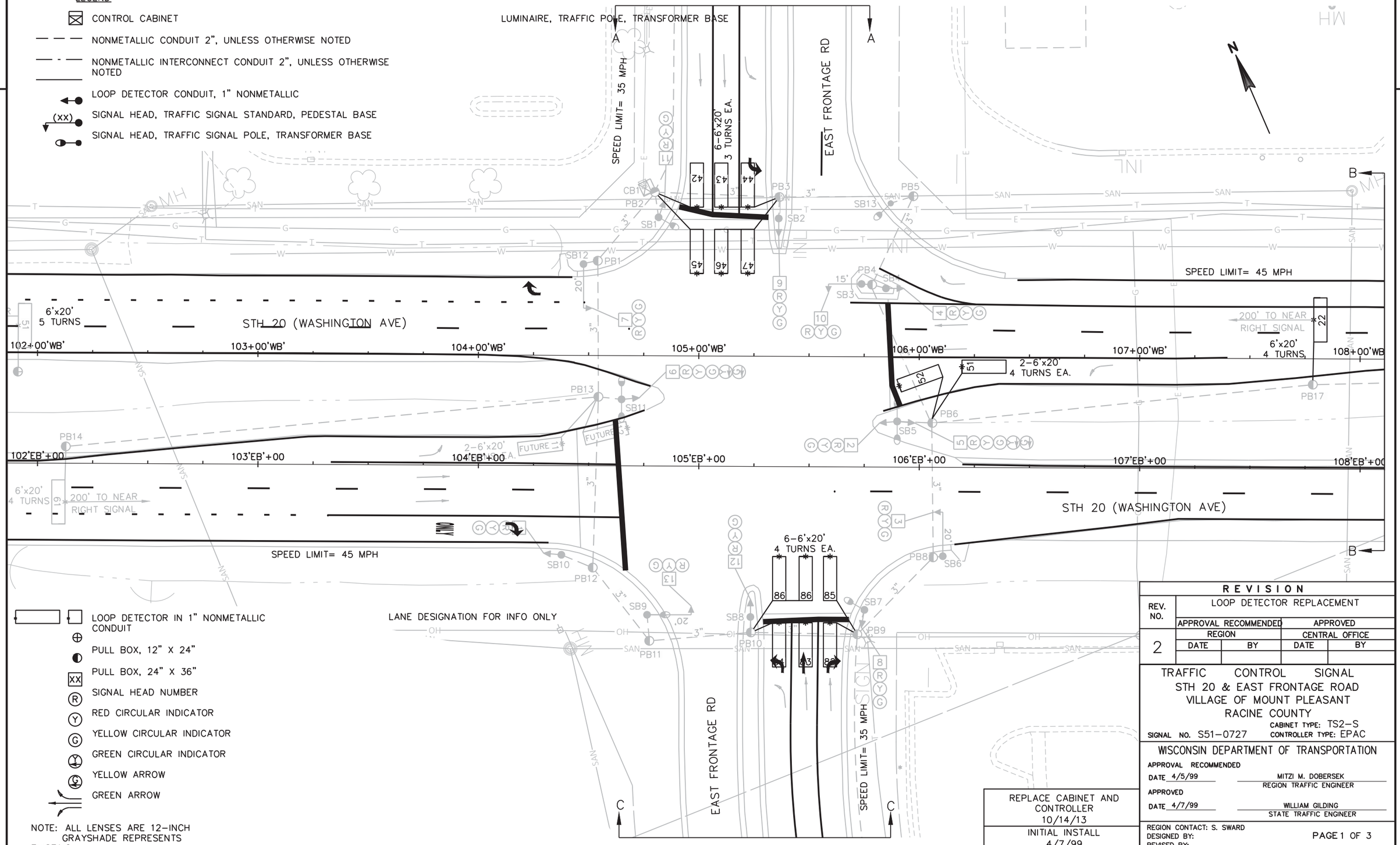
SIGNAL NO: S51-0324 CABINET TYPE: TS2
CONTROLLER TYPE: EPAC
DATE: 8/16 PAGE NO. 4 OF 4

2

LEGEND

- CONTROL CABINET
- NONMETALLIC CONDUIT 2", UNLESS OTHERWISE NOTED
- NONMETALLIC INTERCONNECT CONDUIT 2", UNLESS OTHERWISE NOTED
- LOOP DETECTOR CONDUIT, 1" NONMETALLIC
- (xx) SIGNAL HEAD, TRAFFIC SIGNAL STANDARD, PEDESTAL BASE
- SIGNAL HEAD, TRAFFIC SIGNAL POLE, TRANSFORMER BASE

LUMINAIRE, TRAFFIC POLE, TRANSFORMER BASE



- LOOP DETECTOR IN 1" NONMETALLIC CONDUIT
- PULL BOX, 12" X 24"
- PULL BOX, 24" X 36"
- (XX) SIGNAL HEAD NUMBER
- (R) RED CIRCULAR INDICATOR
- (Y) YELLOW CIRCULAR INDICATOR
- (G) GREEN CIRCULAR INDICATOR
- YELLOW ARROW
- GREEN ARROW

NOTE: ALL LENSES ARE 12-INCH GRAYSHADE REPRESENTS EXISTING

REPLACE CABINET AND CONTROLLER 10/14/13

INITIAL INSTALL 4/7/99

REVISION				
REV. NO.	LOOP DETECTOR REPLACEMENT			
	APPROVAL RECOMMENDED		APPROVED	
	REGION		CENTRAL OFFICE	
	DATE	BY	DATE	BY
2				

TRAFFIC CONTROL SIGNAL
STH 20 & EAST FRONTAGE ROAD
VILLAGE OF MOUNT PLEASANT
RACINE COUNTY

SIGNAL NO. S51-0727
CABINET TYPE: TS2-S
CONTROLLER TYPE: EPAC

WISCONSIN DEPARTMENT OF TRANSPORTATION

APPROVAL RECOMMENDED
DATE 4/5/99 — MITZI M. DOBERSEK, REGION TRAFFIC ENGINEER

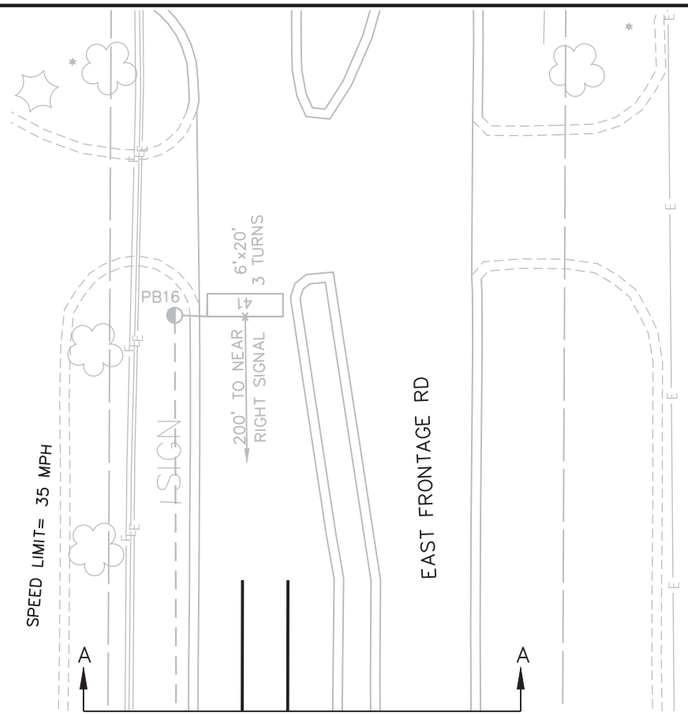
APPROVED
DATE 4/7/99 — WILLIAM GILDING, STATE TRAFFIC ENGINEER

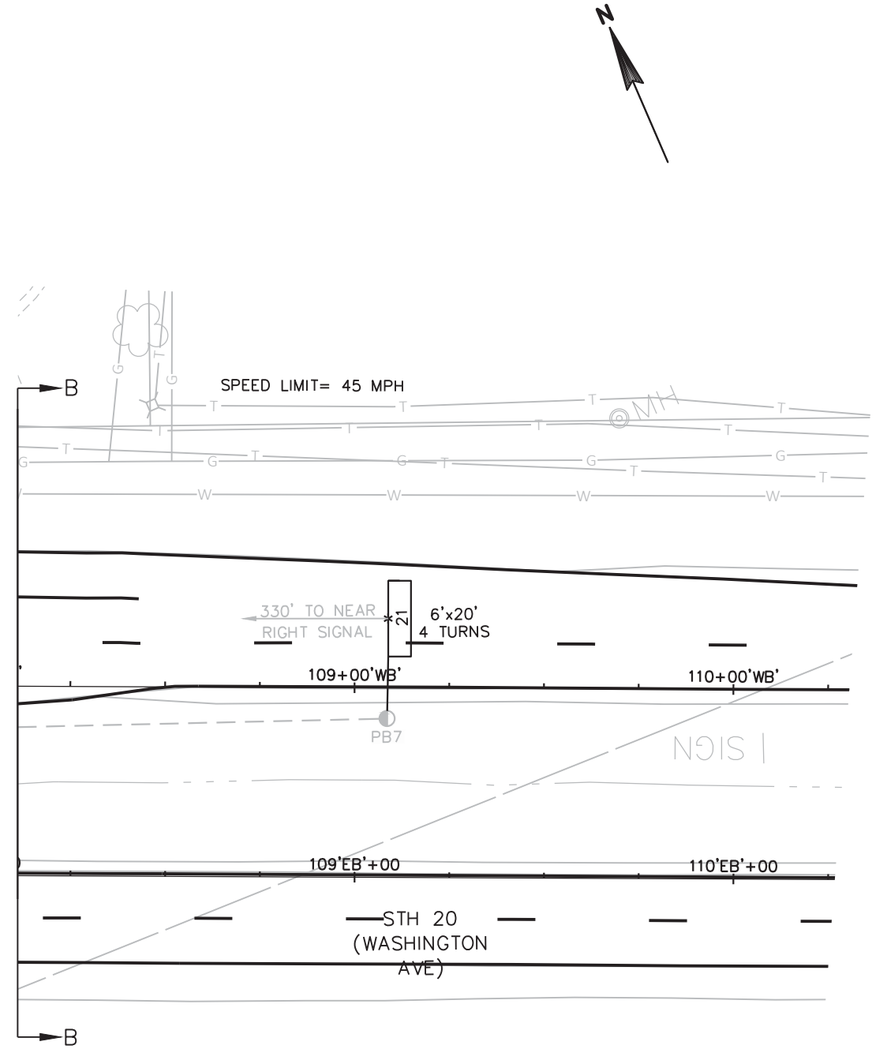
REGION CONTACT: S. SWARD
DESIGNED BY:
REVISED BY:

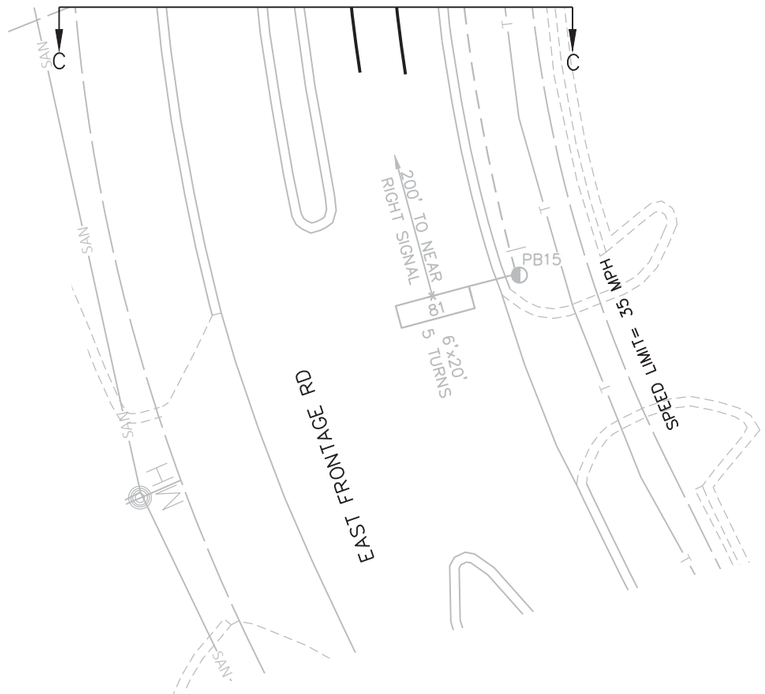
PROJECT NO: 2250-16-70	HWY: STH 20	COUNTY: RACINE	TRAFFIC SIGNAL PLAN – EAST FRONTAGE ROAD	SHEET 40	E

FILE NAME : X:\PROJECTS\RACINE\STH 20\DESIGN\C3D\SHEETSPLAN\024202-SP.DWG
LAYOUT NAME – 024202-SP – S51-0727_C_PG1
PLOT DATE : 12/20/2017 12:31 PM PLOT BY : DYLAN DOUGLAS PLOT NAME : PLOT SCALE : 1 IN:40 FT
WISDOT/CADDS SHEET 42

2







TRAFFIC CONTROL SIGNAL
STH 20 & EAST FRONTAGE ROAD
VILLAGE OF MOUNT PLEASANT
RACINE COUNTY

SIGNAL NO. S51-0727

REGION CONTACT: S. SWARD
DESIGNED BY:
REVISED BY:

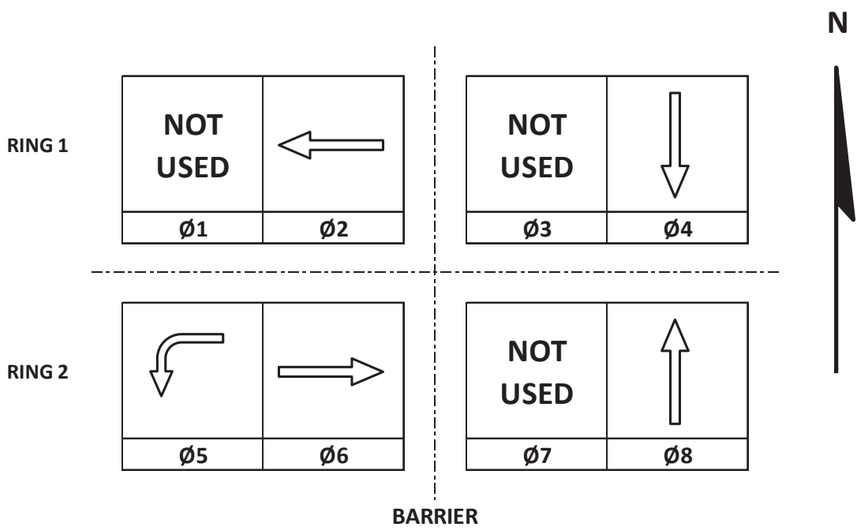
PAGE 2 OF 3

PROJECT NO: 2250-16-70	HWY: STH 20	COUNTY: RACINE	TRAFFIC SIGNAL PLAN – EAST FRONTAGE ROAD	SHEET 41	E

FILE NAME : X:\PROJECTS\RACINE\STH 20\DESIGN\C3D\SHEETSPLAN\024202-SP.DWG
LAYOUT NAME – 024202-SP – S51-0727_C_PG2

PLOT DATE : 12/20/2017 12:31 PM PLOT BY : DYLAN DOUGLAS PLOT NAME : PLOT SCALE : 1 IN:40 FT

	HEAD NUMBERS	FLASH
Ø1		
Ø2	4, 5, 6, 7	R
Ø3		
Ø4	11, 12, 13	R
Ø5	5, 6	R ←
Ø6	1, 2, 3	R
Ø7		
Ø8	8, 9, 10	R
Ø2P		
Ø4P		
Ø6P		
Ø8P		
OLE		
OLF		
OLG		
OLH		



CONTROLLER LOGIC

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

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

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

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

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

DETECTOR LOGIC

DETECTOR INPUT	3	1	7	5	11	9	15	13
PLAN LOOP DETECTOR*(S)		21	41	42	43	44	51	61
CALLED PHASE		2	4	4	4	4	5	6
CALL OPTION		X	X	X	X	X	X	X
DELAY TIME			X	X				
EXTENTION OPTION			X	X	X	X	X	X
EXTEND TIME			X					
USE ADDED INITIAL								
CROSS SWITCH PHASE							2	

19	17	23	21	27	25	31	29	DETECTOR INPUT
81	82	83	84					PLAN LOOP DETECTOR*(S)
8	8	8	8					CALLED PHASE
X	X	X	X					CALL OPTION
X	X							DELAY TIME
X	X	X	X					EXTENTION OPTION
X								EXTEND TIME
								USE ADDED INITIAL
								CROSS SWITCH PHASE

DETECTOR INPUT	4	2	8	6	12	10	16	14
PLAN LOOP DETECTOR*(S)		22		45	46	47	52	
CALLED PHASE		2		4	4	4	5	
CALL OPTION		X		X	X	X	X	
DELAY TIME				X				
EXTENTION OPTION		X		X	X	X	X	
EXTEND TIME		X						
USE ADDED INITIAL								
CROSS SWITCH PHASE								

20	18	24	22	28	26	32	30	DETECTOR INPUT
	85	86	87					PLAN LOOP DETECTOR*(S)
	8	8	8					CALLED PHASE
	X	X	X					CALL OPTION
	X							DELAY TIME
	X	X	X					EXTENTION OPTION
								EXTEND TIME
								USE ADDED INITIAL
								CROSS SWITCH PHASE

STH 20 & EAST FRONTAGE ROAD
VILLAGE OF MOUNT PLEASANT
RACINE COUNTY

SIGNAL NO: S51-0727	CABINET TYPE: TS2
	CONTROLLER TYPE: ECONOLITE
DATE: 11/2017	PAGE NO. 3 OF 3

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

MONOTUBE STRUCTURES
SB5 = S–51–1151
SB8 = S–51–1152
SB14 = S–51–1153
SB16 = S–51–1154

LEGEND

- CONTROL CABINET
- NONMETALLIC CONDUIT 2", UNLESS OTHERWISE NOTED
- LOOP DETECTOR CONDUIT, 1" NONMETALLIC
- SIGNAL HEAD, TRAFFIC SIGNAL STANDARD, PEDESTAL BASE
- (XX) MONOTUBE BASE, POLE, 15'–30' ARM
- (XX) MONOTUBE BASE, POLE, 35'–55' ARM
- LUMINAIRE, TRAFFIC POLE, TRANSFORMER BASE
- LOOP DETECTOR IN 1" NONMETALLIC CONDUIT
- VIDEO DETECTION AREA
- VX VIDEO DETECTION CAMERA
- PULL BOX, 24" X 36"
- PULL BOX, 24" X 42"
- XX SIGNAL HEAD NUMBER
- (R) RED CIRCULAR INDICATOR
- (Y) YELLOW CIRCULAR INDICATOR
- (G) GREEN CIRCULAR INDICATOR
- RED ARROW
- YELLOW ARROW
- GREEN ARROW
- YIELD SIGN
- CONFIRMATION LIGHT
- (X) EVP DESIGNATOR
- EVP DETECTOR HEAD
- NONMETALLIC INTERCONNECT CONDUIT 2", UNLESS OTHERWISE NOTED

NOTE: ALL LENSES ARE 12–INCH
GRAYSHADE REPRESENTS EXISTING

INSTALL FIBER OPTIC INTERCONNECT, PLAN UPDATE PER 2250–14–70 9/27/17

INITIAL INSTALL 5/10/13

REVISION				
REV. NO.	EVP AND LOOP DETECTOR ADDITIONS			
	APPROVAL RECOMMENDED		APPROVED	
	REGION		CENTRAL OFFICE	
2	DATE	BY	DATE	BY

TRAFFIC CONTROL SIGNAL
STH 20 & CTH V/INTERNATIONAL DRIVE
VILLAGE OF MOUNT PLEASANT
RACINE COUNTY
CABINET TYPE: TS2–E
SIGNAL NO. S51–1306 CONTROLLER TYPE: ECONOLITE

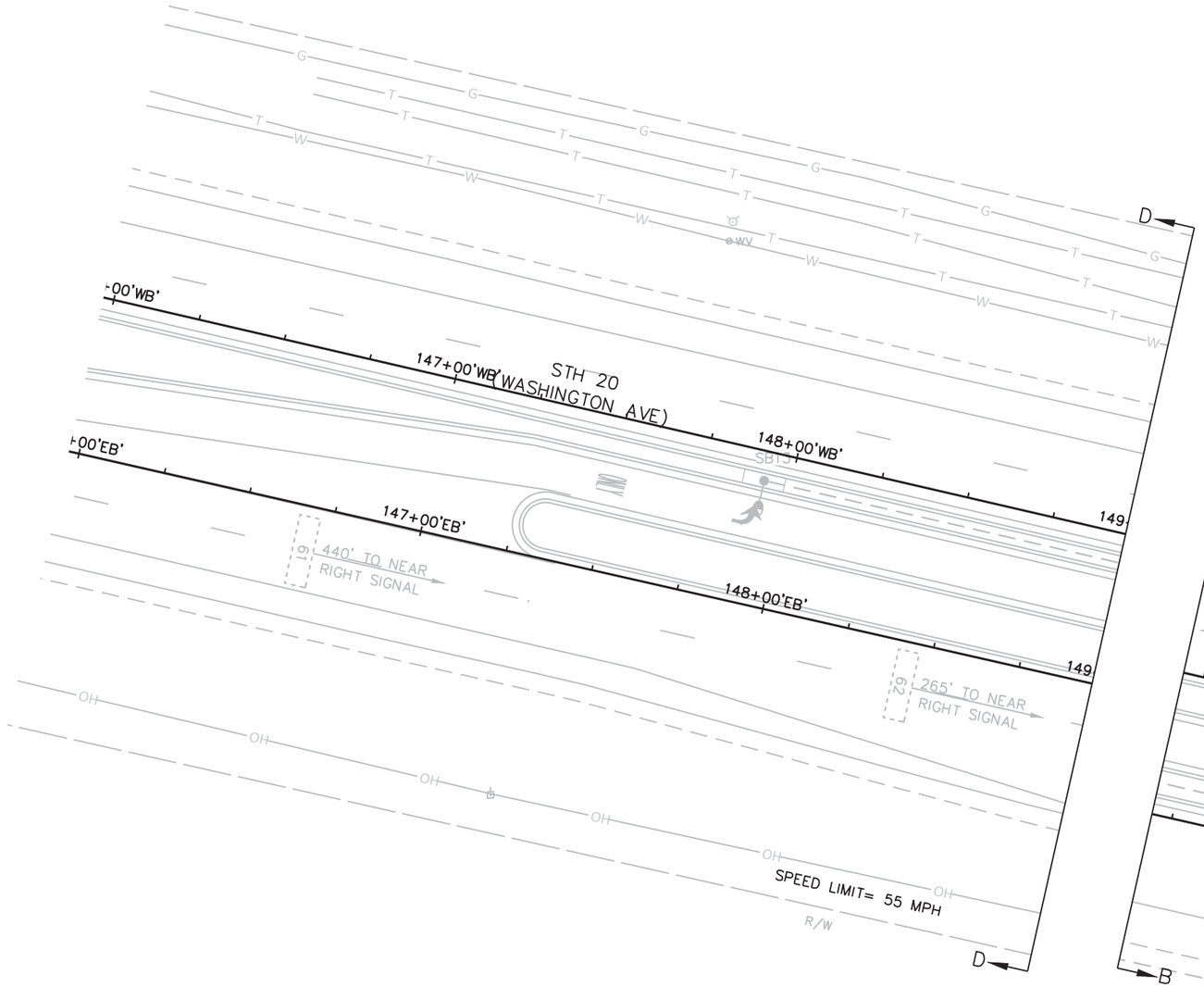
WISCONSIN DEPARTMENT OF TRANSPORTATION
APPROVAL RECOMMENDED
DATE 5/10/13 DAVID A. BRANTNER, REGION TRAFFIC ENGINEER
APPROVED
DATE 5/21/13 JOANNA L. BUSH, STATE TRAFFIC ENGINEER
REGION CONTACT: S. SWARD
DESIGNED BY:
REVISED BY:
PAGE 1 OF 4

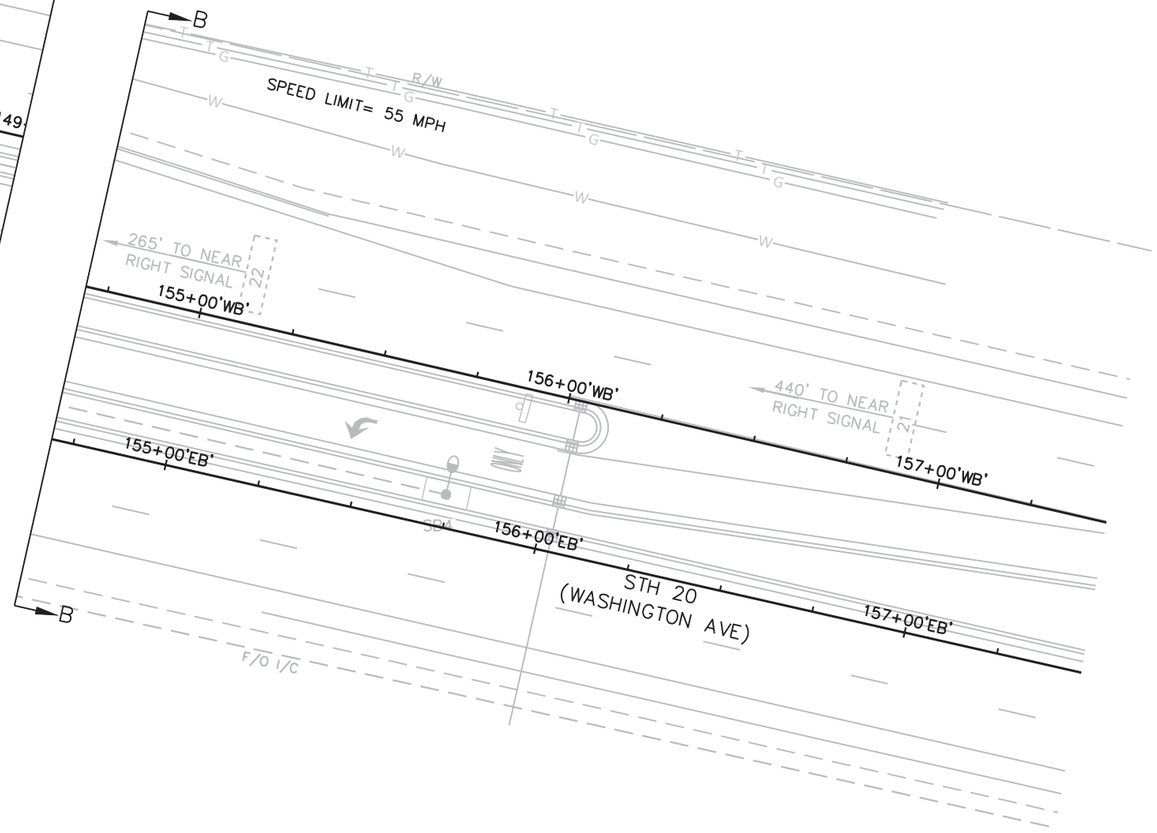
PROJECT NO: 2250–16–70	HWY: STH 20	COUNTY: RACINE	TRAFFIC SIGNAL PLAN – CTH V	SHEET 43	E

FILE NAME : X:\PROJECTS\RACINE\STH 20\DESIGN\C3D\SHEETSPLAN\024203–SP.DWG
LAYOUT NAME – 024203–SP – S51–1306_B_PG1
PLOT DATE : 12/20/2017 12:31 PM PLOT BY : DYLAN DOUGLAS PLOT NAME : PLOT SCALE : 1 IN:40 FT

2

N





TRAFFIC CONTROL SIGNAL
STH 20 & CTH V/INTERNATIONAL DRIVE
VILLAGE OF MOUNT PLEASANT
RACINE COUNTY

SIGNAL NO. S51–1306

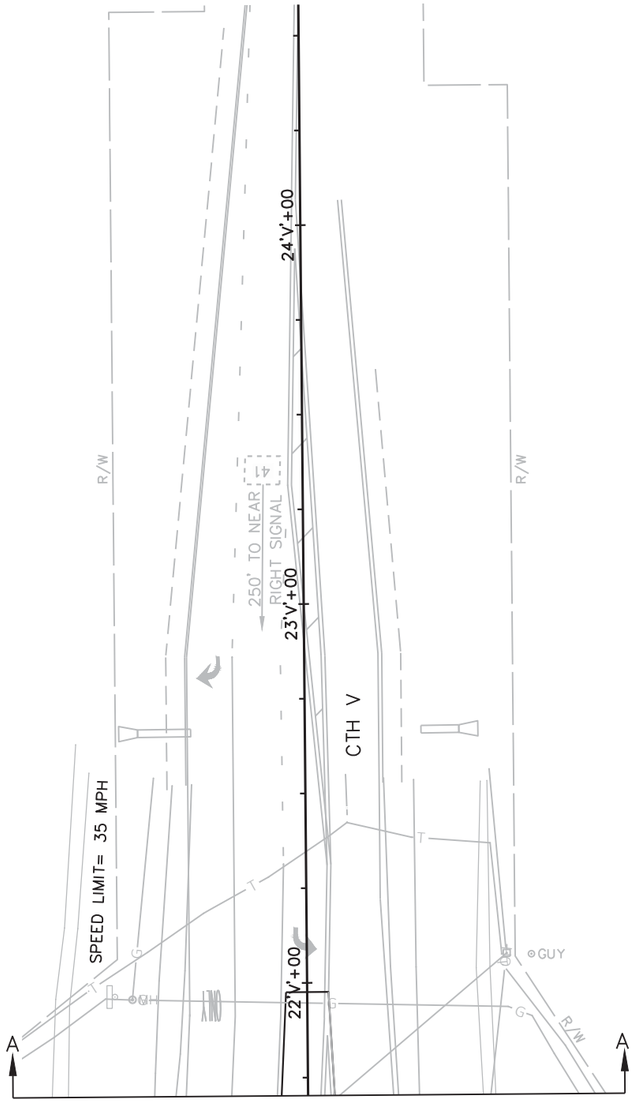
REGION CONTACT: S. SWARD
DESIGNED BY:
REVISED BY:

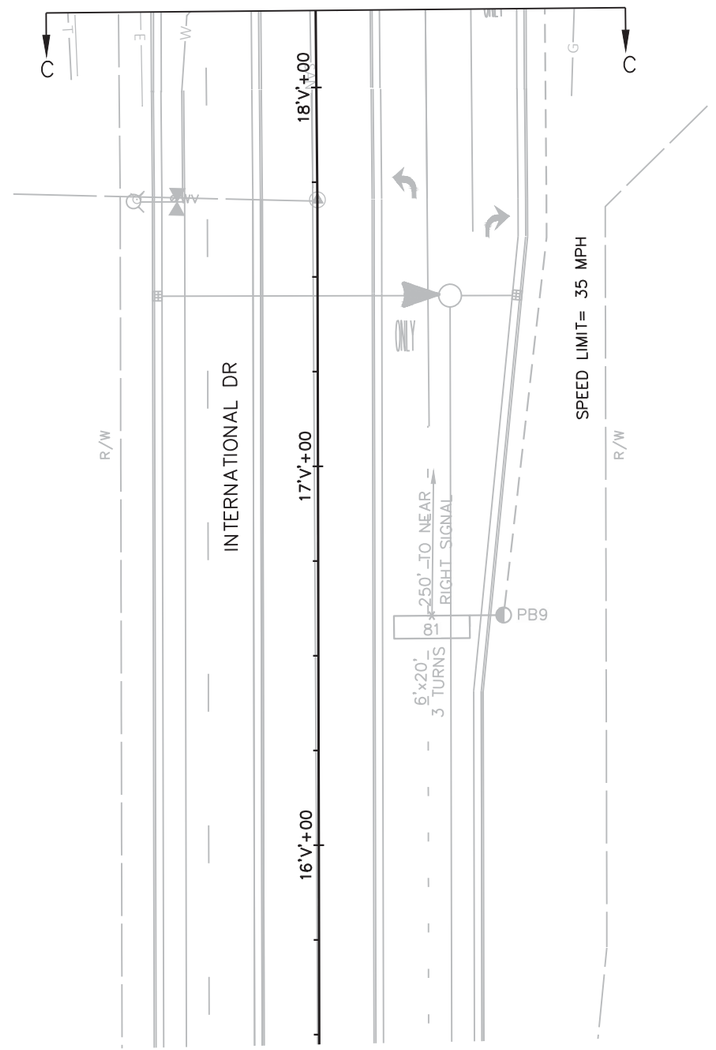
PAGE 2 OF 4

PROJECT NO: 2250–16–70	HWY: STH 20	COUNTY: RACINE	TRAFFIC SIGNAL PLAN – CTH V	SHEET 44	E

FILE NAME : X:\PROJECTS\RACINE\STH 20\DESIGN\C3D\SHEETSPLAN\024203–SP.DWG
LAYOUT NAME – 024203–SP – S51–1306_B_PG2

PLOT DATE : 12/20/2017 12:31 PM PLOT BY : DYLAN DOUGLAS PLOT NAME : PLOT SCALE : 1 IN: 40 FT





2

N

TRAFFIC CONTROL SIGNAL
STH 20 & CTH V/INTERNATIONAL DRIVE
VILLAGE OF MOUNT PLEASANT
RACINE COUNTY

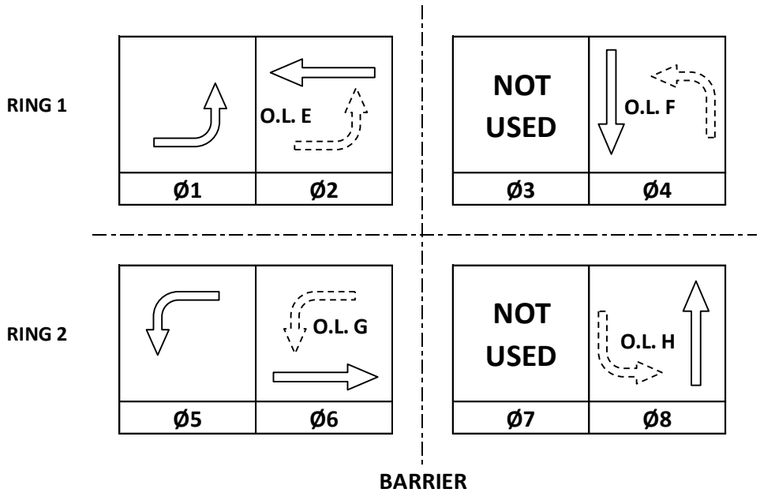
SIGNAL NO. S51–1306

REGION CONTACT: S. SWARD
DESIGNED BY:
REVISED BY:

PAGE 3 OF 4

PROJECT NO: 2250–16–70	HWY: STH 20	COUNTY: RACINE	TRAFFIC SIGNAL PLAN – CTH V	SHEET 45	E

	HEAD NUMBERS	FLASH
Ø1	4, 5	R ←
Ø2	6, 7, 8	R
Ø3		
Ø4	16, 17, 18	R
Ø5	9, 10	R ←
Ø6	1, 2, 3	R
Ø7		
Ø8	11, 12, 13	R
Ø2P		
Ø4P		
Ø6P		
Ø8P		
OLE	4, 5	-
OLF	14, 15	-
OLG	9, 10	-
OLH	19, 20	-



CONTROLLER LOGIC

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

EMERGENCY VEHICLE PREEMPTION SEQUENCE

EMERGENCY VEHICLE PREEMPTOR	A	B	C	D
MOVEMENT	←	→	↓↑	↓↑
PHASE	2+5	6+1	4+8	8+4

AFTER PREEMPTION SEQUENCE 2+5 OR 6+1, CONTROLLER SHALL RETURN TO PHASES 2+6.
AFTER PREEMPTION SEQUENCE 4+8 OR 8+4, CONTROLLER SHALL RETURN TO PHASES 4+8.

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

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

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

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

DETECTOR LOGIC

DETECTOR INPUT	3	1	7	5	11	9	15	13	19	17	23	21	27	25	31	29	DETECTOR INPUT
PLAN LOOP DETECTOR*(S)	11	42	44	51	81	82	84		21	41	61						PLAN LOOP DETECTOR*(S)
CALLED PHASE	1	4	4	5	8	8	8		2	4	6						CALLED PHASE
CALL OPTION	X	X	X	X		X	X		X		X						CALL OPTION
DELAY TIME																	DELAY TIME
EXTENTION OPTION	X	X	X	X	X	X	X		X	X	X						EXTENTION OPTION
EXTEND TIME					X					X							EXTEND TIME
USE ADDED INITIAL									X		X						USE ADDED INITIAL
CROSS SWITCH PHASE	2			6													CROSS SWITCH PHASE

DETECTOR INPUT	4	2	8	6	12	10	16	14	20	18	24	22	28	26	32	30	DETECTOR INPUT
PLAN LOOP DETECTOR*(S)	12	43	45	52	83	85			22		62						PLAN LOOP DETECTOR*(S)
CALLED PHASE	1	4	4	5	8	8			2		6						CALLED PHASE
CALL OPTION	X	X	X	X	X	X			X		X						CALL OPTION
DELAY TIME																	DELAY TIME
EXTENTION OPTION	X	X	X	X	X	X			X		X						EXTENTION OPTION
EXTEND TIME																	EXTEND TIME
USE ADDED INITIAL									X		X						USE ADDED INITIAL
CROSS SWITCH PHASE	2			6													CROSS SWITCH PHASE

STH 20 & CTH V/INTERNATIONAL DRIVE
VILLAGE OF MOUNT PLEASANT
RACINE COUNTY

SIGNAL NO: S51-1306 CABINET TYPE: TS2-E
CONTROLLER TYPE: ECONOLITE
DATE: 11/2017 PAGE NO. 4 OF 4

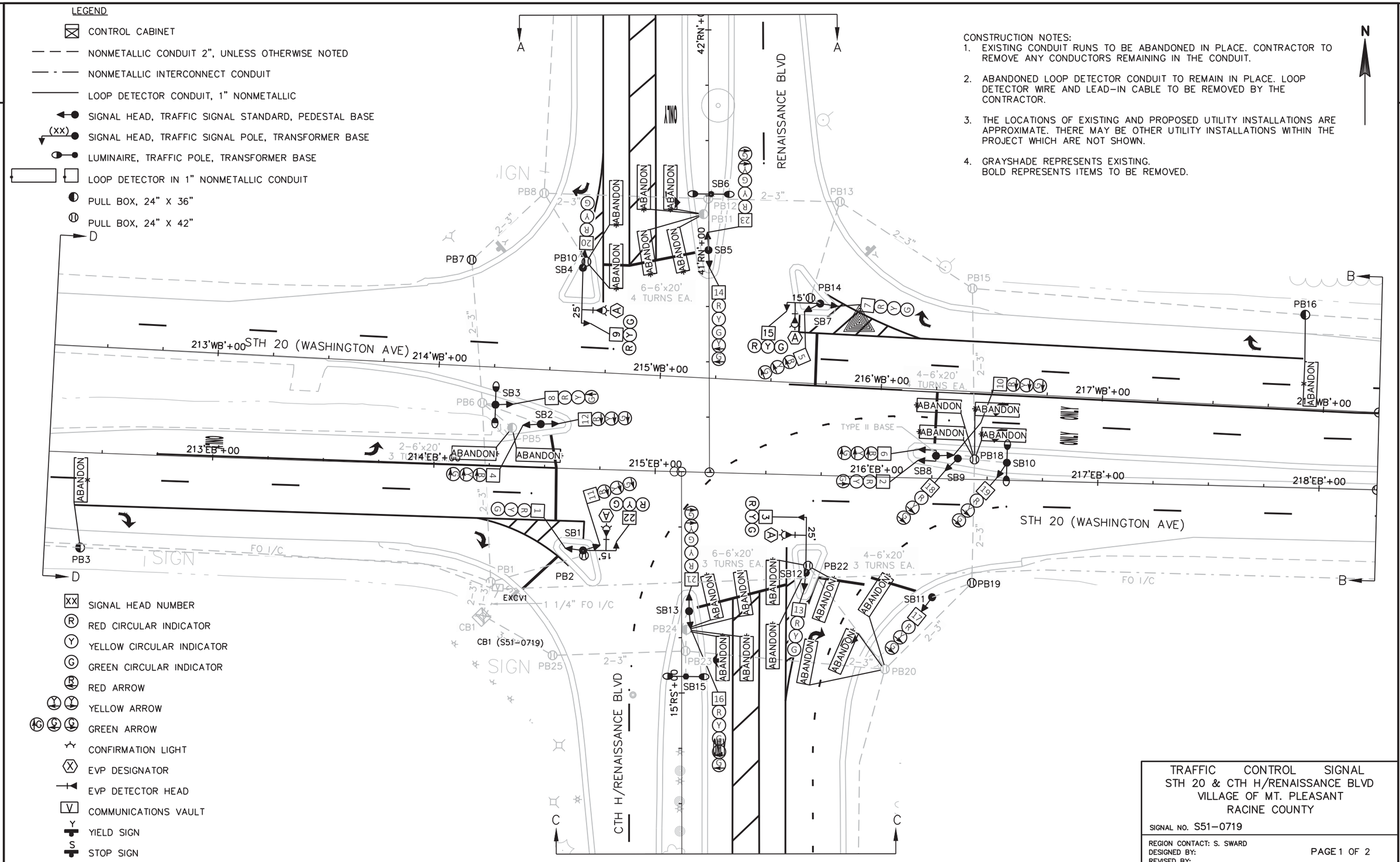
FILE NAME : _____ PLOT DATE : _____ PLOT BY : _____ PLOT NAME : _____ PLOT SCALE : 1:1

LEGEND

- CONTROL CABINET
- NONMETALLIC CONDUIT 2", UNLESS OTHERWISE NOTED
- NONMETALLIC INTERCONNECT CONDUIT
- LOOP DETECTOR CONDUIT, 1" NONMETALLIC
- SIGNAL HEAD, TRAFFIC SIGNAL STANDARD, PEDESTAL BASE
- (xx) SIGNAL HEAD, TRAFFIC SIGNAL POLE, TRANSFORMER BASE
- LUMINAIRE, TRAFFIC POLE, TRANSFORMER BASE
- LOOP DETECTOR IN 1" NONMETALLIC CONDUIT
- PULL BOX, 24" X 36"
- PULL BOX, 24" X 42"

CONSTRUCTION NOTES:

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



SIGNAL HEAD NUMBER
R RED CIRCULAR INDICATOR
Y YELLOW CIRCULAR INDICATOR
G GREEN CIRCULAR INDICATOR
RA RED ARROW
YA YELLOW ARROW
AG GREEN ARROW
CONFIRMATION LIGHT
X EVP DESIGNATOR
EVP DETECTOR HEAD
V COMMUNICATIONS VAULT
Y YIELD SIGN
S STOP SIGN

TRAFFIC CONTROL SIGNAL
STH 20 & CTH H/RENAISSANCE BLVD
VILLAGE OF MT. PLEASANT
RACINE COUNTY

SIGNAL NO. S51-0719

REGION CONTACT: S. SWARD
DESIGNED BY:
REVISED BY:

PAGE 1 OF 2

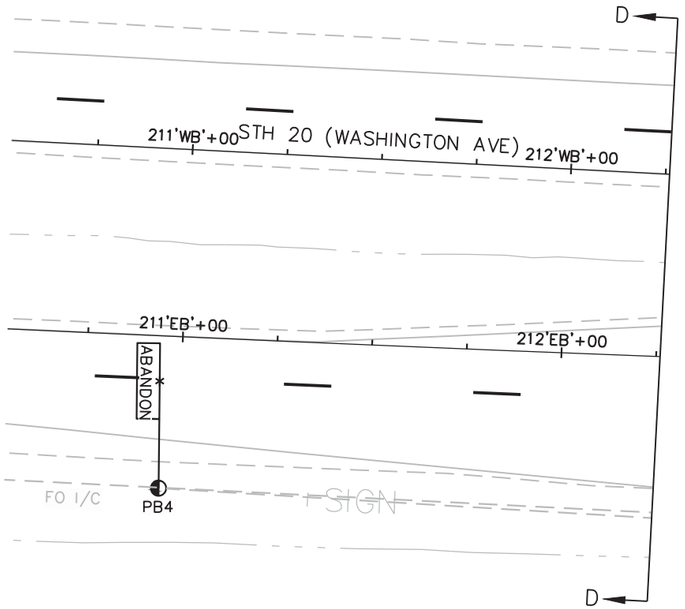
PROJECT NO: 2250-16-70	HWY: STH 20	COUNTY: RACINE	TRAFFIC SIGNAL REMOVAL PLAN	SHEET 47	E

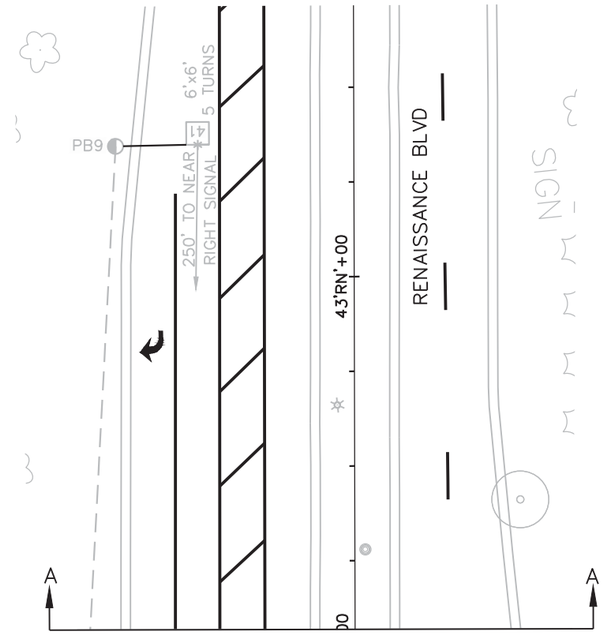
FILE NAME : X:\PROJECTS\RACINE\STH 20\DESIGN\C3D\SHEETSPLAN\024204-SP REMOVALS.DWG
LAYOUT NAME - 024204-SP REMOVALS - S51-0719_D_PG1

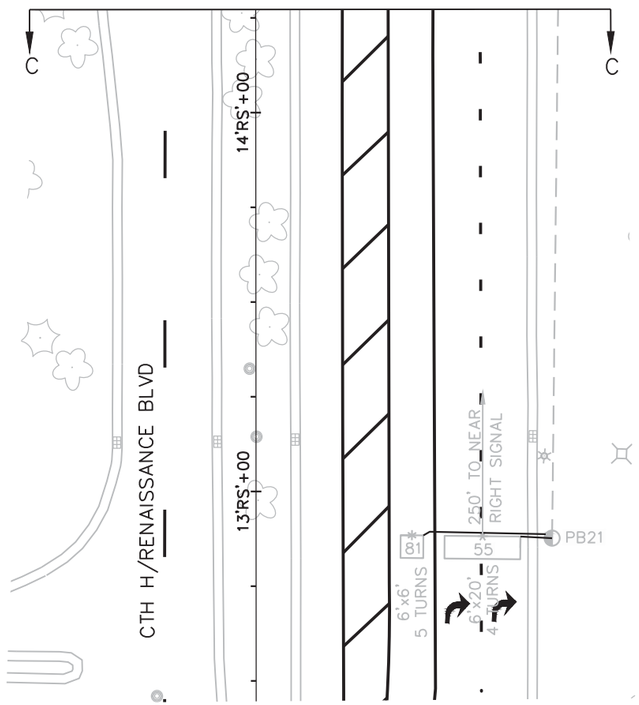
PLOT DATE : 12/20/2017 12:34 PM PLOT BY : DYLAN DOUGLAS PLOT NAME : PLOT SCALE : 1 IN:40 FT

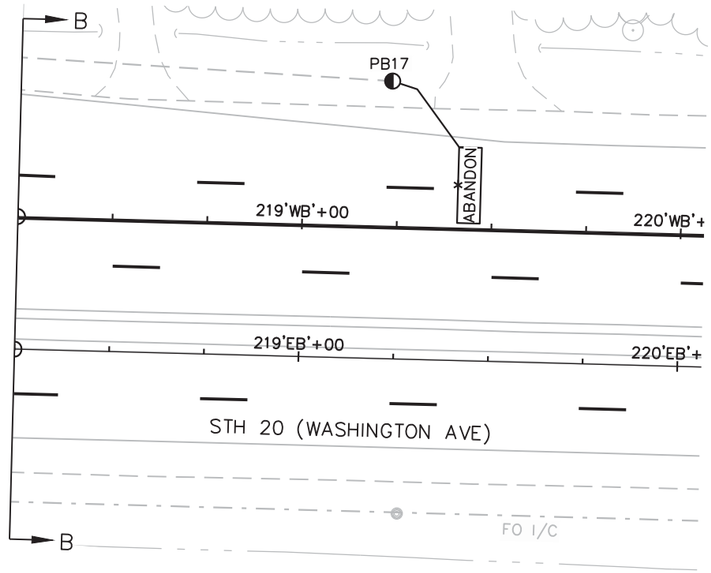
WISDOT/CADDS SHEET 42

2









TRAFFIC CONTROL SIGNAL
STH 20 & CTH H/RENAISSANCE BLVD
VILLAGE OF MT. PLEASANT
RACINE COUNTY

SIGNAL NO. S51-0719

REGION CONTACT: S. SWARD
DESIGNED BY:
REVISED BY:

PAGE 2 OF 2

PROJECT NO: 2250-16-70	HWY: STH 20	COUNTY: RACINE	TRAFFIC SIGNAL REMOVAL PLAN	SHEET 48	E

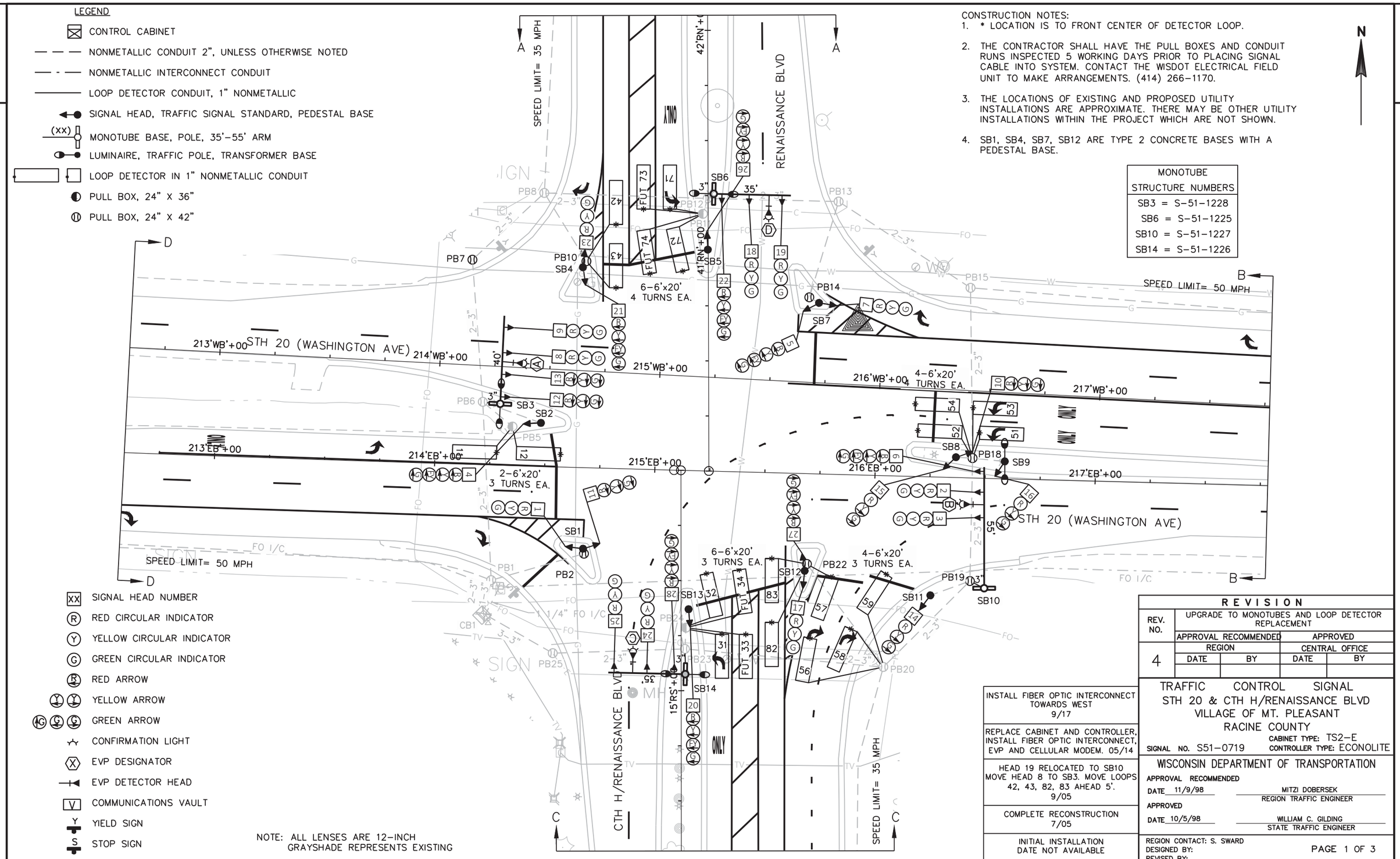
LEGEND

- CONTROL CABINET
- NONMETALLIC CONDUIT 2", UNLESS OTHERWISE NOTED
- NONMETALLIC INTERCONNECT CONDUIT
- LOOP DETECTOR CONDUIT, 1" NONMETALLIC
- SIGNAL HEAD, TRAFFIC SIGNAL STANDARD, PEDESTAL BASE
- (xx) MONOTUBE BASE, POLE, 35'–55' ARM
- LUMINAIRE, TRAFFIC POLE, TRANSFORMER BASE
- LOOP DETECTOR IN 1" NONMETALLIC CONDUIT
- PULL BOX, 24" X 36"
- PULL BOX, 24" X 42"

CONSTRUCTION NOTES:

1. * LOCATION IS TO FRONT CENTER OF DETECTOR LOOP.
2. THE CONTRACTOR SHALL HAVE THE PULL BOXES AND CONDUIT RUNS INSPECTED 5 WORKING DAYS PRIOR TO PLACING SIGNAL CABLE INTO SYSTEM. CONTACT THE WISDOT ELECTRICAL FIELD UNIT TO MAKE ARRANGEMENTS. (414) 266–1170.
3. THE LOCATIONS OF EXISTING AND PROPOSED UTILITY INSTALLATIONS ARE APPROXIMATE. THERE MAY BE OTHER UTILITY INSTALLATIONS WITHIN THE PROJECT WHICH ARE NOT SHOWN.
4. SB1, SB4, SB7, SB12 ARE TYPE 2 CONCRETE BASES WITH A PEDESTAL BASE.

MONOTUBE STRUCTURE NUMBERS
SB3 = S–51–1228
SB6 = S–51–1225
SB10 = S–51–1227
SB14 = S–51–1226



- XX SIGNAL HEAD NUMBER
- (R) RED CIRCULAR INDICATOR
- (Y) YELLOW CIRCULAR INDICATOR
- (G) GREEN CIRCULAR INDICATOR
- (R) RED ARROW
- (Y) (Y) YELLOW ARROW
- (AG) (G) (G) GREEN ARROW
- CONFIRMATION LIGHT
- (X) EVP DESIGNATOR
- EVP DETECTOR HEAD
- (V) COMMUNICATIONS VAULT
- Y YIELD SIGN
- S STOP SIGN

NOTE: ALL LENSES ARE 12–INCH
GRAYSHADE REPRESENTS EXISTING

REVISION				
REV. NO.	UPGRADE TO MONOTUBES AND LOOP DETECTOR REPLACEMENT			
	APPROVAL RECOMMENDED		APPROVED	
4	REGION		CENTRAL OFFICE	
	DATE	BY	DATE	BY

INSTALL FIBER OPTIC INTERCONNECT TOWARDS WEST 9/17
REPLACE CABINET AND CONTROLLER, INSTALL FIBER OPTIC INTERCONNECT, EVP AND CELLULAR MODEM. 05/14
HEAD 19 RELOCATED TO SB10 MOVE HEAD 8 TO SB3. MOVE LOOPS 42, 43, 82, 83 AHEAD 5'. 9/05
COMPLETE RECONSTRUCTION 7/05
INITIAL INSTALLATION DATE NOT AVAILABLE

TRAFFIC CONTROL SIGNAL
STH 20 & CTH H/RENAISSANCE BLVD
VILLAGE OF MT. PLEASANT
RACINE COUNTY
SIGNAL NO. S51–0719
CABINET TYPE: TS2–E
CONTROLLER TYPE: ECONOLITE

WISCONSIN DEPARTMENT OF TRANSPORTATION

APPROVAL RECOMMENDED
DATE 11/9/98 — MITZI DOBERSEK, REGION TRAFFIC ENGINEER

APPROVED
DATE 10/5/98 — WILLIAM C. GILDING, STATE TRAFFIC ENGINEER

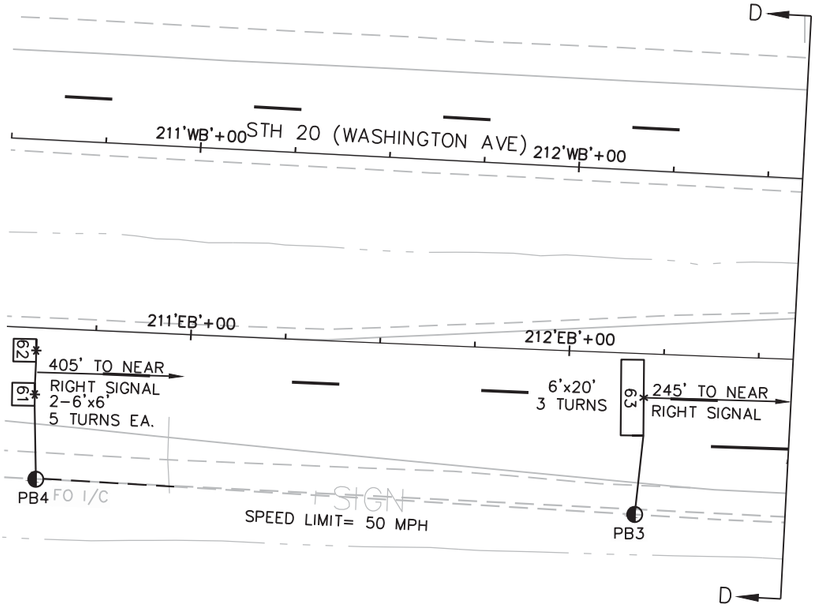
REGION CONTACT: S. SWARD
DESIGNED BY:
REVISED BY:

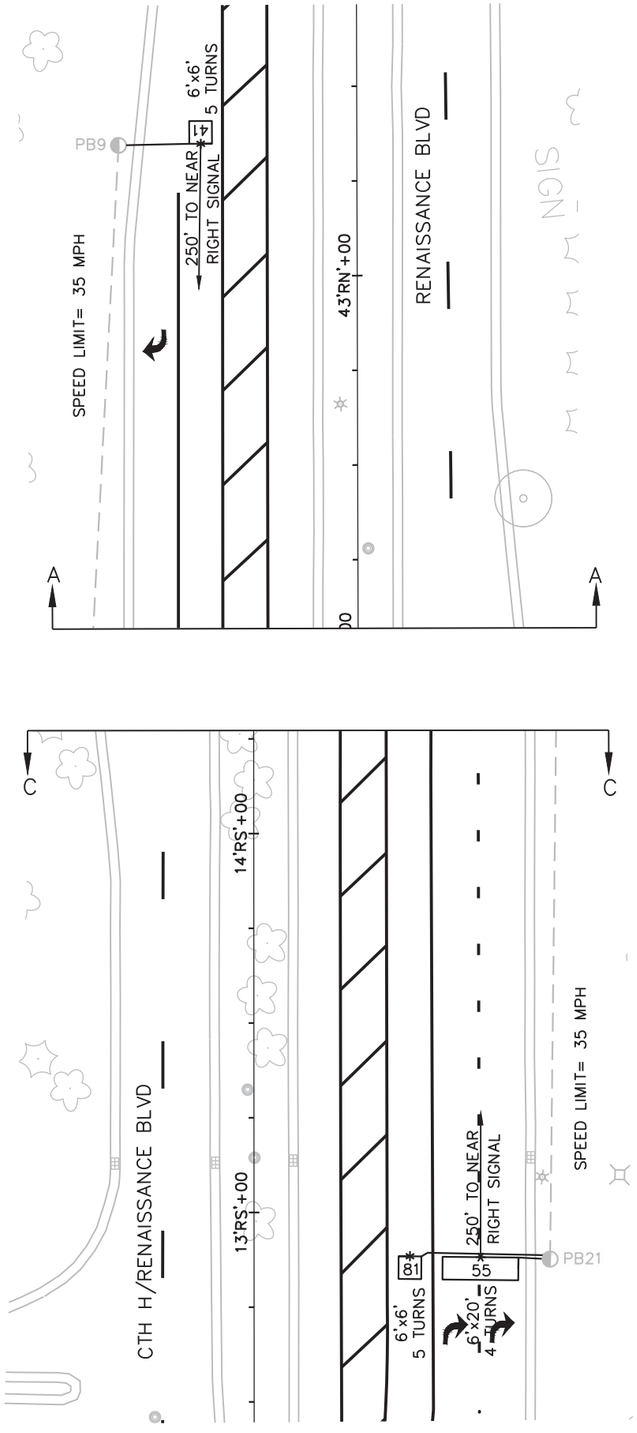
PROJECT NO: 2250–16–70	HWY: STH 20	COUNTY: RACINE	TRAFFIC SIGNAL PLAN – CTH H	SHEET 49	E

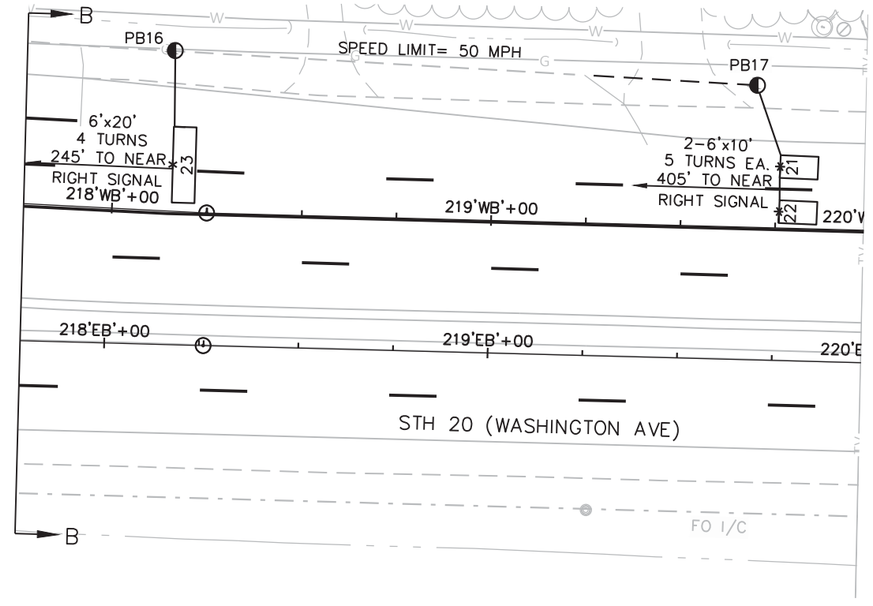
FILE NAME : X:\PROJECTS\RACINE\STH 20\DESIGN\C3D\SHEETSPLAN\024204–SP.DWG
LAYOUT NAME – 024204–SP – S51–0719_D_PG1
PLOT DATE : 12/20/2017 12:36 PM PLOT BY : DYLAN DOUGLAS PLOT NAME : PLOT SCALE : 1 IN: 40 FT
WISDOT/CADDS SHEET 42

2

N







TRAFFIC CONTROL SIGNAL
STH 20 & CTH H/RENAISSANCE BLVD
VILLAGE OF MT. PLEASANT
RACINE COUNTY

SIGNAL NO. S51-0719

REGION CONTACT: S. SWARD
DESIGNED BY:
REVISED BY:

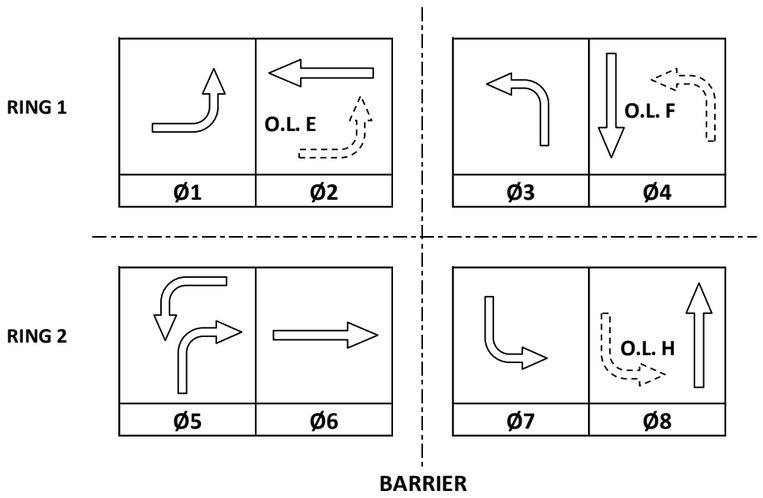
PAGE 2 OF 3

PROJECT NO: 2250-16-70	HWY: STH 20	COUNTY: RACINE	TRAFFIC SIGNAL PLAN – CTH H	SHEET 50	E

FILE NAME : X:\PROJECTS\RACINE\STH 20\DESIGN\C3D\SHEETSPLAN\024204-SP.DWG
LAYOUT NAME – 024204-SP – S51-0719_D_PG2

PLOT DATE : 12/20/2017 12:37 PM PLOT BY : DYLAN DOUGLAS PLOT NAME : PLOT SCALE : 1 IN:40 FT

	HEAD NUMBERS	FLASH
Ø1	4, 5, 6	R ←
Ø2	7, 8, 9	R
Ø3	20, 21, 22	R ←
Ø4	23, 24, 25	R
Ø5	10, 11, 12, 13, 14, 15, 16	R, R ←
Ø6	1, 2, 3	R
Ø7	26, 27, 28	R ←
Ø8	17, 18, 19	R
Ø2P		
Ø4P		
Ø6P		
Ø8P		
OLE	4, 5, 6	-
OLF	20, 21, 22	-
OLG		
OLH	26, 27, 28	-



CONTROLLER LOGIC

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

EMERGENCY VEHICLE PREEMPTION SEQUENCE

EMERGENCY VEHICLE PREEMPTOR	A	B	C	D
MOVEMENT				
PHASE	2+5	6+1	4+7	8+3

AFTER PREEMPTION SEQUENCE 2+5 OR 6+1, CONTROLLER SHALL RETURN TO PHASES 2+6.
AFTER PREEMPTION SEQUENCE 4+7 OR 8+3, CONTROLLER SHALL RETURN TO PHASES 4+8.

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

TYPE OF COORDINATION	
NONE	
TBC	X
TRAFFIC RESPONSIVE	
ADAPTIVE	
*LOCATION OF MASTER CONTROLLER NO:	S-
SIGNAL SYSTEM NO:	SS- 51-0094

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

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

DETECTOR LOGIC

DETECTOR INPUT	3	1	7	5	11	9	15	13	19	17	23	21	27	25	31	29	DETECTOR INPUT
PLAN LOOP DETECTOR*(S)	11	21	23	32	34	42	51	53	55	57	59	62	71	73	81	83	PLAN LOOP DETECTOR*(S)
CALLED PHASE	1	2	2	3	FUTURE	4	5	5	5	5	5	6	7	FUTURE	8	8	CALLED PHASE
CALL OPTION	X	X	X	X		X	X	X		X	X	X	X			X	CALL OPTION
DELAY TIME										X	X						DELAY TIME
EXTENTION OPTION	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	EXTENTION OPTION
EXTEND TIME					X				X						X		EXTEND TIME
USE ADDED INITIAL		X	X									X					USE ADDED INITIAL
CROSS SWITCH PHASE	2			4									8				CROSS SWITCH PHASE

DETECTOR INPUT	4	2	8	6	12	10	16	14	20	18	24	22	28	26	32	30	DETECTOR INPUT
PLAN LOOP DETECTOR*(S)	12	22	31	33	41	43	52	54	56	58	61	63	72	74	82		PLAN LOOP DETECTOR*(S)
CALLED PHASE	1	2	3	FUTURE	4	4	5	5	5	5	6	6	7	FUTURE	8		CALLED PHASE
CALL OPTION	X	X	X			X	X	X	X	X	X	X	X		X		CALL OPTION
DELAY TIME									X	X							DELAY TIME
EXTENTION OPTION	X	X	X		X	X	X	X	X	X	X	X	X		X		EXTENTION OPTION
EXTEND TIME					X												EXTEND TIME
USE ADDED INITIAL		X									X	X					USE ADDED INITIAL
CROSS SWITCH PHASE	2		4										8				CROSS SWITCH PHASE

STH 20 & CTH H/RENAISSANCE BLVD.
VILLAGE OF MOUNT PLEASANT
RACINE COUNTY

SIGNAL NO: S51-0719	CABINET TYPE: TS2-E	
	CONTROLLER TYPE: ECONOLITE	
DATE: 11/2017	PAGE NO. 3 OF 3	

CB1 TO	AWG 14 # OF CONDUCTORS	HEAD NO.	SIGNAL INDICATION WIRE COLOR									PED BUTTON
			RED	YELLOW	GREEN	<RED>	<YELLOW>	<GREEN>	<FLASHING YELLOW>	D/WALK	WALK	
SB1	12	1	RED	ORG	GRN							
		11				RED/BLK	ORG/BLK	GRN/BLK				
SB2	7	4				RED	ORG	GRN	BLK/WHT			
SB3	12	8	RED	ORG	GRN							
		9	RED	ORG	GRN							
		12				RED/BLK	ORG/BLK	GRN/BLK				
		13				RED/BLK	ORG/BLK	GRN/BLK				
SB4	12	21				RED	ORG	GRN	BLK/WHT			
		23	RED/BLK	ORG/BLK	GRN/BLK							
SB5	7	26				RED	ORG	GRN	BLK/WHT			
SB6	12	18	RED	ORG	GRN							
		19	RED	ORG	GRN							
		22				RED/BLK	ORG/BLK	GRN/BLK	BLK/WHT			
SB7	12	5				RED	ORG	GRN	BLK/WHT			
		7	RED/BLK	ORG/BLK	GRN/BLK							
SB8	7	10				RED	ORG	GRN				
		15	RED				ORG	GRN				
SB9	7	16	RED				ORG	GRN				
SB10	12	2	RED	ORG	GRN							
		3	RED	ORG	GRN							
		6				RED/BLK	ORG/BLK	GRN/BLK	BLK/WHT			
SB11	7	14	RED				ORG	GRN				
SB12	12	17	RED	ORG	GRN							
		27				RED/BLK	ORG/BLK	GRN/BLK	BLK/WHT			
SB13	7	20				RED	ORG	GRN	BLK/WHT			
SB14	12	24	RED	ORG	GRN							
		25	RED	ORG	GRN							
		28				RED/BLK	ORG/BLK	GRN/BLK	BLK/WHT			

Equipment Grounding Conductor 10 AWG Green XLP	
From	To
CB	SB1
SB1	SB2
SB2	SB3
SB3	SB4
SB4	SB5
SB5	SB6
SB6	SB7
SB7	SB8
SB8	SB9
SB9	SB10
SB10	SB11
SB11	SB12
SB12	SB13
SB13	SB14
SB14	CB1

Pull Box Bonding Jumper 10 AWG Green XLP	
From	To
PB1	CB1
PB2	SB1
PB6	SB3
PB7	SB3
PB8	SB4
PB10	SB4
PB12	SB6
PB13	SB6
PB14	SB7
PB15	SB8
PB18	SB9
PB19	SB10
PB20	SB10
PB22	SB12
PB23	SB14
PB25	CB1

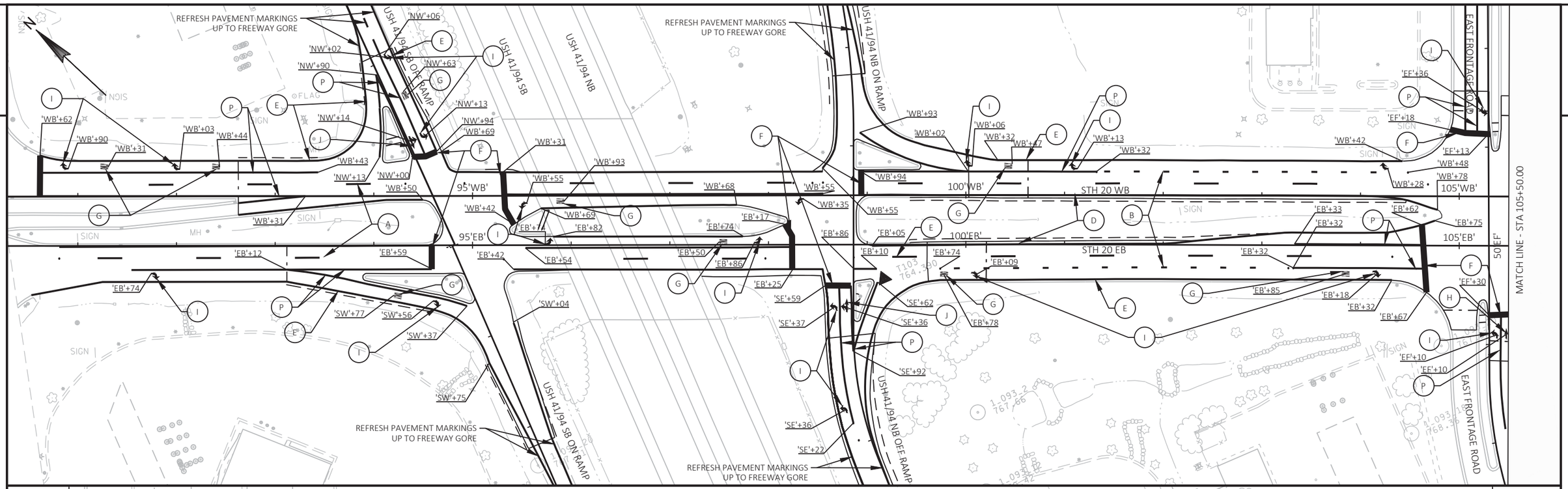
Lighting UF #12 w/ground	
From	To
CB1	SB3
CB1	SB6
CB1	SB9
CB1	SB14

EVP Cable	
From	To
CB1	SB3 (Head A)
CB1	SB6 (Head D)
CB1	SB9 (Head B)
CB1	SB14 (Head C)

SIGNAL WIRE COLOR CODING	BLK - black	RED - red	GRN - green
	WHT - white	BLU - blue	ORG - orange

STH 20 & CTH H/RENAISSANCE BLVD.
VILLAGE OF MOUNT PLEASANT
RACINE COUNTY

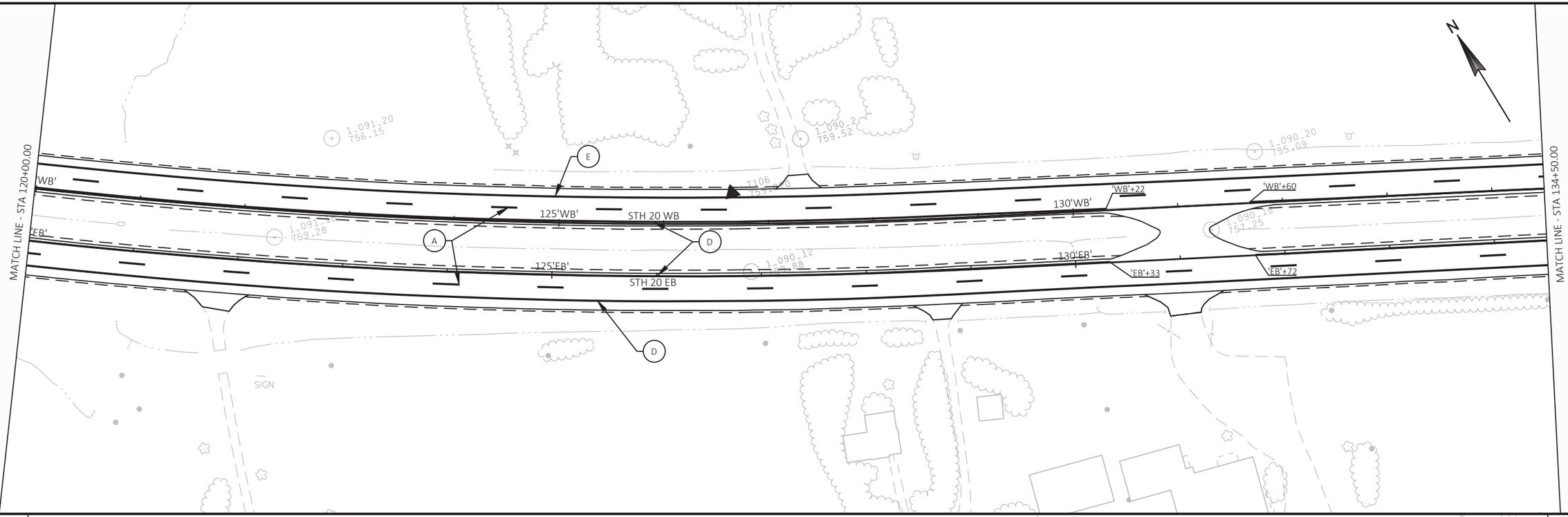
SIGNAL NO: S51-0719 CABINET TYPE: TS2-E
CONTROLLER TYPE: ECONOLITE
DATE: 11/2017 PAGE NO. 4 OF 4

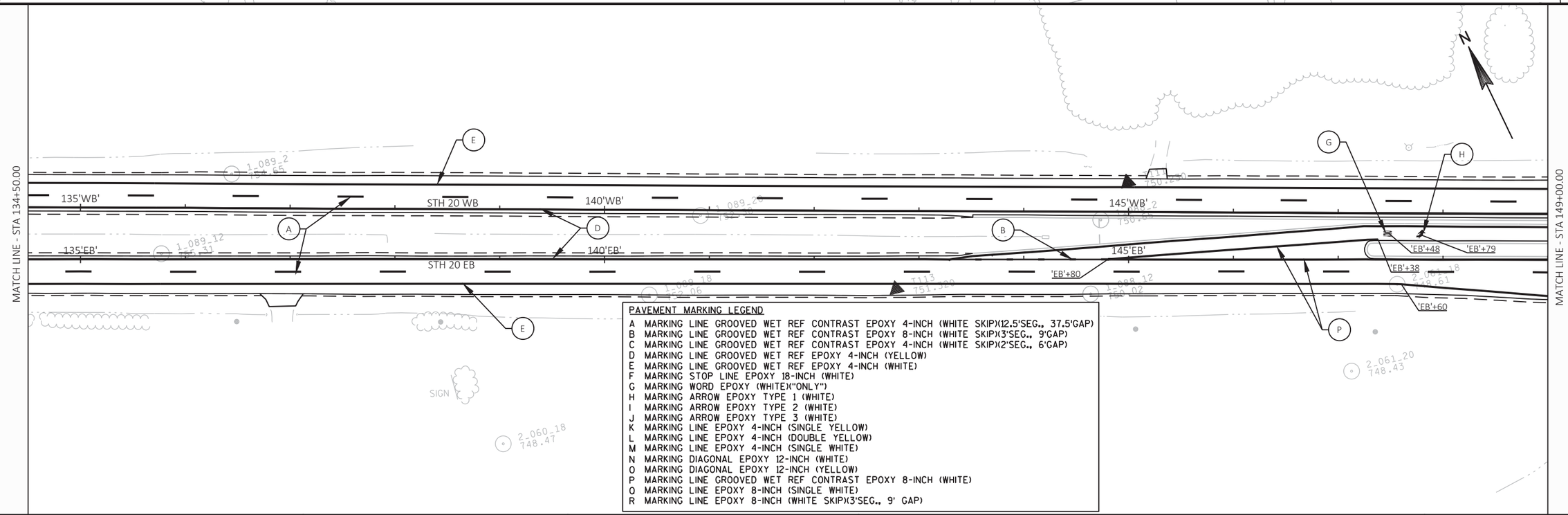


PAVEMENT MARKING LEGEND

A	MARKING LINE GROOVED WET REF CONTRAST EPOXY 4-INCH (WHITE SKIP)(12.5'SEG., 37.5'GAP)
B	MARKING LINE GROOVED WET REF CONTRAST EPOXY 8-INCH (WHITE SKIP)(3'SEG., 9'GAP)
C	MARKING LINE GROOVED WET REF CONTRAST EPOXY 4-INCH (WHITE SKIP)(2'SEG., 6'GAP)
D	MARKING LINE GROOVED WET REF EPOXY 4-INCH (YELLOW)
E	MARKING LINE GROOVED WET REF EPOXY 4-INCH (WHITE)
F	MARKING STOP LINE EPOXY 18-INCH (WHITE)
G	MARKING WORD EPOXY (WHITE)("ONLY")
H	MARKING ARROW EPOXY TYPE 1 (WHITE)
I	MARKING ARROW EPOXY TYPE 2 (WHITE)
J	MARKING ARROW EPOXY TYPE 3 (WHITE)
K	MARKING LINE EPOXY 4-INCH (SINGLE YELLOW)
L	MARKING LINE EPOXY 4-INCH (DOUBLE YELLOW)
M	MARKING LINE EPOXY 4-INCH (SINGLE WHITE)
N	MARKING DIAGONAL EPOXY 12-INCH (WHITE)
O	MARKING DIAGONAL EPOXY 12-INCH (YELLOW)
P	MARKING LINE GROOVED WET REF CONTRAST EPOXY 8-INCH (WHITE)
Q	MARKING LINE EPOXY 8-INCH (SINGLE WHITE)
R	MARKING LINE EPOXY 8-INCH (WHITE SKIP)(3'SEG., 9' GAP)

PROJECT NO: 2250-16-70	HWY: STH 20	COUNTY: RACINE	PAVEMENT MARKING DETAILS	SHEET 53 E



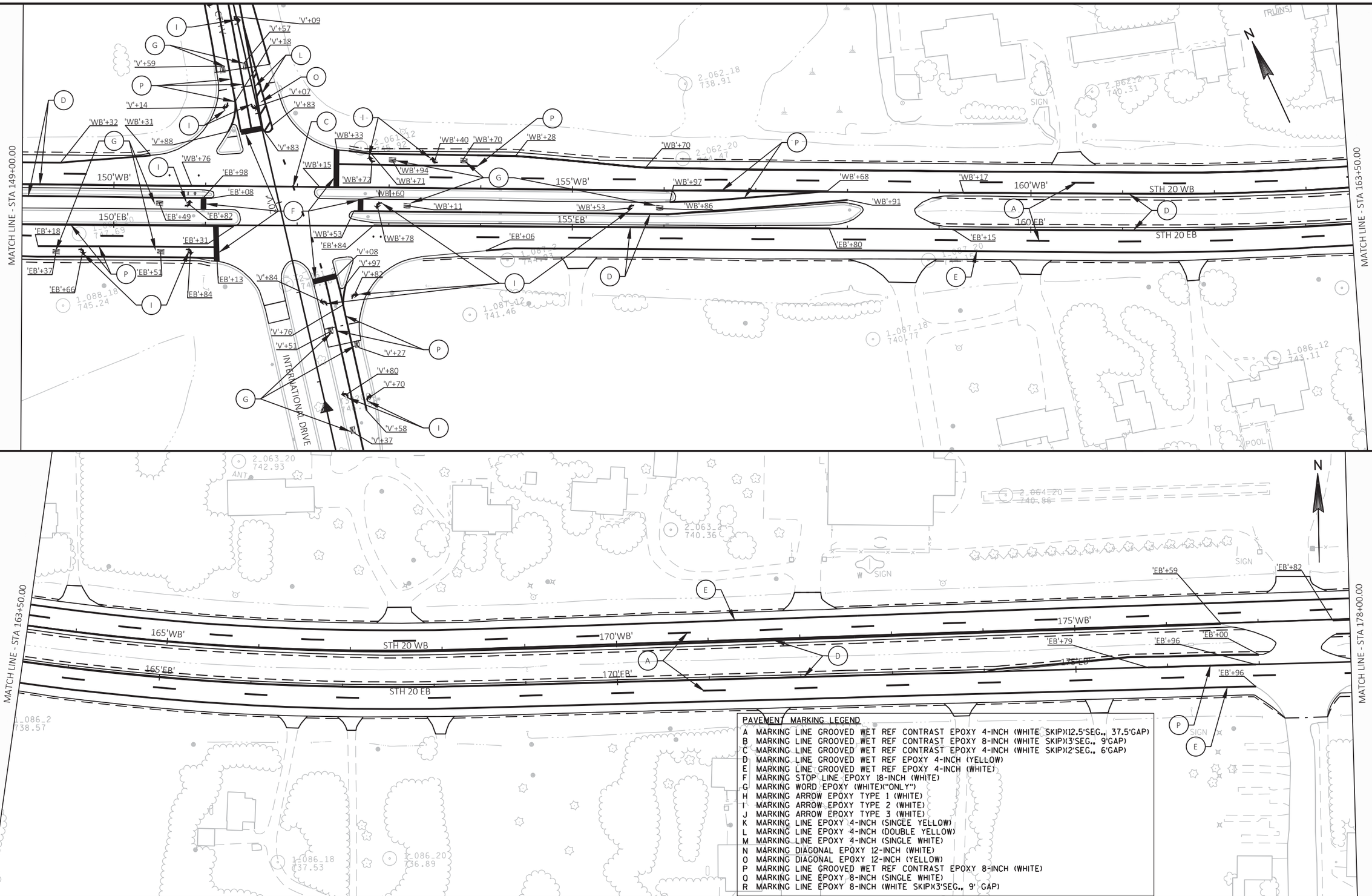


PAVEMENT MARKING LEGEND

A	MARKING LINE GROOVED WET REF CONTRAST EPOXY 4-INCH (WHITE SKIP)(12.5'SEG., 37.5'GAP)
B	MARKING LINE GROOVED WET REF CONTRAST EPOXY 8-INCH (WHITE SKIP)(3'SEG., 9'GAP)
C	MARKING LINE GROOVED WET REF CONTRAST EPOXY 4-INCH (WHITE SKIP)(2'SEG., 6'GAP)
D	MARKING LINE GROOVED WET REF EPOXY 4-INCH (YELLOW)
E	MARKING LINE GROOVED WET REF EPOXY 4-INCH (WHITE)
F	MARKING STOP LINE EPOXY 18-INCH (WHITE)
G	MARKING WORD EPOXY (WHITE)("ONLY")
H	MARKING ARROW EPOXY TYPE 1 (WHITE)
I	MARKING ARROW EPOXY TYPE 2 (WHITE)
J	MARKING ARROW EPOXY TYPE 3 (WHITE)
K	MARKING LINE EPOXY 4-INCH (SINGLE YELLOW)
L	MARKING LINE EPOXY 4-INCH (DOUBLE YELLOW)
M	MARKING LINE EPOXY 4-INCH (SINGLE WHITE)
N	MARKING DIAGONAL EPOXY 12-INCH (WHITE)
O	MARKING DIAGONAL EPOXY 12-INCH (YELLOW)
P	MARKING LINE GROOVED WET REF CONTRAST EPOXY 8-INCH (WHITE)
Q	MARKING LINE EPOXY 8-INCH (SINGLE WHITE)
R	MARKING LINE EPOXY 8-INCH (WHITE SKIP)(3'SEG., 9' GAP)

PROJECT NO: 2250-16-70	HWY: STH 20	COUNTY: RACINE	PAVEMENT MARKING DETAILS	SHEET 54	E

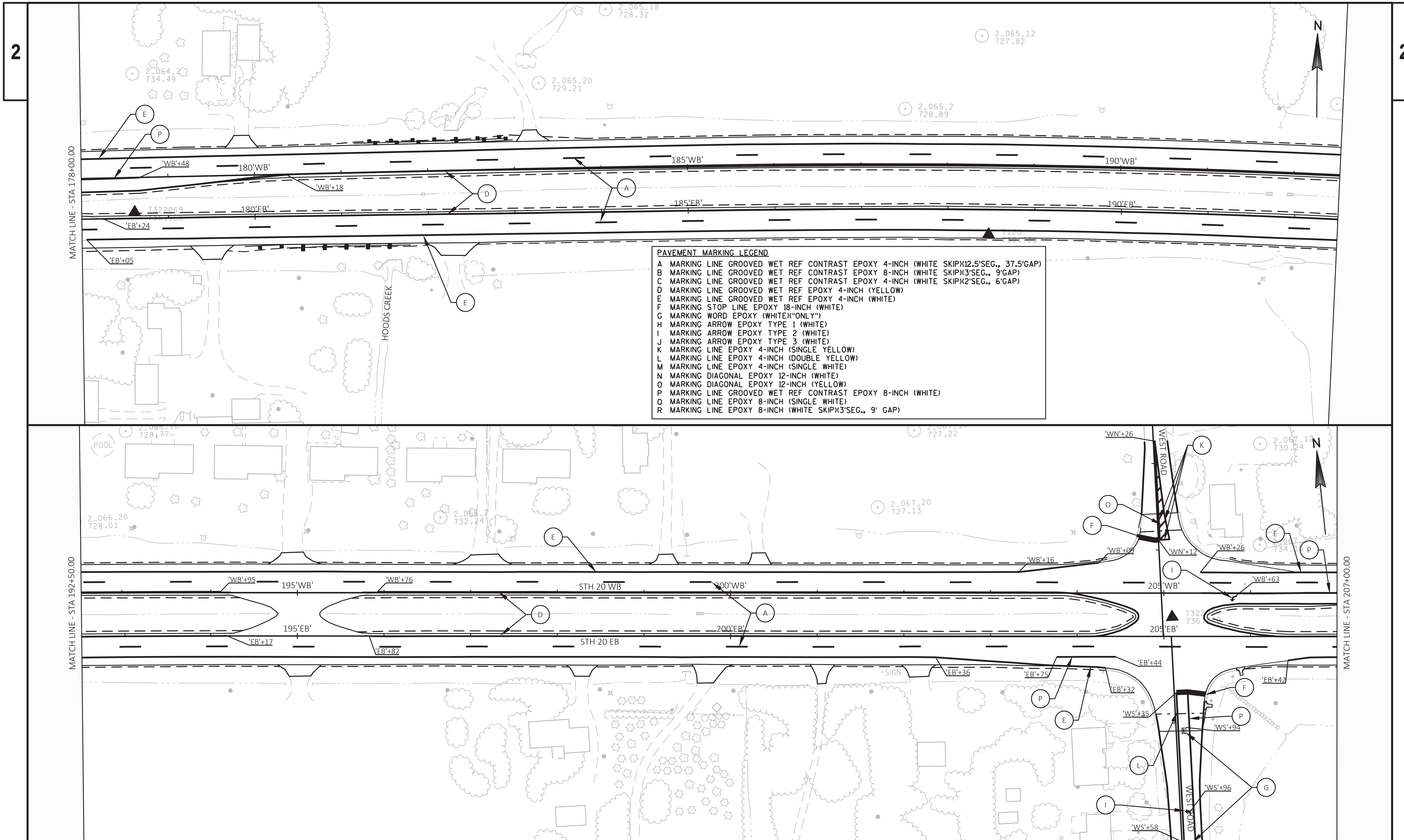
FILE NAME : X:\PROJECTS\RACINE\STH 20\DESIGN\C3D\SHEETSPLAN\024501-PM.DWG
LAYOUT NAME - 024502-pm
PLOT DATE : 11/30/2017 4:03 PM PLOT BY : BRAD GROH PLOT NAME : PLOT SCALE : ##########
WISDOT/CADDS SHEET 44



PAVEMENT MARKING LEGEND

A	MARKING LINE GROOVED WET REF CONTRAST EPOXY 4-INCH (WHITE SKIP)(12.5'SEG., 37.5'GAP)
B	MARKING LINE GROOVED WET REF CONTRAST EPOXY 8-INCH (WHITE SKIP)(3'SEG., 9'GAP)
C	MARKING LINE GROOVED WET REF CONTRAST EPOXY 4-INCH (WHITE SKIP)(2'SEG., 6'GAP)
D	MARKING LINE GROOVED WET REF EPOXY 4-INCH (YELLOW)
E	MARKING LINE GROOVED WET REF EPOXY 4-INCH (WHITE)
F	MARKING STOP LINE EPOXY 18-INCH (WHITE)
G	MARKING WORD EPOXY (WHITE)("ONLY")
H	MARKING ARROW EPOXY TYPE 1 (WHITE)
I	MARKING ARROW EPOXY TYPE 2 (WHITE)
J	MARKING ARROW EPOXY TYPE 3 (WHITE)
K	MARKING LINE EPOXY 4-INCH (SINGLE YELLOW)
L	MARKING LINE EPOXY 4-INCH (DOUBLE YELLOW)
M	MARKING LINE EPOXY 4-INCH (SINGLE WHITE)
N	MARKING DIAGONAL EPOXY 12-INCH (WHITE)
O	MARKING DIAGONAL EPOXY 12-INCH (YELLOW)
P	MARKING LINE GROOVED WET REF CONTRAST EPOXY 8-INCH (WHITE)
Q	MARKING LINE EPOXY 8-INCH (SINGLE WHITE)
R	MARKING LINE EPOXY 8-INCH (WHITE SKIP)(3'SEG., 9' GAP)

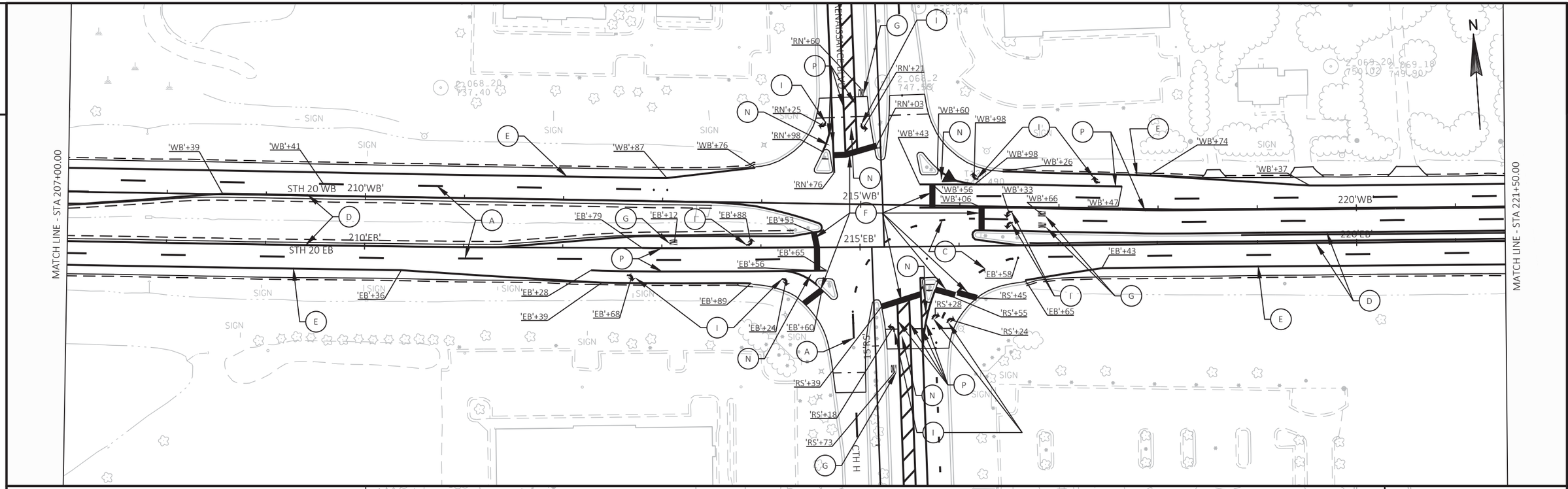
PROJECT NO: 2250-16-70	HWY: STH 20	COUNTY: RACINE	PAVEMENT MARKING DETAILS	SHEET 55	E

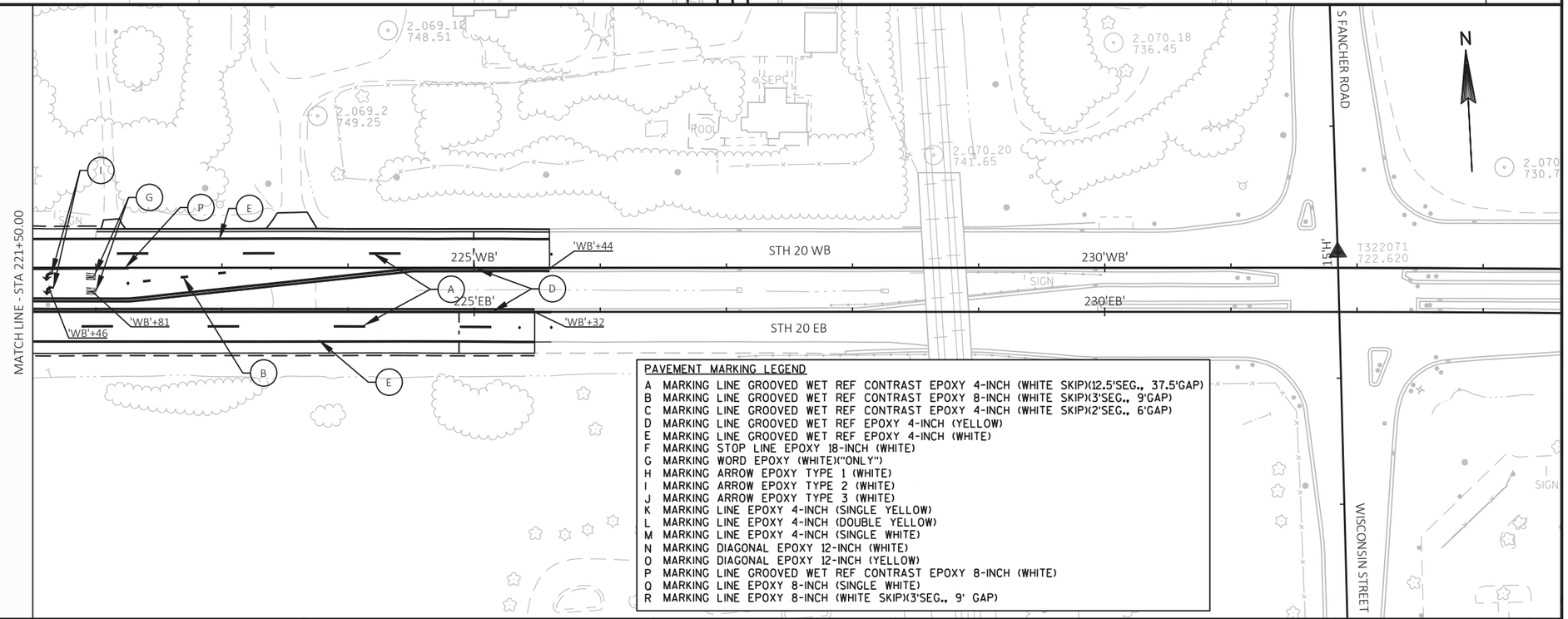


PAVEMENT MARKING LEGEND

- A MARKING LINE GROOVED WET REF CONTRAST EPOXY 4-INCH (WHITE SKIP)(12.5'SEG., 37.5'GAP)
- B MARKING LINE GROOVED WET REF CONTRAST EPOXY 8-INCH (WHITE SKIP)(3'SEG., 9'GAP)
- C MARKING LINE GROOVED WET REF CONTRAST EPOXY 4-INCH (WHITE SKIP)(2'SEG., 6'GAP)
- D MARKING LINE GROOVED WET REF EPOXY 4-INCH (YELLOW)
- E MARKING LINE GROOVED WET REF EPOXY 4-INCH (WHITE)
- F MARKING STOP LINE EPOXY 18-INCH (WHITE)
- G MARKING WORD EPOXY (WHITE)("ONLY")
- H MARKING ARROW EPOXY TYPE 1 (WHITE)
- I MARKING ARROW EPOXY TYPE 2 (WHITE)
- J MARKING ARROW EPOXY TYPE 3 (WHITE)
- K MARKING LINE EPOXY 4-INCH (SINGLE YELLOW)
- L MARKING LINE EPOXY 4-INCH (DOUBLE YELLOW)
- M MARKING LINE EPOXY 4-INCH (SINGLE WHITE)
- N MARKING DIAGONAL EPOXY 12-INCH (WHITE)
- O MARKING DIAGONAL EPOXY 12-INCH (YELLOW)
- P MARKING LINE GROOVED WET REF CONTRAST EPOXY 8-INCH (WHITE)
- Q MARKING LINE EPOXY 8-INCH (SINGLE WHITE)
- R MARKING LINE EPOXY 8-INCH (WHITE SKIP)(3'SEG., 9' GAP)

PROJECT NO: 2250-16-70	HWY: STH 20	COUNTY: RACINE	PAVEMENT MARKING DETAILS	SHEET 56	E





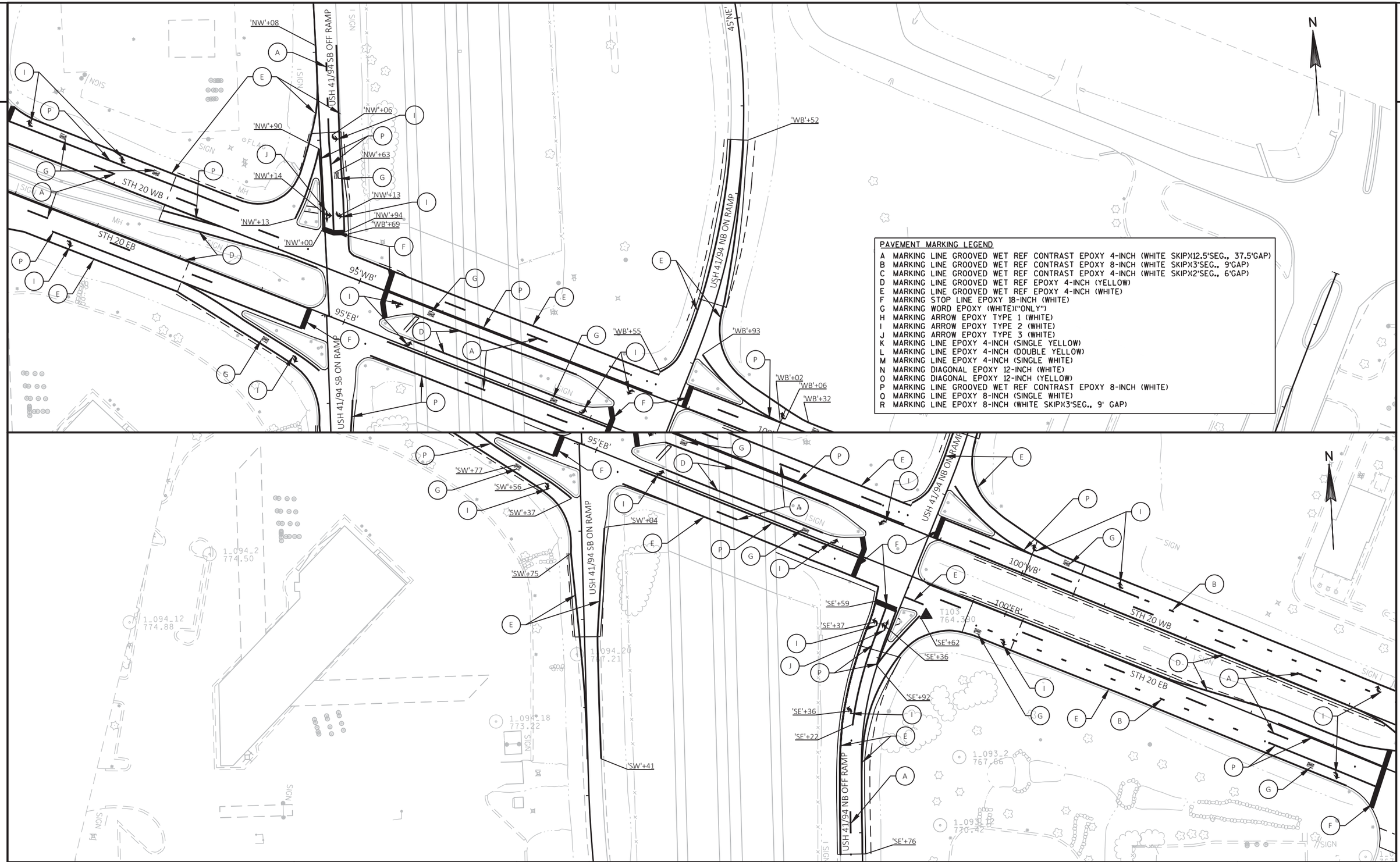
PAVEMENT MARKING LEGEND

A	MARKING LINE GROOVED WET REF CONTRAST EPOXY 4-INCH (WHITE SKIP)(12.5'SEG., 37.5'GAP)
B	MARKING LINE GROOVED WET REF CONTRAST EPOXY 8-INCH (WHITE SKIP)(3'SEG., 9'GAP)
C	MARKING LINE GROOVED WET REF CONTRAST EPOXY 4-INCH (WHITE SKIP)(2'SEG., 6'GAP)
D	MARKING LINE GROOVED WET REF EPOXY 4-INCH (YELLOW)
E	MARKING LINE GROOVED WET REF EPOXY 4-INCH (WHITE)
F	MARKING STOP LINE EPOXY 18-INCH (WHITE)
G	MARKING WORD EPOXY (WHITE)("ONLY")
H	MARKING ARROW EPOXY TYPE 1 (WHITE)
I	MARKING ARROW EPOXY TYPE 2 (WHITE)
J	MARKING ARROW EPOXY TYPE 3 (WHITE)
K	MARKING LINE EPOXY 4-INCH (SINGLE YELLOW)
L	MARKING LINE EPOXY 4-INCH (DOUBLE YELLOW)
M	MARKING LINE EPOXY 4-INCH (SINGLE WHITE)
N	MARKING DIAGONAL EPOXY 12-INCH (WHITE)
O	MARKING DIAGONAL EPOXY 12-INCH (YELLOW)
P	MARKING LINE GROOVED WET REF CONTRAST EPOXY 8-INCH (WHITE)
Q	MARKING LINE EPOXY 8-INCH (SINGLE WHITE)
R	MARKING LINE EPOXY 8-INCH (WHITE SKIP)(3'SEG., 9' GAP)

PROJECT NO: 2250-16-70	HWY: STH 20	COUNTY: RACINE	PAVEMENT MARKING DETAILS	SHEET 57	E

FILE NAME : X:\PROJECTS\RACINE\STH 20\DESIGN\C3D\SHEETSPLAN\024501-PM.DWG
LAYOUT NAME - 024505-pm
PLOT DATE : 11/30/2017 4:04 PM PLOT BY : BRAD GROH PLOT NAME : PLOT SCALE : ##########

2

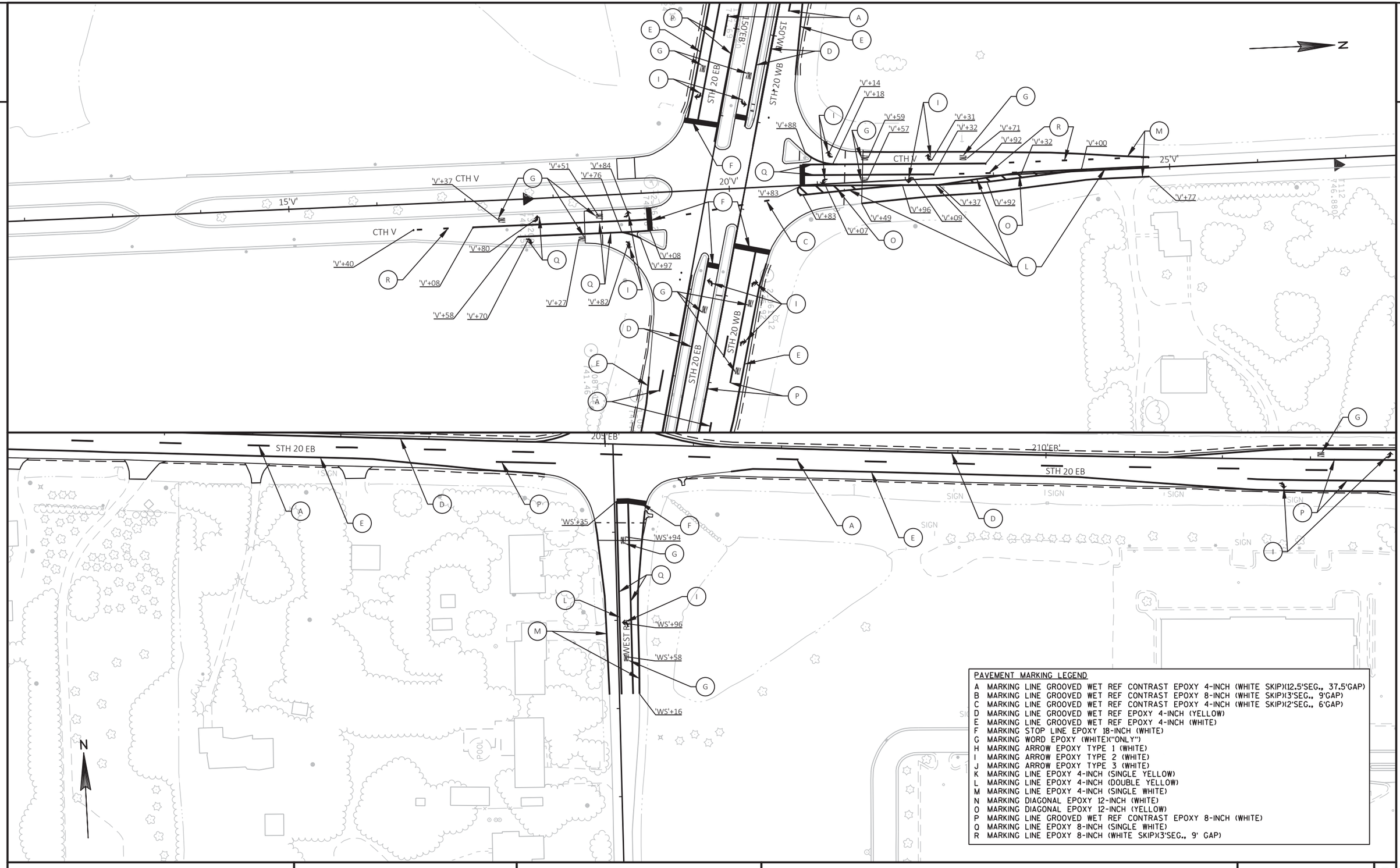


PAVEMENT MARKING LEGEND

A	MARKING LINE GROOVED WET REF CONTRAST EPOXY 4-INCH (WHITE SKIP)(12.5'SEG., 37.5'GAP)
B	MARKING LINE GROOVED WET REF CONTRAST EPOXY 8-INCH (WHITE SKIP)(3'SEG., 9'GAP)
C	MARKING LINE GROOVED WET REF CONTRAST EPOXY 4-INCH (WHITE SKIP)(2'SEG., 6'GAP)
D	MARKING LINE GROOVED WET REF EPOXY 4-INCH (YELLOW)
E	MARKING LINE GROOVED WET REF EPOXY 4-INCH (WHITE)
F	MARKING STOP LINE EPOXY 18-INCH (WHITE)
G	MARKING WORD EPOXY (WHITE)("ONLY")
H	MARKING ARROW EPOXY TYPE 1 (WHITE)
I	MARKING ARROW EPOXY TYPE 2 (WHITE)
J	MARKING ARROW EPOXY TYPE 3 (WHITE)
K	MARKING LINE EPOXY 4-INCH (SINGLE YELLOW)
L	MARKING LINE EPOXY 4-INCH (DOUBLE YELLOW)
M	MARKING LINE EPOXY 4-INCH (SINGLE WHITE)
N	MARKING DIAGONAL EPOXY 12-INCH (WHITE)
O	MARKING DIAGONAL EPOXY 12-INCH (YELLOW)
P	MARKING LINE GROOVED WET REF CONTRAST EPOXY 8-INCH (WHITE)
Q	MARKING LINE EPOXY 8-INCH (SINGLE WHITE)
R	MARKING LINE EPOXY 8-INCH (WHITE SKIP)(3'SEG., 9' GAP)

PROJECT NO: 2250-16-70	HWY: STH 20	COUNTY: RACINE	PAVEMENT MARKING DETAILS	SHEET 58	E

2



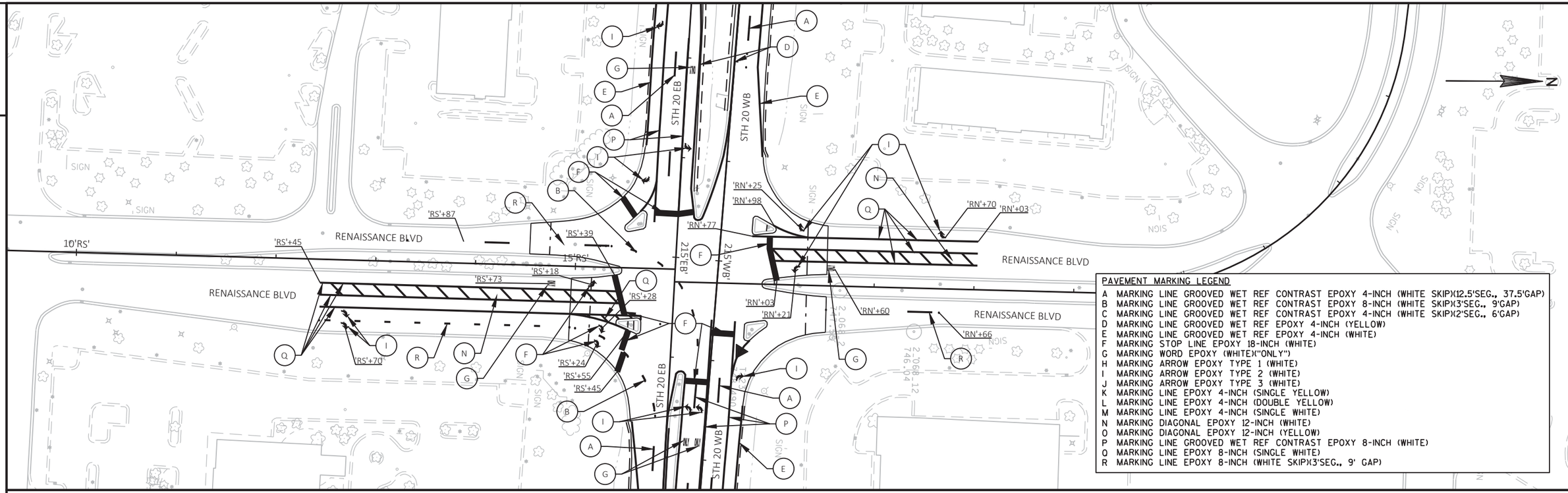
PAVEMENT MARKING LEGEND

A	MARKING LINE GROOVED WET REF CONTRAST EPOXY 4-INCH (WHITE SKIP)(12.5'SEG., 37.5'GAP)
B	MARKING LINE GROOVED WET REF CONTRAST EPOXY 8-INCH (WHITE SKIP)(3'SEG., 9'GAP)
C	MARKING LINE GROOVED WET REF CONTRAST EPOXY 4-INCH (WHITE SKIP)(2'SEG., 6'GAP)
D	MARKING LINE GROOVED WET REF EPOXY 4-INCH (YELLOW)
E	MARKING LINE GROOVED WET REF EPOXY 4-INCH (WHITE)
F	MARKING STOP LINE EPOXY 18-INCH (WHITE)
G	MARKING WORD EPOXY (WHITE)("ONLY")
H	MARKING ARROW EPOXY TYPE 1 (WHITE)
I	MARKING ARROW EPOXY TYPE 2 (WHITE)
J	MARKING ARROW EPOXY TYPE 3 (WHITE)
K	MARKING LINE EPOXY 4-INCH (SINGLE YELLOW)
L	MARKING LINE EPOXY 4-INCH (DOUBLE YELLOW)
M	MARKING LINE EPOXY 4-INCH (SINGLE WHITE)
N	MARKING DIAGONAL EPOXY 12-INCH (WHITE)
O	MARKING DIAGONAL EPOXY 12-INCH (YELLOW)
P	MARKING LINE GROOVED WET REF CONTRAST EPOXY 8-INCH (WHITE)
Q	MARKING LINE EPOXY 8-INCH (SINGLE WHITE)
R	MARKING LINE EPOXY 8-INCH (WHITE SKIP)(3'SEG., 9' GAP)

PROJECT NO: 2250-16-70	HWY: STH 20	COUNTY: RACINE	PAVEMENT MARKING DETAILS	SHEET	E

FILE NAME : X:\PROJECTS\RACINE\STH 20\DESIGN\C3D\SHEETSPLAN\024501-PM.DWG
LAYOUT NAME - 024507-pm

PLOT DATE : 11/30/2017 4:04 PM PLOT BY : BRAD GROH PLOT NAME : PLOT SCALE : ##########

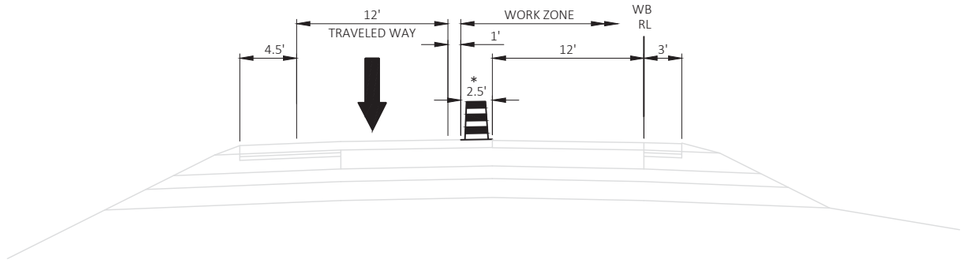


PAVEMENT MARKING LEGEND

A	MARKING LINE GROOVED WET REF CONTRAST EPOXY 4-INCH (WHITE SKIP)(12.5'SEG., 37.5'GAP)
B	MARKING LINE GROOVED WET REF CONTRAST EPOXY 8-INCH (WHITE SKIP)(3'SEG., 9'GAP)
C	MARKING LINE GROOVED WET REF CONTRAST EPOXY 4-INCH (WHITE SKIP)(2'SEG., 6'GAP)
D	MARKING LINE GROOVED WET REF EPOXY 4-INCH (YELLOW)
E	MARKING LINE GROOVED WET REF EPOXY 4-INCH (WHITE)
F	MARKING STOP LINE EPOXY 18-INCH (WHITE)
G	MARKING WORD EPOXY (WHITE)("ONLY")
H	MARKING ARROW EPOXY TYPE 1 (WHITE)
I	MARKING ARROW EPOXY TYPE 2 (WHITE)
J	MARKING ARROW EPOXY TYPE 3 (WHITE)
K	MARKING LINE EPOXY 4-INCH (SINGLE YELLOW)
L	MARKING LINE EPOXY 4-INCH (DOUBLE YELLOW)
M	MARKING LINE EPOXY 4-INCH (SINGLE WHITE)
N	MARKING DIAGONAL EPOXY 12-INCH (WHITE)
O	MARKING DIAGONAL EPOXY 12-INCH (YELLOW)
P	MARKING LINE GROOVED WET REF CONTRAST EPOXY 8-INCH (WHITE)
Q	MARKING LINE EPOXY 8-INCH (SINGLE WHITE)
R	MARKING LINE EPOXY 8-INCH (WHITE SKIP)(3'SEG., 9' GAP)

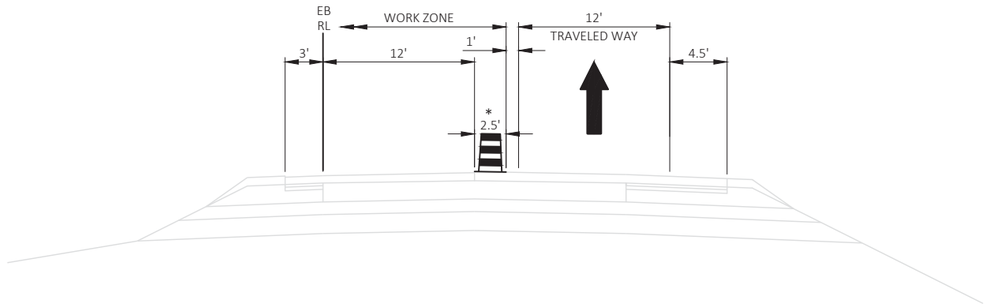
PROJECT NO: 2250-16-70	HWY: STH 20	COUNTY: RACINE	PAVEMENT MARKING DETAILS	SHEET 60 E

FILE NAME : X:\PROJECTS\RACINE\STH 20\DESIGN\C3D\SHEETSPLAN\024501-PM.DWG
LAYOUT NAME - 024508-pm
PLOT DATE : 11/30/2017 4:04 PM PLOT BY : BRAD GROH PLOT NAME : PLOT SCALE : ##########



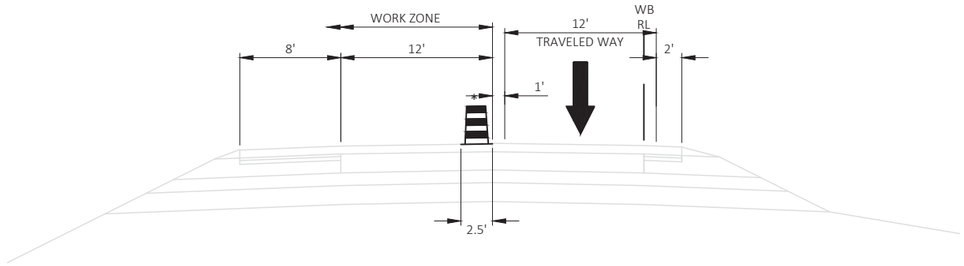
STAGE 1 - WB INSIDE LANE

COMPLETE ELECTRICAL INSTALLATIONS UNDER STH 20.
COMPLETE BASE PATCHING AND/OR PAVEMENT REPAIR
WORK FOR ALL DISTRESS AND ELECTRICAL AREAS.



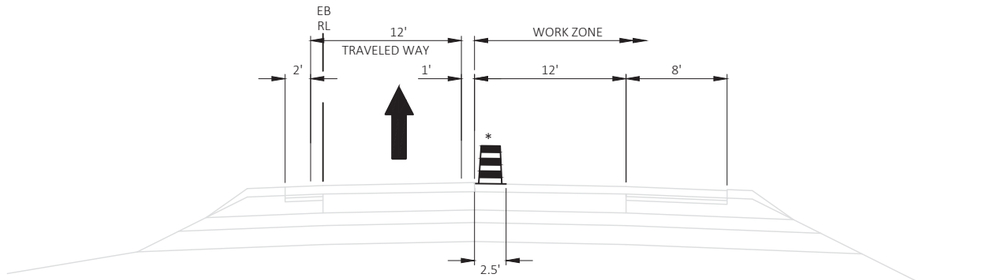
STAGE 1 - EB INSIDE LANE

COMPLETE ELECTRICAL INSTALLATIONS UNDER STH 20.
COMPLETE BASE PATCHING AND/OR PAVEMENT REPAIR
WORK FOR ALL DISTRESS AND ELECTRICAL AREAS.



STAGE 1 - WB OUTSIDE LANE

COMPLETE ELECTRICAL INSTALLATIONS UNDER STH 20.
COMPLETE BASE PATCHING AND/OR PAVEMENT REPAIR
WORK FOR ALL DISTRESS AND ELECTRICAL AREAS.

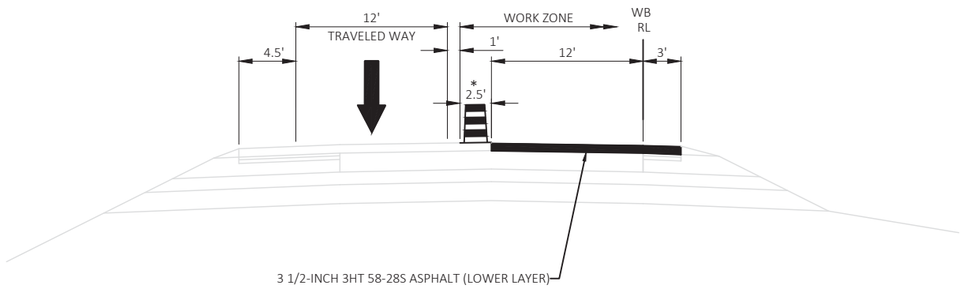


STAGE 1 - EB OUTSIDE LANE

COMPLETE ELECTRICAL INSTALLATIONS UNDER STH 20.
COMPLETE BASE PATCHING AND/OR PAVEMENT REPAIR
WORK FOR ALL DISTRESS AND ELECTRICAL AREAS.

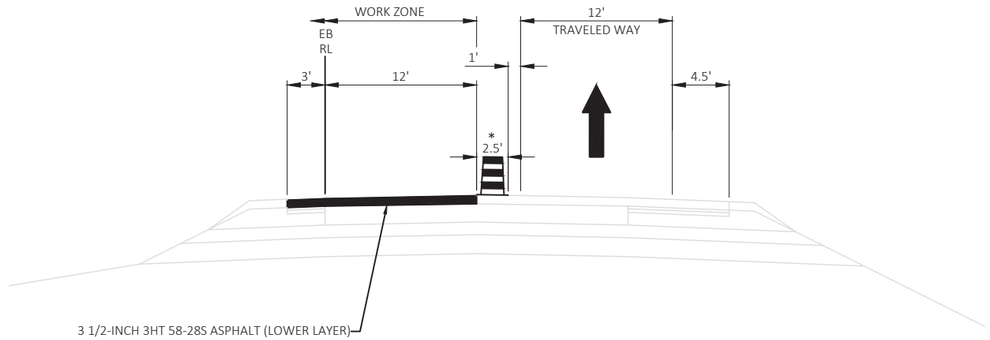
*DRUM CAN BE SHIFTED ONTO THE TRAVELED WAY AND TRAFFIC IS EXPECTED TO SHIFT ONTO SHOULDER TO BYPASS CONSTRUCTION OPERATIONS. DRUM SHALL BE MOVED AND RETURNED TO NORMAL POSITION IMMEDIATELY PRECEDING AND IMMEDIATELY AFTER CONSTRUCTION OPERATION HAS PASSED.

PROJECT NO: 2250-16-70	HWY: STH 20	COUNTY: RACINE	STAGE 1 TYPICAL SECTIONS	SHEET 61	E



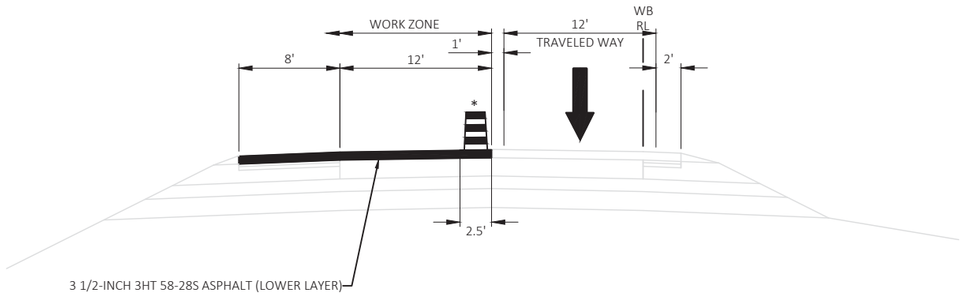
STAGE 2 - WB INSIDE LANE

MILL ALL EXISTING ASPHALT PAVEMENT.
REPLACE WITH 4 1/4-INCH HMA PAVEMENT (LOWER LAYER)
AT THE CROWN TAPERED TO 3 1/2-INCH HMA PAVEMENT AT
OUTSIDE EDGE OF LANE.
COMPLETE CONCRETE CRACK CLEANING.



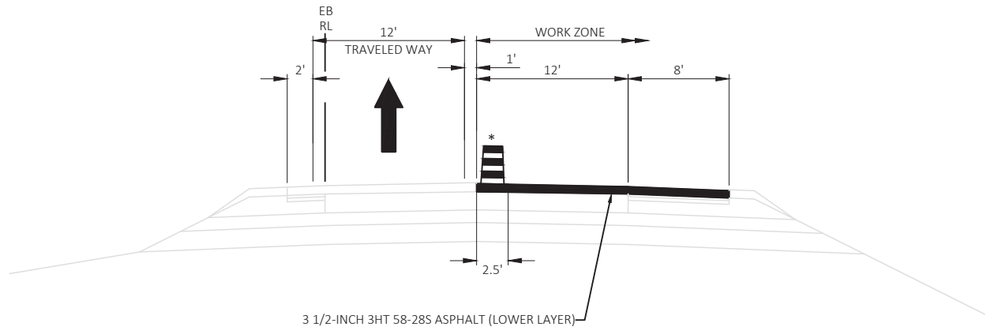
STAGE 2 - EB INSIDE LANE

MILL ALL EXISTING ASPHALT PAVEMENT.
REPLACE WITH 4 1/4-INCH HMA PAVEMENT (LOWER LAYER)
AT THE CROWN TAPERED TO 3 1/2-INCH HMA PAVEMENT AT
OUTSIDE EDGE OF LANE.
COMPLETE CONCRETE CRACK CLEANING.



STAGE 2 - WB OUTSIDE LANE

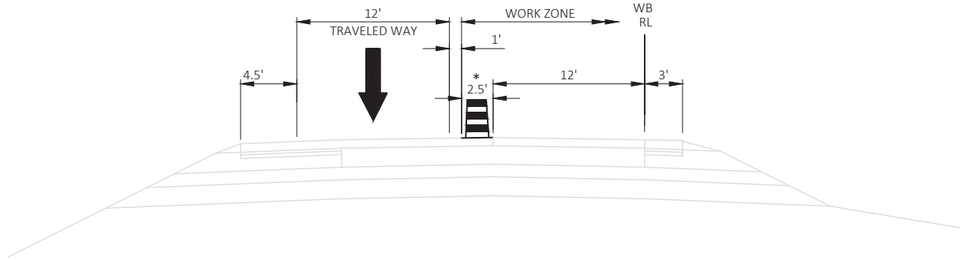
MILL ALL EXISTING ASPHALT PAVEMENT.
REPLACE WITH 4 1/4-INCH HMA PAVEMENT (LOWER LAYER)
AT THE CROWN TAPERED TO 3 1/2-INCH HMA PAVEMENT AT
OUTSIDE EDGE OF LANE.
COMPLETE CONCRETE CRACK CLEANING.



STAGE 2 - EB OUTSIDE LANE

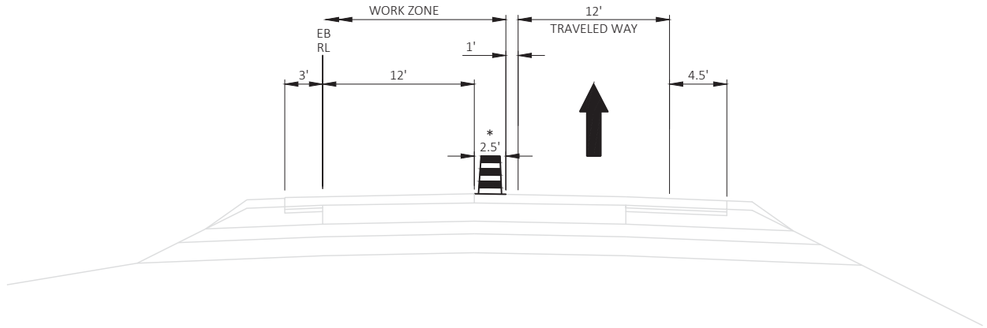
MILL ALL EXISTING ASPHALT PAVEMENT.
REPLACE WITH 4 1/4-INCH HMA PAVEMENT (LOWER LAYER)
AT THE CROWN TAPERED TO 3 1/2-INCH HMA PAVEMENT AT
OUTSIDE EDGE OF LANE.
COMPLETE CONCRETE CRACK CLEANING.

*DRUM CAN BE SHIFTED ONTO THE TRAVELED WAY AND TRAFFIC IS EXPECTED TO SHIFT ONTO SHOULDER TO BYPASS CONSTRUCTION OPERATIONS. DRUM SHALL BE MOVED AND RETURNED TO NORMAL POSITION IMMEDIATELY PRECEDING AND IMMEDIATELY AFTER CONSTRUCTION OPERATION HAS PASSED.



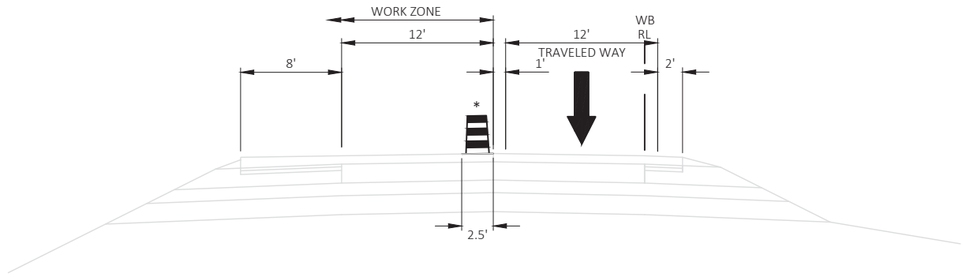
STAGE 3 - WB INSIDE LANE

REMOVE AND REPLACE CONCRETE CURB AND GUTTER.
COMPLETE ANY ADDITIONAL BASE PATCHING IDENTIFIED IN STAGE 2.



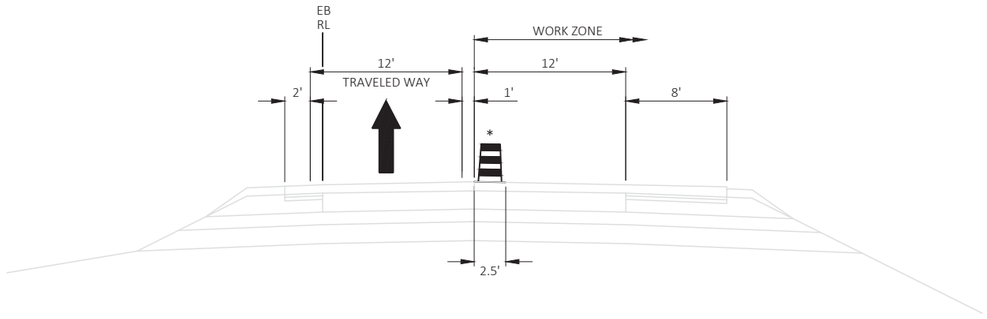
STAGE 3 - EB INSIDE LANE

REMOVE AND REPLACE CONCRETE CURB AND GUTTER.
COMPLETE ANY ADDITIONAL BASE PATCHING IDENTIFIED IN STAGE 2.



STAGE 3 - WB OUTSIDE LANE

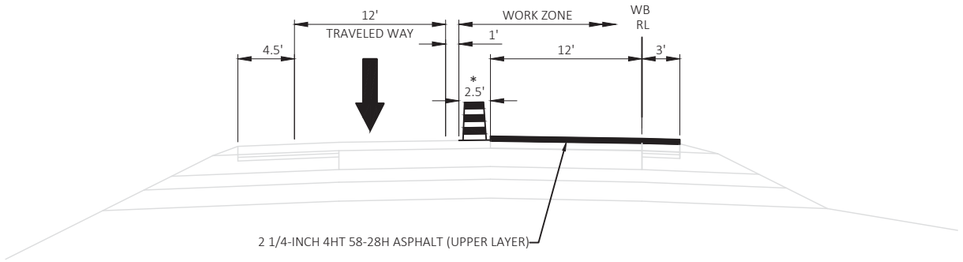
REMOVE AND REPLACE CONCRETE CURB AND GUTTER.
COMPLETE ANY ADDITIONAL BASE PATCHING IDENTIFIED IN STAGE 2.



STAGE 3 - EB OUTSIDE LANE

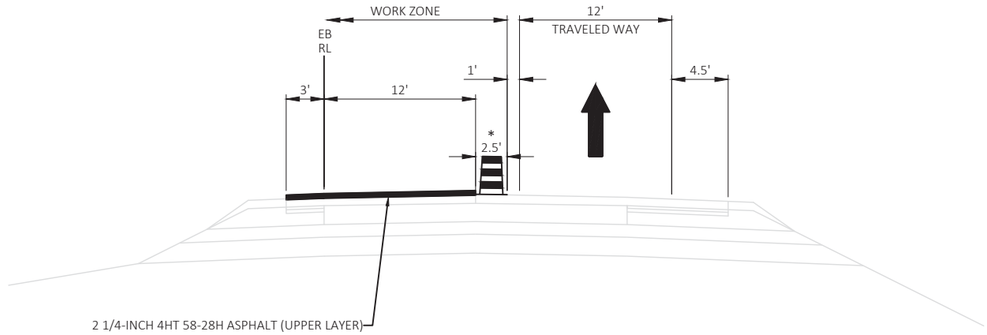
REMOVE AND REPLACE CONCRETE CURB AND GUTTER.
COMPLETE ANY ADDITIONAL BASE PATCHING IDENTIFIED IN STAGE 2.

*DRUM CAN BE SHIFTED ONTO THE TRAVELED WAY AND TRAFFIC IS EXPECTED TO SHIFT ONTO SHOULDER TO BYPASS CONSTRUCTION OPERATIONS. DRUM SHALL BE MOVED AND RETURNED TO NORMAL POSITION IMMEDIATELY PRECEDING AND IMMEDIATELY AFTER CONSTRUCTION OPERATION HAS PASSED.



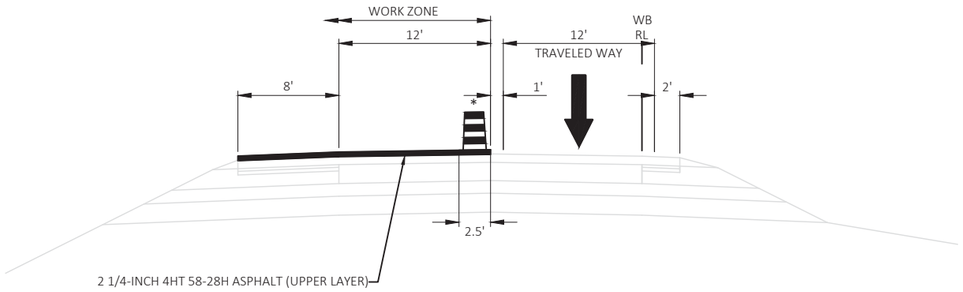
STAGE 4 - WB INSIDE LANE

PAVE SURFACE LAYER (2 1/4-INCH 4HT-28H ASPHALT).
COMPLETE PAVEMENT MARKING, SIGNING, BEAMGUARD, AND SHOULDERS.



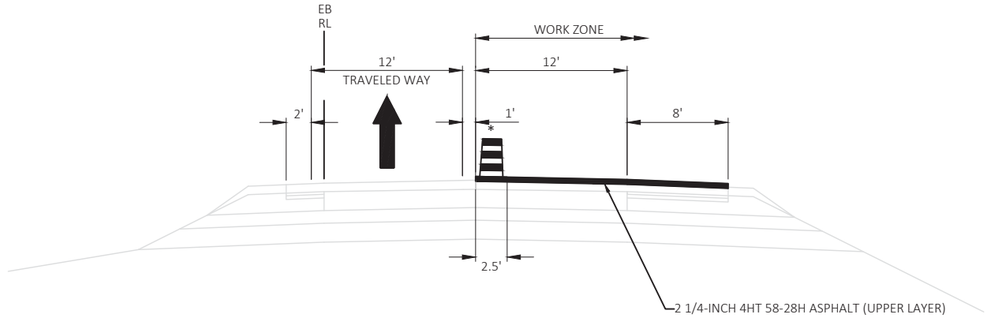
STAGE 4 - EB INSIDE LANE

PAVE SURFACE LAYER (2 1/4-INCH 4HT-28H ASPHALT).
COMPLETE PAVEMENT MARKING, SIGNING, BEAMGUARD, AND SHOULDERS.



STAGE 4 - WB OUTSIDE LANE

PAVE SURFACE LAYER (2 1/4-INCH 4HT-28H ASPHALT).
COMPLETE PAVEMENT MARKING, SIGNING, BEAMGUARD, AND SHOULDERS.



STAGE 4 - EB OUTSIDE LANE

PAVE SURFACE LAYER (2 1/4-INCH 4HT-28H ASPHALT).
COMPLETE PAVEMENT MARKING, SIGNING, BEAMGUARD, AND SHOULDERS.

*DRUM CAN BE SHIFTED ONTO THE TRAVELED WAY AND TRAFFIC IS EXPECTED TO SHIFT ONTO SHOULDER TO BYPASS CONSTRUCTION OPERATIONS. DRUM SHALL BE MOVED AND RETURNED TO NORMAL POSITION IMMEDIATELY PRECEDING AND IMMEDIATELY AFTER CONSTRUCTION OPERATION HAS PASSED.

2

2

LEGEND

SDD 15C3: BARRICADES AND SIGNS FOR SIDEROAD CLOSURES

SDD 15C4: TRAFFIC CONTROL, ADVANCE WARNING SIGNS 45 M.P.H. OR GREATER, TWO WAY UNDIVIDED ROAD OPEN TO TRAFFIC

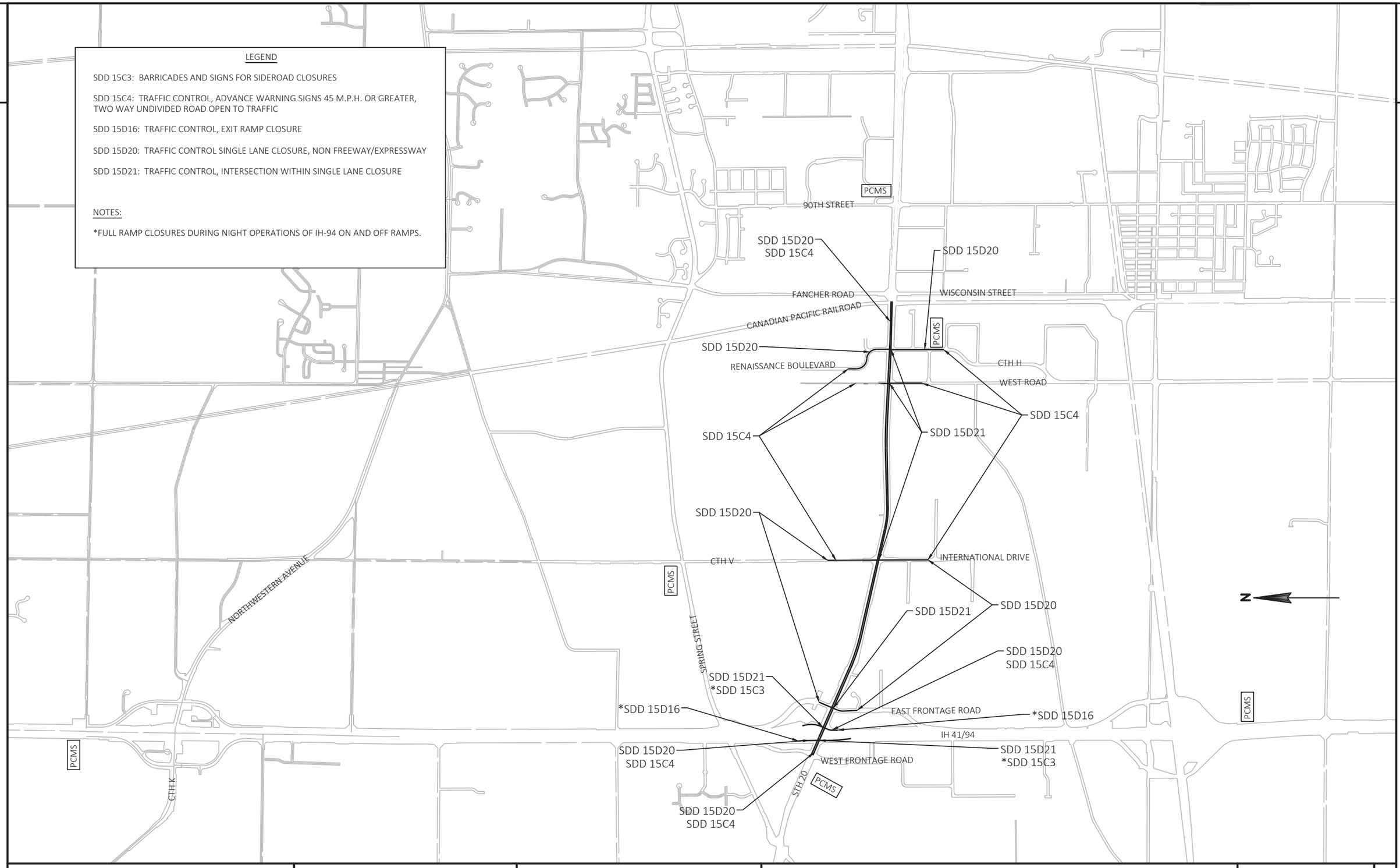
SDD 15D16: TRAFFIC CONTROL, EXIT RAMP CLOSURE

SDD 15D20: TRAFFIC CONTROL SINGLE LANE CLOSURE, NON FREEWAY/EXPRESSWAY

SDD 15D21: TRAFFIC CONTROL, INTERSECTION WITHIN SINGLE LANE CLOSURE

NOTES:

*FULL RAMP CLOSURES DURING NIGHT OPERATIONS OF IH-94 ON AND OFF RAMPS.



PROJECT NO: 2250-16-70	HWY: STH 20	COUNTY: RACINE	TRAFFIC CONTROL - STAGES 1 & 3 (SINGLE LANE CLOSURE)	SHEET	E

FILE NAME : X:\PROJECTS\RACINE\STH 20\DESIGN\C3D\SHEETSPLAN\025002_TC.DWG
LAYOUT NAME - 025005-tc

PLOT DATE : 12/6/2017 1:35 PM PLOT BY : BRAD GROH PLOT NAME : PLOT SCALE : 1 IN:0.5 MI

WISDOT/CADDS SHEET 42

2

2

LEGEND

SDD 15C3: BARRICADES AND SIGNS FOR SIDEROAD CLOSURES

SDD 15C4: TRAFFIC CONTROL, ADVANCE WARNING SIGNS 45 M.P.H. OR GREATER, TWO WAY UNDIVIDED ROAD OPEN TO TRAFFIC

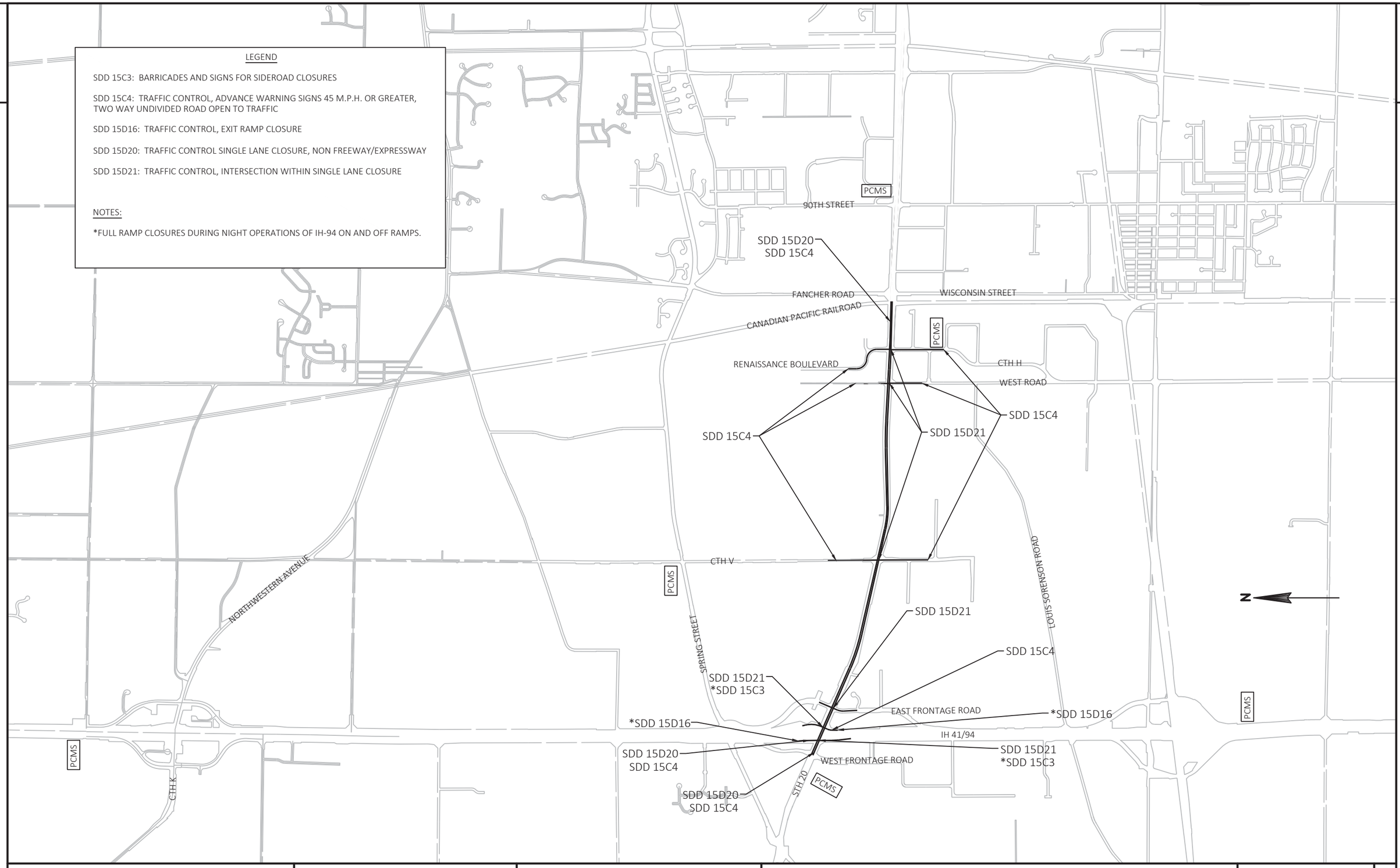
SDD 15D16: TRAFFIC CONTROL, EXIT RAMP CLOSURE

SDD 15D20: TRAFFIC CONTROL SINGLE LANE CLOSURE, NON FREEWAY/EXPRESSWAY

SDD 15D21: TRAFFIC CONTROL, INTERSECTION WITHIN SINGLE LANE CLOSURE

NOTES:

*FULL RAMP CLOSURES DURING NIGHT OPERATIONS OF IH-94 ON AND OFF RAMPS.



PROJECT NO: 2250-16-70	HWY: STH 20	COUNTY: RACINE	TRAFFIC CONTROL - STAGES 2 & 4 (SINGLE LANE CLOSURE)	SHEET E

FILE NAME : X:\PROJECTS\RACINE\STH 20\DESIGN\C3D\SHEETSPLAN\025002_TC.DWG
LAYOUT NAME - 025006-tc
PLOT DATE : 12/6/2017 1:35 PM PLOT BY : BRAD GROH PLOT NAME : PLOT SCALE : 1 IN:0.5 MI
WISDOT/CADDS SHEET 42

2

PCMS MESSAGES:

7 DAYS PRIOR TO CONSTRUCTION START:
EB1 - ROAD WORK
BEGINS XX/XX

WB1 - ROAD WORK
BEGINS XX/XX

CV1 - ROAD WORK WIS 20
BEGINS XX/XX

CH1 - ROAD WORK WIS 20
BEGINS XX/XX

NB1 - ROAD WORK WIS 20
BEGINS XX/XX

SB1 - ROAD WORK WIS 20
BEGINS XX/XX

3 DAYS PRIOR TO RAMP CLOSURES:
EB1 - RAMP CLOSED WIS 20
10 PM TO 5 AM

WB1 - RAMP CLOSED WIS 20
10 PM TO 5 AM

CV1 - RAMP CLOSED WIS 20
10 PM TO 5 AM

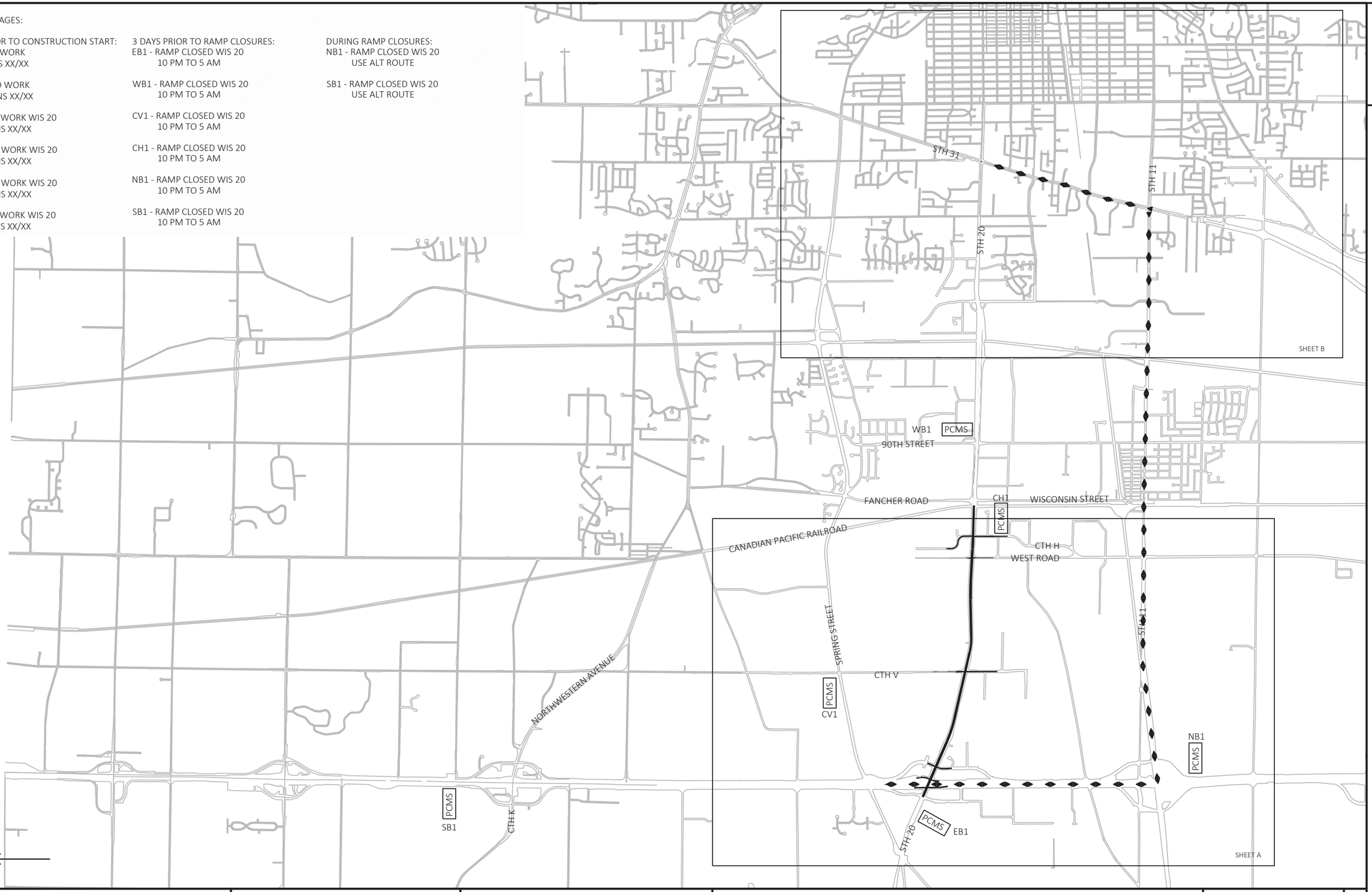
CH1 - RAMP CLOSED WIS 20
10 PM TO 5 AM

NB1 - RAMP CLOSED WIS 20
10 PM TO 5 AM

SB1 - RAMP CLOSED WIS 20
10 PM TO 5 AM

DURING RAMP CLOSURES:
NB1 - RAMP CLOSED WIS 20
USE ALT ROUTE

SB1 - RAMP CLOSED WIS 20
USE ALT ROUTE



PROJECT NO: 2250-16-70	HWY: STH 20	COUNTY: RACINE	TRAFFIC CONTROL ALTERNATIVE ROUTE: OVERVIEW	SHEET 67	E

2

2

CANADIAN PACIFIC RAILROAD

CH1
PCMS

CTH H

WEST ROAD

N

CTH V

PCMS
CV1

SPRING STREET

EAST
20
M3-2
36"X18"
M1-6
36"X36"
MAX.
11'
WIDTH
W12-52
48"X48"

ALT
EAST
20
M4-1A
36"X18"
M3-2
36"X18"
M1-6
36"X36"
M6-3
30"X30"

EAST FRONTAGE ROAD

IH 41/94

STH 20

WEST FRONTAGE ROAD

PCMS
EB1

BEGIN
ALT
EAST
20
M4-14
24"X12"
M4-1A
24"X12"
M3-2
24"X12"
M1-6
24"X24"

ALT
EAST
20
M4-1A
24"X12"
M3-2
24"X12"
M1-6
24"X24"
M5-1R
21"X21"

ALT
EAST
20
M4-1A
24"X12"
M3-2
24"X12"
M1-6
24"X24"
M6-1
21"X21"

W12-52
48"X48"
MAX.
11'
WIDTH

ALT
EAST
20
M4-1A
36"X18"
M3-2
36"X18"
M1-6
36"X36"
M5-2R
30"X30"

END
ALT
WEST
20
M4-6
24"X12"
M4-1A
24"X12"
M3-4
24"X12"
M1-6
24"X24"

ALT
EAST
20
M4-1A
24"X12"
M3-2
24"X12"
M1-6
24"X24"
M6-1
21"X21"

ALT
EAST
20
M4-1A
36"X18"
M3-2
36"X18"
M1-6
36"X36"
M6-2
30"X30"

STH 11

ALT
EAST
20
M4-1A
24"X12"
M3-2
24"X12"
M1-6
24"X24"
M5-1R
21"X21"

ALT
EAST
20
M4-1A
24"X12"
M3-2
24"X12"
M1-6
24"X24"
M6-1
21"X21"

EAST
20
M3-2
36"X18"
M1-6
36"X36"
MAX.
11'
WIDTH
W12-52
48"X48"

ALT
EAST
20
M4-1A
36"X18"
M3-2
36"X18"
M1-6
36"X36"
M6-2
30"X30"

NB1
PCMS

PROJECT NO: 2250-16-70	HWY: STH 20	COUNTY: RACINE	TRAFFIC CONTROL ALTERNATIVE ROUTE: SHEET A	SHEET 68	E

2

WEST 20 M3-4 24"X12" M1-6 24"X24"
MAX. 11' WIDTH W12-52 48"X48"
3 MILES AHEAD WO57-52 48"X36"

ALT WEST 20 M4-1A 24"X12" M3-4 24"X12" M1-6 24"X24" M5-1R 21"X21"
MAX. 11' WIDTH W12-52 48"X48"
END ALT EAST 20 M4-6 24"X12" M4-1A 24"X12" M3-2 24"X12" M1-6 24"X24"
ALT EAST 20 M4-1A 24"X12" M3-2 24"X12" M1-6 24"X24"

STH 31

ALT WEST 20 M4-1A 24"X12" M3-4 24"X12" M1-6 24"X24" M6-1 21"X21"
BEGIN ALT WEST 20 M4-14 24"X12" M4-1A 24"X12" M3-4 24"X12" M1-6 24"X24"
ALT WEST 20 M4-1A 24"X12" M3-4 24"X12" M1-6 24"X24" M5-1R 21"X21"
ALT WEST 20 M4-1A 24"X12" M3-4 24"X12" M1-6 24"X24" M6-1 21"X21"
ALT WEST 20 M4-1A 24"X12" M3-4 24"X12" M1-6 24"X24"
ALT EAST 20 M4-1A 24"X12" M3-2 24"X12" M1-6 24"X24" M5-1R 21"X21"
ALT EAST 20 M4-1A 24"X12" M3-2 24"X12" M1-6 24"X24" M6-1 21"X21"

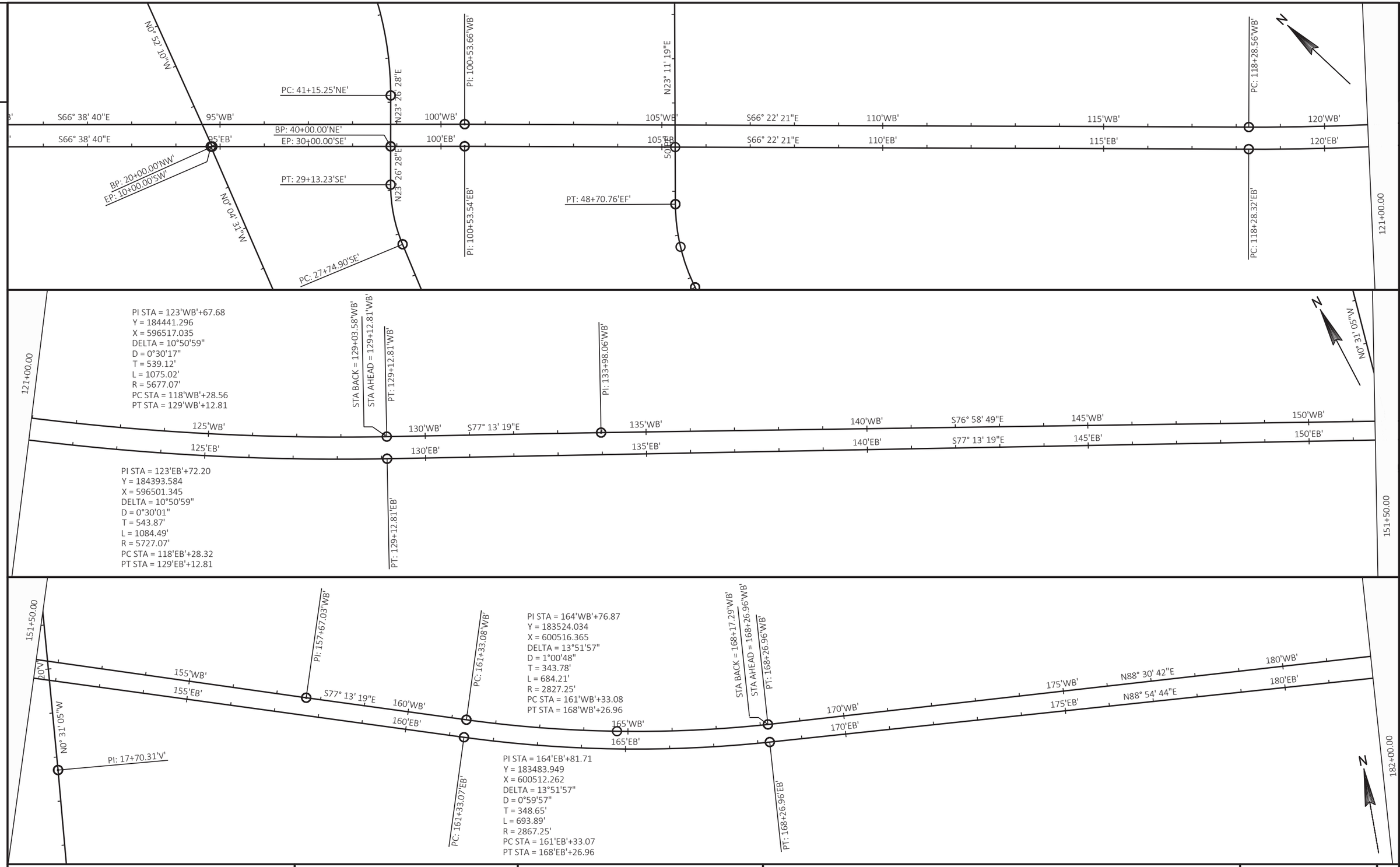
STH 20
STH 11

WEST 20 M3-4 24"X12" M1-6 24"X24"
MAX. 11' WIDTH W12-52 48"X48"
3 MILES AHEAD WO57-52 48"X36"

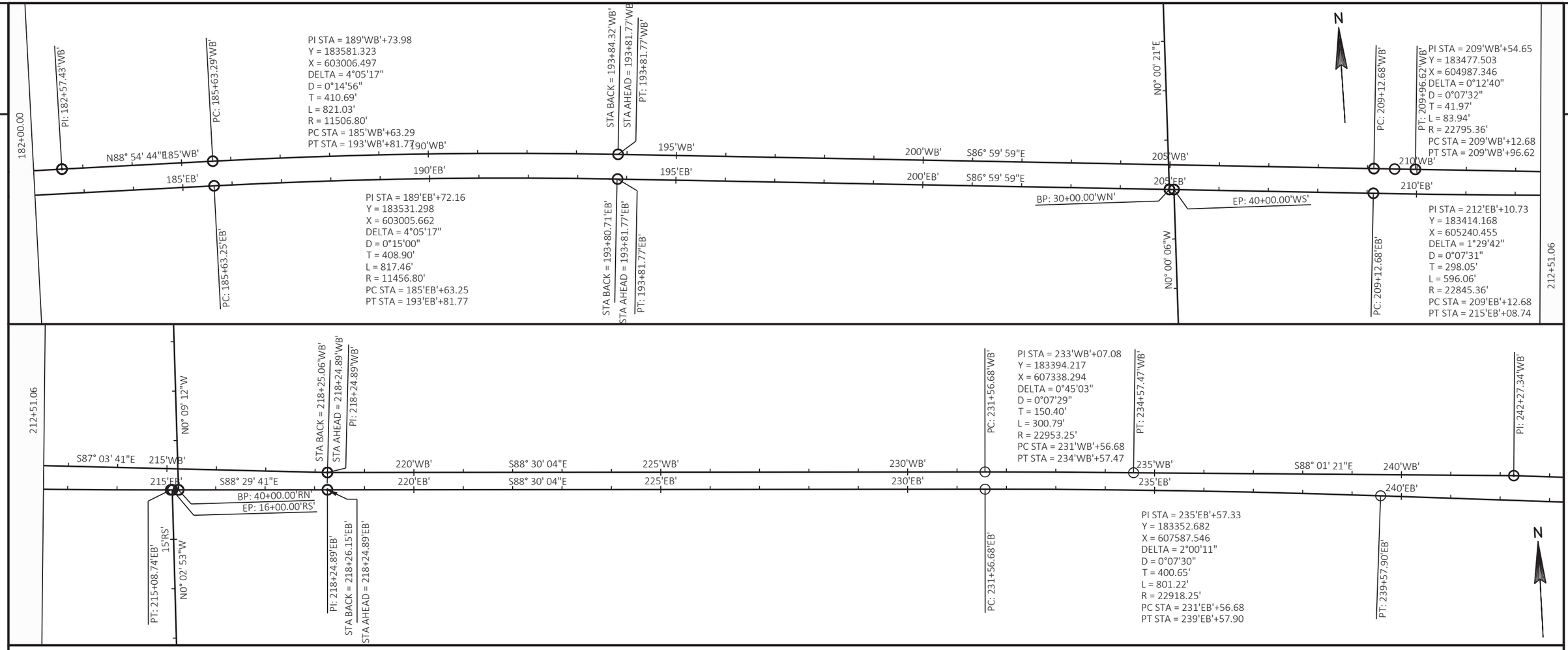
N

PROJECT NO: 2250-16-70	HWY: STH 20	COUNTY: RACINE	TRAFFIC CONTROL ALTERNATIVE ROUTE: SHEET B	SHEET 69 E

FILE NAME : X:\PROJECTS\RACINE\STH 20\DESIGN\C3D\SHEETSPLAN\025002_TC.DWG
LAYOUT NAME - 025009-tc
PLOT DATE : 12/19/2017 2:40 PM
PLOT BY : DYLAN DOUGLAS
PLOT NAME :
PLOT SCALE : Custom
WISDOT/CADDS SHEET 42



PROJECT NO: 2250-16-70	HWY: STH 20	COUNTY: RACINE	ALIGNMENT DIAGRAM	SHEET 70	E



PROJECT NO: 2250-16-70	HWY: STH 20	COUNTY: RACINE	ALIGNMENT DIAGRAM	SHEET 71	E

2250-16-70

Line	Item	Item Description	Unit	Total	Qty
0002	204.0105	Removing Pavement Butt Joints	SY	130.000	130.000
0004	204.0110	Removing Asphaltic Surface	SY	34.000	34.000
0006	204.0115	Removing Asphaltic Surface Butt Joints	SY	3,525.000	3,525.000
0008	204.0120	Removing Asphaltic Surface Milling	SY	117,193.000	117,193.000
0010	204.0150	Removing Curb & Gutter	LF	1,858.000	1,858.000
0012	204.0155	Removing Concrete Sidewalk	SY	50.000	50.000
0014	204.0165	Removing Guardrail	LF	318.000	318.000
0016	204.0180	Removing Delineators and Markers	EACH	17.000	17.000
0018	204.0195	Removing Concrete Bases	EACH	4.000	4.000
0020	204.0245	Removing Storm Sewer (size) 01. 12-Inch	LF	8.000	8.000
0022	205.0100	Excavation Common	CY	138.000	138.000
0024	213.0100	Finishing Roadway (project) 01. 2250-16-70	EACH	1.000	1.000
0026	305.0110	Base Aggregate Dense 3/4-Inch	TON	4,117.000	4,117.000
0028	305.0120	Base Aggregate Dense 1 1/4-Inch	TON	660.000	660.000
0030	305.0500	Shaping Shoulders	STA	260.000	260.000
0032	390.0403	Base Patching Concrete Shes	SY	3,089.000	3,089.000
0034	416.0610	Drilled Tie Bars	EACH	1,066.000	1,066.000
0036	416.0620	Drilled Dowel Bars	EACH	2,395.000	2,395.000
0038	416.1715	Concrete Pavement Repair SHES	SY	179.000	179.000
0040	416.1725	Concrete Pavement Replacement SHES	SY	2,525.000	2,525.000
0042	420.1000	Continuous Diamond Grinding Concrete Pavement	SY	7,900.000	7,900.000
0044	440.4410	Incentive IRI Ride	DOL	18,889.000	18,889.000
0046	450.4000	HMA Cold Weather Paving	TON	40,103.000	40,103.000
0048	455.0605	Tack Coat	GAL	4,497.000	4,497.000
0050	460.2000	Incentive Density HMA Pavement	DOL	25,570.000	25,570.000
0052	460.4110.S	Reheating HMA Pavement Longitudinal Joints	LF	25,145.000	25,145.000
0054	460.7223	HMA Pavement 3 HT 58-28 S	TON	24,151.000	24,151.000
0056	460.7424	HMA Pavement 4 HT 58-28 H	TON	15,800.000	15,800.000
0058	465.0120	Asphaltic Surface Driveways and Field Entrances	TON	151.000	151.000
0060	465.0305	Asphaltic Surface Safety Islands	TON	6.000	6.000
0062	465.0315	Asphaltic Flumes	SY	12.000	12.000
0064	465.0400	Asphaltic Shoulder Rumble Strips	LF	34,640.000	34,640.000
0066	520.8000	Concrete Collars for Pipe	EACH	2.000	2.000
0068	602.0405	Concrete Sidewalk 4-Inch	SF	360.000	360.000
0070	608.0312	Storm Sewer Pipe Reinforced Concrete Class III 12-Inch	LF	8.000	8.000
0072	611.8110	Adjusting Manhole Covers	EACH	2.000	2.000
0074	614.0010	Barrier System Grading Shaping Finishing	EACH	2.000	2.000
0076	614.2300	MGS Guardrail 3	LF	382.000	382.000
0078	614.2610	MGS Guardrail Terminal EAT	EACH	2.000	2.000

2250-16-70

Line	Item	Item Description	Unit	Total	Qty
0080	614.2620	MGS Guardrail Terminal Type 2	EACH	2.000	2.000
0082	618.0100	Maintenance And Repair of Haul Roads (project) 01. 2250-16-70	EACH	1.000	1.000
0084	619.1000	Mobilization	EACH	1.000	1.000
0086	620.0300	Concrete Median Sloped Nose	SF	26.000	26.000
0088	624.0100	Water	MGAL	17.000	17.000
0090	625.0100	Topsoil	SY	972.000	972.000
0092	628.1504	Silt Fence	LF	611.000	611.000
0094	628.1520	Silt Fence Maintenance	LF	611.000	611.000
0096	628.1905	Mobilizations Erosion Control	EACH	4.000	4.000
0098	628.1910	Mobilizations Emergency Erosion Control	EACH	4.000	4.000
0100	628.2002	Erosion Mat Class I Type A	SY	1,190.000	1,190.000
0102	628.7005	Inlet Protection Type A	EACH	5.000	5.000
0104	628.7015	Inlet Protection Type C	EACH	33.000	33.000
0106	628.7020	Inlet Protection Type D	EACH	2.000	2.000
0108	629.0210	Fertilizer Type B	CWT	1.000	1.000
0110	630.0120	Seeding Mixture No. 20	LB	26.000	26.000
0112	633.0100	Delineator Posts Steel	EACH	17.000	17.000
0114	633.0500	Delineator Reflectors	EACH	31.000	31.000
0116	634.0618	Posts Wood 4x6-Inch X 18-FT	EACH	6.000	6.000
0118	637.2210	Signs Type II Reflective H	SF	179.500	179.500
0120	637.2215	Signs Type II Reflective H Folding	SF	74.600	74.600
0122	637.2230	Signs Type II Reflective F	SF	20.000	20.000
0124	638.2102	Moving Signs Type II	EACH	3.000	3.000
0126	638.2602	Removing Signs Type II	EACH	16.000	16.000
0128	638.3000	Removing Small Sign Supports	EACH	3.000	3.000
0130	642.5201	Field Office Type C	EACH	1.000	1.000
0132	643.0300	Traffic Control Drums	DAY	42,050.000	42,050.000
0134	643.0420	Traffic Control Barricades Type III	DAY	3,165.000	3,165.000
0136	643.0705	Traffic Control Warning Lights Type A	DAY	6,325.000	6,325.000
0138	643.0715	Traffic Control Warning Lights Type C	DAY	1,344.000	1,344.000
0140	643.0800	Traffic Control Arrow Boards	DAY	169.000	169.000
0142	643.0900	Traffic Control Signs	DAY	12,744.000	12,744.000
0144	643.0910	Traffic Control Covering Signs Type I	EACH	216.000	216.000
0146	643.0920	Traffic Control Covering Signs Type II	EACH	3.000	3.000
0148	643.1050	Traffic Control Signs PCMS	DAY	98.000	98.000
0150	643.5000	Traffic Control	EACH	1.000	1.000
0152	646.1020	Marking Line Epoxy 4-Inch	LF	4,697.000	4,697.000
0154	646.1040	Marking Line Grooved Wet Ref Epoxy 4-Inch	LF	57,245.000	57,245.000
0156	646.1545	Marking Line Grooved Wet Ref Contrast Epoxy 4-Inch	LF	7,092.000	7,092.000

2250-16-70

Line	Item	Item Description	Unit	Total	Qty
0158	646.3020	Marking Line Epoxy 8-Inch	LF	2,052.000	2,052.000
0160	646.3545	Marking Line Grooved Wet Ref Contrast Epoxy 8-Inch	LF	7,528.000	7,528.000
0162	646.5020	Marking Arrow Epoxy	EACH	58.000	58.000
0164	646.5120	Marking Word Epoxy	EACH	33.000	33.000
0166	646.6120	Marking Stop Line Epoxy 18-Inch	LF	943.000	943.000
0168	646.7120	Marking Diagonal Epoxy 12-Inch	LF	560.000	560.000
0170	649.0105	Temporary Marking Line Paint 4-Inch	LF	112,640.000	112,640.000
0172	649.0205	Temporary Marking Line Paint 8-Inch	LF	1,200.000	1,200.000
0174	650.5500	Construction Staking Curb Gutter and Curb & Gutter	LF	1,858.000	1,858.000
0176	650.8000	Construction Staking Resurfacing Reference	LF	12,597.000	12,597.000
0178	650.8500	Construction Staking Electrical Installations (project) 01. 2250-16-70	LS	1.000	1.000
0180	650.9910	Construction Staking Supplemental Control (project) 01. 2250-16-70	LS	1.000	1.000
0182	652.0225	Conduit Rigid Nonmetallic Schedule 40 2-Inch	LF	78.000	78.000
0184	652.0235	Conduit Rigid Nonmetallic Schedule 40 3-Inch	LF	40.000	40.000
0186	652.0615	Conduit Special 3-Inch	LF	50.000	50.000
0188	652.0700.S	Install Conduit into Existing Item	EACH	21.000	21.000
0190	652.0800	Conduit Loop Detector	LF	5,710.000	5,710.000
0192	653.0154	Pull Boxes Non-Conductive 24x36-Inch	EACH	4.000	4.000
0194	653.0164	Pull Boxes Non-Conductive 24x42-Inch	EACH	7.000	7.000
0196	653.0905	Removing Pull Boxes	EACH	11.000	11.000
0198	654.0113	Concrete Bases Type 13	EACH	4.000	4.000
0200	655.0230	Cable Traffic Signal 5-14 AWG	LF	720.000	720.000
0202	655.0240	Cable Traffic Signal 7-14 AWG	LF	2,060.000	2,060.000
0204	655.0260	Cable Traffic Signal 12-14 AWG	LF	2,165.000	2,165.000
0206	655.0305	Cable Type UF 2-12 AWG Grounded	LF	1,050.000	1,050.000
0208	655.0515	Electrical Wire Traffic Signals 10 AWG	LF	2,765.000	2,765.000
0210	655.0610	Electrical Wire Lighting 12 AWG	LF	1,080.000	1,080.000
0212	655.0700	Loop Detector Lead In Cable	LF	17,035.000	17,035.000
0214	655.0800	Loop Detector Wire	LF	21,270.000	21,270.000
0216	655.0900	Traffic Signal EVP Detector Cable	LF	1,110.000	1,110.000
0218	657.0100	Pedestal Bases	EACH	9.000	9.000
0220	657.0420	Traffic Signal Standards Aluminum 13-FT	EACH	3.000	3.000
0222	657.0425	Traffic Signal Standards Aluminum 15-FT	EACH	6.000	6.000
0224	657.1355	Install Poles Type 12	EACH	1.000	1.000
0226	657.1360	Install Poles Type 13	EACH	3.000	3.000
0228	657.1535	Install Monotube Arms 35-FT	EACH	2.000	2.000
0230	657.1540	Install Monotube Arms 40-FT	EACH	1.000	1.000
0232	657.1555	Install Monotube Arms 55-FT	EACH	1.000	1.000

2250-16-70

Line	Item	Item Description	Unit	Total	Qty
0234	657.1812	Install Luminaire Arms Steel 12-FT	EACH	6.000	6.000
0236	658.0173	Traffic Signal Face 3S 12-Inch	EACH	19.000	19.000
0238	658.0174	Traffic Signal Face 4S 12-Inch	EACH	9.000	9.000
0240	658.5069	Signal Mounting Hardware (location) 01. CTH H/Renaissance Blvd	LS	1.000	1.000
0242	659.1125	Luminaires Utility LED C	EACH	8.000	8.000
0244	661.0200	Temporary Traffic Signals for Intersections (location) 01. CTH H/Renaissance Blvd	LS	1.000	1.000
0246	690.0150	Sawing Asphalt	LF	200.000	200.000
0248	690.0250	Sawing Concrete	LF	19,115.000	19,115.000
0250	ASP.1T0A	On-the-Job Training Apprentice at $5.00/HR	HRS	1,500.000	1,500.000
0252	ASP.1T0G	On-the-Job Training Graduate at $5.00/HR	HRS	1,800.000	1,800.000
0254	SPV.0060	Special 01. Strapping C-51-0017	EACH	4.000	4.000
0256	SPV.0090	Special 01. Concrete Joint and Crack Cleaning	LF	6,050.000	6,050.000
0258	SPV.0090	Special 02. Removing HMA Pavement Notched Wedge Longitudinal Joint Milling	LF	25,145.000	25,145.000
0260	SPV.0090	Special 03. EVP Confirmation Light Cable Type 2-14 AWG Grounded	LF	1,110.000	1,110.000
0262	SPV.0090	Special 04. Concrete Curb & Gutter 6-inch Sloped 30-Inch Type G Modified	LF	1,858.000	1,858.000
0264	SPV.0105	Special 01. Cleaning Box Culvert C-51-0017	LS	1.000	1.000
0266	SPV.0105	Special 02. Temporary Infrared EVP System, STH 20 & CTH H/Renaissance Blvd	LS	1.000	1.000
0268	SPV.0105	Special 03. Remove Traffic Signal CTH H/Renaissance Blvd	LS	1.000	1.000
0270	SPV.0105	Special 04. Transport and Install State Furnished Emergency Vehicle Preemption (EVP) Det	LS	1.000	1.000
0272	SPV.0105	Special 05. Remove Loop Detector Wire and Lead-in Cable (STH 20 & IH 41/94)	LS	1.000	1.000
0274	SPV.0105	Special 06. Remove Loop Detector Wire and Lead-in Cable (STH 20 & East Frontage Road)	LS	1.000	1.000
0276	SPV.0105	Special 07. Remove Loop Detector Wire and Lead-in Cable (STH 20 & CTH H/Renaissance Blvd	LS	1.000	1.000
0278	SPV.0105	Special 08. Transporting Traffic Signal and Intersection Lighting Materials (CTH H/Renai	LS	1.000	1.000
0280	SPV.0105	Special 09. Transport & Inst St Furn Emergency Veh Preemp Det Heads STH 20 & CTH V	LS	1.000	1.000

BUTT JOINT SUMMARY

STATION		STATION	LOCATION	204.0105 REMOVING PAVEMENT BUTT JOINTS SY	204.0115 REMOVING ASPHALTIC SURFACE BUTT JOINTS SY	REMARKS
99'EB'+60		100'EB'+20	STH 20	--	259	
100'WB'+00		100'WB'+60	STH 20	--	246	
51'EF'+32		51'EF'+52	EAST FRONTAGE ROAD SB	9	78	
51'EF'+36		51'EF'+56	EAST FRONTAGE ROAD NB	9	62	
49'EF'+14		49'EF'+34	EAST FRONTAGE ROAD SB	17	65	
48'EF'+83		49'EF'+03	EAST FRONTAGE ROAD NB	18	77	
21'V'+30		21'V'+50	CTH V	5	137	
18'V'+75		18'V'+95	CTH V SB	9	53	
18'V'+35		18'V'+55	CTH V NB	9	83	
31'WN'+21		30'WN'+41	WEST ROAD	9	100	
38'WS'+90		39'WS'+10	WEST ROAD	9	119	
41'RN'+32		41'RN'+52	CTH H/RENAISSANCE ROAD SB	9	114	
41'RN'+32		41'RN'+52	CTH H/RENAISSANCE ROAD NB	9	84	
14'RS'+06		14'RS'+74	CTH H/RENAISSANCE ROAD SB	9	70	
14'RS'+96		15'RS'+16	CTH H/RENAISSANCE ROAD NB	9	146	
225'EB'+60		226'EB'+20	STH 20	--	218	
225'WB'+48		226'WB'+08	STH 20	--	194	
			DRIVEWAYS	--	1,315	
			UNDISTRIBUTED	--	105	
			TOTAL	**130**	**3,525**	

REMOVING ASPHALTIC SURFACE

STATION		STATION	204.0110 REMOVING ASPHALTIC SURFACE SY	REMARKS
95'WB'+75			18	
216'EB'+71	-	225'EB'+48	6	
218'WB'+83	-	225'WB'+60	6	
29'SE'+50			4	
TOTAL			**34**	

REMOVING ASPHALTIC SURFACE MILLING

STATION		STATION	LOCATION	204.0120 REMOVING ASPHALTIC SURFACE MILLING SY	REMARKS
100'EB'+20	-	105'EB'+30	STH 20	2,153	
100'WB'+63	-	105'WB'+30	STH 20	1,998	
105'EB'+30	-	151'EB'+86	STH 20	18,457	
105'WB'+30	-	151'WB'+76	STH 20	18,068	
151'EB'+86	-	205'EB'+09	STH 20	21,219	
151'WB'+76	-	204'WB'+06	STH 20	20,677	
205'EB'+09	-	215'EB'+12	STH 20	3,901	
204'WB'+06	-	215'WB'+22	STH 20	4,340	
215'EB'+12	-	225'EB'+00	STH 20	4,076	
215'WB'+22	-	224'WB'+88	STH 20	4,098	
102'EB'+32	-	108'EB'+25	EAST FRONTAGE ROAD INTERSECTION	1,044	
116'EB'+25	-	117'EB'+53	STH 20 MEDIAN	388	
130'EB'+30	-	131'EB'+94	STH 20 MEDIAN	407	
143'EB'+51	-	158'EB'+01	CTH V INTERSECTION	2,633	
157'EB'+81	-	159'EB'+10	STH 20 MEDIAN	274	
174'EB'+12	-	180'EB'+06	STH 20 MEDIAN	707	
194'26+00	-	195'EB'+72	STH 20 MEDIAN	414	
204'EB'16	-	208'EB'+54	WEST ROAD INTERSECTION	867	
211'EB'+36	-	224'EB'+30	CTH H/RENAISSANCE BLVD INTERSECTION	2,719	
7'SW'+80	-	9'SW'+72	IH 94 SW RAMP	648	
20'NW'+55	-	22'NW'+38	IH 94 NW RAMP	424	
26'SE'+76	-	29'SE'+08	IH 94 SE RAMP	943	
41'NE'+72	-	43'SE'+61	IH 94 NE RAMP	583	
50'EF'+82	-	51'EF'+36	EAST FRONTAGE ROAD	705	
49'EF'+04	-	49'EF'+68	EAST FRONTAGE ROAD	549	
20'V'+51	-	21'V'+31	CTH V	1,033	
18'V'+55	-	19'V'+41	CTH V	985	
30'WN'+83	-	31'WN'+22	WEST ROAD NORTH	380	
39'WN+10	-	39'WS'+66	WEST ROAD SOUTH	519	
40'RN'+75	-	41'RN'+32	CTH H/RENAISSANCE BLVD	869	
14'RN'+74	-	15'RN'+66	CTH H/RENAISSANCE BLVD	1,115	
			TOTAL	**117,193**	

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CONCRETE REMOVAL SUMMARY

STATION		STATION	LOCATION	204.0150 REMOVING CURB & GUTTER LF	204.0155 REMOVING CONCRETE SIDEWALK SY	REMARKS
105'WB'+78			LT	45	--	STH 20 INTERSECTION AT FRONTAGE RD,NE QUADRANT
150'EB+80			LT	--	3	
153'EB'+00			LT	--	10	
216'EB'+71	-	225'EB'+48	LT	877	--	MEDIAN
218'WB'+83	-	225'WB'+60	RT	677	--	MEDIAN (LT TURN LANE)
222'WB'+01	-	225'WB'+60	LT	259	--	
21'NW'+25			LT	--	11	
49'EF+25			LT	--	5	
51'EF'+20			RT	--	6	
20'V'+78			LT	--	7	
40'RN'+95			LT	--	3	
15'RS'+55			RT	--	5	
		TOTAL		**1,858**	**50**	

REMOVING GUARDRAIL

STATION		STATION	LOCATION	204.0165 REMOVING GUARDRAIL LF	REMARKS
180'EB'+39	-	181'EB'+79	RT	140	
181'WB'+15	-	182'WB'+93	LT	178	
		TOTAL		**318**	

REMOVING DELINEATORS

STATION		STATION		204.0180 REMOVING DELINEATORS AND MARKERS EA	REMARKS
116'EB'+00		117'EB'+00		3	MEDIAN
7'SW'+80		9'SW'+00		3	RT & LT
26'SE'+76		29'SE'+08		6	RT & LT
41'NE'+76		43'NE'+62		5	RT & LT
		TOTAL		**17**	

BASE AGGREGATE SUMMARY

STATION		STATION	LOCATION	305.0110 BASE AGGREGATE DENSE 3/4-INCH TON	305.0120 BASE AGGREGATE DENSE 1 1/4-INCH TON	305.0500 SHAPING SHOULDERS STA	REMARKS
92'EB'+63	-	99'EB'+74	STH 20	--	69	--	
92'WB'+63	-	99'WB'+74	STH 20	--	80	--	
99'EB'+74	-	105'EB'+30	STH 20	91	79	7	
99'WB'+74	-	105'WB'+30	STH 20	91	119	7	
105'EB'+30	-	151'EB'+86	STH 20	661	1	47	
105'WB'+30	-	151'WB'+76	STH 20	660	32	47	
151'EB'+86	-	205'EB'+09	STH 20	765	29	54	
151'WB'+76	-	204'WB'+06	STH 20	752	42	53	
205'EB'+09	-	215'EB'+12	STH 20	142	76	11	
204'WB'+06	-	215'WB'+22	STH 20	158	59	12	
215'EB'+12	-	225'EB'+61	STH 20	149	0	11	
215'WB'+22	-	225'WB'+61	STH 20	148	14	11	
			UNDISTRIBUTED	500	60	0	
			TOTAL	**4,117**	**660**	**260***	

*AFTER LOWER LAYER OF HMA

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EXCAVATION COMMON

STATION			LOCATION	205.0100 EXCAVATION COMMON CY	REMARKS
105'WB+78			LT	4	BACK OF CURB
216'EB'+64	-	225'EB'+61	LT	65	BACK OF CURB
218'WB'+82	-	226'WB'+61	RT	50	BACK OF CURB
222'WB'+01	-	225'WB'+60	LT	19	BACK OF CURB
			TOTAL	**138**	

FINISHING ROADWAY

PROJECT	213.0100 FINISHING ROADWAY (PROJECT) EACH	REMARKS
2250-16-70	1	
TOTAL	**1**	

BASE PATCHING SUMMARY

STATION		STATION	LOCATION	390.0403 BASE PATCHING CONCRETE SHES SY	416.0610* DRILLED TIE BARS EACH	416.0620* DRILLED DOWEL BARS EACH	REMARKS
101'WB'+00	-	104'WB'+00	STH 20 WB INSIDE LANE	23	0	34	
101'WB'+00	-	104'WB'+00	STH 20 WB OUTSIDE LANE	11	0	16	
104'WB'+00	-	107'WB'+00	STH 20 WB INSIDE LANE	105	34	25	
104'WB'+00		107'WB'+00	STH 20 WB OUTSIDE LANE	241	38	64	
104'EB'+00	-	107'EB'+00	STH 20 EB OUTSIDE LANE	222	38	48	
107'WB'+00	-	149'WB'+00	STH 20 WB INSIDE LANE	74	0	120	
107'WB'+00	-	149'WB'+00	STH 20 WB OUTSIDE LANE	66	0	112	
149'WB'+00	-	154'WB'+00	STH 20 WB INSIDE LANE	88	36	32	
149'WB'+00	-	154'WB'+00	STH 20 WB OUTSIDE LANE	9	0	16	
149'EB'+00	-	154'EB'+00	STH 20 EB INSIDE LANE	85	36	32	
154'WB'+00	-	203'WB'+00	STH 20 WB INSIDE LANE	68	0	112	
154'WB'+00	-	203'WB'+00	STH 20 WB OUTSIDE LANE	75	0	128	
154'EB'+00	-	203'EB'+00	STH 20 EB INSIDE LANE	22	0	34	
207'WB'+00	-	213'WB'+00	STH 20 WB INSIDE LANE	38	0	48	
207'WB'+00	-	213'WB'+00	STH 20 WB OUTSIDE LANE	48	0	64	
207'EB'+00	-	213'EB'+00	STH 20 EB INSIDE LANE	32	0	48	
207'EB'+00	-	213'EB'+00	STH 20 EB OUTSIDE LANE	50	0	68	
213'WB'+00	-	217'WB'+00	STH 20 WB INSIDE LANE	139	36	32	
213'WB'+00	-	217'WB'+00	STH 20 WB OUTSIDE LANE	277	40	56	
213'EB'+00	-	217'EB'+00	STH 20 EB INSIDE LANE	75	35	18	
213'EB'+00	-	217'EB'+00	STH 20 EB OUTSIDE LANE	495	44	98	
217'WB'+00	-	225'WB'+61	STH 20 WB INSIDE LANE	64	0	96	
217'WB'+00	-	225'WB'+61	STH 20 WB OUTSIDE LANE	59	0	96	
18'V'+40		19'V'+15	CTH V	143	36	32	
20'V'+75		21'V'+35	CTH V	151	36	32	
20'NW'+81	-	22'NW'+08	I-94 INTERCHANGE NW RAMP	26	0	38	
UNDISTRIBUTED				403	41	150	
			TOTAL	**3,089**	**450**	**1,649**	

*ADDITIONAL QUANTITIES LISTED ELSEWHERE

CONCRETE PAVEMENT SUMMARY

STATION		STATION	LOCATION	416.0610* DRILLED TIE BARS EACH	416.0620* DRILLED DOWEL BARS EACH	416.1715 CONCRETE PAVEMENT REPAIR SHES SY	416.1725 CONCRETE PAVEMENT REPLACEMENT SHES SY	420.1000 CONTINUOUS DIAMOND GRINDING CONCRETE PAVEMENT SY	REMARKS
92'WB'+63	-	95'WB'+75	STH 20 WB INSIDE LANE	64	50	11	243	--	
92'WB'+63	-	95'WB'+75	STH 20 WB OUTSIDE LANE	65	94	11	321	--	
92'EB'+63	-	95'EB'+75	STH 20 EB INSIDE LANE	24	40	14	104	--	
92'EB'+63	-	95'EB'+75	STH 20 EB OUTSIDE LANE	85	71	--	386	--	
95'WB'+75	-	97'WB'+15	STH 20 WB INSIDE LANE	8	49	23	37	--	
95'WB'+75	-	97'WB'+15	STH 20 WB OUTSIDE LANE	0	15	11	0	--	
95'EB'+75	-	97'EB'+15	STH 20 EB INSIDE LANE	24	40	29	40	--	
95'EB'+75	-	97'EB'+15	STH 20 EB OUTSIDE LANE	0	16	16	0	--	
97'WB'+15	-	101'WB'+00	STH 20 WB INSIDE LANE	121	84	14	367	--	
97'WB'+15	-	101'WB'+00	STH 20 WB OUTSIDE LANE	90	110	14	360	--	
97'EB'+15	-	101'EB'+00	STH 20 EB INSIDE LANE	53	31	8	167	--	
97'EB'+15	-	101'EB'+00	STH 20 EB OUTSIDE LANE	26	78	11	270	--	
92+63 TO 100+03			STH 20 EB AND WB	--	--	--	--	7900	
			UNDISTRIBUTED	56	68	16	230		
TOTAL				**616**	**746**	**179**	**2,525**	**7,900**	

ASPHALTIC SURFACE SUMMARY

STATION	465.0305 ASPHALTIC SURFACE SAFETY ISLANDS TON	465.0315 ASPHALTIC FLUMES SY	REMARKS
95'WB'+75	5	--	
29'SE'+50	1	--	
205'EB'+85	--	6	
39'WS'+20	--	6	
TOTAL	**6**	**12**	

ASPHALT PAVEMENT SUMMARY

STATION		STATION	LOCATION	AREA SY	LOWER LAYER DEPTH IN	UPPER LAYER DEPTH IN	455.0605 TACK COAT GAL	460.7223 HMA PAVEMENT 3 HT 58-28 S TON	460.7424 HMA PAVEMENT 4 HT 58-28 H TON	450.4000 HMA COLD WEATHER PAVING TON	465.0120 ASPHALTIC SURFACE DRIVEWAYS AND FIELD ENTRANCES TON	465.0400 ASPHALTIC SHOULDER RUMBLE STRIPS LF	460.4110.S REHEATING HMA PAVEMENT LONGITUDINAL JOINTS LF	SPV.0090.01 CONCRETE JOINT AND CRACK CLEANING LF	SPV.0090.02 REMOVING HMA PAVEMENT NOTCHED WEDGE LONIGITUDINAL JOINT MILLING LF	REMARKS
99'EB'+60	-	105'EB'+30	STH 20	2,407	3.5	2.25	84	463	298	761	--	208	570	--	570	
100'WB'+03	-	105'WB'+30	STH 20	2,254	3.5	2.25	79	434	279	713	--	863	527	--	527	
105'EB'+30	-	151'EB'+86	STH 20	18,107	3.5	2.25	634	3,486	2,241	5,767	40	6,746	4,656	--	4,656	
105'WB'+30	-	151'WB'+76	STH 20	18,068	3.5	2.25	632	3,478	2,236	5,714	0	7,088	4,646	--	4,646	
151'EB'+86	-	205'EB'+09	STH 20	20,701	3.5	2.25	725	3,985	2,562	6,606	60	7,853	5,323	--	5,323	
151'WB'+76	-	204'WB'+06	STH 20	20,339	3.5	2.25	712	3,915	2,517	6,471	39	8,516	5,230	--	5,230	
205'EB'+09	-	215'EB'+12	STH 20	3,901	3.5	2.25	137	751	483	1,234	--	947	1,003	--	1,003	
204'WB'+06	-	215'WB'+22	STH 20	4,340	3.5	2.25	152	835	537	1,373	--	1,348	1,116	--	1,116	
215'EB'+12	-	225'EB'+60	STH 20	4,076	3.5	2.25	143	785	504	1,289	--	754	1,048	--	1,048	
215'WB'+22	-	225'WB'+48	STH 20	3,990	3.5	2.25	140	768	494	1,274	12	317	1,026	--	1,026	
102'EB'+32	-	108'EB'+25	EAST FRONTAGE ROAD INT	1,044	3.5	2.25	37	201	129	330	--	--	--	--	--	
116'EB'+25	-	117'EB'+53	STH 20 MEDIAN	388	3.5	2.25	14	75	48	123	--	--	--	--	--	
130'EB'+30	-	131'EB'+94	STH 20 MEDIAN	407	3.5	2.25	14	78	50	129	--	--	--	--	--	
143'EB'+51	-	158'EB'+01	CTH V INTERSECTION	2,633	3.5	2.25	92	507	326	833	--	--	--	--	--	
157'EB'+81	-	159'EB'+10	STH 20 MEDIAN	274	3.5	2.25	10	53	34	87	--	--	--	--	--	
174'EB'+12	-	180'EB'+06	STH 20 MEDIAN	707	3.5	2.25	25	136	88	224	--	--	--	--	--	
194'26+00	-	195'EB'+72	STH 20 MEDIAN	414	3.5	2.25	14	80	51	131	--	--	--	--	--	
204'EB'16	-	208'EB'+54	WEST ROAD INT	867	3.5	2.25	30	167	107	274	--	--	--	--	--	
211'EB'+36	-	224'EB'+30	RENAISSANCE BLVD INT	2,719	3.5	2.25	95	523	336	860	--	--	--	--	--	
7'SW'+80	-	9'SW'+72	IH 94 SW RAMP	648	2.25	1.75	23	80	62	143	--	--	--	--	--	
20'NW'+55	-	22'NW'+38	IH 94 NW RAMP	424	2.25	1.75	15	52	41	93	--	--	--	--	--	
26'SE'+76	-	29'SE'+08	IH 94 SE RAMP	943	2.25	1.75	33	117	91	207	--	--	--	--	--	
41'NE'+72	-	43'SE'+61	IH 94 NE RAMP	583	2.25	1.75	20	72	56	128	--	--	--	--	--	
50'EF'+82	-	51'EF'+36	EAST FRONTAGE ROAD	705	3.5	2.25	25	136	87	223	--	--	--	--	--	
49'EF'+04	-	49'EF'+68	EAST FRONTAGE ROAD	549	3.5	2.25	19	106	68	174	--	--	--	--	--	
20'V'+51	-	21'V'+31	CTH V	1,033	3.5	2.25	36	199	128	327	--	--	--	--	--	
18'V'+55	-	19'V'+41	CTH V	985	3.5	2.25	34	190	122	312	--	--	--	--	--	
30'WN'+83	-	31'WN'+22	WEST ROAD NORTH	380	3.5	2.25	13	73	47	120	--	--	--	--	--	
39'WN+24	-	39'WS'+66	WEST ROAD SOUTH	519	3.5	2.25	18	100	64	164	--	--	--	--	--	
40'RN'+75	-	41'RN'+32	RENAISSANCE BLVD	869	3.5	2.25	30	167	108	275	--	--	--	--	--	
14'RN'+74	-	15'RN+66	RENAISSANCE BLVD	11,115	3.5	2.25	389	2,140	1,376	3,515	--	--	--	--	--	
SIDE ROAD BUTT JOINTS				2,104	--	2	74	--	231	231	--	--	--	--	--	
UNDISTRIBUTED				--	--	--	--	--	--	--	--	--	--	6,050	--	
TOTAL				**4,497**			**24,151**	**15,800**	**40,103**	**151**	**34,640**	**25,145**	**6,050**	**25,145**		

ANCILLARY CONCRETE SUMMARY

STATION			LOCATION	602.0405 CONCRETE SIDEWALK 4-INCH SF	620.0300 CONCRETE MEDIAN SLOPED NOSE SF	SPV.0090.04 CONCRETE CURB AND GUTTER 6-INCH SLOPED 30-INCH TYPE G MODIFIED LF	REMARKS
105'WB+78			LT	--	26	45	STH 20 INTERSECTION AT FRONTAGE RD,NE QUADRANT
150'EB+80			LT	30	--	--	
153'EB'+00			LT	91	--	--	
216'EB'+64	-	225'EB'+61	LT	--	--	877	MEDIAN
218'WB'+82	-	226'WB'+61	RT	--	--	677	MEDIAN (LT TURN LANE)
222'WB'+01	-	225'WB'+60	LT	--	--	259	
21'NW'+25			LT	--	--	--	
49'EF+25			LT	47	--	--	
51'EF'+20			RT	58	--	--	
20'V'+78			LT	65	--	--	
40'RN'+95			LT	26	--	--	
15'RS'+55			RT	43	--	--	
TOTAL				**360**	**26**	**1,858**	

MAINTENANCE AND REPAIR OF HAUL ROADS

618.0100
MAINTENANCE AND REPAIR OF HAUL ROADS (PROJECT)

PROJECT	EACH	REMARKS
2250-16-70	1	
TOTAL	**1**	

MOBILIZATION

619.1000
MOBILIZATION

PROJECT	EACH	REMARKS
2250-16-70	1	
TOTAL	**1**	

MGS GUARDRAIL SUMMARY

STATION		STATION	LOCATION	614.2300 MGS GUARDRAIL 3 LF	614.2610 MGS GUARDRAIL TERMINAL EAT EACH	614.2620 MGS GUARDRAIL TERMINAL TYPE 2 EACH	614.0010 BARRIER SYSTEM GRADING SHAPING FINISHING EACH	FOR INFORMATION ONLY BORROW CY	SALVAGED TOPSOIL SY	FERTILIZER TYPE B CWT	SEEDING MIXTURE NO. 20 LB	SEEDING TEMPORARY LB	REMARKS
180'EB'+39	-	181'EB'+79	STH 20 RT	194	1	1	1	19	143	0.01	4	2	
181'WB'+15	-	182'WB'+93	STH 20 LT	188	1	1	1	52	157	0.01	4	2	
TOTAL				**382**	**2**	**2**	**2**	**71**	**300**	**0.02**	**8**	**4**	

WATER SUMMARY

LOCATION	624.0100 WATER MGAL	REMARKS
BASE COURSE	17	
TOTAL	**17**	

DELINEATORS SUMMARY

STATION		STATION	633.0100 DELINEATOR POSTS STEEL EA	633.0500 DELINEATOR REFLECTORS EA	REMARKS
116'EB'+00	-	117'EB'+00	3	3	MEDIAN
7'SW'+80	-	9'SW'+00	3	6	RT & LT
26'SE'+76	-	29'SE'+08	6	12	RT & LT
41'NE'+76	-	43'NE'+62	5	10	RT & LT
TOTAL			**17**	**31**	

STORM SEWER

STATION	LOCATION	520.8000 CONCRETE COLLARS FOR PIPE EACH	204.0245 REMOVING STORM SEWER 12-INCH LF	608.0312 STORM SEWER PIPE REINFORCED CONCRETE CLASS III 12-INCH LF	611.8110 ADJUSTING MANHOLE COVERS EACH	REMARKS
95'EB'+75	MEDIAN	2	8	8	--	SINK HOLE REPAIR
18'V'+80	RT	--	--	--	1	
14'RS'+95	LT	--	--	--	1	
TOTAL		**2**	**8**	**8**	**2**	

LANDSCAPING SUMMARY

LOCATION			625.0100 TOPSOIL SY	629.0210 FERTILIZER TYPE B CWT	630.0120 SEEDING MIXTURE NO. 20 LB	REMARKS
216'EB'+64	-	225'EB'+61	390	--	11	
218'WB'+82	-	226'WB'+61	301	--	8	
222'WB'+01	-	225'WB'+60	115	--	3	
TRAFFIC SIGNAL UPGRADES			78	--	2	
UNDISTRIBUTED			88	1	2	
TOTAL			**972**	**1**	**26**	

EROSION CONTROL SUMMARY

LOCATION	628.1504 SILT FENCE LF	628.1520 SILT FENCE MAINTENANCE LF	628.1905 MOBILIZATIONS EROSION CONTROL EACH	628.1910 MOBILIZATIONS EMERGENCY EROSION CONTROL EACH	628.2002 EROSION MAT CLASS I TYPE A SY	628.7005 INLET PROTECTION TYPE A EACH	628.7015 INLET PROTECTION TYPE C EACH	628.7020 INLET PROTECTION TYPE D EACH	REMARKS
93'EB+12 to 105'EB'+30	--	--	--	--	--	--	11	--	
105'EB+30 to 151'EB'+86	--	--	--	--	--	2	7	--	
151'EB'+86 to 205'EB'+09	--	--	--	--	--	2	10	--	
205'EB'+09 to 215'EB'+12	--	--	--	--	--	1	--	--	
215'EB'+12 to 227'EB'+11	--	--	--	--	--	--	5	--	
179'EB'+60 to 182'EB'+13	259	259	--	--	143	--	--	--	
180'WB'+62 to 183'WB'+10	258	258	--	--	157	--	--	--	
216'EB'+64 to 225'EB'+61	--	--	--	--	390	--	--	--	
218'WB'+82 to 226'WB'+61	--	--	--	--	301	--	--	--	
222'WB'+01 to 225'WB'+60	--	--	--	--	115	--	--	--	
UNDISTRIBUTED	94	94	4	4	84	--	--	2	
TOTAL	**611**	**611**	**4**	**4**	**1,190**	**5**	**33**	**2**	

PERMANENT SIGNS SUMMARY

SIGN NO.	CODE	SIGN MESSAGE	WIDTH	HEIGHT	637.2210 SIGNS TYPE II REFLECTIVE H SF	637.2215 SIGNS TYPE II REFLECTIVE H FOLDING SF	637.2230 SIGNS TYPE II REFLECTIVE F SF	638.2102 MOVING SIGNS TYPE II EACH	638.2602 REMOVING SIGNS TYPE II EACH	638.3000 REMOVING SMALL SIGN SUPPORTS EACH	634.0618 POSTS WOOD 4X6-INCH X 18-FT EACH	REMARKS
1	R5-1(2M)		36.00	36.00	9.00	--	--	--	--	--	1	
2	R1-1F(3)		36	36	--	7.46	--	--	1	--	--	MOUNT ON SIGNAL POLE
3	R1-1F(3)		36	36	--	7.46	--	--	--	--	--	MOUNT ON SIGNAL POLE
4	M1-94S	20 - WASHINGTON AVE	96	18	12.00	--	--	--	--	--	--	MOUNT ON SIGNAL ARM
5	R4-7(2S)		24	30	5.00	--	--	--	1	--	--	
6	R1-1F(3)		36	36	--	7.46	--	--	1	--	--	MOUNT ON SIGNAL POLE
7	R6-2L(2S)		24	30	5.00	--	--	--	--	--	--	
8	R1-1F(3)		36	36	--	7.46	--	--	1	--	--	MOUNT ON SIGNAL POLE
9	R10-50L(2M)		30	36	7.50	--	--	--	--	--	--	MOUNT ON SIGNAL POLE
10	R1-1F(3)		36	36	--	7.46	--	--	--	--	--	
11	R5-1(2S)		30	30	6.25	--	--	--	--	--	1	
12	--	H - RENAISSANCE BLVD	108	18	13.50	--	--	--	--	--	--	ON SIGNAL ARM
13	R6-2L(2M)		30	36	7.50	--	--	--	--	--	--	MOUNT ON SIGNAL POLE
14	--		--	--	--	--	--	--	1	1	--	
15	R1-1F(3)		36	36	--	7.46	--	--	1	--	--	MOUNT ON SIGNAL POLE
16	R4-7(2M)		24	30	5.00	--	--	--	1	--	--	MOUNT ON SIGNAL POLE
17	R10-50L(2M)		30	36	7.50	--	--	--	--	--	--	ON SIGNAL ARM
18	R3-4(2M)		36	36	9.00	--	--	--	1	--	--	MOUNT ON SIGNAL POLE
19	R1-1F(3)		36	36	--	7.46	--	--	1	--	--	MOUNT ON SIGNAL POLE
20	R1-1F(3)		36	36	--	7.46	--	--	1	--	--	MOUNT ON SIGNAL POLE
21	R5-1(2M)		36	36	9.00	--	--	--	--	--	1	
22	R1-2(2M)		48	42	7.00	--	--	--	1	1	1	
23	M1-94S	20 - WASHINGTON AVE	96	18	12.00	--	--	--	--	--	--	MOUNT ON SIGNAL POLE
24	R4-7(2S)		24	30	5.00	--	--	--	1	--	--	MOUNT ON SIGNAL POLE
25	R10-50L(2M)		30	36	7.50	--	--	--	--	--	--	MOUNT ON SIGNAL POLE
26	R5-1(2S)		30	30	6.25	--	--	--	--	--	1	
27	R1-2(2M)		48	42	7.00	--	--	--	1	1	1	
28	R6-2L(2M)		30	36	7.50	--	--	--	--	--	--	MOUNT ON SIGNAL POLE
29	M1-94S	H - RENAISSANCE BLVD	108	18	13.50	--	--	--	--	--	--	MOUNT ON SIGNAL POLE
30	R4-7(2M)		24	30	5.00	--	--	--	1	--	--	MOUNT ON SIGNAL POLE
31	R10-50L(2M)		30	36	7.50	--	--	--	--	--	--	MOUNT ON SIGNAL POLE
32	R1-1F(3)		36	36	--	7.46	--	--	1	--	--	MOUNT ON SIGNAL POLE
33	R1-1F(3)		36	36	--	7.46	--	--	1	--	--	MOUNT ON SIGNAL POLE
34	R6-2L(2S)		24	30	5.00	--	--	--	--	--	--	MOUNT ON SIGNAL POLE
UNDISTRIBUTED			--	--	--	--	20.00	3	--	--	--	
TOTAL					**179.50**	**74.60**	**20.00**	**3**	**16**	**3**	**6**	

3

FIELD OFFICE

642.5201
FIELD OFFICE
TYPE C

PROJECT	EACH	REMARKS
2250-16-70	1	
TOTAL	**1**	

TRAFFIC CONTROL SUMMARY

DURATION			643.5000 TRAFFIC CONTROL	643.0300 TRAFFIC CONTROL DRUMS		643.0420 BARRICADES TYPE III		643.0705 TRAFFIC CONTROL WARNING LIGHTS TYPE A		643.0715 TRAFFIC CONTROL WARNING LIGHTS TYPE C		643.0800 ARROW BOARDS		643.0900 TRAFFIC CONTROL SIGNS		643.1050 TRAFFIC CONTROL SIGNS PCMS		643.0910 TRAFFIC CONTROL COVERING SIGNS	643.0920 TRAFFIC CONTROL COVERING SIGNS		
STAGE	DAYS	LOCATION	CONTROL EACH	NO. IN SERVICE	DAYS	NO. IN SERVICE	DAYS	NO. IN SERVICE	DAYS	NO. IN SERVICE	DAYS	NO. IN SERVICE	DAYS	NO. IN SERVICE	DAYS	NO. IN SERVICE	DAYS	NO. IN SERVICE	TYPE I EACH	TYPE II EACH	REMARKS
--	7	PRE WARNING	--	--	--	--	--	--	--	--	--	--	--	--	--	6	42	--	--	--	
1	13	ADVANCE WARNING	--	--	--	--	--	--	--	--	--	--	--	76	988	--	--	--	--	--	
	13	EB/WB STH 20	--	110	1,430	65	845	130	1,690	26	338	6	78	66	858	--	--	--	--	--	
	13	ALTERNATE ROUTE	--	--	--	--	--	--	--	--	--	--	--	109	1,417	--	--	--	--	--	
2	14	ADVANCED WARNING	--	--	--	--	--	--	--	--	--	--	--	58	812	--	--	--	--	--	
	14	EB/WB STH 20	--	1,030	14,420	55	770	110	1,540	26	364	2	28	66	924	--	--	--	--	--	
	14	ALTERNATE ROUTE	--	--	--	--	--	--	--	--	--	--	--	109	1,526	--	--	--	--	--	
3	2	ADVANCED WARNING	--	--	--	--	--	--	--	--	--	--	0	76	152	--	--	--	--	--	
	2	EB/WB STH 20	--	1,110	2,220	65	130	130	260	26	52	6	12	66	132	--	--	--	--	--	
	2	ALTERNATE ROUTE	--	--	--	--	--	--	--	--	--	--	--	109	218	--	--	--	--	--	
4	18	ADVANCED WARNING	--	--	--	--	--	--	--	--	--	--	0	58	1,044	--	--	--	--	--	
	18	EB/WB STH 20	--	1,030	18,540	55	990	110	1,980	26	468	2	36	66	1,188	--	--	--	--	--	
	18	ALTERNATE ROUTE	--	--	--	--	--	--	--	--	--	--	--	109	1,962	--	--	--	--	--	
--	21	PRE WARN RAMP CLOSURES	--	--	--	--	--	--	--	--	--	--	--	--	--	2	42	--	--	--	
--	7	NB IH-94 RAMP CLOSURES	--	120	840	10	70	20	140	--	--	--	--	26	182	1	7	14	98	1	
--	7	SB IH 94 RAMP CLOSURES	--	110	770	10	70	20	140	--	--	--	--	26	182	1	7	14	98	1	
UNDISTRIBUTED			1	--	3,830	--	290	--	575	--	122	--	15	--	1,159	--	--	--	20	1	
TOTAL			**1**		**42,050**		**3,165**		**6,325**		**1,344**		**169**		**12,744**		**98**		**216**	**3**	

FILE NAME : X:\Projects\Wood\6380-06-05 STH 97\Est&Qnty\030200_mq.pptx PLOT DATE : December 20, 2017 PLOT BY : JT ENGINEERING PLOT NAME : PLOT SCALE : 1:1

PAVEMENT MARKING SUMMARY

STATION		STATION	LOCATION	646.1020 MARKING LINE EPOXY 4-INCH (YELLOW) LF	646.1020 MARKING LINE EPOXY 4-INCH (WHITE) LF	646.1040 MARKING LINE GROOVED WET REF EPOXY 4-INCH WHITE LF	646.1040 YELLOW LF	646.1545 MARKING LINE GROOVED WET CONTRAST REF EPOXY 4-INCH WHITE LF	646.3020 MARKING LINE EPOXY 8-INCH LF	646.3545 MARKING LINE GROOVED WET CONTRAST REF EPOXY 8-INCH LF	646.5020 MARKING ARROW EPOXY TYPE 1 EACH	TYPE 2 EACH	TYPE 3 EACH	646.5120 MARKING WORD EPOXY EACH	646.7120 MARKING DIAGONAL EPOXY 12-INCH LF	646.6120 MARKING STOP LINE EPOXY 18-INCH LF	REMARKS
89'EB'+96	-	99'EB'+74	STH 20	--	--	930	697	211	--	561	--	3		2	--	81	
89'WB'+96	-	99'WB'+74	STH 20	--	--	654	408	182	--	819	--	4	--	3	--	112	
99'EB'+74	-	105'EB'+30	STH 20	--	--	458	503	123	--	361	--	2	--	1	--	69	
100'WB'+24	-	105'WB'+30	STH 20	--	--	418	506	124	--	237	--	3	--	1	--	--	
105'EB'+30	-	151'EB'+86	STH 20	--	--	3,309	4,200	1,138	--	1,141	--	4	--	4	--	51	
105'WB'+30	-	151'WB'+76	STH 20	--	--	4,382	4,192	1,124	--	322	--	--	--	--	--	48	
151'EB'+86	-	205'EB'+09	STH 20	--	--	4,974	4,698	1,281	--	68	--	--	--	--	--	--	
151'WB'+76	-	205'WB'+06	STH 20	--	--	5,160	4,940	1,314	--	964	--	4	--	4	--	55	
205'EB'+09	-	215'EB'+12	STH 20	--	--	636	923	263	--	450	--	3	--	1	--	62	
205'WB'+06	-	215'WB'+22	STH 20	--	--	851	926	199	--	178	--	1	--	--	--	--	
215'EB'+12	-	225'EB'+61	STH 20	--	--	884	939	249	--	--	--	--	--	--	--	--	
215'WB'+22	-	225'WB'+61	STH 20	--	--	917	951	398	--	941	--	6	--	4	--	46	
48'EF'+00	-	52'EF'+00	EAST FRONTAGE RD	--	--	--	--	--	512	--	1	3	--	--	--	79	
18'V'+00	-	22'V'+00	CTH V INT	1,388	725	--	--	43	859	--	0	8	--	7	55	79	
38'WS'+00	-	32'WN'+00	WEST ROAD	678	559	--	--	--	220	173	--	1	--	2	40	26	
14'RS'+00	-	42'RN'+00	RENAISSANCE BLVD	--	1,347	--	--	82	461	--	--	8	--	2	465	58	
7'SW'+78	-	9'SW'+71	IH 94 SW RAMP	--	--	1,441	696	--	--	475	--	1	--	1	--	128	
20'NW'+82	-	22'NW'+32	IH 94 NW RAMP	--	--	1,001	934	175	--	341	--	2	1	1	--	25	
26'SE'+52	-	29'SE'+08	IH 94 SE RAMP	--	--	1,578	1,039	188	--	329	--	2	1	--	--	26	
41'NE'+69	-	43'SE'+46	IH 94 NE RAMP	--	--	1,641	1,459	--	--	168	--	--	--	--	--	--	
			SUBTOTAL	2,066	2,631	29,233	28,012	7,092	--	--	1	55	2	--	--	--	
			TOTAL	**4,697**		**57,245**		**7,092**	**2,052**	**7,528**		**58**		**33**	**560**	**943**	

TEMPORARY PAVEMENT MARKING SUMMARY

STATION		STATION	LOCATION	649.0105 TEMPORARY MARKING LINE PAINT 4-INCH LF	649.0205 TEMPORARY MARKING LINE PAINT 8-INCH LF	REMARKS
100'EB'+21	-	224'EB'+88	STAGE 2	28,060	300	
100'WB'+63	-	225'WB'+00	STAGE 2	27,990	300	
99'EB'+60	-	225'EB'+48	STAGE 4	28,330	300	
100'WB'+03	-	225'WB'+60	STAGE 4	28,260	300	
		TOTAL		**112,640**	**1,200**	

CONSTRUCTION STAKING SUMMARY

STATION		STATION		650.5500 CONSTRUCTION STAKING CURB GUTTER AND CURB & GUTTER LF	650.8000 CONSTRUCTION STAKING RESURFACE REFERENCE LF	650.8500 CONSTRUCTION STAKING ELECTRICAL INSTALLATIONS (PROJECT) LS	650.9910 CONSTRUCTION STAKING SUPPLEMENTAL CONTROL (PROJECT) LS	REMARKS
99'WB'+63	-	225'WB+60	--	--	12597	--	--	
105'WB+78			LT	45	--	--	--	
216'EB'+64	-	225'EB'+61	LT	877	--	--	--	
218'WB'+82	-	226'WB'+61	RT	677	--	--	--	
222'WB'+01	-	225'WB'+60	LT	259	--	--	--	
PROJECT				--	--	1	1	
TOTAL				**1,858**	**12,597**	**1**	**1**	

CONDUIT SUMMARY

LOCATION FROM		TO	652.0225 CONDUIT RIGID NONMETALLIC SCHEDULE 40 2-INCH LF	652.0235 CONDUIT RIGID NONMETALLIC SCHEDULE 40 3-INCH LF	652.0615 CONDUIT SPECIAL 3-INCH LF	REMARKS
STH 20 & CTH V/INTERNATIONAL DRIVE						
PB1	-	PB 12	20	--	--	
STH 20 & CTH H/RENAISSANCE BLVD						
PB6	-	SB3	--	10	--	
PB12	-	SB6	--	5	--	
PB19	-	SB8	--	10	--	
PB23	-	SB15	--	15	--	
OLD PB 3			4	--	--	CONNECT EXISTING CONDUIT
OLD PB 16			4	--	--	CONNECT EXISTING CONDUIT
OLD PB4	-	NEW PB4	50	--	--	EXTEND EXISTING
OLD PB17	-	NEW PB17	--	--	50	EXTEND EXISTING UNDER PE
TOTAL			**78**	**40**	**50**	

PULL BOX SUMMARY

LOCATION	653.0154 PULL BOXES NON-CONDUCTIVE 24X36-INCH EACH	653.0164 PULL BOXES NON-CONDUCTIVE 24X42-INCH EACH	653.0905 REMOVING PULL BOXES EACH	652.0700.S INSTALL CONDUIT INTO EXISTING ITEM EACH	REMARKS
STH 20 & IH-94	--	--	--	--	
PB6	--	--	--	1	CONNECT CONDUIT FROM LOOP DETECTOR
PB7	--	--	--	1	CONNECT CONDUIT FROM 4 LOOP DETECTORS
PB17	--	--	--	1	CONNECT CONDUIT FROM LOOP DETECTOR
PB33	--	--	--	1	CONNECT CONDUIT FROM LOOP DETECTOR
STH 20 & East Frontage Road	--	--	--	--	
PB2	--	--	--	1	CONNECT CONDUIT FROM 2 LOOP DETECTORS
PB3	--	--	--	1	CONNECT CONDUIT FROM 4 LOOP DETECTORS
PB6	--	--	--	1	CONNECT CONDUIT FROM 2 LOOP DETECTORS
PB9	--	--	--	1	CONNECT CONDUIT FROM 2 LOOP DETECTORS
PB10	--	--	--	1	CONNECT CONDUIT FROM 4 LOOP DETECTORS
STH 20 & CTH V/INTERNATIONAL DRIVE	--	--	--	--	
PB1	1	--	--	--	
PB4	--	--	--	1	CONNECT CONDUIT FOR 2 LOOP DETECTORS
PB12	--	--	--	1	CONNECT CONDUIT FROM PB1
PB16	--	--	--	1	CONNECT CONDUIT FOR 2 LOOP DETECTORS
PB20	--	--	--	1	CONNECT CONDUIT FOR 4 LOOP DETECTORS
STH 20 & CTH H/RENAISSANCE BLVD	--	--	11	--	
PB2	--	1	--	--	
PB3	1	--	--	--	
PB4	1	--	--	--	
PB5	--	--	--	1	CONNECT CONDUIT FOR 2 LOOP DETECTORS
PB6	--	--	--	1	CONNECT CONDUIT FROM SB3
PB7	--	1	--	--	
PB10	--	1	--	--	
PB11	--	--	--	1	CONNECT CONDUIT FOR 4 LOOP DETECTORS
PB12	--	--	--	1	CONNECT CONDUIT FROM SB6
PB14	--	1	--	--	
PB16	--	--	--	1	
PB17	1	--	--	--	
PB18	--	1	--	--	
PB19	--	1	--	--	
PB20	--	--	--	1	CONNECT CONDUIT FOR 3 LOOP DETECTORS
PB22	--	1	--	--	
PB23	--	--	--	1	CONNECT CONDUIT FROM SB14
PB24	--	--	--	1	CONNECT CONDUIT FOR 4 LOOP DETECTORS
TOTAL	**4**	**7**	**11**	**21**	

3

TRAFFIC SIGNAL BASE SUMMARY

LOCATION	204.0195 REMOVING CONCRETE BASES EACH	654.0113 CONCRETE BASES TYPE 13 EACH	REMARKS
STH 20 & CTH H/RENAISSANCE BLVD	4	4	
TOTAL	**4**	**4**	

SIGNAL LIGHTING CABLE SUMMARY

FROM		TO	655.0305 CABLE TYPE UF 2-12 AWG GROUNDED LF	REMARKS
STH 20 & CTH H/RENAISSANCE BLVD				
CB1	-	SB3	140	
CB1	-	SB6	370	
CB1	-	SB9	390	
CB1	-	SB14	150	
TOTAL			**1,050**	

ELECTRICAL WIRE LIGHTING SUMMARY

FROM		TO	655.0610 ELECTRICAL WIRE LIGHTING 12 AWG LF	REMARKS
STH 20 & CTH H/RENAISSANCE BLVD				
SB3	-	LUMINAIRES	270	
SB6	-	LUMINAIRES	270	
SB10	-	LUMINAIRES	270	
SB14	-	LUMINAIRES	270	
TOTAL			**1,080**	

ELECTRICAL WIRE TRAFFIC SIGNALS

FROM		TO	655.0515 ELECTRICAL WIRE TRAFFIC SIGNALS 10 AWG LF	REMARKS
STH 20 & CTH H/RENAISSANCE BLVD				
CB	-	PB1	40	
SB1	-	PB2	20	
CB	-	SB1	100	
SB1	-	SB2	175	
SB2	-	SB3	65	
SB3	-	PB6	15	
SB3	-	PB7	100	
SB3	-	SB4	210	
SB4	-	PB8	60	
SB4	-	PB10	20	
SB4	-	SB5	180	
SB5	-	SB6	45	
SB6	-	PB12	20	
SB6	-	SB7	175	
SB6	-	PB13	100	
SB7	-	PB14	20	
SB7	-	SB8	260	
SB8	-	PB15	105	
SB8	-	SB9	65	
SB9	-	PB18	20	
SB9	-	SB10	120	
SB10	-	PB19	20	
SB10	-	PB20	100	
SB10	-	SB11	60	
SB11	-	SB12	185	
SB12	-	PB22	20	
SB12	-	SB13	215	
SB13	-	SB14	40	
SB14	-	PB23	20	
SB14	-	CB	140	
CB	-	PB25	50	
TOTAL			**2,765**	

3

LOOP DETECTOR SUMMARY

LOCATION	LOOP NO.	# OF TURNS	652.0800 CONDUIT LOOP DETECTOR LF	655.0700 LOOP DETECTOR LEAD IN CABLE LF	655.0800 LOOP DETECTOR WIRE LF	REMARKS
IH 94 INTERCHANGE						
95'WB'+88, 6' RT	21	4	115	280	460	
94'WB'+41, 68' LT	42	5	85	500	440	
101'WB'+95, 12' LT	51	5	75	565	380	
98'EB'+79, 72' RT	82	4	85	350	350	
98'EB'+66, 72' RT	83	4	85	350	350	
98'EB'+78, 41' RT	84	4	110	350	450	
98'EB'+65, 41' RT	85	4	110	350	450	
STH 20 & EAST FRONTAGE ROAD						
109'WB'+12, 18' LT	21	4	85	600	350	
107'WB'+82, 18' LT	22	4	95	470	390	
104'WB'+98, 78' LT	42	3	85	15	265	
105'WB'+10, 78' LT	43	3	115	15	350	
105'WB'+22, 78' LT	44	3	75	75	235	
104'WB'+98, 47' LT	45	3	95	15	295	
105'WB'+10, 47' LT	46	3	125	15	375	
105'WB'+22, 47' LT	47	3	90	75	280	
106'WB'+30, 4' RT	51	4	105	270	430	
106'WB'+00, 10' RT	52	4	95	270	390	
105'EB'+60, 81' RT	82	4	65	320	270	
105'EB'+49, 81' RT	83	4	95	280	390	
105'EB'+37, 81' RT	84	4	70	280	290	
105'EB'+60, 51' RT	85	4	85	280	350	
105'EB'+49, 51' RT	86	4	110	280	450	
105'EB'+37, 51' RT	87	4	85	320	350	
STH 20 & CTH V/INTERNATIONAL DRIVE						
150'EB'+73, 23' LT	11	3	75	175	235	
151'EB'+01, 23' LT	12	3	80	175	250	
21'V'+18, 16' LT	42	4	105	310	325	
21'V'+18, 5' LT	43	4	130	310	400	
20'V'+88, 18' LT	44	4	75	310	240	
20'V'+88, 6' LT	45	4	100	310	310	
152'WB'+63, 20' RT	51	4	105	275	430	
152+'WB'+91, 20' RT	52	4	85	275	350	
18'V'+73, 35' RT	82	3	110	125	340	
18'V'+73, 23' RT	83	3	85	125	265	
19'V'+02, 35' RT	84	3	100	125	310	
19'V'+01, 23' RT	85	3	75	125	235	
SUBTOTAL			3,265	8,965	12,030	

LOOP DETECTOR SUMMARY

LOCATION	NO.	TURNS	652.0800 CONDUIT LOOP DETECTOR LF	655.0700 LOOP DETECTOR LEAD IN CABLE LF	655.0800 LOOP DETECTOR WIRE LF	REMARKS
STH 20 & CTH H/RENAISSANCE BLVD						
214'EB'+18, 6' LT	11	3	75	130	235	
214'EB'+47, 6' LT	12	3	70	130	220	
219'WB'+79, 12' LT	21	5	90	605	440	
219'WB'+79, 6' LT	22	5	75	605	390	
218'WB'+19, 17' LT	23	5	95	445	390	
15'RS'+16, 19' RT	31	3	90	140	280	
15'RS'+43, 14' RT	32	3	75	140	280	
15'RS'+16, 29 RT	F33	3	100	140	310	
15'RS'+45, 28' RT	F34	3	100	140	310	
41'RN'+22, 42' LT	42	4	90	265	370	
40'RN'+93, 42' LT	43	4	85	265	350	
216'WB'+57, 19' RT	51	4	75	330	310	
216'WB'+28, 19' RT	52	4	75	330	310	
216'WB'+53, 8' RT	53	4	90	330	370	
216'WB'+27, 7' RT	54	4	90	330	370	
15'RS'+14, 57' RT	56	3	115	210	350	
15'RS'+43, 65' RT	57	3	75	270	235	
15'RS'+19, 73' RT	58	3	90	210	280	
15'RS'+44, 88' RT	59	3	100	210	310	
210'RS'+57, 12' RT	61	5	90	415	460	
210'RS'+57, 6' RT	62	5	80	415	400	
212'EB'+17, 18' RT	63	3	85	255	295	
41'RN'+29, 17' LT	71	4	80	305	320	
41'RN'+00, 14' LT	72	4	80	305	320	
41'RN'+29, 29' LT	F73	4	90	305	370	
40'RN'+99, 28' LT	F74	4	90	305	370	
15'RS'+21, 41' RT	82	3	115	270	345	
15'RS'+50, 41' RT	83	3	80	270	250	
SUBTOTAL			2,445	8,070	9,240	
TOTAL			**5,710**	**17,035**	**21,270**	

ALL LOOPS SHALL BE INSTALLED USING OPTION 2

TRAFFIC SIGNAL CABLE SUMMARY

LOCATION	655.0240* CABLE TRAFFIC SIGNAL 7-14 AWG LF	655.0260 CABLE TRAFFIC SIGNAL 12-14 AWG LF	655.0900 TRAFFIC SIGNAL EVP DETECTOR CABLE LF	SPV.0090.03 EVP CONFIRMATION LIGHT CABLE TYPE 2-14 AWG GROUNDED LF
STH 20 & CTH V/INTERNATIONAL DR				
FROM CB TO				
SB8	--	--	110	110
SB5	--	--	275	275
SB14	--	--	350	350
SB16	--	--	510	510
STH 20 & CTH H/RENAISSANCE BLVD				
FROM CB1 TO				
SB1	--	95	--	--
SB2	165	--	--	--
SB3	--	--	175	175
	--	140	--	--
SB4	--	310	--	--
SB5	385	--	--	--
SB6	--	--	415	415
	--	370	--	--
SB7	--	485	--	--
SB8	375	--	--	--
SB9	390	--	--	--
SB10	--	--	345	345
	--	310	--	--
SB11	315	--	--	--
SB12	--	305	--	--
SB13	155	--	--	--
SB14	--	--	175	175
	--	150	--	--
TOTAL	**1,785**	**2,165**	**1,110**	**1,110**

*ADDITIONAL QUANTITIES LISTED ELSEWHERE

LOCATION	HEAD NO.	655.0230 CABLE TRAFFIC SIGNAL 5-14 AWG LF	655.0240* CABLE TRAFFIC SIGNAL 7-14 AWG LF	REMARKS
STH 20 & CTH H/RENAISSANCE BLVD				
FROM CB1 TO				
SB1	1	20	--	
	11	20	--	
SB2	4	--	20	
SB3	Head A	--	--	
	8	55	--	
	9	65	--	
	12	35	--	
	13	45	--	
SB4	21	--	20	
	23	20	--	
SB5	26	--	20	
SB6	Head D	--	--	
	18	45	--	
	19	55	--	
	22	--	35	
SB7	5	--	20	
	7	20	--	
SB8	10	20	--	
	15	20	--	
SB9	16	20	--	
SB10	Head B	--	--	
	2	65	--	
	3	75	--	
	6	--	85	
SB11	14	20	--	
SB12	17	20	--	
	27	--	20	
SB13	20	--	20	
SB14	Head C	--	--	
	24	45	--	
	25	55	--	
	28	--	35	
TOTAL		**720**	**275**	

*ADDITIONAL QUANTITIES LISTED ELSEWHERE

MONOTUBE SUMMARY

LOCATION	657.1355 INSTALL POLES TYPE 12 EACH	657.1360 INSTALL POLES TYPE 13 EACH	657.1535 INSTALL MONOTUBE ARMS 35-FT EACH	657.1540 INSTALL MONOTUBE ARMS 40-FT EACH	657.1555 INSTALL MONOTUBE ARMS 55-FT EACH	657.1812 INSTALL LUMINAIRE ARMS STEEL 12-FT EACH	REMARKS
STH 20 & CTH H/RENAISSANCE BLVD							
SB3	--	1	--	1	--	2	
SB6	--	1	1	--	--	2	
SB10	1	--	--	--	1	--	
SB14	--	1	1	--	--	2	
TOTAL	**1**	**3**	**2**	**1**	**1**	**6**	

EMERGENCY VEHICLE PREEMPTION SUMMARY

LOCATION	SPV.0105.04 TRANSPORT AND INSTALL STATE FURNISHED EMERGENCY VEHICLE PREEMPTION (EVP) DETECTOR HEADS (STH 20 & CTH H/RENAISSANCE BLVD) LS	SPV.0105.09 STATE FURNISHED EMERGENCY VEHICLE PREEMPTION (EVP) DETECTOR HEADS (STH 20 & CTH V/INTERNATIONAL LS	REMARKS
STH 20 & CTH V/INTERNATIONAL DR	--	1	
STH 20 & CTH H/RENAISSANCE BLVD	1	--	
TOTAL	**1**	**1**	

TRAFFIC SIGNAL SUMMARY

LOCATION	657.0100 PEDESTAL BASES EACH	657.0420 TRAFFIC SIGNAL STANDARDS ALUMINUM 13-FT EACH	657.0425 TRAFFIC SIGNAL STANDARDS ALUMINUM 15-FT EACH	658.0173 TRAFFIC SIGNAL FACE 3S 12-INCH EACH	658.0174 TRAFFIC SIGNAL FACE 4S 12-INCH EACH	658.5069 SIGNAL MOUNTING HARDWARE (LOCATION) LS	SPV.0105.02 TEMPORARY INFRARED EVP SYSTEM, STH 20 & CTH H/RENAISSANCE BLVD LS	SPV.0105.03 REMOVE TRAFFIC SIGNAL (CTH H/RENAISSANCE BLVD) LS	SPV.0105.08 TRANSPORTING TRAFFIC SIGNAL AND INTERSECTION LIGHTING MATERIALS (CTH H/RENAISSANCE BLVD) LS	REMARKS
STH 20 & CTH H/RENAISSANCE BLVD	--	--	--	--	--	1	1	1	1	
SB1	1	1	--	2	--	--	--	--	--	
SB2	1	--	1	--	1	--	--	--	--	
SB3	--	--	--	4	--	--	--	--	--	
SB4	1	--	1	1	1	--	--	--	--	
SB5	1	--	1	--	1	--	--	--	--	
SB6	--	--	--	2	1	--	--	--	--	
SB7	1	--	1	1	1	--	--	--	--	
SB8	1	1	--	2	--	--	--	--	--	
SB9	--	--	--	1	--	--	--	--	--	
SB10	--	--	--	2	1	--	--	--	--	
SB11	1	1	--	1	--	--	--	--	--	
SB12	1	--	1	1	1	--	--	--	--	
SB13	1	--	1	--	1	--	--	--	--	
SB14	--	--	--	2	1	--	--	--	--	
TOTAL	**9**	**3**	**6**	**19**	**9**	**1**	**1**	**1**	**1**	

LUMINAIRES SUMMARY

LOCATION	659.1125 LUMINAIRES UTILITY LED C EACH	REMARKS
STH 20 & CTH H/RENAISSANCE BLVD	8	
TOTAL	**8**	

TEMPORARY TRAFFIC SIGNALS

LOCATION	661.0200 TEMPORARY TRAFFIC SIGNALS FOR INTERSECTIONS (CTH H) EACH	REMARKS
CTH H INTERSECTION	1	
TOTAL	**1**	

BOX CULVERT SUMMARY

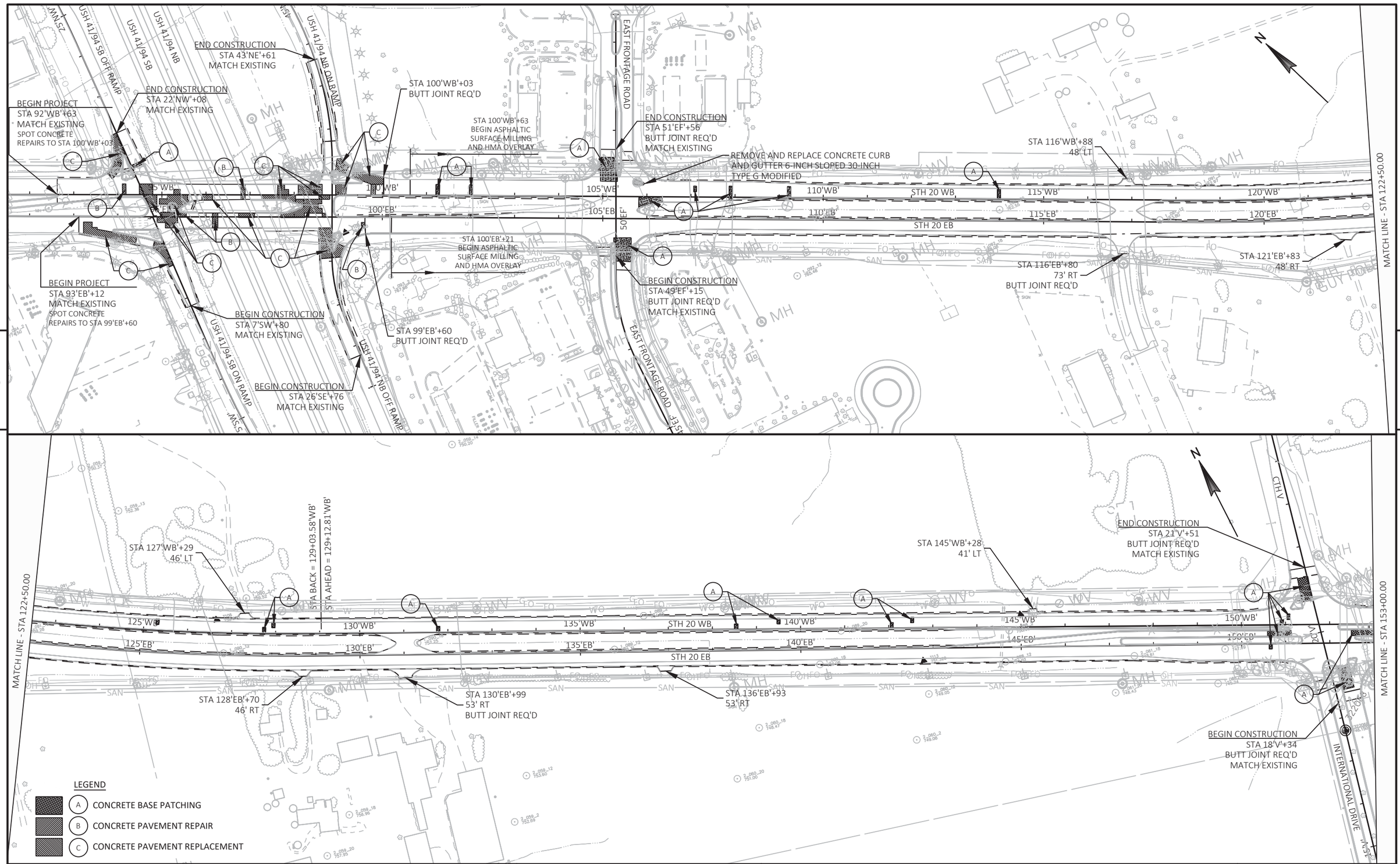
LOCATION	SPV.0060.01 STRAPPING C-51-0017 EACH	SPV.0105.01 CLEANING BOX CULVERT C-51-0017 LS	REMARKS
BOX CULVERT C-51-0017	4	1	
TOTAL	**4**	**1**	

REMOVING LOOPS DETECTOR SUMMARY

LOCATION	SPV.0105.05 REMOVE LOOP DETECTOR WIRE AND LEAD-IN CABLE STH 20 & IH 41/94 LS	SPV.0105.06 REMOVE LOOP DETECTOR WIRE AND LEAD-IN CABLE STH 20 & EAST FRONTAGE ROAD LS	SPV.0105.07 REMOVE LOOP DETECTOR WIRE AND LEAD-IN CABLE STH 20 & CTH H/RENAISSANCE BLVD LS		REMARKS
STH 20 & CTH H/RENAISSANCE BLVD	1	1	1		
TOTAL	**1**	**1**	**1**		

SAWING SUMMARY

STATION		STATION	690.0150 SAWING ASPHALT LF	690.0250 SAWING CONCRETE LF	REMARKS
92'EB'+63	-	95'WB'+75	--	1475	
92'EB'+63	-	95'EB'+75	--	1392	
95'WB'+75	-	97'WB'+15	--	274	
95'EB'+75	-	97'EB'+15	--	315	
97'WB'+15	-	101'WB'+00	--	2172	
97'EB'+15	-	101'EB'+00	--	1135	
101'WB'+00	-	104'WB'+00	--	188	
104'WB'+00	-	107'WB'+00	--	1150	
104'EB'+00	-	107'EB'+00	--	718	
107'WB'+00	-	149'WB'+00	--	634	
149'WB'+00	-	154'WB'+00	--	786	
149'EB'+00	-	154'EB'+00	--	754	
154'WB'+00	-	203'WB'+00	--	663	
154'EB'+00	-	203'EB'+00	--	97	
207'WB'+00	-	213'WB'+00	--	372	
207'EB'+00	-	213'EB'+00	--	325	
213'WB'+00	-	217'WB'+00	--	1326	
213'EB'+00	-	217'EB'+00	--	1734	
217'WB'+00	-	225'WB'+61	--	588	
20'NW'+81	-	22'NW'+08	--	124	
50'EF'+86	-	51'EF'+15	--	400	
UNDISTRIBUTED			200	2493	
TOTAL			**200**	**19,115**	



PROJECT NO: 2250-16-70	HWY: STH 20	COUNTY: RACINE	PLAN	SHEET
				93 E

FILE NAME : X:\PROJECTS\RACINE\STH 20\DESIGN\C3D\SHEETSPLAN\050201-PN.DWG
LAYOUT NAME - 050201-pn

PLOT DATE : 12/20/2017 8:36 AM PLOT BY : DYLAN DOUGLAS PLOT NAME : PLOT SCALE : ##########

WISDOT/CADDS SHEET 44

MATCH LINE - STA 153+00.00

STA 155'EB'+07
45' RT

155'WB'

155'EB'

STA 158'EB'+60
58' RT

STA 160'EB'+00
49' RT
BUTT JOINT REQ'D

160'WB'

160'EB'

STA 160'WB'+428
45' LT

STA 161'EB'+77
55' RT
BUTT JOINT REQ'D

STA 164'WB'+92
50' LT
BUTT JOINT REQ'D

STA 166'EB'+47
46' RT

STA 167'EB'+10
47' RT

STA 168'EB'+06
51' RT

165'WB'

165'EB'

STA 167'WB'+53
47' LT
BUTT JOINT REQ'D

STA BACK = 168+17.29'WB'

STA AHEAD = 168+26.96'WB'

STA 171'EB'+70
51' RT
BUTT JOINT REQ'D

STA 172'WB'+10
49' LT
BUTT JOINT REQ'D

170'WB'

170'EB'

STH 20 WB

STH 20 EB

STA 173'EB'+74
47' RT

STA 175'EB'+24
48' RT

175'WB'

175'EB'

STA 177'WB'+40
49' LT
BUTT JOINT REQ'D

STA 177'EB'+47
44' RT
BUTT JOINT REQ'D

REMOVING GUARDRAIL
INSTALL MGS GUARDRAIL 3
INSTALL MGS GUARDRAIL TERMINAL EAT
INSTALL MGS GUARDRAIL TERMINAL TYPE 2
BARRIER SYSTEM GRADING SHAPING AND FINISHING

STRUCTURE C-51-0017

STA 179'WB'+86
46' LT

STA 179'EB'+50
48' RT

180'WB'

180'EB'

STA 182'EB'+28
48' RT

STA 183'WB'+18
46' LT

REMOVING GUARDRAIL
INSTALL MGS GUARDRAIL 3
INSTALL MGS GUARDRAIL TERMINAL EAT
INSTALL MGS GUARDRAIL TERMINAL TYPE 2
BARRIER SYSTEM GRADING SHAPING AND FINISHING

HOODS CREEK

MATCH LINE - STA 183+50.00

MATCH LINE - STA 183+50.00

STA BACK = 193+80.71'EB'

STA AHEAD = 193+81.77'EB'

STA 195'EB'+03
46' RT

STA 198'EB'+29
46' RT

STA 199'EB'+71
54' RT
BUTT JOINT REQ'D

STA 201'EB'+05
55' RT
BUTT JOINT REQ'D

STA 202'EB'+18
47' RT

185'WB'

185'EB'

190'WB'

190'EB'

195'WB'

195'EB'

STH 20 WB

STH 20 EB

200'WB'

200'EB'

STA 194'WB'+94
46' LT

STA 197'WB'+16
44' LT

STA 199'WB'+25
45' LT

STA 200'WB'+32
46' LT

STA BACK = 193+84.32'WB'

STA AHEAD = 193+81.77'WB'

WEST ROAD

205'WB'

205'EB'

END CONSTRUCTION
STA 31'WN'+42
BUTT JOINT REQ'D
MATCH EXISTING

210'WB'

210'EB'

ASPHALTIC FLUME REQ'D

BEGIN CONSTRUCTION
STA 38'WS'+91
BUTT JOINT REQ'D
MATCH EXISTING

WEST ROAD

MATCH LINE - STA 214+00.00

LEGEND

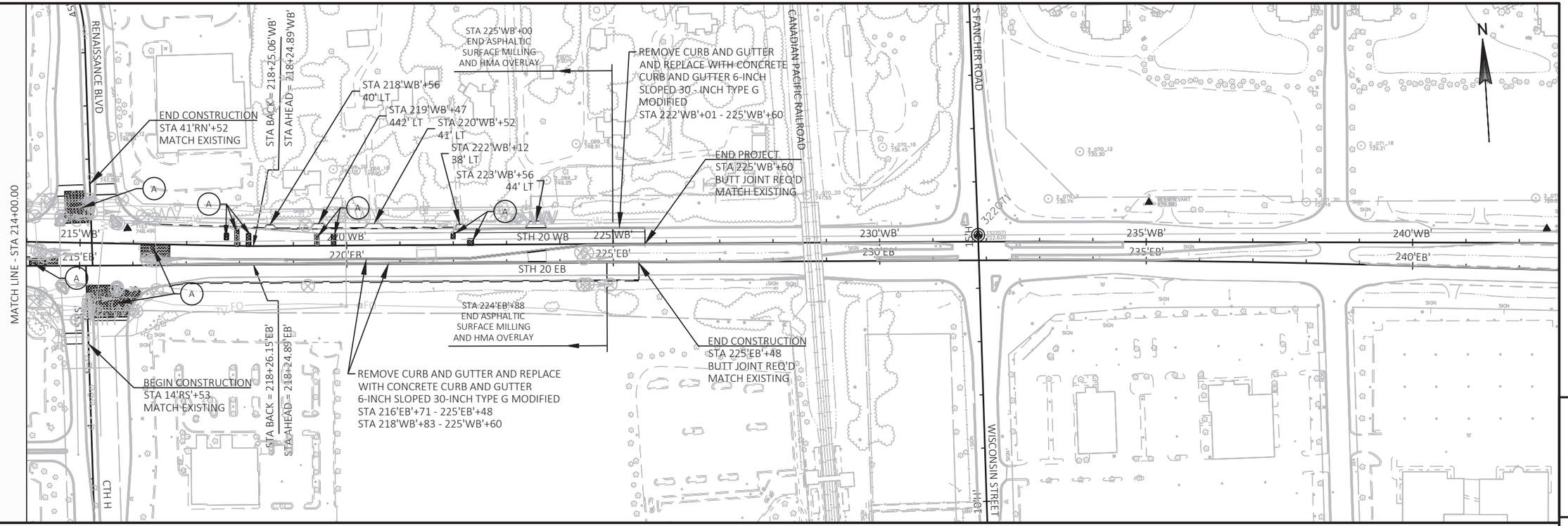
A CONCRETE BASE PATCHING

B CONCRETE PAVEMENT REPAIR

C CONCRETE PAVEMENT REPLACEMENT

PROJECT NO: 2250-16-70	HWY: STH 20	COUNTY: RACINE	PLAN	SHEET	E

FILE NAME : X:\PROJECTS\RACINE\STH 20\DESIGN\C3D\SHEETSPLAN\050201-PN.DWG
LAYOUT NAME - 050202-pn
PLOT DATE : 12/20/2017 8:37 AM
PLOT BY : DYLAN DOUGLAS
PLOT NAME :
PLOT SCALE : ##########
WISDOT/CADDS SHEET 44



LEGEND

- A — CONCRETE BASE PATCHING
- B — CONCRETE PAVEMENT REPAIR
- C — CONCRETE PAVEMENT REPLACEMENT

PROJECT NO: 2250-16-70	HWY: STH 20	COUNTY: RACINE	PLAN	SHEET	E

FILE NAME : X:\PROJECTS\RACINE\STH 20\DESIGN\C3D\SHEETSPLAN\050201-PN.DWG
LAYOUT NAME - 050203-pn

PLOT DATE : 12/20/2017 8:37 AM PLOT BY : DYLAN DOUGLAS PLOT NAME : PLOT SCALE : ##########

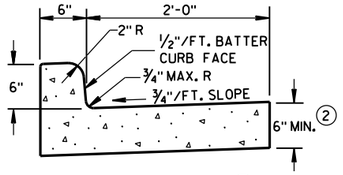
Standard Detail Drawing List

08D01-19	CONCRETE CURB, CONCRETE CURB AND GUTTER AND TIES
08D04-05	CONCRETE SURFACE DRAINS & ASPHALTIC FLUMES
08D21-01	DRIVEWAYS WITHOUT CURB & GUTTER
08D22-01	DRIVEWAYS WITHOUT CURB & GUTTER RESURFACING PROJECTS RURAL
08E09-06	SILT FENCE
08E10-02	INLET PROTECTION TYPE A, B, C AND D
09B02-10	CONDUIT
09B04-11	PULL BOX
09C03-04	TRANSFORMER/PEDESTAL BASES
09C12-09A	CONCRETE BASE TYPE 13
09C12-09B	CONCRETE BASE TYPE 13
09C13-02	CONCRETE BASE TYPE 10 & TYPE 13 EXTENSION
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.
09E08-08C	TYPE 12 POLE 35'-55' MONOTUBE ARM
09E08-08D	TYPE 13 POLE 35'-55' MONOTBE ARM
09E08-08E	GENERAL NOTES AND HARDWARE DETAILS FOR TYPE 9, 10, 12 & 13 POLES WITH MONOTUBE ARMS
09E12-01D	OVER HEIGHT TYPE 13 POLE 35'-55' MONOTBE ARM
09E12-01E	GENERAL NOTES AND HARDWARE DETAILS FOR OVER HEIGHT TYPE 9, 10, 12 & 13 POLES WITH MONOTUBE ARMS
09F15-04A	LOOP DETECTOR INSTALLED IN BASE COURSE WITH PULL (SPLICE) BOX OFF ROADWAY (OPTION 1)
09F15-04B	LOOP DETECTOR INSTALLED IN BASE COURSE WITH PULL (SPLICE) BOX OFF ROADWAY (OPTION 2)
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
11B02-02	CONCRETE MEDIAN NOSE
13A05-05A	SHOULDER RUMBLE STRIP, MILLING
13A10-01A	2-LANE RURAL SHOULDER RUMBLE STRIP, MILLING
13A10-01B	2-LANE RURAL SHOULDER RUMBLE STRIP, MILLING
13A10-01C	2-LANE RURAL SHOULDER RUMBLE STRIP, MILLING
13A10-01D	2-LANE RURAL SHOULDER RUMBLE STRIP, MILLING
13C09-14A	CONCRETE PAVEMENT REPAIR AND REPLACEMENT
13C09-14B	CONCRETE PAVEMENT REPAIR AND REPLACEMENT
13C09-14C	CONCRETE PAVEMENT REPAIR AND REPLACEMENT
13C14-06A	BASE PATCHING CONCRETE
13C14-06B	BASE PATCHING CONCRETE
13C14-06C	BASE PATCHING CONCRETE
14B42-05A	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-05B	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-05C	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-05D	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B44-03A	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B44-03B	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B44-03C	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B47-02A	MIDWEST GUARDRAIL SYSTEM (MGS) TYPE 2 TERMINAL
14B47-02B	MIDWEST GUARDRAIL SYSTEM (MGS) TYPE 2 TERMINAL
14B47-02C	MIDWEST GUARDRAIL SYSTEM (MGS) TYPE 2 TERMINAL
15A02-09	DELINEATOR POST, DELINEATOR REFLECTOR AND DELINEATOR BRACKET WITH REFLECTIVE SHEETING
15A03-02B	FLEXIBLE MARKER POST FOR CULVERT END
15C02-06A	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C02-06B	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C02-06C	DETOUR SIGNING FOR MAINLINE CLOSURES
15C03-03	BARRICADES AND SIGNS FOR SIDEROAD CLOSURES
15C04-03	TRAFFIC CONTROL, ADVANCE WARNING SIGNS 45 M.P.H. OR GREATER TWO-WAY UNDIVIDED ROAD OPEN TO TRAFFIC
15C07-14B	PAVEMENT MARKING WORDS
15C07-14C	PAVEMENT MARKING ARROWS
15C08-18A	LONGITUDINAL MARKING (MAINLINE)
15C08-18B	PAVEMENT MARKING (TURN LANES)
15C18-04	MEDIAN ISLAND MARKING
15C27-02A	DOUBLE ARROW WARNING SIGN PLACEMENT
15C27-02B	PAVEMENT MARKING (ISLANDS)
15C33-02	STOP LINE AND CROSSWALK PAVEMENT MARKING
15C35-01A	PAVEMENT MARKING (INTERSECTIONS)

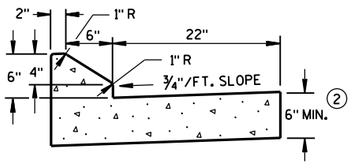
6

Standard Detail Drawing List

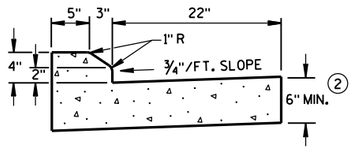
15D16-03	TRAFFIC CONTROL, EXIT RAMP CLOSURE
15D20-04	TRAFFIC CONTROL, SINGLE LANE CLOSURE, NON-FREEWAY/EXPRESSWAY
15D21-04	TRAFFIC CONTROL, INTERSECTION WITHIN SINGLE LANE CLOSURE
15D38-02A	TEMPORARY TRAFFIC CONTROL SIGN MOUNTING
15D38-02B	ATTACHMENT OF SIGNS TO POSTS



TYPES A & D ①

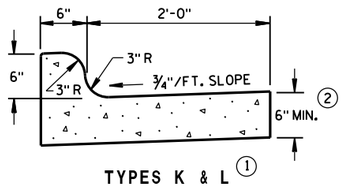


6" SLOPED CURB TYPES G & J ①

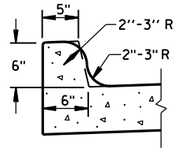


4" SLOPED CURB TYPES G & J ①

CONCRETE CURB & GUTTER 30"

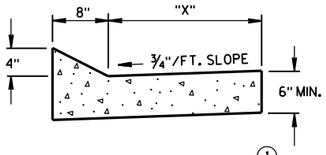


TYPES K & L ①



OPTIONAL CURB SHAPE FOR TYPES K & L ①

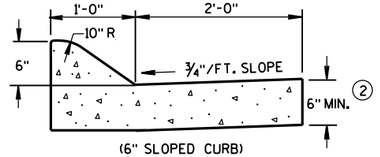
CONCRETE CURB & GUTTER 30"



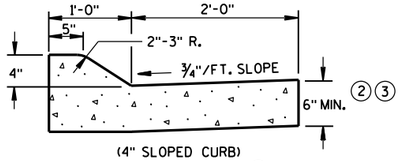
TYPES TBT & TBTT ①

CONCRETE CURB & GUTTER

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

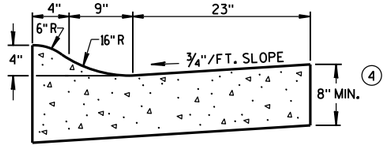


(6" SLOPED CURB)



(4" SLOPED CURB)

TYPES A & D ①



4" SLOPED CURB TYPES R & T ①⑤

CONCRETE CURB & GUTTER 36"

GENERAL NOTES

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

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

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

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

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

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

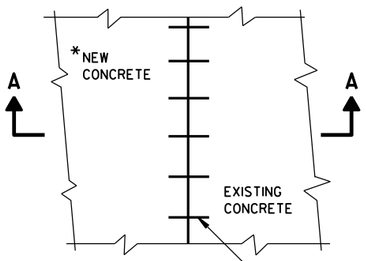
② THE BOTTOM OF CURB AND GUTTER MAY BE CONSTRUCTED EITHER LEVEL OR PARALLEL TO THE SLOPE OF THE SUBGRADE OR BASE AGGREGATE PROVIDED A 6" MINIMUM GUTTER THICKNESS IS MAINTAINED.

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

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

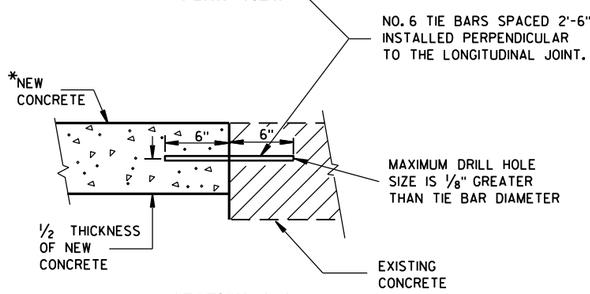
⑤ THE FACE OF CURB IS 6" FROM THE BACK OF CURB.

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



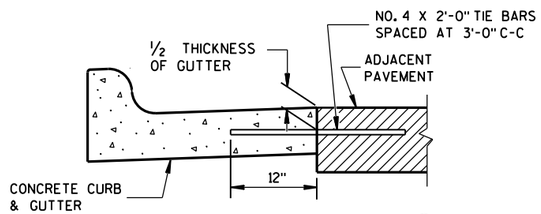
PLAN VIEW

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

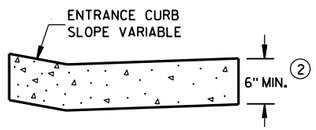


SECTION A-A

TIE BARS DRILLED INTO EXISTING PAVEMENT

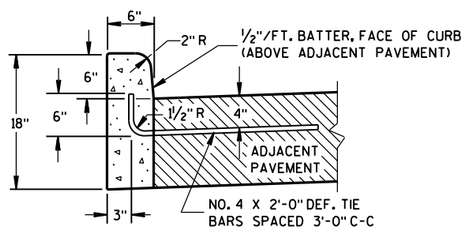


TYPICAL TIE BAR LOCATION ①

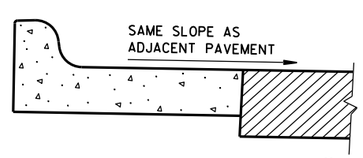


DRIVEWAY ENTRANCE CURB

(WHEN DIRECTED BY THE ENGINEER)

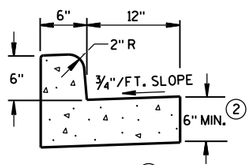


① TYPES A & D



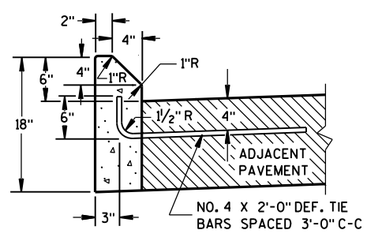
⑥ REVERSE SLOPE GUTTER

(TYPICAL FOR ALL CURB & GUTTER TYPES)



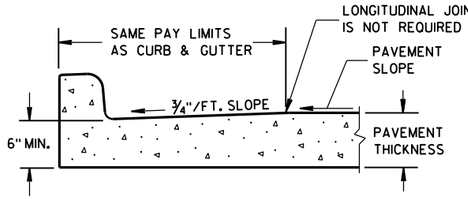
① TYPES A & D

CONCRETE CURB & GUTTER 18"

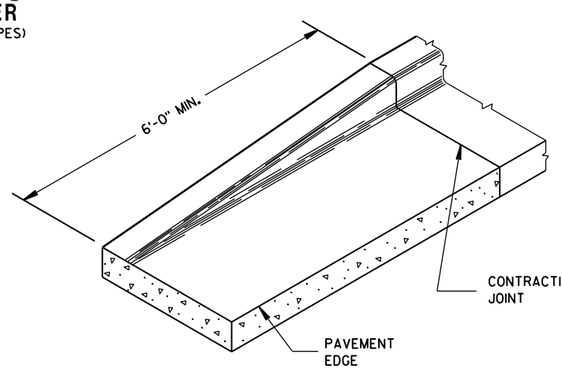


① TYPES G & J

CONCRETE CURB



PARTIAL SECTION OF PAVEMENT WITH INTEGRAL CURB & GUTTER



END SECTION CURB & GUTTER

CONCRETE CURB, CONCRETE CURB & GUTTER AND TIES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

June, 2016 — DATE

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

FHWA

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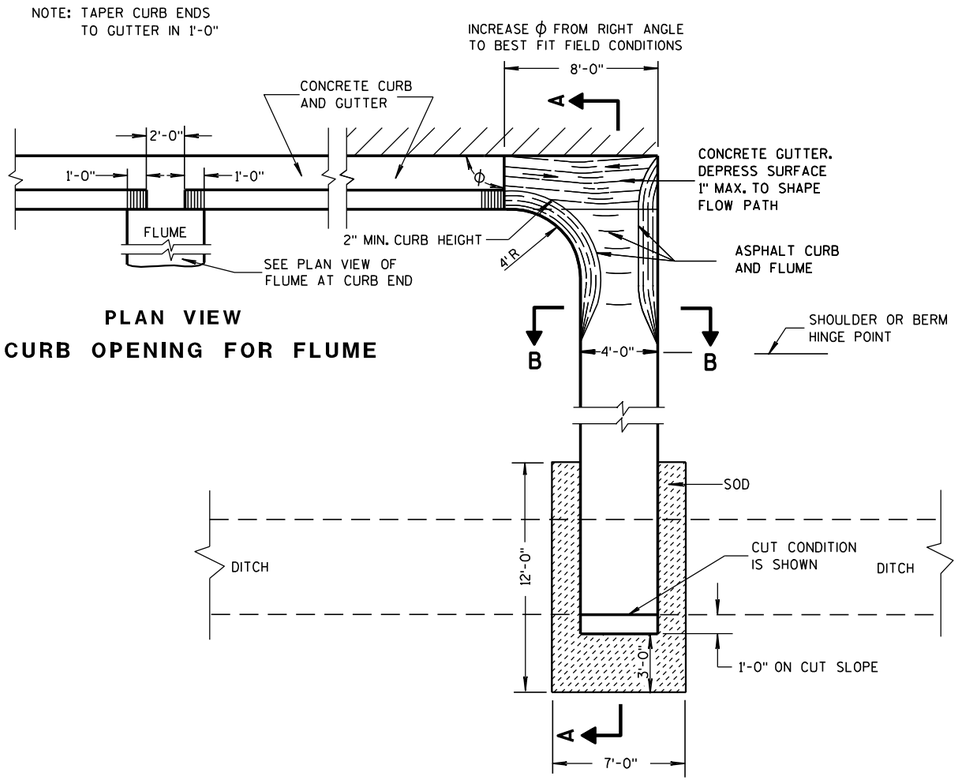
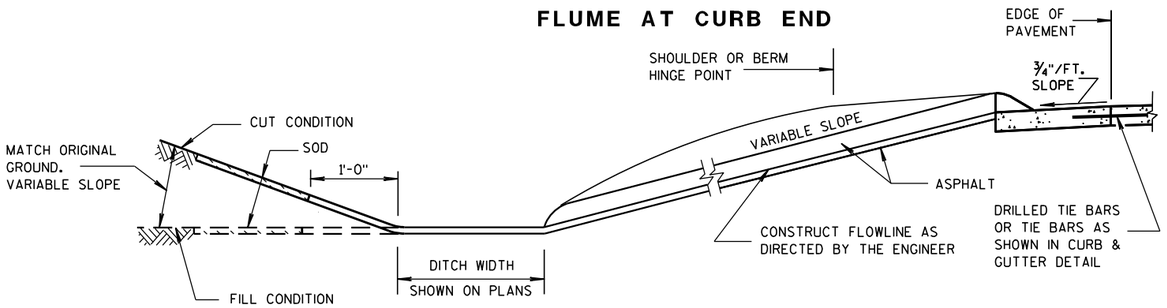
S.D.D. 8 D 1-19

ASPHALTIC FLUME

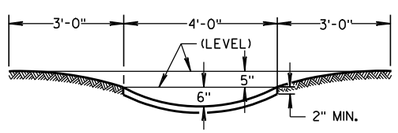


PLAN VIEW
CURB OPENING FOR FLUME

PLAN VIEW
FLUME AT CURB END



SECTION A-A



SECTION B-B

GENERAL NOTES

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

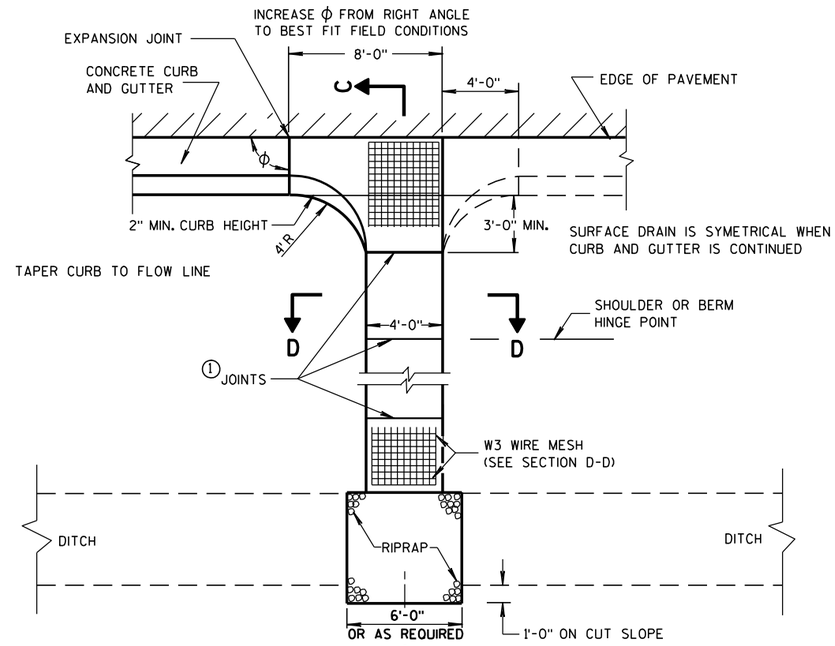
WELDED STEEL WIRE FABRIC SHALL BE IN ACCORDANCE WITH AASHTO SPECIFICATION M55.

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

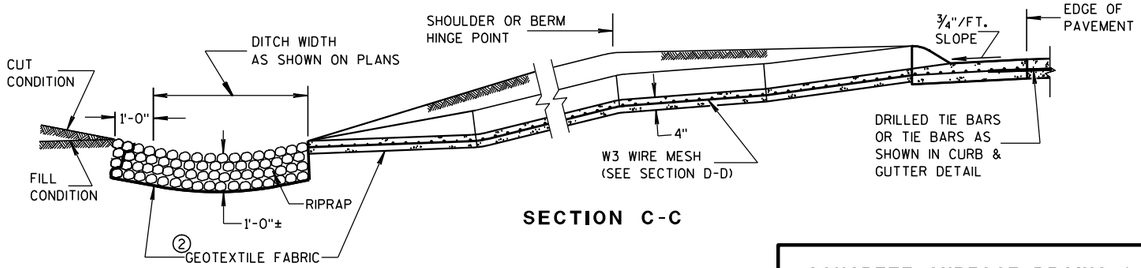
② GEOTEXTILE FABRIC TYPE "R" SHALL UNDERLAY THE FULL LENGTH AND WIDTH OF THE CONCRETE SURFACE DRAIN AND RIPRAP.

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

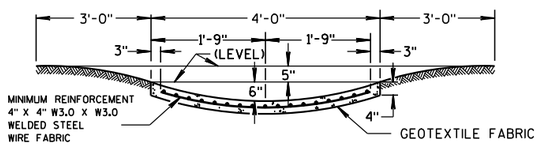
③ CONCRETE SURFACE DRAIN



PLAN VIEW



SECTION C-C



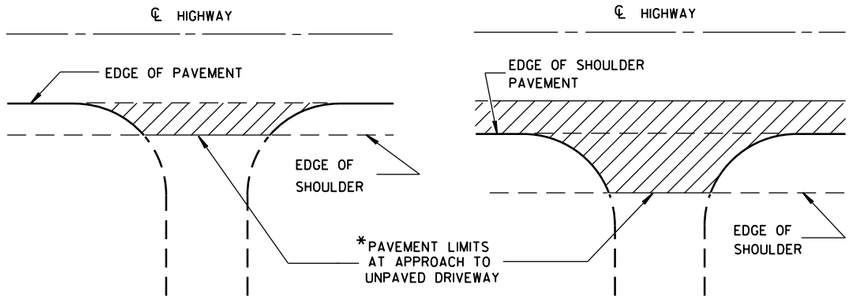
SECTION D-D

CONCRETE SURFACE DRAINS & ASPHALTIC FLUMES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

FHWA

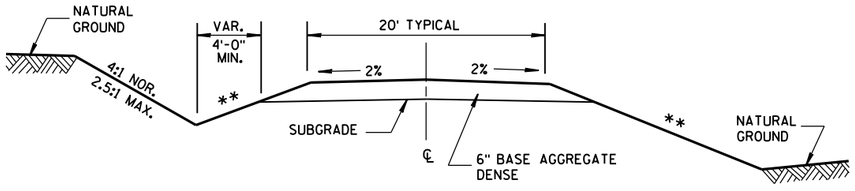


*WHERE DRIVEWAY IS PAVED, APPROACH PAVEMENT SHOULD BE EXTENDED TO MATCH DRIVEWAY PAVEMENT.

PLAN VIEW
(UNPAVED SHOULDER ON HIGHWAY)

PLAN VIEW
(PAVED SHOULDER ON HIGHWAY)

RURAL DRIVEWAY INTERSECTION DETAIL
(NO CURB & GUTTER OR SIDEWALK)

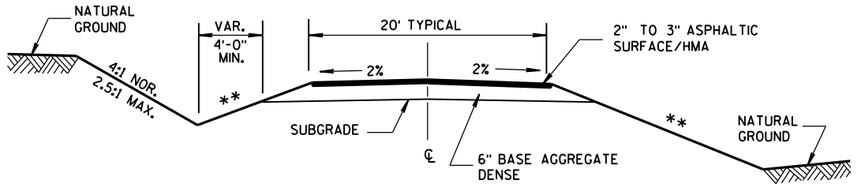


IN CUT **IN FILL**

TYPICAL CROSS SECTION FOR PRIVATE DRIVE OR FIELD ENTRANCE AGGREGATE SURFACE

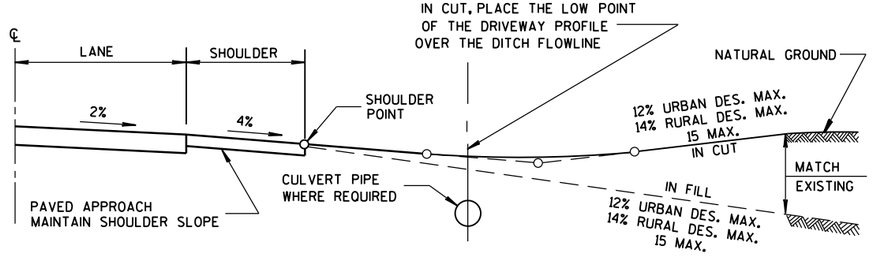
** SLOPE CAN VARY WITH SPEED. SEE 11-45-2.6.2.

POSTED SPEED MPH	MAX. SLOPE
<35	4:1
≥35 TO <60	6:1
≥60	10:1



IN CUT **IN FILL**

TYPICAL CROSS SECTION FOR PRIVATE DRIVE OR FIELD ENTRANCE ASPHALTIC SURFACE



TYPICAL DRIVEWAY PROFILES

DRIVEWAYS WITHOUT CURB & GUTTER

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
December, 2016 /S/ Rodney Taylor
DATE ROADWAY STANDARDS UNIT SUPERV
FHWA

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S.D.D. 8 D 21-1

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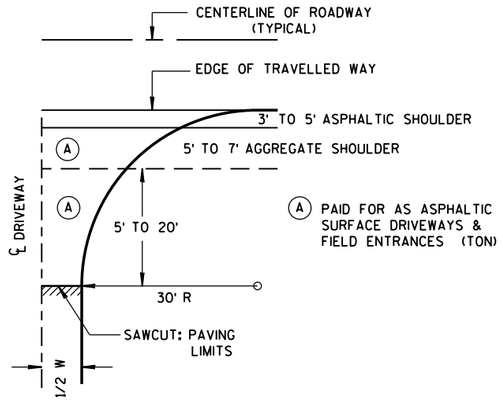
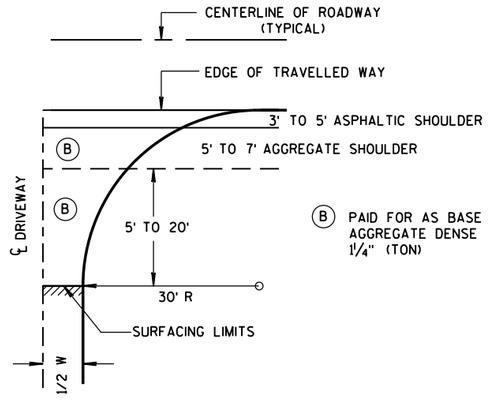
S.D.D. 8 D 21-1



PLAN VIEW
HALF SECTION

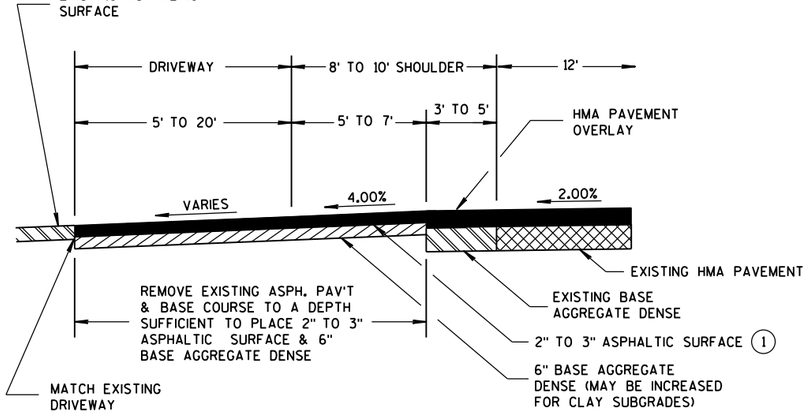
W MIN. = 16'
W MAX. = 24'



PLAN VIEW
HALF SECTION

GENERAL NOTES

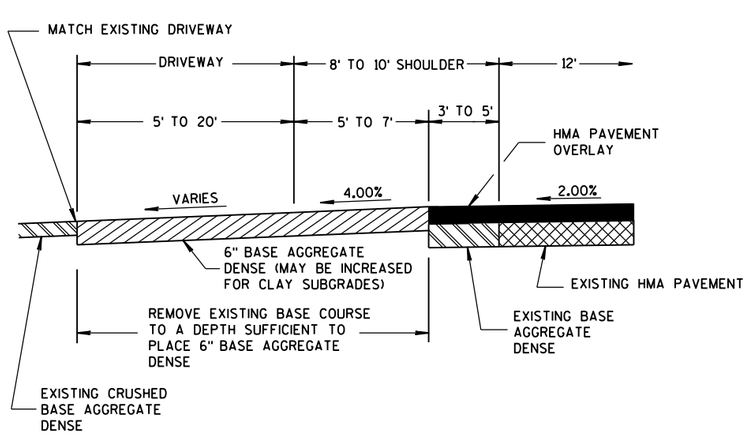
(1) DESIGN WILL DETERMINE FINAL DRIVEWAY ASPHALTIC THICKNESS BASED ON TYPE OF USAGE AND LOADINGS.



PROFILE VIEW

RURAL ENTRANCE WITH ASPHALTIC SURFACE

RESURFACING PROJECTS



PROFILE VIEW

RURAL ENTRANCE WITH AGGREGATE SURFACE

6" BASE AGGREGATE DENSE
RESURFACING PROJECTS

DRIVEWAYS WITHOUT CURB & GUTTER RESURFACING PROJECTS RURAL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
December, 2016 — DATE
/S/ Rodney Taylor — ROADWAY STANDARDS UNIT SUPERV
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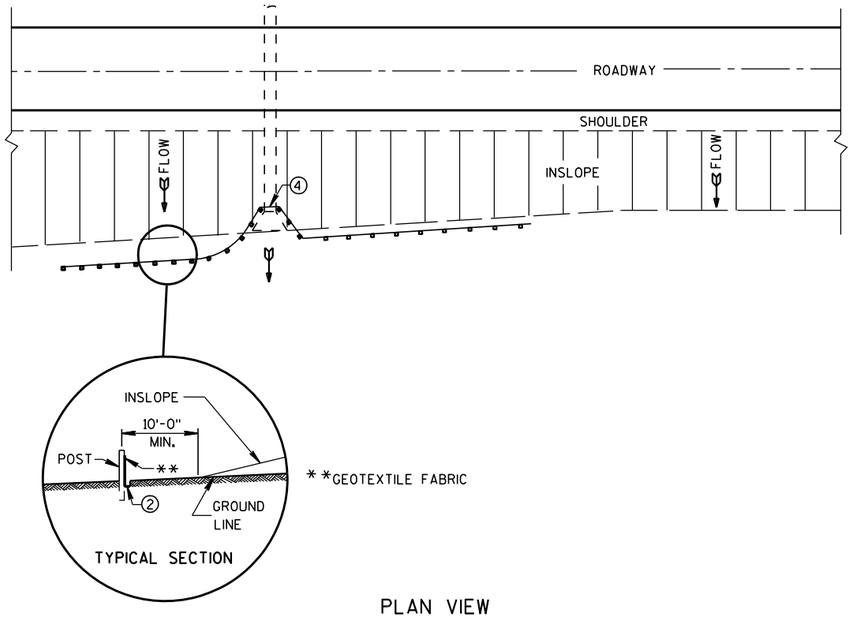
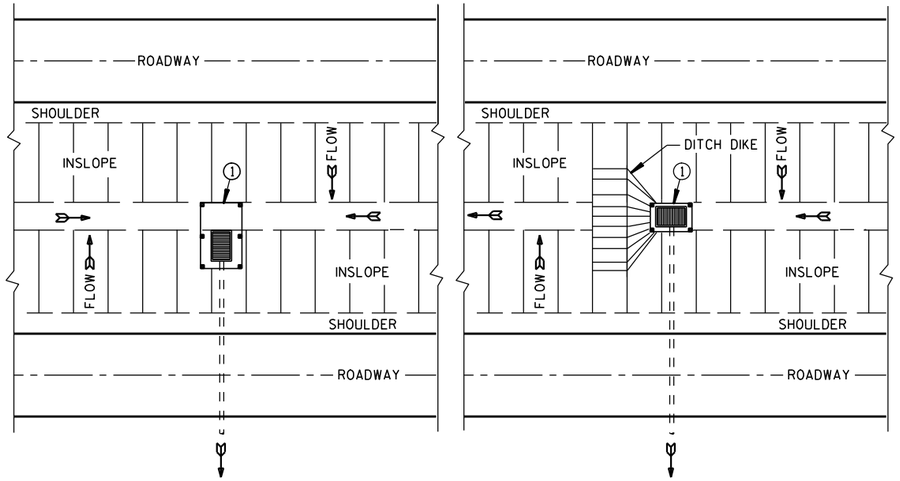


PLAN VIEW

TYPICAL APPLICATION OF SILT FENCE



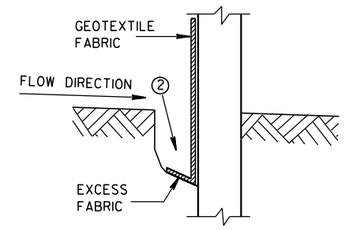
PLAN VIEW

SILT FENCE AT MEDIAN SURFACE DRAINS

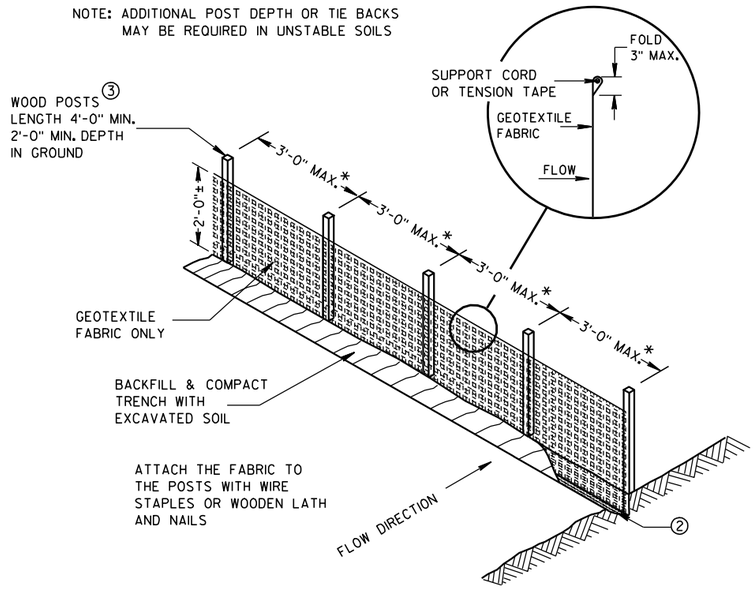
GENERAL NOTES

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

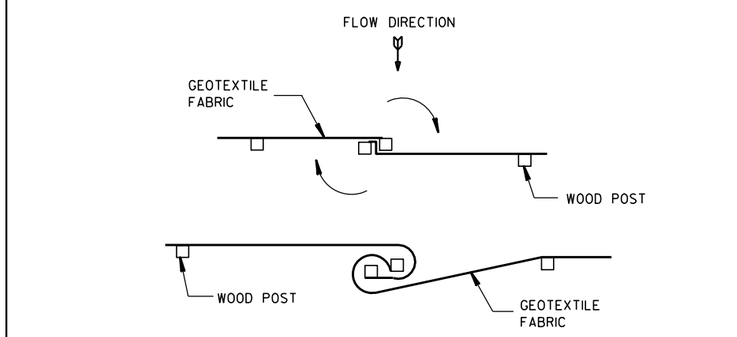
1. HORIZONTAL BRACE REQUIRED WITH 2" X 4" WOODEN FRAME OR EQUIVALENT AT TOP OF POSTS.
2. FOR MANUAL INSTALLATIONS THE TRENCH SHALL BE A MINIMUM OF 4" WIDE & 6" DEEP TO BURY AND ANCHOR THE GEOTEXTILE FABRIC. FOLD MATERIAL TO FIT TRENCH AND BACKFILL & COMPACT TRENCH WITH EXCAVATED SOIL.
3. WOOD POSTS SHALL BE A MINIMUM SIZE OF 1⅛" X 1⅛" OF OAK OR HICKORY.
4. SILT FENCE TO EXTEND ACROSS THE TOP OF THE PIPE.
5. CONSTRUCT SILT FENCE FROM A CONTINUOUS ROLL IF POSSIBLE BY CUTTING LENGTHS TO AVOID JOINTS. IF A JOINT IS NECESSARY USE ONE OF THE FOLLOWING TWO METHODS; A) OVERLAP THE END POSTS AND TWIST, OR ROTATE, AT LEAST 180 DEGREES, B) HOOK THE END OF EACH SILT FENCE LENGTH.



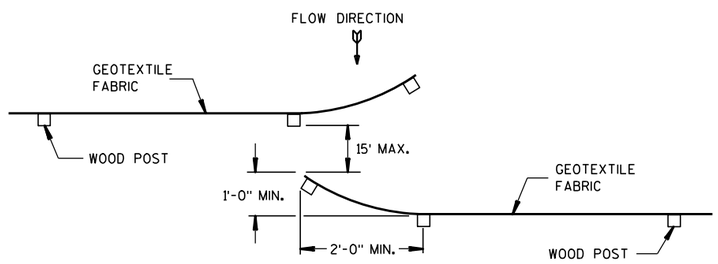
TRENCH DETAIL



SILT FENCE

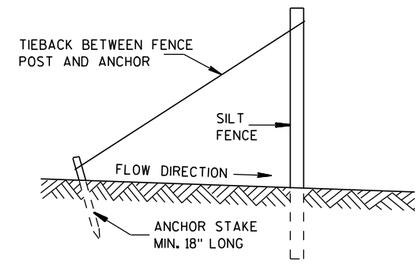


TWIST METHOD



HOOK METHOD

JOINING TWO LENGTHS OF SILT FENCE 5



SILT FENCE TIE BACK

(WHEN REQUIRED BY THE ENGINEER)

SILT FENCE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

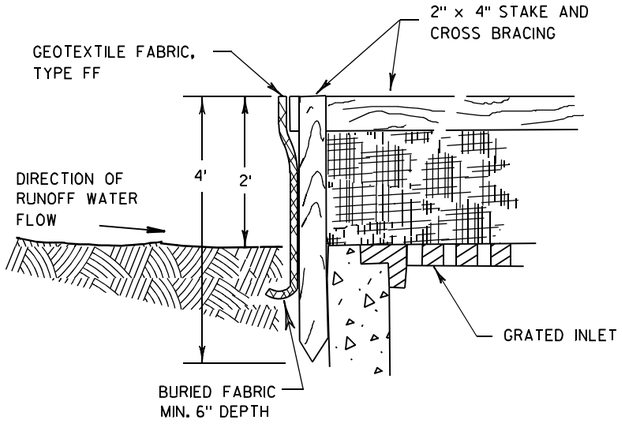
APPROVED
4-29-05 DATE
/S/ Beth Cannestra
CHIEF ROADWAY DEVELOPMENT ENGINEER
FHWA

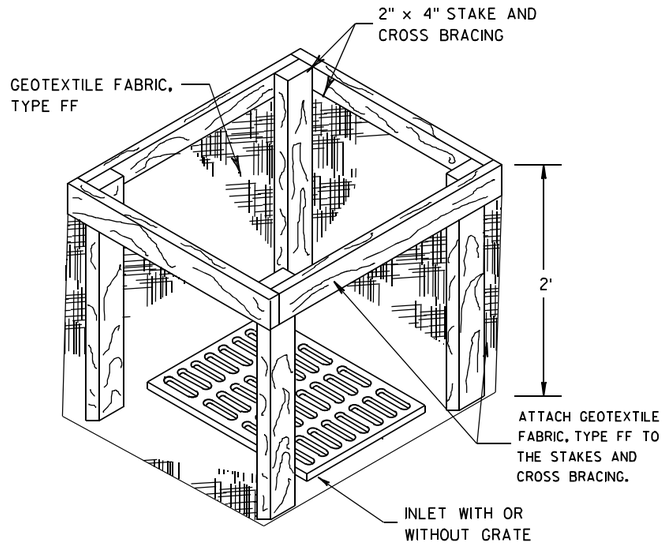
6

S.D.D. 8 E 9-6

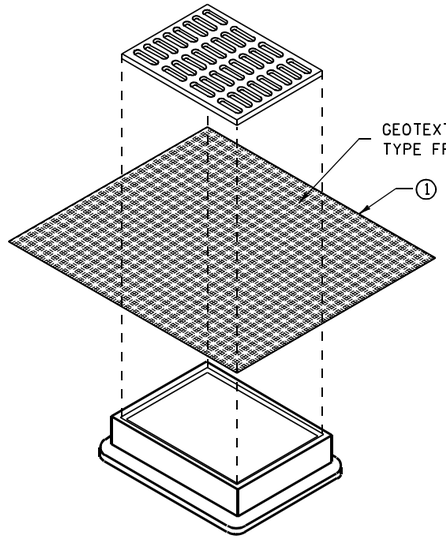
6

S.D.D. 8 E 9-6



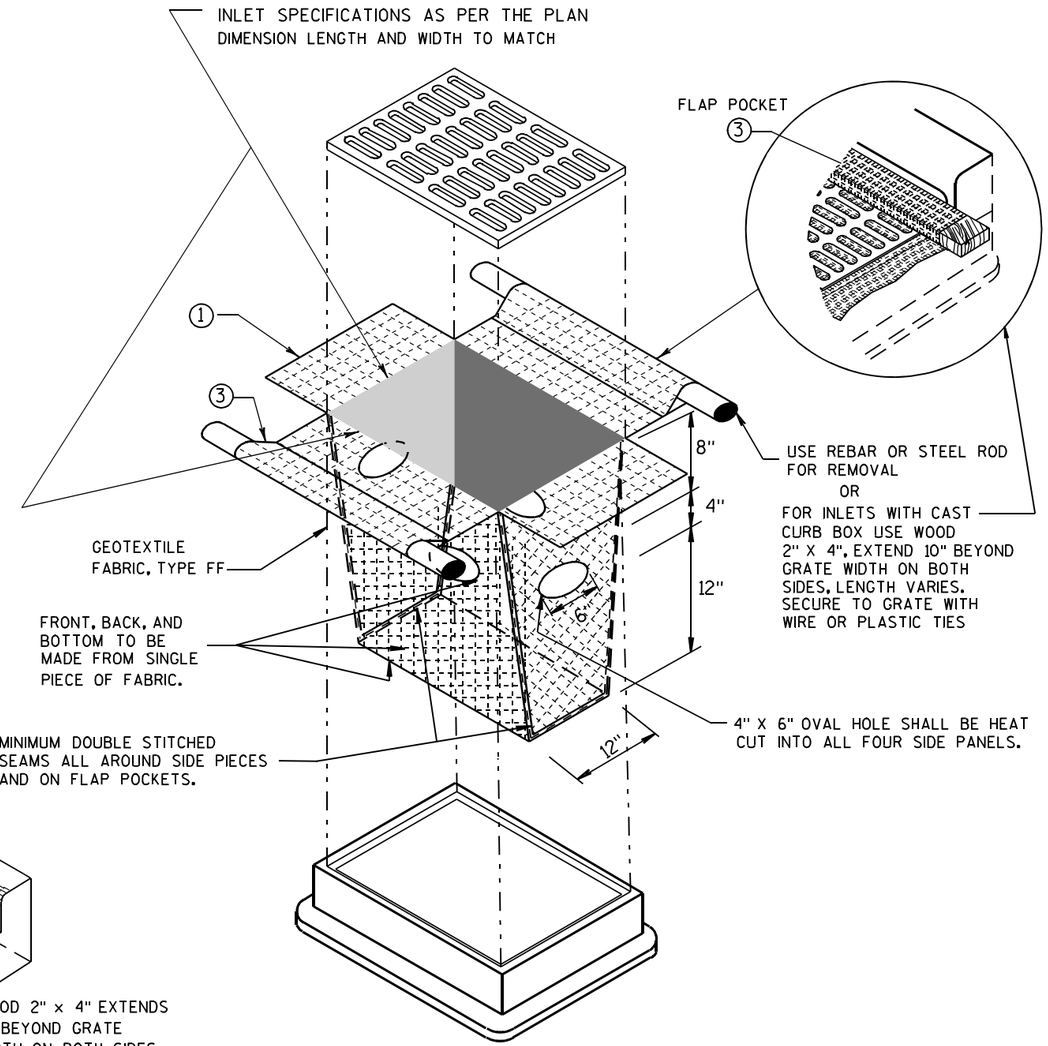


INLET PROTECTION, TYPE A



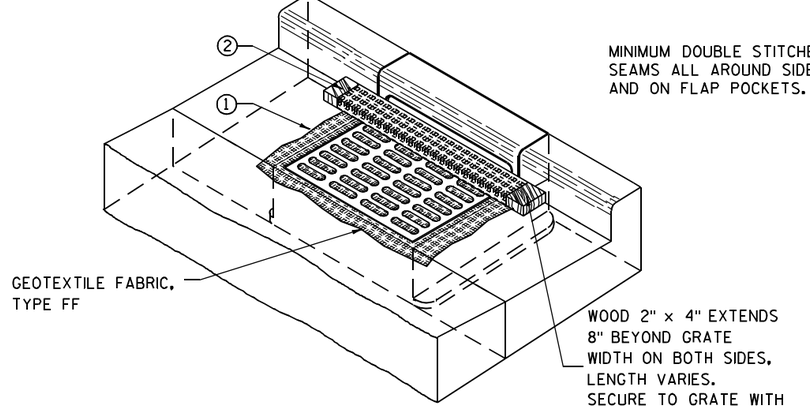
INLET PROTECTION, TYPE B
(WITHOUT CURB BOX)

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



INLET PROTECTION, TYPE D

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



INLET PROTECTION, TYPE C (WITH CURB BOX)

GENERAL NOTES

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

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

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

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

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

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

INSTALLATION NOTES

TYPE B & C

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

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

TYPE D

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

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

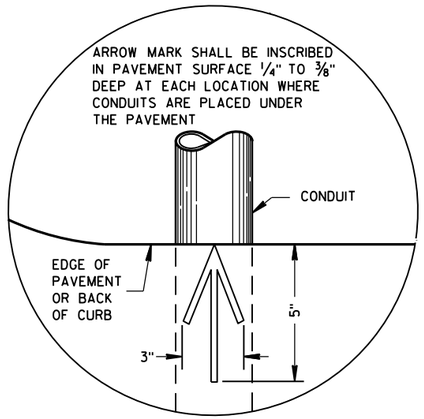
THE INSTALLED BAG SHALL HAVE A MINIMUM SIDE CLEARANCE, BETWEEN THE INLET WALLS AND THE BAG, MEASURED AT THE BOTTOM OF THE OVERFLOW HOLES, OF 3". WHERE NECESSARY THE CONTRACTOR SHALL CINCH THE BAG, USING PLASTIC ZIP TIES, TO ACHIEVE THE 3" CLEARANCE. THE TIES SHALL BE PLACED AT A MAXIMUM OF 4" FROM THE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

INLET PROTECTION
TYPE A, B, C, AND D

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

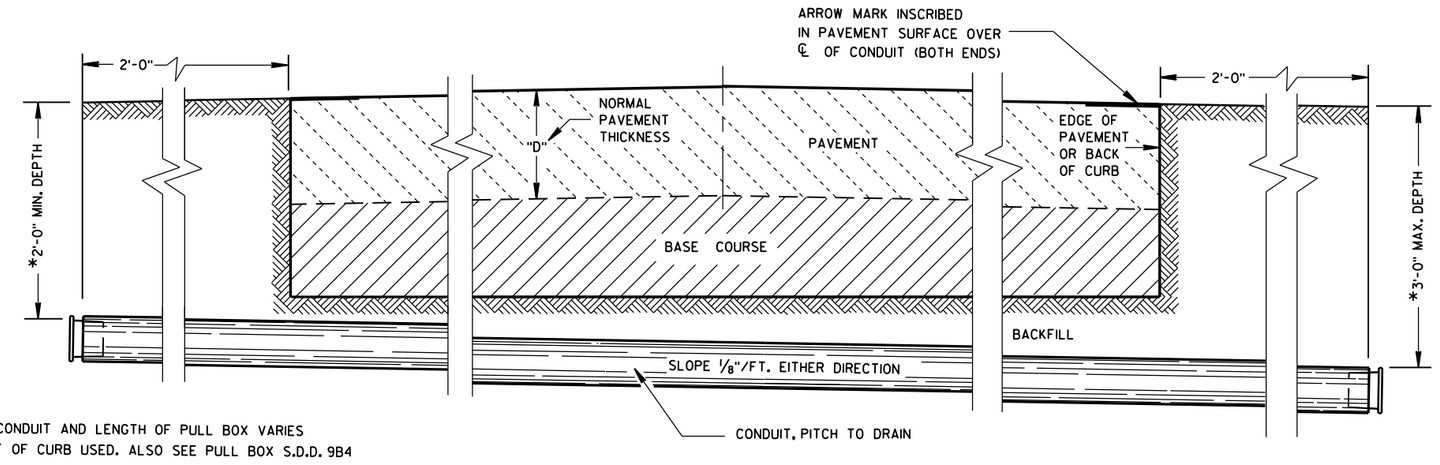
APPROVED
10/16/02
DATE
/S/ Beth Cannestra
CHIEF ROADWAY DEVELOPMENT ENGINEER
FHWA

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



PLAN VIEW

ARROW MARK



*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

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.

CONDUIT

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
March, 2017 — DATE
/S/ Ahmet Demirbilek — STATE ELECTRICAL
FHWA

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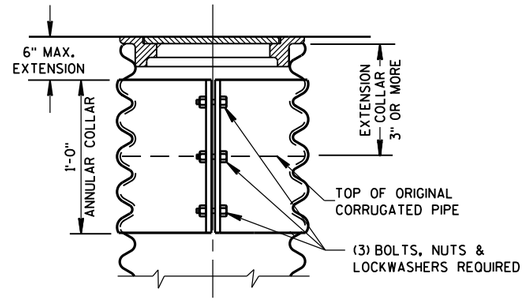
S.D.D. 9 B 2-10

TABLE OF NOMINAL DIMENSIONS AND WEIGHTS

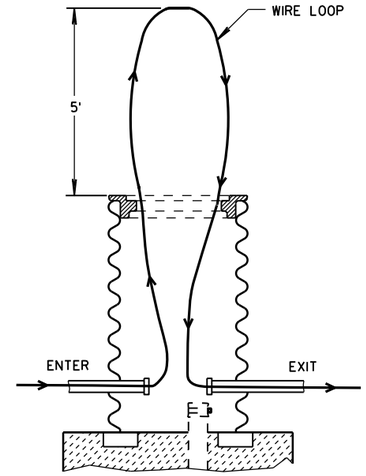
DIMENSION IN INCHES		CORRUGATED STEEL PIPE								
PIPE DIAMETER (INSIDE)	A	12	12	12	18	18	18	24	24	24
PIPE LENGTH **	B	24	30	36	24	30	36	36	42	48
WALL THICKNESS	C	0.064	0.064	0.064	0.064	0.064	0.064	0.064	0.064	0.064
COVER	D	10 1/4	10 1/4	10 1/4	16 1/4	16 1/4	16 1/4	22 1/4	22 1/4	22 1/4
FRAME	E	14 1/2	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.

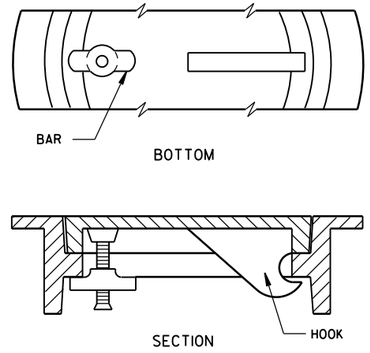
** NORMALLY USED LENGTHS. THE PROJECT ENGINEER SHALL DETERMINE IF PIPE LENGTHS, OTHER THAN THOSE SPECIFIED, SHALL BE USED, TO A MAXIMUM OF 48" (CONTINUOUS LENGTH, NON-SPLICED). THE ADDITIONAL LENGTH SHALL BE INCIDENTAL TO THE PULL BOX BID PRICE.



CORRUGATED PIPE EXTENDER

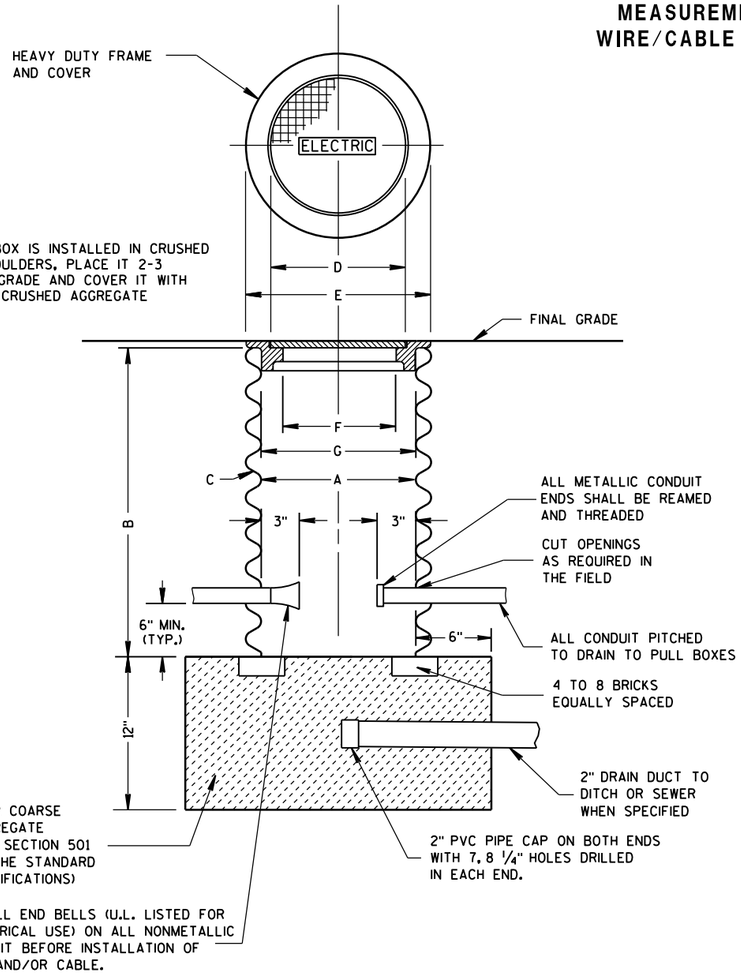


MEASUREMENT DETAIL FOR WIRE/CABLE IN THE PULL BOX



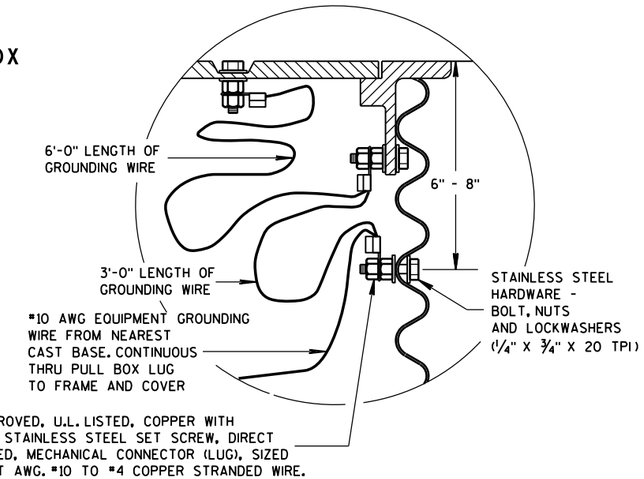
ALTERNATE COVER (LOCKING)

TIGHTENING BAR TYPE

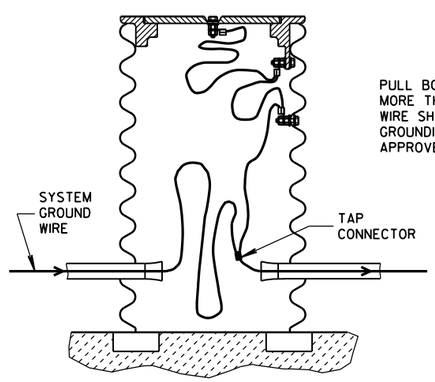


WHEN A PULL BOX IS INSTALLED IN CRUSHED AGGREGATE SHOULDERS, PLACE IT 2-3 INCHES BELOW GRADE AND COVER IT WITH 2-3 INCHES OF CRUSHED AGGREGATE

PULL BOX



EQUIPMENT GROUNDING LUG AND LOCATION IN STEEL PULL BOXES



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

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S.D.D. 9 B 4-11

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.

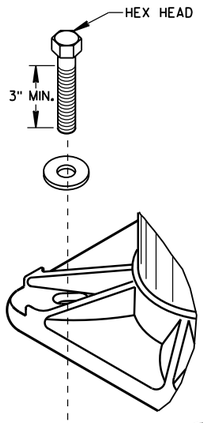
THE MECHANICAL CONNECTOR SHALL BE INSTALLED USING A 1/4" - 20 (TPI) STAINLESS STEEL HEX HEAD BOLT OF SUFFICIENT LENGTH TO FIRMLY ATTACH THE LUG TO THE BASE.

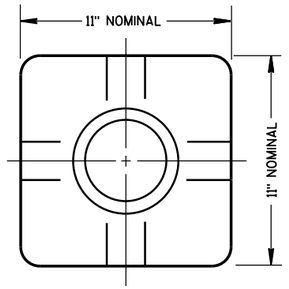
SHOULD THE MANNER OF ATTACHMENT OF THE LUG REQUIRE WASHERS, HEX NUTS, LOCK WASHER - THEY SHALL BE STAINLESS STEEL AS IS THE BOLT. THE MANNER OF ATTACHMENT SHALL NOT BLOCK ACCESSIBILITY TO WIRE PLACEMENT IN THE CONNECTOR.

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

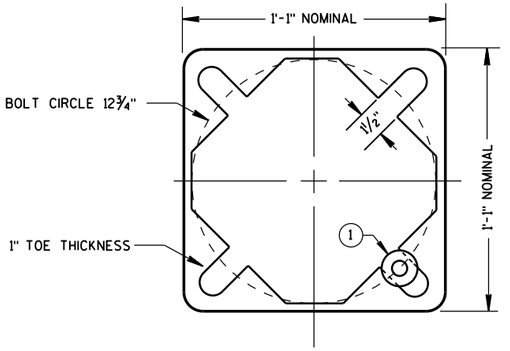
BASE COLLAR THREADING SHALL EXTEND INTO THE BASE COLLAR WITH SUFFICIENT DEPTH TO ACCEPT THE INSTALLATION OF TRAFFIC SIGNAL STANDARDS TO A DEPTH OF 1 1/2", THEN TIGHTENING TO A POINT OF BEING IMMOVABLE.

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

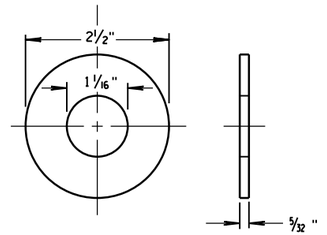




TOP VIEW
(PEDESTAL BASE)

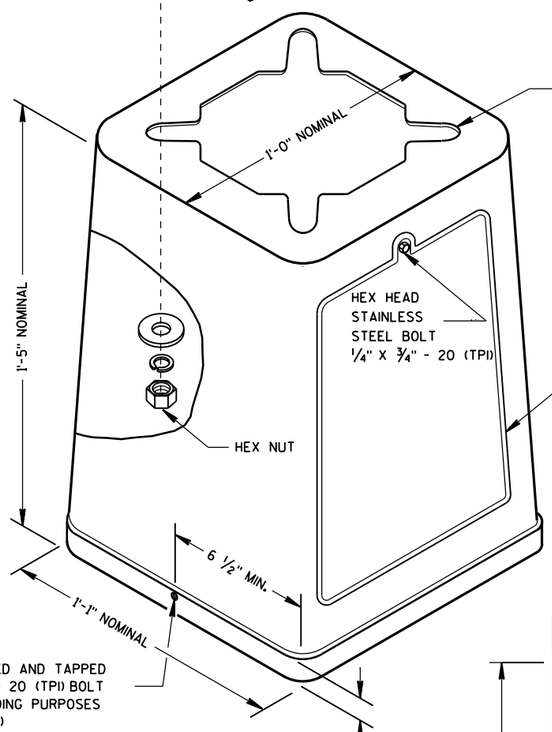


BOTTOM VIEW
(PEDESTAL BASE)

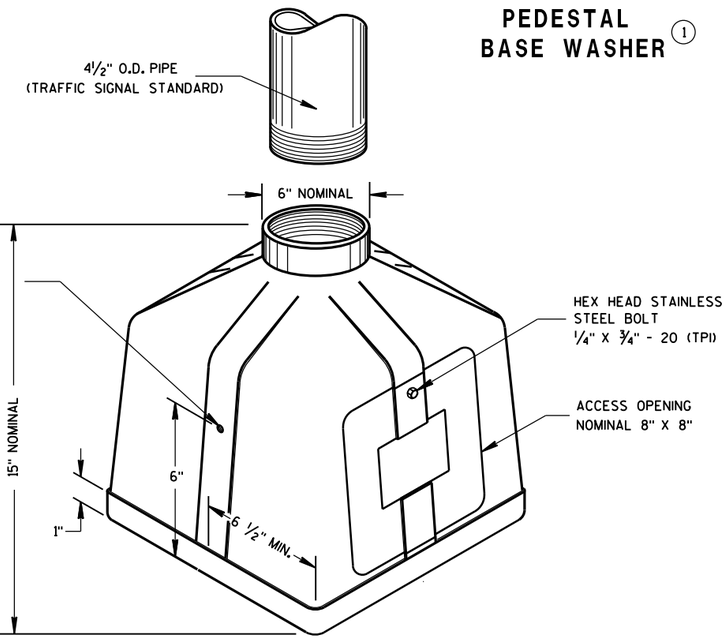


ZINC COATED STEEL WASHER
TO BE PROVIDED BY THE CONTRACTOR

PEDESTAL BASE WASHER (1)

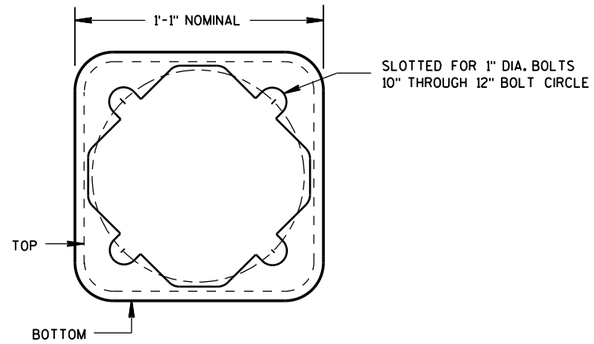


ISOMETRIC VIEW

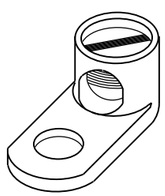


ISOMETRIC VIEW

PEDESTAL BASE



BOTTOM VIEW
(TRANSFORMER BASE)

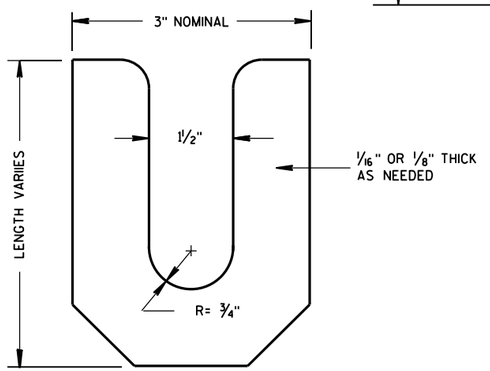


TYPICAL MECHANICAL CONNECTOR LUG

TO BE FURNISHED WITH EACH BASE

TRANSFORMER BASE

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



LEVELING SHIM

TRANSFORMER/PEDESTAL BASES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

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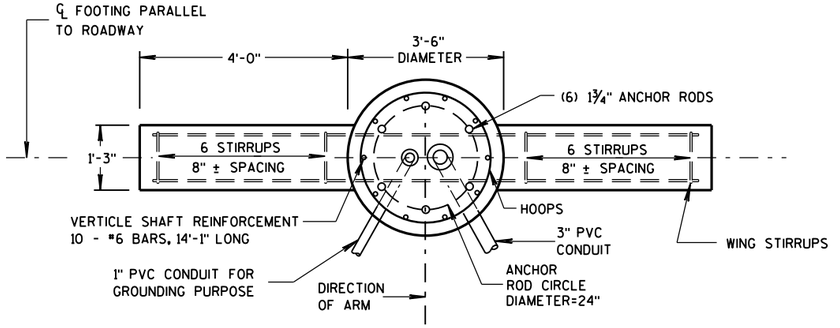
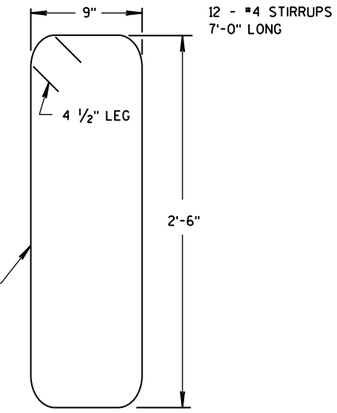
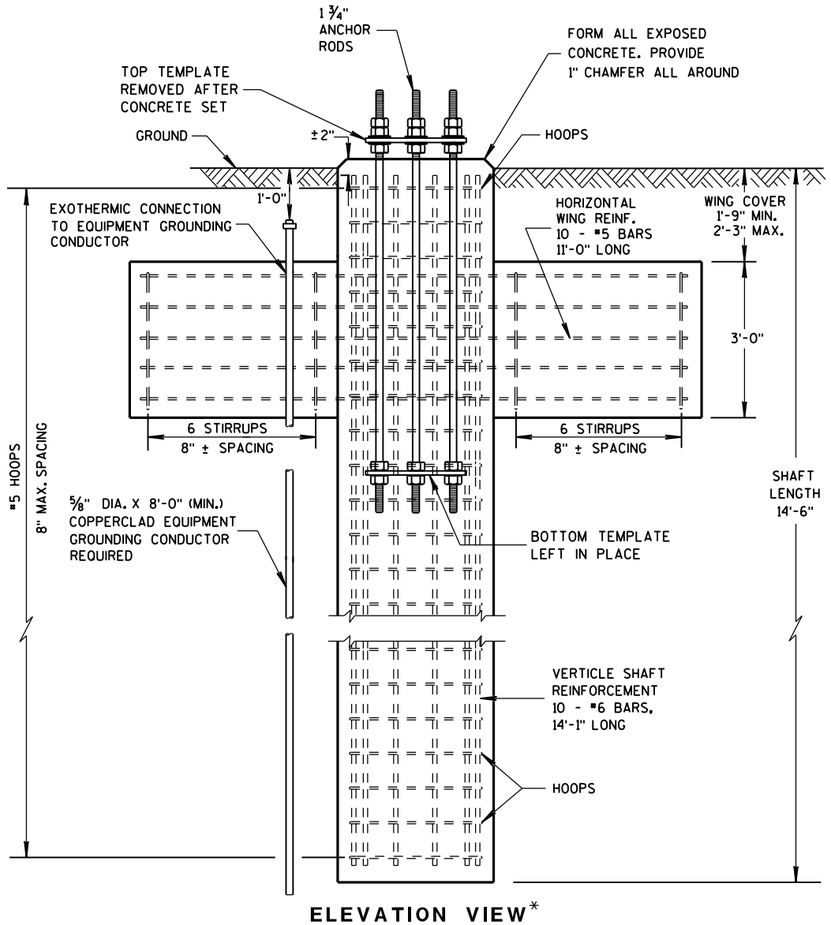
S.D.D. 9 C 3-4



PLAN VIEW

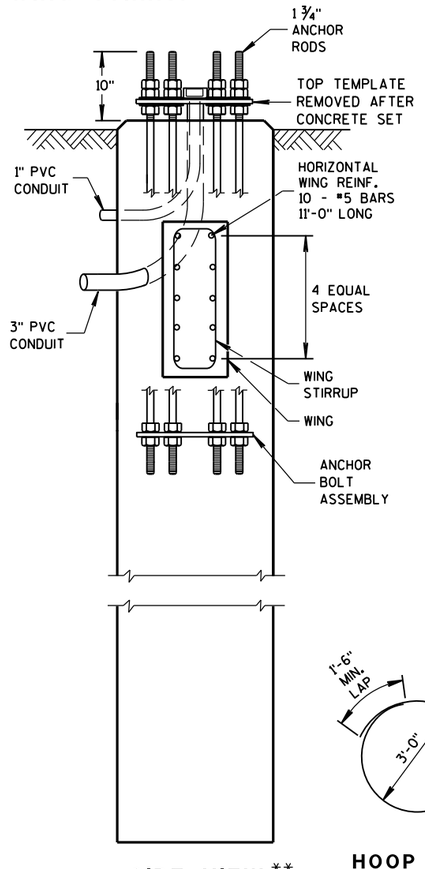


WING STIRRUP



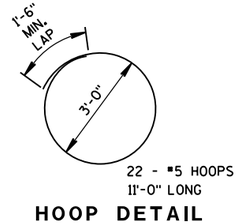
ELEVATION VIEW*

* CONDUITS ARE NOT SHOWN ON THIS VIEW FOR CLARITY



SIDE VIEW**

** HOOPS AND VERTICAL SHAFT REINFORCEMENT NOT SHOWN ON THIS VIEW FOR CLARITY



HOOP DETAIL

GENERAL NOTES

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

ORIENT ANCHOR RODS IN FOOTING AND PROVIDE ANCHOR ROD PROJECTION ABOVE TOP OF CONCRETE FOOTING BASE PER THIS SHEET.

BENDING DIMENSIONS FOR REINFORCING BARS ARE OUT TO OUT.

USE 3" CLEAR FOR ALL REINFORCEMENT UNLESS NOTED OTHERWISE.

THE CONTRACTOR IS RESPONSIBLE FOR MAKING HIS OWN DETERMINATION AS TO THE TYPE AND LOCATION OF THE UNDERGROUND UTILITIES AS MAY BE NECESSARY TO AVOID DAMAGE THERETO.

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

BASES (SHAFT), BELOW THE WING, SHALL BE EXCAVATED BY THE USE OF A CIRCULAR AUGER. IF A BASE REQUIRES A DEEP FORM BECAUSE OF LOOSE SOIL, THE FORM SHALL BE REMOVED BEFORE BACKFILLING AROUNG THE BASE. BACKFILL SHALL BE TAMPED TIGHT AGAINST THE BARE CONCRETE BASE IN LAYERS OF 1 FOOT OR LESS.

TOP SURFACE OF THE CONCRETE BASE SHALL BE TROWEL FINISHED AND LEVEL.

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

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

CONDUIT HEIGHT ABOVE CONCRETE BASE SHALL BE 4½" INCHES. ALL METALLIC CONDUIT ENDS SHALL BE REAMED AND THREADED. NONMETALLIC CONDUIT SHALL HAVE BELL ENDS INSTALLED. ALL CONDUIT SHALL SLOPE TO PULL BOX.

ALL CONDUIT ENDS AT THE TOP OF THE 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.

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

WHEN REQUIRED TO CONNECT NONMETALLIC CONDUIT TO METALLIC CONDUIT, ONLY ADAPTOR FITTINGS, UL LISTED FOR ELECTRICAL USE, SHALL BE USED.

A NO. 4 AWG, STRANDED COPPER EQUIPMENT GROUNDING CONDUCTOR SHALL BE EXOTHERMICALLY WELDED TO THE EQUIPMENT GROUNDING ELECTRODE (GROUND ROD).

THE EQUIPMENT GROUNDING CONDUCTOR SHALL BE FURNISHED AND INSTALLED TO ENTER THE BASE 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.

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

THE MINIMUM DEPTH OF CONDUIT EXITING THE CONCRETE BASE AND INSTALLED BELOW THE TRAVEL 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, (GREATER THAN 36-INCHES IF INSTALLED IN BREAKER-RUN), EXCEPT WITH THE WRITTEN APPROVAL OF THE ENGINEER.

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

CONCRETE MASONRY	fc=3,500 p.s.i.
HIGH STRENGTH BAR STEEL REINFORCEMENT, GRADE 60	fy=60,000 p.s.i.
ANCHOR RODS, ASTM F1554 GRADE 55 (IN ACCORDANCE WITH SECTION 641.2.2.3 OF THE STANDARD SPECIFICATIONS	fy=55,000 p.s.i.
TEMPLATES, ASTM A709 GRADE 36	fy=36,000 p.s.i.

(FOR TYPE 12 & 13 & OVER HEIGHT (OH) POLES)

CONCRETE = 6.3 C.Y.
H.S. REINFORCEMENT = 635 LBS.

TO BE USED WHEN GROUND ELEVATION AT BASE EQUALS OR IS GREATER THAN HIGH POINT OF ROADWAY ELEVATION.
SEE S.D.D. 9C13-2 WHEN GROUND ELEVATION AT BASE IS LOWER THAN HIGH POINT OF ROADWAY ELEVATION.

CONCRETE BASE TYPE 13

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI

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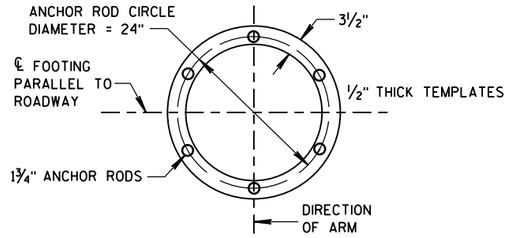
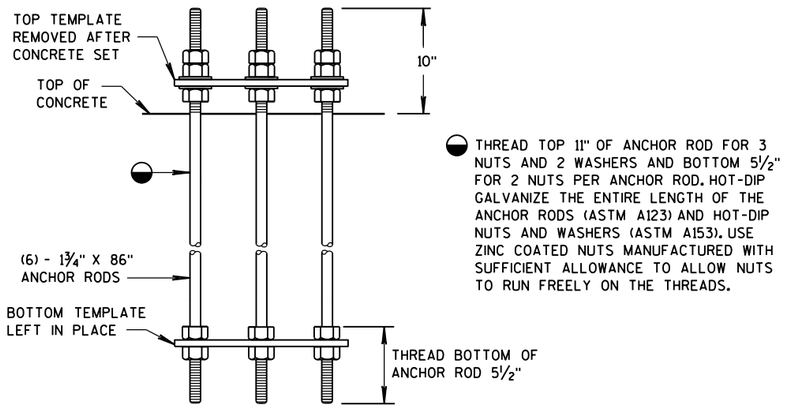
S.D.D. 9 C 12-9a

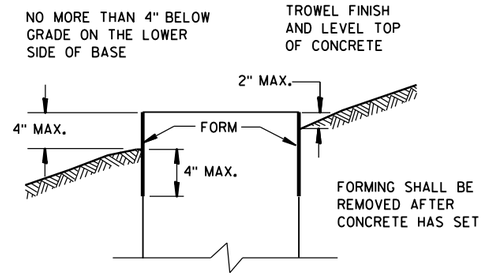


TOP AND BOTTOM TEMPLATES



ANCHOR BOLT ASSEMBLY DETAIL

CONCRETE BASE TYPE 13 ANCHOR ASSEMBLY



FORMING DETAIL

6

CONCRETE BASE TYPE 13

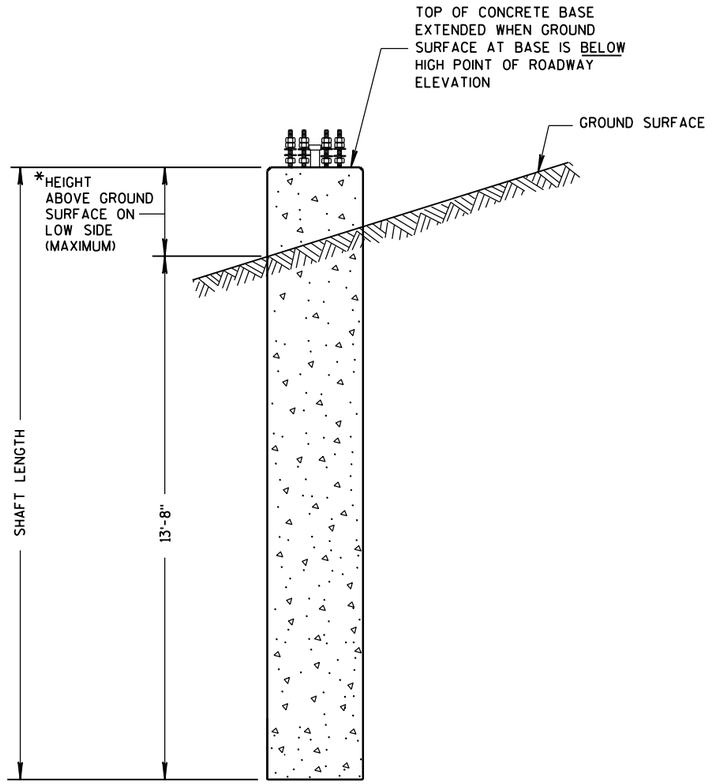
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
May 2017 — DATE
/S/ Ahmet Demirbilek — STATE ELECTRICAL
FHWA

S.D.D. 9 C 12-9b

REINFORCEMENT AND CONCRETE QUANTITIES
ADJUSTED FOR EXTENDED TYPE 10 CONCRETE BASE

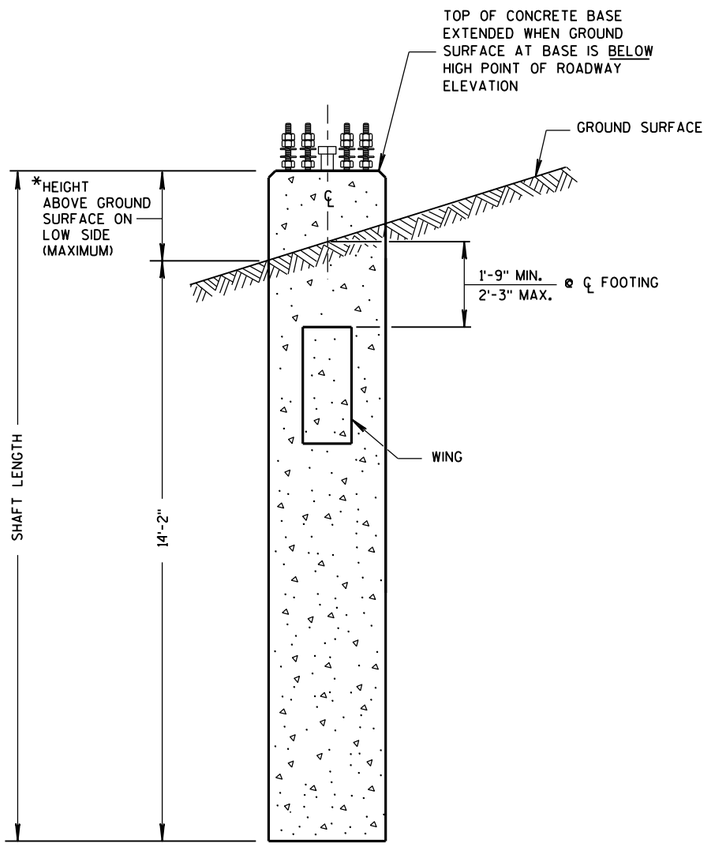
HEIGHT INCREASE REQUIRED	* HEIGHT ABOVE GROUND SURFACE ON LOW SIDE (MAXIMUM)	SHAFT LENGTH	LENGTH OF #6 VERTICAL REINF.	NO. OF #4 HOOPS	C.Y. OF CONCRETE	LBS. OF HOOP BAR STEEL	LBS. OF VERTICAL BAR STEEL
>0" TO 6"	10"	14'-6"	14'-1"	16	2.6	78	127
>6" TO 1'-0"	1'-4"	15'-0"	14'-7"	16	2.7	78	131
>1'-0" TO 1'-6"	1'-10"	15'-6"	15'-1"	17	2.8	83	136
>1'-6" TO 2'-0"	2'-4"	16'-0"	15'-7"	17	2.9	83	141



CONCRETE BASE TYPE 10 (EXTENDED)

REINFORCEMENT AND CONCRETE QUANTITIES
ADJUSTED FOR EXTENDED TYPE 13 CONCRETE BASE

HEIGHT INCREASE REQUIRED	* HEIGHT ABOVE GROUND SURFACE ON LOW SIDE (MAXIMUM)	SHAFT LENGTH	LENGTH OF #6 VERTICAL REINF.	NO. OF #4 HOOPS	C.Y. OF CONCRETE	LBS. OF H.S. BAR STEEL
>0" TO 6"	10"	15'-0"	14'-7"	16	6.5	447
>6" TO 1'-0"	1'-4"	15'-6"	15'-1"	16	6.6	454
>1'-0" TO 1'-6"	1'-10"	16'-0"	15'-7"	17	6.8	469
>1'-6" TO 2'-0"	2'-4"	16'-6"	16'-1"	17	7.0	476



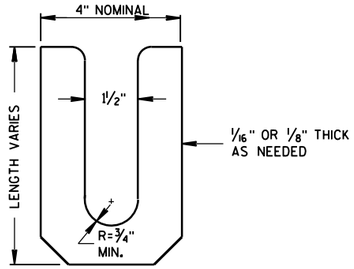
CONCRETE BASE TYPE 13 (EXTENDED)

CONCRETE BASE
TYPE 10 & TYPE 13 EXTENSION

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

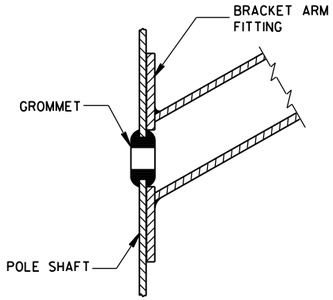
APPROVED
11-26-2013 DATE
/S/ Ahmet Demirbilek STATE ELECTRICAL
FHWA

6
S.D.D. 9 C 13-2

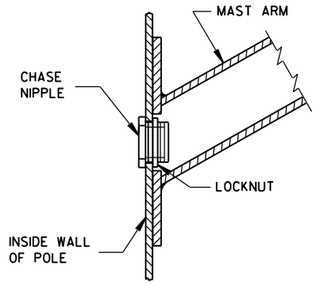


LEVELING SHIM (13)

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.

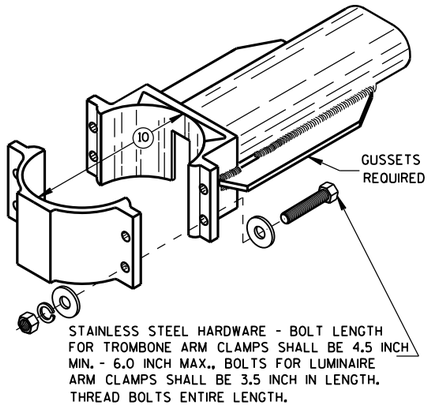
(10) 4.5" I.D. FOR LUMINAIRE MAST ARM CLAMP.
6.625" I.D. FOR TROMBONE MAST ARM CLAMP.

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

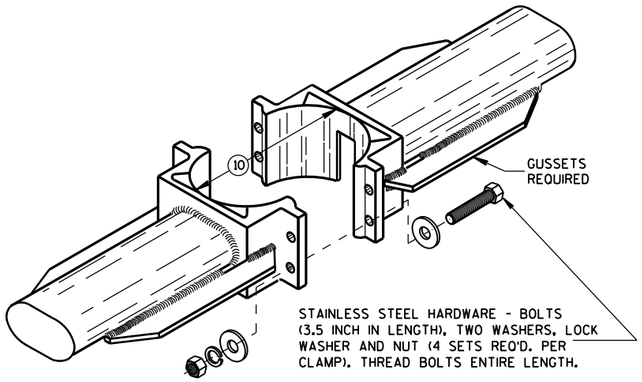
(12) BASE PLATE SLOTTED TO ACCEPT 11" THROUGH 12" BOLT CIRCLE USING 1" DIAMETER ANCHOR RODS.

(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.

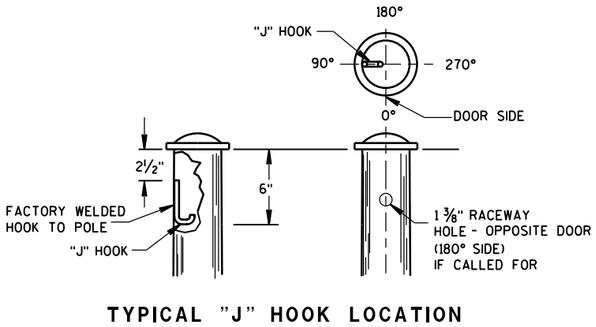
SHIMS SHALL BE LONG ENOUGH AND WIDE ENOUGH TO COMPLETELY COVER THE AREA UNDER THE LENGTH AND WIDTH OF THE BASE MOUNTING FLANGE.



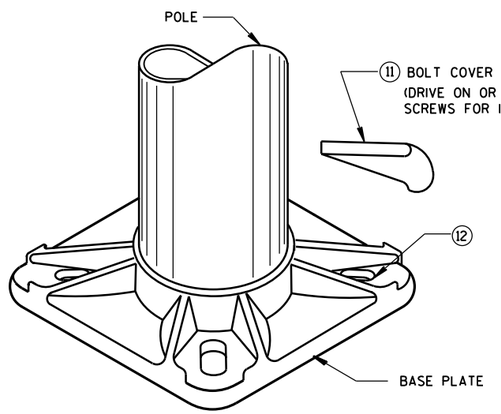
TYPICAL TROMBONE MAST ARM AND SINGLE LUMINAIRE MAST ARM MOUNTING CLAMP



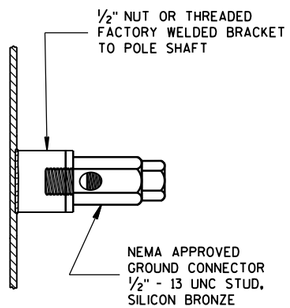
TYPICAL LUMINAIRE MAST ARM (DOUBLE) MOUNTING BRACKETS

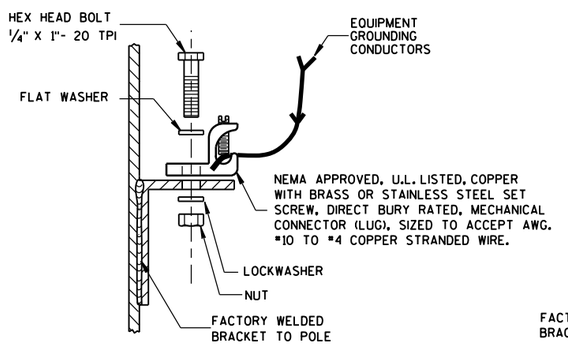


TYPICAL "J" HOOK LOCATION



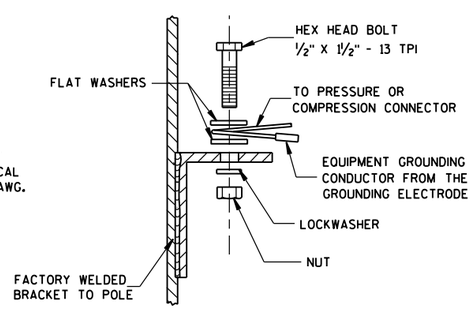
BASE PLATE





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

FHWA

6

S.D.D. 9 E 1-14g

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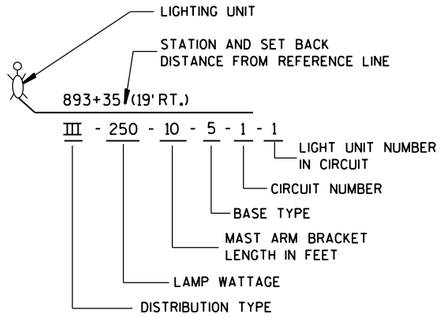
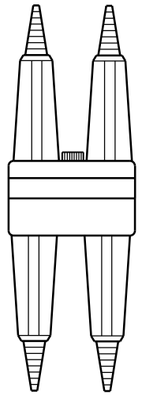
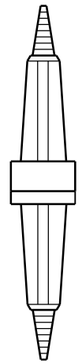
S.D.D. 9 E 1-14g



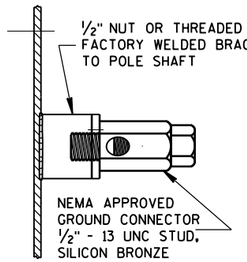
LIGHTING UNIT CODE
(TYPICAL)

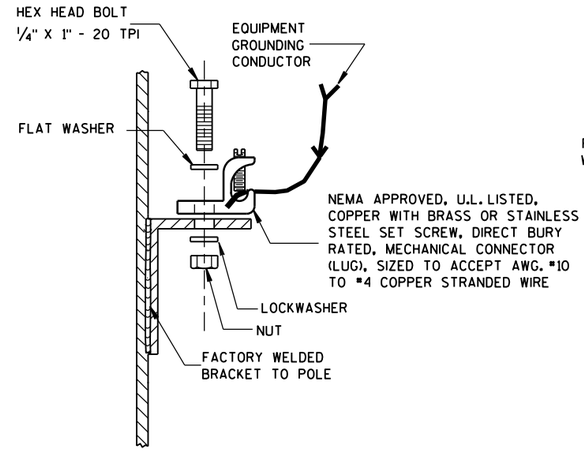


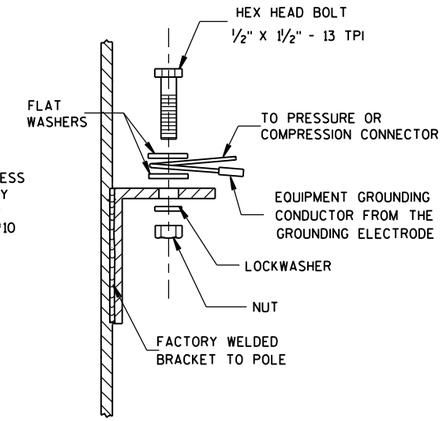
DETAIL "A"
BREAKAWY DOUBLE POLE WITH WATERPROOF INSULATING BOOT



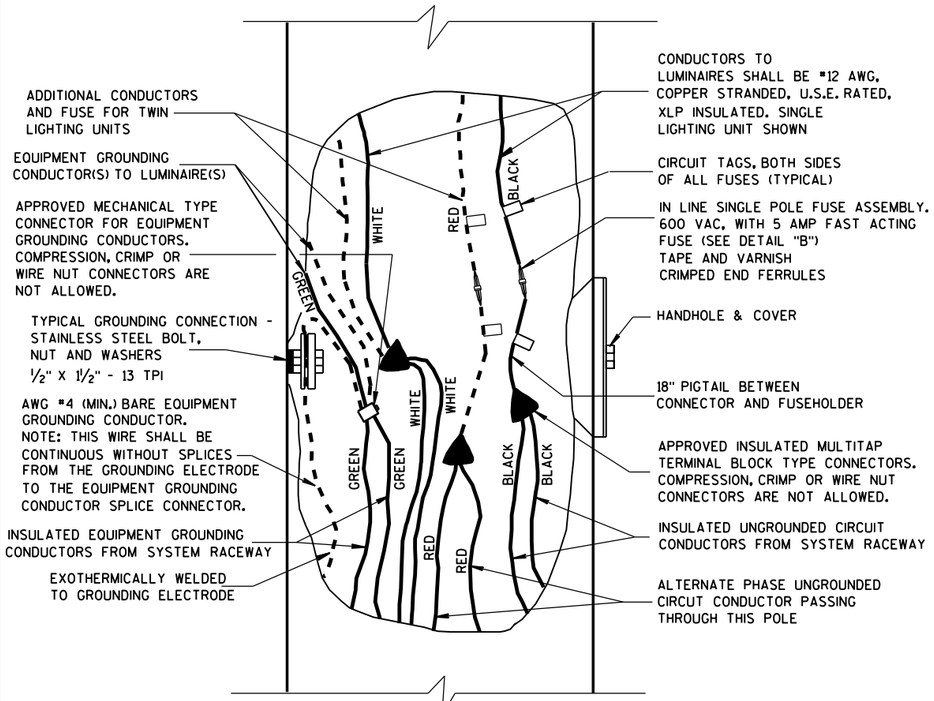
DETAIL "B"
BREAKAWY SINGLE POLE WITH WATERPROOF INSULATING BOOT



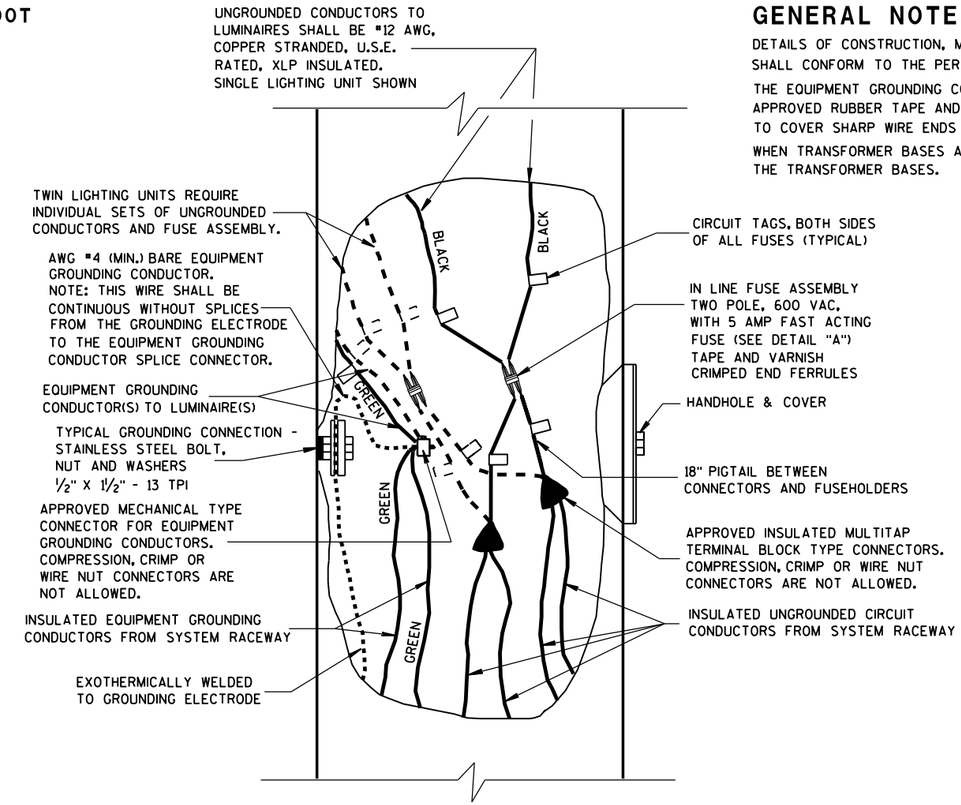




TYPICAL GROUNDING CONNECTIONS
NUT, BOLT, WASHERS AND LOCKWASHERS SHALL BE STAINLESS STEEL



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.

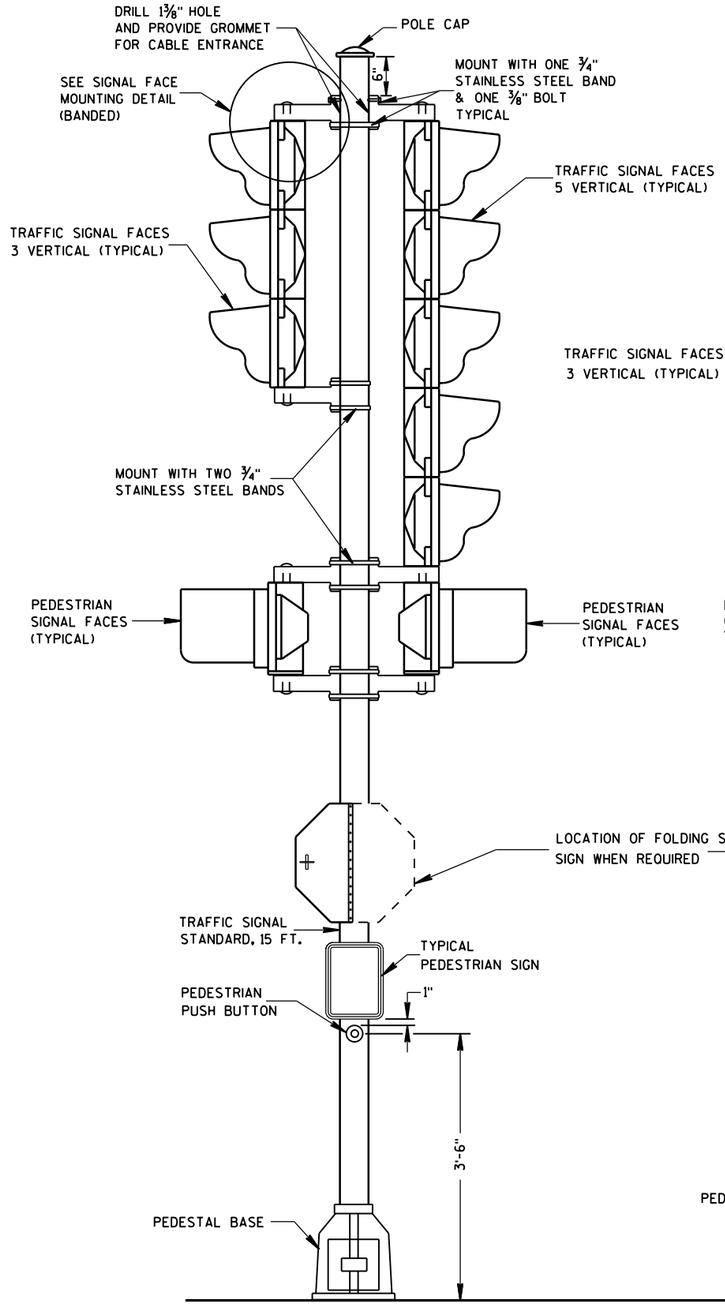
WHEN TRANSFORMER BASES ARE USED, ALL WIRING CONNECTIONS SHALL OCCUR WITHIN THE TRANSFORMER BASES.

NON-FREEWAY LIGHTING UNIT POLE WIRING

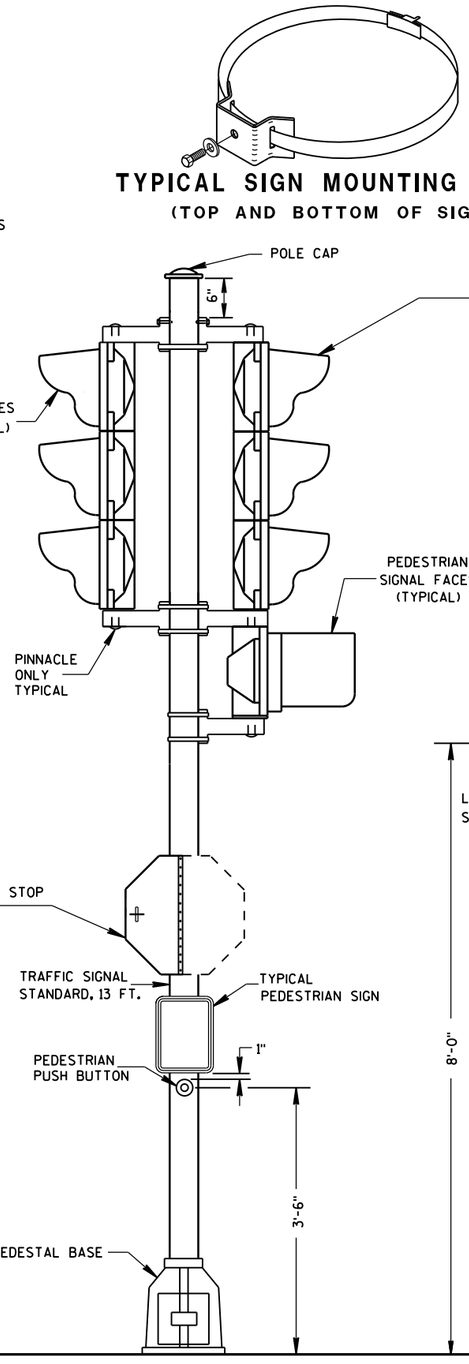
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

6
S.D.D. 9 E 3-5

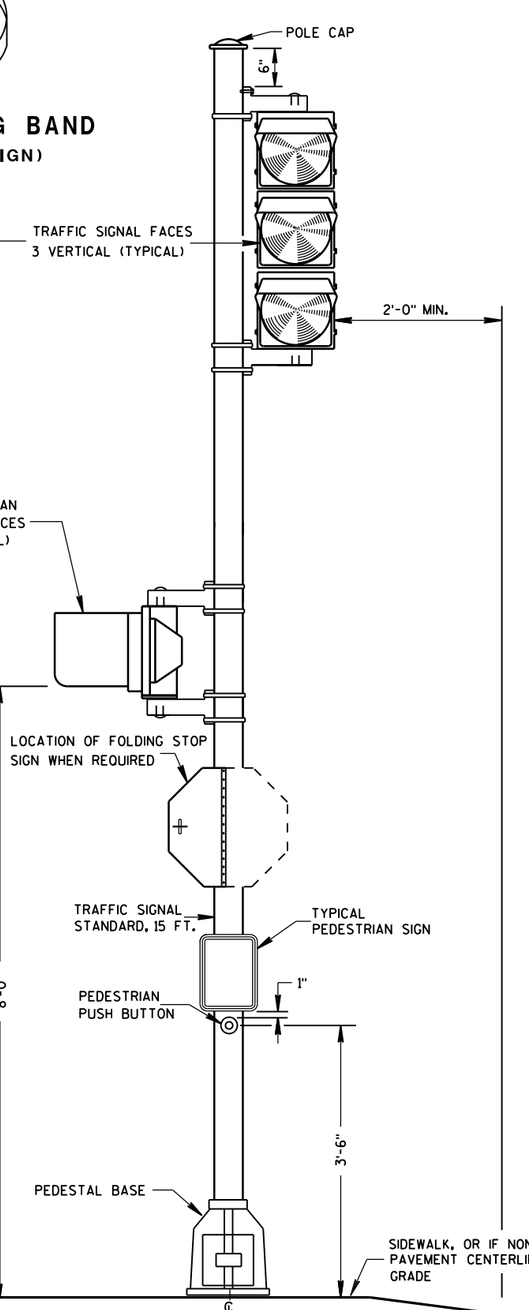


TRAFFIC SIGNAL STANDARD-15 FT.



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.

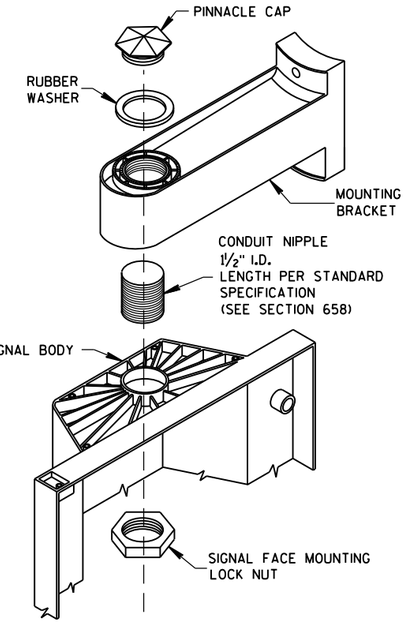
LENGTH AND LOCATION OF TRAFFIC SIGNAL STANDARDS SHALL BE AS SHOWN ON THE PLANS.

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
FHWA

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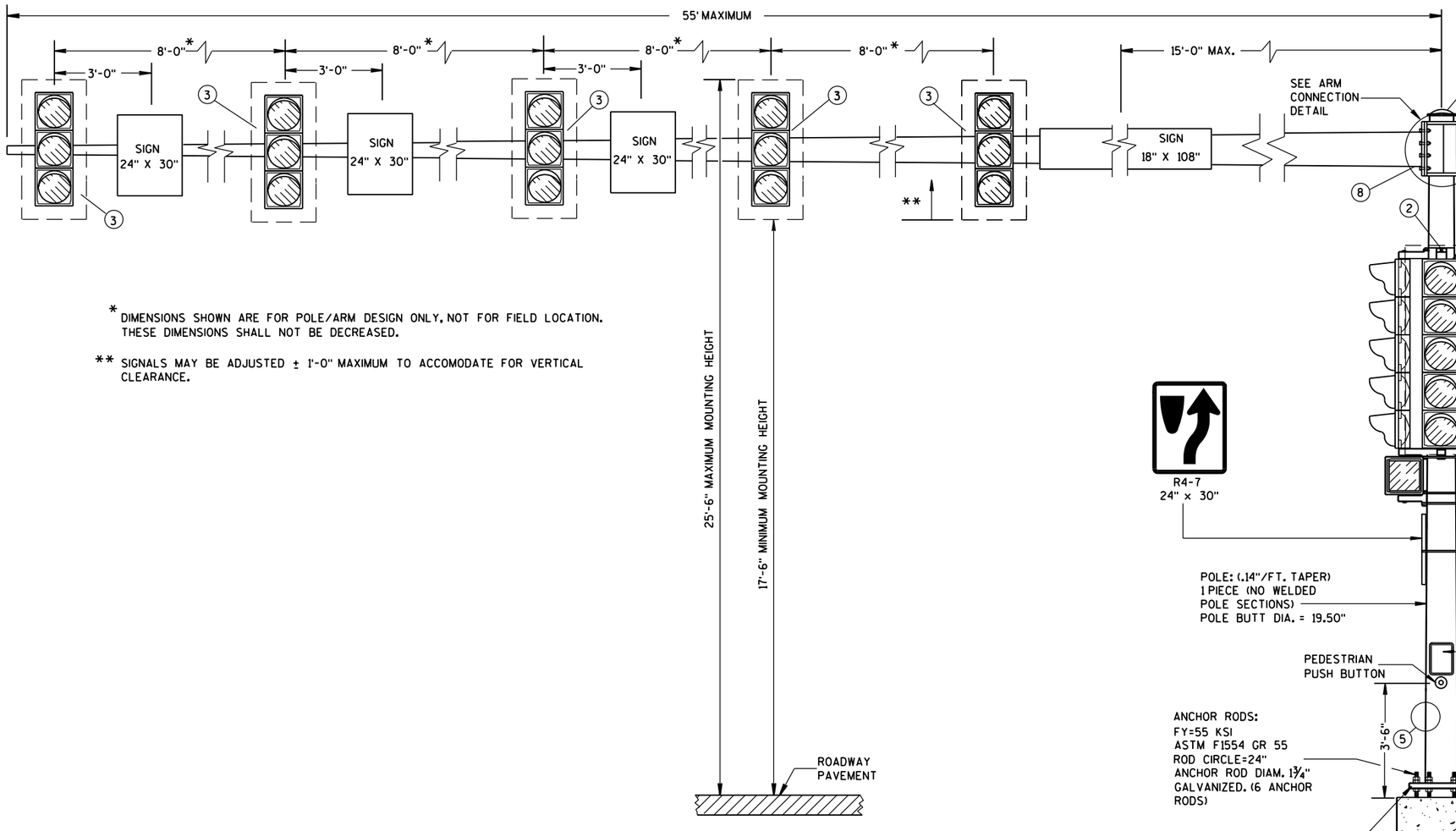
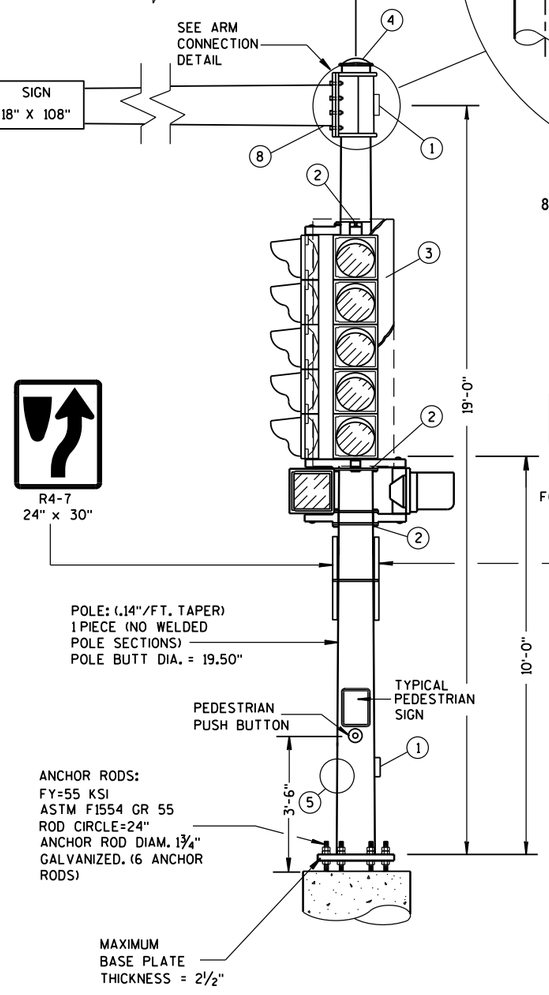
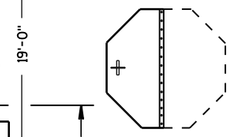
S.D.D. 9 E 6-5

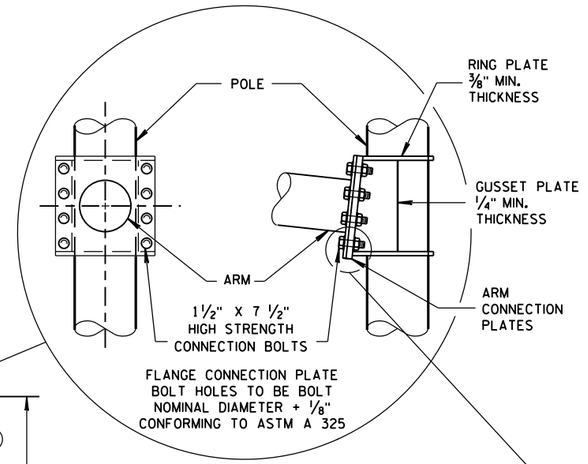


* DIMENSIONS SHOWN ARE FOR POLE/ARM DESIGN ONLY, NOT FOR FIELD LOCATION. THESE DIMENSIONS SHALL NOT BE DECREASED.

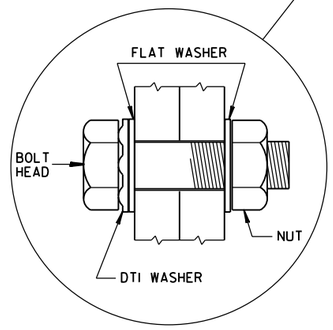
** SIGNALS MAY BE ADJUSTED ± 1'-0" MAXIMUM TO ACCOMODATE FOR VERTICAL CLEARANCE.



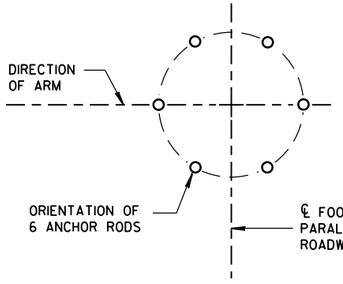




8 BOLT ARM CONNECTION DETAIL



RECOMMENDED BOLT ASSEMBLY DETAIL



ANCHOR ROD LOCATION

(MAXIMUM LOAD)

TYPE 12 POLE 35'- 55' MONOTUBE ARM

TYPE 12 POLE 35' - 55' MONOTUBE ARM

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
May, 2015
DATE

/S/ Ahmet Demirbilek
STATE ELECTRICAL

FHWA

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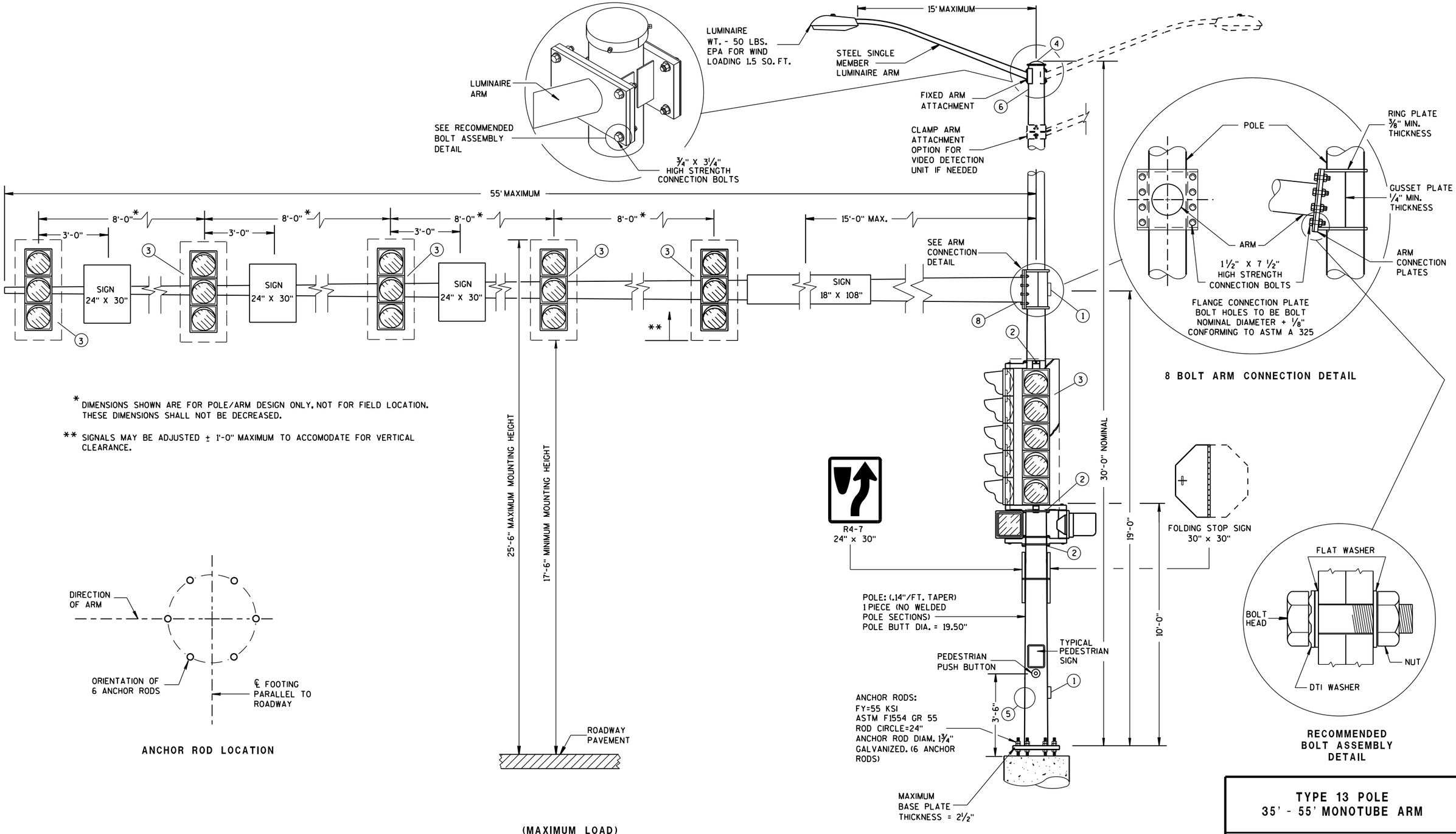
S.D.D. 9 E 8-8c



* DIMENSIONS SHOWN ARE FOR POLE/ARM DESIGN ONLY, NOT FOR FIELD LOCATION. THESE DIMENSIONS SHALL NOT BE DECREASED.

** SIGNALS MAY BE ADJUSTED ± 1'-0" MAXIMUM TO ACCOMODATE FOR VERTICAL CLEARANCE.

8 BOLT ARM CONNECTION DETAIL

RECOMMENDED BOLT ASSEMBLY DETAIL

ANCHOR ROD LOCATION

(MAXIMUM LOAD)

TYPE 13 POLE 35'- 55' MONOTUBE ARM

TYPE 13 POLE 35' - 55' MONOTUBE ARM	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED May 2016 DATE	/S/ Ahmet Demirbilek STATE ELECTRICAL
FHWA	114

6

S.D.D. 9 E 8-8d

6

S.D.D. 9 E 8-8d

GENERAL NOTES

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

POLE TYPES 9 AND 10 ARE FOR ARM LENGTHS 15-FOOT TO 30-FOOT.

POLE TYPES 12 AND 13 ARE FOR ARM LENGTHS 35-FOOT TO 55-FOOT.

MONOTUBE POLE AND ARM SHALL BE GALVANIZED STEEL.

RING-STIFFENED BUILT-UP BOX TYPE OF ATTACHMENT FOR TRAFFIC SIGNAL ARM.

ONE (1) PIECE POLE CONSTRUCTION (NO WELDED POLE SECTIONS).

STANDARD STRAIGHT ARM DESIGN (3 % ± RISE).

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

PROVIDE WIREWAY THRU POLE WALL AND ARM CONNECTION PLATES. PROVIDE ROUND, SMOOTH INSIDE SURFACE.

MANUFACTURER'S SUBMITTED POLE DESIGNS AND DRAWINGS SHALL BE SIGNED AND STAMPED BY A REGISTERED PROFESSIONAL ENGINEER AND CERTIFIED AS BEING IN COMPLIANCE WITH THE AASHTO 2013 6TH EDITION AND ALL PERTINENT WISDOT SPECIFICATIONS AND DRAWINGS FOR TRAFFIC AND LIGHTING STRUCTURES AND AS FOLLOWS:

- CATEGORY III FATIGUE LOADS OF GALLOPING, TRUCK GUSTS (AT 45 MPH VEHICLE VELOCITY) AND NATURAL WIND GUSTS FOR DESIGN OF TYPE 9 AND TYPE 10 STRUCTURES.
- CATEGORY II FATIGUE LOADS OF GALLOPING, TRUCK GUSTS (AT 45 MPH VEHICLE VELOCITY) AND NATURAL WIND GUSTS FOR DESIGN OF TYPE 12 AND TYPE 13 STRUCTURES.
- 90 MPH (3-SECOND GUST) WIND SPEED AND A 50 YEAR DESIGN LIFE.

SECURE THE OPENING BELOW THE BASE PLATE WITH STAINLESS STEEL OR GALVANIZED STEEL MESH AND SECURE THE MESH WITH ¾" S.S. BANDING AROUND THE LEVELING NUTS.

INDENT PRINT (NOMINAL ½" HIGH) THE POLE LENGTH AND FIRST TWO LETTERS OF THE MANUFACTURERS NAME ON TWO SIDES OF THE BASE PLATE 180 DEGREES APART, BEFORE GALVANIZING. THE ARM SHALL BE IDENTIFIED WITH THE SAME INFORMATION BY INDENT PRINT.

SIGNAL FACE SHALL BE MOUNTED 6 INCHES (NOMINAL) FROM THE END OF THE MONOTUBE ARM OR AS SHOWN ON THE PLAN CONSTRUCTION DETAIL OR AS DIRECTED BY THE PROJECT ENGINEER/ELECTRICAL OPERATIONS PERSONNEL. MOUNT ALL LIKE HEADS AT SAME ELEVATION.

SIGN MOUNTING BRACKETS SHALL BE FURNISHED IN ACCORDANCE WITH SECTION 637 OF THE STANDARD SPECIFICATIONS FOR HIGHWAY AND STRUCTURE CONSTRUCTION.

(1) DESIGN FOR MAXIMUM ALLOWABLE HANDHOLE WITH COVER ASSEMBLY WITH TWO ¼" X ¾" - 20 TPI STAINLESS STEEL HEX HEAD BOLTS.

(2) SIGNAL MOUNTING BRACKETS FOR POLE MOUNTING, MOUNT WITH CAP SCREW AND BANDING, (SEE SPECIFICATIONS SEC. 658).

(3) SECURELY MOUNT BACKPLATES, PROJECTING 5" BEYOND ALL SIDES OF THE SIGNAL FACE HOUSING, PER MANUFACTURERS RECOMMENDATIONS.

(4) THE TOP OF THE POLE SHAFT AND THE END OF THE MONOTUBE ARM SHALL BE EQUIPPED WITH A REMOVABLE, VENTILATED CAP HELD SECURELY IN PLACE WITH SET SCREWS.

(5) FACTORY-WELDED BRACKET FOR GROUNDING LUG, OPPOSITE HANDHOLE, (LUG AND HARDWARE PAID UNDER SEPARATE ITEM). PROVIDE HOLE IN BRACKET FOR ¼" X ¾" - 20 TPI STAINLESS STEEL HEX HEAD BOLT.

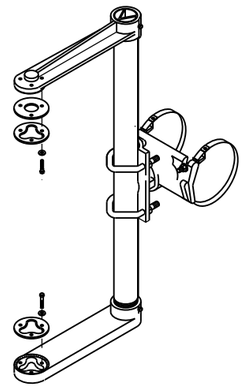
(6) FACTORY-WELDED "J" HOOK FOR STRAIN RELIEF FOR POLE LUMINAIRE WIRE.

(7) INSTALL STRUCTURAL IDENTIFICATION PLAQUES.

STRUCTURAL IDENTIFICATION PLAQUES SHALL BE PLACED ON THE POLES IN THE SAME DIRECTION AS THE ARM.

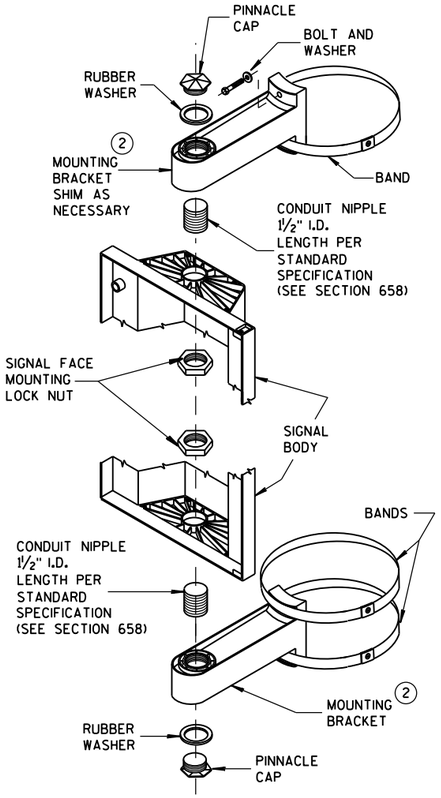
MOUNTING HEIGHT SHALL BE 6'-0" ABOVE THE CURB OR SHOULDER. ADJUST IF IT IS KNOWN THAT REQUIRED TRAFFIC SIGNS WILL BE OBSTRUCTED.

(8) FACTORY DRILLED ½" DRAIN HOLE 2" FROM FLANGE CONNECTION PLATE.

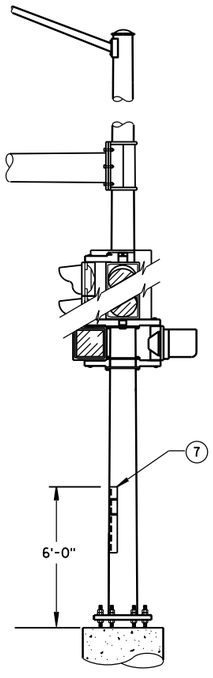


SIGNAL FACE MOUNTING BRACKET
DETAIL FOR MONOTUBE ARM

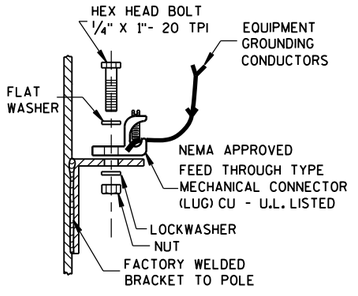
(MOUNT PER MANUFACTURER'S RECOMMENDATION)



SIGNAL FACE
VERTICAL MOUNTING DETAIL

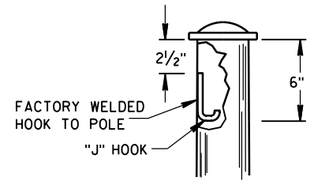


STRUCTURAL IDENTIFICATION
PLAQUE PLACEMENT



TYPICAL GROUNDING CONNECTIONS (5)

NUT, BOLT AND WASHERS SHALL
BE STAINLESS STEEL



"J" HOOK WIRE SUPPORT (6)

GENERAL NOTES AND HARDWARE DETAILS FOR TYPE 9, 10, 12 & 13 POLES WITH MONOTUBE ARMS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
May 2016 — DATE
/S/ Ahmet Demirbilek — STATE ELECTRICAL
FHWA

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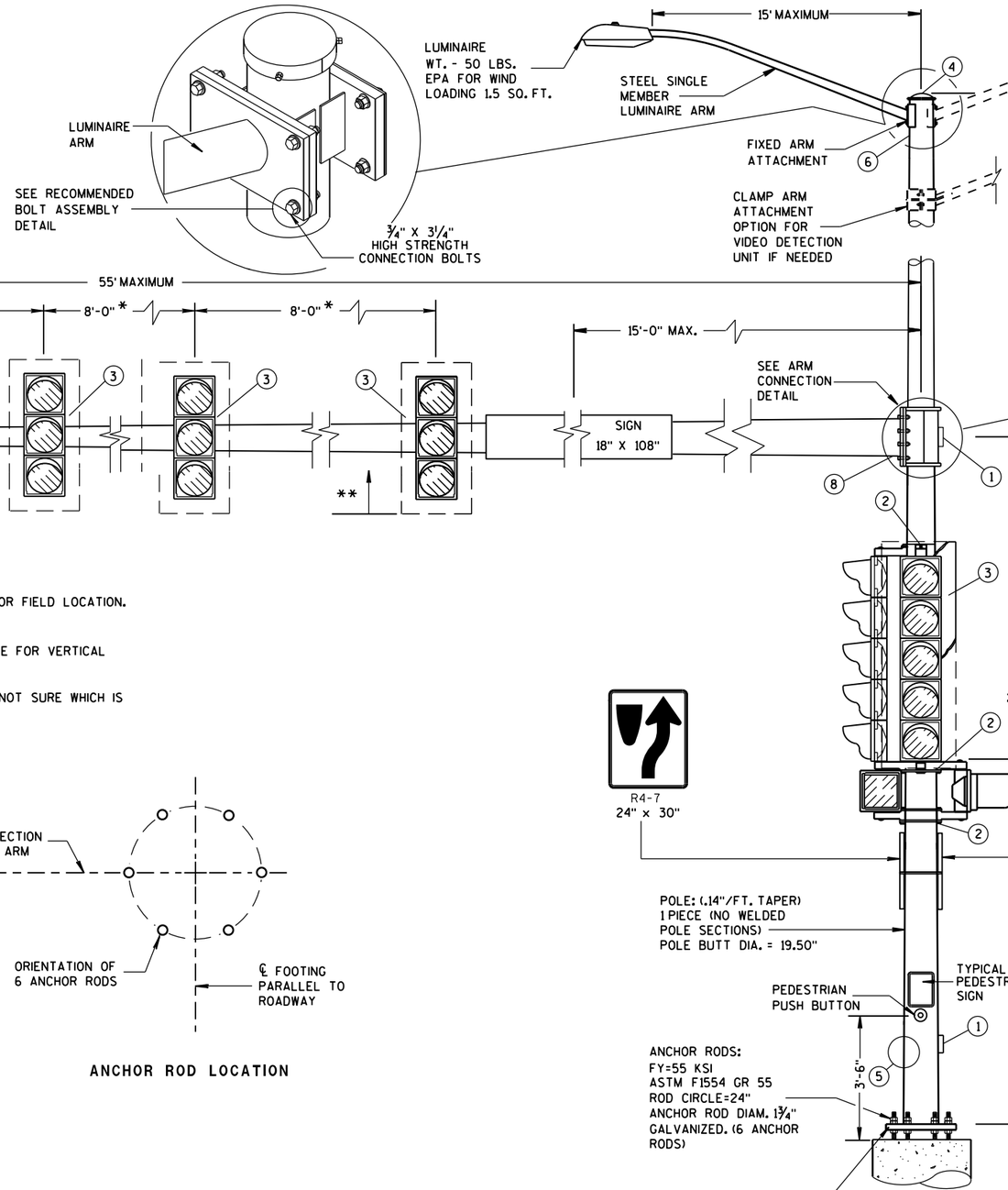
S.D.D. 9 E 8-8e



* DIMENSIONS SHOWN ARE FOR POLE/ARM DESIGN ONLY. NOT FOR FIELD LOCATION. THESE DIMENSIONS SHALL NOT BE DECREASED.

** SIGNALS MAY BE ADJUSTED ± 1'-0" MAXIMUM TO ACCOMODATE FOR VERTICAL CLEARANCE.

*** THIS SIGN WOULD ONLY BE USED IF ALL 3 SECTION HEADS. NOT SURE WHICH IS WORST CASE SCENARIO.

8 BOLT ARM CONNECTION DETAIL

ANCHOR ROD LOCATION

RECOMMENDED BOLT ASSEMBLY DETAIL

(MAXIMUM LOAD)

OVER HEIGHT TYPE 13 POLE 35'- 55' MONOTUBE ARM

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
May, 2017 — DATE
/S/ Ahmet Demirbilek — STATE ELECTRICAL
FHWA

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S.D.D. 9 E 12-1d

GENERAL NOTES

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

OVER HEIGHT POLE TYPES 9 AND 10 ARE FOR ARM LENGTHS 15-FOOT TO 30-FOOT.

OVER HEIGHT POLE TYPES 12 AND 13 ARE FOR ARM LENGTHS 35-FOOT TO 55-FOOT.

MONOTUBE POLE AND ARM SHALL BE GALVANIZED STEEL.

RING-STIFFENED BUILT-UP BOX TYPE OF ATTACHMENT FOR TRAFFIC SIGNAL ARM.

ONE (1) PIECE POLE CONSTRUCTION (NO WELDED POLE SECTIONS).

STANDARD STRAIGHT ARM DESIGN (3 % ± RISE).

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

PROVIDE WIREWAY THRU POLE WALL AND ARM CONNECTION PLATES. PROVIDE ROUND, SMOOTH INSIDE SURFACE.

MANUFACTURER'S SUBMITTED POLE DESIGNS AND DRAWINGS SHALL BE SIGNED AND STAMPED BY A REGISTERED PROFESSIONAL ENGINEER AND CERTIFIED AS BEING IN COMPLIANCE WITH THE AASHTO LRFD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES, AND TRAFFIC SIGNAL 2015 1ST EDITION (INCLUDING 2017 INTERIM REVISIONS) AND ALL PERTINENT WISDOT SPECIFICATIONS AND DRAWINGS FOR TRAFFIC AND LIGHTING STRUCTURES AND AS FOLLOWS:

- CATEGORY III FATIGUE LOADS OF GALLOPING, TRUCK GUSTS (AT 45 MPH VEHICLE VELOCITY) AND NATURAL WIND GUSTS FOR DESIGN OF TYPE 9 AND TYPE 10 STRUCTURES.
- CATEGORY II FATIGUE LOADS OF GALLOPING, TRUCK GUSTS (AT 45 MPH VEHICLE VELOCITY) AND NATURAL WIND GUSTS FOR DESIGN OF TYPE 12 AND TYPE 13 STRUCTURES.
- 90 MPH (3-SECOND GUST) WIND SPEED AND A 50 YEAR DESIGN LIFE.

SECURE THE OPENING BELOW THE BASE PLATE WITH STAINLESS STEEL OR GALVANIZED STEEL MESH AND SECURE THE MESH WITH ¾" S.S. BANDING AROUND THE LEVELING NUTS.

INDENT PRINT (NOMINAL ½" HIGH) THE POLE LENGTH AND FIRST TWO LETTERS OF THE MANUFACTURERS NAME ON TWO SIDES OF THE BASE PLATE 180 DEGREES APART, BEFORE GALVANIZING. THE ARM SHALL BE IDENTIFIED WITH THE SAME INFORMATION BY INDENT PRINT.

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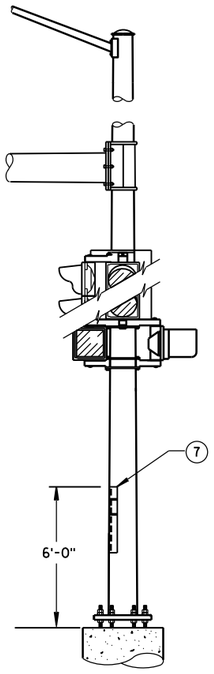
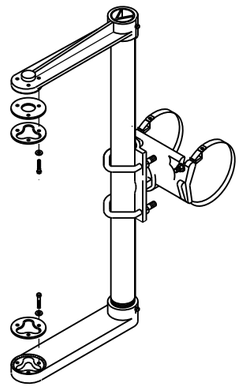
STRUCTURAL IDENTIFICATION PLAQUES SHALL BE PLACED ON THE POLES IN THE SAME DIRECTION AS THE ARM.

MOUNTING HEIGHT SHALL BE 6'-0" ABOVE THE CURB OR SHOULDER. ADJUST IF IT IS KNOWN THAT REQUIRED TRAFFIC SIGNS WILL BE OBSTRUCTED.

(8) FACTORY DRILLED ½" DRAIN HOLE 2" FROM FLANGE CONNECTION PLATE.

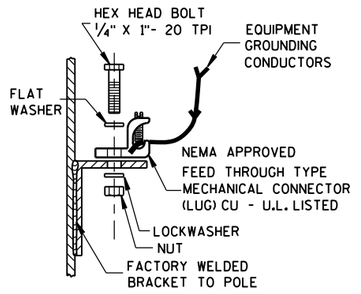


STRUCTURAL IDENTIFICATION PLAQUE PLACEMENT



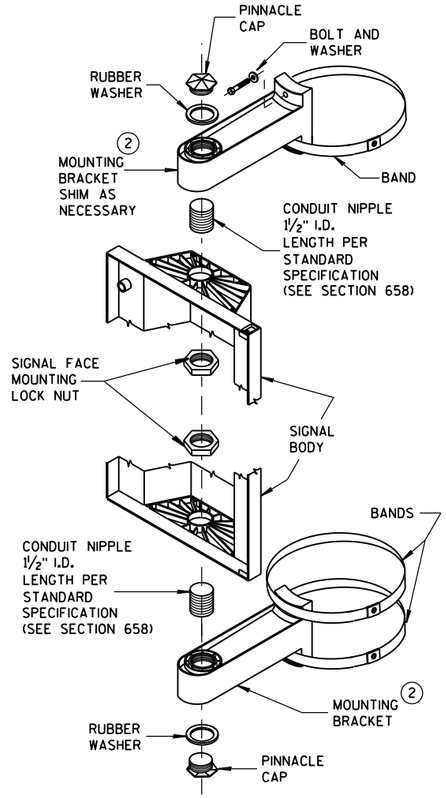
SIGNAL FACE MOUNTING BRACKET DETAIL FOR MONOTUBE ARM

(MOUNT PER MANUFACTURER'S RECOMMENDATION)

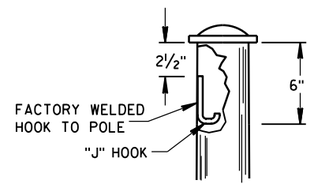


TYPICAL GROUNDING CONNECTIONS (5)

NUT, BOLT AND WASHERS SHALL BE STAINLESS STEEL



SIGNAL FACE VERTICAL MOUNTING DETAIL



"J" HOOK WIRE SUPPORT (6)

GENERAL NOTES AND HARDWARE DETAILS FOR OVER HEIGHT TYPE 9, 10, 12 & 13 POLES WITH MONOTUBE ARMS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
May 2017 — DATE
/S/ Ahmet Demirbilek — STATE ELECTRICAL
FHWA

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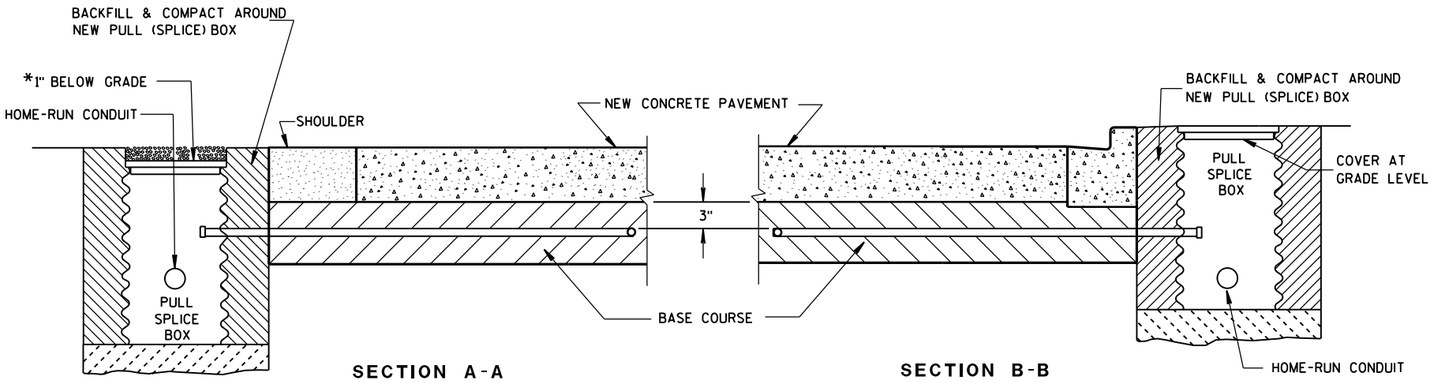
S.D.D. 9 E 12-1e



SECTION A-A
NO CURB & GUTTER

SECTION B-B
CURB & GUTTER

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

LOOP DETECTOR INSTALLATION DETAIL

GENERAL NOTES

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

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

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

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

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

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

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

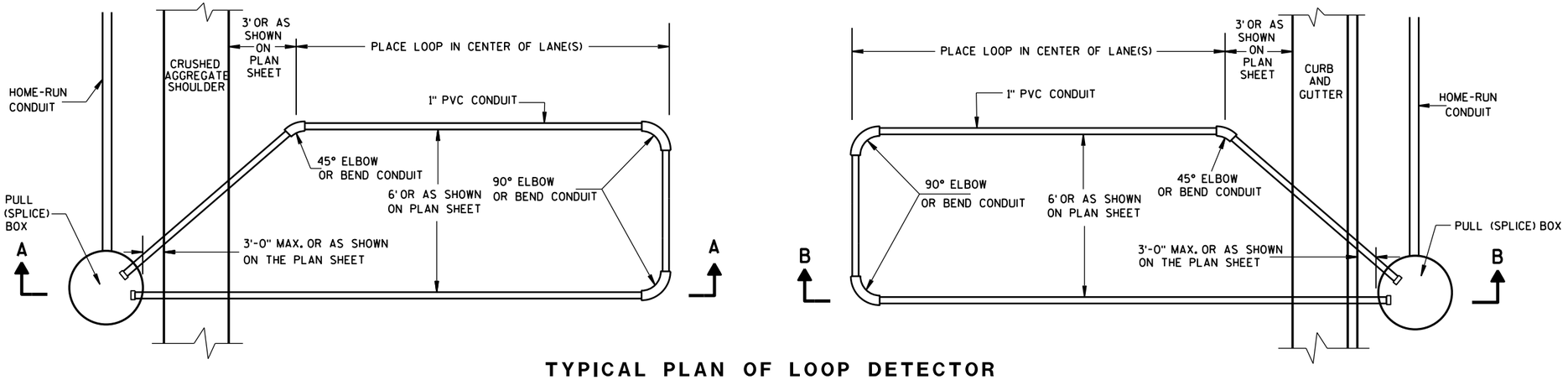
THE #12 AWG. LOOP WIRE IN THE PULL (SPLICE) BOX SHALL BE HAND TWISTED AT LEAST 3 TWISTS PER FOOT BEFORE BEING SPLICED TO THE LOOP LEAD-IN CABLE.

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

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

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

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



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

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

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

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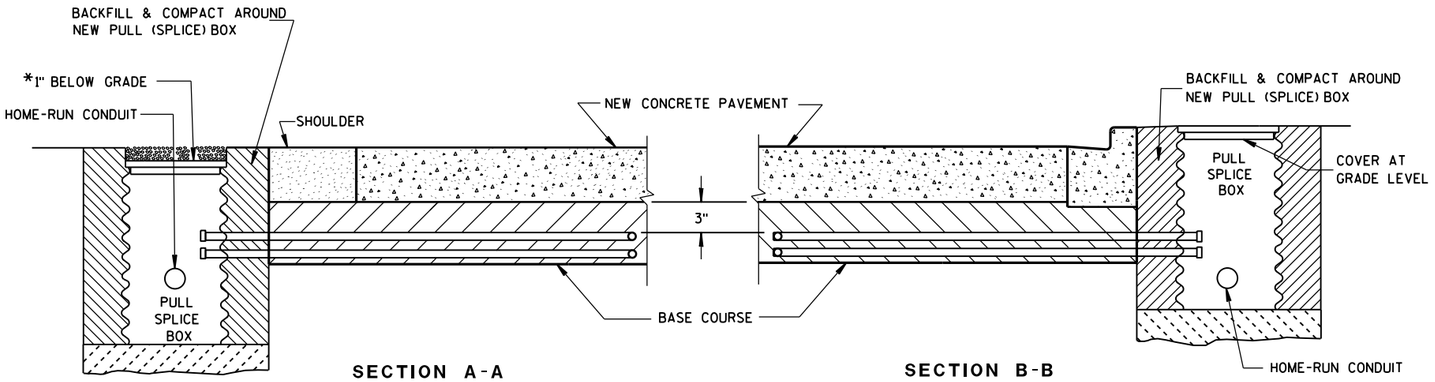


SECTION A-A
NO CURB & GUTTER

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.

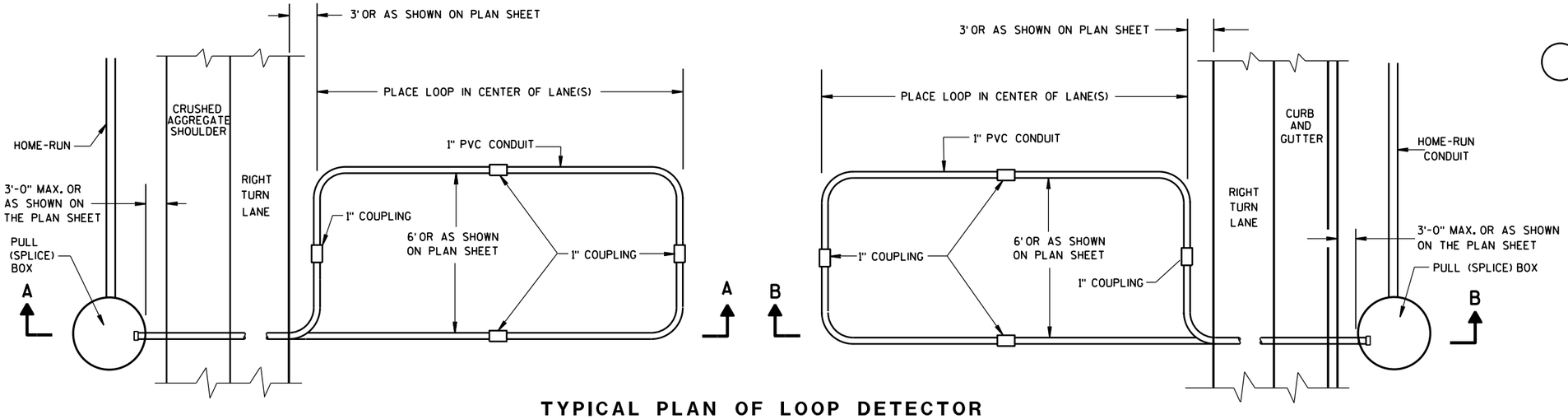
THE #12 AWG. LOOP WIRE IN THE PULL (SPLICE) BOX SHALL BE HAND TWISTED AT LEAST 3 TWISTS PER FOOT BEFORE BEING SPLICED TO THE LOOP LEAD-IN CABLE.

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

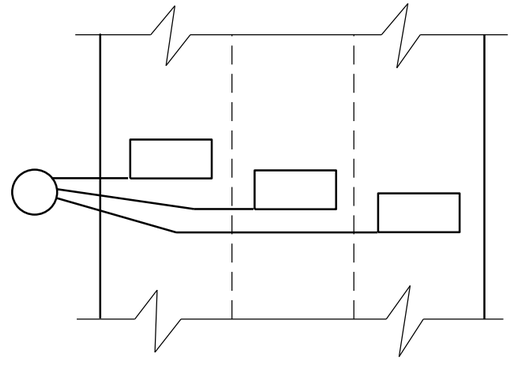
THE #12 AWG LOOP WIRE SHALL BE INSTALLED FROM THE ROADSIDE PULL (SPLICE) BOX, THROUGH THE LOOP CONDUIT, BACK TO THE ROADSIDE PULL (SPLICE) BOX, AND BE INSTALLED IN ONE, NON-SPLICED CONTINUOUS LENGTH.

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

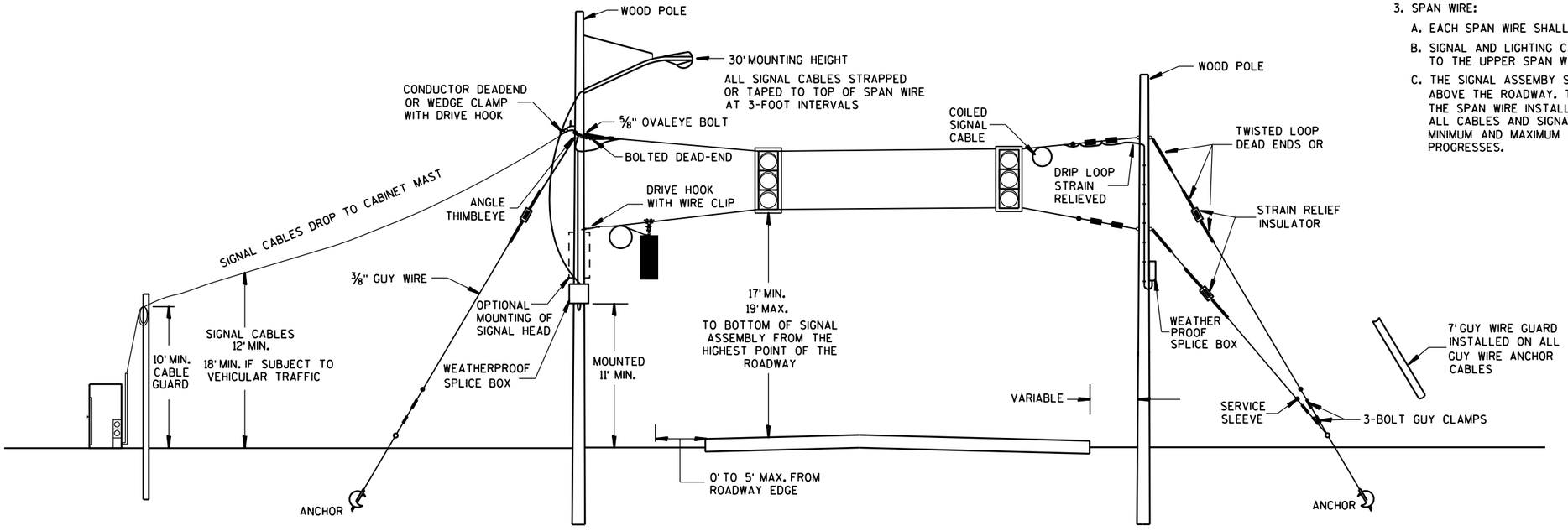
GENERAL NOTES

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

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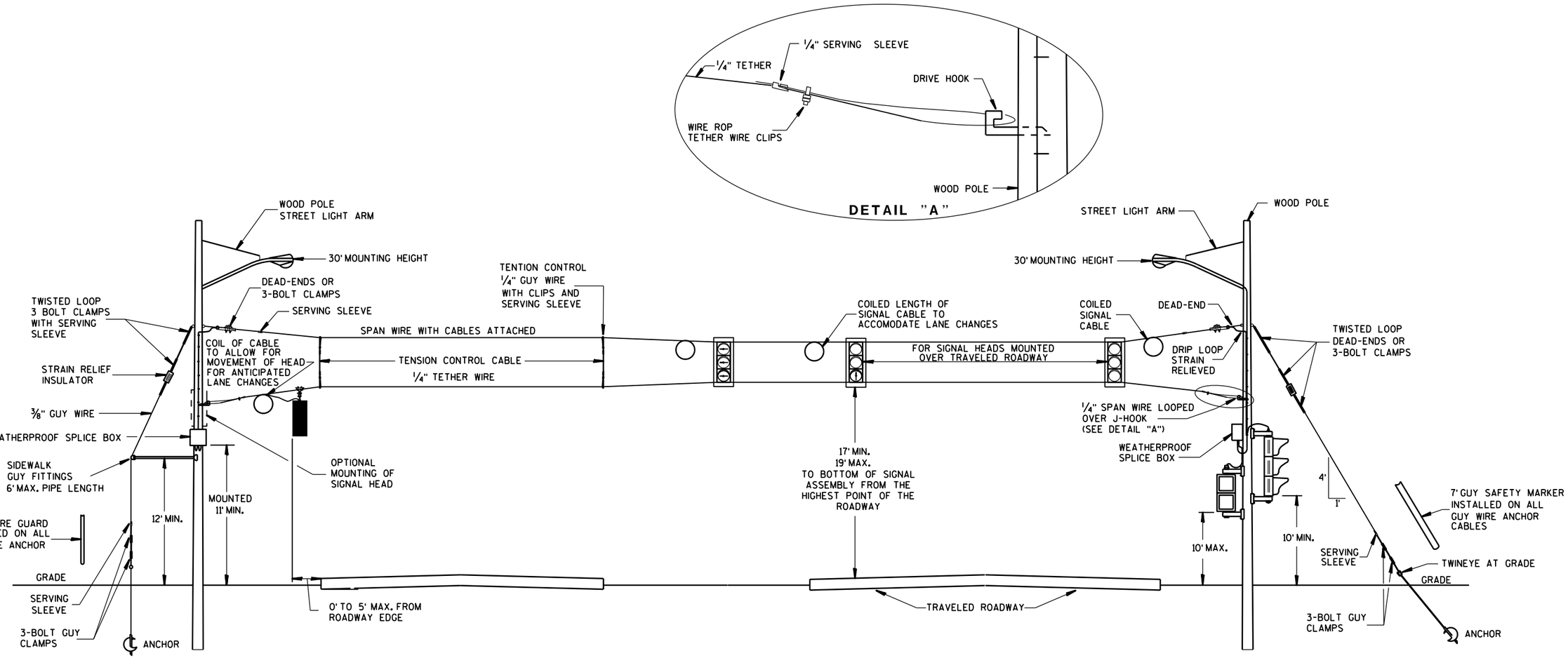

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   E. FAR INDICATION SHALL BE MAINTAINED OVER CENTER OF TRAFFIC LANE.
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SPAN WIRE
TEMPORARY SIGNALS
4 LANE ROADWAYS

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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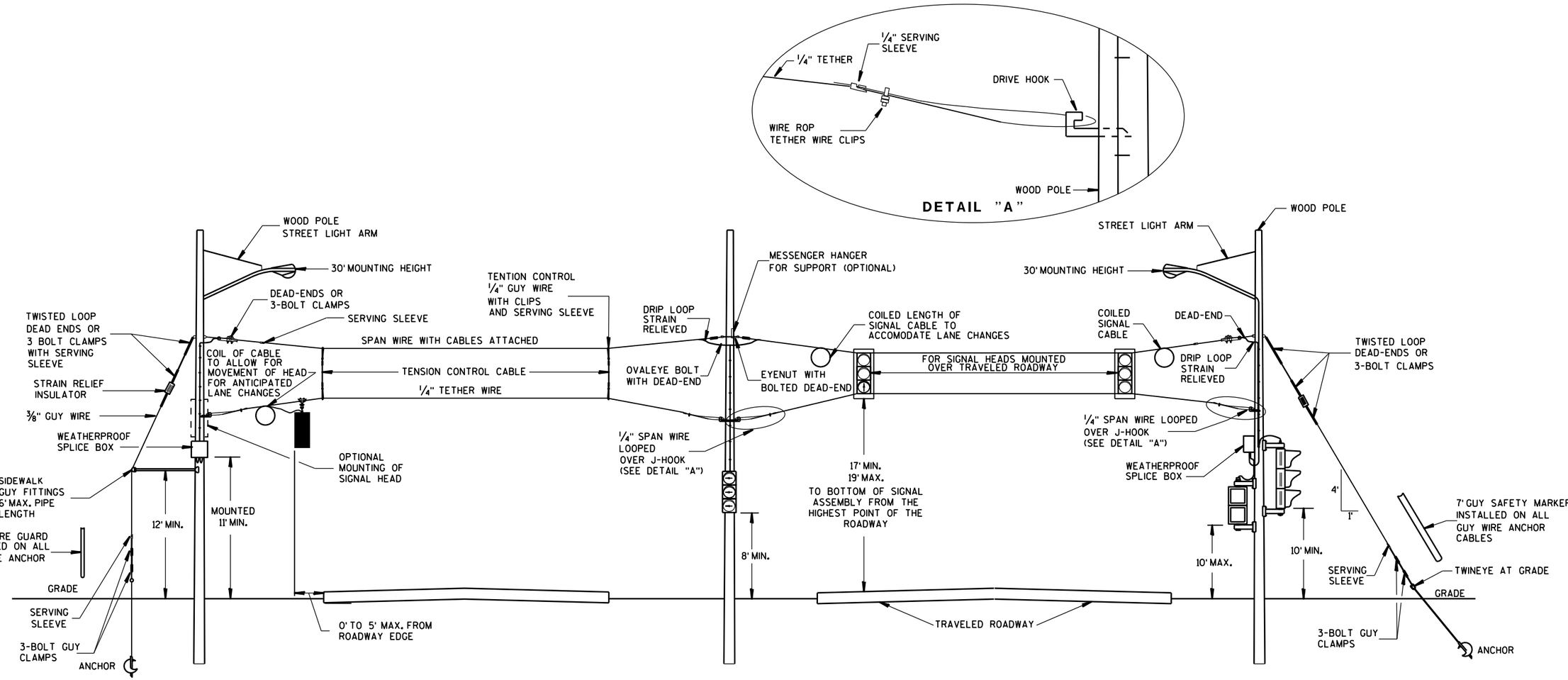

SPAN WIRE
TEMPORARY SIGNALS
4 LANE ROADWAYS

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

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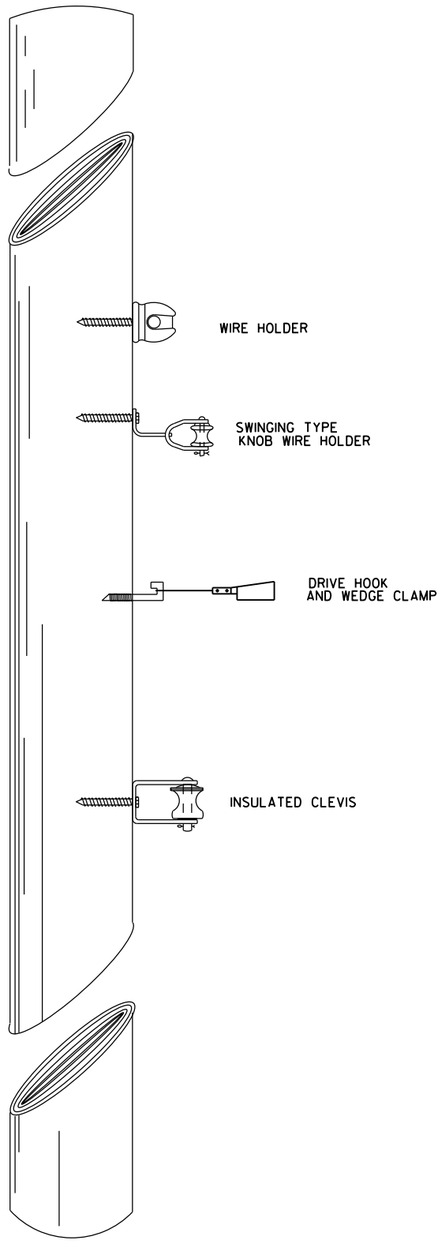
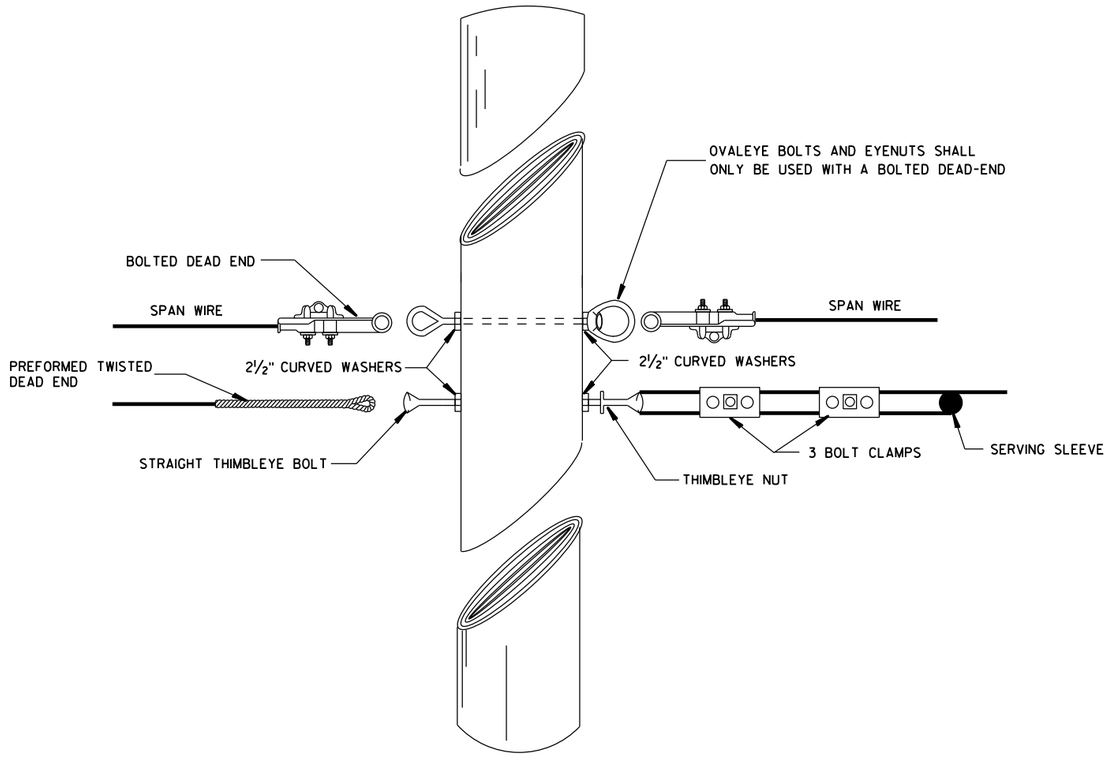
S.D.D. 9 G 1-4c



TYPICAL CABLE HANGERS



TYPICAL DEAD-ENDING

SPAN WIRE
TEMPORARY TRAFFIC SIGNAL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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DATE

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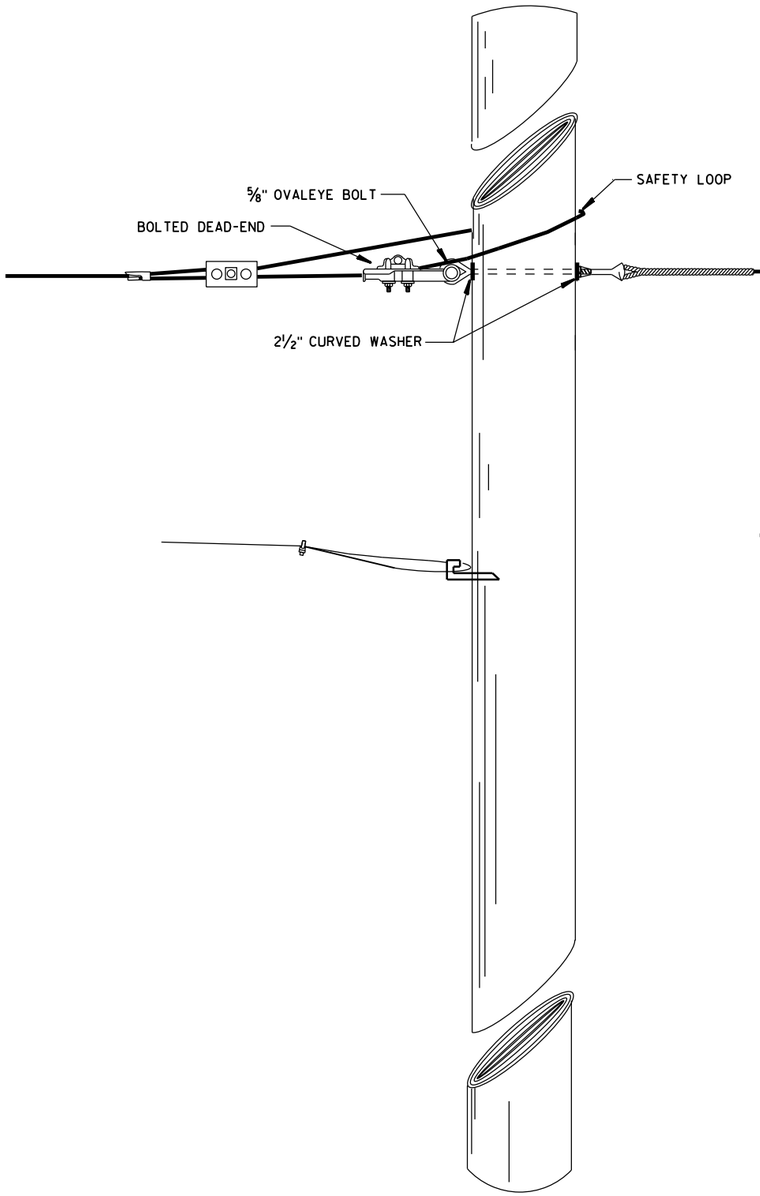
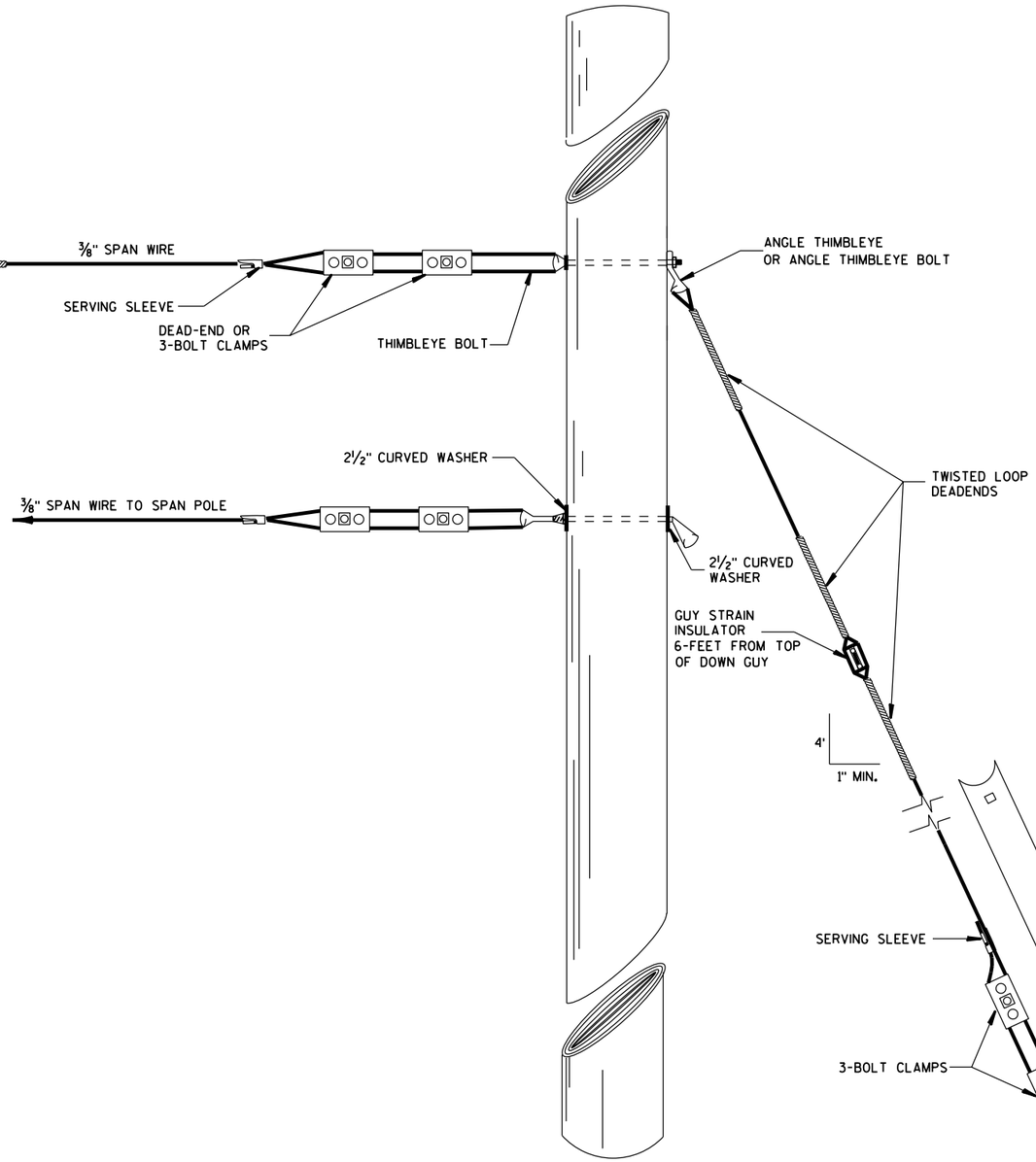
GENERAL NOTES

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



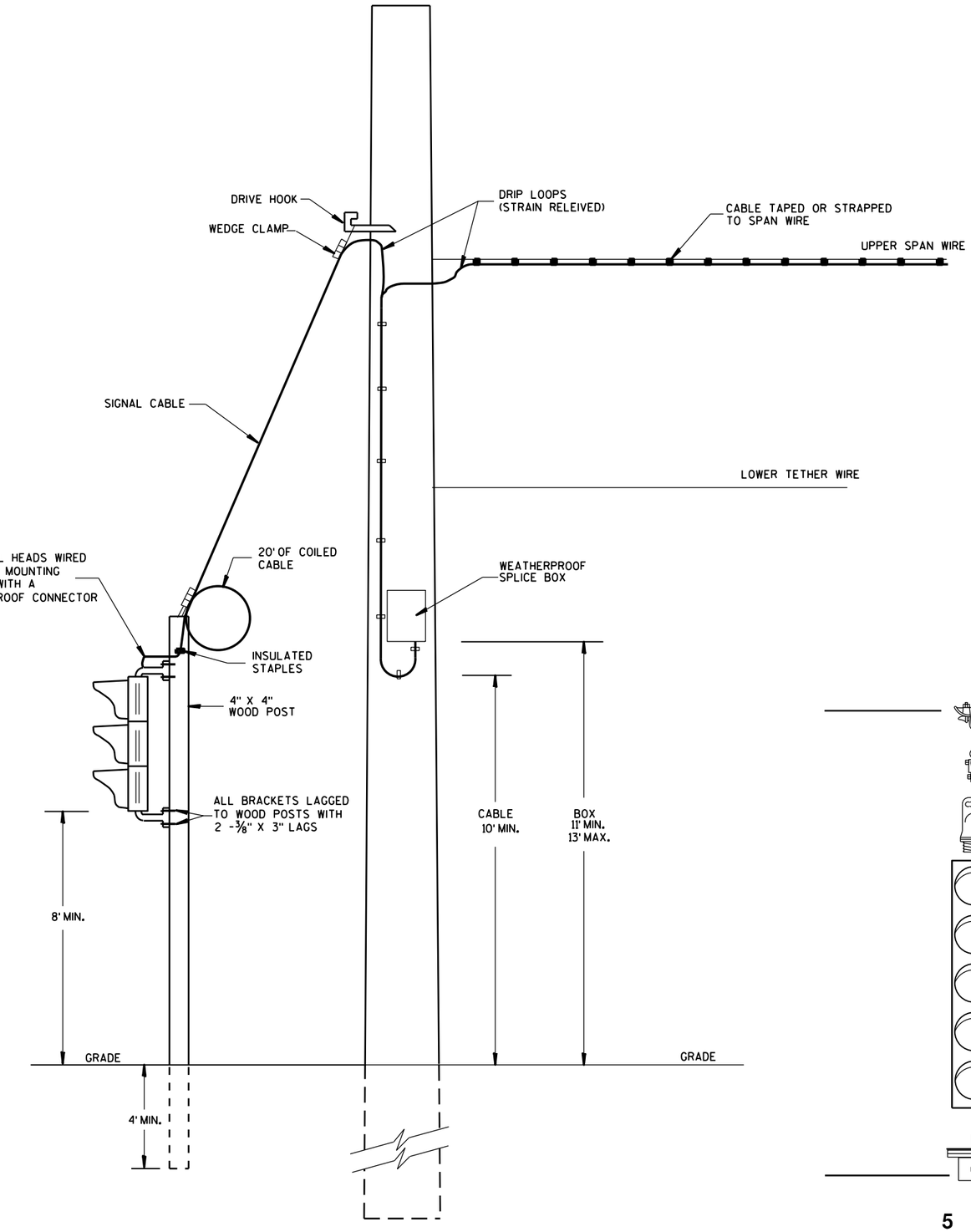
SPAN WIRE POLE



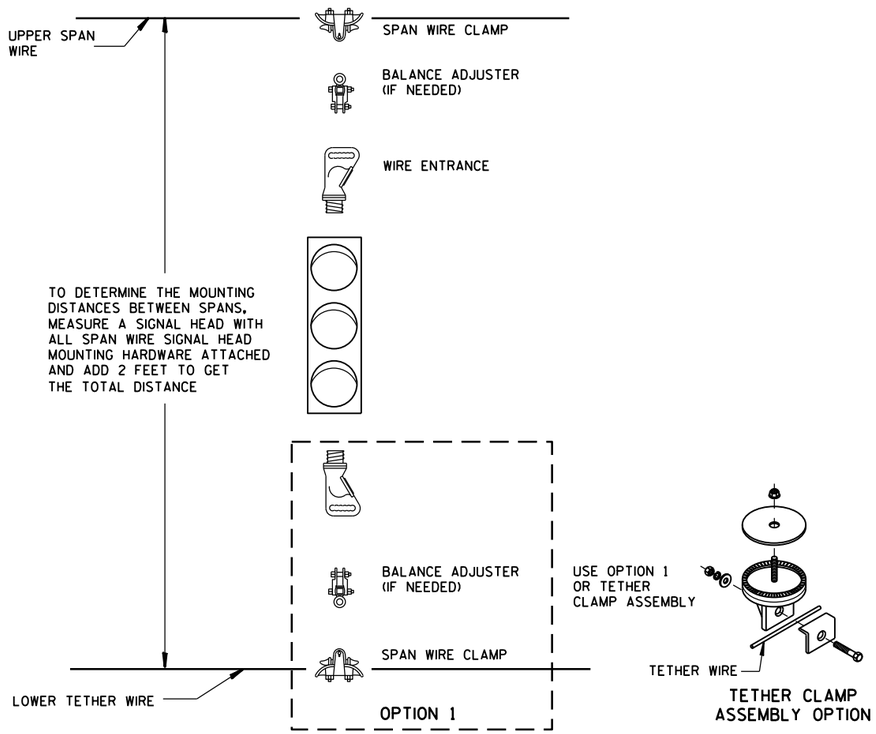
GUY POLE

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

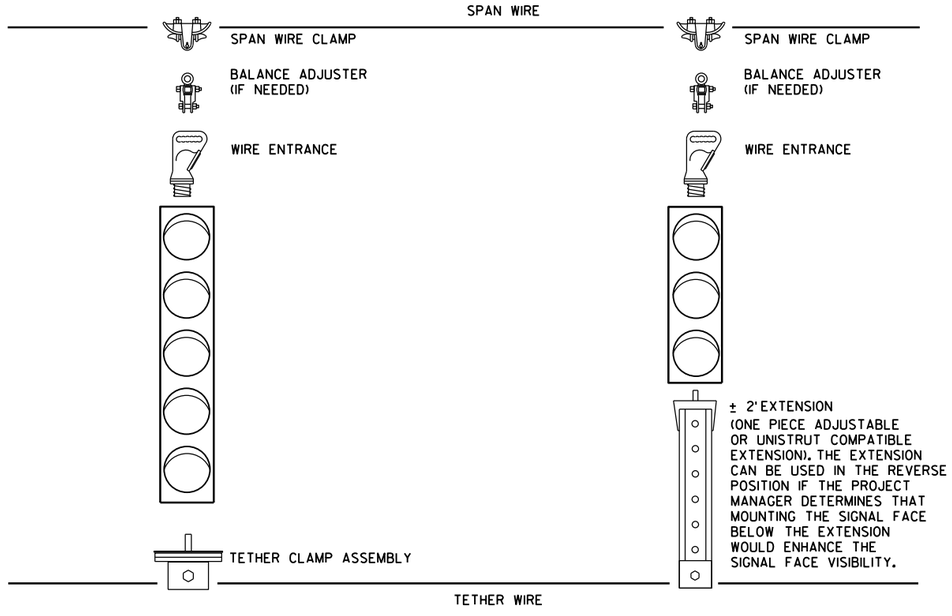


TYPICAL DROP TO TEMPORARY MOVEABLE SIGNAL



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 — STATE ELECTRICAL

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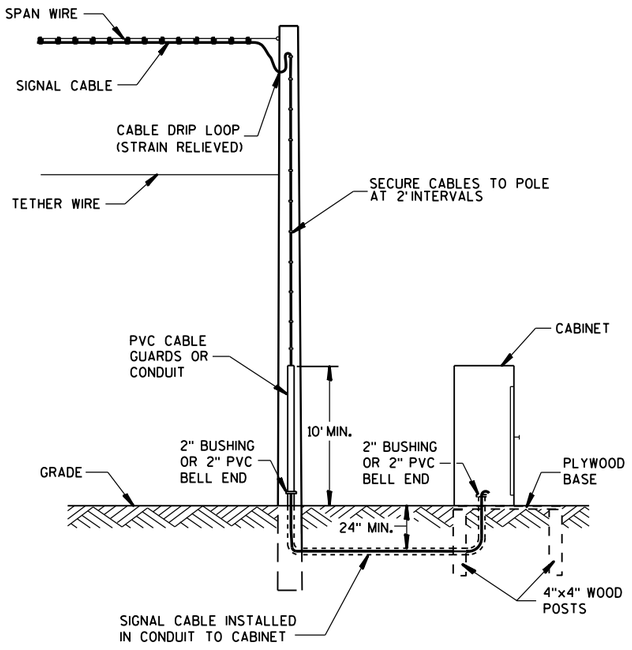
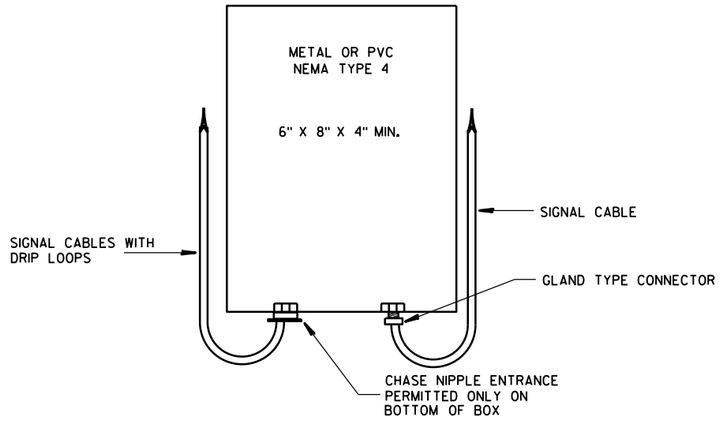
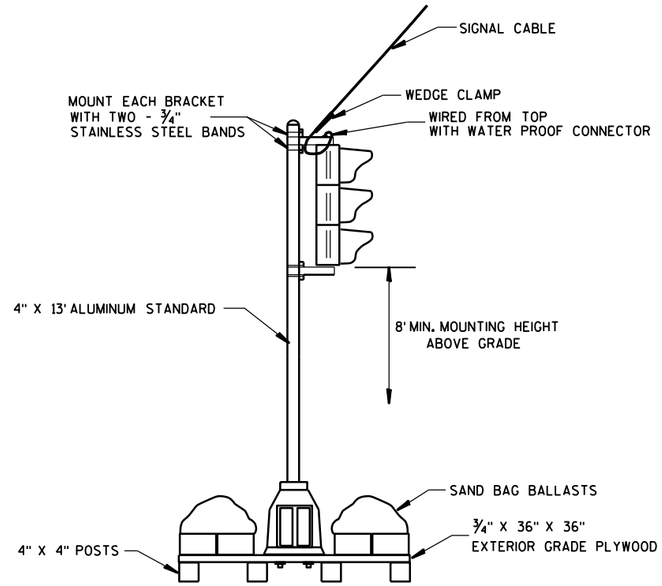
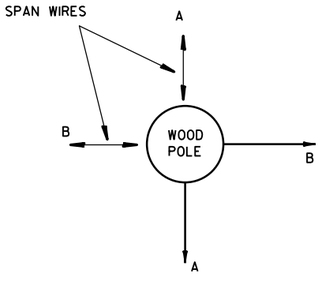




SPLICE BOX

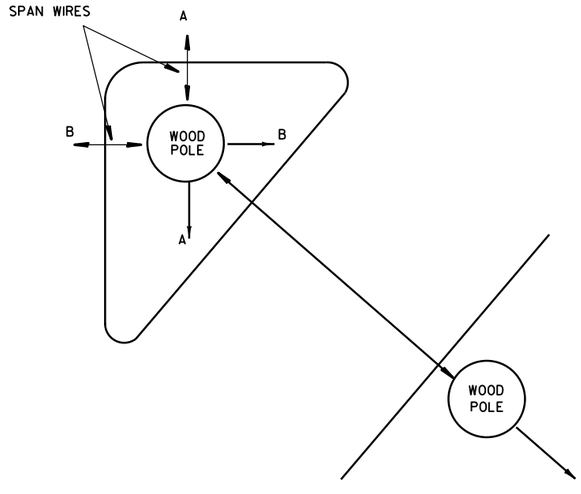


TYPICAL SKID TYPE TEMPORARY

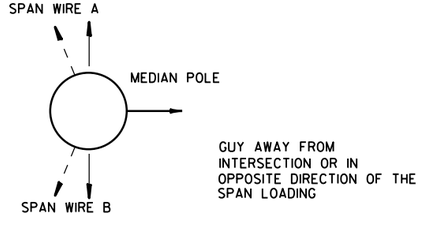


ALL DOWN OR SIDEWALK GUYS
SHALL BE INSTALLED IN THE
OPPOSITE DIRECTION OF THE
STRAIN OF THE SPAN WIRE

CORNER POLES



ISLAND POLES



GUY AWAY FROM
INTERSECTION OR IN
OPPOSITE DIRECTION OF THE
SPAN LOADING

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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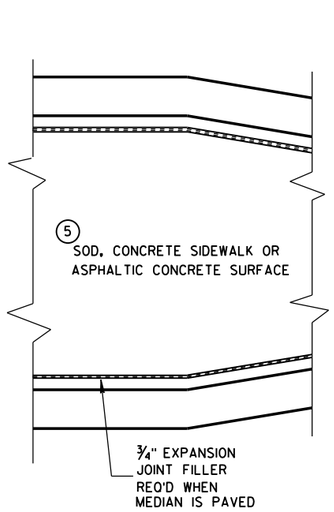
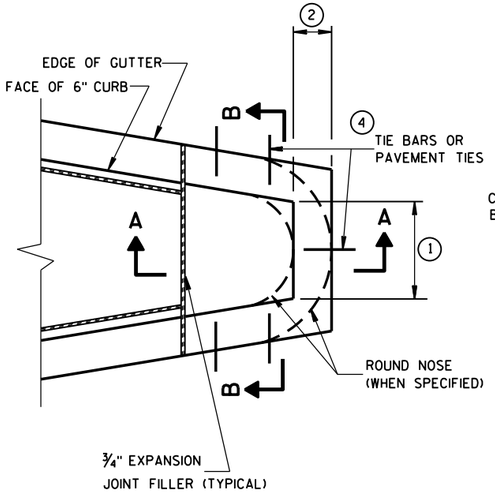
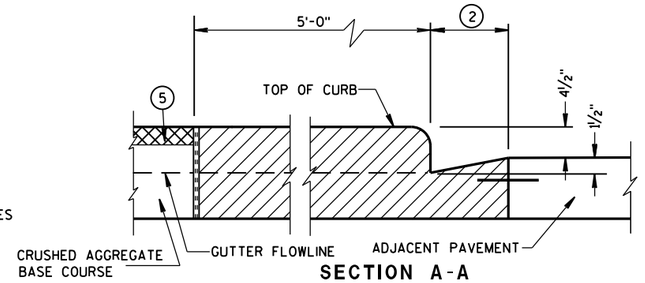
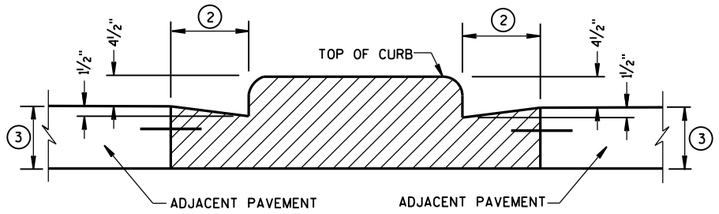






SECTION A-A



SECTION B-B

CONCRETE MEDIAN BLUNT NOSE DETAIL

GENERAL NOTES

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

(1) SEE PLAN FOR MEDIAN NOSE WIDTH AND RADIUS (FOR ROUND NOSE ALTERNATE).

(2) WIDTH OF GUTTER TO MATCH EXISTING ADJACENT GUTTER OR AS SPECIFIED ELSEWHERE IN THE PLAN.

(3) DEPTH EQUAL TO ADJACENT PAVEMENT. ADJACENT PAVEMENT STRUCTURE DETAILS ARE SHOWN ON THE PLAN. TYPICAL OPTIONS ARE:

(1) NEW OR EXISTING CONCRETE PAVEMENT.

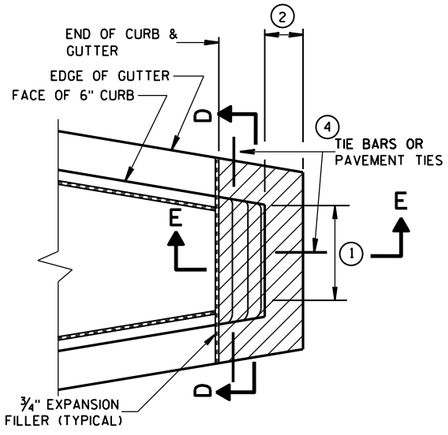
(2) ASPHALTIC CONCRETE PAVEMENT OVER NEW OR EXISTING CONCRETE BASE COURSE.

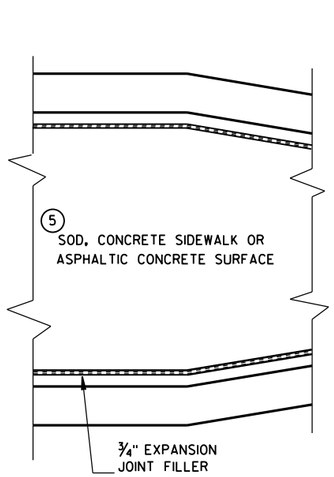
(3) ASPHALTIC CONCRETE PAVEMENT OVER CRUSHED AGGREGATE BASE COURSE.

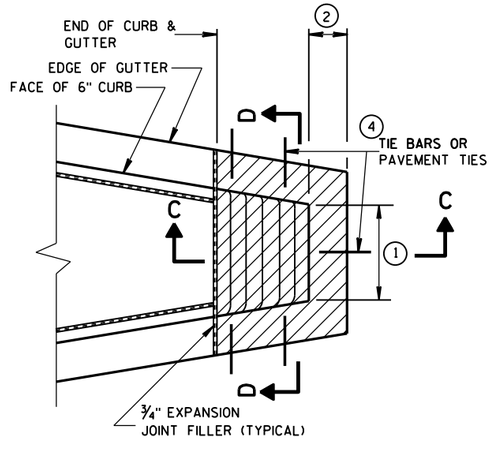
(4) TIE BARS OR PAVEMENT TIES REQUIRED IN NEW CONCRETE PAVEMENT OR CONCRETE BASE COURSE. TIE BARS SHALL BE NO. 4 X 2'-0" SPACED AT 2'-0" C-C.

PAVEMENT TIES REQUIRED IN EXISTING CONCRETE BASE COURSE. PAVEMENT TIES SHALL BE NO. 6 X 1'-0" SPACED AT 3'-0" C-C INSTALLED ON A HORIZONTAL SKEW OF 6:1. THE DIRECTION OF SKEW SHALL ALTERNATE AFTER EVERY ONE OR TWO BARS.

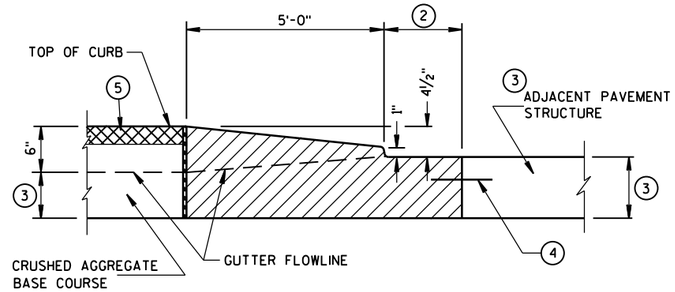
(5) SURFACE TYPE AND DETAILS ARE SHOWN ELSEWHERE IN THE PLAN.



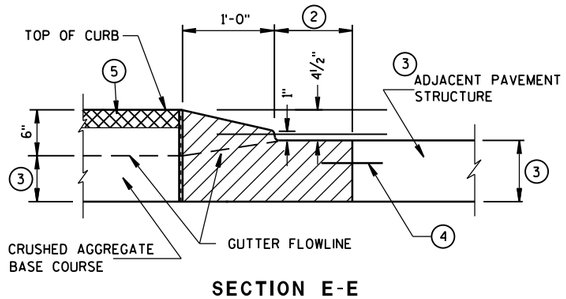




CONCRETE MEDIAN SLOPED NOSE TYPE 1

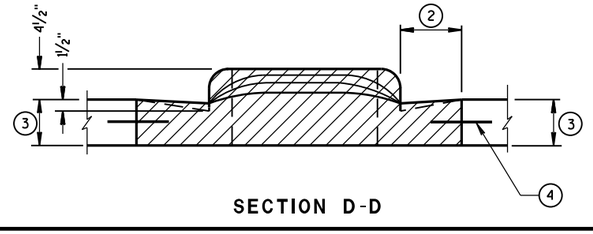


SECTION C-C



SECTION E-E

CONCRETE MEDIAN SLOPED NOSE TYPE 2



SECTION D-D

CONCRETE MEDIAN NOSE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
6/8/2006
DATE
/S/ Jerry H. Zogg
ROADWAY STANDARDS D ENGINEER
FHWA

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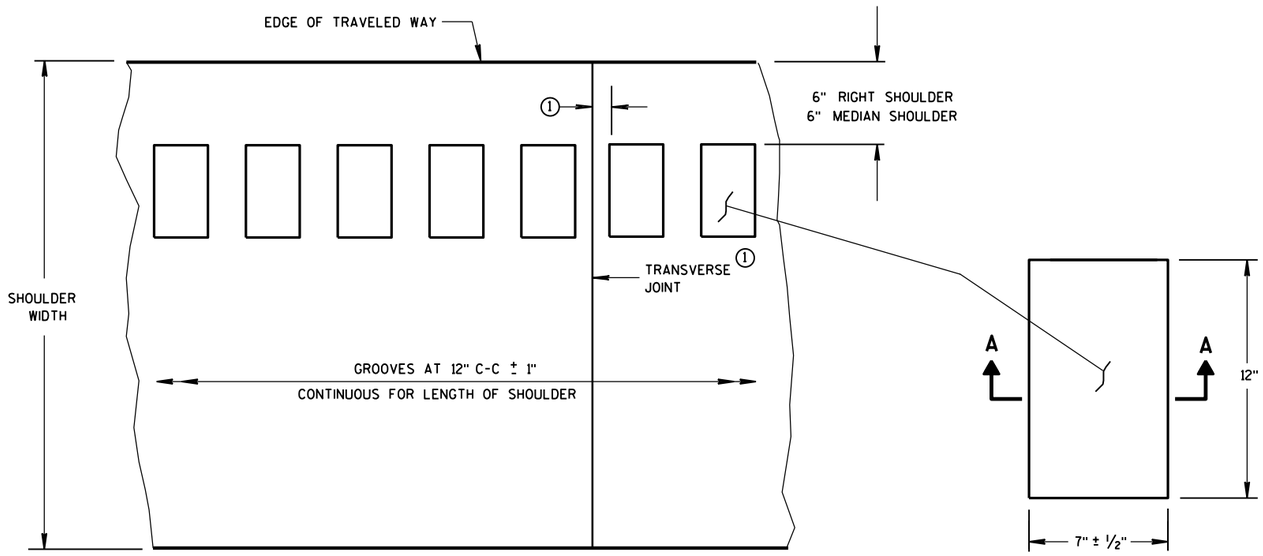
S.D.D. 11 B 2-2



PLAN VIEW
SHOULDER WITH GROOVES

PLAN VIEW
(SINGLE GROOVE)

PLACEMENT DETAIL FOR MILLED RUMBLE STRIP

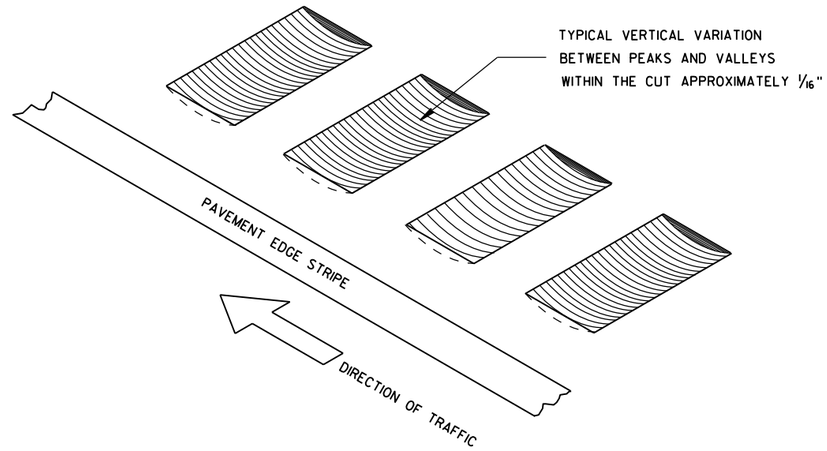
GENERAL NOTES

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

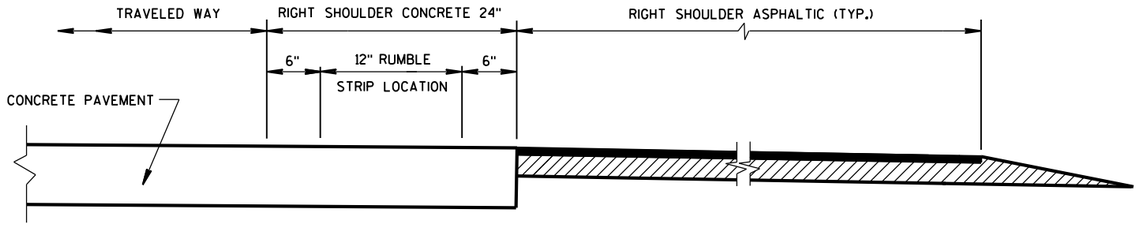
RUMBLE STRIPS ON EXPRESSWAYS

DO NOT INSTALL RUMBLE STRIPS ACROSS SIDE ROAD INTERSECTIONS, COMMERCIAL DRIVEWAYS, PRIVATE DRIVEWAYS OR ADJACENT TO RIGHT TURN LANES, LEFT TURN LANES, TURN LANE TAPERS, BRIDGE DECKS, BRIDGE APPROACHES, OR 100 FEET IN ADVANCE OF RAILROAD CROSSING. THE ATTACHED STANDARD DETAIL DRAWING SHOWS THE LOCATION OF THE RUMBLE STRIPS AT INTERCHANGE AREAS.

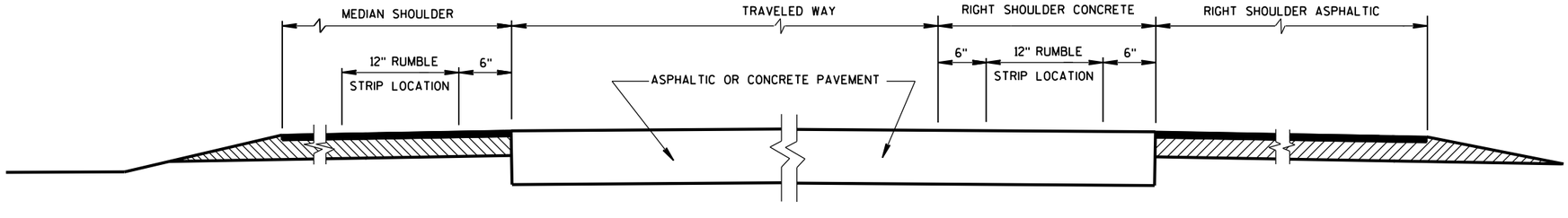
(1) CONCRETE PAVEMENT - RUMBLE STRIPS SHALL BE A MINIMUM OF 6" AWAY FROM TRANSVERSE JOINTS.



ISOMETRIC



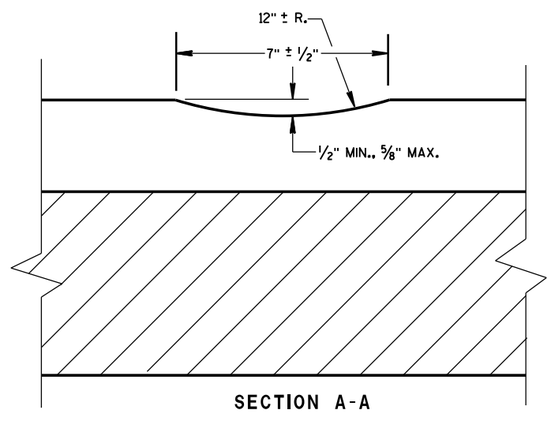
SECTION VIEW
CONCRETE PAVEMENT EXTENDS INTO RIGHT SHOULDER)



SECTION VIEW

TYPICAL LOCATIONS OF SHOULDER RUMBLE STRIPS IN RURAL DIVIDED HIGHWAYS

(ONE ROADWAY IS SHOWN)



SECTION A-A

SHOULDER RUMBLE STRIP, MILLING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI

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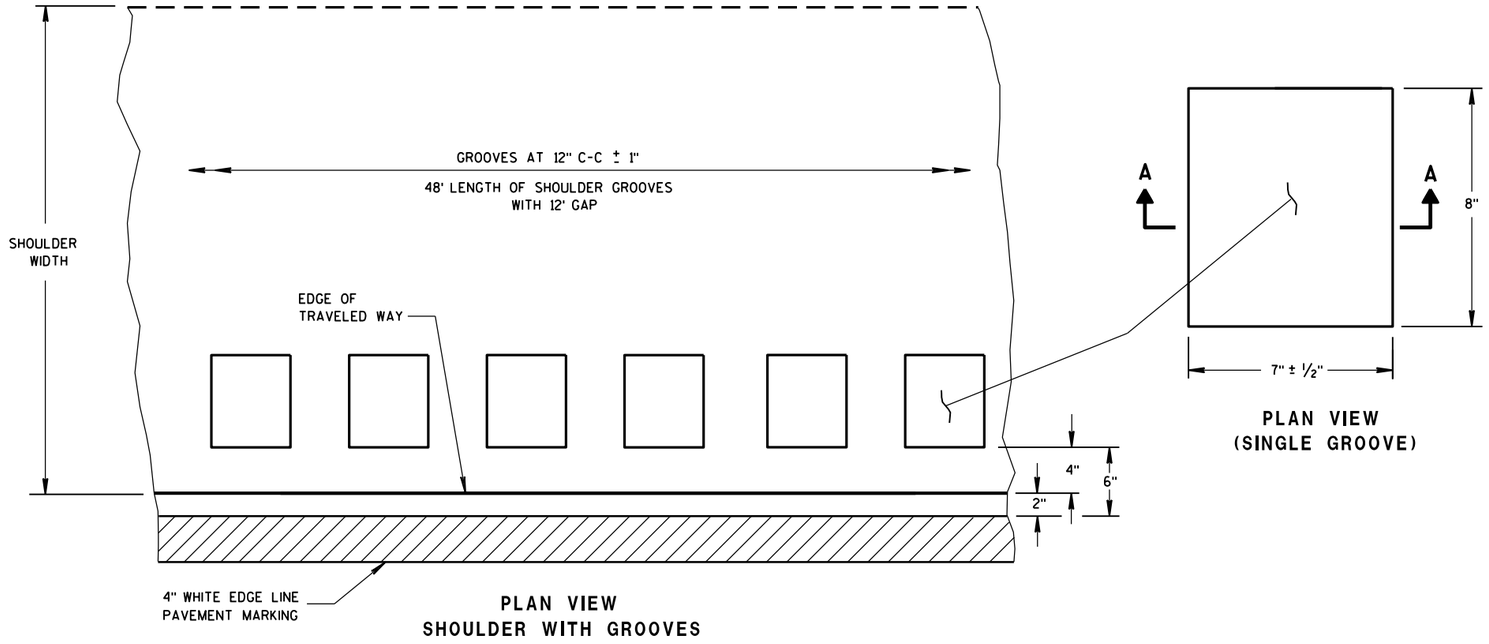
S.D.D. 13 A 5-5a



PLAN VIEW
SHOULDER WITH GROOVES

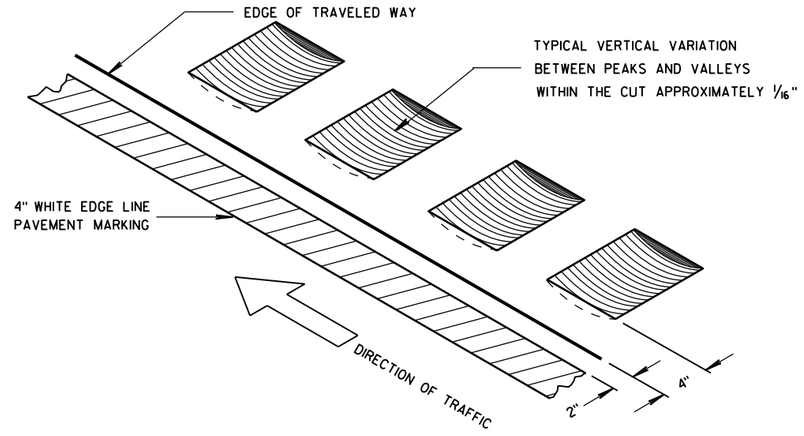
PLAN VIEW
(SINGLE GROOVE)

GENERAL NOTES

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

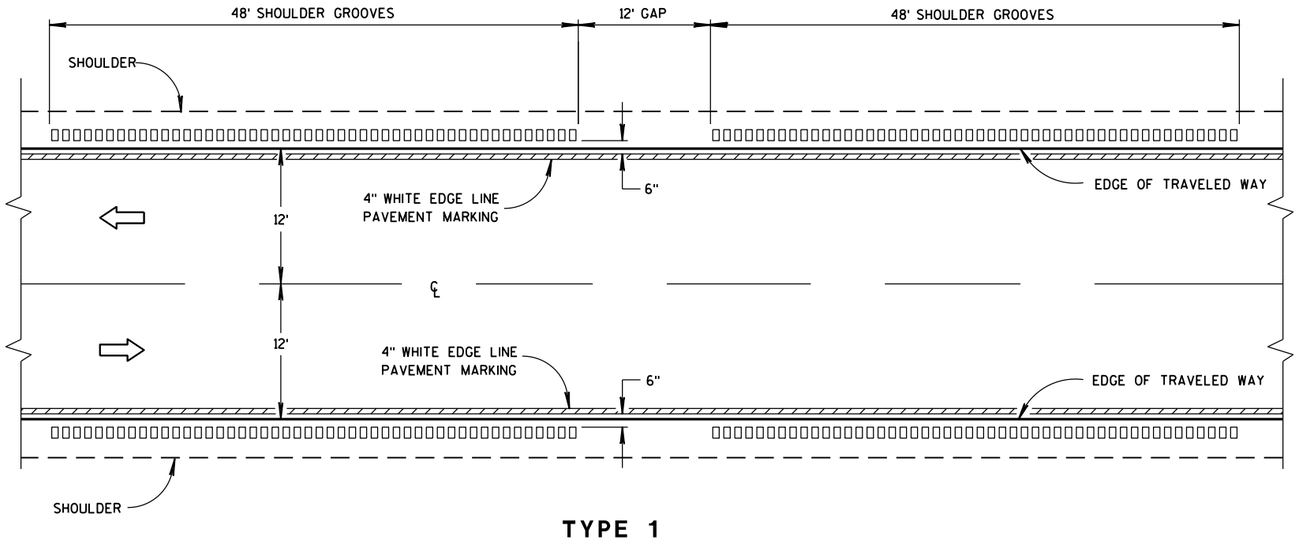
DO NOT MILL SHOULDER GROOVES THROUGH ANY INTERSECTION, MARKED CROSSWALK, NON-MOTORIZED PATH CROSSING, OR SNOWMOBILE CROSSING.

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

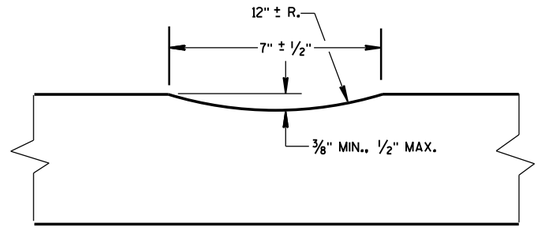


ISOMETRIC

PLACEMENT DETAIL FOR TYPE 1 MILLED RUMBLE STRIP



TYPE 1
2-LANE SHOULDER RUMBLE STRIP



SECTION A-A

2-LANE RURAL
SHOULDER RUMBLE STRIP, MILLING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPO

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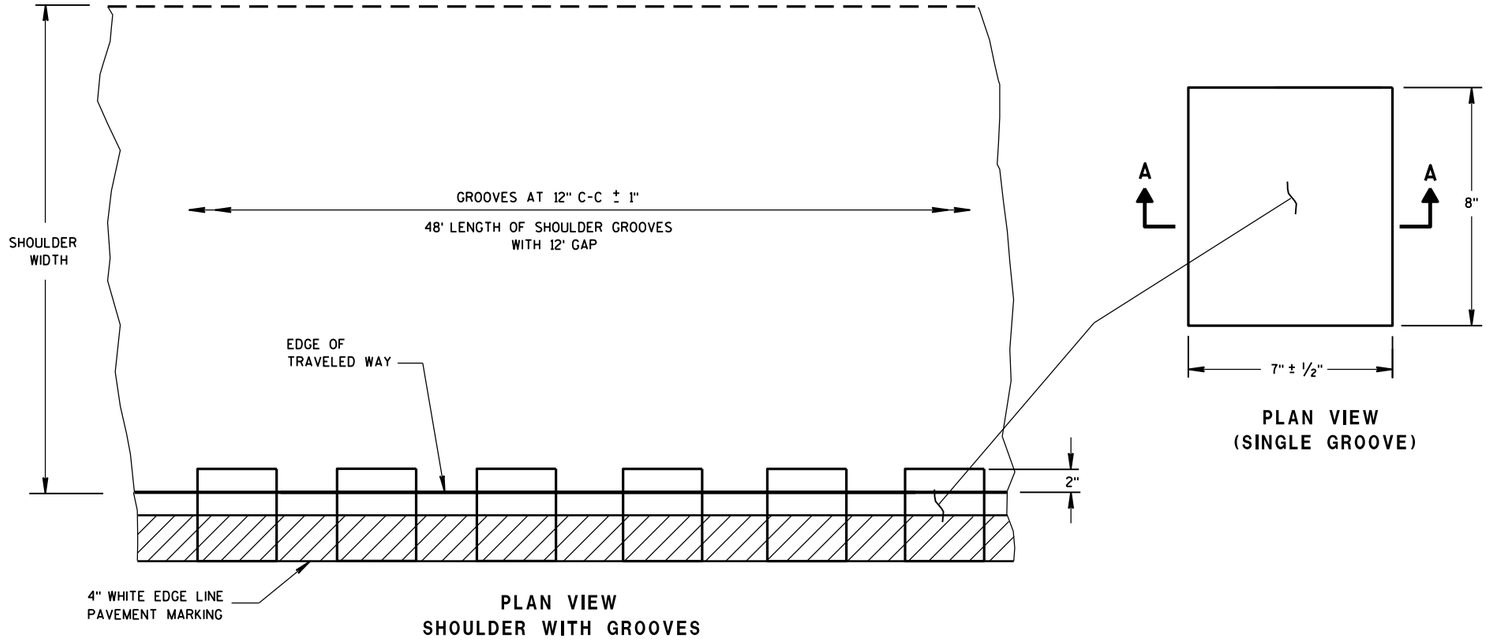
S.D.D. 13 A 10-1a



PLAN VIEW
SHOULDER WITH GROOVES

PLAN VIEW
(SINGLE GROOVE)

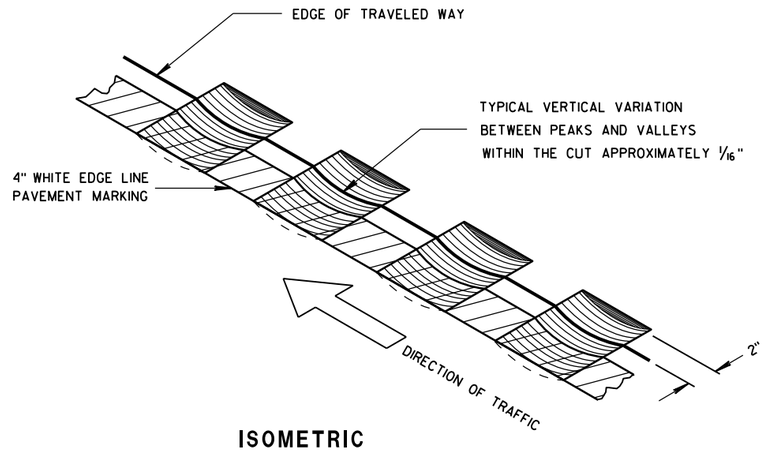
PLACEMENT DETAIL FOR TYPE 2 MILLED RUMBLE STRIP

GENERAL NOTES

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

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

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



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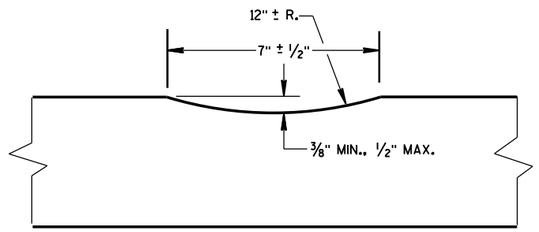
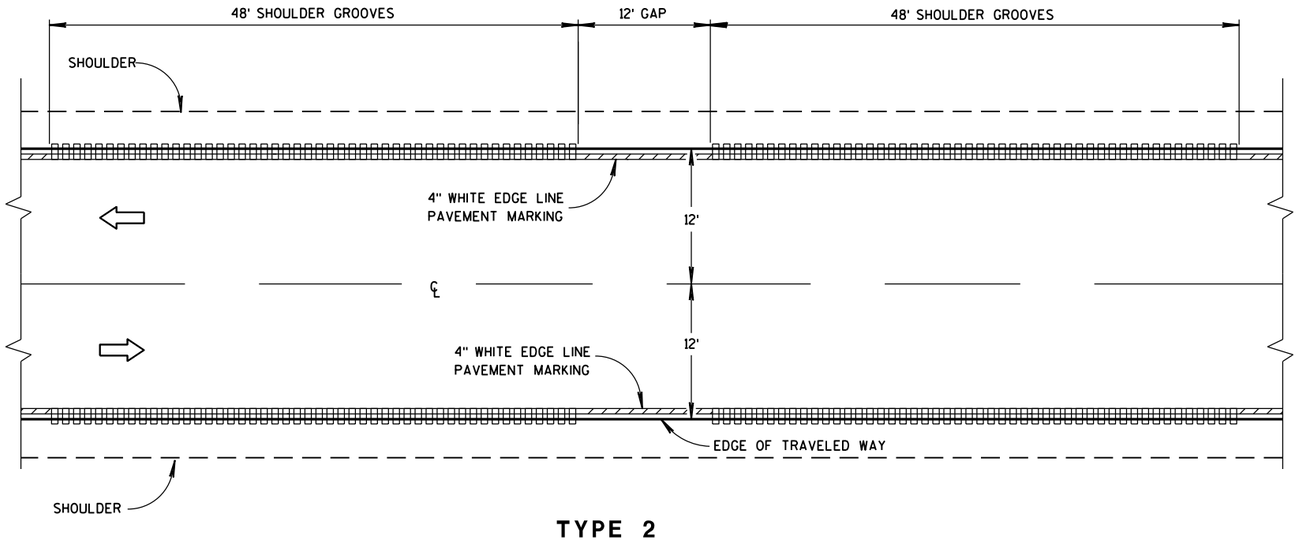


SECTION A-A



TYPE 2
2-LANE SHOULDER RUMBLE STRIP

2-LANE RURAL
SHOULDER RUMBLE STRIP, MILLING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR

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

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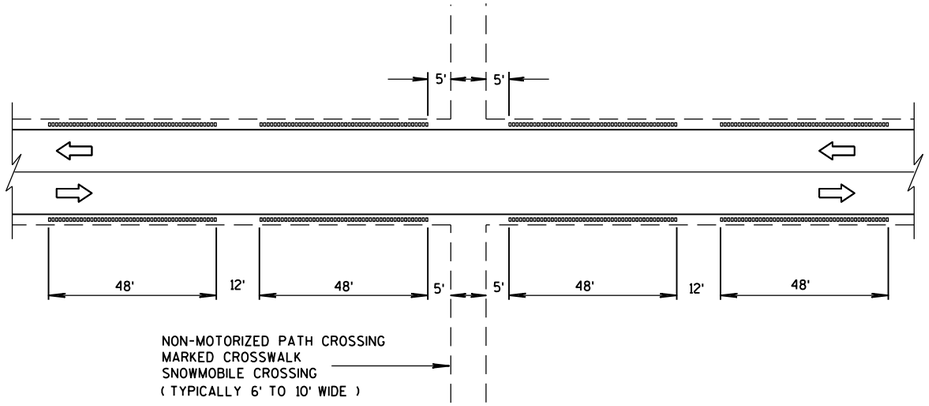
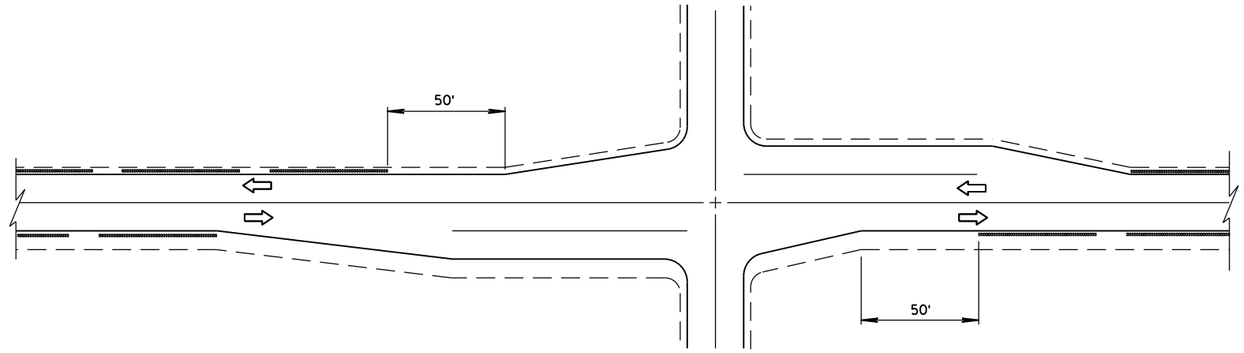
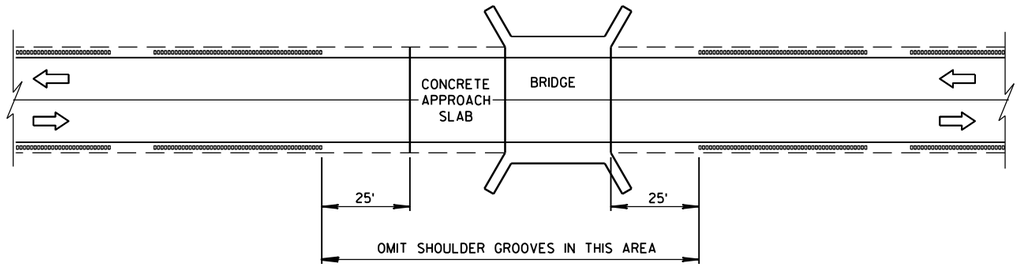
S.D.D. 13 A 10-1b



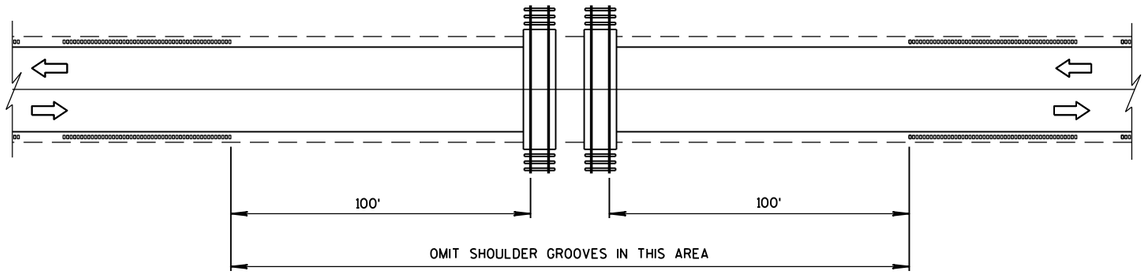
SHOULDER GROOVES AT MISCELLANEOUS CROSSINGS



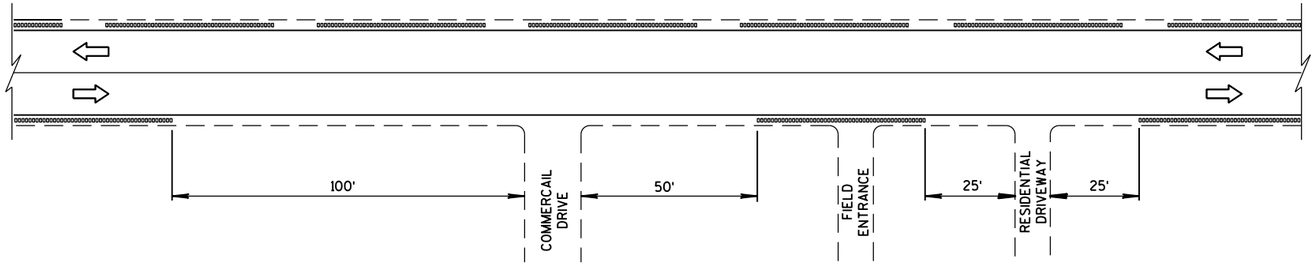
SHOULDER GROOVES AT INTERSECTIONS



SHOULDER GROOVES AT BRIDGES



SHOULDER GROOVES AT RAILROADS



SHOULDER GROOVES AT DRIVEWAYS (1)

2-LANE RURAL
SHOULDER RUMBLE STRIP, MILLING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI

6

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

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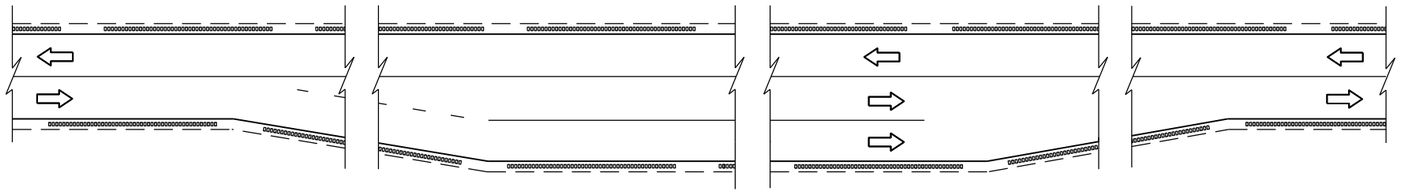
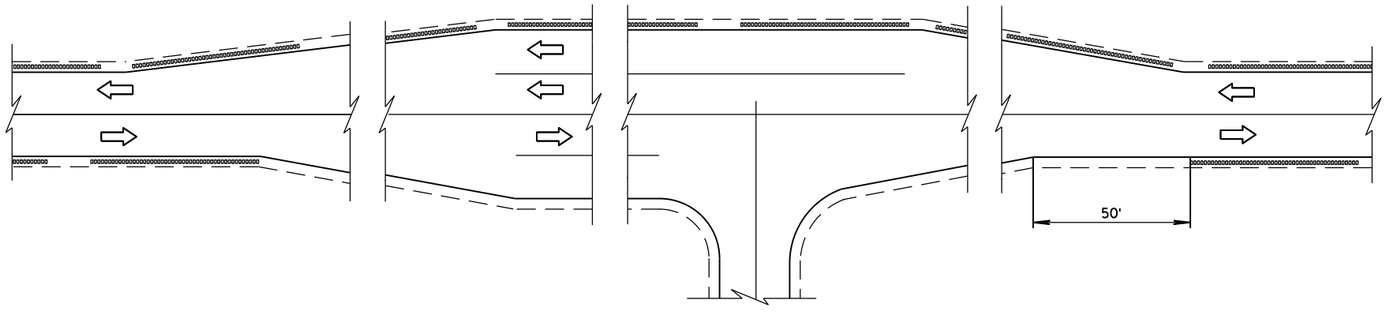
S.D.D. 13 A 10-1c



SHOULDER GROOVES AT PASSING AND CLIMBING LANES



SHOULDER GROOVES AT BYPASS LANES

6

6

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

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

2-LANE RURAL
SHOULDER RUMBLE STRIP, MILLING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

12/17/2012
DATE

/S/ Jerry H. Zogg
ROADWAY STANDARDS ENGINEER

FHWA

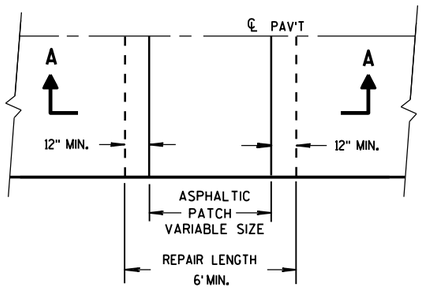
GENERAL NOTES

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

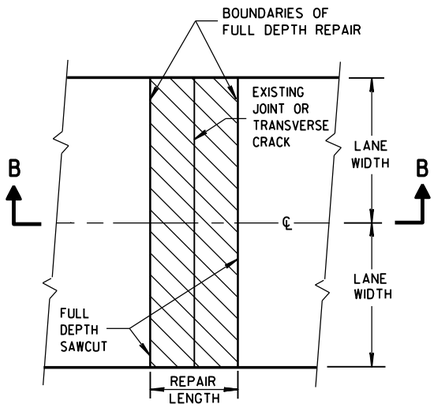
PROVIDE A 6-FOOT MINIMUM DISTANCE FROM BOUNDARIES OF CONCRETE REPAIR AREAS TO ADJACENT TRANSVERSE JOINT OR CRACK IN THE SAME LANE.

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

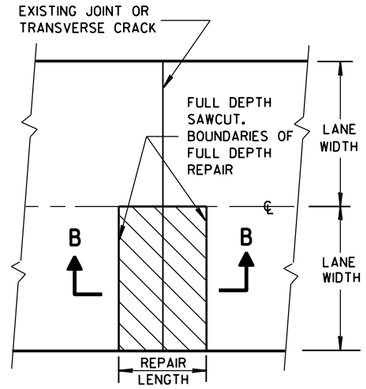
(1) DOWEL BARS MIGHT NOT EXIST.



PLAN VIEW

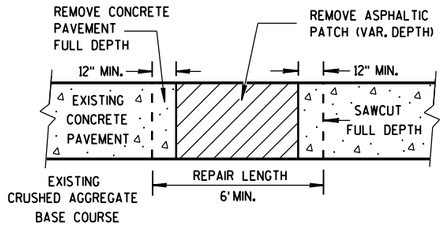


PLAN VIEW
(DOUBLE LANE REPAIR)



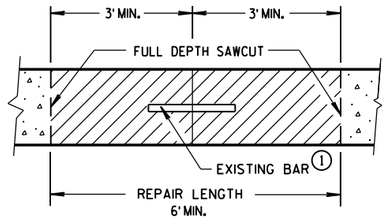
PLAN VIEW
(SINGLE LANE REPAIR)

FULL DEPTH CONCRETE PAVEMENT REMOVAL



SECTION A-A

HMA PATCH REMOVAL



SECTION B-B

CONCRETE REMOVAL

CONCRETE PAVEMENT REPAIR AND REPLACEMENT

STATE OF WISCONSIN
DEPARTMENT OF TRANSPO

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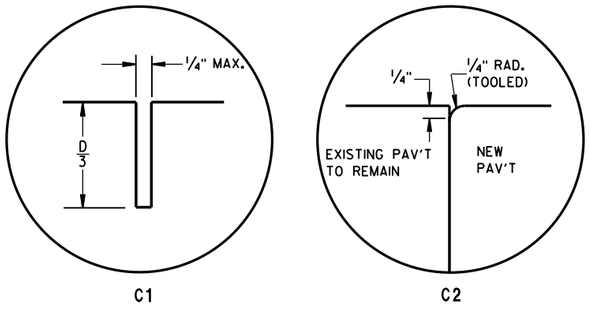
S.D.D. 13 C 9-14a



C1 C2

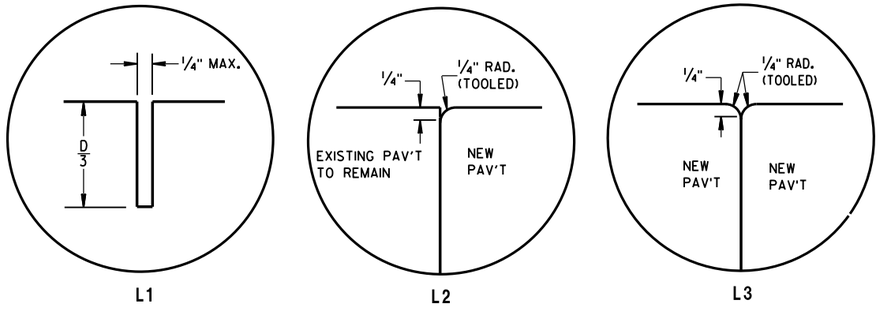
TRANSVERSE JOINTS

TIE BAR TABLE

PAVEMENT DEPTH (D)	TIE BAR SIZE	TIE BAR LENGTH (L)	MAX. TIE BAR SPACING
< 10 ½"	NO. 4	30"	36"
≥ 10 ½"	NO. 5	36"	36"
	NO. 4 *	30"	24"**

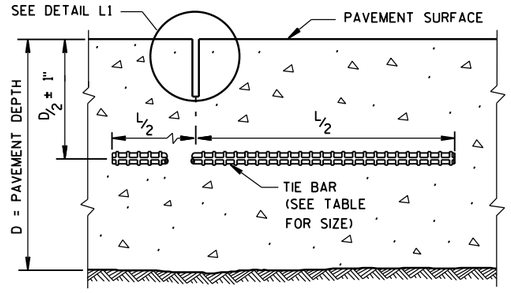
* SUBSTITUTE BENT BARS AT LONGITUDINAL JOINTS WHEN EQUIPMENT LIMITATIONS DURING CONSTRUCTION WARRANT (e.g. AUXILIARY LANES OR TURN LANES)

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



L1 L2 L3

LONGITUDINAL JOINTS



SECTION C-C

SAWED LONGITUDINAL JOINT

GENERAL NOTES

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

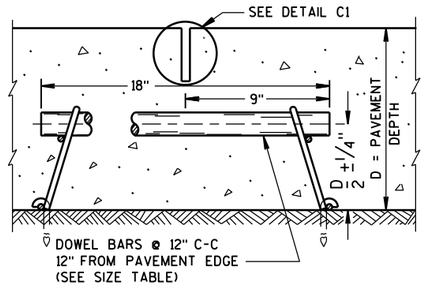
CONCRETE PAVEMENT REPAIRS OF EXISTING NONDOWELED CONCRETE PAVEMENTS DO NOT NEED TO BE DOWELED.

DO NOT SEAL OR FILL JOINTS.

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

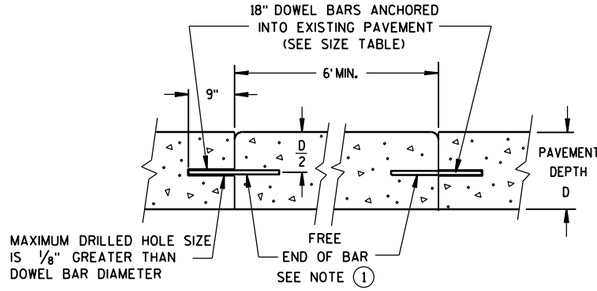
FOR MULTI-LANE CONCRETE PAVEMENT REPLACEMENTS, PROVIDE A MINIMUM DISTANCE OF 15 INCHES FROM ALL TRANSVERSE JOINTS OR EDGES OF REPLACEMENT TO THE CENTER OF THE TIE BAR NEAREST THAT JOINT OR EDGE.

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

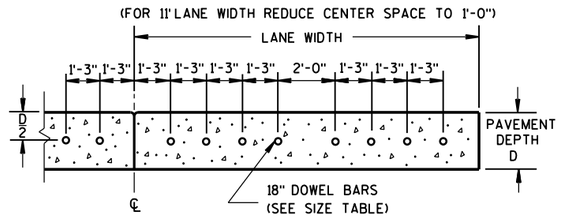


SECTION F-F

CONTRACTION JOINT



SECTION D-D

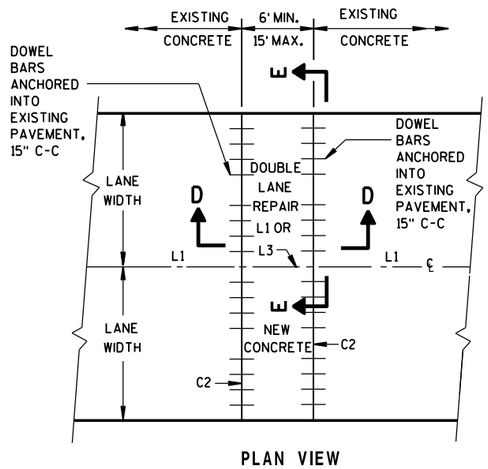


SECTION E-E

DRILLED DOWEL BAR CONSTRUCTION JOINT

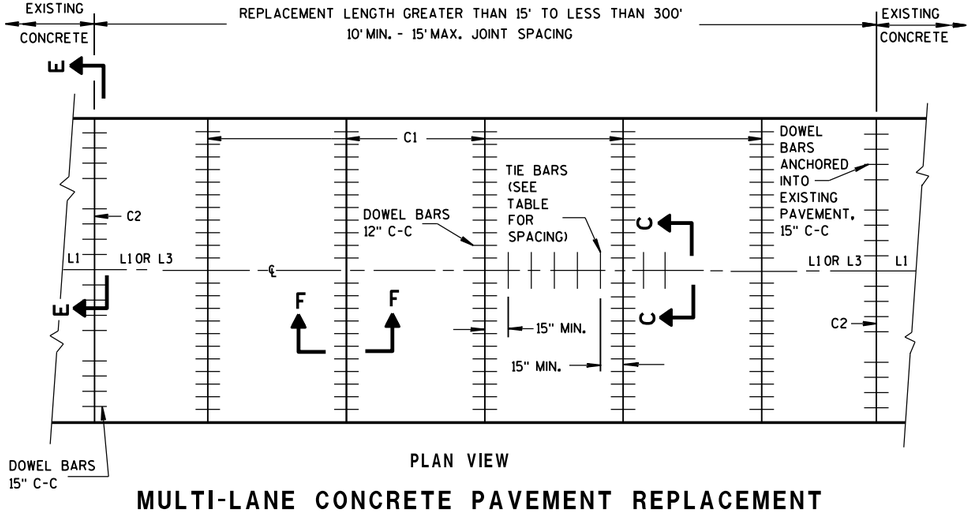
PAVEMENT DEPTH, DOWEL BAR SIZE AND JOINT SPACING TABLE

PAVEMENT DEPTH (D)	DOWEL BAR DIAMETER	DRILLED DOWEL BAR DIAMETER	CONTRACTION JOINT SPACING
5 ½", 6",6 ½"	NONE	NONE	12'
7",7 ½"	1"	1"	14'
8",8 ½"	1¼"	1¼"	15'
9",9 ½"	1¼"	1¼"	15'
10" & ABOVE	1½"	1¼"	15'



PLAN VIEW

MULTI-LANE CONCRETE PAVEMENT REPAIR



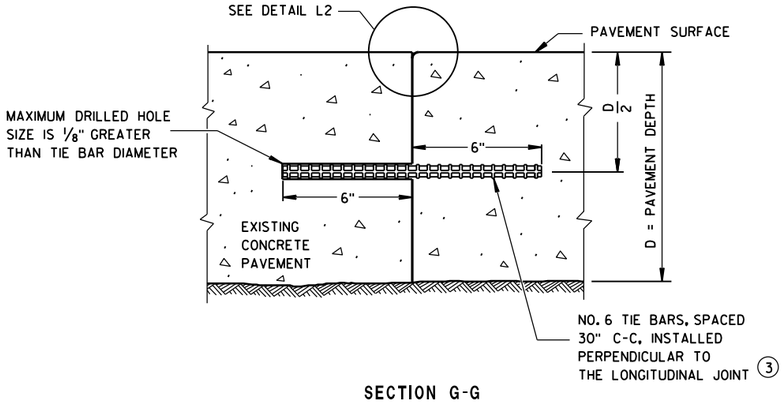
PLAN VIEW

MULTI-LANE CONCRETE PAVEMENT REPLACEMENT

CONCRETE PAVEMENT REPAIR AND REPLACEMENT

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI

6
S.D.D. 13 C 9-14b



SECTION G-G

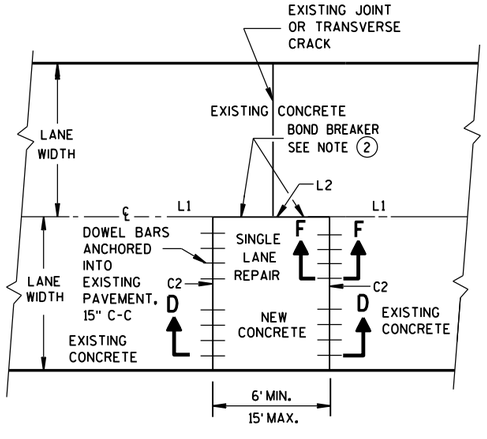
TIE BARS ANCHORED INTO EXISTING PAVEMENT

GENERAL NOTES

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

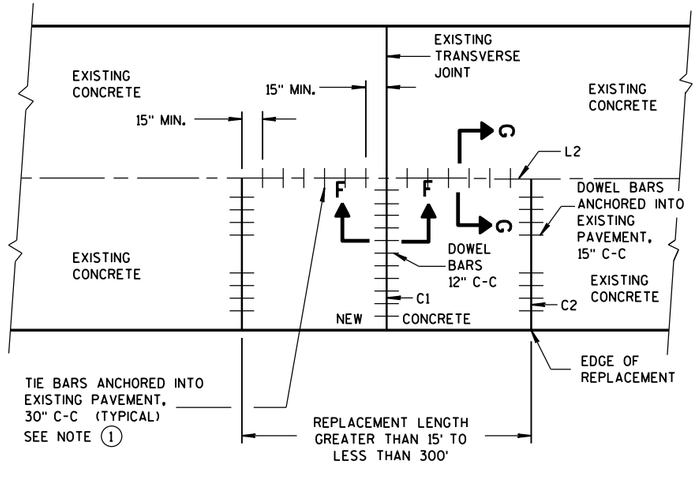
(2) USE AN ENGINEER-APPROVED BOND BREAKER (E.G. RELEASE AGENT, CURING COMPOUND) FOR SINGLE LANE REPAIRS UP TO 15 FEET IN LENGTH.

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



PLAN VIEW

SINGLE LANE CONCRETE PAVEMENT REPAIR



PLAN VIEW

SINGLE LANE CONCRETE PAVEMENT REPLACEMENT

CONCRETE PAVEMENT REPAIR AND REPLACEMENT

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
March, 2017 — DATE
/S/ Peter Kemp, P.E. — PAVEMENT SUPER
FHWA

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S.D.D. 13 C 9-14c

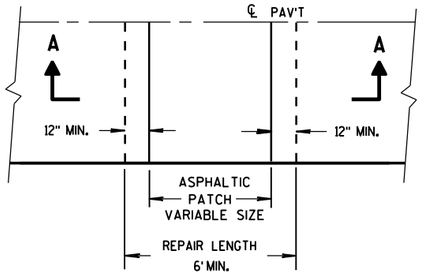
GENERAL NOTES

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

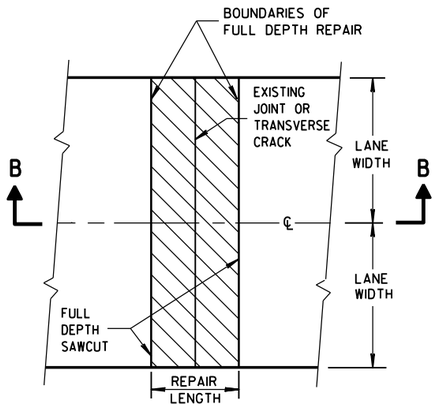
PROVIDE 6-FOOT MINIMUM DISTANCE FROM BOUNDARIES OF CONCRETE REPAIR AREAS TO ADJACENT TRANSVERSE JOINT OR CRACK.

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

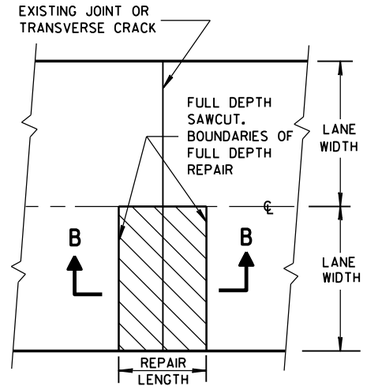
(1) DOWEL BARS MIGHT NOT EXIST.



PLAN VIEW

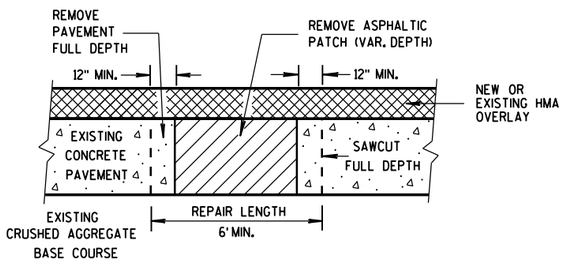


PLAN VIEW
(DOUBLE LANE REPAIR)



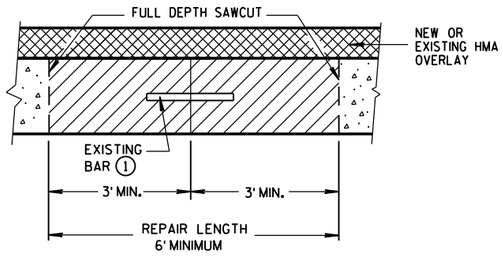
PLAN VIEW
(SINGLE LANE REPAIR)

FULL DEPTH CONCRETE PAVEMENT REMOVAL



SECTION A-A

HMA PATCH REMOVAL



SECTION B-B

CONCRETE REMOVAL

BASE PATCHING CONCRETE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI

6

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

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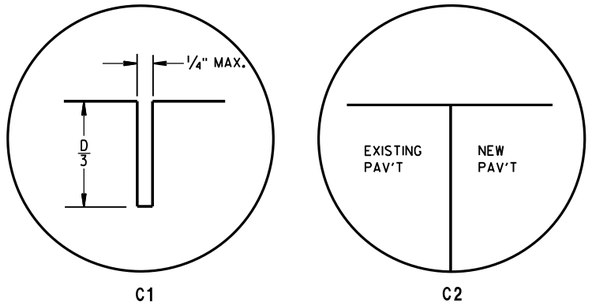
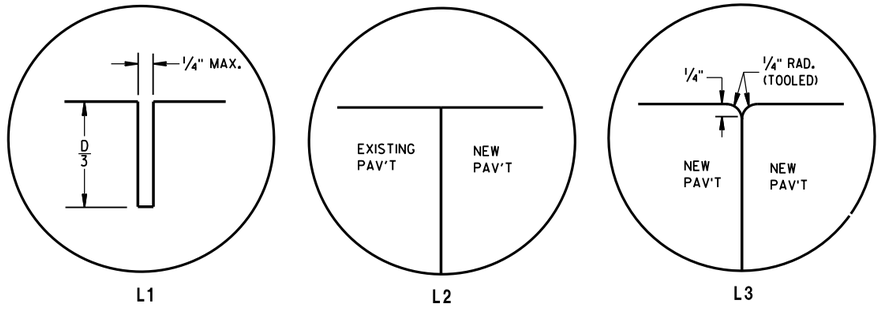
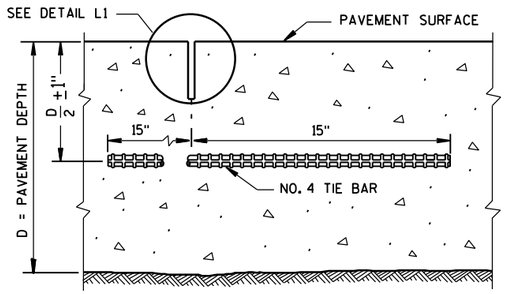
S.D.D. 13 C 14-6a



TRANSVERSE JOINTS

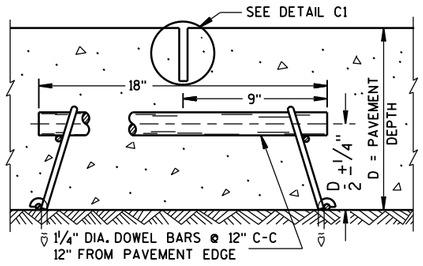


LONGITUDINAL JOINTS



SECTION C-C

SAWED LONGITUDINAL JOINT



SECTION F-F

CONTRACTION JOINT

GENERAL NOTES

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

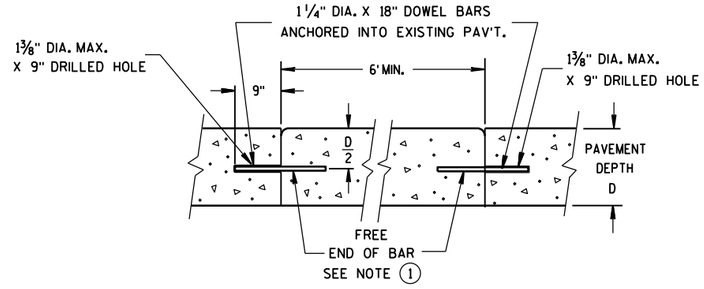
CONCRETE BASE PATCHES OF EXISTING NONDOWELED CONCRETE PAVEMENTS DO NOT NEED TO BE DOWELED.

DO NOT SEAL OR FILL JOINTS.

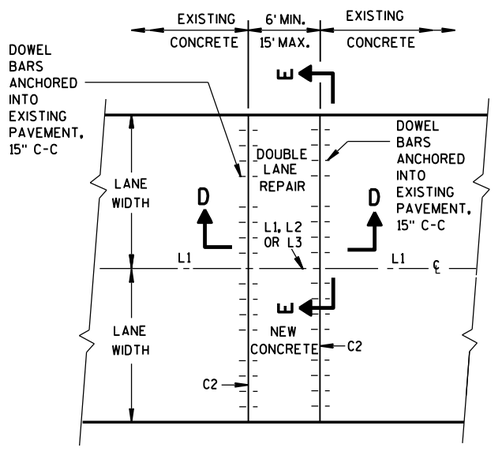
ANCHOR DOWEL BARS AND TIE BARS INTO DRILLED HOLES WITH AN EPOXY.

PROVIDE A MINIMUM DISTANCE OF 15 INCHES FROM AN EXISTING TRANSVERSE JOINT OR THE EDGE OF REPLACEMENT TO THE CENTER OF THE TIE BAR NEAREST THAT JOINT OR EDGE.

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

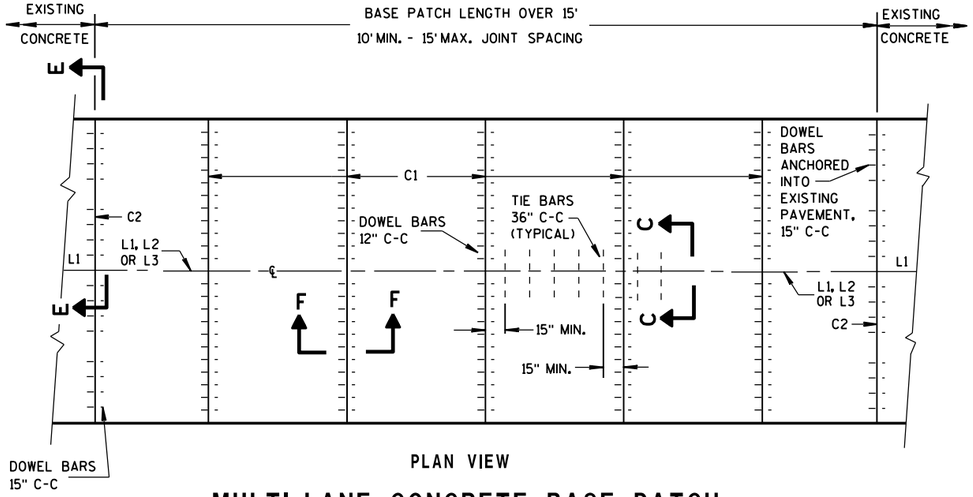


SECTION D-D



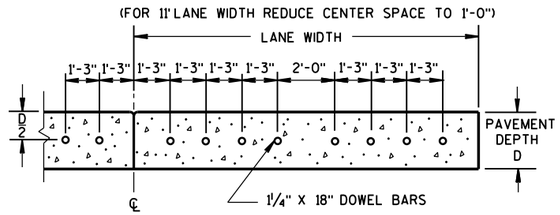
PLAN VIEW

MULTI-LANE CONCRETE BASE PATCH 15' MAXIMUM LENGTH



PLAN VIEW

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



SECTION E-E

SPACING OF DOWEL BARS ANCHORED INTO EXISTING PAVEMENT

BASE PATCHING CONCRETE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI

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

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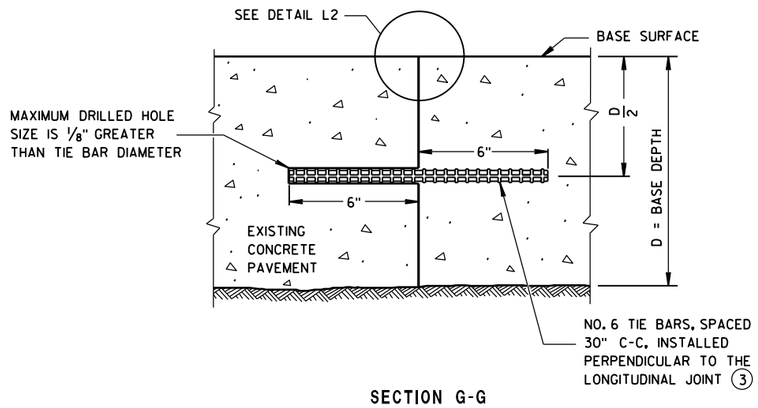
S.D.D. 13 C 14-6b



SECTION G-G

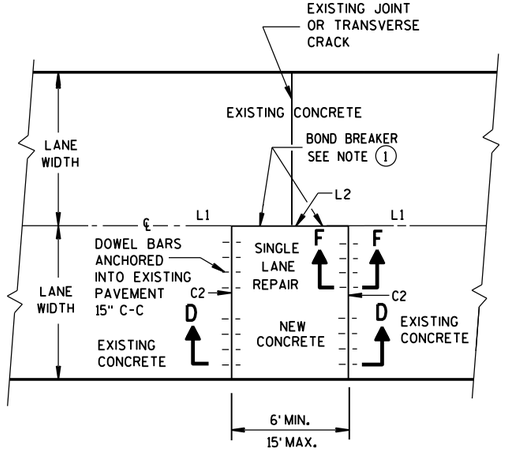
TIE BARS ANCHORED INTO EXISTING PAVEMENT

GENERAL NOTES

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

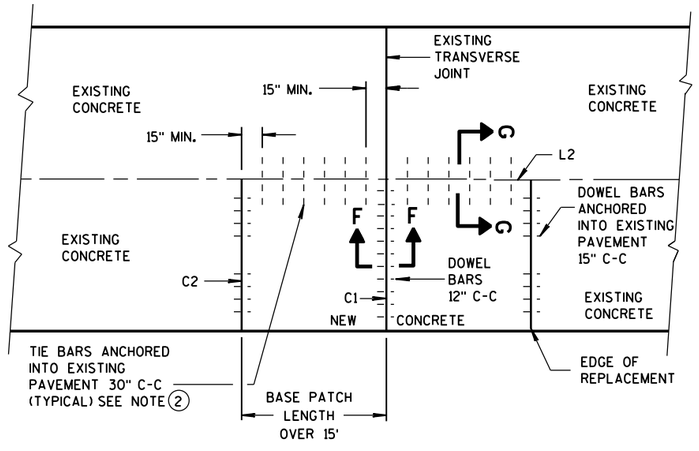
(2) WITH THE APPROVAL OF THE ENGINEER, FOR SINGLE LANE PAVEMENT REPLACEMENTS LESS THAN 30 FEET IN LENGTH, DRILLED TIE BARS MAY BE INSTALLED ON 6:1 SKEW HORIZONTALLY, DIRECTION OF SKEW ALTERNATING WITH EACH SUCCESSIVE BAR. DRIVE SKEWED TIE BARS TO A DEPTH OF 6 INCHES IN A HOLE OF SUCH A DIAMETER AS TO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

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



PLAN VIEW

SINGLE LANE CONCRETE BASE PATCH 15' MAXIMUM LENGTH



PLAN VIEW

SINGLE LANE CONCRETE BASE PATCH GREATER THAN 15' IN LENGTH

BASE PATCHING CONCRETE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

6

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

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

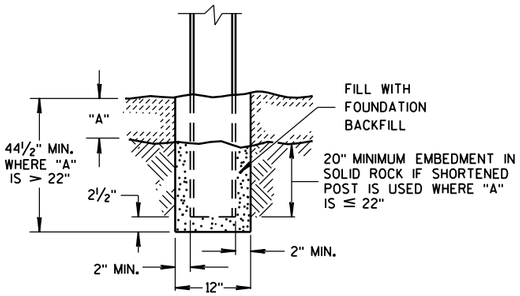
② USE WOOD OR APPROVED PLASTIC BLOCKOUTS. WOOD BLOCKOUTS MAY BE CONSTRUCTED OUT OF TWO OR MORE WOOD BLOCKOUTS. SEE ALTERNATE WOOD BLOCKOUT DETAIL. DIMENSIONS OF APPROVED PLASTIC BLOCKOUTS MAY VARY.

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

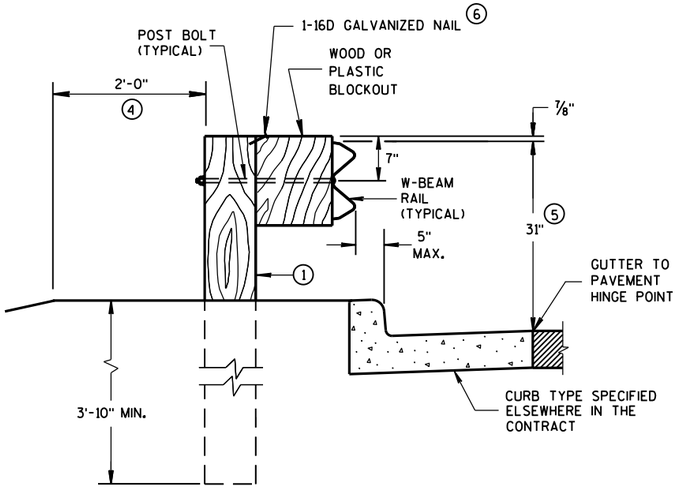
④ WHEN THE DISTANCE FROM BACK OF POST TO SHOULDER HINGE POINT IS LESS THAN 2 FEET INSTALL LONGER POST AT HALF POST SPACING (K).

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

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



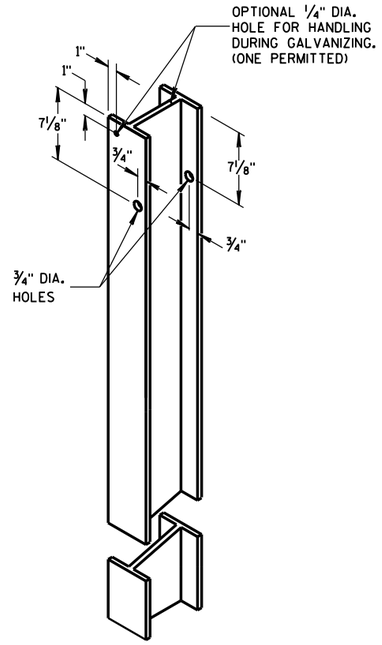
END VIEW
SETTING STEEL OR WOOD POST IN ROCK ③



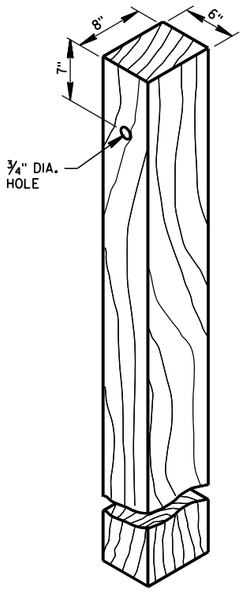
END VIEW
LOCATED ALONG A CURBED ROADWAY

END VIEW
LOCATED ALONG A ROADWAY SHOULDER
STANDARD INSTALLATION

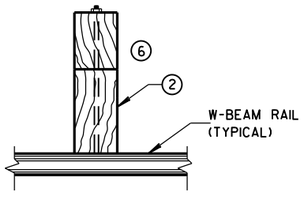
END VIEW
MGS LONGER POST AT HALFPOST SPACING W BEAM (K)



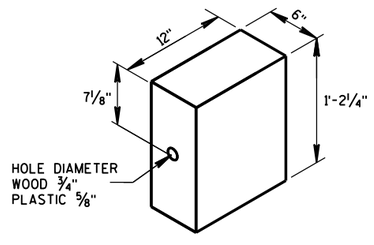
STEEL POST &
HOLE PUNCHING DETAIL
(w6X9) ①



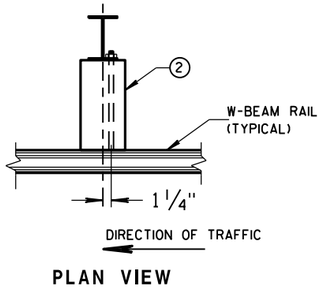
WOOD POST
(6" X 8") NOMINAL ①



PLAN VIEW
WOOD POST,
BLOCKOUT & BEAM



WOOD OR
PLASTIC BLOCKOUT ②



PLAN VIEW
STEEL POST,
PLASTIC BLOCKOUT & BEAM

MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI

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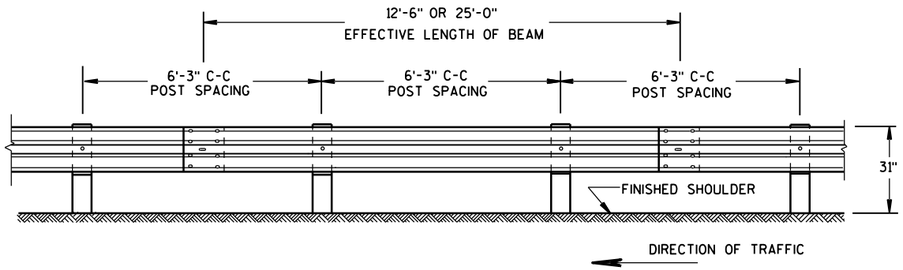
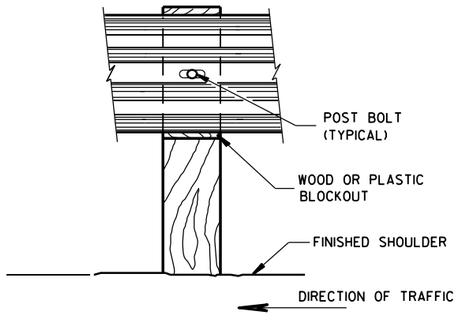
S.D.D. 14 B 42-5a



FRONT VIEW

POST SPACING STANDARD INSTALLATION



FRONT VIEW AT WOOD POST

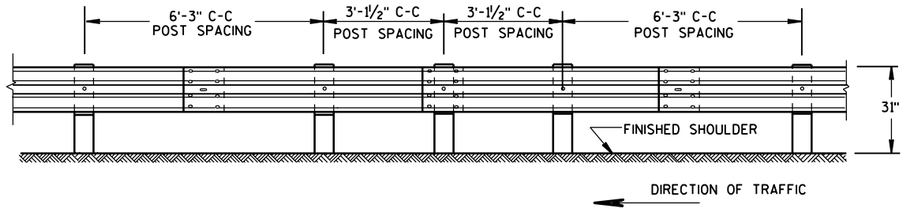
GENERAL NOTES

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

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

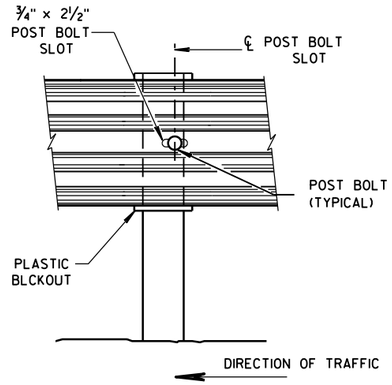
POST BOLTS ARE A 5/8" DIAMETER ASTM A307 GUARDRAIL BOLT. A POST BOLT REQUIRES 5/8" DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX NUT AND 5/8" DIAMETER F844 FLAT WASHER. POST BOLTS MAY BE LONGER IF MULTIPLE BLOCKOUTS ARE BEING USED.

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

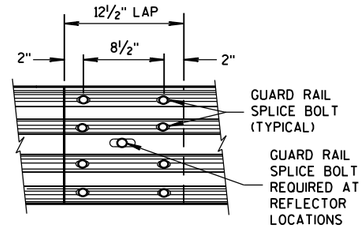


FRONT VIEW

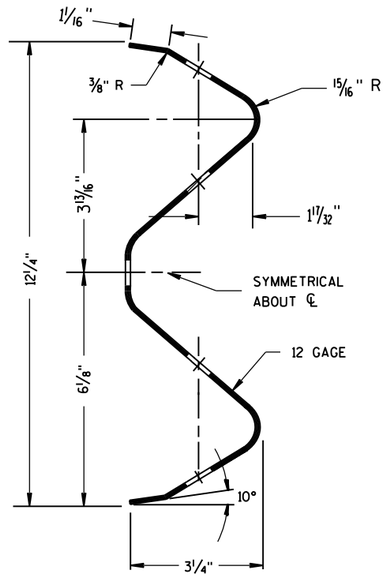
HALF POST SPACING (HS) AND HALF POST SPACING WITH LONGER POSTS (K)



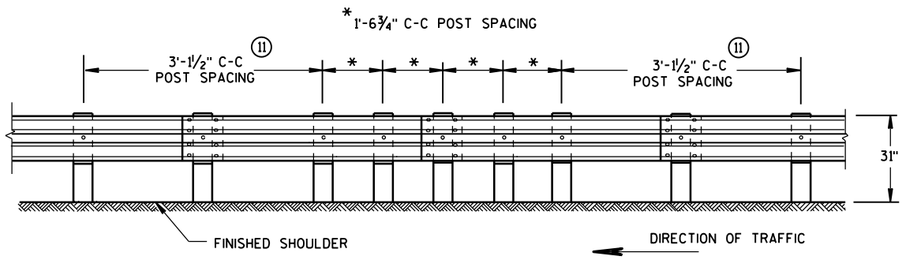
FRONT VIEW AT STEEL POST



FRONT VIEW
MID-SPAN BEAM SPLICE

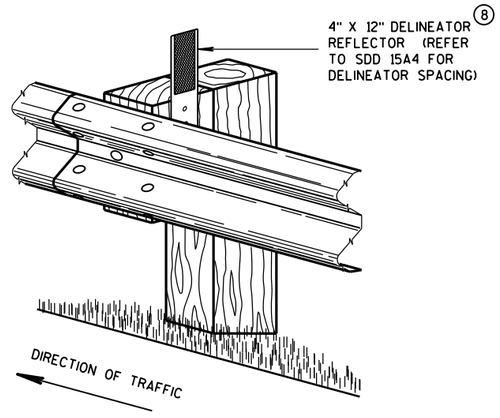


SECTION THRU W-BEAM RAIL



FRONT VIEW

QUARTER POST SPACING (QS)



ONE SIDED REFLECTOR DETAIL AND TYPICAL INSTALLATION

MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI

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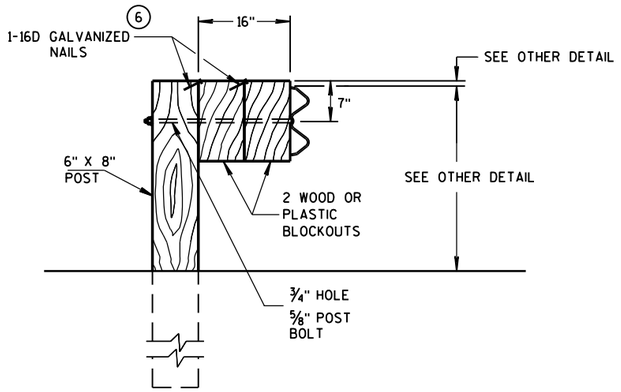
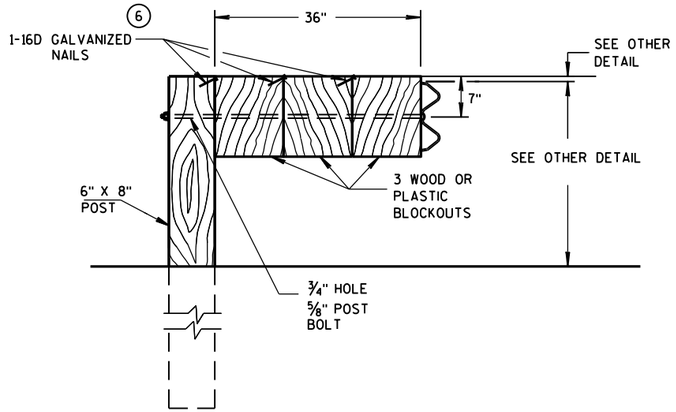
S.D.D. 14 B 42-5b



DETAIL FOR 16" BLOCKOUT DEPTH

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

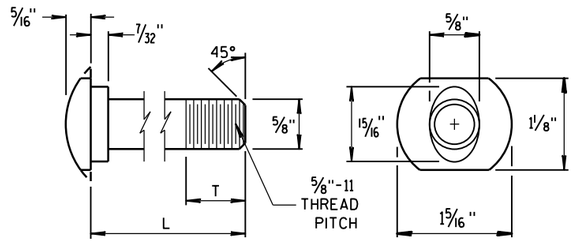


DETAIL FOR 36" BLOCKOUT DEPTH

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

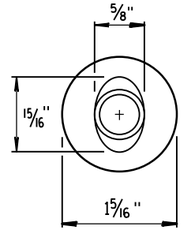
DO NOT USE 16" OR 36" BLOCKOUTS IF IT CAUSES THE POST TO BE DRIVEN BEYOND SHOULDER HINGE POINT OR CAUSES A FIXED OBJECT TO BE WITHIN THE DEFLECTION DISTANCE OF THE BARRIER.

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

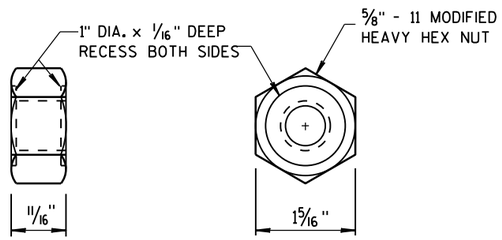


POST BOLT TABLE

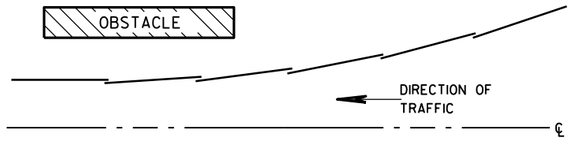
L	T (MIN.)
1 1/4"	1 1/8"
2"	1 3/4"
10"	4"
14"	4 1/16"
18"	4"
21"	4 1/16"
25"	4"



ALTERNATE BOLT HEAD

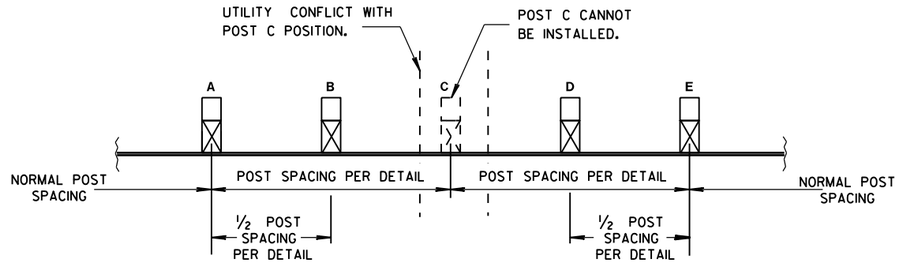


POST BOLT, SPLICE BOLT AND RECESS NUT

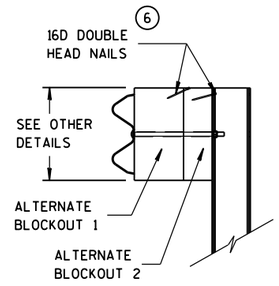


PLAN VIEW

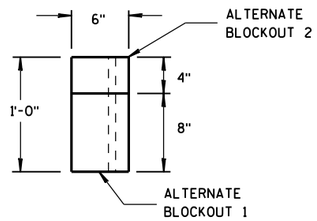
BEAM LAPPING DETAIL



POST DRIVING FOR CONTINUOUS UNDERGROUND OBSTRUCTION



SIDE VIEW



TOP VIEW

ALTERNATE WOOD BLOCKOUT DETAIL

MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI

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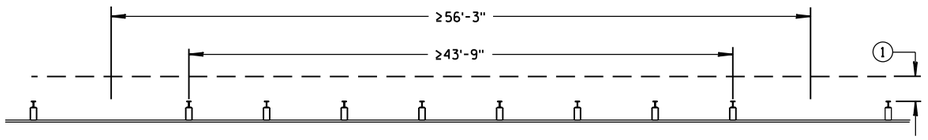
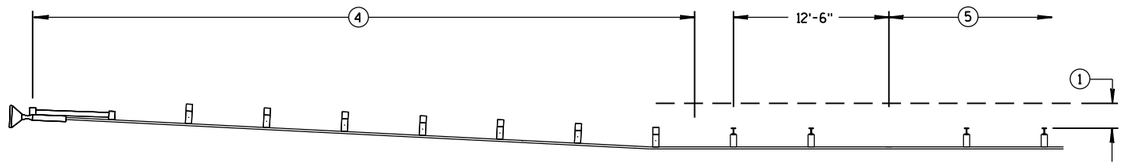
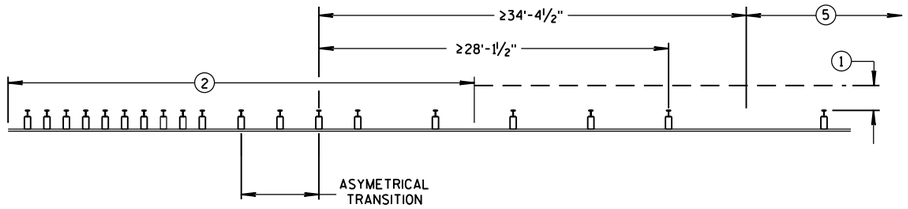
S.D.D. 14 B 42-5c



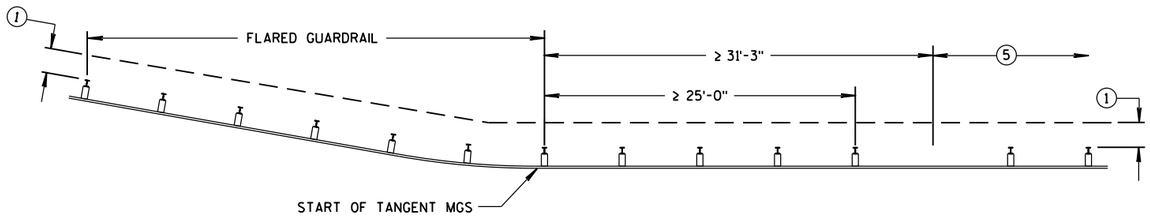
MISSING POST IN NORMAL BEAM GUARD RUN



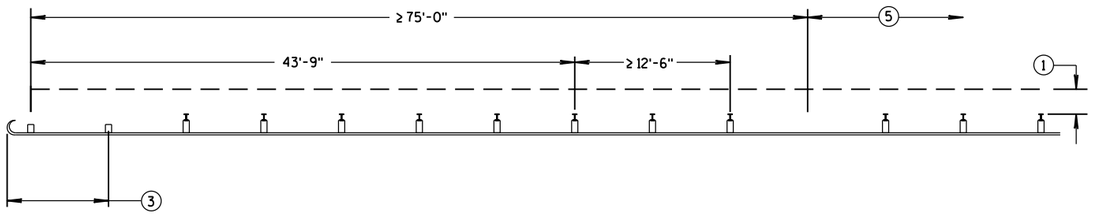
MISSING POST IN NORMAL BEAM GUARD RUN NEAR EAT



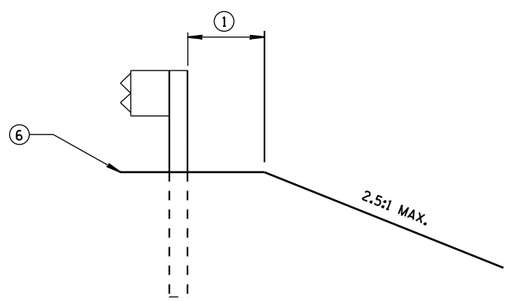
MISSING POST NEAR APPROACH THRIE BEAM TRANSITION



MISSING POST IN NORMAL BEAM GUARD RUN
NEAR FLARED BEAM GUARD



MISSING POST IN NORMAL BEAM GUARD RUN
NEAR TYPE 2 TERMINAL



CROSS SECTION VIEW

1. MINIMUM OF 2 FEET OF GRADING BEHIND POST.
2. SEE SDD 14B45 FOR MORE DETAILS.
3. SEE SDD 14B47 FOR MORE DETAILS.
4. SEE SDD 14B44 FOR MORE DETAILS.
5. SEE MISSING POST IN NORMAL BEAM GUARD RUN FOR DISTANCE TO NEXT MISSING POST AND AREA FOR WELL DRAINED, COMPACTED SOILS.
6. SEE PLAN FOR SHOULDER DESIGN.

MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June 2017
DATE
FHWA

/S/ Rodney Taylor
ROADWAY STANDARDS DEVELOPMENT
UNIT SUPERVISOR

6

S.D.D. 14 B 42-5d

6

S.D.D. 14 B 42-5d

GENERAL NOTES

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

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

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

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

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

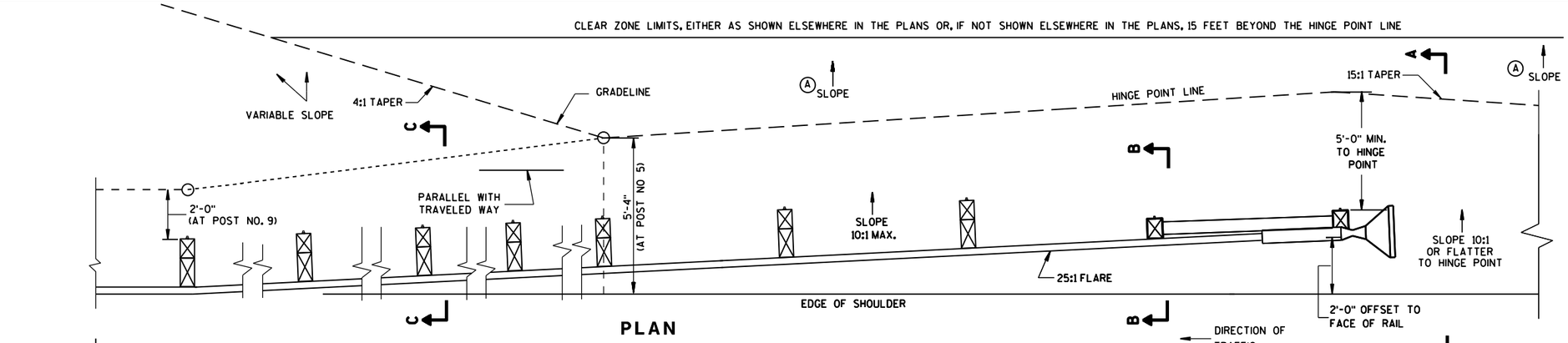
SEE SDD 14B42 FOR MORE INFORMATION.

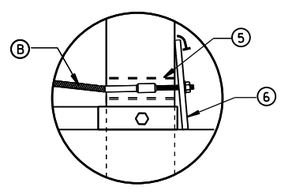
* DO NOT ATTACH BLOCKOUTS TO POSTS 1 AND 2.

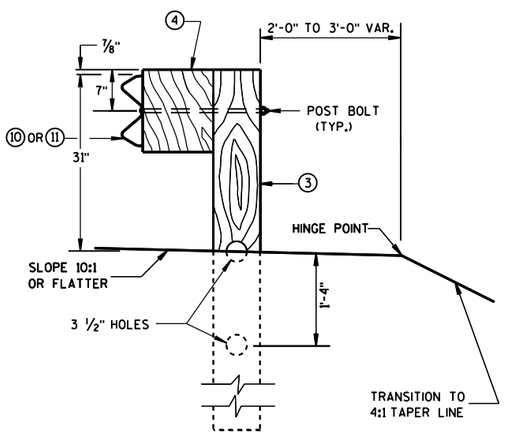
DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINAL.

SEE MANUFACTURER'S DRAWING FOR SPLICE LOCATION, HARDWARE DIMENSIONS AND INSTALLATION INSTRUCTIONS.

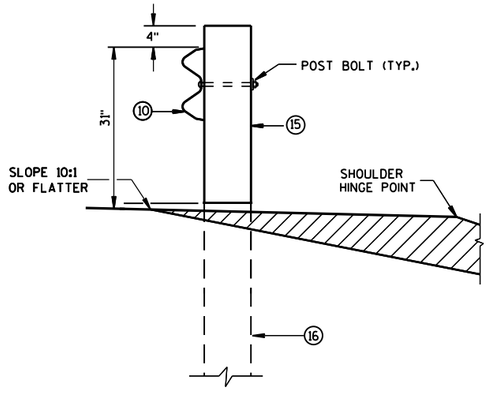
THE CENTER OF THE UPPER 3½" DIAMETER HOLE ON POST NUMBER 3 THROUGH POST 9 IS TO BE FLUSH WITH THE GROUND LINE UP TO A MAXIMUM OF 2" ABOVE GROUND LINE.



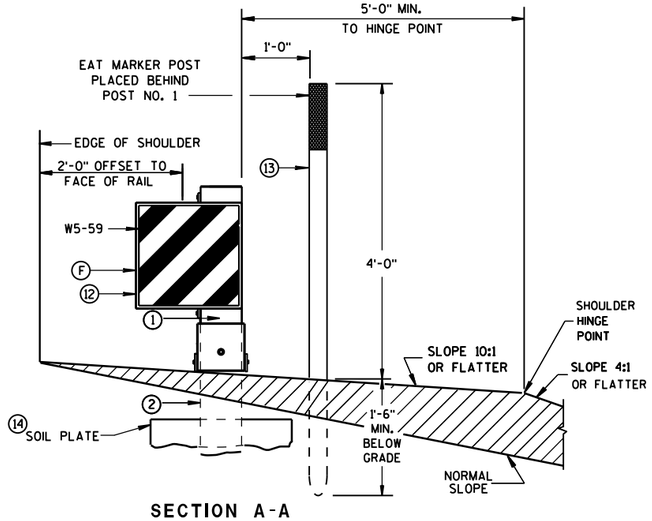




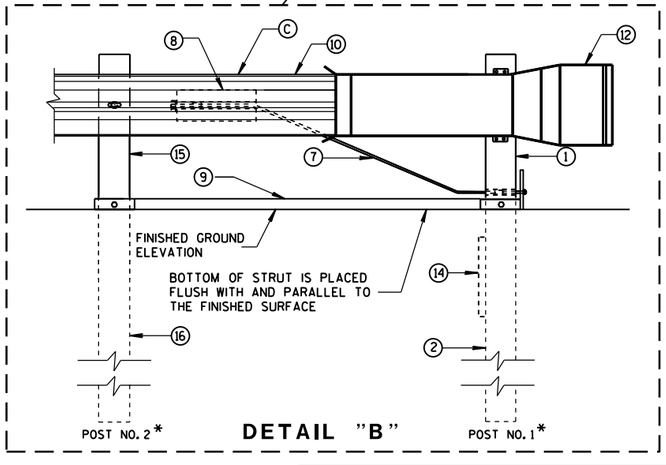
SECTION C-C
TYPICAL AT POST NOS. 3-9



SECTION B-B
TYPICAL AT POST NO. 2*



SECTION A-A
TYPICAL AT POST NO. 1*



DETAIL "B"

MIDWEST GUARDRAIL SYSTEM
ENERGY ABSORBING TERMINAL
(MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPO

6

S.D.D. 14 B 44-3a

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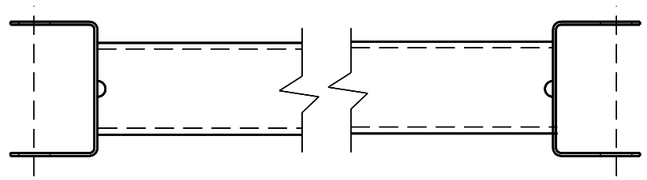
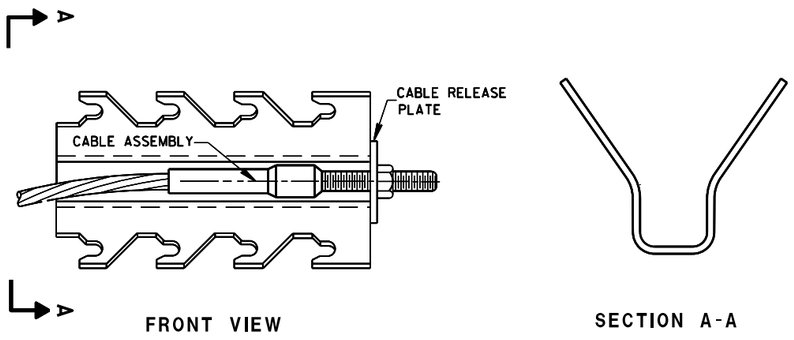
S.D.D. 14 B 44-3a



(9) (H)

GENERIC GROUND STRUT



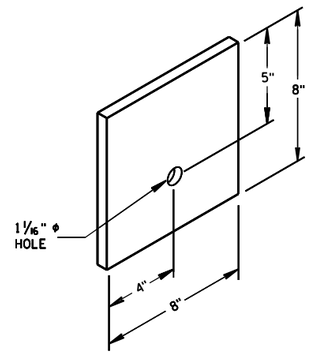
FRONT VIEW

SECTION A-A

GENERIC ANCHOR CABLE BOX (8) (H)

BILL OF MATERIALS

PART NO.	DESCRIPTION MATERIALS PROVIDED BY MGS EAT MANUFACTURER. SEE MANUFACTURER'S DETAILS FOR MORE INFORMATION.
(1)	UPPER POST NO. 1 6" X 6" TUBE
(2)	LOWER POST NO. 1
(3)	WOOD CRT
(4)	WOOD BLOCKOUT
(5)	PIPE SLEEVE
(6)	BEARING PLATE
(7)	BCT CABLE ASSEMBLY
(8)	ANCHOR CABLE BOX
(9)	GROUND STRUT
(10)	PERFORATED W-BEAM RAIL END PANEL, 12'-6" LONG.
(11)	STANDARD W-BEAM RAIL. MULTIPLE SECTIONS REQUIRED. SECTIONS VARY IN LENGTH.
(12)	IMPACT HEAD
(13)	EAT MARKER POST - YELLOW (SEE APPROVED PRODUCTS LIST)
(14)	SOIL PLATE
(15)	UPPER POST NO. 2
(16)	LOWER POST NO. 2



BEARING PLATE (6)

MIDWEST GUARDRAIL SYSTEM
ENERGY ABSORBING TERMINAL
(MGS)

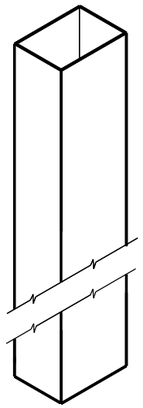
STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR

6

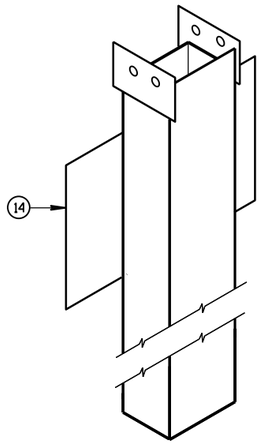
S.D.D. 14 B 44-3b

6

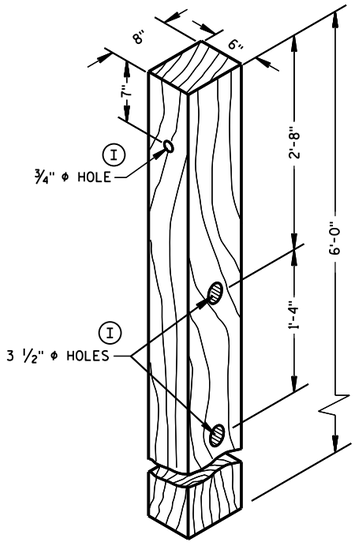
S.D.D. 14 B 44-3b



UPPER POST NO. 1 (1)

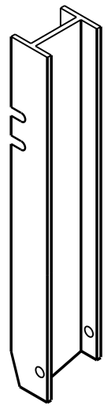


LOWER POST NO. 1 (2)

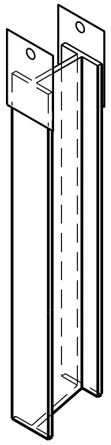


POSTS NUMBER 3-9

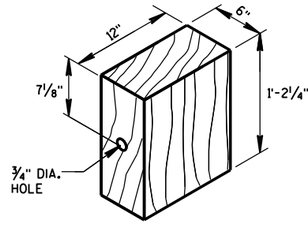
WOOD CRT POST (3)



UPPER POST NO. 2 (15)

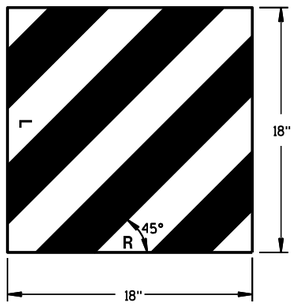


LOWER POST NO. 2 (16)



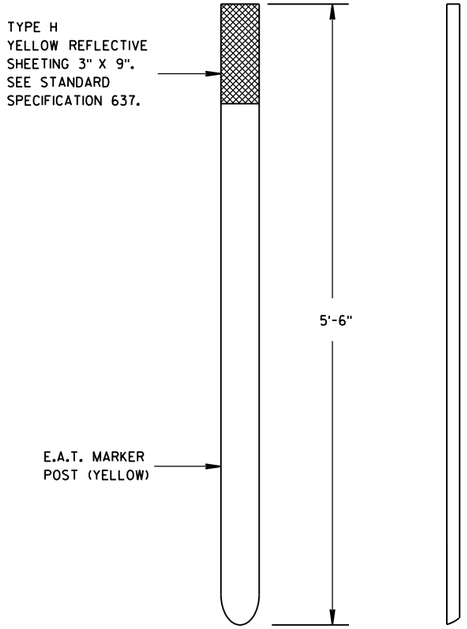
WOOD BLOCKOUT (4)

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



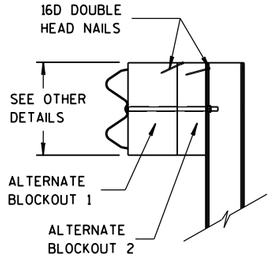
W5-59

REFLECTIVE SHEETING DETAIL (H)

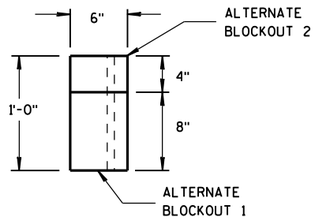


FRONT VIEW SIDE VIEW

E.A.T. MARKER POST (13)



SIDE VIEW



TOP VIEW

ALTERNATE WOOD
BLOCKOUT DETAIL

MIDWEST GUARDRAIL SYSTEM
ENERGY ABSORBING TERMINAL
(MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

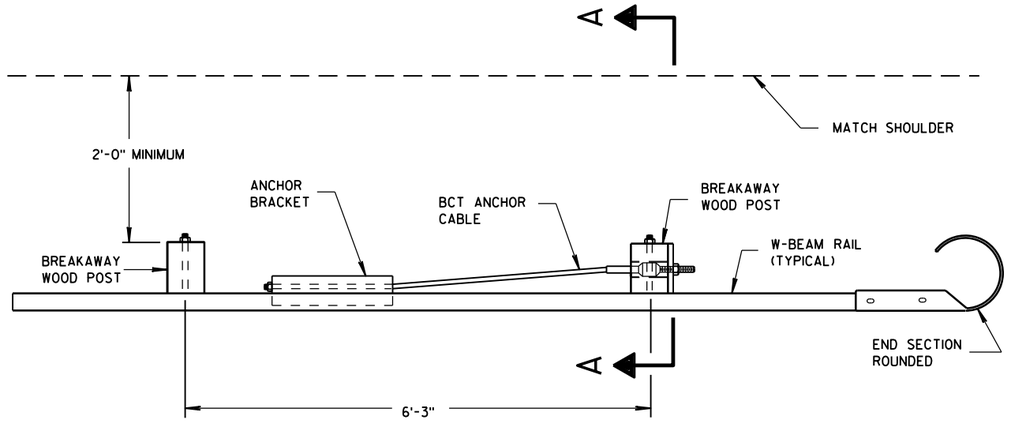
June 2017
DATE

/S/ Rodney Taylor
ROADWAY STANDARDS
UNIT SUPERVISOR

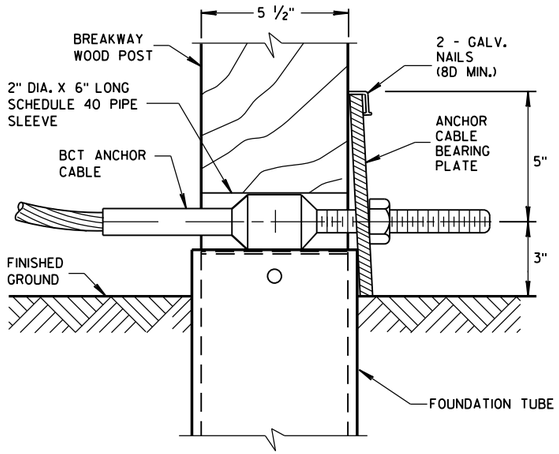
FHWA

6

S.D.D. 14 B 44-3c



PLAN VIEW



DETAIL A

POST NO. 1
GROUNG STRUT NOT SHOWN FOR CLARITY.

GENERAL NOTES

SEE SDD 14 B 42 FOR MORE INFORMATION.

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

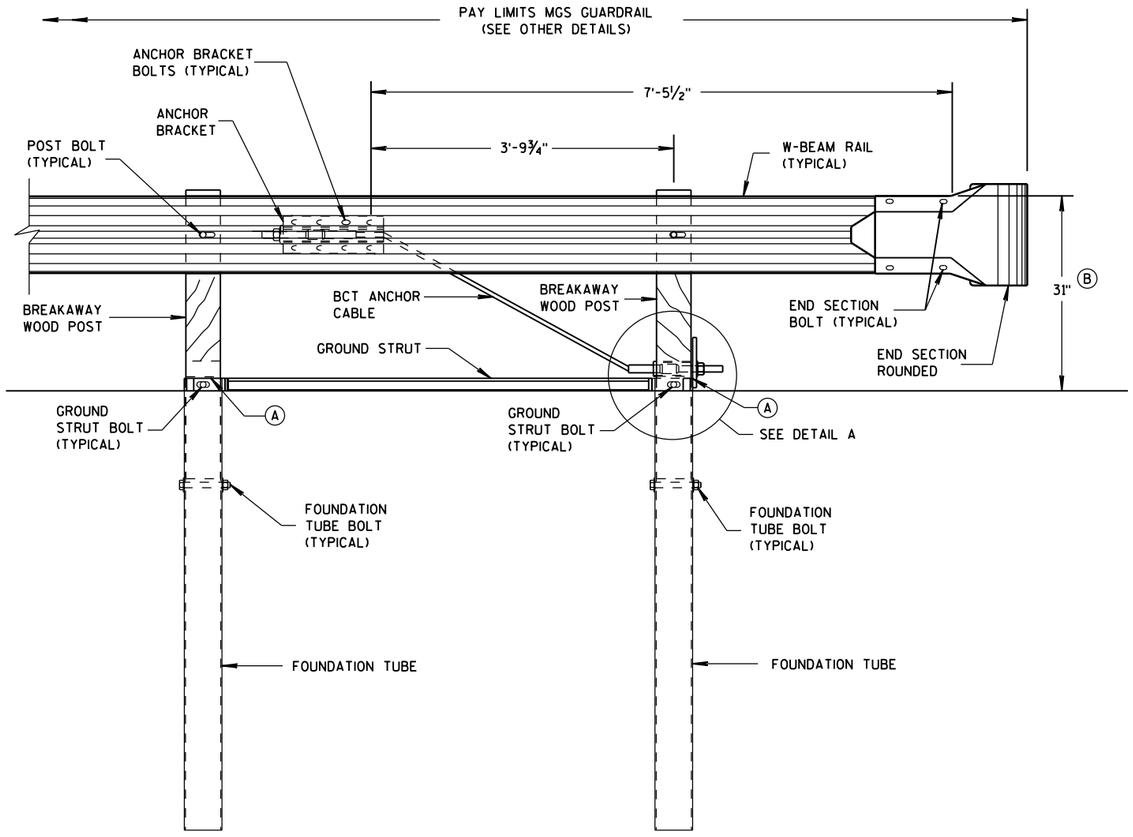
FOUNDATION TUBE BOLTS ARE ⅞" DIAMETER ASTM A307 HEX HEAD BOLT. FOUNDATION TUBE BOLTS REQUIRE ASTM A563 A NUT AND TWO ASTM F844 ⅞" DIAMETER FLAT WASHERS. INSTALL ONE WASHER UNDER BOLT HEAD AND ONE WASHER UNDER NUT.

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

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

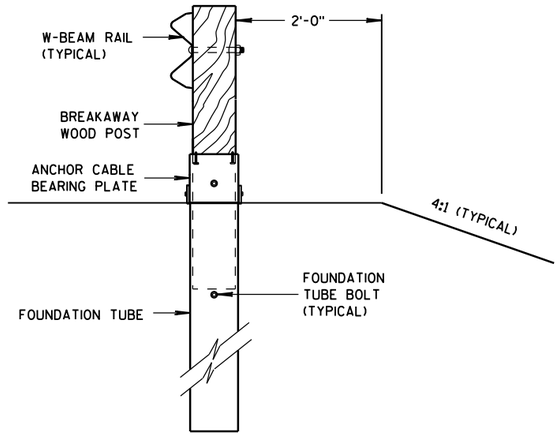
(A) TOP OF FOUNDATION TUBE SHALL BE NO MORE THAN 3" ABOVE FINISHED GROUND.

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

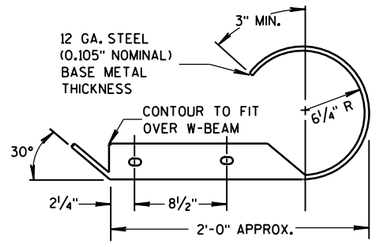


FRONT VIEW

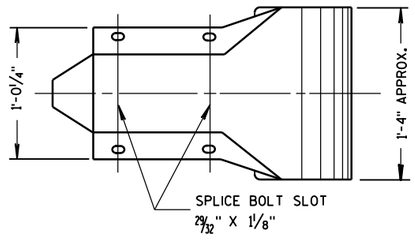
END RAIL DETAIL



SECTION A-A



PLAN VIEW



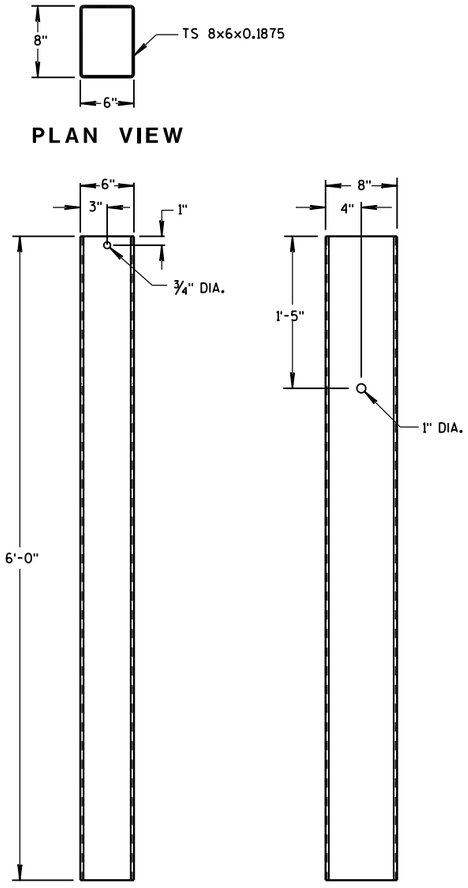
FRONT VIEW

W BEAM END SECTION ROUNDED

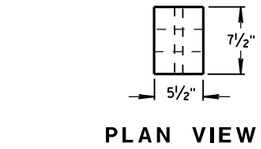
MIDWEST GUARDRAIL SYSTEM (MGS) TYPE 2 TERMINAL

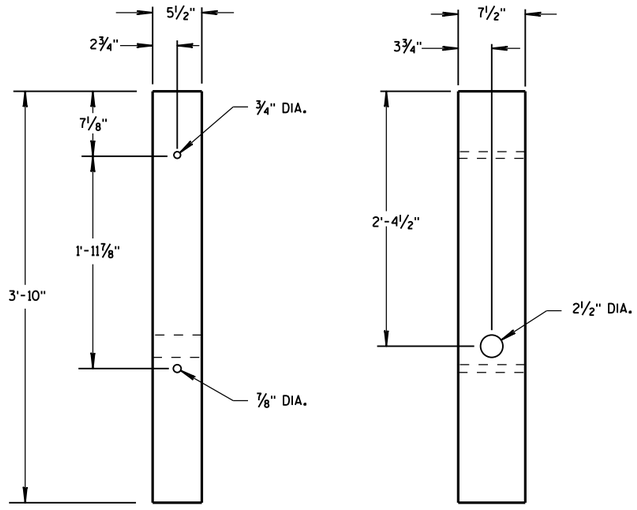
STATE OF WISCONSIN
DEPARTMENT OF TRANSPO

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



FOUNDATION TUBE

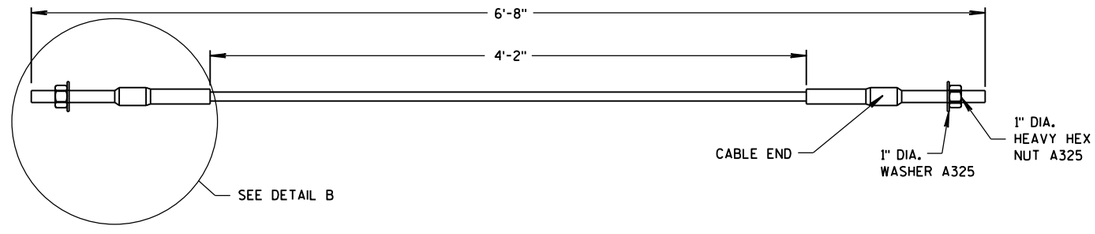




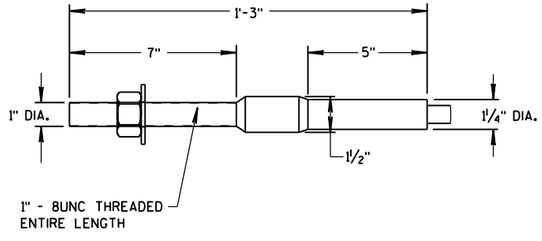
BREAKAWAY WOOD POST

GENERAL NOTES

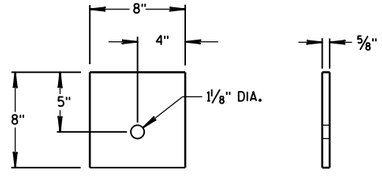
BCT ANCHOR CABLE IS A ¾" DIAMETER 6X19 IWRC IPS GALVANIZED WIRE ROPE. THE SWAGED FITTINGS AND STUD ARE REQUIRED. END FITTING SHALL BE MACHINED FROM HOT-ROLLED CARBON STEEL CONFORMING TO ASTM A576 GRADE 1035 AND GALVANIZED ACCORDING TO ASTM A123. TREADED STUD SHALL CONFORM TO ASTM A325 OR SAE GRADE 5.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



BCT ANCHOR CABLE



DETAIL B



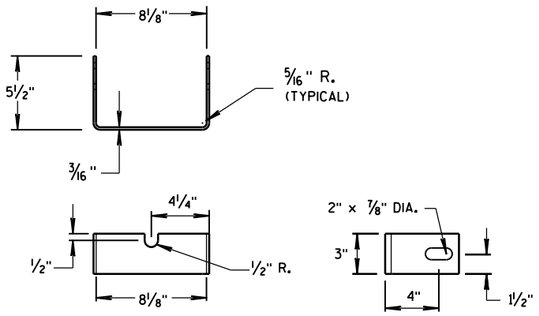
ANCHOR CABLE
BEARING PLATE

MIDWEST GUARDRAIL
SYSTEM (MGS) TYPE 2 TERMINAL

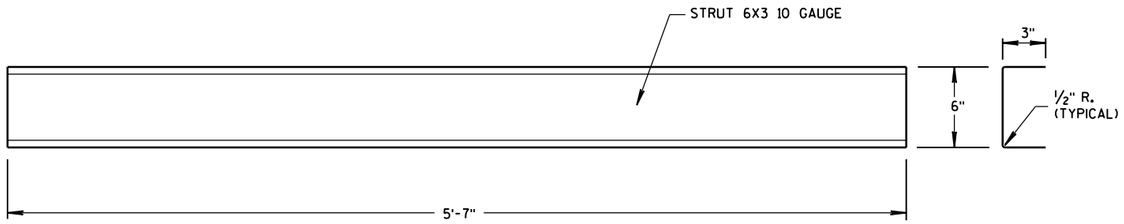
STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI

6

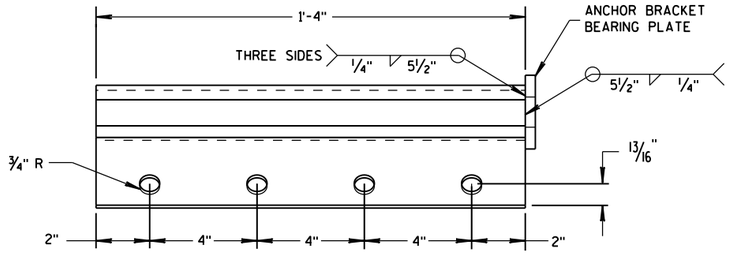
S.D.D. 14 B 47-2b

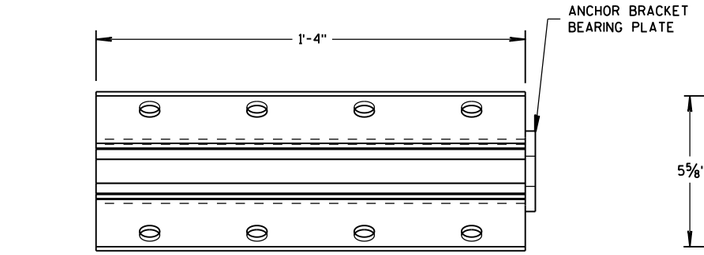


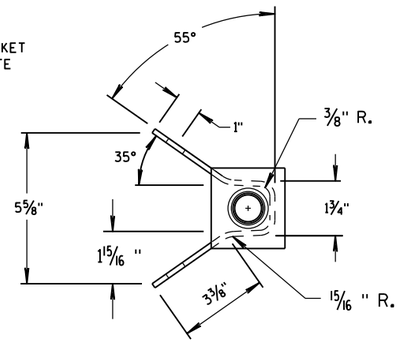
YOKE DETAIL



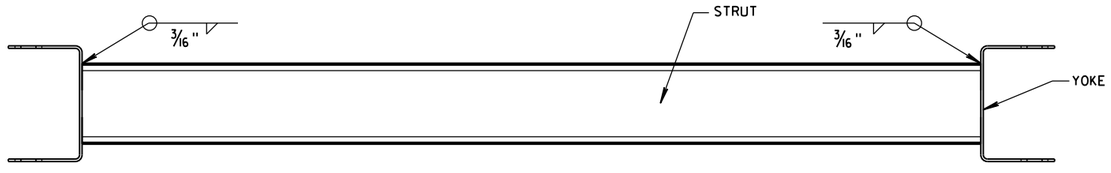
STRUT DETAIL



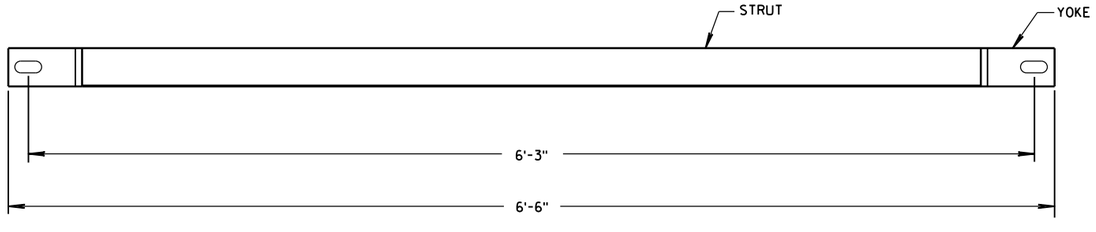




ANCHOR BRACKET

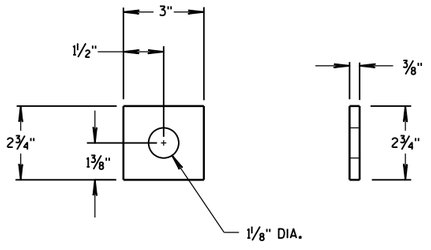


PLAN VIEW



FRONT VIEW

GROUND STRUT DETAIL



ANCHOR BRACKET BEARING PLATE

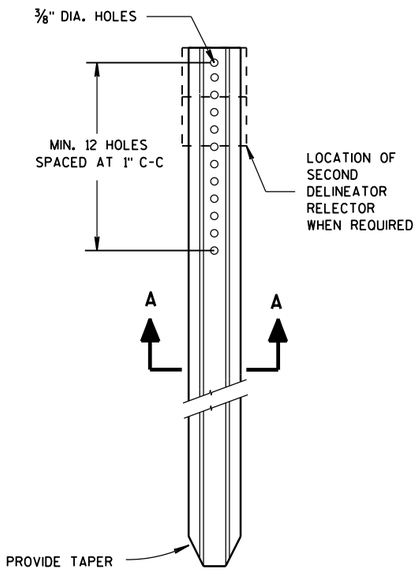
MIDWEST GUARDRAIL SYSTEM (MGS) TYPE 2 TERMINAL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

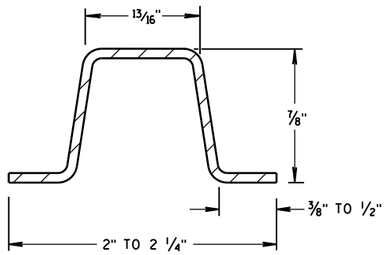
APPROVED
June 2014
DATE
/S/ Jerry H. Zogg
ROADWAY STANDARDS ENGINEER
FHWA

6

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

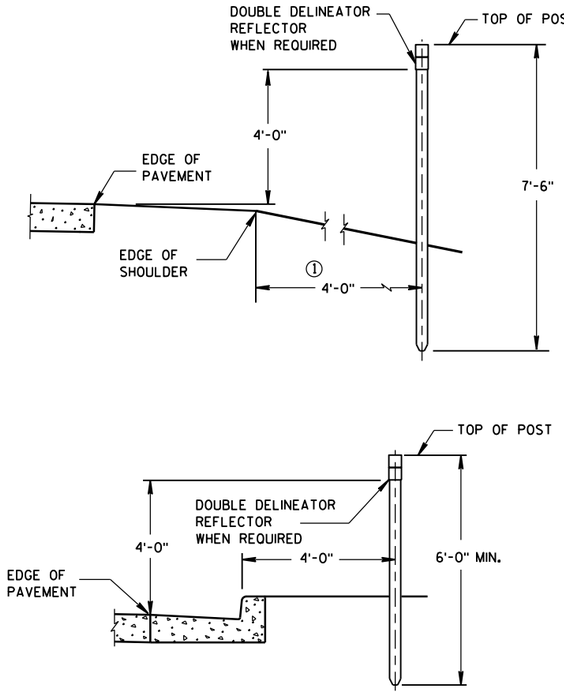


DELINEATOR POST



SECTION A-A

WEIGHT 1.12 LBS PER FT. ± 0.1 LB.

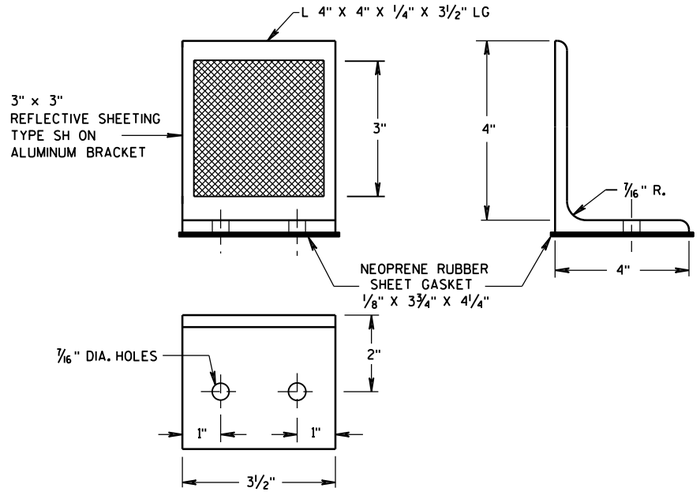


TYPICAL INSTALLATIONS OF DELINEATOR POSTS

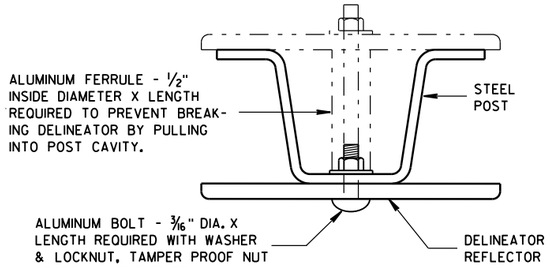
GENERAL NOTES

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

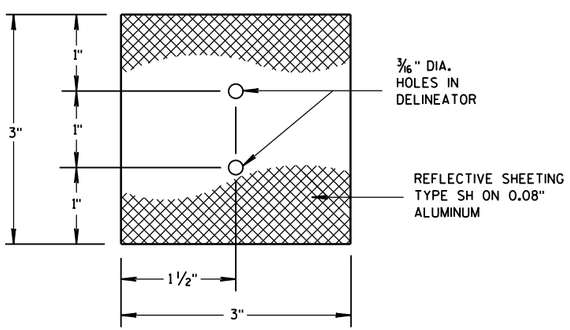
① DELINEATORS SHALL BE PLACED AT A CONSTANT DISTANCE FROM THE EDGE OF THE SHOULDER FOR THE LENGTH OF THE INSTALLATION.



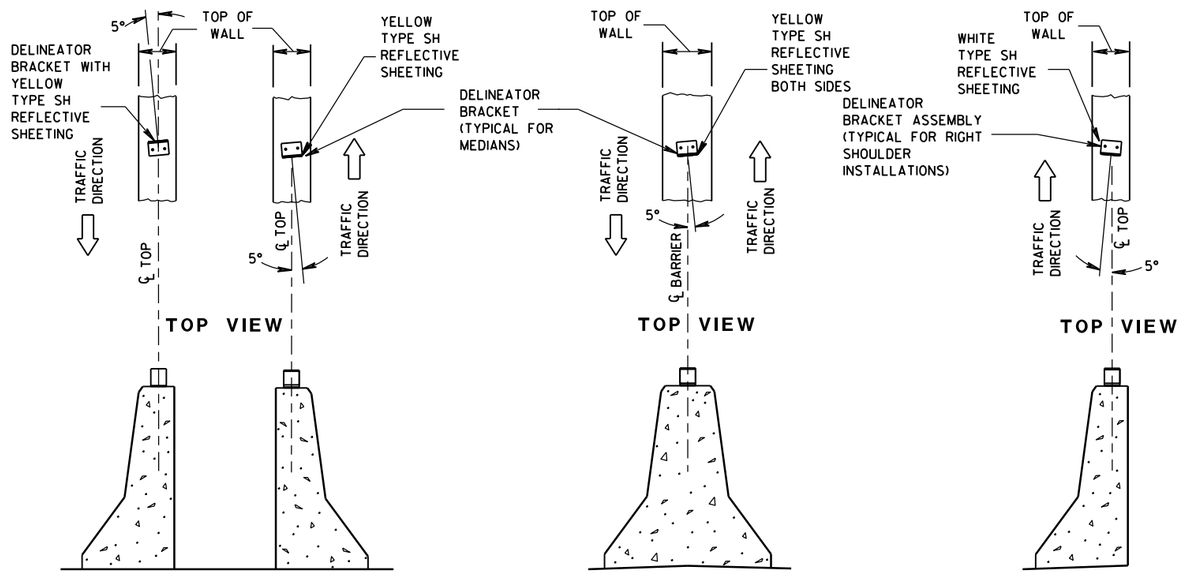
DELINEATOR BRACKET



MOUNTING DETAIL FOR DELINEATOR REFLECTOR

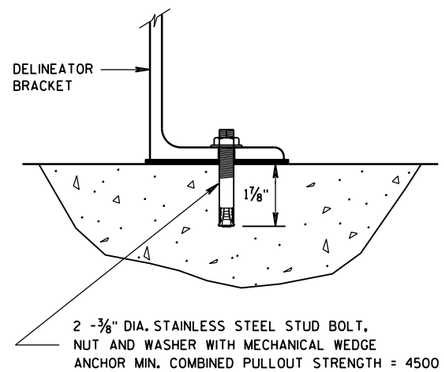


3"x 3" DELINEATOR REFLECTOR



DOUBLE BARRIERS IN MEDIAN | **MEDIAN BARRIER** | **BARRIER LOCATED TO RT. OF TRAFFIC FLOW**

LOCATION AND AIMING DETAILS FOR DELINEATOR BRACKETS MOUNTED ON CONCRETE BARRIERS



DELINEATOR BRACKET MOUNTING DETAIL

DELINEATOR POST, DELINEATOR REFLECTOR AND DELINEATOR BRACKET WITH REFLECTIVE SHEETING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

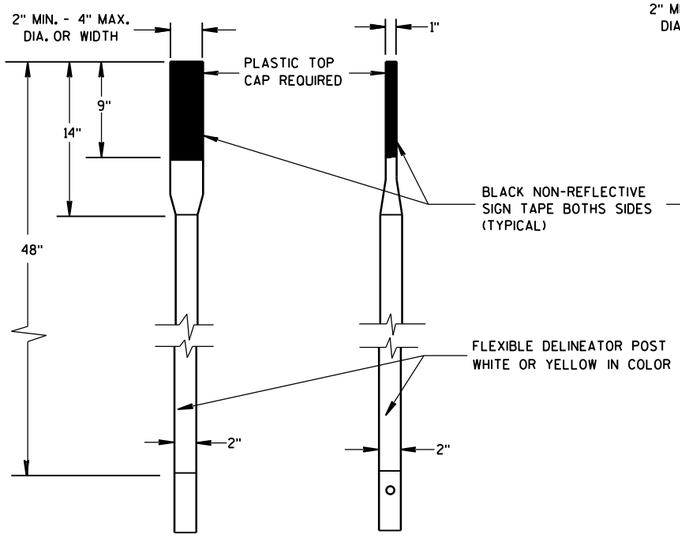
APPROVED
4-18-16 DATE
/S/ Matthew R. Rauch
STATE SIGNING AND MAR[illegible] ENGINEER
FHWA

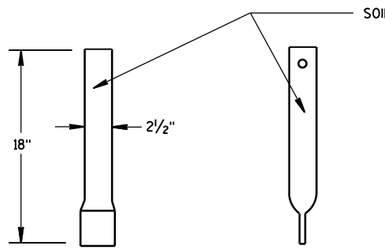
6

S.D.D. 15 A 2-9

6

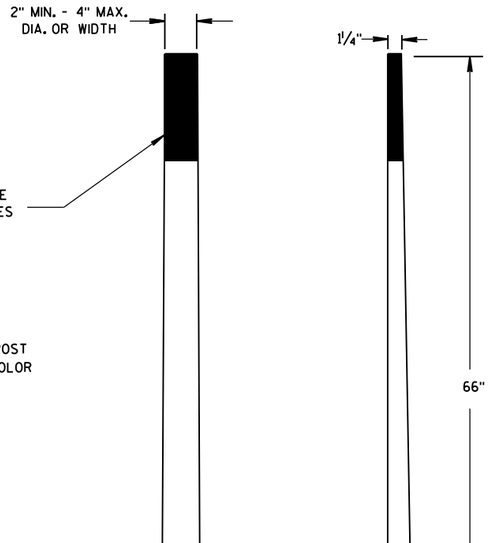
S.D.D. 15 A 2-9





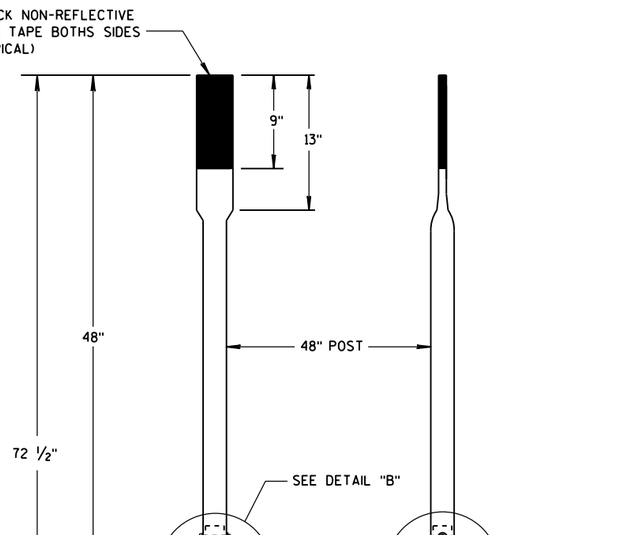
FRONT VIEW SIDE VIEW

ALTERNATE 1



FRONT VIEW SIDE VIEW

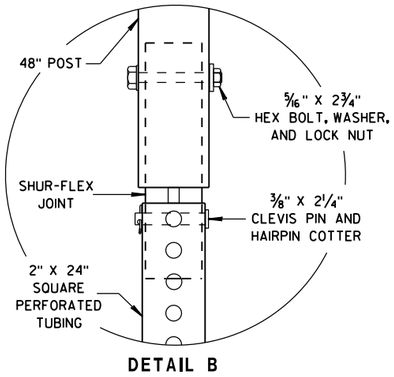
ALTERNATE 2



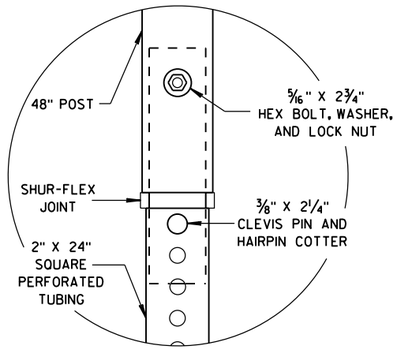
FRONT VIEW SIDE VIEW

ALTERNATE 3

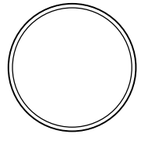
FLEXIBLE MARKER POSTS



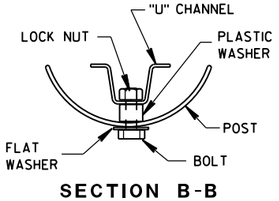
DETAIL B



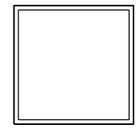
DETAIL C



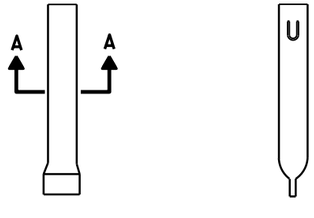
SECTION A-A



SECTION B-B

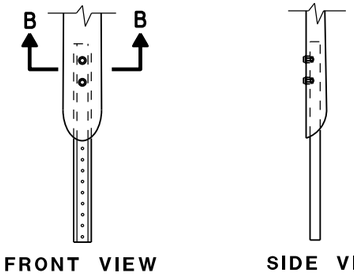


SECTION C-C



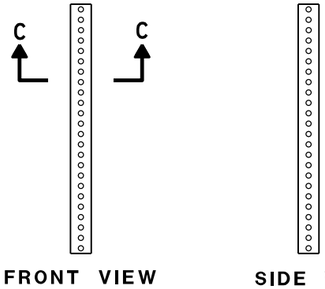
FRONT VIEW SIDE VIEW

ALTERNATE 1



FRONT VIEW SIDE VIEW

ALTERNATE 2



FRONT VIEW SIDE VIEW

ALTERNATE 3

FLEXIBLE MARKER POST ANCHORS

FLEXIBLE MARKER POST
FOR CULVERT END

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

6

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

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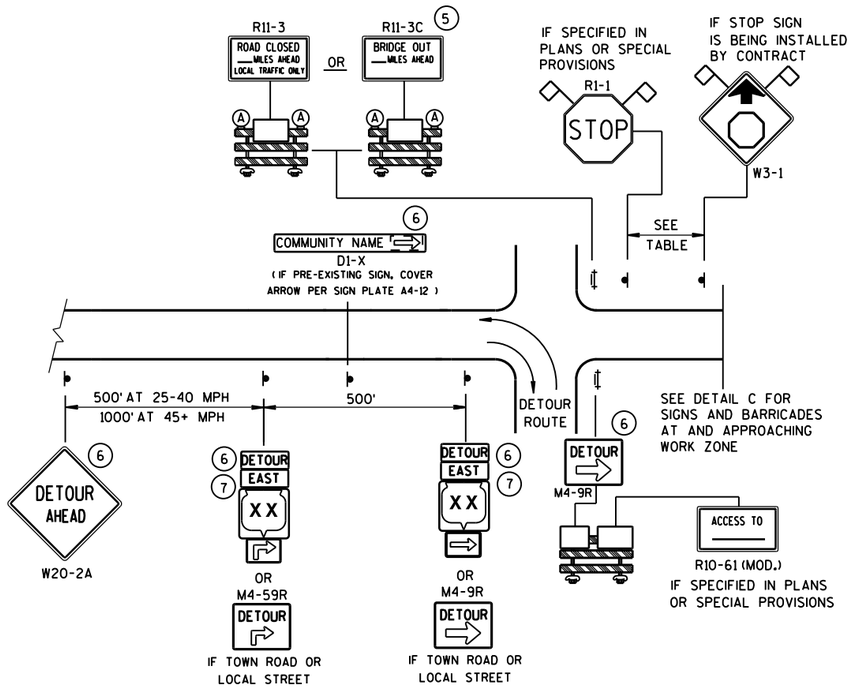
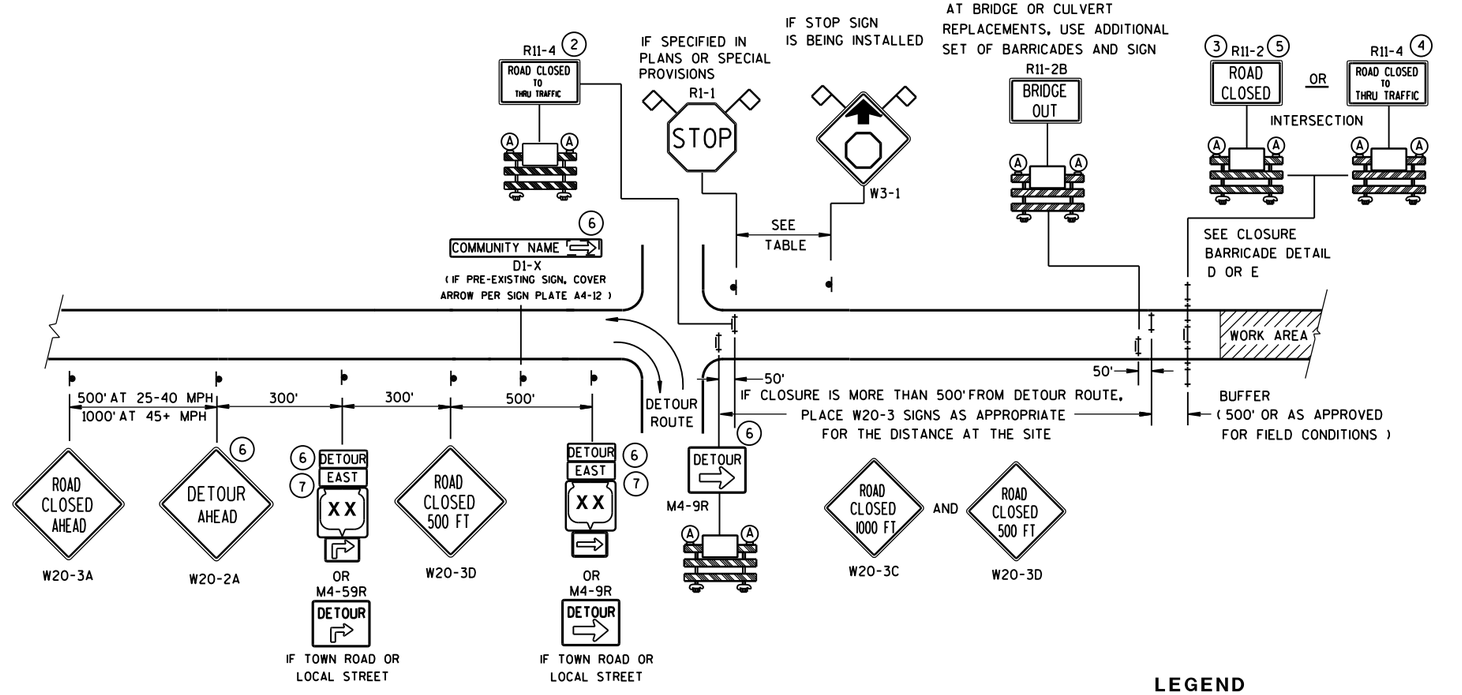
S.D.D. 15 A 3-2b



DETAIL A

MAINLINE CLOSURE WITH POSTED DETOUR

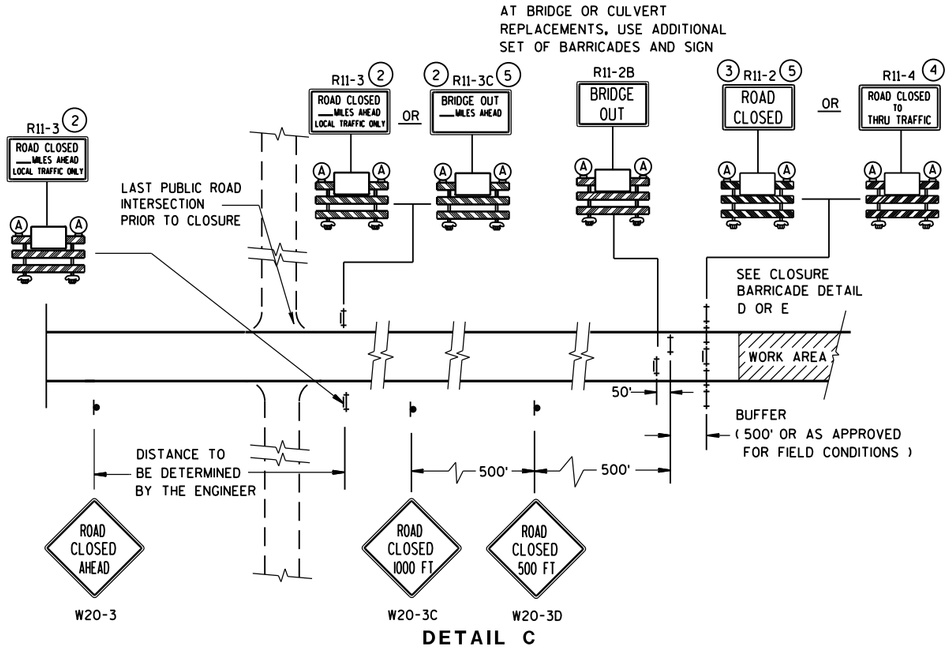
WORK ZONE GREATER THAN ½ MILE FROM DETOUR ROUTE (1000 FEET IF URBAN)



DETAIL B

MAINLINE CLOSURE WITH POSTED DETOUR

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



DETAIL C

MAINLINE CLOSURE, NO POSTED DETOUR

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

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

LEGEND

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

BARRICADES AND SIGNS FOR MAINLINE CLOSURES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

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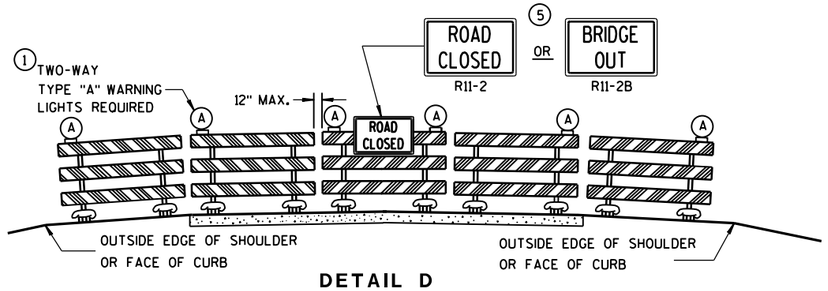
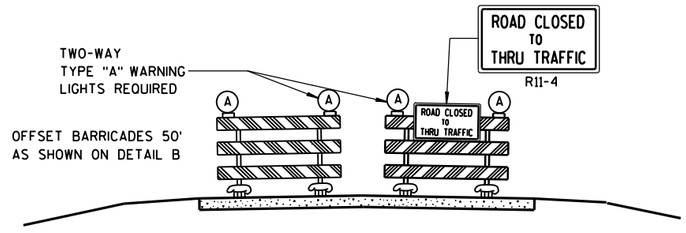
S.D.D. 15 C 2-6a



DETAIL D

ROAD CLOSURE BARRICADE DETAIL

APPROACH VIEW



DETAIL E

LANE CLOSURE BARRICADE DETAIL

APPROACH VIEW

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

GENERAL NOTES

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

BARRICADES AND SIGNS FOR MAINLINE CLOSURES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

Sept. 2015 — DATE

/S/ Peter Amakobe Atepe
STATEWIDE WORK ZO SAFETY ENGI — FIC
FHWA

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

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

GENERAL NOTES

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

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

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

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

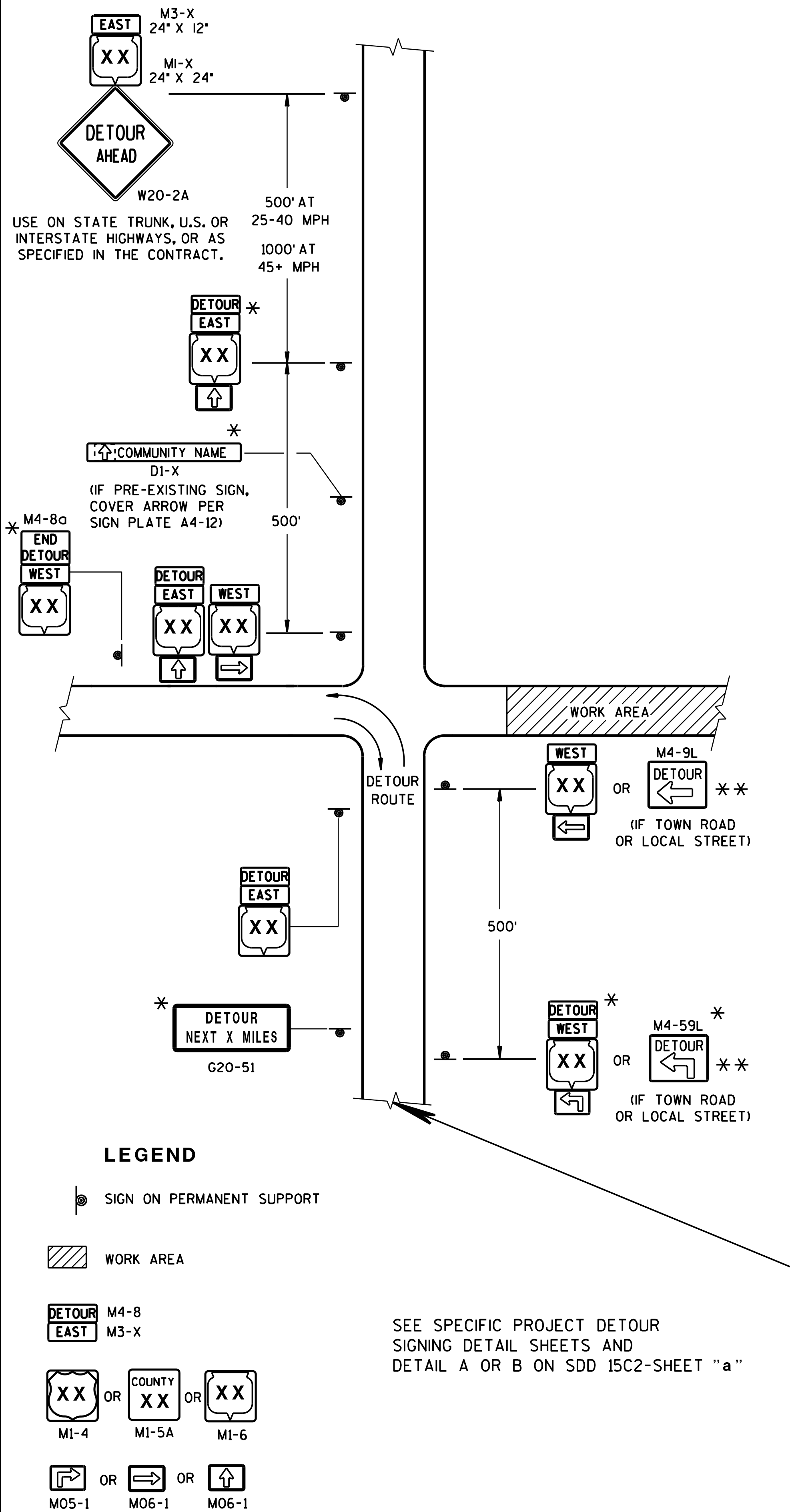
SIGNS THAT WILL BE IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS MAY BE MOUNTED ON PORTABLE SUPPORTS.

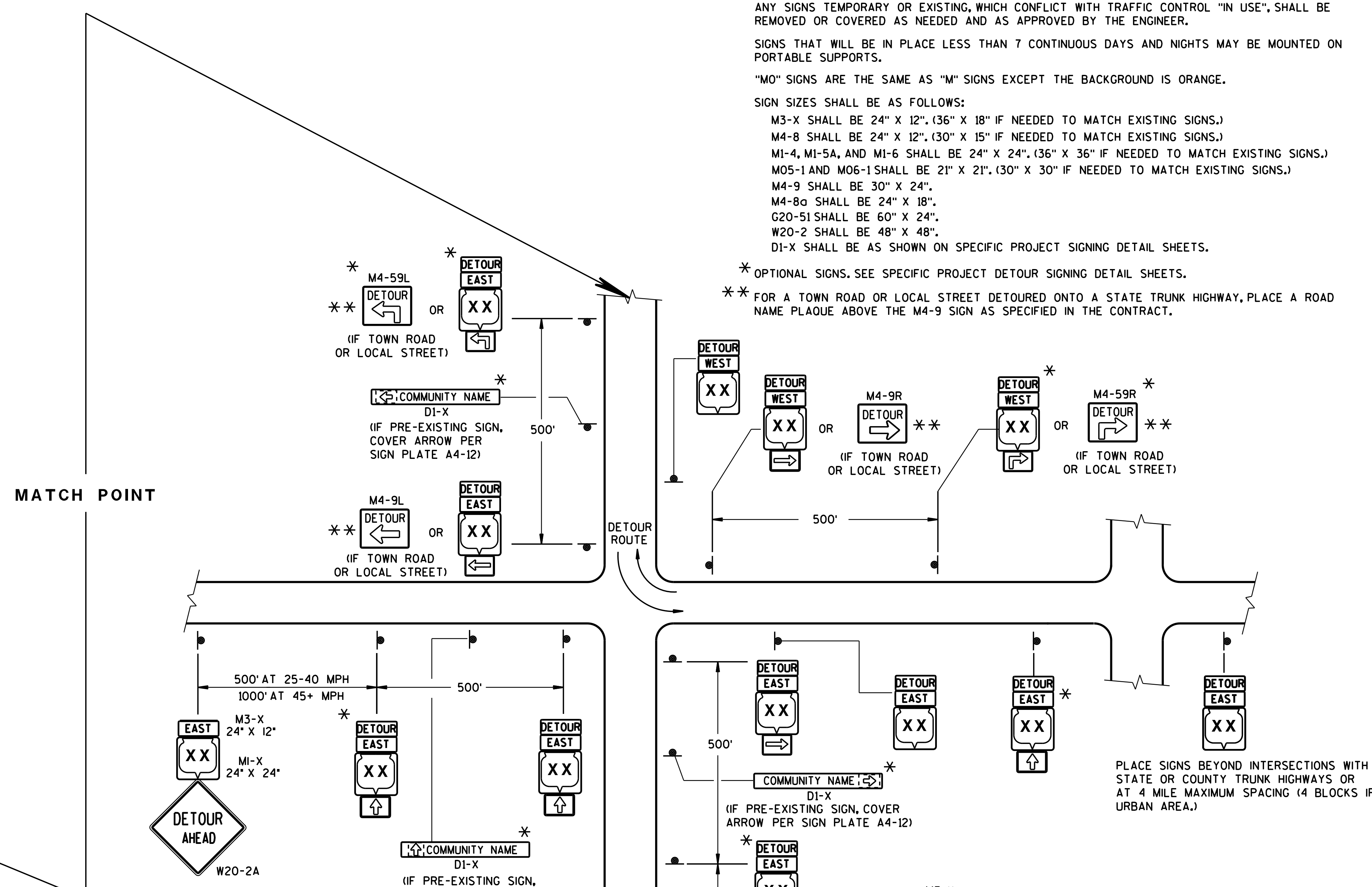
"MO" SIGNS ARE THE SAME AS "M" SIGNS EXCEPT THE BACKGROUND IS ORANGE.

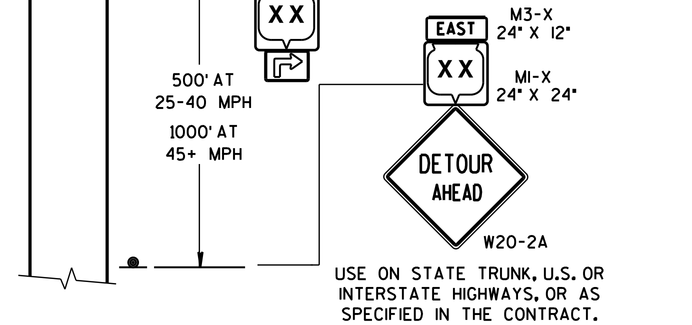
SIGN SIZES SHALL BE AS FOLLOWS:
- M3-X SHALL BE 24" X 12". (36" X 18" IF NEEDED TO MATCH EXISTING SIGNS.)
- M4-8 SHALL BE 24" X 12". (30" X 15" IF NEEDED TO MATCH EXISTING SIGNS.)
- M1-4, M1-5A, AND M1-6 SHALL BE 24" X 24". (36" X 36" IF NEEDED TO MATCH EXISTING SIGNS.)
- M05-1 AND M06-1 SHALL BE 21" X 21". (30" X 30" IF NEEDED TO MATCH EXISTING SIGNS.)
- M4-9 SHALL BE 30" X 24".
- M4-8a SHALL BE 24" X 18".
- G20-51 SHALL BE 60" X 24".
- W20-2 SHALL BE 48" X 48".
- D1-X SHALL BE AS SHOWN ON SPECIFIC PROJECT SIGNING DETAIL SHEETS.

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

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







DETAIL F

DETOUR SIGNING

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DETOUR SIGNING FOR MAINLINE CLOSURES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

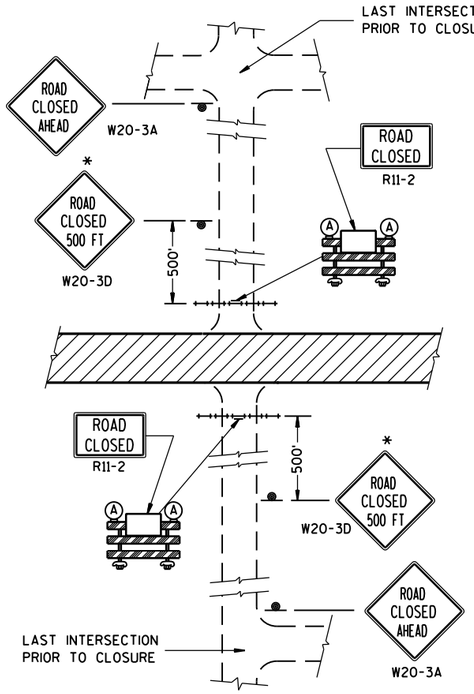
APPROVED

Sept. 2015 — DATE

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

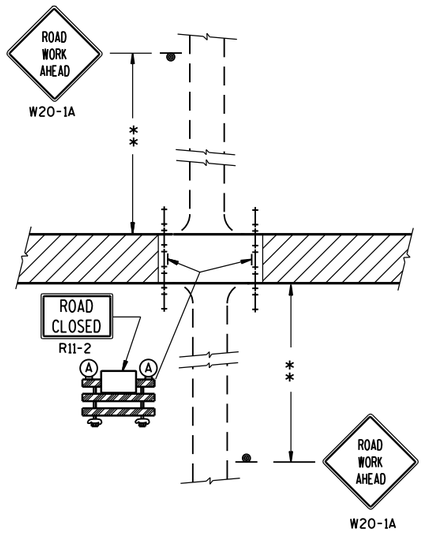
FHWA

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



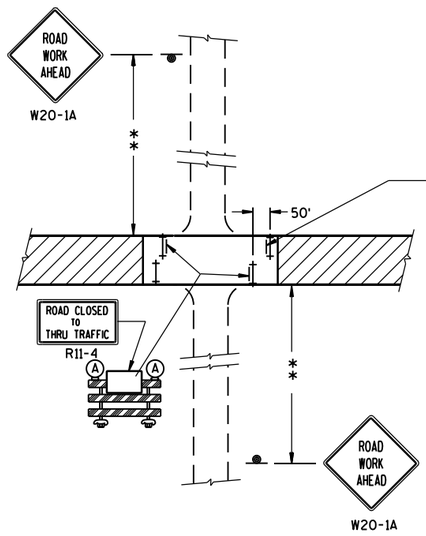
DETAIL 1

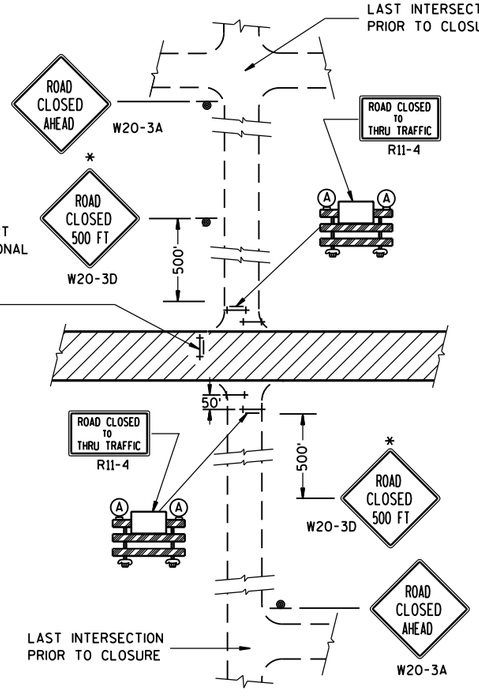
(NO ACCESS TO PROJECT)



DETAIL 2

(PUBLIC CROSS-TRAFFIC MAINTAINED. NO ACCESS TO PROJECT).





DETAIL 3

(PUBLIC CROSS-TRAFFIC MAINTAINED. CONTRACTOR, LOCAL BUSINESS AND RESIDENT ACCESS).

DETAIL 4

(CONTRACTOR, LOCAL BUSINESS AND RESIDENT ACCESS TO PROJECT)

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.

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.

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 AND R11-4 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.

ALL SIGNS SHALL BE 48" X 48" UNLESS OTHERWISE NOTED BELOW:
R11-2 SHALL BE 48" X 30".
R11-4 AND R11-3 SHALL BE 60" X 30".

*OMIT THE "ROAD CLOSED 500 FT." SIGN IF THE LAST INTERSECTION IS 500 FT. OR LESS FROM THE WORK ZONE.

**500' MAX. OR AT LAST INTERSECTION WHICHEVER IS CLOSER.

LEGEND

- SIGN ON PERMANENT SUPPORT
- TYPE III BARRICADE
- TYPE III BARRICADE WITH ATTACHED SIGN
- (A) TYPE "A" WARNING LIGHT (FLASHING)
- WORK AREA

BARRICADES AND SIGNS FOR SIDEROAD CLOSURES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

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S.D.D. 15 C 3-3

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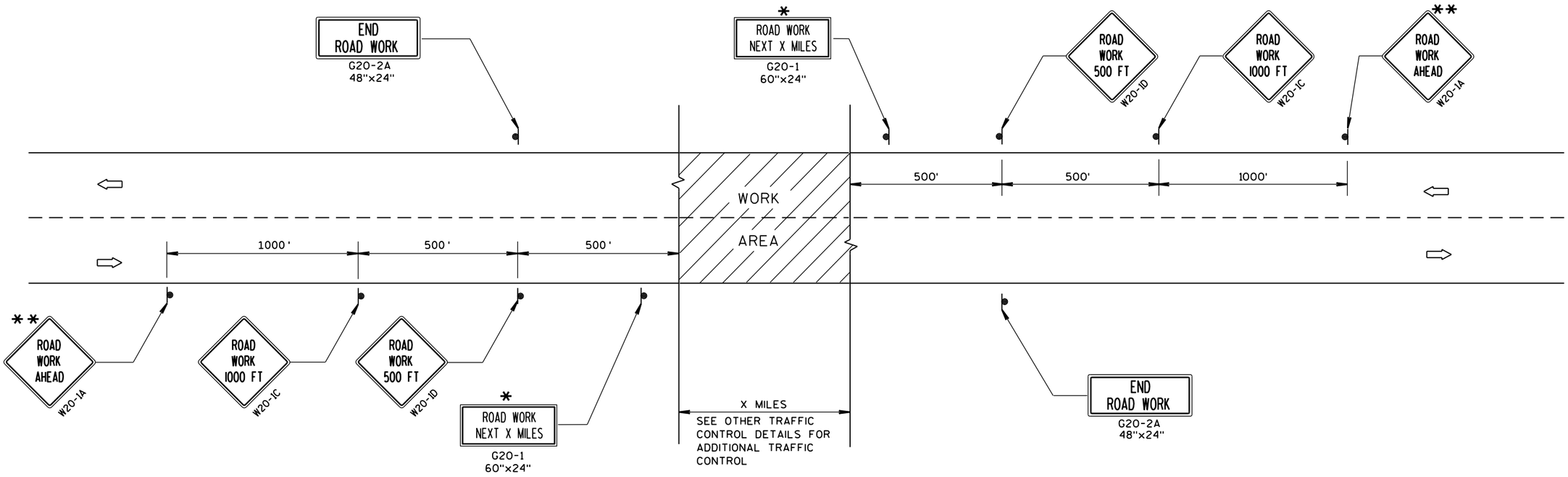
S.D.D. 15 C 3-3



TYPICAL SIDEROAD APPROACH WARNING SIGN DETAIL

GENERAL NOTES

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

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

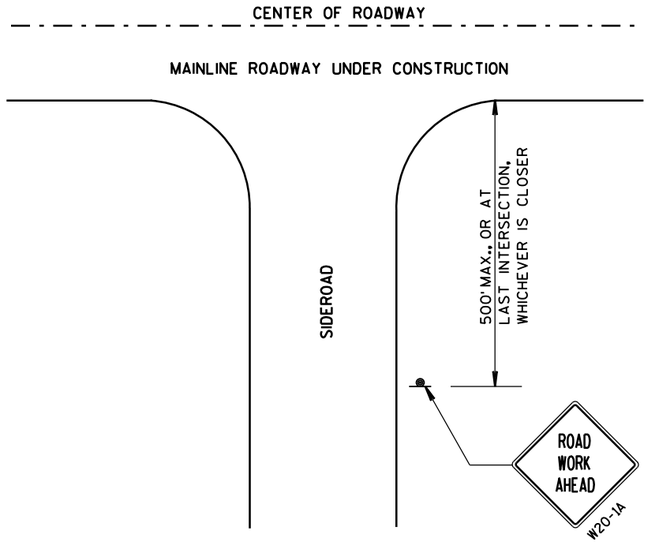
ALL SIGNS ARE 48"x48" UNLESS OTHERWISE NOTED.

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

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

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

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



LEGEND

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

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

Sept. 2015 — DATE

/S/ Peter Amakobe Atepe — STATEWIDE WORK ZOI SAFETY ENGIN IC

FHWA

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S.D.D. 15 C 4-3

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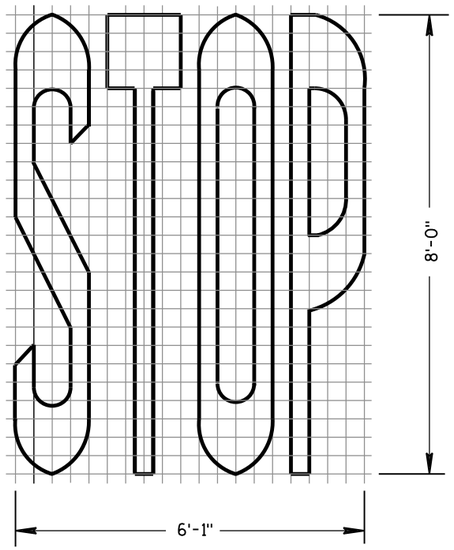
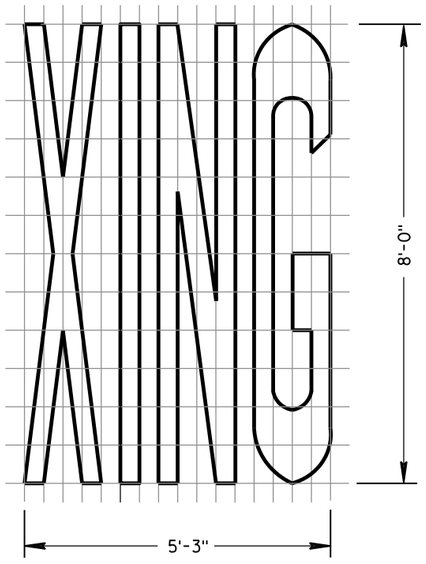
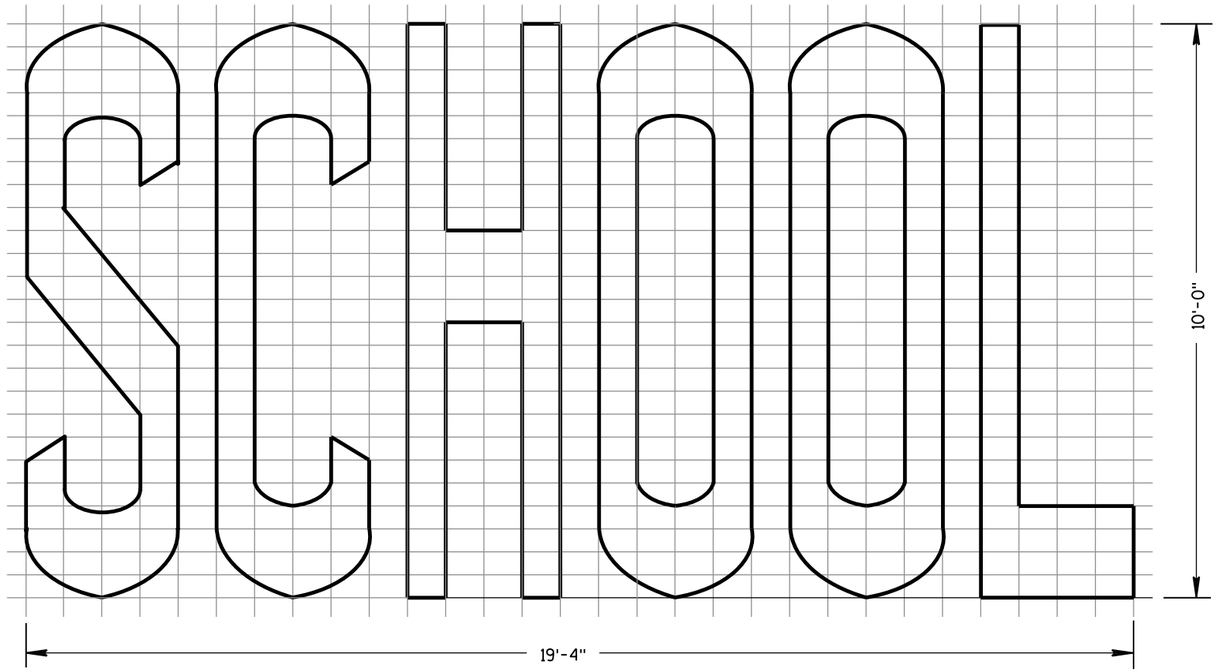
S.D.D. 15 C 4-3

GENERAL NOTES

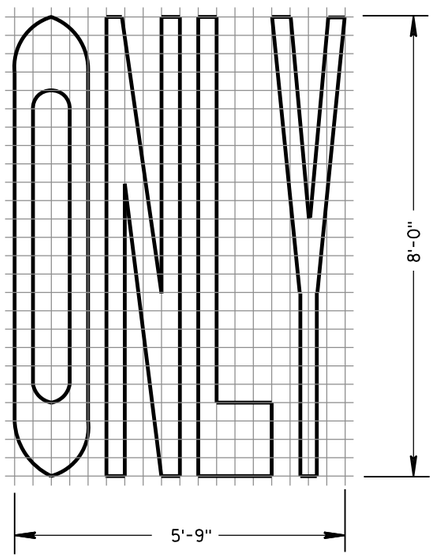
DETAILS OF INSTALLATION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.

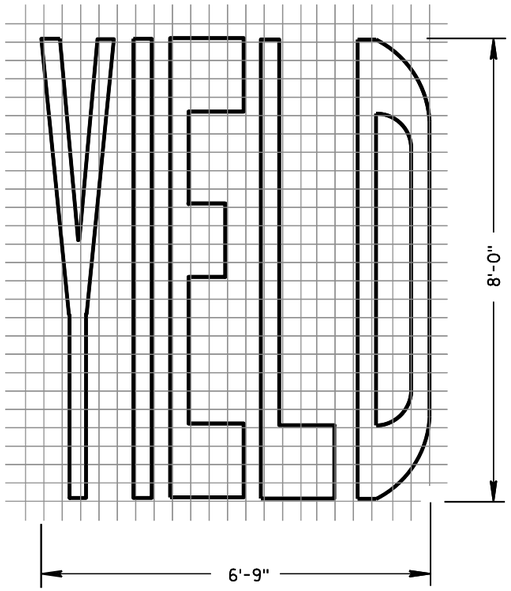


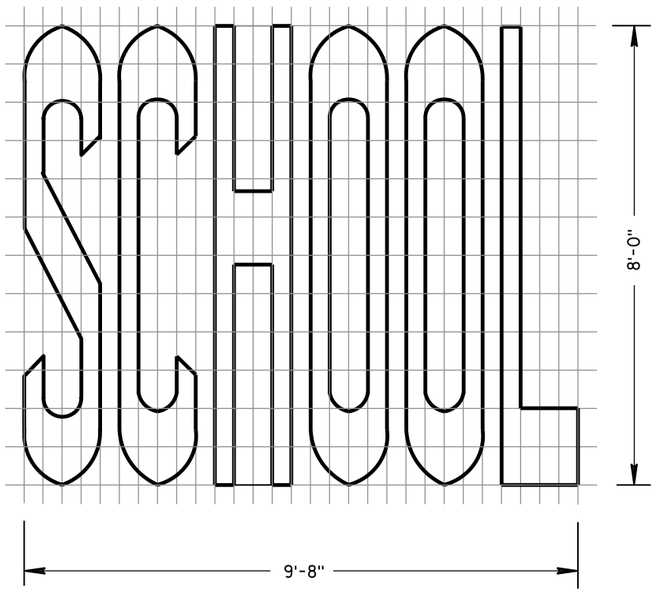




TWO-LANE







SINGLE-LANE

PAVEMENT MARKING WORDS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June 2017 — DATE
/S/ Matthew R. Rauch — STATE SIGNING AND MARK
EER
FHWA

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S.D.D. 15 C 7-14b

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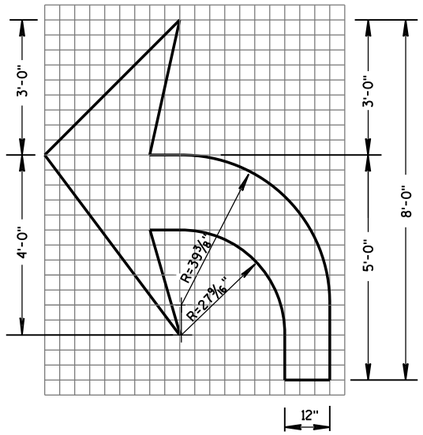
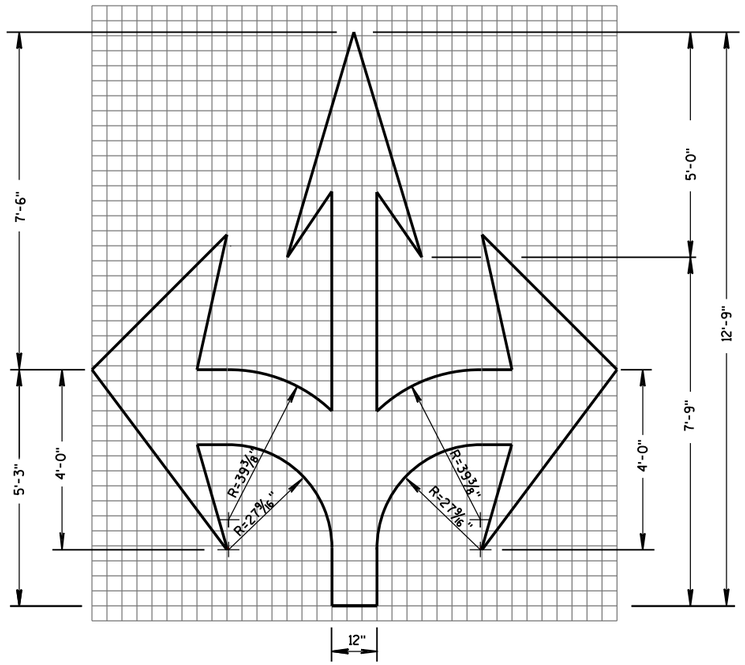
S.D.D. 15 C 7-14b

GENERAL NOTES

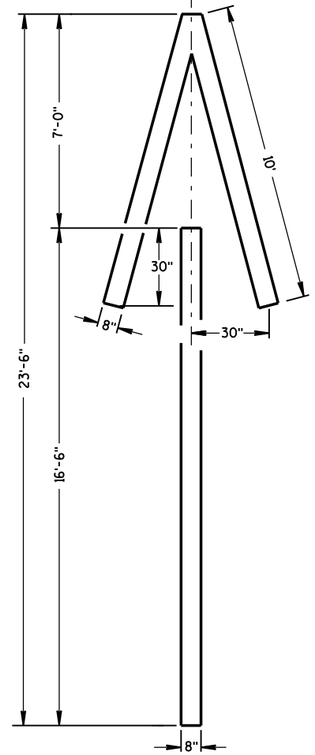
DETAILS OF INSTALLATION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.



TYPE 2



TYPE 6



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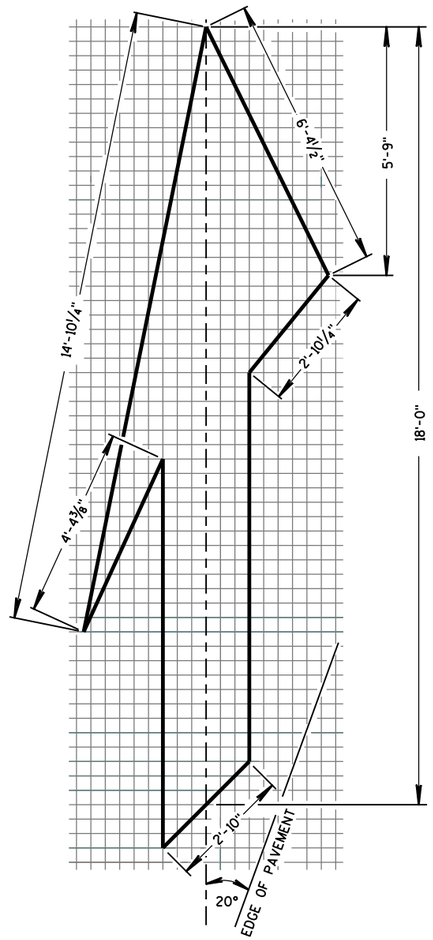
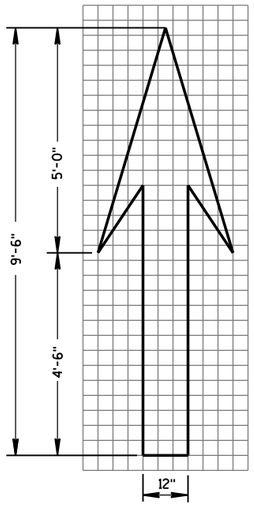
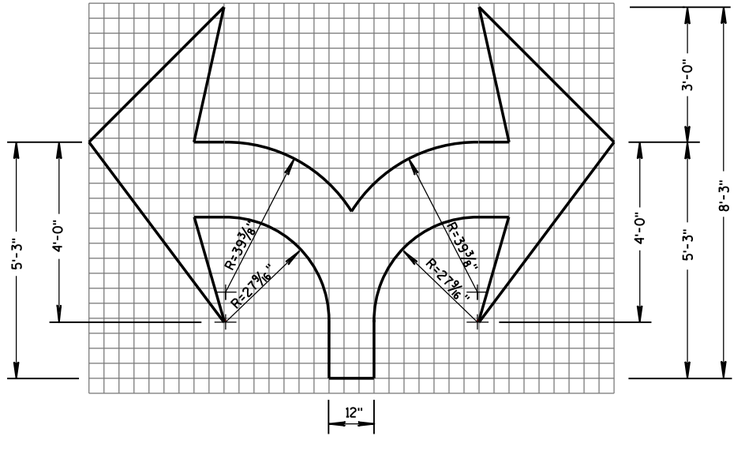


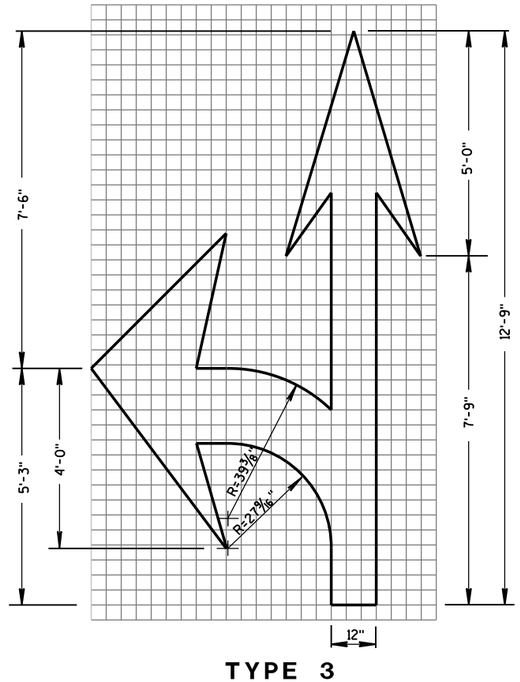
TYPE 5 LANE DROP ARROW



TYPE 1



TYPE 7



TYPE 3

PAVEMENT MARKING ARROWS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June 2017 — DATE
/S/ Matthew R. Rauch — STATE SIGNING AND MAR
FHWA

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S.D.D. 15 C 7-14c

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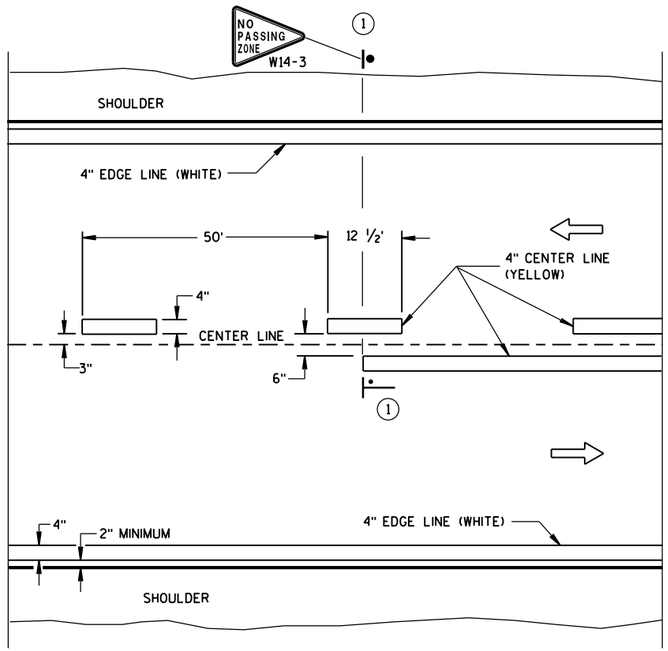
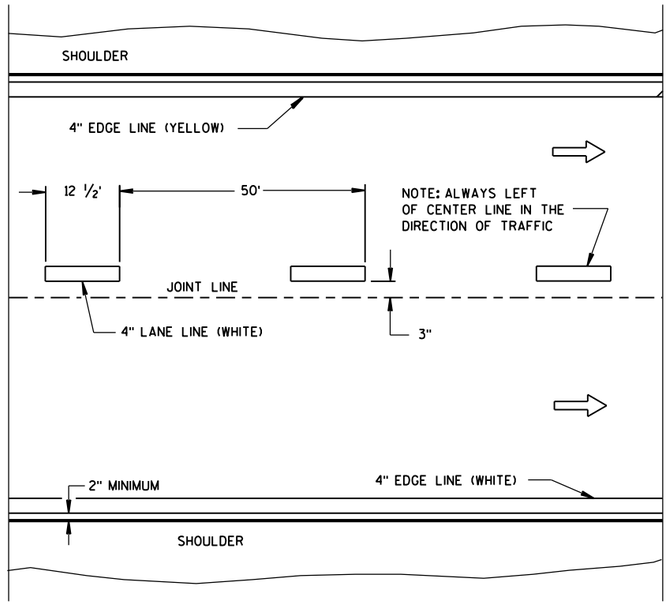
S.D.D. 15 C 7-14c



TWO WAY TRAFFIC



ONE WAY TRAFFIC

PERMANENT PAVEMENT MARKING

GENERAL NOTES

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

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

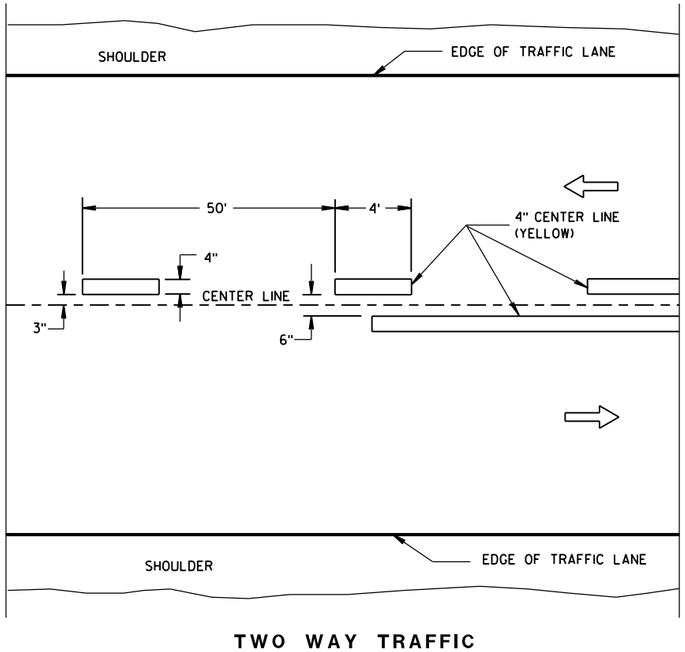
NOTE

ARROW SYMBOL (⇨) SHOWS DIRECTION OF TRAVEL

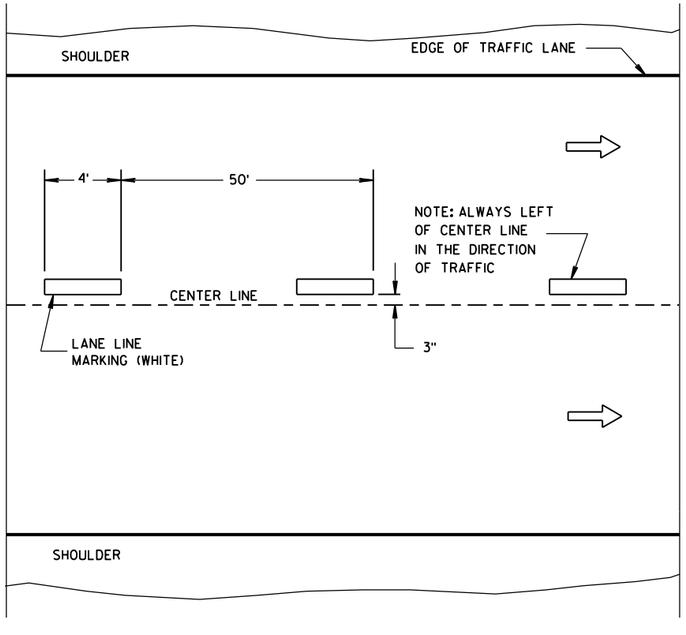
LEGEND

"T" MARKING

POST MOUNTED SIGN



TWO WAY TRAFFIC



ONE WAY TRAFFIC

TEMPORARY PAVEMENT MARKING

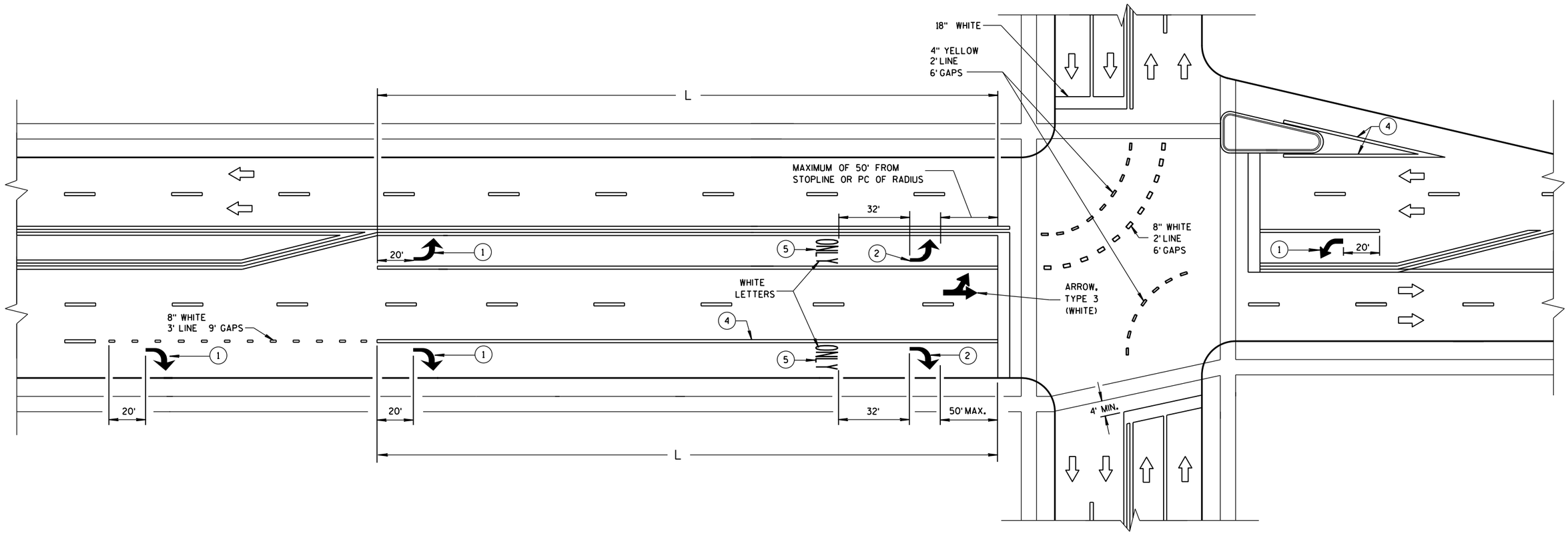
LONGITUDINAL MARKING (MAINLINE)

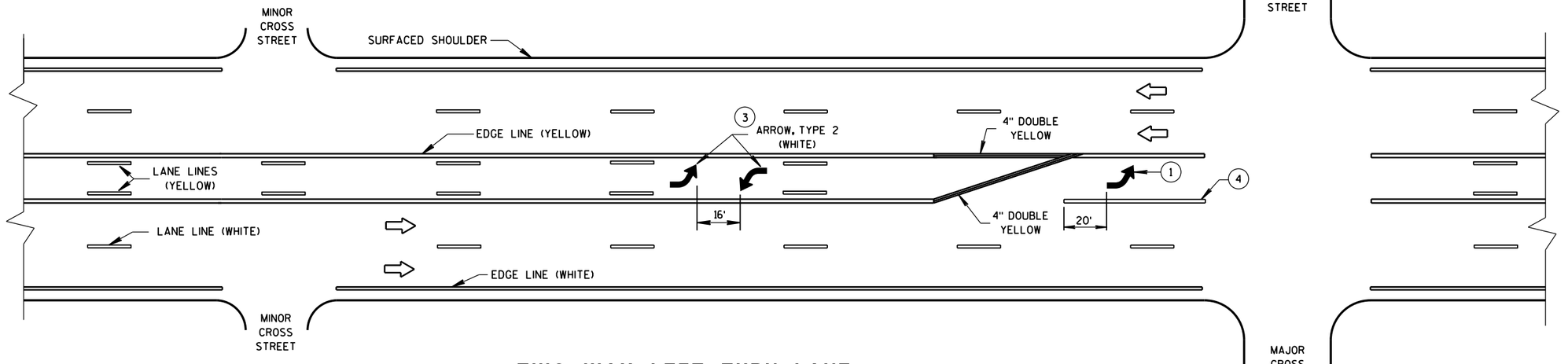
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June 2017 — DATE
/S/ Matthew R. Rauch — STATE SIGNING AND MAR[K]ING ENGINEER
FHWA

6

S.D.D. 15 C 8-18a





GENERAL NOTES

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

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

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

(4) 8" WHITE

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

NOTE:
ARROW SYMBOL (⇨)
SHOWS DIRECTION OF TRAVEL

L = LENGTH OF TURN BAY

TWO WAY LEFT TURN LANE

PAVEMENT MARKING (TURN LANES)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI

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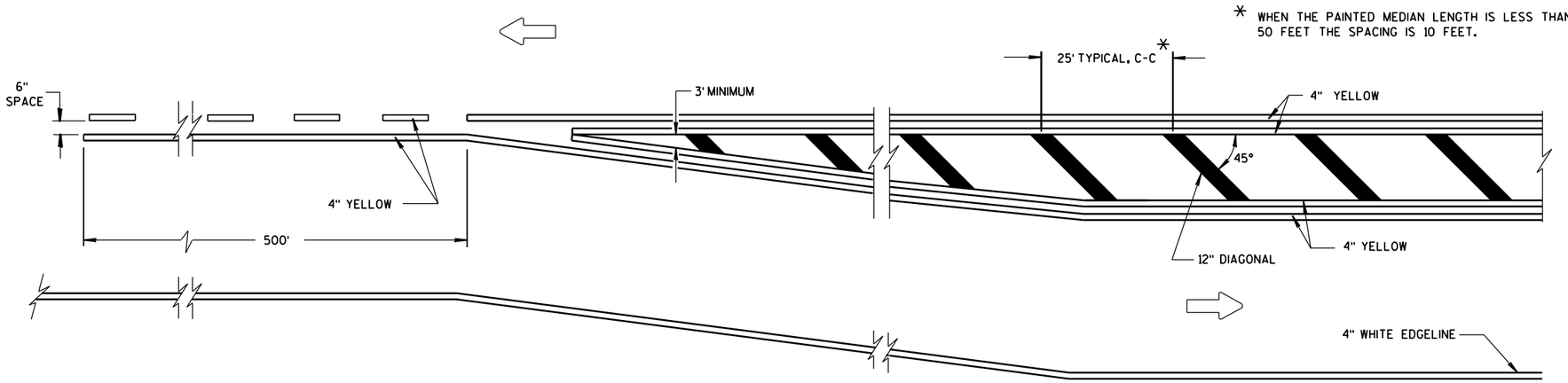
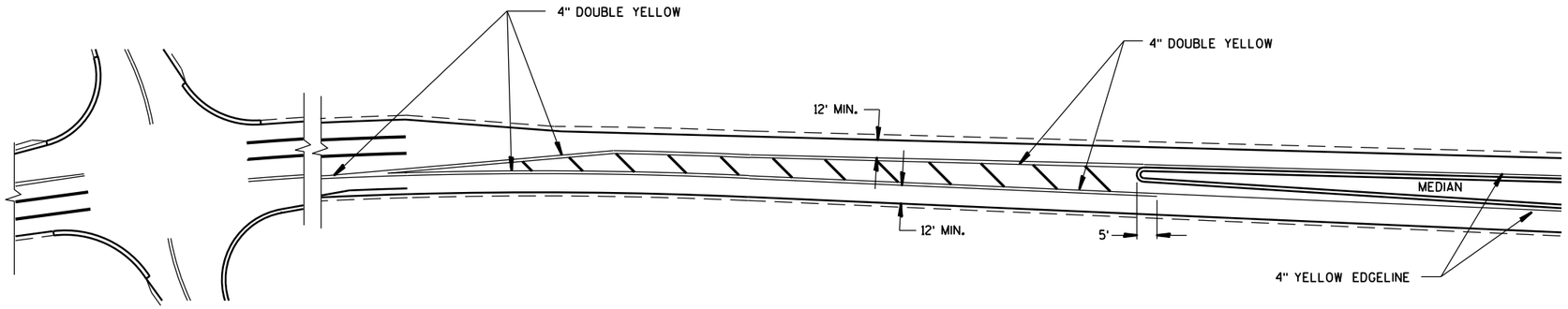


MEDIAN ISLAND DETAIL

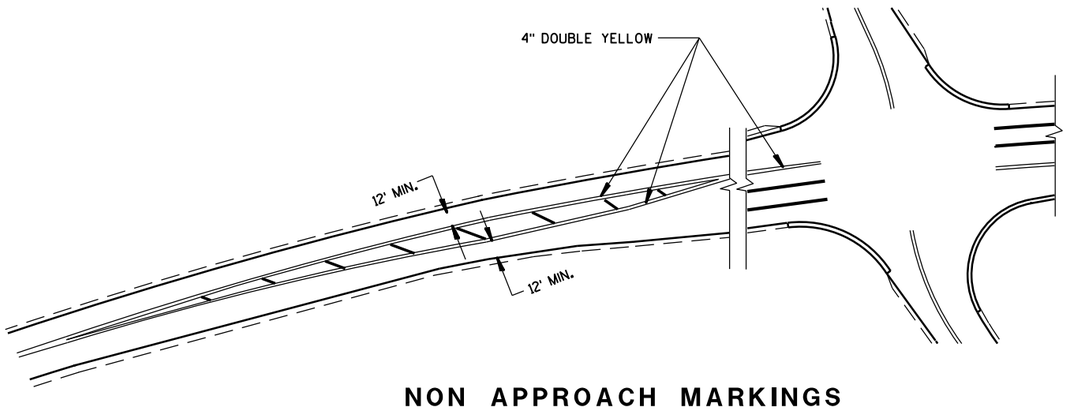
GENERAL NOTE

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

DIRECTION OF TRAVEL



APPROACH MARKINGS FOR OTHER MEDIAN TYPES



NON APPROACH MARKINGS

MEDIAN ISLAND MARKING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June 2017 — DATE
/S/ Matthew Rauch — STATE SIGNING AND MARKING ENGINEER
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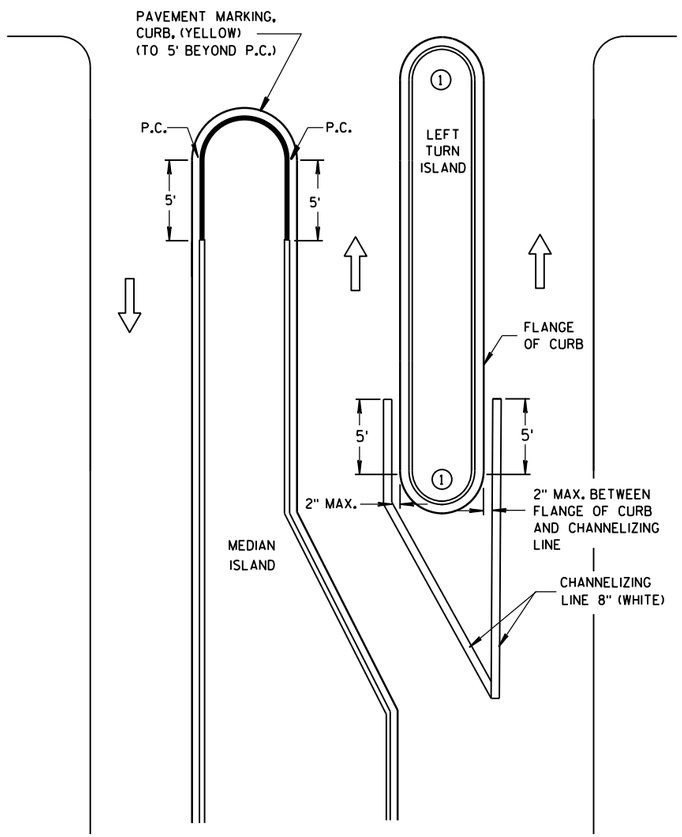
GENERAL NOTE

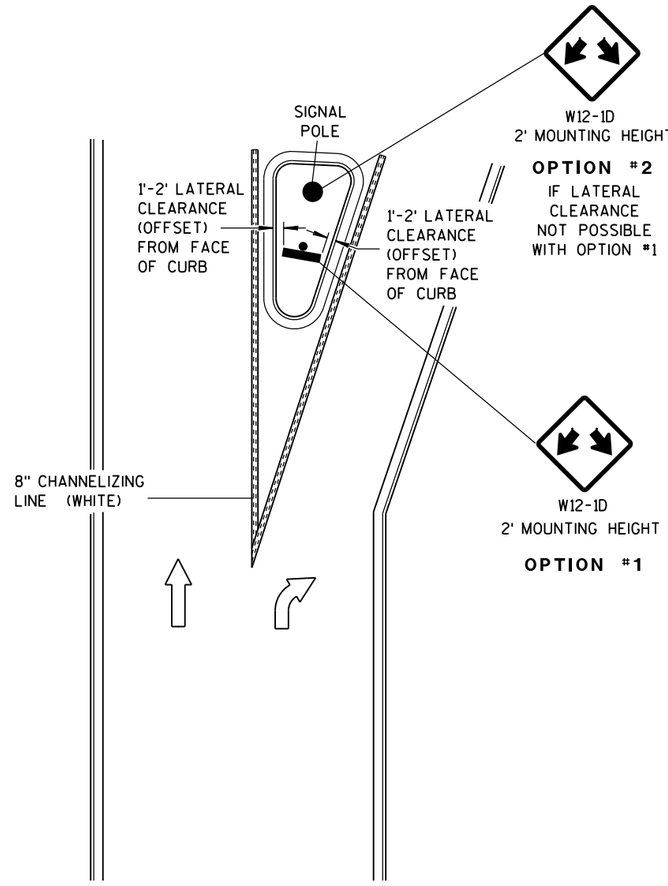
APPLIES TO ISLANDS AT LEFT TURNS AT ONE WAY ROADWAYS AS WELL.

SEE MISCELLANEOUS QUANTITIES FOR SIGN SIZE.

DIRECTION OF TRAVEL



LEFT TURN & MEDIAN ISLAND



RIGHT TURN ISLAND

DOUBLE ARROW WARNING SIGN PLACEMENT

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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June 2017 — DATE
/S/ Matthew Rauch — STATE SIGNING AND MARKING ENGINEER
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S.D.D. 15 C 27-2a

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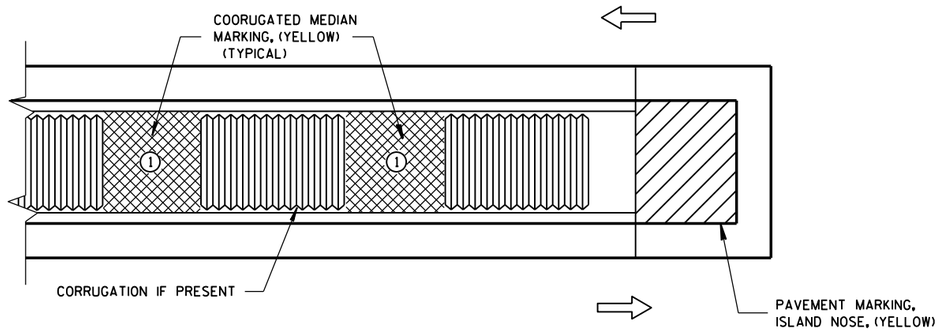
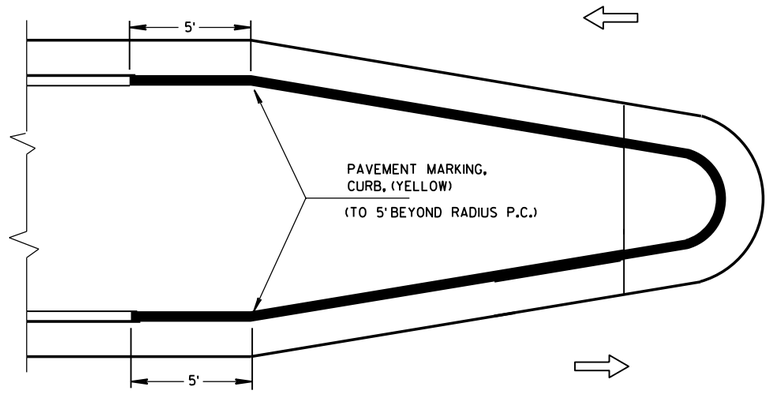
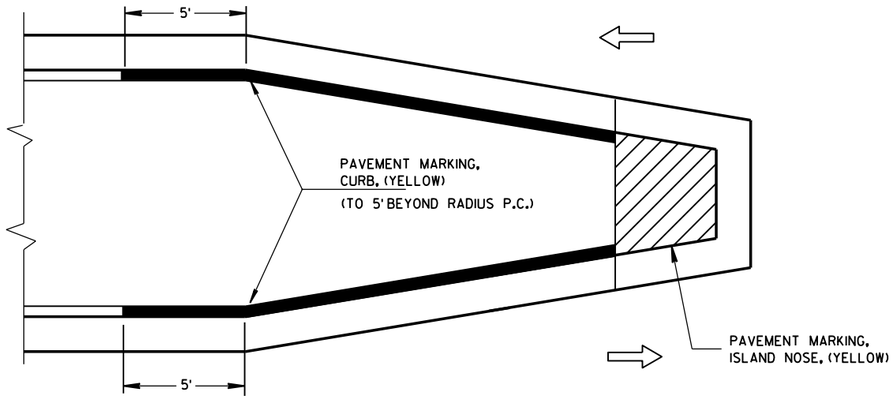


MEDIAN ISLAND WITH SQUARE BLUNT NOSE



MEDIAN ISLAND WITH ROUND BLUNT NOSE



MEDIAN ISLAND WITH SLOPED NOSE

TYPICAL PLACEMENT OF PAVEMENT MARKING ON MEDIAN ISLANDS

GENERAL NOTES

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

ISLAND NOSE MARKING

CURB MARKING

CORRUGATED MEDIAN MARKING

DIRECTION OF TRAVEL

PAVEMENT MARKING
(ISLANDS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

June 2017
DATE

/S/ Matthew Rauch
STATE SIGNING AND MARK ENGINEER

FHWA

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S.D.D. 15 C 27-2b

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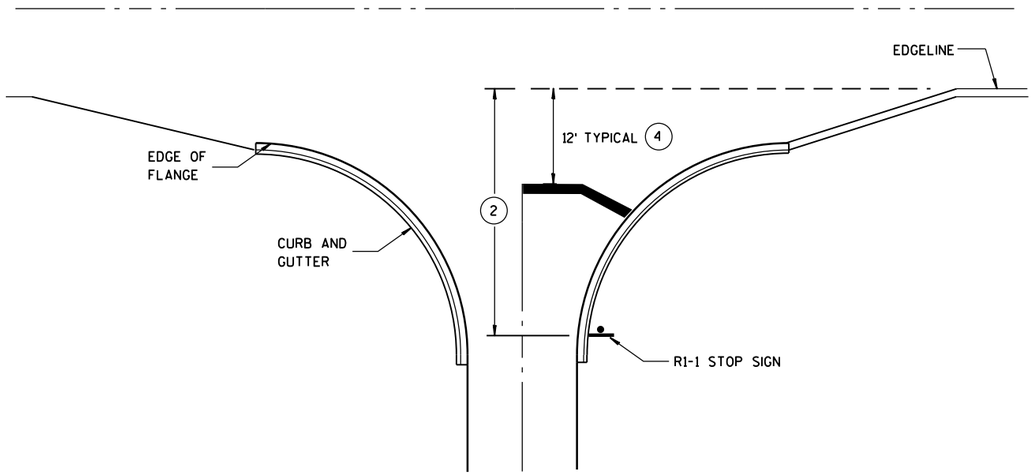
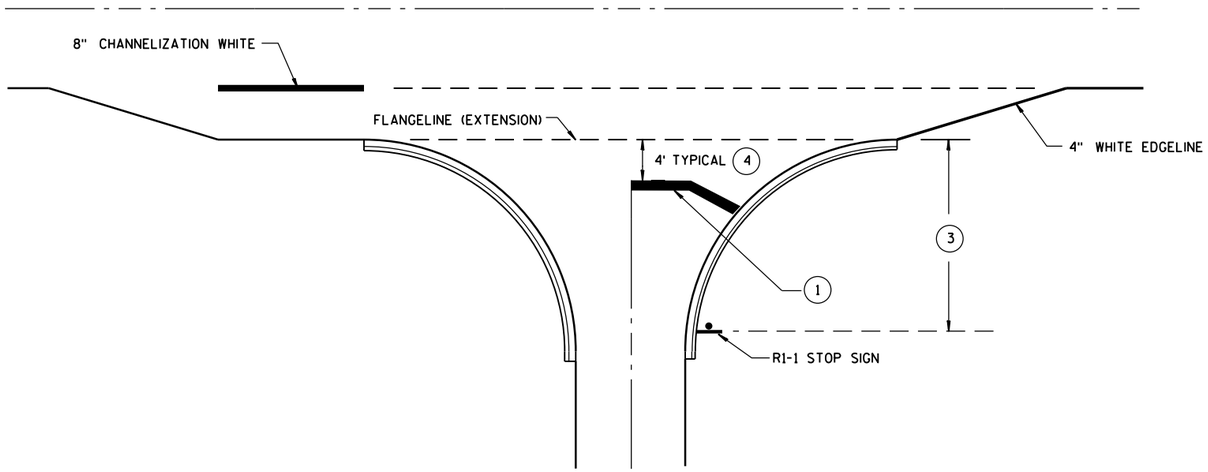
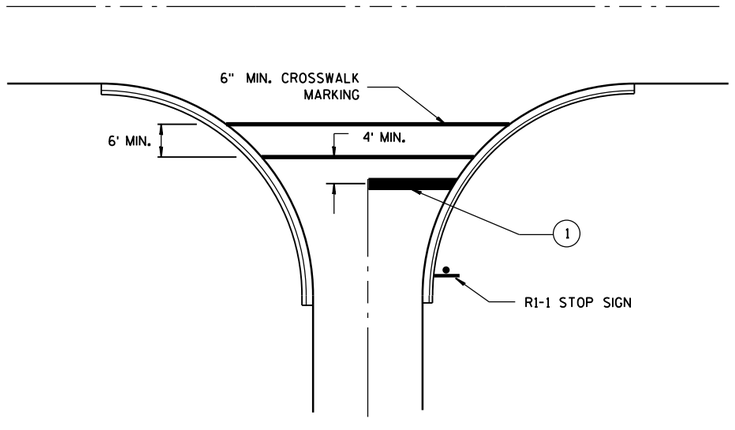


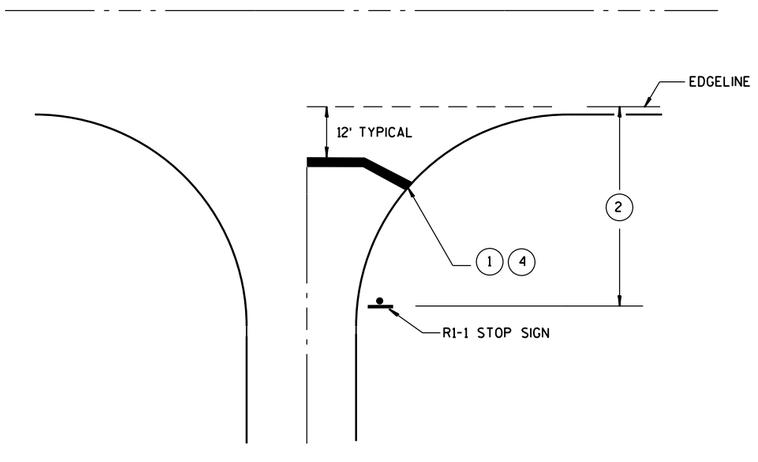
TYPICAL STOP LINE PAVEMENT MARKING WITH CURB AND GUTTER



TYPICAL STOP LINE PAVEMENT MARKING FOR SIDEROADS WITH RIGHT TURN LANE



TYPICAL STOP LINE PAVEMENT MARKING FOR SIDEROADS WITH CROSSWALK MARKING



TYPICAL STOP LINE PAVEMENT MARKING WITHOUT CURB AND GUTTER

GENERAL NOTES

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

STOP LINE AND CROSSWALK PAVEMENT MARKING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

4-18-2016
DATE

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

FHWA

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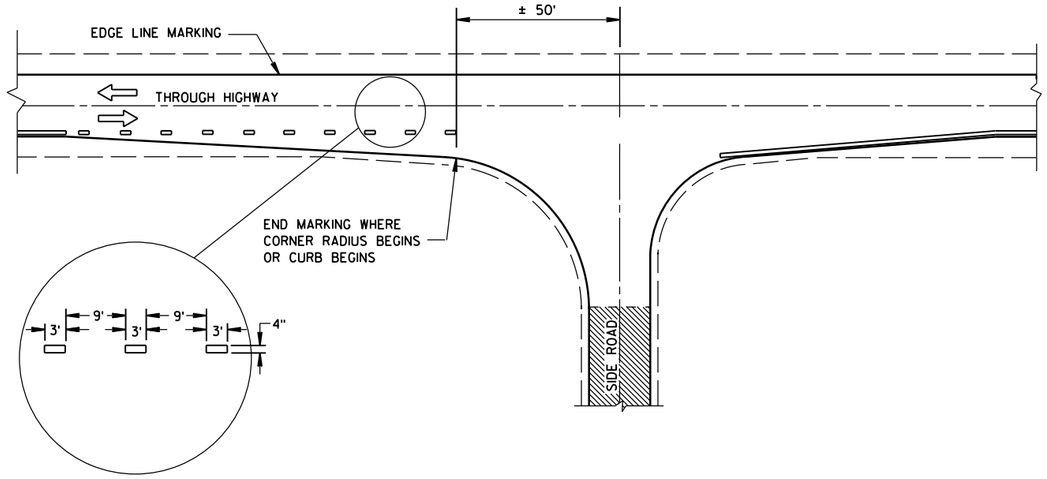
S.D.D. 15 C 33-2



MINOR INTERSECTION WITHOUT CURBS

GENERAL NOTES

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

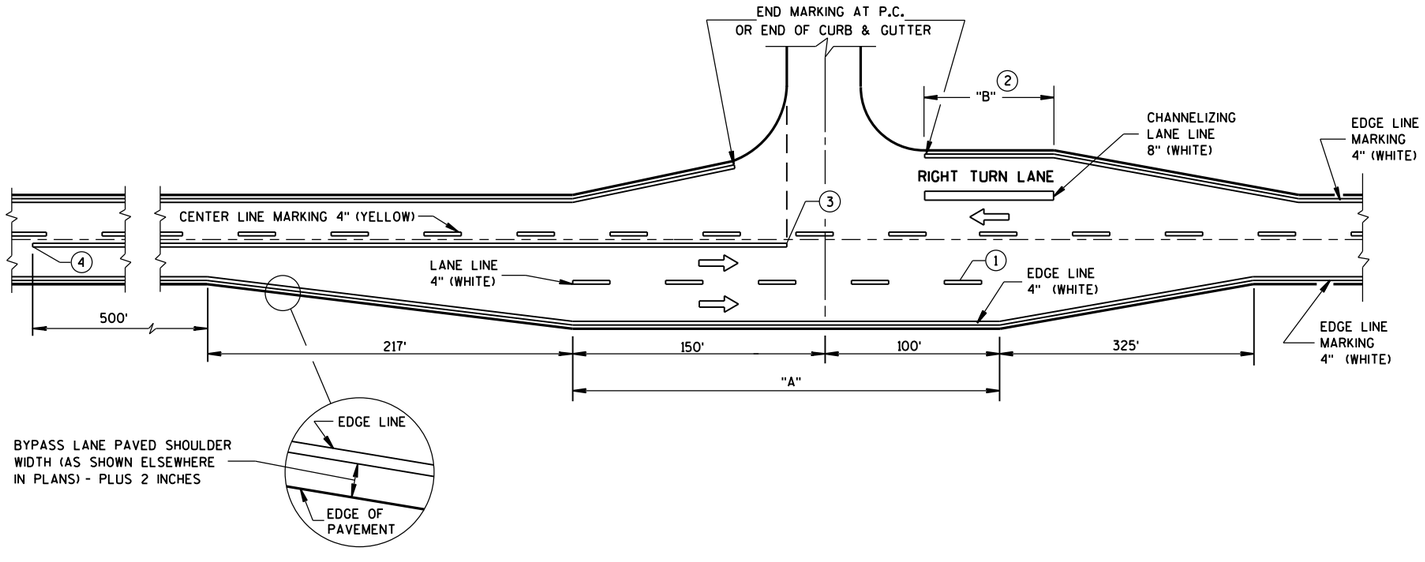
(1) WHEN DISTANCE "A" IS LESS THAN 250 FEET, OMIT LANE LINE.

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

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

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

ARROW SYMBOL (⇨) SHOWS DIRECTION OF TRAVEL



MAJOR INTERSECTIONS

(INTERSECTION WITH FULL RIGHT TURN LANE OR BYPASS LANES)

PAVEMENT MARKING
(INTERSECTIONS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI

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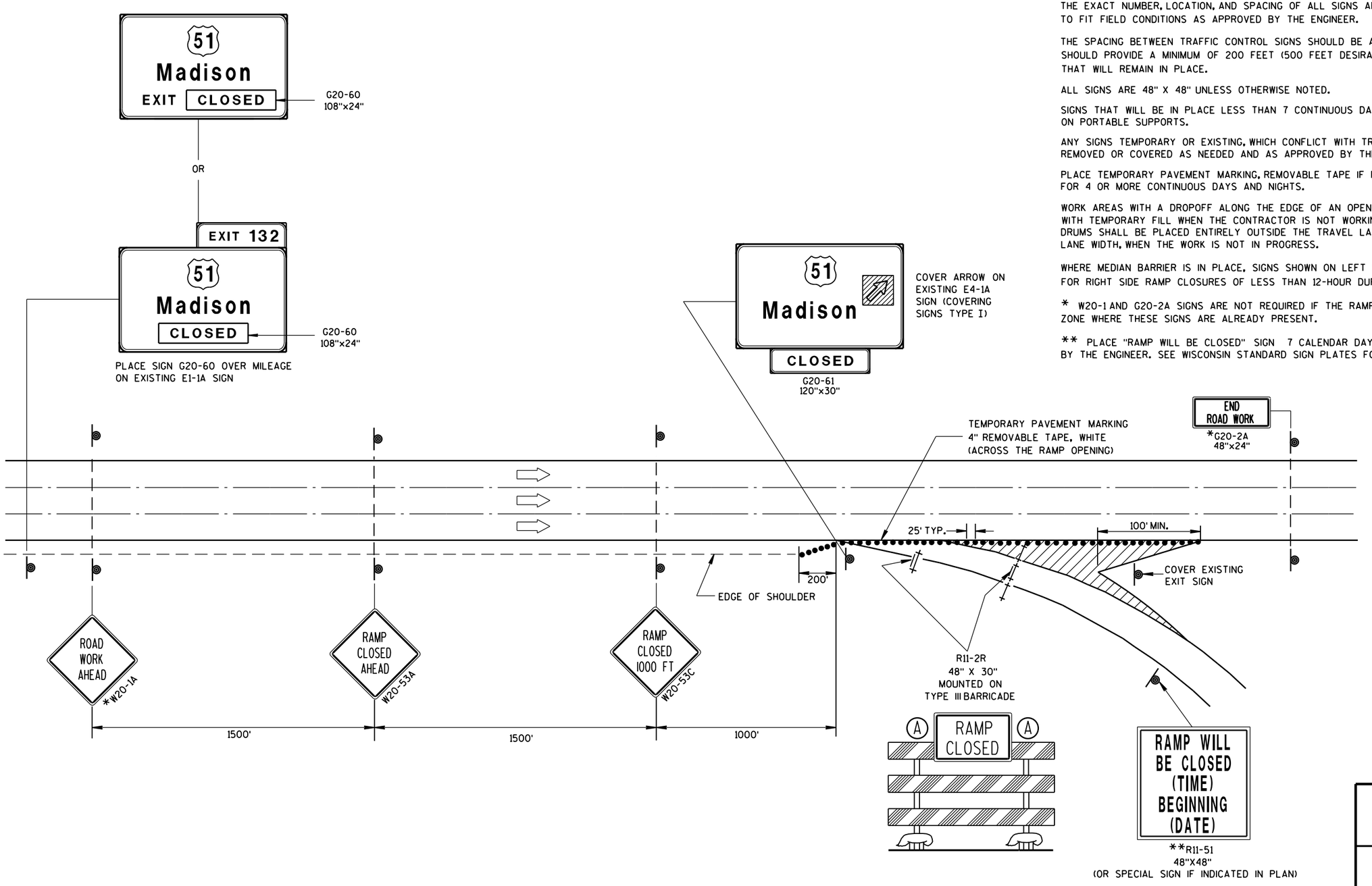
S.D.D. 15 C 35-1a



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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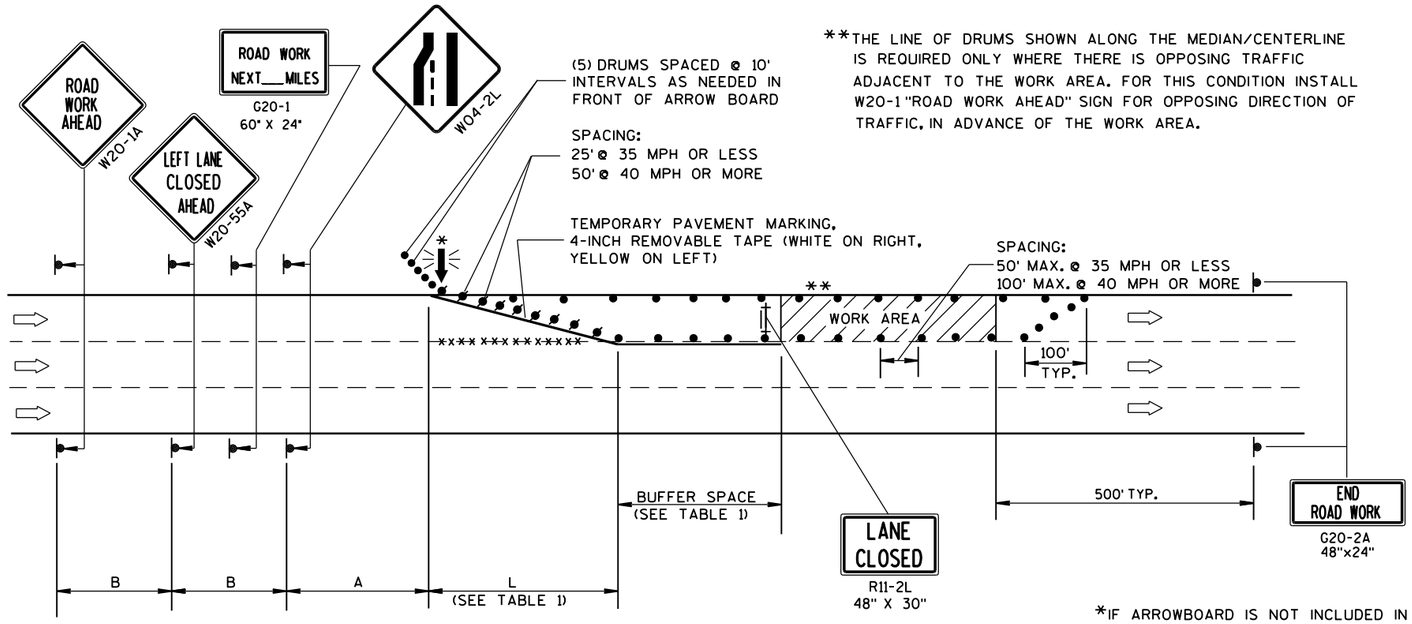
S.D.D. 15 D 16-3



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

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

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

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

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

W01-6
48"x24"

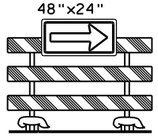


TABLE 1
TAPER AND BUFFER SPACE FOR 12' LANE WIDTH

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

FOR LANE WIDTH OTHER THAN 12':

L = WS AT 45 MPH OR GREATER

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

L = TAPER LENGTH IN FEET

S = NON-CONSTRUCTION SPEED LIMIT (MPH)

W = WIDTH OF LANE CLOSURE

LEGEND

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

GENERAL NOTES

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

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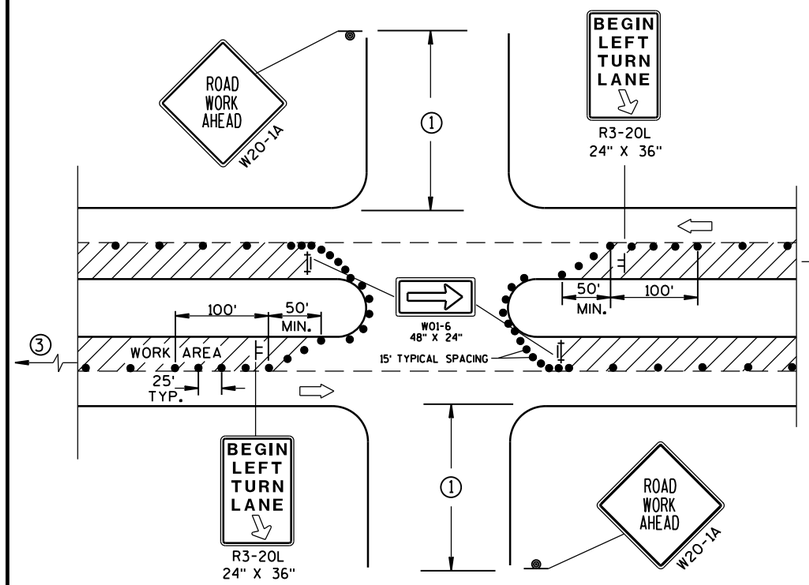
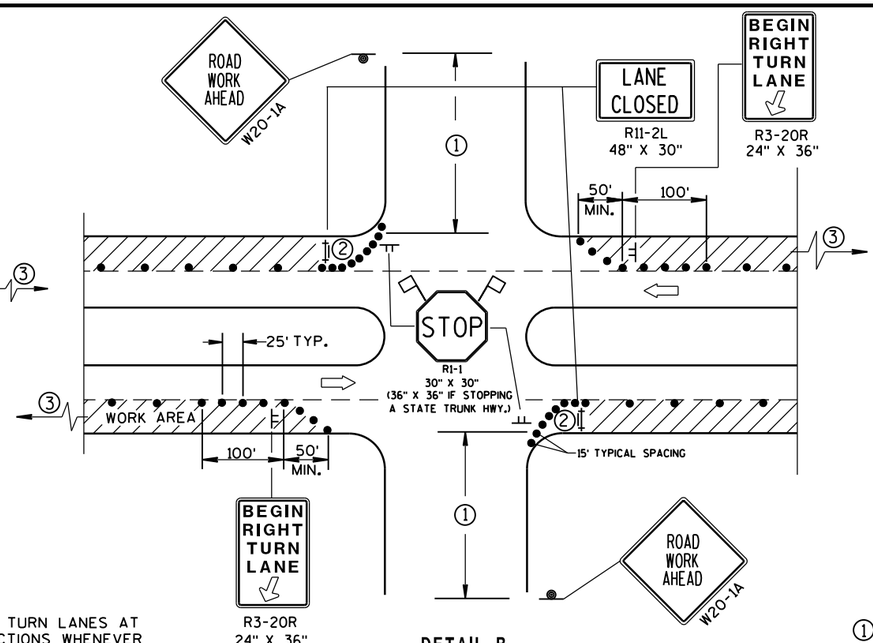
S.D.D. 15 D 20-4



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.

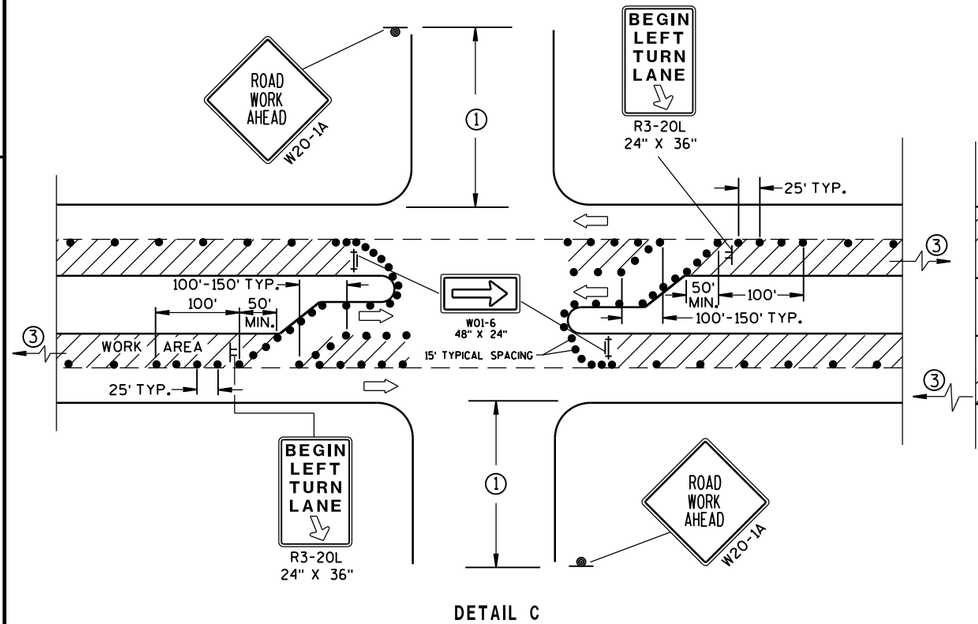
CHANNELIZING DEVICES PLACED ADJACENT TO WORK AREA SHALL BE PULLED BACK FROM THE TRAVEL LANE WHEN WORK IS NOT IN PROGRESS.

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.

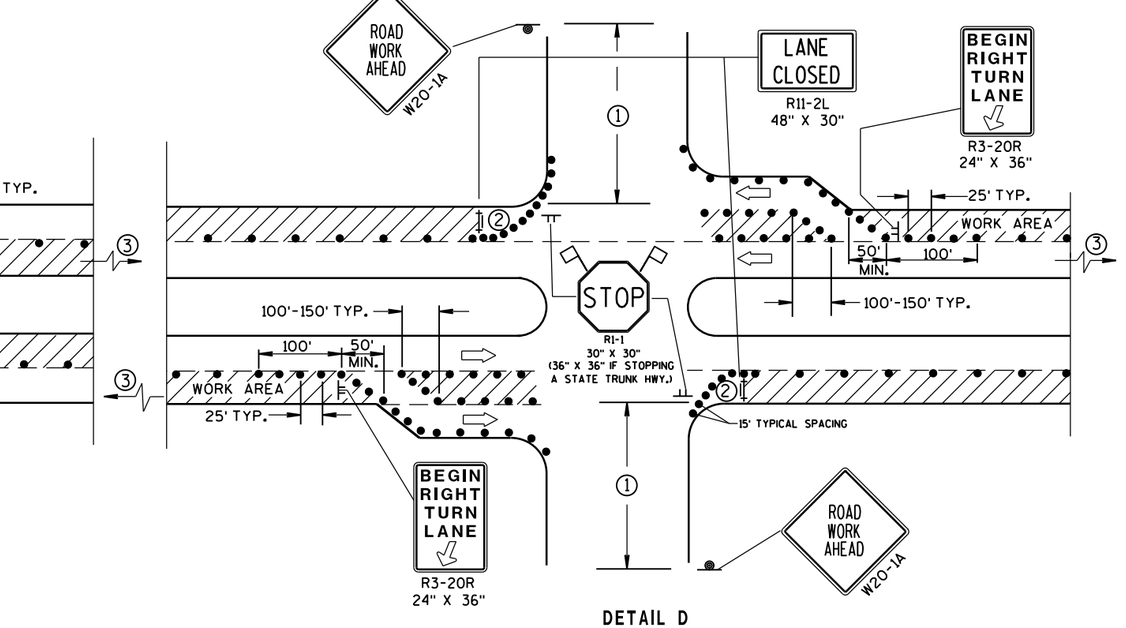
② ALSO USE BARRICADE AND 15-FOOT TYPICAL DRUM SPACING AT COMMERCIAL DRIVEWAYS.

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

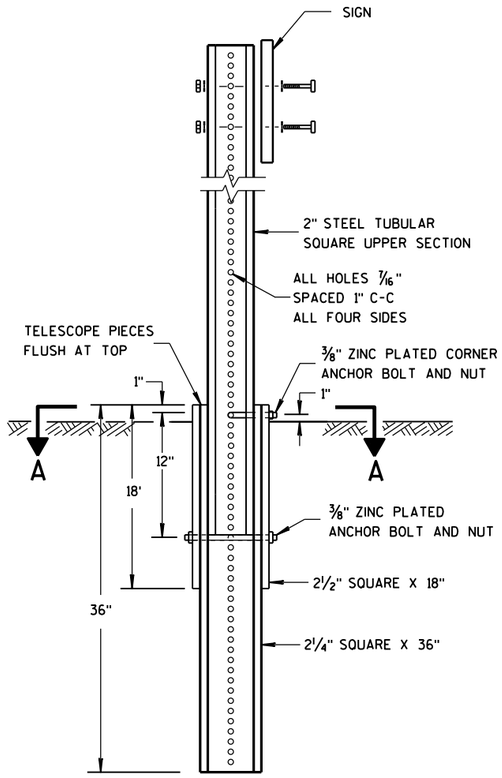
TRAFFIC CONTROL, INTERSECTION WITHIN SINGLE LANE CLOSURE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

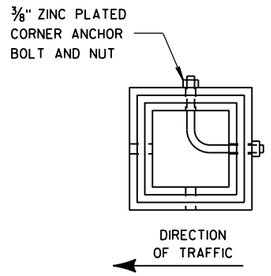
APPROVED
June 2016 — DATE
/S/ Peter Anakobe Atepe
STATEWIDE WORK ZONE TRAFFIC SAFETY ENGINEER
FHWA

6

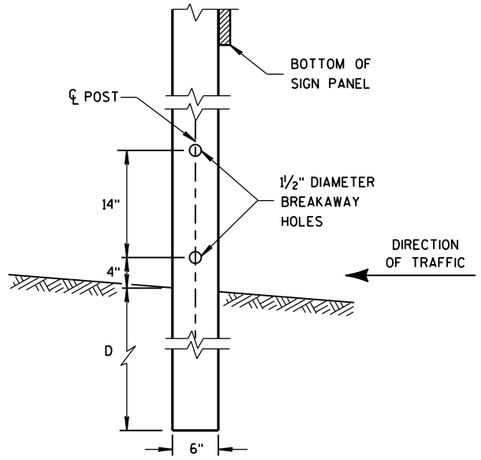
S.D.D. 15 D 21-4



DETAIL OF TUBULAR STEEL SIGN POST



SECTION A-A



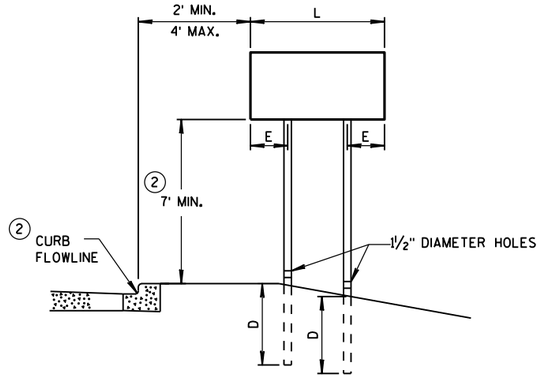
4"x6" WOOD POST MODIFICATION

GENERAL NOTES

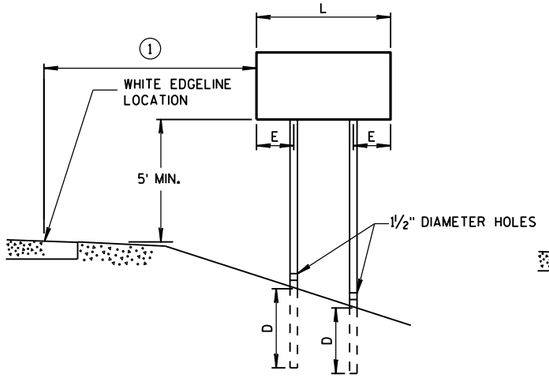
(1) 6 FEET FROM THE EDGE OF PAVEMENT (EDGE LINE LOCATION) UNLESS OTHERWISE DIRECTED BY THE PROJECT ENGINEER. LATERAL OFFSET SHOULD BE ADJUSTED TO AVOID THE DITCH FLOWLINE.

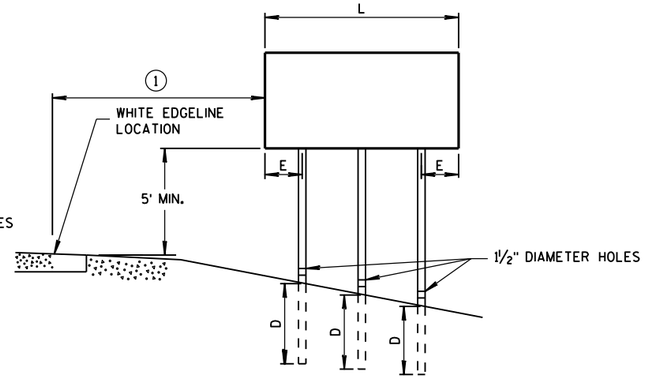
(2) THE EXISTENCE OF CURB AND GUTTER DOES NOT IN ITSELF MANDATE THE VERTICAL CLEARANCE ILLUSTRATED. THAT HEIGHT IS TYPICALLY MEASURED WHERE THERE IS SIDEWALK ADJACENT TO THE ROADWAY OR PARKING IS PERMITTED. IN THE ABSENCE OF SIDEWALK, VERTICAL CLEARANCE IS MEASURED FROM THE TOP OF THE CURB. IF NO SIDEWALK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

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



URBAN AREA





RURAL AREA

POST MOUNTING DETAIL FOR TEMPORARY TRAFFIC CONTROL FIXED MESSAGE SIGNS

TUBULAR STEEL POSTS

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

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

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

WOOD POST EMBEDMENT DEPTH

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

4" X 6" WOOD POST

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

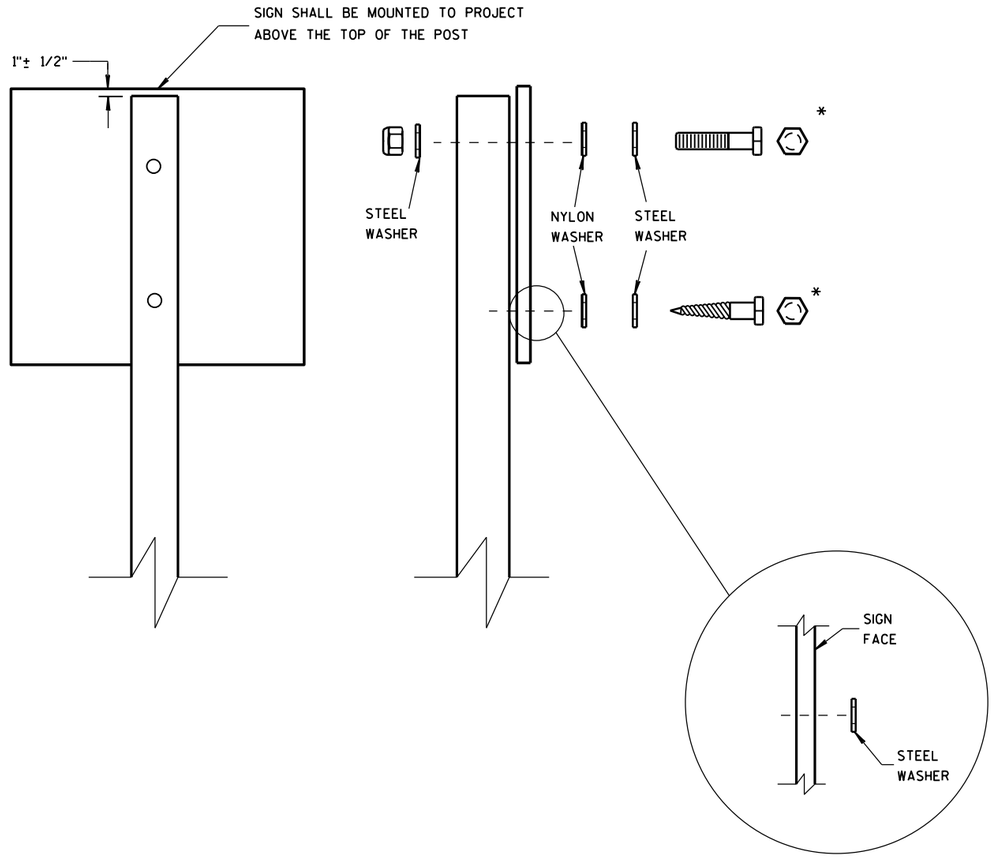
SEE NOTE (3)

TEMPORARY TRAFFIC CONTROL SIGN MOUNTING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI

6

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



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

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

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

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

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

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

LAG SCREWS - 3/8" X 3"

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

SQUARE STEEL POSTS (2" x 2")

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

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

WASHERS (ALL POSTS) -

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

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

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

6

6

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

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

ATTACHMENT OF SIGNS TO POSTS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

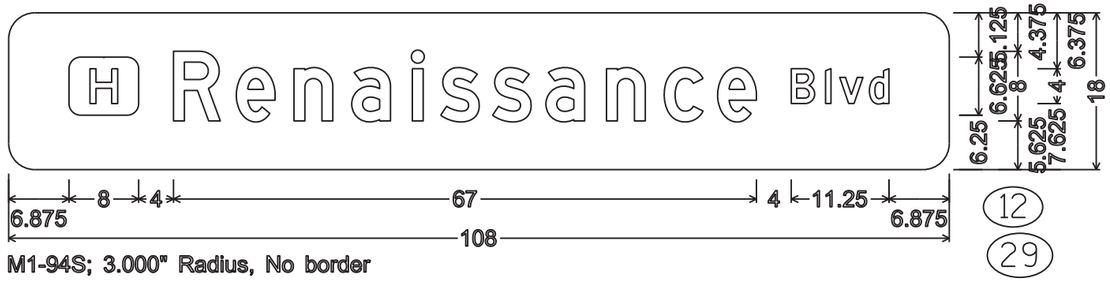
June 2017
DATE

/S/ Andrew Heldtke
WORK ZONE ENG

FHWA

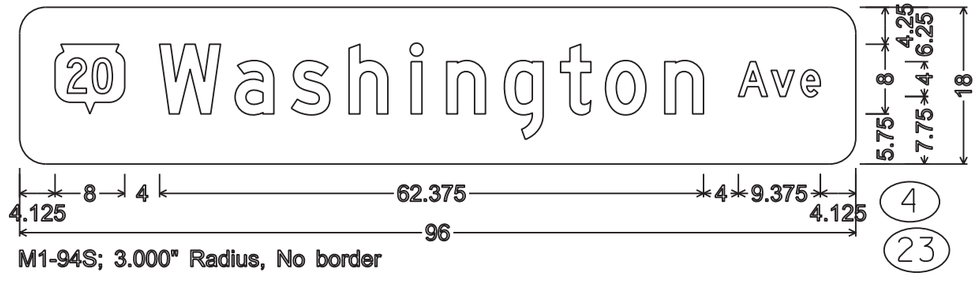
NOTES

1. Signs are Type II- Type H Reflective
2. Color:
   Background - Green
   Message - White
3. Message Series - D
4. M1-94S base material is .125" aluminum



M1-94S; 3.000" Radius, No border

12
29



M1-94S; 3.000" Radius, No border

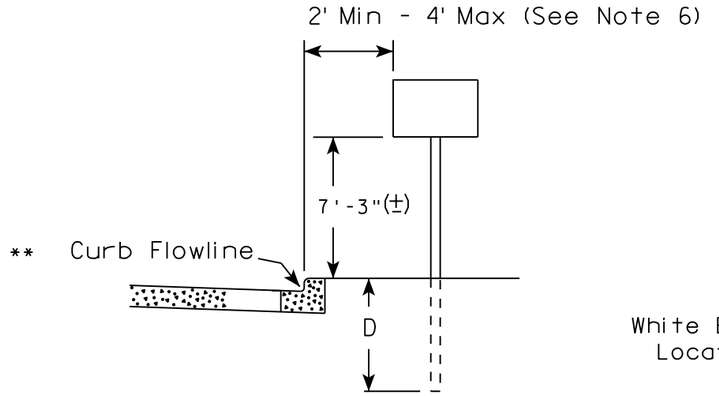
4
23

7

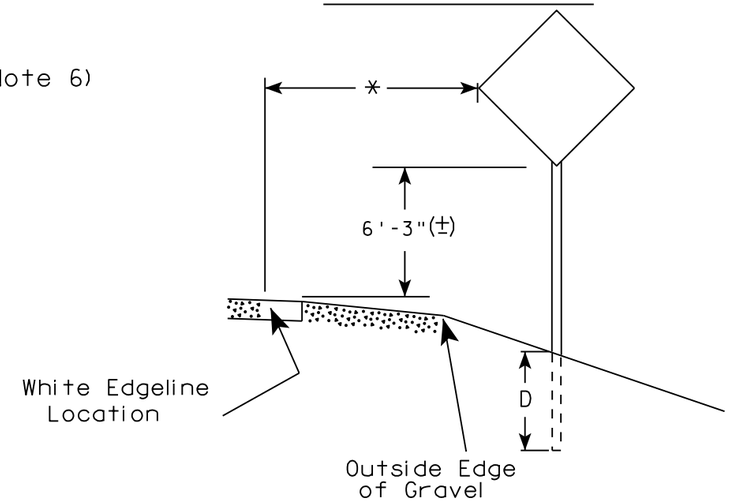
7

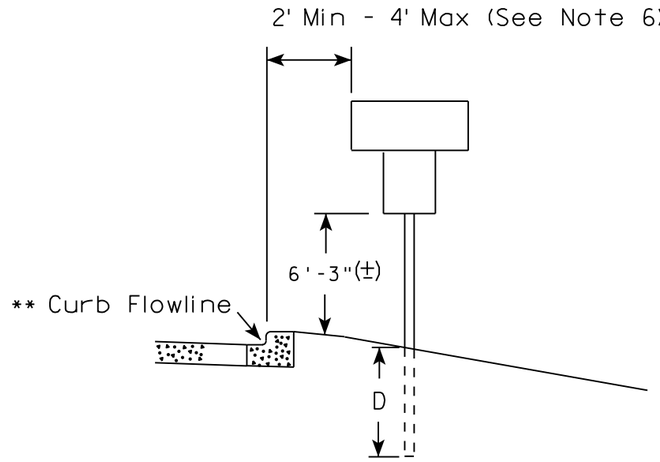
PROJECT NO: 2250-16-70	HWY: STH 20	COUNTY: RACINE	PERMANENT SIGNING	SHEET NO: 170	E

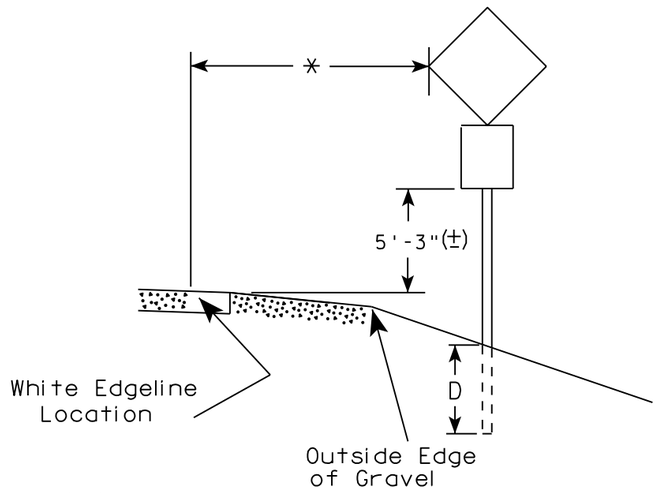
URBAN AREA



RURAL AREA (See Note 2)







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

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

POST EMBEDMENT DEPTH

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

GENERAL NOTES

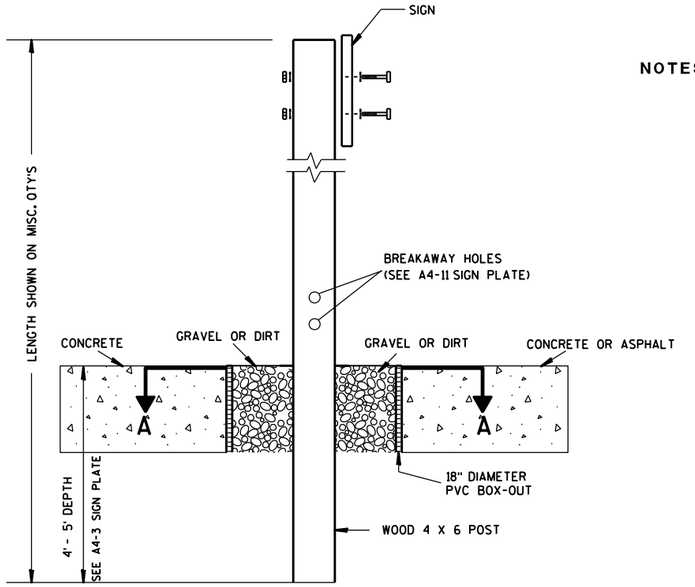
1. Signs wider than 4 feet or 20 sq.ft or larger, shall be mounted on multiple posts. Refer to plate A4-4.
2. If signs are mounted on barrier wall, see A4-10 sign plate.
3. For expressways and freeways, mounting height is 7'- 3" (±) or 6'-3" (±) depending upon existence of a sub-sign.
4. J-Assemblies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

TYPICAL INSTALLATION OF PERMANENT TYPE II SIGNS ON SINGLE POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

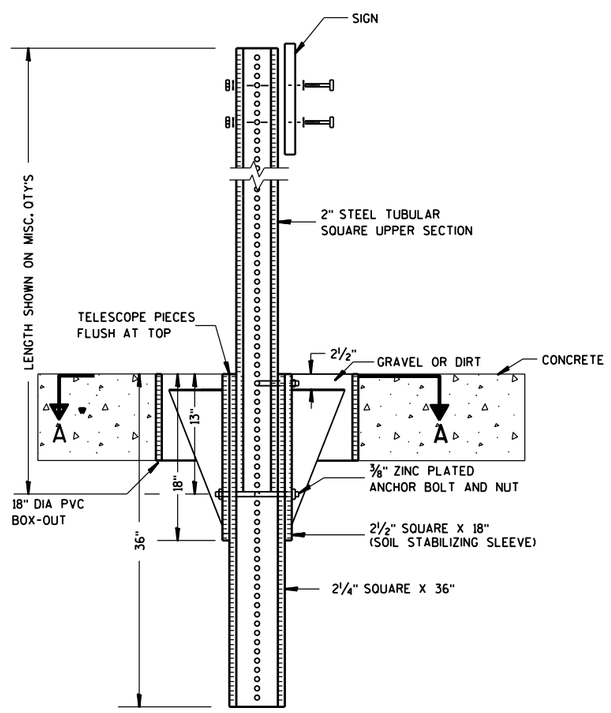
DATE 8/21/17 PLATE NO. A4-3.21



ELEVATION VIEW

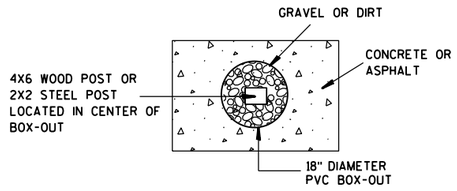
DETAIL OF WOOD 4 X 6 SIGN POST IN BOX-OUT

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



ELEVATION VIEW

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



PLAN VIEW

FOR NEW CONCRETE/ASPHALT INSTALLATIONS

SIGN POST BOX-OUTS A4-3B

WISCONSIN DEPT OF TRANSPORTATION

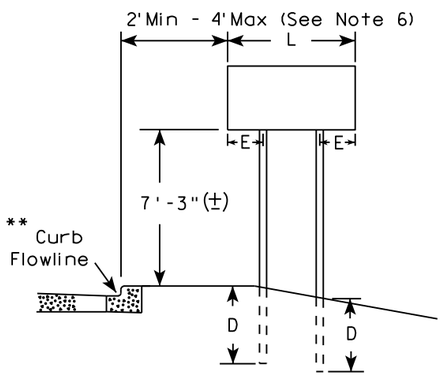
APPROVED Matthew R Rauch
for State Traffic Engineer

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

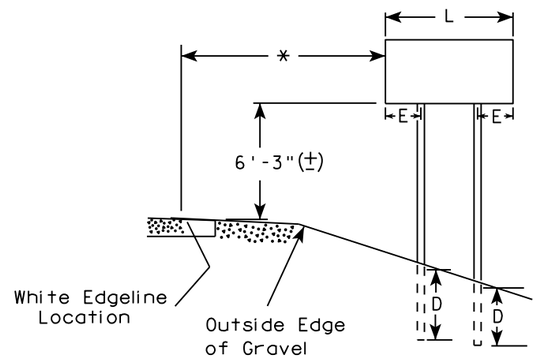
PROJECT NO:	HWY:	COUNTY:		SHEET NO:	E

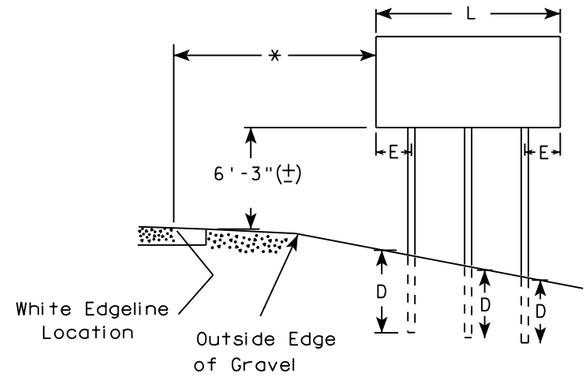
FILE NAME : C:\CAEFiles\Projects\tr_stdplate\A43B.DGN PLOT DATE : 27-JAN-2014 09:48 PLOT BY : mscsja PLOT NAME : PLOT SCALE : 13.659812:1.000000 WISDOT/CADDS SHEET 42

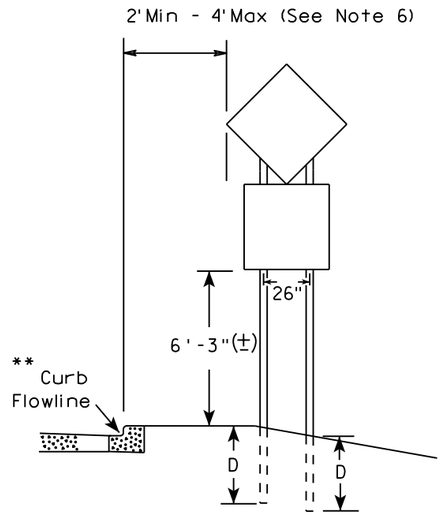
URBAN AREA



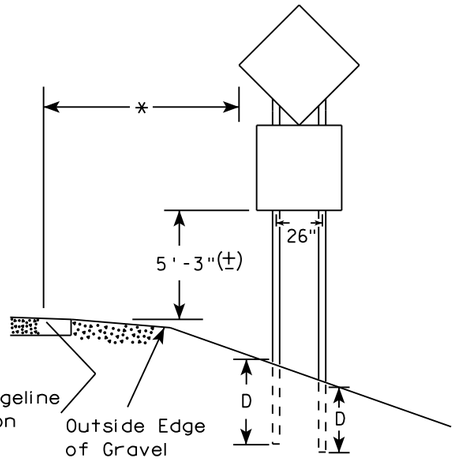
RURAL AREA (See Note 3)







48" DIAMOND WARNING SIGN



48" DIAMOND WARNING SIGN

SIGN SHAPE OTHER THAN DIAMOND (TWO POSTS REQUIRED)		
	L	E
***	Greater than 48" Less than 60"	12"
	60" to 108"	L/5

SIGN SHAPE OTHER THAN DIAMOND (THREE POSTS REQUIRED)	
L	E
Greater than 108" to 144"	12"

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. J-Assemblies are considered to be one sign for mounting height.
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.

POST EMBEDMENT DEPTH

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

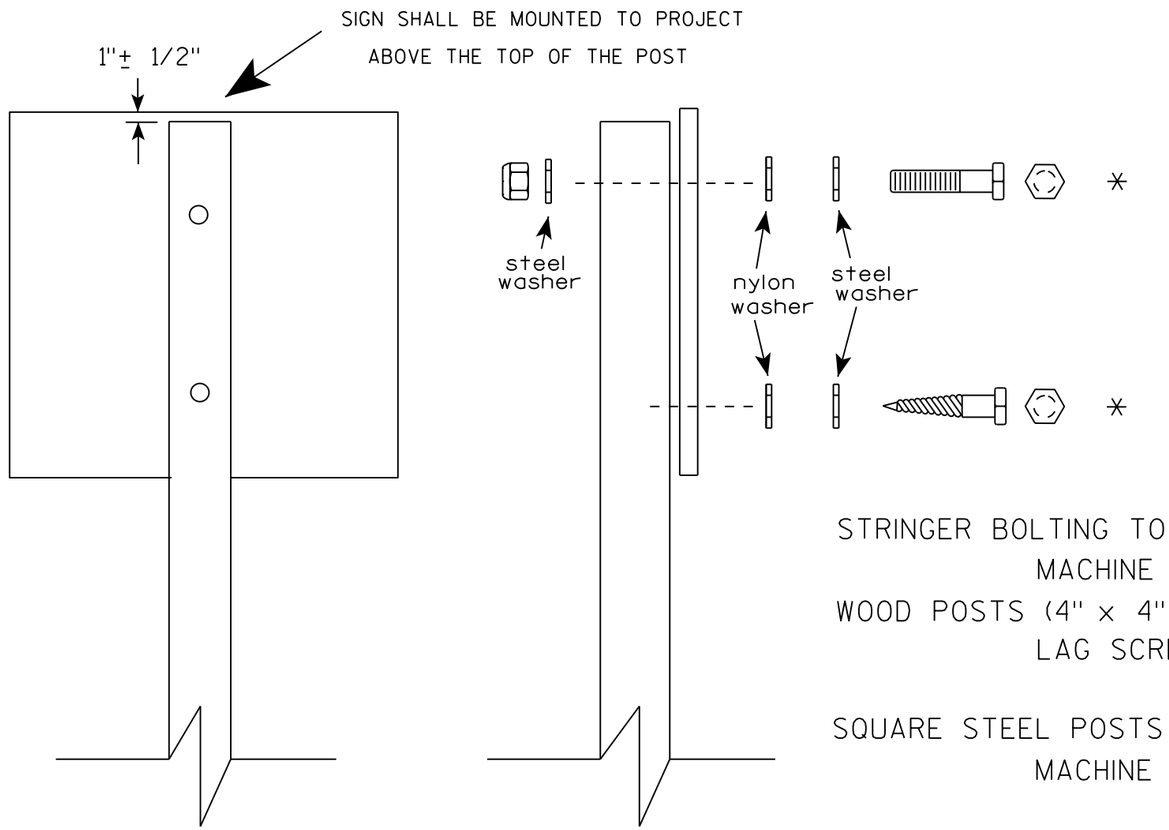
TYPICAL INSTALLATION OF TYPE II SIGNS ON MULTIPLE POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 8/21/17 PLATE NO. A4-4.15

PROJECT NO:	HWY:	COUNTY:		SHEET NO: 173	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

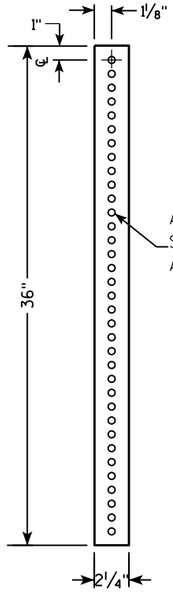
APPROVED Matthew R Rauch
For State Traffic Engineer

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

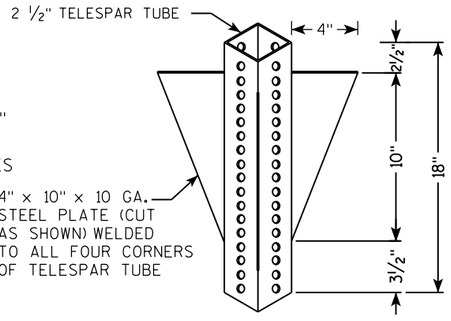
PROJECT NO: SHEET NO: E

TELESCOPIC TUBING ANCHORS
TWO PIECE SYSTEM

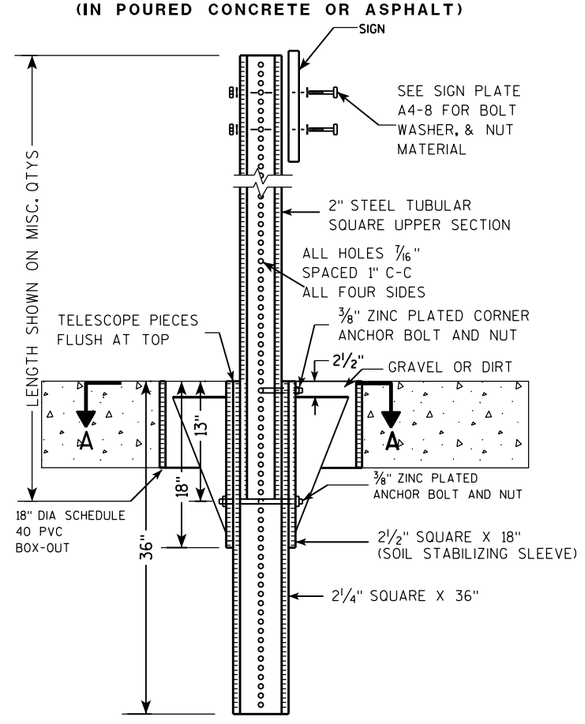
2 1/4 " SQUARE
12 GAUGE
PERFORATED
GALVANIZED FINISH



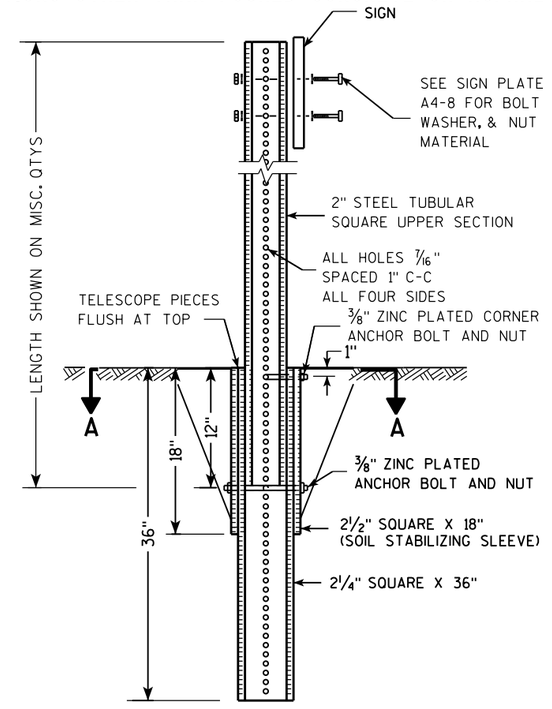
2 1/2 " SQUARE
12 GAUGE
OMNI-DIRECTIONAL
PERFORATED
SOIL STABILIZING SLEEVE
GALVANIZED FINISH

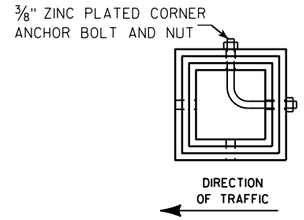


DETAIL OF TUBULAR STEEL SIGN POST
(IN POURED CONCRETE OR ASPHALT)



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

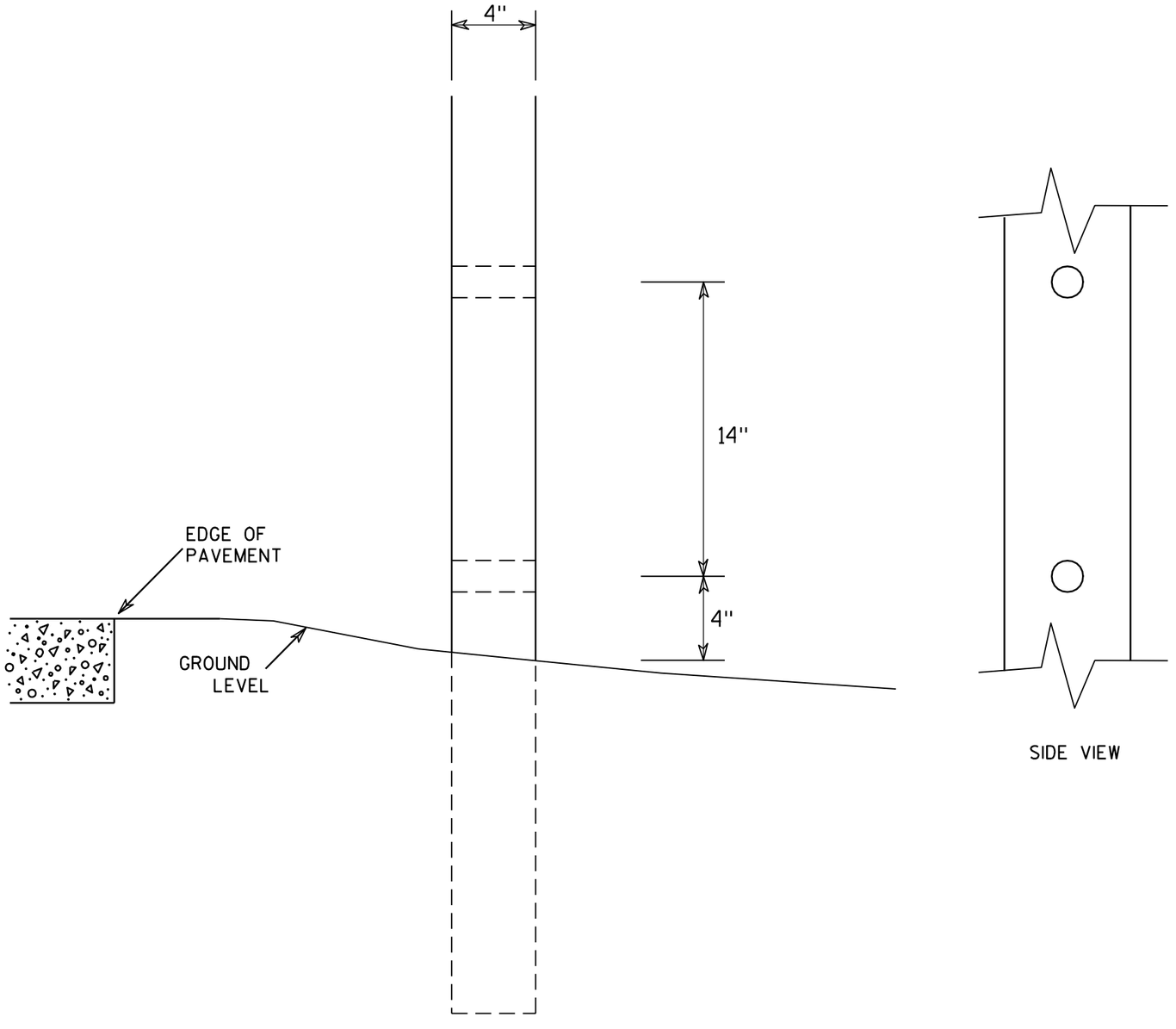
APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 2/05/15 PLATE 175 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

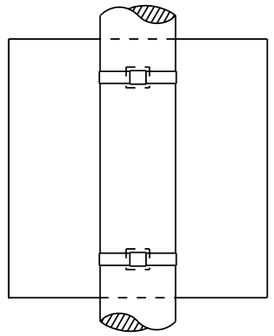
APPROVED Chester J Spang
for State Traffic Engineer

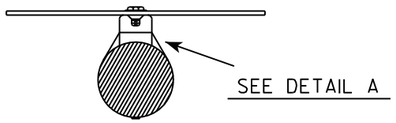
DATE 3/27/97 PLATE NO. A4-11.2

PROJECT NO:	HWY:	COUNTY:		SHEET NO: 176	E

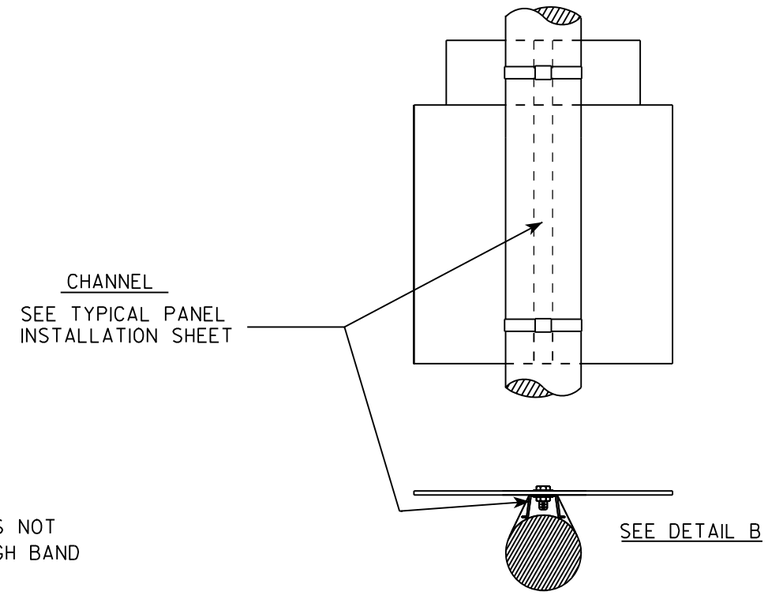
BANDING

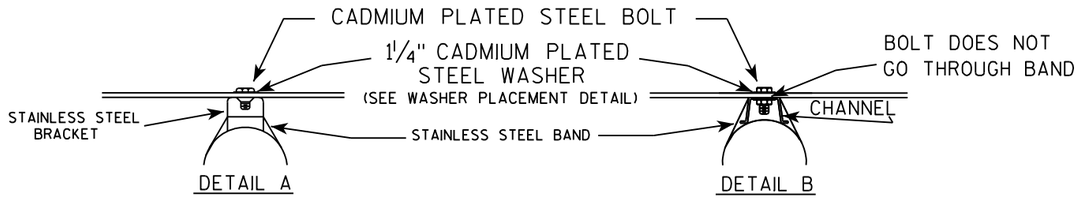
SINGLE SIGN



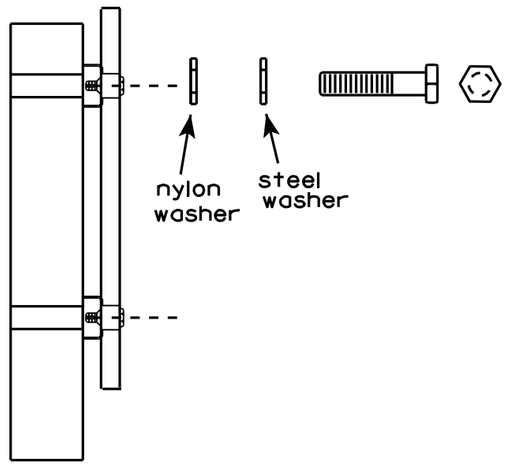


"J" ASSEMBLY





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.

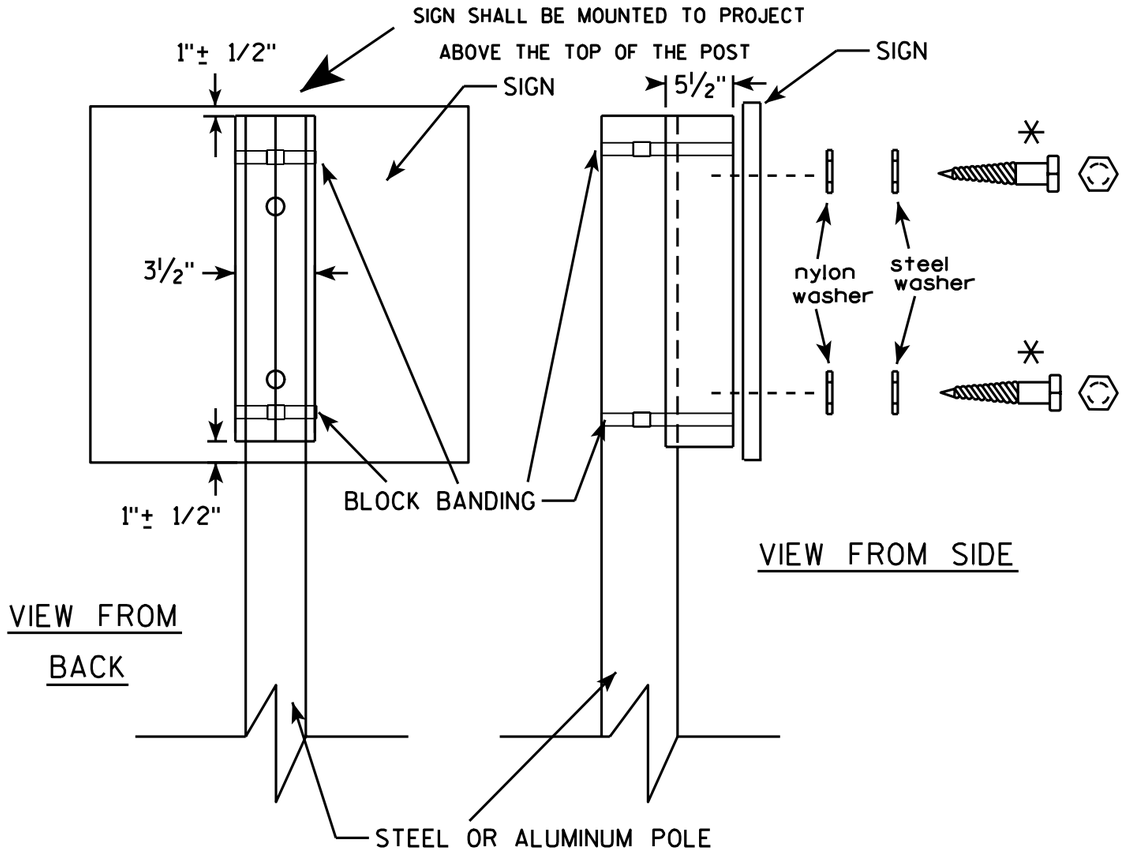
STANDARD SIGN
SIGN BANDING DETAILS

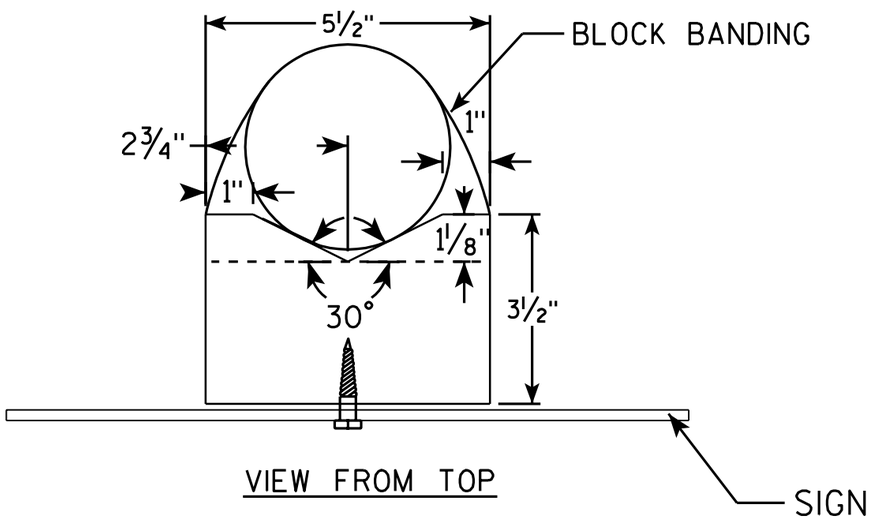
WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

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

PROJECT NO:	HWY:	COUNTY:		SHEET NO: 177	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)

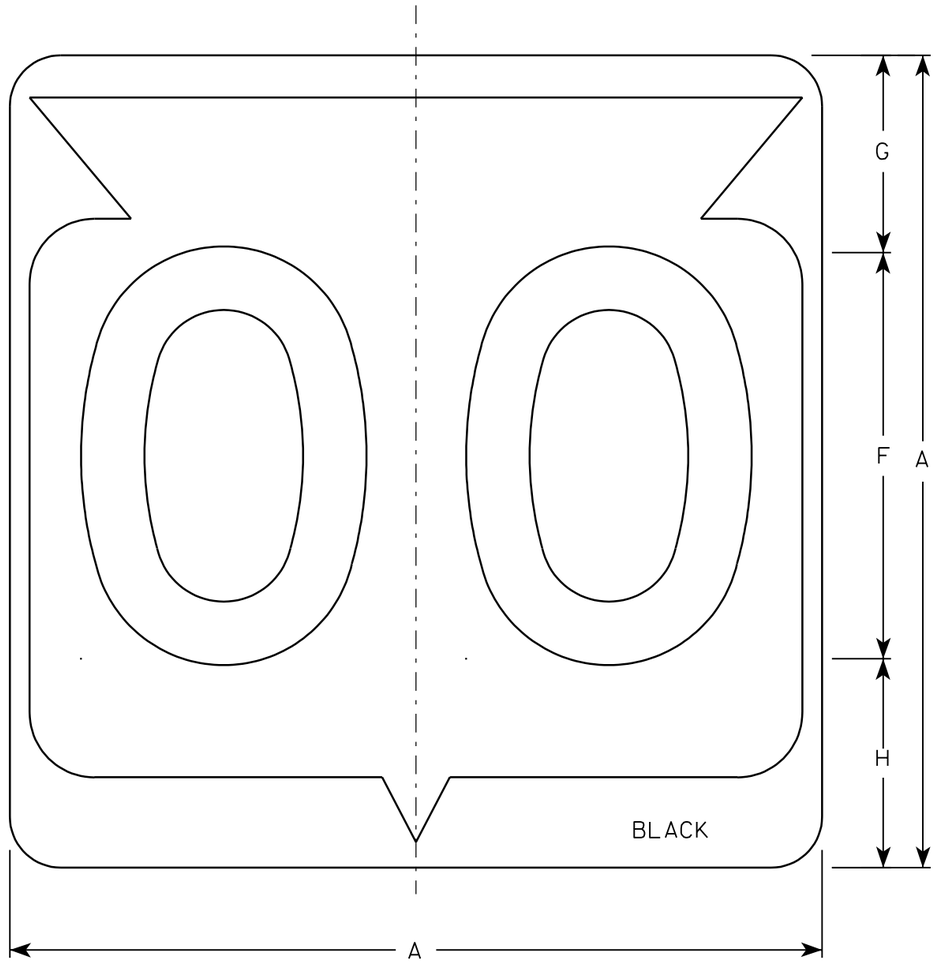
WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

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

PROJECT NO:

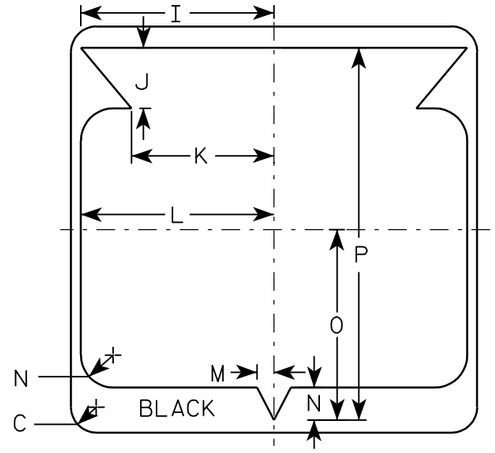
SHEET NO: 178 E



M1-6

NOTES

1. Sign is Type II - See Note 6 - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
   Background - White & Black - See Note 6
   Message - Black
3. Message Series - See note 5
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. Substitute appropriate Series numerals and adjust spacing as per plate A10-1.
6. Permanent Signs
   Background - Type H Reflective
   Detour or temporary Signs
   Background - Reflective



Metric equivalent for this sign is:

SIZE	
1	
2	600 mm X 600 mm
3	900 mm X 900 mm
4	900 mm X 900 mm
5	900 mm X 900 mm

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.	Area m2
1																												
2	24		1 1/2			12	5 1/2	6 1/2	10 1/4	2 1/2	8 7/8	11 1/2	1	1 7/8	11 1/4	21 7/8											4.0	.36
3	36		2 1/4			18	8 3/4	9 1/4	15 3/8	5 3/8	12 5/8	17 1/8	1 1/2	2 7/8	16 7/8	33											9.0	.81
4	36		2 1/4			18	8 3/4	9 1/4	15 3/8	5 3/8	12 5/8	17 1/8	1 1/2	2 7/8	16 7/8	33											9.0	.81
5	36		2 1/4			18	8 3/4	9 1/4	15 3/8	5 3/8	12 5/8	17 1/8	1 1/2	2 7/8	16 7/8	33											9.0	.81

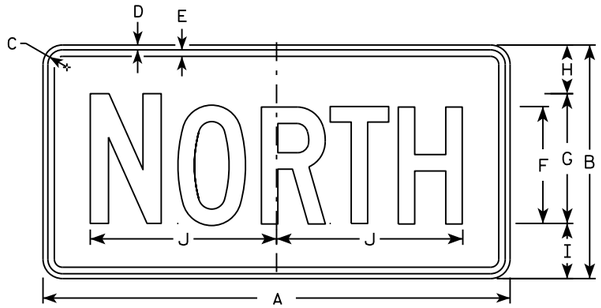
STATE ROUTE MARKER
M1-6 FOR ASSEMBLIES

WISCONSIN DEPT OF TRANSPORTATION

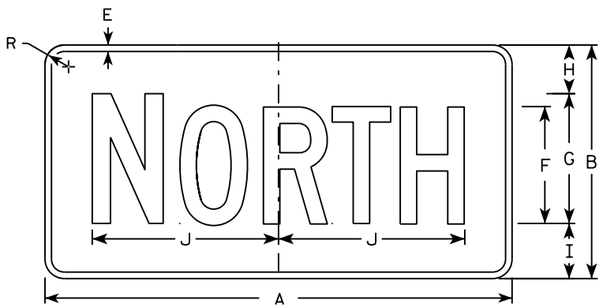
APPROVED Chester J Spang for State Traffic Engineer

DATE 3/20/02 PLATE NO. M1-6.9

PROJECT NO:	HWY:	COUNTY:		SHEET NO: 179	E



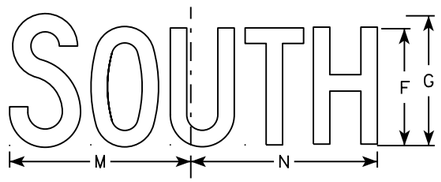
M3-1
MM3-1
MP3-1



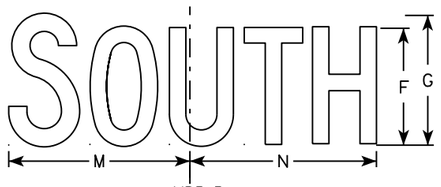
MB3-1
MK3-1
MN3-1

M3-2
MM3-2
MP3-2

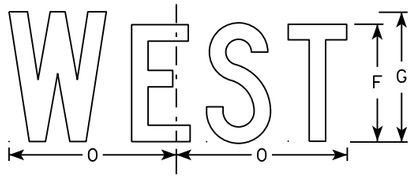
MB3-2
MK3-2
MN3-2



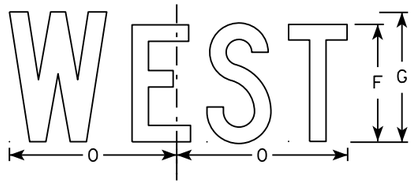
M3-3
MM3-3
MP3-3



MB3-3
MK3-3
MN3-3



M3-4
MM3-4
MP3-4



MB3-4
MK3-4
MN3-4

NOTES

1. All Signs Type II - Type H
2. Color:
   Background - See note 5
   Message - See note 5
3. Message Series - C
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. M3-1 thru M3-4 Background - White
   Message - Black
   MB3-1 thru MB3-4 Background - Blue
   Message - White
   MK3-1 thru MK3-4 Background - Green
   Message - White
   MM3-1 thru MM3-4 Background - White
   Message - Green
   MN3-1 thru MN3-4 Background - Brown
   Message - White
   MP3-1 thru MP3-4 Background - White
   Message - Blue
6. Note the first letter of each direction is larger than the remainder of the message.

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2	24	12	1 1/8	3/8	3/8	6	7	2 1/4	2 3/4	10 1/4	7 7/8	8 3/8	10 1/4	9 3/4	8 3/4			1 1/2									2.00
3	36	18	1 1/8	3/8	1/2	9	10	3 3/4	4 1/4	14 3/8	12	12 1/8	14	14 1/8	13			1 1/2									4.5
4	36	18	1 1/8	3/8	1/2	9	10	3 3/4	4 1/4	14 3/8	12	12 1/8	14	14 1/8	13			1 1/2									4.5
5	36	18	1 1/8	3/8	1/2	9	10	3 3/4	4 1/4	14 3/8	12	12 1/8	14	14 1/8	13			1 1/2									4.5

STANDARD SIGNS
M3-1 thur M3-4
SERIES

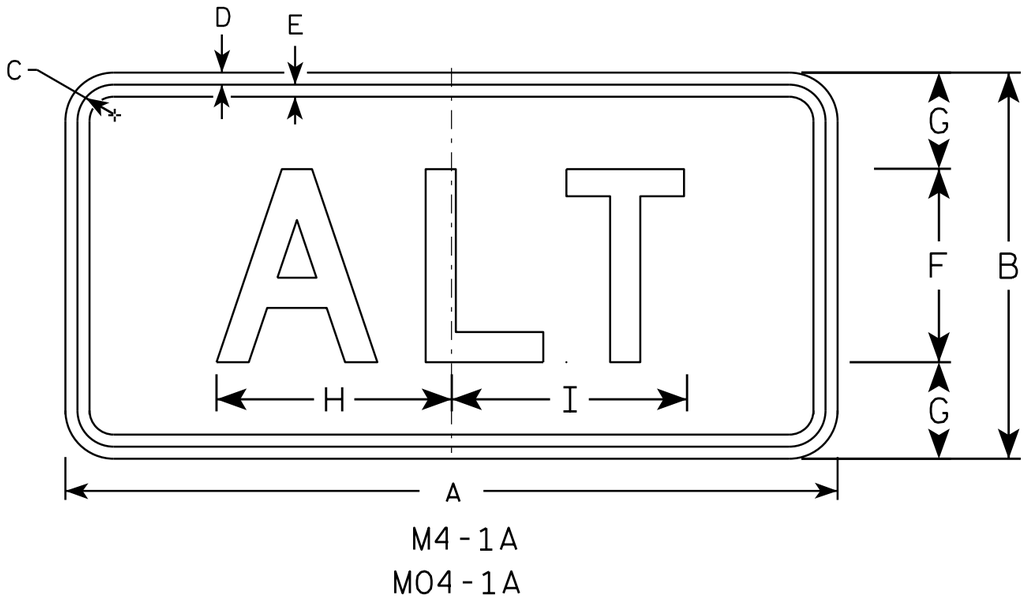
WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew P Rauch for State Traffic Engineer

DATE 10/15/15 PLATE NO M3-1.14

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

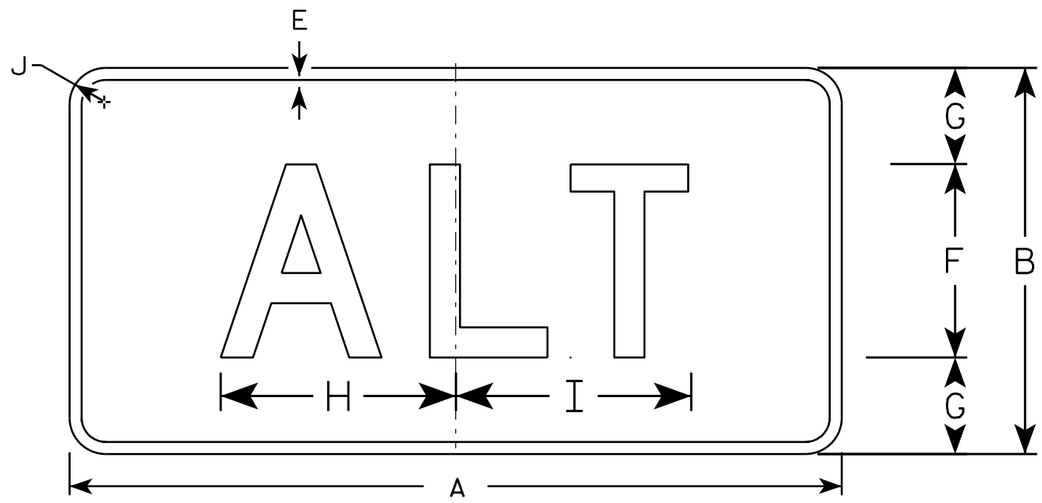
FILE NAME : C:\CAEfiles\Projects\tr_stdplate\M31.DGN PLOT DATE : 01-DEC-2015 17:54 PLOT BY : $$ plotuser $$ PLOT NAME : PLOT SCALE : 11.675051:1.000000



M4-1A
M04-1A

NOTES

1. Sign is Type II - Type H except as Shown
2. Color:
   Background - See Note 5
   Message - See note 5
3. Message Series - D
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. M4-1A Background - White
   Message - Black
   MB4-1A Background - Blue
   Message - White
   M04-1A Background - Orange - Type F
   Message - Black



MB4-1A

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2	24	12	1 1/8	3/8	3/8	6	3	7 1/4	7 3/8	1 1/8																	2.00
3	36	18	1 1/8	3/8	1/2	9	4 1/2	11	11 1/8	1 1/8																	4.5
4	36	18	1 1/8	3/8	1/2	9	4 1/2	11	11 1/8	1 1/8																	4.5
5	36	18	1 1/8	3/8	1/2	9	4 1/2	11	11 1/8	1 1/8																	4.5

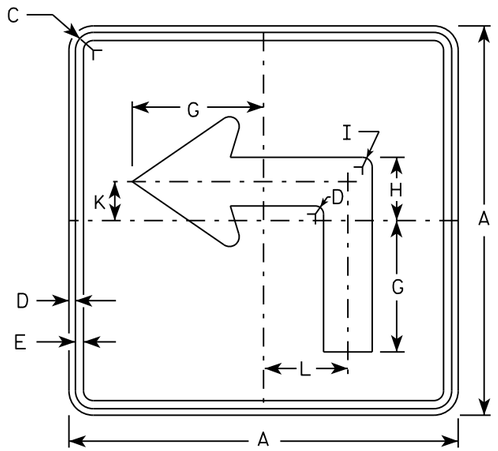
STANDARD SIGN
M4-1A

WISCONSIN DEPT OF TRANSPORTATION

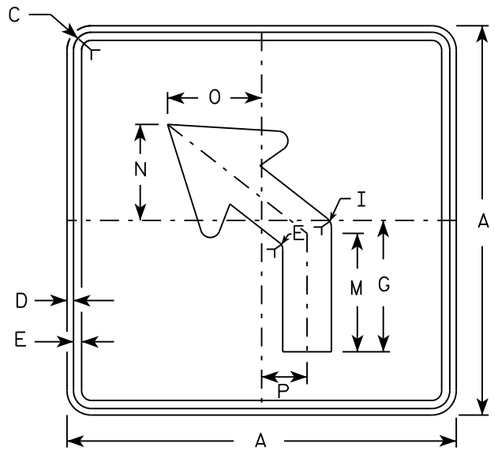
APPROVED Matthew R Rauch
For State Traffic Engineer

DATE 6/30/14 PLATE 181 M4-1A.3

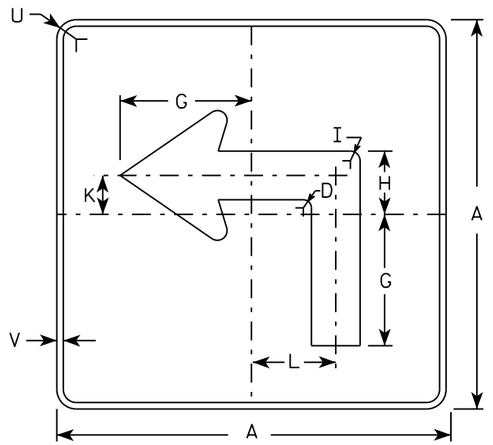
PROJECT NO:	HWY:	COUNTY:		SHEET NO:	E



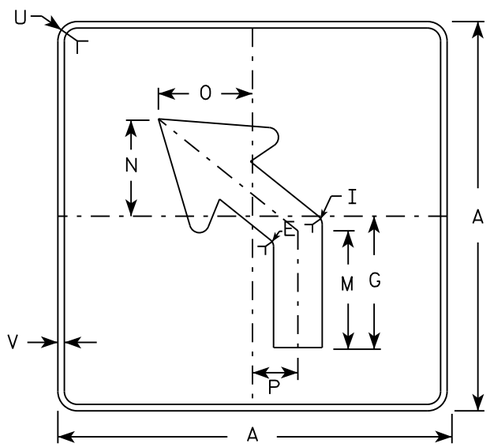
M5-1L
MM5-1L
MO5-1L
MP5-1L



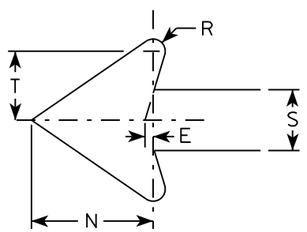
M5-2L
MM5-2L
MO5-2L
MP5-2L



MB5-1L
MK5-1L
MN5-1L
MR5-1L



MB5-2L
MK5-2L
MN5-2L
MR5-2L



NOTES

1. Signs are Type II - Type H reflective except as shown
2. Color:
   Background - See note 4
   Message - See note 4
3. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
4. M5-1 and M5-2 Background - White
   Message - Black
   MB5-1 and MB5-2 Background - Blue
   Message - White
   MK5-1 and MK5-2 Background - Green
   Message - White
   MM5-1 and MM5-2 Background - White
   Message - Green
   MN5-1 and MN5-2 Background - Brown
   Message - White
   MO5-1 and MO5-2 Background - Orange - Type F Reflective
   Message - Black
   MP5-1 and MP5-2 Background - White - Type H Reflective
   Message - Blue
   MR5-1 and MR5-2 Background - Brown
   Message - Yellow
5. M5-1R same as M5-1L except arrow points right.
6. M5-2R same as M5-2L except arrow tilts right.

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2	21		1 1/8	3/8	3/8		7	3 3/8	5/8		2 1/8	4 1/2	6 3/8	5 1/4	5	2 1/2		1/2	2 5/8	3	1 1/2	1/2					3.06
3	30		1 3/8	1/2	5/8		10 1/8	4 7/8	7/8		3	6 1/2	9 1/8	7 1/2	7 1/4	3 1/2		3/4	3 3/4	4 1/4	1 7/8	1/2					6.25
4	30		1 3/8	1/2	5/8		10 1/8	4 7/8	7/8		3	6 1/2	9 1/8	7 1/2	7 1/4	3 1/2		3/4	3 3/4	4 1/4	1 7/8	1/2					6.25
5	30		1 3/8	1/2	5/8		10 1/8	4 7/8	7/8		3	6 1/2	9 1/8	7 1/2	7 1/4	3 1/2		3/4	3 3/4	4 1/4	1 7/8	1/2					6.25

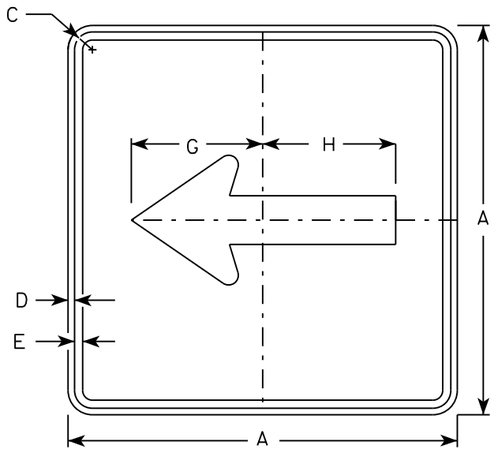
STANDARD SIGN
M5-1 & M5-2

WISCONSIN DEPT OF TRANSPORTATION

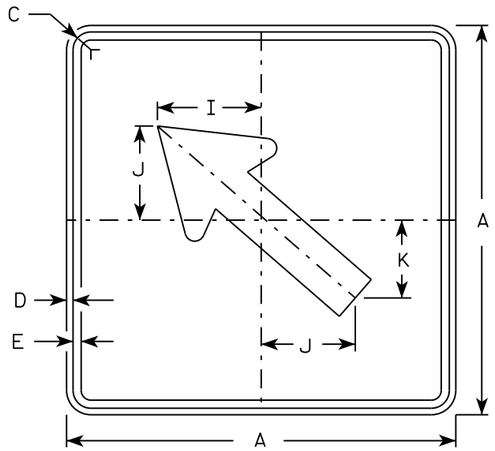
APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 10/15/15 PLATE NO. M5-1.13

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



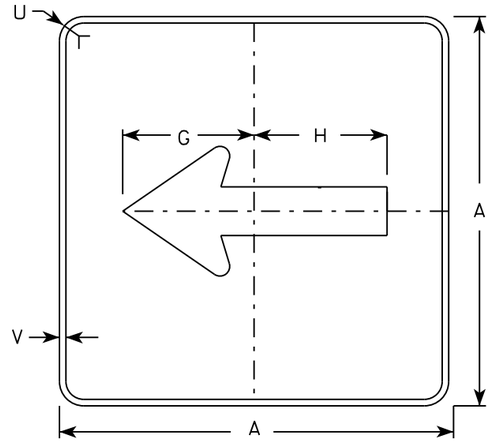
M6-1
MM6-1
MO6-1
MP6-1



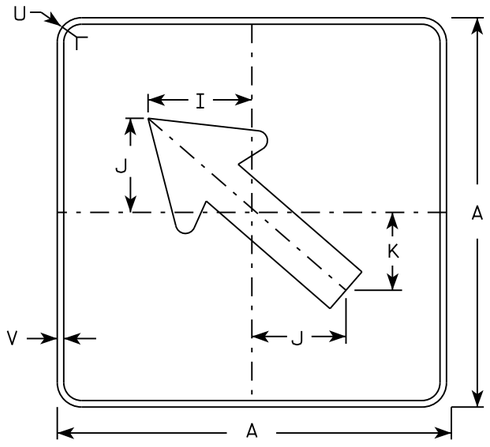
M6-2
MM6-2
MO6-2
MP6-2

NOTES

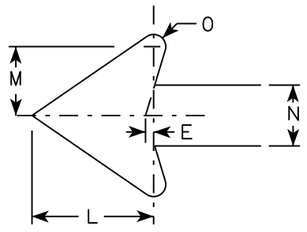
1. Signs are Type II - Type H except as Shown
2. Color:
   Background - See note 4
   Message - See note 4
3. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
4. M6-1 and M6-2 Background - White
   Message - Black
   MB6-1 and MB6-2 Background - Blue
   Message - White
   MK6-1 and MK6-2 Background - Green
   Message - White
   MM6-1 and MM6-2 Background - White
   Message - Green
   MN6-1 and MN6-2 Background - Brown
   Message - White
   MO6-1 and MO6-2 Background - Orange - Type F Reflective
   Message - Black
   MP6-1 and MP6-2 Background - White
   Message - Blue
   MR6-1 and MR6-2 Background - Brown
   Message - Yellow



MB6-1
MK6-1
MN6-1
MR6-1



MB6-2
MK6-2
MN6-2
MR6-2



SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2	21		1 1/8	3/8	3/8		7 1/2	7 1/8	5 5/8	5	4 1/4	5 1/4	3	2 5/8	1/2						1 1/2	1/2						3.06
3	30		1 3/8	1/2	5/8		10 3/4	10 1/4	8	7 1/4	6	7 1/2	4 1/4	3 3/4	3/4						1 7/8	1/2						6.25
4	30		1 3/8	1/2	5/8		10 3/4	10 1/4	8	7 1/4	6	7 1/2	4 1/4	3 3/4	3/4						1 7/8	1/2						6.25
5	30		1 3/8	1/2	5/8		10 3/4	10 1/4	8	7 1/4	6	7 1/2	4 1/4	3 3/4	3/4						1 7/8	1/2						6.25

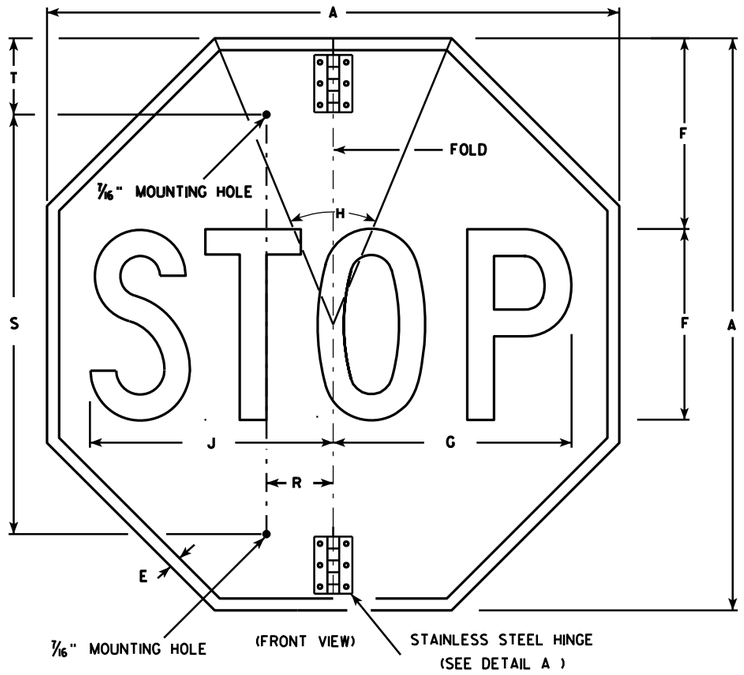
STANDARD SIGN
M6-1 & M6-2
SERIES

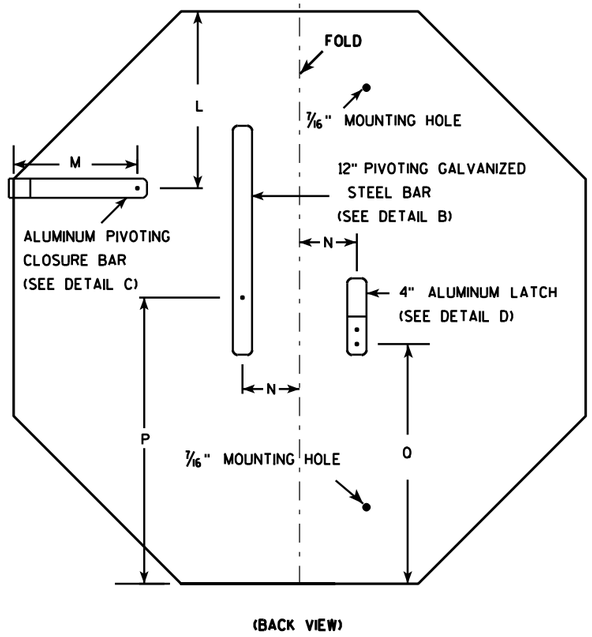
WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 10/15/15 PLATE 183 M6-1.15

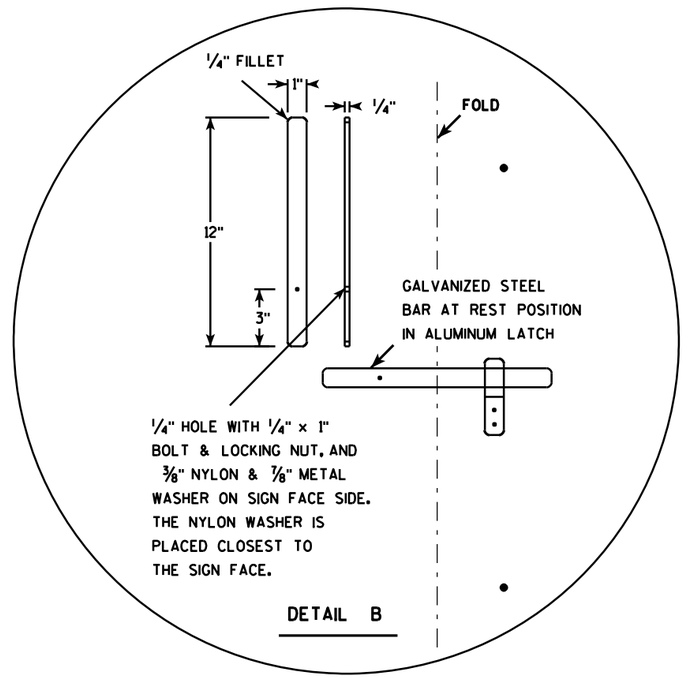
PROJECT NO: | HWY: | COUNTY: | SHEET NO: E

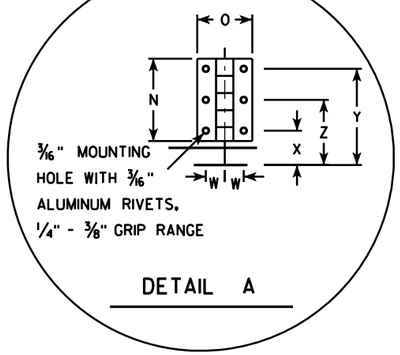


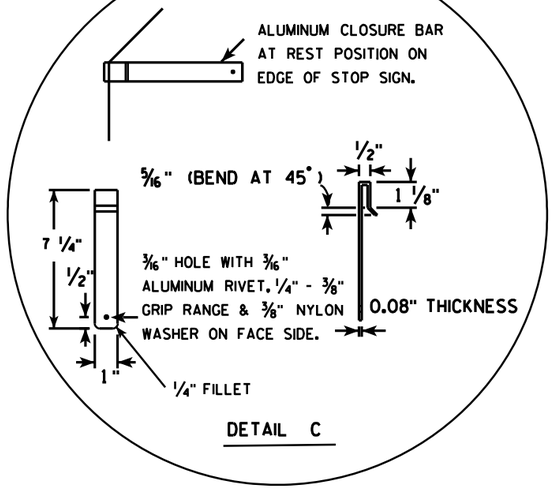


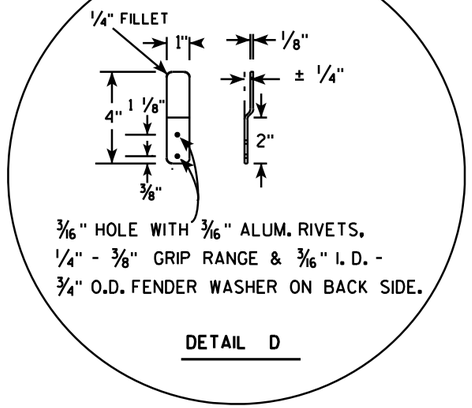
NOTES

1. Sign is Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
   Background - Red
   Message - White
3. Message Series - C
4. All hardware used on the folding STOP sign installation shall conform to 637.2.4 of the WIS DOT Standard Specification.









SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	O	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	30				5/8	10	12 1/2	45		12 3/4		9 1/4	6 1/2	3	2	15	12 3/8	2 1/2	22	5			11/16	1 1/4	3 1/2	2 3/8	5.18
2M	36				3/4	12	15	45		15 3/8		11	6 1/2	3	2	18	15 3/8	2 1/2	26	5			11/16	1 1/4	3 1/2	2 3/8	7.46
3	36				3/4	12	15	45		15 3/8		11	6 1/2	3	2	18	15 3/8	2 1/2	26	5			11/16	1 1/4	3 1/2	2 3/8	7.46
4																											
5																											

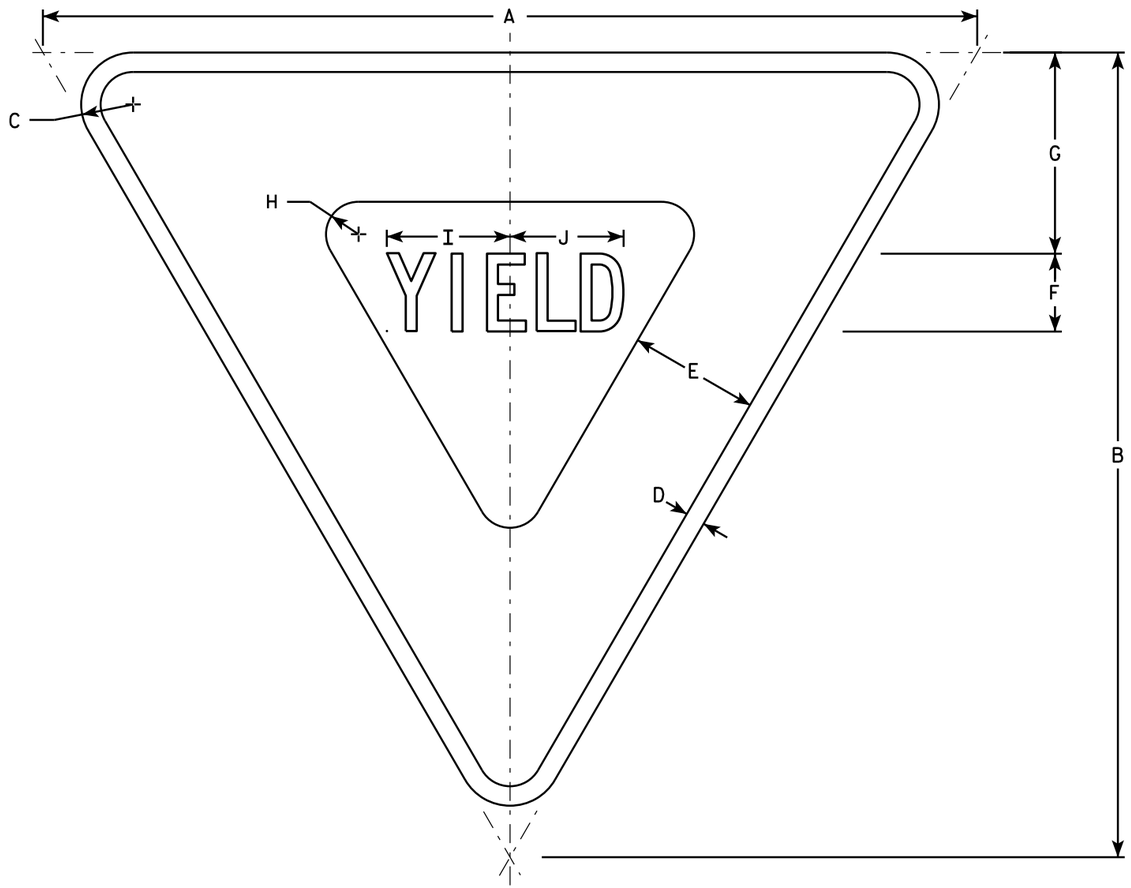
STANDARD SIGN
R1-1F

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 12/03/10 PLATE NO. R1-1F.3

PROJECT NO: | HWY: | COUNTY: | SHEET NO: 184 | E



R1-2

NOTES

1. Sign is Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
   Background - White
   Message - See note 5
3. Message Series - C
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. The border strip and word message are reflectorized red.

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	30	26	1 1/2	5/8	4	2 1/2	6 3/8	7/8	4	3 5/8																	2.71
2S	36	31	2	3/4	5	3	7 3/4	1 1/4	4 3/4	4 3/8																	3.88
2M	48	42	3	1	6	4	9 3/4	2	6 1/4	5 7/8																	7.00
3	48	42	3	1	6	4	9 3/4	2	6 1/4	5 7/8																	7.00
4	48	42	3	1	6	4	9 3/4	2	6 1/4	5 7/8																	7.00
5	60	52	3	1 1/2	8	5	13	2 1/2	7 7/8	7 1/4																	10.83
6																											
7	18	15 1/2	1	3/8	2 1/2	1 1/2	3 7/8	5/8	2 3/8	2 1/4																	0.97

STANDARD SIGN
R1-2

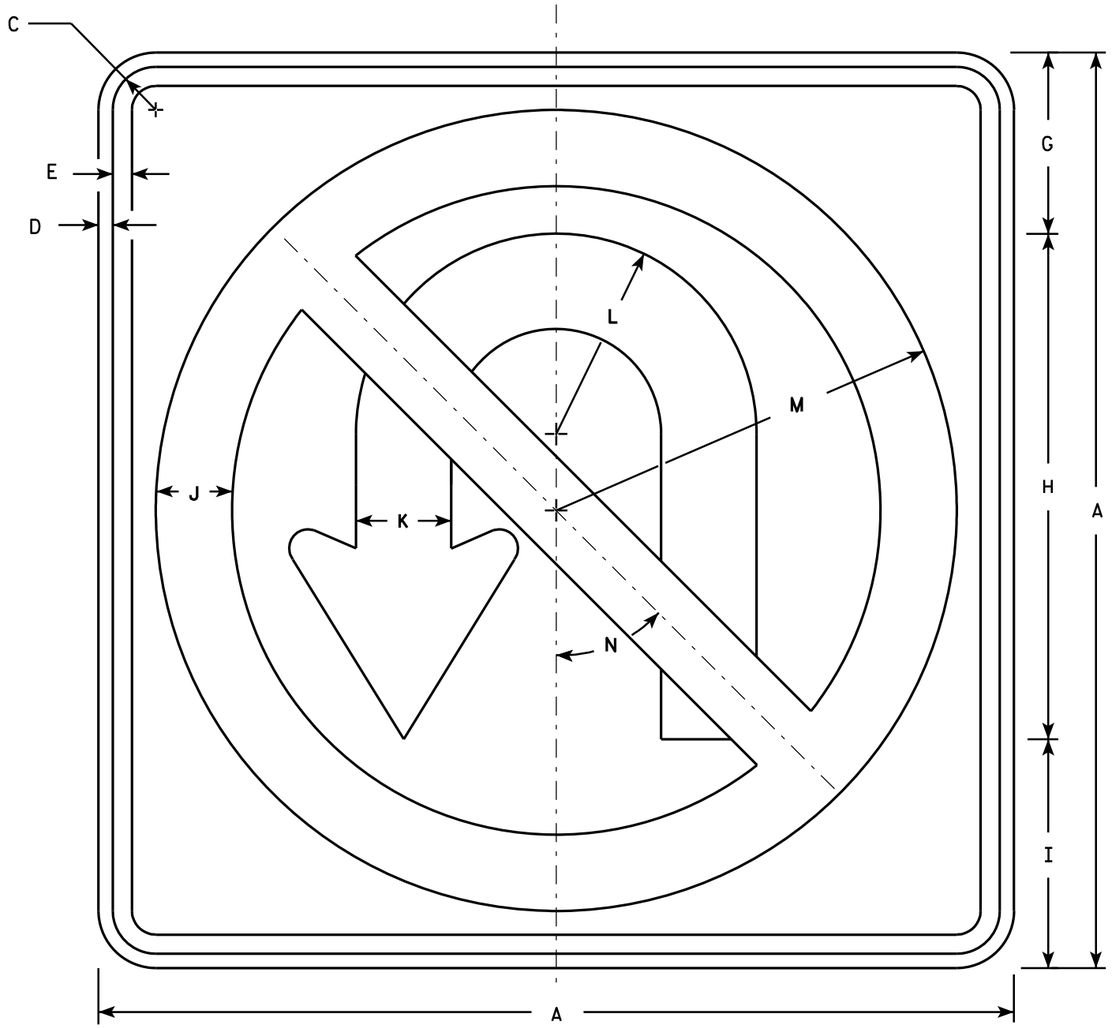
WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 10/13/14 PLATE P1-2.12

PROJECT NO:	HWY:	COUNTY:		SHEET NO:	E

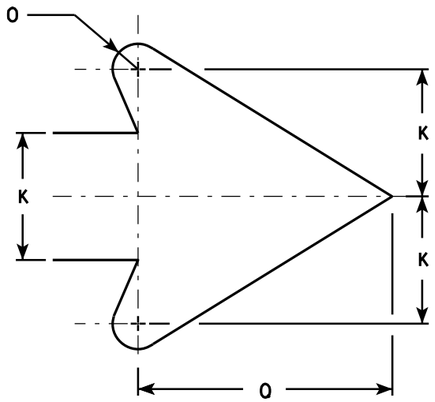
FILE NAME : C:\CAEFiles\Projects\tr_stdplate\R12.DGN PLOT DATE : 13-OCT-2014 15:12 PLOT BY : mscsja PLOT NAME : PLOT SCALE : 5.837526:1.000000
WISDOT/CADDS SHEET 42



R3-4

NOTES

1. Sign is Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
   Background - White
   Message - See note 4
3. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
4. Border & Arrow are non reflective black, the circle with diagonal bar is reflective red.



ARROW DETAIL

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	O	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	24		1 1/8	3/8	1/2		4 3/4	13 1/4	6	2	2 1/2	5 1/4	10 1/2	45°	1/2		5										4.0
2M	36		1 5/8	5/8	3/4		7 1/8	19 7/8	9	3	3 3/4	7 7/8	15 3/4	45°	3/4		7 5/8										9.0
3	36		1 5/8	5/8	3/4		7 1/8	19 7/8	9	3	3 3/4	7 7/8	15 3/4	45°	3/4		7 5/8										9.0
4	36		1 5/8	5/8	3/4		7 1/8	19 7/8	9	3	3 3/4	7 7/8	15 3/4	45°	3/4		7 5/8										9.0
5	36		1 5/8	5/8	3/4		7 1/8	19 7/8	9	3	3 3/4	7 7/8	15 3/4	45°	3/4		7 5/8										9.0

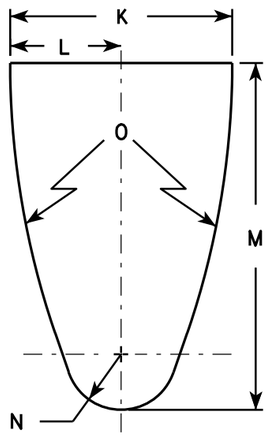
STANDARD SIGN
R3-4

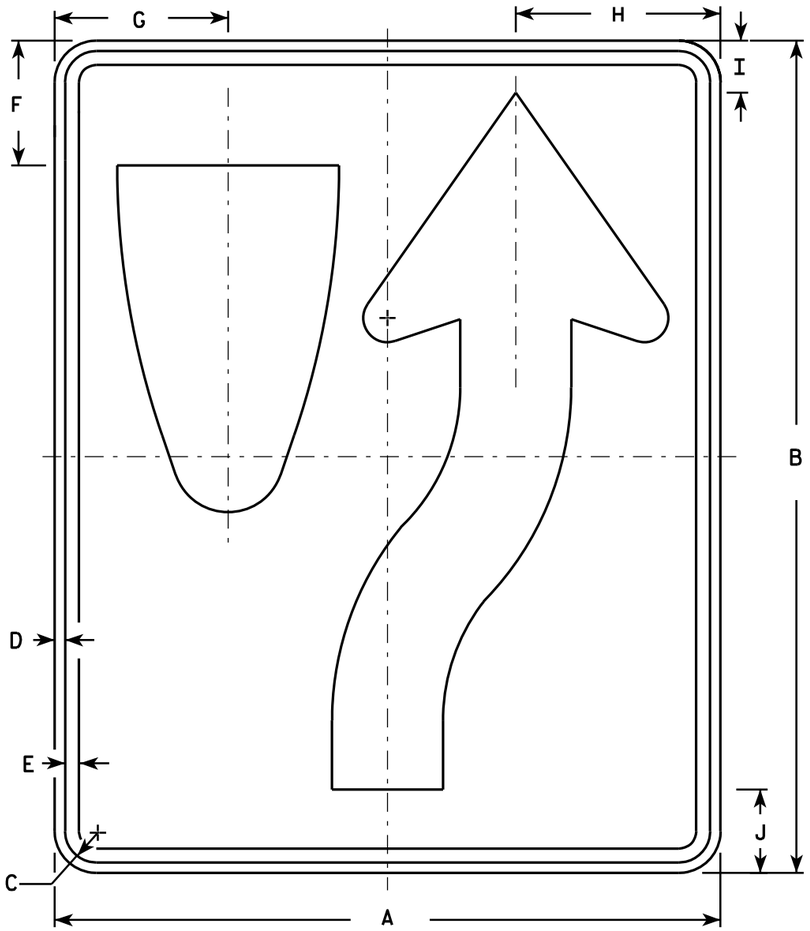
WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 12/08/10 PLATE NO. R3-4.11

PROJECT NO: | HWY: | COUNTY: | SHEET NO: 186 | E

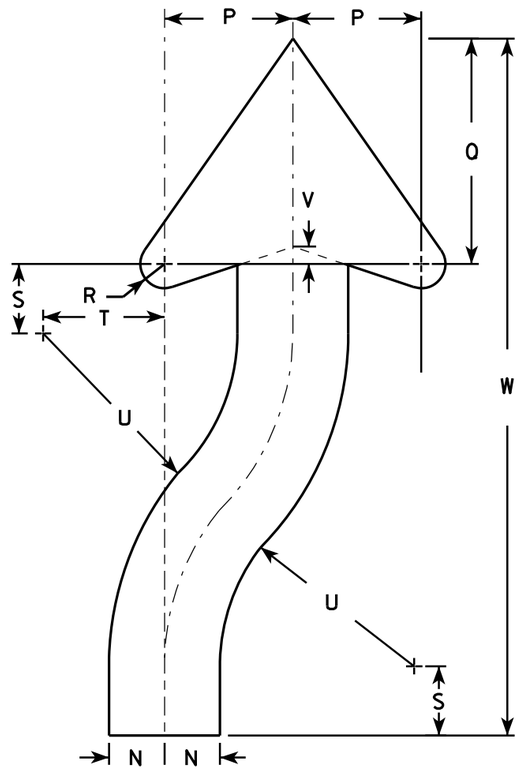




R4-7

NOTES

1. Sign is Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition. material is plywood but borders shall be rounded
2. Color:
   Background - White
   Message - Black
3. Corners may be square or rounded when base as shown. When base material is metal, the corners and borders shall be rounded.
4. R4-8 is the same as R4-7 except Legend is reversed.



ARROW DETAIL

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	18	24	1 1/8	3/8	1/2	3 3/8	4 3/4	5 1/2	1 3/8	2 1/4	6	3	9 3/8	1 1/2	22 1/2	3 1/2	6 1/8	5/8	1 7/8	3 1/4	6 3/4	1/2	20 3/8				3.0
2S	24	30	1 1/8	3/8	1/2	4 1/2	6 1/4	7 3/8	1 7/8	3	8	4	12 1/2	2	30	4 5/8	8 1/8	7/8	2 1/2	4 3/8	9	5/8	25 1/8				5.0
2M	24	30	1 1/8	3/8	1/2	4 1/2	6 1/4	7 3/8	1 7/8	3	8	4	12 1/2	2	30	4 5/8	8 1/8	7/8	2 1/2	4 3/8	9	5/8	25 1/8				5.0
3	36	48	1 3/4	1/2	5/8	6 3/4	9 3/8	11 1/8	2 7/8	4 1/2	12	6	18 3/4	3	45	6 7/8	12 1/4	1 1/4	3 3/4	6 5/8	13 1/2	1	40 3/4				12.0
4	36	48	1 3/4	1/2	5/8	6 3/4	9 3/8	11 1/8	2 7/8	4 1/2	12	6	18 3/4	3	45	6 7/8	12 1/4	1 1/4	3 3/4	6 5/8	13 1/2	1	40 3/4				12.0
5	48	60	2 1/4	3/4	1	9	12 1/2	14 3/4	3 3/4	6	16	8	25	4	60	9 1/4	16 1/4	1 5/8	5	8 3/4	18	1 1/4	50 1/4				20.0

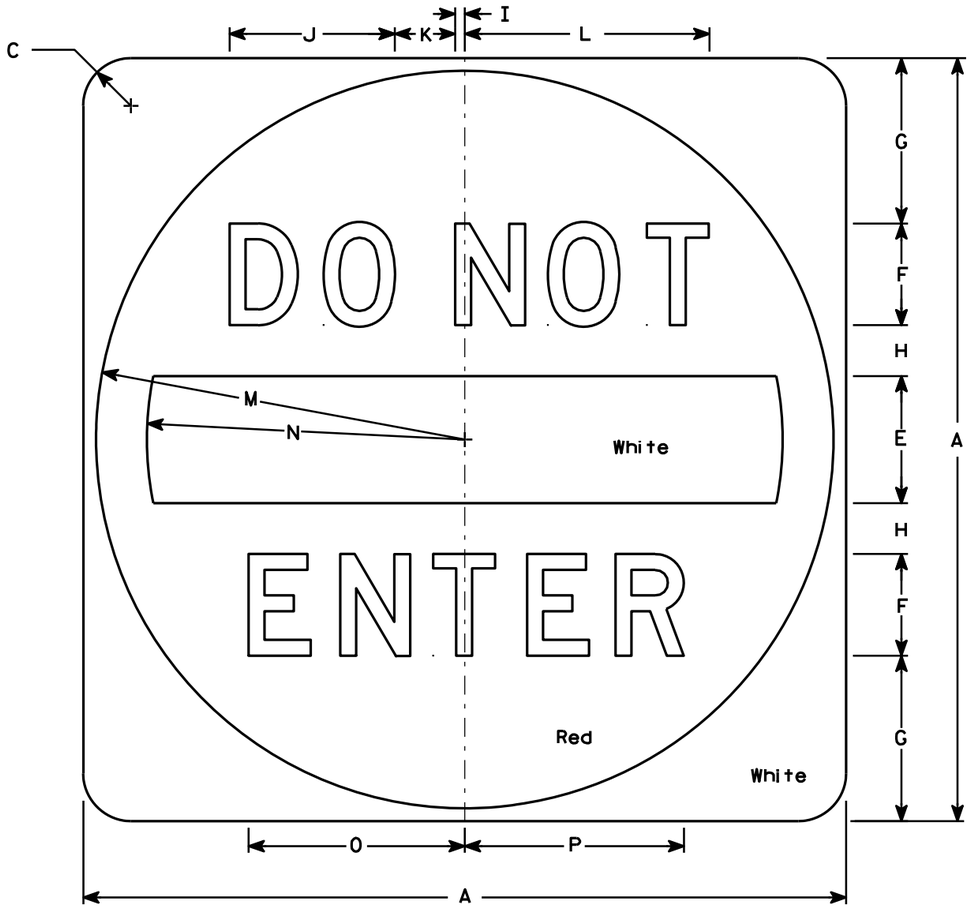
STANDARD SIGN
R4-7 & R4-8

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch for State Traffic Engineer

DATE 3/25/2011 PLATE NO. R4-7.8

PROJECT NO:	HWY:	COUNTY:		SHEET NO: 187	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

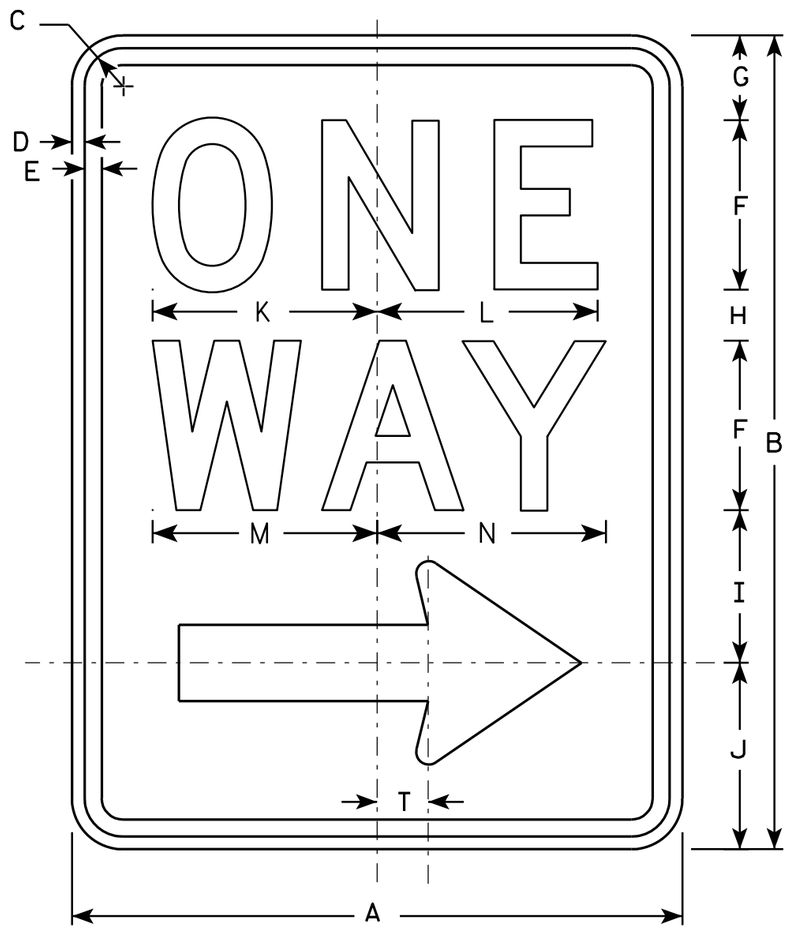
STANDARD SIGN
R5-1

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

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

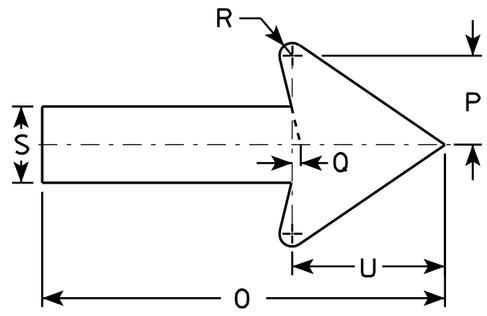
PROJECT NO: | HWY: | COUNTY: | SHEET NO: 188 | E



R6-2R

NOTES

1. Sign is Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
   Background - White
   Message - Black
3. Message Series - D
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. R6-2L same as R6-2R except arrow points to the left.



SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	O	R	S	T	U	V	W	X	Y	Z
1	18	24	1 1/8	3/8	1/2	5	2 1/2	1 1/2	4 1/2	5 1/2	6 5/8	6 1/2	6 5/8	6 3/4	11 7/8	2 5/8	1/4	3/8	2 1/4	1 1/2	4 1/2					
2S	24	30	1 1/8	3/8	1/2	6	3	2 1/2	5 1/2	7	8 1/8	8 1/8	8 1/2	8 5/8	16	3 1/2	3/8	1/2	3	2	6					
2M	30	36	1 3/8	1/2	5/8	8	2 1/2	2 5/8	6 7/8	8	10 1/2	10 1/2	11 1/4	11 1/4	20	4 3/8	1/2	5/8	3 3/4	2 1/2	7 1/2					
3	36	48	1 7/8	1/2	5/8	10	5 1/4	3 1/4	9	10 1/2	12 3/4	12 3/4	13 1/4	13 1/2	24	5 5/8	1/2	3/4	4 3/4	3	9					
4	36	48	1 7/8	1/2	5/8	10	5 1/4	3 1/4	9	10 1/2	12 3/4	12 3/4	13 1/4	13 1/2	24	5 5/8	1/2	3/4	4 3/4	3	9					
5																										

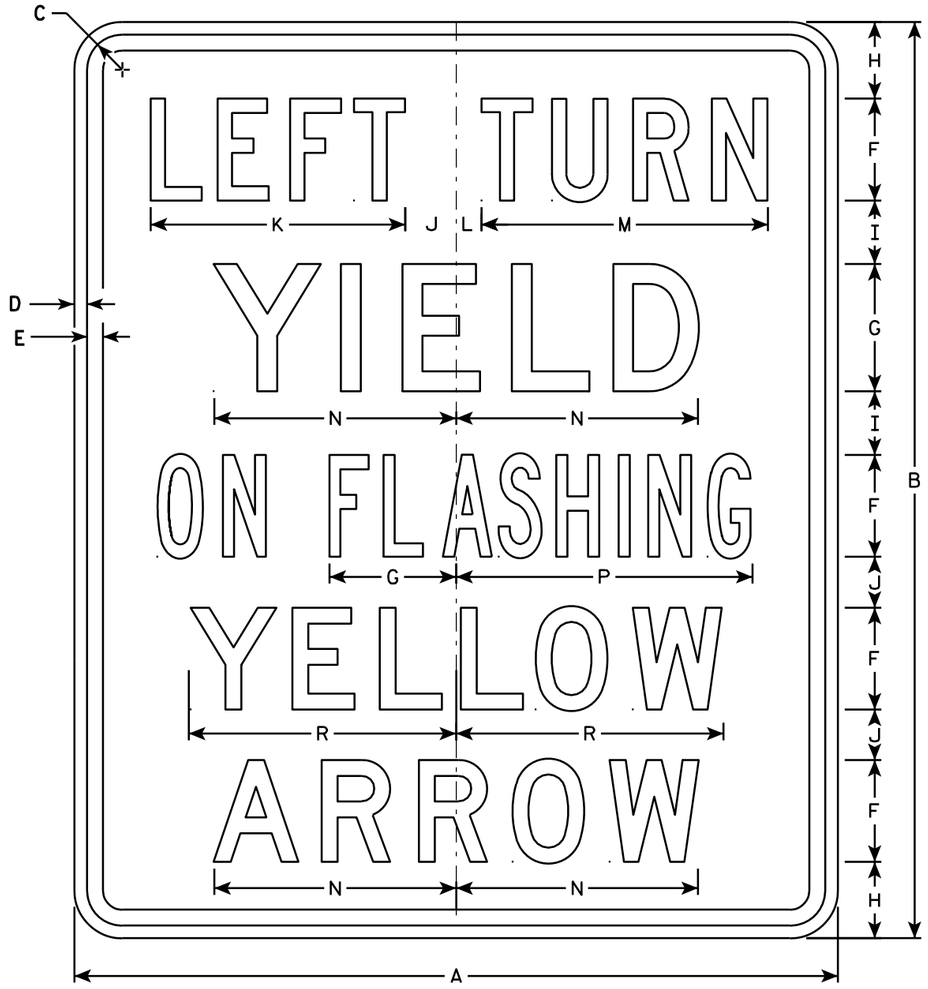
STANDARD SIGN
R6-2 R&L

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 11/2/10 PLATE NO. R6-2.8

PROJECT NO: | HWY: | COUNTY: | SHEET NO: 189 | E

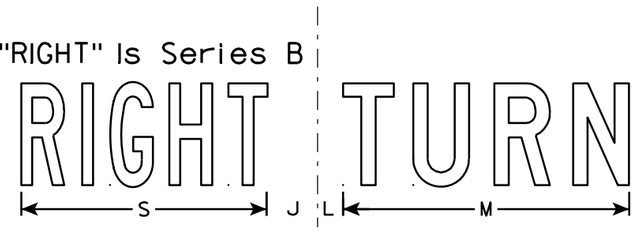


R10-50L

NOTES

1. Sign is Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
   Background - White
   Message - Black
3. Message Series - see note 5
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. Line 1 is Series C.
   Lines 2, 4 and 5 are Series D.
   Line 3 is Series B.

"RIGHT" Is Series B



R10-50R

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	36	1 3/8	1/2	5/8	4	5	3	2 1/2	2	10	1	11 1/4	9 1/2	4 1/4	11 5/8		10 1/2	9 5/8								7.5
2M	30	36	1 3/8	1/2	5/8	4	5	3	2 1/2	2	10	1	11 1/4	9 1/2	4 1/4	11 5/8		10 1/2	9 5/8								7.5
3																											
4																											
5																											

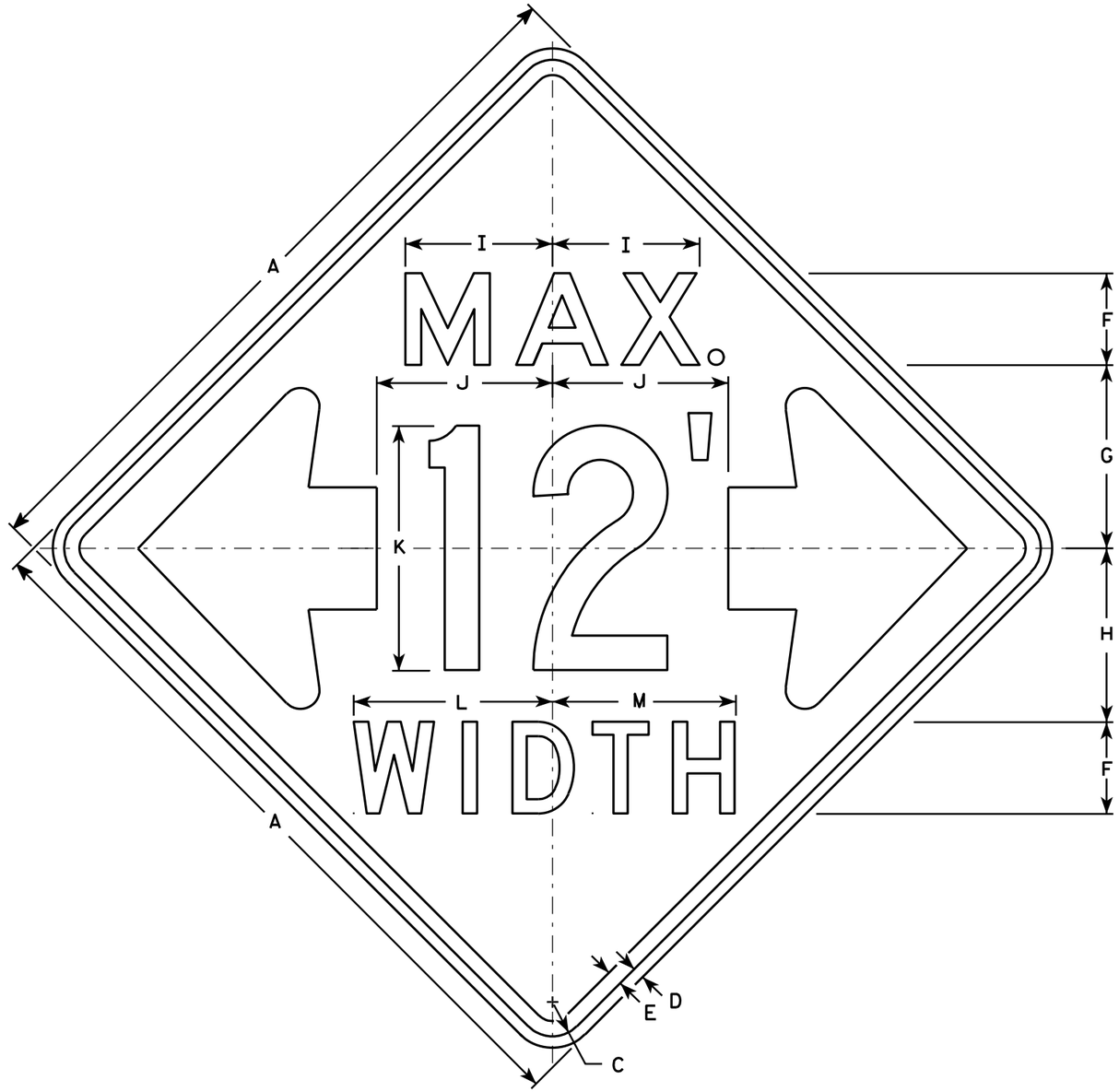
STANDARD SIGN
R10-50

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 4/11/13 PLATE NO. R10-50.2

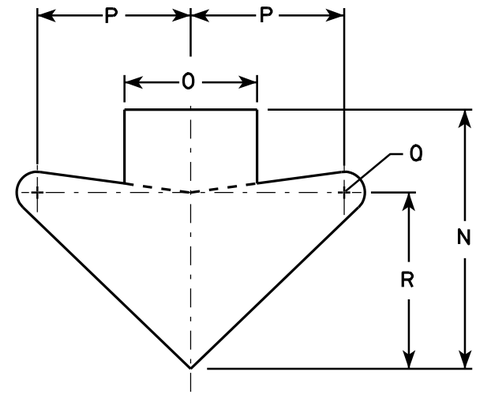
PROJECT NO:	HWY:	COUNTY:		SHEET NO: 190	E



W12-52

NOTES

1. Sign is Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
   Background - Orange
   Message - Black
3. Message Series - See note 5
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. The top line is series E, the numerals are series C, and the bottom line is series D.
6. Substitute appropriate numerals and adjust spacing as required.



ARROW DETAIL

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	48		2 1/4	3/4	1	6	12	11 3/8	9 5/8	11 1/2	16	13	12	15 5/8	8	9 1/4	1 1/4	10 5/8									16.0
2M	48		2 1/4	3/4	1	6	12	11 3/8	9 5/8	11 1/2	16	13	12	15 5/8	8	9 1/4	1 1/4	10 5/8									16.0
3																											
4																											
5																											

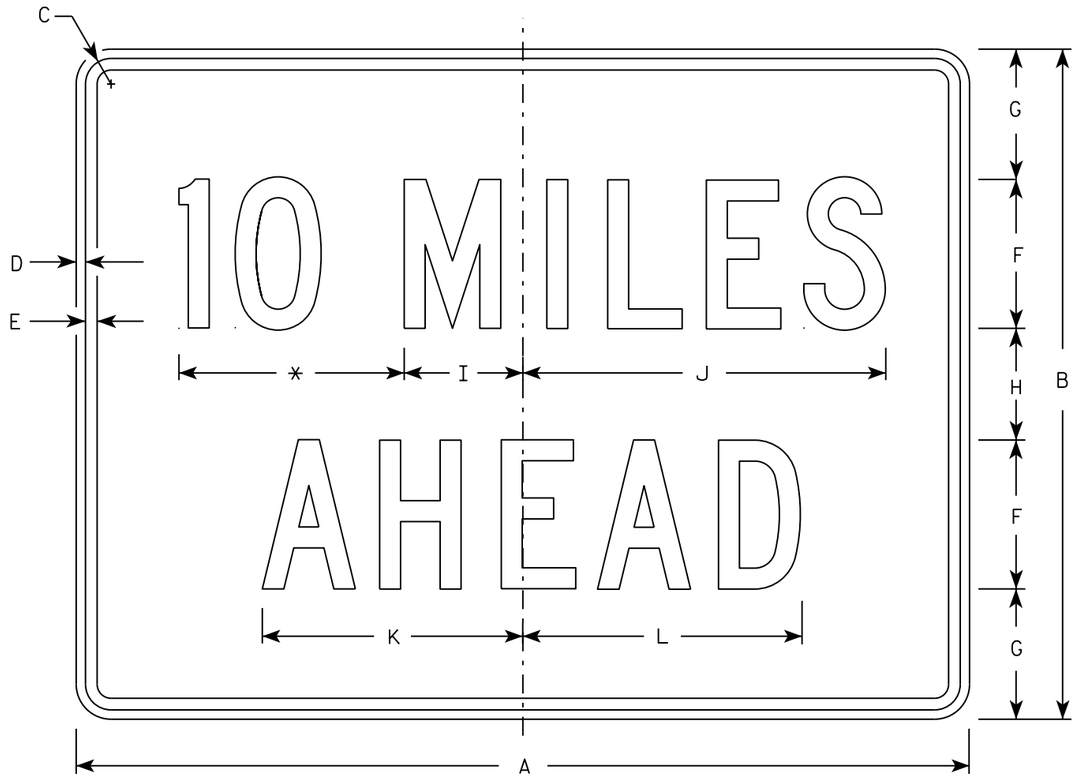
STANDARD SIGN
W12-52

WISCONSIN DEPT OF TRANSPORTATION

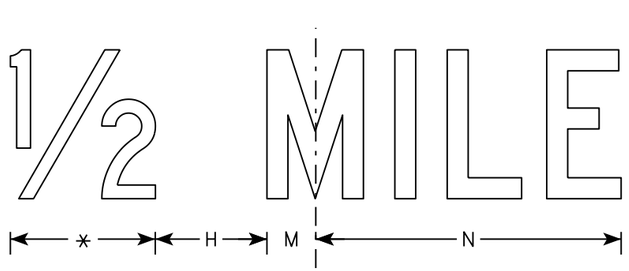
APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 3/16/11 PLATE NO. W12-52.7

PROJECT NO:	HWY:	COUNTY:		SHEET NO: 191	E



W057-52



NOTES

1. Sign is Type II - Type F Reflective
2. Color:
   Background - Orange
   Message - Black
3. Message Series - C
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. Substitute appropriate numerals to the nearest quarter mile and optically adjust spacing to achieve proper balance.

* See note 5

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	36	24	1 1/8	3/8	1/2	6	4 1/2	3	4 3/4	14 5/8	10 5/8	11 3/8	2	12													6.0
2S	48	36	1 3/8	1/2	5/8	8	7	6	6 3/8	19 1/2	14	15	2 3/4	16 3/8													12.0
2M	48	36	1 3/8	1/2	5/8	8	7	6	6 3/8	19 1/2	14	15	2 3/4	16 3/8													12.0
3	48	36	1 3/8	1/2	5/8	8	7	6	6 3/8	19 1/2	14	15	2 3/4	16 3/8													12.0
4	48	36	1 3/8	1/2	5/8	8	7	6	6 3/8	19 1/2	14	15	2 3/4	16 3/8													12.0
5	48	36	1 3/8	1/2	5/8	8	7	6	6 3/8	19 1/2	14	15	2 3/4	16 3/8													12.0

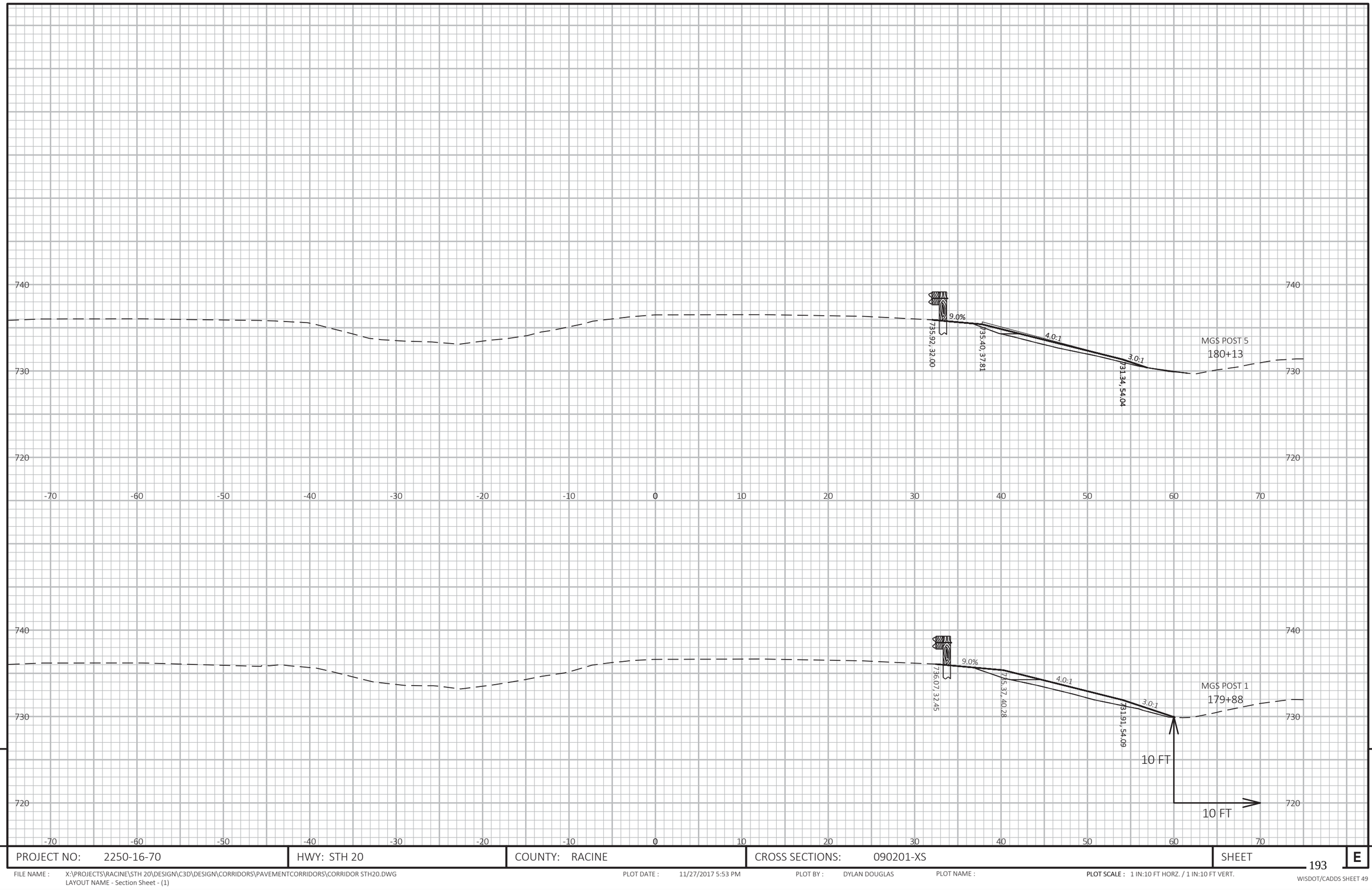
STANDARD SIGN
W057-52

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 3/21/17 PLATE NO. W057-52.2

PROJECT NO:	HWY:	COUNTY:		SHEET NO: 192	E



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9

PROJECT NO: 2250-16-70	HWY: STH 20	COUNTY: RACINE	CROSS SECTIONS: 090201-XS	SHEET	E

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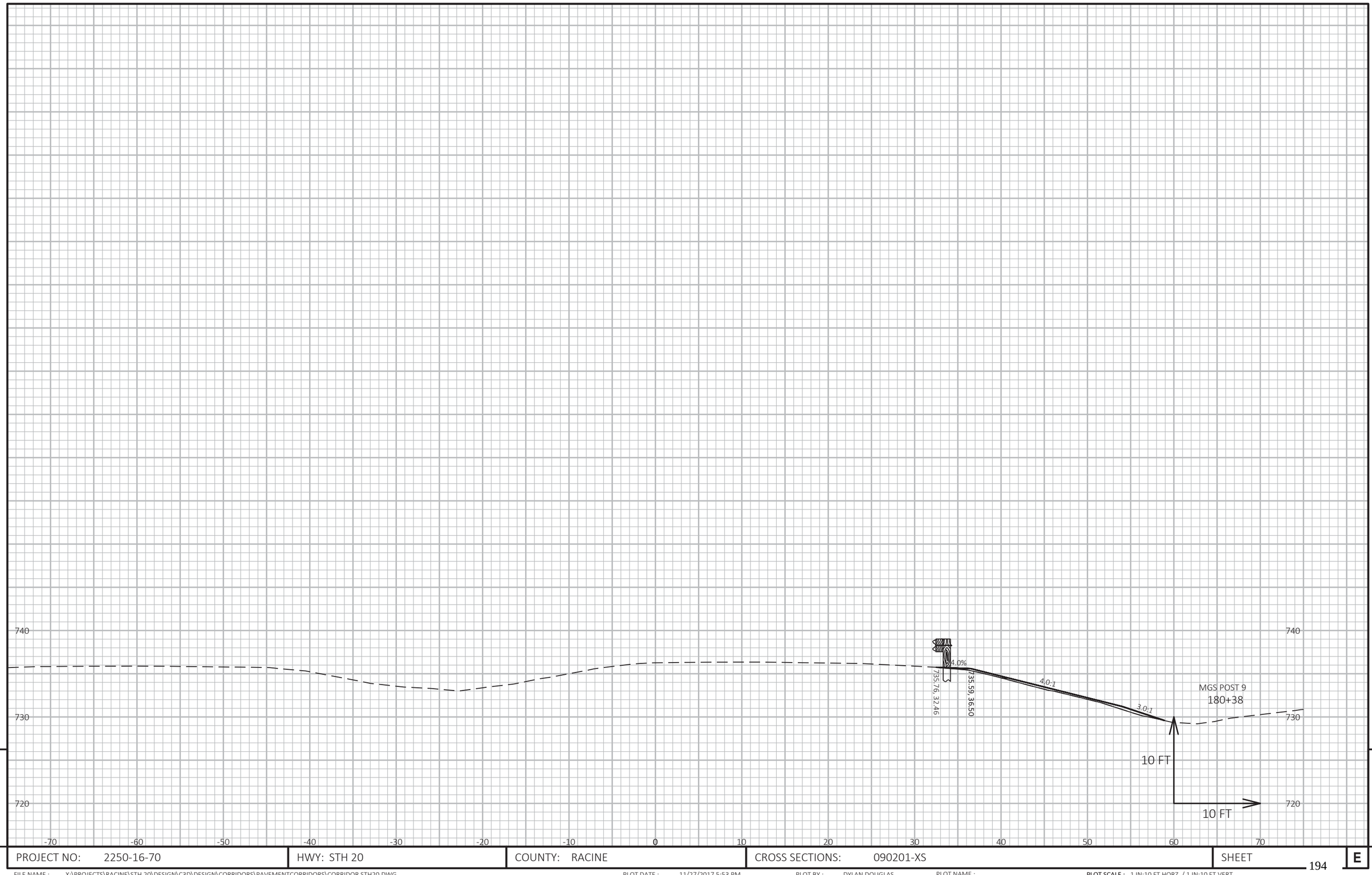
LAYOUT NAME - Section Sheet - (1)

PLOT DATE : 11/27/2017 5:53 PM PLOT BY : DYLAN DOUGLAS PLOT NAME : **PLOT SCALE :** 1 IN:10 FT HORZ. / 1 IN:10 FT VERT.



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PROJECT NO: 2250-16-70	HWY: STH 20	COUNTY: RACINE	CROSS SECTIONS: 090201-XS	SHEET	E

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LAYOUT NAME - Section Sheet - (2)

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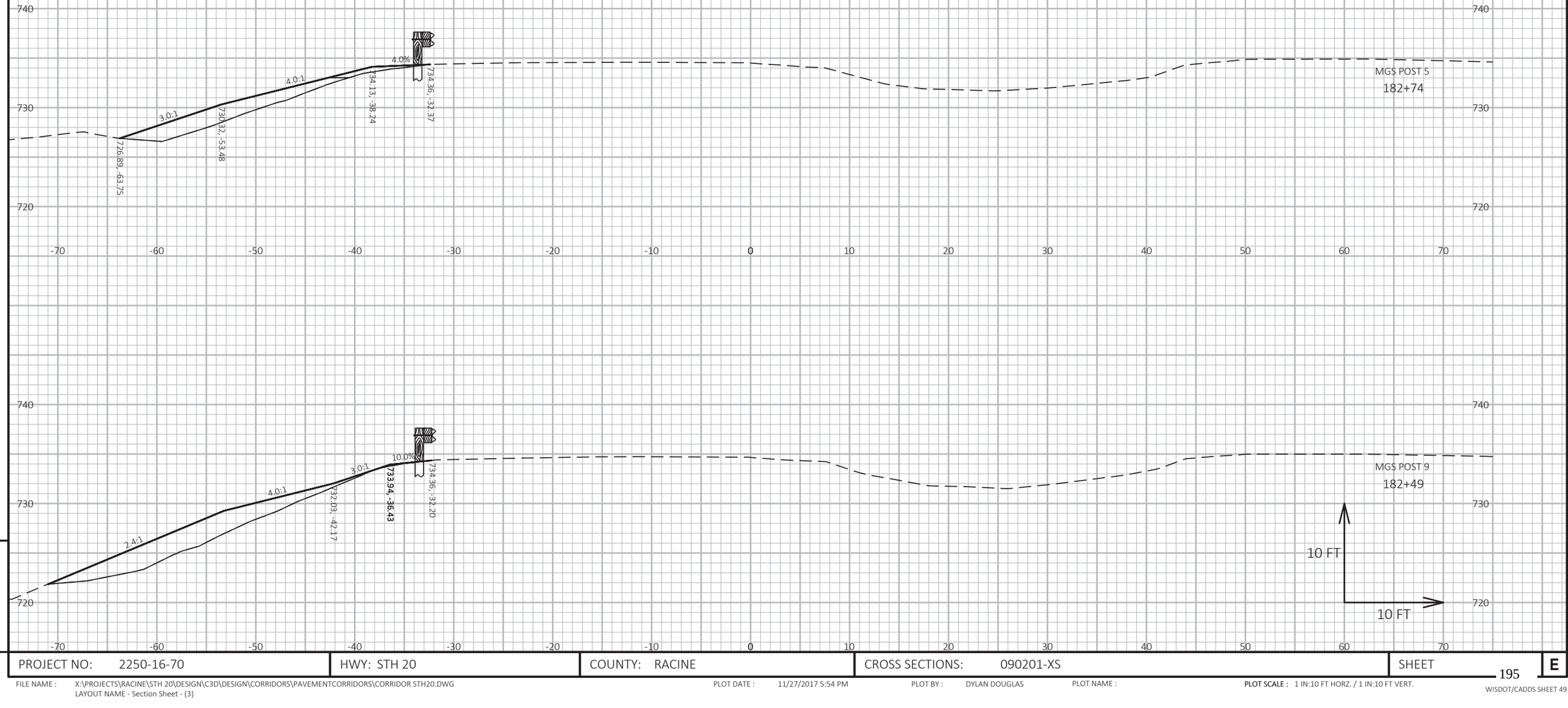

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PROJECT NO: 2250-16-70	HWY: STH 20	COUNTY: RACINE	CROSS SECTIONS: 090201-XS	SHEET 195	E

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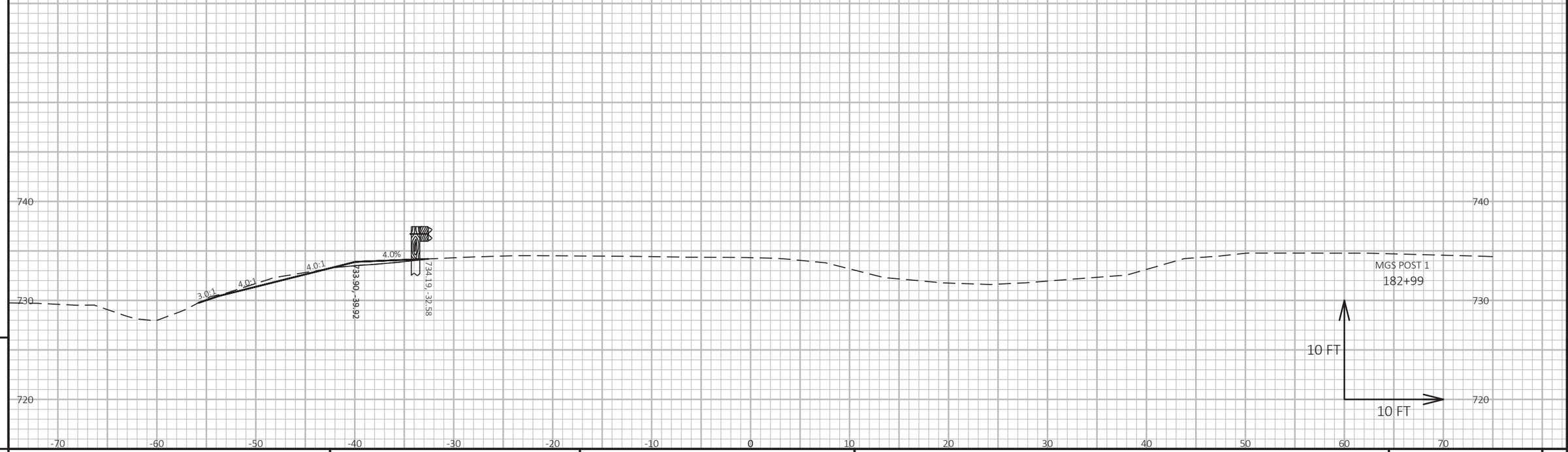
LAYOUT NAME - Section Sheet - (3)

PLOT DATE : 11/27/2017 5:54 PM PLOT BY : DYLAN DOUGLAS PLOT NAME : PLOT SCALE : 1 IN:10 FT HORZ. / 1 IN:10 FT VERT.

WISDOT/CADDS SHEET 49



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LAYOUT NAME - Section Sheet - (4)

PLOT DATE : 11/27/2017 5:54 PM PLOT BY : DYLAN DOUGLAS PLOT NAME : PLOT SCALE : 1 IN:10 FT HORZ. / 1 IN:10 FT VERT.

Notes

Wisconsin Department of Transportation

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