SEL

DEC 2016

ORDER OF SHEETS

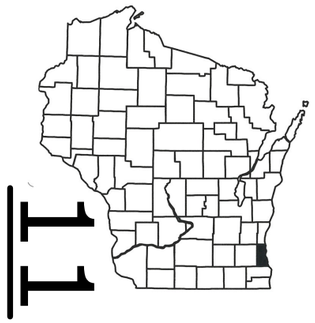
Section No.	1	Title
Section No.	2	Typical Sections and Details
Section No.	3	Estimate of Quantities
Section No.	3	Miscellaneous Quantities
~~Section No.~~	~~4~~	~~Right of Way Plat~~
~~Section No.~~	~~5~~	~~Plan and Profile~~
Section No.	6	Standard Detail Drawings
Section No.	7	Sign Plates
~~Section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

TOTAL SHEETS = 104

PROJECT ID: 2160-01-72

WITH: N/A

COUNTY: MILWAUKEE



N

DESIGN DESIGNATION

A.A.D.T.	2014	= 24,700
A.A.D.T.	2037	= 29,600
D.H.V.		= N/A
D.D.		= N/A
T.		= 4.8%
DESIGN SPEED		= 45 MPH
ESALS		= N/A

CONVENTIONAL SYMBOLS

PLAN

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

PROFILE

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

UTILITIES

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

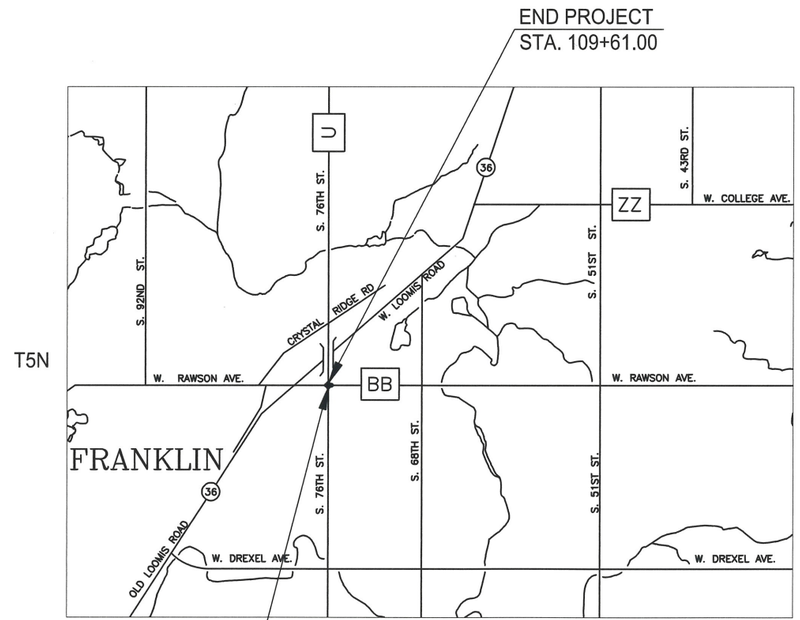
PLAN OF PROPOSED IMPROVEMENT

CTH U

INTERSECTION OF CTH U AND CTH BB

CTH U
MILWAUKEE COUNTY

STATE PROJECT NUMBER
2160-01-72



LAYOUT

SCALE 0 0.5 MI

TOTAL NET LENGTH OF CENTERLINE = 0.108 MI.

HORIZONTAL POSITIONS SHOWN ON THIS PLAN ARE WISCONSIN COUNTY COORDINATES, MILWAUKEE COUNTY, NAD27, IN U.S. SURVEY FEET. VALUES ARE GRID COORDINATES, GRID BEARINGS, AND GRID DISTANCES. GRID DISTANCES MAY BE USED AS GROUND DISTANCES.

ELEVATIONS SHOWN ON THIS PLAN ARE REFERENCED TO NGVD29

STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
2160-01-72	WISC 2016472	1

ORIGINAL PLANS PREPARED BY:

MILWAUKEE COUNTY
DEPARTMENT OF TRANSPORTATION

WISCONSIN
DANIEL M. MURPHY
E-42735
MILWAUKEE, WIS.
PROFESSIONAL ENGINEER

PROJECT DESIGNER:
DATE: 7/26/16

RECOMMENDED FOR APPROVAL:
DATE: 7/26/2016
Transportation Engineering Manager

APPROVED:
DATE: 7/29/16
Director of Milwaukee County Department of Transportation

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PREPARED BY

Surveyor	THE SIGMA GROUP, INC.
Designer	MILWAUKEE COUNTY
Management Consultant	DAAR ENGINEERING, INC.
C.O. Examiner	

APPROVED FOR THE DEPARTMENT
DATE: 7/29/16
Management Consultant Signature

E

FILE NAME : O:\HIGHWAY OPERATIONS CONTROL FILE\CENTRAL FILES\2010-2014\CTH U - S. 76TH ST\INTERSECTION WITH RAWSON - 2160-01-02\DESIGN\PLANS\FINAL PLANS\01_TITLE\21600172_TI.DWG

PLOT DATE : 6/29/2016 3:42 PM PLOT BY : JENKINS, KENYA PLOT NAME :

WISDOT/CADDS SHEET 10

2

GENERAL NOTES

REMOVALS
- FILL ALL HOLES OR OPENINGS BELOW SUBGRADE RESULTING FROM ABANDONMENT OR REMOVAL OF EXISTING STRUCTURES WITH GRANULAR BACKFILL. GRANULAR BACKFILL IS INCIDENTAL TO THE PERTINENT REMOVAL ITEM.

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

EROSION CONTROL
- EROSION CONTROL ITEMS SHOWN ARE AT SUGGESTED LOCATIONS AND THE EXACT LOCATIONS/DIMENSIONS WILL BE DETERMINED BY THE ENGINEER. MAINTAIN ALL EROSION CONTROL MEASURES UNTIL SUCH TIME THE ENGINEER DETERMINES THE MEASURE IS NO LONGER NECESSARY.
- TOPSOIL, SEED, FERTILIZE, MAT AND WATER DISTURBED AREAS WITHIN THE RIGHT OF WAY, EXCEPT THE AREAS WITHIN THE FINISHED ROADWAY AS DIRECTED BY THE ENGINEER.

STORM SEWER/DRAINAGE
- COST OF CONNECTING STORM SEWER OR CULVERT PIPE TO EXISTING STRUCTURES IS INCIDENTAL TO THE COST OF THE PIPE.
- EXISTING ELEVATIONS OF STORM SEWER CONNECTIONS SHOWN ON THE PLANS ARE APPROXIMATE. FIELD ADJUSTMENTS MAY BE NECESSARY.
- UNCOVER AND CHECK ELEVATIONS OF EXISTING UTILITIES WHERE THEY CROSS PROPOSED STORM SEWER/CULVERT PIPES. ADJUSTMENT OF UTILITY OR REVISION OF SEWER/CULVERT ELEVATION MAY BE REQUIRED TO RESOLVE CONFLICT. THE COST OF UNCOVERING AND CHECKING UTILITIES IS NOT INCIDENTAL TO THE COST OF THE PIPE AND WILL BE PAID FOR UNDER A SEPERATE BID ITEM.

SIGNING/MARKING
- DO NOT REMOVE SIGNS WITHOUT THE CONSENT OF THE ENGINEER.
- SALVAGE ALL REMOVED SIGNS AND PLACE AT A SITE SPECIFIED BY THE ENGINEER TO BE PICKED UP BY MILWAUKEE COUNTY.
- ALL NEW PERMANENT SIGNS SHALL BE MADE OF ALUMINUM MATERIAL UNLESS OTHERWISE DIRECTED BY THE ENGINEER.

MISCELLANEOUS
- ADJUST TRAFFIC CONTROL DEVICES TO FIT FIELD CONDITIONS AS DIRECTED BY THE ENGINEER.
- CURB AND GUTTER JOINT SPACING SHALL BE 20 FEET UNLESS OTHERWISE AUTHORIZED BY THE ENGINEER.
- CONSTRUCT TRANSVERSE JOINTS IN THE CONCRETE SIDEWALK AT INTERVALS EQUAL TO THE WIDTH OF THE SIDEWALK UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
- MAINTAIN ACCESS TO ALL ADJACENT PROPERTIES WITHIN THE PROJECT LIMITS AT ALL TIMES.
- STAMP ALL ENDS OF MONOLITHIC CONCRETE SURFACES WITH A STAMP BEARING CONTRACTOR'S NAME AND YEAR OF CONSTRUCTION. ALL LETTERING SHALL BE 2-INCH. THE COST OF THIS WORK IS INCIDENTAL TO THE ASSOCIATED CONCRETE ITEM.
- PLACE ½-INCH THICK EXPANSION FILLER IN THE CURB & GUTTER AT BOTH ENDS OF EACH REMOVAL & REPLACEMENT SECTION. COST IS INCIDENTAL TO THE CURB & GUTTER ITEM.
- DETAILS OF CONSTRUCTION NOT SHOWN IN THE PLANS SHALL CONFORM TO THE PERTINENT STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.
- RESTORE EXISTING DRIVEWAYS IN-KIND BEHIND THE CONCRETE SIDEWALK. EXACT LOCATION AND WIDTH WILL BE DETERMINED BY THE ENGINEER DURING CONSTRUCTION.

LIST OF STANDARD ABBREVIATIONS

ABUT	ABUTMENT
AEW	APRON ENDWALL
AGG	AGGREGATE
AH	AHEAD
ASPH	ASPHALT OR ASPHALTIC
BAD	BASE AGGREGATE DENSE
BK	BACK
BM	BENCHMARK
CABC	CRUSHED AGGREGATE BASE COURSE
CB	CATCH BASIN
CL or C/L	CENTER LINE
CONC	CONCRETE
CTH	COUNTY TRUNK HIGHWAY
C&G	CURB AND GUTTER
DWY	DRIVEWAY
EL or ELEV	ELEVATION
EBS	EXCAVATION BELOW SUBGRADE
HMA	HOT MIX ASPHALT
INL	INLET
INV	INVERT
LT	LEFT
MH	MANHOLE
MIS	METROPOLITAN INTERCEPTOR SEWER
PAVT	PAVEMENT
PLE	PERMANENT LIMITED EASEMENT
PT	POINT OF TANGENT
PCC	POINT OF COMPOUND CURVATURE
RL or R/L	REFERENCE LINE
R	RADIUS
REQD	REQUIRED
RT	RIGHT
R/W	RIGHT-OF-WAY
SE	SUPERELEVATION
SEC	SECTION
SDD	STANDARD DETAIL DRAWING
STH	STATE TRUNK HIGHWAY
STA	STATION
SSPRC	STORM SEWER PIPE REINFORCED CONCRETE
S/W	SIDEWALK
TLE	TEMPORARY LIMITED EASEMENT
VERT	VERTICAL
VC	VERTICAL CURVE
VCL	VERTICAL CURVE LENGTH
VPC	VERTICAL POINT OF CURVATURE
VPI	VERTICAL POINT OF INTERSECTION
VPT	VERTICAL POINT OF TANGENCY

UTILITIES

AT&T Wisconsin
2005 Pewaukee Road
Waukesha, WI 53188
ATTN: Matthew K. Dinnauer
Phone: (262) 896-7690

Charter Communications
1320 N. Martin Luther King Dr.
Milwaukee, WI 53212
ATTN: Mr. Steve Storm
Phone: (414) 908-4789

City of Franklin
Engineering Department
9229 West Loomis Rd.
Franklin, WI 53132
ATTN: Mr. Glen Morrow
Phone: (414) 425-7510 Ext. 7550

WE Energies
333 W. Everett St. – A299
Milwaukee, WI 53203
ATTN: Mr. La Troy Brumfield
Phone: (414) 221-5617

WE Energies-Gas
333 W. Everett St. – A299
Milwaukee, WI 53203
ATTN: Mr. La Troy Brumfield
Phone: (414) 221-5617

WE Energies-Electric
333 W. Everett St. – A299
Milwaukee, WI 53203
ATTN: Mr. La Troy Brumfield
Phone: (414) 221-5617

West Shore Pipeline
11115 W. County Line Rd
Milwaukee, WI 53224
ATTN: Mr. Aric Aufdermauer
Phone: (414) 391-8102

MILWAUKEE COUNTY

Milwaukee County DOT
Highway Maintenance Division
10320 W. Watertown Plank Rd, 1st floor
Wauwatosa, WI 53226
ATTN: Mr. Greg Heisel
Phone: (414) 257-6566

Milwaukee County DOT
Electrical Maintenance Division
10320 W. Watertown Plank Rd, 1st floor
Wauwatosa, WI 53226
ATTN: Mr. Stanley Jackson
Phone: (414) 257-6593

Milwaukee County DOT
Transportation Services Manager
10320 W. Watertown Plank Rd, 2nd Floor
Wauwatosa, WI 53226
ATTN: Ms. Andrea Weddle-Henning
Phone: (414) 257-5934

Milwaukee County DOT
Traffic Engineering
10320 W. Watertown Plank Rd, 2nd Floor
Wauwatosa, WI 53226
ATTN: Mr. Daniel Murphy
Phone: (414) 257-5942

STATE AGENCIES

State of Wisconsin
Department of Natural Resources
2300 N. Martin Luther King Jr. Dr.
Milwaukee, WI 53212
ATTN: Ms. Kristina Betzold
(414) 263-8522

SHEET INDEX

GENERAL NOTES
PROJECT OVERVIEW
TYPICAL SECTIONS
CONSTRUCTION DETAILS
PLAN DETAILS
PAVING GRADES
EROSION CONTROL
STORM SEWER
SIGNING & PAVEMENT MARKING
TRAFFIC SIGNAL PLAN
SIGNAL REMOVAL PLAN
TEMPORARY SIGNAL PLAN
COMMUNICATION PLAN
TRAFFIC CONTROL
ALIGNMENT DIAGRAM

2

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

2

HWY 36

HWY 36

CITY OF FRANKLIN

BEGIN CONSTRUCTION
2160-01-72
STA 5+99.20
X= 2532882.0131
Y= 340243.2773

R/W

BP: 4+00.00

S. 76TH ST. (CTH U)

111

110

109

108

107

PI: 10+00.00

END PROJECT
2160-01-72
STA 109+61.00

N

CITY OF FRANKLIN

R/W

R/W

R/W

EP: 16+00.00

W. RAWSON AVE. (CTH BB)

4 5 6 7 8 9 10 11 12 13 14 15 16

PI: 106+00.00

W. RAWSON AVE. (CTH BB)

R/W

R/W

R/W

106

105

104

103

102

S. 76TH ST. (CTH U)

END CONSTRUCTION
2160-01-72
STA 12+00.50

BEGIN PROJECT
2160-01-72
STA 103+87.14
X= 2533286.8380
Y= 340039.4971

CITY OF FRANKLIN

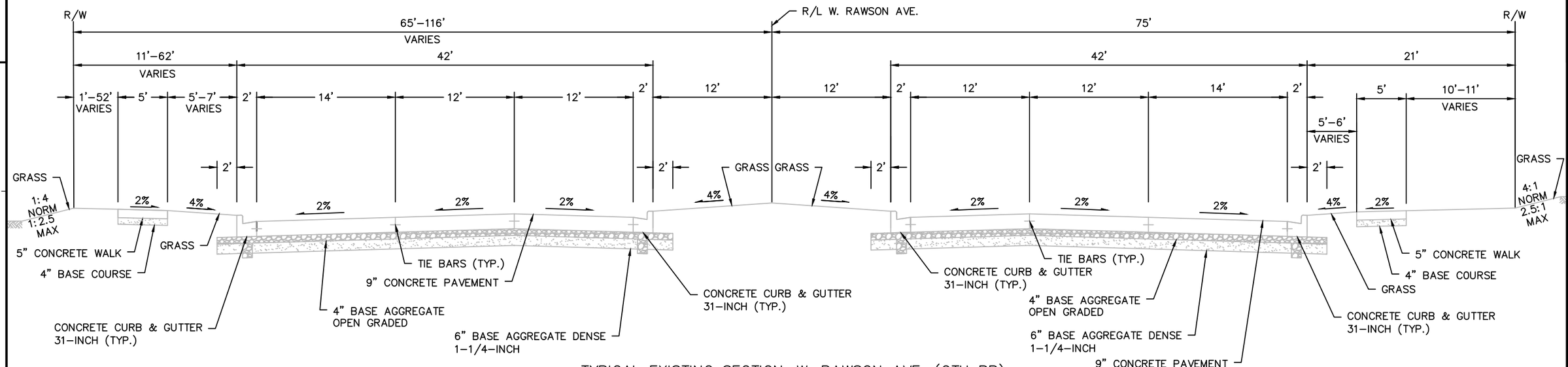
CITY OF FRANKLIN

PROJECT NO: 2160-01-72	HWY: CTH U	COUNTY: MILWAUKEE	PROJECT OVERVIEW	SHEET 4	E

FILE NAME : O:\HIGHWAY OPERATIONS CONTROL FILE\CENTRAL FILES\2010-2014\CTH U - S. 76TH ST\INTERSECTION WITH RAWSON - 2160-01-02\DESIGN\PLANS\FINAL PLANS\03_PROJ OVER\21600172-PO.DWG

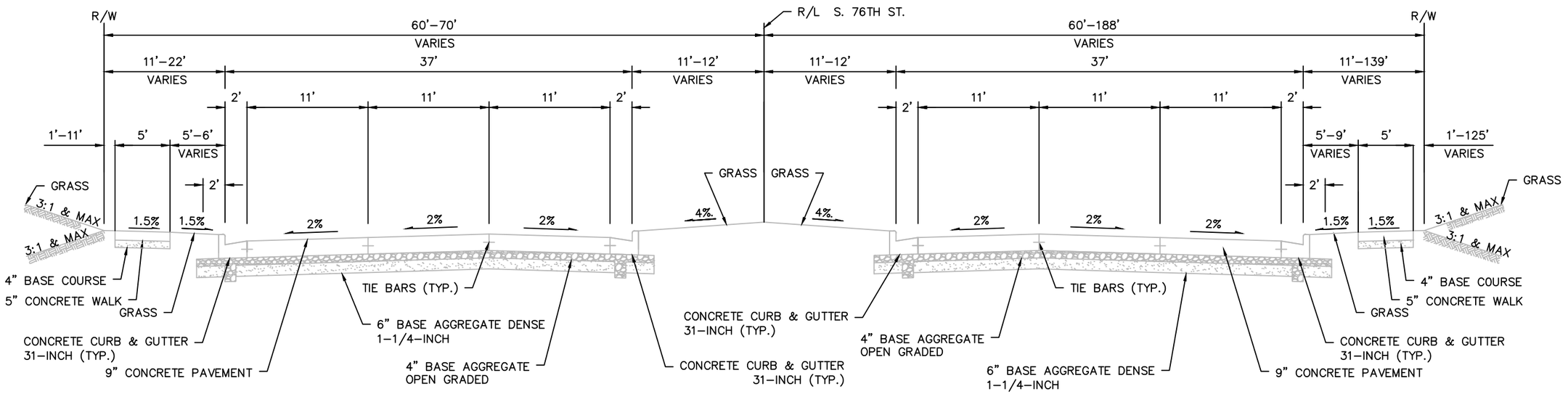
PLOT DATE : 6/27/2016 11:29 AM PLOT BY : MURPHY, DANIEL PLOT NAME : PLOT SCALE : 1" = 100'_XREF

WISDOT/CADDS SHEET 42



TYPICAL EXISTING SECTION–W. RAWSON AVE. (CTH BB)

STA. 5+99.20 TO STA. 12+00.50



TYPICAL EXISTING SECTION–S. 76TH ST. (CTH U)

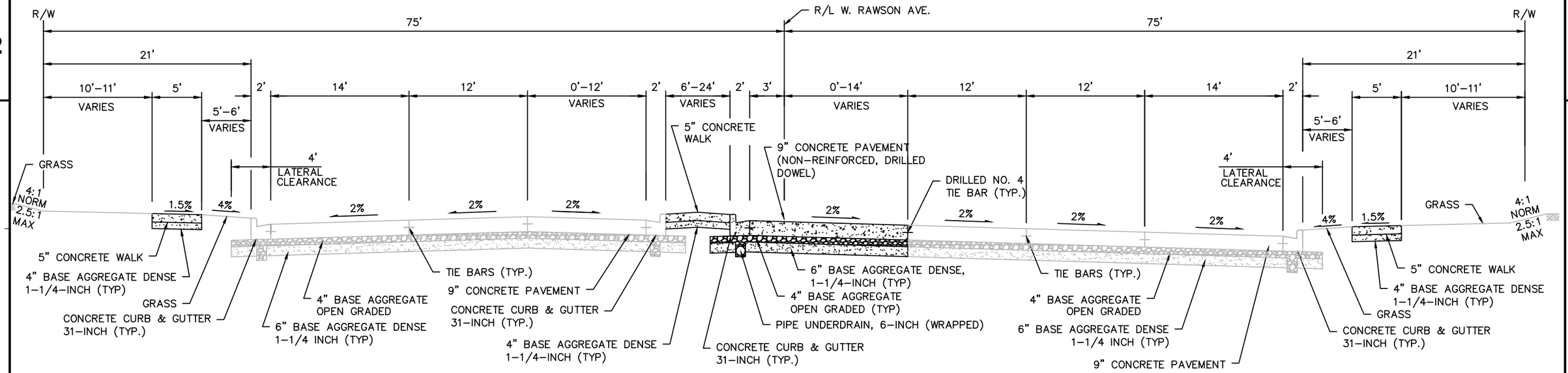
STA. 103+87.14 TO STA. 109+61.00

PROJECT NO: 2160–01–72	HWY: CTH U	COUNTY: MILWAUKEE	TYPICAL SECTIONS	SHEET 5	E

FILE NAME : O:\HIGHWAY OPERATIONS CONTROL FILE\CENTRAL FILES\2010–2014\CTH U – S. 76TH ST\INTERSECTION WITH RAWSON – 2160–01–02\DESIGN\PLANS\FINAL PLANS\04_TYP SEC\21600172_TS.DWG

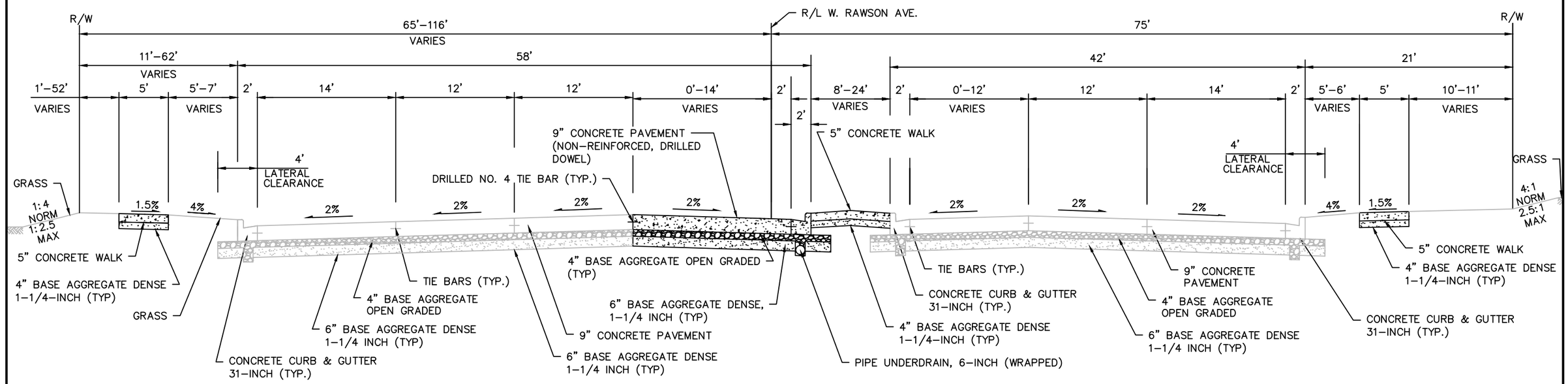
PLOT DATE : 6/21/2016 11:13 AM PLOT BY : JENKINS, KENYA PLOT NAME : PLOT SCALE : 1" = 10'_XREF

WISDOT/CADDS SHEET 42



TYPICAL FINISHED SECTION–W. RAWSON AVE. (CTH BB)

STA. 5+99.20 TO STA. 9+05.59



TYPICAL FINISHED SECTION–W. RAWSON AVE. (CTH BB)

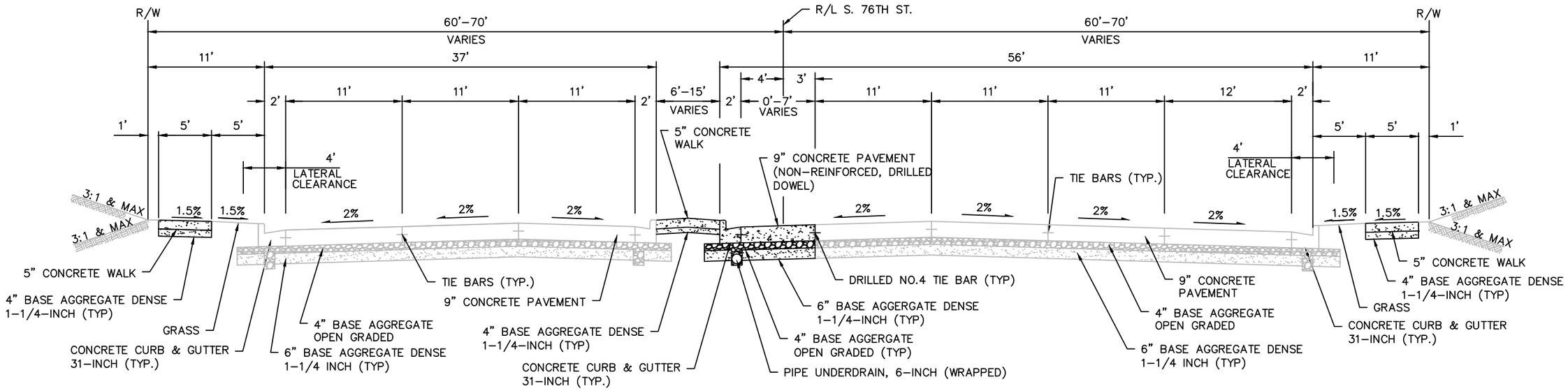
STA. 10+79.57 TO STA. 12+00.50

PROJECT NO: 2160–01–72	HWY: CTH U	COUNTY: MILWAUKEE	TYPICAL SECTIONS	SHEET 6	E

FILE NAME : O:\HIGHWAY OPERATIONS CONTROL FILE\CENTRAL FILES\2010–2014\CTH U – S. 76TH ST\INTERSECTION WITH RAWSON – 2160–01–02\DESIGN\PLANS\FINAL PLANS\04_TYP SEC\21600172_TS.DWG

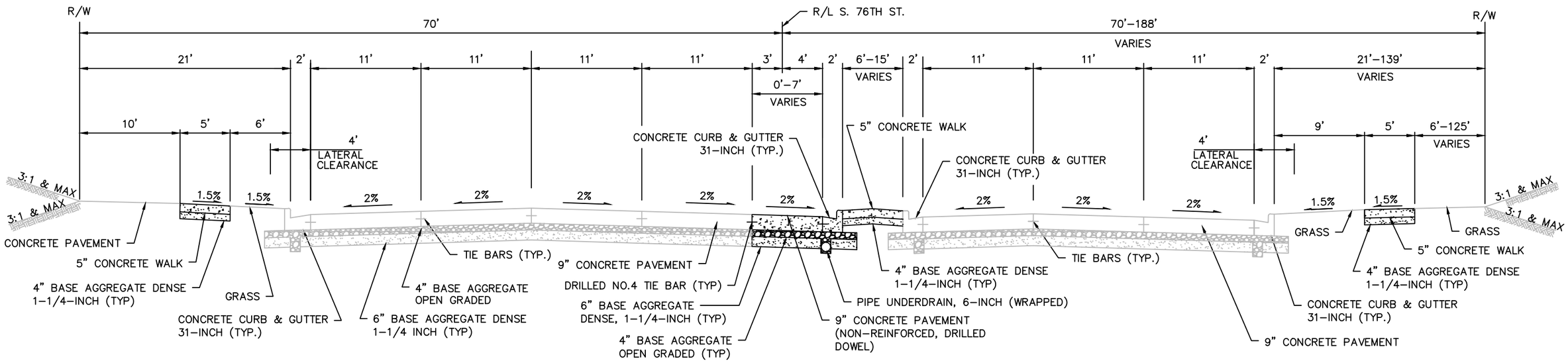
PLOT DATE : 6/29/2016 12:04 PM PLOT BY : JENKINS, KENYA PLOT NAME : PLOT SCALE : 1:10_XREF

WISDOT/CADDS SHEET 42



TYPICAL FINISHED SECTION–S. 76TH ST. (CTH U)

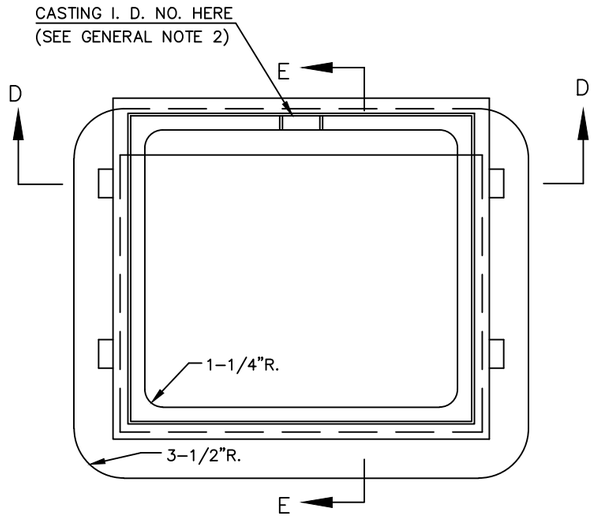
STA. 103+87.14 TO STA. 105+34.95

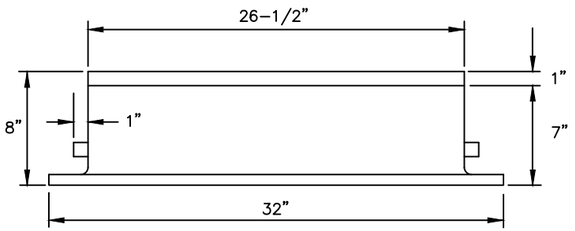


TYPICAL FINISHED SECTION–S. 76TH ST. (CTH U)

STA. 106+67.71 TO STA. 109+61.11

PROJECT NO: 2160–01–72	HWY: CTH U	COUNTY: MILWAUKEE	TYPICAL SECTIONS	SHEET 7	E





FRAME

GENERAL NOTES

ALL EDGES ARE TO BE GROUND

ALL CASTINGS SHALL BEAR THE FOLLOWING IDENTIFICATION MARKS IN THE FORM OF LEGIBLE LETTERS OR NUMERALS RAISED 1/8"

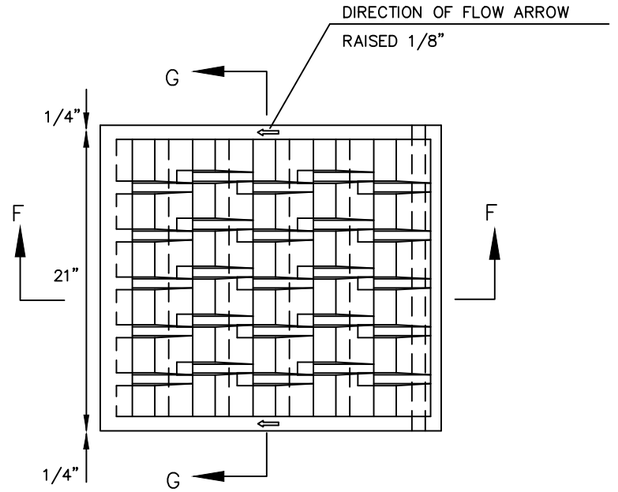
ON THE FRAME

1. ON THE UPPER FACE OF THE FLANGE IN 1 INCH HIGH LETTERS THE INITIALS OR MONOGRAM OF THE FOUNDRY, THE YEAR MADE AND THE SERIAL NUMBER OF THE INDIVIDUAL CASTING.

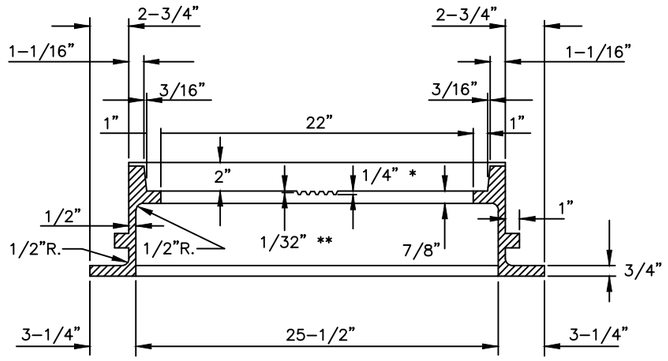
2. ON THE SEAT OF THE FRAME IN 1 INCH HIGH LETTERS, THE CASTING IDENTIFICATION NUMBER (M.S.51).

ON THE GRATE

1. ON THE UPPER SIDE OF THE GRATE IN 1 INCH HIGH LETTERS, THE INITIALS OR MONOGRAM OF THE FOUNDRY, THE YEAR MADE, THE CASTING IDENTIFICATION NUMBER (M.S.57) AND THE SERIAL NUMBER OF THE INDIVIDUAL CASTING.



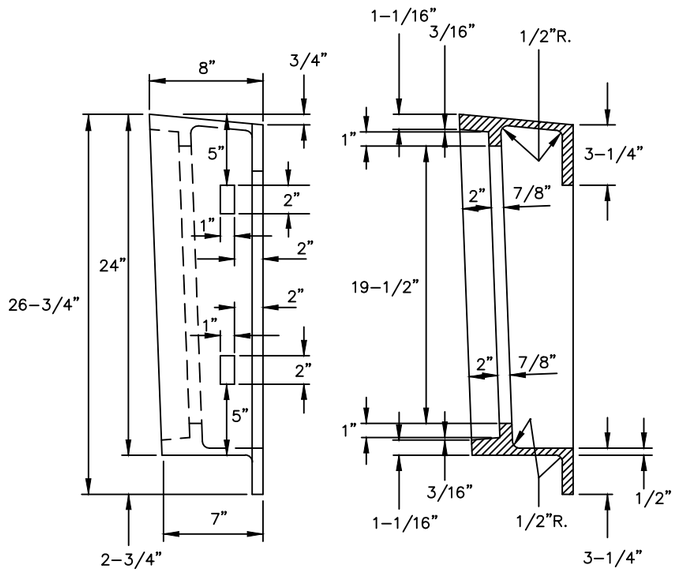
GRATE



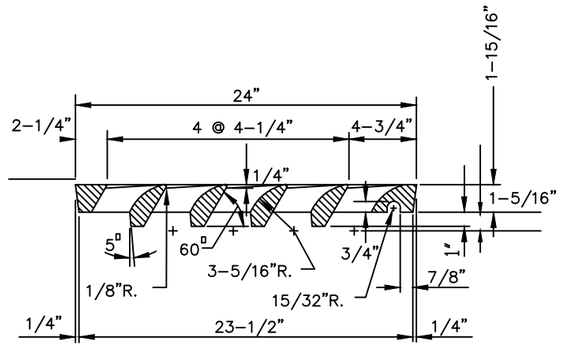
SECTION D–D

*DEPRESSION FOR LETTERS

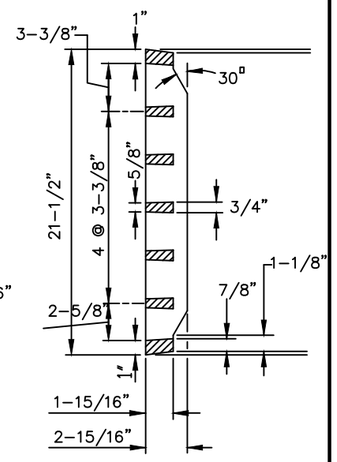
**CLEARANCE FROM TOP OF LETTERS TO FACE OF SEAT



SECTION E–E



SECTION F–F



SECTION G–G

INLET COVER – TYPE 57

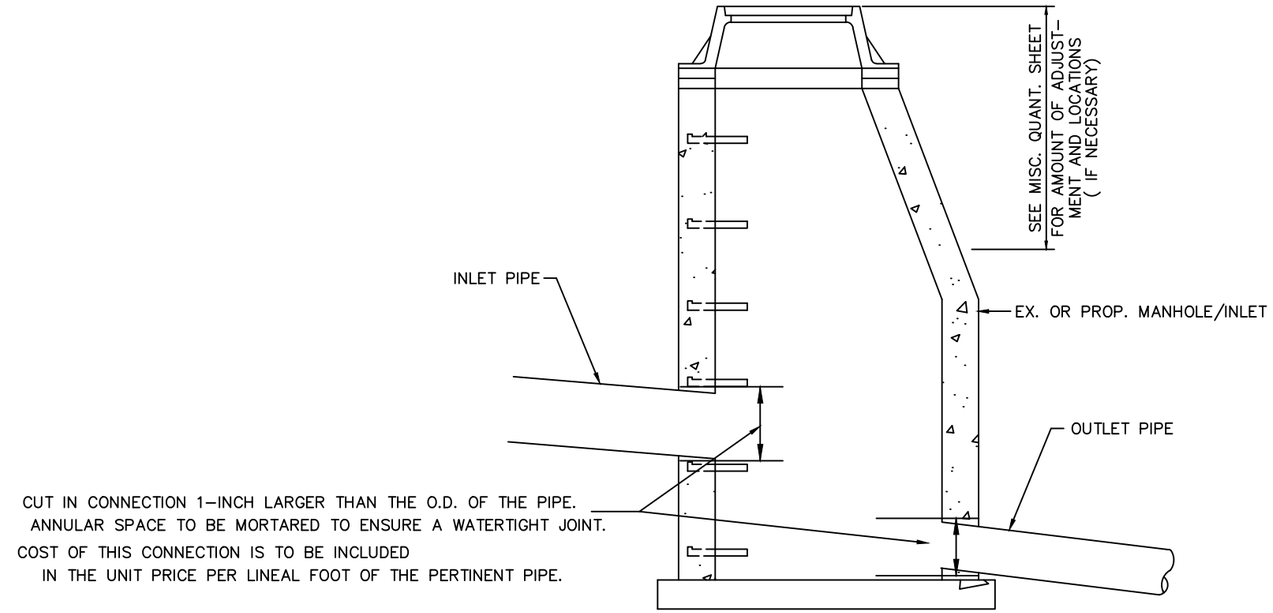
LID–145 LBS., FRAME–204 LBS.

PROJECT NO: 2160–01–72	HWY: CTH U	COUNTY: MILWAUKEE	CONSTRUCTION DETAILS	SHEET 8	E

NOTES:

1. CONSTRUCTION METHODS ARE "TYPICAL" AND APPLY TO NEW PIPE CONNECTING TO EXISTING MANHOLES/INLETS, NEW MANHOLES/INLETS CONSTRUCTED OVER EXISTING PIPES, AND NEW CONSTRUCTION

2. WHEN A NEW MANHOLE/INLET IS CONSTRUCTED OVER AN EXISTING PIPE, THE COST OF THE CONNECTION SHALL BE INCLUDED IN THE UNIT BID PRICE OF THE MANHOLE.



DETAIL FOR CONNECTION TO MANHOLES/INLETS

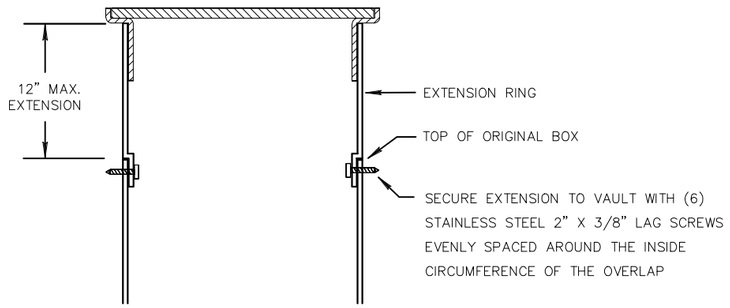
2

TABLE OF NOMINAL DIMENSIONS AND WEIGHTS

DIMENSION IN INCHES		COMMUNICATIONS VAULT
VAULT DIAMETER (INSIDE) **	A	36
VAULT OVERALL OUTSIDE DIAMETER	B	39
VAULT LENGTH	C	42
FRAME OPENING	D	34 1/2
WEIGHT IN POUNDS *		
COVER		95
VAULT ONLY		85

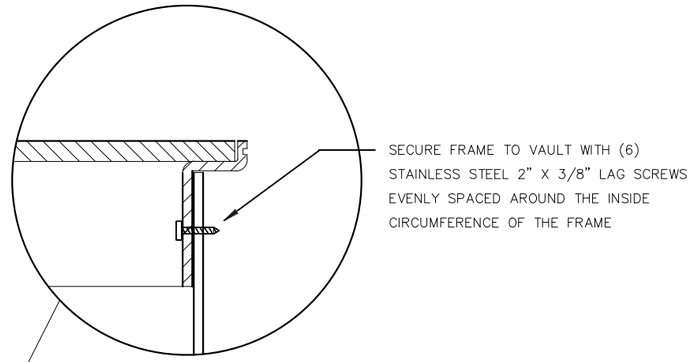
* THE ACTUAL WEIGHT OF THE COVER AND VAULT MAY VARY NOT TO EXCEED 100 LBS FOR THE COVER AND 100 LBS FOR THE VAULT ONLY.

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

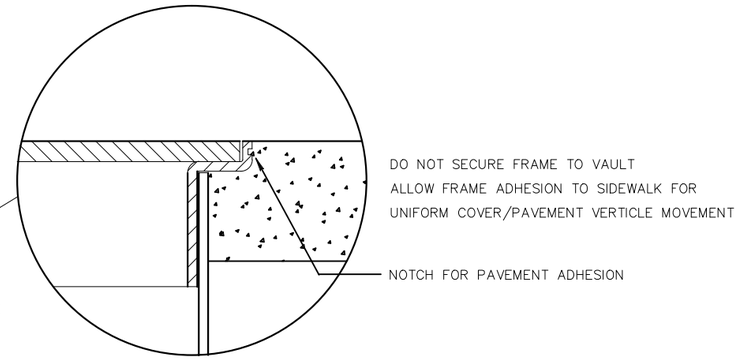


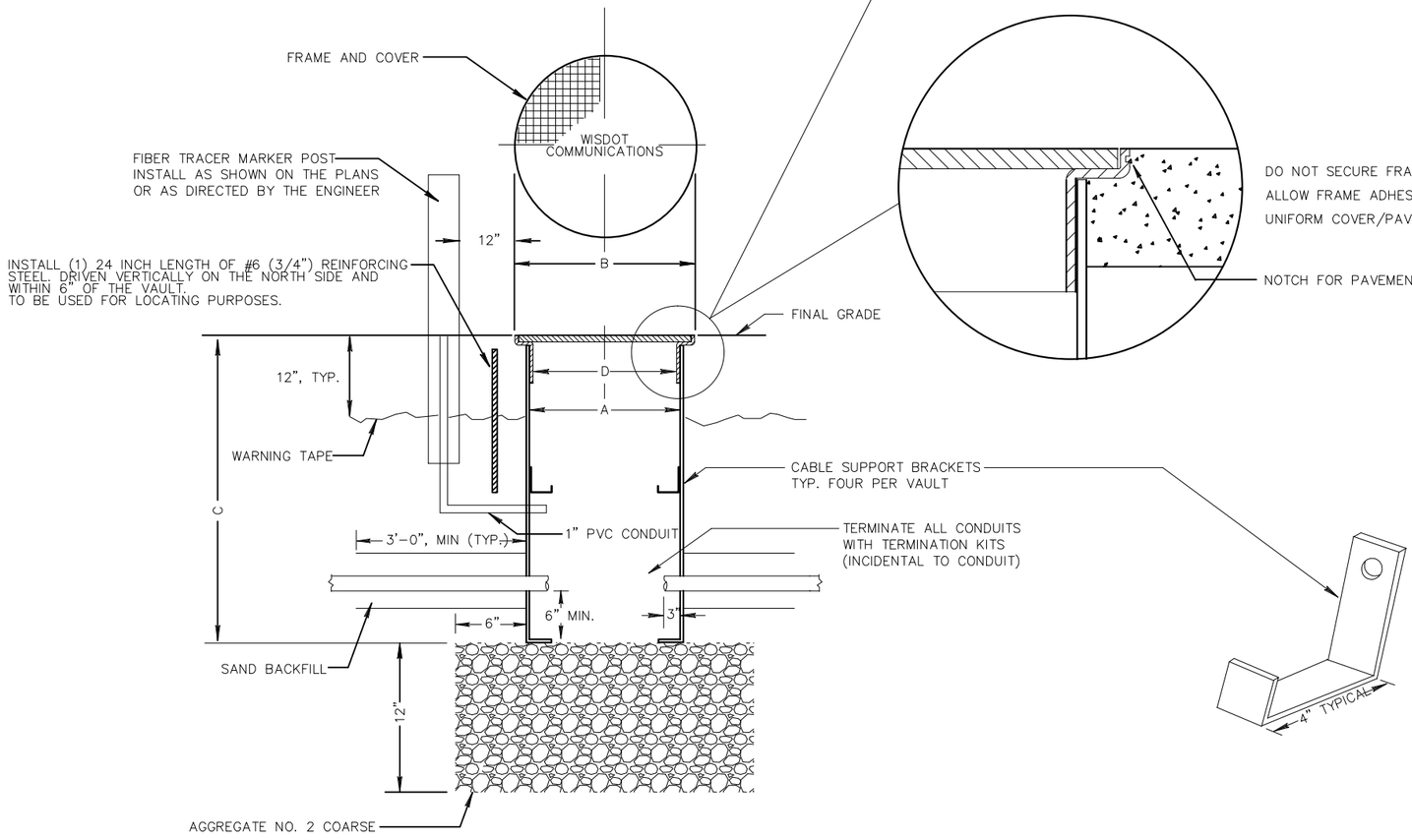
VAULT EXTENSION

INSTALLED IN SOD OR CRUSHED AGGREGATE



INSTALLED IN SIDEWALK





CIRCULAR COMMUNICATIONS VAULT

GENERAL NOTES

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

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

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

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

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

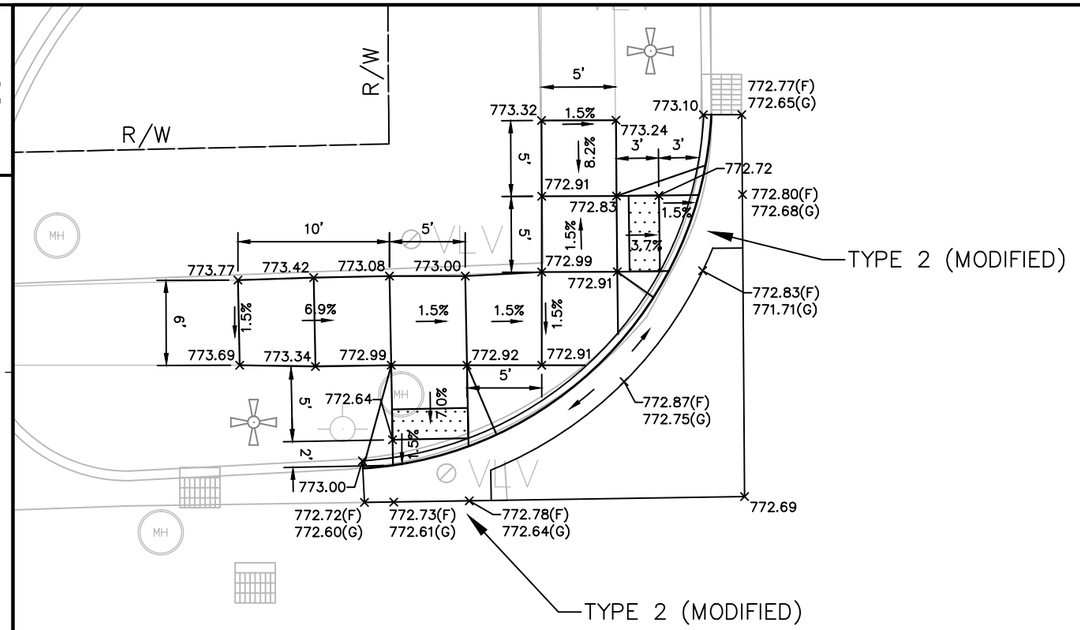
ENTRANCE HOLES INTO VAULT SHALL BE FIELD CUT AT TIME OF PLACEMENT WITH A CIRCULAR HOLE SAW OR HYDRAULIC CONDUIT PUNCH. HOLE SIZE SHALL BE THE OUTSIDE DIAMETER OF THE CONDUIT THAT IS TO FIT IN THE OPENING PLUS NO MORE THAN 1/4".

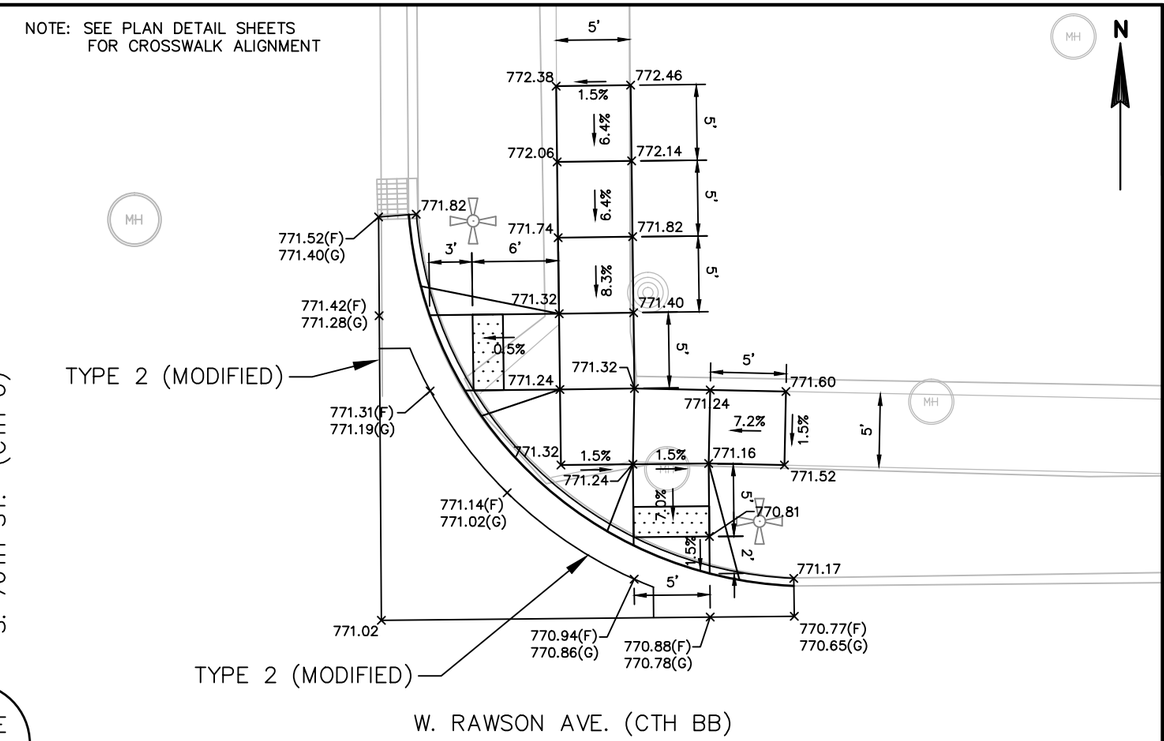
THE CONTRACTOR SHALL NOT INSTALL CABLE IN ANY VAULT UNTIL ITS INSTALLATION HAS BEEN INSPECTED AND ACCEPTED BY THE ENGINEER.

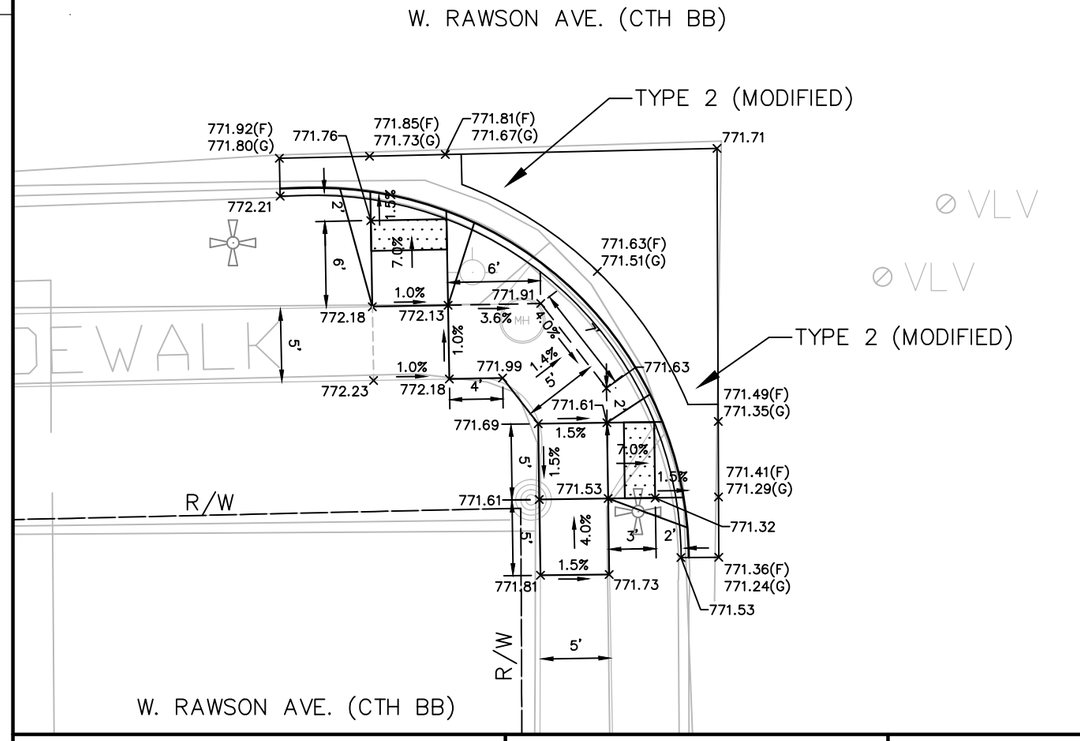
VAULT EXTENSION MAY ONLY BE USED IF DIRECTED BY THE ENGINEER.

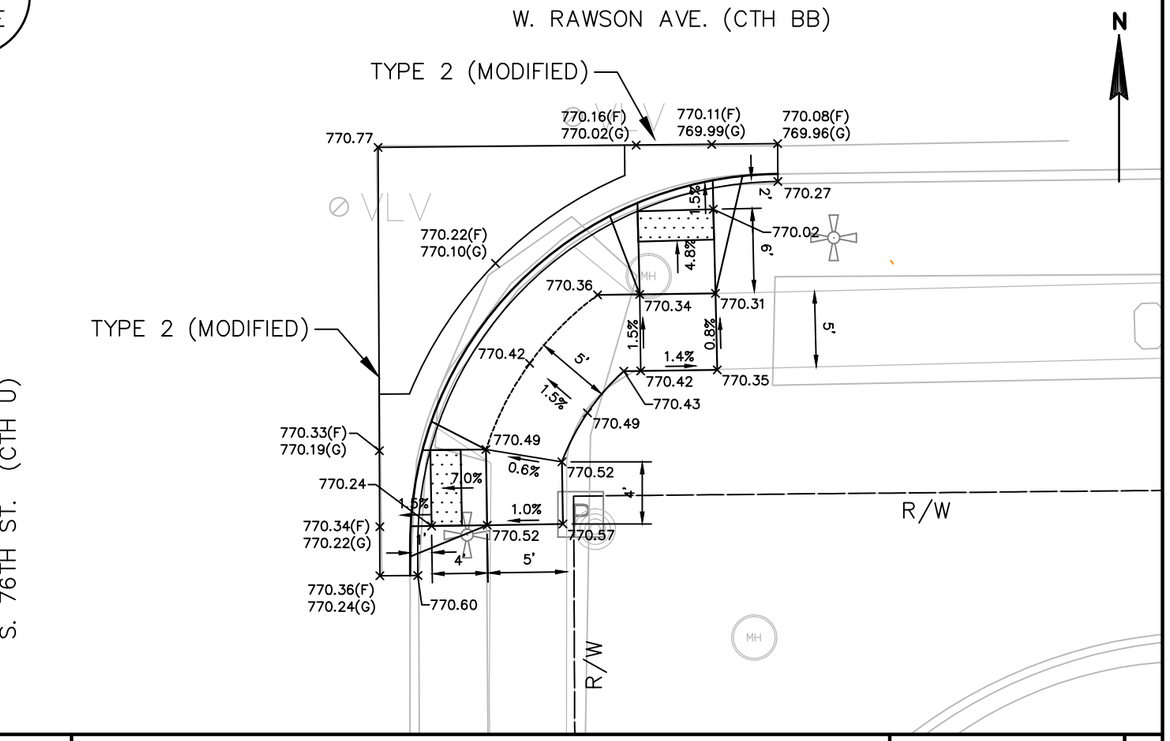
CABLE SUPPORT BRACKETS SHALL BE STAINLESS STEEL AND FASTENED TO THE SIDE WALL WITH 3/8" STAINLESS STEEL BOLT AND NUT. BRACKETS SHALL BE LOCATED AS DIRECTED BY THE ENGINEER.

FIBER TRACER MARKER POSTS SHALL BE CONSTRUCTED WITH HIGH-IMPACT PLASTIC MATERIAL WHICH IS FADE RESISTANT AND UV STABLE. ALL HARWARE SHALL BE STAINLESS STEEL AND CONTAIN A MINIMUM OF FIVE STANDARD TERMINALS.









PROJECT NO: 2160-01-72	HWY: CTH U	COUNTY: MILWAUKEE	CONSTRUCTION DETAILS- CURB RAMP DETAILS	SHEET 11 E

LEGEND

CP01	CONCRETE PAVEMENT, 9–INCH
CG01	CONCRETE CURB & GUTTER, 31–INCH
CS01	CONCRETE SIDEWALK, 5–INCH
TS01	4" TOPSOIL, SEED, FERTILIZER, EROSION MAT
SW01	SAWING CONCRETE

NOTE: STATION/OFFSETS ARE TO FLANGE LINE; RADII STATION/OFFSETS ARE TO BACK OF CURB UNLESS OTHERWISE NOTED.

* SEE CONSTRUCTION DETAILS FOR CURB RAMP GRADES

BEGIN PROJECT
2160–01–72
STA 103+87.14

S. 76TH ST. (CTH U)

W. RAWSON AVE. (CTH BB)

R/L W. RAWSON AVE.

R/L S. 76TH ST.

CURB RAMP TYPE 2 (MODIFIED)*

CONCRETE MEDIAN SLOPED NOSE TYPE 1 (ROUND)

CAUTION

MATCH LINE STA 106+85

PROJECT NO: 2160–01–72	HWY: CTH U	COUNTY: MILWAUKEE	PLAN DETAILS : S. 76TH ST.	SHEET	E

FILE NAME : O:\HIGHWAY OPERATIONS CONTROL FILE\CENTRAL FILES\2010–2014\CTH U – S. 76TH ST\INTERSECTION WITH RAWSON – 2160–01–02\DESIGN\PLANS\FINAL PLANS\07_PLAN DET\21600172–PD.DWG
PLOT DATE : 7/25/2016 4:18 PM PLOT BY : MURPHY, DANIEL PLOT NAME : PLOT SCALE : 1:20_XREF
WISDOT/CADDS SHEET 42

LEGEND

- CP01 CONCRETE PAVEMENT, 9–INCH
- CG01 CONCRETE CURB & GUTTER, 31–INCH
- CS01 CONCRETE SIDEWALK, 5–INCH
- TS01 4" TOPSOIL, SEED, FERTILIZER, EROSION MAT
- SW01 SAWING CONCRETE

NOTE: STATION/OFFSETS ARE TO FLANGE LINE; RADII STATION/OFFSETS ARE TO BACK OF CURB UNLESS OTHERWISE NOTED.

N

MATCH LINE STA 106+85

R/W

S. 76TH ST. (CTH U)

CAUTION

CAUTION

+60.8
4.2' RT

SW01

+38.2
2.9' LT

+38.2
13.9' LT

CP01

+60.9
13.9' LT

107+00

108+00

109+00

14'

CP01

CS01

TS01

R/L S. 76TH ST.

+99.9
14.3' RT

SW01

+72.2
14.1' RT

CG01

CAUTION

SW01

+98.3
14.1' RT

END PROJECT
2160–01–72
STA 109+61.00

S. 76TH ST. (CTH U)

R/W

R/W

PROJECT NO: 2160–01–72	HWY: CTH U	COUNTY: MILWAUKEE	PLAN DETAILS : S. 76TH ST.	SHEET	E

FILE NAME : O:\HIGHWAY OPERATIONS CONTROL FILE\CENTRAL FILES\2010–2014\CTH U – S. 76TH ST\INTERSECTION WITH RAWSON – 2160–01–02\DESIGN\PLANS\FINAL PLANS\07_PLAN DET\21600172–PD.DWG

PLOT DATE : 7/25/2016 4:18 PM PLOT BY : MURPHY, DANIEL PLOT NAME : PLOT SCALE : 1:20_XREF

WISDOT/CADDS SHEET 42

LEGEND

CP01	CONCRETE PAVEMENT, 9–INCH	TS01	4" TOPSOIL, SEED, FERTILIZER, EROSION MAT
CG01	CONCRETE CURB & GUTTER, 31–INCH	SW01	SAWING CONCRETE
CS01	CONCRETE SIDEWALK, 5–INCH		

NOTE: STATION/OFFSETS ARE TO FLANGE LINE; RADII STATION/OFFSETS ARE TO BACK OF CURB UNLESS OTHERWISE NOTED.

N

BEGIN CONSTRUCTION
2160–01–72
STA 5+99.20

W. RAWSON AVE. (CTH BB)

CAUTION

CAUTION

CAUTION

CAUTION

CAUTION

6+00

7+00

8+00

+99.2
14.0' RT

+52.9
13.3' LT

+86.1
3.4' LT

14'

14'

SW01

CG01

CS01

TS01

CP01

CP01

CG01

SW01

R/L W. RAWSON AVE.

R/W

R/W

R/W

W. RAWSON AVE. (CTH BB)

MATCH LINE STA 8+75

2

PROJECT NO: 2160–01–72	HWY: CTH U	COUNTY: MILWAUKEE	PLAN DETAILS : W. RAWSON AVE.	SHEET	E

FILE NAME : O:\HIGHWAY OPERATIONS CONTROL FILE\CENTRAL FILES\2010–2014\CTH U – S. 76TH ST\INTERSECTION WITH RAWSON – 2160–01–02\DESIGN\PLANS\FINAL PLANS\07_PLAN DET\21600172–PD.DWG

PLOT DATE : 7/25/2016 4:18 PM PLOT BY : MURPHY, DANIEL PLOT NAME : PLOT SCALE : 1:20_XREF

WISDOT/CADDS SHEET 42

NOTE: STATION/OFFSETS ARE TO FLANGE LINE; RADII STATION/OFFSETS ARE TO BACK OF CURB UNLESS OTHERWISE NOTED.

LEGEND

- CP01 CONCRETE PAVEMENT, 9–INCH
- CG01 CONCRETE CURB & GUTTER, 31–INCH
- CS01 CONCRETE SIDEWALK, 5–INCH
- TS01 4" TOPSOIL, SEED, FERTILIZER, EROSION MAT
- SW01 SAWING CONCRETE

MATCH LINE STA 8+75

MATCH LINE STA 11+80

S. 76TH ST. (CTH U)

W. RAWSON AVE. (CTH BB)

R/L S. 76TH ST.

R/L W. RAWSON AVE.

PI: 10+00.00

PI: 106+00.00

CAUTION

SEE S. 76TH ST. PLAN DETAIL SHEET

CONCRETE MEDIAN SLOPED NOSE, TYPE 1 (ROUND)

+19.5 8.6' LT

+24.5 13.6' LT

+24.6 14.2' RT

+62.4 14.2' LT

+62.4 14.2' RT

+76.0 8.2' RT

+99.2 14.2' RT

+06.7 2.2' RT

R3'

28'

23'

9+00

10+00

11+00

105+00

106+00

R/W

PROJECT NO: 2160–01–72	HWY: CTH U	COUNTY: MILWAUKEE	PLAN DETAILS : W. RAWSON AVE.	SHEET	E

FILE NAME : O:\HIGHWAY OPERATIONS CONTROL FILE\CENTRAL FILES\2010–2014\CTH U – S. 76TH ST\INTERSECTION WITH RAWSON – 2160–01–02\DESIGN\PLANS\FINAL PLANS\07_PLAN DET\21600172–PD.DWG

PLOT DATE : 7/25/2016 4:18 PM PLOT BY : MURPHY, DANIEL PLOT NAME : PLOT SCALE : 1:20_XREF

WISDOT/CADDS SHEET 42

LEGEND

CP01 CONCRETE PAVEMENT, 9–INCH

CG01 CONCRETE CURB & GUTTER, 31–INCH

CS01 CONCRETE SIDEWALK, 5–INCH

TS01 4" TOPSOIL, SOD, FERTILIZER, EROSION MAT

SW01 SAWING CONCRETE

NOTE: STATION/OFFSETS ARE TO FLANGE LINE; RADII STATION/OFFSETS ARE TO BACK OF CURB UNLESS OTHERWISE NOTED.

N

MATCH LINE STA 11+80

+96.5
13.0' LT

SW01

XXXX XXXX

CAUTION

R/L W. RAWSON AVE.

12+00

13+00

14+00

W. RAWSON AVE. (CTH BB)

CG01

CAUTION

END CONSTRUCTION
2160–01–72
STA 12+00.50

W. RAWSON AVE. (CTH BB)

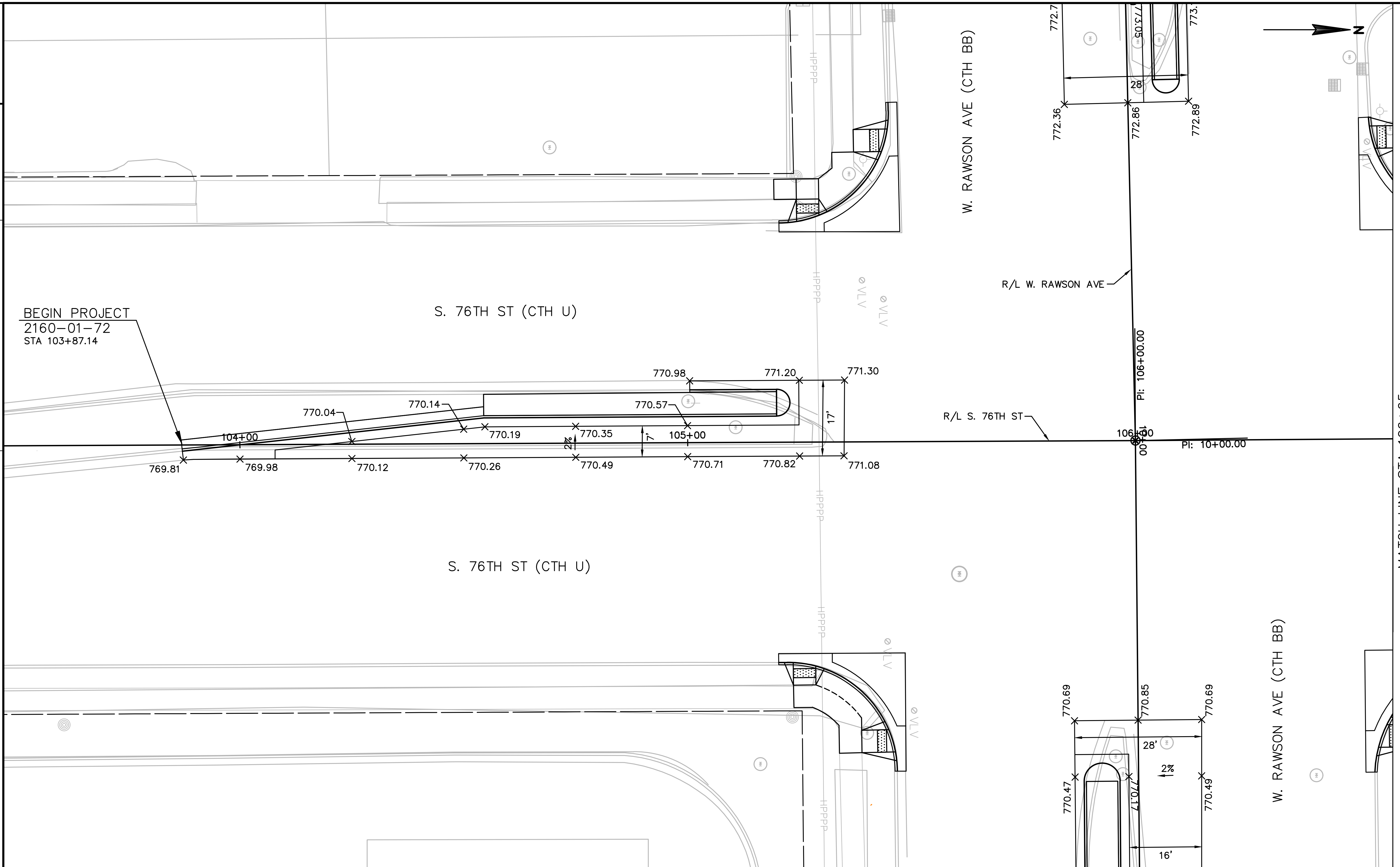
R/W

PROJECT NO: 2160–01–72	HWY: CTH U	COUNTY: MILWAUKEE	PLAN DETAILS : W. RAWSON AVE.	SHEET 16	E

FILE NAME : O:\HIGHWAY OPERATIONS CONTROL FILE\CENTRAL FILES\2010–2014\CTH U – S. 76TH ST\INTERSECTION WITH RAWSON – 2160–01–02\DESIGN\PLANS\FINAL PLANS\07_PLAN DET\21600172–PD.DWG

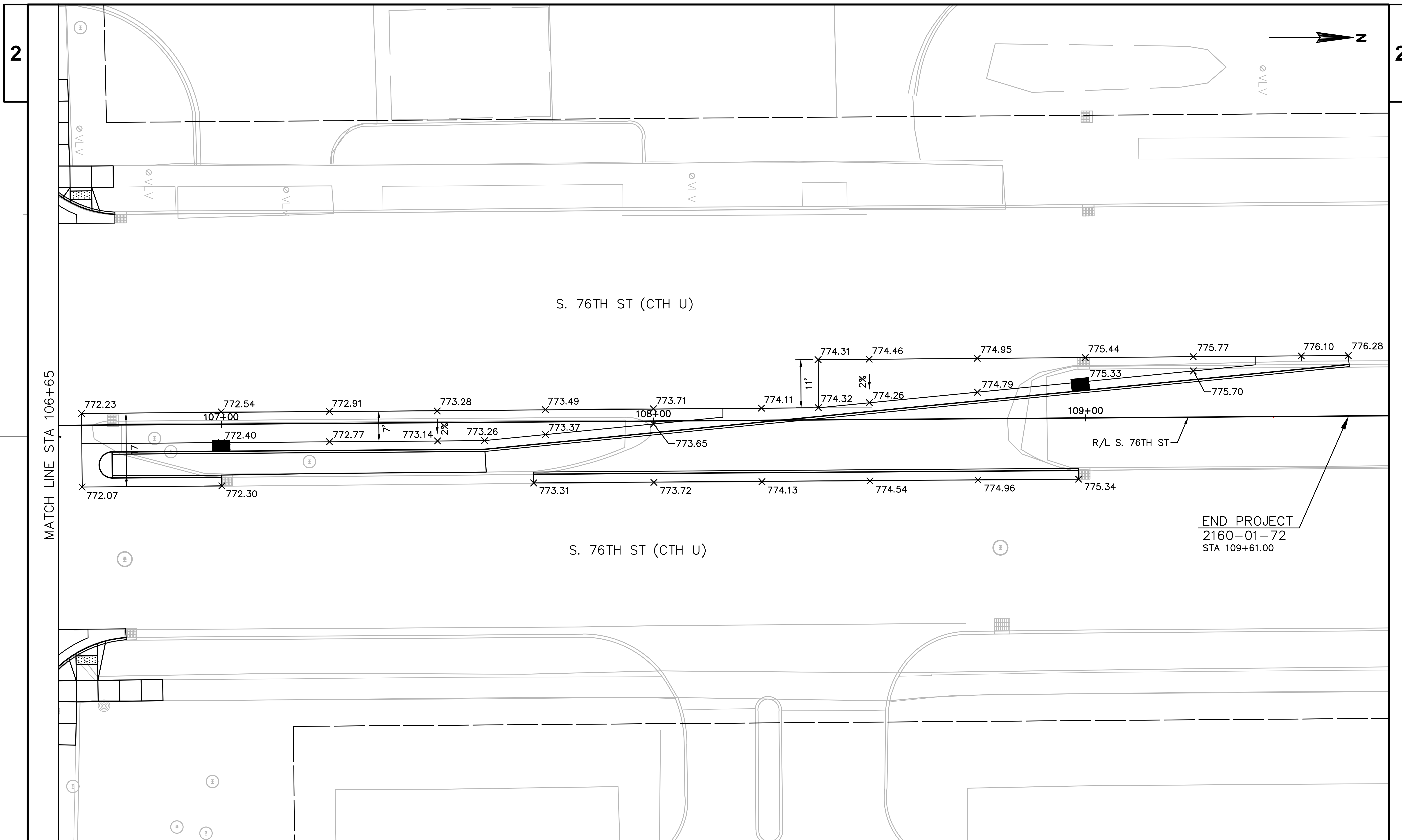
PLOT DATE : 7/25/2016 4:18 PM PLOT BY : MURPHY, DANIEL PLOT NAME : PLOT SCALE : 1:20_XREF

WISDOT/CADDS SHEET 42



PROJECT NO:2160-01-72	HWY:CTH U	COUNTY:MILWAUKEE	PAVING GRADES: S. 76TH ST.	SHEET 17	E

FILE NAME : O:\HIGHWAY OPERATIONS CONTROL FILE\CENTRAL FILES\2010-2014\CTH U - S. 76TH ST\INTERSECTION WITH RAWSON - 2160-01-02\DESIGN\PLANS\FINAL PLANS\08_PAV GRADES\21600172-PG.DWG   PLOT DATE : 6/22/2016 12:27 PM   PLOT BY : HILLIARD, MARC   PLOT NAME :   PLOT SCALE : 1:20_XREF   WISDOT/CADDS SHEET 42



PROJECT NO:2160-01-72	HWY:CTH U	COUNTY:MILWAUKEE	PAVING GRADES: S. 76TH ST.	SHEET 18	E

FILE NAME : O:\HIGHWAY OPERATIONS CONTROL FILE\CENTRAL FILES\2010-2014\CTH U - S. 76TH ST\INTERSECTION WITH RAWSON - 2160-01-02\DESIGN\PLANS\FINAL PLANS\08_PAV GRADES\21600172-PG.DWG PLOT DATE : 6/22/2016 12:27 PM PLOT BY : HILLIARD, MARC PLOT NAME : PLOT SCALE : 1:20_XREF WISDOT/CADDS SHEET 42

2

N

W. RAWSON AVE (CTH BB)

BEGIN CONSTRUCTION
2160-01-72
STA 5+99.20

R/L W. RAWSON AVE

6+00 7+00 8+00 9+00

775.36 775.01 774.61 774.24 773.87 773.49

774.34 774.28 774.13 773.87 773.60 773.32

774.45 774.60 774.74 775.07 775.39 775.85 776.32

775.81 775.30 774.93 774.56 774.37 774.17 774.02 773.78 773.52 773.25 772.97

2% 2% 2% 18"

MATCH LINE STA 9+00

W. RAWSON AVE (CTH BB)

HPPPP

PROJECT NO: 2160-01-72	HWY: CTH U	COUNTY: MILWAUKEE	PAVING GRADES: W. RAWSON AVE.	SHEET	E

FILE NAME : O:\HIGHWAY OPERATIONS CONTROL FILE\CENTRAL FILES\2010-2014\CTH U - S. 76TH ST\INTERSECTION WITH RAWSON - 2160-01-02\DESIGN\PLANS\FINAL PLANS\08_PAV GRADES\21600172-PG.DWG

PLOT DATE : 6/22/2016 12:27 PM PLOT BY : HILLIARD, MARC PLOT NAME : PLOT SCALE : 1:20_XREF

2

N

S. 76TH ST (CTH U)

R/L S. 76TH ST

W. RAWSON AVE (CTH BB)

PI: 10+00.00

PI: 106+00.00

106+00

MATCH LINE STA 9+00

9+00

773.10 772.89

773.05 772.86

772.70 772.36

28'

2%

770.69 770.49 770.08 769.54 769.01 768.50 767.94

768.42

768.85

769.28

11+00

769.76

770.17

770.85

770.69 770.47 769.97

16'

28'

2%

2%

12+00

R/L W. RAWSON AVE

END CONSTRUCTION
2160-01-72
STA 12+00.50

W. RAWSON AVE (CTH BB)

S. 76TH ST (CTH U)

00

PROJECT NO: 2160-01-72	HWY: CTH U	COUNTY: MILWAUKEE	PAVING GRADES: W. RAWSON AVE.	SHEET	E

FILE NAME : O:\HIGHWAY OPERATIONS CONTROL FILE\CENTRAL FILES\2010-2014\CTH U - S. 76TH ST\INTERSECTION WITH RAWSON - 2160-01-02\DESIGN\PLANS\FINAL PLANS\08_PAV GRADES\21600172-PG.DWG

PLOT DATE : 6/22/2016 12:27 PM PLOT BY : HILLIARD, MARC PLOT NAME : PLOT SCALE : 1:20_XREF

2

INLET PROTECTION TYPE B

4" TOPSOIL, SEED, FERTILIZER AND EROSION MAT

N

W. RAWSON AVE. (CTH BB)

R/W

BEGIN PROJECT
2160-01-72
STA 103+87.14

104+00

105+00

106+00

PI: 106+00.00

R/L S. 76TH ST.

PI: 10+00.00

S. 76TH ST. (CTH U)

107+00

108+00

109+00

END PROJECT
2160-01-72
STA 109+61.00

R/L W. RAWSON AVE.

11+00

W. RAWSON AVE. (CTH BB)

PROJECT NO: 2160-01-72	HWY: CTH U	COUNTY: MILWAUKEE	EROSION CONTROL: S. 76TH ST.	SHEET E

FILE NAME : O:\HIGHWAY OPERATIONS CONTROL FILE\CENTRAL FILES\2010-2014\CTH U - S. 76TH ST\INTERSECTION WITH RAWSON - 2160-01-02\DESIGN\PLANS\FINAL PLANS\09_ERO CNTRL\21600172-EC.DWG

PLOT DATE : 6/29/2016 1:39 PM PLOT BY : HILLIARD, MARC PLOT NAME : PLOT SCALE : 1" = 40'_XREF

WISDOT/CADDS SHEET 42

INLET PROTECTION TYPE B

4" TOPSOIL, SEED, FERTILIZER AND EROSION MAT

BEGIN CONSTRUCTION
2160-01-72
STA 5+99.20

154'

5'

6+00

7+00

8+00

9+00

R/L W. RAWSON AVE.

PI: 106+00.00

106+00

11+00

7'

W. RAWSON AVE. (CTH BB)

R/L S. 76TH ST.

R/W

S. 76TH ST. (CTH U)

107+00

108+00

PI: 105+00.00

105+00

MATCH LINE STA 11+15

N

2

PROJECT NO: 2160-01-72	HWY: CTH U	COUNTY: MILWAUKEE	EROSION CONTROL: W. RAWSON AVE.	SHEET E

FILE NAME : O:\HIGHWAY OPERATIONS CONTROL FILE\CENTRAL FILES\2010-2014\CTH U - S. 76TH ST\INTERSECTION WITH RAWSON - 2160-01-02\DESIGN\PLANS\FINAL PLANS\09_ERO CNTRL\21600172-EC.DWG

PLOT DATE : 6/29/2016 1:39 PM PLOT BY : HILLIARD, MARC PLOT NAME : PLOT SCALE : 1" = 40'_XREF

WISDOT/CADDS SHEET 42

INLET PROTECTION TYPE B

4" TOPSOIL, SEED, FERTILIZER AND EROSION MAT

N

R/W

R/W

R/W

VLV

P

MATCH LINE STA 11+15

W. RAWSON AVE. (CTH BB)

R/L W. RAWSON AVE.

12+00

13+00

14+00

15+00

16+00

EP: 16+00.00

END CONSTRUCTION
2160-01-72
STA 12+00.50

W. RAWSON AVE. (CTH BB)

R/W

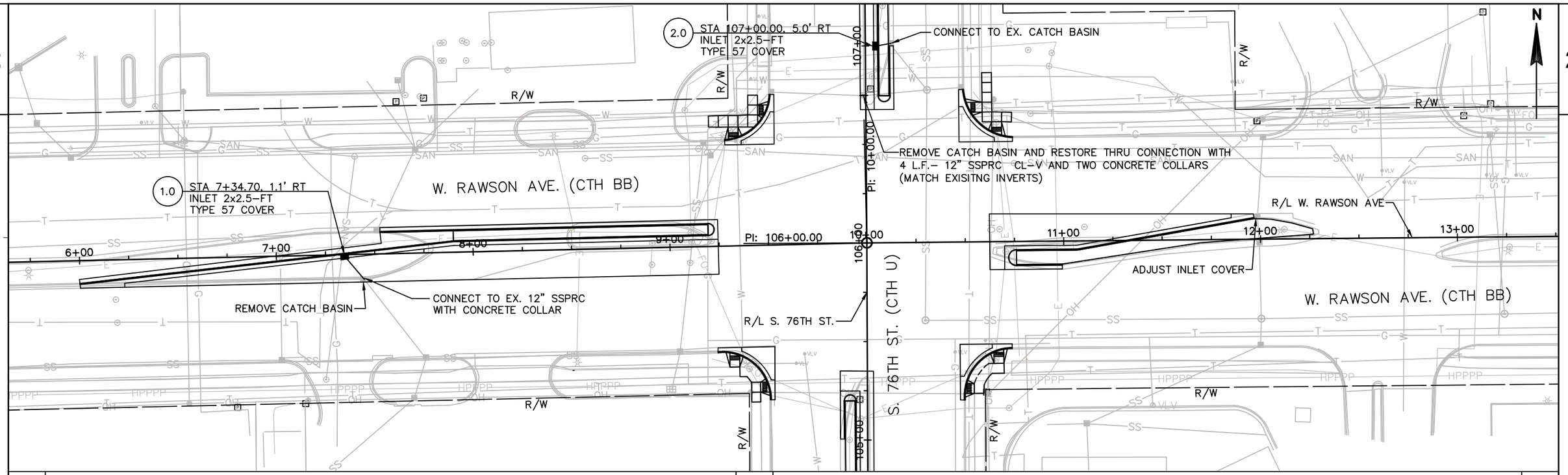
2

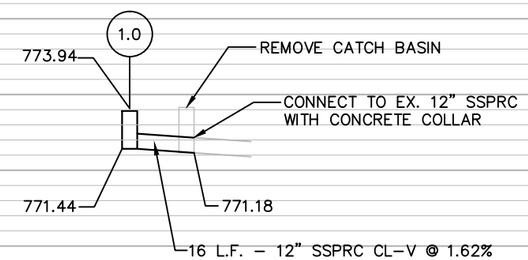
PROJECT NO: 2160-01-72	HWY: CTH U	COUNTY: MILWAUKEE	EROSION CONTROL: W. RAWSON AVE.	SHEET 23	E

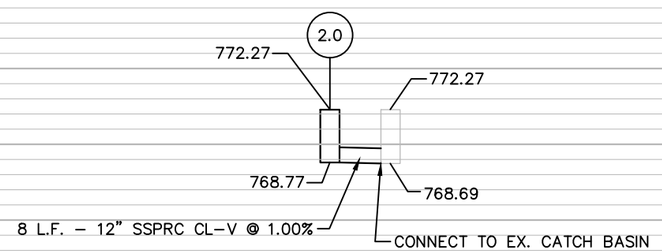
FILE NAME : O:\HIGHWAY OPERATIONS CONTROL FILE\CENTRAL FILES\2010-2014\CTH U - S. 76TH ST\INTERSECTION WITH RAWSON - 2160-01-02\DESIGN\PLANS\FINAL PLANS\09_ERO CNTRL\21600172-EC.DWG

PLOT DATE : 6/29/2016 1:40 PM PLOT BY : HILLIARD, MARC PLOT NAME : PLOT SCALE : 1" = 40'_XREF

WISDOT/CADDS SHEET 42

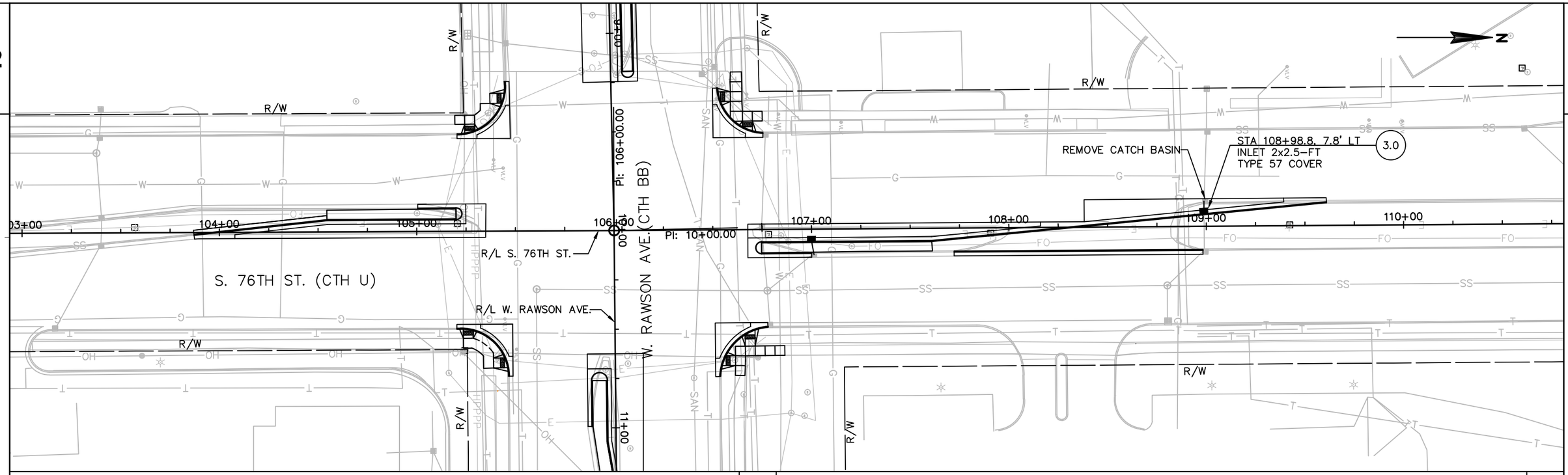


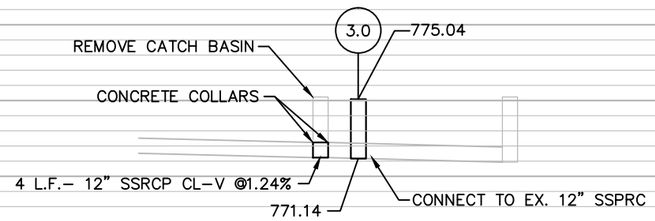




PROJECT NO: 2160-01-72	HWY: CTH U	COUNTY:MILWAUKEE	STORM SEWER	SHEET 24	E

FILE NAME : O:\HIGHWAY OPERATIONS CONTROL FILE\CENTRAL FILES\2010-2014\CTH U - S. 76TH ST\INTERSECTION WITH RAWSON - 2160-01-02\DESIGN\PLANS\FINAL PLANS\10_STM SWR\21600172_SS.DWG
PLOT DATE : 9/3/2008 9:31 AM PLOT BY : HILLIARD, MARC PLOT NAME : PLOT SCALE: 1IN :50FT_XREF
WISDOT/CADDS SHEET 41





795 790 785 780 775 770 765 760 755 750

PROJECT NO: 2160-01-72	HWY: CTH U	COUNTY:MILWAUKEE	STORM SEWER	SHEET 25	E

FILE NAME : O:\HIGHWAY OPERATIONS CONTROL FILE\CENTRAL FILES\2010-2014\CTH U - S. 76TH ST\INTERSECTION WITH RAWSON - 2160-01-02\DESIGN\PLANS\FINAL PLANS\10_STM SWR\21600172_SS.DWG
PLOT DATE : 9/3/2008 9:31 AM PLOT BY : HILLIARD, MARC PLOT NAME : PLOT SCALE: 1IN :50FT_XREF
WISDOT/CADDS SHEET 41

LEGEND

1. PAVEMENT MARKING CROSS WALK 6–INCH (EPOXY)
2. PAVEMENT MARKING STOP LINE 18–INCH (EPOXY)
3. PAVEMENT MARKING 4–INCH SKIPS (EPOXY) WHITE, 12.5 FT SKIP, 37.5 FT SPACE
4. PAVEMENT MARKING 8–INCH CHANNELIZING (EPOXY) WHITE
5. PAVEMENT MARKING ARROWS (EPOXY) TYPE 2
6. PAVEMENT MARKING WORDS (EPOXY)
7. PAVEMENT MARKING 4–INCH DROP LINE (EPOXY) WHITE, 3FT LINE, 9 FT GAP

1.01 SIGN NUMBER

SIGN LOCATION

PROPOSED SIGN BANDED TO UTILITY, LIGHT OR SIGNAL POLE

NOTE: GREYSHADE REPRESENTS EXISTING, REMOVE AS NOTED.

N

BEGIN PROJECT
2160–01–72
STA 103+87.14

W. RAWSON AVE. (CTH BB)

S. 76TH ST. (CTH U)

R/L 76TH ST.

R/L RAWSON AVE.

PI: 106+00.00

PI: 10+00.00

+25.8 37.8'RT
+78.9 6.3'RT
+24.6 14.5'RT
+05.6 6.4'RT
+83.5 6.5'RT
+91.8 5.7'LT
+07.4 13.8'LT
+39.1 36.0'LT
+74.9 13.8'LT
+12.4 13.0'RT
+68.5 36.2'RT
+19.5 36.3'RT
+18.8 48.9'RT
+18.5 5.9'LT
+75.3 36.4'RT
+75.1 13.2'LT
+69.5 37.2'LT

104+00 105+00 106+00 107+00 108+00 109+00

R4–7 24"X30" REMOVE
R1–1F 36"X36" REMOVE
R2–1 24"X30" REMOVE
SPEED LIMIT 40 REMOVE

END PROJECT
2160–01–72
STA 109+61.00

PROJECT NO: 2160–01–72	HWY: CTH U	COUNTY: MILWAUKEE	SIGNING & PAVEMENT MARKING	SHEET	E

FILE NAME : O:\HIGHWAY OPERATIONS CONTROL FILE\CENTRAL FILES\2010–2014\CTH U – S. 76TH ST\INTERSECTION WITH RAWSON – 2160–01–02\DESIGN\PLANS\FINAL PLANS\12_SIGN–PAV MARK\21600172–PS.DWG

PLOT DATE : 6/29/2016 11:27 AM PLOT BY : MURPHY, DANIEL PLOT NAME : PLOT SCALE : 1" = 40'_XREF

LEGEND

1. PAVEMENT MARKING CROSS WALK 6–INCH (EPOXY)
2. PAVEMENT MARKING STOP LINE 18–INCH (EPOXY)
3. PAVEMENT MARKING 4–INCH SKIPS (EPOXY) WHITE, 12.5 FT SKIP, 37.5 FT SPACE
4. PAVEMENT MARKING 8–INCH CHANNELIZING (EPOXY) WHITE
5. PAVEMENT MARKING ARROWS (EPOXY) TYPE 2
6. PAVEMENT MARKING WORDS (EPOXY)
7. PAVEMENT MARKING 4–INCH DROP LINE (EPOXY) WHITE, 3FT LINE, 9 FT GAP

1.01 SIGN NUMBER

SIGN LOCATION

PROPOSED SIGN BANDED TO UTILITY, LIGHT OR SIGNAL POLE

NOTE: GREYSHADE REPRESENTS EXISTING, REMOVE AS NOTED.

BEGIN CONSTRUCTION
2160–01–72
STA 5+99.20

W. RAWSON AVE. (CTH BB)

S. 76TH ST. (CTH U)

R/L RAWSON AVE.

R/L 76TH ST.

PI: 106+00.00

PI: 107+00.00

PI: 105+00.00

MATCH LINE STA 11+15

2.01 SPEED LIMIT 40 R2–1 24"X30" / SPEED LIMIT 40 REMOVE

2.02 R4–7 24"X30" / REMOVE

2.03 STOP R1–1F 36"X36" / STOP REMOVE

2.04 STOP R1–1F 36"X36" / STOP REMOVE

2.05 STOP R1–1F 36"X36" / STOP REMOVE

2.06 STOP R1–1F 36"X36" / STOP REMOVE

2.07 R4–7 24"X30" / REMOVE

PROJECT NO: 2160–01–72	HWY: CTH U	COUNTY: MILWAUKEE	SIGNING & PAVEMENT MARKING	SHEET	E

FILE NAME : O:\HIGHWAY OPERATIONS CONTROL FILE\CENTRAL FILES\2010–2014\CTH U – S. 76TH ST\INTERSECTION WITH RAWSON – 2160–01–02\DESIGN\PLANS\FINAL PLANS\12_SIGN–PAV MARK\21600172–PS.DWG
PLOT DATE : 6/29/2016 11:27 AM PLOT BY : MURPHY, DANIEL PLOT NAME : PLOT SCALE : 1" = 40'_XREF
WISDOT/CADDS SHEET 42

LEGEND

1. PAVEMENT MARKING CROSS WALK 6–INCH (EPOXY)
2. PAVEMENT MARKING STOP LINE 18–INCH (EPOXY)
3. PAVEMENT MARKING 4–INCH SKIPS (EPOXY) WHITE, 12.5 FT SKIP, 37.5 FT SPACE
4. PAVEMENT MARKING 8–INCH CHANNELIZING (EPOXY) WHITE
5. PAVEMENT MARKING ARROWS (EPOXY) TYPE 2
6. PAVEMENT MARKING WORDS (EPOXY)
7. PAVEMENT MARKING 4–INCH DROP LINE (EPOXY) WHITE, 3FT LINE, 9 FT GAP

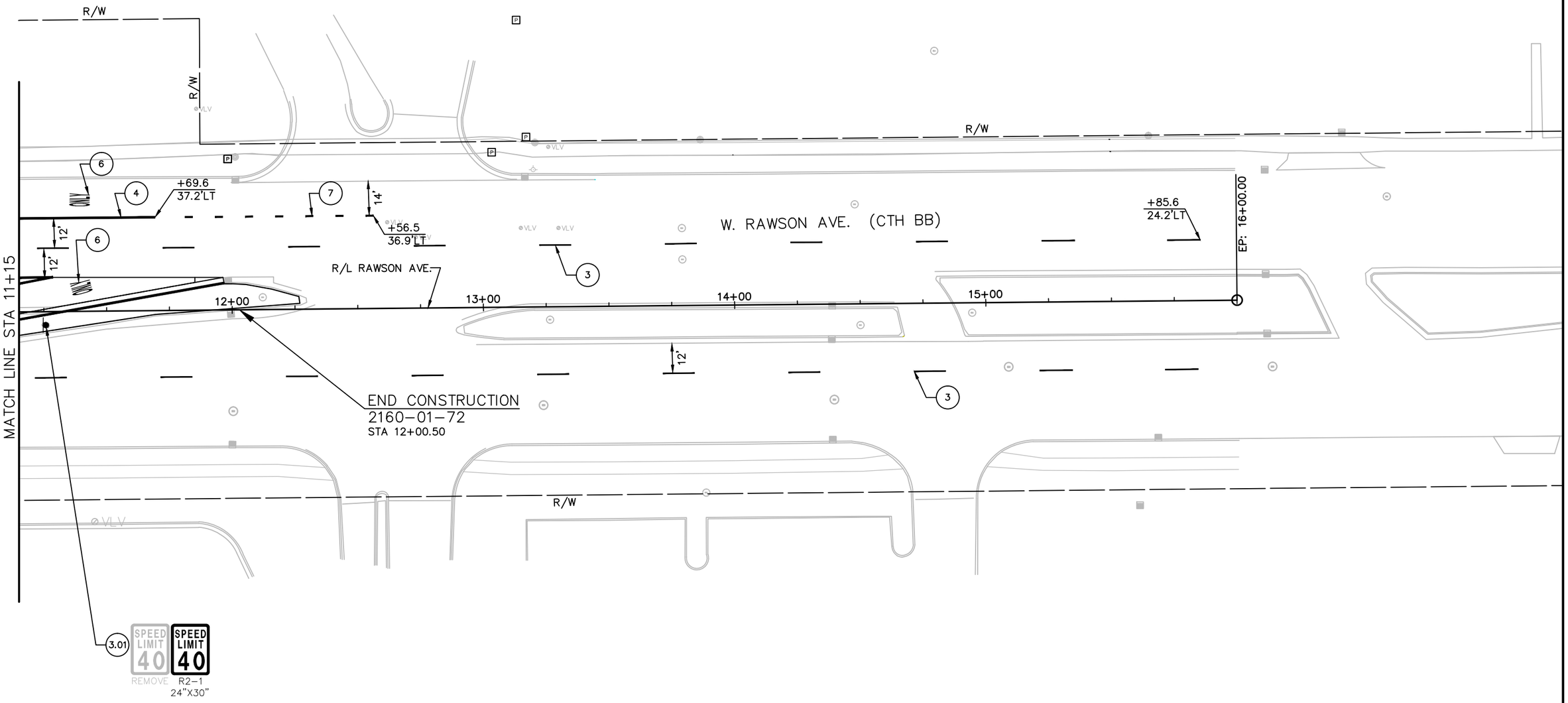
1.01 SIGN NUMBER

SIGN LOCATION

PROPOSED SIGN BANDED TO UTILITY, LIGHT OR SIGNAL POLE

NOTE: GREYSHADE REPRESENTS EXISTING, REMOVE AS NOTED.

N



PROJECT NO: 2160–01–72	HWY: CTH U	COUNTY: MILWAUKEE	SIGNING & PAVEMENT MARKING	SHEET 28	E

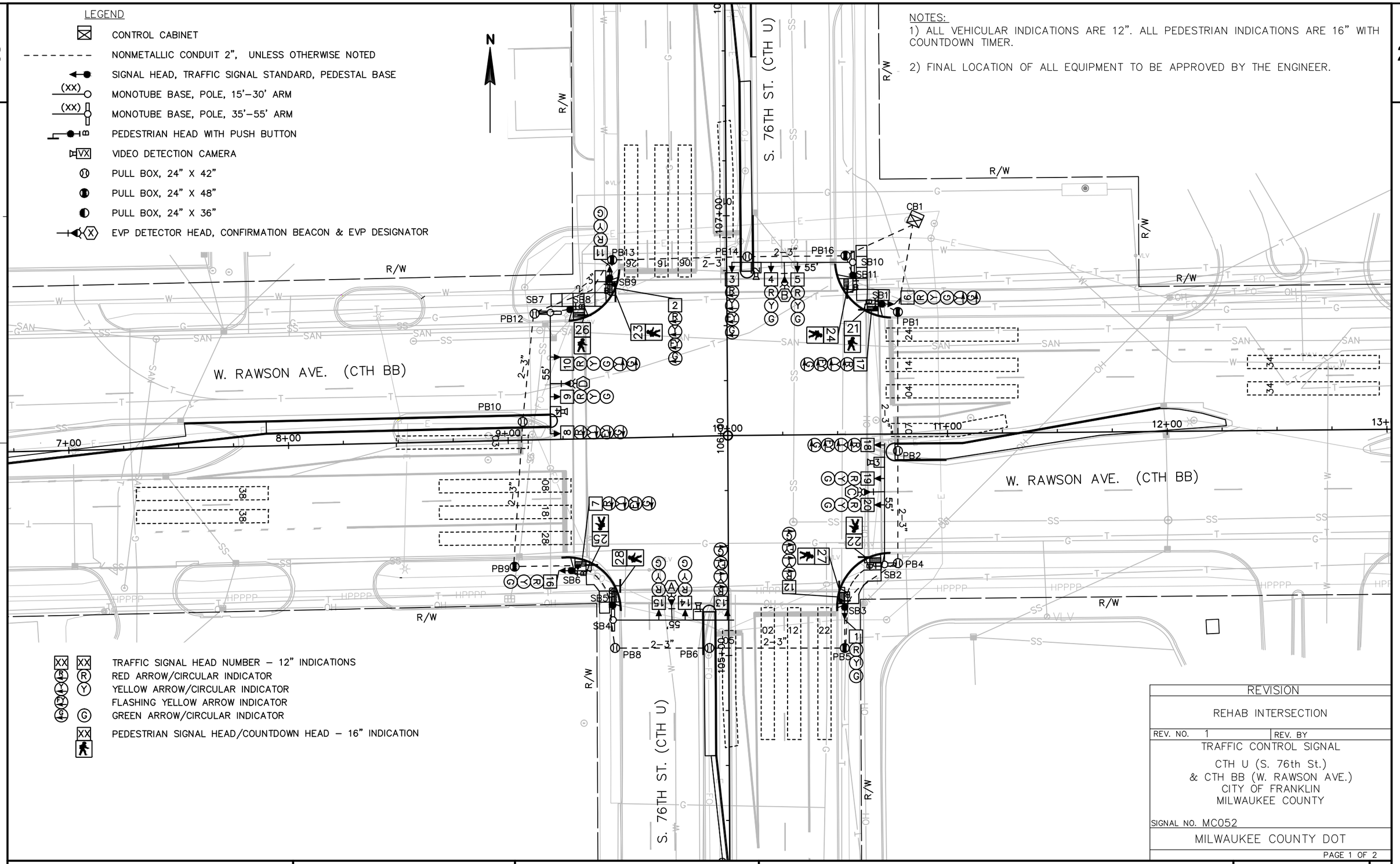
LEGEND

- CONTROL CABINET
- NONMETALLIC CONDUIT 2", UNLESS OTHERWISE NOTED
- SIGNAL HEAD, TRAFFIC SIGNAL STANDARD, PEDESTAL BASE
- (XX) MONOTUBE BASE, POLE, 15'–30' ARM
- (XX) MONOTUBE BASE, POLE, 35'–55' ARM
- PEDESTRIAN HEAD WITH PUSH BUTTON
- VIDEO DETECTION CAMERA
- PULL BOX, 24" X 42"
- PULL BOX, 24" X 48"
- PULL BOX, 24" X 36"
- EVP DETECTOR HEAD, CONFIRMATION BEACON & EVP DESIGNATOR

NOTES:

1) ALL VEHICULAR INDICATIONS ARE 12". ALL PEDESTRIAN INDICATIONS ARE 16" WITH COUNTDOWN TIMER.

2) FINAL LOCATION OF ALL EQUIPMENT TO BE APPROVED BY THE ENGINEER.



- XX TRAFFIC SIGNAL HEAD NUMBER – 12" INDICATIONS
- R RED ARROW/CIRCULAR INDICATOR
- Y YELLOW ARROW/CIRCULAR INDICATOR
- FLASHING YELLOW ARROW INDICATOR
- G GREEN ARROW/CIRCULAR INDICATOR
- XX PEDESTRIAN SIGNAL HEAD/COUNTDOWN HEAD – 16" INDICATION

REVISION
REHAB INTERSECTION
REV. NO. 1 — REV. BY

TRAFFIC CONTROL SIGNAL

CTH U (S. 76th St.)
& CTH BB (W. RAWSON AVE.)
CITY OF FRANKLIN
MILWAUKEE COUNTY

SIGNAL NO. MC052

MILWAUKEE COUNTY DOT

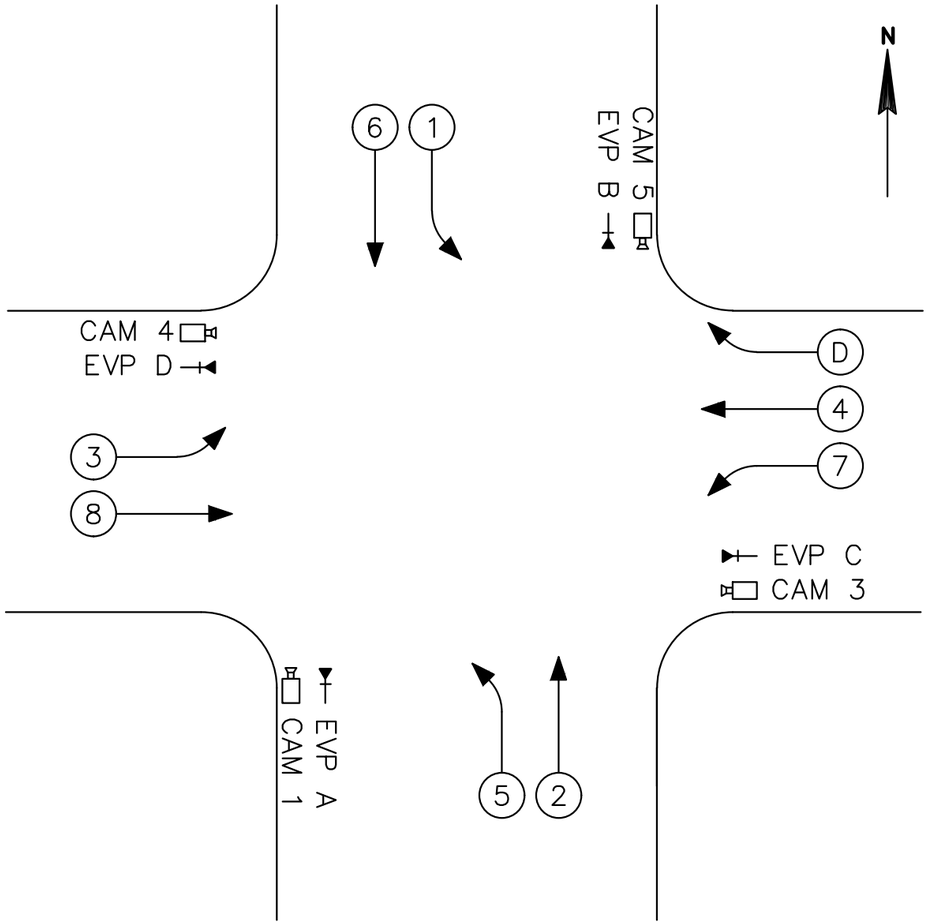
PAGE 1 OF 2

PROJECT NO: 2160–01–72	HWY: CTH U	COUNTY: MILWAUKEE	TRAFFIC SIGNAL PLAN	SHEET 29	E

FILE NAME : O:\HIGHWAY OPERATIONS CONTROL FILE\CENTRAL FILES\2010–2014\CTH U – S. 76TH ST\INTERSECTION WITH RAWSON – 2160–01–02\DESIGN\PLANS\FINAL PLANS\13_TRAF SIG\U_BB_SIG.DWG

PLOT DATE : 8/1/2016 9:25 AM PLOT BY : MURPHY, DANIEL PLOT NAME : PLOT SCALE : 1:40_XREF

WISDOT/CADDS SHEET 42



PHASES				OVERLAPS		
PHASE	VEHICLE	LEFT TURN TYPE	PED	OVLP	INCLUDES	OUTPUT
1	X	FYA		A		13
2	X		X	B		14
3	X	FYA		C		15
4	X		X	D	1	16
5	X	FYA		E	1 FY	9 Y
6	X		X	F	3 FY	10 Y
7	X	FYA		G	5 FY	11 Y
8	X		X	H	7 FY	12 Y

COMMUNICATION	
ETHERNET SWITCH	X
SM FIBER	X
MM FIBER	
5.8 GHZ RADIO	
900 MHZ ETHERNET RADIO	
900 MHZ SERIAL RADIO	
ETHERNET OVER COPPER	

PRE-EMPTION	
EMERGENCY VEHICLE	X
CONFIRMATION BEACONS	X
RAILROAD	

AUXILARY EQUIPMENT	
LIGHTING FROM CABINET	
BATTERY BACKUP	
PTZ CAMERA	
AUDIBLE PEDESTRIAN HEADS	
AUDIBLE PEDESTRIAN BUTTONS	X

REV. NO. 1	REV. DATE
TYPE: 16 CHANNEL	

TRAFFIC CONTROL SIGNAL

CTH U (S. 76th St.)
& CTH BB (W. RAWSON AVE.)
CITY OF FRANKLIN
MILWAUKEE COUNTY

SIGNAL NO. MC052

MILWAUKEE COUNTY DOT

PAGE 2 OF 3

PROJECT NO: 2160–01–72	HWY: CTH U	COUNTY: MILWAUKEE	TRAFFIC SIGNAL – SEQUENCE OF OPERATION	SHEET 30	E

PROJECT ID:	2160-01-72
INTERSECTION:	CTH U & CTH BB

SIGNAL WIRE COLOR CODING	BLK-BLACK	RED-RED	GRN-GREEN
	WHT-WHITE	BLU-BLUE	ORG-ORANGE

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

NOTES:

1. DO NOT USE THE WHITE CONDUCTOR IN THE SIGNAL CABLE AS THE GROUNDED CONDUCTOR FOR SIGNAL INDICATIONS.
2. ENSURE THE GROUNDED CONDUCTOR IN THE FEEDER CABLE AND THE POLE CABLES ARE BOTH 18" LONGER THAN THE UNGROUNDED CONDUCTORS.
3. AT THE SIGNAL BASES, CONNECT ONE TERMINAL OF THE PEDESTRIAN BUTTON TO THE COLOR INDICATED IN THE CHART, CONNECT THE OTHER TERMINAL TO THE WHITE CONDUCTOR IN THE SIGNAL CABLE

TRAFFIC CONTROL SIGNAL

CTH U (S. 76th St.)
& CTH BB (W. RAWSON AVE.)
CITY OF FRANKLIN
MILWAUKEE COUNTY

SIGNAL NO. MC052

MILWAUKEE COUNTY DOT

PAGE 2 OF 3

PROJECT NO: 2160-01-72	HWY: CTH U	COUNTY: MILWAUKEE	TRAFFIC SIGNAL – CABLE ROUTING	SHEET	E

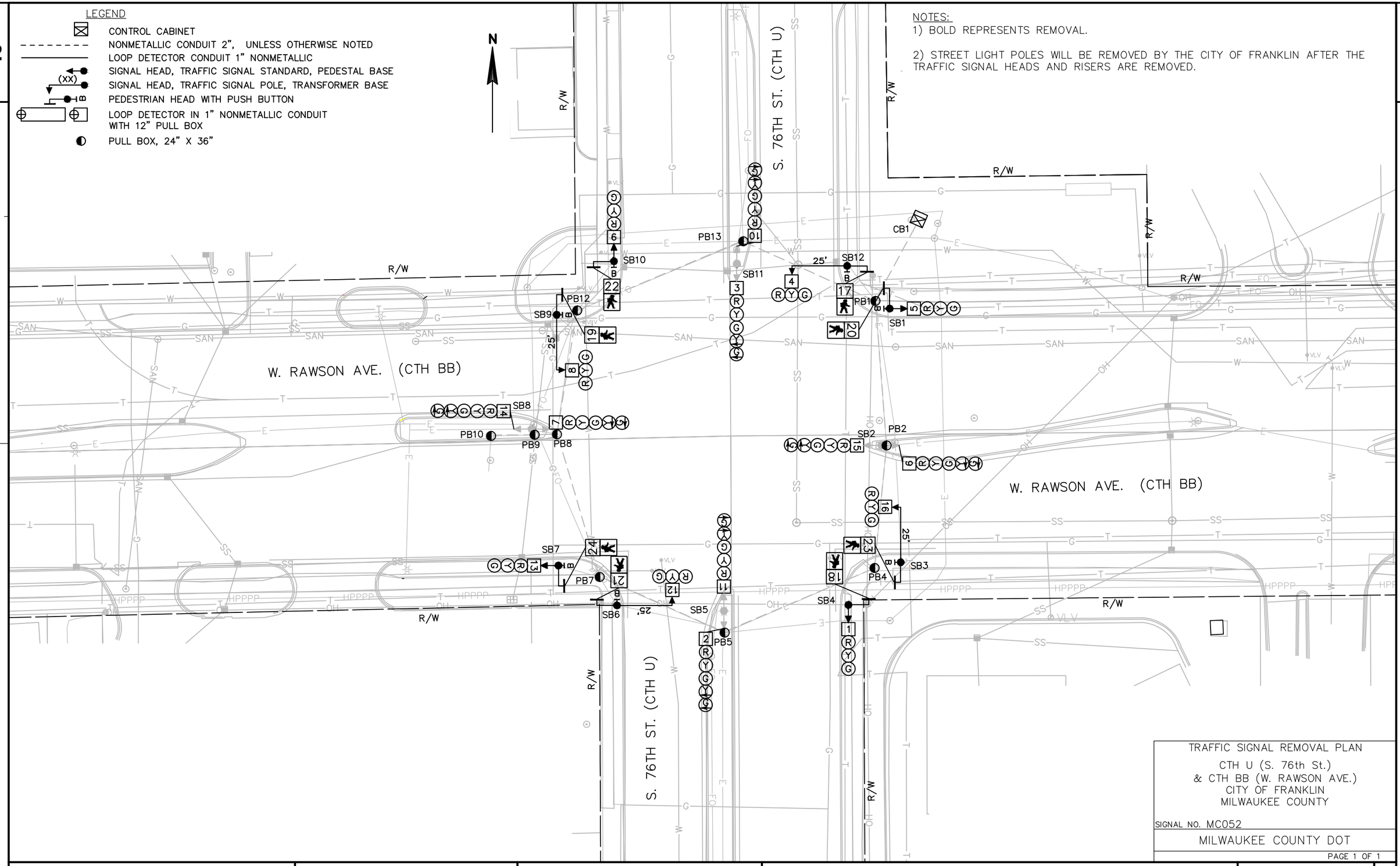
LEGEND

- CONTROL CABINET
- NONMETALLIC CONDUIT 2", UNLESS OTHERWISE NOTED
- LOOP DETECTOR CONDUIT 1" NONMETALLIC
- SIGNAL HEAD, TRAFFIC SIGNAL STANDARD, PEDESTAL BASE
- SIGNAL HEAD, TRAFFIC SIGNAL POLE, TRANSFORMER BASE
- PEDESTRIAN HEAD WITH PUSH BUTTON
- LOOP DETECTOR IN 1" NONMETALLIC CONDUIT WITH 12" PULL BOX
- PULL BOX, 24" X 36"

NOTES:

1) BOLD REPRESENTS REMOVAL.

2) STREET LIGHT POLES WILL BE REMOVED BY THE CITY OF FRANKLIN AFTER THE TRAFFIC SIGNAL HEADS AND RISERS ARE REMOVED.



TRAFFIC SIGNAL REMOVAL PLAN

CTH U (S. 76th St.)
& CTH BB (W. RAWSON AVE.)
CITY OF FRANKLIN
MILWAUKEE COUNTY

SIGNAL NO. MC052

MILWAUKEE COUNTY DOT

PAGE 1 OF 1

PROJECT NO: 2160-01-72	HWY: CTH U	COUNTY: MILWAUKEE	TRAFFIC SIGNAL REMOVAL PLAN	SHEET 32	E

FILE NAME : O:\HIGHWAY OPERATIONS CONTROL FILE\CENTRAL FILES\2010-2014\CTH U - S. 76TH ST\INTERSECTION WITH RAWSON - 2160-01-02\DESIGN\PLANS\FINAL PLANS\13_TRAF SIG REMOV\21600172_SR.DWG

PLOT DATE : 6/27/2016 10:30 AM PLOT BY : MURPHY, DANIEL PLOT NAME : PLOT SCALE : 1:40_XREF

WISDOT/CADDS SHEET 42

LEGEND

- TEMPORARY WOOD POLE
- OVERHEAD TEMPORARY SIGNAL WIRE
- SIGNAL HEAD, SPAN WIRE MOUNT
- TRAFFIC SIGNAL HEAD NUMBER – 12" INDICATIONS
- RED ARROW/CIRCULAR INDICATOR
- YELLOW ARROW/CIRCULAR INDICATOR
- FLASHING YELLOW ARROW INDICATOR
- GREEN ARROW/CIRCULAR INDICATOR
- PEDESTRIAN SIGNAL HEAD/COUNTDOWN HEAD – 16" INDICATION

NOTES:

1) ALL VEHICULAR INDICATIONS ARE 12". ALL PEDESTRIAN INDICATIONS ARE 16" WITH COUNTDOWN TIMER.

2) FINAL LOCATION OF ALL EQUIPMENT TO BE APPROVED BY THE ENGINEER.

3) ALL VEHICULAR TRAFFIC SIGNAL HEADS SHALL BE MOUNTED BETWEEN THE SPAN WIRE AND THE TETHER WIRE.

4) THE EXISTING SERVICE SHALL NOT BE USED AS A SERVICE FOR THE TEMPORARY SIGNAL.

W. RAWSON AVE. (CTH BB)

S. 76TH ST. (CTH U)

WP1 WP2 WP3 WP4

R/W

7+00 8+00 9+00 10+00 11+00 12+00 13+

106+00 107+00 105+00

TEMPORARY TRAFFIC CONTROL SIGNAL
CTH U (S. 76th St.)
& CTH BB (W. RAWSON AVE.)
CITY OF FRANKLIN
MILWAUKEE COUNTY

SIGNAL NO. MC052

MILWAUKEE COUNTY DOT

PAGE 1 OF 1

PROJECT NO: 2160-01-72	HWY: CTH U	COUNTY: MILWAUKEE	TEMPORARY TRAFFIC SIGNAL PLAN	SHEET 33	E

FILE NAME : O:\HIGHWAY OPERATIONS CONTROL FILE\CENTRAL FILES\2010-2014\CTH U - S. 76TH ST\INTERSECTION WITH RAWSON - 2160-01-02\DESIGN\PLANS\FINAL PLANS\14_TEMP SIG\21600172_TP.DWG

PLOT DATE : 6/27/2016 11:00 AM PLOT BY : MURPHY, DANIEL PLOT NAME : PLOT SCALE : 1:40_XREF

WISDOT/CADDS SHEET 42

2

LEGEND

- CONTROL CABINET
- NONMETALLIC CONDUIT 2", UNLESS OTHERWISE NOTED
- CIRCULAR COMMUNICATION VAULT, 36" X 42"
- COMMUNICATION VAULT, 24" X 36"

NOTE: GRAYSHADE REPRESENTS EXISTING

N

S. 76TH ST. (CTH U)

W. RAWSON AVE. (CTH BB)

R/W

PULL EXISTING MAINLINE FIBER BACK TO CV1

CV1

CV2

CV3

CV4

CB1

CUT EXISTING FIBER EXITING TO THE SOUTH OF CV4

PI: 106+00.00

PI: 10+00.00

9+00

11+00

12

103+00

104+00

105+00

106+00

107+00

108+00

109+00

R/L S. 76TH ST.

R/L W. RAWSON AVE.

MATCH LINE STA 116+00

2

PROJECT NO: 2160-01-72	HWY: CTH U	COUNTY: MILWAUKEE	COMMUNICATION PLAN	SHEET 34	E

FILE NAME : O:\HIGHWAY OPERATIONS CONTROL FILE\CENTRAL FILES\2010-2014\CTH U - S. 76TH ST\INTERSECTION WITH RAWSON - 2160-01-02\DESIGN\PLANS\FINAL PLANS\15_COMM\21600172_IC.DWG

PLOT DATE : 6/28/2016 1:01 PM PLOT BY : MURPHY, DANIEL PLOT NAME : PLOT SCALE : 1:40_XREF

2

2

N

BEGIN CONSTRUCTION
2160-01-72
STA 5+99.20
X= 2532882.0131
Y= 340243.2773

END PROJECT
2160-01-72
STA 109+61.00

S. 76TH ST. (CTH U)

S0° 25' 03"W
600'

BP: 4+00.00

W. RAWSON AVE. (CTH BB)

N89° 42' 48"E
600'

PI: 106+00.00

PI: 10+00.00

R/L = S/L

N89° 27' 00"E
600'

EP: 16+00.00

W. RAWSON AVE. (CTH BB)

S0° 15' 38"E
600'

R/L = S/L

T 5 N
R 4 E: 3, 9, 10, 21

Y=340,252.35
X=2,533,285.87

END CONSTRUCTION
2160-01-72
STA 12+00.50

BEGIN PROJECT
2160-01-72
STA 103+87.14
X= 2533286.8380
Y= 340039.4971

S. 76TH ST. (CTH U)

PROJECT NO:2160-01-72	HWY: CTH U	COUNTY:MILWAUKEE	ALIGNMENT DIAGRAM: W. RAWSON AVE & S. 76TH ST	SHEET	E

FILE NAME : O:\HIGHWAY OPERATIONS CONTROL FILE\CENTRAL FILES\2010-2014\CTH U - S. 76TH ST\INTERSECTION WITH RAWSON - 2160-01-02\DESIGN\PLANS\90% PLANS\19_ALIGN DIA\21600172-AD.DWG

PLOT DATE : 4/27/2016 4:03 PM PLOT BY : JENKINS, KENYA PLOT NAME : PLOT SCALE : 1:100_XREF

DATE 12OCT16 E S T I M A T E O F Q U A N T I T I E S

LINE NUMBER	ITEM	ITEM DESCRIPTION	UNIT	TOTAL	2160-01-72 QUANTITY
0010	204.0100	Removing Pavement	SY	900.000	900.000
0020	204.0150	Removing Curb & Gutter	LF	1,200.000	1,200.000
0030	204.0155	Removing Concrete Sidewalk	SY	85.000	85.000
0040	204.0195	Removing Concrete Bases	EACH	9.000	9.000
0050	204.0215	Removing Catch Basins	EACH	3.000	3.000
0060	204.0245	Removing Storm Sewer (size) 01. 12-INCH	LF	6.000	6.000
0070	205.0100	Excavation Common	CY	470.000	470.000
0080	205.0501.S	Excavation, Hauling, and Disposal of Petroleum Contaminated Soil	TON	25.000	25.000
0090	213.0100	Finishing Roadway (project) 01. 2160-01-72	EACH	1.000	1.000
0100	305.0120	Base Aggregate Dense 1 1/4-Inch	TON	470.000	470.000
0110	310.0110	Base Aggregate Open-Graded	TON	500.000	500.000
0120	311.0110	Breaker Run	TON	50.000	50.000
0130	415.0090	Concrete Pavement 9-Inch	SY	1,130.000	1,130.000
0140	416.0610	Drilled Tie Bars	EACH	595.000	595.000
0150	416.0620	Drilled Dowel Bars	EACH	40.000	40.000
0160	520.8000	Concrete Collars for Pipe	EACH	5.000	5.000
0170	601.0331	Concrete Curb & Gutter 31-Inch	LF	1,400.000	1,400.000
0180	602.0410	Concrete Sidewalk 5-Inch	SF	2,220.000	2,220.000
0190	602.0515	Curb Ramp Detectable Warning Field Natural Patina	SF	160.000	160.000
0200	608.0512	Storm Sewer Pipe Reinforced Concrete Class V 12-Inch	LF	40.000	40.000
0210	611.3225	Inlets 2x2.5-FT	EACH	3.000	3.000
0220	611.8115	Adjusting Inlet Covers	EACH	2.000	2.000
0230	612.0406	Pipe Underdrain Wrapped 6-Inch	LF	1,350.000	1,350.000
0240	619.1000	Mobilization	EACH	1.000	1.000
0250	620.0300	Concrete Median Sloped Nose	SF	250.000	250.000
0260	624.0100	Water	MGAL	0.500	0.500
0270	625.0100	Topsoil	SY	500.000	500.000
0280	628.1905	Mobilizations Erosion Control	EACH	2.000	2.000
0290	628.1910	Mobilizations Emergency Erosion Control	EACH	2.000	2.000
0300	628.2006	Erosion Mat Urban Class I Type A	SY	500.000	500.000
0310	628.7010	Inlet Protection Type B	EACH	15.000	15.000
0320	629.0210	Fertilizer Type B	CWT	0.400	0.400
0330	630.0140	Seeding Mixture No. 40	LB	9.000	9.000
0340	634.0810	Posts Tubular Steel 2x2-Inch X 10-FT	EACH	3.000	3.000
0350	637.2210	Signs Type II Reflective H	SF	35.000	35.000
0360	637.2215	Signs Type II Reflective H Folding	SF	59.680	59.680
0370	638.2602	Removing Signs Type II	EACH	11.000	11.000
0380	638.3000	Removing Small Sign Supports	EACH	3.000	3.000
0390	642.5001	Field Office Type B	EACH	1.000	1.000
0400	643.0100	Traffic Control (project) 01. 2160-01-72	EACH	1.000	1.000
0410	643.0300	Traffic Control Drums	DAY	10,710.000	10,710.000
0420	643.0420	Traffic Control Barricades Type III	DAY	1,576.000	1,576.000
0430	643.0705	Traffic Control Warning Lights Type A	DAY	1,784.000	1,784.000
0440	643.0715	Traffic Control Warning Lights Type C	DAY	3,170.000	3,170.000
0450	643.0800	Traffic Control Arrow Boards	DAY	209.000	209.000
0460	643.0900	Traffic Control Signs	DAY	3,163.000	3,163.000
0470	643.0920	Traffic Control Covering Signs Type II	EACH	8.000	8.000
0480	643.1000	Traffic Control Signs Fixed Message	SF	60.700	60.700
0490	644.1420.S	Temporary Pedestrian Surface Plywood	SF	640.000	640.000
0500	644.1601.S	Temporary Curb Ramp	EACH	8.000	8.000

3

DATE 12OCT16 E S T I M A T E O F Q U A N T I T I E S

LINE NUMBER	ITEM	ITEM DESCRIPTION	UNIT	TOTAL	2160-01-72 QUANTITY
0510	644.1616.S	Temporary Pedestrian Safety Fence	LF	270.000	270.000
0520	645.0111	Geotextile Type DF Schedule A	SY	1,130.000	1,130.000
0530	646.0106	Pavement Marking Epoxy 4-Inch	LF	1,050.000	1,050.000
0540	646.0126	Pavement Marking Epoxy 8-Inch	LF	1,300.000	1,300.000
0550	646.0600	Removing Pavement Markings	LF	1,300.000	1,300.000
0560	647.0166	Pavement Marking Arrows Epoxy Type 2	EACH	4.000	4.000
0570	647.0356	Pavement Marking Words Epoxy	EACH	4.000	4.000
0580	647.0566	Pavement Marking Stop Line Epoxy 18-Inch	LF	200.000	200.000
0590	647.0766	Pavement Marking Crosswalk Epoxy 6-Inch	LF	800.000	800.000
0600	649.0400	Temporary Pavement Marking Removable Tape 4-Inch	LF	19,500.000	19,500.000
0610	650.5500	Construction Staking Curb Gutter and Curb & Gutter	LF	1,400.000	1,400.000
0620	650.8500	Construction Staking Electrical Installations (project) 01. 2160-01-72	LS	1.000	1.000
0630	650.9910	Construction Staking Supplemental Control (project) 01. 2160-01-72	LS	1.000	1.000
0640	652.0225	Conduit Rigid Nonmetallic Schedule 40 2-Inch	LF	320.000	320.000
0650	652.0235	Conduit Rigid Nonmetallic Schedule 40 3-Inch	LF	460.000	460.000
0660	652.0605	Conduit Special 2-Inch	LF	210.000	210.000
0670	652.0615	Conduit Special 3-Inch	LF	830.000	830.000
0680	653.0140	Pull Boxes Steel 24x42-Inch	EACH	7.000	7.000
0690	653.0145	Pull Boxes Steel 24x48-Inch	EACH	5.000	5.000
0700	653.0905	Removing Pull Boxes	EACH	10.000	10.000
0710	654.0101	Concrete Bases Type 1	EACH	7.000	7.000
0720	654.0113	Concrete Bases Type 13	EACH	4.000	4.000
0730	654.0217	Concrete Control Cabinet Bases Type 9 Special	EACH	1.000	1.000
0740	655.0230	Cable Traffic Signal 5-14 AWG	LF	400.000	400.000
0750	655.0240	Cable Traffic Signal 7-14 AWG	LF	1,000.000	1,000.000
0760	655.0260	Cable Traffic Signal 12-14 AWG	LF	400.000	400.000
0770	655.0270	Cable Traffic Signal 15-14 AWG	LF	1,300.000	1,300.000
0780	655.0515	Electrical Wire Traffic Signals 10 AWG	LF	2,700.000	2,700.000
0790	655.0900	Traffic Signal EVP Detector Cable	LF	900.000	900.000
0800	656.0200	Electrical Service Meter Breaker Pedestal (location) 01. CTH U & CTH BB	LS	1.000	1.000
0810	657.0100	Pedestal Bases	EACH	7.000	7.000
0820	657.0425	Traffic Signal Standards Aluminum 15-FT	EACH	4.000	4.000
0830	657.0430	Traffic Signal Standards Aluminum 10-FT	EACH	3.000	3.000
0840	658.0110	Traffic Signal Face 3-12 Inch Vertical	EACH	10.000	10.000
0850	658.0115	Traffic Signal Face 4-12 Inch Vertical	EACH	8.000	8.000
0860	658.0120	Traffic Signal Face 5-12 Inch Vertical	EACH	2.000	2.000
0870	658.0215	Backplates Signal Face 3 Section 12-Inch	EACH	10.000	10.000
0880	658.0220	Backplates Signal Face 4 Section 12-Inch	EACH	8.000	8.000
0890	658.0225	Backplates Signal Face 5 Section 12-Inch	EACH	2.000	2.000
0900	658.0416	Pedestrian Signal Face 16-Inch	EACH	8.000	8.000
0910	658.0600	Led Modules 12-Inch Red Ball	EACH	12.000	12.000
0920	658.0605	Led Modules 12-Inch Yellow Ball	EACH	12.000	12.000
0930	658.0610	Led Modules 12-Inch Green Ball	EACH	12.000	12.000
0940	658.0615	Led Modules 12-Inch Red Arrow	EACH	8.000	8.000
0950	658.0620	Led Modules 12-Inch Yellow Arrow	EACH	18.000	18.000
0960	658.0625	Led Modules 12-Inch Green Arrow	EACH	10.000	10.000

3

DATE 12OCT16 E S T I M A T E O F Q U A N T I T I E S

LINE NUMBER	ITEM	ITEM DESCRIPTION	UNIT	TOTAL	2160-01-72 QUANTITY
0970	658.0635	Led Modules Pedestrian Countdown Timer 16-Inch	EACH	8.000	8.000
0980	658.5069	Signal Mounting Hardware (location) 01. CTH U & CTH BB	LS	1.000	1.000
0990	661.0200	Temporary Traffic Signals for Intersections (location) 01. CTH U & CTH BB	LS	1.000	1.000
1000	678.0200	Fiber Optic Splice Enclosure	EACH	2.000	2.000
1010	678.0300	Fiber Optic Splice	EACH	52.000	52.000
1020	678.0400	Fiber Optic Termination	EACH	4.000	4.000
1030	690.0250	Sawing Concrete	LF	1,740.000	1,740.000
1040	ASP.1T0A	On-the-Job Training Apprentice at $5. 00/HR	HRS	300.000	300.000
1050	ASP.1T0G	On-the-Job Training Graduate at $5.00/HR	HRS	350.000	350.000
1060	SPV.0060	Special 01. POLES TYPE 12	EACH	4.000	4.000
1070	SPV.0060	Special 02. MONOTUBE ARMS 55-FT	EACH	4.000	4.000
1080	SPV.0060	Special 03. UTILITY LINE OPENING	EACH	4.000	4.000
1090	SPV.0060	Special 04. CIRCULAR COMMUNICATION VAULT 36X42 INCH	EACH	2.000	2.000
1100	SPV.0060	Special 05. INLET COVERS TYPE 57	EACH	3.000	3.000
1110	SPV.0090	Special 01. FURNISH AND INSTALL 24SM FIBER OPTIC COMMUNICATIONS CABLE	LF	710.000	710.000
1120	SPV.0090	Special 02. TRACER WIRE 12 AWG	LF	420.000	420.000
1130	SPV.0090	Special 03. CONSTRUCTION STAKING CONCRETE SIDEWALK	LF	450.000	450.000
1140	SPV.0105	Special 01. REMOVE TRAFFIC SIGNAL EQUIPMENT CTH U & CTH BB	LS	1.000	1.000
1150	SPV.0105	Special 02. TRAFFIC SIGNAL CABINET FULLY ACTUATED 16 PHASE	LS	1.000	1.000
1160	SPV.0105	Special 03. EMERGENCY VEHICLE PREEMPTION SYSTEM CTH U & CTH BB	LS	1.000	1.000
1170	SPV.0105	Special 04. VEHICULAR VIDEO DETECTION SYSTEM (4-CAMERA) CTH U & CTH BB	LS	1.000	1.000
1180	SPV.0105	Special 05. ACCESSIBLE PEDESTRIAN PUSH BUTTON SYSTEM (8-BUTTON) CTH U & CTH BB	LS	1.000	1.000
1190	SPV.0105	Special 06. FIBER OPTIC COMMUNICATION SYSTEM INTEGRATION CTH U & CTH BB	LS	1.000	1.000
1200	SPV.0195	Special 01. EXCAVATION, HAULING, AND DISPOSAL OF LEAD-CONTAMINATED SOIL	TON	12.000	12.000

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REMOVING PAVEMENT

LOCATION	STATION	-	STATION	OFFSET	204.0100 REMOVING PAVEMENT SY
STAGE 1					
RAWSON (WEST MEDIAN)	5+99	-	9+25		372
RAWSON (EAST MEDIAN)	10+62	-	12+00		153
76TH (SOUTH MEDIAN)	103+87	-	105+35		21
76TH (NORTH MEDIAN)	106+67	-	109+61		279
SUBTOTAL					825
STAGE 2					
NE CORNER	106+50	-	106+78	RT	18
NW CORNER	106+46	-	106+50	LT	16
SE CORNER	105+20	-	105+49	RT	15
SW CORNER	10520	-	10548	LT	17
SUBTOTAL					66
UNDISTRIBUTED					9
TOTAL					900

REMOVING CURB & GUTTER

LOCATION	STATION	-	STATION	OFFSET	204.0150 REMOVING CURB & GUTTER LF
STAGE 1					
RAWSON (WEST MEDIAN)	5+99	-	9+25	LT	343
RAWSON (EAST MEDIAN)	10+62	-	12+00	LT	166
76TH (SOUTH MEDIAN)	103+87	-	105+35	-	170
76TH (NORTH MEDIAN)	106+67	-	109+61	-	251
SUBTOTAL					930
STAGE 2					
NE CORNER	106+50	-	106+78	RT	40
NW CORNER	106+46	-	106+50	LT	40
SE CORNER	105+20	-	105+49	RT	42
SW CORNER	105+20	-	105+48	LT	44
SUBTOTAL					166
UNDISTRIBUTED					104
TOTAL					1200

REMOVING CONCRETE SIDEWALK

LOCATION	STATION	-	STATION	OFFSET	204.0155 REMOVING CONCRETE SIDEWALK SY
STAGE 2					
NE CORNER	106+50	-	106+78	RT	22
NW CORNER	106+46	-	106+50	LT	19
SE CORNER	105+20	-	105+49	RT	20
SW CORNER	105+20	-	105+48	LT	13
SUBTOTAL					74
UNDISTRIBUTED					11
TOTAL					85

REMOVING CONCRETE BASES

BASE NO.	204.0195 REMOVING CONCRETE BASES EACH	REMARKS
EXSB1	1	NE CORNER
EXSB3	1	SE CORNER
EXSB4	1	SE CORNER
EXSB6	1	SW CORNER
EXSB7	1	SW CORNER
EXSB9	1	NW CORNER
EXSB10	1	NW CORNER
EXSB12	1	NE CORNER
EXCB1	1	NE CORNER
TOTAL	9	

REMOVING STORM SEWER

LOCATION	STATION	-	STATION	204.0215 REMOVING CATCH BASIN EA	204.0245 REMOVING STORM SEWER 12-INCH LF
STAGE 1					
RAWSON (WEST MEDIAN)	5+99	-	9+25	1	--
RAWSON (EAST MEDIAN)	10+62	-	12+00	--	--
76TH (SOUTH MEDIAN)	103+87	-	105+35	--	--
76TH (NORTH MEDIAN)	106+67	-	109+61	2	4
SUBTOTAL				3	4
STAGE 2					
NE CORNER	106+50	-	106+78	--	--
NW CORNER	106+46	-	106+50	--	--
SE CORNER	105+20	-	105+49	--	--
SW CORNER	105+20	-	105+48	--	--
SUBTOTAL				0	0
UNDISTRIBUTED					2
TOTAL				3	6

EXCAVATION COMMON

LOCATION	STATION	-	STATION	205.0100 EXCAVATION COMMON CY
STAGE 1				
RAWSON (WEST MEDIAN)	5+99	-	9+25	183
RAWSON (EAST MEDIAN)	10+62	-	12+00	16
76TH (SOUTH MEDIAN)	103+87	-	105+35	97
76TH (NORTH MEDIAN)	106+67	-	109+61	123
SUBTOTAL				419
STAGE 2				
NE CORNER	106+50	-	106+78	2
NW CORNER	106+46	-	106+50	1
SE CORNER	105+20	-	105+49	1
SW CORNER	10520	-	10548	1
SUBTOTAL				5
UNDISTRIBUTED				46
TOTAL				470

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FINISHING ROADWAY (I.D. 2160-01-72)

PROJECT I.D.	213.0100 FINISHING ROADWAY EACH
2160-01-72	1
TOTAL	1

AGGREGATE ITEMS

LOCATION	STATION	-	STATION	OFFSET	305.0120 BASE AGGREGATE DENSE 1 1/4 -INCH TON	310.0110 BASE AGGREGATE OPEN GRADED TON	311.0110 BREAKER RUN TON	612.0406 Pipe Underdrain Wrapped 6-Inch LF	645.0111 Geotextile Fabric Type DF Schedule A SY
STAGE 1									
RAWSON (WEST MEDIAN)	5+99	-	9+25	-	169	216	-	450	497
RAWSON (EAST MEDIAN)	10+62	-	12+00	-	54	73	-	148	170
76TH (SOUTH MEDIAN)	103+87	-	105+35	-	46	53	-	124	118
76TH (NORTH MEDIAN)	106+67	-	109+61	-	99	113	-	396	206
UNDISTRIBUTED					33	-	50	33	56
SUBTOTAL					400	455	50	1151	1047
STAGE 2									
NE CORNER	106+50	-	106+78	RT	16	12	-	40	22
NW CORNER	106+46	-	106+50	LF	14	10	-	40	18
SE CORNER	105+20	-	105+49	RT	14	11	-	42	19
SW CORNER	10520	-	10548	LF	13	11	-	44	20
UNDISTRIBUTED					13	-	-	33	4
SUBTOTAL					70	45	-	199	83
TOTAL					470	500	50	1350	1130

CONCRETE PAVEMENT ITEMS

LOCATION	STATION	-	STATION	OFFSET	415.0090 CONCRETE PAVEMENT 9-INCH SY	416.0610 DRILLED TIE BARS EACH	416.0620 DRILLED DOWEL BARS EACH
STAGE 1							
RAWSON (WEST MEDIAN)	5+99	-	9+25	-	497	201	12
RAWSON (EAST MEDIAN)	10+62	-	12+00	-	170	71	12
76TH (SOUTH MEDIAN)	103+87	-	105+35	-	118	68	7
76TH (NORTH MEDIAN)	106+67	-	109+61	-	206	133	7
UNDISTRIBUTED					56	25	2
SUBTOTAL					1047	497	40
STAGE 2							
NE CORNER	106+50	-	106+78	RT	22	24	--
NW CORNER	106+46	-	106+50	LT	18	22	--
SE CORNER	105+20	-	105+49	RT	19	24	--
SW CORNER	10520	-	10548	LT	20	24	--
UNDISTRIBUTED					4	5	--
SUBTOTAL					83	98	0
TOTAL					1130	595	40

CONCRETE CURB & GUTTER

LOCATION	STATION	-	STATION	OFFSET	601.0331 CONCRETE CURB & GUTTER 31-INCH LF	620.0300 CONCRETE MEDIAN SLOPED NOSE TYPE 1 SF
STAGE 1						
RAWSON (WEST MEDIAN)	5+99	-	9+25	-	488	50
RAWSON (EAST MEDIAN)	10+62	-	12+00	-	147	72
76TH (SOUTH MEDIAN)	103+87	-	105+35	-	154	50
76TH (NORTH MEDIAN)	106+67	-	109+61	-	441	70
SUBTOTAL					1,230	242
STAGE 2						
NE CORNER	106+50	-	106+78	RT	40	--
NW CORNER	106+46	-	106+50	LT	36	--
SE CORNER	105+20	-	105+49	RT	40	--
SW CORNER	10520	-	10548	LT	40	--
SUBTOTAL					156	--
UNDISTRIBUTED					14	8
TOTAL					1,400	250

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CONCRETE SIDEWALK

LOCATION	STATION	-	STATION	OFFSET	602.0410 CONCRETE SIDEWALK 5-INCH SF	602.0515 CURB RAMP DECTECTABLE WARNING FIELD NATURAL PATINA SF
STAGE 1						
RAWSON (WEST MEDIAN)	5+99	-	9+25		550	--
RAWSON (EAST MEDIAN)	10+62	-	12+00		--	--
76TH (SOUTH MEDIAN)	103+87	-	105+35		250	--
76TH (NORTH MEDIAN)	106+67	-	109+61		325	--
SUBTOTAL					1,125	--
STAGE 2						
NE CORNER	106+50	-	106+78	RT	230	40
NW CORNER	106+46	-	106+50	LT	230	40
SE CORNER	105+20	-	105+49	RT	230	40
SW CORNER	105+20	-	105+48	LT	210	40
SUBTOTAL					900	160
UNDISTRIBUTED					195	
TOTAL					2,220	160

SEWERS

STR NO.	STATION	-	OFFSET	611.3225 INLET 2x2.5 FT EACH	SPV.0060.05 INLET COVER TYPE 57 EACH	608.0512 STORM SEWER PIPE REINFORCED CONCRETE CLASS V 12-INCH LF	611.8115 ADJUSTING INLET COVERS EACH	520.8000 CONCRETE COLLARS FOR PIPE EACH
STAGE 1								
RAWSON (WEST MEDIAN)	5+99	-	9+25	1	1	16	--	1
RAWSON (EAST MEDIAN)	10+62	-	12+00	--	--	--	1	--
76TH (SOUTH MEDIAN)	103+87	-	105+35	--	--	--	--	--
76TH (NORTH MEDIAN)	106+67	-	109+61	2	2	18	--	3
SUBTOTAL				3	3	34	1	4
STAGE 2								
NE CORNER	106+50	-	106+78	--	--	--	--	--
NW CORNER	106+46	-	106+50	--	--	--	--	--
SE CORNER	105+20	-	105+49	--	--	--	--	--
SW CORNER	105+20	-	105+48	--	--	--	--	--
SUBTOTAL				0	0	0	0	0
UNDISTRIBUTED				0	0	6	1	1
TOTAL				3	3	40	2	5

MOBILIZATION

PROJECT I.D.	619.1000 MOBILIZATION EACH
2160-01-72	1
TOTAL	1

DUST CONTROL

LOCATION	OFFSET	624.0100 WATER MGAL
UNDISTRIBUTED	--	0.50
TOTAL		0.50

MOBILIZATIONS EROSION CONTROL

PROJECT I.D.	628.1905 MOBILIZATIONS EROSION CONTROL EACH
2160-01-72	2
TOTAL	2

MOBILIZATIONS EMERGENCY EROSION CONTROL

PROJECT I.D.	628.1910 MOBILIZATIONS EMERGENCY EROSION CONTROL EACH
2160-01-72	2
TOTAL	2

INLET PROTECTION

LOCATION	OFFSET	628.7010 INLET PROTECTION TYPE B EACH
S. 76TH STREET		
106+76	48' RT	1
106+76	48' LT	1
107+00	5' RT	1
107+02	13' RT	1
108+99	8' LT	1
109+00	13' RT	1
109+00	13' LT	1
SUBTOTAL		7
RAWSON AVENUE		
7+34	1' RT	1
7+44	13' RT	1
7+51	12' LT	1
9+05	53' RT	1
9+17	52' LT	1
9+23	46' LT	1
12+00	2' RT	1
12+00	11' LT	1
SUBTOTAL		8
TOTAL		15

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RESTORATION

LOCATION	STATION	-	STATION	625.0100 TOPSOIL SY	628.2006 EROSION MAT URBAN CLASS 1 TYPE A SY	629.0210 FERTILIZER TYPE B CWT	630.0140 SEEDING MIXTURE NO. 40 LB
STAGE 1							
RAWSON (WEST MEDIAN)	5+99	-	9+25	67	67	0.04	1.2
RAWSON (EAST MEDIAN)	10+62	-	12+00	131	131	0.08	2.4
76TH (SOUTH MEDIAN)	103+87	-	105+35	16	16	0.01	0.3
76TH (NORTH MEDIAN)	106+67	-	109+61	168	168	0.11	3.0
SUBTOTAL				382	382	0.24	7
STAGE 2							
NE CORNER	106+50	-	106+78	24	24	0.02	0.4
NW CORNER	106+46	-	106+50	22	22	0.01	0.4
SE CORNER	105+20	-	105+49	13	13	0.01	0.2
SW CORNER	10520	-	10548	10	10	0.01	0.2
SUBTOTAL				69	69	0.04	1.2
UNDISTRIBUTED				49	49	0.12	0.9
TOTAL				500	500	0.40	9.0

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SIGN SUMMARY

SIGN NO.	SIGN CODE	DESCRIPTION	SIZE			638.2602 REMOVING SIGNS TYPE II EACH	638.3000 REMOVING SMALL SIGN SUPPORTS EACH	637.2210 SIGNS TYPE II REFLECTIVE H SF	637.2215 SIGNS TYPE II REFLECTIVE H FOLDING SF	634.0810 POSTS TUBULAR STEEL 2x2-INCH x 10-FT EACH	NOTES
01 . 01	R1-1F	STOP (Folding)	36	X	36	1	--	--	7.46	--	ON SIGNAL POLE
01 . 02	R2-1	SPEED LIMIT 40	24	X	30	1	1	5.00	--	1	
01 . 03	R4-7	KEEP RIGHT	24	X	30	1	--	5.00	--	--	ON LIGHT POLE
01 . 04	R1-1F	STOP (Folding)	36	X	36	--	--	--	7.46	--	ON SAME POST AS 01-03
01 . 05	R1-1F	STOP (Folding)	36	X	36	1	--	--	7.46	--	ON SIGNAL POLE
01 . 06	R4-7	KEEP RIGHT	24	X	30	1	--	5.00	--	--	ON LIGHT POLE
01 . 07	R1-1F	STOP (Folding)	36	X	36	--	--	--	7.46	--	ON SAME POST AS 01-06
02 . 01	R2-1	SPEED LIMIT 40	24	X	30	1	1	5.00	--	1	
02 . 02	R4-7	KEEP RIGHT	24	X	30	1	--	5.00	--	--	ON LIGHT POLE
02 . 03	R1-1F	STOP (Folding)	36	X	36	--	--	--	7.46	--	ON SAME POST AS 02-02
02 . 04	R1-1F	STOP (Folding)	36	X	36	1	--	--	7.46	--	ON SIGNAL POLE
02 . 05	R1-1F	STOP (Folding)	36	X	36	1	--	--	7.46	--	ON SIGNAL POLE
02 06	R1-1F	STOP (Folding)	36	X	36	--	--	--	7.46	--	ON LIGHT POLE
02 . 07	R4-7	KEEP RIGHT	24	X	30	1	--	5.00	--	--	ON SAME POST AS 02-06
03 . 01	R2-1	SPEED LIMIT 40	24	X	30	1	1	5.00	--	1	ON SIGNAL POLE
		PROJECT TOTAL:				11	3	35.00	59.68	3	

TRAFFIC CONTROL ITEMS

LOCATION	643.0100 TRAFFIC CONTROL 2160-01-72 EACH	643.0300 TRAFFIC CONTROL DRUMS DAY	643.0420 TRAFFIC CONTROL BARRICADES TYPE III DAY	643.0705 TRAFFIC CONTROL WARNING LIGHTS TYPE A DAY	643.0715 TRAFFIC CONTROL WARNING LIGHTS TYPE C DAY	643.0800 TRAFFIC CONTROL ARROW BOARDS DAY	643.0900 TRAFFIC CONTROL SIGNS DAY	643.0920 TRAFFIC CONTROL COVERING SIGNS TYPE II EACH	CYCLES	643.1000 TRAFFIC CONTROL FIXED MESSAGE SF	644.1420.S TEMPORARY PEDESTRIAN SURFACE PLYWOOD SF	644.1601.S TEMPORARY CURB RAMP EACH	644.1616.S TEMPORARY PEDESTRIAN SAFETY FENCE LF
STAGE 1													
S. 76TH ST	0.6	2520	245	280	945	70	665	2	2	0	0	0	0
W.RAWSON AVE		3605	385	490	980	70	875	4	4	0	0	0	0
W. LOOMIS RD		0	0	0	0	0	0	0	0	60.7	0	0	0
SUBTOTAL STAGE 1	0.6	6125	630	770	1925	140	1540	6		60.7	0	0	0
STAGE 2													
S. 76TH ST	0.4	1794	345	414	299	23	805	0	0	0	512	4	91
W.RAWSON AVE		1863	253	368	598	46	644	0	0	0	64	4	171
SUBTOTAL STAGE 2	0.4	3657	598	782	897	69	1449	0		0	576	8	262
UNDISTRIBUTED		928	348	232	348	0	174	2	2	0	64	0	8
TOTAL	1	10710	1576	1784	3170	209	3163	8		60.7	640	8	270

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PAVEMENT MARKING

LOCATION	646.0106 PAVEMENT MARKING EPOXY 4-INCH WHITE LF	646.0106 PAVEMENT MARKING EPOXY 4-INCH YELLOW LF	646.0126 PAVEMENT MARKING EPOXY 8-INCH WHITE LF	646.0600 REMOVING PAVEMENT MARKINGS LF	647.0166 PAVEMENT MARKING ARROWS EPOXY TYPE 2 EACH	647.0356 PAVEMENT MARKING WORDS EPOXY EACH	647.0566 PAVEMENT MARKING STOP LINE 18-INCH EPOXY LF	647.0766 PAVEMENT MARKING CROSS WALK 6-INCH EPOXY LF
STAGE 1								
RAWSON (WEST LEG)	--	--	--	80	--	--	--	--
RAWSON (EAST LEG)	--	--	--	80	--	--	--	--
76TH (SOUTH LEG)	--	--	--	75	--	--	--	--
76TH (NORTH LEG)	--	--	--	150	--	--	--	--
SUBTOTAL STAGE 1	--		--	385	--	--	--	--
STAGE 2								
RAWSON (WEST LEG)	263	--	380	220	1	1	49	210
RAWSON (EAST LEG)	275	--	280	220	1	1	49	210
76TH (SOUTH LEG)	200	--	300	200	1	1	44	190
76TH (NORTH LEG)	300	--	250	200	1	1	44	190
SUBTOTAL STAGE 2	1038		1210	840	4	4	186	800
UNDISTRIBUTED	12	--	90	75			14	
PROJECT TOTAL	1050		1300	1300	4	4	200	800

TEMPORARY PAVEMENT MARKING

LOCATION	649.0400 TEMPORARY PAVEMENT MARKING REMOVABLE TAPE 4-INCH WHITE LF	649.0400 TEMPORARY PAVEMENT MARKING REMOVABLE TAPE 4-INCH YELLOW LF
STAGE 1		
S. 76TH ST	2152	2959
W.RAWSON AVE	860	3915
SUBTOTAL STAGE 1	9886	
STAGE 2		
S. 76TH ST	4,725	--
W. RAWSON AVE	4,428	--
SUBTOTAL STAGE 2	9153	
UNDISTRIBUTED	462	
TOTAL	19500	

CONSTRUCTION STAKING

	650.5500 CONSTRUCTION STAKING CURB GUTTER AND CURB & GUTTER LF	650.8500 CONSTRUCTION STAKING ELECTRICAL INSTALLATIONS LS	650.9910 CONSTRUCTION STAKING SUPPLEMENTAL CONTROL LS	SPV.0090.03 CONSTRUCTION STAKING CONCRETE SIDEWALK LF
TOTAL	1400	1	1	450

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FIELD OFFICE

PROJECT I.D.	642.5001 FIELD OFFICE TYPE B LS
2160-01-72	1
TOTAL	1

REMOVING PULL BOXES

653.0905 REMOVING PULL BOXES

PULL BOX NO.	EACH	REMARKS
EXPB1	1	NE CORNER
EXPB2	1	EAST MEDIAN
EXPB4	1	SE CORNER
EXPB 5	1	SOUTH MEDIAN
EXPB7	1	SW CORNER
EXPB8	1	WEST MEDIAN
EXPB9	1	WEST MEDIAN
EXPB10	1	WEST MEDIAN
EXPB12	1	NW CORNER
EXPB13	1	NORTH MEDIAN
TOTAL	10	

CONDIT RIGID NONMETALLIC

FROM	TO	652.0225 SCHEDULE 40 2-INCH LF	652.0235 SCHEDULE 40 3-INCH LF	652.0605 SPECIAL 2-INCH LF	652.0615 SPECIAL 3-INCH LF	REMARKS
CB1	PB1	--	80	--	--	2 RUNS
PB1	SB1	10	--	--	--	
PB1	PB2	--	--	--	120	2 RUNS
PB2	PB4	--	--	--	90	2 RUNS
PB4	SB2	5	--	--	--	
PB4	PB5	--	100	--	--	2 RUNS
PB5	SB3	15	--	--	--	
PB5	PB6	--	--	--	116	2 RUNS
PB6	PB8	--	--	--	74	
PB8	SB4	10	--	--	--	
PB8	SB5	10	--	--	--	
PB8	PB9	--	140	--	--	2 RUNS
PB9	SB6	20	--	--	--	
PB9	PB10	--	--	--	120	
PB10	PB12	--	--	--	90	2 RUNS
PB12	SB7	5	--	--	--	
PB12	SB8	15	--	--	--	
PB12	PB13	--	90	--	--	2 RUNS
PB13	SB9	10	--	--	--	
PB13	PB14	--	--	--	140	2 RUNS
PB14	PB16	--	--	--	80	2 RUNS
PB16	SB10	20	--	--	--	
PB16	SB11	30	--	--	--	
PB16	CB1	--	50	--	--	2 RUNS
CV1	CV2	70	--	100	--	
CV2	CV3	60	--	50	--	
CV3	CB1	20	--	--	--	
CV3	CV4	20	--	60	--	
	TOTAL:	320	460	210	830	

UTILITY LINE OPENING

LOCATION	BID ITEM	EACH	REMARKS
UNDISTRIBUTED	SPV.0060.03	4	
	ITEM TOTAL:	4	

PULL BOXES

NO.	LOCATION		653.0140 PULL BOXES STEEL 24X42 - INCH	653.0145 PULL BOXES STEEL 24X48 - INCH	SPV.0060.04 CIRCULAR COMMUNICATION VAULT 36X42 - INCH
	STA.	OFFSET	EACH*	EACH*	EACH*
PB1			--	1	--
PB2			1	--	--
PB3		EXISTING	--	--	--
PB4			1	--	--
PB5			--	1	--
PB6			1	--	--
PB7		EXISTING	--	--	--
PB8			1	--	--
PB9			--	1	--
PB10			1	--	--
PB11				--	--
PB12			1	--	--
PB13				--	--
PB14			--	1	--
PB15			1	--	--
PB16		EXISTING	--	--	--
PB17			--	1	--
CV2			--	--	1
CV3			--	--	1
TOTAL:			7	5	2

* FINAL LOCATION TO BE DETERMINED BY ENGINEER IN FIELD

CONCRETE CONTROL CABINET BASE TYPE 9 SPECIAL

LOCATION	BID ITEM	EACH	REMARKS
CTH U & CTH BB	654.0217	1	AT LOCATION OF EXISTING

ELECTRICAL SERVICE METER BREAKER PEDESTAL

LOCATION	BID ITEM	EACH	REMARKS
CTH U & CTH BB	656.0200.01	1	

SIGNAL MOUNTING HARDWARE

LOCATION	BID ITEM	LS	REMARKS
CTH U & CTH BB	658.5069.01	1	

TEMPORARY TRAFFIC SIGNALS FOR INTERSECTIONS

LOCATION	BID ITEM	LS	REMARKS
CTH U & CTH BB	661.0200.01	1	

FIBER OPTIC INTERCONNECT

FROM	TO	SPV.0090.01 FURNISH AND INSTALL 24SM FIBER OPTIC COMMUNICATION CABLE LF	SPV.0090.02 TRACER WIRE 12 AWG LF	REMARKS
CV1	CV2	230	180	
CV2	CV3	170	120	
CV3	CB1	50	30	
CV3	CV4	140	90	FOR MAINLINE
CV3	CV4	120	--	FOR DROP TO CABINET
	ITEM TOTAL:	710	420	

3

3

TRAFFIC SIGNAL BASES, STANDARDS, POLES, MAST ARMS

NO.	LOCATION*	654.0101 CONCRETE BASES TYPE 1 EACH*	654.0113 CONCRETE BASES TYPE 13 EACH*	657.0100 PEDESTAL BASES EACH	657.0425 TRAFFIC SIGNAL STANDARDS ALUMINUM 15-FT EACH	657.0430 TRAFFIC SIGNAL STANDARDS ALUMINUM 10-FT EACH	SPV.0060.01 POLES TYPE 12 EACH	SPV.0060.02 MONOTUBE ARMS 55-FT EACH
SB1		1	--	1	1	--	--	--
SB2		--	1	--	--	--	1	1
SB3		1	--	1	1		--	--
SB4		--	1	--	--	--	1	1
SB5		1	--	1	--	--	--	--
SB6		1	--	1	1	1	--	--
SB7		--	1	--	--	--	1	1
SB8		1	--	1	--	--	--	--
SB9		1	--	1	1	1	--	--
SB10		--	1	--	--	--	1	1
SB11		1	--	1	--	1	--	--
	INTERSECTION TOTAL:	7	4	7	4	3	4	4

* FINAL LOCATION TO BE DETERMINED BY ENGINEER IN THE FIELD

** FOR INFORMATION ONLY

TRAFFIC SIGNAL FACES AND EQUIPMENT

NO.	658.0110 TRAFFIC SIGNAL FACE 3-12 INCH VERTICAL EACH	658.0115 TRAFFIC SIGNAL FACE 4-12 INCH VERTICAL EACH	658.0120 TRAFFIC SIGNAL FACE 5-12 INCH VERTICAL EACH	658.0215 BACKPLATES SIGNAL FACE 3-12 EACH	658.0220 BACKPLATES SIGNAL FACE 4-12 EACH	658.0225 BACKPLATES SIGNAL FACE 5-12 EACH	658.0416 PEDESTRIAN SIGNAL FACE 16-INCH EACH	658.0600 LED MODULES RED BALL 12-INCH EACH	658.0605 LED MODULES YELLOW BALL 12-INCH EACH	658.0610 LED MODULES GREEN BALL 12-INCH EACH	658.0615 LED MODULES RED ARROW 12-INCH EACH	658.0620 LED MODULES YELLOW ARROW 12-INCH EACH	658.0625 LED MODULES GREEN ARROW 12-INCH EACH	658.0635 LED MODULE PEDESTRIAN COUNTDOWN TIMER 16-INCH EACH
SB1	--	1	1	--	1	1	1	1	1	1	1	3	2	1
SB2	2	1	--	2	1	--	1	2	2	2	1	2	1	1
SB3	1	1	--	1	1	--	1	1	1	1	1	2	1	1
SB4	2	1	--	2	1	--	--	2	2	2	1	2	1	--
SB5	--	--	--	--	--	--	1	--	--	--	--	--	--	1
SB6	1	1	--	1	1	--	1	1	1	1	1	2	1	1
SB7	1	1	1	1	1	1	--	2	2	2	1	3	2	--
SB8	--	--	--	--	--	--	1	--	--	--	--	--	--	1
SB9	1	1	--	1	1	--	1	1	1	1	1	2	1	1
SB10	2	1	--	2	1	--	--	2	2	2	1	2	1	--
SB11	--	--	--	--	--	--	1	--	--	--	--	--	--	1
TOTAL:	10	8	2	10	8	2	8	12	12	12	8	18	10	8

TRAFFIC SIGNAL CABLE AND ELECTRICAL WIRING

FROM	THROUGH	TO	655.0230 CABLE TRAFFIC SIGNAL 5-14 AWG LF	655.0240 CABLE TRAFFIC SIGNAL 7-14 AWG LF	655.0260 CABLE TRAFFIC SIGNAL 12-14 AWG LF	655.0270 CABLE TRAFFIC SIGNAL 15-14 AWG LF	655.0515 ELECTRICAL WIRE TRAFFIC SIGNALS (NEUTRAL) 10 AWG WHITE LF	655.0515 ELECTRICAL WIRE TRAFFIC SIGNALS (EQUIPMENT GROUNDING) 10 AWG GREEN LF	655.0900 TRAFFIC SIGNAL EVP DETECTOR CABLE LF
CB1	PB1	SB1	--	--	--	60	--	--	--
CB1	PB1, PB2, PB4	SB2	--	--	--	170	--	--	180
CB1	PB1, PB2, PB4, PB5	SB3	--	--	--	240	--	--	--
CB1	PB1, PB2, PB4, PB5, PB6, PB8	SB4	--	--	330	--	--	--	350
CB1	PB1, PB2, PB4, PB5, PB6, PB8	SB5	--	340	--	--	--	--	--
CB1	PB17, PB15, PB14, PB13, PB12, PB10, PB9	SB6	--	--	--	350	--	--	--
CB1	PB17, PB15, PB14, PB13, PB12	SB7	--	--	--	230	--	--	250
CB1	PB17, PB15, PB14, PB13, PB12	SB8	--	240	--	--	--	--	--
CB1	PB17, PB15, PB14, PB13	SB9	--	--	--	180	--	--	--
CB1	PB17	SB10	--	--	60	--	--	--	70
CB1	PB17	SB11	--	60	--	--	--	--	--
CB1	PB1	SB1	--	--	--	--	60	60	--
SB1	PB1, PB2, PB4	SB2	--	--	--	--	150	150	--
SB2	PB4, PB5	SB3	--	--	--	--	95	95	--
SB3	PB5, PB6, PB8	SB4	--	--	--	--	155	155	--
SB4	PB8	SB5	--	--	--	--	30	30	--
SB5	PB8, PB9	SB6	--	--	--	--	130	130	--
SB6	PB9, PB10, PB12	SB7	--	--	--	--	170	170	--
SB7	PB12	SB8	--	--	--	--	45	45	--
SB8	PB12, PB13	SB9	--	--	--	--	75	75	--
SB9	PB13, PB14, PB15, PB17	SB10	--	--	--	--	195	195	--
SB10	PB17	SB11	--	--	--	--	50	50	--
SB11	PB17	CB1	--	--	--	--	55	55	--
PB2		SB1	--	--	--	--	--	20	--
PB4		SB2	--	--	--	--	--	20	--
PB4		SB3	--	--	--	--	--	30	--
PB5		SB4	--	--	--	--	--	20	--
PB6		SB5	--	--	--	--	--	30	--
PB7		SB6	--	--	--	--	--	30	--
PB8		SB7	--	--	--	--	--	20	--
PB9		SB8	--	--	--	--	--	20	--
PB10		SB9	--	--	--	--	--	20	--
PB11		SB10	--	--	--	--	--	20	--
PB13		SB11	--	--	--	--	--	40	--
BASE TO SIGNAL HEAD CABLING			390	340	--	--	--	--	--
UNDISTRIBUTED			10	20	10	70	5	5	50
SUBTOTAL:			400	1000	400	1300	1215	1485	900
INTERSECTION TOTAL:			400	1000	400	1300	2700		900
			LF	LF	LF	LF	LF		LF

3

FIBER OPTIC SPLICE ENCLOSURE, SPLICE AND TERMINATION

LOCATION	678.0200 FIBER OPTIC SPLICE ENCLOSURE EACH	678.0300 FIBER OPTIC SPLICE EACH	678.0400 FIBER OPTIC TERMINATION EACH
CB1	--	--	4
CV1	1	24	--
CV4	1	28	--
ITEM TOTAL:	2	52	4

REMOVE TRAFFIC SIGNAL EQUIPMENT

LOCATION	BID ITEM	LS	REMARKS
CTH U & CTH BB	SPV.0105.01	1	

TRAFFIC SIGNAL CABINET FULLY ACTUATED 16-PHASE

LOCATION	BID ITEM	LS	REMARKS
CTH U & CTH BB	SPV.0105.02	1	

EMERGENCY VEHICLE PREEMPTION SYSTEM

LOCATION	BID ITEM	LS	REMARKS
CTH U & CTH BB	SPV.0105.03	1	

VEHICULAR VIDEO DETECTION SYSTEM

LOCATION	BID ITEM	LS	REMARKS
CTH U & CTH BB	SPV.0105.04	1	4-CAMERA

ACCESSIBLE PEDESTRIAN PUSH BUTTON SYSTEM

LOCATION	BID ITEM	LS	REMARKS
CTH U & CTH BB	SPV.0105.05	1	8-BUTTONS

FIBER OPTIC COMMUNICATION SYSTEM INTEGRATION

	BID ITEM	LS
FIBER OPTIC COMMUNICATION SYSTEM INTEGRATION	SPV.0105.06	1

SAW CUTTING

LOCATION	STATION	-	STATION	OFFSET	690.0250 SAWING CONCRETE LF
STAGE 1					
RAWSON (WEST LEG)	5+99	-	9+25	-	532
RAWSON (EAST LEG)	10+62	-	12+00	-	206
76TH (SOUTH LEG)	103+87	-	105+35	-	205
76TH (NORTH LEG)	106+67	-	109+61	-	361
SUBTOTAL					1304
STAGE 2					
NE CORNER	106+50	-	106+78	RT	70
NW CORNER	106+46	-	106+50	LT	66
SE CORNER	105+20	-	105+49	RT	70
SW CORNER	105+20	-	105+48	LT	72
SUBTOTAL					278
UNDISTRIBUTED					158
TOTAL					1740

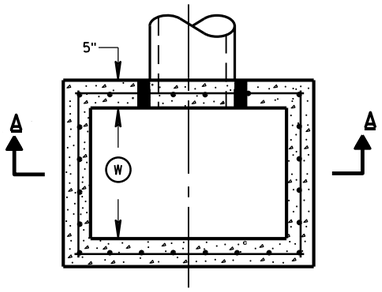
EXCAVATION, HAULING AND DISPOSAL OF CONTAMINATED SOIL

LOCATION	205.0501.S EXCAVATION, HAULING AND DISPOSAL OF PETROLEUM CONTAMINATED SOIL TON	SPV.0195.01 EXCAVATION, HAULING AND DISPOSAL OF LEAD CONTAMINATED SOIL TON
NW CORNER	25	--
SW CORNER	--	12
TOTAL	25	12

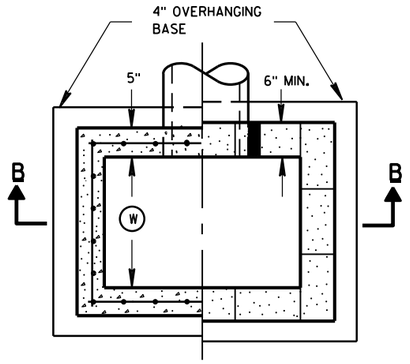
Standard Detail Drawing List

08C07-01	INLETS 2X2-FT, 2X2.5-FT, 2X3-FT AND 2.5X3-FT
08D05-16A	CURB RAMPS TYPES 1 AND 1-A
08D05-16B	CURB RAMPS TYPES 2 AND 3
08D05-16C	CURB RAMPS TYPES 4A AND 4A1
08D05-16D	CURB RAMPS TYPE 4B AND 4B1
08D05-16E	CURB RAMPS TYPES 5, 6, 7A, 7B & 8
08D16-10	CONCRETE GUTTER, CURB AND GUTTER AND PAVEMENT TIES
08E10-02	INLET PROTECTION TYPE A, B, C AND D
08F04-07	JOINT TIES FOR CONCRETE PIPE AND CONCRETE COLLAR DETAIL
09B02-09	CONDUIT
09B04-11	PULL BOX
09C02-07	CONCRETE BASES, TYPES 1, 2, 5, & 6
09C03-04	TRANSFORMER/PEDESTAL BASES
09C06-07	CONCRETE CONTROL CABINET BASE, TYPE 9, SPECIAL
09C12-07A	CONCRETE BASE TYPE 13
09C12-07B	CONCRETE BASE TYPE 13
09D01-05	CABINET SERVICE INSTALLATION (METER BREAKER PEDESTAL)
09D02-03	SIGNAL CONTROL CABINET
09E01-14G	HARDWARE DETAILS FOR POLE MOUNTINGS
09E06-05	TRAFFIC SIGNAL STANDARD POLY BRACKET MOUNTINGS (TYPICAL) 13 FT. OR 15 FT.
09E08-07C	TYPE 12 POLE 35'-55' MONOTUBE ARM
09E08-07E	GENERAL NOTES AND HARDWARE DETAILS FOR TYPE 9, 10, 12 & 13 POLES WITH MONOTUBE ARMS
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
13C01-18	CONCRETE PAVEMENT LONGITUDINAL JOINTS AND TIES
13C13-08	URBAN DOWELED CONCRETE PAVEMENT
13C18-03A	CONCRETE PAVEMENT JOINTING
13C18-03B	CONCRETE PAVEMENT STEEL REINFORCEMENT
13C18-03C	CONCRETE PAVEMENT JOINT TIES
13C18-03D	CONCRETE PAVEMENT JOINTING AT UTILITY FIXTURES
15C07-12B	PAVEMENT MARKING WORDS
15C07-12C	PAVEMENT MARKING ARROWS
15C08-16A	PAVEMENT MARKING (MAINLINE)
15C08-16E	PAVEMENT MARKING (LEFT TURN LANE)
15C33-01	STOP LINE AND CROSSWALK PAVEMENT MARKING
15D20-03	TRAFFIC CONTROL, SINGLE LANE CLOSURE, NON-FREEWAY/EXPRESSWAY
15D21-03	TRAFFIC CONTROL, INTERSECTION WITHIN SINGLE LANE CLOSURE
15D30-02A	TRAFFIC CONTROL, PEDESTRIAN ACCOMMODATION
15D30-02B	TRAFFIC CONTROL, TEMPORARY ADA COMPLIANT PEDESTRIAN ACCOMMODATION
15D30-02C	TRAFFIC CONTROL, PEDESTRIAN ACCOMMODATION

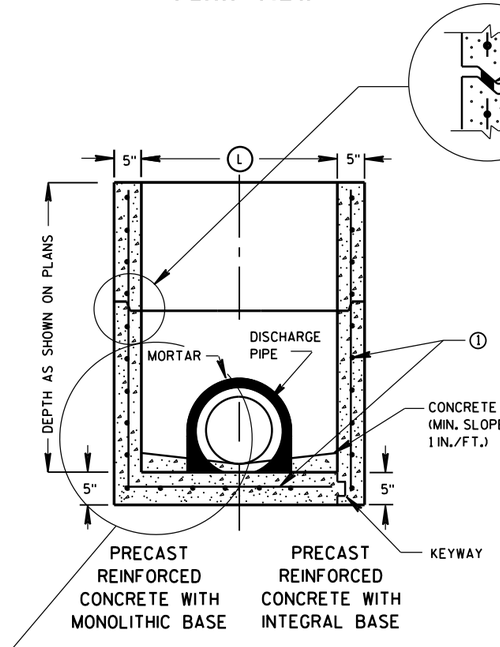
6



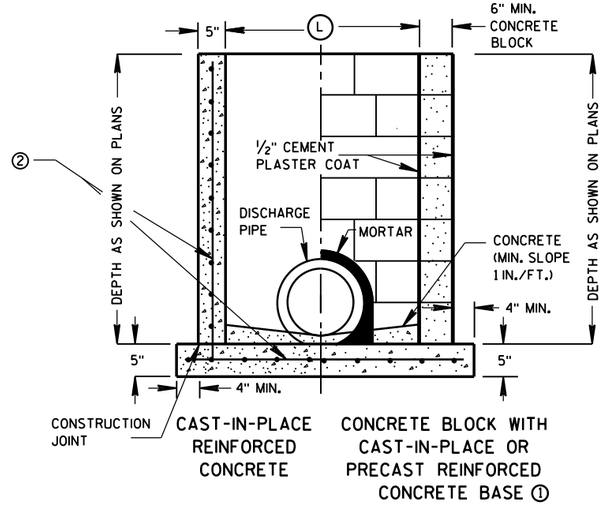
PLAN VIEW



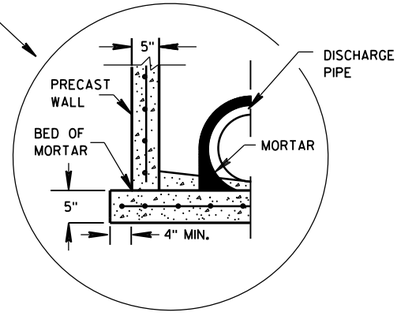
PLAN VIEW



SECTION A-A



SECTION B-B



SEPARATE PRECAST REINFORCED CONCRETE BASE OPTION

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.

UNLESS OTHERWISE AUTHORIZED IN WRITING BY THE ENGINEER, THE CONTRACTOR SHALL NOT ORDER AND DELIVER PRECAST INLET UNITS REQUIRED FOR THE PROJECT UNTIL A LIST OF SIZES IS FURNISHED BY THE ENGINEER.

DETAILED DRAWINGS FOR PROPOSED ALTERNATE DESIGNS FOR UNDERGROUND DRAINAGE STRUCTURES SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PROVIDING THAT SUCH ALTERNATE DESIGNS MAKE PROVISION FOR EQUIVALENT CAPACITY AND STRENGTH.

ALL PRECAST INLET UNITS SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF ASTM C 913.

ALL DRAINAGE STRUCTURES ARE DESIGNATED ON THE PLANS AS "MANHOLES 3X3-L", "CATCH BASINS 4-B", "INLETS 2X3-H", ETC. THE FIRST NUMBERS DESIGNATES THE SIZE OF THE STRUCTURE, AND THE FOLLOWING LETTER DESIGNATES THE TYPE OF COVER TO BE USED TO COMPRISE THE COMPLETE UNIT.

BASES SHALL BE PLACED ON A BED OF MATERIAL AT LEAST 6 INCHES IN DEPTH, WHICH MEETS THE REQUIREMENTS OF GRANULAR BACKFILL. THIS BEDDING SHALL BE COMPACTED AND PROVIDE UNIFORM SUPPORT FOR THE ENTIRE AREA OF THE BASE.

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

PRECAST REINFORCED RISERS SHALL HAVE A TONGUE AND GROOVE JOINT WITH TONGUE UP OR DOWN.

4" OVERHANGING BASES ARE REQUIRED FOR CAST-IN-PLACE REINFORCED CONCRETE AND CONCRETE BLOCK INSTALLATIONS.
4" OVERHANG IS REQUIRED WHEN SEPARATE PRECAST BASE IS PROVIDED.
OVERHANG IS NOT REQUIRED ON PRECAST STRUCTURES WITH AN INTEGRAL OR MONOLITHIC BASE.

MAXIMUM INSIDE PIPE DIAMETER DETERMINED BY 3 INCH CLEARANCE ON EACH SIDE OF THE OUTSIDE WALL OF THE PIPE. SEE DETAIL "A". ASSUMES PIPE ENTERS PERPENDICULAR TO THE STRUCTURE.

① FOR PRECAST INLETS PROVIDE REINFORCING STEEL IN ACCORDANCE TO ASTM C 913.

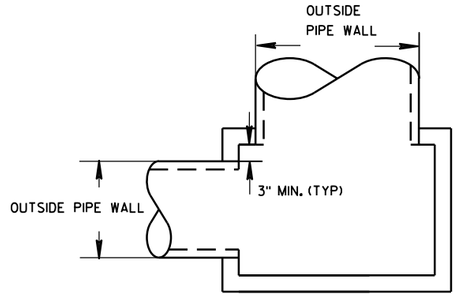
② CONTRACTOR TO PROVIDE DRAWING(S) STAMPED BY A PROFESSIONAL ENGINEER FOR STEEL REINFORCING DESIGN FOR CAST-IN-PLACE STRUCTURES.

INLET COVER MATRIX

INLET SIZE		INLET COVER TYPE	ALL A'S	ALL B'S	BW	F	ALL H'S	S	T	V	WM
	WIDTH (W) (FT)	LENGTH (L) (FT)									
2X2-FT	2	2	X	X				X		X	
2X2.5-FT	2	2.5			X			X	X	X	X
2X3-FT	2	3					X				
2.5X3-FT	2.5	3				X					

PIPE MATRIX

INLET SIZE	MAXIMUM INSIDE PIPE DIAMETER	
	WIDTH (IN)	LENGTH (IN)
2X2-FT	12	12
2X2.5-FT	12	18
2X3-FT	12	24
2.5X3-FT	18	24



DETAIL "A"

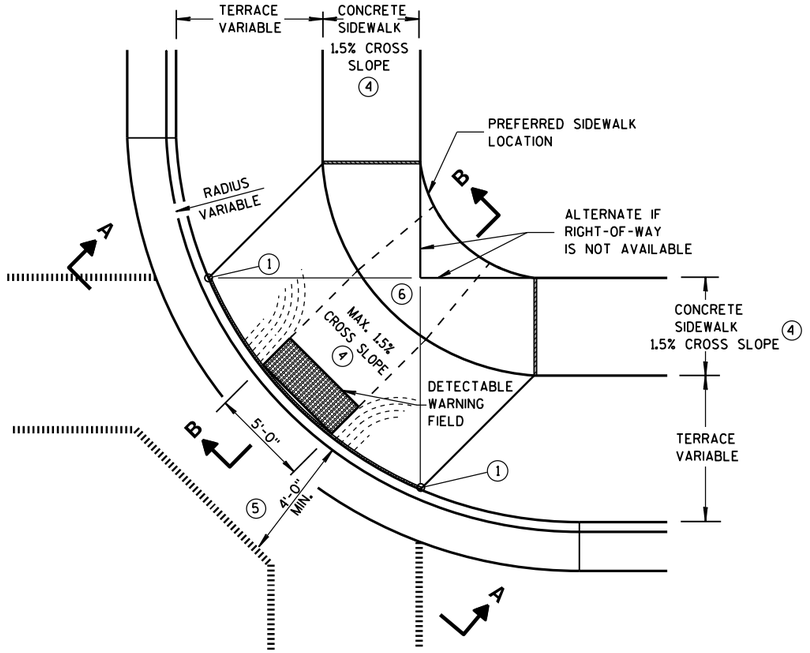
INLETS 2X2-FT, 2X2.5-FT, 2X3-FT AND 2.5X3-FT

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
6/5/2012
DATE
FHWA

/S/ Jerry H. Zogg
ROADWAY STANDARDS DE
ENGINEER

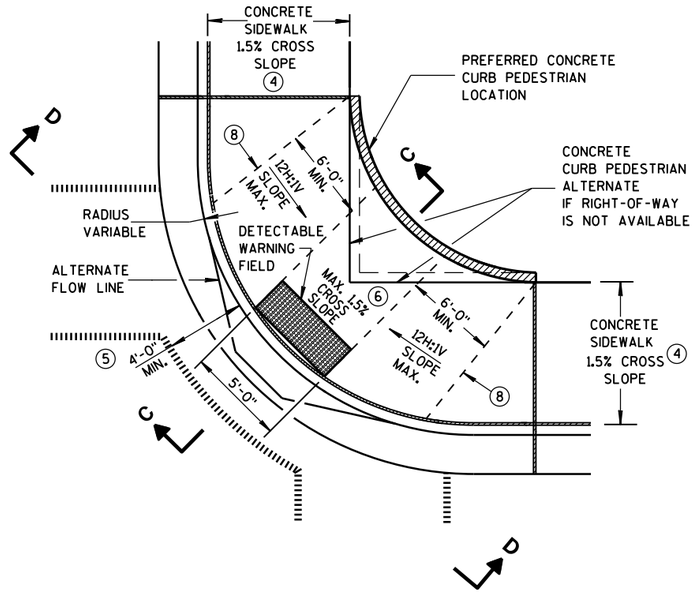
6
S.D.D. 8 C 7-1



PLAN VIEW

TYPE 1 RAMP

(CENTER OF CORNER RADIUS)



PLAN VIEW

TYPE 1-A RAMP

(NO TERRACE)

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.

WHEN NECESSARY, THE SIDEWALK ELEVATION MAY BE LOWERED TO MEET THE HIGH POINT ON THE RAMP.

TYPE 1 RAMPS SHALL HAVE A NORMAL SIDEWALK APRON AND CURB ON BOTH SIDES OF RAMP.

DETECTABLE WARNING FIELD SHALL BE MEASURED AND PAID BY THE SQUARE FOOT AS "CURB RAMP DETECTABLE WARNING FIELD". THE CONCRETE PEDESTRIAN CURB, IF NEEDED, SHALL BE MEASURED AND PAID BY THE LINEAL FOOT AS "CONCRETE CURB PEDESTRIAN". CONCRETE SIDEWALK IN THE CURB RAMP AREA SHALL BE MEASURED AND PAID BY THE SQUARE FOOT AS CONCRETE SIDEWALK, INCLUDING THE AREA UNDER THE DETECTABLE WARNING FIELD.

SELECT CURB RAMP DETECTABLE WARNING FIELD MATERIALS AND DEVICES FROM THE DEPARTMENT'S APPROVED MATERIALS LIST. THE COLOR OF THE DETECTABLE WARNING FIELD IS SPECIFIED ELSEWHERE AND IS INCIDENTAL TO THE BID ITEM OF "CURB RAMP DETECTABLE WARNING FIELD".

DETECTABLE WARNING FIELDS THAT ARE INSTALLED AS A GROUP OR SIDE BY SIDE, SHALL BE FROM THE SAME MANUFACTURER.

SURFACE TEXTURE OF THE RAMP SHALL BE OBTAINED BY COARSE BROOMING TRANSVERSE TO THE SLOPE OF THE RAMP.

(1) THIS POINT IS AN EXTENSION OF OUTSIDE EDGE OF APPROACHING SIDEWALK WHERE IT MEETS THE BACK OF CONCRETE CURB.

(2) GRADE CHANGE BETWEEN GUTTER FLAG SLOPE AND THE CURB RAMP SLOPE SHALL NOT EXCEED 11%. MAXIMUM GUTTER FLAG SLOPE IS 4%. PROVIDE DRAINAGE AWAY FROM CURB RAMP AT GUTTER FLAG INTERFACE. NO VERTICAL LIPS OR DISCONTINUITIES GREATER THAN 1/4-INCH ARE ALLOWED.

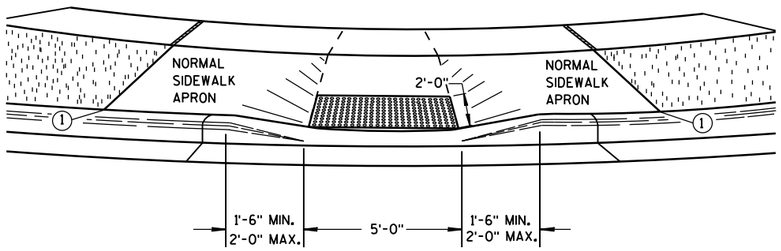
(3) ABSOLUTE MAXIMUM 12H:1V (8.33%) CURB RAMP SLOPE IS ALLOWABLE WITH FLATTENED GUTTER FLAG SLOPE AND NOT TO EXCEED 11% GRADE CHANGE.

(4) ±0.5% CONSTRUCTION TOLERANCE IN SIDEWALK CROSS SLOPE. THE SIDEWALK CROSS SLOPE SHALL NOT EXCEED 2% WITHOUT PRIOR APPROVAL FROM THE ENGINEER.

(5) PROVIDE A LEVEL LANDING IN THE STREET AND GUTTER AREA. (2% MAXIMUM SLOPE IN ANY DIRECTION). WHEN THE GUTTER SLOPE EXCEEDS 2%, CONSTRUCT THE LEVEL LANDING IN THE STREET AREA.

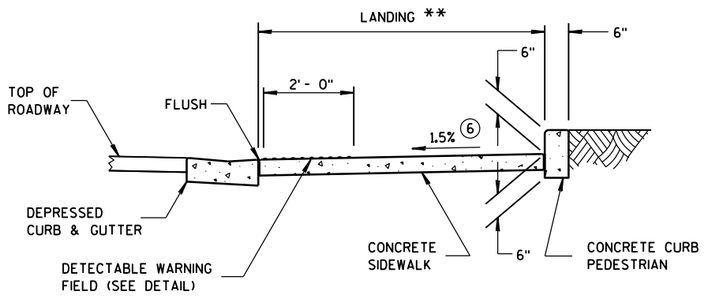
(6) PROVIDE A LEVEL LANDING (MAXIMUM 2% SLOPE) IN ANY DIRECTION OF PEDESTRIAN TRAVEL. STANDARD LANDING SIZE IS 5 FEET X 5 FEET (MINIMUM 4 FEET X 4 FEET).

(8) PROVIDE GRADE BREAK PERPENDICULAR TO DIRECTION OF WHEELCHAIR TRAVEL.



VIEW A-A

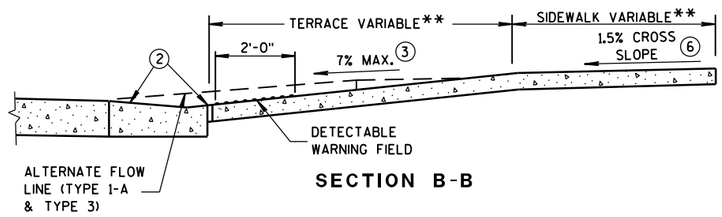
** WIDTH SHOWN ELSEWHERE IN THE PLANS



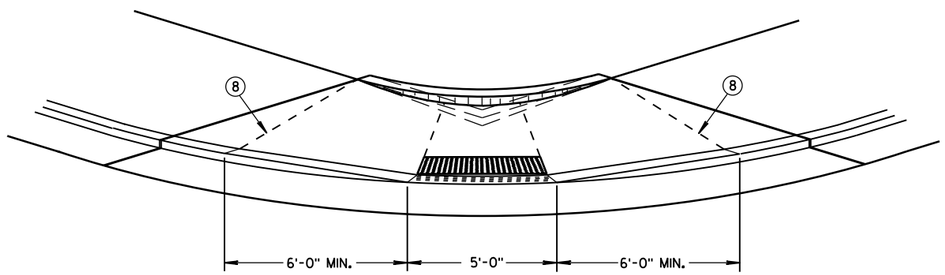
SECTION C-C

LEGEND

- ½" EXPANSION JOINT-SIDEWALK
- CONTRACTION JOINT FIELD LOCATED
- PAVEMENT MARKING CROSSWALK (WHITE)
- ALTERNATIVE LAYOUT



SECTION B-B



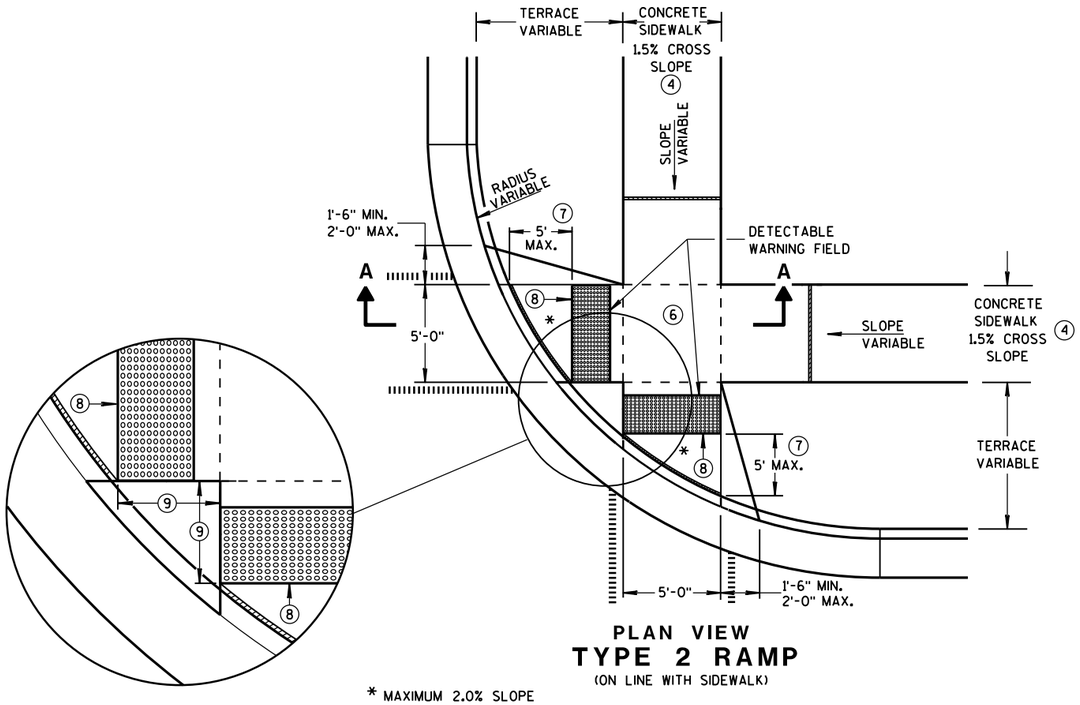
VIEW D-D

CURB RAMPS TYPES 1 AND 1-A

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI

6

S.D.D. 8 D 5-16a

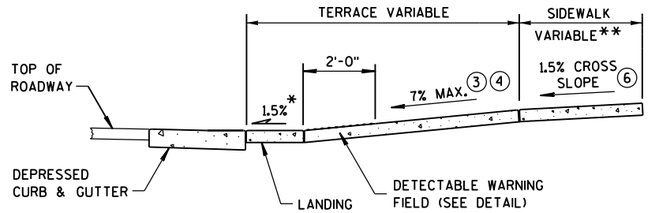


PLAN VIEW

TYPE 2 RAMP

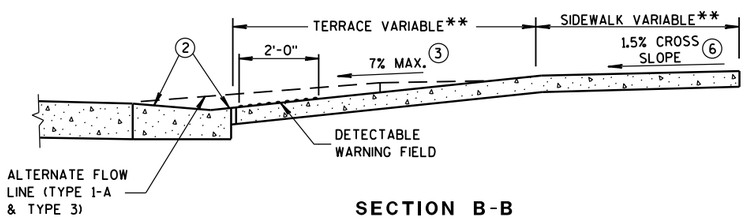
(ON LINE WITH SIDEWALK)

* MAXIMUM 2.0% SLOPE IN ALL DIRECTIONS IN FRONT OF GRADE BREAK



SECTION A-A

** WIDTH SHOWN ELSEWHERE IN THE PLANS



SECTION B-B

GENERAL NOTES

USE THE TYPE 3 RAMP ONLY WHEN A TYPE 1 OR TYPE 2 CANNOT BE ACHIEVED BECAUSE OF FIELD CONDITIONS.

DETECTABLE WARNING FIELDS THAT ARE INSTALLED AS A GROUP OR SIDE BY SIDE, SHALL BE FROM THE SAME MANUFACTURER.

(2) GRADE CHANGE BETWEEN GUTTER FLAG SLOPE AND THE CURB RAMP SLOPE SHALL NOT EXCEED 11%. MAXIMUM GUTTER FLAG SLOPE IS 4%. PROVIDE DRAINAGE AWAY FROM CURB RAMP AT GUTTER FLAG INTERFACE. NO VERTICAL LIPS OR DISCONTINUITIES GREATER THAN 1/4-INCH ARE ALLOWED.

(3) ABSOLUTE MAXIMUM 12H:1V (8.33%) CURB RAMP SLOPE IS ALLOWABLE WITH FLATTENED GUTTER FLAG SLOPE AND NOT TO EXCEED 11% GRADE CHANGE.

(4) ±0.5% CONSTRUCTION TOLERANCE IN SIDEWALK CROSS SLOPE. THE SIDEWALK CROSS SLOPE SHALL NOT EXCEED 2% WITHOUT PRIOR APPROVAL FROM THE ENGINEER.

(6) PROVIDE A LEVEL LANDING (MAXIMUM 2% SLOPE) IN ANY DIRECTION OF PEDESTRIAN TRAVEL. STANDARD LANDING SIZE IS 5 FEET X 5 FEET (MINIMUM 4 FEET X 4 FEET).

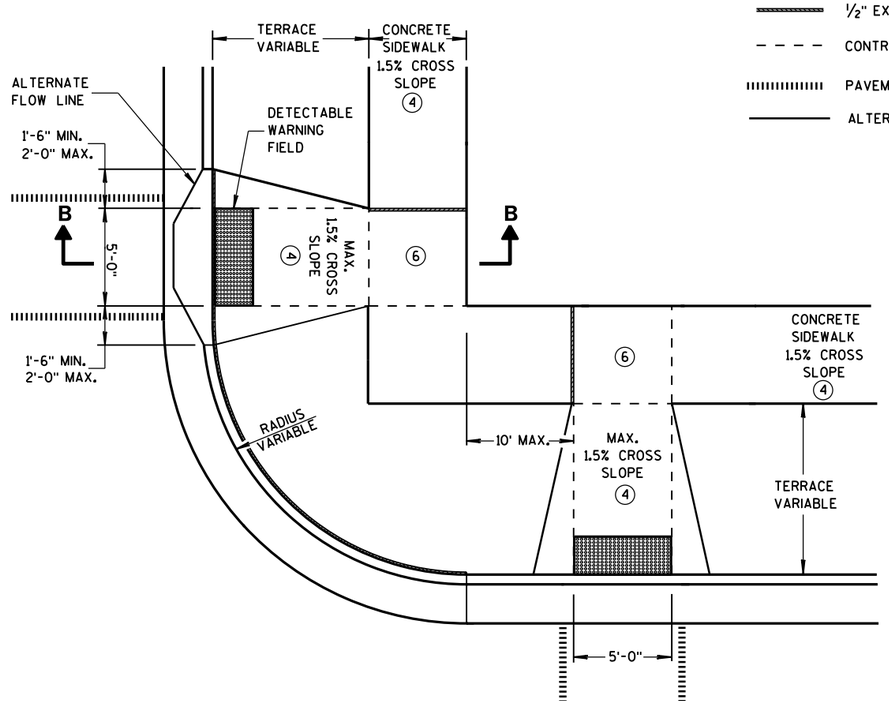
(7) WHEN THIS DISTANCE EXCEEDS 5 FEET, USE MULTIPLE DETECTABLE WARNING PANELS ACROSS THE RAMP AND STAGGER ADDITIONAL DETECTABLE WARNING PANEL(S) FORWARD TO REDUCE THIS DISTANCE.

(8) PROVIDE GRADE BREAK PERPENDICULAR TO DIRECTION OF WHEELCHAIR TRAVEL.

(9) WHEN THIS DISTANCE IS LESS THAN 6'-0", IT MAY BE DIFFICULT TO ACHIEVE A 7% SLOPE OR FLATTER ALONG THE RAMP. REDUCE CURB HEIGHT IN TRIANGLE AREA TO ACHIEVE 7% SLOPE OR FLATTER ON RAMP. 2" MINIMUM CURB HEIGHT.

LEGEND

- ½" EXPANSION JOINT-SIDEWALK
- CONTRACTION JOINT FIELD LOCATED
- PAVEMENT MARKING CROSSWALK (WHITE)
- ALTERNATIVE LAYOUT



PLAN VIEW

TYPE 3 RAMP

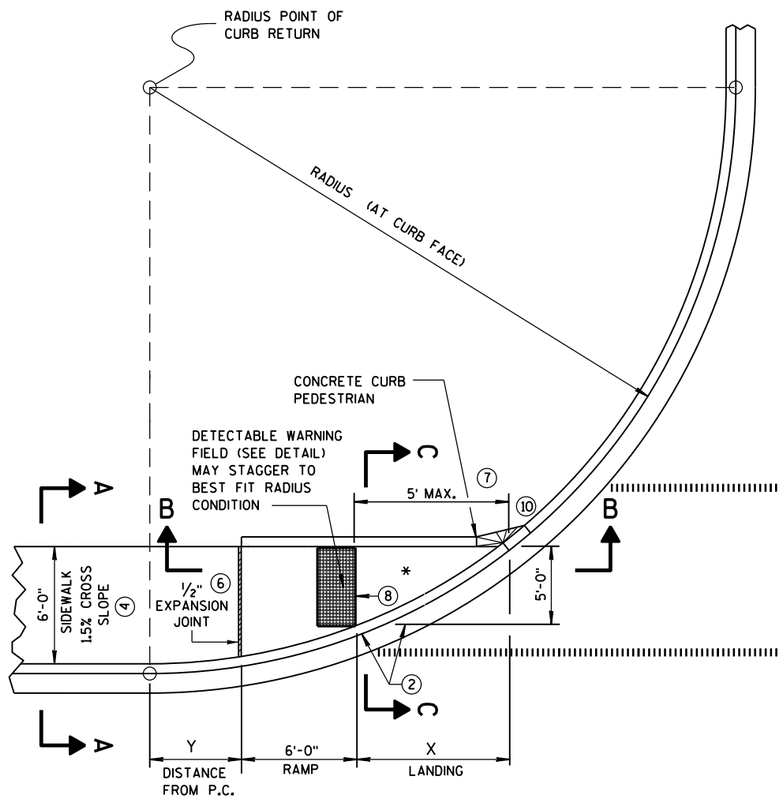
(OUTSIDE OF CROSSWALK AREA)

CURB RAMPS TYPES 2 AND 3

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR

6

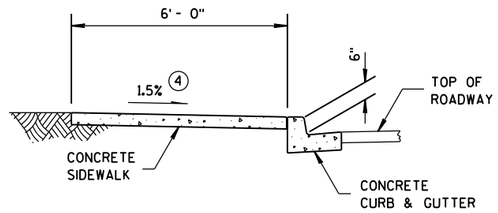
S.D.D. 8 D 5-16b



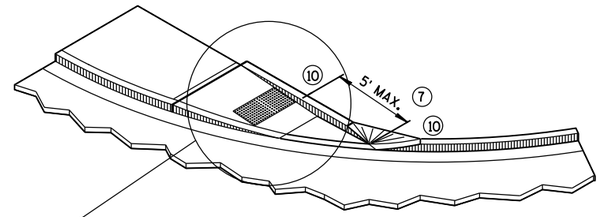
CURB RAMP TYPE 4A
PLAN VIEW

RADIUS (AT CURB FACE)	X	Y
20 FEET	6'-1¾"	2'-7¼"
30 FEET	7'-11¾"	4'-8¼"
40 FEET	9'-5¼"	6'-5"
50 FEET	10'-8¾"	7'-11¼"
60 FEET	11'-10¼"	9'-3½"

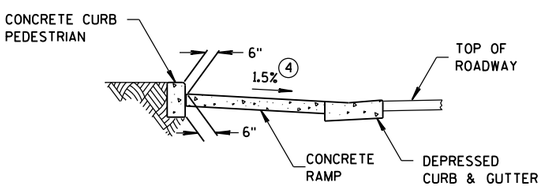
INTERMEDIATE RADII CAN BE INTERPOLATED



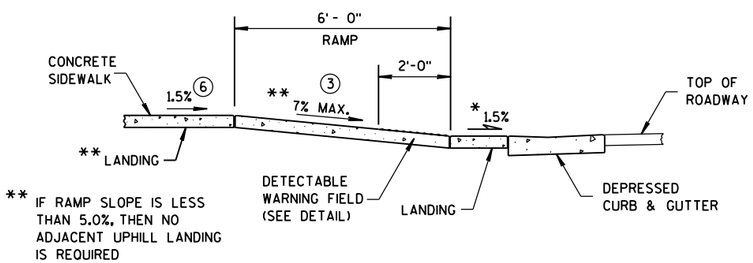
SECTION A-A FOR TYPE 4A



ISOMETRIC VIEW FOR TYPE 4A

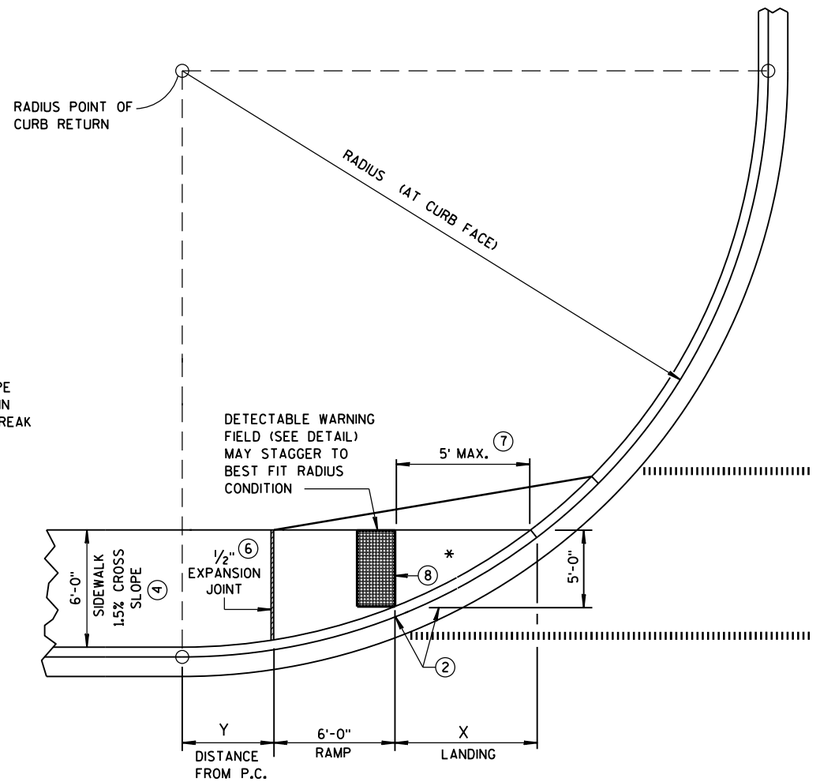


SECTION C-C FOR TYPE 4A



SECTION B-B FOR TYPE 4A

* MAXIMUM 2.0% SLOPE
IN ALL DIRECTIONS IN
FRONT OF GRADE BREAK



CURB RAMP TYPE 4A1
PLAN VIEW

GENERAL NOTES

AVOID PLACING DRAINAGE STRUCTURES, JUNCTION BOXES OR OTHER OBSTRUCTIONS IN FRONT OF RAMP ACCESS AREAS.

DETECTABLE WARNING FIELDS THAT ARE INSTALLED AS A GROUP OR SIDE BY SIDE, SHALL BE FROM THE SAME MANUFACTURER.

(2) GRADE CHANGE BETWEEN GUTTER FLAG SLOPE AND THE CURB RAMP SLOPE SHALL NOT EXCEED 11%. MAXIMUM GUTTER FLAG SLOPE IS 4%. PROVIDE DRAINAGE AWAY FROM CURB RAMP AT GUTTER FLAG INTERFACE. NO VERTICAL LIPS OR DISCONTINUITIES GREATER THAN 1/4-INCH ARE ALLOWED.

(3) ABSOLUTE MAXIMUM 12H:1V (8.33%) CURB RAMP SLOPE IS ALLOWABLE WITH FLATTENED GUTTER FLAG SLOPE AND NOT TO EXCEED 11% GRADE CHANGE.

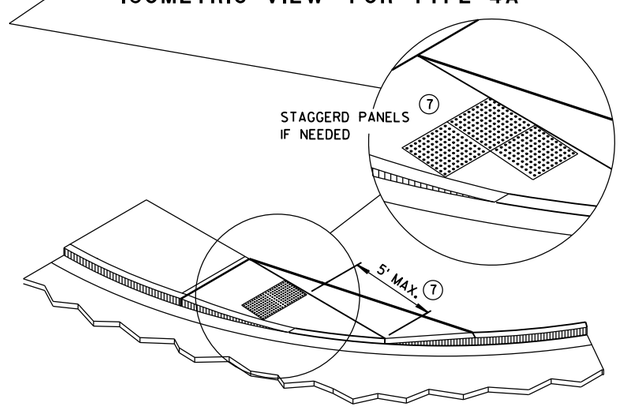
(4) ±0.5% CONSTRUCTION TOLERANCE IN SIDEWALK CROSS SLOPE. THE SIDEWALK CROSS SLOPE SHALL NOT EXCEED 2% WITHOUT PRIOR APPROVAL FROM THE ENGINEER.

(6) PROVIDE A LEVEL LANDING (MAXIMUM 2% SLOPE) IN ANY DIRECTION OF PEDESTRIAN TRAVEL. STANDARD LANDING SIZE IS 5 FEET X 5 FEET (MINIMUM 4 FEET X 4 FEET).

(7) WHEN THIS DISTANCE EXCEEDS 5 FEET, USE MULTIPLE DETECTABLE WARNING PANELS ACROSS THE RAMP AND STAGGER ADDITIONAL DETECTABLE WARNING PANEL(S) FORWARD TO REDUCE THIS DISTANCE.

(8) PROVIDE GRADE BREAK PERPENDICULAR TO DIRECTION OF WHEELCHAIR TRAVEL.

(10) INSTALL TRANSITION NOSE. (INCIDENTAL TO OTHER PAY ITEMS). DO NOT MARK TRANSITION NOSE.



ISOMETRIC VIEW FOR TYPE 4A1

LEGEND

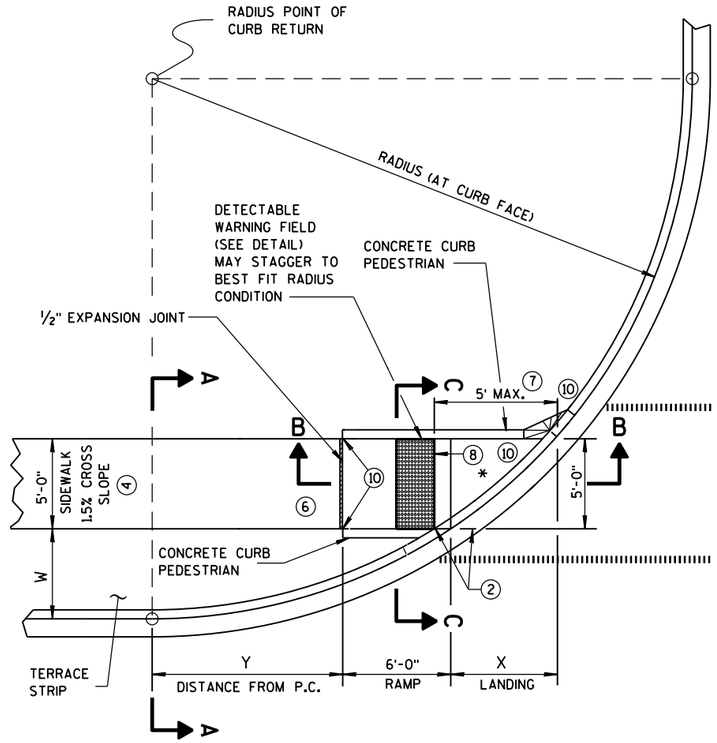
- ½" EXPANSION JOINT-SIDEWALK
- CONTRACTION JOINT FIELD LOCATED
- PAVEMENT MARKING CROSSWALK (WHITE)

CURB RAMPS
TYPES 4A AND 4A1

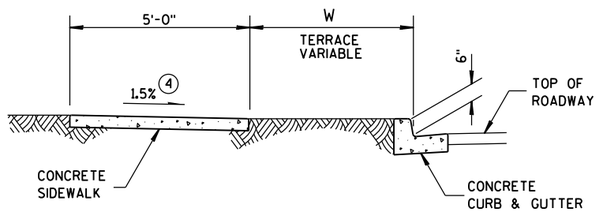
STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR

6

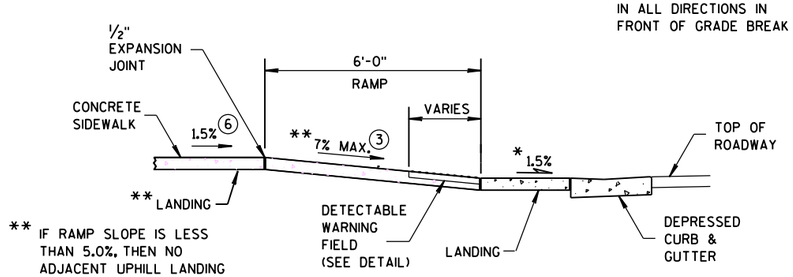
S.D.D. 8 D 5-16c



CURB RAMP TYPE 4B
PLAN VIEW



SECTION A-A FOR TYPE 4B



* MAXIMUM 2.0% SLOPE IN ALL DIRECTIONS IN FRONT OF GRADE BREAK

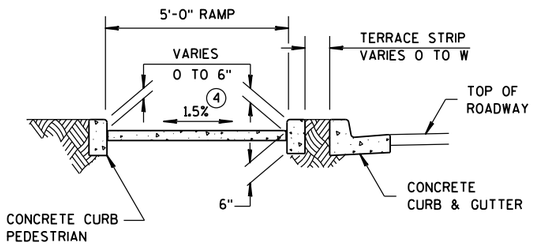
SECTION B-B FOR TYPE 4B

LEGEND

½" EXPANSION JOINT-SIDEWALK

CONTRACTION JOINT FIELD LOCATED

PAVEMENT MARKING CROSSWALK (WHITE)



SECTION C-C FOR TYPE 4B

RADIUS (AT CURB FACE)	W = 3'-0"		W = 4'-0"		W = 5'-0"		W = 6'-0"		W = 7'-0"	
	X	Y	X	Y	X	Y	X	Y	X	Y
20 FEET	5'-5½"	4'-6½"	4'-8½"	6'-0"	4'-1"	7'-2¾"	3'-7"	8'-3½"	3'-1½"	9'-2½"
30 FEET	7'-3¾"	7'-1"	6'-5½"	8'-11½"	5'-9¼"	10'-7"	5'-2½"	12'-0"	4'-8¾"	13'-3¼"
40 FEET	8'-9½"	9'-2½"	7'-10"	11'-5¼"	7'-1"	13'-4½"	6'-5¾"	15'-¾"	5'-11½"	16'-7¼"
50 FEET	10'-¾"	11'-¾"	9'-¼"	13'-7¼"	8'-2½"	15'-9½"	7'-6½"	17'-9"	6'-11¾"	19'-6¼"
60 FEET	11'-2½"	12'-8¾"	10'-¾"	15'-6½"	9'-2¼"	17'-11¾"	8'-5¾"	20'-1¾"	7'-10½"	22'-1½"

INTERMEDIATE RADII CAN BE INTERPOLATED

GENERAL NOTES

AVOID PLACING DRAINAGE STRUCTURES, JUNCTION BOXES OR OTHER OBSTRUCTIONS IN FRONT OF RAMP ACCESS AREAS.

DETECTABLE WARNING FIELDS THAT ARE INSTALLED AS A GROUP OR SIDE BY SIDE, SHALL BE FROM THE SAME MANUFACTURER.

(2) GRADE CHANGE BETWEEN GUTTER FLAG SLOPE AND THE CURB RAMP SLOPE SHALL NOT EXCEED 11%. MAXIMUM GUTTER FLAG SLOPE IS 4%. PROVIDE DRAINAGE AWAY FROM CURB RAMP AT GUTTER FLAG INTERFACE. NO VERTICAL LIPS OR DISCONTINUITIES GREATER THAN ¼-INCH ARE ALLOWED.

(3) ABSOLUTE MAXIMUM 12H:1V (8.33%) CURB RAMP SLOPE IS ALLOWABLE WITH FLATTENED GUTTER FLAG SLOPE AND NOT TO EXCEED 11% GRADE CHANGE.

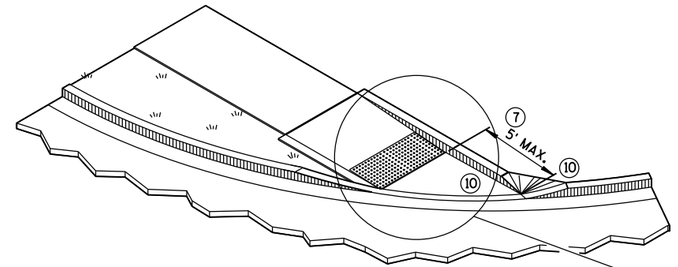
(4) ±0.5% CONSTRUCTION TOLERANCE IN SIDEWALK CROSS SLOPE. THE SIDEWALK CROSS SLOPE SHALL NOT EXCEED 2% WITHOUT PRIOR APPROVAL FROM THE ENGINEER.

(6) PROVIDE A LEVEL LANDING (MAXIMUM 2% SLOPE) IN ANY DIRECTION OF PEDESTRIAN TRAVEL. STANDARD LANDING SIZE IS 5 FEET X 5 FEET (MINIMUM 4 FEET X 4 FEET).

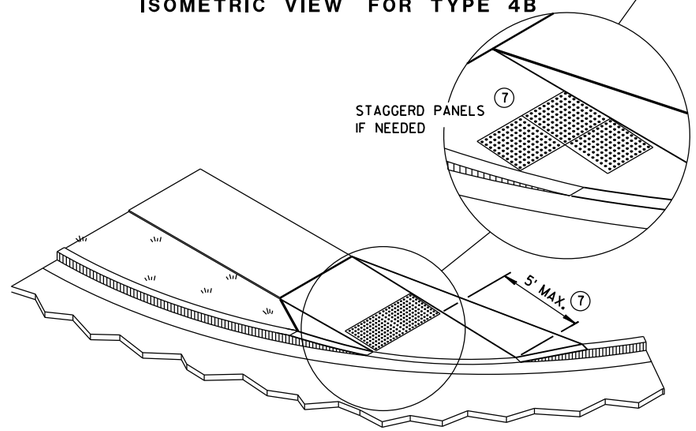
(7) WHEN THIS DISTANCE EXCEEDS 5 FEET, USE MULTIPLE DETECTABLE WARNING PANELS ACROSS THE RAMP AND STAGGER ADDITIONAL DETECTABLE WARNING PANEL(S) FORWARD TO REDUCE THIS DISTANCE.

(8) PROVIDE GRADE BREAK PERPENDICULAR TO DIRECTION OF WHEELCHAIR TRAVEL.

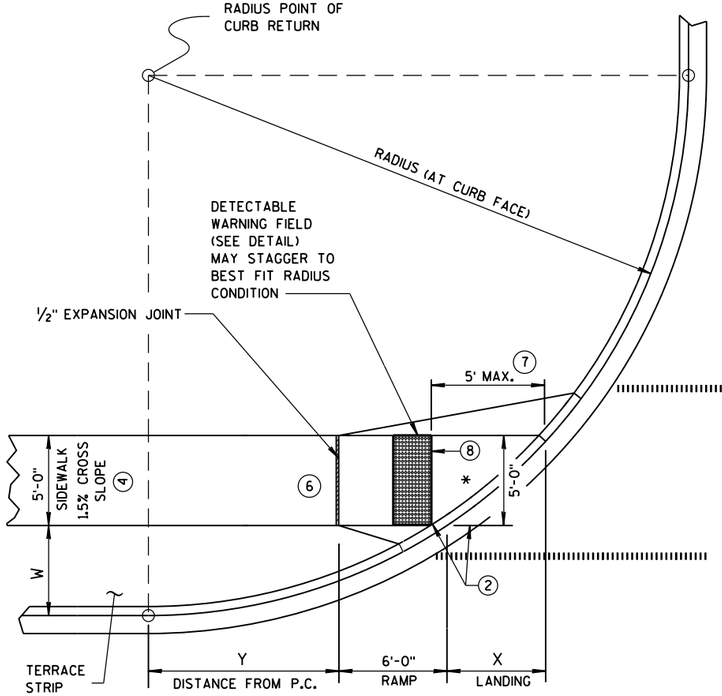
(10) INSTALL TRANSITION NOSE. (INCIDENTAL TO OTHER PAY ITEMS). DO NOT MARK TRANSITION NOSE.



ISOMETRIC VIEW FOR TYPE 4B



ISOMETRIC VIEW FOR TYPE 4B1



CURB RAMP TYPE 4B1
PLAN VIEW

CURB RAMPS TYPE 4B AND 4B1

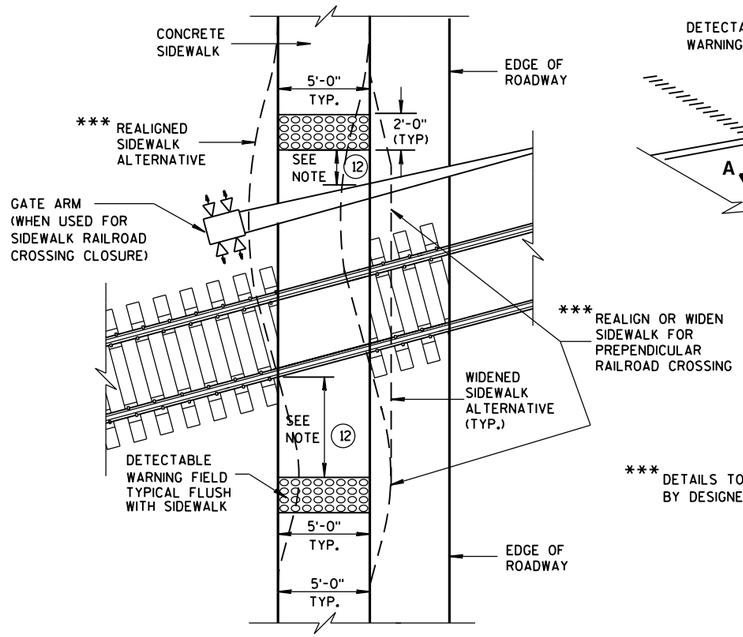
STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI

6

S.D.D. 8 D 5-16d

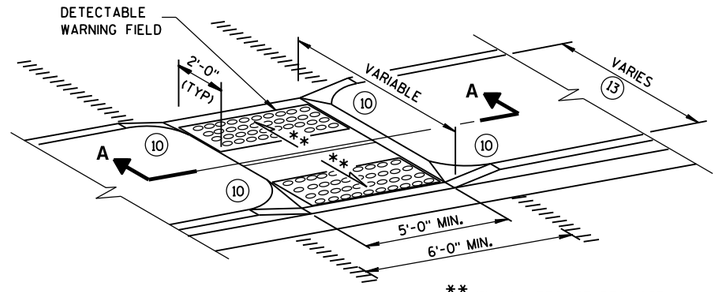
6

S.D.D. 8 D 5-16d



TYPE 8
DETECTABLE WARNINGS AT RAILROAD CROSSING

*** DETAILS TO BE DETERMINED BY DESIGNER



MEDIAN ISLAND
NON-ELEVATED CROSSING
TYPE 5

GENERAL NOTES

SIDEWALK CROSS SLOPE SHALL NOT EXCEED 2%.

DETECTABLE WARNING FIELDS THAT ARE INSTALLED AS A GROUP OR SIDE BY SIDE, SHALL BE FROM THE SAME MANUFACTURER.

(2) GRADE CHANGE BETWEEN GUTTER FLAG SLOPE AND THE CURB RAMP SLOPE SHALL NOT EXCEED 11%. MAXIMUM GUTTER FLAG SLOPE IS 4%. PROVIDE DRAINAGE AWAY FROM CURB RAMP AT GUTTER FLAG INTERFACE. NO VERTICAL LIPS OR DISCONTINUITIES GREATER THAN 1/4-INCH ARE ALLOWED.

(3) ABSOLUTE MAXIMUM 12H:1V (8.33%) CURB RAMP SLOPE IS ALLOWABLE WITH FLATTENED GUTTER FLAG SLOPE AND NOT TO EXCEED 11% GRADE CHANGE.

(4) ±0.5% CONSTRUCTION TOLERANCE IN SIDEWALK CROSS SLOPE. THE SIDEWALK CROSS SLOPE SHALL NOT EXCEED 2% WITHOUT PRIOR APPROVAL FROM THE ENGINEER.

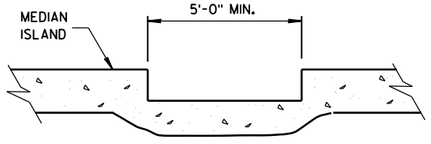
(6) PROVIDE A LEVEL LANDING (MAXIMUM 2% SLOPE) IN ANY DIRECTION OF PEDESTRIAN TRAVEL. STANDARD LANDING SIZE IS 5 FEET X 5 FEET (MINIMUM 4 FEET X 4 FEET).

(10) INSTALL TRANSITION NOSE. (INCIDENTAL TO OTHER PAY ITEMS). DO NOT MARK TRANSITION NOSE.

(11) SLOPE SIDEWALK TOWARD LANDING AS SHOWN WHERE THERE IS NO TERRACE OR WHERE THE TERRACE WIDTH IS LESS THAN 6 FEET WIDE.

(12) THE EDGE OF THE DETECTABLE WARNING FIELD NEAREST TO A RAILROAD CROSSING SHALL BE 1.5 FEET ± 0.1' FROM THE FACE OF THE GATE ARM IF THE GATE ARM EXTENDS ACROSS THE SIDEWALK. WHERE THERE IS NO PEDESTRIAN GATE, THE EDGE OF THE DETECTABLE WARNING FIELD NEAREST TO THE RAILROAD CROSSING SHALL BE 15 FEET FROM THE NEAREST RAIL.

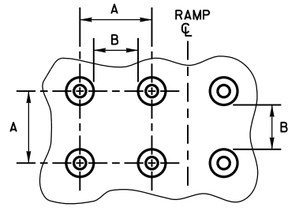
(13) DO NOT INSTALL DETECTABLE WARNING FIELDS IF MEDIAN WIDTH BETWEEN BACK OF CURBS IS LESS THAN 6 FEET.



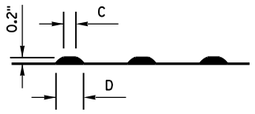
SECTION A-A

	MIN.	MAX.
A	1.6"	2.4"
B	0.65"	1.5"
C	*	*
D	0.9"	1.4"

* THE C DIMENSION IS 50% TO 65% OF THE D DIMENSION.

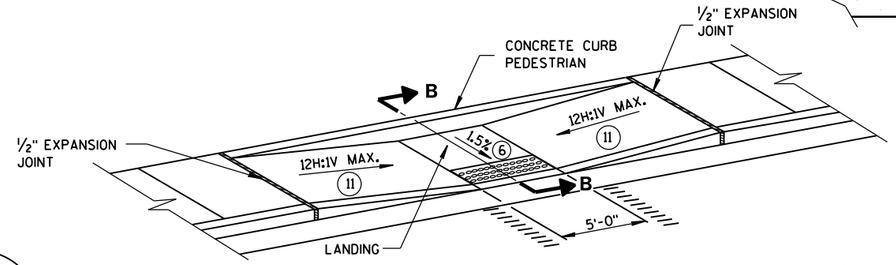


PLAN VIEW

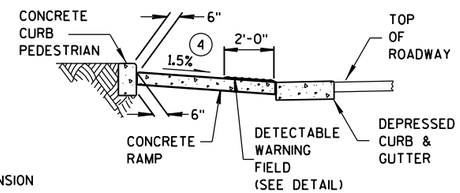


ELEVATION VIEW

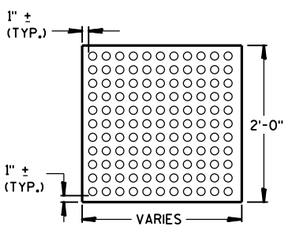
TRUNCATED DOMES
DETECTABLE WARNING PATTERN DETAIL



MID-BLOCK CROSSING
TYPE 7A



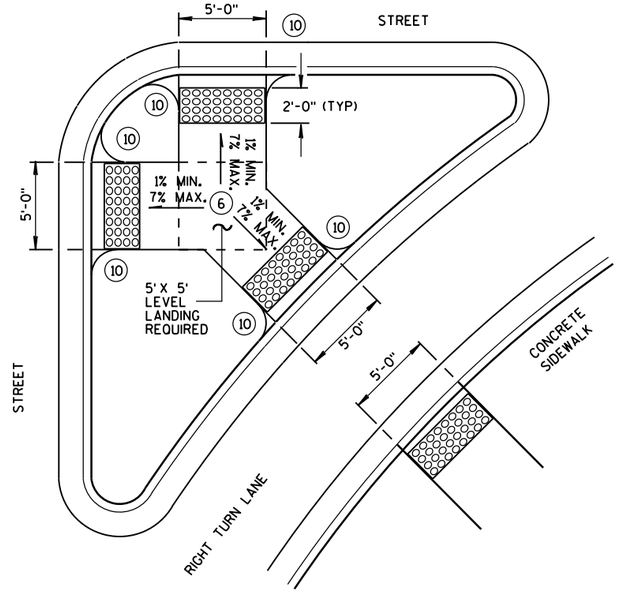
SECTION B-B



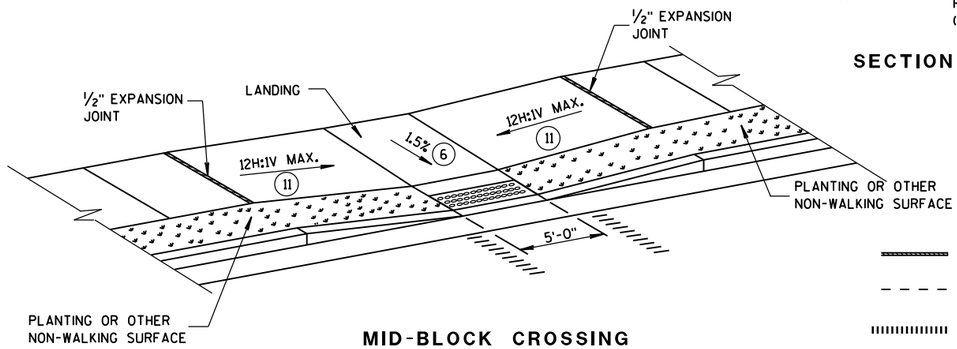
PLAN VIEW

DETECTABLE WARNING FIELD (TYPICAL)

REFER TO GENERAL NOTES (2) AND (3) FOR ALL ISLAND CURB RAMPS



TYPE 6
DETECTABLE WARNING AT ISLANDS



MID-BLOCK CROSSING
TYPE 7B

NOTE: THESE PARALLEL AND PARALLEL/PERPENDICULAR CURB RAMPS MAY BE USED AT INTERSECTIONS AND MID BLOCK LOCATIONS.

LEGEND

- 1/2" EXPANSION JOINT-SIDEWALK
- CONTRACTION JOINT FIELD LOCATED
- PAVEMENT MARKING CROSSWALK (WHITE)

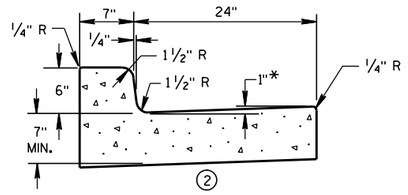
CURB RAMPS
TYPES 5, 6, 7A, 7B & 8

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

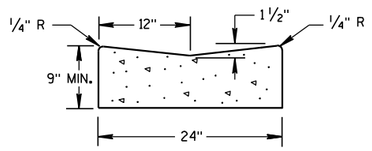
APPROVED
June, 2015 — DATE
/S/ Jerry H. Zogg — ROADWAY STANDARDS ENGINEER
FHWA

6

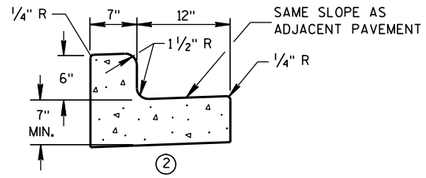
S.D.D. 8 D 5-16e



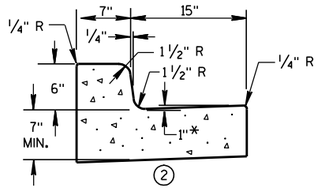
① CONCRETE CURB & GUTTER 31"



① CONCRETE GUTTER 24"

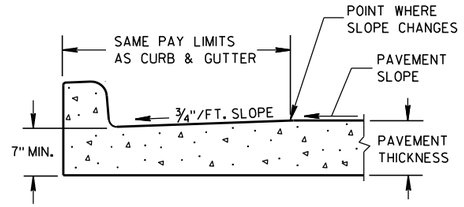


① CONCRETE CURB & GUTTER 19"



① CONCRETE CURB & GUTTER 22"

* TO BE MEASURED TO A MAXIMUM OF 3" WHERE DRAINAGE PROBLEMS EXIST.



PARTIAL SECTION OF PAVEMENT WITH INTEGRAL CURB & GUTTER

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.

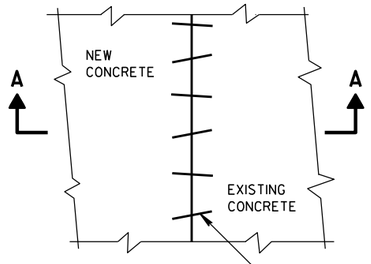
WHERE THE TRANSVERSE JOINTS IN THE PAVEMENT ARE REQUIRED TO BE SEALED, THE JOINTS IN THE INTEGRAL CURB AND GUTTER SHALL BE SEALED TO THE FACE OF CURB WITH THE SAME TYPE OF SEALANT. THE COST OF FURNISHING AND INSTALLING THIS SEALANT SHALL BE INCIDENTAL TO THE ITEM CONCRETE CURB AND GUTTER.

UNLESS OTHERWISE SHOWN ON THE TYPICAL CROSS SECTIONS, THE BASE COURSE AND UNCLASSIFIED EXCAVATION LIMITS ARE 2'-0" BEHIND THE BACK OF CURB.

① WHEN PLACED ADJACENT TO NEW CONCRETE, TIE BARS ARE REQUIRED FOR CURB AND GUTTER 31", 22", 19" AND CONCRETE GUTTER 24".

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

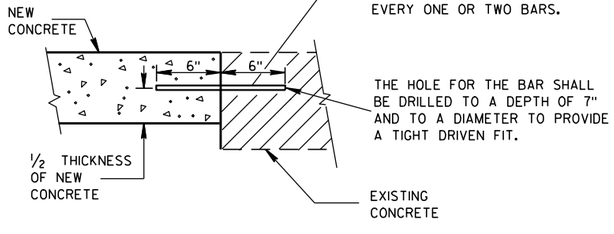
③ WHEN HIGH SIDE CURB SECTION IS REQUIRED, THE LOCATION(S) WILL BE NOTED ON THE PLAN.



PLAN VIEW

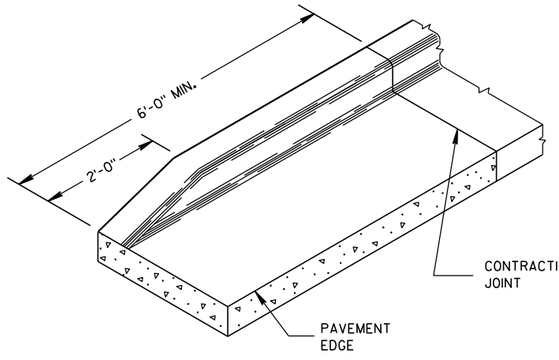
EXISTING AND NEW CONCRETE MAY BE CURB & GUTTER, SURFACE DRAIN, PAVEMENT OR OTHER CONCRETE STRUCTURE.

NO. 6 X 12" DEF. BARS SPACED 3'-0" C-C, INSTALLED ON 6:1 SKEW HORIZONTALLY. DIRECTION OF SKEW ALTERNATING AFTER EVERY ONE OR TWO BARS.

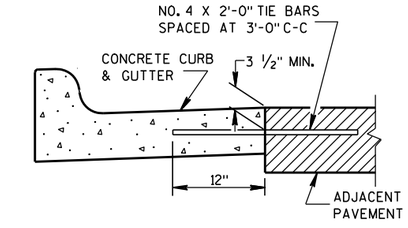


SECTION A-A

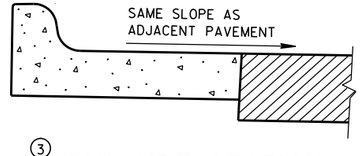
PAVEMENT TIES



END SECTION CURB & GUTTER



① TYPICAL TIE BAR LOCATION



③ HIGH SIDE SECTION

(TYPICAL FOR ALL CURB & GUTTER)

CONCRETE GUTTER, CURB AND GUTTER AND PAVEMENT TIES

(For Optional Use in Milwaukee Co. Only)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

11/2/2010 — DATE

/S/ Jerry Zogg — ROADWAY STANDARDS ENGINEER

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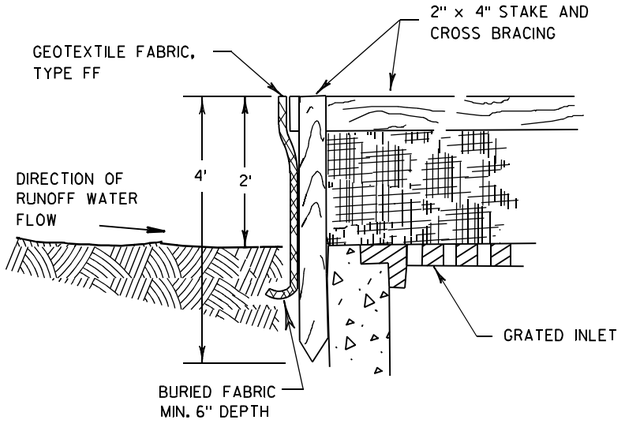
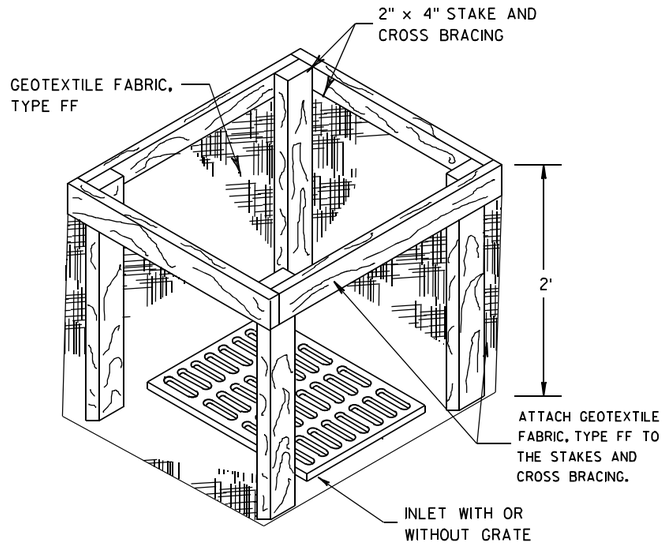
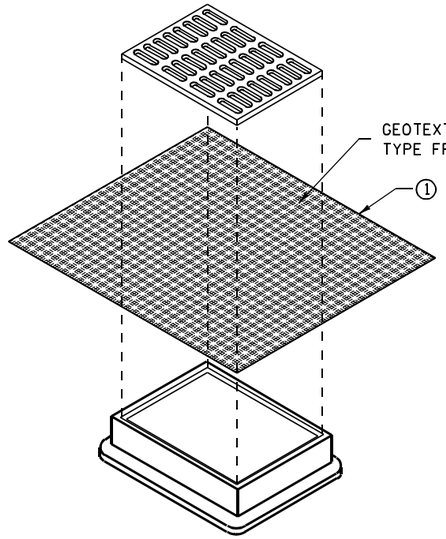


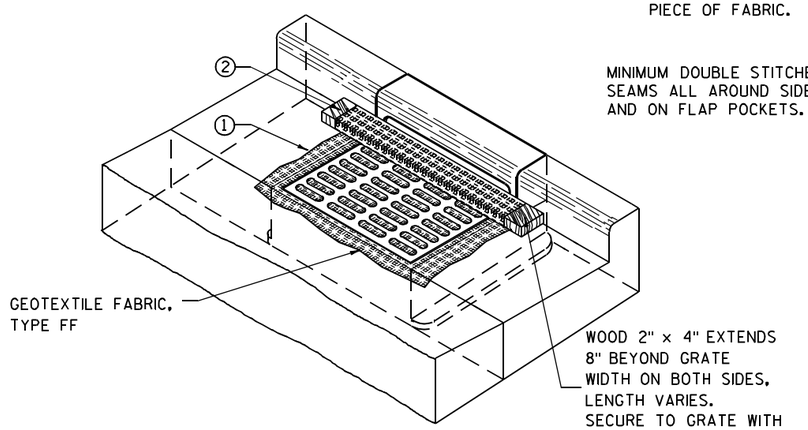


INLET PROTECTION, TYPE A

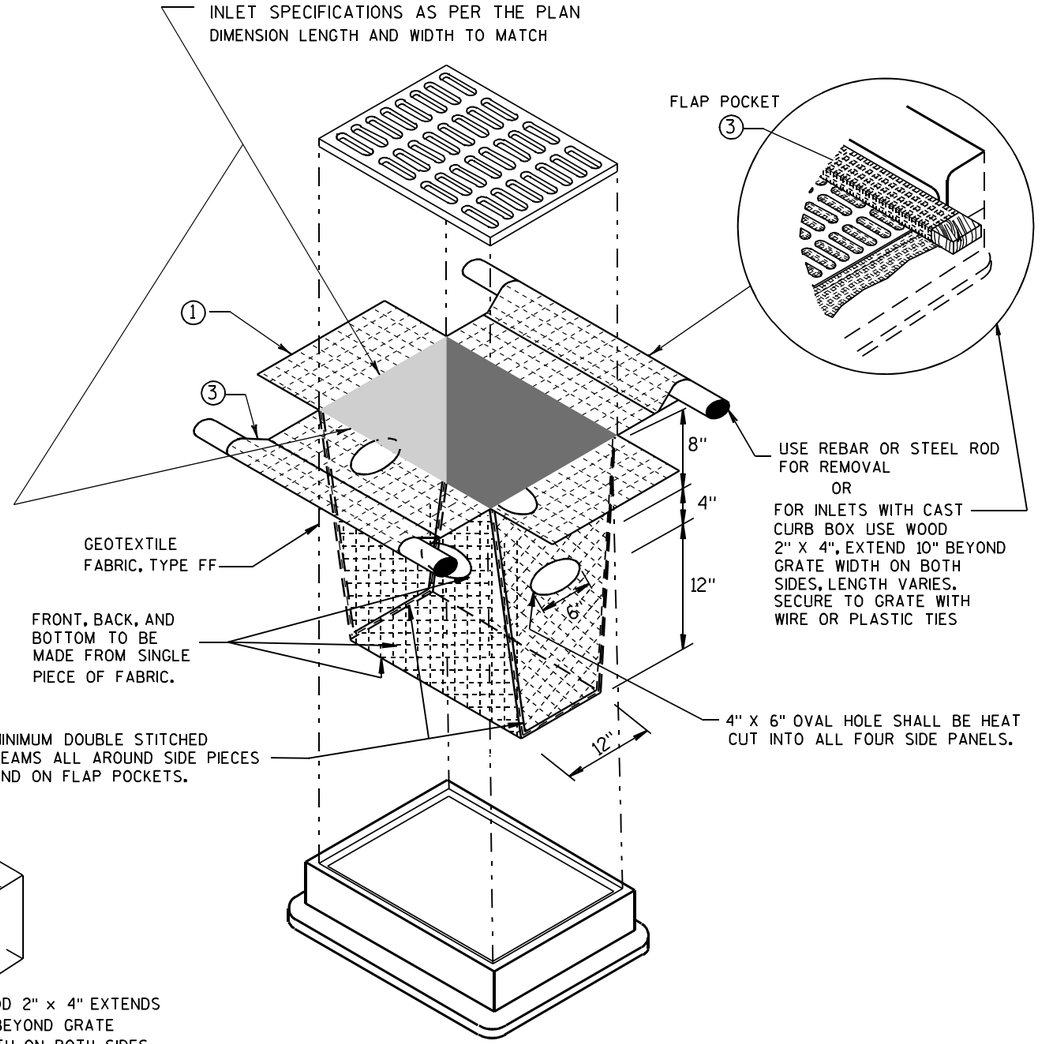


INLET PROTECTION, TYPE B
(WITHOUT CURB BOX)

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



INLET PROTECTION, TYPE C (WITH CURB BOX)



INLET PROTECTION, TYPE D

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

GENERAL NOTES

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

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

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

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

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

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

INSTALLATION NOTES

TYPE B & C

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

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

TYPE D

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

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

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

INLET PROTECTION
TYPE A, B, C, AND D

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

10/16/02
DATE

/S/ Beth Cannestra
CHIEF ROADWAY DEVELOPMENT ENGINEER

FHWA

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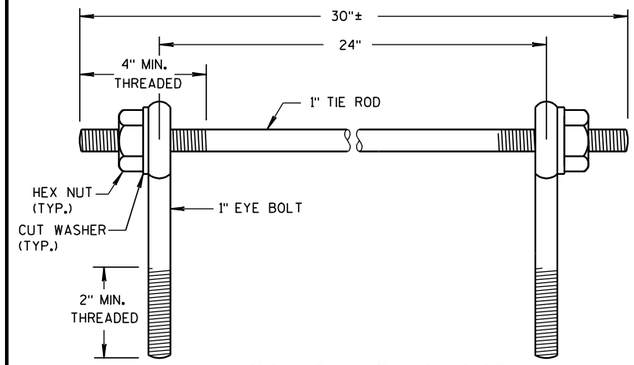
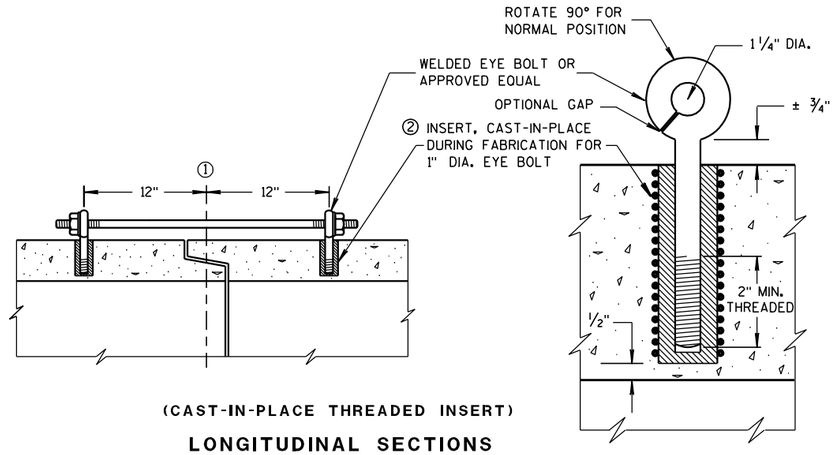


EYE BOLTS AND TIE ROD



(CAST-IN-PLACE THREADED INSERT)

LONGITUDINAL SECTIONS

EYE BOLT AND TIE ROD ASSEMBLY (ALTERNATE NO. 1)

GENERAL NOTES

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

CONCRETE CULVERT AND STORM SEWER PIPE SHALL BE TIED TOGETHER IN THE MANNER ILLUSTRATED BY THIS DETAIL AT LOCATIONS DESIGNATED IN THE STANDARD SPECIFICATIONS AND THE PLAN. THE CONTRACTOR MAY USE EITHER ALTERNATE 1, 2 OR 3 FOR DRAINAGE STRUCTURES. ONLY ALTERNATE 1 AND 3 MAY BE USED FOR CATTLE PASSES, UNLESS OTHERWISE STATED IN THE CONTRACT. THE MATERIALS, FABRICATION AND WORK NECESSARY TO TIE THE PIPE BY THIS DETAIL WILL BE CONSIDERED INCIDENTAL TO THE PIPE AND APRON ENDWALLS IF REQUIRED.

DETAILED DRAWINGS FOR PROPOSED ALTERNATE DESIGNS FOR JOINT TIES SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL.

JOINT TIES TO BE HOT-DIP GALVANIZED PER ASTM A 153.

① ℄ OF TONGUE AND GROOVE OR BELL AND SPIGOT JOINTS.

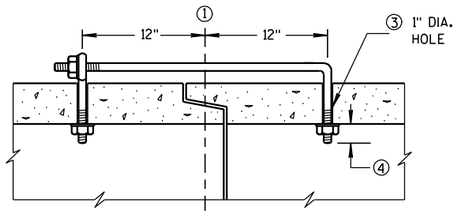
② THE INSIDE OF THE THREADED INSERTS SHALL BE CLEAN TO ALLOW THE INSERTION OF THREADED EYE BOLTS.

③ HOLES SHALL BE CAST-IN-PLACE OR DRILLED 12 INCHES FROM ℄ OF TONGUE AND GROOVE.

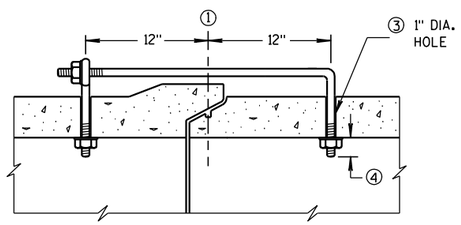
④ BOLT PROJECTION INSIDE OF PIPE SHALL NOT EXCEED 2 INCHES.

⑤ OPENING TO BE ROD DIAMETER PLUS 1 INCH.

⑥ LENGTH ADEQUATE TO EXTEND TO WITHIN 1/2 INCH OF THE INNER SURFACE OF THE PIPE.



(TONGUE & GROOVE PIPE)

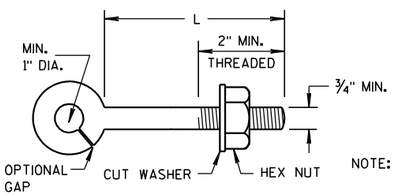


(MODIFIED BELL PIPE)

LONGITUDINAL SECTION

EYE BOLT DIMENSION TABLE

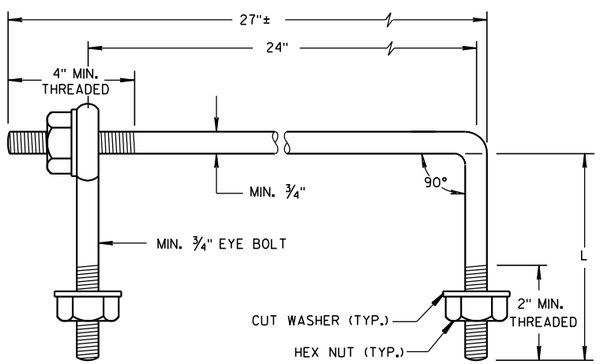
PIPE SIZE	L = LENGTH	
	TONGUE & GROOVE PIPE	MODIFIED BELL PIPE
18" TO 24"	4 1/2"	6 1/4"
30"	5"	7"
36"	5 1/2"	7"
42"	6"	
48"	6 1/2"	
60"	7 1/2"	
66"	8"	



NOTE:

EYE BOLT

NOTE: TWO EYE BOLTS MAY BE USED WITH A 30" LONG THREADED ROD IN LIEU OF THE 90° BENT TIE ROD.



EYE BOLT AND TIE ROD

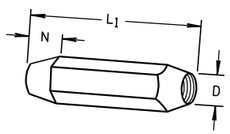
(JOINT TIES FOR 18" TO 66" DIA. CONCRETE PIPE)

EYE BOLT AND TIE ROD ASSEMBLY (ALTERNATE NO. 2)

ADJUSTABLE TIE ROD TABLE

PIPE DIAMETER	TIE ROD DIAMETER	D	L_1	N
12-60	5/8	5/8	5	1/2
66-84	3/4	3/4	5	1/2
90-108	1	1	7	1 1/16

DIMENSIONS SHOWN ARE IN INCHES



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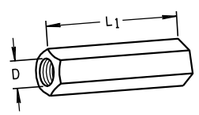
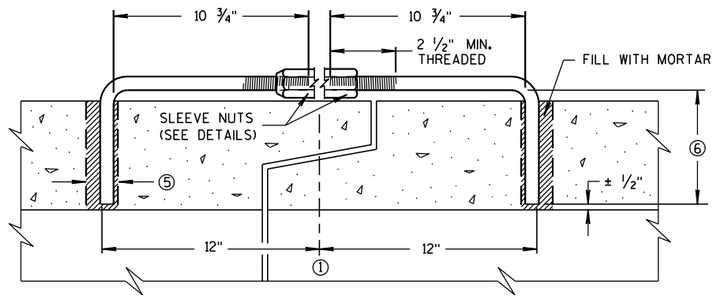


PLAIN

RIGHT AND LEFT THREADS

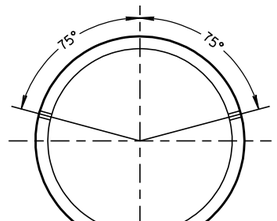
SLEEVE NUTS



LONGITUDINAL SECTION

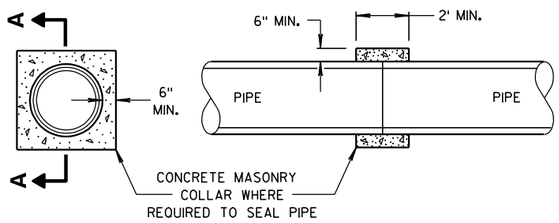
(JOINT TIES FOR 12" TO 108" DIA. CONCRETE PIPE)

ADJUSTABLE TIE ROD (ALTERNATE NO. 3)



PLACEMENT OF (2) CAST-IN-PLACE INSERTS OR HOLES DURING FABRICATION FOR PIPE SECTIONS REQUIRING TIE RODS

TRANSVERSE SECTION



SECTION A-A

CONCRETE COLLAR DETAIL

JOINT TIES FOR CONCRETE PIPE AND CONCRETE COLLAR DETAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
6/5/2012 — DATE
/S/ Jerry H. Zogg — ROADWAY STANDARDS ENGINEER
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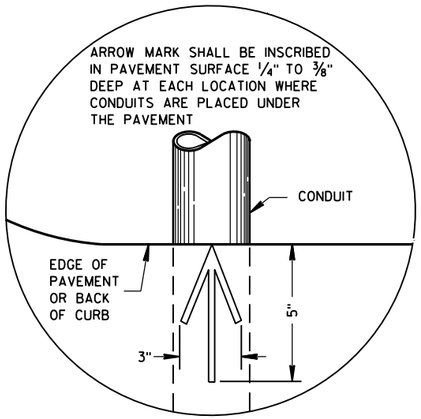
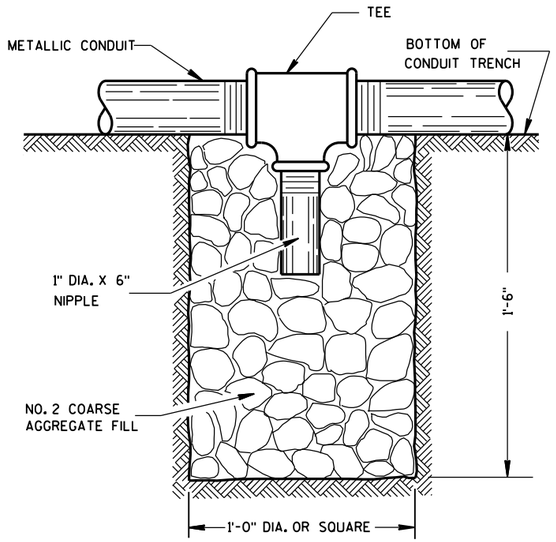


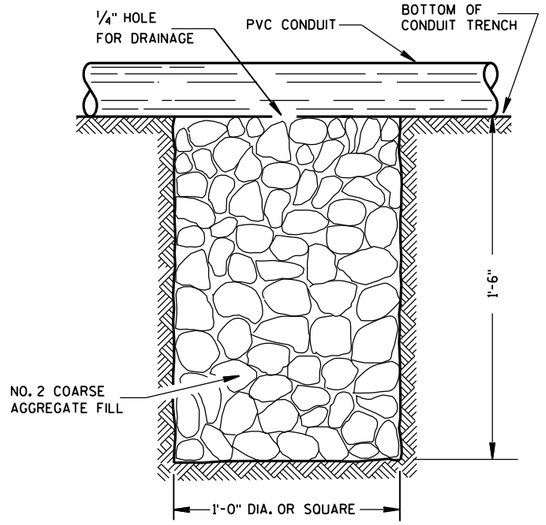
PLAN VIEW

ARROW MARK



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

DRAIN SUMP FOR METALLIC CONDUIT



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

DRAIN SUMP FOR PVC CONDUIT

GENERAL NOTES

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

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

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

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

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

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

ALL METALLIC CONDUIT RACEWAY ENDS SHALL BE REAMED AND THREADED.

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

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

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

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

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

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

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

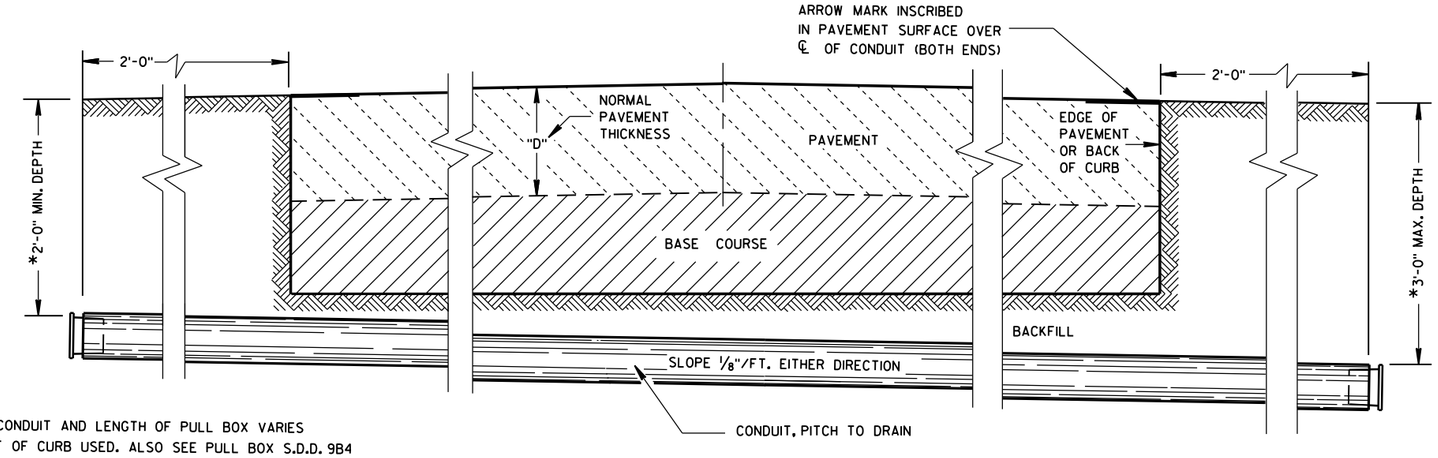
PRIOR TO CONDUIT ACCEPTANCE, CONDUIT CAPS OR PLUGS SHALL BE REMOVED, AND THE CAPS, PLUGS AND CONDUIT ENDS SHALL BE THOROUGHLY CLEANED AND THEN THE CAPS OR PLUGS REINSTALLED TO ENSURE THAT THE CAPS OR PLUGS CAN BE EASILY REMOVED IN THE FUTURE.

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

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

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

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



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

SIDE ELEVATION

DETAIL FOR CONDUIT UNDER PAVED HIGHWAYS

CONDUIT

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

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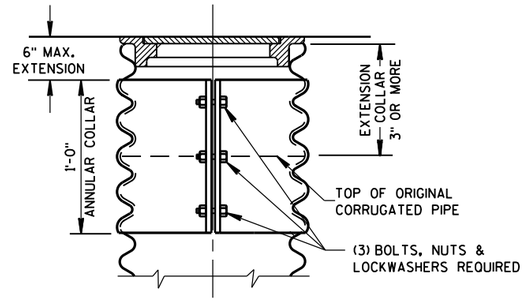
S.D.D. 9 B 2-9

TABLE OF NOMINAL DIMENSIONS AND WEIGHTS

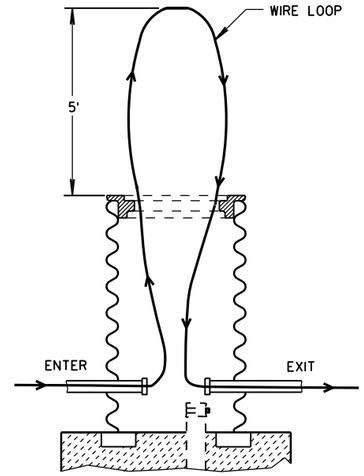
DIMENSION IN INCHES		CORRUGATED STEEL PIPE								
PIPE DIAMETER (INSIDE)	A	12	12	12	18	18	18	24	24	24
PIPE LENGTH **	B	24	30	36	24	30	36	36	42	48
WALL THICKNESS	C	0.064	0.064	0.064	0.064	0.064	0.064	0.064	0.064	0.064
COVER	D	10 1/4	10 1/4	10 1/4	16 1/4	16 1/4	16 1/4	22 1/4	22 1/4	22 1/4
FRAME	E	14 1/2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

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

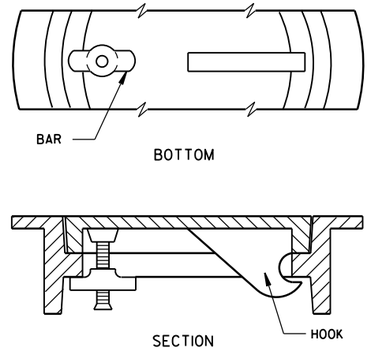
** NORMALLY USED LENGTHS. THE PROJECT ENGINEER SHALL DETERMINE IF PIPE LENGTHS, OTHER THAN THOSE SPECIFIED, SHALL BE USED, TO A MAXIMUM OF 48" (CONTINUOUS LENGTH, NON-SPLICED). THE ADDITIONAL LENGTH SHALL BE INCIDENTAL TO THE PULL BOX BID PRICE.



CORRUGATED PIPE EXTENDER

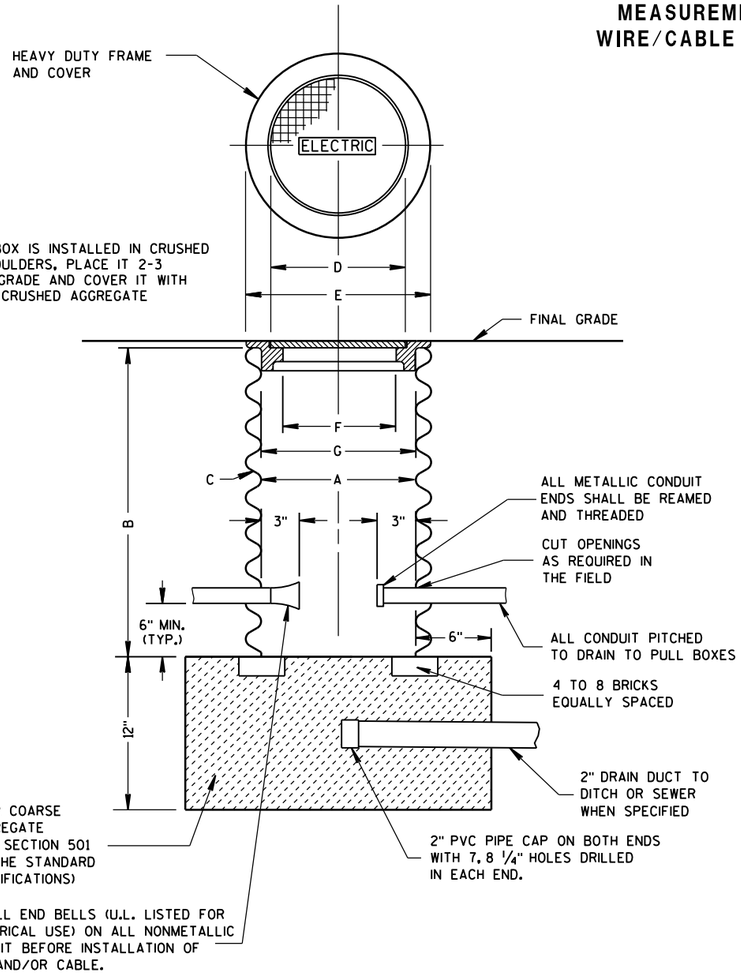


MEASUREMENT DETAIL FOR WIRE/CABLE IN THE PULL BOX



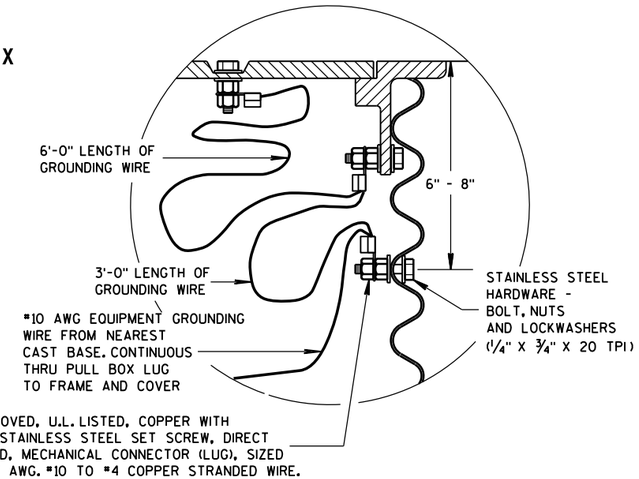
ALTERNATE COVER (LOCKING)

TIGHTENING BAR TYPE

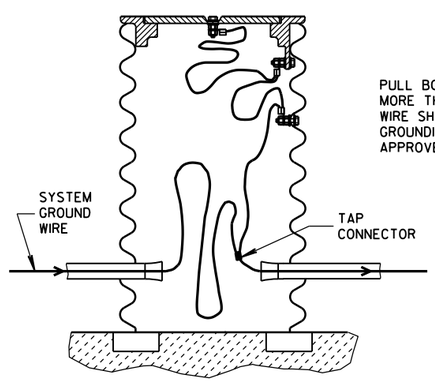


WHEN A PULL BOX IS INSTALLED IN CRUSHED AGGREGATE SHOULDERS, PLACE IT 2-3 INCHES BELOW GRADE AND COVER IT WITH 2-3 INCHES OF CRUSHED AGGREGATE

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

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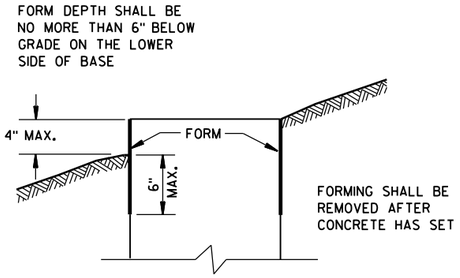


FORMING DETAIL

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

GENERAL NOTES

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

BASES SHALL BE EXCAVATED BY USE OF A CIRCULAR AUGER.

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

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

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

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

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

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

GENERAL NOTES (CONTINUED)

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

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

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

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

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

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

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

WASHERS AND LOCK WASHERS ARE REQUIRED ON ALL ANCHOR RODS.

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

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

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

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

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

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

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

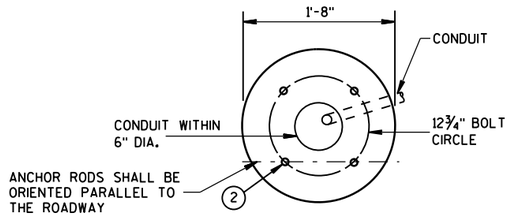
(4) (6) NO. 6 X 6'-8" BAR STEEL REINFORCEMENT.

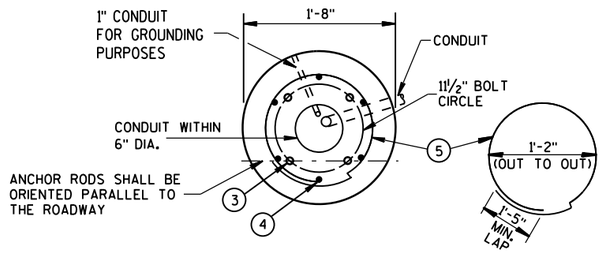
(5) (7) NO. 4 X 5'-1" BAR STEEL REINFORCEMENT @ 1'-0" C-C.

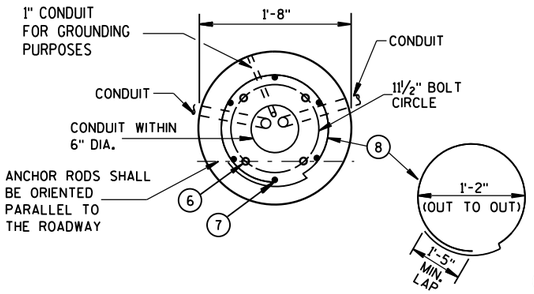
(6) (4) 1" DIA. X 3'-6" ANCHOR RODS.

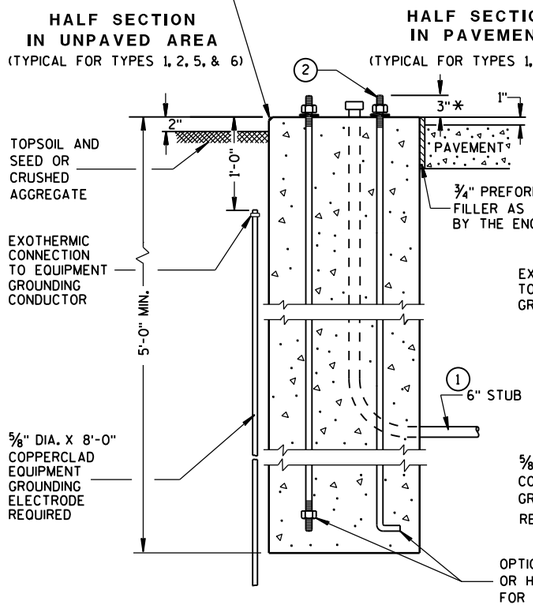
(7) (6) NO.4 X 4'-8" BAR STEEL REINFORCEMENT.

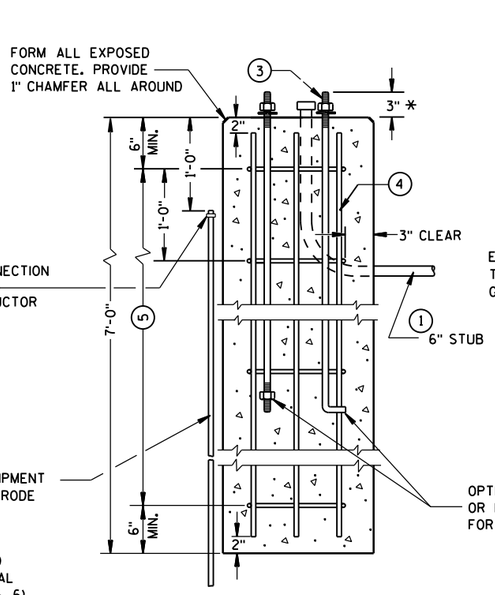
(8) (5) NO. 4 X 5'-1" BAR STEEL REINFORCEMENT @ 1'-0" C-C.



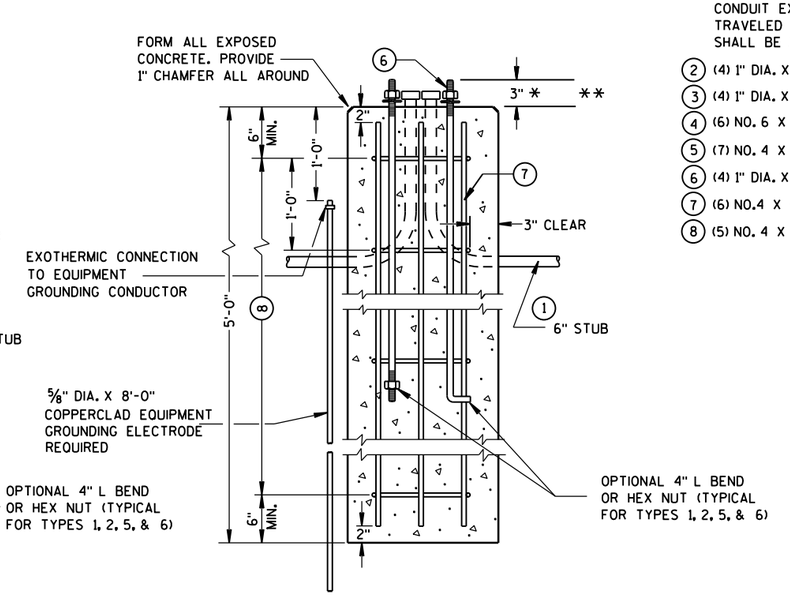








TYPE 2



TYPE 5 & 6

CONCRETE BASES

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

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

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
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GENERAL NOTES

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

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

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

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

DOUBLE NUTTING IS NOT ACCEPTABLE FOR LEVELING OR MOUNTING PURPOSES.

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

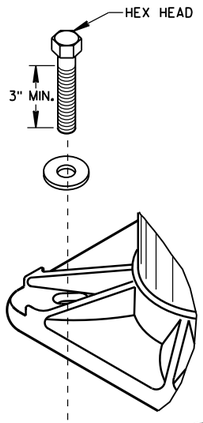
THE MECHANICAL CONNECTOR SHALL BE INSTALLED USING A 1/4" - 20 (TPI) STAINLESS STEEL HEX HEAD BOLT OF SUFFICIENT LENGTH TO FIRMLY ATTACH THE LUG TO THE BASE.

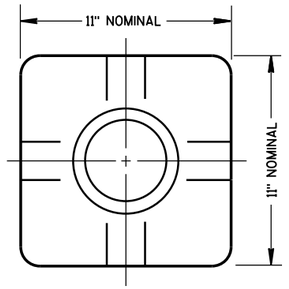
SHOULD THE MANNER OF ATTACHMENT OF THE LUG REQUIRE WASHERS, HEX NUTS, LOCK WASHER - THEY SHALL BE STAINLESS STEEL AS IS THE BOLT. THE MANNER OF ATTACHMENT SHALL NOT BLOCK ACCESSIBILITY TO WIRE PLACEMENT IN THE CONNECTOR.

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

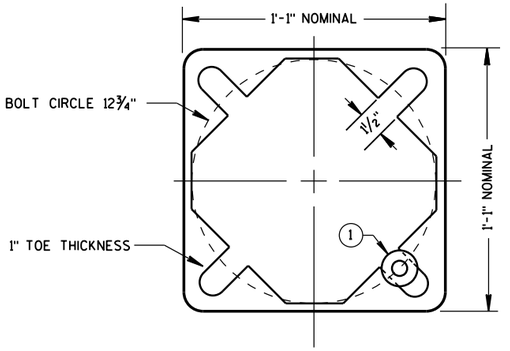
BASE COLLAR THREADING SHALL EXTEND INTO THE BASE COLLAR WITH SUFFICIENT DEPTH TO ACCEPT THE INSTALLATION OF TRAFFIC SIGNAL STANDARDS TO A DEPTH OF 1 1/2", THEN TIGHTENING TO A POINT OF BEING IMMOVABLE.

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

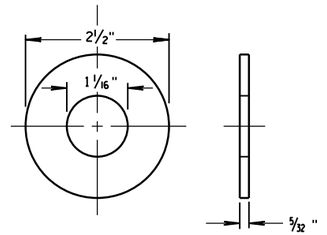




TOP VIEW
(PEDESTAL BASE)

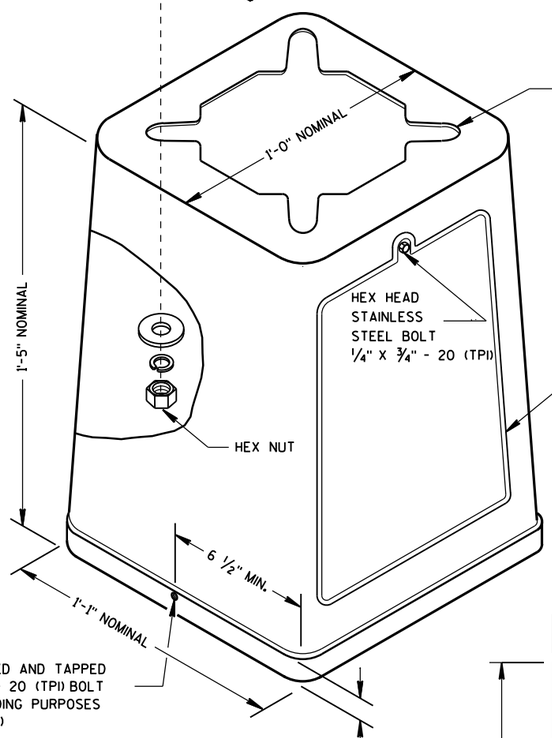


BOTTOM VIEW
(PEDESTAL BASE)

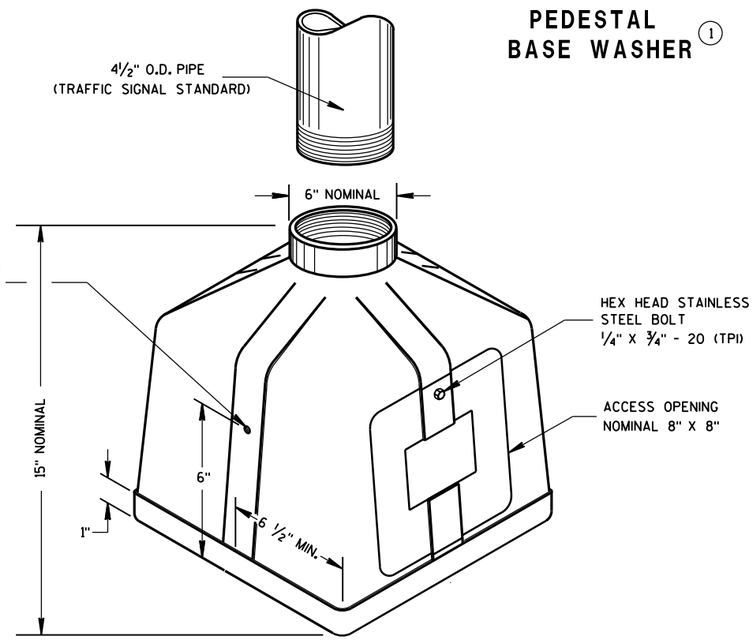


ZINC COATED STEEL WASHER
TO BE PROVIDED BY THE CONTRACTOR

PEDESTAL BASE WASHER (1)

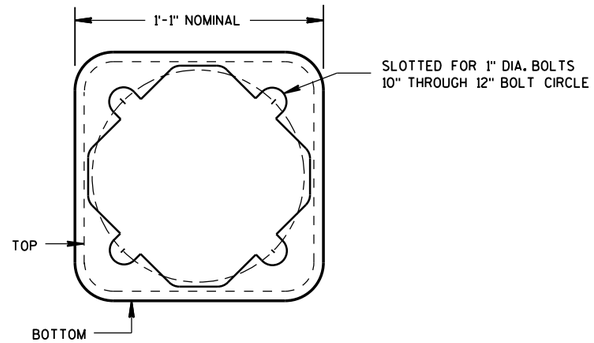


ISOMETRIC VIEW

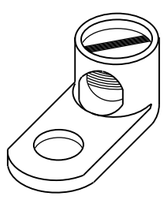


ISOMETRIC VIEW

PEDESTAL BASE



BOTTOM VIEW
(TRANSFORMER BASE)

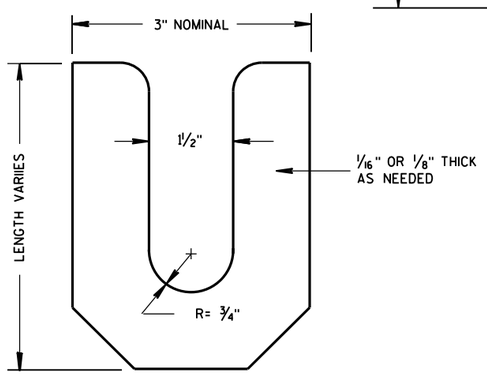


TYPICAL MECHANICAL CONNECTOR LUG

TO BE FURNISHED WITH EACH BASE

TRANSFORMER BASE

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



LEVELING SHIM

TRANSFORMER/PEDESTAL BASES

STATE OF WISCONSIN
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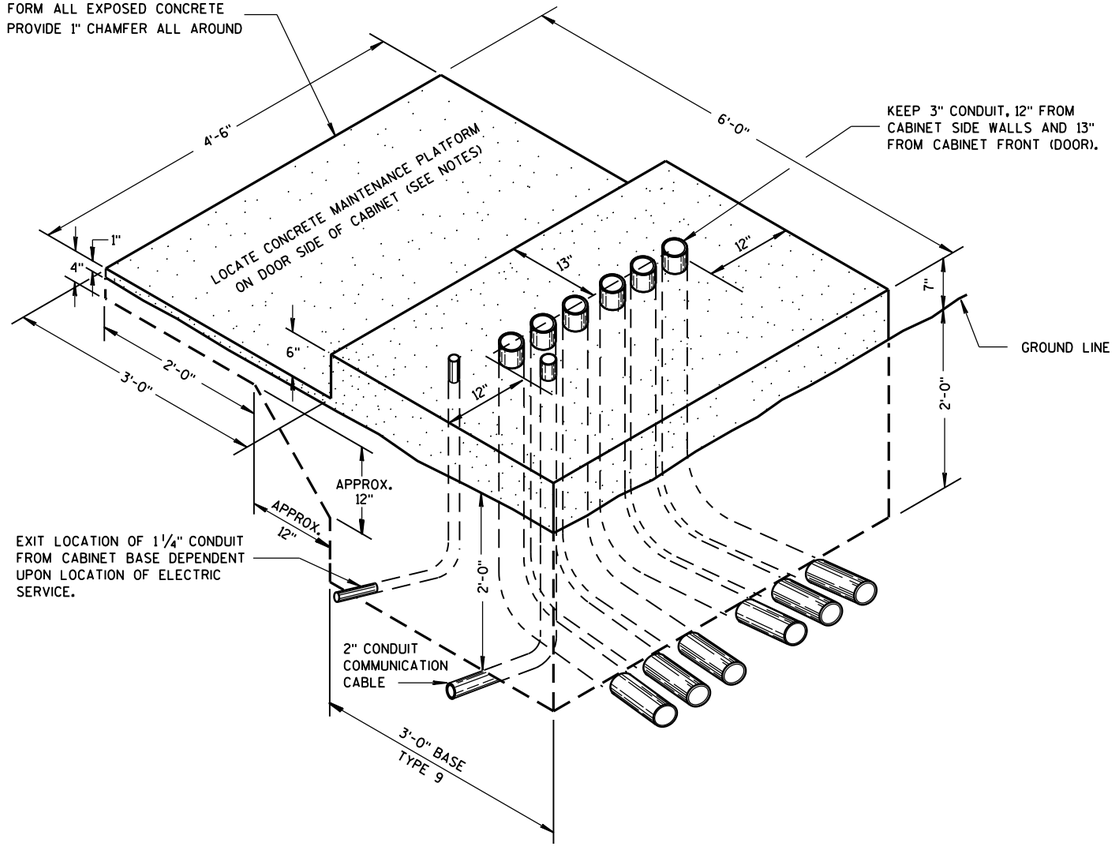
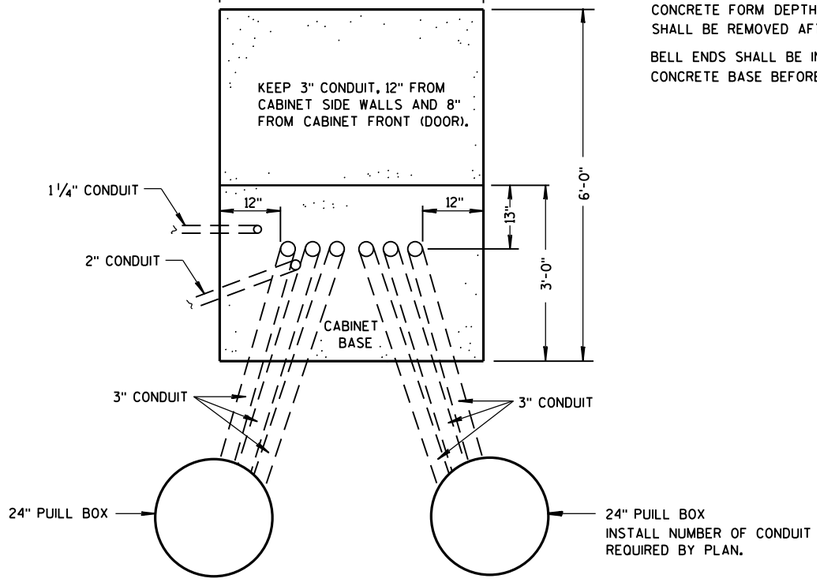


ISOMETRIC VIEW

TYPE 9, SPECIAL

(C.Y. CONCRETE = APPROX. 1.56)



PLAN VIEW

CONCRETE CONTROL CABINET BASE, TYPE 9, SPECIAL

GENERAL NOTES

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

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

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

CONDUIT HEIGHT ABOVE THE CONCRETE BASE SHALL BE 1 INCH.

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

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

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

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

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

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

MINIMUM BENDING RADIUS OF CONDUIT = 6 X THE DIAMETER.

ALL METALLIC CONDUIT ENDS SHALL BE REAMED AND THREADED.

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

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

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

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

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

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

CONCRETE CONTROL CABINET BASE, TYPE 9, SPECIAL

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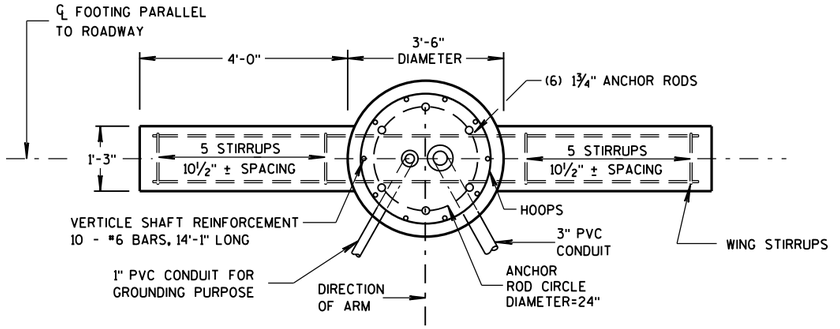
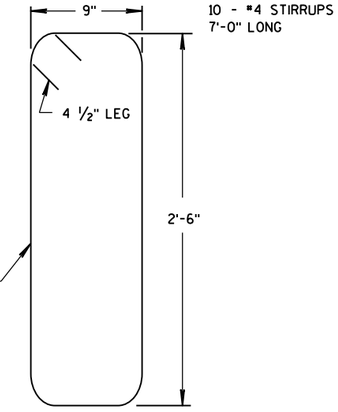
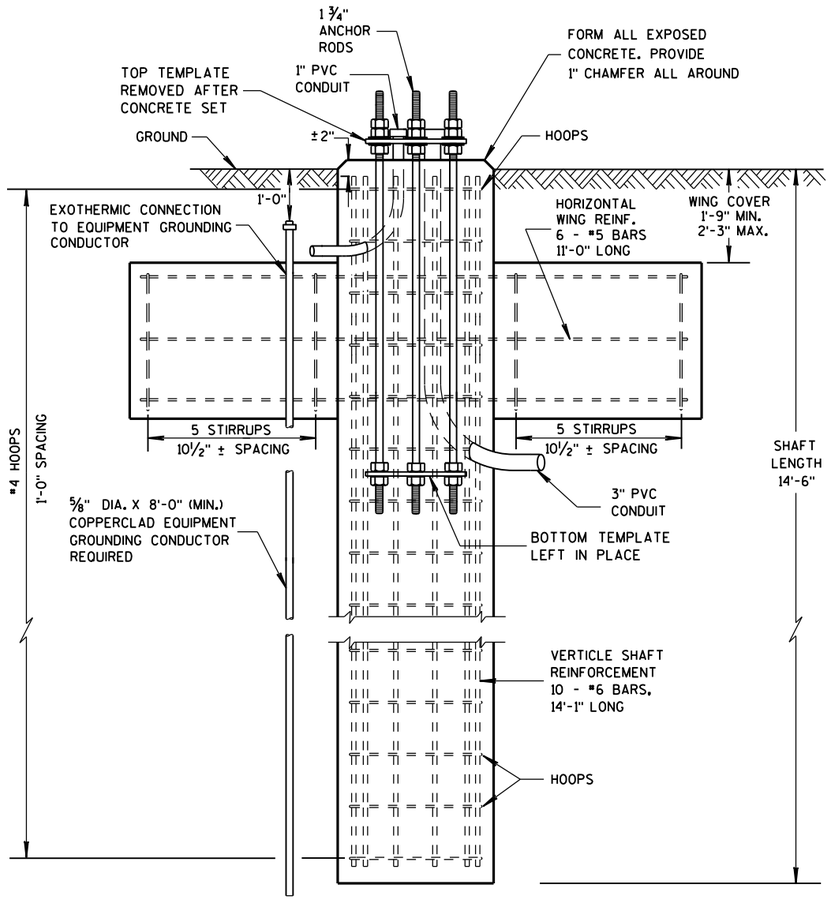


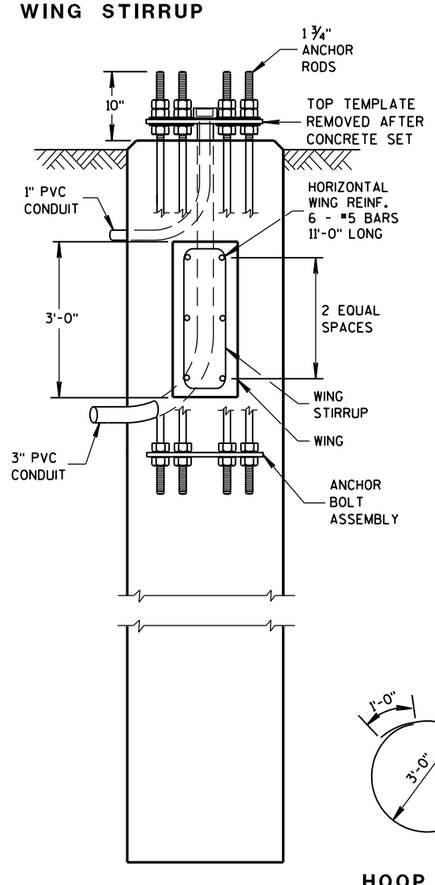
PLAN VIEW



WING STIRRUP

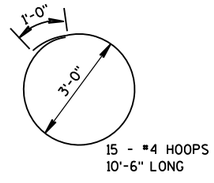


ELEVATION VIEW



SIDE VIEW

DOES NOT SHOW HOOPS OR VERTICAL SHAFT REINFORCEMENT



15 - #4 HOOPS 10'-6" LONG

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, AASHTO M314 GRADE 55	fy=55,000 p.s.i.
TEMPLATES, ASTM A709 GRADE 36	fy=36,000 p.s.i.

(FOR TYPE 12 & 13 POLES)

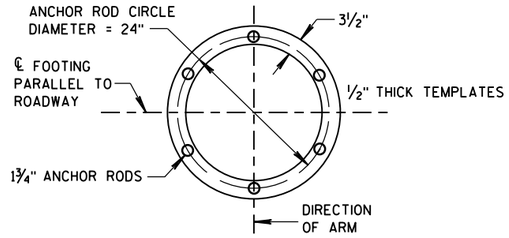
CONCRETE = 6.3 C.Y.
H.S. REINFORCEMENT = 433 LBS.

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.

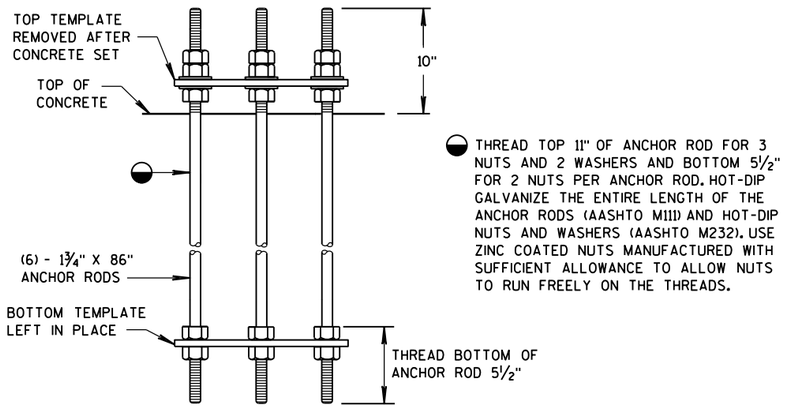
CONCRETE BASE TYPE 13

S.D.D. 9 C 12-7a

6

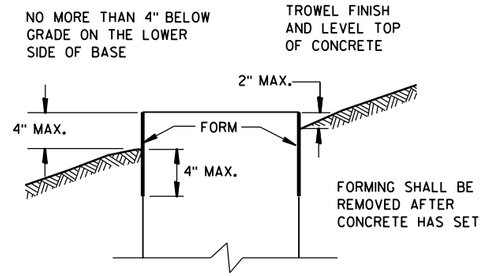


TOP AND BOTTOM TEMPLATES



ANCHOR BOLT ASSEMBLY DETAIL

CONCRETE BASE TYPE 13 ANCHOR ASSEMBLY



FORMING DETAIL

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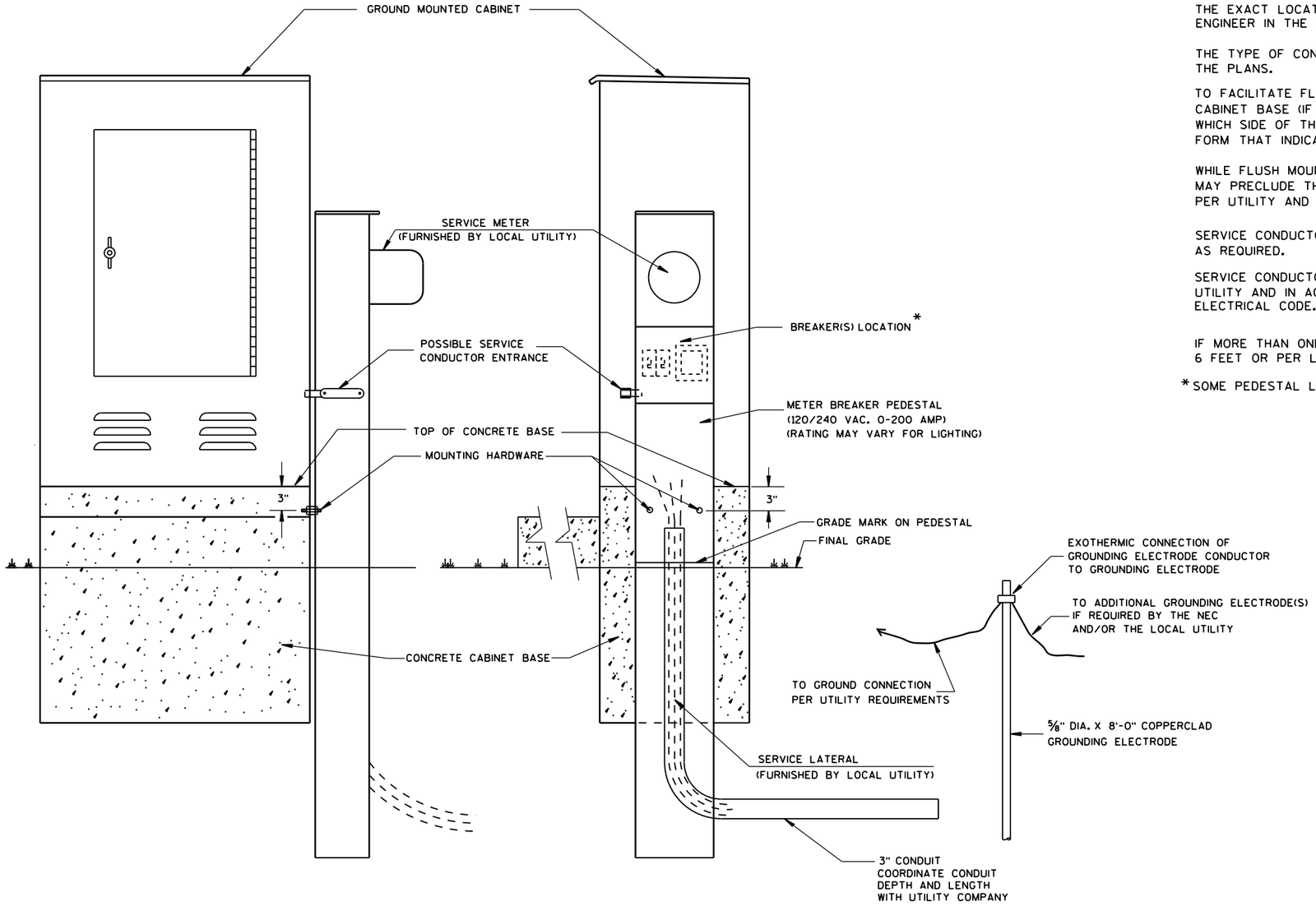
CONCRETE BASE TYPE 13

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

S.D.D. 9 C 12-7b



TYPICAL CABINET SERVICE INSTALLATION

GENERAL NOTES

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

THE EXACT LOCATION OF THE METER BREAKER PEDESTAL SHALL BE DETERMINED BY THE ENGINEER IN THE FIELD.

THE TYPE OF CONCRETE CABINET BASE TO BE INSTALLED SHALL BE AS CALLED FOR IN THE PLANS.

TO FACILITATE FLUSH MOUNTING OF THE METER BREAKER PEDESTAL AGAINST THE SIDE OF THE CABINET BASE (IF FLUSH MOUNTING POSSIBLE. CONFER WITH THE LOCAL UTILITY TO DETERMINE WHICH SIDE OF THE CONCRETE BASE THE ELECTRICAL SERVICE LATERAL WILL APPROACH. THEN FORM THAT INDICATED SIDE FOR FULL SIDE DEPTH.

WHILE FLUSH MOUNTING IS THE MOST DESIRABLE MOUNTING CONFIGURATION UTILITY REQUIREMENTS MAY PRECLUDE THIS OPTION. CONTRACTOR MUST PROVIDE UTILITY APPROVED PEDESTAL AND INSTALL PER UTILITY AND MANUFACTURERS REQUIREMENTS.

SERVICE CONDUCTOR ENTRANCES SHALL BE RIGID METALLIC CONDUIT, NIPPLES AND/OR CONDULETS AS REQUIRED.

SERVICE CONDUCTOR ENTRANCES SHALL BE SIZED AND LOCATED AS REQUIRED BY THE LOCAL UTILITY AND IN ACCORDANCE WITH APPROPRIATE ARTICLES OF THE LATEST ACCEPTED NATIONAL ELECTRICAL CODE.

IF MORE THAN ONE GROUNDING ELECTRODE IS REQUIRED, THE DISTANCE APART SHALL BE 6 FEET OR PER LOCAL UTILITY REGULATIONS.

* SOME PEDESTAL LIGHTING PLANS SHOW MAIN LUGS ONLY.

CABINET SERVICE INSTALLATION (METER BREAKER PEDESTAL)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

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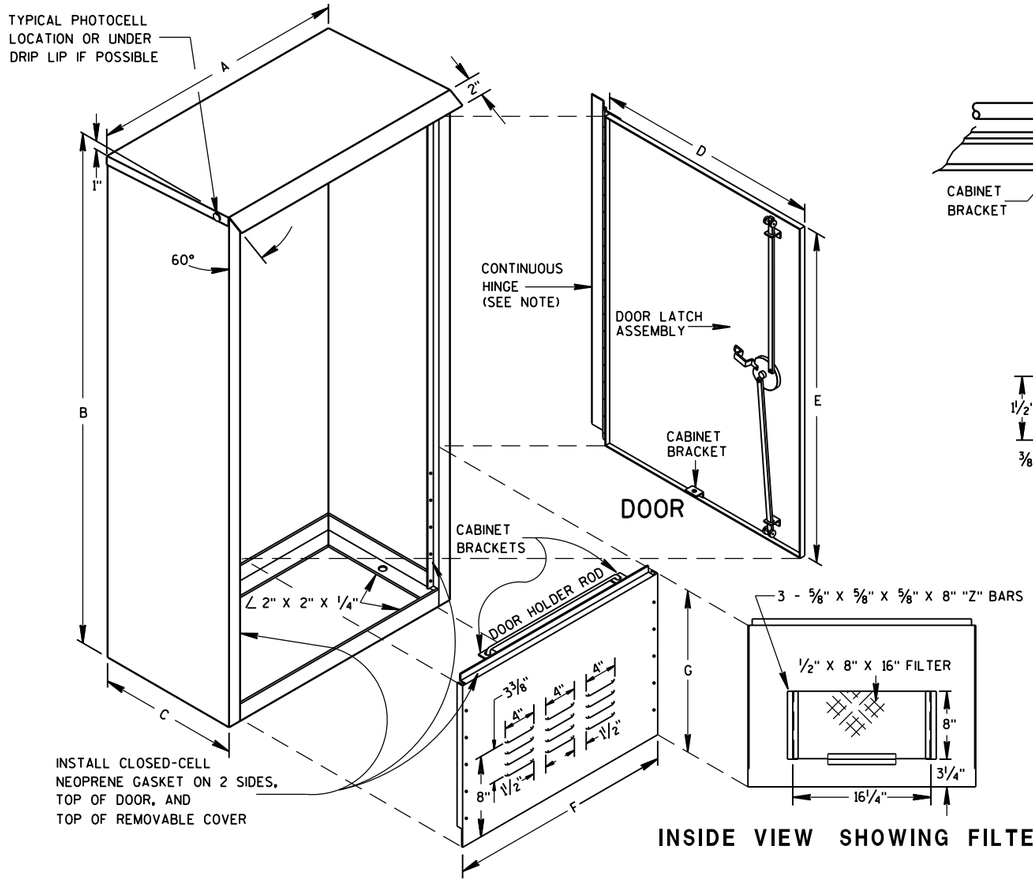
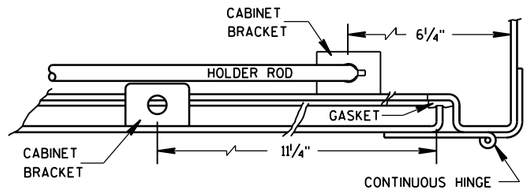
S.D.D. 9 D 1-5

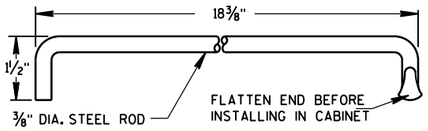


REMOVABLE COVER

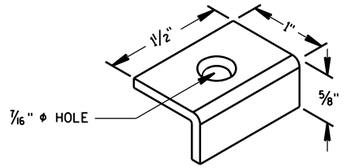
INSIDE VIEW SHOWING FILTER



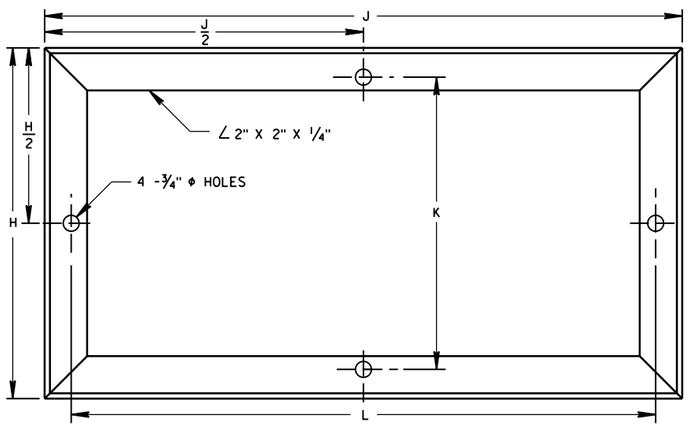
HINGE & DOOR HOLDER



HOLDER ROD



CABINET BRACKET



MOUNTING BASE

TABLE OF DIMENSIONS (INCHES)

MARK	CABINET TYPE		
	3060	3860	3866
A	30	38	38
B	60	60	66
C	16 1/2	16 1/2	24
D	26 1/2	34 3/4	33 3/4
E	38 3/4	38 3/4	38 3/4
F	26 1/2	34 3/4	33 3/4
G	19	19	25
H	16 1/2	16 1/2	24
H/2	8 1/4	8 1/4	12
J	30	38	38
J/2	15	19	19
K	13 3/4	13 3/4	21 1/4
L	27 1/2	35 1/2	35 1/2

GENERAL NOTES

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

PRIME WITH PHOSPHATE TREATMENT AND PRIMER.

FINISH EXTERIOR SURFACES WITH RUSTOLEUM #906 SILVER GRAY OR APPROVED EQUAL.

FINISH INTERIOR WITH RUSTOLEUM #2766 HIGH GLOSS WHITE ENAMEL OR APPROVED EQUAL.

ALL SHEET METAL PARTS SHALL BE .125 INCH THICK ALUMINUM.

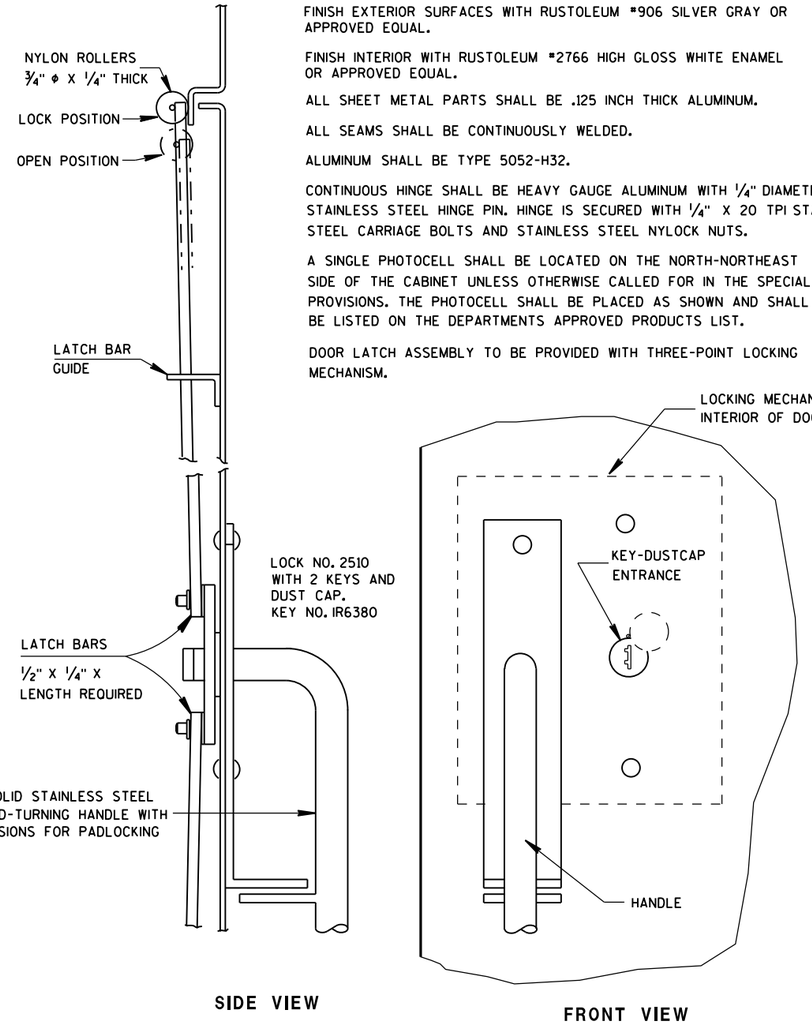
ALL SEAMS SHALL BE CONTINUOUSLY WELDED.

ALUMINUM SHALL BE TYPE 5052-H32.

CONTINUOUS HINGE SHALL BE HEAVY GAUGE ALUMINUM WITH 1/4" DIAMETER STAINLESS STEEL HINGE PIN. HINGE IS SECURED WITH 1/4" X 20 TPI STAINLESS STEEL CARRIAGE BOLTS AND STAINLESS STEEL NYLOCK NUTS.

A SINGLE PHOTOCELL SHALL BE LOCATED ON THE NORTH-NORTHEAST SIDE OF THE CABINET UNLESS OTHERWISE CALLED FOR IN THE SPECIAL PROVISIONS. THE PHOTOCELL SHALL BE PLACED AS SHOWN AND SHALL BE LISTED ON THE DEPARTMENTS APPROVED PRODUCTS LIST.

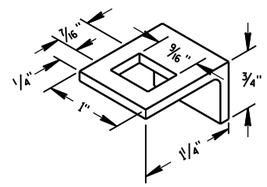
DOOR LATCH ASSEMBLY TO BE PROVIDED WITH THREE-POINT LOCKING MECHANISM.



SIDE VIEW

FRONT VIEW

LATCH ASSEMBLY



LATCH BAR GUIDE

SIGNAL CONTROL CABINET

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
Sept. 2014
DATE

/S/ Ahmet Demirbilek
STATE ELECTRICAL

FHWA

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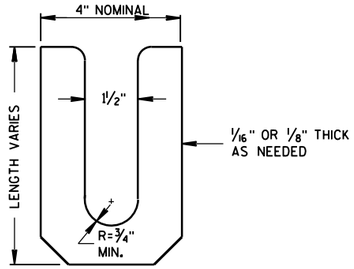
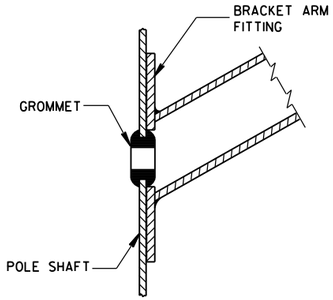
S.D.D. 9 D 2-3

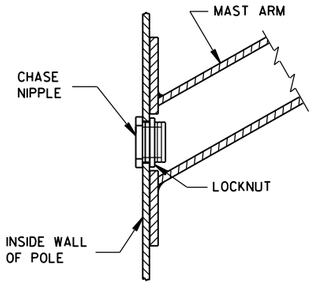


LEVELING SHIM (13)

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.

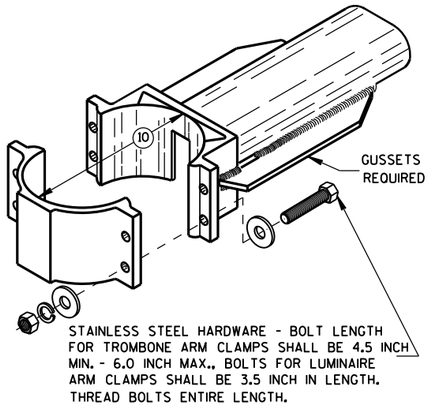
(10) 4.5" I.D. FOR LUMINAIRE MAST ARM CLAMP.
6.625" I.D. FOR TROMBONE MAST ARM CLAMP.

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

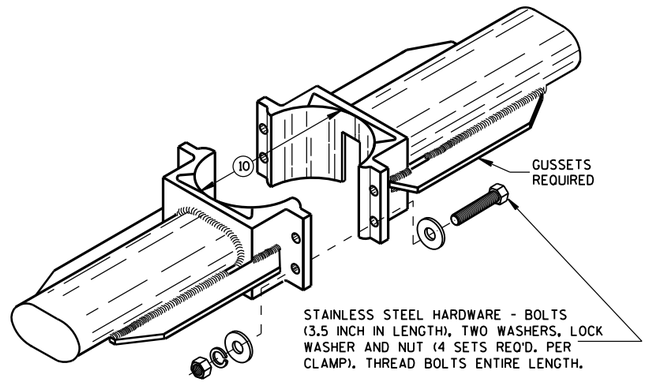
(12) BASE PLATE SLOTTED TO ACCEPT 11" THROUGH 12" BOLT CIRCLE USING 1" DIAMETER ANCHOR RODS.

(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.

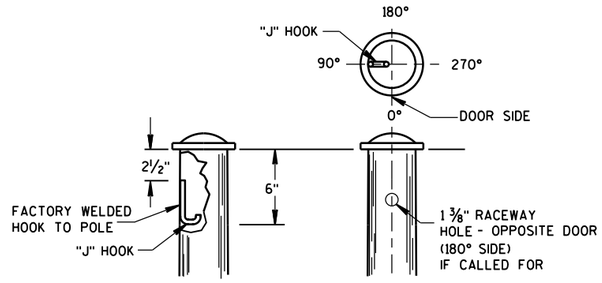
SHIMS SHALL BE LONG ENOUGH AND WIDE ENOUGH TO COMPLETELY COVER THE AREA UNDER THE LENGTH AND WIDTH OF THE BASE MOUNTING FLANGE.



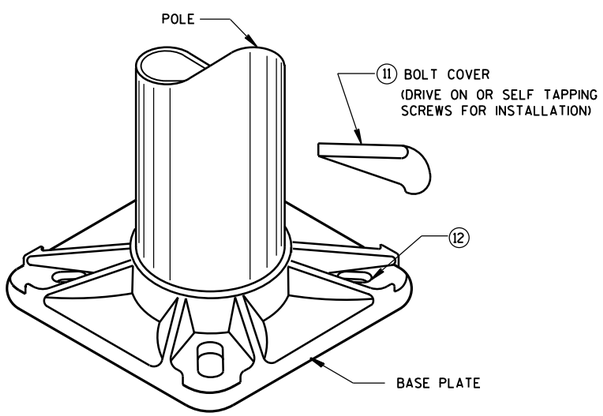
TYPICAL TROMBONE MAST ARM AND SINGLE LUMINAIRE MAST ARM MOUNTING CLAMP



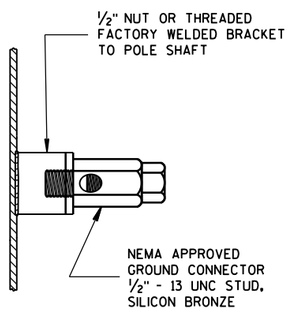
TYPICAL LUMINAIRE MAST ARM (DOUBLE) MOUNTING BRACKETS

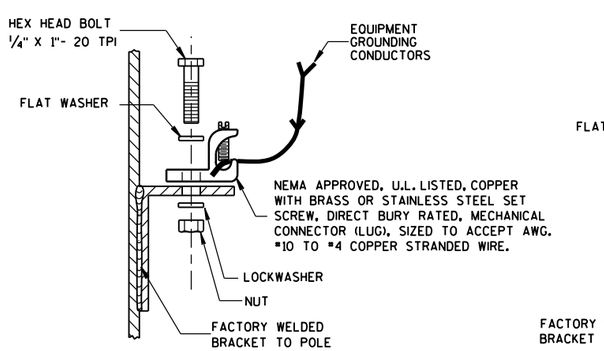


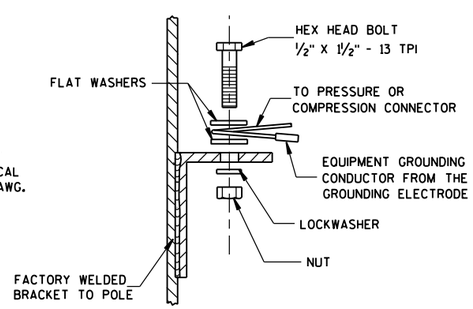
TYPICAL "J" HOOK LOCATION



BASE PLATE







TYPICAL GROUNDING CONNECTIONS

NUT, BOLT AND WASHERS SHALL BE STAINLESS STEEL

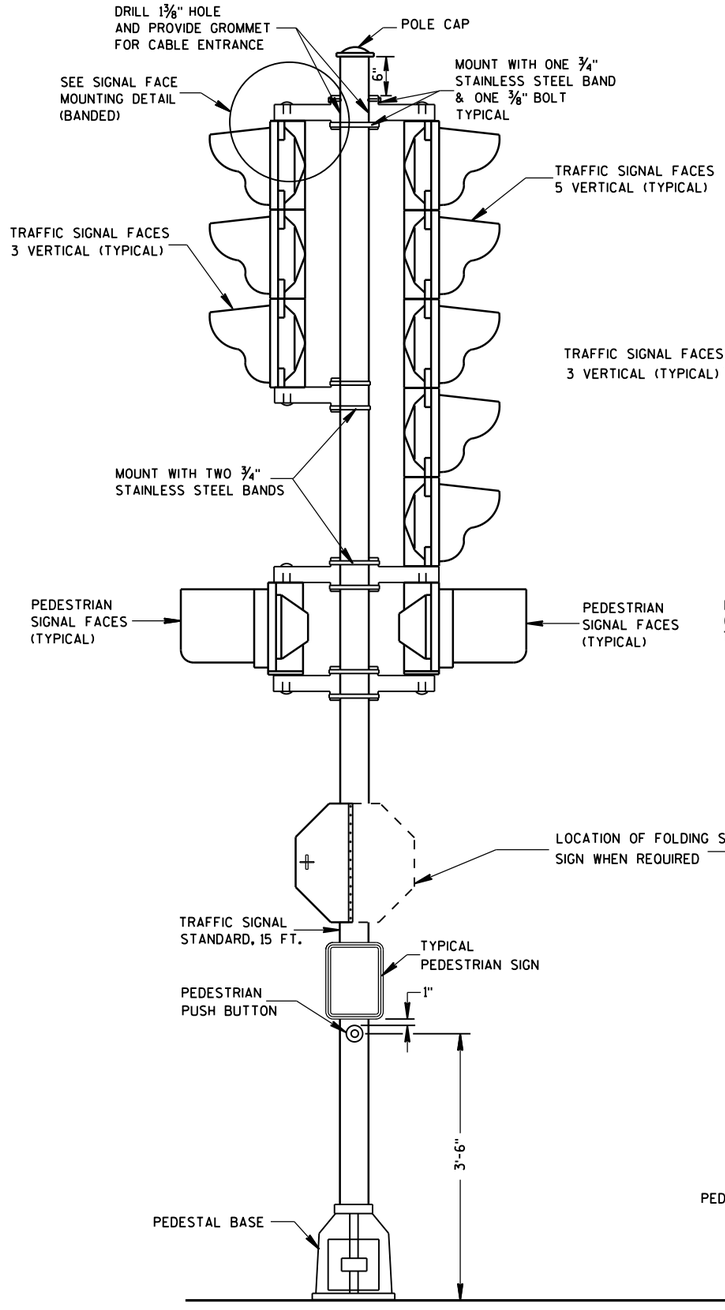
HARDWARE DETAILS FOR POLE MOUNTINGS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

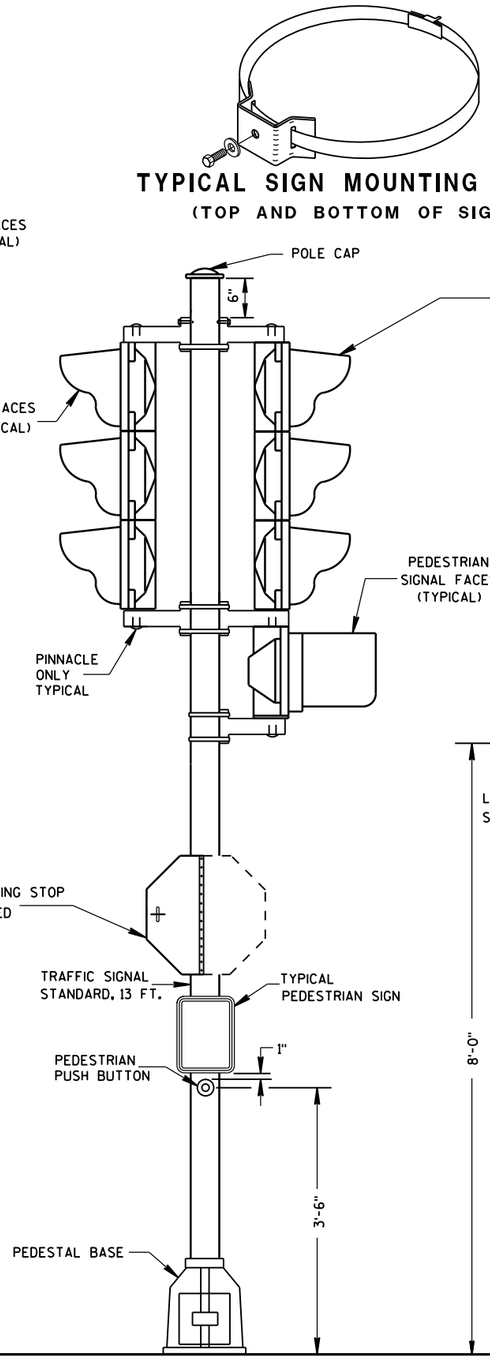
APPROVED
Feb. 2015 — DATE
/S/ Ahmet Demirbilek — STATE ELECTRICAL
FHWA

6

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

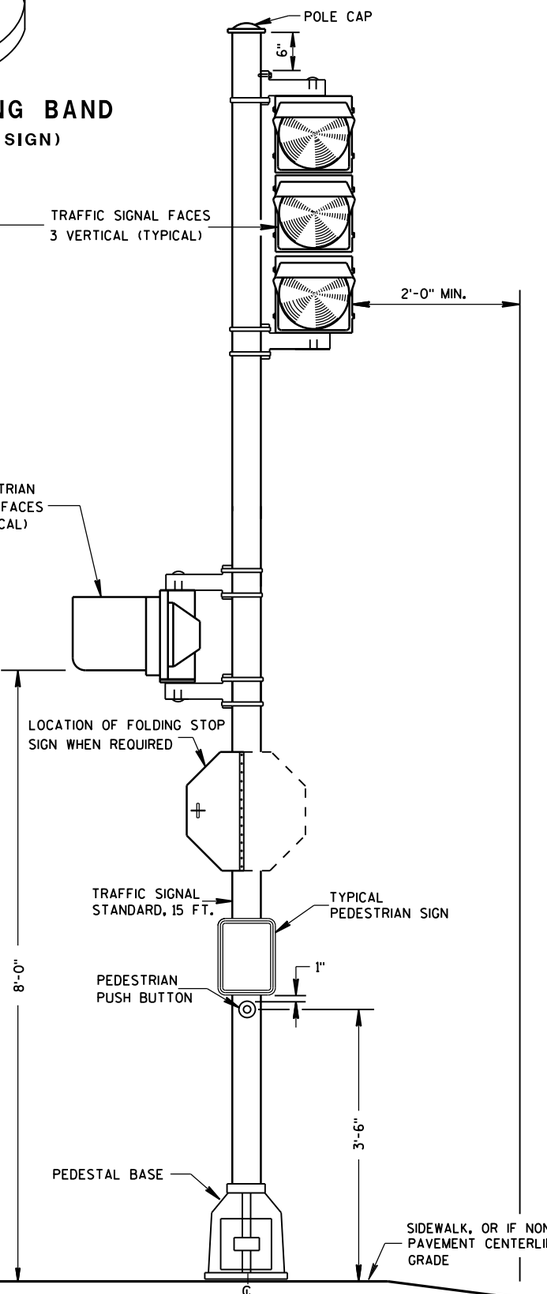


TRAFFIC SIGNAL STANDARD-15 FT.



TRAFFIC SIGNAL STANDARD-13 FT.

TYPICAL SIGN MOUNTING BAND
(TOP AND BOTTOM OF SIGN)



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

GENERAL NOTES

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

SEE THE SIGNAL PLAN FOR REQUIRED SIGNAL FACE SIZES.

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

FOR APPROVED MOUNTING HARDWARE, SEE THE CONTRACT SPECIAL PROVISIONS.

POLYCARBONATE MOUNTING BRACKETS SHALL BE USED.

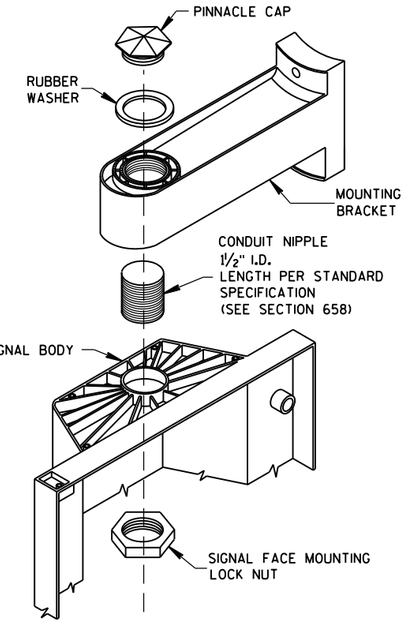
LENGTH AND LOCATION OF TRAFFIC SIGNAL STANDARDS SHALL BE AS SHOWN ON THE PLANS.

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

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

PEDESTRIAN SIGNS SHALL BE AS DESIGNATED IN THE PLANS.

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



SIGNAL FACE MOUNTING DETAIL
(BANDED)

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
2/28/2013 — DATE
/S/ Ahmet Demirbilek — STATE ELECTRICAL
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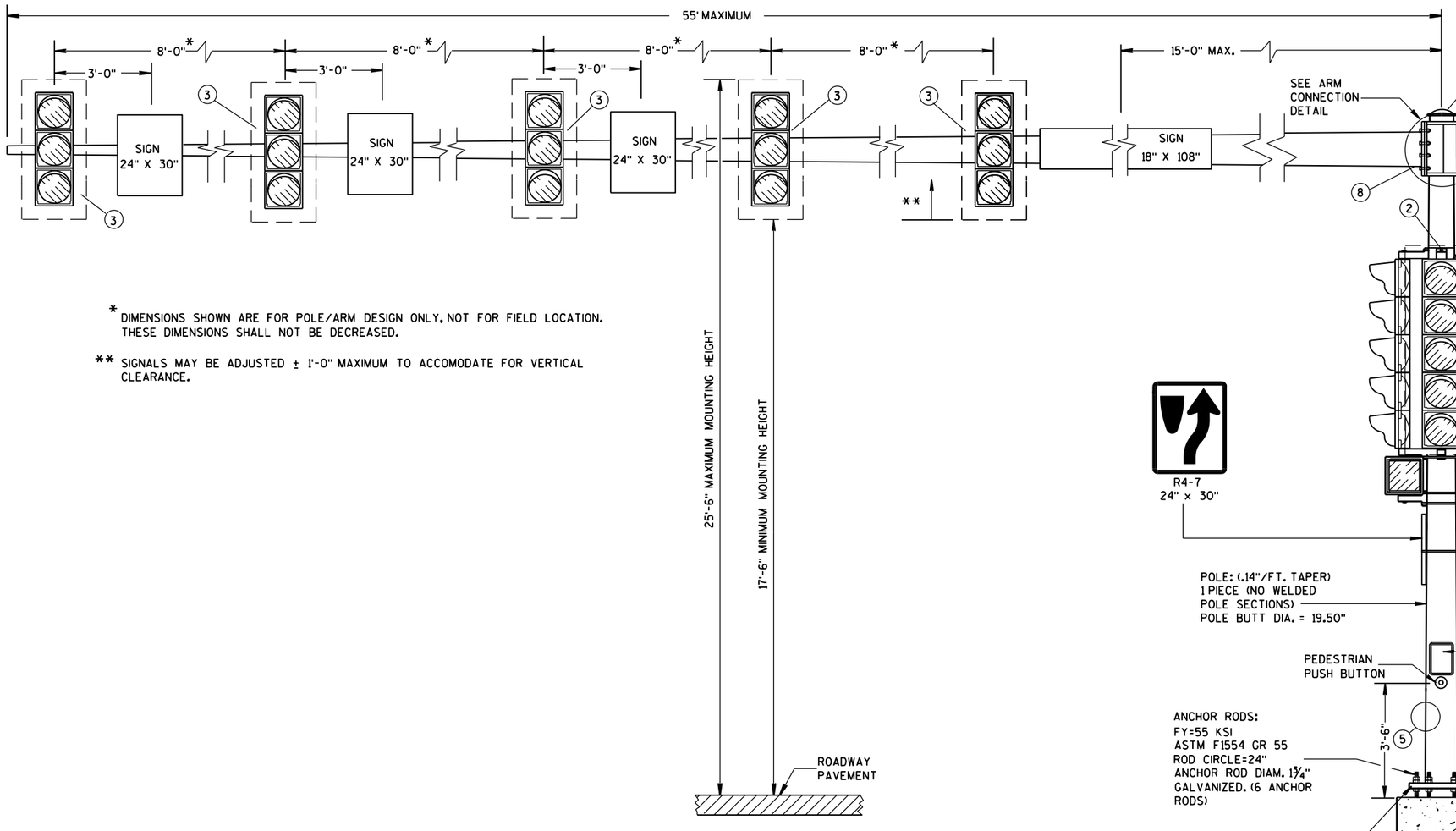
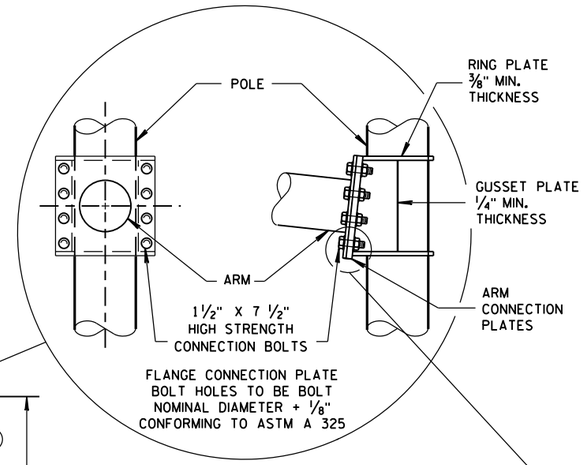
S.D.D. 9 E 6-5

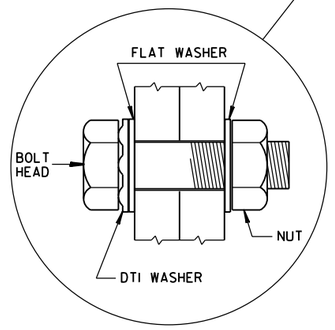


* DIMENSIONS SHOWN ARE FOR POLE/ARM DESIGN ONLY, NOT FOR FIELD LOCATION. THESE DIMENSIONS SHALL NOT BE DECREASED.

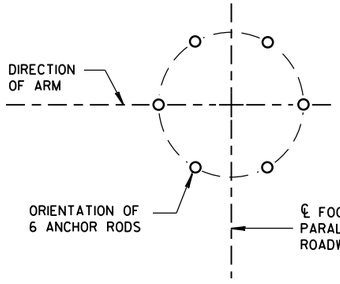
** SIGNALS MAY BE ADJUSTED ± 1'-0" MAXIMUM TO ACCOMODATE FOR VERTICAL CLEARANCE.



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

6

S.D.D. 9 E 8-7c

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.

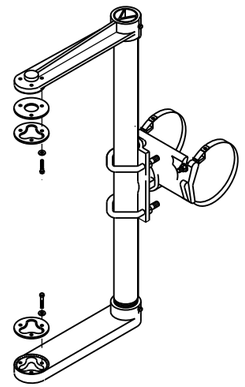
(6) FACTORY-WELDED "J" HOOK FOR STRAIN RELIEF FOR POLE LUMINAIRE WIRE.

(7) INSTALL STRUCTURAL IDENTIFICATION PLAQUES.

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

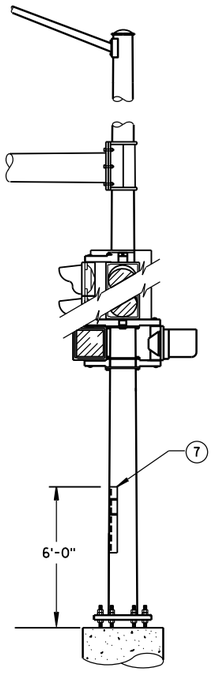
MOUNTING HEIGHT SHALL BE 6'-0" ABOVE THE CURB OR SHOULDER. ADJUST IF IT IS KNOWN THAT REQUIRED TRAFFIC SIGNS WILL BE OBSTRUCTED.

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

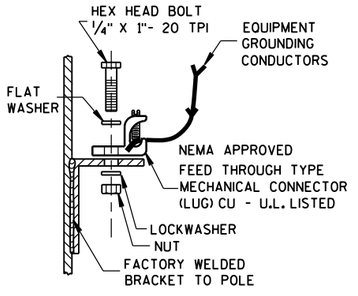


SIGNAL FACE MOUNTING BRACKET DETAIL FOR MONOTUBE ARM

(MOUNT PER MANUFACTURER'S RECOMMENDATION)

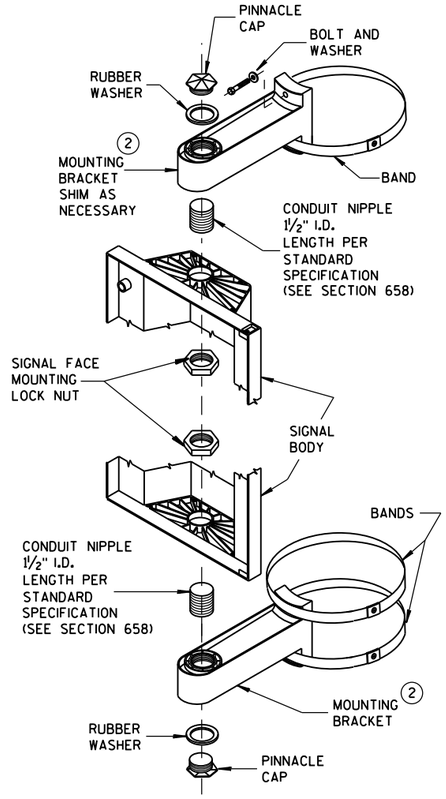


STRUCTURAL IDENTIFICATION PLAQUE PLACEMENT

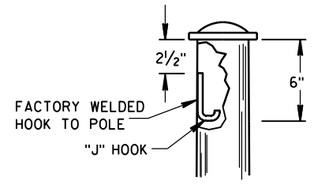


TYPICAL GROUNDING CONNECTIONS (5)

NUT, BOLT AND WASHERS SHALL BE STAINLESS STEEL



SIGNAL FACE VERTICAL MOUNTING DETAIL



"J" HOOK WIRE SUPPORT (6)

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

June, 2015 — DATE

/S/ Ahmet Demirbilek — STATE ELECTRICAL

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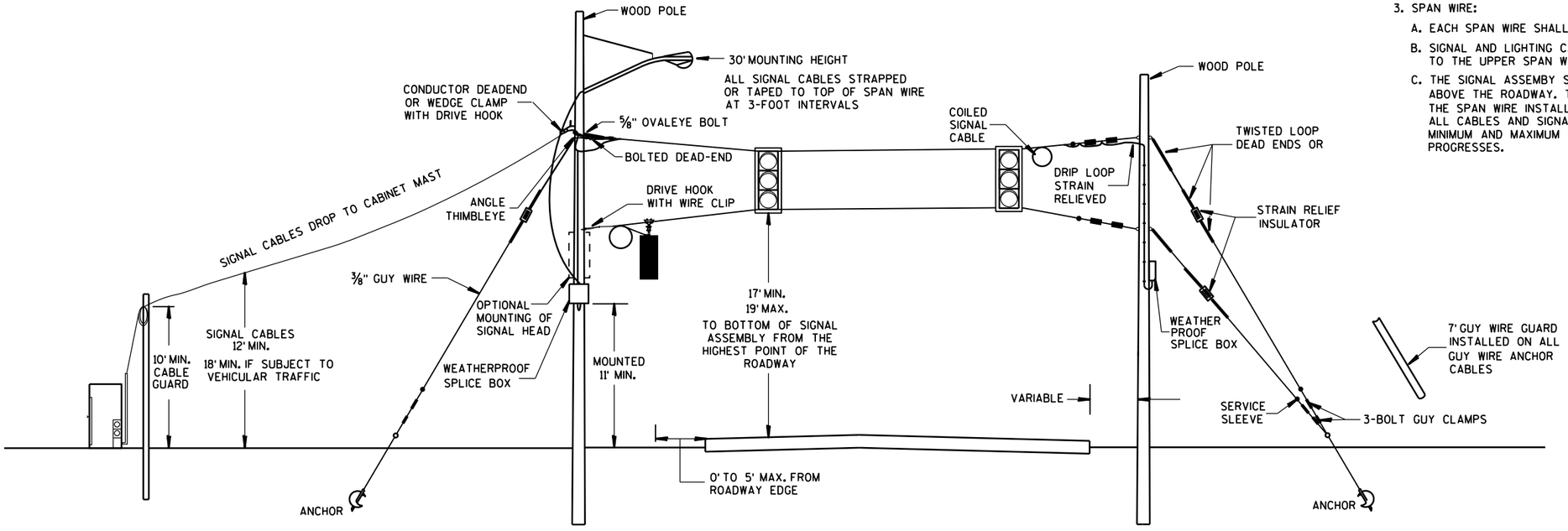
GENERAL NOTES

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

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
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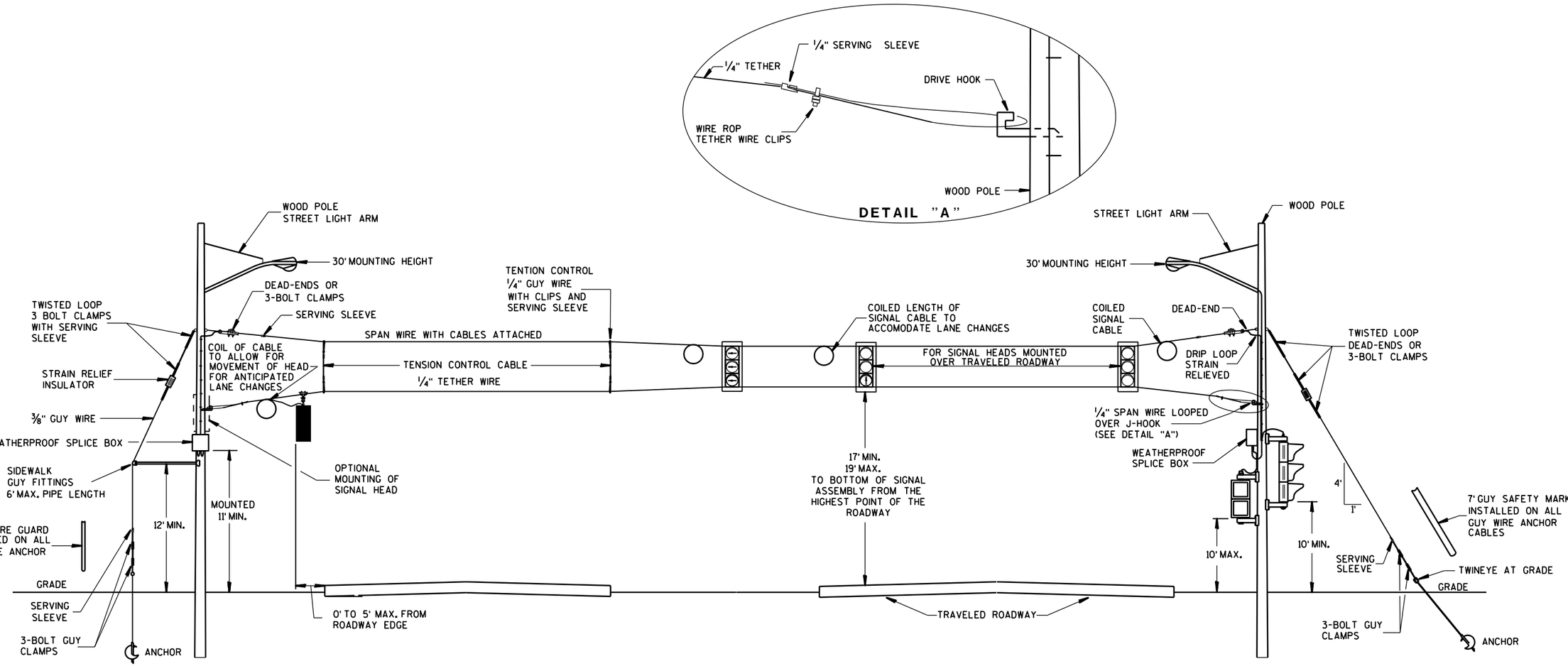

GENERAL NOTES

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   E. FAR INDICATION SHALL BE MAINTAINED OVER CENTER OF TRAFFIC LANE.
3. SPAN WIRE:
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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
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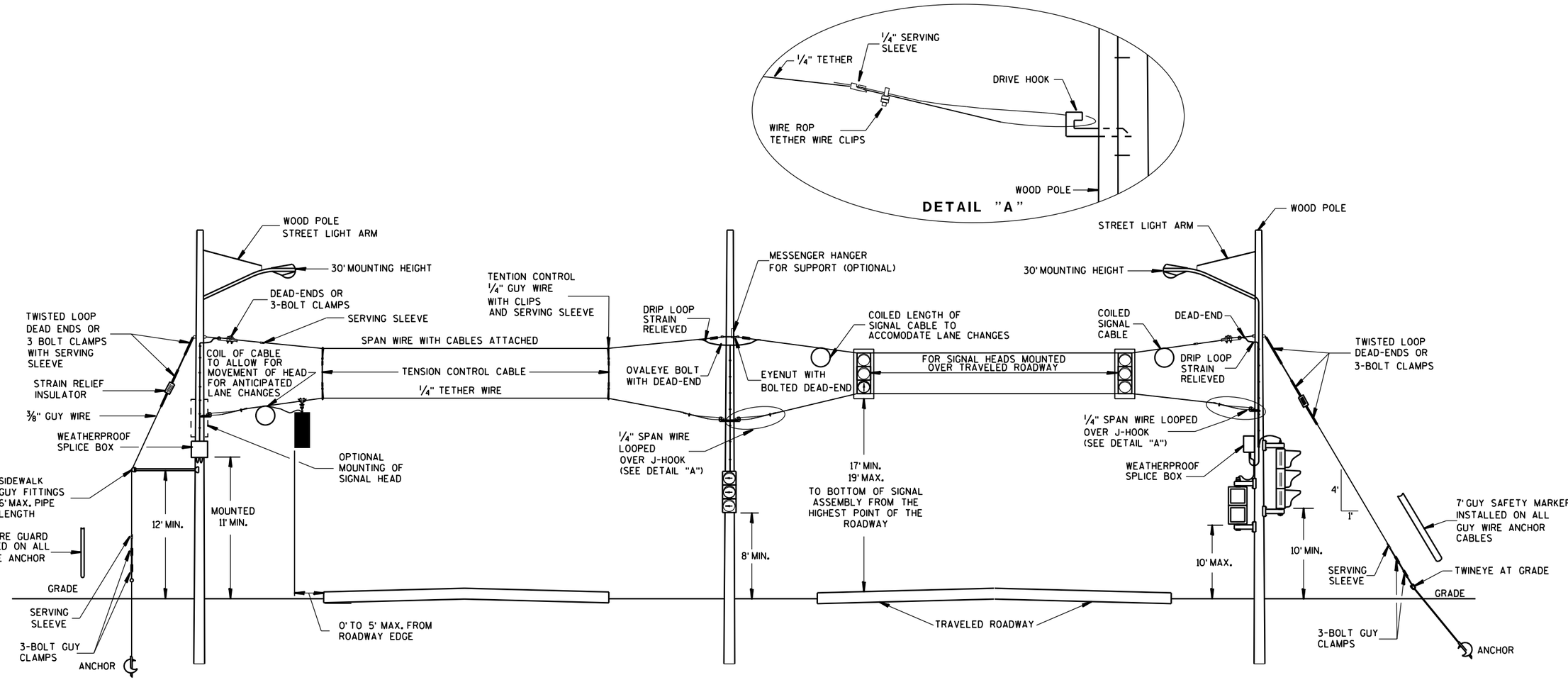

SPAN WIRE
TEMPORARY SIGNALS
4 LANE ROADWAYS

GENERAL NOTES

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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

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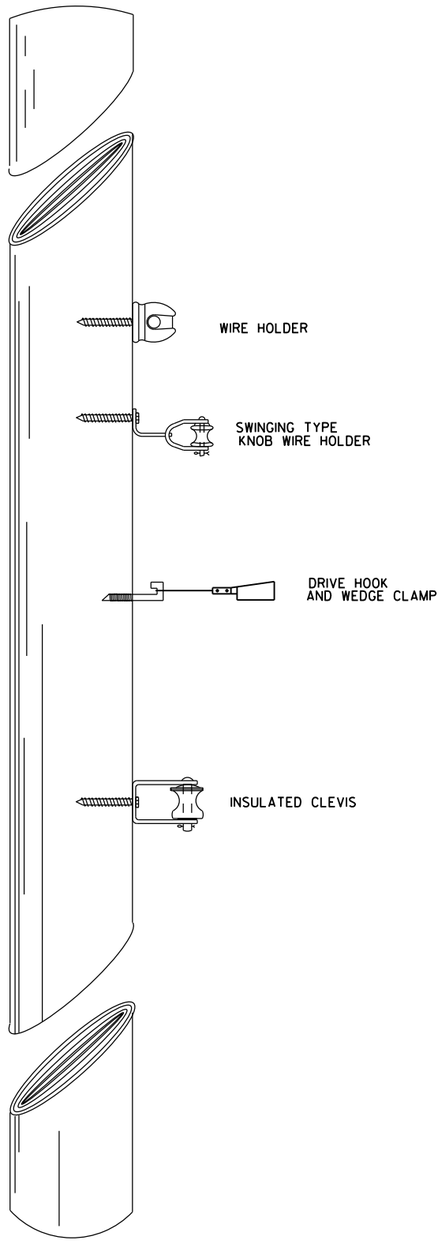
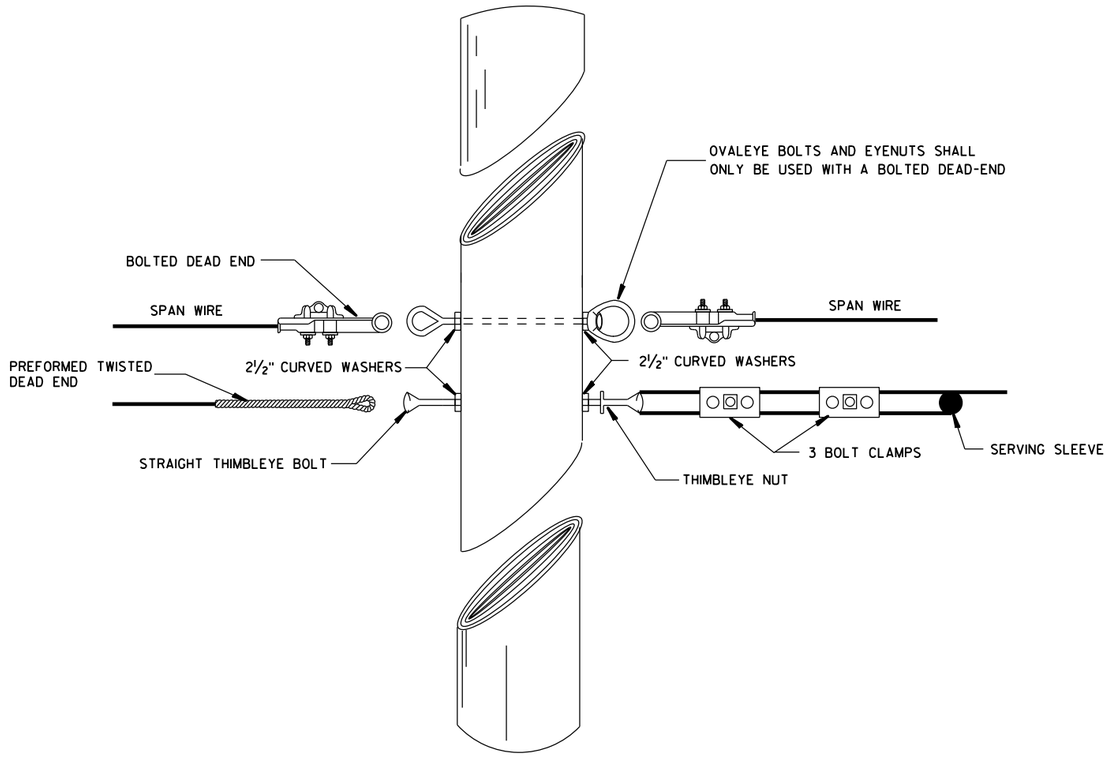


TYPICAL CABLE HANGERS



TYPICAL DEAD-ENDING

SPAN WIRE
TEMPORARY TRAFFIC SIGNAL

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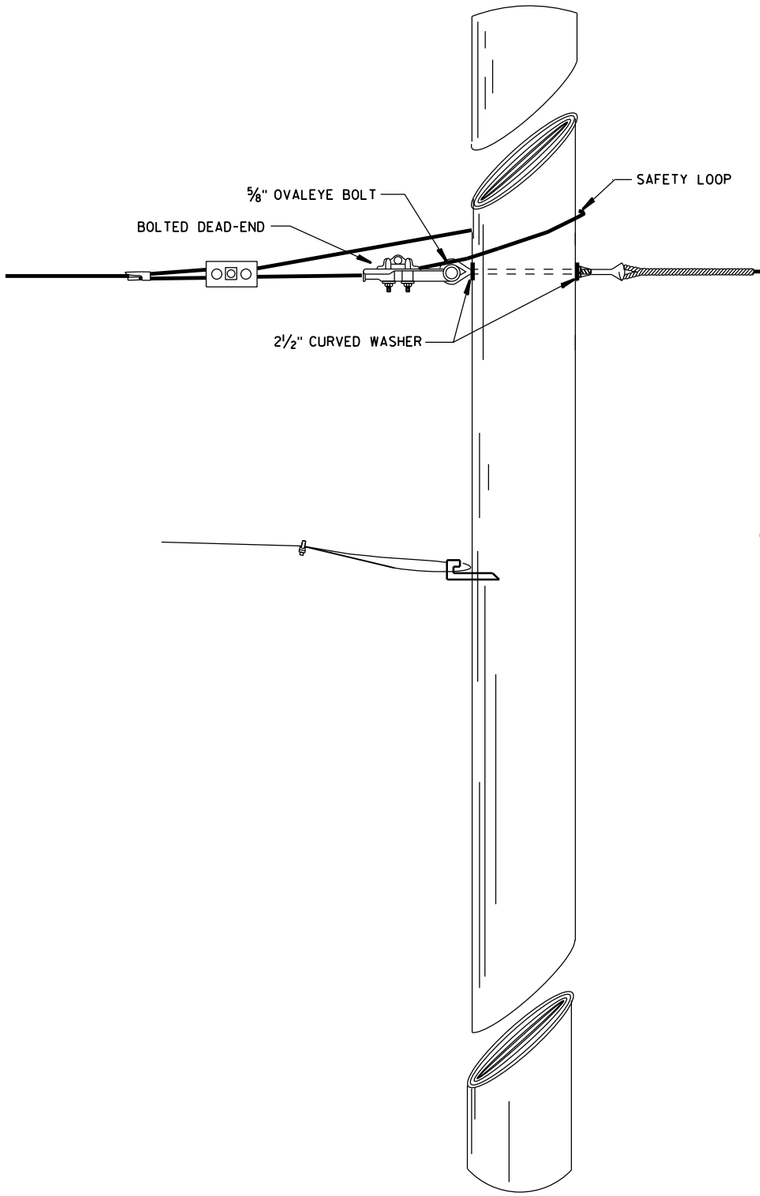
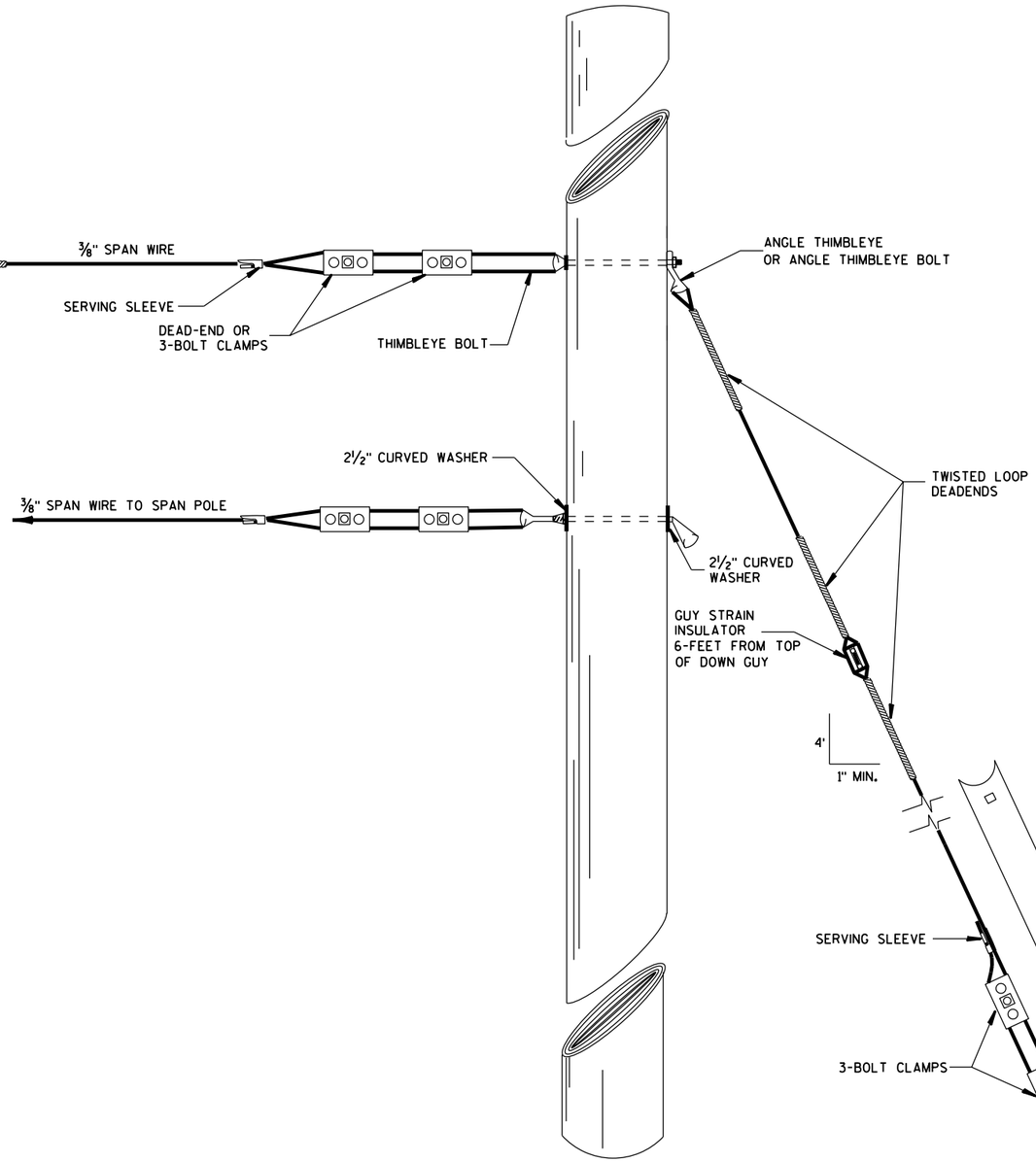
GENERAL NOTES

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

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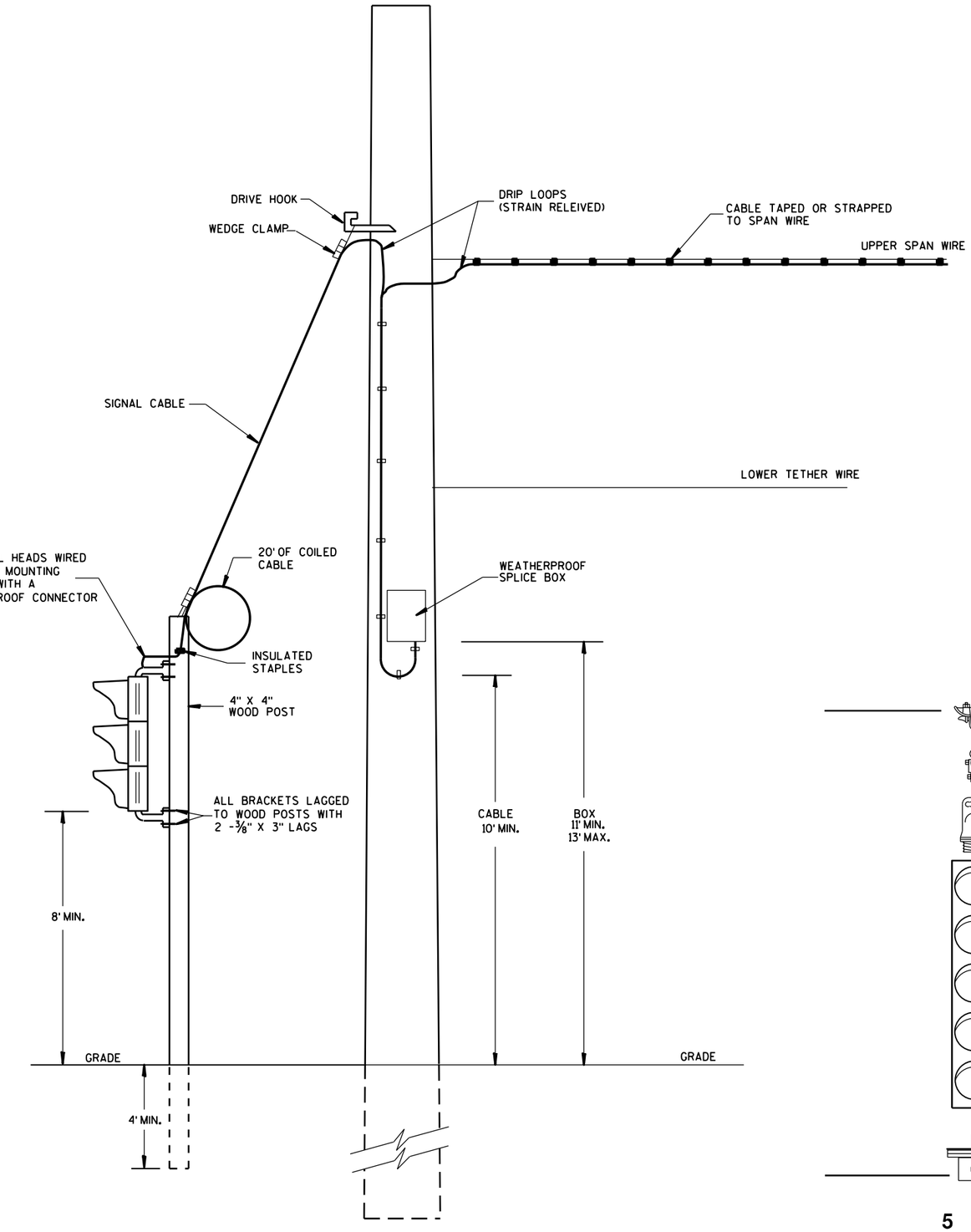
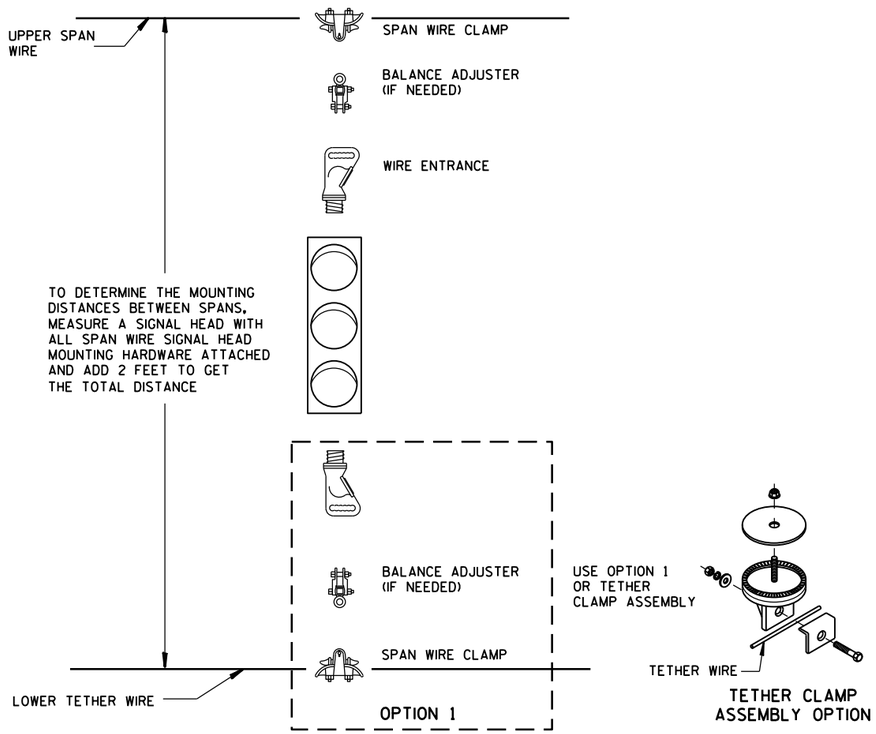
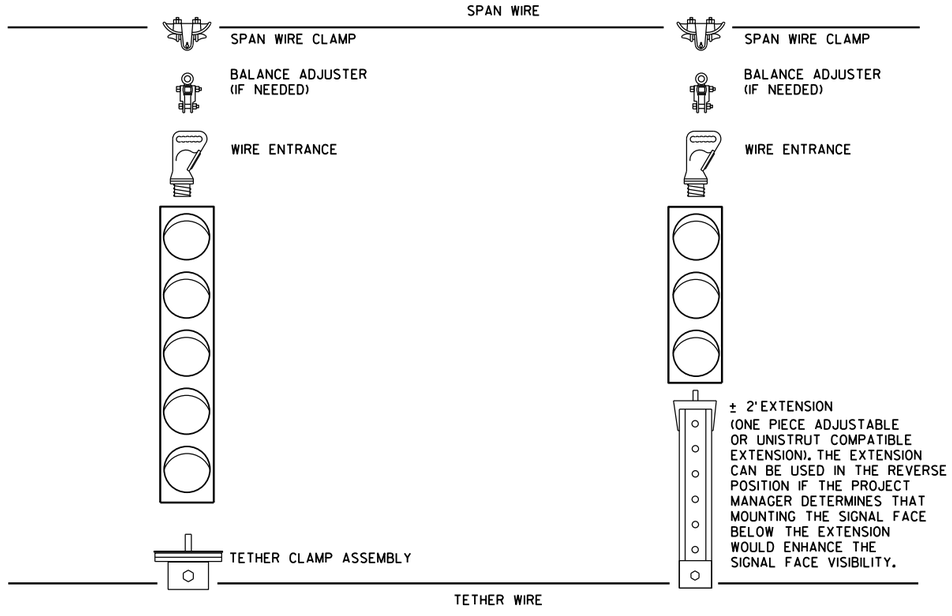


TYPICAL DROP TO TEMPORARY MOVEABLE SIGNAL



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
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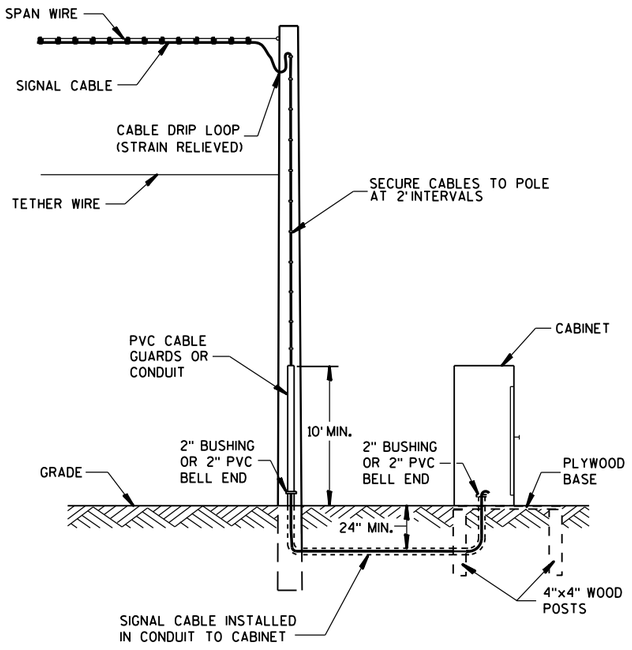
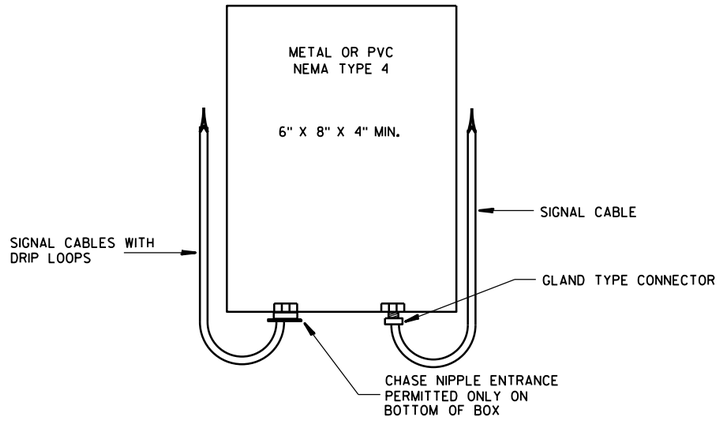
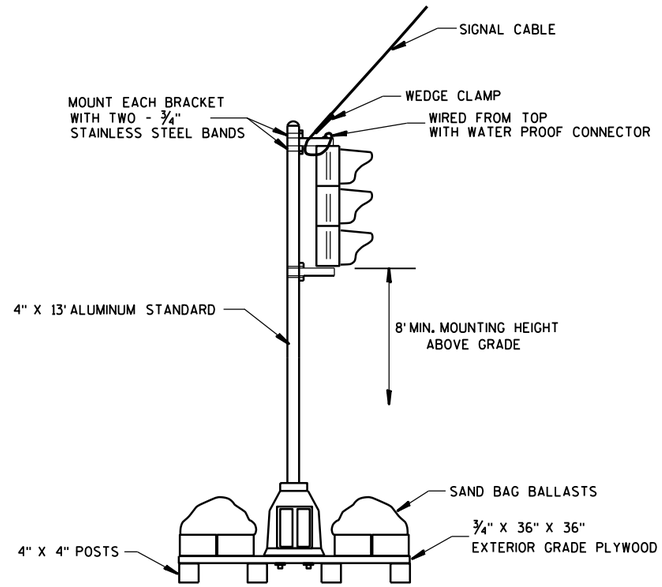
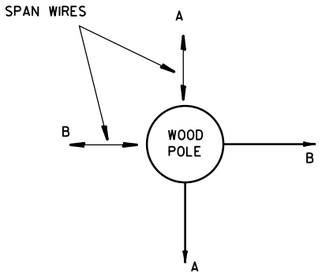




SPLICE BOX

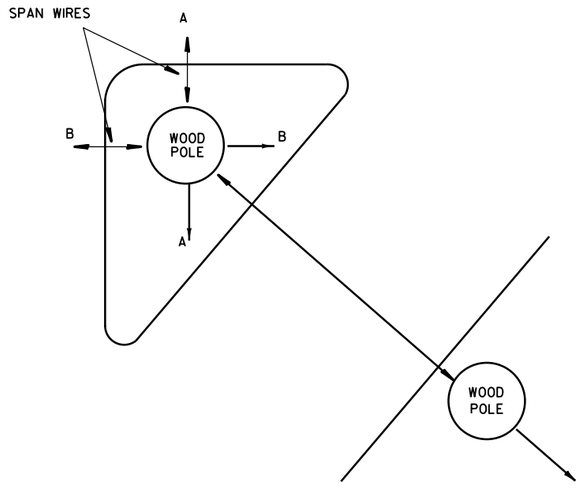


TYPICAL SKID TYPE TEMPORARY

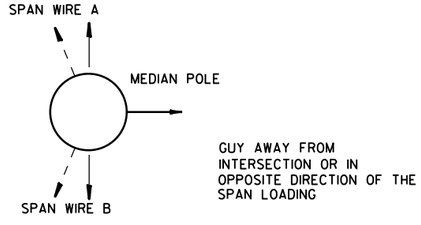


ALL DOWN OR SIDEWALK GUYS
SHALL BE INSTALLED IN THE
OPPOSITE DIRECTION OF THE
STRAIN OF THE SPAN WIRE

CORNER POLES



ISLAND POLES



MEDIAN POLES

SPAN WIRE TEMPORARY TRAFFIC SIGNAL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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June, 2015 — DATE
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S.D.D. 9 G 1-4g

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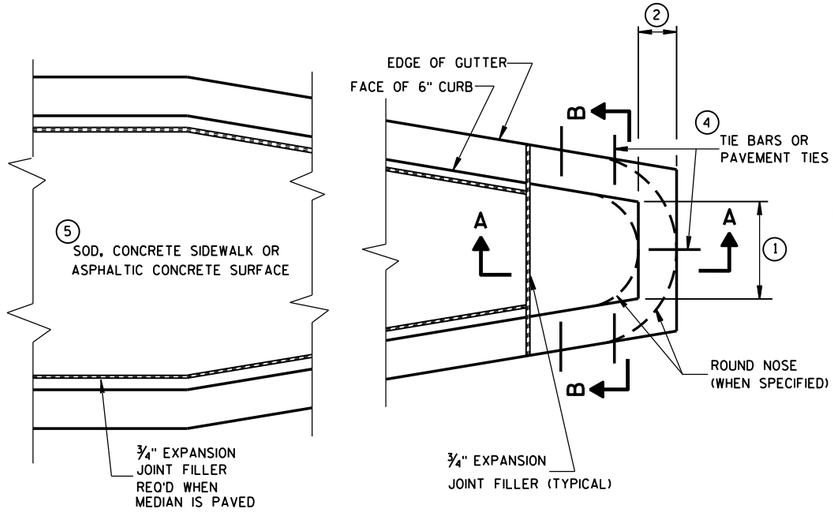
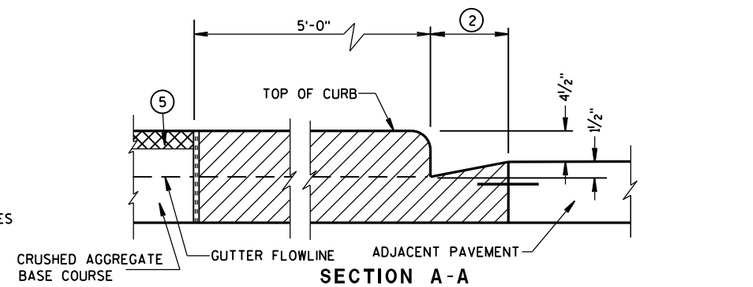
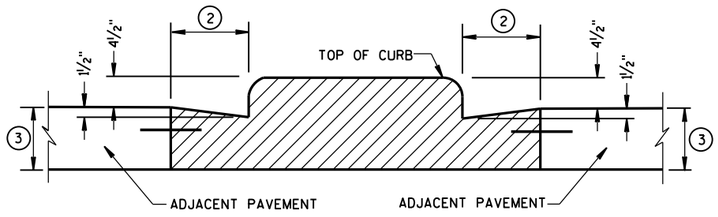






CONCRETE MEDIAN BLUNT NOSE DETAIL

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.

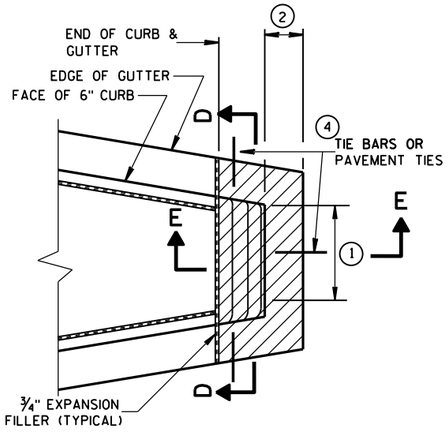
(2) ASPHALTIC CONCRETE PAVEMENT OVER NEW OR EXISTING CONCRETE BASE COURSE.

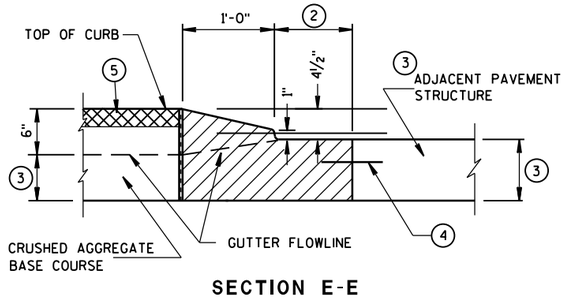
(3) ASPHALTIC CONCRETE PAVEMENT OVER CRUSHED AGGREGATE BASE COURSE.

(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.

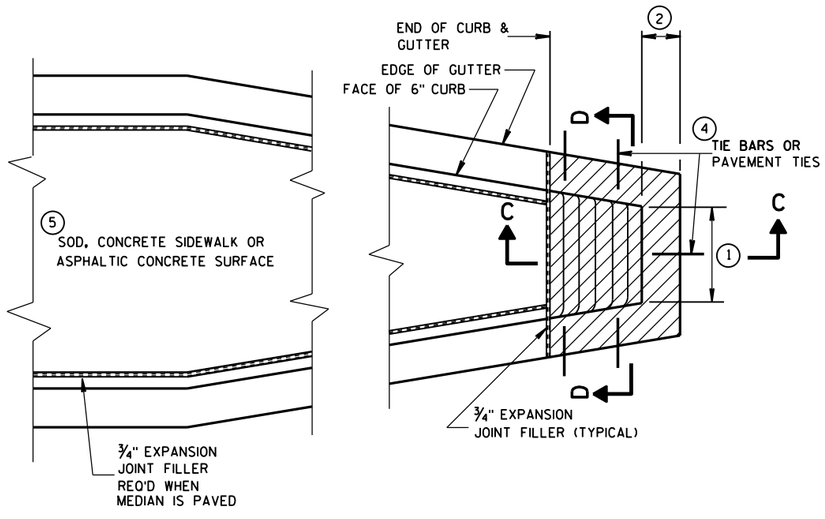
PAVEMENT TIES REQUIRED IN EXISTING CONCRETE BASE COURSE. PAVEMENT TIES SHALL BE NO. 6 X 1'-0" SPACED AT 3'-0" C-C INSTALLED ON A HORIZONTAL SKEW OF 6:1. THE DIRECTION OF SKEW SHALL ALTERNATE AFTER EVERY ONE OR TWO BARS.

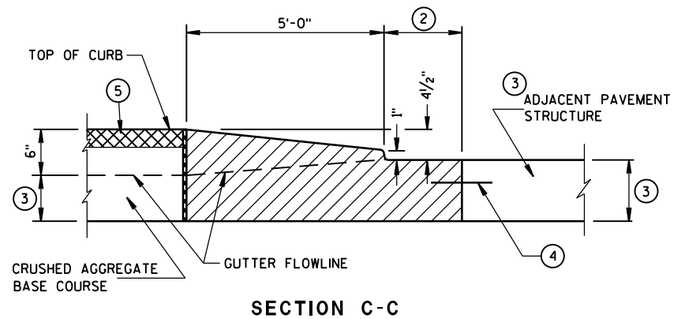
(5) SURFACE TYPE AND DETAILS ARE SHOWN ELSEWHERE IN THE PLAN.



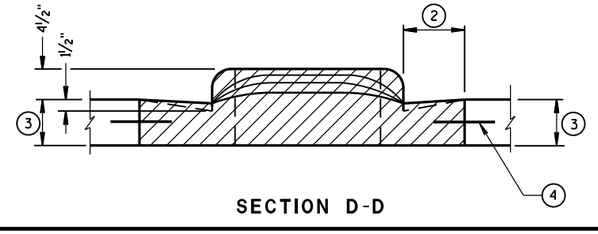


CONCRETE MEDIAN SLOPED NOSE TYPE 2





CONCRETE MEDIAN SLOPED NOSE TYPE 1



CONCRETE MEDIAN NOSE	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 6/8/2006 DATE FHWA	/S/ Jerry H. Zoga ROADWAY STANDARDS DEVELOPMENT ENGINEER

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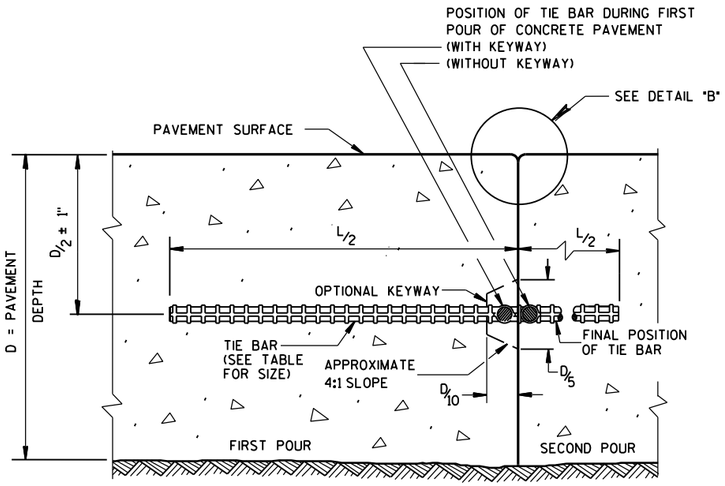
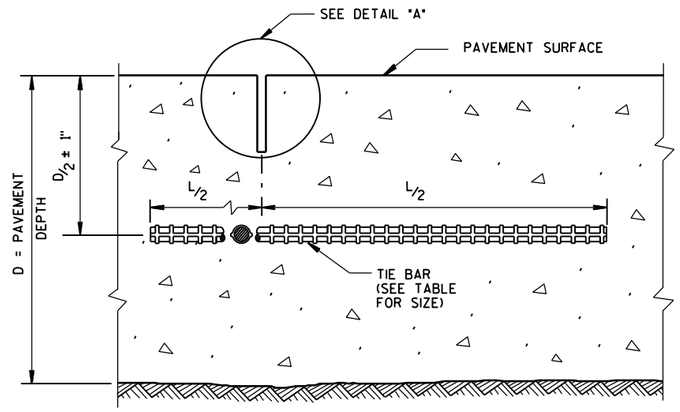
S.D.D. 11 B 2-2



CONSTRUCTION JOINT



SAWED JOINT

GENERAL NOTES

DO NOT SEAL OR FILL LONGITUDINAL JOINTS.

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

CORRELATE LONGITUDINAL JOINTS WITH LANE LINES WHEN POSSIBLE.

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

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

PLAN VIEW

SECTION A-A

LONGITUDINAL CONSTRUCTION JOINT TIE BARS ANCHORED INTO EXISTING PAVEMENT

DETAIL "A"

DETAIL "B"

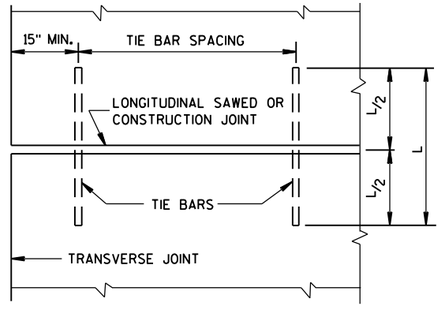
DETAIL "C"

TIE BAR TABLE

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

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

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



PLAN VIEW
SHOWING LOCATION OF TIE BARS

CONCRETE PAVEMENT LONGITUDINAL JOINTS AND TIES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

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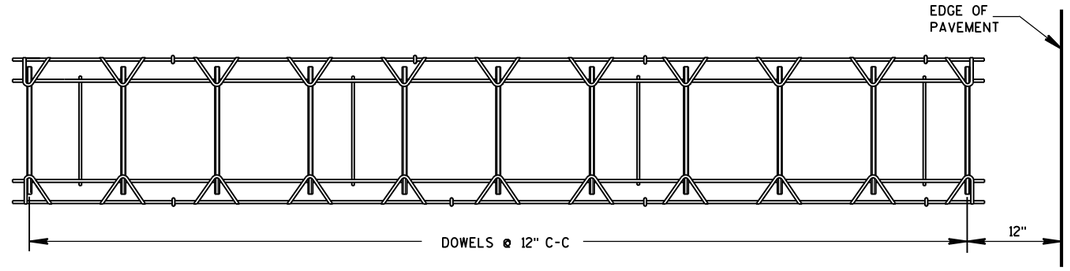
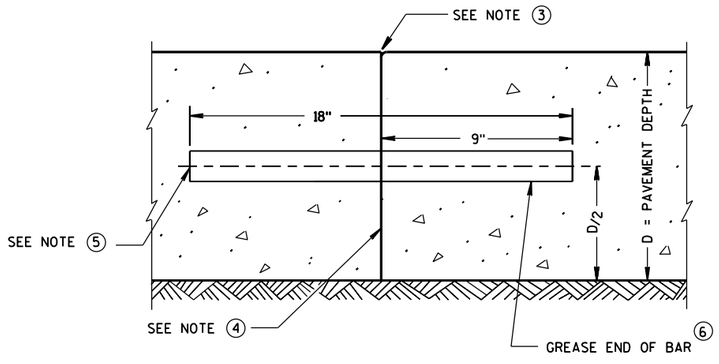
S.D.D. 13 C 1-18



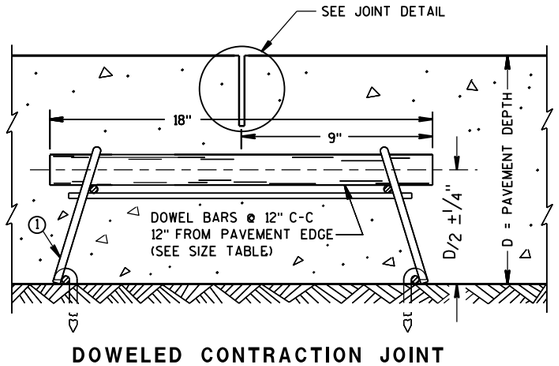
PLAN VIEW

SIDE VIEW

CONTRACTION JOINT DOWEL ASSEMBLY ①



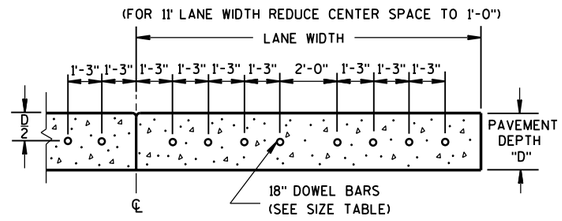
TRANSVERSE CONSTRUCTION JOINT



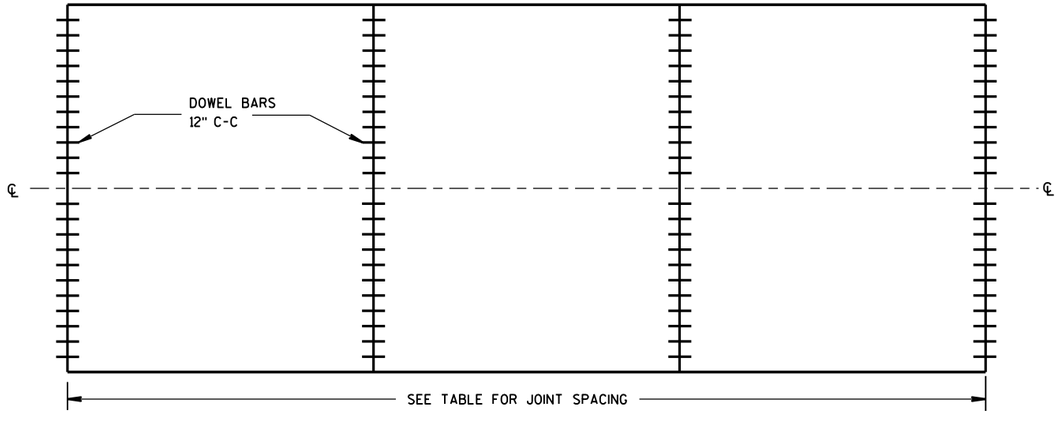
DOWELED CONTRACTION JOINT

PAVEMENT DEPTH, DOWEL BAR SIZE AND JOINT SPACING TABLE

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



DRILLED DOWEL BAR CONSTRUCTION JOINT ⑦



CONTRACTION JOINT LOCATIONS

GENERAL NOTES

CONTRACTION JOINTS

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

DO NOT SEAL OR FILL CONTRACTION JOINTS.

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

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

CONSTRUCTION JOINTS

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

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

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

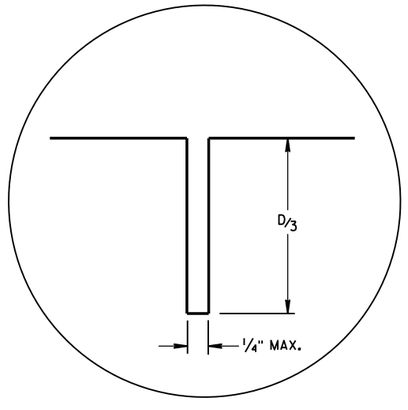
③ FORM OR SAW CONSTRUCTION JOINTS. PROVIDE A ¼-INCH RADIUS AT FORMED JOINTS.

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

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

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

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



JOINT DETAIL

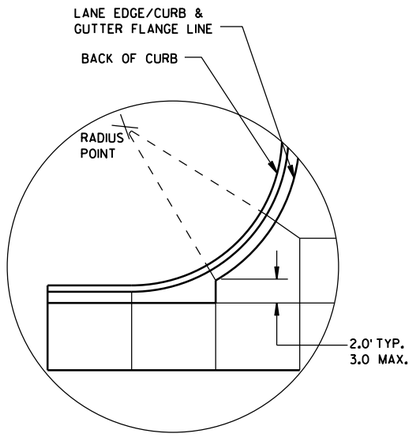
URBAN DOWELED CONCRETE PAVEMENT

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

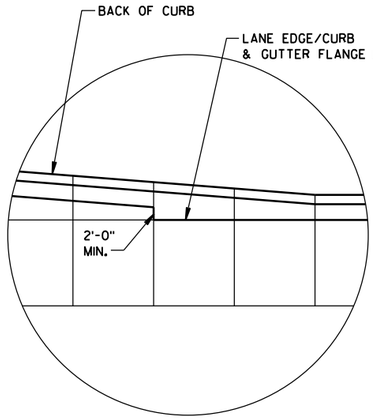
APPROVED
5/3/2013 DATE
/S/ Deb Bischoff
PAVEMENT POLICY & DE ENGINEER
FHWA

6

S.D.D. 13 C 13-8



DETAIL "A"



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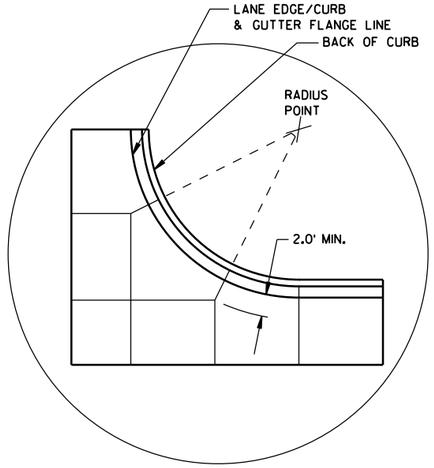

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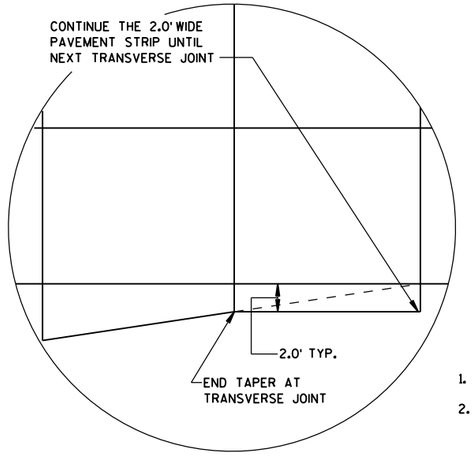


DETAIL "D"

GENERAL NOTES

THE PRIMARY ROADWAY CONTROLS THE TRANSVERSE JOINT PATTERN.

ALIGN NEW JOINTS WITH EXISTING JOINTS OR CRACKS.

CONSTRUCT TRANSVERSE JOINTS PERPENDICULAR TO THE ROADWAY.

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

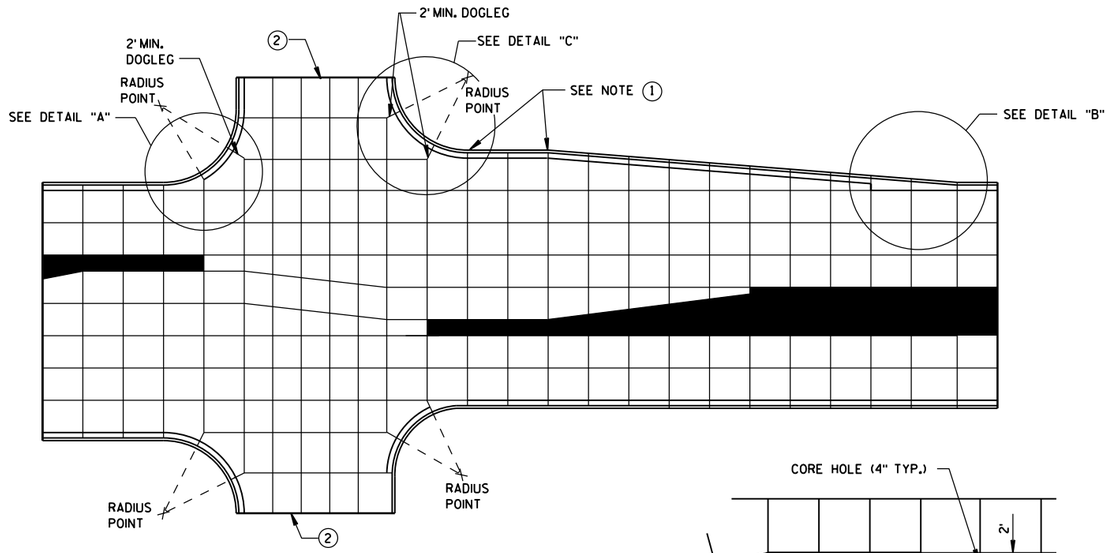
AVOID SLABS LESS THAN 2 FEET WIDE OR GREATER THAN 15 FEET WIDE.

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

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

CORRELATE LONGITUDINAL JOINTS WITH LANE LINES WHEN POSSIBLE.

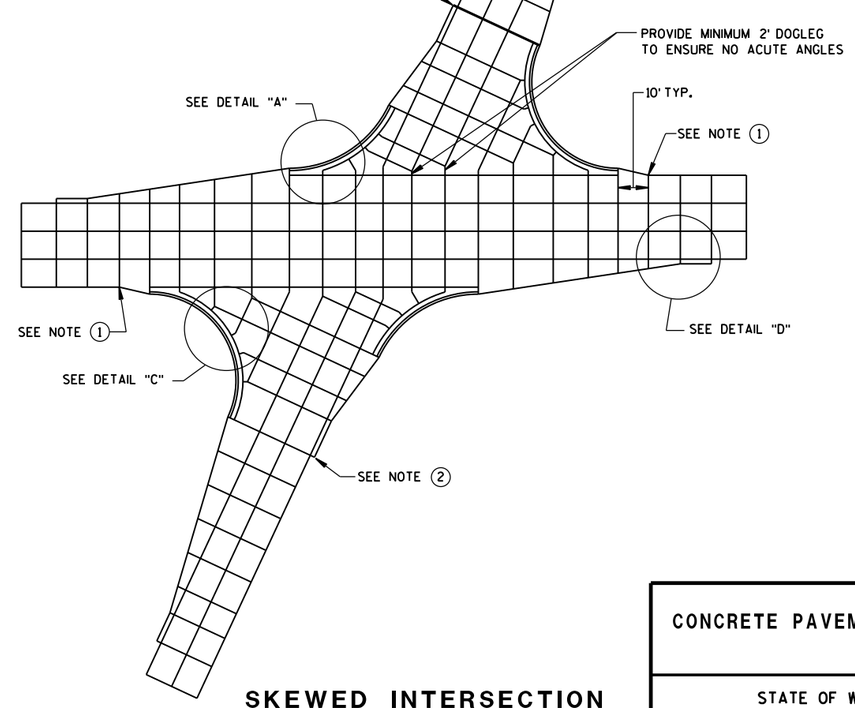
1. PROVIDE TRANSVERSE JOINTS AT ALL PAVEMENT WIDTH CHANGES.
2. CONSTRUCT DOWELED EXPANSION JOINT ON THE SIDE ROAD OF AN INTERSECTION IF THE SIDE ROAD IS CONCRETE PAVEMENT AND GREATER THAN 300 FEET IN LENGTH. ALIGN EXPANSION JOINT WITH EDGE OF RADIUS.
3. THE ENGINEER MAY APPROVE SLIGHT VARIATIONS FROM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



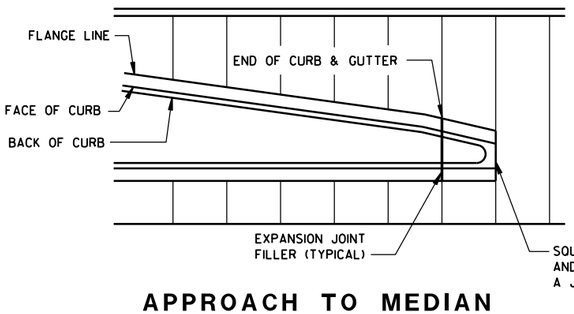
STANDARD INTERSECTION

PAVEMENT DEPTH AND JOINT SPACING TABLE

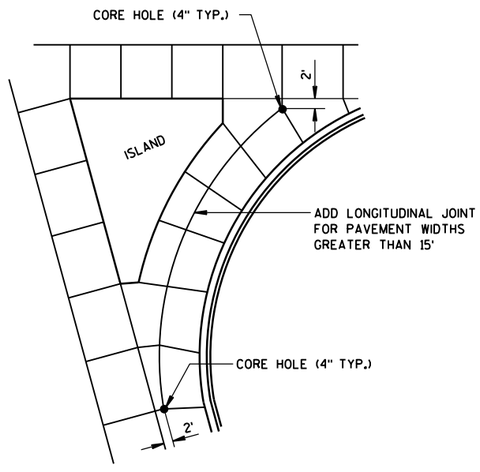
PAVEMENT DEPTH (D)	CONTRACTION JOINT SPACING
6", 6½"	12'
7", 7½"	14'
8" & ABOVE	15'



SKEWED INTERSECTION



APPROACH TO MEDIAN



LARGE RIGHT TURN

CONCRETE PAVEMENT JOINTING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR 83

6

S.D.D. 13 C 18-3a

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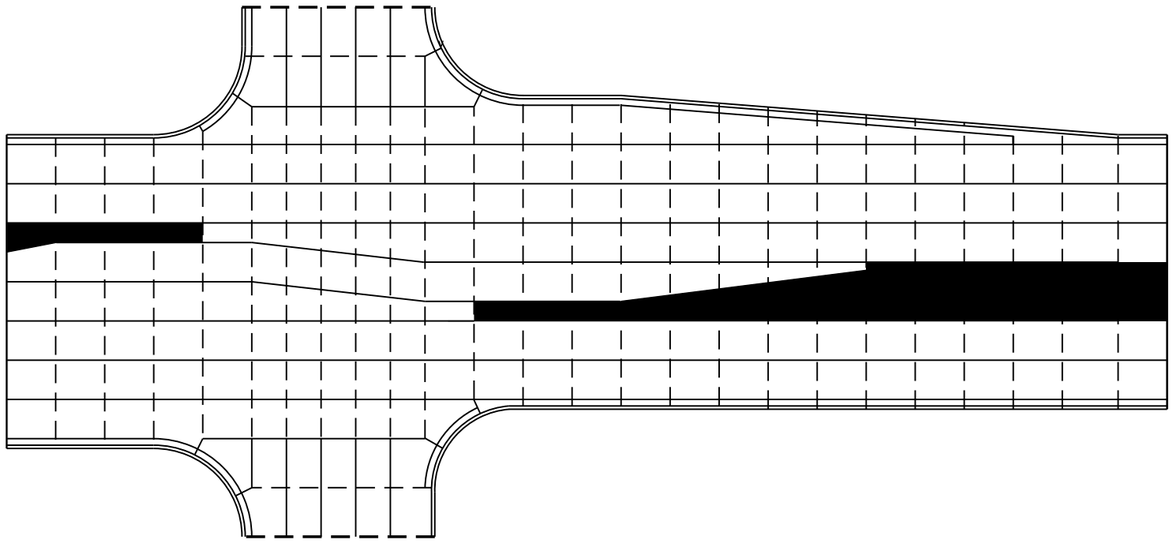
S.D.D. 13 C 18-3a

LEGEND

POTENTIAL DOWELED EXPANSION JOINT

DOWELED JOINT

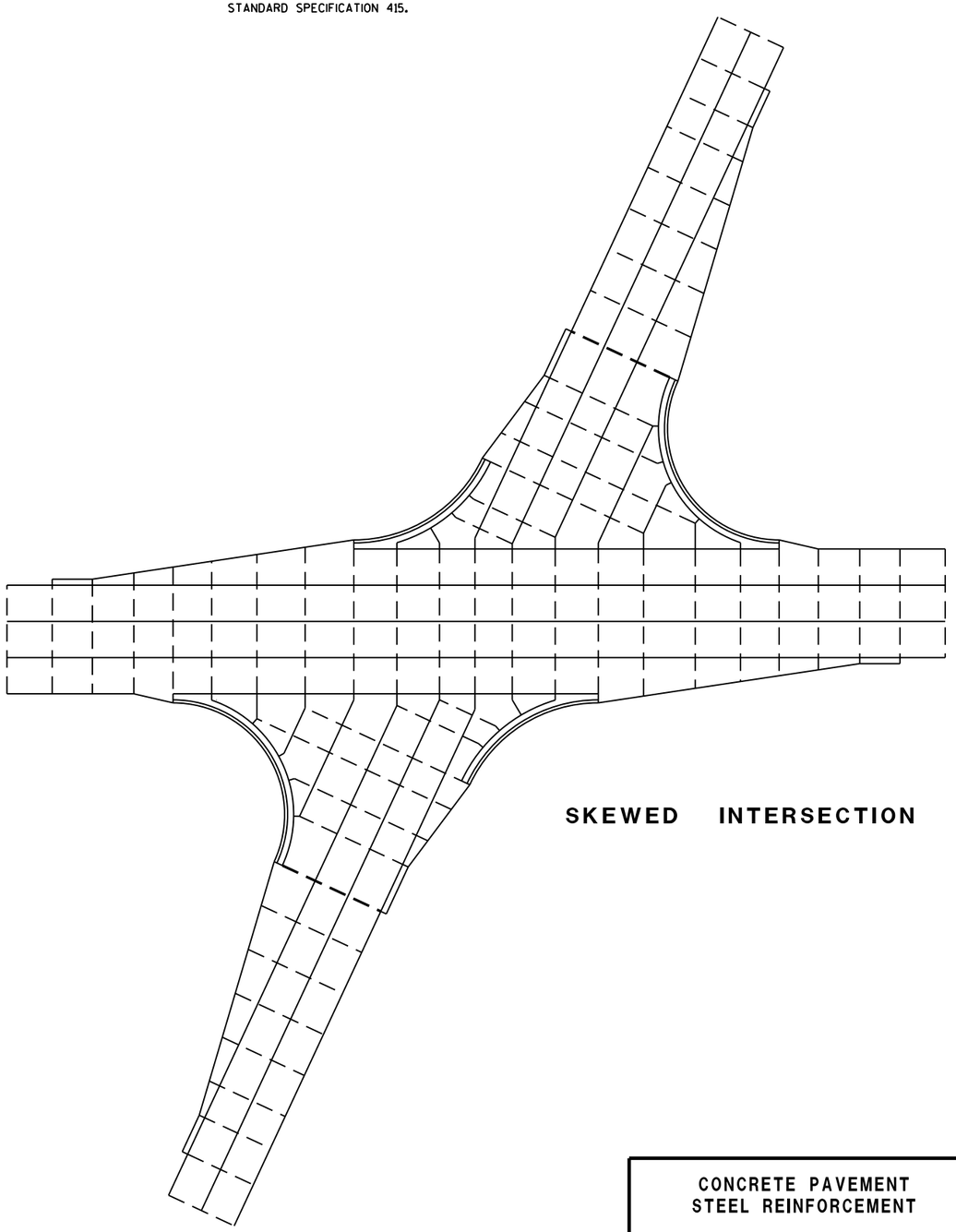
TIED JOINT



STANDARD INTERSECTION

GENERAL NOTES

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



SKEWED INTERSECTION

6

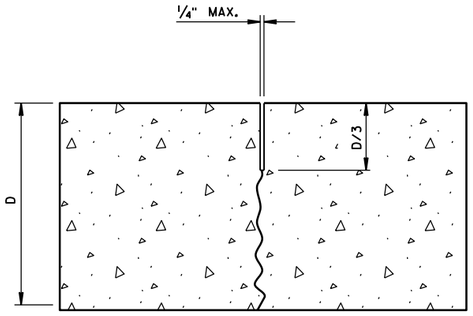
S.D.D. 13 C 18-3b

CONCRETE PAVEMENT
STEEL REINFORCEMENT

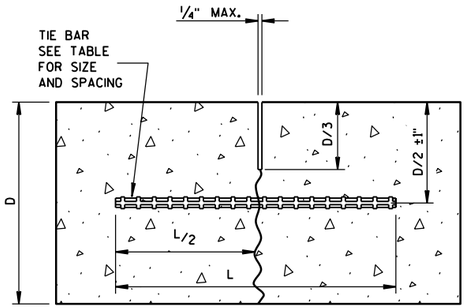
STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR

6

S.D.D. 13 C 18-3b



UNDOWELED-TRANSVERSE



TIED LONGITUDINAL

TIE BAR TABLE

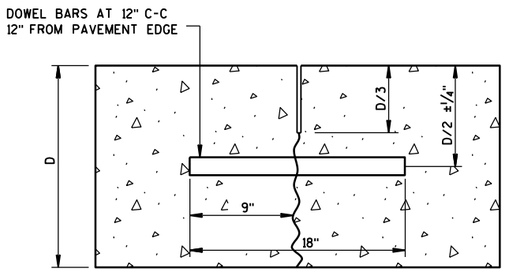
PAVEMENT DEPTH (D)	TIE BAR SIZE	TIE BAR LENGTH (L)	MAX. TIE BAR SPACING
< 10 1/2"	NO. 4	30"	36"
≥ 10 1/2"	NO. 5	36"	36"
	NO. 4*	30"	24"**

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

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

GENERAL NOTES

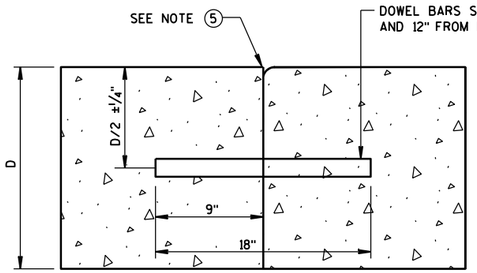
1. USE DOWELED EXPANSION JOINTS ON SIDE ROADS AT INTERSECTIONS (TO ISOLATE THE SIDE ROAD FROM THE THROUGH STREET) IF THE SIDE ROAD IS CONCRETE PAVEMENT AND GREATER THAN 300 FEET IN LENGTH.
2. SPACE CONTRACTION JOINTS IN ACCORDANCE WITH 13C4, 13C11 OR 13C13.
3. LOCATE CONSTRUCTION JOINTS A MINIMUM OF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



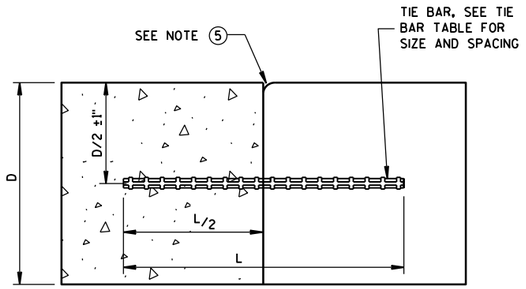
DOWELED-TRANSVERSE

CONTRACTION JOINTS

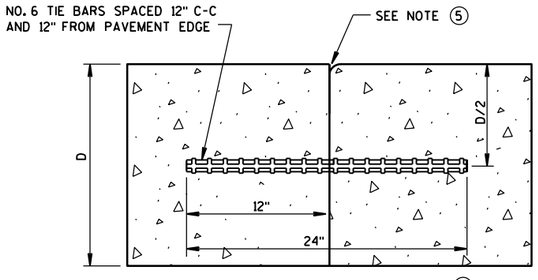
SEE NOTE (2)



DOWELED TRANSVERSE (3)

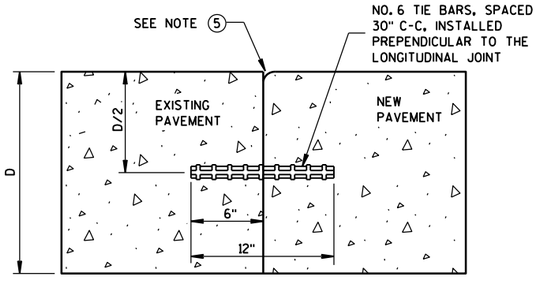


TIED LONGITUDINAL



TIED TRANSVERSE (3)

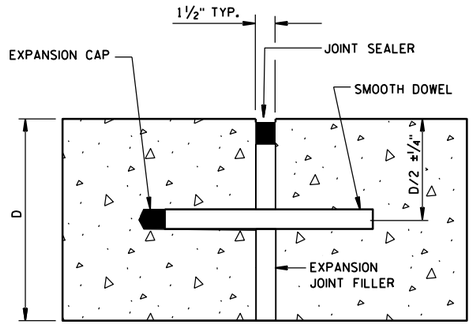
(FOR USE ON NON-DOWELED PAVEMENTS ONLY)



TIED LONGITUDINAL TO EXISTING

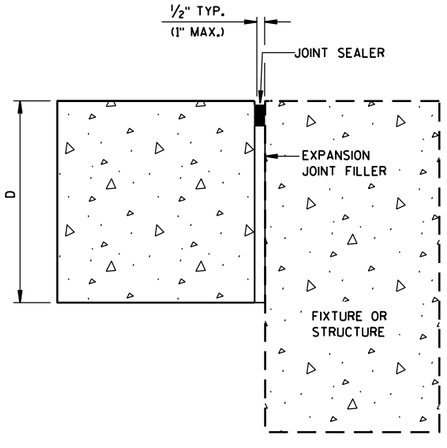
CONSTRUCTION JOINTS

SEE NOTE (4)



DOWELED-TRANSVERSE

SEE NOTE (1)



UNTIED-LONGITUDINAL

EXPANSION JOINTS

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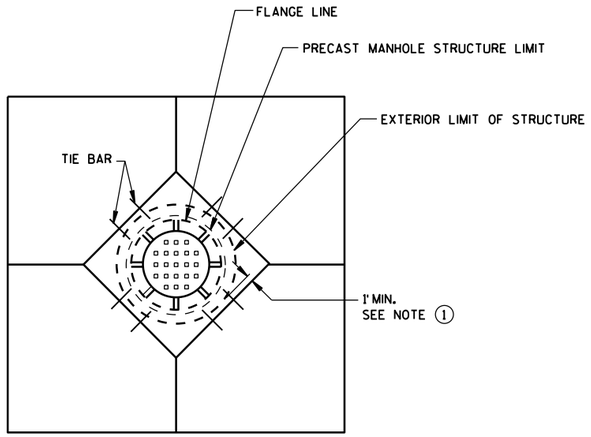
S.D.D. 13 C 18-3c

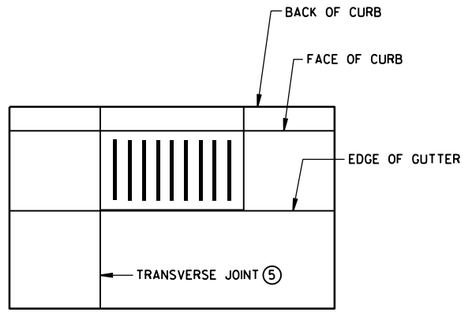
S.D.D. 13 C 18-3c

CONCRETE PAVEMENT
JOINT TYPES

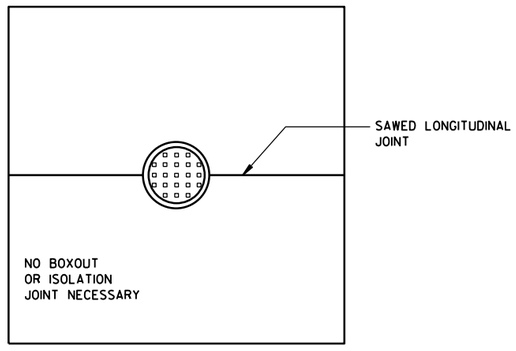
STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI



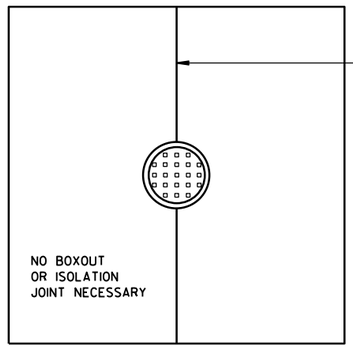
DIAGONAL MANHOLE BOXOUT FOR CONSTRUCTION JOINTS



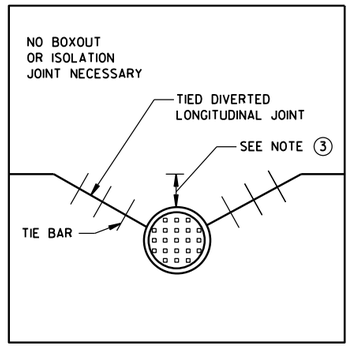
INLET WITH TRANSVERSE JOINT



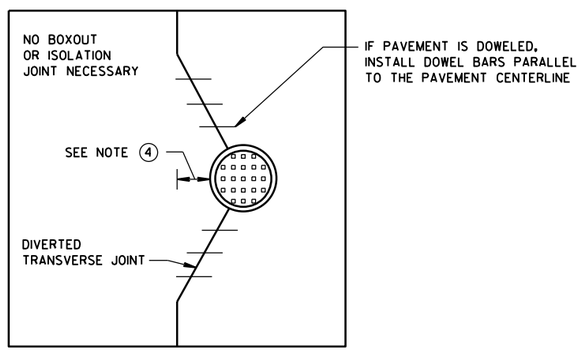
MANHOLE WITH LONGITUDINAL JOINT



MANHOLE WITH TRANSVERSE JOINT



MANHOLE WITH DIVERTED LONGITUDINAL CONTRACTION JOINT



MANHOLE WITH DIVERTED TRANSVERSE CONTRACTION JOINT

GENERAL NOTES

(1) USE BOXOUTS WHEN UTILITY STRUCTURE IS IN THE PATH OF CONSTRUCTION JOINTS. PROVIDE A 1-FOOT MINIMUM CLEARANCE BETWEEN THE EXTERIOR LIMIT OF THE STRUCTURE TO THE DIAMOND BOXOUT.

(2) ADJUST TRANSVERSE JOINT TO INTERSECT MANHOLE IF POSSIBLE.

(3) IF DISTANCE BETWEEN THE LONGITUDINAL JOINT AND THE EDGE OF MANHOLE IS 2 FEET OR LESS, DIVERT THE LONGITUDIAL JOINT AT A 2:1 TAPER RATE TO THE CENTER OF THE MANHOLE. IF THE DISTANCE IS GREATER THAN 2 FEET, DO NOT DIVERT THE JOINT AND SAW AS NORMAL. PLACE REBAR REINFORCEMENT AROUND THE MANHOLE.

(4) IF DISTANCE FROM THE EDGE OF THE MANHOLE TO THE NEAREST TRANSVERSE JOINT IS 4 FEET OR LESS, REDIRECT JOINT TO INTERSECT THE CENTER OF THE MANHOLE. IF DISTANCE IS GREATER THAN 4 FEET, DO NOT DIVERT THE JOINT AND SAW AS NORMAL. PLACE REBAR REINFORCEMENT AROUND THE MANHOLE.

(5) ALIGN TRANSVERSE JOINT WITH ONE EDGE OF INLET WHEN PRACTICAL.

CONCRETE PAVEMENT JOINTING AT UTILITY FIXTURES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

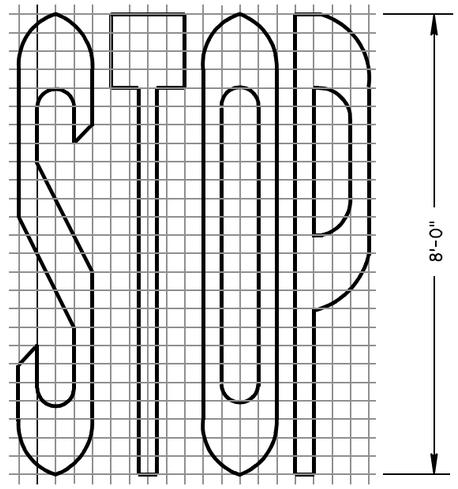
6

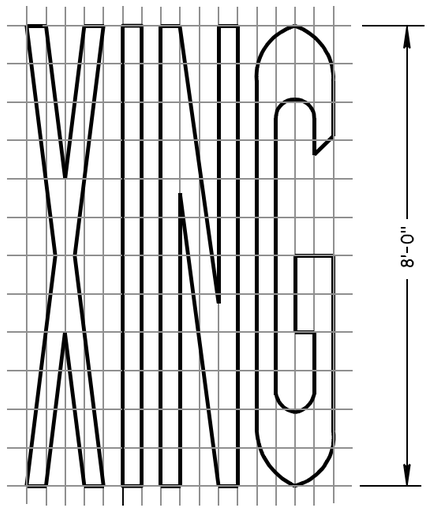
S.D.D. 13 C 18-3d

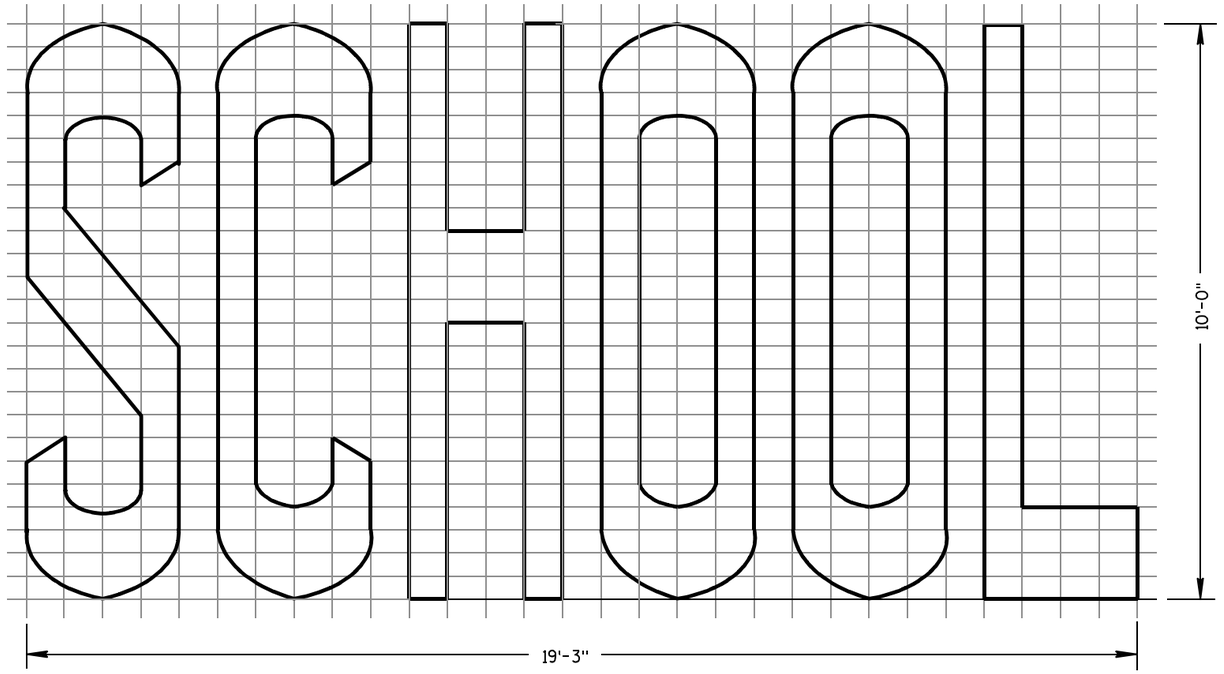
GENERAL NOTES

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.

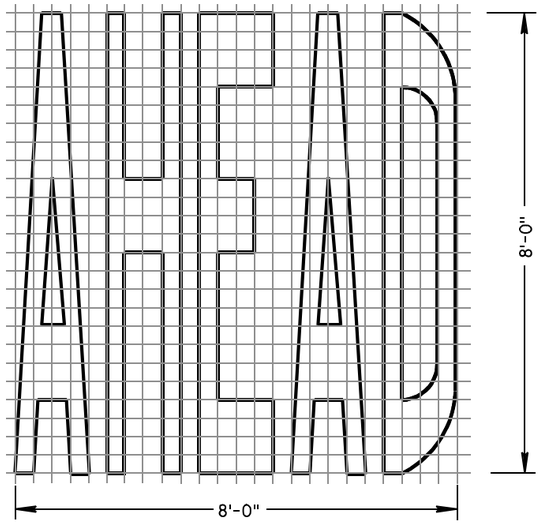
ALL LETTERS, ARROWS AND SYMBOLS SHALL BE IN CONFORMANCE WITH REQUIREMENTS INCLUDED IN "STANDARD ALPHABETS FOR HIGHWAY SIGNS AND PAVEMENT MARKING" BOOK BY THE FEDERAL HIGHWAY ADMINISTRATION. ALL LETTERS, ARROWS AND SYMBOLS SHALL BE WHITE AND REFLECTORIZED. SMALL DIFFERENCES IN DIMENSIONS WITHIN THE TOLERANCES OF THAT BOOK ARE ACCEPTABLE.

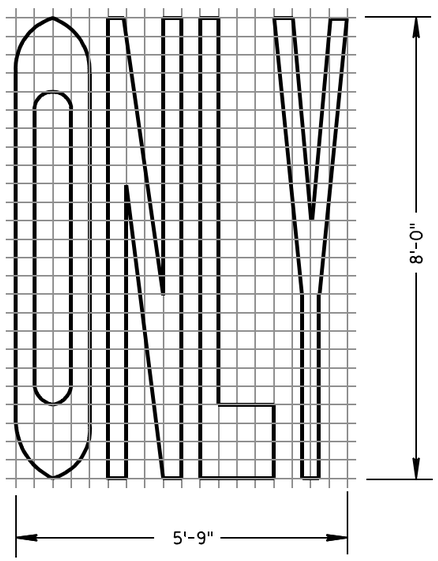


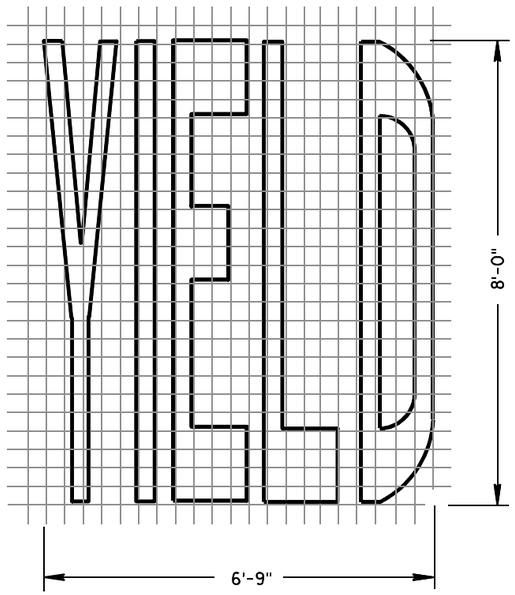


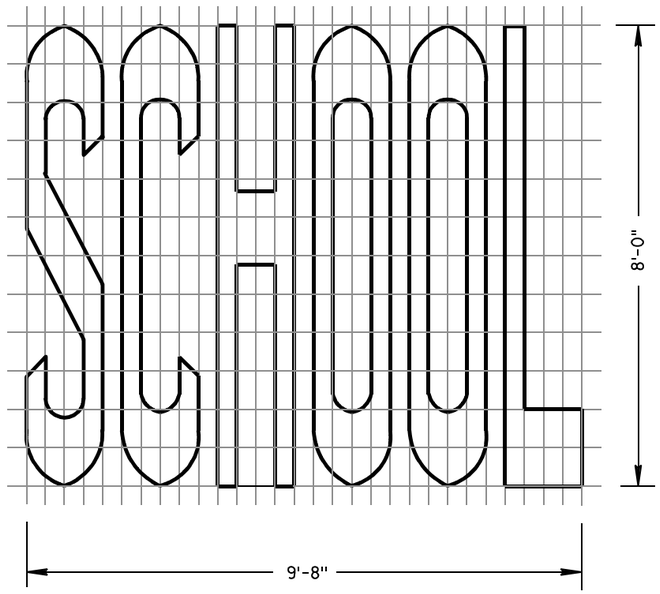


TWO-LANE









SINGLE-LANE

PAVEMENT MARKING WORDS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

7-1-11 — DATE

/S/ Thomas N. Nothohm — STATE TRAFFIC ENGINEER

FHWA

6

S.D.D. 15 C 7-12b

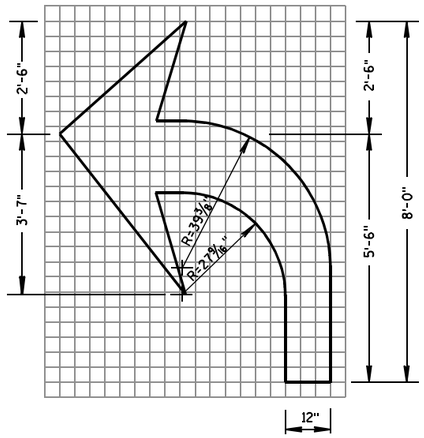
6

S.D.D. 15 C 7-12b

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.

ALL LETTERS, ARROWS AND SYMBOLS SHALL BE IN CONFORMANCE WITH REQUIREMENTS INCLUDED IN "STANDARD ALPHABETS FOR HIGHWAY SIGNS AND PAVEMENT MARKING" BOOK BY THE FEDERAL HIGHWAY ADMINISTRATION. ALL LETTERS, ARROWS AND SYMBOLS SHALL BE WHITE AND REFLECTORIZED. SMALL DIFFERENCES IN DIMENSIONS WITHIN THE TOLERANCES OF THAT BOOK ARE ACCEPTABLE.



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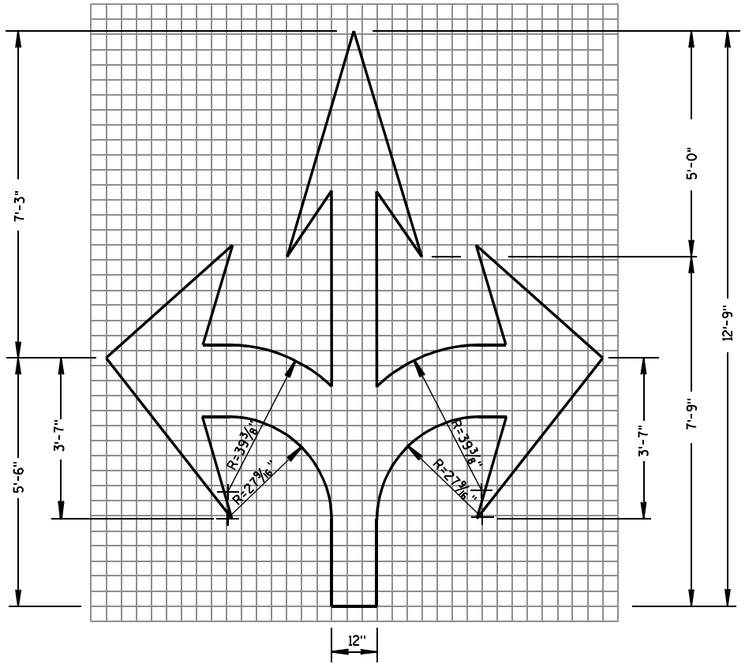

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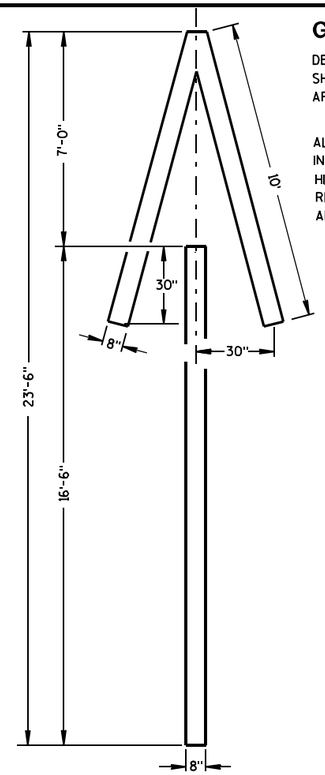

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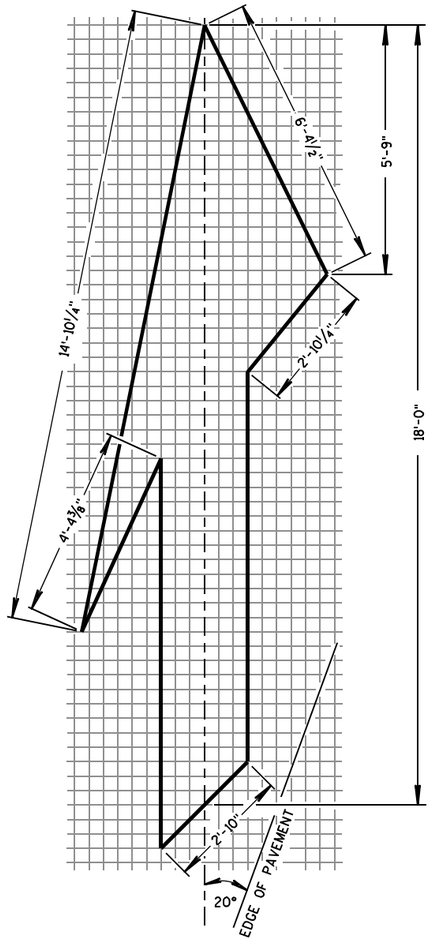
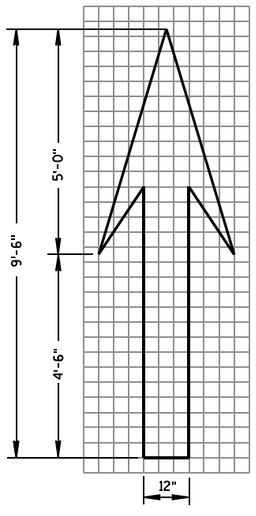
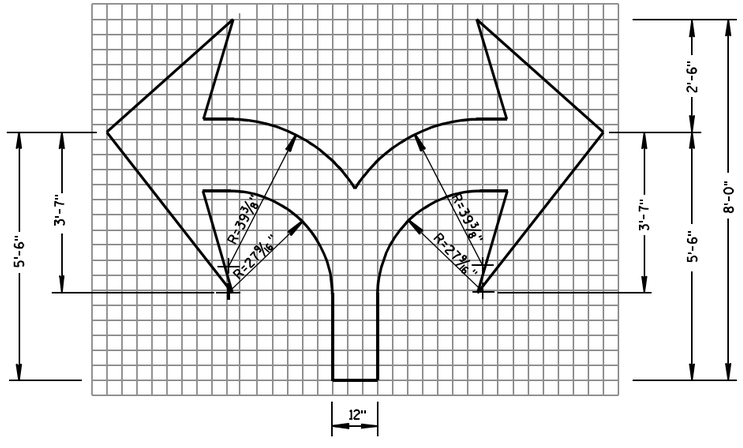


TYPE 5 LANE DROP ARROW



TYPE 1



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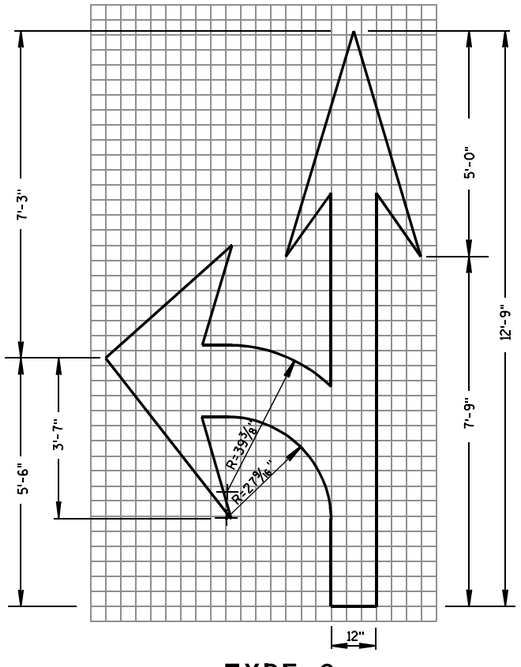


TYPE 3

PAVEMENT MARKING ARROWS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

7/1/11 — DATE

/S/ Thomas N. Nothdurft — STATE TRAFFIC ENGINEER

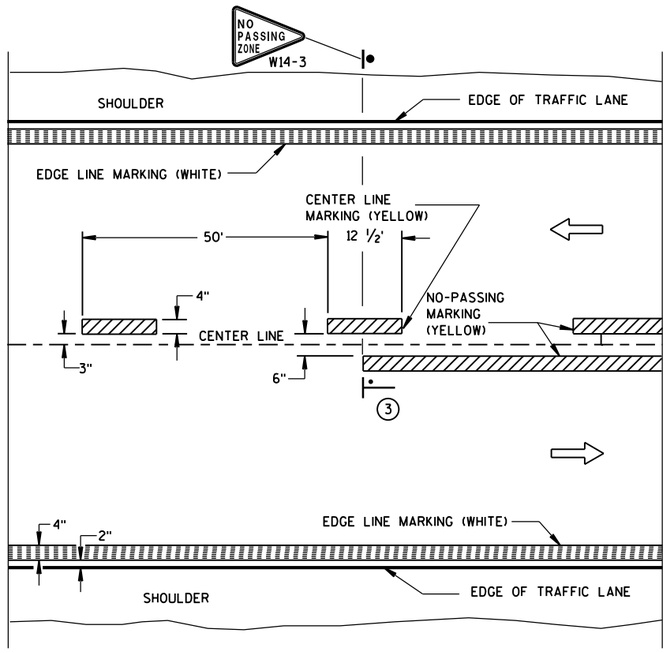
FHWA

6

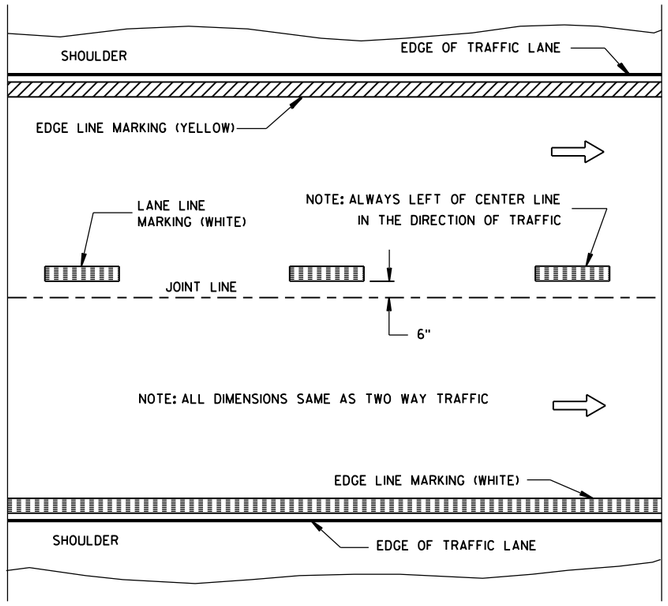
S.D.D. 15 C 7-12c

6

S.D.D. 15 C 7-12c

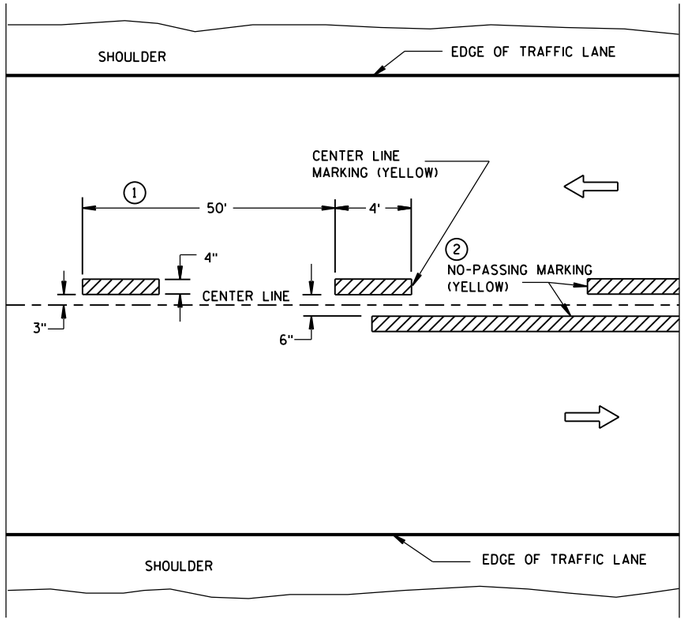


TWO WAY TRAFFIC

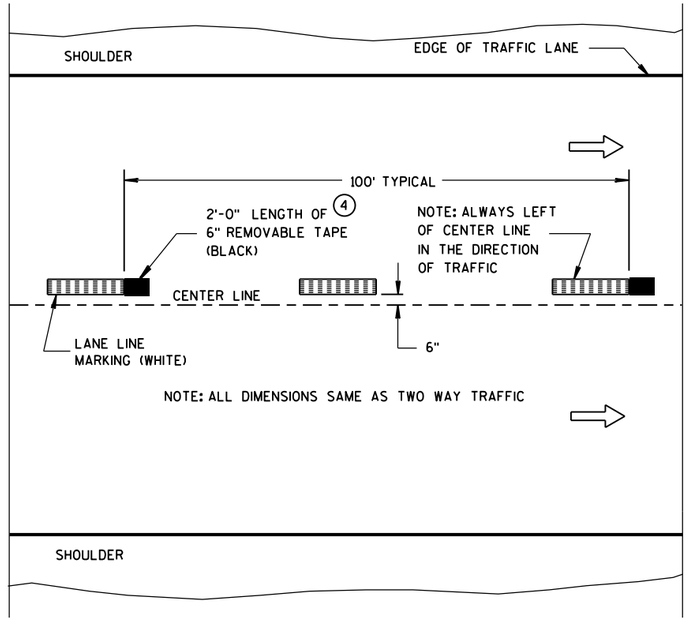


ONE WAY TRAFFIC

PERMANENT PAVEMENT MARKING



TWO WAY TRAFFIC



ONE WAY TRAFFIC

TEMPORARY (INTERMEDIATE) PAVEMENT MARKING

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

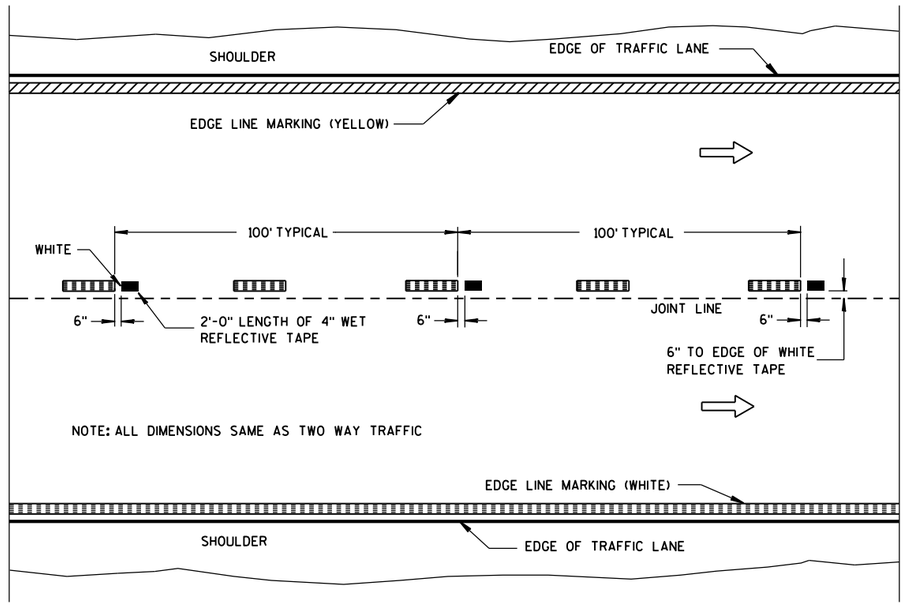
GENERAL NOTES

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

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

NOTE

ARROW SYMBOL (⇨) SHOWS DIRECTION OF TRAVEL



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

LEGEND

"T" MARKING

POST MOUNTED SIGN

PAVEMENT MARKING (MAINLINE)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

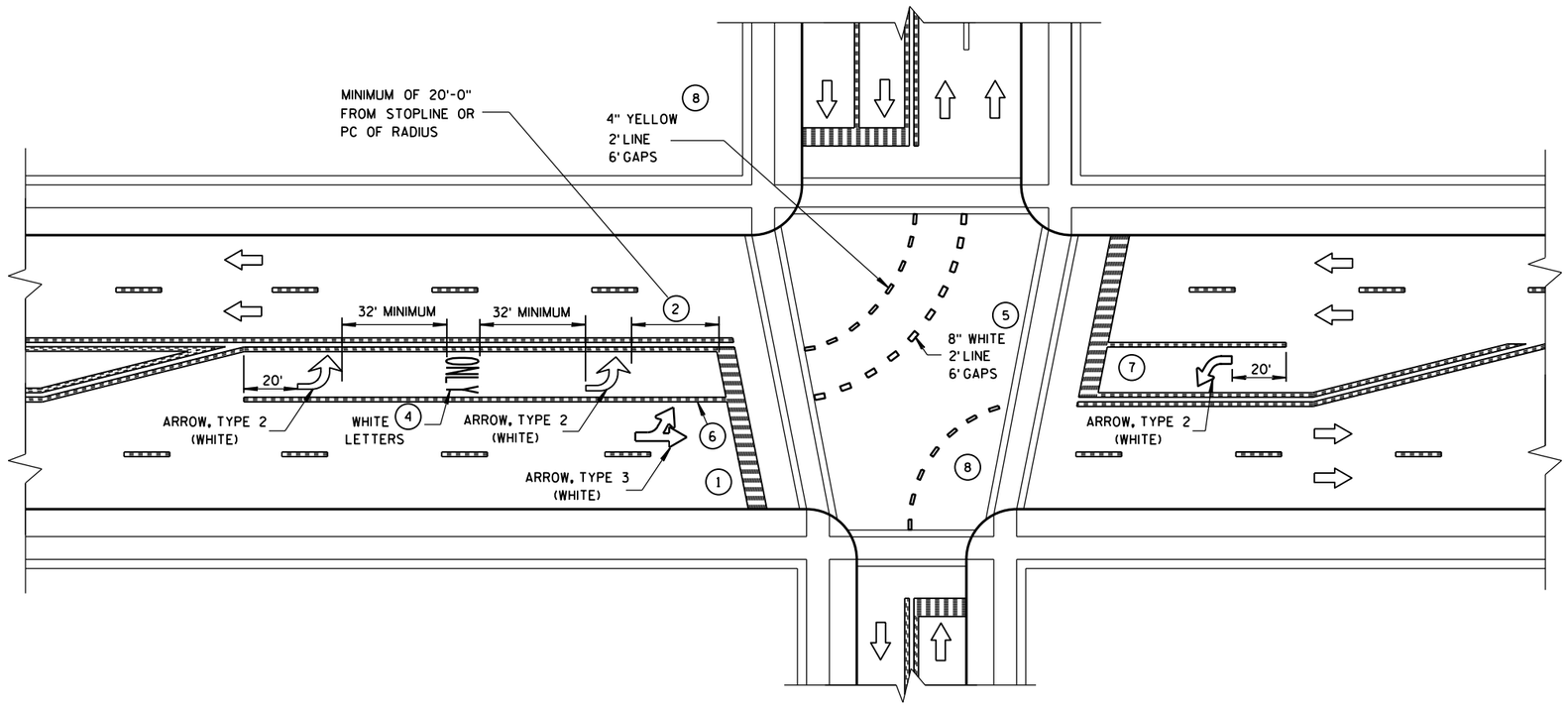
APPROVED
5-13-2013 DATE
/S/ Travis Feltes STATE TRAFFIC E
FHWA

6

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

6

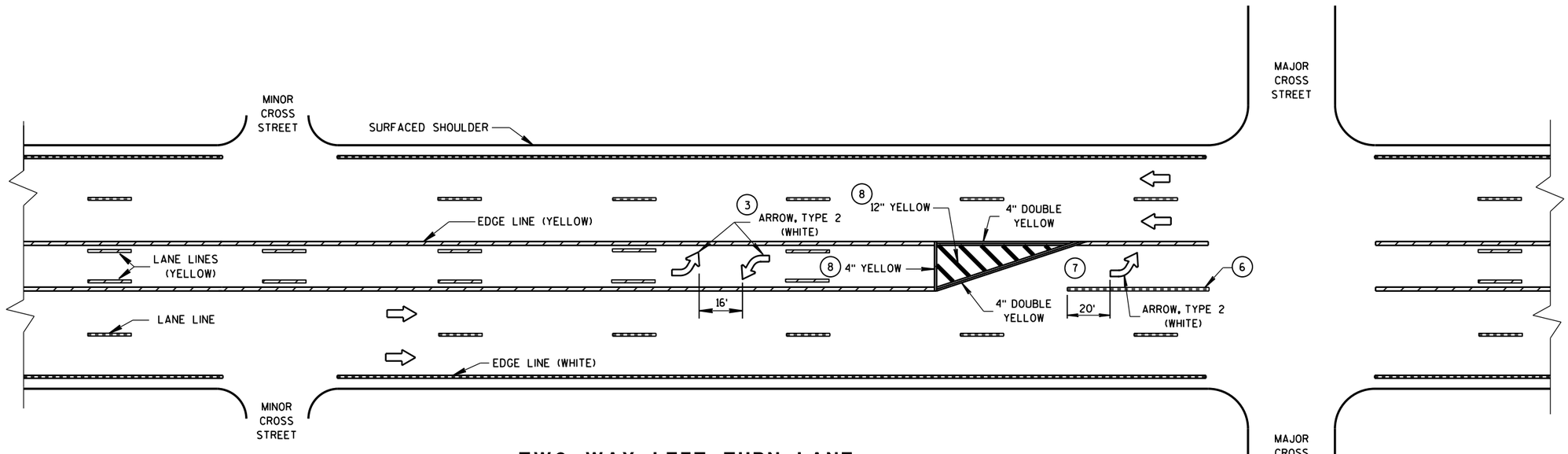
S.D.D. 15 C 8-16a



GENERAL NOTES

1. STOP BAR IS REQUIRED ONLY WHEN SPECIFIED IN THE CONTRACT.
2. DISTANCE MAY BE ADJUSTED TO ACCOMODATE SHORT LEFT TURN LANES. AS APPROVED BY THE ENGINEER.
3. A SET OF ARROWS IS REQUIRED EVERY 400 FEET OR NEAR INTERSECTIONS OR DRIVEWAYS WITH TURNING TRAFFIC.
4. ADD EXTRA SETS OF ONE ARROW AND ONE ONLY PER 160 FEET OR WHEN ON A CURVE.
5. 8" WHITE WITH 2' LINE 6' GAPS FOR DUAL TURN LANE.
6. 8" WHITE
7. ADD SECOND ARROW WHEN TURN BAY IS GREATER THAN OR EQUAL TO 108 FEET.
8. REQUIRED ONLY WHEN SPECIFIED IN THE CONTRACT.

NOTE:
ARROW SYMBOL (⇨)
SHOWS DIRECTION OF TRAVEL



TWO WAY LEFT TURN LANE

PAVEMENT MARKING (LEFT TURN LANE)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

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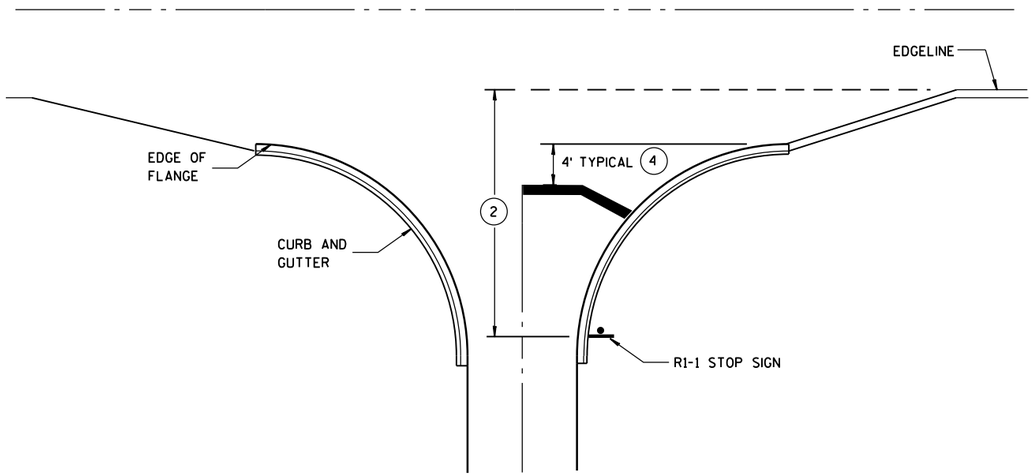
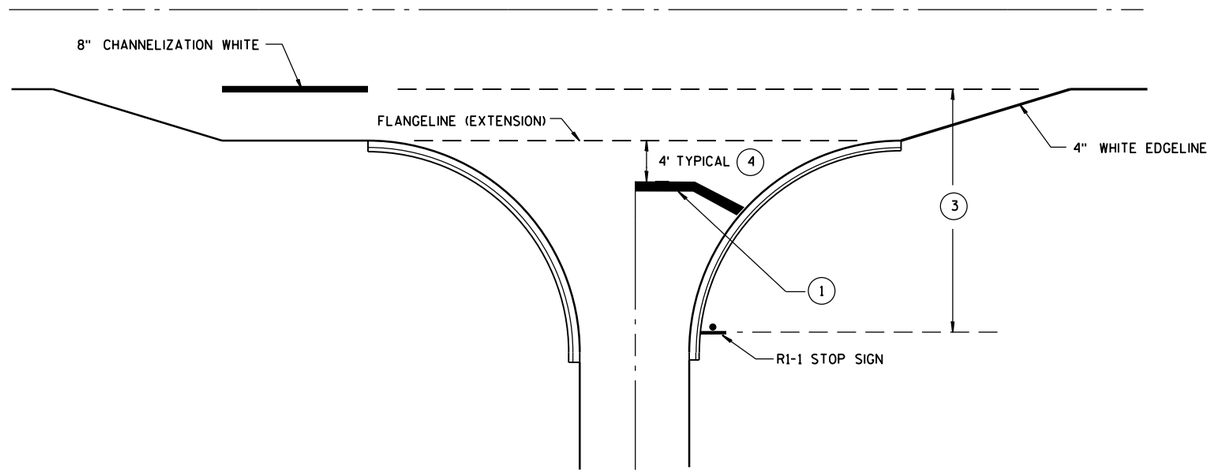
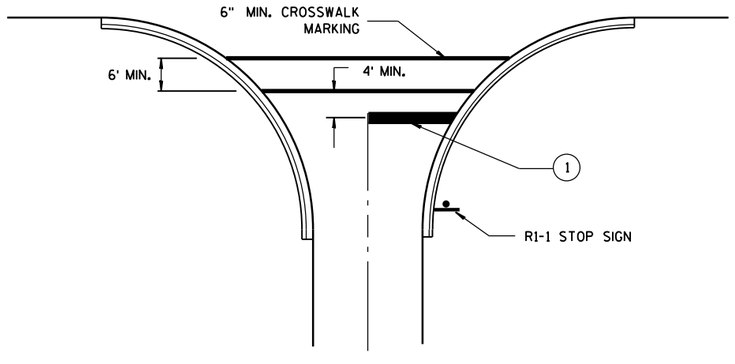
S.D.D. 15 C 8-16e



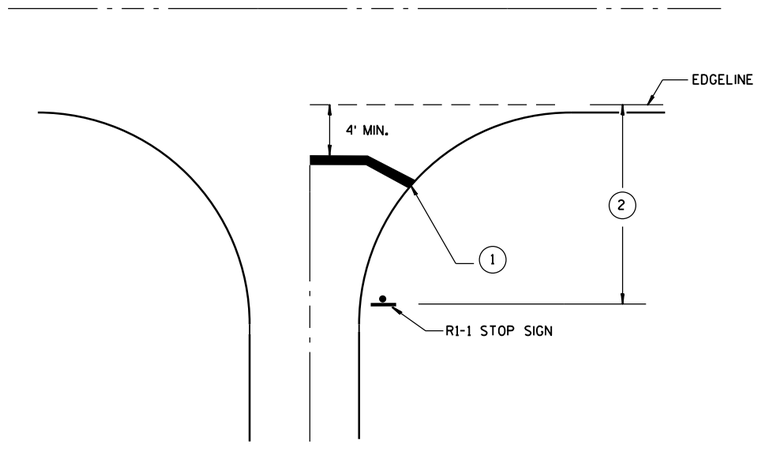
TYPICAL STOP LINE PAVEMENT MARKING WITH CURB AND GUTTER



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.

STOP LINE AND CROSSWALK PAVEMENT MARKING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

4/30/2013
DATE

/S/ Travis Feltes
STATE TRAFFIC E

FHWA

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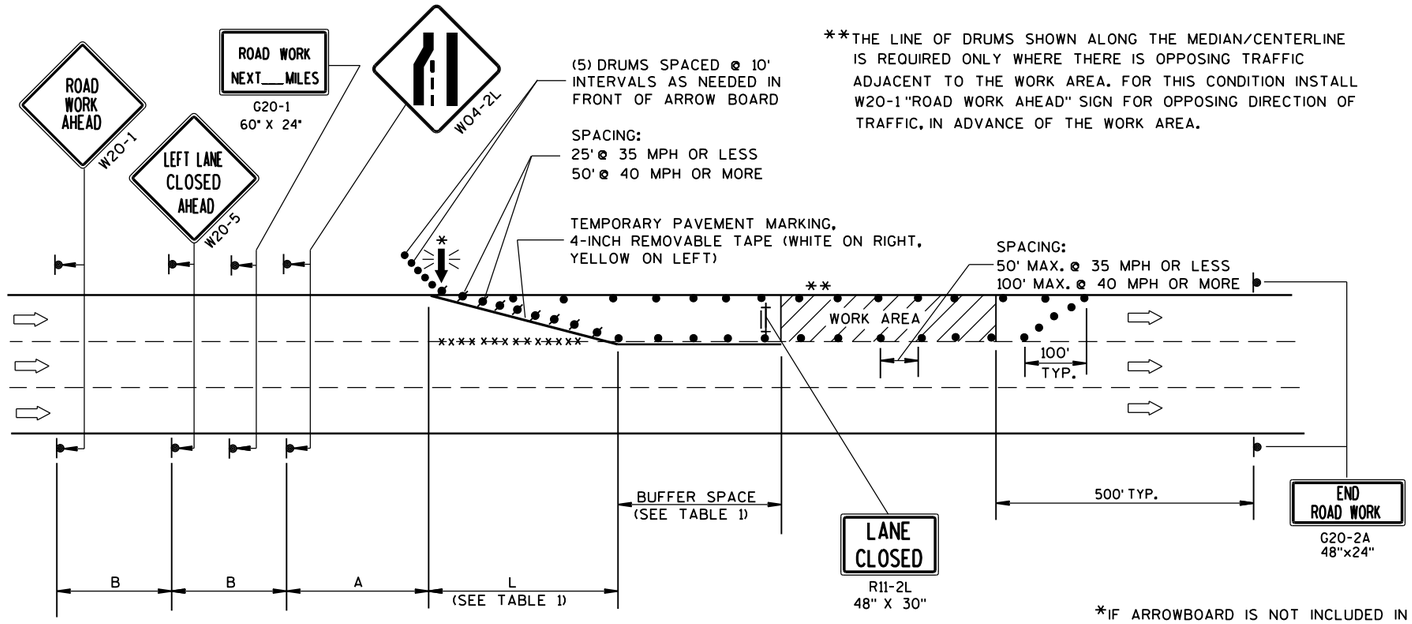
S.D.D. 15 C 33-1



**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"

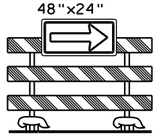


TABLE 1
TAPER AND BUFFER SPACE FOR 12' LANE WIDTH

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.

W20-1, 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.

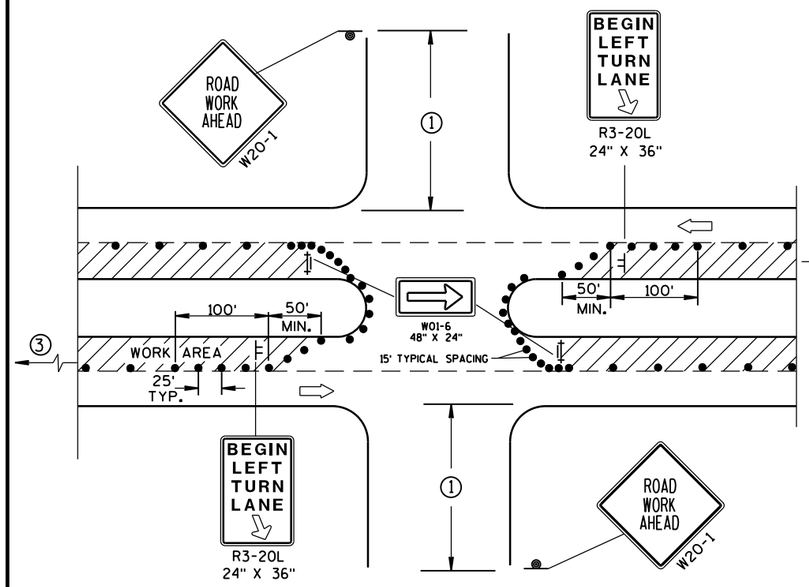
TRAFFIC CONTROL, SINGLE LANE CLOSURE, NON-FREEWAY/EXPRESSWAY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
Feb. 2015 — DATE
/S/ Travis Feltes — STATE TRAFFIC ENGINEER
FHWA

6

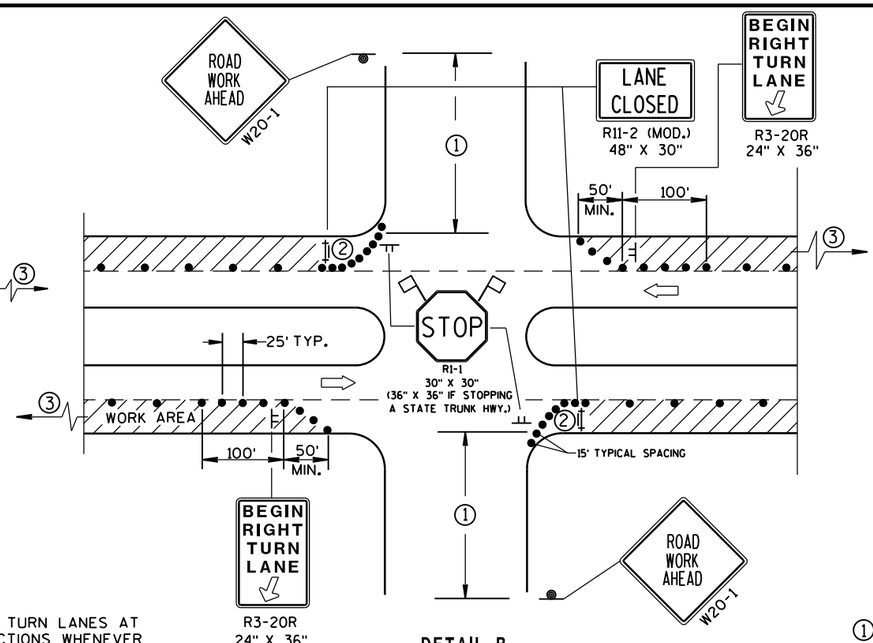
S.D.D. 15 D 20-3



DETAIL A

FOR LEFT LANE CLOSURE AT INTERSECTION OR MEDIAN OPENING

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



DETAIL B

FOR RIGHT LANE CLOSURE AT INTERSECTION

GENERAL NOTES

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

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

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

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

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

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

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

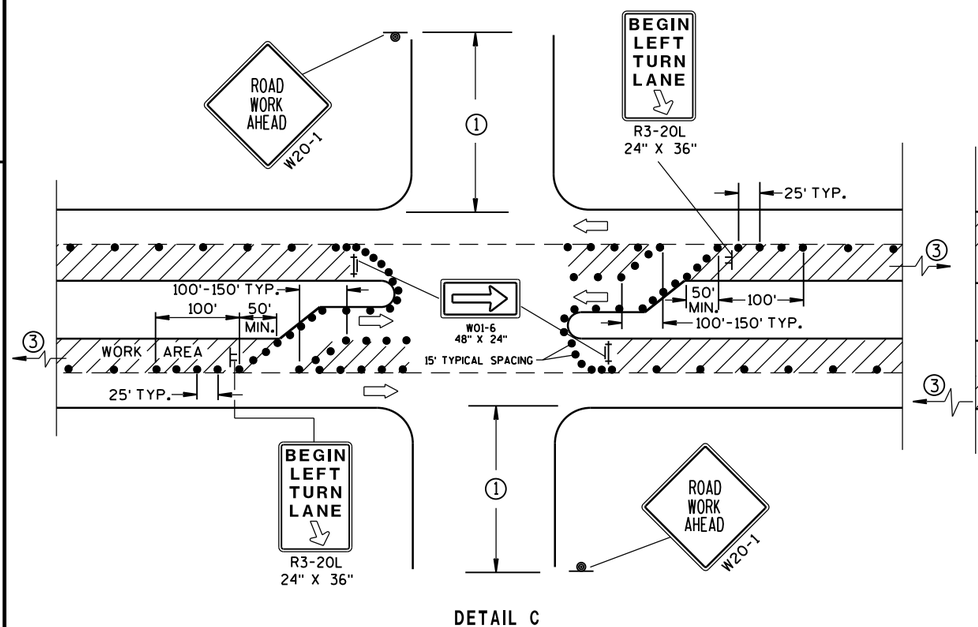
CHANNELIZING DEVICES PLACED ADJACENT TO WORK AREA SHALL BE PULLED BACK FROM THE TRAVEL LANE WHEN WORK IS NOT IN PROGRESS.

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

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

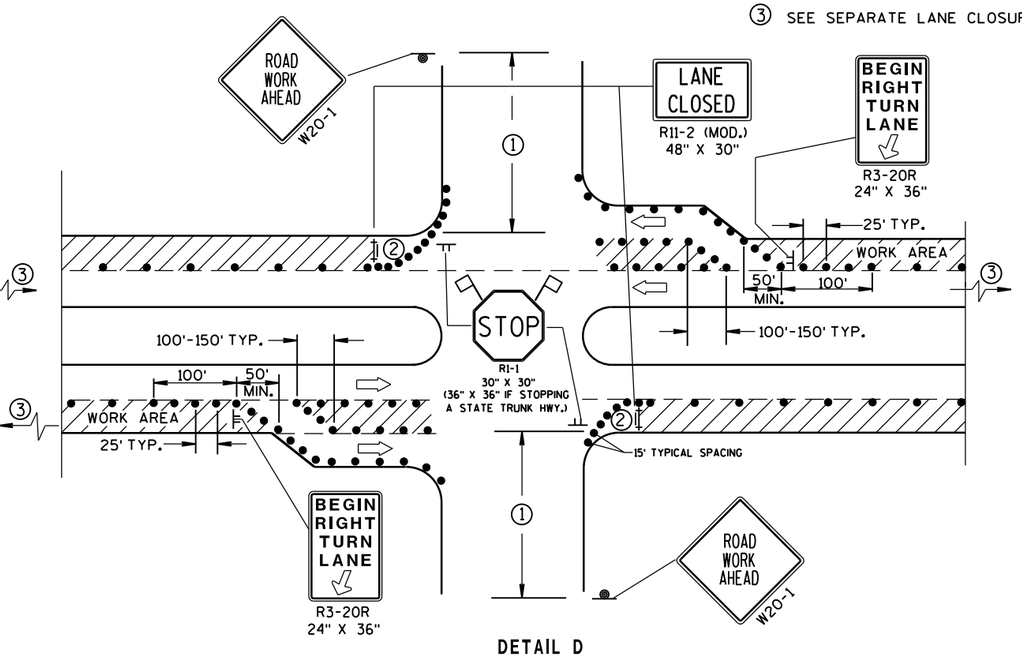
② ALSO USE BARRICADE AND 15-FOOT TYPICAL DRUM SPACING AT COMMERCIAL DRIVEWAYS.

③ SEE SEPARATE LANE CLOSURE DETAIL FOR ADDITIONAL TRAFFIC CONTROL.



DETAIL C

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



DETAIL D

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

LEGEND

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

TRAFFIC CONTROL, INTERSECTION WITHIN SINGLE LANE CLOSURE

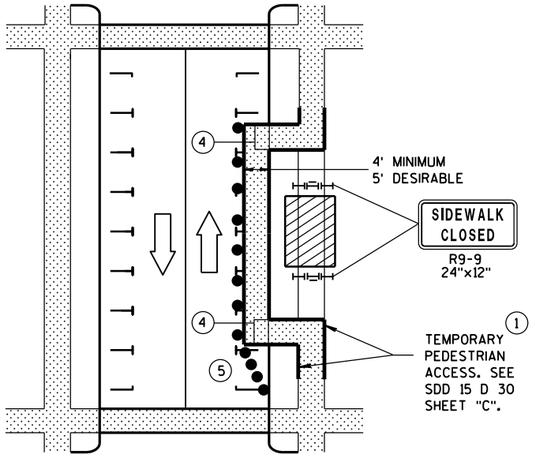
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
Nov. 2014 — DATE
/S/ Travis Feltes — STATE TRAFFIC ENGINEER
FHWA

6

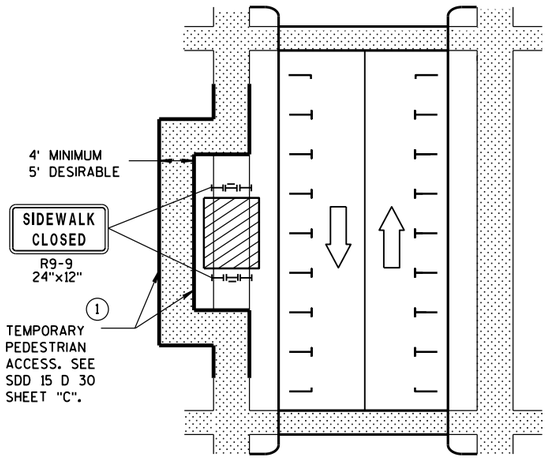
S.D.D. 15 D 21-3

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

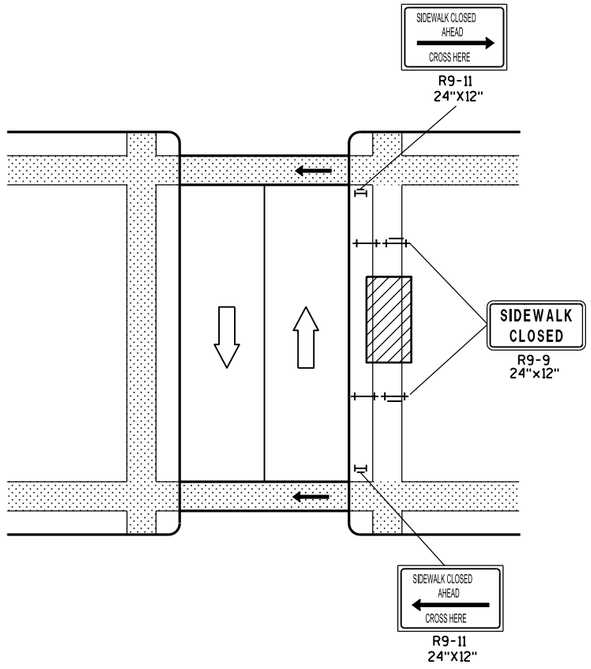


MID-BLOCK SIDEWALK CLOSURE IN PARKING LANE

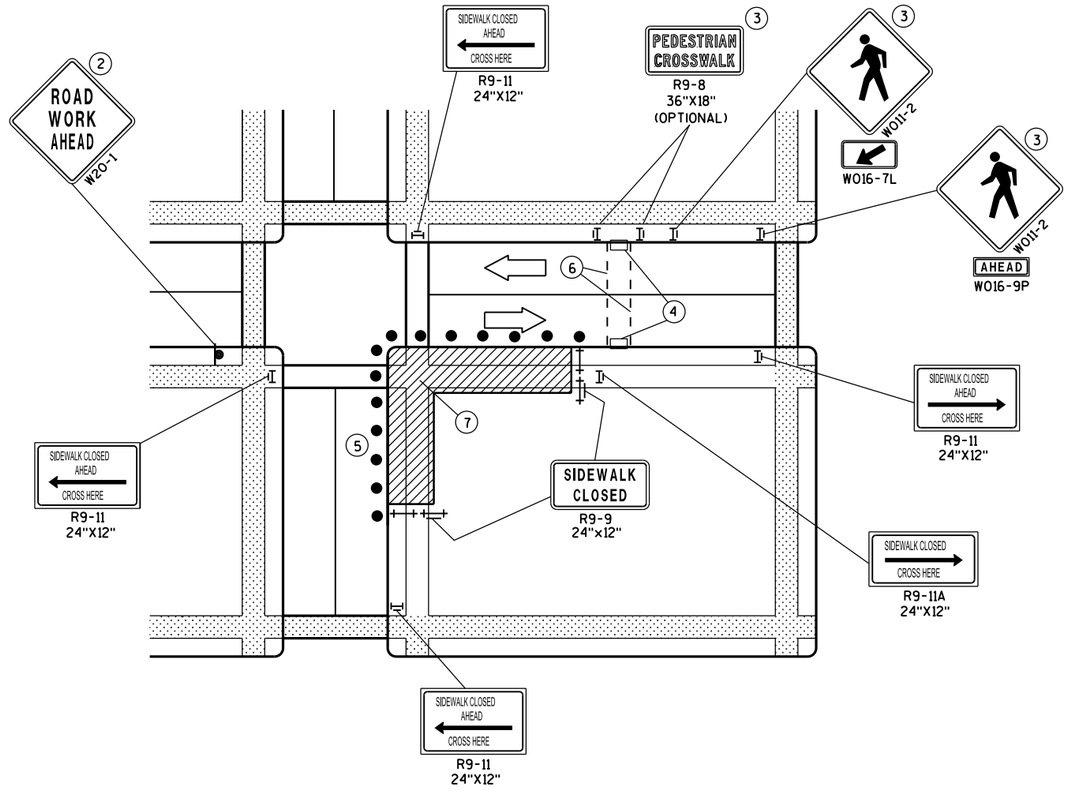
NOTE: LAYOUT SAME AS ABOVE.



SIDEWALK DIVERSION



MID-BLOCK SIDEWALK CLOSURE



CORNER SIDEWALK CLOSURE WITH TEMPORARY CROSSWALK

GENERAL NOTES

WHEN CLOSING OR RELOCATING CROSSWALKS OR SIDEWALKS, PROVIDE DETECABLE TEMPORARY FACILITIES AND INCLUDE ACCESSIBILITY FEATURES CONSISTENT WITH EXISTING PEDESTRIAN FACILITIES.

TEMPORARY TRAFFIC CONTROL DEVICES FOR PEDESTRIANS ARE SHOWN. OTHER DEVICES MAY BE NECESSARY TO CONTROL VEHICULAR TRAFFIC. STAGE WORK, AS NECESSARY, TO PROVIDE A TEMPORARY PEDESTRIAN ACCESS ROUTE AT ALL TIMES. FOR ROADWAYS WITH NO AVAILABLE DETOURS, MAINTAIN ONE OPEN SIDEWALK AT ALL TIMES.

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

FOR NIGHTTIME CLOSURE USE TYPE "A" FLASHING WARNING LIGHTS ON BARRICADES, SUPPORTING SIGNS AND CLOSING SIDEWALK. USE TYPE "C" STEADY BURN LIGHTS ON CHANNELIZING DEVICES SEPARATING THE WORK AREA FROM VEHICULAR TRAFFIC.

PEDESTRIAN TRAFFIC SIGNAL DISPLAY CONTROLLING CLOSED CROSSWALK SHALL BE COVERED OR DEACTIVATED.

POST MOUNTED SIGNS LOCATED ADJACENT TO A SIDEWALK SHALL HAVE A 7 FOOT MINIMUM CLEARANCE FROM THE BOTTOM OF THE SIGN TO THE SIDEWALK SURFACE.

ALTERNATE SIDEWALK WORK BETWEEN LEFT AND RIGHT SIDE OF ROADWAY TO MAINTAIN PEDESTRIAN ACCESS.

(1) IF SIDEWALK CLOSURE AFFECTS AN ACCESSIBLE AND DETECTABLE FACILITY, MAINTAIN ACCESSIBILITY AND DETECTABILITY ALONG THE ALTERNATE PEDESTRIAN ROUTE.

(2) "ROAD WORK AHEAD" SIGNS ARE NOT REQUIRED IF THE SIDEWALK CLOSURE OCCURS WITHIN A LARGER WORK ZONE WHERE ADVANCE WARNING SIGNS ARE ALREADY PRESENT, OR IF THE WORK AREA AND EQUIPMENT ARE MORE THAN 2 FEET BEHIND THE CURB.

(3) IF TEMPORARY PEDESTRIAN CROSSWALK IS NOT PROVIDED, OMIT R9-8 AND W011-2 SIGN ASSEMBLIES. IF PROVIDED INCLUDE ON BOTH SIDES OF THE CROSSWALK.

(4) TEMPORARY CURB RAMPS. SEE SDD 15 D 30 SHEET "B".

(5) DRUMS OR BARRICADES AT 25 FOOT SPACING. STREET PARKING SHALL BE PROHIBITED FOR AT LEAST 50 FEET IN ADVANCE OF THE MID-BLOCK CROSSWALK.

(6) TEMPORARY PAVEMENT MARKING FOR CROSSWALK LINES.

(7) LIMIT WORK TO ONE QUADRANT AT A TIME TO MINIMIZE PEDESTRIAN DISRUPTION.

LEGEND

- SIGN ON PERMANENT SUPPORT
- UNDER PEDESTRIAN TRAFFIC
- WORK AREA
- PEDESTRIAN CHANNELIZATION DEVICE
- TYPE II BARRICADE WITH/WITHOUT SIGN (ALL WITH ONE WARNING LIGHT, TYPE A, LOW-INTENSITY FLASHING)
- TYPE III BARRICADE WITH/WITHOUT SIGN (ALL WITH ONE WARNING LIGHT, TYPE A, LOW-INTENSITY FLASHING)
- DIRECTION OF TRAFFIC
- TRAFFIC CONTOL DRUM

TRAFFIC CONTROL, PEDESTRIAN ACCOMMODATION

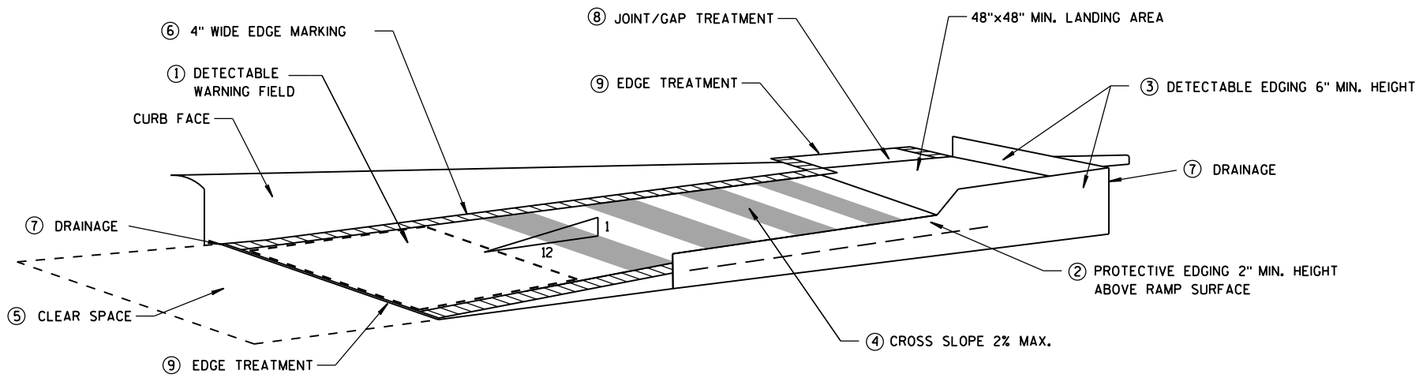
STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR

6

S.D.D. 15 D 30-2a

6

S.D.D. 15 D 30-2a



TEMPORARY CURB RAMP PARALLEL TO CURB

GENERAL NOTES

NOTIFY THE BUS COMPANY 7 DAYS IN ADVANCE OF THE BUS STOP RELOCATION.

ALTERNATE SIDEWALK WORK BETWEEN LEFT AND RIGHT SIDE OF ROADWAY TO MAINTAIN PEDESTRIAN ACCESS.

① CURB RAMPS SHALL BE 48" MIN. WIDTH WITH A FIRM, STABLE AND SLIP RESISTANT SURFACE. INSTALL CONTRASTING DETECTABLE WARNING FIELD AT PEDESTRIAN STREET CROSSINGS. REFER TO SDD 8D5 SHEET "E".

② PROTECTIVE EDGING WITH A 2" MIN. HEIGHT SHALL BE INSTALLED WHEN A CURB RAMP OR LANDING PLATFORM HAS A VERTICAL DROP OF 6" OR GREATER OR HAS A SIDE APRON SLOPE STEEPER THAN 1:3 (33%). PROTECTIVE EDGING SHOULD BE CONSIDERED WHEN CURB RAMPS OR LANDING PLATFORMS HAVE A VERTICAL DROP OF 3" OR MORE.

③ DETECTABLE EDGING WITH 6" MIN. HEIGHT AND CONTRASTING COLOR SHALL BE INSTALLED ON ALL CURB RAMP LANDINGS WHERE THE WALKWAY CHANGES DIRECTION (TURNS).

④ CURB RAMPS AND LANDINGS SHALL HAVE A 1:50 (2%) MAX. CROSS-SLOPE.

⑤ CLEAR SPACE OF 48"X48" MIN. SHALL BE PROVIDED ABOVE AND BELOW THE CURB RAMP.

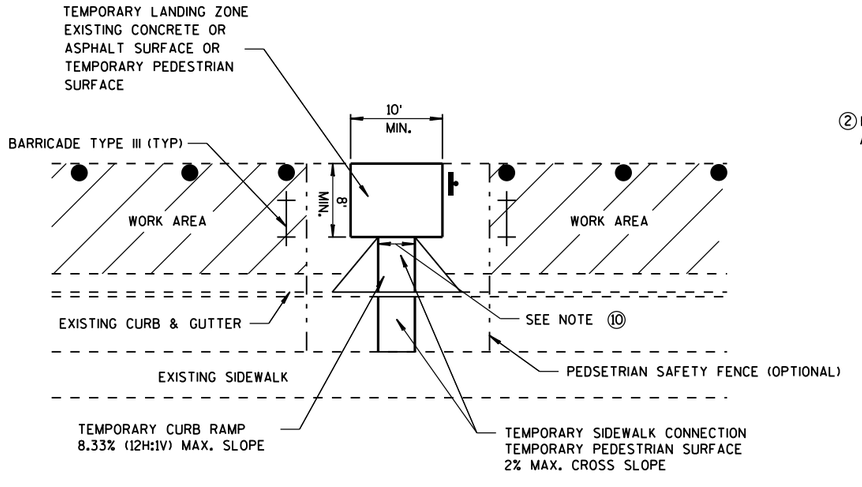
⑥ THE CURB RAMP WALKWAY EDGE SHALL BE MARKED WITH A YELLOW COLOR, 4" WIDE MARKING, UNLESS A CONTRASTING DETECTABLE WARNING FIELD IS PROVIDED.

⑦ DO NOT RESTRICT WATER FLOW IN THE GUTTER SYSTEM.

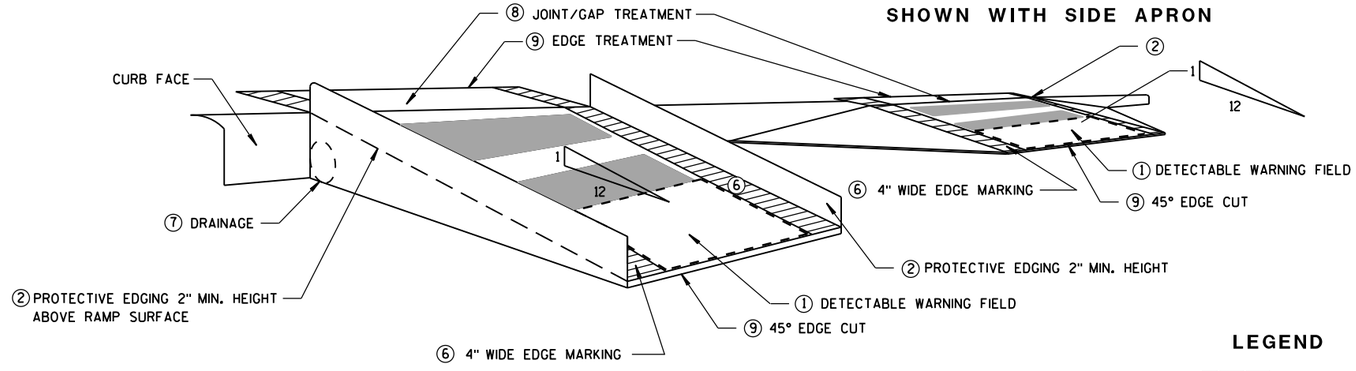
⑧ LATERAL JOINTS OR GAPS BETWEEN SURFACES SHALL BE LESS THAN 1/2" WIDTH.

⑨ CHANGES BETWEEN SURFACE HEIGHTS SHALL NOT EXCEED 1/2". LATERAL EDGES SHALL BE VERTICAL UP TO 1/4" HIGH, AND BEVELED AT 1:2 BETWEEN 1/4" AND 1/2".

⑩ 5' WIDE MIN. WITH PEDSETRIAN SAFETY FENCE, 10' WIDE MIN. WITHOUT PEDESTRIAN SAFETY FENCE.



TEMPORARY BUS STOP PAD



SHOWN WITH PROTECTIVE EDGE

SHOWN WITH SIDE APRON

TEMPORARY CURB RAMP PERPENDICULAR TO CURB

LEGEND

WORK AREA

TYPE III BARRICADE

TRAFFIC CONTOL DRUM

TRAFFIC CONTROL, TEMPORARY ADA COMPLIANT PEDESTRIAN ACCOMMODATION

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

March 2015 — DATE

/S/ Travis Feltes — STATE TRAFFIC ENGINEER — SIGN

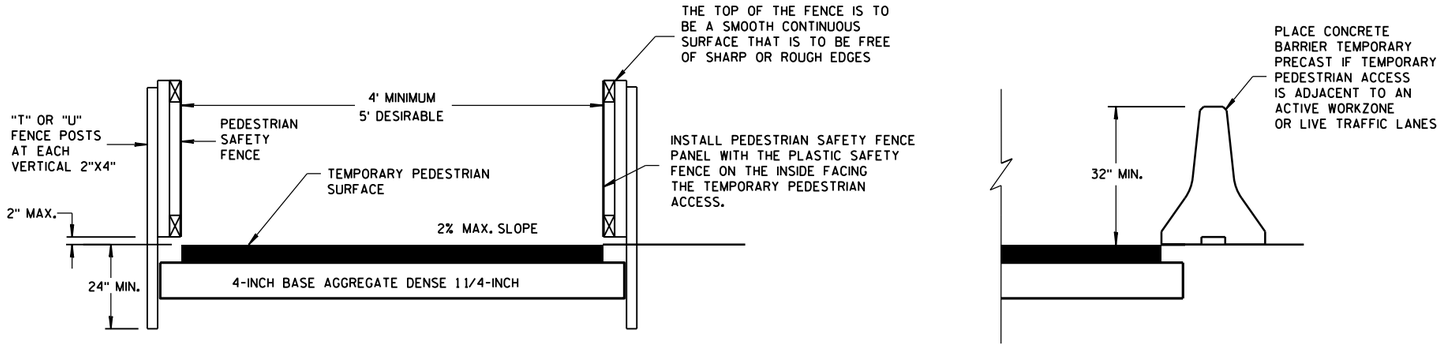
FHWA

6

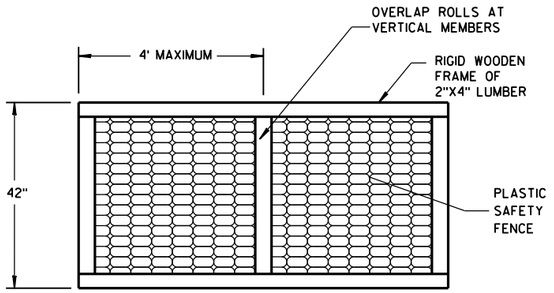
S.D.D. 15 D 30-2b

6

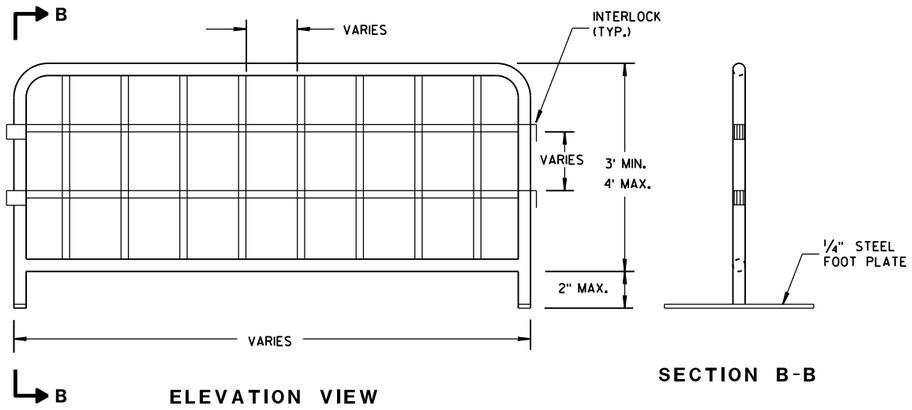
S.D.D. 15 D 30-2b



TEMPORARY PEDESTRIAN ACCESS



PEDESTRIAN SAFETY FENCE



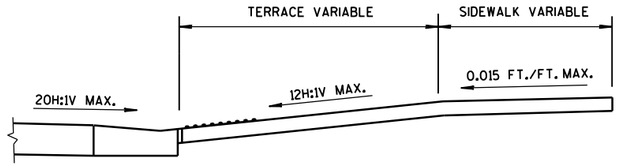
ELEVATION VIEW

SECTION B-B

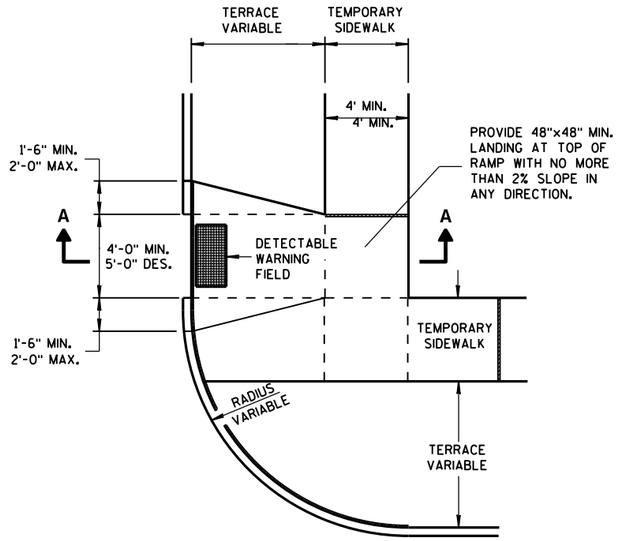
TEMPORARY PEDESTRIAN STEEL BARRICADE (1)

GENERAL NOTES

(1) INTERCHANGEABLE WITH THE PEDESTRIAN SAFETY FENCE.



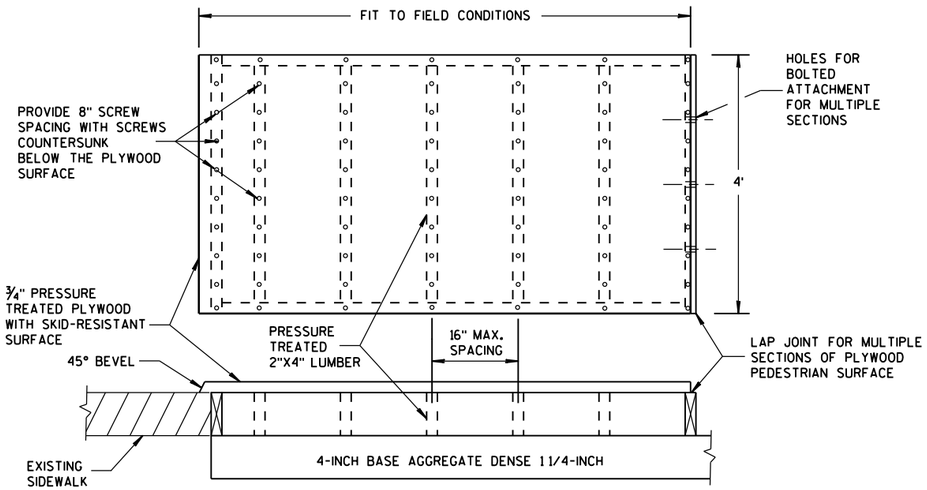
SECTION A-A



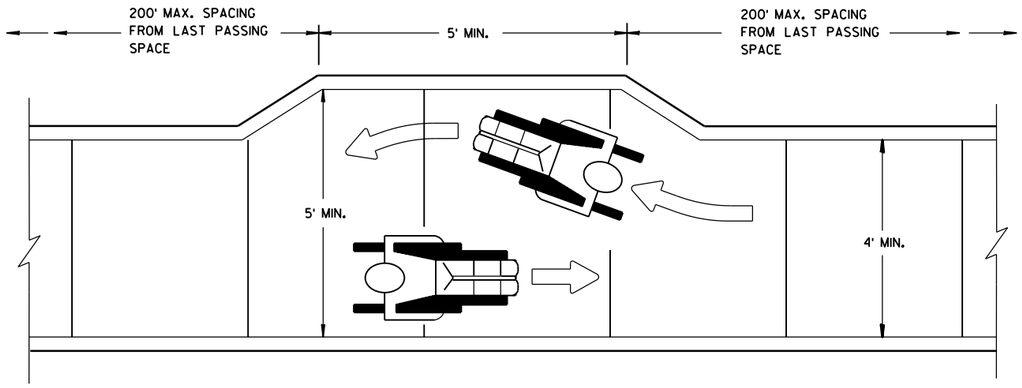
PLAN VIEW

TEMPORARY TYPE 3 RAMP

(OUTSIDE OF CROSSWALK AREA)



TEMPORARY PEDESTRIAN SURFACE PLYWOOD



NARROW SIDEWALK PASSING DETAIL

TRAFFIC CONTROL, PEDESTRIAN ACCOMMODATION

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
March 2015 — DATE
/S/ Travis Feltes — STATE TRAFFIC ENGINEER — SIGN
FHWA

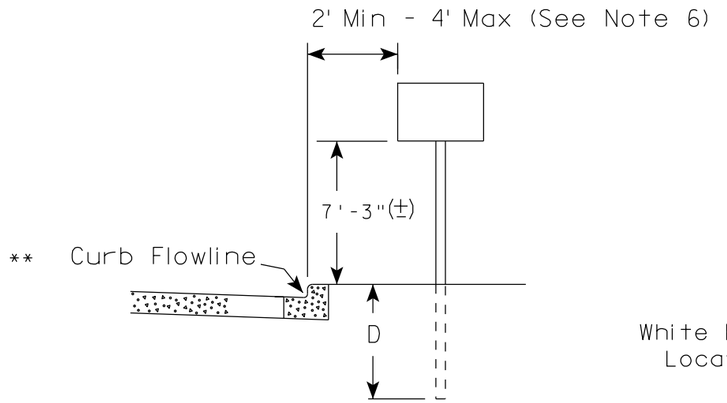
6

S.D.D. 15 D 30-2c

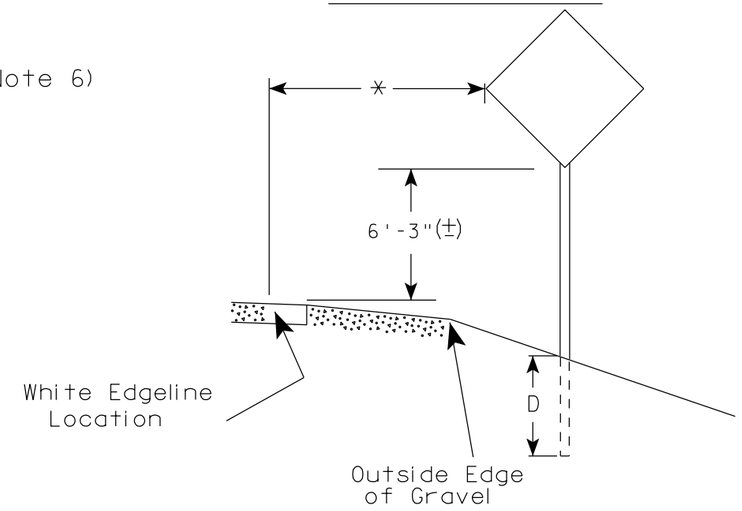
6

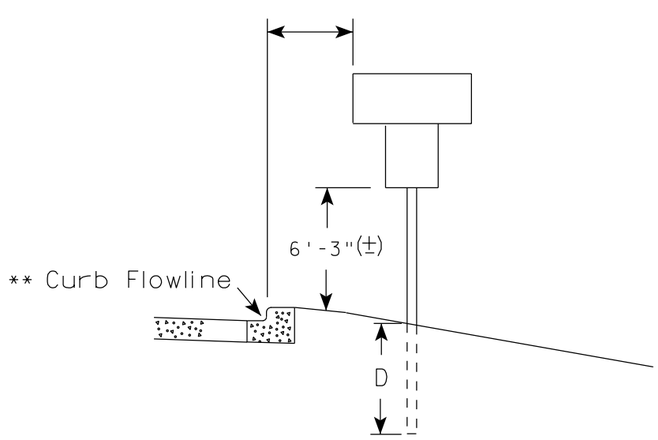
S.D.D. 15 D 30-2c

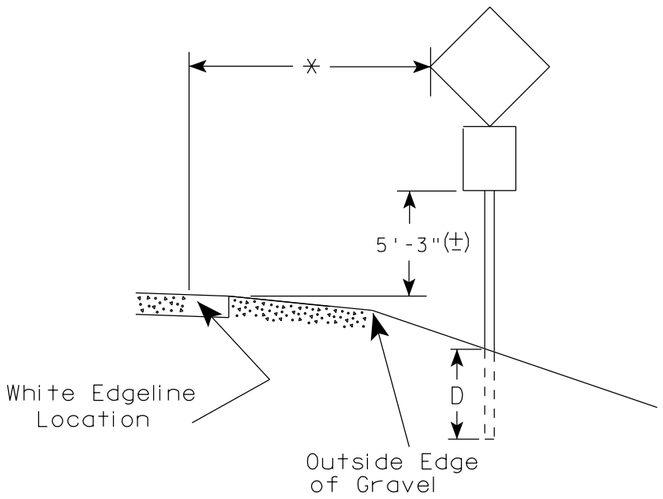
URBAN AREA



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. Minimum mounting height for J assemblies (A2-1S) is 7'-3" (±) or 6'-3" (±) per urban or rural detail respectively.
5. Minimum mounting height for signs mounted on traffic signal poles is 5'- 3" (±).
6. Offset distance shall be consistent with existing signs or consistent throughout length of project.
7. The (±) tolerance for mounting height is 3 inches.
8. Folding signs shall be mounted at a height of 5'-3" (±) or as directd by the Engineer.
9. The Double Arrow sign (W12-1) shall be mounted at a height of 2'-3" (±). The Chevron sign (W1-8), Roundabout Chevron panel (R6-4B), Enhanced Reference Markers, Clearance Markers (W5-52), Mile Markers (D10 series), In Road Object Markers (W5-54) & End of Road Markers (W5-56) shall be mounted at a height of 4'-3" (±).

TYPICAL INSTALLATION OF PERMANENT TYPE II SIGNS ON SINGLE POSTS

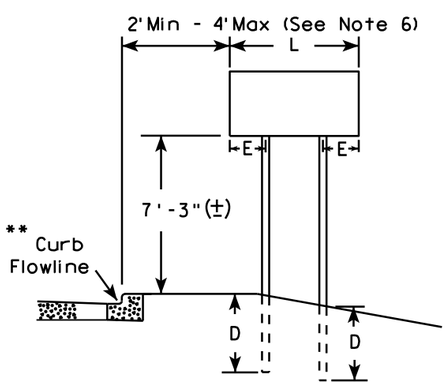
WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

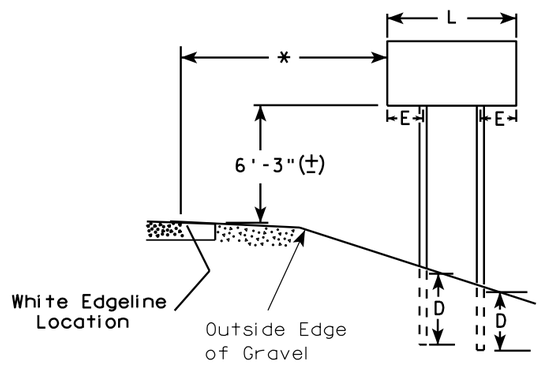
DATE 7/23/15 PLATE NO. A4-3.20

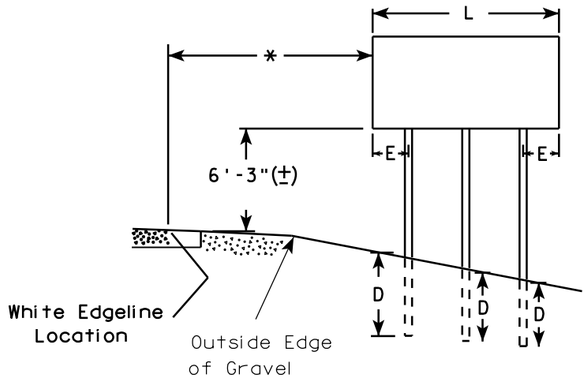
PROJECT NO: 2160-01-72	HWY: CTH U	COUNTY: MILWAUKEE		SHEET NO:	E

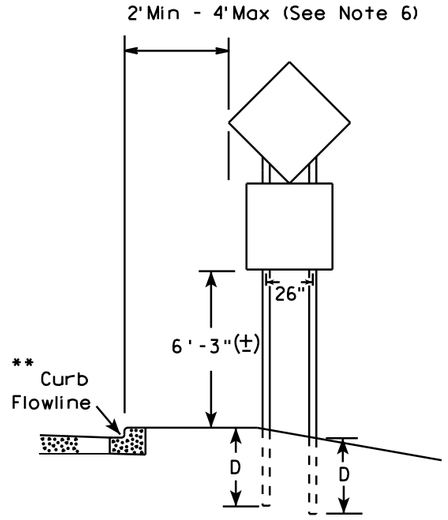
URBAN AREA



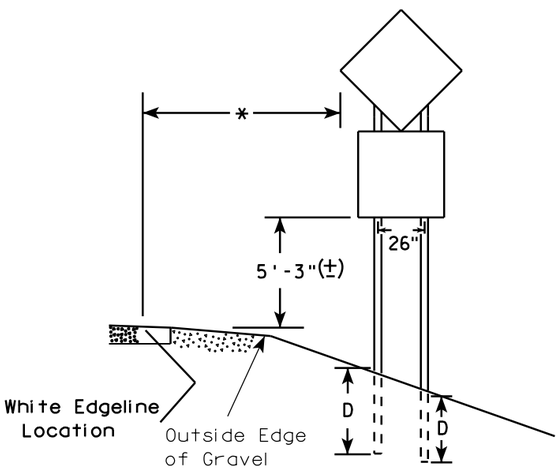
RURAL AREA (See Note 3)







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 120"	L/5

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

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

GENERAL NOTES

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

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

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

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

POST EMBEDMENT DEPTH

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

TYPICAL INSTALLATION OF TYPE II SIGNS ON MULTIPLE POSTS

WISCONSIN DEPT OF TRANSPORTATION

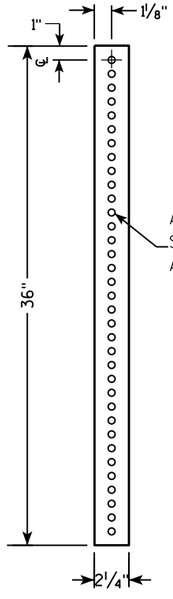
APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 7/23/15 PLATE NO. A4-4 98 14

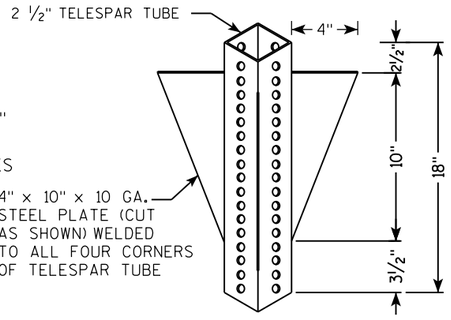
PROJECT NO: 2160-01-72	HWY: CTH U	COUNTY: MILWAUKEE		SHEET NO:	E

TELESCOPIC TUBING ANCHORS
TWO PIECE SYSTEM

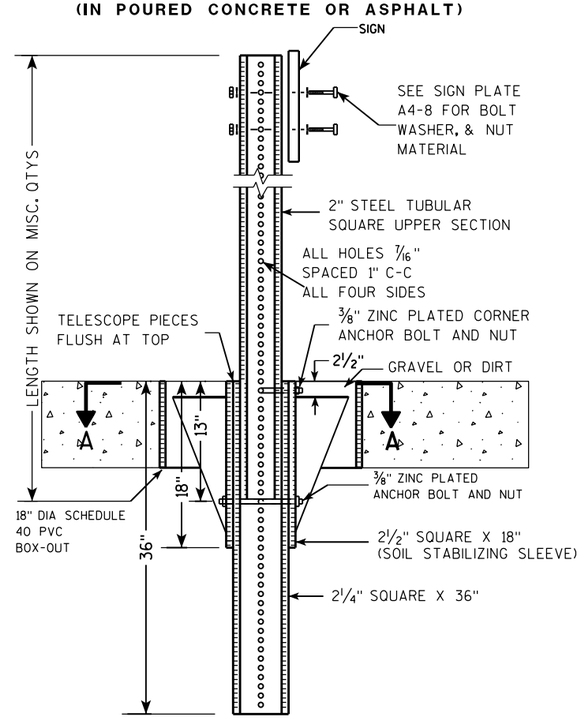
2 1/4 " SQUARE
12 GAUGE
PERFORATED
GALVANIZED FINISH



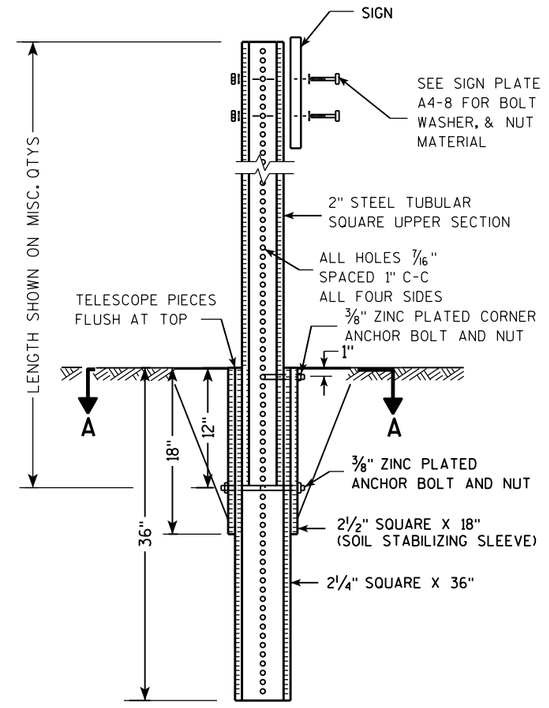
2 1/2 " SQUARE
12 GAUGE
OMNI-DIRECTIONAL
PERFORATED
SOIL STABILIZING SLEEVE
GALVANIZED FINISH

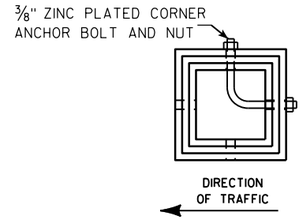


DETAIL OF TUBULAR STEEL SIGN POST
(IN POURED CONCRETE OR ASPHALT)



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 99 A4-9.9

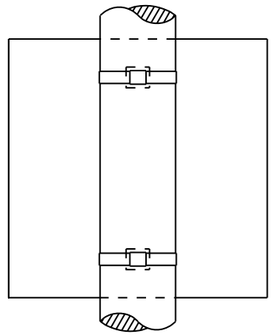
PROJECT NO: 2160-01-72	HWY: CTH U	COUNTY: MILWAUKEE		SHEET NO:	E

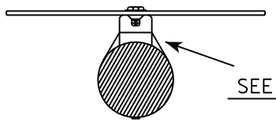
FILE NAME : C:\CAEFiles\Projects\tr_stdplate\A49.DGN PLOT DATE : 05-FEB-2015 17:09 PLOT BY : mscsja PLOT NAME : PLOT SCALE : 13.659812:1.000000

WISDOT/CADDS SHEET 42

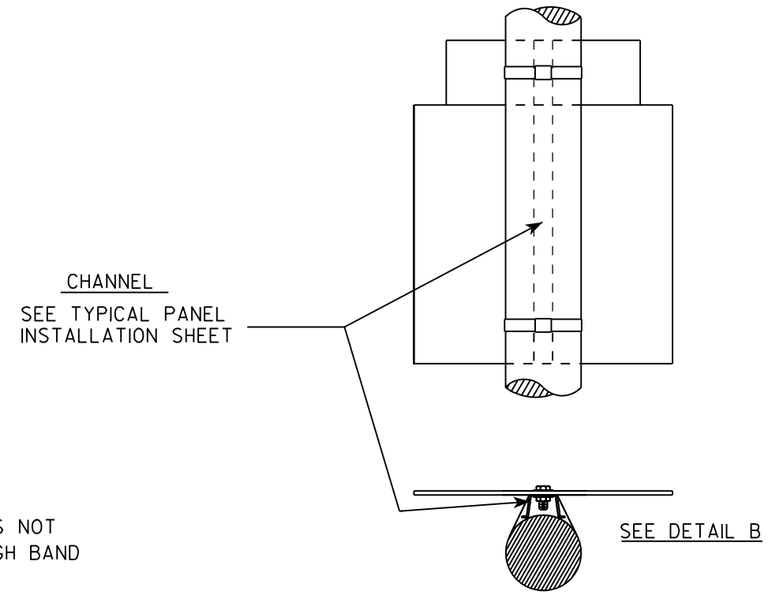
BANDING

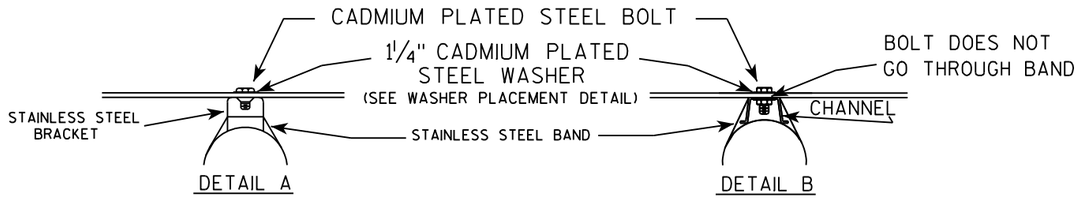
SINGLE SIGN



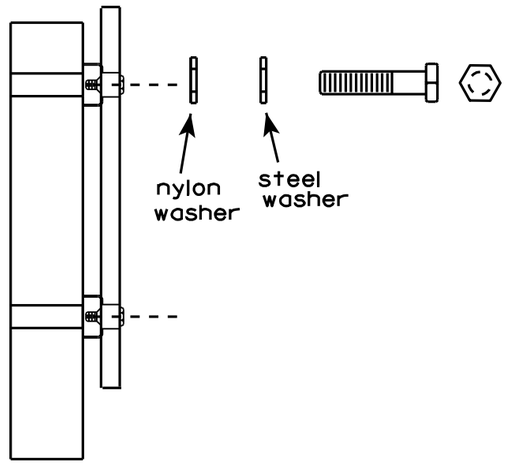


"J" ASSEMBLY





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.

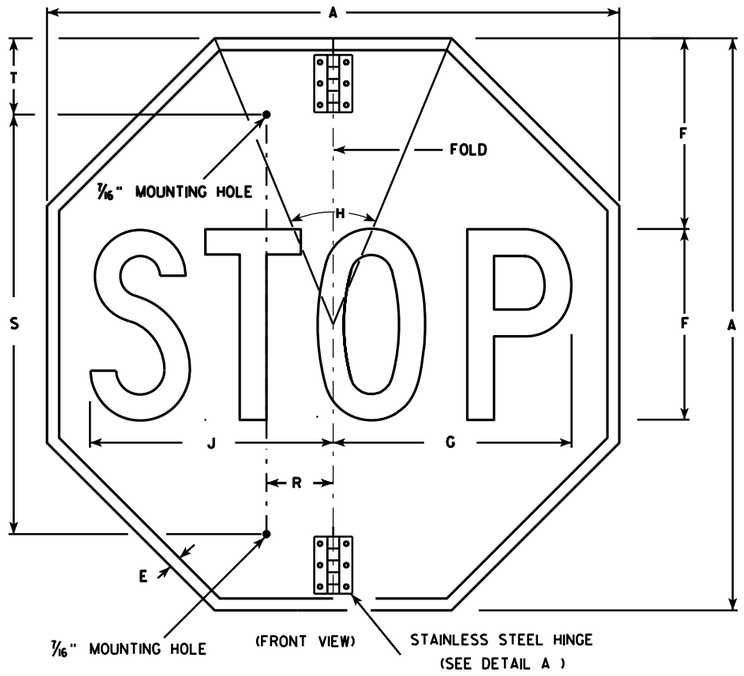
STANDARD SIGN
SIGN BANDING DETAILS

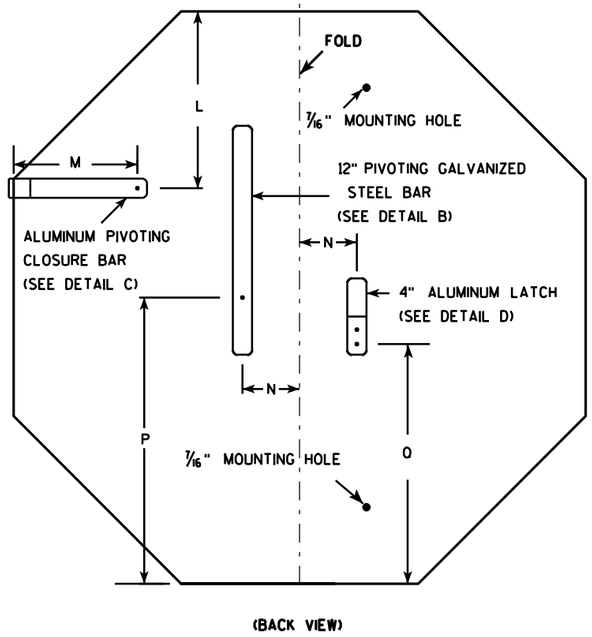
WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

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

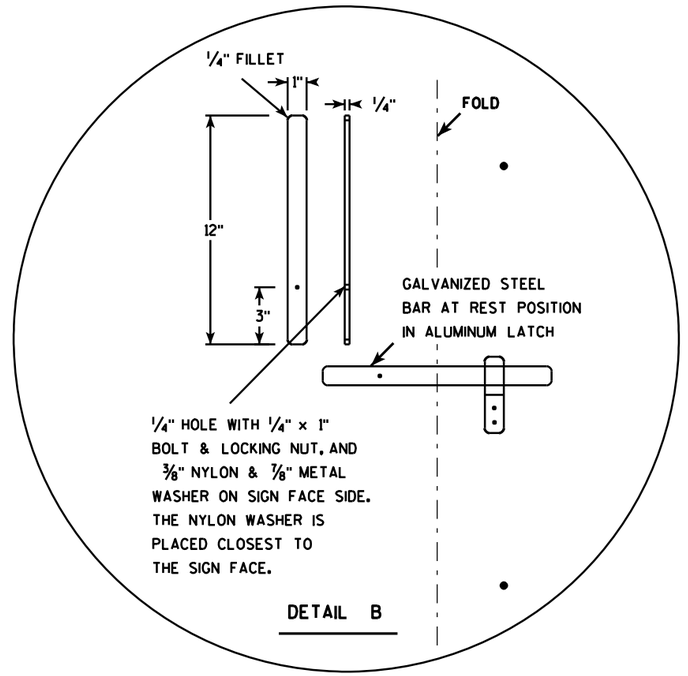
PROJECT NO: 2160-01-72	HWY: CTH U	COUNTY: MILWAUKEE		SHEET NO: 100	E

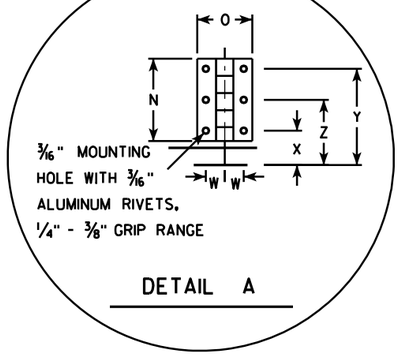


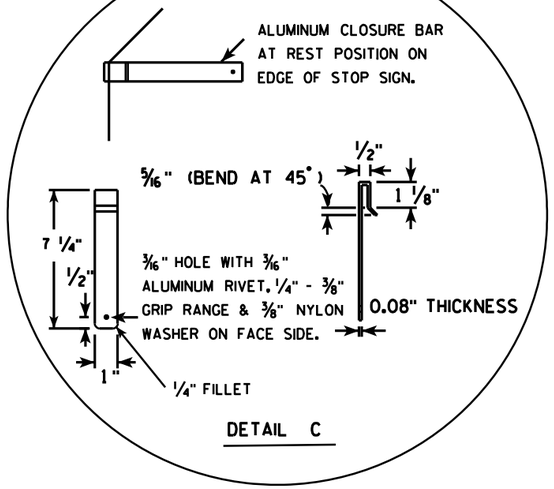


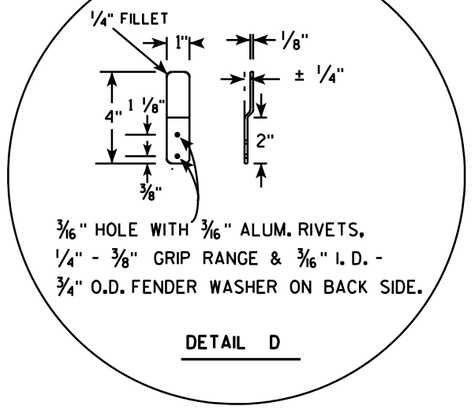
NOTES

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																											

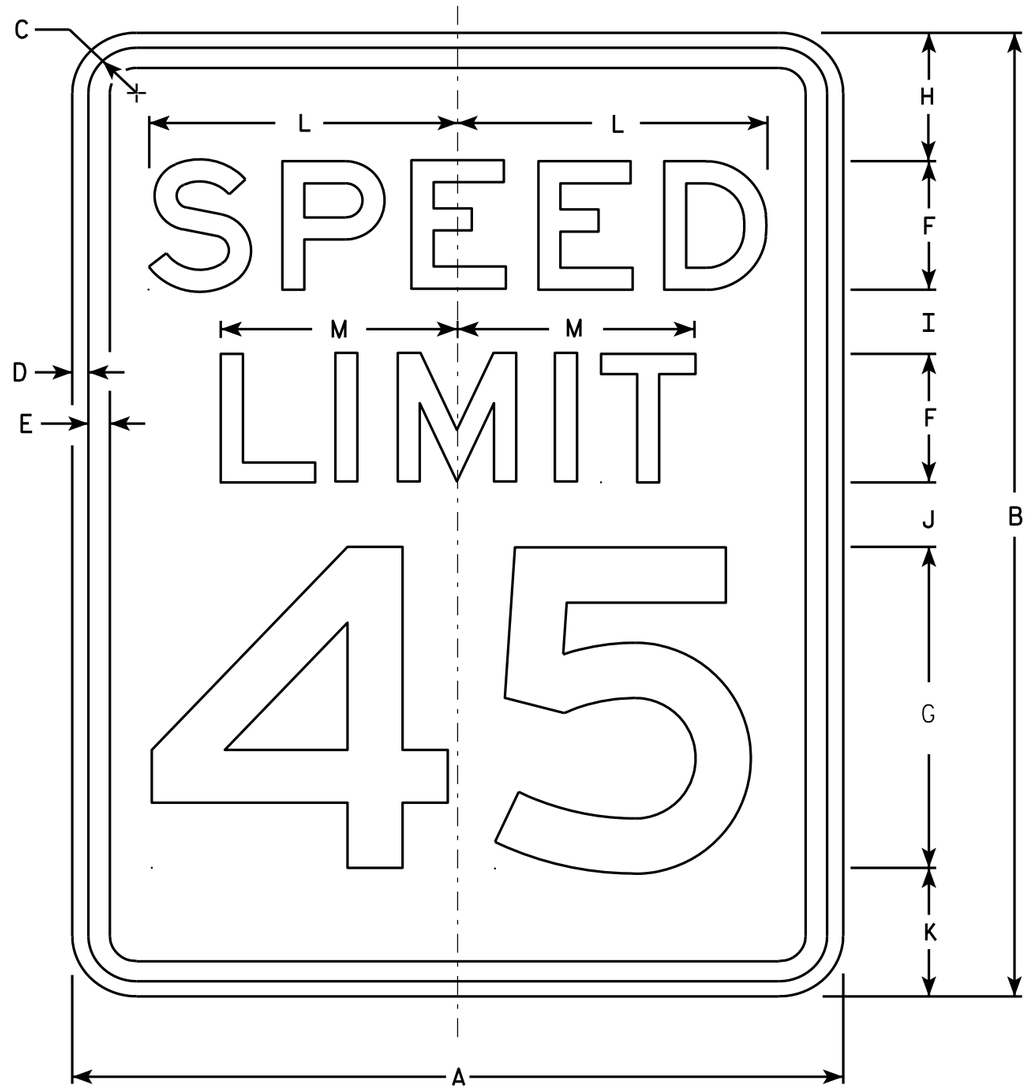
STANDARD SIGN
R1-1F

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 12/03/10 PLATE NO. R1-1F.3

PROJECT NO: 2160-01-72	HWY: CTH U	COUNTY: MILWAUKEE		SHEET NO: 101	E



R2-1

NOTES

1. Sign is Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
   Background - White
   Message - Black
3. Message Series - E
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 and optically adjust spacing to achieve proper balance.

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	8	3	2	2	3	7 1/4	5 1/2														3.0
2S	24	30	1 1/8	3/8	1/2	4	10	3	2 1/4	3 3/8	3 3/8	9 5/8	7 3/8														5.0
2M	30	36	1 3/8	1/2	5/8	5	12	5	2 1/2	2 1/2	4	12	9 1/4														7.5
3	36	48	1 3/8	1/2	5/8	6	14	6	5	5	6	14 3/8	11														12.0
4	36	48	1 3/8	1/2	5/8	6	14	6	5	5	6	14 3/8	11														12.0
5	48	60	2 1/4	3/4	1	8	20	6	4 1/2	6 3/4	6 3/4	19 1/4	14 5/8														20.0

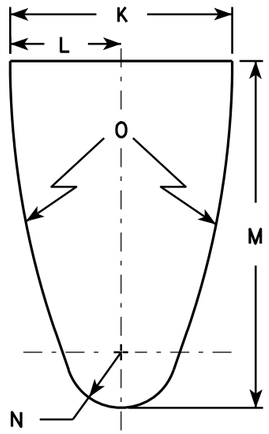
STANDARD SIGN
R2-1

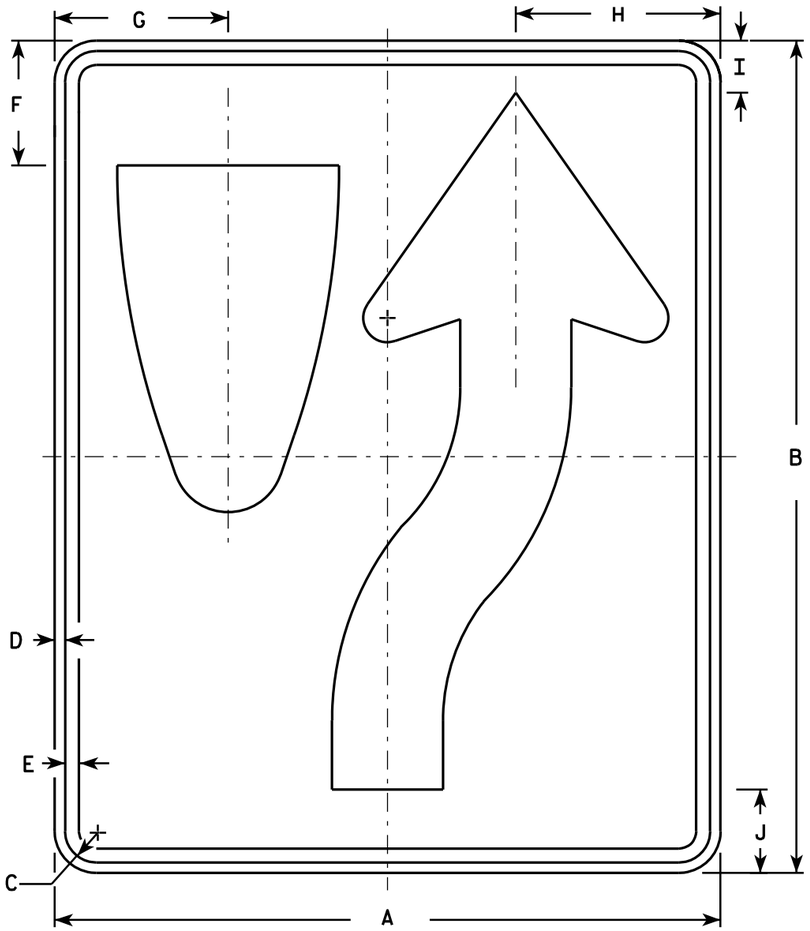
WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer

DATE 5/26/10 PLATE NO. R2-1.13

PROJECT NO: 2160-01-72 | HWY: CTH U | COUNTY: MILWAUKEE | SHEET NO: 102 | E

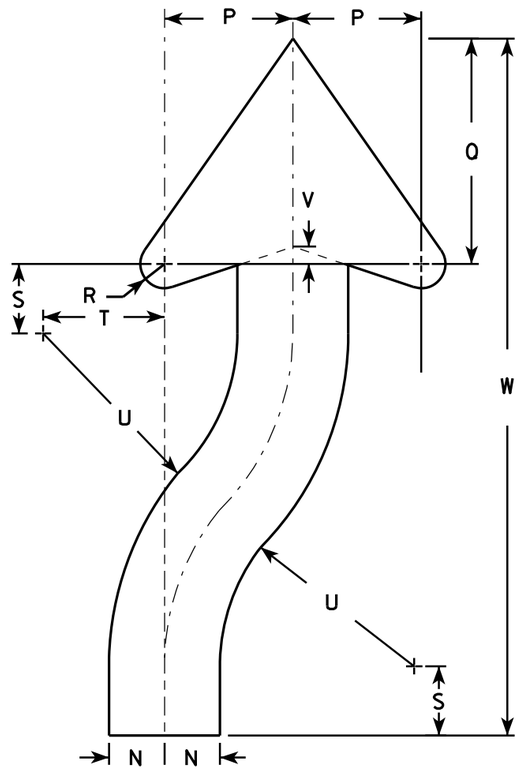




R4-7

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: 2160-01-72 | HWY: CTH U | COUNTY: MILWAUKEE | SHEET NO: 103 | E

Wisconsin Department of Transportation

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