SEL

DEC 2014

PROJECT ID 2984-08-75

WITH: N/A

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 = 36

26

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PLAN OF PROPOSED IMPROVEMENT

CITY OF MILWAUKEE VARIOUS LOCATIONS

10 LOCAL INTERSECTIONS

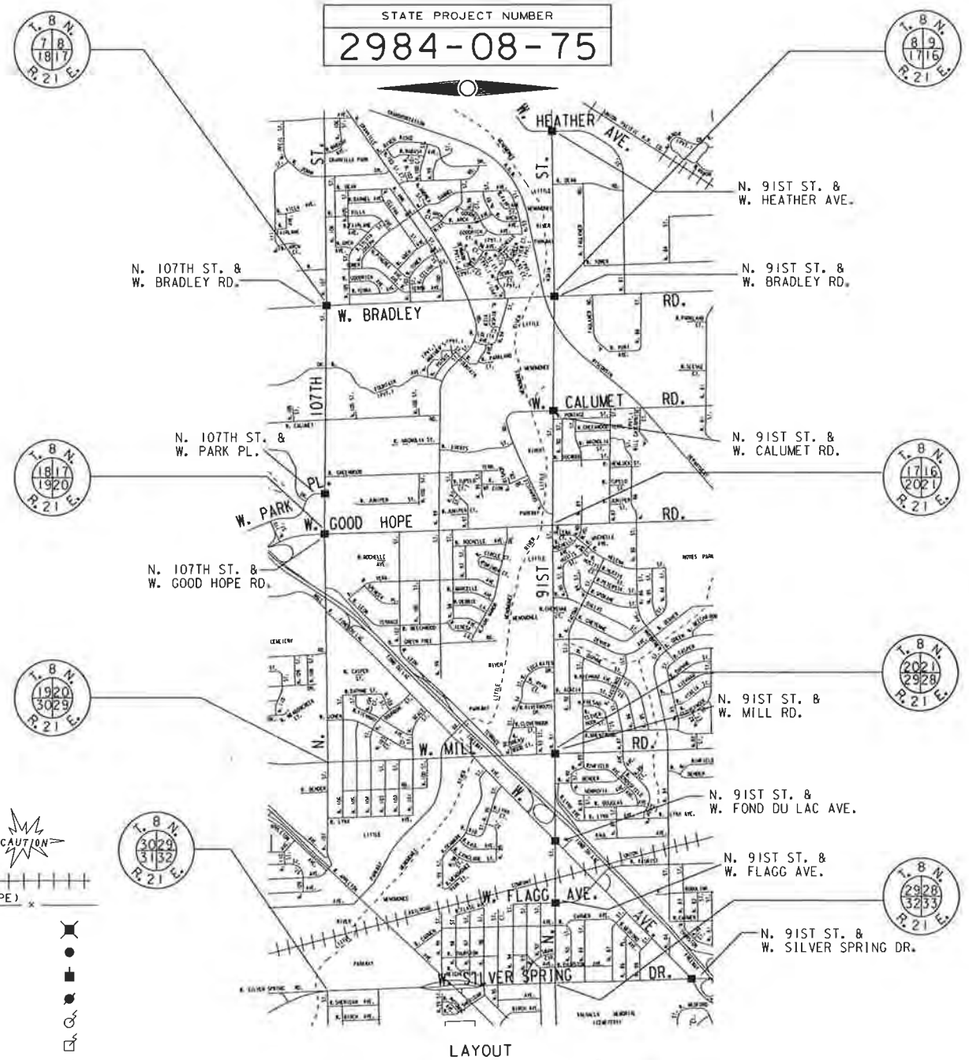
VAR HWY

MILWAUKEE COUNTY

STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
2984-08-75	WISC 2014342	1

STATE PROJECT NUMBER

2984-08-75



TOTAL NET LENGTH OF CENTERLINE =0.0000 MI. (URBAN)

DESIGN DESIGNATION

STREET 1	STREET 2	2012 A.D.T.
W. BRADLEY RD.	N. 91ST ST.	30,600
W. BRADLEY RD.	N. 107TH ST.	30,500
W. CALUMET RD.	N. 91ST ST.	23,300
W. FLAGG AVE.	N. 91ST ST.	23,100
W. FOND DU LAC AVE.	N. 91ST ST.	20,700
W. FOND DU LAC AVE.	W. SILVER SPRING DR.	25,400
W. GOOD HOPE RD.	N. 107TH ST.	56,900
W. HEATHER AVE.	N. 91ST ST.	18,200
W. MILL RD.	N. 91ST ST.	35,900
W. PARK PL.	N. 107TH ST.	26,100

CONVENTIONAL SIGNS

- COUNTY LINE
- TOWNSHIP OR RANGE LINE
- SECTION LINE
- CORPORATE OR CITY LIMITS
- PROPERTY LINE — P.L.
- STANDARD BENCH MARK
- EXISTING RIGHT OF WAY LINE — R/W
- PROPOSED SEWER LATERAL
- BASE OF SURVEY LINE
- CONCRETE WALK/DWY. REMOVAL
- LIMITS OF CONCRETE PAVEMENT REMOVAL
- CATCH BASIN OR INLET EXISTING PROPOSED
- COMBUSTIBLE FLUIDS UNDER PRESSURE — CAUTION
- RAILROADS
- FENCE — (TYPE)
- FIRE & POLICE CALL BOX
- LIGHT POLE
- POWER POLE
- TELEPHONE OR TELEGRAPH POLE
- TRAFFIC SIGNAL
- TRAFFIC SIGNAL CONTROL BOX
- HYDRANT
- GAS OR WATER GATE VALVE
- MANHOLES - SEWER UTILITY (TYPE)
- TREES - EXISTING TO BE REMOVED

Accepted For
City of Milwaukee

7/15/14 (Date) Commissioner of Public Works

Original Plans Prepared By

WISCONSIN PROFESSIONAL ENGINEER — JEFFREY S. POLINSKE — E-[illegible] — MILWAUKEE WIS.

7/15/14 (Date) City Engineer

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PREPARED BY

Surveyor City of Milwaukee
Designer City of Milwaukee
Management Consultant Daar Engineering, Inc.
C.O. Examiner

APPROVED FOR THE DEPARTMENT

DATE: 7/15/14 (Signature)

E

COUNTY MILWAUKEE

FILE NAME = W:\SPR\MONOTUBE PROJECTS\2984-08-05\TITLE.DGN

PLOT DATE:

GENERAL NOTES

1. ALL DISTURBED AREAS, NOT SURFACED, ARE TO BE COVERED WITH 4" OF TOPSOIL, SODDED AND FERTILIZED UNLESS OTHERWISE DIRECTED BY THE ENGINEER.

2. NO TREES OR SHRUBS SHALL BE REMOVED UNLESS DESINATED FOR REMOVAL BY THE ENGINEER.

3. TRANSVERSE JOINTS IN THE SIDEWALK SHALL BE CONSTRUCTED AT INTERVALS EQUAL TO THE WIDTH OF THE CONCRETE UNLESS OTHEREWISE DIRECTED BY THE ENGINEER.

4. THE LOCATION OF EXISTING AND PROPOSED UTILITY INSTALLATIONS AS SHOWN ON THE PLAN ARE APPROXIMATE. THERE MAY BE OTHER UTILITY INSTALLATIONS WITHIN THE PROJECT AREA WHICH ARE NOT SHOWN.

5. INLET SCREENS ARE TO BE PLACED BETWEEN THE FRAME AND GRATE OF CATCH BASINS / INLETS TO PREVENT SOIL FROM ENTERING THE SEWERS. ALL EROSION CONTROL MEASURES SHALL BE MAINTAINED UNTIL SUCH TIME AS THE ENGINEER DETERMINES THE MEASURES ARE NO LONGER NECESSARY.

6. DESIGNER CONTACT: RATTAN MAHAY
TEL. (414) 286-0486
rattan.mahay@milwaukee.gov

STANDARD ABBREVIATIONS

ASPH.	- ASPHALT
B.M.	- BENCH MARK
CTR.	- CENTER
C/L	- CENTER LINE
COMB.	- COMBINED
CONC.	- CONCRETE
C.W.	- CONCRETE WALK
COR.	- CORNER
C	- CURB
ELEV.	- ELEVATION
ENT.	- ENTRANCE
EXIST.	- EXISTING
F	- FLANGE
G	- GUTTER, OR GAS
HYD.	- HYDRANT
LT.	- LEFT
MMSD	- MILWAUKEE METROPOLITAN SEWERAGE DISTRICT
P/L.	- PROPERTY LINE
R OR RAD.	- RADIUS
RET.	- RETAINING
RT.	- RIGHT
R/W	- RIGHT OF WAY
TEL	- AMERITECH
TES	- TRAFFIC ENGINEERING, AND ELECTRICAL SERVICES
T/L	- TRANSIT LINE
WEP	- WISCONSIN ELECTRIC POWER

ORDER OF SECTION 2 SHEETS

UTILITY CONTACTS

CITY OF MILWAUKEE, UTILITY COORDINATOR

MUSA ABU-KHADER
841 N. BROADWAY, RM 710
MILWAUKEE, WI 53202
PHONE: 414-286-2432
mkhade@milwaukee.gov

WE ENERGIES - GAS

TOM MINESAL
500 S. 116TH ST.
WEST ALLIS, WI 53214
PHONE: 414-944-5755
thomas.minesal@we-energies.com

WE ENERGIES - ELECTRIC

LEONARD WILSON
500 S. 116TH ST.
WEST ALLIS, WI 53214
PHONE: 414-944-5690

TIME WARNER CABLE

LUKAS LACROSSE
1320 N. DR. MARTIN LUTHER KING JR. DR.
MILWAUKEE, WI 53212
PHONE: 414-277-0638
lukas.lacrosse@twcable.com

AT & T WISCONSIN

KARIN EWOLDT
152 DIXON ST.
MADISON, WI. 53704
PHONE: 608-252-5423 (O)
608-338-5560 (C)
ke3543@att.com

JAY BULANEK: FIELD CONTACT
PHONE: 414 535-7407

MILWAUKEE METROPOLITAN SEWERAGE DISTRICT

DEBRA JENSEN
260 W. SEEBOTH ST.
MILWAUKEE, WI 53204
PHONE: 414-225-2143
djensen@mmsd.com

LARRY ANDERSON: FIELD CONTACT
PHONE: 414 225-2241

MIDWEST FIBER NETWORKS

JOEL BOJARSKI
3701 W.BURNHAM ST. SUITE C
MILWAUKEE, WI 53215
PHONE: 414-459-3551
jbojarski@midwestfibernetworks.com

MCLEOD U.S.A./ WINDSTREAM

JAMES KOSTUCH
13935 BISHOPS DRIVE
BROOKFIELD, WI. 53005
PHONE: 262-792-7938
james.kostuch@windstream.com

LEVEL 3 COMMUNICATIONS

NICKEY WORTHINGTON
1025 ELDORADO BLVD.
BROOMFIELD, CO 80021
PHONE: 720-888-0336
nickey.worthington@level3.com

OTHER CONTACTS

WISCONSIN DEPT. OF NATURAL RESOURCES

KRISTINA BETZOLD
2300 N. DR. MARTIN LUTHER KING JR. DR.
MILWAUKEE, WI 53212-0436
PHONE: 414-263-8517
kristina.betzold@wisconsin.gov

MILWAUKEE COUNTY TRANSIT SYSTEM

DAVID ZIAREK
1942 N. 17TH ST.
MILWAUKEE, WI 53205
PHONE: 414-343-1764
dziarek@mcts.org

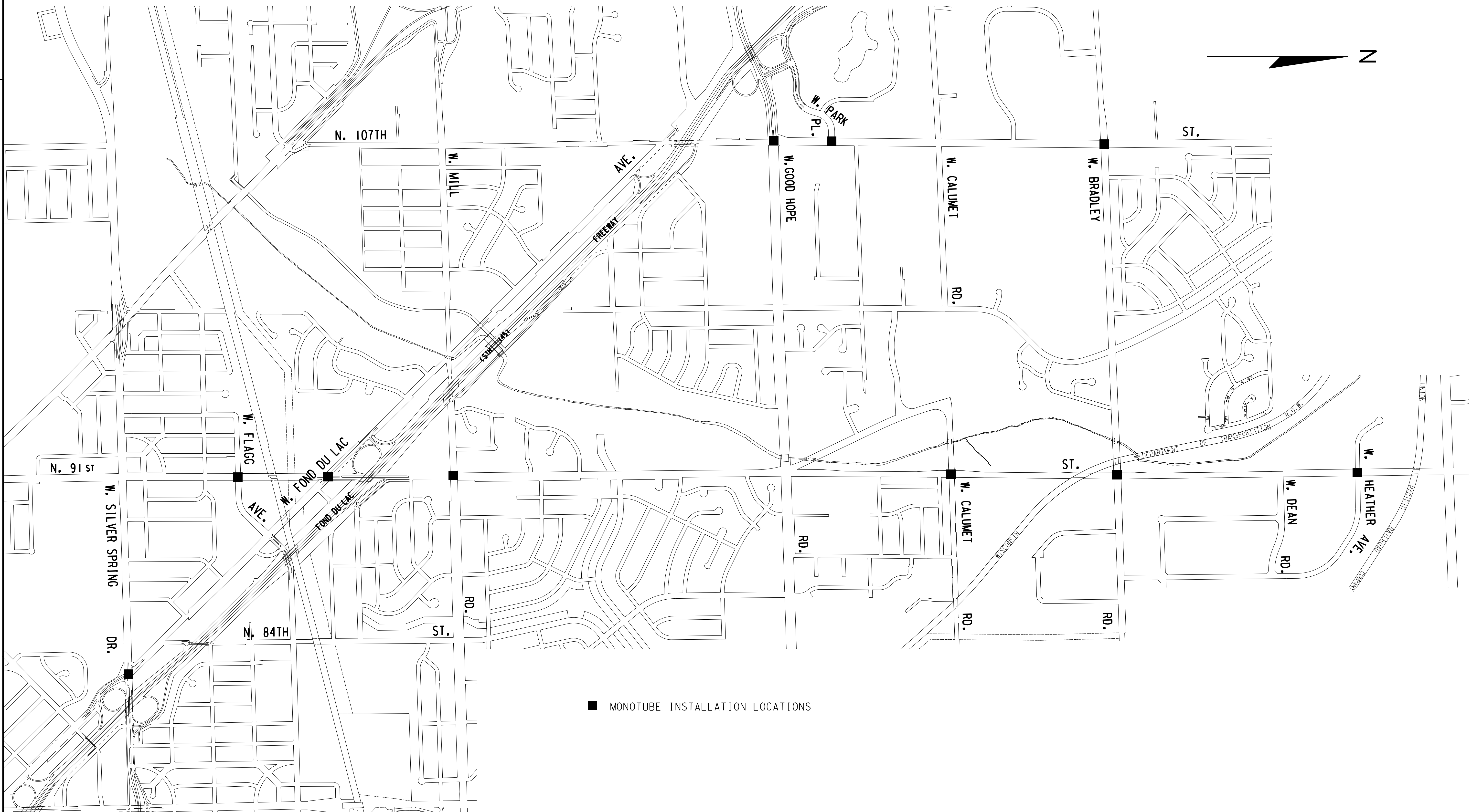
MILWAUKEE PUBLIC SCHOOLS

MICHELLE J. NATE
CHIEF OPERATIONS OFFICER
5225 W. VLIET ST.
P.O.BOX 2181
MILWAUKEE, WI 53201-2181
PHONE: 414-475-8336
natemj@milwaukee.k12.wi.us

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

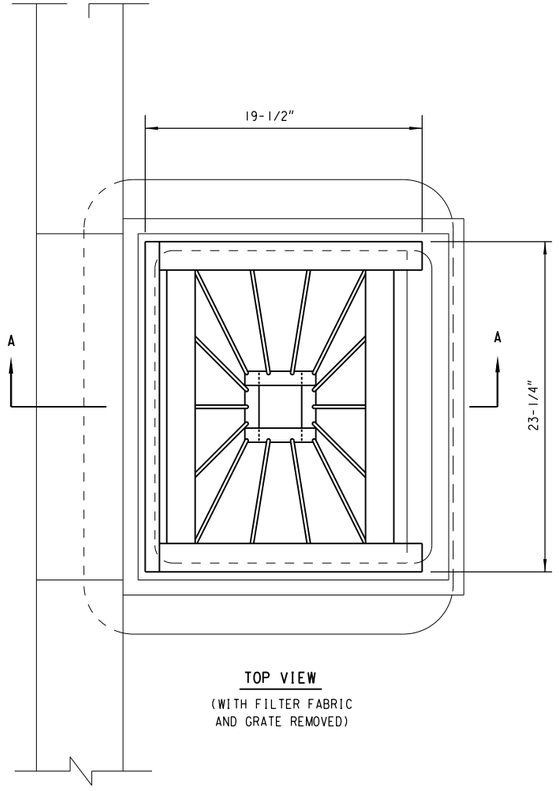
STATE PROJECT NUMBER 2984-08-75 - -	HWY: LOCAL STREET	COUNTY: MILWAUKEE	UTILITY CONTACTS	SCALE FEET	SHEET NO: 3	E

FILE NAME: W:\SPR\ MONOTUBE PROJECTS\2984-08-05\GENNOTES.DGN



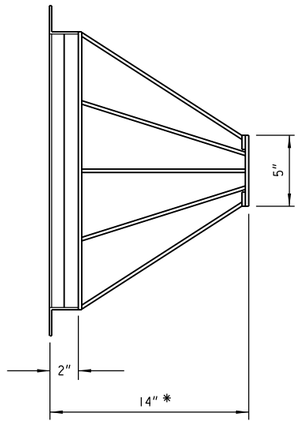
STATE PROJECT NUMBER 2984-08-75	HWY: LOCAL STREET	COUNTY: MILWAUKEE	PROJECT OVERVIEW	SCALE FEET	SHEET NO: 4	E

FILE NAME: W:SPR\MONOTUBE PROJECTS\2984-08-05\OVERVIEW.DGN



TOP VIEW

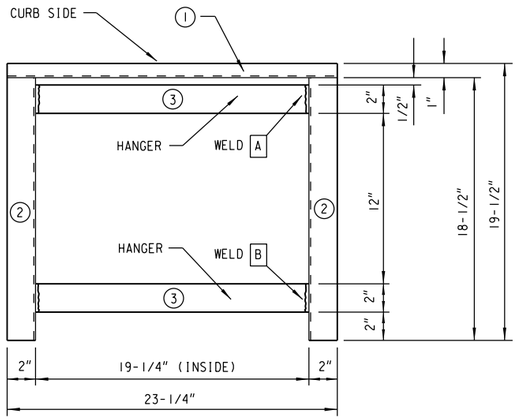
(WITH FILTER FABRIC AND GRATE REMOVED)



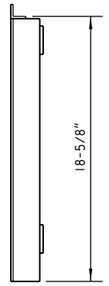
FRONT VIEW

(BASKET ONLY)

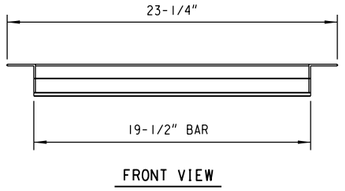
* MAY BE DECREASED IF INLET IS OF INSUFFICIENT DEPTH



TOP VIEW



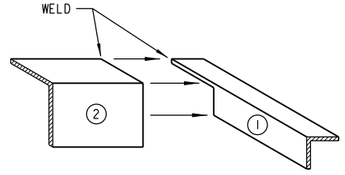
SIDE VIEW



FRONT VIEW

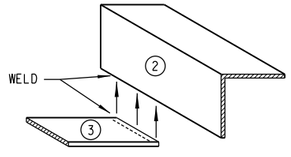
BAR SCHEDULE

NO.	SHAPE	SIZE	THICKNESS	LENGTH	QUANTITY
1	ANGLE	1" X 1"	1/8"	23-1/4"	1
2	ANGLE	2" X 2"	1/8"	18-1/2"	2
3	BAR	2"	1/4"	19-1/2"	2



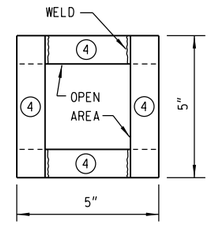
WELD CONNECTION - A

TOP FRAME



WELD CONNECTION - B

BASKET HANGER TO TOP FRAME



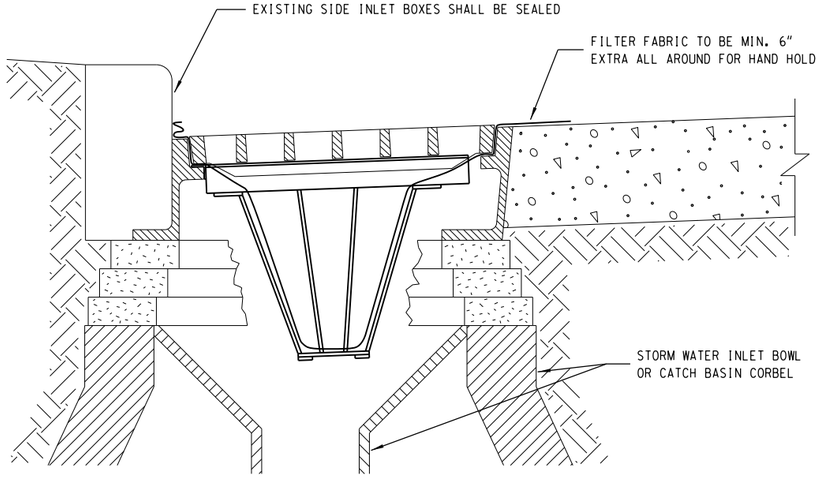
TOP VIEW

SIDE VIEW

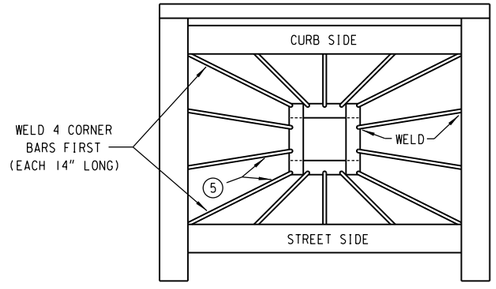
BAR SCHEDULE

NO.	SHAPE	SIZE	THICKNESS	LENGTH	QUANTITY
4	BAR	1"	1/4"	5"	4

BASKET BOTTOM



SECTION A-A



ROD PLACEMENT

ROD SCHEDULE

NO.	SHAPE	SIZE	THICKNESS	LENGTH	QUANTITY
5	ROD	1/4" MIN.	1/8"	12" TO 14" (CUT TO FIT)	14

TYPE M
INLET / CATCH BASIN BASKET

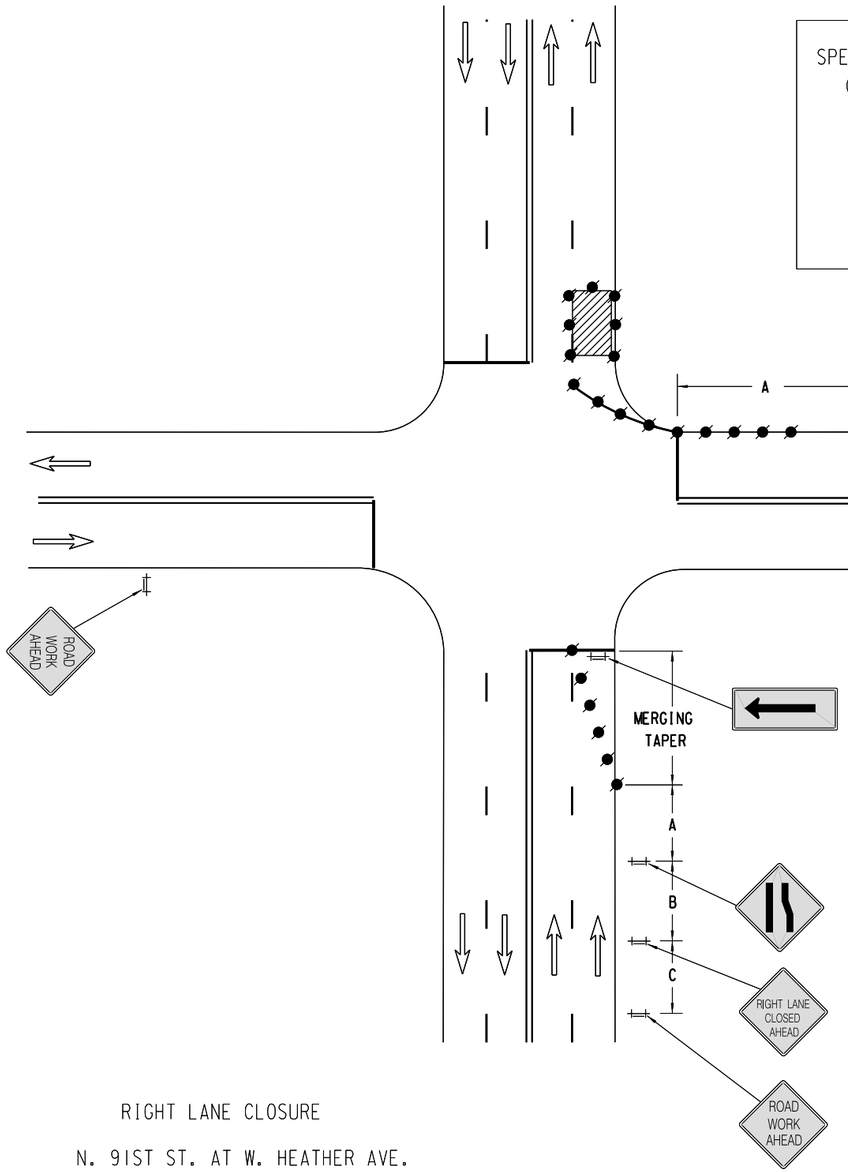
STATE PROJECT NUMBER 2984-08-75 - -	HWY: LOCAL STREET	COUNTY: MILWAUKEE	DRAINAGE DETAILS	SCALE FEET	SHEET NO: 5	E

FILE NAME: W:\SPR\MONOTUBE PROJECTS\2984-05-75\DRAINDET.DGN

2

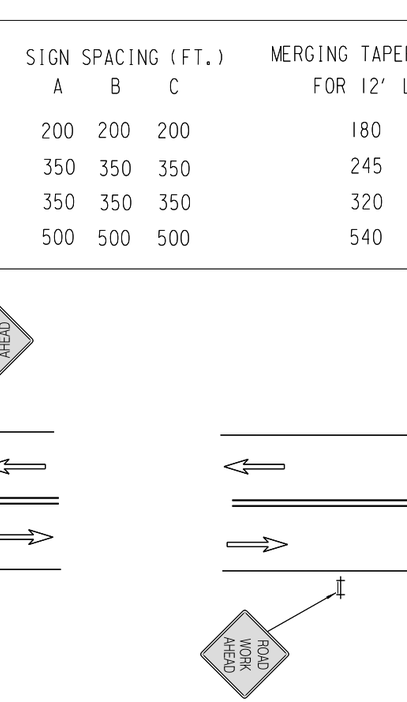
RIGHT LANE CLOSURE

SPEED LIMIT (MPH)	SIGN SPACING (FT.) A	B	C	MERGING TAPER (FT) FOR 12' LANE
30	200	200	200	180
35	350	350	350	245
40	350	350	350	320
45	500	500	500	540



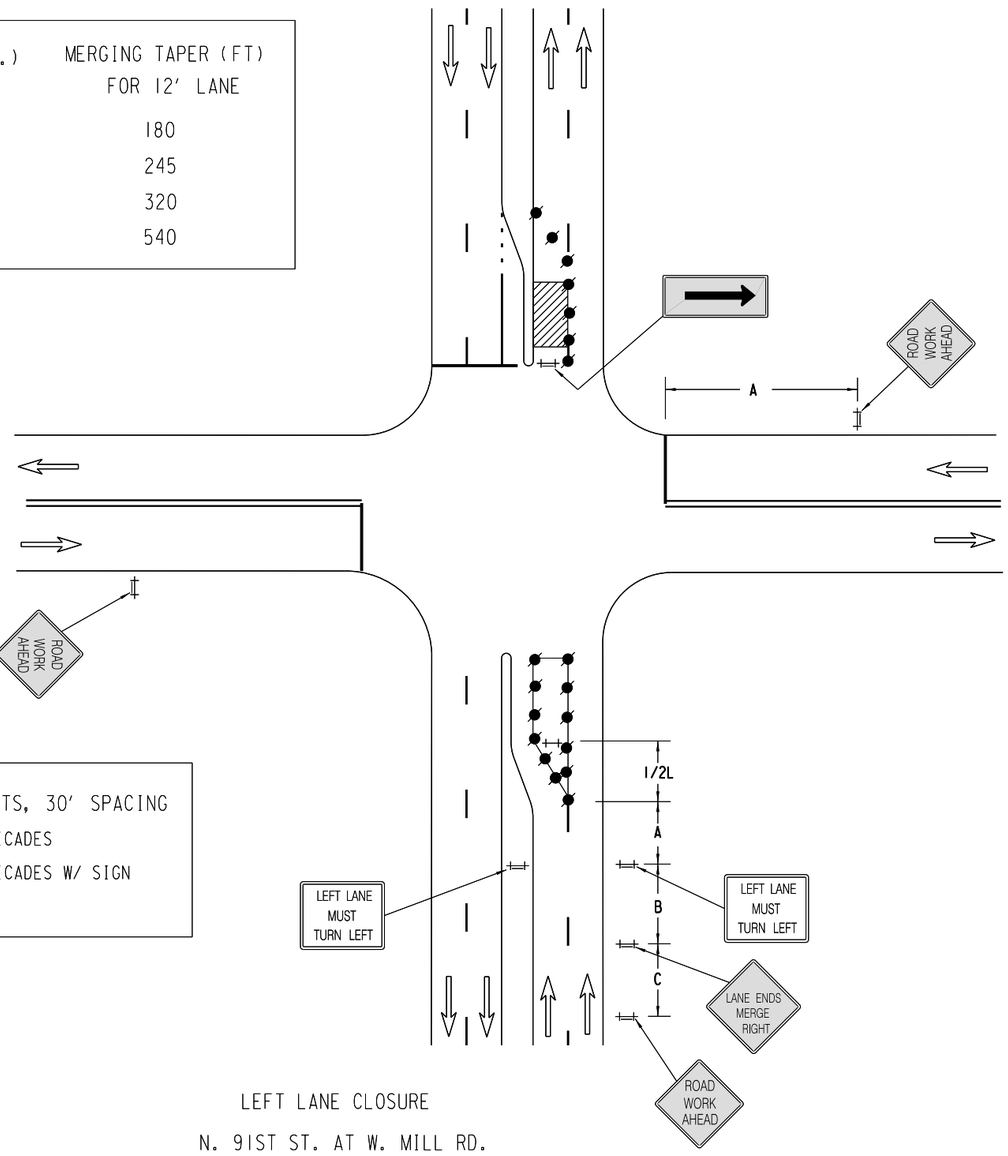
RIGHT LANE CLOSURE

N. 91ST ST. AT W. HEATHER AVE.
N. 91ST ST. AT W. BRADLEY RD.
N. 91ST ST. AT W. CALUMET RD.
N. 91ST ST. AT W. MILL RD.
N. 91ST ST. AT W. FOND DU LAC AVE.
N. 107TH ST. AT W. GOOD HOPE RD.
W. FOND DU LAC AVE. AT W. SILVER SPRING DR.



- DRUMS W/LIGHTS, 30' SPACING
- TYPE III BARRICADES
- TYPE III BARRICADES W/ SIGN
- WORK AREA

LEFT LANE CLOSURE



LEFT LANE CLOSURE

N. 91ST ST. AT W. MILL RD.
N. 91ST ST. AT W. FOND DU LAC AVE.
N. 91ST ST. AT W. FLAGG AVE.
N. 91ST ST. AT W. BRADLEY RD.
N. 107TH ST. AT W. PARK PL.
N. 107TH ST. AT W. GOOD HOPE RD.
N. 107TH ST. AT W. BRADLEY RD.
W. FOND DU LAC AVE. AT W. SILVER SPRING DR.

STATE PROJECT NUMBER 2984-08-05 - -	HWY: LOCAL STREET	COUNTY: MILWAUKEE	TRAFFIC CONTROL	SCALE FEET 0' 80'	SHEET NO: 6	E

FILE NAME: W:\SPR\MONOTUBE PROJRCTS\2984-08-05\TRAFFIC.DGN

REVISED:

2

TRAFFIC & STREET LIGHTING GENERAL NOTES:

PRIOR TO CONSTRUCTION, THE LOCATION OF UNDERGROUND UTILITIES SHALL BE DETERMINED IN THE FIELD BY CONTACTING "DIGGERS HOTLINE."

STREET LIGHTING & TRAFFIC SIGNALS SHALL BE INSTALLED IN COMPLIANCE WITH WISCONSIN DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS SECTION 652 EXCEPT:

THE CONTRACTOR IS RESPONSIBLE FOR ALL COSTS INCLUDING REPAIRS, REPLACEMENT OR RELOCATION ETC. OF STREET LIGHTING OR TRAFFIC SIGNAL FACILITIES IF THE CONTRACTOR DOES ANY DEVIATION FROM THE STREET LIGHTING OR TRAFFIC SIGNAL DESIGN WITHOUT THE STREET LIGHTING ENGINEERS SIGNED PERMISSION.

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

2 LOCATIONS OF THE PVC CONDUITS WHERE THEY ARE REQUIRED ARE IDENTIFIED IN THE PRINTS. HOWEVER, INSTALLATION MAY REQUIRE INTEGRATION WITH EXISTING FIELD CONDITIONS. APPROPRIATE ADJUSTMENT ON CONDUIT LOCATIONS MAY BE MADE IF THE FIELD CONDITIONS ARE SUCH THAT THE CONDUIT CANNOT BE INSTALLED AT THE SPECIFIED LOCATIONS. ANY RELOCATIONS MUST BE APPROVED BY THE ENGINEER. FIELD MARK EACH CONDUIT LOCATION BY STAMPING AND PAINTING WITH RED PAINT ON TOP AND BACKSIDE OF CURB.

3 TYPICAL CONDUIT INSTALLED UP TO DIRECT BURIED STREET LIGHT POLES IS AS FOLLOWS 3-INCH OR 2.5-INCH (AS NOTED) SCHEDULE 40 RIGID PVC TO STREET LIGHTING METAL HOUSING (PEDESTAL), THE 1.5-INCH SCHEDULE 40 RIGID PVC TO STREET LIGHT POLE CABLE SLOT, AND THE 2-INCH SCHEDULE 40 RIGID PVC TO SIGNAL STANDARD BASE AND RISER FOR TRAFFIC SIGNAL ON STREET LIGHT POLE.

4 DEPTH OF CONDUIT INSTALLED BELOW THE STREETS, HIGHWAYS, ROADS, AND ALLEYS SHALL BE 24-INCHES MINIMUM AND 36-INCHES MAXIMUM. (MEASURED FROM FINISHED FLANGE LINE)

5 CONDUIT INSTALLED BEHIND CURB, AND UNDER DRIVEWAYS SHALL BE INSTALLED AT THE BASE OF THE BACKSIDE OF THE CURB/GUTTER SECTION.

6 WHEN THERE IS MORE THAN ONE CONDUIT TO BE LAID BEHIND THE CURB, PLACE ALL CONDUITS IN THE SAME TRENCH.

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

8 THE CONTRACTOR OR HIS SUBCONTRACTOR MUST MAKE SURE THE AREA BEHIND CURB AND/OR WITHIN TRENCH SHALL BE FREE OF DEBRIS AND OVERPOUR AND SHALL NOT BE BACKFILLED PRIOR TO INSPECTION OF THE CONDUIT.

9 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.

10 ALL CUT ENDS SHALL BE TRIMMED INSIDE AND OUTSIDE TO REMOVE ALL ROUGH EDGES ON ALL CONDUITS. (SEE NEC 352.28 2008 CODE)

11 PRIOR TO CONDUIT ACCEPTANCE, ALL CONDUIT ENDS SHALL BE THOROUGHLY CLEANED AND BE CAPPED IMMEDIATELY AFTER INSTALLATION WITH THE APPROPRIATE CAST PLASTIC CAP WHICH FITS SNUGGLY ON THE CONDUIT, BUT EASILY REMOVED IN THE FUTURE. DUCT TAPE OR ANY OTHER CAPPING METHOD IS NOT ACCEPTABLE.

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

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

14 PULL ROPE (3/8-INCH NYLON) SHALL BE INSTALLED IN ALL NEW CONDUIT.

15 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 UNLESS OTHERWISE APPROVED BY THE STREET LIGHTING ENGINEER.

16 WHEN ENDS OF CONDUIT DO NOT CONNECT TO A VAULT AND WILL END UP UNDER CONCRETE WALK. THE CONTRACTOR IS REQUIRED TO LEAVE A 24" X 24" BOX FORM CENTERED OVER THE END OF CONDUIT AND FILL THE BOXFORM WITH CRUSHED GRAVEL. (PER WISDOT SPEC 209.2.1(1) GRANULAR BACKFILL)

17 ALL PIPE CROSSINGS AND VAULTS SHALL BE AT LEAST SIX (6) FEET AWAY FROM FIRE HYDRANTS, UNLESS NOTED OTHERWISE, OR APPROVED BY THE STREET LIGHTING ENGINEER.

18 ALL POLES AND TRAFFIC STANDARDS IN CONCRETE ARE REQUIRED TO HAVE A 30"X30" BOX SHAPED JOINT PLACED AROUND THEM USING AN EXPANSION JOINT FILLER. UNLESS NOTED OTHERWISE (SEE DETAIL 122)

19 TYPICAL RECTANGULAR VAULTS SHOULD BE INSTALLED AS SHOWN ON PLANS, BUT WHEN IT IS NOT POSSIBLE, A 5 FT. TO 6 FT. OFFSET FROM STREET LIGHT POLES, SIGNAL STANDARDS AND FIRE HYDRANTS SHOULD BE USED, OTHERWISE APPROVED BY THE STREET LIGHTING ENGINEER.

TRAFFIC & STREET LIGHTING GENERAL NOTES:

2

20 COORDINATE NEW CONDUIT CONNECTIONS WITH EXISTING CONDUIT, DUCT PACKAGES, AND VAULTS/ MANHOLES WITH CITY OF MILWAUKEE STREET LIGHTING. THE CITY REQUIRES THREE WORKING DAYS ADVANCED NOTICE. CONTACT ELECTRICAL SUPERVISOR
STREET LIGHTING - DENNIS MILLER (OFFICE) 414-286-5942 (CELL) 414-708-4251 OR DISPATCHER @ 414-286-5944
TRAFFIC SIGNALS - AL NICHOLS (OFFICE) 414-286-3687 (CELL) 414-708-5148 OR DISPATCHER @ 414-286-3687

21 IMMEDIATELY AFTER THE CONTRACTOR HAS COMPLETED ALL THE ELECTRICAL VAULT, CONDUIT AND CONDUIT CONNECTIONS, AND JUST BEFORE ELECTRICAL WORK IS COVERED UP WITH CONRETE, SOIL, OR ETC. THE CONTRACTOR IS REQUIRED TO CONTACT THE CITY OF MILWAUKEE ELECTRICAL SHOP SUPERVISORS FOR FINAL INSPECTION AND APPROVAL OF ALL WORK.
STREET LIGHTING - DENNIS MILLER (OFFICE) 414-286-5942 (CELL) 414-708-4251
STREET LIGHTING - GEORGE BERDINE (OFFICE) 414-286-5943 (CELL) 414-708-4245
STREET LIGHTING - THOMAS HUGHES (OFFICE) 414-286-3457 (CELL) 414-708-3175
STREET LIGHTING - DISPATCHER @ 414-286-5944
TRAFFIC SIGNALS - AL NICHOLS (OFFICE) 414-286-3687 (CELL) 414-708-5148
TRAFFIC SIGNALS - DISPATCHER @ 414-286-3687

22 CONDUIT WILL ONLY BE INSTALLED AFTER THE CURB IS POURED, UNLESS APPROVED BY BOTH THE ENGINEER & STREET LIGHTING SHOP SUPERVISOR.

UTILITY LINE CODE

SAN	SANITARY SEWER
STO	STORM SEWER
W	WATER
G	GAS
E	ELECTRIC
TE&ES	CITY TRAFFIC, LIGHTING, COMM. & UNDERGROUND CONDUIT
. . .	OVERHEAD LINE
T	TELEPHONE
TV	CABLE

OTHER UTILITIES AS NOTED

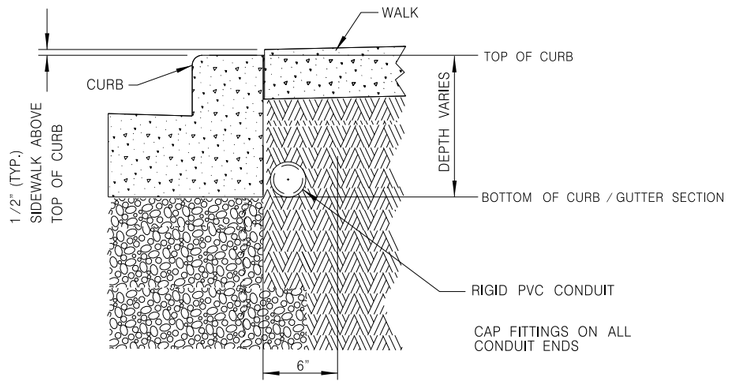
SHEET 1 OF 5

PROJECT NO: 2984–08–75	HWY: LOCAL STREET	COUNTY: MILWAUKEE	TRFFFIC SIGNAL CONDUIT DETAILS	SHEET 7	E

FILE NAME : W:\spr\MONOTUBE PROJECTS\2984-08-05\COPY2984-08-75 Traffic Plan Set 90%.dgn PLOT DATE : 24-APR-2014 08:11 PLOT BY : pvella PLOT NAME : PLOT SCALE : 20.000000:1.000000
WISDOT/CADDS SHEET 42

2

NOTE: 1.) KEEP AREA BEHIND CURB FREE OF DEBRIS AND CONCRETE OVERPOUR.
2.) CONDUIT TO BE PLACED WITHIN A 6" AREA DIRECTLY BEHIND CURB, UNLESS NOTED OR APPROVED BY ENGINEER.



100 DETAIL "A"

TYPICAL CONDUIT INSTALLATION
BEHIND CURB

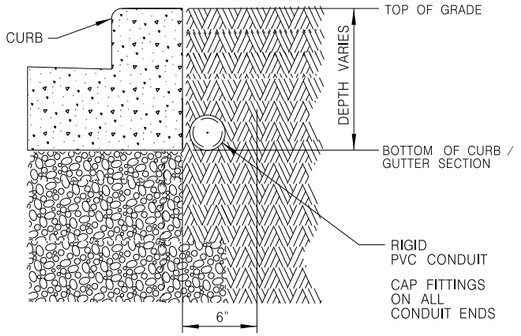
NOT TO SCALE

ANY DEVIATIONS FROM DETAIL WILL REQUIRE PERMISSION FROM STREET LIGHTING FORCES.
CONTACT DISPATCHER AT (414) 286-5944 FOR THE APPROPRIATE SHOP SUPERVISOR.

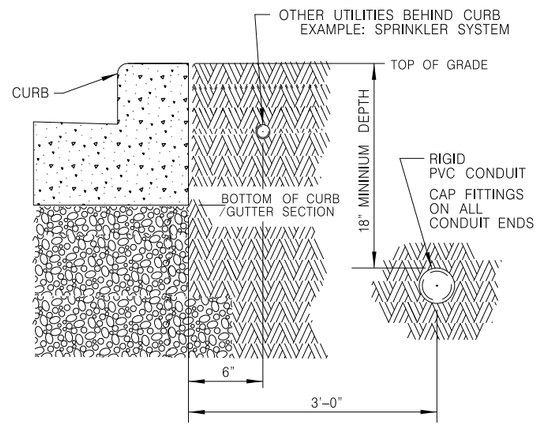
NOTE: 1.) KEEP AREA BEHIND CURB FREE OF DEBRIS AND CONCRETE OVERPOUR.

DETAIL "B"

CONDUIT TO BE PLACED WITHIN A 6" AREA DIRECTLY BEHIND CURB,
UNLESS NOTED OR APPROVED BY ENGINEER.



DETAIL "C"

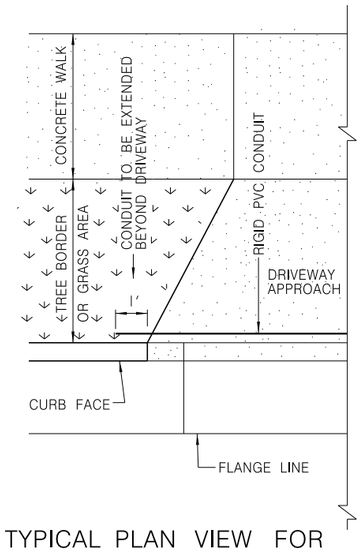


100 DETAIL "B" & "C"

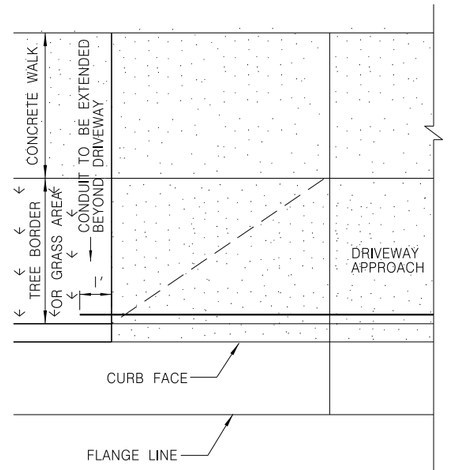
TYPICAL CONDUIT INSTALLATION
BEHIND CURB

NOT TO SCALE

ANY DEVIATIONS FROM DETAIL WILL REQUIRE PERMISSION FROM STREET LIGHTING FORCES.
CONTACT DISPATCHER AT (414) 286-5944 FOR THE APPROPRIATE SHOP SUPERVISOR.

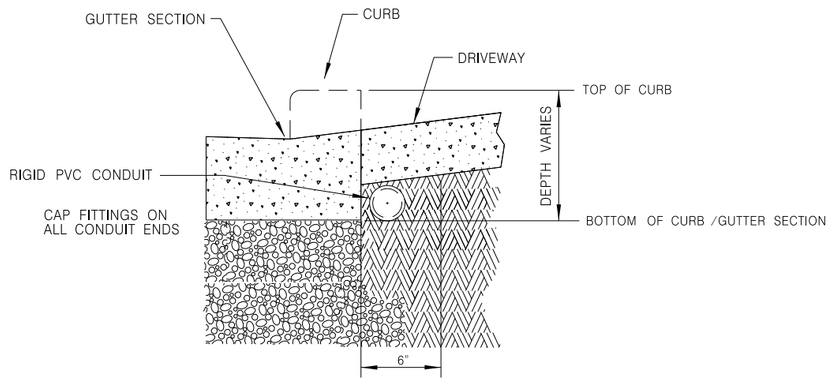


TYPICAL PLAN VIEW FOR
FLARED DRIVEWAY



TYPICAL PLAN VIEW FOR
DEPRESSED DRIVEWAY

NOTE: 1.) KEEP AREA BEHIND CURB FREE OF DEBRIS AND CONCRETE OVERPOUR.
2.) CONDUIT TO BE PLACED WITHIN A 6" AREA DIRECTLY BEHIND CURB, UNLESS NOTED OR APPROVED BY ENGINEER.



101 DETAIL

TYPICAL CONDUIT INSTALLATION
UNDER DRIVEWAYS OR PEDESTRIAN RAMPS

NOT TO SCALE

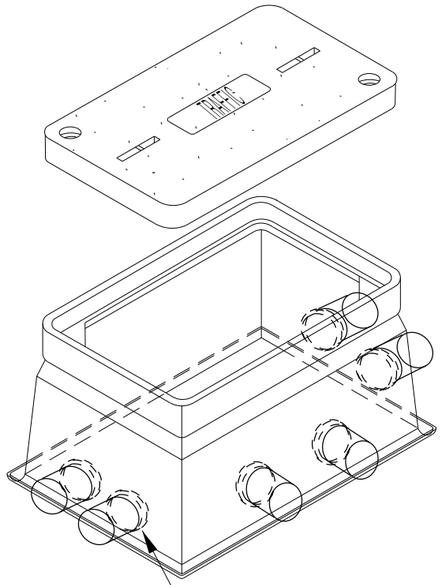
ANY DEVIATIONS FROM DETAIL WILL REQUIRE PERMISSION FROM STREET LIGHTING FORCES.
CONTACT DISPATCHER AT (414) 286-5944 FOR THE APPROPRIATE SHOP SUPERVISOR.

SHEET 2 OF 5

PROJECT NO: 2984-08-75	HWY: LOCAL STREET	COUNTY: MILWAUKEE	TRAFFIC SIGNAL CONDUIT DETAILS	SHEET 8	E

FILE NAME : W:\spr\MONOTUBE PROJECTS\2984-08-05\COPY2984-08-75 Traffic Plan Set 90%.dgn
PLOT DATE : 24-APR-2014 08:12
PLOT BY : pvella
PLOT NAME :
PLOT SCALE : 20.000000:1.000000
WISDOT/CADDS SHEET 42

2

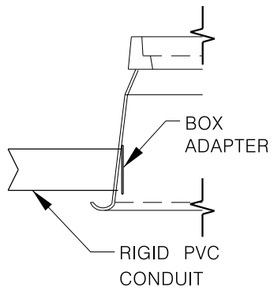


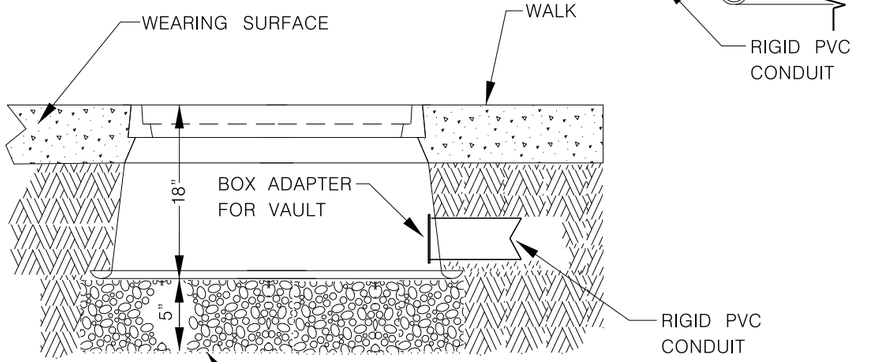
HEAVY DUTY COVER
W/ ELECTRIC LOGO
& W /2 BOLTS
COLOR: GRAY

ELECTRICAL VAULT
FLARED WALL
BOX W /NO BASE
COLOR: GRAY
(VARIOUS SIZES)

PLUG OR CAP FITTINGS ON ALL
UNUSED CONDUITS IN THE ENCLOSURE

BOX ADAPTERS, COUPLINGS
TO ALL PVC CONDUITS



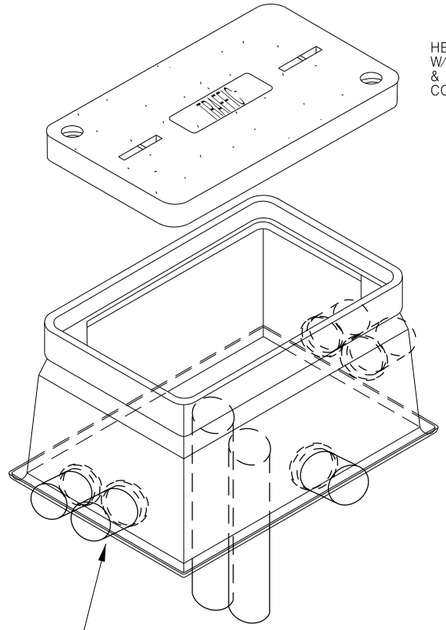


113 DETAIL

TYPICAL VAULT INSTALLATION
IN SIDEWALK

NOT TO SCALE

ANY DEVIATIONS FROM DETAIL WILL REQUIRE PERMISSION FROM STREET LIGHTING FORCES.
CONTACT DISPATCHER AT (414) 286-5944 FOR THE APPROPRIATE SHOP SUPERVISOR.



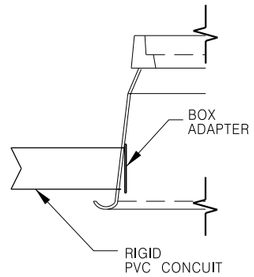
HEAVY DUTY COVER
W/ STREETLIGHTING LOGO
& W /2 BOLTS
COLOR: GRAY

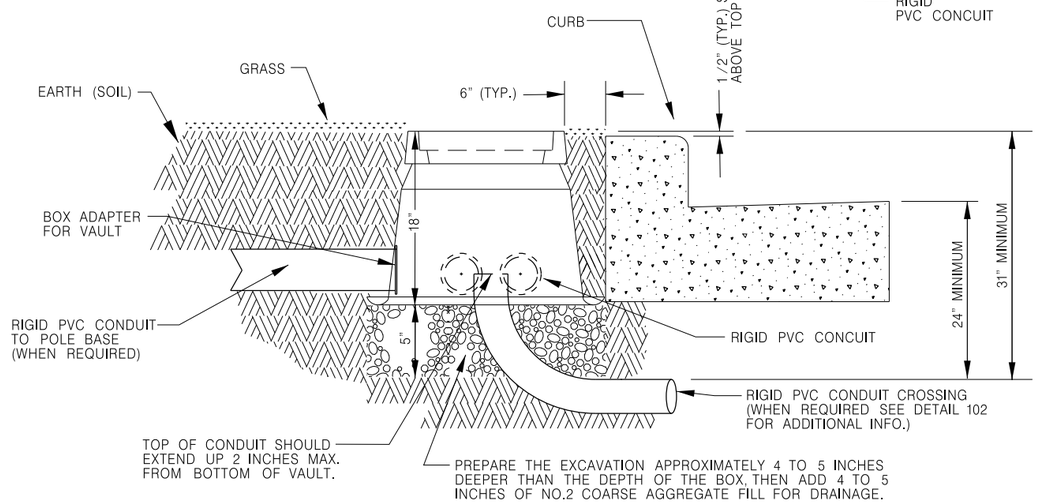
ELECTRICAL VAULT
FLARED WALL
BOX W /NO BASE
COLOR: GRAY

(VARIOUS SIZES)

PLUG OR CAP FITTINGS ON ALL
UNUSED CONDUITS IN THE ENCLOSURE

BOX ADAPTERS, COUPLINGS
TO ALL P.V.C. CONDUITS





121 DETAIL

TYPICAL VAULT INSTALLATION IN GRASS AREA

NOT TO SCALE

ANY DEVIATIONS FROM DETAIL WILL REQUIRE PERMISSION FROM STREET LIGHTING FORCES.
CONTACT DISPATCHER AT (414) 286-5944 FOR THE APPROPRIATE SHOP SUPERVISOR.

SHEET 3 OF 5

PROJECT NO: 2984-08-75	HWY: LOCAL STREET	COUNTY: MILWAUKEE	TRAFFIC SIGNAL CONDUIT DETAILS	SHEET 9	E

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 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 4 INCHES. ALL METALLIC CONDUIT ENDS SHALL BE REAMED AND THREADED. NONMETALLIC CONDUIT SHALL HAVE BELL END INSTALLED. ALL CONDUIT SHALL BE SLOPED TO PULL BOX.

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. CONDUIT 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.

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).

THE EQUIPMENT GROUNDING CONDUCTOR SHALL 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.

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

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

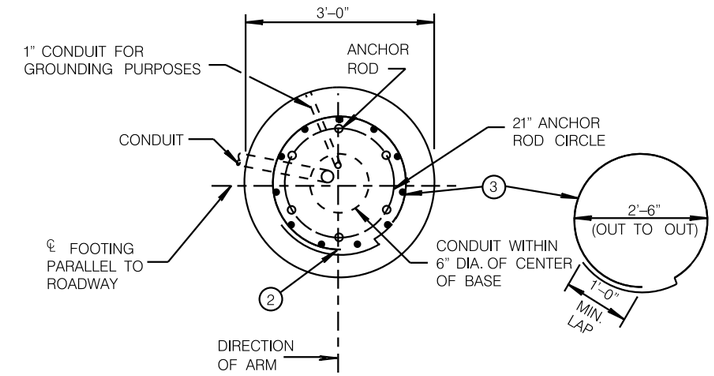
ANCHOR RODS SHALL BE INSTALLED WITH MISALIGNMENTS OF LESS THAN 1:40 FROM VERTICAL.

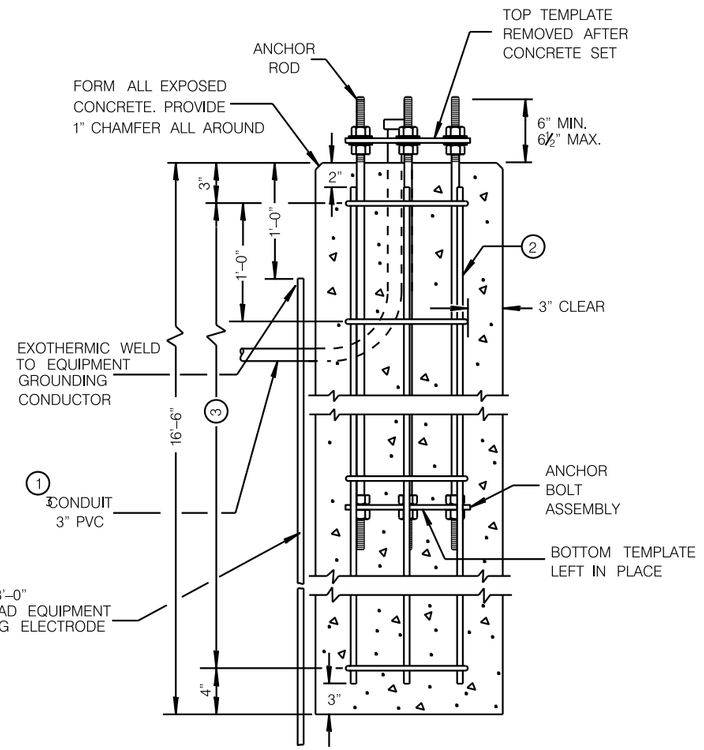
(1) THE MINIMUM DEPTH OF CONDUIT EXITING THE CONCRETE BASE AND INSTALLED BELOW THE TRAVELED WAY SHALL BE 24 INCHES. THE MINIMUM DEPTH OF CONDUIT EXITING THE CONCRETE BASE THAT IS NOT INSTALLED BELOW THE TRAVELED WAY SHALL BE 18 INCHES. THE MAXIMUM DEPTH OF ALL CONDUIT SHALL BE 36 INCHES, (GREATER THAN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

(2) (11) NO. 8 X 16'–1" BAR STEEL REINFORCEMENT.

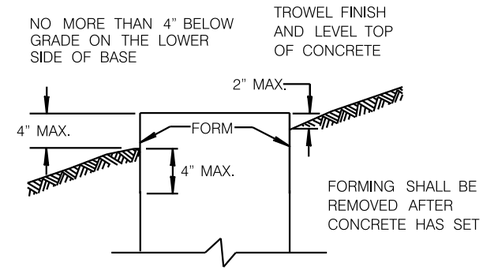
(3) (17) NO. 4 X 9'–0" BAR STEEL REINFORCEMENT @ 1'–0" C–C.

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.

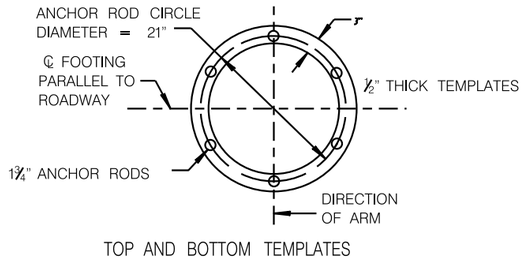




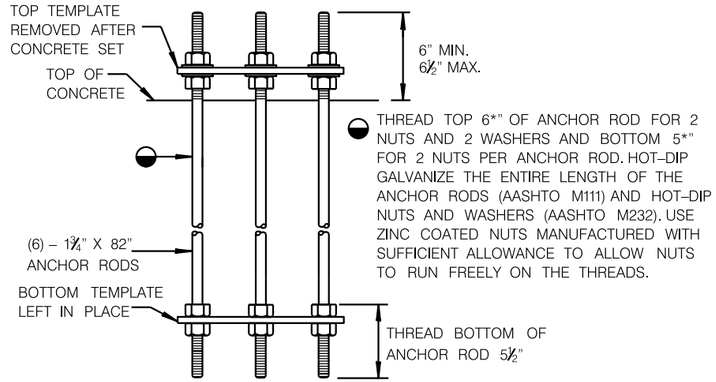
CONCRETE BASE TYPE 10 SPECIAL



FORMING DETAIL



TOP AND BOTTOM TEMPLATES



ANCHOR BOLT ASSEMBLY DETAIL

CONCRETE BASE TYPE 10 SPECIAL

ANCHOR ASSEMBLY

QUANTITY REQUIREMENTS	
APPROX. CUBIC YARDS OF CONCRETE	4.32
LBS. OF HOOP BAR STEEL	103
LBS. OF VERTICAL BAR STEEL	473

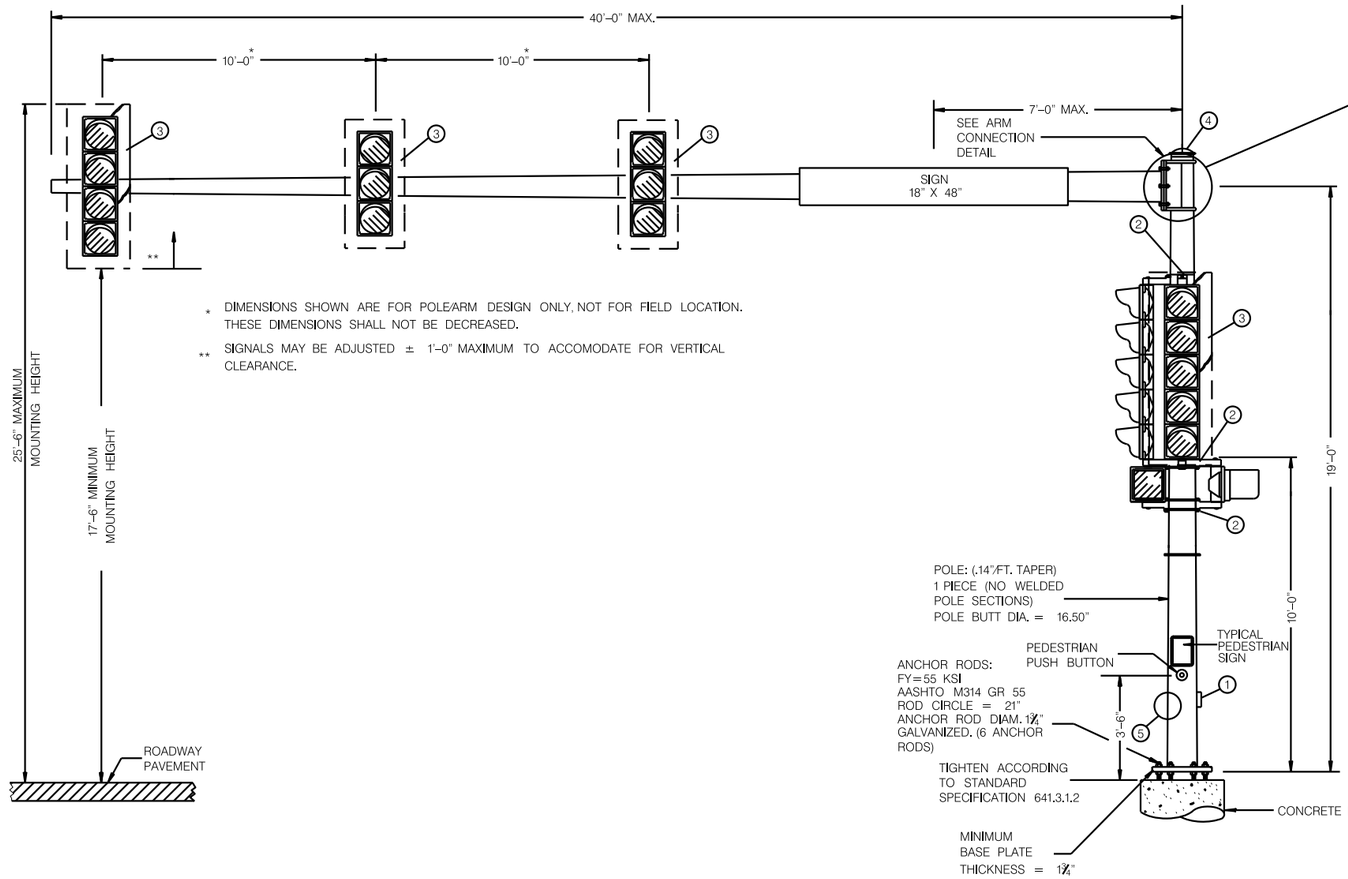
CONCRETE BASE TYPE 10 SPECIAL

CITY OF MILWAUKEE
DEPARTMENT OF PUBLIC WORKS

SHEET 4 OF 5

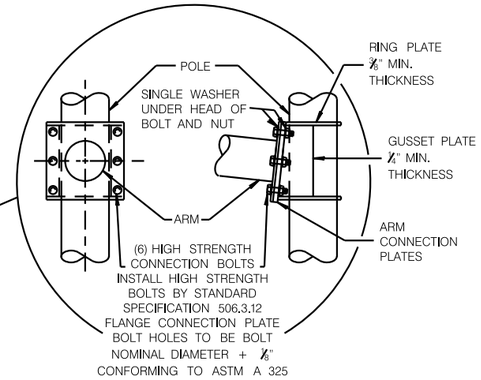
PROJECT NO: 2984–08–75	HWY: LOCAL STREET	COUNTY: MILWAUKEE	TRAFFIC SIGNAL CONDUIT DETAILS	SHEET 10	E

FILE NAME : W:\spr\MONOTUBE PROJECTS\2984-08-05\COPY2984-08-75 Traffic Plan Set 90%.dgn
PLOT DATE : 24-APR-2014 08:14
PLOT BY : pvella
PLOT NAME :
PLOT SCALE : 20.000000:1.000000
WISDOT/CADDS SHEET 42

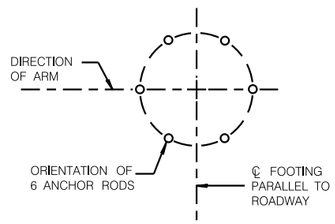


* DIMENSIONS SHOWN ARE FOR POLE/ARM DESIGN ONLY, NOT FOR FIELD LOCATION. THESE DIMENSIONS SHALL NOT BE DECREASED.

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



6 BOLT ARM CONNECTION DETAIL



ANCHOR ROD LOCATION

DESIGN NOTES:
PLEASE SEE S.D.D. 9E8–4e
FOR GENERAL NOTES AND HARDWARE DETAILS

(MAXIMUM LOAD)

TYPE 12 POLE SPECIAL
35'– 40' MONOTUBE ARM

TYPE 12 POLE SPECIAL
35'– 40' MONOTUBE ARM

CITY OF MILWAUKEE
DEPARTMENT OF PUBLIC WORKS

SHEET 5 OF 5

PROJECT NO: 2984–08–75	HWY: LOCAL STREET	COUNTY: MILWAUKEE	TRAFFIC SIGNAL CONDUIT DETAILS	SHEET 11	E

FILE NAME : W:\spr\MONOTUBE PROJECTS\2984-08-05\COPY2984-08-75 Traffic Plan Set 90%.dgn
PLOT DATE : 24-APR-2014 08:15
PLOT BY : pvella
PLOT NAME :
PLOT SCALE : 20.000000:1.000000
WISDOT/CADDS SHEET 42

DATE 07OCT14 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	2984-08-75 QUANTITY
0010	201.0120	CLEARING	ID	11.000	11.000
0020	201.0220	GRUBBING	ID	11.000	11.000
0030	204.0155	REMOVING CONCRETE SIDEWALK	SY	10.000	10.000
0040	204.0195	REMOVING CONCRETE BASES	EACH	2.000	2.000
0050	205.0501.S	EXCAVATION, HAULING, AND DISPOSAL OF PETROLEUM CONTAMINATED SOIL	TON	5.000	5.000
0060	213.0100	FINISHING ROADWAY (PROJECT) 01. 2984-08-75	EACH	1.000	1.000
0070	602.0410	CONCRETE SIDEWALK 5-INCH	SF	90.000	90.000
0080	619.1000	MOBILIZATION	EACH	1.000	1.000
0090	625.0100	TOPSOIL	SY	210.000	210.000
0100	629.0210	FERTILIZER TYPE B	CWT	1.000	1.000
0110	631.1000	SOD LAWN	SY	210.000	210.000
0120	643.0100	TRAFFIC CONTROL (PROJECT) 01. 2984-08-75	EACH	1.000	1.000
0130	643.0300	TRAFFIC CONTROL DRUMS	DAY	5,945.000	5,945.000
0140	643.0420	TRAFFIC CONTROL BARRICADES TYPE III	DAY	1,886.000	1,886.000
0150	643.0705	TRAFFIC CONTROL WARNING LIGHTS TYPE A	DAY	3,772.000	3,772.000
0160	643.0715	TRAFFIC CONTROL WARNING LIGHTS TYPE C	DAY	5,945.000	5,945.000
0170	643.0900	TRAFFIC CONTROL SIGNS	DAY	1,656.000	1,656.000
0180	650.8500	CONSTRUCTION STAKING ELECTRICAL INSTALLATIONS (PROJECT) 01. 2984-08-75	LS	1.000	1.000
0190	650.9910	CONSTRUCTION STAKING SUPPLEMENTAL CONTROL (PROJECT) 01. 2984-08-75	LS	1.000	1.000
0200	652.0235	CONDUIT RIGID NONMETALLIC SCHEDULE 40 3-INCH	LF	325.000	325.000
0210	654.0110	CONCRETE BASES TYPE 10	EACH	23.000	23.000
0220	690.0250	SAWING CONCRETE	LF	45.000	45.000
0230	ASP.1T0A	ON-THE-JOB TRAINING APPRENTICE AT $5.00/HR	HRS	200.000	200.000
0240	ASP.1T0G	ON-THE-JOB TRAINING GRADUATE AT $5.00/HR	HRS	200.000	200.000
0250	SPV.0060	SPECIAL 01. CONCRETE BASE TYPE 10 SPECIAL	EACH	9.000	9.000
0260	SPV.0060	SPECIAL 02. POLE TYPE 9 SPECIAL	EACH	23.000	23.000
0270	SPV.0060	SPECIAL 03. POLE TYPE 12 SPECIAL	EACH	9.000	9.000
0280	SPV.0060	SPECIAL 04. MONOTUBE ARMS 25-FT SPECIAL	EACH	17.000	17.000
0290	SPV.0060	SPECIAL 05. MONOTUBE ARMS 30-FT SPECIAL	EACH	6.000	6.000
0300	SPV.0060	SPECIAL 06. MONOTUBE ARMS 35-FT SPECIAL	EACH	7.000	7.000
0310	SPV.0060	SPECIAL 07. MONOTUBE ARMS 40-FT SPECIAL	EACH	2.000	2.000
0320	SPV.0060	SPECIAL 08. RECTANGULAR POLYMER CONCRETE VAULT 13-INCH X 24-INCH X 18-INCH	EACH	28.000	28.000
0330	SPV.0060	SPECIAL 09. INLET SCREEN TYPE M	EACH	50.000	50.000
0340	SPV.0060	SPECIAL 10. UTILITY LINE OPENING	EACH	6.000	6.000

3

Estimate of Traffic Control Items Required (0010 Participating)

Items		Right Lane Closure Average over 41 days (Each)	(Days)	Right Lane Closure Average over 41 days (Each)	(Days)	Total
(1)643.0300	Traffic Control Drums	82	3,362	63	2,583	5,945
(2)643.0420	Traffic Control Barricades Type III	22	902	24	984	1,886
643.0705	Traffic Control Warning Lights Type A	44	1,804	48	1,968	3,772
643.0715	Traffic Control Warning Lights Type C	82	3,362	63	2,583	5,945
643.0900	Traffic Control Signs	102*	816	105*	840	1,656

* Represents total number of signs that will be needed on the project. Contractor may re-use signs on multiple intersections.

NOTES:

- THE EXACT NUMBER, LOCATION AND SPACING OF ALL SIGNS AND DEVICES SHALL BE ADJUSTED TO FIT FIELD CONDITIONS AS APPROVED BY THE ENGINEER.
- ALL SIGNS ARE 48" X 48" UNLESS OTHERWISE NOTED.
- "WO" SIGNS ARE THE SAME AS "W" SIGNS EXCEPT THE BACKGROUND IS ORANGE.
- ANY SIGNS TEMPORARY OR EXISTING, WHICH CONFLICT WITH TRAFFIC CONTROL "IN USE" WILL BE COVERED AS NEEDED AND AS APPROVED BY THE ENGINEER.
- THIS WORK WILL BE INCIDENTAL TO THE ITEM OF TRAFFIC CONTROL.
- CHANNELIZING DEVICES PLACED ADJACENT TO THE WORK AREA SHALL BE PULLED BACK FROM THE TRAVELLED LANE WHEN WORK IS NOT IN PROGRESS.
- WARNING SIGNS THAT WILL BE IN PLACE LESS THAN SEVEN CONTINUOUS DAYS AND NIGHTS MAY BE MOUNTED ON PORTABLE SUPPORTS.

(1) All Drums have one steady burning yellow light

(2) All Type III Barricades have 2 flashing yellow lights

Items	Right Lane	Left Lane	Size (")
W01-6R	0	15	24x48
W01-6L	17		24x48
R3-7L		30	36x36
WO20-1	51	45	48x48
WO4-2R	17		48x48
WO20-5R	17		48x24
W9-2R		15	48x48
Total	102	105	

3

3

REMOVALS

LOCATION	CLEARING 201.0120 ID	GRUBBING 201.0220 ID	REMOVING CONCRETE SIDEWALK 204.0155 SY	REMOVING CONCRETE BASES 204.0195 EACH	SAWING CONCRETE 690.0250 LF
W. Bradley Rd. & N. 91st St.	0	0	0	0	0
W. Bradley Rd. & N. 107th St.	0	0	0	0	0
W. Calumet Rd. & N. 91st St.	0	0	0	0	0
W. Flagg Av. & N. 91st St.	0	0	0	0	0
W. Fond du Lac Av. & N. 91st St.	0	0	3	0	15
W. Fond du Lac Av. & W. Silver Spring Dr.	0	0	7	0	30
W. Good Hope Rd. & N. 107th St.	0	0	0	2	0
W. Heather St. & N. 91st St.	11	11	0	0	0
W. Mill Rd. & N. 91st St.	0	0	0	0	0
W. Park Pl. & N. 107th St.	0	0	0	0	0
GRAND TOTAL	**11**	**11**	**10**	**2**	**45**

ALL ITEMS ARE CATEGORY 0010

MISCELLANEOUS ITEMS

LOCATION	EXCAVATION, HAULING, AND DISPOSAL OF PETROLEUM CONTAMINATED SOIL TONS 205.0501.S.	FINISHING ROADWAY (PROJECT) EACH 213.0100	MOBILIZATION EACH 619.1000	TRAFFIC CONTROL (PROJECT) EACH 643.0100	INLET SCREEN TYPE M EACH SPV.0060.09
W. Bradley Rd. & N. 91st St.	0				
W. Bradley Rd. & N. 107th St.	0				
W. Calumet Rd. & N. 91st St.	0				
W. Flagg Av. & N. 91st St.	0				
W. Fond du Lac Av. & N. 91st St.	0				
W. Fond du Lac Av. & W. Silver Spring Dr.	5				
W. Good Hope Rd. & N. 107th St.	0				
W. Heather St. & N. 91st St.	0				
W. Mill Rd. & N. 91st St.	0				
W. Park Pl. & N. 107th St.	0				
GRAND TOTAL	**5**	**1**	**1**	**1**	**50**

ALL ITEMS ARE CATEGORY 0010

3

3

CONCRETE CONSTRUCTION ITEMS

LOCATION	CONCRETE SIDEWALK 5-INCH 602.0410 SF
W. Bradley Rd. & N. 91st St.	0
W. Bradley Rd. & N. 107th St.	0
W. Calumet Rd. & N. 91st St.	0
W. Flagg Av. & N. 91st St.	0
W. Fond du Lac Av. & N. 91st St.	30
W. Fond du Lac Av. & W. Silver Spring Dr.	60
W. Good Hope Rd. & N. 107th St.	0
W. Heather St. & N. 91st St.	0
W. Mill Rd. & N. 91st St.	0
W. Park Pl. & N. 107th St.	0
GRAND TOTALS	**90**

ALL ITEMS ARE CATEGORY 0010

MISCELLANEOUS LANDSCAPING ITEMS

LOCATION	TOPSOIL 625.0100 SY	SOD LAWN 631.1000 SY	FERTILIZER TYPE B 629.0210 CWT
W. Bradley Rd. & N. 91st St.	20	20	
W. Bradley Rd. & N. 107th St.	30	30	
W. Calumet Rd. & N. 91st St.	20	20	
W. Flagg Av. & N. 91st St.	20	20	
W. Fond du Lac Av. & N. 91st St.	20	20	
W. Fond du Lac Av. & W. Silver Spring Dr.	20	20	
W. Good Hope Rd. & N. 107th St.	20	20	
W. Heather St. & N. 91st St.	20	20	
W. Mill Rd. & N. 91st	20	20	
W. Park Pl. & N. 107th St.	20	20	
GRAND TOTAL	**210**	**210**	**1**

ALL ITEMS CATEGORY 0010

CONSTRUCTION STAKING ROADWAY ITEMS

LOCATION	CONST. STAKING ELECTRICAL INSTALLATIONS (PROJECT) 650.8500 LUMP SUM	CONST. STAKING SUPPLEMENTAL CONTROL (PROJECT) 650.9910 LUMP SUM
W. Bradley Rd. & N. 91st St.		
W. Bradley Rd. & N. 107th		
W. Calumet Rd. & N. 91st St.		
W. Flagg Av. & N. 91st St.		
W. Fond du Lac Av. & N. 91st		
W. Fond du Lac Av. & W.		
W. Good Hope Rd. & N.		
W. Heather St. & N. 91st St.		
W. Mill Rd. & N. 91st St.		
W. Park Pl. & N. 107th St.		
GRAND TOTAL	**1**	**1**

ALL ITEMS ARE CATEGORY 0010

3

3

TRAFFIC & LIGHTING MISCELLANEOUS QUANTITIES

Item No.	Description	Unit	Quantity
652.0235	Conduit Rigid Nonmetallic Schedule 40 3-Inch	LF	325
654.0110	Concrete Bases Type 10	Each	23
SPV.0060.01	Concrete Base Type 10 Special	Each	9
SPV.0060.02	Pole Type 9 Special	Each	23
SPV.0060.03	Pole Type 12 Special	Each	9
SPV.0060.04	Monotube Arms 25-FT Special	Each	17
SPV.0060.05	Monotube Arms 30-FT Special	Each	6
SPV.0060.06	Monotube Arms 35-FT Special	Each	7
SPV.0060.07	Monotube Arms 40-FT Special	Each	2
SPV.0060.08	Rectangular Polymer Concrete Vault 13-Inchx24-Inchx18-Inch	Each	28
SPV.0060.10	Utility Line Opening (ULO)	Each	6

ALL ITEMS CATEGORY 0010

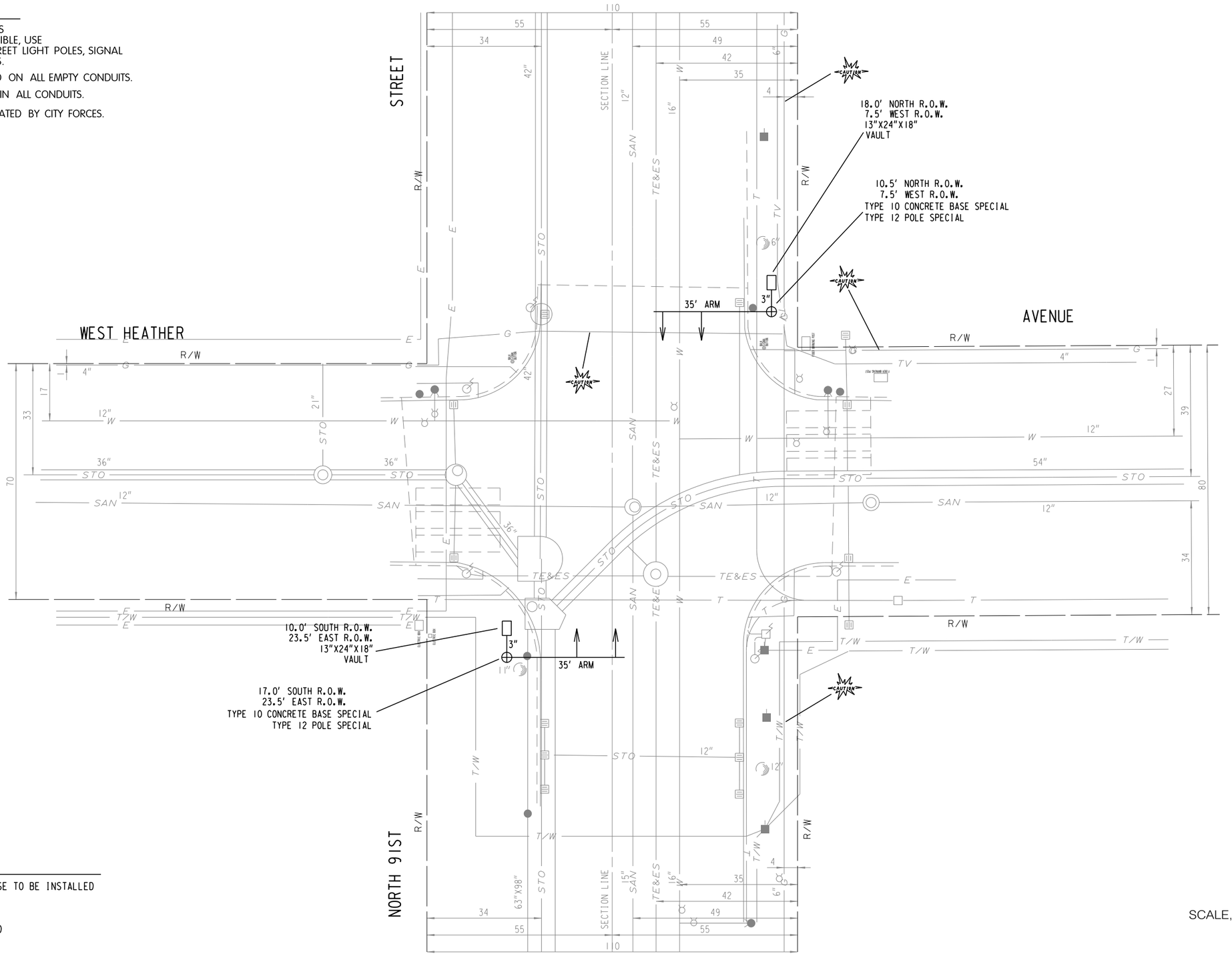
GENERAL NOTES:

INSTALL RECTANGULAR VAULTS AS SHOWN ON PLANS. IF NOT POSSIBLE, USE 5 FT. TO 6 FT. OFFSET FROM STREET LIGHT POLES, SIGNAL STANDARDS, AND FIRE HYDRANTS.

CONDUIT END CAPS ARE REQUIRED ON ALL EMPTY CONDUITS.

PULL ROPE (3/8" NYLON) REQUIRED IN ALL CONDUITS.

ALL EXISTING POLES WILL BE RELOCATED BY CITY FORCES.



LEGEND

- ⊕ MONOTUBE MAST ARM BASE TO BE INSTALLED
- XX' ARM MAST ARM
- □ VAULT TO BE INSTALLED
- —— PVC CONDUIT

SCALE, FEET 0 30

SHEET 1 OF 10

PROJECT NO: 2984-08-75	HWY: LOCAL STREETS	COUNTY: MILWAUKEE	TRAFFIC SIGNAL PLAN	SHEET 17	E

FILE NAME : W:\spr\MONOTUBE PROJECTS\2984-08-05\COPY2984-08-75 Traffic Plan Set 90%.dgn PLOT DATE : 24-APR-2014 08:28 PLOT BY : pvella PLOT NAME : PLOT SCALE : 30.000000:1.000000

WISDOT/CADDS SHEET 42

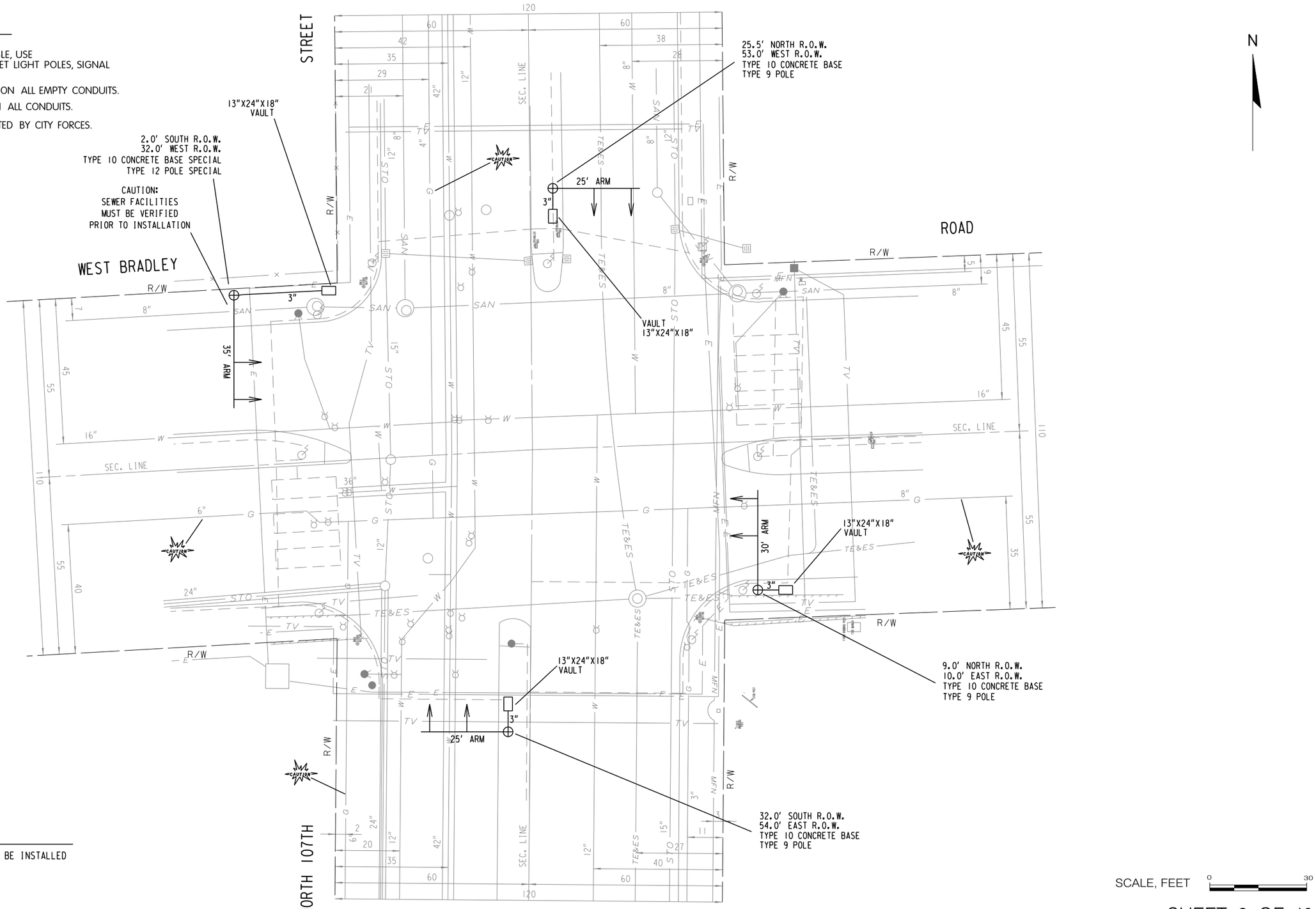
GENERAL NOTES:

INSTALL RECTANGULAR VAULTS AS SHOWN ON PLANS. IF NOT POSSIBLE, USE 5 FT. TO 6 FT. OFFSET FROM STREET LIGHT POLES, SIGNAL STANDARDS, AND FIRE HYDRANTS.

CONDUIT END CAPS ARE REQUIRED ON ALL EMPTY CONDUITS.

PULL ROPE (3/8" NYLON) REQUIRED IN ALL CONDUITS.

ALL EXISTING POLES WILL BE RELOCATED BY CITY FORCES.



N

LEGEND

- ⊕ MONOTUBE MAST ARM BASE TO BE INSTALLED
- XX' ARM — MAST ARM
- □ VAULT TO BE INSTALLED
- —— PVC CONDUIT

SCALE, FEET 0 30

SHEET 2 OF 10

PROJECT NO: 2984–08–75	HWY: LOCAL STREETS	COUNTY: MILWAUKEE	TRAFFIC SIGNAL PLAN	SHEET 18	E

FILE NAME : W:\spr\MONOTUBE PROJECTS\2984-08-05\COPY2984-08-75 Traffic Plan Set 90%.dgn PLOT DATE : 24-APR-2014 08:29 PLOT BY : pvella PLOT NAME : PLOT SCALE : 30.000000:1.000000

WISDOT/CADDS SHEET 42

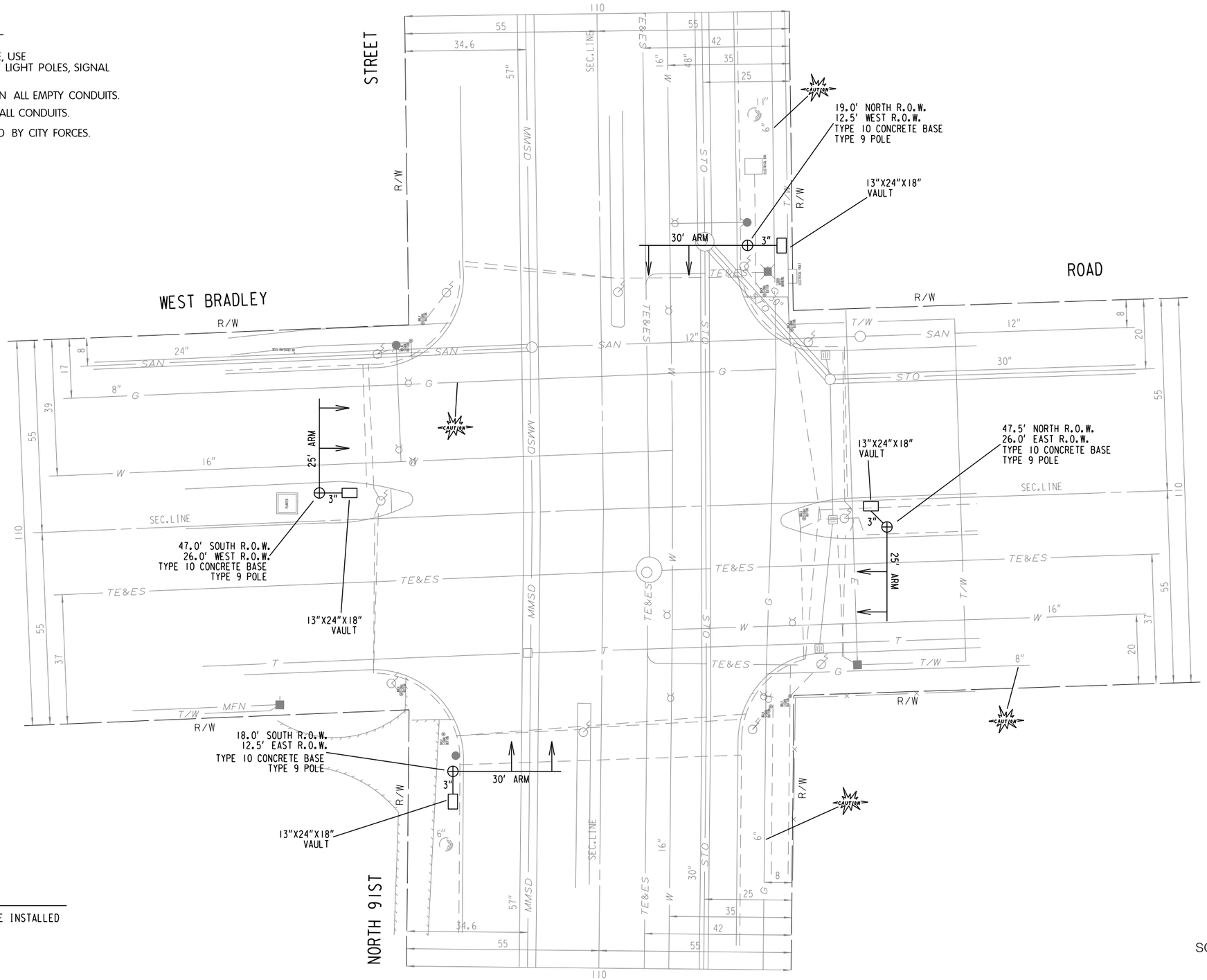
GENERAL NOTES:

INSTALL RECTANGULAR VAULTS AS SHOWN ON PLANS. IF NOT POSSIBLE, USE 5 FT. TO 6 FT. OFFSET FROM STREET LIGHT POLES, SIGNAL STANDARDS, AND FIRE HYDRANTS.

CONDUIT END CAPS ARE REQUIRED ON ALL EMPTY CONDUITS.

PULL ROPE (3/8" NYLON) REQUIRED IN ALL CONDUITS.

ALL EXISTING POLES WILL BE RELOCATED BY CITY FORCES.



LEGEND

- ⊕ MONOTUBE MAST ARM BASE TO BE INSTALLED
- XX' ARM — MAST ARM
- □ VAULT TO BE INSTALLED
- —— PVC CONDUIT

SCALE, FEET 0 30

SHEET 3 OF 10

PROJECT NO: 2984–08–75	HWY: LOCAL STREETS	COUNTY: MILWAUKEE	TRAFFIC SIGNAL PLAN	SHEET 19	E

NOTE:

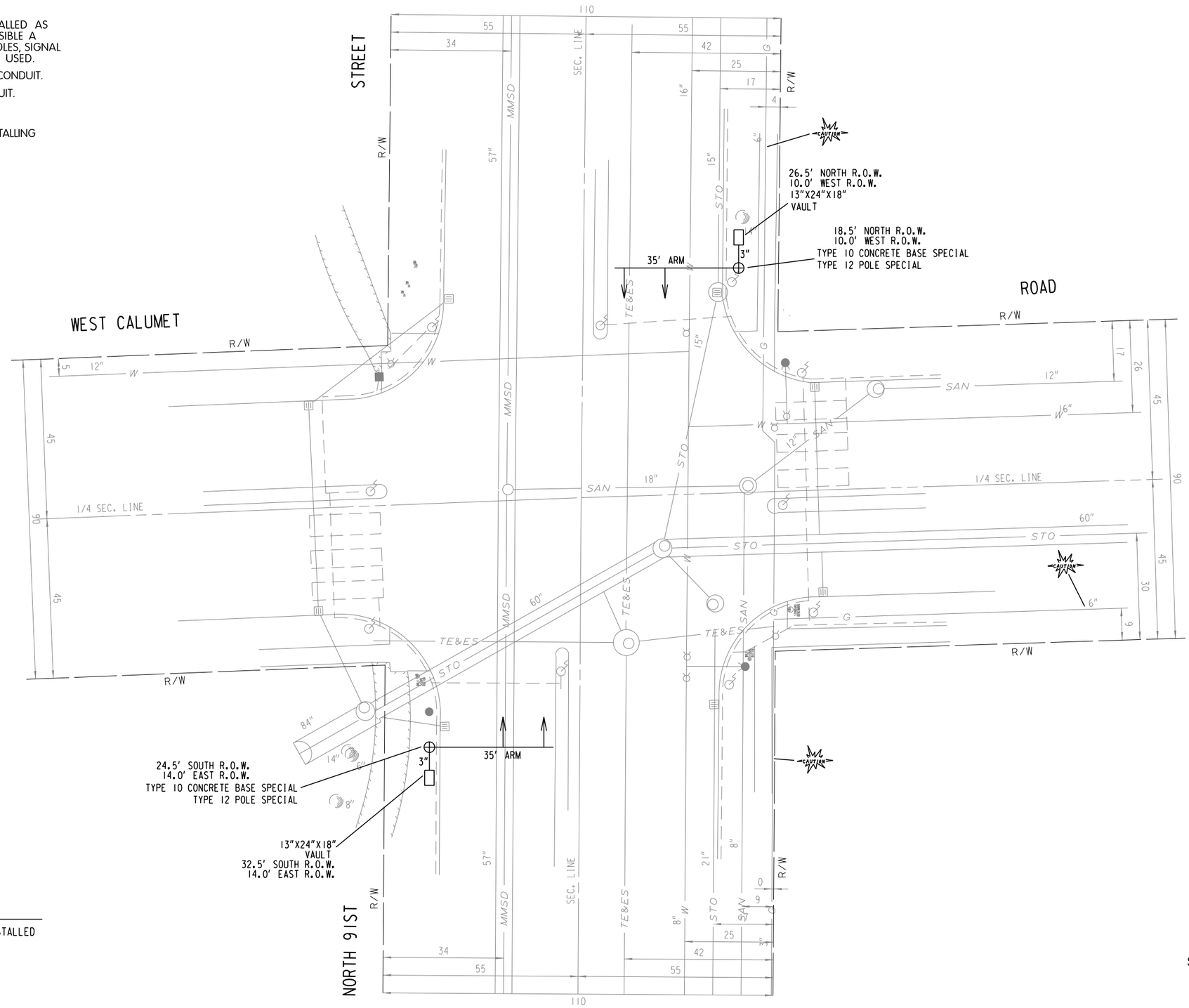
TYPICAL RECTANGLAR VAULT SHOULD BE INSTALLED AS SHOWN ON PLAN, BUT WHEN IT IS NOT POSSIBLE A 5 FT. TO 6 FT. OFFSET FROM STREET LIGHT POLES, SIGNAL STANDARDS, AND FIRE HYDRANTS SHOULD BE USED.

CONDUIT END CAPS REQIURED ON ALL EMPTY CONDUIT.

PULL ROPE (3/8" NYLON) REQUIRED IN ALL CONDUIT.

ALL POLES WILL BE RELOCATED BY CITY FORCES.

GENERAL NOTES SHALL BE FOLLOWED WHEN INSTALLING MATERIALS FOR TRAFFIC.



LEGEND

- ⊕ MONOTUBE MAST ARM BASE TO BE INSTALLED
- XX' ARM — MAST ARM
- □ VAULT TO BE INSTALLED
- —— PVC CONDUIT

SCALE, FEET 0 30

SHEET 4 OF 10

PROJECT NO: 2984-08-75	HWY: LOCAL STREETS	COUNTY: MILWAUKEE	TRAFFIC SIGNAL PLAN	SHEET 20	E

FILE NAME : W:\spr\MONOTUBE PROJECTS\2984-08-05\COPY2984-08-75 Traffic Plan Set 90%.dgn PLOT DATE : 24-APR-2014 08:31 PLOT BY : pvella PLOT NAME : PLOT SCALE : 30.000000:1.000000

WISDOT/CADDS SHEET 42

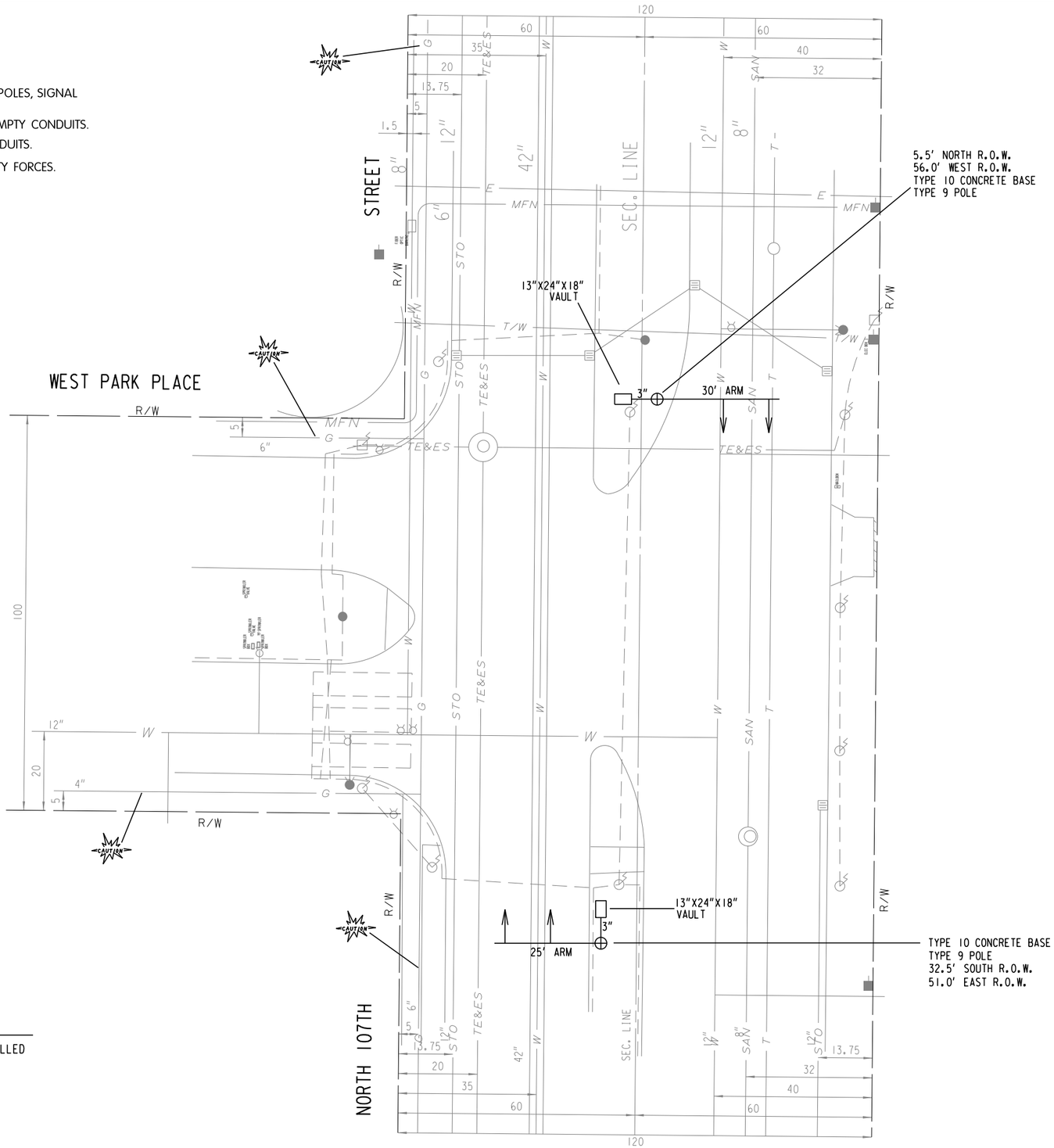
GENERAL NOTES:

INSTALL RECTANGULAR VAULTS AS SHOWN ON PLANS. IF NOT POSSIBLE, USE 5 FT. TO 6 FT. OFFSET FROM STREET LIGHT POLES, SIGNAL STANDARDS, AND FIRE HYDRANTS.

CONDUIT END CAPS ARE REQUIRED ON ALL EMPTY CONDUITS.

PULL ROPE (3/8" NYLON) REQUIRED IN ALL CONDUITS.

ALL EXISTING POLES WILL BE RELOCATED BY CITY FORCES.



LEGEND

- ⊕ MONOTUBE MAST ARM BASE TO BE INSTALLED
- XX' ARM — MAST ARM
- □ VAULT TO BE INSTALLED
- —— PVC CONDUIT

SCALE, FEET 0 30

SHEET 5 OF 10

PROJECT NO: 2984-08-75	HWY: LOCAL STREETS	COUNTY: MILWAUKEE	TRAFFIC SIGNAL PLAN	SHEET 21	E

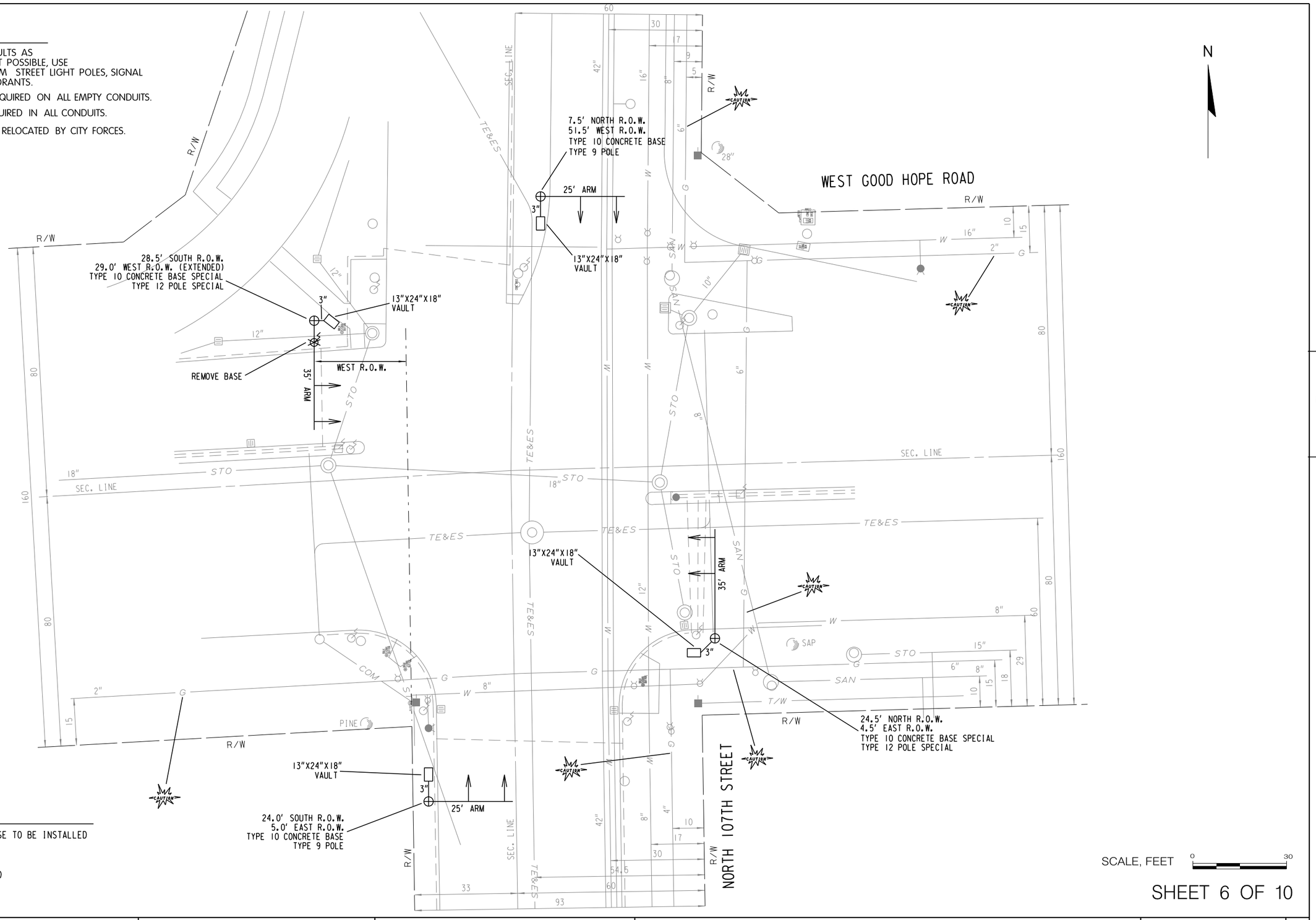
GENERAL NOTES:

INSTALL RECTANGULAR VAULTS AS SHOWN ON PLANS. IF NOT POSSIBLE, USE 5 FT. TO 6 FT. OFFSET FROM STREET LIGHT POLES, SIGNAL STANDARDS, AND FIRE HYDRANTS.

CONDUIT END CAPS ARE REQUIRED ON ALL EMPTY CONDUITS.

PULL ROPE (3/8" NYLON) REQUIRED IN ALL CONDUITS.

ALL EXISTING POLES WILL BE RELOCATED BY CITY FORCES.



LEGEND

- ⊕ MONOTUBE MAST ARM BASE TO BE INSTALLED
- XX' ARM — MAST ARM
- □ VAULT TO BE INSTALLED
- —— PVC CONDUIT

SHEET 6 OF 10

PROJECT NO: 2984-08-75	HWY: LOCAL STREETS	COUNTY: MILWAUKEE	TRAFFIC SIGNAL PLAN	SHEET 22	E

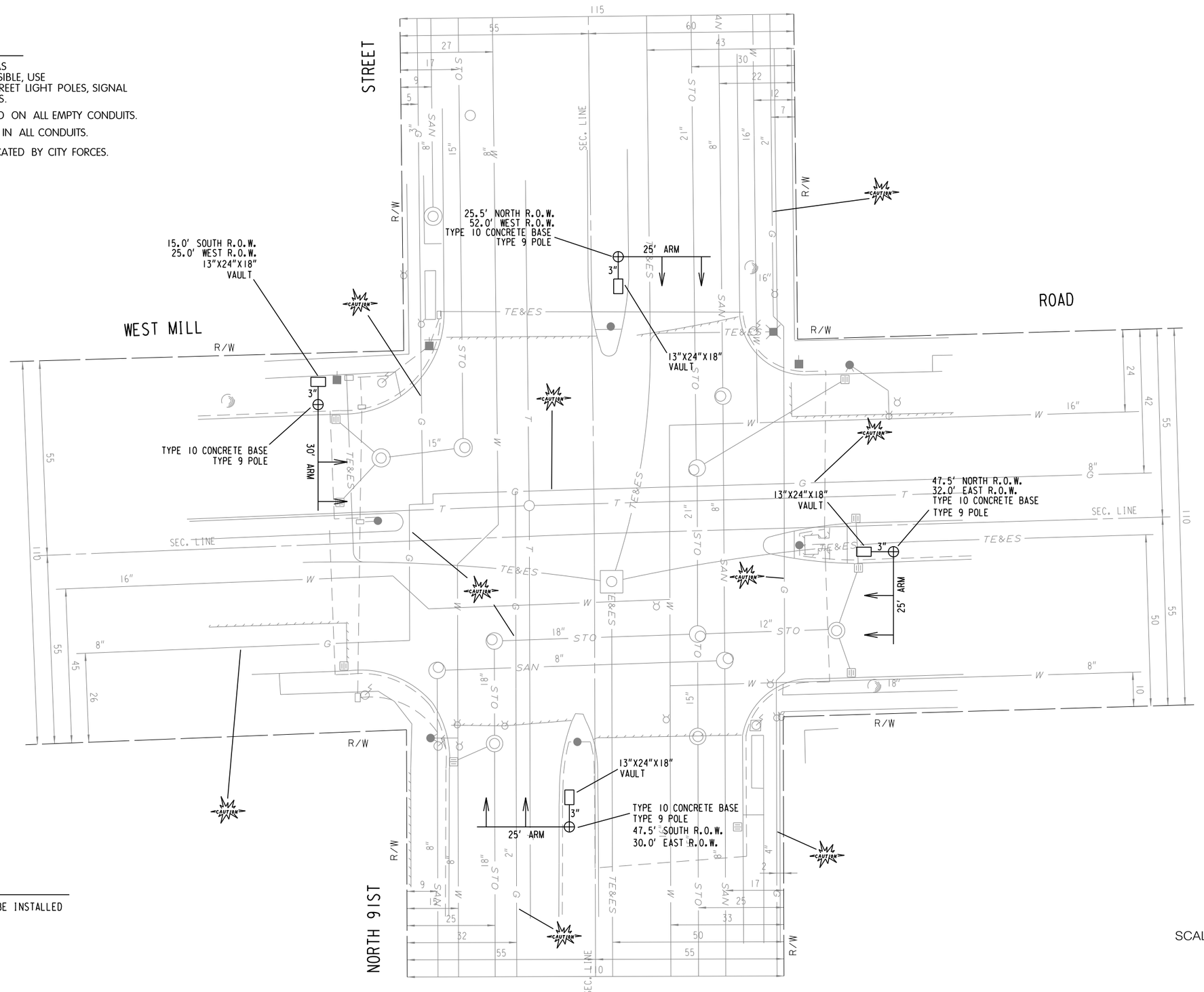
GENERAL NOTES:

INSTALL RECTANGULAR VAULTS AS SHOWN ON PLANS. IF NOT POSSIBLE, USE 5 FT. TO 6 FT. OFFSET FROM STREET LIGHT POLES, SIGNAL STANDARDS, AND FIRE HYDRANTS.

CONDUIT END CAPS ARE REQUIRED ON ALL EMPTY CONDUITS.

PULL ROPE (3/8" NYLON) REQUIRED IN ALL CONDUITS.

ALL EXISTING POLES WILL BE RELOCATED BY CITY FORCES.



LEGEND

- ⊕ MONOTUBE MAST ARM BASE TO BE INSTALLED
- XX' ARM — MAST ARM
- □ VAULT TO BE INSTALLED
- —— PVC CONDUIT

SCALE, FEET 0 30

SHEET 7 OF 10

PROJECT NO: 2984-08-75	HWY: LOCAL STREETS	COUNTY: MILWAUKEE	TRAFFIC SIGNAL PLAN	SHEET 23	E

FILE NAME : W:\spr\MONOTUBE PROJECTS\2984-08-05\COPY2984-08-75 Traffic Plan Set 90%.dgn PLOT DATE : 24-APR-2014 08:34 PLOT BY : pvella PLOT NAME : PLOT SCALE : 30.000000:1.000000

WISDOT/CADDS SHEET 42

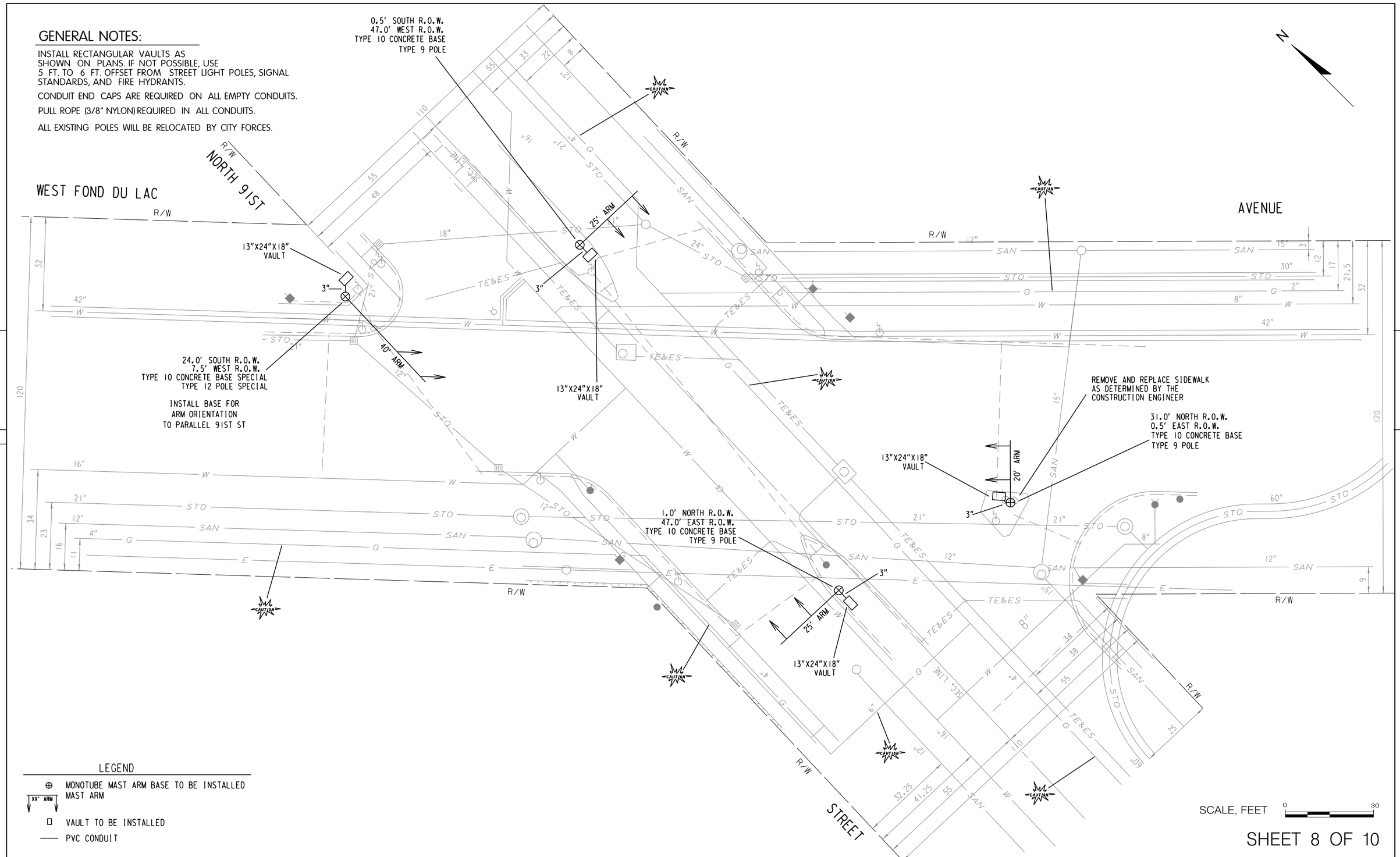
GENERAL NOTES:

INSTALL RECTANGULAR VAULTS AS SHOWN ON PLANS. IF NOT POSSIBLE, USE 5 FT. TO 6 FT. OFFSET FROM STREET LIGHT POLES, SIGNAL STANDARDS, AND FIRE HYDRANTS.

CONDUIT END CAPS ARE REQUIRED ON ALL EMPTY CONDUITS.

PULL ROPE (3/8" NYLON) REQUIRED IN ALL CONDUITS.

ALL EXISTING POLES WILL BE RELOCATED BY CITY FORCES.



LEGEND

- ⊕ MONOTUBE MAST ARM BASE TO BE INSTALLED
- XX' ARM MAST ARM
- □ VAULT TO BE INSTALLED
- —— PVC CONDUIT

SHEET 8 OF 10

PROJECT NO: 2984–08–75	HWY: LOCAL STREETS	COUNTY: MILWAUKEE	TRAFFIC SIGNAL PLAN	SHEET 24	E

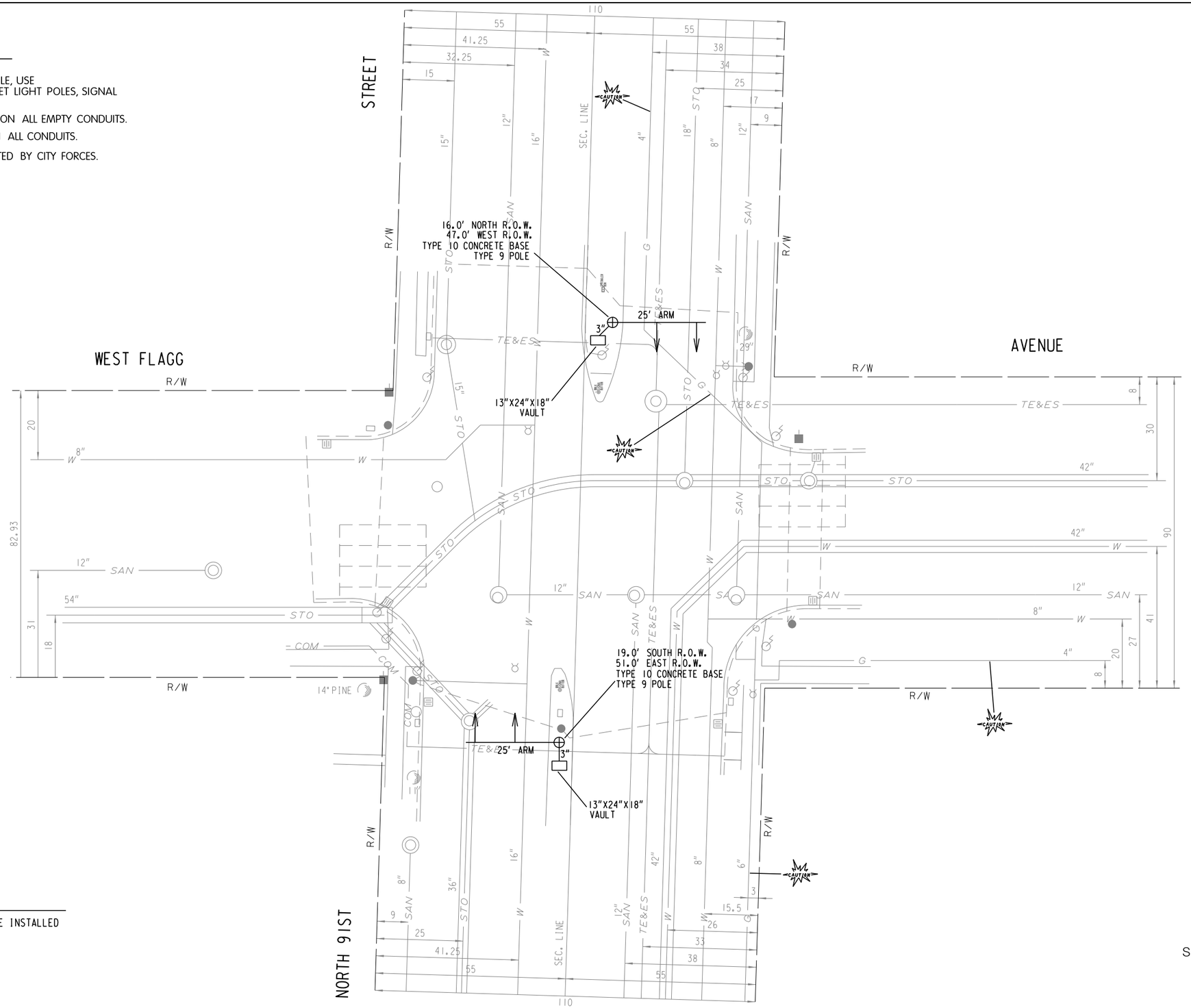
GENERAL NOTES:

INSTALL RECTANGULAR VAULTS AS SHOWN ON PLANS. IF NOT POSSIBLE, USE 5 FT. TO 6 FT. OFFSET FROM STREET LIGHT POLES, SIGNAL STANDARDS, AND FIRE HYDRANTS.

CONDUIT END CAPS ARE REQUIRED ON ALL EMPTY CONDUITS.

PULL ROPE (3/8" NYLON) REQUIRED IN ALL CONDUITS.

ALL EXISTING POLES WILL BE RELOCATED BY CITY FORCES.



LEGEND

- ⊕ MONOTUBE MAST ARM BASE TO BE INSTALLED
- XX' ARM — MAST ARM
- □ VAULT TO BE INSTALLED
- —— PVC CONDUIT

SCALE, FEET 0 30

SHEET 9 OF 10

PROJECT NO: 2984-08-75	HWY: LOCAL STREETS	COUNTY: MILWAUKEE	TRAFFIC SIGNAL PLAN	SHEET 25	E

FILE NAME : W:\spr\MONOTUBE PROJECTS\2984-08-05\COPY2984-08-75 Traffic Plan Set 90%.dgn PLOT DATE : 24-APR-2014 08:36 PLOT BY : pvella PLOT NAME : PLOT SCALE : 30.000000:1.000000

WISDOT/CADDS SHEET 42

GENERAL NOTES:

INSTALL RECTANGULAR VAULTS AS SHOWN ON PLANS. IF NOT POSSIBLE, USE 5 FT. TO 6 FT. OFFSET FROM STREET LIGHT POLES, SIGNAL STANDARDS, AND FIRE HYDRANTS.

CONDUIT END CAPS ARE REQUIRED ON ALL EMPTY CONDUITS.

PULL ROPE (3/8" NYLON) REQUIRED IN ALL CONDUITS.

ALL EXISTING POLES WILL BE RELOCATED BY CITY FORCES.

N

WEST FOND DU LAC AVENUE

WEST SILVER SPRING DR.

32.5' NORTH R.O.W.
17.0' WEST R.O.W.
TYPE 10 CONCRETE BASE
TYPE 9 POLE
30' ARM
3"

51.5' SOUTH R.O.W.
7.0' WEST R.O.W.
TYPE 10 CONCRETE BASE
TYPE 9 POLE
25' ARM
3"
REMOVE AND REPLACE SIDEWALK AS DETERMINED BY THE CONSTRUCTION ENGINEER

52.5'
TYPE 10 CONCRETE BASE
TYPE 9 POLE
25' ARM
3"

34.0' SOUTH R.O.W.
13.0' WEST R.O.W.
TYPE 10 CONCRETE BASE SPECIAL
TYPE 12 POLE SPECIAL
40' ARM
3"
REMOVE AND REPLACE SIDEWALK AS DETERMINED BY THE CONSTRUCTION ENGINEER

92.5'

36"X24" BOX CULVERT

SEC. LINE

R/W

LEGEND

- ⊕ MONOTUBE MAST ARM BASE TO BE INSTALLED
- XX' ARM — MAST ARM
- □ VAULT TO BE INSTALLED
- —— PVC CONDUIT

SCALE, FEET 0 30

SHEET 10 OF 10

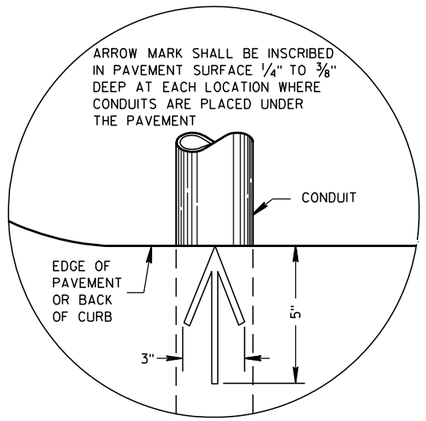
PROJECT NO: 2984–08–75	HWY: LOCAL STREETS	COUNTY: MILWAUKEE	TRAFFIC SIGNAL PLAN	SHEET 26	E

FILE NAME : W:\spr\MONOTUBE PROJECTS\2984-08-05\COPY2984-08-75 Traffic Plan Set 90%.dgn PLOT DATE : 24-APR-2014 08:37 PLOT BY : pvella PLOT NAME : PLOT SCALE : 30.000000:1.000000

WISDOT/CADDS SHEET 42

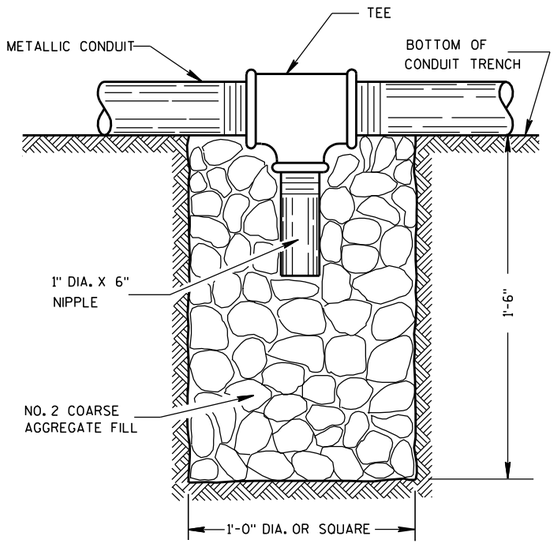
Standard Detail Drawing List

09B02-07	CONDUIT
09C11-04	CONCRETE BASE TYPE 10
09E08-05A	TYPE 9 POLE 15'-30' MONOTUBE ARM
09E08-05E	GENERAL NOTES AND HARDWARE DETAILS FOR TYPE 9, 10, 12 & 13 POLES WITH MONOTUBE ARMS
15D21-02	TRAFFIC CONTROL, INTERSECTION WITHIN SINGLE LANE CLOSURE
15D27-02	TRAFFIC CONTROL, SHOULDER CLOSURE ON DIVIDED ROADWAY, SPEEDS GREATER THAN 40 MPH
15D28-02	TRAFFIC CONTROL, WORK ON SHOULDER OR PARKING LANE, UNDIVIDED ROADWAY
15D30-01	TRAFFIC CONTROL, SIDEWALK CLOSURE



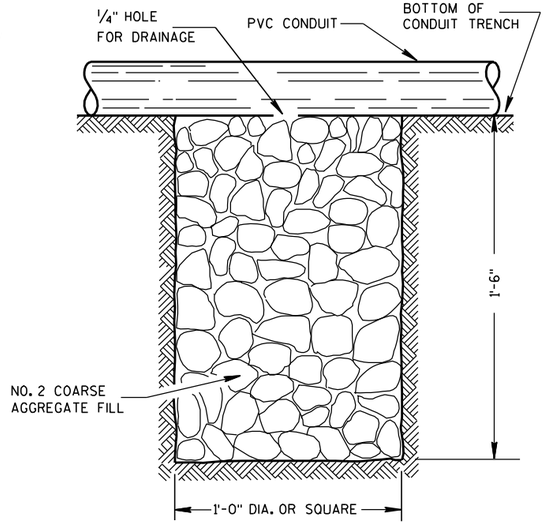
PLAN VIEW

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.

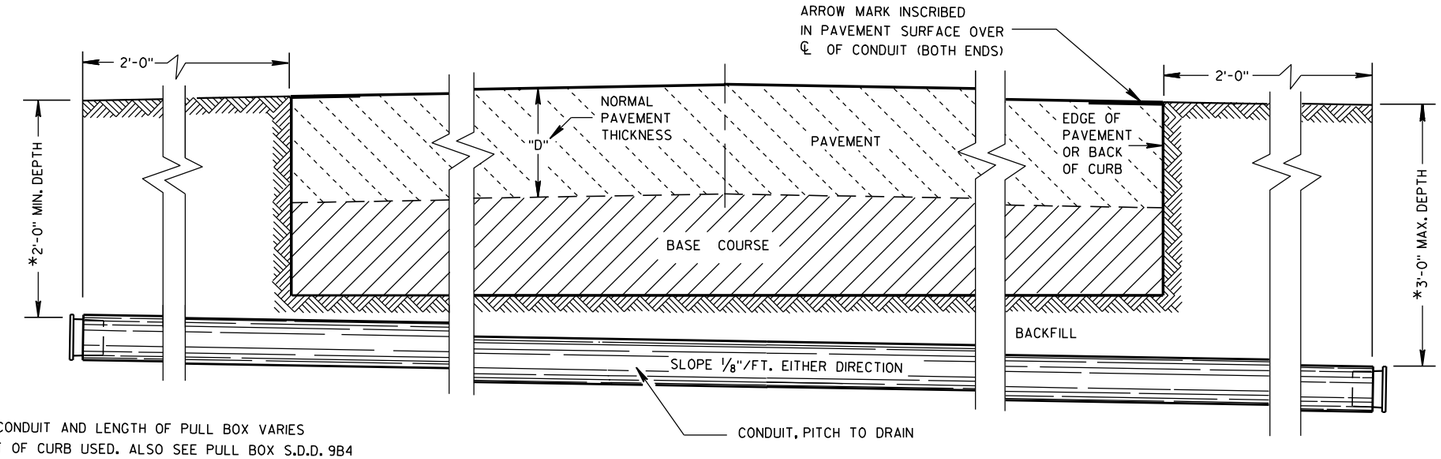
PRIOR TO CONDUIT ACCEPTANCE, CONDUIT CAPS OR PLUGS SHALL BE REMOVED, AND THE CAPS, PLUGS AND CONDUIT ENDS SHALL BE THOROUGHLY CLEANED AND THEN THE CAPS OR PLUGS REINSTALLED TO ENSURE THAT THE CAPS OR PLUGS CAN BE EASILY REMOVED IN THE FUTURE.

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.).

POLY ROPE OR A PULL 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

10/23/03 — DATE

/S/ Balu Ananthanarayanan — STATE ELECTRICAL ENGI

FHWA

HWYS

6

S.D.D. 9 B 2-7

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 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 4 INCHES. ALL METALLIC CONDUIT ENDS SHALL BE REAMED AND THREADED. NONMETALLIC CONDUIT SHALL HAVE BELL END INSTALLED. ALL CONDUIT SHALL BE SLOPED TO PULL BOX.

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. CONDUIT 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.

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).

THE EQUIPMENT GROUNDING CONDUCTOR SHALL 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.

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

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

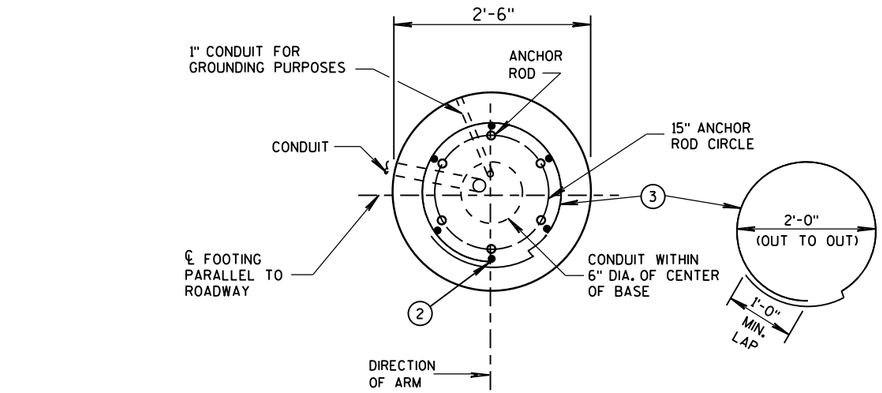
ANCHOR RODS SHALL BE INSTALLED WITH MISALIGNMENTS OF LESS THAN 1:40 FROM VERTICAL.

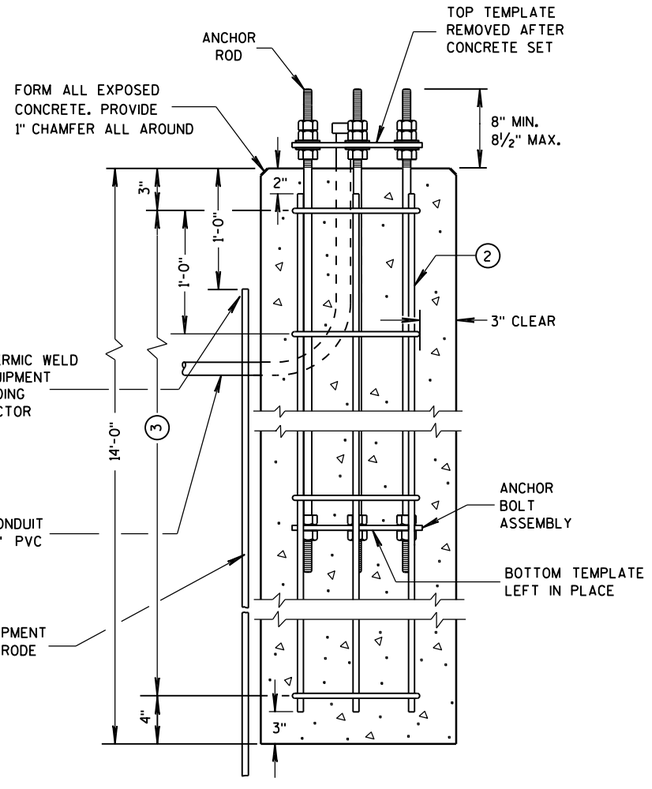
(1) THE MINIMUM DEPTH OF CONDUIT EXITING THE CONCRETE BASE AND INSTALLED BELOW THE TRAVELED WAY SHALL BE 24 INCHES. THE MINIMUM DEPTH OF CONDUIT EXITING THE CONCRETE BASE THAT IS NOT INSTALLED BELOW THE TRAVELED WAY SHALL BE 18 INCHES. THE MAXIMUM DEPTH OF ALL CONDUIT SHALL BE 36 INCHES, (GREATER THAN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

(2) (6) NO. 6 X 13'-7" BAR STEEL REINFORCEMENT.

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

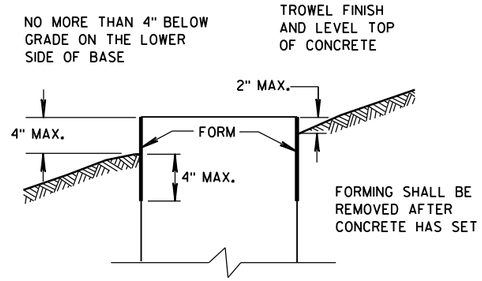
CONCRETE MASONRY	fc=3,500 p.s.i.
HIGH STRENGTH BAR STEEL REINFORCEMENT, GRADE 60	fy=60,000 p.s.i.
ANCHOR RODS, AASHTO M314 GRADE 55	fy=55,000 p.s.i.
TEMPLATES, ASTM, A709 GRADE 36	fy=36,000 p.s.i.



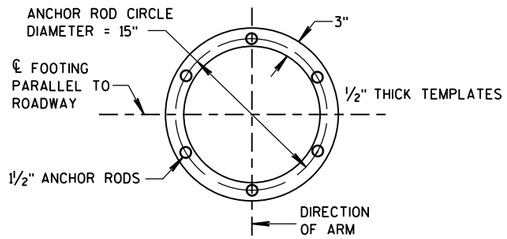


CONCRETE BASE TYPE 10
(FOR TYPE 9 & 10 POLES)

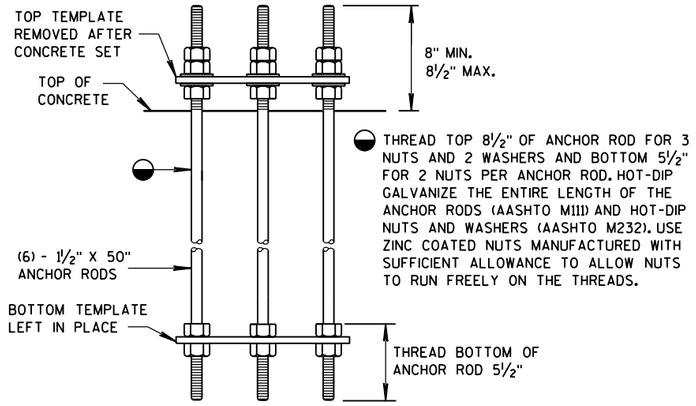
TO BE USED WHEN GROUND ELEVATION AT BASE EQUALS OR IS GREATER THAN HIGH POINT OF ROADWAY ELEVATION. SEE S.D.D. 9C13-2 WHEN GROUND ELEVATION AT BASE IS LOWER THAN HIGH POINT OF ROADWAY ELEVATION.



FORMING DETAIL



TOP AND BOTTOM TEMPLATES



ANCHOR BOLT ASSEMBLY DETAIL

CONCRETE BASE TYPE 10 ANCHOR ASSEMBLY

QUANTITY REQUIREMENTS	
APPROX. CUBIC YARDS OF CONCRETE	2.5
LBS. OF HOOP BAR STEEL	69
LBS. OF VERTICAL BAR STEEL	122

CONCRETE BASE TYPE 10

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

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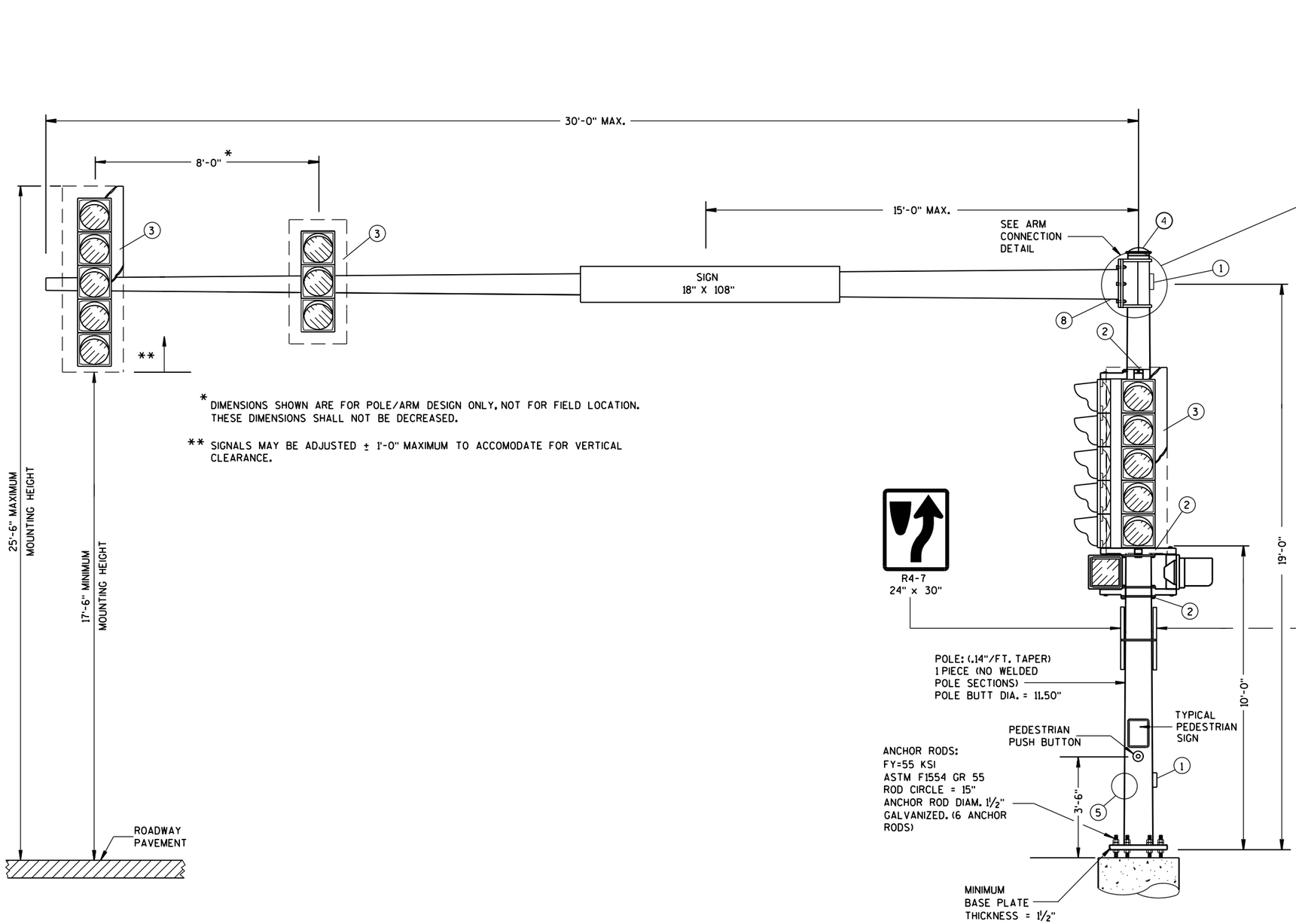
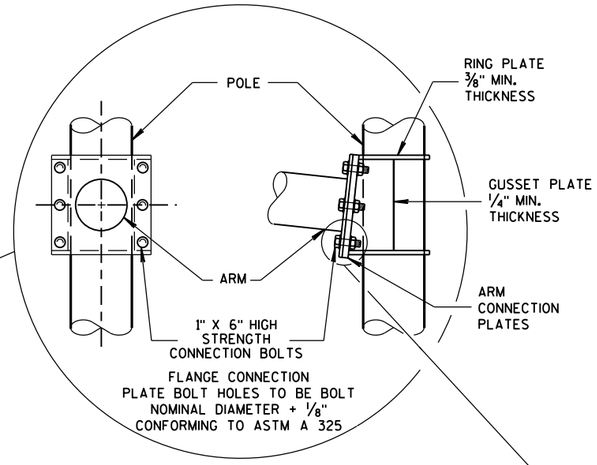
S.D.D. 9 C 11-4

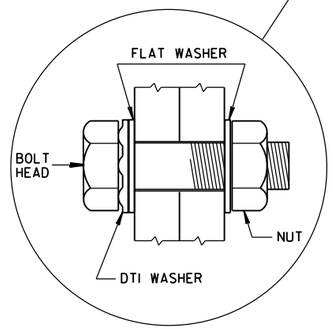


* DIMENSIONS SHOWN ARE FOR POLE/ARM DESIGN ONLY, NOT FOR FIELD LOCATION. THESE DIMENSIONS SHALL NOT BE DECREASED.

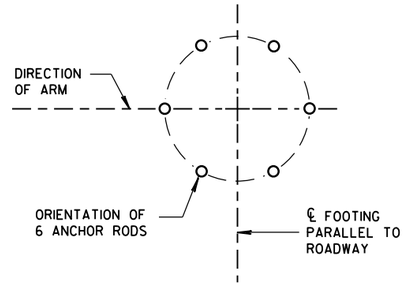
** SIGNALS MAY BE ADJUSTED ± 1'-0" MAXIMUM TO ACCOMODATE FOR VERTICAL CLEARANCE.



6 BOLT ARM CONNECTION DETAIL



RECOMMENDED BOLT ASSEMBLY DETAIL



ANCHOR ROD LOCATION

(MAXIMUM LOAD)

TYPE 9 POLE 15'- 30' MONOTUBE ARM

TYPE 9 POLE
15' - 30' MONOTUBE ARM

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

June 2014 — DATE

/S/ Ahmet Demirbilek — STATE ELECTRICAL

FHWA

S.D.D. 9 E 8-5a

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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.

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.

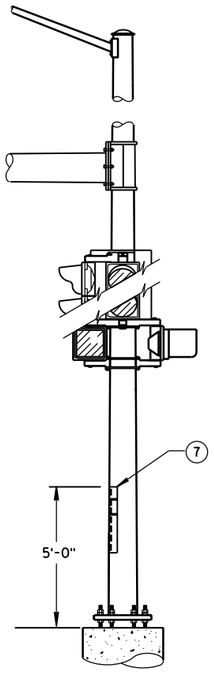
(6) FACTORY-WELDED "J" HOOK FOR STRAIN RELIEF FOR POLE LUMINAIRE WIRE.

(7) INSTALL DEPARTMENT PROVIDED STRUCTURAL IDENTIFICATION PLAQUES.

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

MOUNTING HEIGHT SHALL BE 5'-0" ABOVE THE CURB OR SHOULDER . ADJUST IF IT IS KNOWN THAT REQUIRED TRAFFIC SIGNS WILL BE OBSTRUCTED.

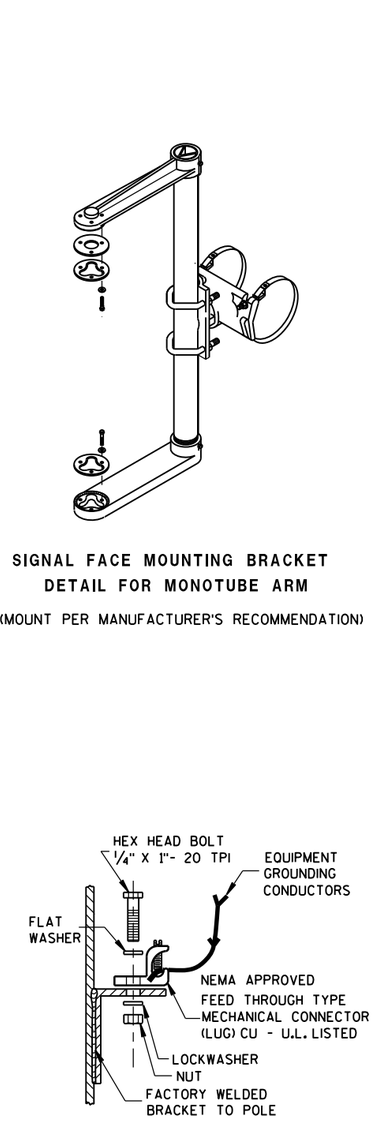
(8) FACTORY DRILLED ½" DRAIN HOLE 2" FROM FLANGE CONNECTION PLATE.



STRUCTURAL IDENTIFICATION PLAQUE PLACEMENT

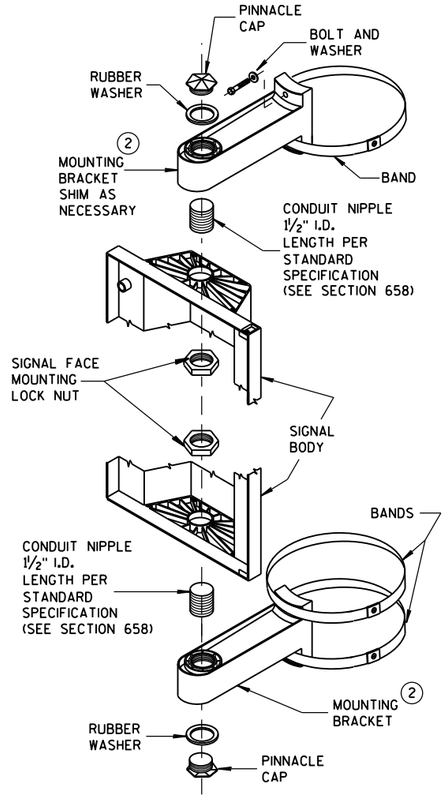
SIGNAL FACE MOUNTING BRACKET DETAIL FOR MONOTUBE ARM

(MOUNT PER MANUFACTURER'S RECOMMENDATION)

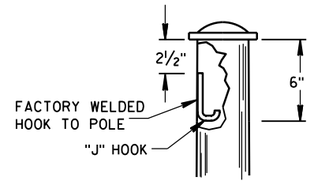


TYPICAL GROUNDING CONNECTIONS (5)

NUT, BOLT AND WASHERS SHALL BE STAINLESS STEEL



SIGNAL FACE VERTICAL MOUNTING DETAIL



"J" HOOK WIRE SUPPORT (6)

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June 2014 — DATE
/S/ Ahmet Demirbilek — STATE ELECTRICAL
FHWA

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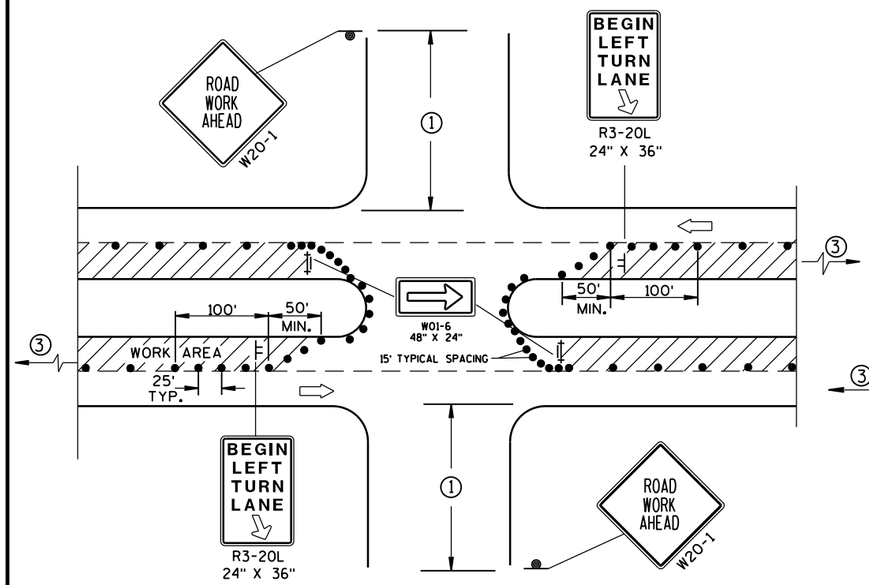
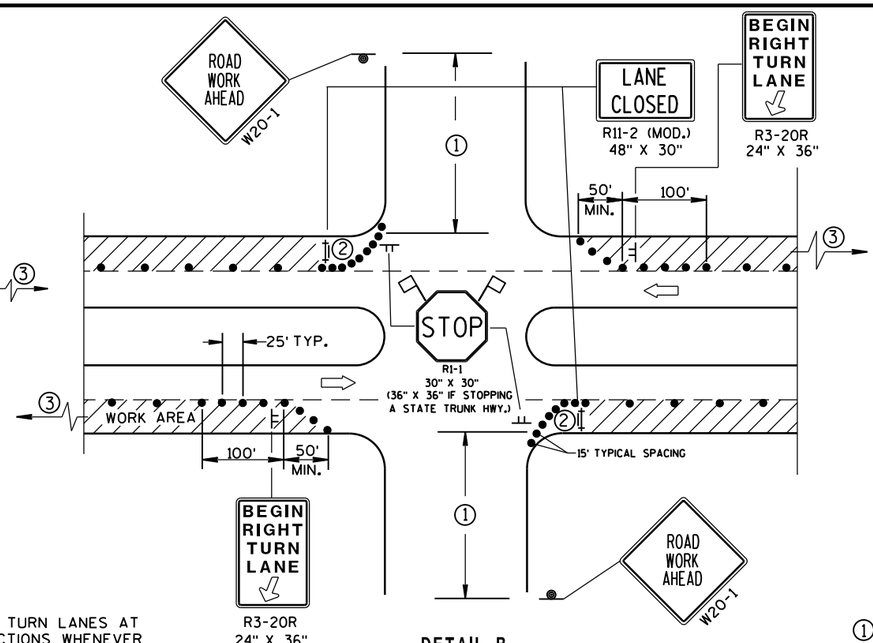
S.D.D. 9 E 8-5e



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.

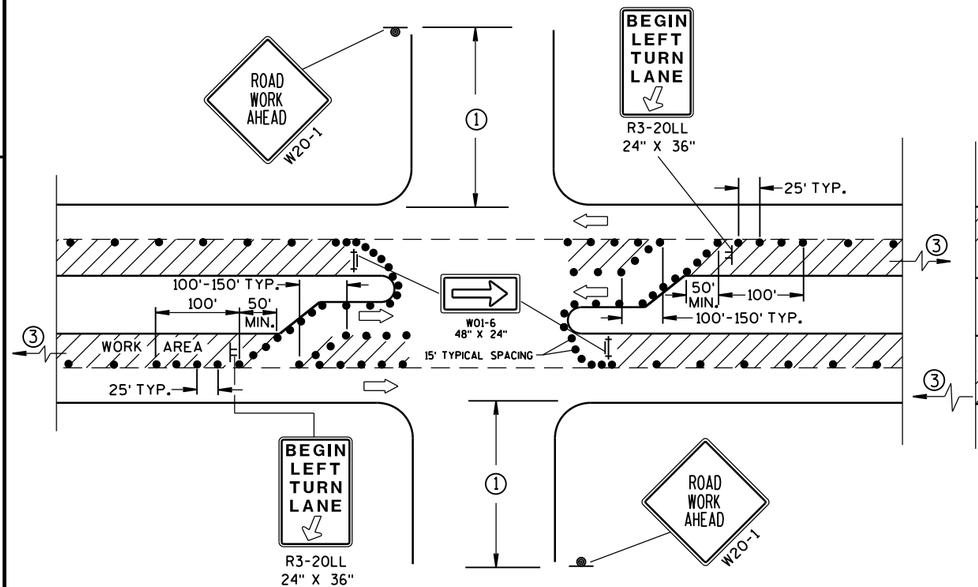
CHANNELIZING DEVICES PLACED ADJACENT TO WORK AREA SHALL BE PULLED BACK FROM THE TRAVEL LANE WHEN WORK IS NOT IN PROGRESS.

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.

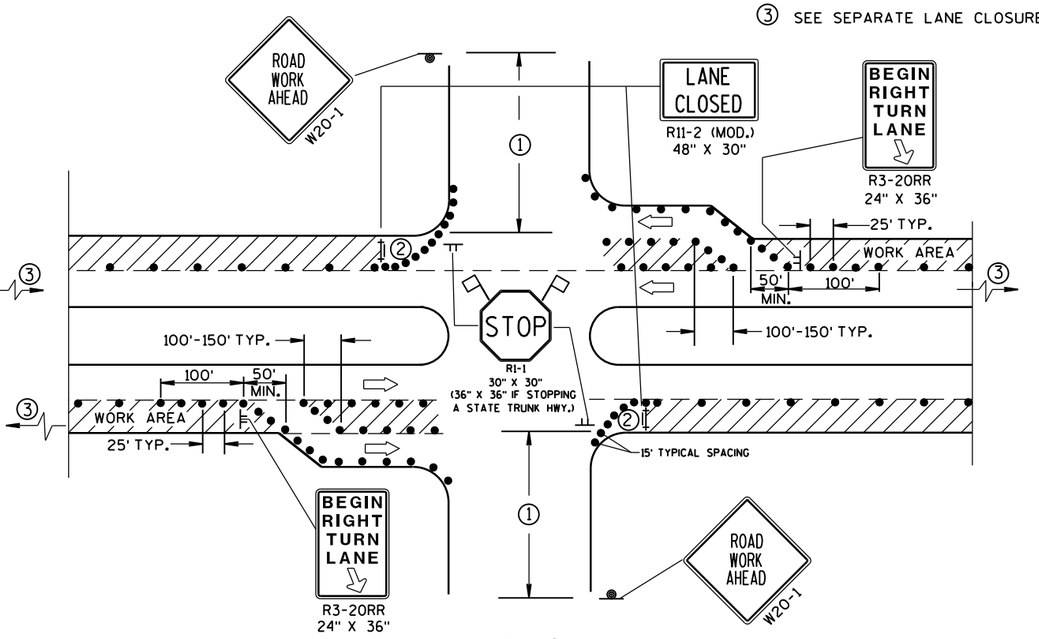
② ALSO USE BARRICADE AND 15-FOOT TYPICAL DRUM SPACING AT COMMERCIAL DRIVEWAYS.

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

8/2013	/S/ Travis Feltes
DATE	STATE TRAFFIC ENGINEER

FHWA

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S.D.D. 15 D 21-2

LEGEND

- TRAFFIC CONTROL DRUM
- SIGN ON PERMANENT SUPPORT
- DIRECTION OF TRAFFIC
- FLASHING ARROW BOARD
- WORK AREA

GENERAL NOTES

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

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

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

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

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

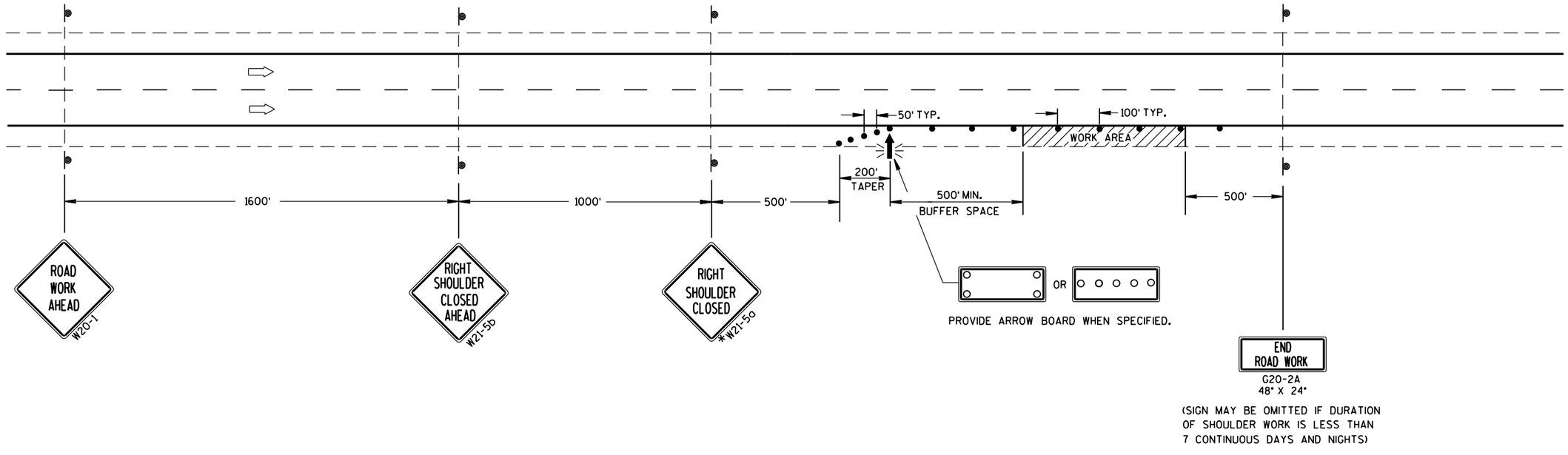
SIGNS THAT WILL BE IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS MAY BE MOUNTED ON PORTABLE SUPPORTS.

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

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

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

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



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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

8/2013 — DATE

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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.

ALL SIGNS ARE 48" X 48" 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 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.

W20-1 AND G20-2A SIGNS ARE NOT REQUIRED IF THE WORK AREA IS WITHIN A LARGER WORK ZONE WHERE THESE SIGNS ARE ALREADY PRESENT. G20-2A SIGNS MAY ALSO BE OMITTED IF DURATION OF WORK IS LESS THAN 7 CONTINUOUS DAYS AND NIGHTS.

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

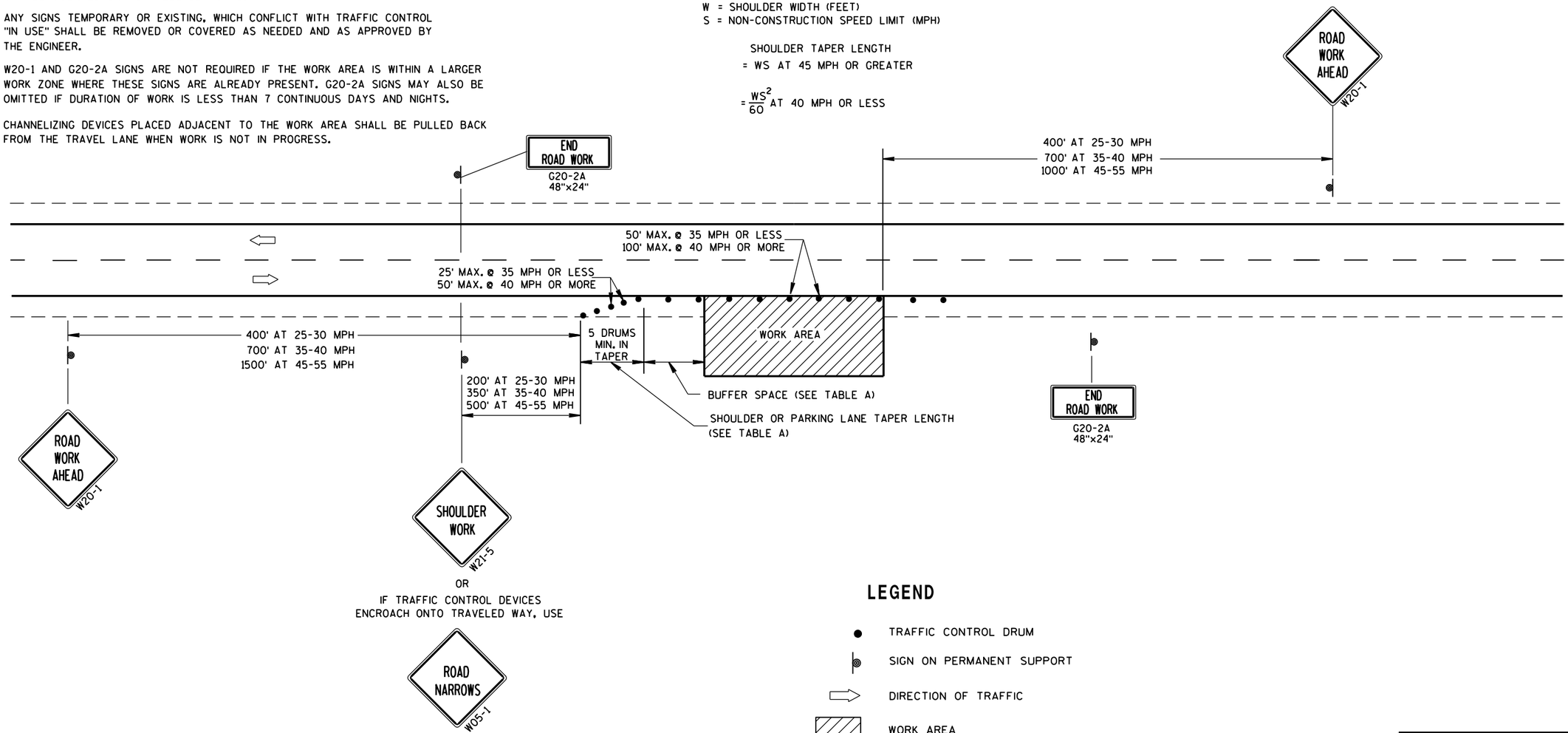
TABLE A

S \ W	SHOULDER TAPER LENGTH (FEET) 4	6	8	10	BUFFER SPACE (FEET)
30	20	30	40	50	85
35	30	45	55	70	120
40	40	55	75	90	170
45	60	90	120	150	220
50	70	100	135	170	280
55	75	110	150	185	335

W = SHOULDER WIDTH (FEET)
S = NON-CONSTRUCTION SPEED LIMIT (MPH)

SHOULDER TAPER LENGTH
= WS AT 45 MPH OR GREATER

$= \frac{WS^2}{60}$ AT 40 MPH OR LESS



LEGEND

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

TRAFFIC CONTROL, WORK ON SHOULDER OR PARKING LANE, UNDIVIDED ROADWAY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

8/2013 DATE

/S/ Travis Feltes
STATE TRAFFIC ENGINEER

FHWA

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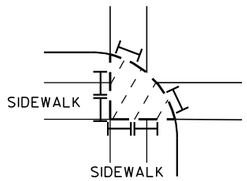
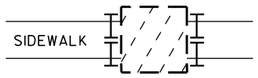
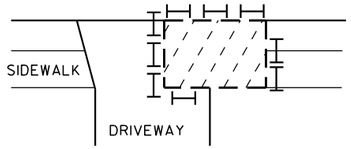
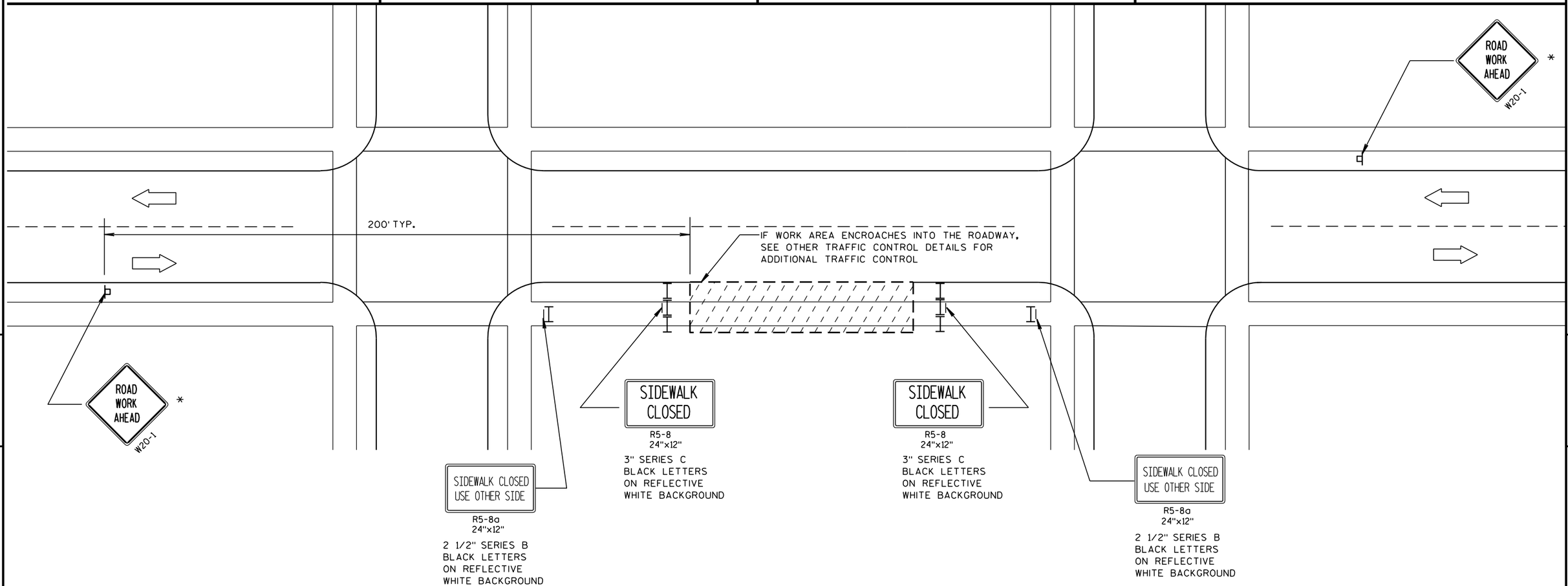
S.D.D. 15 D 28-2

WARNING OF LOCALIZED SIDEWALK WORK AREAS









LEGEND

- POST MOUNTED SIGN
- TYPE II BARRICADE WITH/WITHOUT SIGN (ALL WITH ONE WARNING LIGHT, TYPE A, LOW-INTENSITY FLASHING)
- WORK AREA
- DIRECTION OF TRAFFIC FLOW

GENERAL NOTES :

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

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

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

* "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.

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

TRAFFIC CONTROL, SIDEWALK CLOSURE

TRAFFIC CONTROL, SIDEWALK CLOSURE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
5/23/2000 DATE
/S/ Chester J. [illegible]
CHIEF SIGNS AND MARK[illegible] [illegible]NEER
FHWA

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S.D.D. 15 D 30-1

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